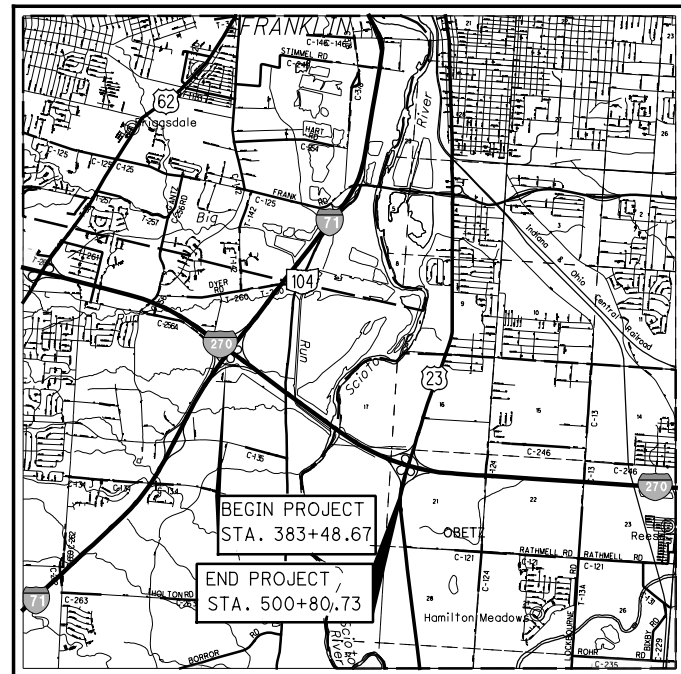


STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

FRA-270-52.72

JACKSON TOWNSHIP HAMILTON TOWNSHIP FRANKLIN COUNTY



LOCATION MAP

LATITUDE: N39°53'13" LONGITUDE: W83°01'45"



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

DESIGN DESIGNATION

	FRA-270-52.72	FRA-270-52.96	FRA-270-53.60	FRA-270-54.97
CURRENT ADT (2012)	83,560	80,180	110,720	83,310
DESIGN YEAR ADT (2032)	103,520	99,130	140,730	109,160
DESIGN HOURLY VOLUME (2032)	10,350	9,910	14,080	10,920
DIRECTIONAL DISTRIBUTION	.53	.53	.53	.53
TRUCKS (24 HOUR B&C)	.19	.19	.19	.19
DESIGN SPEED	70	70	70	70
LEGAL SPEED	65	65	65	65
DESIGN FUNCTIONAL CLASSIFICATION:				
INTERSTATE	INTERSTATE	INTERSTATE	INTERSTATE	INTERSTATE
NHS PROJECT	YES	YES	YES	YES

DESIGN EXCEPTIONS

INDEX OF SHEETS:

TITLE SHEET	1
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CROSS SECTIONS - I.R. 270	31-57
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BARRIER DETAILS	90-96
MISCELLANEOUS DETAILS	97-101
TRAFFIC CONTROL	102-114

PROJECT DESCRIPTION

IMPROVEMENT OF 2.25 MILES OF FRA-270 WITH AN ADDITIONAL THROUGH LANE AND ONE AUXILIARY LANE. WORK INCLUDES REHABILITATING AND WIDENING THE TWIN STRUCTURES OVER SCIOTO BIG RUN, REMOVING THE TWIN STRUCTURES OVER ACCESS ROAD AND REPLACING WITH ROADWAY FILL, RECONSTRUCTION OF INTERCHANGE RAMP, REPLACEMENT OF FULL DEPTH PAVEMENT AND SHOULDERS, GUARDRAIL REPLACEMENT, INSTALLATION OF CABLE BARRIER, ROADSIDE GRADING, TRAFFIC CONTROL, AND REPLACING THE STORM SEWER SYSTEM.

PROJECT EARTH DISTURBED AREA: 52.2 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 1.00 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 53.2 ACRES

LIMITED ACCESS

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

2013 SPECIFICATIONS

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

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.

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:
BARR & PREVOST
2800 CORPORATE EXCHANGE DR., STE 240
COLUMBUS, OH 43231
(614) 714-0270 FAX (614) 714-0323

ENGINEERS SEAL:

STATE OF OHIO
REGISTERED PROFESSIONAL ENGINEER
RANDY JOSEPH MCCLELLAN
E-59124

SIGNED: *Randy McClellan*
DATE: 10/11/13

STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS	
BP-2.3	7/19/13	F-3.1	7/19/13	RM-4.3	1/18/13	800	7/19/13		
BP-3.1	4/20/12	F-3.2	4/16/10	RM-4.6	7/19/13	832	5/5/09		
BP-5.1	7/19/13					835	12/31/12		
		HL-10.13	10/16/09	TC-7.65	1/21/11	843	4/18/03		
CB-3.1	1/18/13	HL-20.11	1/19/07	TC-12.30	1/21/11				
				TC-21.10	1/19/07				
HW-2.2	1/18/13	MGS-1.1	7/19/13	TC-21.20	1/18/13				
		MGS-2.1	7/19/13	TC-21.50	1/18/13				
I-2.4	1/18/13	MGS-3.1	7/19/13	TC-22.10	1/19/01				
		MGS-3.2	1/18/13	TC-22.20	1/18/13				
DM-1.1	1/18/13	MGS-4.2	7/19/13						
DM-1.2	1/18/13	MGS-5.2	7/19/13						
DM-1.4	1/18/13	MGS-5.3	7/19/13						
DM-4.1	7/19/13	MGS-6.1	7/19/13						
		MGS-6.2	1/18/13						
F-1.1	7/19/13								

APPROVED _____
DATE _____ DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

BU-4/5 Roadway/Drainage Approved for Construction

RAILROAD INVOLVEMENT

CONSTRUCTION PROJECT NO.

PID NO.

FEDERAL PROJECT NO.

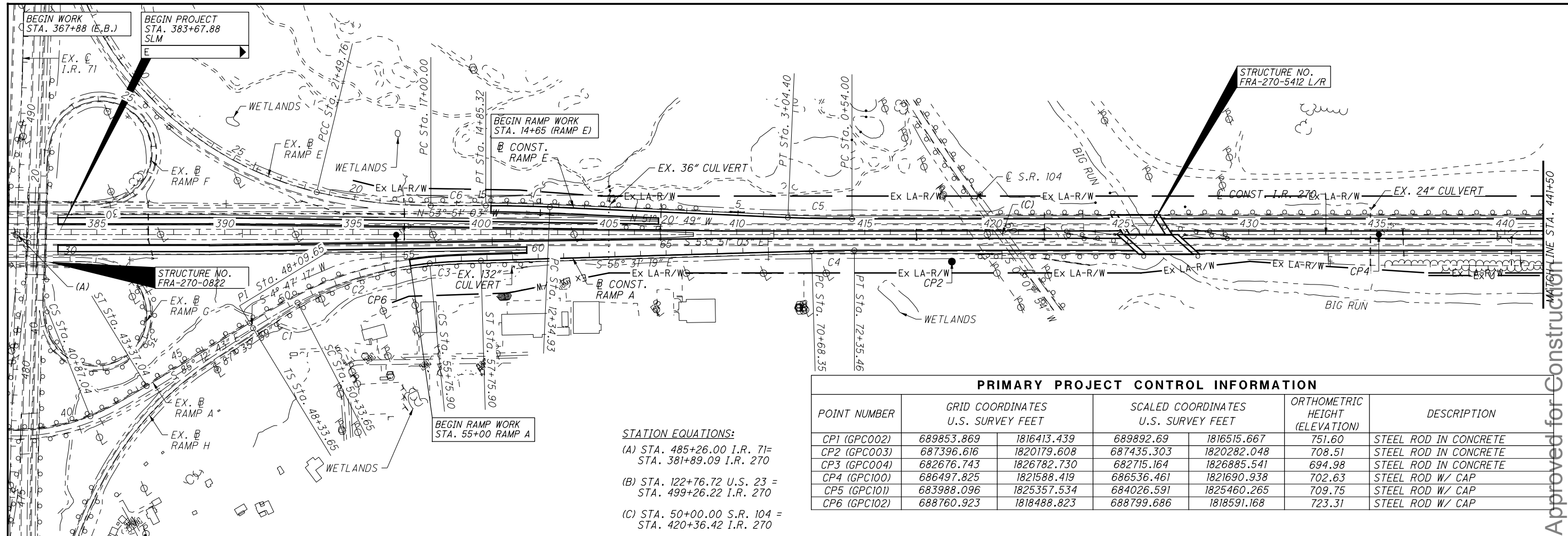
FRA-270-52.72

NONE

133006

92610

NON-FEDERAL



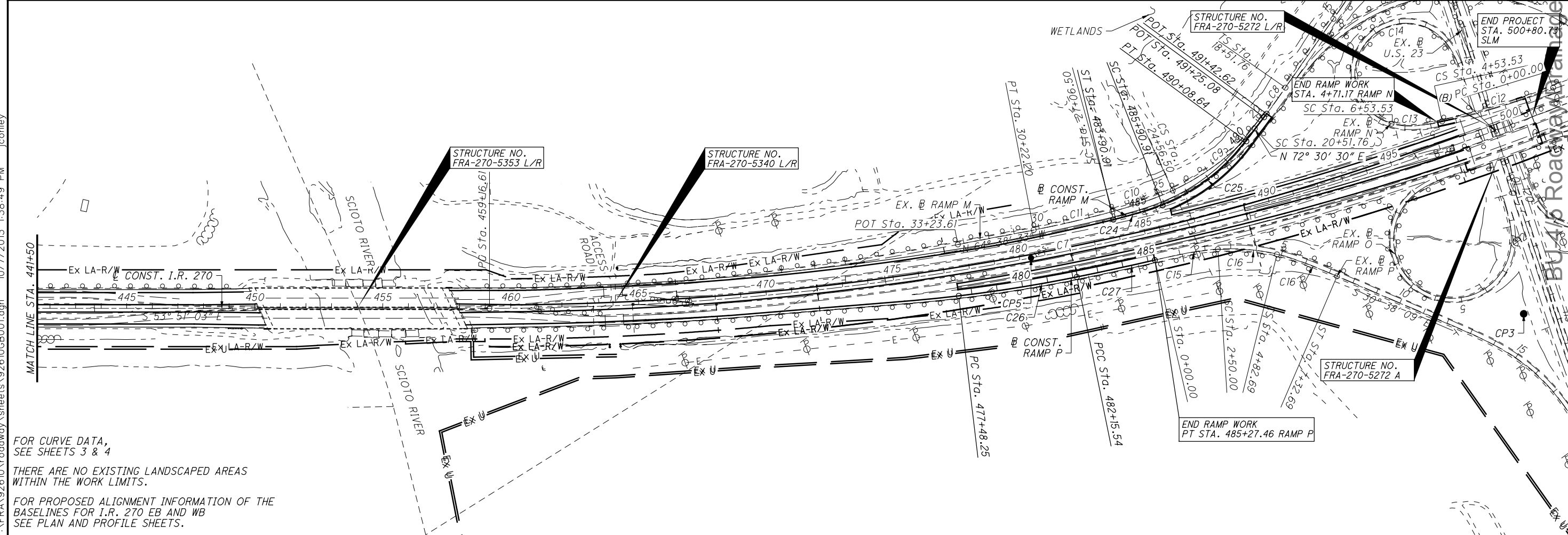
STATION EQUATIONS:

(A) STA. 485+26.00 I.R. 71 =
STA. 381+89.09 I.R. 270

(B) STA. 122+76.72 U.S. 23 =
STA. 499+26.22 I.R. 270

(C) STA. 50+00.00 S.R. 104 =
STA. 420+36.42 I.R. 270

PRIMARY PROJECT CONTROL INFORMATION						
POINT NUMBER	GRID COORDINATES U.S. SURVEY FEET		SCALED COORDINATES U.S. SURVEY FEET		ORTHOMETRIC HEIGHT (ELEVATION)	DESCRIPTION
CP1 (GPC002)	689853.869	1816413.439	689892.69	1816515.667	751.60	STEEL ROD IN CONCRETE
CP2 (GPC003)	687396.616	1820179.608	687435.303	1820282.048	708.51	STEEL ROD IN CONCRETE
CP3 (GPC004)	682676.743	1826782.730	682715.164	1826885.541	694.98	STEEL ROD IN CONCRETE
CP4 (GPC100)	686497.825	1821588.419	686536.461	1821690.938	702.63	STEEL ROD W/ CAP
CP5 (GPC101)	683988.096	1825357.534	684026.591	1825460.265	709.75	STEEL ROD W/ CAP
CP6 (GPC102)	688760.923	1818488.823	688799.686	1818591.168	723.31	STEEL ROD W/ CAP



FOR CURVE DATA,
SEE SHEETS 3 & 4

THERE ARE NO EXISTING LANDSCAPED AREAS
WITHIN THE WORK LIMITS.

FOR PROPOSED ALIGNMENT INFORMATION OF THE
BASELINES FOR I.R. 270 EB AND WB
SEE PLAN AND PROFILE SHEETS.

Approved for Construction

SCHEMATIC PLAN

FRA - 270 - 52.72

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CURVE DATA - EX. RAMP A
 CURVE C1
 P.I. STA. 49+67.02
 Ls = 200.00'
 fs = 4° 00' 00"
 LT = 133.37'
 ST = 66.70'
 x = 199.90'
 y = 4.65'
 k = 99.98'
 p = 1.16'

CURVE DATA - EX. RAMP A
 CURVE C2
 P.I. Sta. 53+13.60
 Δ 29° 41' 24" (RT)
 Dc = 4° 00' 00"
 R = 1,432.39'
 Ls = 200.00'
 θ = 4° 00' 00"
 LT = 133.37'
 ST = 66.70'
 x = 199.90'
 y = 4.65'
 k = 99.98'
 p = 1.16'
 Δ = 21° 41' 24" (RT)
 Lc = 542.25'
 Ts = 479.95'
 Es = 50.66'
 emax = 0.000
 C = 539.01'
 C1 = C2 = 199.96'
 C.B.1 = S 83° 52' 43" E
 C.B. = S 70° 22' 01" E
 C.B.2 = N 56° 51' 19" W

CURVE DATA - EX. RAMP A
 CURVE C3
 P.I. STA. 56+42.59
 Ls = 200.00'
 fs = 4° 00' 00"
 LT = 133.37'
 ST = 66.70'
 x = 199.90'
 y = 4.65'
 k = 99.98'
 p = 1.16'

CURVE DATA - EX. RAMP A
 CURVE C4
 P.I. Sta. 71+51.91
 Δ 1° 40' 16" (RT)
 Dc = 1° 00' 00"
 R = 5,729.58'
 T = 83.56'
 L = 167.11'
 E = 0.61'
 C = 167.11'
 C.B. = S 54° 41' 11" E

CURVE DATA - EX. RAMP E
 CURVE C5
 P.I. Sta. 1+79.22
 Δ 2° 30' 14" (RT)
 Dc = 1° 00' 00"
 R = 5,729.58'
 T = 125.22'
 L = 250.40'
 E = 1.37'
 C = 250.38'
 C.B. = N 52° 35' 56" W

CURVE DATA - EX. RAMP E
 CURVE C6
 P.I. Sta. 13+60.14
 Δ 2° 30' 14" (LT)
 Dc = 1° 00' 00"
 R = 5,729.58'
 T = 125.21'
 L = 250.39'
 E = 1.37'
 C = 250.37'
 C.B. = N 52° 35' 56" W

CURVE DATA - EX. I.R. 270
 CURVE C7
 P.I. Sta. 492+53.27
 Δ = 32° 28' 08" (LT)
 Dc = 0° 30' 00"
 R = 11,459.16'
 T = 3,336.66'
 L = 6,493.78'
 E = 475.90'
 C = 6,407.23'
 C.B. = S 70° 05' 07" E

CURVE DATA - EX. RAMP M
 CURVE C8
 P.I. STA. 19+85.17
 Ls = 200.00'
 fs = 6° 00' 00"
 LT = 133.41'
 ST = 66.74'
 x = 199.78'
 y = 6.98'
 k = 99.96'
 p = 1.74'

CURVE DATA - EX. RAMP M
 CURVE C9
 P.I. Sta. 22+57.21
 Δ = 24° 17' 04" (RT)
 Dc = 6° 00' 00"
 R = 954.93'
 T = 205.45'
 L = 404.74'
 E = 21.85'
 C = 401.72'
 C.B. = S 89° 07' 10" W

CURVE DATA - EX. RAMP M
 CURVE C10
 P.I. STA. 25+56.75
 Ls = 250.00'
 fs = 9° 22' 30"
 LT = 150.27'
 ST = 100.25'
 x = 249.18'
 y = 16.33'
 k = 124.89'
 p = 2.04'

CURVE DATA - EX. RAMP M
 CURVE C11
 P.I. Sta. 28+64.44
 Δ = 4° 44' 08" (RT)
 Dc = 1° 30' 00"
 R = 3,819.72'
 T = 157.94'
 L = 315.70'
 E = 3.26'
 C = 315.61'
 C.B. = N 66° 59' 44" W

CURVE DATA - EX. RAMP N
 CURVE C12
 P.I. Sta. 2+27.24
 Δ = 9° 04' 14" (RT)
 Dc = 2° 00' 00"
 R = 2,864.79'
 T = 227.24'
 L = 453.53'
 E = 9.00'
 C = 453.05'
 C.B. = N 70° 41' 20" W

CURVE DATA - EX. RAMP N
 CURVE C13
 P.I. STA. 5+88.65
 Ls = 200.00'
 fs = 28° 38' 52"
 LT = 135.12'
 ST = 68.30'
 x = 195.06'
 y = 32.74'
 k = 99.17'
 p = 8.26'

CURVE DATA - EX. RAMP N
 CURVE C14
 P.I. Sta. 5+85.31
 Δ = 264° 05' 00" (RT)
 Dc = 28° 38' 52"
 R = 200.00'
 Ls = 200.00'
 θs = 28° 38' 52"
 LT = 135.12'
 ST = 68.30'
 x = 195.06'
 y = 32.74'
 k = 99.17'
 p = 8.26'
 Δc = 206° 47' 16" (RT)
 Lc = 721.83'
 Es = 10.80'
 C = 389.12'
 C1 = C2 = 197.79'
 C.B.1 = N 56° 37' 29" W
 C.B. = N 65° 53' 17" E
 C.B.2 = N 8° 24' 03" E

CURVE DATA - EX. RAMP P
 CURVE C15
 P.I. STA. 1+66.90
 Ls = 250.00'
 fs = 9° 22' 30"
 LT = 166.90'
 ST = 83.55'
 x = 249.33'
 y = 13.61'
 k = 124.89'
 p = 3.41'

CURVE DATA - EX. RAMP P
 CURVE C16
 P.I. Sta. 3+75.71
 Δ = 36° 12' 07" (RT)
 Dc = 7° 30' 00"
 R = 763.94'
 Ls = 250.00'
 θs = 9° 22' 30"
 LT = 166.90'
 ST = 83.55'
 x = 249.33'
 y = 13.61'
 k = 124.89'
 p = 3.41'
 Δc = 17° 27' 06" (RT)
 Lc = 232.69'
 Ts = 375.71'
 Es = 43.36'
 C = 231.79'
 C1 = C2 = 249.70'
 C.B.1 = S 63° 42' 48" E
 C.B. = S 48° 44' 12" E
 C.B.2 = N 33° 45' 37" W

CURVE DATA - EX. RAMP P
 CURVE C17
 P.I. STA. 5+66.24
 Ls = 250.00'
 fs = 9° 22' 30"
 LT = 166.90'
 ST = 83.55'
 x = 249.33'
 y = 13.61'
 k = 124.89'
 p = 3.41'

BU-4/5 Roadway/Drainage Approved for Construction

SCHEMATIC PLAN - ALIGNMENT DATA

CALCULATED
 JDC
 CHECKED
 RJM

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CURVE DATA - I.R. 270 EB
CURVE C18
P.I. Sta. 473+40.27
 $\Delta = 12^\circ 49' 12''$ (LT)
Dc = 0° 29' 54"
R = 11,496.56'
T = 1,291.59'
L = 2,572.39'
E = 72.32'
C = 2,567.03'
C.B. = S 60° 55' 04" E

CURVE DATA - I.R. 270 EB
CURVE C19
P.I. Sta. 492+04.74
 $\Delta = 5^\circ 49' 54''$ (LT)
Dc = 0° 30' 00"
R = 11,459.16'
T = 583.67'
L = 1,166.32'
E = 14.85'
C = 1,165.82'
C.B. = S 69° 25' 02" E

CURVE DATA - I.R. 270 WB
CURVE C20
P.I. Sta. 499+41.71
 $\Delta = 1^\circ 32' 09''$ (LT)
Dc = 0° 29' 52"
R = 11,513.16'
T = 154.31'
L = 308.61'
E = 1.03'
C = 308.60'
C.B. = S 73° 54' 13" E

CURVE DATA - I.R. 270 EB
CURVE C21
P.I. Sta. 473+28.39
 $\Delta = 12^\circ 50' 32''$ (LT)
Dc = 0° 30' 06"
R = 11,421.75'
T = 1,285.40'
L = 2,560.04'
E = 72.10'
C = 2,554.68'
C.B. = S 60° 54' 19" E

CURVE DATA - I.R. 270 EB
CURVE C22
P.I. Sta. 491+83.91
 $\Delta = 5^\circ 46' 27''$ (LT)
Dc = 0° 29' 51"
R = 11,518.57'
T = 580.89'
L = 1,160.80'
E = 14.64'
C = 1,160.31'
C.B. = S 70° 27' 59" E

CURVE DATA - I.R. 270 EB
CURVE C23
P.I. Sta. 499+13.85
 $\Delta = 1^\circ 32' 09''$ (LT)
Dc = 0° 30' 43"
R = 11,193.53'
T = 150.03'
L = 300.04'
E = 1.01'
C = 300.03'
C.B. = S 73° 54' 13" E

CURVE DATA - RAMP M
CURVE C24
P.I. STA. 485+24.37
Ls = 200.00'
fs = 7° 45' 00"
LT = 133.46'
ST = 66.78'
x = 199.63'
y = 9.01'
k = 99.94'
p = 2.25'

CURVE DATA - RAMP M
CURVE C25
P.I. Sta. 487+58.17
 $\Delta = 40^\circ 07' 27''$ (LT)
Dc = 7° 45' 00"
R = 739.30'
 $\Delta c = 32^\circ 22' 27''$ (LT)
Lc = 417.73'
Es = 48.96'
C = 412.20'
C.B.1 = S 69° 57' 01" E
C.B. = N 88° 41' 44" E

CURVE DATA - RAMP P
CURVE C26
P.I. Sta. 479+82.03
 $\Delta = 4^\circ 40' 23''$ (LT)
Dc = 1° 00' 00"
R = 5,729.58'
T = 233.78'
L = 467.29'
E = 4.77'
C = 467.16'
C.B. = S 62° 57' 23" E

CURVE DATA - RAMP P
CURVE C27
P.I. Sta. 483+71.51
 $\Delta = 1^\circ 32' 42''$ (LT)
Dc = 0° 29' 43"
R = 11,567.16'
T = 155.97'
L = 311.91'
E = 1.05'
C = 311.90'
C.B. = S 66° 03' 55" E

NOTE:
FOR CURVE LOCATIONS OF I.R. 270 EB & WB,
SEE PLAN AND PROFILE SHEETS 20-29

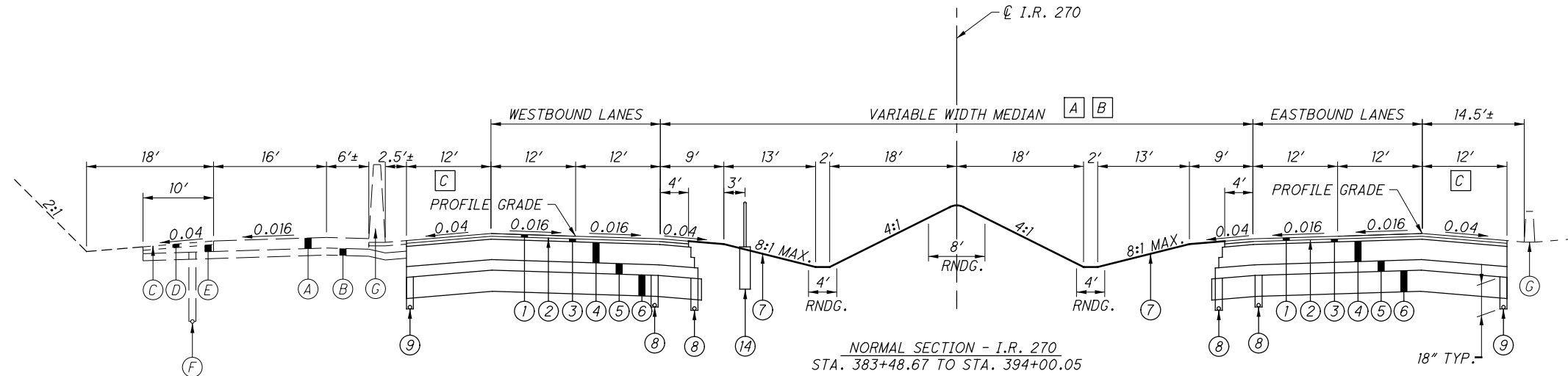
BU-4/5 Roadway/Drainage Approved for Construction

FRA - 270-52.72

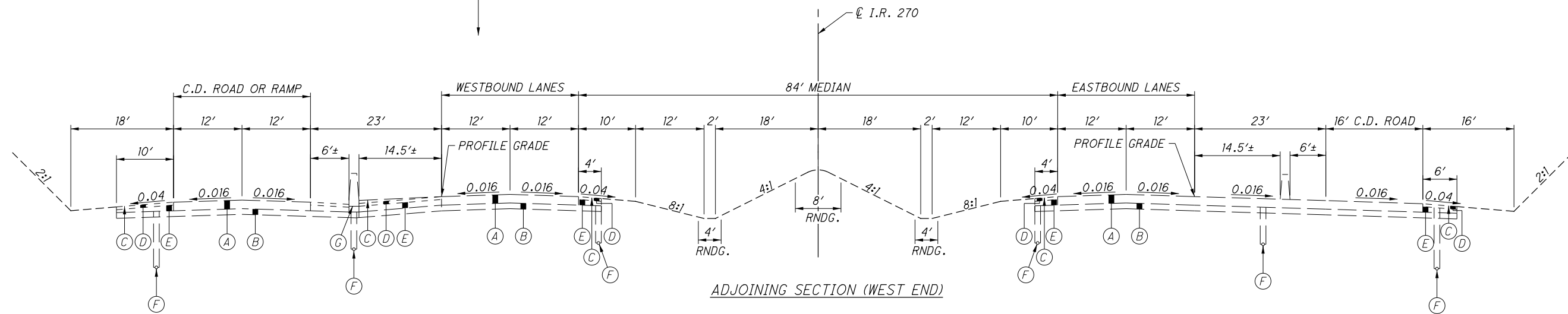
SCHEMATIC PLAN - ALIGNMENT DATA

CALCULATED
JDC
CHECKED
RJM

- A STA. 383+48.67 TO STA. 389+40.00
WIDTH = 84.00'
- B STA. 389+40.00 TO STA. 394+00.05
VARIES 84.00' TO 70.86'
- C SHOULDER VARIES:
FROM 10' AT STA. 383+48.67
TO 12' AT STA. 383+98.67



FOR CROWN SHIFT TRANSITION
SEE INTERCHANGE DETAIL SHEET 76.



LEGEND:

- | | |
|---|---|
| ① ITEM 442 - 1 1/2" ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446) | ⑫ ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=15") |
| ② ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, (0.04 GAL/SQ.YD.) | ⑬ ITEM 622 - CONCRETE BARRIER, TYPE C1 (57") |
| ③ ITEM 442 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (446) | ⑭ ITEM 606 - GUARDRAIL, MISC.: TENSIONED CABLE |
| ④ ITEM 302 - ASPHALT CONCRETE BASE, PG64-22 (T=11.5", 2 LIFTS) | |
| ⑤ ITEM 304 - 6" AGGREGATE BASE | |
| ⑥ ITEM 206 - CEMENT STABILIZED SUBGRADE, 12" DEEP | |
| ⑦ ITEM 659 - SEEDING AND MULCHING | |
| ⑧ ITEM 605 - 6" SHALLOW PIPE UNDERDRAIN | |
| ⑨ ITEM 605 - 6" BASE PIPE UNDERDRAIN | |
| ⑩ ITEM 606 - GUARDRAIL, TYPE MGS | |
| ⑪ ITEM 622 - CONCRETE BARRIER, TYPE B1 (57") | |

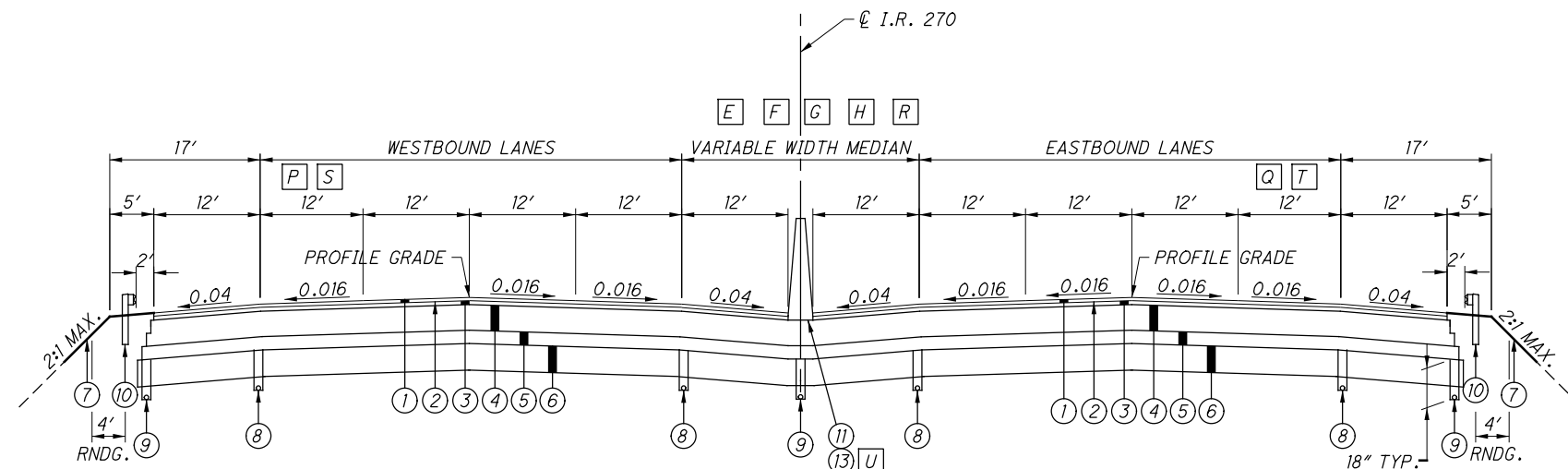
EXISTING LEGEND

- | |
|--|
| (A) EXISTING 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT |
| (B) EXISTING 6" SUBBASE |
| (C) EXISTING BITUMINOUS SURFACE TREATMENT |
| (D) EXISTING 3" WATERPROOF AGGREGATE BASE |
| (E) EXISTING POROUS BASE COURSE |
| (F) EXISTING 6" UNDERDRAIN |
| (G) EXISTING CONCRETE BARRIER |
| (H) EXISTING GUARDRAIL, TYPE 5 |
| (J) EXISTING 6" WATERPROOF AGGREGATE BASE |

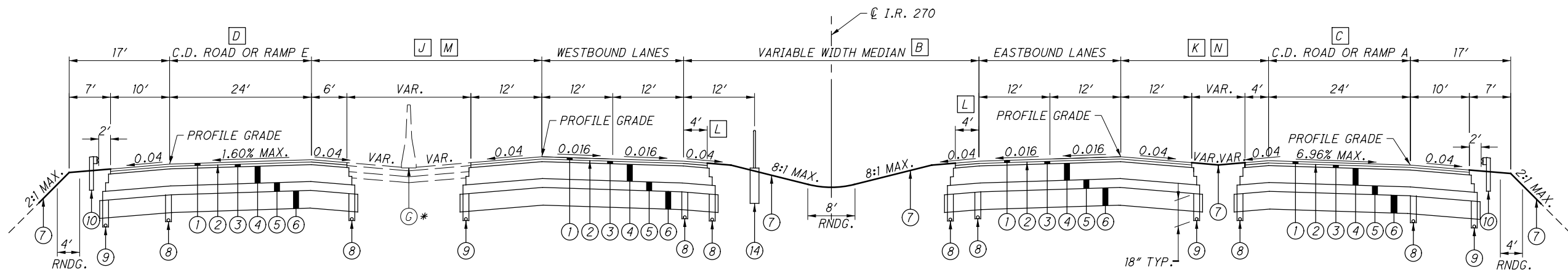
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- A STA. 394+00.05 TO STA. 397+21.69
VARIES 70.86' TO 61.67'
- B STA. 397+21.69 TO STA. 408+30.01
VARIES 61.67' TO 30.00'
- C STA. 55+00.00 TO STA. 59+55.73
RAMP A
- D STA. 8+08.95 TO STA. 14+65.00
RAMP E
- E STA. 408+30.01 TO STA. 409+41.77
VARIES 30.00' TO 26.81'
- F STA. 447+59.57 TO STA. 450+13.59
VARIES 26.81' TO 34.00'
- G STA. 457+93.62 TO STA. 460+47.84
VARIES 34.00' TO 26.81'
- H STA. 460+47.84 TO STA. 460+55.24
WIDTH = 26.81'
- J STA. 400+39.75 TO STA. 406+94.35
TAPER FROM 38.67' TO 24.00'

- K STA. 397+21.69 TO STA. 401+79.35
TAPER FROM 42.95' TO 24.00'
- L STA. 406+30.01 TO STA. 408+30.01
SHOULDER TAPERS FROM 4' TO 12'
- M STA. 406+94.35 TO STA. 408+30.01
TAPERS FROM 24.00' TO 20.00'
- N STA. 401+79.35 TO STA. 408+30.01
TAPERS FROM 24.00' TO 14.32'
- P STA. 457+61.70 TO STA. 477+43.00
VARIES FROM 17.95' TO 24.00'
- Q STA. 458+24.18 TO STA. 477+43.00
VARIES FROM 13.14' TO 60.00'
- R STA. 409+41.77 TO STA. 447+59.47
WIDTH = 26.81'
- S STA. 408+30.01 TO STA. 414+49.79
TAPERS FROM 20.00' TO 0.00'
- T STA. 408+30.01 TO STA. 414+59.29
TAPERS FROM 14.32' TO 0.00'
- U STA. 460+47.77 TO STA. 460+55.24
TYPE CI BARRIER



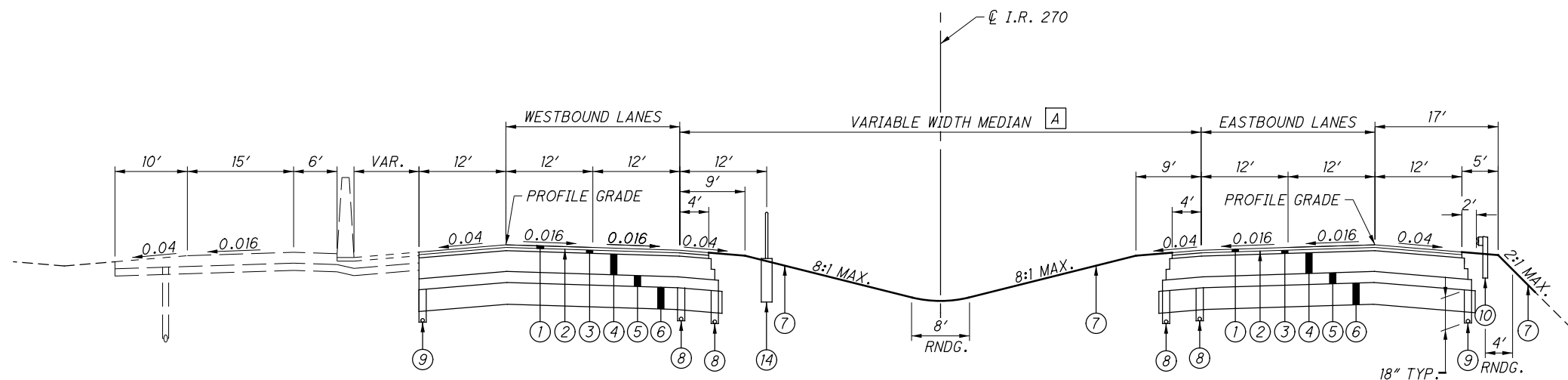
STA. 408+30.01 TO STA. 450+13.12
 STA. 424+84.10 TO STA. 426+69.16 (BRIDGE)
 STA. 425+26.55 TO STA. 427+38.05 (BRIDGE)
 STA. 450+19.00 TO STA. 457+49.97 (BRIDGE)
 STA. 450+57.24 TO STA. 457+88.21 (BRIDGE)
 STA. 457+94.09 TO STA. 460+55.24



RAMP E WORK LIMITS
 STA. 400+39.75 I.R. 270 = STA. 14+65.00 RAMP E
 STA. 406+94.35 I.R. 270 = STA. 8+08.95 RAMP E
 * BARRIER IS PRESENT ADJACENT TO STA. 14+65 (RAMP E)

STA. 397+21.69 TO STA. 408+30.01

RAMP A WORK LIMITS
 STA. 397+25.33 I.R. 270 = STA. 55+00.00 RAMP A
 STA. 401+79.35 I.R. 270 = STA. 59+55.73 RAMP A



STA. 394+00.05 TO STA. 397+21.69

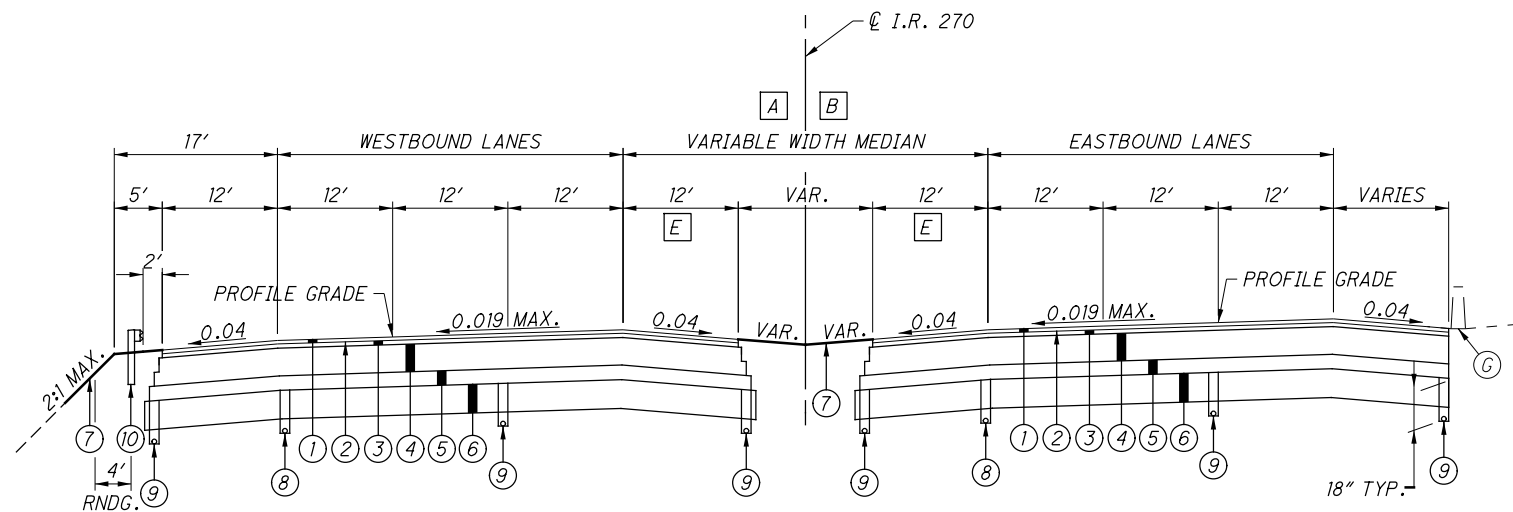
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BU-4/5 Roadway/Drainage Approved for Construction

TYPICAL SECTIONS

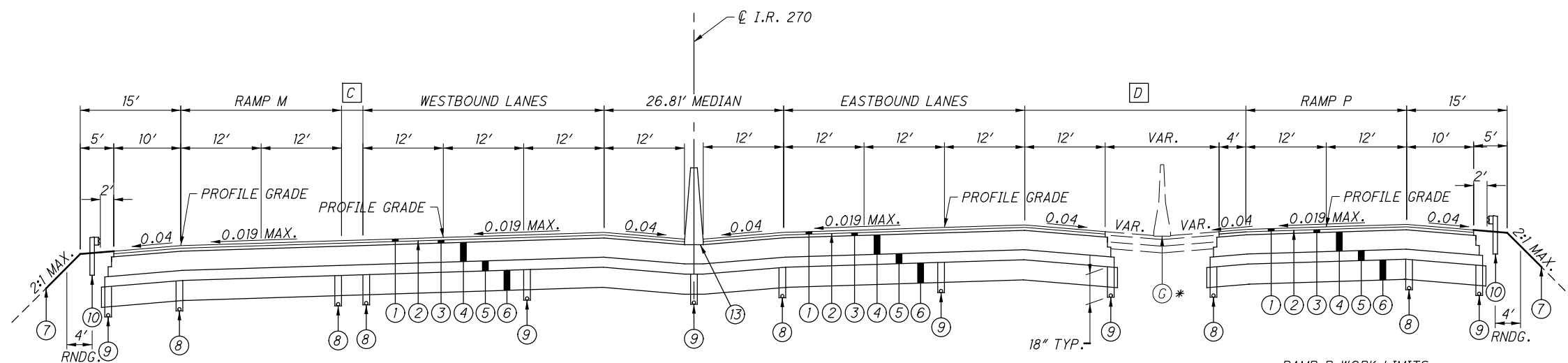
FRA - 270 - 52.72

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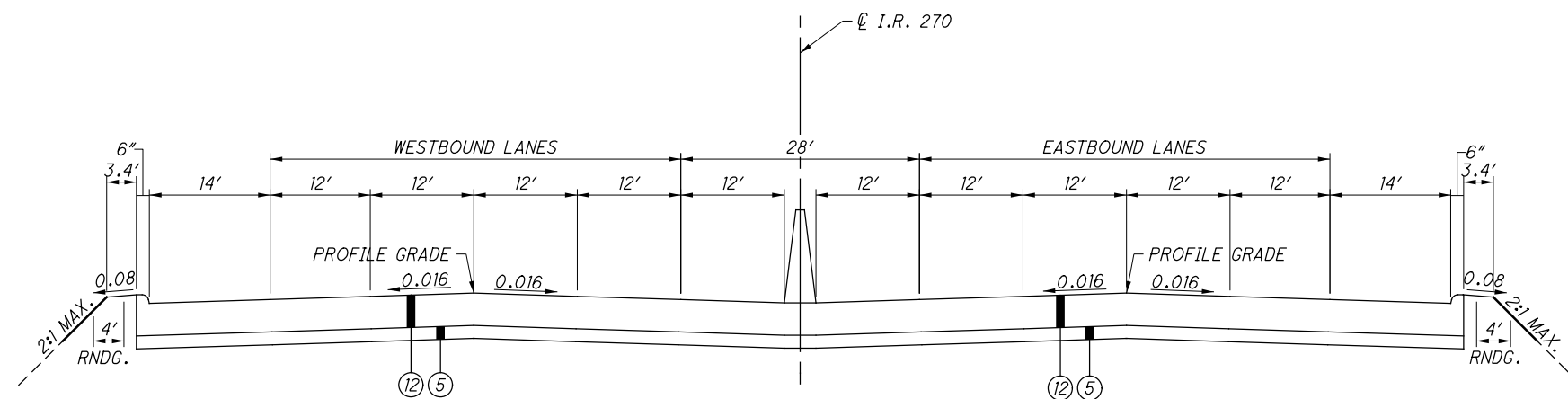
SUPERELEVATED SECTION - I.R. 270
STA. 489+00.00 TO STA. 500+80.73

- A STA. 486+12.00 TO STA. 497+82.41
VARIES 26.81' TO 60.00'
- B STA. 497+75.09 TO STA. 500+80.73
WIDTH = 60.00'
- C STA. 479+34.69 TO STA. 486+09.98
TAPER FROM 0.00' TO 24.00'
- D STA. 477+43.00 TO STA. 485+14.05
TAPER FROM 24.00' TO 33.59'
- E STA. 495+00.00 TO STA. 497+00.00
TAPER FROM 12.00' TO 4.00'



SUPERELEVATED SECTION - I.R. 270
STA. 460+55.24 TO STA. 489+00.00

RAMP P WORK LIMITS
STA. 477+43.00 TO STA. 485+27.46
* SEE PLANS FOR LIMITS OF EXISTING BARRIER



NORMAL APPROACH SLAB TYPICAL SECTION - I.R. 270
STA. 424+84.10 TO STA. 425+09.10 (WB)
STA. 426+69.16 TO STA. 426+74.16 (WB)
STA. 425+26.55 TO STA. 425+51.55 (EB)
STA. 427+38.05 TO STA. 427+63.05 (EB)

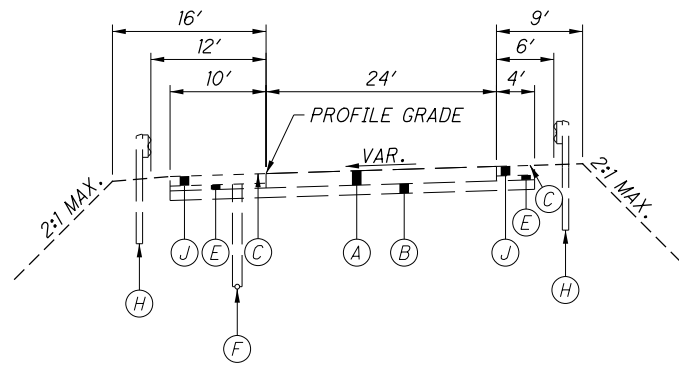
NOTE:
EXISTING BRIDGE AND APPROACH SLABS FOR
STRUCTURE NO. FRA-270-5340 L/R OVER
SCIOTO RIVER WILL REMAIN AS IS.
APPROACH SLAB LIMITS LISTED BELOW.
STA. 449+94.11 TO STA. 450+19.11 (WB)
STA. 457+49.97 TO STA. 457+74.97 (WB)
STA. 450+32.24 TO STA. 450+57.24 (EB)
STA. 457+88.07 TO STA. 458+13.07 (EB)

BU-4/5 Roadway/Drainage Approved for Construction

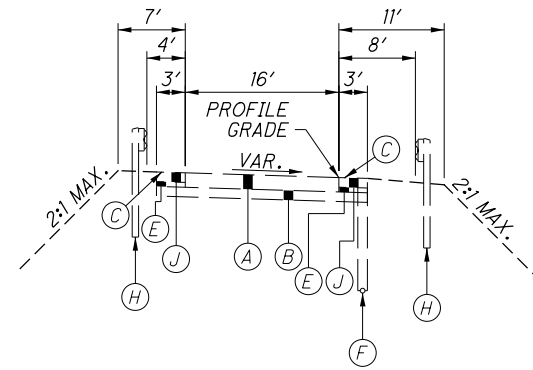
TYPICAL SECTIONS

FRA - 270 - 52.72

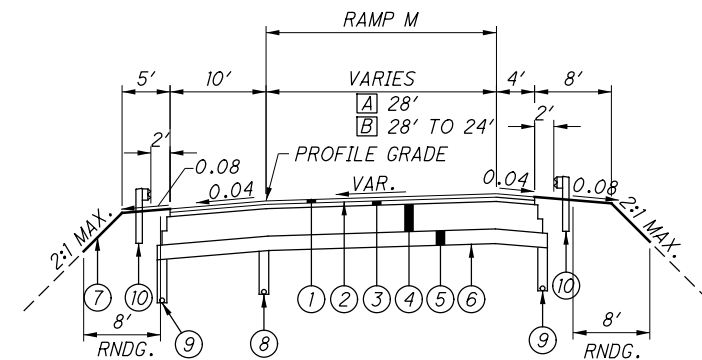
FOR LEGEND, SEE SHEET 5



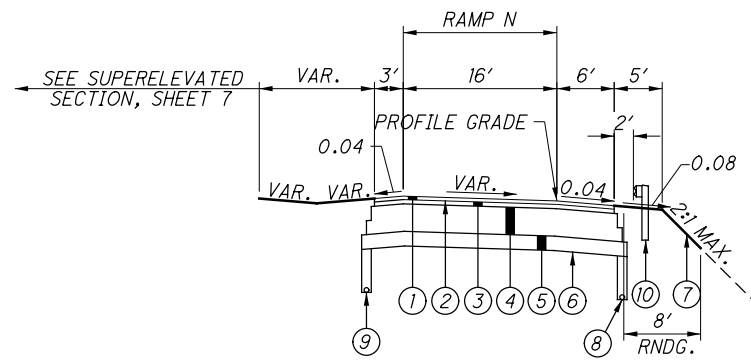
ADJOINING SECTION RAMP M



ADJOINING SECTION RAMP N

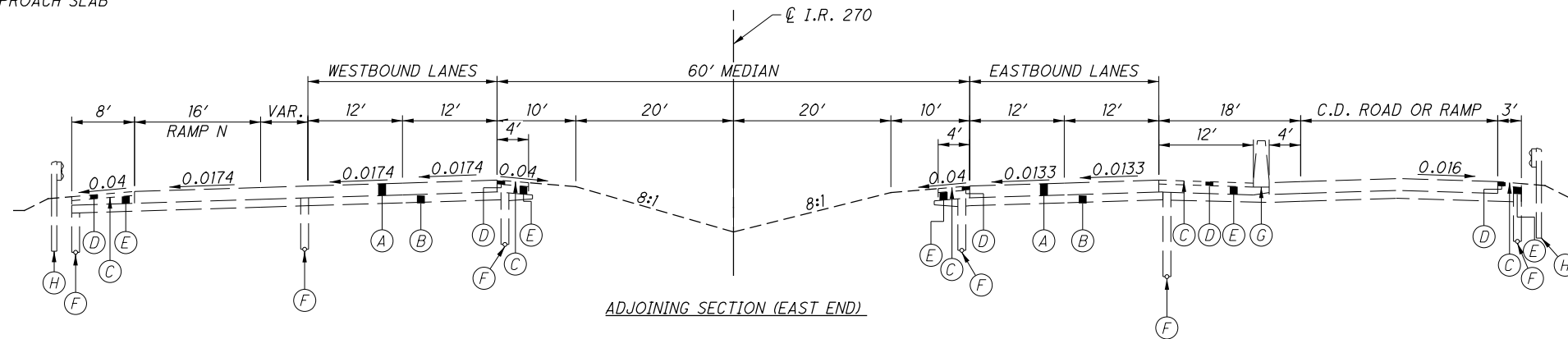


SUPERELEVATED SECTION RAMP M
STA. 486+13.60 TO STA. 491+42.62

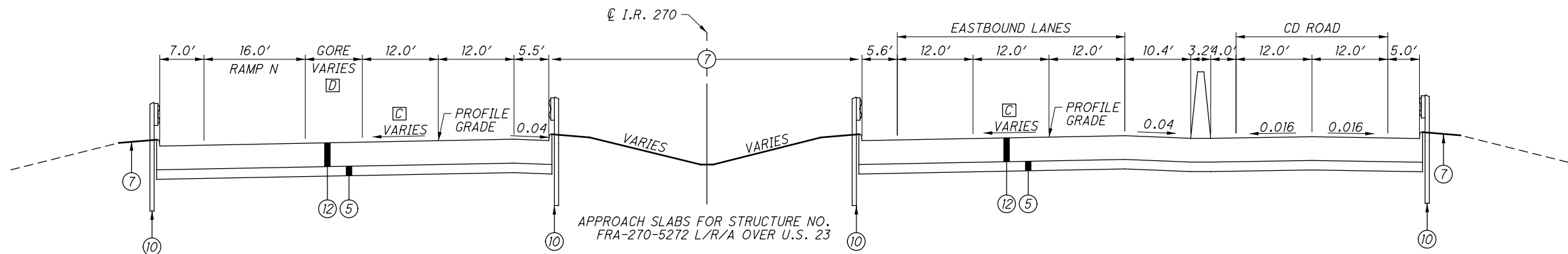


SUPERELEVATED SECTION RAMP N
STA. 3+48.69 TO STA. 4+71.17

- A STA. 486+13.60 TO STA. 489+64.31
- B STA. 489+64.31 TO STA. 491+42.62
- C SEE SUPERELEVATION TABLES
- D VARIES FROM 28.96' TO 26.37' ON REAR APPROACH SLAB
VARIES FROM 9.95' TO 9.03' ON FORWARD APPROACH SLAB



ADJOINING SECTION (EAST END)



APPROACH SLABS FOR STRUCTURE NO. FRA-270-5272 L/R/A OVER U.S. 23

SUPER ELEVATED APPROACH SLAB TYPICAL SECTION - I.R. 270

- STA. 497+72.49 TO STA. 497+97.49 (WB)
- STA. 500+30.72 TO STA. 500+55.72 (WB)
- STA. 497+97.55 TO STA. 498+22.55 (EB)
- STA. 500+64.44 TO STA. 500+89.44 (EB)

*SEE BRIDGE PLANS FOR LOCATION OF CURB ON APPROACH SLABS

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UTILITIES

THE DISTRICT UTILITY COORDINATOR, IN CONCURRENCE WITH THE REGISTERED UNDERGROUND UTILITY PROTECTION SERVICES- OHIO UNDERGROUND PROTECTION SERVICE (OUPS) AND OIL AND GAS PRODUCERS UNDERGROUND PROTECTION SERVICE (OGPUPS) AND OTHER UTILITY OWNERS THAT ARE NON-MEMBERS OF ANY UTILITY PROTECTION SERVICES, HAS DETERMINED THAT THE FOLLOWING UTILITIES ARE LOCATED IN THE AREA OF THE PROJECT:

UTILITY OWNERSHIP BASED ON OUPS PRE-PLANNING TICKETS FROM I-71 INTERCHANGE TO PARSONS AVENUE

PAUL PAXTON
AEP, DISTRIBUTION
850 TECH CENTER DRIVE
GAHANNA, OH 43230-6605
614.883.6831
PTPAXTON@AEP.COM

MIKE FRALEY
AEP, COMMUNICATIONS
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215
614.716.2531
JMFRALEY@AEP.COM

MS. TINA HAIRSTON
AEP, TRANSMISSION
700 MORRISON ROAD
GAHANNA, OH 43230
614.552.1801
TLHAIRSTON@AEP.COM

TOM ZIOMEK
AT&T
111 NORTH FOURTH STREET - 8TH FLOOR
COLUMBUS, OH 43215
614.223.7162
TZ7315@ATT.COM

CITY OF COLUMBUS
DIVISION OF POWER AND WATER (WATER)
910 DUBLIN ROAD
COLUMBUS, OHIO 43215
614.645.7788
FAX 614.645.0220

CITY OF COLUMBUS
DIVISION OF SEWERAGE AND DRAINAGE
1250 FAIRWOOD AVENUE
COLUMBUS, OHIO 43208
614.645.7102
FAX 614.645.3242

CITY OF COLUMBUS
DIVISION OF POWER AND WATER (POWER)
3500 INDIANOLA AVENUE
COLUMBUS, OHIO 43214
614.645.7627
FAX 614.645.7150

CITY OF COLUMBUS
DIVISION OF PLANNING AND OPERATIONS
TRAFFIC MAINTENANCE
1820 E. 17TH AVENUE
COLUMBUS, OHIO 43219
614.645.7393
FAX 614.645.5967

CITY OF COLUMBUS
DEPARTMENT OF TECHNOLOGY
90 WEST BROAD STREET
COLUMBUS, OHIO 43215
614.645.1501
FAX 614.645.6627

CITY OF COLUMBUS
COMMUNICATIONS DIVISION
220 GREENLAWN AVENUE
COLUMBUS, OHIO 43223
614.645.7344 EXT. 125
FAX 614.645.6588

CITY OF COLUMBUS (INCLUDES ODOT'S TRAFFIC CAMERAS, ETC.)
TRAFFIC MANAGEMENT SECTION
109 NORTH FRONT STREET
COLUMBUS, OH 43215
614.645.2684
614.645.2685

BRYAN KOPACHY
COLUMBIA GAS OF OHIO
3550 JOHNNY APPLESEED CT.
COLUMBUS, OH 43231
614.818.2133
BKOPACHY@NISOURCE.COM

MR. MARK WETZEL
SPELLMAN PIPELINE HOLDINGS
9081 STATE ROUTE 250
STRASBURG, OH 44680

MR. STEPHEN RAY
TIME WARNER CABLE
3760 INTERCHANGE DRIVE
P.O. BOX 2553
COLUMBUS, OH 43204
614.255.6340
STEPHEN.RAY@TWCABLE.COM

JAYTEE NOVARIA
WOW! INTERNET
3765 CORPORATE DRIVE
COLUMBUS, OH 43231
614.948.4653
614.668.7632
JNOVARIA@WIDEOPENWEST.COM

ODOT - ITS
1606 W. BROAD STREET
COLUMBUS, OH 43223
614.387.4113
CEN.ITS.LAB@DOT.STATE.OH.US

ODOT DISTRICT 6
400 E. WILLIAM ST.
DELAWARE, OH 43015
KRAIG SHREWSBERRY
740-833-8198

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.

ENVIRONMENTAL

- A) DURING CONSTRUCTION, TRAFFIC ON I-270 WILL BE NOTIFIED OF THE WORK ZONE VIA CHANGEABLE MESSAGE SIGNS AND FIXED SIGNS.
- B) TO AVOID COMPROMISING THE CAP AND CONTAINMENT SYSTEM OF THE LANDFILL, NO EXCAVATION SHALL BE PERFORMED IN KNOWN LANDFILL AREAS AS IDENTIFIED IN ATTACHMENT Q.
- C) LANDFILL GASES AND / OR SOLID WASTE MAY BE PRESENT ON THE PROJECT IN AREAS IDENTIFIED IN ATTACHMENT Q. THE DBT SHALL PROVIDE CONTINUOUS LANDFILL GAS MONITORING DURING EXCAVATION IN THE IDENTIFIED AREAS.
- D) THE RESULTS OF ANY SAMPLING (E.G. GAS PROBES NEAR THE PROJECT AREA BOUNDARY) SHALL BE SHARED WITH THE ENGINEER AND SOLID WASTE AUTHORITY OF CENTRAL OHIO:

SWACO
4239 LONDON GROVEPORT RD.
GROVE CITY, OHIO 43123
614.871.5100

- E) UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR STORE EQUIPMENT AND/OR MATERIALS IN ANY WETLANDS, STREAMS OR WATERS OF THE UNITED STATES.
- F) CONSTRUCTION AND DEMOLITION DEBRIS - THE CONTRACTOR SHALL PREVENT CONSTRUCTION AND DEMOLITION DEBRIS FROM ENTERING ANY STREAM. ANY MATERIAL THAT DOES FALL INTO THE STREAM SHALL BE REMOVED WITHIN 24 HOURS OF THE INCIDENT.
- G) STREAM CHANNEL EXCAVATION - THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT ANY INCIDENTAL DISCHARGES ASSOCIATED WITH THE EXCAVATION AND HAULING OF MATERIAL FROM THE STREAM CHANNEL. THIS PERTAINS TO ANY EXCAVATION OPERATION SUCH AS FOUNDATION, PIER OR ABUTMENT EXCAVATION, CHANNEL CLEAN-OUT, EXCAVATION FOR ROCK CHANNEL PROTECTION AND REMOVAL OF ANY TEMPORARY FILL ASSOCIATED WITH CONSTRUCTION OPERATIONS. WETLAND LOCATIONS SHALL BE IDENTIFIED ON THE PROJECT PLANS, AND THE CONTRACTOR WILL BE DIRECTED TO PREVENT ANCILLARY WETLAND IMPACTS, SUCH AS THE USE OF WETLAND AREAS FOR MATERIAL DISPOSAL OR CONSTRUCTION STAGING. NO TOXIC OR HAZARDOUS MATERIALS SUCH AS SEALANTS, PAINT, SOLVENTS, CLEANING AGENTS, EARTHEN MATERIALS, WASTE-WATER FUELS OR DEBRIS OF ANY KIND SHALL BE DISCHARGED TO ANY STREAMS, DRAINAGE COURSES OR BODIES OF WATER. ALL ASPHALT OR CONCRETE GRINDINGS, EXCESS ASPHALT OR CONCRETE MATERIALS OR ANY OTHER DEBRIS GENERATED DURING RESURFACING OR OTHER SIMILAR ACTIVITIES SHALL NOT BE DISPOSED OF WITHIN A FLOODPLAIN BELOW THE 100-YEAR FLOOD ELEVATION. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT LIQUIDS USED TO REPAIR, CLEAN, SEAL, OR TREAT ANY BRIDGE STRUCTURE (E.G. PAINT, SEALER, SOLVENT) FROM ENTERING STREAMS, WETLANDS OR OTHER "WATERS OF THE UNITED STATES" AND TAKE THE APPROPRIATE ACTIONS IN THE EVENT OF A RELEASE.

- H) UNAVOIDABLE IMPACTS TO AQUATIC RESOURCES SHALL BE MITIGATED. CULVERTS SHALL BE PLACED TO ALLOW FREE MOVEMENT OF AQUATIC FAUNA.
- I) BEST MANAGEMENT PRACTICES (BMPs) SHALL BE USED TO MINIMIZE SEDIMENTATION AND EROSION. RIPARIAN ZONE HABITAT SHALL BE PRESERVED WHERE POSSIBLE. RIPARIAN AREAS SHALL NOT BE MOWED.

- J) ENDANGERED SPECIES/INDIANA BAT - THE PROJECT IS WITHIN THE RANGE OF THE INDIANA BAT (MYOTIS SODALIS). PRIOR TO ANY BRIDGE REMOVAL ACTIVITIES, THE DBT SHALL INFORM THE ENGINEER WHO WILL PERFORM AN INSPECTION OF THE UNDERSIDE OF THE EXISTING BRIDGES OVER BIG RUN FOR THE PRESENCE OF BATS. IF ANY BATS ARE FOUND ROOSTING ON THE UNDERSIDE OF THE BRIDGE, THE ENGINEER WILL CONTACT THE ODOT OFFICE OF ENVIRONMENTAL SERVICES TO GET FURTHER GUIDANCE HOW TO PROCEED.

- K) TREE CLEARING - IF AN APPLICANT PLANS TO CLEAR TREES PRIOR TO ISSUANCE OF A 404 AND/OR 401 PERMIT, THE FOLLOWING TWO CONDITIONS MUST BE ADHERED TO:
 - 1) SECTION 7 CONSULTATION WITH THE SERVICE MUST BE COMPLETED; AND
 - 2) NO TREE CLEARING ON ANY PORTION OF THE PROJECT SHALL OCCUR UNTIL BOTH THE U.S. ARMY CORPS OF ENGINEERS AND OHIO EPA ANTICIPATE THAT ISSUANCE OF BOTH A 404/NWP AND A 401 PERMIT AUTHORIZING THE PROJECT AS A WHOLE IS IMMINENT. THIS WILL ENSURE THAT CLEARING WILL BE LIMITED TO THE FOOTPRINT OF WHICHEVER ALTERNATIVE IS ULTIMATELY PERMITTED, AND THAT NO UNNECESSARY CLEARING WILL OCCUR. NO TREE CLEARING SHALL OCCUR UNTIL THESE TWO CONDITIONS HAVE BEEN SATISFIED.

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 603 CONDUIT ITEM.

REVIEW OF DRAINAGE FACILITIES

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, CATCH BASINS AND INLETS REMOVED OR ABANDONED

ALL CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT OF WAY FOR SALVAGE BY THE OHIO DEPARTMENT OF TRANSPORTATION FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 202 ITEM.

ITEM 511 WINGWALLS, HEADWALLS, AND FOOTERS FOR 603 ITEMS

FOR ITEMS 706.05, 706.051, 706.052 AND 706.053 WITH A CAST-IN-PLACE WINGWALL, HEADWALL, OR FOOTER, A PRECAST ALTERNATIVE MAY BE FURNISHED PER 602.03. THE PRECAST ALTERNATIVE WILL MEET THE CAST-IN-PLACE STRUCTURAL DESIGN LOADINGS, DESIGN HEIGHT, AND DESIGN LENGTH DIMENSIONS.

FULL COMPENSATION FOR THE PRECAST WINGWALL, HEADWALL, OR FOOTER IS THE NUMBER OF CUBIC YARDS OF ITEM 511 OR SUPPLEMENTAL SPECIFICATION 898, AND POUNDS OF ITEM 509 FOR THE CORRESPONDING CAST-IN-PLACE STRUCTURE

EXISTING UNDERDRAINS

PROVIDE UNOBSTRUCTED OUTLETS FOR ALL EXISTING UNDERDRAINS ENCOUNTERED DURING CONSTRUCTION.

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

UNDERDRAINS THAT CAN BE CONNECTED TO THE NEW OR EXISTING UNDERDRAINS AT THE END OF THE PROJECT LIMITS AS WELL AS ALL NECESSARY BENDS OR BRANCHES REQUIRED FOR CONNECTION ARE INCLUDED IN THE BASIS OF PAYMENT FOR UNCLASSIFIED PIPE UNDERDRAINS.

POST CONSTRUCTION STORM WATER TREATMENT

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

THE BMP'S UTILIZED IN THIS PLAN ARE VEGETATED FILTER STRIPS, VEGETATED BIOFILTERS AND EXFILTRATION TRENCHES.

BU-4/5 Roadway/Drainage Approved for Construction

CALCULATED
WES
CHECKED
RJM

GENERAL NOTES

FRA - 270 - 52.72

PART-WIDTH CONSTRUCTION

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

SURVEYING PARAMETERS

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

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD 88
GEOID: 2009

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD 83 (CORS 96) EPOCH 2002
ELLIPSOID: GRS80
MAP PROJECTION: LAMBERT CONFORMER CONIC
COORDINATE SYSTEM: OHIO STATE PLANE - SOUTH
COMBINED SCALE FACTOR: 1.00005628

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

ITEM SPECIAL - TENSION METER

PROVIDE A DILLON QUICK CHECK TENSION METER (PART #36289-0014) OR EQUIVALENT ABLE TO MEASURE 3/4" INCH DIAMETER STEEL CABLE AT A MINIMUM TENSION OF 10,000 POUNDS TO THE ODOT FRANKLIN COUNTY MANAGER.

ITEM SPECIAL - TRAINING

THE CONTRACTOR AND/OR A REPRESENTATIVE FROM THE CABLE GUARDRAIL MANUFACTURER SHALL PROVIDE A ONE DAY TRAINING SESSION FOR THE FRANKLIN COUNTY PERSONNEL IN THE INSTALLATION AND MAINTENANCE OF THE TENSIONED CABLE GUARDRAIL.

ITEM SPECIAL - TENSIONING EQUIPMENT

PROVIDE A SET OF THE FOLLOWING TENSIONING EQUIPMENT TO THE ODOT FRANKLIN COUNTY MANAGER FOR THE MAINTENANCE OF THE SYSTEM:

- 2 - 3/4" DIAMETER KLEIN "CHICAGO" GRIPS, PRODUCT #409-1628-17 FOR EXTRA HIGH STRENGTH CABLE (OR EQUIVALENT)
- 1 - COME-ALONG CAPABLE OF STRETCHING 5 TONS
- 2 - 15 FT. LONG, 5 TON CHAINS

RELOCATE VEHICLE DETECTION POLE

VEHICLE DETECTION POLE SHALL BE CAREFULLY REMOVED AND RELOCATED AS SHOWN ON PLANS WITH ALL FEATURES MATCHING EXISTING ORIENTATION. EXISTING FOUNDATION SHALL BE REMOVED TO 1' BELOW SUBGRADE. NEW FOUNDATION SHALL BE 11' DEEP AND CONFORM TO HL-20.11

GUARDRAIL, MISC: TENSIONED CABLE ANCHOR ASSEMBLIES

THE TENSIONED CABLE ANCHOR ASSEMBLIES SHALL FOLLOW THE MANUFACTURER'S SPECIFICATIONS FOR WEAK SOIL CONDITIONS. THE MANUFACTURER SHALL PROVIDE A DESIGN TO ADEQUATELY HANDLE THE STATIC LOAD, ANY IMPACT LOADS NEAR THE ANCHOR ASSEMBLY PLUS THE APPROPRIATE FACTORS OF SAFETY.

ITEM 606 - GUARDRAIL, MISC: TENSIONED CABLE WITH CONCRETE FOUNDATION LINE POST (SOCKETED) ITEM 606 - GUARDRAIL, MISC: TENSIONED CABLE ANCHOR ASSEMBLY

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A FOUR STRAND TENSIONED CABLE GUARDRAIL SYSTEM MEETING NCHRP REPORT 350 TEST LEVEL - 3 REQUIREMENTS BY USING ONE OF THE FIVE FOLLOWING PRODUCTS:

- 1) MARION STEEL'S WIRE ROPE BARRIER, MARION STEEL COMPANY, 912 CHENEY AVE., MARION, OHIO 43302 (CONTACT: RICK MAUER 603-430- 9350 OR 603-490-1603)
- 2) SAFENCE, GREGORY INDUSTRIES, INC., 4100 13TH STREET SW, CANTON, OHIO 44710 (CONTACT: GEORGE EICHER 330-447-4800)
- 3) TRINITY CABLE SAFETY SYSTEM (CASS), TRINITY INDUSTRIES, 2525 STEMMONS FREEWAY, DALLAS, TEXAS 75207 (CONTACT: BRIAN SMITH 214-631-4420 OR 800-527-6050, OR 800-527-6050, EXT. 8140)
- 4) BRIFEN USA WIRE ROPE SAFETY FENCE SYSTEM, 9215 S. SHIELDS BLVD., OKLAHOMA CITY, OK 73160 (CONTACT: JERRY EMERSON, P.E. 405-793-9500 OR 866-427-4336)
- 5) GIBRALTAR CABLE BARRIER SYSTEMS, 320 SOUTHLAND ROAD, BURNET, TEXAS 78611 (CONTACT: JAY WINN 512-756-1426 OR 800-495-8957)

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS AND IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. SYSTEMS WILL BE INSTALLED IN A MEDIAN APPLICATION (BIDIRECTIONAL TRAFFIC).

THE SYSTEM SHALL HAVE A MAXIMUM DEFLECTION OF 12 FEET AND THE MAXIMUM LONGITUDINAL DISTANCE BETWEEN POSTS SHALL BE 15 FEET.

THE CONTRACTOR SHALL NOT USE A TORPEDO CABLE SPLICE TO JOIN TWO STRANDS OF CABLE.

THE BID PRICE SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL CABLE GUARDRAIL SYSTEM, INCLUDING ALL RELATED HARDWARE, GRADING, EMBANKMENT, AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER AND ODOT PROJECT ENGINEER.

THE CONTRACTOR SHALL PROVIDE DELINEATORS ON THE GUARDRAIL POSTS AT A MINIMUM INTERVAL OF 100 FT.

POSTS ARE SET IN SOCKETED CONCRETE FOUNDATIONS AND SHALL NOT BE PERMANENTLY INSTALLED UNTIL THEIR RESPECTIVE RUNS OF TENSIONED CABLE GUARDRAIL ARE READY FOR FINAL CONNECTION TO THE END TERMINAL ASSEMBLY.

THE CONTRACTOR SHALL REPLACE ANY POSTS DAMAGED DURING THE INSTALLATION AS DETERMINED BY THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.

THERE IS ONE RUN OF TENSIONED CABLE GUARDRAIL ON THIS TERMINAL).BEGIN RUN ANCHOR TERMINAL TO END RUN ANCHOR

IF THE LENGTHS OF RUNS ARE ADJUSTED IN THE FIELD, THE MINIMUM LENGTH SHALL BE 500 FEET AND THE MAXIMUM LENGTH SHALL BE 3500 FEET.

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CALCULATED
JDC
CHECKED
RJM

GENERAL NOTES

FRA - 270-52.72

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REF. NO.	SHEET NO.	STATION		SIDE	255	606	606	606	606	606	606	606	607							
		FROM	TO		FULL DEPTH PAVEMENT SAWING FT	GUARDRAIL, TYPE MGS FT	ANCHOR ASSEMBLY, MGS TYPE E EACH	ANCHOR ASSEMBLY, MGS TYPE T EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2 EACH	IMPACT ATTENUATOR, TYPE 1, BIDIRECTIONAL EACH	GUARDRAIL, MISC.: TENSIONED CABLE FT	FENCE, TYPE CLT FT							
		I.R. 270																		
P-1	20	383+48.67		RT	40															
P-2	20	383+48.67		LT	40															
P-3	20	383+48.67	385+17.78	RT	169.11															
P-4	20	383+48.67	390+50.00	LT	701.34															
GR-1	20	383+00.81	390+50.00	LT									749.55							
		I.R. 270																		
P-1	21	390+50.00	403+00.00	LT	1250.13															
GR-3	21	390+50.00	403+00.00	LT									1250.13							
F-1	21	400+39.87	403+00.00	LT										289.33						
F-2	21	396+98.54	403+00.00	RT										605.36						
		RAMP E																		
P-2	21	15+35.00		LT/RT	40															
P-3	21	12+00.00	15+35.00	LT	263.8															
GR-2	21	12+00.00	15+35.00	RT																
GR-4	21	14+65.00		LT			265.59													
		RAMP A																		
P-4	21	55+00.00		LT/RT	38															
GR-1	21	55+00.00	59+76.47	RT			462.5		1											
		I.R. 270																		
P-1	22	403+00.00	406+94.00	LT	400.39															
GR-2	22	403+00.00	408+30.00	LT									529.91							
F-1	22	403+00.00	415+50.00	LT										1250.16						
F-2	22	403+00.00	415+50.00	RT										1253.53						
GR-4	22	408+30.01		CL																
		RAMP E																		
P-2	22	8+10.00	12+00.00	LT	391.31															
GR-1	22	4+75.30	12+00.00	LT			671.91		1											
		I.R. 270																		
GR-1	23	419+38.49	424+88.24	LT			537.5													
GR-2	23	419+43.71	425+96.47	RT			575		1											
GR-3	23	426+25.91	428+00.00	LT			149.1			1										
GR-4	23	427+80.39	428+00.00	RT			19.75				1									
F-1	23	415+50.00	424+81.08	LT										957.19						
F-2	23	415+50.00	426+08.63	RT										1076.2						
F-3	23	425+89.68	428+00.00	LT										282.05						
F-4	23	427+87.03	428+00.00	RT										17.08						
		I.R. 270																		
GR-1	24	428+00.00	440+50.00	LT			1250													
GR-2	24	428+00.00	428+67.90	RT			45.25			1										
F-1	24	428+00.00	440+50.00	LT										1250						
F-2	24	428+00.00	440+50.00	RT										1252.43						
		I.R. 270																		
GR-1	25	440+50.00	449+88.58	LT			938.82													
GR-2	25	448+96.28	450+61.56	RT			87.5				1									
F-1	25	440+50.00	419+48.53	LT										1159.25						
F-2	25	440+50.00	453+00.00	RT										1250						
TOTALS CARRIED TO GENERAL SUMMARY					3334		5003		3	3	3	3	2	2530		10643				

BU-4/5 Roadway/Drainage Approved for Construction

CALCULATED			
VLC			
CHECKED			
RJM			
ROADWAY SUBSUMMARY			
FRA - 270-52.72			
<table border="1"> <tr> <td>11</td> </tr> <tr> <td>114</td> </tr> </table>		11	114
11			
114			

REF. NO.	SHEET NO.	STATION		SIDE	255	606	606	606	606	606	606	606	606	607								
		FROM	TO		FULL DEPTH PAVEMENT SAWING FT	GUARDRAIL, TYPE MGS FT	GUARDRAIL, BARRIER DESIGN, TYPE MGS FT	ANCHOR ASSEMBLY, TYPE E EACH	ANCHOR ASSEMBLY, TYPE T EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 2 EACH	IMPACT ATTENUATOR, TYPE 1, BIDIRECTIONAL EACH	FENCE, TYPE CLT FT									
		I.R. 270																				
GR-1	26	457+45.65	465+50.00	LT																		
GR-2	26	458+18.63	465+50.00	RT																		
F-1	26	455+69.72	465+50.00	LT																		
F-2	26	453+00.00	453+34.12	RT																		
F-3	26	456+98.16	465+50.00	RT																		
		I.R. 270																				
P-1	27	477+43.00	478+00.00	RT	65.3																	
GR-1	27	465+50.00	473+96.70	LT																		
GR-2	27	465+50.00	478+00.00	RT																		
F-1	27	465+50.00	478+00.00	LT																		
F-2	27	465+50.00	478+00.00	RT																		
		RAMP P																				
P-2	27	477+48.25	478+06.78	LT	57.23																	
		I.R. 270																				
P-3	28	478+00.00	490+50.00	RT	1257.54																	
GR-1	28	478+00.00	485+14.00	RT																		
F-1	28	478+00.00	485+69.83	LT																		
F-2	28	478+00.00	485+97.05	RT																		
GR-3	28	489+00.00		CL																		
		RAMP P																				
P-1	28	478+06.78	485+27.46	RT	718.97																	
P-2	28		485+27.46	LT/RT	38																	
GR-2	28		485+27.46	LT																		
		I.R. 270																				
P-2	29	490+50.00	497+82.48	RT	736.35																	
P-3	29		500+80.73	LT	58.7																	
P-4	29		500+80.73	RT	52																	
GR-1	29	496+02.64	498+08.08	RT																		
GR-3	29	497+56.92	498+06.05	RT																		
GR-4	29	500+43.32	500+80.44	RT																		
GR-5	29	500+57.97	501+07.98	LT																		
GR-7	29	497+85.32	498+10.37	LT																		
		RAMP N																				
P-1	29		4+71.17	LT/RT	25																	
GR-2	29	3+85.21	4+85.29	RT																		
GR-6	29	1+16.37	1+53.58	RT																		
		I.R. 270																				
F-1	30	485+69.83	490+09.70	LT																		
		RAMP M																				
P-1	30		491+42.62	LT/RT	36																	
GR-1	30	487+77.21	491+42.62	RT																		
GR-2	30	489+79.58	491+42.62	LT																		
TOTALS CARRIED TO GENERAL SUMMARY					3045		5030	125	1	3	5	4	3		6576							

CALCULATED	✓
	VLC
CHECKED	✓
	RJM
ROADWAY SUBSUMMARY	
FRA - 270-52.72	
BU-4/5 Roadway/Drainage Approved for Construction	

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REF. NO.	SHEET NO.	STATION		SIDE	470	601	602	611	611	611	611	611	611	611	611	611	611	611	835		
		FROM	TO		DITCH EROSION PROTECTION SY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER CY	CONCRETE MASONRY CY	15" CONDUIT, TYPE C FT	15" CONDUIT, TYPE B FT	18" CONDUIT, TYPE B FT	21" CONDUIT, TYPE B FT	24" CONDUIT, TYPE B FT	36" CONDUIT, TYPE B FT	36" CONDUIT, TYPE C FT	CATCH BASIN, NO. 8 EACH	INLET, NO. 3B EACH	CATCH BASIN, NO. 2-3 EACH	CATCH BASIN, NO. 3A EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE CI EACH	INLET, NO. 4 FOR SINGLE SLOPE BARRIER, TYPE BI EACH	EXFILTRATION TRENCH, TYPE B FT
		I.R. 270																			
DR-1	20	387+00.00	387+00.00	LT																	
DR-2	20	387+00.00	387+00.00	RT																	
DR-4	21	394+64.21	397+01.92	LT																	
DR-5	21	397+01.92	396+99.39	LT																	
DR-6	21	397+00.00	397+01.92	LT																	
DR-7	21	397+00.00	397+00.00	RT																	
DR-8	21	402+00.00	402+32.23	LT																	
DR-9	21	402+32.23	402+33.37	LT																	
DR-10	22	407+00.00	407+04.28	LT																	
DR-11	23	417+00.00	422+02.00	CL																	
DR-12	23	422+02.00	422+01.14	LT																	
DR-13	24	428+50.00	436+01.89	CL																	
DR-14	24	436+01.89	436+07.50	RT																	
DR-15	24	440+27.12	440+25.71	RT																	
DR-26	24	428+13.69	428+50.00	RT																	
DR-16	25	447+00.00	449+00.00	CL																	
DR-17	26	462+00.00	466+52.28	CL																	
DR-18	27	466+52.28	466+47.03	LT																	
DR-19	27	472+00.00	472+01.34	RT																	
DR-20	27	472+15.00	472+31.00	RT																	
DR-21	28	481+98.21	482+08.27	RT																	
DR-22	28	488+90.00	489+02.12	RT																	
DR-23	28	482+08.27	482+08.27	RT																	
DR-24	29	497+52.25	497+50.51	RT																	
DR-25	30	RAMP M		RT	48.33																
TOTALS CARRIED TO GENERAL SUMMARY					48.33	12.67	3.10	31	924	114	1625	794	78	39	7	2	2		5	6	16

BU-4/5 Roadway/Drainage Approved for Construction

CALCULATED	JDC	CHECKED	RJM
DRAINAGE SUBSUMMARY			
FRA - 270-52.72			
13 114			

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REF. NO.	SHEET NO.	STATION		SIDE	6" BASE PIPE UNDERDRAINS	6" SHALLOW PIPE UNDERDRAINS				6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	6" PRECAST REINFORCED CONCRETE OUTLET										
		FROM	TO																		
		I.R. 270																			
UD-1	77	384+13.98		LT						11											
UD-2	77	387+03.00	390+50.00	LT	347																
UD-3	77	387+03.00	390+50.00	LT		347															
UD-4	77	387+03.00	390+50.00	LT		347															
UD-5	77	383+48.67	386+97.00	LT	348.33																
UD-6	77	383+48.67	384+13.98	LT		65.31															
UD-7	77	383+48.67	386+97.00	LT		348.33															
UD-8	77	383+48.67	386+97.00	LT		348.33															
UD-9	77	383+48.67	386+98.00	RT		349.33															
UD-10	77	383+48.67	386+98.00	RT		349.33															
UD-11	77	383+48.67	384+30.14	RT		81.47															
UD-12	77	383+48.67	386+98.00	RT	349.33																
UD-13	77	386+97.00		LT						55											
UD-14	77	387+00.00		RT						57											
UD-15	77	387+00.00	390+50.00	RT		350															
UD-16	77	387+00.00	390+50.00	RT		350															
UD-17	77	384+30.14		RT						11											
UD-18	77	387+00.00	390+50.00	RT	350																
		I.R. 270																			
UD-1	78	390+50.00	396+99.00	LT	649																
UD-2	78	390+50.00	396+99.00	LT		649															
UD-3	78	390+50.00	396+99.00	LT		649															
UD-4	78	396+99.00		LT						49											
UD-5	78	390+50.00	397+00.00	RT		650															
UD-6	78	390+50.00	397+00.00	RT		650															
UD-7	78	390+50.00	397+00.00	RT	650																
UD-8	78	397+00.00		RT						50											
UD-9	78	397+03.00	401+99.00	LT	497																
UD-10	78	397+03.00	401+99.00	LT		496															
UD-11	78	397+03.00	401+99.00	LT		496															
UD-12	78	402+00.00		LT						57											
UD-13	78	397+02.00	402+00.00	RT		498															
UD-14	78	397+02.00	402+00.00	RT		498															
UD-15	78	397+02.00	402+00.00	RT	498																
UD-16	78	402+00.00		RT						58											
UD-21	78	402+35.00	403+00.00	LT	65																
UD-22	78	402+35.00	403+00.00	LT		65															
UD-23	78	402+37.00	403+00.00	LT		63															
UD-24	78	402+26.00	403+00.00	LT	74																
UD-25	78	402+12.00	403+00.00	LT		88															
UD-26	78	402+10.00	403+00.00	LT		90															
UD-27	78	397+21.00	403+00.00	RT	582																
UD-28	78	397+24.00	403+00.00	RT		576															
UD-29	78	397+27.00	403+00.00	RT		574															
UD-30	78	402+02.00	403+00.00	RT		98															
UD-31	78	402+02.00	403+00.00	RT		98															
		RAMP E																			
UD-17	78	12+70.00	15+35.00	LT	265																
UD-18	78	12+70.00	15+35.00	LT		265															
UD-19	78	12+70.00	15+35.00	RT		265															
UD-20	78	12+70.00								50	1										
TOTALS CARRIED TO GENERAL SUMMARY						4675	9704			398	1										

BU-4/5 Roadway/Drainage Approved for Construction

CALCULATED VLC	UNDER DRAIN SUBSUMMARY
CHECKED RJM	
14	FRA - 270 - 52.72
114	

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REF. NO.	SHEET NO.	STATION		SIDE	605	605	605		611	611									
		FROM	TO		6" BASE PIPE UNDERDRAINS	6" SHALLOW PIPE UNDERDRAINS	6" UNCLASSIFIED PIPE UNDERDRAINS		6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	PRECAST REINFORCED CONCRETE OUTLET									
					FT	FT	FT		FT	EACH									
		I.R. 270																	
UD-1	79	403+00.00	407+00.00	LT	400														
UD-2	79	403+00.00	407+00.00	LT		400													
UD-3	79	403+00.00	407+00.00	LT		400													
UD-4	79	407+00.00		LT					50										
UD-5	79	403+00.00	407+00.00	LT	400														
UD-6	79	403+00.00	407+00.00	LT		400													
UD-7	79	403+00.00	407+00.00	LT		400													
UD-8	79	407+00.00		LT					55	1									
UD-9	79	403+00.00	407+02.00	RT															
UD-10	79	403+00.00	407+02.00	RT		400													
UD-11	79	403+00.00	407+00.00	RT	400														
UD-12	79	403+00.00	407+00.00	RT		400													
UD-13	79	403+00.00	405+05.00	RT	205														
UD-14	79	407+02.00		RT					14										
UD-15	79	407+00.00		RT					35										
UD-16	79	405+05.00	407+00.00	RT			195												
UD-17	79	405+05.00		RT					27	1									
UD-18	79	407+04.00	408+30.00	RT	126														
UD-19	79	407+04.00	415+50.00	LT		846													
UD-20	79	407+04.00	408+30.00	LT	126														
UD-21	79	408+30.00		LT/RT					13										
UD-22	79	408+30.00	415+50.00	C	720														
UD-23	79	407+04.00	415+50.00	RT		846													
UD-24	79	407+03.00	413+75.00	RT		672													
UD-25	79	407+04.00	415+50.00	RT		846													
UD-26	79	407+04.00	415+50.00	C	846														
UD-27	79	413+75.00		RT					25										
UD-28	79	407+06.00	415+50.00	LT	845														
UD-29	79	407+06.00	415+50.00	LT		845													
UD-30	79	407+06.00	413+24.00	LT		619													
UD-31	79	413+24.00		LT					25										
		I.R. 270																	
UD-1	80	415+50.00	417+00.00	LT	150														
UD-2	80	415+50.00	417+00.00	LT		150													
UD-3	80	415+50.00	417+00.00	LT		150													
UD-4	80	415+50.00	417+00.00	C	140				10										
UD-5	80	417+00.00		LT					82										
UD-6	80	415+50.00	417+00.00	RT	150														
UD-7	80	415+50.00	417+00.00	RT		150													
UD-8	80	415+50.00	417+00.00	RT		150													
UD-9	80	417+00.00		RT					79										
UD-10	80	417+02.00	421+97.00	LT	495														
UD-11	80	417+02.00	421+97.00	LT		495													
UD-12	80	417+02.00	421+97.00	LT		495													
UD-13	80	417+02.00		C	485				10										
UD-14	80	421+97.00		LT					85										
UD-15	80	417+02.00	422+00.00	RT		498													
UD-16	80	417+02.00	422+00.00	RT		498													
UD-17	80	417+02.00	422+00.00	RT	498														
UD-18	80	422+00.00		RT					86										
TOTALS CARRIED TO GENERAL SUMMARY					5986	10060	195		596	2									

BU-4/5 Roadway/Drainage Approved for Construction

CALCULATED VLC CHECKED RJM	UNDERDRAIN SUBSUMMARY	FRA - 270-52.72	15 114
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REF. NO.	SHEET NO.	STATION		SIDE	605			611														
		FROM	TO		6" BASE PIPE UNDERDRAINS FT	6" SHALLOW PIPE UNDERDRAINS FT	6" UNCLASSIFIED PIPE UNDERDRAINS FT	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS FT	PRECAST REINFORCED CONCRETE OUTLET EACH													
		I.R. 270																				
UD-19	80	422+03.00	424+58.00	LT	255																	
UD-20	80	422+03.00	424+66.00	LT		263																
UD-21	80	422+03.00	424+97.00	LT		294																
UD-22	80	422+03.00	425+05.00	C	300																	
UD-23	80	424+45.00	425+05.00	LT					124	1												
UD-24	80	422+02.00	424+95.00	RT		293																
UD-25	80	422+02.00	425+50.00	RT		348																
UD-26	80	422+02.00	425+64.00	RT	362																	
UD-27	80	424+95.00	425+82.00	RT					116	1												
UD-28	80	426+55.00	428+00.00	LT	145																	
UD-29	80	426+62.00	428+00.00	LT		138																
UD-30	80	426+94.00	428+00.00	LT		106																
UD-31	80	427+24.00	428+00.00	C	76																	
UD-32	80	427+39.00	428+00.00	RT		61																
UD-33	80	427+94.00	428+00.00	RT		6																
		I.R. 270																				
UD-1	81	428+00.00	428+50.00	LT	50																	
UD-2	81	428+00.00	428+50.00	LT		50																
UD-3	81	428+00.00	428+50.00	LT		50																
UD-4	81	428+00.00	428+50.00	C	40				10													
UD-5	81	428+50.00		LT					88													
UD-6	81	428+00.00	428+50.00	RT	50																	
UD-7	81	428+00.00	428+50.00	RT		50																
UD-8	81	428+00.00	428+50.00	RT		50																
UD-9	81	428+50.00		RT					88													
UD-10	81	428+02.00	436+00.00	LT	798																	
UD-11	81	428+02.00	436+00.00	LT		798																
UD-12	81	428+02.00	436+00.00	LT		798																
UD-13	81	428+05.00	436+00.00	C	788				10													
UD-14	81	436+00.00		LT					88													
UD-15	81	428+02.00	435+98.00	RT	796																	
UD-16	81	428+02.00	435+98.00	RT		796																
UD-17	81	428+02.00	435+98.00	RT		796																
UD-18	81	435+98.00		RT					88													
UD-19	81	436+00.00	440+25.00	LT	425																	
UD-20	81	436+00.00	440+25.00	LT		425																
UD-21	81	436+00.00	440+25.00	LT		425																
UD-22	81	436+00.00	440+22.00	C	412				10													
UD-23	81	436+02.00	440+25.00	RT		423																
UD-24	81	436+02.00	440+25.00	RT		423																
UD-25	81	436+02.00	440+25.00	RT	423																	
UD-26	81	436+02.00		RT					88													
UD-27	81	440+27.00		LT					87													
UD-28	81	440+27.00	440+50.00	LT	23																	
UD-29	81	440+27.00	440+50.00	LT		23																
UD-30	81	440+27.00	440+50.00	LT		23																
UD-31	81	440+27.00	440+50.00	C	23																	
UD-32	81	440+29.00	440+50.00	RT		21																
UD-33	81	440+29.00	440+50.00	RT		21																
UD-34	81	440+29.00	440+50.00	RT	21																	
UD-35	81	440+29.00		RT					83													
TOTALS CARRIED TO GENERAL SUMMARY					4987	6681			880	2												

BU-4/5 Roadway/Drainage Approved for Construction

UNDERDRAIN SUBSUMMARY

FRA - 270-52.72

CALCULATED
VLC
CHECKED
RJM

REF. NO.	SHEET NO.	STATION		SIDE	605	605	605			611	611									
		FROM	TO		6" BASE PIPE UNDERDRAINS FT	6" SHALLOW PIPE UNDERDRAINS FT	6" UNCLASSIFIED PIPE UNDERDRAINS FT	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS FT	PRECAST REINFORCED CONCRETE OUTLET EACH											
		I.R. 270 488+90.00								91	1									
UD-27	85			LT																
UD-28	85	488+90.00	490+50.00	LT	159															
UD-29	85	488+90.00	490+50.00	LT		159														
UD-30	85	488+90.00	490+50.00	LT		160														
UD-31	85	488+90.00	490+50.00	LT	160															
UD-32	85	488+88.00		RT					64											
UD-33	85	488+92.00	490+50.00	RT	160															
UD-34	85	488+92.00	490+50.00	RT		161														
UD-35	85	488+92.00	490+50.00	RT		161														
UD-36	85	488+92.00	490+50.00	RT	161															
		I.R. 270																		
UD-1	86	490+50.00	497+86.00	LT	732															
UD-2	86	490+50.00	497+86.00	LT		732														
UD-3	86	490+50.00	496+80.00	LT		630														
UD-4	86	490+50.00	497+75.00	LT	722															
UD-5	86	490+50.00	497+48.00	RT	703															
UD-6	86	490+50.00	497+48.00	RT		702														
UD-7	86	490+50.00	497+48.00	RT		701														
UD-8	86	490+50.00	497+48.00	RT	699															
		RAMP N 4+71.00			LT/RT					36	1									
UD-9	86			LT/RT																
UD-10	86	4+10.00	4+71.00	RT	61															
UD-11	86	4+10.00	4+71.00	C		61														
UD-12	86	4+10.00	4+71.00	LT	61															
		RAMP M 482+01.30			LT/RT					73	1									
UD-1	87			LT/RT																
UD-2	87	482+01.30	491+42.62	LT	933															
UD-3	87	482+01.30	491+42.62	C		941														
UD-4	87	482+01.30	491+42.62	RT	962															
		TOTALS FROM SHEET 14				4675	9704			398	1									
		TOTALS FROM SHEET 15				5986	10060	195		596	2									
		TOTALS FROM SHEET 16				4987	6681			880	2									
		TOTALS FROM SHEET 17				5550	9127			352	1									
		TOTALS FROM SHEET 18				7559	12902			514	2									
		TOTALS FROM THIS SHEET				5513	4408			173	2									
		TOTAL (PROJECT)				34270	52882	195		2913	10									

UNDERDRAIN SUBSUMMARY			
<table border="1" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;">CALCULATED VLC</td> <td style="width: 50%; text-align: center;">CHECKED RJM</td> </tr> </table>	CALCULATED VLC	CHECKED RJM	FRA - 270-52.72
CALCULATED VLC	CHECKED RJM		
<table border="1" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;">19</td> <td style="width: 50%; text-align: center;">114</td> </tr> </table>		19	114
19	114		

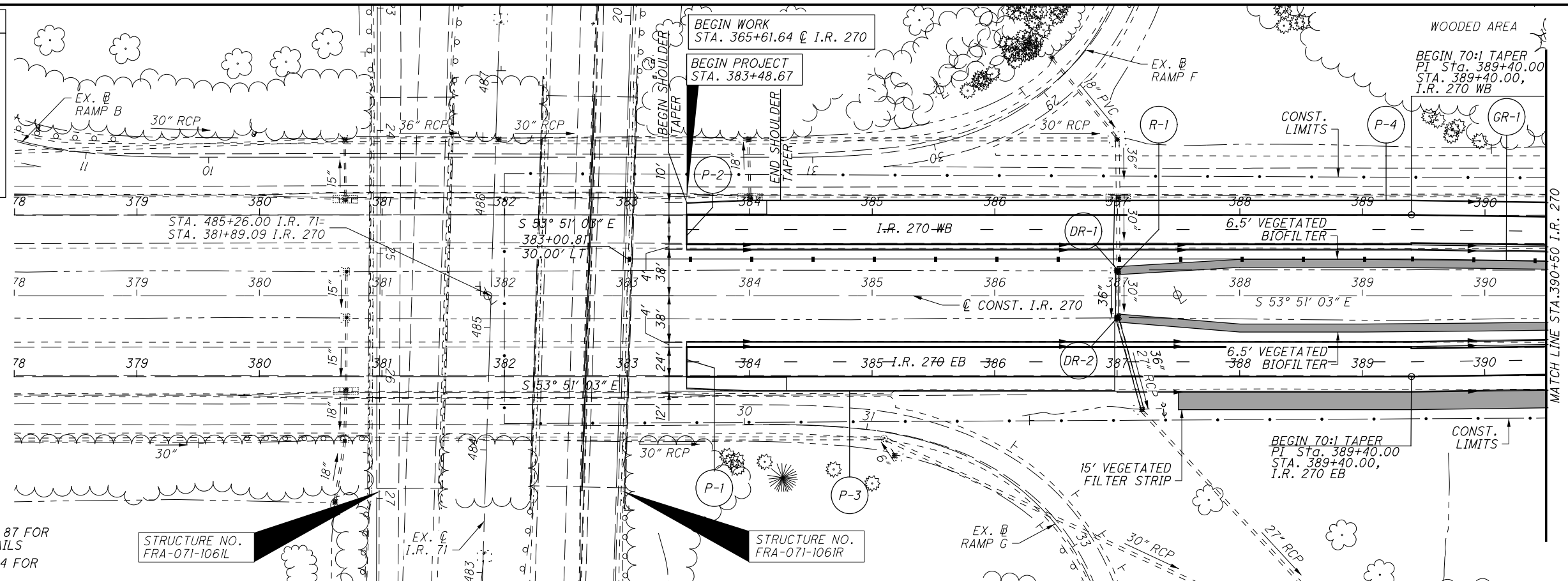
F:\FRA\92610\roadway\sheets\92610DS006.dgn 10/7/2013 1:39:01 PM jconley

BU-4/5 Roadway/Drainage Approved for Construction

F:\FRA\92610\roadway\sheet\92610GP001.dgn 10/11/2013 9:31:08 AM jconley

LEGEND

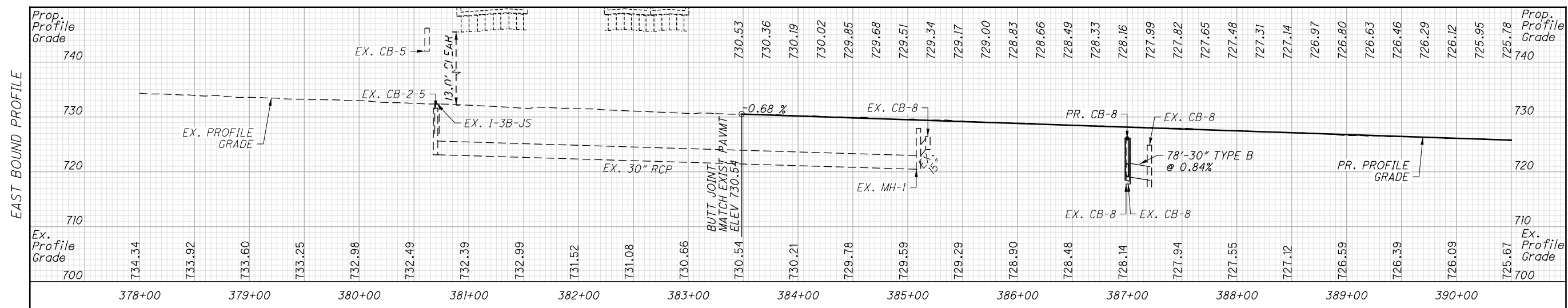
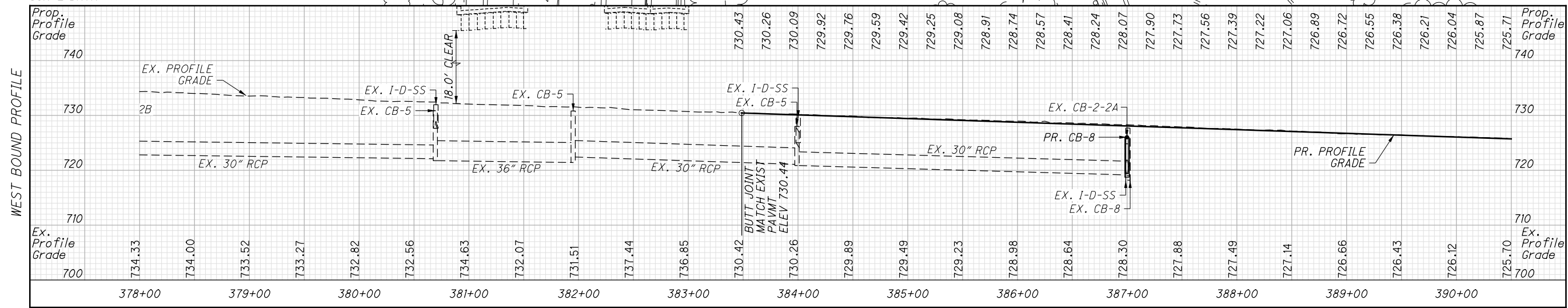
- (P-1) PAVEMENT SAWCUT
- (F) PROPOSED FENCE
- (GR-1) PROPOSED GUARDRAIL
- (DR-1) PROPOSED DRAINAGE
- (R-1) REMOVAL
- (UD-1) UNDER DRAIN



SEE SHEETS 77 - 87 FOR UNDERDRAIN DETAILS
SEE SHEETS 3 & 4 FOR CURVE DATA

STRUCTURE NO. FRA-071-1061L

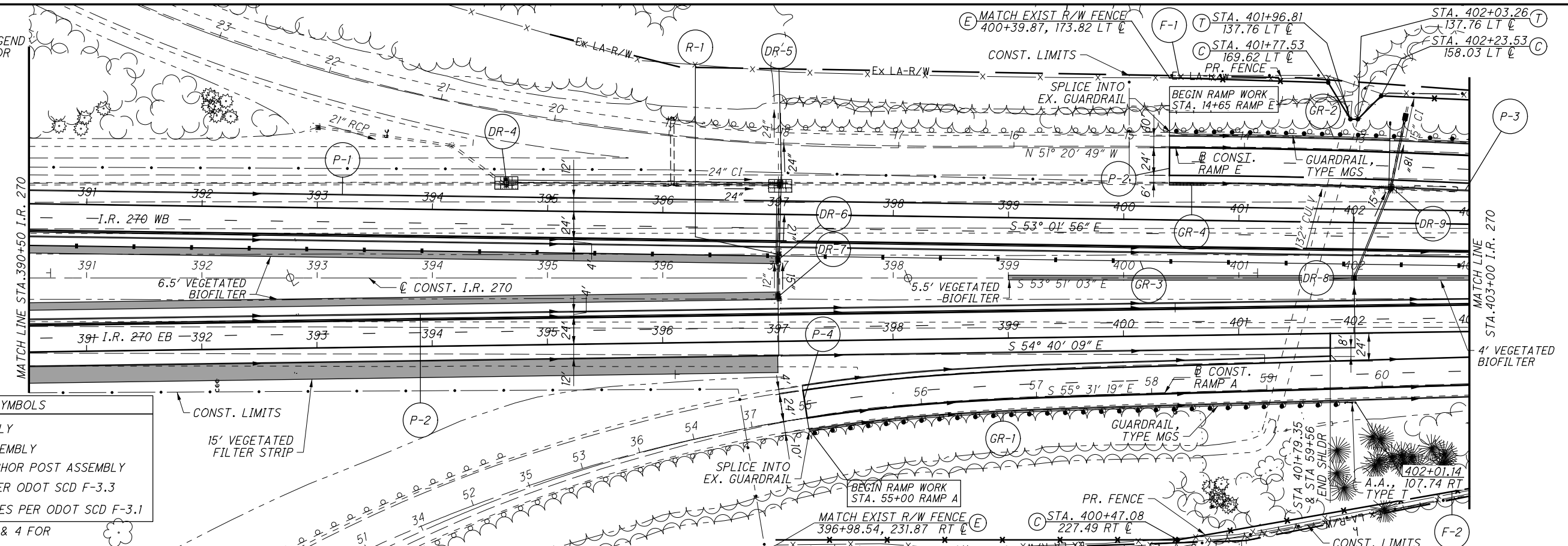
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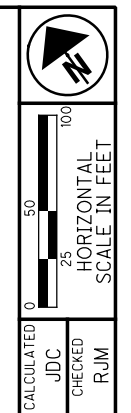
BU-4/5 Roadway/Drainage Approved for Construction
PLAN AND PROFILE
BEGIN TO STA. 390+50

FRA - 270 - 52.72
20
114

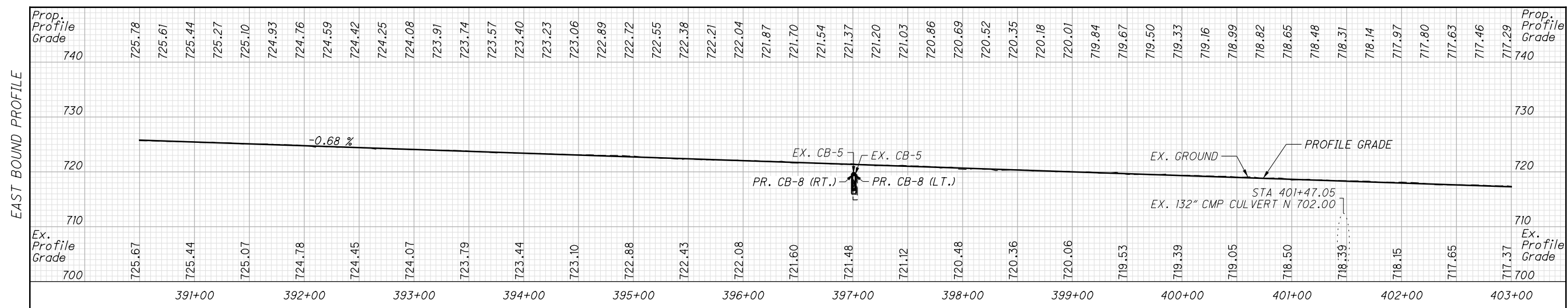
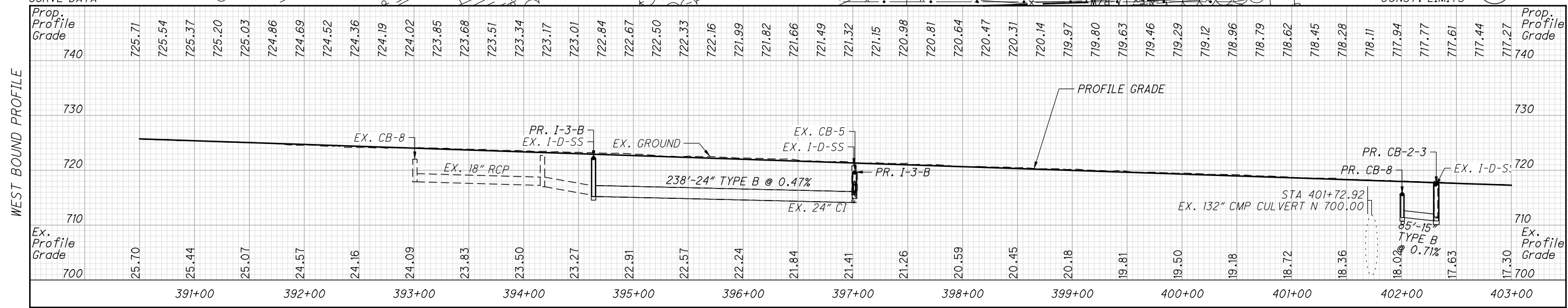
NOTES:
 1. SEE SHEET 20 FOR LEGEND
 2. SEE SHEET 77 - 87 FOR UNDERDRAIN DETAILS



- R/W FENCE SYMBOLS
- (E) END POST ASSEMBLY
 - (C) CORNER POST ASSEMBLY
 - (I) INTERMEDIATE ANCHOR POST ASSEMBLY
 - (T) TERMINAL POST PER ODOT SCD F-3.3
 - (B) DETAILS AT BRIDGES PER ODOT SCD F-3.1

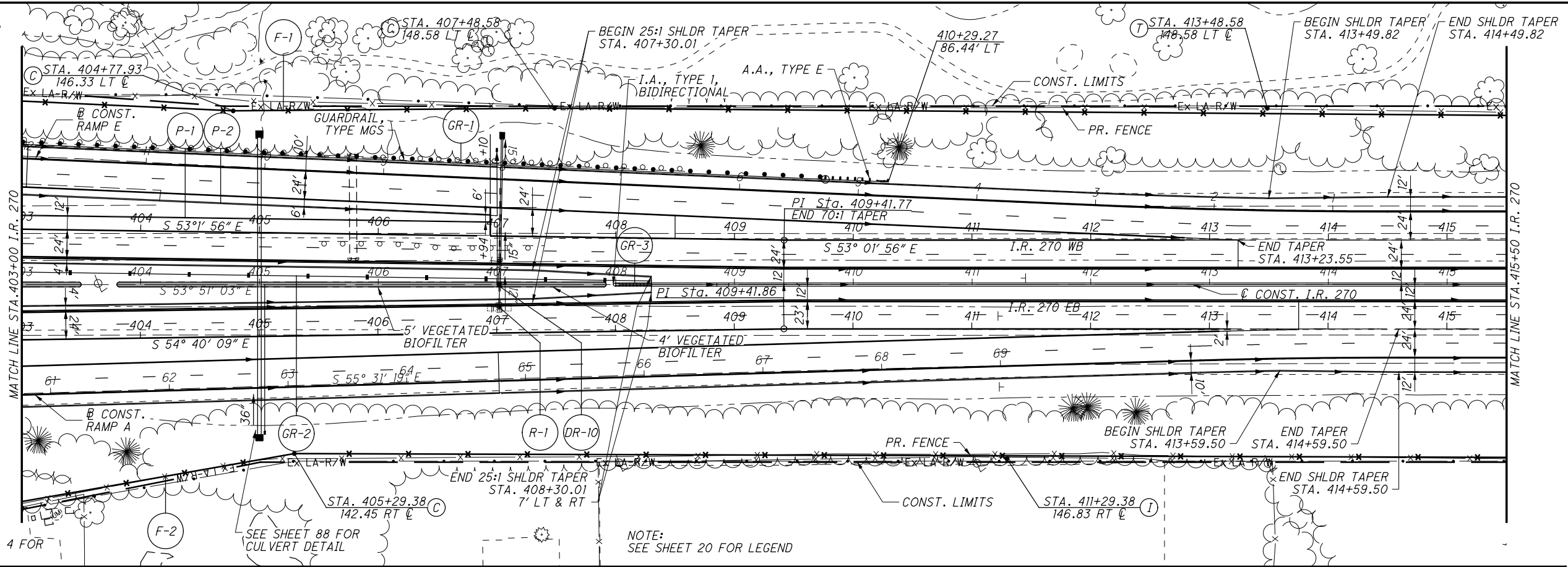


BU-4/5 Roadway/Drainage Approved for Construction
 PLAN AND PROFILE
 STA. 390+50 TO STA. 403+00



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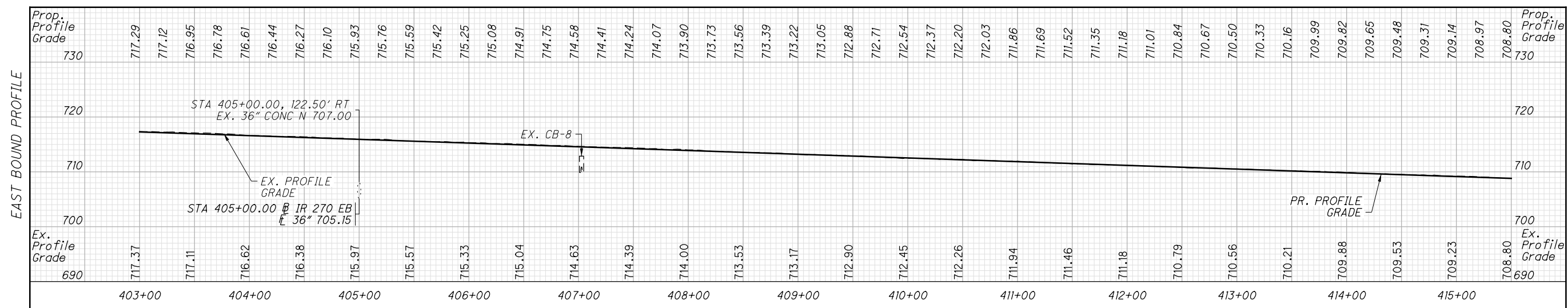
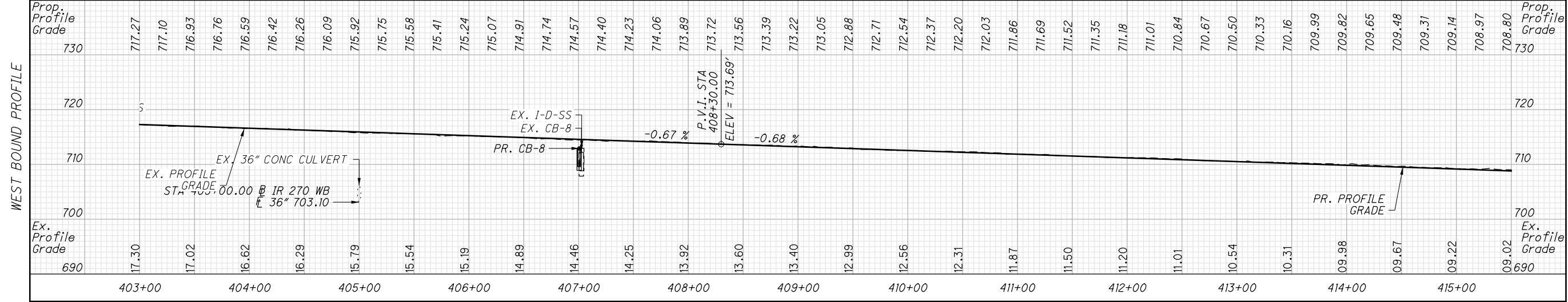
SEE SHEETS 77 - 87 FOR UNDERDRAIN LOCATIONS AND DETAILS



SEE SHEETS 3 & 4 FOR CURVE DATA

SEE SHEET 88 FOR CULVERT DETAIL

NOTE: SEE SHEET 20 FOR LEGEND

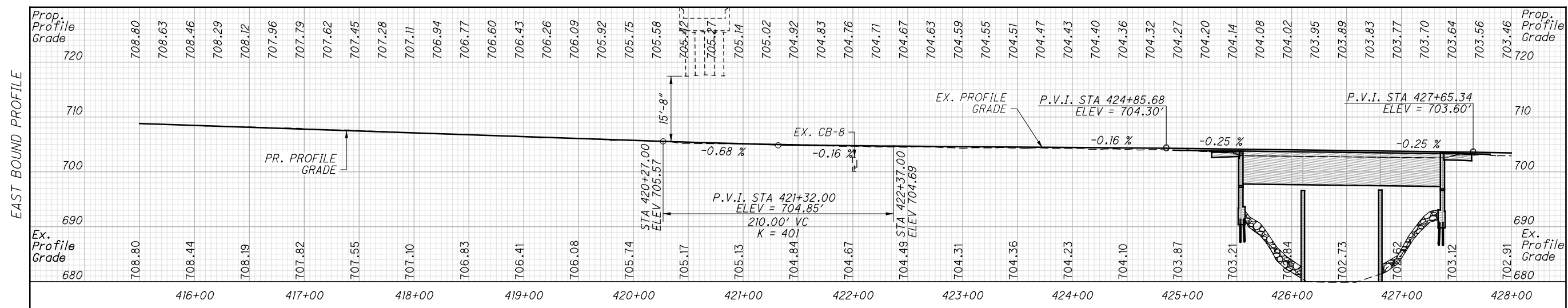
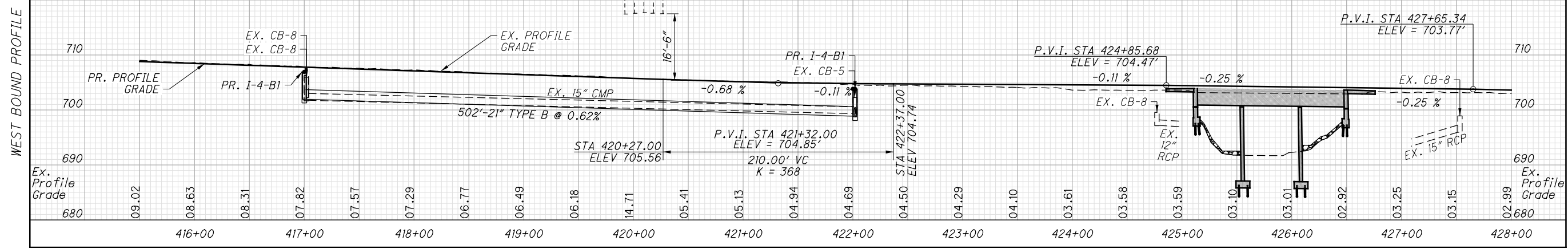
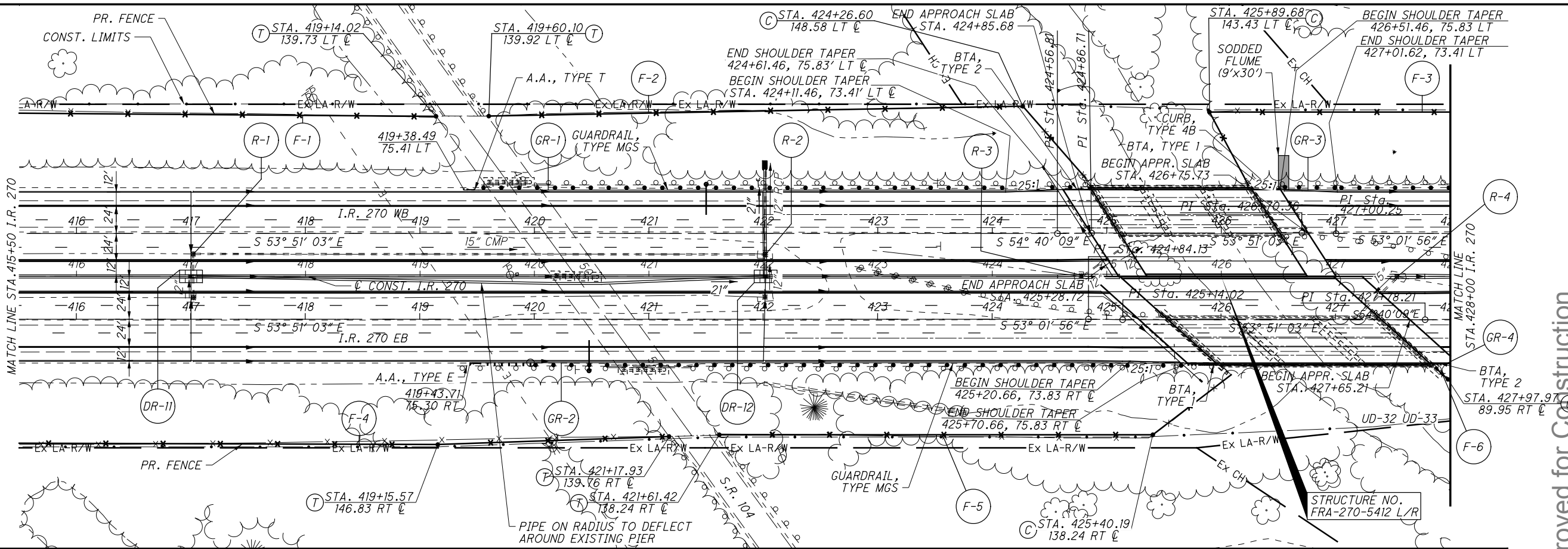


BU-4/5 Roadway/Drainage Approved for Construction
PLAN AND PROFILE
STA. 403+00 TO STA. 415+50

FRA - 270-52.72

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BU-4/5 Roadway/Drainage Approved for Construction

PLAN AND PROFILE
STA. 415+50 TO STA. 428+00

FRA-270-52.72

CALCULATED JDC CHECKED RJM

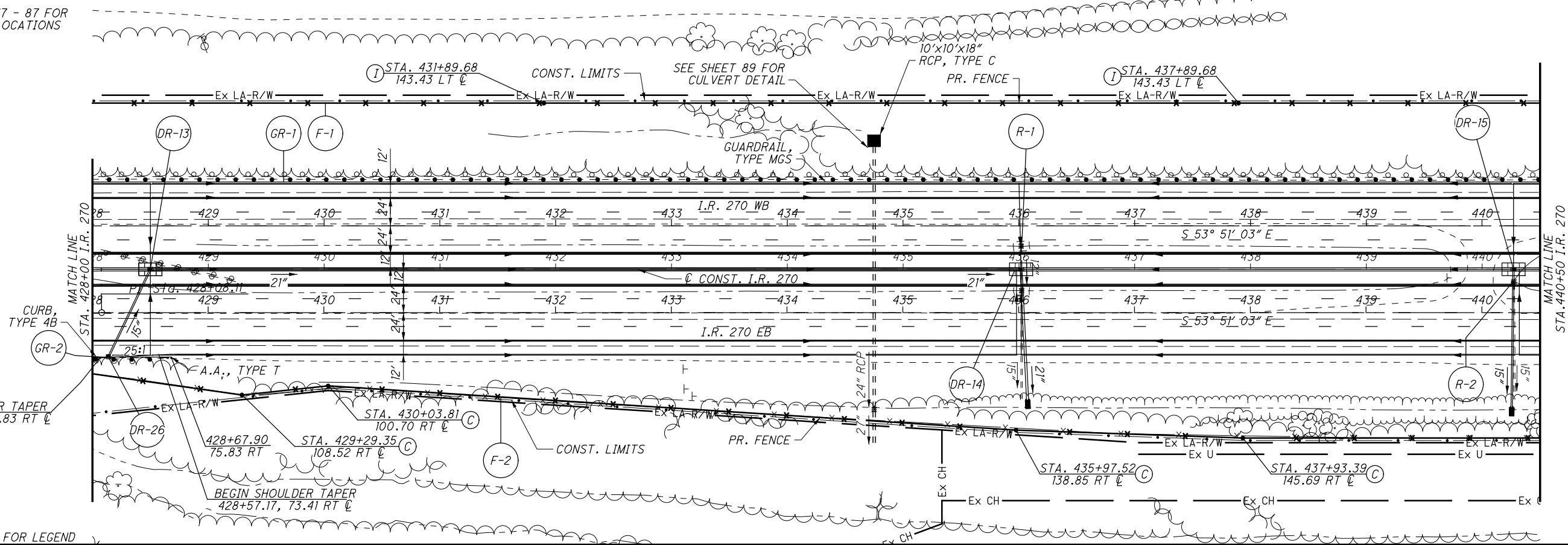
0 25 50 100
HORIZONTAL SCALE IN FEET

SEE SHEETS 77 - 87 FOR UNDERDRAIN LOCATIONS AND DETAILS

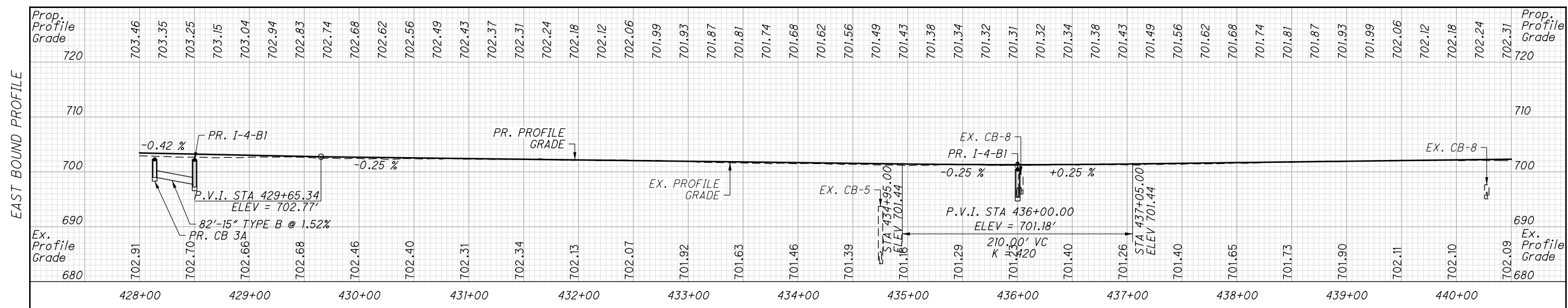
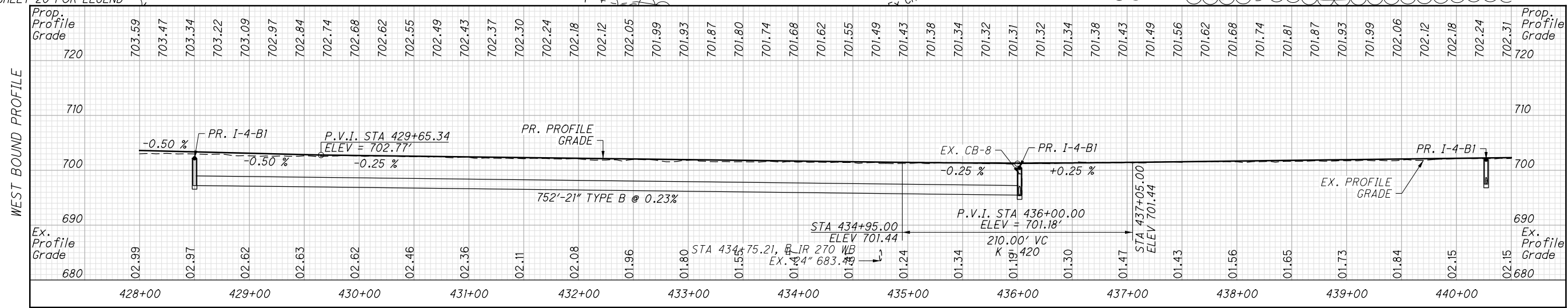


0 50 100
25
HORIZONTAL
SCALE IN FEET

CALCULATED JDC CHECKED RJM



NOTE:
SEE SHEET 20 FOR LEGEND



BU-4/5 Roadway/Drainage Approved for Construction

PLAN AND PROFILE
STA. 428+00 TO STA. 440+50

FRA - 270-52.72

24
114

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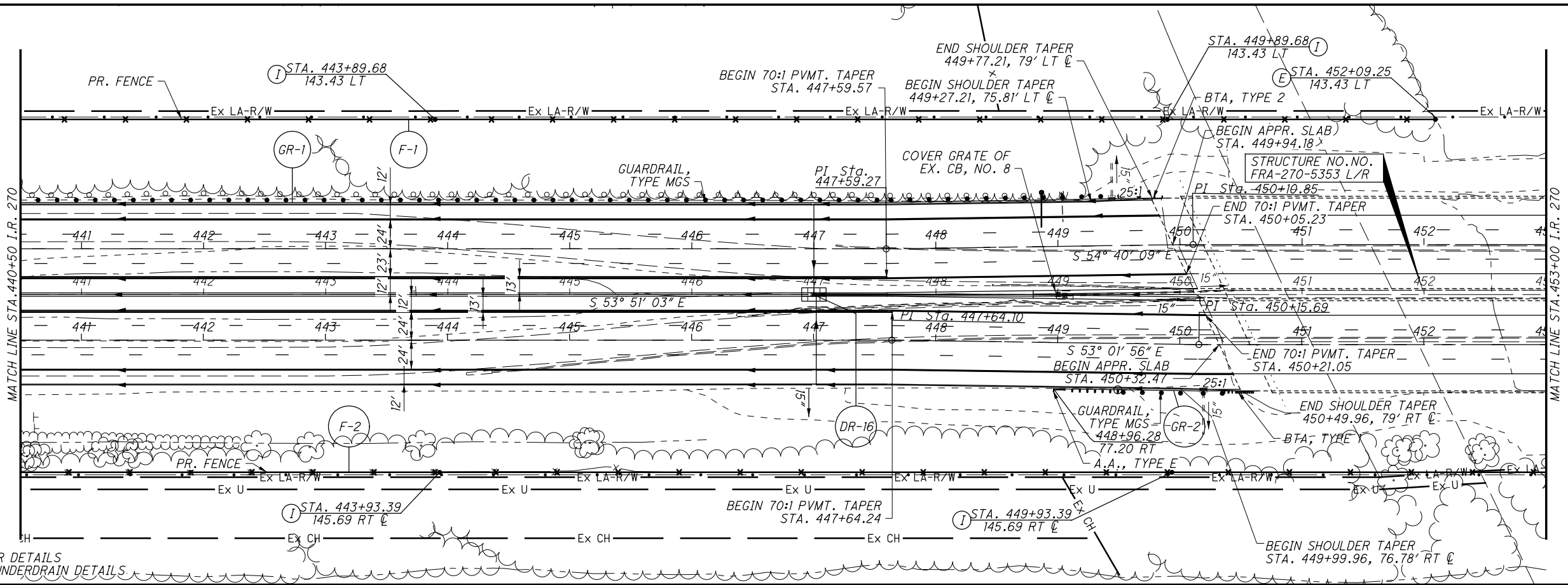


CALCULATED JDC CHECKED RJM

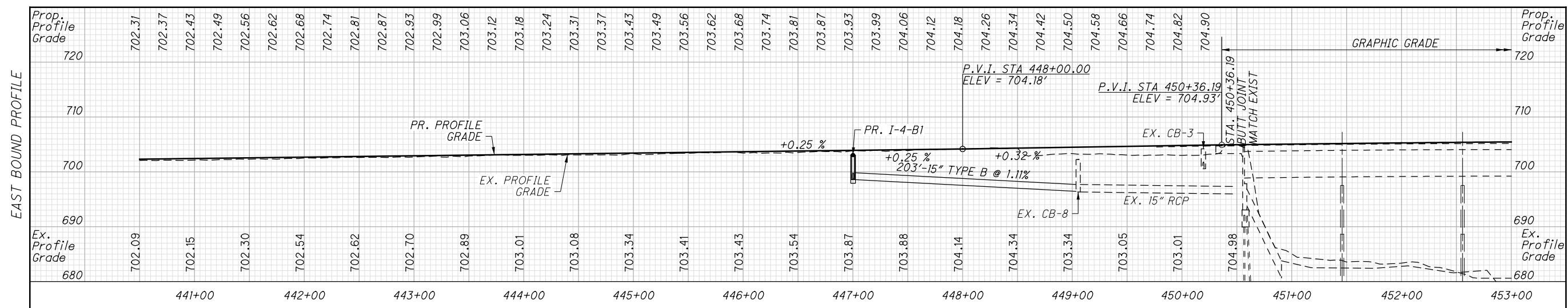
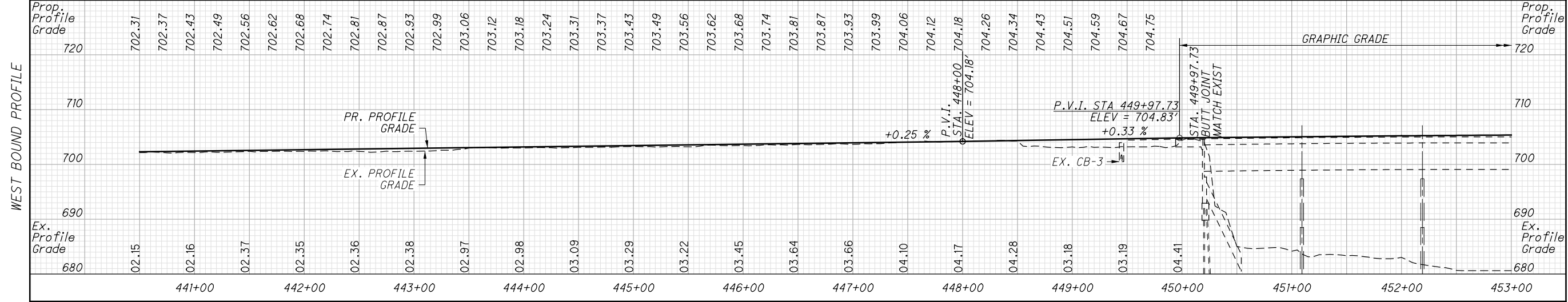
BU-4/5 Roadway/Drainage Approved for Construction

PLAN AND PROFILE
STA. 440+50 TO STA. 453+00

FRA - 270-52.72

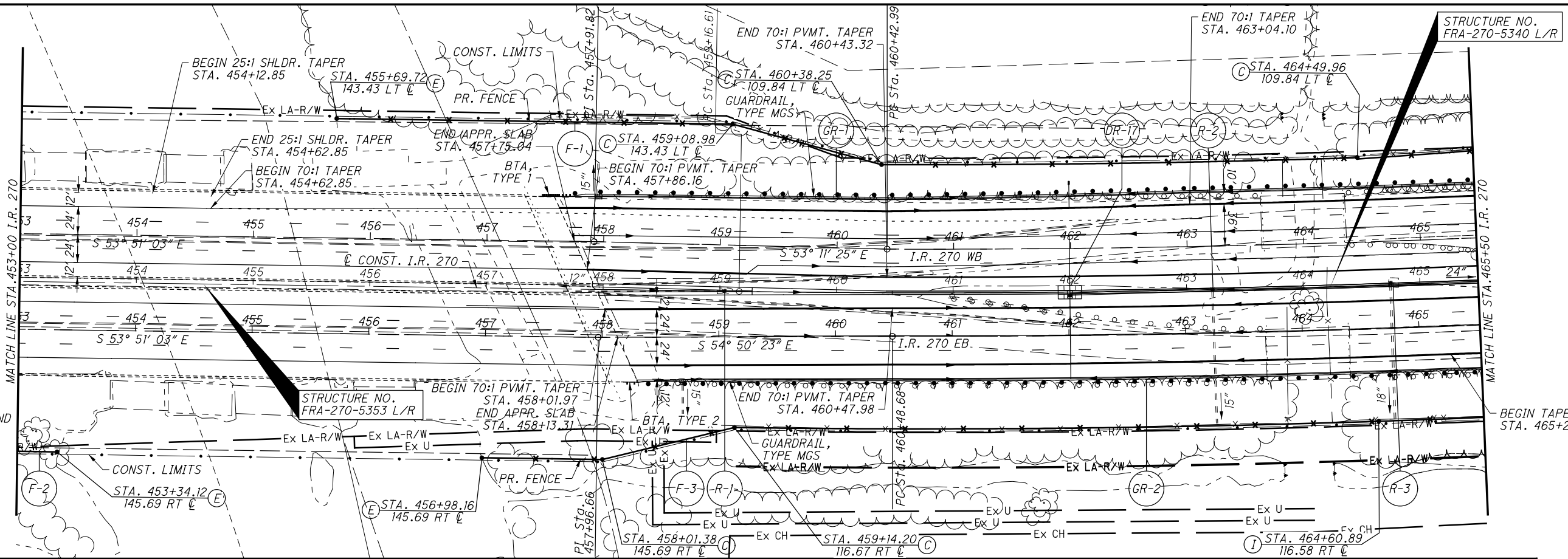


NOTE:
SEE SHEET 20 FOR LEGEND
SEE SHEET 92 FOR BARRIER DETAILS
SEE SHEETS 77 - 87 FOR UNDERDRAIN DETAILS

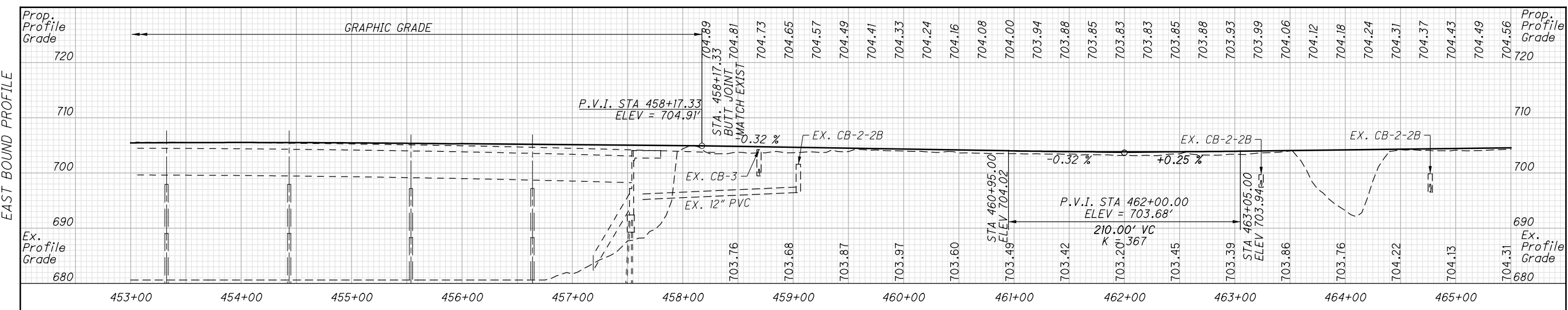
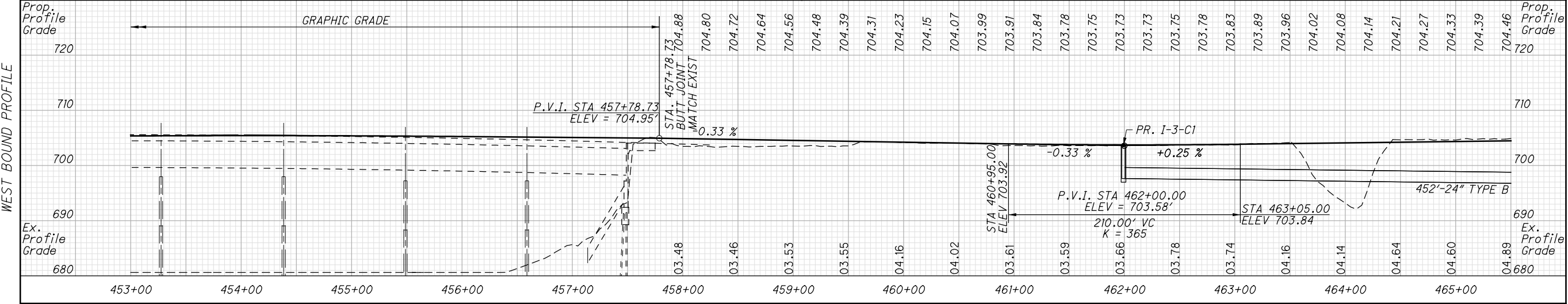


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NOTE:
SEE SHEET 20 FOR LEGEND
SEE SHEETS 3 & 4 FOR CURVE DATA
SEE SHEET 93 FOR BARRIER DETAILS
SEE SHEETS 77-87 FOR UNDERDRAIN DETAILS



BU-4/5 Roadway/Drainage Approved for Construction

PLAN AND PROFILE
STA. 453+00 TO STA. 465+50

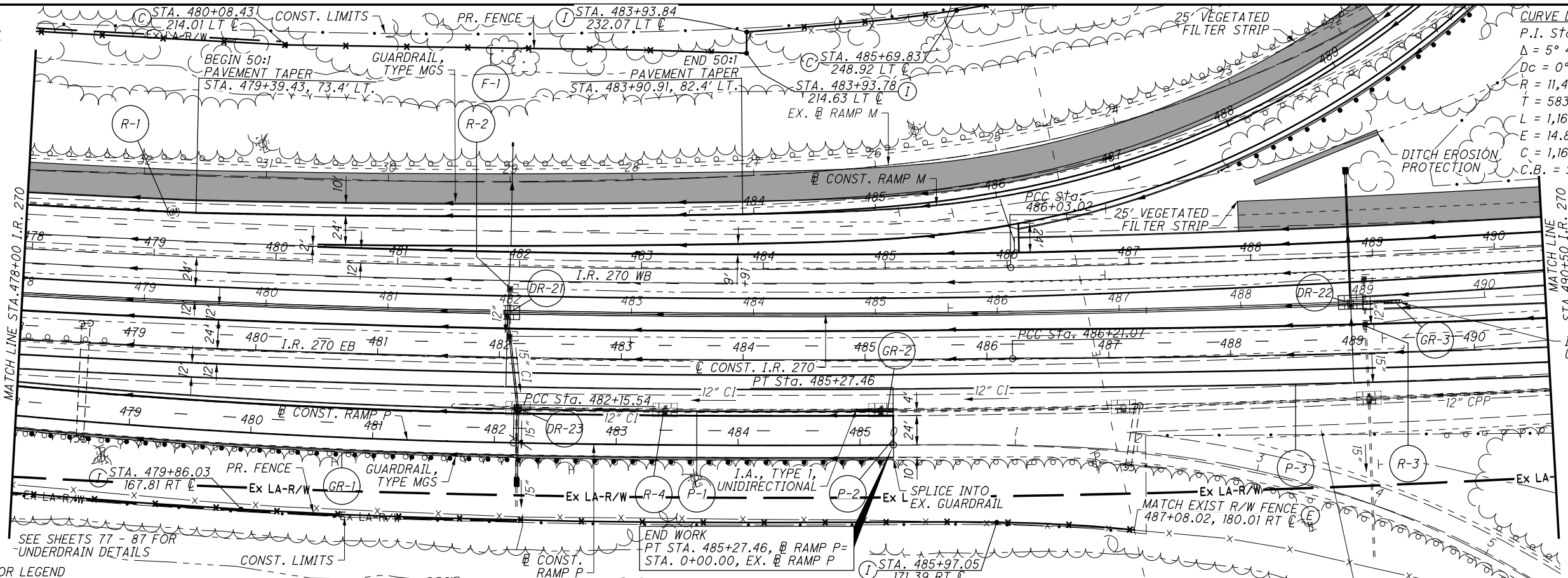
FRA - 270 - 52.72

CURVE DATA-I.R. 270 WB
 P.I. Sta. 491+83.91
 $\Delta = 5^\circ 46' 27''$ (LT)
 $Dc = 0^\circ 29' 51''$
 $R = 11,518.57'$
 $T = 580.89'$
 $L = 1,160.80'$
 $E = 14.64'$
 $C = 1,160.31'$
 $C.B. = S 70^\circ 27' 59'' E$

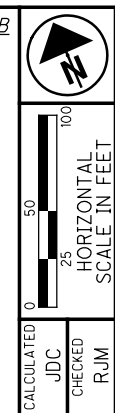
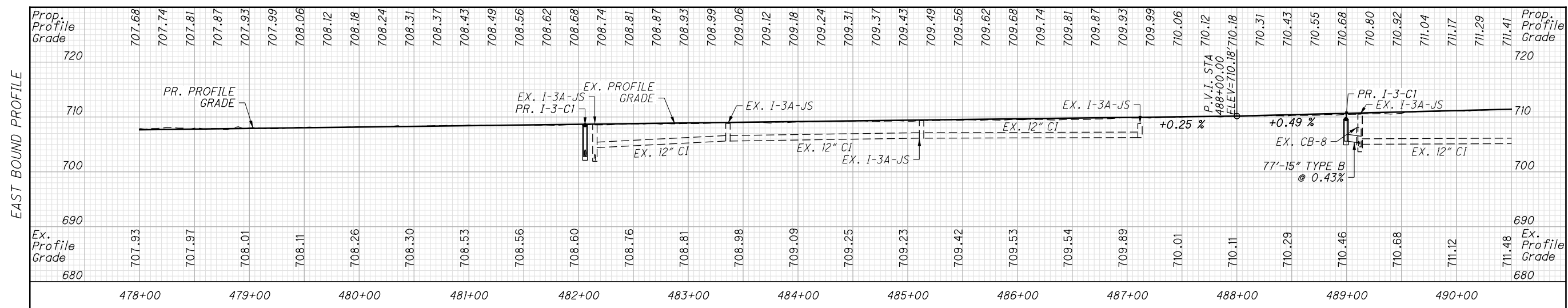
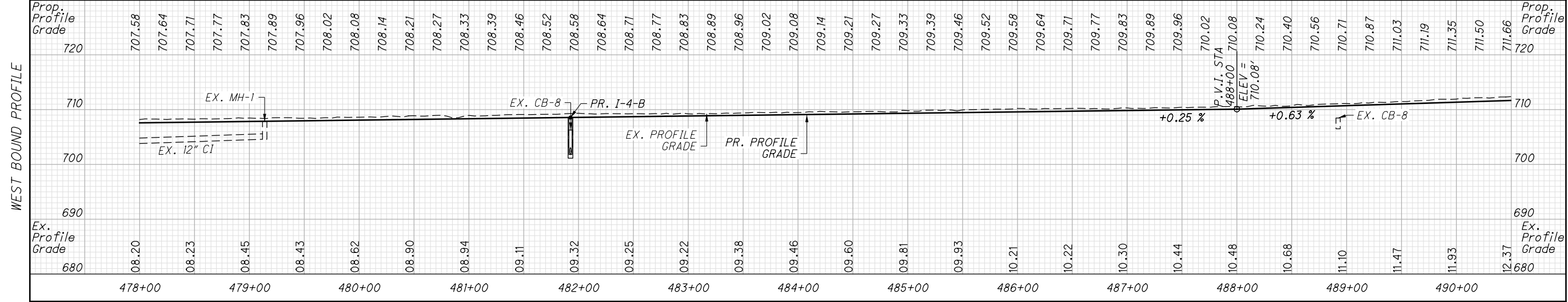
CURVE DATA - RAMP P
 P.I. Sta. 479+82.03
 $\Delta = 4^\circ 40' 23''$ (LT)
 $Dc = 1^\circ 00' 00''$
 $R = 5,729.58'$
 $T = 233.78'$
 $L = 467.29'$
 $E = 4.77'$
 $C = 467.16'$
 $C.B. = S 62^\circ 57' 23'' E$

CURVE DATA - RAMP P
 P.I. Sta. 483+71.51
 $\Delta = 1^\circ 32' 42''$ (LT)
 $Dc = 0^\circ 29' 43''$
 $R = 11,567.16'$
 $T = 155.97'$
 $L = 311.91'$
 $E = 1.05'$
 $C = 311.90'$
 $C.B. = S 66^\circ 03' 55'' E$

CURVE DATA-I.R. 270 EB
 P.I. Sta. 492+04.74
 $\Delta = 5^\circ 49' 54''$ (LT)
 $Dc = 0^\circ 30' 00''$
 $R = 11,459.16'$
 $T = 583.67'$
 $L = 1,166.32'$
 $E = 14.85'$
 $C = 1,165.82'$
 $C.B. = S 69^\circ 25' 02'' E$



NOTE:
 SEE SHEETS 77 - 87 FOR
 "UNDERDRAIN DETAILS"
 SEE SHEET 20 FOR LEGEND



CALCULATED JDC CHECKED RJM

BU-4/5 Roadway/Drainage Approved for Construction

PLAN AND PROFILE
 STA. 478+00 TO STA. 490+50

FRA - 270-52.72

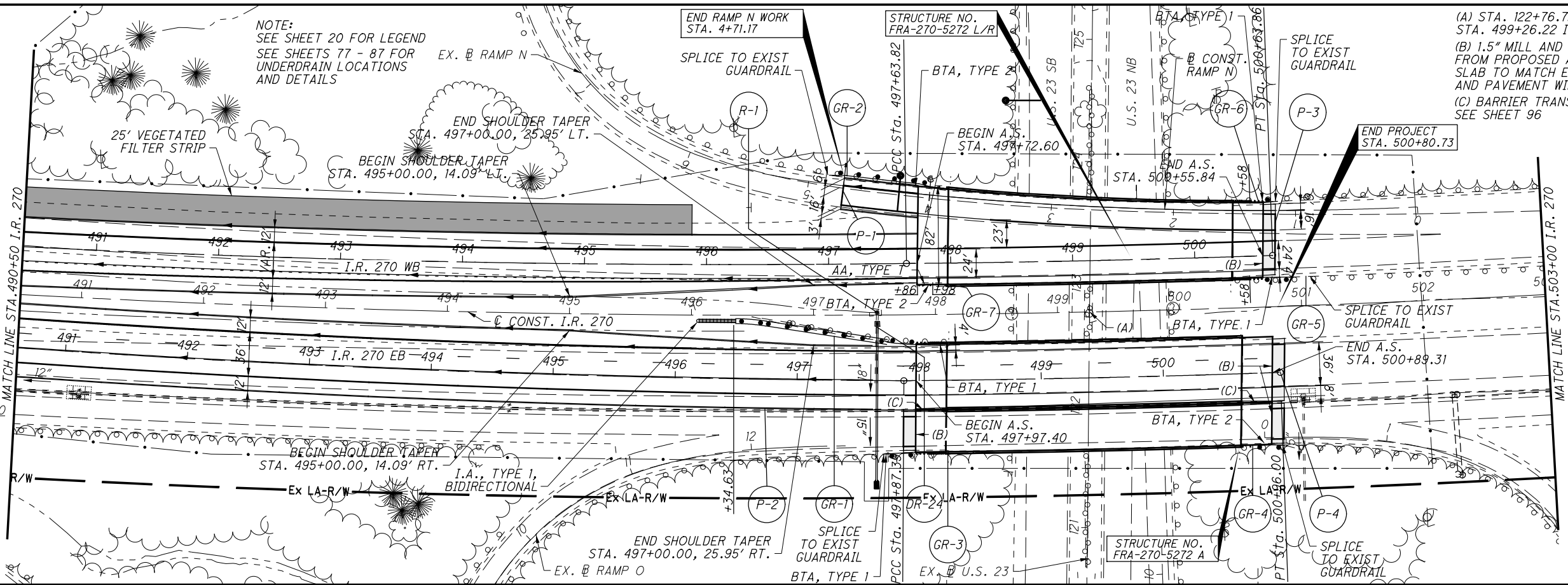
F:\FRA\92610\roadway\sheets\92610GP010.dgn 10/11/2013 9:31:50 AM jconley

CURVE DATA-I.R. 270 WB
 P.I. Sta. 499+13.85
 $\Delta = 1^\circ 32' 09''$ (LT)
 $D_c = 0^\circ 30' 43''$
 $R = 11,193.53'$
 $T = 150.03'$
 $L = 300.04'$
 $E = 1.01'$
 $C = 300.03'$
 $C.B. = S 73^\circ 54' 13'' E$

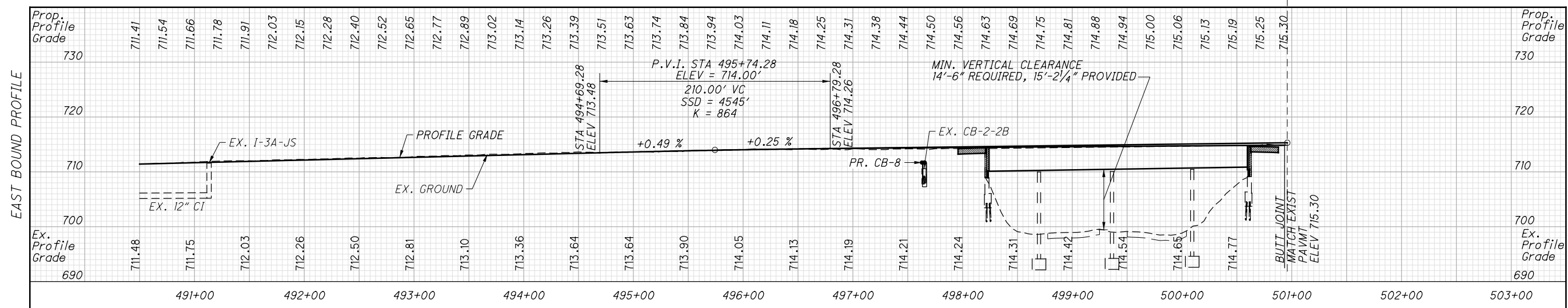
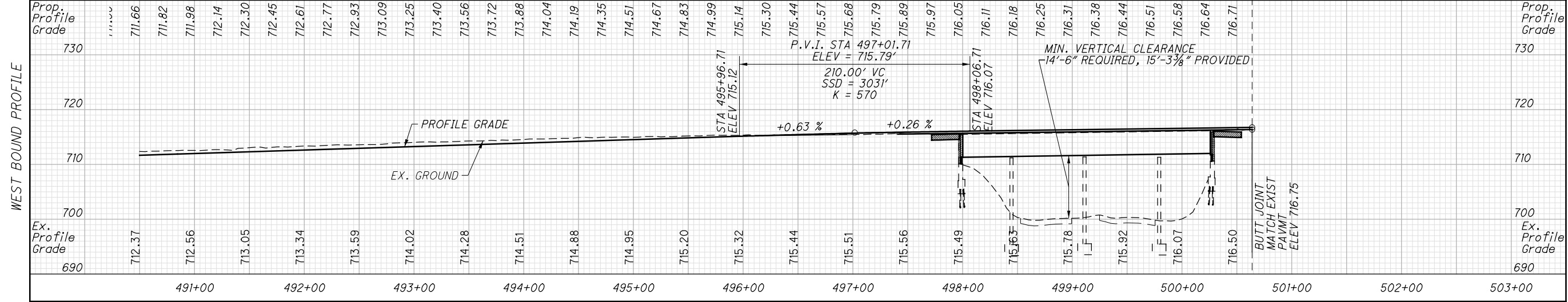
CURVE DATA-I.R. 270 EB
 P.I. Sta. 499+41.71
 $\Delta = 1^\circ 32' 09''$ (LT)
 $D_c = 0^\circ 29' 52''$
 $R = 11,513.16'$
 $T = 154.31'$
 $L = 308.61'$
 $E = 1.03'$
 $C = 308.60'$
 $C.B. = S 73^\circ 54' 13'' E$

CURVE DATA - EX. I.R. 270
 P.I. Sta. 492+53.27
 $\Delta = 32^\circ 28' 08''$ (LT)
 $D_c = 0^\circ 30' 00''$
 $R = 11,459.16'$
 $T = 3,336.66'$
 $L = 6,493.78'$
 $E = 475.90'$
 $C = 6,407.23'$
 $C.B. = S 70^\circ 05' 07'' E$

NOTE:
 SEE SHEET 20 FOR LEGEND
 SEE SHEETS 77 - 87 FOR
 UNDERDRAIN LOCATIONS
 AND DETAILS



(A) STA. 122+76.72 U.S. 23-
 STA. 499+26.22 I.R. 270
 (B) 1.5" MILL AND FILL 10'
 FROM PROPOSED APPROACH
 SLAB TO MATCH EXISTING SLOPES
 AND PAVEMENT WIDTH
 (C) BARRIER TRANSITION,
 SEE SHEET 96

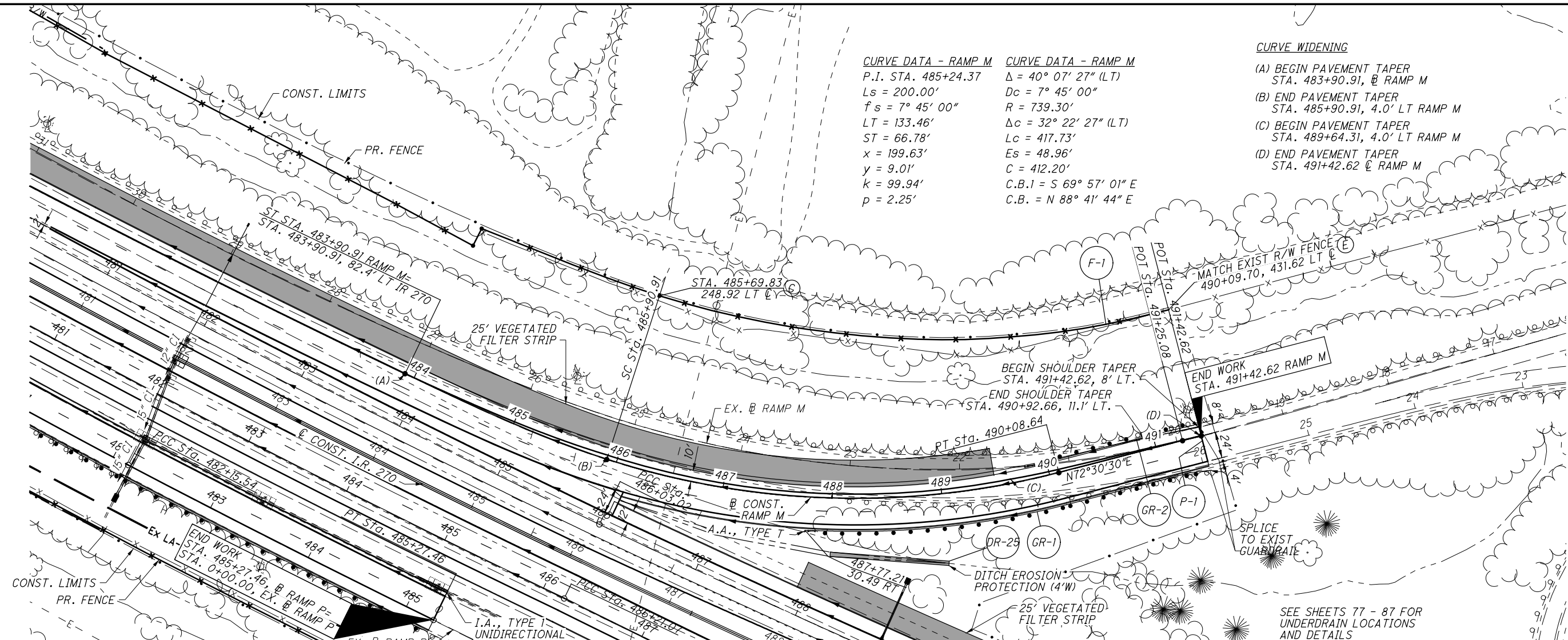


BU-4/5 Roadway/Drainage Approved for Construction

PLAN AND PROFILE
 STA. 490+50 TO END

FRA - 270 - 52.72

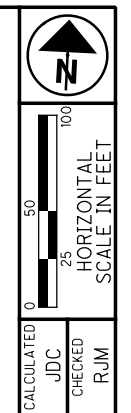
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CURVE DATA - RAMP M
 P.I. STA. 485+24.37
 Ls = 200.00'
 fs = 7° 45' 00"
 LT = 133.46'
 ST = 66.78'
 x = 199.63'
 y = 9.01'
 k = 99.94'
 p = 2.25'

CURVE DATA - RAMP M
 $\Delta = 40^\circ 07' 27''$ (LT)
 Dc = 7° 45' 00"
 R = 739.30'
 $\Delta c = 32^\circ 22' 27''$ (LT)
 Lc = 417.73'
 Es = 48.96'
 C = 412.20'
 C.B.1 = S 69° 57' 01" E
 C.B. = N 88° 41' 44" E

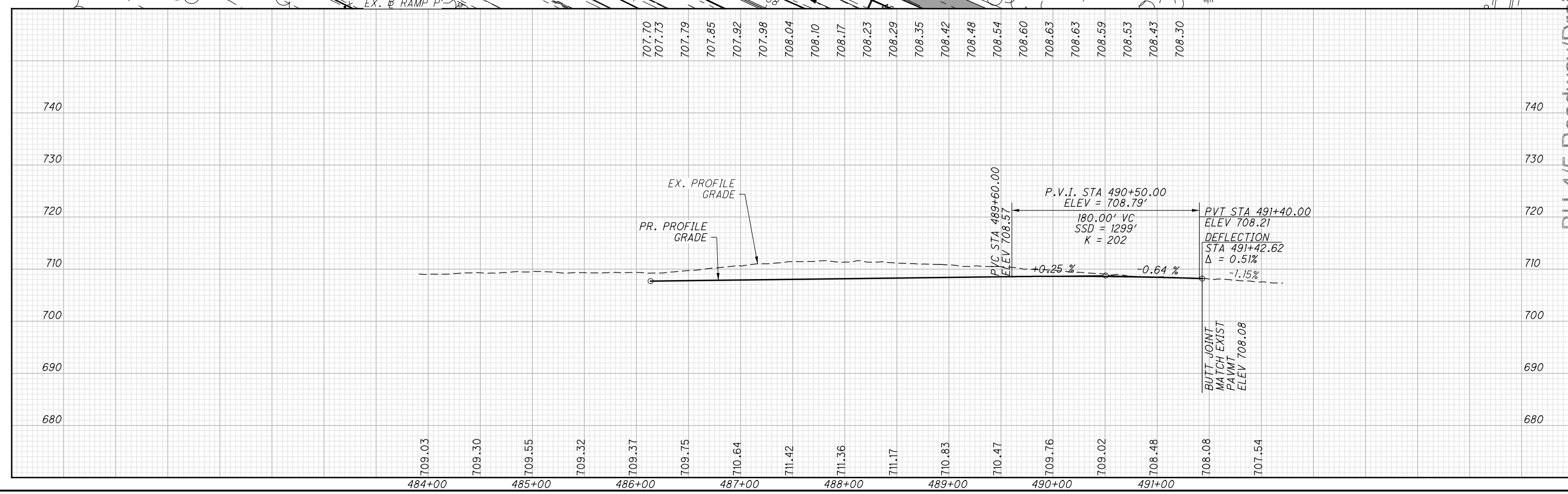
CURVE WIDENING
 (A) BEGIN PAVEMENT TAPER
 STA. 483+90.91, @ RAMP M
 (B) END PAVEMENT TAPER
 STA. 485+90.91, 4.0' LT RAMP M
 (C) BEGIN PAVEMENT TAPER
 STA. 489+64.31, 4.0' LT RAMP M
 (D) END PAVEMENT TAPER
 STA. 491+42.62 @ RAMP M



CALCULATED JDC CHECKED RJM

BU 4/5 Roadway/Drainage Approved for Construction

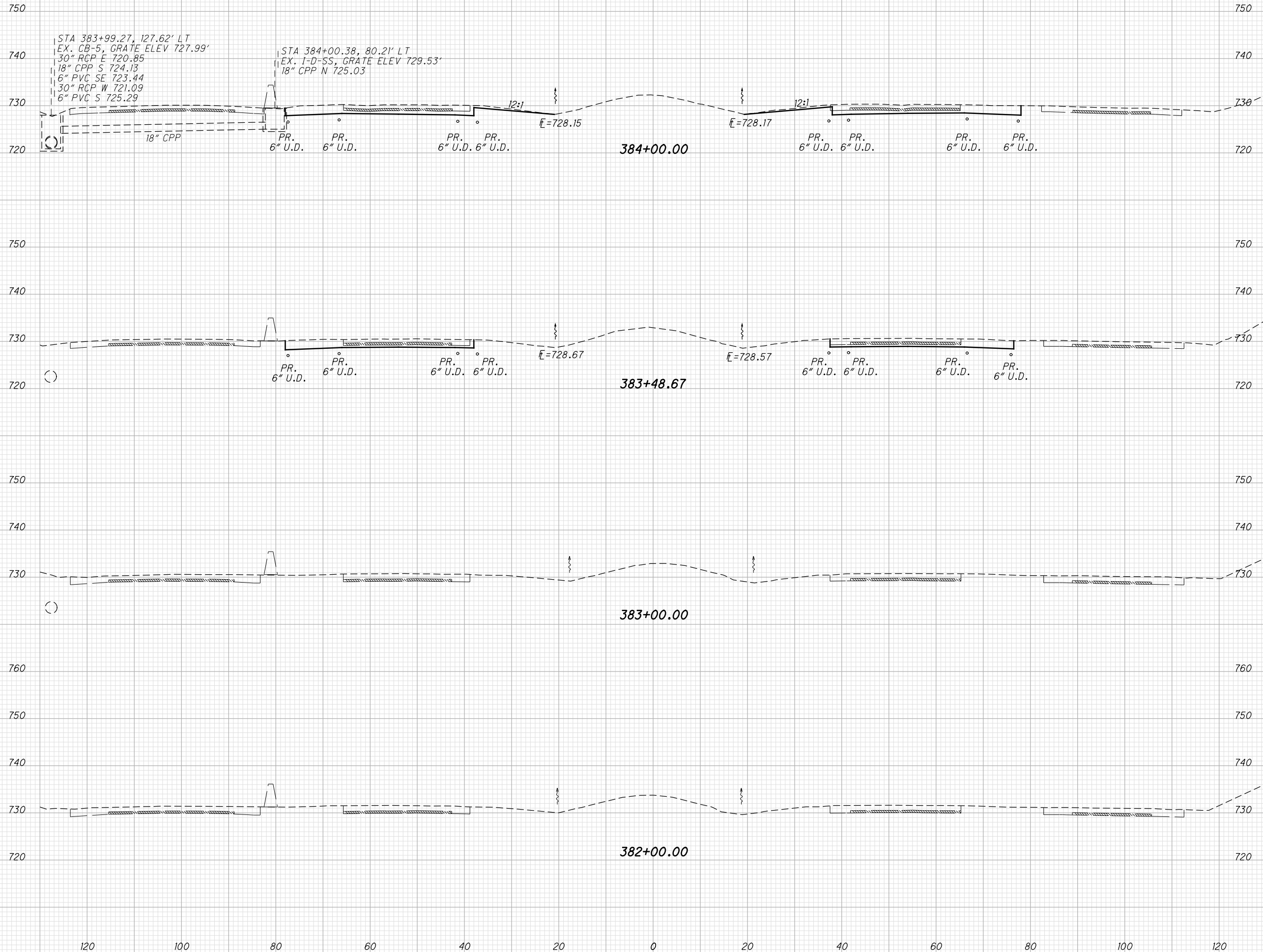
PLAN AND PROFILE - RAMP M
BEGIN TO END



FRA - 270-52.72

SEEDING
END SO.
WIDTH YDS.

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED JDC
CHECKED RJM



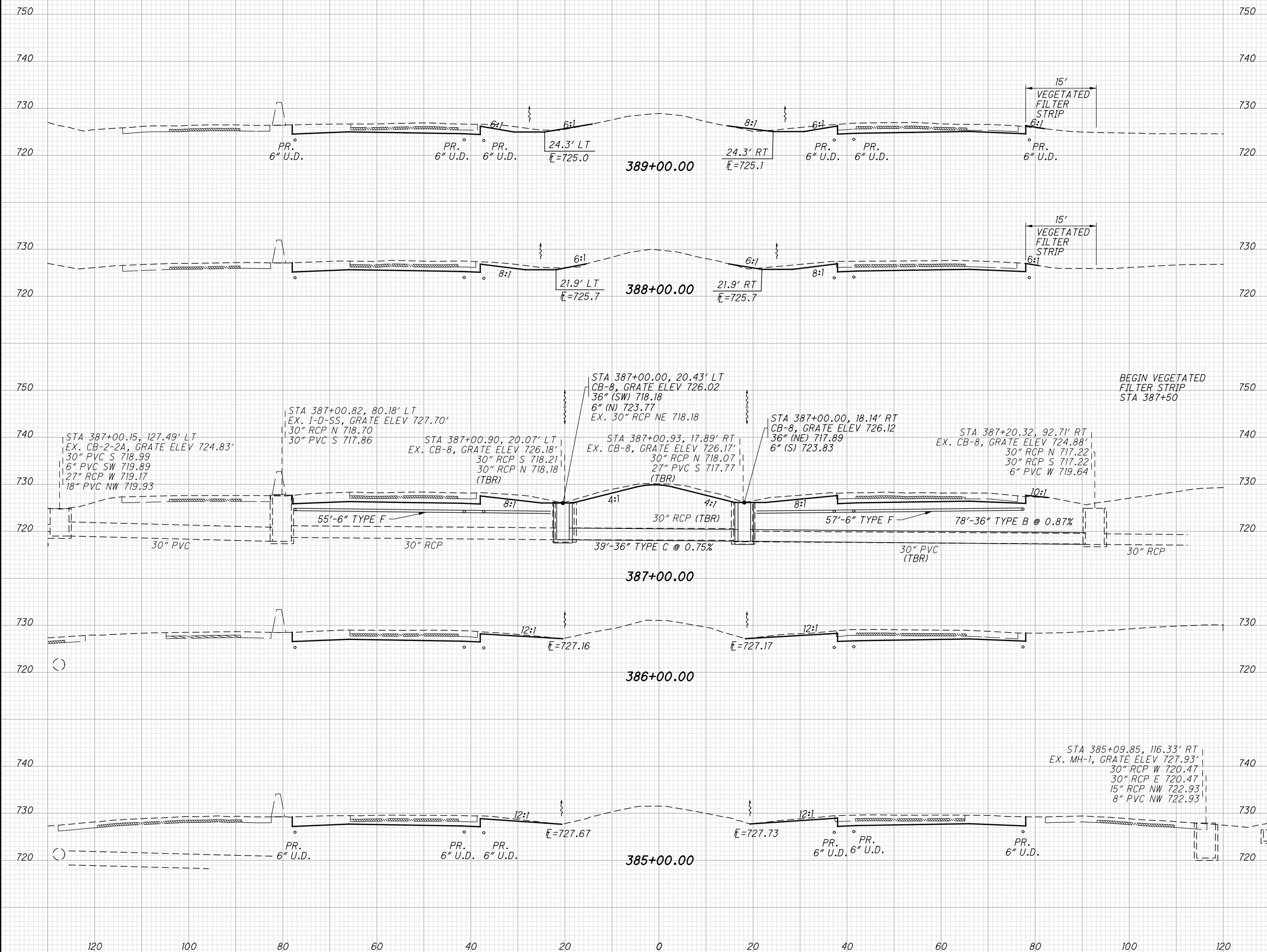
BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 382+00.00 TO STA. 384+00.00

FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:09 PM jconley

SEEDING
END WIDTH SO. YDS.

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED JDC CHECKED RJM



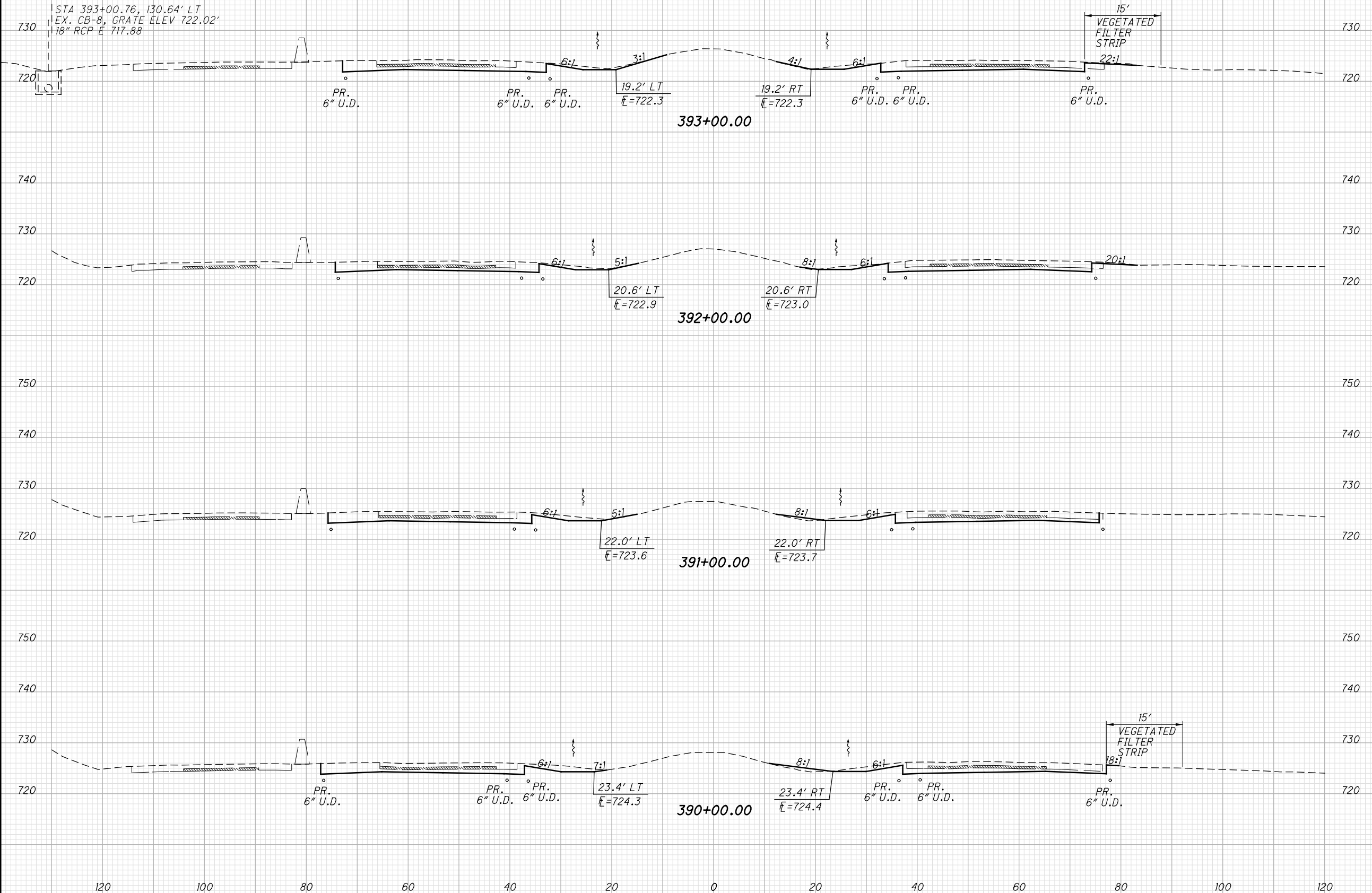
BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 385+00.00 TO STA. 389+00.00

FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610X5001.dgn 10/7/2013 1:39:09 PM jconley

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED	
CUT	FILL	CUT	FILL	JDC	RJM



BU-4/5 Roadway/Drainage Approved for Construction

CROSS SECTIONS I.R. 270
STA. 390+00.00 TO STA. 393+00.00

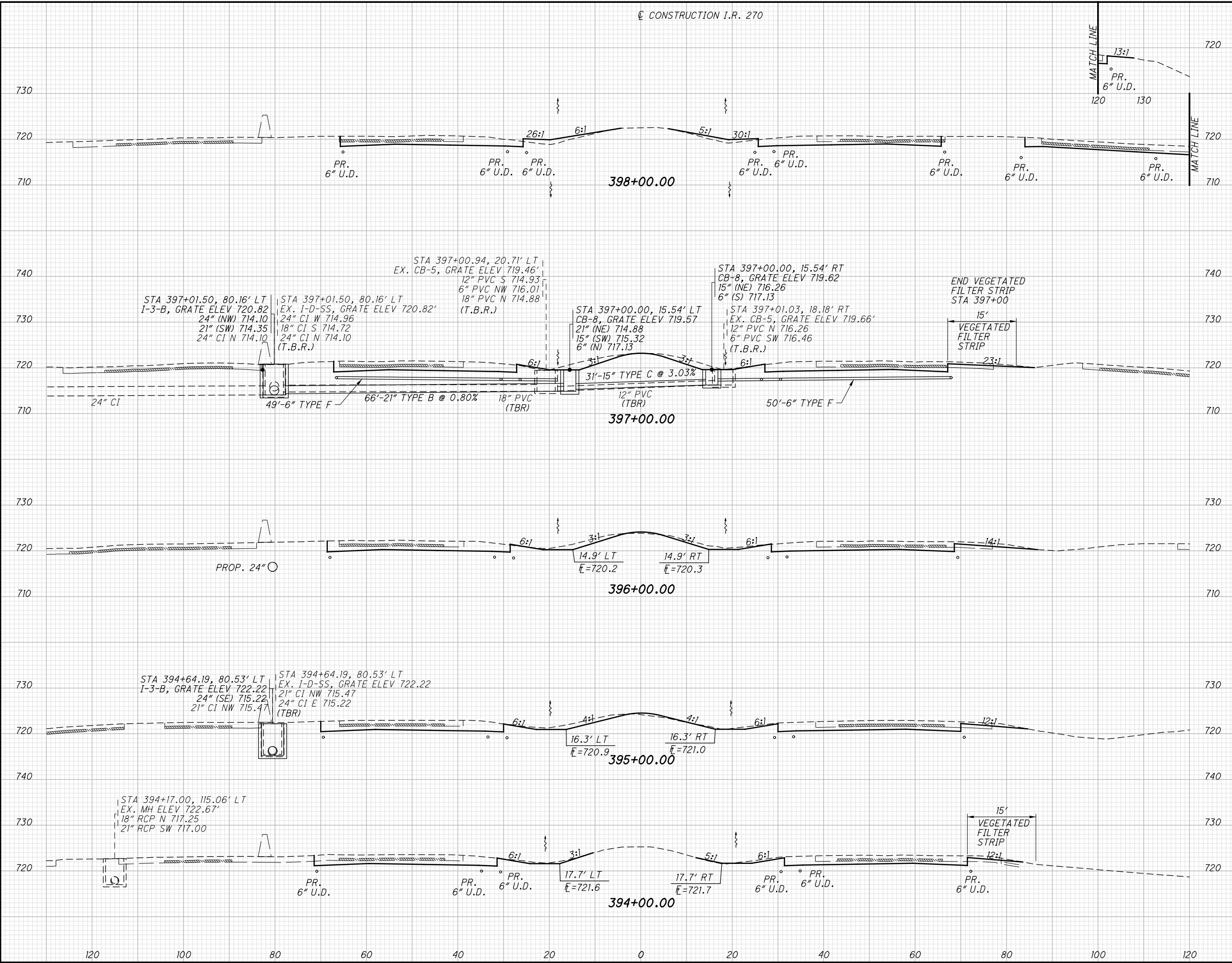
FRA - 270-52.72

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SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		

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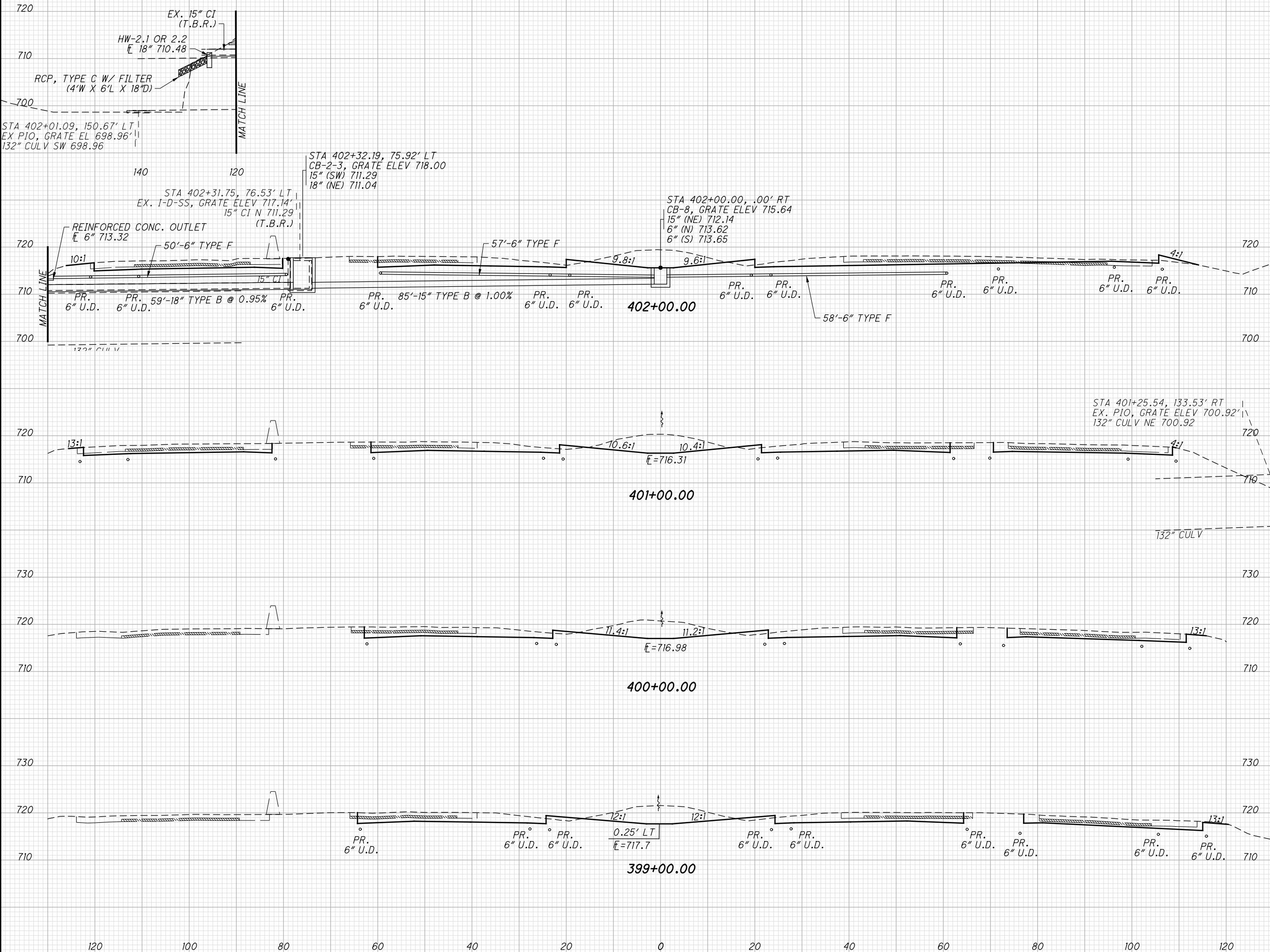


BU-4/5 Roadway/Drainage Approved for Construction
 CROSS SECTIONS I.R. 270
 STA. 394+00.00 TO STA. 398+00.00

FRA - 270 - 52.72

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		



BU-4/5 Roadway/Drainage Approved for Construction
 CROSS SECTIONS I.R. 270
 STA. 399+00.00 TO STA. 402+00.00

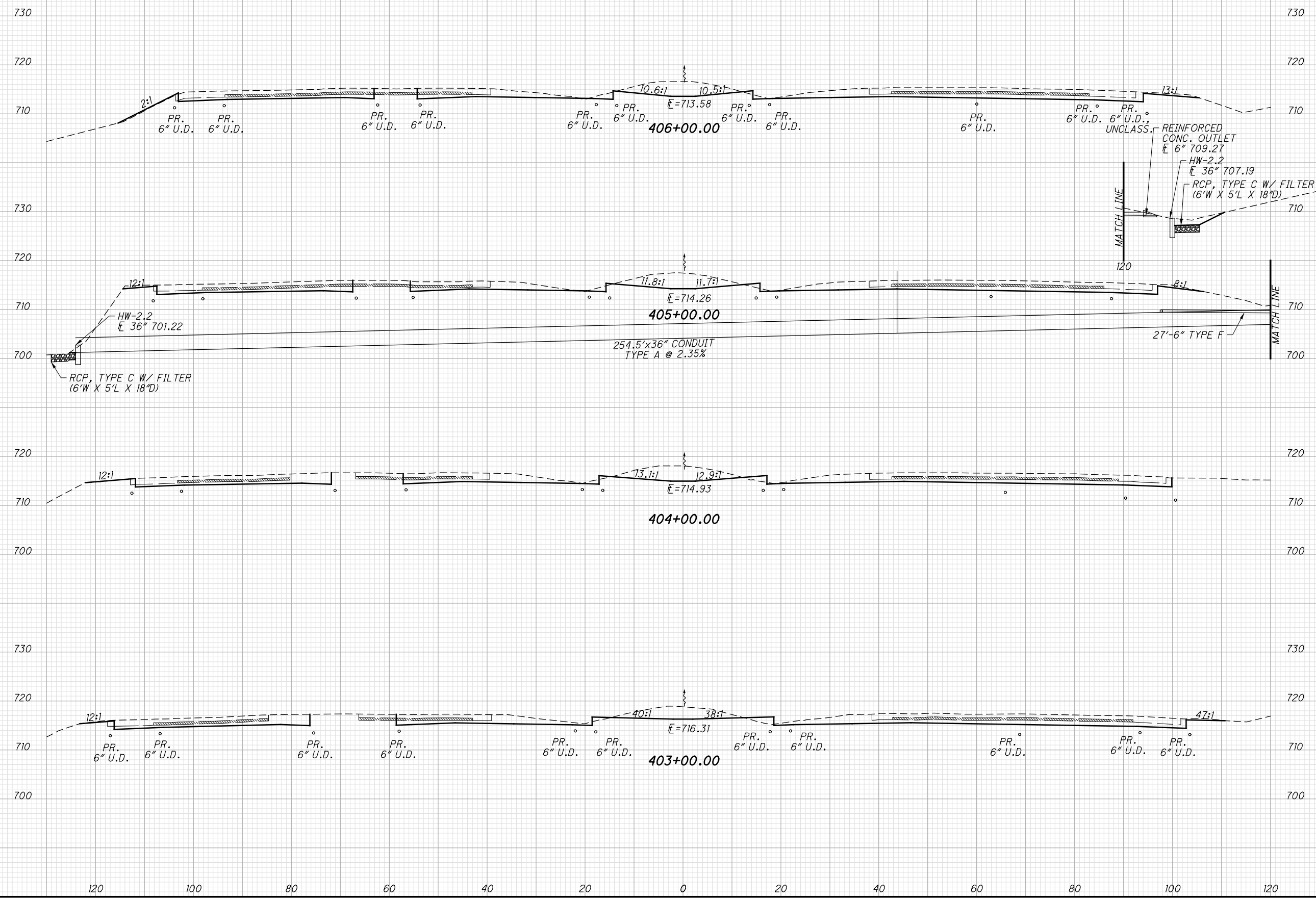
FRA - 270-52.72

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SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED	
CUT	FILL	CUT	FILL	JDC	RJM

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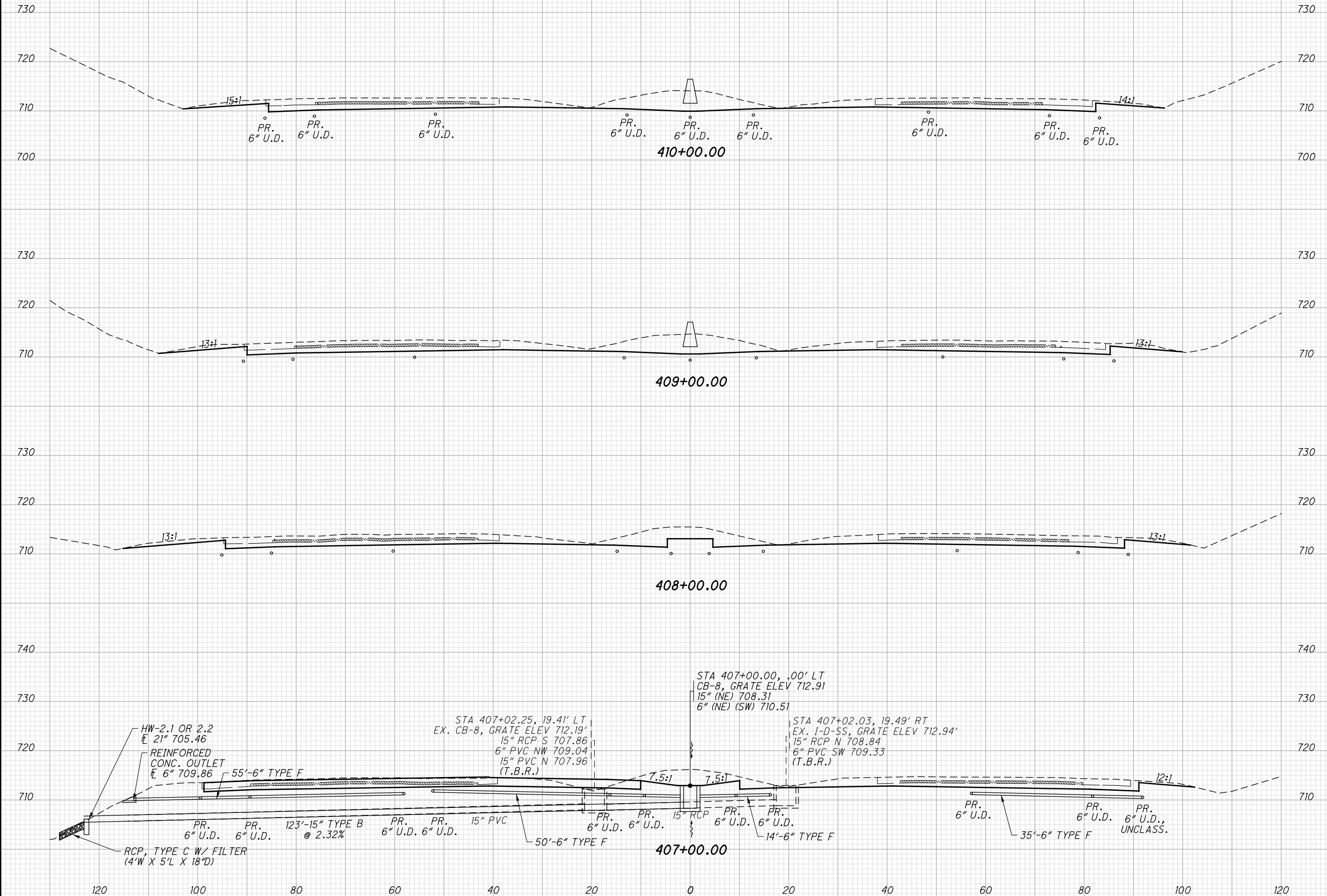


BU-4/5 Roadway/Drainage Approved for Construction
 CROSS SECTIONS I.R. 270
 STA. 403+00.00 TO STA. 406+00.00

FRA - 270 - 52.72

SEEDING
END SO.
WIDTH YDS.

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED
JDC
CHECKED
RJM



BU-4/5 Roadway/Drainage Approved for Construction

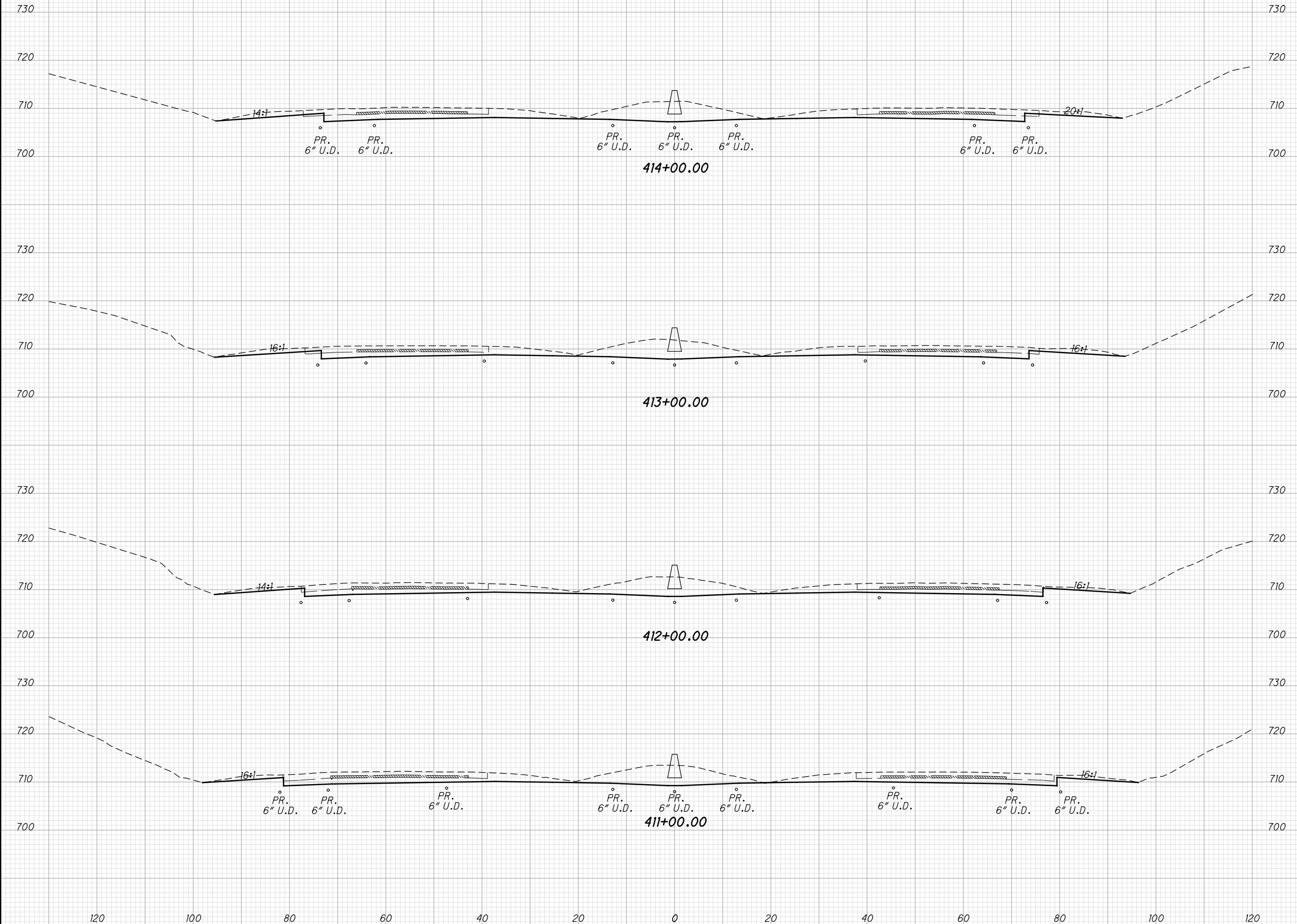
CROSS SECTIONS I.R. 270
STA. 407+00.00 TO STA. 410+00.00

FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:11 PM jconley

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED	
CUT	FILL	CUT	FILL	JDC	RJM



BU-4/5 Roadway/Drainage Approved for Construction

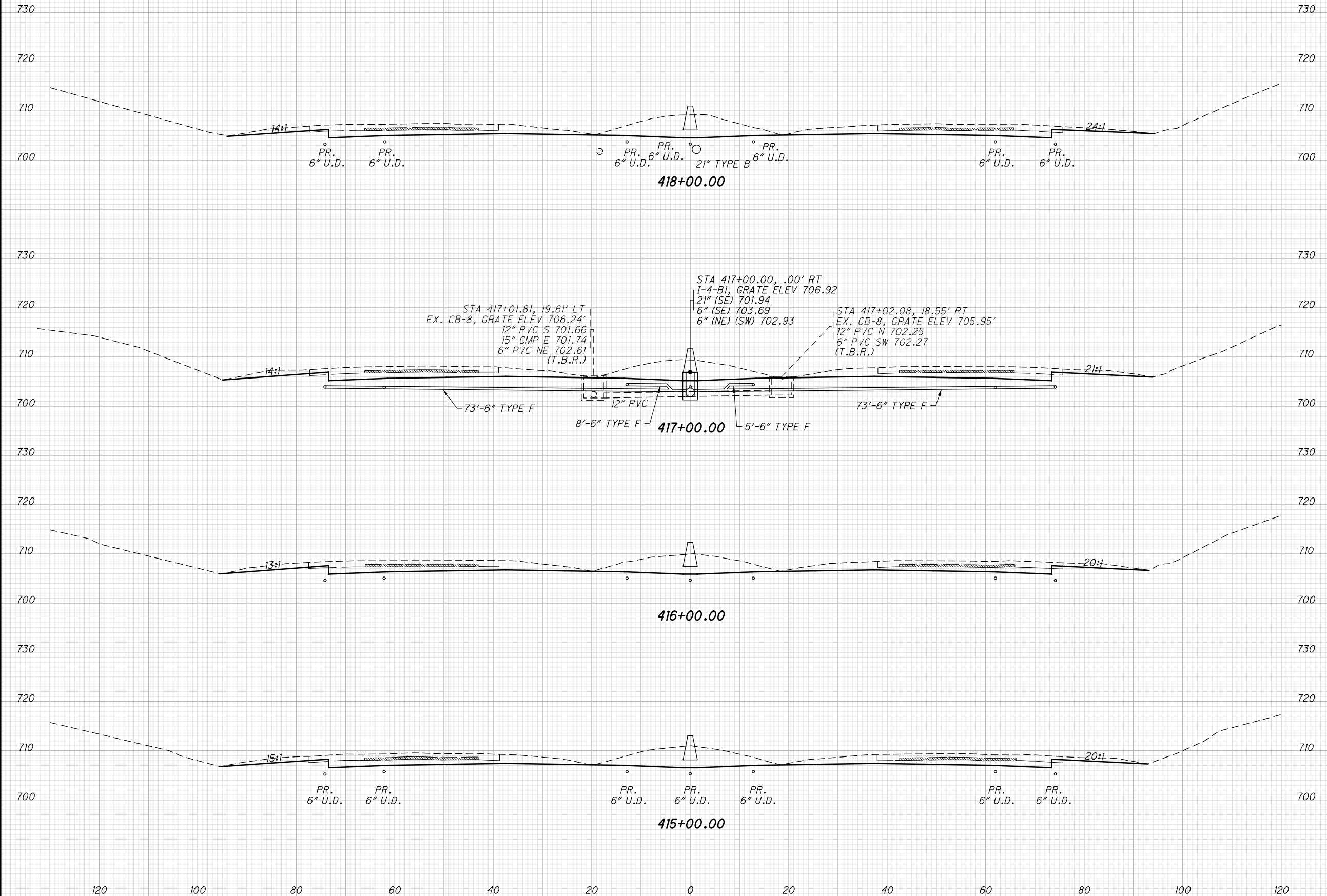
CROSS SECTIONS I.R. 270
STA. 411+00.00 TO STA. 414+00.00

FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:11 PM jconley

SEEDING
END SO.
WIDTH YDS.

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED JDC
CHECKED RJM



BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 415+00.00 TO STA. 418+00.00

FRA - 270-52.72

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SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED	
CUT	FILL	CUT	FILL	JDC	RJM

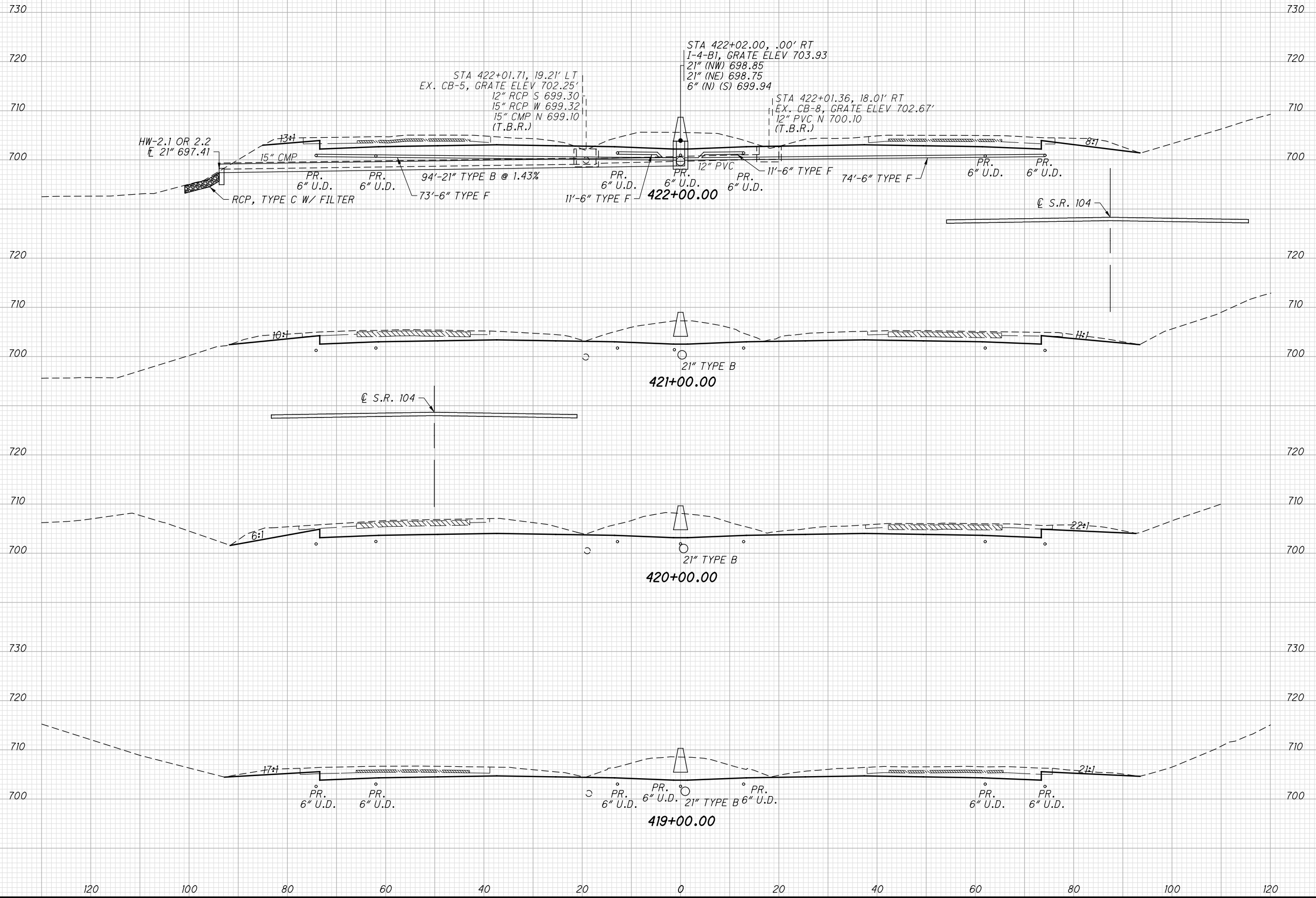
BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 419+00.00 TO STA. 422+00.00

FRA - 270-52.72

40

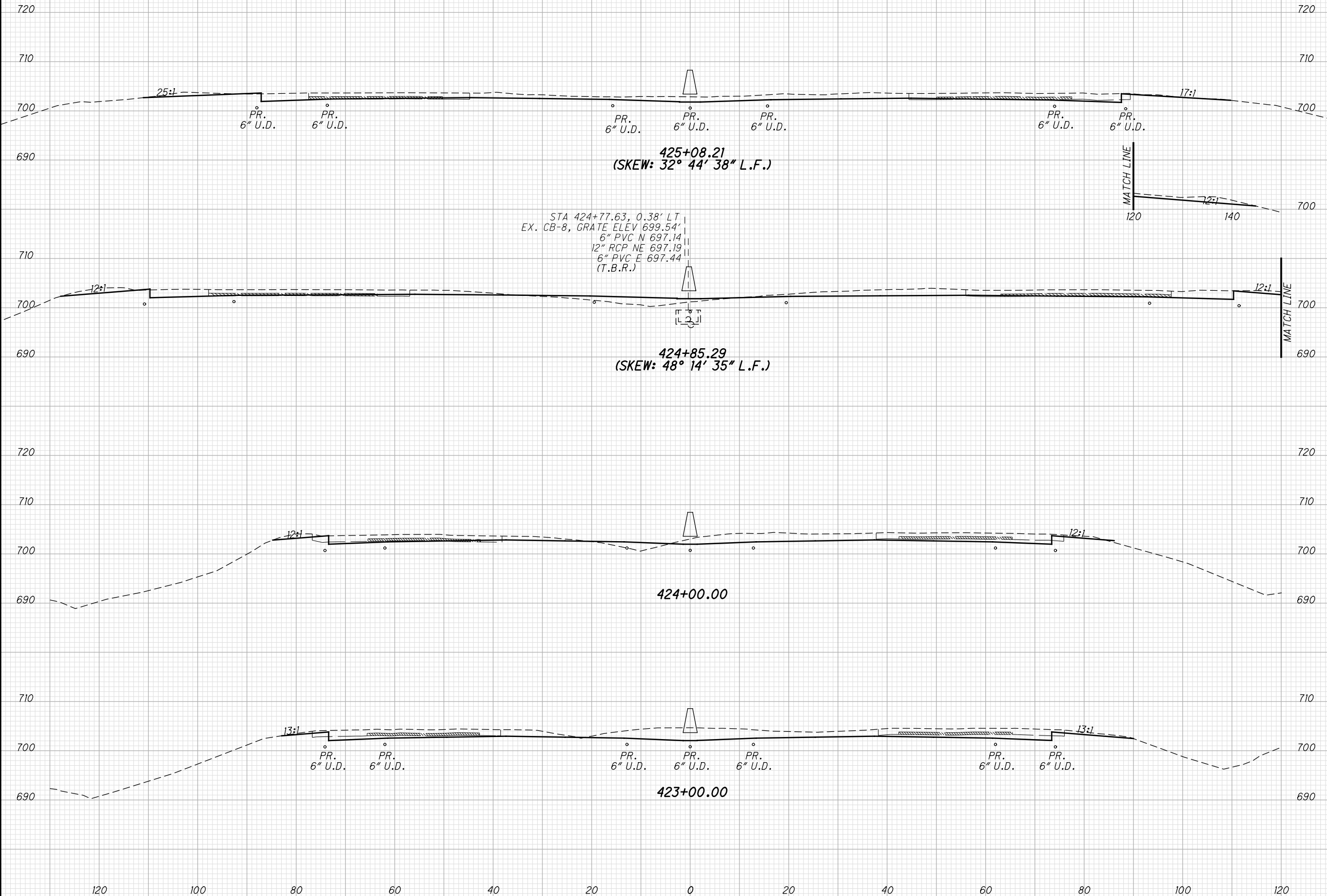
114

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:11 PM jconley



SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED	
CUT	FILL	CUT	FILL	JDC	CHKD



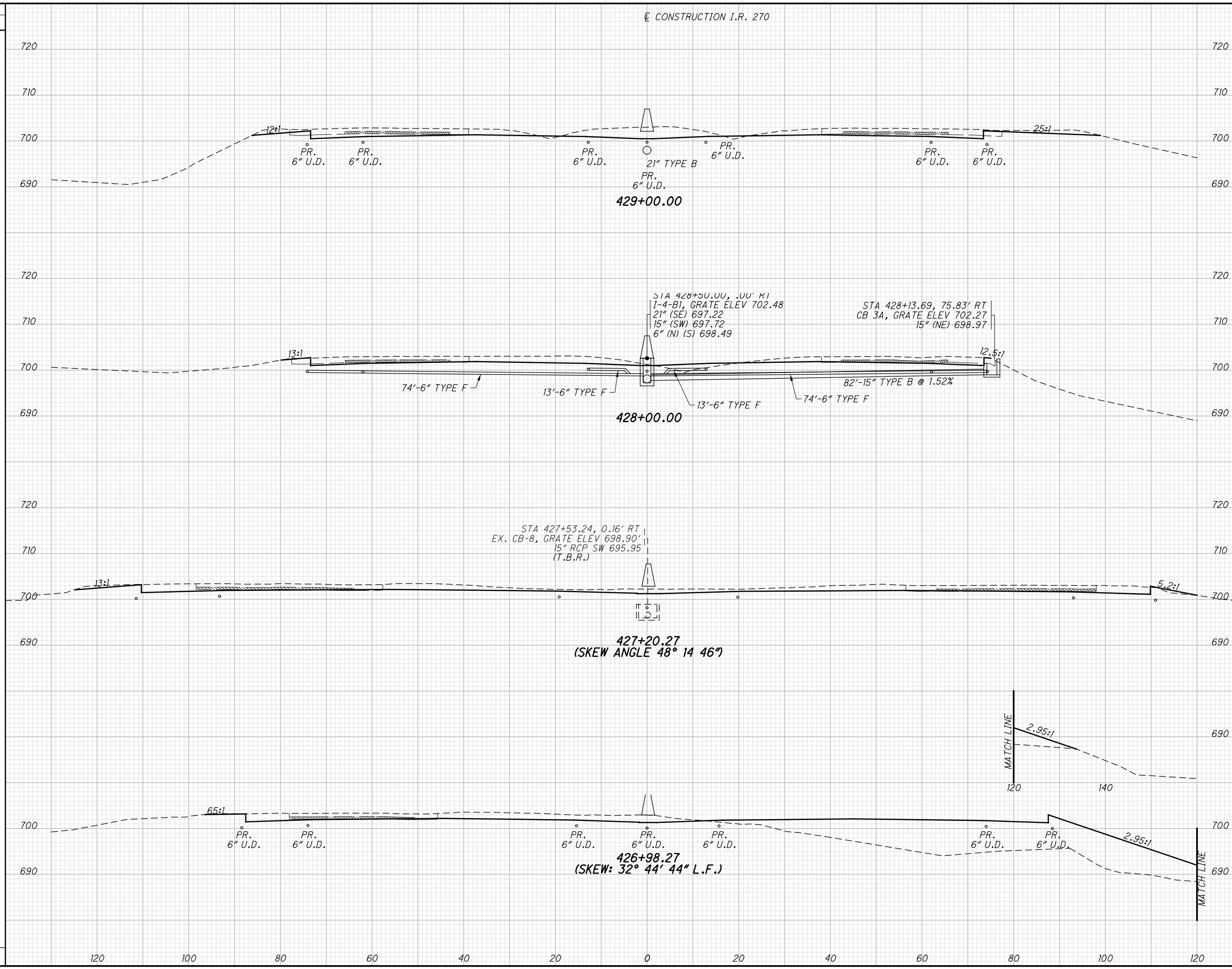
BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 423+00.00 TO STA. 425+08.21

FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:12 PM jconley

SEEDING
END SO.
WIDTH YDS.

F:\FRA\92610\roadway\sheets\92610X5001.dgn 10/11/2013 9:33:01 AM jconley



END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		

BU-4/5 Roadway/Drainage Approved for Construction

CROSS SECTIONS I.R. 270

STA. 426+98.27 TO STA. 429+00.00

FRA - 270-52.72

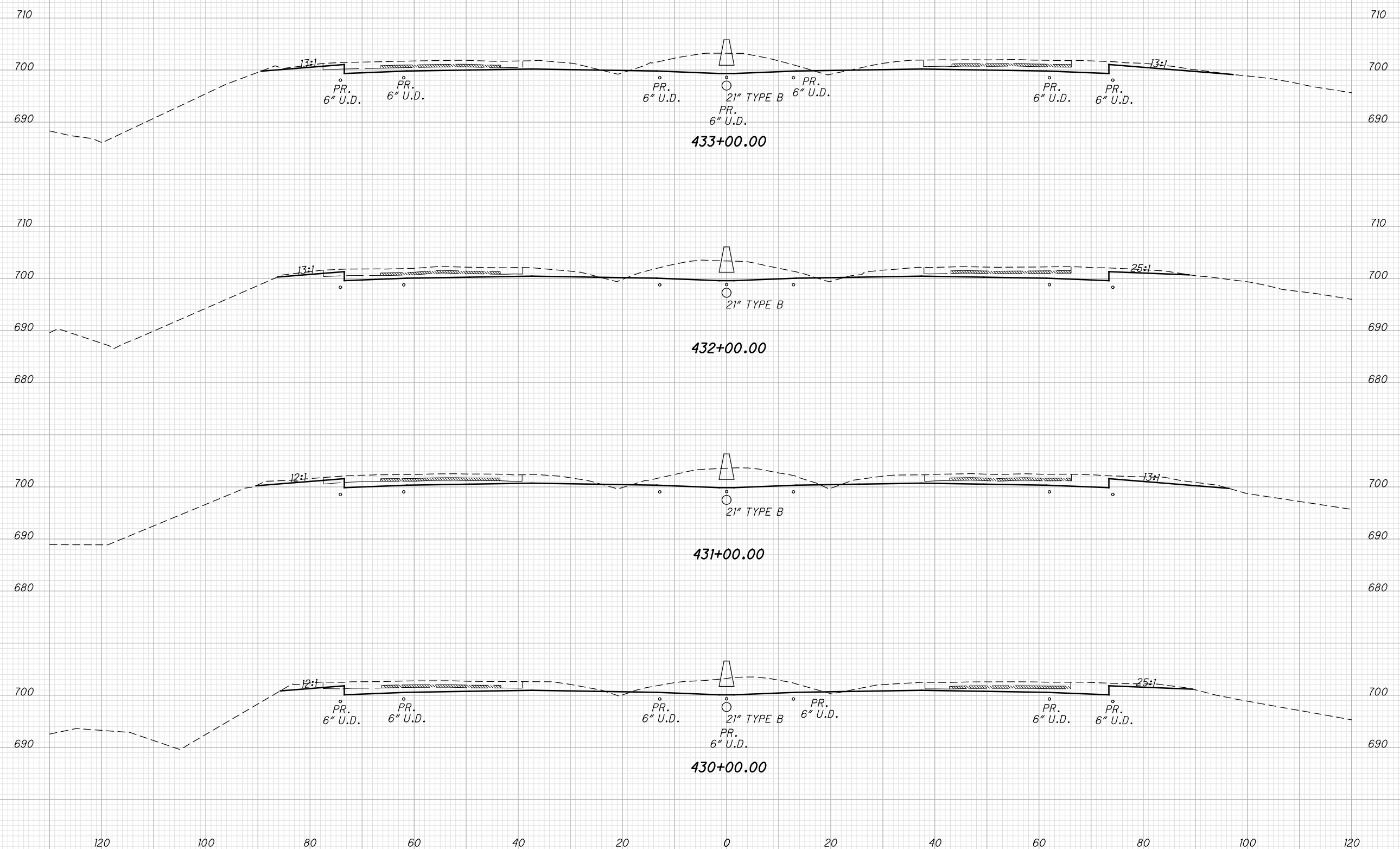
42
114

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED	
CUT	FILL	CUT	FILL	JDC	RJM

BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 430+00.00 TO STA. 433+00.00

FRA - 270-52.72



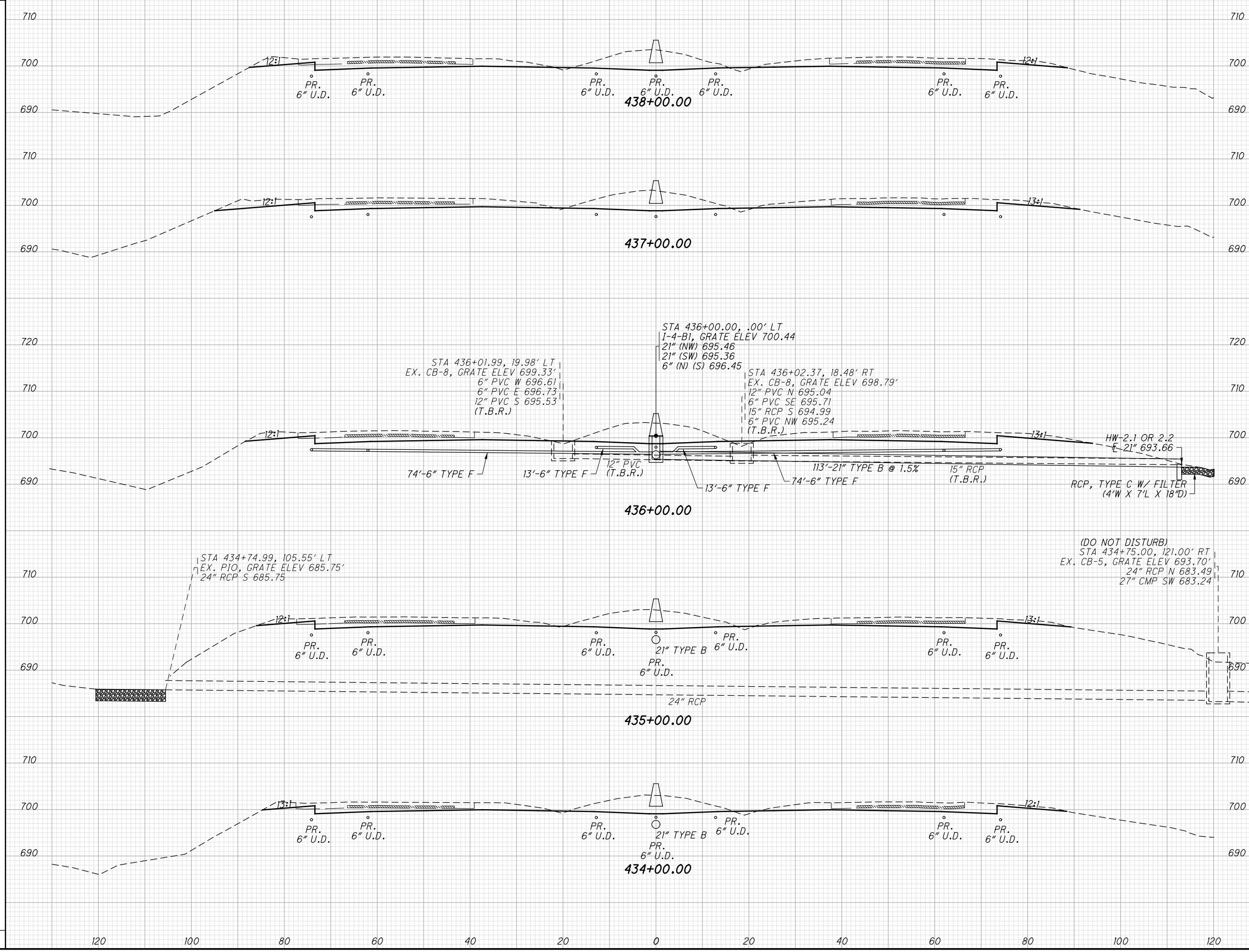
F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:12 PM jconley

SEEDING
END SO.
WIDTH YDS.

CONSTRUCTION I.R. 270

END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		

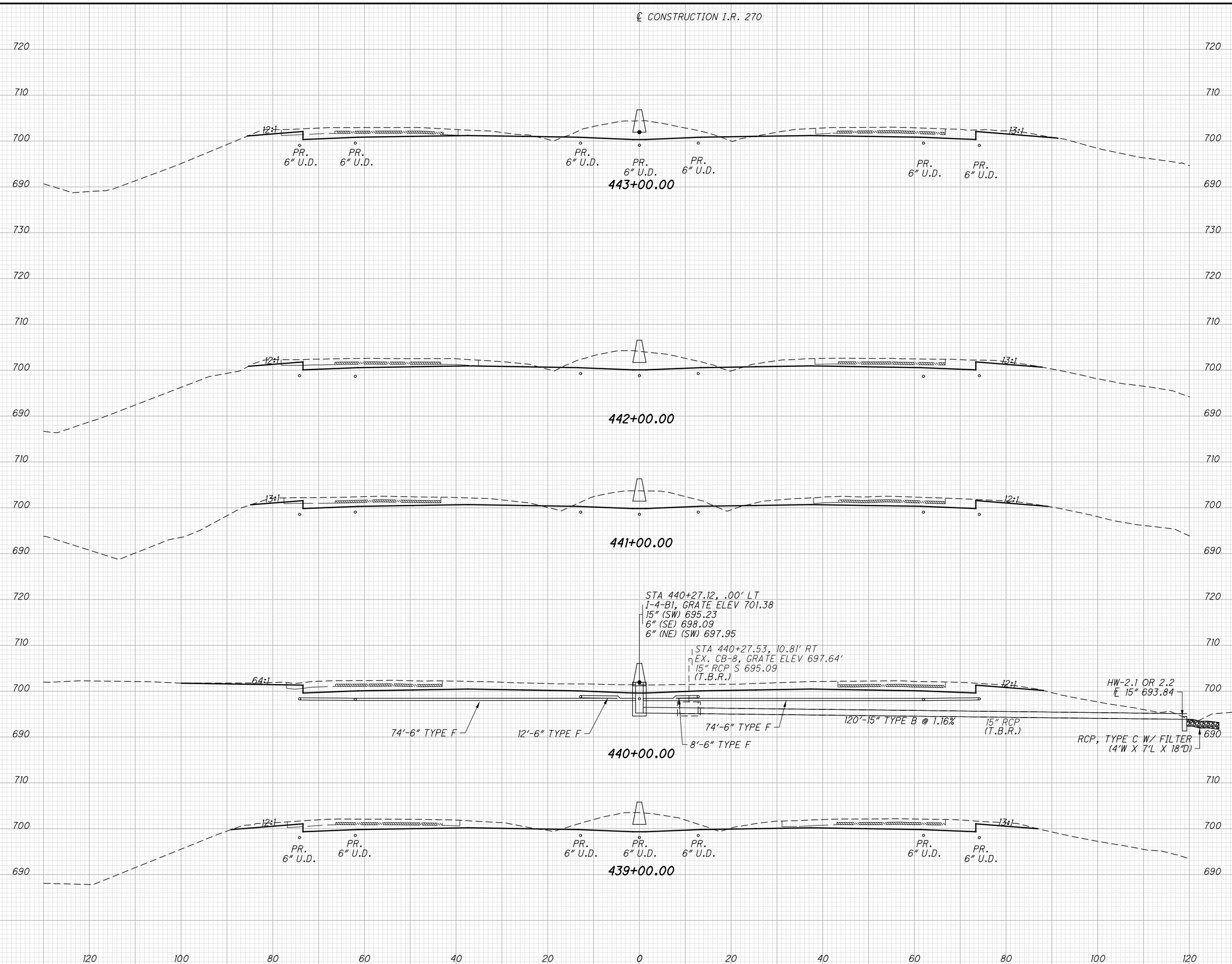
F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:12 PM jconley



BU-4/5 Roadway/Drainage Approved for Construction
 CROSS SECTIONS I.R. 270
 STA. 434+00.00 TO STA. 438+00.00

FRA - 270-52.72
 44
 114

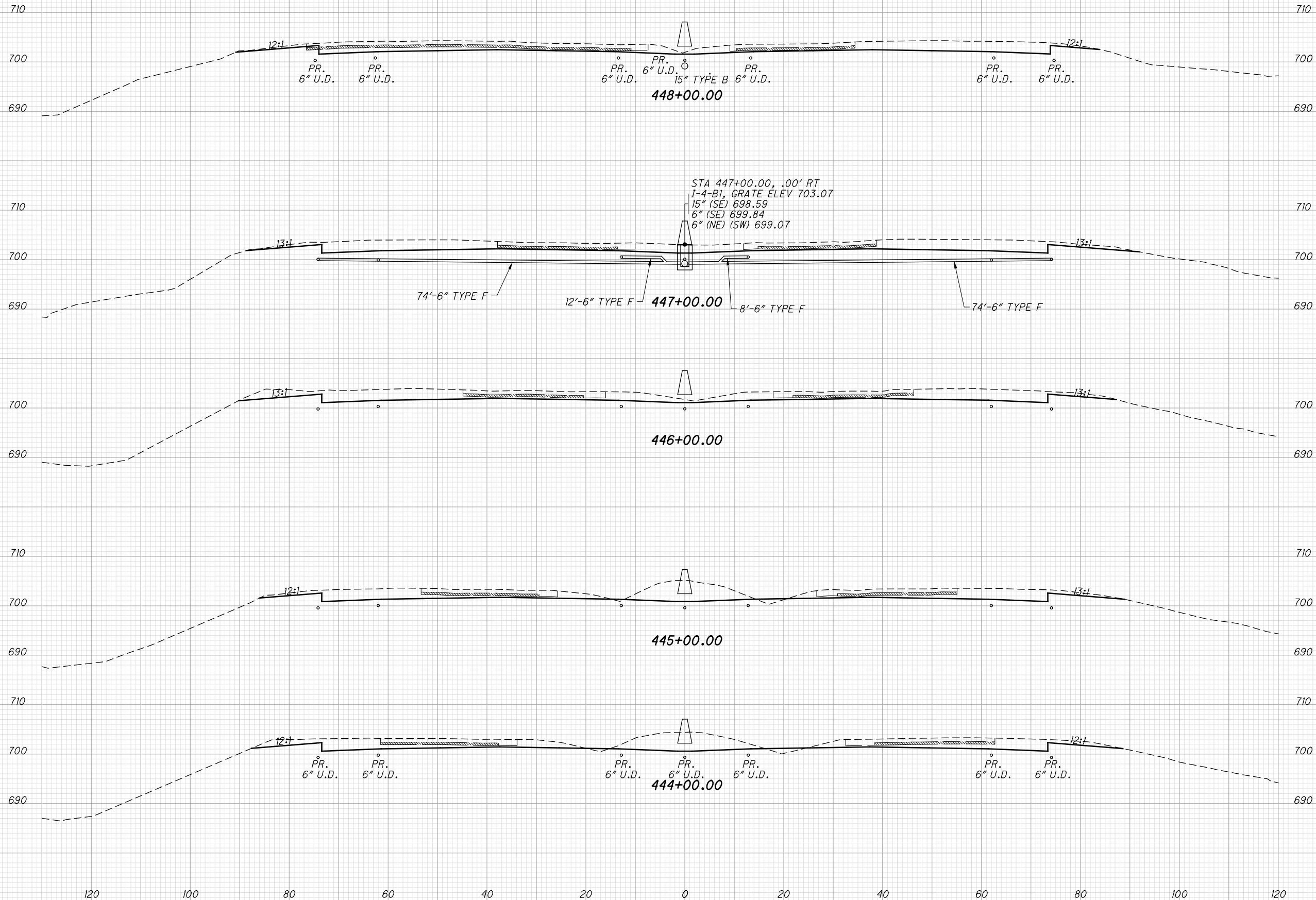
SEEDING
END WIDTH SO. YDS.
10/7/2013 1:39:13 PM jconley



END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		
BU-4/5 Roadway/Drainage Approved for Construction CROSS SECTIONS I.R. 270 STA. 439+00.00 TO STA. 443+00.00					
FRA - 270-52.72					
45 114					

SEEDING
END SO.
WIDTH YDS.

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED
JDC
CHECKED
RJM



BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 444+00.00 TO STA. 448+00.00

FRA - 270-52.72

46
114

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:13 PM jconley

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		

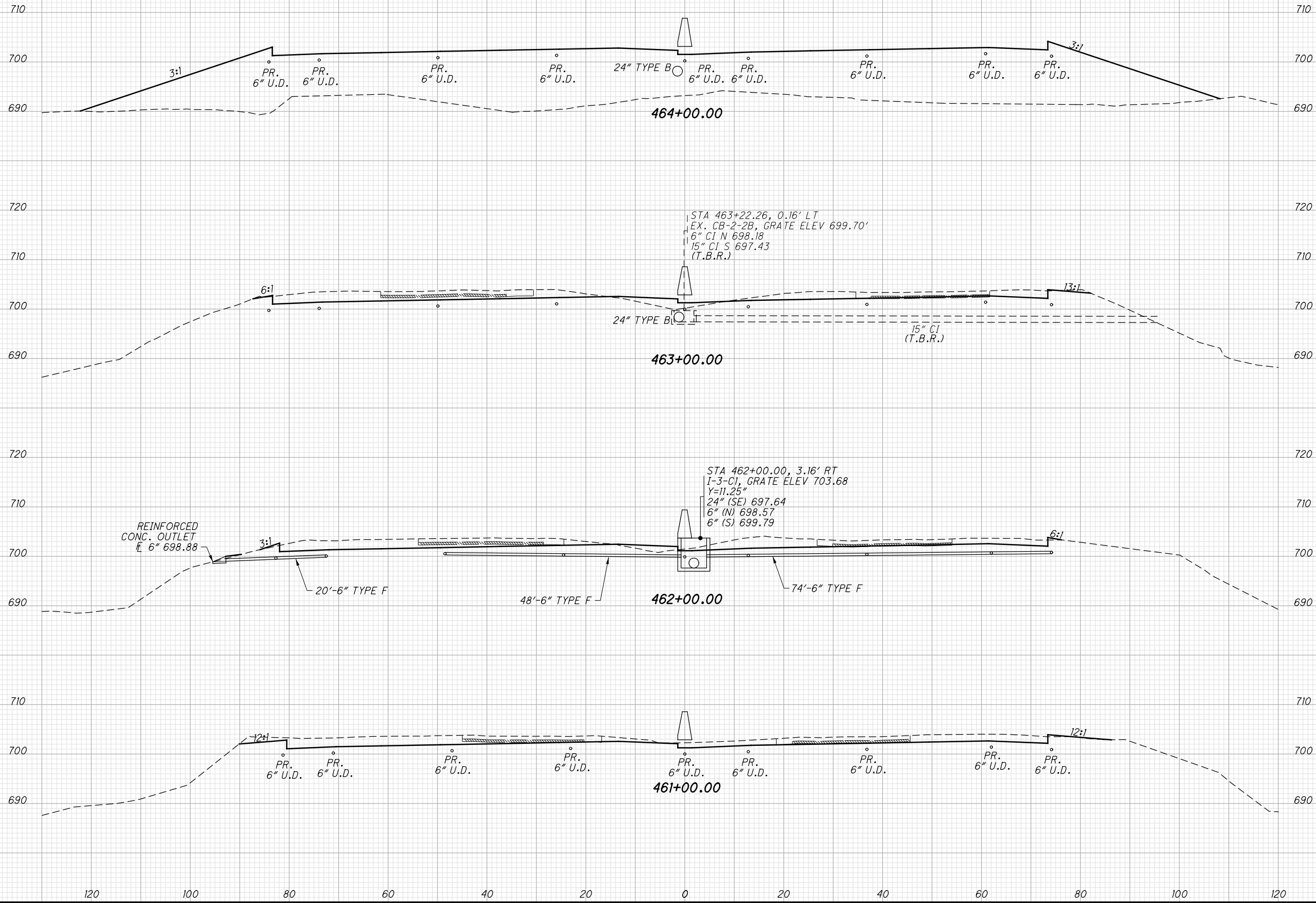
BU-4/5 Roadway/Drainage Approved for Construction
 CROSS SECTIONS I.R. 270
 STA. 461+00.00 TO STA. 464+00.00

FRA - 270-52.72

48

114

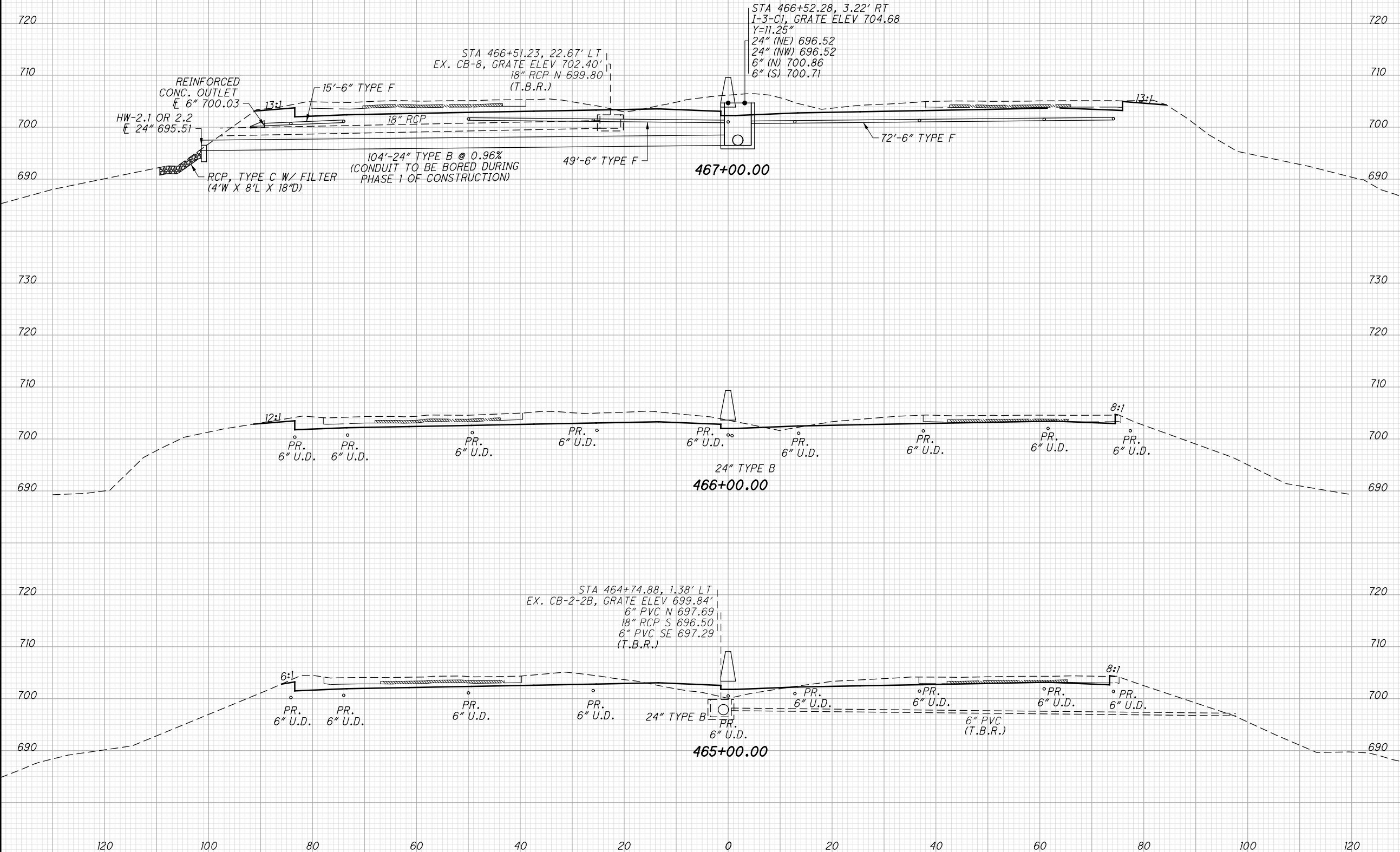
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120 100 80 60 40 20 0 20 40 60 80 100 120

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		



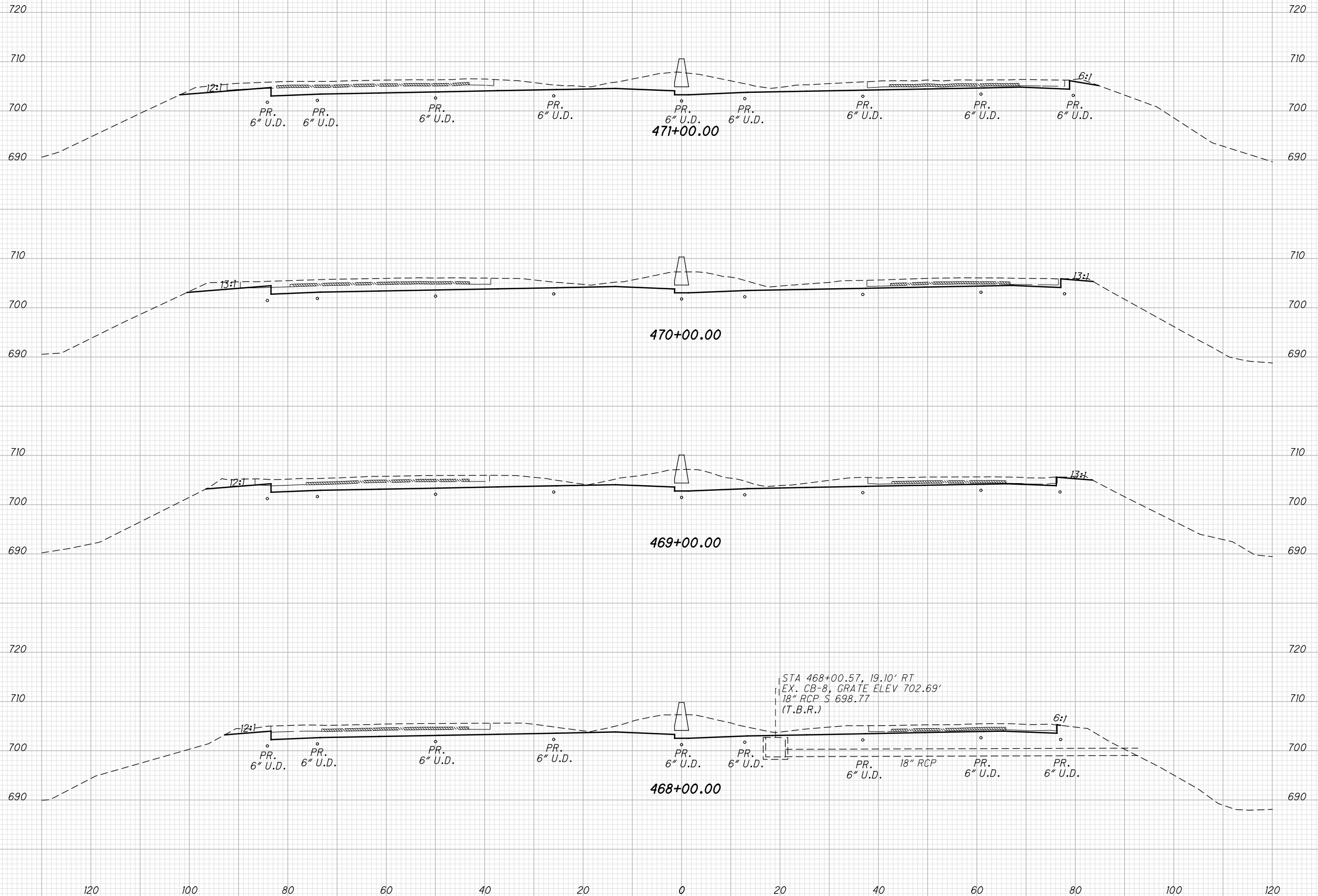
BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 465+00.00 TO STA. 467+00.00

FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:14 PM jconley

SEEDING
END SO.
WIDTH YDS.

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED
JDC
CHECKED
RJM



STA 468+00.57, 19.10' RT
EX. CB-8, GRATE ELEV 702.69'
18" RCP S 698.77
(T.B.R.)

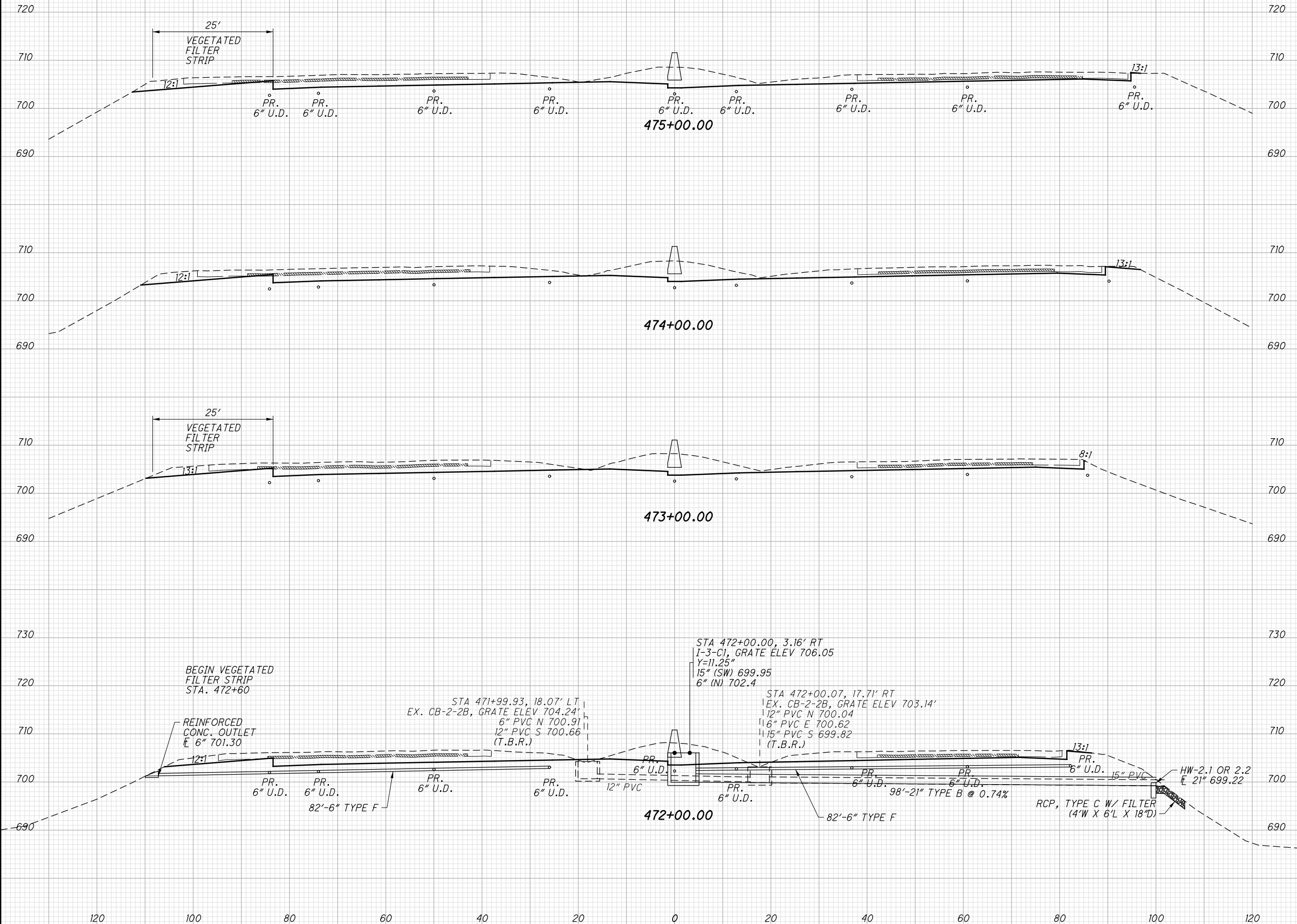
BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 468+00.00 TO STA. 471+00.00

FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:14 PM jconley

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		



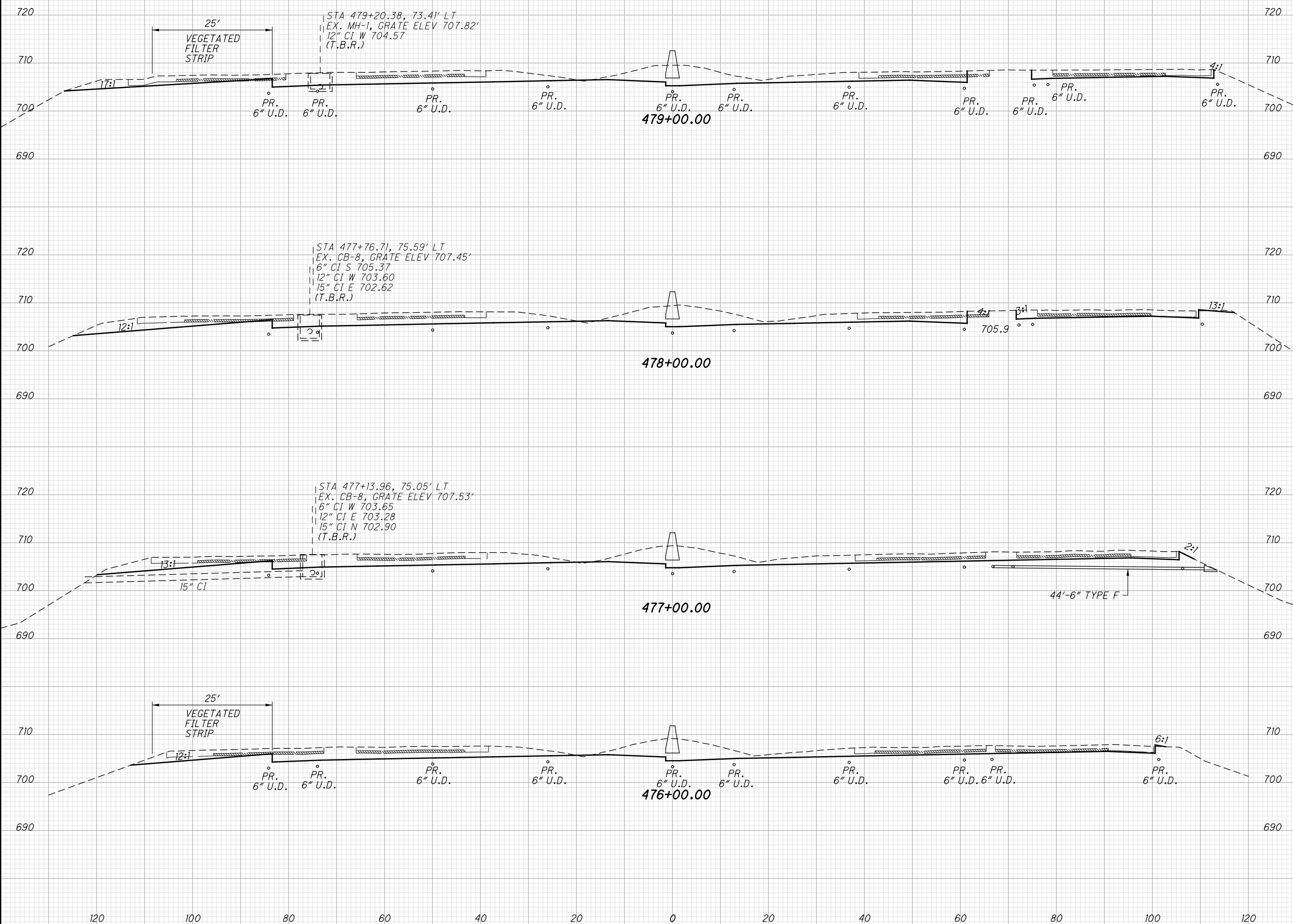
BU-4/5 Roadway/Drainage Approved for Construction
 CROSS SECTIONS I.R. 270
 STA. 472+00.00 TO STA. 475+00.00

FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:14 PM jconley

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED	
CUT	FILL	CUT	FILL	JDC	CHECKED
					RJM



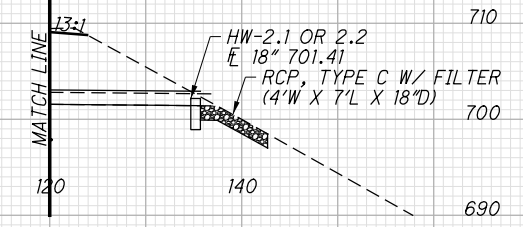
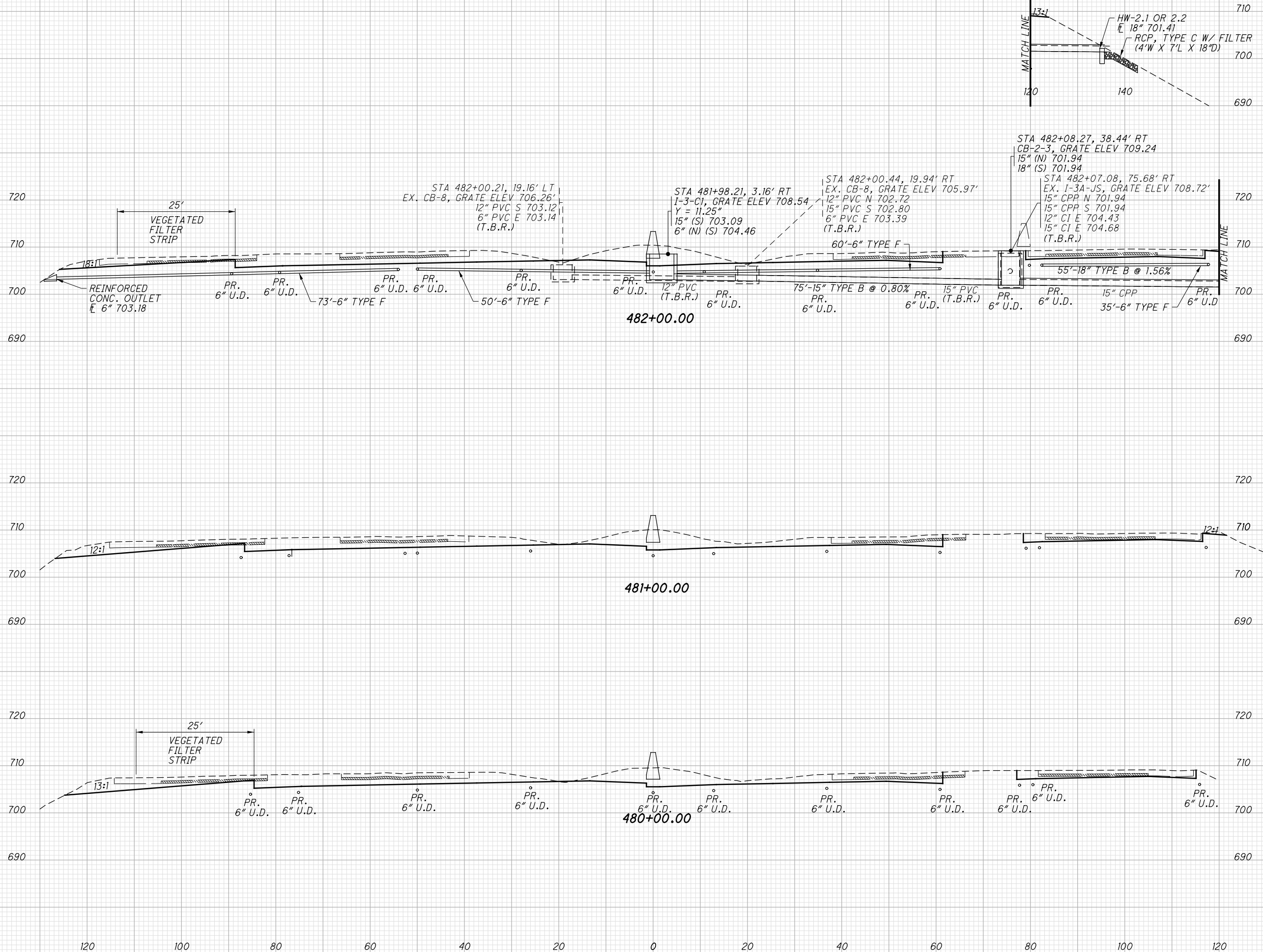
BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 476+00.00 TO STA. 479+00.00

FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:15 PM jconley

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		



STA 482+08.27, 38.44' RT
 CB-2-3, GRATE ELEV 709.24
 15" (N) 701.94
 18" (S) 701.94

STA 482+07.08, 75.68' RT
 EX. I-3A-JS, GRATE ELEV 708.72'
 15" CPP N 701.94
 15" CPP S 701.94
 12" CI E 704.43
 15" CI E 704.68
 (T.B.R.)

STA 482+00.21, 19.16' LT
 EX. CB-8, GRATE ELEV 706.26'
 12" PVC S 703.12
 6" PVC E 703.14
 (T.B.R.)

STA 481+98.21, 3.16' RT
 I-3-CI, GRATE ELEV 708.54
 Y = 11.25"
 15" (S) 703.09
 6" (N) (S) 704.46

STA 482+00.44, 19.94' RT
 EX. CB-8, GRATE ELEV 705.97'
 12" PVC N 702.72
 15" PVC S 702.80
 6" PVC E 703.39
 (T.B.R.)

25'
 VEGETATED
 FILTER
 STRIP

REINFORCED
 CONC. OUTLET
 E 6" 703.18

PR. 6" U.D.
 PR. 6" U.D.

73'-6" TYPE F
 PR. 6" U.D. 6" U.D.

50'-6" TYPE F
 PR. 6" U.D.

482+00.00

75'-15" TYPE B @ 0.80%
 PR. 6" U.D.

15" PVC (T.B.R.)
 PR. 6" U.D.

PR. 6" U.D.
 PR. 6" U.D.

15" CPP
 35'-6" TYPE F

PR. 6" U.D.

25'
 VEGETATED
 FILTER
 STRIP

PR. 6" U.D.
 PR. 6" U.D.

PR. 6" U.D.

PR. 6" U.D.

480+00.00

PR. 6" U.D.

PR. 6" U.D.

PR. 6" U.D.
 PR. 6" U.D.

PR. 6" U.D.

PR. 6" U.D.

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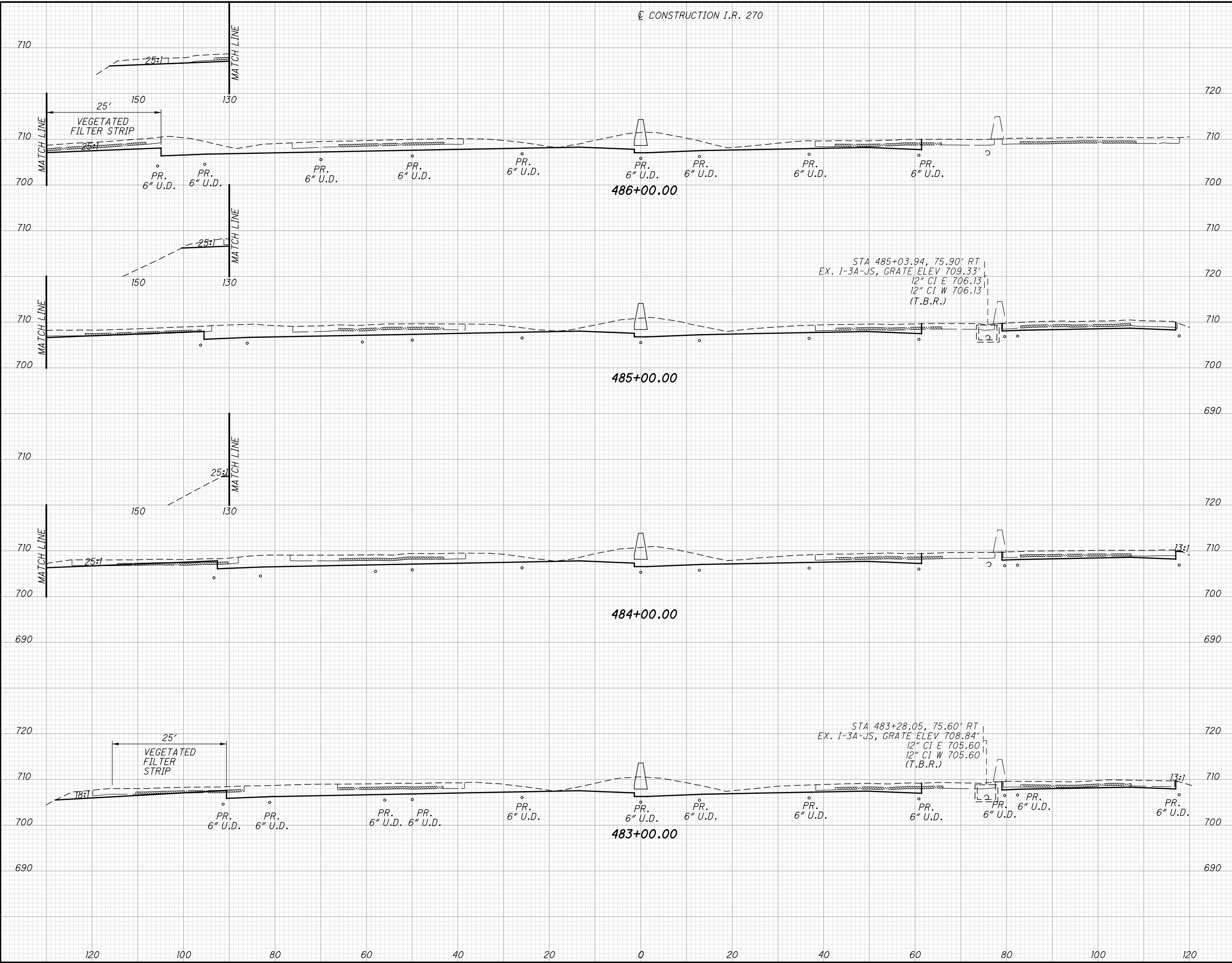
BU-4/5 Roadway/Drainage Approved for Construction
 CROSS SECTIONS I.R. 270
 STA. 480+00.00 TO STA. 482+00.00

FRA - 270 - 52.72

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED	
CUT	FILL	CUT	FILL	JDC	CHKD

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:15 PM jconley

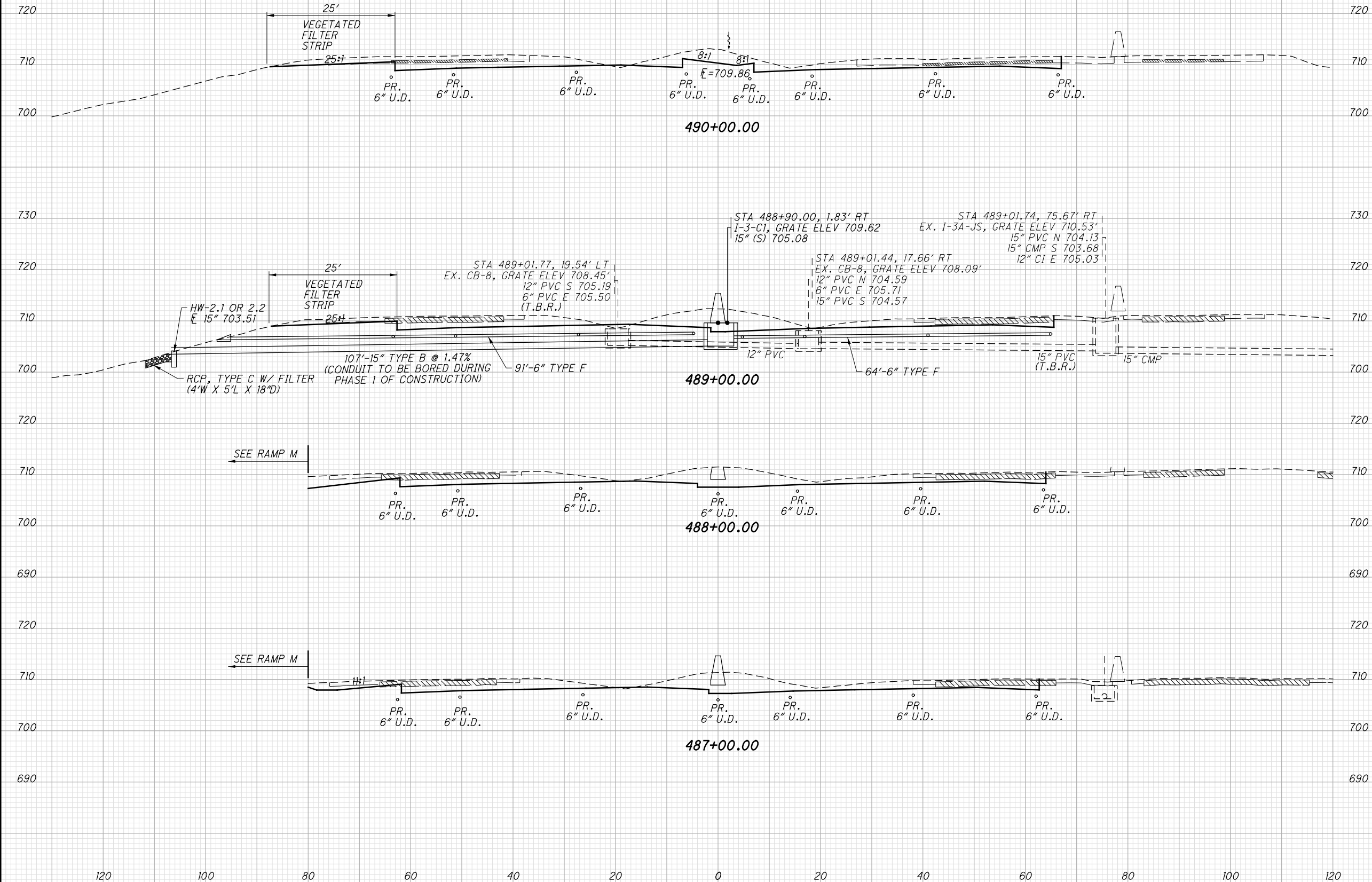


BU-4/5 Roadway/Drainage Approved for Construction
 CROSS SECTIONS I.R. 270
 STA. 483+00.00 TO STA. 486+00.00

FRA - 270 - 52.72

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED	
CUT	FILL	CUT	FILL	JDC	CHECKED
					RJM



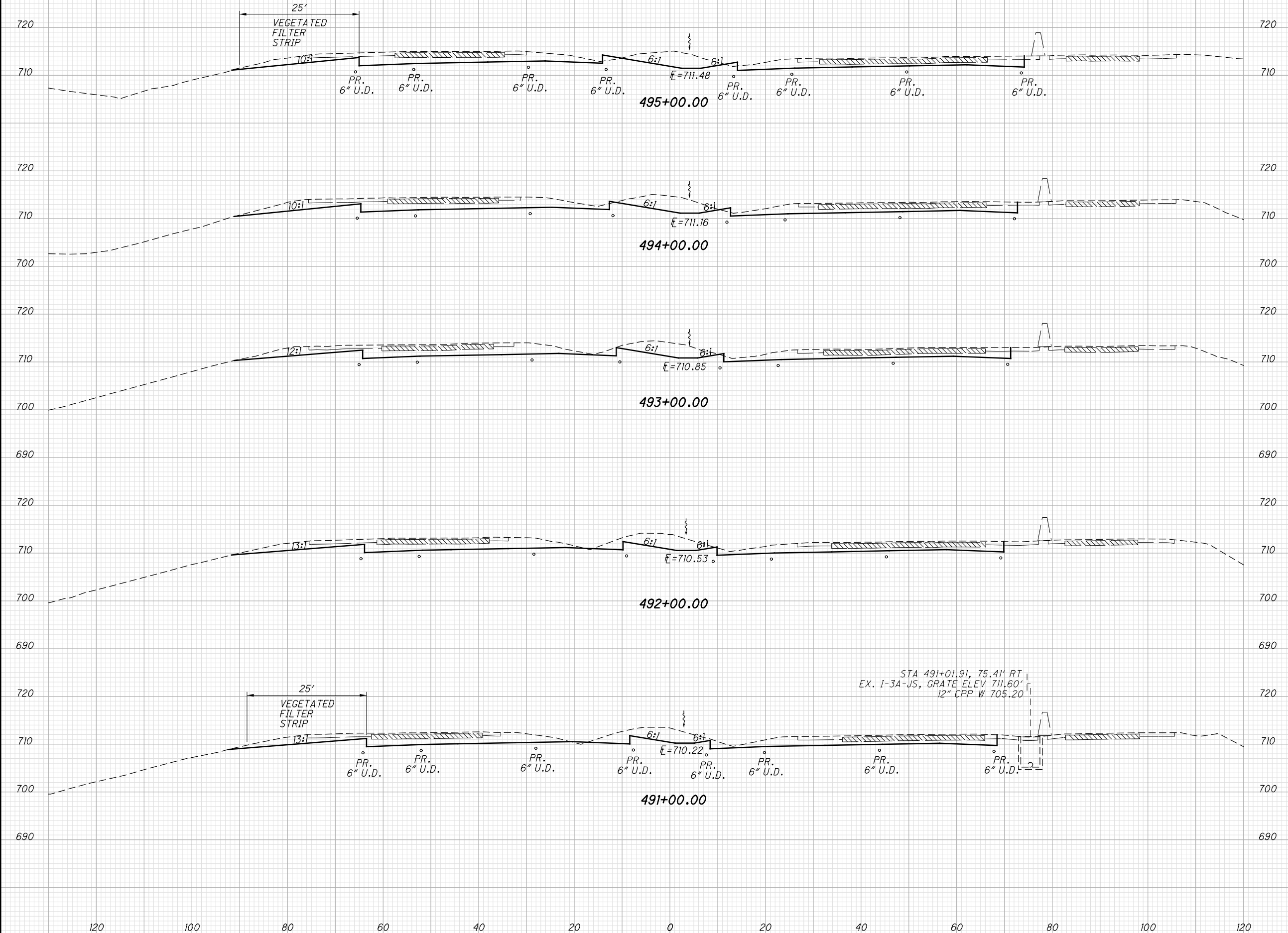
BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS I.R. 270
STA. 487+00.00 TO STA. 490+00.00

FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:15 PM jconley

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		



BU-4/5 Roadway/Drainage Approved for Construction
 CROSS SECTIONS I.R. 270
 STA. 491+00.00 TO STA. 495+00.00

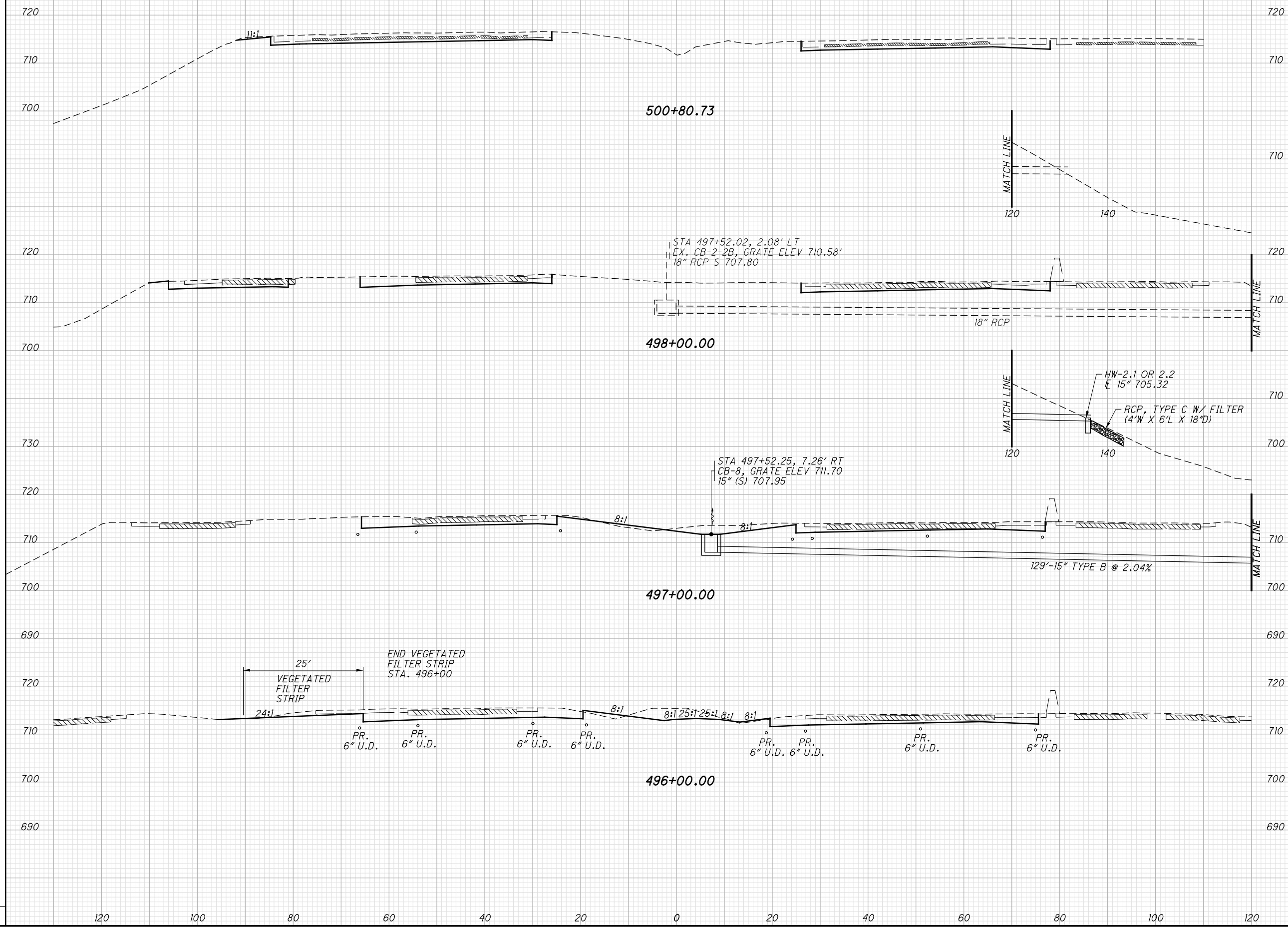
FRA - 270-52.72

F:\FRA\92610\roadway\sheets\92610XS001.dgn 10/7/2013 1:39:16 PM jconley

SEEDING
END SO.
WIDTH YDS.

CONSTRUCTION I.R. 270

END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		



BU-4/5 Roadway/Drainage Approved for Construction

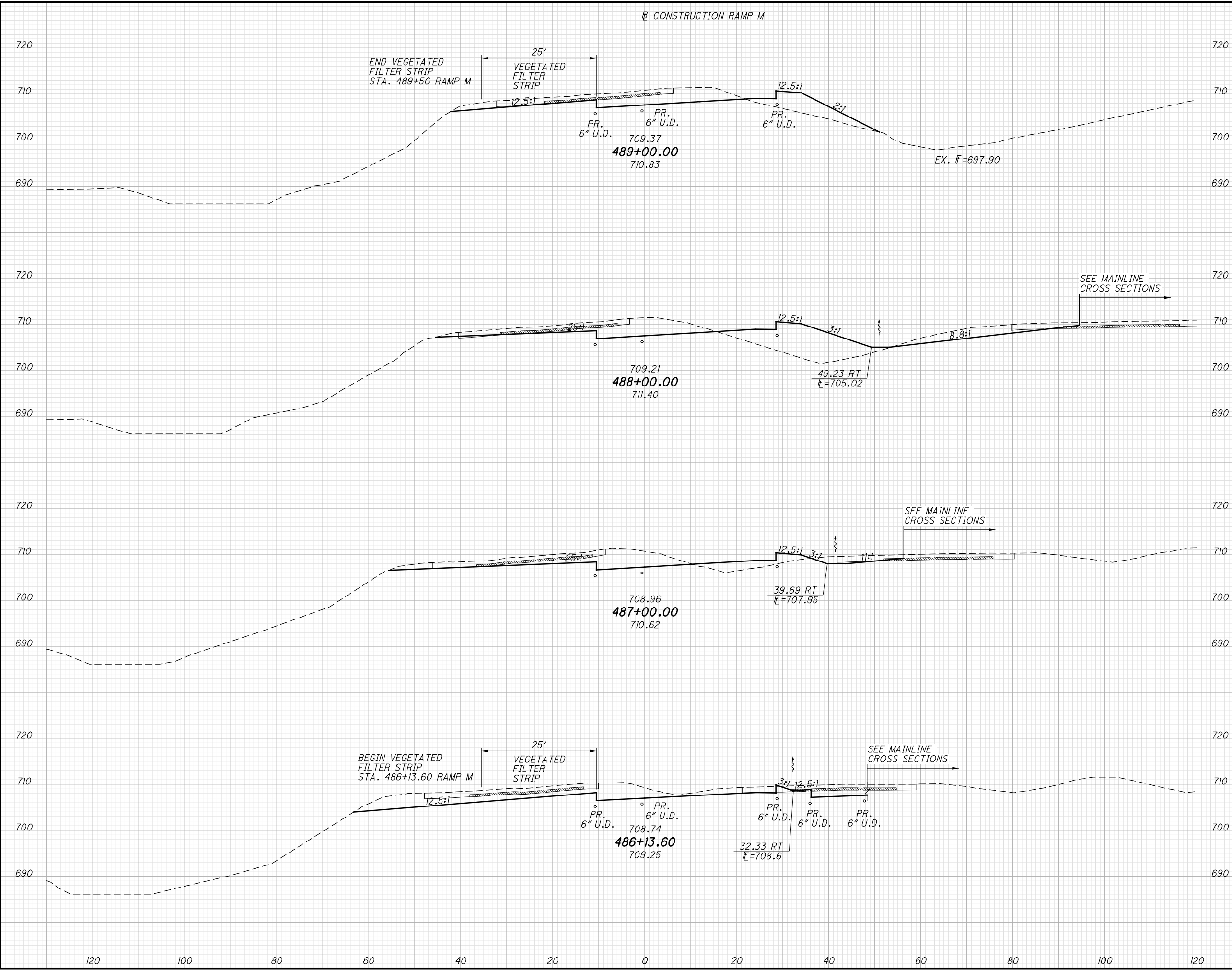
CROSS SECTIONS I.R. 270
STA. 496+00.00 TO STA. 500+80.73

FRA - 270-52.72

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SEEDING
END SO.
WIDTH YDS.



END AREA		VOLUME		CALCULATED JDC	CHECKED RJM
CUT	FILL	CUT	FILL		

BU-4/5 Roadway/Drainage Approved for Construction	
CROSS SECTIONS RAMP M	
STA. 486+13.60 TO STA. 489+00.00	

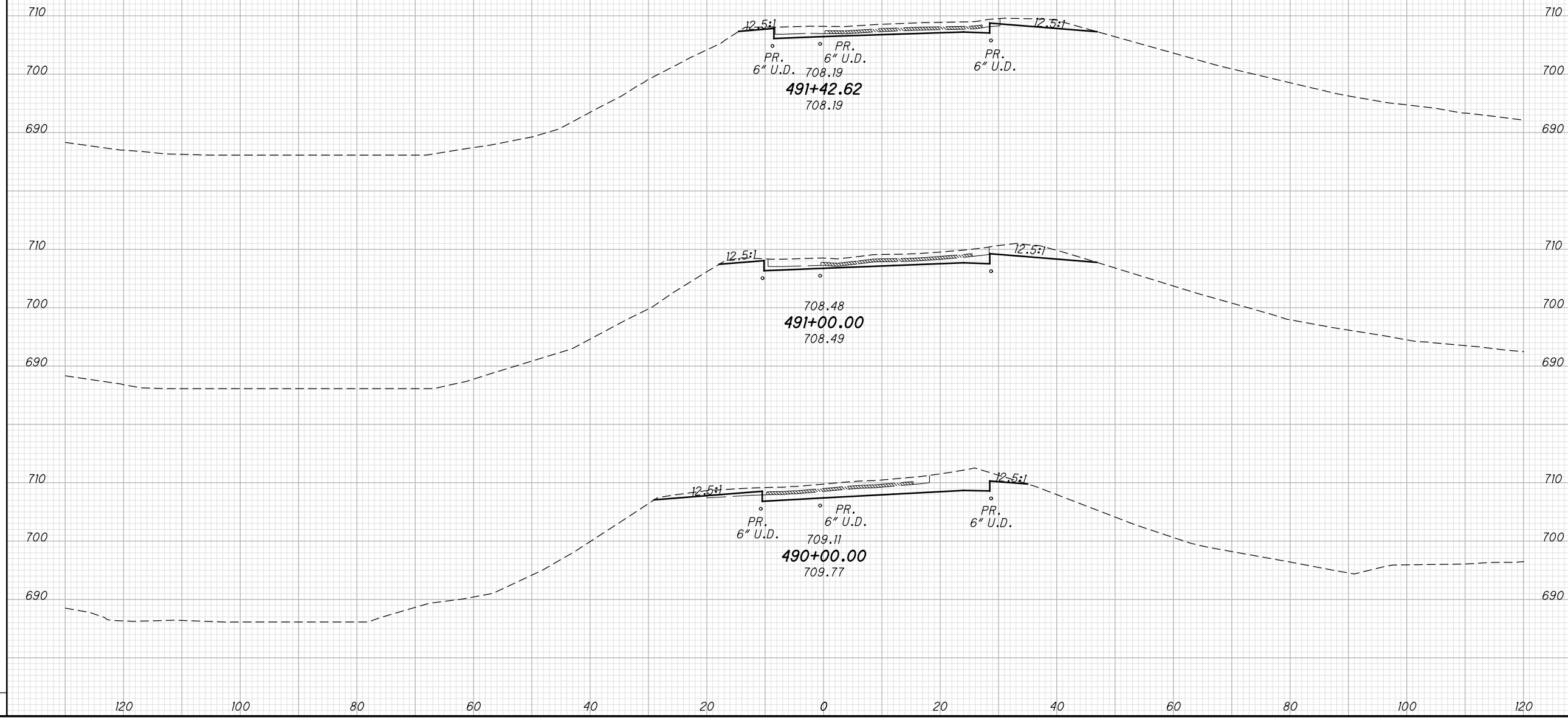
58
114

CONSTRUCTION RAMP M

SEEDING	
END WIDTH	SO. YDS.

END AREA		VOLUME		CALCULATED	
CUT	FILL	CUT	FILL	JDC	RJM

F:\FRA\92610\roadway\sheets\92610XS002.dgn 10/7/2013 1:39:17 PM jconley



BU-4/5 Roadway/Drainage Approved for Construction
CROSS SECTIONS RAMP M
STA. 490+00.00 TO STA. 491+42.62

FRA - 270-52.72

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SUPERELEVATION TABLE															
P.I. STA. 473+40.27					Dc = 0°29'54"										
LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS			
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION				
SEE PAVEMENT DETAIL SHEET 76					383+48.67	730.54						EXISTING			
					383+78.17	730.34									
					383+82.14	730.31									1/2 FLAT
					384+00.00	730.19									
384+30.14	729.99														
729.13		-0.38	-0.0160	24.00	385+00.00	729.51									
728.45		-0.38	-0.0160	24.00	386+00.00	728.83									
727.78		-0.38	-0.0160	24.00	387+00.00	728.16									
727.10		-0.38	-0.0160	24.00	388+00.00	727.48									
726.42		-0.38	-0.0160	24.00	389+00.00	726.80									
725.74		-0.38	-0.0160	24.00	390+00.00	726.12									
725.06		-0.38	-0.0160	24.00	391+00.00	725.44									
724.38		-0.38	-0.0160	24.00	392+00.00	724.76									
723.70		-0.38	-0.0160	24.00	393+00.00	724.08									
723.02		-0.38	-0.0160	24.00	394+00.00	723.40									
722.34		-0.38	-0.0160	24.00	395+00.00	722.72									
721.66		-0.38	-0.0160	24.00	396+00.00	722.04									
720.99		-0.38	-0.0160	24.00	397+00.00	721.37									
720.31		-0.38	-0.0160	24.00	398+00.00	720.69									
719.63		-0.38	-0.0160	24.00	399+00.00	720.01									
718.95		-0.38	-0.0160	24.00	400+00.00	719.33									
718.27		-0.38	-0.0160	24.00	401+00.00	718.65									
717.59		-0.38	-0.0160	24.00	402+00.00	717.97									
716.91		-0.38	-0.0160	24.00	403+00.00	717.29									
716.23		-0.38	-0.0160	24.00	404+00.00	716.61									
715.55		-0.38	-0.0160	24.00	405+00.00	715.93									
714.87		-0.38	-0.0160	24.00	406+00.00	715.25									
714.20		-0.38	-0.0160	24.00	407+00.00	714.58									
713.52		-0.38	-0.0160	24.00	408+00.00	713.90									
712.84		-0.38	-0.0160	24.00	409+00.00	713.22									
712.16		-0.38	-0.0160	24.00	410+00.00	712.54									
711.48		-0.38	-0.0160	24.00	411+00.00	711.86									
710.80		-0.38	-0.0160	24.00	412+00.00	711.18									
710.12		-0.38	-0.0160	24.00	413+00.00	710.50									
709.44		-0.38	-0.0160	24.00	414+00.00	709.82									
709.04		-0.38	-0.0160	24.00	414+59.50	709.42	24.00	-0.0160	-0.38		709.04				
708.76		-0.38	-0.0160	24.00	415+00.00	709.14	24.00	-0.0160	-0.38		708.76				
708.08		-0.38	-0.0160	24.00	416+00.00	708.46	24.00	-0.0160	-0.38		708.08				
707.41		-0.38	-0.0160	24.00	417+00.00	707.79	24.00	-0.0160	-0.38		707.41				
706.73		-0.38	-0.0160	24.00	418+00.00	707.11	24.00	-0.0160	-0.38		706.73				
706.05		-0.38	-0.0160	24.00	419+00.00	706.43	24.00	-0.0160	-0.38		706.05				
705.37		-0.38	-0.0160	24.00	420+00.00	705.75	24.00	-0.0160	-0.38		705.37				
704.74		-0.38	-0.0160	24.00	421+00.00	705.12	24.00	-0.0160	-0.38		704.74				
704.41		-0.38	-0.0160	24.00	422+00.00	704.79	24.00	-0.0160	-0.38		704.41				
704.29		-0.38	-0.0160	24.00	423+00.00	704.67	24.00	-0.0160	-0.38		704.29				
704.18		-0.38	-0.0160	24.00	424+00.00	704.56	24.00	-0.0160	-0.38		704.18				
704.05		-0.38	-0.0160	24.00	425+00.00	704.43	24.00	-0.0160	-0.38		704.05				
703.80		-0.38	-0.0160	24.00	426+00.00	704.18	24.00	-0.0160	-0.38		703.80				
703.55		-0.38	-0.0160	24.00	427+00.00	703.93	24.00	-0.0160	-0.38		703.55				
703.21		-0.38	-0.0160	24.00	428+00.00	703.59	24.00	-0.0160	-0.38		703.21				
702.71		-0.38	-0.0160	24.00	429+00.00	703.09	24.00	-0.0160	-0.38		702.71				
702.30		-0.38	-0.0160	24.00	430+00.00	702.68	24.00	-0.0160	-0.38		702.30				
702.05		-0.38	-0.0160	24.00	431+00.00	702.43	24.00	-0.0160	-0.38		702.05				
701.80		-0.38	-0.0160	24.00	432+00.00	702.18	24.00	-0.0160	-0.38		701.80				
701.55		-0.38	-0.0160	24.00	433+00.00	701.93	24.00	-0.0160	-0.38		701.55				
701.30		-0.38	-0.0160	24.00	434+00.00	701.68	24.00	-0.0160	-0.38		701.30				
701.05		-0.38	-0.0160	24.00	435+00.00	701.43	24.00	-0.0160	-0.38		701.05				
700.93		-0.38	-0.0160	24.00	436+00.00	701.31	24.00	-0.0160	-0.38		700.93				
701.05		-0.38	-0.0160	24.00	437+00.00	701.43	24.00	-0.0160	-0.38		701.05				
701.30		-0.38	-0.0160	24.00	438+00.00	701.68	24.00	-0.0160	-0.38		701.30				
701.55		-0.38	-0.0160	24.00	439+00.00	701.93	24.00	-0.0160	-0.38		701.55				
701.80		-0.38	-0.0160	24.00	440+00.00	702.18	24.00	-0.0160	-0.38		701.80				

SUPERELEVATION TABLE												
P.I. STA. 492+04.74					Dc = 0°30'00"							
LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
702.05		-0.38	-0.0160	24.00	441+00.00	702.43	24.00	-0.0160	-0.38		702.05	
702.30		-0.38	-0.0160	24.00	442+00.00	702.68	24.00	-0.0160	-0.38		702.30	
702.55		-0.38	-0.0160	24.00	443+00.00	702.93	24.00	-0.0160	-0.38		702.55	
702.80		-0.38	-0.0160	24.00	444+00.00	703.18	24.00	-0.0160	-0.38		702.80	
703.05		-0.38	-0.0160	24.00	445+00.00	703.43	24.00	-0.0160	-0.38		703.05	
703.30		-0.38	-0.0160	24.00	446+00.00	703.68	24.00	-0.0160	-0.38		703.30	
703.55		-0.38	-0.0160	24.00	447+00.00	703.93	24.00	-0.0160	-0.38		703.55	
703.80		-0.38	-0.0160	24.00	448+00.00	704.18	24.00	-0.0160	-0.38		703.80	
704.05		-0.38	-0.0160	24.00	449+00.00	704.43	24.00	-0.0160	-0.38		704.05	
704.30		-0.38	-0.0160	24.00	450+00.00	704.68	24.00	-0.0160	-0.38		704.30	
704.55		-0.38	-0.0160	24.00	451+00.00	704.93	24.00	-0.0160	-0.38		704.55	
704.80		-0.38	-0.0160	24.00	452+00.00	705.18	24.00	-0.0160	-0.38		704.80	
704.99		-0.38	-0.0160	24.00	453+00.00	705.37	24.00	-0.0160	-0.38		704.99	
705.05		-0.38	-0.0160	24.00	454+00.00	705.43	24.00	-0.0160	-0.38		705.05	
704.99		-0.38	-0.0160	24.00	455+00.00	705.37	24.00	-0.0160	-0.38		704.99	
704.80		-0.38	-0.0160	24.00	456+00.00	705.18	24.00	-0.0160	-0.38		704.80	
704.55		-0.38	-0.0160	24.00	457+00.00	704.93	24.00	-0.0160	-0.38		704.55	
704.30		-0.38	-0.0160	24.00	458+00.00	704.68	24.00	-0.0160	-0.38		704.30	
704.22		-0.38	-0.0160	24.00	458+32.56	704.60	24.00	-0.0160	-0.38		704.22	NC
704.05		-0.38	-0.0160	24.00	459+00.00	704.43	24.00	-0.0048	-0.12		704.05	
703.98		-0.38	-0.0160	24.00	459+28.56	704.36	24.00	0.0000	0.00		703.98	1/2 FLAT
703.80		-0.38	-0.0160	24.00	460+00.00	704.18	24.00	0.0119	0.29		703.80	
703.74		-0.38	-0.0160	24.00	460+24.56	704.12	24.00	0.0160	0.38		703.74	
703.63		-0.43	-0.0180	24.00	460+48.68	704.06	24.00	0.0180	0.43		703.63	
703.57		-0.46	-0.0190	24.00	460+60.56	704.03	24.00	0.0190	0.46		703.57	
703.47		-0.46	-0.0190	24.00	461+00.00	703.93	24.00	0.0190	0.46		703.47	
703.35		-0.46	-0.0190	24.00	462+00.00	703.81	24.00	0.0190	0.46		703.35	
703.47		-0.46	-0.0190	24.00	463+00.00	703.93	24.00	0.0190	0.46		703.47	
703.72		-0.46	-0.0190	24.00	464+00.00	704.18	24.00	0.0190	0.46		703.72	
703.97		-0.46	-0.0190	24.00	465+00.00							

SUPERELEVATION TABLE

P.I. STA. 499+41.71

$D_c = 0^\circ 29' 52''$

LEFT SIDE				CENTERLINE CONTROL		RIGHT SIDE				REMARKS	
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION		TRANSITION RATE
713.82		-0.46	-0.0190	24.00	497+00.00	714.28	12.00	0.0190	0.23		714.51
713.95		-0.46	-0.0190	24.00	497+87.39	714.41	12.00	0.0190	0.23		714.64
713.97		-0.46	-0.0190	24.00	498+00.00	714.43	12.00	0.0190	0.23		714.66
714.12		-0.46	-0.0190	24.00	499+00.00	714.58	12.00	0.0190	0.23		714.81
714.27		-0.46	-0.0190	24.00	500+00.00	714.73	12.00	0.0190	0.23		714.96
714.40	↕ 250:1	-0.46	-0.0190	24.00	500+81.60	714.86	12.00	0.0190	0.23	↕ 250:1	715.09
714.46		-0.42	-0.0174	24.00	500+96.00	714.88	12.00	0.0174	0.21		715.09

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SUPERELEVATION TABLE

LEFT SIDE				CENTERLINE CONTROL		RIGHT SIDE				REMARKS	
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION		TRANSITION RATE

BU-4/5 Roadway/Drainage Approved for Construction

SUPERELEVATION TABLE	I.R. 270 EASTBOUND	<div style="text-align: right;"> <small>CALCULATED JDC CHECKED RJM</small> </div>
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SUPERELEVATION TABLE

P.I. STA. 473+28.39

Dc = 0°30'06"

Table with 12 columns: LEFT SIDE (EDGE ELEVATION, TRANSITION RATE, ELEVATION CORRECTION, CROSS SLOPE, WIDTH), CENTERLINE CONTROL (STATION, PROFILE GRADE), RIGHT SIDE (WIDTH, CROSS SLOPE, ELEVATION CORRECTION, TRANSITION RATE, EDGE ELEVATION), and REMARKS. Includes data for stations 383+48.67 to 440+00.00.

SUPERELEVATION TABLE

P.I. STA. 491+83.91

Dc = 0°29'51"

Table with 12 columns: LEFT SIDE (EDGE ELEVATION, TRANSITION RATE, ELEVATION CORRECTION, CROSS SLOPE, WIDTH), CENTERLINE CONTROL (STATION, PROFILE GRADE), RIGHT SIDE (WIDTH, CROSS SLOPE, ELEVATION CORRECTION, TRANSITION RATE, EDGE ELEVATION), and REMARKS. Includes data for stations 702.05 to 714.82.

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CALCULATED JDC CHECKED RJM

BU-4/5 Roadway/Drainage Approved for Construction

SUPERELEVATION TABLE I.R. 270 WESTBOUND

FRA - 270-52.72

SUPERELEVATION TABLE

P.I. STA. 499+13.85

Dc = 0°30'43"

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
715.18		-0.23	-0.0190	12.00	497+00.00	715.41	12.66	0.0190	0.24		715.65	
715.35		-0.23	-0.0190	12.00	497+63.82	715.58	12.15	0.0190	0.23		715.81	PCC
715.44		-0.23	-0.0190	12.00	498+00.00	715.67	12.00	0.0190	0.23		715.90	
715.71		-0.23	-0.0190	12.00	499+00.00	715.94	12.00	0.0190	0.23		716.17	
715.97		-0.23	-0.0190	12.00	500+00.00	716.20	12.00	0.0190	0.23		716.43	
716.05	250:1	-0.23	-0.0190	12.00	500+29.66	716.28	12.00	0.0190	0.23	250:1	716.51	END FS
716.29		-0.16	-0.0133	12.00	500+63.86	716.45	12.00	0.0142	0.17		716.62	PT/EXIST.

SUPERELEVATION TABLE

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	

BU-4/5 Roadway/Drainage Approved for Construction

SUPERELEVATION TABLE
I.R. 270 WESTBOUND

FRA - 270-52.72

CALCULATED	JDC	CHECKED	RJM

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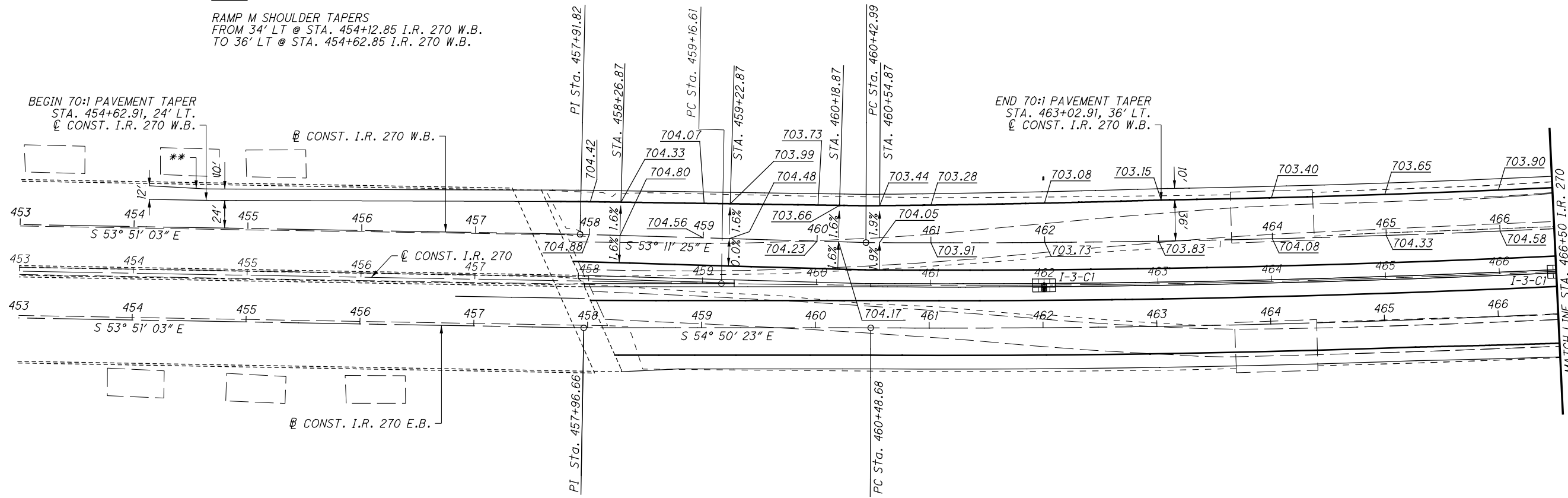
NOTE:
MATCH LINE STATIONING BASED
ON \bar{C} CONSTRUCTION I.R. 270



0 50 100
25
HORIZONTAL
SCALE IN FEET

CALCULATED
JDC
CHECKED
RJM

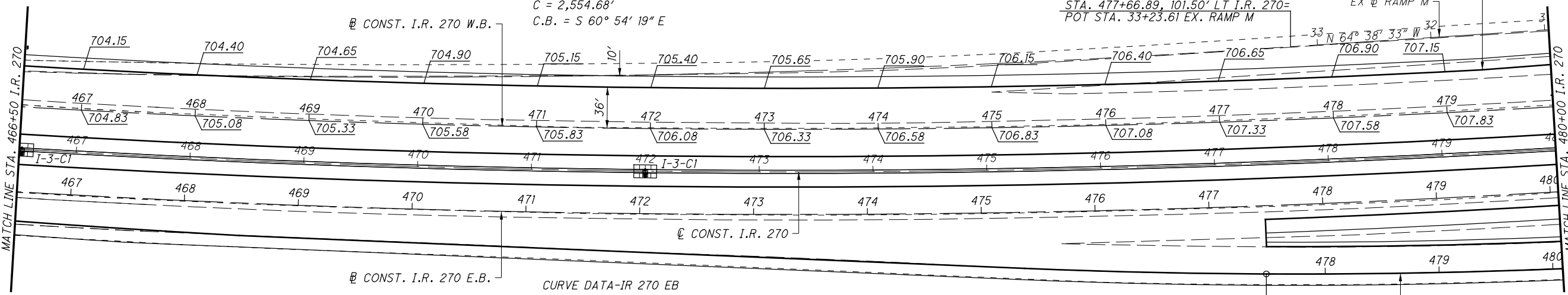
** NOTE:
RAMP M SHOULDER TAPERS
FROM 34' LT @ STA. 454+12.85 I.R. 270 W.B.
TO 36' LT @ STA. 454+62.85 I.R. 270 W.B.



CURVE DATA-IR 270 WB
P.I. Sta. 473+28.39
 $\Delta = 12^\circ 50' 32''$ (LT)
 $D_c = 0^\circ 30' 06''$
 $R = 11,421.75'$
 $T = 1,285.40'$
 $L = 2,560.04'$
 $E = 72.10'$
 $C = 2,554.68'$
 $C.B. = S 60^\circ 54' 19'' E$

BEGIN 50:1 TAPER
STA. 479+34.69, 12' LT. I.R. 270 W.B.

STA. 477+66.89, 101.50' LT I.R. 270 =
POT STA. 33+23.61 EX. RAMP M



CURVE DATA-IR 270 EB
P.I. Sta. 473+40.27
 $\Delta = 12^\circ 49' 12''$ (LT)
 $D_c = 0^\circ 29' 54''$
 $R = 11,496.56'$
 $T = 1,291.59'$
 $L = 2,572.39'$
 $E = 72.32'$
 $C = 2,567.03'$
 $C.B. = S 60^\circ 55' 04'' E$

BU-4/5 Roadway/Drainage Approved for Construction

INTERCHANGE DETAIL - RAMP M
STA. 453+00.00 TO STA. 480+00.00

FRA - 270 - 52.72

64
114

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CURVE DATA - EX. RAMP M
P.I. Sta. 28+64.44
 $\Delta = 4^\circ 44' 08''$ (RT)
 $Dc = 1^\circ 30' 00''$
 $R = 3,819.72'$
 $T = 157.94'$
 $L = 315.70'$
 $E = 3.26'$
 $C = 315.61'$
C.B. = N $66^\circ 59' 44''$ W

CURVE DATA - EX. RAMP M
P.I. Sta. 22+57.21
 $\Delta = 24^\circ 17' 04''$ (RT)
 $Dc = 6^\circ 00' 00''$
 $R = 954.93'$
 $T = 205.45'$
 $L = 404.74'$
 $E = 21.85'$
 $C = 401.72'$
C.B. = S $89^\circ 07' 10''$ W

CURVE DATA - RAMP M
P.I. STA. 485+24.37
 $Ls = 200.00'$
 $f_s = 7^\circ 45' 00''$
 $LT = 133.46'$
 $x = 199.63'$
 $y = 9.01'$
 $k = 99.94'$
 $p = 2.25'$

CURVE DATA - RAMP M
 $\Delta = 40^\circ 07' 27''$ (LT)
 $Dc = 7^\circ 45' 00''$
 $R = 739.30'$
 $\Delta c = 32^\circ 22' 27''$ (LT)
 $Lc = 417.73'$
 $Es = 48.96'$
 $C = 412.20'$
C.B.1 = S $69^\circ 57' 01''$ E
C.B. = N $88^\circ 41' 44''$ E

EQUATION:
 CONST. RAMP M
STA. 491+42.62 =
EX. RAMP M
STA. 19+77.27
(MATCH EXISTING)

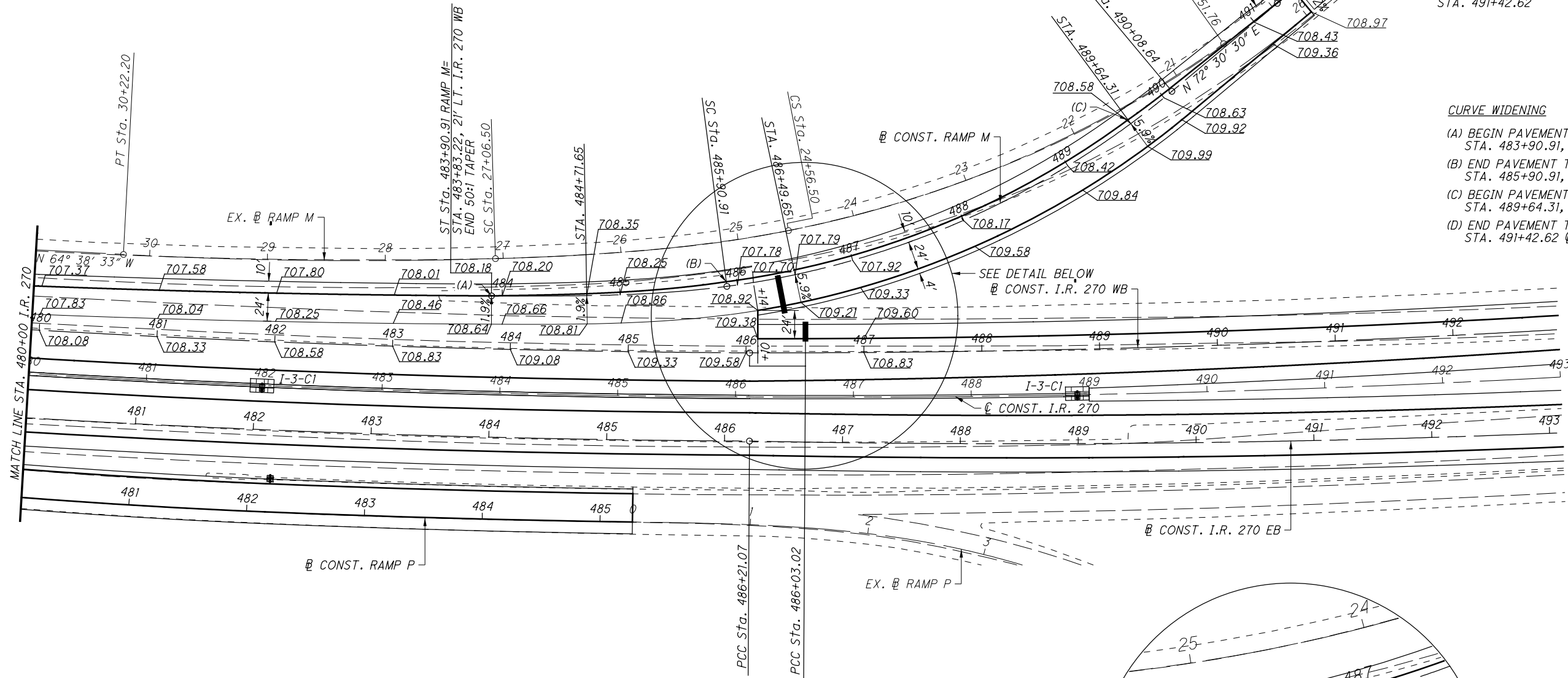
NOTE:
MATCH LINE STATIONING BASED
ON $\text{CONSTRUCTION I.R. 270}$



**NOTE:
SHOULDER TAPERS
FROM 10' LT. @
STA. 490+92.66
TO 8' LT. @
STA. 491+42.62

CURVE WIDENING

- (A) BEGIN PAVEMENT TAPER
STA. 483+90.91, RAMP M
- (B) END PAVEMENT TAPER
STA. 485+90.91, 4.0' LT RAMP M
- (C) BEGIN PAVEMENT TAPER
STA. 489+64.31, 4.0' LT RAMP M
- (D) END PAVEMENT TAPER
STA. 491+42.62 RAMP M



CURVE DATA-IR 270 WB
P.I. Sta. 491+83.91
 $\Delta = 5^\circ 46' 27''$ (LT)
 $Dc = 0^\circ 29' 51''$
 $R = 11,518.57'$
 $T = 580.89'$
 $L = 1,160.80'$
 $E = 14.64'$
 $C = 1,160.31'$
C.B. = S $70^\circ 27' 59''$ E

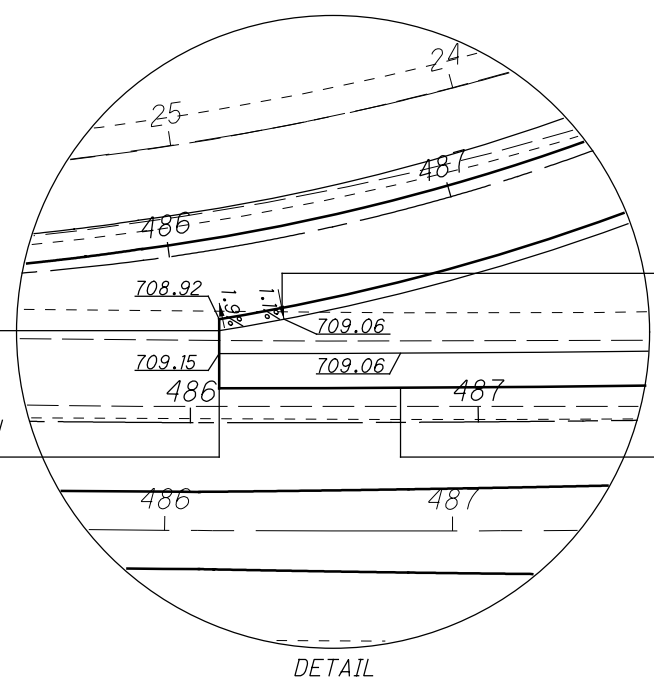
CURVE DATA-IR 270 EB
P.I. Sta. 492+04.74
 $\Delta = 5^\circ 49' 54''$ (LT)
 $Dc = 0^\circ 30' 00''$
 $R = 11,459.16'$
 $T = 583.67'$
 $L = 1,166.32'$
 $E = 14.85'$
 $C = 1,165.82'$
C.B. = S $69^\circ 25' 02''$ E

BEGIN SHLDR. SLOPE TRANSITION
STA. 486+13.60, RAMP M
709.00, 1.90%

BEGIN SHLDR. SLOPE TRANSITION
STA. 486+10.01, I.R. 270 WB
709.38, 1.90%

END SHLDR. SLOPE TRANSITION
STA. 486+35.80, RAMP M
709.10, 1.1%

END SHLDR. SLOPE TRANSITION
STA. 486+73.01, I.R. 270 WB
709.54, 4.0%



DETAIL

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BU-4/5 Roadway/Drainage Approved for Construction

INTERCHANGE DETAIL - RAMP M
STA. 480+00.00 TO STA. 493+00.00

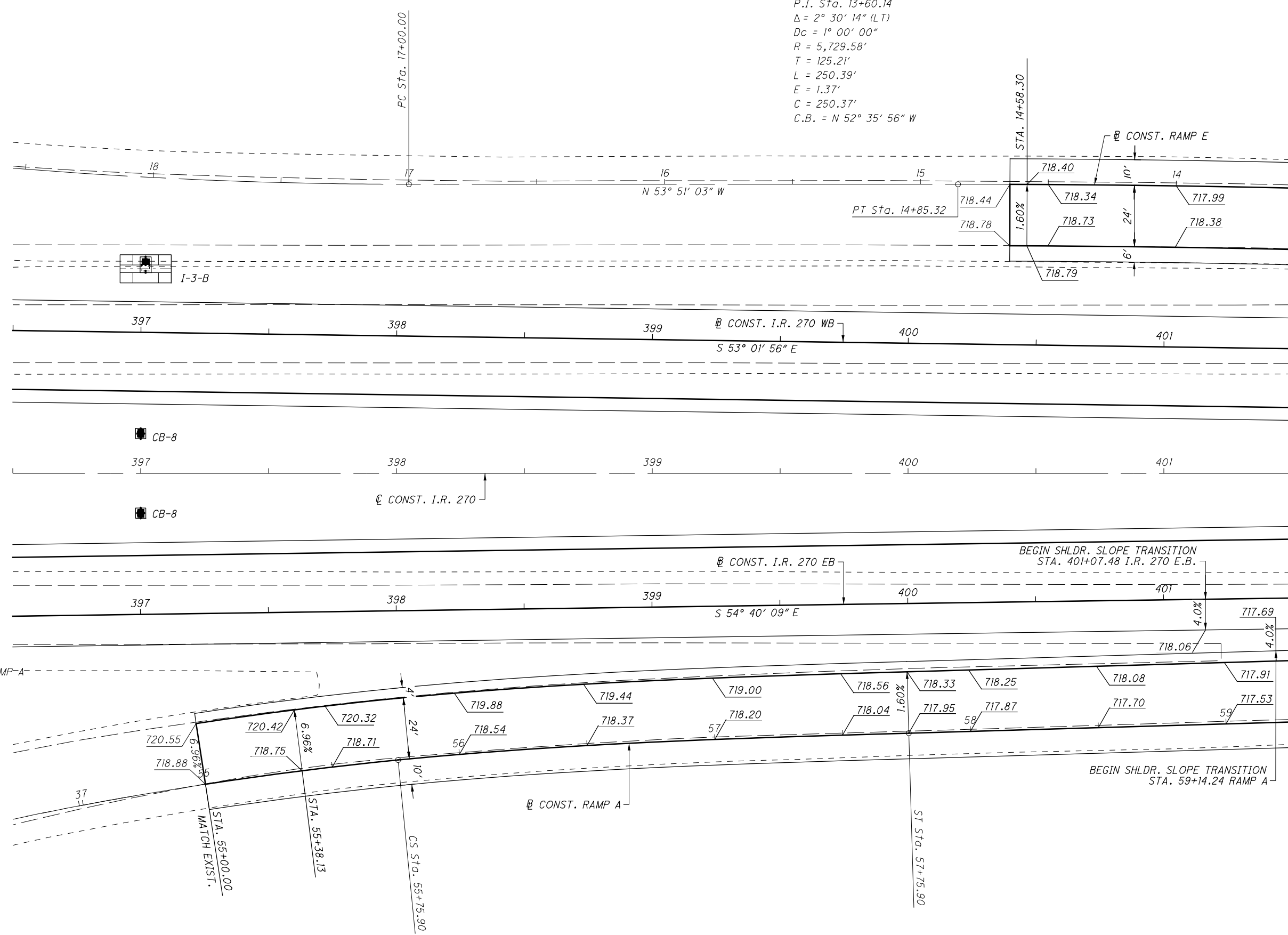
FRA - 270-52.72

NOTE:
MATCH LINE STATIONING BASED
ON \bar{E} CONSTRUCTION I.R. 270

CURVE DATA-EX.RAMP E
P.I. Sta. 13+60.14
 $\Delta = 2^\circ 30' 14''$ (LT)
 $Dc = 1^\circ 00' 00''$
 $R = 5,729.58'$
 $T = 125.21'$
 $L = 250.39'$
 $E = 1.37'$
 $C = 250.37'$
C.B. = N $52^\circ 35' 56''$ W

CALCULATED JDC CHECKED RJM

0 10 20 40
HORIZONTAL SCALE IN FEET



CURVE DATA - EX. RAMP A
P.I. Sta. 53+13.60
 $\Delta = 29^\circ 41' 24''$ (RT)
 $Dc = 4^\circ 00' 00''$
 $R = 1,432.39'$
 $Ls = 200.00'$
 $\theta s = 4^\circ 00' 00''$
 $LT = 133.37'$
 $ST = 66.70'$
 $x = 199.90'$
 $y = 4.65'$
 $k = 99.98'$
 $p = 1.16'$
 $\Delta c = 21^\circ 41' 24''$ (RT)
 $Lc = 542.25'$
 $Ts = 479.95'$
 $E = 50.66'$
 $emax = 0.000$
 $C = 539.01'$
 $C1 = C2 = 199.96'$
C.B.1 = S $83^\circ 52' 43''$ E
C.B. = S $70^\circ 22' 01''$ E
C.B.2 = N $56^\circ 51' 19''$ W

BU-4/5 Roadway/Drainage Approved for Construction

INTERCHANGE DETAILS - RAMPS A & E
STA. 396+50.00 TO STA. 401+50.00

FRA - 270-52.72

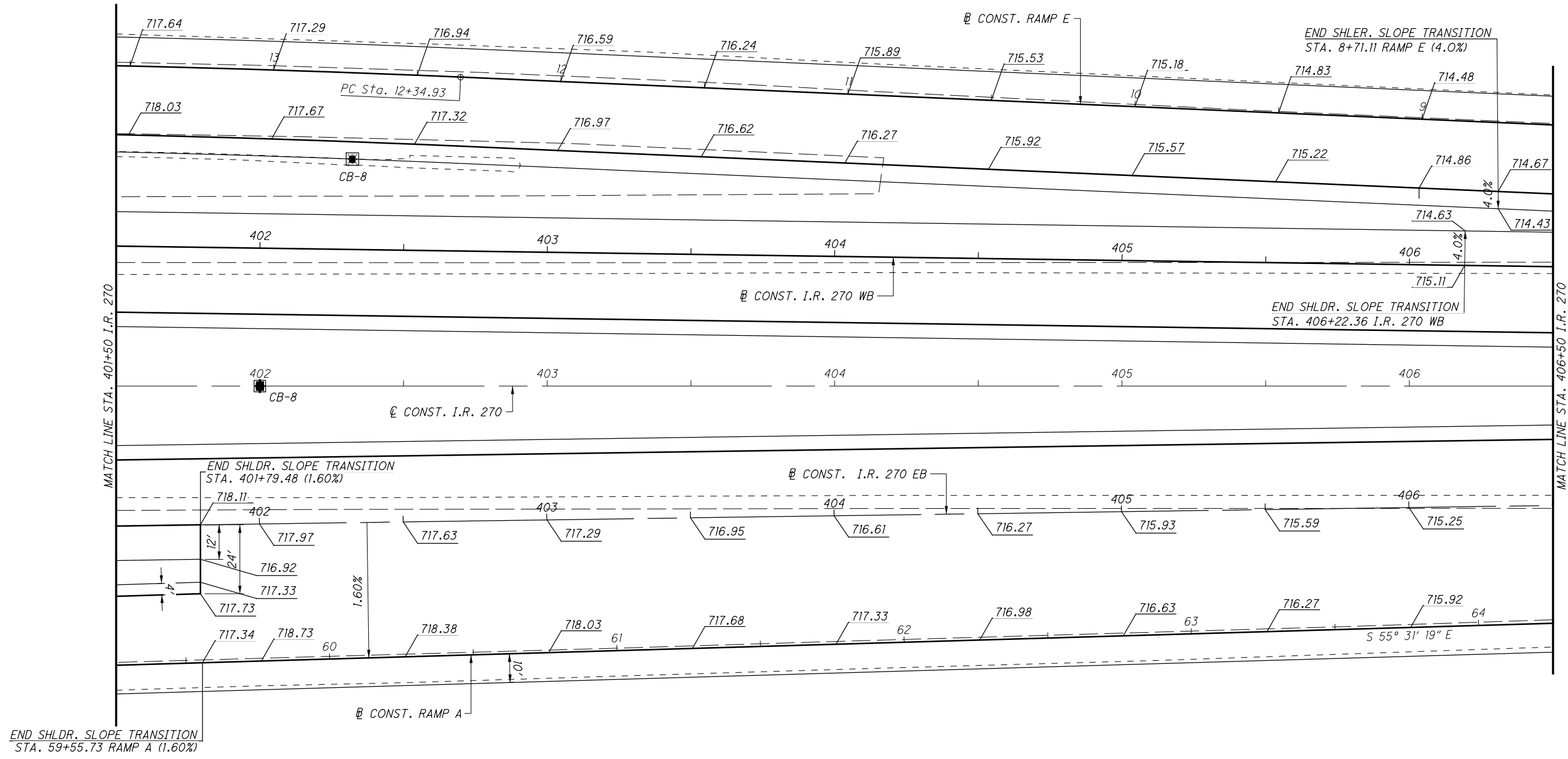
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NOTE:

MATCH LINE STATIONING BASED ON \varnothing CONSTRUCTION I.R. 270



CALCULATED JDC CHECKED RJM



MATCH LINE STA. 401+50 I.R. 270

MATCH LINE STA. 406+50 I.R. 270

BU-4/5 Roadway/Drainage Approved for Construction

INTERCHANGE DETAIL - RAMPS A & E
STA. 401+50.00 TO STA. 406+50.00

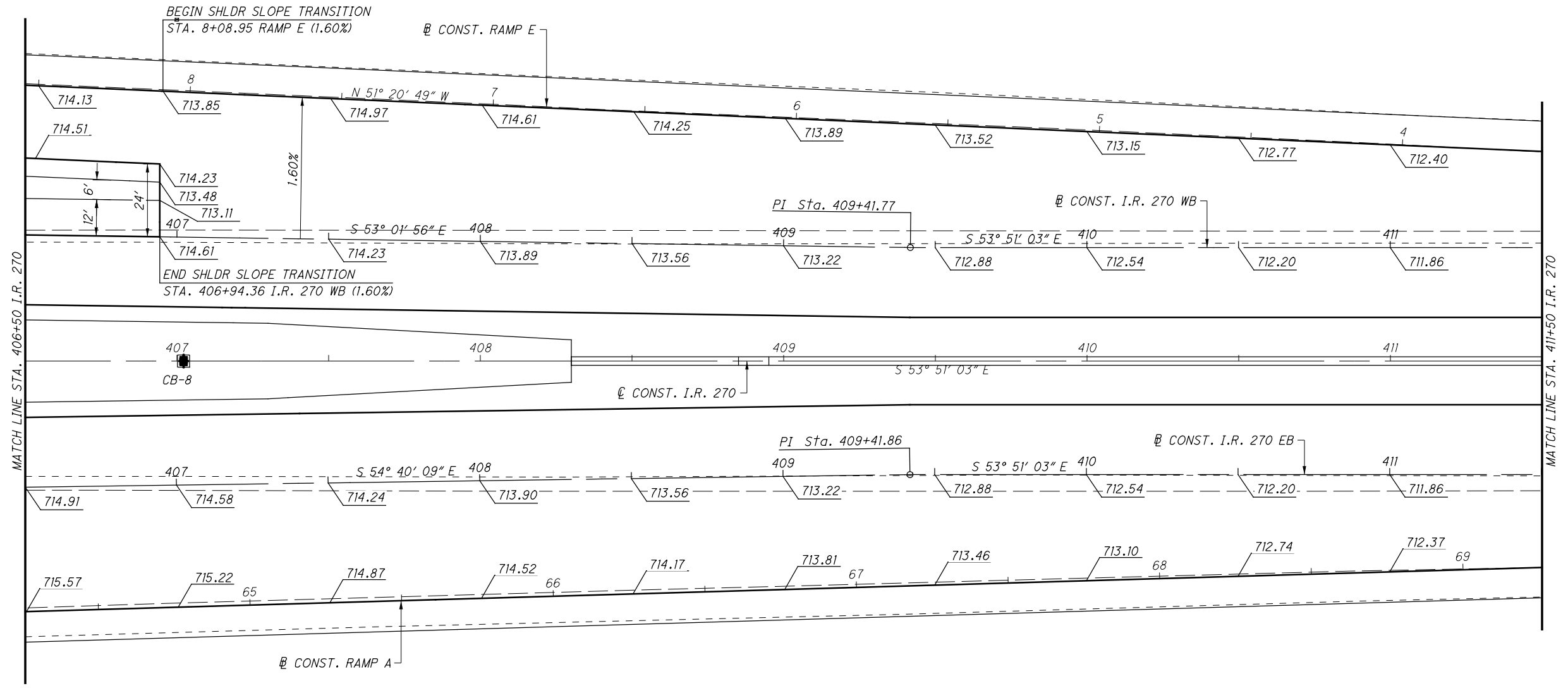
FRA - 270 - 52.72

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NOTE:
MATCH LINE STATIONING BASED
ON \varnothing CONSTRUCTION I.R. 270



CALCULATED
JDC
CHECKED
RJM



BU-4/5 Roadway/Drainage Approved for Construction

INTERCHANGE DETAIL - RAMPS A & E
STA. 406+50.00 TO STA. 411+50.00

FRA - 270 - 52.72

NOTE:

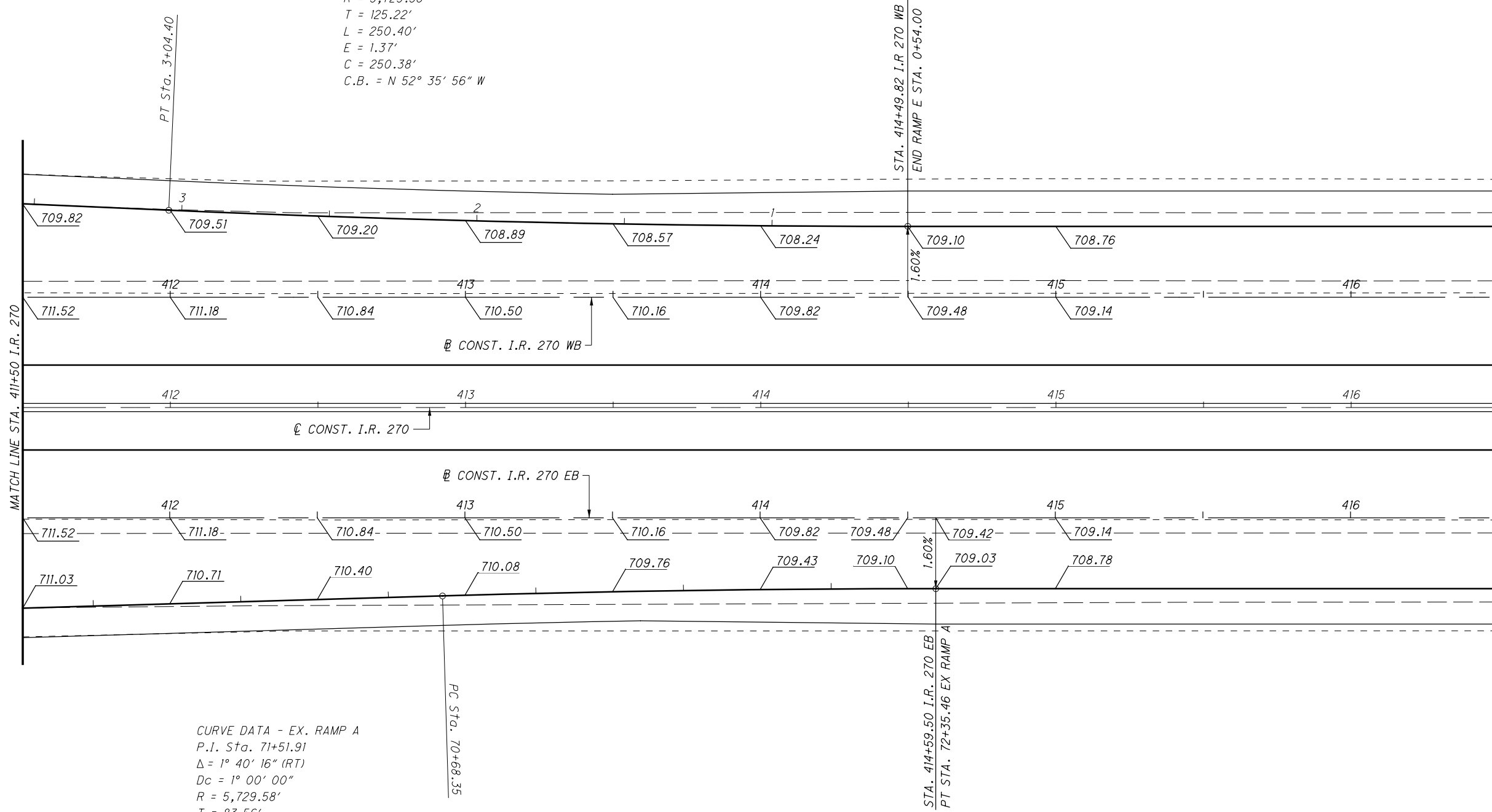
MATCH LINE STATIONING BASED ON \varnothing CONSTRUCTION I.R. 270



CALCULATED JDC CHECKED RJM

CURVE DATA - EX. RAMP E
 P.I. Sta. 1+79.22
 $\Delta = 2^\circ 30' 14''$ (RT)
 $Dc = 1^\circ 00' 00''$
 $R = 5,729.58'$
 $T = 125.22'$
 $L = 250.40'$
 $E = 1.37'$
 $C = 250.38'$
 $C.B. = N 52^\circ 35' 56'' W$

CURVE DATA - EX. RAMP A
 P.I. Sta. 71+51.91
 $\Delta = 1^\circ 40' 16''$ (RT)
 $Dc = 1^\circ 00' 00''$
 $R = 5,729.58'$
 $T = 83.56'$
 $L = 167.11'$
 $E = 0.61'$
 $C = 167.11'$
 $C.B. = S 54^\circ 41' 11'' E$



BU-4/5 Roadway/Drainage Approved for Construction

INTERCHANGE DETAIL - RAMPS A & E
STA. 411+5.00 TO STA. 416+50.00

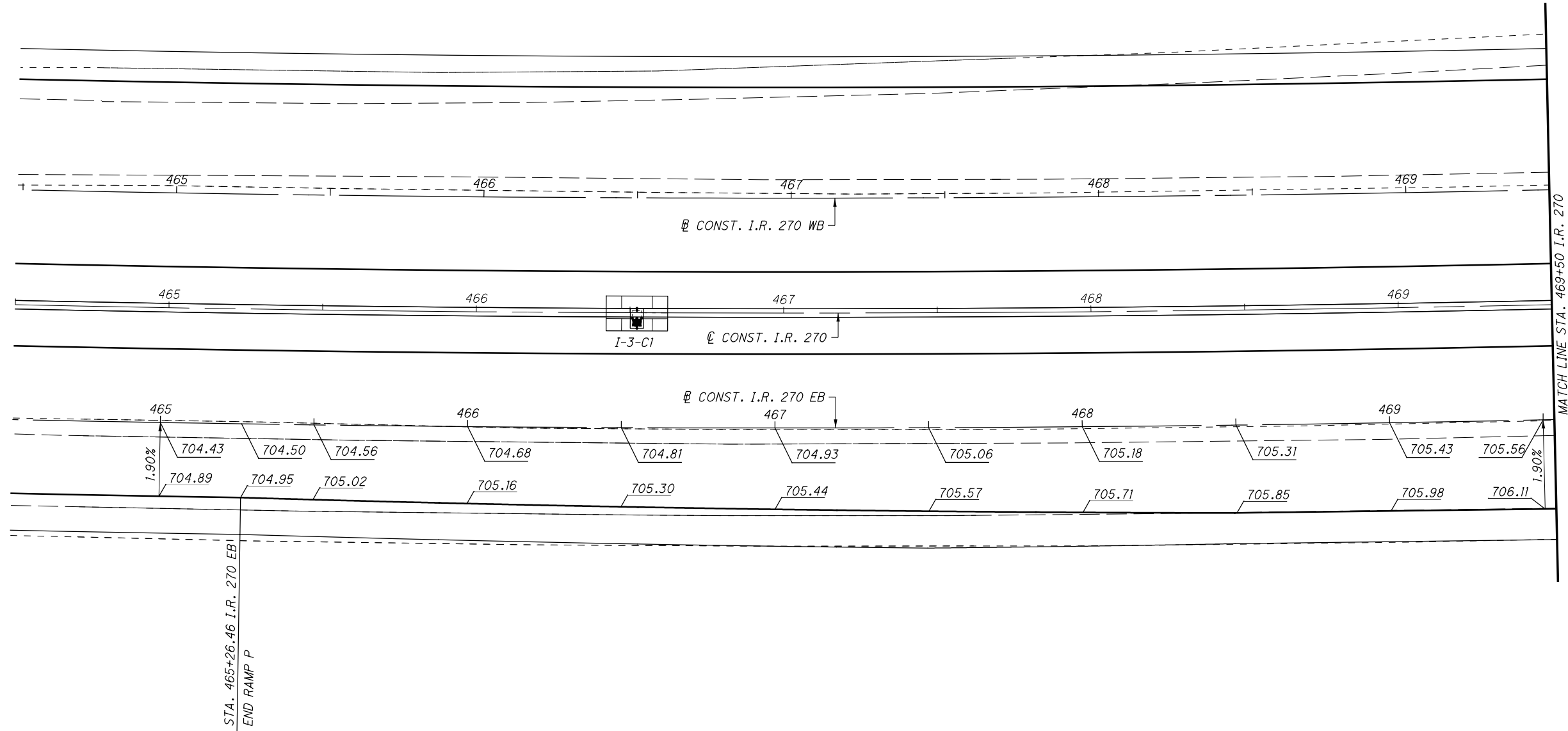
FRA - 270-52.72

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NOTE:
MATCH LINE STATIONING BASED
ON C CONSTRUCTION I.R. 270

CALCULATED	JDC
CHECKED	RJM

0 20 40
HORIZONTAL
SCALE IN FEET



BU-4/5 Roadway/Drainage Approved for Construction

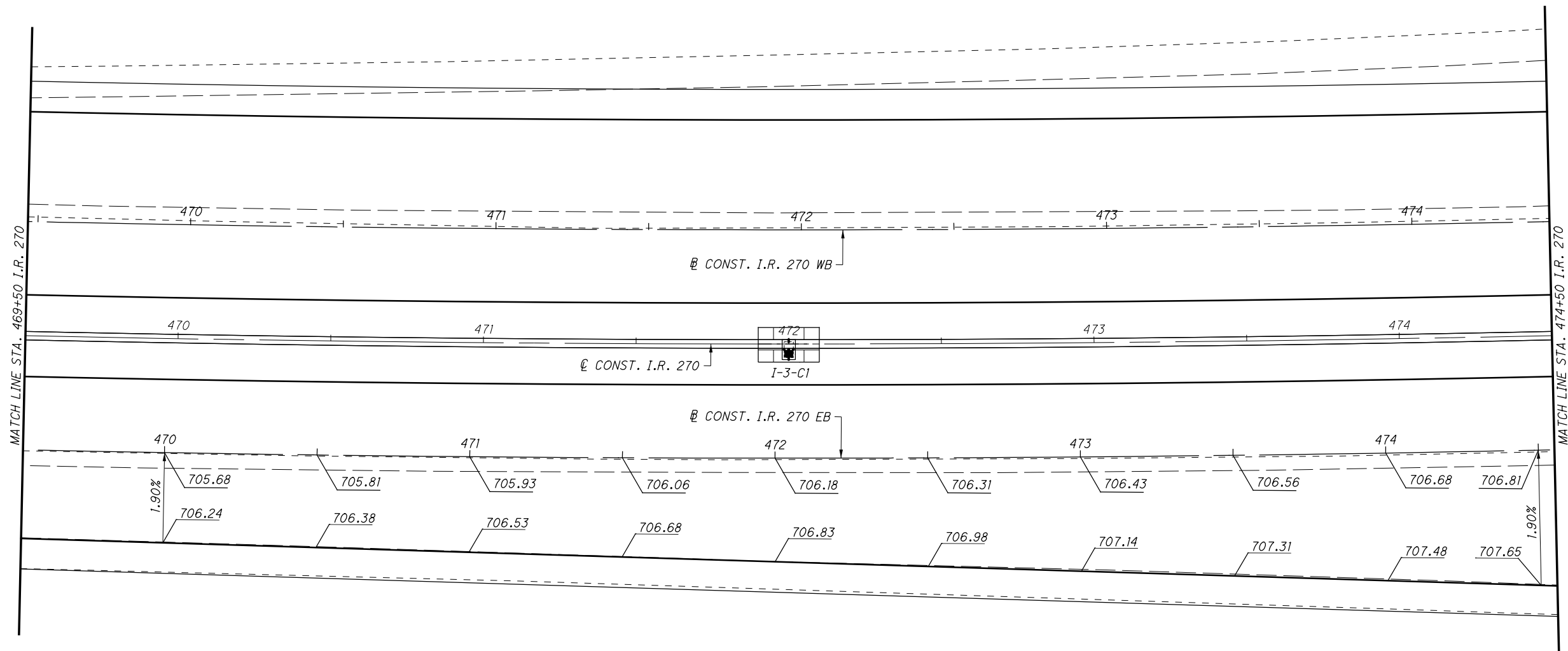
INTERCHANGE DETAIL - RAMP P
STA. 464+50.00 TO STA. 469+50.00

FRA - 270 - 52.72

NOTE:
MATCH LINE STATIONING BASED
ON \varnothing CONSTRUCTION I.R. 270

CALCULATED
JDC
CHECKED
RJM

0 10 20 40
HORIZONTAL
SCALE IN FEET



CURVE DATA - IR 270 EB
P.I. Sta. 473+28.39
 $\Delta = 12^\circ 50' 32''$ (LT)
Dc = $0^\circ 30' 06''$
R = 11,421.75'
T = 1,285.40'
L = 2,560.04'
E = 72.10'
C = 2,554.68'
C.B. = S $60^\circ 54' 19''$ E

CURVE DATA - IR 270 EB
P.I. Sta. 473+40.27
 $\Delta = 12^\circ 49' 12''$ (LT)
Dc = $0^\circ 29' 54''$
R = 11,496.56'
T = 1,291.59'
L = 2,572.39'
E = 72.32'
C = 2,567.03'
C.B. = S $60^\circ 55' 04''$ E

BU-4/5 Roadway/Drainage Approved for Construction

INTERCHANGE DETAIL - RAMP P
STA. 469+50.00 TO STA. 474+50.00

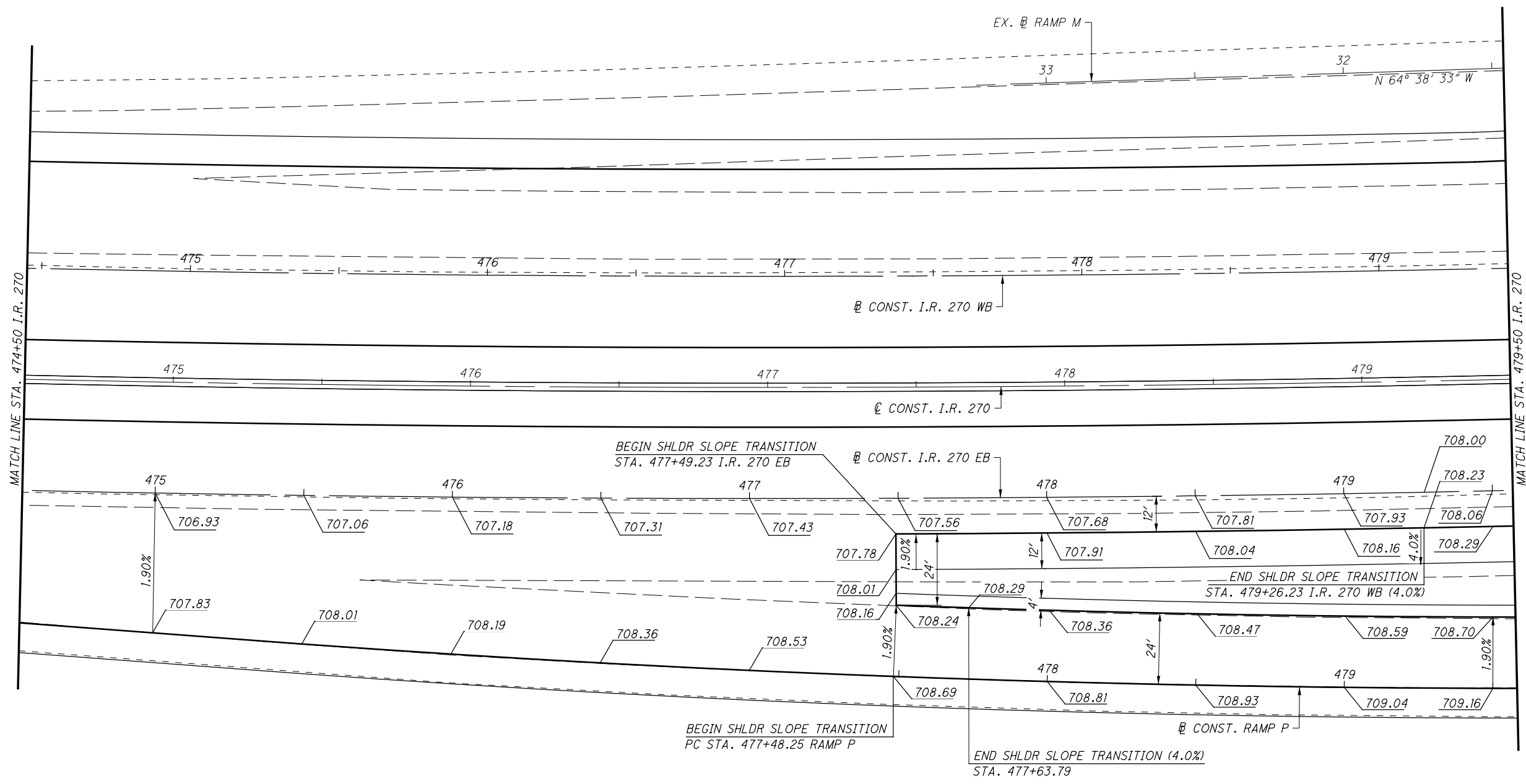
FRA - 270-52.72

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NOTE:
MATCH LINE STATIONING BASED
ON \bar{C} CONSTRUCTION I.R. 270

CALCULATED
JDC
CHECKED
RJM

0 10 20 40
HORIZONTAL
SCALE IN FEET



MATCH LINE STA. 474+50 I.R. 270

MATCH LINE STA. 479+50 I.R. 270

BU-4/5 Roadway/Drainage Approved for Construction

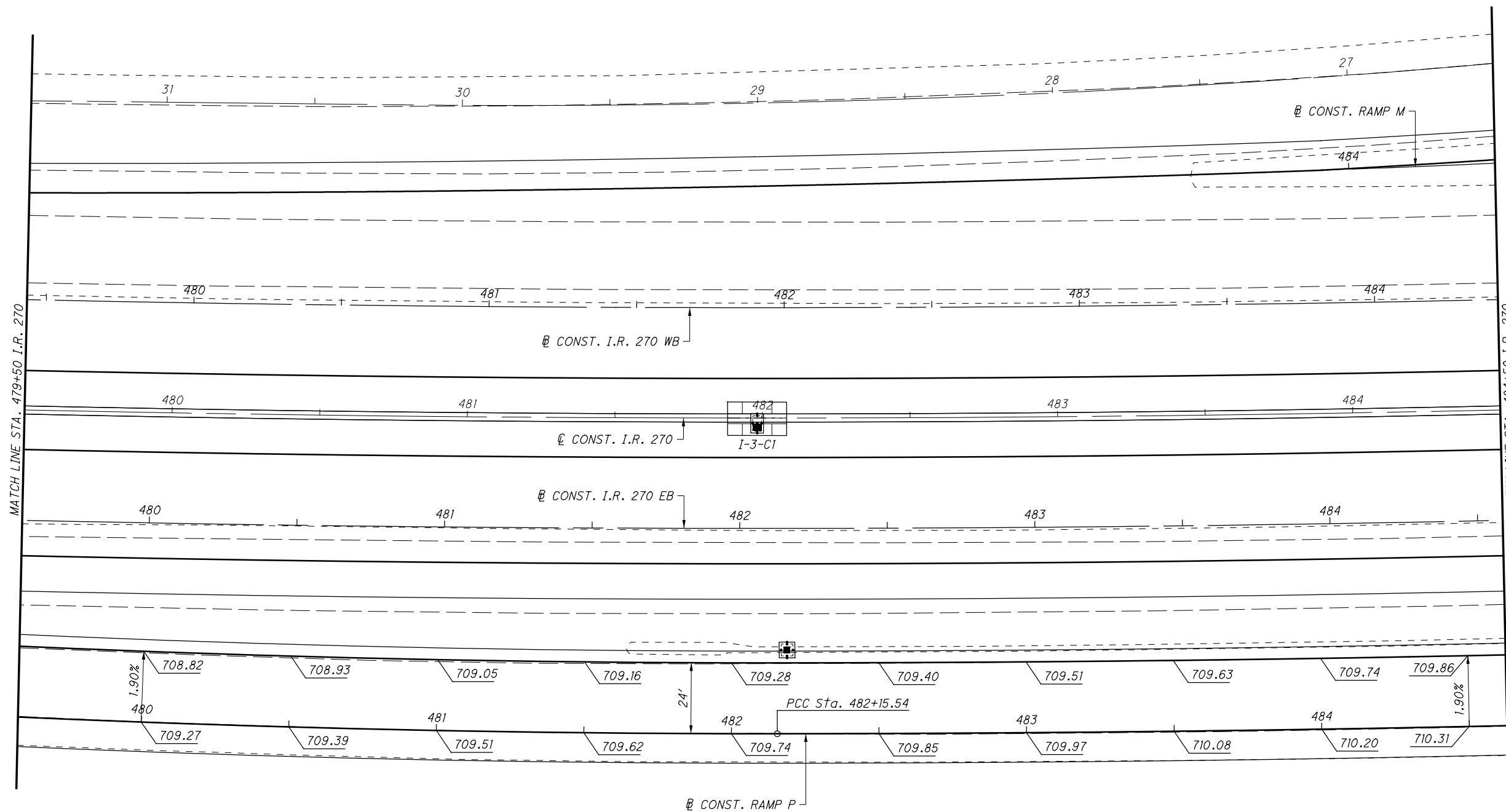
INTERCHANGE DETAIL - RAMP P
STA. 474+50.00 TO STA. 479+50.00

FRA - 270-52.72

NOTE:
MATCH LINE STATIONING BASED
ON \bar{C} CONSTRUCTION I.R. 270

CALCULATED
JDC
CHECKED
RJM

0 10 20 40
HORIZONTAL
SCALE IN FEET

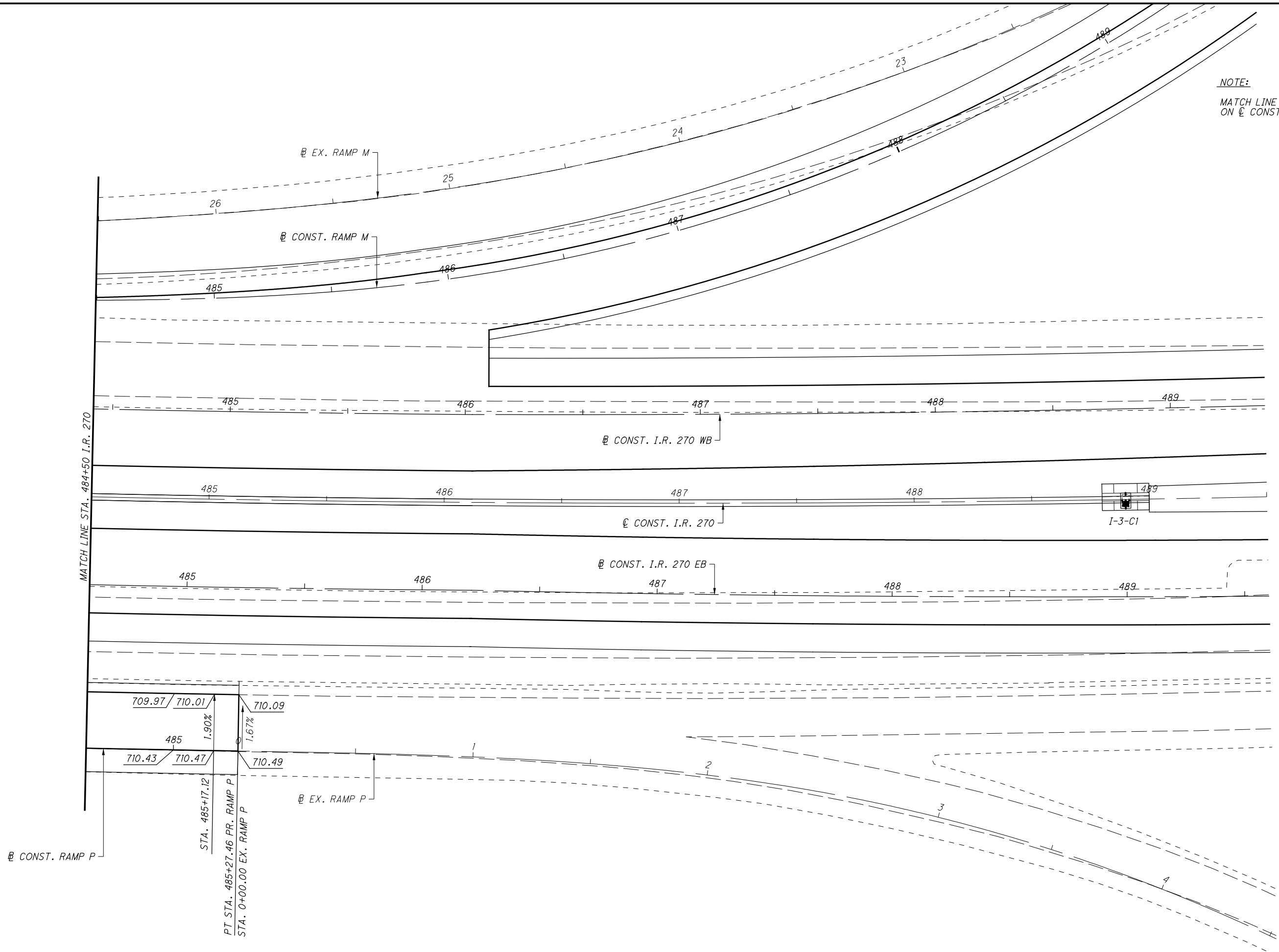


CURVE DATA- PR. RAMP P	CURVE DATA- PR. RAMP P
P.I. Sta. 479+82.03	P.I. Sta. 483+71.51
$\Delta = 4^\circ 40' 23''$ (LT)	$\Delta = 1^\circ 32' 42''$ (LT)
$Dc = 1^\circ 00' 00''$	$Dc = 0^\circ 29' 43''$
$R = 5,729.58'$	$R = 11,567.16'$
$T = 233.78'$	$T = 155.97'$
$L = 467.29'$	$L = 311.91'$
$E = 4.77'$	$E = 1.05'$
$C = 467.16'$	$C = 311.90'$
C.B. = S $62^\circ 57' 23''$ E	C.B. = S $66^\circ 03' 55''$ E

BU-4/5 Roadway/Drainage Approved for Construction

INTERCHANGE DETAIL - RAMP P
STA. 479+50.00 TO STA. 484+50.00

FRA - 270-52.72



NOTE:
MATCH LINE STATIONING BASED ON \bar{E} CONSTRUCTION I.R. 270

CALCULATED JDC
CHECKED RJM

0 20 40
HORIZONTAL SCALE IN FEET

BU-4/5 Roadway/Drainage Approved for Construction

INTERCHANGE DETAIL - RAMP P
STA. 484+50.00 TO STA. 489+50.00

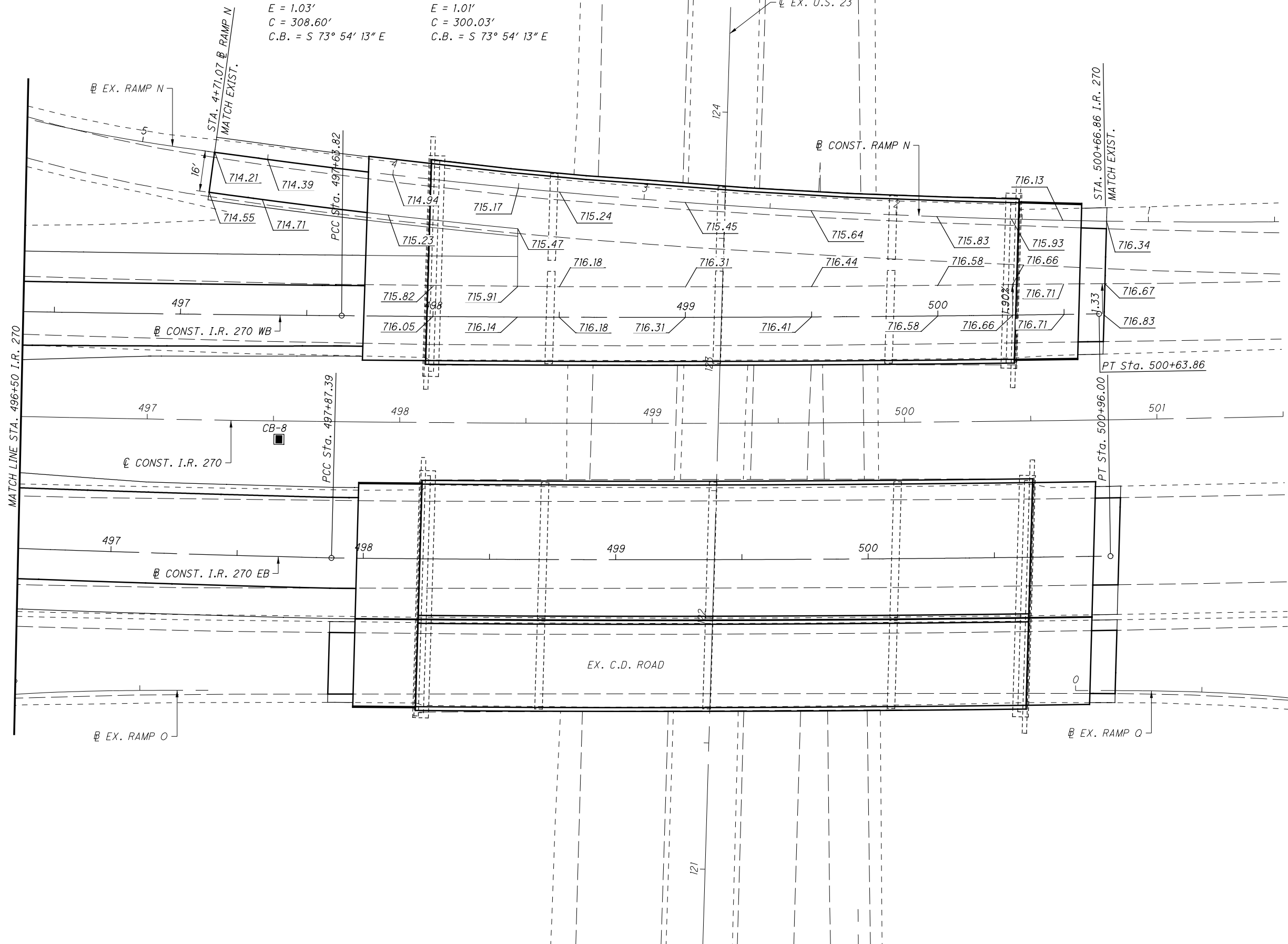
FRA - 270-52.72

CURVE DATA - IR 270 EB	CURVE DATA - IR 270 WB
P.I. Sta. 499+41.71	P.I. Sta. 499+13.85
$\Delta = 1^\circ 32' 09''$ (LT)	$\Delta = 1^\circ 32' 09''$ (LT)
$Dc = 0^\circ 29' 52''$	$Dc = 0^\circ 30' 43''$
$R = 11,513.16'$	$R = 11,193.53'$
$T = 154.31'$	$T = 150.03'$
$L = 308.61'$	$L = 300.04'$
$E = 1.03'$	$E = 1.01'$
$C = 308.60'$	$C = 300.03'$
$C.B. = S 73^\circ 54' 13'' E$	$C.B. = S 73^\circ 54' 13'' E$

NOTE:
MATCH LINE STATIONING BASED
ON \hat{C} CONSTRUCTION I.R. 270

CALCULATED
JDC
CHECKED
RJM

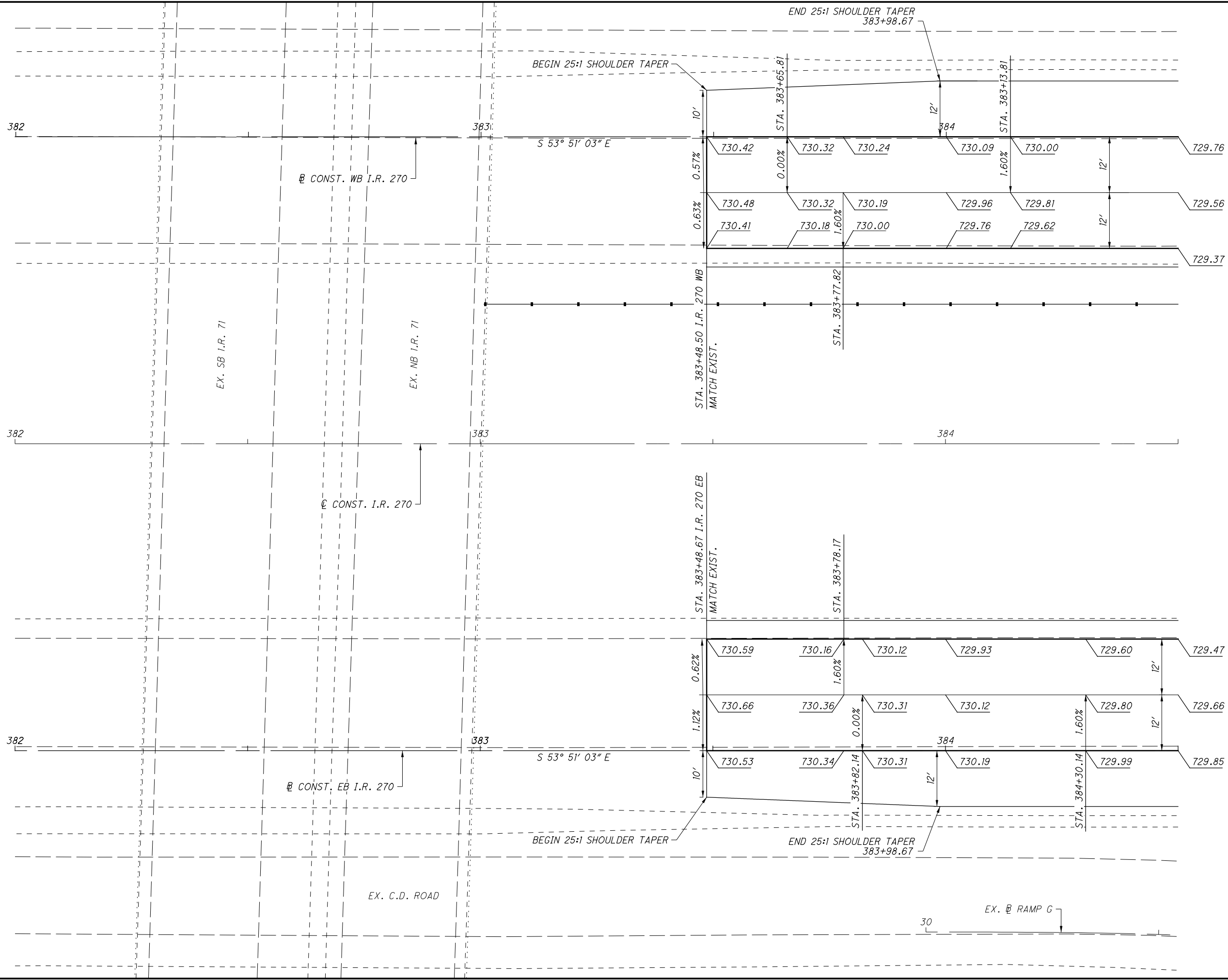
0 20 40
HORIZONTAL
SCALE IN FEET



BU-4/5 Roadway/Drainage Approved for Construction

INTERCHANGE DETAIL - RAMP N
STA. 496+50.00 TO STA. 501+50.00

FRA - 270-52.72



CALCULATED	JDC
CHECKED	RJM

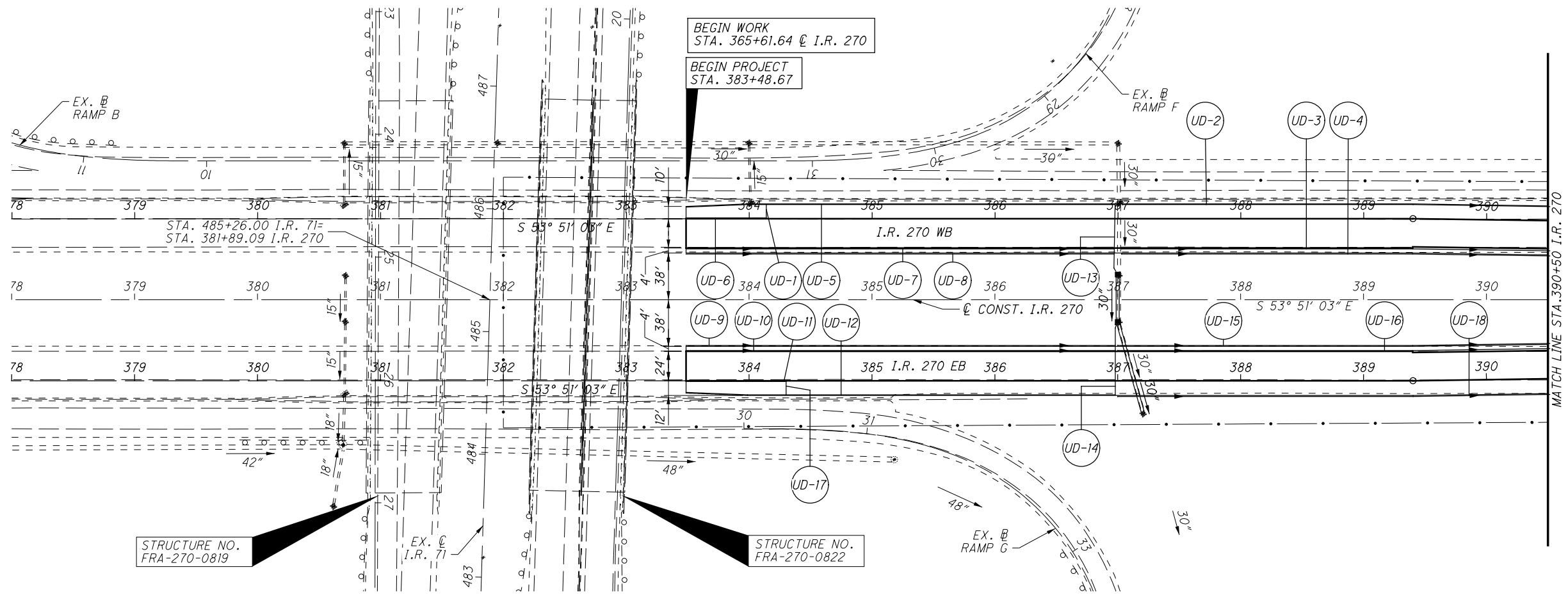
BU-4/5 Roadway/Drainage Approved for Construction
PAVEMENT DETAIL - BEGINNING OF PROJECT
WESTBOUND AND EASTBOUND I.R. 270

FRA - 270 - 52.72

NOTE:
1. SEE SHEET 20 FOR LEGEND
2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES

CALCULATED	VLC
CHECKED	RJM

0 50 100
25
HORIZONTAL SCALE IN FEET



BU-4/5 Roadway/Drainage Approved for Construction

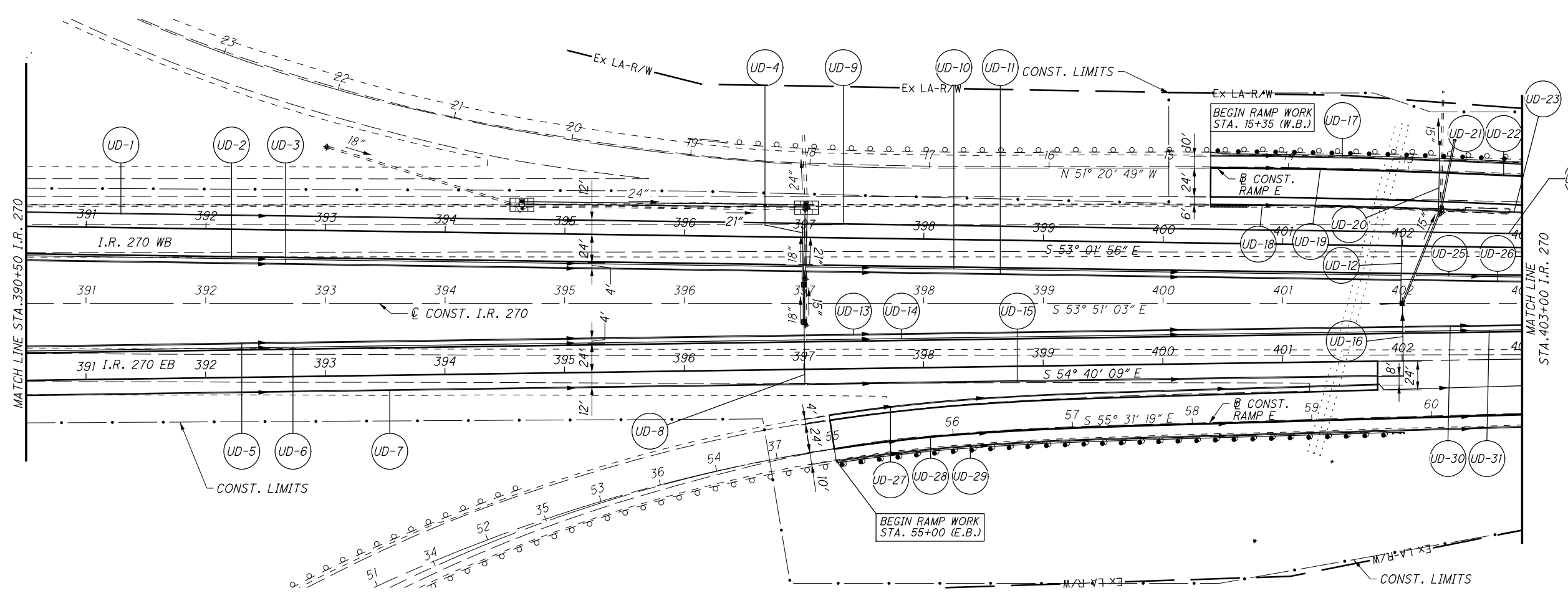
PLAN - UNDERDRAINS
BEGIN TO STA. 390+50

FRA - 270 - 52.72

NOTE:
1. SEE SHEET 20 FOR LEGEND
2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES

CALCULATED	VLC
CHECKED	RJM

0 50 100
25
HORIZONTAL SCALE IN FEET



BU-4/5 Roadway/Drainage Approved for Construction

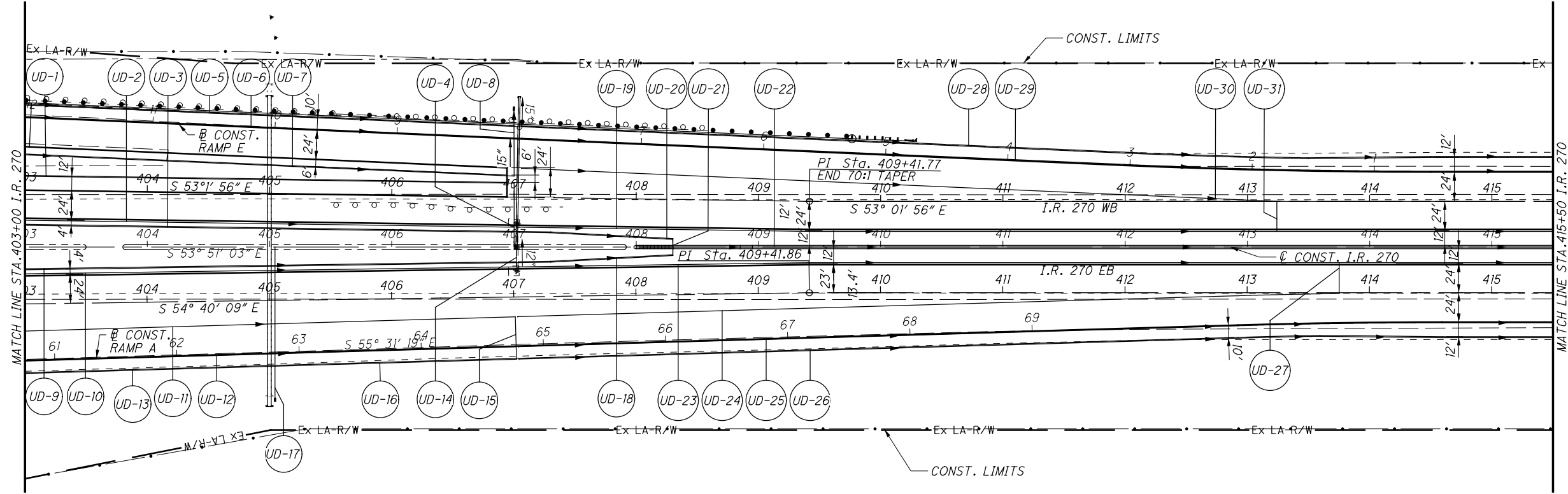
PLAN - UNDERDRAINS
STA. 390+50 TO STA. 403+00

FRA - 270-52.72

NOTE:
1. SEE SHEET 20 FOR LEGEND
2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES

CALCULATED	VLC
CHECKED	RJM

0 50 100
HORIZONTAL SCALE IN FEET



BU-4/5 Roadway/Drainage Approved for Construction

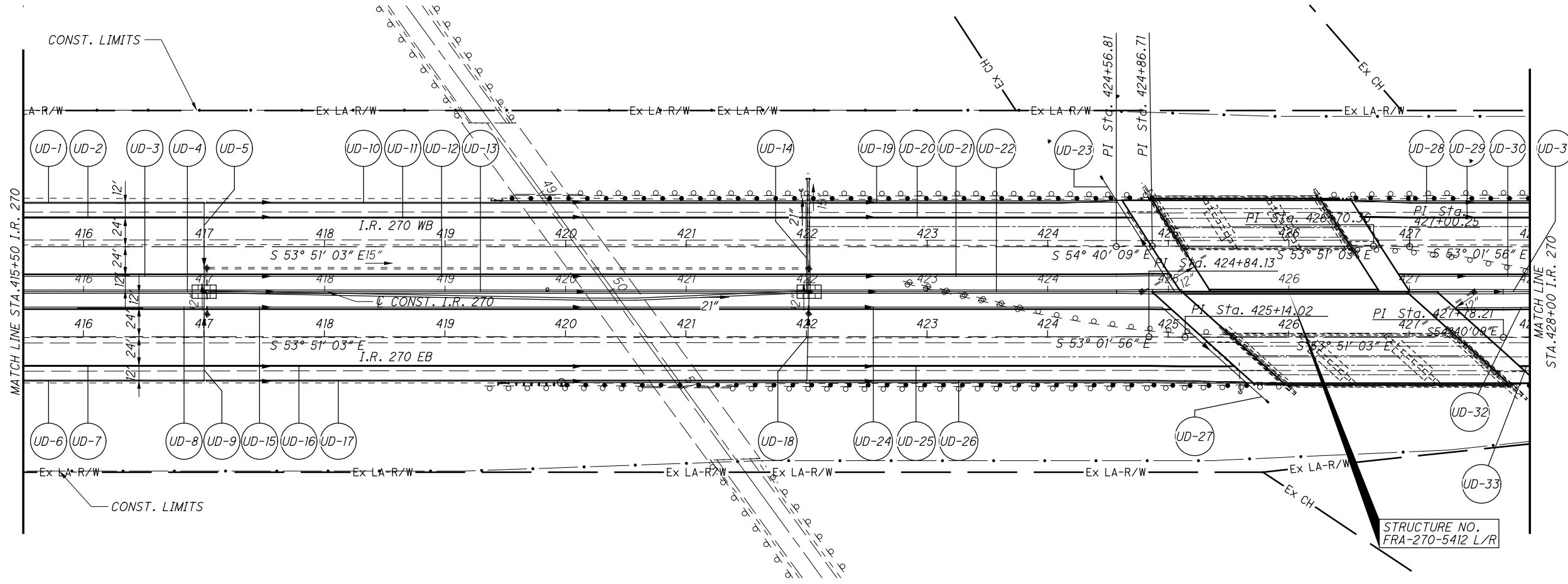
PLAN - UNDERDRAINS
STA. 403+00 TO STA. 415+50

FRA - 270-52.72

NOTE:
 1. SEE SHEET 20 FOR LEGEND
 2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES



CALCULATED
 VLC
 CHECKED
 RJM



BU-4/5 Roadway/Drainage Approved for Construction

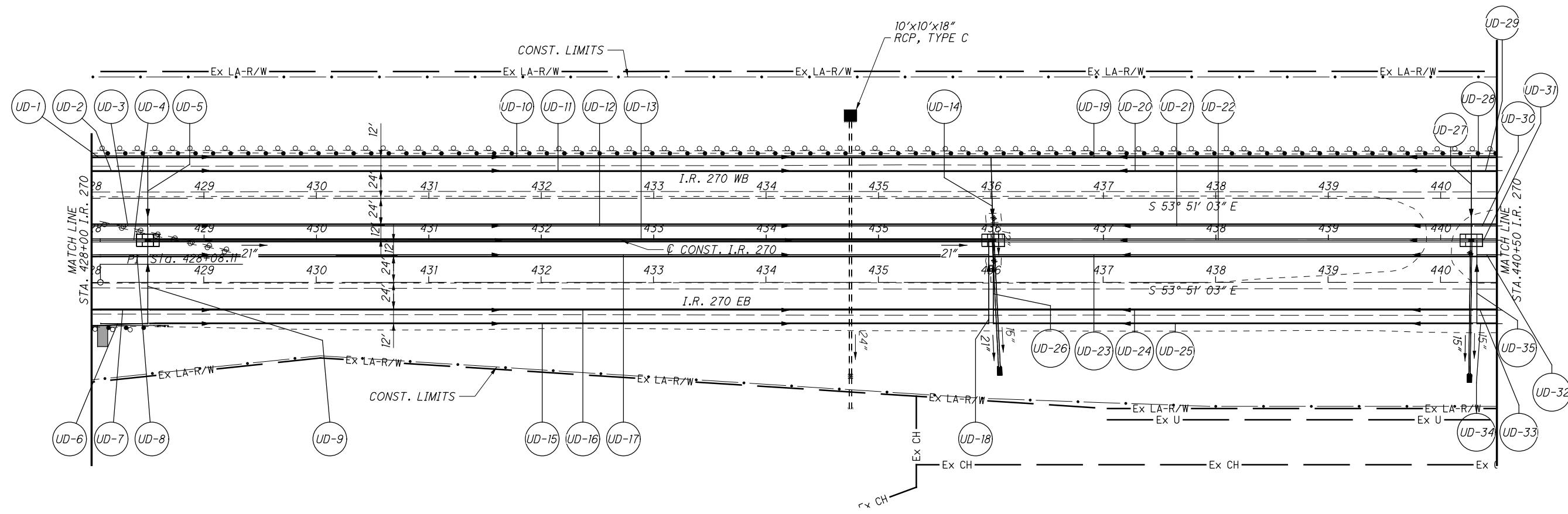
PLAN - UNDERDRAINS
 STA. 415 + 50 TO STA. 428 + 00

FRA - 270 - 52.72

NOTE:
 1. SEE SHEET 20 FOR LEGEND
 2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES

CALCULATED
 V.L.C.
 CHECKED
 R.J.M.

0 50 100
 HORIZONTAL
 SCALE IN FEET



BU-4/5 Roadway/Drainage Approved for Construction

PLAN - UNDERDRAINS

STA. 428+00 TO STA. 440+50

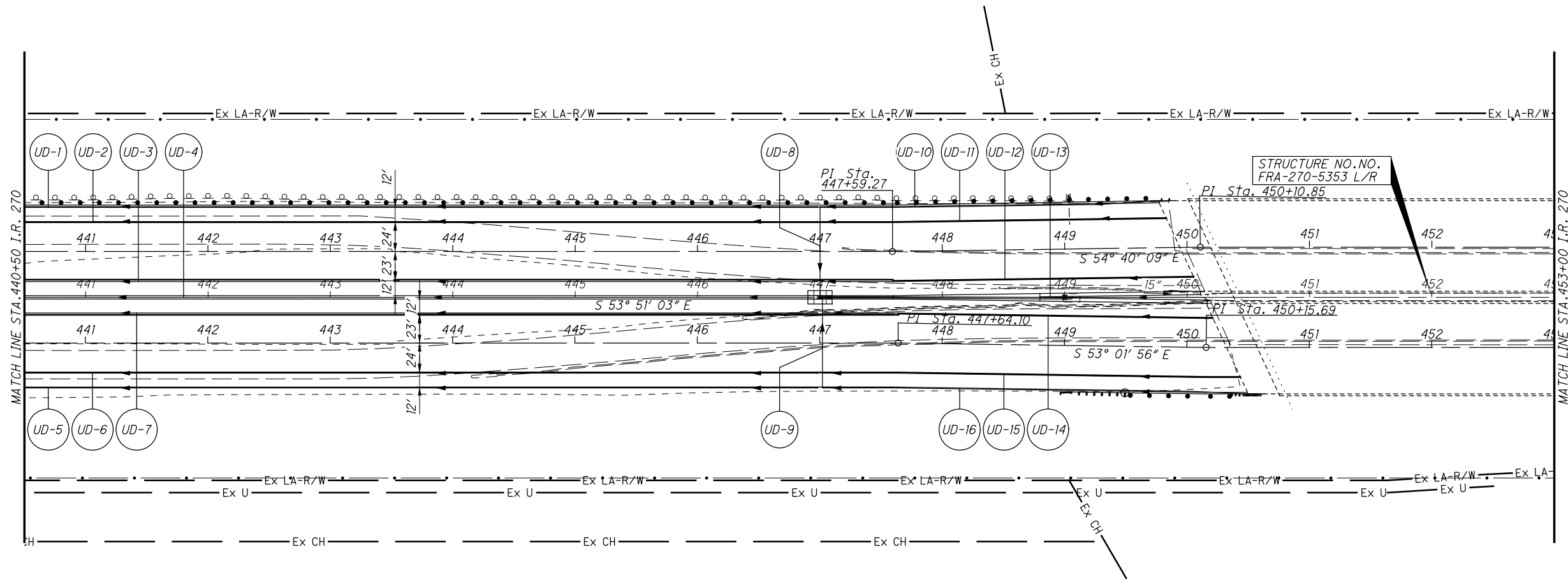
FRA - 270-52.72

81
 114

NOTE:
 1. SEE SHEET 20 FOR LEGEND
 2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES



CALCULATED
 VLC
 CHECKED
 RJM



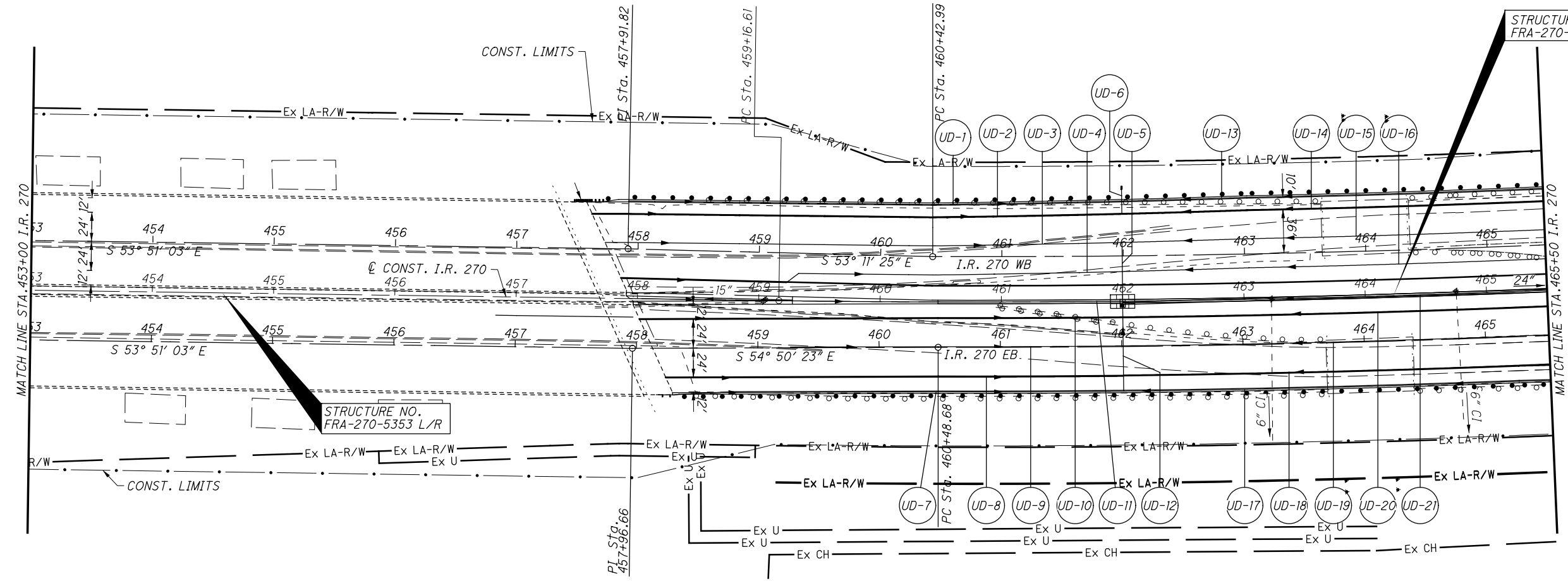
BU-4/5 Roadway/Drainage Approved for Construction
 PLAN - UNDERDRAINS
 STA. 440+50 TO STA. 453+00

FRA - 270 - 52.72

NOTE:
 1. SEE SHEET 20 FOR LEGEND
 2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES

CALCULATED
 VLC
 CHECKED
 RJM

0 50 100
 HORIZONTAL
 SCALE IN FEET



BU-4/5 Roadway/Drainage Approved for Construction

PLAN - UNDERDRAINS
 STA. 453+00 TO STA. 465+50

FRA - 270 - 52.72

NOTE:
 1. SEE SHEET 20 FOR LEGEND
 2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES

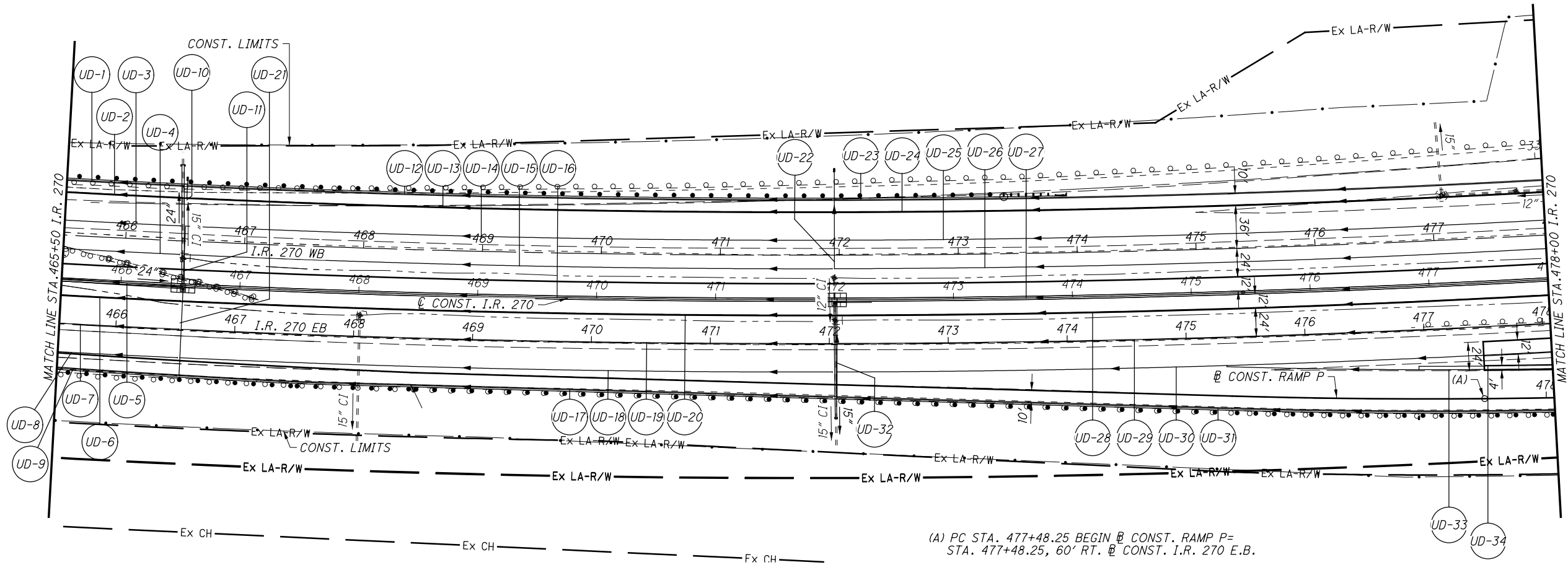


CALCULATED
 VLC
 CHECKED
 RJM

BU-4/5 Roadway/Drainage Approved for Construction
 PLAN - UNDERDRAINS
 STA. 465+50 TO STA. 478+00

FRA - 270-52.72

84
 114



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NOTE:
 1. SEE SHEET 20 FOR LEGEND
 2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES

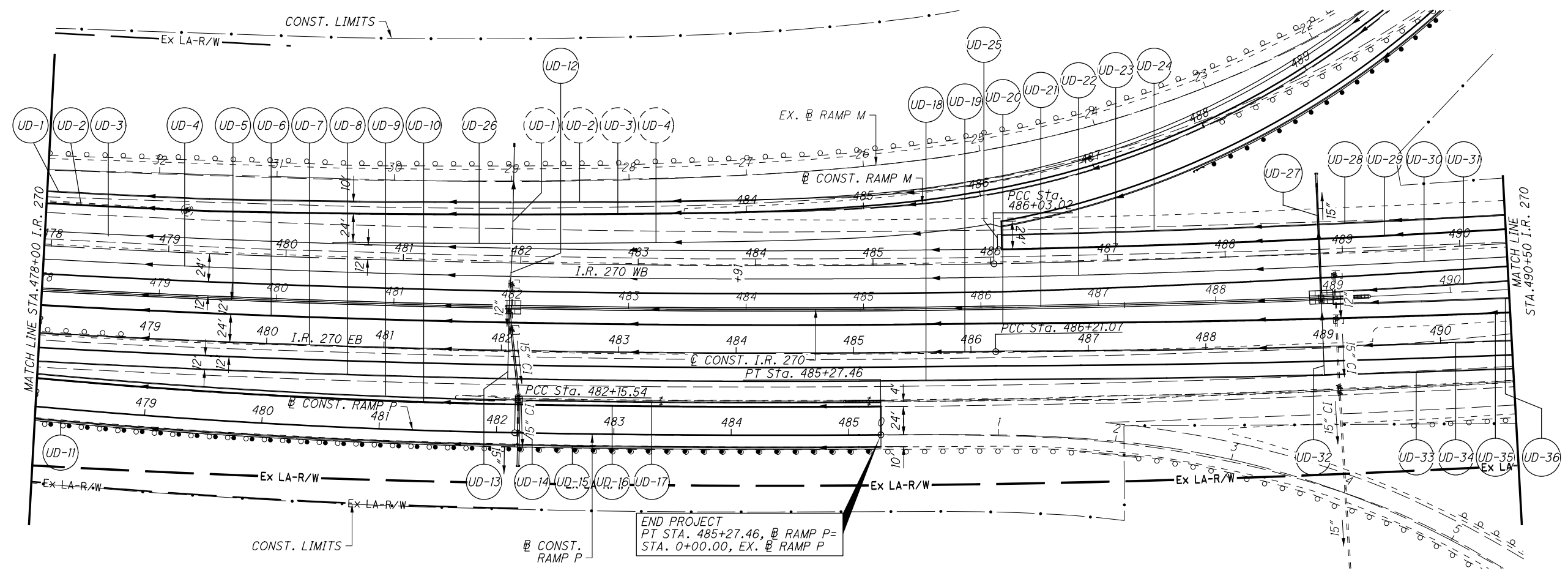


CALCULATED VLC
 CHECKED RJM

BU-4/5 Roadway/Drainage Approved for Construction

PLAN - UNDERDRAINS
 STA. 478+00 TO STA. 490+50

FRA - 270-52.72



END PROJECT
 PT STA. 485+27.46, @ RAMP P=
 STA. 0+00.00, EX. @ RAMP P

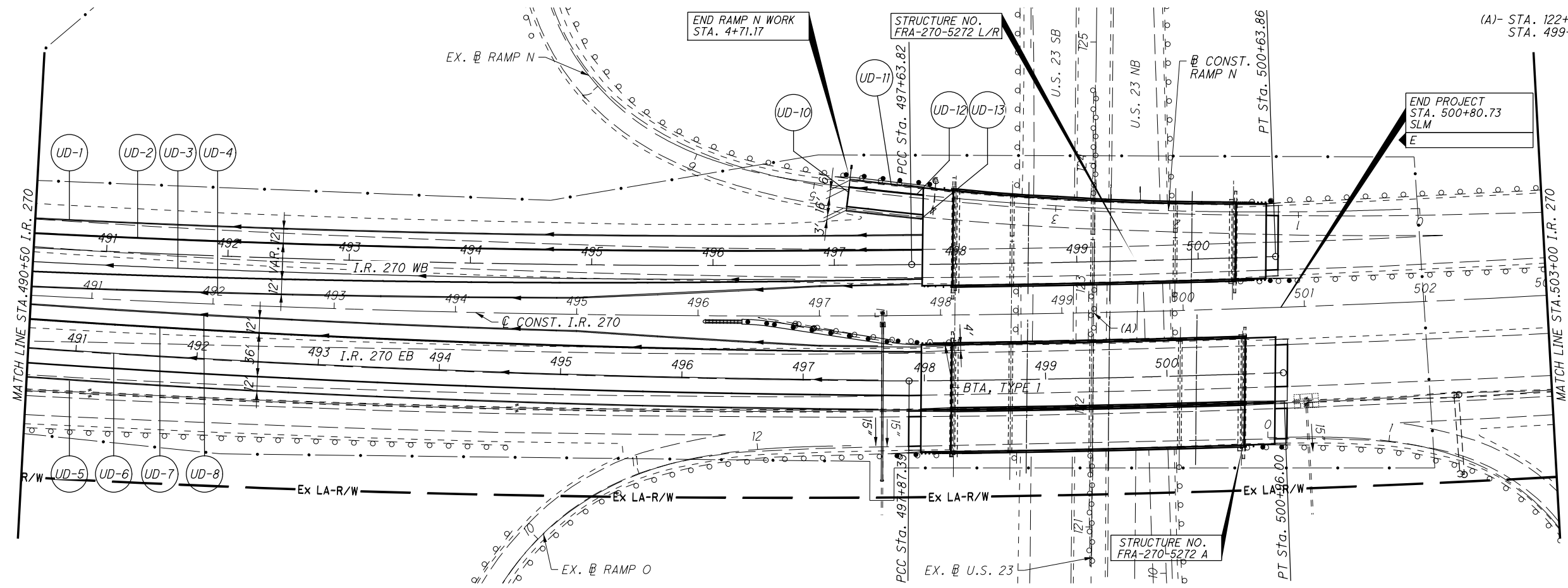
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NOTE:
1. SEE SHEET 20 FOR LEGEND
2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES

CALCULATED
VLC
CHECKED
RJM

0 50 100
25
HORIZONTAL
SCALE IN FEET



(A)- STA. 122+76.72 U.S. 23=
STA. 499+26.22 I.R. 270

END PROJECT
STA. 500+80.73
SLM
E

END RAMP N WORK
STA. 4+71.17

STRUCTURE NO.
FRA-270-5272 L/R

STRUCTURE NO.
FRA-270-5272 A

BU-4/5 Roadway/Drainage Approved for Construction
PLAN - UNDERDRAINS

STA. 490+50 TO STA. 503+00

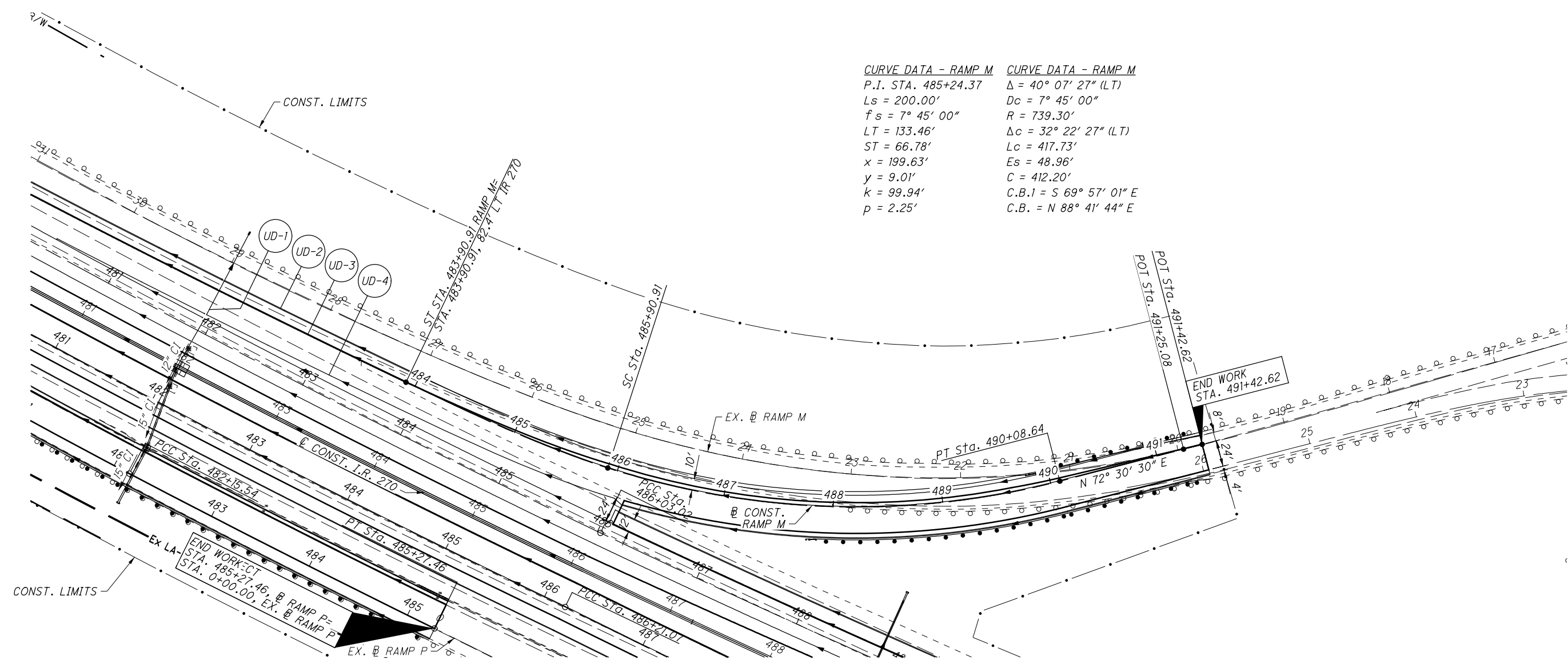
FRA - 270 - 52.72

NOTE:
 1. SEE SHEET 20 FOR LEGEND
 2. SEE SHEETS 14-19 FOR UNDERDRAIN SUBSUMMARIES



CALCULATED
 VLC
 CHECKED
 RJM

CURVE DATA - RAMP M	CURVE DATA - RAMP M
P.I. STA. 485+24.37	$\Delta = 40^\circ 07' 27''$ (LT)
$L_s = 200.00'$	$D_c = 7^\circ 45' 00''$
$f_s = 7^\circ 45' 00''$	$R = 739.30'$
$LT = 133.46'$	$\Delta_c = 32^\circ 22' 27''$ (LT)
$ST = 66.78'$	$L_c = 417.73'$
$x = 199.63'$	$E_s = 48.96'$
$y = 9.01'$	$C = 412.20'$
$k = 99.94'$	C.B.1 = $S 69^\circ 57' 01'' E$
$p = 2.25'$	C.B. = $N 88^\circ 41' 44'' E$



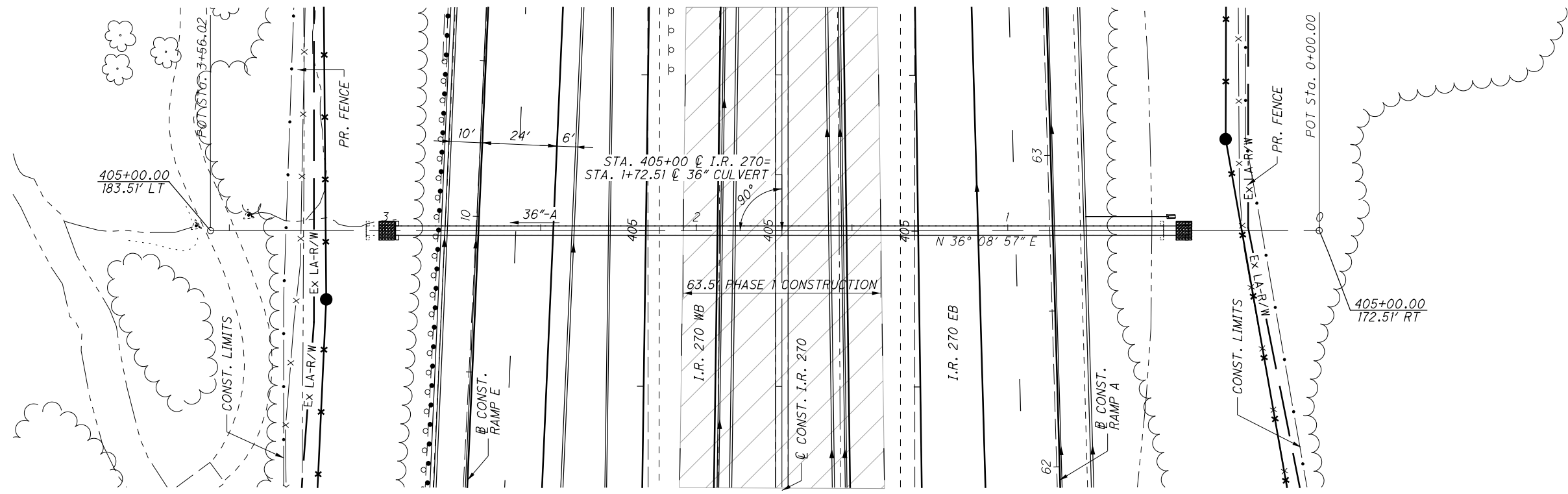
BU-4/5 Roadway/Drainage Approved for Construction

PLAN - UNDERDRAINS
 BEGIN TO END

FRA - 270-52.72

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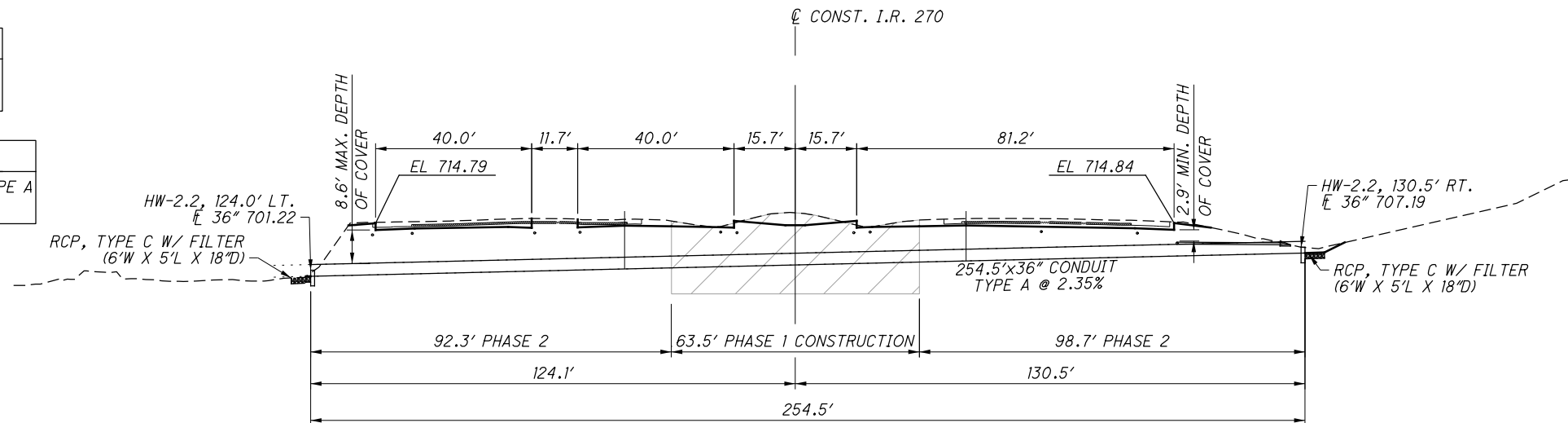


PLAN

AREA = 25 ACRES
Q50 = 68 c.f.s.

EXISTING STRUCTURE
TYPE: REINFORCED CONCRETE PIPE
SIZE: 36" DIA x 256 LIN FT

WORK REQUIRED
REPLACE WITH 254.5'-36" CONDUIT, TYPE A
AND NEW HW-2.2 AT EACH END



SECTION ON CULVERT

ESTIMATED QUANTITIES

ITEM	EXT.	QUANTITY	UNIT	DESCRIPTION
601	32200	3.33	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
602	20000	1.38	CU YD	CONCRETE MASONRY
611	16200	254.5	FT	36" CONDUIT, TYPE A

CALCULATED
WES
CHECKED
RJM

0 20 40
10
HORIZONTAL
SCALE IN FEET

BU-4/5 Roadway/Drainage Approved for Construction

CULVERT DETAILS

PROPOSED 36" CULVERT AT STA. 405+00

FRA-270-52.72

88
114



CALCULATED
WES
CHECKED
RJM

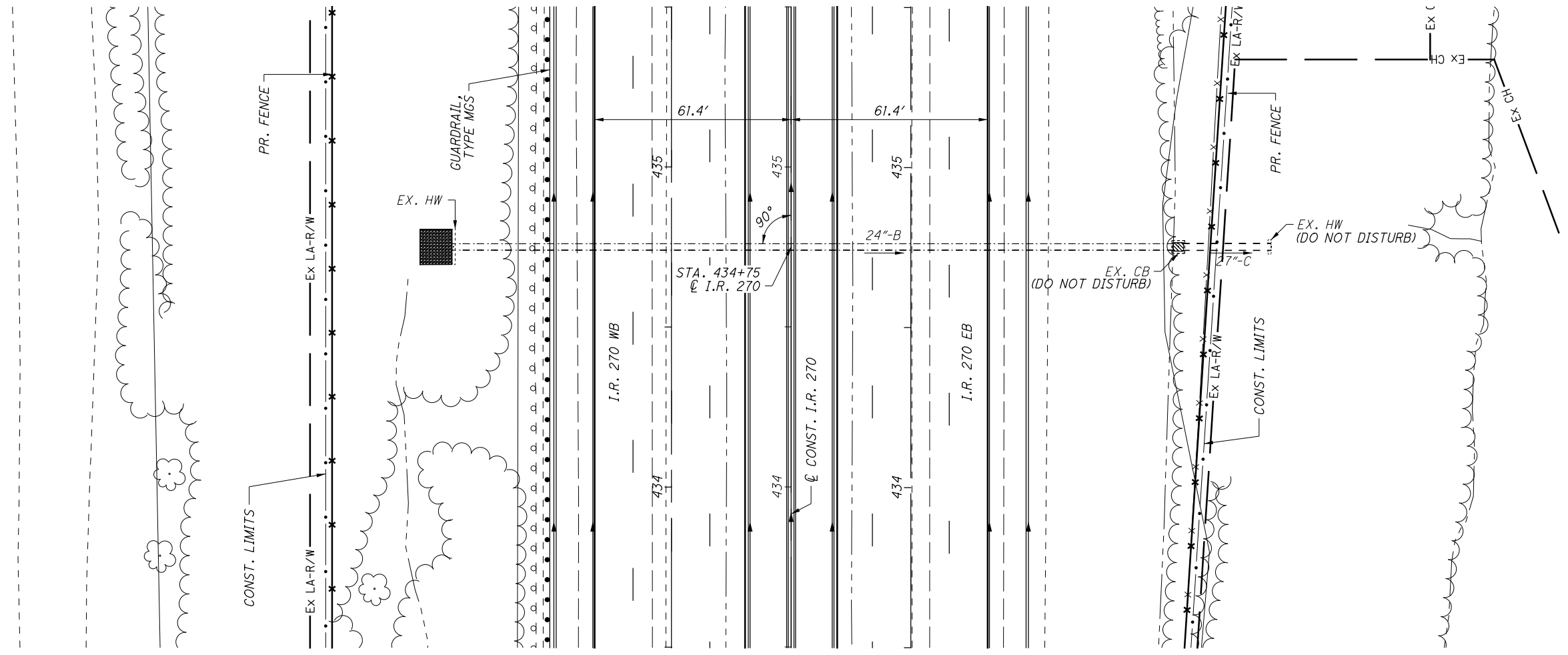
BU-4/5 Roadway/Drainage Approved for Construction

CULVERT DETAILS

MODIFIED 24" CULVERT AT STA. 434+75

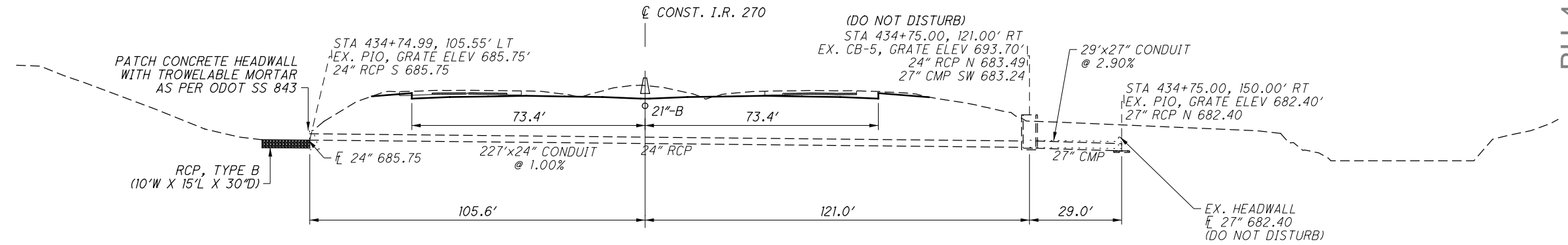
FRA -270-52.72

89
114



PLAN

EXISTING STRUCTURE
TYPE: REINFORCED CONCRETE PIPE &
CORRUGATED METAL PIPE
SIZE: 24" DIA x 227 LIN FT AND
27" DIA x 29 LIN FT



SECTION ON CULVERT

ESTIMATED QUANTITIES

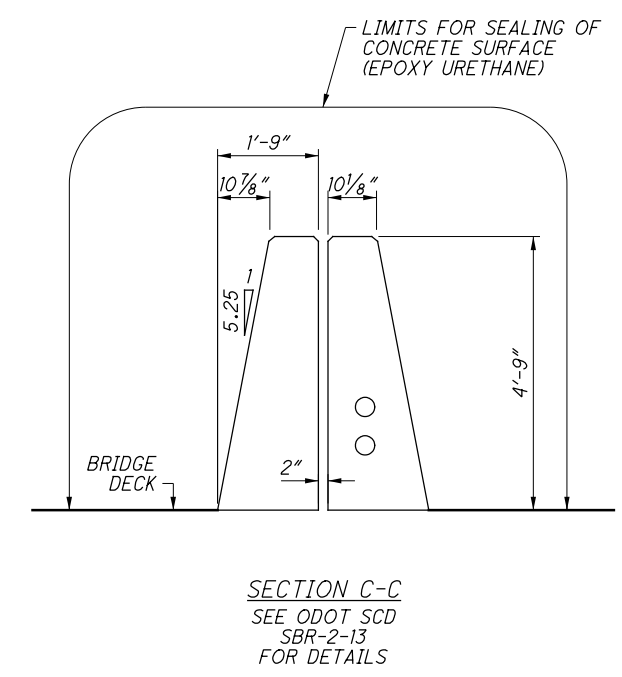
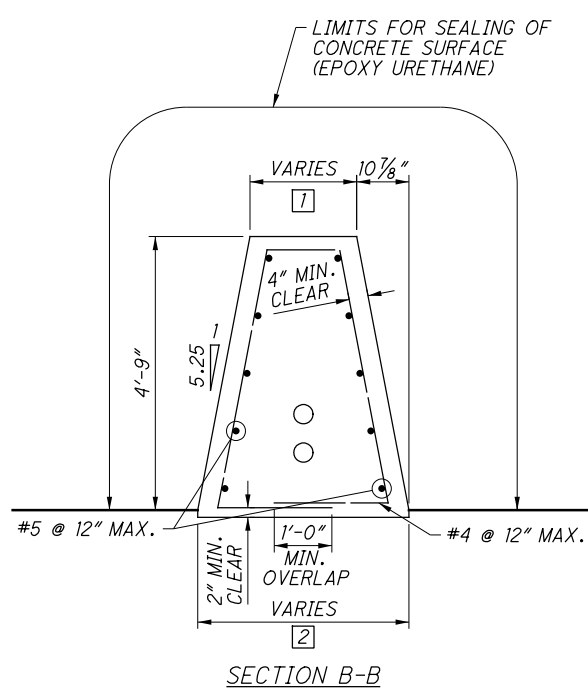
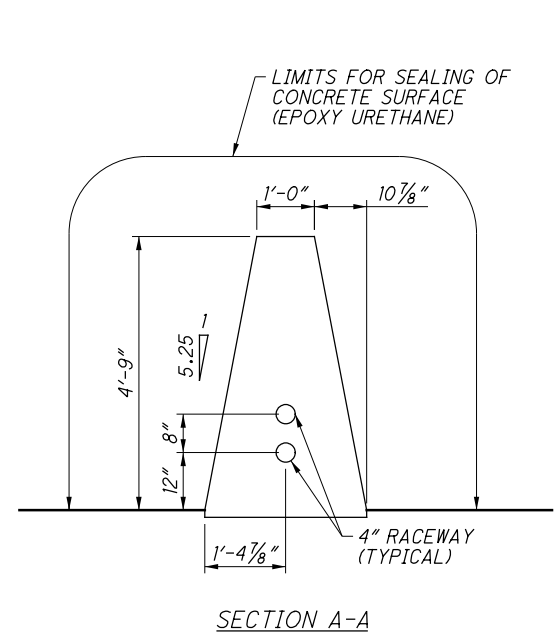
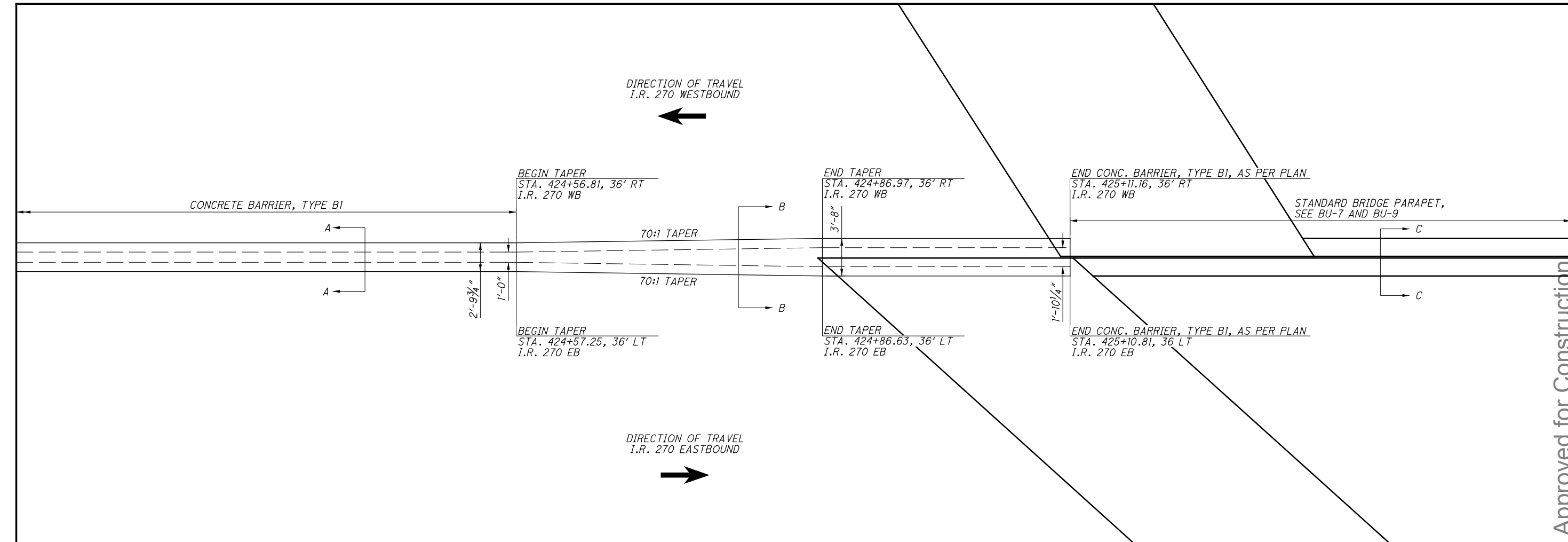
ITEM	EXT.	QUANTITY	UNIT	DESCRIPTION
601	32100	13.89	CU YD	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
843	50000	80.0	SQ FT	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR

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BU-4/5 Roadway/Drainage Approved for Construction

BARRIER DETAIL - SINGLE SLOPE, TYPE B1, AS PER PLAN

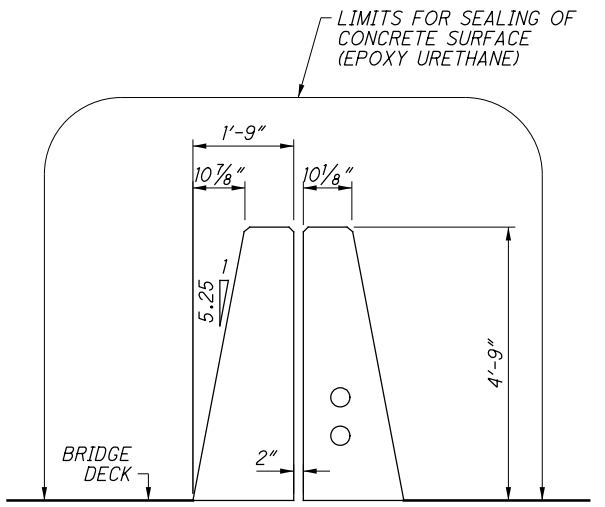
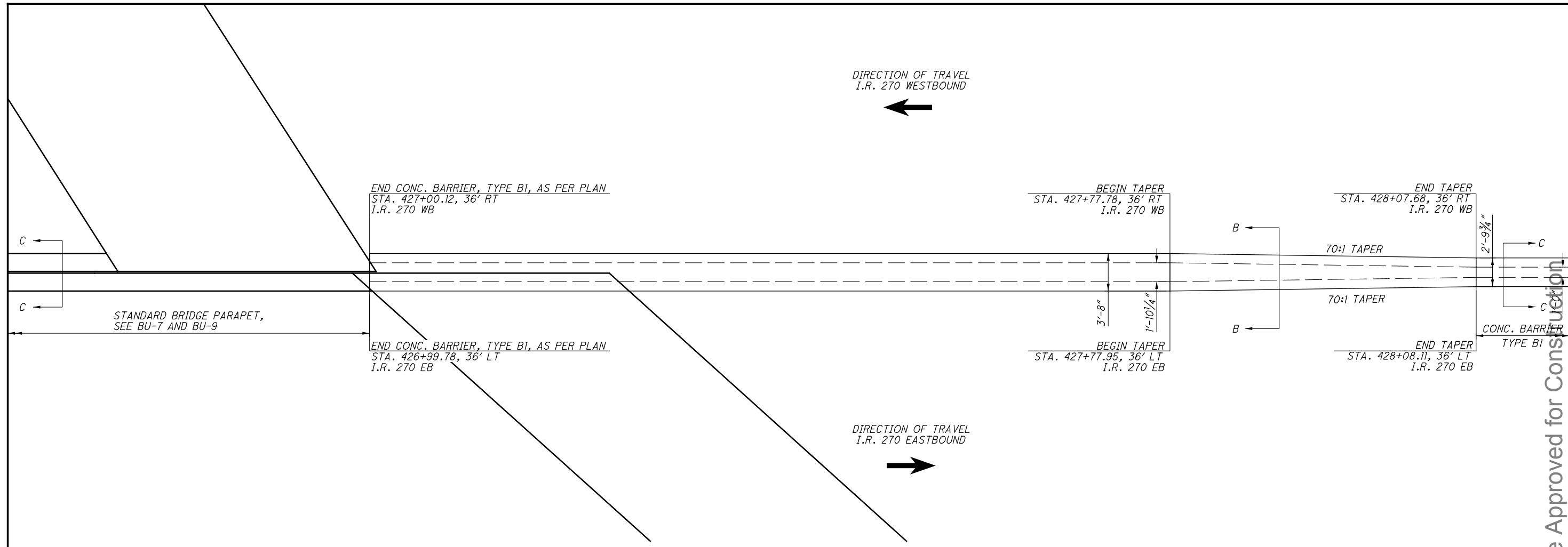
FRA - 270-52.72



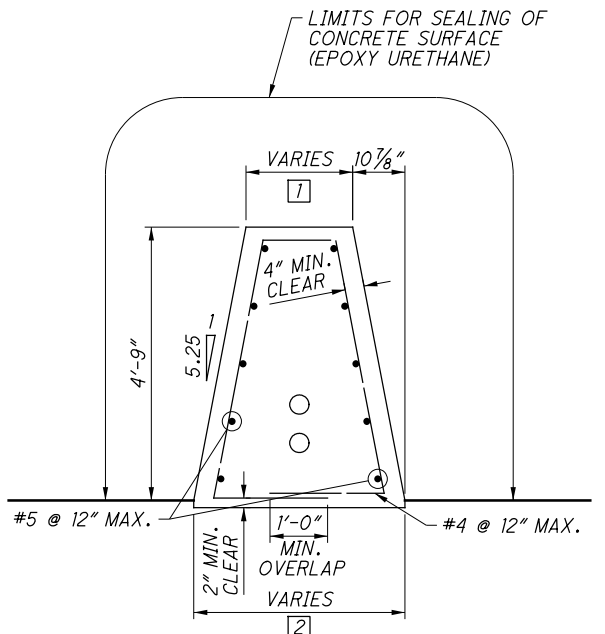
- 1 TOP WIDTH VARIES FROM 12" AT STA. 424+56.81 I.R. 270 WB TO 1'-10 1/4" AT STA. 425+11.16 I.R. 270 WB
- 2 BOTTOM WIDTH VARIES FROM 2'-9 3/4" AT STA. 424+56.81 I.R. 270 WB TO 3'-8" AT STA. 425+11.16 I.R. 270 WB

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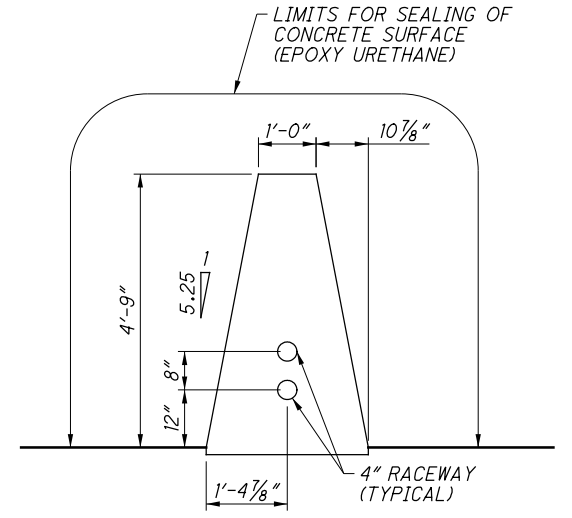
F:\FRA\92610\roadway\sheets\92610GR002.dgn 10/7/2013 1:39:30 PM jconley



SECTION A-A
SEE ODOT SCD
SBR-2-13
FOR DETAILS



SECTION B-B



SECTION C-C

- 1 TOP WIDTH VARIES FROM 1'-10 1/4" AT STA. 427+77.95 I.R. 270 EB TO 12" AT STA. 428+08.11 I.R. 270 EB
- 2 BOTTOM WIDTH VARIES FROM 3'-8" AT STA. 427+77.95 I.R. 270 EB TO 12" AT STA. 428+08.11 I.R. 270 EB

BU-4/5 Roadway/Drainage Approved for Construction

CALCULATED
JDC
CHECKED
RJM

BARRIER DETAIL - SINGLE SLOPE, TYPE B1, AS PER PLAN

FRA - 270-52.72

BU-4/5 Roadway/Drainage Approved for Construction

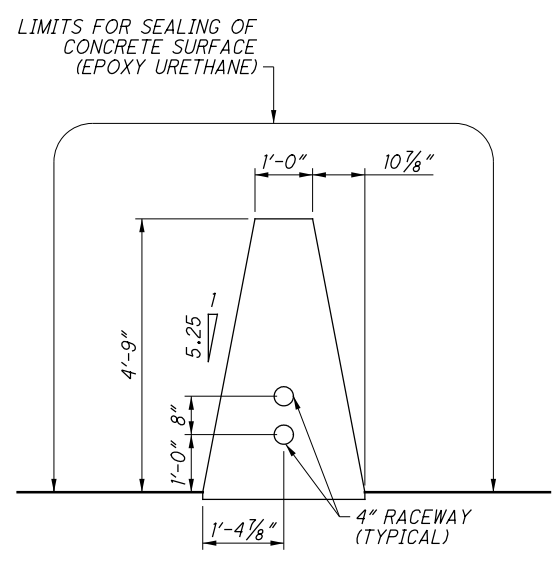
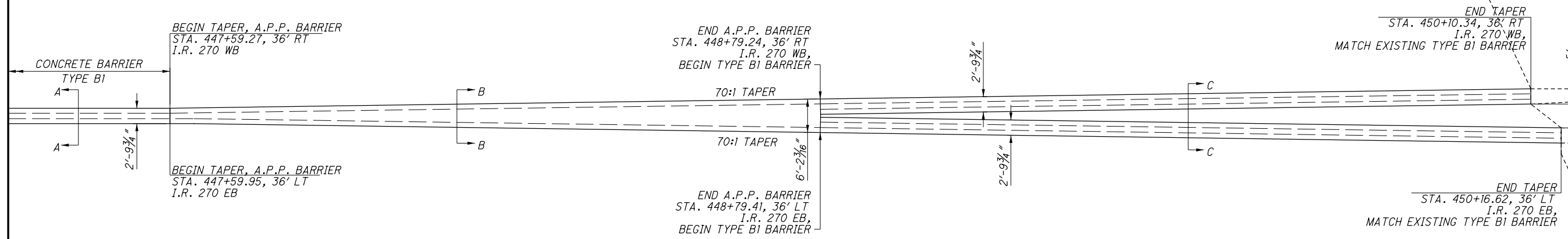
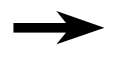
BARRIER DETAIL - SINGLE SLOPE, TYPE B1, AS PER PLAN

FRA - 270-52.72

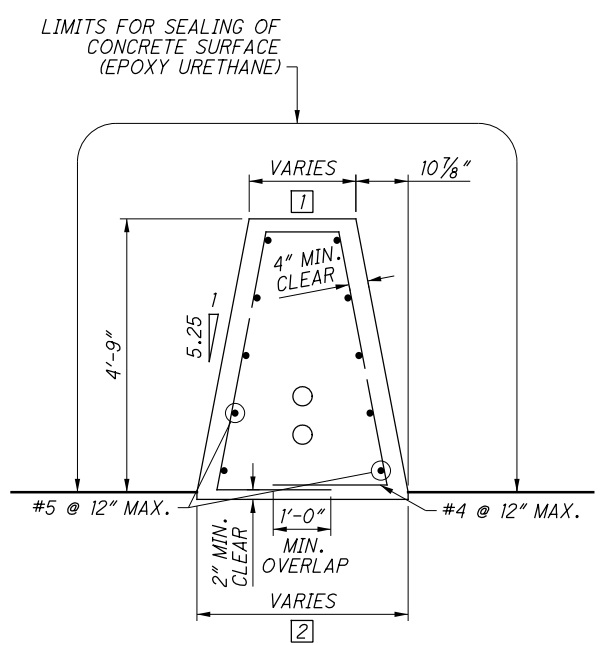
DIRECTION OF TRAVEL
I.R. 270 WESTBOUND



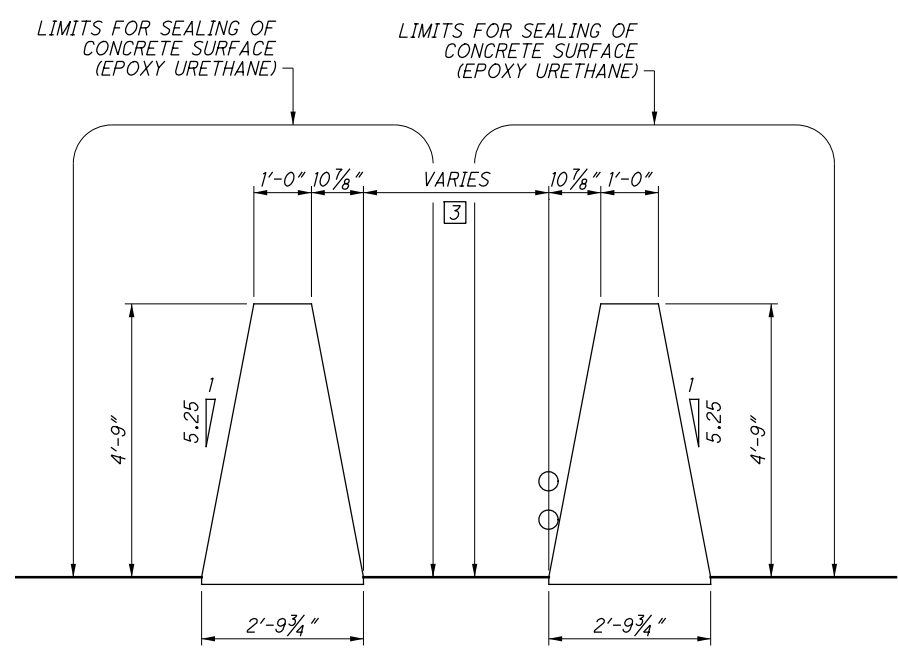
DIRECTION OF TRAVEL
I.R. 270 EASTBOUND



SECTION A-A



SECTION B-B



SECTION C-C

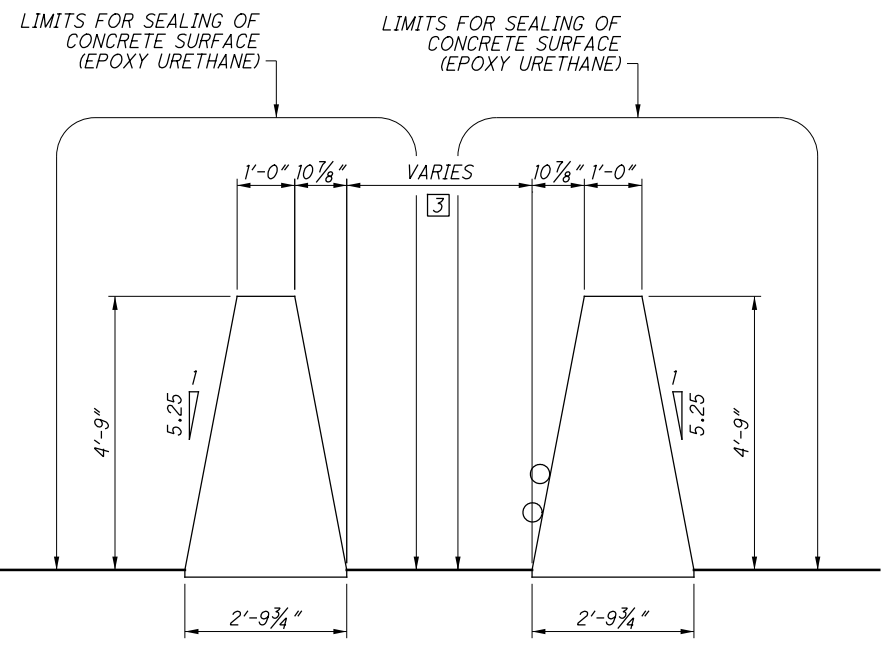
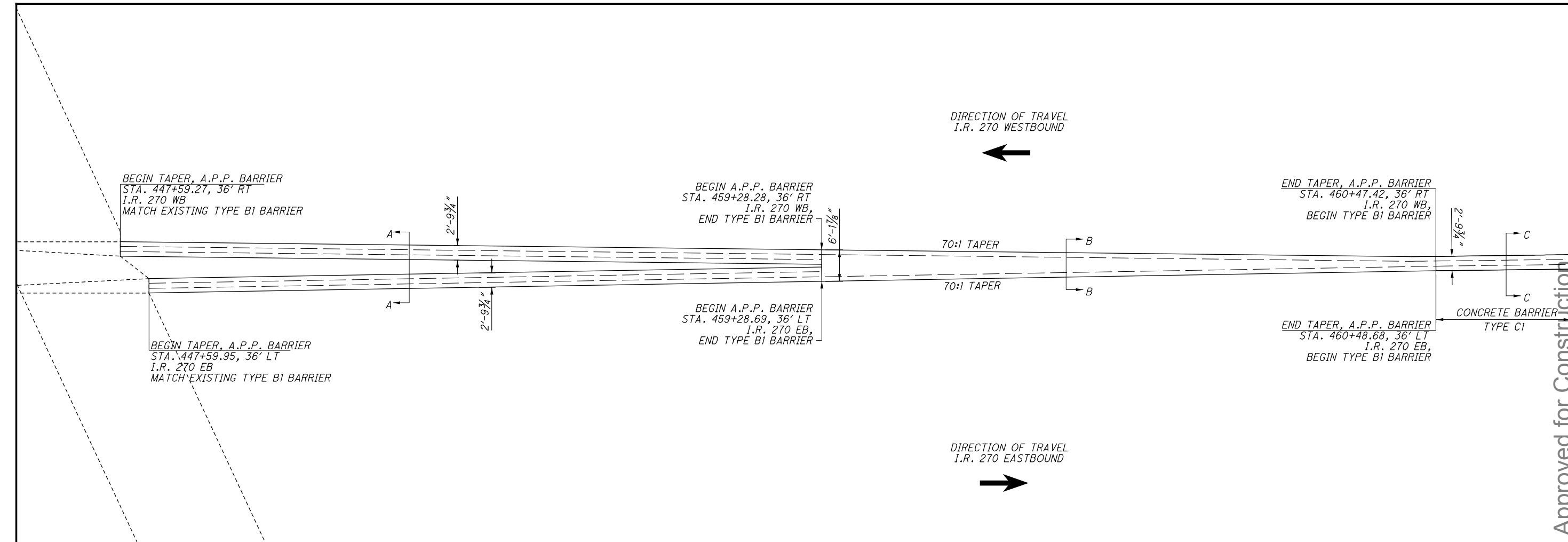
- 1 TOP WIDTH VARIES FROM 12" AT STA. 447+59.27 I.R. 270 WB TO 4'-4 1/2" AT STA. 448+79.24 I.R. 270 WB
- 2 BOTTOM WIDTH VARIES FROM 2'-9 3/4" AT STA. 447+59.27 I.R. 270 WB TO 6'-2 3/8" AT STA. 448+79.24 I.R. 270 WB
- 3 GAP BETWEEN TYPE B1 BARRIERS VARIES FROM 6 1/8" AT STA. 448+79.24 I.R. 270 WB TO 4'-4 5/8" AT STA. 450+16.45 I.R. 270 WB

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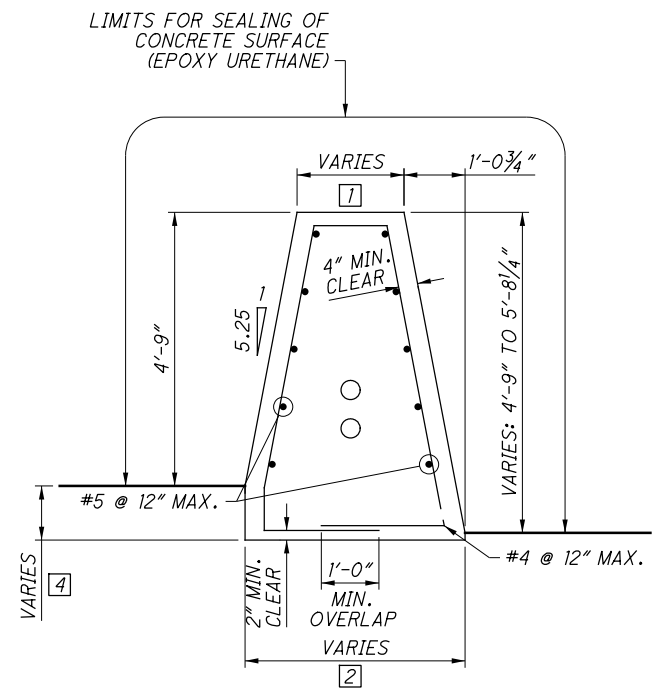
BU-4/5 Roadway/Drainage Approved for Construction

FRA - 270-52.72

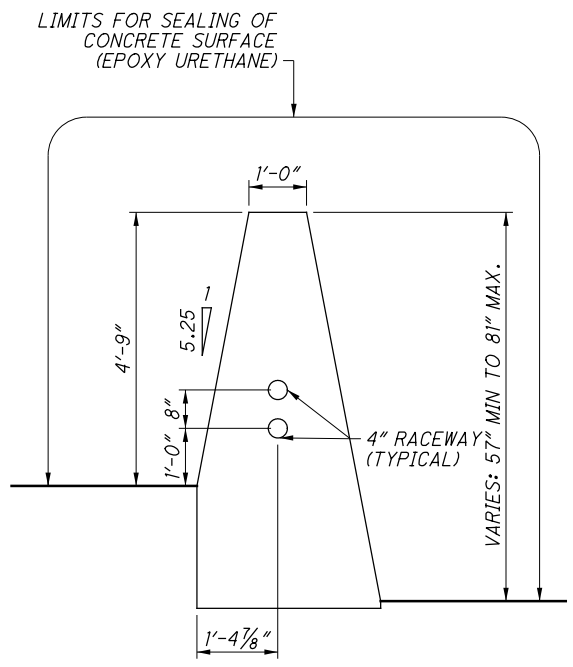
BARRIER DETAIL - SINGLE SLOPE, TYPE B1, AS PER PLAN



SECTION A-A



SECTION B-B

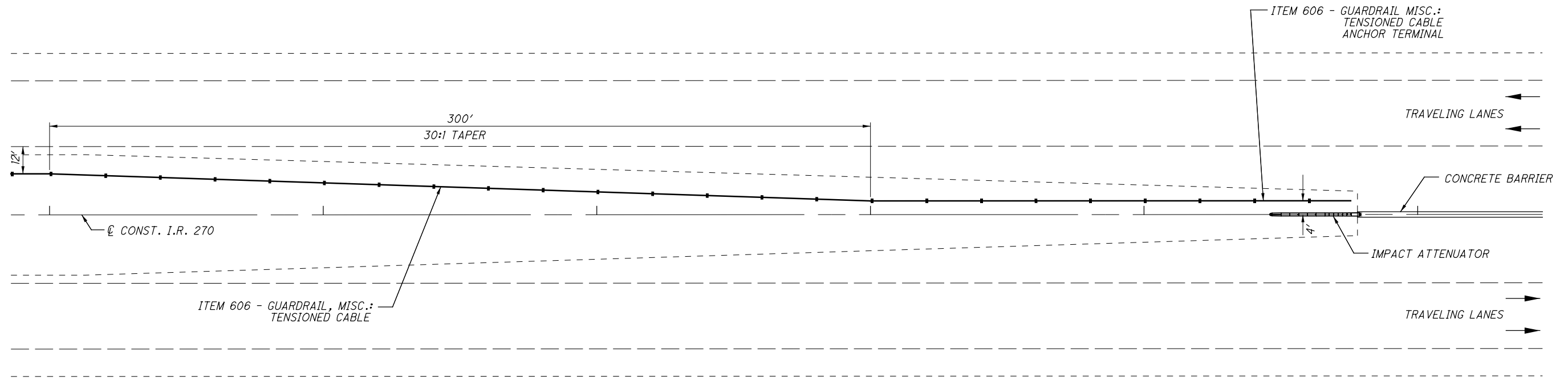


SECTION C-C

- 1 TOP WIDTH VARIES FROM 4'-4 1/8" AT STA. 459+28.28 I.R. 270 WB TO 12" AT STA. 460+47.42 I.R. 270 WB
- 2 BOTTOM WIDTH VARIES FROM 6'-1 1/8" AT STA. 459+28.28 I.R. 270 WB TO 2'-9 3/4" AT STA. 460+47.42 I.R. 270 WB
- 3 GAP BETWEEN TYPE B1 BARRIERS VARIES FROM 4'-4 5/8" AT STA. 447+59.27 I.R. 270 WB TO 6 3/8" AT STA. 459+28.28 I.R. 270 WB
- 4 BIFURCATION VARIES FROM 3" AT STA. 459+28.28 I.R. 270 WB TO 11 1/4" AT STA. 460+59.43 I.R. 270 WB

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BEGIN/END AT CONCRETE BARRIER DETAIL

- NOTES:
 (1) IF IMPACT ATTENUATOR PRESENT, TAPER BEHIND IF POSSIBLE.
 (2) PLACE ANCHOR TERMINAL AS CLOSE TO CONCRETE BARRIER AS POSSIBLE.

FRA - 270 - 52.72

94
114

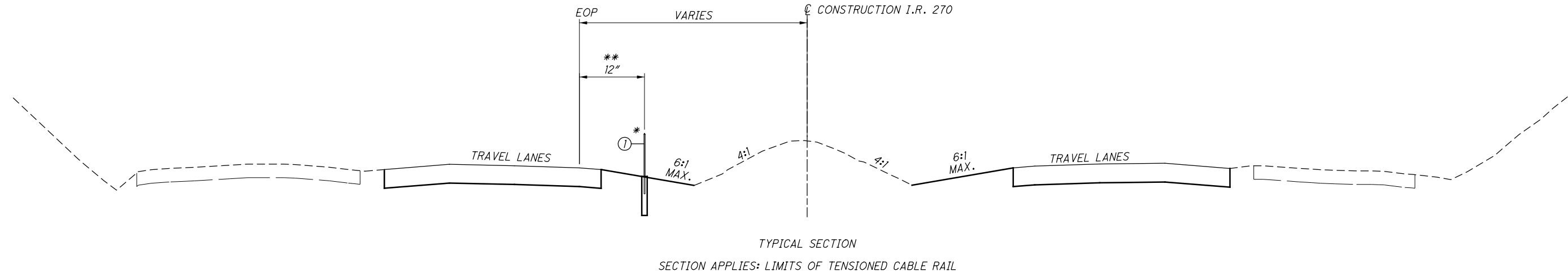
BU-4/5 Roadway/Drainage Approved for Construction

**GUARDRAIL DETAILS
TENSIONED CABLE RAIL**

CALCULATED	JDC
CHECKED	RJM



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LEGEND:

① ITEM 606 - GUARDRAIL MISC.: TENSIONED CABLE CONCRETE FOUNDATION LINE POST (SOCKETED)

NOTE:

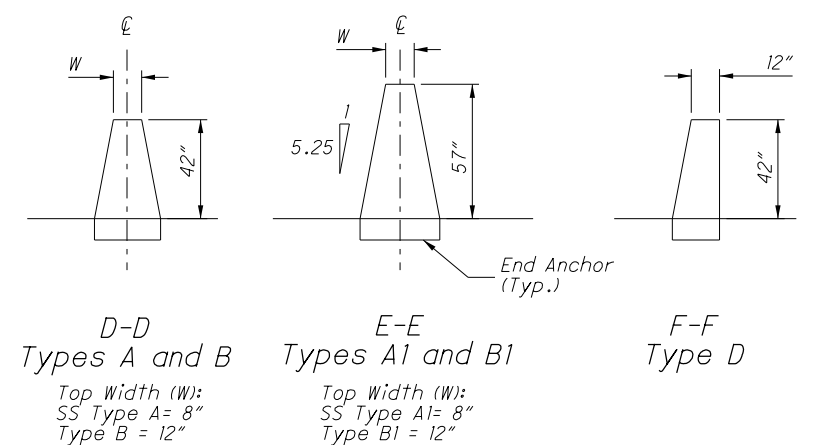
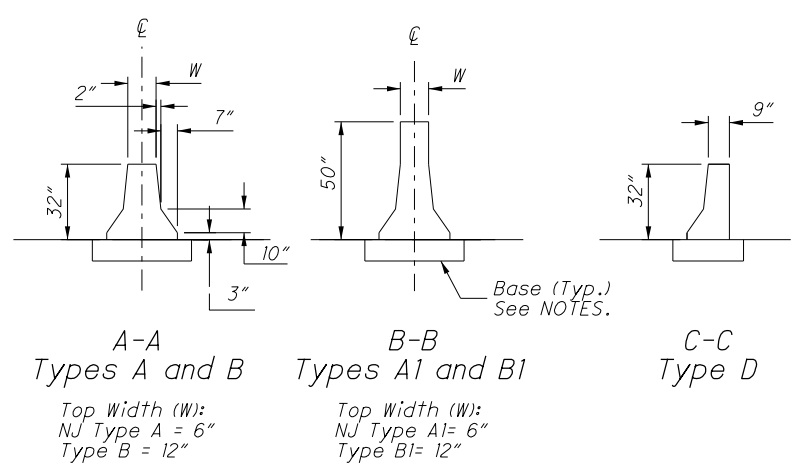
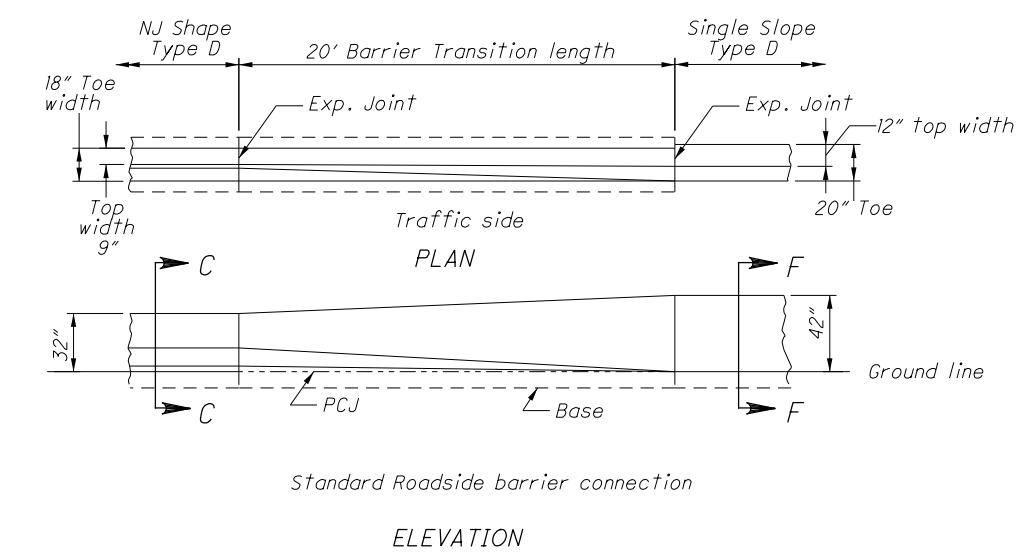
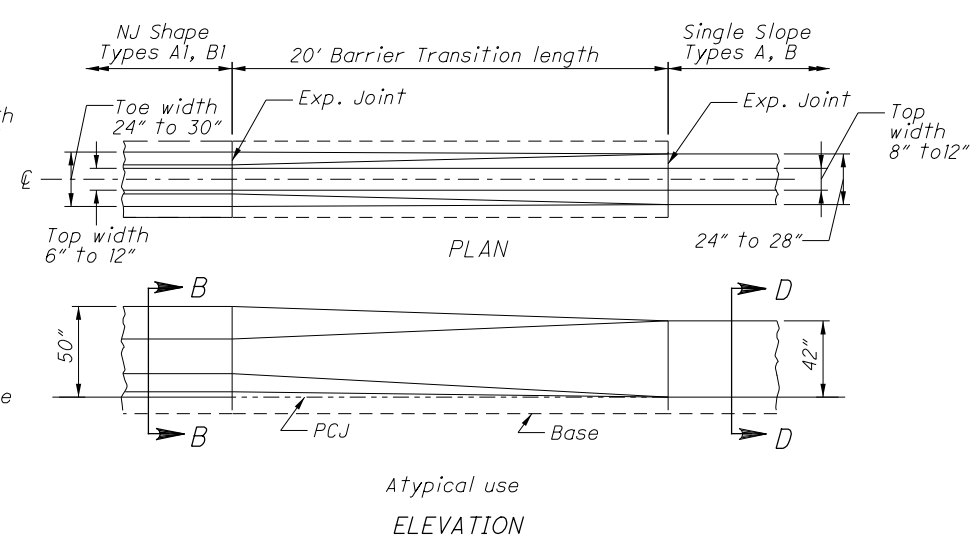
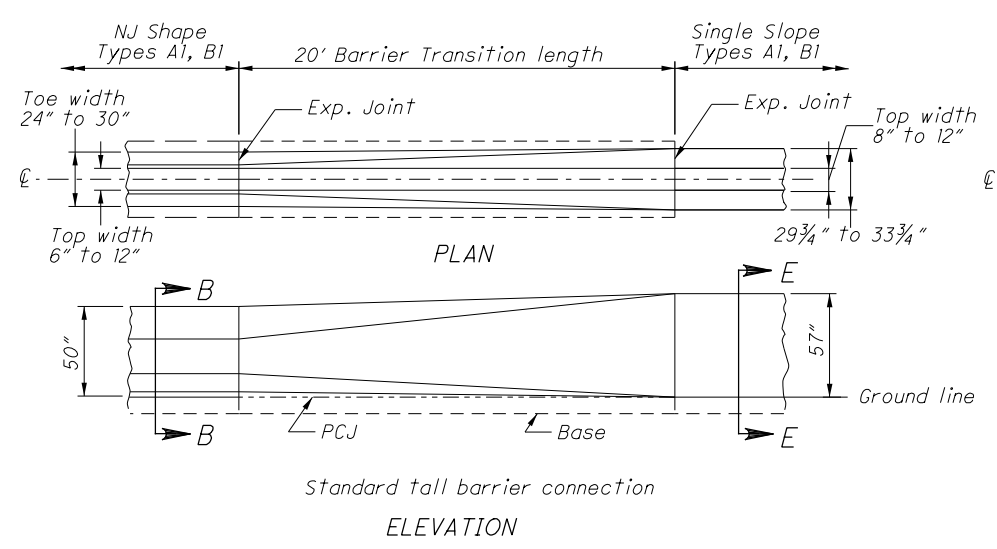
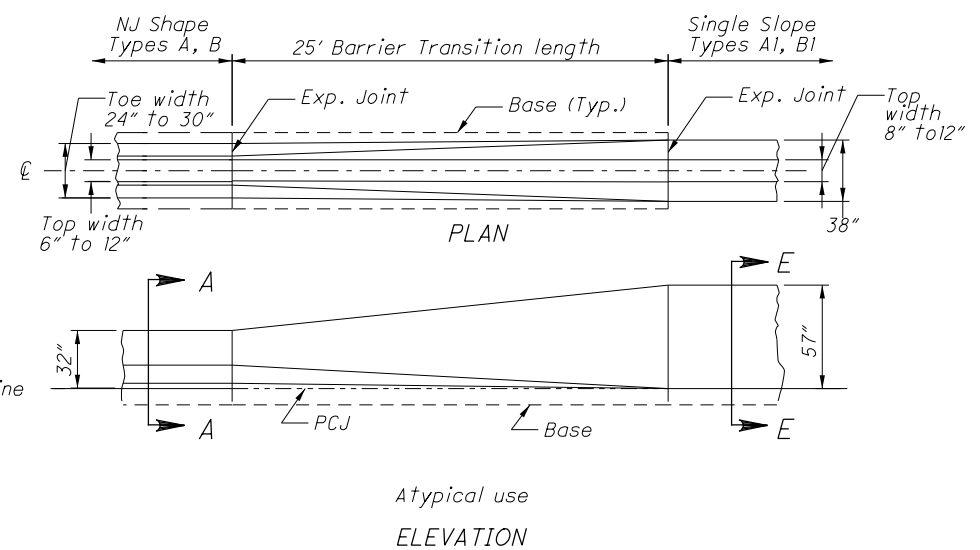
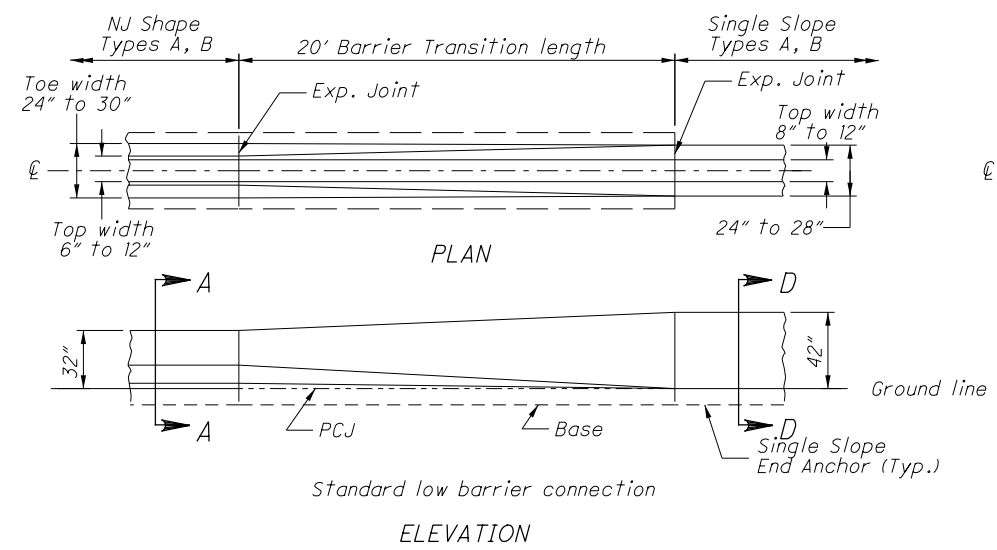
- * PLACE POST LT OR RT OF CL AT THE LOCATIONS LISTED ON THE ROADWAY SUBSUMMARY SHEETS.
- ** DISTANCE FROM EDGE OF TRAVELED WAY TO CABLE RAIL SHOULD BE A MINIMUM OF 12 FEET, OR 3 FEET FROM THE EDGE OF TREATED SHOULDER IF THE TREATED SHOULDER IS MORE THAN 10 FEET WIDE. AT THE DISCRETION OF THE CONTRACTOR AND THE PROJECT ENGINEER, THE DISTANCE CAN BE ALTERED IF THE CONSTRUCTABILITY AND/OR MAINTENANCE OF TRAFFIC ISSUES WARRANT A CHANGE. THE ACCEPTABLE RANGE FOR PLACEMENT OF THE CABLE RAIL IS A MINIMUM OF 12 FEET FROM THE EDGE OF TRAVELED WAY (EOP) AND A MINIMUM OF 8 FEET FROM THE DITCH BOTTOM.

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GUARDRAIL DETAIL - TYPICAL SECTION - TENSIONED CABLE RAIL

CALCULATED
JDC
CHECKED
RJM



NJ SHAPE SECTIONS
See Plan Insert sheets for specific NJ Shape Concrete barrier details.

See SCD RM-4.3 and RM-4.5 for specific Single Slope concrete barrier details.

NOTES

GENERAL: This insert details the Barrier Transition, to connect existing NJ Concrete Barrier (safety shape) to a new run of Single Slope Concrete Barrier at locations shown on the plans. For NJ barrier shape and other details see the respective plan insert sheets. For Single Slope barrier details, see SCD RM-4.3 (RM-4.5 for Type D).

ADJACENT CONCRETE BARRIER RUNS: Remove any tapered end sections, Impact attenuators, or other guardrail hardware from existing barrier end. The barrier to barrier transition is not intended to be used at transition sections (those shown on SCD RM-4.4), Inlets, or on Type C or CI Barrier. If proposed adjacent single slope barrier is Type A or A1, the Barrier Transition should contain horizontal reinforcing steel similar to that required in the respective single slope barrier. Reinforcement is not shown and should be detailed separately. The adjacent single slope end should be terminated with a reinforced End Anchor as detailed on the SCDs.

BARRIER FACE TRANSITION: To prevent vehicle snagging, a smooth transition from the safety shape face to the single slope face is made over a 20' length. The actual shape of the Transition is dependent on both the adjacent NJ barrier and the single slope barrier Types, as detailed on the plans. The contractor and Engineer will agree on a construction method to ensure a smooth barrier face.

MATERIALS: Materials are same for those shown on RM-4.3 and RM-4.5, except that cast-in-place is the only acceptable method. Edges may be chamfered or radi used as shown on those drawings.

CONCRETE BASE: Construct base as shown on the NJ shape insert sheets, including the methods detailing the footing joint, Permissible Construction Joint (PCJ), and Doweling requirements. The width of the base matches the existing NJ barrier.

JOINTS: Construct joints as shown on respective barrier drawings.

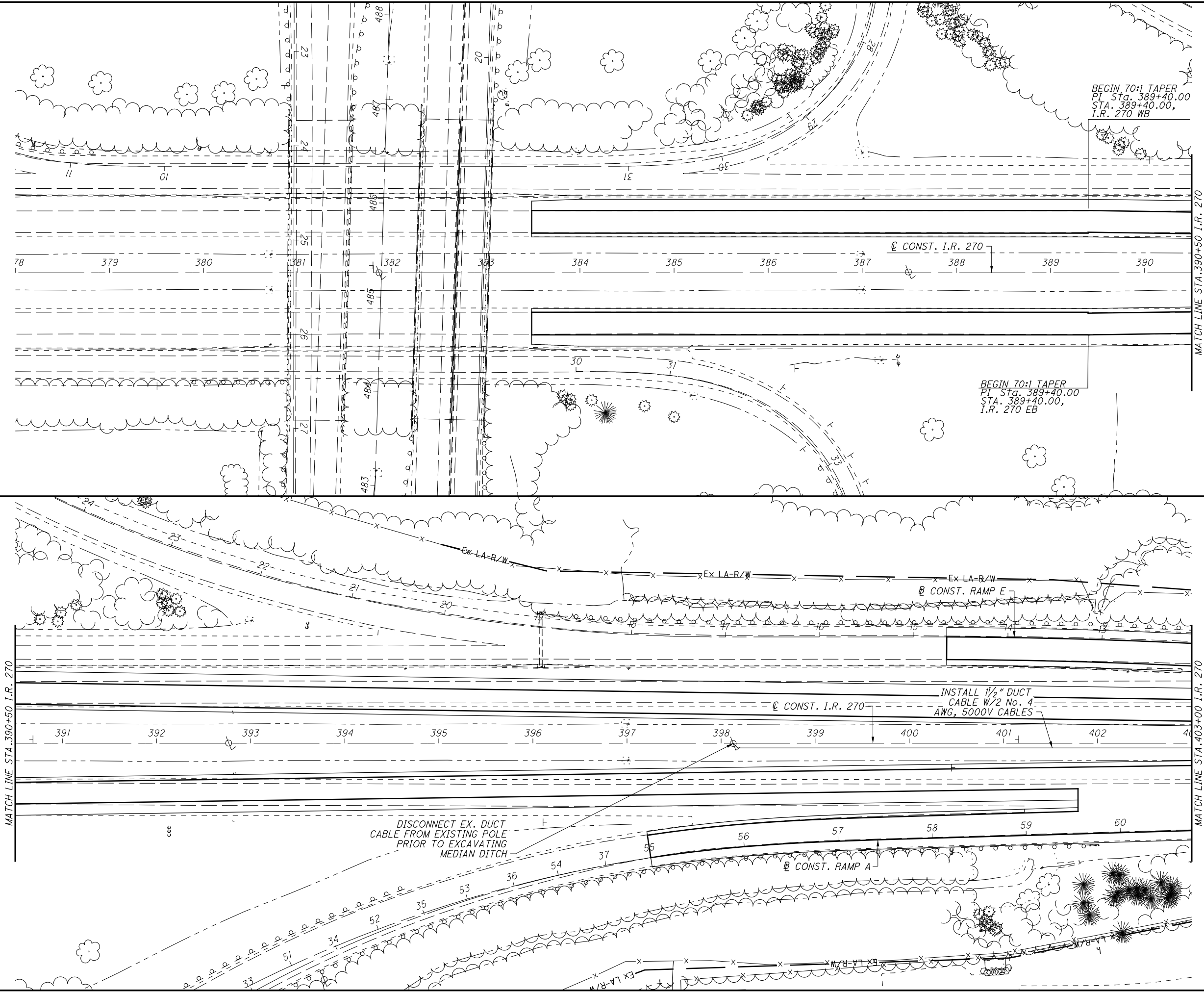
RACEWAYS: When specified, place raceway(s) to match raceway elevation in adjoining segments. Place to obtain maximum concrete cover.

METRIC UNITS: Refer to respective barrier drawings or inserts for metric dimensions.

PAYMENT: This Barrier Transition shall include all material and labor needed to construct this 20' section, including any raceways, reinforcing steel, dowels and other necessary incidentals. Payment shall be made at the unit price for Item 622 - Barrier Transition, Each.

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BEGIN 70:1 TAPER
PI Sta. 389+40.00
Sta. 389+40.00,
I.R. 270 WB

BEGIN 70:1 TAPER
PI Sta. 389+40.00
Sta. 389+40.00,
I.R. 270 EB

INSTALL 1/2" DUCT
CABLE W/2 No. 4
AWG, 5000V CABLES

DISCONNECT EX. DUCT
CABLE FROM EXISTING POLE
PRIOR TO EXCAVATING
MEDIAN DITCH

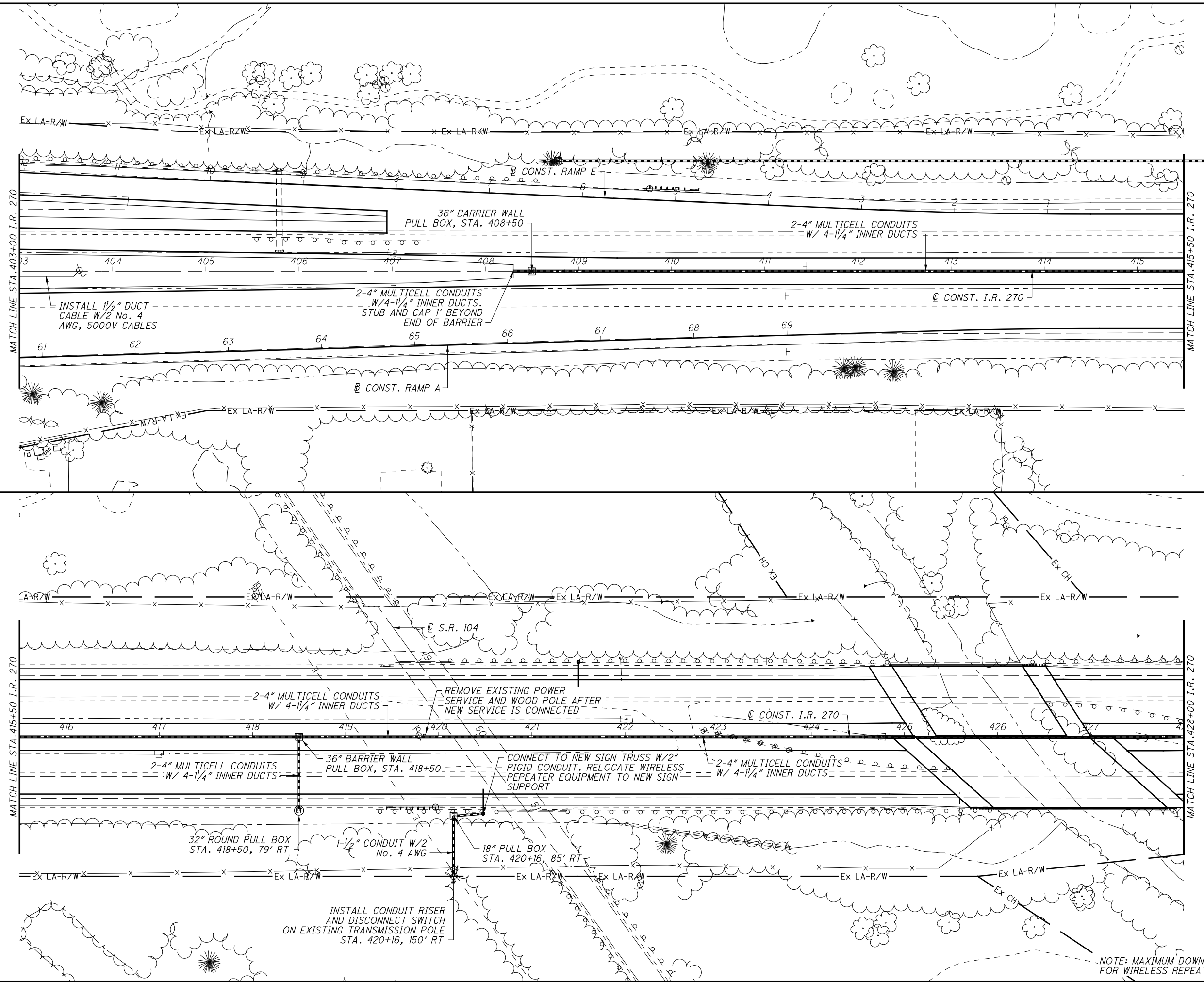
CALCULATED	JDC
CHECKED	RJM

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MISCELLANEOUS DETAILS

STA. 378+00 TO STA. 403+00

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0 50 100

 HORIZONTAL SCALE IN FEET

 CALCULATED JDC

 CHECKED RJM

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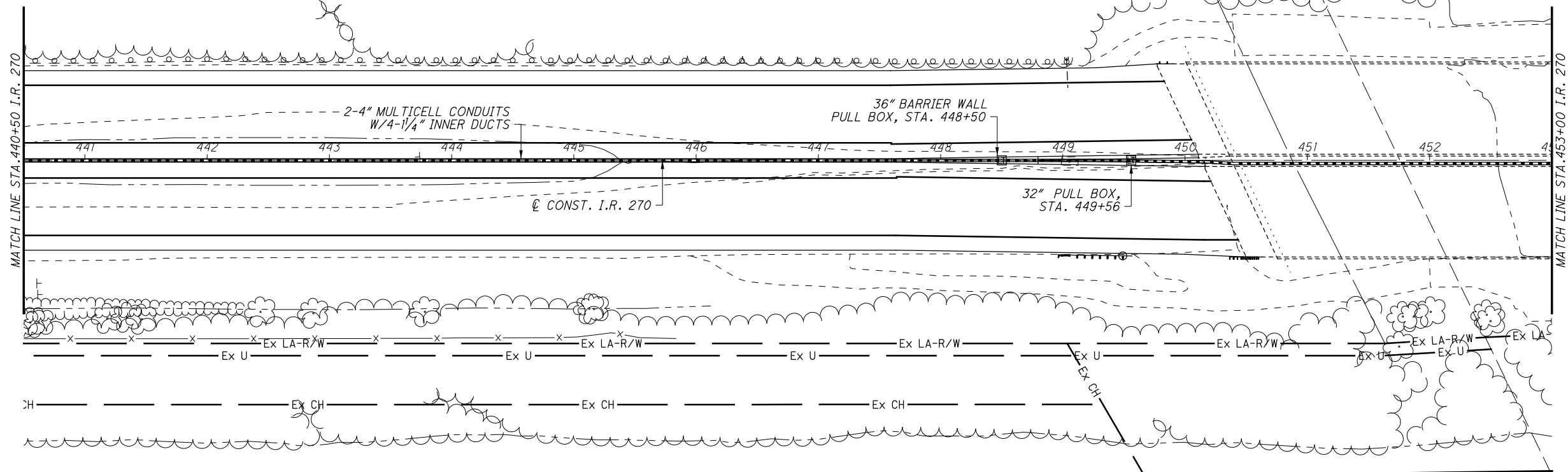
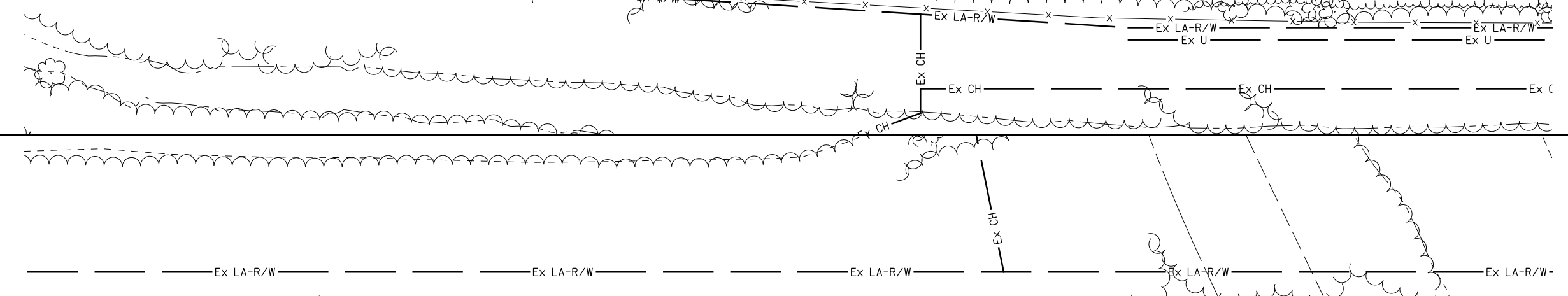
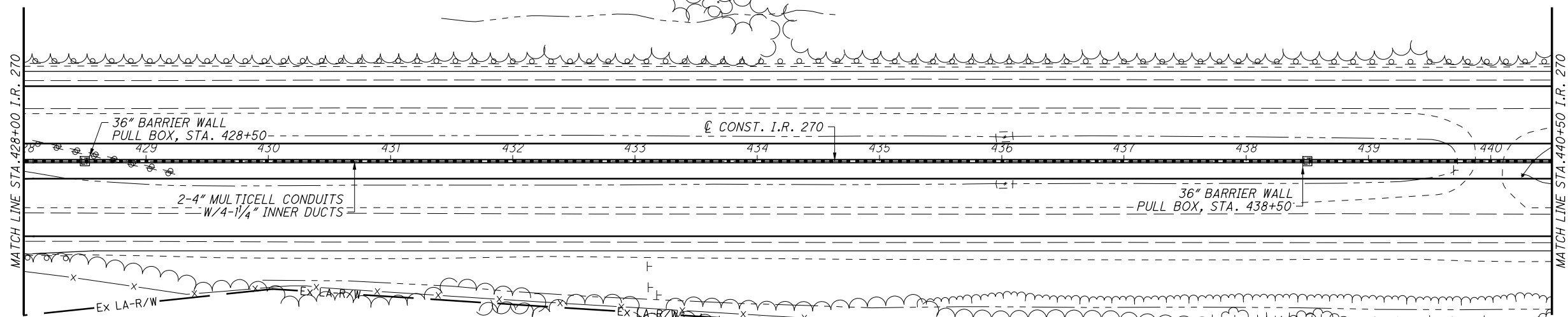
MISCELLANEOUS DETAILS

STA. 403+00 TP STA. 428+00

FRA - 270 - 52.72

NOTE: MAXIMUM DOWNTIME PERMITTED FOR WIRELESS REPEATER IS 1 DAY

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CALCULATED JDC
 CHECKED RJM

BU-4/5 Roadway/Drainage Approved for Construction

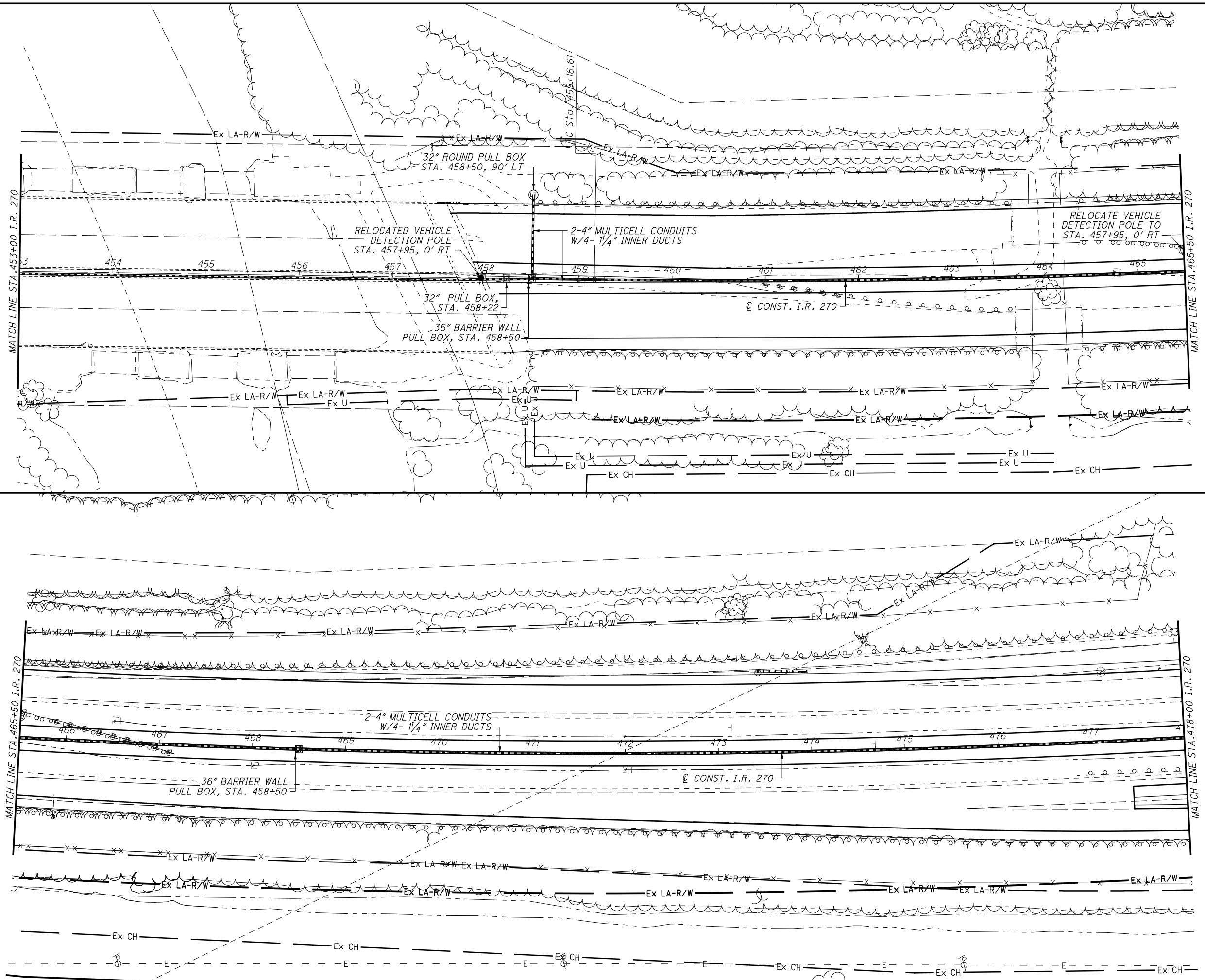
MISCELLANEOUS DETAILS

STA. 428+00 TO STA. 453+00

FRA-270-52.72

99
114

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CALCULATED JDC CHECKED RJM

0 50 100
25
HORIZONTAL
SCALE IN FEET

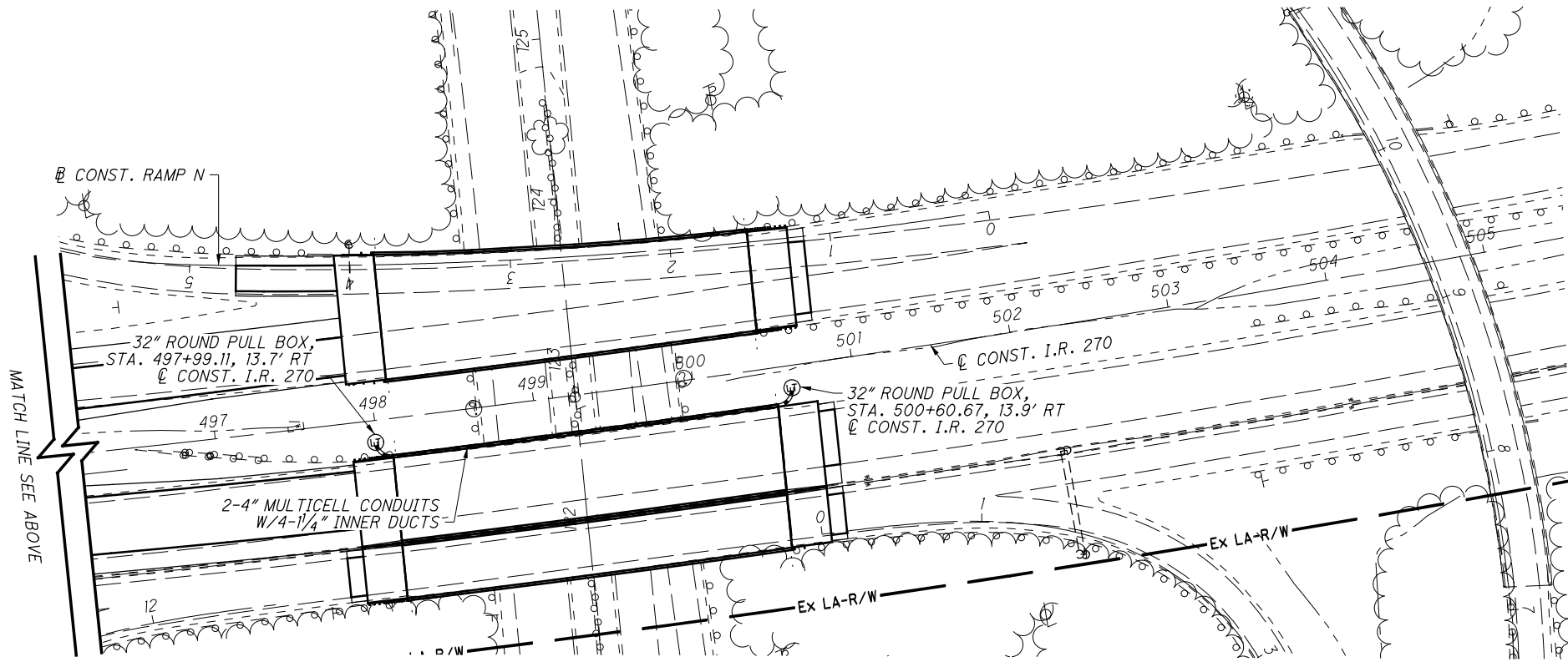
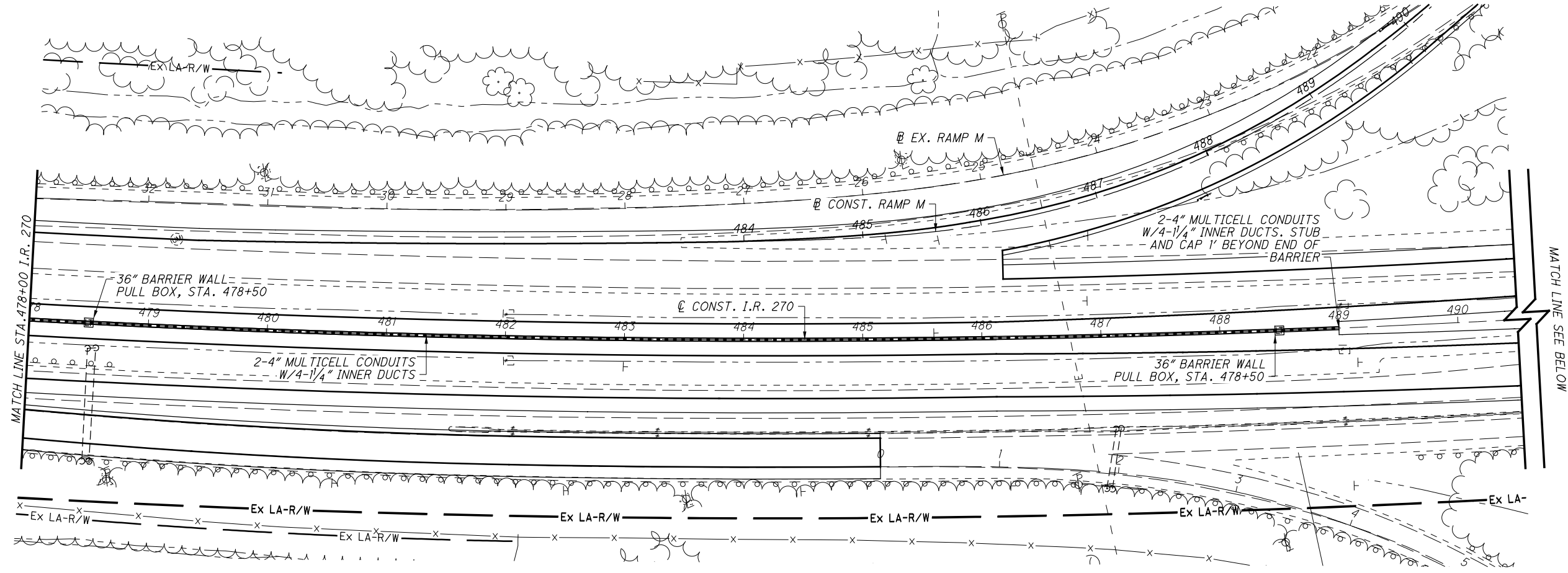
BU-4/5 Roadway/Drainage Approved for Construction

MISCELLANEOUS DETAILS

STA. 453+00 TO STA. 478+00

FRA - 270-52.72

100
114



CALCULATED JDC CHECKED RJM

0 50 100
25
HORIZONTAL SCALE IN FEET

BU-4/5 Roadway/Drainage Approved for Construction
MISCELLANEOUS DETAILS
 STA. 478+00 TO END

FRA - 270-52.72