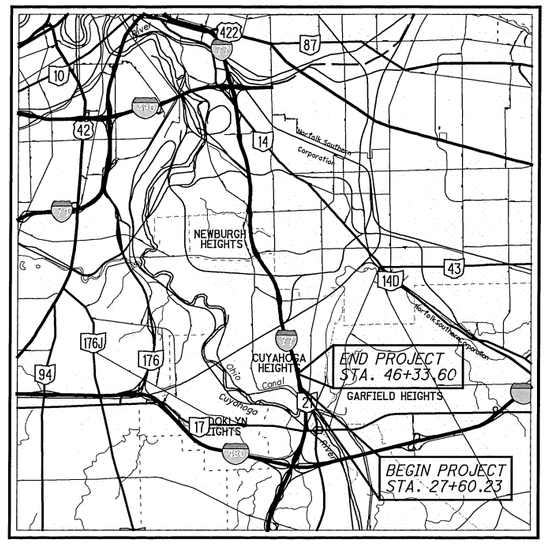


LOCATION MAP

LATITUDE: 41°25'14" LONGITUDE: 81°38'38"

SCALE IN MILES
0 1 2 3 4

N

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

DESIGN DESIGNATION

	S.R. 21	I.R. 77
CURRENT ADT (2016)	7,620	84,010
DESIGN YEAR ADT (2036)	7,620	90,990
DESIGN HOURLY VOLUME (2036)	990	9,099
DIRECTIONAL DISTRIBUTION	100%	55%
TRUCKS (24 HOUR B&C)	8%	8%
DESIGN SPEED (S.R.21)	35 MPH	60 MPH
LEGAL SPEED (S.R.21)	35 MPH	60 MPH
DESIGN FUNCTIONAL CLASSIFICATION:		
URBAN MINOR ARTERIAL (S.R.21)		
URBAN INTERSTATE (I.R.77)		
NHS PROJECT	N/A	

DESIGN EXCEPTIONS

NONE REQUIRED

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

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

PLAN PREPARED BY:

EUTHENICS INC.
CONSULTING ENGINEERS
8235 Mohawk Drive, Strongsville, Ohio

ENGINEERS SEAL:
FOR STRUCTURES 20' & OVER

STATE OF OHIO
RONALD A. BENDER
31771
REGISTERED PROFESSIONAL ENGINEER

SIGNED: Ronald A. Bender
DATE: 10/8/14

ENGINEERS SEAL:
FOR ENTIRE PLAN EXCEPT STRUCTURES 20' & OVER

STATE OF OHIO
JASON L. NEVILLE
E-71025
REGISTERED PROFESSIONAL ENGINEER

SIGNED: Jason L Neville
DATE: 10/8/14

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-21-10.04L

CUYAHOGA HEIGHTS
CUYAHOGA COUNTY

INDEX OF SHEETS:

SHEET 16 NOT USED

PROJECT DESCRIPTION

RELOCATION OF EXISTING RAMP G-1 ON NEW ALIGNMENT OVER I-77 INCLUDING NEW PAVEMENT, DRAINAGE, TRAFFIC CONTROL, RETAINING WALLS AND STRUCTURE.

PROJECT EARTH DISTURBED AREA: 4.45 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.25 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 4.9 ACRES

LIMITED ACCESS

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

2016 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE PART TIME CLOSING OF THE HIGHWAY TO TRAFFIC, AS NOTED ON SHEETS 11-18, DURING WHICH TIME DETOURS WILL BE PROVIDED AS SHOWN HEREIN. PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

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

APPROVED _____
DATE 08-26-16 DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

STANDARD CONSTRUCTION DRAWINGS								SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS
BP-3.1	7/18/14	F-1.1	7/19/13	AS-1-81	1/18/13	MT-95.32	7/18/14	800	7/15/16	
BP-5.1	7/19/13			GSD-1-96	7/19/02	MT-98.29	7/19/13	832	1/17/14	
		MGS-1.1	7/19/13	SBR-1-13	1/17/14	MT-99.30	1/16/15	869	10/17/14	
CB-2.3	1/15/16	MGS-2.1	7/19/13	SICD-1-96	7/18/14	MT-102.10	7/18/14			
CB-3.2	1/15/16	MGS-3.1	7/18/14	VPF-1-90	7/17/15					
CB-3.3	1/15/16	MGS-3.2	1/18/13			TC-41.20	10/18/13			
		MGS-4.2	7/19/13	HL-10.11	1/15/16	TC-52.10	10/18/13			
I-2.2	1/15/16	MGS-4.3	1/18/13	HL-10.12	1/15/16	TC-52.20	7/18/14			
		MGS-5.3	7/15/16	HL-10.13	1/15/16	TC-61.10	1/17/14			
MH-1.2	1/15/16			HL-20.11	1/16/15	TC-61.30	7/18/14			
		RM-4.2	4/18/14	HL-30.11	1/15/16	TC-65.10	1/17/14			
DM-1.1	1/15/16	RM-4.3	7/18/14	HL-30.21	1/17/14					
DM-1.2	1/18/13	RM-4.6	7/19/13	HL-30.22	1/17/14					
DM-4.1	1/15/16			HL-30.31	1/17/14					
DM-4.2	7/20/12			HL-30.32	1/17/14					
DM-4.4	1/15/16			HL-50.21	1/16/15					

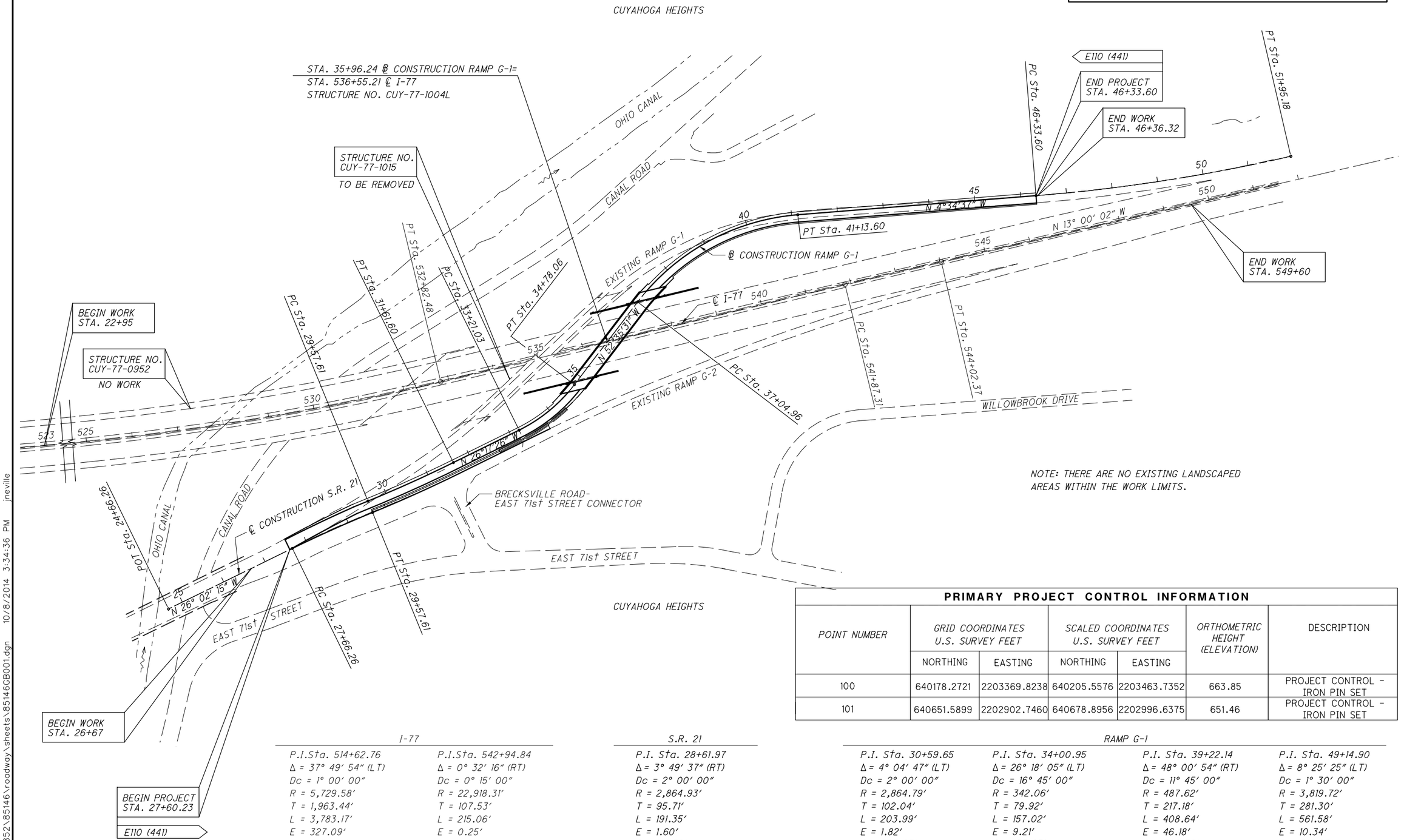
FEDERAL PROJECT NO. E110 (441)
PID NO. 85146
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
CUY-21-10.04L
1/100

F:\Jobs\852\85146\roadway\sheets\85146GT001.dgn

BENCHMARK DATA

BM #1 STA. 33+86.92, ELEV. 663.85, OFFSET 104.26' RT (IRON PIN SET)

BM #2 STA. 40+93.65, ELEV. 651.46, OFFSET 48.45' RT (IRON PIN SET)



NOTE: THERE ARE NO EXISTING LANDSCAPED AREAS WITHIN THE WORK LIMITS.

PRIMARY PROJECT CONTROL INFORMATION

POINT NUMBER	GRID COORDINATES U.S. SURVEY FEET		SCALED COORDINATES U.S. SURVEY FEET		ORTHOMETRIC HEIGHT (ELEVATION)	DESCRIPTION
	NORTHING	EASTING	NORTHING	EASTING		
100	640178.2721	2203369.8238	640205.5576	2203463.7352	663.85	PROJECT CONTROL - IRON PIN SET
101	640651.5899	2202902.7460	640678.8956	2202996.6375	651.46	PROJECT CONTROL - IRON PIN SET

I-77

P.I.Sta. 514+62.76	P.I.Sta. 542+94.84
Δ = 37° 49' 54" (LT)	Δ = 0° 32' 16" (RT)
Dc = 1° 00' 00"	Dc = 0° 15' 00"
R = 5,729.58'	R = 22,918.31'
T = 1,963.44'	T = 107.53'
L = 3,783.17'	L = 215.06'
E = 327.09'	E = 0.25'
C = 3,714.82'	C = 215.06'
C.B. = N 5° 22' 39" E	C.B. = N 13° 16' 10" W

S.R. 21

P.I. Sta. 28+61.97
Δ = 3° 49' 37" (RT)
Dc = 2° 00' 00"
R = 2,864.93'
T = 95.71'
L = 191.35'
E = 1.60'
C = 191.32'
C.B. = N 24° 07' 27" W
e_{max} = 0.021

RAMP G-1

P.I. Sta. 30+59.65	P.I. Sta. 34+00.95	P.I. Sta. 39+22.14	P.I. Sta. 49+14.90
Δ = 4° 04' 47" (LT)	Δ = 26° 18' 05" (LT)	Δ = 48° 00' 54" (RT)	Δ = 8° 25' 25" (LT)
Dc = 2° 00' 00"	Dc = 16° 45' 00"	Dc = 11° 45' 00"	Dc = 1° 30' 00"
R = 2,864.79'	R = 342.06'	R = 487.62'	R = 3,819.72'
T = 102.04'	T = 79.92'	T = 217.18'	T = 281.30'
L = 203.99'	L = 157.02'	L = 408.64'	L = 561.58'
E = 1.82'	E = 9.21'	E = 46.18'	E = 10.34'
C = 203.95'	C = 155.65'	C = 396.79'	C = 561.07'
e_{max} = 0.021	C.B. = N 39° 26' 29" W e_{max} = 0.06	C.B. = N 28° 35' 04" W e_{max} = 0.06	C.B. = N 8° 47' 20" W e_{max} = 0.06

HORIZONTAL SCALE IN FEET
0 50 100 200

SCHEMATIC PLAN

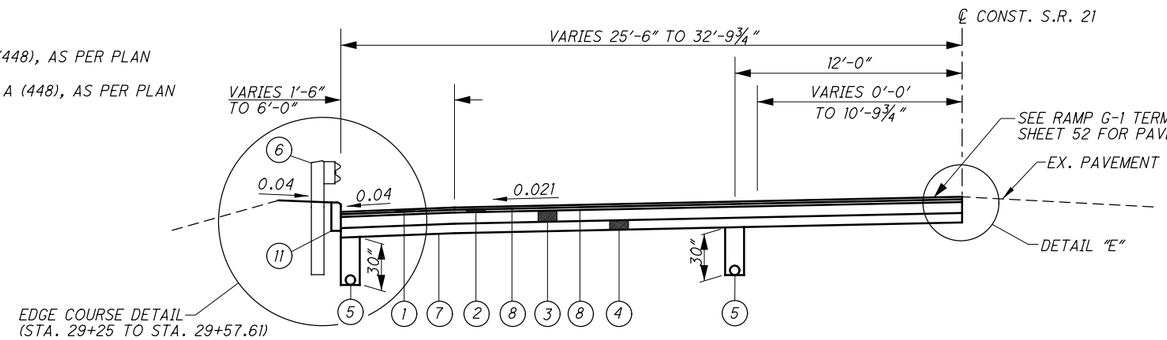
CUY-21-10.04L

2
100

F:\Jobs\852\85146\roadway\sheets\85146GB001.dgn 10/8/2014 3:34:36 PM jneville

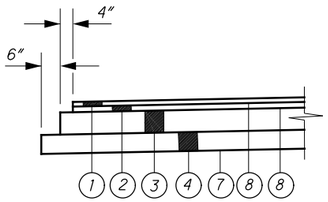
LEGEND

1. ITEM 442 - 1 ½ ASPHALT CONCRETE SURFACE COURSE, 12.5mm, TYPE A (448), AS PER PLAN
2. ITEM 442 - 1¾" ASPHALT CONCRETE INTERMEDIATE COURSE, 19mm, TYPE A (448), AS PER PLAN
3. ITEM 302 - 7" ASPHALT CONCRETE BASE, PG64-22
4. ITEM 304 - 6" AGGREGATE BASE
5. ITEM 605 - 6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP
6. ITEM 606 - GUARDRAIL, TYPE MGS
7. ITEM 204 - SUBGRADE COMPACTION
8. ITEM 407 - TACK COAT, AS PER PLAN
9. NOT USED
10. ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T=17"), AS PER PLAN
11. ITEM 609 - CURB, TYPE 6
12. ITEM 605 - 6" UNCLASSIFIED UNDERDRAIN WITH FABRIC WRAP
13. ITEM 609 - CURB, TYPE 4C
14. ITEM 209 - LINEAR GRADING, AS PER PLAN
15. ITEM 441 - 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (448), (UNDER GUARDRAIL), AS PER PLAN
16. ITEM 204 - GRANULAR MATERIAL TYPE B
17. ITEM 203 - EMBANKMENT, AS PER PLAN
18. ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE 1 ½" MIN.
19. ITEM 690 - SPECIAL - REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS

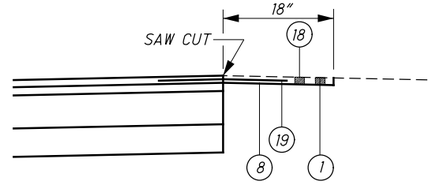


STATE ROUTE 21

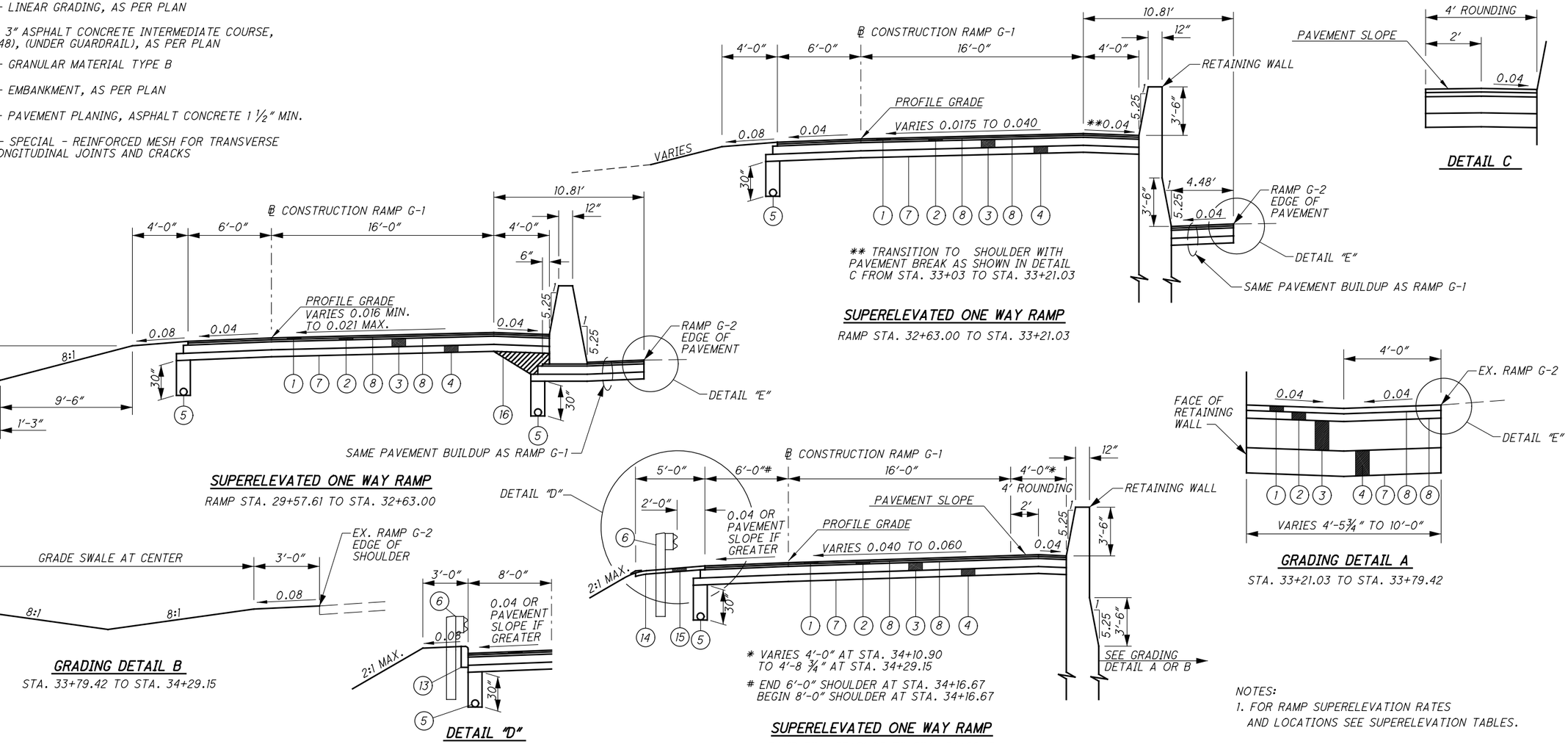
VARIES FROM STA. 27+60.23 TO STA. 29+57.61



EDGE COURSE DETAIL



DETAIL E



SUPERELEVATED ONE WAY RAMP

RAMP STA. 32+63.00 TO STA. 33+21.03

SUPERELEVATED ONE WAY RAMP

RAMP STA. 29+57.61 TO STA. 32+63.00

DETAIL C

GRADING DETAIL A

STA. 33+21.03 TO STA. 33+79.42

GRADING DETAIL B

STA. 33+79.42 TO STA. 34+29.15

DETAIL "D"

* VARIES 4'-0" AT STA. 34+10.90 TO 4'-8 ¾" AT STA. 34+29.15

\# END 6'-0" SHOULDER AT STA. 34+16.67 BEGIN 8'-0" SHOULDER AT STA. 34+16.67

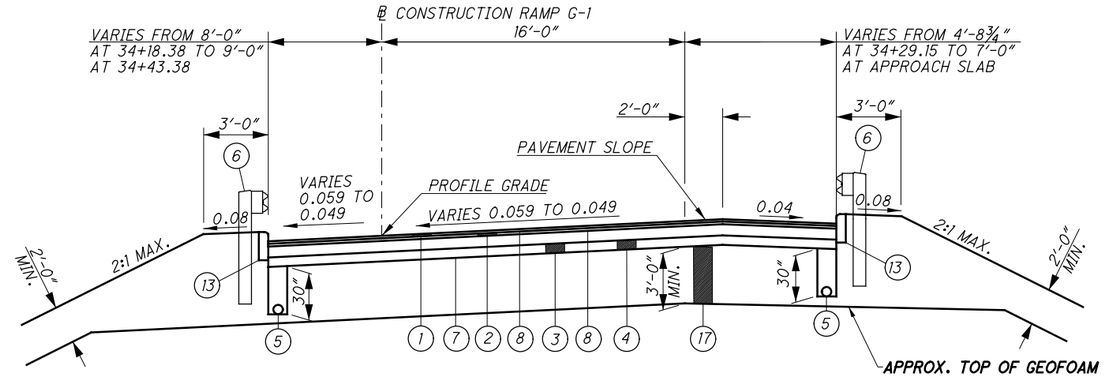
SUPERELEVATED ONE WAY RAMP

RAMP STA. 33+21.03 TO STA. 34+29.15

NOTES:
1. FOR RAMP SUPERELEVATION RATES AND LOCATIONS SEE SUPERELEVATION TABLES.

PROPOSED TYPICAL SECTIONS - RAMPS

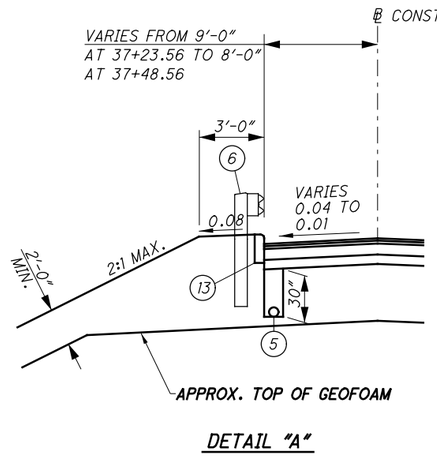
CUY-21-10.04L



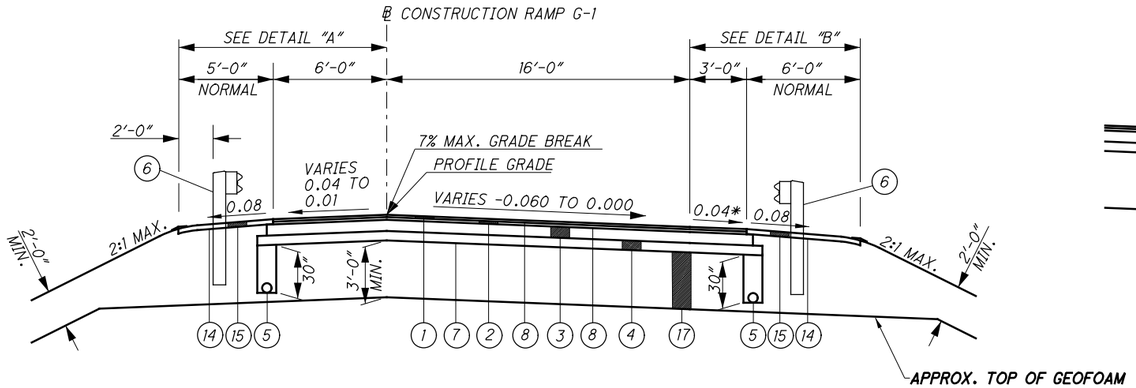
NO CURB BETWEEN STA. 34+46.23 AND STA. 34+61.05

SUPERELEVATED ONE WAY RAMP

RAMP STA. 34+29.15 TO STA. 34+56.71



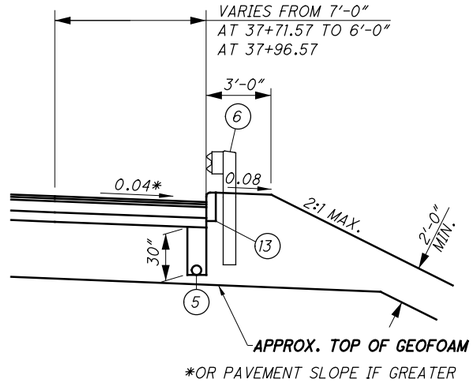
DETAIL "A"



*OR PAVEMENT SLOPE IF GREATER

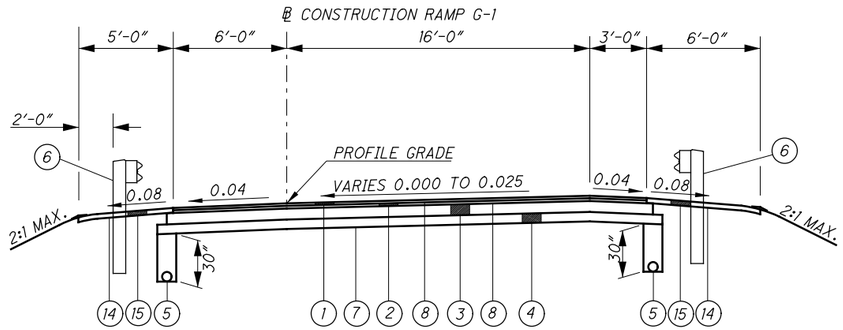
SUPERELEVATED ONE WAY RAMP

RAMP STA. 37+35.77 TO STA. 42+23.71



*OR PAVEMENT SLOPE IF GREATER

DETAIL "B"



*OR PAVEMENT SLOPE IF GREATER

SUPERELEVATED ONE WAY RAMP

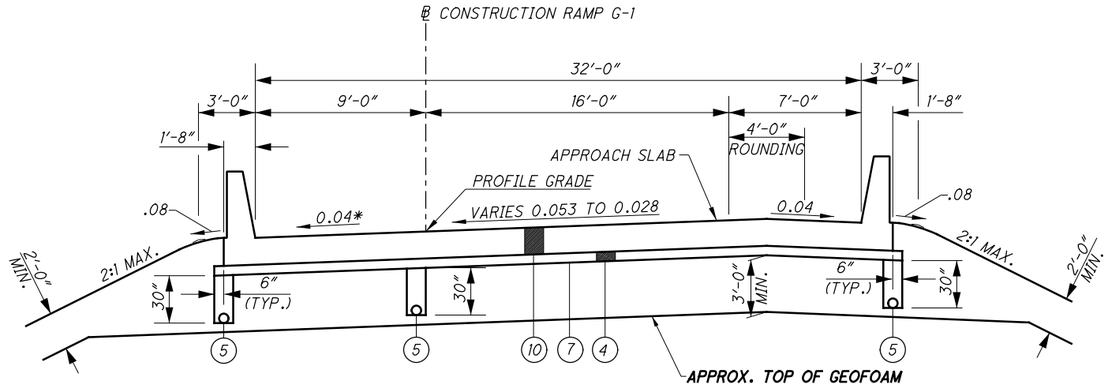
RAMP STA. 42+23.71 TO STA. 46+33.60

FOR LEGEND, SEE SHEET 3.

PROPOSED TYPICAL SECTIONS - RAMPS

CUY-21-10.04L

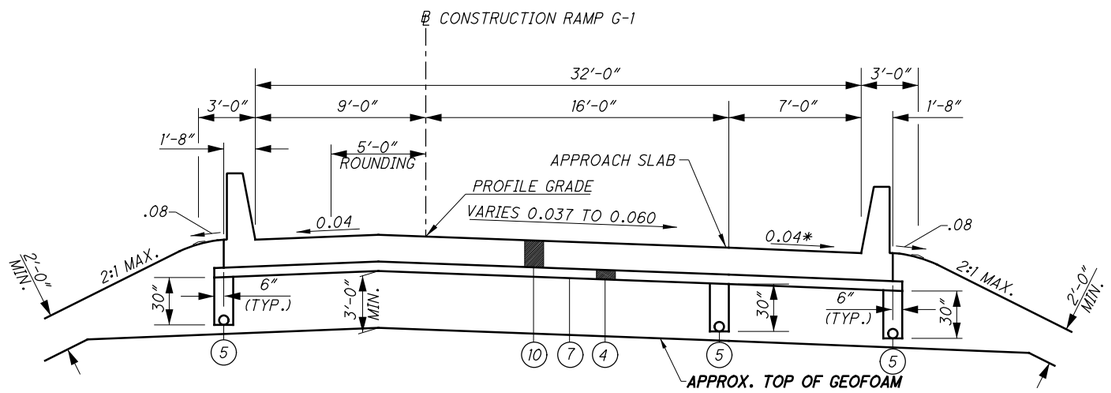
4
100



*OR PAVEMENT SLOPE IF GREATER

APPROACH SLAB

STA. 34+56.71 TO STA. 34+86.71 = 30.00 FT



APPROACH SLAB

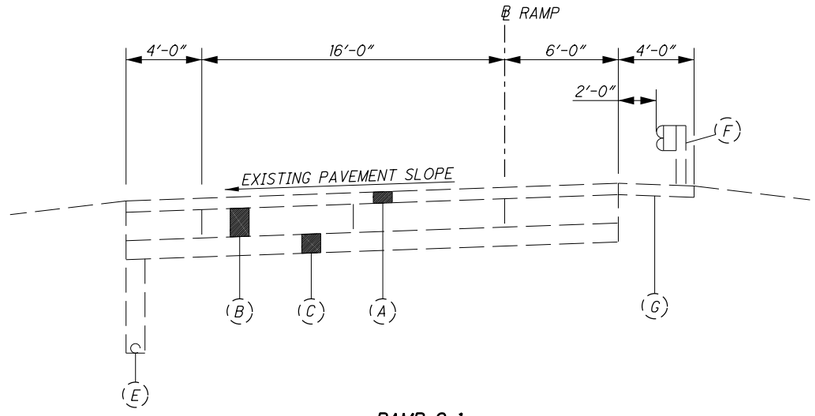
STA. 37+05.77 TO STA. 37+35.77= 30.00 FT

FOR LEGEND, SEE SHEET 3.

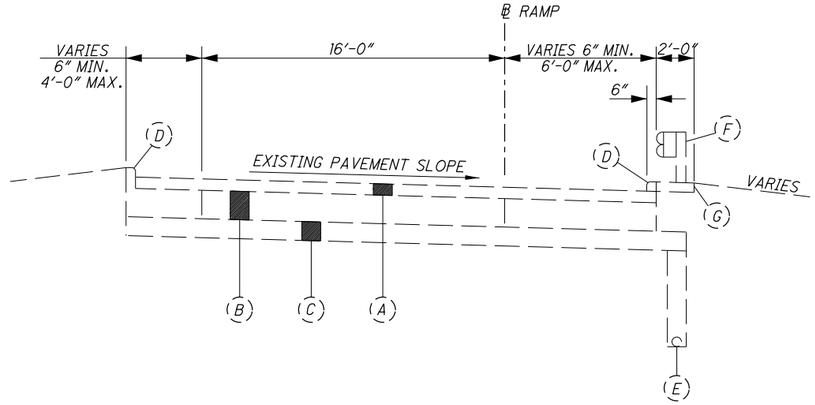
TYPICAL SECTIONS - APPROACH SLABS

PROPOSED TYP

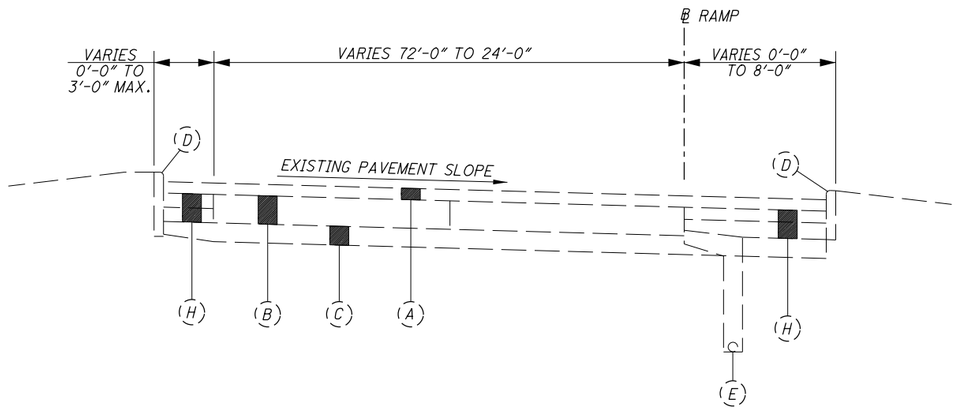
CUY-77-10.04L



RAMP G-1
NORTH OF EXISTING BRIDGE
(LOOKING SOUTHBOUND)



RAMP G-1
SOUTH OF EXISTING BRIDGE
(LOOKING SOUTHBOUND)



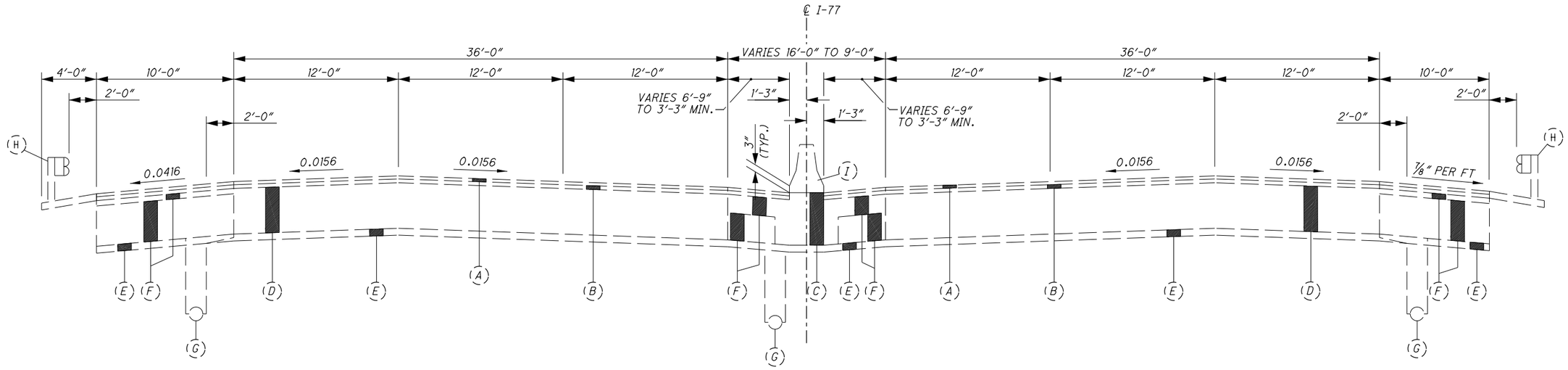
RAMP G-2
SOUTH OF EXISTING BRIDGE
(LOOKING NORTHBOUND)

LEGEND

- (A) 3½″ ASPHALT CONCRETE
- (B) 9″ REINFORCED CONCRETE BASE
- (C) SUBBASE
- (D) CURB
- (E) UNDERDRAIN
- (F) GUARDRAIL
- (G) 3″ ASPHALT UNDER GUARDRAIL
- (H) AGGREGATE BASE

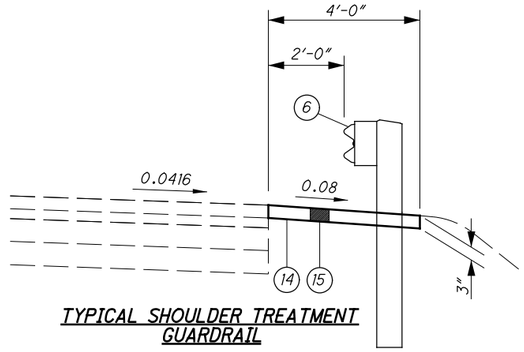
EXISTING TYPICAL SECTIONS - RAMPS

CUY-77-10.04L

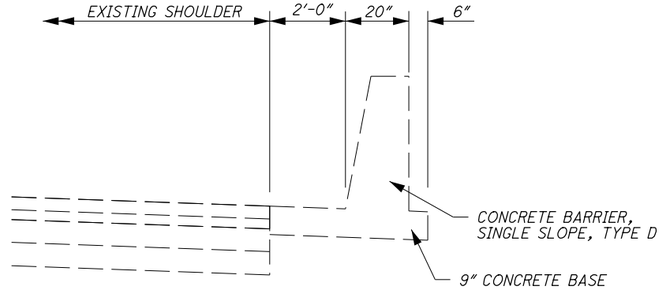


NORMAL SECTION I-77

STA. 532+15 TO STA. 538+14.34

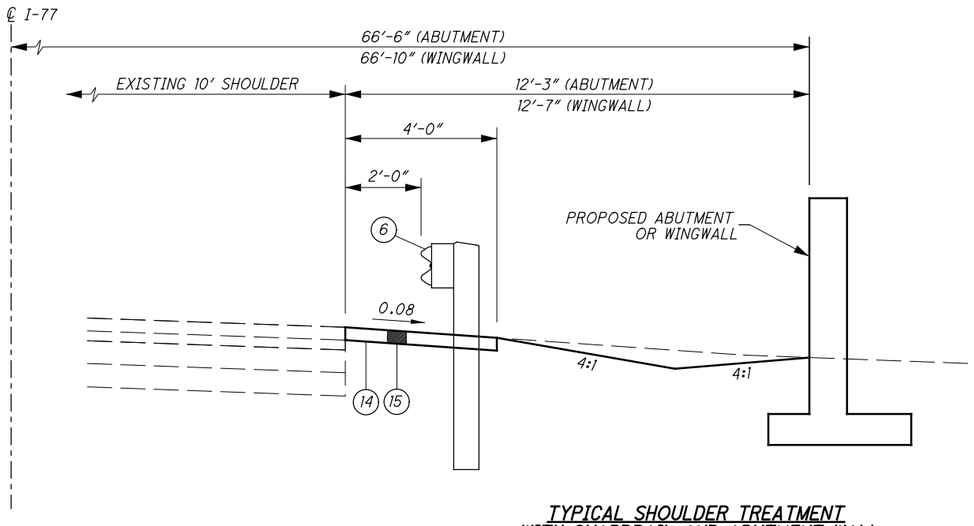


TYPICAL SHOULDER TREATMENT GUARDRAIL



CONCRETE BARRIER DETAIL

STA. 533+68 TO STA. 534+37 (RIGHT SIDE)
STA. 535+74 TO STA. 536+44 (LEFT SIDE)



TYPICAL SHOULDER TREATMENT WITH GUARDRAIL AND ABUTMENT WALL

EXISTING LEGEND

- (A) ITEM 442-1½" ASPHALT CONCRETE SURFACE COURSE, 12.5mm, TYPE A (446), AS PER PLAN
- (B) ITEM 442-2" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
- (C) 9" CONCRETE BASE
- (D) 10" REINFORCED CONCRETE BASE
- (E) SUBBASE
- (F) BITUMINOUS AGGREGATE BASE OR AGGREGATE BASE
- (G) UNDERDRAIN
- (H) GUARDRAIL
- (I) MEDIAN BARRIER

FOR PROPOSED LEGEND, SEE SHEET 3.

EXISTING AND PROPOSED TYPICAL SECTIONS - I-77

CUY-21-10.04L

ROUNDING

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

UTILITIES

ALL BIDDERS SHALL FOLLOW OSHA RULE 1626.21 (20' RULE).

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

THE ILLUMINATING COMPANY
6896 MILLER ROAD
BRECKSVILLE, OHIO 44141
CONTACT: MARK ROBINSON
PHONE: 440-717-6845
robinsonme@firstenergycorp.com

VILLAGE OF CUYAHOGA HEIGHTS
DONALD G. BOHNING & ASSOCIATES, INC.
7979 HUB PARKWAY
VALLEY VIEW, OHIO 44125
CONTACT: PAUL E. DEY
PHONE: 216-642-1130 EXT: 104
FAX 216-642-1132

NORTHEAST OHIO REGIONAL SEWER DISTRICT(NEORSD)
3820 EUCLID AVENUE
CLEVELAND, OHIO 44115
CONTACT: BRIAN PAGE
PHONE: 216-881-6600
page@NEORSD.org

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

WORK LIMITS

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

EXISTING PLANS

EXISTING PLANS ENTITLED CUY-77-9.51, CUY-90-18.03/VAR, D12-BH-FY2004, D12 BH FY2006 AND CUY-77-8.46 ARE AVAILABLE FOR REVIEW AT THE DISTRICT 12 OFFICE AND ONLINE THROUGH THE FOLLOWING ODOT WEBSITE:
ftp://ftp.dot.state.oh.us/pub/Contracts/Attach/CUY-85416

CLEARING AND GRUBBING

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

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET 2 OF THE PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

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

PROJECT CONTROL

POSITIONING METHOD: STATIC GNSS
MONUMENT TYPE: B

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID03

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83(2007)
ELLIPSOID: GRS80
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE -NORTH ZONE
COMBINED SCALE FACTOR: 1.000042622
ORIGIN OF COORDINATE SYSTEM: 0,0

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

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

BENCHING OF FOUNDATION SLOPES

ALTHOUGH CROSS-SECTIONS INDICATE SPECIFIC DIMENSIONS FOR PROPOSED BENCHING OF THE EMBANKMENT FOUNDATIONS IN CERTAIN AREAS, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. BENCH ALL OTHER SLOPED EMBANKMENT AREAS AS SET FORTH IN 203.05. NO ADDITIONAL PAYMENT WILL BE MADE FOR BENCHING REQUIRED UNDER THE PROVISIONS OF 203.05

NOTIFICATION NOTE

THE CONTRACTOR SHALL NOTIFY THE ENGINEER, THE RESPONSIBLE LAW ENFORCEMENT AGENCIES AND THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 12 PUBLIC INFORMATION OFFICE ((216) 584-2007) BY EMAIL AT D12.PUBLICINFORMATION@DOT.STATE.OH.US OR BY FAX AT 216-584-3524 NOT LESS THAN TWENTY FOUR (24) HOURS PRIOR TO A SCHEDULED DISRUPTION OF TRAFFIC.

THE CONTRACTOR SHALL ALSO NOTIFY IN WRITING THE FOLLOWING AGENCIES AT LEAST TWO (2) WEEKS PRIOR TO IMPLEMENTING ANY SUBSTANTIAL CHANGE IN TRAFFIC PATTERN OR CLOSING OF ANY STREET TO TRAFFIC.

VILLAGE OF CUYAHOGA HEIGHTS

MAYOR & VILLAGE HALL	(216) 641-7020
POLICE DEPARTMENT	(216) 883-6800
FIRE DEPARTMENT	(216) 641-6799
SERVICE DEPARTMENT	(216) 641-3505

ESTIMATED 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.

ITEM 202 - PAVEMENT REMOVED

THIS ITEM SHALL CONSIST OF THE REMOVAL OF ALL CONCRETE PAVEMENT, ASPHALT CONCRETE PAVEMENT, AND ASPHALT ITEM 202 - PAVEMENT REMOVED CONCRETE SHOULDER FROM THE SURFACE TO THE BOTTOM OF THE PAVEMENT COURSES AS SHOWN ON THE PLANS.

PAYMENT FOR THIS WORK SHALL BE MADE AT THE UNIT PRICE BID PER SQUARE YARD FOR ITEM 202, PAVEMENT REMOVED, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO REMOVE AND DISPOSE OF THE MATERIAL.

ITEM 203 - ROADWAY MISC.: EPS GEOFOAM FILL

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND PLACING EPS GEOFOAM CONFORMING TO ASTM D6817 TYPE EPS 29 GEOFOAM AND ASTM C-578 TYPE IX. THE MATERIAL SHALL HAVE A MINIMUM DENSITY OF 1.80 POUNDS PER CUBIC FEET, AND A COMPRESSIVE RESISTANCE OF 10.9 PSI AT 1% STRAIN DEFORMATION.

ALL EPS GEOFOAM BLOCKS SHALL BE TREATED BY THE MANUFACTURER WITH A TESTED AND PROVEN TERMITE TREATMENT FOR BELOW GRADE APPLICATIONS. THE TREATMENT SHALL BE EPA REGISTERED, MEET REQUIREMENTS OF ICC ES AC239, AND BE RECOGNIZED IN AN ICC ES REPORT.

PRIOR TO ORDERING THE MATERIAL FOR THIS ITEM OF WORK, THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH THE FOLLOWING ITEMS:

-EPS GEOFOAM MANUFACTURERS PRODUCT LITERATURE AND TECH DATA INCLUDING PHYSICAL PROPERTIES IN COMPLIANCE WITH ASTM D 6817 TYPE SPECIFIED AND ASTM C 578 TYPE SPECIFIED.

-SUMMARY OF TEST COMPLIANCE WITH SPECIFIED PERFORMANCE CHARACTERISTICS AND PHYSICAL PROPERTIES.

-PRODUCT CERTIFICATE SHOWING EVIDENCE OF THIRD PARTY QUALITY CONTROL.

A SIGNED/NOTARIZED CERTIFICATION FROM THE MANUFACTURER THAT THEIR EPS GEOFOAM MATERIAL MEETS THE PLAN REQUIREMENTS

-SHOP DRAWINGS SHOWING BLOCK THICKNESS, WIDTH, LENGTH, AND LAYING PATTERN OR SCHEDULE.

A GEOMEMBRANE SHALL BE PLACED ON THE TOP AND SIDES OF THE GEOFOAM FILL. THE MATERIAL SHALL BE TRI-POLYMER CONSISTENT WITH POLYVINYL CHLORIDE, ETHYLENE INTERPOLYMER ALLOY, AND A POLYURETHANE OR A COMPARABLE POLYMER COMBINATION. THE MATERIAL SHALL MEET THE FOLLOWING PHYSICAL AND CHEMICAL REQUIREMENTS.

-THICKNESS: MIN. 28 MILS (ATSM D 751)
-UNLEADED GASOLINE VAPOR MAXIMUM 0.40 TRANSMISSION RATE, OZ. PER SQUARE PER 24 HOURS (ASTM D 814)
-GRAB TNESILE STRENGTH: MIN. 600 LBS. BOTH MACHINE AND CROSS DIRECTION (1" GRIP 4' x 8' SAMPLE ASTM D 571)
-ELONGATION AT BREAK: 20% MIN. (ASTM D 571)
-TOUGHNESS: 14,000 MIN. (GRAB TENSILE x PERCENT ELONGATION)
-PUNCTURE RESISTANCE: 800 LB. MIN. (ASTM D 751 BALL TIP)
-COLD CRACK: PASS -30° FAHRENHEIT (ASTM D 2136 1" MANDREL, 4 HR)
-FACTORY SEAMS: 2 INCH MIN. BONDED WIDTH
-SHEAR: 320 LBS. MIN. (ASTM D 751)

A SIGNED/NOTARIZED CERTIFICATION OF COMPLIANCE SHALL BE FURNISHED BY THE MANUFACTURER STATING THE SELECTED GEOMEMBRANE HAS BEEN TESTED AND MEETS THE ABOVE REQUIREMENTS. JOINTS IN THE GEOMEMBRANE WRAP SHALL BE LAPPED A MINIMUM OF 18 INCHES.

THE GEOFOAM FILL SHALL BE PLACED ON A GRANULAR BASE OF GRANULAR MATERIAL CONFORMING TO SIZE NO. 9 OF TABLE 703.01-1 OF THE CMS. THE GRANULAR BASE SHALL ALSO BE PLACED ALONG THE SIDES OF THE GEOFOAM FILL THAT ARE IN CONTACT WITH SOIL.

CARE SHALL BE TAKEN TO PROTECT THE GEOFOAM BLOCKS FROM EXPOSURE TO GASOLINE, SOLVENT NAPHTHA, FUEL OIL, MINERAL OIL, TURPENTINE, OR ANY OTHER SOLVENT. THE BLOCKS SHALL ALSO BE PROTECTED FROM EXPOSURE TO ANY HEAT SOURCE WHICH WOULD REACH 175 DEGREES (F). GEOFOAM SHALL BE STORED ABOVE GROUND, AND PROTECTED FROM MOISTURE AND SUNLIGHT PRIOR TO INSTALLATION.

DAMAGE TO GEOFOAM SHALL BE CORRECTED AS FOLLOWS:

SLIGHT DAMAGE (< 0.12 CU FT) WITH NO LINEAR DIMENSION GREATER THAN 1 FOOT MAY BE LEFT IN PLACE AS IS.

MODERATE DAMAGE (< 0.35 CU FEET) WITH NO LINEAR DIMENSION GREATER THAN 1 FOOT SHALL BE FILLED IN WITH SAND.

GEOFOAM BLOCKS WITH EXCESSIVE DAMAGE (I.E. EXCEEDING THE MODERATE CATEGORY) SHALL BE REPLACED WITH GEOFOAM BLOCKS WHICH MEET THE DAMAGE CRITERIA. GEOFOAM BLOCKS NOT MEETING THE CRITERIA MAY BE CUT TO ELIMINATE THE EXCESSIVE DAMAGE AND THE REMAINING UNDAMAGED PORTION OF THE BLOCK MAY BE USED WITHIN THE FILL, PROVIDED THE UNDAMAGED PORTION OF THE BLOCK MEETS ALL OTHER REQUIREMENTS.

SEE SHEETS 59 & 60 FOR SITE PREPARATION, AREA OF APPLICATION, AND EMBANKMENT TO BE PLACED ON TOP OF THE GEOFOAM BLOCKS.

PLACEMENT

THE SURFACE OF A LAYER OF GEOFOAM BLOCKS TO RECEIVE ADDITIONAL GEOFOAM BLOCKS SHALL BE CONSTRUCTED WITH A VARIATION IN SURFACE TOLERANCE OF NO MORE THAN 1/2" IN ANY 10 FOOT INTERVAL. ALL BLOCKS SHALL BE ACCURATELY FIT RELATIVE TO ADJACENT BLOCKS. NO GAPS GREATER THAN 1" WILL BE ALLOWED ON VERTICAL JOINTS. THE FINISHED SURFACE OF THE GEOFOAM FILL BENEATH PAVEMENT SECTIONS SHALL BE CONSTRUCTED TO WITHIN THE TOLERANCE OF ZERO MINUS 2.5" OF THE INDICATED GRADE.

BLOCKS PLACED IN A ROW IN A PARTICULAR LAYER SHALL BE OFFSET 2 FEET RELATIVE TO BLOCKS PLACED IN ADJACENT ROWS OF THE SAME LAYER. IN ORDER TO AVOID CONTINUOUS JOINTS, EACH SUBSEQUENT LAYER OF BLOCKS SHALL BE ROTATED ON THE HORIZONTAL PLANE 90 DEGREES FROM THE DIRECTION OF PLACEMENT OF THE PREVIOUS LAYER.

THE LONGITUDINAL AXES OF THE UPPERMOST LAYER OF BLOCKS MUST BE PERPENDICULAR TO THE LONGITUDINAL AXIS OF THE ROAD ALIGNMENT.

CONNECTOR PLATES SHALL BE PLACED BETWEEN HORIZONTAL LAYERS OF BLOCK. A MINIMUM OF TWO CONNECTOR PLATES SHALL BE USED BETWEEN BLOCKS.

CONNECTORS SHALL BE GALVANIZED STEEL OR STAINLESS STEEL TWO SIDED MULTI-BARBED CONNECTORS. EACH CONNECTOR SHALL HAVE A LATERAL HOLDING STRENGTH OF AT LEAST 60 LBS. PROVIDE A SIGNED/NOTARIZED CERTIFICATION FROM THE MANUFACTURER THAT THE CONNECTOR PLATES MEET MATERIAL, DESIGN AND STRENGTH REQUIREMENTS OF THESE PLANS.

BLOCKS SHALL BE CUT USING A SAW OR HOT WIRE.

NO VEHICLE OR CONSTRUCTION EQUIPMENT SHALL TRAVERSE DIRECTLY ON THE EPS BLOCKS OR ON ANY SEPARATION MATERIAL PLACED BETWEEN THE EPS BLOCKS AND THE PAVEMENT SYSTEM. SOIL FOR THE PAVEMENT SYSTEM SHALL BE PUSHED ONTO THE EPS BLOCKS OR SEPARATION LAYER USING APPROPRIATE EQUIPMENT. A MINIMUM OF 12 INCHES OF FILL SHALL COVER THE TOP OF THE GEOFOAM BLOCK OR SEPARATION LAYER BEFORE COMPACTION COMMENCES. THE CONTRACTORS EQUIPMENT USED DURING COMPACTION SHALL NOT PLACE A PRESSURE GREATER THAN 18 PSI ON THE GEOFOAM BLOCKS AT ANY TIME DURING CONSTRUCTION. ANY DAMAGE TO THE GEOFOAM BLOCKS RESULTING FROM THE CONTRACTORS VEHICLES, EQUIPMENT, OR OPERATIONS SHALL BE REPLACED BY THE CONTRACTOR.

PAYMENT FOR THIS ITEM OF WORK SHALL BE PAID FOR BY THE UNIT PRICE BID PER CUBIC YARD OF ITEM SPECIAL ROADWAY MISC.: EPS GEOFOAM FILL, WHICH PRICE AND PAYMENT INCLUDE ALL MATERIALS, SITE PREPARATION (EXCLUDING EXCAVATION), GRANULAR BASE, GEOMEMBRANE WRAP, TOOLS, EQUIPMENT, AND LABOR TO COMPLETE THIS ITEM OF WORK IN PLACE.

ITEM 204 - PROOF ROLLING

THE FOLLOWING QUANTITY IS PROVIDED IN THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING.

ITEM 204 - PROOF ROLLING 3 HOURS

ITEM SPECIAL - FOUNDATION EXCAVATION

PREPARATION OF THE FOUNDATION FOR THE GEOFOAM BRIDGE APPROACH EMBANKMENTS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 10 OF THE RECOMMENDED EPS-BLOCK GEOFOAM STANDARD FOR LIGHTWEIGHT FILL IN ROADWAY EMBANKMENTS AND BRIDGE APPROACH FILLS ON SOFT GROUND IN NCHRP 529.

THE DEPARTMENT WILL MEASURE FOUNDATION EXCAVATION ACCORDING TO 203.09

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITY AT THE CONTRACT PER CUBIC YARD FOR ITEM SPECIAL FOUNDATION EXCAVATION.

ITEM 203 - EMBANKMENT, AS PER PLAN

THE MATERIAL USED FOR THIS ITEM SHALL BE RESTRICTED TO NATURAL SOILS WITH CLASSIFICATIONS A-6-a, A-6-b OR A-7-6 TO PROVIDE A COHESIVE SOIL CAP FOR THE GEOFOAM.

CALCULATED NNB CHECKED JLN

GENERAL NOTES

CUY-21-10.04L

ITEM 619 - FIELD OFFICE, TYPE C, AS PER PLAN

A TYPE C FIELD OFFICE IS REQUIRED FOR THIS PROJECT:

IN ADDITION TO THE REQUIREMENT AS DESCRIBED IN ITEM 619 OF THE CMS, THE FIELD OFFICE SHALL INCLUDE BROADBAND CABLE ACCESS WITH A MINIMUM 10 MBPS DOWNLOAD AND 3 MBPS UPLOAD SPEEDS.

ITEM 619 - FIELD OFFICE, TYPE C, AS PER PLAN 22 MONTHS

PROTECTION OF RIGHT-OF-WAY LANDSCAPING

PRIOR TO BEGINNING WORK, THE CONTRACTOR, THE PROJECT ENGINEER, AND A REPRESENTATIVE OF THE MAINTAINING AGENCY WILL REVIEW AND RECORD ALL LANDSCAPING ITEMS WITHIN THE RIGHT OF WAY (BOTH WITHIN AND OUTSIDE THE CONSTRUCTION LIMITS) A RECORD OF THIS REVIEW WILL BE KEPT IN THE PROJECT ENGINEER S FILES. PRIOR TO FINAL ACCEPTANCE, A FINAL REVIEW OF LANDSCAPING ITEMS WILL BE MADE.

CONSTRICT ALL ACTIVITIES, EQUIPMENT STORAGE, AND STAGING TO WITHIN THE CONSTRUCTION LIMITS. UNLESS OTHERWISE IDENTIFIED IN THE PLANS OR PROPOSAL, THE CONSTRUCTION LIMITS ARE IDENTIFIED AS 30 FEET FROM THE EDGE OF PAVEMENT.

SUBMIT A WRITTEN REQUEST TO THE PROJECT ENGINEER TO USE ANY AREA OUTSIDE THESE LIMITS. THE DOCUMENT SUBMITTED MUST CLEARLY IDENTIFY THE AREA AND EXPLAIN THE PROPOSED USE AND RESTORATION OF THE AREA. USE OF THESE AREAS FOR DISPOSAL OF WASTE MATERIAL AND CONSTRUCTION DEBRIS, EXCAVATION OF BORROW MATERIAL AND PLACEMENT OF PORTABLE PLANTS IS PROHIBITED. THE REQUEST MUST BE APPROVED, IN WRITING, BEFORE THE CONTRACTOR HAS PERMISSION TO USE THE AREA.

ANY ITEMS DAMAGED BEYOND THE CONSTRUCTION LIMITS AS DEFINED ABOVE WILL BE REPLACED IN KIND OR AS APPROVED BY THE PROJECT ENGINEER.

ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. SHAPE THE SUBGRADE TO WITHIN 0.2 FEET OF THE PLAN SUBGRADE ELEVATION.
2. EXCAVATE AND REPLACE UNSUITABLE SUBGRADE BEFORE PROOF ROLLING. THE EXCAVATION LIMITS ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSUITABLE SUBGRADE. UNSUITABLE SUBGRADE INCLUDES UNSUITABLE SOIL (A-4B, A-2-5, A-5, A-7-5, AND SOIL WITH A LIQUID LIMIT GREATER THAN 65) AND ANY COAL, SHALE, OR ROCK WHICH NEEDS TO BE REMOVED ACCORDING TO 204.05.

   IF THERE IS UNSUITABLE SUBGRADE IN A SHALLOW FILL LOCATION, EXCAVATE AND REPLACE THE UNSUITABLE SUBGRADE BEFORE CONSTRUCTING THE SHALLOW FILL AND SHAPING THE SUBGRADE.
3. COMPACT THE SUBGRADE ACCORDING TO 204.03.
4. APPROXIMATE LIMITS FOR EXCAVATION OF UNSTABLE SUBGRADE ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSTABLE SUBGRADE. THE ENGINEER WILL IDENTIFY THE ACTUAL LIMITS OF EXCAVATION FOR UNSTABLE SUBGRADE BASED ON THE PROOF ROLLING RESULTS AND VISUAL OBSERVATIONS.

   PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO 204.06.
5. EXCAVATE UNSTABLE SUBGRADE AS DIRECTED BY THE ENGINEER AND STABILIZE BY REPLACING WITH THE SPECIFIED MATERIALS ACCORDING TO 204.07. EXCAVATIONS WILL EXTEND 18 INCHES BEYOND THE EDGE OF THE SURFACE OF THE PAVEMENT, PAVED SHOULDERS, OR PAVED MEDIANS.
6. PROOF ROLL THE STABILIZED AREAS ACCORDING TO 204.06 TO VERIFY STABILITY.
7. FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

   THE QUANTITIES FOR EXCAVATING THE UNSUITABLE SUBGRADE AND UNSTABLE SUBGRADE ARE BOTH PAID UNDER ITEM 204 EXCAVATION OF SUBGRADE.

ITEM 442 - ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (448), AS PER PLAN

THE COARSE VIRGIN AGGREGATE FOR THIS ITEM SHALL BE LIMITED TO AIR COOLED BLAST FURNACE SLAG (ACBFS) OR TRAP ROCK FROM ONTARIO.

USE A PB-76-22M BINDER FOR THIS ITEM

A THIRD ROLLER IS REQUIRED FOR PAVING OPERATIONS. THE ROLLER SHALL CONFORM TO THE REQUIREMENTS OF 401.13.

ITEM 442 - ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (448), AS PER PLAN

FOR THIS ITEM, A THIRD ROLLER IS REQUIRED FOR PAVING OPERATIONS. THE ROLLER SHALL CONFORM TO THE REQUIREMENTS OF 401.13.

ITEM 407 - TACK COAT, AS PER PLAN

THE RATE OF APPLICATION OF ITEM 407 - TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.055 GAL/SY OF TACK COAT FOR ESTIMATION PURPOSES ONLY.

THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE BRIDGE BY SANDING THE DECK OR USING OTHER METHODS, APPROVED BY THE ENGINEER, TO PREVENT TRACKING OF TACK COAT OR ASPHALT BINDER ONTO THE NEW CONCRETE BRIDGE DECK THESE ITEMS SHALL ALSO INCLUDE REMOVAL AND PROPER DISPOSAL OF THE SAND AFTER THE COMPLETION OF PAVING OPERATIONS.

PAYMENT WILL BE MADE AT THE UNIT CONTRACT BID PRICE PER GALLON FOR ITEM 407 TACK COAT, AS PER PLAN AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK AS DESCRIBED ABOVE.

ASPHALT CONCRETE SURFACE COURSE SEALING REQUIREMENTS:
IN ADDITION TO THE GUTTER SEALING REQUIREMENTS SPECIFIED ON SCD BP-3.1 AND IN 401.15, AFTER COMPLETION OF THE SURFACE COURSE, THE CONTRACTOR SHALL SEAL, WITH A CERTIFIED PG BINDER, 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 TRANSVERSE CONSTRUCTION JOINTS PER 401.17.
-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 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.

ITEM 623 - CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN

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.

ITEM 606 - IMPACT ATTENUATOR, TYPE 2, (BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE TYPE 2 IMPACT ATTENUATORS AS LISTED ON THEOFFICE OF ROADWAY ENGINEERING'S WEB PAGE. WHEN BI-DIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, IMPACT ATTENUATOR, TYPE 2 (SPEED (IN MPH), HAZARD WIDTH (IN INCHES), (UNIDIRECTIONAL OR BIDIRECTIONAL)), EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS/BACKSTOPS, TRANSITIONS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

CONTINGENCIES NEEDED TO CONSTRUCT A COMPLETE DEVICE:

-DESIGN SPEED: 35 MPH
-WIDTH OF HAZARD: 24 INCHES
-AVAILABLE FOOT PRINT AREA FOR THIS PRODUCT:
15' LONG x 10' WIDE
-FOUNDATION TYPE: ASPHALT
-TRANSITION TYPE: CONCRETE BARRIER
-BACKUP SUPPORT PER SCD RM-4.6

PAVING UNDER GUARDRAIL
ITEM 441 - ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (448), (UNDER GUARDRAIL), AS PER PLAN

THIS OPERATION SHALL INCLUDE PREPARATION OF THE GRADED SHOULDER 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 AFTER FINAL LEVELING AND GRADING HAS BEEN COMPLETED. THE APPLICATION SHALL BE JUST PRIOR TO PAVING AND SHALL STRICTLY ADHERE TO THE MANUFACTURER'S INSTRUCTIONS.

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 APPLICATORS LICENSES SHALL BE SUBMITTED TO THE ENGINEER FOR VERIFICATION PRIOR TO COMMENCING WORK.

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 LABOR, EQUIPMENT, AND MATERIALS 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.

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 RAIL SPLICE" AS SHOWN IN AASHTO M 180. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

ITEM 606 - ANCHOR ASSEMBLY, MGS TYPE E

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

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

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 31 INCHES FROM THE EDGE OF THE SHOULDER.

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

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, 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.

FENCE LENGTHS

THE LENGTHS OF FENCE SHOWN IN THE PLANS ARE HORIZONTAL DIMENSIONS. MEASUREMENTS OF THE FINAL QUANTITIES SHALL BE MADE IN ACCORDANCE WITH ITEM 607. WHEN CONNECTING PROPOSED FENCE TO EXISTING FENCE, EXISTING POST HAVE NOT BEEN PRECISELY IDENTITIED. FIELD ADJUSTMENTS MAY BE NECESSARY.

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 AND ACCUMULATED SOIL UNDER GUARDRAIL.

A SAWCUT WILL BE PERFORMED, WHEN APPLICABLE, TO ASSIST THE REMOVAL OF EXISTING ASPHALT UNDER GUARDRAIL AND MINIMIZE DAMAGE TO EXISTING SHOULDER ASPHALT. PAYMENT FOR SAWCUTTING WILL BE INCLUDED IN THE 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.

CALCULATED NNB CHECKED JLN

GENERAL NOTES

CUY-21-10.04L

ITEM 690 - SPECIAL REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS

THIS WORK CONSISTS OF PLACEMENT OF A SELF ADHESIVE GLASS FIBER MESH OVER JOINTS AND CRACKS DESIGNATED IN THE PLAN AFTER PLACEMENT OF THE INTERMEDIATE COURSE AND PRIOR TO PLACEMENT OF THE SURFACE COURSE.

FURNISH KNITTED GLASS FIBER STRAND MESH MEETING THE FOLLOWING PROPERTIES:

PROPERTIES: GLASGRID (NO. 8502) OR APPROVED EQUAL

MATERIAL - FIBER GLASS REINFORCEMENT COATED WITH AN ELASTROMERIC POLYMER.
MATERIAL WIDTH.....2.5 FT.
TENSILE STRENGTH PER ASTM D6637
ACROSS WIDTH.....1120 LBS/IN
ACROSS LENGTH.....560 LBS/IN
ELONGATION AT BREAK (MIN) PER ASTM D6637.....< 3%
MELTING POINT (MIN) PER ASTM D276.....> 425F
MASS/UNIT AREA (MIN) PER ASTM D5261-92.....16 OZ./SQ. YD.
GRID PATTERN.....0.5 IN X 0.5 IN.

BEFORE INSTALLATION, SUBMIT A LETTER TO THE ENGINEER WITH A STATEMENT CERTIFYING MATERIAL RECEIVED MEETS THE ABOVE PROPERTIES. SUBMIT TO THE ENGINEER ACTUAL DATED (SALES FLYER DATA NOT ACCEPTABLE) TEST DATA WITH THE CERTIFICATION LETTER.

ENSURE ALL AREAS WHERE MESH IS TO BE PLACED ARE FREE OF ALL DIRT AND OTHER LOOSE MATERIALS BY SWEEPING OR OTHER APPROVED METHOD. PLACE THE MESH ON A PAVEMENT SURFACE THAT IS BETWEEN 40° F AND 140° F. ALLOW FOR THE TACK COAT TO CURE BEFORE PLACING MESH.

PLACE MESH UNDER TENSION TO PREVENT RIPPLING. REMOVE RIPPLES BY PULLING, OR IF NECESSARY (IN CURVES FOR EX.) BY CUTTING AND FLATTENING THE MESH. OVERLAP TRANSVERSE JOINTS OF THE MESH 3 TO 6 INCHES. ROLL THE MESH SURFACE 2 PASSES WITH A RUBBER COATED DRUM ROLLER, RUBBER TIRED ROLLER OR OTHER METHOD ACCEPTABLE TO THE MANUFACTURER. CLEAN RUBBER TIRE ROLLER IF BUILDUP ON THE RUBBER SURFACE INTERFERES WITH MESH PLACEMENT. DO NOT USE A STEEL DRUM ROLLER.

PLACED MESH WILL HANDLE SPEED CONTROLLED EMERGENCY OR CONSTRUCTION TRAFFIC BUT DAMAGED SECTIONS MUST BE REMOVED AND/OR REPAIRED. DO NOT ALLOW MUD OR OTHER MATERIAL TO COLLECT ON THE MESH PRIOR TO ASPHALT CONCRETE PLACEMENT. COVER MESH WITH ASPHALT CONCRETE THE SAME DAY UNLESS WEATHER BECOMES UNSUITABLE.

THE DEPARTMENT WILL MEASURE MESH PLACEMENT BY THE SQ. YD. OF JOINT OR CRACK COVERED. MESH OVERLAP WILL NOT BE MEASURED.

THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES, COMPLETED IN PLACE, AT THE CONTRACT PRICE, AS DESCRIBED ABOVE. QUANTITIES FOR THIS ITEM HAVE BEEN ESTIMATED IN THE OFFICE CALCULATIONS AND HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

EXISTING AND PROPOSED DRAINAGE FOR CONSTRUCTION PHASES

DRAINAGE ITEMS MAY EXTEND THROUGH MULTIPLE CONSTRUCTION PHASES. ALL EXISTING AND PROPOSED DRAINAGE ITEMS SHALL BE PROVIDED WITH A POSITIVE OUTLET AT ALL TIMES AS APPROVED BY THE ENGINEER. ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO PROVIDE THESE TEMPORARY OUTLETS UNTIL THE PLAN DELINEATED OUTLET CAN BE CONSTRUCTED SHALL BE INCLUDED WITH ITEM 615, ROADS FOR MAINTAINING TRAFFIC, AND NO ADDITIONAL PAYMENTS SHALL BE MADE.

PAVEMENT RESTORATION FOR PIPE INSTALLATIONS AND/OR REMOVALS

THE FOLLOWING QUANTITY HAS BEEN PROVIDED FOR PAVEMENT RESTORATION FOLLOWING INSTALLATION AND/OR REMOVAL OF PIPES.

ITEM 452 - NON-REINFORCED CONCRETE PAVEMENT, MISC.:	
9" THICK, QC FS	185 SQ. YDS.
ITEM 609 - CURB, TYPE 6	211 FT.

THE ABOVE QUANTITY IS BASED ON CADD MEASURED AREA FROM A PAVEMENT RESTORATION WIDTH THAT INCLUDES THE TRENCH WIDTH PLUS TWO FEET ON EACH SIDE OF THE TRENCH.

PROVIDE ANY MATERIALS USED OUTSIDE THE LIMITS STATED ABOVE AT NO ADDITIONAL COST.

ITEM 452 - NON-REINFORCED CONCRETE PAVEMENT, MISC.: 9" THICK, QC FS

THIS ITEM, USED FOR TEMPORARY STORM SEWER TRENCH RESTORATION, SHALL BE 9" THICK WITH CONCRETE CONFORMING TO CMS ITEM 499 - QC FS

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

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

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

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

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

REVIEW OF DRAINAGE FACILITIES

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

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

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

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

MANHOLES AND CONDUIT, AS PER PLAN

MANHOLES AND CONDUIT ALONG S.R. 21 CONNECT EXISTING STORM SEWERS WITH THE PROPOSED STORM SEWER SYSTEM. AT LOCATIONS OF THE AS PER PLAN DRAINAGE ITEMS, THE DEPTH, MATERIAL, SLOPE AND/OR SIZE OF THE EXISTING STORM SEWER IS UNDETERMINED. AT THESE LOCATIONS THE CONTRACTOR SHALL VERIFY THE EXISTING STORM SEWER SIZE, MATERIAL AND ELEVATION AT THE PROPOSED CONNECTION PRIOR TO ORDERING THE PROPOSED DRAINAGE ITEMS FROM A PRECAST MANUFACTURER.

THE FOLLOWING ITEMS SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO CONSTRUCT THE MANHOLE AND CONDUIT. PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR THE FOLLOWING ITEMS.

ITEM 611 - 24" CONDUIT, TYPE B, AS PER PLAN
ITEM 611 - MANHOLE NO. 3, AS PER PLAN

SEEDING AND MULCHING

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

659, SOIL ANALYSIS TEST	2 EACH
659, TOPSOIL	1,139 CU YD
659, SEEDING AND MULCHING	12,067 SQ YD
659, REPAIR SEEDING AND MULCHING	603 SQ YD
659, INTER-SEEDING	603 SQ YD
659, COMMERCIAL FERTILIZER	1.68 TON
659, LIME	2.49 ACRE
659, WATER	67 M GAL
659, MOWING	27 M SQ FT

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

ITEM 832 - EROSION CONTROL

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY PROVIDED FOR USE BY THE CONTRACTOR AND AS DIRECTED BY THE ENGINEER FOR EROSION CONTROL MEASURES DURING CONSTRUCTION AS PER SS 832.

ITEM 832, STORM WATER POLLUTION PREVENTION PLAN	
LUMP	
ITEM 832, EROSION CONTROL	32,200 EA

POST CONSTRUCTION STORM WATER TREATMENT

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

CALCULATED NNB CHECKED JLN

GENERAL NOTES

CUY-21-10.04L

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MAINTENANCE OF TRAFFIC

GENERALLY THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS AS TO MAKE THE PROPOSED CONSTRUCTION WITH A MINIMUM OF HAZARD, DELAY AND INCONVENIENCE TO THE MOTORISTS USING THE HIGHWAY. MAINTENANCE OF TRAFFIC INCLUDES PROJECT CUY-21-10.04L. THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAY, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS, AND THE FOLLOWING:

I. GENERAL

1. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECTS 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.

2. THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN AND SUBSEQUENTLY REMOVE ALL FLAGS, BARRICADES, SIGNS, SIGN SUPPORTS AND FURNISH AND MAINTAIN ALL FLAGGERS, WATCHERS AND INCIDENTALS RELATED THERETO.

FURTHERMORE, IN ADDITION TO THE CONSTRUCTION AND MATERIAL SPECIFICATIONS AND THE ABOVE GENERAL REQUIREMENTS, THE FOLLOWING SPECIFIC PROVISIONS ARE MANDATORY.

II. INTERSTATE ROUTE 77

THREE (3) LANES OF TRAFFIC SHALL BE MAINTAINED IN EACH DIRECTION ON I-77 AT ALL TIMES EXCEPT DURING THE REMOVAL OF EXISTING BEAMS AND THE CONSTRUCTION OF PROPOSED RAMP G-1 CENTER BRIDGE BEAMS.

TRAFFIC MAY BE REDUCED TO ONE LANE IN EACH DIRECTION AS ALLOWED BY ODOT'S PERMITTED LANE CLOSURE FOUND AT http://plcm.dot.state.oh.us/.

A. PERMITTED TOTAL CLOSURES:

LENGTH DURATION OF I-77 AND RAMP CLOSURES AND RESTRICTIONS SHALL BE PER THE PERMITTED TOTAL CLOSURE SCHEDULE BELOW.

PERMITTED TOTAL CLOSURE SCHEDULE

I-77			
SECTION	DIRECTION	LANES	TOTAL CLOSURE
I-480 ENTRANCE RAMPS-GRANT AVE.	NORTH	3	TOTAL CLOSURE PERMITTED 5 TIMES FOR THE ENTIRE PROJECT, SEE CLOSURE NOTE: WEEKDAYS: 8PM-5:30AM WEEKENDS: 10PM FRI-8AM SAT 8PM SAT-10AM SUN 7PM SUN-6AM MON
GRANT AVE.- I-480 EXIT RAMPS	SOUTH	3	TOTAL CLOSURE PERMITTED 5 TIMES FOR THE ENTIRE PROJECT, SEE CLOSURE NOTE: WEEKDAYS: 10PM-6AM WEEKENDS: 12AM SAT-9AM SAT 12AM SUN-11AM SUN 10PM SUN-6AM MON

SHOULD THE CONTRACTOR FAIL TO MEET THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF $100 PER MINUTE THAT THE LANE REDUCTION OR TOTAL CLOSURE REMAINS BEYOND THE SPECIFIED LIMIT.

THE I-77 CLOSURE IS A CONTRACTOR OPTION IF HE WANTS TO TOTALLY CLOSE I-77 FOR SETTING BEAMS OR REMOVAL.

THE CONTRACTOR SHALL PROVIDE A DETOUR PLAN FOR I-77 FREEWAY TOTAL CLOSURE USING THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND ODOT STANDARD CONSTRUCTION DRAWINGS. THE I-77 DETOUR PLAN SHALL BE APPROVED BY THE PROJECT ENGINEER. ALL COSTS TO PROVIDE, PLACE AND REMOVE THE I-77 DETOUR, INCLUDING MATERIALS, LABOR, LEO'S, MESSAGE BOARDS, EQUIPMENT, ETC SHALL BE PROVIDED AT THE CONTRACTOR'S EXPENSE.

THE FOLLOWING DETOUR ROUTES SHALL BE USED:

I-77 NORTHBOUND CLOSURE:

CLOSE I-77 NORTH PER MT-99.50, ADD 2 "ROAD CLOSED AHEAD" (W20-3-48) AND 2 "DETOUR AHEAD" (W20-2-48). DETOUR TRAFFIC TO I-480 WEST, SR 176 NORTH, I-490 EAST TO I-77. PLACE A MESSAGE BOARD 1 MILE BEFORE THE CLOSURE. PLACE DETOUR SIGNS WITH I-77 SHIELDS ALONG THE DETOUR ROUTE. THE ROCKSIDE ROAD RAMP TO I-77 MUST BE CLOSED TO I-77 NORTH TRAFFIC. A RIGHT LANE CLOSURE IS REQUIRED.

I-77 SOUTHBOUND CLOSURE:

CLOSE I-77 SOUTH AT I-490 PER MT-99.50, ADD 2 "ROAD CLOSED AHEAD" (W20-3-48) AND 2 "DETOUR AHEAD" (W20-2-48) SIGNS. DETOUR TRAFFIC TO I-490 WEST, SR 176 SOUTH, I-480 EAST TO I-77. ALL RAMPS TO I-77 SOUTH, SOUTH OF I-490 REMAIN OPEN. TRAFFIC WILL BE DETOURED AT SR 21.

ALSO CLOSE I-77 SOUTH AT SR 21 PER MT-99.50, ADD 2 "ROAD CLOSED AHEAD" (W20-3-48) AND 2 "DETOUR AHEAD" (W20-2-48) SIGNS. DETOUR TRAFFIC TO SR 21 SOUTH TO SR 17 WEST TO I-480 EAST TO I-77. PLACE DETOUR SIGNS WITH I-77 SHIELDS ALONG THE DETOUR ROUTE. USE TWO MESSAGE BOARDS, ONE I-77 SOUTH BEFORE I-490 AND ONE ON I-77 SOUTH BEFORE SR 21.

IF S.R. 21 SOUTH RAMP IS CLOSED AND I-77 SOUTH IS BEING CLOSED THEN I-77 MUST BE CLOSED AT GRANT AVENUE. THE LEFT TWO LANES MUST BE CLOSED PER MT-99.50, ADD TWO ROAD CLOSED AHEAD SIGNS AND TWO DETOUR AHEAD SIGNS. PLACE A MESSAGE BOARD 1 MILE BEFORE THE CLOSURE. THE DETOUR ROUTE IS: EXIT AT GRANT AVENUE, GO EAST ON GRANT BACK TO I-77 NORTH. TAKE I-77 NORTH TO I-490 WEST TO S.R. 176 SOUTH. PLACE DETOUR SIGNS WITH I-77 SOUTH SHIELDS ALONG THE DETOUR ROUTE. CLOSE THE GRANT AVENUE ON RAMP TO I-77 SOUTH INCLUDING ANY TURN LANES ONTO THE I-77 ON RAMP.

ONE LEO WILL BE REQUIRED FOR EACH DIRECTION CLOSED ON I-77.

RAMP I-480 WEST TO I-77 NORTH CLOSURE:

CLOSE RIGHT LANE ON I-480 WEST PER MT-95.30, 2000 FT BEFORE RAMP E-N. USE MT-98.20 FOR THE RAMP TO I-77 SOUTH. PLACE I-77 SOUTH SHIELDS ON THE "EXIT OPEN AHEAD" AND "EXIT OPEN" SIGNS. PLACE 2 SIGNS, "EXIT CLOSED", WITH I-77 NORTH SHIELDS ON THE RIGHT SIDE BEFORE THE CLOSURE.

DETOUR ROUTE, I-480 WEST TO SR 176 NORTH TO I-490 EAST TO I-77.

USE 2 MESSAGE BOARDS FOR THIS DETOUR. ONE EAST OF TRANSPORTATION BLVD. AND ONE JUST WEST OF TRANSPORTATION BLVD. PLACE ALL DETOUR SIGNS WITH I-77 SHIELDS ALONG DETOUR ROUTE.

RAMP I-480 EAST TO I-77 NORTH:

CLOSE OFF RAMP PER MT-98.29. PLACE I-77 NORTH SHIELDS ON "EXIT CLOSED" SIGNS. USE 1 MESSAGE BOARD REQUIRED, ONE ON I-480 EAST 2000 FEET BEFORE SR 176. ADD 2 "ROAD CLOSED AHEAD" (W20-3-48) AND 2 "DETOUR AHEAD" (W20-2-48) SIGNS. PLACE DETOUR SIGNS WITH I-77 SHIELDS ALONG DETOUR ROUTE. DETOUR TRAFFIC TO SR 176 NORTH TO I-490 EAST TOI-77.

ALL CLOSURES REQUIRE A TYPE III BARRICADE AND A ROAD CLOSED SIGN WITH 2 TYPE A FLASHING LIGHTS.

NO CLOSURES 2 HOURS BEFORE A SPECIAL EVENT IN THE INBOUND DIRECTION WITH A SEATING CAPACITY OF 10,000 IN DOWNTOWN CLEVELAND AND 2 HOURS AFTER THE SPECIAL EVENT ENDS IN THE OUTBOUND DIRECTION.

DETOURS MUST BE COORDINATED WITH OTHER CONSTRUCTION PROJECTS ALONG DETOUR ROUTES.

B. PERMITTED SHORT DURATION FREEWAY CLOSURE:

ANY TIME TRAFFIC MUST BE COMPLETELY STOPPED ON A FREEWAY OR INTERSTATE USE PLAN INSERT SHEET 209960. SEE SHEET 17.

C. FREEWAY LANE SHIFTS:

ANY LANE SHIFTS THAT MOVE TRAFFIC MORE THAN 4 FEET MUST CONFORM TO MT-99.30 WORK ZONE DELINEATION.

III. CONSTRUCTION PHASES:

THE SEQUENCE FOR CONSTRUCTION SHALL BE IN 4 PHASES, ONE PRE-PHASE AND ONE POST PHASE COMPLETED IN TWO CONSECUTIVE CONSTRUCTION SEASONS.

2017 SEASON - PRE-PHASE 1, PHASES 1 & 2
2018 SEASON - PHASES 3 &4

PRE-PHASE 1

PRIOR TO PHASE 1 THE CONTRACTOR SHALL CONSTRUCT THE PROPOSED STORM SEWER FROM STA. 27+68 ℄ S.R. 21 TO STA. 30+15 ℄ RAMP G-1. HE SHALL INSTALL A DETOUR SHOWN ON SHEET 18. CONSTRUCTION SHALL BE DONE ON A WEEKEND BETWEEN THE HOURS OF 7PM FRIDAY TO 5AM MONDAY UNLESS APPROVED OTHERWISE BY THE ENGINEER. AFTER COMPLETION OF THE INSTALLATION, THE CONTRACTOR SHALL COVER OR REMOVE THE DETOUR SIGNS AND REMOVE THE OVERLAY SIGNS.

PHASE 1

SHIFT I-77 N.B. AND S.B. TRAFFIC TO THE MEDIAN SIDE WITH 3-11 FOOT LANES. REMOVE LANE LINES FROM STA. 527+87 TO STA. 538+12 N.B. AND FROM STA. 535+20 TO STA. 545+65 S.B. PLACE PORTABLE CONCRETE BARRIERS ALONG OUTSIDE SHOULDERS N.B. AND S.B. TO CONSTRUCT THE ABUTMENTS, REAR ABUTMENT EXTENDED WINGWALLS, A PORTION OF THE FORWARD ABUTMENT EXTENDED WINGWALLS, THE TEMPORARY SUPPORTS FOR THE END GIRDER SEGMENTS AND PROPOSED STORM SEWERS ADJACENT TO THE PROPOSED ABUTMENTS AND WINGWALLS. INSTALL END GIRDER SEGMENTS.

INSTALL THE 125.21' CENTER GIRDER SEGMENTS DURING OVERNIGHT CLOSURES OF I-77. CONSTRUCT CONCRETE DECK AND PARAPETS.

PHASE 2

SHIFT I-77 TRAFFIC BACK TO NORMAL ALIGNMENT AND RESTRIPE LANE LINES. MAINTAIN S.B. EXISTING EXIT RAMP, SHIFT TRAFFIC ON THE N.B. ENTRANCE RAMP 6 FEET TO THE RIGHT AND MAINTAIN A MINIMUM 10'-6" TRAVEL LANE USING STANDARD CONSTRUCTION DRAWING MT-95.40 AND OMUTCD "TYPICAL APPLICATION 34" DURING CONSTRUCTION OF THE CONCRETE BARRIER AND RETAINING WALL FROM STA. 29+57.61 TO STA. 34+29.15. RESTORE RAMP G-2 PAVEMENT ALONG CONCRETE BARRIER AND RETAINING WALL ONCE COMPETED AND REMOVE PORTABLE CONCRETE BARRIER. CONSTRUCT GEOFOAM BEHIND REAR ABUTMENT. CONSTRUCT PAVEMENT ON THE RAMP FROM STA. 31+50± TO THE REAR ABUTMENT, INCLUDING THE REAR APPROACH SLAB.

PERFORM AS MUCH EARTHWORK AND GEOFOAM FILL NORTH OF THE FORWARD ABUTMENT AS POSSIBLE UTILIZING TEMPORARY SHEETING WITHOUT AFFECTING TRAFFIC. CONSTRUCT THE FORWARD APPROACH SLAB.

PHASE 3

INSTALL THE DETOUR FOR EXISTING S.B. RAMP CLOSURE. SEE DETOUR PLAN ON SHEET 18 AND STANDARD CONSTRUCTION DRAWING MT-98.29. COMPLETE TIE-IN OF THE SOUTH END OF PROPOSED RAMP TO THE NEW S.R. 21 PAVEMENT. AFTER COMPLETION OF THE PROPOSED RAMP TIE-IN TO THE SOUTH, REMOVE THE REMAINING LANE CLOSURE ALONG THE EXISTING N.B. ENTRANCE RAMP G-2.

REMOVE EXISTING BRIDGE DECK AND PARAPETS USING FALSEWORK. REMOVE EXISTING BRIDGE BEAMS WITH OVERNIGHT LANE CLOSURE OF I-77. SET UP NIGHT TIME LANE CLOSURES ON I-77 FOR THE REMOVAL OF THE EXISTING BRIDGE MEDIAN PIERS. ESTIMATE 30 CALENDAR DAYS FOR REMOVAL.

CLOSE I-77 OUTSIDE SHOULDERS USING OMUTCD "TYPICAL APPLICATION 5" TO REMOVE OUTER PIERS, ABUTMENTS AND CONCRETE BARRIER. CONSTRUCT REMAINING PORTION OF FORWARD WINGWALL.

CALCULATED JEN CHECKED JLN

MAINTENANCE OF TRAFFIC GENERAL NOTES

CUY-21-10.04L

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PHASE 3 (CONT'D)

CONSTRUCT REMAINING GEOFOAM AND PAVEMENT NORTH OF THE STRUCTURE. ALL WORK CONSTRUCTED IN PHASE 3 SHALL BE PERFORMED WITHIN A MAXIMUM 75 DAY RAMP CLOSURE WITH DETOUR.

PHASE 4

REMOVE DETOUR FOR S.B. RAMP CLOSURE. OPEN TRAFFIC TO NEW S.B. RAMP. CONSTRUCT PROPOSED I-77 GUARDRAIL. SEE FIGURE 6H-4, TYPICAL APPLICATION 4 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. REMOVE REMAINING EXISTING S.B. RAMP.

IV. DETOUR NOTIFICATION

THE CONTRACTOR SHALL ADVISE THE ODOT DISTRICT 12 OFFICE TWO (2) WEEKS IN ADVANCE OF WHEN THE I-77 AND/OR RAMP G-1 DETOUR WILL BE IN EFFECT. ALL WORK ZONE DEVICES REQUIRED SHALL BE FURNISHED, ERECTED, MAINTAINED AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR. PAYMENT FOR ALL WORK ASSOCIATED WITH THE DETOUR SHALL BE INCLUDED UNDER THE LUMP SUM BID FOR ITEM 614, DETOUR SIGNING.

THE CONTRACTOR SHALL NOTIFY THE CITY OF INDEPENDENCE ENGINEER AND POLICE DEPARTMENT IN WRITING A MINIMUM OF TEN (10) DAYS IN ADVANCE OF EACH ANTICIPATED LANE CLOSURE DATE WITHIN THE CITY LIMITS.

THE CONTRACTOR SHALL NOTIFY THE VILLAGE OF CUYAHOGA HEIGHTS ENGINEER AND POLICE DEPARTMENT IN WRITING A MINIMUM OF TEN (10)DAYS IN ADVANCE OF EACH ANTICIPATED LANE CLOSURE DATE WITHIN THE VILLAGE LIMITS.

V. HOLIDAY AND SPECIAL EVENTS CLOSURES

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

CHRISTMAS	EASTER
NEW YEARS DAY	FOURTH OF JULY
MEMORIAL DAY	LABOR DAY
THANKSGIVING	

LANE CLOSURES TIME SHALL BE ADJUSTED FOR SPECIAL EVENTS THAT EXCEED 10,000 IN ATTENDANCE IN THE DOWNTOWN CLEVELAND AREA. THE CONTRACTOR SHALL NOT CLOSE A LANE(S) IN THE INBOUND DIRECTION 2 HOURS BEFORE AN EVENT AND IN THE OUTBOUND DIRECTION 2 HOURS AFTER AN EVENT ENDS.

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 OF HOLIDAY OR EVENT	TIME ALL LANES MUST BE OPEN TO TRAFFIC	
SUNDAY	12:00N FRIDAY	THROUGH 6:00 AM MONDAY
MONDAY	12:00N FRIDAY	THROUGH 6:00 AM TUEDAY
TUESDAY	12:00N MONDAY	THROUGH 6:00 AM WEDNESDAY
WEDNESDAY	12:00N TUEDAY	THROUGH 6:00 AM THURDAY
THURSDAY	12:00N WEDNESDAY	THROUGH 6:00 AM FRIDAY
FRIDAY	12:00N WEDNESDAY	THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY	THROUGH 6:00 AM 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 $100 FOR EACH MINUTE THE ABOVE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

VI. QUANTITIES

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

VII. PUBLIC SAFETY

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, THE FOLLOWING SHALL APPLY:

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 FOOT INTERVALS AND OFFSET AT LEAST 2 FEET 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 AN OBSTACLE (SUCH AS A SIGN SUPPORT OR BRIDGE PARAPET), THE CONTRACTOR SHALL ERECT PORTABLE CONCRETE BARRIER IN THE DIRECTION OF TRAFFIC. THE REQUIREMENTS OF PARAGRAPH "A" SHALL APPLY TO THE REMAINING GUARDRAIL WITHIN THE RUN. TEMPORARY BARRIER SHALL BE FLARED AT A 17:1 (MINIMUM) TAPER RATE AND SHALL TERMINATE OUTSIDE THE CLEAR ZONE OR BEHIND EXISTING GUARDRAIL OR BARRIER. BARRIER ENDS MAY BE PROTECTED USING A WORK ZONE IMPACT ATTENUATOR AT LOCATIONS WHERE THE END OF THE BARRIER REMAINS WITHIN THE CLEAR ZONE OR IS NOT PROTECTED BY GUARDRAIL OR BARRIER.

C. THE REQUIREMENTS STATED IN "A" SHALL 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 TEMPORARY CONCRETE BARRIER IN THE INTERIM TIME IT TAKES TO COMPLETE THE WORK. THE APPROACH END OF THE PORTABLE CONCRETE BARRIER SHALL BE FLARED TO THE OUTER EDGE OF THE PAVED SHOULDE AND SHALL TERMINATE OUTSIDE THE CLEAR ZONE OR BEHIND EXISTING GUARDRAIL OR BARRIER. BARRIER ENDS MAY BE PROTECTED USING A WORK ZONE IMPACT ATTENUATOR AT LOCATIONS WHERE THE END OF THE BARRIER REMAINS WITHIN THE CLEAR ZONE OR IS NOT PROTECTED BY GUARDRAIL OR BARRIER. IN ADDITION, A TYPE II BARRICADE WITH TYPE B (HIGH INTENSITY FLASHER) WARNING LIGHT SHALL BE PLACED IN FRONT OF THIS INITIAL SECTION OF TEMPORARY BARRIERS TO PROVIDE FOREWARNING TO THE APPROACHING TRAFFIC.

THE TERM "GUARDRAIL" AS USED HEREIN SHALL BE UNDERSTOOD TO COVER ALL TYPES OF EXISTING OR PROPOSED BARRIER, INCLUDING STANDARD GUARDRAIL, BARRIER DESIGN GUARDRAIL, BRIDGE PARAPET, 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.

WORK ZONE MARKING AND SIGNS

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AT LOCATIONS IDENTIFIED BY THE ENGINEER FOR WORK ZONE PAVEMENT MARKINGS AND SIGNS PER THE REQUIREMENTS OF CMS 614.04 AND 614.11.

ITEM 614, WORK ZONE EDGE LINE, CLASS 1, 740.06, TYPE 1 0.70 MI.

ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06, TYPE 1 6,074 FT

ITEM 614, REPLACEMENT SIGN

FLATSHEET SIGNS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT SIGNS SHALL BE NEW. OTHER MATERIALS MAY BE IN USED, BUT GOOD, CONDITION SUBJECT TO APPROVAL BY THE ENGINEER.

PAYMENT FOR THE NEW SIGNS SHALL BE MADE AT THE CONTRACT PRICE PER EACH FOR ITEM 614, REPLACEMENT SIGN, AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF DAMAGED SIGNS, HARDWARE AND SUPPORTS, AND PROVIDING THE NECESSARY REPLACEMENT HARDWARE, SUPPORTS, ETC.

AN ESTIMATED QUANTITY OF 10 EACH HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

ITEM 614, MAINTAINING TRAFFIC (TIME LIMITATION ON AN EXTENDED DETOUR) FOR RAMP G-1

TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 75 CONSECUTIVE DAYS, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET 18. A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT OF $2,000 FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

ITEM 614, MAINTAINING TRAFFIC (LANE CLOSURE/REDUCTION REQUIRED)

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS PER THE PERMITTED LANE CLOSURE SCHEDULE. THE PERMITTED LANE CLOSURE SCHEDULE CAN BE FOUND AT http://plcm.dot.state.oh.us/
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.

ITEM 614, MAINTAINING TRAFFIC (NOTICE OF CLOSURE SIGN)

NOTICE OF CLOSURE SIGNS, AS DETAILED IN THESE PLANS, SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD OR RAMP CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD/RAMP FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE. THE SIGNS MAY BE ERECTED ANYWHERE ON RAMPS AS LONG AS THEY ARE VISIBLE TO THE MOTORISTS USING THE RAMP. ON ENTRANCE RAMPS, THE SIGN SHALL BE ERECTED WELL IN ADVANCE OF THE MERGE AREA TO AVOID DISTRACTING MOTORISTS.

ITEM 614, MAINTAINING TRAFFIC (ROAD CLOSED SIGN)

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC.

I-480 WEST TO I-77 NORTH
I-480 EAST TO I-77 NORTH
ROCKSIDE ROAD TO I-77 NORTH
I-77 AT SR 21 EXIT RAMP
I-77 NORTH AT I-480
I-77 SOUTH AT I-490

ITEM 614, MAINTAINING TRAFFIC (SIGNS AND BARRICADES)

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND TYPE III BARRICADES.

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

CALCULATED JEN CHECKED JLN

NOTICE OF TRAFFIC GENERAL NOTES

MAINTENANCE

CUY-21-10.04L

OFFICE OF TRAFFIC GENERAL NOTES

ITEM 622, PORTABLE BARRIER, 32", AS PER PLAN

THIS WORK SHALL CONSIST OF FURNISHING, MAINTAINING, AND SUBSEQUENTLY REMOVING A 32-INCH PORTABLE CONCRETE BARRIER (PCB) AT THE LOCATIONS SHOWN ON THE PLANS. FOR DETAILS, SEE SCD RM-4.1. PLEASE NOTE THAT SCD RM-4.1 WAS UPDATED 10-20-06 TO PROVIDE A PCB WHICH IS COMPATIBLE WITH NCHRP 350 CRITERIA.

PORTABLE STEEL BARRIER IS AN APPROVED ALTERNATIVE TO PCB. FOR INFORMATION ON APPROVED VENDORS, SEE THE APPROVED PRODUCTS LIST MAINTAINED BY ROADWAY STANDARDS.

PAYMENT SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO PERFORM THE WORK AND SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR ITEM 622, PORTABLE BARRIER, 32 INCH, AS PER PLAN. THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY:

ITEM 622, PORTABLE BARRIER, 32" AS PER PLAN 1,410 FT

ITEM 642 - REMOVAL OF PAVEMENT MARKINGS

THIS ITEM SHALL BE USED TO REMOVE EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH THE TEMPORARY OR FINAL MARKINGS AS SHOWN ON THE TRAFFIC MAINTENANCE PLANS. PAYMENT SHALL BE BASED UPON THE ACTUAL LENGTH REMOVED (GAPS SHALL NOT BE INCLUDED IN THE MEASURED LENGTH). THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE:

ITEM 642 - REMOVAL OF PAVEMENT MARKING 6,642 FT

DRUM REQUIREMENTS

IN ADDITION TO THE REQUIREMENTS OF THE PLANS, SPECIFICATION AND PROPOSAL, DRUMS FURNISHED BY THE CONTRACTOR SHALL BE NEW AND UNUSED AT THE TIME OF ARRIVAL ON THE PROJECT. ANY DRUMS BROUGHT ON THE PROJECT, WHICH HAVE PREVIOUSLY BEEN USED ELSEWHERE, WILL NOT BE ACCEPTED.

PAYMENT FOR DRUMS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED.

CONES WILL NOT BE ALLOWED ON THIS PROJECT. DRUMS WILL BE USED.

ITEM 614, REPLACEMENT DRUM

DRUMS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT DRUMS SHALL BE NEW.

PAYMENT FOR THE NEW DRUMS SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR ITEM 614, MAINTAINING TRAFFIC AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF THE DAMAGED DRUM, AND PROVIDING AND MAINTAINING THE REPLACEMENT DRUM IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS FOR THE ORIGINAL DRUM.

ITEM 614, BARRIER REFLECTORS AND/OR OBJECT MARKERS

BARRIER REFLECTORS AND/OR OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE BARRIER (PB) USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS, OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO CMS 626, EXCEPT THAT THE SPACING SHALL BE 50 FEET. AN ESTIMATED QUANTITY OF 30 EACH OF ITEM 614 BARRIER REFLECTOR, TYPE B AND 27 EACH OF ITEM 614 OBJECT MARKER, ONE WAY HAVE BEEN PROVIDED AND CARRIED TO THE GENERAL SUMMARY.

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 MAY 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 MEETING 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 THE SAFETY FORCES AND ODOT THAT WILL RESPOND TO INCIDENTS ON THE PROJECT.
   A. ITEMS TO BE DISCUSSED WILL BE THE TIMP
   B. EMERGENCY RESPONSE AND NOTIFICATION
   C. PROJECT WORK
   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. THE WTS SHALL ALSO COORDINATE WITH ALL LAW ENFORCEMENT AGENCIES RESPONSIBLE FOR THE ROADWAY UNDER CONSTRUCTION AND RETRIEVE ALL CRASH REPORTS (OH-1) THAT OCCUR DURING THE CONSTRUCTION SEASON.
    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 # 9 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 THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION INSPECTION FORMS MANUAL DATED 10/15/06 OR CURRENT REVISION.
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
    C. TOWING AND RECOVERY PROVIDERS
15. COMPLY WITH MUTCD SECTION 6-I CONTROL OF TRAFFIC THROUGH INCIDENT MANAGEMENT AREAS.
16. PROPOSE A RESPONSE / ACTION PLAN
    A. ESTABLISH ALTERNATE ROUTE PLANS PER THE PROVIDED ODOT PLAYBOOK
    B. REMOVAL OF TRAFFIC DEMAND FROM IMPACTED ROADWAY
    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
    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 NOT PAY 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.

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 INCLUDED FOR THE WORKSITE TRAFFIC SUPERVISOR:

ITEM 614 WORKSITE TRAFFIC SUPERVISOR 18 MONTHS

CONTRACTOR SUPPLIED PICKUP TRUCK FOR WORK ZONE TRAFFIC CONTROL

THE CONTRACTOR SHALL SUPPLY THE WORKSITE TRAFFIC SUPERVISOR WITH A ½ TON OR GREATER PICKUP TRUCK WITH AT LEST 4 AMBER STROBE LIGHTS AND A FULL MATRIX MESSAGE BOARD ATTACHED TO THE TRUCK (NOT TOWED). THE MINIMUM DIMENSIONS OF THE FULL MATRIX MESSAGE BOARD SHALL BE 70 INCHES BY 30 INCHES. THE MESSAGE BOARD MUST BE ABLE TO DISPLAY A FLASHING ARROW AND WORD MESSAGES. THE MESSAGE BOARD MUST BE ABLE TO BE CONTROLLED FROM THE CAB OF THE TRUCK. WHEN BEING USED THE BOTTOM OF THE MESSAGE BOARD MUST BE AT LEAST 6 FT. FROM THE PAVEMENT. THE CONTARCTORS NAME MUST BE ON THE VEHICLE IN AT LEAST 2 LOCATIONS WITH LETTERS AT LEAST 6 INCHES HIGH.

THE PICKUP TRUCK WITH THE MESSAGE BOARD IS INTENDED TO BE USED BY THE WORKSITE TRAFFIC SUPERVISOR TO HELP WORK ZONE TRAFFIC CONTROL, ROLLING BLOCKS, TRUCK INGRESS AND EGRESS, ETC.

ALL COSTS ASSOCIATED WITH THIS ITEM WILL BE INCLUDED IN ITEM 614, MAINTAINING TRAFFIC.

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 650 FEET AND 475 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.

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEET 18 OF THE PLAN. 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.

(THE CONTRACTOR SHALL IMPLEMENT A SYSTEM WHEREBY CHANGEABLE MESSAGES WILL BE IMPLEMENTED WITHIN 1 HOUR FOLLOWING TELEPHONE NOTIFICATION FROM THE PROJECT ENGINEER TO A DESIGNATED PHONE.)

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 SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL (IN ACTIVE CELLULAR PHONE AREAS) ALLOW REMOTE SIGN ACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES. ONE REMOTE DATA INPUT DEVICE (LAPTOP COMPUTER PLUS MODEM OR EQUIVALENT) SHALL BE FURNISHED FOR USE BY THE DISTRICT TRAFFIC ENGINEER, OR EQUIVALENT, AND SHALL BE INSURED AGAINST THEFT.)

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, SOFT-WARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN 43 SIGN MONTHS

DUST CONTROL

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

ITEM 616, WATER 76 M. GAL

FLOODLIGHTING

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

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

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

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

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

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

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

WHEN GATING IMPACT ATTENUATORS ARE DESIRED, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE ENGINEER FOR ACCEPTANCE.

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

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

A QUANTITY OF 1 WORK ZONE IMPACT ATTENUATORS, (BIDIRECTIONAL) HAVE BEEN INCLUDED IN THE GENERAL SUMMARY.

A QUANTITY OF 2 WORK ZONE IMPACT ATTENUATOR, (UNIDIRECTIONAL) HAS BEEN INCLUDED IN THE GENERAL SUMMARY.

ITEM 614 - WORK ZONE RAISED PAVEMENT MARKER, AS PER PLAN

WORK ZONE RAISED PAVEMENT MARKERS, AS PER PLAN, AND THEIR INSTALLATION SHALL CONFORM TO CMS 614 OR CMS 621 AS SPECIFIED HEREIN.

RAISED PAVEMENT MARKERS IN USE DURING THE SNOW-PLOWING SEASON SHALL CONFORM TO 621.

RAISED PAVEMENT MARKERS IN USE DURING THE NON-SNOW-PLOW SEASON SHALL CONFORM TO EITHER 614 OR TO 621.

THE SNOW-PLOWING SEASON SHALL RUN FROM OCTOBER 15 THROUGH APRIL 1.

IF PROJECT DELAYS, NOT THE FAULT OF ODOT, CAUSE THE WORK TO EXTEND INTO THE SNOW-PLOWING SEASON, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING WORK ZONE RAISED PAVEMENT MARKERS (WZRPMS) CONFORMING TO CMS 614, WITH RAISED PAVEMENT MARKERS CONFORMING TO 621, AS DETERMINED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

THIS ITEM SHALL INCLUDE PURCHASE, INSTALLATION AND REMOVAL OF ITEM 614 WORK ZONE RAISED PAVEMENT MARKER, AS PER PLAN, INCLUDING FILLING OF ANY DEPRESSIONS CREATED IN THE PAVEMENT AS PER CMS 621.08.

THE FOLLOWING BID ITEMS SHOULD BE INCLUDED IN THE PLANS:

ITEM 614 WORK ZONE RAISED PAVEMENT MARKER, AS PER PLAN 52 EACH

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.

PAYMENT FOR THIS ITEM SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

CALCULATED JEN CHECKED JLN

OFFICE OF TRAFFIC GENERAL NOTES

MAINTENANCE

CUY-21-10.04L

CONTRACTOR ACCESS TO AND FROM THE WORK ZONE

FOR OPERATIONS THAT REQUIRE MORE THAN 5 TRUCKS PER HOUR TO ENTER OR EXIT THE WORK ZONE, CLOSE THE LANE ADJACENT TO THE WORK ZONE IN ACCORDANCE WITH THE LANE CLOSURE SCHEDULE AT LOCATIONS WHERE THE CONTRACTOR PROPOSES TO ENTER AND EXIT THROUGH OPENINGS IN THE WORK ZONE.

ANY TIME A TRUCK (GVW 10,000 LBS) ENTERS OR EXITS FROM THE WORK ZONE AND THERE IS NOT AT LEAST 500FT ACCELERATION OR DECELERATION LANE THEN THE CONTRACTOR MUST USE THE CONTRACTOR SUPPLIED PICKUP TRUCK WITH MESSAGE BOARD TO PACE TRAFFIC IN THE LANE THE TRUCK WILL BE ENTERING OR EXITING THE WORK ZONE.

MAINTAINING TRAFFIC, 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 DRIVE POSTS OR OTHER APPROVED METHOD OF SUPPORT, MAINTAIN THE SIGN AND REMOVE THE SIGN.

THE FOLLOWING QUANTITY SHALL BE CARRIED TO THE GENERAL SUMMARY:

MAINTAINING TRAFFIC, MISC.: ADDITIONAL SIGNS, GROUND MOUNTED, AS DIRECTED BY THE ENGINEER 100 SQ.FT.

CONTRACTOR'S EQUIPMENT - OPERATION AND STORAGE

THE CONTRACTOR'S EQUIPMENT SHALL BE EQUIPPED WITH AT LEAST ONE AMBER FLASHING LIGHT. PAVERS, ROLLERS AND OTHER EQUIPMENT MAY BE PARKED IN AREAS ALONG THE HIGHWAY WHEN PAVING OPERATIONS ARE SCHEDULED TO CONTINUE WITHIN THE NEXT WORKDAY. OTHERWISE THE EQUIPMENT SHALL BE STORED AT A STORAGE AREA OUTSIDE THE R/W, THE LOCATION OF WHICH SHALL HAVE PRIOR APPROVAL OF THE ENGINEER. WHEN PARKING ALONG THE HIGHWAY THE EQUIPMENT SHALL BE PLACED AND DELINEATED AS PER 614.03. NO EQUIPMENT SHALL BE PARKED IN THE MEDIAN OF THE HIGHWAY. ADEQUATE BARRICADES AND LIGHTS SHALL BE PLACED ON THE PAVEMENT SIDE OF THE EQUIPMENT TO IDENTIFY THE LIMITS OF THE EQUIPMENT. ALL OTHER EQUIPMENT, INCLUDING PRIVATE VEHICLES, SHALL BE STORED AT THE APPROVED CONTRACTOR'S STORAGE AREA. NO EQUIPMENT SHALL BE PARKED ON PRIVATE PROPERTY UNLESS PRIOR APPROVAL OF THE OWNER AND THE PROJECT ENGINEER/SUPERVISOR HAS BEEN GRANTED.

OVERLAYING OF SIGNS

WHERE THE PLANS CALL FOR A PERMANENT SIGN TO BE OVERLAYED, THE CONTRACTOR SHALL DO SO IN SUCH A MANNER AS TO AVOID DAMAGING THE PERMANENT SIGN WHEN THE OVERLAY IS REMOVED. THE OVERLAY SHALL BE TOTALLY OPAQUE. THE USE OF ADHESIVE TAPE APPLIED DIRECTLY TO A SIGN FACE IS STRICTLY PROHIBITED. THE OVERLAYS MAY BE RIVETED TO THE PERMANENT SIGNS. THE CONTRACTOR SHALL PROVIDE ALL OF THE PLAQUES, SIGNS AND SIGN PANELS NECESSARY.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

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

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

IN ADDITION TO THE REQUIREMENTS OF 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) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED FOR DETOURS AND SHORT-TERM DURATION CLOSURES PER SHEET 17.
- WHEN CONSTRUCTION VEHICLES ARE ENTERING/EXITING THE ZONE DIRECTLY FROM/INTO AN OPEN LANE OF TRAFFIC.

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 200 HOURS

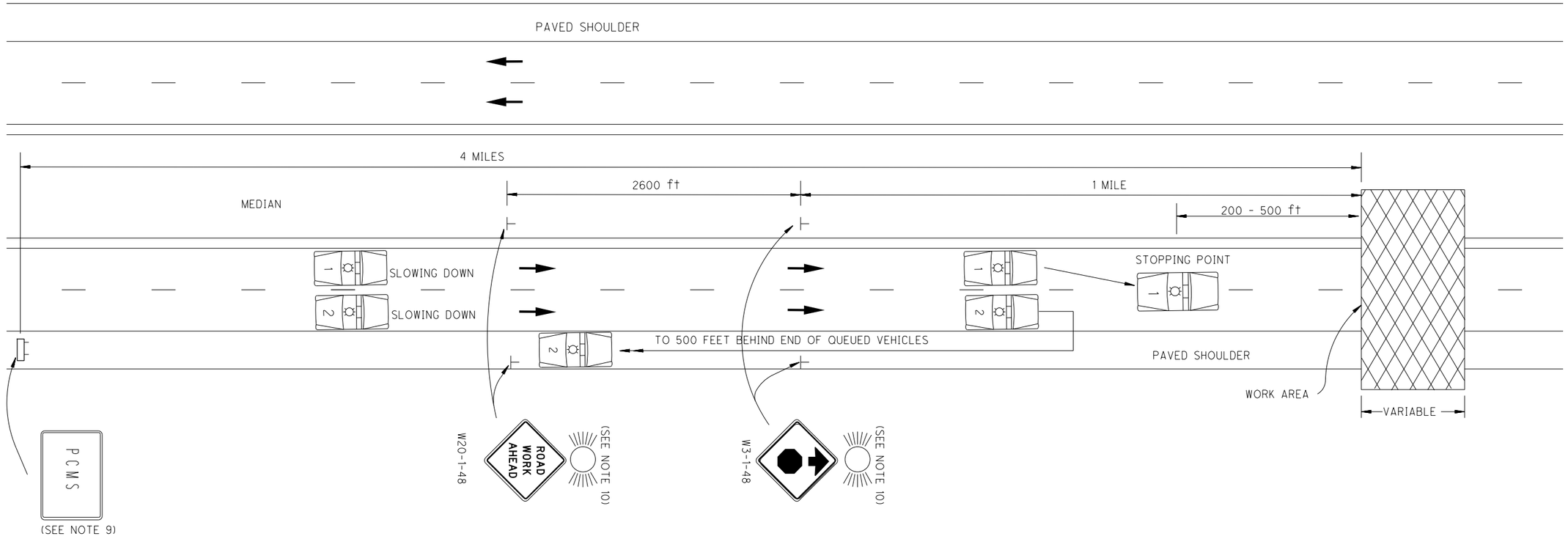
THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

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

CALCULATED JEN CHECKED JLN

MAINTENANCE OF TRAFFIC GENERAL NOTES

CUY-21-10.04L



NOTES

1. This type of highway closure shall be used for all construction, maintenance and utility operations when the duration of closure will not exceed 15 minutes.
2. A minimum of two law enforcement officers (LEO) with patrol cars per direction shall be provided to block traffic and pace motorists to a stop. The number of patrol cars shall equal the number of lanes closed on the highway.
3. Patrol cars, with lights flashing, should enter the stream of traffic at approximately 3 miles before the point of closure. At approximately 2 miles before the point of closure, they should begin the gradual slow down. Traffic shall be brought to a complete stop a safe distance, between 200 and 500 feet, from the work area. This slowing operation shall take no more than 10 minutes. After traffic has been stopped, one patrol car shall travel along the roadway shoulder 500 feet behind the end of the queued vehicles.
4. The Contractor shall not begin work until traffic has been brought to a complete stop.
5. All entrance ramps located between the stopped traffic and the work area shall be closed.
6. After the highway has been closed and reopened via this procedure, both of the following requirements shall have been met before implementation of another short duration closure, except with the approval of the Engineer:
   a) A minimum period of 15 minutes shall have elapsed; and
   b) The queued traffic shall have dissipated.
7. The time frame for stopping traffic shall be specified.
8. The public shall be given advance notice of the upcoming closure by providing portable changeable message signs at the site in advance of the scheduled closing. Closure information should also be provided to the Engineer.
9. An ODOT-approved portable changeable message sign, Class 1, shall be provided during operation. The message sign shall be placed approximately 4 miles in advance of the closure or as directed by the Engineer. The message shall be ROAD CLOSED AHEAD (2 sec.), PREPARE TO STOP (2 sec.)
10. The Contractor shall erect and maintain 48-inch ROAD WORK AHEAD and Stop Ahead signs on each side of the highway. Each sign shall be equipped with one Type A flashing warning light and one flare. There shall be one flare at each sign on both sides of the roadway. The flare shall be replaced if it burns out.

OFFICE OF TRAFFIC ENGINEERING

DESIGNED SHB
REVIEWED LAM
REVISION DATE 07/20/12
CHECKED
PID NUMBER 209960

PLAN INSERT SHEET
SHORT-DURATION CLOSURE OF MULTI-LANE DIVIDED HIGHWAY

CUY-21-10.04L

1 / 1

17 / 100

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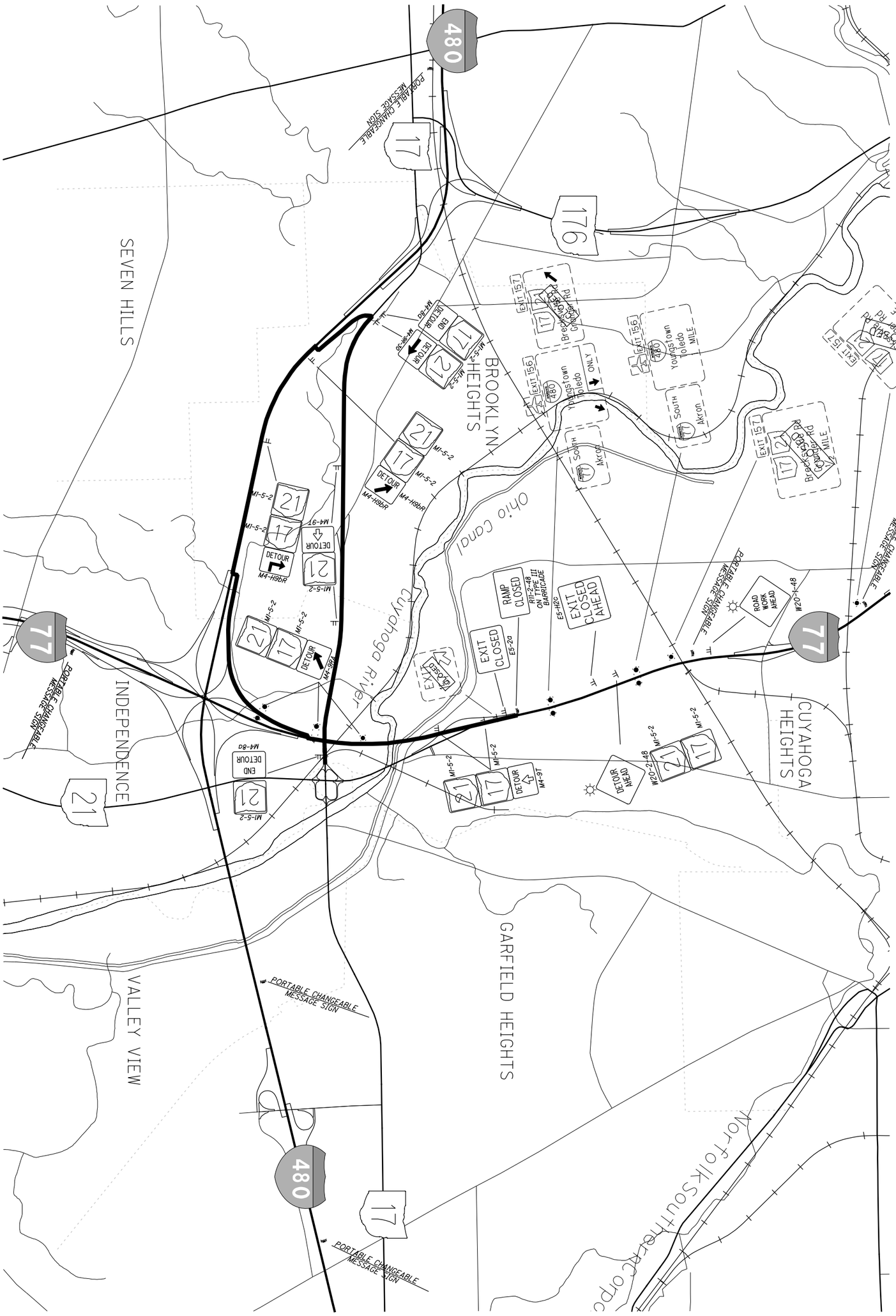
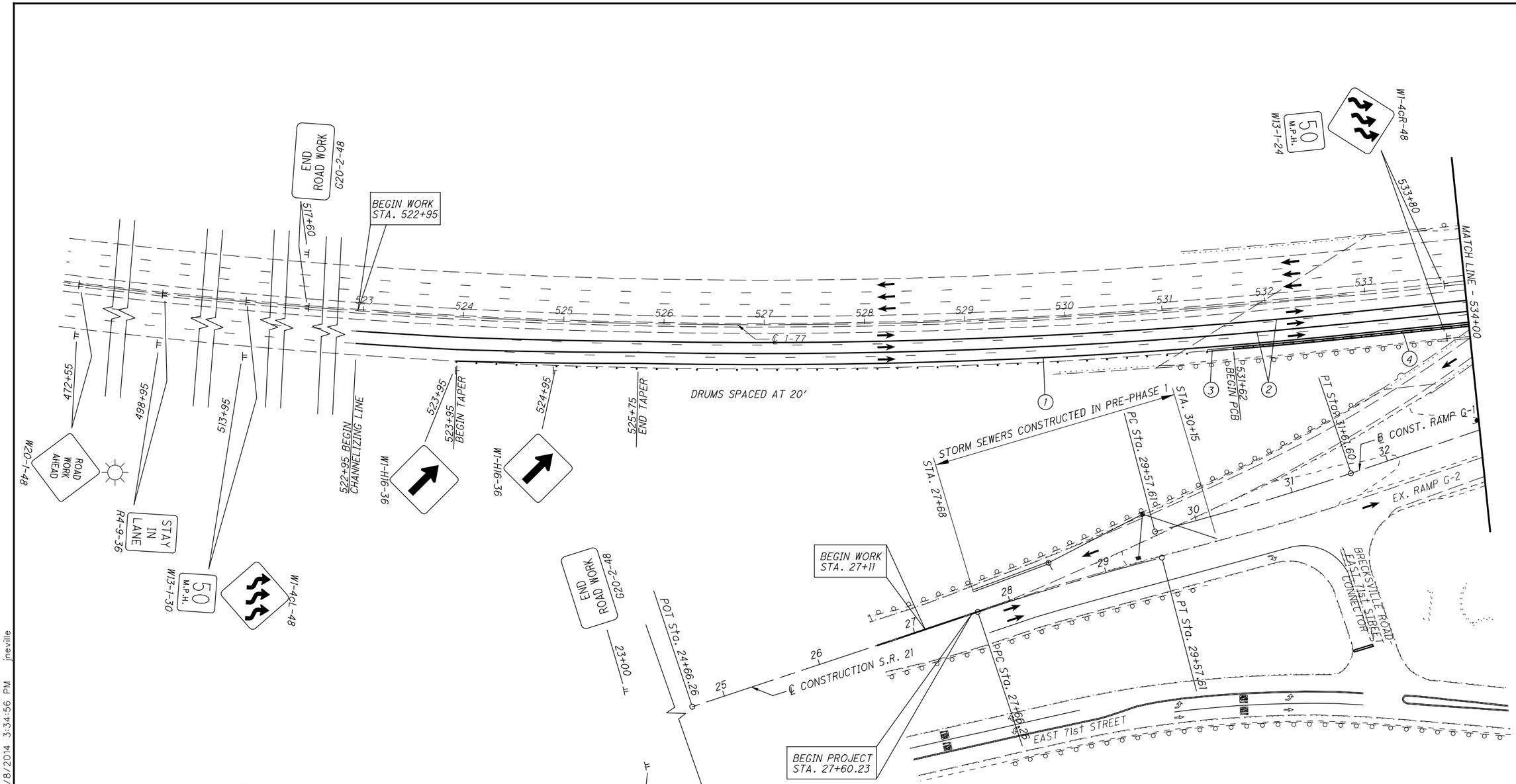


100 / 18	CUY-21-10.04L	MAINTENANCE OF TRAFFIC DETOUR PLAN	CALCULATED JEN / CHECKED JLN	0 500 1000 2000 HORIZONTAL SCALE IN FEET



CONSTRUCTION SEQUENCE

PRE-PHASE 1
PRIOR TO PHASE 1 THE CONTRACTOR SHALL CONSTRUCT THE PROPOSED STORM SEWER FROM STA. 27+61 ℄ S.R. 21 TO STA. 30+15 ℄ RAMP G-1. HE SHALL INSTALL A DETOUR SHOWN ON SHEET 18. CONSTRUCTION SHALL BE DONE ON A WEEKEND UNLESS APPROVED OTHERWISE BY THE ENGINEER. AFTER COMPLETION OF THE INSTALLATION THE CONTRACTON SHALL COVER OR REMOVE THE DETOUR SIGNS AND REMOVE THE OVERLAY SIGNS.

PHASE 1
SHIFT I-77 N.B. AND S.B. TRAFFIC TO THE MEDIAN SIDE WITH 3-11 FOOT LANES. REMOVE LANE LINES FROM STA. 527+87 TO STA. 538+12 N.B. AND FROM STA. 535+20 TO STA. 545+65 S.B. PLACE PORTABLE CONCRETE BARRIERS ALONG OUTSIDE SHOULDERS N.B. AND S.B. TO CONSTRUCT THE ABUTMENTS, REAR ABUTMENT EXTENDED WINGWALLS, A PORTION OF THE FORWARD ABUTMENT EXTENDED WINGWALLS, THE TEMPORARY SUPPORTS FOR THE END GIRDER SEGMENTS AND PROPOSED STORM SEWERS ADJACENT TO THE PROPOSED ABUTMENTS AND WINGWALLS. INSTALL END GIRDER SEGMENTS.

INSTALL THE 125.21' CENTER GIRDER SEGMENTS DURING OVERNIGHT CLOSURES OF I-77. CONSTRUCT CONCRETE DECK AND PARAPETS.

NOTE: THE CONTRACTOR SHALL INSTALL RAISED PAVEMENT MARKERS ALONG THE EDGE LINES AND CHANNELIZING LINES IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MT-99.30.

LEGEND

(1) ITEM 614, WORK ZONE EDGE LINE (WHITE), CLASS 1, 740,06, TYPE 1
(2) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06, TYPE 1
(3) ITEM 614, WORK ZONE IMPACT ATTENUATOR
(4) ITEM 622, PORTABLE CONCRETE BARRIER, 32"
(5) ITEM 614, WORK ZONE EDGE LINE (YELLOW),CLASS 1, 740.06, TYPE 1
(6) ITEM 646, LANE LINE

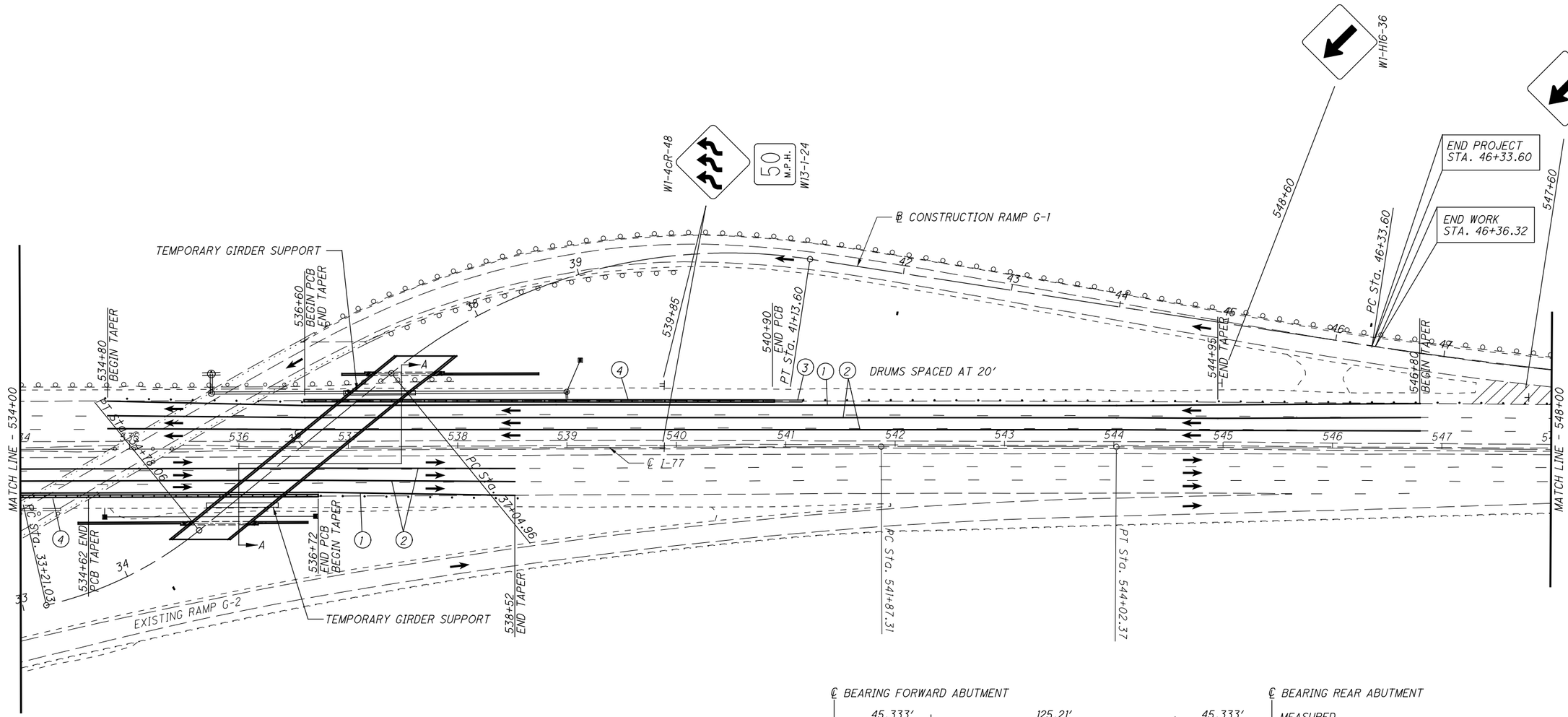
HORIZONTAL SCALE IN FEET
0 25 50 100

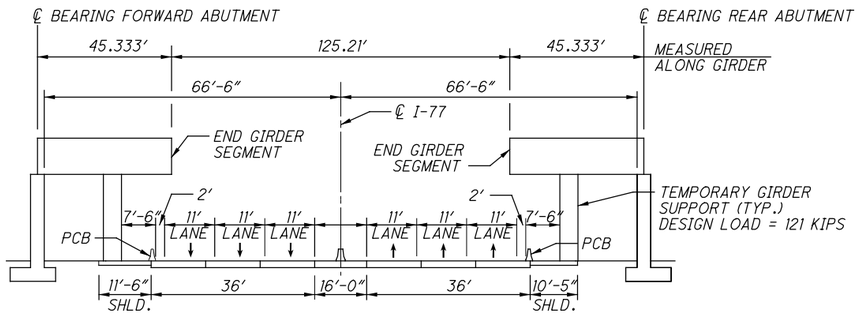
CALCULATED JEN
CHECKED JLN

MAINTENANCE OF TRAFFIC - PHASE 1
STA. 520+00 TO STA. 534+00

CUY-21-10.04L

19
100





SECTION A-A

NOTE: TEMPORARY GIRDER SUPPORT DESIGN LOAD = 121 KIPS.

FOR NOTES AND LEGEND, SEE SHEET 19

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED JEN
CHECKED JLN

MAINTENANCE OF TRAFFIC - PHASE 1
STA. 534+00 TO STA. 548+00

CUY-21-10.04L

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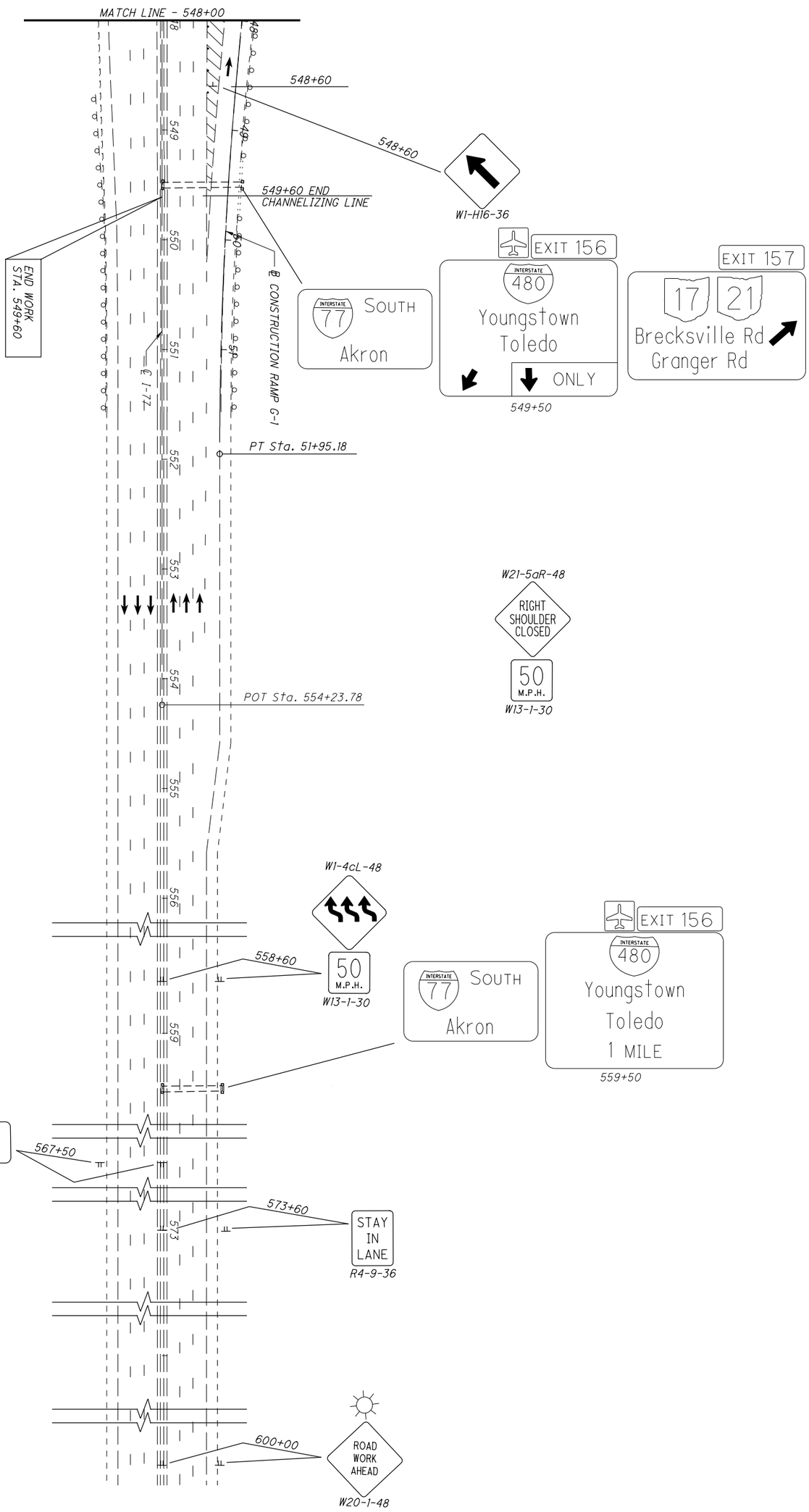
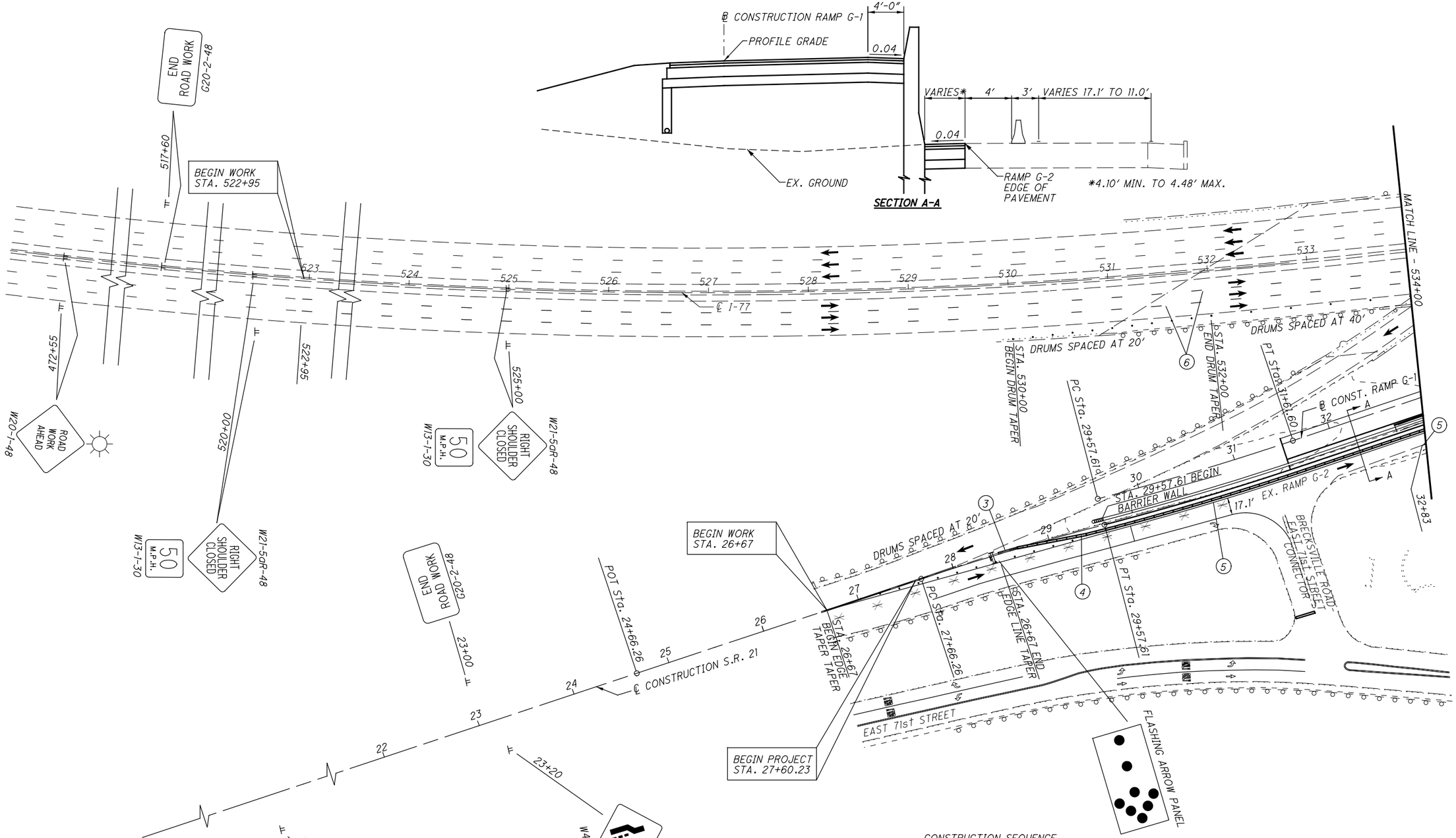


FOR NOTES AND LEGEND, SEE SHEET 19

21 / 100	CUY-21-10.04L	MAINTENANCE OF TRAFFIC - PHASE 1 STA. 548+00 TO STA. 524+24	CALCULATED JEN CHECKED JLN 0 50 25 100 HORIZONTAL SCALE IN FEET



CONSTRUCTION SEQUENCE

PHASE 2

SHIFT I-77 TRAFFIC BACK TO NORMAL ALIGNMENT AND RESTRIPE LANE LINES. MAINTAIN S.B. EXISTING EXIT RAMP, SHIFT TRAFFIC ON THE N.B. ENTRANCE RAMP 6 FEET TO THE RIGHT AND MAINTAIN A MINIMUM 10'-6" TRAVEL LANE USING STANDARD CONSTRUCTION DRAWING MT-95.40 AND OMUTCD "TYPICAL APPLICATION 34" DURING CONSTRUCTION OF THE CONCRETE BARRIER AND RETAINING WALL FROM STA. 29+57.61 TO STA. 34+29.15. RESTORE RAMP G-2 PAVEMENT ALONG CONCRETE BARRIER AND RETAINING WALL ONCE COMPETED AND REMOVE PORTABLE CONCRETE BARRIER. CONSTRUCT GEOFOAM BEHIND REAR ABUTMENT. CONSTRUCT PAVEMENT ON THE RAMP FROM STA. 31+50± TO THE REAR ABUTMENT, INCLUDING THE REAR APPROACH SLAB.

PERFORM AS MUCH EARTHWORK AND GEOFOAM FILL NORTH OF THE FORWARD ABUTMENT AS POSSIBLE UTILIZING TEMPORARY SHEETING WITHOUT AFFECTING TRAFFIC. CONSTRUCT THE FORWARD APPROACH SLAB.

NOTE: FOR LEGEND SEE SHEET 19.

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED JEN
CHECKED JLN

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 520+00 TO STA. 534+00

CUY-21-10.04L

22
100

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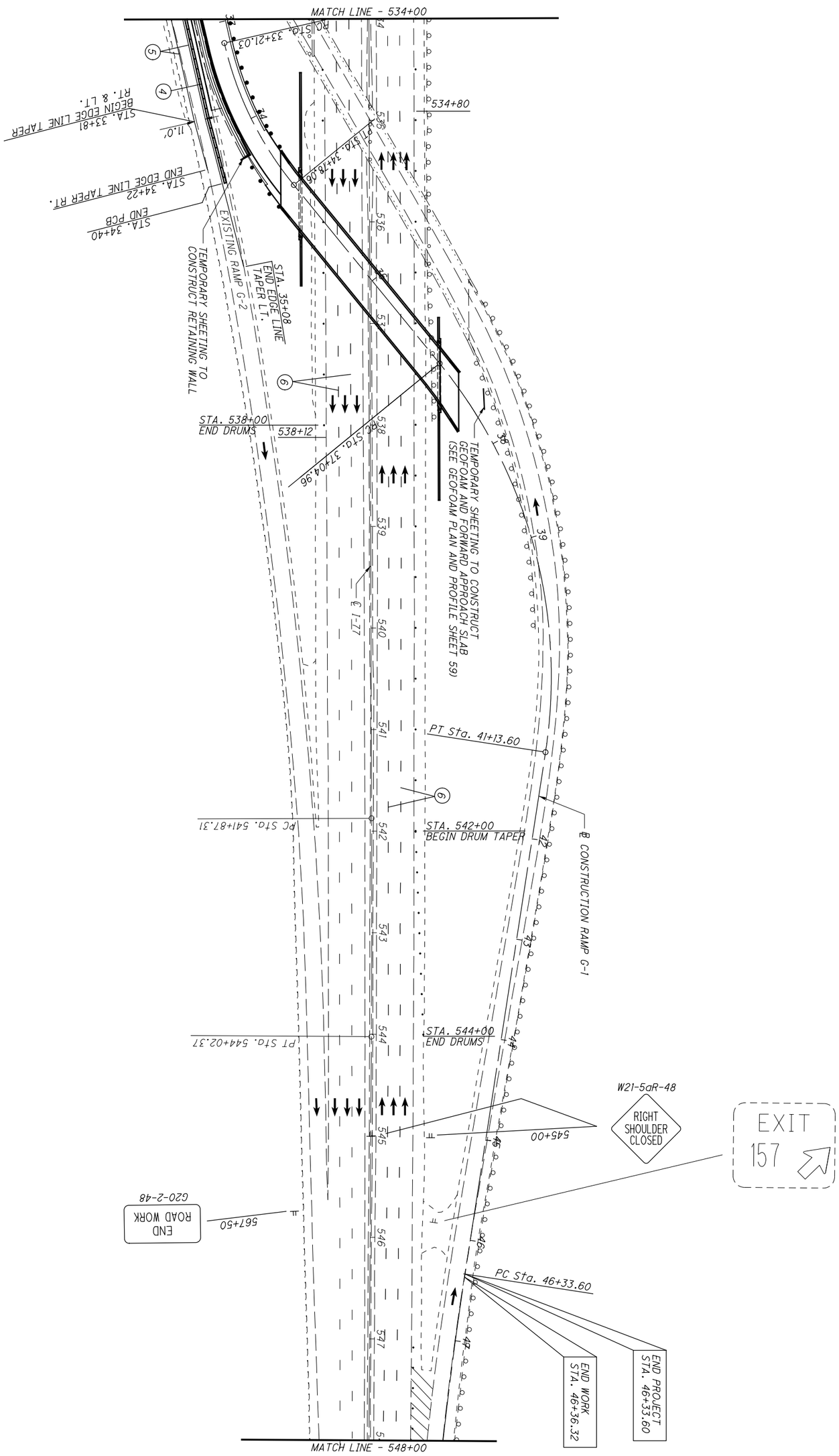
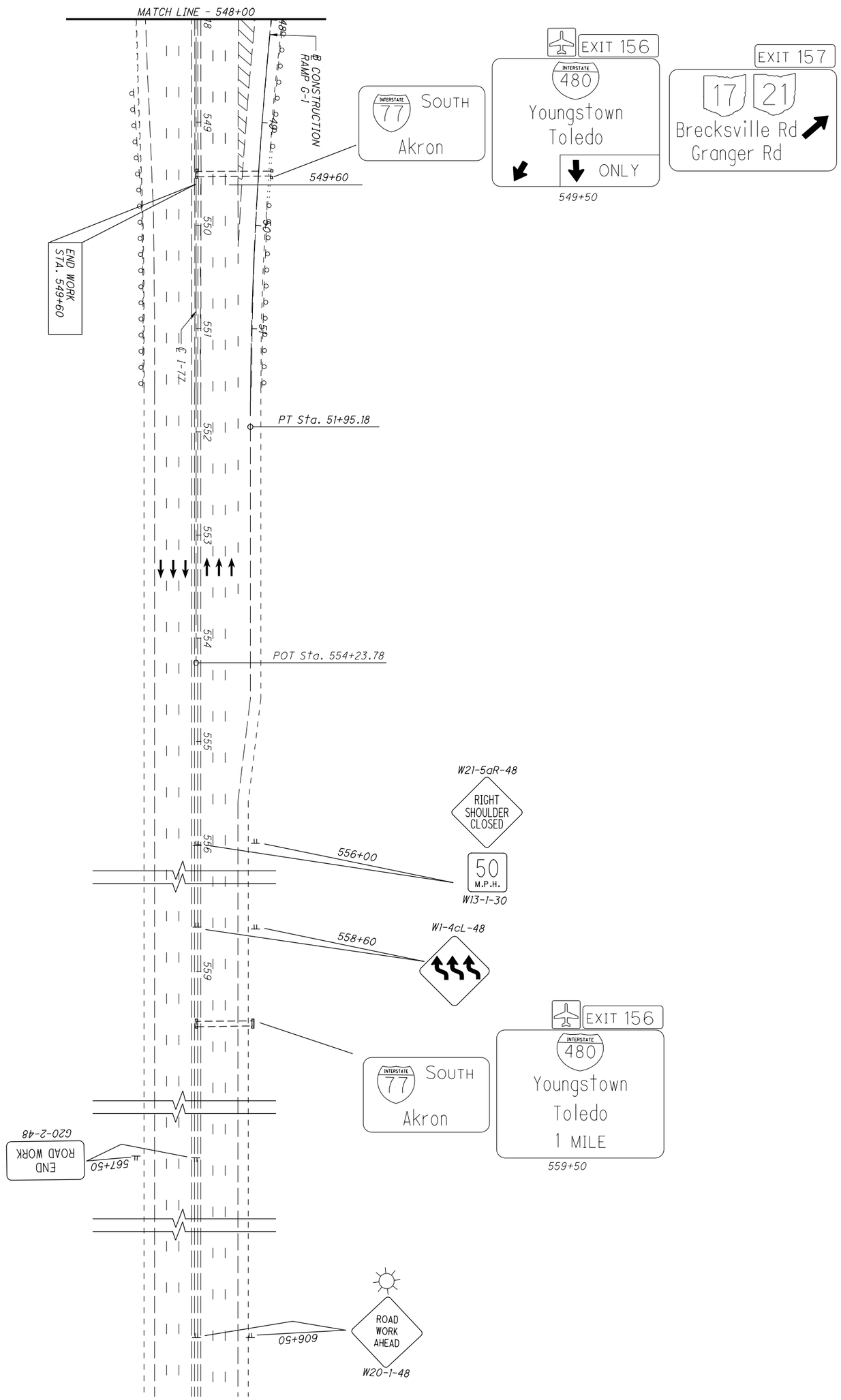


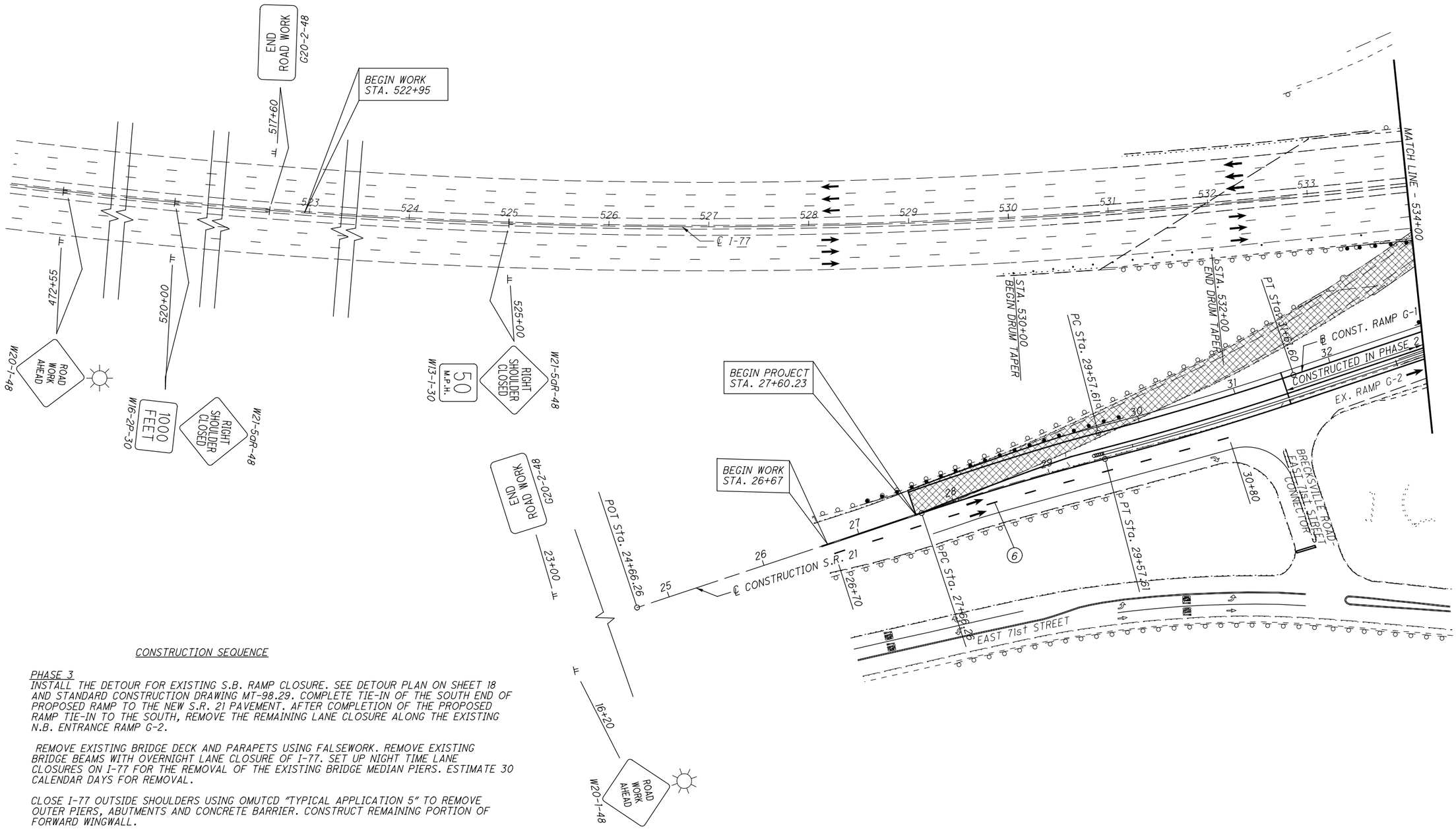
NOTE: SEE SHEET 19 FOR MAINTENANCE OF TRAFFIC LEGEND.
FOR NOTES, SEE SHEET 22.

23 / 100	CUY-21-10.04L	MAINTENANCE OF TRAFFIC - PHASE 2 STA. 534+00 TO STA. 548+00	CALCULATED JEN CHECKED JLN	0 50 25 100 HORIZONTAL SCALE IN FEET



NOTE: SEE SHEET 19 FOR MAINTENANCE OF TRAFFIC LEGEND. FOR NOTES, SEE SHEET 22.

24 / 100	CUY-21-10.04L	MAINTENANCE OF TRAFFIC - PHASE 2 STA. 548+00 TO STA. 524+24	CALCULATED JEN CHECKED JLN	0 50 25 100 HORIZONTAL SCALE IN FEET



CONSTRUCTION SEQUENCE

PHASE 3
INSTALL THE DETOUR FOR EXISTING S.B. RAMP CLOSURE. SEE DETOUR PLAN ON SHEET 18 AND STANDARD CONSTRUCTION DRAWING MT-98.29. COMPLETE TIE-IN OF THE SOUTH END OF PROPOSED RAMP TO THE NEW S.R. 21 PAVEMENT. AFTER COMPLETION OF THE PROPOSED RAMP TIE-IN TO THE SOUTH, REMOVE THE REMAINING LANE CLOSURE ALONG THE EXISTING N.B. ENTRANCE RAMP G-2.

REMOVE EXISTING BRIDGE DECK AND PARAPETS USING FALSEWORK. REMOVE EXISTING BRIDGE BEAMS WITH OVERNIGHT LANE CLOSURE OF I-77. SET UP NIGHT TIME LANE CLOSURES ON I-77 FOR THE REMOVAL OF THE EXISTING BRIDGE MEDIAN PIERS. ESTIMATE 30 CALENDAR DAYS FOR REMOVAL.

CLOSE I-77 OUTSIDE SHOULDERS USING OMUTCD "TYPICAL APPLICATION 5" TO REMOVE OUTER PIERS, ABUTMENTS AND CONCRETE BARRIER. CONSTRUCT REMAINING PORTION OF FORWARD WINGWALL.

CONSTRUCT REMAINING GEOFOAM AND PAVEMENT NORTH OF THE STRUCTURE. ALL WORK CONSTRUCTED IN PHASE 3 SHALL BE PERFORMED WITHIN A MAXIMUM 75 DAY RAMP CLOSURE WITH DETOUR.

PHASE 4
REMOVE DETOUR FOR S.B. RAMP CLOSURE. DIRECT TRAFFIC TO NEW S.B. RAMP. CONSTRUCT PROPOSED I-77 GUARDRAIL. SEE FIGURE 6H-4, TYPICAL APPLICATION 4 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. REMOVE REMAINING EXISTING S.B. RAMP.

NOTE: SEE SHEET 18 FOR DETOUR PLAN.
FOR LEGEND, SEE SHEET 19.

N

0 25 50 100
HORIZONTAL SCALE IN FEET

CALCULATED JEN
CHECKED JLN

MAINTENANCE OF TRAFFIC - PHASE 3 & 4
STA. 520+00 TO STA. 534+00

CUY-21-10.04L

25
100

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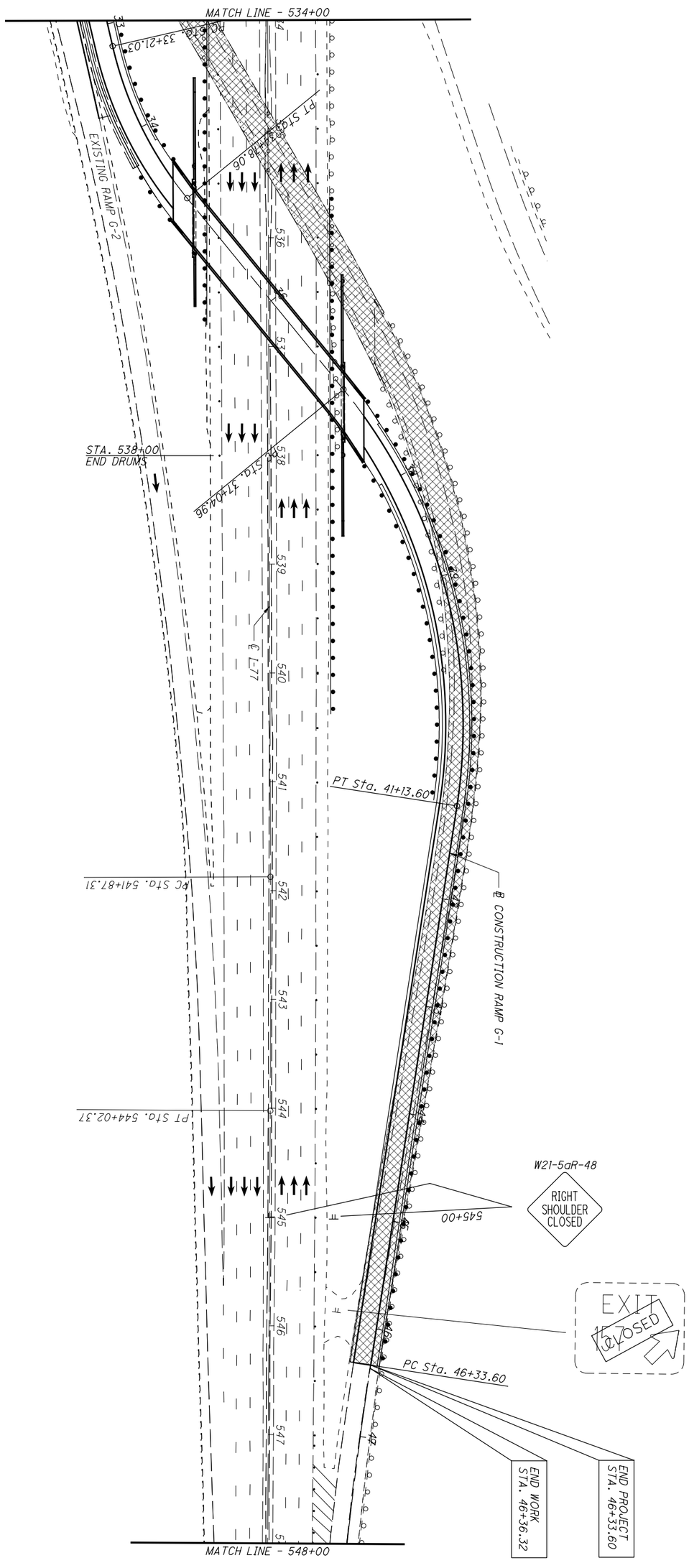
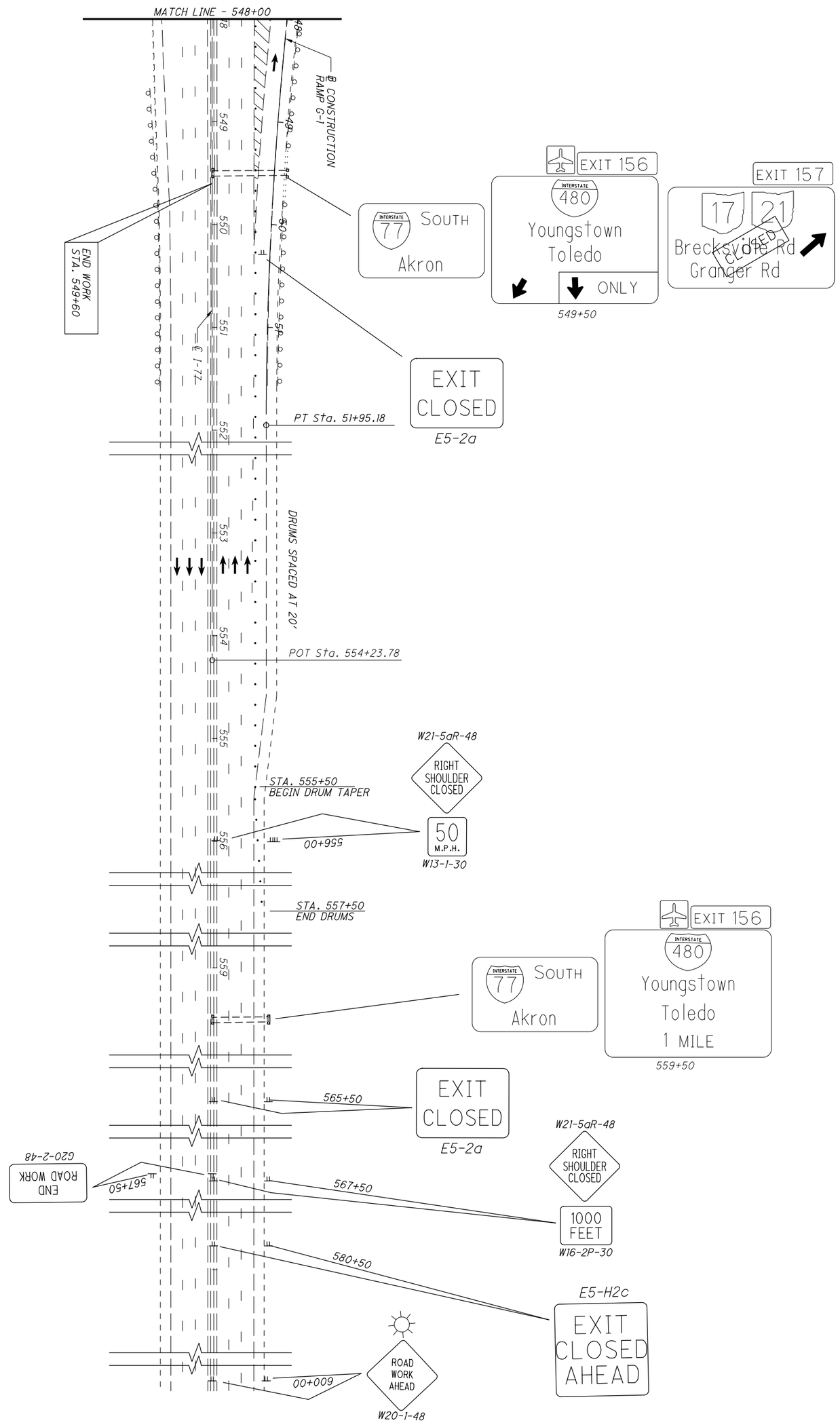


PAVEMENT & STRUCTURE REMOVED

NOTE: SEE SHEET 18 FOR DETOUR PLAN.
FOR LEGEND, SEE SHEET 19.
FOR NOTES, SEE SHEET 25.

26 / 100	CUY-21-10.04L	MAINTENANCE OF TRAFFIC - PHASE 3 & 4 STA. 534+00 TO STA. 548+00	CALCULATED JEN CHECKED JLN	0 50 25 100 HORIZONTAL SCALE IN FEET



NOTES: SEE SHEET 18 FOR DETOUR PLAN.
FOR LEGEND, SEE SHEET 19.
FOR NOTES, SEE SHEET 25.

CUY-21-10.04L

MAINTENANCE OF TRAFFIC - PHASE 3 & 4
STA. 548+00 TO STA. 524+24

CALCULATED JEN
CHECKED JLN

0 25 50 100
HORIZONTAL SCALE IN FEET

N

SHEET NUMBER								PARTICIPATION					ALT.	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
8		31	33	34	35	50	Office Calc's	01/BRO/BR					(X)						
																		ROADWAY	
LUMP								LUMP						201	11000	LUMP		CLEARING AND GRUBBING	
							116	116						202	22900	116	SQ YD	APPROACH SLAB REMOVED	
							4453	4453						202	23000	4453	SQ YD	PAVEMENT REMOVED	
						139		139						202	30700	139	FT	CONCRETE BARRIER REMOVED	
							41	41						202	30800	41	SQ YD	TRAFFIC ISLAND REMOVED	
							1056	1056						202	32000	1056	FT	CURB REMOVED	
			91	122		327		540						202	35100	540	FT	PIPE REMOVED, 24" AND UNDER	
						16		16						202	35200	16	FT	PIPE REMOVED, OVER 24"	
			482		1268	202		1952						202	38000	1952	FT	GUARDRAIL REMOVED	
			1					1						202	58000	1	EACH	MANHOLE REMOVED	
				1		2		3						202	58100	3	EACH	CATCH BASIN REMOVED	
				1				1						202	58200	1	EACH	INLET REMOVED	
					100			100						202	75000	100	FT	FENCE REMOVED	
				1				1						202	98100	1	EACH	REMOVAL MISC.: IRON PIN IN WATER VALVE BOX	
		3974						3974						203	10000	3974	CU YD	EXCAVATION	
		10123						10123						203	20000	10123	CU YD	EMBANKMENT	8
		2890						2890						203	20001	2890	CU YD	EMBANKMENT, AS PER PLAN	8
		7759						7759						SPECIAL	20357150	7759	CU YD	FOUNDATION EXCAVATION	8
		17225						17225						203	98000	17225	CU YD	ROADWAY, MISC.: EPS GEOFOAM FILL	8
							5457	5457						204	10000	5457	SQ YD	SUBGRADE COMPACTION	
		767						767						204	13000	767	CU YD	EXCAVATION OF SUBGRADE	
		500						500						204	20000	500	CU YD	EMBANKMENT	
		336						336						204	30010	336	CU YD	GRANULAR MATERIAL, TYPE B	
3								3						204	45000	3	HOUR	PROOF ROLLING	
							22	22						209	15001	22	STATION	RESHAPING UNDER GUARDRAIL, AS PER PLAN	9
			237.5	137.5	1194.5	775.0		2344.5						606	15050	2344.5	FT	GUARDRAIL, TYPE MGS	
			1		1	1		3						606	26150	3	EACH	ANCHOR ASSEMBLY, MGS TYPE E	
				1		1		2						606	26550	2	EACH	ANCHOR ASSEMBLY, MGS TYPE T	
					3			3						606	35002	3	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	
				1	1			2						606	35102	2	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2	
			1					1						606	60028	1	EACH	IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL)	
					100			100						607	23000	100	FT	FENCE, TYPE CLT	
			257					257						622	10120	257	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE C	
			1					1						622	24840	1	EACH	CONCRETE BARRIER END SECTION, TYPE B	
			1					1						622	25008	1	EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE C	

CALCULATED JLN
CHECKED DTB

GENERAL SUMMARY

CUY-21-10.04L

SHEET NUMBER								PARTICIPATION					ALT.	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
10	33	34	35	36	50	53	Office Calc's	01/BRO/BR					(X)						
																		EROSION CONTROL	
						5		5						601	21050	5	SQ YD	TIED CONCRETE BLOCK MAT, TYPE 1	
		81	19	72				172						601	21060	172	SQ YD	TIED CONCRETE BLOCK MAT, TYPE 2	
			69					69						601	32100	69	CU YD	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
2								2						659	00100	2	EACH	SOIL ANALYSIS TEST	
1139								1139						659	00300	1139	CU YD	TOPSOIL	
12067								12067						659	10000	12067	SQ YD	SEEDING AND MULCHING	
603								603						659	14000	603	SQ YD	REPAIR SEEDING AND MULCHING	
603								603						659	15000	603	SQ YD	INTER-SEEDING	
1.68								1.68						659	20000	1.68	TON	COMMERCIAL FERTILIZER	
2.49								2.49						659	31000	2.49	ACRE	LIME	
67								67						659	35000	67	M GAL	WATER	
27								27						659	40000	27	M SQ FT	MOWING	
			509					509						670	00500	509	SQ YD	SLOPE EROSION PROTECTION	
	125		20	380	125			650						670	00700	650	SQ YD	DITCH EROSION PROTECTION	
LUMP								LUMP						832	15000	LUMP		STORM WATER POLLUTION PREVENTION PLAN	
32200								32200						832	30000	32200	EACH	EROSION CONTROL	
																		DRAINAGE	
						2695		2695						605	11100	2695	FT	6" SHALLOW PIPE UNDERDRAINS	
						404		404						605	13410	404	FT	6" UNCLASSIFIED PIPE UNDERDRAINS WITH FABRIC WRAP, 707.31	
						874		874						605	13411	874	FT	6" UNCLASSIFIED PIPE UNDERDRAINS WITH FABRIC WRAP, AS PER PLAN, 707.31	53
						125		125						611	00510	125	FT	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	
						87		87						611	00900	87	FT	6" CONDUIT, TYPE B	
						30		30						611	01500	30	FT	6" CONDUIT, TYPE F	
	228			31				259						611	05900	259	FT	15" CONDUIT, TYPE B	
					201			201						611	06100	201	FT	15" CONDUIT, TYPE C	
					6			6						611	07400	6	FT	18" CONDUIT, TYPE B	
					393			393						611	10400	393	FT	24" CONDUIT, TYPE B	
	89							89						611	10401	89	FT	24" CONDUIT, TYPE B, AS PER PLAN	10
					16			16						611	13600	16	FT	30" CONDUIT, TYPE C	
				1				1						611	98300	1	EACH	CATCH BASIN, NO. 5	
	1							1						611	98370	1	EACH	CATCH BASIN, NO. 6	
	1				2			3						611	98410	3	EACH	CATCH BASIN, NO. 8	
		1						1						611	99104	1	EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE C	
					2			2						611	99574	2	EACH	MANHOLE, NO. 3, 48" BASE	
					1			1						611	99574	1	EACH	MANHOLE, NO. 3, 60" BASE	
					1			1						611	99574	1	EACH	MANHOLE, NO. 3, 72" BASE	
	1							1						611	99575	1	EACH	MANHOLE, NO. 3, AS PER PLAN	10
						3		3						611	99710	3	EACH	PRECAST REINFORCED CONCRETE OUTLET	
																		PAVEMENT	
							138	138						254	01000	138	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE	
							981	981						302	46000	981	CU YD	ASPHALT CONCRETE BASE, PG64-22	
							904	904						304	20000	904	CU YD	AGGREGATE BASE	
							544	544						407	10001	544	GALLON	TACK COAT, AS PER PLAN	9
							231	231						441	50701	231	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (448), (UNDER GUARDRAIL), AS PER PLAN	9
							208							442	20001	208	CU YD	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (448), AS PER PLAN	
							238	238						442	20201	238	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (448), AS PER PLAN	9
185								185						452	19200	185	SQ YD	NON-REINFORCED CONCRETE PAVEMENT, MISC.: 9" THICK, QC FS	10
							122	122						609	24510	122	FT	CURB, TYPE 4-C	
211							167	378						609	26000	378	FT	CURB, TYPE 6	
							173	173						SPECIAL	69012050	173	SQ YD	REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS	10

CALCULATED JLN
CHECKED DTB

GENERAL SUMMARY

CUY-21-10.04L

SHEET NUMBER								PARTICIPATION						ALT.	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
9		12	13	14	15		58	01/BRO/BR						(X)						
																			FOR LIGHTING GENERAL SUMMARY	67
																			FOR TRAFFIC CONTROL GENERAL SUMMARY	61
																			RETAINING WALLS	
							LUMP	LUMP							503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING	
							248	248							503	21100	248	CU YD	UNCLASSIFIED EXCAVATION	
							1750	1750							507	00500	1750	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	
							2000	2000							507	00550	2000	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	
							16396	16396							509	10000	16396	POUND	EPOXY COATED REINFORCING STEEL	
							255	255							511	46213	255	CU YD	CLASS QC1 CONCRETE WITH QC/QA, AS PER PLAN	58
							238	238							512	10100	238	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
							11	11							512	33000	11	SQ YD	TYPE 2 WATERPROOFING	
							34	34							516	13600	34	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	
							75	75							518	21200	75	CU YD	POROUS BACKFILL WITH FILTER FABRIC	
							173	173							518	40000	173	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	
							1	1							523	20000	1	EACH	DYNAMIC LOAD TESTING	
																			STRUCTURE (20' AND OVER)	
																			FOR STRUCTURE CUY-21-10.04L QUANTITIES	76
																			MAINTENANCE OF TRAFFIC	
					200			200							614	11110	200	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
			18					18							614	11500	18	MONTH	WORKSITE TRAFFIC SUPERVISOR	
				2				2							614	12336	2	EACH	WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL)	
				1				1							614	12338	1	EACH	WORK ZONE IMPACT ATTENUATOR (BIDIRECTIONAL)	
		LUMP						LUMP							614	12420	LUMP		DETOUR SIGNING	
		10						10							614	12500	10	EACH	REPLACEMENT SIGN	
				52				52							614	12801	52	EACH	WORK ZONE RAISED PAVEMENT MARKER, AS PER PLAN	14
			30					30							614	13300	30	EACH	BARRIER REFLECTOR, TYPE B	
			27					27							614	13350	27	EACH	OBJECT MARKER, ONE WAY	
					100			100							614	18010	100	SQ FT	MAINTAINING TRAFFIC, MISC.: ADDITIONAL SIGNS, GROUND MOUNTED, AS DIRECTED BY THE ENGINEER	
				43				43							614	18600	43	SIGN MNTH	PORTABLE CHANGEABLE MESSAGE SIGN	
		0.7						0.7							614	22200	0.7	MILE	WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE I	
		6074						6074							614	23400	6074	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 740.06, TYPE I	
				76				76							616	10000	76	M GAL	WATER	
			1410					1410							622	41001	1410	FT	PORTABLE BARRIER, 32", AS PER PLAN	13
			6642					6642							642	30000	6642	FT	REMOVAL OF PAVEMENT MARKING	
																			INCIDENTALS	
								LUMP							614	11000	LUMP		MAINTAINING TRAFFIC	
22								22							619	16021	22	MONTH	FIELD OFFICE, TYPE C, AS PER PLAN	9
								LUMP							623	10001	LUMP		CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	9
								LUMP							624	10000	LUMP		MOBILIZATION	

CALCULATED JLN
CHECKED DTB

GENERAL SUMMARY

CUY-21-10.04L

CUY-21-10.04L CROSS SECTIONS EARTHWORK AND SEEDING QUANTITIES											
STATION		SHEET NO.	ITEM 203 EMBANKMENT	ITEM 203 EXCAVATION	ITEM 203 EMBANKMENT, AS PER PLAN	ITEM 203 ROADWAY, MICS.: EPS GEOFOAM FILL	ITEM 204 EXCAVATION OF SUBGRADE	ITEM 204 EMBANKMENT	ITEM 204 GRANULAR MATERIAL, TYPE B	ITEM SPECIAL FOUNDATION EXCAVATION	ITEM 659 SEEDING AND MULCHING
FROM	TO										
			CU YD	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD	SQ YD
27+50.00	29+00.00	39	11	85							50
29+50.00	-	40	6	87							78
30+00.00	32+00.00	41	142	518			189	189			1,028
32+50.00	34+00.00	42	345	105	417	1,139	311	311		729	899
34+50.00	37+05.77	43	53	8	776	5,723				2,246	677
37+35.77	38+50.00	44	173		1,321	8,859				3,940	1,254
39+00.00	40+00.00	45	2,381	566	376	1,504				844	1,980
40+50.00	41+50.00	46	5,020	2,331							2,955
42+00.00	43+50.00	47	1,786	214							1,997
44+00.00	45+50.00	48	202	24			158		227		630
46+00.00	46+33.60	49	4	36			109		109		107
SUBTOTAL (ITEM 659)											11,655
DEDUCT FOR ITEM 601											-255
SPILL AREA FOR SPECIAL BENCHING STOCKPILE ON SHEET 20											667
TOTAL USED FOR EROSION CONTROL CALCULATIONS											12,067
TOTAL CARRIED TO GENERAL SUMMARY			10,123	3,974	2,890	17,225	767	500	336	7,759	

ITEM 659 - EROSION CONTROL QUANTITIES		
SOIL ANALYSIS TESTS		2 EACH
TOPSOIL	$\frac{111 \text{ CU YD}}{1000 \text{ SQ YD OF SEEDING}} \times 12{,}067 \text{ SQ YD}$	1,139 CU YD
COMMERCIAL FERTILIZER	$\frac{1 \text{ TON}}{7410 \text{ SQ YD OF SEEDING}} \times 12{,}067 \text{ SQ YD} + \frac{1 \text{ TON}}{11{,}110 \text{ SQ YD OF INTER-SEEDING}} \times 603 \text{ SQ YD}$	1.68 TON
LIME	$\frac{9}{43560} \times 12{,}067 \text{ SQ YD}$	2.49 ACRE
REPAIR SEEDING AND MULCHING	$\frac{5}{100} \times 12{,}067 \text{ SQ YD}$	603 SQ YD
INTER-SEEDING	$\frac{5}{100} \times 12{,}067 \text{ SQ YD}$	603 SQ YD
WATER	$\frac{2 \times .0027 \text{ M GAL}}{1 \text{ SQ YD OF SEEDING}} \times 12{,}067 \text{ SQ YD} + \frac{.0027 \text{ M GAL}}{1 \text{ SQ YD OF INTER-SEEDING}} \times 603 \text{ SQ YD}$	67 M GAL
MOWING	$0.25 \times 12{,}067 \text{ SQ YD} \times \frac{9 \text{ SQ FT}}{1 \text{ SQ YD}} \times \frac{1 \text{ M SQ FT}}{1{,}000 \text{ SQ FT}}$	27 M SQ FT
QUANTITIES CARRIED TO GENERAL NOTES SHEET NO. 9		

CALCULATED JLN CHECKED VMB

QUANTITY CALCULATIONS

CUY-21-10.04L

VEGETATED BIOFILTER (VBF) - FOR INFORMATION PURPOSES ONLY					
STATION	OFFSET	SIDE	BOTTOM WIDTH	DEPTH	PROTECTIVE LINING
39+00	82.3′	RT.	7′-0″	0.43″	DITCH EROSION PROTECTION (CMS 670)
39+50	90.5′	RT.	7′-0″	0.41″	DITCH EROSION PROTECTION (CMS 670)
40+00	96.0′	RT.	7′-0″	0.39″	DITCH EROSION PROTECTION (CMS 670)
40+50	97.7′	RT.	6′-0″	0.40″	DITCH EROSION PROTECTION (CMS 670)
41+00	94.5′	RT.	6′-0″	0.38″	DITCH EROSION PROTECTION (CMS 670)
41+50	86.6′	RT.	6′-0″	0.35″	DITCH EROSION PROTECTION (CMS 670)
42+00	80.6′	RT.	5′-0″	0.35″	DITCH EROSION PROTECTION (CMS 670)
42+50	74.0′	RT.	5′-0″	0.32″	DITCH EROSION PROTECTION (CMS 670)

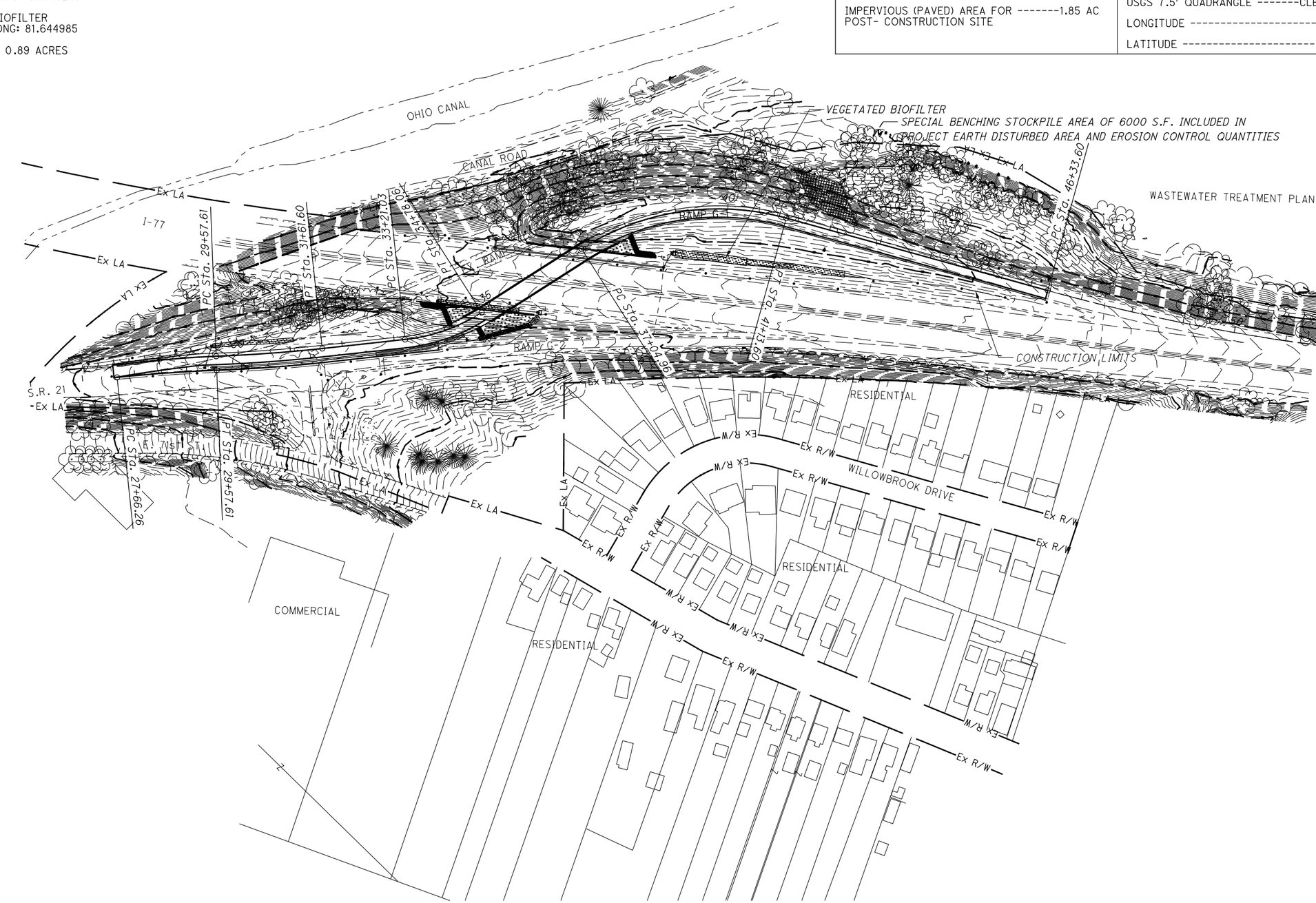
BEGIN VEGETATED BIOFILTER
LAT: 41.422391, LONG: 81.645243

END VEGETATED BIOFILTER
LAT: 41.421516, LONG: 81.644985

EDA TREATMENT = 0.89 ACRES

PROJECT DATA

TOTAL AREA (RIGHT OF WAY) ---------6.05 AC	RUNOFF COEFFICIENT FOR ---------0.65 PRE- CONSTRUCTION SITE
PROJECT EARTH DISTURBED AREA -----4.45 AC	RUNOFF COEFFICIENT FOR ---------0.66 POST- CONSTRUCTION SITE
ESTIMATED CONTRACTOR EARTH -------0.25 AC DISTURBED AREA	POST CONSTRUCTION BMP: VEGETAGED BIOFILTER
NOTICE OF INTENT EARTH ------------4.9 AC DISTURBED AREA	IMMEDIATE RECEIVING WATERS -----OHIO CANAL
IMPERVIOUS (PAVED) AREA FOR -------1.69 AC PRE- CONSTRUCTION SITE	SUBSEQUENT RECEIVING WATERS ---CUYAHOGA RIVER
IMPERVIOUS (PAVED) AREA FOR -------1.85 AC POST- CONSTRUCTION SITE	USGS 7.5′ QUADRANGLE -------CLEVELAND SOUTH, OHIO
	LONGITUDE ----------81° 38′ 38″
	LATITUDE ----------41° 25′ 14″



PROJECT SITE PLAN

CUY-21-10.04L

32
100

CALCULATED JLN
CHECKED DTB

HORIZONTAL SCALE IN FEET
0 50 100 200

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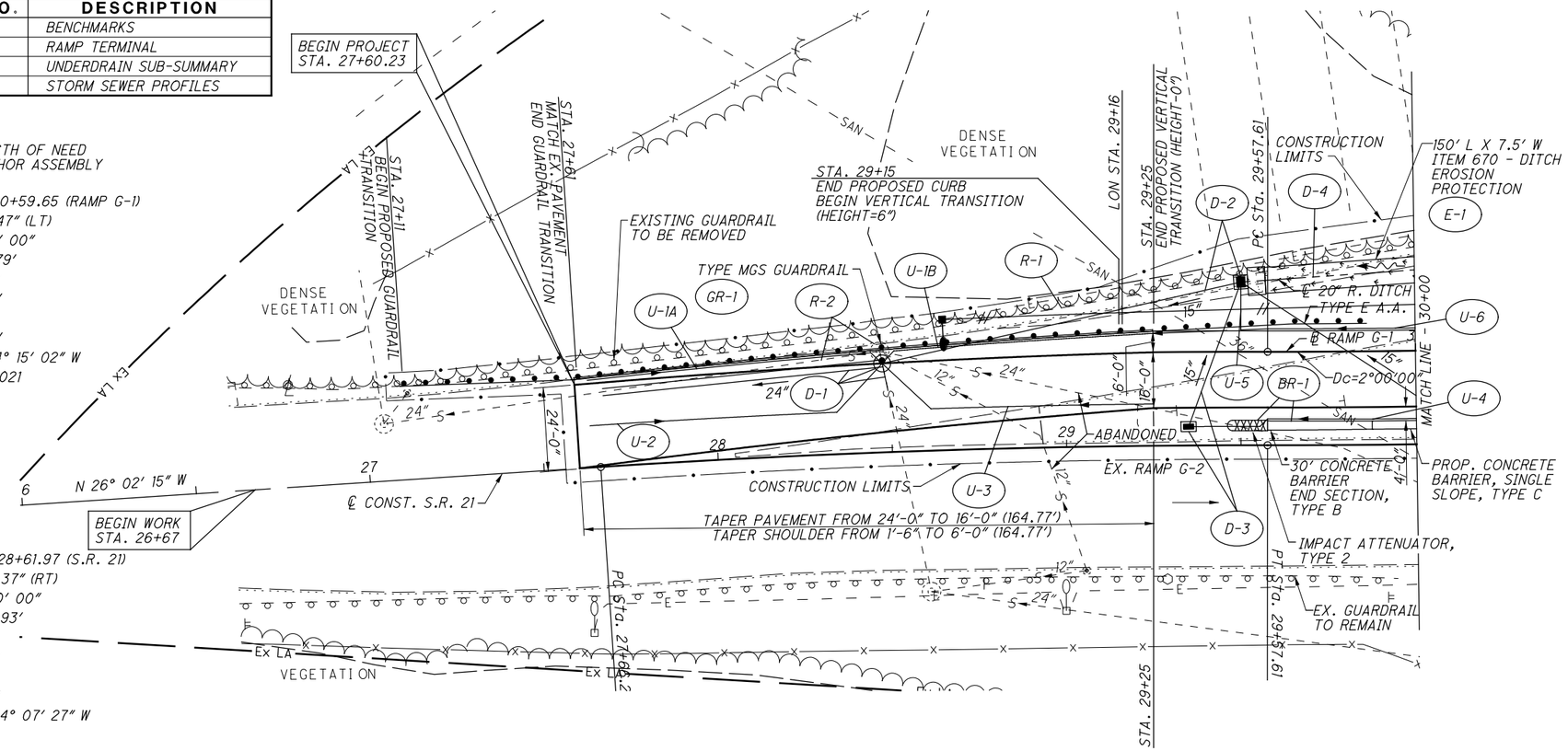
CROSS REFERENCE	
SHEET NO.	DESCRIPTION
2	BENCHMARKS
52	RAMP TERMINAL
53	UNDERDRAIN SUB-SUMMARY
54	STORM SEWER PROFILES

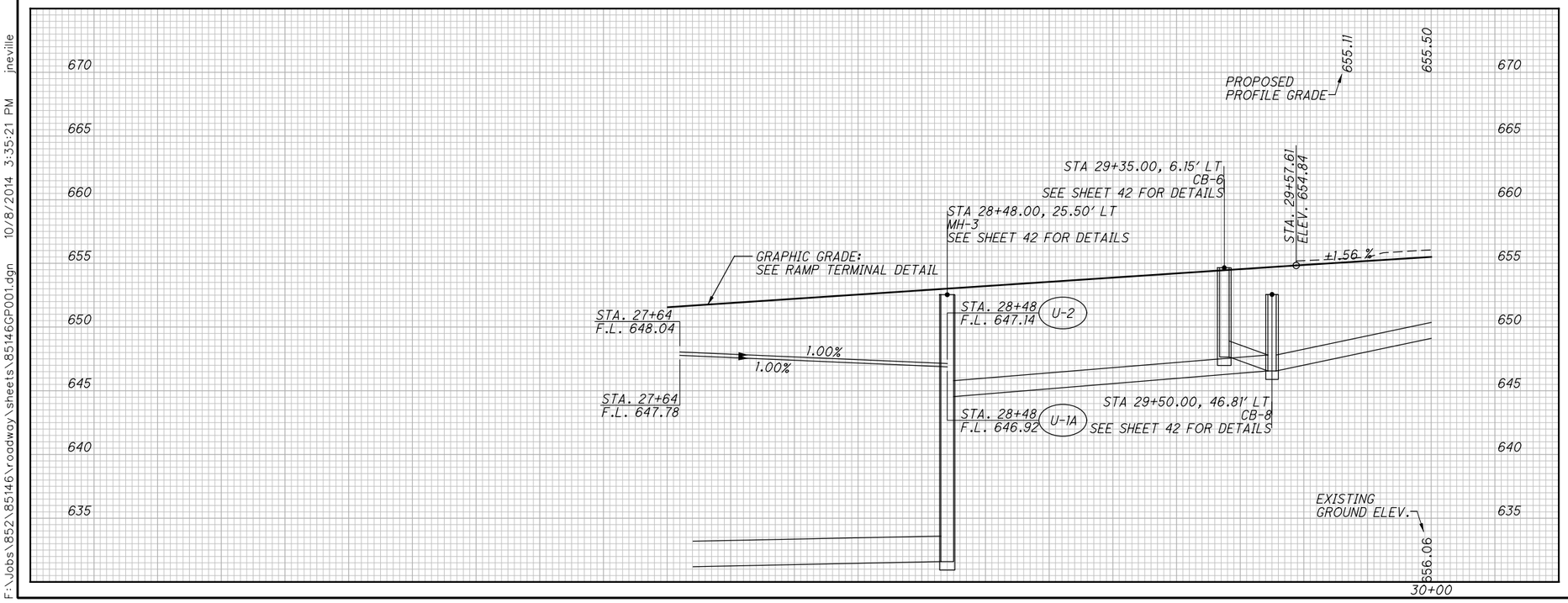
LEGEND

LON - LENGTH OF NEED
A.A. - ANCHOR ASSEMBLY

P.I. Sta. 30+59.65 (RAMP G-1)
Δ = 4° 04′ 47″ (LT)
Dc = 2° 00′ 00″
R = 2,864.79′
T = 102.04′
L = 203.99′
E = 1.82′
C = 203.95′
C.B. = N 24° 15′ 02″ W
e_{max} = 0.021

P.I. Sta. 28+61.97 (S.R. 21)
Δ = 3° 49′ 37″ (RT)
Dc = 2° 00′ 00″
R = 2,864.93′
T = 95.71′
L = 191.35′
E = 1.60′
C = 191.32′
C.B. = N 24° 07′ 27″ W





REF NO.	STATION FROM	STATION TO	SIDE	670 DITCH EROSION PROTECTION SY	622 CONCRETE BARRIER, SINGLE SLOPE, TYPE C FT	622 CONCRETE BARRIER END SECTION, TYPE B EA	622 CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE C EA	611 MANHOLE, NO. 3, AS PER PLAN EA	611 CATCH BASIN, NO. 8 EA	611 CATCH BASIN, NO. 6 EA	611 24" CONDUIT, TYPE B, AS PER PLAN FT	611 15" CONDUIT, TYPE B FT	606 ANCHOR ASSEMBLY, MGS TYPE E EA	606 IMPACT ATTENUATOR, TYPE 2 (BI-DIRECTIONAL) EA	606 GUARDRAIL, TYPE MGS FT	202 PIPE REMOVED, 24" AND UNDER FT	202 MANHOLE REMOVED EA	202 GUARDRAIL REMOVED FT
BR-1	29+46	32+63	RT									105						
D-1	27+68	28+49	LT								89	44						
D-2	28+49	29+50	LT						1			79						
D-3	29+35	29+50	RT/LT							1								
D-4	29+50	30+15	RT/LT					1					1					
GR-1	27+11.00	29+86.00	LT		257	1	1							1	237.5			
R-1	27+11	31+88	LT													11		482
R-2	27+68	28+49	LT					1								80	1	
E-1	29+57	31+08	LT	125														
TOTALS CARRIED TO GENERAL SUMMARY				125	257	1	1	1	1	1	89	228	1	1	237.5	91	1	482

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JLN
CHECKED DTB

PLAN AND PROFILE - S.R. 21 (RAMP G-1)
STA. 26+00 TO STA. 30+00

CUY-21-10.04L

33
100

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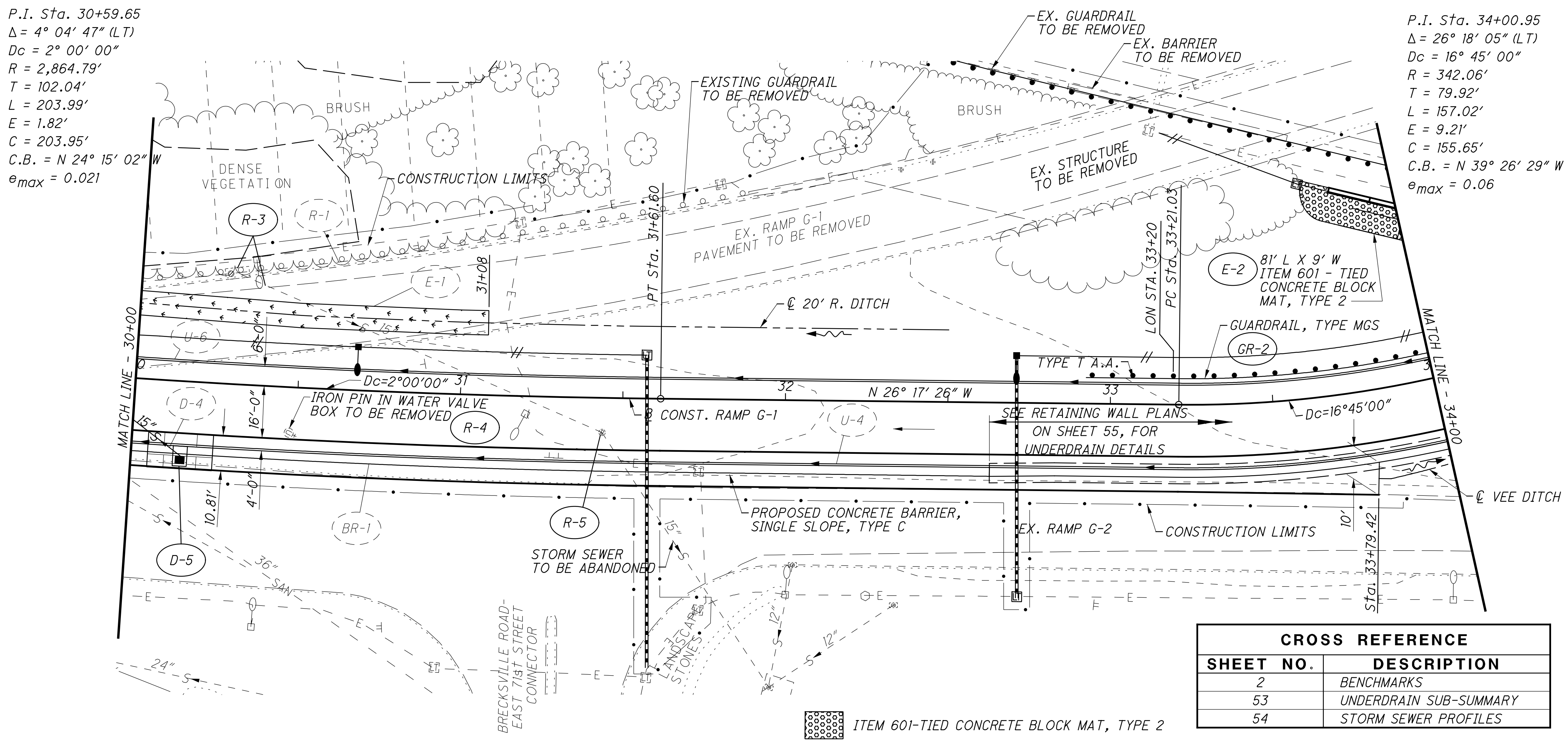
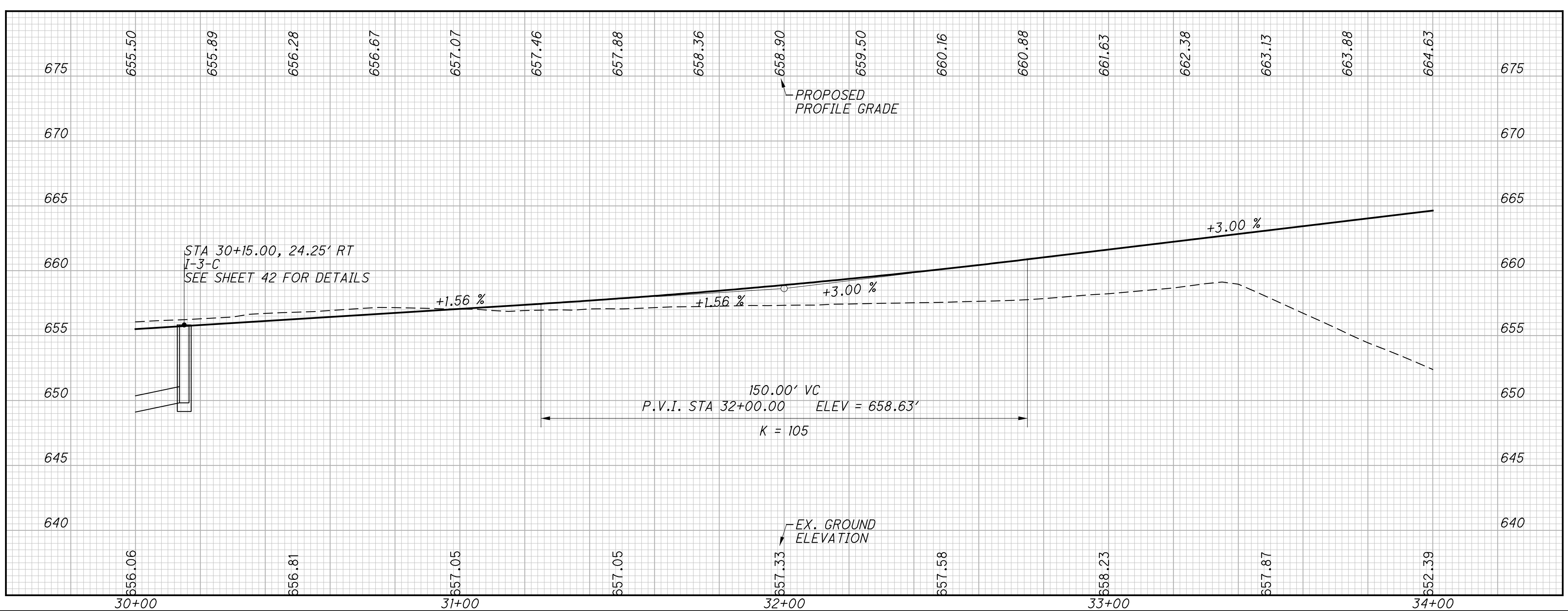


CROSS REFERENCE	
SHEET NO.	DESCRIPTION
2	BENCHMARKS
53	UNDERDRAIN SUB-SUMMARY
54	STORM SEWER PROFILES



REF NO.	STATION FROM	STATION TO	SIDE	611 INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE C (EA)	606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2 (EA)	606 ANCHOR ASSEMBLY, MGS TYPE T (EA)	606 GUARDRAIL, TYPE MGS (FT)	601 TIED CONCRETE BLOCK MAT, TYPE 2 (SY)	202 REMOVAL MISC.: IRON PIN IN WATER VALVE BOX (EA)	202 CATCH BASIN REMOVED (EA)	202 INLET REMOVED (EA)	202 PIPE REMOVED, 24″ AND UNDER (FT)
D-5	30+15		RT	1								
E-2	534+44*	33+63	LT					81				
GR-2	32+92.50	34+45.39	LT		1	1	137.5					
R-3	30+26	31+44	RT/LT								1	122
R-4	30+48								1			
R-5	31+44									1		
TOTALS CARRIED TO GENERAL SUMMARY				1	1	1	137.5	81	1	1	1	122

* STATIONED ALONG I-77

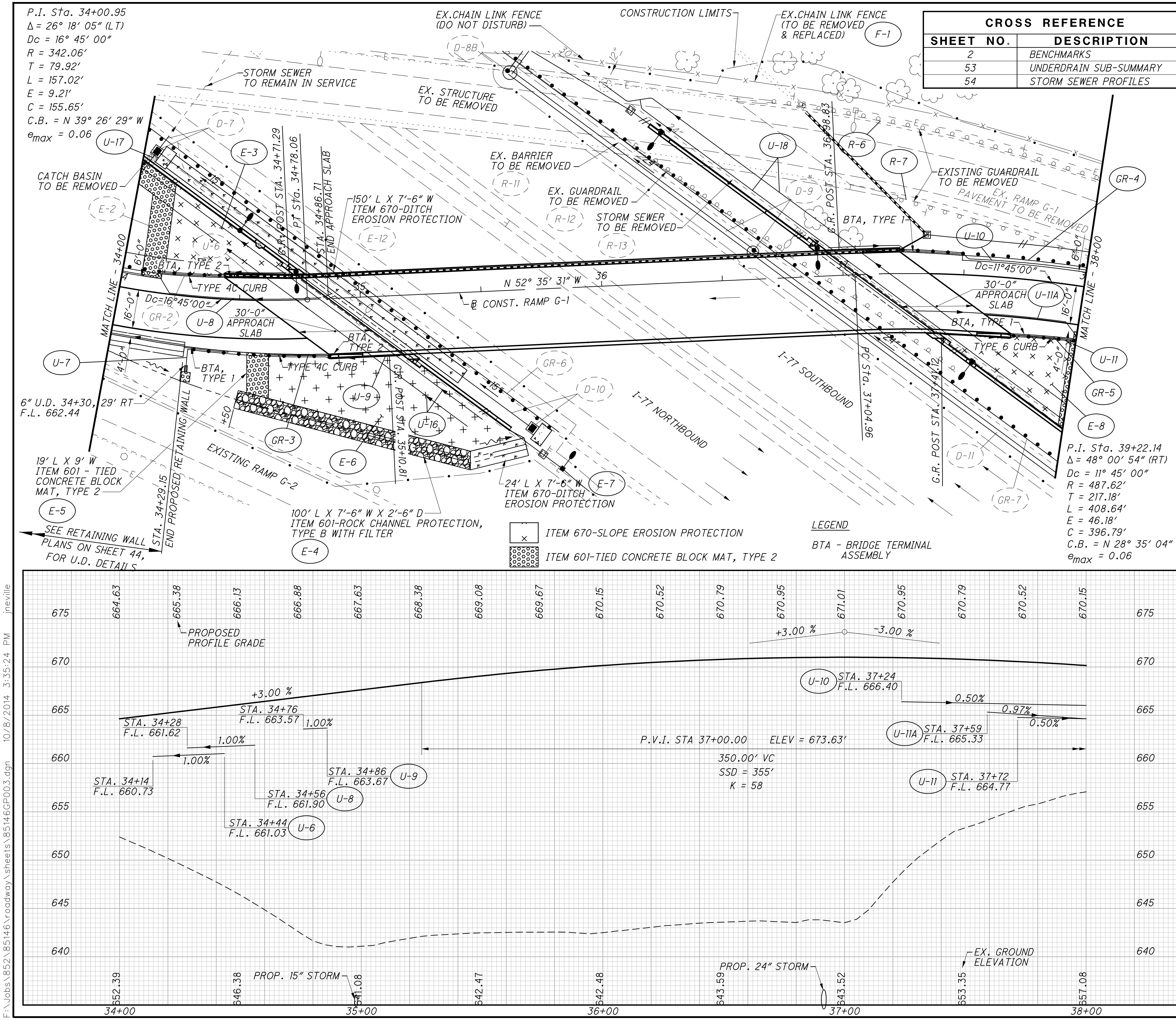
HORIZONTAL SCALE IN FEET: 0 10 20 40

CALCULATED JLN
CHECKED DTB

PLAN AND PROFILE - S.R. 21 (RAMP G-1)
STA. 30+00 TO STA. 34+00

CUY-21-10.04L

SHEET NO.	DESCRIPTION
CROSS REFERENCE	
2	BENCHMARKS
53	UNDERDRAIN SUB-SUMMARY
54	STORM SEWER PROFILES



REF NO.	STATION FROM	STATION TO	SIDE	202 FENCE REMOVED FT	202 GUARDRAIL REMOVED FT	601 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER CY	601 TIED CONCRETE BLOCK MAT, TYPE 2 SY	606 GUARDRAIL, TYPE MGS FT	606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 EA	606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2 EA	606 ANCHOR ASSEMBLY, MGS TYPE E EA	607 FENCE, TYPE CLT FT	670 DITCH EROSIOIN PROTECTION SY	670 SLOPE EROSION PROTECTION SY
E-3	34+18	34+73	LT											114
E-4	34+50	35+43	RT			69								
E-5	34+53	34+62	RT				19							
E-6	34+62	35+65	RT											262
E-7	35+43	35+65	RT										20	
E-8	37+40	37+97	RT											133
F-1	36+53	37+45	LT	100								100		
GR-3	34+28.57	34+87.90	RT					37.5	1	1				
GR-4	37+22.96	46+36.32	LT					894.5	1					
GR-5	37+70.97	41+11.30	RT					262.5	1		1			
R-6	36+74	46+33.6	LT		991									
R-7	37+23	39+93	LT		277									
TOTALS CARRIED TO GENERAL SUMMARY				100	1268	69	19	1194.5	3	1	1	100	20	509

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED JLN CHECKED DTB

PLAN AND PROFILE - S.R. 21 (RAMP G-1) STA. 34+00 TO STA. 38+00

CUY-21-10.04L

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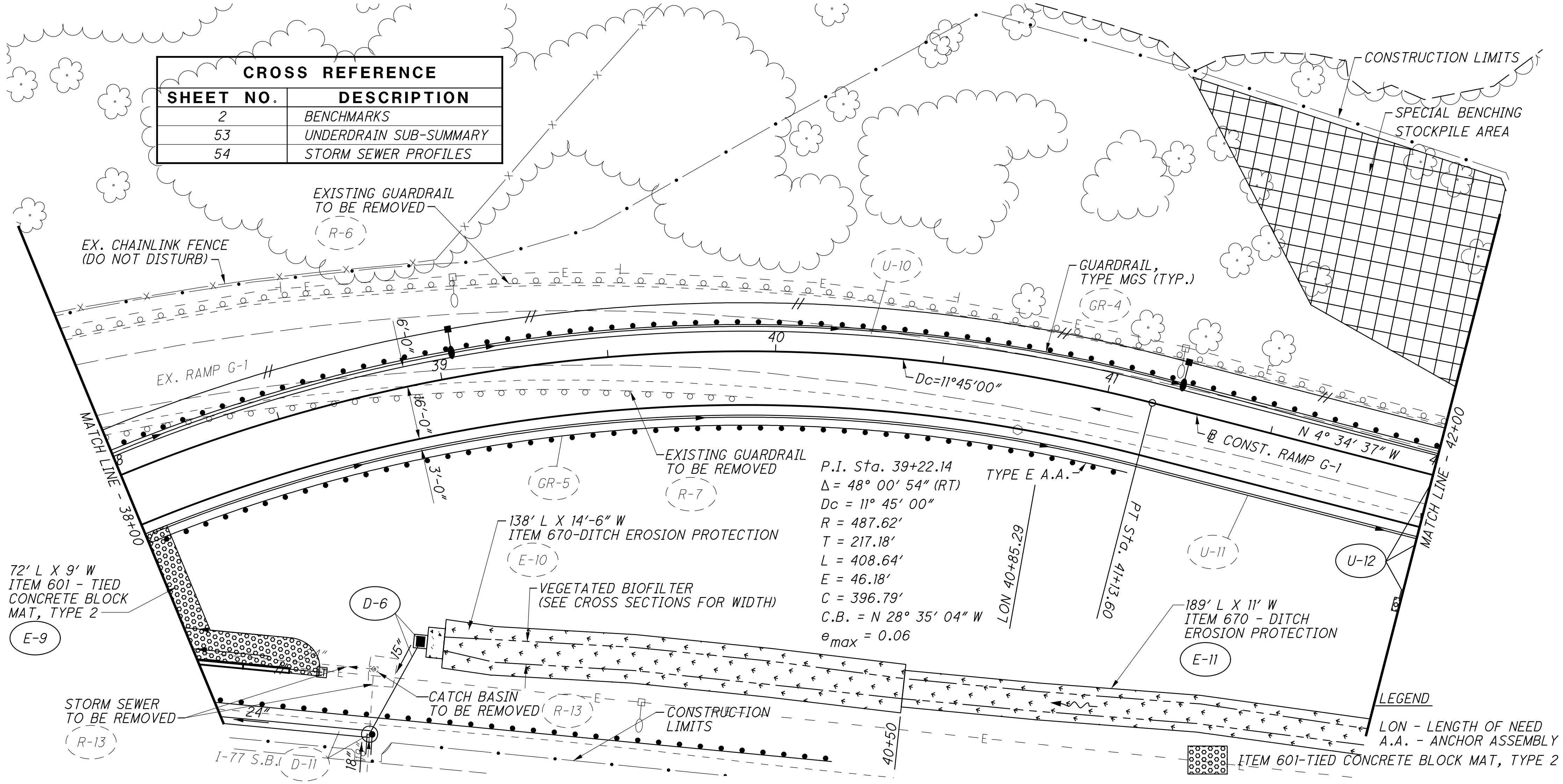
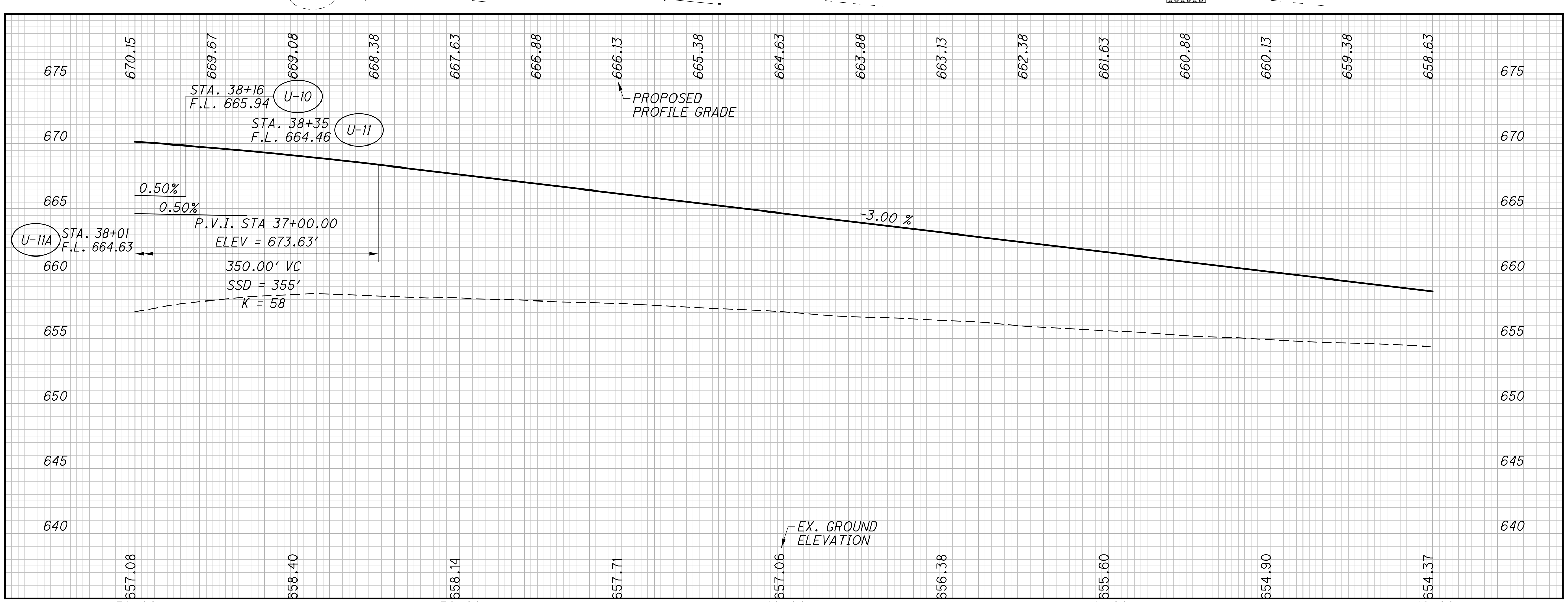
CROSS REFERENCE	
SHEET NO.	DESCRIPTION
2	BENCHMARKS
53	UNDERDRAIN SUB-SUMMARY
54	STORM SEWER PROFILES





REF NO.	STATION FROM	STATION TO	SIDE	601 TIED CONCRETE BLOCK MAT, TYPE 2 (SY)	611 15" CONDUIT, TYPE B (FT)	611 CATCH BASIN, NO. 5 (EA)	670 DITCH EROSION PROTECTION (SY)
D-6	538+99.5*	38+75.5	RT		31	1	
E-9	37+96	538+83*	RT	72			
E-10	38+86	40+50	RT				222
E-11	40+50	42+50	RT				158
TOTALS CARRIED TO GENERAL SUMMARY				72	31	1	380

* STATIONED ALONG I-77

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED JLN
CHECKED DTB

PLAN AND PROFILE - S.R. 21 (RAMP G-1) STA. 38+00 TO STA. 42+00

CUY-21-10.04L

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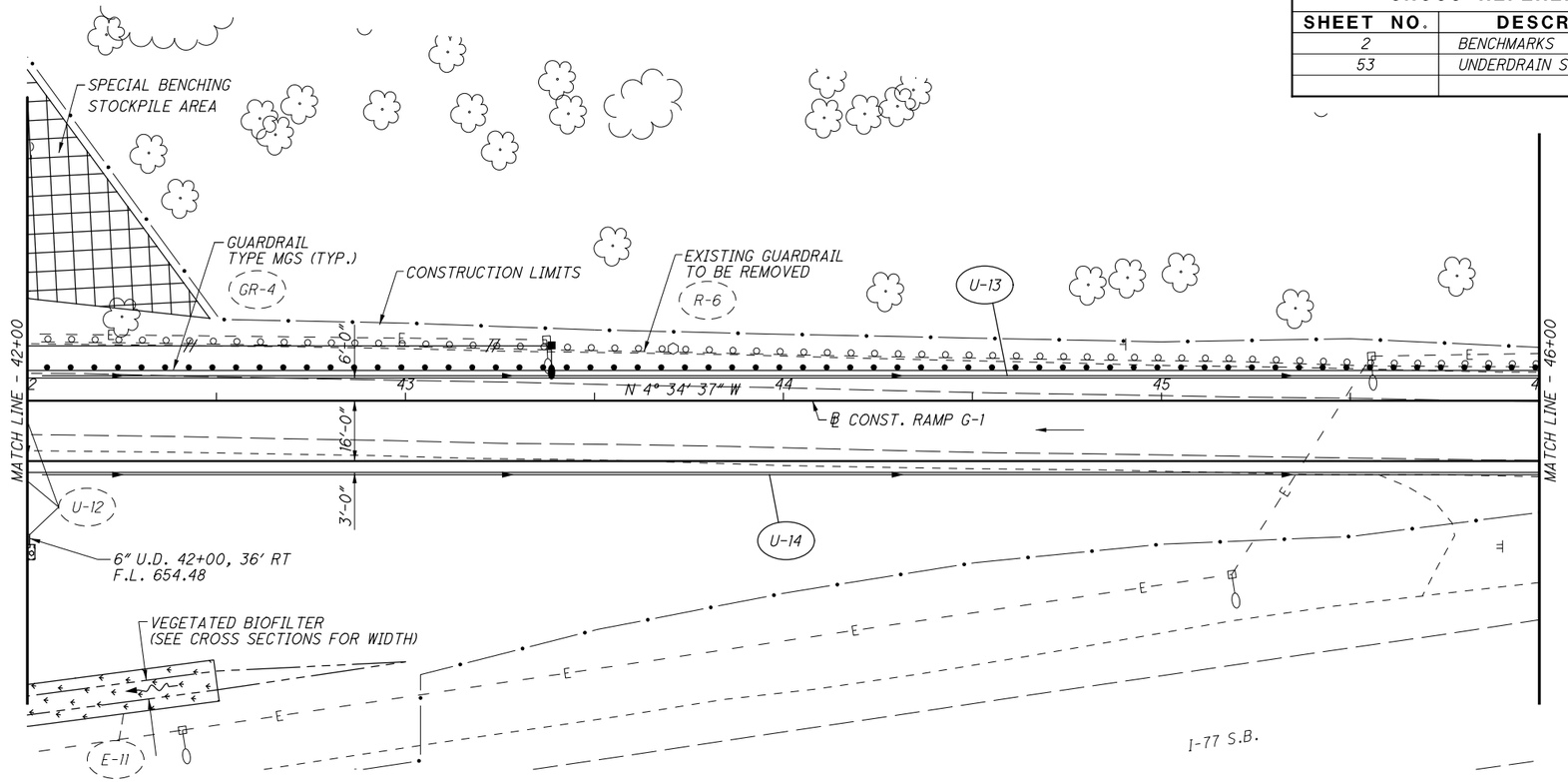
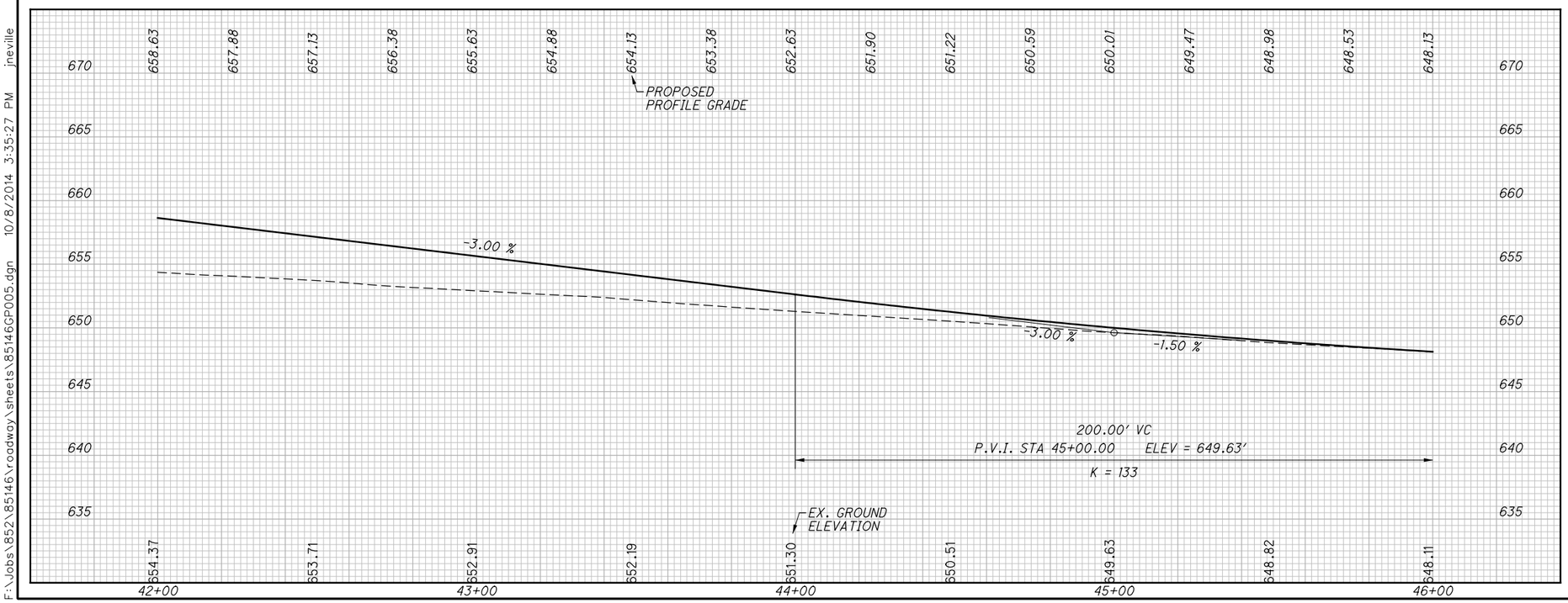
CROSS REFERENCE	
SHEET NO.	DESCRIPTION
2	BENCHMARKS
53	UNDERDRAIN SUB-SUMMARY





REF NO.	STATION FROM	STATION TO	SIDE

TOTALS CARRIED TO GENERAL SUMMARY

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JLN
CHECKED DTB

PLAN AND PROFILE - S.R. 21 (RAMP G-1) STA. 42+00 TO STA. 46+00

CUY-21-10.04L

CROSS REFERENCE	
SHEET NO.	DESCRIPTION
2	BENCHMARKS
53	UNDERDRAIN SUB-SUMMARY

REF NO.	STATION FROM	STATION TO	SIDE

TOTALS CARRIED TO GENERAL SUMMARY

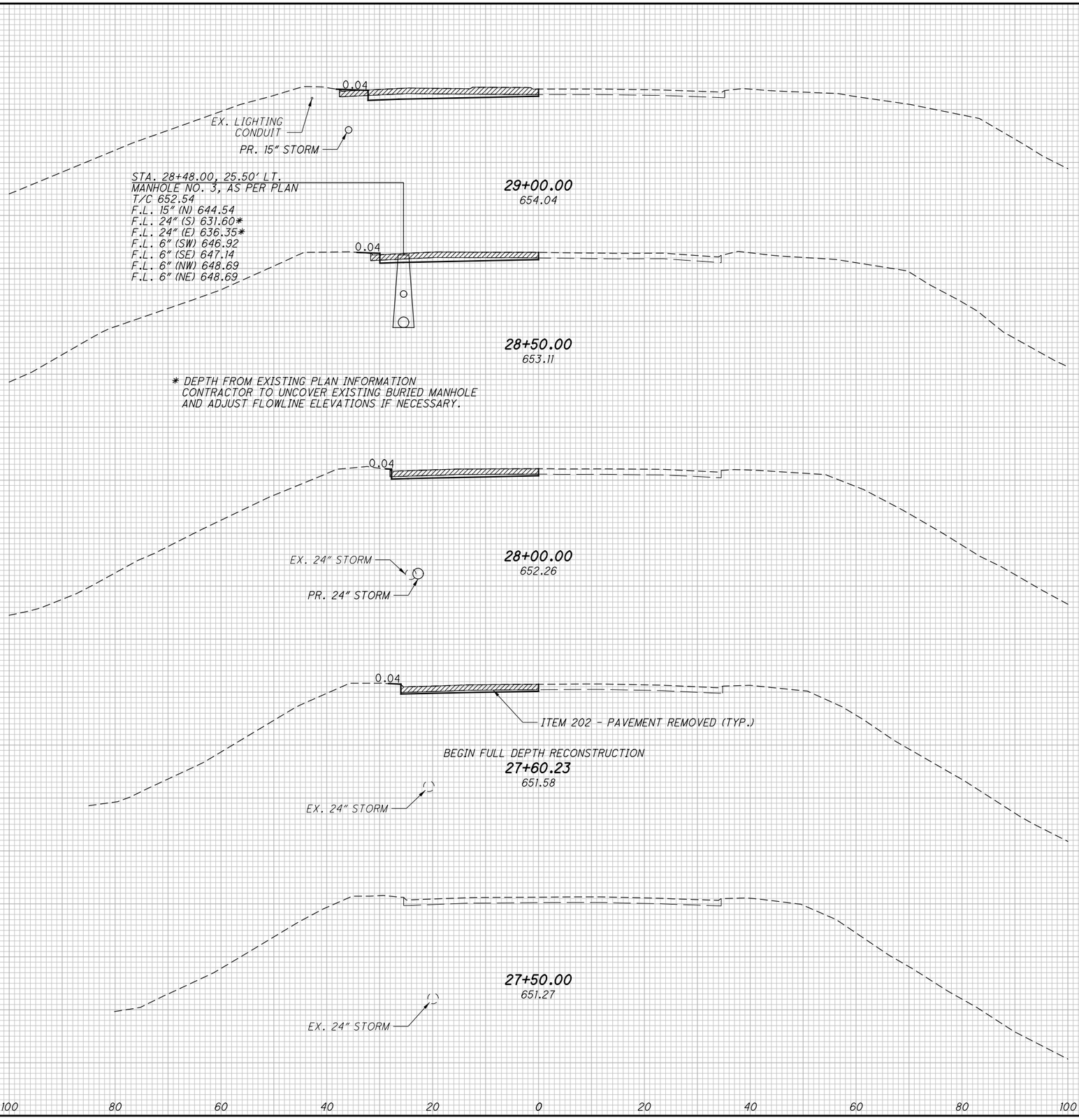
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JLN
CHECKED DTB

PLAN AND PROFILE - S.R. 21 (RAMP G-1)
STA. 46+00 TO STA. 50+00

CUY-21-10.04L

SEEDING END WIDTH	SEEDING SQ. YDS.
6	
	28
4	
	14
1	
	7
2	
	1
0	
50	



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
23	6		
		38	8
18	3		
		29	3
13	0		
		16	0
9	0		
		2	0
0	0		
		85	11

CALCULATED JLN
CHECKED VMB

CROSS SECTIONS S.R. 21
STA. 27+50.00 TO STA. 29+00.00

CUY-21-10.04L

39
100

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SEEDING	
END WIDTH	SQ. YDS.
22	78
6	78

END AREA	
CUT	FILL
71	0
23	6

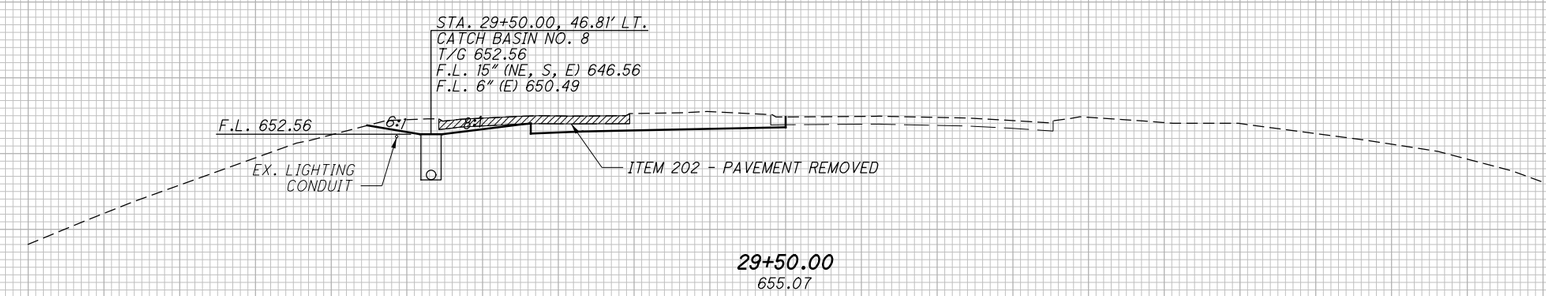
VOLUME	
CUT	FILL
87	6
87	6

CALCULATED JLN

CHECKED VMB

CROSS SECTIONS S.R. 21

STA. 29+50.00



29+50.00
655.07

CUY-21-10.04L

40
100

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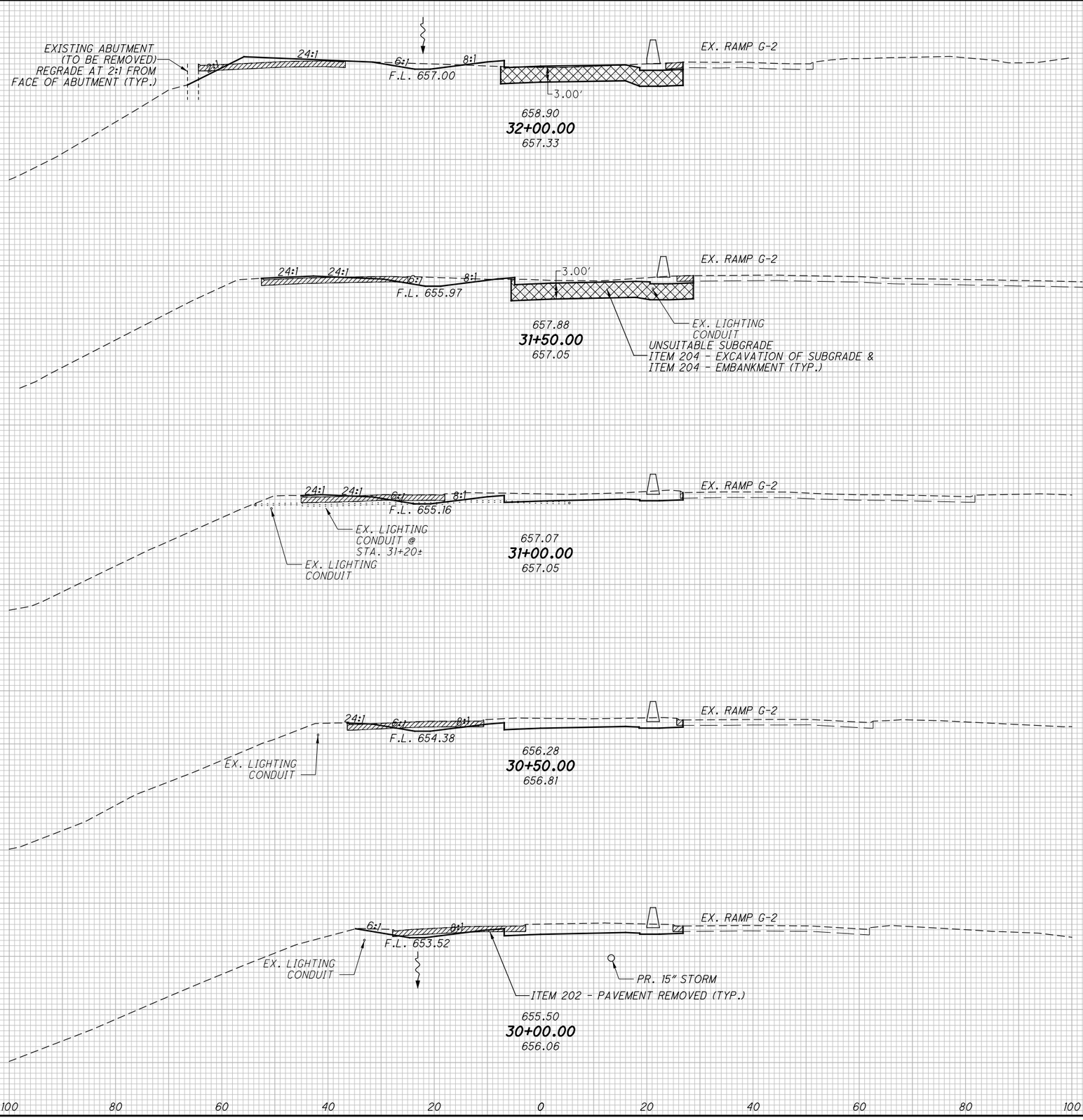
SEEDING END WIDTH	SEEDING SQ. YDS.
60	300
48	239
38	189
30	161
28	139
22	
	1028



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
ITEM 204 100	100		
21	45		
ITEM 204		189	189
		56	67
104	104		
39	27		
		94	41
63	17		
		121	23
68	8		
		122	9
64	2		
		125	2
71	0		
ITEM 204		189	189
		518	142

CALCULATED JLN
CHECKED VMB

CROSS SECTIONS S.R. 21 (RAMP G-1)
STA. 30+00.00 TO STA. 32+00.00

CUY-21-10.04L

41
100

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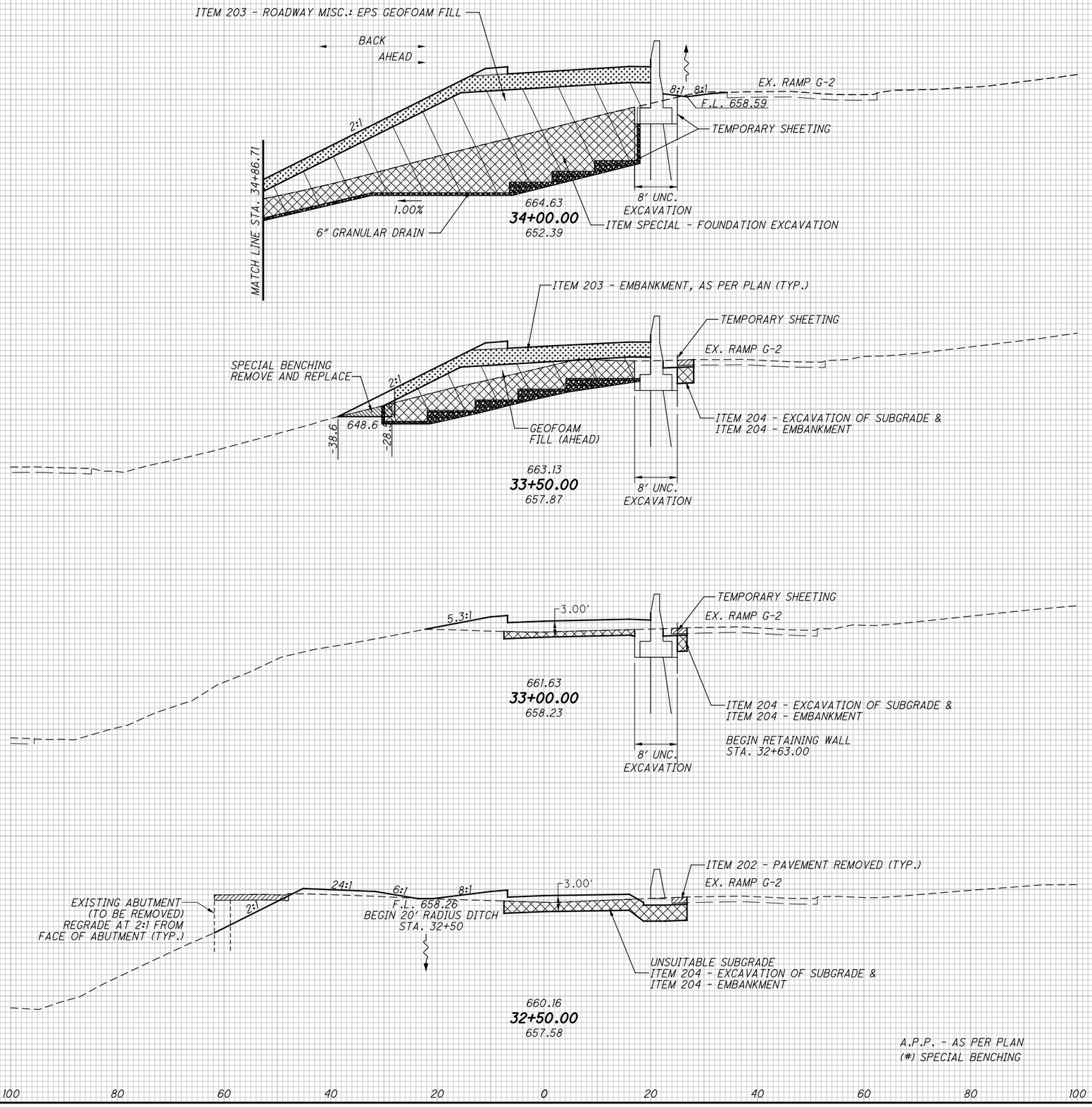
SEEDING END WIDTH	SEEDING SQ. YDS.
38	
58	
	250
32	
	133
16	
	197
55	
	319
60	
	899



A.P.P. - AS PER PLAN
(#) SPECIAL BENCHING

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
670				
GEOFOAM	536	970		
ITEM 203, A.P.P.		189		
ITEM 204	0	0		
660	3	10		
	(0)	(0)		
650				
GEOFOAM			729	1139
ITEM 203, A.P.P.				296
ITEM 204			8	8
640			4	29
			(11)	(11)
GEOFOAM	251	260		
ITEM 203, A.P.P.		131		
ITEM 204	9	9		
660	1	12		
	(12)	(12)		
650				
640				
ITEM 203, A.P.P.				121
ITEM 204			37	37
			2	91
			(11)	(11)
ITEM 203, A.P.P.		0		
ITEM 204	31	31		
660	1	77		
	(0)	(0)		
650				
640				
ITEM 204			101	101
			28	126
ITEM 204	78	78		
660	30	59		
ITEM 204			165	165
650			47	96
ITEM 204	100	100		
640				
	21	45		
GEOFOAM			729	1139
630				417
ITEM 203, A.P.P.				
ITEM 204			311	311
			105	345

CALCULATED JLN | CHECKED VMB

CROSS SECTIONS S.R. 21 (RAMP G-1)
STA. 32+50.00 TO STA. 34+00.00

CUY-21-10.04L

42
100

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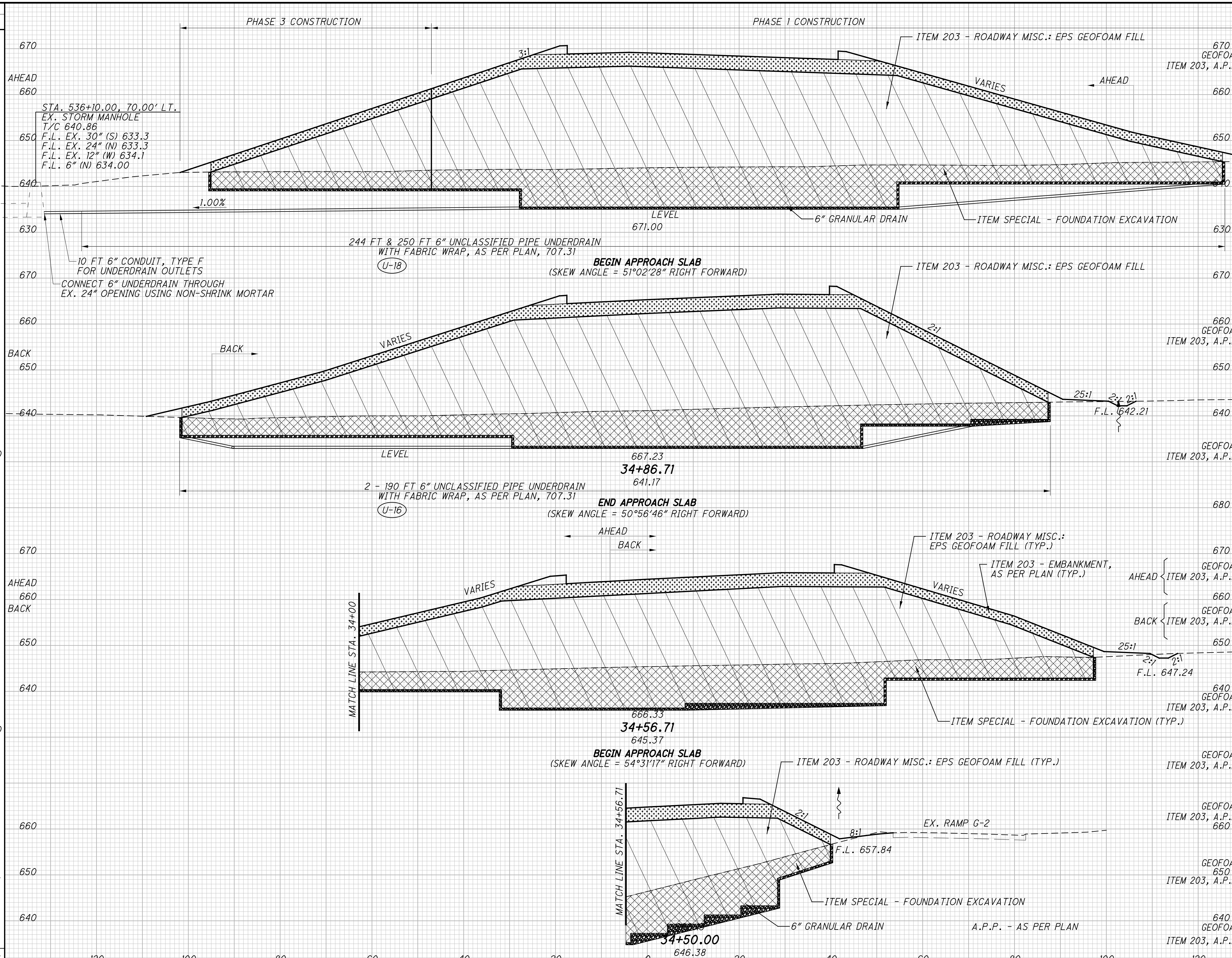

SEEDING END WIDTH	SEEDING SQ. YDS.
149	
144	
	440
120	
75	
	40
33	
	197
38	
	677

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
GEOFOAM	1269	4268		
ITEM 203, A.P.P.		497		
		27		
GEOFOAM			1291	3844
ITEM 203, A.P.P.				479
			4	30
GEOFOAM	1180	3802		
ITEM 203, A.P.P.		453		
	4	23		
AHEAD GEOFOAM	1143	3118		
AHEAD ITEM 203, A.P.P.		410		
	3	31		
BACK GEOFOAM	790	2077		
BACK ITEM 203, A.P.P.		275		
	3	19		
GEOFOAM			150	361
ITEM 203, A.P.P.				50
			0	4
GEOFOAM	414	827		
ITEM 203, A.P.P.		124		
	1	10		
GEOFOAM			805	1518
ITEM 203, A.P.P.				247
			4	19
GEOFOAM	455	812		
ITEM 203, A.P.P.		143		
	3	10		
GEOFOAM			2246	5723
ITEM 203, A.P.P.				776
			8	53

CALCULATED JLN CHECKED VMB

CROSS SECTIONS S.R. 21 (RAMP G-1)
STA. 34+50.00 TO STA. 37+05.77

CUY-21-10.04L

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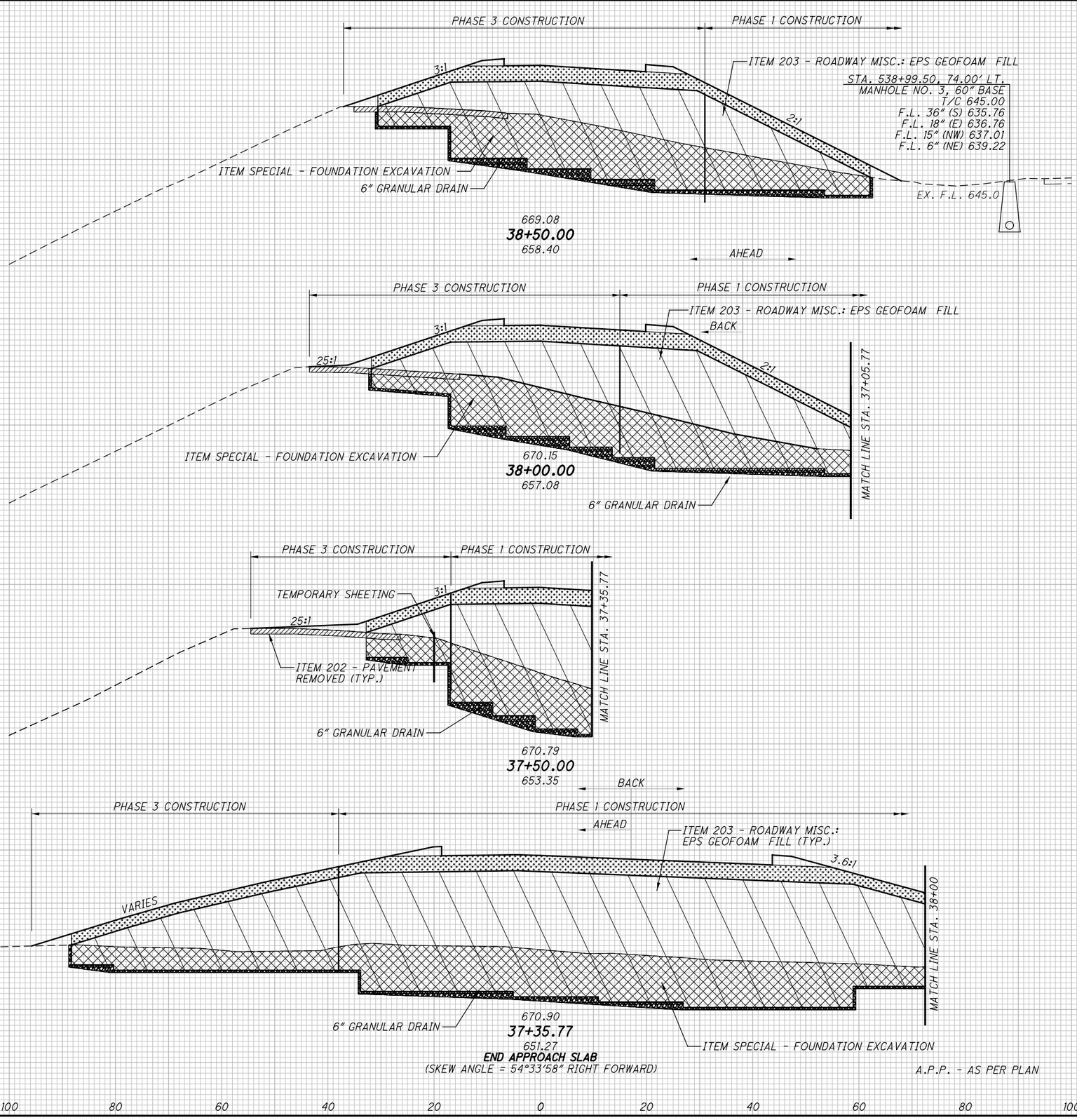
CROSS SECTIONS S.R. 21 (RAMP G-1)
STA. 37+35.77 TO STA. 38+50.00

CUY-21-10.04L

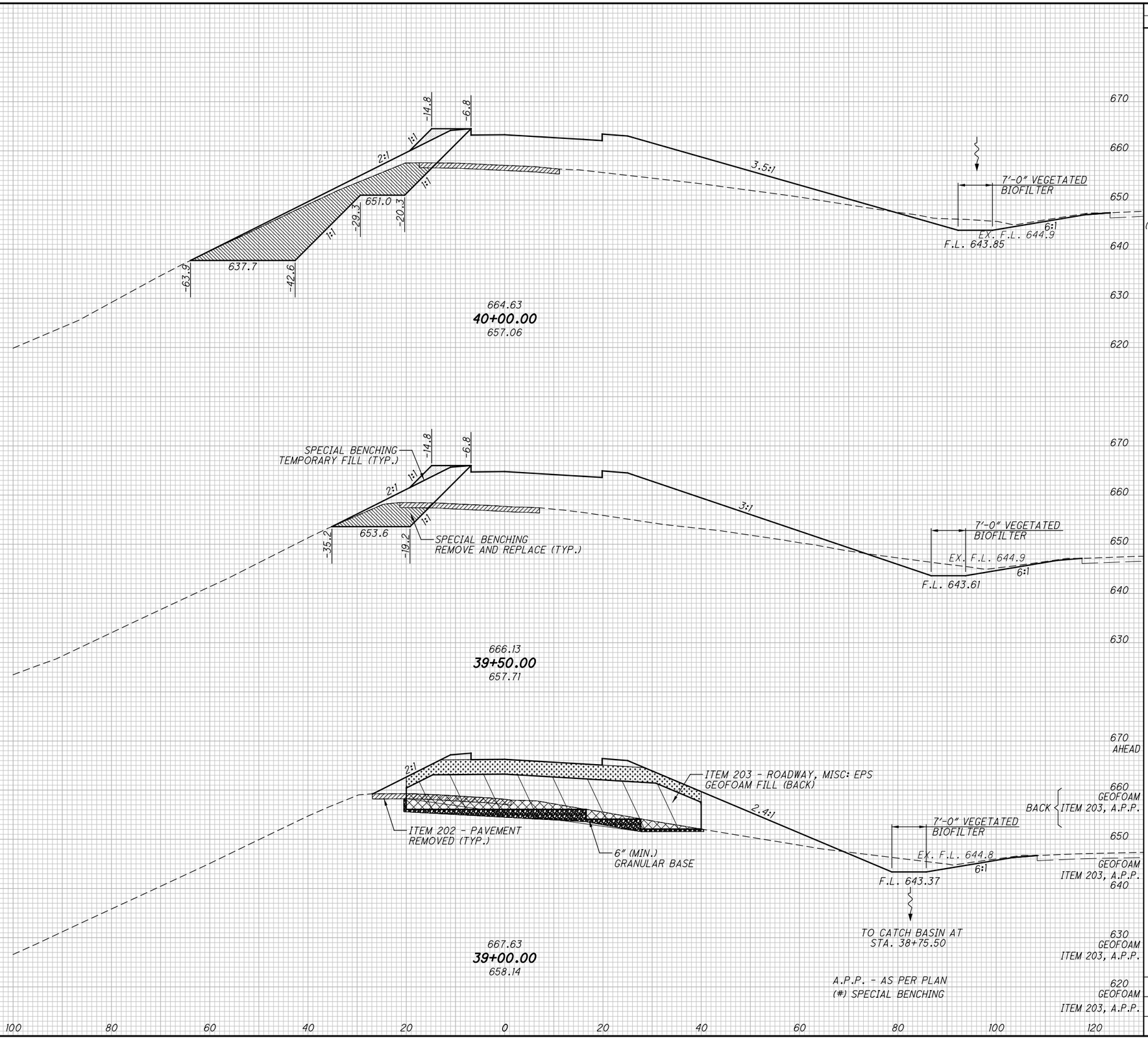
CALCULATED JLN | CHECKED VMB



SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		670				
83		GEOFOAM	732	1195		
		ITEM 203, A.P.P.		239		
				33		
		660				
		650				
	444	640				
		GEOFOAM			1357	2420
		ITEM 203, A.P.P.				437
						62
		670				
77	AHEAD	GEOFOAM	734	1419		
55	BACK	AHEAD ITEM 203, A.P.P.		233		
				34		
		660				
		GEOFOAM	615	1153		
		BACK ITEM 203, A.P.P.		188		
				25		
		650				
	286	640				
		GEOFOAM			919	1708
		ITEM 203, A.P.P.				278
						63
		670				
48		GEOFOAM	378	692		
		ITEM 203, A.P.P.		112		
				43		
		660				
		650				
		GEOFOAM			297	665
		ITEM 203, A.P.P.				99
	99					16
		670				
77	AHEAD	GEOFOAM	748	1832		
106	BACK	AHEAD ITEM 203, A.P.P.		263		
				18		
		670				
		GEOFOAM	1192	3050		
		BACK ITEM 203, A.P.P.		415		
				31		
		660				
		GEOFOAM			1367	4066
		ITEM 203, A.P.P.				507
		650				32
	425	640				
		GEOFOAM	1269	4268		
		ITEM 203, A.P.P.		497		
				27		
		630				
		GEOFOAM			3940	8859
149		ITEM 203, A.P.P.				1321
						173
1254						

120 100 80 60 40 20 0 20 40 60 80 100 120

SEEDING END WIDTH	SEEDING SQ. YDS.
160	794
126	653
109	533
83	1980



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
38 (266)	536 (266)		
		76 (307)	1027 (307)
44 (66)	573 (66)		
		81 (61)	820 (61)
44	313		
179	429		
167			
44	146		
		844	1504
			376
41	166		
732	1195		
	239		
	33		
		844	1504
			376
		566	2381

CALCULATED JLN

CHECKED VMB

CROSS SECTIONS S.R. 21 (RAMP G-1) STA. 39+00.00 TO STA. 40+00.00

CUY-21-10.04L

45
100

A.P.P. - AS PER PLAN
(#) SPECIAL BENCHING

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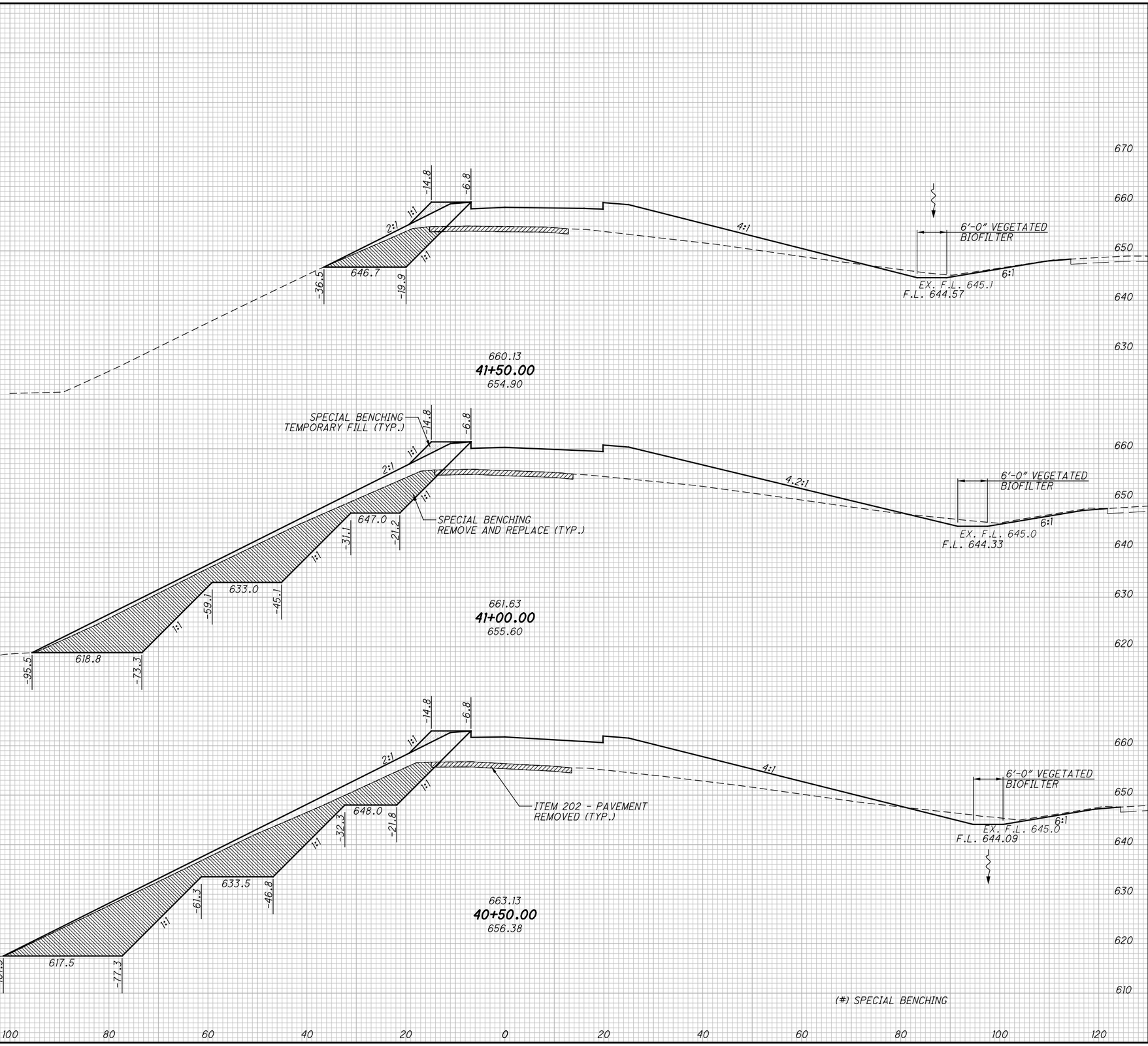
SEEDING END WIDTH	SEEDING SQ. YDS.
124	
	875
191	
	1083
199	
	997
160	
	2955



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
15 (99)	357 (99)		
		32 (528)	785 (528)
20 (471)	491 (471)		
		46 (926)	1048 (926)
30 (529)	541 (529)		
		63 (736)	997 (736)
38 (266)	536 (266)		
		2331	5020

CALCULATED JLN
CHECKED VMB

CROSS SECTIONS S.R. 21 (RAMP G-1) STA. 40+50.00 TO STA. 41+50.00

CUY-21-10.04L

46
100

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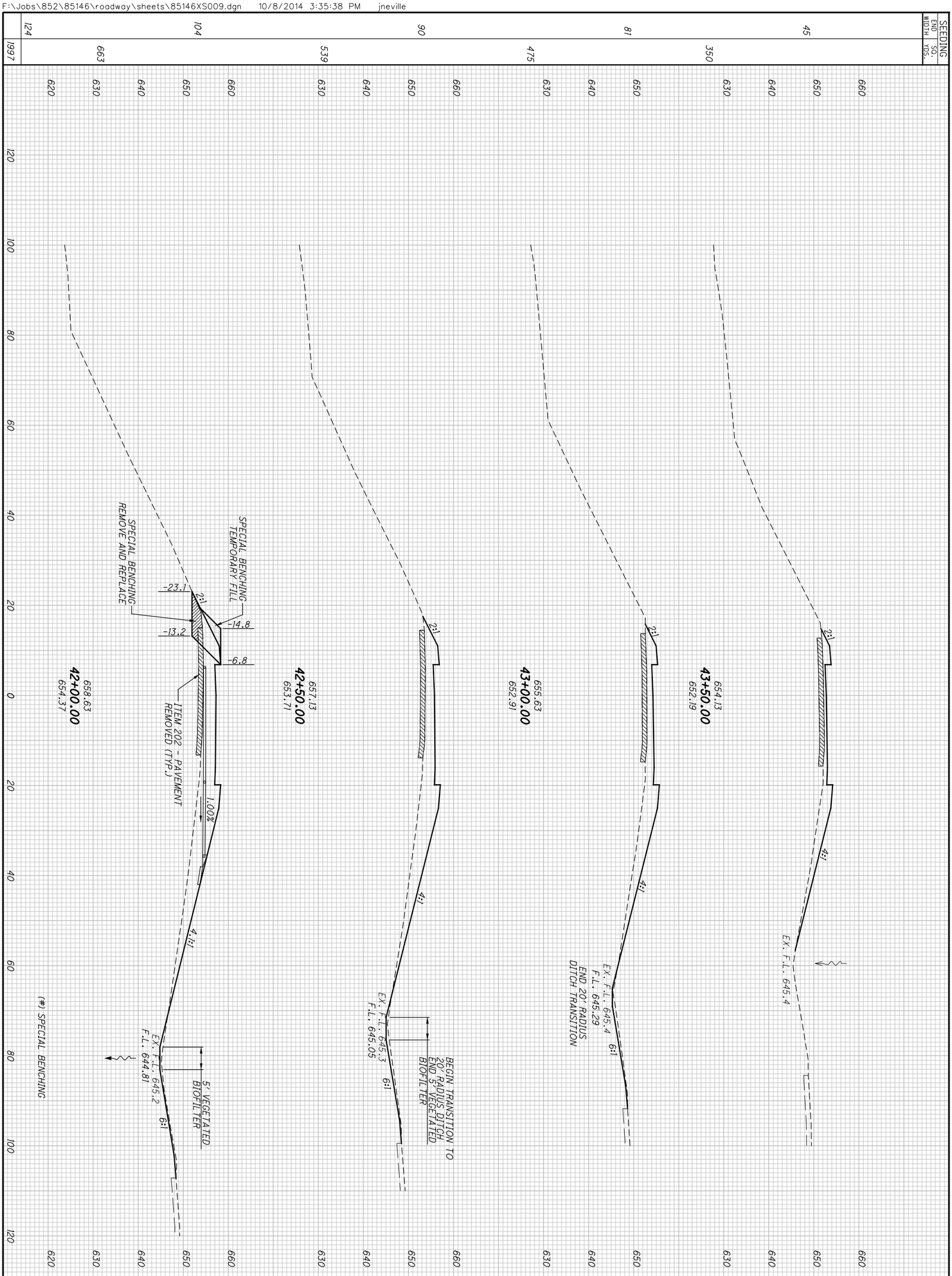


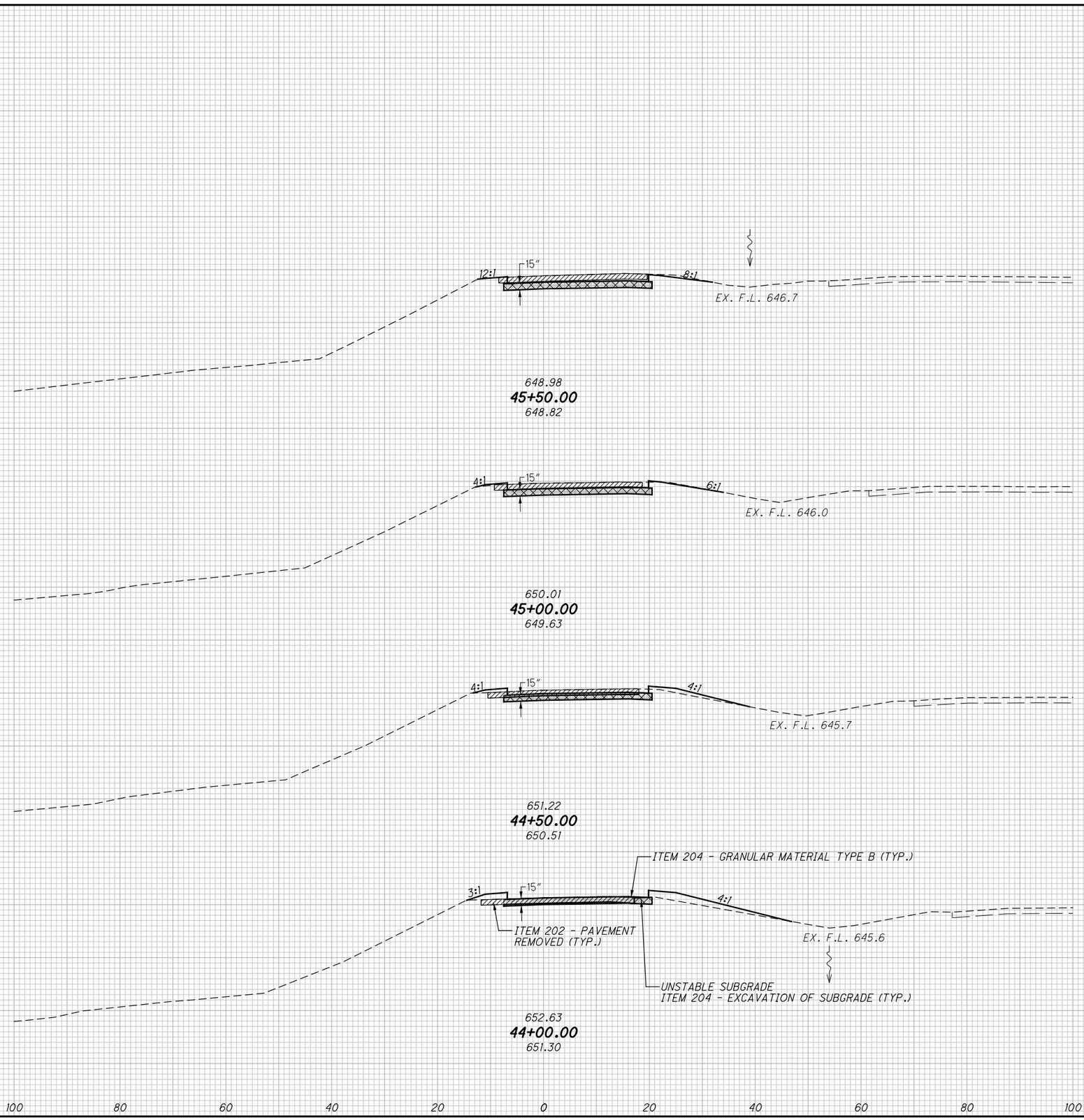
47
100

CUY-21-10.04L

CROSS SECTIONS S.R. 21 (RAMP G-1)
STA. 42+00.00 TO STA. 43+50.00

CALCULATED JLN
CHECKED VMB

SEEDING END WIDTH	SEEDING SQ. YDS.
18	108
21	131
26	169
35	222
45	630



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
ITEM 204 35	35		
650 10	2		
640			
ITEM 204		63	65
630		11	6
ITEM 204 33	35		
650 2	4		
640			
ITEM 204		54	65
630		3	19
ITEM 204 25	35		
650 1	16		
640			
ITEM 204		32	65
630		10	47
ITEM 204 10	35		
650	35		
640			
ITEM 204		9	32
			130
630			
ITEM 204 0	0		
620 0	105		
ITEM 204		158	227
		24	202

CALCULATED JLN
CHECKED VMB

CROSS SECTIONS S.R. 21 (RAMP G-1)
STA. 44+00.00 TO STA. 45+50.00

CUY-21-10.04L

48
100

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SEEDING	
END WIDTH	SQ. YDS.
	8
	32
	9
	75
	18
	107

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED JLN

CHECKED VMB

ITEM 204	35	35		
650	7	1		
ITEM 204			44	44
630			17	1
ITEM 204	35	35		
650	11	1		
ITEM 204			65	65
640			19	3
ITEM 204	35	35		
620	10	2		
ITEM 204			109	109
			36	4

CROSS SECTIONS S.R. 21 (RAMP G-1)
STA. 46+00.00 TO STA. 46+33.60

CUY-21-10.04L

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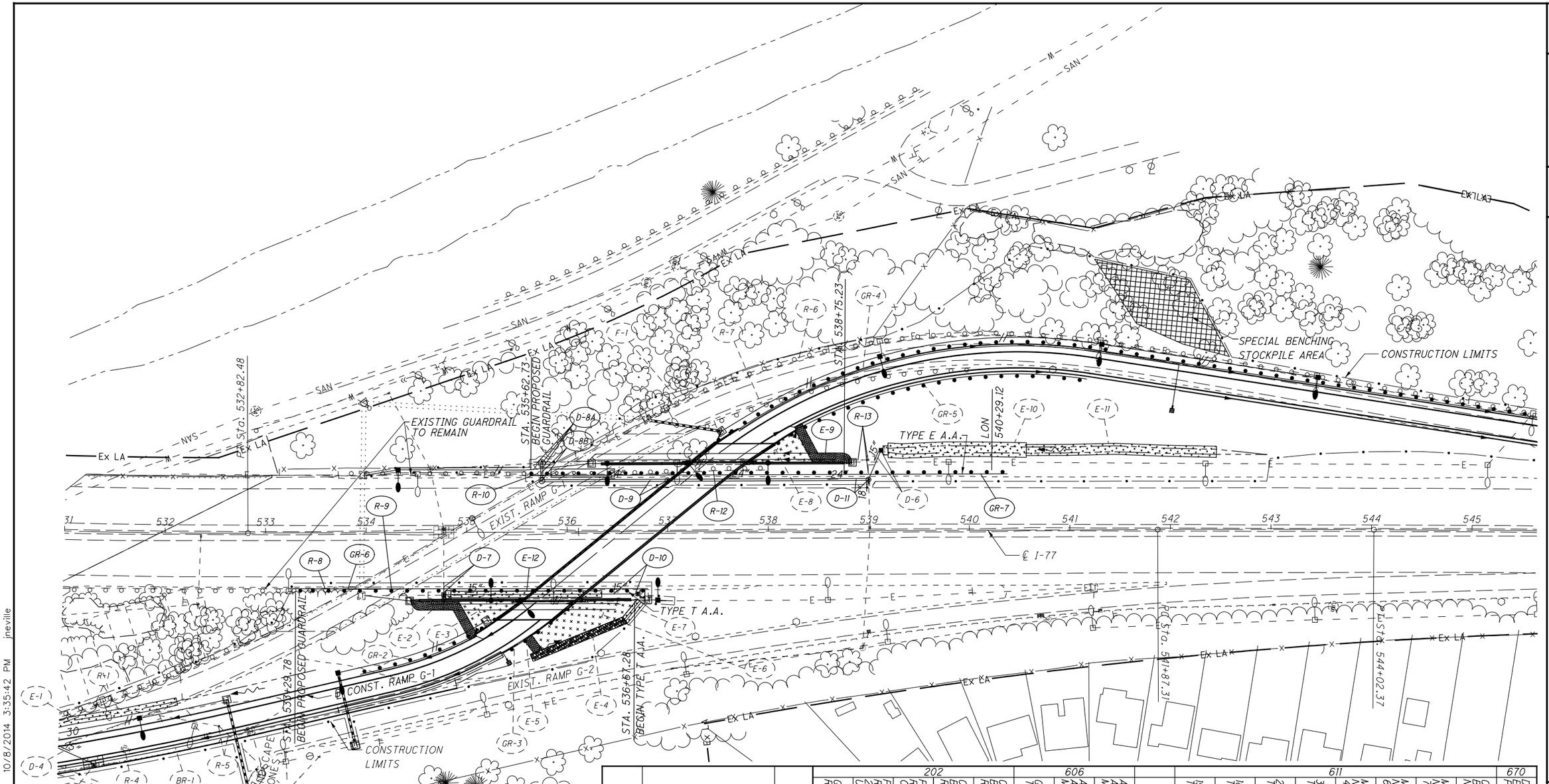

REF NO.	STATION FROM	STATION TO	SIDE	202 GUARDRAIL REMOVED	202 PIPE REMOVED, 24" AND UNDER	202 PIPE REMOVED OVER 24"	202 CATCH BASIN REMOVED	202 CONCRETE BARRIER REMOVED	606 GUARDRAIL, TYPE MGS	606 ANCHOR ASSEMBLY, MSS TYPE 'E'	606 ANCHOR ASSEMBLY, MSS TYPE 'T'	611 15" CONDUIT, TYPE C	611 18" CONDUIT, TYPE B	611 24" CONDUIT, TYPE B	611 30" CONDUIT, TYPE C	611 MANHOLE, NO. 3, 48" BASE	611 MANHOLE, NO. 3, 60" BASE	611 MANHOLE, NO. 7, 72" BASE	611 CATCH BASIN, NO. 8	670 DITCH EROSION PROTECTION
				FT	FT	FT	EA	FT	FT	EA	EA	FT	FT	FT	FT	EA	EA	EA	EA	SY
D-7	534+77		RT		12		1					8							1	
D-8A	535+67	535+83	LT			16									16			1		
D-8B	535+75	535+75	LT											18			1			
D-9	535+75	537+00	LT											125		1				
D-10	534+77	536+70	RT									193							1	
D-11	537+00	538+99.9	LT										6	200		1				
E-12	534+84	536+34	RT																	125
GR-6	533+29.78	536+79.78	RT						337.5		1									
GR-7	535+62.73	540+37.73	LT						437.5	1										
R-8	533+30	533+68	RT	38																
R-9	533+68	534+37	RT					69												
R-10	535+63	535+74	LT	11																
R-11	535+74	536+44	LT					70												
R-12	536+44	537+97	LT	153																
R-13	536+10	539+00	LT		315		1													
TOTALS CARRIED TO GENERAL SUMMARY				202	327	16	2	139	775.0	1	1	201	6	393	16	2	1	1	2	125

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HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED DTB
CHECKED DTB

IR-77 PLAN
I-77 STA. 531+00 TO STA. 545+25

CUY-21-10.04L

50
100

SUPERELEVATION TABLE

P.I STA. 30+59.65	Dc = 2°00′00″
P.I STA. 34+00.95	Dc = 16°45′00″
P.I STA. 39+22.14	Dc = 11°45′00″

BASELINE CONTROL		RIGHT SIDE					
STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTON	TRANSITION RATE	EDGE ELEVATION	REMARKS
29+57.11	654.84	16.00	+0.021	+0.34		655.18	P.C.
+75.00	655.11	↑	↑	↑		655.45	
30+00.00	655.50					655.84	
+25.00	655.89					656.23	
+50.00	656.28					656.62	
+75.00	656.67					657.01	
31+00.00	657.07					657.41	
+25.00	657.46					657.80	
+50.00	657.88		↓	↓		658.22	
+61.60	658.09		+0.021	+0.34		658.43	P.T.
+75.00	658.36		+0.016	+0.26		658.62	
32+00.00	658.90		↑	↑		659.16	
+25.00	659.50		↓	↓		659.76	
+50.00	660.16		+0.016	+0.26		660.42	
+75.00	660.88		+0.022	+0.35	161:1	661.23	
33+00.00	661.63		+0.0318	+0.51	↑	662.14	
+21.03	662.26		+0.0400	+0.64		662.90	P.C.
+25.00	662.38		+0.0415	+0.66	↓	663.04	
+50.00	663.13		+0.051	+0.82	161:1	663.95	
+75.00	663.88		+0.060	+0.96		664.84	
34+00.00	664.63		+0.060	+0.96		665.59	
+25.00	665.38		+0.060	+0.96		666.34	
+50.00	666.13		+0.051	+0.82	172:1	666.95	
+75.00	666.88		+0.042	+0.67	↑	667.55	
+78.06	666.97		+0.041	+0.66		667.63	P.T.
35+00.00	667.63		+0.033	+0.53		668.16	
+25.00	668.38		+0.024	+0.38		668.76	
+50.00	669.08		+0.015	+0.24		669.32	
+75.00	669.67		+0.06	+0.10		669.77	
+91.51	670.00		0.00	0.00		670.00	
36+00.00	670.15		-0.003	-0.05		670.10	
+25.00	670.52		-0.012	-0.19		670.33	
+50.00	670.79		-0.021	-0.34		670.45	
+75.00	670.95		-0.030	-0.48		670.47	
37+00.00	671.01		-0.039	-0.62		670.39	
+04.96	671.00		-0.041	-0.66		670.34	P.C.
+25.00	670.95		-0.049	-0.78	↓	670.17	
+50.00	670.79		-0.058	-0.93	172:1	669.86	
+75.00	670.52		-0.06	-0.96		669.56	
38+00.00	670.15		↑	↑		669.16	
+25.00	669.67					668.71	
+50.00	669.08					668.12	
+75.00	668.38					667.42	
39+00.00	667.63					666.67	
+25.00	666.88					665.92	
+50.00	666.13					665.17	
+75.00	665.38					664.42	
40+00.00	664.63		↓	↓		663.67	
+25.00	663.88	16.00	-0.06	-0.96		662.92	

SUPERELEVATION TABLE

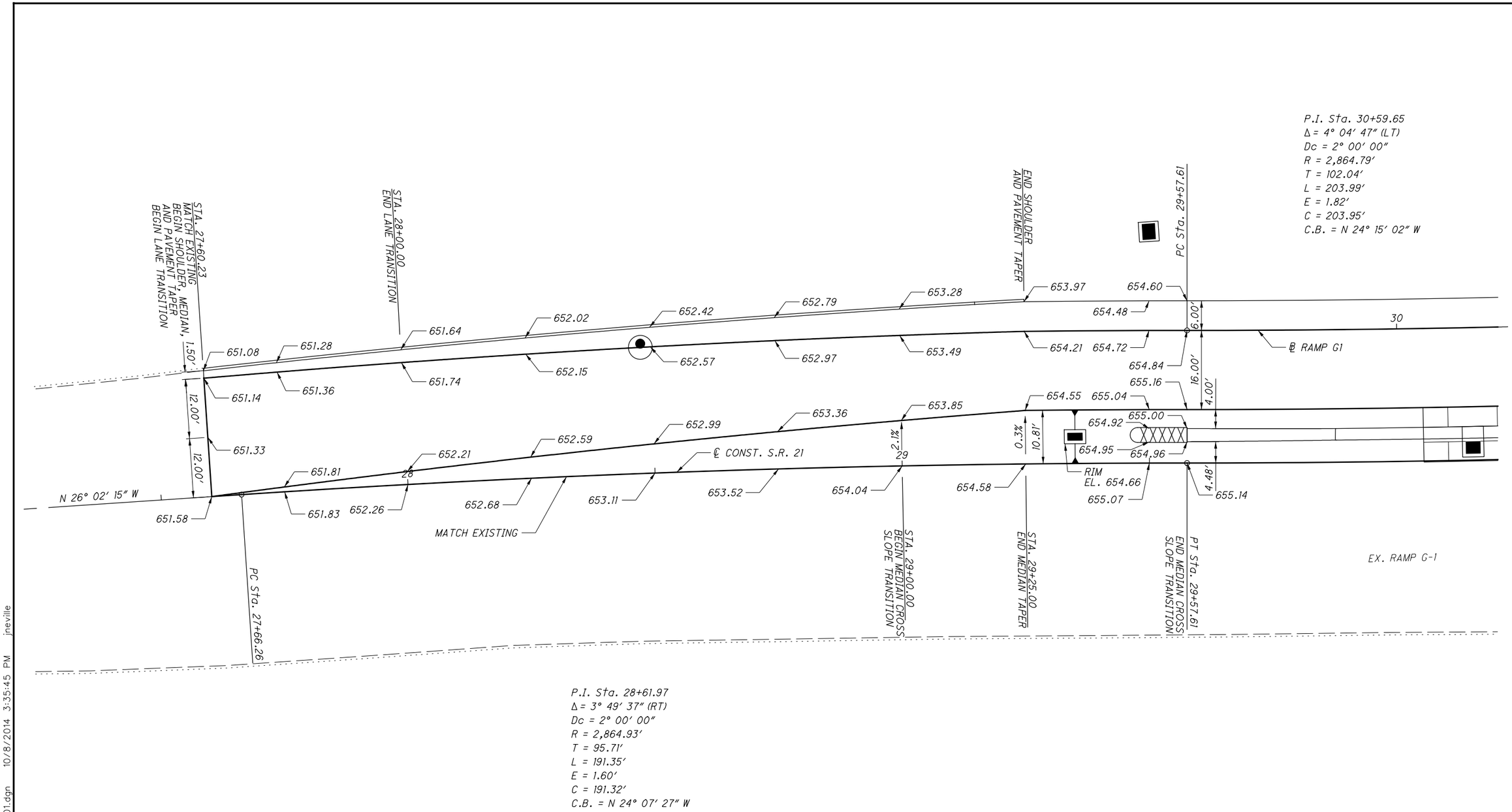
P.I. STA. 49+14.90 (EX.)	Dc = 1°30′00″ (EX.)

BASELINE CONTROL		RIGHT SIDE					
STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTON	TRANSITION RATE	EDGE ELEVATION	REMARKS
40+50.00	663.13	16.00	-0.058	-0.93	185:1	662.20	
+75.00	662.38	↑	-0.050	-0.80	↑	661.58	
41+00.00	661.63		-0.0421	-0.66		660.97	
+13.60	661.22		-0.038	-0.61		660.61	P.T.
+25.00	660.88		-0.033	-0.53		660.35	
+50.00	660.13		-0.024	-0.39		659.74	
+75.00	659.38		-0.016	-0.26		659.12	
42+00.00	658.63		-0.008	-0.13		658.50	
+23.71	657.92		0.00	0.00		657.92	
+25.00	657.88		+0.002	+0.03	↓	657.91	
+50.00	657.13		+0.009	+0.14	185:1	657.27	
+75.00	656.38		+0.016	+0.26		656.64	
43+00.00	655.63		↑	↑		655.89	
+25.00	654.88					655.14	
+50.00	654.13					654.39	
+75.00	653.38					653.64	
44+00.00	652.63					652.89	
+25.00	651.90					652.16	
+50.00	651.22					651.48	
+75.00	650.59					650.85	
45+00.00	650.01					650.27	
+25.00	649.47					649.73	
+50.00	648.98					649.24	
+75.00	648.53		↓	↓		648.79	
46+00.00	648.13		+0.016	+0.26		648.39	
+25.00	647.76		+0.023	+0.37	233:1	648.13	
46+33.60	647.63	16.00	+0.025	+0.40	233:1	648.03	P.C.

CALCULATED NNB CHECKED JLN

SUPERELEVATION TABLE

CUY-21-10.04L



FOR TYPICAL SECTIONS, SEE SHEETS 3 AND 4.

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED MRC
CHECKED JLN

RAMP G-1 TERMINAL DETAIL
STA. 27+60.23 TO STA. 29+57.61

CUY-21-10.04L

52
100

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REF. NO.	START PLAN SHEET NO.	STATION LIMITS "X" DENOTES OUTLET LOCATION BEGIN			STATION LIMITS "X" DENOTES OUTLET LOCATION END		LOCATION	TYPE OF OUTLET	601 TIED CONCRETE BLOCK MAT, TYPE 1	605 6" UNCLASSIFIED PIPE UNDERDRAIN WITH FABRIC WRAP, 707.31	605 6" SHALLOW PIPE UNDER-DRAIN WITH FABRIC WRAP, 707.31	605 6" UNCLASSIFIED PIPE UNDERDRAIN WITH FABRIC WRAP, AS PER PLAN, 707.31	611 6" CONDUIT, TYPE B	611 6" CONDUIT, TYPE F	611 6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	611 PRECAST REINFORCED CONCRETE OUTLET	HORIZONTAL BENDS AND BRANCHES (FOR INFORMATION ONLY) 6" X 45° BEND	6" X 60° BEND	6" X 90° BEND	6" CROSS	6" TEE	6" PLUG
									SQ YD	FT	FT	FT	FT	FT	FT	EA	EA	EA	EA	EA	EA	EA
U-1A	33		27+64		28+48	X	LT	MANHOLE		76					10		1					1
U-1B	33	X	28+48		29+46		LT	MANHOLE			81			10	10		1					1
U-2	33		27+64		28+48	X	LT	MANHOLE		71			9		10		1					1
U-3	33	X	28+48		29+25		LT	MANHOLE			64		9		10		1					1
U-4	33	X	29+35		32+63		RT	CATCH BASIN			308			10	10		2					1
U-5	33		29+50				LT	CATCH BASIN							12				1			
U-6	33		29+50		34+70		LT	90° BEND		30	478			10			2				1	1
U-7	35		34+30			X	RT	ON SLOPE	1.8						10	1			1			1
U-8	35		34+15		34+84		℄	TEE		28	35		9					1				1
U-9	35		34+30		35+15		RT	90° BEND		10	75						2					
U-10	35		36+95		42+00		LT	90° BEND		92	422						2					1
U-11	35		37+43		42+00		RT	TEE		63	380						2					1
U-11A	35		37+29		38+01		RT	TEE		34	30		8								1	1
U-12	36		42+00			X	RT/LT	ON SLOPE	1.8				26		16	1			1		1	
U-13	37		42+04		46+30		LT	TEE			426											1
U-14	37		42+04		46+30		RT	90° BEND			426											1
U-15	38		46+30			X	RT/LT	ON SLOPE	1.8				26		12	1			1		1	
U-16	35		534+58		536+51		RT	TYPE F				380										4
U-17	35		534+77				RT	CATCH BASIN							15					1	1	
U-18	35	X	536+10		538+68		LT	MANHOLE				494			10		3				1	2
TOTALS CARRIED TO GENERAL SUMMARY									5.4	404	2,695	874	87	30	125	3	17	1	4	1	6	19

ITEM 605 - 6" UNCLASSIFIED PIPE UNDERDRAIN WITH FABRIC WRAP, AS PER PLAN, 707.31

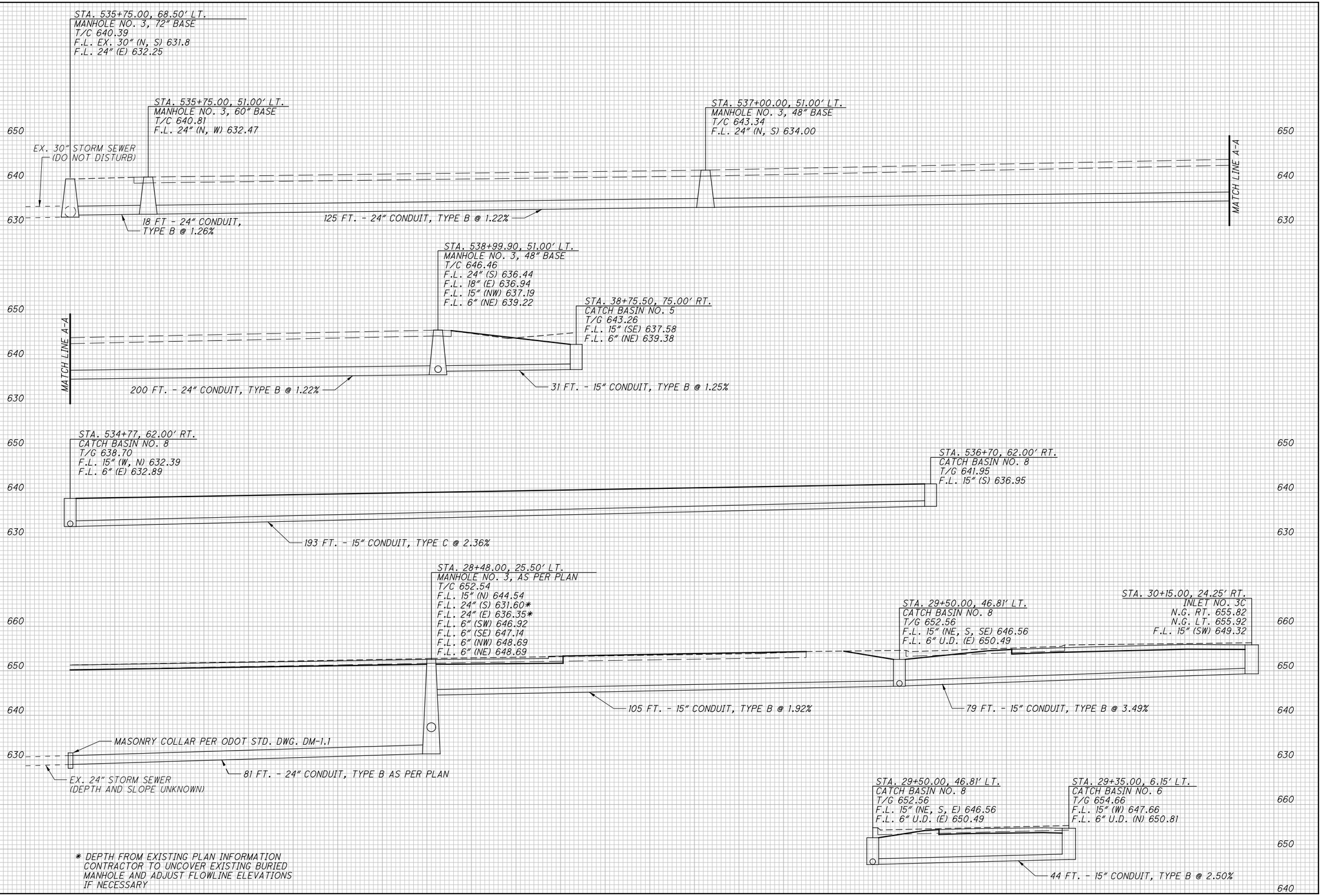
THIS ITEM SHALL CONFORM TO CMS, 605 EXCEPT TRENCHING, BACKFILLING AND FABRIC WRAP WILL NOT BE REQUIRED WHEN THE UNDERDRAIN IS LOCATED DIRECTLY IN CONTACT WITH THE 6" GRANULAR DRAIN UNDER EPS GEOFOAM FILL.

THE FIRST 6" UNDERDRAINS SHALL BE LOCATED IMMEDIATELY BEHIND THE ABUTMENT AND WINGWALL FOUNDATIONS AND THE SECOND 6" UNDERDRAIN SHALL BE 6' FROM THE FIRST.

CALCULATED JLN CHECKED DTB

UNDERDRAIN SUB-SUMMARY

CUY-21-10.04L

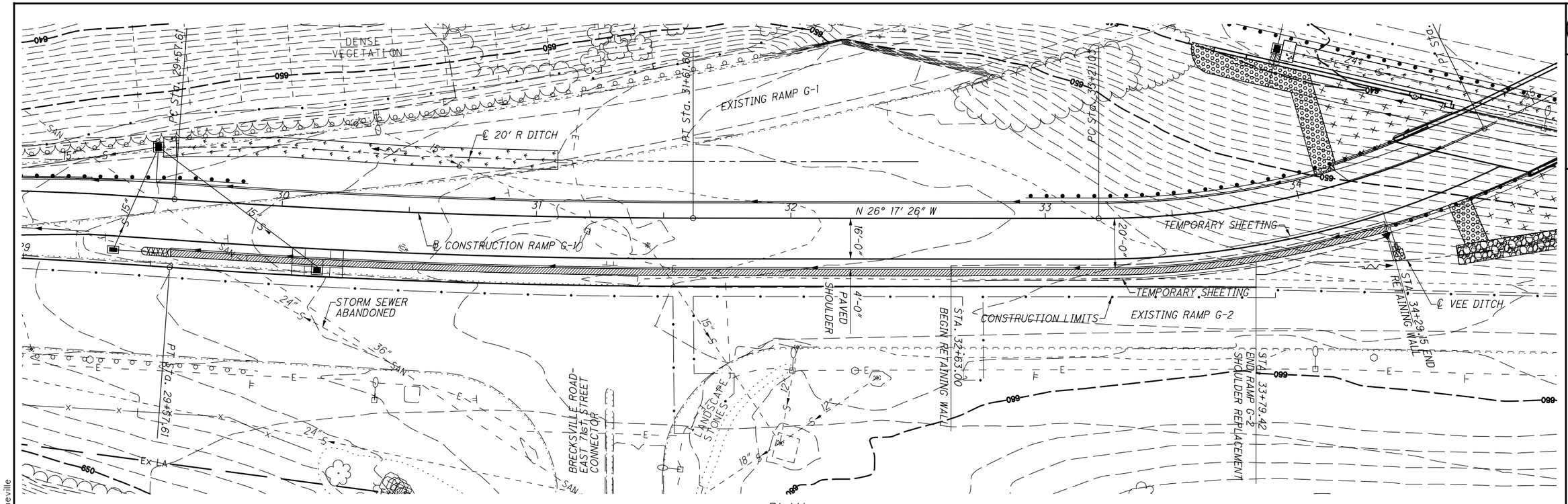


* DEPTH FROM EXISTING PLAN INFORMATION
CONTRACTOR TO UNCOVER EXISTING BURIED
MANHOLE AND ADJUST FLOWLINE ELEVATIONS
IF NECESSARY

CALCULATED JLN
CHECKED DTB

STORM SEWER PROFILES

CUY-21-10.04L



STATION	TOP OF WALL ELEVATION
31+50	661.56
31+75	661.96
32+00	662.50
32+25	663.10
32+50	663.76
32+75	664.57
33+00	665.48
33+25	666.54
33+50	667.47
33+75	668.38
34+00	669.13

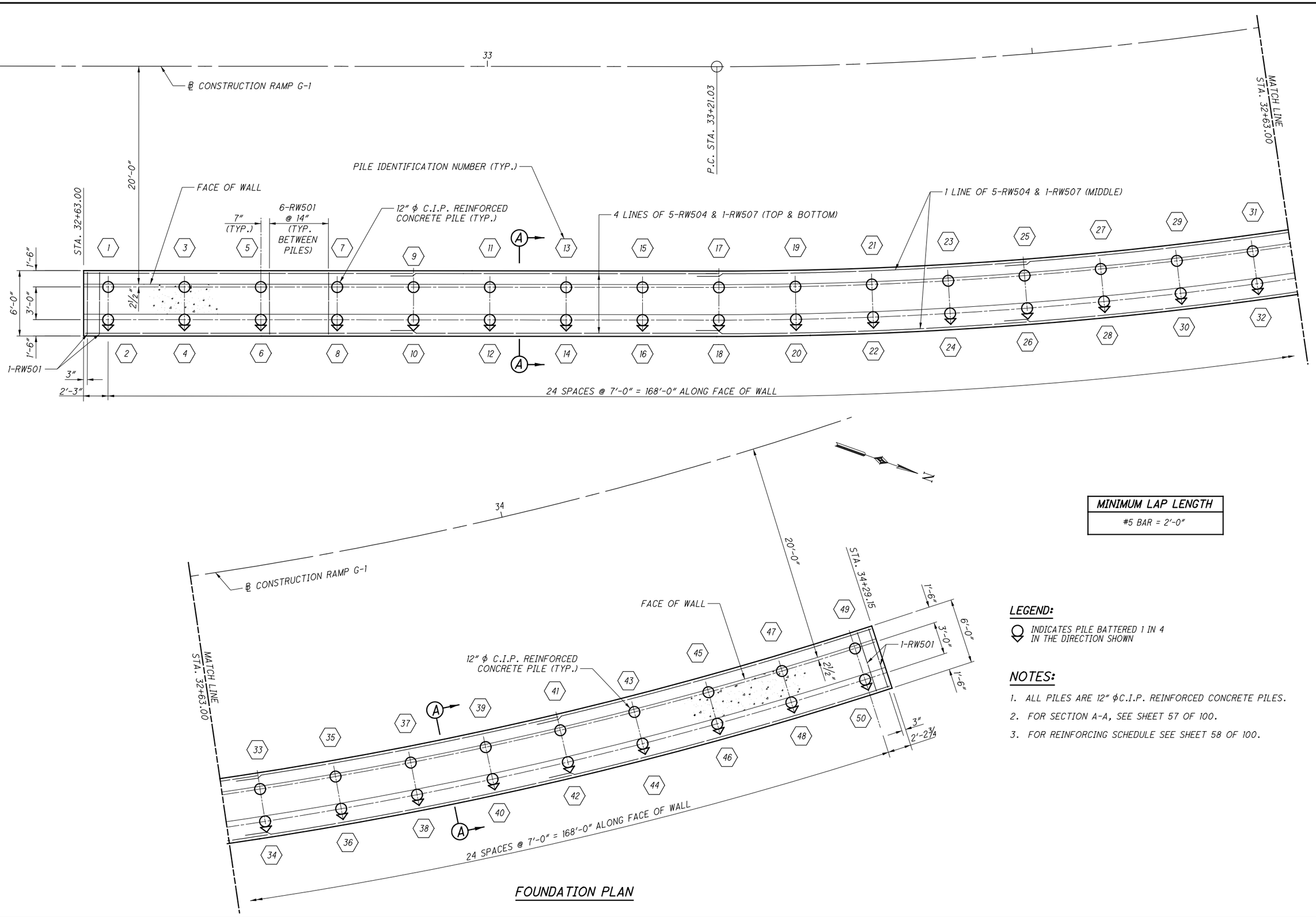
NOTES:

1. FOR CURVE DATA SEE SHEET 2 OF 100.
2. FOR RETAINING WALL DETAILS SEE SHEETS 56 AND 57 OF 100.
3. FOR BARRIER TYPE C DETAILS SEE ODOT STANDARD DRAWING RM-4.3
4. FOR CONCRETE BARRIER END SECTION TYPE B, SEE ODOT STANDARD DRAWING RM-4.6
5. FOR INLET NO. 3 FOR SINGLE SLOPE BARRIER TYPE C, SEE ODOT STANDARD DRAWING I-2.2

PLAN - RETAINING WALL

CUY-21-10.04L

55
100



FOUNDATION PLAN

MINIMUM LAP LENGTH
#5 BAR = 2'-0"

LEGEND:

INDICATES PILE BATTERED 1 IN 4 IN THE DIRECTION SHOWN

NOTES:

1. ALL PILES ARE 12" ϕC.I.P. REINFORCED CONCRETE PILES.
2. FOR SECTION A-A, SEE SHEET 57 OF 100.
3. FOR REINFORCING SCHEDULE SEE SHEET 58 OF 100.

CALCULATED AJM
CHECKED MMP

RETAINING WALL FOUNDATION PLAN

CUY-21-10.04L

56
100

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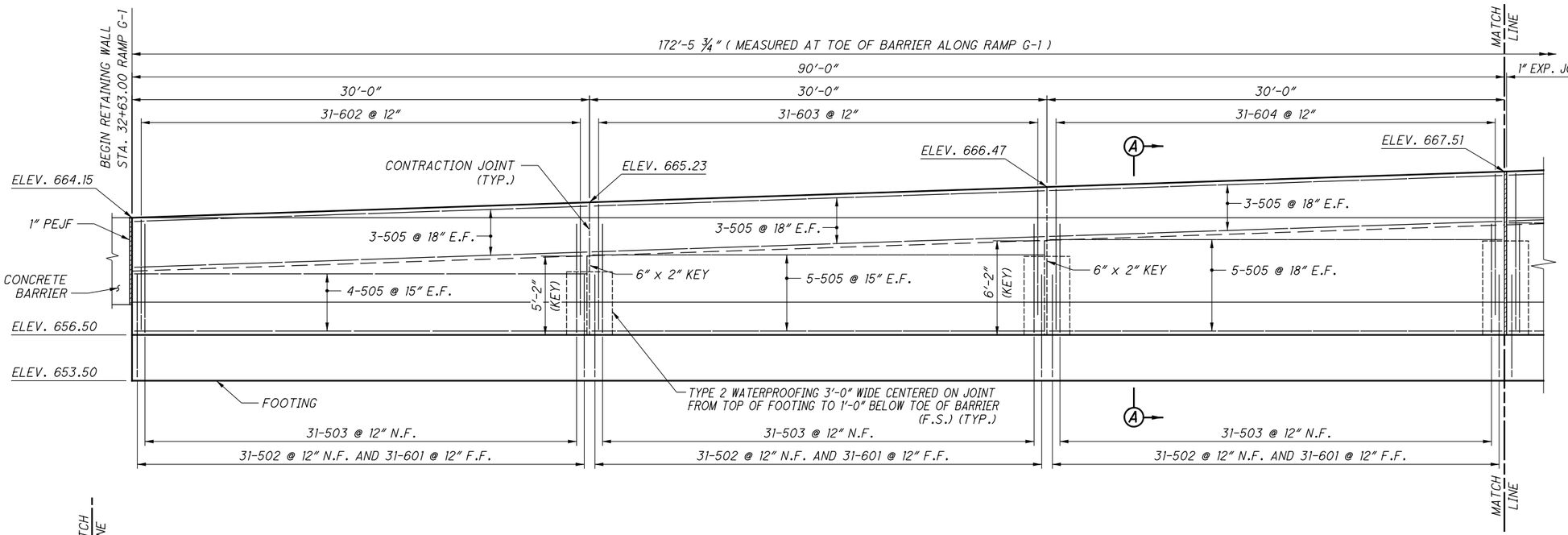
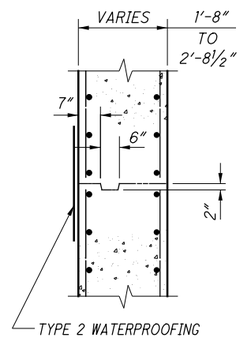
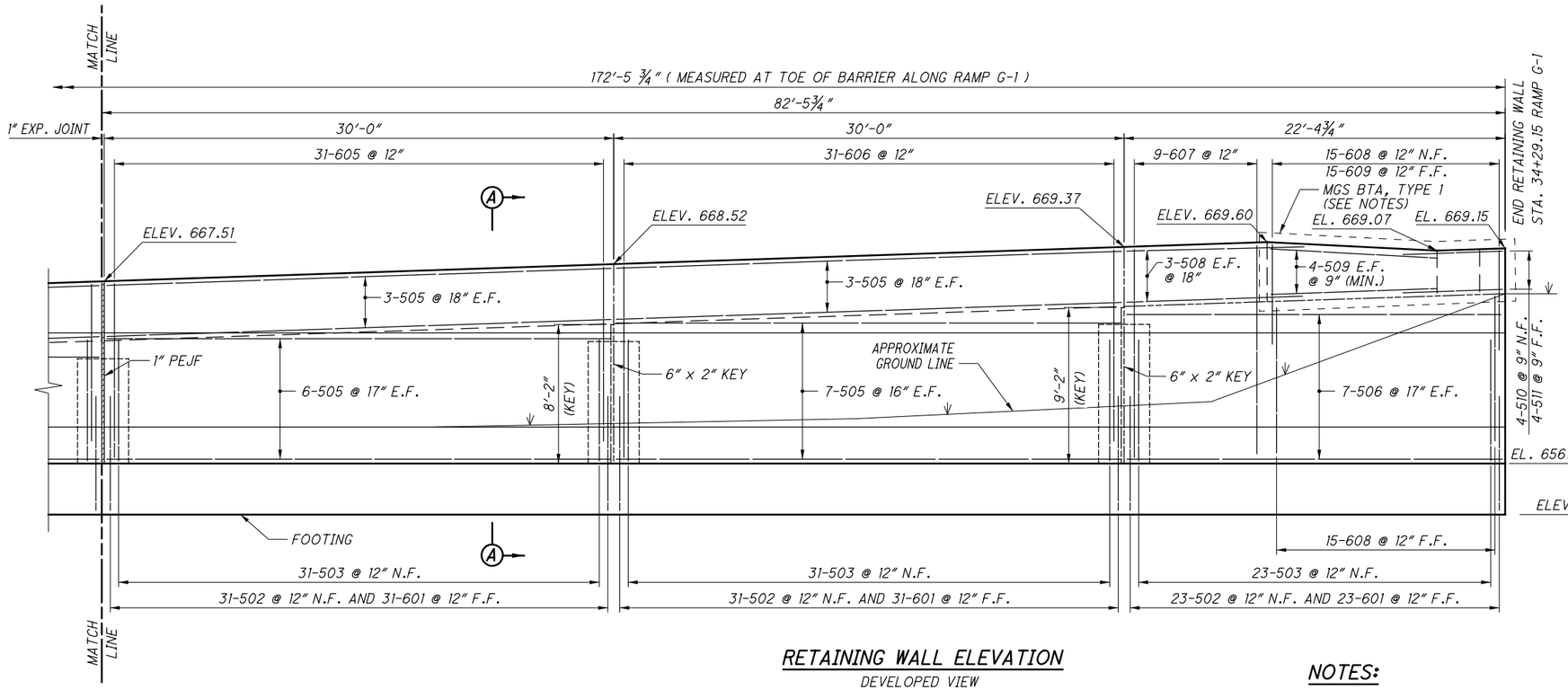


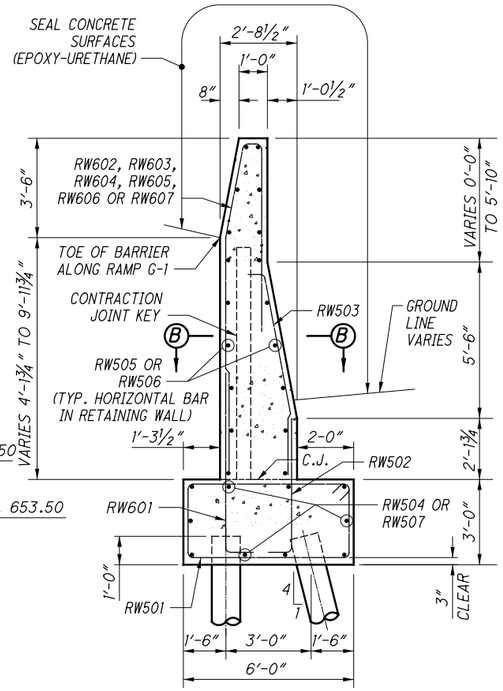
MINIMUM LAP LENGTH
#5 BAR = 2'-0"
#6 BAR = 2'-4"



SECTION B-B
CONTRACTION JOINT



RETAINING WALL ELEVATION
DEVELOPED VIEW
(PILES NOT SHOWN)



SECTION A-A

NOTES:

1. FOR FOUNDATION PLAN, SEE SHEET 56 OF 100.
2. FOR REINFORCING SCHEDULE SEE SHEET 58 OF 100.
3. FOR PLAN VIEW AND SECTIONS OF MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1, SEE SHEET 58 OF 100.

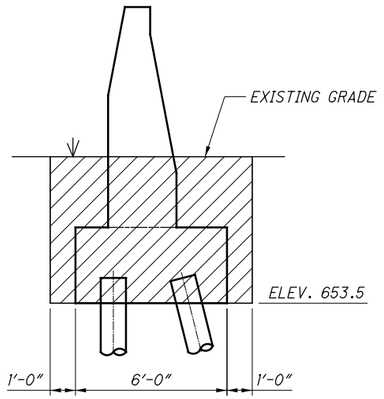
CALCULATED AJM
CHECKED MMP

RETAINING WALL ELEVATION AND SECTIONS

CUY-21-10.04L

ESTIMATED QUANTITIES					
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	AS PER PLAN SHEET NUMBERS
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING	
503	21100	248	CU YD	UNCLASSIFIED EXCAVATION	
507	00500	1,750	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	
507	00550	2,000	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	
509	10000	16,396	POUND	EPOXY COATED REINFORCING STEEL	
511	46213	255	CU YD	CLASS QC1 CONCRETE WITH QC/QA, AS PER PLAN	THIS SHEET
512	10100	238	SQ YD	SEALING CONCRETE SURFACES (EPOXY-URETHANE)	
512	33000	11	SQ YD	TYPE 2 WATERPROOFING	
516	13600	34	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	
518	21200	75	CU YD	POROUS BACKFILL WITH FILTER FABRIC	
518	40000	173	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	
523	20000	1	EACH	DYNAMIC LOAD TESTING	

TOTALS CARRIED TO GENERAL SUMMARY SHEET 30.



LIMITS OF UNCLASSIFIED EXCAVATION

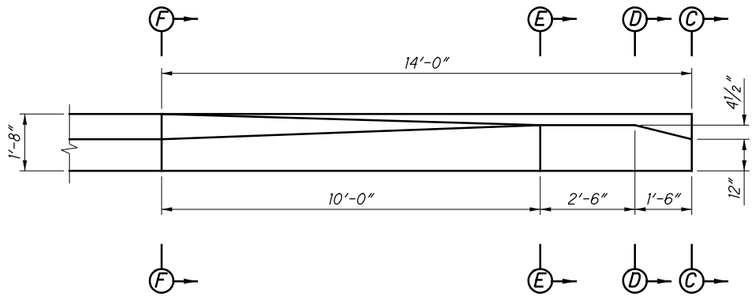
ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA, AS PER PLAN

GENERAL REQUIREMENTS:
THE GENERAL PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED.

MIX DESIGN:
ALL COURSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE)
THE ULTIMATE BEARING VALUE IS 76^{k} PER PILE FOR THE RETAINING WALL PILES.

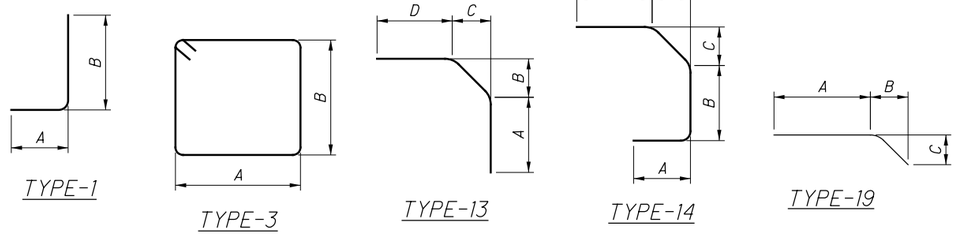
RETAINING WALL PILES:
12 INCH DIAMETER PILES, 40 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TEST ITEM

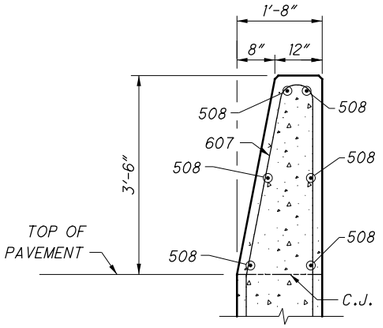


MGS BTA, TYPE 1 PLAN VIEW

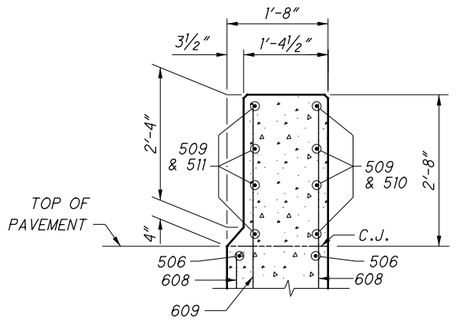
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RETAINING WALL											
RW501	148	17'-0"	2,624	3	5'-8"	2'-7"					
RW502	178	5'-6"	1,021	1	10"	4'-9"					
RW503	178	7'-10'	1,454	13	2'-0"	5'-1"	11½"	9"			
RW504	50	30'-0"	1,565	STR							
RW505	84	29'-8"	2,599	STR							
RW506	14	22'-0"	321	STR							
RW507	10	33'-8"	351	STR							
RW508	6	10'-5"	65	STR							
RW509	8	9'-10"	82	STR							
RW510	4	5'-10"	25	STR							
RW511	4	6'-0"	25	19	4'-6"	1'-5"	4½"				
RW601	178	7'-2"	1,916	1	1'-0"	6'-4"					
RW602	31	10'-11"	508	14	3'-4"	8½	7½	3'-4"	3'-10"		
RW603	31	13'-5"	625	14	4'-7"	8½	7½	3'-4"	5'-1"		
RW604	31	15'-7"	726	14	5'-8"	8½	7½	3'-4"	6'-2"		
RW605	31	17'-7"	819	14	6'-8"	8½	7½	3'-4"	7'-2"		
RW606	31	19'-3"	896	14	7'-6"	8½	7½	3'-4"	8'-0"		
RW607	9	20'-7"	278	14	8'-2"	8½	7½	3'-4"	8'-8"		
RW608	30	8'-6"	383	STR							
RW609	15	5'-0"	113	STR							
TOTAL			16,396								

BENDING DIAGRAMS

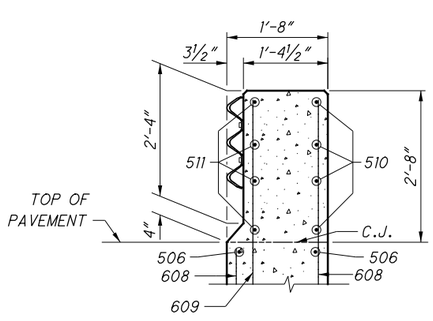




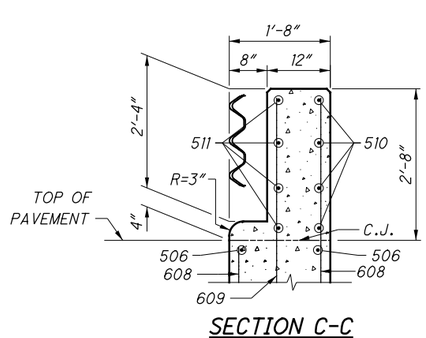
SECTION F-F



SECTION E-E



SECTION D-D



SECTION C-C

NOTES:

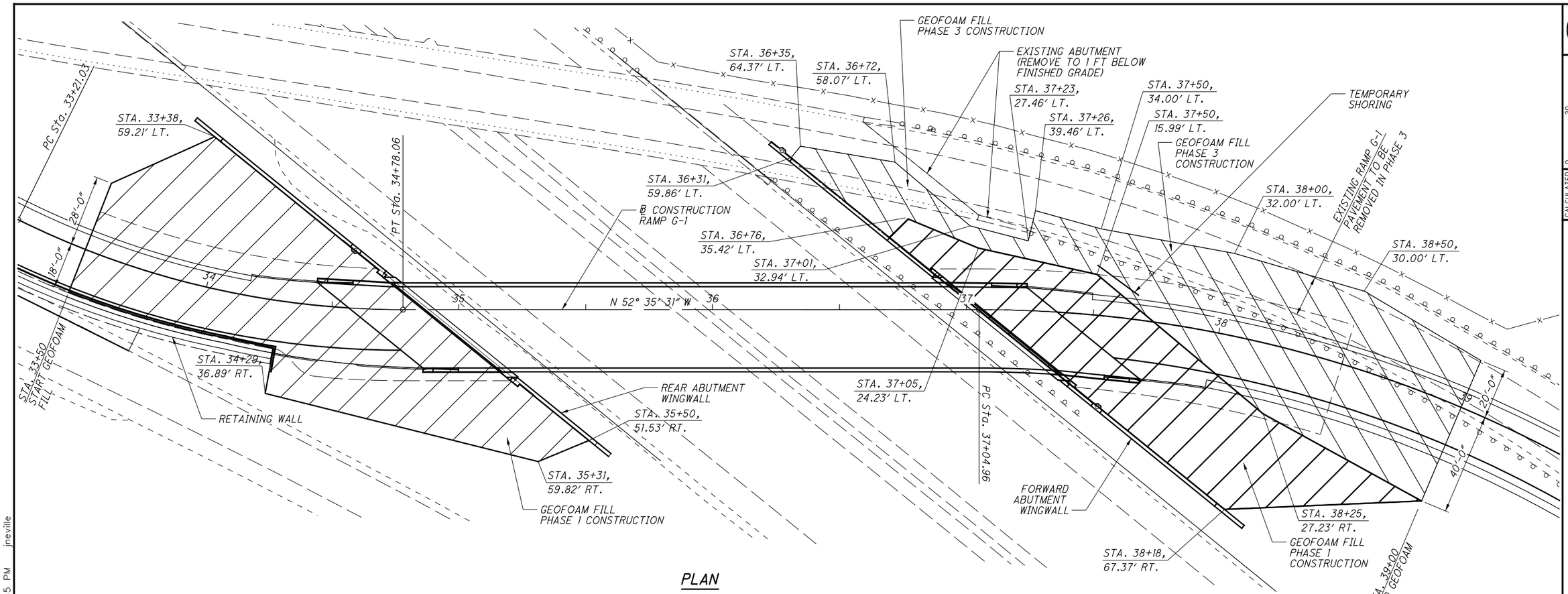
1. THE BAR SIZE NUMBER IS SPECIFIED IN THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR DIGITS ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE S601 IS A NO. 6 BAR. BAR DIMENSIONS ARE SHOWN OUT TO OUT UNLESS OTHERWISE INDICATED. "R" INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. "STD" WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF A BAR.
2. ALL REINFORCING STEEL TO BE EPOXY COATED.
3. FOR ELEVATION VIEW OF MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1, SEE SHEET 57 OF 100.

CALCULATED AJM CHECKED MMP

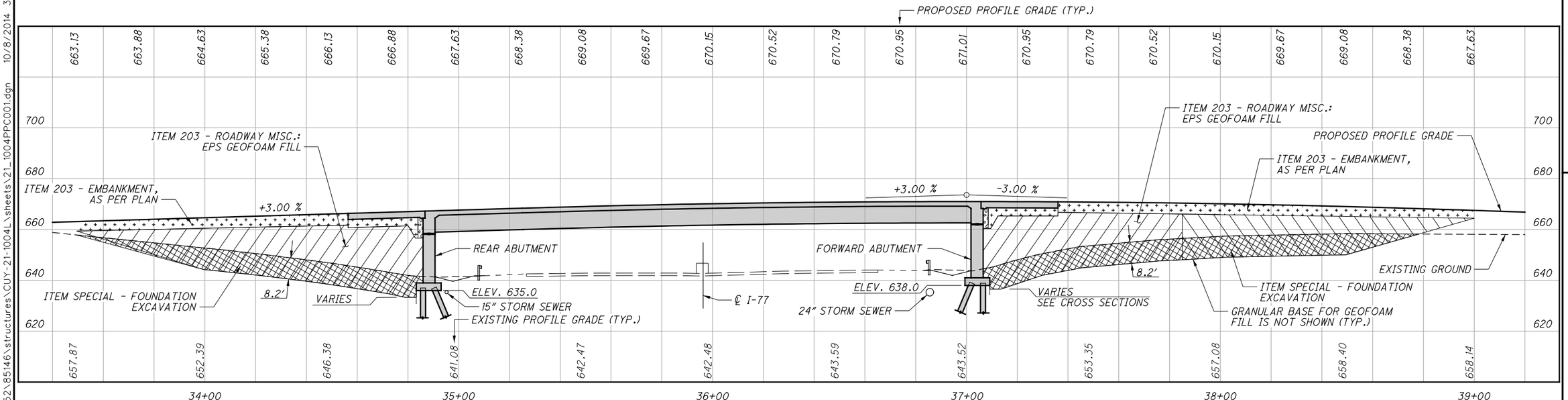
RETAINING WALL QUANTITIES

CUY-21-10.04L

58
100



PLAN



PROFILE ALONG BASELINE RAMP G-1

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED AJM
CHECKED LAB

GEOFOAM PLAN AND PROFILE STA. 33+00 TO STA. 39+50

CUY-21-10.04L

59
100

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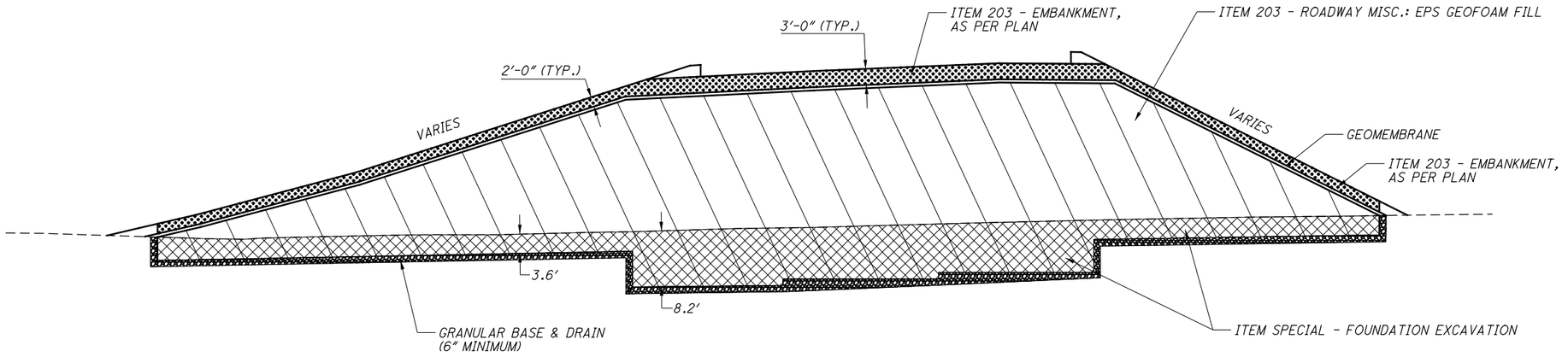
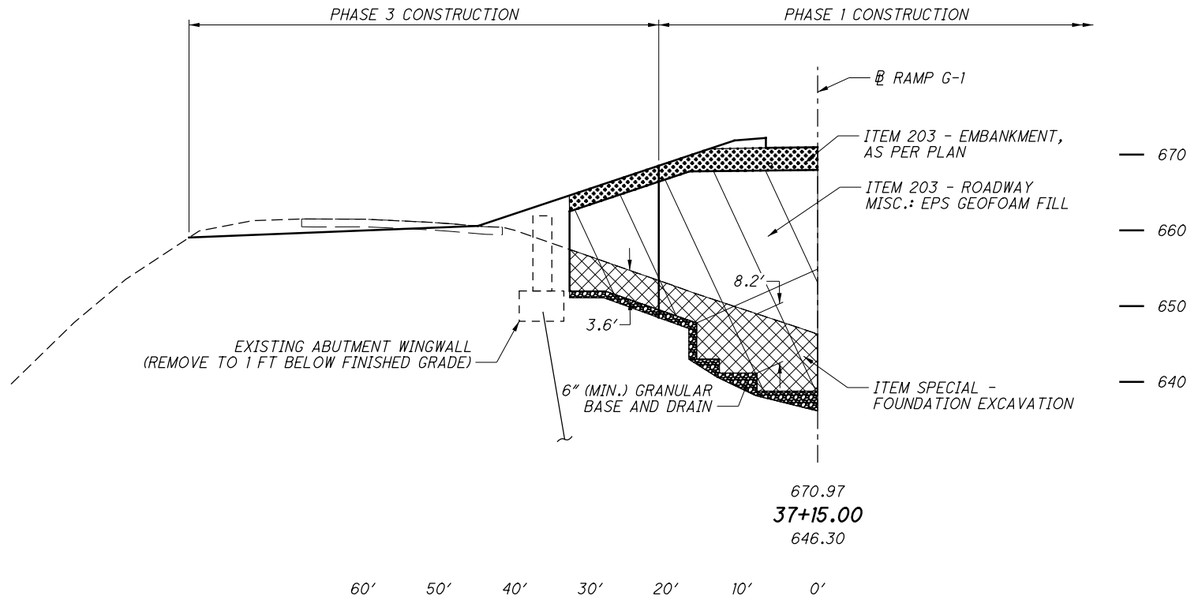


GEOFOAM TYPICAL SECTION AT ABUTMENTS

REAR ABUTMENT SHOWN, FWD. ABUTMENT SIMILAR

1. GEOMEMBRANE COVERS TOP AND EDGES OF GEOFOAM FILL.
2. FOR NOTES CONCERNING GEOFOAM FILL CONSTRUCTION SEE SHEET 8 OF 100.
3. SEE SHEETS 42 TO 45 OF 100 FOR CROSS SECTIONS.



GEOFOAM SUPPLEMENTAL SECTION

AT FORWARD ABUTMENT

CALCULATED AJM
CHECKED LAB

GEOFOAM DETAILS

CUY-21-10.04L

60
100

SHEET NUMBER								PARTICIPATION					ALT.	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
					62	63	64	01/BRO/BR					(X)						
																		TRAFFIC CONTROL	
					16			16						620	00500	16	EACH	DELINEATOR, POST MOUNTED	
					6			6						620	11000	6	EACH	DELINEATOR, BRACKET MOUNTED	
							10	10						621	00100	10	EACH	RPM	
					60			60						621	00301	60	EACH	RPM REFLECTOR, AS PER PLAN	64
					51			51						626	00100	51	EACH	BARRIER REFLECTOR	
						25.0		25.0						630	02100	25.0	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
						164.0		164.0						630	03100	164.0	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
						106.7		106.7						630	80100	106.7	SQ FT	SIGN, FLAT SHEET	
						22		22						630	85000	22	EACH	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE	
						16		16						630	86002	16	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
					0.86			0.86						646	10010	0.86	MILE	EDGE LINE, 6"	
					1.23			1.23						646	10110	1.23	MILE	LANE LINE, 6"	

CALCULATED JEN
CHECKED JLN

GENERAL SUMMARY

CUY-21-10.04L

61
100

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	646 EDGE LINE, 6" (WHITE) FT	646 EDGE LINE, 6" (YELLOW) FT	646 LANE LINE, 6" FT	620 DELINEATOR, POST MOUNTED (TYPE C) EACH	620 DELINEATOR, POST MOUNTED (TYPE D) EACH	620 DELINEATOR, BRACKET MOUNTED (TYPE C) EACH	620 DELINEATOR, BRACKET MOUNTED (TYPE D) EACH		621 RPM REFLECTOR, AS PER PLAN EACH		626 BARRIER REFLECTOR (TYPE A) EACH	626 BARRIER REFLECTOR (TYPE A2) EACH	626 BARRIER REFLECTOR (TYPE B) EACH				
64	EL1	RAMP G-1	27+60	39+50	LT	1,190																
64	EL2	RAMP G-1	27+60	39+50	RT		1,190															
64	EL3	RAMP G-2	27+60	33+78	RT		618															
64	LL1	I-77	522+95	538+52	RT			1,557														
64	LL2	I-77	522+95	538+52	RT			1,557														
64	LL3	I-77	534+80	539+91	LT			511														
64	LL4	I-77	534+80	539+91	LT			511														
64	LL5	RAMP G-2	26+67	30+80	RT			413														
65	LL6	I-77	539+91	549+60	LT			969														
65	LL7	I-77	539+91	549+60	LT			969														
65	EL4	RAMP G-1	39+50	46+34	RT		684															
65	EL5	RAMP G-1	39+50	46+34	LT	684																
64	EL6	RAMP G-2	32+83	34+22	RT	156																
64/65		I-77	527+57	538+52	RT									30								
64/65		I-77	534+80	545+95	LT									30								
64		RAMP G-1	27+11	29+86	LT												4					
64/65		RAMP G-1	32+93	46+34	LT											17		3				
64/65		RAMP G-1	29+58	41+11	RT											8		10				
64		I-77	533+30	536+80	RT											4						
64/65		I-77	535+63	540+38	LT											5						
64/65		RAMP G-1	27+74	46+34	LT				15													
64		RAMP G-1	32+99	34+74	RT					1	3	3										
SUB-TOTAL						2,030	2,492	6,487	15	1	3	3				34	4	13				
TOTALS CARRIED TO GENERAL SUMMARY						0.86 MI.		1.23 MI.	16		6			60		51						

CALCULATED JEN
CHECKED JLN

PAVEMENT MARKING SUBSUMMARY

CUY-21-10.04L

62
100

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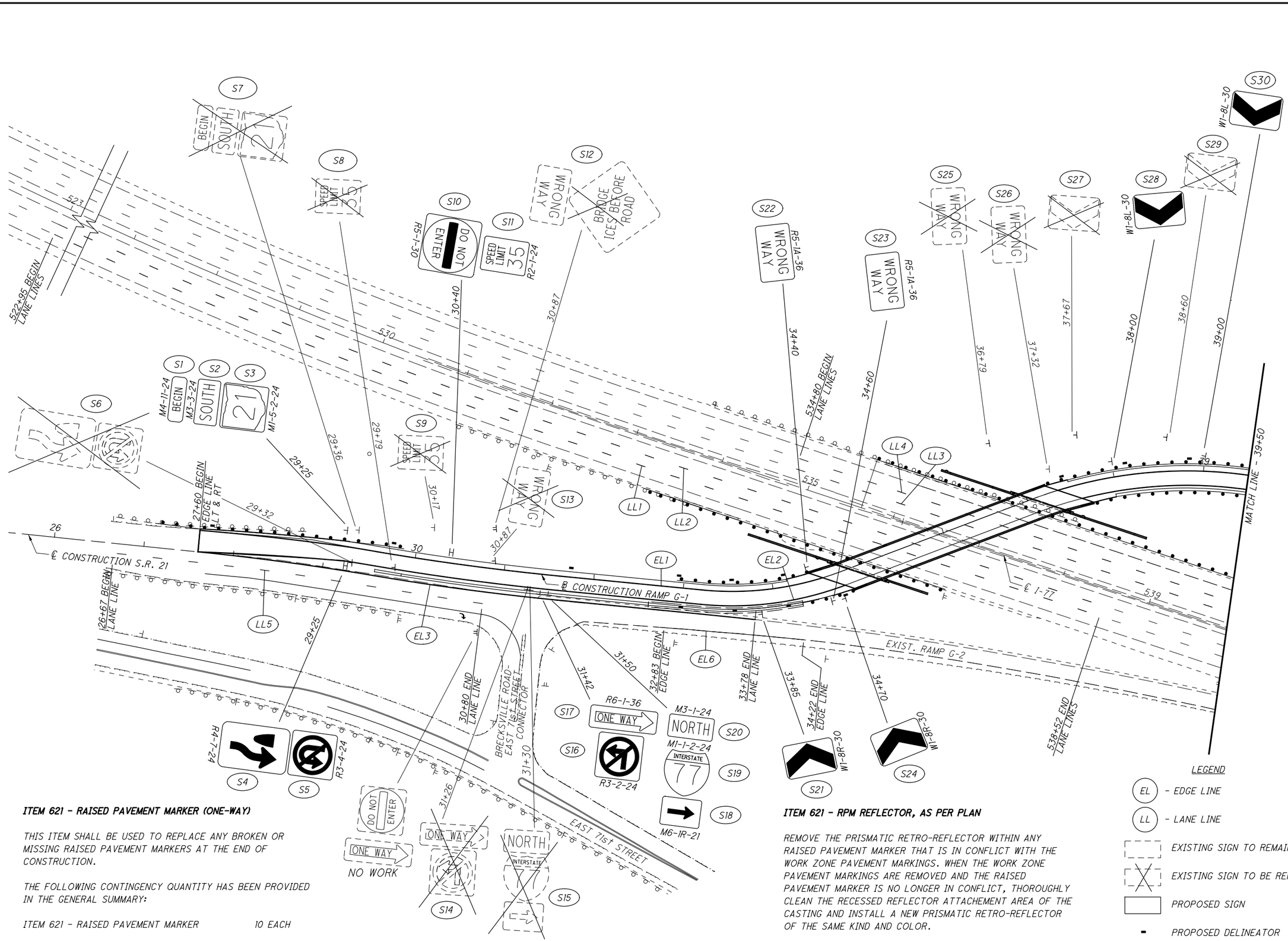
SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 GROUND MOUNTED SUPPORT, NO. 2 POST FT	630 GROUND MOUNTED SUPPORT, NO. 3 POST FT	630 SIGN, FLAT SHEET SF			630 REMOVAL OF GROUND MOUNTED SIGN AND STORAGE EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH							
64	S1	RAMP G-1	29+25	LT	M4-14-24	24 X 12			2.00											
64	S2	RAMP G-1	29+25	LT	M3-3-24	24 X 12		14.5	2.00											
64	S3	RAMP G-1	29+25	LT	M1-5-2-24	24 X 24			4.00											
64	S4	RAMP G-1	29+25	RT	R4-7-24	24 X 30		15.0	5.00											
64	S5	RAMP G-1	29+25	RT	R3-4-24	24 X 24			4.00											
64	S6	RAMP G-1	29+32	LT								2	1							
64	S7	RAMP G-1	29+36	RT								3	1							
64	S8	RAMP G-1	29+79	LT								1	1							
64	S9	RAMP G-1	30+17	LT								1	1							
64	S10	RAMP G-1	30+40	LT	R5-1-30	30 X 30		13.0	6.25											
64	S11	RAMP G-1	30+40	LT	R2-1-24	24 X 30			5.00											
64	S12	RAMP G-1	30+87	LT								2	2							
64	S13	RAMP G-1	30+87	LT								1	1							
64	S14	RAMP G-1	31+26	RT								2	1							
64	S15	RAMP G-1	31+30	RT								3	1							
64	S16	RAMP G-1	31+42	RT	R3-2-24	24 X 24		13.5	4.00											
64	S17	RAMP G-1	31+42	RT	R6-1-36	36 X 12			3.00											
64	S18	RAMP G-1	31+50	RT	M6-1R-21	21 X 15			2.19											
64	S19	RAMP G-1	31+50	RT	M1-2-24	24 X 24		14.0	4.00											
64	S20	RAMP G-1	31+50	RT	M3-1-24	24 X 12			2.00											
64	S21	RAMP G-1	33+85	RT	W1-8R-30	30 X 36		13.5	7.50											
64	S22	RAMP G-1	34+40	RT	R5-1A-36	36 X 24	12.5		6.00											
64	S23	RAMP G-1	34+60	RT	R5-1A-36	36 X 24	12.5		6.00											
64	S24	RAMP G-1	34+70	RT	W1-8R-30	30 X 36		13.5	7.50											
64	S25	RAMP G-1	36+79	LT								1	1							
64	S26	RAMP G-1	37+32	LT								1	1							
64	S27	RAMP G-1	37+67	LT								1	1							
64	S28	RAMP G-1	38+00	LT	W1-8L-30	30 X 36		13.5	7.50											
64	S29	RAMP G-1	38+60	LT								1	1							
64	S30	RAMP G-1	39+00	LT	W1-8L-30	30 X 36		13.5	7.50											
65	S31	RAMP G-1	39+60	LT								1	1							
65	S32	RAMP G-1	40+00	LT	W1-8L-30	30 X 36		13.5	7.50											
65	S33	RAMP G-1	40+50	LT								1	1							
65	S34	RAMP G-1	41+00	LT	W1-8L-30	30 X 36		13.5	7.50											
65	S35	RAMP G-1	44+50	LT	D10-H5a-30	30 X 30		13.0	6.25											
65	S36	RAMP G-1	44+91	LT								1	1							
						SUB-TOTAL			106.69											
			TOTALS CARRIED TO GENERAL SUMMARY				25.0	164.0	106.7			22	16							

CALCULATED JEN
CHECKED JLN

SIGNING SUBSUMMARY

CUY-21-10.04L



ITEM 621 - RAISED PAVEMENT MARKER (ONE-WAY)

THIS ITEM SHALL BE USED TO REPLACE ANY BROKEN OR MISSING RAISED PAVEMENT MARKERS AT THE END OF CONSTRUCTION.

THE FOLLOWING CONTINGENCY QUANTITY HAS BEEN PROVIDED IN THE GENERAL SUMMARY:

ITEM 621 - RAISED PAVEMENT MARKER 10 EACH

ITEM 621 - RPM REFLECTOR, AS PER PLAN

REMOVE THE PRISMATIC RETRO-REFLECTOR WITHIN ANY RAISED PAVEMENT MARKER THAT IS IN CONFLICT WITH THE WORK ZONE PAVEMENT MARKINGS. WHEN THE WORK ZONE PAVEMENT MARKINGS ARE REMOVED AND THE RAISED PAVEMENT MARKER IS NO LONGER IN CONFLICT, THOROUGHLY CLEAN THE RECESSED REFLECTOR ATTACHEMENT AREA OF THE CASTING AND INSTALL A NEW PRISMATIC RETRO-REFLECTOR OF THE SAME KIND AND COLOR.

LEGEND

- EL - EDGE LINE
- LL - LANE LINE
- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- PROPOSED DELINEATOR

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED JEN
CHECKED JLN

TRAFFIC CONTROL PLAN
STA. 26+00 TO STA. 39+50

CUY-21-10.04L

64
100

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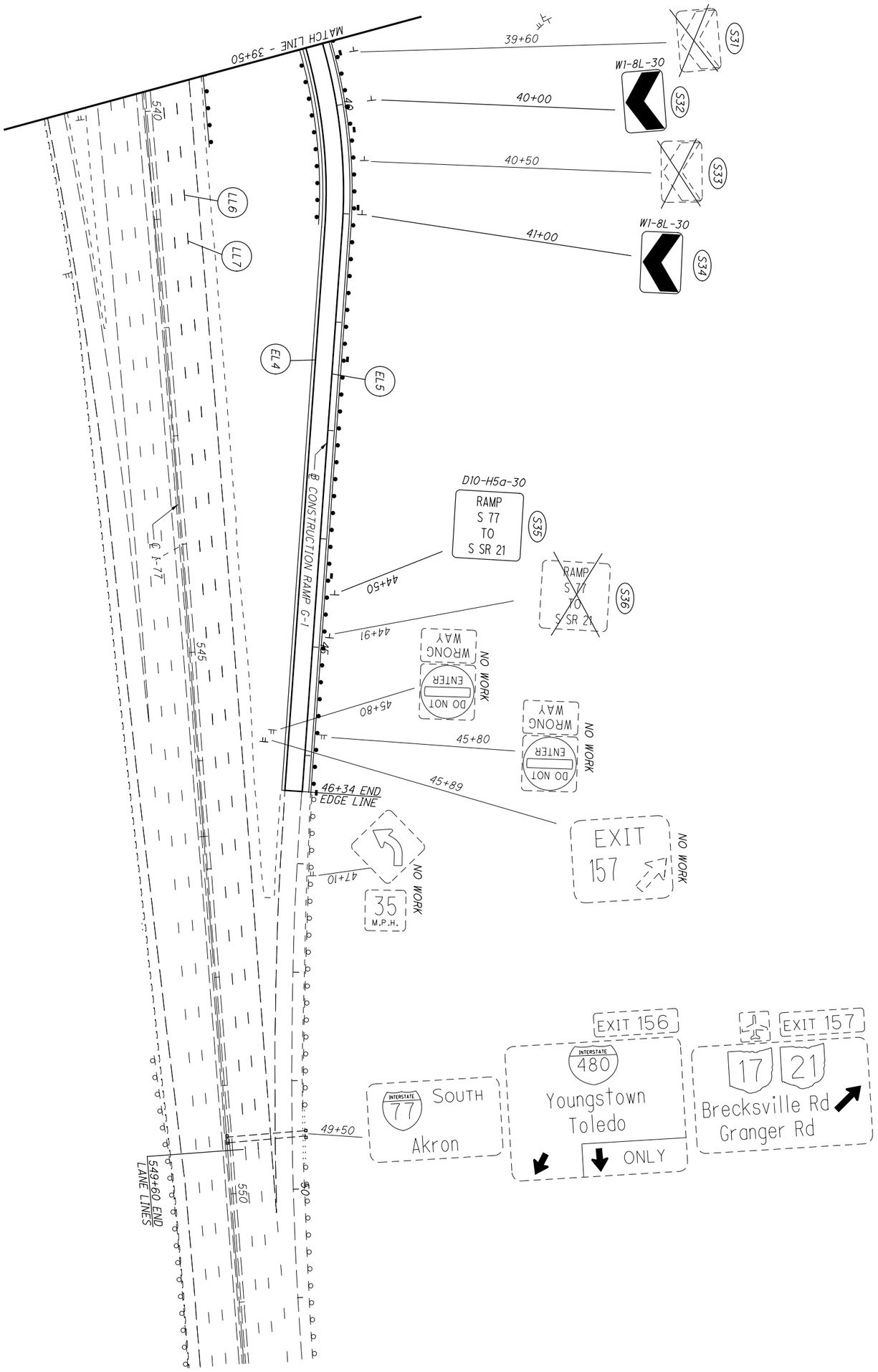

FOR LEGEND, SEE SHEET 64.

65/100	CUY-21-10.04L	TRAFFIC CONTROL PLAN STA. 39+50 TO STA. 47+00	CALCULATED JEN CHECKED JLN	0 50 25 100 HORIZONTAL SCALE IN FEET

SPECIFICATIONS

THESE NOTES ARE SUPPLEMENTAL TO ITEMS 625 AND 725 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

THE ILLUMINATING COMPANY
6896 MILLER ROAD
BRECKSVILLE, OHIO 44141
CONTACT: MARK ROBINSON (440) 546-8804
robinsonmc@firstenergycorp.com

THE PROJECT INCLUDES MODIFICATIONS TO THE EXISTING I-77-RAMP G-2 LIGHTING THAT ARE NECESSARY DUE TO THE RELOCATION OF RAMP G-2 AND STRUCTURE CUY-21-10.04L

THE EXISTING LIGHTING CIRCUITS ARE 480 VOLT, 2 WIRE GROUNDED NEUTRAL.

THE EXISTING LIGHTING WAS DESIGNED ON THE BASIS OF 5% MAXIMUM VOLTAGE DROP PERMISSIBLE ON BRANCH CIRCUITS. THE PROJECT RECEIVES 480-VOLT CONTROLLED SECONDARY SERVICE FROM THE ILLUMINATING COMPANY.

THE EXISTING LIGHTING WAS DESIGNED ON THE BASIS OF 1.2 FOOTCANDLES INITIAL WITH A MAXIMUM UNIFORMITY RATIO OF 4:1.

625, PULL BOX CLEANED

THIS ITEM OF WORK SHALL CONSIST OF CLEANING AN EXISTING PULL BOX BY REMOVING ANY EXISTING CABLES NOT BEING RECONNECTED, AND DEBRIS SO THAT NEW CABLES CAN BE INSTALLED. ANY UNUSED OPENINGS SHALL BE CLOSED. DISTURBED AREAS NEAR THE PULL BOX SHALL BE CLEARED OF WEEDS OR DEBRIS AND SHALL BE FULLY RESTORED. MATERIAL REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF OF THE PROJECT SITE.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "PULL BOX CLEANED" FOR EACH PULL BOX CLEANED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

625, LUMINAIRE, CONVENTIONAL, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LUMINAIRES FOR CONVENTIONAL LIGHTING UNITS SHALL BE AS FOLLOWS:

LUMINAIRES FOR CONVENTIONAL LIGHTING UNITS WITH AN IES II-M-SC DISTRIBUTION AND 200 WATT HIGH PRESSURE SODIUM LAMPS SHALL BE AMERICAN ELECTRIC "SERIES 126" WITH PHOTOMETRIC DISTRIBUTION AE3849I, COOPER "OVD" WITH PHOTOMETRIC DISTRIBUTION OVD2S2F, GENERAL ELECTRIC "M-400" WITH PHOTOMETRIC DISTRIBUTION 1014, OR EQUAL AS APPROVED BY THE ENGINEER.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH CMS ITEM 625, "LUMINAIRE, CONVENTIONAL, AS PER PLAN (ADD SUPPLEMENTAL DESCRIPTION)" FOR EACH LUMINAIRE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

LAMPS

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX," OSRAM SYLVANIA "LUMALUX," PHILIPS "CERAMALUX," OR EQUAL APPROVED BY THE ENGINEER.

LIGHT POLE ANCHOR BOLTS

WHEN A LIGHT POLE IS MOUNTED ON A PILASTER ON A BRIDGE PARAPET OR ON A RETAINING WALL, THE REQUIRED ANCHOR BOLTS MAY DIFFER IN LENGTH AND/OR SHAPE FROM THOSE REQUIRED WHEN THE POLE IS MOUNTED ON A CAST-IN-PLACE DRILLED SHAFT FOUNDATION. THE COST DIFFERENTIAL FOR FURNISHING SUCH BOLTS IS INCLUDED HEREIN.

IN ADDITION, THERE IS NO FOUNDATION CONSTRUCTION ITEM IN WHICH TO INCLUDE THE SETTING OF THE ANCHOR BOLTS. THUS, THE SETTING OF THE ANCHOR BOLTS INTO THE PILASTER IS ALSO PART OF THIS WORK.

PAYMENT WILL BE MADE AT EACH SUCH POLE LOCATION AT THE UNIT PRICE BID FOR EACH CMS ITEM 625, "LIGHT POLE ANCHOR BOLTS ON STRUCTURE" AND SHALL BE FULL COMPENSATION FOR FURNISHING AND PLACING THE SET OF ANCHOR BOLTS REQUIRED.

CONDUIT EXPANSION AND DEFLECTION

EXPANSION FITTINGS SHALL BE OZ TYPE AX, CROUSE HINDS TYPE XJG, APPLETON TYPE AX, OR EQUAL APPROVED BY THE ENGINEER. EACH EXPANSION FITTING SHALL PROVIDE EITHER 4 OR 8 INCHES TOTAL MOVEMENT AS SPECIFIED BY THE PLAN DETAILS AND SHALL HAVE AN EXTERNAL COPPER BONDING JUMPER, UNLESS SPECIFIED OTHERWISE BY THE PLAN DETAILS.

DEFLECTION COUPLINGS SHALL BE OZ TYPE DX, CROUSE HINDS TYPE XD, APPLETON TYPE DF, OR EQUAL APPROVED BY THE ENGINEER. EACH DEFLECTION COUPLING SHALL HAVE AN EXTERNAL COPPER BONDING JUMPER, UNLESS SPECIFIED OTHERWISE BY THE PLAN DETAILS.

HIGH VOLTAGE TEST WAIVED

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

SPECIAL, MAINTAIN EXISTING LIGHTING

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

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

IF, AS A RESULT OF THIS INSPECTION, IT IS DETERMINED THAT THE CONDITION OF THE EXISTING SYSTEM IS BELOW THAT REQUIRED FOR THE SAFETY OF THE TRAVELING PUBLIC, THEN THE MAINTAINING AGENCY SHALL MAKE THE REPAIRS NECESSARY TO RETURN THE SYSTEM TO AN ACCEPTABLE CONDITION. FOLLOWING THESE REPAIRS, THE SYSTEM SHALL AGAIN BE INSPECTED AND A REPORT SHALL BE MADE AND SIGNED AS OUTLINED HEREIN.

SPECIAL, MAINTAIN EXISTING LIGHTING - CONTINUED

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

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

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

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

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

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

THE LUMP SUM PRICE BID FOR ITEM SPECIAL "MAINTAIN EXISTING LIGHTING" SHALL INCLUDE PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO MAINTAIN THE EXISTING LIGHTING AS SPECIFIED HEREIN.

CALCULATED RSW CHECKED DTB

LIGHTING GENERAL NOTES

CUY-21-10.04L

SHEET NUMBER	PARTICIPATION	ALT.	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
68	01/BRO/BR	(X)						
							LIGHTING	
160	160		611	00400	160	FT	4" CONDUIT, TYPE E	
24	24		625	00480	24	EACH	CONNECTION, UNFUSED PERMANENT	
13	13		625	00500	13	EACH	CONNECTOR KIT, TYPE II	
13	13		625	00600	13	EACH	CONNECTOR KIT, TYPE III	
1	1		625	10490	1	EACH	LIGHT POLE, CONVENTIONAL, DESIGN NO. AT18B40	
6	6		625	10490	6	EACH	LIGHT POLE, CONVENTIONAL, DESIGN NO. AT15B32.5	
1	1		625	10490	1	EACH	LIGHT POLE, CONVENTIONAL, DESIGN NO. AT25B40	
2	2		625	10491	2	EACH	LIGHT POLE, CONVENTIONAL, AS PER PLAN DESIGN NO. ST12B27.2 (WALL MOUNTED)	71
1	1		625	10491	1	EACH	LIGHT POLE, CONVENTIONAL, AS PER PLAN DESIGN NO. ST25B17.7 (WALL MOUNTED)	71
1	1		625	10491	1	EACH	LIGHT POLE, CONVENTIONAL, AS PER PLAN DESIGN NO. ST25B18.5 (WALL MOUNTED)	71
1	1		625	10491	1	EACH	LIGHT POLE, CONVENTIONAL, AS PER PLAN DESIGN NO. ST25B36.0 (WALL MOUNTED)	71
20	20		625	10614	20	EACH	LIGHT POLE ANCHOR BOLTS ON STRUCTURE	
5	5		625	14000	5	EACH	LIGHT POLE FOUNDATION, 24" X 6' DEEP	
2	2		625	14100	2	EACH	LIGHT POLE FOUNDATION, 24" X 8' DEEP	
2582	2582		625	23200	2582	FT	NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE	
1310	1310		625	23400	1310	FT	NO. 10 AWG POLE AND BRACKET CABLE	
1443	1443		625	24100	1443	FT	1-1/2" DUCT CABLE WITH TWO NO. 4 AWG 5000 VOLT CABLES	
1005	1005		625	25400	1005	FT	CONDUIT, 2", 725.04	
75	75		625	25500	75	FT	CONDUIT, 3", 725.04	
101	101		625	25900	101	FT	CONDUIT, JACKED OR DRILLED, 3"	
8	8		625	26251	8	EACH	LUMINAIRE, CONVENTIONAL, AS PER PLAN STYLE B, TYPE II, 200 WATT, HPS, 480 VOLT	66
5	5		625	26251	5	EACH	LUMINAIRE, CONVENTIONAL, AS PER PLAN STYLE C, TYPE II, 310 WATT, HPS, 480 VOLT	66
1564	1564		625	29002	1564	FT	TRENCH, 24" DEEP	
8	8		625	30700	8	EACH	PULL BOX, 725.08, 18"	
4	4		625	31510	4	EACH	PULL BOX REMOVED	
7	7		625	32000	7	EACH	GROUND ROD	
1	1		625	33000	1	EACH	STRUCTURE GROUNDING SYSTEM, BRIDGE CUY-21-10.04L	
1	1		625	33000	1	EACH	STRUCTURE GROUNDING SYSTEM, REAR ABUTMENT AND WINGWALLS	
1	1		625	33000	1	EACH	STRUCTURE GROUNDING SYSTEM, FORWARD ABUTMENT AND WINGWALLS	
1564	1564		625	36000	1564	FT	PLASTIC CAUTION TAPE	
4	4		625	39520	4	EACH	PULL BOX CLEANED	
LUMP	LUMP		SPECIAL	62540000	LUMP		MAINTAIN EXISTING LIGHTING	66
11	11		625	75400	11	EACH	LIGHT POLE REMOVED	
9	9		625	75500	9	EACH	LIGHT POLE FOUNDATION REMOVED	
4938	4938		625	75550	4938	FT	DISTRIBUTION CABLE REMOVED	
5	5		625	75800	5	EACH	DISCONNECT CIRCUIT	

CALCULATED RSW
CHECKED DTB

GENERAL SUMMARY

CUY-21-10.04L

REFERENCE NO.	SHEET No.	SIDE	ROADWAY	STATION TO STATION	611	625																																
					4" CONDUIT, TYPE E	CONNECTION, UNFUSED PERMANENT	CONNECTION KIT, TYPE II	CONNECTION KIT, TYPE III	LIGHT POLE, CONVENTIONAL, DESIGN NO. AT15B32.5	LIGHT POLE, CONVENTIONAL, AS PER PLAN DESIGN NO. ST12B27.2 (WALL MOUNTED)	LIGHT POLE, CONVENTIONAL, DESIGN NO. AT18B40	LIGHT POLE, CONVENTIONAL, DESIGN NO. AT25B40	LIGHT POLE, CONVENTIONAL, AS PER PLAN, DESIGN NO. ST25B17.7 (WALL MOUNTED)	LIGHT POLE, CONVENTIONAL, AS PER PLAN, DESIGN NO. ST25B36.0 (WALL MOUNTED)	LIGHT POLE, CONVENTIONAL, AS PER PLAN, DESIGN NO. AT25B18.5 (WALL MOUNTED)	LIGHT POLE ANCHOR BOLTS ON STRUCTURE	LIGHT POLE FOUNDATION, 24" X 6' DEEP	LIGHT POLE FOUNDATION, 24" X 8' DEEP	NO. 4 AWG, 5000 VOLT, DISTRIBUTION CABLE	NO. 10 AWG POLE AND BRACKET CABLE	1½" DUCT CABLE WITH TWO NO. 4 AWG, 5000 VOLT CABLES	CONDUIT, 2", 725.04	CONDUIT, 3", 725.04	CONDUIT, JACKED OR DRILLED, 3"	LUMINAIRE, CONVENTIONAL, AS PER PLAN, STYLE B, TYPE II, 200 WATT, HPS, 480 VOLT	LUMINAIRE, CONVENTIONAL, AS PER PLAN, STYLE C, TYPE III, 310 WATT, HPS, 480 VOLT	TRENCH, 24" DEEP	PULL BOX, 725.08, 18"	PULL BOX REMOVED	GROUND ROD	STRUCTURE GROUNDING SYSTEM, BRIDGE CUY-21-10.04L	STRUCTURE GROUNDING SYSTEM, REAR ABUTMENT AND WINGWALLS	STRUCTURE GROUNDING SYSTEM, FORWARD ABUTMENT AND WINGWALLS	PLASTIC CAUTION TAPE	PULL BOX CLEANED	SPECIAL - MAINTAINING EXISTING LIGHTING	LIGHT POLE REMOVED	LIGHT POLE FOUNDATION REMOVED	DISTRIBUTION CABLE REMOVED	DISCONNECT CIRCUIT
					FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	FT	FT	FT	FT	FT	FT	EACH	EACH	FT	EACH	EACH	EACH	EACH	EACH	EACH	FT	EACH	LS	EACH	EACH	FT	EACH
1	69	LT	I-77	533+95 TO 534+32		2														47						37							37	1					1
2	69	LT	I-77	534+32 to 536+24.50			1	1			1							1		119	203					1	193			1				193						
3	69	LT	I-77	536+24.50 TO 536+40	20	2													64			22					10	1						10						
4	69	LT/LT	I-77/RAMP G-1	536+40 TO 36+89.74			1	1						1		4			226	125		103				1													
5	69	LT/LT	RAMP G-1/I-77	36+89.74 TO 538+00			1	1		1						4			240	83		110			1														
6	69	LT	I-77	538+00 TO 538+84	20	2	1	1							1	4			212	90		96				1	10	1						10						
7																																							
8	69	LT	I-77	536+34.44 TO 538+74.28 (ABUTMENT)																						1													
9	69	LT	I-77	534+53																															1	1			
10	69	LT	I-77	537+10																															1	1			
11	69	RT	I-77	533+97 TO 534+43		2															56						46							46	1					1
12	69	RT	I-77	534+43 TO 535+34	20	2													226			103					10	1						10						
13	69	RT/LT	I-77/RAMP G-1	535+34 TO 34+73.74			1	1					1			4			118	89		49				1													
14	69	LT/RT	RAMP G-1/I-77	34+73.74 TO 536+80			1	1		1						4			316	83		148			1		17							17						
15	69	RT	I-77	536+80 TO 536+90	20	2	1	1				1						1		133	20					1	10	1		1				10						
16	69	RT	I-77	534+52.94 TO 536+62.77 (ABUTMENT)																											1									
17	69	RT	I-77	535+87, 69' RT																															1	1			
18																																							
19	69	LT	RAMP G-1	36+86 TO 37+34		2													168			74					74							74	1					1
20	69	LT	RAMP G-1	37+34 TO 39+06	20	2															183						173	1						173						
21	69	LT	RAMP G-1	39+06 TO 41+22			1	1	1								1			98	227				1		217			1				217						
22	69	LT	RAMP G-1	41+22 TO 43+38			2	2	2								2			196	226				2		216			2				216						
23																																							
24	69	LT	RAMP G-1	37+34 TO 34+34															620			300					20							20						
25	69	LT	RAMP G-1	34+34 TO 32+71.00	20	2															173						163	1						163						
26	69	LT/RT	RAMP G-1	32+71.00 TO 32+71	20	2	1	1	1								1		170	98			39	36	1		39	1		1				39						
27																																							
28	69	LT/LT	SR 21/RAMP G-1	28+65.44 TO 30+68.00			1	1	1											98	213				1		203							203			1			
29	69	LT	RAMP G-1	30+68.00 TO 31+58			1	1	1								1			98	100				1		90			1				90						
30	69	LT/RT	RAMP G-1	31+58 TO 31+58	20	4													222				36	65			36	1						36	1					1
31	69	LT	RAMP G-1	31+17, 53' LT																									1										
32	69	LT	RAMP G-1	31+80, 66' LT																									1										
33	69	RT	RAMP G-1	31+74, 22.4' RT																									1										
34	69	RT	RAMP G-1	31+74, 65' RT																									1										1
35	69	LT	RAMP G-1	30+35.24, 38.65' LT																															1	1			
36	69	LT	RAMP G-1	34+88.84, 105.1' LT																															1				
37	69	LT	RAMP G-1	37+07.87, 67.90' LT																															1	1			
38	69	LT	RAMP G-1	39+08.31, 29.48' LT																															1	1			
39	69	LT	RAMP G-1	41+19.23, 18.16' LT																															1	1			
40	69	LT	RAMP G-1	43+37.5, 16.1' LT																															1	1			
41	69	LT/LT	SR 21/RAMP G-1	28+65.44 TO 43+37.5																																		2944	
42	69	LT	I-77	533+95 TO 538+84																																		978	
43	69	RT	I-77	533+97 TO 536+90																																		586	
44	69	LT/RT	RAMP G-1	31+17 TO 31+20.22																																		116	
45	69	RT	RAMP G-1	31+20.22 TO 31+74																															1	1		126	
46	69	RT/RT	RAMP G-1	31+74 TO 31+74																																		84	
47	69	RT	RAMP G-1	31+58 TO 32+00																																		104	
48																																							
49	69	LT/RT	RAMP G-1	34+86.71 TO 37+05.22 (BRIDGE)																											1									
50	69	LT/RT	I-77	528+25 TO 543+50																																LS				
51																																							
52																																							
53																																							
54																																							
55																																							
TOTALS CARRIED TO GENERAL SUMMARY					160	24	13	13	6	2	1	1	1	1	1	20	5	2	2582	1310	1448	1005	75	101	8	5	1564	8	4	7	1	1	1	1564	4	LS	11	9	4938	5

CALCULATED RSW
CHECKED DTB

LIGHTING SUBSUMMARY

CUY-21-10.04L

PB-1 STA 533+95, ℄ I-77, 57.3′ LT
EXISTING PULL BOX TO REMAIN IN SERVICE, DISCONNECT EXISTING CIRCUIT ICR TO NORTH AND RECONNECT NEW CIRCUIT ICR. CLEAN EXISTING PULL BOX AND PROVIDE 2 CABLE SPLICING KITS

PB-2 STA 536+24.50 ℄ I-77, 68.00′ LT
18″ PULL BOX
PROVIDE 2 CABLE SPLICING KITS

PB-3 STA 538+84, ℄ I-77, 68.00′ LT
18″ PULL BOX,
CONNECT EXISTING DUCT CABLE ICR TO NORTH INTO PULL BOX AND PROVIDE 2 CABLE SPLICING KITS

PB-4 STA 533+97, ℄ I-77, 63′ RT
EXIST. PULL BOX TO REMAIN IN SERVICE, CLEAN EXIST. PULL BOX AND PROVIDE 2 CABLE SPLICING KITS, DISCONNECT EX. CIRCUIT 2CR TO NORTH AND RECONNECT NEW CIRCUIT 2CR

PB-5 STA 534+43, ℄ I-77, 68.00′ RT
18″ PULL BOX
PROVIDE 2 CABLE SPLICING KITS

PB-6 STA 536+80, ℄ I-77, 68.00′ RT
18″ PULL BOX
PROVIDE 2 CABLE SPLICING KITS

PB-9 STA 34+34, ℄ RAMP G-1, 16′ LT
18″ PULL BOX, PROVIDE
2 CABLE SPLICING KITS

PB-10 STA 32+71, ℄ RAMP G-1, 60′ RT
18″ PULL BOX
PROVIDE 2 CABLE SPLICING KITS
SPLICE EXISTING CIRCUIT TO SOUTH AND NORTH TO NEW 2 NO. 4 CABLES TO WEST

STA 30+68.00 ℄ RAMP G-1, 14.50′ LT
PROVIDE NEW LIGHT POLE AND FOUNDATION
AT-200-II-15-34.2 CUY HTS 7

STA 30+35.24 ℄ RAMP G-1
38.65′ LT - POLE AND FOUNDATION TO BE REMOVED
AT-200-II-15-34.2 CUY HTS 7

STA 32+39.55 ℄ RAMP G-1, 75.70′ LT
BRIDGE POLE PILASTER, POLE HAS BEEN REMOVED
AT-200-II-10-34.2-3CR6

STA 533+19 ℄ I-77, 58′ RT
TO BE REMOVED BY OTHERS IN ODOT PID 97419 PROJECT
AT-310-III-15-41.7-2FR10

STA 32+71.00 ℄ RAMP G-1, 14.50′ LT
PROVIDE NEW LIGHT POLE AND FOUNDATION
AT-200-II-15-34.2-3CR4

STA 534+32 ℄ I-77, 62.50′ LT
PROVIDE NEW LIGHT POLE AND FOUNDATION
AT-310-III-18-41.7-ICR1

STA 533+97 ℄ I-77, 129′ LT
EXISTING POLE MOUNTED CONTROL CENTER "CR" TO REMAIN IN SERVICE

STA 534+53 ℄ I-77, 58′ LT
POLE AND FOUNDATION TO BE REMOVED
AT-310-III-15-41.7-ICR1

STA 34+88.84 ℄ RAMP G-1, 105.1′ LT
POLE TO BE REMOVED
AT-200-II-10-34.2-3CR5

STA 34+73.74 ℄ RAMP G-1, 11.67′ LT
MOUNTED ON TOP OF RETAINING WALL PILASTER, PROVIDE NEW POLE AND ANCHOR BOLTS
ST-200-II-12-28.9-2CR1A

STA 536+40 ℄ I-77, 68.00′ LT
PROVIDE NEW LIGHT POLE AND ANCHOR BOLTS MOUNTED ON TOP OF RETAINING WALL PILASTER
ST-310-III-25-37.7-ICR2

STA 36+86 ℄ RAMP G-1, 72′ LT
EXIST. PULL BOX TO REMAIN IN SERVICE, DISCONNECT EXISTING CIRCUIT 3CR TO NW & SE AND PROVIDE 2 CABLE SPLICING KITS TO CONNECT TO NEW CIRCUIT 3CR TO NORTH. CLEAN EXIST. PULL BOX

STA 537+10 ℄ I-77, 68′ LT
POLE AND FOUNDATION TO BE REMOVED
AT-310-III-25-41.7-ICR2

STA 37+07.87 ℄ RAMP G-1, 67.90′ LT
POLE AND FOUNDATION TO BE REMOVED
AT-200-II-10-34.2-3CR1

STA 36+89.74 ℄ RAMP G-1, 11.67′ LT
MOUNTED ON TOP OF RETAINING WALL PILASTER, PROVIDE NEW POLE AND ANCHOR BOLTS
ST-200-II-12-28.9-1CR2A

STA 39+08.31 ℄ RAMP G-1, 29.48′ LT - POLE AND FOUNDATION TO BE REMOVED
AT-200-II-15-34.2-3CR2

STA 43+38 ℄ RAMP G-1, 14.5′ LT
PROVIDE NEW LIGHT POLE AND FOUNDATION
AT-200-II-15-34.2-3CR3
END OF CIRCUIT 3CR3

STA 43+37.5 ℄ RAMP G-1, 16.1′ LT
POLE AND FOUNDATION TO BE REMOVED
AT-200-II-10-34.2-3CR4

PB-8 STA 37+34 ℄ RAMP G-1, 14.5′ LT
18″ P.B.
PROVIDE 2 CABLE SPLICING KITS

STA 538+00 ℄ I-77, 68.00′ LT
PROVIDE NEW LIGHT POLE AND ANCHOR BOLTS, MOUNTED ON TOP OF RETAINING WALL PILASTER
ST-310-III-25-20.2-ICR2B

STA 39+06 ℄ RAMP G-1, 14.5′ LT
PROVIDE NEW LIGHT POLE AND FOUNDATION
AT-200-II-15-34.2-3CR1

STA 41+19.23 ℄ RAMP G-1, 18.16′ LT
POLE AND FOUNDATION TO BE REMOVED
AT-200-II-10-34.2-3CR3

STA 41+22 ℄ RAMP G-1, 14.5′ LT
PROVIDE NEW LIGHT POLE AND FOUNDATION
AT-200-II-15-34.2-3CR 2 NO.4

STA 542+35 ℄ I-77, 65′ LT
TO REMAIN IN SERVICE
AT-310-III-25-41.7-ICR4

STA 536+34.44
BEGIN RETAINING WALL

STA 538+74.28
END RETAINING WALL

STA 539+80 ℄ I-77, 68′ LT
TO REMAIN IN SERVICE,
AT-310-III-25-41.7-ICR3

STA 534+52.94
BEGIN RETAINING WALL

STA 536+62.77
END RETAINING WALL

STA 28+65.44 ℄ SR 21, 37.44′ LT
REMOVE AND REPLACE EXISTING POLE ON EXISTING FOUNDATION, CONNECT NEW DUCT CABLE INTO FOUNDATION CONDUIT
AT-200-II-15-34.2 CUY HTS 8

P.T. STA 29+57.61 ℄ RAMP G-1

P.T. STA 29+57.61 RT ℄ S.R. 21

STA 27+61.33 ℄ SR 21, 47.44′ RT
TO REMAIN IN SERVICE
AT-200-II-15-34.2 CUY HTS 5
END OF EXIST. CUYAHOGA HTS. CIRCUIT

STA 28+98.98 ℄ SR 21, 47.05′ RT
TO REMAIN IN SERVICE
AT-200-II-15-34.2 CUY HTS 4

STA 30+41.16 ℄ RAMP G-1, 74.35′ RT
TO REMAIN IN SERVICE
AT-200-II-15-34.2 CUY HTS 3

STA 31+20.22 ℄ RAMP G-1, 4.97′ RT
POLE AND FOUNDATION TO BE REMOVED
AT-200-III-25-34.2 CUY HTS 6

STA 30+95 ℄ RAMP G-1, 84′ RT
EX. BURIED PULL BOX TO REMAIN IN SERVICE

STA 31+56.74 ℄ RAMP G-1, 177.42′ RT
TO REMAIN IN SERVICE
AT-200-III-10-34.2
CUY HTS 1

STA 31+56.83 ℄ RAMP G-1, 98.80′ RT
TO REMAIN IN SERVICE
AT-200-III-10-34.2
CUY HTS 2

STA 31+58 ℄ RAMP G-1, 86′ RT - EX. BURIED PULL BOX TO REMAIN IN SERVICE
PROVIDE 2 CABLE SPLICING KITS TO CONNECT TO EXISTING CUY HTS CIRCUIT
CLEAN EXISTING PULL BOX

STA 32+35 ℄ RAMP G-1
178.0′ RT - EXISTING WALL MOUNTED CONTROL CENTER "CUY HTS"

PB-11 STA 31+58, ℄ RAMP G-1, 14.5′ LT
18″ PULL BOX, PROVIDE
2 CABLE SPLICING KITS

PB-13 STA 31+17 ℄ RAMP G-1, 53′ LT
EX. PULL BOX TO BE REMOVED

PB-14 STA 31+80 ℄ RAMP G-1, 66′ LT
EX. PULL BOX TO BE REMOVED

PB-15 STA 31+74, ℄ RAMP G-1, 22.4′ RT
EX. PULL BOX TO BE REMOVED

PB-16 STA 31+74, ℄ RAMP G-1, 65′ RT
DISCONNECT EX. 2 NO. 4 CABLES FROM WEST, EAST AND NORTH
REMOVE EXISTING PULL BOX

STA 537+18 ℄ I-77, 142′ RT
TO REMAIN IN SERVICE
AT-200-II-10-34.2-3CR12

STA 539+18 ℄ I-77, 111′ RT
TO REMAIN IN SERVICE
AT-200-II-10-34.2-3CR13

STA 538+56 ℄ I-77, 69′ RT
TO REMAIN IN SERVICE
AT-310-III-25-41.7-2CR2

STA 541+25 ℄ I-77, 98′ RT
TO REMAIN IN SERVICE
AT-310-III-25-41.7-2CR3

STA 543+44 ℄ I-77, 89′ RT
TO REMAIN IN SERVICE
AT-310-III-25-41.7-2CR4

ROUTE EXIST. 1½″ DUCT CABLE WITH 2 NO.4 AWG INTO NEW POLE FOUNDATION AND CONNECT EXIST. CIRCUIT TO NEW CIRCUIT WIRING

STA 535+87 ℄ I-77, 69′ RT
POLE & FOUNDATION TO BE REMOVED
AT-310-III-25-41.7-2CR1

STA 535+34 ℄ I-77, 68.00′ RT
PROVIDE NEW LIGHT POLE AND ANCHOR BOLTS, MOUNTED ON TOP OF RETAINING WALL PILASTER
ST-310-III-25-19.4-2CR1

STA 536+90 ℄ I-77, 68.00′ RT
PROVIDE NEW LIGHT POLE AND FOUNDATION
AT-310-III-25-41.7-2CR1B

STA 33+92.62 ℄ RAMP G-1, 68.12′ RT
TO REMAIN IN SERVICE
AT-200-II-10-34.2-3CR11

STA 32+00 ℄ RAMP G-1, 59.92′ RT
TO REMAIN IN SERVICE
AT-200-II-10-34.2-3CR10

EX. 2″ CONDUIT CONC. ENCASED CIRCUIT 3CR WITH 2 NO.4

EX. 2″ CONDUIT CONC. ENCASED CIRCUITS ICR AND 2CR 4 NO.4

EX. 3″ CONDUIT CIRCUIT 2CR WITH 2 NO.4

EX. 3″ CONDUIT CIRCUIT CUY HTS WITH 2 NO.4 TO BE ABANDONED

EX. 3C W/2 NO.4

EX. 3″C W/2 NO.4 AWG

EX. 2″C CIRCUIT CUY HTS W/ 2 NO.4

EX. CIRCUIT 3CR 2 NO.4

EX. CIRCUIT ICR 2 NO.4

EX. CIRCUIT 2CR 2 NO.4

EX. CIRCUIT 2FR 2 NO.4

EX. CIRCUIT CUY HTS WITH 2 NO.4

EX. CONDUIT IN PARAPET

EX. PULL BOX

EX. PULL BOX TO REMAIN IN SERVICE

EX. 3″ CONDUIT WITH 2 NO.4

EX. CIRCUIT 2CR WITH 2 NO.4

EMPTY 2″ CONDUIT

BEND DUCT CABLE ICR WITH 2 NO.4

2″C 3CR WITH 2 NO.4

3CR WITH 2 NO.4

2″C IN PARAPET

ICR 2 NO. 4 2″C IN WALL

2CR WITH 2 NO.4 2″C IN WALL

2″C 2CR WITH 2 NO.4

3″C JACKED

3″C

EXISTING CUY-21-10.04L TO BE REMOVED

EXISTING RAMP G-1

RAMP G-2

PROPOSED STRUCTURE CUY-21-10.04L

STRUCTURE CUY-77-9.52

STUB AND CAP CIRCUIT

℄ I-77

℄ RAMP G-1

CANAL ROAD

BRECKSVILLE ROAD (S.R. 21)

EAST 71ST STREET

BRECKSVILLE ROAD EAST 71ST STREET CONNECTOR

EX. BRICK WALL

Ex LA

FO

AE

NOTE: ALL LIGHTING ON I-77, RAMP G-1, BRECKSVILLE ROAD AND RAMP G-2 IS HIGH PRESSURE SODIUM

LEGEND

- STUB AND CAP CIRCUIT
- PROPOSED 1½″ DUCT CABLE IN 24″ DEEP TRENCH
- W1 WITH 2 NO. 4 — INDICATES CIRCUIT & NO. OF SINGLE CONDUCTORS IN CABLE OR CONDUIT
- PROPOSED CONDUIT, 725.04 (SIZE AS DIMENSIONED)
- EXISTING CABLE TO BE ABANDONED OR REMOVED
- EXISTING CONDUIT, 725.04 (SIZE AS DIMENSIONED)
- EXISTING CABLE TO REMAIN IN SERVICE
- AE — EXISTING AERIAL POWER CABLE
- PROPOSED GUARDRAIL, TYPE 5
- PB-2 — PROPOSED PULL BOX, IDENTIFICATION NO. WITH OFFSET
- EXISTING PULL BOX WITH IDENTIFICATION NO.
- CHAIN LINK FENCE-EXISTING OR PROPOSED AS NOTED
- EXISTING CONTROL CENTER
- EXISTING POWER POLE
- EXISTING LIGHT POLE TO BE REMOVED
- EXISTING ODOT LIGHT POLE TO REMAIN IN SERVICE
- LIGHT POLE, STATION, OFFSET, BASE TYPE, WATTAGE, IES, ARM, EFFECTIVE MOUNTING HEIGHT, CIRCUIT AND POLE NUMBER (NOTE: EFFECTIVE MOUNTING HEIGHT = STANDARD POLE SUPPORT HEIGHT PLUS TRANSFORMER BASE HEIGHT)
- EXISTING CUYAHOGA HTS. LIGHT POLE TO REMAIN IN SERVICE

N

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED RSW
CHECKED DTB

LIGHTING PLAN

CUY-21-10.04L

69
100

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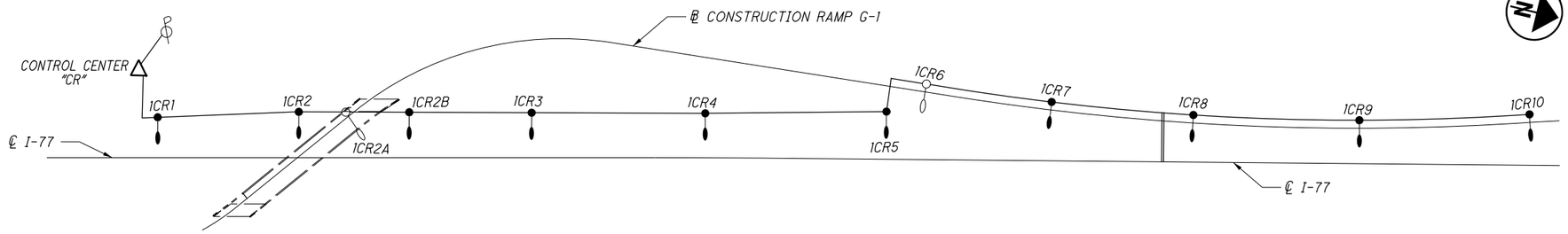
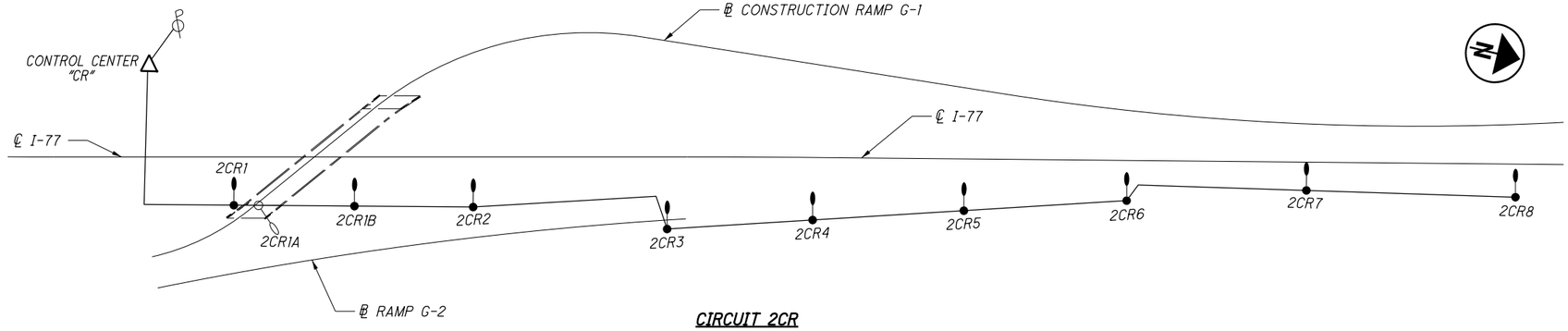


CIRCUIT 1CR

POWER SERVICE DATA									
POWER SERVICE	LINE VOLTAGE (VOLTS)	CONNECTED LOAD (KVA)	SERVICE ENTRANCE CABLE (AWG)	ENCLOSURE RATING (AMPS)	CIRCUIT NO.	CIRCUIT LOAD (AMPS)	CIRCUIT FUSE SIZE (AMPS)	CIRCUIT CABLE SIZE (AWG)	MAINTAINING AGENCY
CR	480	11.621	2	60	1	12.2	30	4	ODOT
					2	7.7	30	4	
					3	4.2	30	4	

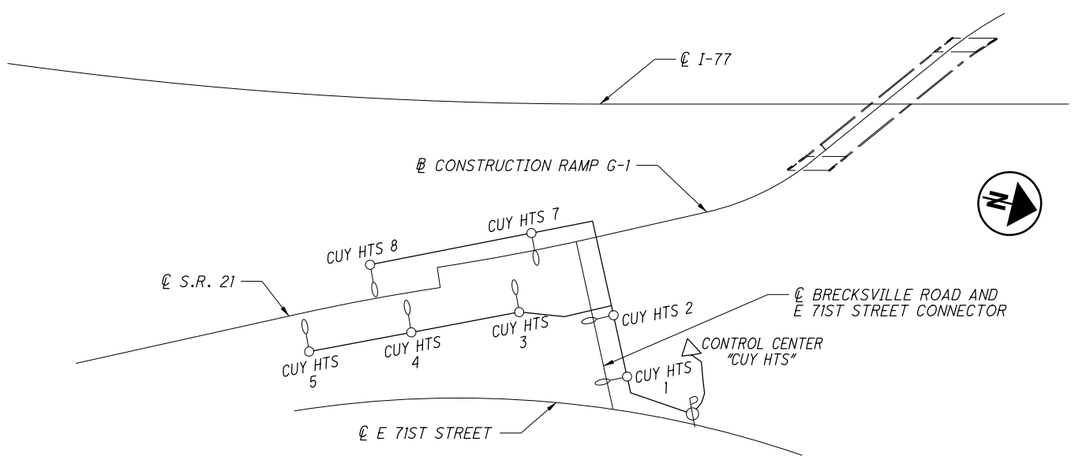
LEGEND

- OVERHEAD SIGN 1525 WATT LOAD
- LIGHT POLE 310 WATT HPS
- LIGHT POLE 200 WATT HPS
- CONTROL CENTER
- POWER POLE



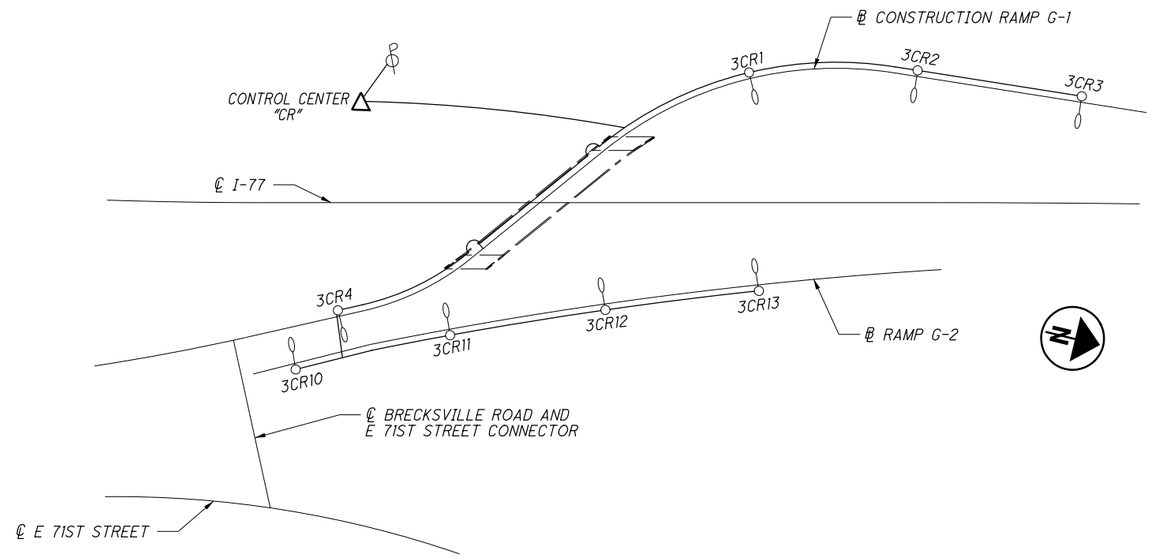
CIRCUIT 2CR

NOTE: CUY HTS 7 WAS REMOVED FROM ORIGINAL CIRCUIT
NOTE: 3CR5, 3CR6, 3CR7, 3CR8 AND 3CR9 WERE REMOVED FROM ORIGINAL CIRCUIT
NOTE: 2CR1A AND 2CR1B WERE ADDED TO ORIGINAL CIRCUIT
NOTE: 1CR1A AND 1CR1B WERE ADDED TO ORIGINAL CIRCUIT
NOTE: ORIGINAL CIRCUITS WERE 400 WATT AND 700 WATT MERCURY VAPOR LAMPS WHICH HAVE BEEN CONVERTED TO 200 WATT AND 310 WATT HIGH PRESSURE SODIUM LAMPS



CIRCUIT CUY HTS

NOTE: CIRCUIT CUY HTS IS OWNED AND MAINTAINED BY THE VILLAGE OF CUYAHOGA HEIGHTS, OHIO



CIRCUIT 3CR

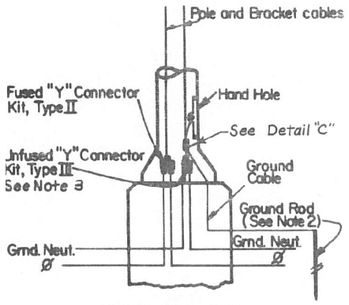
CALCULATED RSW CHECKED DTB

0 50 100 200 HORIZONTAL SCALE IN FEET

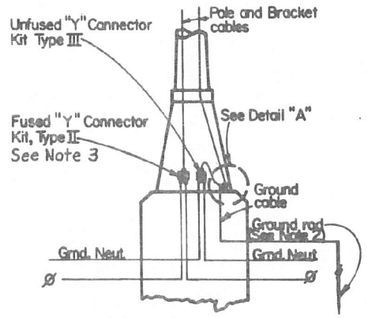
LIGHTING PLAN
LIGHTING CIRCUIT DIAGRAM

CUY-21-10.04L

70
100

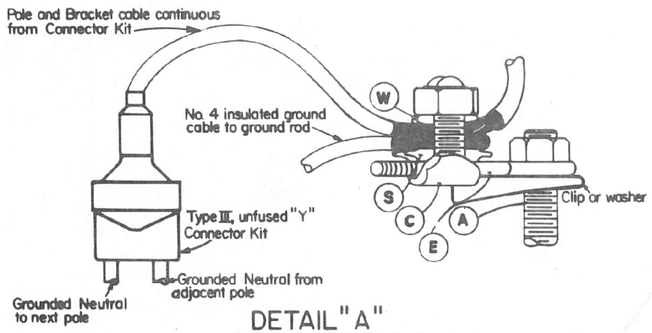


ANCHOR BASE POLE

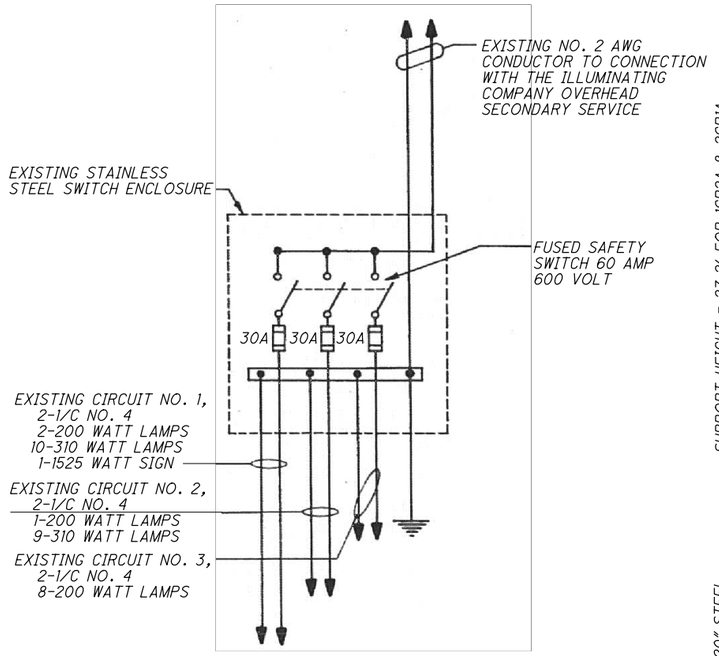


TRANSFORMER BASE POLE

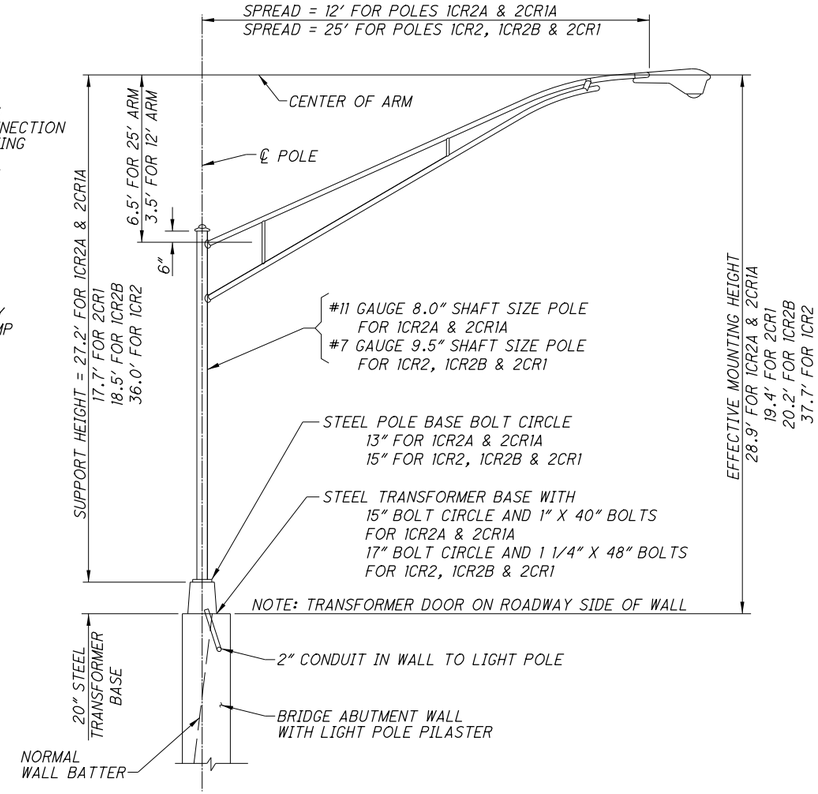
480 VOLT, TWO-WIRE, GROUNDED NEUTRAL



DETAIL "A"
2-Wire Grounded Neutral
Transformer Base Pole



WIRING DIAGRAM
CONTROL CENTER "CR"
CONNECTED LOAD = 11.621 KVA



LIGHT POLE, CONVENTIONAL, AS PER PLAN (WALL MOUNTED)
NO SCALE

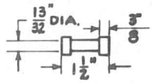
NOTE:
SEE REAR ABUTMENT, FORWARD ABUTMENT, WINGWALLS-REAR ABUTMENT, WINGWALLS-FORWARD ABUTMENT AND ABUTMENT DETAILS SHEET 79 TO 83 FOR ADDITIONAL DETAILS

LEGEND of ITEMS COMMON to DETAILS "A", "B", & "D"

- (A) Anchor Bolt
- (C) Tin Plated Copper Split Bolt Connector with the following components:
  - (S) Spacer (Tin plated)
  - (W) Washer
  - (E) 3/8"X4" Galv. Steel eyebolt

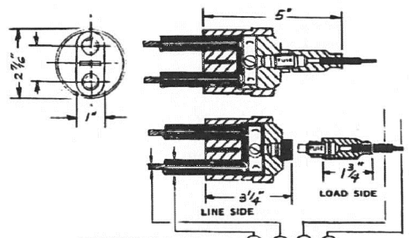
NOTES

1. Provide sufficient slack in all cables to permit bringing Kits outside of pole base through handhole of anchor base poles or door in transformer base poles.
2. For structure-mounted poles substitute "Structure grounding system" for "ground rod."
3. Fuses for connector Kits shall be as follows:



Any standard Midget Ferrule type fuse, (except glass tube) may be used in this connection.
Fuses rated 600 volts and 10 amperes, minimum shall be used unless other wise specified.

CABLE CONNECTOR KITS



IDENTIFYING SYMBOLS I - (W) (X) (Y) (Z)

CABLE DIAMETER Min.	CABLE DIAMETER Max.	Symbol for (W)
.195"	.260"	B
.250	.330	C
.320	.380	DA
.370	.430	DB
.420	.505	EA
.495	.585	EB
.575	.685	FA
.675	.785	FB

COPPER CONDUCTOR (AWG) Concentric Stranded	COPPER CONDUCTOR (AWG) Solid	Symbol for (X)
–	#8	6
#8	#6	4
#6	#4	3
#4	–	2
#2	–	1
#1	–	0
#1/0	–	10
#2/0	–	20

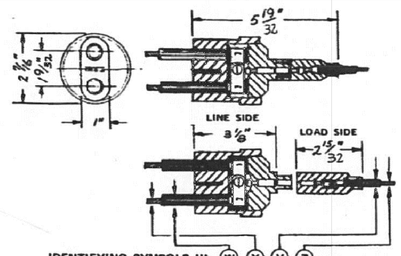
CABLE DIAMETER Min.	CABLE DIAMETER Max.	Symbol for (Y)
.120"	.160"	S
.155	.205	A
.195	.260	B
.250	.330	C
.320	.430	D

COPPER CONDUCTOR (AWG) Concentric Stranded	COPPER CONDUCTOR (AWG) Solid	Symbol for (Z)
#14, #16	#12, #14	8
#10, #12	#8, #10	6
#8	#6	4
#6	#4	3

EXAMPLE

If the line outside diameter (W) is .42" and the conductor (X) is no. 6 stranded, and the load side outside diameter (Y) is .29" and the conductor (Z) is no. 12 stranded, the kit required will be II - DB3 - C6.

TYPE II
FUSED "Y" CONNECTOR KIT FOR POLE BASE INSTALLATION.



IDENTIFYING SYMBOLS III (W) (X) (Y) (Z)

CABLE DIAMETER Min.	CABLE DIAMETER Max.	Symbol for (W)
.195"	.260"	B
.250	.330	C
.320	.380	DA
.370	.430	DB
.420	.505	EA
.495	.585	EB
.575	.685	FA
.675	.785	FB

COPPER CONDUCTOR (AWG) Concentric Stranded	COPPER CONDUCTOR (AWG) Solid	Symbol for (X)
–	#8	6
#8	#6	4
#6	#4	3
#4	–	2
#2	–	1
#1	–	0
#1/0	–	10
#2/0	–	20

CABLE DIAMETER Min.	CABLE DIAMETER Max.	Symbol for (Y)
.120"	.160"	S
.155	.205	A
.195	.260	B
.250	.330	C
.320	.430	D

COPPER CONDUCTOR (AWG) Concentric Stranded	COPPER CONDUCTOR (AWG) Solid	Symbol for (Z)
#14, #16	#12, #14	8
#10, #12	#8, #10	6
#8	#6	4
#6	#4	3

EXAMPLE

If the line side cable outside diameter (W) is .54" and the conductor (X) is no.2 stranded, and the load side cable outside diameter (Y) is .29" and the conductor (Z) is no. 12 stranded, the kit required will be III - EB1 - C6.

TYPE III
UNFUSED "Y" CONNECTOR KIT FOR POLE BASE INSTALLATION.

NOTES

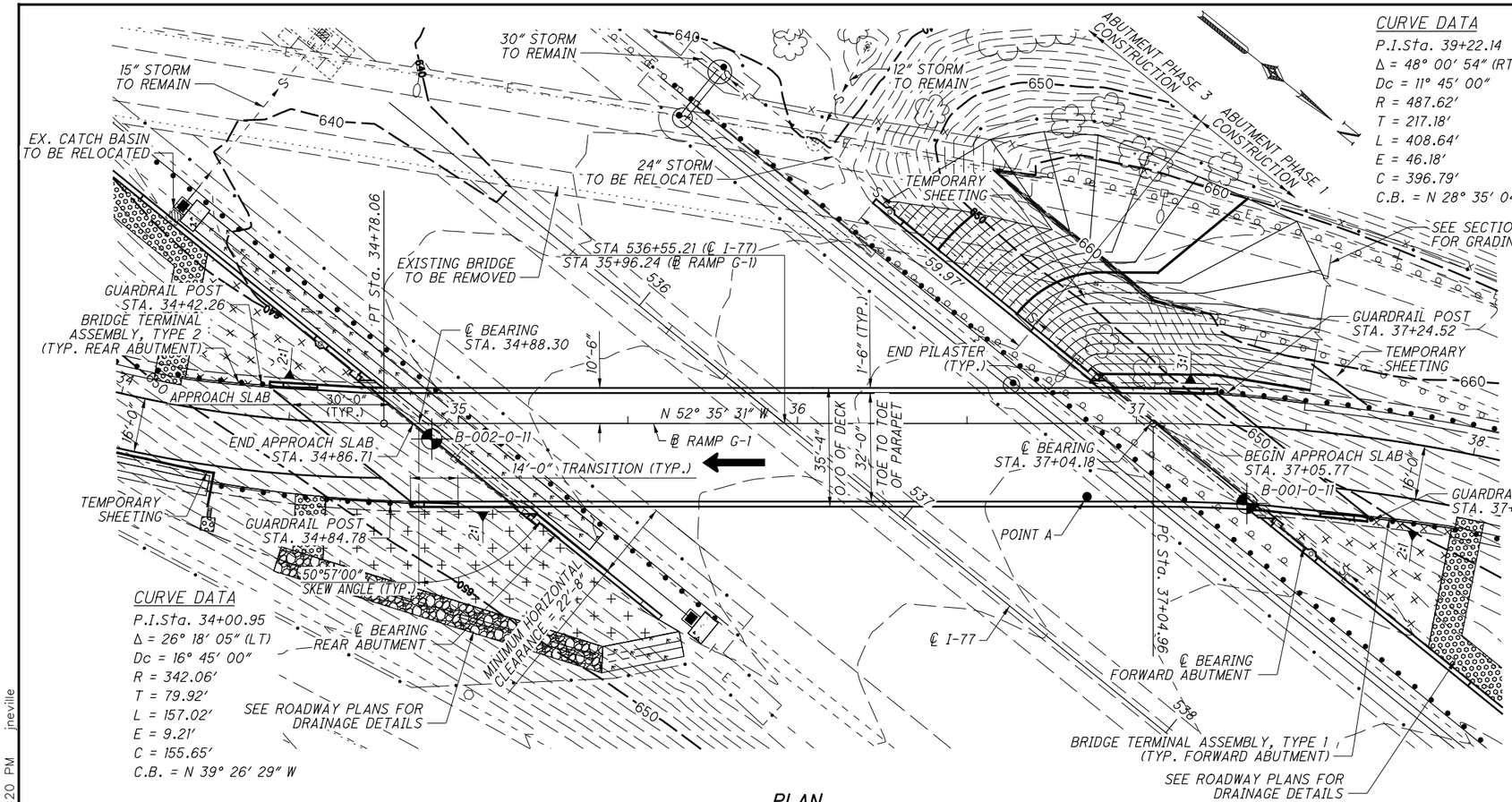
1. Diameters usually vary along cable lengths. Take several measurements and select the symbols for "W" and "Y" which will insure a tight fit rather than a loose fit between the cables and the openings in the housings of the connector kits.
2. Where a light is located at the end of the lighting circuit one opening of the "Y" connector kit shall be plugged. The plug shall be of insulating material and have the same overall diameter of the lighting circuit cable occupying the other opening of the "Y" connector kit.
3. If the cable has a nylon jacket the jacket shall be peeled back to a point where no part of the jacket is encased in the boot with the insulated cable.

CALCULATED RSW CHECKED DTB

LIGHTING DETAILS

CUY-21-10.04L

71
100



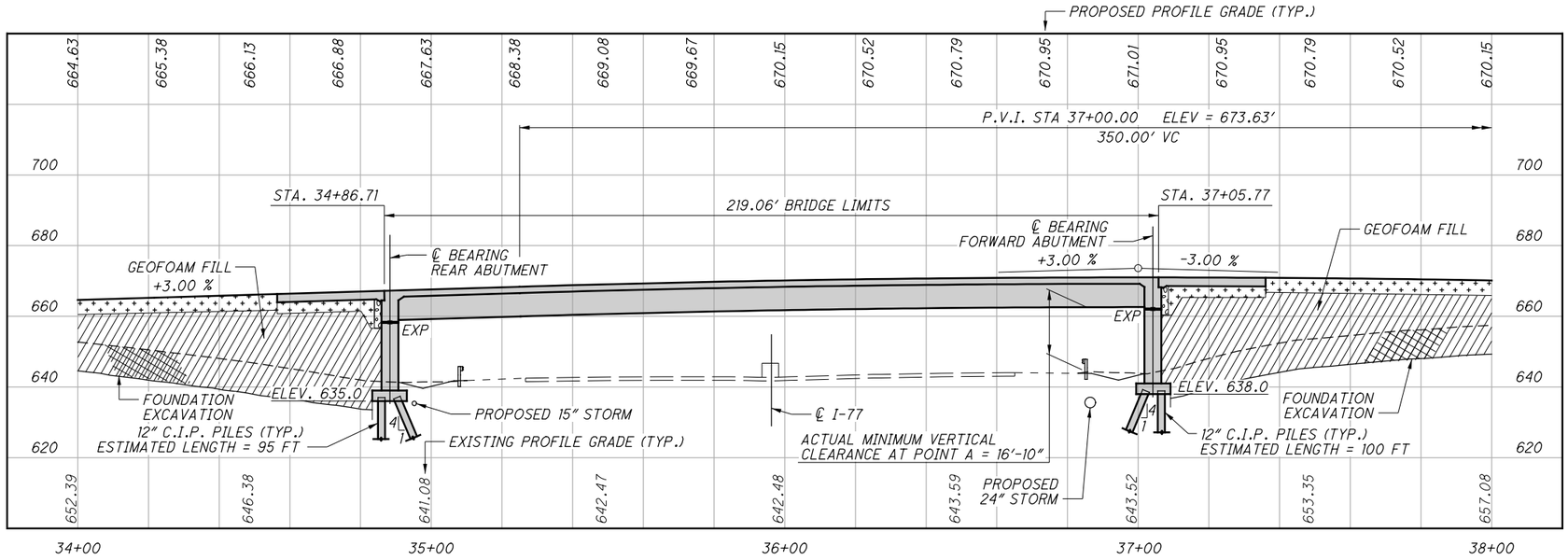
CURVE DATA

P.I.Sta. 34+00.95
Δ = 26° 18′ 05″ (LT)
Dc = 16° 45′ 00″
R = 342.06′
T = 79.92′
L = 157.02′
E = 9.21′
C = 155.65′
C.B. = N 39° 26′ 29″ W

CURVE DATA

P.I.Sta. 39+22.14
Δ = 48° 00′ 54″ (RT)
Dc = 11° 45′ 00″
R = 487.62′
T = 217.18′
L = 408.64′
E = 46.18′
C = 396.79′
C.B. = N 28° 35′ 04″ W

PLAN



SECTION ON BASELINE RAMP G-1

BENCHMARK DATA

BM #1 STA. 33+86.92, ELEV. 663.85, OFFSET 104.26′ RT (IRON PIN SET)
BM #2 STA. 40+93.65, ELEV. 651.46, OFFSET 48.45′ RT (IRON PIN SET)

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:
2016 ADT = 7620 2016 ADTT = 610
2036 ADT = 7620 2036 ADTT = 610
DIRECTIONAL DISTRIBUTION = 100%

LEGEND

PROJECT BORING LOCATION

● 16′-6″ REQUIRED MINIMUM VERTICAL CLEARANCE
16′-10″ ACTUAL MINIMUM VERTICAL CLEARANCE (STA 36+86.89, 22.75′ RT.)

EXISTING STRUCTURE

TYPE: CONTINUOUS WELDED STEEL GIRDER WITH REINFORCED CONCRETE DECK, MONOLITHIC WEARING SURFACE AND SUBSTRUCTURE.
SPANS: 78′-11″, 119′-1¼″, 119′-4⅜″, & 77′-4″ MEASURED C/C OF BEARINGS ALONG ℄ RAMP G-1
ROADWAY: 28′-0″ F/F PARAPETS
LOADING: HS20-44 AND INTERSTATE ALTERNATE LOADING
SKEW: 60°00′00″ RIGHT FORWARD TO ℄ I-77
APPROACH SLABS: AS-1-67 (30′ LONG)
ALIGNMENT: 2°30′00″ LEFT TANGENT AND 4°00′00″ RIGHT
SUPERELEVATION: -0.057± FT/FT TO +0.042 FT/FT
STRUCTURAL FILE NUMBER: 1806386
DATE BUILT: 1974
DISPOSITION: EXISTING STRUCTURE TO BE REMOVED

PROPOSED STRUCTURE

TYPE: SIMPLE SPAN COMPOSITE WELDED STEEL GIRDER WITH A REINFORCED CONCRETE DECK, MONOLITHIC WEARING SURFACE AND SEMI-INTEGRAL ABUTMENTS.
SPANS: 215′-10½″ C/C BEARINGS
ROADWAY: 32′-0″ TOE/TOE PARAPET
LOADING: HL93 & FUTURE WEARING SURFACE (FWS) OF 0.060 KSF
SKEW: 50°57′00″ RIGHT FORWARD
APPROACH SLABS: 30′-0″ LONG (AS-1-81)
ALIGNMENT: TANGENT
SUPERELEVATION: VARIES +0.037 FT/FT TO -0.039 FT/FT
COORDINATES: LATITUDE 41°25′14.4″
LONGITUDE -81°38′38.8″

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
MMP	PJK	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
LAB	-	1802992	

CUYAHOGA COUNTY
STA. 34+86.71
STA. 37+05.77

SITE PLAN
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

1 / 29

72
100

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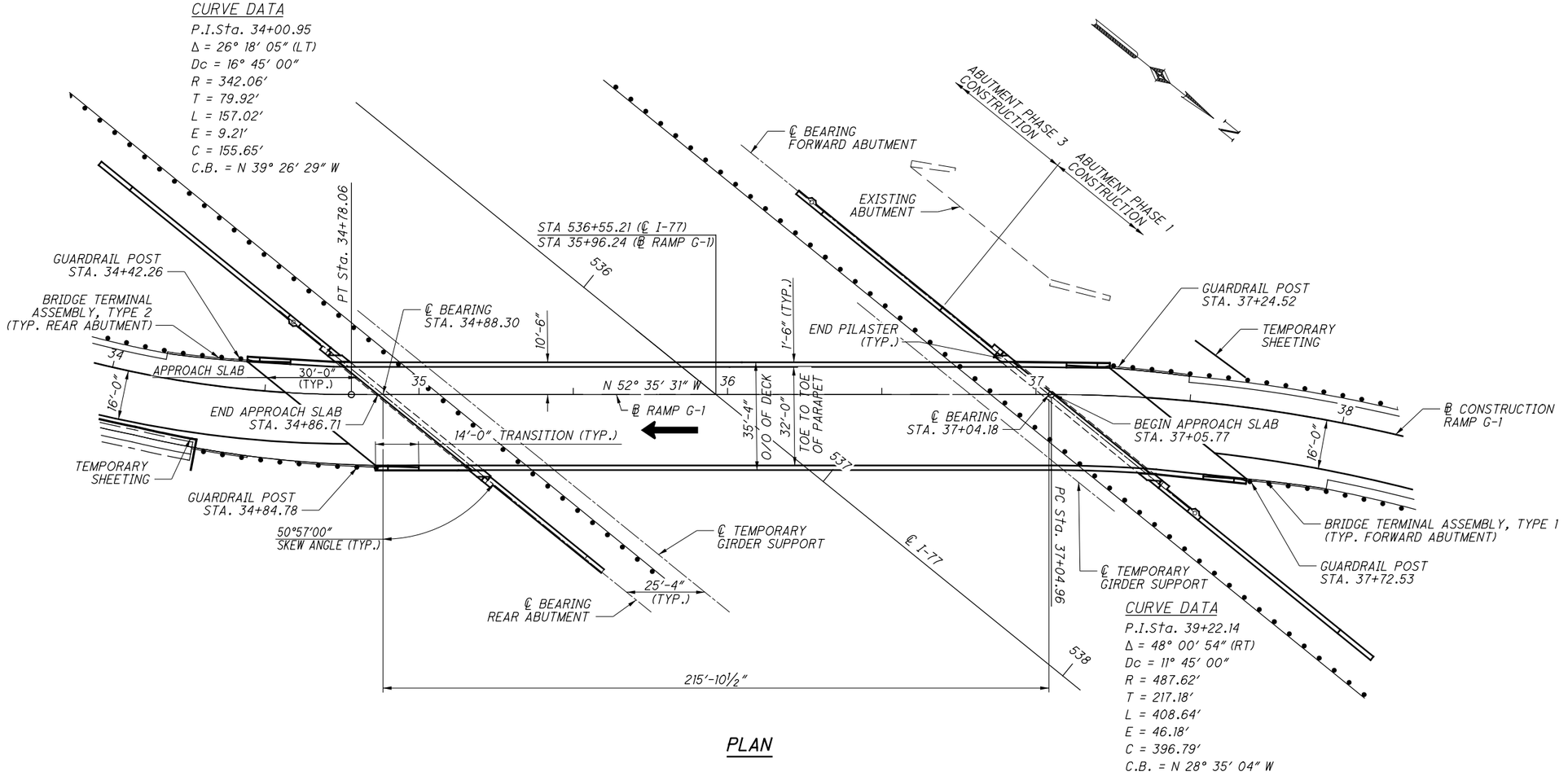

PLAN

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
AJM	LAB	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
LAB	-	1802992	

GENERAL PLAN
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

2 / 29

73
100

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GENERAL NOTES - STRUCTURES

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD DRAWINGS:

AS-1-81	DATED 01-18-13	SICD-1-96	DATED 07-19-02
GSD-1-96	DATED 07-19-02	VPF-1-90	DATED 04-15-11
SBR-1-13	DATED 01-17-14		

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

869 DATED 04-20-12

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 6TH EDITION, 2012 INCLUDING THE 2013 INTERIM SPECIFICATIONS, AND THE ODOT BRIDGE DESIGN MANUAL, 2007 EXCEPTED AS NOTED ELSEWHERE IN THE PLANS.

SPECIAL DESIGN SPECIFICATIONS:

THIS BRIDGE REQUIRED THE USE OF A THREE DIMENSIONAL MODEL USING THE THE FINITE ELEMENT DESIGN METHOD TO ANALYZE THE STRUCTURE. THE COMPUTER PROGRAM USED WAS LARSA 4D. THE BRIDGE COMPONENTS DESIGNED BY THIS METHOD WERE THE PLATE GIRDERS AND SUPERSTRUCTURE CROSSFRAMES.

ALL ELEMENTS OF THE BRIDGE SUPERSTRUCTURE:

PLATE GIRDERS, CROSSFRAMES, AND DECK SLAB WERE MODELED AS FINITE ELEMENT MEMBERS. THE DECK SLAB WEIGHT WAS INPUT AS DECK ELEMENT SELF WEIGHT. THE WEIGHTS OF THE CONCRETE PARAPETS WERE INPUT AS LINE LOADS AT THEIR PROPOSED LOCATIONS ON THE COMPOSITE SUPERSTRUCTURE (DC2). ANALYSIS OF THE GIRDERS DURING THE DECK POUR WAS ALSO PERFORMED.

DESIGN LIVE LOADS (BOTH TRUCK AND LANE LOADS) WERE MOVED ALONG THE LENGTH AND ACROSS THE WIDTH OF THE BRIDGE DECK AND RESULTING FORCES WERE CALCULATED.

THE LIVE LOAD DISTRIBUTION FACTORS RESULTING FROM THE ANALYSIS WERE:

EXTERIOR MEMBERS- 0.223 FOR LIVE LOAD MOMEMT
1.04 FOR LIVE LOAD SHEAR

INTERIOR MEMBERS- 0.178 FOR LIVE LOAD MOMENT
0.746 FOR LIVE LOAD SHEAR

LRFD LOAD MODIFIERS:

OPERATIONAL IMPORTANCE: A LOAD MODIFIER OF 1.00 HAS BEEN ASSUMED FOR THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN LOADING:

DESIGN LOADING: HL-93

FUTURE WEARING SURFACE (FWS) OF 0.060 KIPS/FT^2

DESIGN STRESSES:

DESIGN DATA:

CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4.5 KSI (SUPERSTRUCTURE)

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)

REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI

STRUCTURAL STEEL - ASTM A709 GRADE 50 - YIELD STRENGTH 50 KSI

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL

2 1/2" CONCRETE COVER

MONOLITHIC WEARING SURFACE:

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

ITEM 202 - STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

REMOVE ABUTMENTS AND SHOULDER PIERS TO 1 FOOT BELOW GROUND LINE. REMOVE CENTER PIER TO THE TOP OF THE I-77 MEDIAN BARRIER. REPAIR AND SEAL THE TOP OF THE BARRIER. THE COST OF REPAIRING AND SEALING THE TOP OF THE BARRIER SHALL BE INCLUDED IN ITEM 202 - STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE):

THE ULTIMATE BEARING VALUE IS 328 KIPS PER PILE FOR THE ABUTMENT PILES. THE ULTIMATE BEARING VALUE IS 285 KIPS PER PILE FOR THE ABUTMENT WINGWALL PILES.

ABUTMENT PILES (NOS. 15 THRU 50 AND 105 THRU 142):
12 INCH DIAMETER PILES 105 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEM

WINGWALL PILES:
12 INCH DIAMETER PILES 90 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEM

DECK PLACEMENT DESIGN ASSUMPTIONS:

THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPIONS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 1.26 KIPS FOR A TOTAL MACHINE LOAD OF 10.09 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103 INCHES.

A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 INCHES.

A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65 INCHES.

ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE, AS PER PLAN
ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN
ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA, AS PER PLAN

GENERAL REQUIREMENTS:
THE GENERAL PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED.

MIX DESIGN:
ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

BRIDGE DECK:
LOCATE THE LOWER CONTACT POINT OF THE OVERHANG FALSEWORK AT LEAST 17 INCHES ±2 INCHES ABOVE THE TOP OF THE GIRDER'S BOTTOM FLANGE. THE BRACKET CONTACT POINT LOCATION REQUIREMENTS OF CMS 508 DO NOT APPLY.

PARAPET CONSTRUCTION:
SLIP FORMING IS PROHIBITED.

ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, FINISH COAT, AS PER PLAN

THE GENERAL PROVISIONS OF ITEM 514 SHALL APPLY. THE COLOR OF THE FINISH COAT SHALL BE GRAY, FCN 16440.

ITEM 518 - STRUCTURE DRAINAGE, MISC.: PREFABRICATED GEOCOMPOSITE SHEET DRAIN

THIS WORK CONSISTS OF INSTALLING PREFABRICATED GEOCOMPOSITE SHEET DRAINS AT THE LOCATIONS AND TO THE LIMITS INDICATED IN THE PLANS.

ALL MATERIALS AND FABRICATION OF THE GEOCOMPOSITE SHEETS SHALL CONFORM TO THE MANUFACTURER'S SPECIFICATIONS AND REQUIREMENTS. THE CONTRACTOR IS REQUIRED TO SUBMIT PRODUCT INFORMATION DATA, REPRESENTATIVE SAMPLES, AND TYPICAL CONSTRUCTION DETAILS TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

ACCEPTABLE GEOCOMPOSITE SHEET DRAIN PRODUCTS SHALL BE AMERIDRAIN, MANUFACTURED BY AMERICAN WICK DRAIN, INC.; ENKADRAIN AS MANUFACTURERED BY COLBOND INC.; DMX DRAIN 6000 AS MANUFACTURED BY DMX OR AN APPROVED EQUAL.

THE SHEET DRAIN SHALL BE INSTALLED ON THE BACK FACE OF ABUTMENT WALLS AND WINGWALLS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS TO PROVIDE A CLEAR, CONTINUOUS PATH FOR WATER TO DRAIN TO THE PROVIDED FOUNDATION DRAINS.

THE DEPARTMENT WILL MEASURE PREFABRICATED GEOCOMPOSITE SHEET DRAIN BY THE NUMBER OF SQUARE FEET COMPLETE IN PLACE.

PAYMENT WILL BE MADE FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE PER SQUARE FOOT FOR ITEM 518 - STRUCTURE DRAINAGE, MISC.: PREFABRICATED GEOCOMPOSITE SHEET DRAIN. SUCH PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, TOOLS, AND LABOR NECESSARY TO COMPLETE THE WORK AS DESCRIBED ABOVE.

ITEM 512-SEALING CONCRETE SURFACES (EPOXY URETHANE), AS PER PLAN

THE COLOR OF THE EPOXY URETHANE SEALER SHALL BE FC #595B-25630, LIGHT GREY (SEMI-GLOSS).

THE FOLLOWING ABBREVIATIONS ARE USED:

℄	= CENTERLINE	N.F.	= NEAR FACE
C.J.	= CONSTRUCTION JOINT	PEJF	= PREFORMED EXPANSION JOINT FILLER
CLEAR	= CLEARANCE		
E.F.	= EACH FACE	P	= PROPERTY LINE
ELEV.	= ELEVATION	R/W	= RIGHT OF WAY
EX	= EXISTING	RT	= RIGHT
F.F.	= FAR FACE	SER.	= SERIES
FT.	= FEET	STA.	= STATION
FWS	= FUTURE WEARING SURFACE	STD	= STANDARD
LT	= LEFT	TYP.	= TYPICAL
MAX.	= MAXIMUM	SIM.	= SIMILAR
MIN.	= MINIMUM		
℔	= BASELINE		

EXISTING PLANS

EXISTING STRUCTURE PLANS ARE AVAILABLE FOR REVIEW AT THE DISTRICT 12 OFFICE AND ONLINE THROUGH THE FOLLOWING ODOT WEBSITE:
ftp://ftp.dot.state.oh.us/pub/Contracts/Attach/CUY-85416

ITEM SPECIAL - ASBESTOS NOTIFICATION

AN ASBESTOS SURVEY OF THE CUY-21-10.04L BRIDGE OVER IR-77 WAS COMPLETED IN MARCH 2016 BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST. NO ASBESTOS MATERIAL (ACM) WAS IDENTIFIED ON THE BRIDGE.

THE REMOVAL AND DISPOSAL OF ALL ASBESTOS CONTAINING MATERIAL WITHIN THE PROJECT WORK LIMITS DURING DEMOLITION OF THE BRIDGE MUST COMPLY WITH THE OHIO ADMINISTRATIVE CODE, THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS, AND THE NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS (NESHAP) STANDARDS FOR ASBESTOS.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORMS WITH SECTIONS I-IV, VI, VII, AND XVI COMPLETED IS INCLUDED WITH THE BID PACKAGE. THE CONTRACTOR SHALL COMPLETE SECTIONS V, VIII-XVIII OF THE FORM AND SUBMIT THE COMPLETED FORM TO THE LOCAL AIR AUTHORITY AT LEAST TEN (10) DAYS PRIOR TO DEMOLITION OF THE BRIDGE. THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPETED FORM TO THE ENGINEER. THE LOCAL AIR AUTHORITY IS:

THE DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENT
1925 ST. CLAIR AVENUE
CLEVELAND, OHIO 44114
PHONE: (216) 664-2300

THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL TRAINED IN THE PROVISIONS OF NESHAP THAT WILL BE ON SITE DURING REMOVAL OF THE ASBESTOS CONTAINING MATERIALS. ANY NON-VISIBLE ASBESTOS ENCOUNTERED WITHIN THE PROJECT WORK LIMITS SHALL BE MONITORED BY THIS INDIVIDUAL.

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE, SUBMIT, AND COMPLY WITH THE OEPA NOTIFICATION FORM AND TO REMOVE, TRANSPORT, AND DISPOSE OF THE MATERIALS CONTAINING ASBESTOS FROM WITHIN THE PROJECT WORK LIMITS. PAYMENT OF THIS WORK SHALL BE INCLUDED IN THE BID LUMP SUM PRICE FOR ITEM SPECIAL - ASBESTOS ABATEMENT.

ITEM	UNIT
ITEM SPECIAL - ASBESTOS ABATEMENT	LUMP SUM

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED AJM | DRAWN SAH | CHECKED LAB | REVIEWED RAB | DATE 6-14 | REVISED - | STRUCTURE FILE NUMBER 1802992

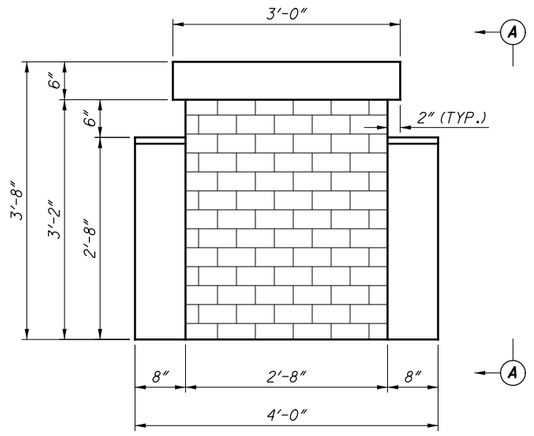
GENERAL NOTES - STRUCTURES
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

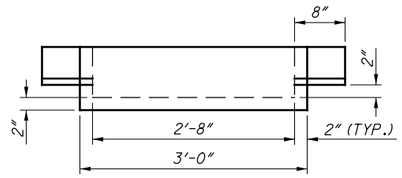
3 / 29

74 / 100

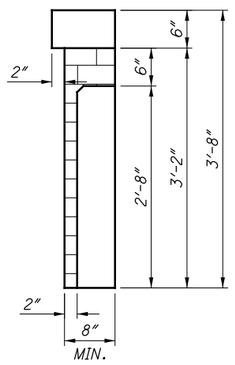
GENERAL NOTES - STRUCTURES



MOCK-UP WALL ELEVATION



MOCK-UP WALL PLAN VIEW



VIEW A-A

ITEM 511 - CONCRETE, MISC.: MOLDED BRICK SURFACE

A. GENERAL
THE WORK TO BE DONE UNDER THIS ITEM SHALL INCLUDE:
1. CONSTRUCT TEXTURED AND COLORED CONCRETE SURFACES USING MOLDS AND COLOR STAIN SYSTEM DESIGNED TO DUPLICATE CLOSELY THE APPEARANCE AND TEXTURE OF REAL BRICK.
2. USE BRICK MOLDS GIVING THE APPEARANCE OF SMOOTH, NEW BRICK.
3. DO NOT USE MOLDS GIVING THE APPEARANCE OF ROUGH OR STRIATED BRICK.
4. USE MOLDS WITH BRICK DIMENSIONS OF 2-5/8" x 7-5/8" AND 1/2" GROUT LINES. THE RELIEF OF THE GROUT LINES SHALL BE AT LEAST 1/4" BUT NOT EXCEED 5/16".
5. USE REUSABLE, HIGH STRENGTH URETHANE MOLDS.
6. NO LESS THAN 60 DAYS PRIOR TO THE CONSTRUCTION OF THE FIRST MOLDED BRICK SURFACE, SUBMIT TO THE ENGINEER A 24" SQUARE SAMPLE OF THE PROPOSED BRICK MOLD, INCLUDING MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS FOR ITS USE.
7. NO LESS THAN 30 DAYS PRIOR TO THE CONSTRUCTION OF THE FIRST MOLDED BRICK SURFACE, SUBMIT TO THE ENGINEER ONE COPY OF SHOP DRAWINGS SHOWING PLAN, ELEVATION, AND DETAILS TO SHOW OVERALL PATTERN, JOINT LOCATIONS, FORM TIE LOCATIONS, AND END, EDGE, AND OTHER SPECIAL CONDITIONS.
8. A PRE-INSTALLATION MEETING IS REQUIRED. SCHEDULE MEETING AMONG MANUFACTURER'S REPRESENTATIVES, APPROPRIATE SUBCONTRACTORS, THE DISTRICT 12 PRODUCTION ADMINISTRATOR OR HIS DESIGNEE, AND THE ENGINEER TO ASSURE UNDERSTANDING OF FORMLINER USE, STAIN APPLICATION, AND THE REQUIREMENTS OF THE MOCKUP CONSTRUCTION.

B. PRODUCTS
1. SIMULATED BRICK MOLDS SHALL BE REUSABLE, MADE OF HIGH-STRENGTH URETHANE, AND EASILY ATTACHABLE TO FORMS. MOLDS SHALL NOT COMPRESS MORE THAN 1/4" WHEN CONCRETE IS POURED AT A RATE OF 10 VERTICAL FEET PER HOUR. MOLDS SHALL BE REMOVABLE WITHOUT CAUSING DETERIORATION OF SURFACE OR UNDERLYING CONCRETE.
2. USE A RELEASE AGENT THAT IS COMPATIBLE WITH MOLDS AND WITH COLOR STAIN SYSTEM TO BE APPLIED TO THE SURFACE. PROVIDE THE ENGINEER WITH THE MANUFACTURER'S SPECIFICATIONS FOR PRODUCT APPLICATION.
3. USE FORM TIES MADE OF EITHER METAL OR FIBERGLASS. METAL TIES WHICH WILL REMAIN PERMANENTLY EMBEDDED IN THE CONCRETE SHALL BE DESIGNED TO SEPARATE AT LEAST ONE INCH BACK FROM FINISHED SURFACE, LEAVING ONLY A NEAT HOLE TO BE PLUGGED WITH MATERIAL. SUBMIT THE TYPE OF FORM TIES TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

C. EXECUTION
1. CLEAN MOLDS AND MAKE FREE OF BUILDUP PRIOR TO EACH POUR. INSPECT FOR BLEMISHES OR TEARS. REPAIR IF POSSIBLE FOLLOWING MANUFACTURER'S RECOMMENDATIONS. DAMAGED MOLDS SHALL BE REPLACED AT NO ADDITIONAL CHARGE TO THE STATE.
2. APPLY RELEASE AGENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
3. PLACE MOLDS WITH LESS THAN 1/4" SEPARATION BETWEEN THEM. ATTACH MOLDS TO FORM SECURELY FOLLOWING MANUFACTURER'S RECOMMENDATIONS.
4. WHERE FORM LINERS ABUT, CAREFULLY BLEND SURFACE TO MATCH THE BALANCE OF THE BRICK PATTERN, AVOID VISIBLE SEAMS OR FORM MARKS.
5. PLACE FORM TIES AT THINNEST POINTS OF MOLDS (THE HIGH POINTS OF FINISHED SURFACE). NEATLY PATCH THE HOLE REMAINING AFTER DISENGAGING THE PROTRUDING PORTION OF THE TIE SO THAT IT WILL NOT BE VISIBLE AFTER COLORING THE CONCRETE SURFACE.

ITEM 512 - SEALING OF CONCRETE SURFACE (NON-EPOXY), AS PER PLAN

PRIOR TO APPLICATION OF ACRYLIC STAINS, APPLY NON-EPOXY CONCRETE SEALER TO MOLDED BRICK SURFACES. THE PROVISIONS OF ITEM 512 APPLY, EXCEPT AS FOLLOWS:

1. APPLY SEALER WITH A BRUSH OR ROLLER ONLY.
2. USE A CLEAR SEALER.
3. VERIFY THE PRODUCT FURNISHED IS COMPATIBLE WITH THE PROPOSED STAIN PRODUCT. PROVIDE WRITTEN VERIFICATION TO THE ENGINEER.

ITEM 511 - CONCRETE, MISC.: STAINING CONCRETE SURFACES

A. GENERAL
STAIN MOLDED BRICK SURFACE USING AN ACRYLIC RESIN-BASED STAIN.

B. PRODUCTS
1. PRODUCTS SHALL CREATE A SURFACE FINISH THAT IS BREATHABLE (ALLOWING WATER VAPOR TRANMISSION), AND THAT RESISTS DETERIORATION FROM WATER, ACID, ALKALI, FUNGI, SUNLIGHT, OR WEATEHRING.
2. STAIN MIX SHALL BE A WATER BORNE, LOW VOC MATERIAL (LESS THAN 289 GRAMS/LITER), AND SHALL MEET REQUIREMENTS FOR WEATHERING RESISTANCE OF 2000 HOURS ACCELERATED EXPOSURE MEASURED IN ACCORDANCE WITH ASTM G-23. SCRUB TEST 1000 REVOLUTIONS. ABRASIVE RESISTANCE (TABOR-CF-10) 500 CYCLES. ADHESION ASTM d-33591 1.00 MM CROSS CUTS ON GLASS PASS 3 OR HIGHER ON A SCALE OF 1 TO 5. SUPPLY INFORMATION PERTAINING TO CHEMICAL RESISTANCE ASTM D-1308 TO 87.

ITEM 511 - CONCRETE, MISC.: STAINING CONCRETE SURFACES (CONT'D)

C. EXECUTION
1. PROVIDE THE ENGINEER WITH THE MANUFACTURER'S SPECIFICATIONS FOR PRODUCT APPLICATION. APPLY THE PRODUCT IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS WITH EXCEPTIONS AS NOTED.
2. CLEAN SURFACE PRIOR TO APPLICATION OF STAIN MATERIALS BY PRESSURE WASHING WITH WATER, MINIMUM 3000 PSI (A RATE OF 3 TO 4 GALLONS PER MINUTE), USING A FAN NOZZLE PERPENDICULAR TO AND AT A DISTANCE OF ONE OR TWO FEET FROM SURFACE. COMPLETED SURFACE SHALL BE FREE OF BLEMISHES, DISCOLORATION, SURFACE VOIDS AND UNNATURAL FORM MARKS. DO NOT SANDBLAST. ETCHING IS NOT REQUIRED.
3. APPLY STAIN BY HAND USING A BRUSH OR ROLLER WHEN THE AMBIENT TEMPERATURE IS BETWEEN 50-90 DEGREES FAHRENHEIT.
4. USE THE FOLLOWING SHERWIN WILLIAMS STAIN COLOR OR THEIR CLOSELY MATCHED, NON-PROPRIETARY EQUIVALENTS. STAIN BRICK SURFACES USING SW 6335 (FIRED BRICK). STAIN GROUT LINES USING SW 7030 (ANEW GREY). PROVIDE RANDOM BRICK HIGHLIGHTS USING SW 6005 (FOLKSTONE) AND SW 6258 (TRICORN BLACK). ACTUAL COLORS USED ARE SUBJECT TO CHANGE AT THE DIRECTION OF THE ENGINEER ON REVIEW OF THE APPEARANCE OF THE MOCKUPS. USE COLORS AND TECHNIQUES AS APPROVED FOR THE FINAL MOCKUP.
5. WHERE EXPOSED SOIL OR PAVEMENT IS ADJACENT WHICH MAY SPLATTER DIRT OR SOIL FROM RAINFALL, OR WHERE SURFACE MAY BE EXPOSED TO OVERSPRAY FROM OTHER PROCESSES, PROVIDE TEMPORARY COVER OF FINISHED WORK.

ITEM 511 - CONCRETE, MISC.: MOCKUP, MOLDED BRICK SURFACE

CONSTRUCT 3 MOCKUPS OF THE INSIDE OF A TYPICAL LIGHTING PILASTER AS DETAILED IN THE PLANS. CONSTRUCT MOCKUP IN A SAFE LOCATION IN THE VICINITY OF THE CONSTRUCTION PROJECT. START CONSTRUCTION OF MOCKUP AT LEAST 60 DAYS BEFORE PROPOSED MOLDED CONCRETE WORK BEGINS, USING THE SAME MATERIALS, METHODS, AND WORKFORCE THAT WILL BE USED FOR THE PROJECT. RECAST EACH MOCKUP FROM THE SAME FORM. PROCEED WITH CONSTRUCTION OF MOLDED BRICK SURFACES ONCE THE ENGINEER HAS DETERMINED THE MOLD MEETS SPECIFICATIONS AND PRODUCES SATISFACTORY RESULTS.

APPLY NON-EPOXY SEALER AND ACRYLIC STAIN IN ACCORDANCE WITH PLAN DETAILS AND MANUFACTURER'S RECOMMENDATIONS.

STAIN FIRST MOCKUP IN ACCORDANCE WITH THE PLAN DETAILS. CONFER WITH THE ENGINEER ON THE STAIN COLOR AND APPLICATION TECHNIQUE TO VERIFY THE PROCESS HAS PRODUCED A SURFACE PROVIDING THE APPEARANCE AND TEXTURE OF REAL BRICK. IF NECESSARY, STAIN SECOND AND THIRD MOCKUPS, ADJUSTING STAIN COLORS AND APPLICATION TECHNIQUES TO MEET THE APPROVAL OF THE ENGINEER. PROCED WITH CONSTRUCTION OF MOLDED BRICK SURFACES, USING THE APPROVED MOCKUP AS A QUALITY STANDARD.

UPON COMPLETION OF PROJECT, DISPOSE OF MOCKUPS.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY TO COMPLETE THIS ITEM OF WORK.

ITEM 511 - CONCRETE, MISC.: MOCKUP, MOLDED BRICK SURFACE 3 EACH

ITEM 526 - REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN

THE PROVISIONS OF CMS 526 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX DESIGN
ALL COURSE AGGREGATE SHALL HAVE AN ABSORPTION RATE OF 1.00% OR GREATER AS DEFINED PER ASTM C127.

THE COST OF THE CONCRETE PARAPETS AND THE PARAPET REINFORCEMENT ARE INCLUDED IN THE UNIT PRICE FOR ITEM 526 - REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN.

ITEM 607 - VANDAL PROTECTION FENCE, 6 FOOT STRAIGHT, COATED FABRIC, AS PER PLAN

THIS ITEM SHALL BE AS PER THE DETAILS IN THE PLAN WITH THE APPLICABLE PORTIONS OF STANDARD DRAWING VPF-1-90 AND THE MANUFACTURER'S RECOMMENDATIONS.

THE ANCHORS SHALL BE CAST IN PLACE 7" MINIMUM EMBEDMENT OR INSTALLED IN THREADED FERRULE CONCRETE INSERTS. THE INSERTS SHALL BE APPROVED BY THE DIRECTOR.

THE COLOR OF THE FENCE FABRIC, RAILS, POSTS, PLATES, TIE WIRES, AND ADDITIONAL VISUAL HARDWARE AND CAULK SHALL BE BLACK.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE PER LINEAR FOOT FOR ITEM 607 - VANDAL PROTECTION FENCE, 6 FOOT STRAIGHT, COATED FABRIC, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
AJM	SAH	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
LAB	-	1802992	

GENERAL NOTES - STRUCTURES
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

ESTIMATED QUANTITIES

CALC BY: AJM CHK'D BY: MMP

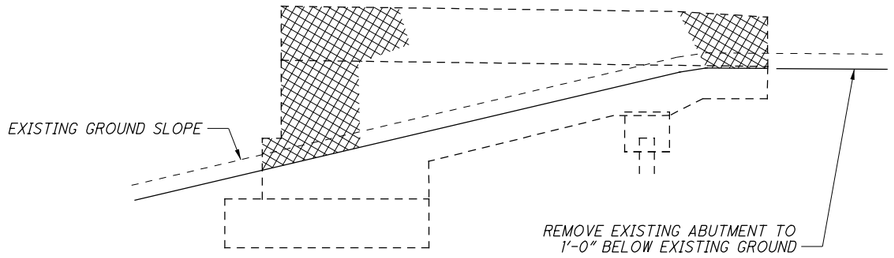
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	SUPER-STRUCTURE	GENERAL	AS PER PLAN SHEET NUMBERS
202	11003	LUMP		STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				3 | 29
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING				
503	21100	870	CU YD	UNCLASSIFIED EXCAVATION			870	
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				
506	11100	LUMP		STATIC LOAD TEST				
506	12200	2	EACH	SUBSEQUENT STATIC LOAD TEST				
507	00500	15,020	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	15,020			
507	00550	15,860	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	15,860			
509	10000	158,488	POUND	EPOXY COATED REINFORCING STEEL	80,659	77,829		
511	21523	419	CU YD	CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE, AS PER PLAN		419		3 | 29
511	44113	310	CU YD	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN	310			3 | 29
511	46013	321	CU YD	CLASS QC1 CONCRETE WITH QC/QA, AS PER PLAN	321			3 | 29
511	46512	350	CU YD	CLASS QC1 CONCRETE WITH QC/QA, FOOTING	350			
511	71200	530	SQ FT	CONC. MISC.: STAINING CONCRETE SURFACES	530			
511	71200	530	SQ FT	CONC. MISC.: MOLDED BRICK SURFACE	530			
511	81300	3	EACH	CONC. MISC.: MOCKUP, MOLDED BRICK SURFACE	3			
512	10051	59	SQ YD	SEALING CONCRETE SURFACES (NON-EPOXY), AS PER PLAN	59			4 | 29
512	10101	1,380	SQ YD	SEALING CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN	1,380			3 | 29
512	33000	90	SQ YD	TYPE 2 WATERPROOFING	90			
513	10280	595,800	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 4		595,800		
513	20000	1,746	EACH	WELDED STUD SHEAR CONNECTORS		1,746		
514	00300	LUMP		FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT				
514	00401	LUMP		FIELD PAINTING STRUCTURAL STEEL, FINISH COAT, AS PER PLAN				3 | 29
516	13200	20	SQ FT	1/2" PREFORMED EXPANSION JOINT FILLER			20	
516	13600	375	SQ FT	1" PREFORMED EXPANSION JOINT FILLER			375	
516	13900	266	SQ FT	2" PREFORMED EXPANSION JOINT FILLER			266	
516	14020	155	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL	155			
516	41100	10	EACH	1/8" PREFORMED BEARING PAD			10	
518	21200	84	CU YD	POROUS BACKFILL WITH FILTER FABRIC			84	
518	40000	450	FT	6" PERFORATED CORRUGATED PLASTIC PIPE			450	
518	40010	50	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS			50	
518	62600	7,238	SQ FT	STRUCTURE DRAINAGE, MISC.: PREFABRICATED GEOCOMPOSITE SHEET DRAIN			7,238	
523	20000	6	EACH	DYNAMIC LOAD TESTING			6	
523	20500	6	EACH	RESTRIKE			6	
526	30001	239	SQ YD	REINFORCED CONCRETE APPROACH SLABS (T=17"), AS PER PLAN			239	4 | 29
607	39901	433	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT COATED FABRIC, AS PER PLAN			433	4 | 29
SPECIAL	69071000	LUMP		ASBESTOS ABATEMENT				3 | 29
869	00100	10	EACH	HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS			10	

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

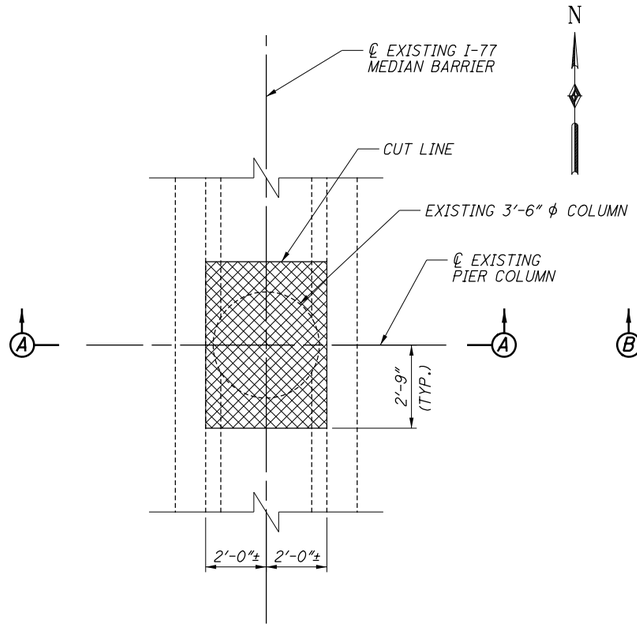
DESIGNED AJM | DRAWN JEN | REVIEWED RAB | DATE 6-14
CHECKED LAB | REVISED - | STRUCTURE FILE NUMBER 1802992

ESTIMATED QUANTITIES
CUY-21-1004L
OVER I-77

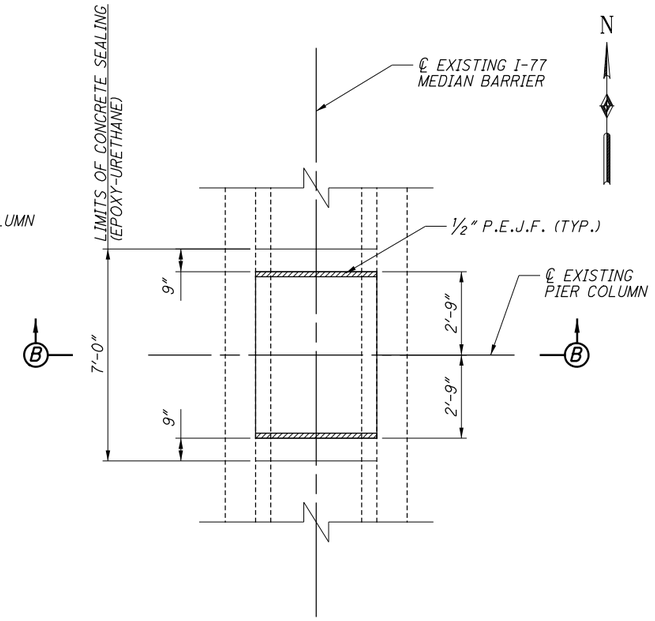
CUY-21-10.04L
PID No. 85146



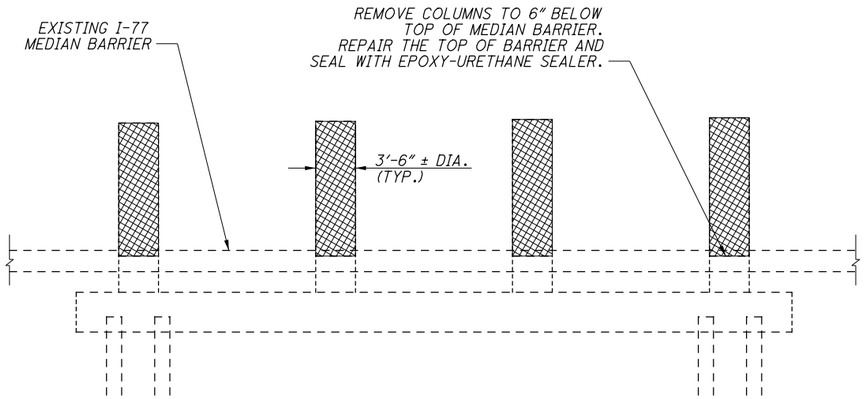
EXISTING REAR ABUTMENT REMOVAL



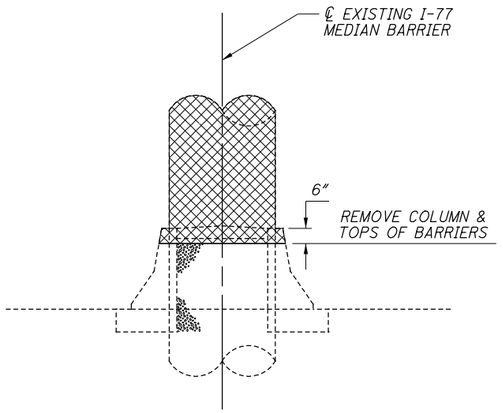
MEDIAN BARRIER PIER REMOVAL PLAN



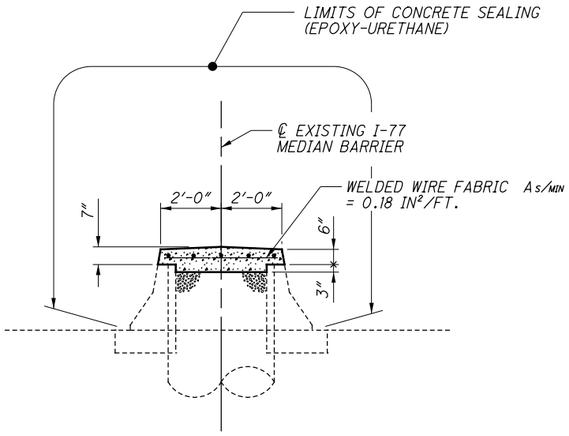
MEDIAN BARRIER CONCRETE CAP PLAN



EXISTING PIER 2 REMOVAL



SECTION A-A



SECTION B-B

NOTES:

1. MEDIAN BARRIER WHERE PIER COLUMNS PASS THROUGH IS HOLLOW AND FILLED WITH GRANDULAR BACKFILL. CONCRETE TOP SLAB SITS DOWN BETWEEN 2 TYPE D BARRIERS. REMOVE TOP SLAB TO LIMITS SHOWN IN PLAN. REMOVE EXISTING COLUMNS AND TOPS OF BARRIERS TO LIMITS SHOWN. REMOVE GRANULAR BACKFILL TO 3" BELOW CUT LINE FOR BARRIERS. POUR NEW CLASS QC1 SLAB TOP FOR BARRIER. SEAL FACES OF SIDES AND TOP OF REHABILITATED BARRIER.

2. THE WORK SHOWN ON THIS SHEET IS INCLUDED IN ITEM 202-STRUCTURE REMOVED, OVER 20 ' SPAN, AS PER PLAN, SEE SHEET 3129 .

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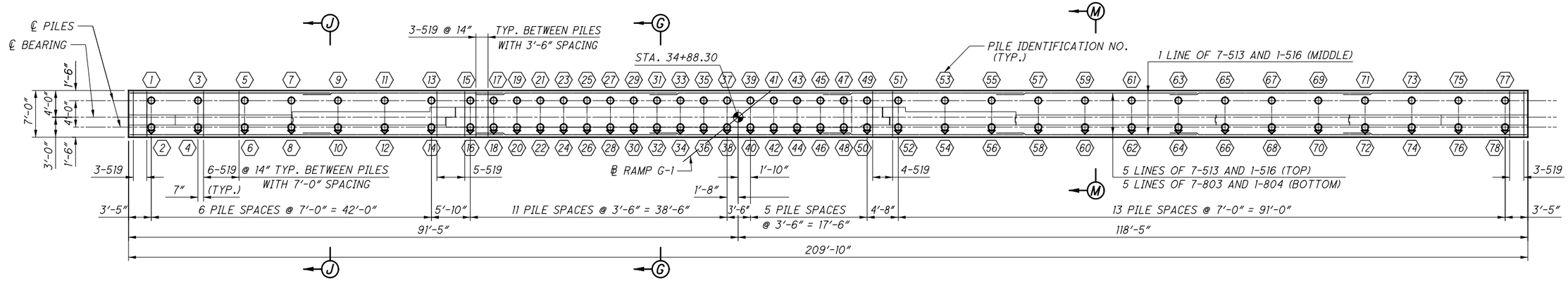
DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED AJM | DRAWN LAB | REVIEWED RAB | DATE 6-14
CHECKED LAB | REVISED - | STRUCTURE FILE NUMBER 1802992

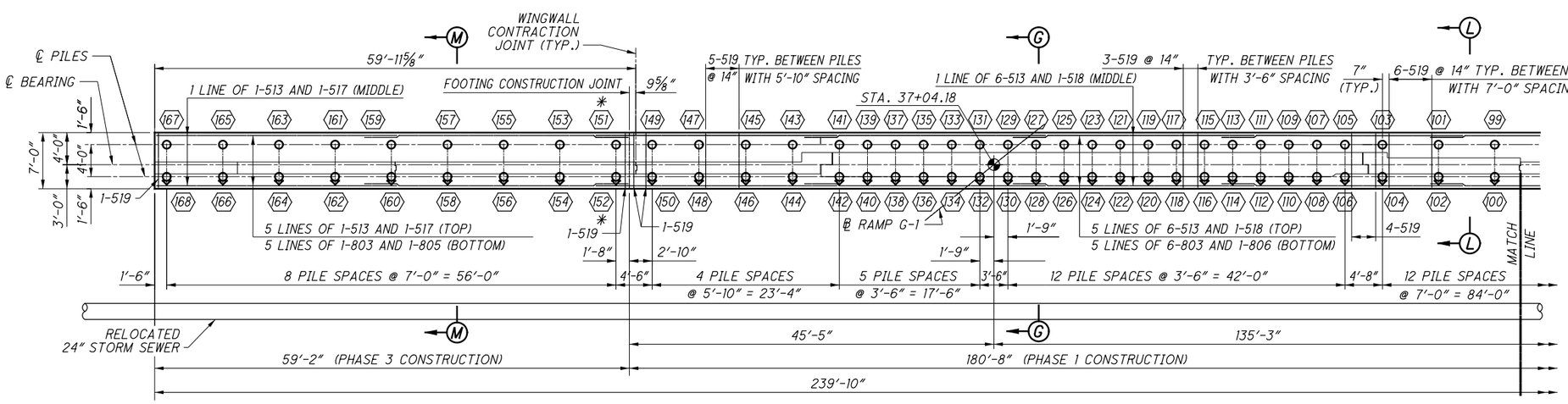
REMOVAL DETAILS
CUY-21-1004L
OVER I-77

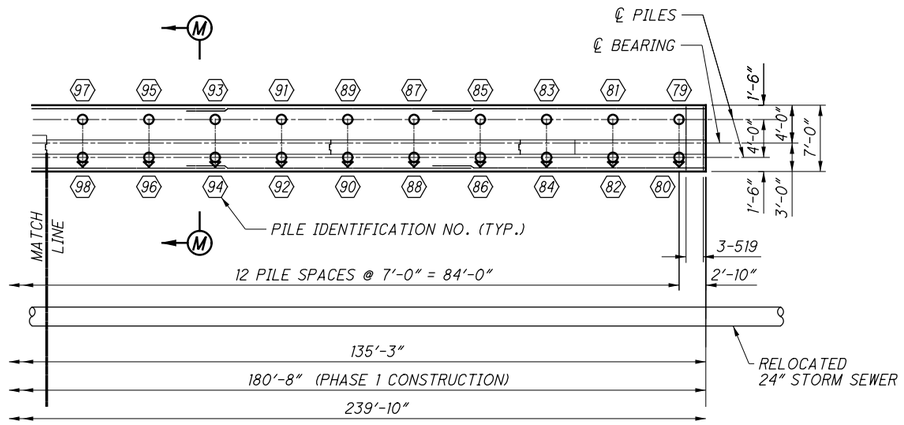
CUY-21-10.04L
PID No. 85146



FOUNDATION PLAN - REAR ABUTMENT AND WINGWALLS

(PHASE 1 CONSTRUCTION)





FOUNDATION PLAN - FORWARD ABUTMENT AND WINGWALLS

LEGEND:

- INDICATES PILE BATTERED 1 IN 4 IN THE DIRECTION SHOWN
- ✳ INSTALL PILES DURING PHASE 1 CONSTRUCTION

MINIMUM LAP LENGTH
#5 BAR = 2'-9"
#8 BAR = 4'-0"

NOTES:

1. FOR SECTION G-G SEE SHEET 12|29 .
2. ALL REINFORCING STEEL BAR MARKS ARE PREFIXED "A" (ABUTMENT).
3. FOR REINFORCING STEEL SCHEDULE SEE SHEETS 27|29 , 28|29 AND 29|29 .
4. ALL PILES ARE 12" ϕ C.I.P. REINFORCED CONCRETE PILES.
5. FOR ABUTMENT DRAWINGS, SEE SHEETS 8|29 AND 9|29 .
6. FOR WINGWALL DRAWINGS, SEE SHEETS 10|29 AND 11 29 .
7. "ABUTMENT" PILES ARE PILES NO. 15 THRU 50 AND 105 THRU 142.
8. FOR SECTIONS J-J, L-L AND M-M, SEE SHEET 13|29 .

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
Cleveland, Ohio

DESIGNED	DRAWN	REVIEWED	DATE
MMP	GFH	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AJM	-	1802992	

FOUNDATION PLAN
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

7 / 29

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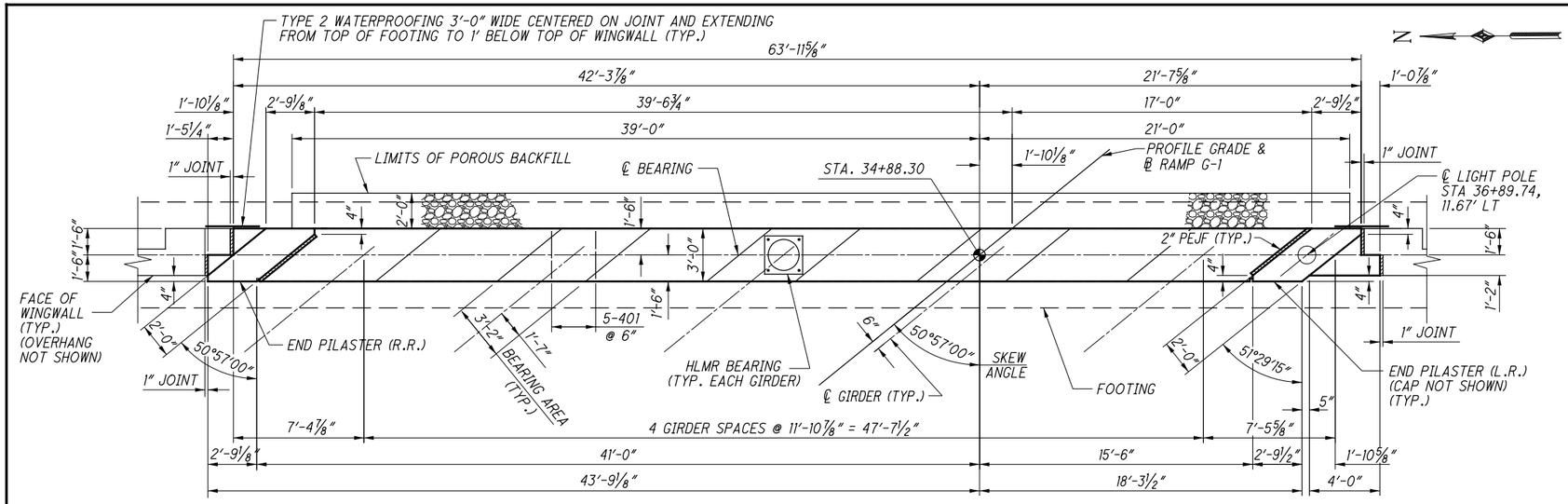
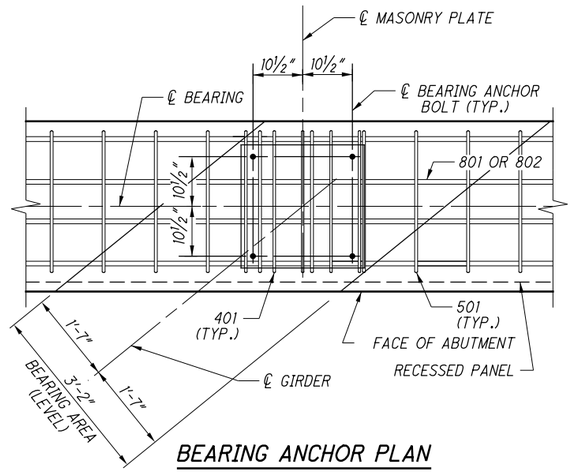


PLAN

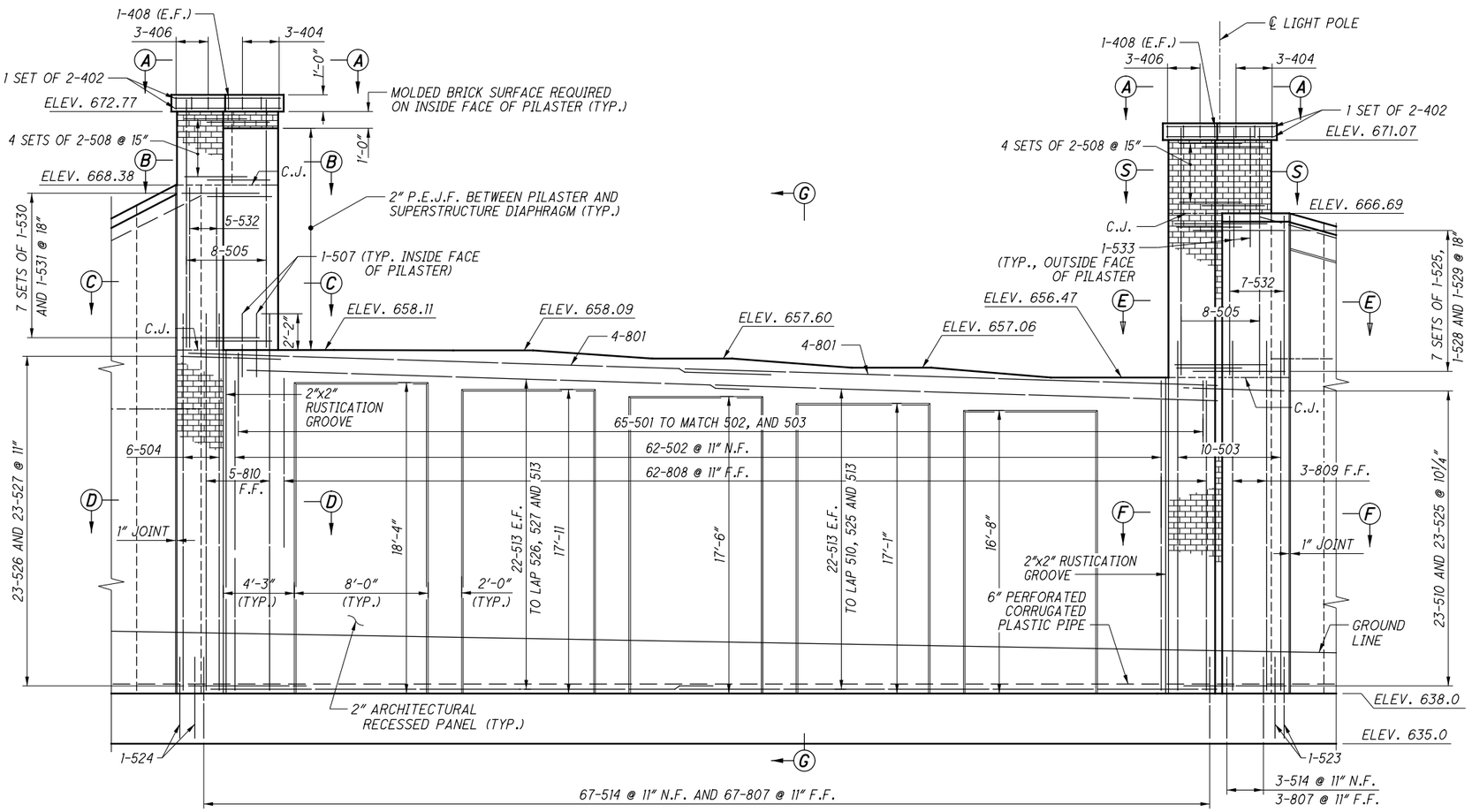
(SUPERSTRUCTURE NOT SHOWN)



BEARING ANCHOR PLAN

BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE PRE-SETTING OF BEARING ANCHORS. BEARING ANCHORS SHALL BE SET BY USE OF A STEEL TEMPLATE WITH A MINIMUM THICKNESS OF ¼ INCH.

MINIMUM LAP LENGTHS
#5 BAR = 2'-0"
#8 BAR = 5'-1"



ELEVATION

(PILES NOT SHOWN)

NOTES:

1. THE ABUTMENT BEAM SEAT ELEVATIONS MAY NEED TO BE ADJUSTED. SEE BEARING DETAILS AND NOTES ON SHEET 22|29.
2. BEAM SEAT ELEVATIONS ARE GIVEN ALONG THE CENTERLINE OF BEARING.
3. FOR SECTIONS A-A, B-B AND S-S SEE SHEET 9|29.
4. FOR SECTIONS C-C, D-D, E-E, F-F, G-G AND ADDITIONAL NOTES SEE SHEET 12|29.
5. ALL REINFORCING BARS ARE PREFIXED "A" (ABUTMENT).
6. FOR REINFORCING SCHEDULE SEE SHEET 27|29, 28|29 AND 29|29.
7. FOR LIGHT POLE BASE DETAIL, SEE SHEET 9|29.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
Cleveland, Ohio

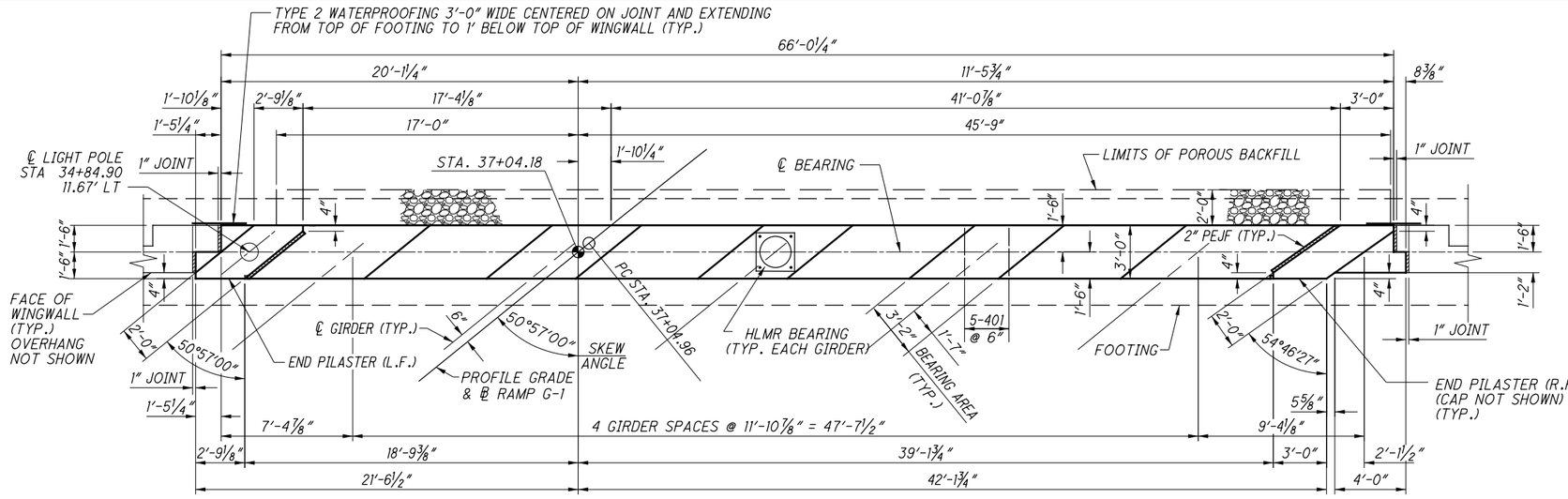
DESIGNED	DRAWN	REVIEWED	DATE
MMP	GFH	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AJM	-	1802992	

REAR ABUTMENT
CUY-21-1004L
OVER I-77

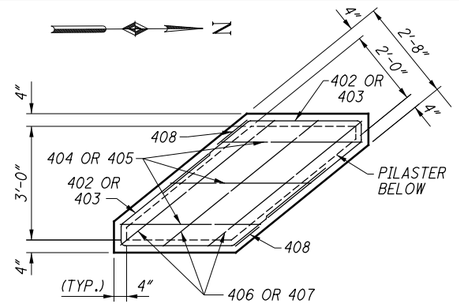
CUY-21-10.04L
PID No. 85146

8 / 29

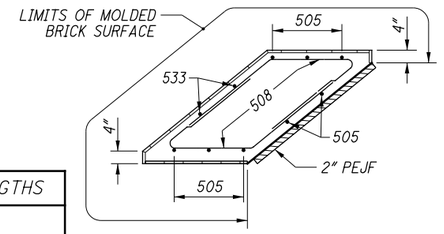
79 / 100



PLAN
(SUPERSTRUCTURE NOT SHOWN)

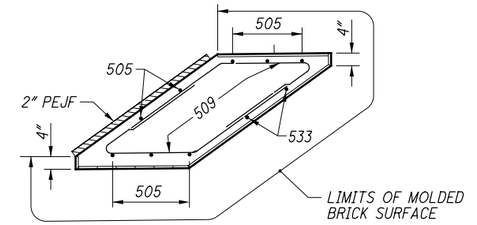


SECTION A-A

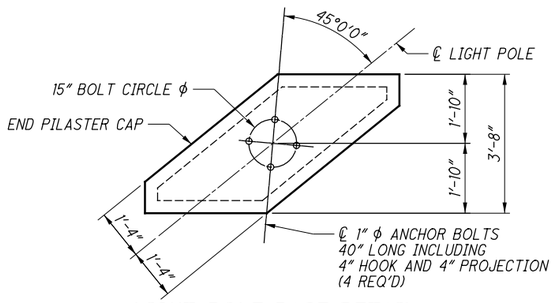


SECTION B-B

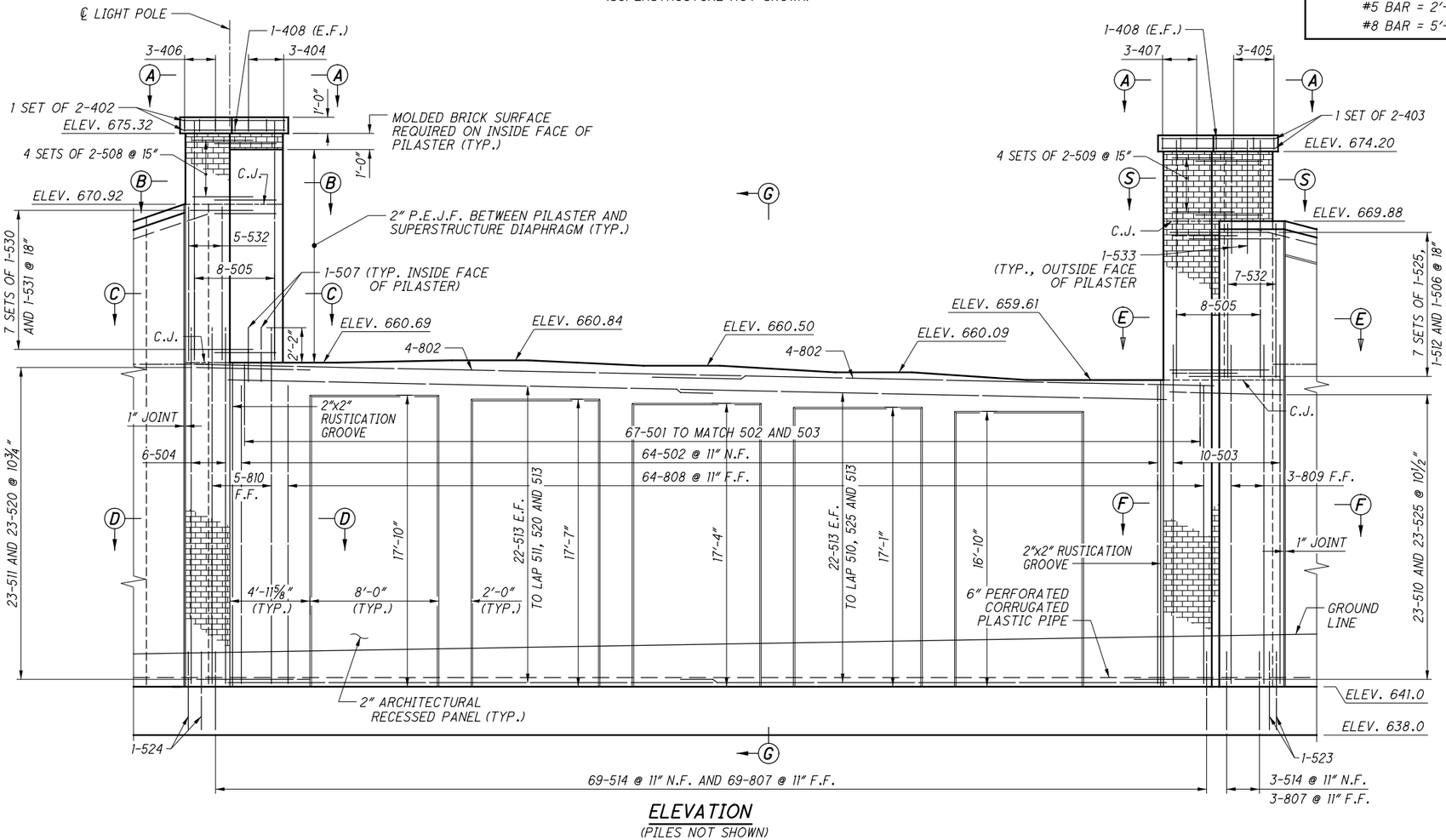
MINIMUM LAP LENGTHS
#5 BAR = 2'-0"
#8 BAR = 5'-1"



SECTION S-S



LIGHT POLE BASE DETAIL



ELEVATION
(PILES NOT SHOWN)

NOTES:

1. FOR BEARING ANCHOR PLAN AND ADDITIONAL NOTES SEE SHEET 8|29.
2. FOR SECTIONS C-C, D-D, E-E, F-F, G-G AND ADDITIONAL NOTES SEE SHEET 12|29.
3. ALL REINFORCING BARS ARE PREFIXED "A" (ABUTMENT).
4. FOR REINFORCING SCHEDULE SEE SHEET 27|29, 28|29 AND 29|29.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
Cleveland, Ohio

DRAWN	REVIEWED	DATE
GFH	RAB	6-14
DESIGNED	CHECKED	REVISED
MMP	AJM	-

STRUCTURE FILE NUMBER 1802992

FORWARD ABUTMENT
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

9 / 29

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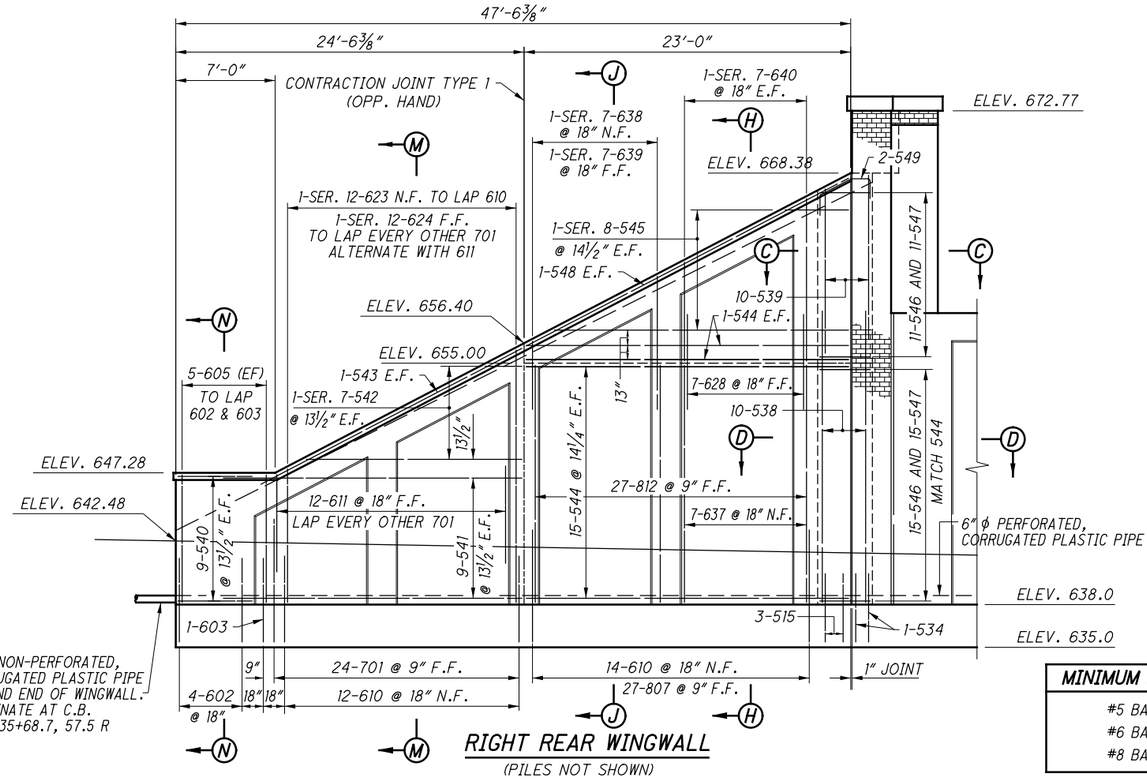
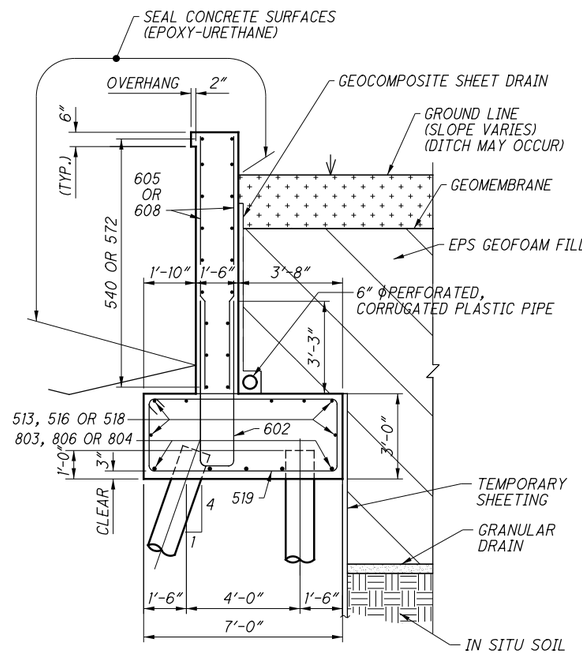


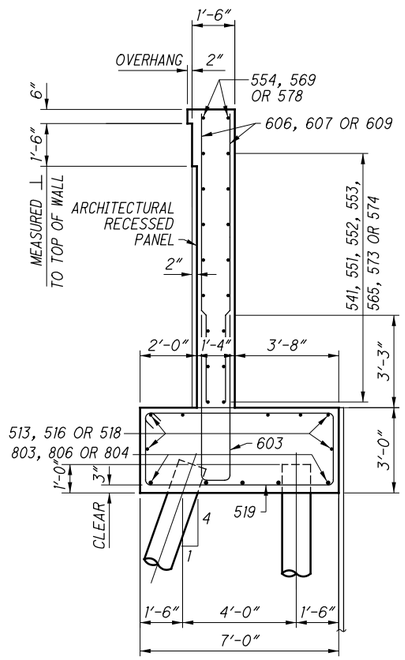
RIGHT REAR WINGWALL

(PILES NOT SHOWN)

MINIMUM LAP LENGTH
#5 BAR = 2'-0"
#6 BAR = 3'-1"
#8 BAR = 5'-1"

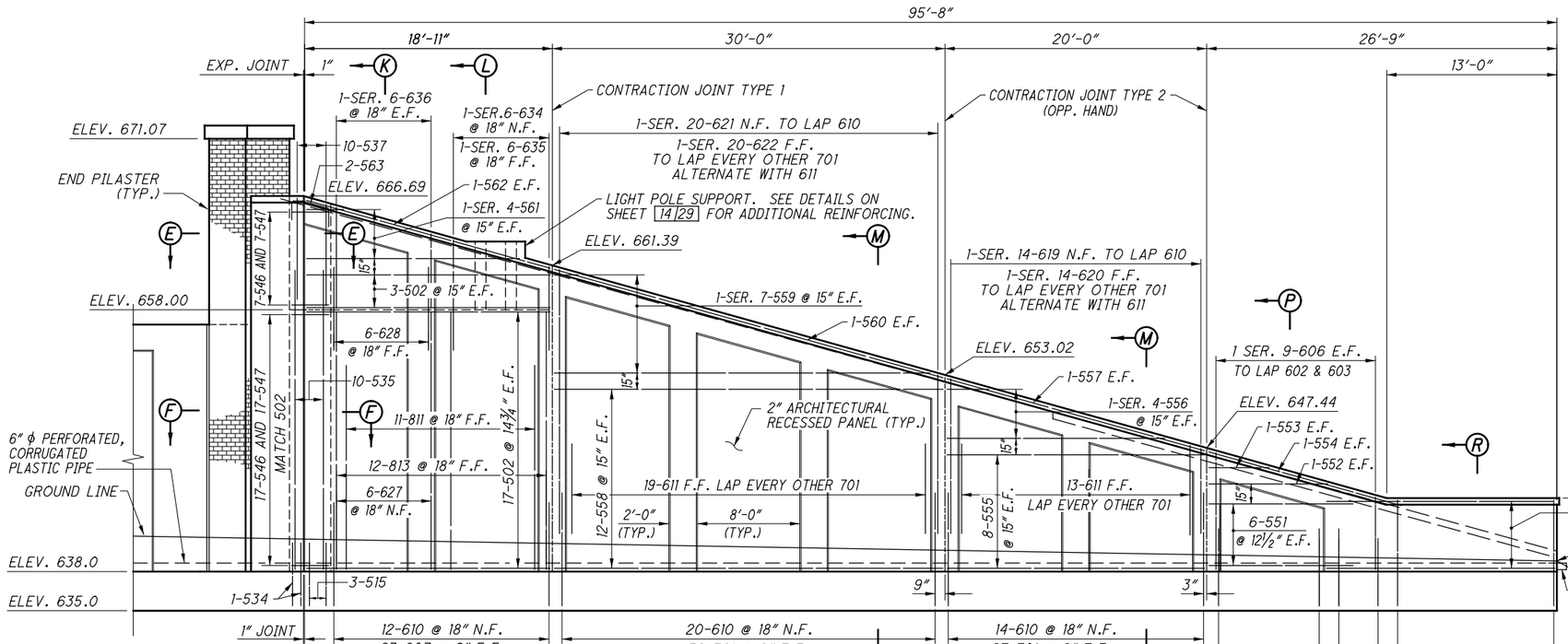


SECTION N-N



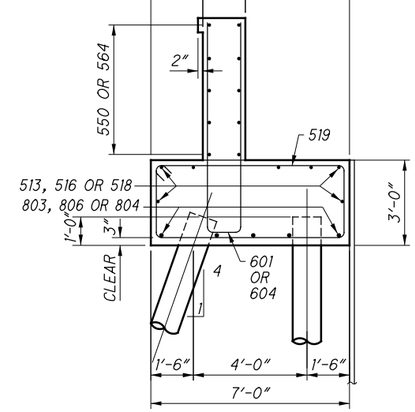
SECTION P-P

(GROUND LINES, GEOFOAM AND DRAINAGE NOT SHOWN)



LEFT REAR WINGWALL

(PILES NOT SHOWN)



SECTION R-R

(GROUND LINES, GEOFOAM AND DRAINAGE NOT SHOWN)

NOTES:

1. FOR SECTIONS C-C, D-D, E-E AND F-F SEE SHEET 12|29.
2. FOR SECTIONS H-H, J-J, K-K, L-L AND M-M SEE SHEET 13|29.
3. ALL REINFORCING STEEL BAR MARKS ARE PREFIXED "A" (ABUTMENT).
4. FOR REINFORCING STEEL SCHEDULE SEE SHEETS 27|29 , 28|29 AND 29|29.
5. FOR CONTRACTION JOINT DETAILS SEE SHEET 11|29.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
Cleveland, Ohio

DESIGNED MMP
DRAWN GFH
CHECKED LAB
REVIEWED RAB
DATE 6-14
REVISED -
STRUCTURE FILE NUMBER 1802992

WINGWALLS - REAR ABUTMENT
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

10 / 29

81 / 100

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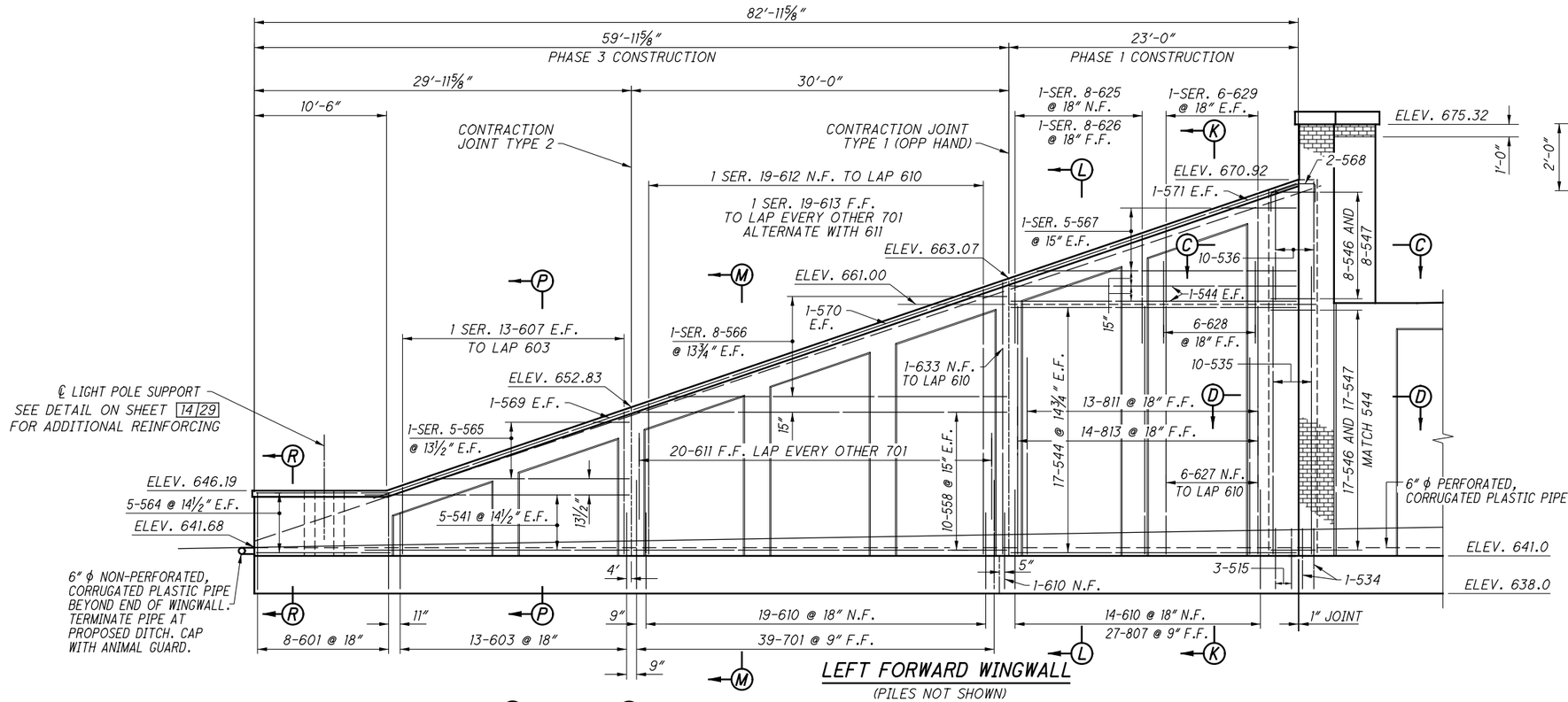
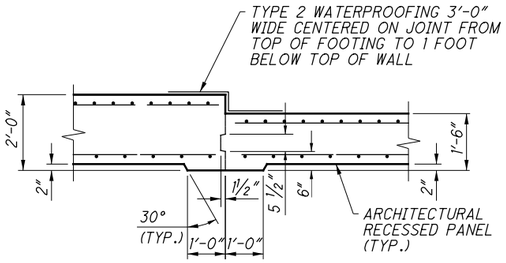
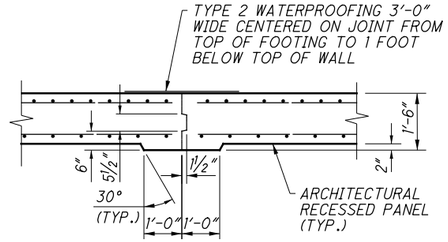


LEFT FORWARD WINGWALL

(PILES NOT SHOWN)

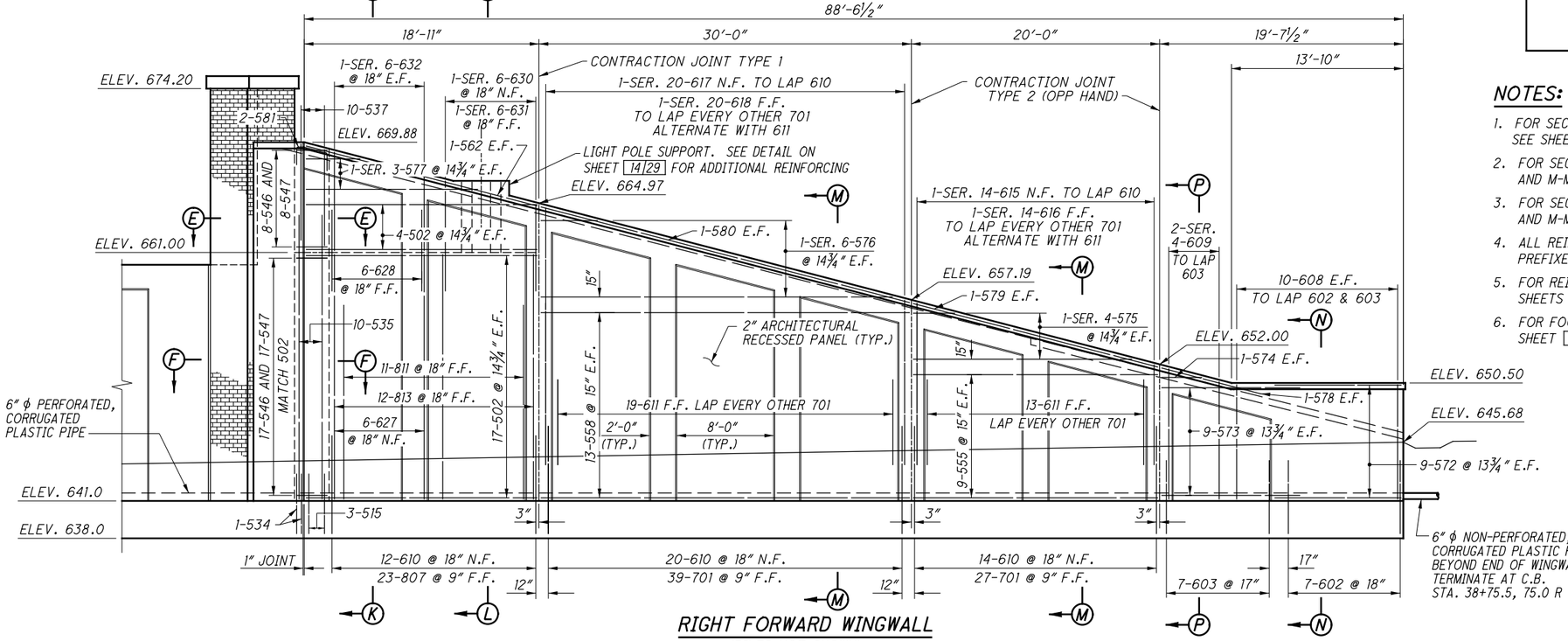


CONTRACTION JOINT TYPE 1



CONTRACTION JOINT TYPE 2

MINIMUM LAP LENGTH
#5 BAR = 2'-0"
#6 BAR = 3'-1"
#8 BAR = 5'-1"



RIGHT FORWARD WINGWALL

(PILES NOT SHOWN)

NOTES:

1. FOR SECTIONS C-C, D-D, E-E AND F-F SEE SHEET 12|29.
2. FOR SECTIONS H-H, J-J, K-K, L-L AND M-M SEE SHEET 13|29.
3. FOR SECTIONS N-N, P-P AND R-R AND M-M SEE SHEET 10|29.
4. ALL REINFORCING STEEL BAR MARKS ARE PREFIXED "A" (ABUTMENT).
5. FOR REINFORCING STEEL SCHEDULE SEE SHEETS 27|29 , 28|29 AND 29|29.
6. FOR FOOTING REINFORCEMENT, SEE SHEET 7|29.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
Cleveland, Ohio

DESIGNED MMP | DRAWN GFH | CHECKED LAB | REVIEWED RAB | DATE 6-14 | REVISED - | STRUCTURE FILE NUMBER 1802992

WINGWALLS - FORWARD ABUTMENT
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

11 | 29

82 / 100

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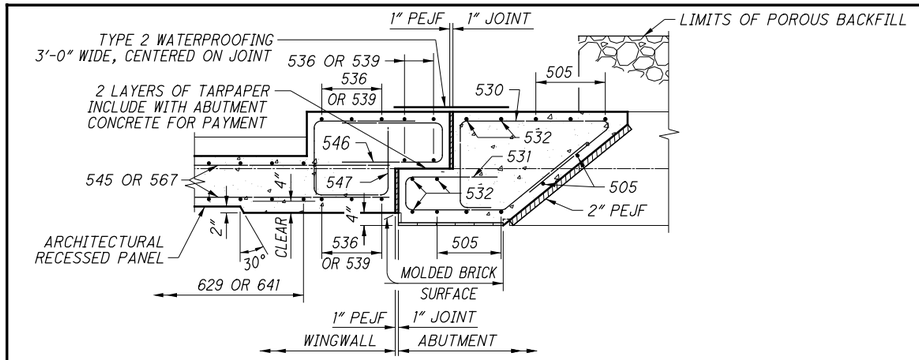
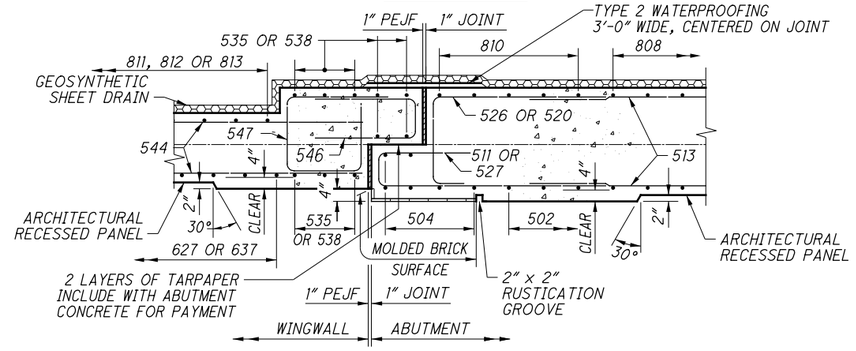


SECTION C-C



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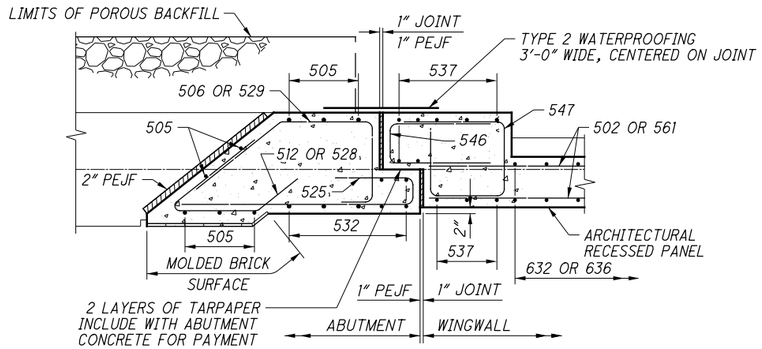
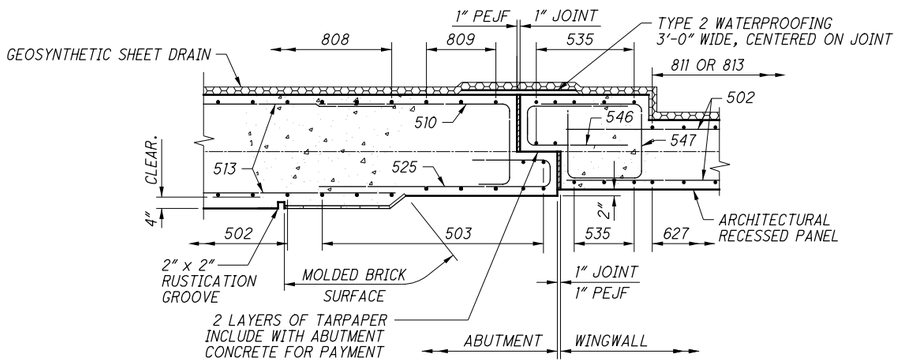


SECTION E-E



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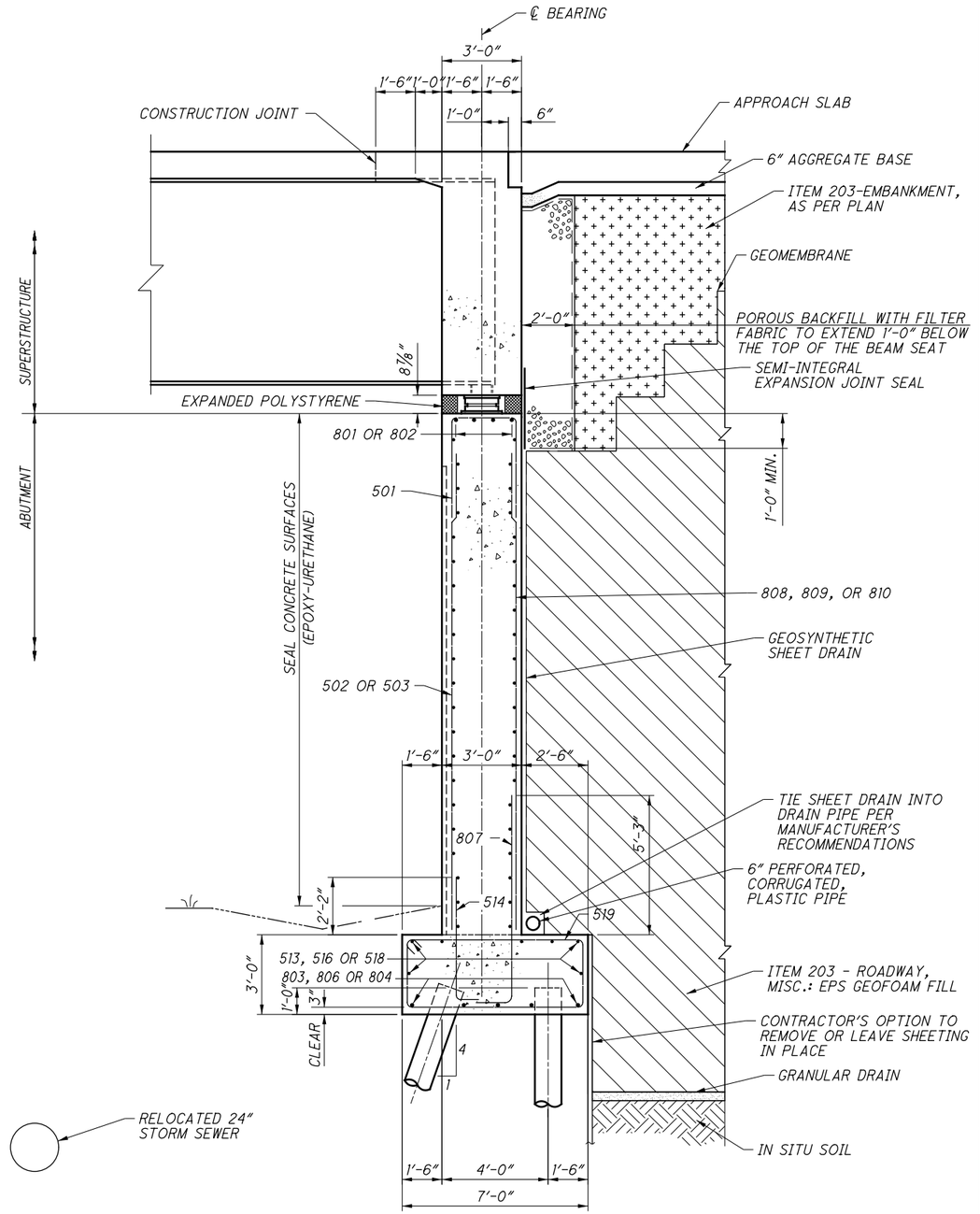


SECTION G-G

NOTES:

1. FOR LOCATIONS OF SECTIONS C-C THRU G-G SEE SHEETS 10|29 AND 11|29 .
2. ALL REINFORCING STEEL BAR MARKS ARE PREFIXED "A" (ABUTMENT).
3. FOR REINFORCING STEEL SCHEDULE SEE SHEETS 27|29 , 28|29 AND 29|29 .

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

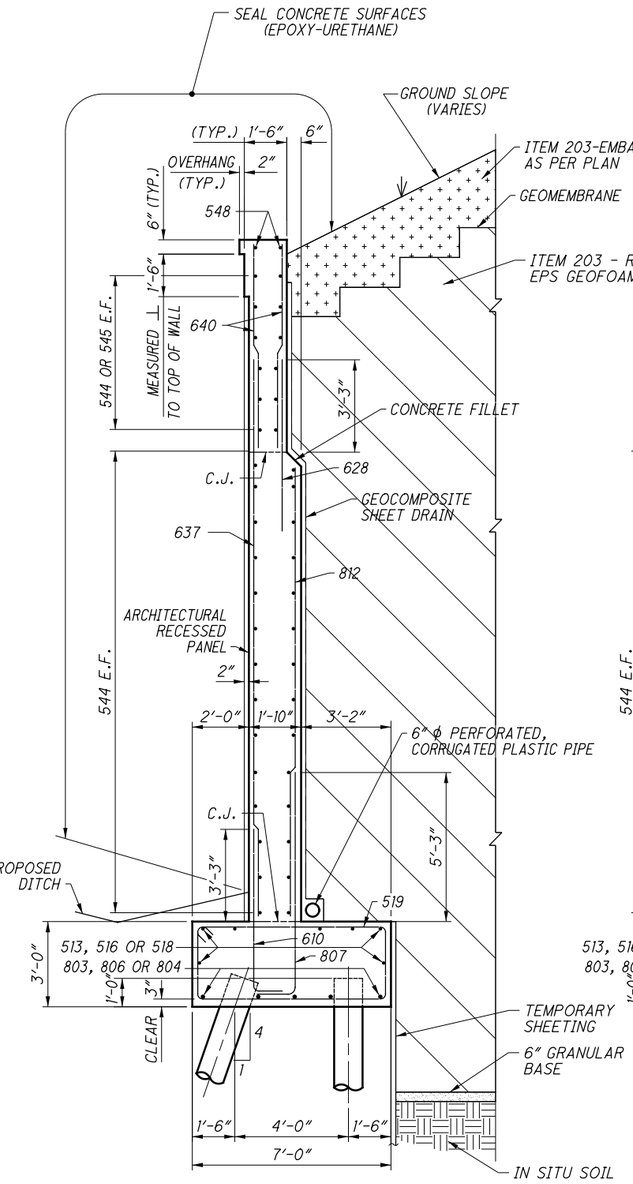
DESIGNED	DRAWN	REVIEWED	DATE
MMP	GFH	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AJM	-	1802992	

ABUTMENT SECTIONS AND DETAILS
CUY-21-1004L
OVER I-77

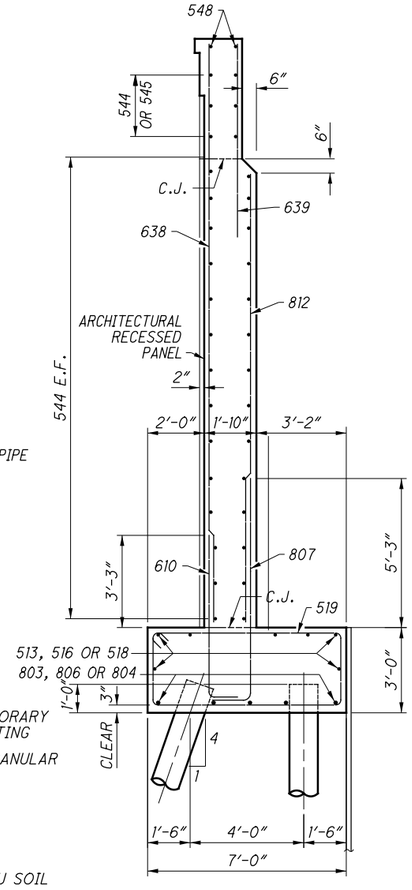
CUY-21-10.04L
PID No. 85146

12 / 29

83 / 100

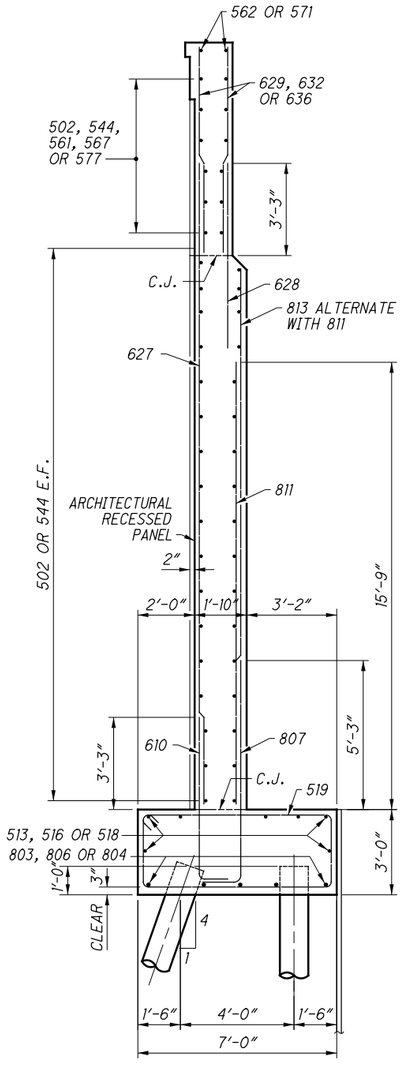


SECTION H-H



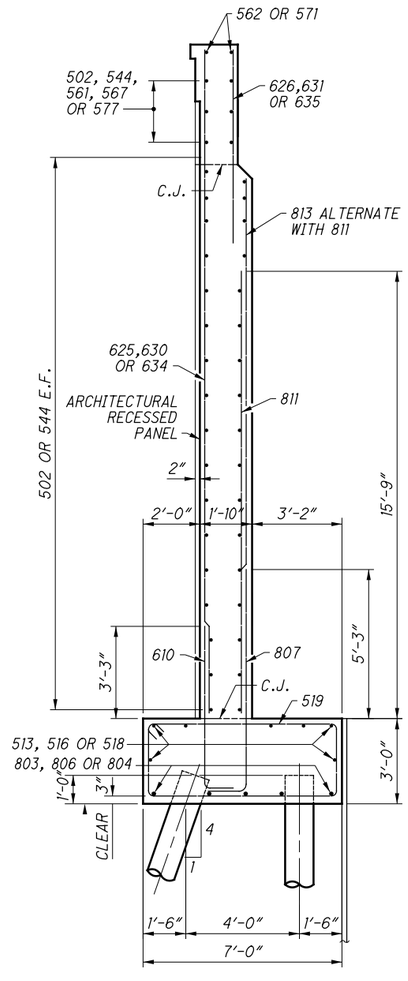
SECTION J-J

(GROUND LINES, GEOFOAM AND DRAINAGE NOT SHOWN)



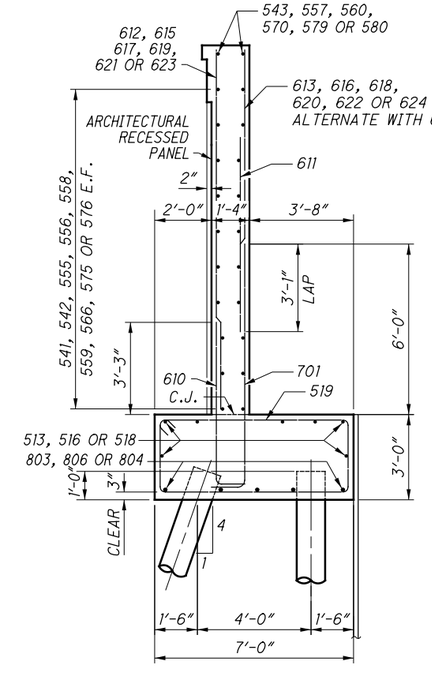
SECTION K-K

(GROUND LINES, GEOFOAM AND DRAINAGE NOT SHOWN)



SECTION L-L

(GROUND LINES, GEOFOAM AND DRAINAGE NOT SHOWN)



SECTION M-M

(GROUND LINES, GEOFOAM AND DRAINAGE NOT SHOWN)

MINIMUM LAP LENGTH
#5 BAR = 2'-0"
#6 BAR = 3'-1"
#8 BAR = 5'-1"

NOTES:

1. FOR LOCATIONS OF SECTIONS H-H THRU M-M SEE SHEETS 10|29 AND 11|29.
2. ALL REINFORCING STEEL BAR MARKS ARE PREFIXED "A" (ABUTMENT).
3. FOR REINFORCING STEEL SCHEDULE SEE SHEETS 27|29 , 28|29 AND 29|29 .
4. FOR PILE LAYOUT AND FOOTING REINFORCEMENT, SEE FOUNDATION PLAN, SHEET 7|29.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

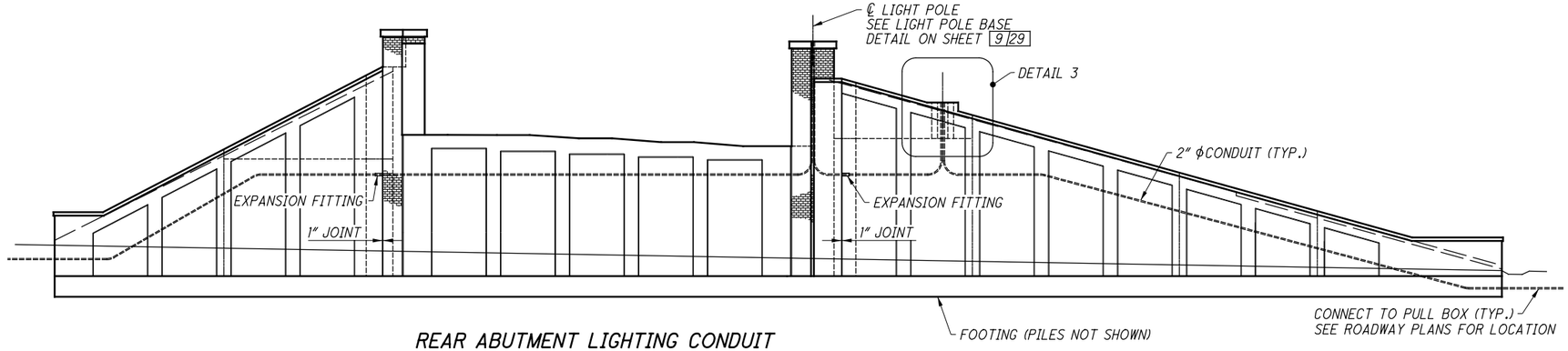
DESIGNED GFH
DRAWN GFH
CHECKED LAB
REVIEWED RAB
DATE 6-14
REVISED -
STRUCTURE FILE NUMBER 1802992

WINGWALL SECTIONS
CUY-21-1004L
OVER 1-77

CUY-21-10.04L
PID No. 85146

13 | 29

84 / 100

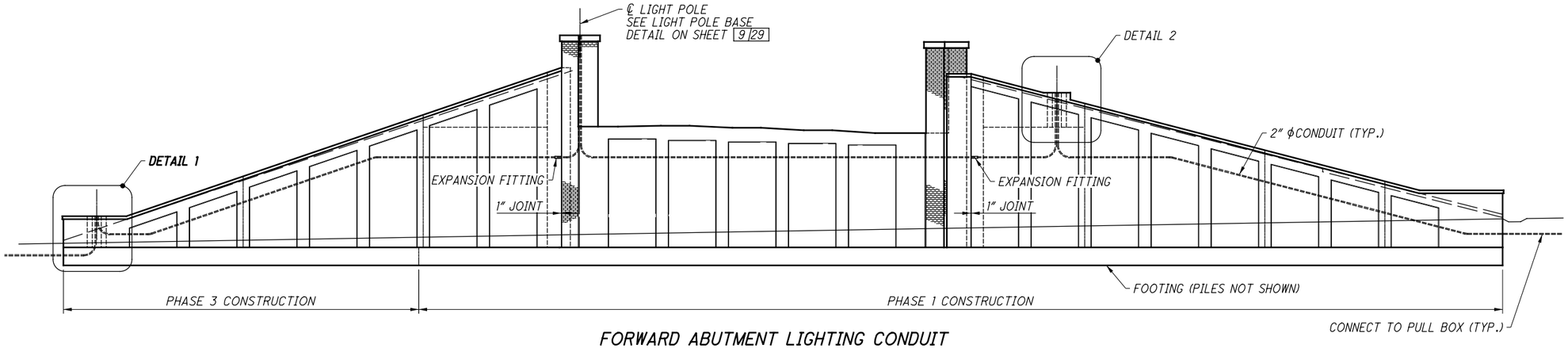


REAR ABUTMENT LIGHTING CONDUIT

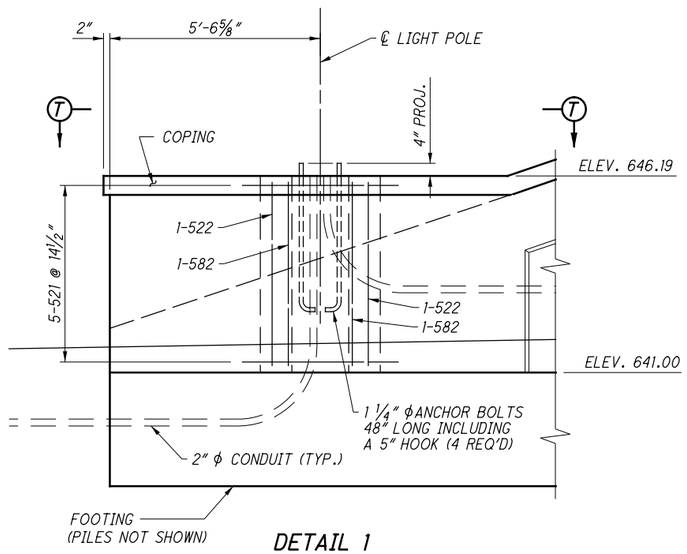
(PHASE 1 CONSTRUCTION)

NOTES:

1. ALL REINFORCING STEEL BAR MARKS ARE PREFIXED "A" (ABUTMENTS).
2. FOR REINFORCING STEEL SCHEDULE SEE SHEETS 27|29, 28|29 AND 29|29.
3. FOR CONDUIT QUANTITIES SEE ROADWAY PLANS.

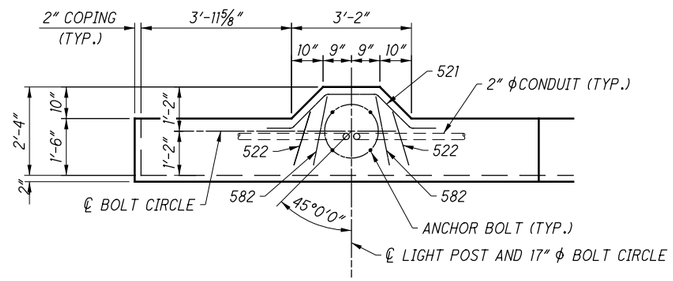


FORWARD ABUTMENT LIGHTING CONDUIT

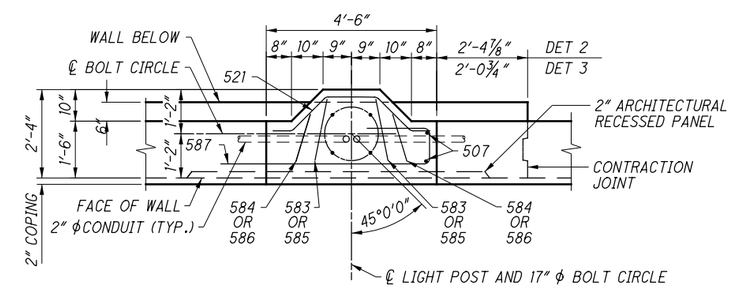


DETAIL 1

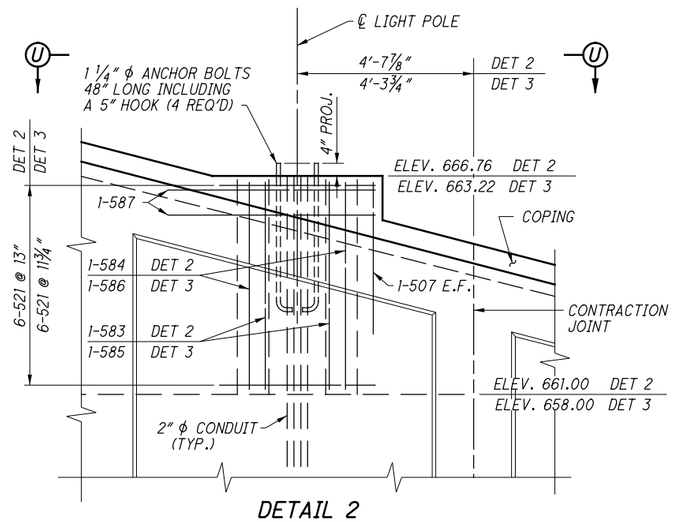
WALL REINFORCING NOT SHOWN



SECTION T-T



SECTION U-U



DETAIL 2

DETAIL 3

WALL REINFORCING NOT SHOWN

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
Cleveland, Ohio

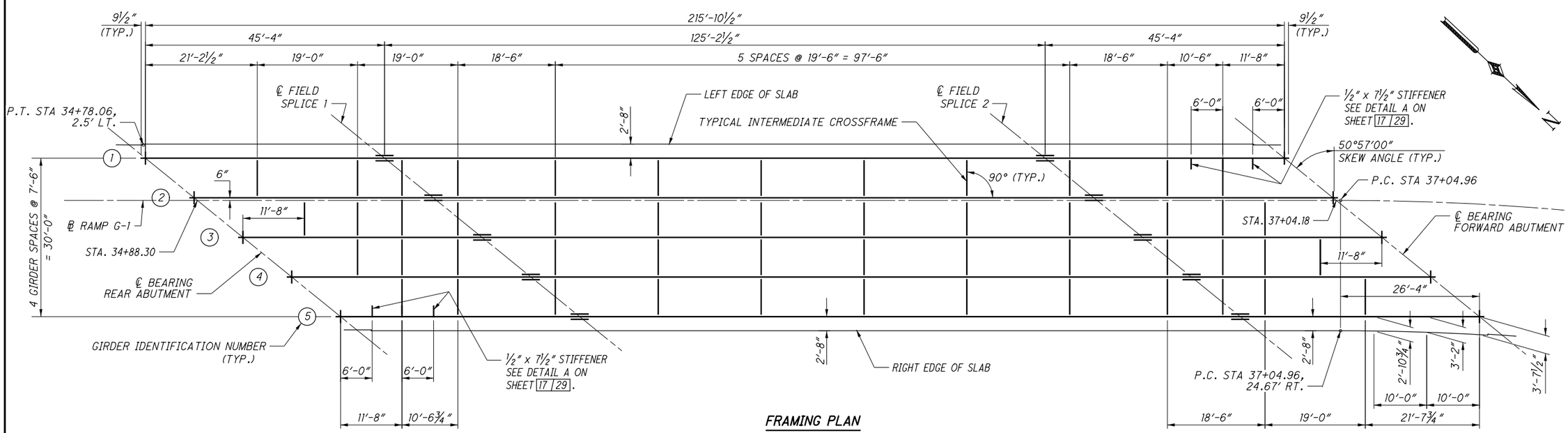
DESIGNED	DRAWN	REVIEWED	DATE
MMP	GFH	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
LAB	-	1802992	

ABUTMENT DETAILS
CUY-21-1004L
OVER I-77

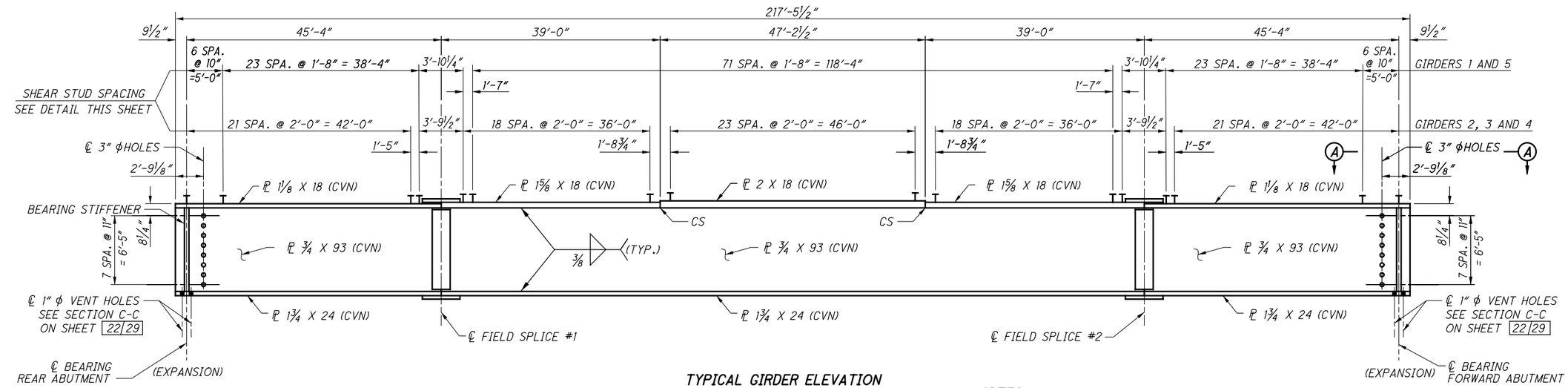
CUY-21-10.04L
PID No. 85146

14 / 29

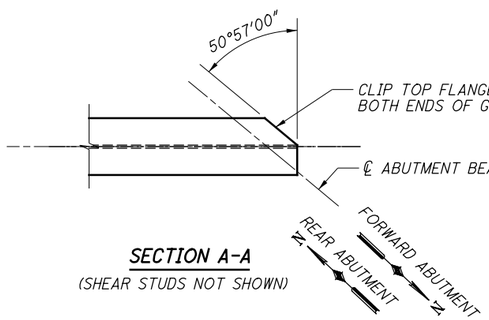
85 / 100



FRAMING PLAN

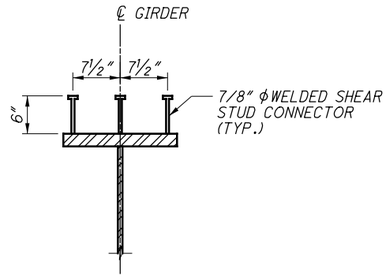


TYPICAL GIRDER ELEVATION



SECTION A-A

(SHEAR STUDS NOT SHOWN)



SHEAR STUD DETAIL

NOTES:

1. WELDED ATTACHMENT: WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST ¼" FOR THICKNESSES UP TO ¾" OR 5/16" FOR GREATER THAN ¾" THICK
2. CHARPY V-NOTCH TOUGHNESS: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
3. "CS" DENOTES COMPLETE PENETRATION BUTT WELD SUBJECT TO COMPRESSIVE STRESSES ONLY.
4. FOR INTERMEDIATE CROSSFRAME DETAILS AND BEARING STIFFENER DETAILS SEE SHEET 17 29.
5. THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING BOTH TRANSVERSELY AND LONGITUDINALLY AT OR NEAR THE ENDS OF THE GIRDERS UNTIL THE DECK CONCRETE HAS BEEN PLACED. REMOVE THE BRACING TO COMPLETE CONSTRUCTION OF THE END DIAPHRAGMS.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
MMP	MMP	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AJM	-	1802992	

FRAMING PLAN
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

15 / 29

86
100

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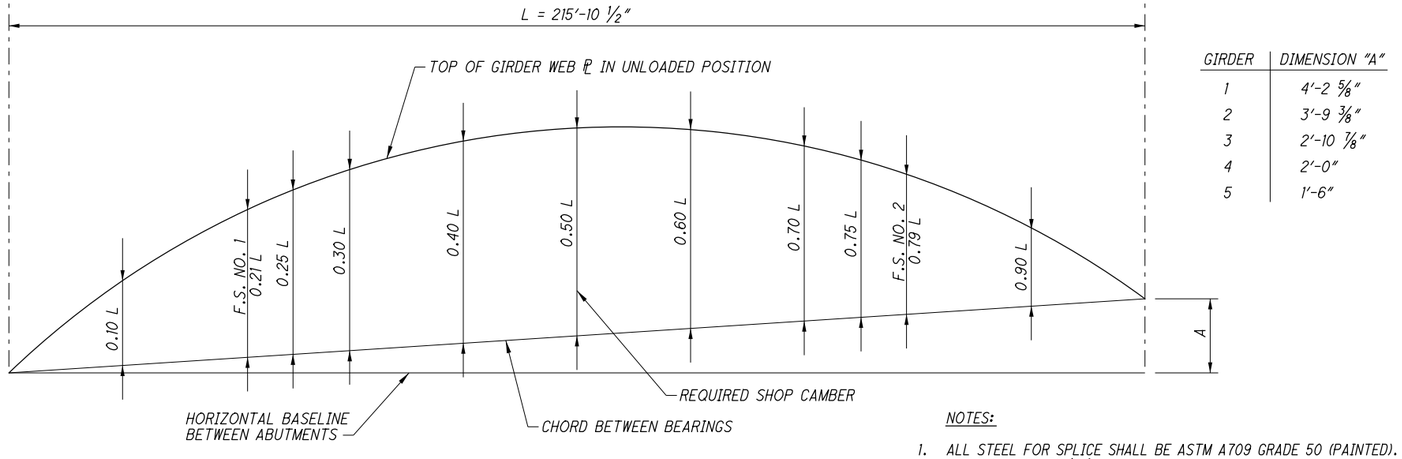
DEFLECTION AND CAMBER (in ft.)													
GIRDER 1	R.A	0.10L	F.S. 1	0.25 L	0.30 L	0.40 L	0.50 L	0.60 L	0.70 L	0.75 L	F.S. 2	0.90 L	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0.000	0.104	0.203	0.234	0.266	0.309	0.324	0.309	0.266	0.234	0.203	0.104	0.000
DEFLECTION DUE TO REMAINING DEAD LOAD	0.000	0.237	0.479	0.555	0.636	0.746	0.782	0.744	0.632	0.550	0.475	0.234	0.000
VERTICAL CURVE AND SUPERELEVATION ADJUSTMENT	0.000	0.226	0.475	0.560	0.650	0.768	0.807	0.766	0.645	0.555	0.468	0.341	0.000
TOTAL CAMBER	0.000	0.567	1.158	1.349	1.551	1.824	1.913	1.819	1.543	1.339	1.147	0.679	0.000
GIRDER 2	R.A	0.10L	F.S. 1	0.25 L	0.30 L	0.40 L	0.50 L	0.60 L	0.70 L	0.75 L	F.S. 2	0.90 L	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0.000	0.104	0.203	0.234	0.266	0.309	0.324	0.309	0.266	0.234	0.203	0.104	0.000
DEFLECTION DUE TO REMAINING DEAD LOAD	0.000	0.234	0.472	0.545	0.624	0.731	0.766	0.727	0.616	0.537	0.463	0.227	0.000
VERTICAL CURVE AND SUPERELEVATION ADJUSTMENT	0.000	0.269	0.560	0.649	0.743	0.871	0.919	0.887	0.775	0.689	0.606	0.346	0.000
TOTAL CAMBER	0.000	0.608	1.235	1.428	1.633	1.912	2.009	1.923	1.657	1.460	1.273	0.678	0.000
GIRDER 3	R.A	0.10L	F.S. 1	0.25 L	0.30 L	0.40 L	0.50 L	0.60 L	0.70 L	0.75 L	F.S. 2	0.90 L	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0.000	0.104	0.203	0.234	0.266	0.309	0.324	0.309	0.266	0.234	0.203	0.104	0.000
DEFLECTION DUE TO REMAINING DEAD LOAD	0.000	0.230	0.465	0.538	0.616	0.721	0.755	0.717	0.609	0.530	0.458	0.226	0.000
VERTICAL CURVE AND SUPERELEVATION ADJUSTMENT	0.000	0.303	0.610	0.699	0.792	0.919	0.966	0.933	0.820	0.734	0.650	0.355	0.000
TOTAL CAMBER	0.000	0.637	1.279	1.471	1.674	1.949	2.044	1.959	1.695	1.498	1.311	0.685	0.000
GIRDER 4	R.A	0.10L	F.S. 1	0.25 L	0.30 L	0.40 L	0.50 L	0.60 L	0.70 L	0.75 L	F.S. 2	0.90 L	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0.000	0.104	0.203	0.234	0.266	0.309	0.324	0.309	0.266	0.234	0.203	0.104	0.000
DEFLECTION DUE TO REMAINING DEAD LOAD	0.000	0.229	0.458	0.535	0.613	0.719	0.754	0.717	0.608	0.530	0.460	0.225	0.000
VERTICAL CURVE AND SUPERELEVATION ADJUSTMENT	0.000	0.333	0.641	0.729	0.821	0.945	0.990	0.954	0.838	0.750	0.666	0.367	0.000
TOTAL CAMBER	0.000	0.666	1.303	1.498	1.700	1.974	2.067	1.980	1.712	1.514	1.329	0.697	0.000
GIRDER 5	R.A	0.10L	F.S. 1	0.25 L	0.30 L	0.40 L	0.50 L	0.60 L	0.70 L	0.75 L	F.S. 2	0.90 L	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0.000	0.104	0.203	0.234	0.266	0.309	0.324	0.309	0.266	0.234	0.203	0.104	0.000
DEFLECTION DUE TO REMAINING DEAD LOAD	0.000	0.228	0.464	0.537	0.616	0.724	0.759	0.722	0.613	0.534	0.460	0.226	0.000
VERTICAL CURVE AND SUPERELEVATION ADJUSTMENT	0.000	0.361	0.675	0.765	0.859	0.989	1.038	1.008	0.897	0.812	0.730	0.424	0.000
TOTAL CAMBER	0.000	0.694	1.342	1.535	1.741	2.022	2.121	2.039	1.776	1.579	1.393	0.755	0.000



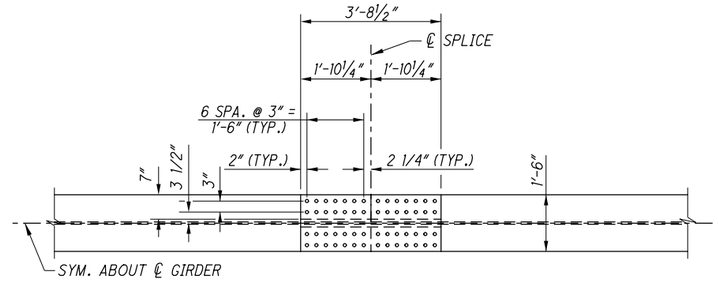
GIRDER	DIMENSION "A"
1	4'-2 5/8"
2	3'-9 3/8"
3	2'-10 7/8"
4	2'-0"
5	1'-6"

CAMBER DIAGRAM

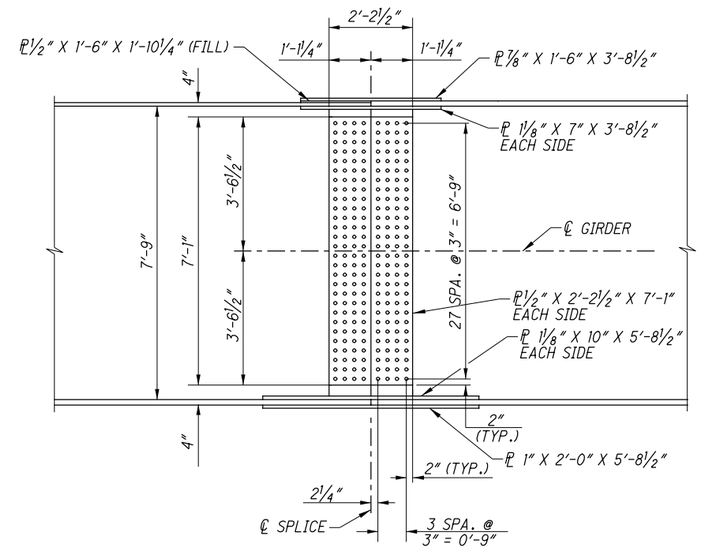
(GIRDERS 1-5)

NOTES:

1. ALL STEEL FOR SPLICE SHALL BE ASTM A709 GRADE 50 (PAINTED). YIELD STRESS 50 ksi)
2. ALL STEEL FOR SPLICE PLATES SHALL HAVE CVN DESIGNATION AND MEET SPECIFIED MINIMUM (CVN) NOTCH TOUGHNESS AS SPECIFIED IN 711.01.
3. ALL SPLICE BOLTS SHALL BE HIGH-STRENGTH, 1" DIAMETER GALVANIZED A325 TYPE I BOLTS.
4. THE BOLT HEADS SHALL BE PLACED ON THE EXPOSED SIDES OF THE FASCIA BEAMS AND BENEATH THE BOTTOM PLATE OF THE LOWER FLANGE SPLICE. WASHERS SHALL BE PLACED UNDER ALL ELEMENTS TURNED IN TIGHTENING.

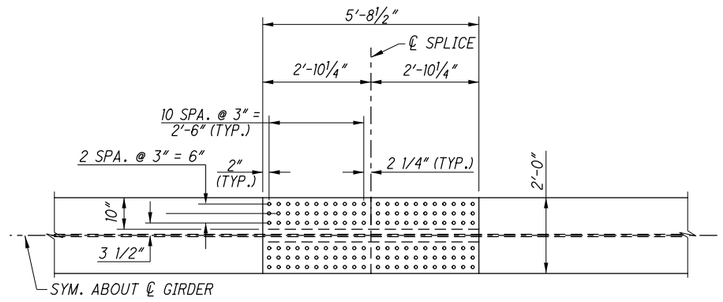


TOP FLANGE FIELD SPLICE DETAIL



GIRDER FIELD SPLICE 1

(FIELD SPLICE 2 SIMILAR, OPPOSITE HAND)



BOTTOM FLANGE FIELD SPLICE DETAIL

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

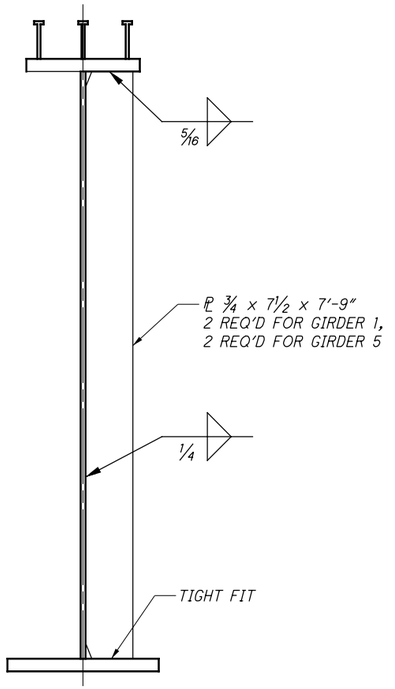
DESIGNED	DRAWN	REVIEWED	DATE
MMP	MMP	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AJM	-	1802992	

CAMBER AND SUPERSTRUCTURE DETAILS
CUY-21-1004L
OVER I-77

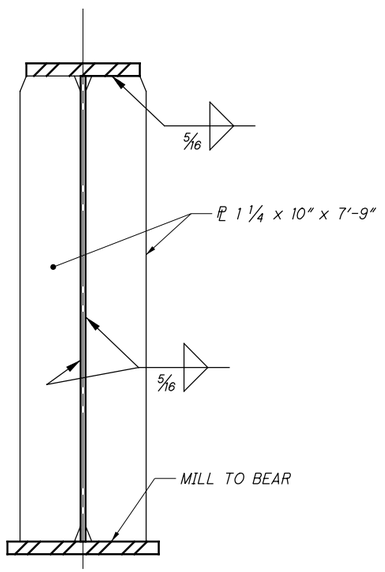
CUY-21-10.04L
PID No. 85146

16 / 29

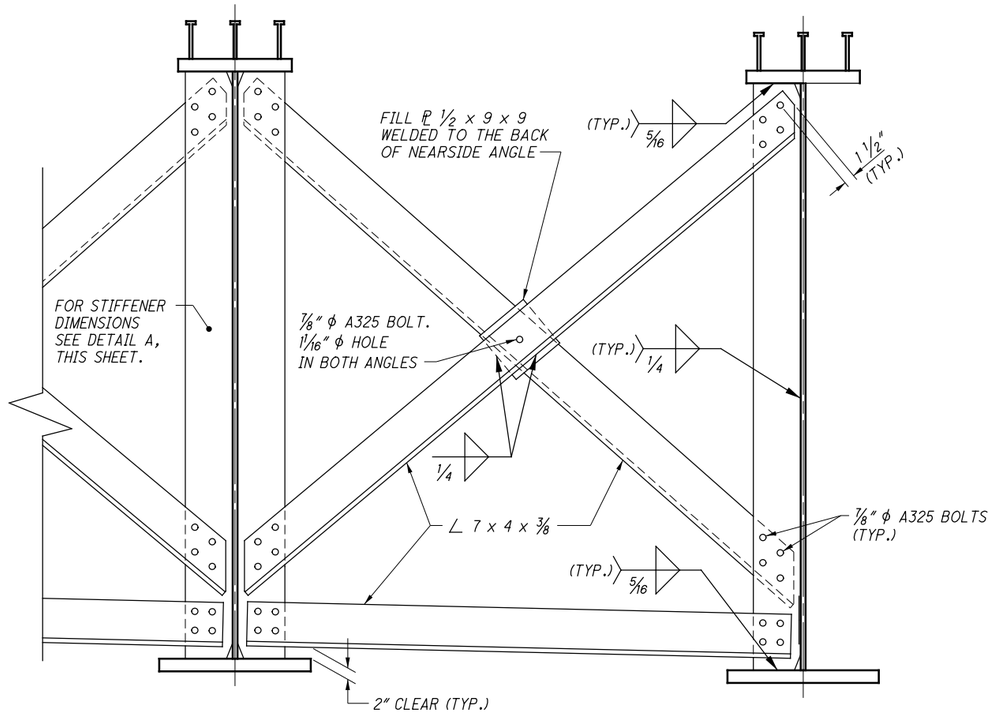
87 / 100



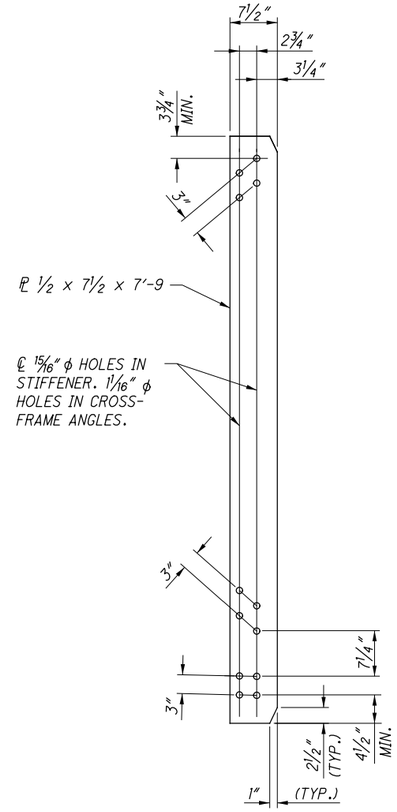
INTERMEDIATE TRANSVERSE STIFFENER



BEARING STIFFENER

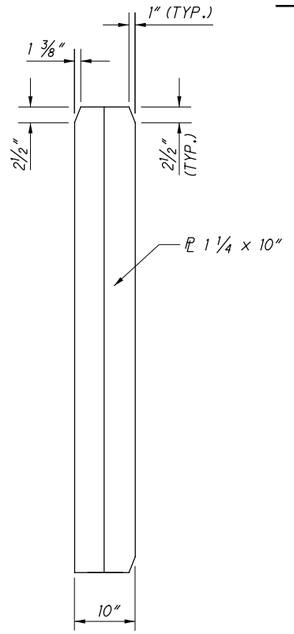


INTERMEDIATE CROSS-FRAMES



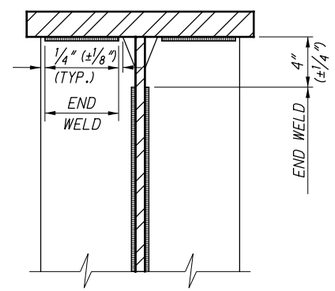
DETAIL A

WELDED VERTICAL
CROSS-FRAME STIFFENER



DETAIL B

WELDED VERTICAL BEARING STIFFENER



TYPICAL STIFFENER WELD TERMINATION DETAIL

NOTES:

1. ALL INTERMEDIATE CROSSFRAME MATERIAL SHALL BE A572 GRADE 50.
2. FASTENERS: ALL BOLTS SHALL BE A325 (ASTM TYPE 1), GALVANIZED. EACH ANCHOR ASSEMBLY SHALL INCLUDE A BOLT, NUT AND TWO (2) WASHERS. ALL BOLTED CROSSFRAME CONNECTIONS ARE FRICTION TYPE, SLIP CRITICAL, TIGHTENED ACCORDING TO 513.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
MMP	MMP	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AJM	-	1802992	

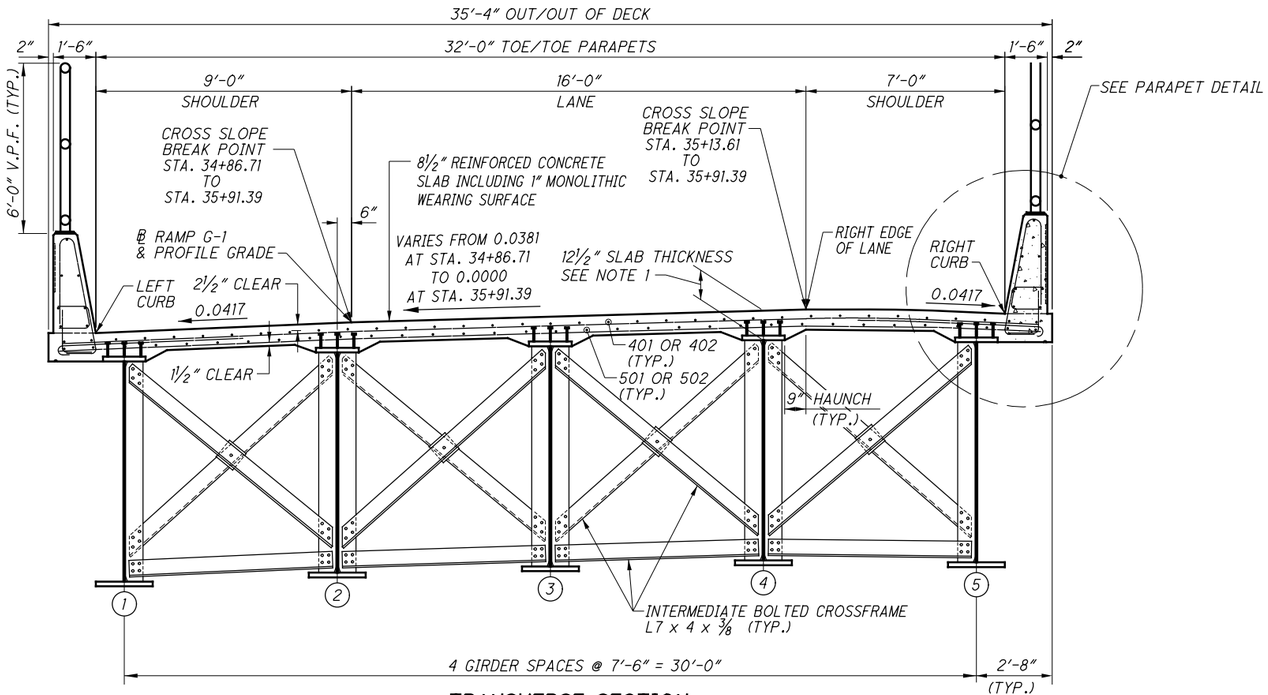
STEEL DETAILS
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

17 / 29

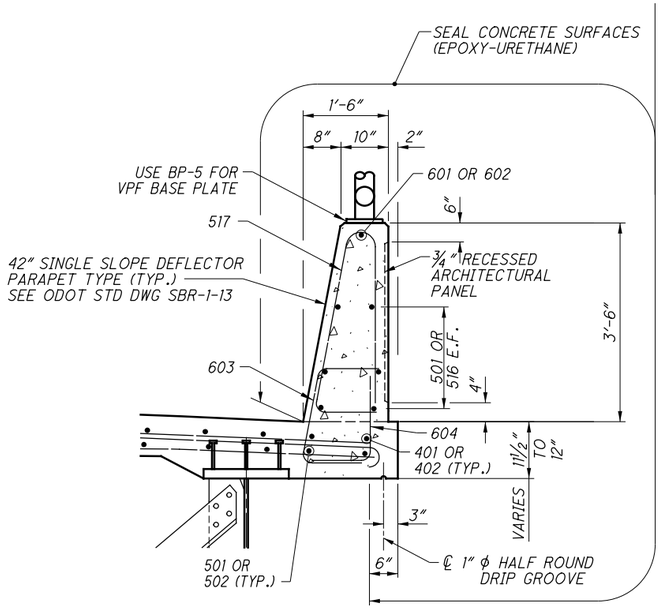
88
100

F:\Jobs\852\85146\structures\CUY-21-1004L\sheets\21_1004PSD004.dgn 10/8/2014 3:36:44 PM jneville

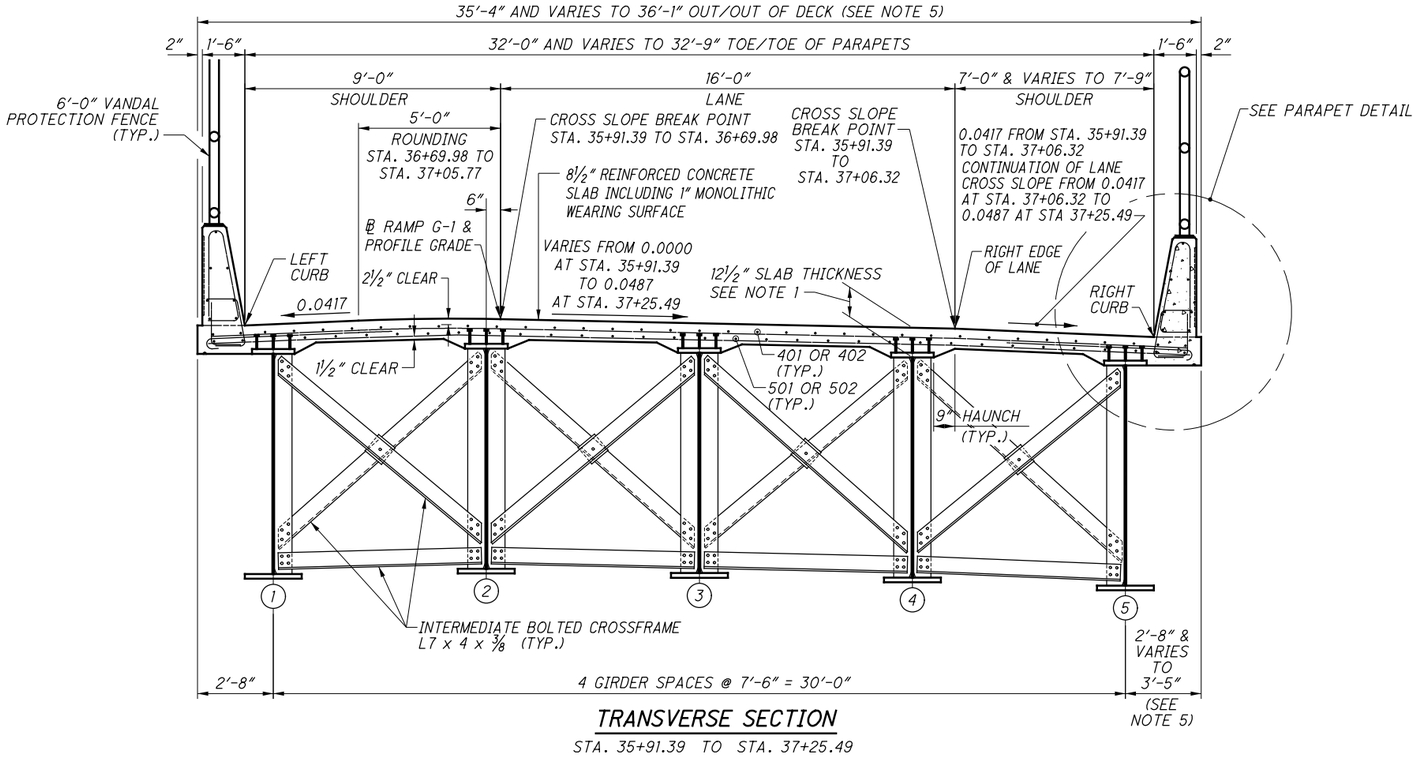


TRANSVERSE SECTION

STA. 34+86.71 TO STA. 35+91.39



PARAPET DETAIL



TRANSVERSE SECTION

STA. 35+91.39 TO STA. 37+25.49

NOTES:

1. DECK SLAB CONCRETE QUANTITY:

   THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 4 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH GIRDER FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH GIRDER FLANGE IS ± 3 INCHES.

   THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE GIRDER, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ANY EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.

2. FOR DECK PLAN, SEE SHEET 20/29 .
3. FOR ADDITIONAL INTERMEDIATE CROSSFRAME NOTES AND DETAILS, SEE SHEET 17/29 .
4. ALL REINFORCING STEEL BAR MARKS ARE PREFIXED "S" (SUPERSTRUCTURE). FOR REINFORCING SCHEDULE SEE SHEETS 27/29 , 28/29 , & 29/29 .
5. FOR THE LOCATION OF THE VARIATION IN THE DECK OVERHANG SEE THE FRAMING PLAN ON SHEET 15/29 AND THE DECK PLAN ON SHEET 20/29 .

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
Cleveland, Ohio

DESIGNED	DRAWN	REVIEWED	DATE
GFH	GFH	RAB	3-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
LAB	-	1802992	

TRANSVERSE SECTIONS
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

18 / 29

89
100

SCREED ELEVATIONS

LOCATION	ELEV. A (LEFT CURB LINE)		PROFILE GRADE (LEFT EDGE OF LANE)		ELEV. B (RIGHT EDGE OF LANE)		ELEV. C (RIGHT CURB LINE)	
	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.
R.A.	34+77.19	666.57	34+88.30	667.28	35+08.02	668.36	35+16.65	668.27
0.10	34+98.79	667.35	35+09.89	668.06	35+29.61	669.00	35+38.24	668.90
F.S. 1	35+22.54	668.21	35+33.63	668.90	35+53.36	669.64	35+61.99	669.51
0.25	35+31.18	668.51	35+42.27	669.18	35+61.99	669.85	35+70.62	669.70
0.30	35+41.97	668.86	35+53.06	669.51	35+72.79	670.07	35+81.42	669.92
0.40	35+63.56	669.47	35+74.65	670.08	35+94.38	670.44	36+03.00	670.25
0.50	35+85.15	669.96	35+96.24	670.52	36+15.96	670.69	36+24.59	670.47
0.60	36+06.73	670.32	36+17.83	670.84	36+37.55	670.81	36+46.18	670.56
0.70	36+28.32	670.56	36+39.42	671.04	36+59.14	670.81	36+67.77	670.53
0.75	36+39.12	670.63	36+50.21	671.10	36+69.93	670.77	36+78.56	670.47
F.S. 2	36+47.75	670.67	36+58.85	671.12	36+78.57	670.72	36+87.20	670.40
0.90	36+71.50	670.87	36+82.59	671.10	37+02.32	670.48	37+11.29	670.11
F.A.	36+93.09	670.82	37+04.18	671.00	37+25.06	670.17	37+35.05	669.70

SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED DEAD LOAD DEFLECTIONS.

TOP OF HAUNCH ELEVATIONS

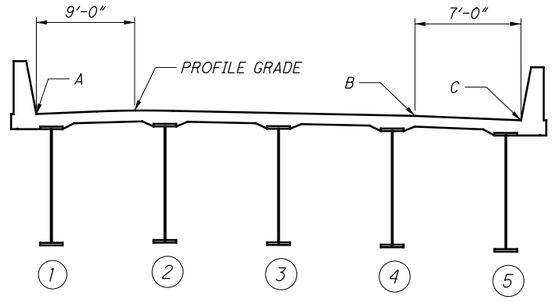
LOCATION	GIRDER 1		GIRDER 2		GIRDER 3		GIRDER 4		GIRDER 5	
	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.
R.A.	34+78.44	665.94	34+87.68	666.53	34+96.93	667.07	35+06.17	667.56	35+15.42	667.58
0.10	35+00.03	666.83	35+09.27	667.41	35+18.52	667.89	35+27.76	668.32	35+37.01	668.31
F.S. 1	35+23.77	667.78	35+33.02	668.36	35+42.26	668.75	35+51.51	669.08	35+60.75	669.03
0.25	35+32.41	668.11	35+41.65	668.67	35+50.90	669.03	35+60.14	669.32	35+69.39	669.25
0.30	35+43.20	668.49	35+52.45	669.03	35+61.69	669.35	35+70.94	669.59	35+80.18	669.50
0.40	35+64.79	669.14	35+74.04	669.65	35+83.28	669.87	35+92.53	670.02	36+01.77	669.88
0.50	35+86.38	669.64	35+95.62	670.11	36+04.87	670.24	36+14.11	670.30	36+23.36	670.12
0.60	36+07.97	669.98	36+17.21	670.42	36+26.46	670.46	36+35.70	670.43	36+44.95	670.20
0.70	36+29.55	670.17	36+38.80	670.57	36+48.04	670.53	36+57.29	670.40	36+66.54	670.13
0.75	36+40.35	670.21	36+49.59	670.59	36+58.84	670.51	36+68.08	670.34	36+77.33	670.04
F.S. 2	36+48.98	670.22	36+58.23	670.59	36+67.47	670.47	36+76.72	670.26	36+85.96	669.94
0.90	36+72.73	670.31	36+81.98	670.51	36+91.22	670.26	37+00.47	669.95	37+09.93	669.57
F.A.	36+94.32	670.16	37+03.56	670.31	37+12.92	669.97	37+22.57	669.56	37+32.51	669.08

TOP OF HAUNCH ELEVATIONS SHOWN REPRESENT THE THEORETICAL LOCATION OF THE BOTTOM OF THE DECK ABOVE THE GIRDER HAUNCH PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.

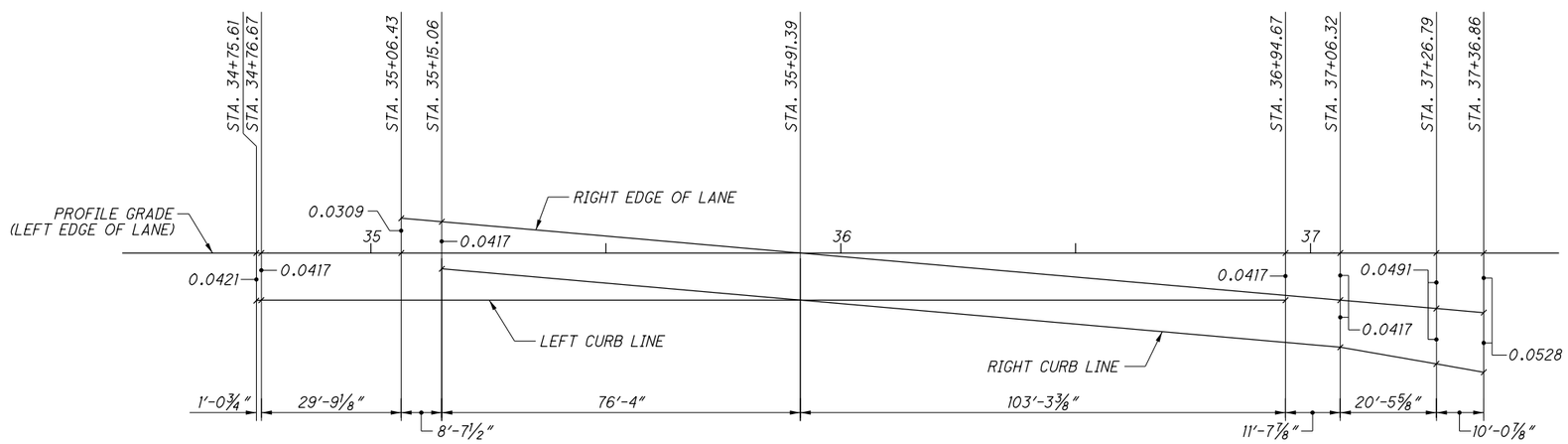
FINAL DECK SURFACE ELEVATIONS

LOCATION	(LEFT CURB LINE)		B1		B2		(LEFT EDGE OF LANE)		B3		B4		(RIGHT EDGE OF LANE)		B5		(RIGHT CURB LINE)	
	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.	STA.	ELEV.
R.A.	34+77.19	666.57	34+78.44	666.65	34+87.68	667.24	34+88.30	667.28	34+96.93	667.78	35+06.17	668.27	35+08.02	668.36	35+15.42	668.29	35+16.65	668.27
0.10	34+98.79	667.22	35+00.03	667.30	35+09.27	667.89	35+09.89	667.93	35+18.52	668.37	35+27.76	668.80	35+29.61	668.88	35+37.01	668.79	35+38.24	668.78
F.S. 1	35+22.54	667.93	35+23.77	668.01	35+33.02	668.59	35+33.63	668.63	35+42.26	669.00	35+51.51	669.33	35+53.36	669.38	35+60.75	669.27	35+61.99	669.25
0.25	35+31.18	668.19	35+32.41	668.26	35+41.65	668.83	35+42.27	668.87	35+50.90	669.20	35+60.14	669.49	35+61.99	669.54	35+69.39	669.42	35+70.62	669.40
0.30	35+41.97	668.49	35+43.20	668.56	35+52.45	669.12	35+53.06	669.15	35+61.69	669.44	35+70.94	669.69	35+72.79	669.73	35+80.18	669.59	35+81.42	669.57
0.40	35+63.56	669.03	35+64.79	669.10	35+74.04	669.62	35+74.65	669.66	35+83.28	669.86	35+92.53	670.01	35+94.38	670.03	36+01.77	669.87	36+03.00	669.84
0.50	35+85.15	669.50	35+86.38	669.56	35+95.62	670.05	35+96.24	670.08	36+04.87	670.20	36+14.11	670.25	36+15.96	670.26	36+23.36	670.07	36+24.59	670.03
0.60	36+06.73	669.88	36+07.97	669.95	36+17.21	670.40	36+17.83	670.43	36+26.46	670.45	36+35.70	670.42	36+37.55	670.40	36+44.95	670.18	36+46.18	670.15
0.70	36+28.32	670.19	36+29.55	670.25	36+38.80	670.66	36+39.42	670.69	36+48.04	670.63	36+57.29	670.50	36+59.14	670.47	36+66.54	670.22	36+67.77	670.18
0.75	36+39.12	670.31	36+40.35	670.37	36+49.59	670.77	36+50.21	670.79	36+58.84	670.69	36+68.08	670.51	36+69.93	670.47	36+77.33	670.21	36+78.56	670.17
F.S. 2	36+47.75	670.40	36+48.98	670.45	36+58.23	670.83	36+58.85	670.86	36+67.47	670.72	36+76.72	670.51	36+78.57	670.46	36+85.96	670.19	36+87.20	670.14
0.90	36+71.50	670.74	36+72.73	670.79	36+81.98	670.99	36+82.59	670.98	36+91.22	670.74	37+00.47	670.43	37+02.32	670.36	37+09.93	670.05	37+11.29	669.99
F.A.	36+93.09	670.82	36+94.32	670.87	37+03.56	671.02	37+04.18	671.00	37+12.92	670.68	37+22.57	670.27	37+25.06	670.17	37+32.51	669.79	37+35.05	669.70

FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.



TRANSVERSE SECTION



PAVEMENT TRANSITION DIAGRAM

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED GFH/MMP | DRAWN GFH/MMP | REVIEWED RAB | DATE 3-14
CHECKED AJM | REVISED - | STRUCTURE FILE NUMBER 1802992

SCREED, TOP OF HAUNCH AND FINAL DECK ELEVATIONS
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

19 / 29

90
100

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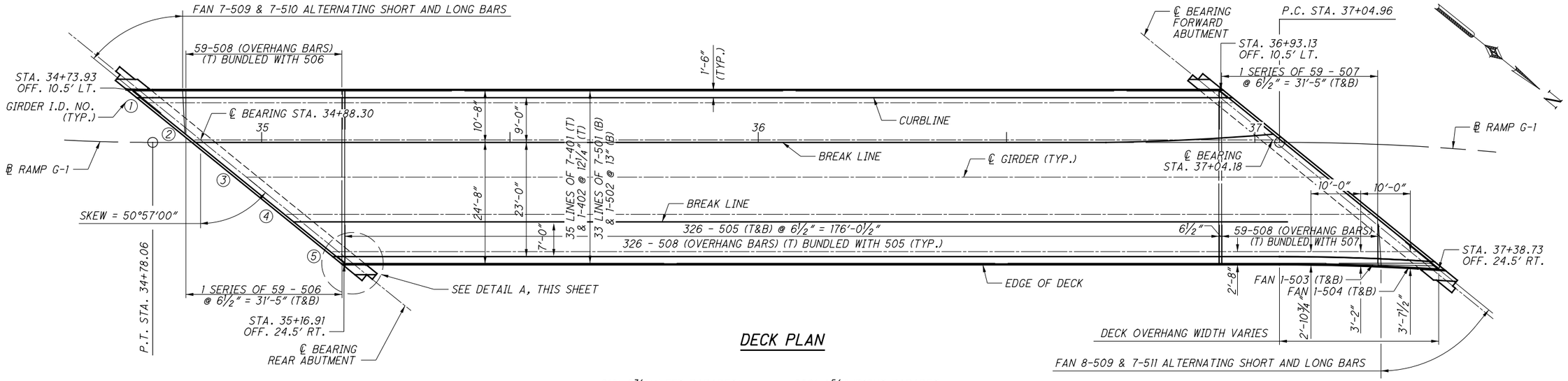
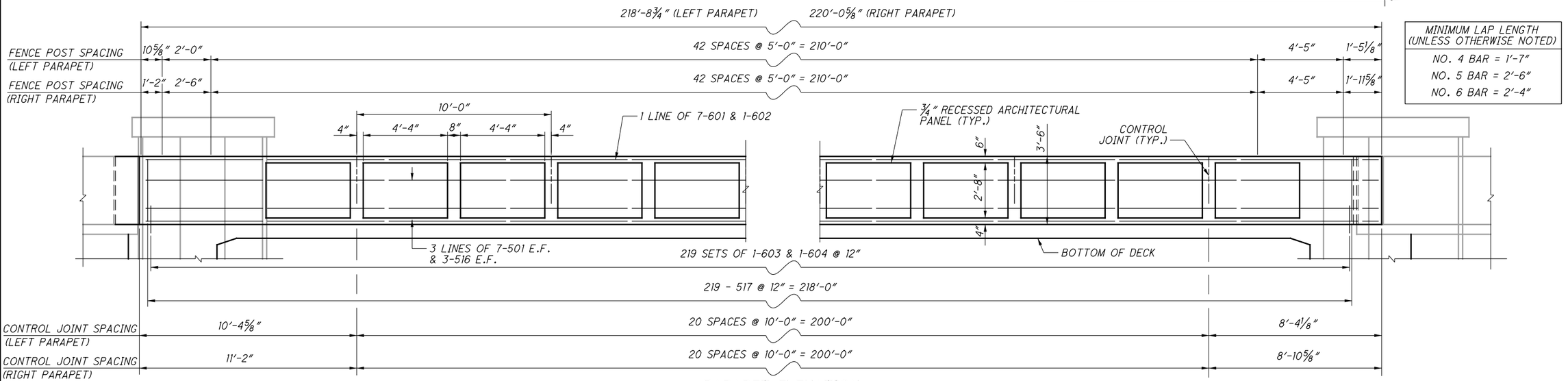
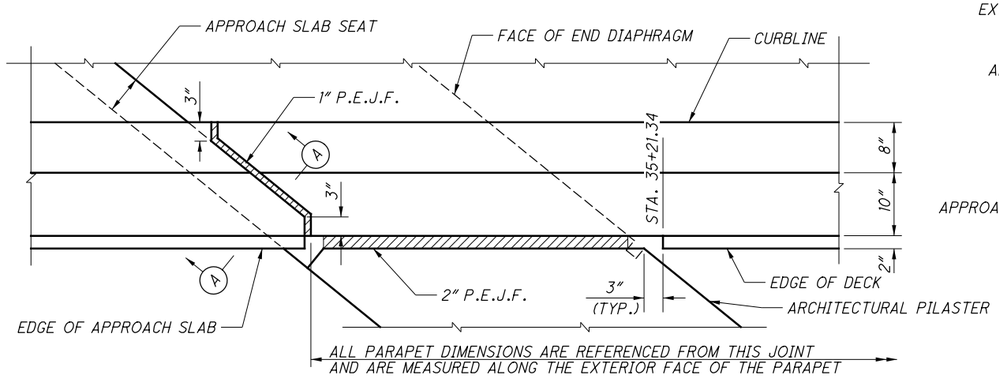


DECK PLAN

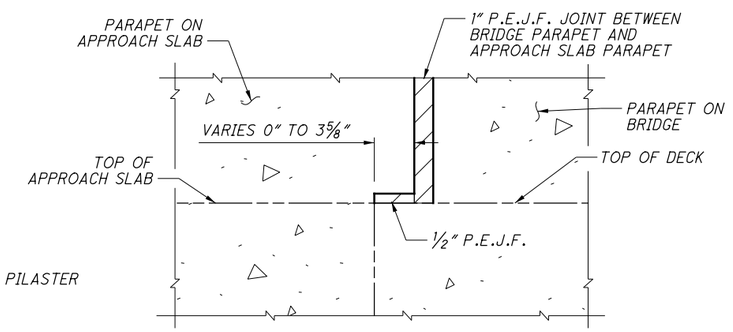


PARAPET ELEVATION

EXTERIOR DEVELOPED VIEW



DETAIL A



SECTION A-A

NOTES:

1. ALL REINFORCING STEEL BARS SHALL BE PREFIXED "S" (SUPERSTRUCTURE) UNLESS OTHERWISE NOTED.
2. FOR A SECTION THROUGH THE PARAPET ON THE BRIDGE, SEE SHEET 18 /29 .
3. FOR REINFORCING STEEL LIST SEE SHEETS 27/ 29 , 28/29 , & 29/29 .
4. FOR ARCHITECTURAL PILASTER DETAILS, SEE ABUTMENT SHEETS.
5. FOR SLAB END DIAPHRAGM DETAILS, SEE SHEET 21/29 .

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
LAB	LAB	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AJM	-	1802992	

DECK PLAN AND PARAPET ELEVATION
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

20 / 29

91
100

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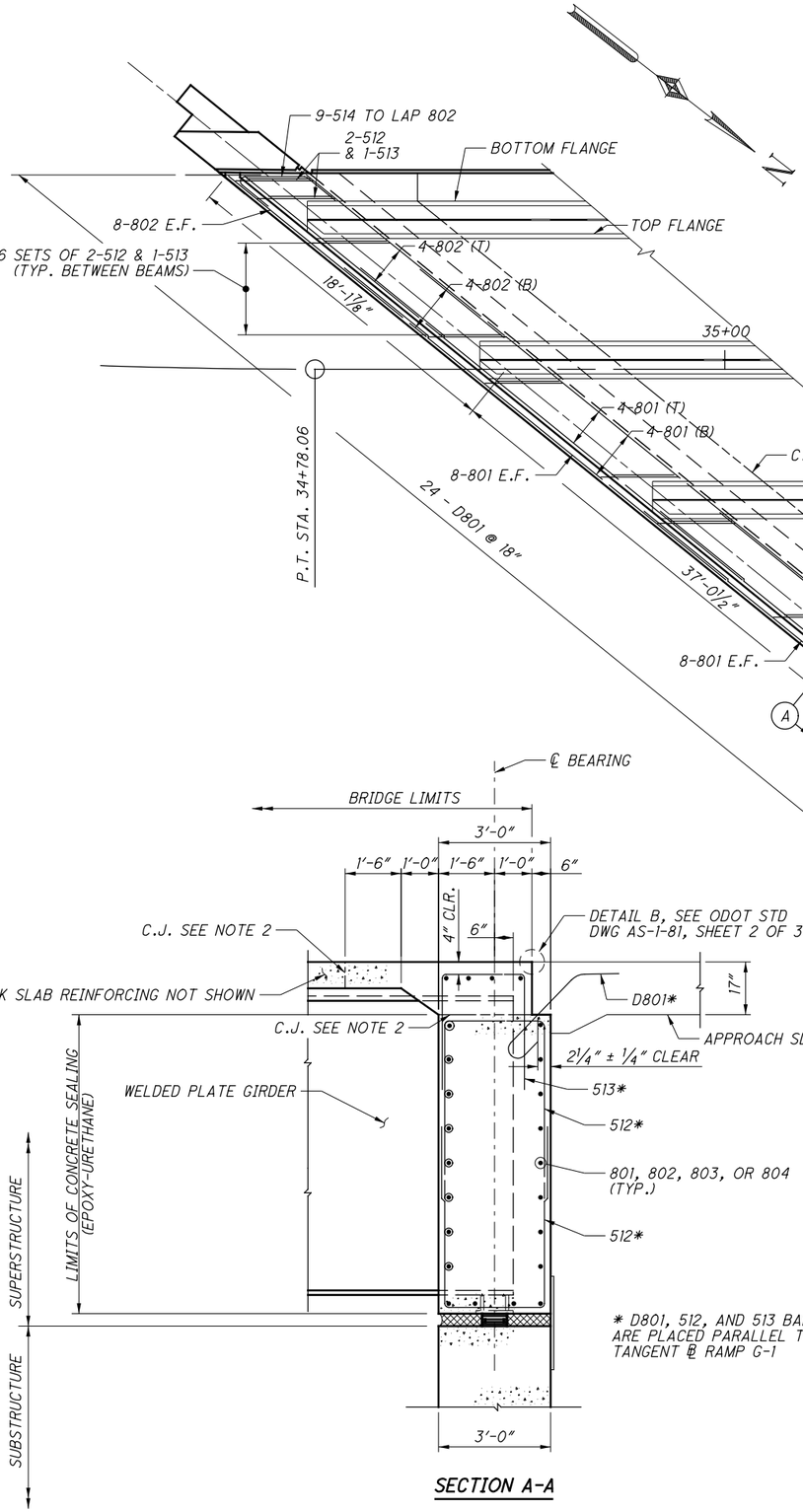
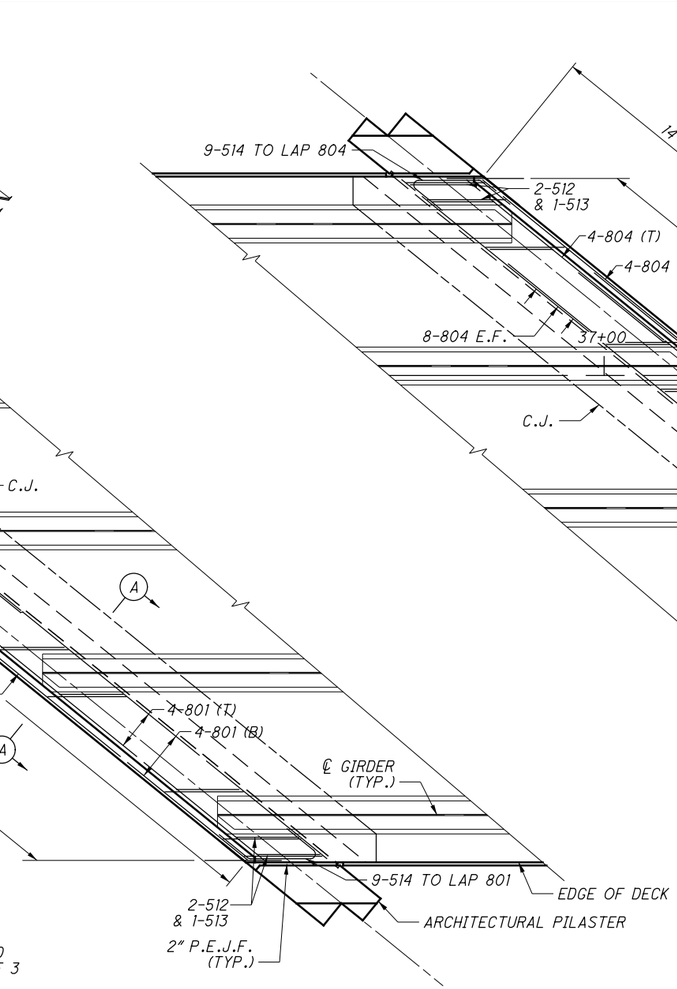


SECTION A-A

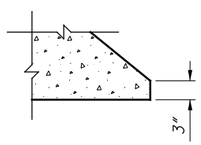


REAR ABUTMENT DIAPHRAGM

DECK SLAB REINFORCING NOT SHOWN

FORWARD ABUTMENT DIAPHRAGM

DECK SLAB REINFORCING NOT SHOWN



TYPICAL CORNER CHAMFER

MINIMUM LAP LENGTH
NO. 5 BAR = 2'-0"
NO. 6 BAR = 2'-4"
NO. 8 BAR = 5'-10"

NOTES:

1. ALL REINFORCING STEEL BARS SHALL BE PREFIXED "S" (SUPERSTRUCTURE) UNLESS OTHERWISE NOTED.
2. ABUTMENT DIAPHRAGM CONCRETE: PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS AFTER THE DECK PLACEMENT SPAN IS COMPLETE.
3. FOR REINFORCING STEEL LIST SEE SHEET 27/29, 28/29, & 29/29 .
4. FOR APPROACH SLAB DETAILS, SEE SHEETS 23/29 TO 26/29.
5. FOR DECK PLAN AND RAILING DETAILS, SEE SHEET 20/29.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

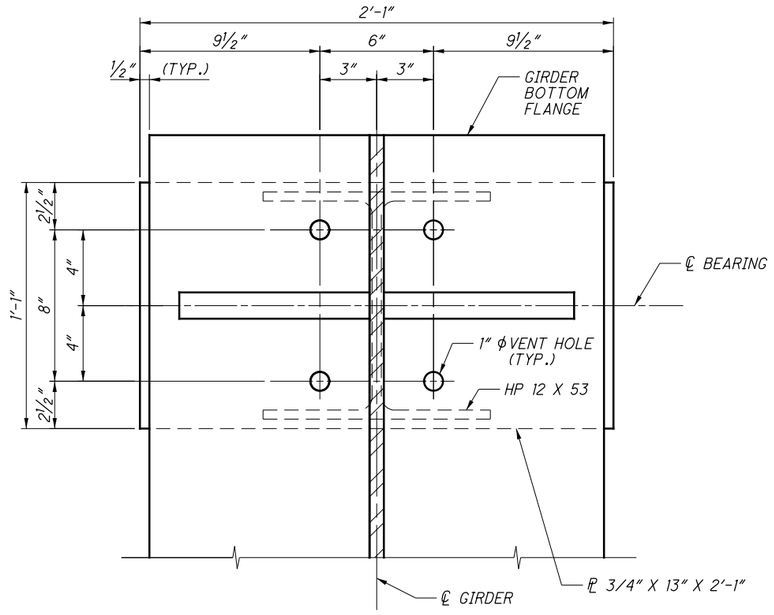
DESIGNED	DRAWN	REVIEWED	DATE
LAB	LAB	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AJM	-	1802992	

SEMI-INTEGRAL END DIAPHRAGM DETAILS
CUY-21-1004L
OVER I-77

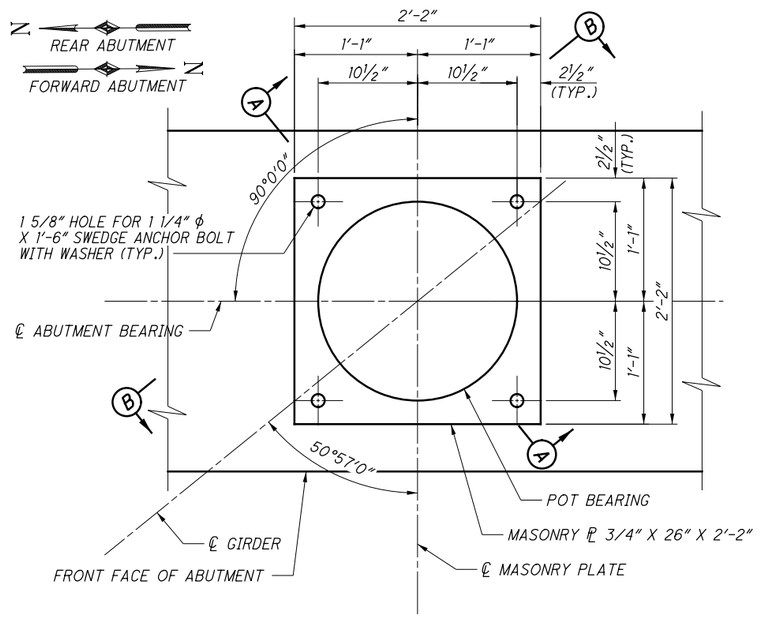
CUY-21-10.04L
PID No. 85146

21/29

92/100



SECTION C-C



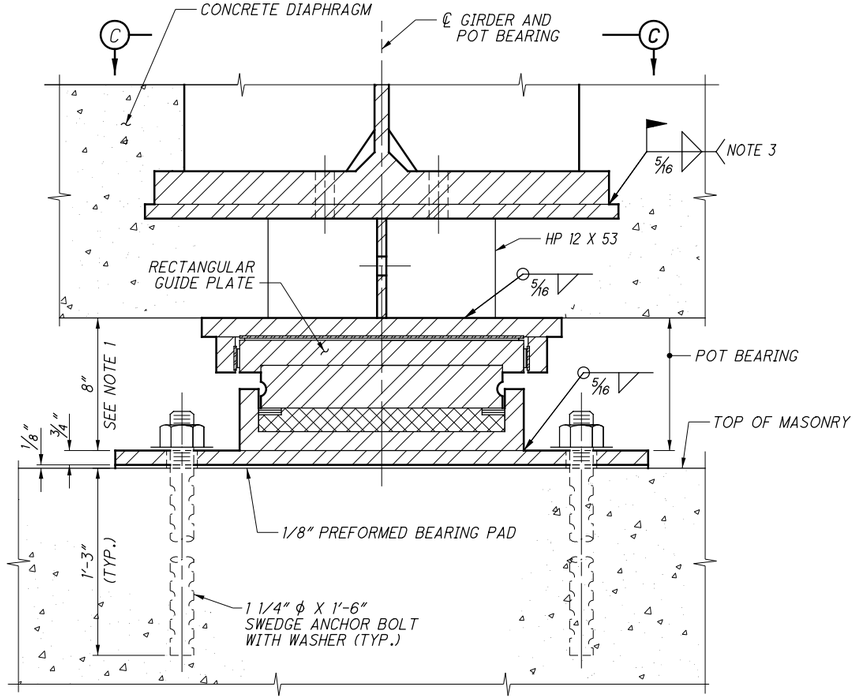
PLAN - TYPICAL POT BEARING

BEARING DESIGN DATA

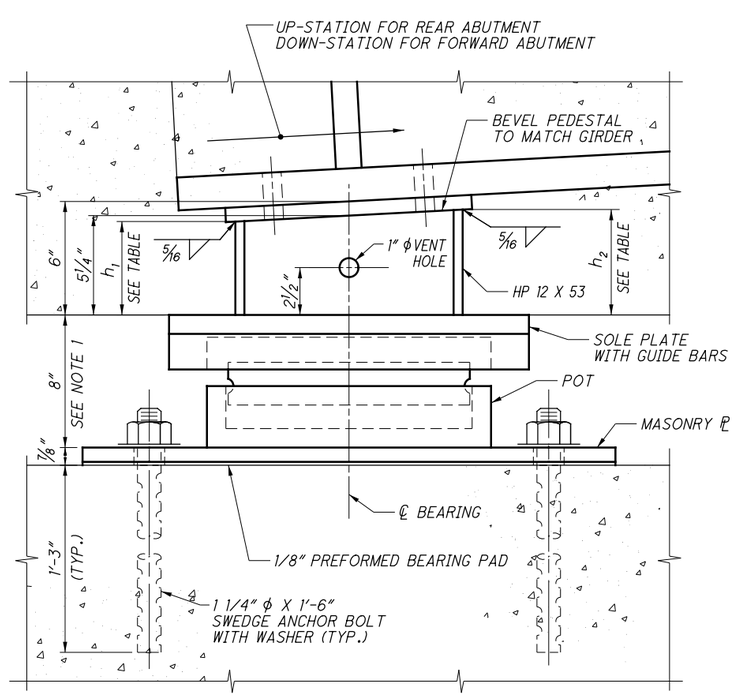
LOCATION: ABUTMENTS	
TYPE: GUIDED EXPANSION	
QUANTITY REQUIRED:	10
LOADS (kips)	
SERVICE LIMIT STATE	
TOTAL VERTICAL LOAD:	828
VERTICAL DEAD LOAD:	352
TOTAL HORIZONTAL LOAD:	70
STRENGTH LIMIT STATE	
TOTAL VERTICAL LOAD:	1,292
TOTAL HORIZONTAL LOAD:	92
TOTAL ROTATION (RADIANS):	0.0319
TOTAL MOVEMENT (INCHES):	1.03
ASSUMED BEARING HEIGHT: SEE NOTE 1.	8 INCHES
MAXIMUM FRICTION FACTOR:	0.06
10 °F TEMPERATURE MOVEMENT:	0.11 INCHES

PEDESTAL HEIGHTS (INCHES)

GIRDER	REAR ABUTMENT		FORWARD ABUTMENT	
	h_1	h_2	h_1	h_2
1	5 1/16	5 7/16	5 1/4	5 1/4
2	5 1/16	5 7/16	5 1/4	5 1/4
3	5 1/16	5 7/16	5 1/4	5 1/4
4	5 1/8	5 3/8	5 3/16	5 5/16
5	5 1/8	5 3/8	5 3/16	5 5/16



SECTION A-A



SECTION B-B

NOTES:

1. THE ABUTMENT BEAM SEAT ELEVATIONS ARE BASED ON BEARING HEIGHT SHOWN IN THESE PLANS. IF THE CONTRACTOR'S SELECTED BEARING MANUFACTURER HAS A DESIGN THAT DOES NOT CONFORM TO THE HEIGHT PROVIDED IN THE PLANS, ADJUST THE BEARING SEAT ELEVATIONS AT NO ADDITIONAL COST TO THE STATE. ADJUST THE LOCATION OF REINFORCING STEEL HORIZONTALLY AS NECESSARY TO AVOID INTERFERENCE WITH THE BEARING ANCHOR BOLTS. MAINTAIN THE MINIMUM CONCRETE COVER AND MINIMUM SPACING REQUIRED BY THE PROJECT PLANS. IF THE REINFORCING STEEL CANNOT BE MOVED TO PROVIDE THE REQUIRED POSITION FOR THE ANCHOR BOLTS, THE CONTRACTOR'S BEARING MANUFACTURER SHALL REDESIGN THE BEARINGS TO ACCOMMODATE AN ACCEPTABLE ANCHOR BOLT CONFIGURATION.

2. FOR ANCHOR BOLT LOCATIONS, SEE "BEARING ANCHOR PLAN" ON SHEET 8/29.

3. ATTACH THE BEARING TO THE GIRDER FLANGE IN A TEMPORARY MANNER USING CLAMPS OR TACK WELDS (5/16" X 2" LONG MINIMUM) BEFORE THE DECK CONCRETE IS PLACED. AFTER THE DECK CONCRETE HAS BEEN PLACED AND BEFORE THE END DIAPHRAGM CONCRETE IS PLACED, RE-ALIGN THE BEARINGS AS NECESSARY TO ACHIEVE THE TEMPERATURE ADJUSTED NEUTRAL POSITION AND THEN PERMANENTLY WELD THE BEARING TO THE GIRDER FLANGE.

4. THE BEARING DEVICES, MASONRY PLATES, PEDESTALS, SOLE PLATES, ANCHOR BOLTS, NUTS AND WASHERS, BEARING PADS AND ALL REQUIRED TESTING SHALL BE INCLUDED FOR PAYMENT IN THE CONTRACT PRICE BID FOR ITEM 869, HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS.

5. REFER TO SUPPLEMENTAL SPECIFICATION 869 FOR ADDITIONAL POT BEARING REQUIREMENTS.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

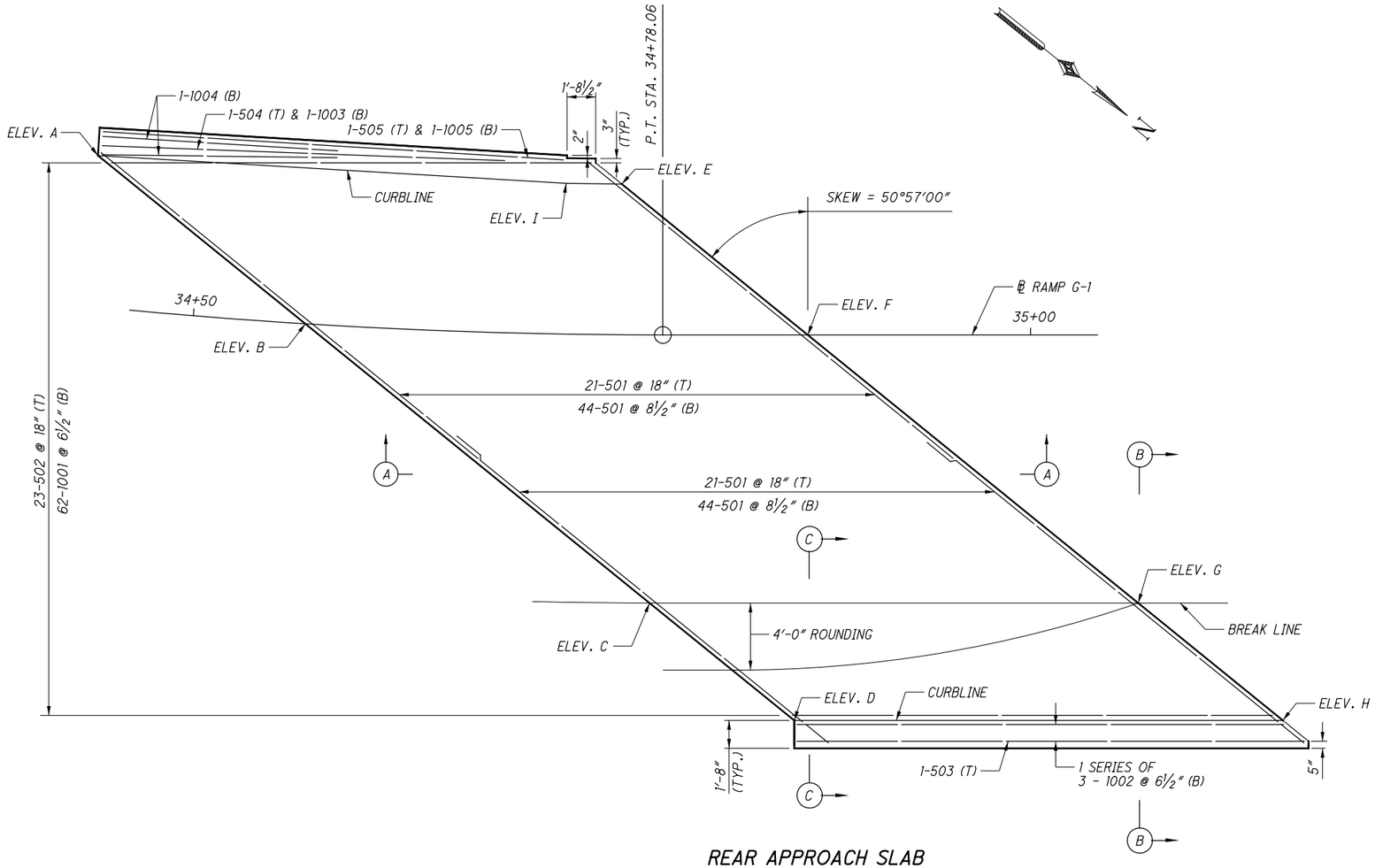
DESIGNED MMP | DRAWN GFH | CHECKED AJM | REVIEWED RAB | DATE 6-14 | REVISED - | STRUCTURE FILE NUMBER 1802992

POT BEARING DETAILS
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

22 / 29

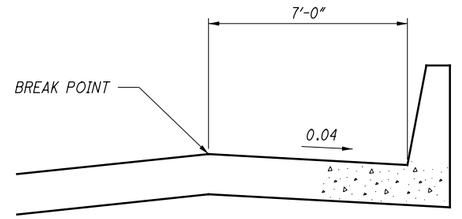
93 / 100



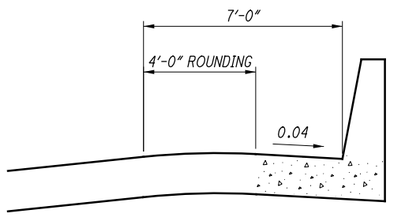
REAR APPROACH SLAB

STATION, OFFSET AND ELEVATION TABLE

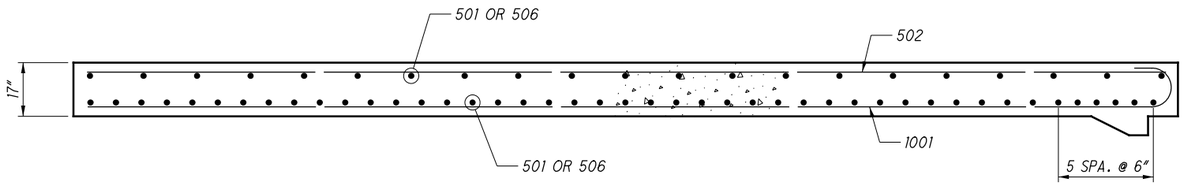
ID	STATION	OFFSET	ELEVATION
ELEV. A	STA. 34+43.38	9.0' LEFT	665.45
ELEV. B	STA. 34+56.71	0.0'	666.33
ELEV. C	STA. 34+77.30	16.0' RIGHT	667.61
ELEV. D	STA. 34+85.90	23.0' RIGHT	667.70
ELEV. E	STA. 34+75.54	9.0' LEFT	666.52
ELEV. F	STA. 34+86.71	0.0'	667.23
ELEV. G	STA. 35+06.44	16.0' RIGHT	668.31
ELEV. H	STA. 35+15.06	23.0' RIGHT	668.38
ELEV. I	STA. 34+72.13	9.0' LEFT	666.40



SECTION B-B



SECTION C-C



SECTION A-A

NOTES:

1. REINFORCING STEEL WEIGHTS GIVEN ARE FOR INFORMATIONAL PURPOSES ONLY. ALL REINFORCING STEEL BAR MARKS SHALL BE PREFIXED "AS".
2. FOR ADDITIONAL NOTES AND DETAILS, SEE ODOT STANDARD DRAWING AS-1-81.
3. ELEVATIONS GIVEN AT ℄ RAMP, CURBLINES, AND ROUNDING.
4. FOR REINFORCING LIST, SEE SHEET 26/29.
5. FOR PARAPETS ON APPROACH SLAB, SEE SHEET 25/29 & 26/29.
6. FOR APPROACH SLAB TYPICAL SECTION SEE SHEET 5/100.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED LAB | DRAWN LAB | REVIEWED RAB | DATE 6-14
CHECKED AJM | REVISED - | STRUCTURE FILE NUMBER 1802992

APPROACH SLAB DETAILS
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

23/29

94/100

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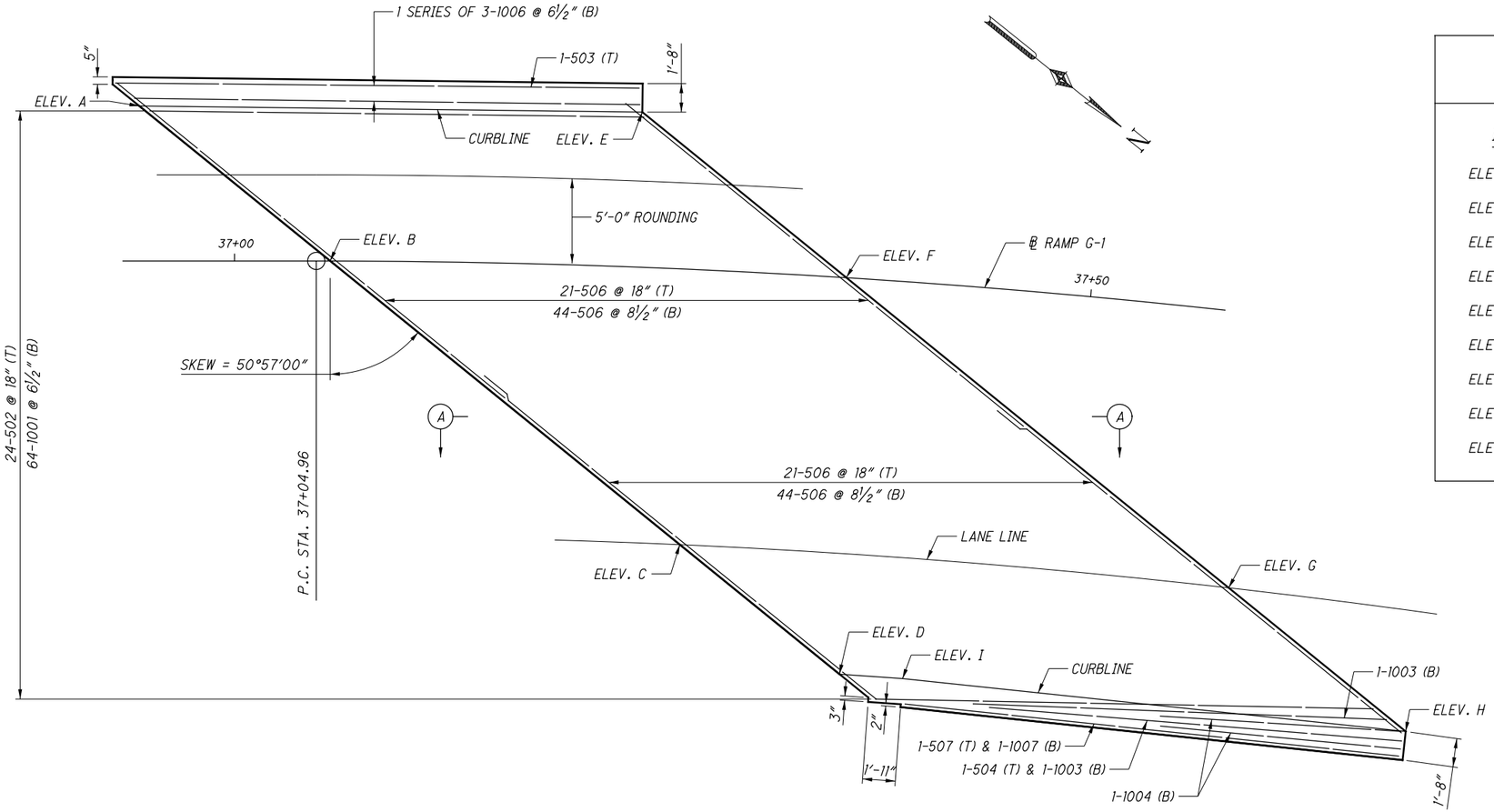


STATION, OFFSET AND ELEVATION TABLE

ID	STATION	OFFSET	ELEVATION
ELEV. A	STA. 36+94.67	9.0' LEFT	670.83
ELEV. B	STA. 37+05.77	0.0'	671.00
ELEV. C	STA. 37+26.79	16.0' RIGHT	670.15
ELEV. D	STA. 37+36.87	23.0' RIGHT	669.66
ELEV. E	STA. 37+23.56	9.0' LEFT	670.82
ELEV. F	STA. 37+35.77	0.0'	670.90
ELEV. G	STA. 37+59.86	16.0' RIGHT	669.76
ELEV. H	STA. 37+71.57	23.0' RIGHT	669.20
ELEV. I	STA. 37+40.74	23.0' RIGHT	669.60

FORWARD APPROACH SLAB

NOTES:

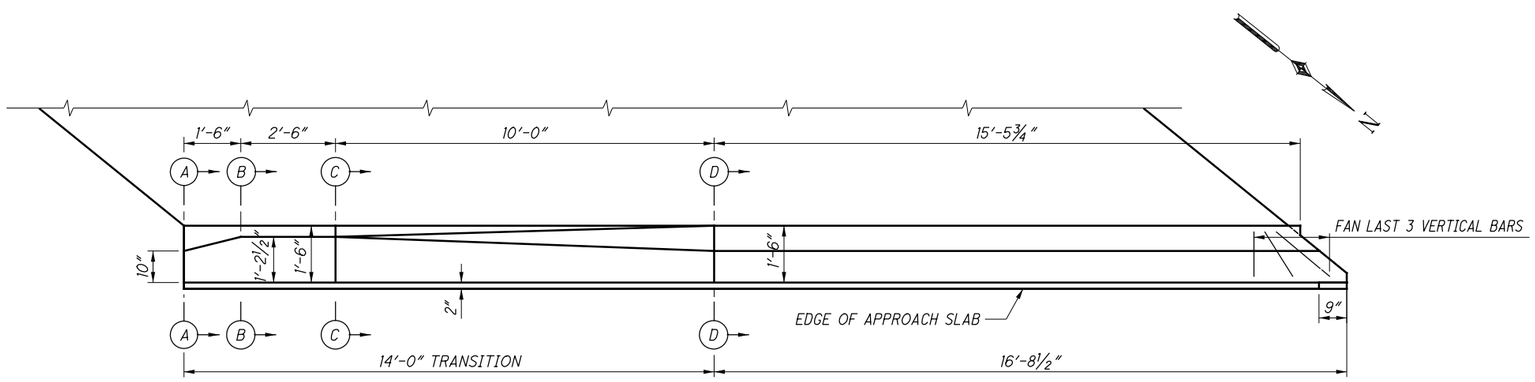
1. REINFORCING STEEL WEIGHTS GIVEN ARE FOR INFORMATIONAL PURPOSES ONLY. ALL REINFORCING STEEL BAR MARKS SHALL BE PREFIXED "AS".
2. FOR ADDITIONAL NOTES AND DETAILS, SEE ODOT STANDARD DRAWING AS-1-81.
3. ELEVATIONS GIVEN AT ℄ RAMP, CURBLINES, AND LANE LINE.
4. FOR SECTION A-A, SEE SHEET 23/29 .
5. FOR REINFORCING LIST, SEE SHEET 26/29.
6. FOR PARAPETS ON APPROACH SLAB, SEE SHEETS 25/29 & 26/29.
7. FOR APPROACH SLAB TYPICAL SECTION SEE SHEET 5/100.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

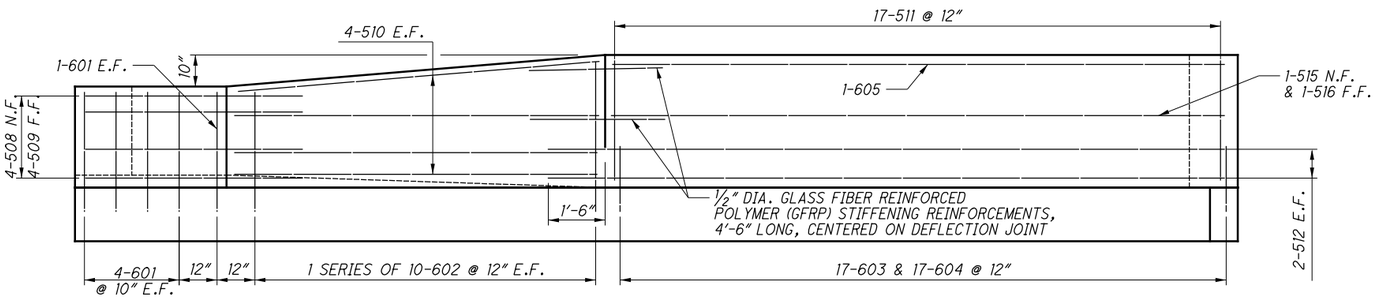
DESIGNED	DRAWN	REVIEWED	DATE
LAB	LAB	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AJM	-	1802992	

APPROACH SLAB DETAILS
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

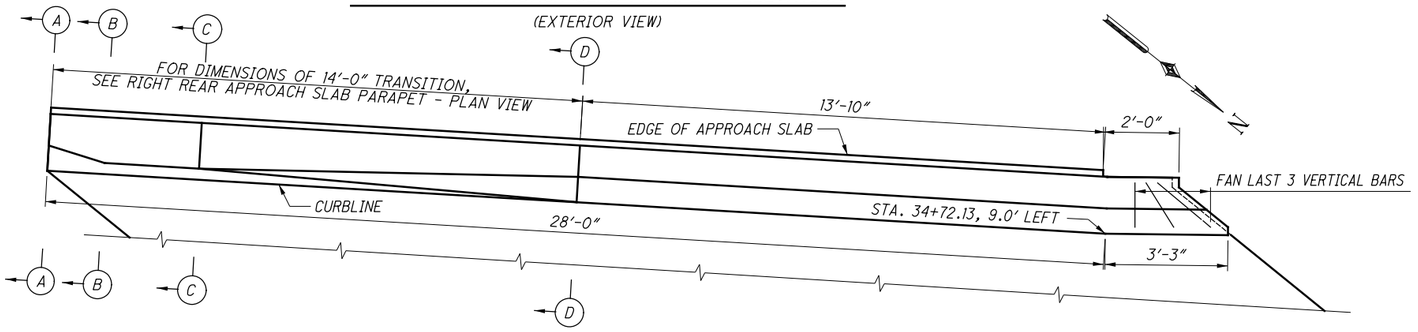


RIGHT REAR APPROACH SLAB PARAPET - PLAN VIEW

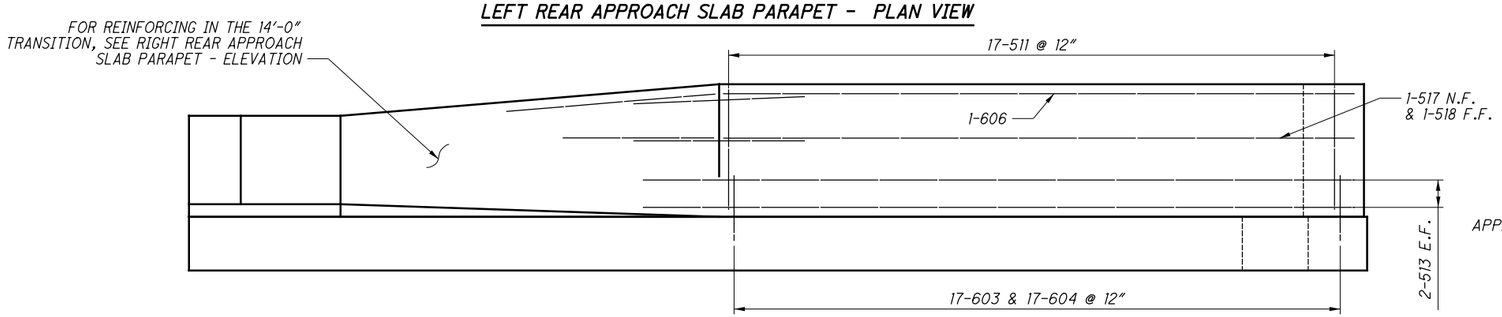


RIGHT REAR APPROACH SLAB PARAPET - ELEVATION

(EXTERIOR VIEW)

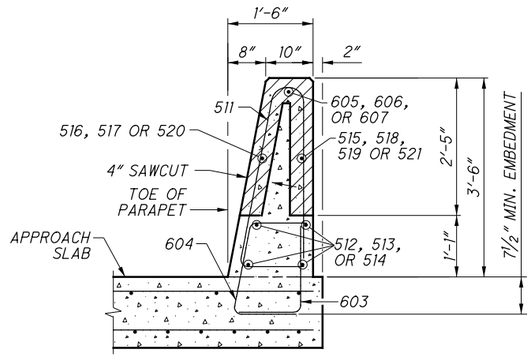


LEFT REAR APPROACH SLAB PARAPET - PLAN VIEW

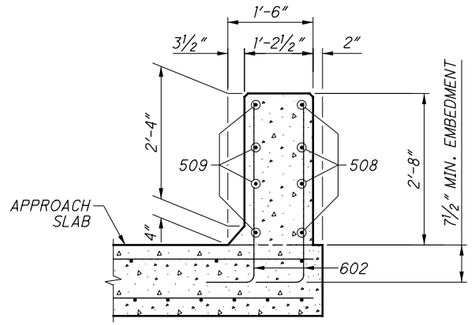


LEFT REAR APPROACH SLAB PARAPET - ELEVATION

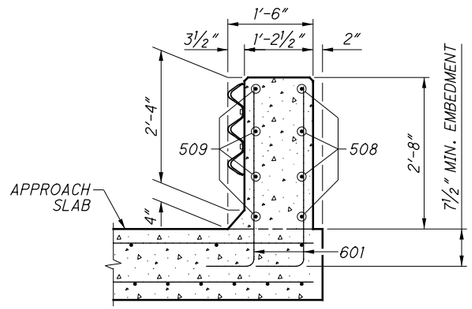
(INTERIOR VIEW)



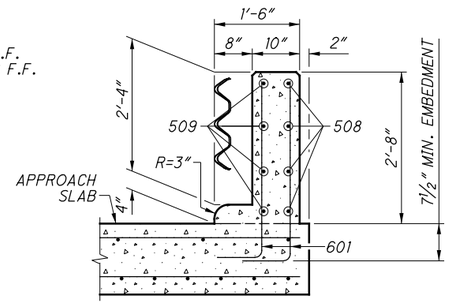
SECTION D-D



SECTION C-C



SECTION B-B



SECTION A-A

NOTES:

1. REINFORCING STEEL WEIGHTS GIVEN ARE FOR INFORMATIONAL PURPOSES ONLY. ALL REINFORCING STEEL BAR MARKS SHALL BE PREFIXED "AS".
2. FOR REINFORCING LIST, SEE SHEET 26/29.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED	DRAWN	REVIEWED	DATE
LAB	LAB	RAB	6-14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AJM	-	1802992	

APPROACH SLAB DETAILS
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

25/29

96
100

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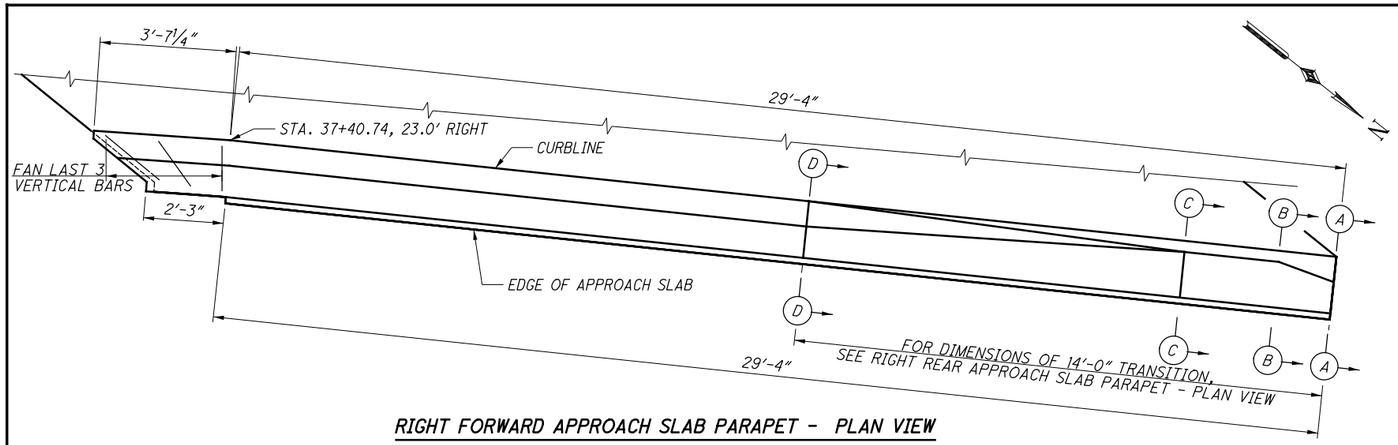
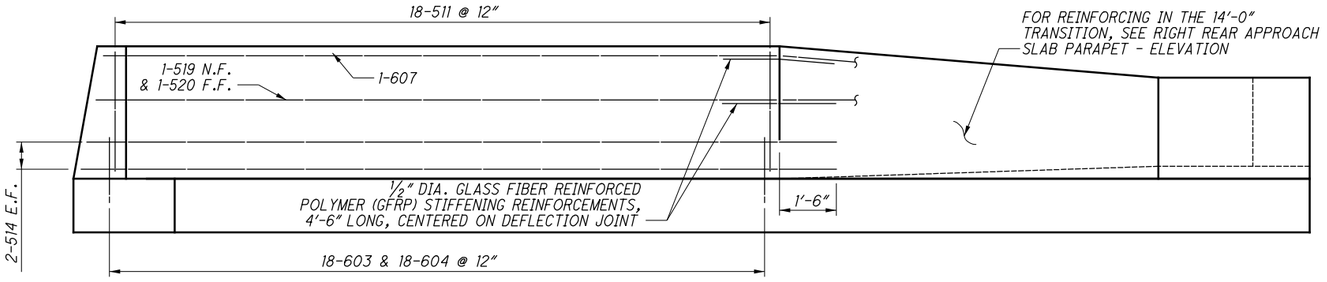
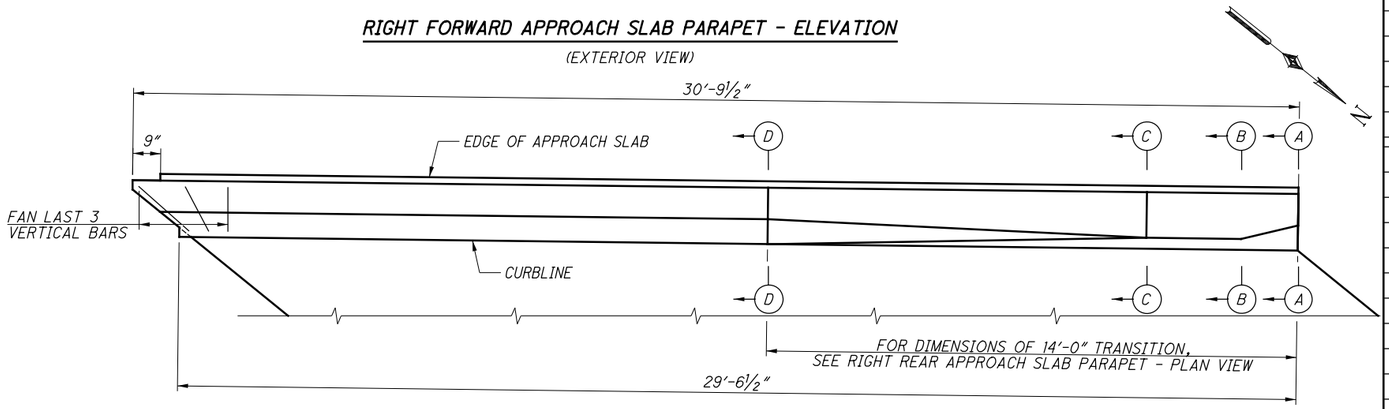


RIGHT FORWARD APPROACH SLAB PARAPET - PLAN VIEW

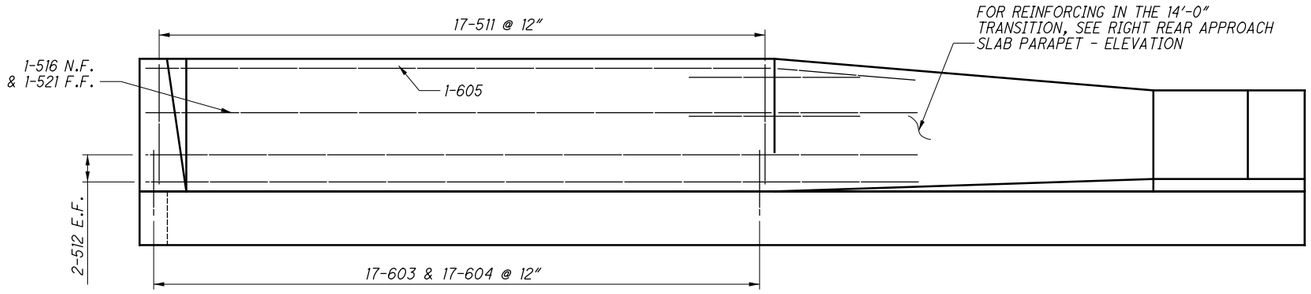


RIGHT FORWARD APPROACH SLAB PARAPET - ELEVATION

(EXTERIOR VIEW)



LEFT FORWARD APPROACH SLAB PARAPET - PLAN VIEW

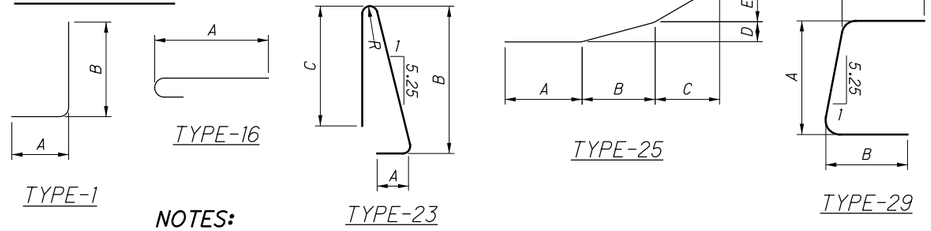


LEFT FORWARD APPROACH SLAB PARAPET - ELEVATION

(INTERIOR VIEW)

MARK	NUMBER REAR	NUMBER FWD	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
APPROACH SLABS													
501	130		130	29'-9"	4,034	STR							
502	23	24	47	28'-7"	1,401	STR							
503	1	1	2	30'-4"	63	STR							
504	1	1	2	24'-0"	50	STR							
505	1		1	27'-6"	29	STR							
506		130	130	30'-0"	4,068	STR							
507		1	1	28'-10"	30	STR							
508	8	8	16	6'-0"	100	STR							
509	8	8	16	5'-8"	95	25	1'-10"	2'-5"	1'-4"	1½"	5"		
510	16	16	32	10'-0"	334	STR							
511	34	35	69	7'-4"	528	23	11"	3'-3"	3'-0"			2¾"	
512	4	4	8	18'-6"	155	STR							
513	4		4	18'-11"	79	STR							
514		4	4	20'-8"	87	STR							
515	1		1	16'-4"	17	STR							
516	1	1	2	15'-2"	32	STR							
517	1		1	16'-10"	18	STR							
518	1		1	15'-8"	17	STR							
519		1	1	17'-3"	18	STR							
520		1	1	18'-7"	19	STR							
521		1	1	16'-5"	17	STR							
601	40	40	80	4'-0"	480	1	1'-0"	3'-2"					
	4	4		4'-1"				3'-3"					
602	SER OF	SER OF	80	TO	536	1	1'-0"	TO					1"
	10	10		4'-10"				4'-0"					
603	34	35	69	2'-5"	251	1	1'-0"	1'-7"					
604	34	35	69	3'-2"	328	29	1'-7"	1'-0"	11"				
605	1	1	2	16'-0"	48	STR							
606	1		1	15'-6"	24	STR							
607		1	1	17'-3"	26	STR							
1001	62	64	126	30'-0"	16,266	16	28'-7"						
	1			30'-5"			29'-0"						
1002	SER OF		3	TO	402	16	TO						8"
	3			31'-9"			30'-4"						
1003	1	2	3	25'-5"	328	16	24'-0"						
1004	2	2	4	15'-5"	266	16	14'-0"						
1005	1		1	28'-11"	125	16	27'-6"						
		1		30'-10"			29'-5"						
1006		SER OF	3	TO	405	16	TO						6"
		3		31'-10"			30'-5"						
1007		1	1	30'-3"	131	16	28'-10"						
				TOTAL	30,807								

BAR DIAGRAMS



NOTES:

1. REINFORCING STEEL WEIGHTS GIVEN ARE FOR INFORMATIONAL PURPOSES ONLY. ALL REINFORCING STEEL BAR MARKS SHALL BE PREFIXED "AS".
2. FOR SECTIONS A-A THROUGH D-D, SEE SHEET 23/29 .
3. PAYMENT FOR ½" DIA. GLASS FIBER REINFORCED POLYMER (GFRP) STIFFENING REINFORCEMENT SHALL BE INCLUDED WITH THE CONTRACT PRICE BID FOR ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17"), AS PER PLAN.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED LAB | DRAWN LAB | CHECKED AJM | REVISED - | REVIEWED RAB | DATE 6-14

STRUCTURE FILE NUMBER 1802992

APPROACH SLAB DETAILS
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

26/29

97/100

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR	FWD	TOTAL				A	B	C	D	E	R	INC
ABUTMENTS													
A401	25	25	50	4′-4″	145	2	1′-0″	2′-6″	1′-0″				
A402	8	4	12	9′-5″	75	28	3′-0″	7″	3′-0″	3′-0″	9⅝″		
A403		4	4	9′-11″	26	28	3′-2″	7″	3′-2″	3′-2″	8½″		
A404	6	3	9	7′-1″	43	5	3′-8″	7½″	1′-3″				
A405		3	3	7′-5″	15	5	4′-0″	7½″	1′-3″				
A406	6	3	9	8′-8″	52	5	5′-3″	7½″	1′-3″				
A407		3	3	9′-2″	18	5	5′-9″	7½″	1′-3″				
A408	4	4	8	2′-6″	13	2	1′-0″	7½″	1′-0″				
A501	65	67	132	9′-9″	1,342	2	3′-9″	2′-6″	3′-9″				
A502	102	106	208	18′-2″	3,941	STR							
A503	10	10	20	20′-8″	431	STR							
A504	6	6	12	22′-2″	277	STR							
A505	16	16	32	15′-2″	506	STR							
A506		7	7	8′-6″	62	12	1′-8½″	2′-4½″	2′-9″	2′-3″	10″		
A507	6	6	12	4′-0″	50	STR							
A508	16	8	24	7′-6″	188	29	1′-7″	2′-9″	2′-9″	1′-7½″			
A509		8	8	8′-1″	67	29	1′-7″	2′-11″	2′-11′	1′-11½″			
A510	23	23	46	8′-4″	400	2	10″	2′-3″	5′-6″				
A511		23	23	10′-5″	250	2	2′-1″	11″	7′-8″				
A512		7	7	6′-6″	47	29	1′-7″	2′-11″	1′-4″	1′-11½″			
A513	137	137	274	30′-0″	8,573	STR							
A514	70	72	142	5′-6″	815	1	10″	4′-10″					
A515	6	6	12	11′-7″	145	2	4′-10″	2′-2″	4′-10″				
A516	7		7	18′-9″	137	STR							
A517		5	5	31′-7″	165	STR							
A518		5	5	19′-11″	104	STR							
A519	180	205	385	19′-0″	7,630	3	6′-8″	2′-7″					
A520		23	23	9′-4″	224	2	10″	2′-5″	6′-4″				
A521	6	11	17	4′-8″	83	21	1′-4″	10½	6″	11 ½			
A522		2	2	9′-10″	21	5	4′-10″	1′-5″	1′-4″				
A523	2	2	4	10′-2″	42	2	4′-10″	9″	4′-10″				
A524	2	2	4	10′-4″	43	2	4′-10″	11″	4′-10″				
A525	30	30	60	8′-9″	548	2	2′-1″	9″	6′-2″				
A526	23		23	7′-8″	184	2	10″	2′-5″	4′-8″				
A527	23		23	8′-10″	212	2	2′-1″	11″	6′-1″				
A528	7		7	6′-1″	44	29	1′-7″	2′-9″	1′-4″	1′-8″			
A529	7		7	8′-1″	59	12	1′-9″	2′-2″	2′-7″	2′-3″	10″		
A530	7	7	14	9′-7″	140	30	10″	2′-5″	3′-11″	1′-11″	2′-1″		
A531	7	7	14	8′-6″	124	12	1′-9″	2′-1½″	2′-9″	11″	2′-5″		
A532	12	12	24	9′-11″	248	STR							
A533	4	4	8	7′-1″	59	STR							
A534	4	4	8	10′-6″	88	2	4′-10″	1′-1″	4′-10″				
A535	10	20	30	22′-10″	714	STR							
A536		10	10	8′-9″	91	STR							
A537	10	10	20	7′-9″	162	STR							
A538	10		10	20′-6″	214	STR							
A539	10		10	11′-7″	121	STR							
A540	18		18	5′-2″	97	STR							
A541	18	10	28	21′-0″	613	STR							
	2		2	2′-3″									
A542	SER.		SER.	TO	128	STR							2′-2″
	7		7	15′-3″									
A543	2	-	2	20′-9″	43	STR	-	-	-	-	-		

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR	FWD	TOTAL				A	B	C	D	E	R	INC
ABUTMENTS													
A544	34	38	72	22′-8″	1,702	STR							
	2		2	4′-5″									
A545	SER.		SER.	TO	210	STR							2′-4″
	8		8	20′-9″									
A546	50	50	100	6′-2″	643	2	2′-8″	1′-1″	2′-8″				
A547	50	50	100	8′-8″	904	7	2′-8″	2′-3″	2′-0″	2′-2″			
A548	2		2	25′-6″	53	STR							
A549	2		2	6′-5″	13	14	1′-5″	1′-4″	2′-2½″	1′-2″	1′-5″		
A550	12		12	17′-5″	218	STR							
A551	12		12	11′-0″	138	STR							
A552	2		2	9′-1″	19	STR							
A553	2		2	4′-7″	10	STR							
A554	2		2	15′-3″	32	STR							
A555	16	18	34	19′-8″	697	STR							
	2		2	3′-3″									
A556	SER.		SER.	TO	83	STR							4′-6″
	4		4	16′-9″									
A557	2		2	20′-5″	43	STR							
A558	24	46	70	29′-8″	2,116	STR							
	2		2	1′-10″									
A559	SER.		SER.	TO	224	STR							4′-6″
	7		7	28′-10″									
A560	2		2	30′-9″	64	STR							
	2		2	2′-9″									
A561	SER.		SER.	TO	79	STR							4′-6″
	4		4	16′-3″									
A562	2	2	4	19′-3″	80	STR							
A563	2		2	5′-3″	11	14	1′-5″	10½″	1′-11′	6½″	1′-5″		
A564		10	10	10′-7″	110	STR							
		2	2	2′-10″									
A565		SER.	SER.	TO	98	STR							3′-3½″
		5	5	16′-0″									
		2	2	3′-6″									
A566		SER.	SER.	TO	253	STR							3′-4″
		8	8	26′-10″									
		2	2	5′-11″									
A567		SER.	SER.	TO	138	STR							3′-8″
		5	5	20′-7″									
A568		2	2	6′-3″	13	14	1′-5″	1′-4″	2′-2″	9″	1′-5″		
A569		2	2	21′-9″	45	STR							
A570		2	2	31′-4″	65	STR							
A571		2	2	23-11″	50	STR							
A572		18	18	10′-2″	191	STR							
A573		18	18	11′-2″	210	STR							
A574		2	2	3′-3″	7	STR							
		2	2	3′-3″									
A575		SER.	SER.	TO	87	STR							4′-9″
		4	4	17′-6″									
		2	2	4′-6″									
A576		SER.	SER	TO	205	STR							4′-9″
		6	6	28′-3″									

NOTES:

1. FOR BENDING DIAGRAMS AND ADDITIONAL NOTES, SEE SHEET 29 / 29.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED GFH | DRAWN JEN | CHECKED LAB | REVIEWED RAB | DATE 10-14 | REVISED - | STRUCTURE FILE NUMBER 1802992

REINFORCING SCHEDULE
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

27 / 29

98
100

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR	FWD	TOTAL				A	B	C	D	E	R	INC
ABUTMENTS													
		2	2	4′-4″									
A577		SER.	SER.	TO	57	STR							4′-9″
		3	3	13′-10″									
A578		2	2	8′-3″	17	STR							
A579		2	2	20′-3″	42	STR							
A580		2	2	30′-8″	64	STR							
A581		2	2	5′-1″	11	14	1′-5″	7″	1′-10″	5¾″	1′-5″		
A582		2	2	10′-8″	22	5	4′-10″	1′-10″	1′-4″				
A583		2	2	10′-11″	23	5	5′-5″	1′-8″	1′-4″				
A584		2	2	10′-1″	21	5	5′-5″	1′-3″	1′-4″				
A585	2		2	10′-3″	21	5	4′-9″	1′-8″	1′-4″				
A586	2		2	9′-5″	20	5	4′-9″	1′-3″	1′-4″				
A587	2	2	4	7′-10″	33	2	5′-6″	1′-0½″	1′-7″				
A601		8	8	16′-0″	192	2	7′-7″	1′-2″	7′-7″				
A602	7	7	14	12′-8″	266	2	5′-11″	1′-2″	5′-11″				
A603	7	20	27	12′-6″	507	2	5′-11′	1′-0″	5′-11″				
A604	9		9	16′-10″	228	2	8′-0″	1′-2″	8′-0″				
A605	10		10	8′-11″	134	STR							
	2		2	5′-6″									
A606	SER.		SER.	TO	194	STR							5″
	9		9	8′-10″									
		2	2	5′-2″									
A607		SER.	SER.	TO	324	STR							6¼″
		13	13	11′-5″									
A608		20	20	9′-2″	275	STR							
		2	2	9′-6″									
A609		SER.	SER.	TO	120	STR							4″
		4	4	10′-6″									
A610	72	79	151	6′-9″	1,531	1	1′-0″	6′-0″					
A611	44	52	96	6′-10″	985	STR							
		1	1	11′-10″									
A612		SER.	SER.	TO	471	STR							6¼″
		19	19	21′-2½″									
		1	1	9′-1″									
A613		SER.	SER.	TO	393	STR							6¼″
		19	19	18′-5½″									
A614		1	1	21′-7″	32	STR							
		1	1	10′-9″									
A615		SER.	SER.	TO	277	STR							4½″
		14	14	15′-7½″									
		1	1	8′-2″									
A616		SER.	SER.	TO	223	STR							4½″
		14	14	13′-0½″									
		1	1	16′-1″									
A617		SER.	SER.	TO	590	STR							4½″
		20	20	23′-2½″									
		1	1	13′-6″									
A618		SER.	SER.	TO	513	STR							4½″
		20	20	20′-7½″									
	1		1	9′-2″									
A619	SER.		SER.	TO	250	STR							5″
	14		14	14′-7″									
	1		1	6′-5″									
A620	SER.		SER.	TO	192	STR							5″
	14		14	11′-10″									

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR	FWD	TOTAL				A	B	C	D	E	R	INC
ABUTMENTS													
	1		1	14′-11″									
A621	SER.		SER.	TO	567	STR							5″
	20		20	22′-10″									
	1		1	12′-2″									
A622	SER.		SER.	TO	484	STR							5″
	20		20	20′-1″									
	1		1	9′-1″									
A623	SER.		SER.	TO	242	STR							9½″
	12		12	17′-9½″									
	1		1	6′-6″									
A624	SER.		SER.	TO	196	STR							9½″
	12		12	15′-2½″									
		1	1	21′-11″									
A625		SER.	SER.	TO	284	STR							6″
		8	8	25′-5″									
		1	1	5′-2″									
A626		SER.	SER.	TO	83	STR							6″
		8	8	8′-8″									
A627	6	12	18	23′-1″	624	STR							
A628	13	12	25	6′-6″	244	STR							
		2	2	6′-0″									
A629		SER.	SER.	TO	131	STR							6″
		6	6	8′-6″									
		1	1	23′-8″									
A630		SER.	SER.	TO	223	STR							5′
		6	6	25′-9″									
		1	1	6′-11″									
A631		SER.	SER.	TO	72	STR							5″
		6	6	9′-0″									
		2	2	6′-0″									
A632		SER	SER	TO	127	STR							5″
		6	6	8′-1″									
A633		1	1	21′-7″	32	STR							
	1		1	23′-2″									
A634	SER.		SER.	TO	218	STR							5″
	6		6	25′-3″									
	1		1	6′-4″									
A635	SER.		SER.	TO	66	STR							5″
	6		6	8′-5″									
	1		1	5′-8″									
A636	SER.		SER.	TO	60	STR							5″
	6		6	7′-9″									
A637	7		7	20′-3″	213	STR							
	1		1	18′-4″									
A638	SER.		SER.	TO	218	STR							9½″
	7		7	23′-1″									
	1		1	4′-9″									
A639	SER.		SER.	TO	75	STR							9½″
	7		7	9′-6″									
	2		2	6′-10″									
A640	SER		SER	TO	194	STR							9½″
	7		7	11′-7″									

NOTES:

1. FOR BENDING DIAGRAMS AND ADDITIONAL NOTES, SEE SHEET 29 / 29.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED GFH | CHECKED LAB
DRAWN JEN | REVISED -
REVIEWED RAB | DATE 10-14
STRUCTURE FILE NUMBER 1802992

REINFORCING SCHEDULE
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

28 / 29

99
100

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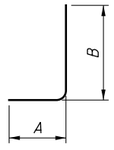
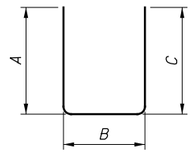
MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR	FWD	TOTAL				A	B	C	D	E	R	INC
ABUTMENTS													
A701	90	105	195	9'-7"	3,820	1	1'-2"	8'-7"					
A801	8		8	33'-10"	723	STR							
A802		8	8	34'-9"	742	STR							
A803	35	35	70	30'-0"	5,607	STR							
A804	5		5	27'-6"	367	STR							
A805		5	5	32'-10"	438	STR							
A806		5	5	24'-4"	325	STR							
A807	120	122	242	9'-1"	5,869	1	1'-4'	7'-11"					
A808	62	64	126	18'-2"	6,112	STR							
A809	3	3	6	20'-8"	331	STR							
A810	5	5	10	22'-2"	592	STR							
A811	11	24	35	15'-7"	1,456	STR							
A812	27		27	16'-2"	1,166	STR							
A813	12	26	38	19'-2"	1,945	STR							
TOTAL					80,573								

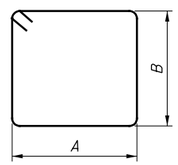
BENDING DIAGRAMS



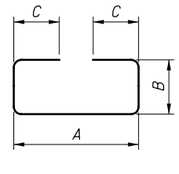
TYPE-1



TYPE-2



TYPE-3



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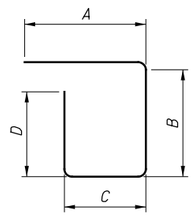
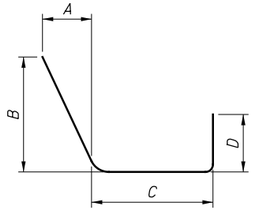
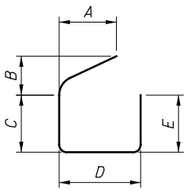


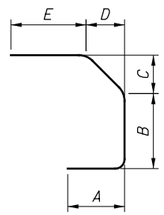
TYPE-7



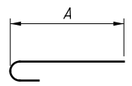
TYPE-10



TYPE-12



TYPE-14



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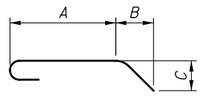
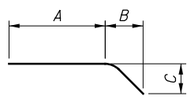
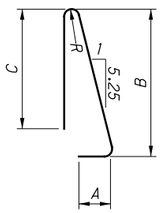


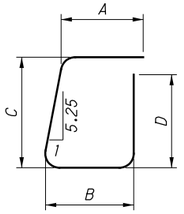
TYPE-18



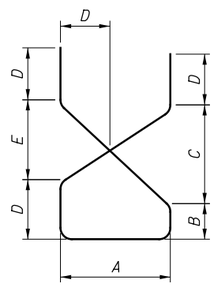
TYPE-19



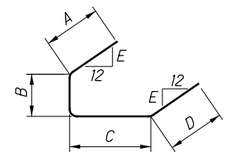
TYPE-23



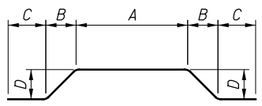
TYPE-24



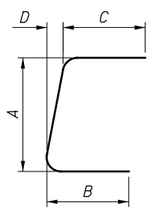
TYPE-26



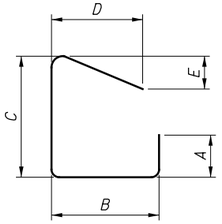
TYPE-28



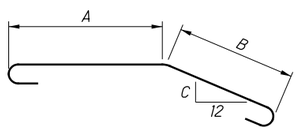
TYPE-21



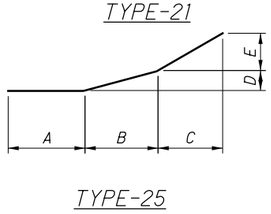
TYPE-29



TYPE-30



TYPE-35



TYPE-25

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS						
	TOTAL				A	B	C	D	E	R	INC
SUPERSTRUTURE											
S401	245	30'-0"	4,910	STR							
S402	35	19'-8"	460	STR							
S501	315	30'-0"	9,856	STR							
S502	33	26'-1"	898	STR							
S503	2	22'-0"	46	STR							
S504	2	12'-0"	25	STR							
S505	652	34'-8"	23,575	STR							
	2	8'-6"									
S506	SERIES OF	TO	2,605	STR							5¼"
	59	33'-10"									
	2	8'-9"									
S507	SERIES OF	TO	2,636	STR							5¼"
	59	34'-1"									
S508	770	7'-8"	6,157	16							
S509	15	8'-4"	130	STR							
S510	7	7'-0"	51	STR							
S511	7	9'-0"	66	STR							
S512	114	12'-1"	1,437	2	4'-10"	2'-8"	4'-10"				
S513	57	7'-1"	421	2	2'-7"	2'-2"	2'-7"				
S514	27	9'-6"	268	29	3'-2"	2'-0"	2'-0"	2'-7½"			
S515	9	10'-0"	94	29	3'-3¾"	2'-0"	2'-0"	2'-11¾"			
S516	12	27'-0"	338	STR							
S517	438	7'-1"	4,660	23	1'-1"	3'-2"	3'-0"			2¾"	
S601	14	30'-0"	631	STR							
S602	2	25'-10"	39	STR							
S603	438	3'-7"	2,357	29	1'-7"	1'-1"	1'-1"	3½"			
S604	438	2'-6"	1,645	1	1'-1"	1'-7"					
S801	48	26'-6"	3,396	STR							
S802	24	13'-9"	881	STR							
S803	48	27'-6"	3,524	STR							
S804	24	13'-6"	865	STR							
D801	49	6'-10"	858	18	4'-6"	1'-0"	1'-0"				
TOTAL			72,829								

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED IN THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR DIGITS ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE S601 IS A NO. 6 BAR. BAR DIMENSIONS ARE SHOWN OUT TO OUT UNLESS OTHERWISE INDICATED. "R" INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. "STD" WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF A BAR.
2. ALL REINFORCING STEEL TO BE EPOXY COATED.

DESIGN AGENCY
EUTHENICS INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DESIGNED GFH | CHECKED LAB
DRAWN GFH | REVISED -
REVIEWED RAB | DATE 10-14
STRUCTURE FILE NUMBER 1802992

REINFORCING SCHEDULE
CUY-21-1004L
OVER I-77

CUY-21-10.04L
PID No. 85146

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PROJECT DESCRIPTION

IT IS PLANNED TO REPLACE THE EXISTING 4-SPAN STEEL BEAM CONTINUOUS BRIDGE STRUCTURE CARRYING THE SOUTHBOUND INTERSTATE ROUTE (IR) 77 TRAFFIC TO SOUTHBOUND STATE ROUTE (SR) 21. BASED ON PLAN AND PROFILE INFORMATION PROVIDED BY EUTHENICS, S&ME UNDERSTANDS THAT THE PROJECT SCOPE INCLUDES:

A SINGLE-SPAN REPLACEMENT BRIDGE LOCATED APPROXIMATELY 140 FEET TO THE NORTH OF THE EXISTING STRUCTURE WITH APPROACH EMBANKMENTS REQUIRING AS MUCH AS 27 FEET OF NEW FILL TO OBTAIN THE PROPOSED GRADES;

INCORPORATION OF LIGHTWEIGHT GEOFOAM BACKFILL IN THE NEW APPROACH EMBANKMENTS TO REDUCE LONG TERM SETTLEMENT;

REINFORCED CONCRETE BRIDGE ABUTMENTS AND WINGWALLS ON THE ORDER OF 25 TO 27 FEET HIGH TO BE SUPPORTED ON EXTENDED FOUNDATIONS; AND,

A CONVENTIONAL CONCRETE RETAINING WALL LOCATED ALONG THE SOUTHEASTERN EDGE OF THE NEW RAMP G-1 WHICH IS ON THE ORDER OF 200 FEET LONG AND MAY RETAIN APPROXIMATELY 4 FEET OF SOIL.

HISTORIC RECORDS

S&ME PERFORMED A GEOTECHNICAL RED FLAG SUMMARY REPORT DATED AUGUST 12, 2011 AND A PRELIMINARY SUBSURFACE INVESTIGATION REPORT DATED NOVEMBER 2, 2011.

GEOLOGY

THE PROJECT SITE IS LOCATED IN LAKE DEPOSITS AT THE EDGES OF BOTH THE ALLEGHENY AND PORTAGE ESCARPMENTS AND ON THE EDGES OF THE GALION GLACIATED LOW PLATEAU AND THE LAKE ERIE PLAIN. BEDROCK IN THE PROJECT VICINITY MAY CONSIST OF DEVONIAN-AGE OHIO SHALE. THE SITE IS SITUATED WITHIN A BURIED VALLEY FILLED WITH GLACIAL DEPOSITED SEDIMENTS OF LACUSTRINE SAND, SILT AND CLAY. AREAS CONTAINING ALLUVIUM DEPOSITS MAY ALSO BE ENCOUNTERED WITHIN THE PROJECT LIMITS OR THE NEARBY VICINITY. SOIL SURVEY INFORMATION INDICATES THAT THE NEAR SURFACE SOILS IN THE PROJECT AREA ARE CURRENTLY CLASSIFIED AS GEEBURG-MENTOR AND CHAGRIN SILT LOAMS.

TOPOGRAPHY MAPS INDICATE THE EXISTING GROUND SURFACE ELEVATION RANGES FROM NEAR ELEVATION (EL.) 660 (MSL) AT THE WEST ABUTMENT OF THE EXISTING BRIDGE TO EL. 658 AT THE EAST ABUTMENT. I.R. 77 IS NEAR EL. 640 AT THE EXISTING BRIDGE. BEDROCK TOPOGRAPHY MAPS INDICATE BEDROCK MAY BE ENCOUNTERED NEAR EL. 450 AT THE BOTTOM OF A BURIED VALLEY.

RECONNAISSANCE

A SITE RECONNAISSANCE VISIT WAS MADE BY S&ME PERSONNEL ON JUNE 7, 2012 TO OBSERVE THE PROPOSED PROJECT AREA AND TO DOCUMENT OBSERVABLE GEOTECHNICAL OR GEOLOGICAL CONDITIONS AND FEATURES. THE EXISTING EMBANKMENTS WERE OBSERVED TO BE AS A STEEP AS 2:1 (H:V), AND SURFACE EROSION WAS APPARENT AT MANY LOCATIONS IN THE EMBANKMENT BETWEEN THE IR 77 MAINLINE AND THE SR 21 NORTHBOUND ENTRANCE RAMP. SOME AREAS OF MINOR SLOUGHING WERE OBSERVED POSSIBLY CAUSED BY THE EROSION, ALTHOUGH THERE WERE NO INDICATIONS OF DEEP SEATED INSTABILITY.

SUBSURFACE EXPLORATION

ON JUNE 18, 2012, SIX (6) BORINGS, HEREAFTER REFERRED TO AS B-001 THROUGH B-006, WERE PERFORMED TO INVESTIGATE THE EXISTING SUBSURFACE CONDITIONS AT THE PROPOSED PROJECT LOCATION. ADDITIONALLY, TWO (2) STRUCTURE BORINGS, BORINGS B-001-0-11 AND B-002-0-11, WERE PREVIOUSLY PERFORMED AS PART OF THE PRELIMINARY INVESTIGATION.

THE BORINGS WERE DRILLED WITH A TRUCK-MOUNTED DRILL RIG USING 4½-INCH O.D. CONTINUOUS-FLIGHT AUGERS. AT REGULAR INTERVALS, DISTURBED BUT REPRESENTATIVE SOIL SAMPLES WERE ATTEMPTED BY REMOVING THE AUGERS AND LOWERING A 2-INCH O.D. SPLIT-BARREL SAMPLER TO THE BOTTOM OF THE BORING AND THEN DRIVING THE SAMPLER INTO THE SOIL WITH BLOWS FROM A 140-POUND HAMMER FREELY FALLING 30 INCHES (ASTM D 1586-STANDARD PENETRATION TEST, SPT). IN ACCORDANCE WITH THE JULY 2011 ODOT SGE, THE HAMMER SYSTEM ON THE DRILLING RIG HAS BEEN CALIBRATED PER ASTM D 4633 TO DETERMINE THE DRILL ROD ENERGY RATIO (82.3%). SPT SAMPLES WERE EXAMINED IMMEDIATELY AFTER RECOVERY AND REPRESENTATIVE PORTIONS WERE PRESERVED IN AIRTIGHT GLASS JARS. CONTINUOUS SPT SAMPLING IN THE UPPER 6 FEET BELOW THE PAVEMENT WAS PERFORMED IN THE ROADWAY BORINGS, AND SPT SAMPLES WERE ATTEMPTED AT 2.5-FOOT INTERVALS TO THE PLANNED TERMINATION DEPTHS IN THE STRUCTURE AND EMBANKMENT BORINGS. UPON COMPLETION OF EACH BORING, WATER LEVELS WERE MEASURED AND THE BORINGS WERE SEALED IN ACCORDANCE WITH APPENDIX F OF THE ODOT SGE.

EXPLORATION FINDINGS

BORING B-001 ENCOUNTERED 4 INCHES OF ROOTMAT UNDERLAIN BY 4.1 FEET OF FILL MATERIAL CONSISTING OF VERY-DENSE GRAVEL WITH SAND AND SILT (A-2-4) AND SANDY SILT (A-4a). BENEATH THE FILL, NATURAL SOILS CONSISTED OF 1.8 FEET OF SOFT BECOMING STIFF TO VERY-STIFF SILTY CLAY. THE BORING WAS TERMINATED AT 8.5 FEET BELOW GRADE.

BORINGS B-002 AND B-003, ENCOUNTERED 2 INCHES OF ROOTMAT AND 8 INCHES OF ASPHALT UNDERLAIN BY 20 INCHES OF GRANULAR BASE, RESPECTIVELY. BENEATH 1.0 FEET OF VERY-DENSE GRAVEL WITH SAND AND SILT (A-2-4) FILL IN B-002, BOTH BORINGS ENCOUNTERED LOOSE SILT (A-4b) HAVING THICKNESSES OF 5.9 AND 9.6 FEET, WHICH WAS DESCRIBED AS HAVING NUMEROUS SILTY CLAY LENSES. UNDERLYING THE SILT DEPOSITS, MEDIUM-DENSE SANDY SILT (A-4a) FOLLOWED BY SOFT TO VERY-STIFF SILT AND CLAY (A-6a) WAS ENCOUNTERED TO THE TERMINATION DEPTH OF 25.0 FEET BELOW GRADE.

(CONTINUED ON SHEET 2)

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
GRAVEL WITH SAND AND SILT	*A-2-4*	-	*3*
COARSE AND FINE SAND	*A-3a*	-	*2*
SANDY SILT	*A-4a*	*4*	*9*
SILT	*A-4b*	*7*	*7*
SILT AND CLAY	*A-6a*	*14*	*40*
SILTY CLAY	*A-6b*	*6*	*11*
	TOTAL	*31*	*72*
UNCONTROLLED FILL			
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	*VISUAL*		
SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	*VISUAL*		

BORING LOCATION - PLAN VIEW

DRIVE SAMPLE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

WC INDICATES WATER CONTENT IN PERCENT.

N_{60} INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.

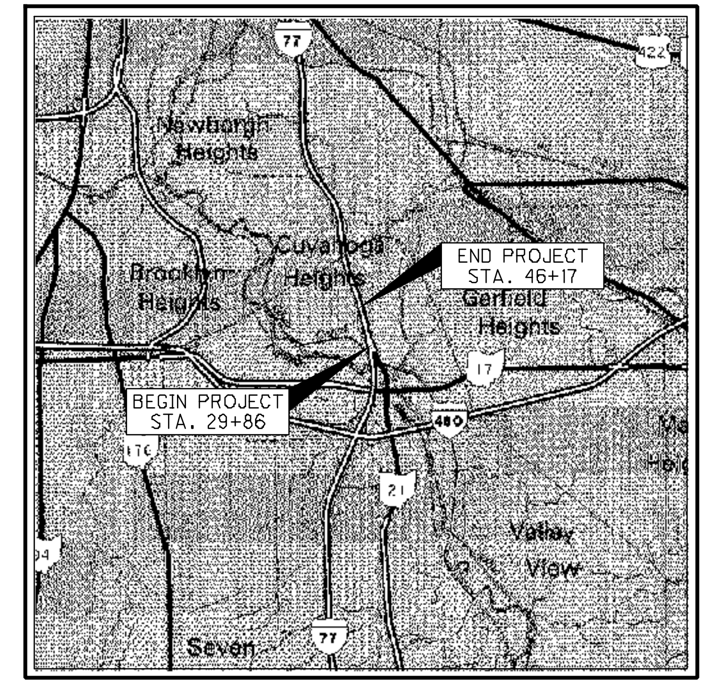
W— INDICATES FREE WATER ELEVATION.

● INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.

* INDICATES A SAMPLE TAKEN WITHIN 3 FT OF PROPOSED GRADE.

SS INDICATES A SPLIT SPOON SAMPLE, STANDARD PENETRATION TEST.

ST INDICATES A SHELBY TUBE SAMPLE.



LOCATION MAP

SCALE IN MILES

0 1 2 3 4

N

PARTICLE SIZE DEFINITIONS

	12"		3"		2.0 mm		0.42 mm		0.074 mm		0.005 mm	
BOULDERS		COBBLES		GRAVEL		COARSE SAND		FINE SAND		SILT		CLAY
					No. 10 SIEVE		No. 40 SIEVE		No. 200 SIEVE			

RECON. - EAA (6/7/12)

DRILLING - S&ME (6/18/12)

DRAWN - ZWA (9/16/13-11/7/13) PRR (4/2/14)

REVIEWED - CJN (4/3/14)

DESIGN AGENCY S&ME

PID NO. 85146

SOIL PROFILE

CUY-21-10.04L

EXPLORATION FINDINGS (CONTINUED)

BORING B-004 ENCOUNTERED 2 INCHES OF ROOTMAT UNDERLAIN BY 19.1 FEET OF FILL AND 1.3 FEET OF POSSIBLE FILL MATERIAL. THE FILL CONSISTED OF VERY-STIFF TO HARD SILT AND CLAY (A-6a) AND SILTY CLAY (A-6b), DENSE GRAVEL WITH SAND AND SILT (A-2-4), AND MEDIUM-DENSE SILT (A-4b). THE POSSIBLE FILL WAS DESCRIBED AS LOOSE SANDY SILT (A-4a). THE BORING WAS TERMINATED AT A DEPTH OF 25.0 FEET AFTER PENETRATING 4.5 FEET INTO MEDIUM-STIFF TO VERY-STIFF SILTY CLAY (A-6b).

BORINGS B-005 AND B-006 ENCOUNTERED EXISTING PAVEMENTS CONSISTING OF 14 TO 16 INCHES OF ASPHALT BENEATH EITHER 6 INCHES OF CONCRETE OR 8 INCHES OF GRANULAR BASE. FILL MATERIAL WAS ENCOUNTERED BENEATH THE SURFACE PAVEMENT AND CONSISTED OF VERY-STIFF TO HARD SILTY CLAY (A-6b) AND LOOSE SANDY SILT (A-4a). BORINGS B-005 AND B-006 WERE TERMINATED AT 8.0 AND 9.0 FEET BELOW THE EXISTING GROUND SURFACE.

BORINGS B-001-0-11 AND B-002-0-11, WERE COMPLETED IN 2011 AS PART OF THE PRELIMINARY SUBSURFACE INVESTIGATION AND ENCOUNTERED FILL/POSSIBLE FILL TO A DEPTH OF 3.5 FEET AND 15 FEET, RESPECTIVELY. THE FILL/POSSIBLE FILL CONSISTED OF VERY-STIFF TO HARD SILT AND CLAY (A-6a), SOFT SANDY SILT (A-4a), MEDIUM-DENSE BECOMING VERY-DENSE GRAY SLAG INTERMIXED WITH SAND, VERY-LOOSE COARSE AND FINE SAND (A-3a) THAT WAS SLIGHTLY ORGANIC (2.1% ORGANIC CONTENT), AND VERY-LOOSE SANDY SILT (A-4a). BENEATH THE FILL/POSSIBLE FILL MATERIAL, ALTERNATING LAYERS OF SOFT TO STIFF SANDY SILT (A-4a), SILT (A-4b), SILT AND CLAY (A-6a) AND SILTY CLAY (A-6b) WERE GENERALLY ENCOUNTERED TO DEPTHS OF 67 FEET AND 62 FEET IN BORINGS B-001-0-11 AND B-002-0-11, RESPECTIVELY. BENEATH THE SOFT TO STIFF SOILS, STIFF TO HARD SILT AND CLAY (A-6a) WITH OCCASIONAL GRANULAR LAYERS WAS ENCOUNTERED TO THE BORING TERMINATION DEPTHS OF 110 FEET.

SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN GENERAL ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JANUARY 2011.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE GEOTECHNICAL EXPLORATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

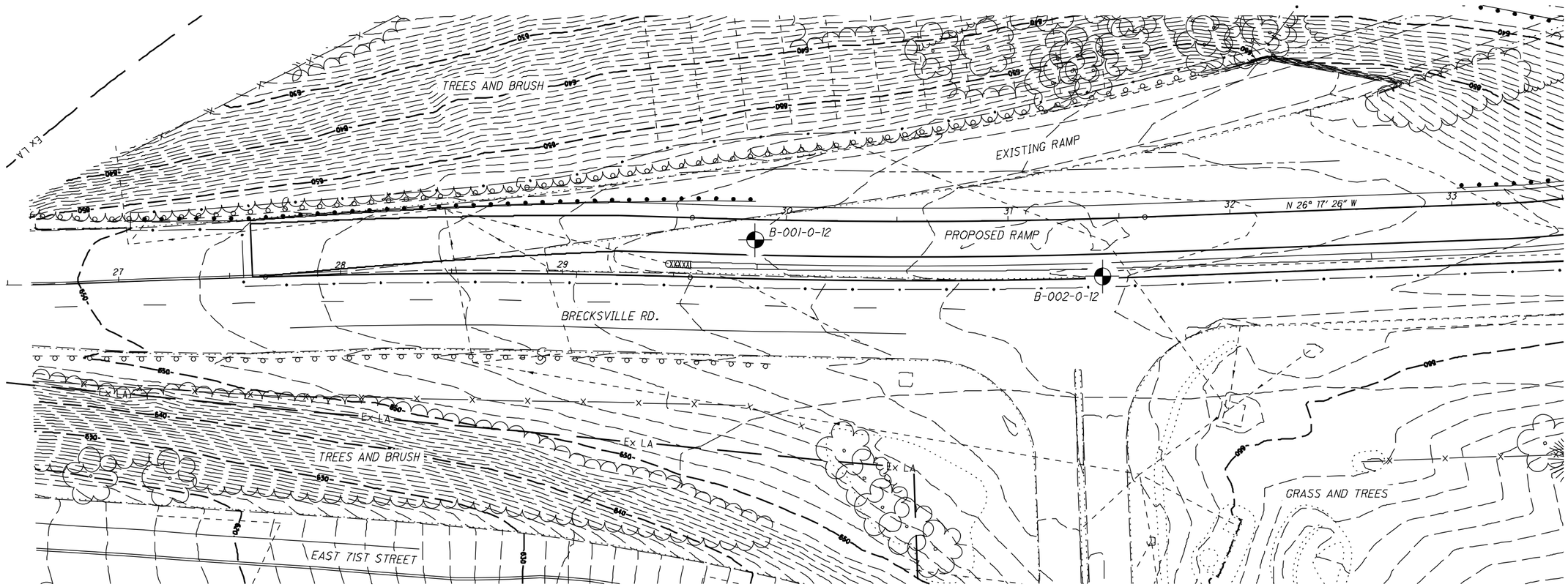
SUMMARY OF SOIL TEST DATA

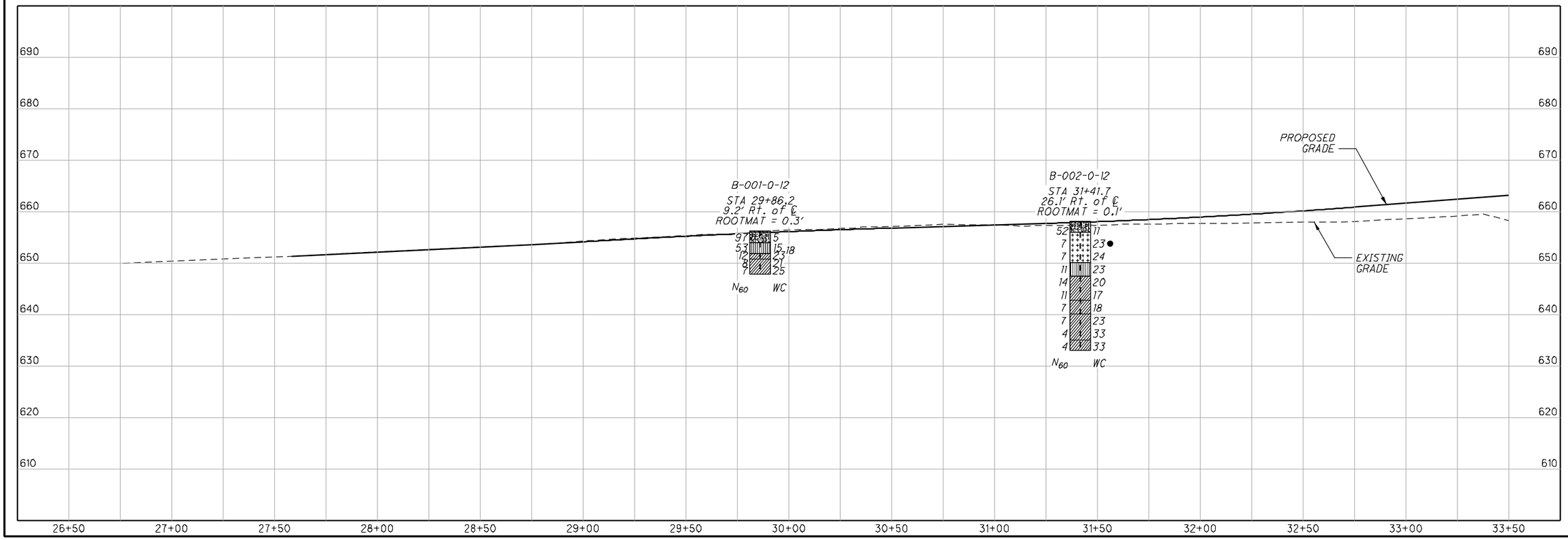
EXPLORATION NUMBER AND LOCATION	SAMPLE INTERVAL (FROM - TO)	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	OHIO CLASS
B-001-0-12	0.5 - 2.0	SS-1	44	VERY-DENSE BR AND RED-BR GRAVEL W/ SAND AND SILT								5	A-2-4 (V)*
STA 29+86, 9.2' Rt.	2.5 - 4.0	SS-2	72	16	26	11	33	14	30	23	7	15	A-4a (2)*
Latitude = 41.41957414 N	4.0 - 4.5	SS-3A	100	15	18	11	43	13	29	23	6	18	A-4a (4)
Longitude = 81.64290215 W	4.5 - 5.5	SS-3B	11	SOFT DARK-GRAY SILTY CLAY								23	A-6a (V)
	5.5 - 7.0	SS-4	72	STIFF TO VERY-STIFF GRAY-BROWN SILTY CLAY								21	A-6a (V)
	7.0 - 8.5	SS-5	100	SAME AS SS-4								25	A-6a (V)
B-005-0-12	2.0 - 3.5	SS-1	89	9	11	15	31	34	32	18	14	15	A-6a (8)
STA 42+20, 5.2' Rt.	3.5 - 5.0	SS-2	100	5	12	15	40	28	32	20	12	11	A-6a (7)
Latitude = 41.4223668 N	5.0 - 6.5	SS-3	72	SAME AS SS-2								12	A-6a (V)
Longitude = 81.64514144 W	6.5 - 8.0	SS-4	89	FILL: LOOSE BROWN AND GRAY SANDY SILT								12	A-4a (V)
B-006-0-12	1.5 - 3.0	SS-1	44	SAME AS SS-2								12	A-6b (V)*
STA 46+17, 12.0' Rt.	3.0 - 4.5	SS-2	67	11	13	15	34	27	34	18	16	14	A-6b (8)
Latitude = 41.42345686 N	4.5 - 6.0	SS-3	56	23	12	11	27	27	36	21	15	12	A-6a (6)
Longitude = 81.64521841 W	6.0 - 7.5	SS-4	78	SAME AS SS-3								15	A-6a (V)
	7.5 - 9.0	SS-5	72	FILL: VST TO HD DARK-BROWN AND GRAY SILT AND CLAY								14	A-6a (V)

DRAWN ZWA CHECKED CJN

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

CUY-21-10.04L





HORIZONTAL SCALE IN FEET
0 25 50

DRAWN ZWA
CHECKED CJN

SOIL PROFILE
STA 26+50 TO STA 33+50

CUY-21-10.04L

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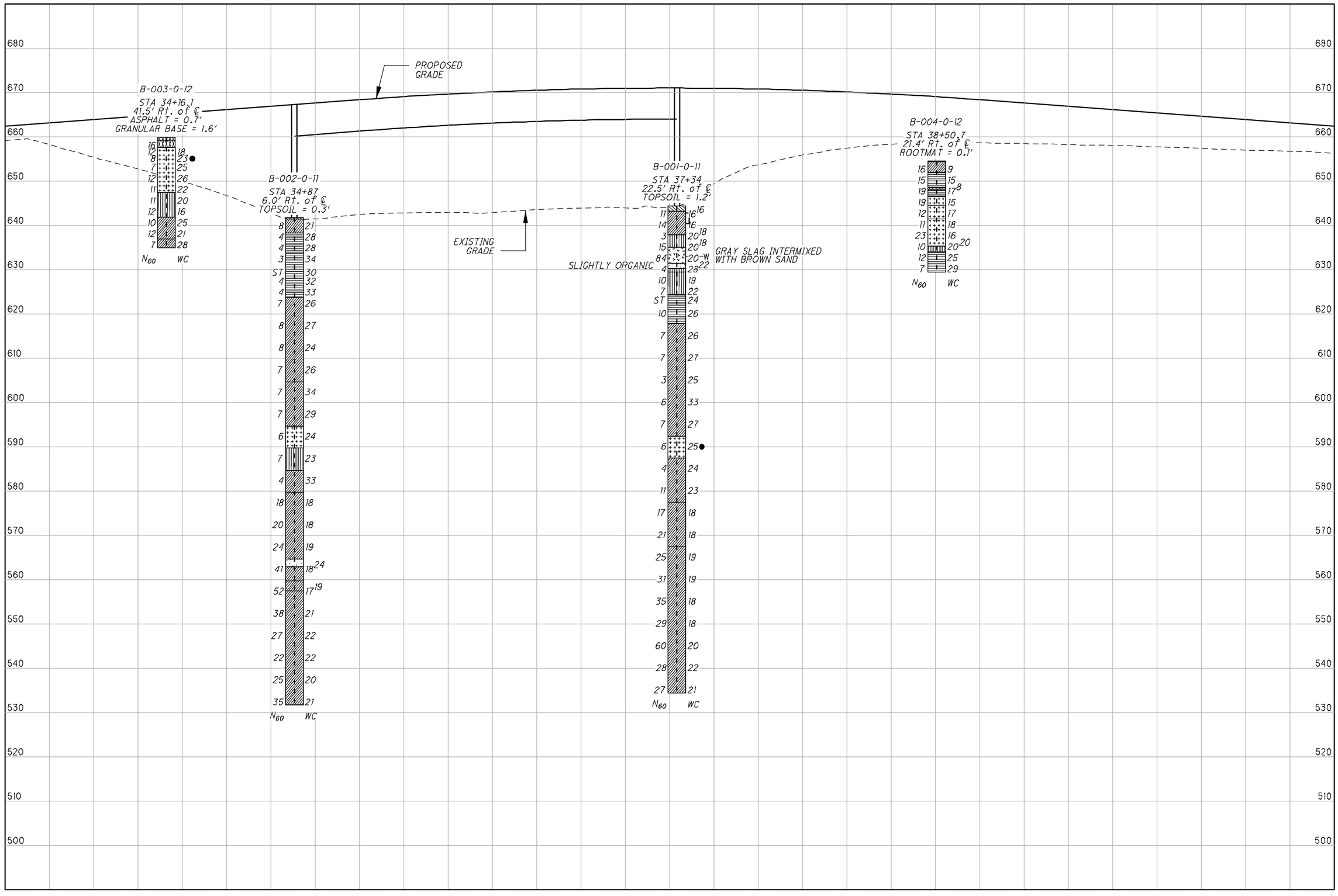
PROFILE VIEW OF BORINGS B-001-0-11, B-002-0-11, B-003-0-12 AND B-004-0-12 ARE SHOWN ON SHEET 5/11.

HORIZONTAL SCALE IN FEET
0 25 50

DRAWN ZWA
CHECKED CJN

SOIL PROFILE
STA 33+50 TO STA 40+50

CUY-21-10.04L



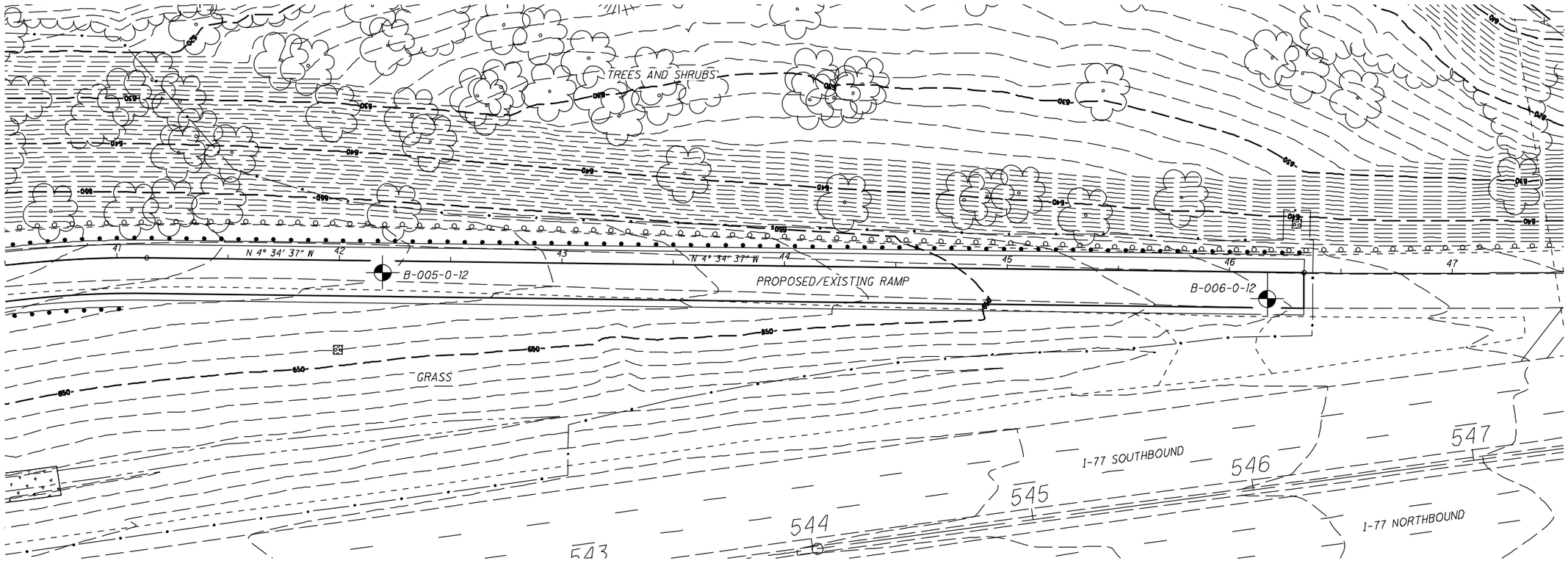
HORIZONTAL SCALE IN FEET
0 25 50

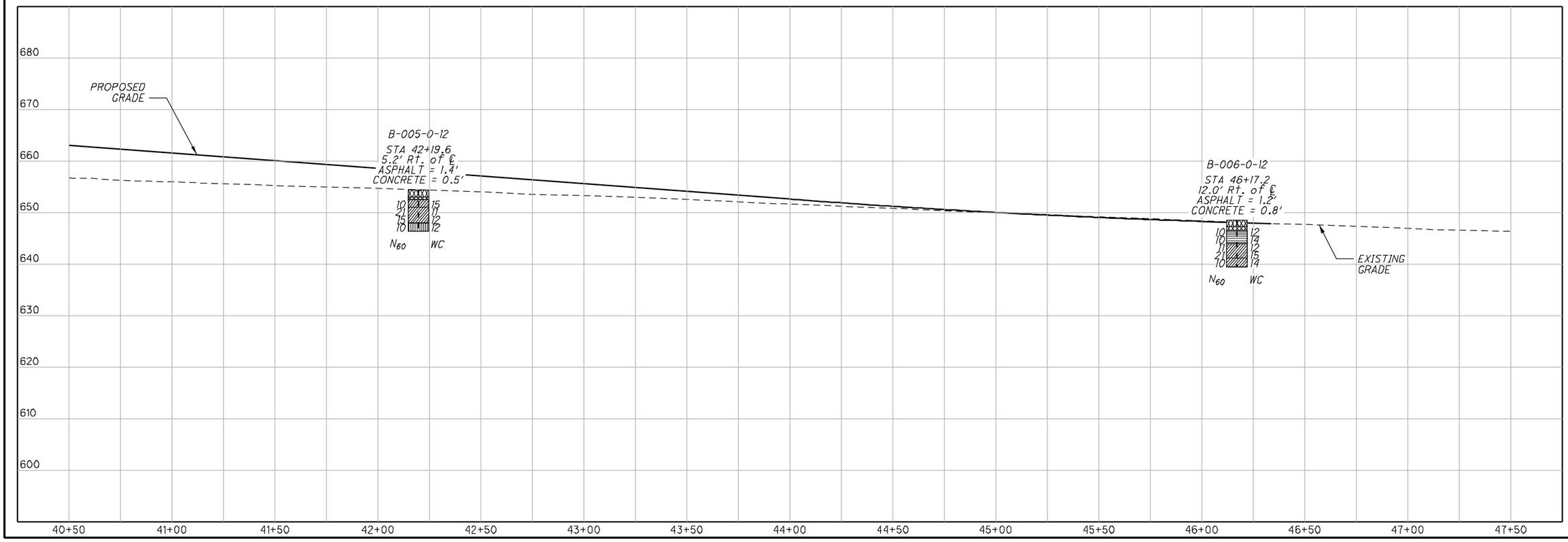
DRAWN ZWA
CHECKED CJN

SOIL PROFILE
STA 33+50 TO STA 40+50

CUY-21-10.04L

5 / 14





N

HORIZONTAL SCALE IN FEET
0 25 50

DRAWN ZWA
CHECKED CJN

SOIL PROFILE
STA 40+50 TO STA 47+50

CUY-21-10.04L

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PROJECT: CUY-21-10.04L	DRILLING FIRM / OPERATOR: OTB / C. BESSEY	DRILL RIG: OTB ATV 300-55	STATION / OFFSET: 37+34, 22.5 RT	EXPLORATION ID B-001-0-11
TYPE: BRIDGE REPLACEMENT	SAMPLING FIRM / LOGGER: S&ME / E. PORTER	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 21 RAMP	
PID: 85146 BR ID: CUY-21-1004L	DRILLING METHOD: 3.25" HSA, 3-1/8" TRB	CALIBRATION DATE: 10/12/11	ELEVATION: 644.4 (MSL) EOB: 110 ft.	PAGE 1 OF 2
START: 8/31/11 END: 9/1/11	SAMPLING METHOD: SPT / ST	ENERGY RATIO (%): 84	COORD: 640380 N, 2203128.8 E	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ROD	N60	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 14 1/2 INCHES	644.4																	
	643.2	1	4	-	100	SS-1A		-	-	-	-	-	-	-	-	16	Visual (V)	
FILL: Very-stiff to hard brown intermixed with gray SILT AND CLAY, some fine to coarse sand, trace fine gravel, contains few brick and slag fragments and few stiff zones, damp.		2	3 5	11	100	SS-1B	2.5-4.3	-	-	-	-	-	-	-	-	16	A-6a (V)	
		3																
		4	4 6 4	14	72	SS-2	3.7-4.5+	7	11	14	43	25	29	18	11	16	A-6a (7)	
		5																
	637.9	6					1.7-2.5											
			1	-	100	SS-3A		-	-	-	-	-	-	-	-	18	A-6a (V)	
FILL: Soft brown and gray SANDY SILT, little clay, trace fine gravel, moist.		7	1 1	3	50	SS-3B	0.3-0.5	8	13	15	44	20	25	18	7	20	A-4a (6)	
		8																
	635.1	9	1	-	100	SS-4A	0.3-0.5	-	-	-	-	-	-	-	-	18	A-4a (V)	
FILL: Medium-dense becoming very-dense gray slag intermixed with brown fine to coarse sand, little fine to coarse gravel (sandstone fragments), trace silt, moist to wet.		10	1 10	15	57	SS-4B		-	-	-	-	-	-	-	-	20	Visual (V)	
		11																
W		12	26 37 23	84	78	SS-5		-	-	-	-	-	-	-	-	20	Visual (V)	
	631.4	13																
FILL: Very-loose brown intermixed with gray and dark gray COARSE AND FINE SAND, some silt, trace clay, trace fine gravel, slightly organic, contains few slag fragments, wet.	630.3	14	1	-	100	SS-6A		-	-	-	-	-	-	-	-	22	A-3a (V)	
- Loss-on-Ignition (LOI) value for Sample SS-6A was 2.1%.	629.4		1 2	4	100	SS-6B		-	-	-	-	-	-	-	-	28	A-4a (V)	
POSSIBLE FILL: Very-loose brown and gray SANDY SILT, some clay, trace fine gravel, wet.		15																
Stiff to very-stiff brown and gray SANDY SILT, "and" clay, trace fine gravel, contains few medium-stiff zones, moist.		16																
		17	2 3 4	10	72	SS-7	2.0-2.7	4	7	10	39	40	26	18	8	19	A-4a (8)	
		18																
	624.4	19	2	7	83	SS-8	0.8-2.0	-	-	-	-	-	-	-	-	22	A-4a (V)	
Medium-stiff to stiff gray SILTY CLAY, trace fine to coarse sand, trace fine gravel, moist.		20	2 3		83	ST-27	0.5-1.7	2	3	4	25	66	35	17	18	24	A-6b (11)	
		21																
		22																
		23																
		24	2 3 4	10	67	SS-9	0.8-1.5	-	-	-	-	-	-	-	-	26	A-6b (V)	
		25																
	617.9	26																
Medium-stiff to stiff gray SILT AND CLAY, trace fine sand, contains few fine sand and silt seams, moist to wet.		27																
		28																
		29	1 2 3	7	83	SS-10	0.9-1.5	0	0	1	45	54	32	20	12	26	A-6a (9)	
		30																
		31																
		32																
		33																
		34	1 2 3	7	94	SS-11	0.7-1.5	-	-	-	-	-	-	-	-	27	A-6a (V)	
		35																
		36																
		37																
		38																
		39	1 1 1	3	94	SS-12	0.7-1.5	-	-	-	-	-	-	-	-	25	A-6a (V)	
		40																
		41																
		42																
		43																
		44	1 1 3	6	100	SS-13	0.7-1.2	-	-	-	-	-	-	-	-	33	A-6a (V)	
		45																
		46																
		47																
		48																
		49	1 2 3	7	100	SS-14	0.9-1.5	-	-	-	-	-	-	-	-	27	A-6a (V)	
		50																
		51																
	592.4	52																
Medium-stiff to stiff gray SILT, "and" clay, trace fine gravel, moist to wet.		53																
		54	1 2 2	6	100	SS-15	0.5-1.5	3	0	0	60	37	25	18	7	25	A-4b (8)	
		55																
		56																
	587.4	57																
Medium-stiff to stiff gray SILT AND CLAY, trace fine to coarse sand, moist.		58																
		59	1 1 2	4	94	SS-16	0.7-1.2	-	-	-	-	-	-	-	-	24	A-6a (V)	

PID: 85146	BR ID: CUY-21-1004L	PROJECT: CUY-21-10.04L	STATION / OFFSET: 37+34, 22.5 RT	START: 8/31/11	END: 9/1/11	PG 2 OF 2	B-001-0-11

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
Medium-stiff to stiff gray SILT AND CLAY, trace fine to coarse sand, moist. (continued)	584.4	61																
		62																
		63																
		64	2 3 5	11	94	SS-17	0.7-1.7	-	-	-	-	-	-	-	-	23	A-6a (V)	
		65																
		66																
	577.4	67																
Stiff to very-stiff gray SILT AND CLAY, little fine to coarse sand, trace fine gravel, moist.		68																
		69	3 5 7	17	94	SS-18	1.7-2.5	-	-	-	-	-	-	-	-	18	A-6a (V)	
		70																
		71																
		72																
		73																
		74	2 6 9	21	89	SS-19	1.9-2.5	4	4	9	36	47	28	17	11	18	A-6a (8)	
		75																
		76																
	567.4	77																
Very-stiff gray SILT AND CLAY, trace fine to coarse sand, damp to moist.		78																
		79	3 8 10	25	83	SS-20	2.2-2.8	-	-	-	-	-	-	-	-	19	A-6a (V)	
		80																
		81																
		82																
		83																
		84	5 9 13	31	78	SS-21	2.2-3.4	-	-	-	-	-	-	-	-	19	A-6a (V)	
		85																
		86																
		87																
		88																
		89	6 10 15	35	83	SS-22	3.0-3.7	-	-	-	-	-	-	-	-	18	A-6a (V)	
		90																
		91																
		92																
		93																
		94	5 9 12	29	100	SS-23	2.5-3.3	-	-	-	-	-	-	-	-	18	A-6a (V)	
		95																
		96																
		97																
		98																
		99	4 20 23	60	100	SS-24	2.0-3.6	-	-	-	-	-	-	-	-	20	A-6a (V)	
		100																
		101																
		102																
		103																
		104	6 9 11	28	94	SS-25	2.8-3.2	0	3	4	43	50	30	18	12	22	A-6a (9)	
		105																
		106																
		107																
		108																
		109	5 9 10	27	94	SS-26	2.0-2.8	-	-	-	-	-	-	-	-	21	A-6a (V)	
	534.4	EOB 110																

NOTES:
- Encountered seepage at 11.5' during drilling.
-Used 3-1/4" I.D. hollow-stem augers (HSA) to a depth of 20.0'.
- From 20.0' to 110.0', used a 3-1/8" Tri-cone Roller bit (TRB) with water.
- Prior to adding water at 20.0', water was measured inside the HSA at 10.5'.
- Sample SS-5 was obtained in an offset borehole due to no sample recovery from attempt in initial borehole.
- Sample ST-27 was obtained in an offset borehole.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 94 LB. CEMENT; 45 GAL. WATER

PROJECT: CUY-21-10.04L	DRILLING FIRM / OPERATOR: OTB / C. BESSEY	DRILL RIG: OTB ATV 300-55	STATION / OFFSET: 34+87, 6.0 RT	EXPLORATION ID B-002-0-11
TYPE: BRIDGE REHABILITATION	SAMPLING FIRM / LOGGER: S&ME / E. KODRICH	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 21 RAMP	
PID: 85146 BR ID: CUY-21-1004L	DRILLING METHOD: 3.25" HSA, 3-1/8" TRB	CALIBRATION DATE: 10/12/11	ELEVATION: 641.7 (MSL) EOB: 110 ft.	PAGE 1 OF 2
START: 8/22/11 END: 8/30/11	SAMPLING METHOD: SPT / ST	ENERGY RATIO (%): 84	COORD: 640218.8 N, 2203308.2 E	

MATERIAL DESCRIPTION AND NOTES	ELEV. 641.7	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL – 4 INCHES	641.4																	
POSSIBLE FILL: Very-stiff to hard brown intermixed with gray SILT AND CLAY, little fine to coarse sand, contains many sand seams/pockets and few roots, damp.	638.2		3 3 3	8	78	SS-1	2.2-4.5+	–	–	–	–	–	–	–	–	21	A-6a (V)	
Medium-stiff to stiff gray SILTY CLAY, trace fine to coarse sand, trace fine gravel, contains few pockets of red sand and silt, and few very-stiff zones, moist.	633.7		1 1 2	4	100	SS-2	0.8-2.5	1	2	3	28	66	39	20	19	28	A-6b (12)	
			1 1 2	4	94	SS-3	0.7-0.9	–	–	–	–	–	–	–	–	28	A-6b (V)	
Soft to medium-stiff gray SILTY CLAY, trace fine gravel, contains few stiff zones, moist.	623.7		1 1 1	3	94	SS-4	0.3-0.6	–	–	–	–	–	–	–	–	34	A-6b (V)	
					100	ST-5	0.7-1.7	1	0	0	22	77	38	19	19	30	A-6b (12)	
			1 1 2	4	100	SS-6	0.3-0.7	–	–	–	–	–	–	–	–	32	A-6b (V)	
			1 1 2	4	100	SS-7	0.4-0.9	–	–	–	–	–	–	–	–	33	A-6b (V)	
Medium-stiff to stiff gray SILT AND CLAY, few very-stiff zones, moist.	604.7		1 2 3	7	100	SS-8	0.9-2.5	–	–	–	–	–	–	–	–	26	A-6a (V)	
			1 2 4	8	100	SS-9	0.8-1.9	0	0	0	46	54	34	20	14	27	A-6a (10)	
			1 2 4	8	100	SS-10	1.4-2.4	–	–	–	–	–	–	–	–	24	A-6a (V)	
			1 2 3	7	100	SS-11	0.8-1.2	–	–	–	–	–	–	–	–	26	A-6a (V)	
Soft to medium-stiff gray SILT AND CLAY, trace fine sand, contains few red pockets and few stiff zones, moist to wet.	594.7		1 2 3	7	100	SS-12	0.3-1.2	–	–	–	–	–	–	–	–	34	A-6a (V)	
			1 2 3	7	100	SS-13	0.4-0.8	0	0	1	32	67	37	22	15	29	A-6a (10)	
Medium-stiff to stiff gray SILT, "and" clay, trace fine to coarse sand, trace fine gravel, moist to wet.	589.7		2 2 2	6	100	SS-14	0.7-1.2	–	–	–	–	–	–	–	–	24	A-4b (V)	
Soft to medium-stiff gray SANDY SILT, "and" clay, trace fine to coarse sand, moist.	584.7		2 2 3	7	100	SS-15	0.3-0.7	–	–	–	–	–	27	18	9	23	A-4a (V)	
Soft to medium-stiff gray SILT AND CLAY, trace fine to coarse sand, contains many silt seams and few stiff zones, moist.			1 1 2	4	100	SS-16	0.3-1.2	–	–	–	–	–	–	–	–	33	A-6a (V)	

SOIL PROFILE
LOG OF BORINGS B-002-0-11

DRAWN ZWA
CHECKED CJN

PID: 85146	BR ID: CUY-21-1004L	PROJECT: CUY-21-10.04L	STATION / OFFSET: 34+87, 6.0 RT	START: 8/22/11	END: 8/30/11	PG 2 OF 2	B-002-0-11

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
Soft to medium-stiff gray SILT AND CLAY, trace fine to coarse sand, contains many silt seams and few stiff zones, moist. (continued)	581.7	61																
	579.7	62																
Stiff to very-stiff gray SILT AND CLAY, little fine to coarse sand, trace fine gravel, contains few shale fragments, damp to moist.		63																
		64	3 6 7	18	100	SS-17	1.3-1.8	5	6	8	38	43	28	17	11	18	A-6a (8)	
		65																
		66																
		67																
		68																
		69	4 6 8	20	100	SS-18	1.3-2.1	-	-	-	-	-	-	-	-	18	A-6a (V)	
		70																
		71																
		72																
		73																
		74	3 7 10	24	100	SS-19	2.4-3.3	-	-	-	-	-	-	-	-	19	A-6a (V)	
		75																
		76																
	564.7	77																
Medium-dense gray COARSE AND FINE SAND, some silt, trace to little clay, trace fine gravel, wet.	562.9	78																
		79	6	-	100	SS-20A		-	-	-	-	-	-	-	-	24	A-3a (V)	
Very-stiff to hard gray SILT AND CLAY, trace fine to coarse sand, trace fine gravel, damp.		80	12 17	41	100	SS-20B	3.5-4.5	-	-	-	-	-	-	-	-	18	A-6a (V)	
		81																
	559.7	82																
Hard (est.) gray SILT AND CLAY, "and" fine to coarse sand, trace fine gravel, moist.		83																
	557.4	84	11	-	100	SS-21A		3	32	13	21	31	27	15	12	19	A-6a (4)	
Very-stiff to hard gray SILT AND CLAY, trace fine to coarse sand, trace fine gravel, contains few fine sand and silt lenses, moist.		85	14 23	52	71	SS-21B	2.3-4.5	-	-	-	-	-	-	-	-	17	A-6a (V)	
		86																
		87																
		88																
		89	6 11 16	38	100	SS-22		-	-	-	-	-	-	-	-	21	A-6a (V)	
		90																
		91																
		92																
		93																
		94	5 7 12	27	100	SS-23	3.0-4.1	-	-	-	-	-	-	-	-	22	A-6a (V)	
		95																
		96																
		97																
		98																
		99	5 6 10	22	94	SS-24	2.5-3.1	1	1	3	51	44	28	17	11	22	A-6a (8)	
		100																
		101																
		102																
		103																
		104	5 8 10	25	100	SS-25	2.5-3.6	-	-	-	-	-	-	-	-	20	A-6a (V)	
		105																
		106																
		107																
		108																
		109	5 9 16	35	100	SS-26	2.5-4.3	-	-	-	-	-	-	-	-	21	A-6a (V)	
	531.7	EOB 110																

NOTES:
- No seepage encountered during drilling prior to adding water to the borehole.
- Used 3-1/4" I.D. hollow-stem augers (HSA) to a depth of 35.0'.
- From 35.0' to 110.0', used a 3-1/8" Tri-cone Roller bit (TRB) with water.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 50 LB. BENTONITE POWDER; 94 LB. CEMENT; 50 GAL. WATER

PROJECT: CUY-21-10.04L | DRILLING FIRM / OPERATOR: OTB / DLH | DRILL RIG: OTB TRUCK 2800(11) | STATION / OFFSET: 31+42, 26 RT | EXPLORATION ID B-002-0-12

TYPE: STRUCTURE | SAMPLING FIRM / LOGGER: S&ME / T. BLATT | HAMMER: CME AUTOMATIC | ALIGNMENT: SR 21 RAMP

PID: 85146 BR ID: CUY-21-1004L | DRILLING METHOD: 4.5" CFA | CALIBRATION DATE: 10/12/11 | ELEVATION: 658.1 (MSL) EOB: 25 ft. | PAGE 1 OF 1

START: 6/18/12 END: 6/18/12 | SAMPLING METHOD: SPT | ENERGY RATIO (%): 82.3 | LAT / LONG: 41.41998589 N, 81.64307578 W

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ROOTMAT - 2 INCHES	658.1																	
Fill: Very-dense brown GRAVEL WITH SAND AND SILT, trace clay, few brick fragments, damp.	658.0		15 28 10	52	61	SS-1	-	-	-	-	-	-	-	-	-	11	A-2-4 (V)	
Loose gray SILT, few zones interbedded with silty clay, trace fine to coarse sand, moist.	656.0		1 2 3	7	72	SS-2	-	0	1	2	61	36	26	19	7	23	A-4b (8)	
			3 2 3	7	100	SS-3	-	0	1	2	57	40	28	19	9	24	A-4b (8)	
Medium-dense gray SANDY SILT, few zones interbedded with silty clay, trace fine to coarse sand, moist.	650.1		3 3 5	11	100	SS-4	-	-	-	-	-	-	-	-	-	23	A-4a (V)	
Very-stiff to hard gray SILT AND CLAY, little fine to coarse sand, trace fine gravel, moist.	647.5		3 5 5	14	94	SS-5	3.0-4.5	-	-	-	-	-	-	-	-	20	A-6a (V)	
			3 3 5	11	94	SS-6	2.5-4.5	-	-	-	-	-	-	-	-	17	A-6a (V)	
Stiff to very-stiff gray SILT AND CLAY, some fine to coarse sand, trace fine gravel, moist.	642.8		2 2 3	7	100	SS-7	2.0-3.0	-	-	-	-	-	-	-	-	18	A-6a (V)	
Medium-stiff to stiff gray SILT AND CLAY, trace fine to coarse sand, trace fine gravel, moist becoming wet.	640.1		2 2 3	7	100	SS-8	1.0-1.5	3	3	6	35	53	30	18	12	23	A-6a (9)	
			2 1 2	4	100	SS-9	0.5-1.5	-	-	-	-	-	-	-	-	33	A-6a (V)	
Soft to medium-stiff gray SILT AND CLAY, trace fine to coarse sand, wet.	635.1		2 1 2	4	100	SS-10	0.25-1.0	-	-	-	-	-	-	-	-	33	A-6a (V)	
	633.1	EOB																

- No seepage noted.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PORTLAND CEMENT; SOIL CUTTINGS

PROJECT: CUY-21-10.04L | DRILLING FIRM / OPERATOR: OTB / DLH | DRILL RIG: OTB TRUCK 2800(11) | STATION / OFFSET: 34+16, 42 RT | EXPLORATION ID B-003-0-12

TYPE: STRUCTURE | SAMPLING FIRM / LOGGER: S&ME / T. BLATT | HAMMER: CME AUTOMATIC | ALIGNMENT: SR 21 RAMP

PID: 85146 BR ID: CUY-21-1004L | DRILLING METHOD: 4.5" CFA | CALIBRATION DATE: 10/12/11 | ELEVATION: 659.9 (MSL) EOB: 25 ft. | PAGE 1 OF 1

START: 6/18/12 END: 6/18/12 | SAMPLING METHOD: SPT | ENERGY RATIO (%): 82.3 | LAT / LONG: 41.42143715 N, 81.64475379 W

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASPHALT - 8 INCHES	659.9																	
GRANULAR BASE - 20 INCHES	659.2		12 8 4	16	0	--	-	-	-	-	-	-	-	-	-	-		
Loose to medium-dense gray and gray-brown SILT, numerous silty clay lenses, trace fine to coarse sand, moist.	657.6		6 5 4	12	61	SS-1	-	-	-	-	-	-	-	-	-	18	A-4b (V)	
			2 3 3	8	72	SS-2	-	0	1	2	63	34	26	18	8	23	A-4b (8)	
			2 2 3	7	67	SS-3	-	1	1	2	56	40	29	20	9	25	A-4b (8)	
			3 4 5	12	44	SS-4	-	-	-	-	-	-	-	-	-	26	A-4b (V)	
			2 3 5	11	72	SS-5	-	2	1	2	52	43	27	18	9	22	A-4b (8)	
Medium-dense gray SANDY SILT, few zones interbedded with silty clay, some fine to coarse sand, trace fine gravel, moist.	647.4		2 3 5	11	72	SS-6	-	-	-	-	-	-	-	-	-	20	A-4a (V)	
			2 4 5	12	94	SS-7	-	-	-	-	-	-	-	-	-	16	A-4a (V)	
Stiff to very-stiff gray SILT AND CLAY, little to some fine to coarse sand, trace fine gravel, moist.	641.9		2 3 4	10	72	SS-8	1.0-2.5	-	-	-	-	-	-	-	-	25	A-6a (V)	
			2 4 5	12	100	SS-9	1.0-3.5	-	-	-	-	-	-	-	-	21	A-6a (V)	
Stiff gray SILT AND CLAY, trace fine to coarse sand, trace fine gravel, wet.	636.9		2 2 3	7	100	SS-10	1.0-1.5	2	1	2	21	74	39	24	15	28	A-6a (10)	
	634.9	EOB																

- No seepage noted.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PORTLAND CEMENT; SOIL CUTTINGS

PROJECT: CUY-21-10.04L	DRILLING FIRM / OPERATOR: OTB / DLH	DRILL RIG: OTB TRUCK 2800(11)	STATION / OFFSET: 38+50.7, 21.4 RT	EXPLORATION ID B-004-0-12
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: S&ME / T. BLATT	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 21 RAMP	
PID: 85146 BR ID: CUY-21-1004L	DRILLING METHOD: 4.5" CFA	CALIBRATION DATE: 10/12/11	ELEVATION: 654.5 (MSL) EOB: 25.0 ft.	PAGE 1 OF 1
START: 6/18/12 END: 6/18/12	SAMPLING METHOD: SPT	ENERGY RATIO (%): 82.3	LAT / LONG: 41.420691 N, 81.643524 W	

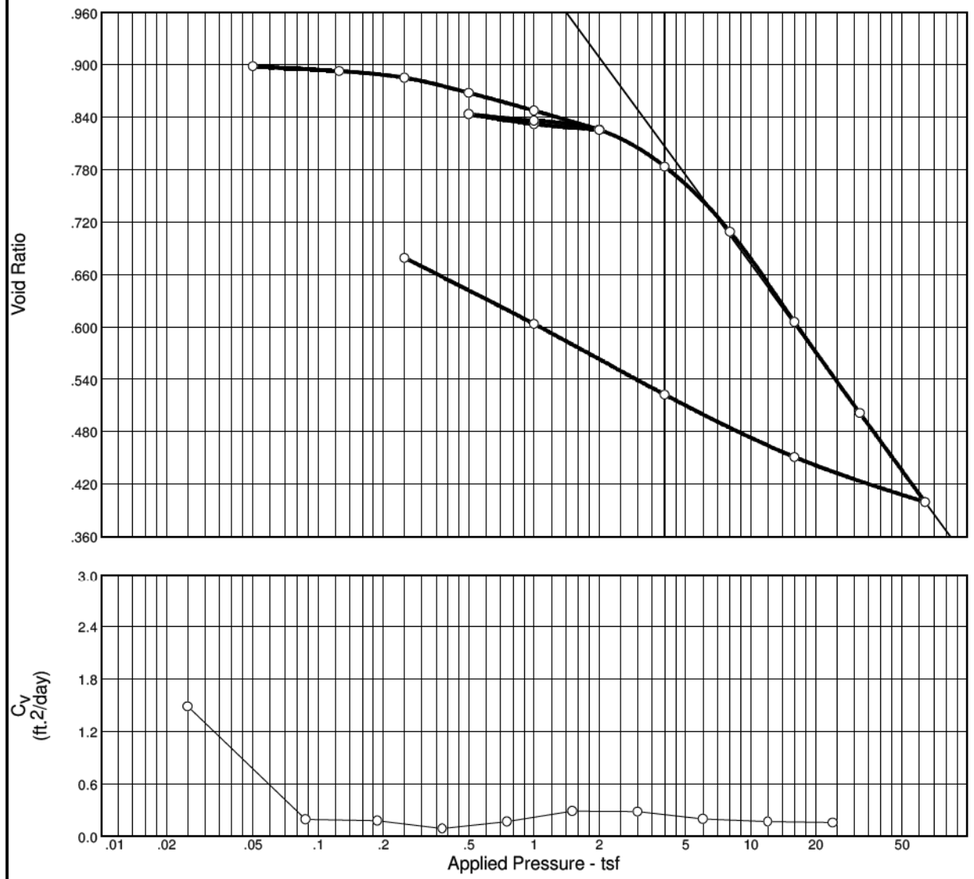
MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ROOTMAT - 2 INCHES	654.4																	
Fill: Hard brown SILT AND CLAY, some fine to coarse sand, some to "and" fine to coarse gravel, damp.	652.0		8 7 5	16	67	SS-1	4.0-4.5	-	-	-	-	-	-	-	-	9	A-6a (V)	
Fill: Very-stiff to hard brown, dark-brown and gray SILTY CLAY, little fine to coarse sand, little fine gravel, damp.	648.5		1 3 8	15	61	SS-2	2.0-4.5	13	10	9	39	29	32	16	16	15	A-6b (9)	
Fill: Dense gray and brown GRAVEL WITH SAND AND SILT, damp.	648.0		23	-	100	SS-3A	-	-	-	-	-	-	-	-	-	8	A-2-4 (V)	
Fill: Hard brown mottled with gray and dark-brown SILTY CLAY, some fine to coarse sand, trace fine gravel, damp.	646.5		6 8	19	58	SS-3B	3.0-4.5	-	-	-	-	-	-	-	-	17	A-6b (V)	
Fill: Medium-dense gray SILT, few zones interbedded with silty clay, damp.	644.5		7 7 7	19	94	SS-4	-	-	-	-	-	-	-	-	-	15	A-4b (V)	
Fill: Medium-dense gray-brown SILT, trace fine to coarse sand, trace fine gravel, damp.	641.4		3 4 5	12	78	SS-5	-	1	1	2	69	27	24	18	6	17	A-4b (8)	
Fill: Medium-dense brown and gray SILT, numerous silty clay lenses, some fine to coarse sand, trace fine gravel, few brick fragments, damp.	635.3		3 4 4	11	100	SS-6	-	-	-	-	-	-	-	-	-	18	A-4b (V)	
			3 7 10	23	94	SS-7	-	-	-	-	-	-	-	-	-	16	A-4b (V)	
			2	-	100	SS-8A	-	-	-	-	-	-	-	-	-	20	A-4b (V)	
Possible Fill: Loose brown and gray SANDY SILT, trace fine gravel, damp.	634.0		2 5	10	100	SS-8B	-	-	-	-	-	-	-	-	-	20	A-4a (V)	
Stiff to very-stiff gray mottled with brown SILTY CLAY, trace fine to coarse sand, trace fine gravel, dessicated, damp.	631.5		4 4 5	12	89	SS-9	1.0-3.0	-	-	-	-	-	-	-	-	25	A-6b (V)	
Medium-stiff gray SILTY CLAY, trace fine to coarse sand, trace fine gravel, damp.	629.5	EOB	2 2 3	7	100	SS-10	0.5-1.0	1	1	2	23	73	39	21	18	29	A-6b (11)	

- No seepage noted.
- Encountered cobbles at 0.6'.

NOTES: SEE ABOVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SOIL CUTTINGS

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
100.2 %	33.0 %	89.8	38	19	2.73304	0.67	4.99	0.34	0.07	0.899

MATERIAL DESCRIPTION	USCS	AASHTO
Medium-stiff to stiff gray SILTY CLAY, trace fine gravel, moist.	CL	A-6(20)

Project No. 012.01461.300 **Client:** Euthenics Inc.
Project: CUY-21-10.04L
Cuyahoga Heights, Ohio
Location: B-002-0-11 ST-5 I 11.0'-13.0'

S&ME, Inc.
Dublin, Ohio

Remarks:
Sta. 535+77, 69.1 RT.

Figure

CONSOLIDATION TEST DATA

Client: Euthenics Inc.
Project: CUY-21-10.04L
Cuyahoga Heights, Ohio
Project Number: 012.01461.300

Sample Data

Source:
Sample No.: ST-5
Depth: 11.0' - 13.1' SEC I **Sample Length(in./cm.):** 1.00
Location: B-002-0-11 ST-5 I 11.0'-13.0'
Description: Medium-stiff to stiff gray SILTY CLAY, trace fine gravel, moist.
Liquid Limit: 38 **Plasticity Index:** 19
USCS: CL **AASHTO:** A-6(20) **Figure No.:**
Testing Remarks: Sta. 535+77, 69.1 RT.

Test Specimen Data

TOTAL SAMPLE	BEFORE TEST	AFTER TEST
Wet w+t = 372.35 g.	**Consolidometer # =** 2	**Wet w+t =** 365.33 g.
Dry w+t = 334.17 g.		**Dry w+t =** 334.17 g.
Tare Wt. = 218.43 g.	**Spec. Gravity =** 2.73304	**Tare Wt. =** 218.43 g.
Height = 1.00 in.	**Height =** 1.00 in.	
Diameter = 2.50 in.	**Diameter =** 2.50 in.	
Weight = 153.92 g.	**Defl. Table =** Reference Set (inches/psf)	
Moisture = 33.0 %	**Ht. Solids =** 0.5265 in.	**Moisture =** 26.9 %
Wet Den. = 119.5 pcf	**Dry Wt. =** 115.74 g.*	**Dry Wt. =** 115.74 g.
Dry Den. = 89.8 pcf	**Void Ratio =** 0.899	**Void Ratio =** 0.679
Ovrbrdn. = 0.67 tsf	**Saturation =** 100.2 %	

*** Initial dry weight used in calculations**

S&ME, Inc.

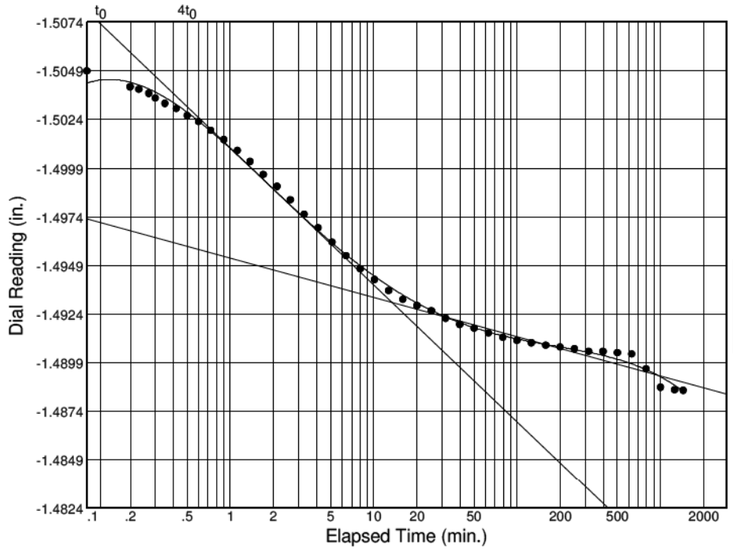
DRAWN ZWA CHECKED CJN

SOIL PROFILE & LABORATORY TEST DATA

CUY-21-10.04L

Dial Reading vs. Time

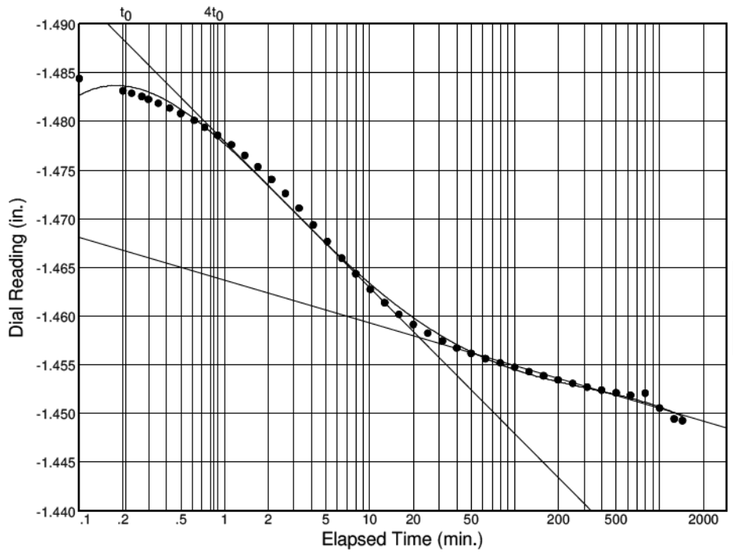
Project No.: 012.01461.300
Project: CUY-21-10.04L
Cuyahoga Heights, Ohio
Location: B-002-0-11 ST-5 I 11.0'-13.0'



Load No.= 11
Load= 4.00 tsf
D_0 = -1.50609
D_{50} = -1.49954
D_{100} = -1.49300
T_{50} = 1.57 min.

C_v @ T_{50}
0.28 ft.^{2}/day

C_α = 0.002



Load No.= 12
Load= 8.00 tsf
D_0 = -1.48853
D_{50} = -1.47316
D_{100} = -1.45779
T_{50} = 2.07 min.

C_v @ T_{50}
0.20 ft.^{2}/day

C_α = 0.005

Figure

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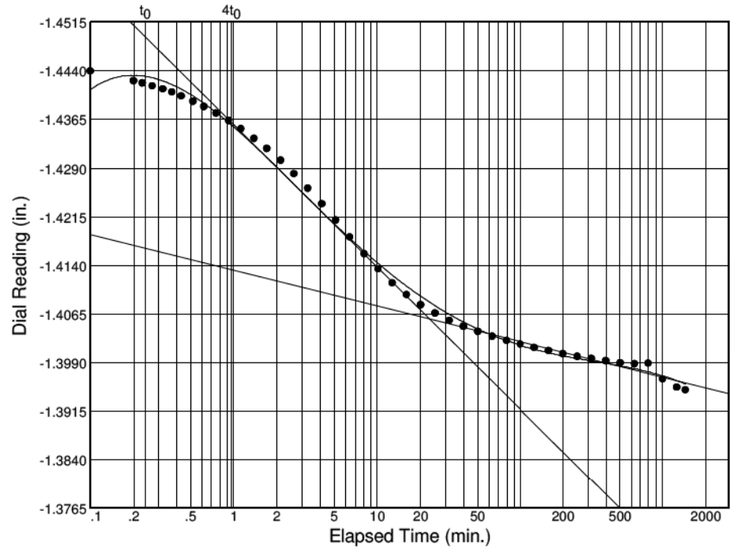
Dial Reading vs. Time

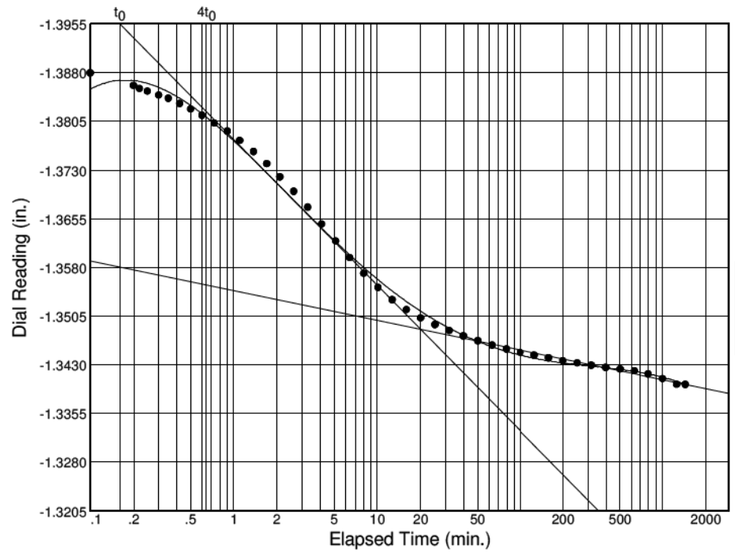
Project No.: 012.01461.300
Project: CUY-21-10.04L
Cuyahoga Heights, Ohio
Location: B-002-0-11 ST-5 I 11.0'-13.0'



Load No.= 13
Load= 16.00 tsf
D_0 = -1.45064
D_{50} = -1.42820
D_{100} = -1.40575
T_{50} = 2.20 min.

C_v @ T_{50}
0.17 ft.^{2}/day

C_α = 0.006



Load No.= 14
Load= 32.00 tsf
D_0 = -1.39252
D_{50} = -1.37049
D_{100} = -1.34845
T_{50} = 2.09 min.

C_v @ T_{50}
0.16 ft.^{2}/day

C_α = 0.005

Figure

S&ME, Inc.

DRAWN ZWA
CHECKED CJN

SOIL PROFILE
LABORATORY TEST DATA

CUY-21-10.04L