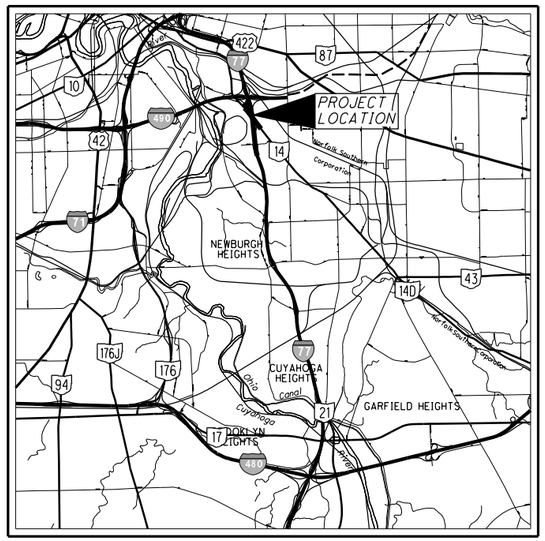

LOCATION MAP

LATITUDE: 41°28'27" LONGITUDE: 81°39'35"

SCALE IN MILES

0 1 2 3 4

N

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

CUY-77-13.80 (CCG6B)
BUILDABLE UNIT 9

CITY OF CLEVELAND

CUYAHOGA COUNTY

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

INDEX OF SHEETS:

TITLE SHEET	1
RETAINING WALL	
WALL 1	2-13
WALL 2A	14-21

PROJECT DESCRIPTION

CONSTRUCT WALL 1 BETWEEN CUY-77 & BROADWAY AVE.
CONSTRUCT WALL 2A BETWEEN CUY-77 AND FRONTAGE RD.

PROJECT EARTH DISTURBED AREA: N/A ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES
(SEE BU-6 FOR PROJECT EARTH DISTURBED AREA)

LIMITED ACCESS

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

2016 SPECIFICATIONS

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

DESIGN DESIGNATION

	I.R. 77 NORTH OF BROADWAY	I.R. 77 SOUTH OF BROADWAY	RAMP J5 & J6	FRONTAGE ROAD	BROADWAY AVENUE
CURRENT ADT (2017)	32,770	54,050	21,280	2,340	18,170
DESIGN YEAR ADT (2037)	41,220	63,300	22,080	2,300	18,410
DESIGN HOURLY VOLUME AM/PM (2037)	2,340/4,970	4,900/6,470	2,560/1,500	110/310	1,580/1,160
DIRECTIONAL DISTRIBUTION AM/PM	55%/61%	57%/60%	N/A	N/A	62%/65%
TRUCKS (24 HOUR B&C)	8%	8%	7%	37%	6%
DESIGN SPEED	60	60	50 (490E), 35 (490W)	40	35
LEGAL SPEED	50	60	N/A	35	35
DESIGN FUNCTIONAL CLASSIFICATION:	URBAN INTERSTATE	URBAN INTERSTATE	DIRECTIONAL RAMP	DIRECTIONAL RAMP	URBAN PRINCIPAL ARTERIAL
NHS PROJECT	YES	YES	YES	YES	YES

DESIGN EXCEPTIONS

NONE

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.

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

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

PLAN PREPARED BY:

E.L. ROBINSON ENGINEERING
1468 West 9th Street • Cleveland, Ohio 44113
www.elrobinsonengineering.com

kokosing CONSTRUCTION COMPANY INC.

ENGINEERS SEAL:

STATE OF OHIO — PETER ALAN NARSAVAGE E-62277 — REGISTERED PROFESSIONAL ENGINEER

SIGNED:

DATE: 1/16/2017

STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS
F-1.1	7/19/13					800	7/15/16	JET GROUTING

RELEASED FOR CONSTRUCTION

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01/17/2018 | Brian.Link

APPROVED _____
DATE _____ DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

BU9 - WALLS 1A, 1B, 1C, & 2A		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

FEDERAL PROJECT NO. E131(492)

PID NO. 82388

CONSTRUCTION PROJECT NO. 173001

RAILROAD INVOLVEMENT NONE

CUY-77-13.80

1/21

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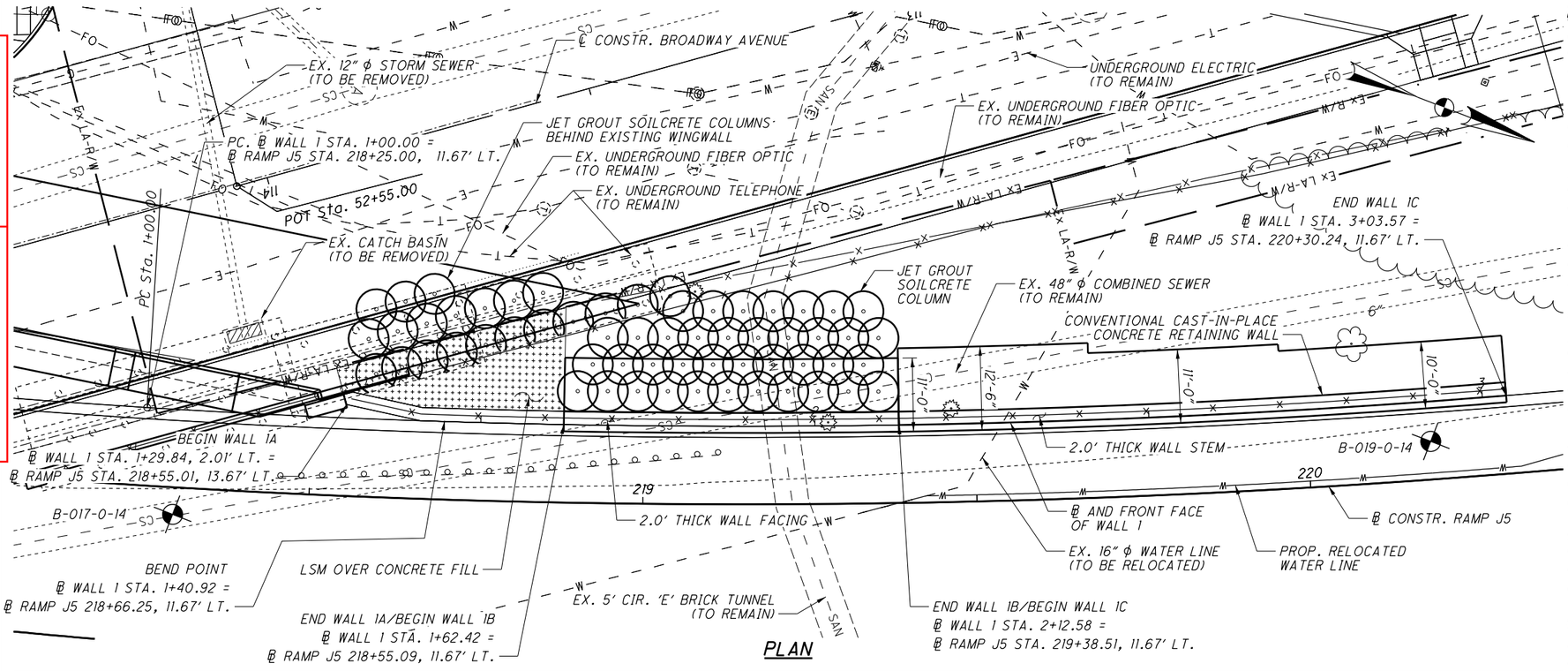
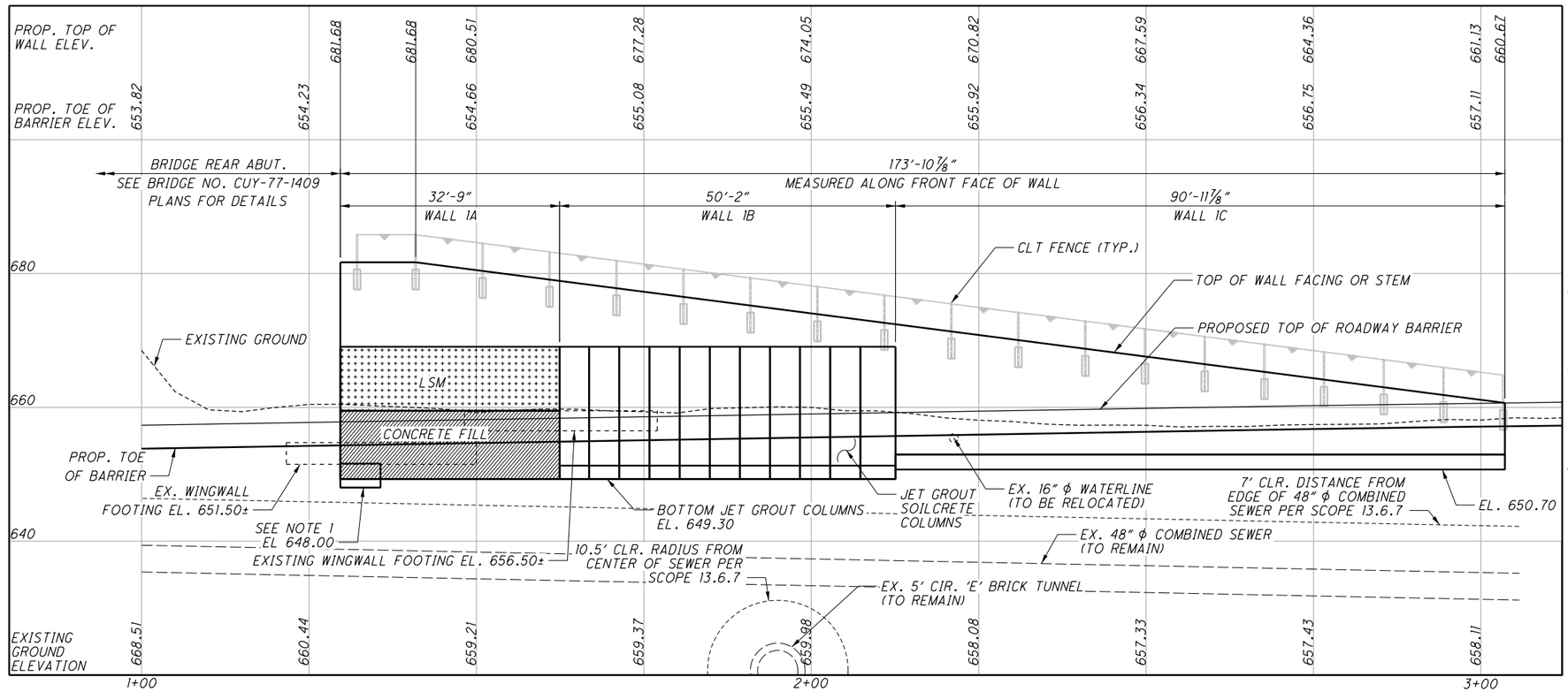


PLAN



PROFILE

BENCHMARK DATA:

J5:
BM#3: RAMP J5 STA. 219+57.58. 46.97' RT., ELEV. 658.78
MONUMENT BOX IN GORE OF 77 AND RAMP J5

BM#6: RAMP J5 STA. 221+41.95. 84.29' LT., ELEV 674.58
MONUMENT BOX IN THE SIDEWALK ON THE NORTH SIDE OF BROADWAY AVENUE

WALL 1:
BM#3: WALL 1 STA. 2+31.50. 58.64' RT., ELEV 658.78
MONUMENT BOX IN GORE OF 77 AND RAMP J5

BM#6: WALL 1 STA. 7+00.58. 74.09' LT., ELEV 674.58
MONUMENT BOX IN THE SIDEWALK ON THE NORTH SIDE OF BROADWAY AVENUE

ALIGNMENT DATA:

WALL 1 CURVE DATA:
P.I. STA. = 2+24.30
Δ = 10° 00' 00" (LT)
Dc = 4° 01' 58"
R = 1,420.73'
T = 124.30'
L = 247.96'
E = 5.43'
C = 247.65'
C.B. = N 22° 24' 10" W

RAMP J5 CURVE DATA:
P.I. STA. = 219+28.60
Δ = 19° 34' 48" (LT)
Dc = 4° 00' 00"
R = 1,432.39'
T = 247.16'
L = 2489.50'
E = 21.17'
C = 487.12'
C.B. = N 21° 27' 01" W

BROADWAY TANGENT DATA:
P.T. #1 STA. = 111+59.98
P.T. #2 STA. = 119+75.67
BEARING = S 36° 28' 42" E

PROFILE DATA:

BROADWAY AVE.:
PROFILE 1:
P.V.I. STA. = 112+50.00
P.V.I. EL. = 674.62
L = 230.00'
K = 57.0
G1 = 0.16%
G2 = 4.20%

PROFILE 2:
P.V.I. STA. = 114+40.00
P.V.I. EL. = 682.60
L = 150.00'
K = 32.6
G1 = 4.20%
G2 = -0.40%

RAMP J5:
PROFILE 1:
P.V.I. STA. = 214+45.00
P.V.I. EL. = 648.00
L = 420.00'
K = 101.5
G1 = -2.47%
G2 = 1.67%

PROFILE 2:
P.V.I. STA. = 222+30.00
P.V.I. EL. = 661.09
L = 490.00'
K = 123.8
G1 = 1.67%
G2 = -2.29%

LEGEND:

⊕ - PROJECT BORING LOCATION

NOTES:

1. THREE JET GROUT COLUMNS ON END EXTEND THROUGH EXISTING FOOTING TO EL. 648.00 IN ORDER TO SUPPORT EXCAVATION FOR REAR ABUTMENT.
2. ALL PERTINENT UTILITY DISPOSITIONS NEAR WALL 1 HAVE BEEN MARKED. OTHERS ASSUMED TO REMAIN.
3. EARTHWORK LIMITS SHALL CONFORM TO PLAN CROSS SECTIONS.

BU9 - WALLS 1A, 1B, 1C, & 2A		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 - Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
PAN	LJS	DFT	DEC 2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JN/MRV		N/A	

SITE PLAN
RETAINING WALL 1 ALONG RAMP J5

CUY-77-13.80
PID No. 82388

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STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD CONSTRUCTION DRAWING:

F1.1 REVISED 7/19/13

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION:

800 DATED 7/15/16
902 DATED 12/31/12

SPECIAL PROVISION:

JET GROUTING

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2014 - 7th EDITION, INCLUDING THE 2015 AND 2016 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN PARAMETERS:

RETAINED: SOIL UNIT WEIGHT, γ = 120 PCF
ANGLE OF INTERNAL FRICTION, ϕ = 30°
FOUNDATION: SOIL UNIT WEIGHT, γ = 130 PCF
ANGLE OF INTERNAL FRICTION, ϕ = 32°
LIVE LOAD SURCHARGE = 240 PSF

DESIGN DATA:

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI
JET GROUT SOILCRETE - MIN. 28-DAY COMPRESSIVE STRENGTH 500 PSI
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI

FOUNDATION BEARING RESISTANCE (WALL 1C):

THE RETAINING WALL FOOTINGS, AS DESIGNED, PRODUCE THE FOLLOWING BEARING PRESSURES:

12.5' FOOTING: MAXIMUM SERVICE LOAD PRESSURE = 4.7 KSF
MAXIMUM STRENGTH LOAD PRESSURE = 6.9 KSF
FACTORED BEARING RESISTANCE = 14.3 KSF

11.0' FOOTING: MAXIMUM SERVICE LOAD PRESSURE = 3.9 KSF
MAXIMUM STRENGTH LOAD PRESSURE = 5.8 KSF
FACTORED BEARING RESISTANCE = 14.0 KSF

10.0' FOOTING: MAXIMUM SERVICE LOAD PRESSURE = 2.9 KSF
MAXIMUM STRENGTH LOAD PRESSURE = 4.2 KSF
FACTORED BEARING RESISTANCE = 14.0 KSF

GENERAL CONSTRUCTION SEQUENCE:

CONSTRUCT WALLS 1A, 1B, AND 1C IN THE FOLLOWING SEQUENCE:

1. CONSTRUCT WORKING PAD TO INSTALL JET GROUT COLUMNS.
2. PERFORM JET GROUT TEST PROGRAM.
3. CONSTRUCT JET GROUT COLUMNS.
4. EXCAVATE TO TOP OF JET GROUT COLUMNS FOR WALL 1B AND EXPOSE FACE OF JET GROUT COLUMNS ALONG RAMP J5. EXCAVATE FOR CONCRETE FILL ON WALL 1A.
5. PLACE REINFORCING STEEL AND CONCRETE FOR CONCRETE FILL IN WALL 1A. PLACE REINFORCING STEEL AND CONCRETE FOR LOWER WALL FOOTING IN WALL 1B.
6. PLACE REINFORCING STEEL AND CONCRETE FOR WALL FACING IN WALL 1A AND FOR WALL FACING AND UPPER FOOTING IN WALL 1B.
7. PLACE REINFORCING STEEL AND LOW STRENGTH MORTAR FILL FOR WALL 1A. PLACE REINFORCING STEEL AND CONCRETE FOR ANY REMAINING WALL FACING IN WALLS 1A AND 1B.
8. EXCAVATE AND CONSTRUCT CONCRETE CANTILEVER WALL 1C.

PRE-CONSTRUCTION SURVEY AND VIDEO INSPECTION OF STORM SEWERS:

PERFORM A PRE-CONSTRUCTION SURVEY OF THE 48-INCH AND 60-INCH STORM SEWERS LOCATED BELOW WALL 1. USE A CRAWLER-MOUNTED CAMERA AND EQUIPMENT IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 902. SUBMIT THE PRE-CONSTRUCTION SURVEY, INCLUDING VIDEO, TO THE DEPARTMENT AND NEORSD FOR REVIEW BEFORE BEGINNING CONSTRUCTION OF WALL 1. PERFORM TWO ADDITIONAL VIDEO INSPECTIONS OF THESE TWO STORM SEWERS - ONE VIDEO INSPECTION WITHIN 60 DAYS OF COMPLETING THE CONSTRUCTION OF WALL 1 AND THE NEXT VIDEO INSPECTION ONE YEAR AFTER SUBSTANTIAL COMPLETION. PROVIDE RECORDINGS OF THE VIDEOS TO THE DEPARTMENT AND NEORSD FOR REVIEW.

ITEM 511 - CLASS QC2 CONCRETE, AS PER PLAN:

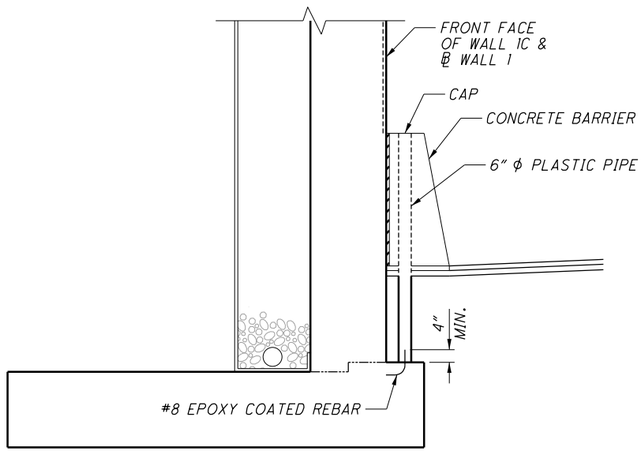
IN ADDITION TO THE REQUIREMENTS OF ITEM 511, INSTALL A REFERENCE MONUMENT AT EACH END OF EACH SPREAD FOOTING. THE REFERENCE MONUMENT SHALL CONSIST OF A #8, OR LARGER, EPOXY COATED REBAR EMBEDDED AT LEAST 6" INTO THE FOOTING AND EXTENDED VERTICALLY 4 TO 6 INCHES ABOVE THE TOP OF THE FOOTING. INSTALL A SIX INCH DIAMETER, SCHEDULE 40, PLASTIC PIPE AROUND THE REFERENCE MONUMENT. CENTER THE PIPE ON THE REFERENCE MONUMENT AND PLACE THE PIPE VERTICAL WITH ITS TOP AT THE FINISHED GRADE. THE PIPE SHALL HAVE A REMOVABLE, SCHEDULE 40, PLASTIC CAP. PERMANENTLY ATTACH THE BOTTOM OF THE PIPE TO THE TOP OF THE FOOTING.

ESTABLISH A BENCHMARK TO DETERMINE THE ELEVATIONS OF THE REFERENCE MONUMENTS AT VARIOUS MONITORING PERIODS THROUGHOUT THE LENGTH OF THE CONSTRUCTION PROJECT. THE BENCHMARK SHALL BE THE SAME THROUGHOUT THE PROJECT AND SHALL BE INDEPENDENT OF ALL STRUCTURES.

RECORD THE ELEVATION OF EACH REFERENCE MONUMENT AT EACH MONITORING PERIOD SHOWN IN THE TABLE BELOW.

THE ORIGINAL COMPLETED TABLES WILL BECOME PART OF THE DISTRICT'S PROJECT PLAN RECORDS.

PROJECT NUMBER: CUY-77-13.80	MAXIMUM FACTORED BEARING PRESSURE: 6.9 KSF	
RETAINING WALL: 1C	STRUCTURE FILE NUMBER: N/A	
BENCHMARK LOCATIONS:	BM#3: WALL 1 STA. 2+31.50. 58.64' RT., ELEV 658.78 MONUMENT BOX IN GORE OF 77 AND RAMP J5 BM#6: WALL 1 STA. 7+00.58. 74.09' LT., ELEV 674.58 MONUMENT BOX IN THE SIDEWALK ON THE NORTH SIDE OF BROADWAY AVENUE	
MONITORING PERIOD:	LEFT MONUMENT: ℄ WALL 1 STA. 2+15.58 OFFSET 0.5' RT.	RIGHT MONUMENT: ℄ WALL 1 STA. 3+00.57 OFFSET 0.5' RT.
AFTER FOOTING CONCRETE IS PLACED:		
AFTER STEM CONCRETE IS PLACED:		
PROJECT COMPLETION:		



LEFT MONUMENT:
℄ WALL 1 STA. 2+15.58
OFFSET 0.5' RT.

RIGHT MONUMENT:
℄ WALL 1 STA. 3+00.57
OFFSET 0.5' RT.

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE):

SEAL SURFACES OF THE CAST-IN-PLACE CONCRETE WALL FACING AND PARAPET AS DETAILED IN THE PLANS WITH A EPOXY-URETHANE SEALER AS PER CMS 512.

USE THE FOLLOWING FINISH COAT COLOR:
CAST-IN-PLACE WALL: FEDERAL COLOR NO. 595B-25630 (LIGHT GREY, SEMI-GLOSS)

ITEM 607 - FENCE, TYPE CLT, AS PER PLAN:

THE DBT SHALL FURNISH AND INSTALL TYPE CLT FENCE AS PER CMS 607 AND ODOT SCD F-1.1 WITH THE FOLLOWING REVISIONS:

1. FABRIC SHALL CONSIST OF 2-INCH DIAMOND MESH USING 0.148-INCH DIAMETER (9 GAUGE) WIRE CONFORMING TO ASTM F668 CLASS 2A OR 2B EXCEPT AS NOTED. THE PVC COATING SHALL BE BLACK IN COLOR CLOSELY APPROACH FEDERAL STANDARD COLOR NO. 595B-27038. SELVAGES SHALL BE KNUCKLED AT BOTH ENDS. HANDLE ALL PVC COATED FABRIC WITH CARE. IF THE PVC COATING IS DAMAGED, REPLACE THE DAMAGED PORTION AT NO COST TO THE DEPARTMENT.
2. FABRIC TIES AND HOG RINGS SHALL BE 0.148-INCH CORE DIAMETER GALVANIZED PVC COATED STEEL WIRE CONFORMING TO ASTM A478. TO CONNECT THE FABRIC TO THE LINE POSTS, SUPPLY ONE FABRIC TIE FOR EACH ONE FOOT OF FABRIC HEIGHT. CONNECT THE FABRIC TO THE TENSION WIRE USING HOG RINGS 2-3 INCHES ON EACH SIDE OF THE POSTS AND AT SPACING NOT TO EXCEED 12 INCHES BETWEEN POSTS. THE PVC COATING SHALL BE THE SAME AS FOR THE STEEL FABRIC.
3. ALL POSTS, RAILS, RODS, CAPS, AND ANY OTHER VISIBLE HARDWARE SHALL BE GALVANIZED AND COATED BLACK TO MATCH THE FABRIC.

ABBREVIATIONS:

ABUT. - ABUTMENT
ADT - AVERAGE DAILY TRAFFIC
ADTT - AVERAGE DAILY TRUCK TRAFFIC
APPR. - APPROACH
B - BOTTOM
℄ - BASELINE
B.F. - BACK FACE
BM - BENCHMARK
BOT. OR BTM. - BOTTOM
BRG. - BEARING
℄ - CENTERLINE
C/C - CENTER TO CENTER
C.I.P. - CAST-IN-PLACE
C.J. - CONSTRUCTION JOINT
CLR. - CLEAR
CMS - CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONC. - CONCRETE
CONSTR. - CONSTRUCTION
CVN - CHARPY V-NOTCH
DIA. - DIAMETER
DIM. - DIMENSION
DWG. - DRAWING
E - EAST
EB - EASTBOUND
E.F. - EACH FACE
EL. OR ELEV. - ELEVATION
EOP - EDGE OF PAVEMENT
EQ. - EQUAL
EST. - ESTIMATED
EX. - EXISTING
EXP. - EXPANSION
F.A. - FORWARD ABUTMENT
F/F - FACE TO FACE
F.F. - FRONT FACE
FT. - FOOT OR FEET
FTG. - FOOTING
FWD. - FORWARD
FWS - FUTURE WEARING SURFACE
HMWM - HIGH MOLECULAR WEIGHT METHACRYLATE
HW - HIGH WATER
IN. - INCH
JT. - JOINT
L.F. - LEFT FORWARD
LSM - LOW STRENGTH MORTAR
LT. - LEFT
MAX. - MAXIMUM
MIN. - MINIMUM
MISC. - MISCELLANEOUS
MSE - MECHANICALLY STABILIZED EARTH
N - NORTH
NB - NORTHBOUND
NO. - NUMBER
N.P.C.P.P. - NON-PERFORATED CORRUGATED PLASTIC PIPE
OHWM - ORDINARY HIGH WATER MARK
O/O - OUT TO OUT
P.C.P.P. - PERFORATED CORRUGATED PLASTIC PIPE
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
PROP. - PROPOSED
PSF - POUNDS PER SQUARE FOOT
P.V.I. - POINT OF VERTICAL INTERSECTION
Q - FLOW RATE
R - RADIUS
R.A. - REAR ABUTMENT
RCP - ROCK CHANNEL PROTECTION
REQD. - REQUIRED
R.F. - RIGHT FORWARD
R.R. - RAILROAD
RT. - RIGHT
R/W - RIGHT OF WAY
S - SOUTH
SB - SOUTHBOUND
SER. - SERIES
SHLDR - SHOULDER
SPA. - SPACE OR SPACES
STA. - STATION
STD. - STANDARD
STR - STRAIGHT
T - TOP
T&B - TOP & BOTTOM
TBR - TO BE REMOVED
TEMP. - TEMPORARY
T.O.S. OR T/S - TOP OF SLOPE
T/T - TOE TO TOE
TYP. - TYPICAL
U.N.O. - UNLESS NOTED OTHERWISE
VAR. - VARIES
V - VELOCITY
W - WEST
WB - WESTBOUND
WWR - WELDED WIRE REINFORCEMENT

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01/17/2018 Brian.Link

BU9 - WALLS 1A, 1B, 1C, & 2A		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 - Columbus, OH● 43215
www.elrobinsonengineering.com

DESIGNED PAN | DRAWN LJS | REVIEWED DFT | DATE DEC 2017
CHECKED JN | REVISED | STRUCTURE FILE NUMBER N/A

GENERAL NOTES
RETAINING WALL 1
ALONG RAMP J5

CUY-77-13.80 PID No. 82388

2 / 12

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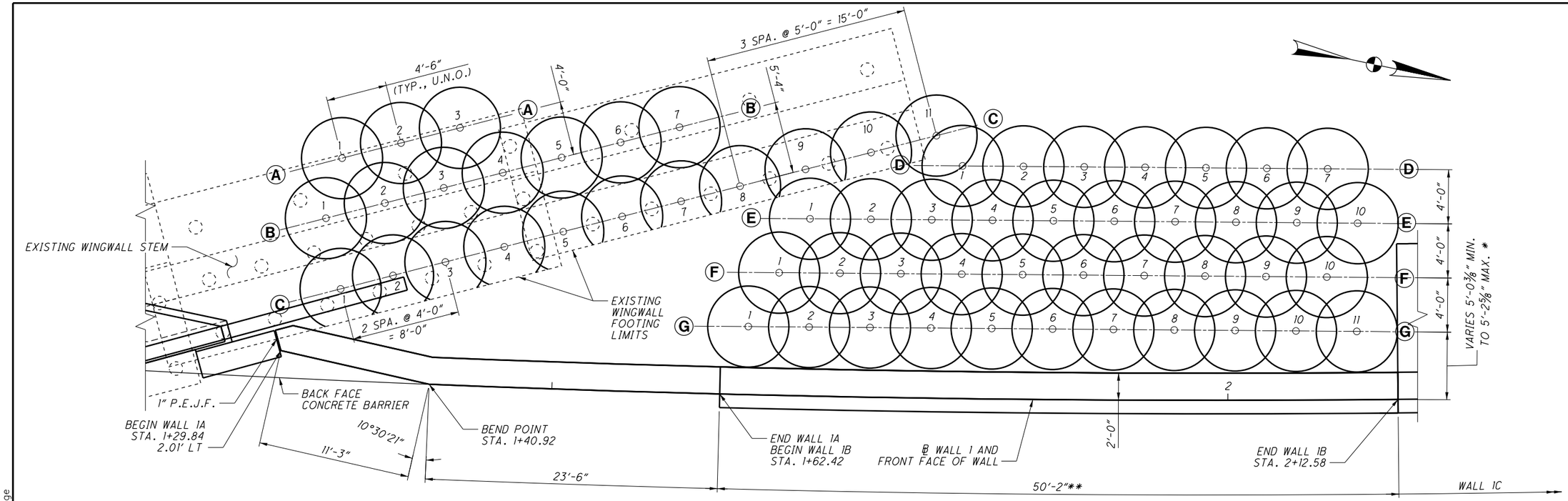
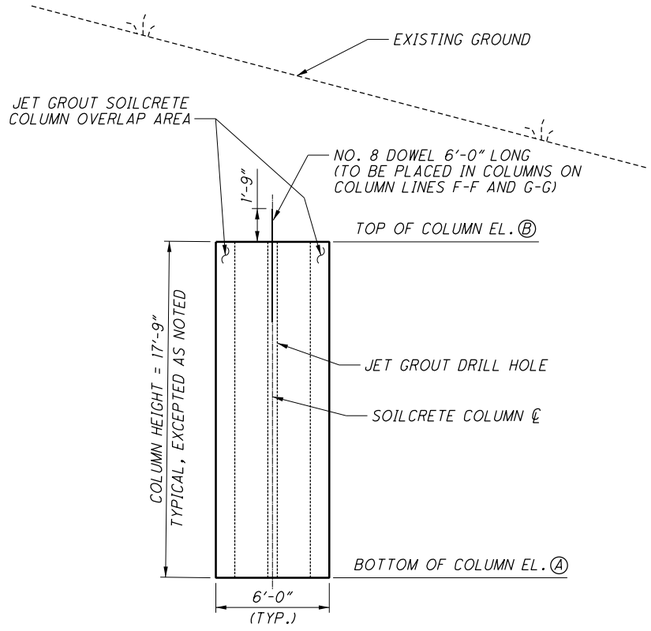
2018-01-16.BU-9 Walls 1 and 2A - RFC Plans



JET GROUT SOILCRETE COLUMN PLAN



TYPICAL JET GROUT SOILCRETE COLUMN

COLUMN LINE	SOILCRETE COLUMNS	FIRST COLUMN STA.	FIRST COLUMN OFFSET	LAST COLUMN STA.	LAST COLUMN OFFSET	CORES THROUGH EXISTING FOOTING	BOTTOM OF COLUMN EL. Ⓐ	COLUMN HEIGHT (FT)	TOP OF COLUMN EL. Ⓑ	COMMENT
A-A	1-3	1+33.72	-16.4	1+42.44	-19.0	YES	649.3*	17.75	667.05	*SEE NOTE 1
B-B	1-7	1+32.72	-11.9	1+58.89	-19.6	YES	649.3*	17.75	667.05	*SEE NOTE 1
C-C	1-4	1+34.06	-6.8	1+46.10	-10.4	YES	649.3*	2.30	651.60	*SEE NOTE 1
C-C	5-8	1+50.45	-11.6	1+63.54	-15.4	YES	649.3	7.20	656.50	
C-C	9-11	1+68.41	-16.7	1+78.17	-19.4	YES	649.3	17.75	667.05	
D-D	1-7	1+80.16	-17.2	2+07.49	-17.1	NO	649.3	17.75	667.05	
E-E	1-10	1+68.82	-13.1	2+09.70	-13.0	NO	649.3	17.75	667.05	SEE NOTE 2
F-F	1-10	1+66.61	-9.1	2+07.37	-9.1	NO	649.3	17.75	667.05	RECEIVES 6' LONG NO. 8 DOWEL
G-G	1-11	1+64.41	-5.0	2+09.57	-5.1	NO	649.3	17.75	667.05	RECEIVES 6' LONG NO. 8 DOWEL

RELEASED FOR CONSTRUCTION

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01/17/2018 | Brian.Link

NOTES:

1. COLUMNS A1, B1, AND C1 WILL EXTEND DOWN TO EL. 648.00 TO ACCOMODATE EXCAVATION FOR BRIDGE CONSTRUCTION.
2. SOILCRETE COLUMNS E1, E2, AND E3 COULD ENCOUNTER THE EXISTING SHEET PILING IN FRONT OF THE EXISTING WING WALL. IF THE JET GROUT MONITOR ENCOUNTERS SHEET PILING, JET GROUT FROM THAT DEPTH TO THE PROPOSED TOP OF COLUMN. THE ESTIMATED ELEVATIONS OF SHEET PILING BELOW E1, E2, AND E3 ARE 654.50, 650.50, AND 647.50, RESPECTIVELY.
3. FIBER OPTIC LINES AND SEWERS NOT SHOWN FOR CLARITY. FOR MORE INFORMATION, SEE SHEET 1/12.
4. ALL GEOMETRY TAKEN OFF OF ℄ WALL 1. FOR ADDITIONAL BASELINE STATIONING DETAILS, SEE SHEET 1/12.

LEGEND:

Ⓧ - JET GROUT SOILCRETE COLUMN LINE

* - MEASURED PERPENDICULAR TO ℄ WALL 1 TO CENTER OF JET GROUT COLUMN

** - MEASURED ALONG FRONT FACE OF WALL 1.

BU9 - WALLS 1A, 1B, 1C, & 2A		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 - Columbus, OH • 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
PAN	LJS	DFT	DEC 2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JN		N/A	

FOUNDATION PLAN - JET GROUT SOILCRETE COLUMN PLAN
RETAINING WALL 1
ALONG RAMP J5

CUY-77-13.80
PID No. 82388

3 / 12

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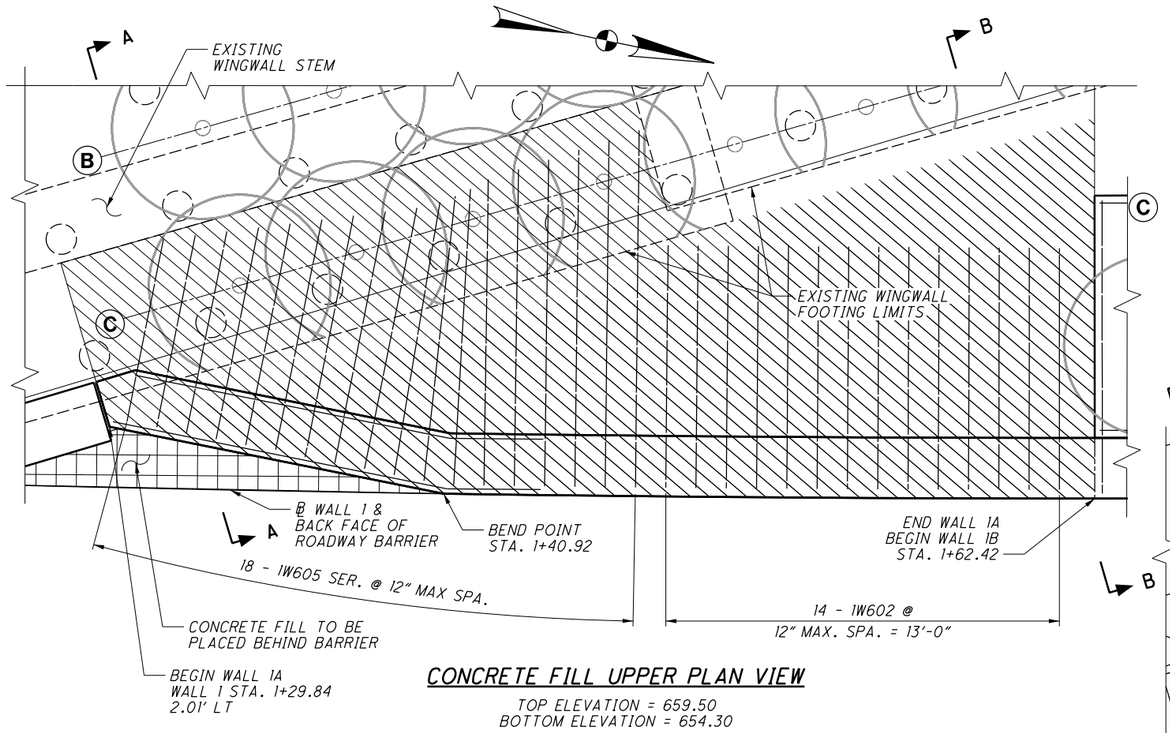
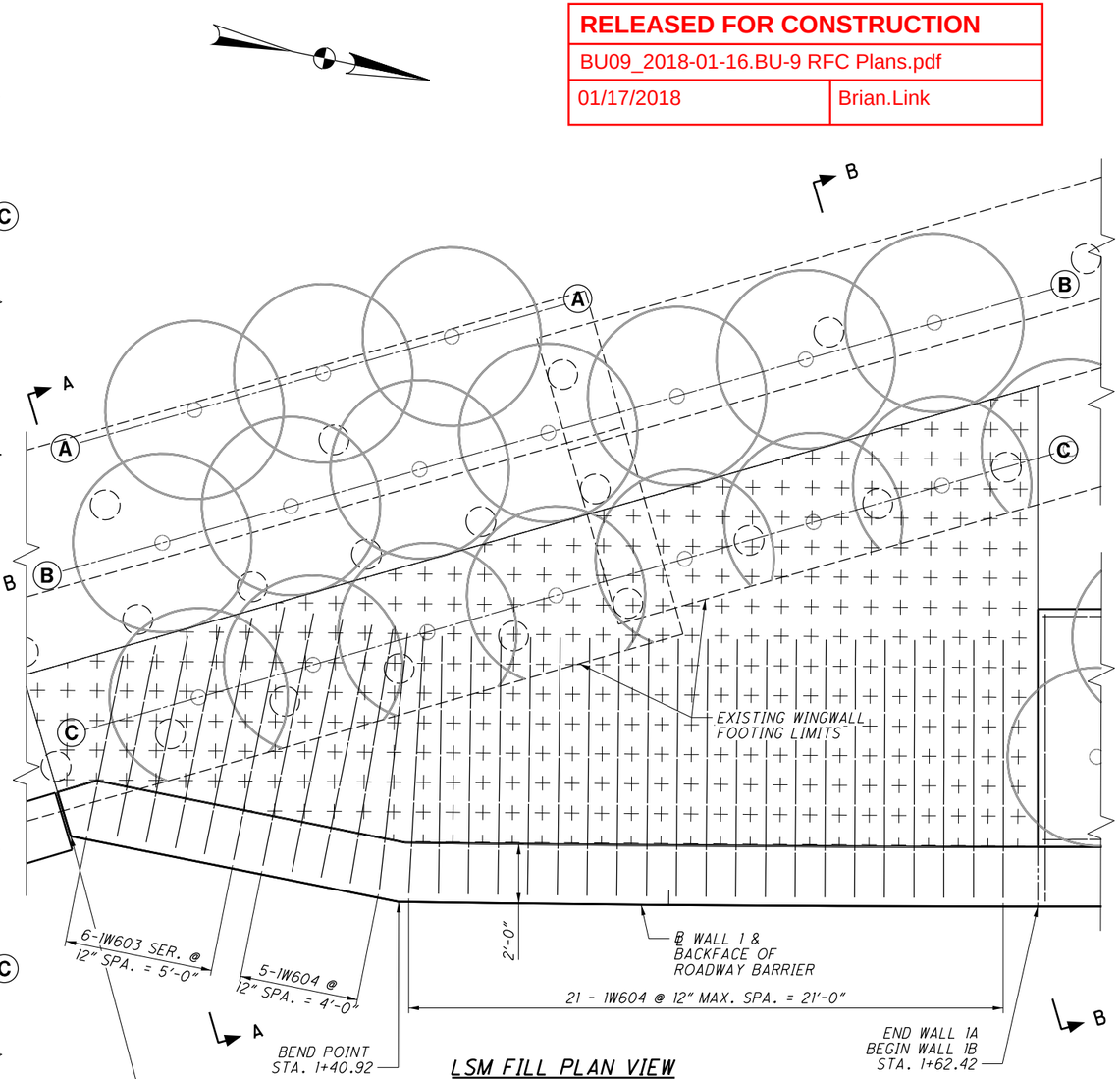


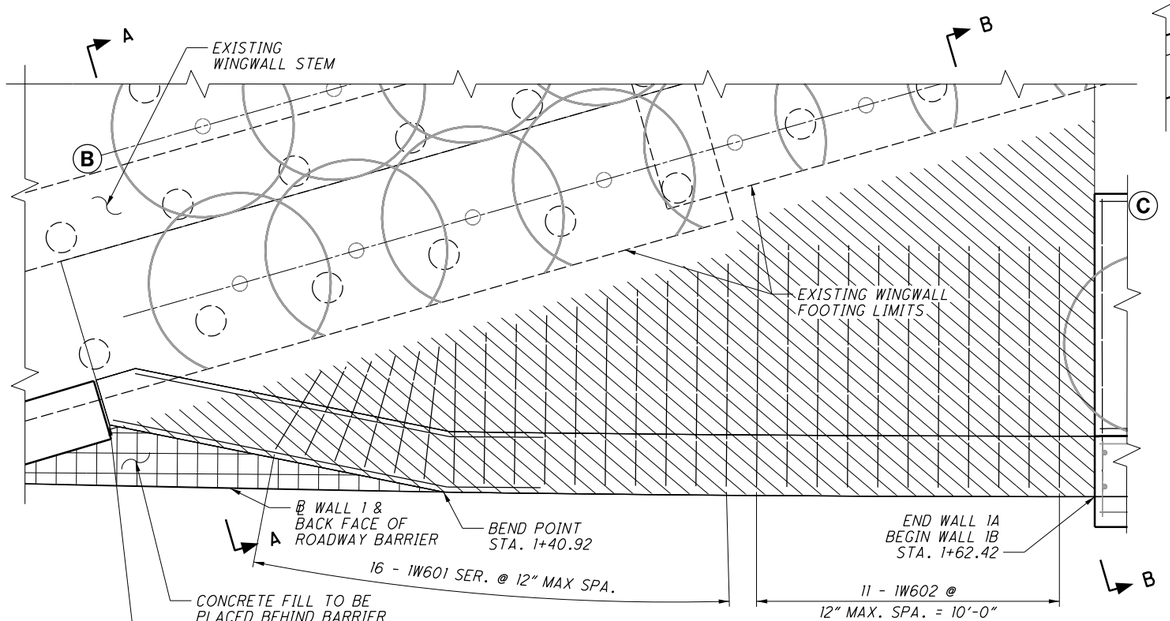
CONCRETE FILL UPPER PLAN VIEW

TOP ELEVATION = 659.50
BOTTOM ELEVATION = 654.30



LSM FILL PLAN VIEW

TOP ELEVATION = 669.05
BOTTOM ELEVATION = 659.50



CONCRETE FILL LOWER PLAN VIEW

TOP ELEVATION = 654.30
BOTTOM ELEVATION = 649.30

LEGEND:

- (X) - JET GROUT SOILCRETE COLUMN LINE
- - LOW STRENGTH MORTAR BACKFILL (TYPE 1)
- - CONCRETE FILL, CLASS QC MISC.
- - CONCRETE FILL, CLASS QC MISC., PLACED BEHIND BARRIER

NOTES:

1. FOR DETAILS ON JET GROUT SOILCRETE COLUMNS, SEE SHEET 3/12.
2. FOR SECTIONS A-A & B-B, SEE SHEET 8/12.
3. ALL GEOMETRY TAKEN OFF OF ℄ WALL 1. FOR ADDITIONAL BASELINE STATIONING DETAILS, SEE SHEET 1/12.
4. UTILITIES NOT SHOWN FOR CLARITY. SEE SHEET 1/12 FOR MORE DETAILS.

NO.	DATE	DESCRIPTION
		BU9 - WALLS 1A, 1B, 1C, & 2A
		ISSUE RECORD

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JN		N/A	

FOUNDATION PLAN - WALL 1A
RETAINING WALL 1
ALONG RAMP J5

CUY-77-13.80
PID No. 82388

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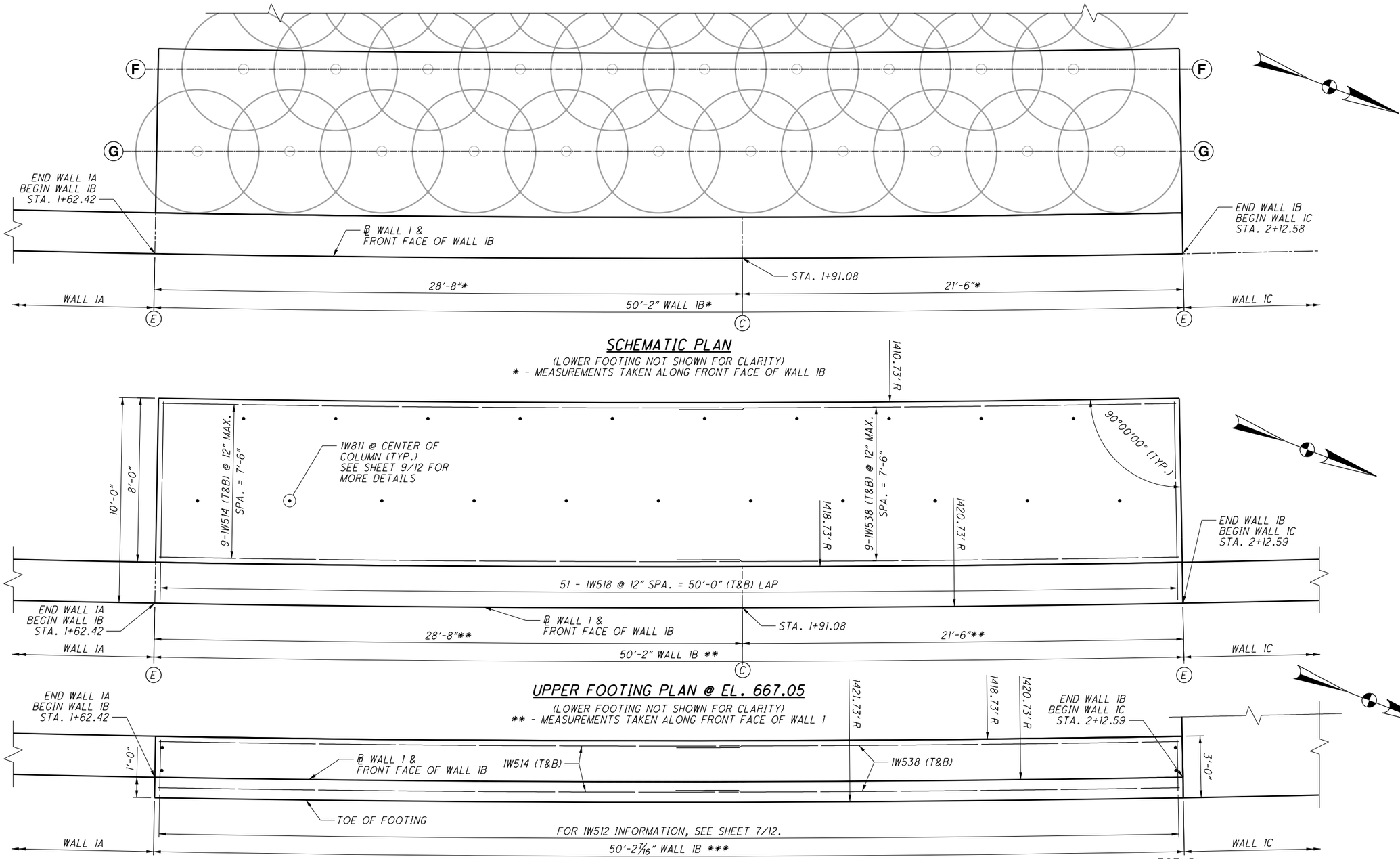

LEGEND:

- (X) - JET GROUT SOILCRETE COLUMN LINE
- (E) - DESIGNATES EXPANSION JOINT
- (C) - DESIGNATES CONTRACTION JOINT

NOTES:

1. FOR DETAILS ON JET GROUT SOILCRETE COLUMNS, SEE SHEET 3/12.
2. ALL GEOMETRY TAKEN OFF OF ℄ WALL 1. FOR ADDITIONAL BASELINE STATIONING DETAILS, SEE SHEET 1/12.
3. UTILITIES NOT SHOWN FOR CLARITY. SEE SHEET 1/12 FOR MORE DETAILS.

LAP LENGTHS	
NO. 5 BARS	3'-1" MIN.

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FOUNDATION PLAN - WALL 1B
RETAINING WALL 1
ALONG RAMP J5

CUY-77-13.80
PID No. 82388

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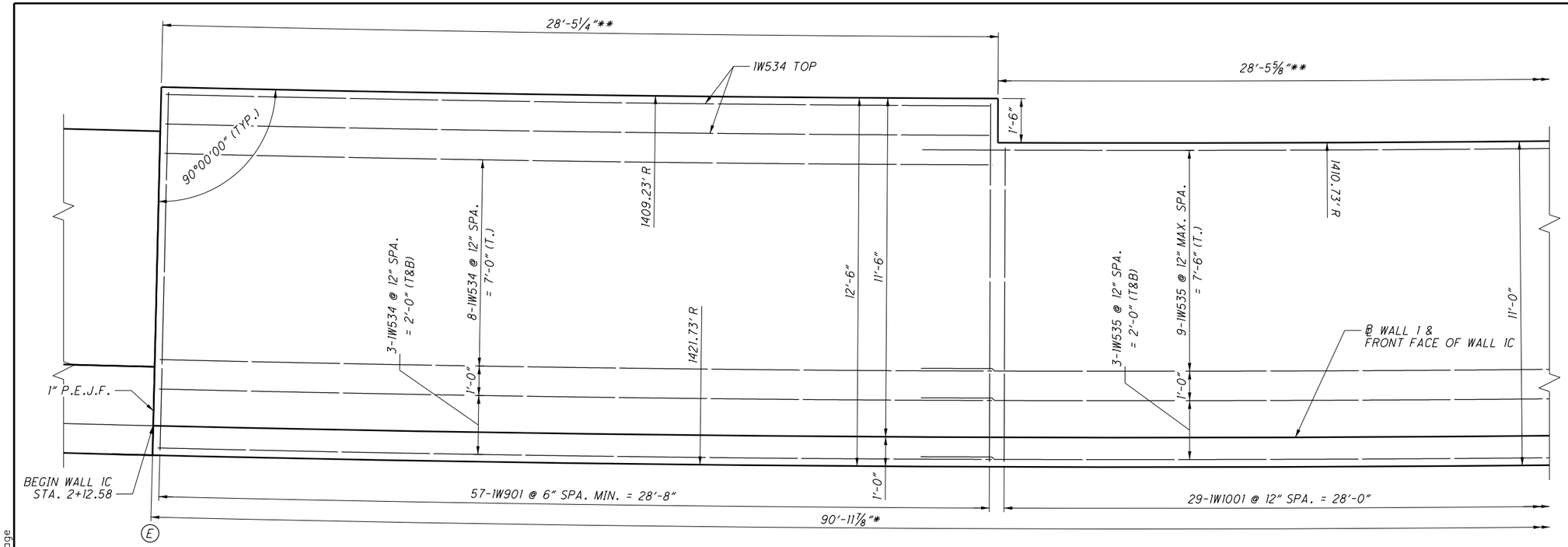
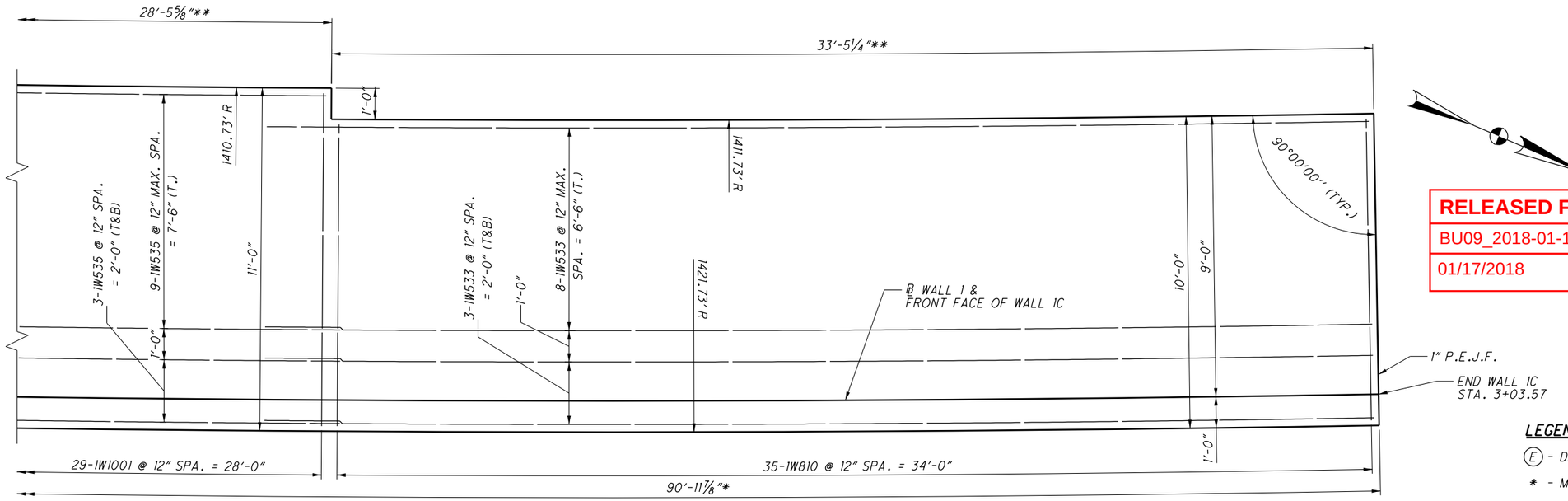
21



FOOTING PLAN



FOOTING PLAN

LAP LENGTHS	
NO. 5 BARS	3'-1" MIN.

NOTES:

1. FOR DETAILS ON JET GROUT SOILCRETE COLUMNS, SEE SHEET 3/12.
2. ALL GEOMETRY TAKEN OFF OF ℄ WALL 1. FOR ADDITIONAL BASELINE STATIONING DETAILS, SEE SHEET 1/12.
3. UTILITIES NOT SHOWN FOR CLARITY. SEE SHEET 1/12 FOR MORE DETAILS.

LEGEND:

(E) - DESIGNATES EXPANSION JOINT

* - MEASURED ALONG THE FRONT FACE OF WALL 1

** - MEASURED ALONG HEEL OF FOOTING

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JN		N/A	

FOUNDATION PLAN - WALL 1C
RETAINING WALL 1
ALONG RAMP J5

CUY-77-13.80
PID No. 82388

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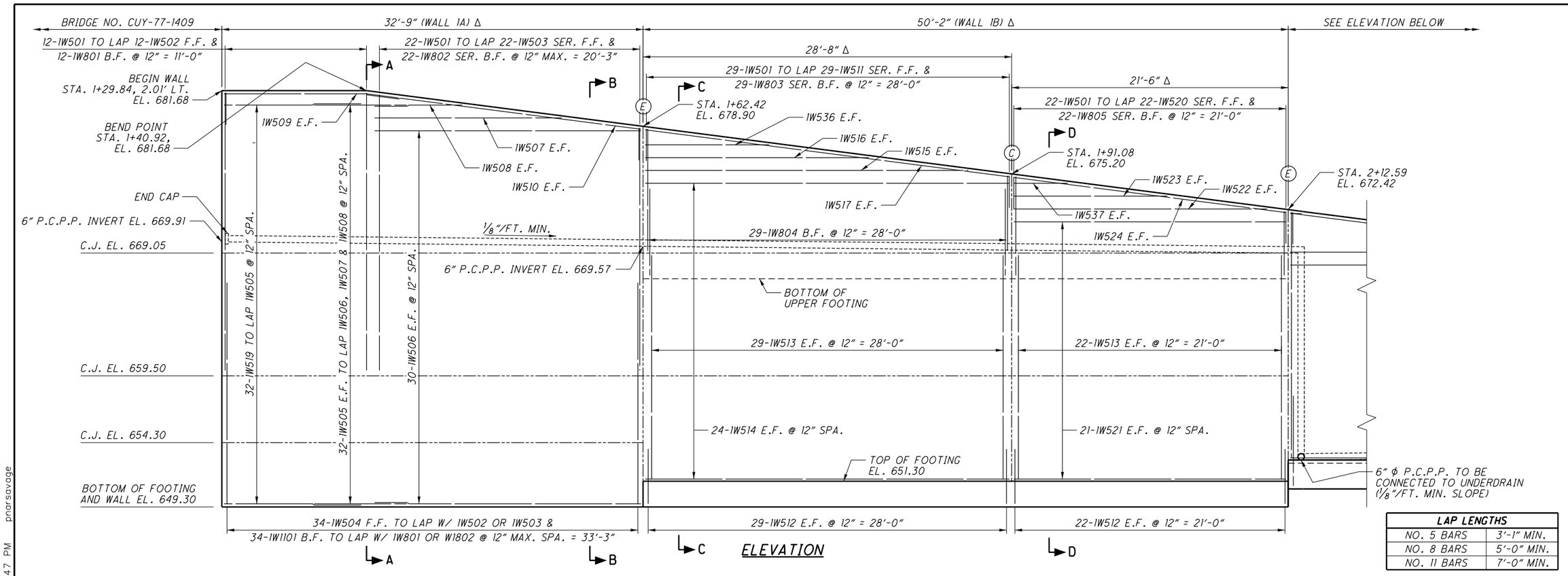
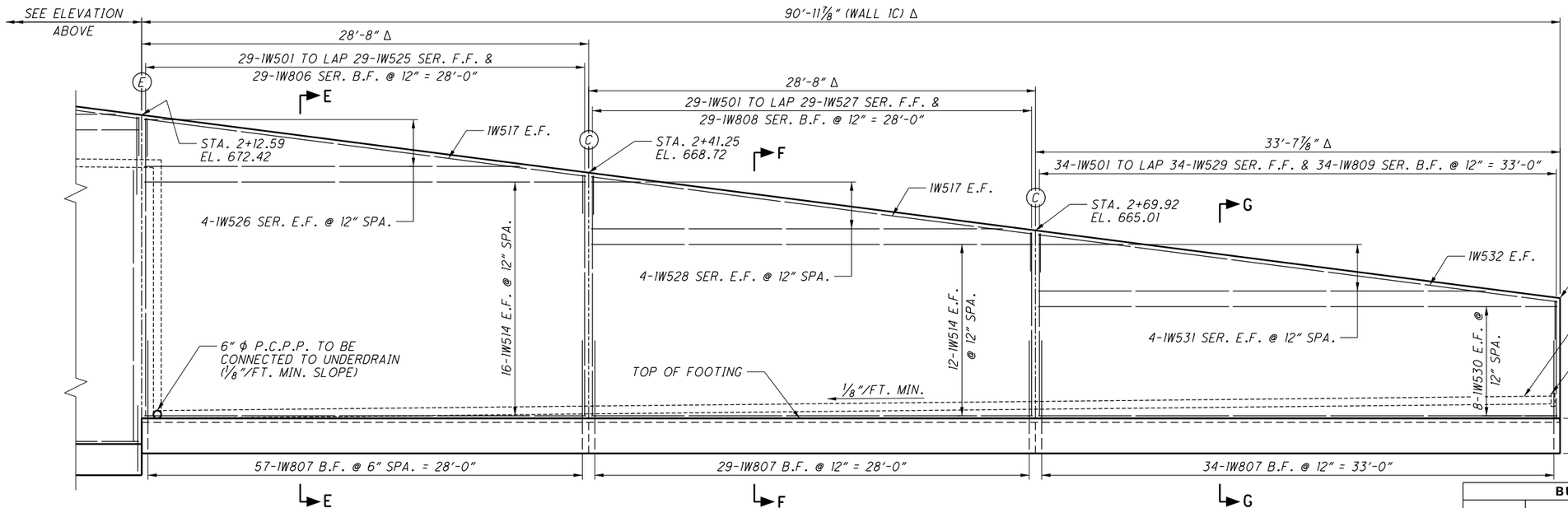


LAP LENGTHS	
NO. 5 BARS	3'-1" MIN.
NO. 8 BARS	5'-0" MIN.
NO. 11 BARS	7'-0" MIN.



NOTES:

1. FOR SECTION A-A & B-B, SEE SHEET 8/12.
2. FOR SECTION C-C & D-D, SEE SHEET 9/12.
3. FOR SECTION E-E THRU G-G & JOINT DETAILS, SEE SHEET 10/12.
4. FOOTING REINFORCEMENT NOT SHOWN FOR CLARITY.
5. ALL GEOMETRY TAKEN OFF OF ℄ WALL 1. FOR ADDITIONAL BASELINE STATIONING DETAILS, SEE SHEET 1/12.
6. CTL FENCE NOT SHOWN FOR CLARITY.

LEGEND:

(E) - DESIGNATES EXPANSION JOINT
(C) - DESIGNATES CONTRACTION JOINT
Δ - MEASUREMENT TAKEN ALONG FRONT FACE OF WALL

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WALL ELEVATION
RETAINING WALL 1
ALONG RAMP J5

CUY-77-13.80
PID No. 82388

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21

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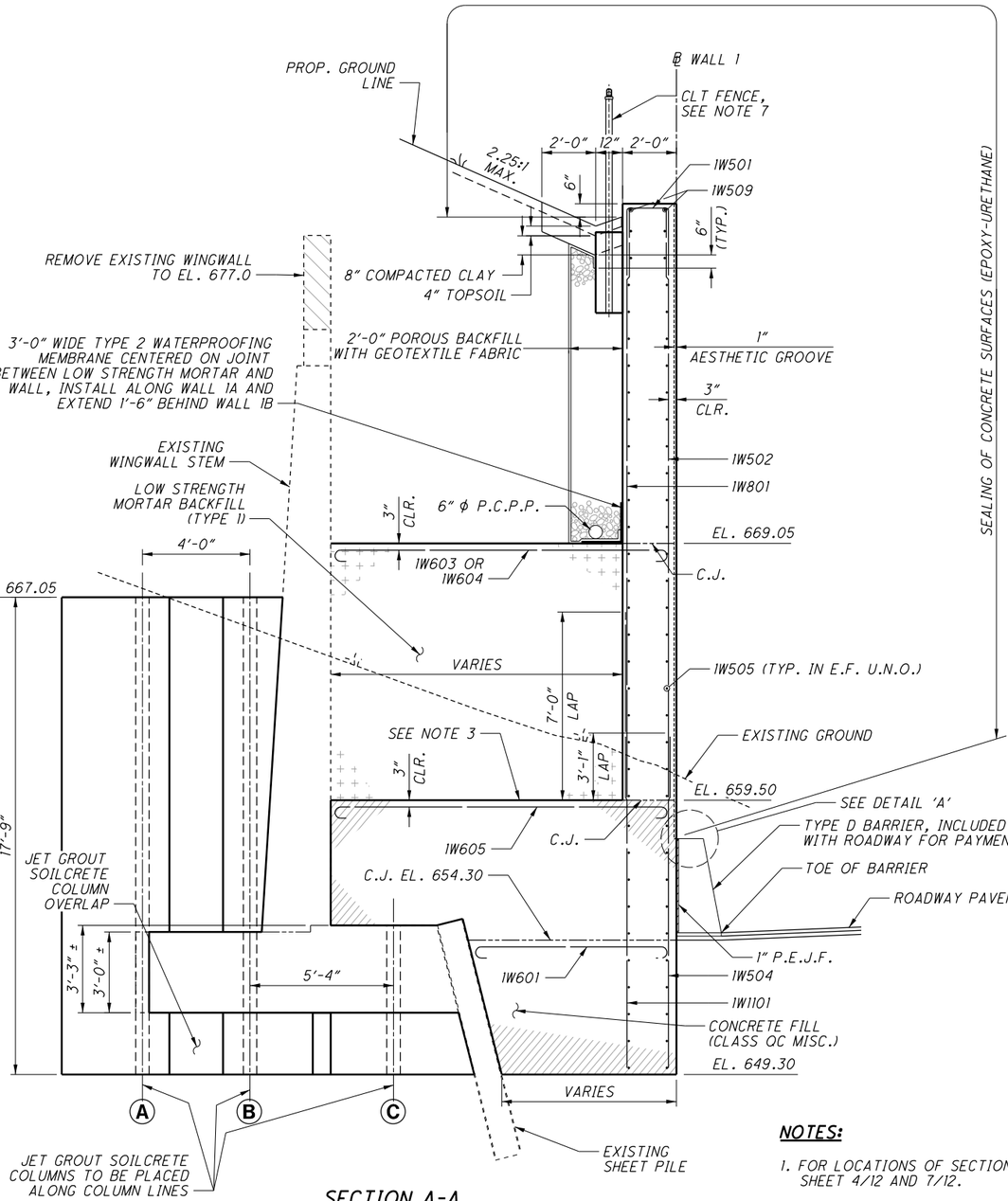
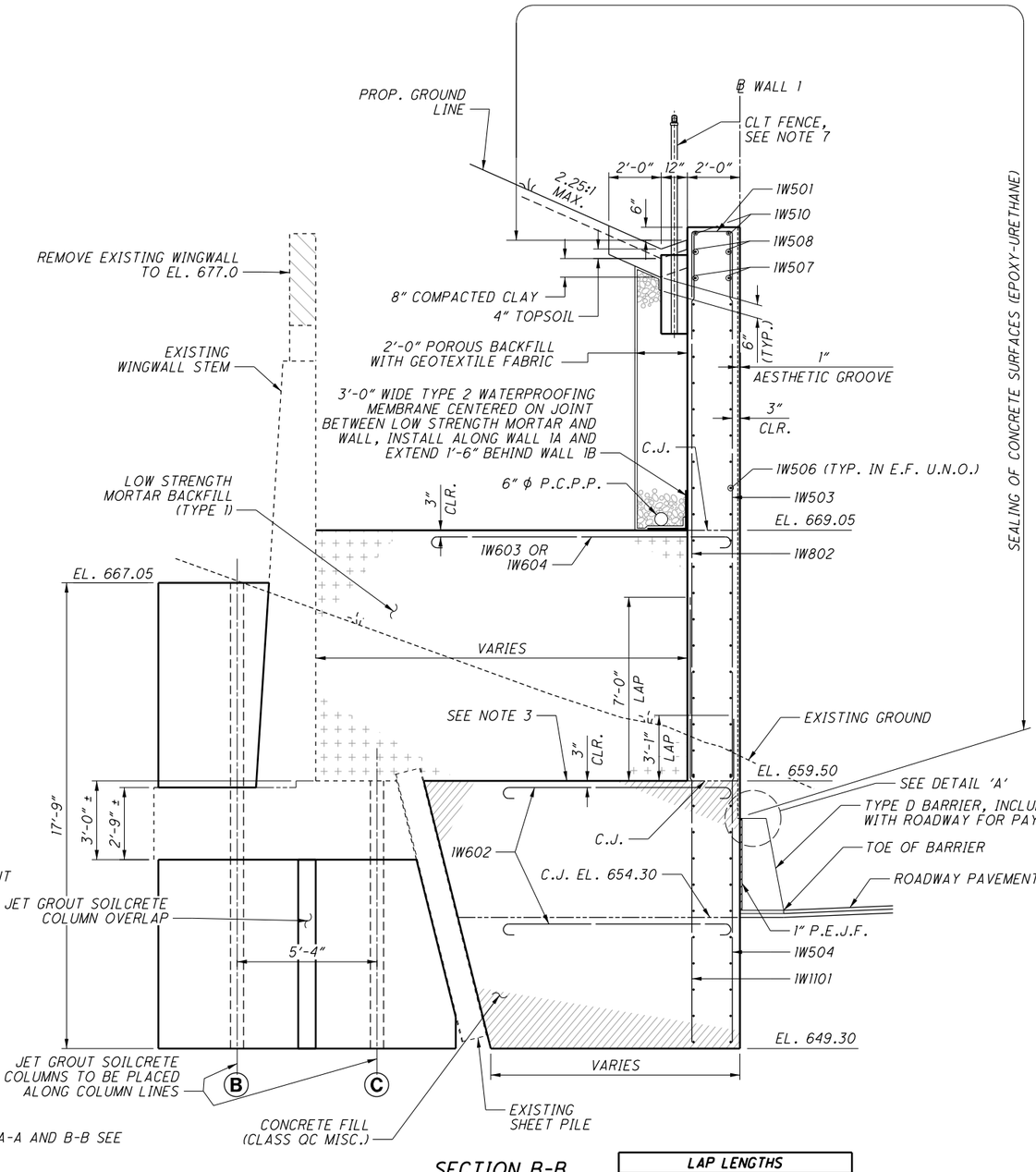


SECTION A-A



SECTION B-B

NOTES:

1. FOR LOCATIONS OF SECTIONS A-A AND B-B SEE SHEET 4/12 AND 7/12.
2. FOR FOOTING PLAN, SEE SHEET 6/12.
3. ROUGHEN SURFACE OF CONCRETE WITH WIRE BROOM.
4. DRAINAGE TO BE CARRIED TO UNDERDRAIN ALONG RAMP J5.
5. FOR DETAIL 'A', SEE SHEET 9/12.
6. DRAINAGE FROM DITCH BEHIND WALL TO BE CARRIED TO CATCH BASIN AT THE END OF WALL 1C NEAR STA. 228+50.
7. FOR CLT FENCE DETAILS, REFER TO ODOT STD. DWG. F-1.1.

LEGEND:

(X) - JET GROUT SOILCRETE COLUMN LINE

LOW STRENGTH MORTAR BACKFILL (TYPE I)

CONCRETE FILL, CLASS QC MISC.

LAP LENGTHS	
NO. 5 BARS	3'-1" MIN.
NO. 8 BARS	5'-0" MIN.
NO. 11 BARS	7'-0" MIN.

NO.	DATE	DESCRIPTION
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BU9 - WALLS 1A, 1B, 1C, & 2A

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SECTIONS - WALL 1A
RETAINING WALL 1
ALONG RAMP J5

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PID No. 82388

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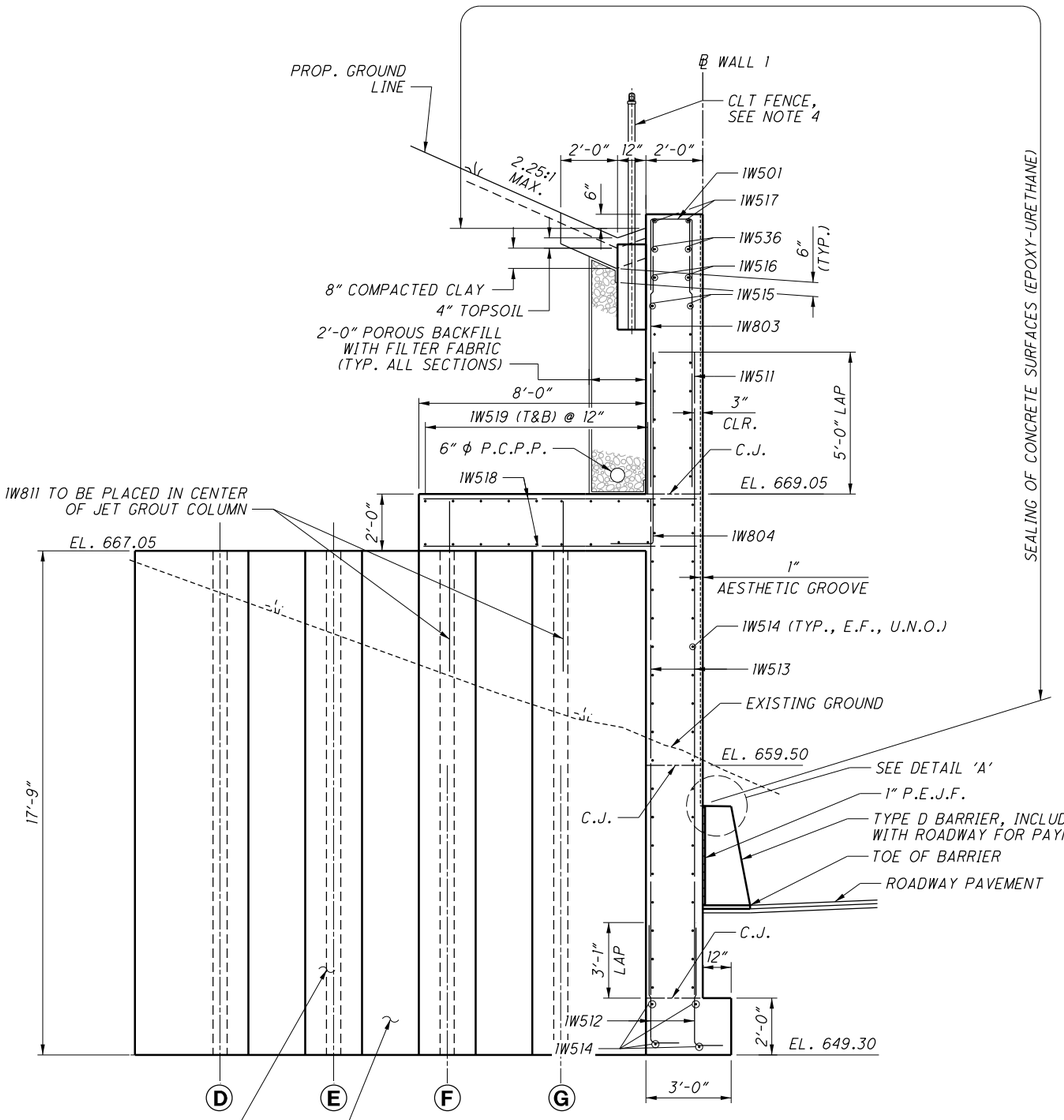
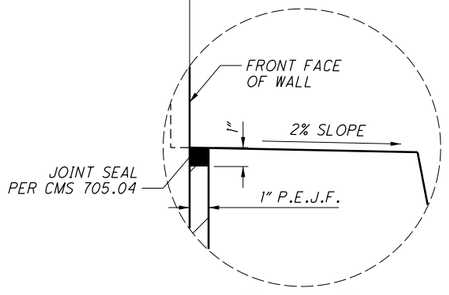
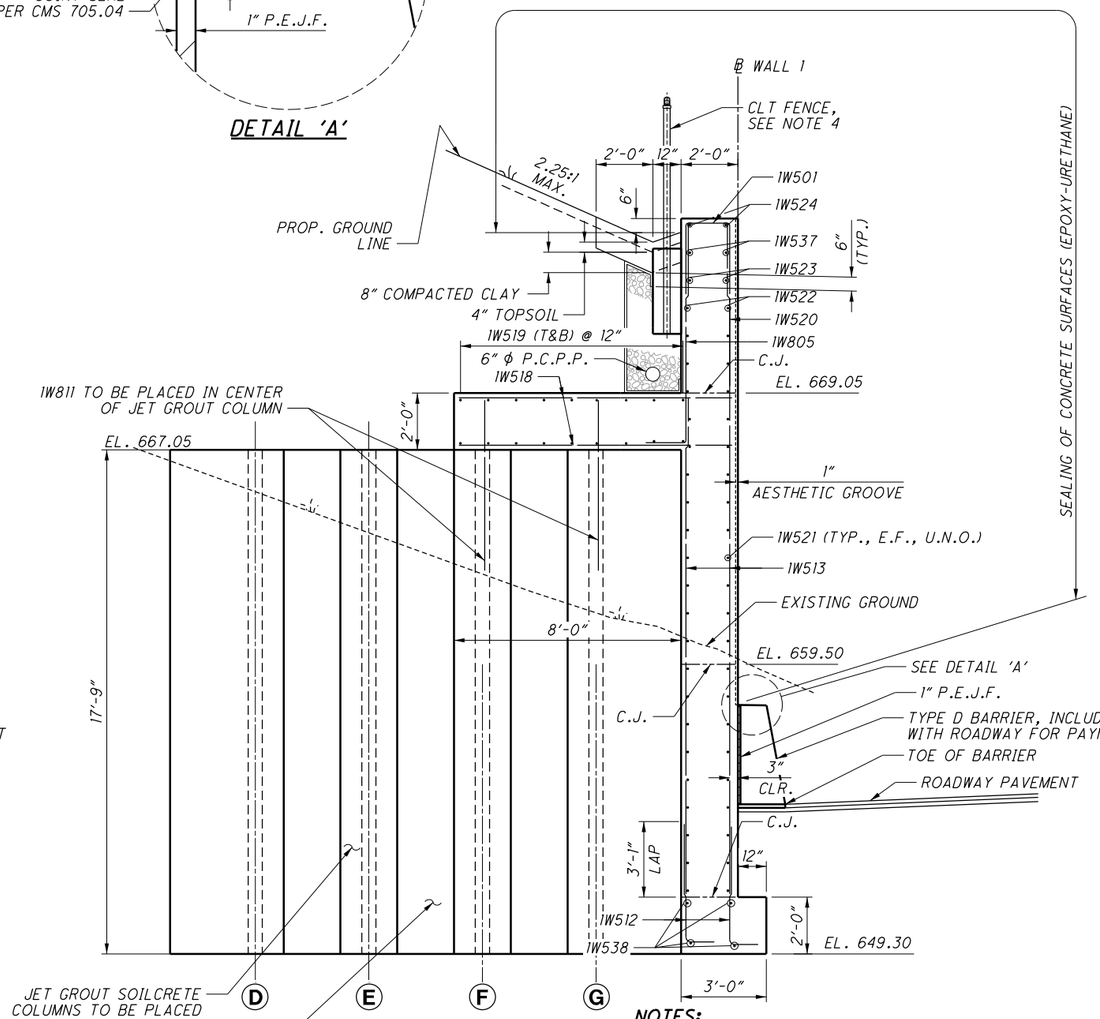
2018-01-16.BU-9 Walls 1 and 2A - RFC Plans



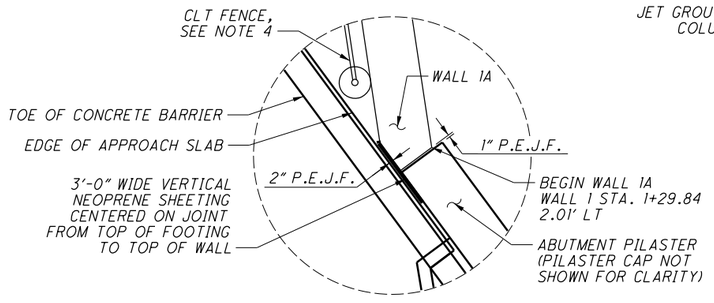
SECTION C-C



DETAIL 'A'



SECTION D-D



PLAN VIEW - WALL 1 BEGINNING

NOTES:

1. FOR LOCATIONS OF SECTIONS C-C AND D-D, SEE SHEETS 7/12.
2. FOR FOOTING PLAN, SEE SHEET 6/12.
3. FOR DRAINAGE NOTES, SEE SHEET 8/12.
4. FOR CLT FENCE DETAILS, REFER TO ODOT STD. DWG. F-1.1.

LEGEND:

(X) - JET GROUT SOILCRETE COLUMN LINE

LAP LENGTHS	
NO. 5 BARS	3'-1" MIN.
NO. 8 BARS	5'-0" MIN.
NO. 11 BARS	7'-0" MIN.

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BU9 - WALLS 1A, 1B, 1C, & 2A		
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JN		N/A	

SECTIONS - WALL 1B
RETAINING WALL 1
ALONG RAMP J5

CUY-77-13.80
PID No. 82388

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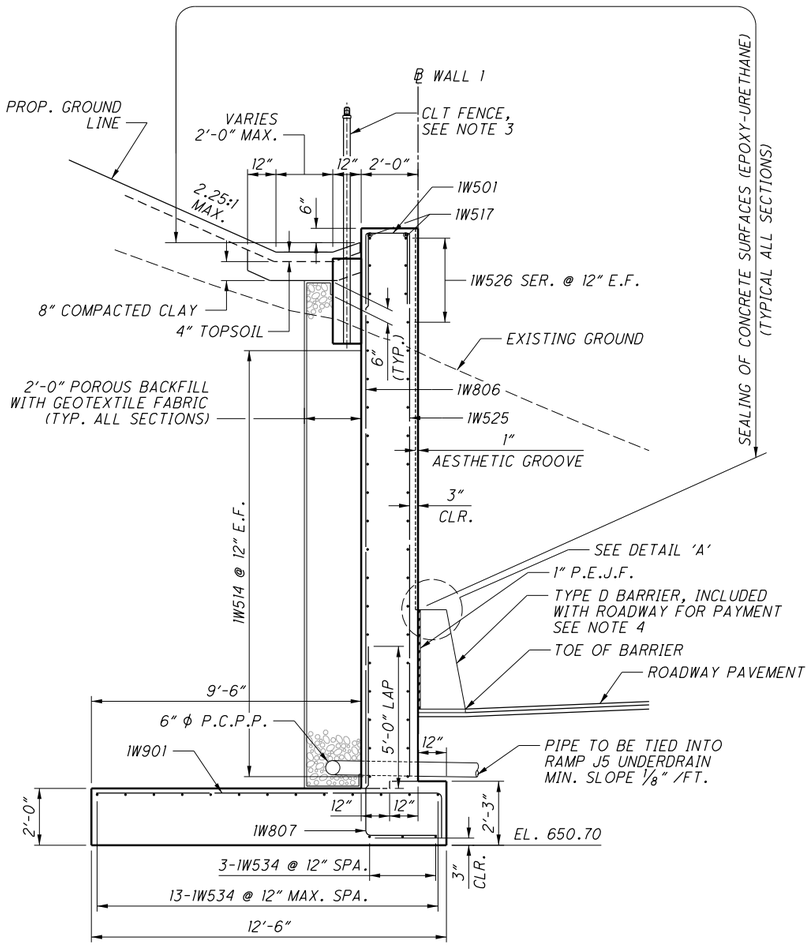
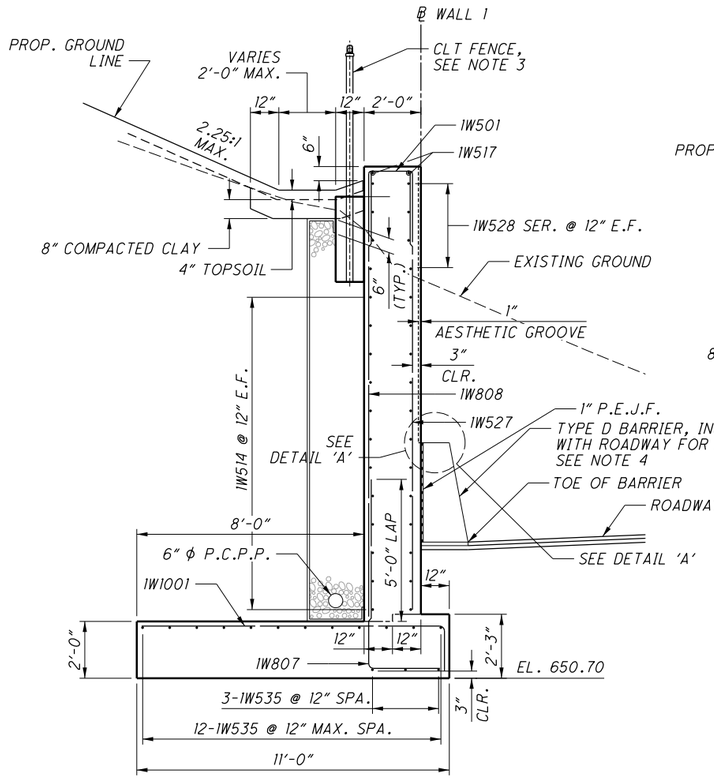
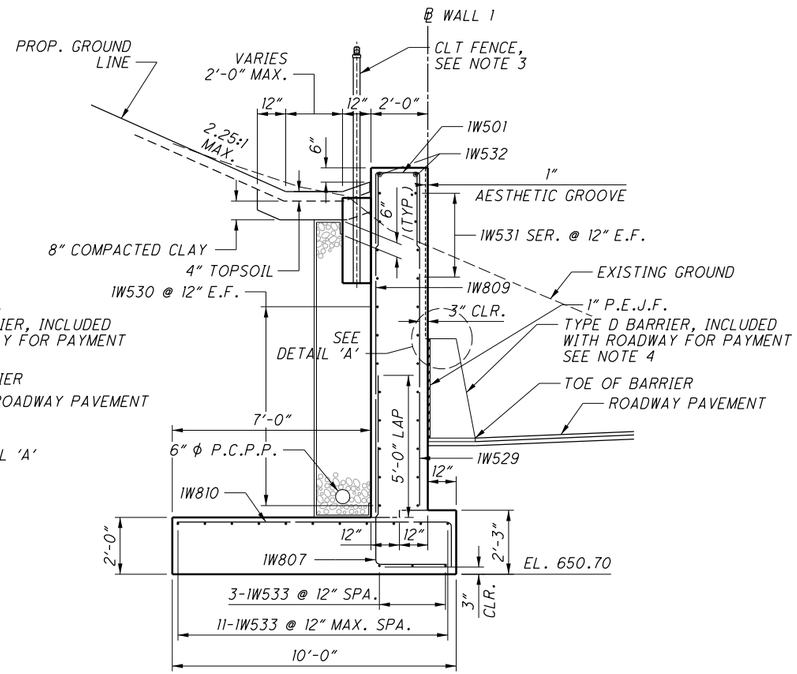


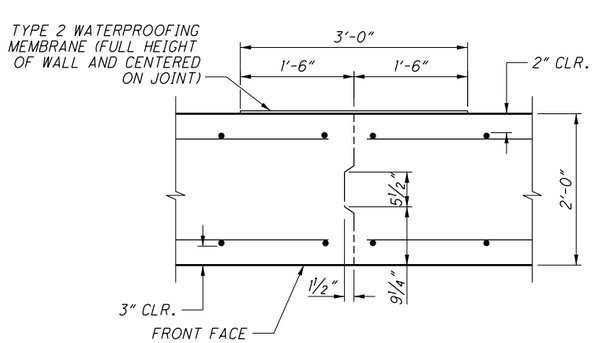
SECTION E-E



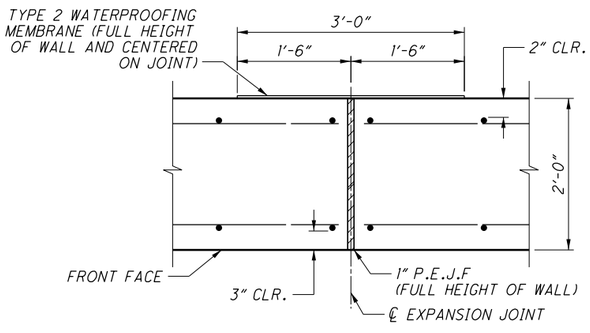
SECTION F-F



SECTION G-G



CONTRACTION JOINT DETAIL



EXPANSION JOINT DETAIL

(1" PEJF FROM TOP OF WALL TO BOTTOM OF FOOTING)

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NOTES:

1. FOR LOCATIONS FOR SECTIONS E-E THRU G-G, SEE SHEET 7/12.
2. FOR FOOTING PLAN, SEE SHEET 6/12.
3. FOR CLT FENCE DETAILS, REFER TO ODOT STD. DWG. F-1.1.
4. FOR ADDITIONAL DETAILS AND DETAIL 'A', SEE SHEET 9/12.

LAP LENGTHS	
NO. 5 BARS	3'-1" MIN.
NO. 8 BARS	5'-0" MIN.
NO. 11 BARS	7'-0" MIN.

BU9 - WALLS 1A, 1B, 1C, & 2A		
NO.	DATE	DESCRIPTION
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SECTIONS & WALL DETAILS - 1C
RETAINING WALL 1
ALONG RAMP J5

CUY-77-13.80
PID No. 82388

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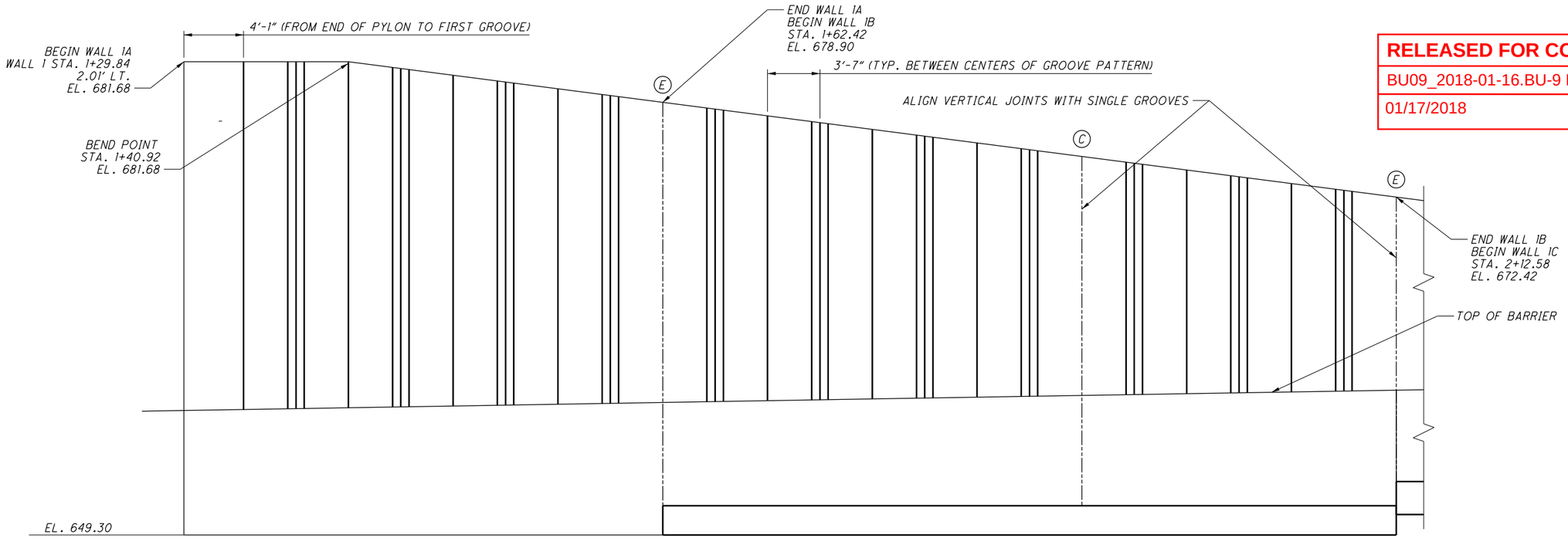
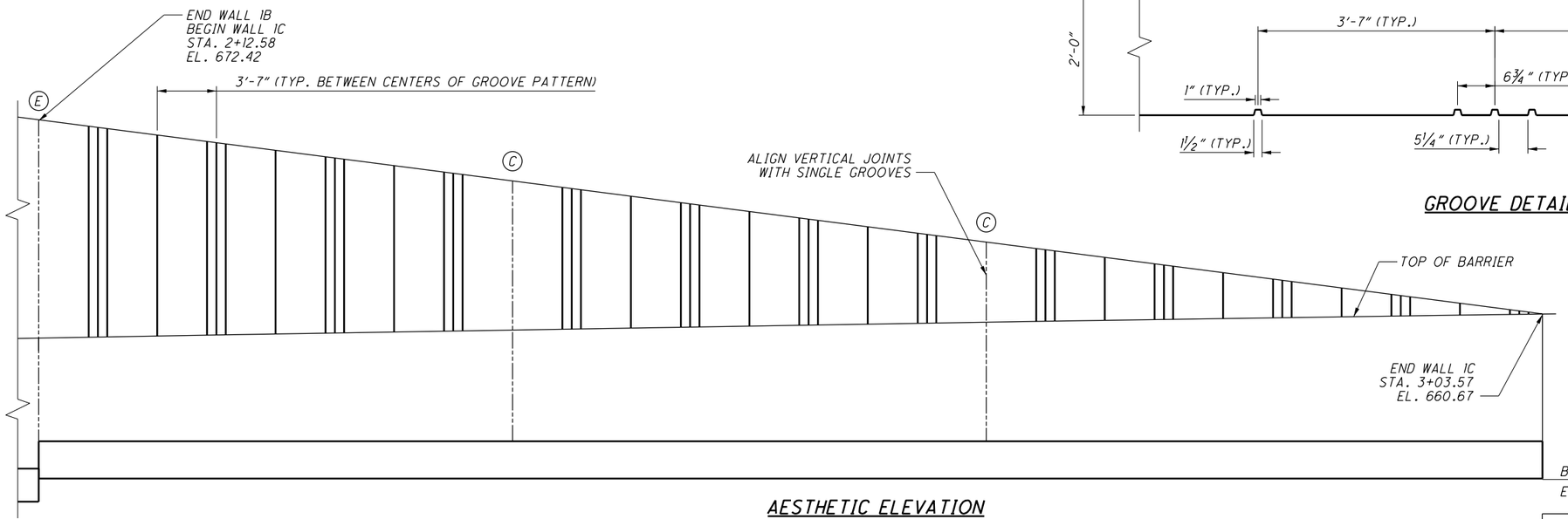
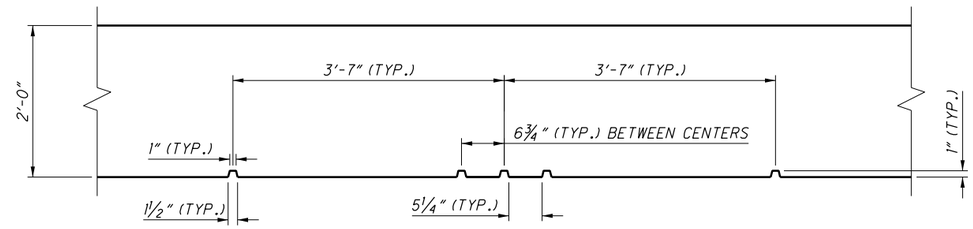


AESTHETIC ELEVATION



AESTHETIC ELEVATION



GROOVE DETAIL

NOTES:

1. ALL EXPOSED CONCRETE SURFACES NOT RECEIVING BRICK (INCLUDING ALL EXPOSED FACES OF SINGLE SLOPE BARRIER) TREATMENT SHALL BE SEALED (ITEM 512 - EPOXY URETHANE), FEDERAL COLOR NO. 595B-25630 (LIGHT GREY, SEMI GLOSS)
2. THE CONTRACTOR SHALL OMIT THE AESTHETIC GROOVES BELOW THE TOP OF BARRIER SINCE THE GROOVES WOULD NOT BE VISIBLE.
3. ALL GEOMETRY TAKEN OFF OF ℄ WALL 1. FOR ADDITIONAL BASELINE STATIONING DETAILS, SEE SHEET 1/12.

LEGEND:

(C) - CONTRACTION JOINT LOCATION
(E) - EXPANSION JOINT LOCATION

BU9 - WALLS 1A, 1B, 1C, & 2A		
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AESTHETIC DETAILS
RETAINING WALL 1
ALONG RAMP J5

CUY-77-13.80
PID No. 82388

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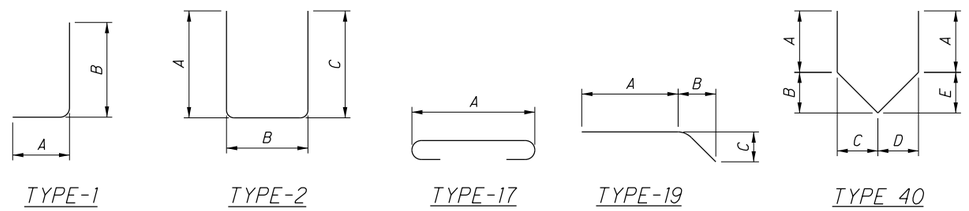
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
WALL 1											
1W501	177	6'-5"	1,185	2	2'-6"	1'-8"	2'-6"				
1W502	12	21'-8"	271	STR							
1W503	1 SR OF 22	18'-10" TO 21'-6"	463	STR							1 1/2"
1W504	34	13'-0"	461	STR							
1W505	32	7'-9"	259	19	4'-1"	3'-7"	8"				
1W506	60	21'-2"	1,325	STR							
1W507	2	15'-0"	31	STR							
1W508	2	7'-3"	15	STR							
1W509	2	14'-0"	29	19	11'-0"	3'-0"	5"				
1W510	2	21'-6"	45	STR							
1W511	1 SR OF 29	5'-10" TO 9'-6"	232	STR							1 5/8"
1W512	102	5'-8"	603	1	1'-0"	4'-10"					
1W513	102	17'-5"	1,853	STR							
1W514	126	28'-4"	3,724	STR							
1W515	2	25'-2"	52	STR							
1W516	2	17'-5"	36	STR							
1W517	6	28'-6"	178	STR							
1W518	102	9'-8"	1,028	STR							
1W519	32	23'-5"	782	40	10'-7"	1'-0"	6"	1'-2"	7"		
1W520	1 SR OF 22	5'-1" TO 7'-9"	147	STR							1 1/2"
1W521	42	21'-2"	927	STR							
1W522	2	19'-8"	41	STR							
1W523	2	11'-11"	25	STR							
1W524	2	21'-4"	45	STR							
1W525	1 SR OF 29	15'-6" TO 19'-1"	523	STR							1 1/2"
1W526	2 SR OF 4	11" TO 24'-1"	104	STR							7'-8 5/8"
1W527	1 SR OF 29	11'-10" TO 15'-5"	412	STR							1 1/2"
1W528	2 SR OF 4	3'-2" TO 26'-5"	123	STR							7'-9"
1W529	1 SR OF 34	7'-5" TO 11'-9"	340	STR							1 5/8"
1W530	16	33'-3"	555	STR							
1W531	2 SR OF 4	5'-6" TO 28'-8"	143	STR							7'-8 5/8"
1W532	2	33'-7"	70	STR							
1W533	14	36'-6"	533	STR							
1W534	16	28'-1"	469	STR							
1W535	15	31'-8"	495	STR							
1W536	2	9'-8"	20	STR							
1W537	2	4'-2"	9	STR							
1W538	22	24'-7"	564	STR							
1W539	32	13'-8"	456	19	10'-7"	3'-0"	7"				

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
WALL 1											
1W601	1 SR OF 16	4'-4" TO 8'-8"	156	17	3'-0" TO 7'-4"						3 1/2"
1W602	22	10'-0"	330	17	8'-8"						
1W603	1 SR OF 6	7'-4" TO 10'-0"	78	17	6'-0" TO 8'-8"						6 3/8"
1W604	26	10'-0"	391	17	8'-8"						
1W605	1 SR OF 18	7'-4" TO 13'-1"	276	17	6'-0" TO 11'-9"						4"
1W801	12	21'-8"	694	STR							
1W802	1 SR OF 22	18'-10" TO 21'-6"	1,185	STR							1 1/2"
1W803	1 SR OF 29	5'-10" TO 9'-6"	594	STR							1 5/8"
1W804	29	8'-2"	632	1	6'-10"	1'-6"					
1W805	1 SR OF 22	6'-5" TO 9'-1"	455	1	5'-1" TO 7'-9"	1'-6"					1 1/2"
1W806	1 SR OF 29	15'-6" TO 19'-1"	1,339	STR							1 1/2"
1W807	120	9'-4"	2,990	1	7'-0"	2'-6"					
1W808	1 SR OF 29	11'-10" TO 15'-5"	1,055	STR							1 1/2"
1W809	1 SR OF 34	7'-5" TO 11'-9"	870	STR							1 5/8"
1W810	35	11'-1"	1,036	1	9'-8"	1'-7"					
1W811	21	6'-0"	336	STR							
1W901	57	13'-6"	2,616	1	12'-2"	1'-7"					
1W1001	29	11'-11"	1,487	1	10'-8"	1'-7"					
1W1101	34	17'-3"	3,116	STR							
SUBTOTAL			38,209								



TYPE-1 TYPE-2 TYPE-17 TYPE-19 TYPE 40

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, W601 IS A NO. 6 BAR AND W1001 IS A NO. 10 BAR. BAR DIMENSIONS SHOWN ARE 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 THE BAR.

2. ALL REINFORCING STEEL TO BE EPOXY COATED.

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BU9 - WALLS 1A, 1B, 1C, & 2A		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

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DESIGNED FIB | DRAWN FIB | REVIEWED DFT | DATE DEC 2017
CHECKED PAN | REVISED | STRUCTURE FILE NUMBER N/A

REINFORCING STEEL LIST
RETAINING WALL 1
ALONG RAMP J5

CUY-77-13.80
PID No. 82388

12 / 12

13
21

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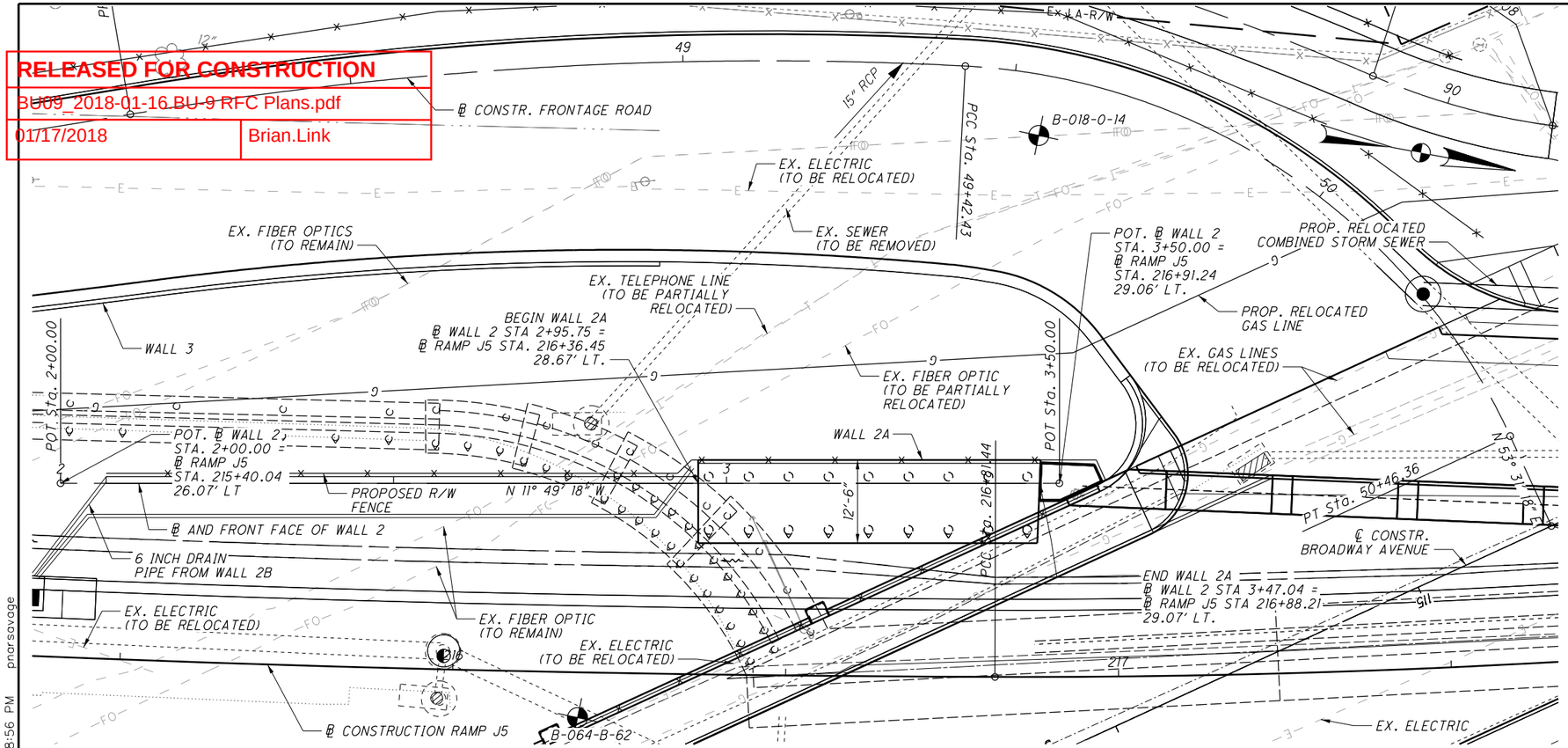
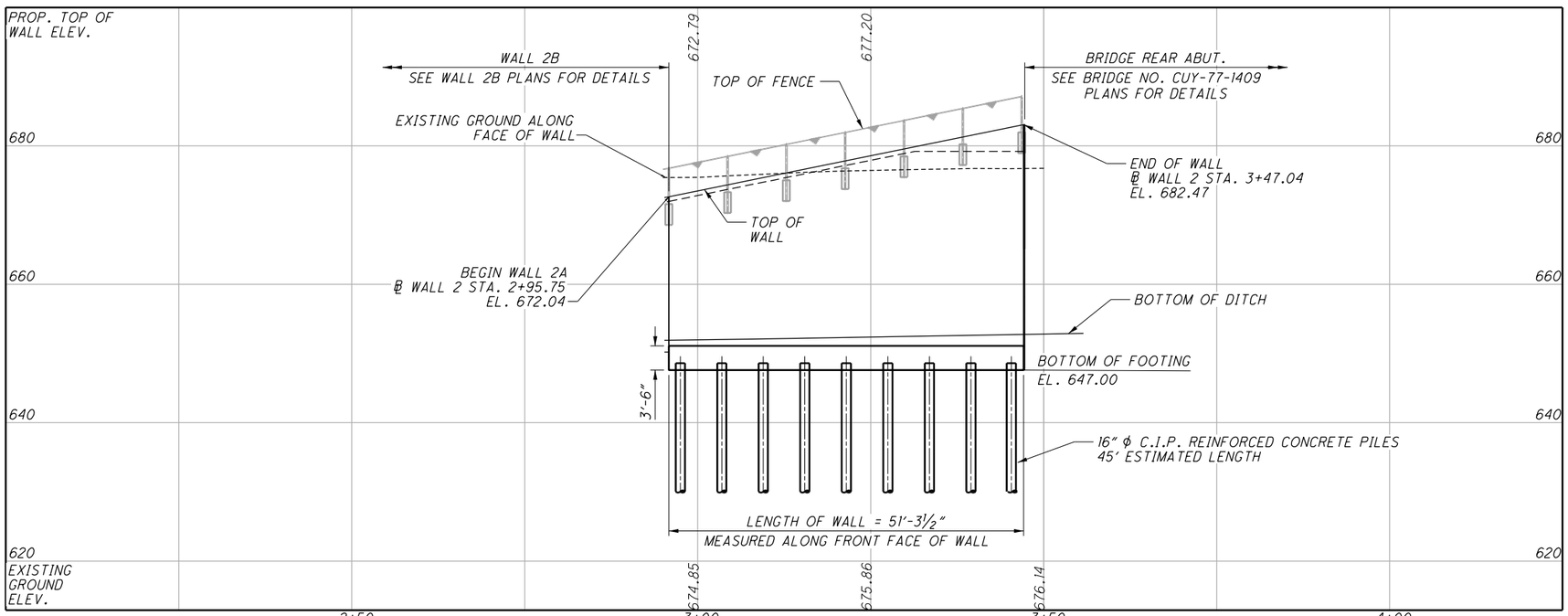
2018-01-16.BU-9 Walls 1 and 2A - RFC Plans



PLAN



PROFILE ALONG ℄ WALL 2

BENCHMARK DATA:

J5:
BM#3: RAMP J5 STA. 219+57.58. 46.97' RT., ELEV. 658.78
MONUMENT BOX IN GORE OF 77 AND RAMP J5

ALIGNMENT DATA:

RAMP J5 CURVE DATA:

CURVE 1:
P.I. STA. = 215+65.88
Δ = 3° 28' 04" (LT.)
Dc = 1° 30' 00"
R = 3,819.72'
T = 115.63'
L = 231.19'
E = 1.75'
C = 231.15'
C.B. = N 9° 55' 35.15" W

CURVE 2:
P.I. STA. = 219+28.60
Δ = 19° 34' 48" (LT.)
Dc = 4° 00' 00"
R = 1,432.39'
T = 247.16'
L = 2489.50'
E = 21.17'
C = 487.12'
C.B. = N 21° 27' 01" W

FRONTAGE RD. CURVE DATA:
P.I. STA. = 50+00.21
Δ = 62° 21' 27" (RT.)
Dc = 59° 59' 44"
R = 95.90'
T = 57.79'
L = 103.94'
E = 16.12'
C = 98.88'
C.B. = N 22° 20' 35" E

BROADWAY TANGENT DATA:
P.T. #1 STA. = 111+59.98
P.T. #2 STA. = 119+75.67
BEARING = S 36° 28' 42" E

PROFILE DATA:

FRONTAGE RD:
PROFILE 1:
P.V.T. STA. = 48+20.00
P.V.T. EL. = 677.42
P.V.I. STA. = 50+37.61
P.V.I. EL. = 681.76
G1 = 2.00%

RAMP J5:
PROFILE 1:
P.V.I. STA. = 214+45.00
P.V.I. EL. = 648.00
L = 420.00'
K = 101.5
G1 = -2.47%
G2 = 1.67%

PROFILE 2:
P.V.I. STA. = 222+30.00
P.V.I. EL. = 661.09
L = 490.00'
K = 123.8
G1 = 1.67%
G2 = -2.29%

LEGEND:

⊕ - PROJECT BORING LOCATION

NOTES:

1. ALL PERTINENT UTILITY DISPOSITIONS IN THE VICINITY OF THE WALL HAVE BEEN MARKED. ALL OTHER UTILITIES ARE ASSUMED TO REMAIN.
2. EARTHWORK LIMITS SHALL CONFORM TO PLAN CROSS SECTIONS.

BU9 - WALLS 1A, 1B, 1C & 2A		
NO.	DATE	DESCRIPTION
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SITE PLAN
RETAINING WALL 2A
ALONG I.R. - 77

CUY-77-13.80
PID No. 82388

1 / 8
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STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD CONSTRUCTION DRAWING:

F1.1 REVISED 7/19/13

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION:

800 DATED 7/15/16

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2014 - 7th EDITION, INCLUDING THE 2015 AND 2016 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN PARAMETERS:

SOIL UNIT WEIGHT, γ = 120 pcf
ANGLE OF INTERNAL FRICTION, ϕ= 30°
LIVE LOAD SURCHARGE = 240 PSF

DESIGN DATA:

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STEEL PIPE PILES - ASTM A252, GRADE 2 - YIELD STRENGTH 35 KSI

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE):

SEAL SURFACES OF THE CAST-IN-PLACE CONCRETE WALL FACING AND PARAPET AS DETAILED IN THE PLANS WITH A EPOXY-URETHANE SEALER AS PER CMS 512.
USE THE FOLLOWING FINISH COAT COLOR:
CAST-IN-PLACE WALL: FEDERAL COLOR NO. 595B-25630 (LIGHT GREY, SEMI-GLOSS)

ITEM 607 - FENCE, TYPE CLT, AS PER PLAN:

THE DBT SHALL FURNISH AND INSTALL TYPE CLT FENCE AS PER CMS 607 AND ODOT SCD F-1.1 WITH THE FOLLOWING REVISIONS:

1. FABRIC SHALL CONSIST OF 2-INCH DIAMOND MESH USING 0.148-INCH DIAMETER (9 GAUGE) WIRE CONFORMING TO ASTM F668 CLASS 2A OR 2B EXCEPT AS NOTED. THE PVC COATING SHALL BE BLACK IN COLOR CLOSELY APPROACH FEDERAL STANDARD COLOR NO. 595B-27038. SELVAGES SHALL BE KNUCKLED AT BOTH ENDS. HANDLE ALL PVC COATED FABRIC WITH CARE. IF THE PVC COATING IS DAMAGED, REPLACE THE DAMAGED PORTION AT NO COST TO THE DEPARTMENT.

2. FABRIC TIES AND HOG RINGS SHALL BE 0.148-INCH CORE DIAMETER GALVANIZED PVC COATED STEEL WIRE CONFORMING TO ASTM A478. TO CONNECT THE FABRIC TO THE LINE POSTS, SUPPLY ONE FABRIC TIE FOR EACH ONE FOOT OF FABRIC HEIGHT. CONNECT THE FABRIC TO THE TENSION WIRE USING HOG RINGS 2-3 INCHES ON EACH SIDE OF THE POSTS AND AT SPACING NOT TO EXCEED 12 INCHES BETWEEN POSTS. THE PVC COATING SHALL BE THE SAME AS FOR THE STEEL FABRIC.

3. ALL POSTS, RAILS, RODS, CAPS, AND ANY OTHER VISIBLE HARDWARE SHALL BE GALVANIZED AND COATED BLACK TO MATCH THE FABRIC.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE):

THE ULTIMATE BEARING VALUE IS 270 KIPS PER PILE FOR THE RETAINING WALL PILES.

16-INCH DIA. C.I.P. PILES 50 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

ABBREVIATIONS:

ABUT. - ABUTMENT
ADT - AVERAGE DAILY TRAFFIC
ADTT - AVERAGE DAILY TRUCK TRAFFIC
APPR. - APPROACH
B - BOTTOM
℄ - BASELINE
B.F. - BACK FACE
BM - BENCHMARK
BOT. OR BTM. - BOTTOM
BRG. - BEARING
℄ - CENTERLINE
C/C - CENTER TO CENTER
C.I.P. - CAST-IN-PLACE
C.J. - CONSTRUCTION JOINT
CLR. - CLEAR
CMS - CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONC. - CONCRETE
CONSTR. - CONSTRUCTION
CVN - CHARPY V-NOTCH
DIA. - DIAMETER
DIM. - DIMENSION
DWG. - DRAWING
E - EAST
EB - EASTBOUND
E.F. - EACH FACE
EL. OR ELEV. - ELEVATION
EOP - EDGE OF PAVEMENT
EQ. - EQUAL
EST. - ESTIMATED
EX. - EXISTING
EXP. - EXPANSION
F.A. - FORWARD ABUTMENT
F/F - FACE TO FACE
F.F. - FRONT FACE
FT. - FOOT OR FEET
FTG. - FOOTING
FWD. - FORWARD
FWS - FUTURE WEARING SURFACE
HMWM - HIGH MOLECULAR WEIGHT METHACRYLATE
HW - HIGH WATER
IN. - INCH
JT. - JOINT
L.F. - LEFT FORWARD
LSM - LOW STRENGTH MORTAR
LT. - LEFT
MAX. - MAXIMUM
MIN. - MINIMUM
MISC. - MISCELLANEOUS
MSE - MECHANICALLY STABILIZED EARTH
N - NORTH
NB - NORTHBOUND
NO. - NUMBER
N.P.C.P.P. - NON-PERFORATED CORRUGATED PLASTIC PIPE
OHWM - ORDINARY HIGH WATER MARK
O/O - OUT TO OUT
P.C.P.P. - PERFORATED CORRUGATED PLASTIC PIPE
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
PROP. - PROPOSED
PSF - POUNDS PER SQUARE FOOT
P.V.I. - POINT OF VERTICAL INTERSECTION
Q - FLOW RATE
R - RADIUS
R.A. - REAR ABUTMENT
RCP - ROCK CHANNEL PROTECTION
REQD. - REQUIRED
R.F. - RIGHT FORWARD
R.R. - RAILROAD
RT. - RIGHT
R/W - RIGHT OF WAY
S - SOUTH
SB - SOUTHBOUND
SER. - SERIES
SHLDR - SHOULDER
SPA. - SPACE OR SPACES
STA. - STATION
STD. - STANDARD
STR - STRAIGHT
T - TOP
T&B - TOP & BOTTOM
TBR - TO BE REMOVED
TEMP. - TEMPORARY
T.O.S. OR T/S - TOP OF SLOPE
T/T - TOE TO TOE
TYP. - TYPICAL
U.N.O. - UNLESS NOTED OTHERWISE
VAR. - VARIES
V - VELOCITY
W - WEST
WB - WESTBOUND
WWR - WELDED WIRE REINFORCEMENT

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NO.	DATE	DESCRIPTION
		BU9 - WALLS 1A, 1B, 1C, & 2A
		ISSUE RECORD

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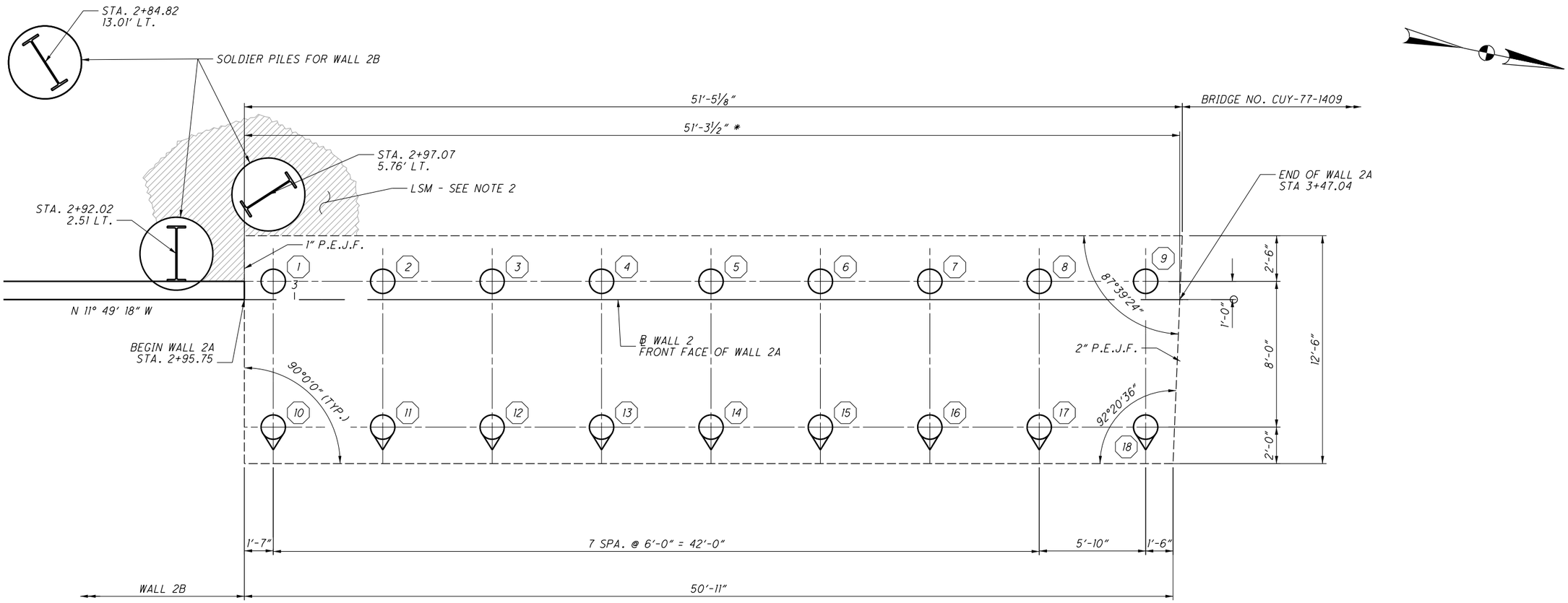
GENERAL NOTES
RETAINING WALL 2A
ALONG I.R - 77

CUY-77-13.80
PID No. 82388

2 / 8

15
21



FOUNDATION PLAN

LEGEND:

- 16" ϕ CAST-IN-PLACE PILES
- 16" ϕ CAST-IN-PLACE PILES BATTERED 1:4
- * - MEASURED ALONG ℄ OF WALL 2
- (#) - PILE NUMBER

NOTES:

1. FOR WALL ELEVATION VIEW, SEE SHEET 5/8.
2. IF SOIL IS EXCAVATED BELOW EL. 650.50 AROUND SOLDIER PILES FOR WALL 2B, FILL WITH LOW STRENGTH MORTAR (TYPE 1) TO EL. 650.50 (TOP OF WALL 2A FOOTING).
3. ALL GEOMETRY TAKEN OFF OF ℄ WALL 2. FOR ADDITIONAL BASELINE STATIONING, SEE SHEET 1/8.

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BU9 - WALLS 1A, 1B, 1C, & 2A		
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ISSUE RECORD		

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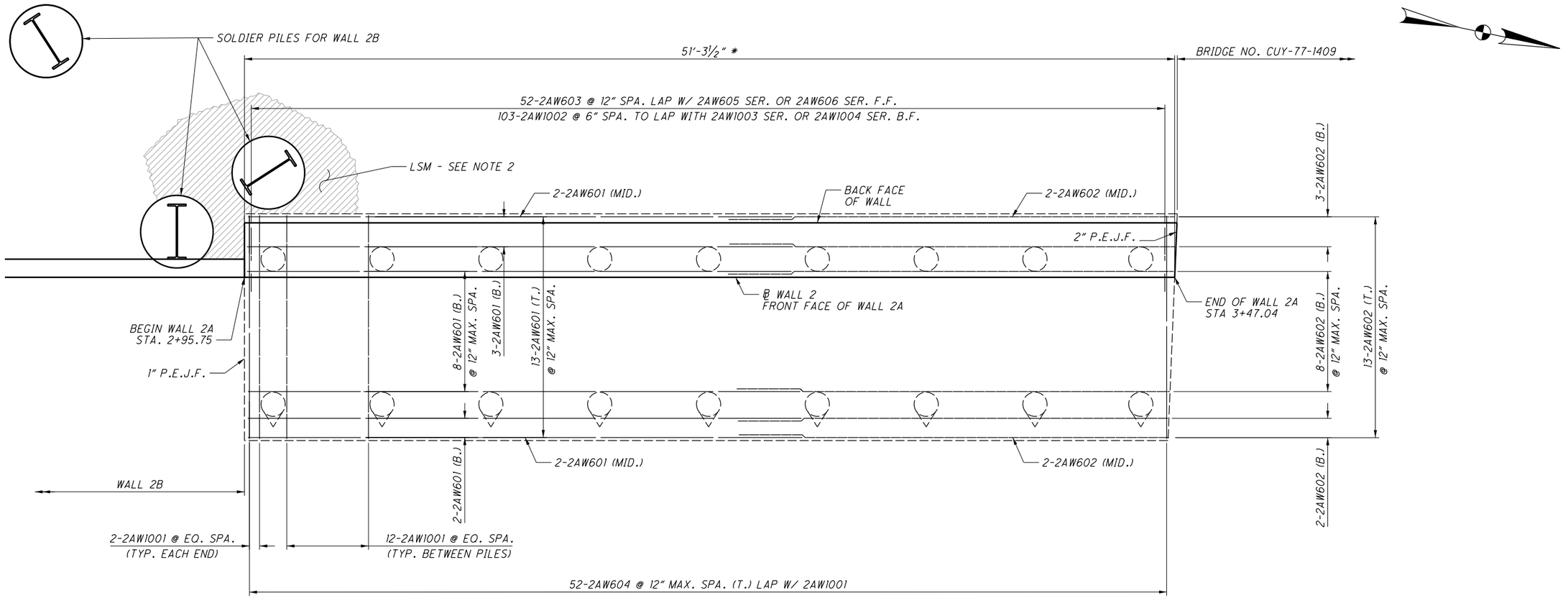
JN	SM	DFT	DEC 2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MRV		N/A	

FOUNDATION PLAN
RETAINING WALL 2A
ALONG I.R. - 77

CUY-77-13.80
PID No. 82388

3 / 8

16
21



FOOTING PLAN

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01/17/2018	Brian.Link

LEGEND:

- ○ - 16" ϕ CAST-IN-PLACE PILES
- ◯ - 16" ϕ CAST-IN-PLACE PILES BATTERED 1:4
- * - MEASUREMENTS TAKEN ALONG FRONT FACE OF WALL 2

NOTES:

1. FOR WALL ELEVATION VIEW, SEE SHEET 5/8.
2. IF SOIL IS EXCAVATED BELOW EL. 650.50 AROUND SOLDIER PILES FOR WALL 2B, FILL WITH LOW STRENGTH MORTAR (TYPE I) TO EL. 650.50 (TOP OF WALL 2A FOOTING).
3. ALL GEOMETRY TAKEN OFF OF ℄ WALL 2. FOR ADDITIONAL BASELINE STATIONING, SEE SHEET 1/8.

LAP LENGTH TABLE	
#6 BARS	3'-6" MIN.
#10 BARS	5'-11" MIN.

NO.	DATE	DESCRIPTION
		BU9 - WALLS 1A, 1B, 1C, & 2A
		ISSUE RECORD

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DESIGNED MRV | DRAWN SM | REVIEWED DFT | DATE DEC 2017
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FOOTING PLAN
RETAINING WALL 2A
ALONG I.R - 77

CUY-77-13.80
PID No. 82388

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17
21

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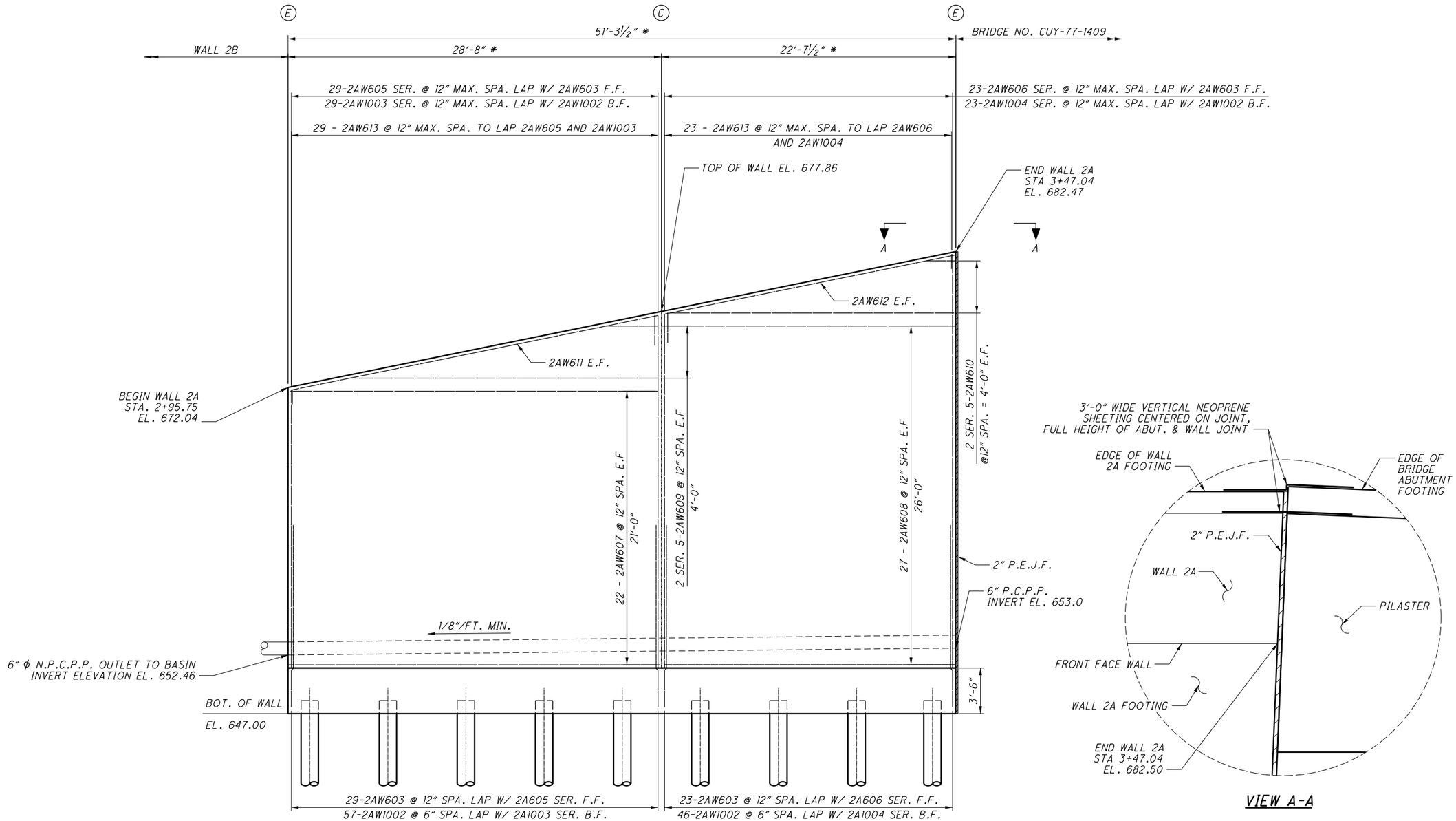

ELEVATION

(FOOTING REINFORCING NOT SHOWN FOR CLARITY)

VIEW A-A

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LEGEND:

- (E) - DESIGNATES EXPANSION JOINT
- (C) - DESIGNATES CONTRACTION JOINT
- * - MEASUREMENT TAKEN ALONG FRONT FACE OF WALL

NOTES:

1. FOR FOOTING PLAN, SEE SHEET 4/8.
2. CLT FENCE NOT SHOWN FOR CLARITY. FOR CLT FENCE DETAILS, REFER TO ODOT STD. DWG. F-1.1.
3. ALL GEOMETRY TAKEN OFF OF ℄ WALL 2. FOR ADDITIONAL BASELINE STATIONING, SEE SHEET 1/8.

LAP LENGTH TABLE	
#6 BARS	3'-6" MIN.
#10 BARS	11'-11" MIN.

BU9 - WALLS 1A, 1B, 1C, & 2A		
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJW		N/A	

WALL ELEVATION
RETAINING WALL 2A
ALONG I.R - 77

CUY-77-13.80
PID No. 82388

5 / 8

18
21

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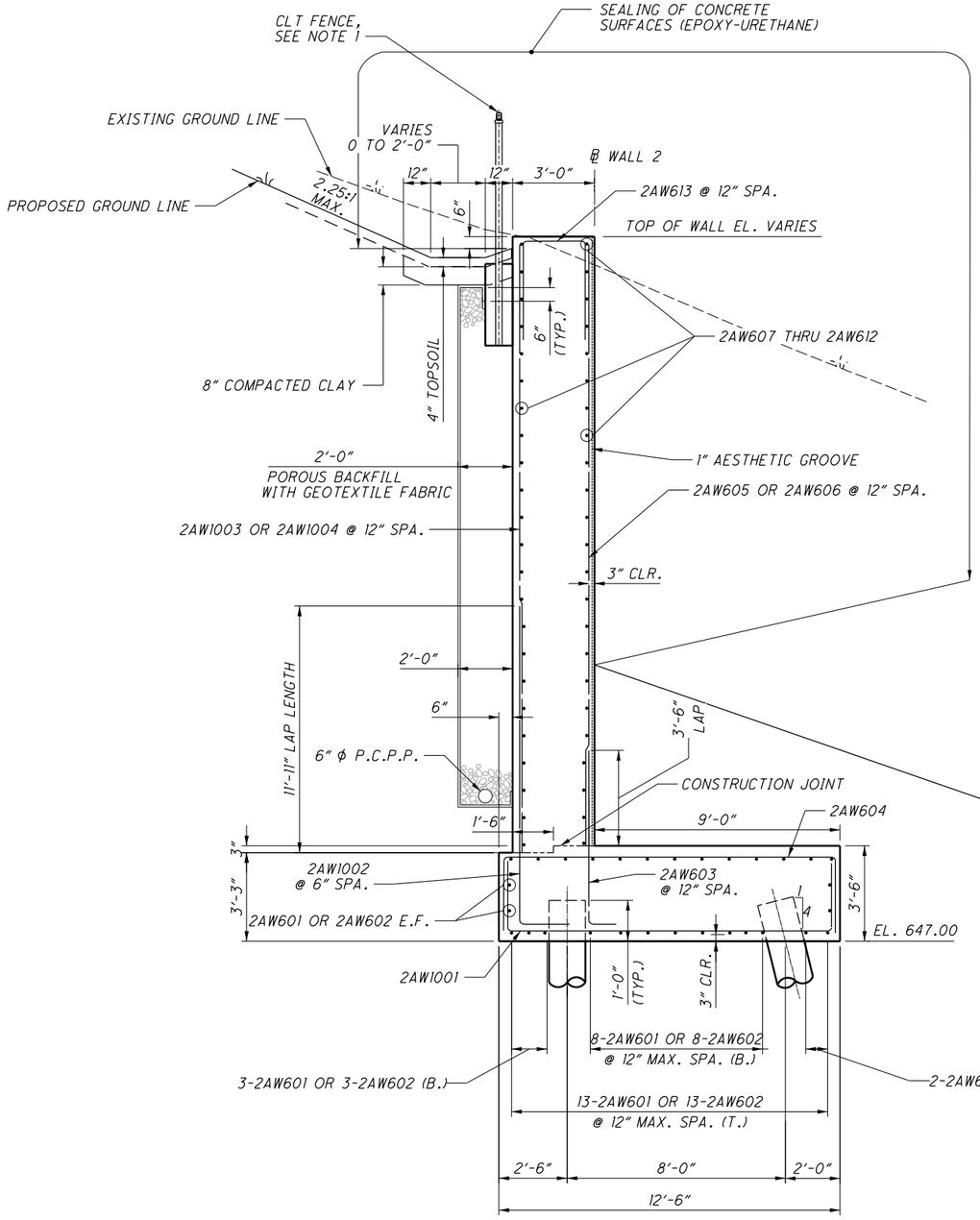
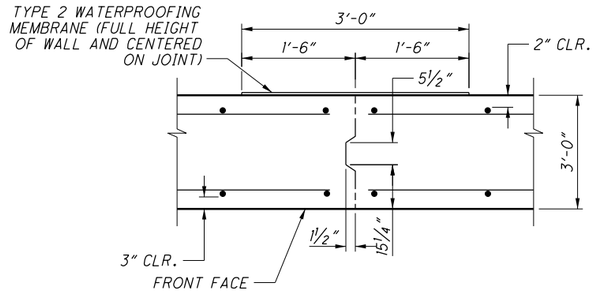
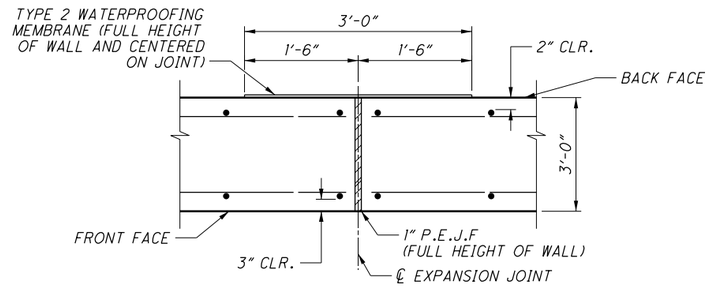


CAST-IN-PLACE RETAINING WALL TYPICAL SECTION



CONTRACTION JOINT DETAIL



EXPANSION JOINT DETAIL

NOTES:

1. FOR CLT FENCE DETAILS, REFER TO ODOT STD. DWG. F-1.1.

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BU9 - WALLS 1A, 1B, 1C, & 2A		
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJW		N/A	

TYPICAL SECTION AND WALL DETAILS
RETAINING WALL 2A
ALONG I.R - 77

CTY-77-13.80
PID No. 82388

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21

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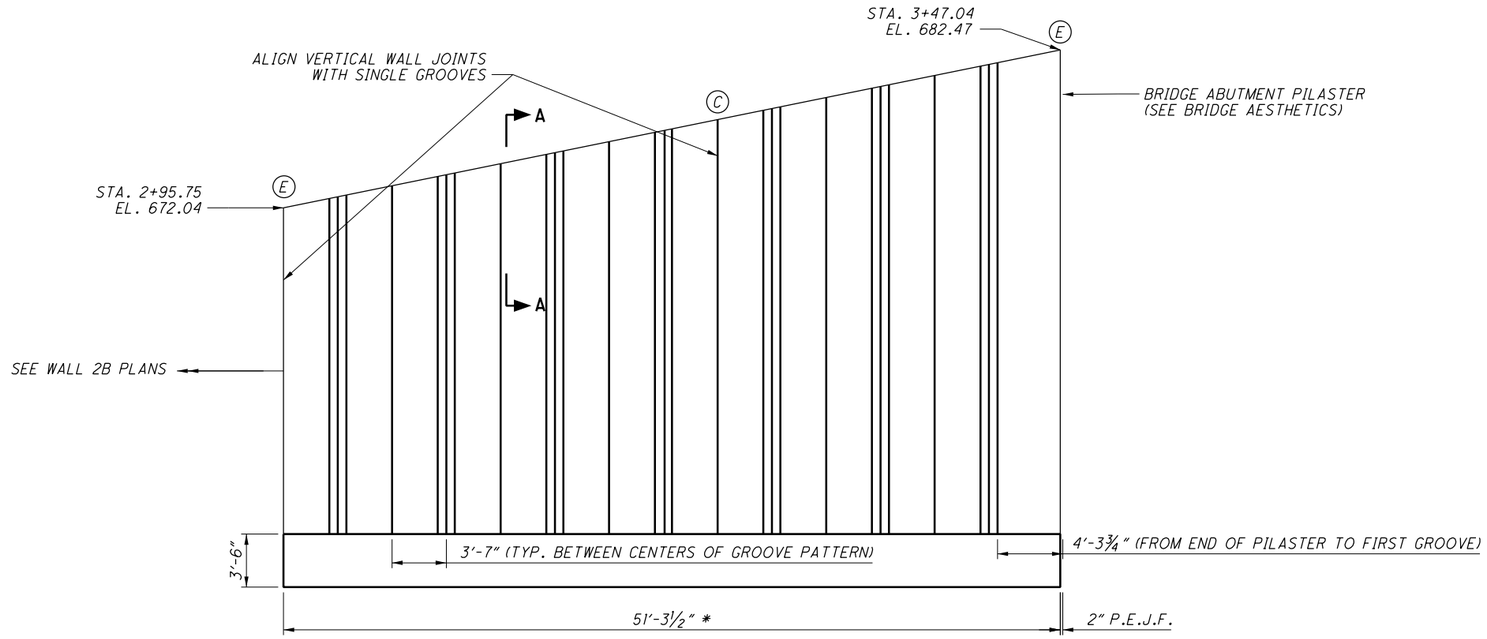
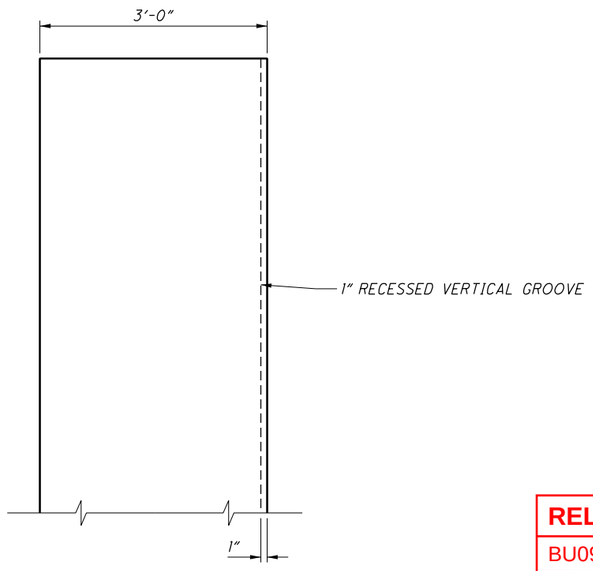
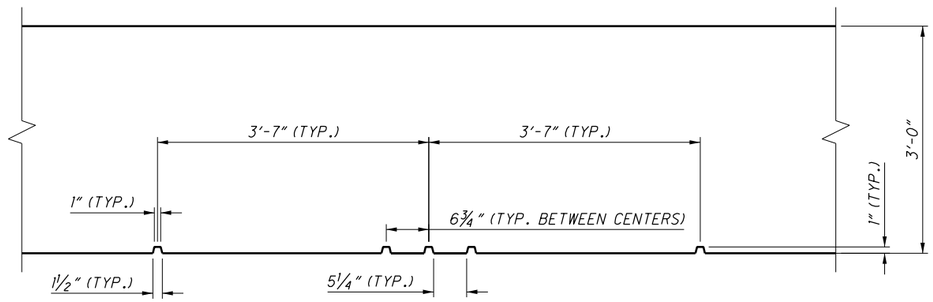


AESTHETIC ELEVATION



SECTION A-A



GROOVE DETAIL

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01/17/2018	Brian.Link

LEGEND:

- (E) - DESIGNATES EXPANSION JOINT
- (C) - DESIGNATES CONTRACTION JOINT
- * - MEASUREMENT TAKEN ALONG FRONT FACE OF WALL

NOTES:

1. ALL EXPOSED CONCRETE SURFACES NOT RECEIVING BRICK (INCLUDING ALL EXPOSED FACES OF SINGLE SLOPE BARRIER) TREATMENT SHALL BE SEALED (ITEM 512 - EPOXY URETHANE), FEDERAL COLOR NO. 595B-25630 (LIGHT GREY, SEMI GLOSS)
2. ALL GEOMETRY TAKEN OFF OF ℄ WALL 2. FOR ADDITIONAL BASELINE STATIONING, SEE SHEET 1/8.

BU9 - WALLS 1A, 1B, 1C, & 2A		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

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SM	SM	DFT	DEC 2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PAN		N/A	

AESTHETIC DETAILS
RETAINING WALL 2A
ALONG I.R. - 77

CUY-77-13.80
PID No. 82388

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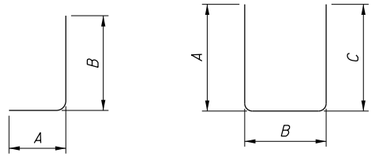
21

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
WALL2A											
2AW601	30	30'-0"	1,352	STR							
2AW602	30	24'-6"	1,104	STR							
2AW603	52	7'-7"	592	1	1'-0"	6'-9"					
2AW604	52	17'-6"	1,367	2	2'-10"	12'-2"	2'-10"				
2AW605	1 SR OF 29	21'-4" TO 27'-0"	1,053	STR							2 3/8"
2AW606	1 SR OF 23	27'-2" TO 31'-8"	1,016	STR							2 1/2"
2AW607	44	28'-4"	1,872	STR							
2AW608	54	22'-3"	1,805	STR							
2AW609	2 SR OF 5	4'-0" TO 23'-7"	207	STR							4'-10 3/4"
2AW610	2 SR OF 5	2'-1" TO 21'-9"	179	STR							4'-11"
2AW611	2	28'-8"	86	STR							
2AW612	2	22'-8"	68	STR							
2AW613	52	9'-2"	716	2	3'-6"	2'-6"	3'-6"				
2AW1001	100	17'-2"	7,387	2	2'-10"	12'-2"	2'-10"				
2AW1002	103	16'-6"	7,313	1	1'-10"	15'-0"					
2AW1003	1 SR OF 29	21'-7" TO 27'-3"	3,047	STR							2 3/8"
2AW1004	1 SR OF 23	27'-5" TO 31'-11"	2,936	STR							2 1/2"
		SUBTOTAL	32,100								



TYPE-1

TYPE-2

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, P601 IS A NO. 6 BAR. BAR DIMENSIONS SHOWN ARE 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 THE BAR.

2. ALL REINFORCING STEEL TO BE EPOXY COATED.

RELEASED FOR CONSTRUCTION

BU09_2018-01-16.BU-9 RFC Plans.pdf

01/17/2018 | Brian.Link

NO.	DATE	DESCRIPTION
		BU9 - WALLS 1A, 1B, 1C, & 2A
		ISSUE RECORD

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DESIGNED	DRAWN	REVIEWED	DATE
SM	SM	DFT	DEC 2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PAN		N/A	

REINFORCING STEEL
RETAINING WALL 2A
ALONG I.R. - 77

CUY-77-13.80
PID No. 82388

8 / 8

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21

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