MAY 8 1968

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	STATE	

1 / 468

COL-11-10.22
COL-154-1.71

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

COL-11-10.22 & COL-154-1.71
COLUMBIANA COUNTY
ELKRUN & MADISON TOWNSHIPS

CONVENTIONAL SIGNS

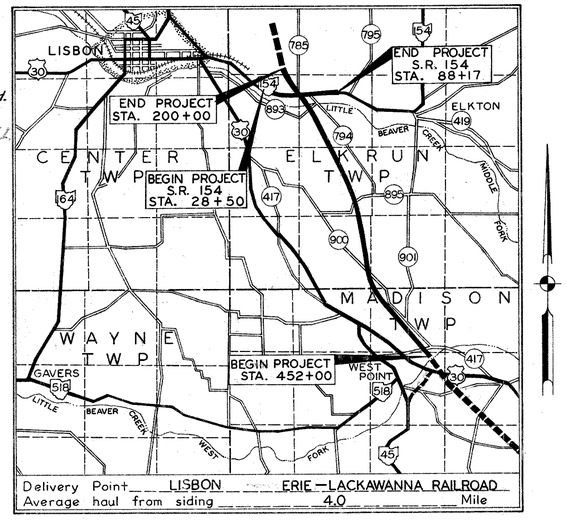
TOWNSHIP LINE
PROPERTY LINE
FENCE LINE (EXISTING & PROPOSED)
RAILROAD
GUARD RAIL - EXISTING
GUARD RAIL - PROPOSED
UTILITY POLES — POWER ⌀ TELEPHONE ⌀
CULVERTS - EXISTING
CULVERTS - PROPOSED
EXISTING RIGHT OF WAY
CENTER LINE
RIGHT OF WAY ONLY — RW
LIMITED ACCESS ONLY — LA
RIGHT OF WAY & LIMITED ACCESS — LARW

INDEX OF SHEETS

TITLE SHEET	1
SCHEMATIC PLAN & DESIGN DESIGNATION	2-3
TYPICAL SECTIONS	4-10
SPECIAL DETAILS	11-12 & 12A
GENERAL NOTES	13-15
PAVEMENT CALCULATIONS	16
SUMMARY TABLES	17-18
GENERAL SUMMARY	19
COL-11 PLAN-PROFILE	20-46
COL-11 CROSS SECTIONS	47-221
RELOCATED S.R. 154 PLAN-PROFILE	222-228
RELOCATED S.R. 154 CROSS SECTIONS	229-247
INTERCHANGE GRADING PLAN & CROSS SECTIONS	248-255
INTERCHANGE CROSS SECTION PLAN	256
RAMPS A, B, C, & D PLAN-PROFILE & CROSS SECTIONS	257-278
ACCESS RD. A & CHAMBERLAIN DRIVE PLAN PROFILE & CROSS SECTIONS	279-281
RELOCATED TWP. RD. 785 PLAN-PROFILE & CROSS SECTIONS	282-293 *
RELOCATED TWP. RD. 794 PLAN PROFILE & CROSS SECTIONS	294-295
RELOCATED TWP. RD. 900 PLAN PROFILE & CROSS SECTIONS	296-303
TWP. RD. 1149 PLAN-PROFILE & CROSS SECTIONS	304-306
CO. RD. 417 PLAN-PROFILE & CROSS SECTIONS	307-314
RELOCATED BEAVER CREEK PROFILE & CROSS SECTIONS	315
MISCELLANEOUS DRIVE DETAILS	316-319
CURVE TABLES	320-324
RAMP TERMINAL DETAILS & INTERSECTION DETAILS	325-326
CULVERTS, STORM SEWERS & GAS LINE DETAILS	327-354, 354A
SIGNING, DELINEATORS & PAVEMENT MARKING - 354B, 354C, 354D, 354E, 354F,	355-360
APPROACH SLAB DETAILS	361-366
STRUCTURE OVER 20 FT. SPAN	367-435
RIGHT-OF-WAY PLANS	436-468

* SHEET NO. 289 OMITTED

Sht. 19 revised 2-26-68 C.E.H.
Sht. No. 396 revised 2-23-68 E.B.L.
Sht. 369, 395, 418, 428 REVISED 4-10-70 G.R.I.



LOCATION MAP

SCALE IN MILES
0 0.5 1 2 3 4 5 6

PORTION TO BE IMPROVED
STATE ROADS
OTHER ROADS

SCALE
PLAN 0 25 50 100
PROFILE HORIZONTAL 0 25 50 100
PROFILE VERTICAL 0 5 10 20
CROSS SECTIONS 0 5 10 20

LINE DATA

COL-11-10.22

BEGIN PROJECT	STA. 452+00
END PROJECT	STA. 200+00
ADD FOR STATION EQUATION [443+97.98 BK = 442+02.52 AH]	+195.46 L.F.
NET LENGTH OF PROJECT	25,395.46 L.F. or 4.809 MILES
BEGIN WORK	STA. 452+00
END WORK	STA. 795+50
ADD FOR STATION EQUATION [443+97.98 BK = 442+02.52 AH]	+195.46 L.F.
ADD FOR STATION EQUATION (793+58.40 BACK = 200+00 AHEAD)	+ 191.60 L.F.
ADD FOR TWP. RD. 785	1,995.31 L.F.
ADD FOR TWP. RD. 900	1,950.00 L.F.
ADD FOR TWP. RD. 1149	575.92 L.F.
ADD FOR CO. RD. 417	1,426.45 L.F.
NET LENGTH OF WORK	31,534.74 L.F. or 5.972 MILES

COL-154-1.71

BEGIN PROJECT	STA. 28+50
END PROJECT	STA. 88+17
NET LENGTH OF PROJECT	5,967.00 L.F. or 1.130 MILES
BEGIN WORK	STA. 27+50
END WORK	STA. 88+17
ADD FOR TWP. RD. 794	487.07 L.F.
NET LENGTH OF WORK	6,554.07 L.F. or 1.241 MILES

STATE ROUTE 11 & STATE ROUTE 154
TOTAL NET LENGTH OF PROJECT - 31,362.46 L.F. or 5.939 MILES

STATE ROUTE 11 & STATE ROUTE 154
TOTAL NET LENGTH OF WORK — 38,088.81 L.F. or 7.213 MILES

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 OF HIGHWAYS IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE REVISED CODE OF OHIO.

1967 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Highways including changes and supplemental specifications listed in the proposal shall govern this improvement.

The right of way for this improvement will be provided by the State of Ohio.

I hereby, approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on these plans and estimates.

Approved Earl V. Wilson
Date 6-9-66 Division Deputy Director

Approved C. H. Albrecht
Date 8-25-67 Engineer of Bridges

Approved R. E. Gatlin
Date 9-7-67 Engineer of Location & Design

Approved R. E. Shultz
Date 9-7-67 Deputy Director of Design & Construction

Approved T. H. Boswell
Date 9-15-67 Deputy Director of Right of Way

Approved Thomas M. Major
Date 9-15-67 Deputy Director of Planning & Programming

Approved R. W. Wilson
Date 9-15-67 First Assistant Director

Approved P. E. Manchester
Date 9-15-67 Director of Highways

PREPARED AND RECOMMENDED BY
W. E. QUICKSALL & ASSOCIATES INC.
CONSULTING ENGINEERS
NEW PHILADELPHIA, OHIO

COLUMBIANA COUNTY

File No. COL-11-10.22 & COL-154-1.71
Date of Letting _____ 196
Contract No. _____

STANDARD DRAWINGS

		CB-2-5&2-6	6-1-65	GR-5B	6-1-65	MC-5	6-1-65
		CB-4	6-1-65	GR-6	6-1-65	MC-6	6-1-65
BP-3	1-10-67	CB-5	6-1-65	RB-1-55	2-2-59	MC-7	3-1-66
		CB-6	6-1-65	HW-E	6-1-65	SD-1-65, Sh. 1 & 2	11-8-65
BP-5	6-1-65	F-5	10-1-66	I-2	6-1-65	BR-1-65, Sh. 1	11-24-65
BP-6	6-1-65	F-2	6-1-65	L-1	6-1-65	AS-1-54	8-10-65
BP-7	1-1-66	F-3	10-1-66	MC-1	6-1-65	SP-53	6-30-61
CB-2-2-A&B	6-1-65	GR-1	1-1-67	MC-3	5-1-66	MH-1A	8-1-66
CB-2-3 & 2-4	6-1-65	GR-2A	1-1-67	MC-4	6-1-65		
		F-6	10-1-66	MH-1	6-1-65		

SUPPLEMENTAL SPECIFICATIONS

		801	1-1-67
808	1-13-67	1001	3-21-66
811	1-1-67		
815	1-1-67		
816	8-6-65		
824	3-21-66		
825	1-1-67		
828	1-1-67		

Centerline stationing for this project was established to conform to that used for projects on U.S. Route 30. The Stations advance from West to East. The project designation has been established as State Route 11. All S.L.M. designations are shown to conform to S.R. 11 data and advance from South to North.

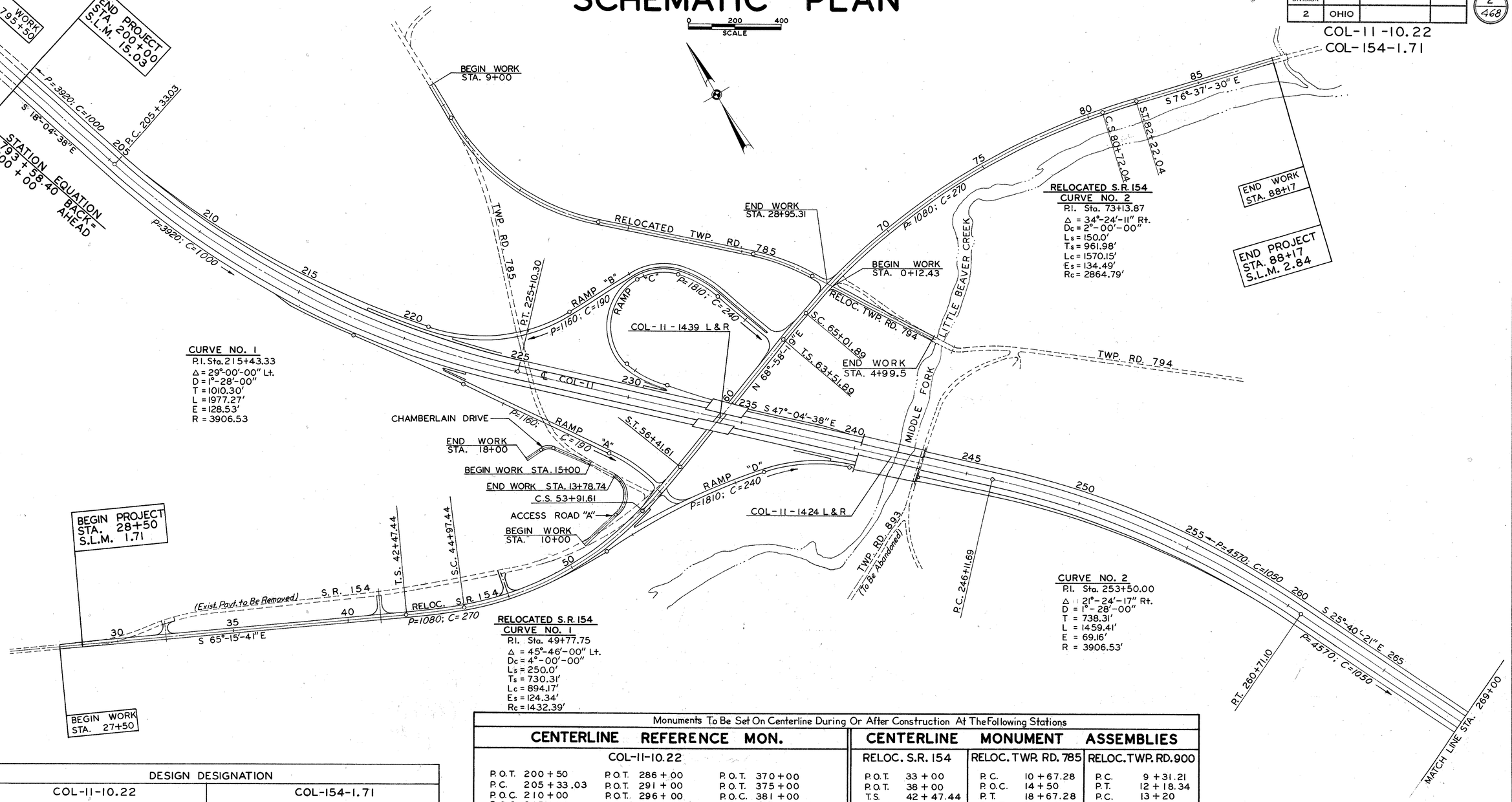
SCHEMATIC PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

2/468

COL-11-10.22
COL-154-1.71

0 200 400 SCALE



CURVE NO. 1
P.I. Sta. 215+43.33
Δ = 29°-00'-00" Lt.
D = 1°-28'-00"
T = 1010.30'
L = 1977.27'
E = 128.53'
R = 3906.53

RELOCATED S.R. 154 CURVE NO. 1
P.I. Sta. 49+77.75
Δ = 45°-46'-00" Lt.
Dc = 4°-00'-00"
Ls = 250.0'
Ts = 730.31'
Lc = 894.17'
Es = 124.34'
Rc = 1432.39'

RELOCATED S.R. 154 CURVE NO. 2
P.I. Sta. 73+13.87
Δ = 34°-24'-11" Rt.
Dc = 2°-00'-00"
Ls = 150.0'
Ts = 961.98'
Lc = 1570.15'
Es = 134.49'
Rc = 2864.79'

CURVE NO. 2
P.I. Sta. 253+50.00
Δ = 21°-24'-17" Rt.
D = 1°-28'-00"
T = 738.31'
L = 1459.41'
E = 69.16'
R = 3906.53'

DESIGN DESIGNATION			
COL-11-10.22		COL-154-1.71	
CURRENT A.D.T. 1962	NONE	CURRENT A.D.T. 1962	1350
DESIGN YEAR A.D.T. 1982	15,440	DESIGN YEAR A.D.T. 1982	2830
D.H.V. 2146	2146	D.H.V.	349
D. (DIRECTIONAL DISTRIBUTION	1288	D. (DIRECTIONAL DISTRIBUTION	236
T. (PERCENT B & C TRUCKS)	17%	T. (PERCENT B & C TRUCKS)	20%
V. (DESIGN SPEED)	70 M.P.H.	V. (DESIGN SPEED)	50 M.P.H.

Monuments To Be Set On Centerline During Or After Construction At The Following Stations

CENTERLINE REFERENCE MON. — COL-11-10.22

P.O.T. 200+50	P.O.T. 286+00	P.O.T. 370+00
P.C. 205+33.03	P.O.T. 291+00	P.O.T. 375+00
P.O.C. 210+00	P.O.T. 296+00	P.O.C. 381+00
P.O.C. 215+00	P.O.T. 301+00	P.O.C. 385+00
P.O.C. 220+00	P.C. 306+96.69	P.O.C. 390+00
P.T. 225+10.30	P.O.C. 311+00	P.O.C. 395+50
P.O.T. 230+00	P.O.C. 315+50	P.O.C. 401+00
P.O.T. 235+50	P.O.C. 321+00	P.T. 406+08.88
P.O.T. 240+00	P.O.C. 325+50	P.O.T. 411+00
P.C. 246+11.69	P.O.C. 331+00	P.O.T. 416+00
P.O.C. 250+50	P.O.C. 336+00	P.O.T. 421+00
P.O.C. 256+00	P.O.C. 341+00	P.O.T. 426+00
P.T. 260+71.10	P.T. 345+14.58	P.O.T. 431+00
P.O.T. 266+00	P.O.T. 350+00	P.O.T. 436+00
P.O.T. 271+00	P.O.T. 355+00	P.O.T. 441+00
P.O.T. 276+00	P.O.T. 360+00	P.O.C. 445+55.85
P.O.T. 281+00	P.O.T. 365+00	P.O.C. 451+50

CENTERLINE MONUMENT ASSEMBLIES

RELOC. S.R. 154		RELOC. TWP. RD. 785		RELOC. TWP. RD. 900	
P.O.T.	33+00	P.C.	10+67.28	P.C.	9+31.21
P.O.T.	38+00	P.O.C.	14+50	P.T.	12+18.34
T.S.	42+47.44	P.T.	18+67.28	P.C.	13+20
S.C.	44+79.44	P.O.T.	22+00	P.T.	17+95
P.O.C.	49+00	P.C.	25+58.80	P.C.	22+08.58
C.S.	53+91.61	P.T.	28+51.54	P.T.	23+87.87
S.T.	56+41.61				
P.O.T.	60+00	**RELOC. TWP. RD. 794**		**CO. RD. 417**	
T.S.	63+51.89	P.O.T.	4+00	P.O.T.	298+00
S.C.	65+01.89			P.O.T.	302+50
P.O.C.	70+00			P.O.T.	306+00
P.O.C.	75+00			P.O.T.	311+00
C.S.	80+72.04				
S.T.	82+22.04				
P.O.T.	87+00				

SCHEMATIC PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

3
168

COL-11-10.22
COL-154-1.71

0 200' 400'
SCALE

TWP. RD. 794

TWP. RD. 794

TWP. RD. 895

CURVE NO. 3
P.I. Sta. 326+23.49
Δ = 19°-05'-22" Rt.
D = 0°-30'-00"
T = 1826.80'
L = 3817.89'
E = 160.86'
R = 11459.16'

MATCH LINE STA. 269+00

270 275 280 285 290 295 300 S 25°-40'-21" E 305 310 315 320 325 330

℄ COL-11

MEDIAN CROSSOVER

P.C. 306+96.69

MATCH LINE STA. 334+00

MATCH LINE STA. 334+00

335 340 345 350 355 360 S 6°-34'-59" E 365 370 375 385 390 395

℄ COL-11

P.T. 345+14.58

END WORK
STA. 26+50

COL-11-1162

P.C. 379+84.11

CURVE NO. 4
P.I. Sta. 393+38.88
Δ = 34°-59'-49" Lt.
D = 1°-20'
T = 1354.77'
L = 2624.77'
E = 208.50'
R = 4297.18'

MATCH LINE STA. 398+00

BEGIN WORK
STA. 8+03.10

TWP. RD. 900 Exist. Pavt. To Be Removed

SUSPEND WORK
STA. 9+89.51

TWP. RD. 900

RELOCATED

BEGIN WORK
STA. 7+00

RESUME WORK
STA. 10+10.49

TWP. RD. 1149

END WORK
STA. 14+00

TWP. RD. 900

CO. RD. 417

BEGIN WORK
STA. 297+23.55

BEGIN PROJECT
STA. 452+00
S.L.M. 10.22

BEGIN WORK

MATCH LINE STA. 398+00

400 405 410 415 420 S 41°-34'-48" E 425 430 435 440 445 450 455

℄ COL-11

P.T. 406+08.88

MEDIAN CROSSOVER

CURVE NO. 5
P.I. 461+12.42
Δ = 18°-55'-30" Lt.
D = 0°-30'-00"
T = 1909.90'
L = 3785.0'
E = 158.06'
R = 11459.16'

COL-11-1041

CO. RD. 417

STATION EQUATION
P.C. 443+97.98 BACK =
P.C. 442+02.52 AHEAD

END WORK
STA. 311+50

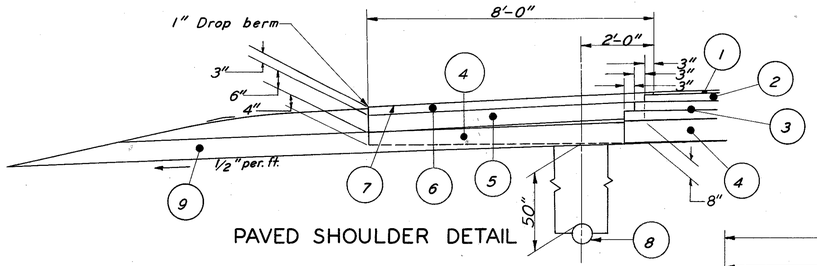
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

4
468

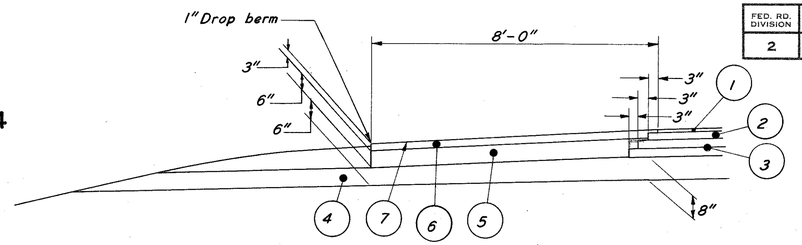
COL-11-10.22
COL-154-1.71

404 ON 824

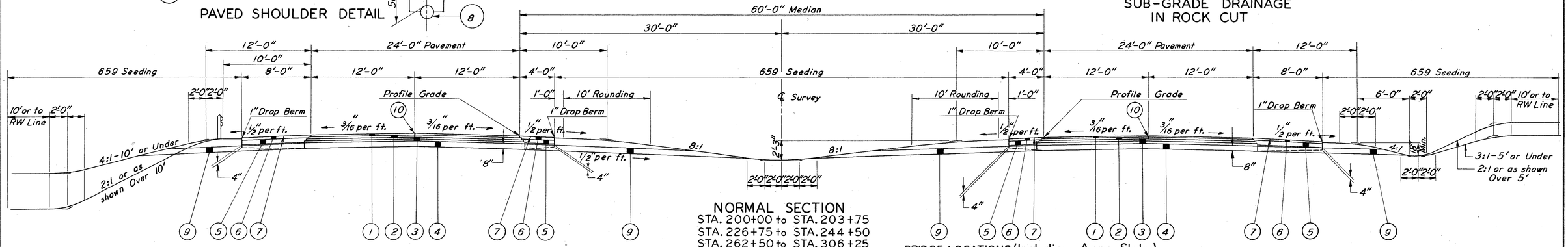
SCALE 3/16"=1'



PAVED SHOULDER DETAIL



SUB-GRADE DRAINAGE
IN ROCK CUT

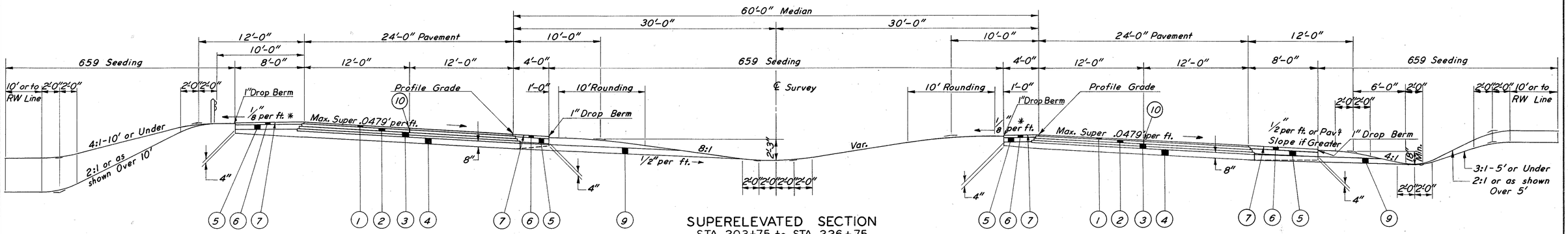


NORMAL SECTION

STA. 200+00 to STA. 203+75
STA. 226+75 to STA. 244+50
STA. 262+50 to STA. 306+25
STA. 346+00 to STA. 378+25
STA. 407+75 to STA. 443+25

BRIDGE LOCATIONS (Including Appr. Slabs)

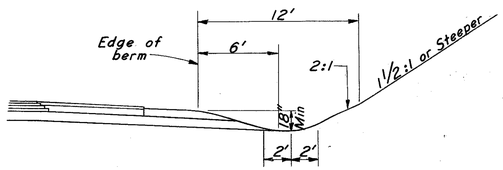
STA. 233+12.43 to STA. 234+93.43
STA. 240+00.74 to STA. 243+15.26



SUPERELEVATED SECTION

STA. 203+75 to STA. 226+75
STA. 244+50 to STA. 262+50
STA. 306+25 to STA. 346+00
STA. 378+25 to STA. 407+75
STA. 443+25 to STA. 452+00

* When rate of super is 0.016 per ft. or less, berm slope will be 1/2" per ft.



DITCH AND SLOPE DETAIL
IN ROCK CUT

NOTE: See Cross Sections for Locations

LOCATION OF 310 SUBBASE FOR SUB-GRADE DRAINAGE IN ROCK CUT

STA. 200+00 to STA. 204+50 Rt. & Lt.
STA. 204+50 to STA. 220+50 Lt.
STA. 248+25 to STA. 261+00 Rt.
STA. 261+00 to STA. 263+50 Rt. & Lt.
STA. 274+50 to STA. 278+00 Lt.
STA. 287+40 to STA. 293+00 Rt. & Lt.
STA. 328+00 to STA. 345+00 Rt.
STA. 345+00 to STA. 359+00 Rt. & Lt.
STA. 375+00 to STA. 379+00 Rt. & Lt.
STA. 379+00 to STA. 385+25 Lt.
STA. 394+00 to STA. 398+50 Lt.
STA. 406+50 to STA. 411+50 Rt.
STA. 411+50 to STA. 443+97.98 Rt. Lt.

LEGEND

(1) Item 404 — 1 1/4" Asphalt Concrete (70-85)
(2) Item 302 — 2 3/4" Asphalt Concrete (70-85)
(3) Item 824 — 6" Bituminous Macadam Base, 702.09, RT-11 or RT-12 placed in two 3" courses.
(4) Item 310 — Subbase (Thickness as shown)
(5) Item 304 — 6" Aggregate Base.
(6) Item 301 — 3" Bituminous Aggregate Base, 702.01 (85-100); or 702.09 Rt.-10
(7) Item 409 — SealCoat using 0.008 Cu. Yd. No. 8 aggregate per Sq. Yd. and 0.30 Gal. bituminous material per Sq. Yd. as per plan (See note in proposal)
(8) Item 605 — Deep Pipe Underdrains (To be used as directed by the engineer)
(9) Item 605 — Aggregate Drains
(10) Hot Longitudinal Joint (See note in proposal)

"In lieu of Section 605.05 of the specification, the aggregate drains shall be constructed prior to construction of the paved shoulders."

310 Subbase in rock cuts shall be extended to roadway ditch line only on Normal Sections & low side of Superelevated Sections.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

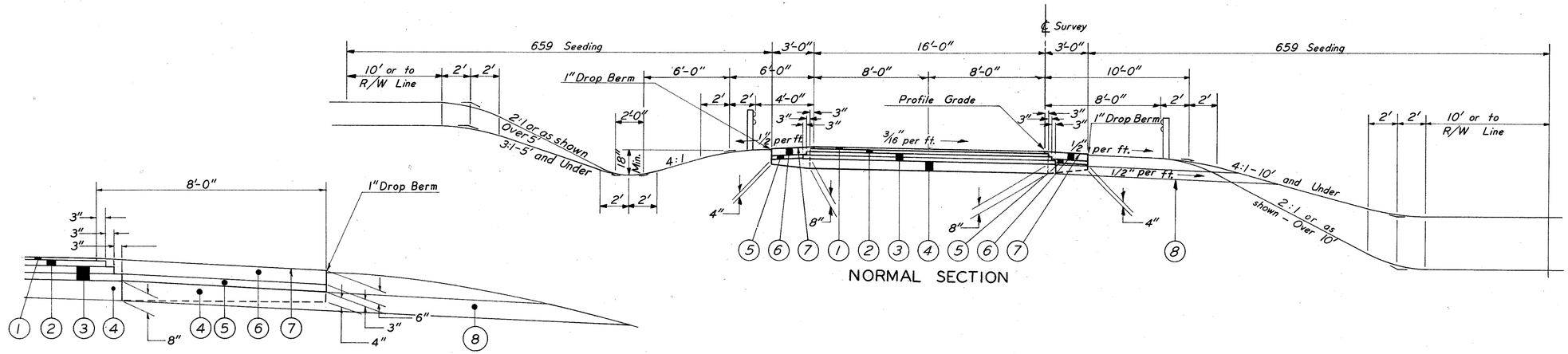
5
468

COL-11-10.22
COL-154-1.71

404 ON 824

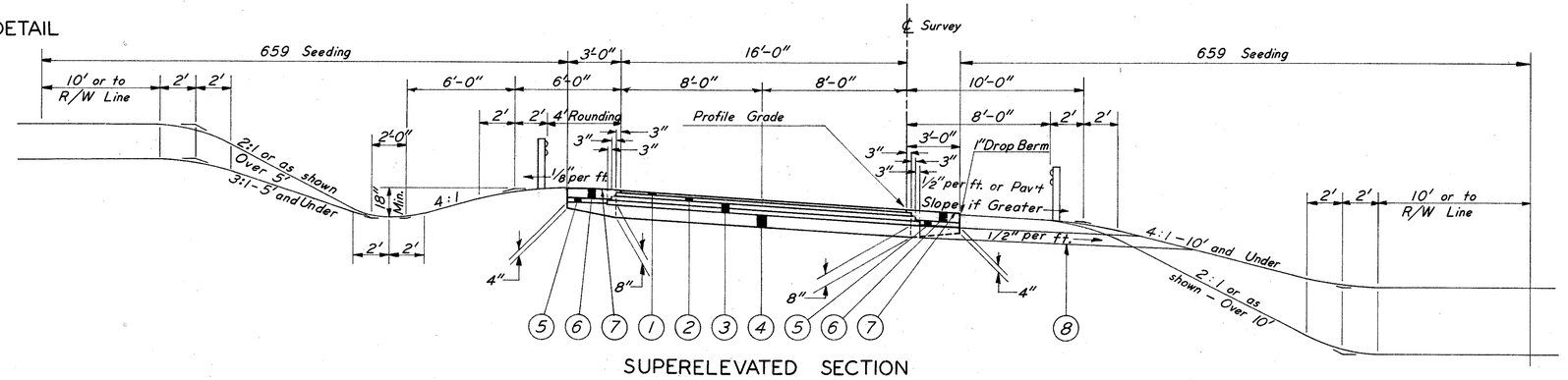
SCALE 1/4" = 1'

RAMPS

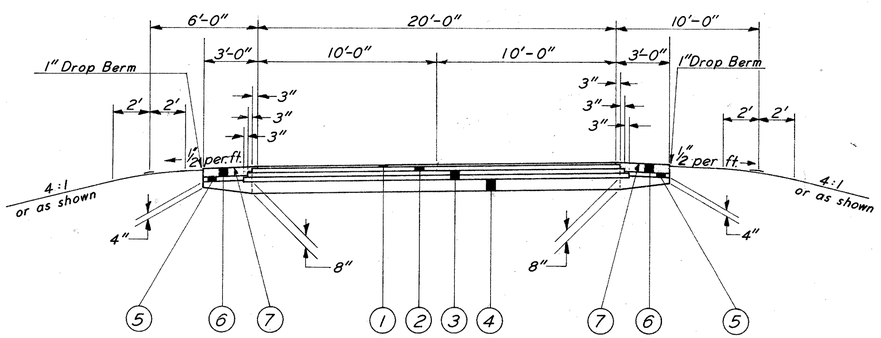


NORMAL SECTION

SPEED CHANGE LANE DETAIL



SUPERELEVATED SECTION



RAMP "D"
CONNECTION TO S.R. 154

LEGEND

(1) Item 404 — 1 1/4" Asphalt Concrete (70-85)
(2) Item 302 — 2 3/4" Asphalt Concrete (70-85)
(3) Item 824 — 6" Bituminous Macadam Base, 702.09, RT-11 or RT-12 placed in two 3" courses.
(4) Item 310 — Subbase
(5) Item 304 — 3" Aggregate Base
(6) Item 301 — 6" Bituminous Aggregate Base 702.01 (85-100); or 702.09 RT-10
(7) Item 409 — Seal Coat using 0.008 Cu. Yd. No. 8 Aggregate per Sq. Yd. and 0.30 Gal. bituminous material per Sq. Yd., as per plan (See note in Proposal)
(8) Item 605 — Aggregate Drains

"In lieu of Section 605.05 of the specifications, the aggregate drains shall be constructed prior to construction of the paved shoulders."

When ℄ Survey is on opposite side, Geometric's are the same.

For Superelevation, See Plan & Profile Sheets; For Variable widths, See Ramp Terminal Details Sheet No. 325

RAMP TYPICAL SECTIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

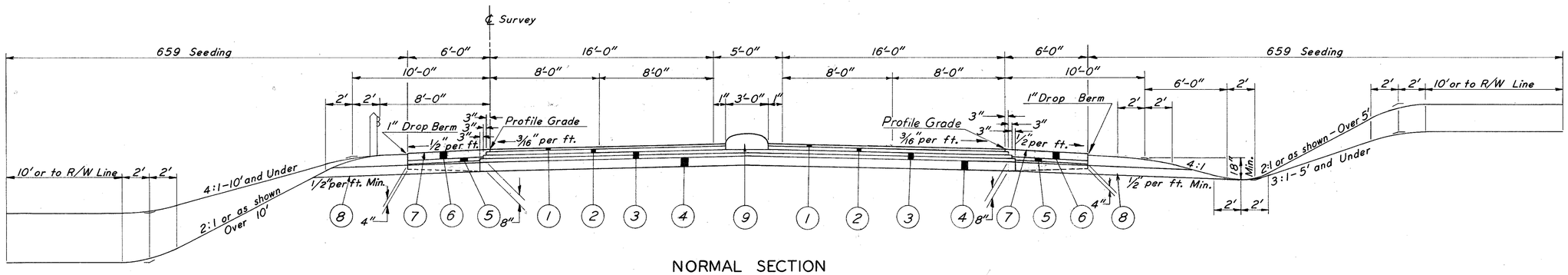
6
468

COL-11-10.22
COL-154-1.71

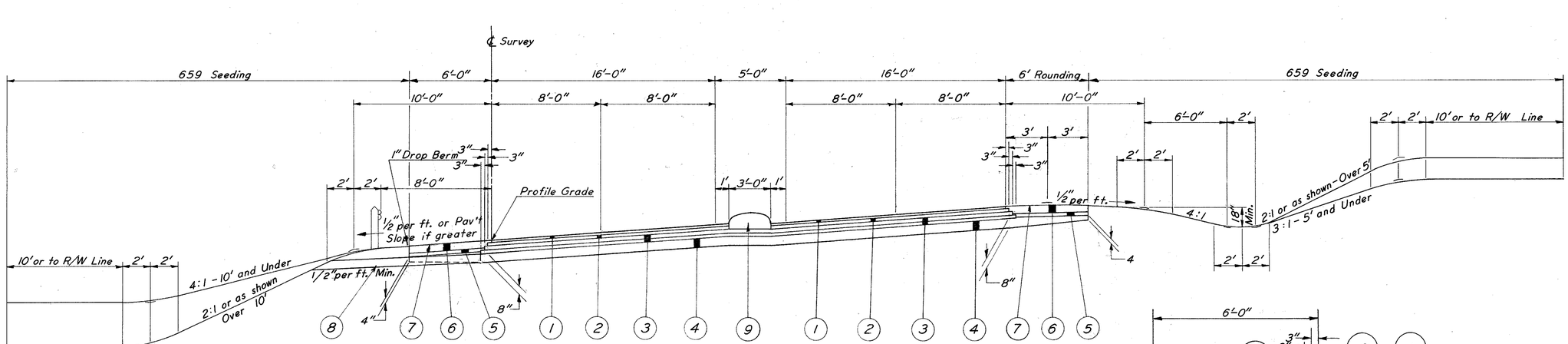
404 ON 824

SCALE 1/4" = 1'

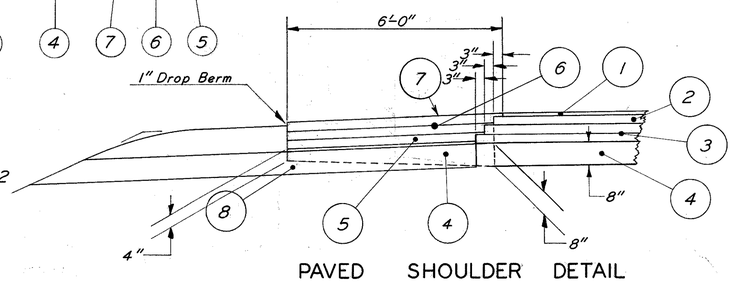
TWO WAY DIRECTIONAL RAMPS



NORMAL SECTION



SUPERELEVATED SECTION



PAVED SHOULDER DETAIL

LEGEND

(1) Item 404 — 1 1/4" Asphalt Concrete (70-85)
(2) Item 302 — 2 3/4" Asphalt Concrete (70-85)
(3) Item 824 — 6" Bituminous Macadam Base, 702.09, RT-11 or RT-12 placed in two 3" courses
(4) Item 310 — Subbase
(5) Item 304 — 3" Aggregate Base
(6) Item 301 — 6" Bituminous Aggregate Base 702.01 (85-100); or 702.09 RT-10
(7) Item 409 — SealCoat using 0.008 Cu. Yd. No. 8 Aggregate per Sq. Yd. and 0.30 Gal. bituminous material per Sq. Yd., as per plan (See note in proposal)
(8) Item 605 — Aggregate Drains
(9) Item 612 — Concrete Median

"In lieu of Section 605.05 of the specifications, the aggregate drains shall be constructed prior to construction of the paved shoulders."

For Superelevation, See Plan & Profile Sheets; For Variable widths, See Ramp Terminal Details Sheet No. 325

RAMP TYPICAL SECTIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

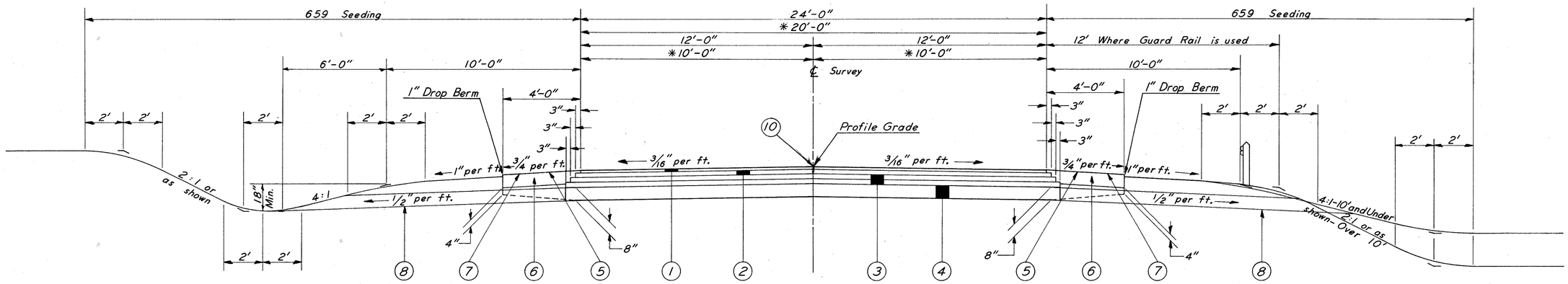
7
468

COL-11-10.22
COL-154-1.71

404 ON 824

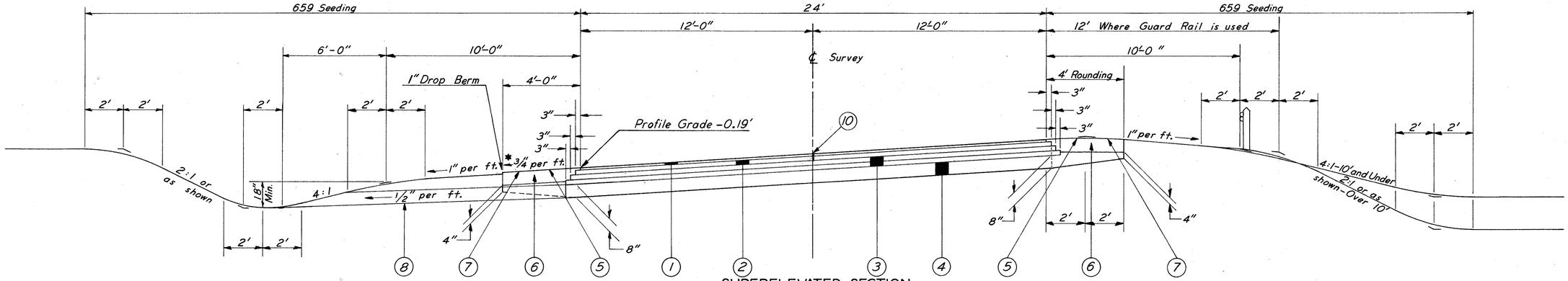
SCALE 3/8 = 1'

STATE ROUTE 154



NORMAL SECTION

STA. 27+50 to STA. 28+50 (Transition 20'-24' width)
STA. 28+50 to STA. 41+50
STA. 57+25 to STA. 62+75
STA. 83+00 to STA. 84+00
STA. 84+00 to STA. 85+00 (Transition 24'-20' width)
*STA. 85+00 to STA. 88+17



SUPERELEVATED SECTION

STA. 41+50 to STA. 57+25
STA. 62+75 to STA. 83+00

LEGEND

(1) Item 404 — 1¼" Asphalt Concrete (70-85)
(2) Item 302 — 2¾" Asphalt Concrete (70-85)
(3) Item 824 — 6" Bituminous Macadam Base, 702.09, RT-11 or RT-12 placed in two 3" courses.
(4) Item 310 — Subbase
(5) Item 408 — Bituminous Prime Coat, 702.09 RT-2 or RT-3, Applied at the rate of 0.4 Gal. per Sq. Yd.
(6) Item 304 — 8" Aggregate Base.
(7) Item 409 — Seal Coat using 0.008 Cu. Yd. No. 8 aggregate per Sq. Yd. and 0.30 Gal. bituminous material per Sq. Yd., 702.09 RT-9 or RT-10; or 702.02, MC-800 or MC-3000
(8) Item 605 — Aggregate Drains
(10) Hot Longitudinal Joint (See note in proposal)

NOTE:

* Where pavement slope is greater then 3/4" per ft., use pavement slope.

"In lieu of Section 605.05 of the specification the aggregate drains shall be constructed prior to construction of the aggregate shoulders."

SR 154 TYPICAL SECTIONS

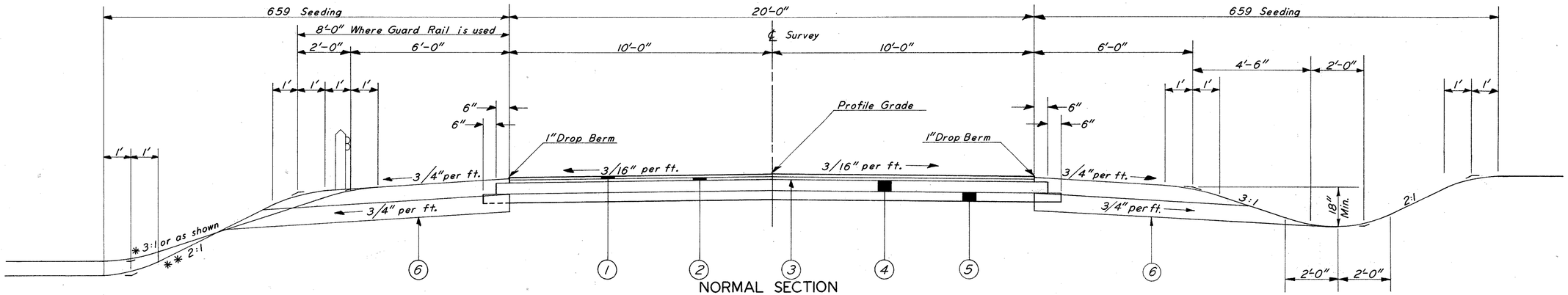
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

8
468

COL-11-10.22
COL-154-1.71

404 ON 304

SCALE 1/2"=1'

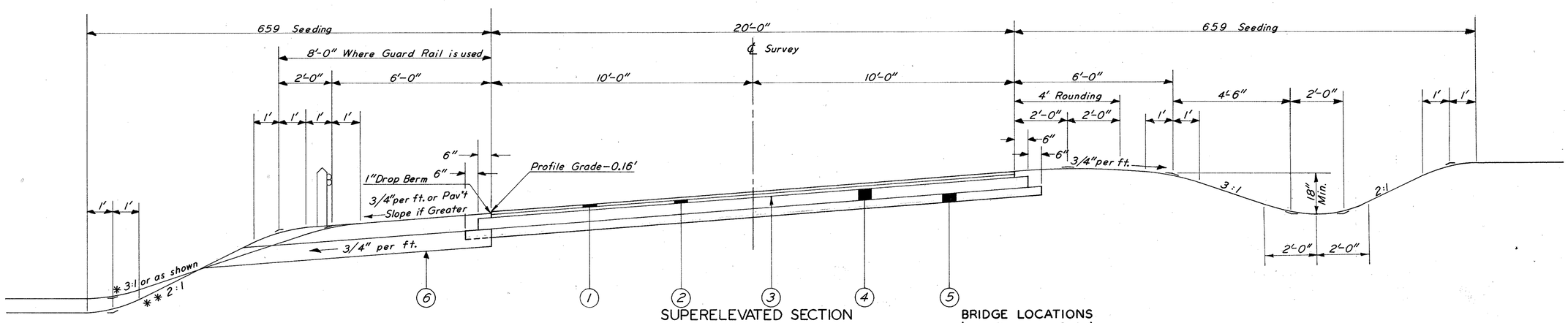


NORMAL SECTION

CO. RD. 417
STA.297+23.55 to STA.311+50

TWP.RD. 900
STA. 7+00 to STA. 8+25
STA. 19+00 to STA. 21+00
STA. 24+75 to STA. 26+50

BRIDGE LOCATIONS
(Including Appr. Slabs)
CO. RD. 417
STA. 302+57.38 to STA. 305+41.38
TWP. RD. 900
STA. 19+00 to STA. 21+00



SUPERELEVATED SECTION

TWP. RD. 900
STA. 8+25 to STA. 19+00
STA. 21+00 to STA. 24+75

BRIDGE LOCATIONS
(Including Appr. Slabs)
TWP. RD. 900
STA. 18+52.92 to STA. 19+00
STA. 21+00 to STA. 21+47.08

* Fills 10' and Under
** Fills Over 10'

LEGEND

(1) Item 404 — 1¼" Asphalt Concrete (85-100)
(2) Item 402 — 1¼" Asphalt Concrete (85-100)
(3) Item 408 — Bituminous Prime Coat, 702.09 RT-2 or RT-3, Applied at the rate of 0.4 Gal. per Sq. Yd.
(4) Item 304 — 5" Aggregate Base
(5) Item 310 — 4" Subbase
(6) Item 605 — Aggregate Drains

For Transition Location See Plan & Profile Sheet No. 296 & 297.

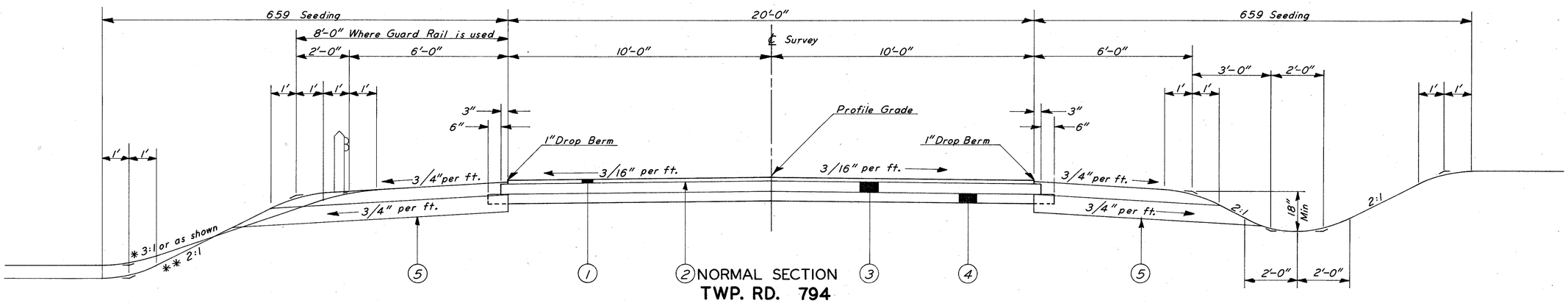
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

9
468

COL-11-10.22
COL-154-1.71

404 ON 304

SCALE 1/2"= 1'



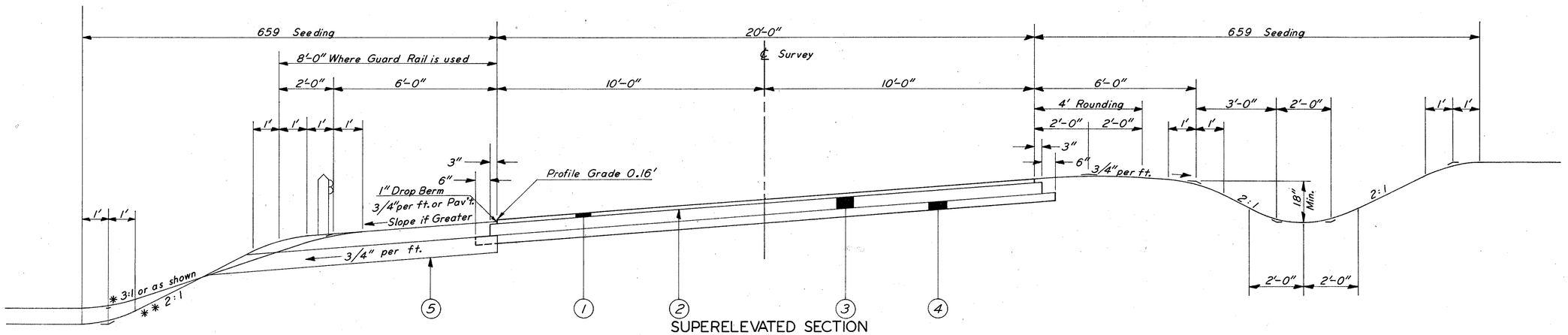
NORMAL SECTION

TWP. RD. 794

STA. 0+12.43 to STA.4+99.50

TWP. RD. 785

STA. 9+00 to STA. 9+50
STA. 19+50 to STA. 24+75



SUPERELEVATED SECTION

TWP. RD. 785

STA. 9 +50 to STA. 19+50
STA.24 + 75 to STA. 28+95.31

NOTE: For Transition Locations See Plan & Profile Sheet No. 282 & 294

* Fills 10' and Under
** Fills Over 10'

LEGEND

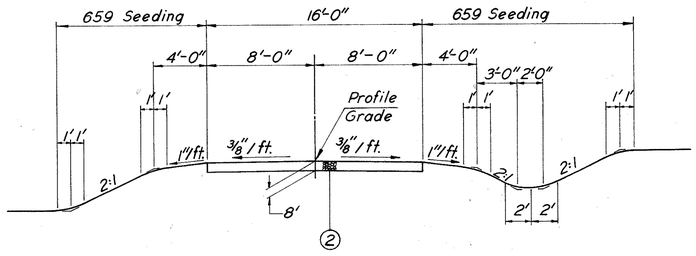
(1) Item 404 — 1½"Asphalt Concrete (85-100) (Using 402 Composition.)
(2) Item 408 — Bituminous Prime Coat, 702.09 RT-2 or RT-3, Applied at the rate of 0.4 Gal. per Sq. Yd.
(3) Item 304 — 5" Aggregate Base
(4) Item 310 — 4" Subbase
(5) Item 605 — Aggregate Drains

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

10
468

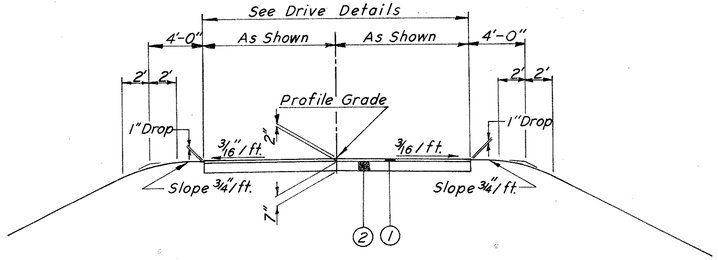
COL-11-10.22
COL-154-1.71

SCALE 3/16" = 1'



TWP. RD. 1149
STA. 10+63.73 TO STA. 13+50

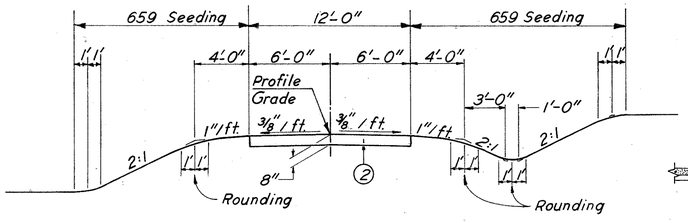
ACCESS ROAD A
STA. 10+00 TO STA. 13+78.74



ACCESS DRIVES
LEFT OF STA. 32+08 SR.154
LEFT OF STA. 41+40 SR. 154
LEFT OF STA. 49+00 S.R. 154

LEGEND

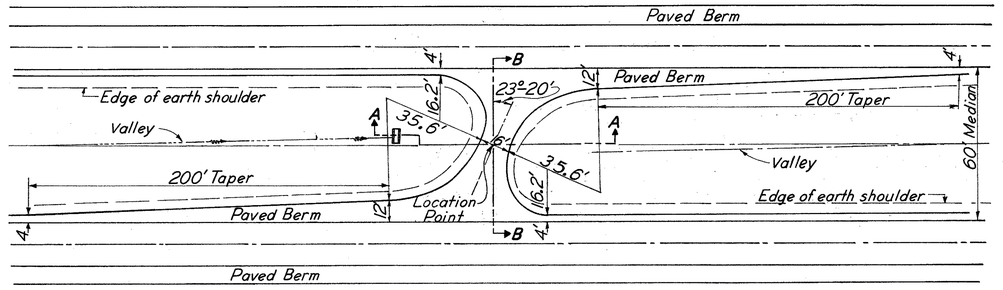
1. Item 404 – Asphalt Concrete (85-100)® to be placed in 2-1" courses
2. Item 304 – Aggregate Base
3. Item 301 – 3" Bituminous Aggregate Base
4. Item 310 – 4" Subbase
5. Item 409 – Sealcoat using 0.008 Cu. Yd. No.8 aggregate per Sq. Yd and 0.30 Gal. bituminous material per Sq. Yd.



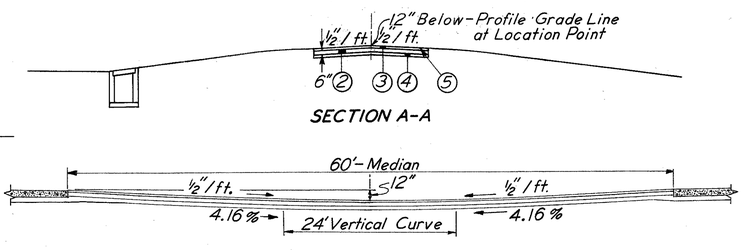
TWP. RD. 1149
STA. 8+23.10 TO STA. 9+59

CHAMBERLAIN DRIVE
STA. 15+00 TO STA. 18+00

PRIVATE DRIVES
SEE DETAIL FOR LOCATIONS

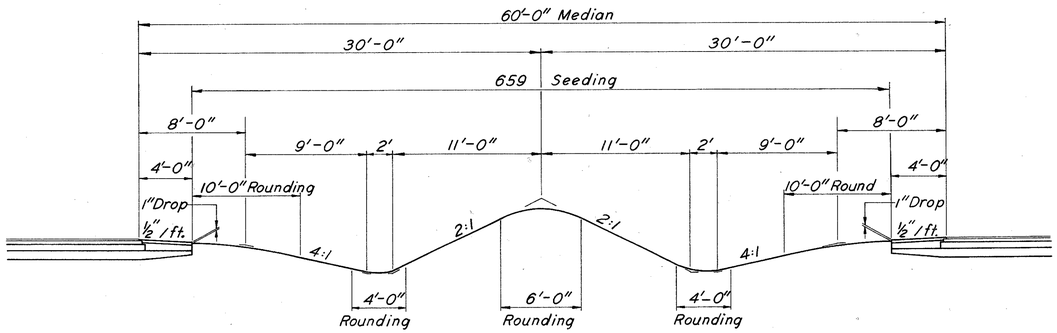


TYPICAL MEDIAN CROSSOVER
NO SCALE

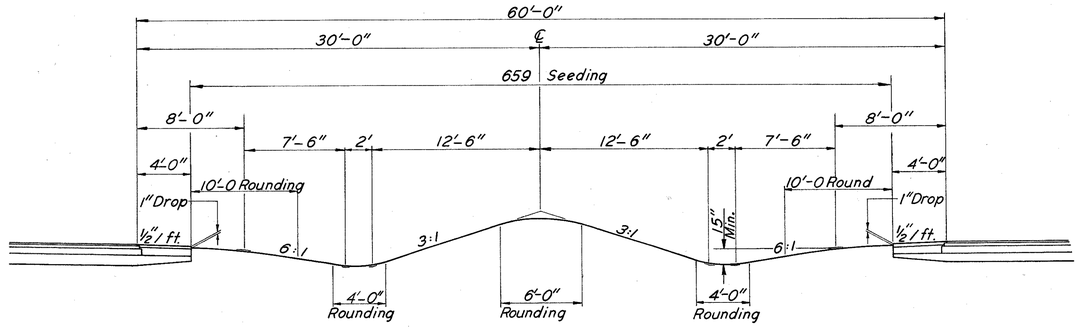


SECTION A-A

SECTION B-B



BARRIER TYPE MEDIAN
Under T.R. 900



BARRIER TYPE MEDIAN
Under C.R. 417

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

11
468

COL-11-10.22
COL-154-1.71

SPECIAL BERM & SLOPE PROTECTION

Prior to placement of sod in the berm and slope, galvanized poultry fence shall be placed on the finished grade in strands which shall be at right angles to the direction of flow. Each strand shall be staked securely on the top and bottom with stakes spaced at four foot intervals and alternated in rows four feet apart.

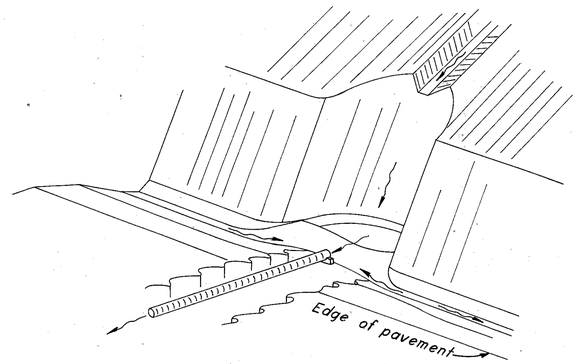
Stakes shall be 1"x1"x8" wood stakes and shall be perpendicular to the ground and flush with the finished grade.

The fence shall be Straight Line Poultry Fence or equivalent with strand width of four feet, having a two inch mesh and all wire No. 20 Gauge.

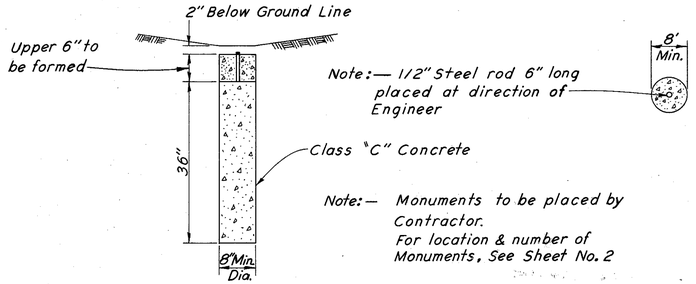
Each strand of fencing shall be fastened together at twelve inch intervals by means of hog rings.

The fence shall be secured to the wood stakes by metal staples.

Sod shall be laid in accordance with Construction and Materials Specifications Item 660/06.

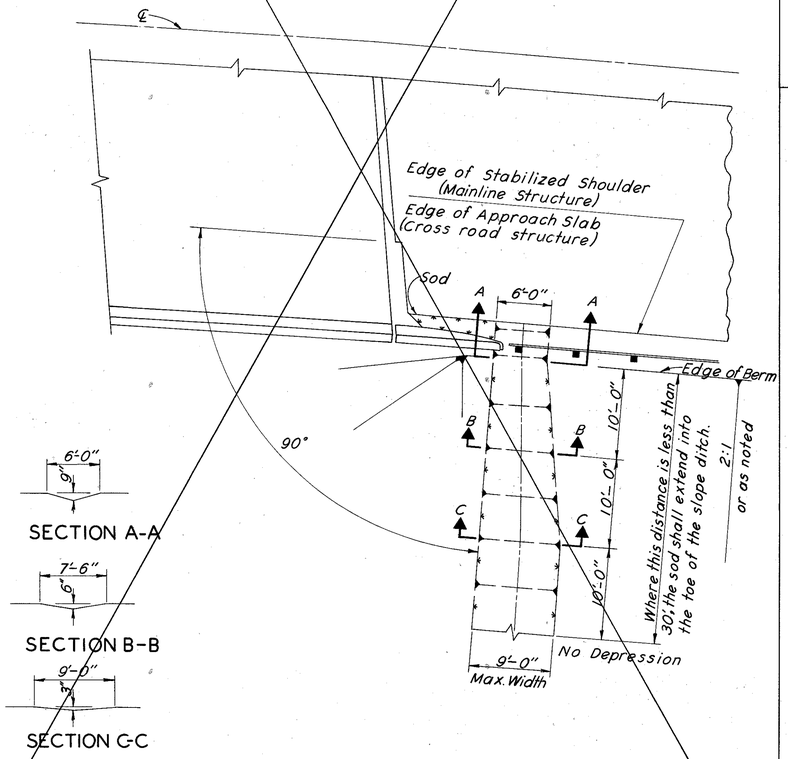


ISOMETRIC OF INLET RECESS
For additional data see Culvert Detail

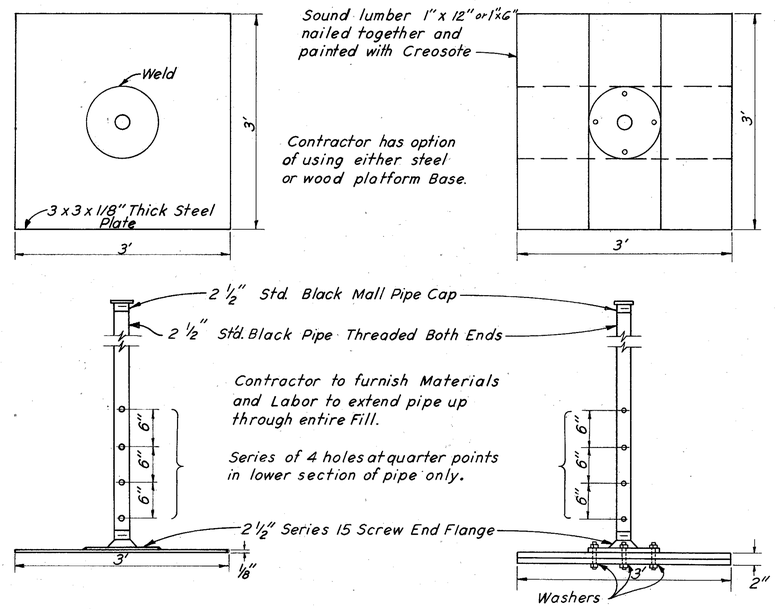


SECTION

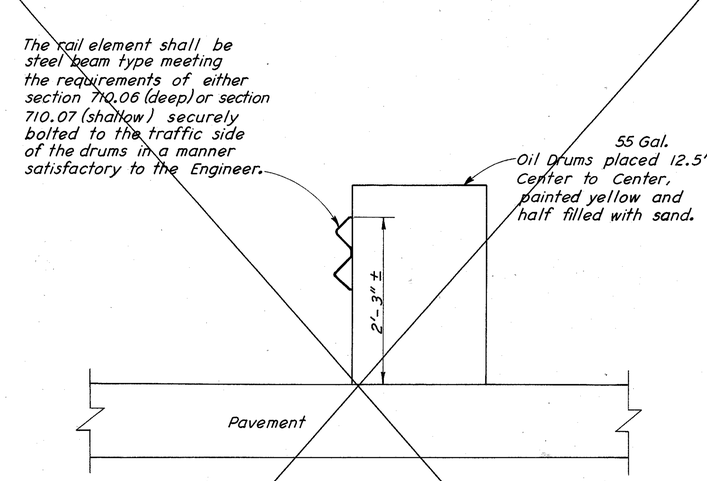
DETAIL OF 604 CENTERLINE REFERENCE MONUMENTS



TYPICAL APPROACH SLAB EROSION CONTROL
(Use Standard Drawing MC-7)



DETAILS OF SETTLEMENT PLATFORM
To be placed on existing ground surface at approximate Sta. 240+00, 25' Rt. of centerline



DETAIL OF TEMPORARY GUARD RAIL

Steel Beam Type Guard Rail (Deep or shallow) may be new or used as approved by the Engineer. Guard Rail Elements will be constructed as shown on St'd. Construction D'wgs and bolted to oil drums instead of posts. Unit price bid per lin.ft. Item 606 Temp. Guard Rail as per plan to include complete in place installation as shown above.

(See Proposal Note)

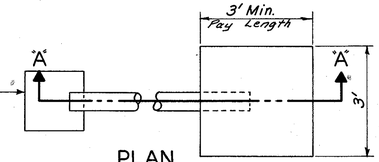
SPECIAL DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

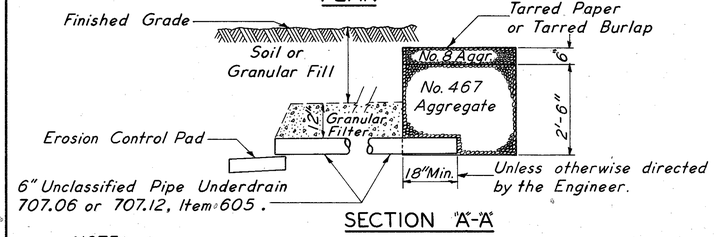
12
468

COL-11-10.22
COL-154-1.71

Erosion control pad as per Std Dwg. MC 4 to be included for payment in the price bid for 6" pipe Item 605



PLAN



SECTION "A"-"A"

NOTE:

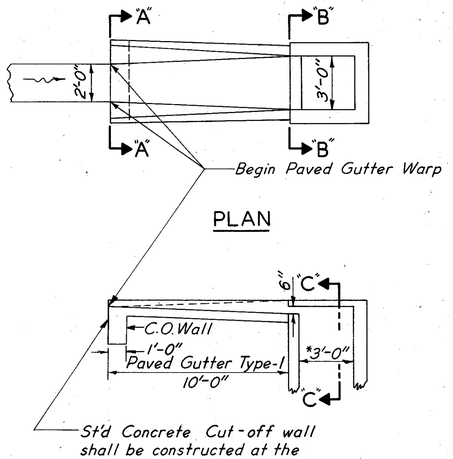
Aggregates, tarred paper or tarred burlap, and necessary excavation for spring drains shall be included for payment in the unit price bid per Lin. Ft. for "Item 605, Aggregate Drains for Springs, as per plan."

The 6" pipe 707.06 or 707.12 shall be covered with granular filter material [605.03(c)] to a height of one (1) foot above the top of the pipe. The remainder of the backfill for this Item shall be soil or granular filter backfill placed in accordance with 603.08 .

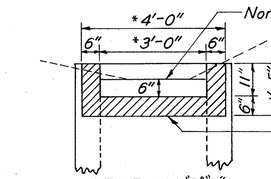
Spring drains shall be built in reasonably close conformity with the detail shown above. The lengths and exact locations of the drains shall be determined by the Engineer.

See note on Sheet No. 14

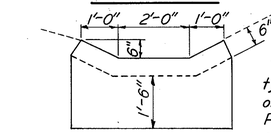
SPRING DRAIN DETAIL



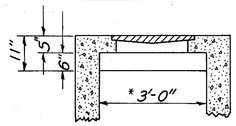
ELEVATION



SECTION "B"-"B"



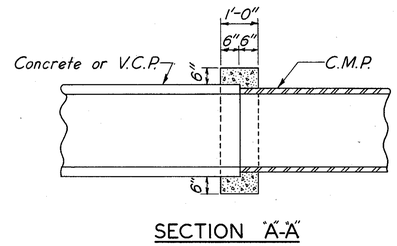
SECTION A-A



SECTION "C"-"C"

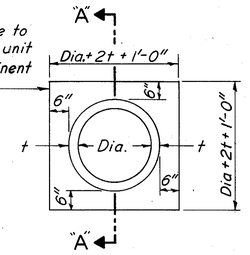
* Dimension Varies as to the type of catch basin called for on the plan.
Paved gutter width remains constant or flares to the various window width, and sides warp from 2:1 to vertical in 10 foot length.

MODIFIED PAVED GUTTER DETAIL



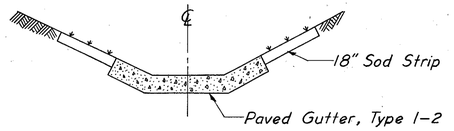
SECTION "A"-"A"

Class "E" Concrete to be included in the unit bid price of pertinent pipe.

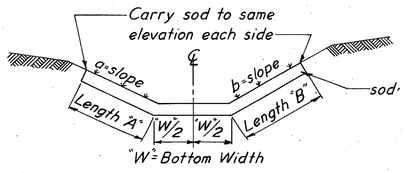


NOTE: For Details not shown here see Std Drawing MC 4

PIPE COLLAR AND CONNECTION DETAIL



PAVED GUTTER DETAIL WITH 18" SOD STRIP

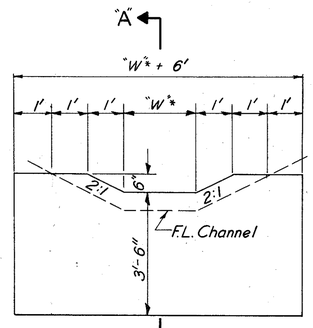


SOD DETAIL

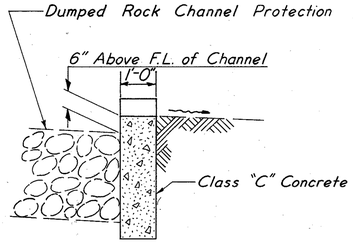
DITCH PROTECTION TABLE - *

Slopes		A	B	Bottom Width	Total
2:1	2:1	2'-0"	2'-0"	2'-0"	6'-0"
2:1	3:1	1'-7"	2'-5"	2'-0"	6'-0"
2:1	4:1	1'-4"	2'-8"	2'-0"	6'-0"
3:1	3:1	3'-0"	3'-0"	2'-0"	8'-0"
3:1	4:1	2'-7"	3'-5"	2'-0"	8'-0"
4:1	4:1	4'-0"	4'-0"	2'-0"	10'-0"

* NOTE: Combinations of slopes and total width of protection other than shown in the table exist on the project. The table is intended only as a guide, and where conditions vary from those shown the slope lengths shall be proportioned, as in the table, to carry protection to the same elevation each side of ditch.



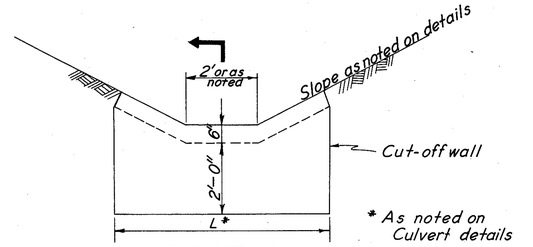
ELEVATION



SECTION "A"-"A"

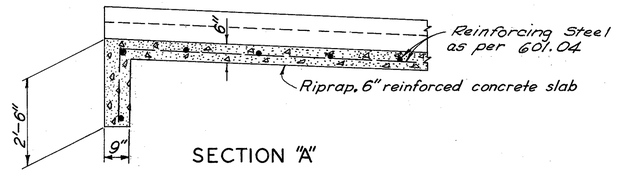
* W = 2' or ½ of culvert diameter, whichever is greater, unless shown otherwise on the culvert detail.

ENDSILL DETAIL



ELEVATION

* As noted on Culvert details



SECTION "A"

For payment for cut-off walls, See General Note sheet 14

CUT-OFF WALL DETAIL

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

COL - 11-10.22
COL - 154-1.71

12A
468

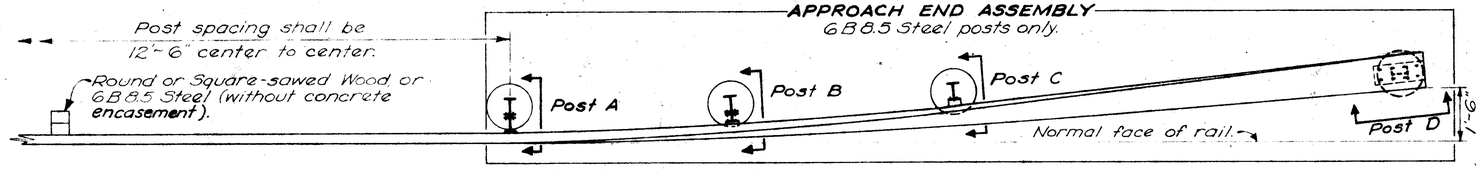
NOTES

For details not shown, see Standard Drawings GR-1 and GR-2A

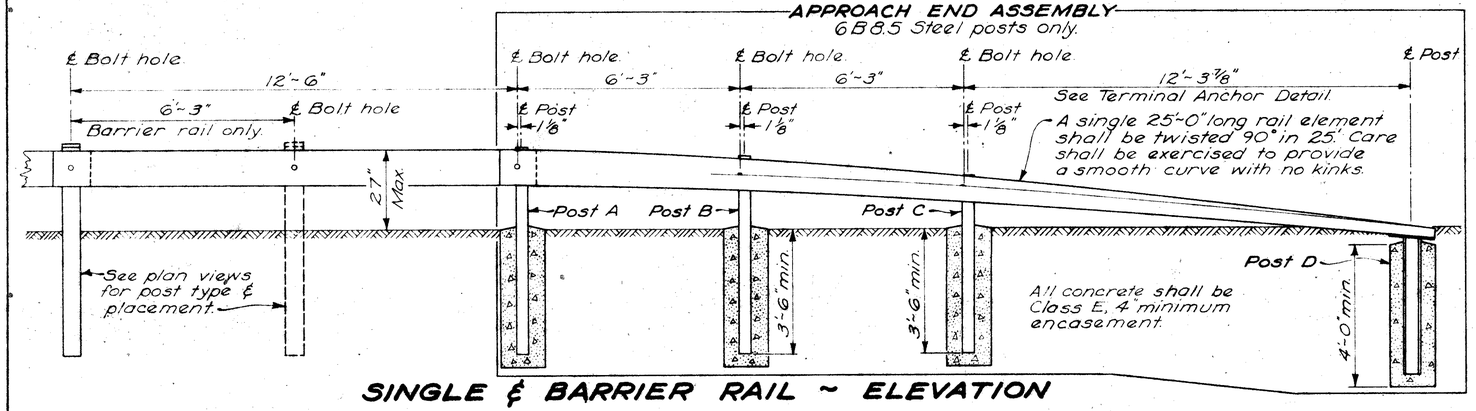
All steel parts shall be galvanized in accordance with ASTM A123, A153 or A525, whichever may apply.

This drawing shall govern where a conflict arises.

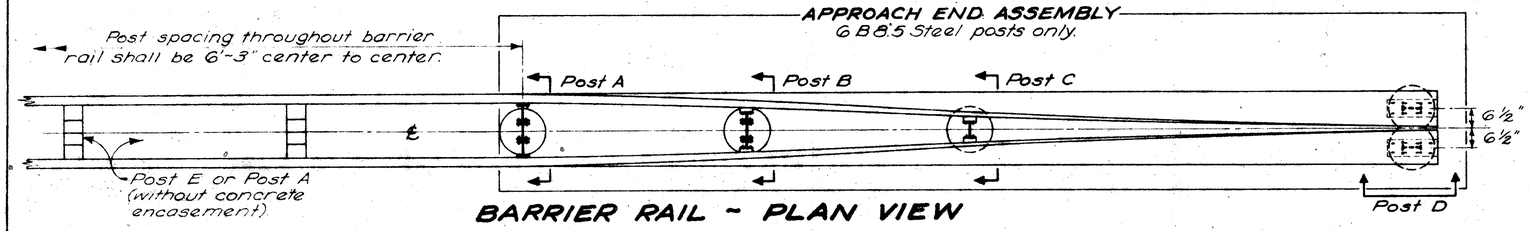
APPROACH END ASSEMBLY
6 B 8.5 Steel posts only.



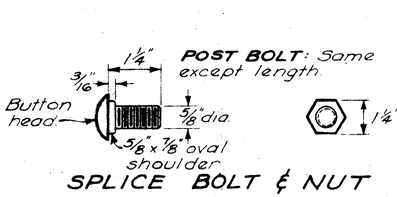
SINGLE RAIL ~ PLAN VIEW



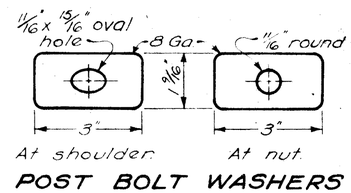
SINGLE & BARRIER RAIL ~ ELEVATION



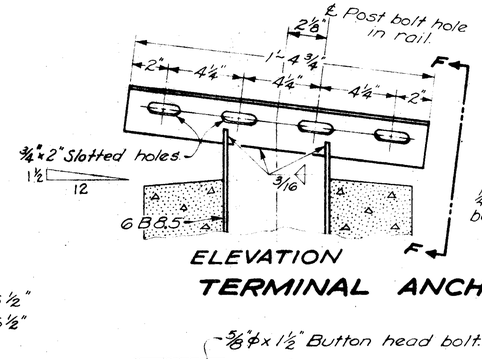
BARRIER RAIL ~ PLAN VIEW



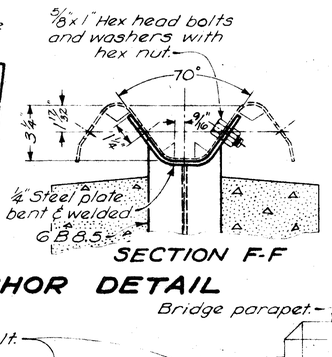
SPLICE BOLT & NUT



POST BOLT WASHERS

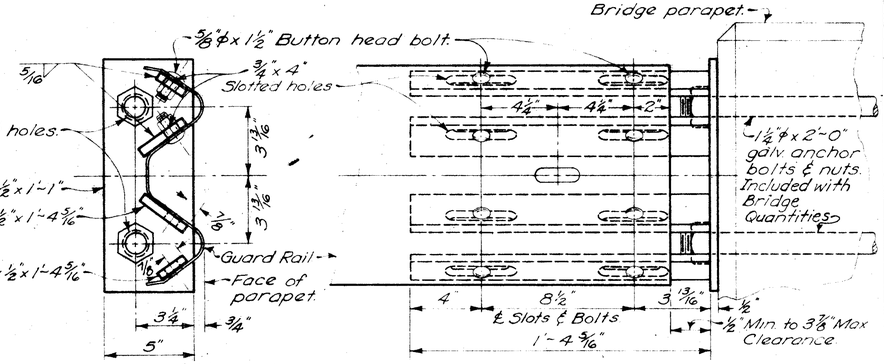


ELEVATION

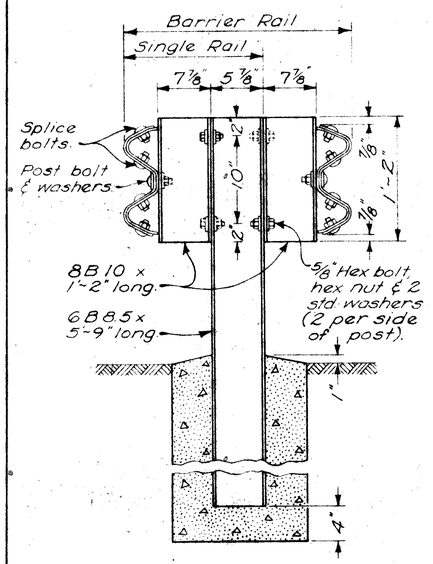


SECTION F-F

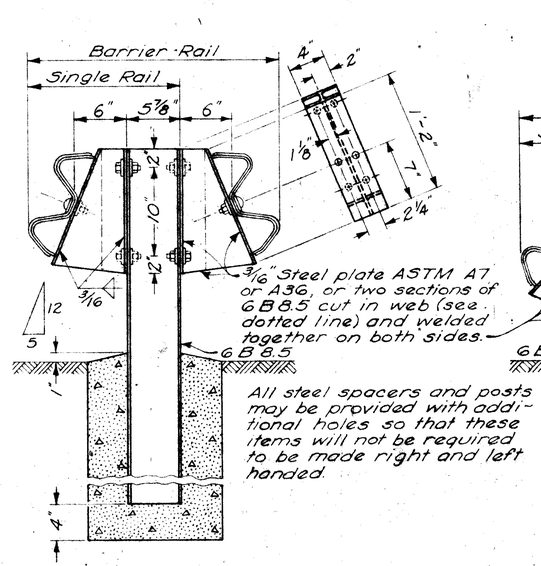
TERMINAL ANCHOR DETAIL



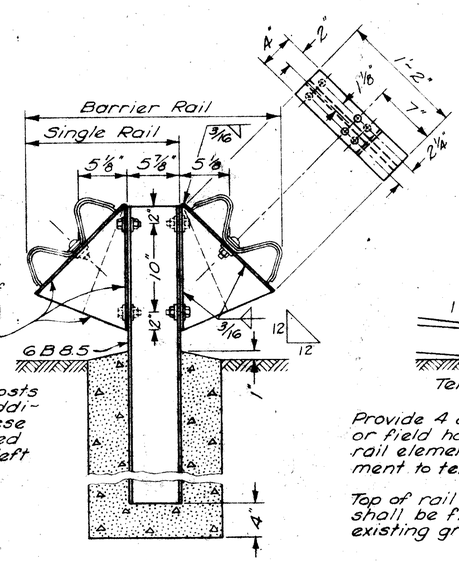
GUARD RAIL ~ BRIDGE CONNECTOR



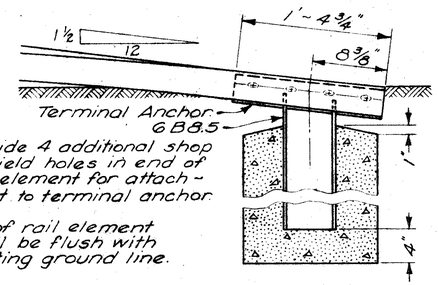
POST A



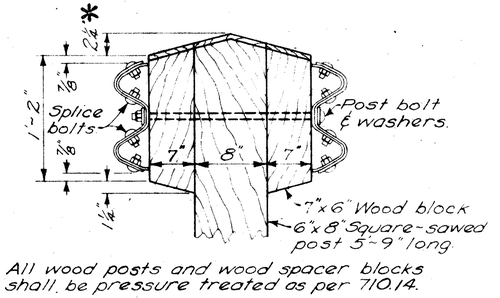
POST B



POST C



POST D



All wood posts and wood spacer blocks shall be pressure treated as per 710.14.

POST E

* Tops of driven posts need not be trimmed.

GUARD RAIL ~ APPROACH END ASSEMBLY

Rev. 7-14-67

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

COL-11-10.22
COL-154-1.71

13
469

GENERAL NOTES

PUBLIC UTILITIES AFFECTED

OHIO POWER COMPANY, 301-315 Cleveland Ave., S.W., Canton, Ohio
OHIO BELL TELEPHONE COMPANY, 223 N. Fifth Street, Steubenville, Ohio
OHIO EDISON COMPANY, 47 North Main Street, Akron, Ohio

UTILITIES

The Contractor shall notify, at least 7 working days before breaking ground, all public service corporations having wire, poles, pipes, conduit, manholes or other structures which may be affected by the operation, including all structures which are affected and not shown on these plans. He shall conduct his operations in such a manner as to avoid damages to any and all utilities. Any and all work required for public or private utilities will be done by and at the expense of their respective owners, unless otherwise noted on these plans.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

The rounded corners shown on Standard Drawing MC-1, apply to all cross sections, even though otherwise shown on these plans.

FIELD OFFICE

The Contractor shall, in addition to the requirements of 105.152, provide a suitable field office having a minimum of 400 sq. ft. of floor space. The Contractor shall have a telephone installed and maintained in this field office during the construction of this project. The Contractor shall also provide and maintain sanitary provisions as per 107.06. All the above is included in the lump sum price bid for Field Office.

UNDERGROUND UTILITIES

The locations of the underground utilities shown on the plans have been obtained by diligent field checks and searches of available records. It is believed that they are essentially correct, but the State of Ohio makes no guarantees as to their accuracy or completeness.

CONSTRUCTION LAYOUT STAKES

See note in proposal describing the work included in this lump sum pay item.

SUPERELEVATION

Superelevated curves shall be built without crown. The crown shall be worked out of the pavement in the portion between the beginning of the transition and the point where the superelevation equals twice the crown.

REMOVAL OF EXISTING PIPE

The removal of all existing pipe drains which would normally be removed in various excavation items shall be included for payment in the unit prices bid for the respective excavation items, unless otherwise itemized in the plans.

MAINTAINING TRAFFIC

The Contractor shall maintain traffic at all times in accordance with the requirements of Item 614, 104.04, 107.07 and 107.10 of the Specifications unless otherwise indicated on these plans. The length of one-way traffic zones shall be kept to a minimum consistent with the requirements of the work. Maximum use shall be made of the existing pavement for traffic maintenance, holding the length and duration of use of temporary traffic lanes to an absolute minimum and in all cases subject to the approval of the Engineer.

Temporary traffic lanes shall be surfaced with 410 aggregate, stabilized with 616 Calcium Chloride and maintained daily in a manner satisfactory to the Engineer. Two-way traffic lanes shall be surfaced with aggregate at least 20 feet wide. One-way traffic lanes shall have the surface aggregate not less than 12 feet wide.

Co. Rd. 417 may be closed to through traffic for a period not to exceed 150 consecutive working days. When the time period has expired the Contractor shall maintain through traffic on the new grade.

Twp. Rd. 900 - Traffic shall be maintained on the existing route until the structure and grading on the relocated centerline have been completed.

S.R. 154 - Traffic shall be maintained between Sta. 60+00± and Sta. 85+00± by constructing the embankment part-width and placing traffic thereon while the remainder of the embankment is constructed to grade. Then traffic shall be maintained on the new grade.

Twp. Rd. 785 - Traffic shall be maintained on the existing route until relocated Twp. Rd. 785 is constructed to grade. Then traffic shall be maintained on the new grade.

PART-WIDTH CONSTRUCTION

Because of the necessity of building (portions of) this project under traffic and constructing the pavement part at a time, extreme care shall be taken to prevent the construction of a butt joint on centerline in the 304 and 310 courses.

This shall be accomplished by building the 304 and 310 courses placed with the first portion of the pavement built, at least eighteen(18) inches beyond the centerline and by surfacing no closer than eigtheen(18) inches to this edge of the above courses. When the second portion of the pavement is built, at least twelve(12) inches of these projecting courses shall be broken down and thoroughly keyed in with the newly placed corresponding courses in the second portion of the pavement built. Payment for this operation shall be included in the unit prices bid for the pertinent pavement items.

BENCHING OF FOUNDATION SLOPES

Although cross sections on this plan indicate specific widths and depths of proposed benching of the embankment foundation in certain areas, no waiver of the specifications is intended and all other sloped foundation areas shall be benched *and paid for as set forth in 203.09. Where specific widths of benches are shown on the cross sections, payment shall be made for the entire width and quantity excavated.*

REMOVAL OF TREES AND STUMPS

All trees and stumps specifically marked for removal within the construction limits of this project shall be removed under the lump sum price bid for Item 201 Clearing and Grubbing, except that those trees for which protection and preservation work is indicated elsewhere in these plans shall not be removed.

The following is an approximate estimate of the number of trees and stumps to be removed.

SIZES	NO. TREES	NO. STUMPS
18"	3320	45
30"	133	6
48"	10	1
60"	NONE	NONE

The above estimate is approximate and the State of Ohio reserves the right to order the removal of additional trees or stumps outside of the limits of construction but within the right-of-way and/or easement lines. Payment for the removal of these additional trees or stumps shall be included in the lump sum price bid for Item 201 Clearing and Grubbing.

ITEM SPECIAL, DRILLED WELL ABANDONED

The existing concrete or stone slab well cover and pumping equipmant shall be removed and disposed of. The casing shall be cut off at least two feet below the proposed finished grade outside proposed pavement areas or at least two feet below the proposed subgrade elevation inside proposed pavement areas and capped with Class "E" Concrete or a standard threaded pipe cap.

The unit price bid for each "Drilled Well Abandoned" shall include payment for all labor, tools, materials, and incidentals necessary to complete this item.

An estimated quantity of 6 Each has been included in the General Summary, for the following locations: Sta. 218+30 Rt., Sta. 233+80 Lt., Sta. 443+10 Lt., Sta. 231+15 Lt., Sta. 376+20 Rt., Sta. 55+85 Lt.(S.R.154)

ITEM 605 AGGREGATE DRAINS

Aggregate drains shall be placed at fifty(50) foot intervals on each side of normal crowned sections and at twenty-five(25) foot intervals on the low side only of superelevated sections, except where Item 605 Pipe Underdrains have been provided.

An aggregate drain shall be placed at the low point of each sag vertical curve.

An estimated quantity of 53, 350 Linear Feet has been included in the General Summary.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

14
468

COL-11-10.22
COL-154-1.71

GENERAL NOTES

SETTLEMENT PLATFORMS

See note in the proposal for description and basis of payment for this item. See sheet No. 11 for detail.
1 Each, Item Special, Settlement Platform carried to General Summary, Sh. 19.

STEPS IN DEEP CATCH BASINS

All catch basins six(6) feet deep or greater shall have steps constructed in accordance with Standard Drawing MH-1. The price of all material and labor for constructing these steps shall be included in the bid price per each of the catch basins.

SPRING DRAINS

Reference is made to the detailed drawing on Sheet No. 12 showing the method of draining any spring that may be shown on the plan or encountered during construction as determined by the Engineer. The following estimated quantities have been included in the General Summary for this purpose:

Item 605 - 6" Unclassified Pipe Underdrain, 707.06 or 707.12, as per plan 200 L.F.

Item 605 - Aggregate Drains for springs, as per plan 12 L.F.

The Contractor shall not order materials for "Spring Drains" until authorized by the Engineer.

PIPE CONNECTIONS TO CORRUGATED METAL STRUCTURES

Connections of proposed longitudinal drainage to the proposed corrugated metal structure shall be by means of a shop fabricated stub on the structure. The stub shall meet the requirements of 707 and have a minimum length of two feet and a minimum gage of 14.

Location and elevation of the stub are to be considered approximate and may be adjusted by the Engineer to avoid cutting through joints in the structure.

Payment for cutting into the structure and providing the connection described shall be included in the unit price bid for Item 603.

PAVED BITUMINOUS COATED CORRUGATED METAL STRUCTURE, 707.03

The metal plates that are incorporated into this sectional plate structure shall be entirely shop coated in accordance with 707.04 and the lower ¼ circumference shall be paved with a bituminous material.

The paving shall consist of a mixture of hot sand and 702.01 Asphalt Cement or other bituminous mixture acceptable to the Engineer and shall be spread and compacted to the satisfaction of the Engineer. The completed pavement shall be smooth and durable and shall have a minimum average thickness of approximately one inch over the inside crests of the corrugations. After installation of the structure, damaged or worn spots in the bituminous coating on the inside and outside of the structure shall be re-coated using materials and methods recommended by the manufacturer and as directed by the Engineer.

Payment for all of the above shall be included in the unit price bid for the Item 603 Structure.

EROSION CONTROL

601, Dumped Rock, riprap & paved gutter are provided in these plans for erosion control. Rock of a stable nature will not be removed in order to place any of these items. The Engineer shall check and non-perform quantities or adjust locations and quantities for these items where indicated by field conditions during construction.

SEALING OF PIPE JOINTS

Where connections are made between rigid and flexible pipe sections or between pipe section of different kind or type of end fabrication, whether required by the plans arising from permissible use of optional materials, or encountered in connection to existing facilities, the joint shall be sealed by means of a Class "E" concrete collar having a minimum thickness of 6 inches and a minimum length of 12 inches. Payment for sealing as described above shall be included in the unit price bid for the pertinent pipe item. See detail on Sheet No. 12 .

MAINTENANCE OF SEWER FLOWS

The Contractor shall conduct his operations so as to maintain at all times sewer flows through existing facilities to remain in place and through existing facilities to be replaced until new facilities are completed and placed into use.

Payment for any additional costs involved in maintaining these flows by pumping or by any other means approved by the Engineer shall be included in the unit prices bid for the respective pipe items.

ITEM SPECIAL - FILL AND PLUG EXISTING BOX CULVERT

This item shall consist of the construction of bulkheads in the existing box culvert and filling the area thus sealed off with sand or other granular material approved by the Engineer.

Bulkheads shall be located at the limits of the area to be filled as indicated on the plans. The bulkheads shall consist of brick or concrete masonry with a minimum thickness of 12 inches.

The fill material shall be pumped into place or placed by some other means approved by the Engineer, so that, after settlement, at least 90 percent of the cross-sectional area of the culvert for its entire length shall be filled. The footage of filled and plugged culvert to be paid for shall be the actual number of linear feet(measured along the centerline of the culvert from outer face to outer face of bulkhead) filled and plugged as described above.

The footage, measured as provided above, shall be paid for at the contract unit price bid per linear foot for "Item Special, Fill and Plug Existing Box Culvert", which price and payment shall constitute full compensation for furnishing, hauling, and placing all the necessary materials, and for all labor, equipment, tools and incidentals necessary to complete this item. The following estimated quantity has been included in the General Summary for this purpose: "Item Special - Fill and Plug Existing Box Culvert" 154 L.F. See Sheet No. 307, Sta. 301+68

CUT-OFF WALLS

The quantity shown for Item 601 "Riprap, 6" Reinforced Concrete Slab" includes the cut-off walls

CATCH BASIN MODIFICATION

The grate of all No.6 catch basins shall be depressed 2" in lieu of the 1" depression shown in Standard Drawing C.B. 6.

SEEDING

Quantities for seeding are calculated for the soil areas between lines ten(10) feet outside the work limits, as shown on the cross sections, or to the right-of-way line if such line is less than ten(10) feet from the work limits.

CONTRACTOR'S MAINTENANCE RESPONSIBILITY

On this project, the Contractor's responsibility for maintenance of the existing pavement per Item 614 shall be limited to those portions of the existing pavement lying within the proposed work limits.

PAVEMENT REMOVAL OUTSIDE NORMAL CONSTRUCTION LIMITS

After the existing pavement as indicated on the plans has been removed, the old roadway shall be graded to the level of the surrounding ground, the old ditches filled and the disturbed areas sloped to drain and left in a neat condition ready for seeding. Seeding shall be measured and paid for in accordance with Item 659 Seeding and Mulching. Payment for all other work required shall be included in the unit price bid for Item 203.

CENTERLINE REFERENCE MONUMENTS, AS PER PLAN

Monuments shall be constructed of Class C concrete, cast-in-place in a circular hole eight(8) inches in diameter and forty-four(44) inches in depth. Top of concrete shall be finished at a depth of two(2) inches below ground level and the upper six(6) inch portion of the concrete shall be formed. One-half($\frac{1}{2}$) inch steel rods six(6) inches long shall be embedded in the wet concrete as directed by the Engineer to mark the centerline and station.

For locations, See Sheet No. 2 .

For detail on Sheet No. 11 .

SCALPING

Between Station 31+50 and Station 45+20 on relocated State Route 154, clearing and grubbing shall be in accordance with 201.03 of the Specification, however, the provisions of 201.04 relating to scalping shall be waived.

The initial 18 inches of embankment in this area shall be constructed of end-dumped granular material, rock or shale. Payment for this item is included in the unit price bid for 203 Embankment.

GENERAL NOTES

SPECIAL EMBANKMENT

Between approximately Station 235+50 and Station 241+50 the embankment shall be constructed as follows:

1. Clearing and Grubbing shall be in accordance with 201.03 of the Specifications. However, the provisions of 201.04 relating to scalping shall be waived.
2. Unsuitable material in this area shall be removed to the lines shown on the cross-sections and replaced with granular material as defined in 203.02, except that at least 75% by weight of the grains or particles shall be retained on a No.200 sieve. The cost of this work, including the excavation of unsuitable material, shall be included in the price bid for Item 203, "Borrow, Using Granular Material, As Per Plan, Including the Cost of Excavation of Unsuitable Material" An estimated quantity of 20,500 Cu.Yds. has been carried to the General Summary.
3. When it is not necessary to remove the existing foundation material the initial 18 inches of embankment shall be constructed by end dumping using granular material meeting the requirements of 203.02 with the exception that at least 85% by weight of the grains or particles shall be retained on the No.200 sieve. Payment for this item shall be included in the price bid for Item 203 "Borrow using Granular Material as Per Plan." An estimated quantity of 5,500 Cu.Yds. has been carried to the General Summary.
4. Embankment above the 18 inch granular layer or excavated areas is to be constructed in accordance with the provisions of 203.09 of the Specifications, except that the following rates of fill placement shall apply per week(7 calendar days):

FILL HEIGHT	ALLOWABLE RATE OF FILL PLACEMENT PER WEEK(7 CALENDAR DAYS)
Existing ground surface to elevation 930'	3 feet per week
Elevation 930' to proposed grade	2 feet per week

5. Placement of pavement between Stations 235+50 and Station 240+50 on the mainline and 234+00 to 240+50 on Ramp "D" shall be deferred for a period of 90 days following completion of the embankment to grade.

The embankment between approximately Stations 265+00 and 268+00 shall be constructed of sandstone bedrock in lift thicknesses of a maximum of 18 inches, taken from excavation to elevation 945. The embankment above this elevation shall be constructed in the normal manner. The cost of this is to be included in the price bid for Item 203 "Embankment."

SPECIAL EMBANKMENT - Continued

Between Station 308+65 and Station 311+80, where mine waste is present at subgrade and in other areas where mine waste is present at subgrade, the unconsolidated strip mine waste shall be excavated to a depth of three (3) feet below subgrade beneath the pavement and paved shoulders and replaced with suitable embankment material. Prior to replacement of the excavated material, the bottom of the excavation thus formed shall be rolled with a 50 ton pneumatic roller as described in the proposal. Four (4) hours rolling time of Item Special "Fill Compaction using Heavy Pneumatic Tired Roller" has been included in the General Summary.

The top one (1) foot, compacted thickness of this replaced subgrade shall be granular material as defined in 203.02, except that at least 75 per cent by weight of the grains or particles shall be retained on a No. 200 sieve. An estimated 1300 cubic yards of Item 203, "Borrow, Using Granular Material, As Per Plan, Including the Cost of Excavation of Unsuitable Material" has been carried to the General Summary for this purpose.

Between Station 322+50 and Station 324+50, and as shown on the cross-sections, sandstone bedrock shall be placed by end-dumping methods to elevation 1116.0, or two (2) feet above water, which ever is higher at time of construction. Payment for this rock embankment is to be included in the unit price bid for 203 "Embankment."

Rock Embankment shall be placed at Station 446+50 to 449+90± , as shown on cross-sections. Rock for the embankment shall be obtained from roadway excavation and payment shall be included in the unit price bid for Item 203 Excavation not including Embankment Construction and Item 203 Embankment

ITEM 203 PROOF ROLLING

An estimated quantity for this item has been provided in the General Summary for use in proof rolling of subgrade for the mainline and ramp pavements, and for paved shoulders, in accordance with Supplemental Specification 801.

ITEM 404 ASPHALT CONCRETE

Two inch(2") courses of Item 404 Asphalt Concrete, shall be placed in two one inch(1") courses. 807 may be substituted for 404.

GAS WELL

The Contractor shall exercise extreme caution during blasting operations through the deep cut area in the vicinity of Sta. 423+00± in order to avoid any damage to the gas well located immediately beyond the Right-of-Way. As outlined in 107.11, the Contractor shall be held responsible for all damage to the gas well resulting from the use of explosives, or any other construction operation.

PRIVATE UTILITY RELOCATED GAS LINE

The Contractor will be responsible for maintaining service in the existing gas line located at Sta. 441+10± until the following has been complied with. Before beginning work on the relocated 2" pipe he shall notify the property owner approximately when he expects to complete the work. When the work is completed he shall notify the property owner and the property owner shall have 30 days from notification to relocate the gas line. When the 30 day period has expired, the Contractor's responsibility to the existing gas line shall terminate.

DEEP PIPE UNDERDRAIN

An estimated quantity of 2000 lineal feet of Item 605 "Deep Pipe Underdrain" has been included in the General Summary to be used in soil cut areas, if needed, as directed by the Engineer.

GUARD RAIL, MODIFIED AS PER PLAN

Subsequent to the completion of the plans for this project, several modifications to the design of Type 4 guard rail have been made as indicated below.

All approach (entrance)ends of Type 4 guard rail on divided lane highways shall be constructed with the new guard rail approach end assemblies as detailed on plan page Nº 12A. Where either end is adjacent to proposed bridge parapets, the new bridge connector assembly will apply unless otherwise detailed on the plans. The exit (trailing) ends of Type 4 guard rail shall be as detailed on Standard Drawing GR-2A.

Type 4 guard rail and new approach end assemblies will be paid for as "606 Guard Rail, Type 4, Modified As Per Plan," complete in place.

References to barrier rail appearing on page 12A do not apply to this project. The barrier rail for this project will be constructed as detailed on Standard Drawing GR-2A.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

16
468

COL-11-10.22
COL-154-1.71

BEGIN PAVEMENT 452+00
END PAVEMENT 200+00
TOTAL 252+00 = 25,200 L.F.
Equation 443+97.98 Back = 442+02.52 Ahead = 195.46 L.F.
Gross Length = 25,395.46 L.F.
Deduct 2 Bridges
(131.00 + 264.52 + 4 - 25'Appr. Slabs)=495.52 L.F.
Net Length of Pavement = 24,899.94 L.F.
Pavement Area = 24,899.94 x 2 x 24 ÷ 9=132,799.7 Sq.Yd.
Berm Area
8' Berm 45,508.4 x 8 ÷ 9 = 40,451.9 Sq.Yd.
4' Berm [(24,899 + (4 x 25)] (4x2) ÷ 9 = 22,222.2 Sq.Yd.
Add for Noses 704.4 Sq.Yd.
TOTAL BERM AREA MAIN LINE 63,378.5 Sq.Yd.

ITEM 404 ASPHALT CONCRETE(85-100)

Co.Rd. 417	(Sh.307,308)	91.6 Cu.Yd.
Twp.Rd. 900	(Sh.296,297)	124.7 Cu.Yd.
Twp.Rd. 1149	(Sh.304)	16.5 Cu.Yd.
TOTAL		232.8 Cu.Yd.

ITEM 404 ASPHALT CONCRETE(85-100)USING 402 COMPOSITION

Twp.Rd. 785	(Sh.282,283)	188.1 Cu.Yd.
Twp.Rd. 794	(Sh.294)	48.9 Cu.Yd.
TOTAL		237.0 Cu.Yd.

ITEM 404 ASPHALT CONCRETE (70-85)

Main Line Pavement		
24,899.94 x 24 x 2 x 0.10417 ÷ 27 =		4611.2 Cu.Yd.
Ramp "A"	(Sh.257,258)	125.2 Cu.Yd.
Ramp "B"	(Sh.261,262,263)	133.4 Cu.Yd.
Ramp "C"	(Sh.266,267)	187.4 Cu.Yd.
Ramp "D" & Conn. to S.R.154	(Sh.271-273)	152.5 Cu.Yd.
S.R. 154	(Sh.222-228)	554.9 Cu.Yd.
TOTAL		5764.6 Cu.Yd.

ITEM 302 ASPHALT CONCRETE (70-85)

Main Line 24,899.94 x 49 x.22917 ÷ 27 =	10,355.9
Deduct 4,004.48 x.25 x.22917 ÷ 27= 8.5=	10,347.4 Cu.Yd.
Ramp "A"	281.8 Cu.Yd.
Ramp "B"	300.5 Cu.Yd.
Ramp "C"	419.6 Cu.Yd.
Ramp "D" & Conn. to S.R.154	343.2 Cu.Yd.
S.R. 154	1255.3 Cu.Yd.
TOTAL	12,947.8 Cu.Yd.

ITEM 824 BITUMINOUS MACADAM BASE

Main Line 24,899.94 x 2 x 25.25 ÷ 9 =	139,716.3 Sq.Yd.
Deduct 4004.5 x.625 ÷ 9 =278.1 =	139,438.2 Sq.Yd.
Ramp "A"	3,814.9 Sq.Yd.
Ramp "B"	4,071.7 Sq.Yd.
Ramp "C"	5,869.5 Sq.Yd.
Ramp "D" & Conn to S.R.154	4,650.0 Sq.Yd.
S.R. 154	16,761.1 Sq.Yd.
TOTAL	174,605.4 Sq.Yd.

ITEM 402 ASPHALT CONCRETE(85-100)

Co.Rd. 417	91.6 Cu.Yd.
Twp.Rd. 900	123.2 Cu.Yd.
TOTAL	214.8 Cu.Yd.

ITEM 409 SEAL COAT BITUMINOUS MATERIAL

Main Line 63,378.5 x 0.30	19,014.0 Gals.
Add for Median Crossover	216.0 Gals.
Ramp "A"	444.0 Gals.
Ramp "B"	588.0 Gals.
Ramp "C"	640.0 Gals.
Ramp "D" & Conn. to S.R.154	558.0 Gals.
TOTAL	21,460.0 Gals.

ITEM 310 SUBBASE

Main Line 24,899.94 x 2 x 24 x 2/3÷27=	29,511.0 Cu.Yd.
4' Berm 49,999.88 x 4 x 1/9 x 5.399÷36=	3,950.0 Cu.Yd.
8' Berm 45,508.4 x 8 x 1/9 x 6.9908÷36=	7,855.3 Cu.Yd.
Add for Median Crossover	80.0 Cu.Yd.
Approach Slabs 8 x 25 x 24 x 2/3 ÷ 27	118.5 Cu.Yd.
Extra in Rock Cut 19,116 x 5.722 ÷ 27	4,156.0 Cu.Yd.
Noses	117.4 Cu.Yd.
Ramp "A"	1,071.5 Cu.Yd.
Ramp "B"	1,210.3 Cu.Yd.
Ramp "C"	1,649.3 Cu.Yd.
Ramp "D" & Conn. to S.R.154	1,316.7 Cu.Yd.
S.R. 154	4,484.9 Cu.Yd.
Co.Rd. 417	337.5 Cu.Yd.
Twp.Rd. 785	539.0 Cu.Yd.
Twp.Rd. 794	139.6 Cu.Yd.
Twp.Rd: 900	448.5 Cu.Yd.
TOTAL	56,985.5 Cu.Yd.

ITEM 304 AGGREGATE BASE

4' Berm 49,999.88 x 4 x 1/9 x 5.16 ÷ 36=	3,185.2 Cu.Yd.
8' Berm 45,508.4 x 8 x 1/9 x 5.58 ÷ 36 =	6,270.0 Cu.Yd.
Add for Noses	117.4 Cu.Yd.
Add for Median Crossover 6"	120.0 Cu.Yd.
TOTAL MAIN LINE	9,692.6 Cu.Yd.
Ramp "A"	104.0 Cu.Yd.
Ramp "B"	142.9 Cu.Yd.
Ramp "C"	152.1 Cu.Yd.
Ramp "D" & Conn. to S.R.154	133.8 Cu.Yd.
S.R. 154	983.3 Cu.Yd.
Co.Rd. 417	384.6 Cu.Yd.
Twp.Rd. 785	642.6 Cu.Yd.
Twp.Rd. 794	166.8 Cu.Yd.
Twp.Rd. 900	516.5 Cu.Yd.
Twp.Rd. 1149	244.2 Cu.Yd.
Access Road "A"	149.6 Cu.Yd.
Chamberlain Drive	88.9 Cu.Yd.
TOTAL	13,401.9 Cu.Yd.

ITEM 301 BITUMINOUS AGGREGATE BASE

Main Line 4' Berm 49,999.88 x 4 x $\frac{1}{4}$ ÷ 27=1,851.8 Cu.Yd.	
Deduct for Notches	
49,999.88 x.037476 S.F. ÷ 27 =	69.4 Cu.Yd.
Net Item 301-4' Berm	1,782.4 Cu.Yd.
Main Line 8' Berm 45,508.4 x 8 x $\frac{1}{4}$ ÷ 27=	3,371.0 Cu.Yd.
Deduct for Notches	
45,508.4 x.037476 S.F. ÷ 27 =	63.2 Cu.Yd.
Net Item 301-8' Berm	3,307.8 Cu.Yd.
Add for Noses	58.6 Cu.Yd.
Add for Median Crossover	60.0 Cu.Yd.
Ramp "A"	230.4 Cu.Yd.
Ramp "B"	310.1 Cu.Yd.
Ramp "C"	330.2 Cu.Yd.
Ramp "D" & Conn. to S.R.154	292.8 Cu.Yd.
TOTAL	6,372.3 Cu.Yd.

ITEM 409 SEAL COAT BITUMINOUS MATERIAL

702.09, RT-9 or RT-10; 702.02, MC-800 or MC-3000	
S.R. 154	1,476 Gals.

ITEM 409 SEAL COAT COVER AGGREGATE NO. 8

Main Line 63,378.5 x 0.008	507.0 Cu.Yd.
Add for Median Crossover	5.8 Cu.Yd.
Ramp "A"	11.8 Cu.Yd.
Ramp "B"	15.7 Cu.Yd.
Ramp "C"	17.1 Cu.Yd.
Ramp "D" & Conn. to S.R.154	14.9 Cu.Yd.
S.R. 154	39.3 Cu.Yd.
TOTAL	611.6 Cu.Yd.

ITEM 408 BITUMINOUS PRIME COAT

S.R. 154	1,967.0 Gals.
Co.Rd. 417	1,056.0 Gals.
Twp. Rd. 785	1,806.0 Gals.
Twp. Rd. 794	469.0 Gals.
Twp. Rd. 900	1,419.0 Gals.
TOTAL	6,717.0 Gals.

ITEM 203 SUBGRADE PREPARATION

Main Line 132,799.7 + 63,378.5 =	196,179 Sq.Yd.
Add for Median Crossover =	720 Sq.Yd.
Approach Slabs =	783 Sq.Yd.
Ramp "A"	5,085 Sq.Yd.
Ramp "B"	5,808 Sq.Yd.
Ramp "C"	7,760 Sq.Yd.
Ramp "D" & Conn. to S.R. 154	6,254 Sq.Yd.
S.R. 154	21,100 Sq.Yd.
Co. Rd. 417	2,784 Sq.Yd.
Twp. Rd. 785	4,514 Sq.Yd.
Twp. Rd. 794	1,173 Sq.Yd.
Twp. Rd. 900	3,691 Sq.Yd.
Twp. Rd. 1149	1,136 Sq.Yd.
Access Road "A"	673 Sq.Yd.
Chamberlain Drive	400 Sq.Yd.
Deduct for Rock & Shale 19,116 x 36 ÷ 9 =	76,464 Sq.Yd.
TOTAL	181,346 Sq.Yd.

ITEM 203 PROOF ROLLING

203 Subgrade Preparation (Main Lines & Ramps)=	243,439 Sq.Yd.
Special Embankment Area =	14,100 Sq.Yd.
Deduct for Rock & Shale	76,464 Sq.Yd.
	181,075 Sq.Yd.

181,075 Sq.Yd. ÷ 2,000 Sq.Yd. per hour = 91 Hours

ITEM 410 TRAFFIC COMPACTED SURFACE COURSE TYPE A or B

S.R. 154 Sta. 27+50 to 31+50 =	400 L.F.	
S.R. 154 Sta. 51+00 to 88+17 =	3717 L.F.	
TOTAL	4117 L.F.	
41.17 x 200 =		8,234.0 Cu.Yds.
T.R. 785 Sta. 9+00 to 28+95 =	1995 L.F.	
Existing thru new ℄ =	500 L.F.	
T.R. 794 Sta. 0+12 to 5+00 =	488 L.F.	
T.R. 1149 Sta. 8+03 to 9+89 =	186 L.F.	
T.R. 1149 Sta. 10+10 to 14+00 =	390 L.F.	
TOTAL	3559 L.F.	
35.59 x 50 =		1,779.5 Cu.Yds.
T.R. 900 Sta. 7+00 to 26+50 =	1950 L.F.	
Deduct for Bridge	294 L.F.	
Net	1656 L.F.	
C.R. 417 Sta. 297+23 to 311 +50=	1427 L.F.	
Deduct for Bridge	284 L.F.	
Net	1143 L.F.	
27.99 x 75 =		2,099.3 Cu.Yds.
TOTAL		12,112.8 Cu.Yds.
Type A or B 12,112.8 x 0.25 =		3,028.0 Cu.Yds.

ITEM 410 TRAFFIC COMPACTED SURFACE COURSE TYPE "C"

12,112.8 x .75 = 9,085.0 Cu.Yds.

ITEM 616 CALCIUM CHLORIDE

12,112.8 ÷ 50 = 242.2 Tons

ITEM 616 WATER

Estimated 80.0 M-Gal.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

17
468

COL-11-10.22
COL-154-1.71

SUMMARY TABLES

NOTE: • Class B Bedding

CULVERTS

SHEET NO.	203		601			602	660	603 CONDUIT																						604				202
	Embankment	Excavation	Dumped Rock Channel Prot.	Riprap 6" Reinf. Concrete Slab	Paved Gutter Type 1-2 Modified	Concrete Masonry	Sodding	• 12" Type C	• 15" Type D	• 15" Type A 706.02 or 706.08	• 15" Type A 706.02 Class IV	• 18" Type A 706.02 Cl. III or 706.08	• 18" Type A 706.02 Class IV	• 18" Type A 706.02 Class V	• 18" Type A 707.05 Gage 14	• 24" Type A 706.02 or 706.08	• 24" Type A 706.02 Class III	• 24" Type A 707.05	• 27" Type A 706.02 or 706.08		• 30" Type A 706.02 Class V	• 30" Type A 707.05 Gage 10	• 30" Type A 707.05 Gage 14	• 36" Type A 706.02 or 706.08	• 36" Type A 706.02 Class IV	• 36" Type A 707.05 Gage 8	• 36" Type A 707.05 Ga. 10, or 706.02 Cl. IV	• 42" Type A 707.05	• 60" Type A 707.03 Gage 10-8	60" Type F	• 84" Type A 706.02	• 96" Type A 707.03 Gage 1-1 Shop Elongated	Standard Catch Basins				Pipe Removed Over 24"
																																No. 2-2A	No. 2-6	No. 4	No. 5	
	C.Y.	C.Y.	C.Y.	S.Y.	L.F.	C.Y.	S.Y.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.		L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	Each	Each	Each	Each	L.F.
20		1110	45	9		1.18		18																200										1		
22		22	53			2.91																					232								
27	5	36	54	46		11.26																										506					
29		5	9	14		1.97											246																			
30		7	15	34		1.02																	248													
31		20	10	33		1.02															316															
32		14	11	28		2.31																			372											
33		57	8	59		1.78									304											256										
37		12	12	47		1.02															390															
38	6	20	19	20		1.18																			378											
40		14	14	31		2.31																			396											
43		1	6			0.41										164																			1	
222						0.60			48																												
223		132	51	127		9.56			68										70													110				
224			6		10	0.26					100																						1			
225		12	6	30		1.95												106																	
226	16	73	28	53		4.51																	120		284										
266		149	11	17		0.60	94					142																								
271			10	11		0.60								154																						
282		4	7	14		1.02															188															
296		1	9	11		1.73							102																							
297		1		10		0.82										60																				
304						0.52				46																										
307		9	28	55		4.92																							216	76			2			30
TOTAL	27	1699	412	649	10	55.46	94	18	116	46	100	142	102	154	304	224	246	106	70		188	706	368	200	284	1146	256	232	216	76	110	506	1	2	1	1	30

BUILDING REMOVALS

ITEM	QUANT.	UNIT	PARCEL NO.	OESCRIPTION
202	Lump	Lump	51-WL	1-Two Story Frame Res., 1-Frame Barn, 4-Frame Sheds, 1-Tile Building
202	Lump	Lump	57-WL	1-One Story Frame Res. with attached garage 1-Frame Shed, 1 Frame garage.
202	Lump	Lump	59-WL	1-Frame Barn, 1-Stone Shed, 3-Frame sheds,
				1-Two Story Frame Res., 1-Frame Gar.
202	Lump	Lump	77-WL	1-Two Story Frame Res.
202	Lump	Lump	81-WL	1-Frame Shed.
202	Lump	Lump	85-WL	1-One Story Frame Res.

FENCE

SHEET NO.	601	607
	Dumped Rock Channel Protection	Fence Type 47
	C.Y.	L.F.
447	6.6	2132
448		1413
449		1548
450	13.3	2025
451		115
453		550
454		873
455		1525
456	20.0	3207
457	23.3	3304
458	3.3	1575
459	8.3	1112
460		501
461	18.3	3288
462	10.0	3040
464		2170
465		1555
466	18.3	1601
467	5.0	874
TOTAL	126.4	32,408

DRIVES AND APPROACHES

SHEET NO.	202	304	404	603
	Pipe Removed 24" & Under	Aggregate Base	Asphalt Concrete	12" Type O
	L.F.	C.Y.	C.Y.	L.F.
34		18.8		
222		27	8	
223		50	15	
224		45	13	
282		32	5	56
296		20		42
297		15	6	52
307	24	58	5	108
308	39	38	10	80
TOTAL	63	303.8	62	338

PAVEMENT

SHEET NO.	609			611	612
	Standard Concrete Curb			Reinf. Concrete Approach Slab T=13"	Concrete Median
	Type 6	Type 7	Type 8		
	L.F.	L.F.	L.F.	S.Y.	S.Y.
24				359.4	
25				422.9	
257	148				23
262		103	388		
263	60				
266	60				268
267	133				29
271	154				16
272		110	61		
297				143.6	
307				144.0	
TOTAL	555	213	449	1069.9	336

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

18
468

COL-11-10.22
COL-154-1.71

SUMMARY TABLES

NOTE: •Class B Bedding

EROSION CONTROL

SHEET NO.	601		660		667
	Standard Paved Gutter Type 1-2	Dumped Rock Channel Prot.	Sodding	Sodding Special Berm & Slope Prot. as per plan	Jute Matting
	L.F.	C.Y.	S.Y.	S.Y.	S.Y.
20					53
21		14			
22		20			128
23			507		263
24			286	183	79
25	372	48	234		217
26					128
27		414			664
29					383
30		50			478
31		157			275
32		110			466
33		409			587
34		103			818
36					49
37		199			391
38		81			542
39		42			207
40		216			633
41		27			128
42		12			219
43					165
44					256
45	42		14		384
46		50			128
225			357		
226					321
227					512
228					265
257			141		
258			1026		
262			133		
263			480		
266		66	359		
271			204		
272			212		
282		63			532
283		89			265
294		31			340
297				21	446
307		153		169	145
308					367
TOTAL	414	2354	3953	373	10,834

MISCELLANEOUS ROADWAY ITEMS

SHEET NO.	202	603	605		606				656
	Pipe Removed 24" & Under	Existing Catch Basins Removed	2" 707.08 (For Gas Line)	Aggregate Drains	6" Unclass. Pipe Underdrain 707.06 or 707.12 as per plan	Guard Rail Type 4	Guard Rail Barrier Type 4	Temp. Guard Rail as per plan	Guard Post	Roadside Cleanup
	L.F.	Each	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	Each	M.S.F.
23						307.3				
24						858.8	300	787.5		
25						318.76	100			
27						1400				
30						475				
31						1075				
32						1396.77				
33						1697.36				
34						330.87			8	
37						637.5				
38						1600				
39						575				
40						1460.43				
41		1				718.32				
42						1221.89				
43						61.86				
45	20					627				
46						1198				
224						412.5				
225	40					385.1				
226	82					1064.9				
227	81									
257						75				
258								25		
266								25		41.7
267						756.71				
271						350.99				
272						461.51				
282	33					362.50				
283				3	49	1012.5				
294	24					950				
296	16					462.5				
297						200				
304	40									
307	53		186			1087.5				
308	13									
22						325				
TOTAL	402	1	186	3	49	13866.57	400	837.5	8	41.7

STORM SEWERS

SHEET NO.	203	601		602	603 CONDUIT									604 Standard Catch Basins					
	Excavation	Dumped Rock Channel Prot.	Paved Gutter Type 1-2 Modified	Concrete Masonry	• 12" Type B	• 12" Type C	12" Type F	• 15" Type B	• 15" Type C	15" Type F	• 21" Type B	• 24" Type B 706.02 C.I. 125 706.06	• 27" Type B	Standard Median Inlet No. E-8	E-2A	E-2B	E-3	4	5	6
	C.Y.	C.Y.	L.F.	C.Y.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	Each	Each	Each	Each	Each	Each	Each
22									300	38								2		
23		5		0.23	112													1		
24		16		0.92	408		130									3		1		1
25		3		0.72	122	56		92	250							2		2		
27		8		0.46	168													2		
29				0.23	102													1		
31		3		0.23	72		66											1		
32		3		0.23	74		64											1		
33		3		0.23	74		114											1		
34		4		0.23				114	300									2		
37	7			0.23	98													1		
38		5		0.23	74		104											1		
39		5		0.23	74		74											1		
40		5		0.23	74		32											1		
41		5		0.23	74		52											1		
42		5		0.23	94													1		
43	48			0.26				104										1		
44			10	0.47									168				1	1	1	
45		12		0.41								164						1	1	
46					72		10											1		
225	288		30	0.41							80		190		1		2			
266		3		0.23	82									1						
TOTAL	343	85	40	6.64	1774	56	646	310	850	38	80	164	190	168	1	1	5	3	24	2	1

EARTHWORK AND SEEDING

Station to Station	203 Excavation Cu. Yd.	203 Embankment Cu. Yd.	659 Seeding Sq. Yd.	Station to Station	203 Excavation Cu. Yd.	203 Embankment Cu. Yd.	659 Seeding Sq. Yd.
795+50 - 201+00	29,591	0	2,074	RAMP "C"			
201+00 - 210+00	151,872	0	20,214	218+39.69 - 229+00	4,104	23,524	36,641
210+00 - 220+00	274,218	994	23,898	229+00 - 239+50	0	8,350	6,620
220+00 - 230+00	14,005	120,790	20,343	RAMP "D"			
230+00 - 240+00	2,020	262,471	29,669	226+15.31 - 236+00	171	32,183	6,323
240+00 - 251+00	85,414	52,694	24,523	236+00 - 246+00	1,245	38,823	4,065
251+00 - 261+00	292,770	0	26,358	S.R. 154			
261+00 - 272+00	57,111	357,009	35,379	27+50 - 34+00	1,558	1,014	3,502
272+00 - 283+00	18,830	18,976	17,533	34+00 - 44+00	2469	13,014	10,627
283+00 - 293+00	110,866	22,318	21,032	44+00 - 54+00	7521	26976	11,911
293+00 - 303+00	42,643	98,080	23,032	54+00 - 64+50	1,482	25,534	11,110
303+00 - 313+00	39,246	127,073	24,366	64+50 - 75+00	129	48,335	11,376
313+00 - 323+00	16,003	251,907	34,827	75+00 - 85+00	795	27,667	10,490
323+00 - 333+00	162,792	41,282	24,251	85+00 - 88+17	1,536	2141	3,619
333+00 - 343+00	276,269	0	25,025	Twp. Rd. 785			
343+00 - 353+00	218,637	0	22,711	9+00 - 19+00	33,299	10,026	7,176
353+00 - 363+00	73,477	57,433	20,171	19+00 - 28+95.31	9,378	19,893	10,716
363+00 - 373+00	4,031	800,903	25,297	Twp. Rd. 794			
373+00 - 383+00	74,237	29,233	19,519	0+00 - 4+99.50	924	11,913	5,306
383+00 - 393+00	15,184	226,759	23,088	Twp. Rd. 900			
393+00 - 404+00	36,256	71,623	23,344	7+00 - 16+00	20,458	6,473	8,188
404+00 - 415+00	66,741	42,081	24,494	16+00 - 24+00	8,239	963	5,554
415+00 - 426+00	214,131	185	24,076	Twp. Rd. 1149			
426+00 - 437+00	284,476	117	27,528	8+03.10 - 14+00	9,145	41	3,088
437+00 - 446+00	162,919	890	20,882	Co. Rd. 417			
446+00 - 452+00	3,448	203,493	22,502	297+23.55 - 307+00	743	42,949	10,075
RAMP "A"				307+00 - 311+50	386	1,984	2,552
214+00 - 224+00	35	4,147	1,219	Access Rd.	401	1,028	1,422
224+00 - 232+70.3	787	20,667	9,493	Chamberlain Dr.	94	749	734
RAMP "B"				Beaver Creek	2,680	14	0
223+00 - 230+37.30	972	19,863	10,704				
				TOTAL	2,795,738	2,574,582	803,647
				From Above	343		
					2,796,081		

659 AGRICULTURAL LIMING

$$\frac{*808,067 \text{ Sq. Yds.} \times 9 \times 100}{1000 \text{ Sq. Ft.} \times 2,000} = 363.63 \text{ Tons}$$

659 COMMERCIAL FERTILIZER

$$\frac{*808,067 \text{ Sq. Yds.} \times 9 \times 20}{1000 \text{ Sq. Ft.} \times 2,000} = 72.73 \text{ Tons}$$

* Seeding and Sodding Areas

GENERAL SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

19
468

COL -11 - 10.22
COL -154 - 1.71

SHEET NO. 2	13	14	15	16	17	18	ITEM	GRAND TOTAL	UNIT	DESCRIPTION
										~ROADWAY~
	Lump						201	Lump	Lump	Clearing and Grubbing
						1	202	1	Each	Ex Catch Basin Removed
					63	402	202	465	L.F.	Pipe Removed (24" and under)
					30		202	30	L.F.	Pipe Removed (Over 24")
			21,800				203	21,800	Cu.Yd.	Borrow Using Granular Material, As Per Plan, Including the Cost of Excavation of Unsuitable Mat'l.
			5,500				203	5,500	Cu.Yd.	Borrow Using Granular Material, as per plan
					27	2,574,582	203	2,574,609	Cu.Yd.	Embankment
					1699	2,796,081	203	2,797,780	Cu.Yd.	Excavation, not including Embankment Construction, As Per Plan.
				181,346			203	181,346	Sq.Yd.	Subgrade Preparation
				91			203	91	Hour	Proof Rolling
				3,028			410	3,028	Cu.Yd.	Traffic Compacted Surface, Type "A" or "B"
				9,085			410	9,085	Cu.Yd.	Traffic Compacted Surface, Type "C"
32							604	32	Each	Standard Monument Assembly
51							604	51	Each	Centerline Reference Monument, as per plan
						23,866.57	606	23,866.57	L.F.	Guard Rail, Type 4, Modified As Per Plan
						400	606	400	L.F.	Guard Rail, Type 4, Barrier Design
						837.5	606	837.5	L.F.	Temporary Guard Rail, as per plan
						8	606	8	Each	Guard Post
					32,408		607	32,408	L.F.	Fence, Type "47"
				80			616	80	M.Gal.	Water
				243			616	243	Ton	Calcium Chloride
						42	656	42	M.S.F.	Roadside Cleanup
						72.73	659	72.73	Ton	Commercial Fertilizer (12-12-12)
						363.63	659	363.63	Ton	Agricultural Liming
						803,647	659	803,647	Sq.Yd.	Seeding and Mulching
					94	3953	660	4047	Sq.Yd.	Sodding
						373	660	373	Sq.Yd.	Sodding for Special Berm and Slope Protection, As Per Plan
						10,834	667	10,834	Sq.Yd.	Jute Matting
6							Special	6	Each	Drilled Well Abandoned
	154						Special	154	L.F.	Fill and Plug Existing Box Culvert
	1						Special	1	Each	Settlement Platform
		4					Special	4	Hour	Fill Compaction Using Heavy Pneumatic Tired Roller
										~DRAINAGE~
					539	2439	601	2978	Cu.Yd.	Dumped Rock Channel Protection
					649		601	649	Sq.Yd.	Riprap, 6" Reinforced Concrete Slab, as per plan
					10	40	601	50	L.F.	Paved Gutter, Type 1-2, Modified, as per plan
						414	601	414	L.F.	Paved Gutter, Type 1-2, Standard
					55.46	6.64	602	62.1	Cu.Yd.	Concrete Masonry
						186	603	186	L.F.	2" ~~Galvanized~~ Steel Pipe, 707.08 (Gas Line)
						1774	603	1774	L.F.	12" Conduit, Type B with Class B Bedding
					18	56	603	74	L.F.	12" Conduit, Type C with Class B Bedding
					338		603	338	L.F.	12" Conduit, Type D
						646	603	646	L.F.	12" Conduit, Type F
					46		603	46	L.F.	15" Conduit, Type A, 706.01, 706.02 or 706.08 with Class B Bedding
					100		603	100	L.F.	15" Conduit, Type A, 706.02 Class III with Class B Bedding
					116		603	116	L.F.	15" Conduit, Type D
						310	603	310	L.F.	15" Conduit, Type B with Class B Bedding
						850	603	850	L.F.	15" Conduit, Type C with Class B Bedding
						38	603	38	L.F.	15" Conduit, Type F
					142		603	142	L.F.	18" Conduit, Type A, 706.01, 706.02 Class III or 706.08 with Class B Bedding
					102		603	102	L.F.	18" Conduit, Type A, 706.02 Class IV with Class B Bedding
					154		603	154	L.F.	18" Conduit, Type A, 706.02 Class V with Class B Bedding
					304		603	304	L.F.	18" Conduit, Type A, 707.05 Gage 14 with Class B Bedding
						80	603	80	L.F.	21" Conduit, Type B with Class B Bedding
					224		603	224	L.F.	24" Conduit, Type A, 706.02 or 706.08 with Class B Bedding
					246		603	246	L.F.	24" Conduit, Type A, 706.02 Class III with Class B Bedding
					106		603	106	L.F.	24" Conduit, Type A, 707.05 with Class B Bedding
						164	603	164	L.F.	24" Conduit, Type B with Class B Bedding
					70		603	70	L.F.	27" Conduit, Type A, 706.02 or 706.08 with Class B Bedding
						168	603	168	L.F.	27" Conduit, Type B with Class B Bedding
						190	603	190	L.F.	24" Conduit, Type B, 706.02 Class III or 706.08, with Class B Bedding

SHEET NO. 13	14	15	16	17	18	ITEM	GRAND TOTAL	UNIT	DESCRIPTION
									~DRAINAGE~ (Cont.)
				188		603	188	L.F.	30" Conduit, Type A, 706.02 Class V with Class B Bedding
				706		603	706	L.F.	30" Conduit, Type A, 707.05 Gage 10 with Class B Bedding
				368		603	368	L.F.	30" Conduit, Type A, 707.05 with Class B Bedding
				200		603	200	L.F.	36" Conduit, Type A, 706.02 or 706.08 with Class B Bedding
				284		603	284	L.F.	36" Conduit, Type A, 706.02 Class IV with Class B Bedding
				1146		603	1146	L.F.	36" Conduit, Type A, 707.05 Gage 8 with Class B Bedding
				256		603	256	L.F.	36" Conduit, Type A, 707.05 Gage 10 or 706.02 Cl.V, with Class B Bedding
				232		603	232	L.F.	42" Conduit, Type A, 707.05 with Class B Bedding
				216		603	216	L.F.	60" Conduit, Type A, 707.03 Gage 10-8 with Class B Bedding, Paved Bituminous
				76		603	76	L.F.	60" Conduit, Type F Coated as per plan
				110		603	110	L.F.	84" Conduit, Type A, 706.02 with Class B Bedding
				506		603	506	L.F.	96" Conduit, Type A, 707.03 Gage 1-1 Shop Elongated with Class B Bedding,
									Paved Bituminous Coated as per plan
					1	604	1	Each	Standard No. 2-8 Median Inlet
				1	1	604	2	Each	Standard No. 2-2A Catch Basin
					5	604	5	Each	Standard No. 2-2B Catch Basin
					3	604	3	Each	Standard No. 2-3 Catch Basin
				2		604	2	Each	Standard No. 2-6 Catch Basin
				1	24	604	25	Each	Standard No. 4 Catch Basin
				1	2	604	3	Each	Standard No. 5 Catch Basin
					1	604	1	Each	Standard No. 6 Catch Basin, Modified as per plan
53,350						605	53,350	L.F.	Aggregate Drains
	12				3	605	15	L.F.	Aggregate Drains for springs, as per plan
	200				49	605	249	L.F.	6" Unclassified Pipe Underdrain, 707.06 or 707.12, as per plan
		2000				605	2000	L.F.	6" Deep Pipe Underdrains
									~PAVEMENT~
			6373			301	6373	Cu.Yd.	Bituminous Aggregate Base 702.01 (85-100) or 702.09, RT-10, As Per Plan
			12,948			302	12,948	Cu.Yd.	Asphalt Concrete (70-85)
			13,402	304		304	13,706	Cu.Yd.	Aggregate Base
			59,986			310	56,986	Cu.Yd.	Subbase
			174,606			824	174,606	Sq.Yd.	6" Bituminous Macadam Base: 702.09, RT-11 or RT-12
			215			402	215	Cu.Yd.	Asphalt Concrete (85-100)
			237			404	237	Cu.Yd.	Asphalt Concrete (85-100) Using 402 Composition.
			233	62		404	295	Cu.Yd.	Asphalt Concrete (85-100)
			5765			404	5765	Cu.Yd.	Asphalt Concrete (70-85)
			6717			408	6717	Gal.	Bituminous Prime Coat, 702.09, RT-2 or RT-3
			1476			409	1476	Gal.	Seal Coat Bituminous Material: 702.09, RT-9 or RT-10; or 702.02, MC-800 or MC-3000
			612			409	612	Cu.Yd.	Seal Coat Cover Aggregate, No. 8
			21,460			409	21,460	Gal.	Seal Coat Bituminous Material, as per plan
				555		609	555	L.F.	Concrete Curb Standard Type 6
				213		609	213	L.F.	Concrete Curb Standard Type 7
				449		609	449	L.F.	Concrete Curb Standard Type 8
				1070		611	1070	Sq.Yd.	Reinforced Concrete Approach Slabs (T-13")
				336		612	336	Sq.Yd.	Concrete Median
Lump						614	Lump	Lump	Maintaining Traffic
Lump							Lump	Lump	Construction Layout Stakes
Lump							Lump	Lump	Field Office

FOR TRAFFIC CONTROL QUANTITIES, See Sheet No. 355

STRUCTURES OVER 20' SPAN
For Bridge No. COL-11-1041, See Sheet No. 426
For Bridge No. COL-11-1162, See Sheet No. 416
For Bridge No. COL-11-1424, See Sheet No. 393
For Bridge No. COL-11-1439, See Sheet No. 367

FOR BUILDING REMOVALS, See Sheet No. 17

Rev. 2-2-68 C.E.H.

COL-11-10.22 COL-154-1.71

P.O.T. 200+50.66
℄ Survey 7 IRON PIN
3" Wild Cherry Stump
4" Wild Cherry Stump
0.5" Wild Cherry Stump
Nails & Caps in References

TYPICAL SECTION of adjoining Pavement will be the same as Typical shown on sheet 4 of these plans.

END WORK STA. 795+50

END PROJECT STA. 200+00 S.L.M. 15.03

END SHEET STA. 201+00

LA

800 S 18°-04'-38" E 795 200

Jute Matting to be placed with adjoining project.

I-S

COL-11-1502

I-JM

Var. 2:1 1:1 2:1 4:1 7'-8" 2:1

All Elevations are to U.S.G.S. DATUM

B.M. Elev. 1040.97
Mine Spike in 18" Stump
200' Lt. Sta. 793+44

1032.40 1031.75 1031.10 1030.45 1029.80

STATION EQUATION
793+58.40 BACK =
200+00 AHEAD

200' V.C.

P.I. 796+00

P.C. 794+00

Future Grade +3.00%

-2.60%

14.88%

P.I. 795+00
Elev. 1036.08

Std. No. 4 C.B.
℄ 200+00

I-S

1080 1070 1060 1050 1040 1030 1020

1068.1 1073.8 1079.1 1084.3 1086.8 1087.5 1088.0 1085.7 1080.8 1075.3 1070.7 1066.1 1063.1 1058.5 1054.8 1052.2 1052.4 1052.0 1042.5 1039.8 1051.7 1053.8

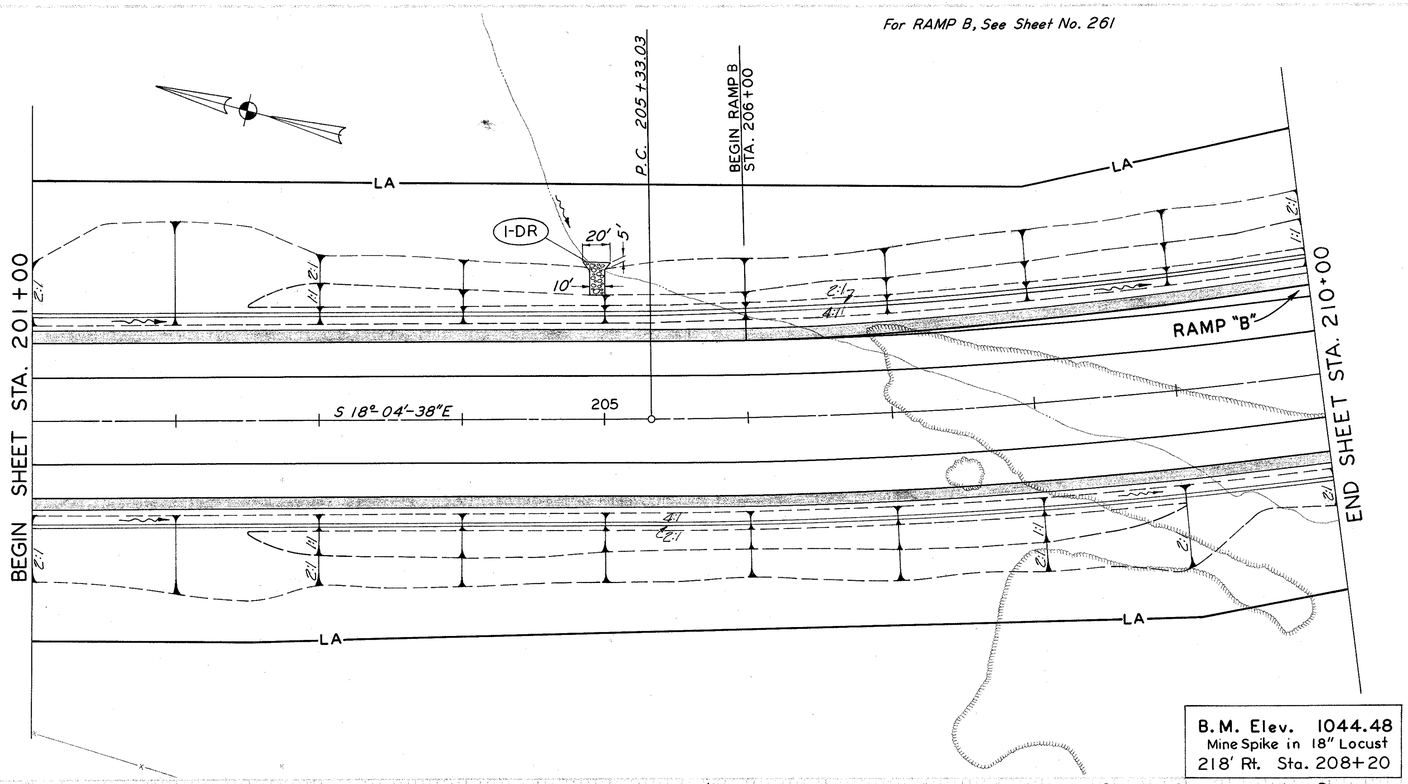
803 802 801 800 799 798 797 796 795 794 200 201

| | | |

COL-11-10.22 COL-154-1.71

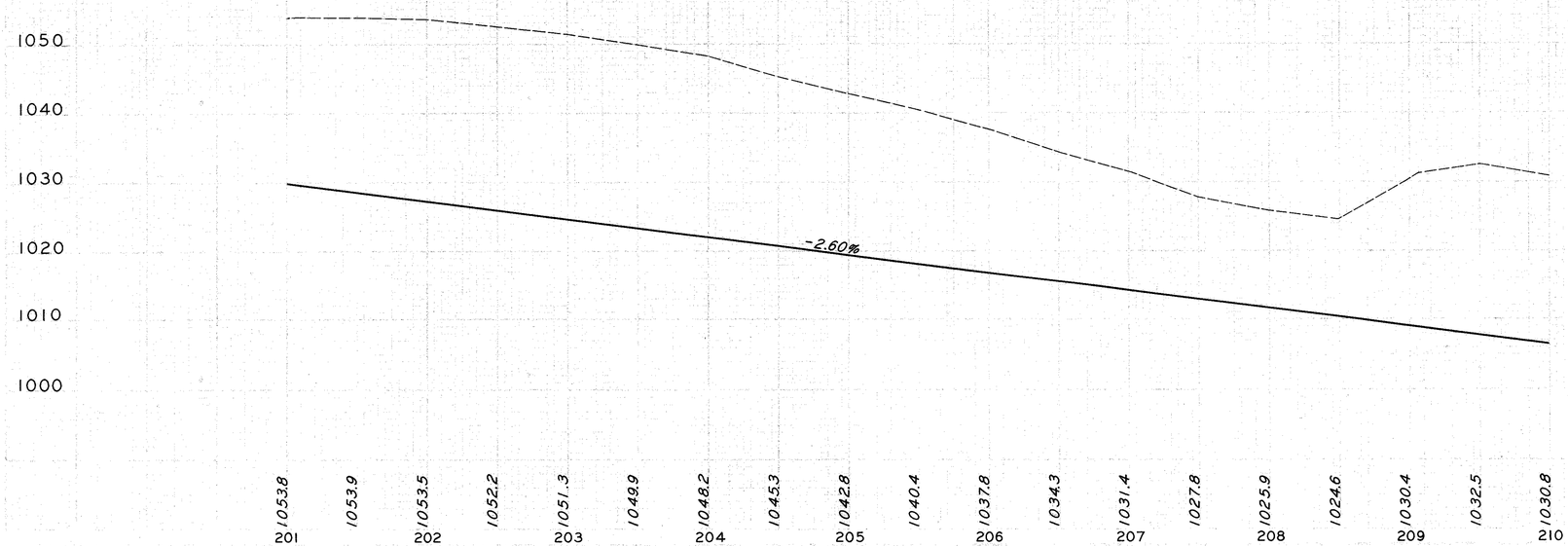
P.C. 205+33.03
End post
11.74'
℄ Survey
Iron Pin
159.4'
6" Cherry
237.9'
10" Walnut
Nails & Caps in References

For RAMP B, See Sheet No. 261



B. M. Elev. 1044.48
Mine Spike in 18" Locust
218' Rt. Sta. 208+20

1029.80 1029.15 1028.50 1027.85 1027.20 1026.55 1025.90 1025.25 1024.60 1023.95 1023.30 1022.65 1022.00 1021.35 1020.70 1020.05 1019.40 1018.75 1018.10 1017.45 1016.80 1016.15 1015.50 1014.85 1014.20 1013.55 1012.90 1012.25 1011.60 1010.95 1010.30 1009.65 1009.00 1008.35 1007.70 1007.05 1006.40



601 Dumped Rock Channel Prot. C. Y. 14

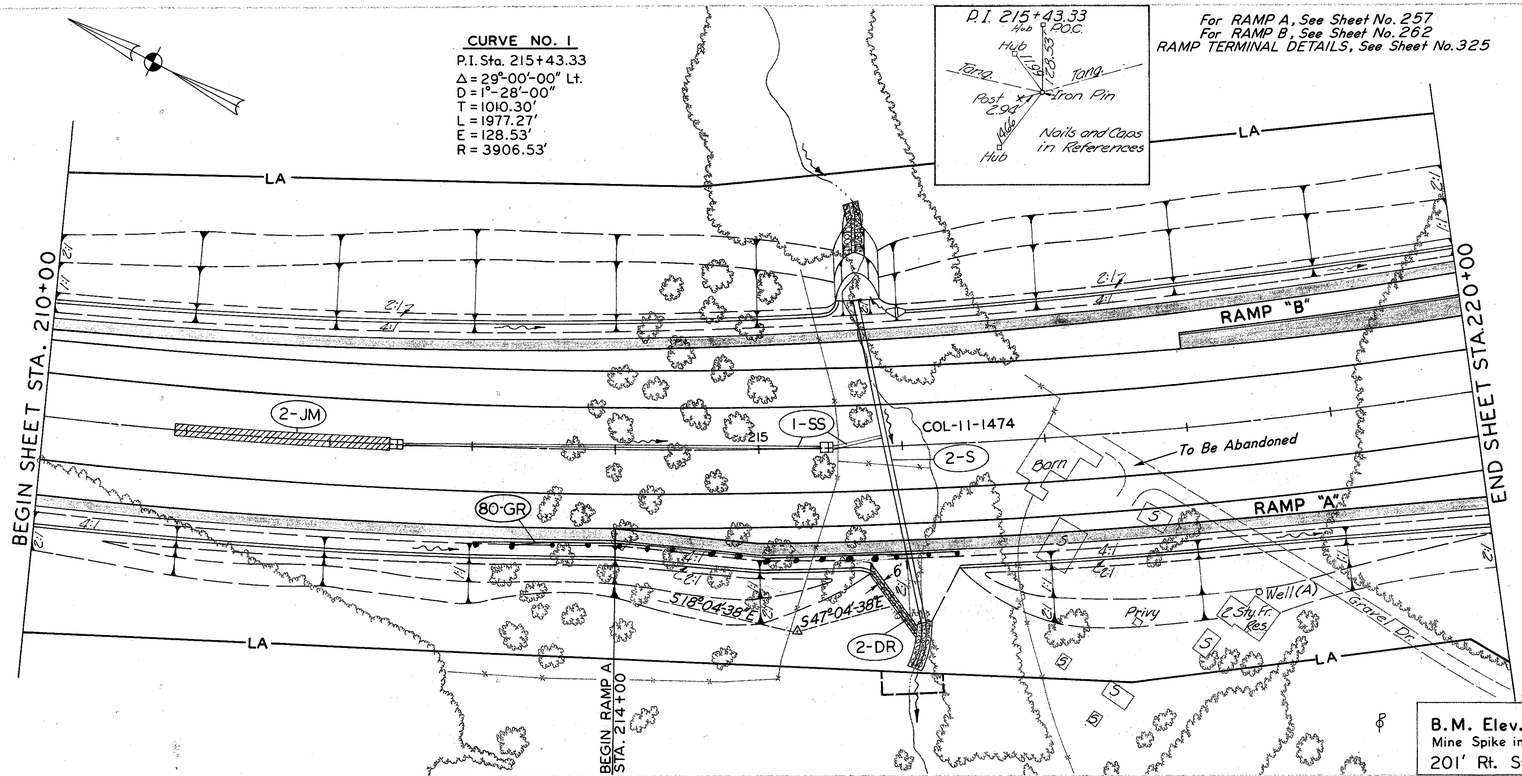
I-DR 204+85 to 205+05 Lt.

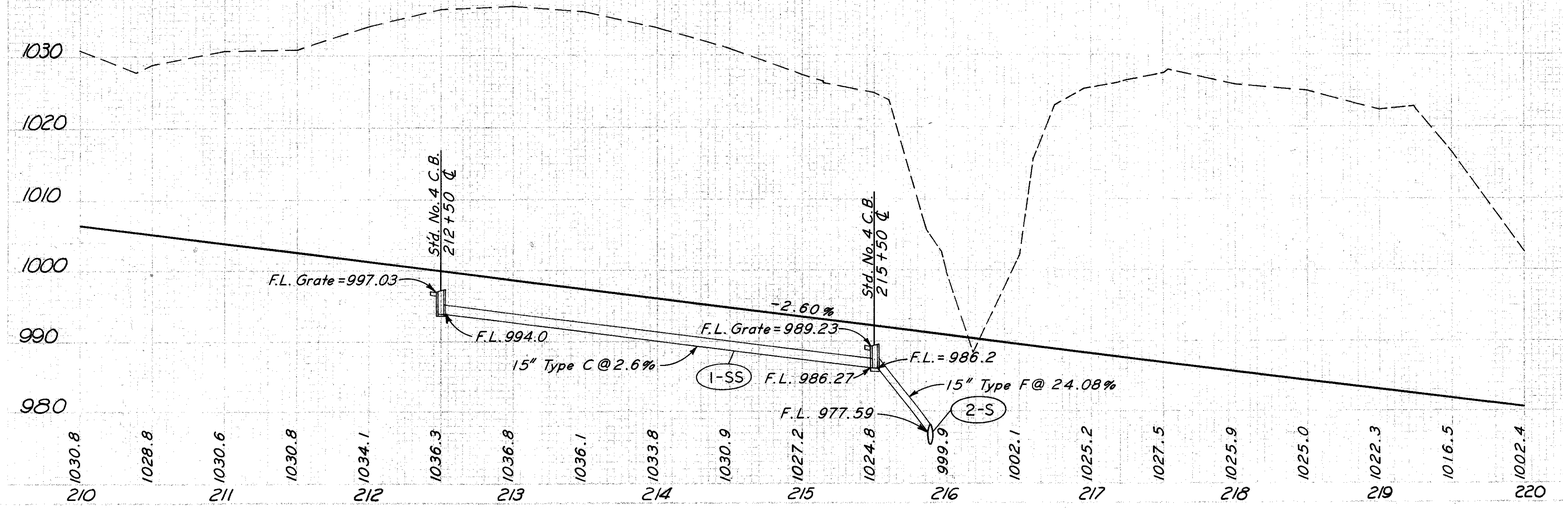
STA. 201+00 TO STA. 210+00

CURVE NO. 1
P.I. Sta. 215+43.33
Δ = 29°-00'-00" Lt.
D = 1°-28'-00"
T = 1010.30'
L = 1977.27'
E = 128.53'
R = 3906.53'

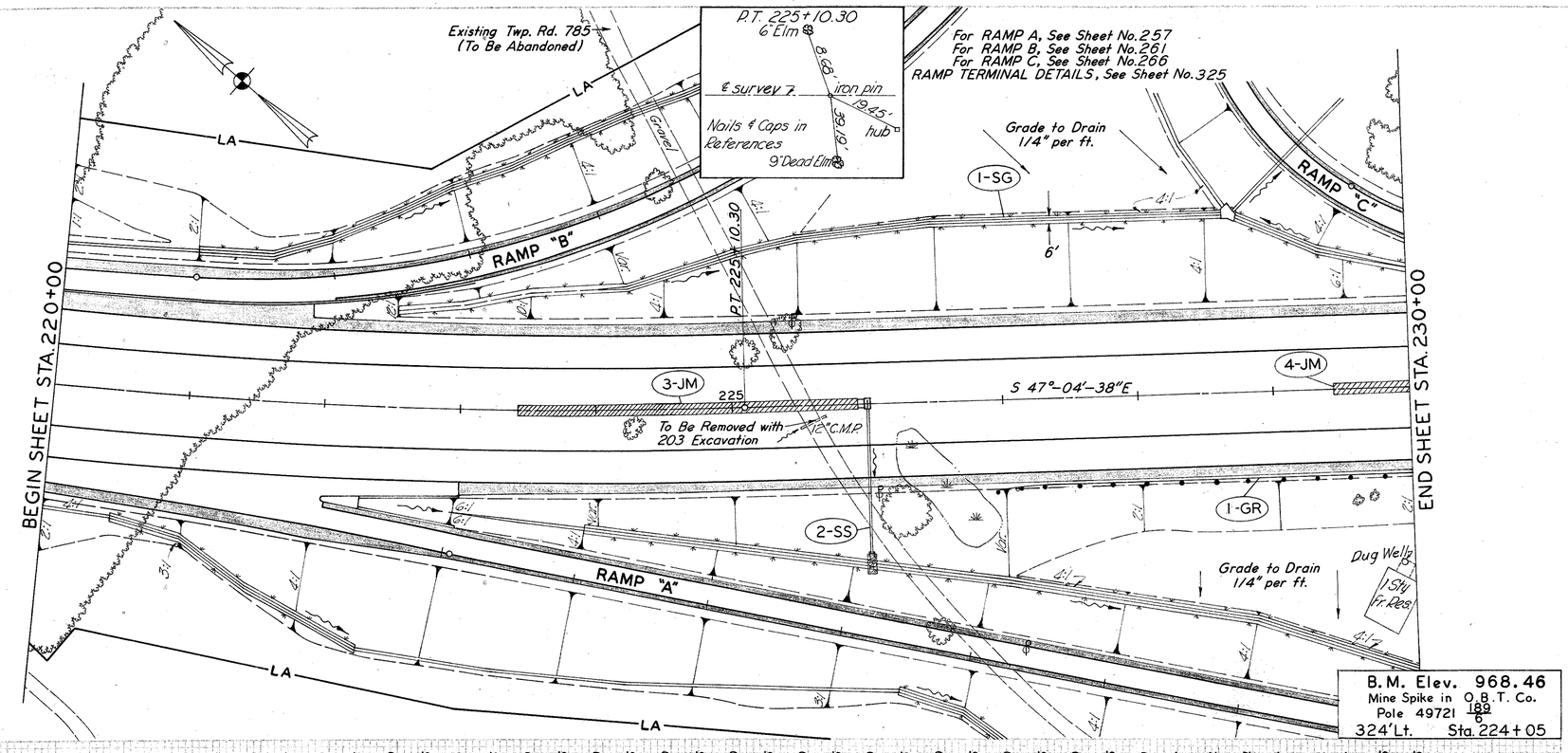
P.I. 215+43.33
Hub 5.00 C.
Hub 128.53
Tang.
Tang.
Post x Iron Pin
2.00
Hub
Hub
Nails and Caps in References

For RAMP A, See Sheet No. 257
For RAMP B, See Sheet No. 262
RAMP TERMINAL DETAILS, See Sheet No. 325





| | | |



ESTIMATED QUANTITIES

SPEC. NO.	ITEM	STATIONS	606 Guard Rail Type 4 L.F.	601 Dumped Rock Channel/Masonry Prot. C.Y.	602 Conc. Masonry C.Y.	604 Std. No. 4 Catch Basin Each	660 Sodding Matting S.Y.	667 Jute S.Y.
2-SS		226+00	Rt.	5	0.23	1		
3-JM		223+43 to 225+93	℄				214	
4-JM		229+43 to 230+00	℄				49	
1-SG		222+50 to 230+00	Lt.				507	
1-GR		226+92.70 to 230+00	Rt.	307.3				
				307.3	5	0.23	1	507 263

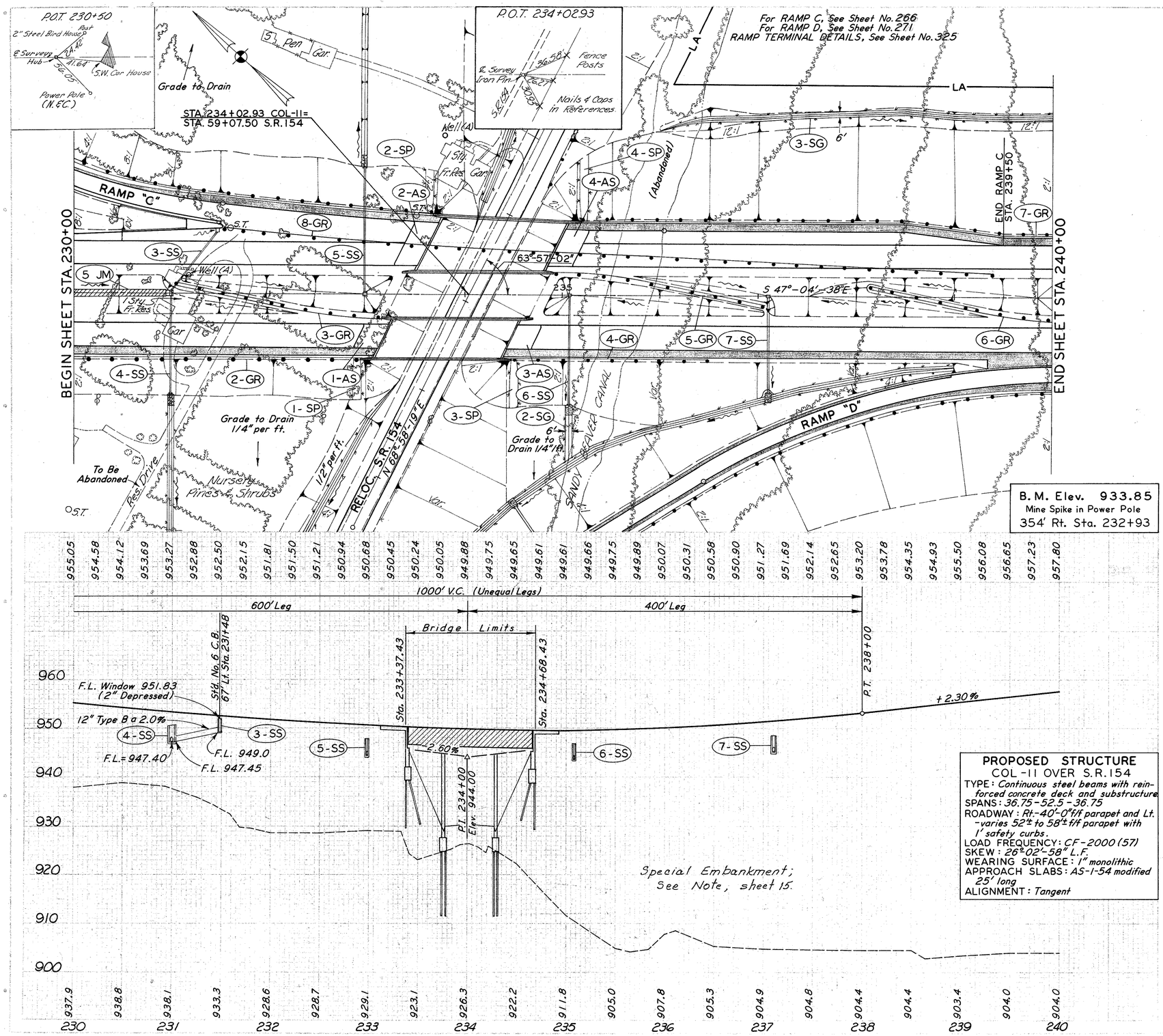
603 Conduit • Class B Bedding • 12" Type B L.F. 112

SEE SHEET NO. 62

112

STA. 220+00 TO STA. 230+00

COL-11-10.22 COL-154-1.71



STA.	606 Temp. Guard Rail, As per plan L.F.	601 Dumped Rock Channel Prot. C.Y.	602 Conc. Masonry C.Y.	660 Sodding S.Y.	660 Special Berm & Slope Prot. S.Y.	667 Jute Matting S.Y.	611 Reinf. Conc. Approach Slab 13" S.Y.
3-SS 231+00 to 231+48							
Lt.		4	0.23				
Rt.		4	0.23				
4-SS 231+00 to 232+98							
Lt.		4	0.23				
Rt.		4	0.23				
5-SS 232+98 to 235+08							
Rt.				30			
6-SS 235+08 to 237+10							
Lt.				256			
7-SS 236+40 to 240+00 ℄						79	
5-JM 230+00 to 230+93							
Rt.							
2-SG 232+93							
Rt.					38		
3-SG 233+66							
Lt.					41		
2-SP 234+47							
Rt.					60		
3-SP 235+17							
Lt.					44		
1-AS 233+12.43 to 233+37.43							66.7
Rt.							
2-AS 233+12.43 to 233+37.43							123.3
Lt.							
3-AS 234+68.43 to 234+93.43							66.7
Rt.							
4-AS 234+68.43 to 234+93.43							102.7
Lt.							
2-GR 230+00 to 232+92.70							
Rt.							
3-GR 231+05.02 to 233+14.46							
Rt.							
4-GR 234+48.39 to 236+48.39							
Rt.							
5-GR 234+91.96 to 237+01.40							
Lt.							
6-GR 238+12 to 240+00							
L.&R.							
7-GR 239+50 to 240+00							
Lt.	787.5						

STA.	604 Standard Catch Basin Each	606 Guard Rail Type 4 Std. Barrier L.F.	603 Conduit 12" Type F L.F.	603 Conduit 12" Type B L.F.	Bends & Branches 12" Type F 25° Bend Each	SHEET NO.
3-SS 231+00 to 231+48						
Lt.				82	2	64
Rt.				70	2	65
4-SS 231+00 to 232+98						
Lt.				90	2	66
Rt.				96	2	68
5-SS 232+98 to 235+08						
Rt.						
6-SS 235+08 to 237+10						
Lt.						
7-SS 236+40 to 240+00 ℄						
5-JM 230+00 to 230+93						
Rt.	1					361
2-SG 232+93						
Rt.		292.7				
3-SG 233+66						
Lt.		112.5	100			
2-SP 234+47						
Rt.		200	100			362
3-SP 235+17						
Lt.		112.5	100			
1-AS 233+12.43 to 233+37.43						
Rt.	1	91.0	100			
2-AS 233+12.43 to 233+37.43						
Lt.		50				
3-AS 234+68.43 to 234+93.43						
Rt.	1					
4-AS 234+68.43 to 234+93.43						
Lt.	1					11
2-GR 230+00 to 232+92.70						
Rt.						
3-GR 231+05.02 to 233+14.46						
Rt.						
4-GR 234+48.39 to 236+48.39						
Rt.						
5-GR 234+91.96 to 237+01.40						
Lt.						
6-GR 238+12 to 240+00						
L.&R.						
7-GR 239+50 to 240+00						
Lt.						
8-GR 231+52.5 to 239+40						
Lt.	3	858.8	300	408	130	

ESTIMATED QUANTITIES

STA. 230+00 TO STA. 240+00

For BEAVER CREEK RELOCATION See Sheet No. 315

Existing Twp. Rd. 893 (To Be Abandoned)

Gravel

END CHAN. RELOC. STA. 52+00

LA

6' 4-SG

MIDDLE FORK LITTLE BEAVER CREEK

STA. 241+80 COL-11 = STA. 50+00 BEAVER CREEK

P.C. 246+11.69

12" Oak

℄ survey

I.P.

power pole

30" Oak

Nails and Caps in References

Bldg.

For RAMP D See Sheet No. 271

Field Drive

PROPOSED STRUCTURE
COL-11 OVER BEAVER CREEK

TYPE: Continuous Welded Plate Girder with reinforced concrete deck and substructure.
SPANS: 80-100-80
ROADWAY: Lt.-30'-0" fff. 2' safety curbs and Rt.-varies 59'-0"± to 64'-0"± fff. 2' safety curbs.
LOAD FREQUENCY: CF-2000 (57)
SKEW: 5° L.F.
WEARING SURFACE: 1" monolithic
APPROACH SLABS: AS-1-54 mod., 25' long
ALIGNMENT: Tangent

7'-8" 6-JM

To Be Abandoned

4-DR

7'-8"

9-GR 6-AS 8-AS 8-SS 12-GR 9-SS 11-GR 10-SS 7-JM 11-SS

92°53'

S. 47°04'-38"E.

245

250

BEGIN SHEET 240+00

END SHEET STA. 251+00

78°-18'

10-GR 3-DR 7-AS

To Be Removed with 203 Excavation

RAMP "D"

CHANNEL RELOC.

12" C.M.P.

5-AS 1-PG

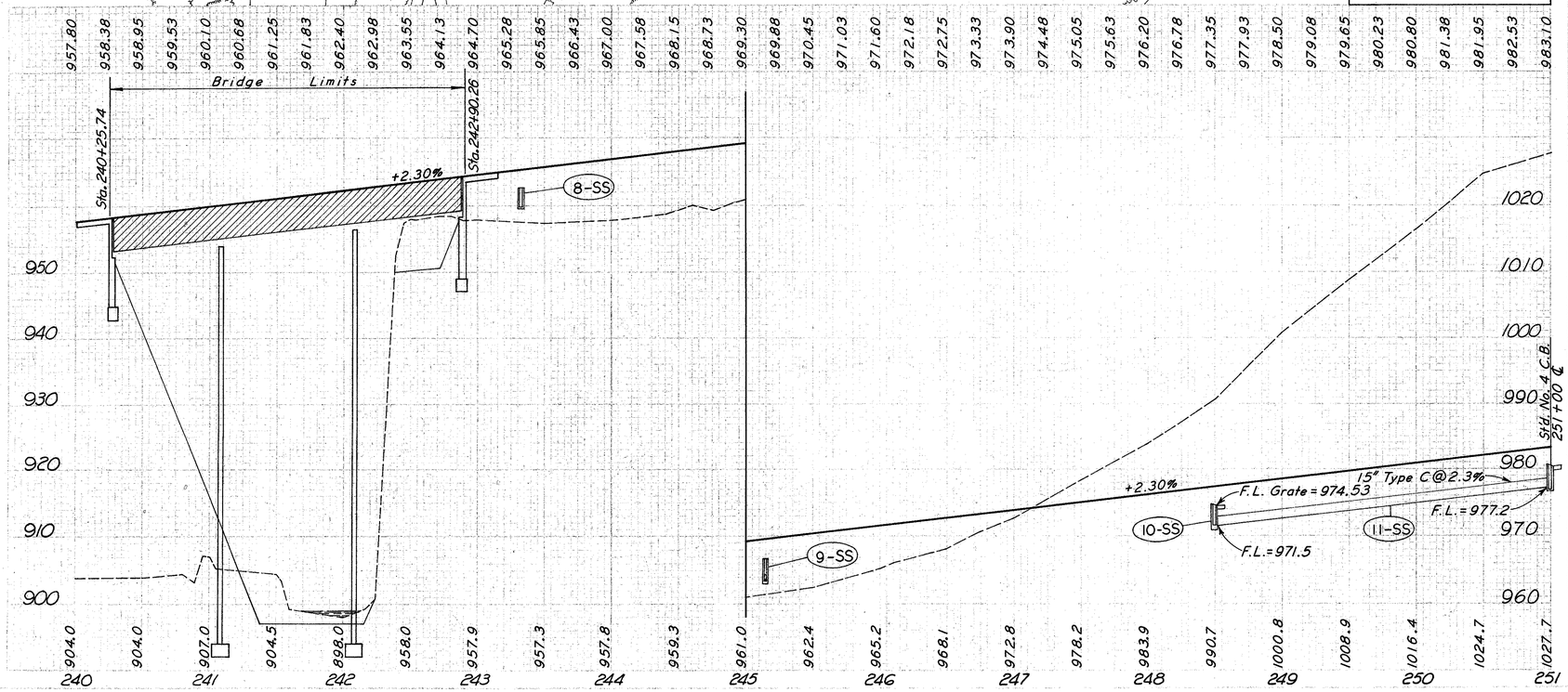
5.T.

12" Conc. Pipe w/ St'd Fr. Reg.

BEGIN CHANNEL RELOC. STA. 48+00

P.C. 246+11.69

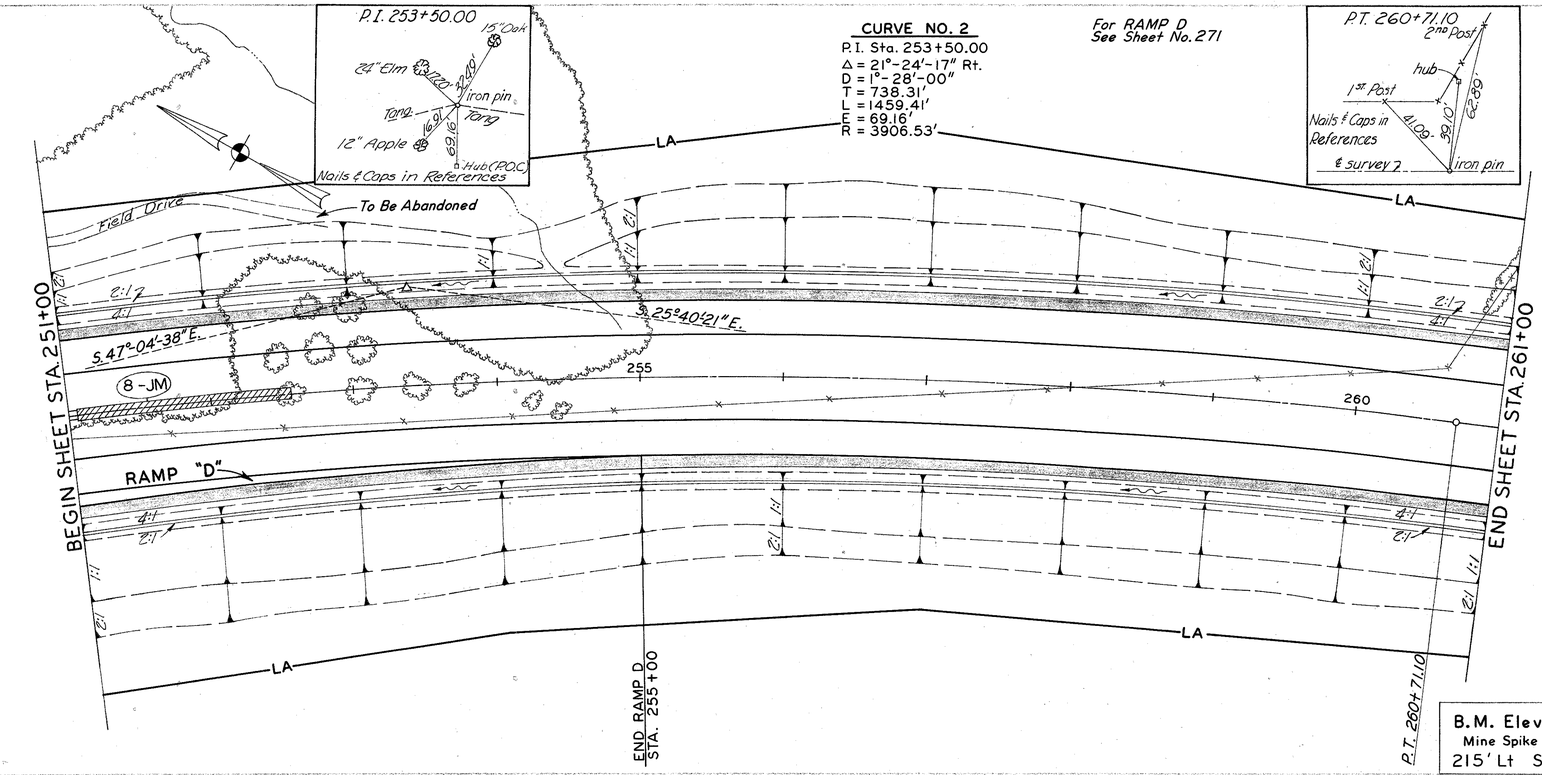
B. M. Elev. 949.77
Mine Spike in Tele. Pole 156
362' Lt. Sta. 243+98

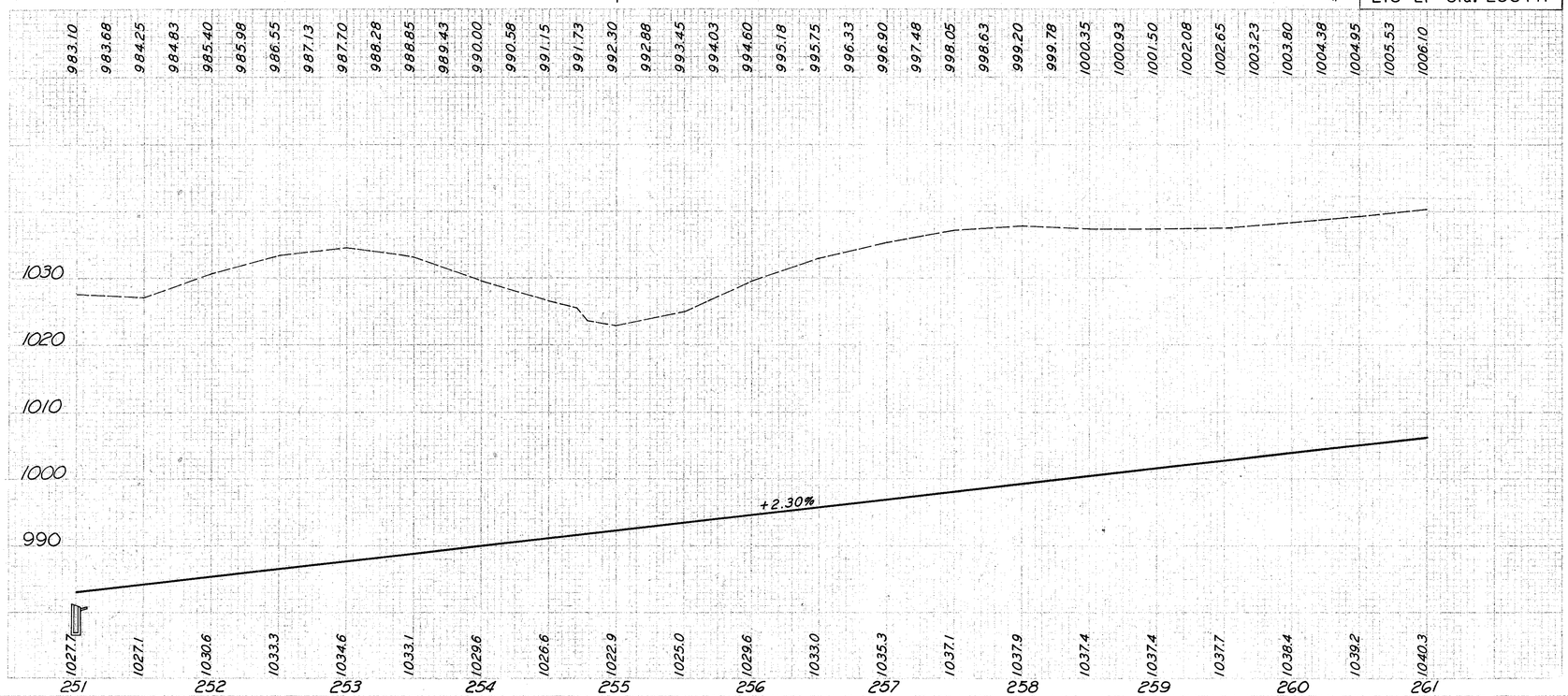


ESTIMATED QUANTITIES

STEP	STATION TO STATION	SIDE	601 Paved Gutter Type 1-2 L.F.	601 Dumped Rock Channel Prot. C.Y.	602 Conc. Masonry C.Y.	660 Sodding S.Y.	667 Jute Matting S.Y.	611 Reinf. Conc. Approach Slab T=13 S.Y.	604 St'd. Catch Basin 2'-28 Each	606 Guard Rail Type 4 St'd. No. 4 Barrier L.F.	603 Conduit • Class B Bedding • 12" Type B L.F.	• 12" Type C L.F.	• 15" Type B L.F.	• 15" Type C L.F.	SEE SHEET NO.
8-SS	242+77 to 243+31	℄ L.L.			0.23										
9-SS	245+15	Lt.			0.23										
10-SS	248+50	Lt.		3	0.26										
11-SS	248+50 to 251+00	℄													
3-DR	241+97 to 242+10	Rt.		12											
4-DR	247+50 to 248+47	Lt.		36											
1-PG	242+33 to 246+00	Rt.	372			124									
4-SG	240+00 to 241+64	Lt.				110									
6-JM	246+00 to 247+50	Lt.					128	153.1							
7-JM	248+53 to 249+50	Lt.					89	66.7							
5-AS	240+00.74 to 240+25.74	Rt.						136.4							
6-AS	240+00.74 to 240+25.74	Lt.						66.7							
7-AS	242+90.26 to 243+15.26	Rt.													
8-AS	242+90.26 to 243+15.26	Lt.													
9-GR	240+00 to 240+28.80	Lt.							1	28.80					72
10-GR	240+00 to 240+21.44	L&R.							1	21.40					73
11-GR	242+94.56 to 245+04.0	L&R.								112.5					75
12-GR	242+97.54 to 244+47.54	Lt.								156.6					387
			372	51	0.72	234	217	422.9	2	387.6	100	122	56	92	250

STA. 240+00 TO STA. 251+00





ESTIMATED QUANTITIES

SHEET NO.	STATION TO STATION	SIDE		
8-JM	251+07 to 252+57	℄	128	Jute Matting S.Y.
			667	

128

STA. 251+00 TO STA. 261+00

COL-11-10.22 COL-154-1.71

P.O.T. 266+57.46
15" Butternut
℄ Survey — 13.67' Hub
20.40 — 31.66'
18" Hedge — 5" Hedge
Nails & Caps in References

For MEDIAN CROSSOVER
See Sheet No. 10

Sandstone Embankment; Sh. 15.

BEGIN SHEET STA. 261+00

END SHEET STA. 272+00

LA

12-SS

13-GR

7-DR 8'

13-JM 7'-8"

MEDIAN CROSSOVER
STA. 269+80

12-JM

9-JM 265

COL-11-1377

S. 25°40'-21" E.

270

3-S

13-SS

14-GR

6-DR 7'

11-JM 7'-8"

10-JM

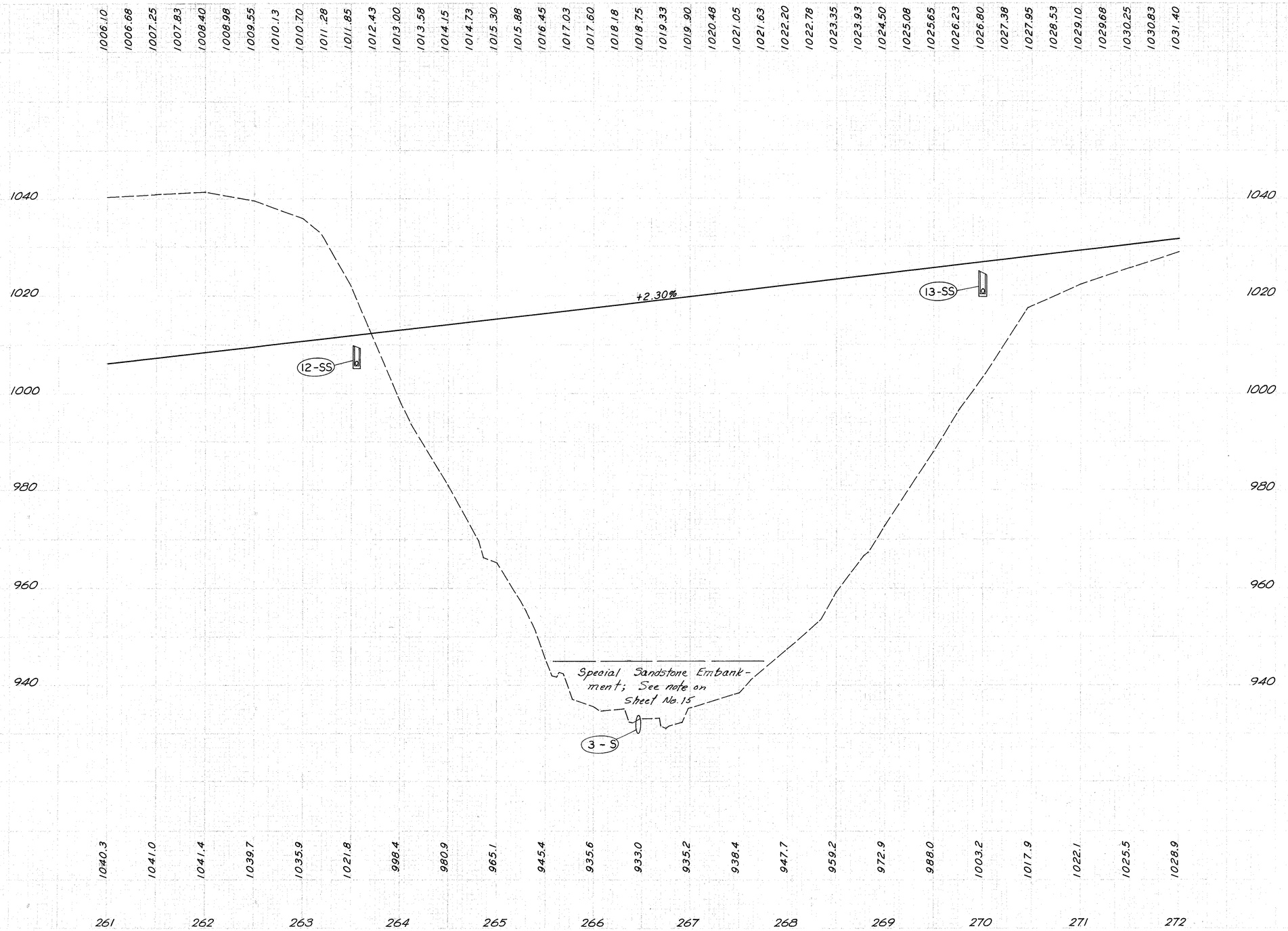
5-DR 7'

7'-8"

B.M. Elev. 950.95
Mine Spike in Root 15"Ash
284' Lt. Sta. 263+42

| | | |

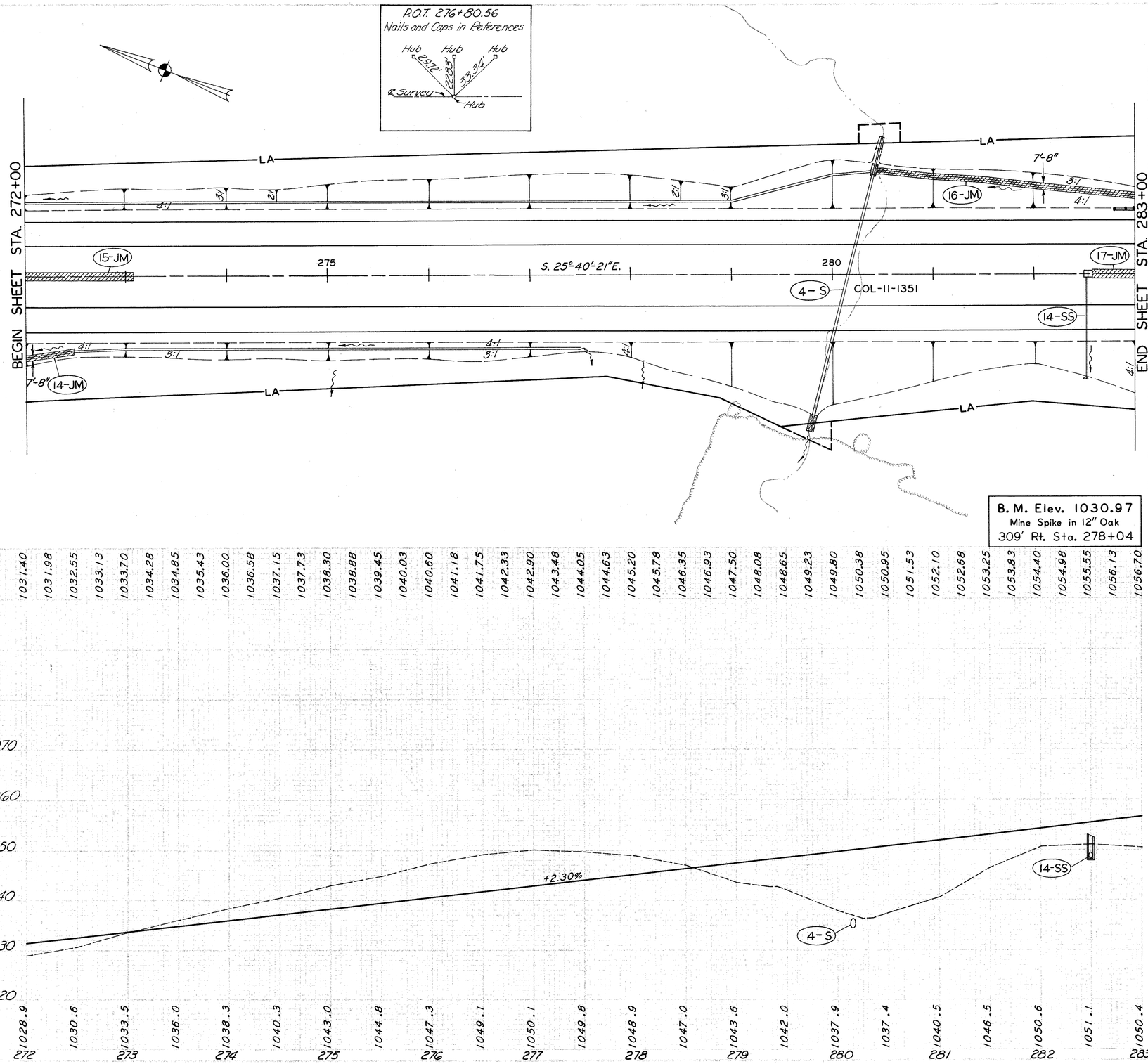
COL-11-10.22 COL-154-1.71



PROFILE STA. 261+00 TO STA. 272+00

COL-11-10.22 COL-154-1.71

P.O.T. 276+80.56
Nails and Caps in References



COL-11-10.22 COL-154-1.71

NOTE: (16-GR) for SIGN SUPPORT, See Sheet No. 358

P.O.T. 290+09.48
Nails & Caps in References
12" Oak
8" Hedge
6" Iron Wood
1915'
℄ Survey
Hub

BEGIN SHEET STA. 283+00

END SHEET STA. 293+00

LA

16-GR

8-DR

18-JM

285

COL-11-1339

S. 25°40'-21"E.

290

5-S

15-GR

19-JM

7'-8"

B. M. Elev. 1087.00
Mine Spike in 10" Iron Wood
228' Rt. Sta. 287+70

1056.70 1057.28 1057.85 1058.43 1059.00 1059.58 1060.15 1060.73 1061.30 1061.88 1062.45 1063.03 1063.60 1064.18 1064.75 1065.33 1065.90 1066.48 1067.05 1067.63 1068.20 1068.78 1069.35 1069.93 1070.50 1071.08 1071.65 1072.23 1072.80 1073.38 1073.95 1074.53 1075.10 1075.68 1076.25 1076.83 1077.40 1077.98 1078.55 1079.13 1079.70

1100
1090
1080
1070
1060
1050

+2.30%

1050.4 1051.0 1050.7 1047.9 1045.5 1045.1 1043.9 1058.8 1064.7 1073.3 1086.1 1097.7 1102.6 1106.9 1110.8 1112.4 1109.4 1104.2 1100.0 1091.7 1088.1

283 284 285 286 287 288 289 290 291 292 293

	606 Guard Rail Type 4 L.F.	203 Excav. C.Y.	601 Dumped Rock Channel Prot. C.Y.	601 Riprap 6" Reinf. Conc. Slab S.Y.	602 Conc. Masonry C.Y.	667 Jute Matting S.Y.					
5-S 285+56.74 L&R.		7	15	34	1.02						
8DR 286+10 to 287+00 Lt.			50								
18JM 283+00 to 285+57 ℄						220					
19JM 285+04.5 to 287+88 Rt.						258					
15GR 283+00 to 286+50 Rt.	350										
16GR 282+75 to 284+00 Lt.	125										
	475	7	65	34	1.02	478					

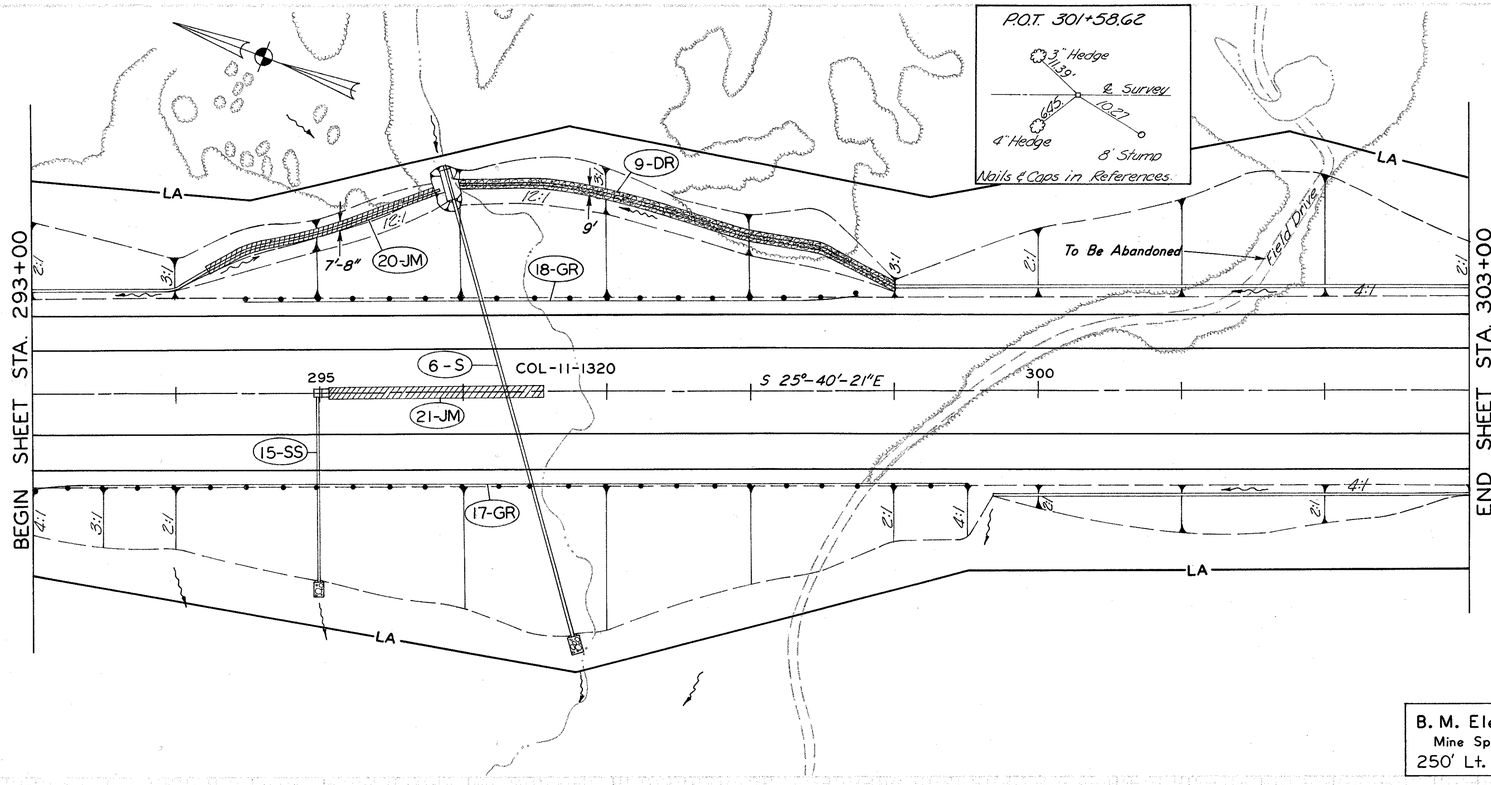
603 Conduit
• 30" Type A 707.05 Cage 14 L.F. 248

• Class B Bedding 331

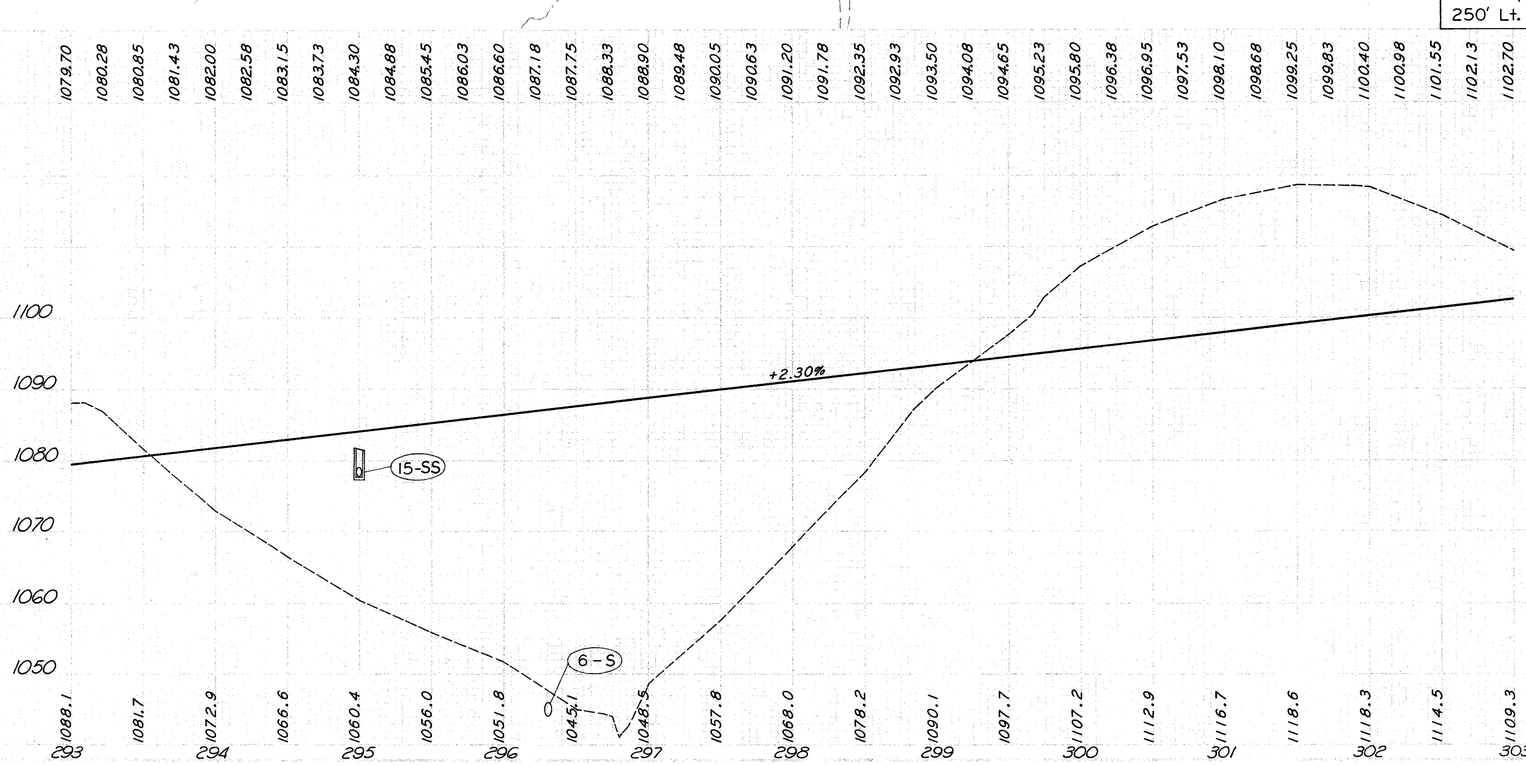
248

STA. 283+00 TO STA. 293+00

COL-11-10.22 COL-154-1.71

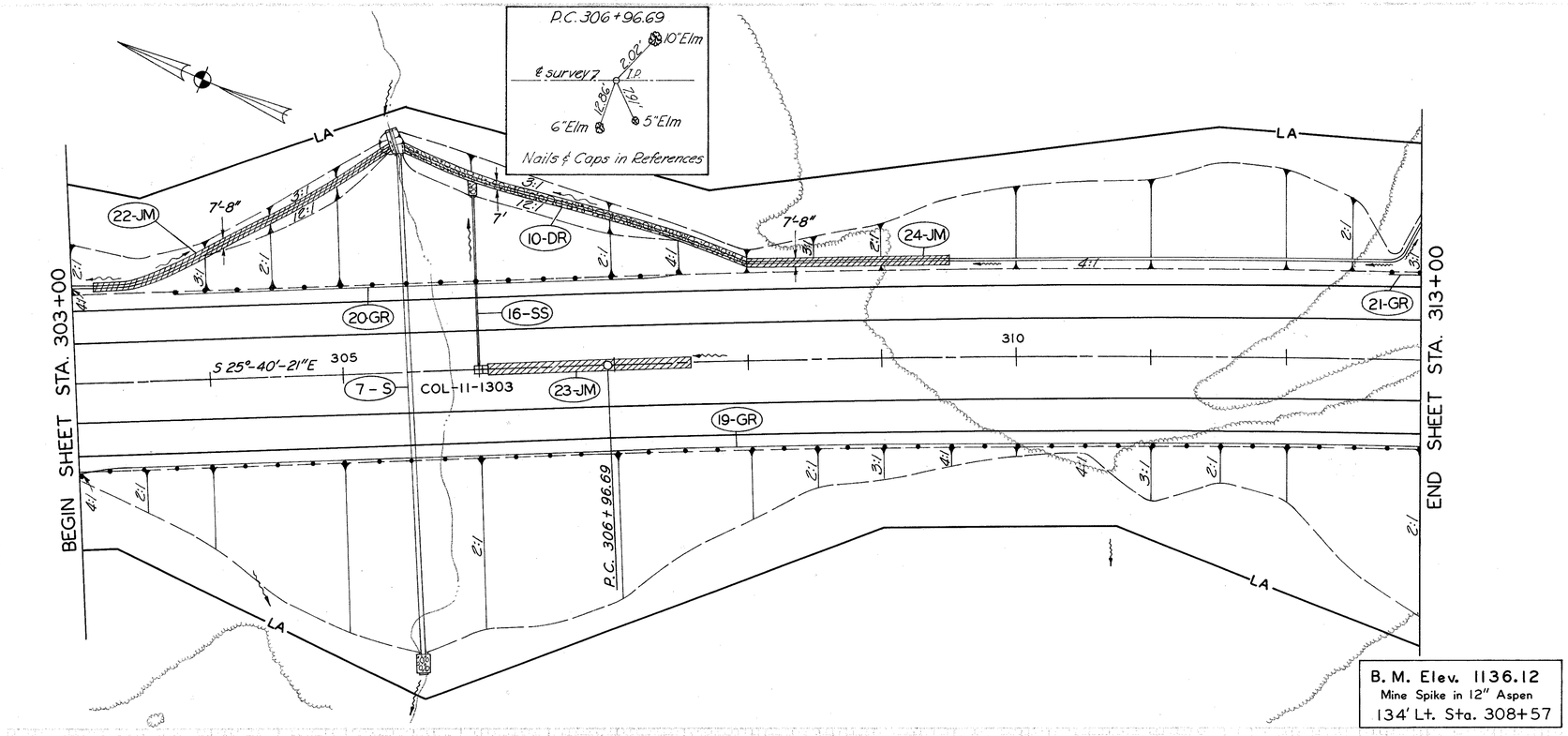


B. M. Elev. 1063.45
Mine Spike in 12" Elm
250' Lt. Sta. 1295+91



| | | |

COL-11-10.22 COL-154-1.71



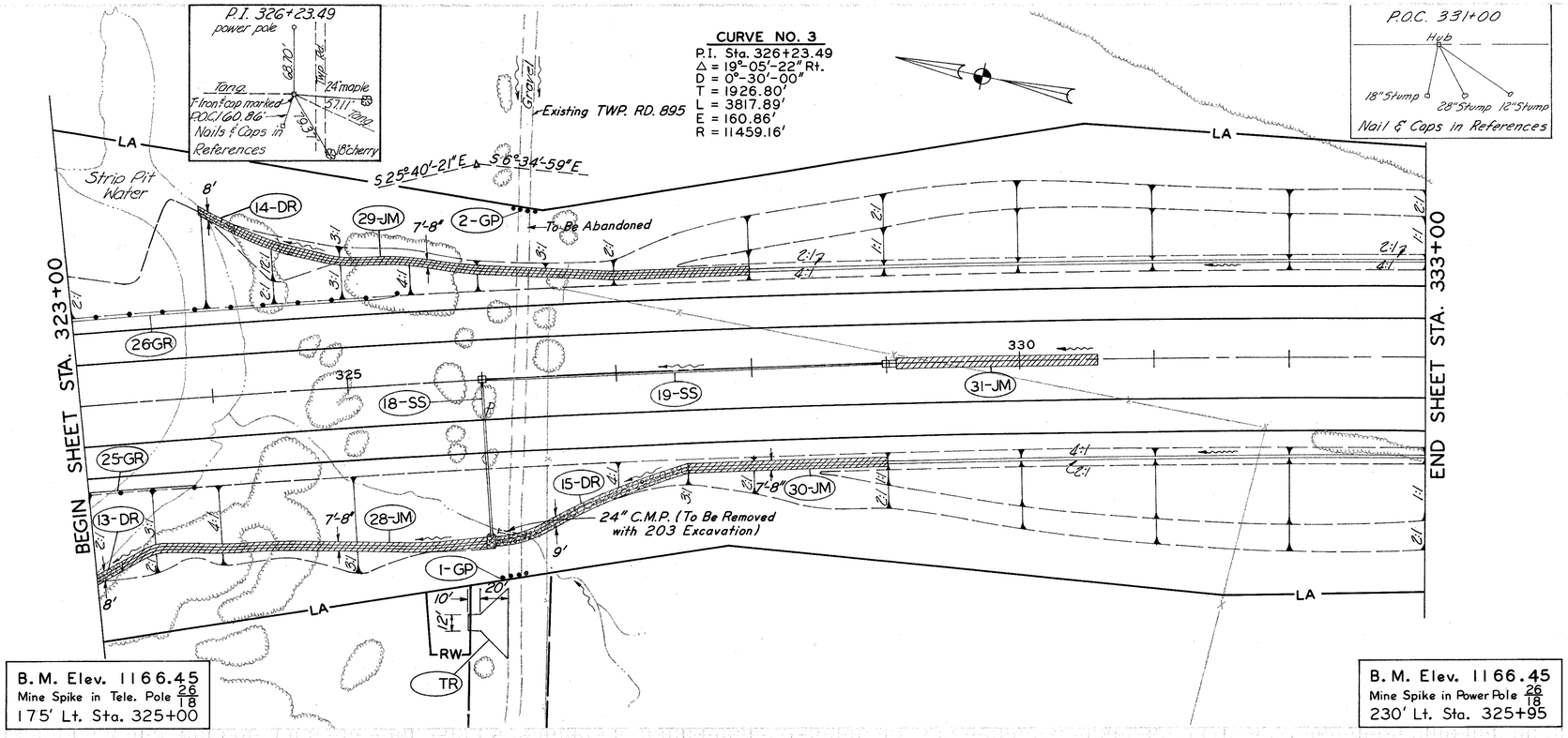
B. M. Elev. 1136.12
Mine Spike in 12" Aspen
134' Lt. Sta. 308+57

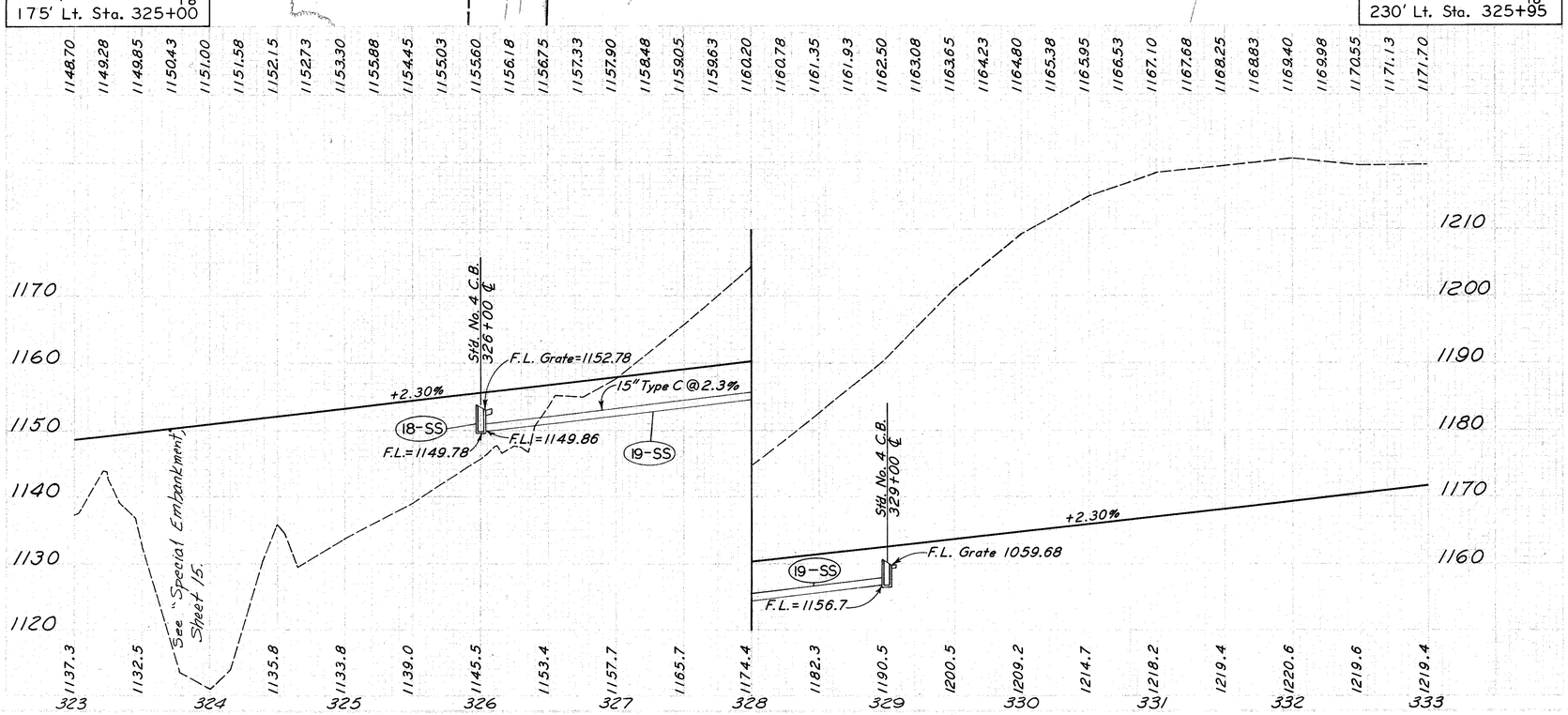
| | | |

COL-11-10.22 COL-154-1.71

| Bends & Branches | 604 Structure | 603 Conduit | | |

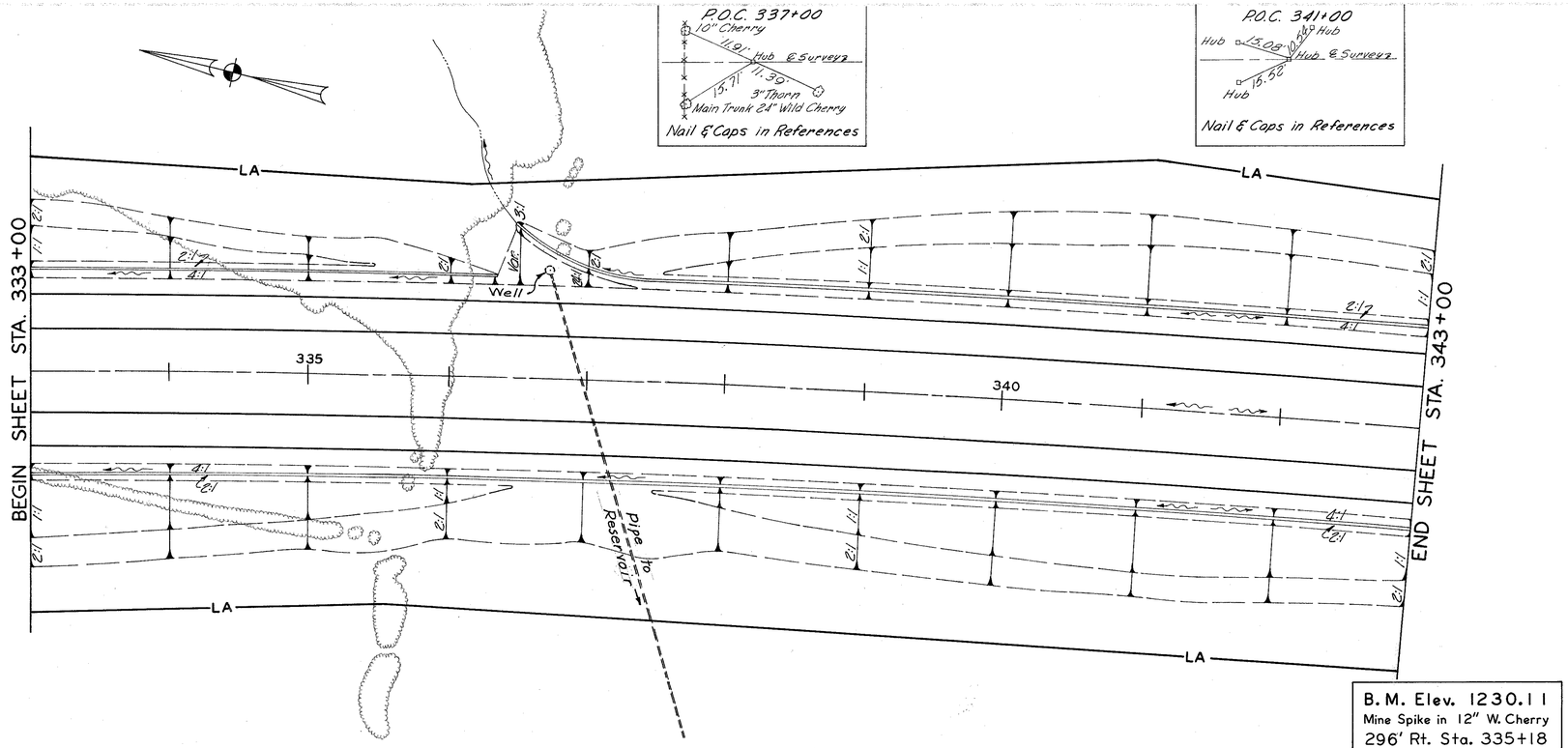
COL-11-10.22 COL-154-I.71

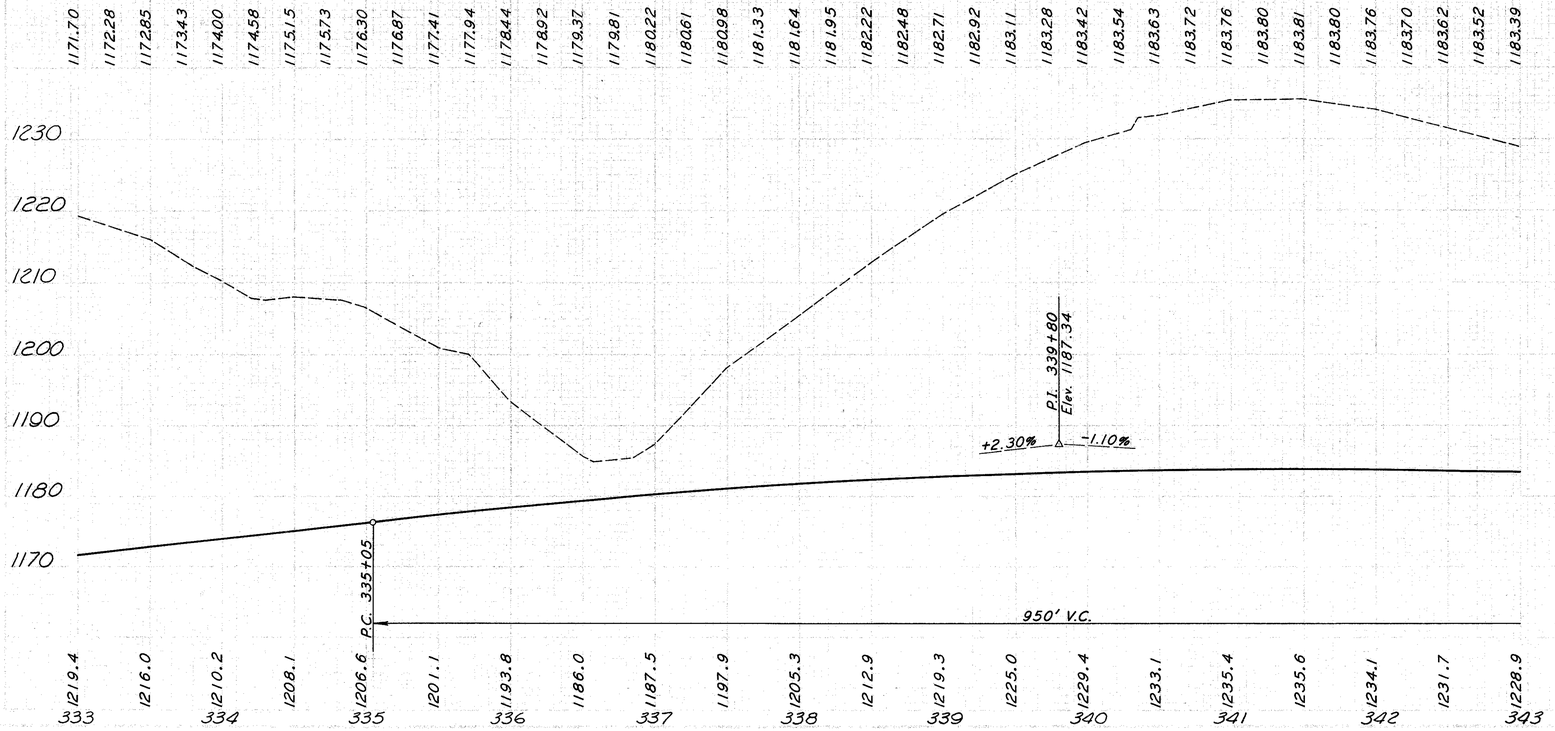




| | | |

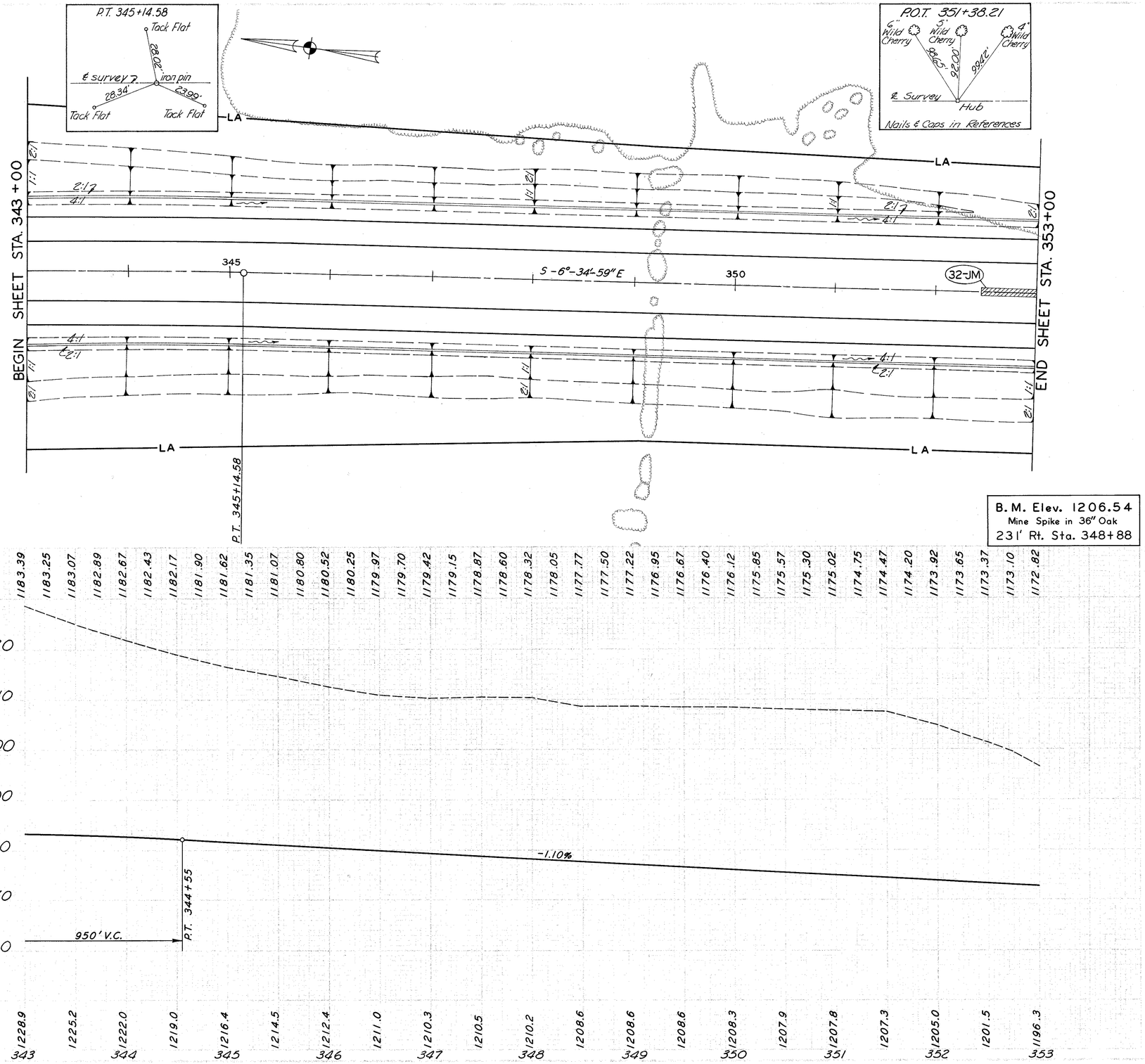
COL-11-10.22 COL-154-1.71





STA. 333+00 TO STA. 343+00

COL-11-10.22 COL-154-1.71



ESTIMATED QUANTITIES

667	Jute Matting S.Y.
49	

32JM 352+43 to 353+00 ℄

49

STA. 343 +00 TO STA. 353 +00

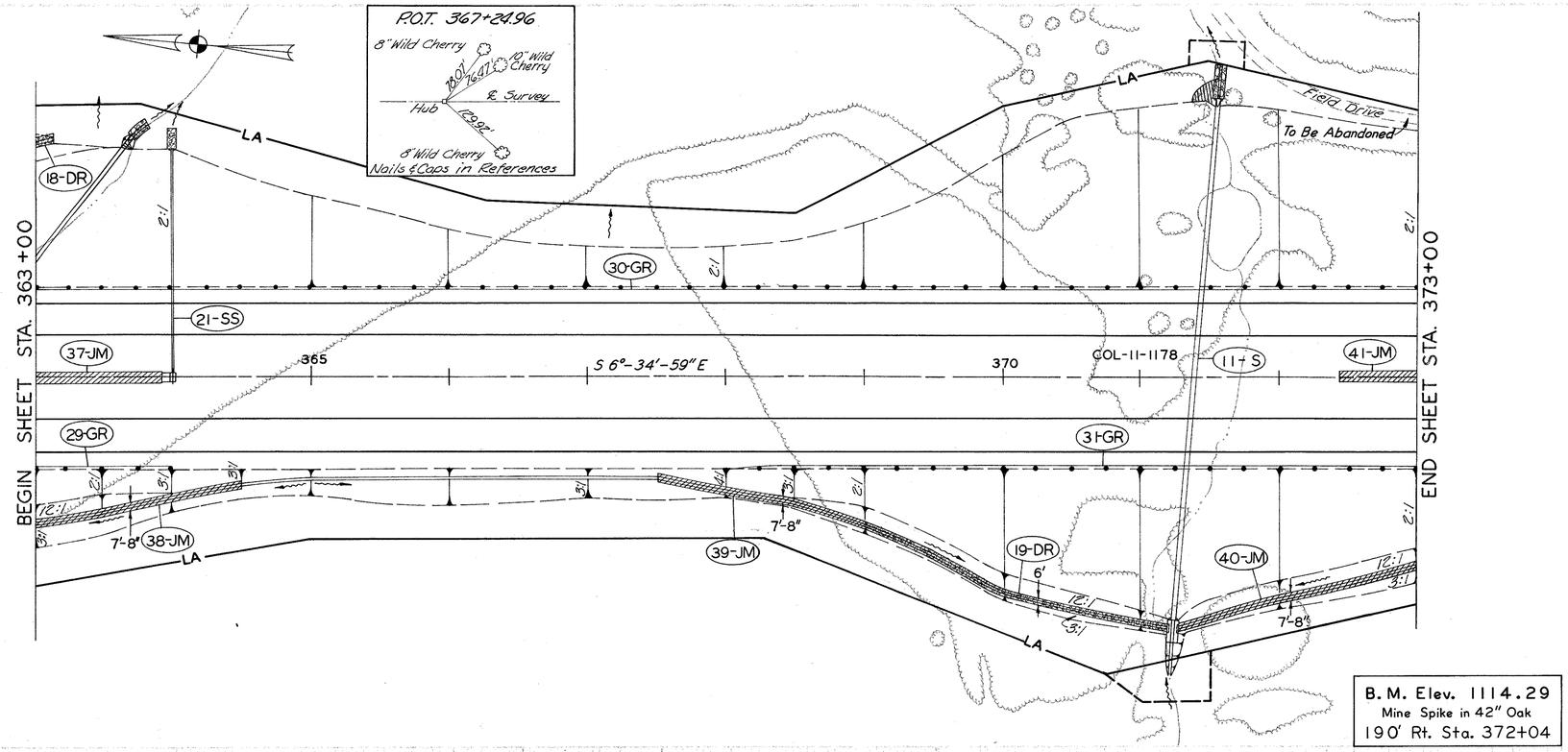
COL-11-10.22 COL-154-1.71

603 Conduit		
• 30" Type A 707.05 Gage 10 Lin. Ft.	336	145
• Class B Bedding	390	390
• 12" Type B	98	98
604 Std. Catch Basin No.4 Each	1	1

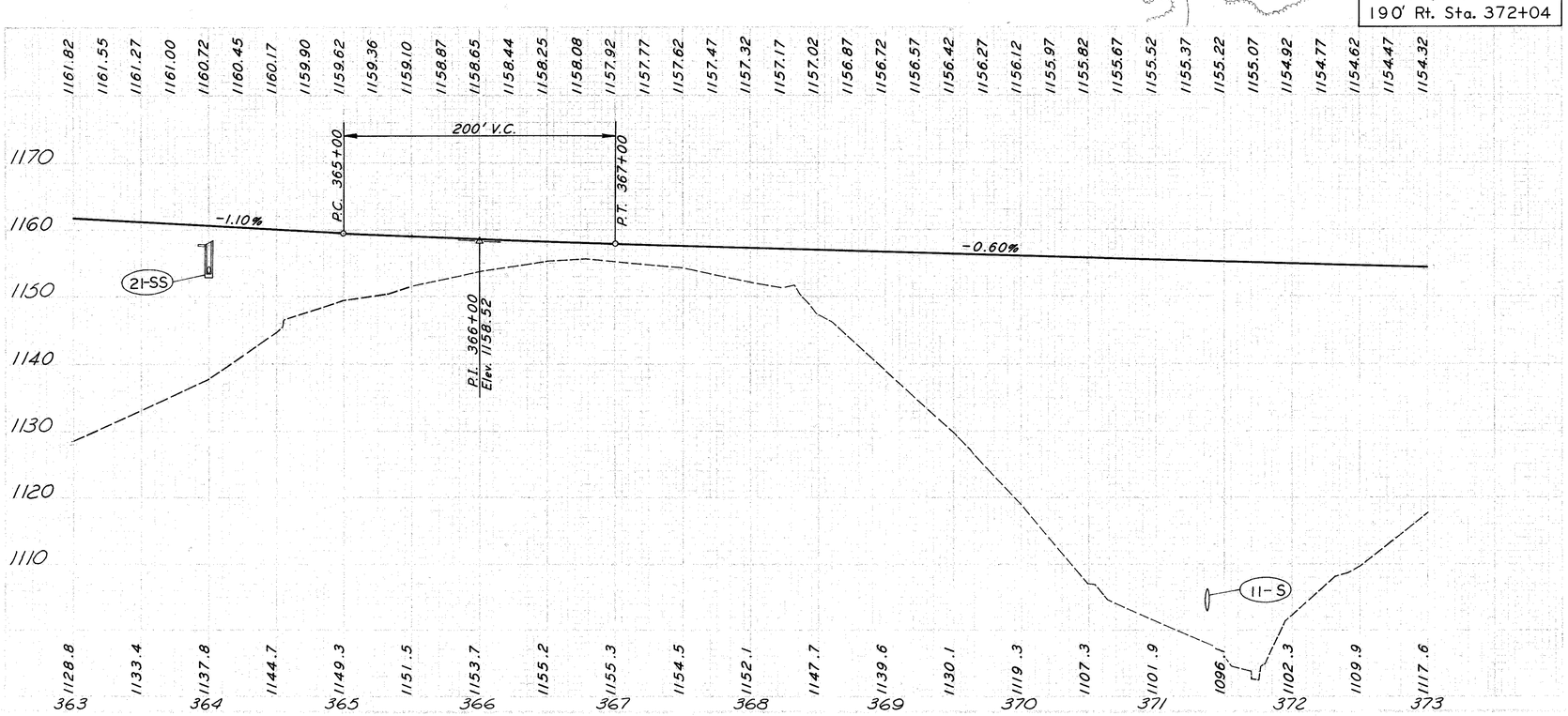
	606 Guard Rail Type 4 Lin. Ft.	203 Excav. C.Y.	601 Dumped Rock Channel Prot. C.Y.	601 Riprap & Reinf. Conc. Slab. S.Y.	602 Conc. Masonry C.Y.	667 Jute Matting S.Y.
10-S 362+37.17 Lt./Rt.		12	12	47	1.02	
20SS 354+00 Lt.		7			0.23	
16DR 359+00 to 361+22 Rt.			93			79
17DR 360+50 to 363+00 Lt.			106			128
33JM 353+00 to 353+93 ℄						135
34JM 359+00 to 360+50 Lt.						49
35JM 361+42 to 363+00 Rt.						
36JM 362+43 to 363+00 ℄						
27GR 359+00 to 363+00 Rt.	400					
28GR 360+62.5 to 363+00 Lt.	237.5					
		19	211	47	1.25	391
		637.50				

STA. 353+00 TO STA. 363+00

COL-11-10.22 COL-154-1.71



B. M. Elev. 1114.29
Mine Spike in 42" Oak
190' Rt. Sta. 372+04



Bends & Branches	604	602	606	603	603	• Class B Bedding
	Standard Catch Basin	Conc. Masonry	Guard Rail Type 4	• 12" Type B	12" Type F	• 36" Type A 707.05 Gage 8
	Each	C.Y.	L.F.	L.F.	L.F.	L.F.
12" F Type 20° 25° Bend	Each	1.18				378
Bend No. 4	Each	0.23	74	74	104	337
	1					150
	1	1.41	100	1600	104	378
	1		1000			
	1		500			

	203	203	601	601	667
	Embank. Excav.		Dumped Rock Channel Prof.	Riprap 6" Reinf. Conc. Slab	Jute Matting
	C.Y.	C.Y.	C.Y.	S.Y.	S.Y.
11-S 371+39.5	Lt.&Rt. 6	20	19	20	
21SS 364+00	Lt.		5		
19DR 363+00 to 363+15	Lt.				
19DR 369+00 to 371+14	Rt.		6		
			75		
37JM 363+00 to 363+93	℄				79
38JM 363+00 to 364+50	Rt.				128
39JM 367+50 to 369+00	Rt.				128
40JM 371+24 to 373+00	Rt.				158
41JM 372+43 to 373+00	℄				49
29GR 363+00 to 364+00	Rt.				
30GR 363+00 to 373+00	Lt.				
31GR 368+00 to 373+00	Rt.				
			6	20	542
			20	105	20

STA. 363+00 TO STA. 373+00

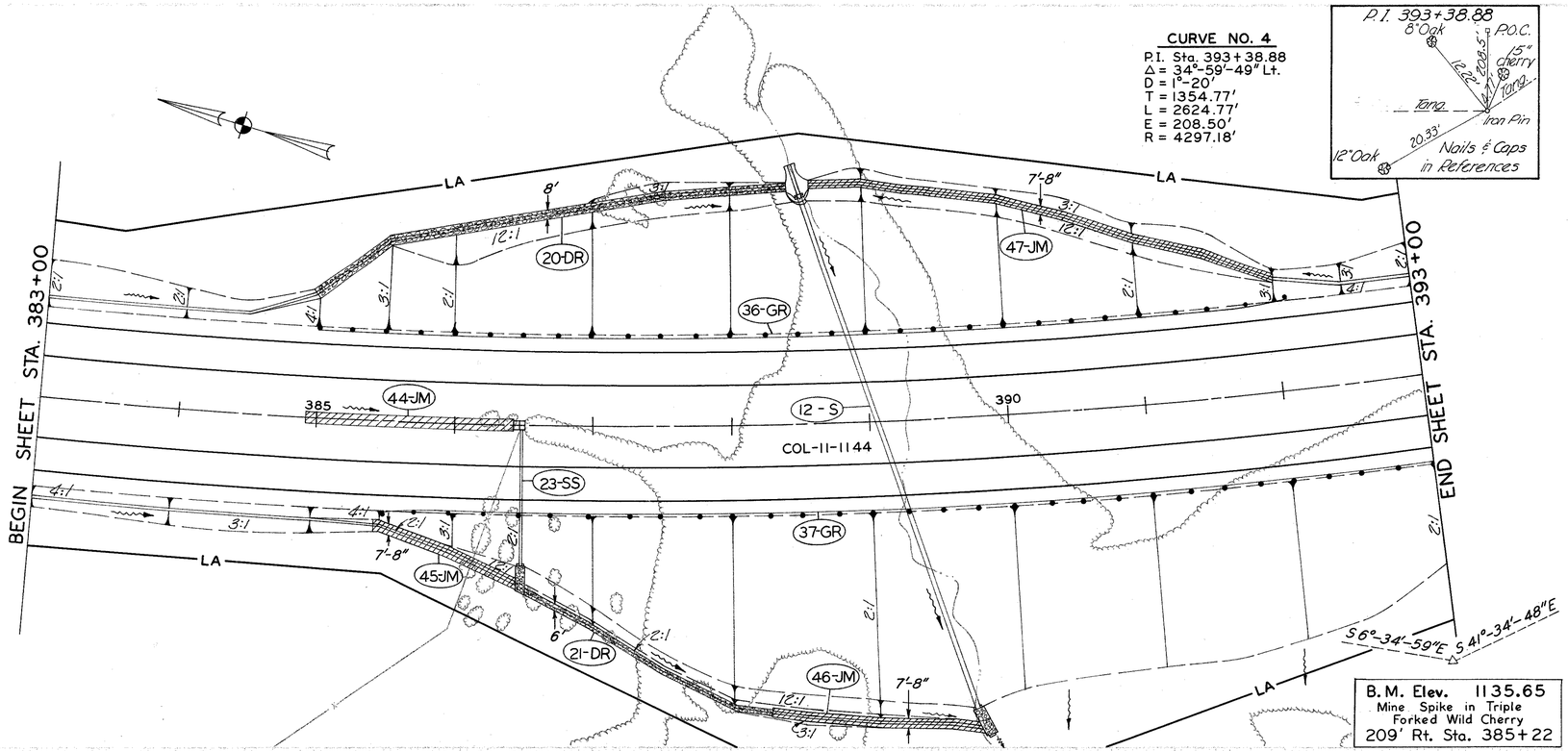
COL-11-10.22 COL-154-1.71

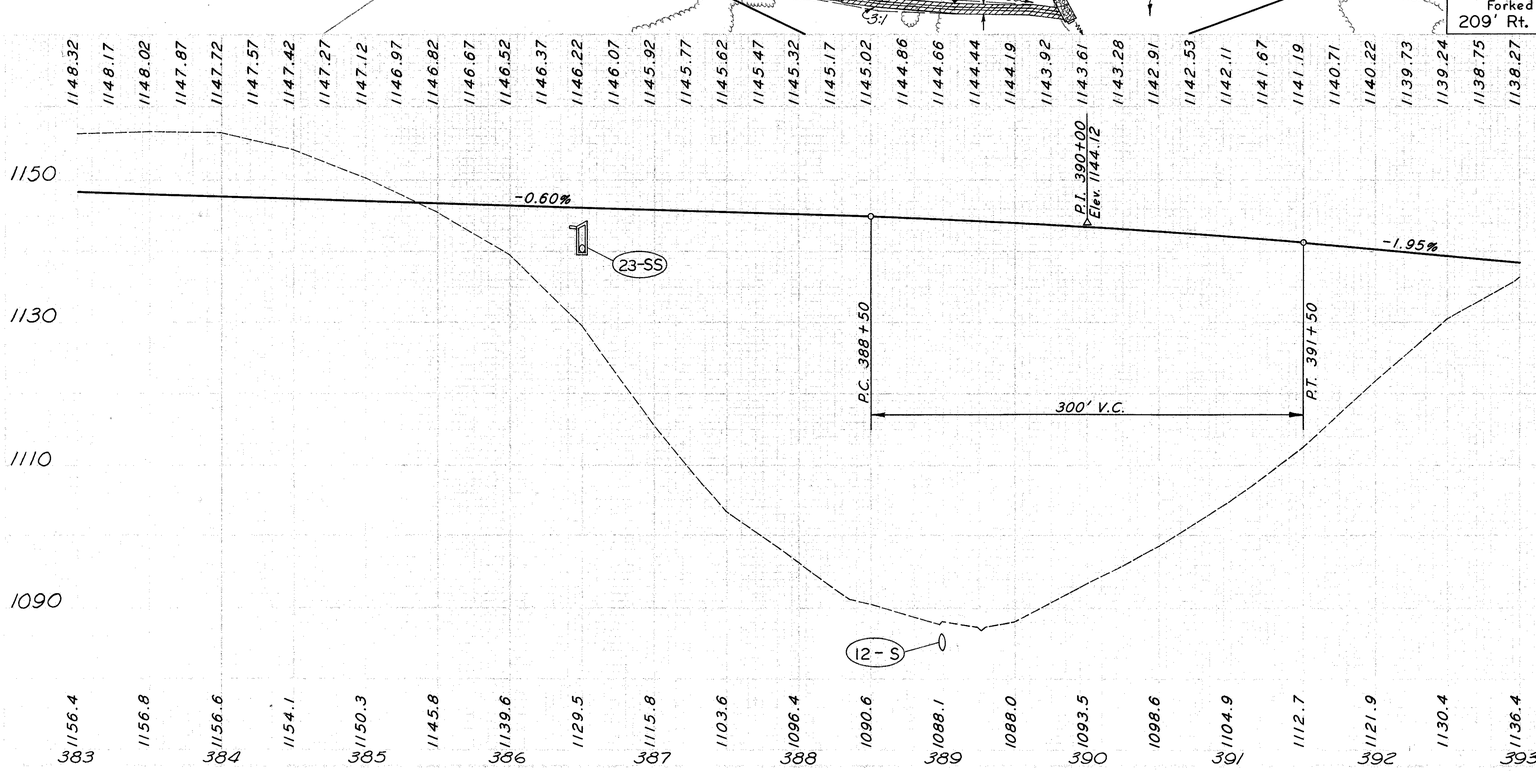
Bends & Branches	604	603	Conduit	• Class B Bedding		
12" F. Type	Std. No. 4 Catch Basin	• 12" Type B	12" Type F			
20" 125° Bend	Each	L.F.	L.F.		156	
Each	Each	1	74	74	74	74
1	1	1	74	74	1	74

606	601	602	667			
Guard Rail Type 4	Dumped Rock Channel Prot.	Conc. Masonry	Jute Matting			
L.F.	C.Y.	C.Y.	S.Y.			
225S 374+00 Lt.	5	0.23				
37DR 376+70 to 377+00 Rt.	42					
42JM 373+00 to 373+93 ℄			79			
43JM 373+00 to 374+50 Rt.			128			
32GR 373+00 to 374+25 Rt.				125		
33GR 373+00 to 375+50 Lt.				250		
34GR 378+75.16 to 379+75 Rt.				100		
35GR 380+05 to 381+04.84 Lt.				100		
	575	47	0.23	207		

STA. 373+00 TO STA. 383+00

COL-11-10.22 COL-154-1.71





| | | |

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

COL-11-10.22 COL-154-1.71

41

LAKE

BEGIN SHEET STA. 393+00

END SHEET STA. 404+00

LA

22-DR 6'

23-DR 4'

24-DR 4'

1-R 12" C.M.P. To be Plugged & Abandoned

24-SS

39-GR

Ft. Shed

48-JM

38-GR

395

400

2:1 4:1 3:1

B.M Elev. 1121.20
Mine Spike in root 26" Oak
113' Rt. Sta. 393+98

-1.95%

1160 1140 1120 1100

393	394	395	396	397	398	399	400	401	402	403	404
1136.4	1139.9	1140.8	1142.5	1143.0	1143.3	1142.4	1139.9	1137.5	1136.7	1135.6	1132.3

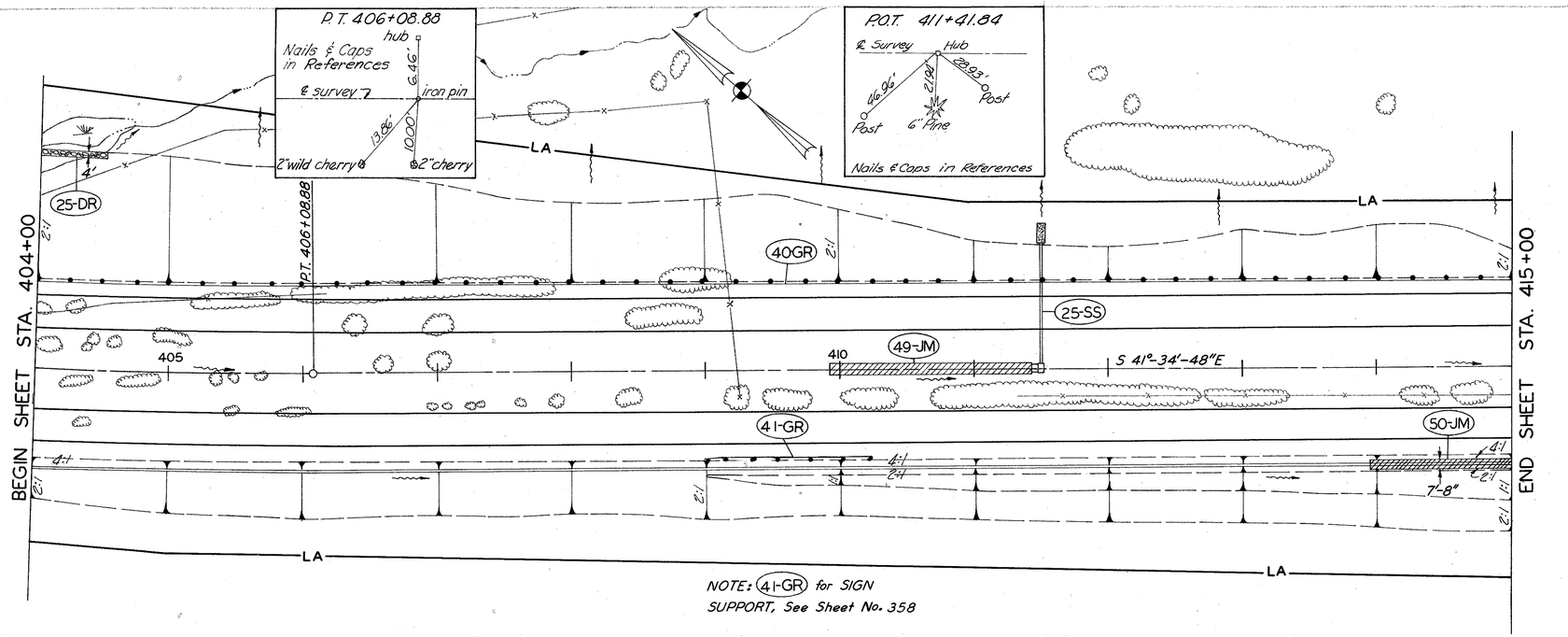
1126.5	1118.4	1111.3	1105.0	1101.3	1099.2	1098.3	1099.9	1103.4	1104.8	1106.2

1138.27	1137.78	1137.29	1136.80	1136.32	1135.83	1135.34	1134.85	1134.37	1133.88	1133.39	1132.90	1132.41	1131.93	1131.44	1130.95	1130.46	1129.98	1129.49	1129.00	1128.51	1128.02	1127.54	1127.05	1126.56	1126.07	1125.59	1125.10	1124.61	1124.12	1123.64	1123.15	1122.66	1122.17	1121.68	1121.20	1120.71	1120.22	1119.73	1119.25	1118.76	1118.27	1117.78	1117.29	1116.81

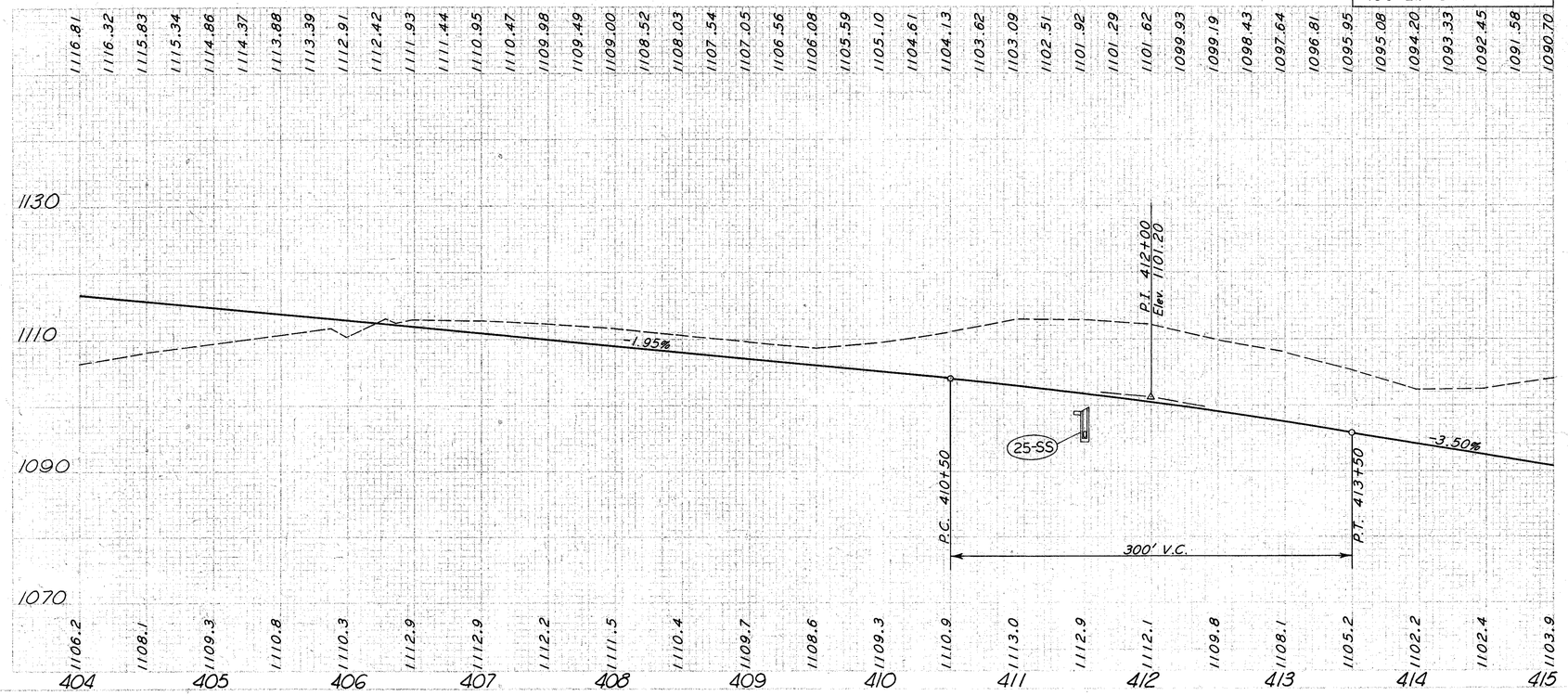
ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	606 Guard Rail Type 4 L.F.	202 Catch Basins Removed Each	601 Dumped Rock Channel Prof. C.Y.	602 Conc. Masonry C.Y.	667 Jute Matting S.Y.	Bends & Branches 12" Type F Each	20° Bend Each	25° Bend Each	604 Std. Catch Basin No. 4 Each	603 Conduit •12" Type B L.F.	12" Type F L.F.	SEE SHEET NO.
														• Class B Bedding
2455	399+00	Lt.			5	0.23								175
22DR	398+00 to 398+10	Lt.			5									
23DR	400+00 to 400+50	Lt.			11									
24DR	403+50 to 404+00	Lt.			11									
48JM	397+43 to 398+93	℄					128							
38GR	393+00 to 394+37.55	Rt.	139.57											
39GR	398+12.5 to 404+00	Lt.	578.75											
1-R	400+43	Lt.		1				1	1	1	1	74	52	52
			718.32	1	32	0.23	128							

STA. 393+00 TO STA. 404+00



B.M. Elev. 1063.65
Mine Spike in 42" Twin Cherry
186' Lt. Sta. 405+21



ESTIMATED QUANTITIES

SEE SHEET NO.		604	603			606	601	602	667	
		Std. No. 4 Catch Basin Each	Conduit • Class B Bedding • 12" Type B L.F.			Guard Rail Type 4 L.F.	Dumped Rock Channel Prot. C.Y.	Conc. Masonry C.Y.	Jute Matting S.Y.	
182	25-SS	1	94							
	25DR			404+00 to 404+50	Lt.		12			
	49JM			409+93 to 411+43	℄				128	
	50JM			413+93 to 415+00	Rt.				91	
	40GR			404+00 to 415+00	Lt.	1096.89				
	41GR			409+00 to 410+25	Rt.	125				
94		1	94			121.89	17	0.23	219	

STA. 404+00 TO STA. 415+00

COL-11-10.22 COL-154-1.71

P.O.T. 419+07.40
4" Wild Cherry
5" Wild Cherry & Survey
10.83
6.62'
Hub
9.41'
12" Stump
Nails & Caps in References

P.O.T. 425+82.01
Nails and Caps in References
hub
hub
hub
12.28'
6.59'
11.68'
℄ survey ⅄
hub

BEGIN SHEET STA. 415+00

END SHEET STA. 426+00

LA
To Be Abandoned
Field Drive
42-GR
13-S
COL-11-1094
420
S 41°-34'-48"E
425
26-SS
52-JM
51-JM
7'-8"
Gas well (Inactive)
Gas well
G
2" Gas line

B. M. Elev. 1154.54
Mine Spike in 14" Tree
150' Lt. Sta. 416+76

							339	190	

P.O.T. 427+98.91
Nails & Caps in References
4" Pine
Hub 10.99' ☆ Survey
10.26' ☆ 4" Pine
9.64' ☆ 4" Pine

For MEDIAN CROSSOVER
See Sheet No. 10

BEGIN SHEET STA. 426+00

END SHEET STA. 437+00

LA

4:1 2:1 1:1 2:1

27-SS

MEDIAN CROSSOVER
STA. 433+18

53-JM

S 41°-34'-48"E 430

435

7'-8" 54-JM

B.M. Elev. 1033.23
Mine Spike in 15" Apple
198' Lt. Sta. 426+13

1052.20 1051.33 1050.45 1049.58 1048.70 1047.83 1046.95 1046.08 1045.20 1044.33 1043.45 1042.58 1041.70 1040.83 1039.95 1039.08 1038.20 1037.33 1036.45 1035.58 1034.70 1033.83 1032.95 1032.08 1031.20 1030.33 1029.45 1028.58 1027.70 1026.83 1025.95 1025.08 1024.20 1023.33 1022.45 1021.58 1020.70 1019.83 1018.95 1018.08 1017.20 1016.33 1015.45 1014.58 1013.70

1070
1050
1030
1010

-3.50%

27-SS

1077.1 1077.5 1077.5 1077.0 1076.5 1072.5 1063.4 1059.5 1063.6 1066.8 1066.8 1066.8 1062.3 1051.8 1040.5 1035.4 1039.8 1045.8 1049.1 1050.1 1052.3 1053.7 1054.9

426 427 428 429 430 431 432 433 434 435 436 437

ESTIMATED QUANTITIES

ITEM NO.	STATIONS TO STATIONS	SIDE	601 Paved Gutter Mod. Type I-2 L.F.	602 Conc. Masonry C.Y.	667 Jute Matting S.Y.
27SS	433+00	Lt&Rt.	10	0.47	
53JM	431+43 to 432+93	℄			128
54JM	431+43 to 432+93	Rt.			128
			10	0.47	256

603 Conduit •27" Type B L.F.	604 Standard Catch Basins No.23 No.4 No.5 Each Each Each
168	1 1 1
168	1 1 1

SEE SHEET NO. 197

• Class B Bedding

STA. 426+00 TO STA. 437+00

P.O.T. 437+04.14
6" Wild Cherry
℄ Survey
39°
Hub
15.23'
19.24'
6" Wild Cherry
6" Wild Cherry
Nails & Caps in References

P.O.T. 442+17.98
5" Maple
℄ Survey
19°
25.49'
3" Stump
0.48'
Hub
20" Wild Cherry
Nails & Caps in References

P.C. 443+97.98 BACK
= 442+02.52 AHEAD
Hub
36.36'
Mailbox Post
℄ Survey
20.57'
R.R. Spike
20. RD 417
25.57'
Nails & Caps in References

BEGIN SHEET STA. 437+00
END SHEET STA. 446+00
See Sheet No. 353
Field Dr.
To Be Abandoned
S 49°-45'-52" W
303
12" Conc. pipe
12" CMP
43-GR
2-PG
55-JM
2-R
46-GR
57-JM
Asphalt Drive
Well
1-Sty Fr. Res.
S 41°-34'-48"E
440
445
Aband. Strip Mine Dr.
28-SS
44-GR
45-GR
56-JM
2" Gas Line
88°-39'-51"
To Be Removed with 203 Excav. See Note, Sh. 18
For CO. RD. 417 See Sheet No. 307
For BARRIER MEDIAN DETAIL See Sheet No. 10
CO. RD. 417
305
LA
RW
EXISTING RIGHT-OF-WAY
STATION EQUATION (P.C.)
STA. 443 + 97.98 BACK =
STA. 442 + 02.52 AHEAD
STA. 443+92.74 COL-11=
STA. 303+99.38 CO. RD. 417
B. M. Elev. 978.41
Mine Spike in 10" Maple
144' Rt. Sta. 444+68

1013.70 1012.83 1011.95 1011.08 1010.20 1009.33 1008.45 1007.58 1006.70 1005.83 1004.95 1004.08 1003.20 1002.33 1001.45 1000.58 989.70 998.83 997.95 997.08 996.20 995.33 994.45 993.58 992.70 991.83 990.95 990.08 989.27 988.49 987.61 986.74 985.86 984.99 984.11 983.24 982.36 981.49 980.61 979.74 978.76 977.99 977.11 976.24 975.36

1040
1020
1000
980

Std. No. 4 C.B. ℄ 443+00
-3.50%
Structure
F.L. Grate = 989.88
28-SS
F.L. = 984.55
443+97.98 BACK = 442+02.52 AHEAD

1054.9 1053.1 1049.5 1046.3 1043.8 1039.5 1033.6 1031.1 1029.0 1026.6 1022.7 1014.5 1005.9 996.4 990.1 990.2 987.2 982.8 980.4 978.0 976.8 975.6 974.5

437 438 439 440 441 442 443 443 444 445 446

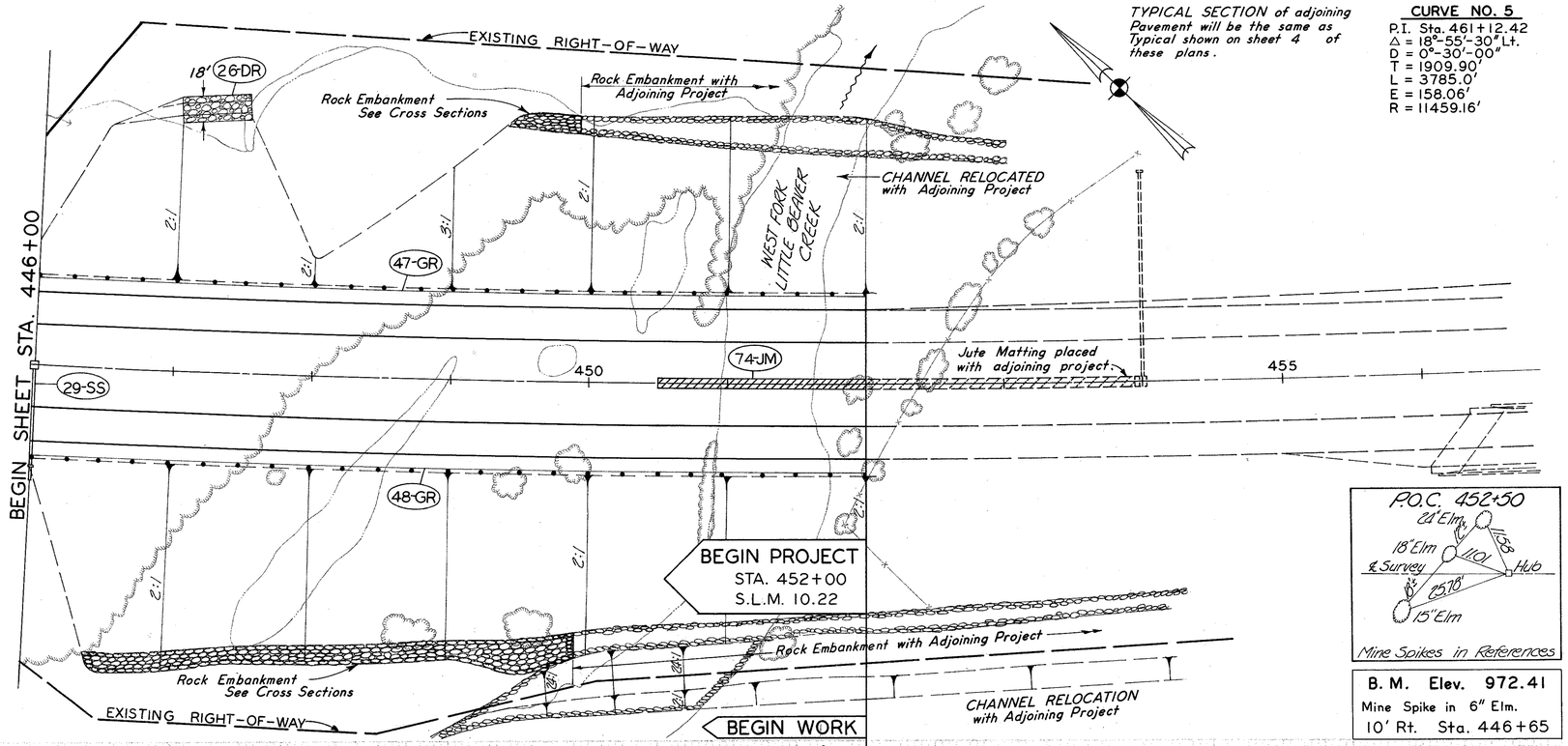
ESTIMATED QUANTITIES

REF NO.	STATION TO STATION	SEE SHEET NO.	202 Pipe Removed 24" & Under L.F.	601 Dumped Rock Channel Prot. C.Y.	601 Paved Gutter Std. Type I-2 L.F.	602 Conc. Masonry C.Y.	660 Sodding S.Y.	667 Jute Matting S.Y.
28SS	443+00	Lt.&Rt.		12		0.41		
2PG	442+50 to 442+88	Lt.			42		14	
55JM	441+43 to 442+93	℄						128
56JM	441+43 to 442+93	Rt.						128
57JM	444+43 to 445+93	℄						128
43GR	438+37.5 to 439+25	Lt.						
44GR	443+07.62 to 442+12	Rt.						
45GR	445+76.4 to 446+00	Rt.						
46GR	443+77.39 to 446+00	Lt.						
2-R	443+64 to 443+73	Lt.	20					

603 Conduit	SEE SHEET NO.	606 Guard Rail Type 4	604 Standard Catch Basins No.4 No.5 Each Each
• Class B Bedding			
• 24" Type B L.F.	20.5		
164		87.5	1 1
		100	
		236.5	
		415.85	
164		627	1 1

STA. 437+00 TO STA. 446+00

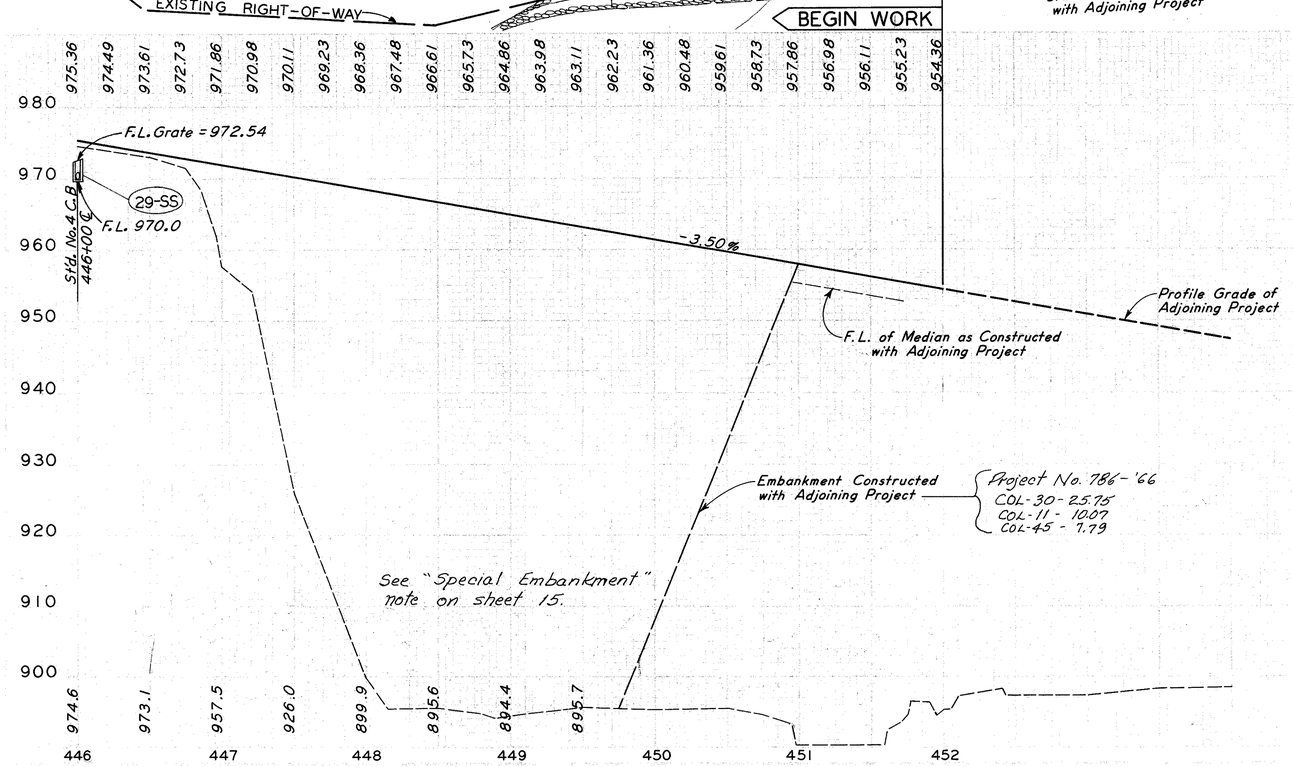
COL-11-10.22 COL-154-1.71



TYPICAL SECTION of adjoining Pavement will be the same as Typical shown on sheet 4 of these plans.

CURVE NO. 5
P.I. Sta. 461+12.42
Δ = 18°-55'-30" Lt.
D = 0°-30'-00"
T = 1909.90'
L = 3785.0'
E = 158.06'
R = 11459.16'

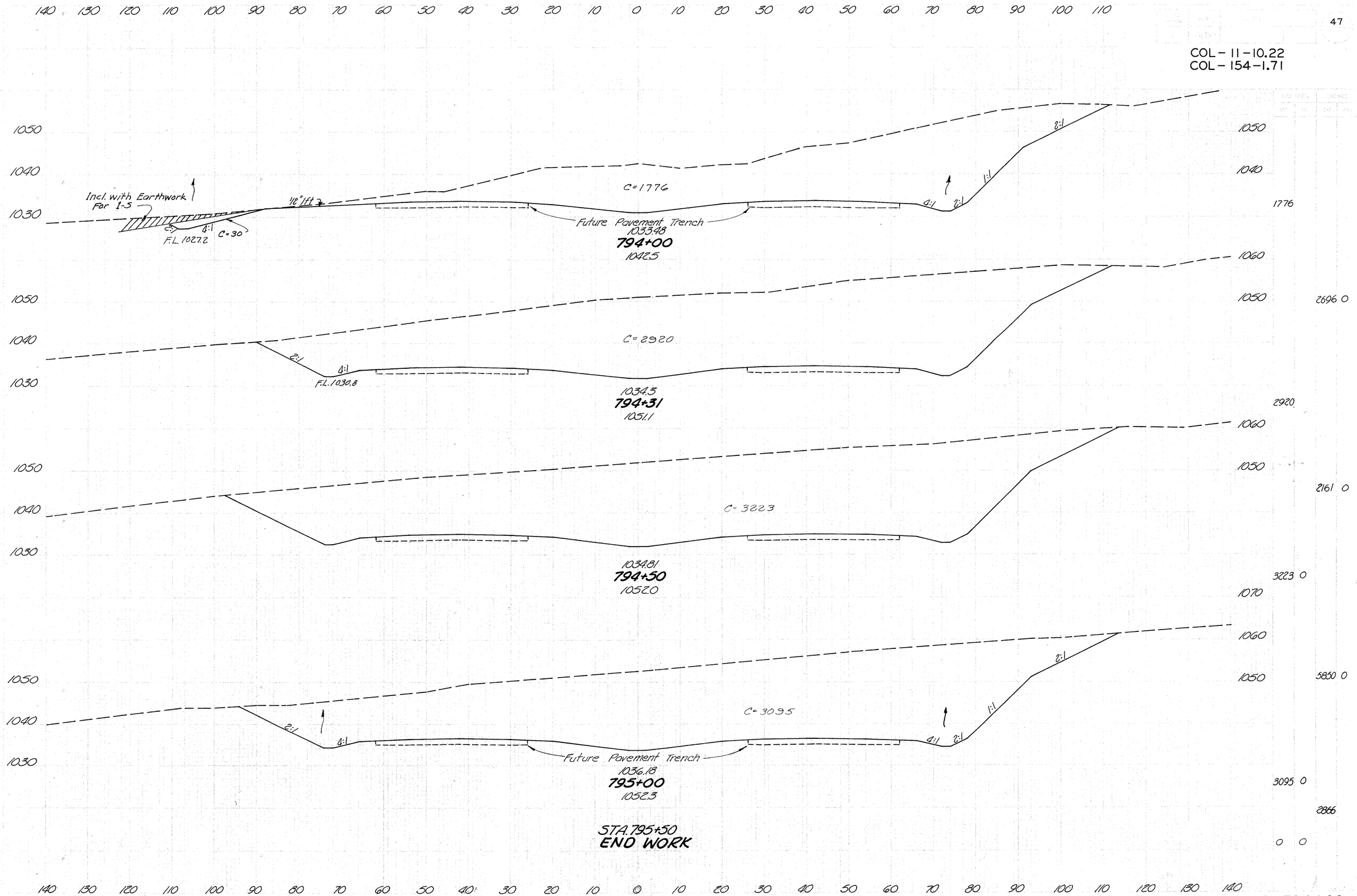
B. M. Elev. 972.41
Mine Spike in 6" Elm.
10' Rt. Sta. 446+65



							603 Conduit • 12" Type B L.F.	• 12" Type F L.F.	
							72	10	208
606 Guard Rail Type 4 L.F.	601 Dumped Rock Channel Prot. C.Y.	604 Std. No. 4 Catch Basin Each	667 Jute Matting S.Y.						
		1		2955	446+00	Rt.			
	50			26DR	447+00 to 447+50	Lt.			
				47GR	446+00 to 452+00	Lt.	596.65		
				48GR	446+00 to 451+98	Rt.	601.35		
			128	74JM	450+50 to 452+00	℄			
	50	1	128				72	10	198.0

STA. 446+00 TO STA. 452+00

COL – 11 – 10.22
COL – 154 – 1.71



COL - 11 - 10.22
COL - 154 - 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1050 / 1040 / 1030

2:1 4:1 C = 3693 4:1 2:1

1040 / 1030

185 — 3693 0

1031.10
200+50
1051.7

1050 / 1040 / 1030

236 — 1569 0

C = 3367

1050 / 1040 / 1030

182 — 3367 0

1031.40
200+38.41
1051.5

1050 / 1040 / 1030

592 — 3078 0

C = 2173

1050 / 1040 / 1030

173 — 2173 0

1032.18
200+08.37
1040.0

1050 / 1040 / 1030

160 — 645 0

2:1 4:1 C = 1892 C=48 C=48 4:1 2:1

1050 / 1040 / 1030

171 Ahead — Ahead 1988 0
0 Back — Back 1892 0

1032.40
200+00
1039.8

END PROJECT

STATION EQUATION
STA. 200+00 AHEAD=
STA. 793+58.40 BACK

2826 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 200 + 00 TO STA. 200 + 50

COL - 11 - 10.22
COL - 154 - 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1050
1040
1030

2:1

C = 5672
1023.90
202+50
1052.2

4:1

2:1

1050
1040
1030 5672 O

228

1856

10442 O

1050
1040
1030 5605 O

C = 5605
1027.20
202+00
1053.5

224

1225

10141 O

1050
1040
1030 5347 O

C = 5347
1028.50
201+50
1053.9

217

1175

9431 O

1050
1040
1030 4839 O

C = 4839
1029.80
201+00
1053.0

206

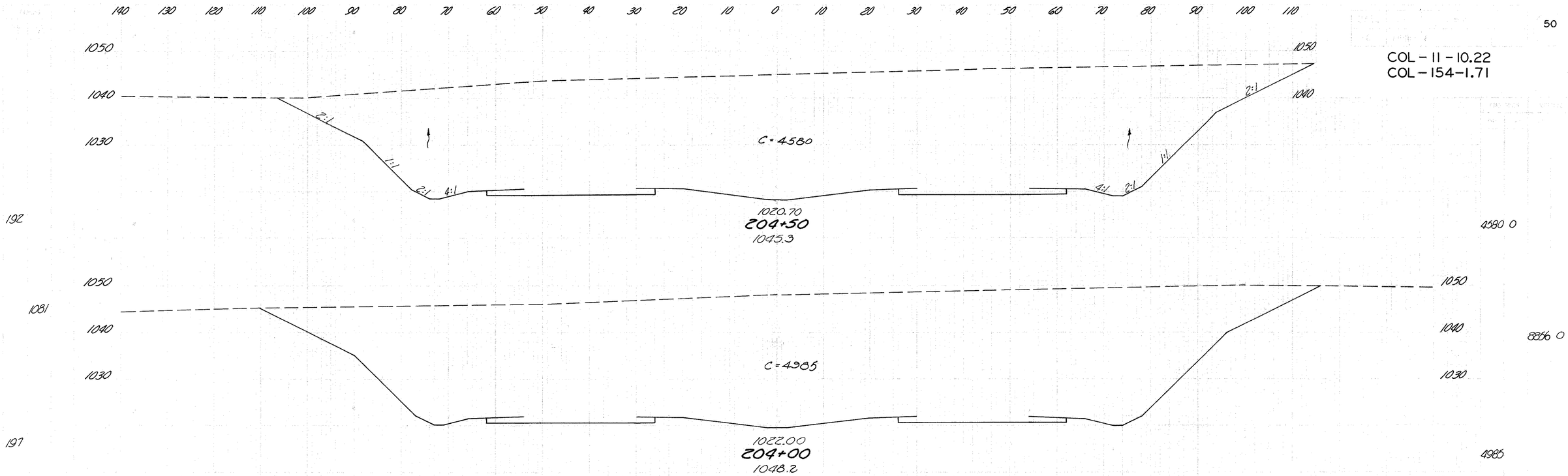
1086

7900 O

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 201 + 00 TO STA. 202 + 50

COL – 11 – 10.22
COL – 154–1.71



STA. 203+00 TO STA. 204+50

COL – 11 – 10.22
COL – 154–1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1040
1030
1020

2:1 1:1 2:1 4:1

℄ Survey Ramp "B"

C = 40.92

1015.50
206+50
1034.3

198

4092 0

1040
1030
1020

2:1 1:1 4:1 2:1

1086

℄ Survey Ramp "B"

C = 39.55

7451 0

1016.80
206+00
1037.8

193

3955 0

1050
1040
1030
1020

1064

C = 40.70

7431 0

1018.10
205+50
1040.4

190

4070 0

1050
1040
1030
1020

1039

Intersect Ravine
F.L. 1035.4 -103' Lt.

18"
5'
2:1
1:1
2:1 4:1

Key D.R.C.P. into Rock

Assumed Rock Strata

(1-DR) Dumped Rock Channel Protection
For Quantities
See Sheet No. 21

C = 42.38

7693 0

1019.40
205+00
1042.8

184

4238 0

1050
1040
1030
1020

2:1 1:1 4:1 2:1

1044

8165 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 205 + 00 TO STA. 206 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1040
1030
1020
2:1
1:1
2:1
4:1
℄ Survey Ramp "B"
C= 3886
4:1
2:1
1:1
2:1
1030
1020
2.11
1010.30
208+50
1024.6
3886 0

1040
1030
1020
1169
C= 4025
1030
1020
1040
2.10
1011.60
208+00
1025.9
4025 0
7325 0

1040
1030
1020
1163
C= 4123
1040
1030
1020
7544 0
209
1012.90
207+50
1027.8
4123 0

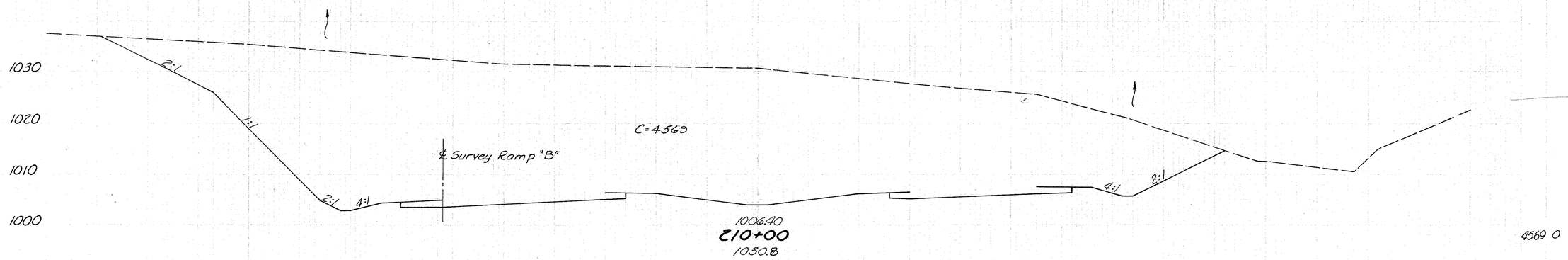
1040
1030
1020
1144
2:1
1:1
2:1
4:1
℄ Survey Ramp "B"
C= 4142
4:1
2:1
1:1
2:1
1040
1030
1020
7653 0
203
1014.20
207+00
1031.4
4142 0
1114
7821 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 207 + 00 TO STA. 208 + 50

COL-11-10.22
COL-154-1.71

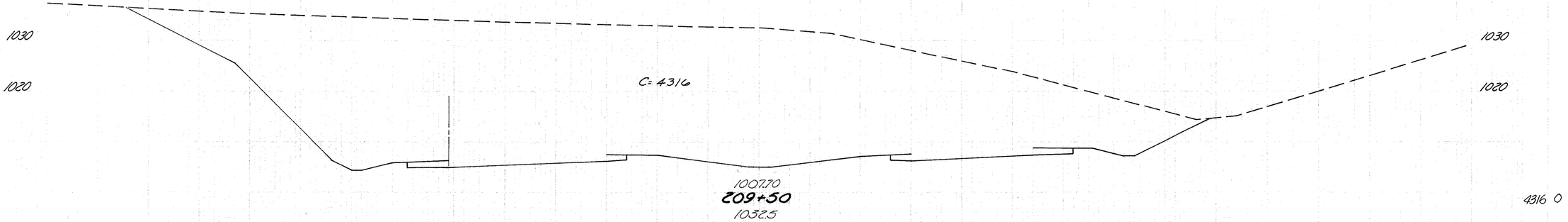
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



179

4569 0

1040



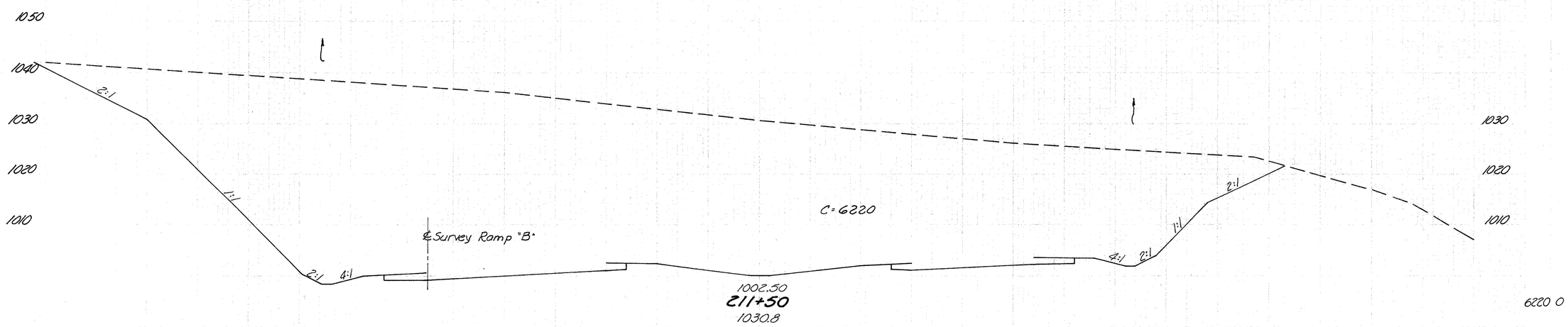
972
1030
1020
C=4316
1007.70
209+50
1032.5
171
4316 0
1030
1020
8227 0
1040
1081
1030
1020
218
4064 0
1040
1030
1020
7759 0
1192
7361 0

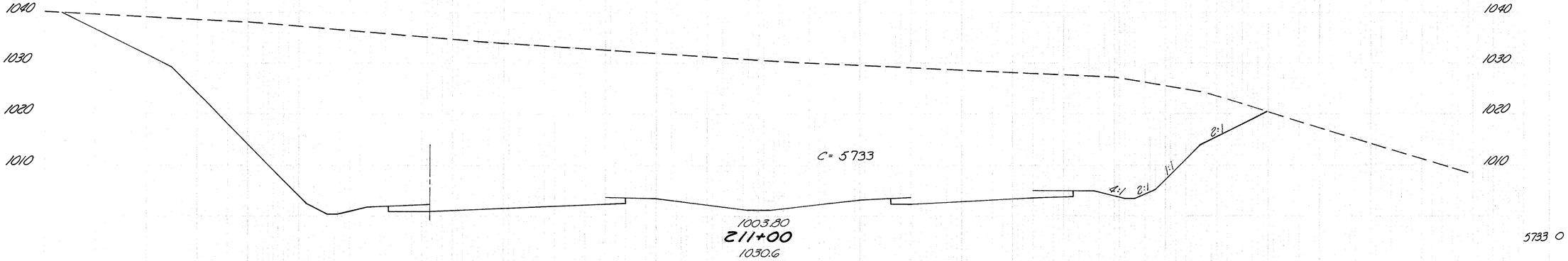
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 209 + 00 TO STA. 210 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110





140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 210 + 50 TO STA. 211 + 50

COL-11-10.22
COL-154-1.71

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1040
1030
1020
1010

2:1 1:1 2:1 4:1 ℄ Survey Ramp "B" C=8337 4:1 2:1 1:1 2:1

998.60
213+00
1036.8

8337.0

229

1050
1040
1030
1020

1244 C=7782

F.C. Grate = 997.03
1-SS
For Quantities See Sheet No. 22
Std. No. 4 Catch Basin
F.C. 994.0

14925.0

1020
1010
1000

219 1050 1040 1030 1020 2:1 1:1 2:1 4:1 ℄ Survey Ramp "B" C=6780 4:1 2:1 1:1 2:1

999.90
212+50
1036.3

7782.0

186 1020 1010 1000

208 1001.20
212+00
1034.1

13483.0

990

6780.0

156

12037.0

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

STA. 212 + 00 TO STA. 213 + 00

COL - 11 - 10.22
COL - 154 - 1.71

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

140
1030
1020
1010
1000

2:1 1:1 2:1 4:1 ℄ Survey Ramp "B" C=8222 ℄ Survey Ramp "A" 4:1 2:1 1:1 2:1

227

994.70
214+50
1030.9

8222 O

1040
1030
1020
1010
1000

1264

C=8295

996.00
214+00
1033.8

8295 O

228

1040
1030
1020
1010
1000

1264

2:1 1:1 ℄ Survey Ramp "B" 2:1 4:1 C=8451 ℄ Survey Ramp "A" 1:1 2:1

227

997.30
213+50
1036.1

8451 O

1267

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

15,892 O
15,506 O
15,514 O

STA. 213 + 50 TO STA. 214 + 50

COL – 11 – 10.22
COL – 154 – 1.71

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

110 120 130

Additional Roadway Excav. required for Culvert (2-S) at Sta. 215+89

676

1020
1010
1000
990
980
970

2:1
1:1
2:1
4:1
2:1

Top of Dike 0.5' below Berm

℄ Survey Ramp "B"

℄ Survey Ramp "A"

C=2650

990.80
216+00
999.9

F=537

2:1

C=107

F.L. 967.5

215

2660 537

Culvert inlet (2-S)
For Detail see Sheet No. 328

1094

8517 497

1020
1010
1000
990

C=6538

992.10
215+50
1024.8

℄ Survey Ramp "B"

℄ Survey Ramp "A"

F.L. Grate = 989.23

1-SS

For Quantities See Sheet No. 22

F.L. = 986.20

Std. No. 4 Catch Basin

4:1
2:1

179

6538 0

1100

1030
1020
1010
1000
990

2:1
1:1
2:1
4:1

℄ Survey Ramp "B"

C=7790

℄ Survey Ramp "A"

2:1
1:1
4:1
2:1

0

13267 0

217

993.40
215+00
1027.2

1233

7790 0

14826 0

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

STA. 215+00 TO STA. 216 + 00

COL - 11 - 10.22
COL - 154 - 1.71

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

1020
1010
2:1
1:1
2:1
4:1
℄ Survey Ramp "B"
C=9782
℄ Survey Ramp "A"
4:1
2:1
1:1
2:1
1020
1010
237
986.90
217+50
1027.5
9782 0

1020
1010
1292
2:1
1:1
2:1
4:1
℄ Survey Ramp "B"
C=8914
℄ Survey Ramp "A"
4:1
2:1
1:1
2:1
1020
1010
17311 0
228
993.20
217+00
1027.2
8914 0

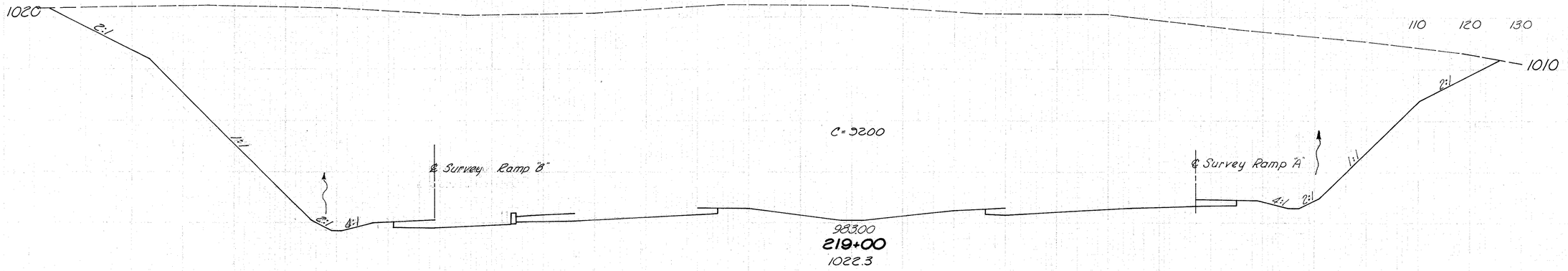
1020
1010
1167
2:1
1:1
2:1
4:1
℄ Survey Ramp "B"
C=4950
℄ Survey Ramp "A"
4:1
2:1
1000
990
12837 0
192
989.50
216+50
1002.1
4950 0
1131
7046 497

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

STA. 216 + 50 TO STA. 217 + 50

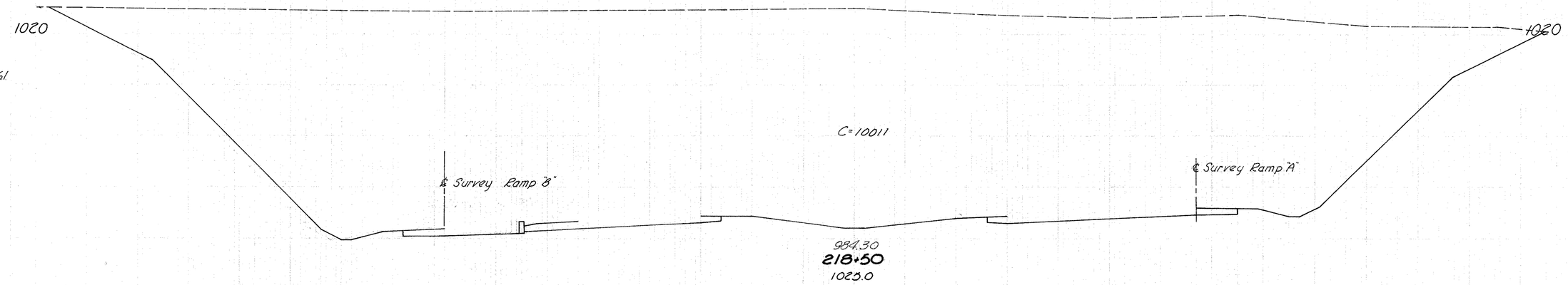
COL - 11 - 10.22
COL - 154 - 1.71

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



219

9200 0

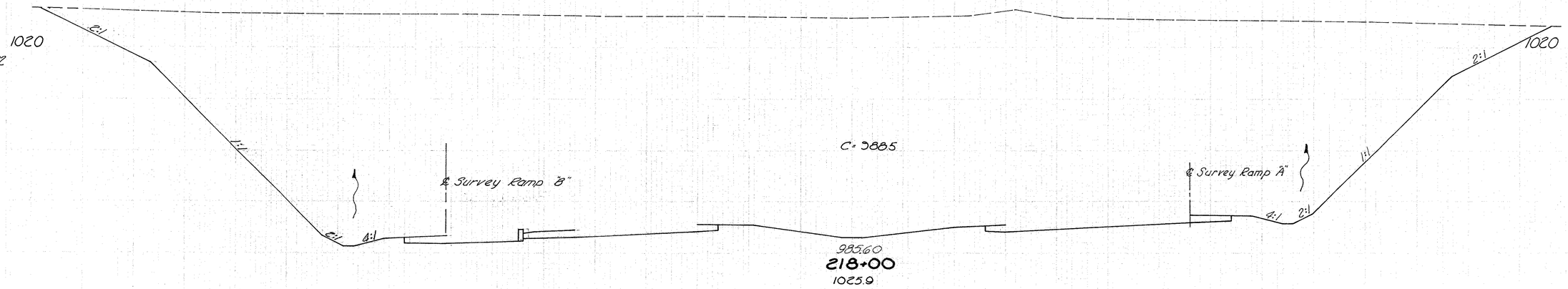


1261

17,788 0

235

10,011 0



1322

18,422 0

291

9885 0

1328

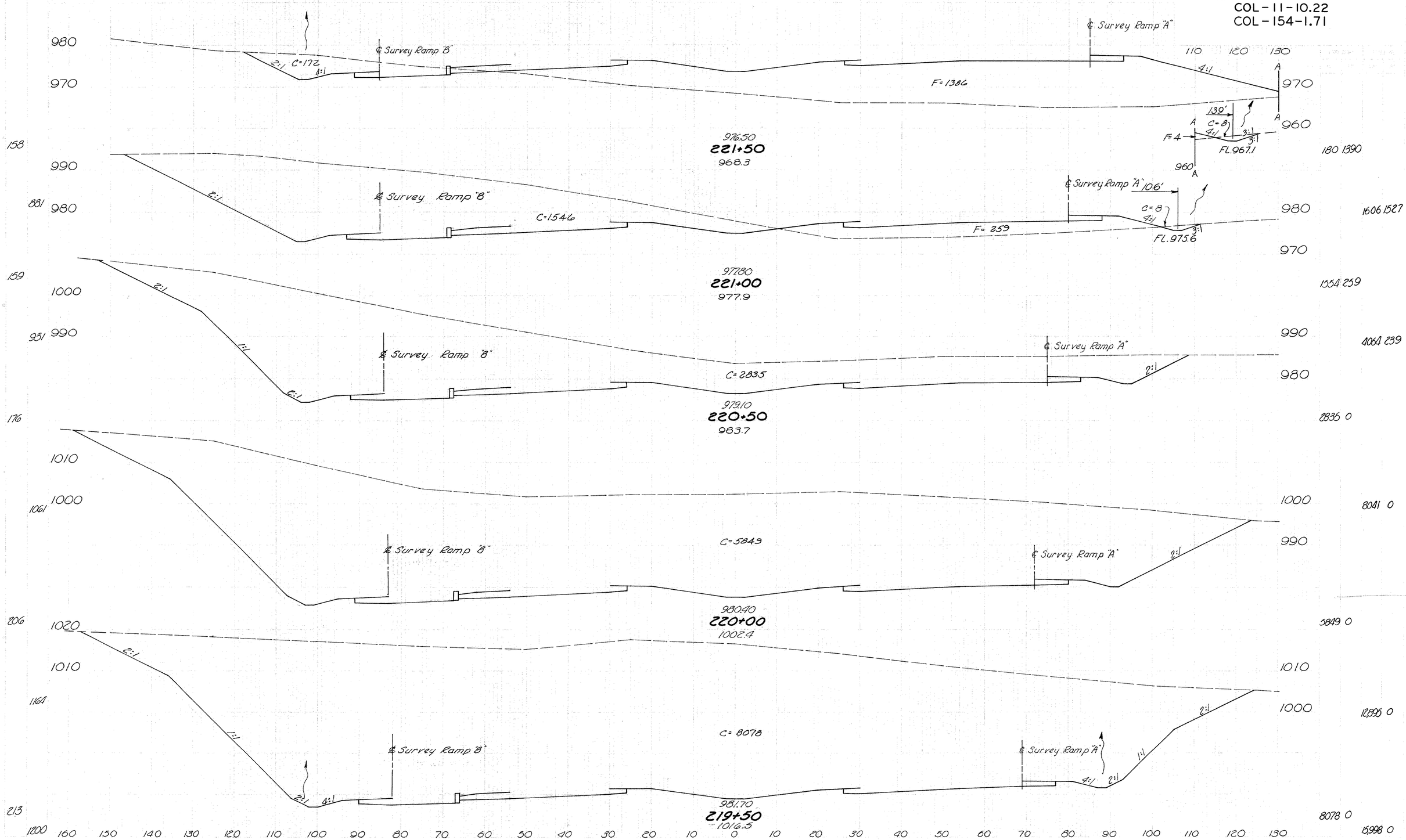
18210 0

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

STA. 218 + 00 TO STA. 219 + 00

COL-11-10.22
COL-154-1.71

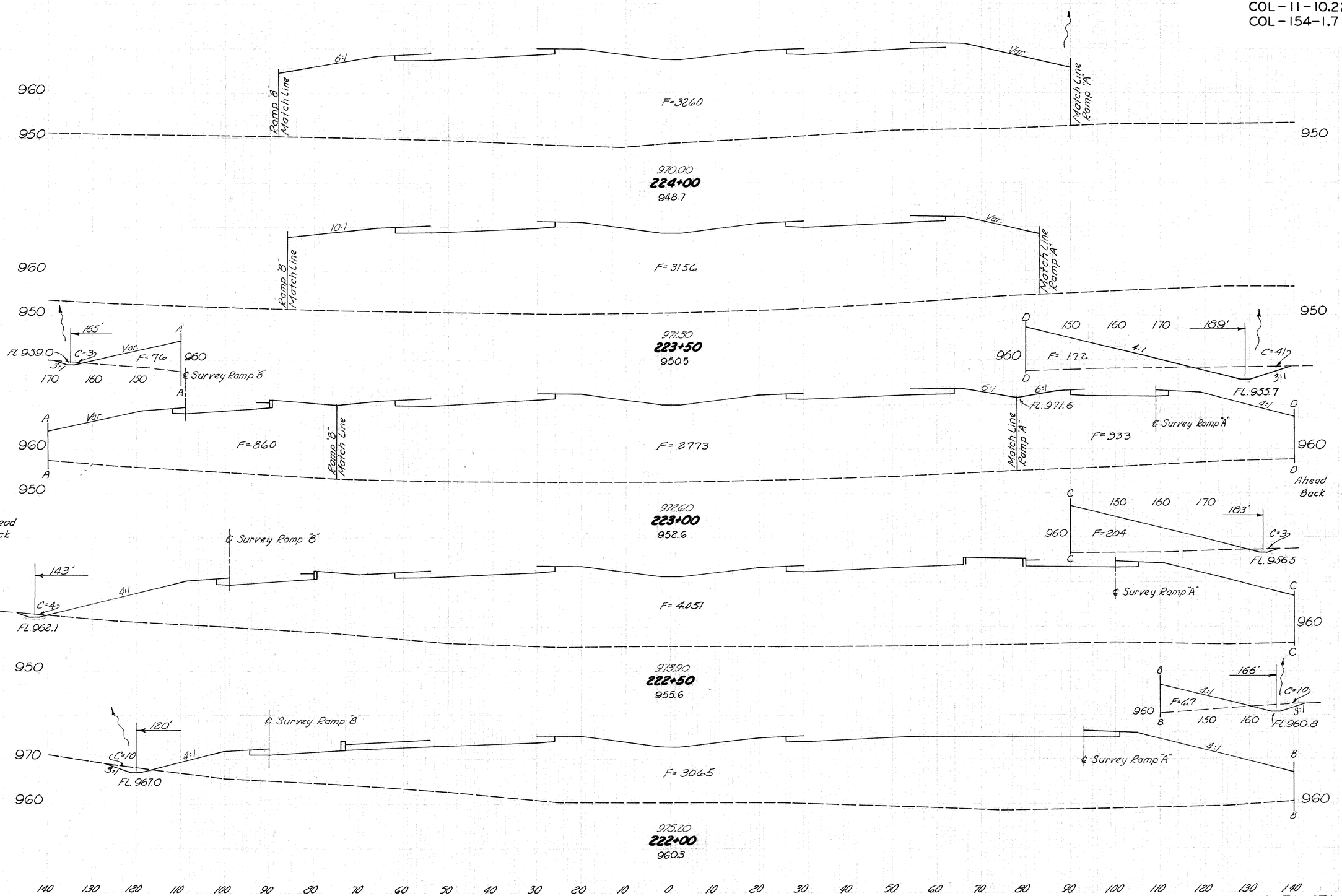
160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



STA. 219 + 50 TO STA. 221 + 50

COL - 11 - 10.22
COL - 154 - 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



107 0 3260
567 0 5941
97 0 3156
489 0 5490
Ahead 0 2773
79 Back 44 4826
279 47 8408
236 7 4255
1167 25 6840
184 20 3132
950 185 4187

STA. 222+00 TO STA. 224+00

COL – 11 – 10.22
COL – 154 – 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

194 | 1042 | 181 | 964 | 166 | 869 | 147 | 753 | 124 | 642

950 / 940

See Sheet No. 250 — 131' — 4:1 — 4:1 — FL. 946.9

F = 4567

Var. — Ramp 'A' Match Line

963.50
226+50
940.5

F.L. Grate = 961.98 — 112' — 13' — Var.

F.L. = 958.0 — 12" @ 3.9% — F.L. = 953.7 — Elev. = 953.6 — 13' x 6' Dumped Rock Pad Chann. Protect. — 4:1 — Std. HW-E — 18"

Std. No. 4 Catch Basin

F = 4327

964.80
226+00
941.7

125' — 4:1 — FL. 949.8

(2-SS) **ESTIMATED QUANTITIES**

Item 603 – 12" Conduit, Type B, Class B Bedding — 112 Lin. Ft.
Item 604 – Std. No. 4 Catch Basin — 1 Each
Item 601 – Dumped Rock Channel Protection — 5 Cu. Yd.
Item 602 – Concrete Masonry — 0.23 Cu. Yd.

Quantities carried to Sheet No. 23

See Sheet No. 250 — 122' — FL. 951.5

F = 3959

966.10
225+50
945.0

Ramp 'B' Match Line — 113' — FL. 954.6

F = 3960

967.40
225+00
944.2

Ramp 'B' Match Line — 98' — 4:1 — FL. 959.4

Var. — Ramp 'A' Match Line

F = 3610

968.70
224+50
946.6

0 4567 | 0 8235 | 0 4327 | 0 7765 | 0 3959 | 0 7332 | 0 3960 | 0 7009 | 0 3610 | 0 6361

STA. 224 + 50 TO STA. 226 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

Ramp "C" Match Line

117'
4:1
Fl. 944.1
940
930
163
Culvert Inlet (23-S)
For Detail see sheet No. 348
F=3564
957.16
229+00
937.1
2:1
See Sh. No. 251
940
930
0 3564

956
See Sheet No 254
131'
4:1
Fl. 941.8
940
930
181
F=3976
958.34
228+50
936.8
940
930
0 3976
0 6981

1006
131'
Fl. 943.0
940
930
181
219
Ahead
Back
F=4181
959.60
228+00
937.2
2:1
Ahead & Back
Back Only
See Sh. No. 254
F=205
930
Ahead 0 4181
Back 0 4386
0 7553

1186
131'
Fl. 944.3
940
930
208
960.90
227+50
938.1
3:1
Match Line Ramp "A"
940
930
0 4522
0 8248

1139
See Sheet No. 254
131'
4:1
4:1
Fl. 945.6
940
930
202
F=4664
962.20
227+00
938.9
Var
Match Line Ramp "A"
940
930
0 4664
0 8506

1100
0 8547

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 227 + 00 TO STA. 229 + 00

COL - 11 - 10.22
COL - 154 - 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

℄ Survey Ramp "C" — 8:1 Var. — G.R. — Var. 8:1 — 2:1 — 1/2"/Ft. — See Sh. No. 251

See Sh. No 252 — 930 — 920

F=4522

951.81
232+00
928.6

℄ Survey Ramp "C" — 8:1 — 6:1 — G.R. — 6:1 — 8:1

See Sh. No 252 — 940 — 930

F=4341

From Lt. & Rt. extentions, Sh. 251 & 252 — 1707 2246

952.50
231+50
933.3

Ahead Only — Ahead & Back — ℄ Survey Ramp "C"

See Sh. No 252 — 940 — 930

F=887 Ahead

Ahead = 3436
Back = 2549

(3-SS) For detail, See Sheet No. 24

F.L. Grate = 950.45 — 70' — 22' — Concrete Collar (For detail, See Sheet No. 12) — 12"x25° Bend — 11' — 10' — 12" Type F @ 1.0%

5'x4'6" C.B. — F.L. = 947.40 — 12" Type B @ 3.21% — F.L. = 945.25 — S.L. = 24.60' — 12" Type F @ 50%

F.L. = 934.14 — 1/4"/Ft. — 2'2'2' — C=2 — 2x142÷27=11 Cu.Yd. additional Exc. for ditch → 11

953.27
231+00
938.0

F.L. = 934.25 — 12"x25° Bend Std. HW-E — 10'x6' Dumped Rock — 18"

10:1 — Ramp "C" Match Line

F=2345

954.12
230+50
938.8

8:1

F=2735

955.05
230+00
937.9

6:1 — Ramp "C" Match Line — 2:1 — C=107 — 16"/Ft. — See Sh. No. 251

F=3126

956.07
229+50
937.6

(4-SS) BENDS & BRANCHES
12" Type F, 25° Bend — 2 Each

(4-SS) ESTIMATED QUANTITIES
Item 603 - 12" Conduit, Type B, Cl. B Bedding — 70 Lin. Ft.
Item 603 - 12" Conduit, Type F — 36 Lin. Ft.
Item 604 - Std. No. 4 Catch Basin — 1 Each
Item 602 - Concrete Masonry — .023 Cu. Yd.
Item 601 - Dumped Rock Channel Protection — 4 Cu. Yd.
Quantities carried to Sheet No. 24.

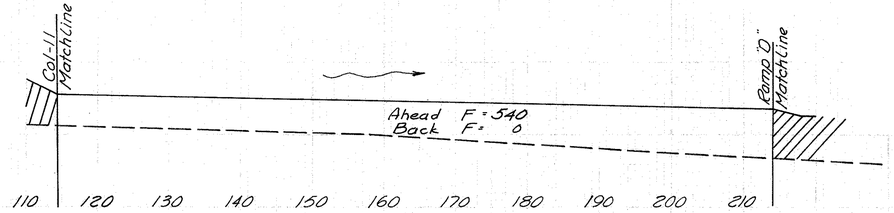
C=162 — C=20

170				O	4522
914				O	8206
159				O	4341
906				O	7201
167	Ahead			O	3036
111	Back			O	2549
639			15		4531
119			16		2345
692			33		4704
130			20		2735
753			28		5427
141			10		3126
844			9		6194

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 229 + 50 TO STA. 232 + 00

COL-11-10.22
COL-154-1.71

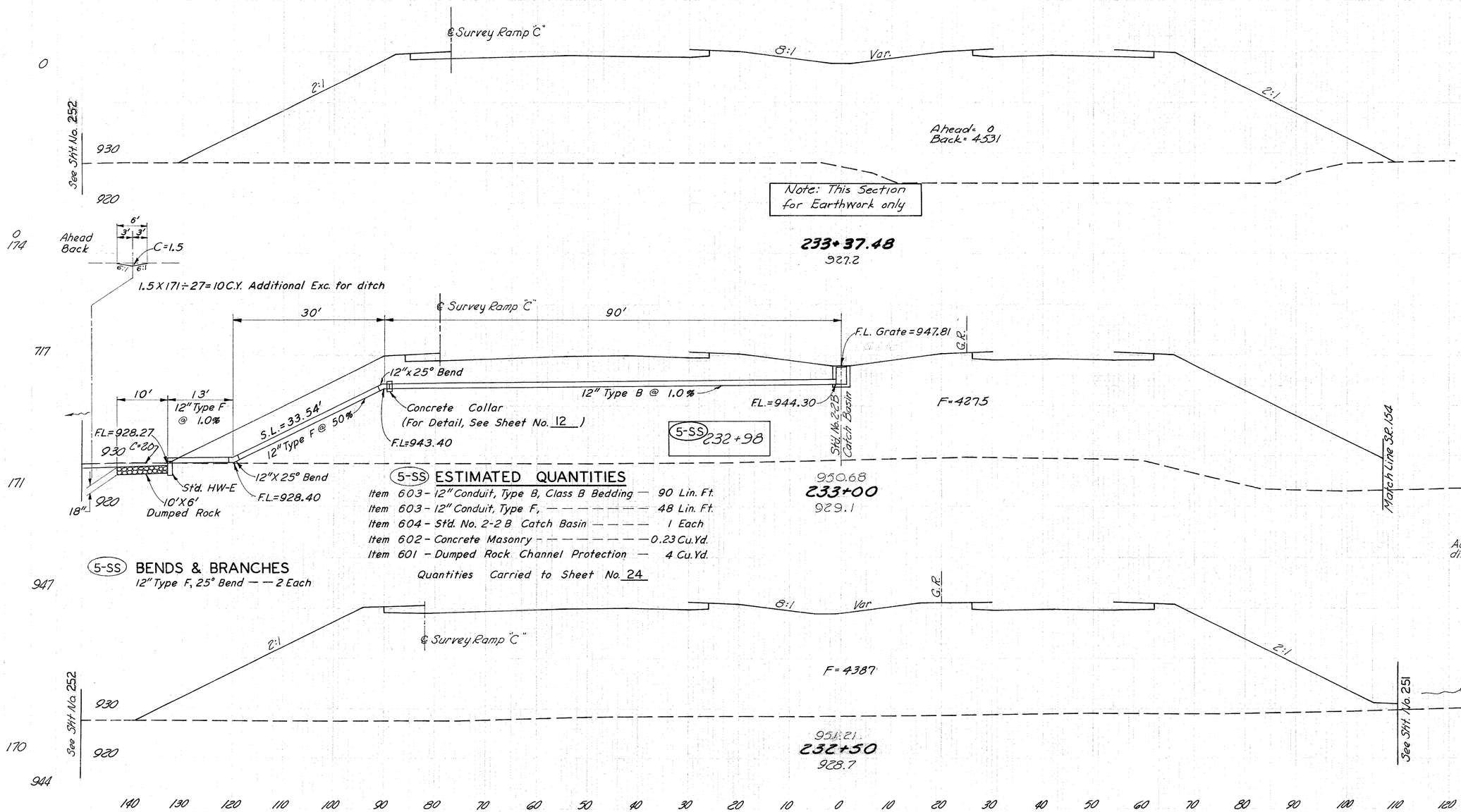


234+42.89

100 Ahead 0
0 Back 0

Ahead 0 540
Back 0 0

BRIDGE



5-SS ESTIMATED QUANTITIES

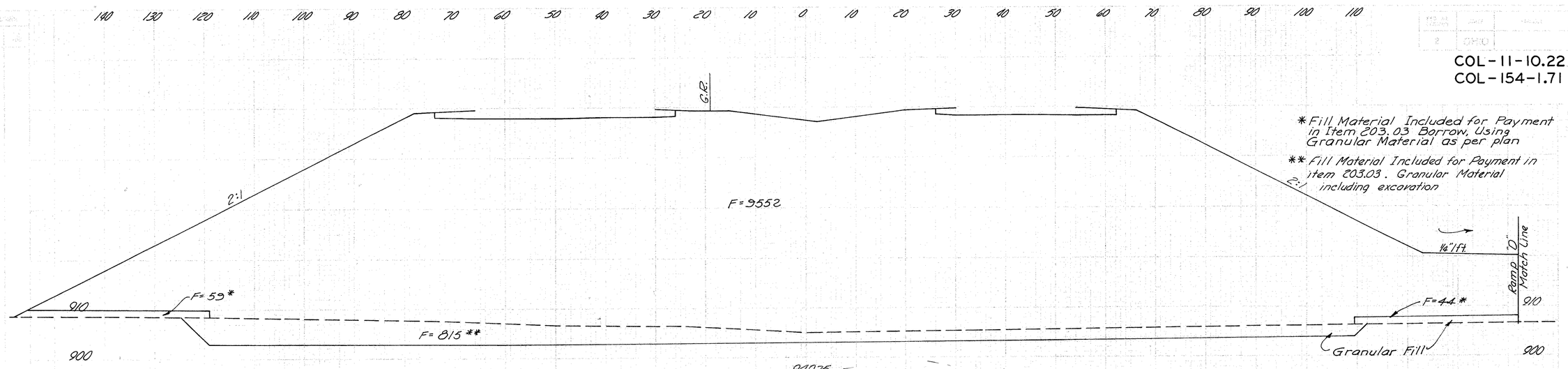
Item 603 - 12" Conduit, Type B, Class B Bedding	—	90 Lin. Ft.
Item 603 - 12" Conduit, Type F,	—	48 Lin. Ft.
Item 604 - Std. No. 2-2 B Catch Basin	—	1 Each
Item 602 - Concrete Masonry	—	0.23 Cu. Yd.
Item 601 - Dumped Rock Channel Protection	—	4 Cu. Yd.

Quantities Carried to Sheet No. 24

5-SS BENDS & BRANCHES
12" Type F, 25° Bend — — 2 Each

STA. 232 + 50 TO STA. 234 + 42.89

COL-11-10.22
COL-154-1.71



* Fill Material Included for Payment in Item 203.03 Borrow, Using Granular Material as per plan

** Fill Material Included for Payment in item 203.03. Granular Material including excavation

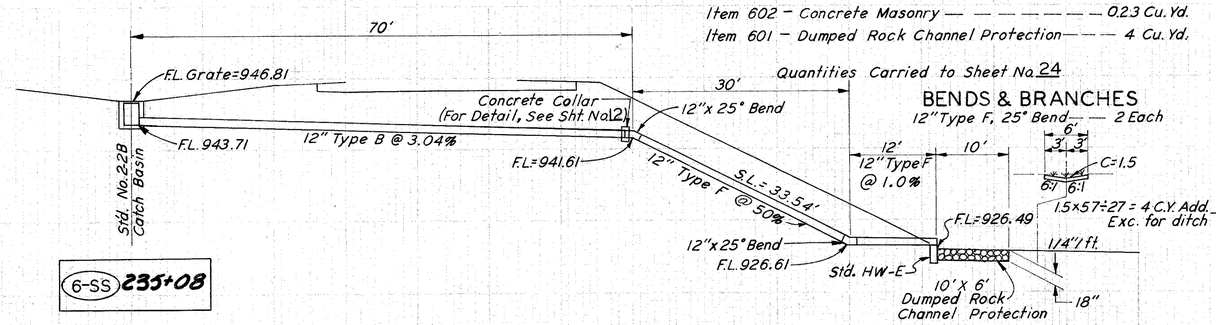
94975
235+50
905.0

Begin Granular Fill, Sta. 235+50 *

ESTIMATED QUANTITIES

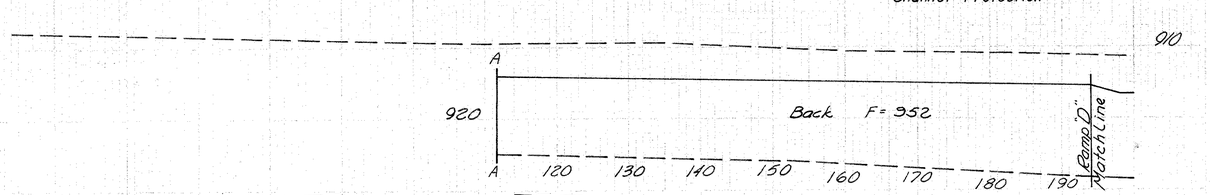
Item 603 - 12" Conduit, Type B, Class B Bedding — 70 Lin. Ft.
Item 603 - 12" Conduit, Type F, — — — — — — — — 46 Lin. Ft.
Item 603 - Std. No. 2-28 Catch Basin — — — — — 1 Each
Item 602 - Concrete Masonry — — — — — — — 0.23 Cu. Yd.
Item 601 - Dumped Rock Channel Protection — — — 4 Cu. Yd.

Quantities Carried to Sheet No. 24



BENDS & BRANCHES

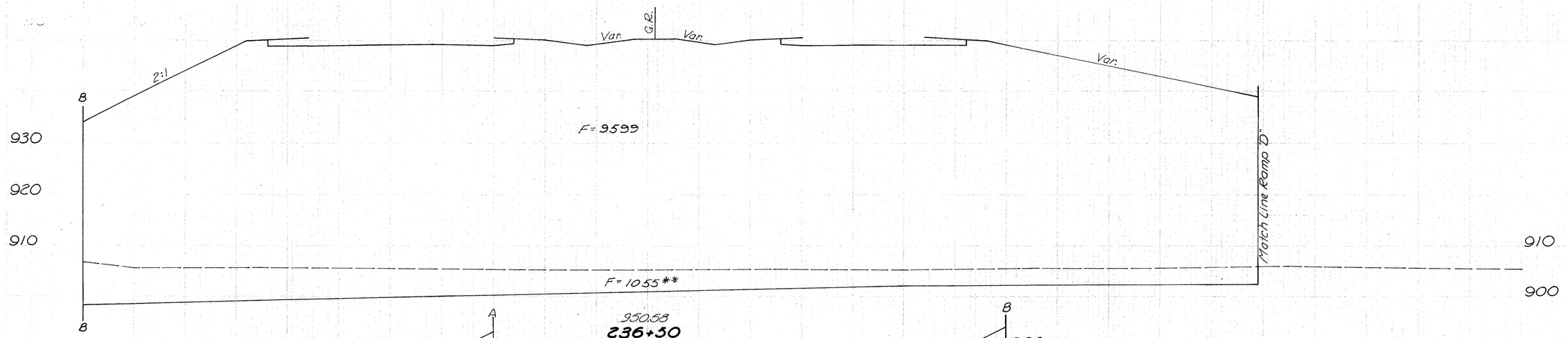
12" Type F, 25° Bend — — 2 Each



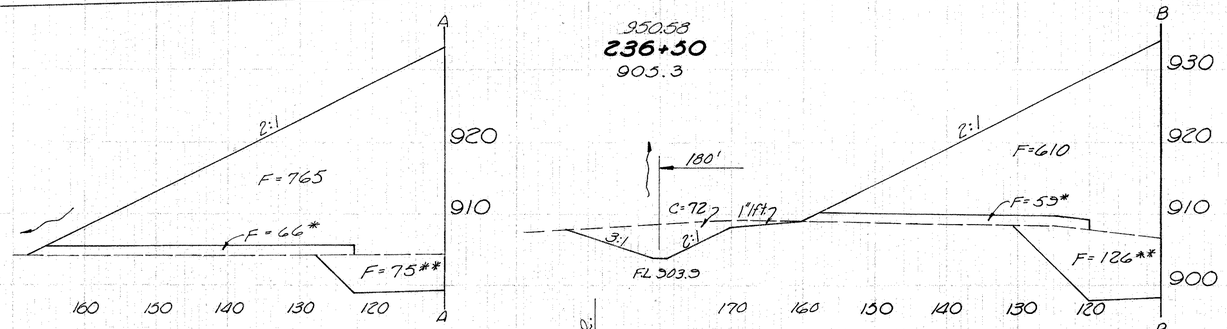
STA. 234+68.43 TO STA. 235+50

COL-11-10.22
COL-154-1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170



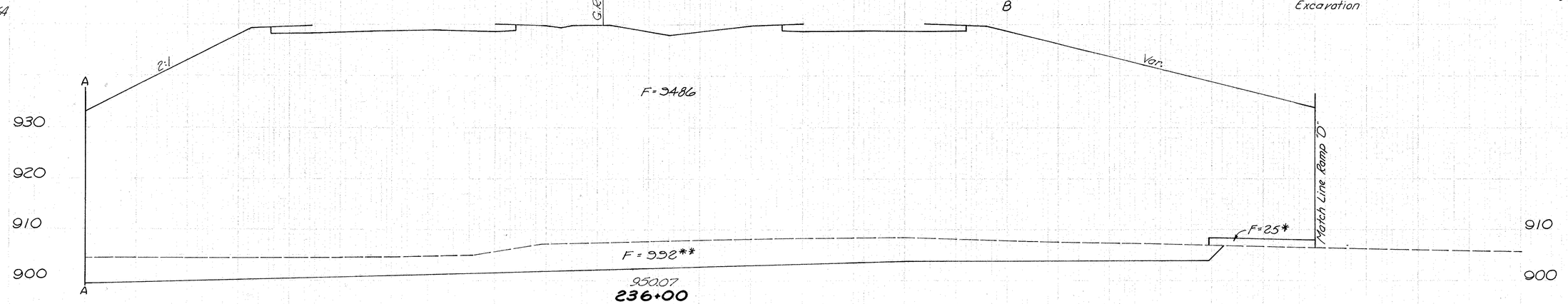
950.58
236+30
903.3



* Fill Material Included for Payment in Item 203.03 Borrow Using Granular Material, as per plan.

** Fill Material Included for Payment in Item 203.03. Granular Material including Excavation

364
67 18,944



950.07
236+00
907.8

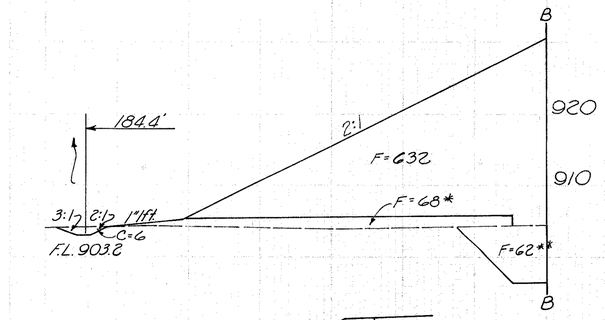
342
0 18,336

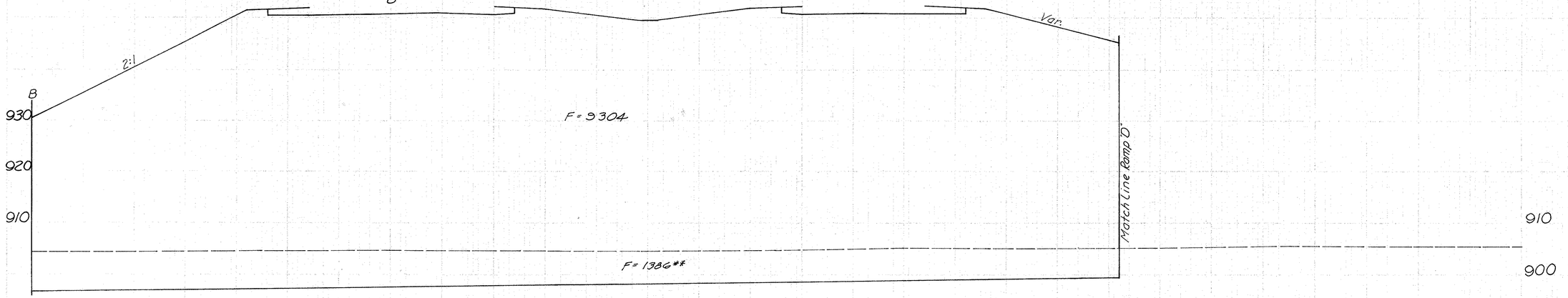
120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

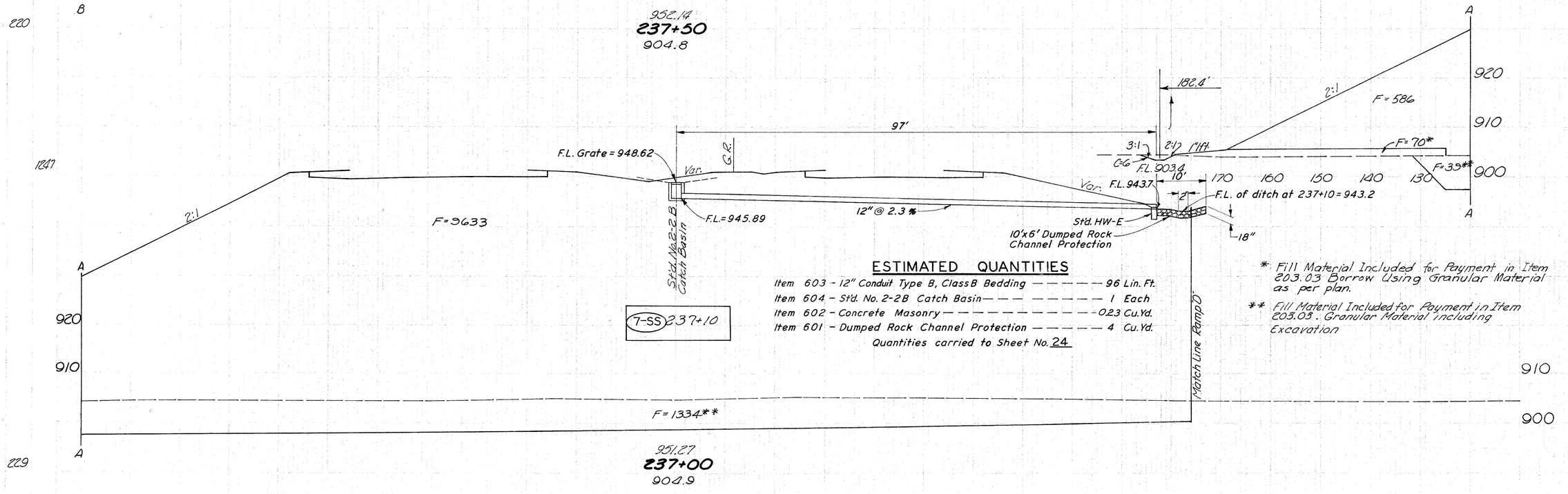
STA. 236 + 00 TO STA. 236 + 50

COL-11-10.22
COL-154-1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170







ESTIMATED QUANTITIES

Item 603 - 12" Conduit Type B, Class B Bedding ——— 96 Lin. Ft.
Item 604 - Std. No. 2-2B Catch Basin ——— 1 Each
Item 602 - Concrete Masonry ——— 0.23 Cu. Yd.
Item 601 - Dumped Rock Channel Protection ——— 4 Cu. Yd.

Quantities carried to Sheet No. 24

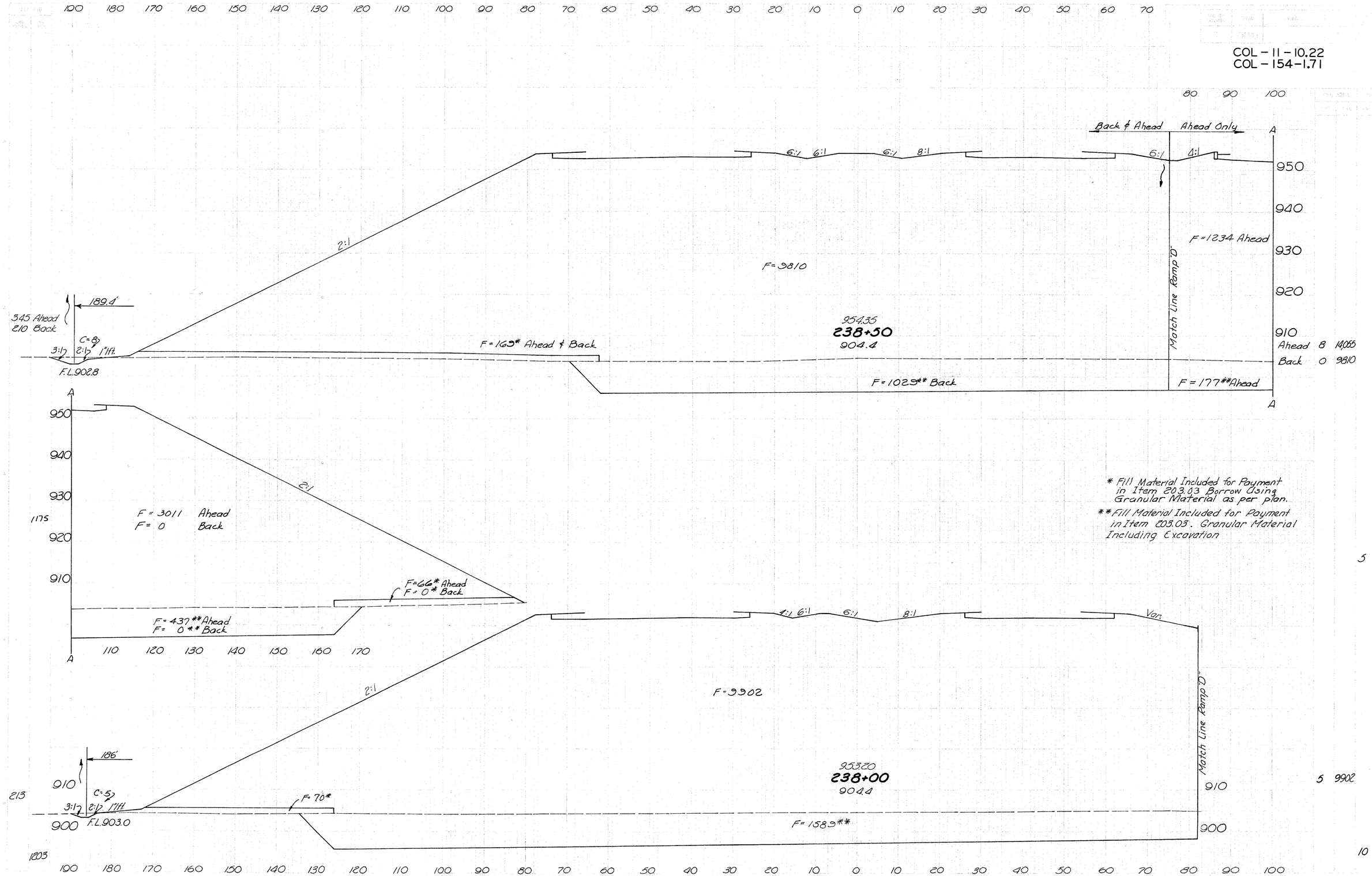
* Fill Material Included for Payment in Item 203.03 Borrow Using Granular Material as per plan.

** Fill Material Included for Payment in Item 203.03. Granular Material including Excavation

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

STA. 237 + 00 TO STA. 237 + 50

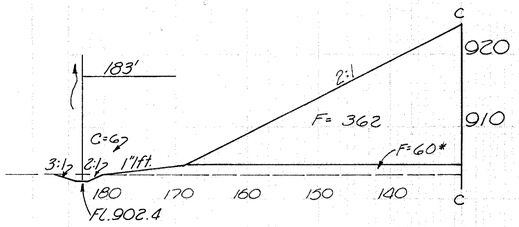
COL – 11 – 10.22
COL – 154 – 1.71

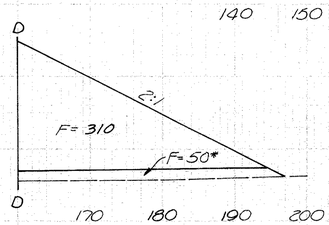


STA. 238 + 00 TO STA. 238 + 50

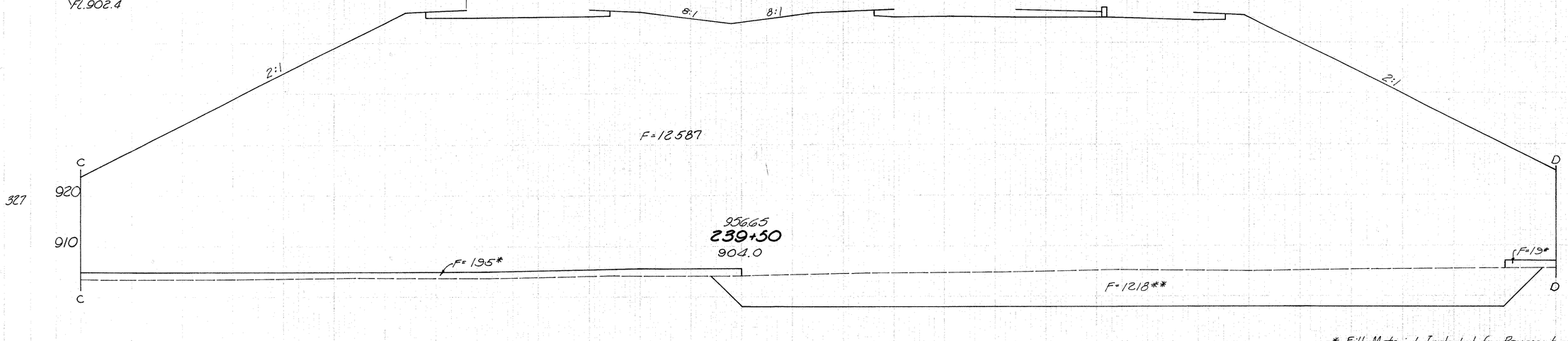
COL – 11 – 10.22
COL – 154–1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130





℄ Survey Ramp "C"

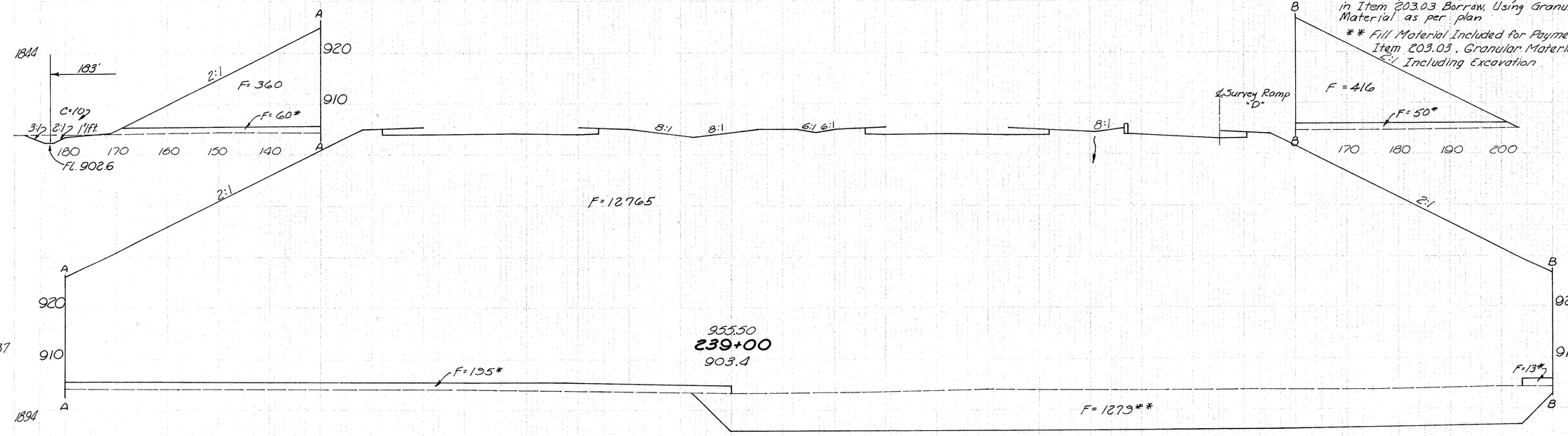


6 13259

* Fill Material Included for Payment in Item 203.03 Borrow, Using Granular Material as per plan
** Fill Material Included for Payment in Item 203.03 . Granular Material 2:1 Including Excavation

℄ Survey Ramp "D"

15 25741



10 13541

17 25552

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 239 + 00 TO STA. 239 + 50

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

71

COL-11-10.22
COL-154-1.71

140 150 160

Sta 241+64 0

Sta 241+50 13

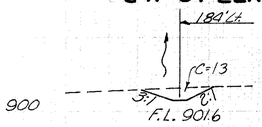
Sta 241+20 0

3

81

21,730

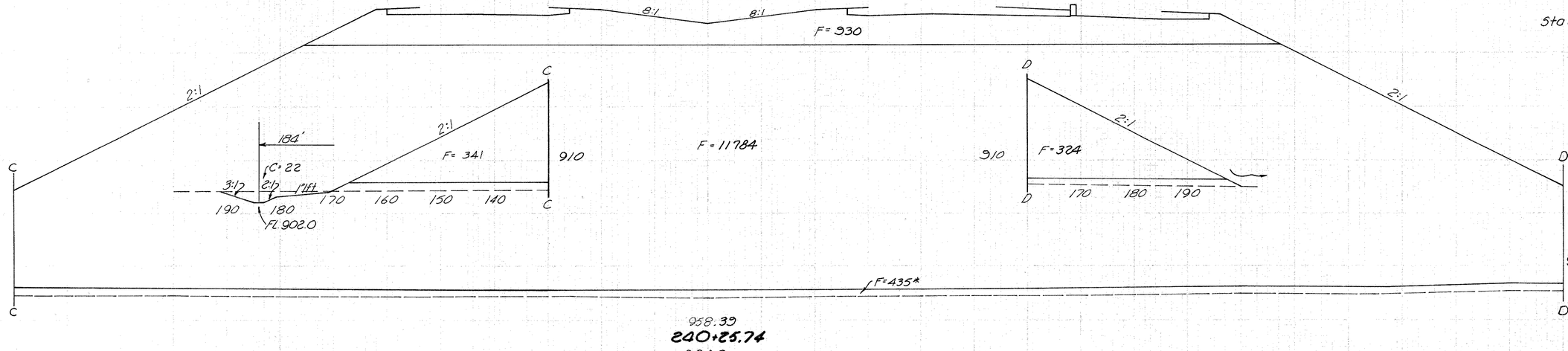
241+64 ZERO CUT



241+50

200 190 180

241+20
ZERO FILL
END GRANULAR LAYER

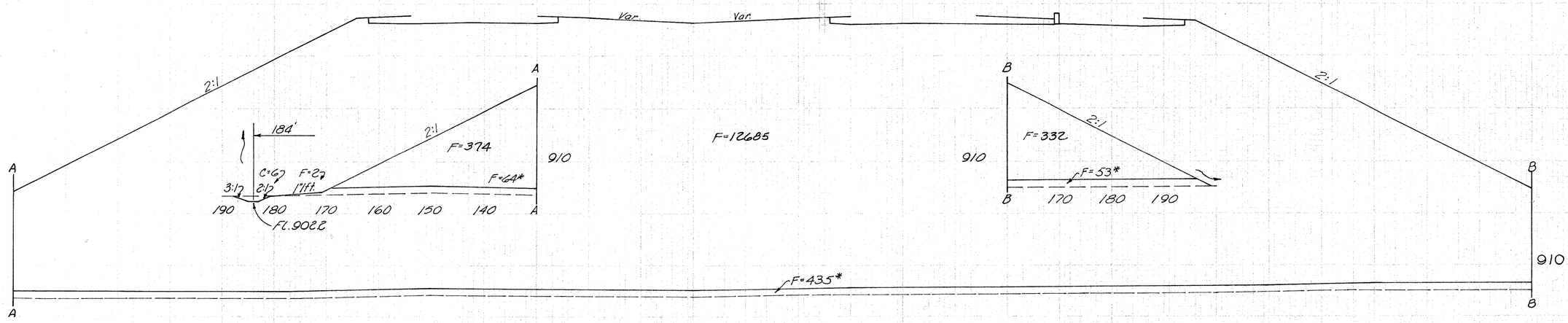


958.39
240+25.74
904.0

Ahead 22 12,449
Back 22 13,379

* Fill Material Included for Payment in Item 203.03 Borrow, Using Granular Material, as per plan.

961



957.30
240+00
904.0

13 12,760

6 13,391

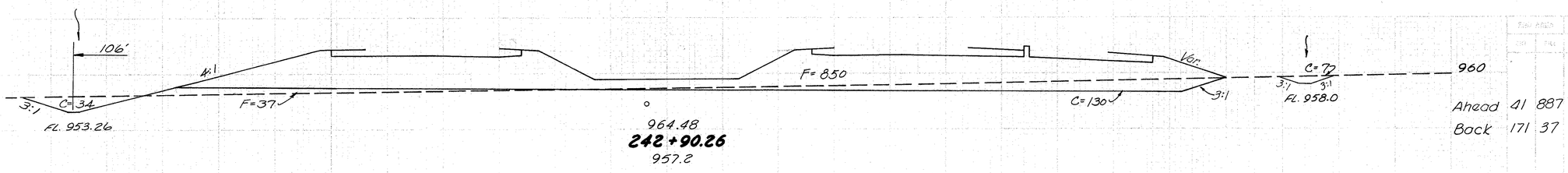
11 21,676

183

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 240+00 TO STA. 241+64

COL-11-10.22
COL-154-1.71

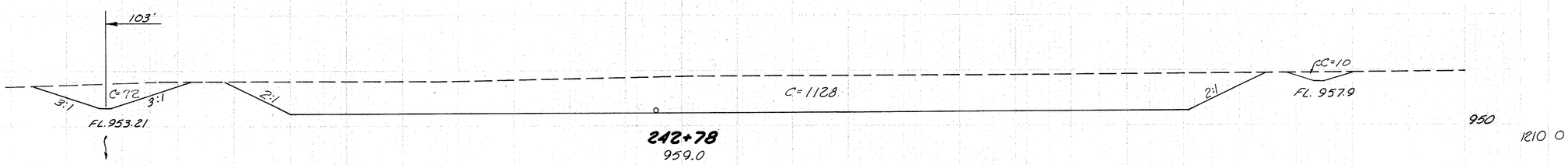


168

234

Ahead 41 887
Back 171 37

467 13

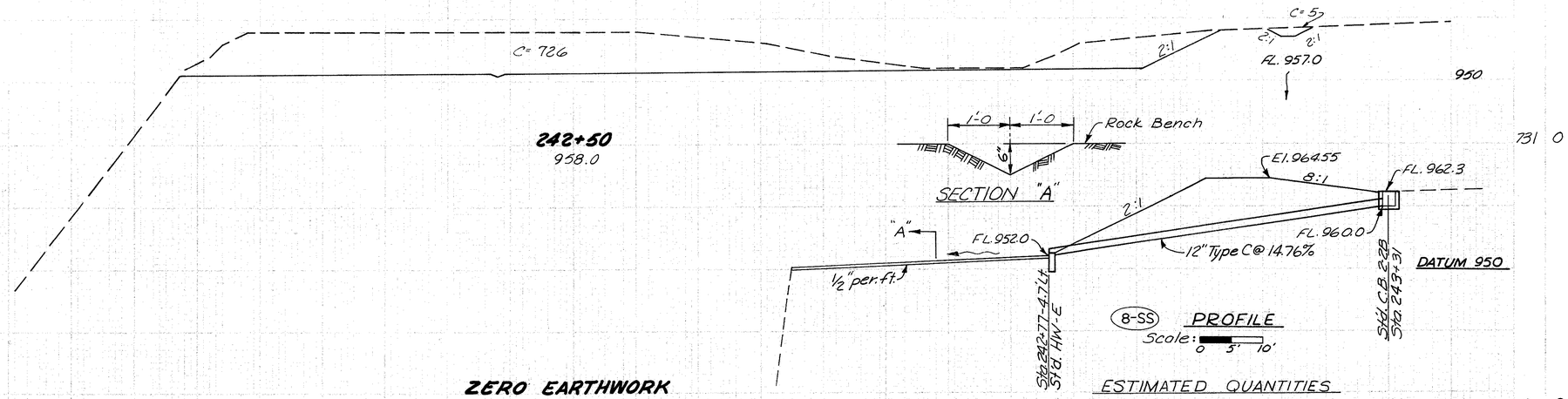


176 Ahead
266 Back

1210 0

1006 0

698



183

152

0

731 0

203 0

0 0

2970

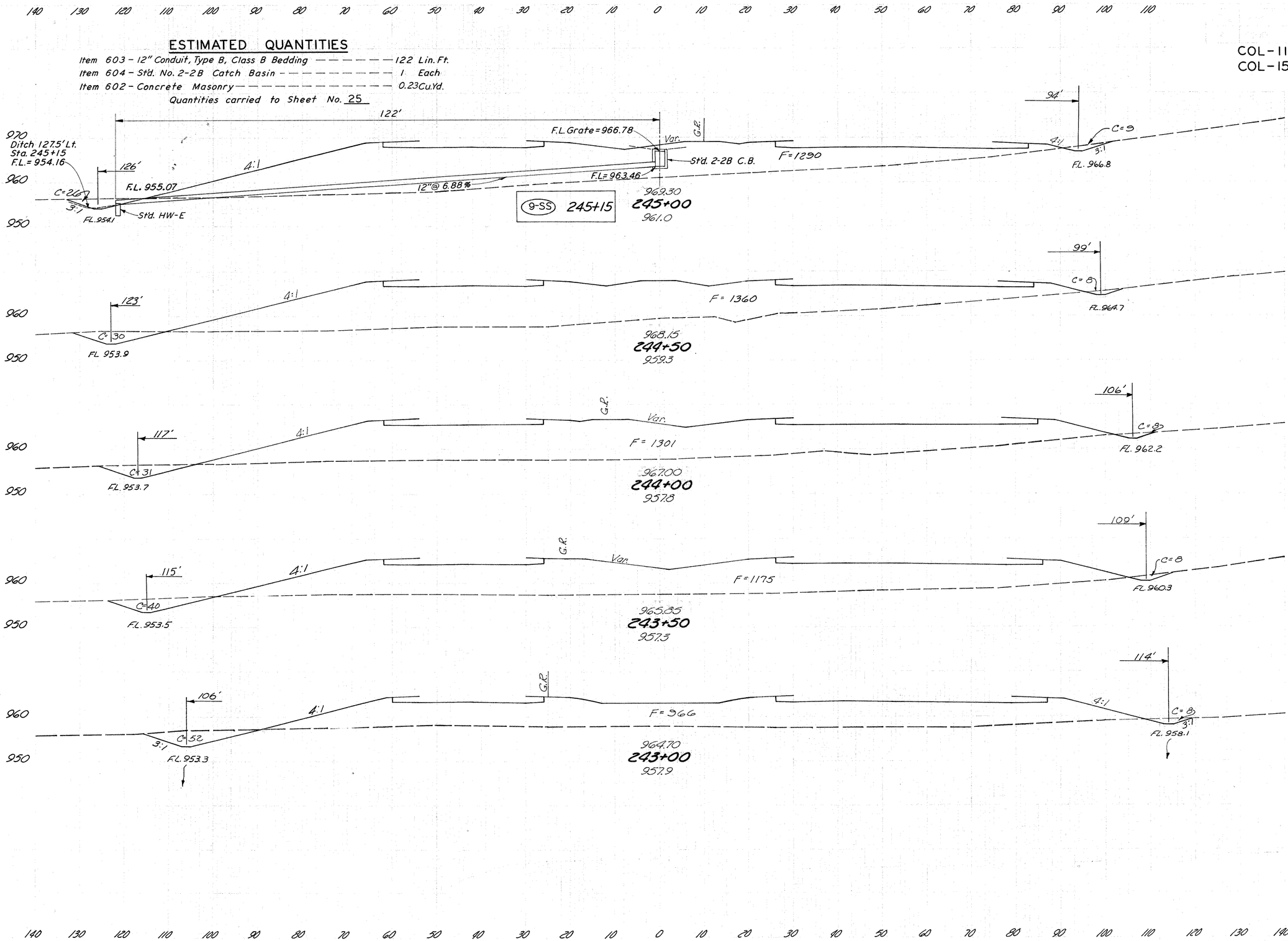
110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 242+35 TO STA. 242+90.26

COL-11-10.22
COL-154-1.71

ESTIMATED QUANTITIES

Item 603 - 12" Conduit, Type B, Class B Bedding ——————— 122 Lin. Ft.
Item 604 - Std. No. 2-2B Catch Basin ——————————— 1 Each
Item 602 - Concrete Masonry ——————————————— 0.23 Cu. Yd.
Quantities carried to Sheet No. 25



STA. 243 + 00 TO STA. 245 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

A
C=316
2:1
1000
1:1
A
120 130 140 150 160
980
970
960
119'
C=9
4:1
F=100
FL.964.0
241
976.20
248+00
983.9
C=2424
A
1:1
4:1 2:1
A
1010
2749 100
1000
4365 403

1361
970
131'
C=15
4:1
F=335
FL.960.2
251
960
975.05
247+50
978.2
C=1950
1000
990
1965 335

1369
960
140'
C=18
F=550
FL.956.5
242
973.90
247+00
972.8
C=1220
990
980
2966 819
1238 550

1314
960
141'
C=10
F=840
FL.955.0
231
950
972.75
246+50
968.1
C=814
2:1
4:1
990
980
1909 1287
824 840

1197
960
137'
C=9
F=1077
FL.954.5
200
950
971.60
246+00
965.2
C=364
990
980
970
1108 1775
373 1077

1050
960
131'
C=10
4:1
F=1130
FL.954.3
178
950
970.45
245+50
962.4
C=76
4:1
2:1
980
970
960
425 2044
86 1130
112 2241

961
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 245 + 50 TO STA. 248 + 00

COL-11-10.22
COL-154-1.71

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

1030 1020 1010 1000 990 980 970 960

C = 7028

97965
249+50
1008.9

2:1 4:1 1:1 4:1 2:1

7028 0

C = 5553

97350
249+00
1000.8

2:1 1:1

5553 0

C = 3960

97335
248+50
990.7

Ditch F.L.= 970.5
F.L.=971.0
F=17
C=56
3:1
18"
8'x6' Dumped Rock Pad
St'd. HW-E
15" @ 0.5%
F.L. Grate = 974.53
See Sheet No. 25
F.L.=971.40
10-SS
Std. No. 4 Catch Basin
97'
92'
4:1 2:1

11619 0
8860 1
4016 1
6356 94

208
1136
201
1186
226
1297

ESTIMATED QUANTITIES

Item 603 – 15" Conduit, Type B with Class B Bedding — — 92 Lin. Ft.
Item 604 – St'd. No. 4 Catch Basin — — — — — — — — 1 Each
Item 602 – Concrete Masonry — — — — — — — — — — 0.26 Cu.Yd.
Item 601 – Dumped Rock Channel Protection — — — — 3 Cu.Yd.

Quantities carried to Sheet No. 25.

STA. 248 + 50 TO STA. 249 + 50

COL-11-10.22
COL-154-1.71

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

1020 1010 1000 990 980

229 1272 229 1242 218 1183

C=8866

983.10
251+00
1027.7

F.L. Grate 980.21

F.L.=977.2

Std. No. 4 Catch Basin

For Quantities & Plan See Sheet No. 25

℄ Survey Ramp "D"

C=8756

981.95
250+50
1024.7

C=7895

980.80
250+00
1016.4

2:1 1:1 2:1 4:1

8866.0 8756.0 16317.0 15418.0 7895.0 13818.0

STA. 250 + 00 TO STA. 251 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

252

1020
1010
2:1
1:1
2:1 4:1
C = 3581
4:1 2:1
1:1
A
1030
1020
A
130 140 150
A
1030
1020
C = 489
1:2
1:1
A
1040
1030
1020
10,070 0
16,394 0

986.55
252+50
1033.3

1048

1020
1010
1000
255
C = 9795

985.40
252+00
1030.6

9795 0

1372

1010
1000
990
239
2:1
1:1
2:1 4:1
C = 3164
4:1 2:1
1:2
1:1
1030
1020
1010
17555 0

984.25
251+50
1027.1

9164 0

1300 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

16694 0

STA.251 + 50 TO STA.252 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

1000
990
980
218
2:1 1:1 2:1 4:1
C = 7725
990.00
254+00
1029.6
4:1 2:1 1:1
130 120 750
1030
1020
1040 7725.0

1867
1010
1000
990
238
C=9249
988.85
253+50
1033.1
1040 9249.0

1020
1010
1000
136A
2:1 1:1 2:1 4:1
C=10017
987.70
253+00
1034.6
4:1 2:1 1:1
1030
1020
15,717.0
17839.0
10,017.0
18599.0

1903 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

STA. 253 + 00 TO STA. 254 + 00

COL-11-10.22
COL-154-1.71

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1040
1030
1020

2:1
1:1
2:1 4:1

C=6719

120 130 140
1030
1020
1010
2:1
1:1
4:1 2:1

242
99345
255+50
1025.0
6719.0

1030
1333 1020
1010

C=6555

12,291.0
1030
1020
1010

238
992.30
255+00
1022.9
6555.0

1030
1020
1010
2:1
1:1
4:1 2:1

186A 1020
1010
1000

2:1
4:1

C=6496

217
991.15
254+50
1026.6
6496.0
12,084.0
13,168.0

1208 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA.254 + 50 TO STA.255 + 50

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

80

COL-11-10.22
COL-154-1.71

1040
1030
1020

2:1
1:1
2:1 4:1
4:1 2:1
1:1
2:1

120 130 140

C = 8045

247

996.90
257+00
1035.3

8045 0

1040
1030
1020

1378

C = 8156

14,908 0

249

995.75
256+50
1033.0

8156 0

1040
1030
1020

1369

2:1
1:1
2:1 4:1
4:1 2:1
1:1
2:1

C = 7428

14,130 0

243

994.60
256+00
1029.6

7428 0

1347

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

13099 0

STA. 256+00 TO STA. 257+00

COL-11-10.22
COL-154-1.71

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

120 130 140

1040
1030
1020

2:1
1:1
2:1 4:1
C = 7465
4:1 2:1
1:1
2:1

1000.35
258+50
1037.4

233
7465 0

1040
1030
1325 1020

C = 8118

999.20
258+00
1037.9

244
8118 0

14,419 0

1040
1030
136A 1020

2:1
1:1
2:1 4:1
C = 8234
4:1 2:1
1:1
2:1

998.05
257+50
1037.1

247
8234 0

15,131 0

1372

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

15,073 0

STA. 257+50 TO STA. 258+50

COL - 11 - 10.22
COL - 154 - 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

1040
1030
1020
1010

2:1
1:1
2:1
4:1
C = 6827
4:1
2:1
1:1
2:1

226
100.80
260+00
1038.4
6827.0

1040
1030
1020
1010

1258
2:1
1:1
2:1
4:1
C = 6834
4:1
2:1
1:1
2:1

227
1002.65
259+50
1037.7
6834.0

1040
1030
1020
1010

1267
2:1
1:1
2:1
4:1
C = 7158
4:1
2:1
1:1
2:1

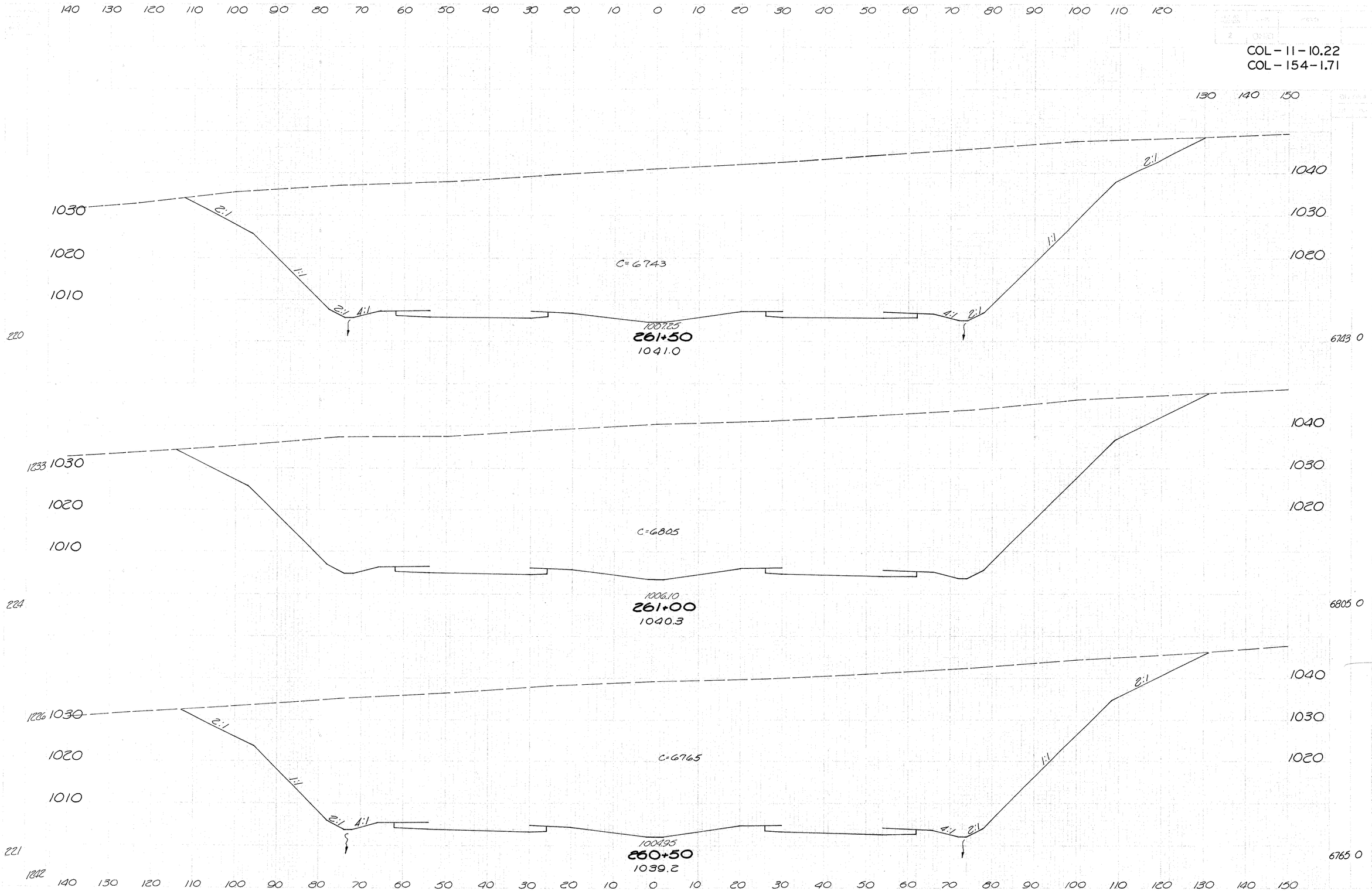
229
100.50
259+00
1037.4
7158.0

1883
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

12649.0
12956.0
13510.0

STA 259+00 TO STA 260+00

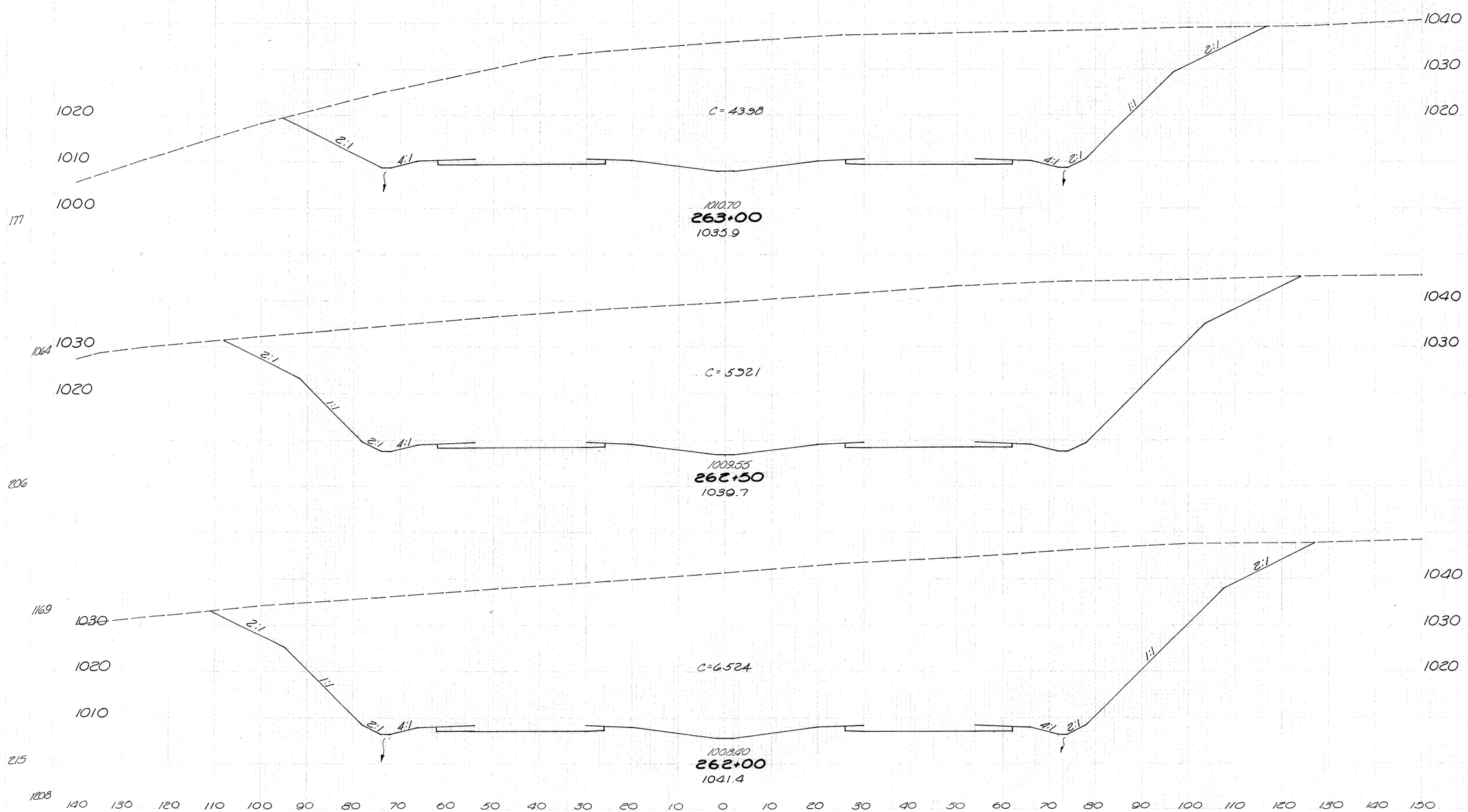
COL – 11 – 10.22
COL – 154 – 1.71



STA. 260+50 TO STA. 261+50

COL – 11 – 10.22
COL – 154 – 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



STA. 262+00 TO STA. 263+00

COL – 11 – 10.22
COL – 154 – 1.71

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

A
960
A
2:1
F=229
C=136
170
180
1:1
2:1
190
200
210
220

F=8231

B
110 120 130
153'
F=1.9
2:1
1'/ft.
C=11
980
2:1
3:1
F.L. 974.3
B
2:1
130 140 150 160

B
980
B
970

448 8512

343

A
960
A
1547

C=100
1:1
C=72
1:1
C=65
1:1

1013.15
264+50
980.9

97'
4:1
C=10
3:1
F.L. 1005.0
1000

729 11,093

F=3139

214
980
904 970

C=120
C=139
C=70

1013.00
264+00
998.4

900
339 3468

94'
15'
2:1
F=14.5
C=57
1:1
C=86
1:1
F.L.=997.66
Std. HW-E
Dumped Rock
15'x6'
18"
12" @ 8.75%
F.L.=1005.65
F.L. Grate = 1009.17
Std. No. 4 C.B.
1011.99
263+56
1018.7

C=1176
4:1
2:1
1020
1010

1351 3060

156
990
1319 288

676 980

ESTIMATED QUANTITIES

(12-SS)
Item 603 – 12" Conduit, Type B, Cl. B Bedding ——— 94 Lin. Ft.
Item 604 – Std. No. 4 Catch Basin ——————— 1 Each
Item 602 – Concrete Masonry ——————————— 0.23 Cu. Yd.
Item 601 – Dumped Rock Channel Protection —— 5 Cu. Yd.

Quantities carried to Sheet No. 27

1030
2:1
1020
3445 203

1010
2:1
4:1
C=3577
4:1
2:1
1:1

164 1000
1011.11
263+18
1032.8
3577 0

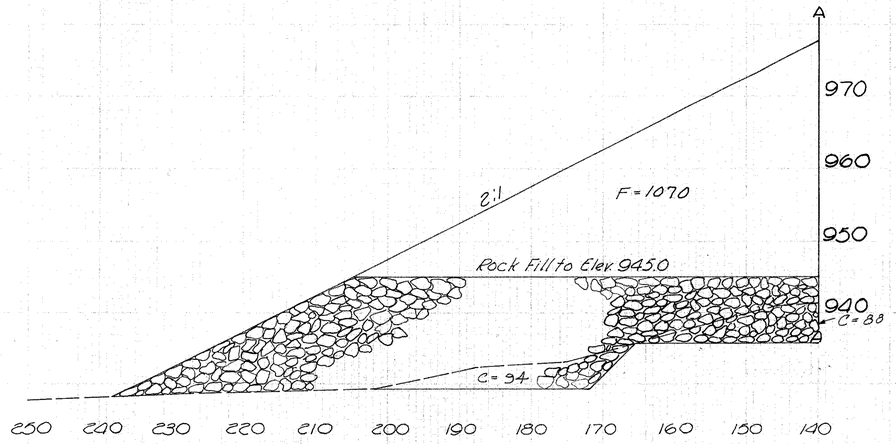
341
2658 0

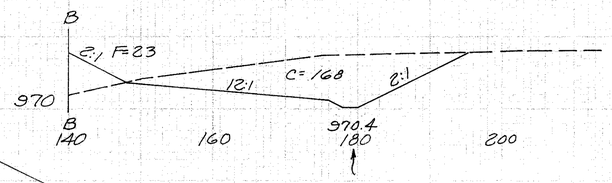
160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

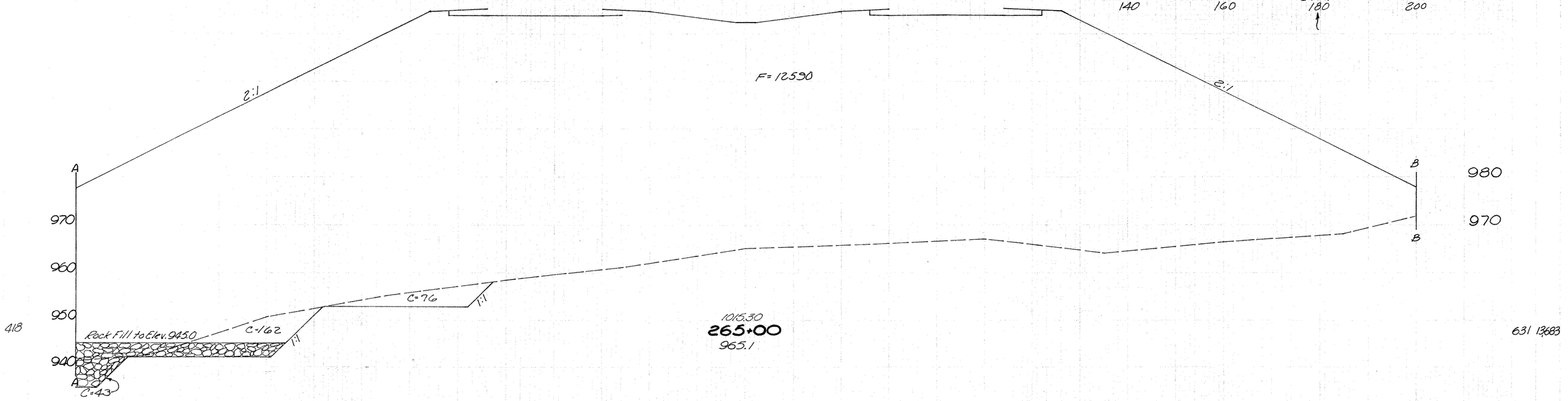
STA 263+18 TO STA 264+50

COL – 11 – 10.22
COL – 154 – 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150





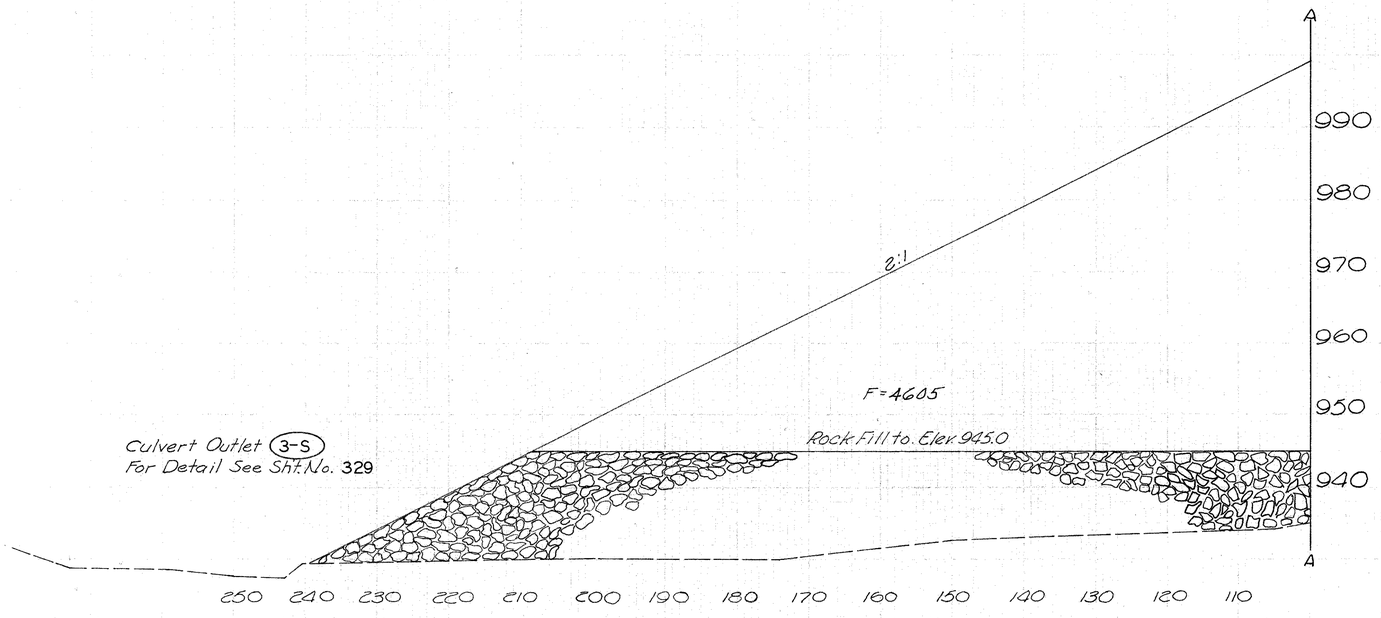


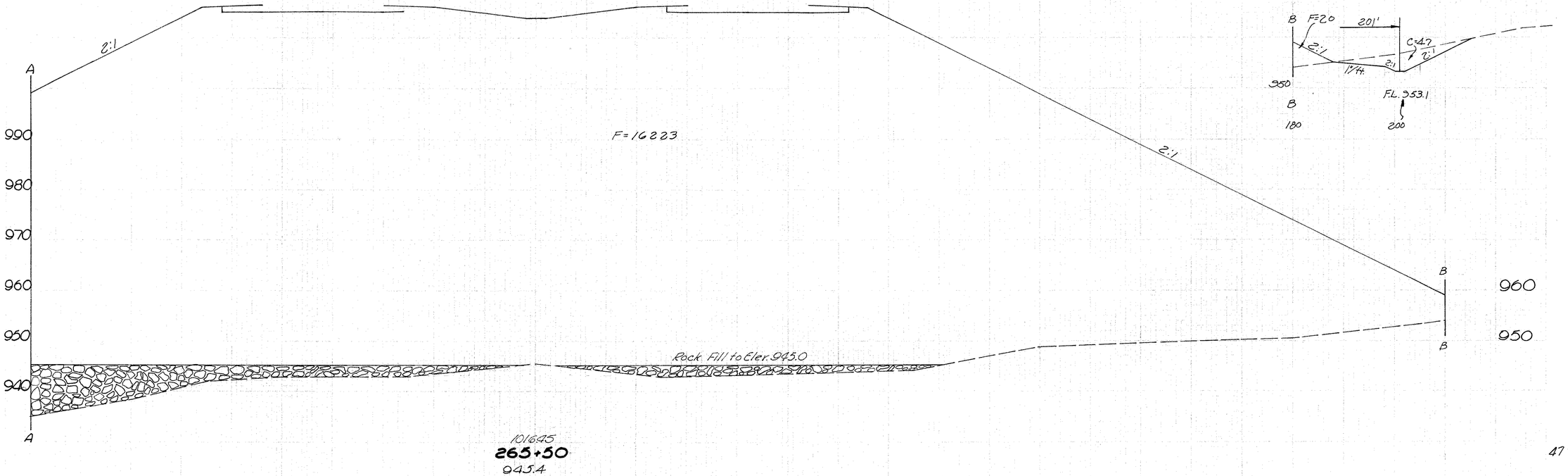
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

STA 265+00

COL – 11 – 10.22
COL – 154–1.71

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190





444

47 20,018

101645
265+50
945.4

2391

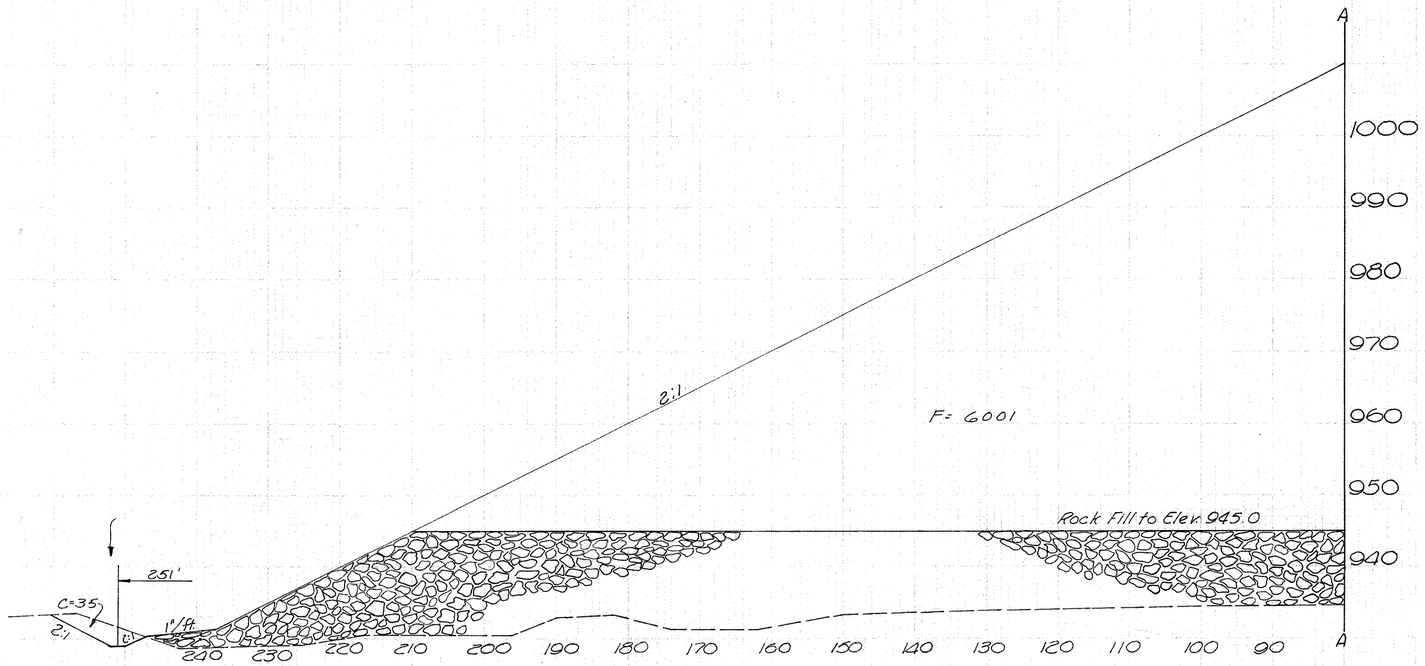
628 31,973

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

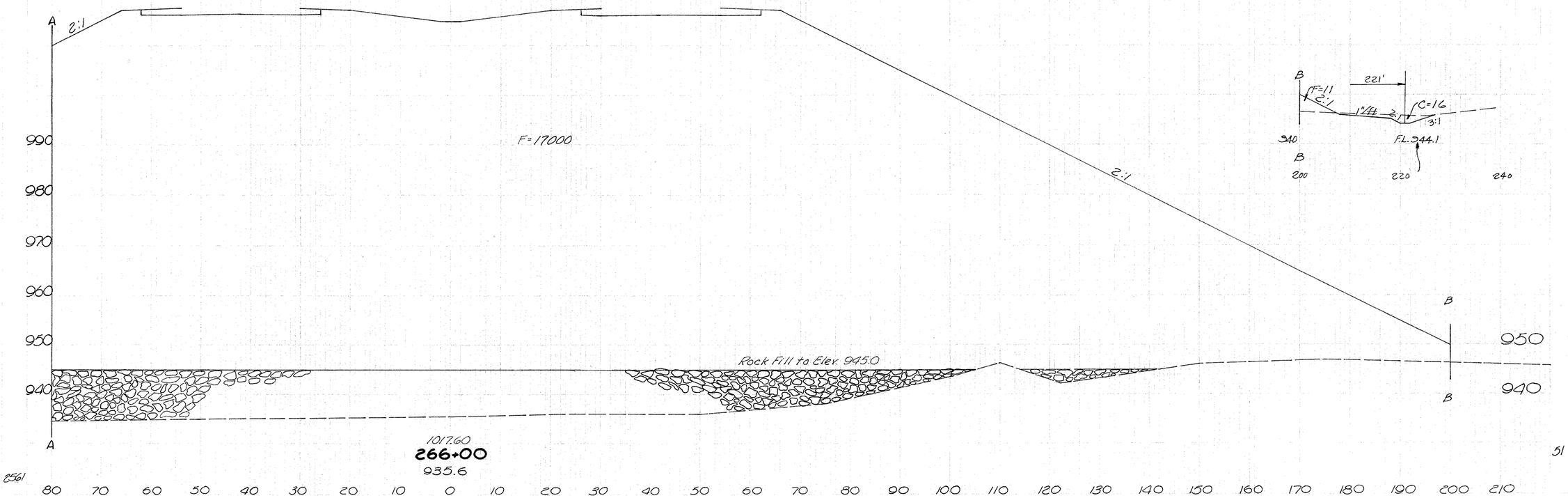
STA. 265 + 50

COL - 11 - 10.22
COL - 154 - 1.71

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210

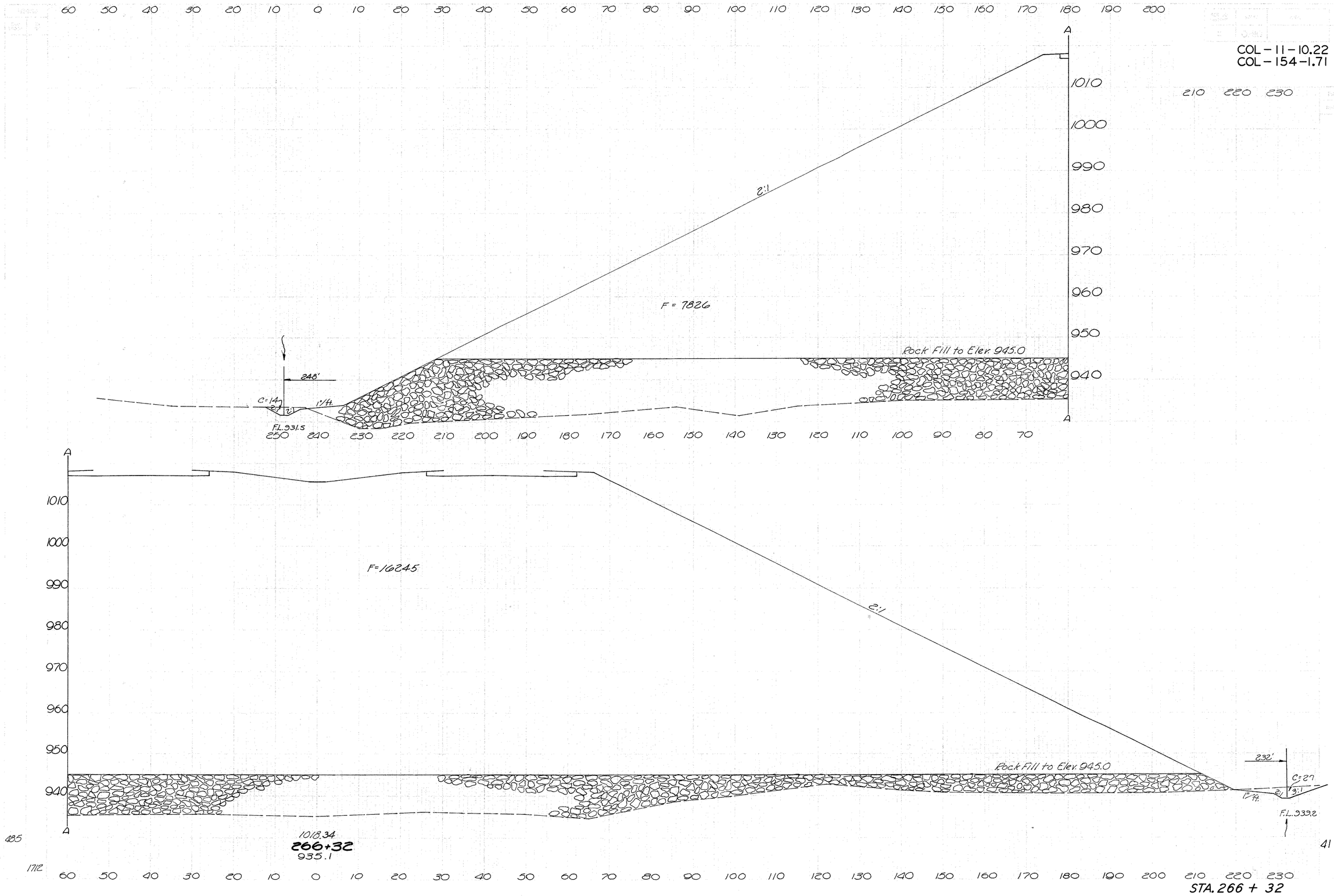


F.L. 528.5



STA. 266 + 00

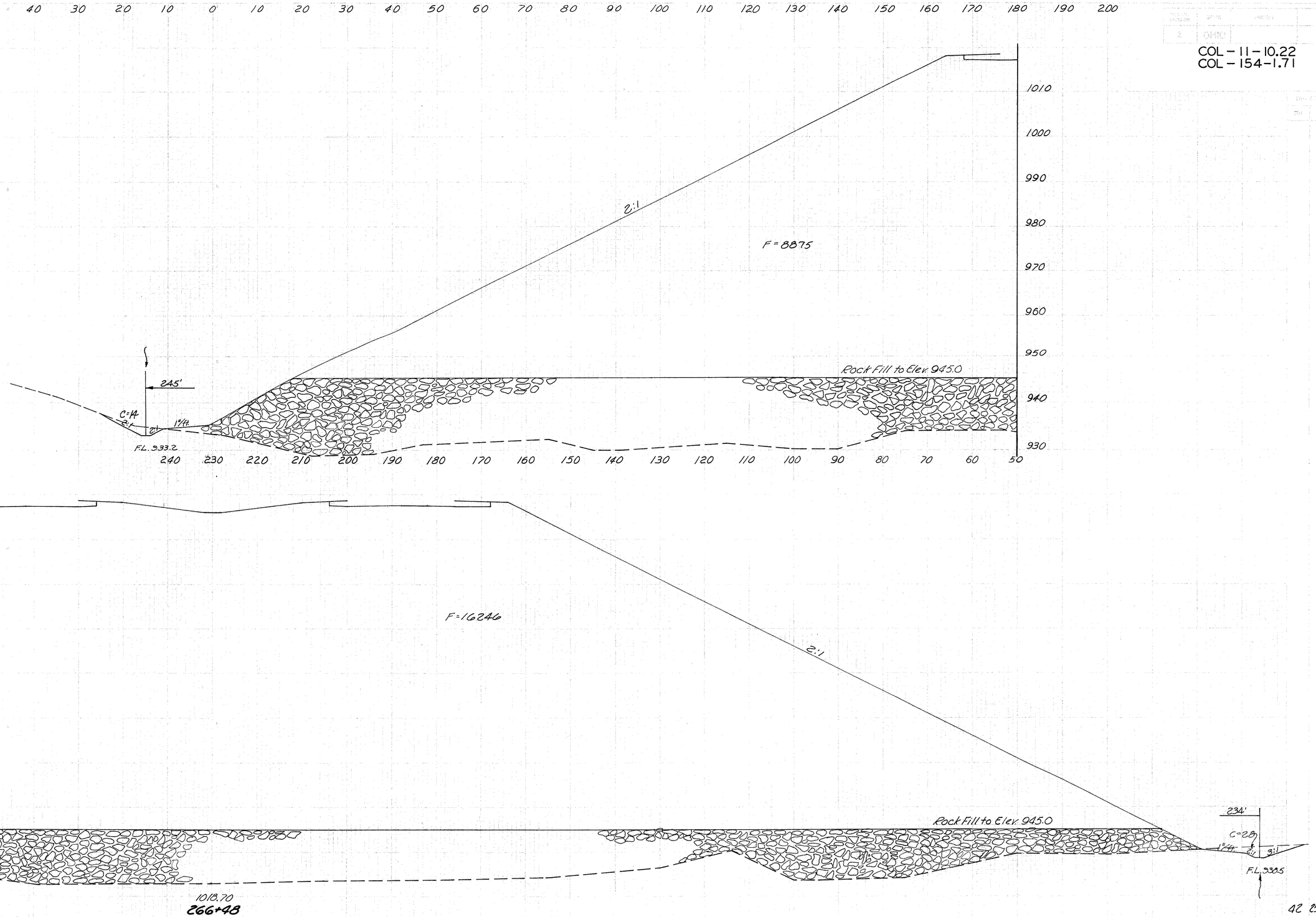
COL – 11 – 10.22
COL – 154 – 1.71



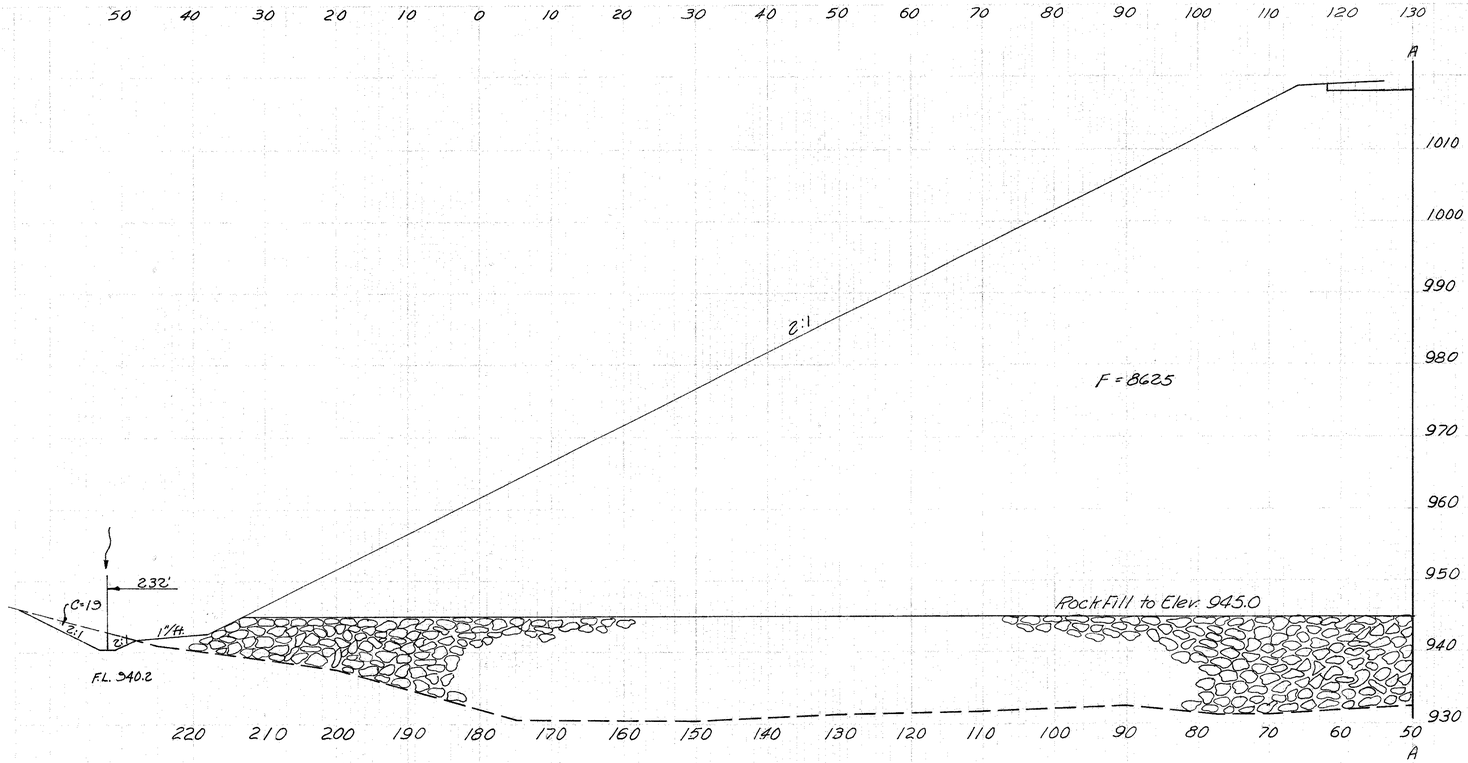
41 24,071

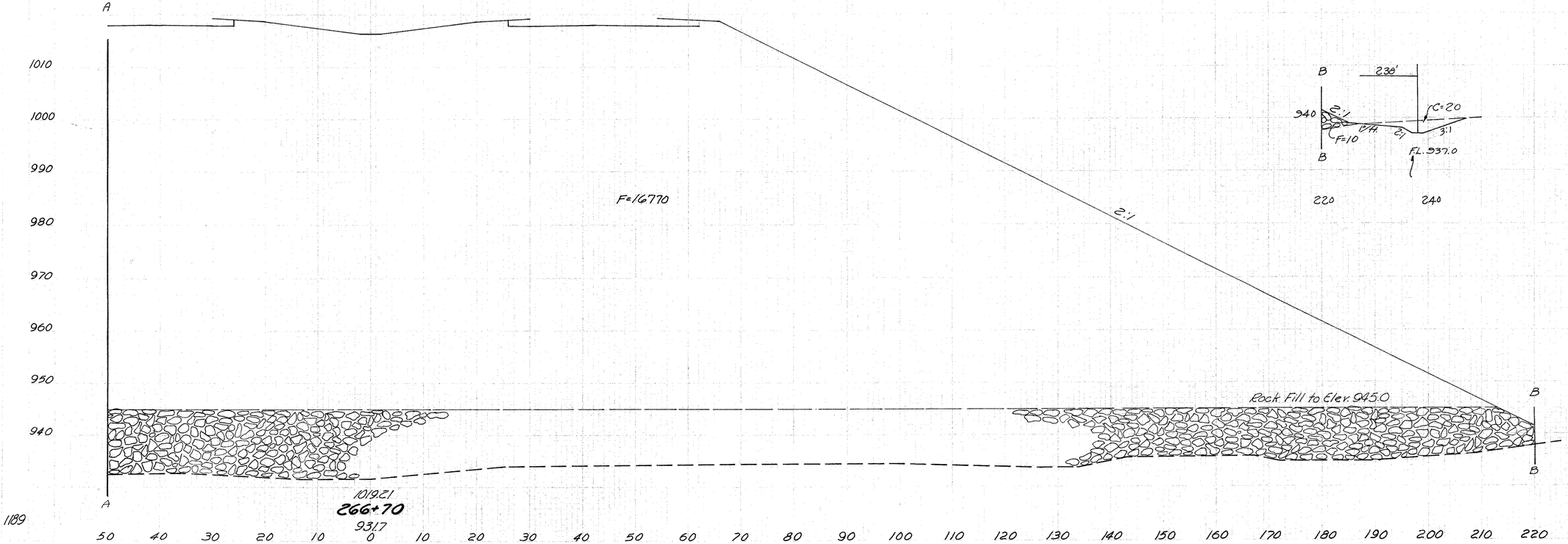
55 27,901

COL – 11 – 10.22
COL – 154 – 1.71



COL – 11 – 10.22
COL – 154–1.71

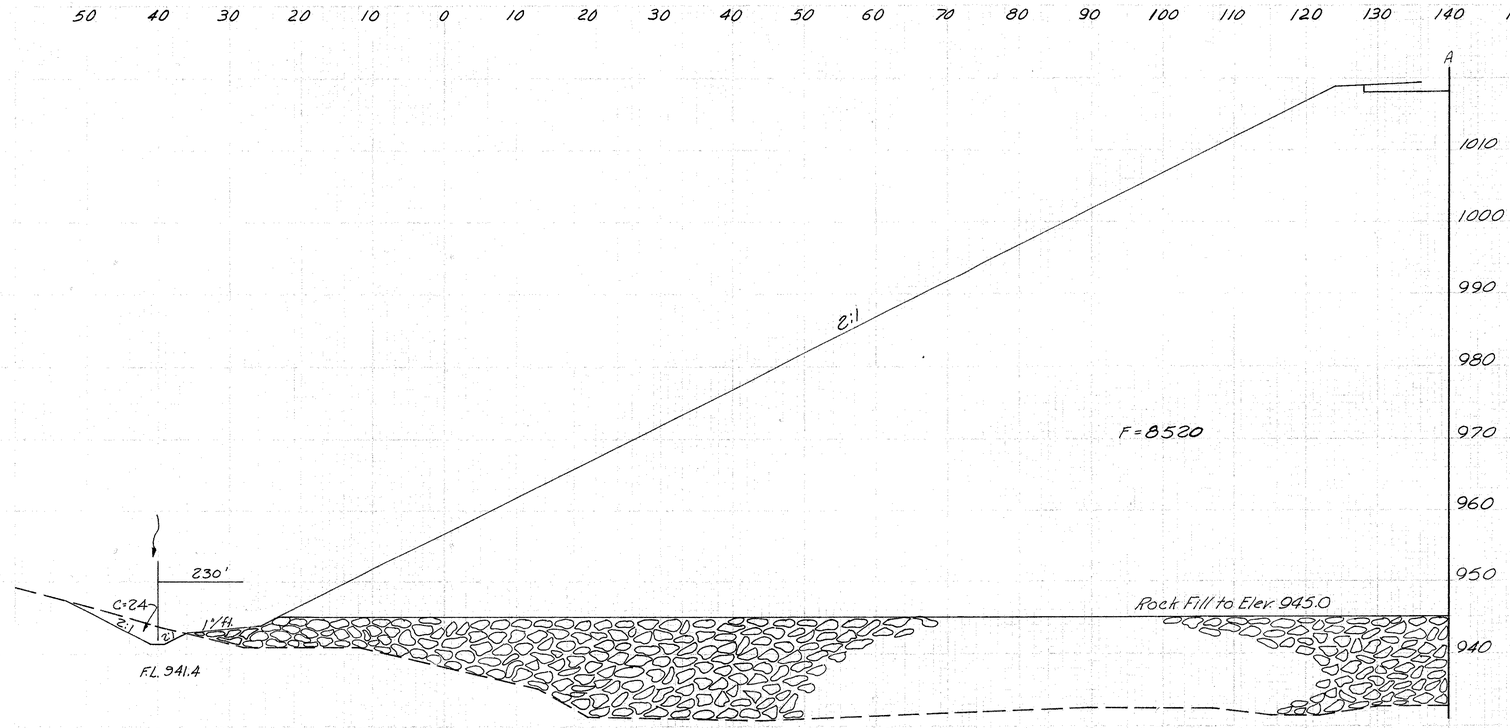




483
1189
39 25,105
33 20,585

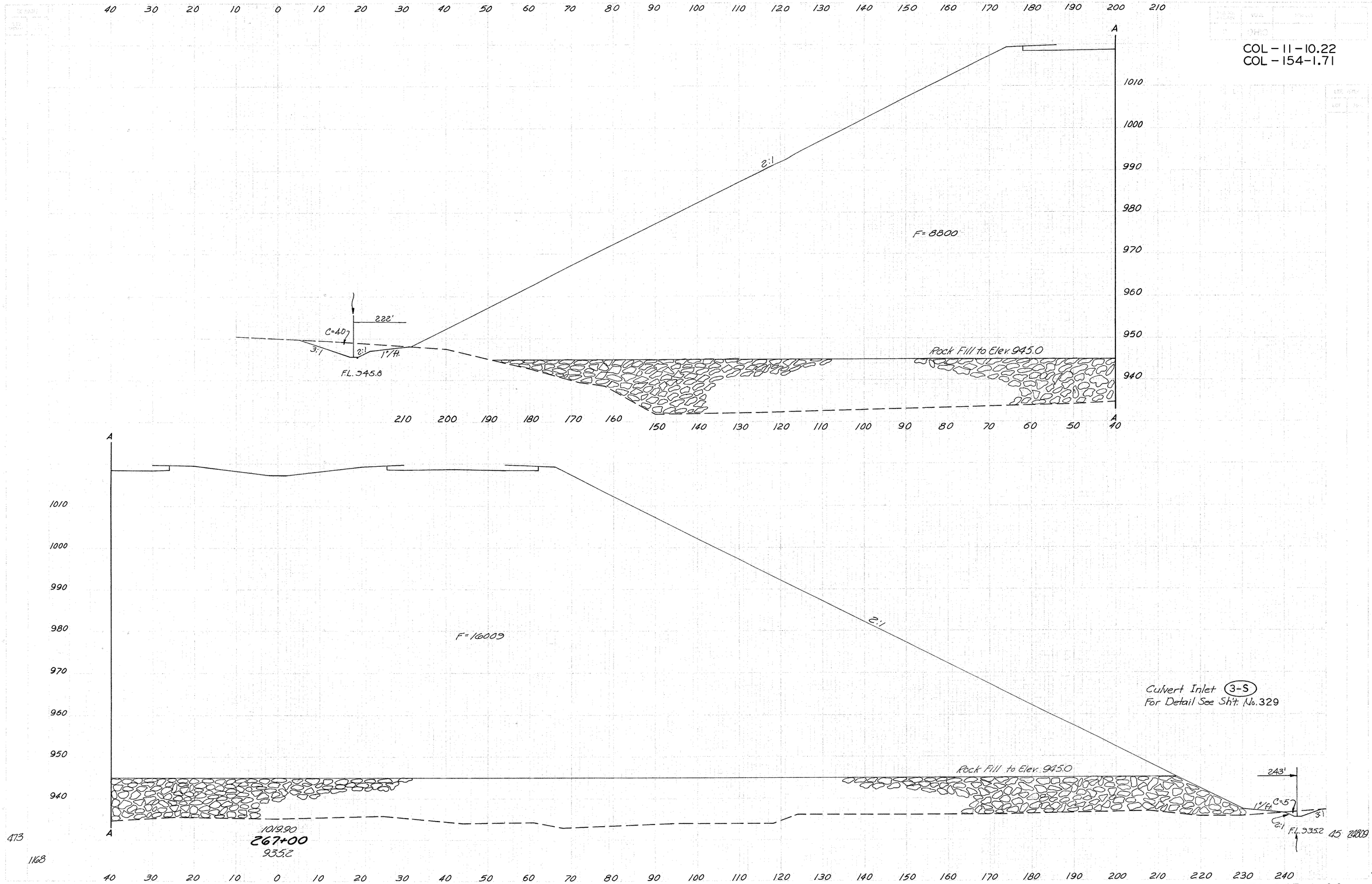
STA. 266 + 70

COL – 11 – 10.22
COL – 154 – 1.71

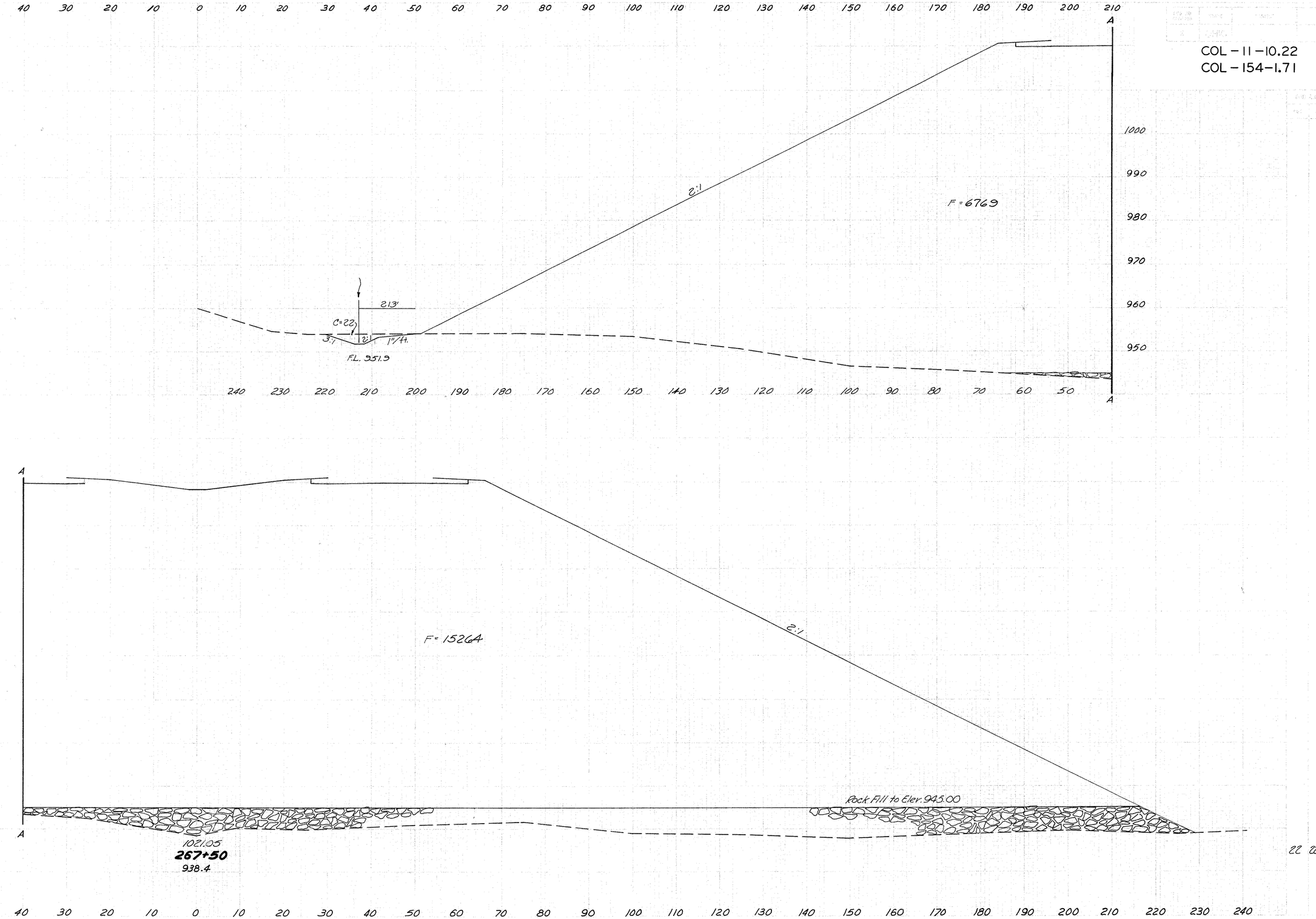




COL – 11 – 10.22
COL – 154 – 1.71

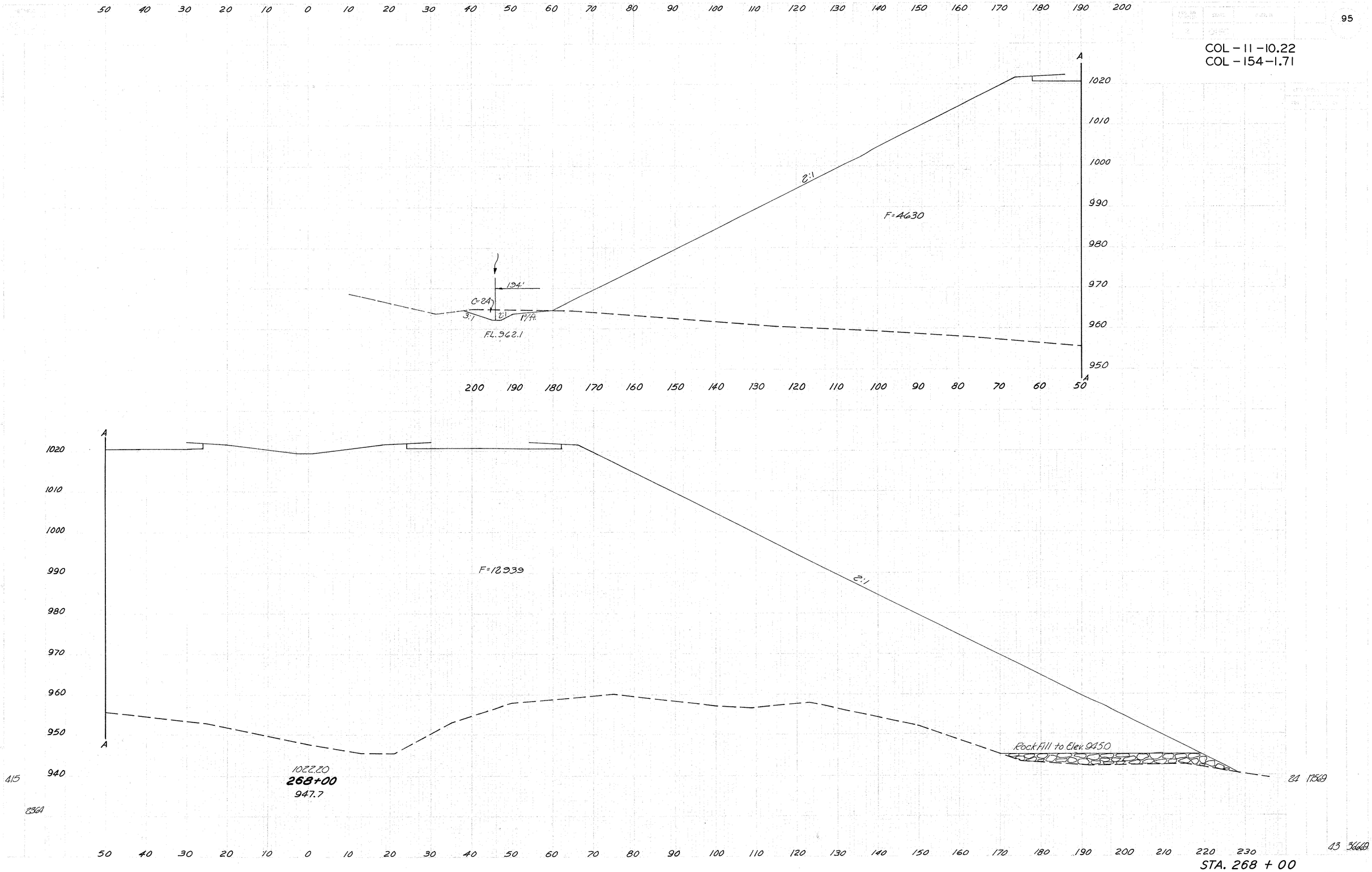


COL – 11 – 10.22
COL – 154 – 1.71



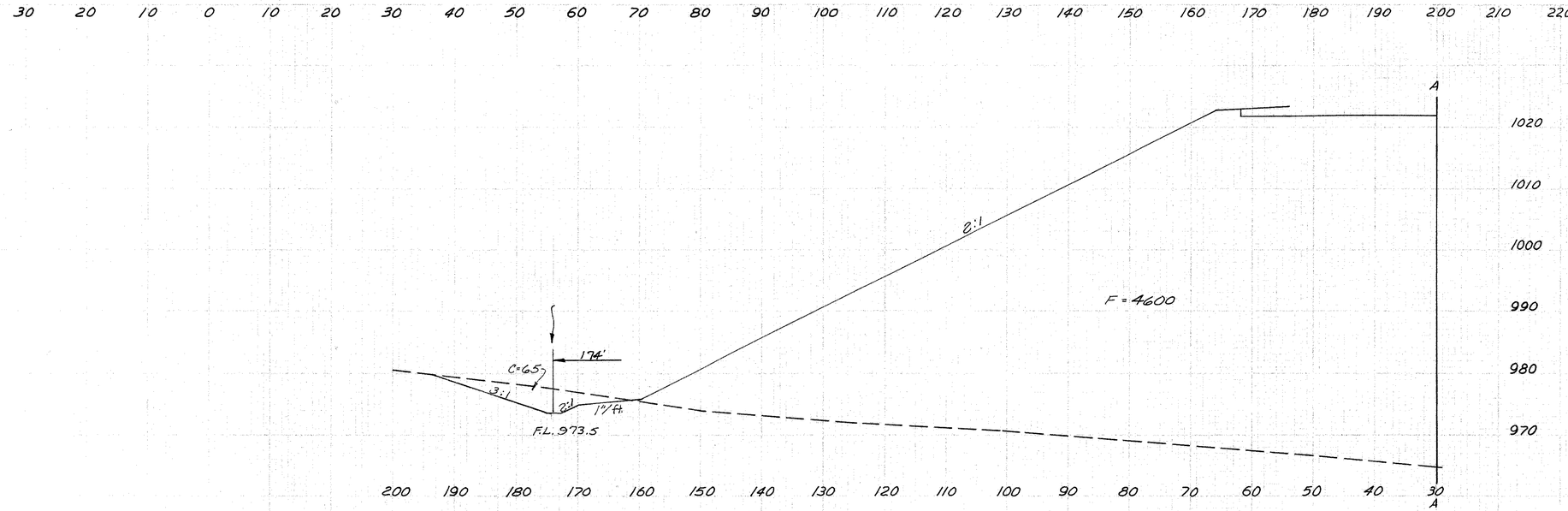
STA. 267 + 50

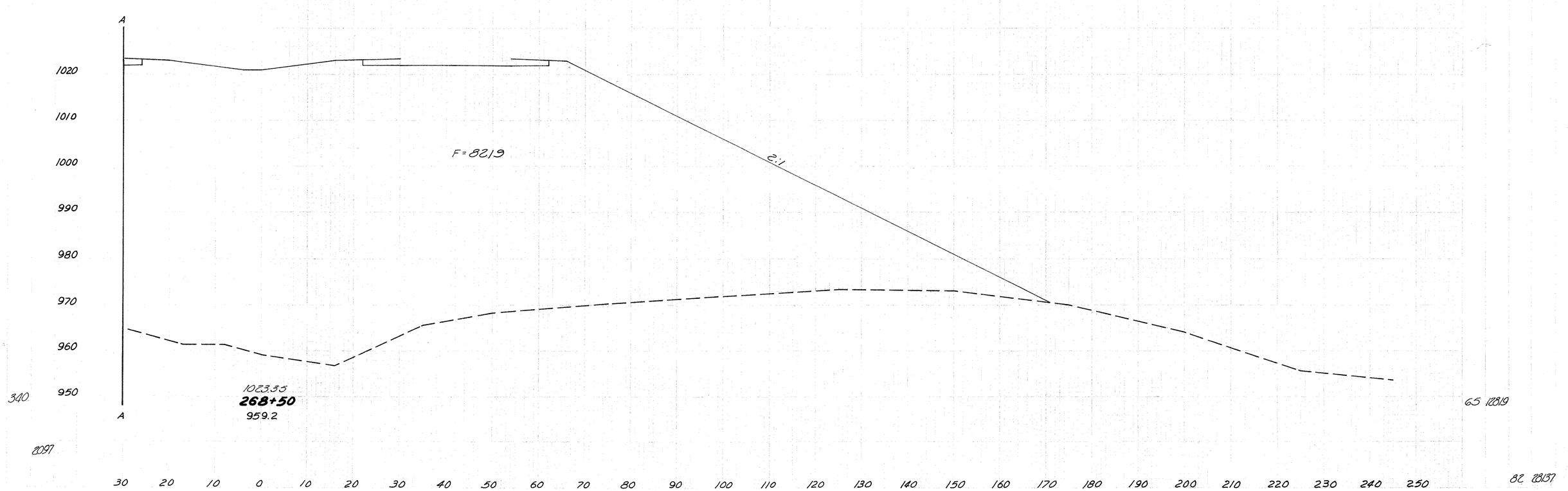
COL – 11 – 10.22
COL – 154 – 1.71



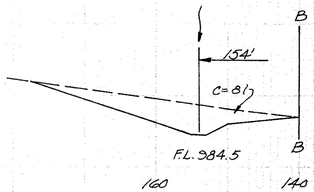
STA. 268 + 00

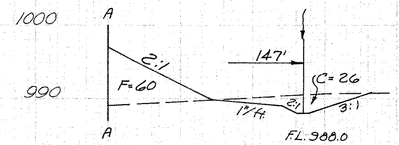
COL – 11 –10.22
COL – 154–1.71

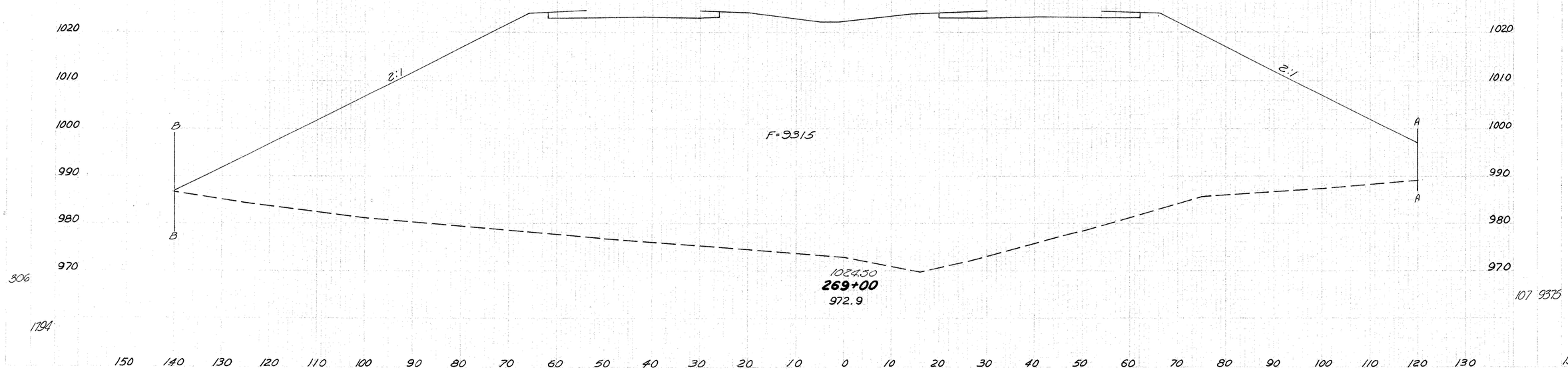




COL – 11 – 10.22
COL – 154 – 1.71







COL – 11 – 10.22
COL – 154 – 1.71

COL – 11 – 10.22
COL – 154 – 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1040
1030
121
669
3:1 4:1 C = 326 4:1 3:1
1034.85
273+50
1036.0
1030
326 0

1030
120
C-75 C=537 F=17 C=29 C=137
1033.70
273+00
1033.5
1030
463 1

664
1040
1030
119
C=577 F=9 C=20 F=45 75' C=8
1032.55
272+50
1030.6
F.L. 1030.0
1040
1030
174 1
240 51

675
1040
1030
124
C=25 C=22 F=15 F=144 81' C=21
1031.40
272+00
1028.9
F.L. 1027.5
1040
1030
85 54

739
1040
1030
142
76' C=17 F=318 90' C=63
F.L. 1027.5
1030.25
271+50
1025.5
F.L. 1025.0
1040
1030
72 159

1030
1020
139 318

786
1030
1020
141
79' C=10 4:1 3:1 F=604 92' C=24 4:1 3:1
F.L. 1025.5
1029.10
271+00
1022.1
F.L. 1022.5
1030
1020
34 604

888
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
60 1113

195 442
160 854

STA. 271 + 00 TO STA. 273 + 50

COL – 11 – 10.22
COL – 154 – 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

100

1060 / 1050 / 1040 / 1030

140 — 761 — 134 — 739 — 132 — 725 — 129 — 694 — 121 — 678 — 123 — 678

2:1 4:1 4:1 3:1

C = 1273

1041.75
276+50
1049.1

1040 1279 0

C = 1173

1040.60
276+00
1047.3

1030 1173 0

2270 0

C = 998

1039.45
275+50
1044.8

1030 998 0

2010 0

C = 900

1038.30
275+00
1043.0

1030 900 0

1757 0

2:1 4:1

C = 640

1037.15
274+50
1040.3

1030 640 0

1426 0

3:1 4:1 4:1 3:1

C = 509

1036.0
274+00
1038.3

1030 509 0

1064 0

773 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 274 + 00 TO STA. 276 + 50

COL – 11 – 10.22
COL – 154 – 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1050 / 1040 — 3:1 C=62 4:1 — F=1164 — 4:1 — 1030

172 — 104865 — 279+50 — 1042.0 — 62 1164

1060 / 1050 — 900 — 3:1 C=76 4:1 — F=572 — 1040 / 1030

152 — 104750 — 279+00 — 1043.6 — 76 572 — 128 1607

1060 / 1050 — 888 — 2:1 C=437 4:1 — F=235 — 4:1 — 1040 / 1030

146 — 104635 — 278+50 — 1047.0 — 437 235 — 475 747

1060 / 1050 — 783 — C=820 — F=31 — 1040 / 1030

136 — 104520 — 278+00 — 1048.9 — 820 31 — 1164 286

1060 / 1050 — 744 — C=1120 — C=67 4:1 3:1 — 1040 / 1030

132 — 104405 — 277+50 — 1049.8 — 1126 0 — 1802 29

1060 / 1050 — 747 — 2:1 C=1330 4:1 — 4:1 3:1 — 1040 / 1030

137 — 104290 — 277+00 — 1050.1 — 1330 0 — 2274 0

769 — 2416 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 277 + 00 TO STA. 279 + 50

COL – 11 – 10.22
COL – 154 – 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1060
1050
1040
1030

144 — 89' — C = 38 — 4:1 — 3:1 — F.L. 1048.2 — F = 438 — 4:1 — 105.40 — 282+00 — 1050.6 — 38 438

828 — 95' — C = 18 — F.L. 1045.8 — F = 913 — 1053.25 — 281+50 — 1046.5 — 52 1257 — 18 913

154

889 — 100' — C = 13 — F.L. 1043.4 — F = 1569 — 4:1 — 1052.70 — 281+00 — 1040.5 — 29 2298 — 13 1569

166

964 — 110' — C = 8 — 4:1 — F.L. 1041.4 — F = 2128 — 1050.95 — 280+50 — 1037.4 — 19 3423 — 8 2128

181

Culvert Inlet (4-S)
For Detail See Sheet No. 330

1053 — C = 56 — 4:1 — F.L. 1041.2 — F = 2067 — 4:1 — 1049.80 — 280+00 — 1037.9 — 59 3884 — 56 2067

198

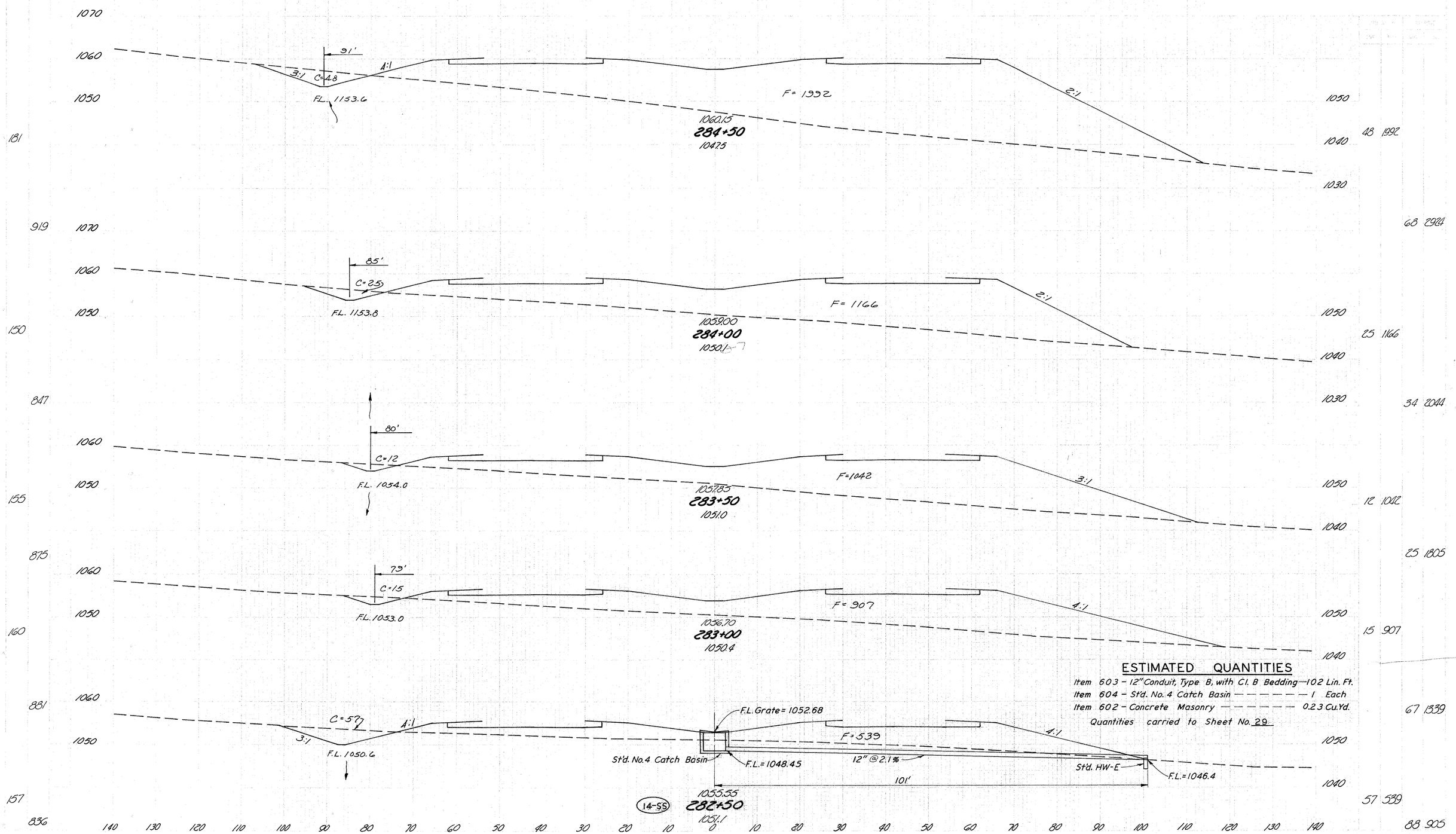
1028

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 — 109 2392

STA. 280 + 00 TO STA. 282 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



ESTIMATED QUANTITIES

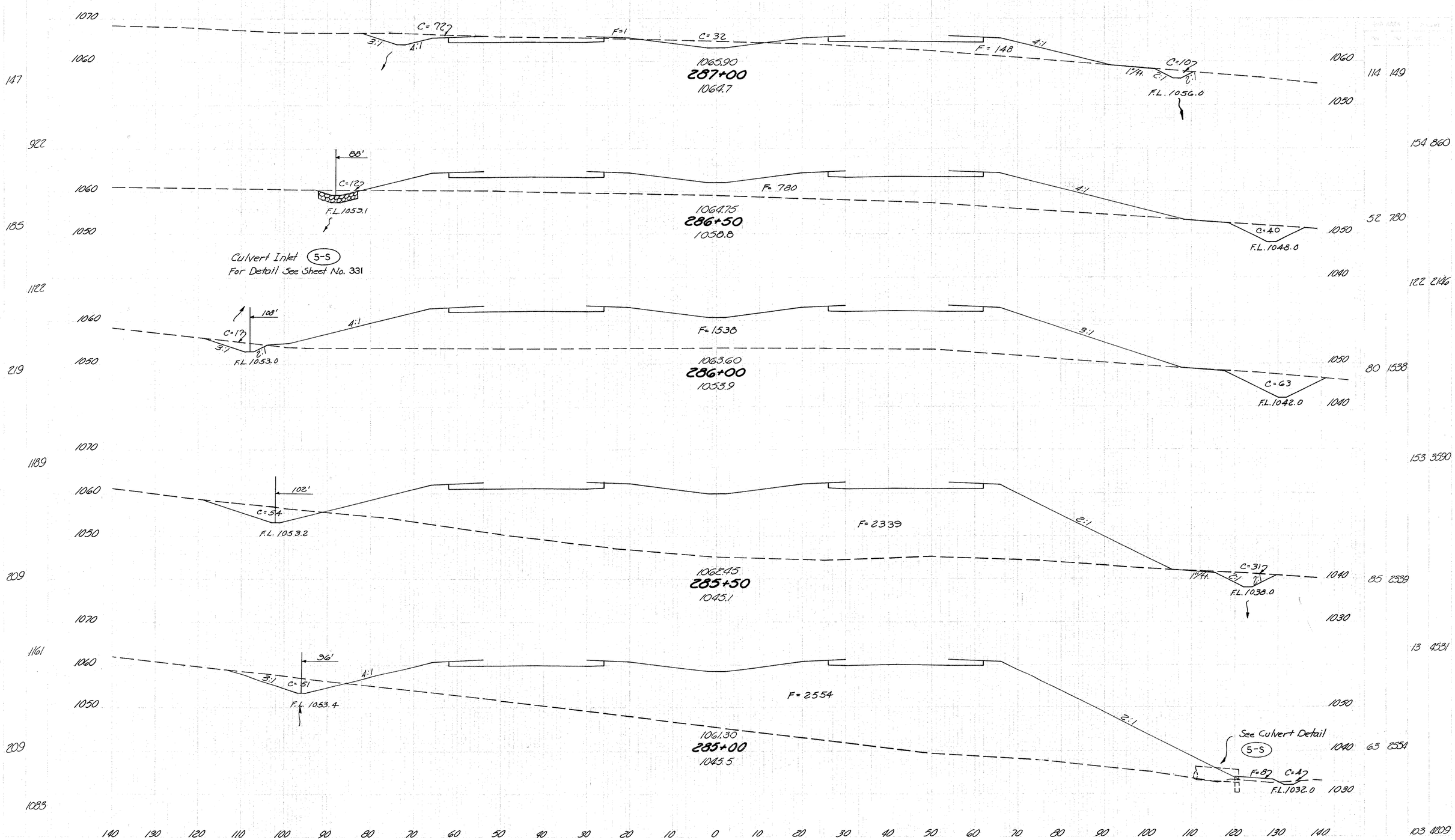
Item 603 – 12" Conduit, Type B, with Cl. B Bedding — 102 Lin. Ft.
Item 604 – St'd. No. 4 Catch Basin — 1 Each
Item 602 – Concrete Masonry — 0.23 Cu.Yd.

Quantities carried to Sheet No. 29

STA. 282 + 50 TO STA. 284 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



STA. 285 + 00 TO STA. 287 + 00

105

COL - 11 - 10.22
COL - 154 - 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1100
1090
2:1
1:1
2:1 4:1
C = 4913
4:1
2:1
1090
1080
1070
1060
1069.35
288+50
1097.7
178
4913 0

1090
928
1080
2:1
1:1
2:1 4:1
C = 3105
4:1
2:1
1080
1070
1060
1068.20
288+00
1086.1
156
3105 0
1124 0

789
1080
1070
2:1
4:1
C = 1131
4:1
3:1
1060
1050
1067.05
287+50
1073.3
128
1131 0
3922 0

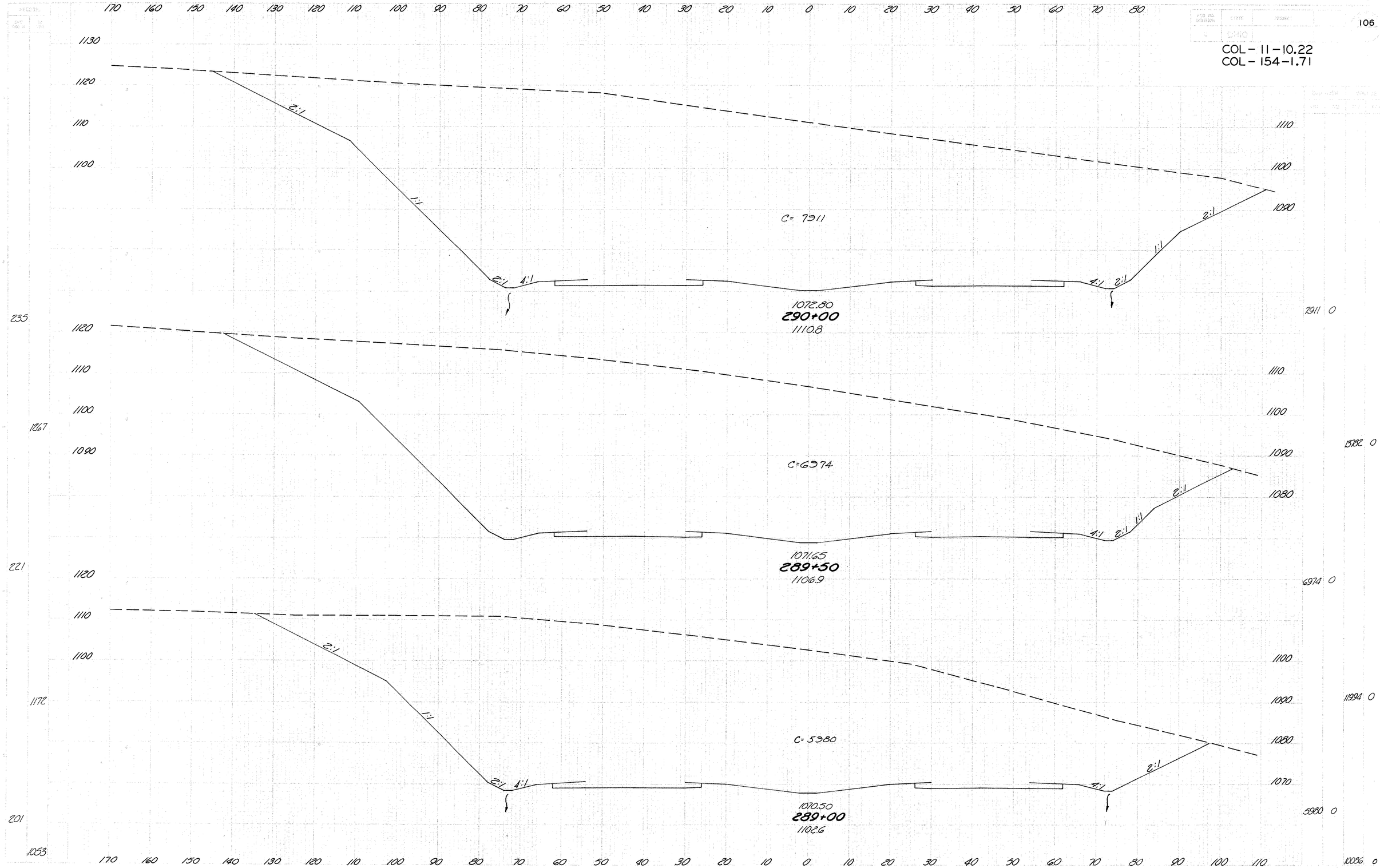
764

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

1153 138

STA. 287 + 50 TO STA. 288 + 50

COL - 11 - 10.22
COL - 154 - 1.71



STA. 289 + 00 TO STA. 290 + 00

COL-11-10.22
COL-154-1.71

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

1120
1110
1100

2:1 1:1 2:1 4:1

C= 5723

1076.25
291+50
1104.2

4:1 2:1

1100
1090
1080

204

5723.0

1130
1120
1110
1100

1008

C= 7195

1075.10
291+00
1109.4

2:1 1:1 4:1 2:1

1120
1110
1100
1090

11961.0

231

7195.0

1130
1120
1110
1100

1303

C= 7806

1073.9
290+50
1112.4

2:1 1:1 4:1 2:1

1120
1110
1100
1000

13889.0

7806.0

238

1314

170 160 150 140 150 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

14553.0

STA. 290 + 50 TO STA. 291 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1100
1090
1080
177
2:1
4:1
C=646
1080.85
293+50
1081.7
F=31.9
3:1
1070
1060
646 319

1110
1100
1090
997
2:1
4:1
C=182.5
1079.70
293+00
1088.1
F=77
4:1
1080
1070
1060
1050
2471 367

1110
1100
1090
182
2:1
1:1
2:1
4:1
C=2753
1078.55
292+50
1091.7
4:1
3:1
1080
1070
1060
1825 77

1100
1090
994
2753 0

1120
1110
1100
176
2:1
1:1
2:1
4:1
C=4188
1077.40
292+00
1100.0
4:1
2:1
1080
1070
1060
4578 71

1100
1090
1080
1070
1060
4188 0

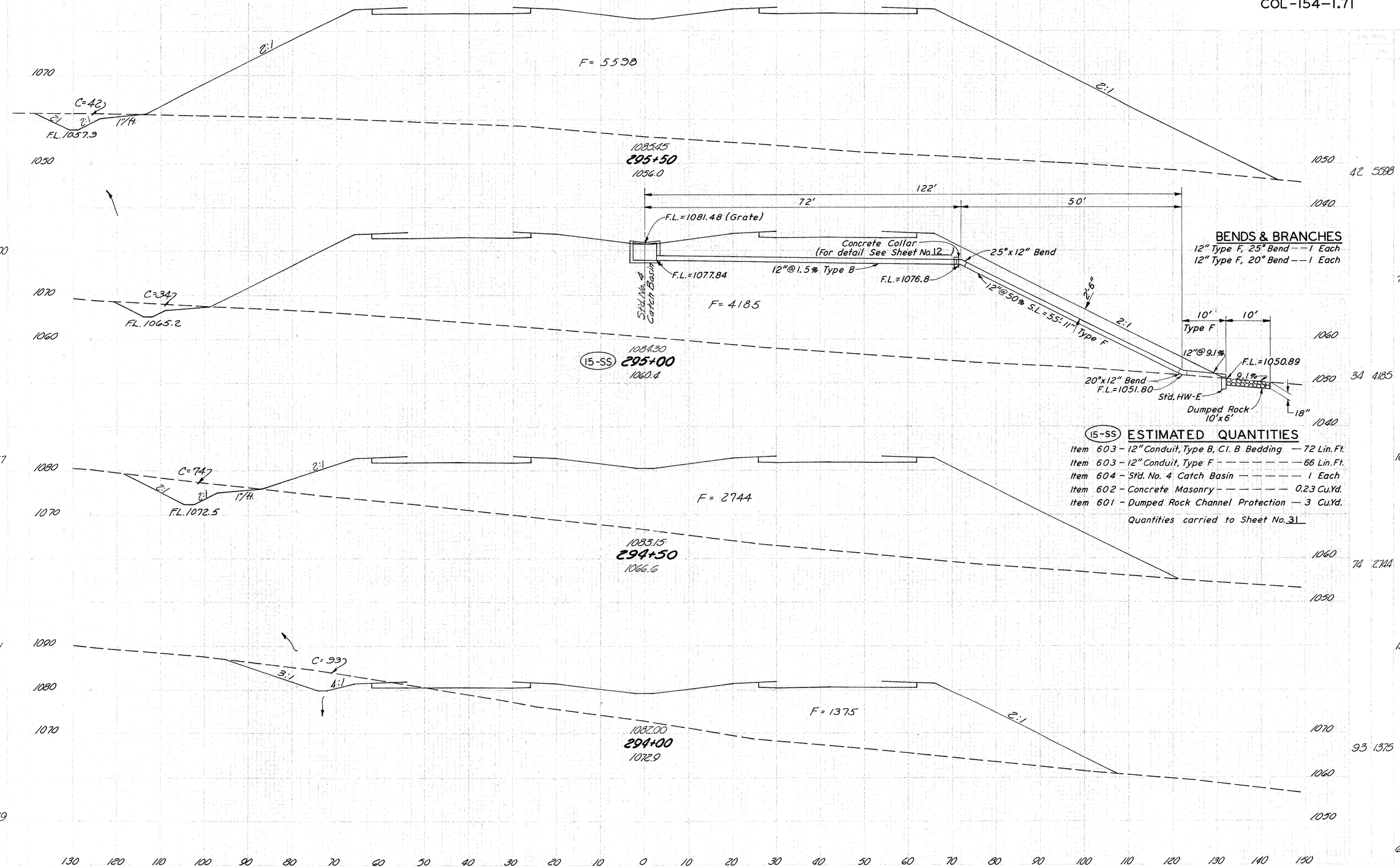
1100
192
6941 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
9911 0

STA. 292 + 00 TO STA. 293 + 50

COL-11-10.22
COL-154-1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120



BENDS & BRANCHES

12" Type F, 25° Bend — 1 Each
12" Type F, 20° Bend — 1 Each

(15-SS) ESTIMATED QUANTITIES

Item 603	12" Conduit, Type B, Cl. B Bedding	72 Lin. Ft.
Item 603	12" Conduit, Type F	66 Lin. Ft.
Item 604	Std. No. 4 Catch Basin	1 Each
Item 602	Concrete Masonry	0.23 Cu.Yd.
Item 601	Dumped Rock Channel Protection	3 Cu.Yd.

Quantities carried to Sheet No. 31

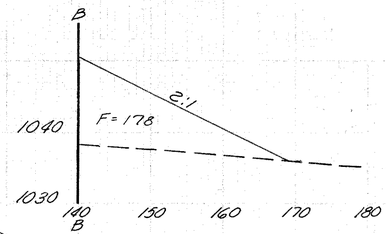
130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

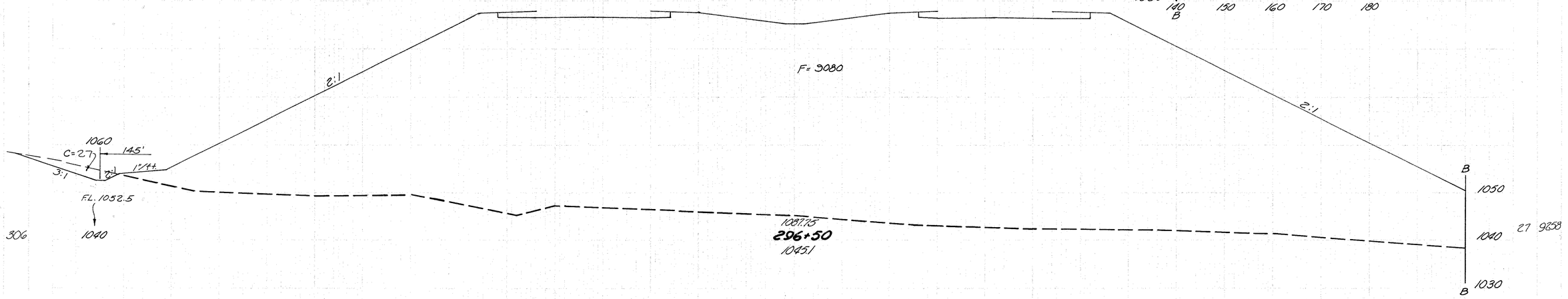
STA. 294 + 00 TO STA. 295 + 50

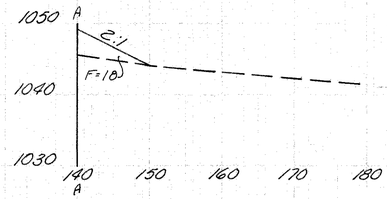
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

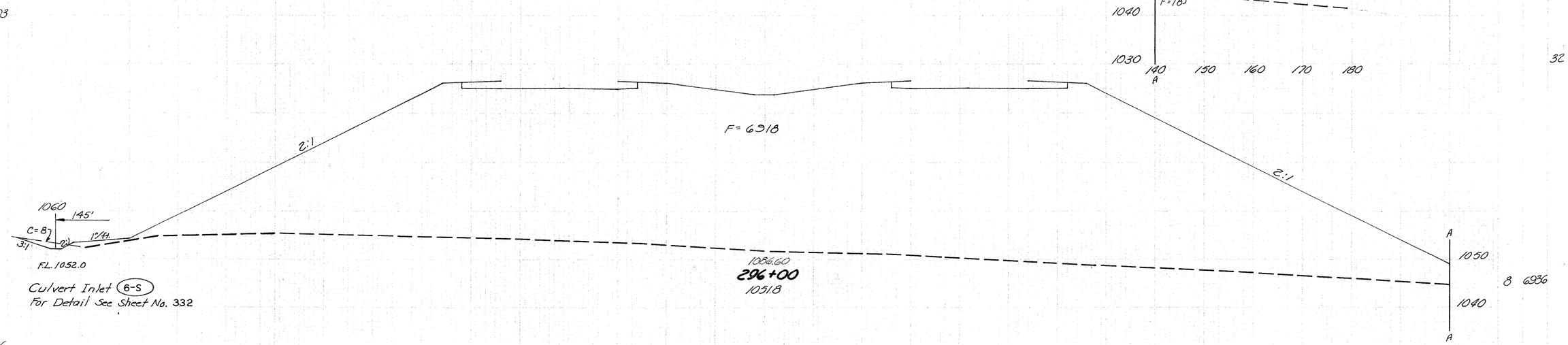
110

COL-11-10.22
COL-154-1.71







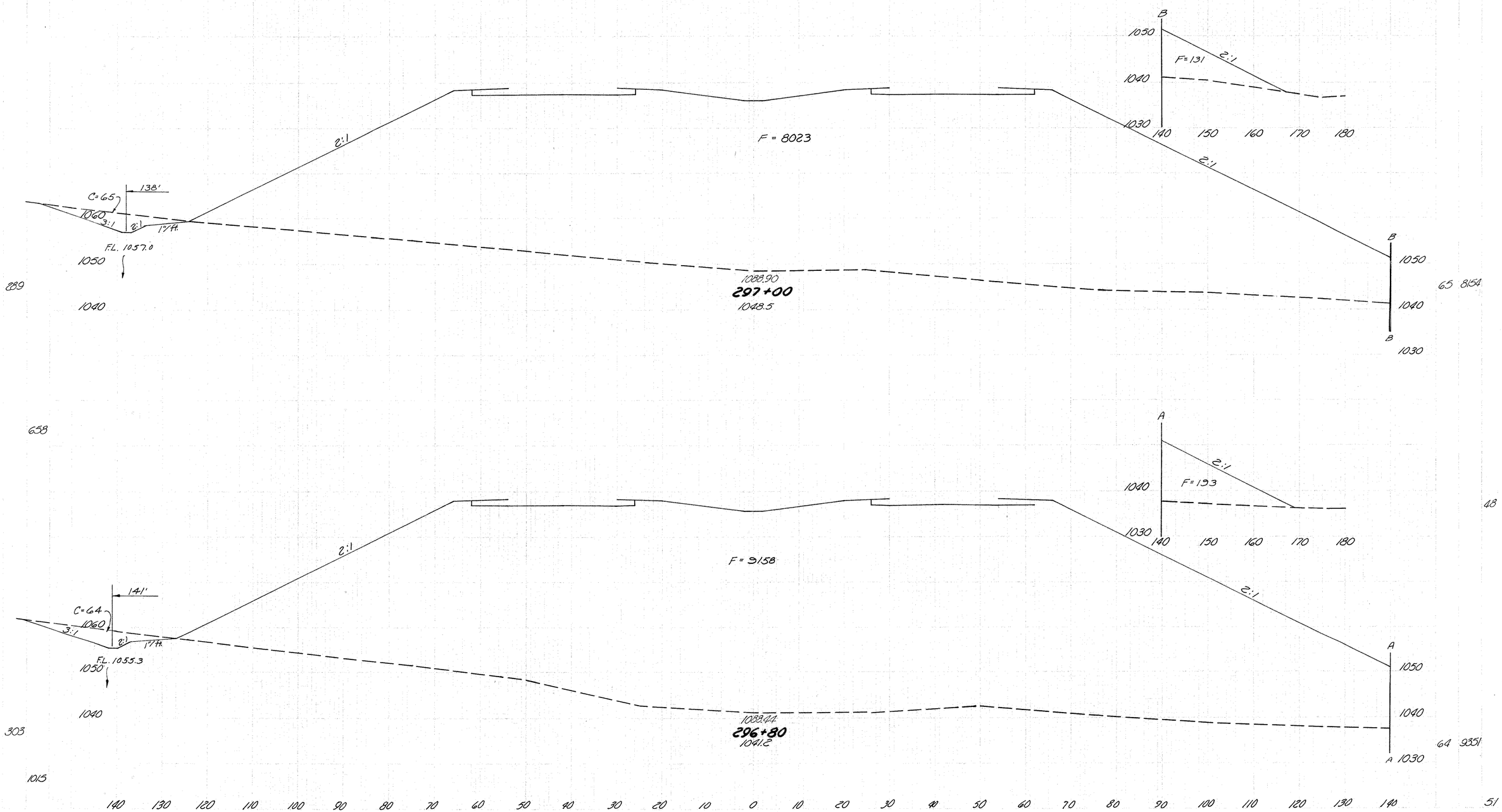


140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 296 + 00 TO STA. 296 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 296 + 80 TO STA. 297 + 00

COL – 11 – 10.22
COL – 154 – 1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

1100
1090
1080
1070
1060
1050
1040

C=77 F=22 C=87
3:1 4:1
1092.30
299+00
1090.1
F=72.1
2:1
139
15 72.1

981
100'
3:1 C=96 2:1 1%ft
F.L. 1079.5
2:1
F=2569
1092.35
298+50
1078.2
214
96 2569

1217
109'
C=57
F.L. 1074.0
F=4351
1091.20
298+00
1068.0
229
57 4351

1306
124'
C=22
3:1 2:1 1%ft
F.L. 1065.5
2:1
F=6226
2:1
1090.05
297+50
1057.8
846
22 6226

1486

142 6407
73 9794
81 13315

STA. 297 + 50 TO STA. 299 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1130 1120 1110 1100 1090 1080 1070

193 1011 171 903 154 861 156 819

2:1 4:1 4:1 2:1

1098.10
301+00
1116.7

C = 3671

3671 0 6281 0

1096.95
300+50
1112.9

C = 3069

3069 0

1095.80
300+00
1107.2

C = 2070

2070 0 4858 0

2:1 4:1 4:1

1094.65
299+50
1097.7

C = 718

718 115 2581 106 619 774

STA. 299+50 TO STA. 301+00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1100
1090
C=13
3:1
3:1
FL. 1095.5
F=2573
2:1
1105.00
304+00
1089.9
187
13 2573

1110
922
C=100
3:1
4:1
F=710
2:1
1103.85
303+50
1099.4
145
105 3040

1120
1110
767
2:1
4:1
C=1206
4:1
100 710
1209.661

1102.70
303+00
1109.3
131
842
1120
2:1
4:1
4:1
1206.4
3583.4

1101.55
302+50
1114.5
C=259.9
172
1130
1053
1120
4:1
4:1
2:1
2599.0
6008.0

1100.40
302+00
1118.3
C=38.90
207
1130
1178
3890.0
7500.0

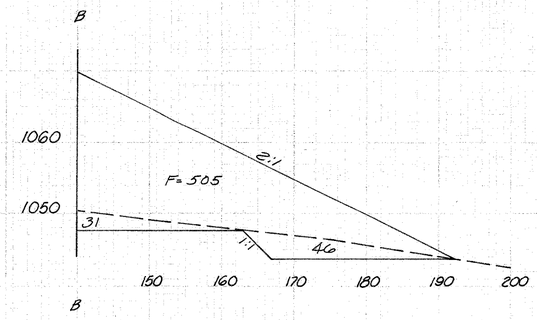
1099.25
301+50
1118.6
C=42.10
217
1136
2:1
4:1
4:1
2:1
4210.0
7297.0

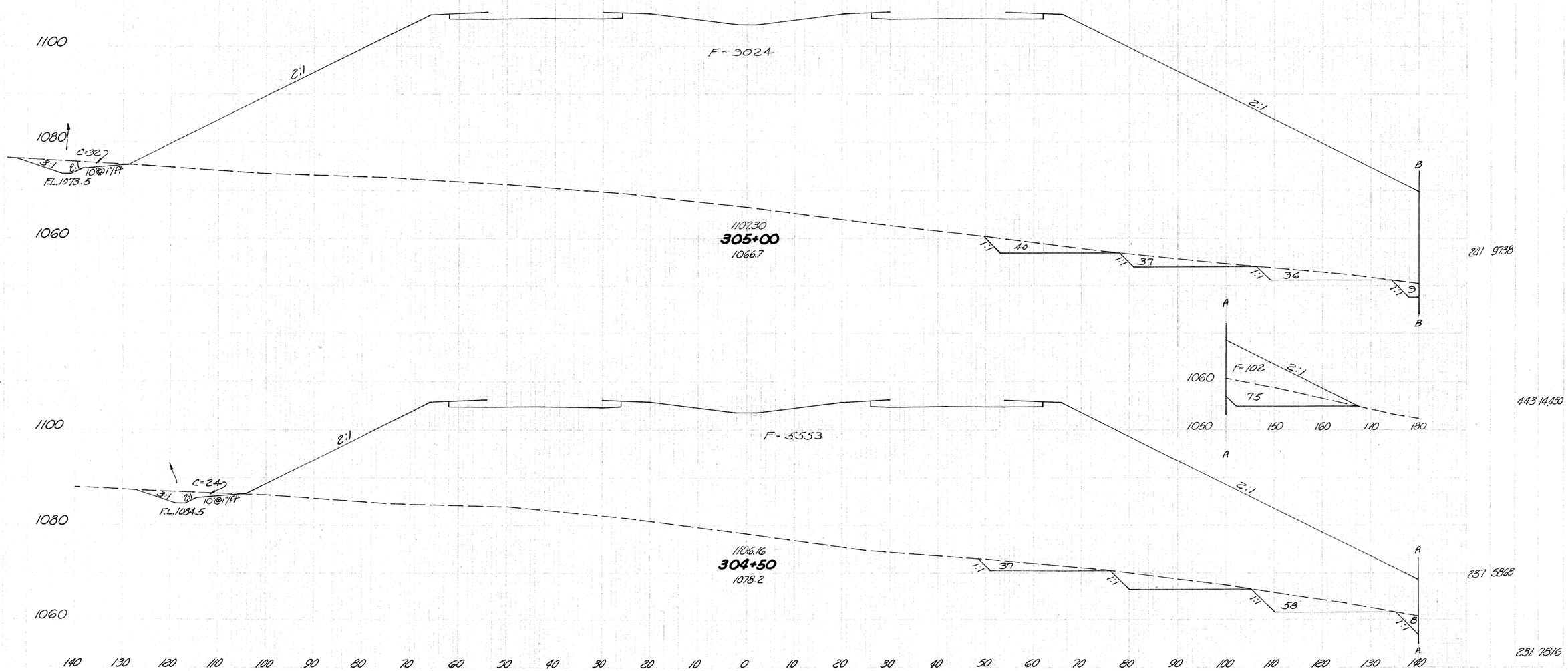
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 301 + 50 TO STA. 304 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

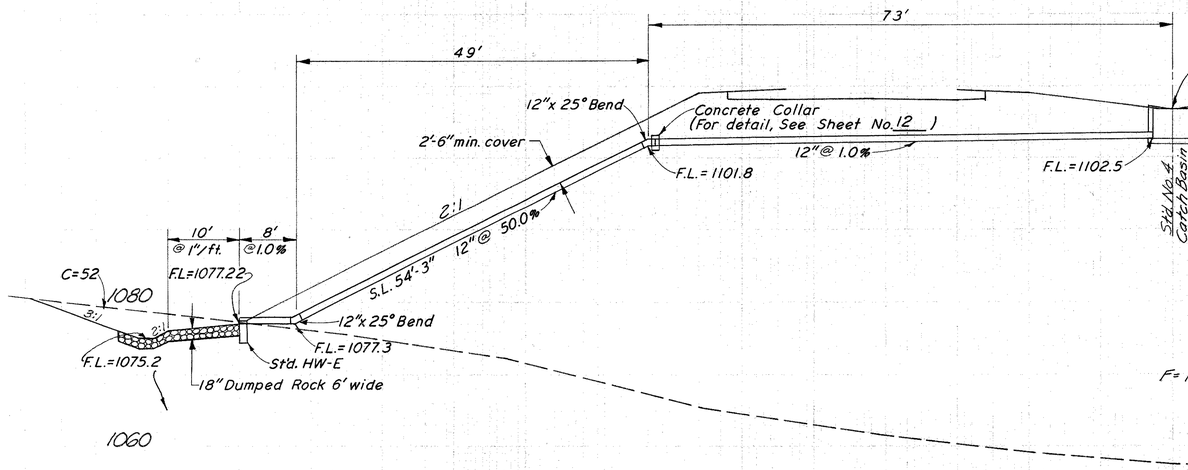




STA. 304 + 50 TO STA. 305 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



(16-SS) ESTIMATED QUANTITIES

Item 603 – 12" Conduit, Type B with Class B Bedding — 74 Lin. Ft.
Item 603 – 12" Conduit, Type F — 64 Lin. Ft.
Item 602 – Concrete Masonry — 0.23 Cu. Yd.
Item 604 – Std. No. 4 Catch Basin — 1 Each
Item 601 – Dumped Rock Channel Protection — 3 Cu. Yd.

Quantities carried to Sheet No. 32

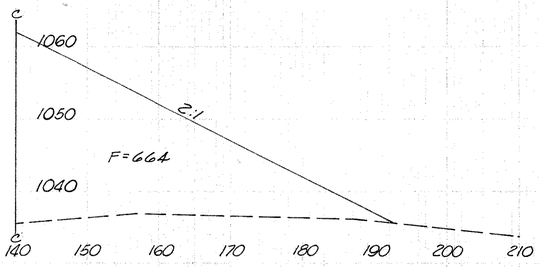
BENDS & BRANCHES

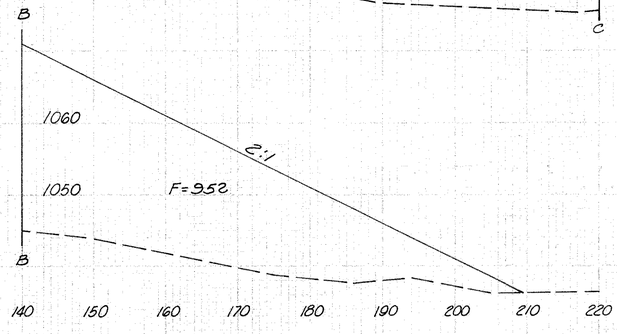
12" Type F, 25° Bend — 2 Each

1109.60
306+00
1057.5

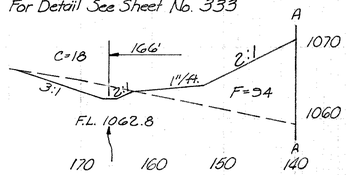
347

52 11888



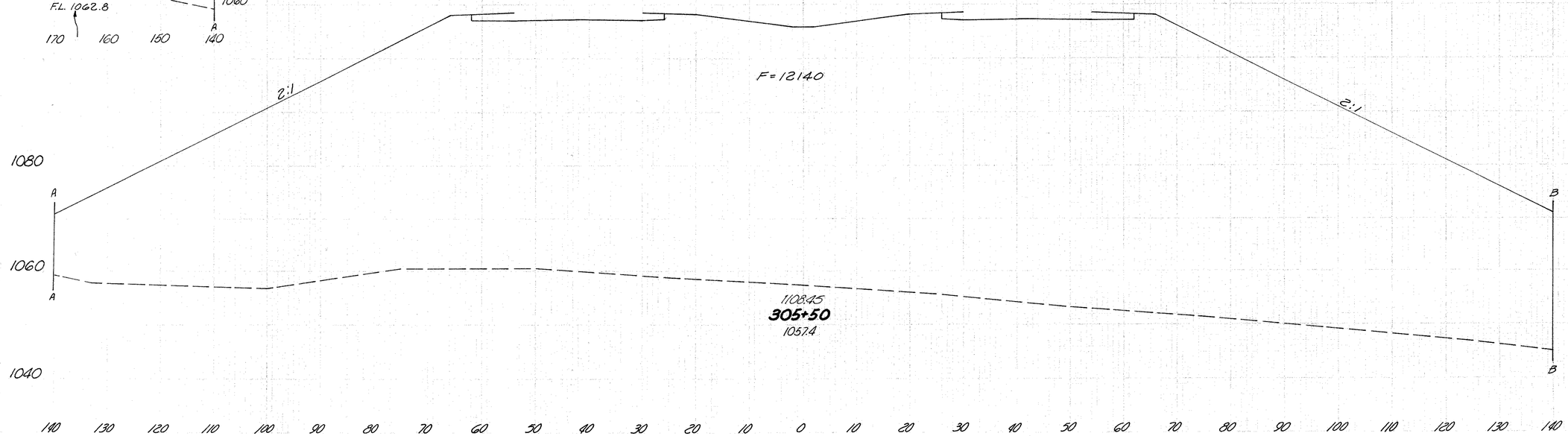


Culvert Inlet (7-S)
For Detail See Sheet No. 333



1989

65 23217



1109.45
305+50
1057.4

369

18 13186

1914

240 21226

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 305 + 50 TO STA. 306 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1120
1110
1100
1090
1080
1070
1060

C=22
3:1
1:1
C=4
F=999
1114.20
308+00
1107.4
2:1
1:1
114
1:1
100
240 1213
459 3615

95'
C=14.7
3:1
4:1
F.L. 1106.2
F=2440
1113.05
307+50
1098.3
44
100
256 2691

C
F=9
2:1
10
C
1070
130 140 150 160
F=4544
88
C
563 7110

110'
C=20
F.L.=1094.5
1111.90
307+00
1088.0
41
59
110
B
B
352 4983

B
F=111
2:1
1070
B
140 150 160 170 180 190
122
1060
F=702.9
664 11756

126'
C=42
3:1
2:1
17.44
F.L. 1085.2
2:1
1110.75
306+50
1076.8
1:1
64
1:1
59
1:1
55
1:1
34
A
A
365 7708

A
F=356
2:1
30
1:1
81
A
140 150 160 170 180 190 200 210 220
386 13,144

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 306 + 50 TO STA. 308 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1150
1140
1130
1120
1110
1100
1090

C=334.5
2:1
4:1
4:1
1118.80
310+00
1136.7
3345.0

157
878
1140
1130
1120
C=312.7
4:1
1117.65
309+50
1131.3
F=19
3127.19

159
850
1120
C=185.6
2:1
4:1
C=8
1116.50
309+00
1127.7
F=124
3:1
4616.132
1858.124

147
806
1120
C=118
3:1
4:1
F=57
C=117
1115.35
308+50
1113.6
F=343
2:1
1840.443
129.351

143
899
3411451

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 308 + 50 TO STA. 310 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1150
1140
1160
1150
242
1261
1160
212
1150
1150
203
1140
1122
1150
202
1140
1003
159
878

C=112
2:1
4:1
F=2740
112455
312+50
1105.0
C=1600
2:1
1:1
72
1:1
45
A
1090
1080
A
1030
A
F=207
2:1
1080
51
A
140 150 160 170
287 2927
1790 3581
112340
312+00
1117.6
F=895
46
1100
1090
1646 941
4065 1834
C=2706
1122.25
311+50
1135.5
F=354
2:1
38
1100
1090
2744 392
4717 490
C=2350
1121.10
311+00
1128.1
F=137
3:1
1100
1090
2350 137
5030 127
C=3082
2:1
4:1
1119.95
310+50
1136.7
4:1
1100
1090
3082 0
5951 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 310 + 50 TO STA. 312 + 50

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

120

COL-11-10.22
COL-154-1.71

140 150 160

1120
1110
1100
1080
1070
1060
160 170 180 190 200 210

C=10
3:1
2:1
1'/Ft.
3:1
Fl. 1116.5
C
2:1
F=289
1070 Var @ 1"/Ft.
215'
C=53
2:1
2:1
Fl. 1063.8
C

314

F=7452

1128.00
314+00
1089.4

2:1
2:1
51
1:1
62
C
1080
1070
1060

176 7854

1120
1110
1100
1080
1070
1060
160 170 180 190 200

1683
117'
C=17
3:1
1:1
Fl. 1106.2
B
2:1
F=241
B

292

F=8420

1126.85
313+50
1082.3

33
51
112
B
1080
1070
1060

215 8859

Culvert Inlet (B-S)
For Detail See Sheet No. 334

1120
1110
1100
1060
160 170 180 190 200

1567
3:1
C=87
Fl. 1113.5

F=5869

1125.70
313+00
1092.7

1:1
71
1:1
129
1:1
53
A
1080
1070
1060

471 14055

294 6320

538 8562

272

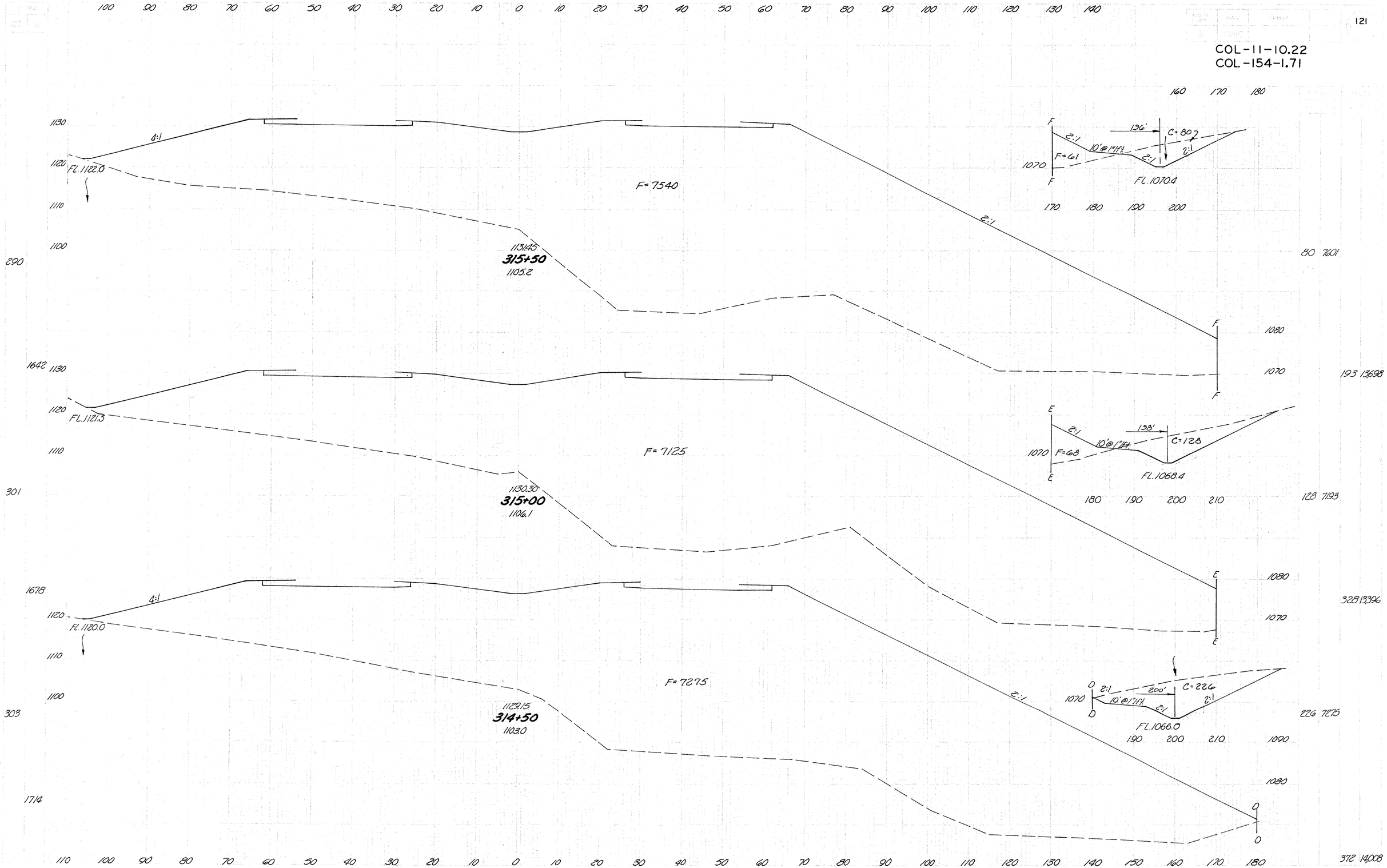
A
1070
2:1
F=165
33

1428

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA 313+00 TO STA 314+00

COL-11-10.22
COL-154-1.71



STA. 314 + 50 TO STA. 315 + 50

COL-11-10.22
COL-154-1.71

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220

C=10' 4:1 3:1 Fl. 1128.0 1120 1110

F=7001

1134.90
317+00
1107.6

2:1

899

1100 214 7001

F 1090 18.9' C=5.5 10'@1.7% 2:1 1080 Fl. 1077.1 F 1070

410 13806

E

1140 B C=20 1683 1130 1120 B 16"/Ft. 4:1

F=7478

E 1080 13.1' C=18.0 2:1 Fl. 1075.5 E

190 200 210 220 1100

229 7478

B C=7.7 1130 B

307

1133.75
316+50
1102.7

120 110

1090

E C=22 1"/Ft. 1080 E 1070

454 13673

A C=5 1130 1733 1120 A 16"/Ft. 4:1

73'

F.L.= Grate = 1129.65

93'

Concrete Collar (For detail See Sheet No. 12)

12"x 25° Bend

12" @ 1.0% Type B

F.L.=1125.0

F.L.=1124.3

Std. No. 4 Catch Basin

F=7289

133' 1080 C=14.4 2:1 2:1 Fl. 1073.0 D 200 210

12"@50% Type F

2'-6" Cover

2:1

S.L. = 104'

17-SS ESTIMATED QUANTITIES

Item 603 – 12" Conduit, Type B, Class B Bedding	74	Lin. Ft.
Item 603 – 12" Conduit, Type F	114	Lin. Ft.
Item 604 – Std. No. 4 Catch Basin	1	Each
Item 602 – Concrete Masonry	0.23	Cu. Yd.
Item 601 – Dumped Rock Channel Protection	3	Cu. Yd

Quantities carried to Sheet No. 33

BENDS & BRANCHES
12" Type F, 25° Bend — 1 Each
12" Type F, 20° Bend — 1 Each

A C=7.9 1130 1120 A

317

1133.60
17-SS **316+00**
1096.6

120 110

1686

10' Type F 10' 10% F.L.=1076.8 D 1090 1080 1070 1/4"/Ft. 2:1 C=3.4

12"x 20° Bend F.L.=1077.8

Std. HW-E

18"

Dumped Rock Pad 10'x6

262 7289

317 13787

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

STA. 316 + 00 TO STA. 317 + 00

COL-11-10.22
COL-154-1.71

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

273

1130 C C=27 1" per ft 2:1
1120 F.L. 1121.6 C
1110
1100

F=7468

1138.35
318+50
1107.6

C=87 2:1 C 1120 C
140 130 120

2:1

F 1100 F 1090
C=63 2:1
1" per ft 2:1
F.L. 1090.1

88 7468

F 1100 F 1090
C=102 2:1
160 170 180

1519

1130 C=27 3:1 2:1
1120 F.L. 1123.0
1110

F=7060

1137.20
318+00
1107.5

274

E 1090 E
C=60 2:1
190 200

119 7060

E 1100 E 1090 E 1080
178' C=57
F.L. 1085.2

1594

1130 2:1 2:1
C=4
1120 F.L. 1125.5
1110

F=6864

1136.05
317+50
1107.6

300

D 1090 D 1080
186' C=193 2:1 2:1
F.L. 1079.7
180 190 200 210 220

200 6864

1664

D 1090 D 1080
C=3 1" ft

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

STA. 317+50 TO STA. 318+50

COL-11-10.22
COL-154-1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

B
C=132
3:1
4:1
1110
B
Culvert Inlet (9-S)
For Detail See Sht No. 335
160 150 140 130
2:1
B
1120
1'/ft
1110
B
1100

F=8218

E
1130
C=385
2:1
1120
E
210
200
190
180
170

140 150 160
E
1130
Culvert Outlet (9-S)
For Detail See Sheet No. 335
138'
C=301
2:1
1120
1'/ft
2:1
E
1110
FL. 1108.0

331

114.180
320+00
109.24

A
C=187
3:1
1120
140 130

D
2:1
1110
1100
170 180 190 200 210 220 230
D

599 8218

1130
1892
A
127'
C=287
1120
FL. 1115.0
1110A

F=7626

D
132'
C=94
2:1
2:1
1120
1110
1100
D
FL. 1101.4

598 7626

350

114.065
319+50
110.21

C
163'
C=440
1100
1925
C
210 220 230
200
190
180
170
2:1

C=407
119'
2:1
1120
3:1
1'/ft
FL. 1117.8

F=7472

1110

2:1

343
1100

113.950
319+00
110.70

C
C=11
1"per ft
2:1
1100
1090
C

491 7472

1711

536 13933

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1008 13980

1108 14670

STA. 319 + 00 TO STA. 320 + 00

COL-11-10.22
COL-154-1.71

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

1725 1547 6686 1374 14968 2638 10838 2376 13549 993 7947 1819

1150 1140 1130 1120 1110 1100 1090

280 341 324

F=5019

F=6681

F=7947

2:1

140'

C=7

1" per ft.

FL. 1113.1

11145.25
321+50
11180

C=234

C=1034

132'

1" ft.

160 150 140 120

FL. 1116.0

C=320

1388'

F=5?

1/4" per ft.

1" per ft.

FL. 1112.9

11144.10
321+00
11028

C=1254

131'

FL. 11152

C=383

136'

FL. 1114.5

FL. 1112.7

C=107

1142.95
320+50
10946

STA. 320 + 50 TO STA. 321 + 50

COL-11-10.22
COL-154-1.71

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1130
1120
189' Lt. of Sta. 322+80
FL. 1118.0
200 190 180

17.3'
C=4.0
5:1
2:1
1120
170 160 150

3:1
C=30
F=37
F=2310
1147.55
322+50
1135.9
2:1
1130
1120
Rock Fill
to Elev. 1116.0
Norm. Water Elev. 1114.0
70 2313

288

1906
Intersect existing
Ravine Elev. 1114.0
2:1
1' per ft.
F=27
160
150
1120
1110

2.7:1
F=2903
1147.20
322+35
1137.0
2:1
1130
1120
20 1456
1 2930

218

C=260
2:1
170 160
1130
1120

1417

750 4450

2:1
F=3936
1146.40
322+00
1127.3
2:1
C=5.91
131'
1' per ft.
2:1
1130
1120
1156 3936

292

14.1'
C=3.05
2:1
2:1 1' per ft.

1589

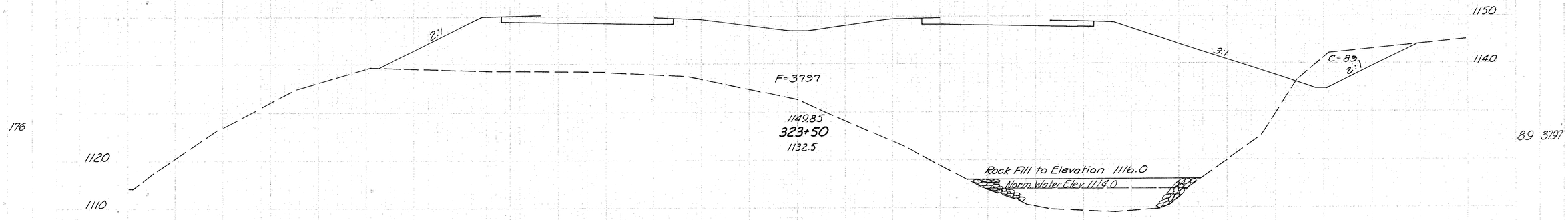
225 1829 2

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 322 + 00 TO STA. 322 + 50

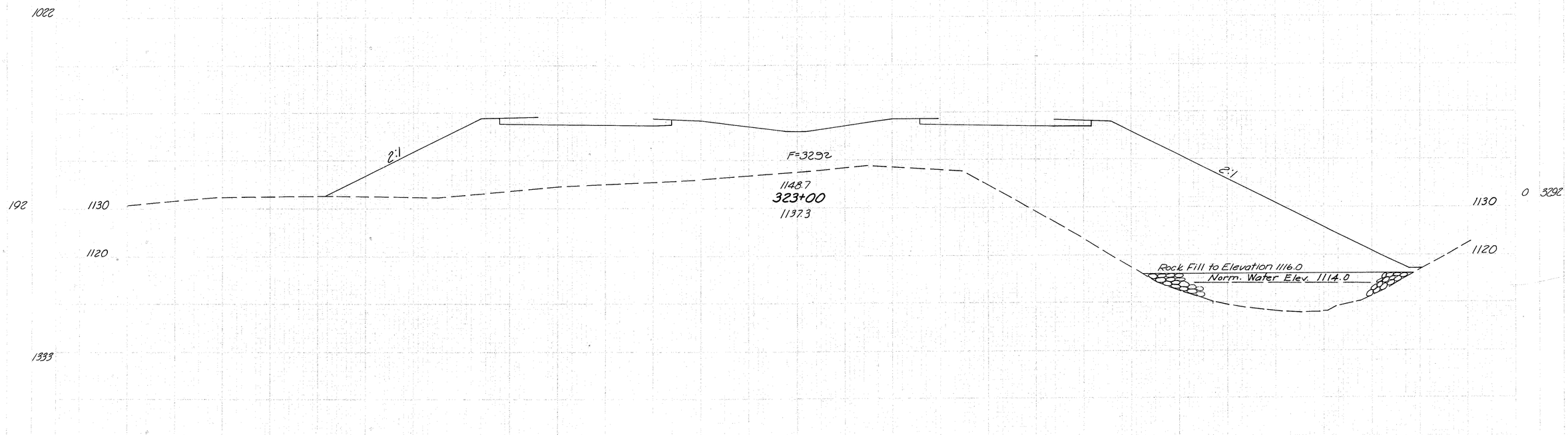
COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



176

89 3797



192

82 6564

0 3292

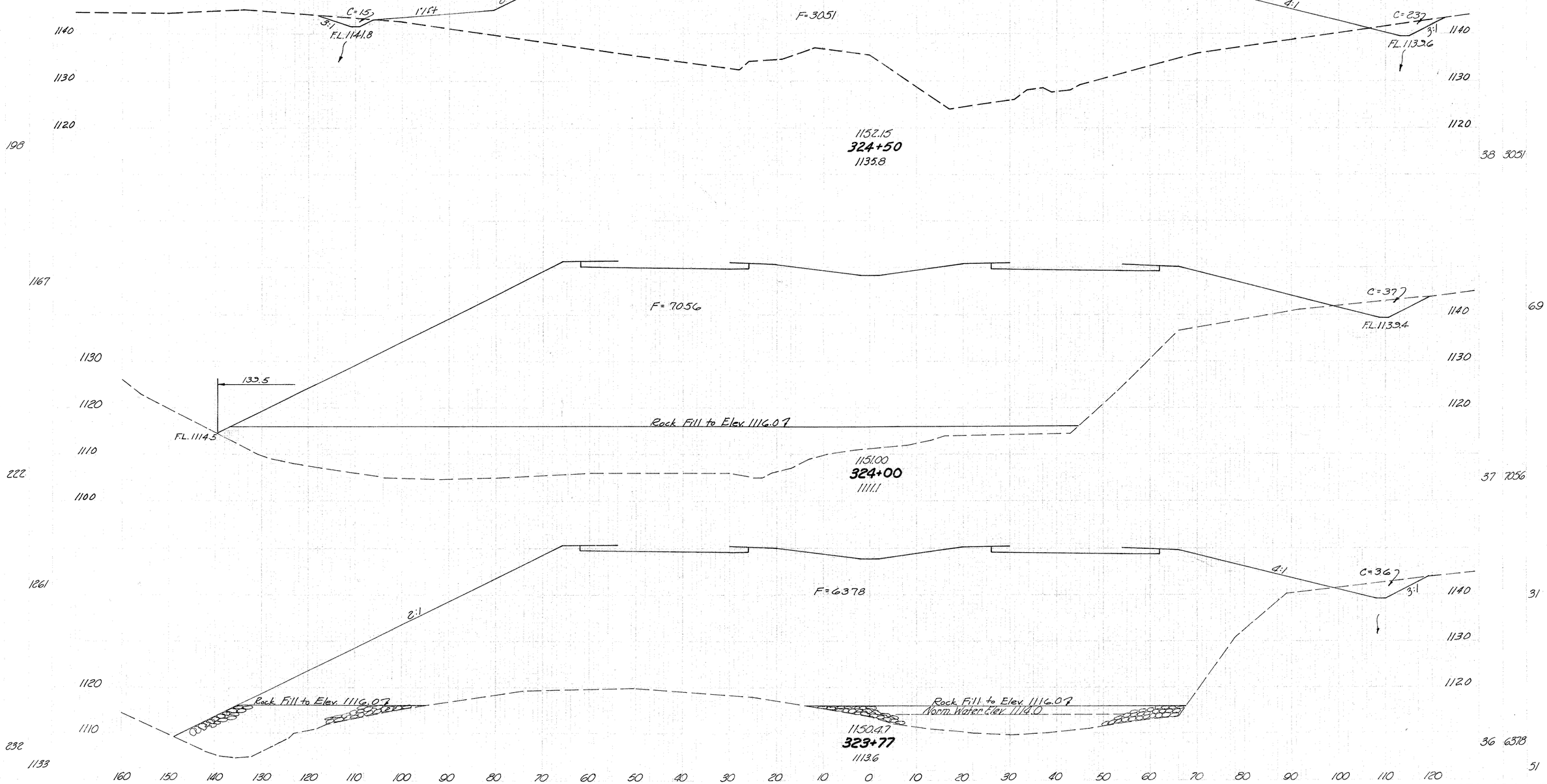
65 5190

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 323 + 00 TO STA. 323 + 50

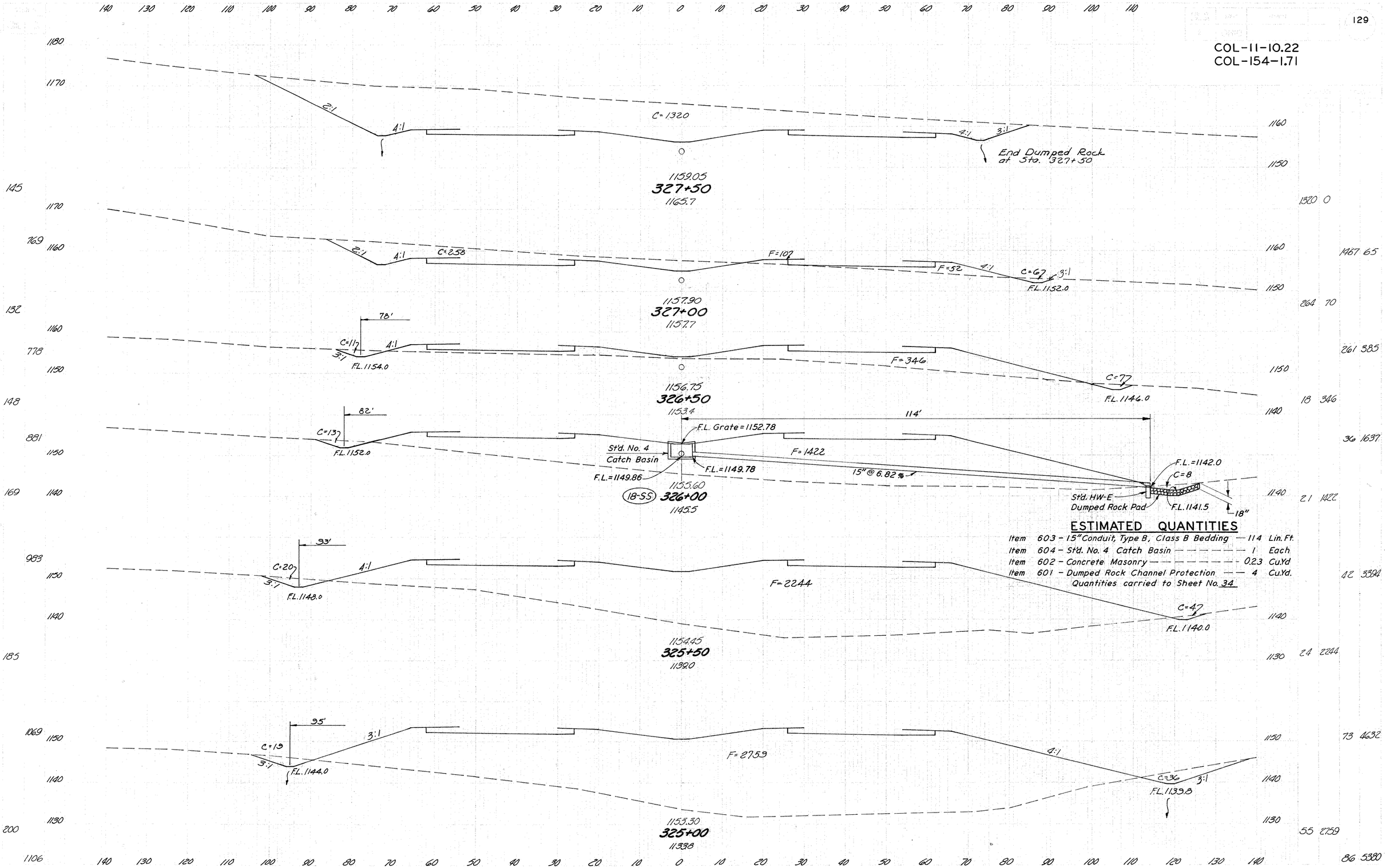
COL-11-10.22
COL-154-1.71

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120



STA. 323 + 77 TO STA. 324 + 50

COL-11-10.22
COL-154-1.71



STA. 325 + 00 TO STA. 327 + 50

COL - 11 - 10.22
COL - 154 - 1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1210 / 1200 / 1190 / 1180

2:1 1:1 2:1 4:1 4:1 2:1 1:1 2:1

C = 7287

1163.65
329+50
1200.5

7287.0

238

1210 / 1200 / 1190

1239

C = 5454

F.L. Grate = 1159.68
Std. No. 4 Catch Basin (19-SS)
See Sheet No. 34
F.L. 1156.7

1162.50
329+00
1190.5

11797.0

1200 / 1190 / 1180

208 1114

C = 4130

1161.35
328+50
1182.3

5454.0 8874.0 4130.0

1180 / 1170 / 1160

193 1006

C = 2701

1160.20
328+00
1174.4

6325.0 2701.0

1170 / 1160

169 872

3723.0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 328 + 00 TO STA. 329 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1220
1210
1200
258
2:1
1:1
2:1 4:1
1417
1167.10
331+00
1218.2
C = 10,583
4:1 2:1
1:1
2:1
1210
1200
10583 0
19081 0

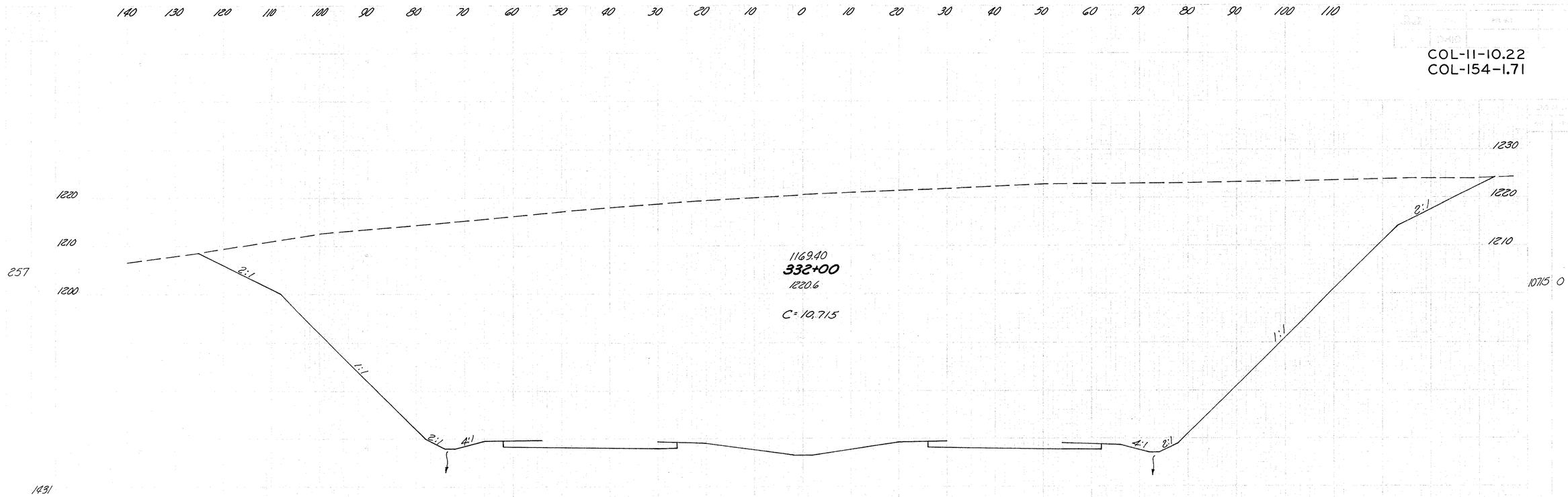
1220
1210
1200
252
1165.95
330+50
1214.7
C=10,025
1378
1220
1210
1200
10025 0
17617 0

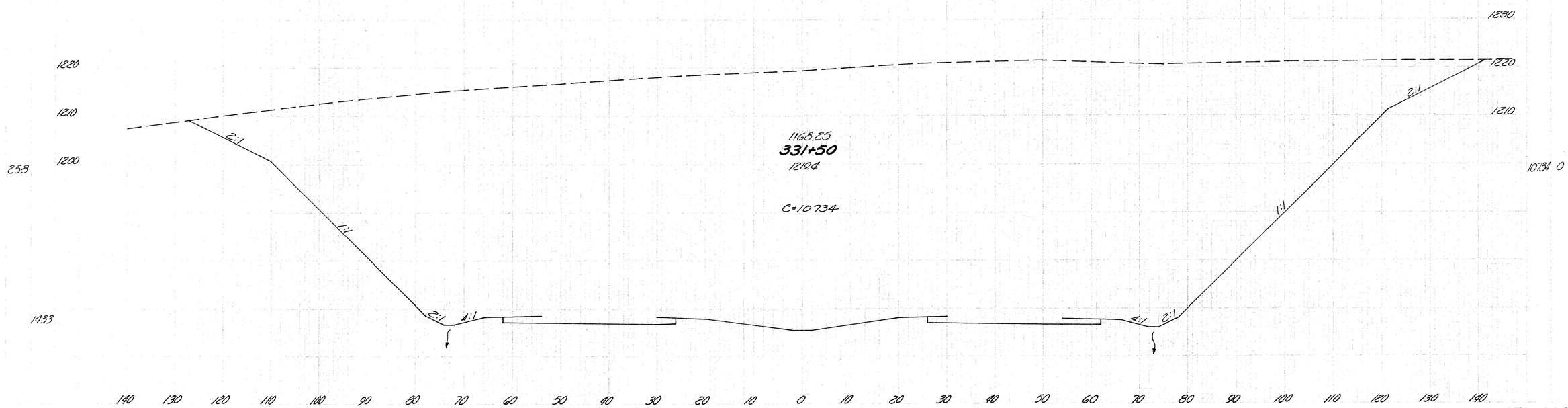
1220
1210
1200
244
2:1
1:1
2:1 4:1
1339
1164.80
330+00
1209.2
C= 9001
4:1 2:1
1:1
2:1
1210
1200
1190
9001 0
15081 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 330 + 00 TO STA. 331 + 00

COL-11-10.22
COL-154-1.71





STA. 331 + 50 TO STA. 332 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1210
1200
1190
247
1392
2:1
1:1
2:1
4:1
1172.85
333+50
1216.0
C=8959
1220
1210
1200
8959.0
1:1
2:1
4:1
2:1
17546.0
1230

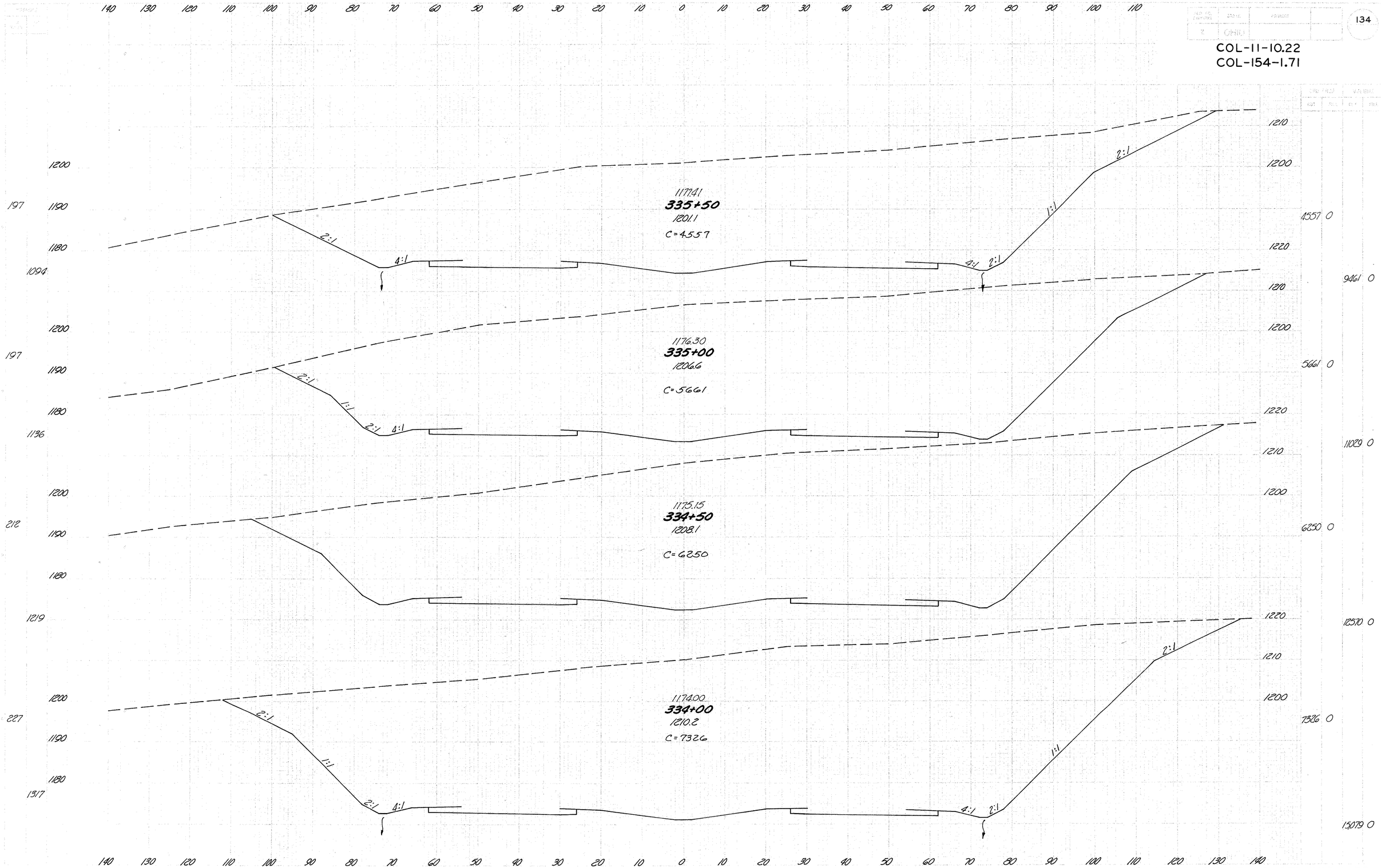
1210
1200
1090
254
1422
2:1
1:1
2:1
4:1
1171.70
333+00
1219.4
C=9991
1220
1210
1200
9991.0
1:1
2:1
4:1
2:1
18914.0
1230

1210
1200
1090
258
1431
2:1
1:1
2:1
4:1
1170.55
332+50
1219.6
C=10436
1220
1210
10436.0
1:1
2:1
4:1
2:1
19584.0
1230

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA 3.32 + 50 TO STA. 3.33 + 50

COL-11-10.22
COL-154-1.71



STA. 334 + 00 TO STA. 335 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1220
1210
1200
1190
1180
1170

1181.64
338+00
1205.3
C = 42.45

1180.98
337+50
1197.9
C = 32.78

C = 17.00
1180.22
337+00
1187.5

C = 15.97
1179.37
336+50
1186.0

C = 29.12
1178.44
336+00
1193.8

2:1
1:1
4:1
Ve'lift
FL. = 1178.7
103'
Var.
3:1
FL. = 1175.3

197 1089 195 1011 169 1006 193 1000 167 1011

4245 0
6966 0
3278 0
4609 0
1700 0
3053 0
1597 0
4175 0
2912 0
6916 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 336 + 00 TO STA. 338 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1230
1220
1210
1200
1230

244
1210
1894

2:1
1:1
2:1
4:1

1183.11
339+50
1225.0
C=8443

1:1
2:1
4:1
2:1

1230
1220
1210
8443.0
14443.0
1230

1220
1210
222
1222

1182.71
339+00
1219.3
C=7155

1220
1210
7155.0
11964.0

1220
1210
218
1200
1153

2:1
1:1
2:1
4:1

1182.22
338+50
1212.9
C=5766

1:1
2:1
4:1
2:1

1220
1210
1200
5766.0
9269.0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 338 + 50 TO STA. 339 + 50

COL-11-10.22
COL-154-1.71

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1240
1230
1220
268
1481
2:1
1:1
2:1
4:1
1183.76
341+00
1235.4
C = 11019
11019.0
19062.0

1240
1230
1220
265
1447
2:1
1:1
2:1
4:1
1183.63
340+50
1233.1
C = 10540
10540.0
18529.0

1230
1220
1210
256
1389
2:1
1:1
2:1
4:1
1183.42
340+00
1229.4
C = 9471
9471.0
16587.0

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 340 + 00 TO STA. 341 + 00

COL-11-10.22
COL-154-1.71

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1230
1220
251
2:1
1:1
1431
2:1 4:1
1230
1220
264
1475
1240
1230
1220
267
1486
2:1
1:1
2:1 4:1

118362
342+50
1231.7
C = 9937

118376
342+00
1234.1
C = 10660

118381
341+50
1235.6
C = 11156

1230
1220 9937 0
2:1
1:1
19071 0
4:1 2:1
1240
1230
1220 10660 0
2:1
1:1
20200 0
4:1 2:1
1240
1230
11156 0
2:1
1:1
20532 0
4:1 2:1

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 341 + 50 TO STA. 342 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1220
1210
1267
223
2:1
1:1
2:1
4:1
4:1
2:1
1:1
1220
1210
7879 0
15224 0

1182.67
344+00
1232.0
C= 7879

1230
1220
1210
1322
233
2:1
1:1
2:1
4:1
4:1
2:1
1:1
1230
1220
8563 0
16568 0

1183.07
343+50
1225.2
C=8563

1230
1220
1210
1372
243
2:1
1:1
2:1
4:1
4:1
2:1
1:1
1230
1220
9276 0
17790 0

1183.39
343+00
1228.9
C=9276

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA.343 + 00 TO STA.344 + 00

140

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1180.52
346+00
1212.4
C = 6017

1181.07
345+50
1214.5
C = 6250

1181.62
345+00
1216.4
C = 6758

1182.17
344+50
1219.0
C = 7116

1210 1200 1190 1106 — 2:1, 1:1, 2:1, 4:1 — 4:1, 2:1, 1:1, 2:1 — 1210 1200 6017.0 11358.0
1210 1200 1190 1147 — 2:1, 1:1, 2:1, 4:1 — 4:1, 2:1, 1:1, 2:1 — 1210 1220 1210 6250.0 12044.0
1210 1200 1189 — 2:1, 1:1, 2:1, 4:1 — 4:1, 2:1, 1:1, 2:1 — 1220 1210 6758.0 12816.0
1210 1200 1222 — 2:1, 1:1, 2:1, 4:1 — 4:1, 2:1, 1:1, 2:1 — 1220 1210 7116.0 13884.0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 344 + 50 TO STA. 346 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1178.32
348+00
1210.2
C = 5992

1178.87
347+50
1210.5
C = 5988

1179.42
347+00
1210.3
C = 5692

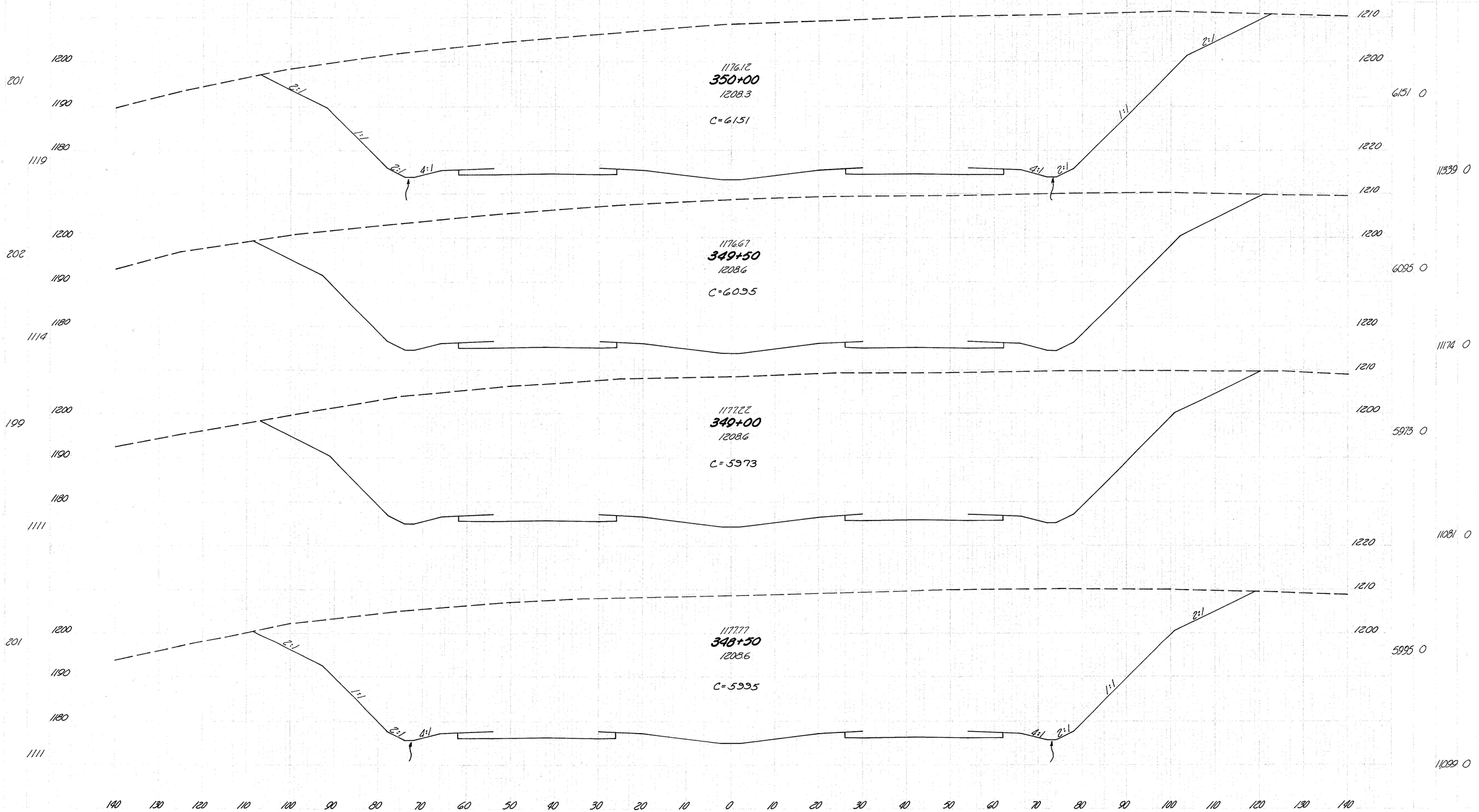
1179.97
346+50
1211.0
C = 5861

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 346 + 50 TO STA. 348 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



STA. 348 + 50 TO STA. 350 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1220
1210
1200
1220

200 1190
1180
1170
1131

2:1 1:1 2:1 4:1 4:1 2:1 1:1 2:1

1174.47
351+50
120.73
C=6106

6106.0

11973.0

1210
1200

207 1190
1180
1139

1175.02
351+00
120.78
C=6285

6285.0

1220
11599.0

1210
1200

203 1190
1180
1122

2:1 1:1 2:1 4:1 4:1 2:1 1:1 2:1

1175.57
350+50
120.79
C=6242

6242.0

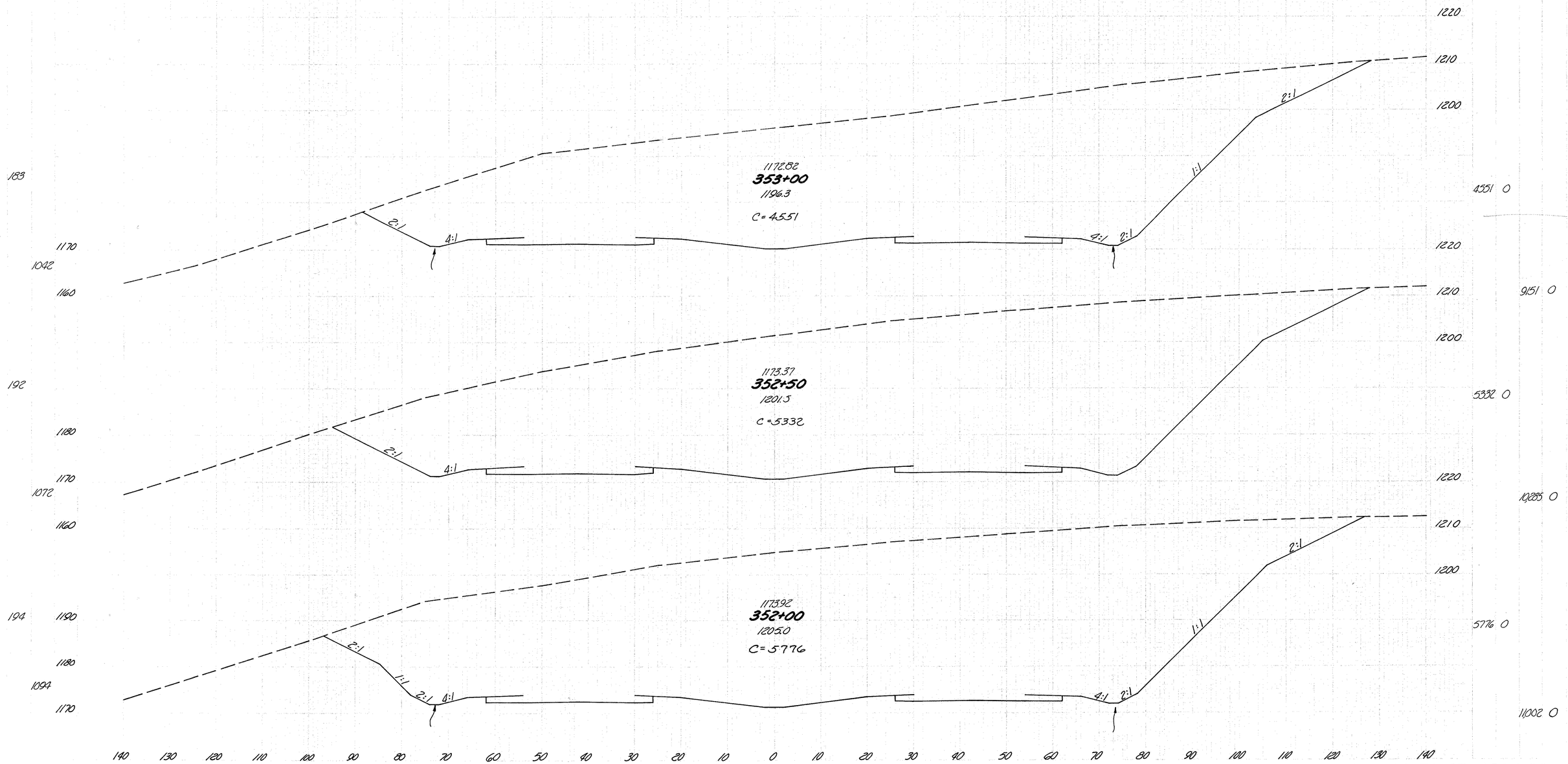
11475.0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 350 + 50 TO STA. 351 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 352 + 00 TO STA. 353 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1170.62
355+00
1192.6
C=4043

1171.17
354+50
1192.4
C=3836

1171.72
354+00
1193.6
C=4120

1172.27
353+50
1192.0
C=4020

173 171 175 178

1170 1160 1150 1070 1060

956 961 981 1003

1200 1190 1220 1210 1200 1210 1200 1220 1210 1200

4043.0 3836.0 4120.0 4020.0

7295.0 7367.0 7537.0 7936.0

2:1 4:1 1:1

2'
C=26

SECTION A-A

97'
F.L.=1164.66
F.L.=1164.51
F.L. Grate=1168.90
12" @ 1%
F.L.=1165.60
Std. HW-E
Std. No. 4 Catch Basin
A

(20-59) ESTIMATED QUANTITIES

Item 603 – 12" Conduit, Type B with Cl. B Bedding — 98 Lin. Ft.
Item 604 – Std. No. 4 Catch Basin — 1 Each
Item 602 – Concrete Masonry — 0.23 Cu. Yd.
Item 203 – Excavation, not including Embank. Constr. — 7 Cu. Yd.

Quantities carried to Sheet No. 37

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 353 + 50 TO STA. 355 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

162 1170 908 1160 1150

1168.42
357+00
1185.6
C=3100

2:1 4:1 4:1 1:2 1:1 2:1

1200 1190 1180 3100 0

165 1170 919 1160 1150

1168.97
356+50
1188.9
C=3537

1200 1190 3537 0

166 1170 933 1160 1150

1169.52
356+00
1190.6
C=3740

1210 1200 1190 3740 0

170 1170 953 1160

1170.07
355+50
1192.3
C=3960

2:1 4:1 4:1 1:2 1:1 2:1

1210 1200 1190 3960 0

6145 0 6738 0 7130 0 7410 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA.355 + 50 TO STA.357 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1170 1160 1150

C=40
3:1 4:1
F=909
1165.12
360+00
1159.1
2:1
113'
1'/ft
C=11
3:1
FL. 1145.3

156 833 144 736 121 697 130 758 143 833 157 887

1170 1160 1150

2:1 4:1 C=224
1165.67
359+50
1164.9
F=308
3:1
101'
C=67
3:1 3:1
FL. 1153.8

1170 1160

C=620
1166.22
359+00
1169.6
77'
C=13
4:1 3:1
FL. 1163.0

1170 1160

1166.77
358+50
1174.3
C=1237
4:1 2:1

1167.32
358+00
1178.7
C=1948

1167.87
357+50
1182.1
C=2588
2:1 4:1
4:1 2:1

1160 1150 1160 1150 1170 1160 1180 1190 1180

51 909 860 1127 230 308 805 285 639 0 1737 0 1237 0 2949 0 1948 0 4200 0 2588 0 5267 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 357 + 50 TO STA. 360 + 00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

A 1140 C=43 3:1 1130 A
160 150

A 1140 140' C=47 3:1 2:1 1144 1130 A F.L. 1130.0

2:1 F=6779 2:1

1150 124' C=18 1144 2:1 3:1 1140 F.L. 1138.0 1130

272 1120

1162.92
362+00
1124.2

108 6779

1097 1150 122' C=53 3:1 1140 F.L. 1140.0 1130

249

1163.47
361+50
1129.8

F=5898

1150 134' C=16? 1140 F.L. 1133.8 1130

69 5898

Culvert Inlet (10-S)
For Detail See
Sheet No. 336

1160 1306 1150 104' C=50 3:1 2:1 1144 2:1 F.L. 1143.0 1140

221

1164.02
361+00
1131.7

F=4277

1150 134' C=7 1140 F.L. 1134.4 1130

57 4277

1128 1160 85' C=9 3:1 3:1

185

947

1164.57
360+50
1149.5

F=2431

1150 128' 1144 2:1 3:1 C=10? 1140 F.L. 1137.7

19 2431

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

117 9421

70 6211

65 3093

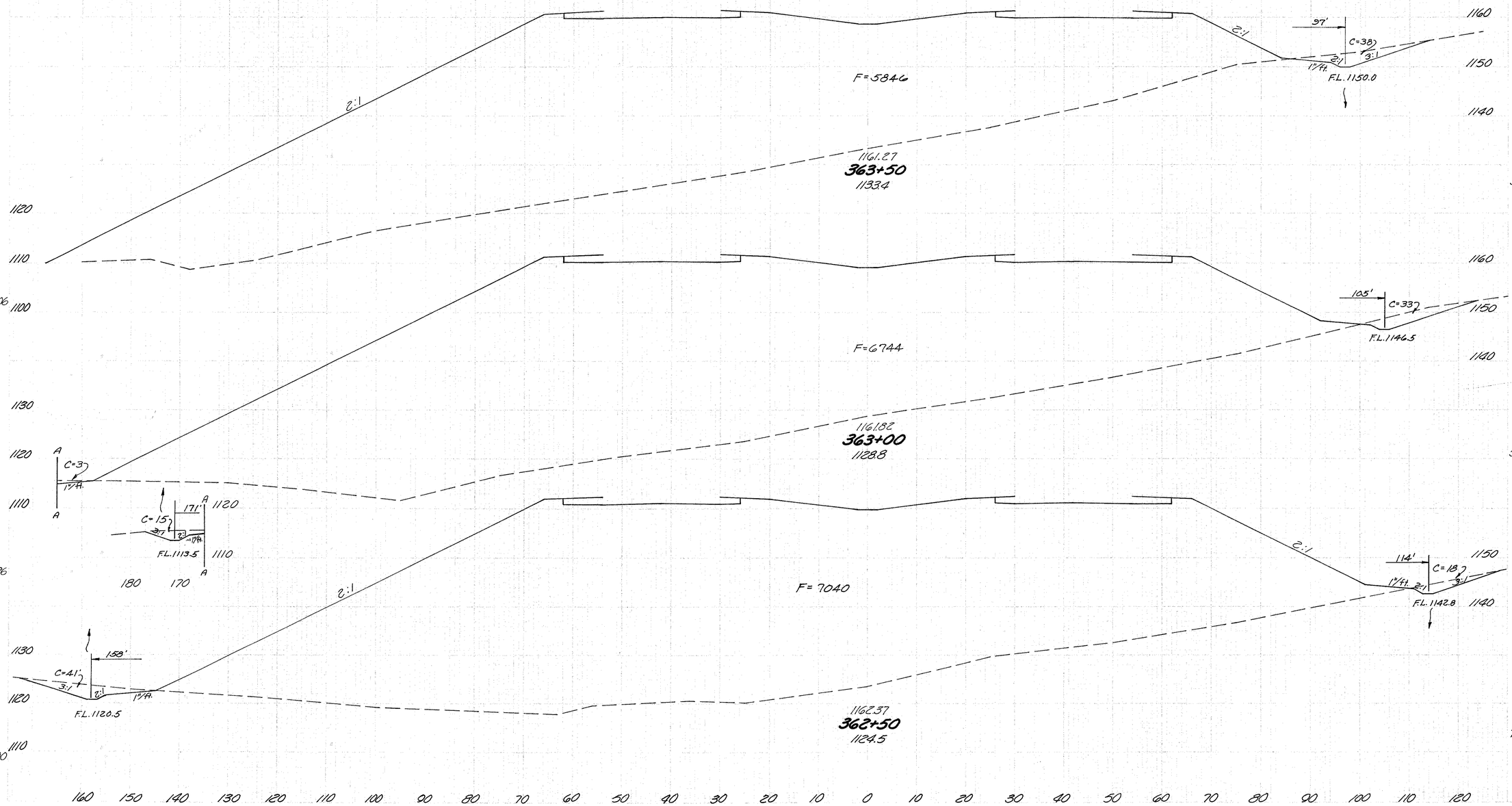
164 11,798

STA. 360 + 50 TO STA. 362 + 00

COL-11-10.22
COL-154-1.71

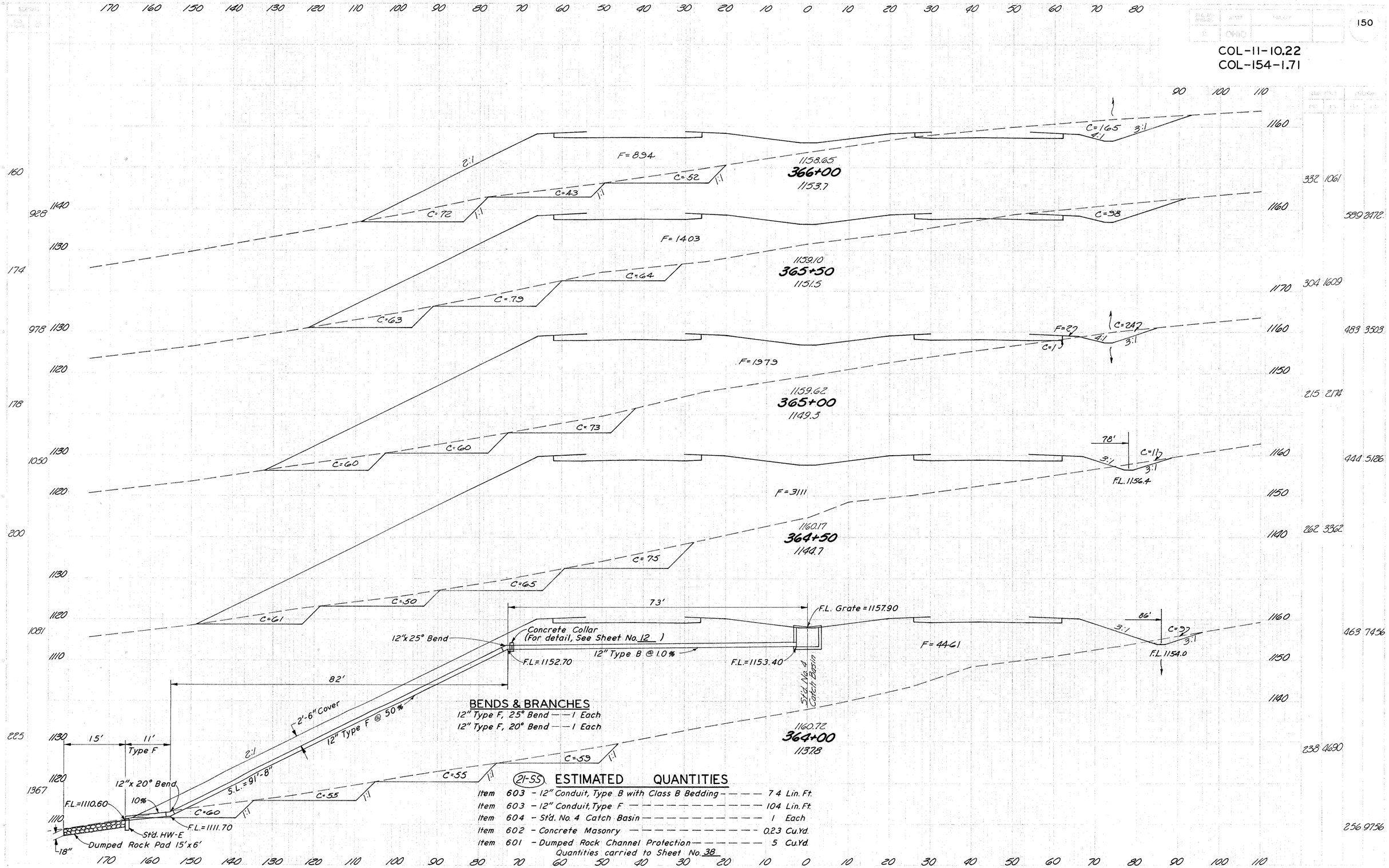
160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

100 110 120



STA. 362 + 50 TO STA. 363 + 50

COL-11-10.22
COL-154-1.71



BENDS & BRANCHES

12" Type F, 25° Bend — 1 Each
12" Type F, 20° Bend — 1 Each

(21-SS) ESTIMATED QUANTITIES

Item 603	12" Conduit, Type B with Class B Bedding	74 Lin. Ft.
Item 603	12" Conduit, Type F	104 Lin. Ft.
Item 604	Std. No. 4 Catch Basin	1 Each
Item 602	Concrete Masonry	0.23 Cu.Yd.
Item 601	Dumped Rock Channel Protection	5 Cu.Yd.

Quantities carried to Sheet No. 38

STA. 364+00 TO STA. 366+00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1150 1140 1130

151 800

2:1

F=1406
115702
368+50
1147.7

3:1 C=5
FL=1148.5

1160 1150 1140

5 1406

12 1966

1150 1140 1130

137 767

F=717
115732
368+00
1152.1

4:1 C=8
FL=1153.4

1160 1150 1170

8 717

154 1118

1150 1140 1130

139 775

F=465
115762
367+50
1154.5

C=158 4:1 3:1
F=15

1160 1170

158 480

297 887

1140 1130

140 794

C=107
F=478
115792
367+00
1155.3

C=153

1160 1170

163 478

308 1003

1130 1140 1130

146 850

2:1
F=604
115825
366+50
1155.2

F=17
C=170 4:1 3:1

1160 1150

170 605

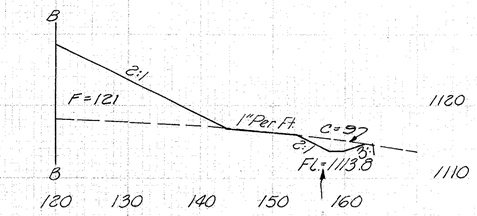
465 1543

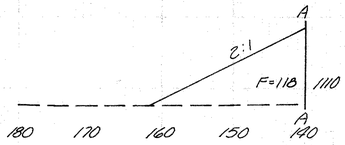
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 366 + 50 TO STA. 368 + 50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110





F=8168

2:1

2:1

B

B

1120

1120

1156.12
370+00
1119.3

1110

9 8407

3.10

A

1110

1100

1503

F=4877

1140

1130

C=14.7

FL=1129.1

1130

1156.42
369+50
1130.1

1120

14 4877

231

1156

F=2751

2:1

2:1

1"Per Ft

C=17

1140

1140

1156.72
369+00
1139.6

1130

1130

17 2751

185

933

21 12,300

29 7063

20 3849

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA.369 + 00 TO STA.370 + 00

COL-11-10.22
COL-154-1.71

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

B

2:1

Culvert Inlet (11-S)
For Detail See Sheet No. 339

F = 1270

C=16

1'-0"

2:1 6:1

B

110 120 130 140 150 160 170

2:1

1155.52
371+00
1101.9

F = 1219.8

2:1

B

1120
1110
1100

B

1110
1100
1090

355

16 13468

1888

34 23031

A

1130
1120
1110

F = 781

2:1

C=21

1'-0"

2:1 3:1

A

110 120 130 140 150 160

2:1

1155.82
370+50
1107.3

F = 1062.5

2:1

A

1120
1110
1100

A

1758

323

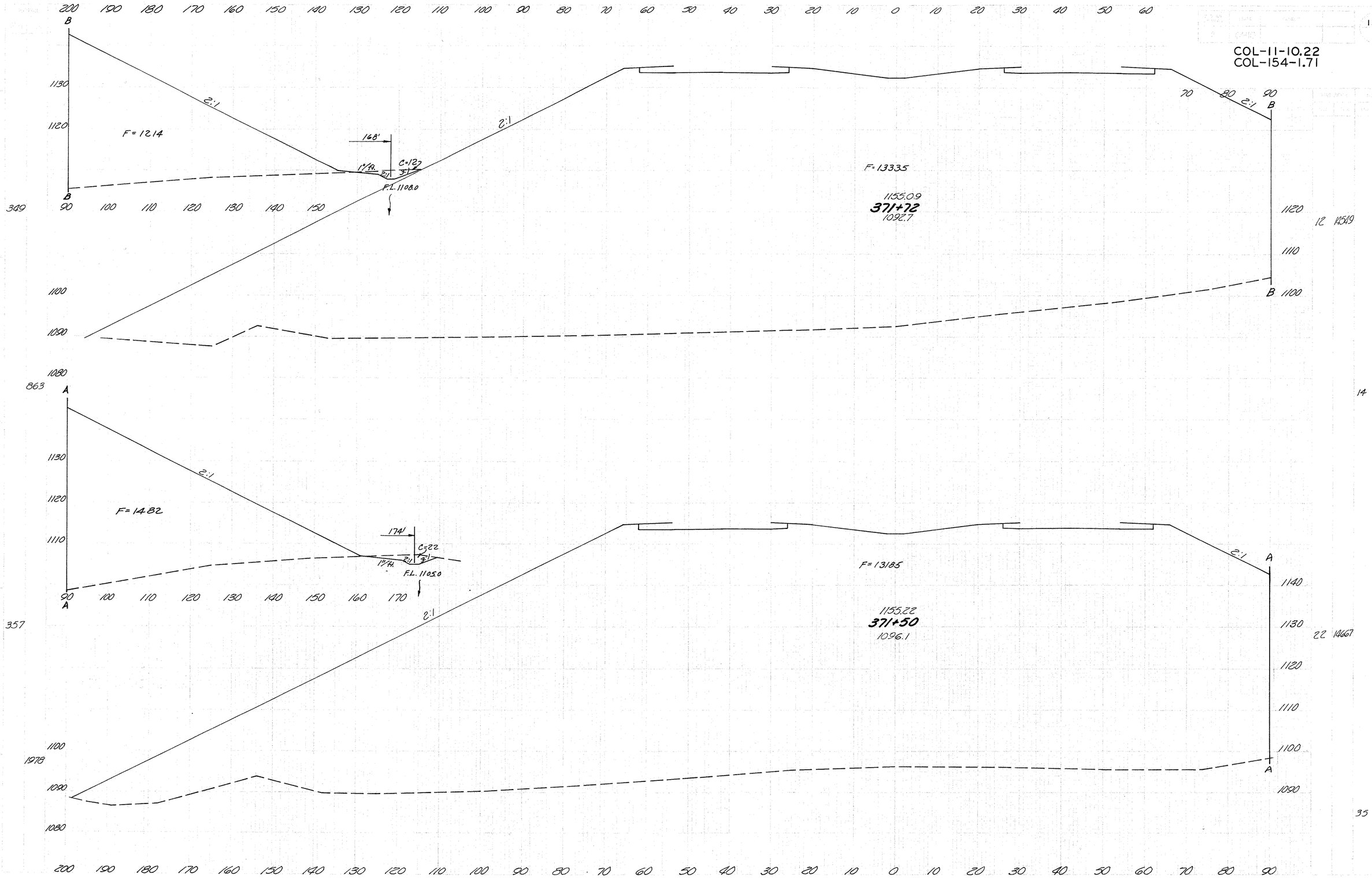
21 11406

28 18345

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

STA 370+50 TO STA 371+00

COL-11-10.22
COL-154-1.71

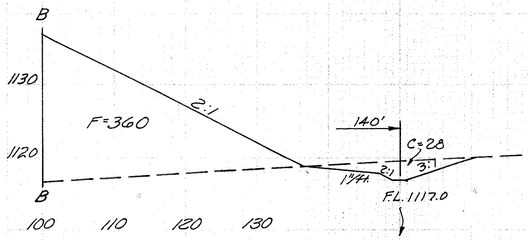


14 11903

STA 371+50 TO STA 371+72

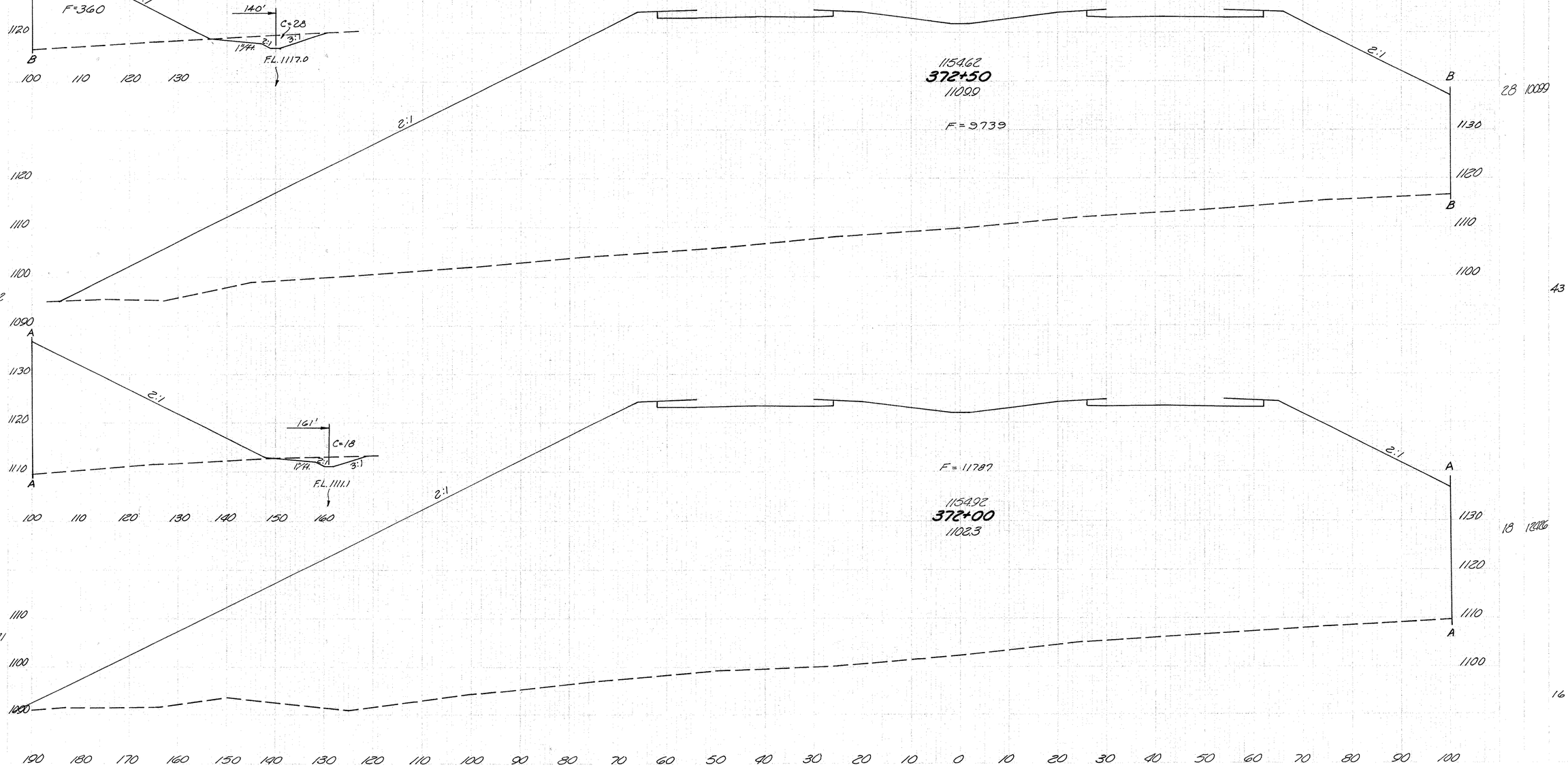
COL-11-10.22
COL-154-1.71

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



300 100 110 120 130

1154.62
372+50
1109.9
F=9739



320 100 110 120 130 140 150 160

F=11787
1154.92
372+00
1102.3

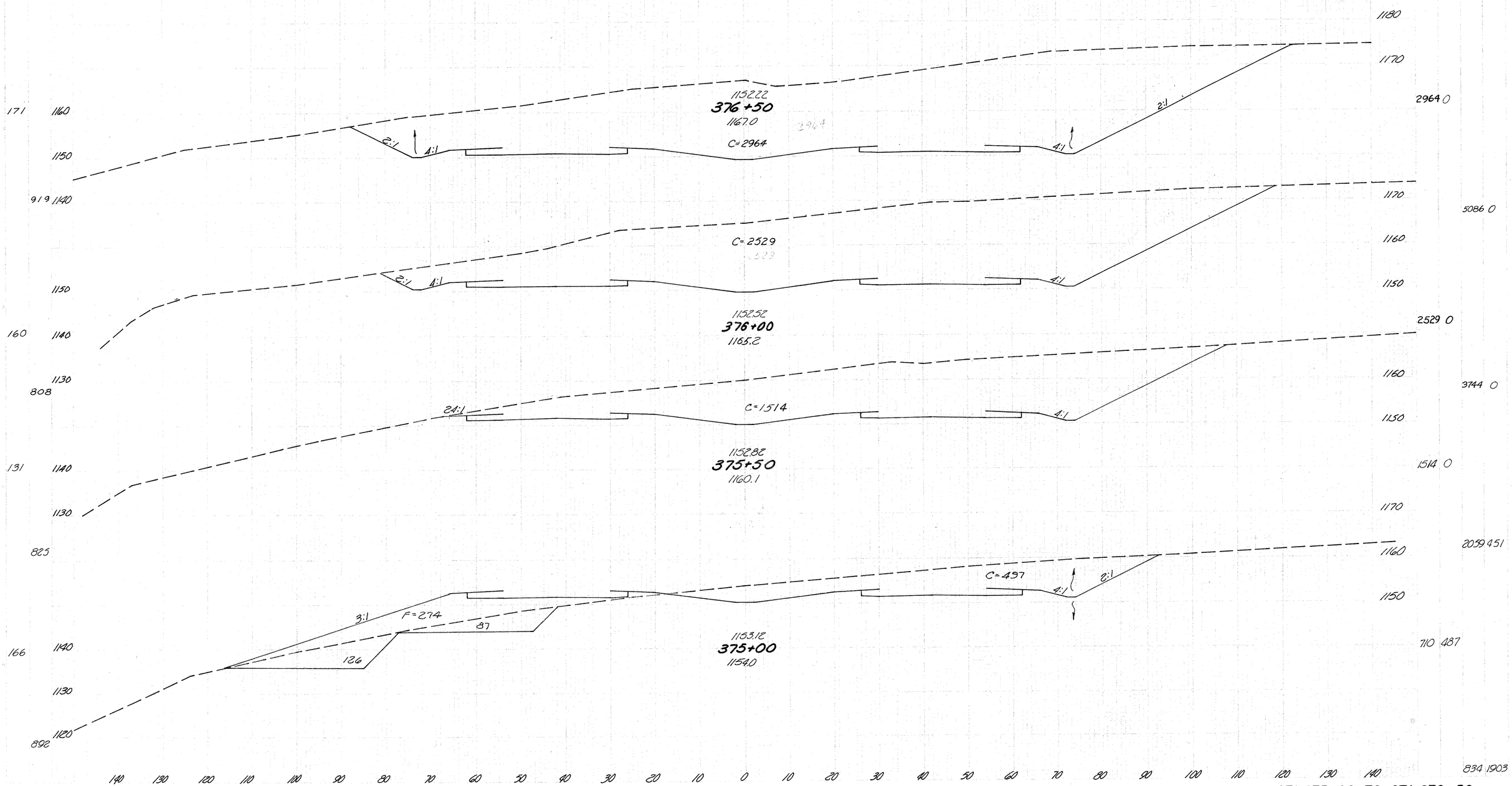
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

STA.372+00 TO STA.372+50

COL-11-10.22
COL-154-1.71

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



STA. 375+00 TO STA. 376+50

158

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

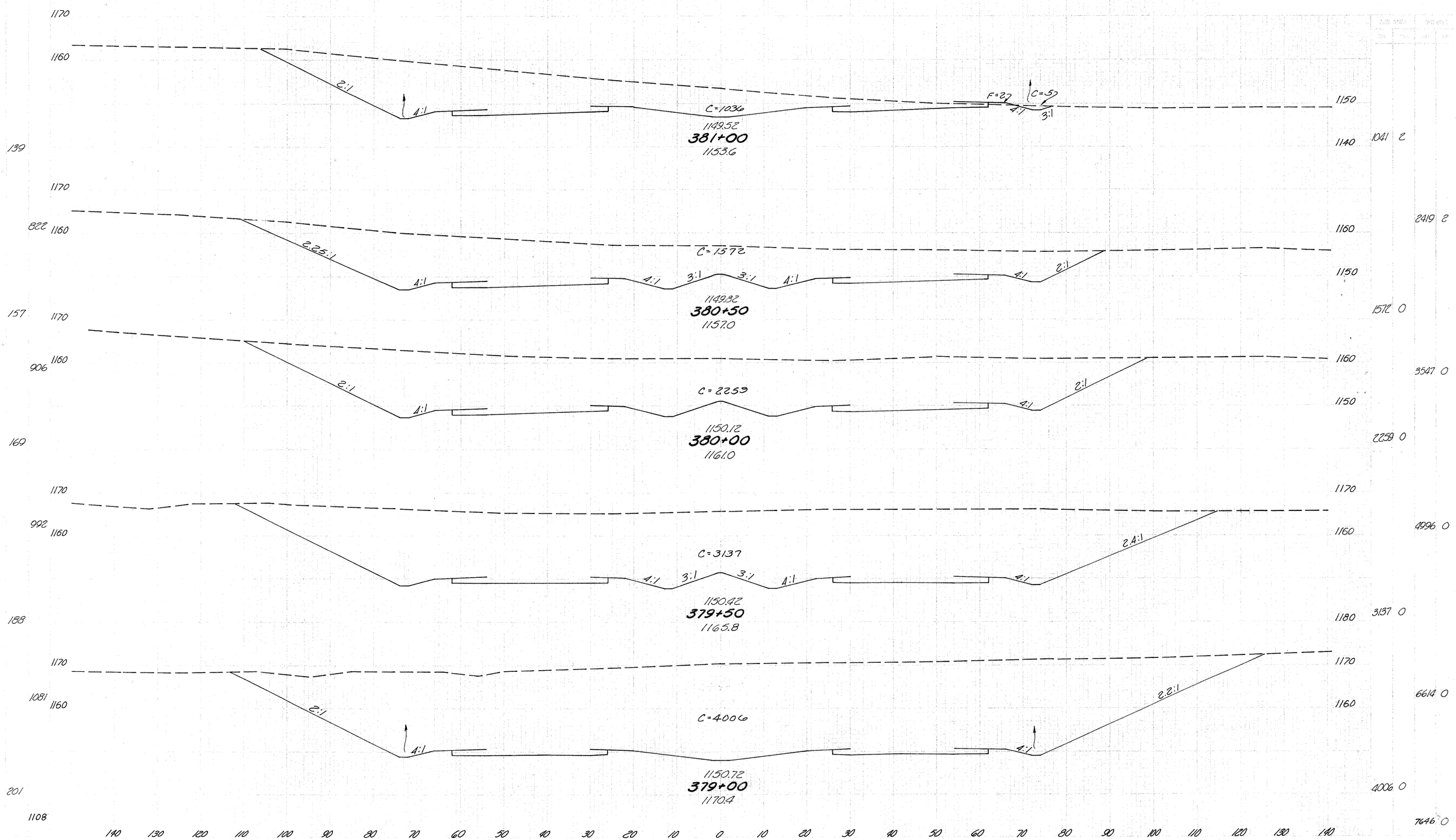
1170
198
1160
1083
2:1
4:1
1151.02
378+50
1169.9
C=4252
4:1
2:1
1170
4252 O
1160
7607 O
1180
1170
192
1160
1056
1150
1151.32
378+00
1169.3
C=3964
1180
1170
3964 O
1160
7046 O
1180
1170
188
1160
1150
1017
1151.62
377+50
1170.1
C=3646
1170
3646 O
1160
6520 O
1180
5'
18"
37-DR
Dumped Rock
Channel Proctection
Approximate Rock
Line
Quantities Carried on
Sheet No. 39
1170
178
1160
969
1150
1140
1151.92
377+00
1169.9
C=3396
2:1
4:1
4:1
2:1
1160
3396 O
1150
5889 O

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 377+00 TO STA. 378+50

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

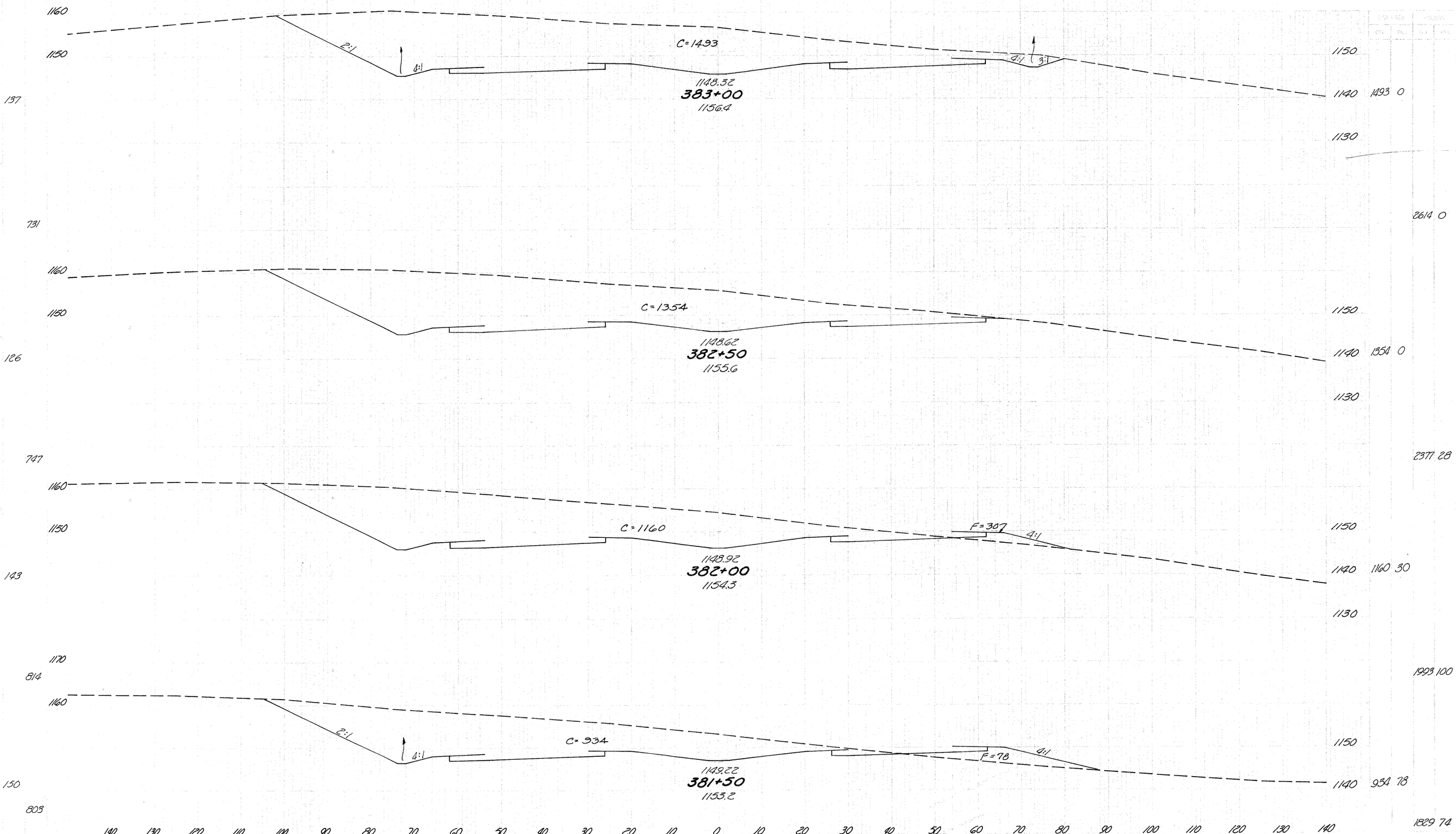


140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 379+00 TO STA. 381+00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 381+50 TO STA. 383+00

COL -11-10.22
COL -154-1.71

STA.383+50 TO STA.385+00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

F=6383

2:1

1120 1110 1100 277

A A

1145.92
387+00
1115.8

1130 1120 16 6390

C=5 2:1 1½ft.

F.L. 1112.2

157' F=7 C=11 1½ft. 3:1 2:1

A 1110 1100 A

F.L. 1104.1

1378 160 140

F=3597

73' 18' 11' Type F

F.L. Grade = 1143.40

12"x25° Bend

Concrete Collar
(For detail See Sheet No.12)

2:1 2'-6"

12" Type B @ 1.0%

F.L.=1139.92

F.L.=1139.22

12" Type F @ 50%

S.L.=20'-2"

15'

10%

F.L.=1129.1

C=8

F.L.=1130.2
12"x20° Bend

Std. HW-E

Dumped Rock Pad
15'x6'

18"

Std. No. 4 C.B.

1130 1120 168 3748

1146.22
(23-55) 386+50
1129.5

219 1120 C=9 1110 2:1 3:1 90

F.L. 1109.2

ESTIMATED QUANTITIES

Item 603	- 12" Conduit, Type B with Class B Bedding	74 Lin. Ft.
Item 603	- 12" Conduit, Type F	32 Lin. Ft.
Item 604	- Std. No. 4 Catch Basin	1 Each
Item 602	- Concrete Masonry	0.23 Cu.Yd.
Item 601	- Dumped Rock Channel Protection	5 Cu.Yd.

Quantities carried to Sheet No. 40

BENDS & BRANCHES

12" Type F, 25° Bend — 1 Each
12" Type F, 20° Bend — 1 Each

1167 1130 1120 1110 1022 167 1130 1120 819

2:1 3:1 F=1425 C=7 3:1

1140 1130 303 4923

1146.52
386+00
1139.6

C=8? F.L.1106.0 201

159 1569

C=20? F=8? C=3? F=10? C=6? 2:1 2:1 3:1

1150 1140 1130 329 2021

1146.82
385+50
1145.8

C=6? 3:1 F.L.11233

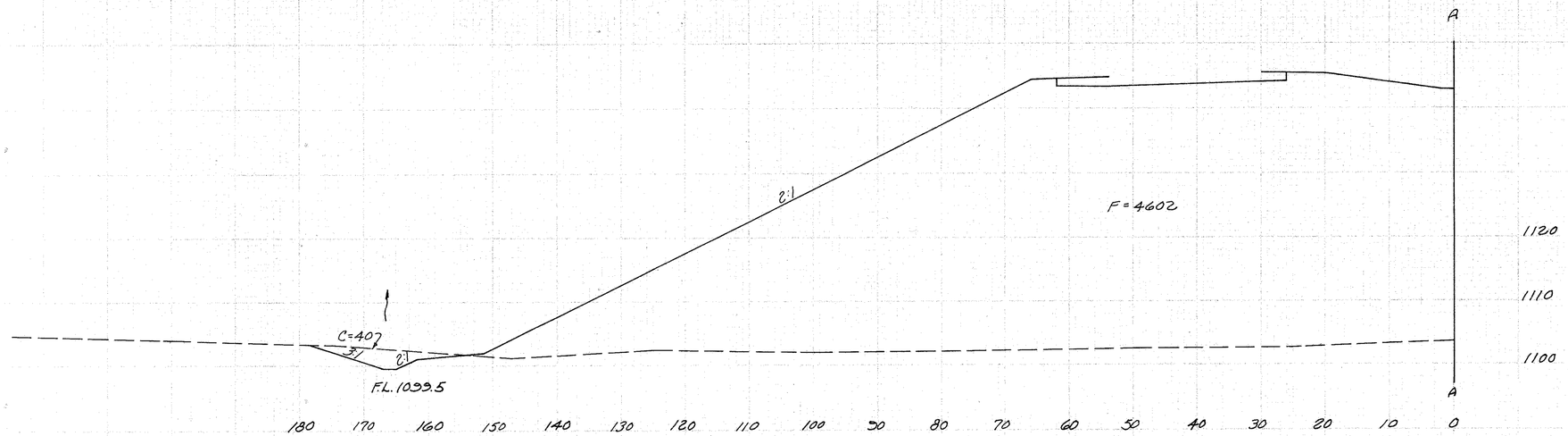
196 614

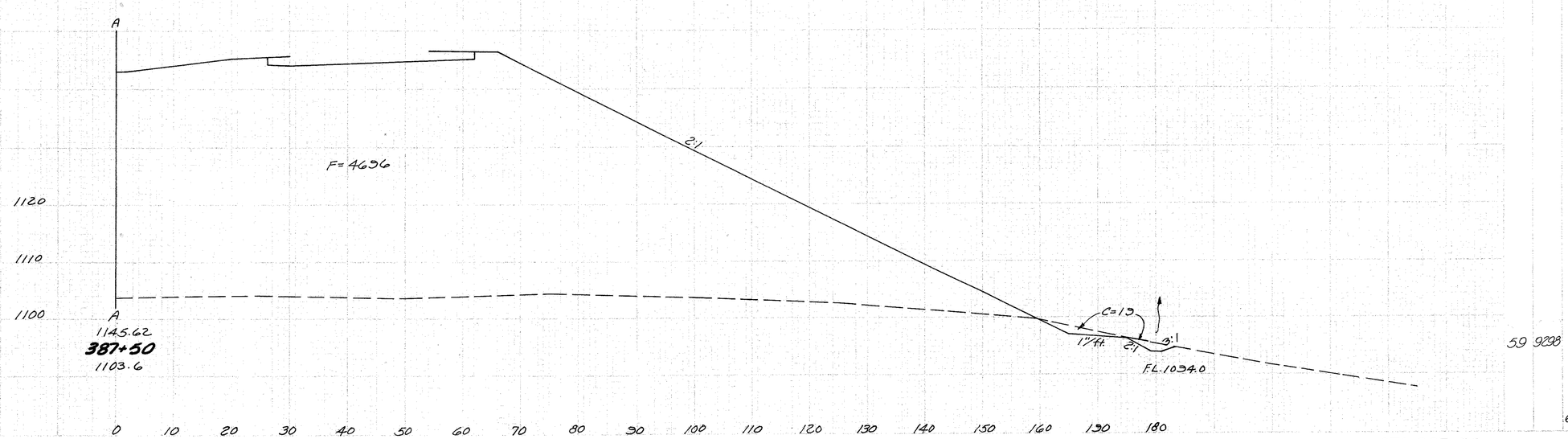
635 595

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA.385+50 TO STA.387+00

COL-11-10.22
COL-154-1.71

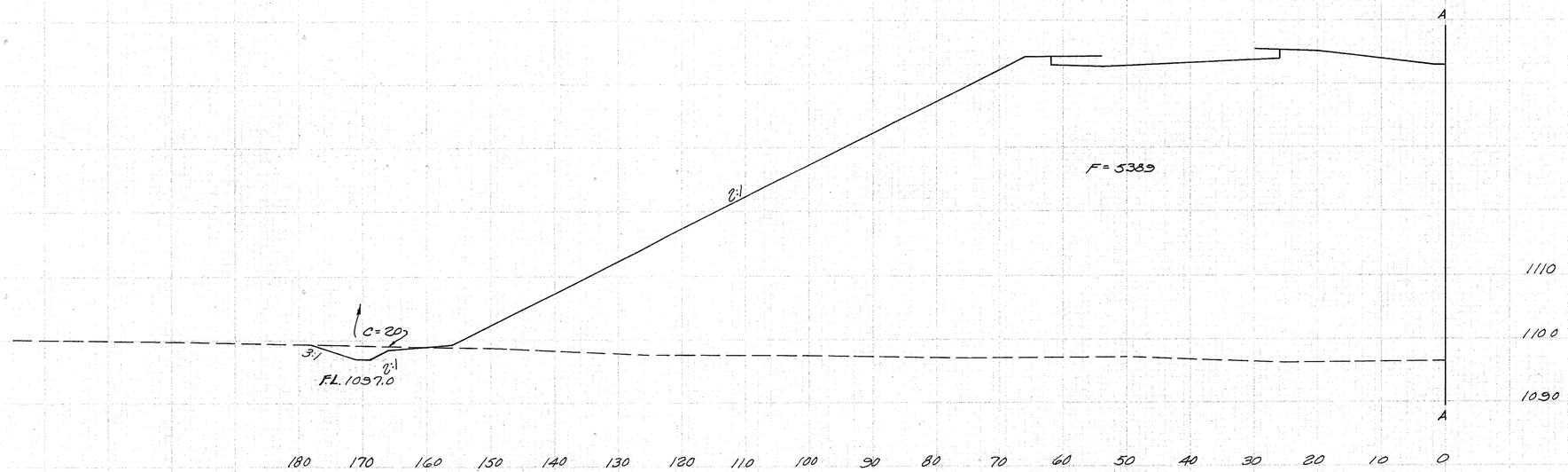


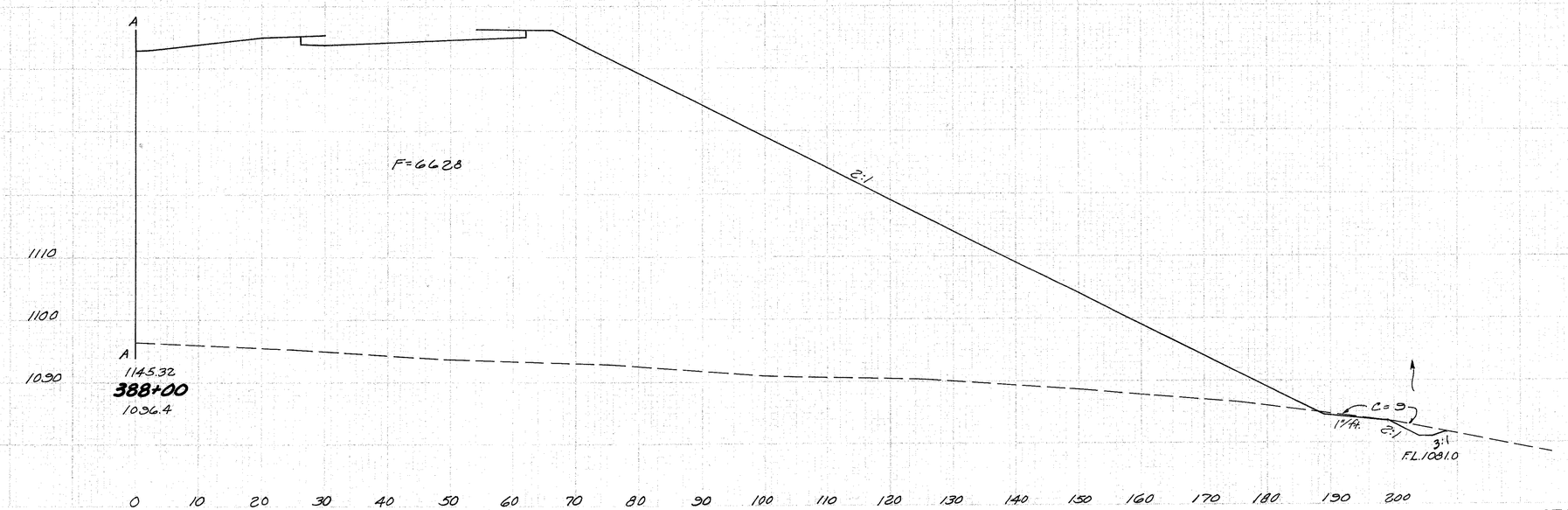


337
1706
59 9298
69 19526

STA. 387+50

COL-11-10.22
COL-154-1.71

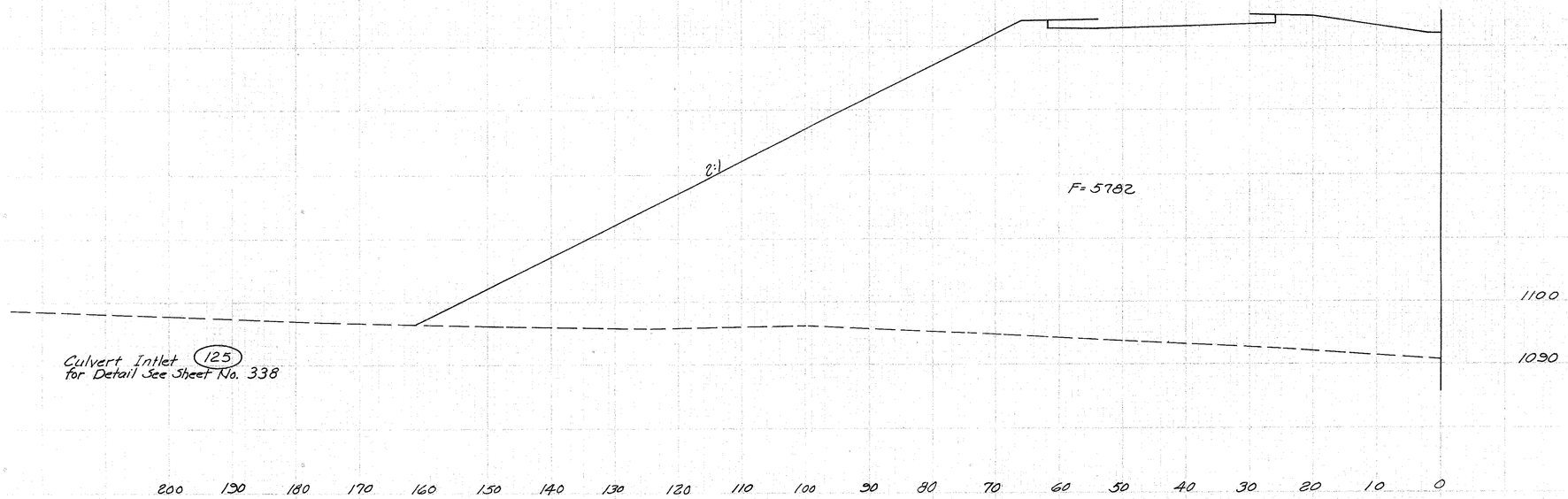


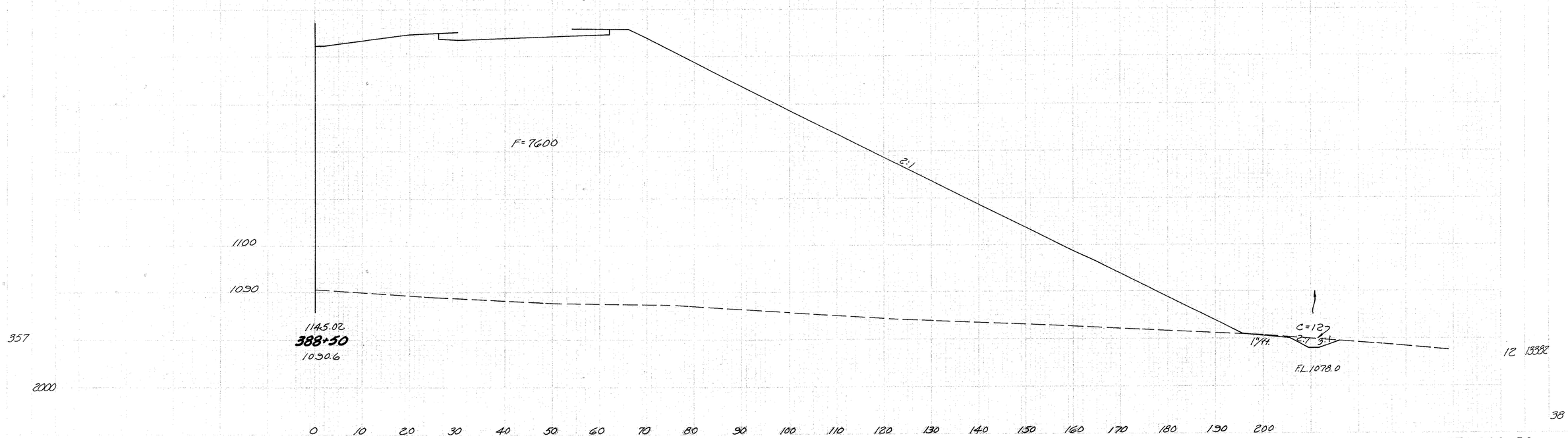


363
19.44
29 18.17
81 19.36

STA.388+00

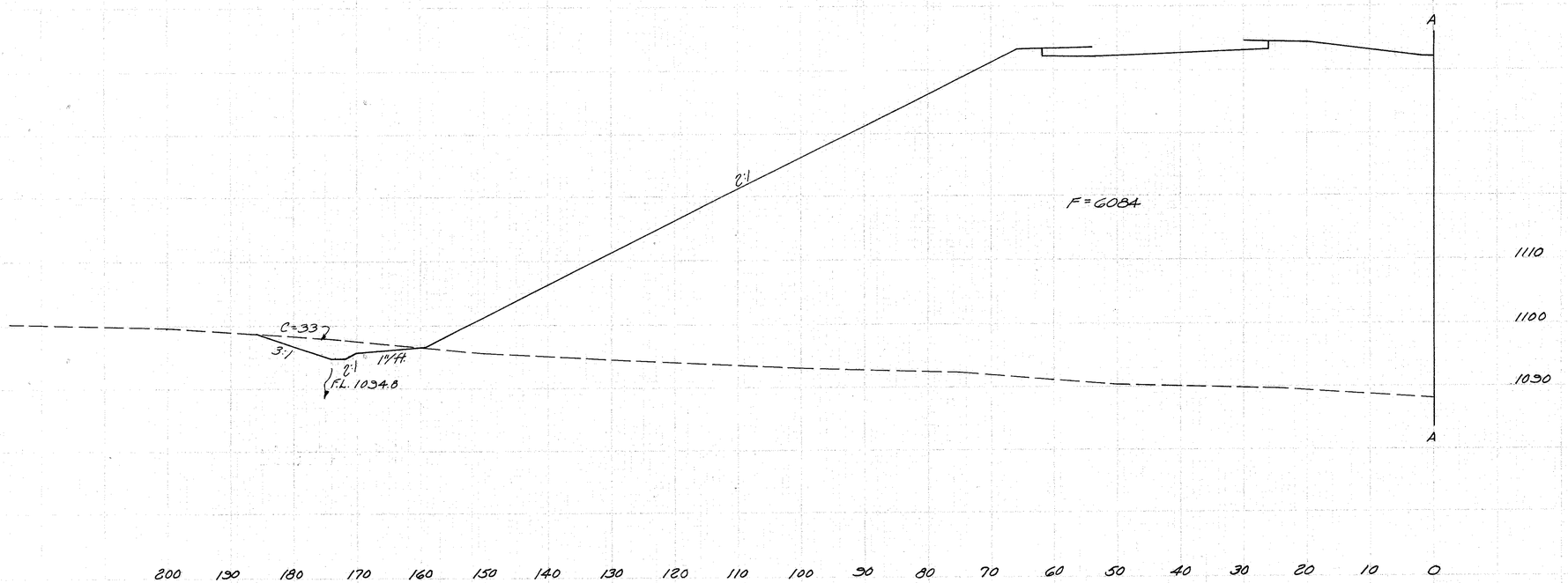
COL-11-10.22
COL-154-1.71

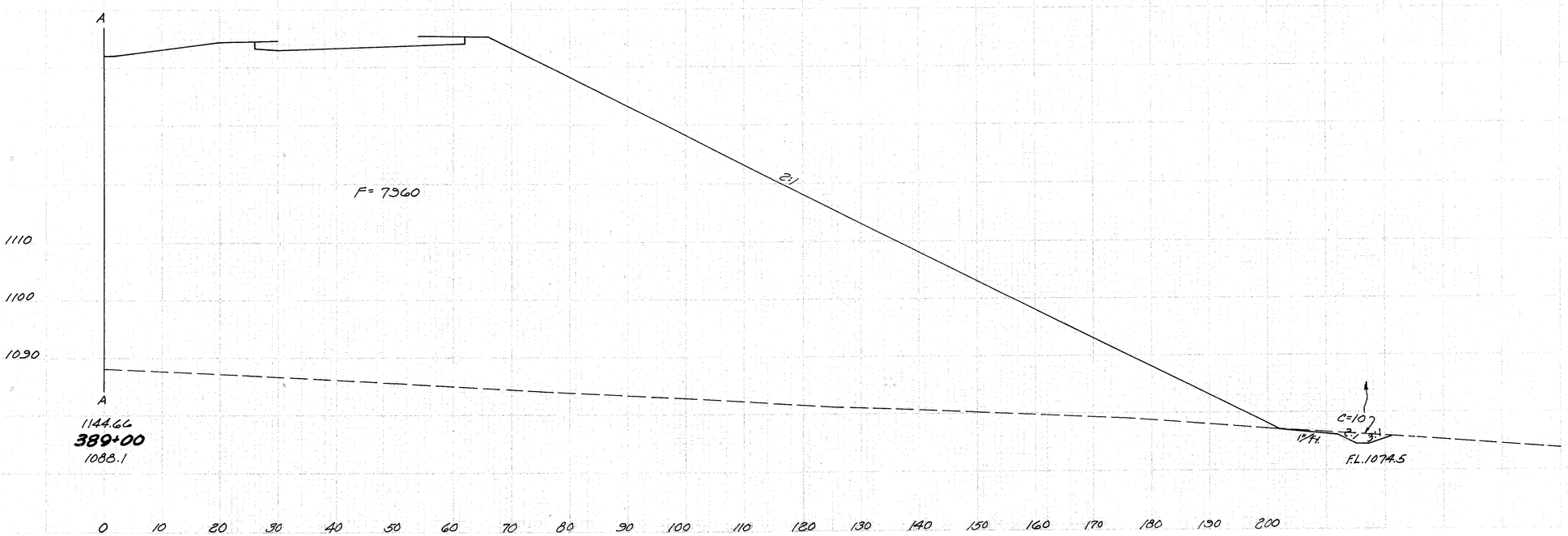




STA.388+50

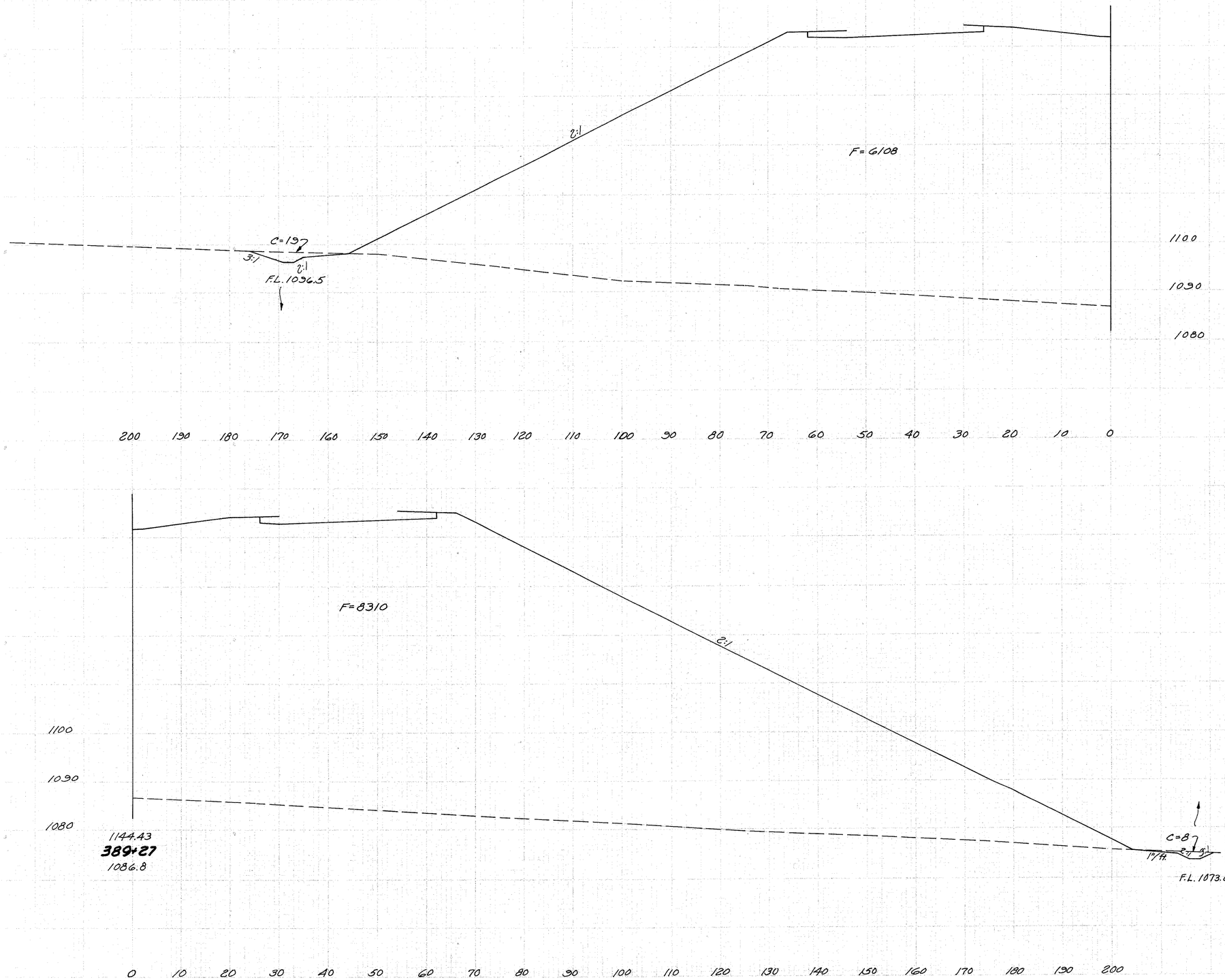
COL-11-10.22
COL-154-1.71





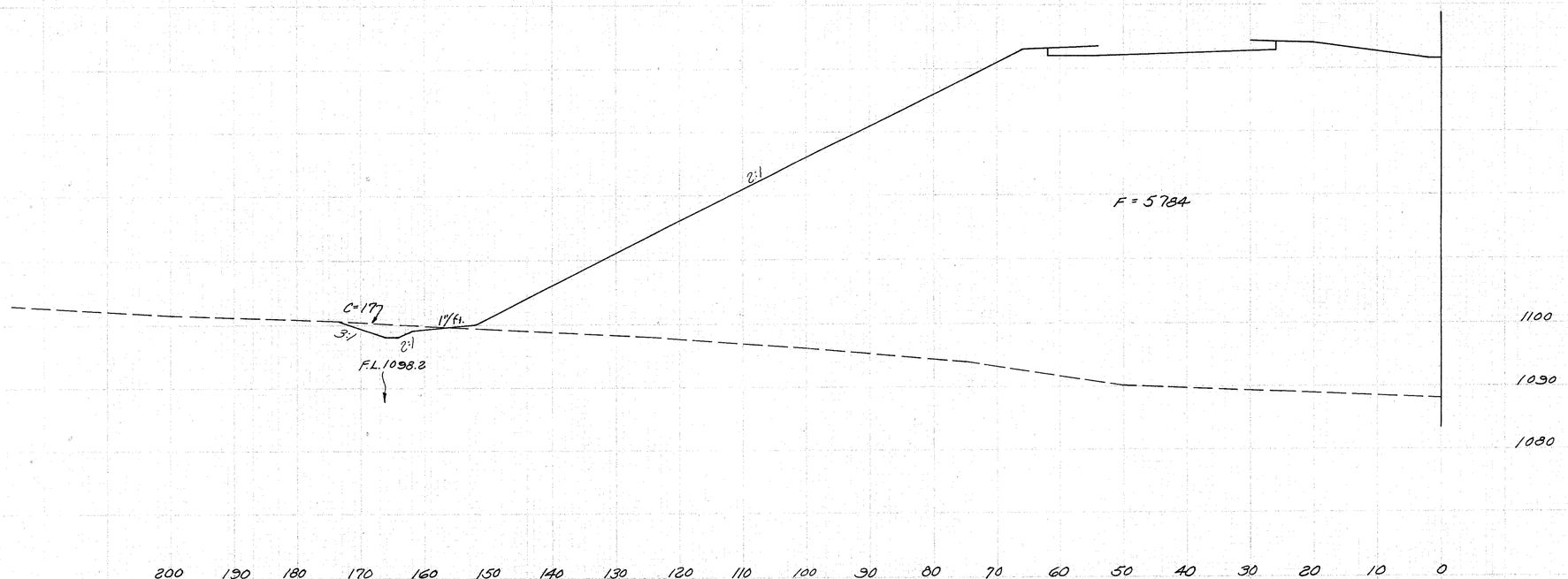
STA.389+00

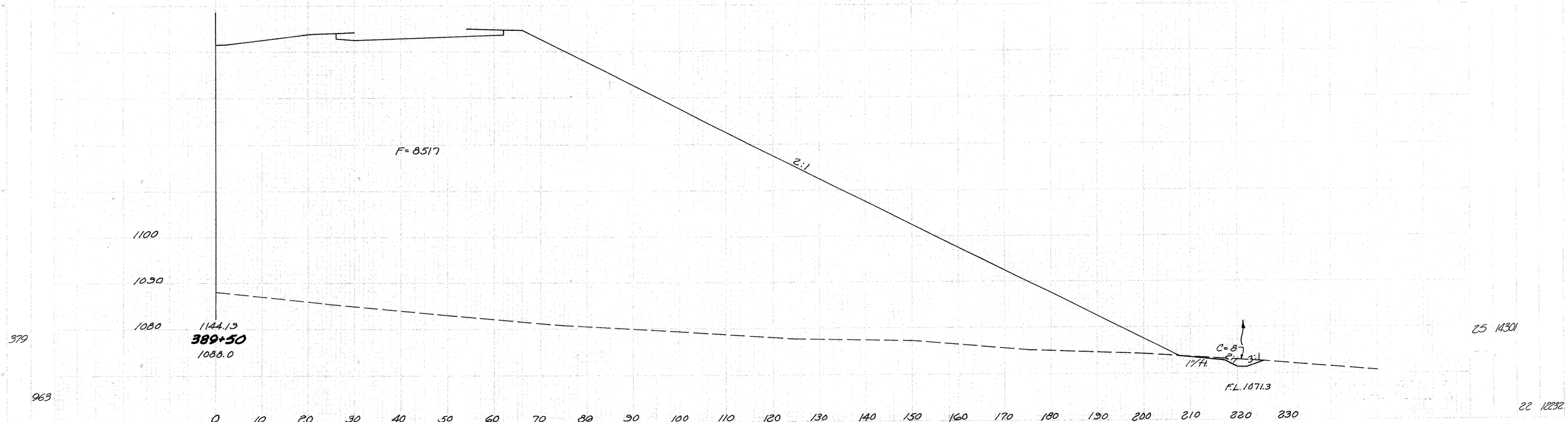
COL-11-10.22
COL-154-1.71



STA. 389+27

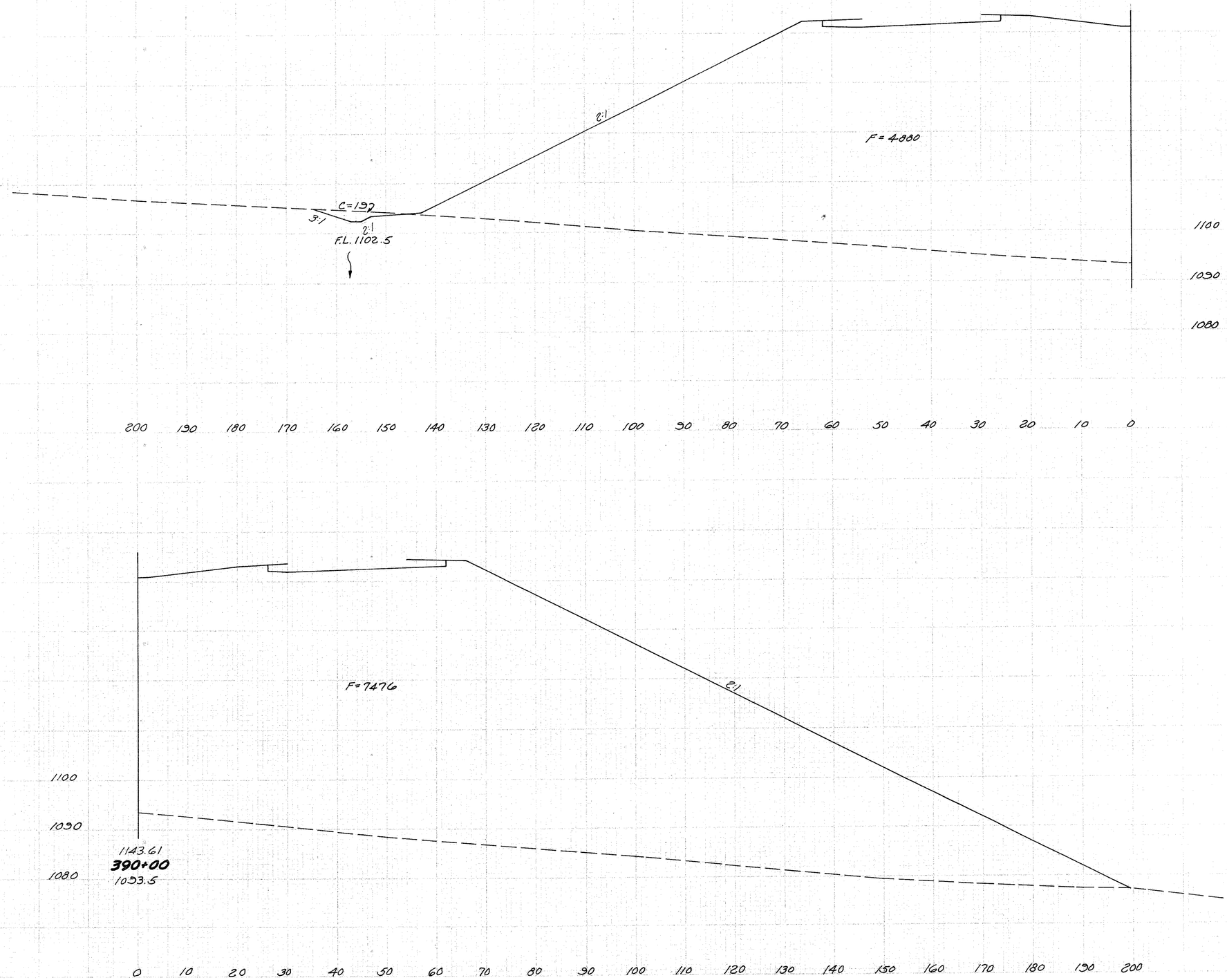
COL-11-10.22
COL-154-1.71





STA. 389+50

COL-11-10.22
COL-154-1.71



341

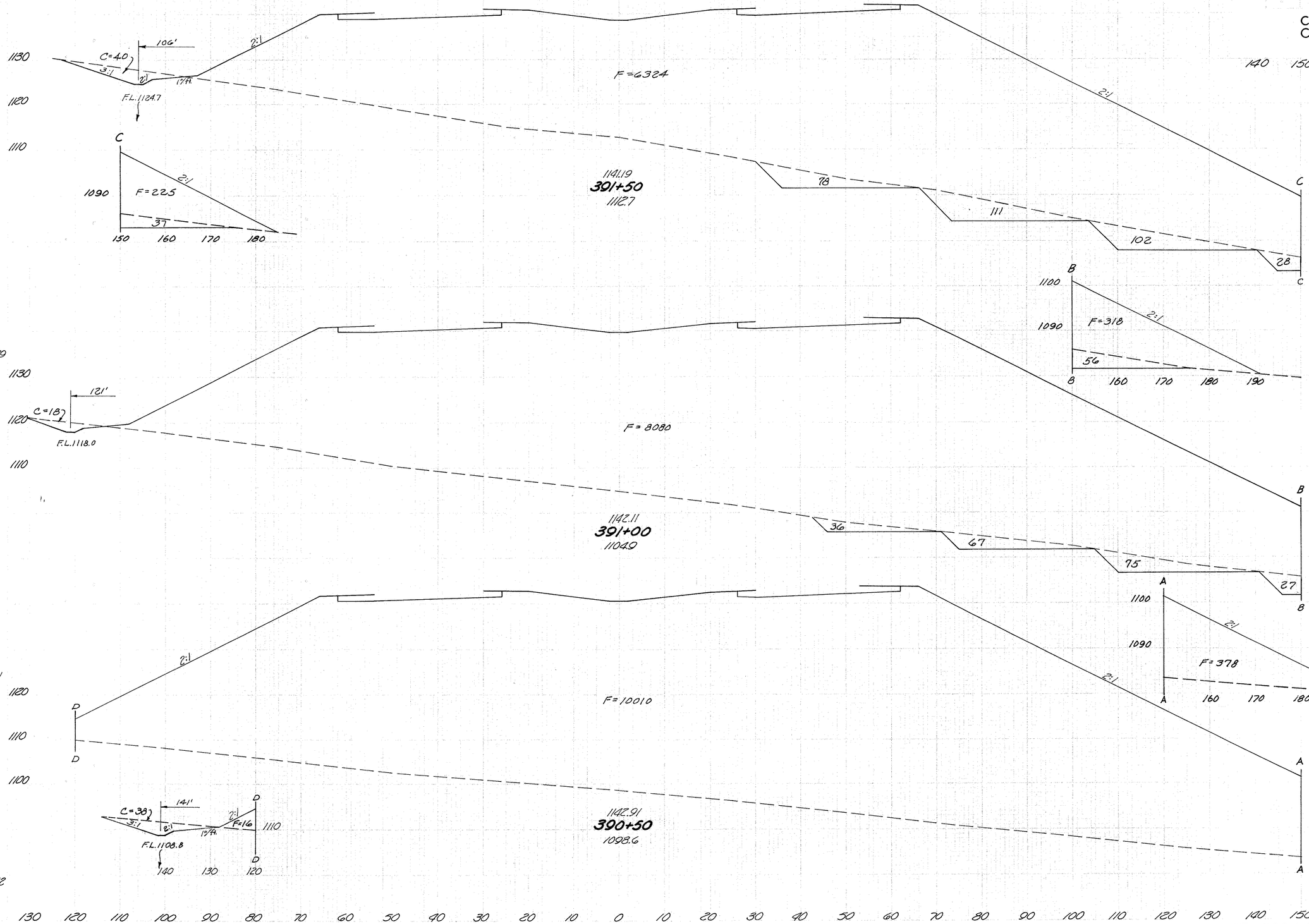
19 12356

41 24682

STA. 390+00

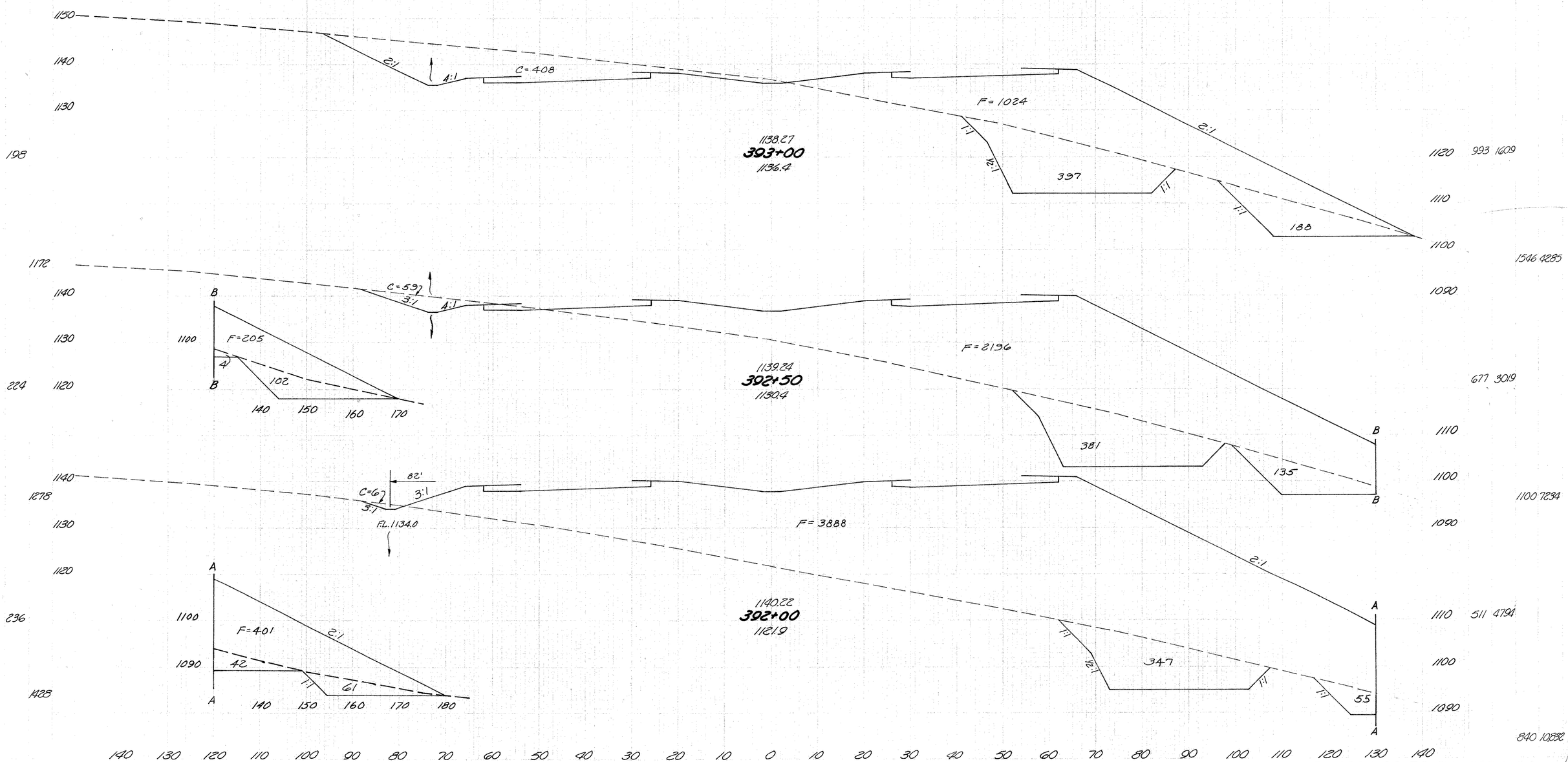
COL-11-10.22
COL-154-1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160



COL-11-10.22
COL-154-1.71

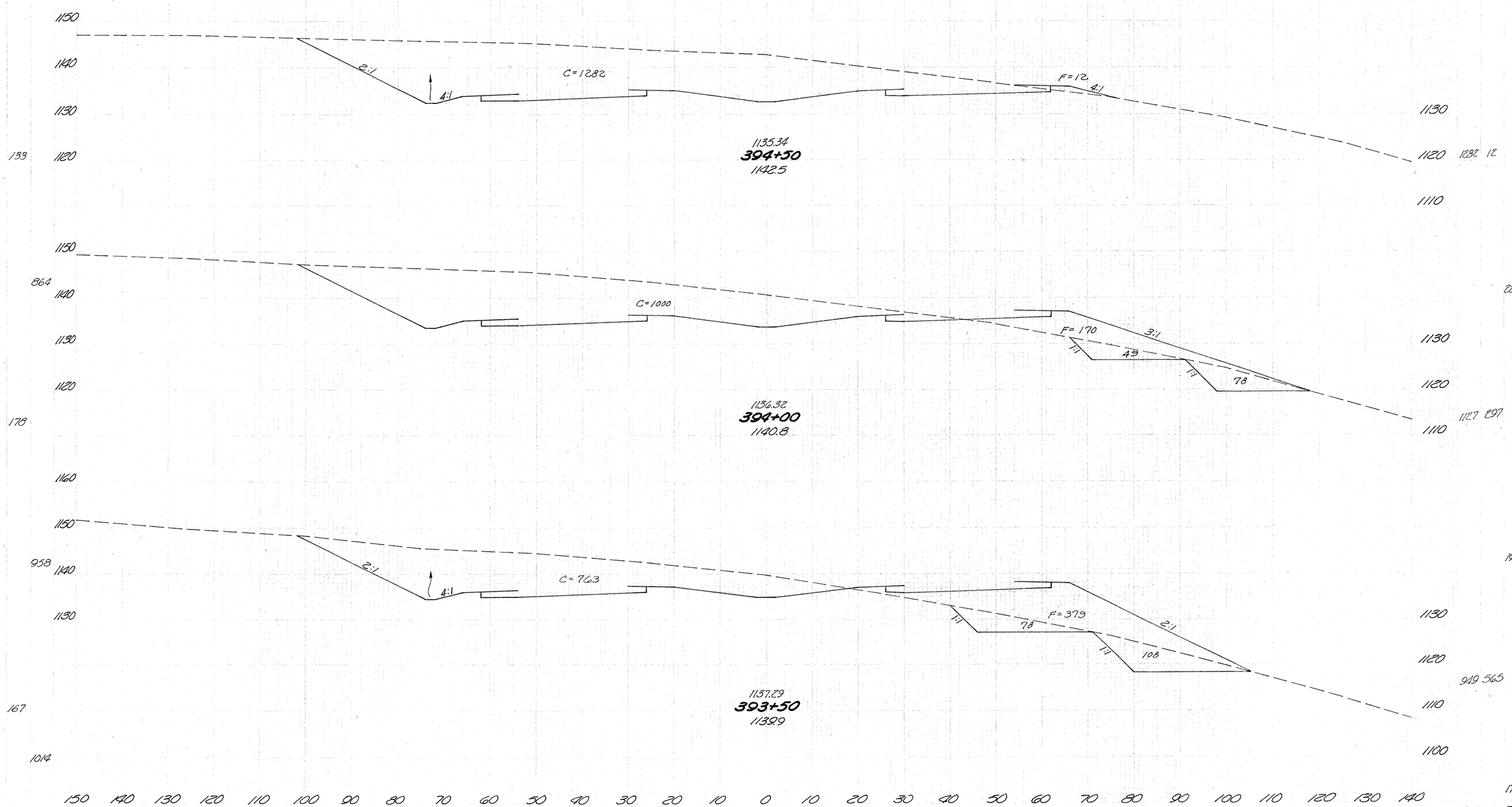
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140



STA. 392 + 00 TO STA. 393 + 00

COL-11-10.22
COL-154-1.71

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140



133
2231 286
864
178
1127 297
958
1932 789
167
949 565
1014
1708 2013

STA. 393+50 TO STA. 394 + 50

COL-11-10.22
COL-154-1.71

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

120 130 140

1140
1130
2:1
4:1
C=1535
4:1
2:1
1140
1130
137
1535 0

113144
396+50
113929

769
1150
1140
1130
C=1756
1140
1130
3047 0

113241
396+00
114224
1120
1756 0

140
1150
783
1140
1130
C=1784
4:1
2:1
1140
1130
3269 0

113339
395+50
114333
1120
1784 0

142
1150
778 1140
1130
2:1
4:1
C=1565
4:1
3:1
1140
1130
3101 0

113437
395+00
114330
1120
1565 0

138
753

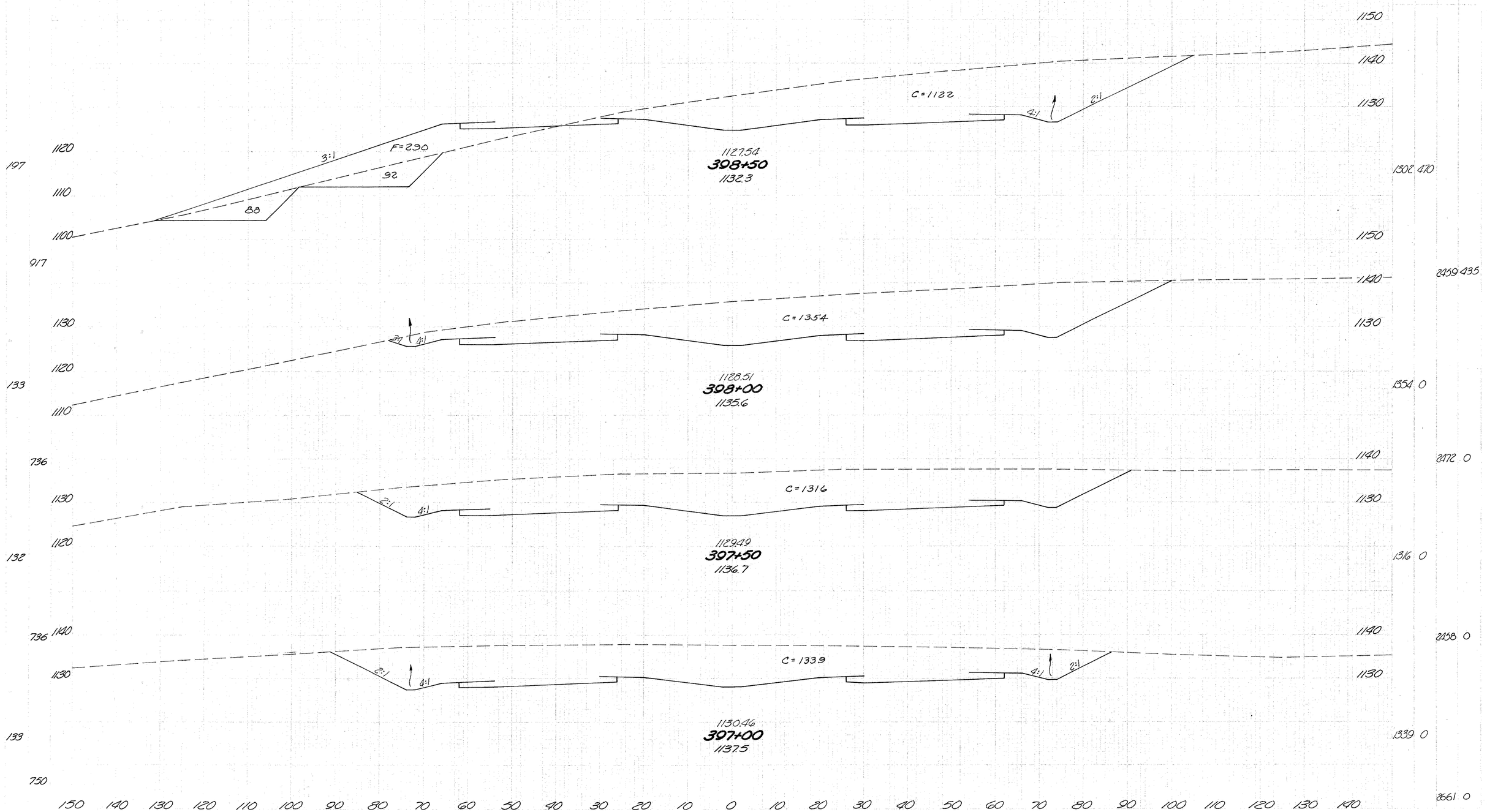
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
2636 11

STA. 395+00 TO STA. 396+50

COL-11-10.22
COL-154-1.71

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

120 130 140

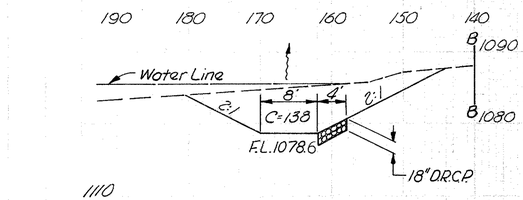


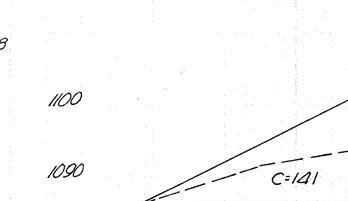
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

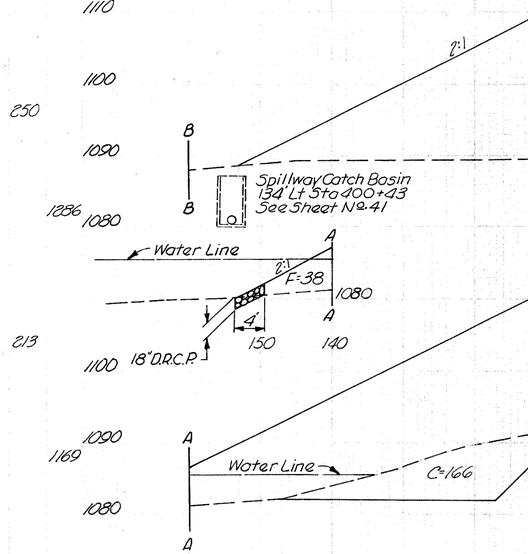
STA. 397+00 TO STA. 398+50

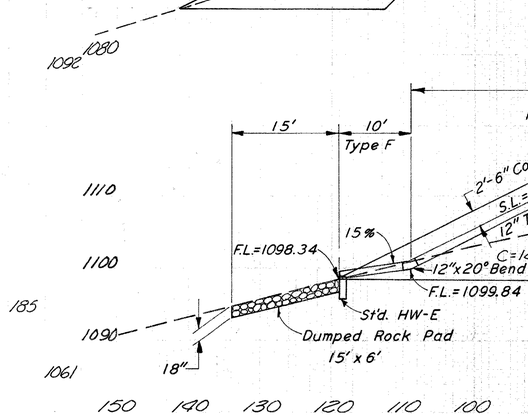
COL-11-10.22
COL-154-1.71

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140









ESTIMATED QUANTITIES

Item 603 – 12" Conduit, Type B with Cl. B Bedding — 7.4 Lin. Ft.
Item 603 – 12" Conduit, Type F — 52 Lin. Ft.
Item 604 – Std. No. 4 Catch Basin — 1 Each
Item 602 – Concrete Masonry — 0.23 Cu. Yd.
Item 601 – Dumped Rock Channel Protection — 5 Cu. Yd.

Quantities carried to Sheet No. 41

(24-55) BENDS & BRANCHES

12" Type F, 25° Bend — 1 Each
12" Type F, 20° Bend — 1 Each

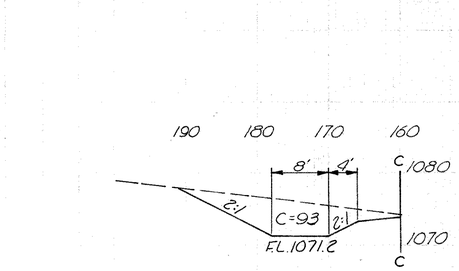
448 3426
696 5935
314 2984
1060 4716
831 2109
1870 3115
1189 1255
2306 1597

STA. 399 + 00 TO STA. 400 + 50

COL-11-10.22
COL-154-1.71

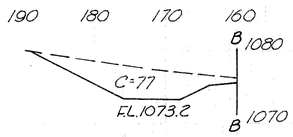
170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

100 110 120



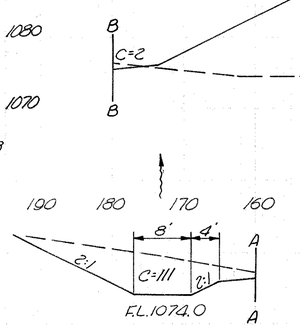
253

1080
1070
1392



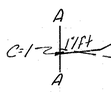
248

1080
1070
1488



266

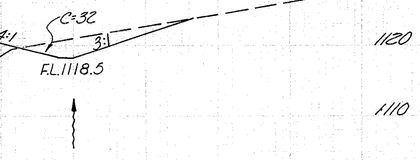
1080
1433 1070



F=4591

2:1

1120.71
402+00
1098.3

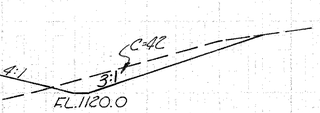


1130
1120
1110
1110

125 4591

F=4437

1121.68
401+50
1099.2



1130
1120
1110
1100

203 8359

94 4437

F=4390

2:1

1122.66
401+00
1101.3

1130
1120
1110
1100

230 8173

154 4390

557 7237

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

STA. 401 + 00 TO STA. 402 + 00

COL-11-10.22
COL-154-1.71

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

100 110 120

1140
1130
1120
1110

190 180 170 160
8' 4'
C=52
2:1
1"/ft.
1070
C
C
F.L.1067.7
C=14.9
4:1
2:1
F=3611
1117.78
403+50
1104.8
246
201 3617
2:1
1070
C
C
1364 1060
1130
293 6989
1120
C=1
C=50
4:1
3:1
110
190 180 170 160
B
B
C=64
1070
F.L.1069.0
F=3931
115 3931
245
1118.76
403+00
1103.4
1080
B
B
1361 1070
C=29
4:1
3:1
F.L.1118.1
1120
185 7494
1110
F=4160
2:1
1100
190 180 170 160
C=56
8'
4'
A
A
2:1
2:1
1"/ft
1070
F=2
F.L.1069.5
245
1119.73
402+50
1099.9
85 4162
1080
A
A
1070
1383
194 8105

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

STA. 402 + 50 TO STA. 403 + 50

COL – 11 – 10.22
COL – 154 – 1.71

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

100 110 120

1130 1120 1110 1100 1090 1080 1070 1060

235 1306 1286 1317 228

F=1981 F=2374 F=3030

C=88 C=112 C=160 C=544 C=129 C=110 C=123 C=108 C=402 C=225

1:1 2:1 4:1

4'

18" D.R.C.P.

1114.86 405+00 1109.3

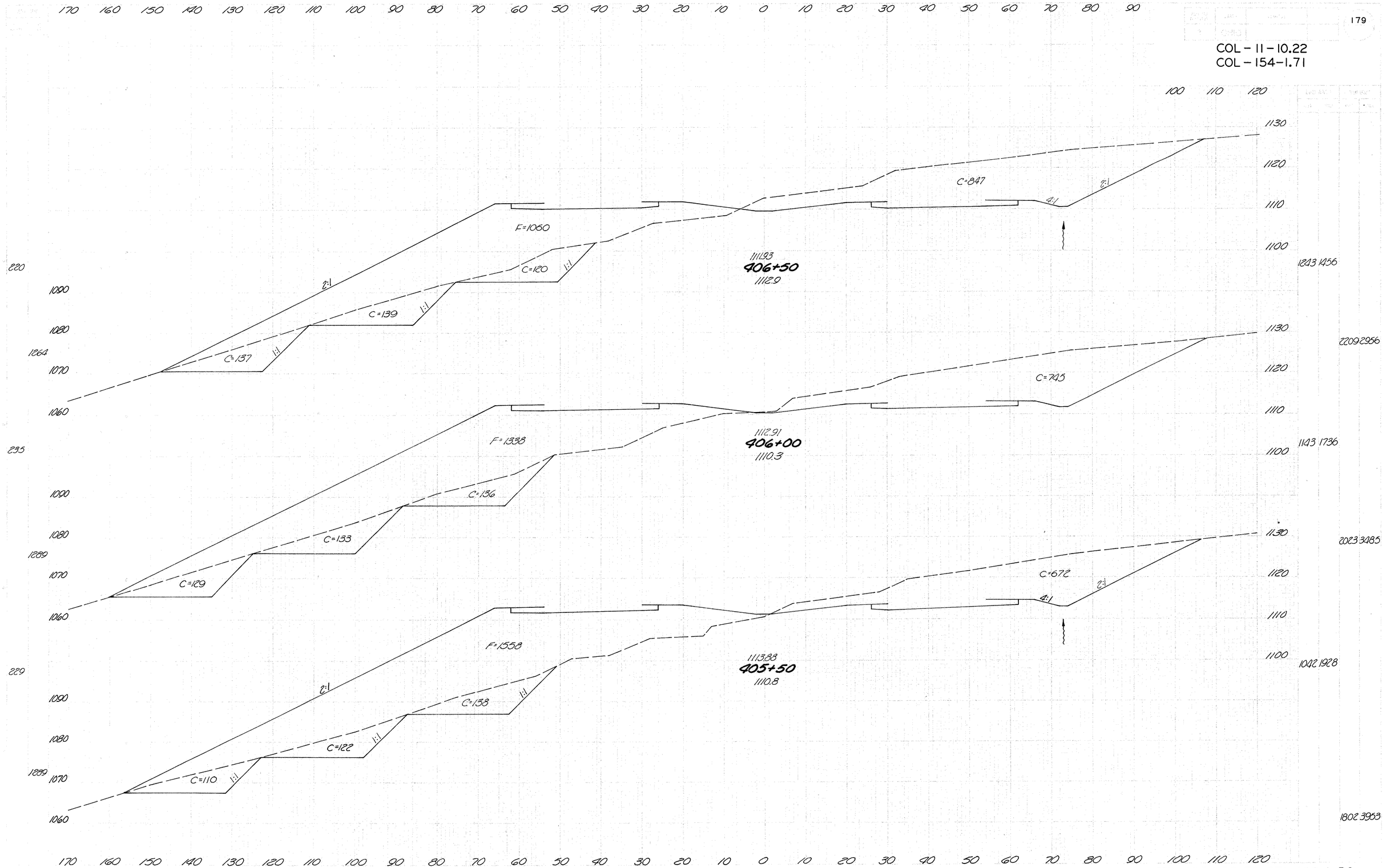
1115.83 404+50 1108.1

1116.81 404+00 1106.2

904 2341 1436 4587 647 2613 1021 5439 456 3261 608 6369

STA. 404 + 00 TO STA. 405 + 00

COL – 11 – 10.22
COL – 154–1.71



COL – 11 – 10.22
COL – 154 – 1.71

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

100 110 120

1120 1110 1100 1090

1225 1059

C=897 2:1 4:1 2:1

F=731 C=77 1:1 C=116 1:1 C=135 1:1

1009.00
408+00
1111.5

198 1090 1080 1070 1114 1160

2350 1986

1120 1110 1100

C=981

F=754 C=89 C=109 C=134

1109.98
407+50
1112.2

203 1090 1080 1070 1158 1060

1313 1086

2121 2316

1120 1110 1100 1090

C=919 4:1 2:1

F=1032 C=141 1:1 C=138 1:1 C=104 1:1 2:1

1110.95
407+00
1112.9

214 1090 1080 1070 1206 1060

1302 1415

2356 2658

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

STA. 407 + 00 TO STA. 408 + 00

COL – 11 – 10.22
COL – 154 – 1.71

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

100 110 120

195 1122 209 1144 203 1111 197 1097

1100 1090 1080 1070 1060 1080 1070 1060 1080 1070 1060 1080 1070 1060 1080 1070

F=598 C=114 C=118 2:1 1:1 1:1

1105.10
410+00
1109.3

C=1364 4:1 2:1 1:1 2:1

F=852 C=134 C=106 2:1 1:1

1106.08
409+50
1108.6

F=586 C=135 C=150

1107.05
409+00
1109.7

C=1088 4:1 2:1

F=668 C=131 C=130 2:1 1:1 1:1

1108.03
408+50
1110.4

C=884 4:1 2:1

1120 1110 1100 1120 1110 1120 1110 1100 1120 1110 1100

1596 830
28361780
1467 1092
6648 1836
1393 891
2350 1685
1145 929
2194 1841

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

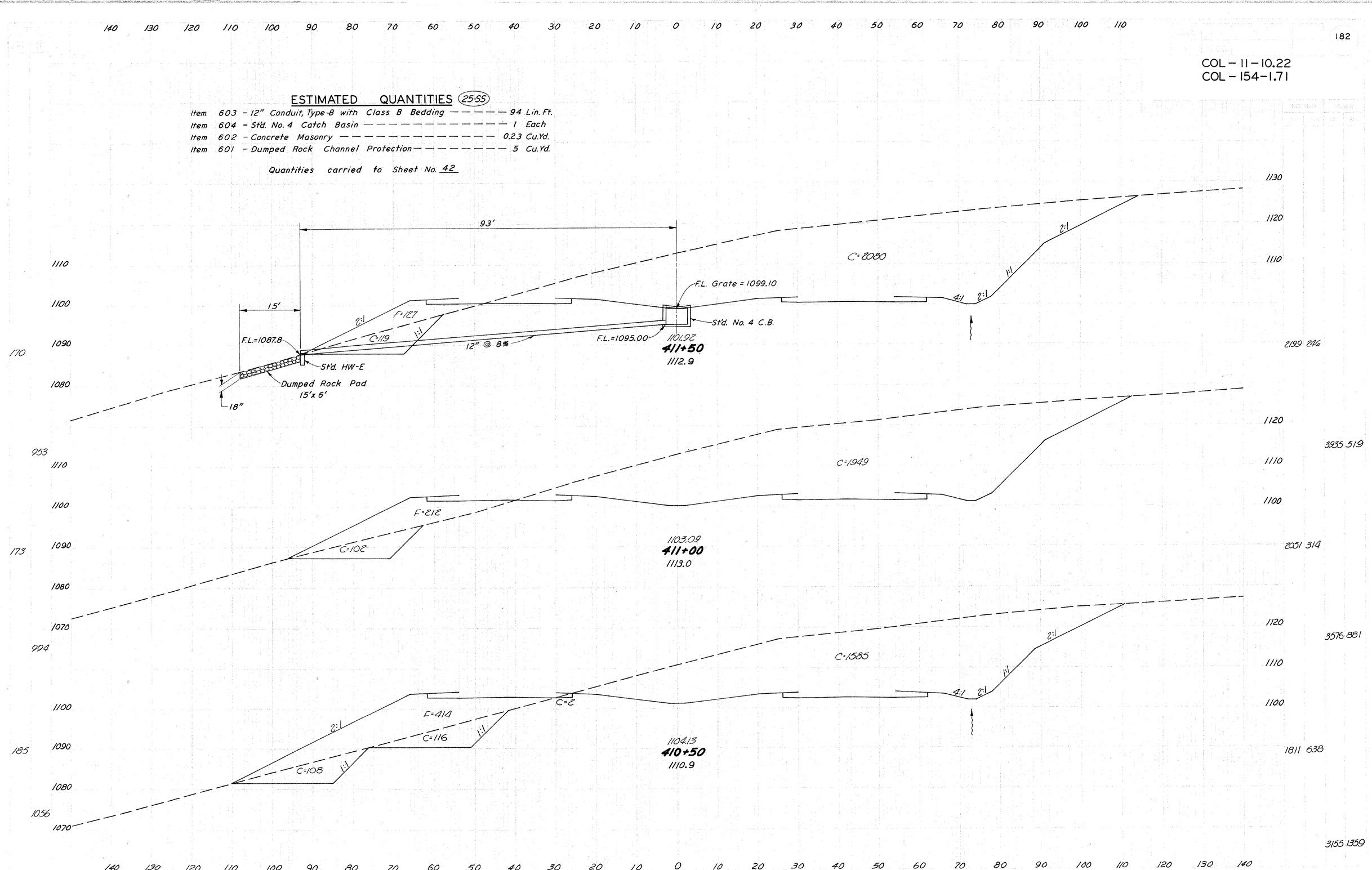
STA. 408+50 TO STA. 410+00

COL – 11 – 10.22
COL – 154 – 1.71

ESTIMATED QUANTITIES (25-55)

Item 603 – 12" Conduit, Type-B with Class B Bedding ——— 94 Lin. Ft.
Item 604 – Std. No. 4 Catch Basin ——————— 1 Each
Item 602 – Concrete Masonry ——————— 0.23 Cu.Yd.
Item 601 – Dumped Rock Channel Protection ——— 5 Cu.Yd.

Quantities carried to Sheet No. 42



COL – 11 – 10.22
COL – 154 – 1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

1120 1110 1100 1090 1080 1070

182 1025

2:1 F=181 C=122 1:1

C=2198

1095.95
413+50
1105.2

4:1 2:1 1:1 2:1

2320.303

1120 1110 1100 1090 1080 1070

187 947

F=198 C=152

C=2080

1097.64
413+00
1108.1

4215.605

1120 1110 1100 1090 1080 1070

172 947

F=117 C=133

C=2038

1099.19
412+50
1109.8

2232.350

1120 1110 1100 1090 1080 1070

169 942

2:1 F=100 C=128 1:1

C=2122

1100.62
412+00
1112.1

4:1 2:1 1:1 2:1

2171.250

4077.356

1120 1110 1100 1090

4094.443

2250.228

4129.439

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

STA. 412 + 00 TO STA. 413 + 50

COL – 11 – 10.22
COL – 154 – 1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

1090
1080
180
1070

2:1
F=88
C=112
1:1

C=2826

1090.76
4/5+00
1103.9

4:1
2:1
1:1

1120
1110
1100

2938 200

1120
1110
5147 719

1050
1090
1080
198
1070

F=337
C=134
C=105

1092.45
414+50
1102.4

C=2382

1100

2621 576

1120
1110
4523.1145

1094
1090
1080
196
1070
1050

2:1
F=467
C=113
1:1
C=81
1:1

F=2

1094.20
414+00
1102.2

C=2068

4:1
2:1
1:1

1100

2264 661

4244 893

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

STA. 414 + 00 TO STA. 415 + 00

COL – 11 – 10.22
COL – 154 – 1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

1120
1110
1100
1090
1080
1070

2:1 4:1 4:1 2:1 1:1 2:1

C=4565

181

108545
416+50
1110.8

4565.0

1120
1110
1100
1090
1080
1070

2:1 4:1

C=4068

981

108720
416+00
1109.0

4068.0

1120
1110
1100
1090
1080
1070

2:1 4:1 2:1 1:4 2:1

C=3456

For Detail (13-5)
See Sheet No. 339

972

108895
415+50
1106.6

6967.0
3456.0

178

994

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

5920.185

STA. 415+50 TO STA. 416+50

COL – 11 – 10.22
COL – 154 – 1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

1100
1090
1080
2:1
4:1
C=6274
1:1
2:1
4:1
2:1
1120
1110
1100
1080.20
418+00
1112.8
204
6274 0

1111
196
1100
1090
1080
1069
1081.95
417+50
1113.4
C=5626
1120
1110
1100
11,019
5626 0
9973 0

139
1100
1090
1080
1028
2:1
4:1
1083.70
417+00
1112.0
C=5145
4:1
2:1
1:1
2:1
1120
1110
1100
5145 0
8991 0

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

STA. 417 + 00 TO STA. 418 + 00

COL - 11 - 10.22
COL - 154 - 1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

1120
1110
1100
1090
1080

C=6748

2:1 4:1 4:1 2:1 1:1

211

1074.95
419+50
1109.7

6748.0

1167

1120
1110
1100
1090
1080

C=6836

1076.70
419+00
1112.4

209

6836.0

1156

1120
1110
1100
1090
1080

C=6450

2:1 4:1 4:1 2:1 1:1

1078.45
418+50
1112.4

207

6450.0

1192

12,578.0
12,302.0
11,781.0

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 418 + 50 TO STA. 419 + 50

COL - 11 - 10.22
COL - 154 - 1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

1110
1100
1090
1080
1070
1060

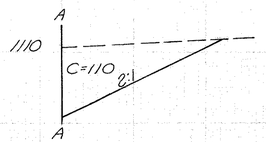
807

C=5943

2:1
4:1
4:1
2:1
1:1

1069.70
421+00
1101.5

A
A



6053 0

1158

1090
1080
1070
1060

210

C=6354

1071.45
420+50
1104.9

6354 0

1167

1090
1080
1070
1060

210

1169

C=6579

2:1
4:1
4:1
2:1
1:1

1073.20
420+00
1108.2

6579 0

1110
1100
1090

11,488 0

11,975 0

12,310 0

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

STA. 420+00 TO STA. 421+00

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

189

COL – 11 – 10.22
COL – 154 – 1.71

1100
1090
1080
1070
1060

2:1
4:1
C=4593
4:1
2:1
1:1
2:1

189

106445
422+50
1087.9

4593.0

1069
1090
1080
1070
1060

C=4938

196

1066.20
422+00
1091.9

1100
1090
8825.0
1100
1090
4938.0

1103
1090
1080
1070

2:1
4:1
C=5455
4:1
2:1
1:1
2:1

201

1067.95
421+50
1096.7

1100
1090
9623.0
5455.0

1133

10,656.0

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 421 + 50 TO STA. 422 + 50

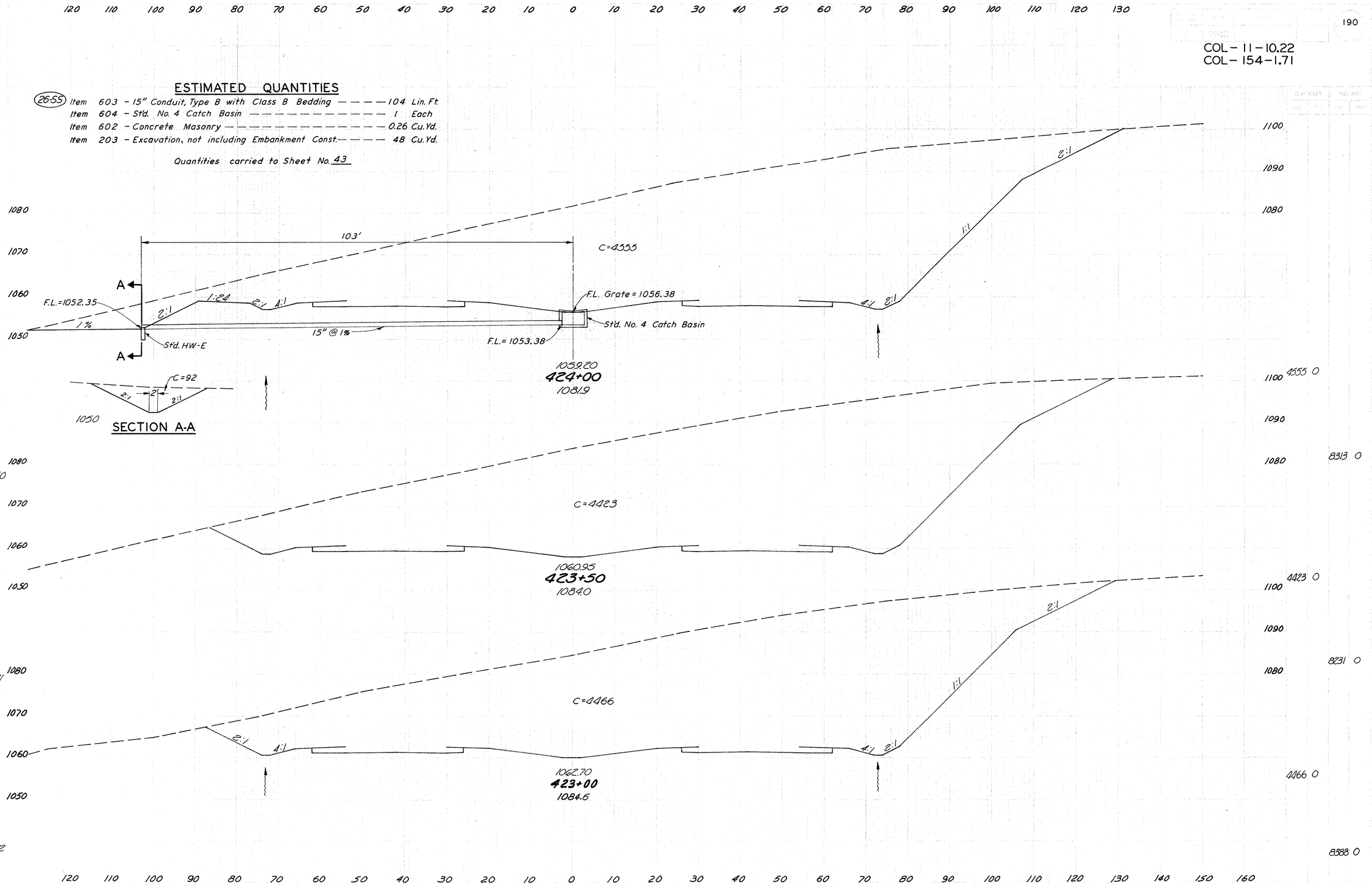
COL-11-10.22
COL-154-1.71

ESTIMATED QUANTITIES

(26-55)

Item 603 - 15" Conduit, Type B with Class B Bedding ---- 104 Lin. Ft.
Item 604 - Std. No. 4 Catch Basin ---------- 1 Each
Item 602 - Concrete Masonry ---------- 0.26 Cu. Yd.
Item 203 - Excavation, not including Embankment Const. ---- 48 Cu. Yd.

Quantities carried to Sheet No. 43



STA. 423+00 TO STA. 424+00

COL – 11 – 10.22
COL – 154 – 1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

1100
1090
1080
1070
1060
1050
1040

198

2:1 4:1 C=5191 4:1 2:1 1:1 2:1

1053.95
425+50
1078.3

5191.0

1092
1070
1060
1050

195

C=4940

1055.70
425+00
1079.9

1100
1090
1080

9381.0
4940.0

1067
1070
1060
1050

189

2:1 4:1 C=4756 4:1 2:1 1:1 2:1

1057.45
424+50
1080.9

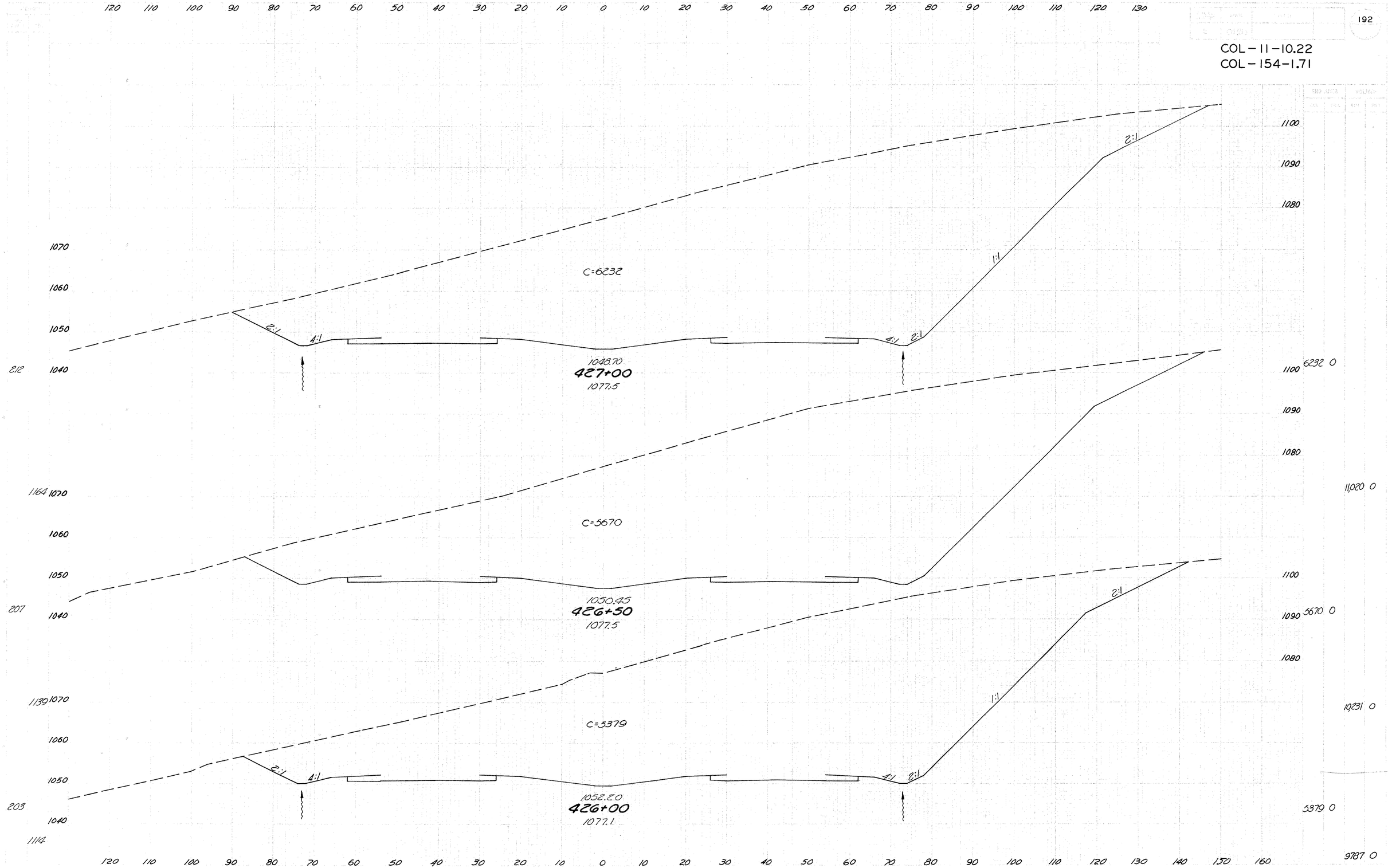
1161

4756.0
8978.0
8621.0

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 424 + 50 TO STA. 425 + 50

COL – 11 – 10.22
COL – 154 – 1.71



STA. 426 + 00 TO STA. 427 + 00

COL – 11 – 10.22
COL – 154 – 1.71

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

1100 1090 1080 1070 1060 1050 1040

C=5866

2:1 4:1 4:1 2:1 1:1 2:1

1043.45
428+50
1072.5

807

A A

A C=20 2:1 A
140 150

1100 1090

1100 1090 5886 0 1080

1178 1070 1060 1050 1040

C=6361

1045.20
428+00
1076.5

817

1100 6561 0 1090 1080

1200 1070 1060 1050 1040

C=6409

2:1 4:1 4:1 2:1 1:1

1046.95
427+50
1077.0

215

12,009 0

6409 0

1156

11,705 0

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 427 + 50 TO STA. 428 + 50

COL – 11 – 10.22
COL – 154 – 1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

1090
1080
1070
1100
1090
1080
1070
1060
1050
1040
1030
1070
1060
1050
1040
1030
1100
1090
1080
1070
1060
1050
1040
1030

2:1 4:1 C=5686 4:1 2:1 1:1 2:1

1038.20
430+00
1063.6

215

5686.0

1158

9620.0

202

1039.95
429+50
1059.5

4704.0

1128

8994.0

204

1041.70
429+00
1063.4

3010.0

1142

10089.0

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 429 + 00 TO STA. 430 + 00

COL – 11 – 10.22
COL – 154 – 1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1090 1080 1070 1060 1050 1040 1030

825 1867

1032.95
431+50
1066.8

C = 7271

2:1 4:1 4:1 2:1 1:1

7271.0

1090 1080 1070 1100 1090 1080 1070

13,319.0

231 1867

1034.70
431+00
1066.8

C = 7140

7140.0

1100 1090 1080 1070

12,589.0

225 1222

1036.45
430+50
1066.8

C = 6456

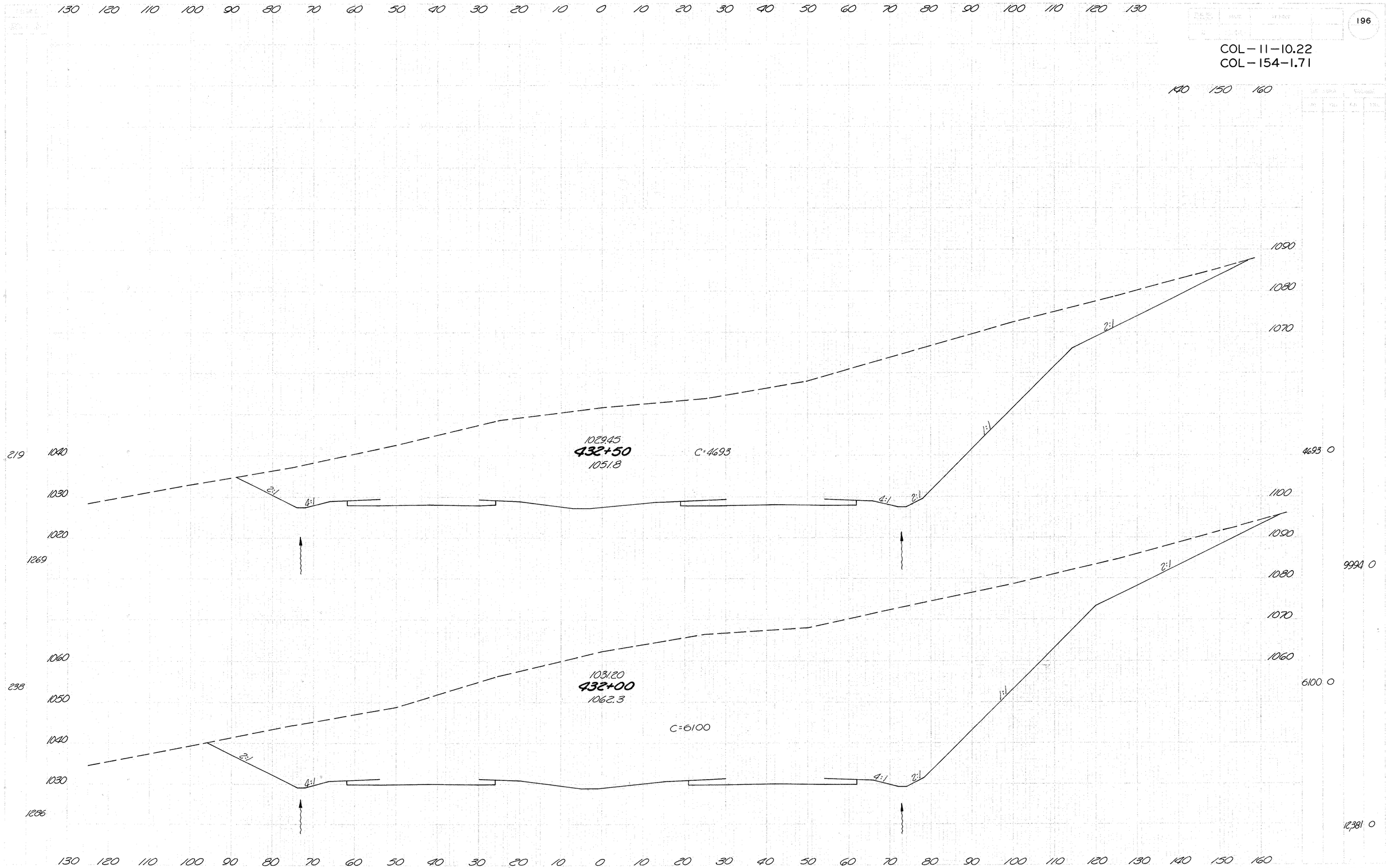
6456.0

11,243.0

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

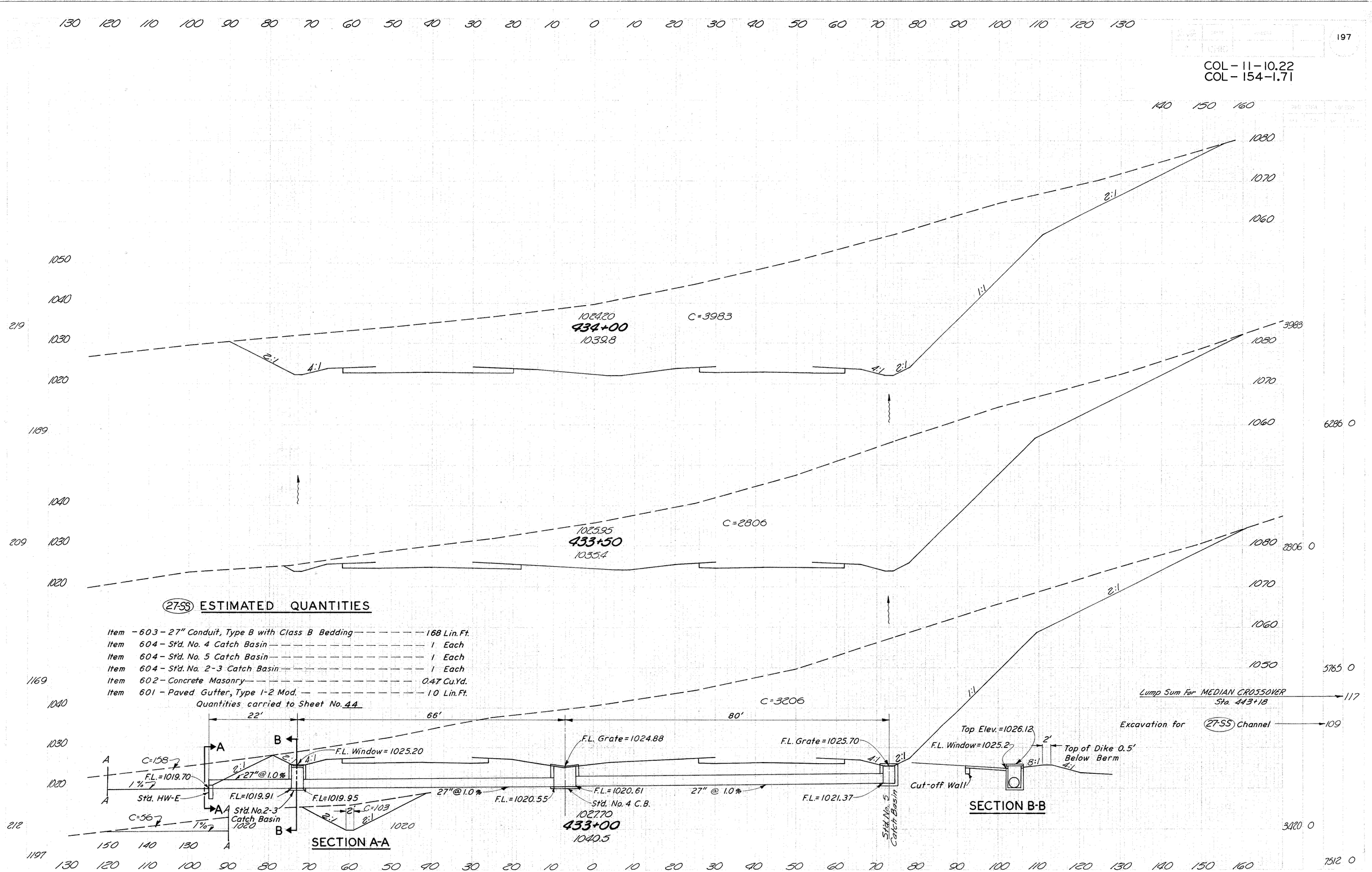
STA. 430 + 50 TO STA. 431 + 50

COL-11-10.22
COL-154-1.71



STA. 432+00 TO STA. 432+50

COL – 11 – 10.22
COL – 154 – 1.71



(27-SS) ESTIMATED QUANTITIES

Item	603 – 27" Conduit, Type B with Class B Bedding	168 Lin. Ft.
Item	604 – Std. No. 4 Catch Basin	1 Each
Item	604 – Std. No. 5 Catch Basin	1 Each
Item	604 – Std. No. 2-3 Catch Basin	1 Each
Item	602 – Concrete Masonry	0.47 Cu.Yd.
Item	601 – Paved Gutter, Type 1-2 Mod.	10 Lin.Ft.

Quantities carried to Sheet No. 44

STA. 433+00 TO STA. 434+00

COL – 11 – 10.22
COL – 154 – 1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1050
1040
1030
1020
1010
1080
1070
1060

254
1375
2:1
4:1
1018.95
435+50
1050.1
C=7470
1:1
7470 0
12,911 0

241
1292
1020.70
435+00
1049.1
C=6506
6506 0
10,698 0

224
1231
1022.45
434+50
1045.8
C=5048
5048 0
8362 0

STA. 434 + 50 TO STA. 435 + 50

COL – 11 – 10.22
COL – 154 – 1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

1070
1060
1050
1040
1030
1020

2:1
4:1
4:1
2:1
1:1

1015.45
436+50
1053.7
C=8967
8967.0

1090
1080
1020
1060

1100
1090
1080
1070
1060

1017.20
436+00
1052.3
C=8432
8432.0

1050
1040
1030
1020
1010

2:1
4:1
4:1
2:1
1:1

16,110
14,724.0

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

STA. 436+00 TO STA. 436+50

COL – 11 – 10.22
COL – 154 – 1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1050
1040
1030
1020
1010
1000

280

2:1
4:1
4:1
2:1
1:1

C=9902

1011.95
437+50
1053.1

B
B
1090
1080
1070

B
1090
1080
C=313
2:1
1:1
150 160 170 180
B

A
A
1090
1080
1070

1050
1040
1030
1020

1547

277

1525

C=9476

1013.70
437+00
1054.9

A
1090
C=155
2:1
160 170 180
A

9902.0
18,086.0
9631.0
17220.0

STA. 437 + 00 TO STA. 437 + 50

COL – 11 – 10.22
COL – 154 – 1.71

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

A 1090 1080 A

A 1090 C=185 2:1 180 170 160 1080 A

1:1

C=9120

2:1 4:1 4:1 2:1

1040 1030 1020 1010 1000 990 980

255

1008.45
438+50
1046.3

1:1

1090 1080 1070 1060 1050

9305.0

1458

F=9710

2:1 4:1 4:1 2:1

1040 1030 1020 1010 1000 990

270

1010.20
438+00
1049.5

1528

17606.0

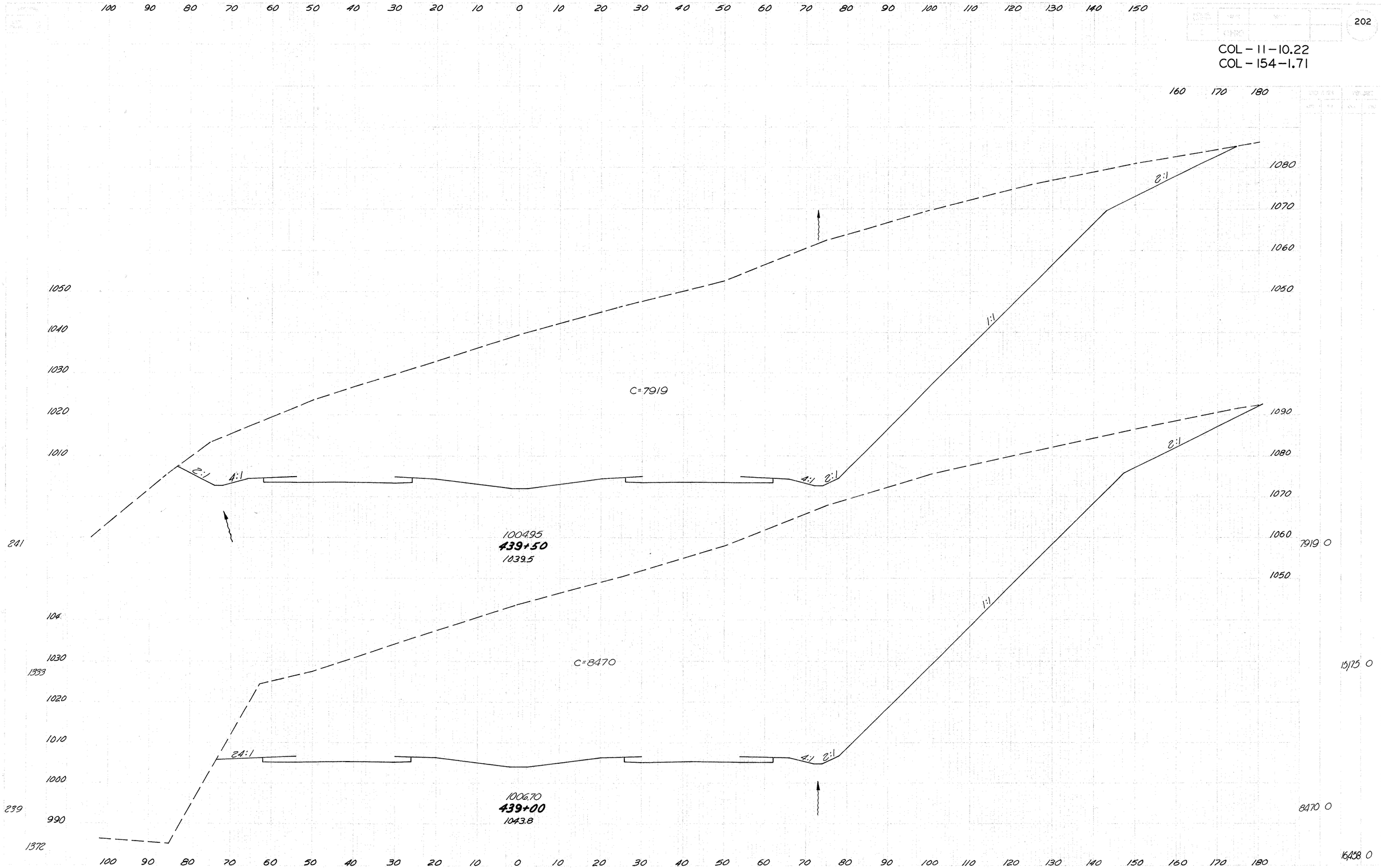
9710.0

18159.0

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

STA. 438+00 TO STA. 438+50

COL – 11 – 10.22
COL – 154 – 1.71



STA. 439 + 00 TO STA. 439 + 50

COL – 11 – 10.22
COL – 154 – 1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

1060
1050
1040
1030
1020
1010
1000
990
980

C=6258

2:1 4:1 4:1 2:1 1:1 1:2

100.45
440+50
1031.1

200

6258.0

1256

C=6878

2:1 4:1 4:1 2:1 1:1 1:2

100.20
440+00
1033.6

238

6878.0

1314

12,163.0

13,701.0

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 440 + 00 TO STA. 440 + 50

COL - 11 - 10.22
COL - 154 - 1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

1010 1000 990 980

176

2:1 4:1 C=4756 4:1 2:1 1:1 2:1

996.20
442+00
1022.7

1030 1020 1010 4756 0 1040

1050 1010 1000 990 980

202

2:1 4:1 C=5397 4:1 2:1 1:1 2:1

997.95
441+50
1026.6

1030 1020 1010 9401 0 1050 5397 0 1040

1111

1010 1000 990 980

198

2:1 4:1 C=5748 4:1 2:1 1:1

999.70
441+00
1029.0

1030 1020 10319 0 5748 0

1161

1117 0

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 441+00 TO STA. 442+00

COL-11-10.22
COL-154-1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

62 1000 990 980

C=89 F=5 C=186

1"/ft 3:1 3:1 6:1 4:1 2:1

989.45
443+93
990.2

1000 990 980 275 5

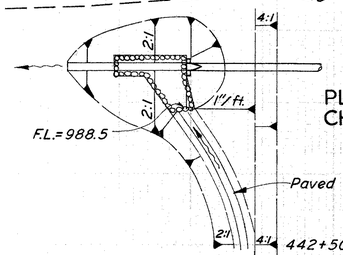
590 1000 990 980

F=38 4:1 C=1112 3:1 3:1 4:1 2:1

990.95
443+50
996.4

1000 990 980 1104 34 1112 38

143



PLAN-OUTLET CHANNEL (28-55)

Scale: 0 10' 20'

Paved Gutter, Std Type 1-2

833 1000 990 980

442+50

91'

C=2412

7.3'

Normal Roadway Section

1"/ft. 2:1

1% F.L. 983.66

Std. HW-E

F.L. Grate=989.88

Std. No.4 C.B.

24"@1%

F.L.=984.55

F.L.=984.61

24"@1%

F.L. Grate=990.70

4:1 2:1

F.L.=985.3

Std. No. 5 Catch Basin

1:1 2:1

1010 1000 990

3263 35

ESTIMATED QUANTITIES

Item 603 - 24" Conduit, Type B, Class B Bedding	164 Lin. Ft.
Item 604 - Std. No. 5 Catch Basin	1 Each
Item 604 - Std. No. 4 Catch Basin	1 Each
Item 602 - Concrete Masonry	0.41 Cu.Yd.
Item 601 - Dumped Rock Channel Protection	12 Cu.Yd.

Quantities carried to Sheet No. 45
Excavation for (28-55) Channel → 60

157

Carried with Earthwork

C=90 2:1 2:1

Excav. = $\left[\left(\frac{90+21}{2}\times 28\right)+\left(\frac{21}{2}\times 5\right)\right]\div 27 = 60$ Cu. Yds.

992.70
443+00
1005.9

1020 2412 0

SECTION A-A

SECTIONS
Scale 0 5' 10'

C=21 2' 2:1 8:1

SECTION B-B

872 1000 990

C=3485

2:1 4:1 4:1 2:1 1:1 2:1

1010 1000 5460 0

994.45
442+50
1014.5

157 980 3485 0

925

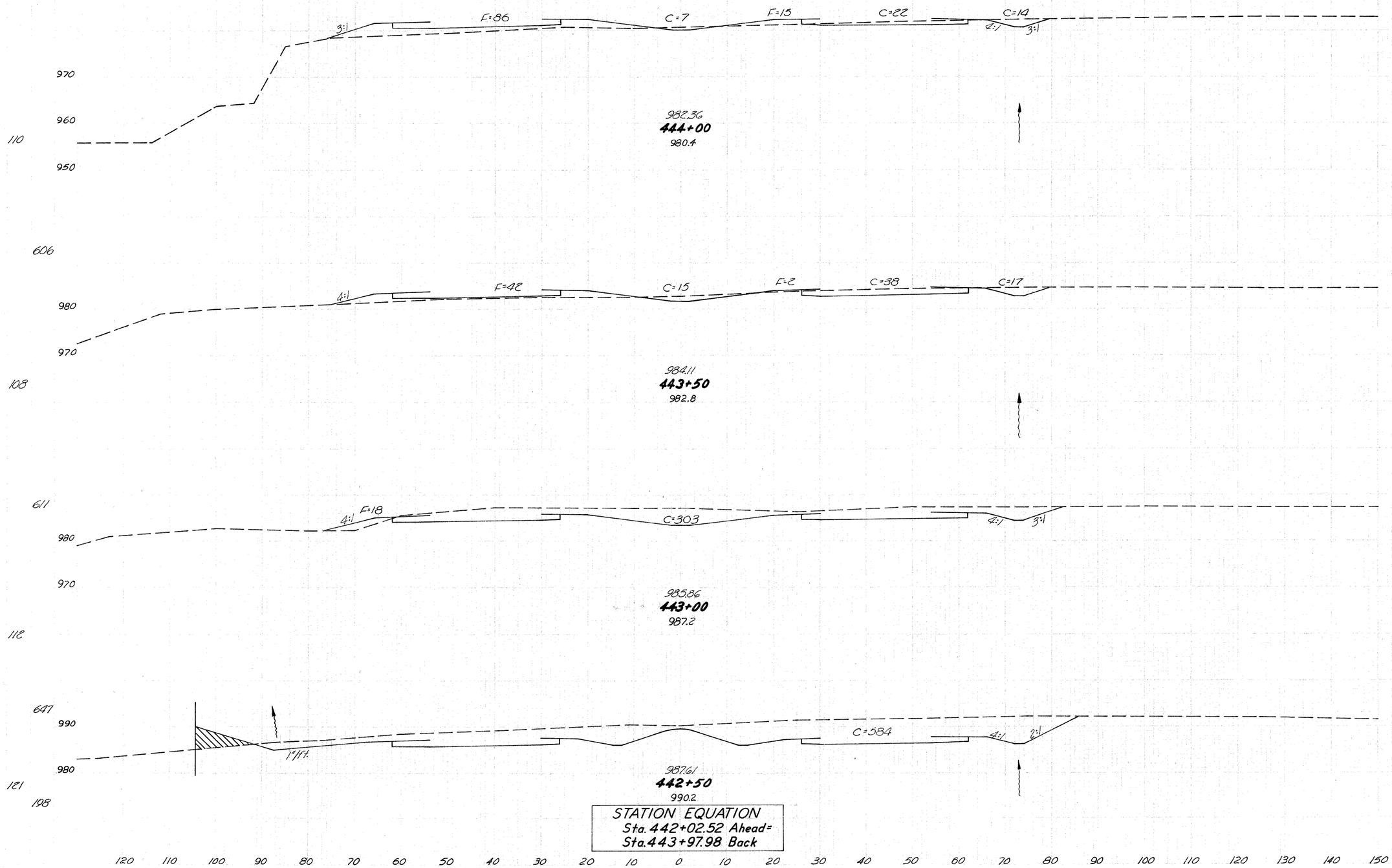
7631 0

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 442 + 50 TO STA. 443 + 93

COL – 11 – 10.22
COL – 154 – 1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130



STA. 442 + 50 TO STA. 444 + 00

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

207

COL – 11 – 10.22
COL – 154 – 1.71

F=55 C=16 F=7 C=11 C=40

2:1 4:1 3:1

960 950 940 930

980 970 960

116

977.11
445+50
975.6

67 62

154 67

608

F=82 C=4 F=13 F=4 C=6

970 960 950 940

978.86
445+00
976.8

103

99 10

575

F=125 F=14 C=18 F=3 C=6

2:1 4:1 3:1

970 960 950 940

980 970

980.61
444+50
978.0

104

114 141

24 142

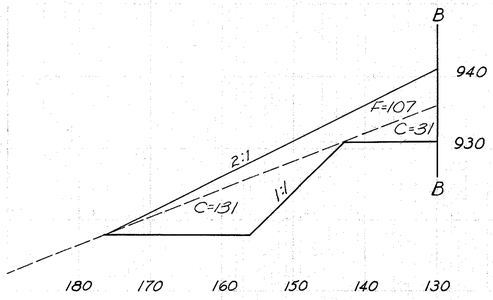
594

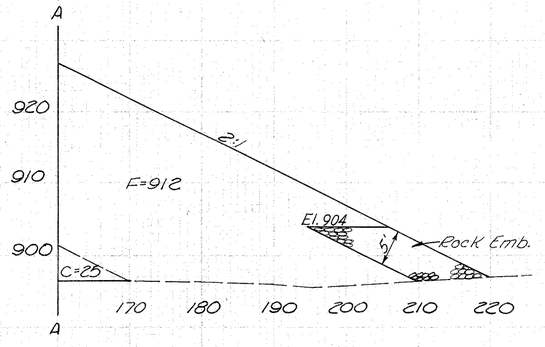
62 225

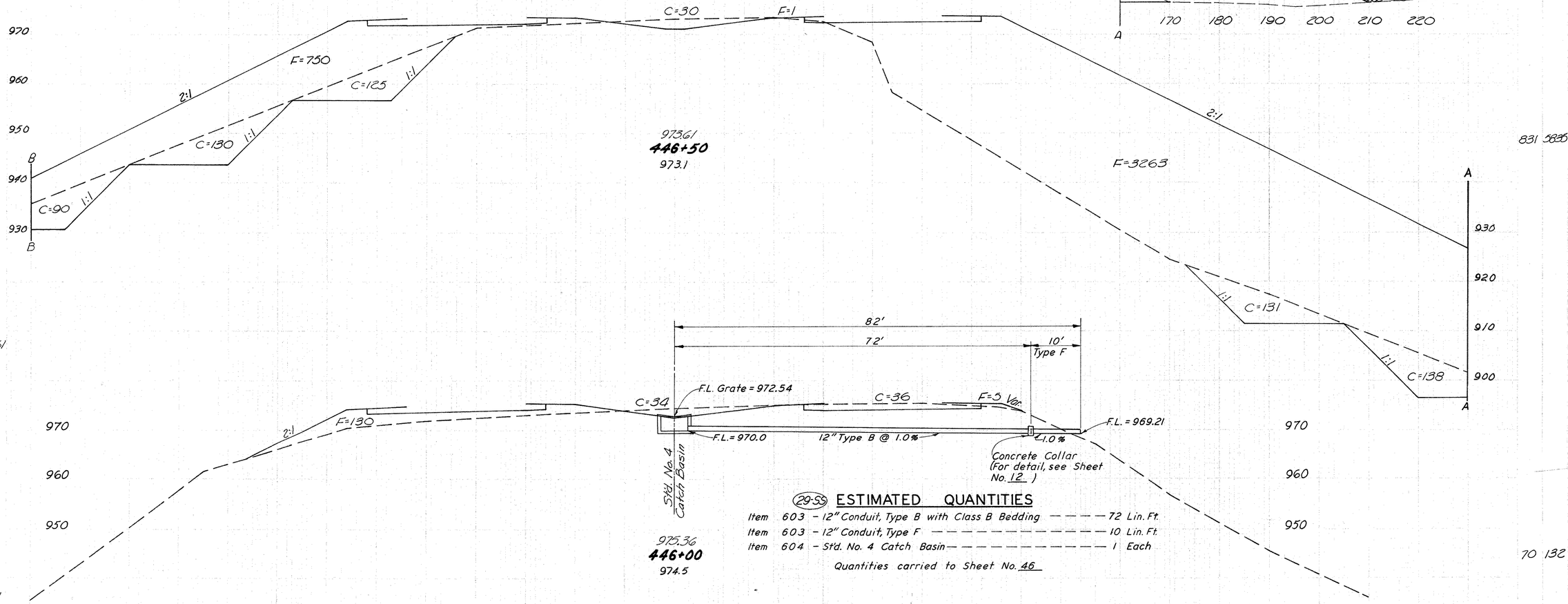
120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 444 + 50 TO STA. 445 + 50

COL – 11 – 10.22
COL – 154 – 1.71







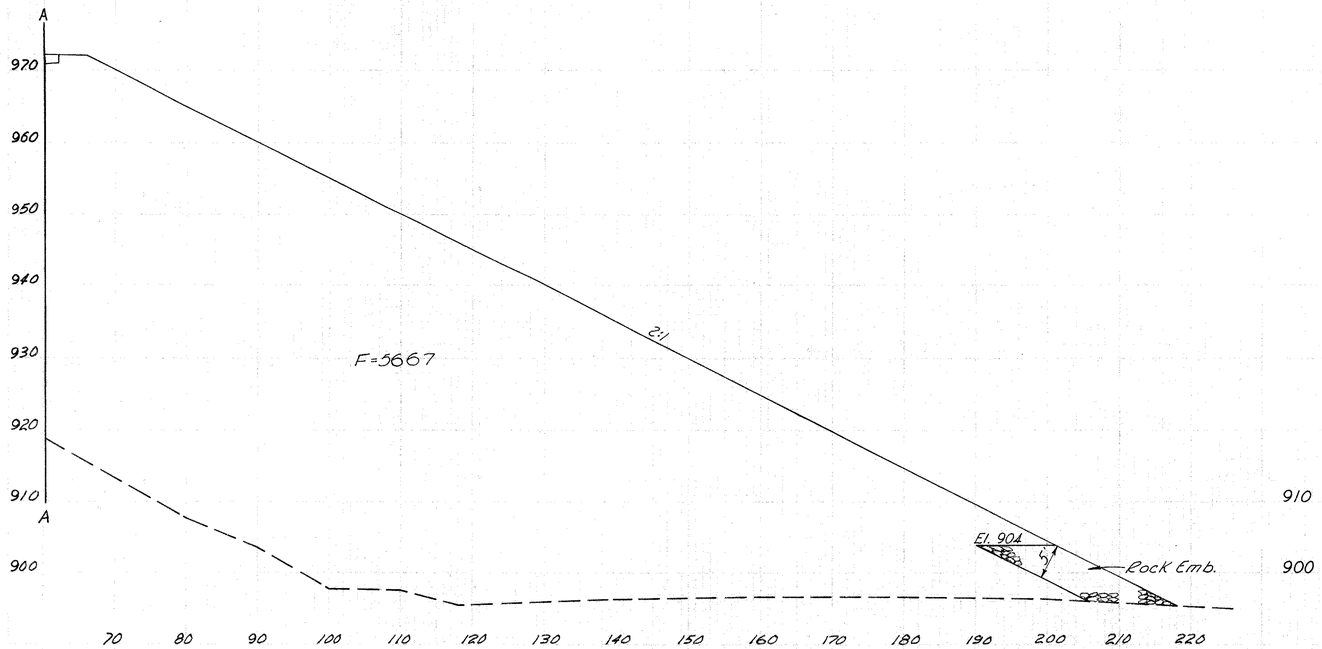
(29-SS) ESTIMATED QUANTITIES

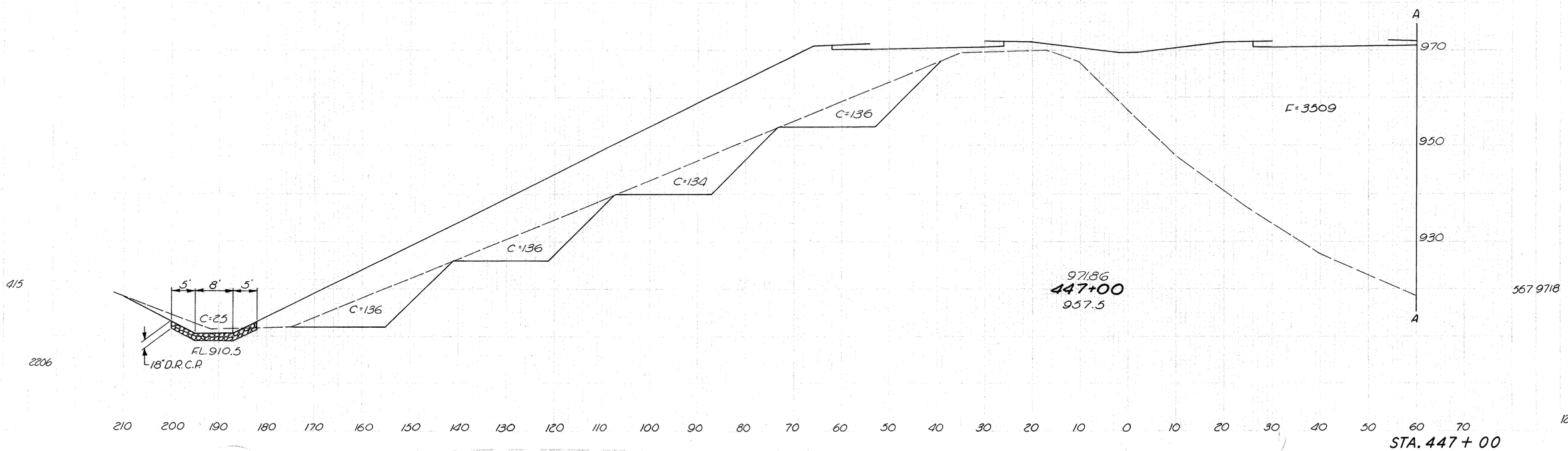
Item 603	– 12" Conduit, Type B with Class B Bedding	72 Lin. Ft.
Item 603	– 12" Conduit, Type F	10 Lin. Ft.
Item 604	– Std. No. 4 Catch Basin	1 Each

Quantities carried to Sheet No. 46

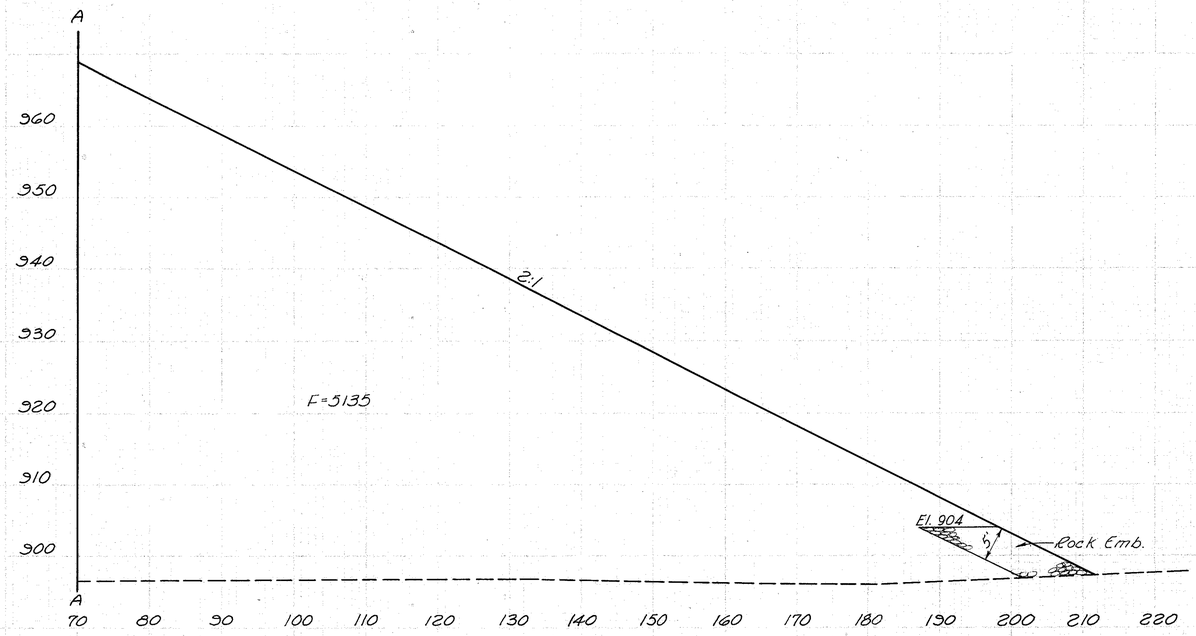
STA. 446 + 00 TO STA. 446 + 50

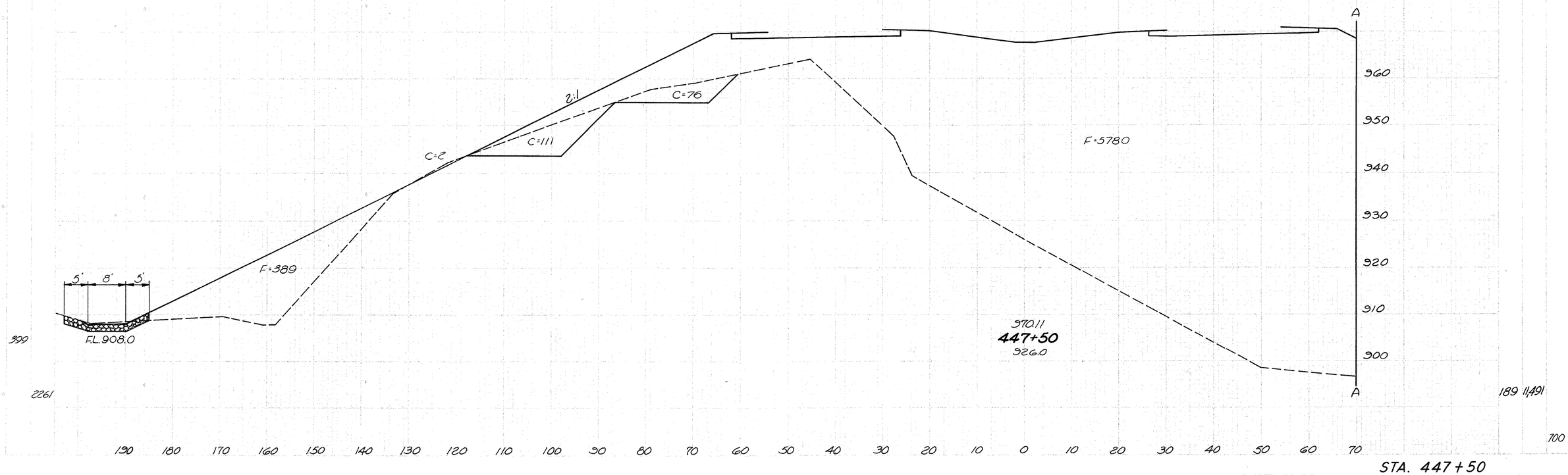
COL – 11 – 10.22
COL – 154 – 1.71



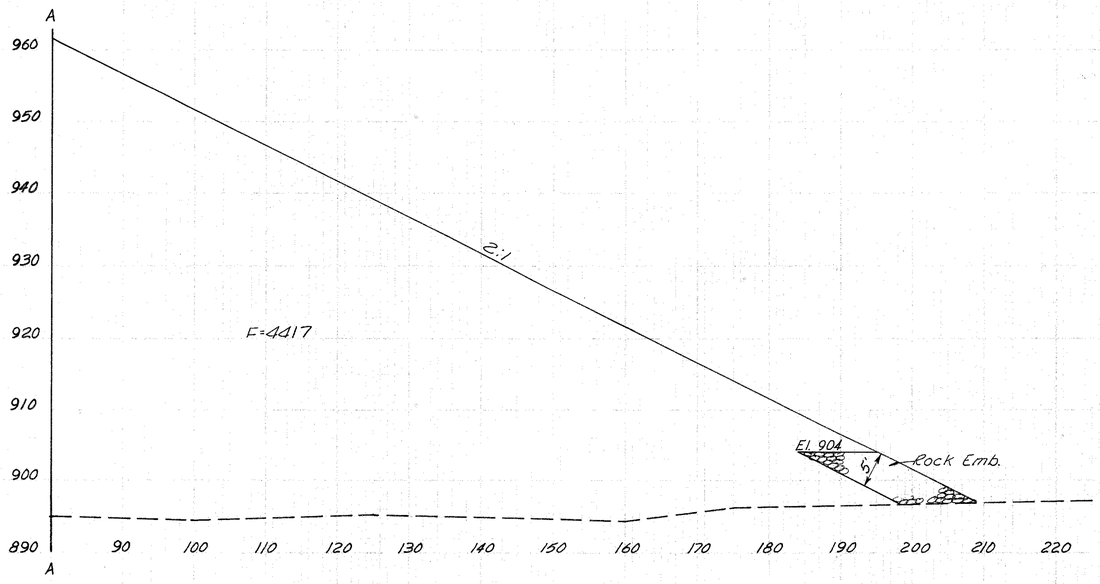


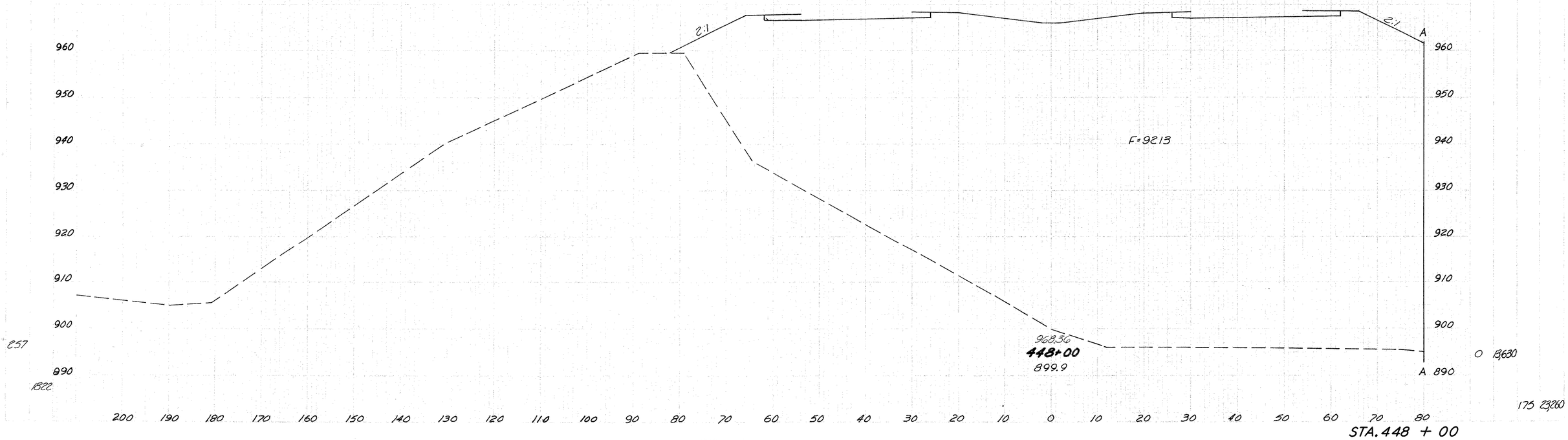
COL – 11 – 10.22
COL – 154 – 1.71



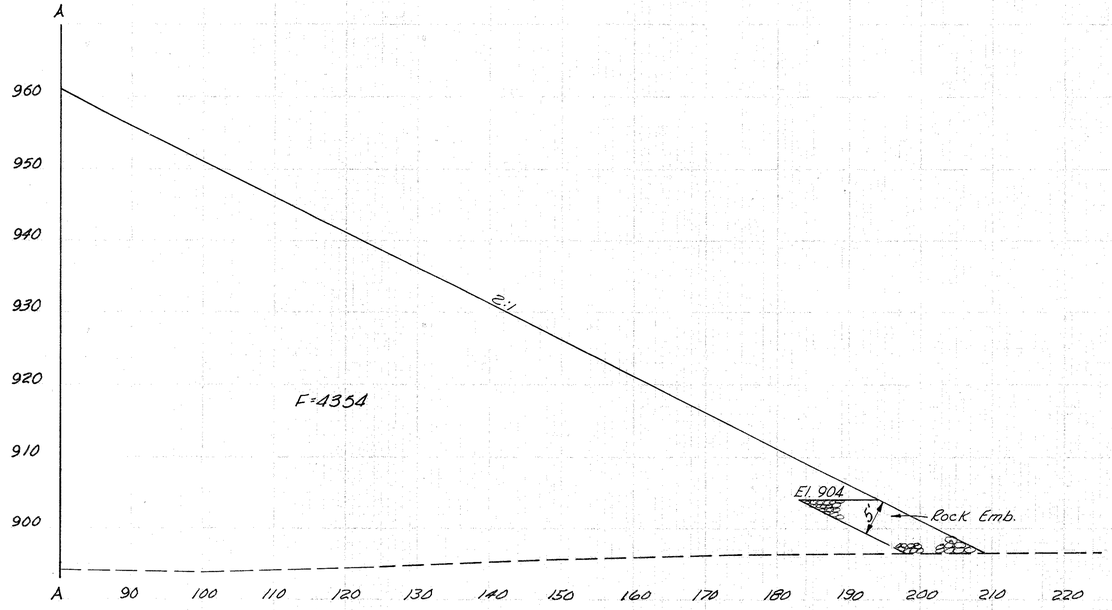


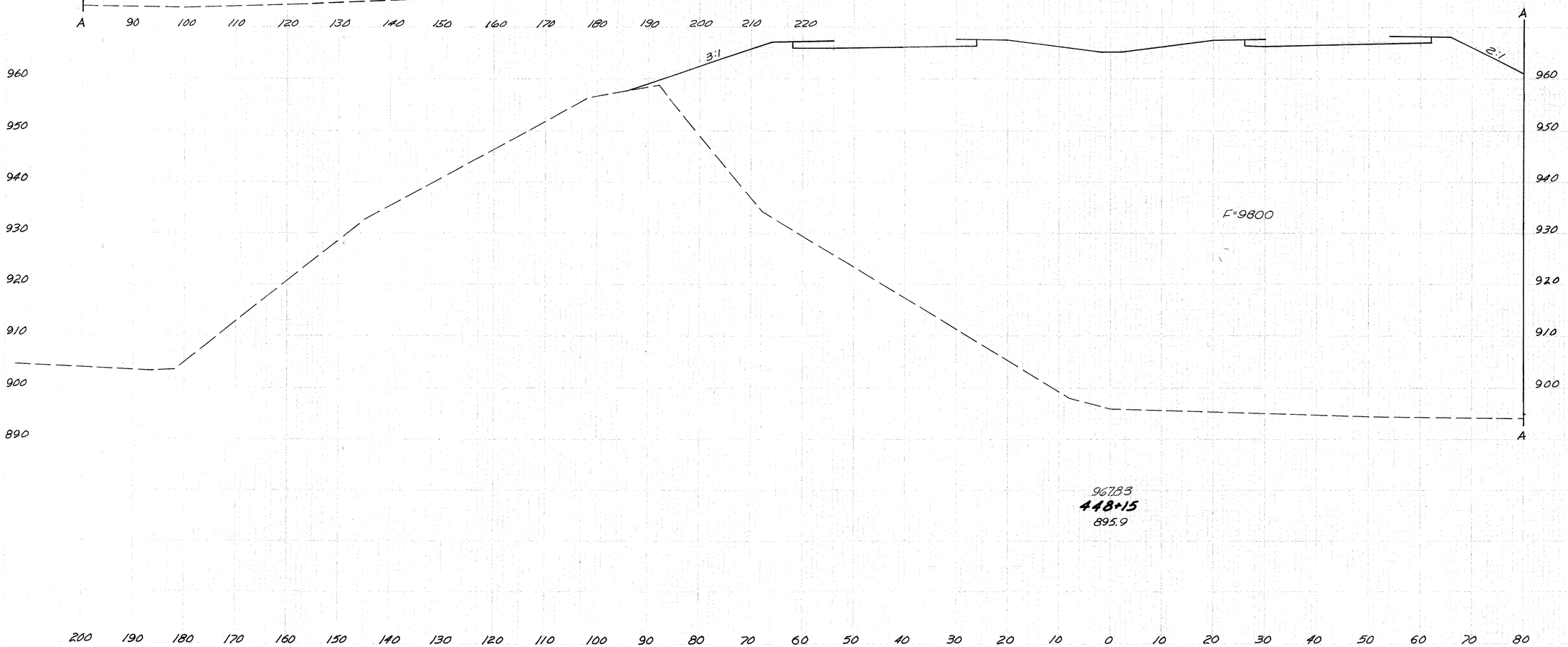
COL – 11 – 10.22
COL – 154 – 1.71





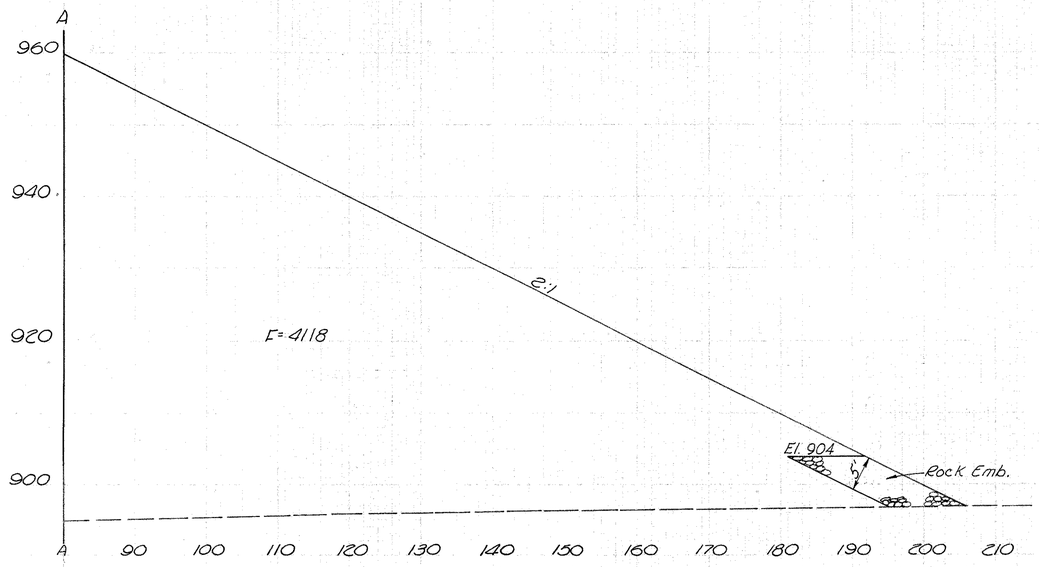
COL – 11 – 10.22
COL – 154 – 1.71

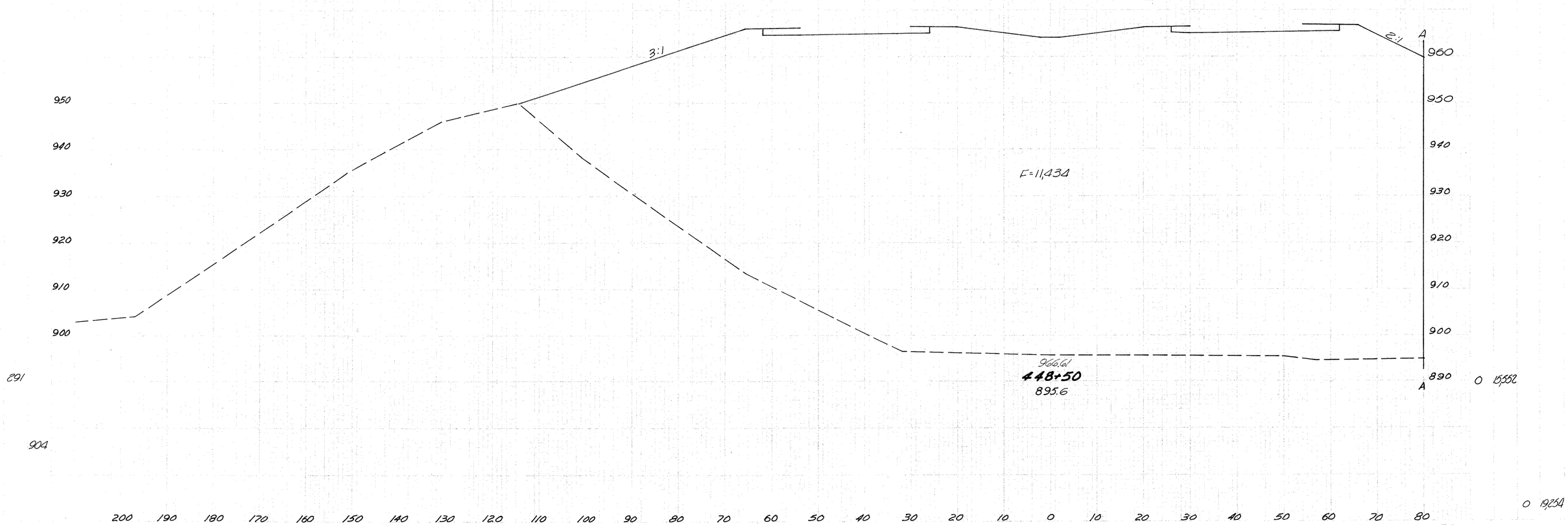




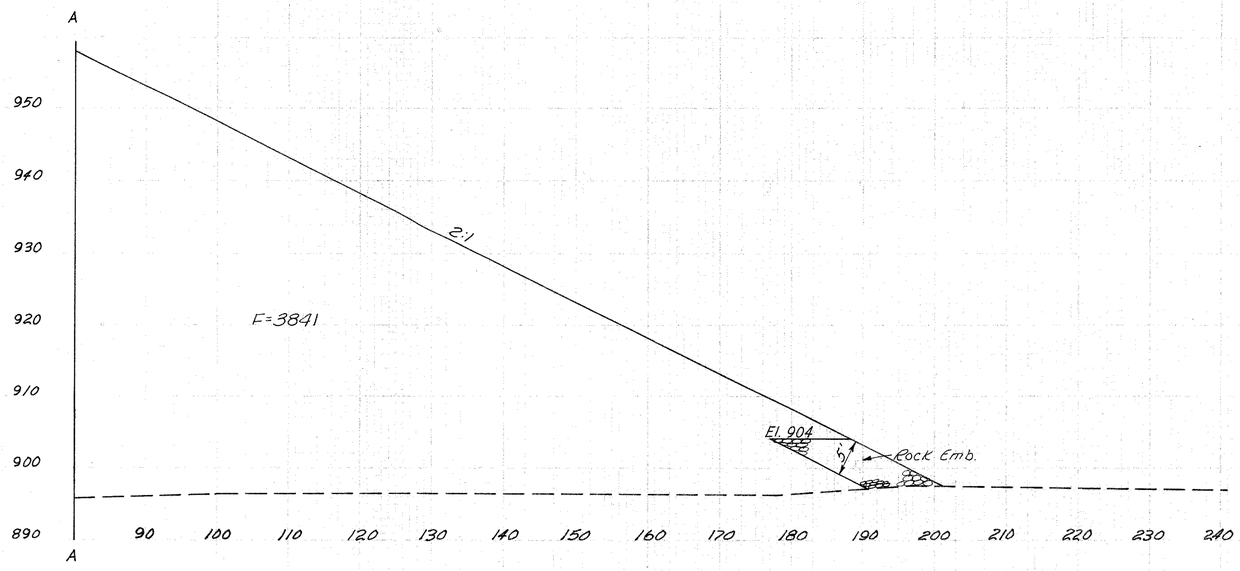
STA. 448 + 15

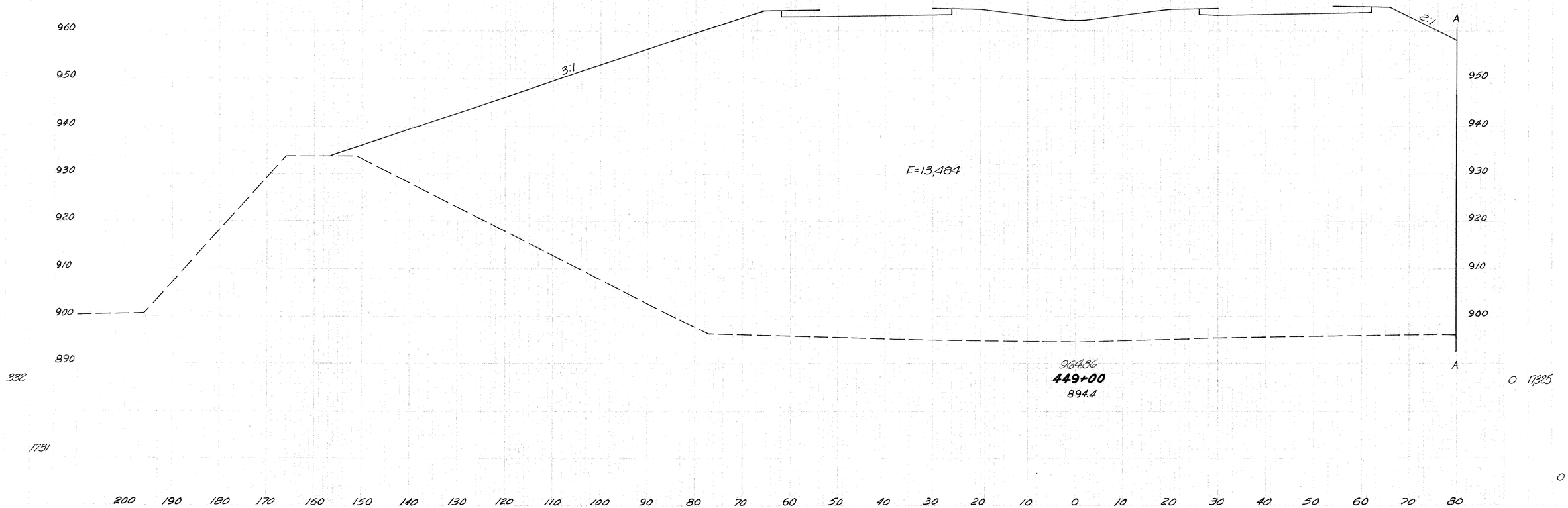
COL – 11 – 10.22
COL – 154 – 1.71





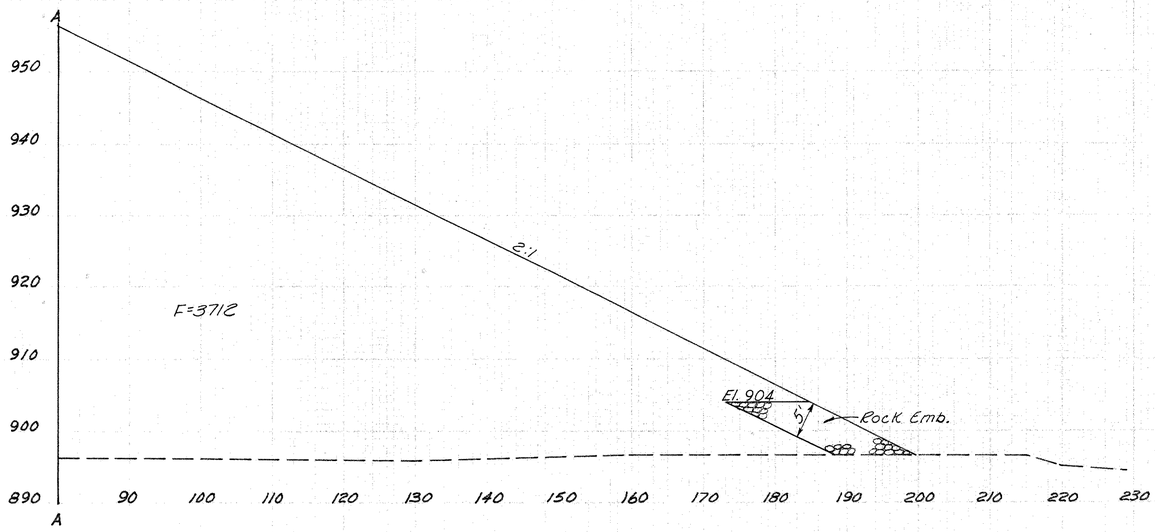
COL – 11 – 10.22
COL – 154 – 1.71

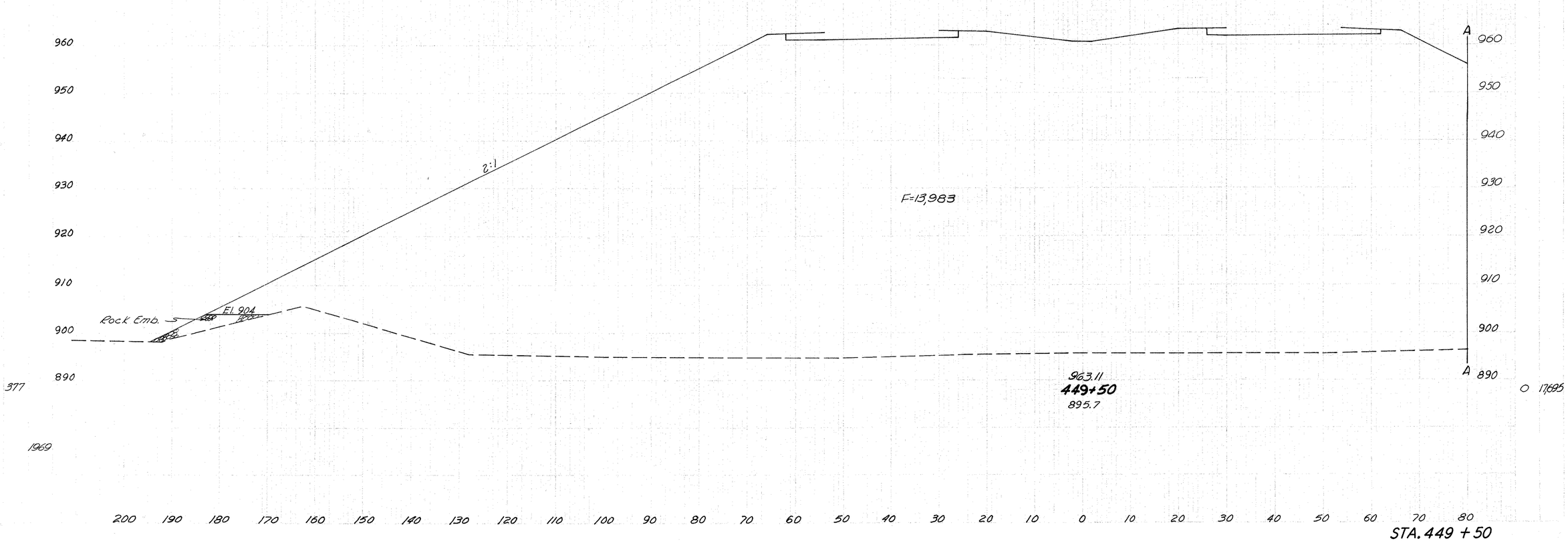




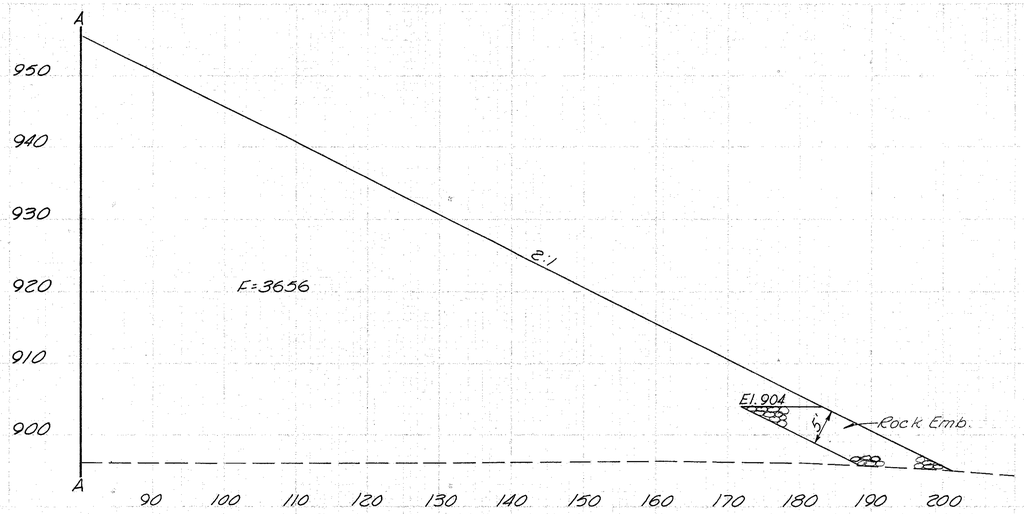
STA. 449 + 00

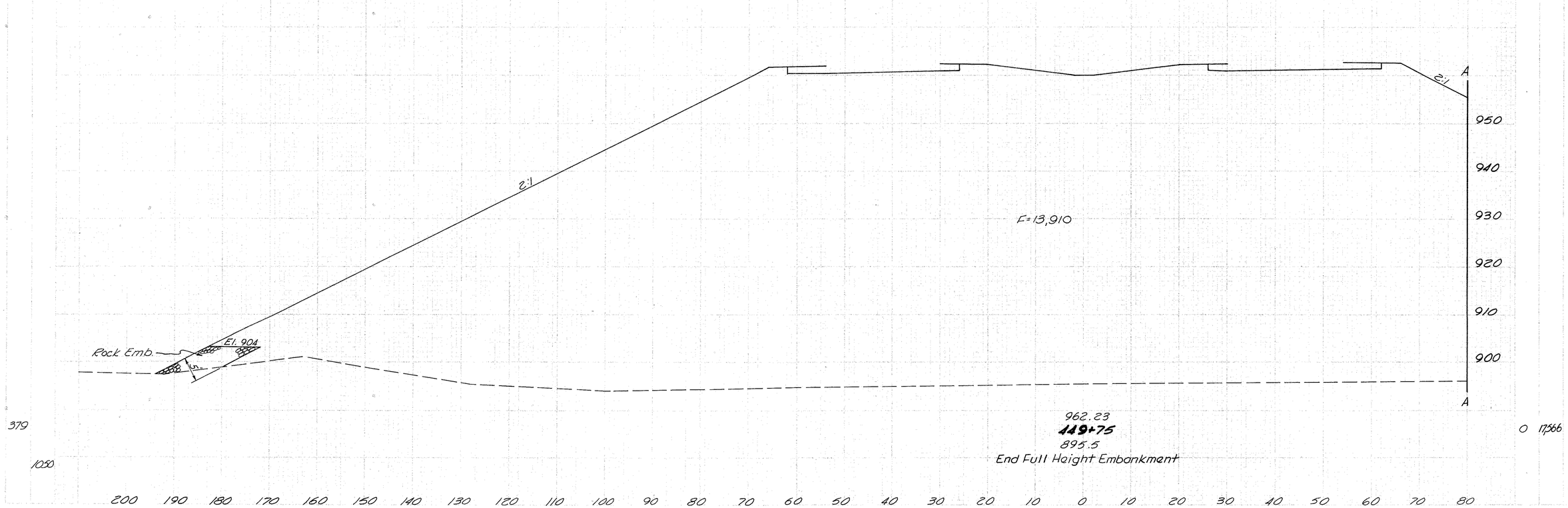
COL – 11 – 10.22
COL – 154 – 1.71



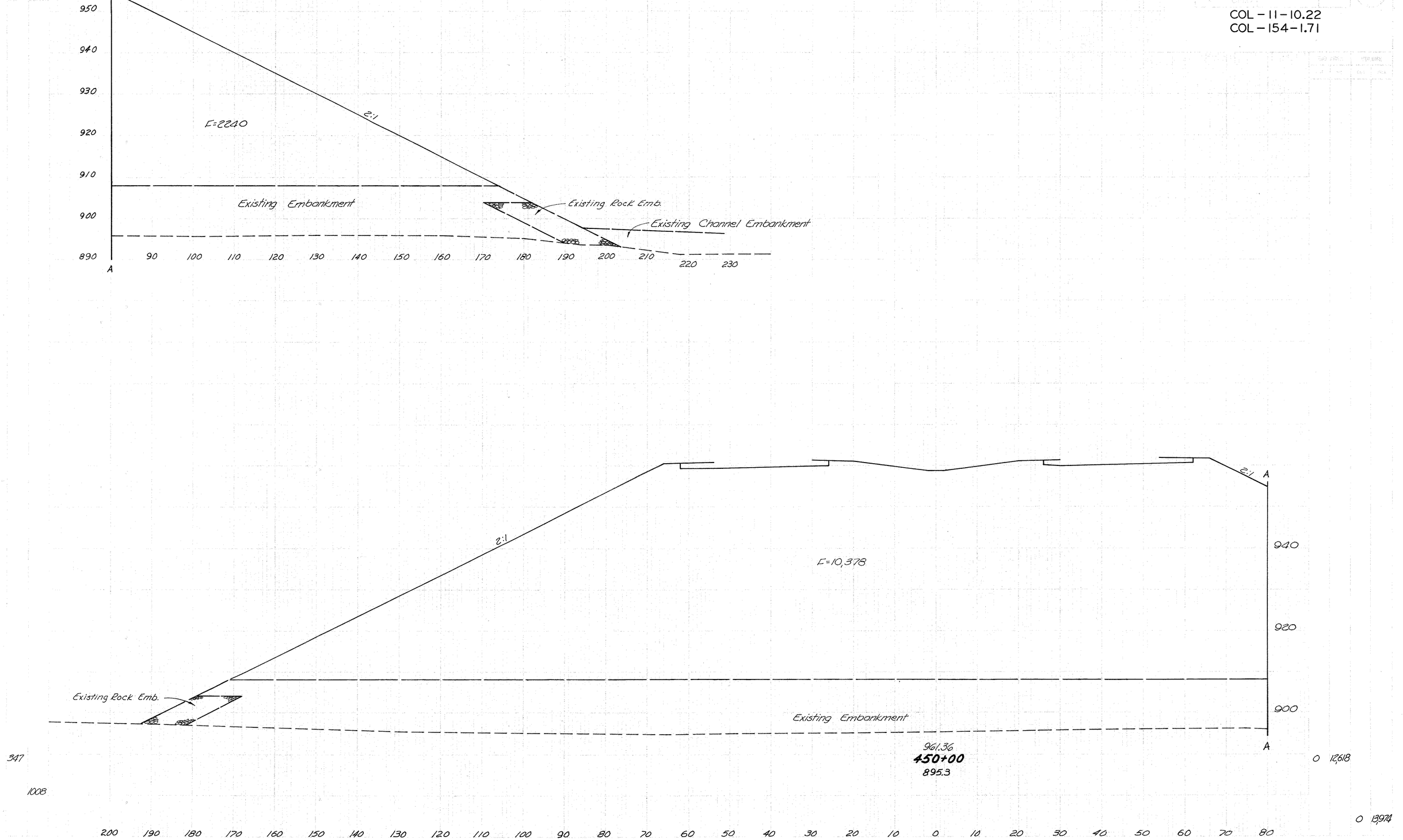


COL – 11 – 10.22
COL – 154 – 1.71

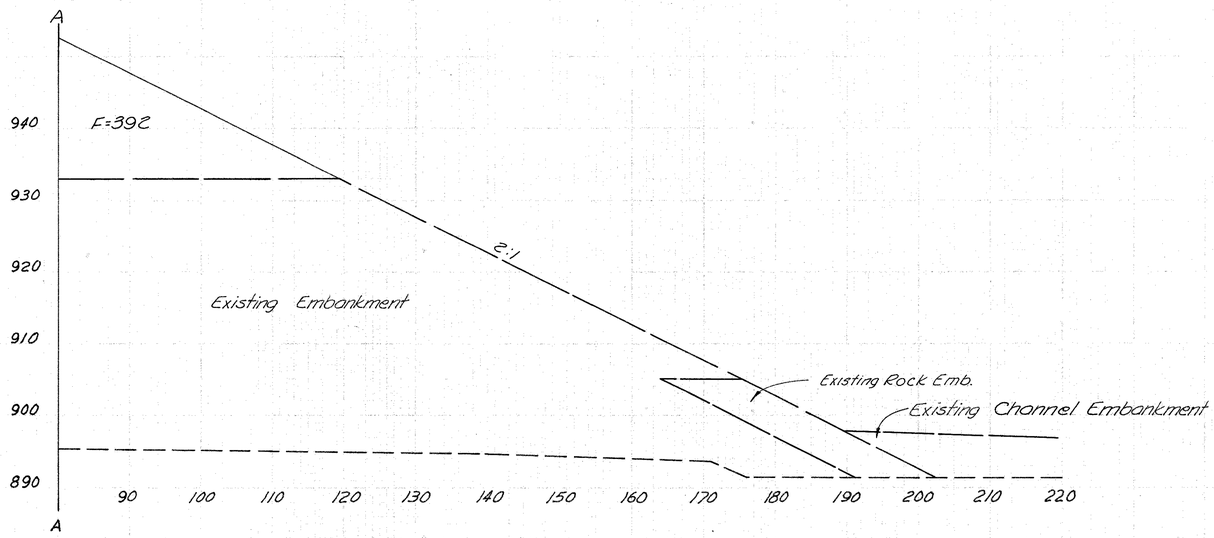


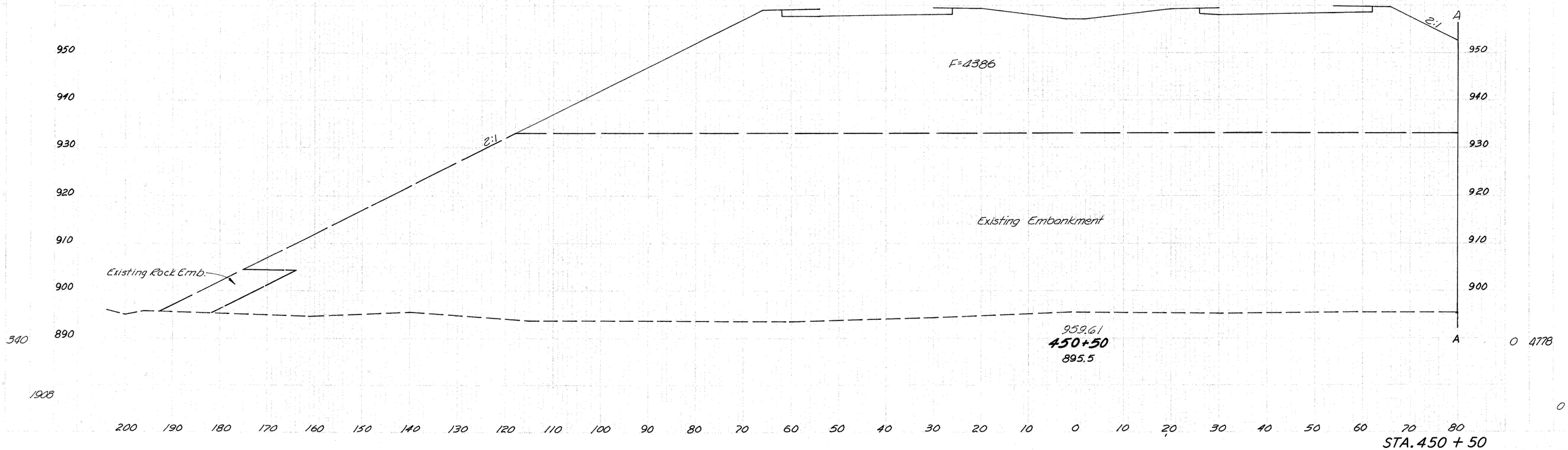


COL – 11 – 10.22
COL – 154 – 1.71

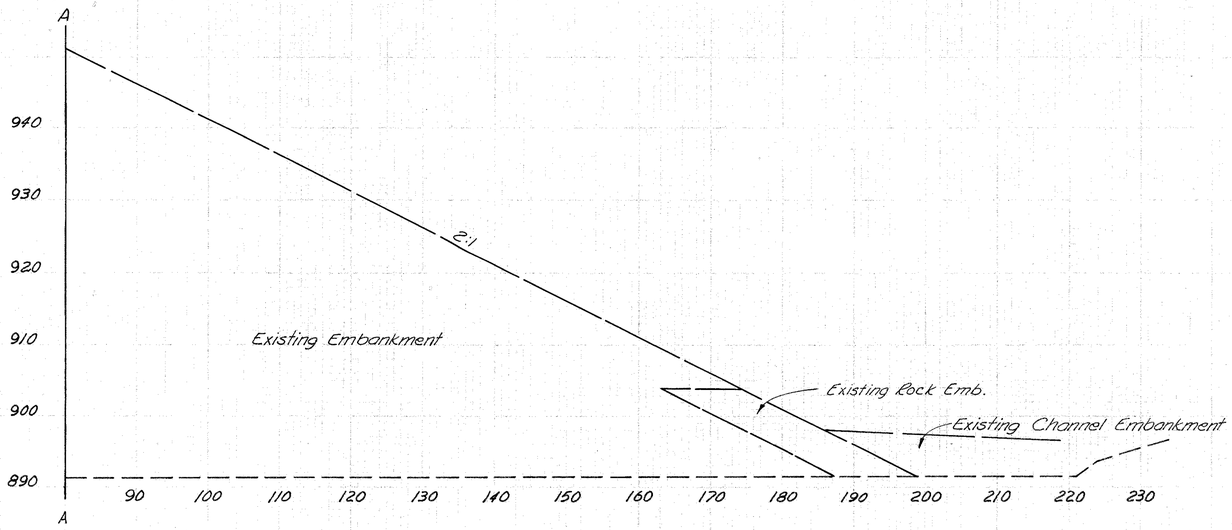


COL – 11–10.22
COL – 154–1.71



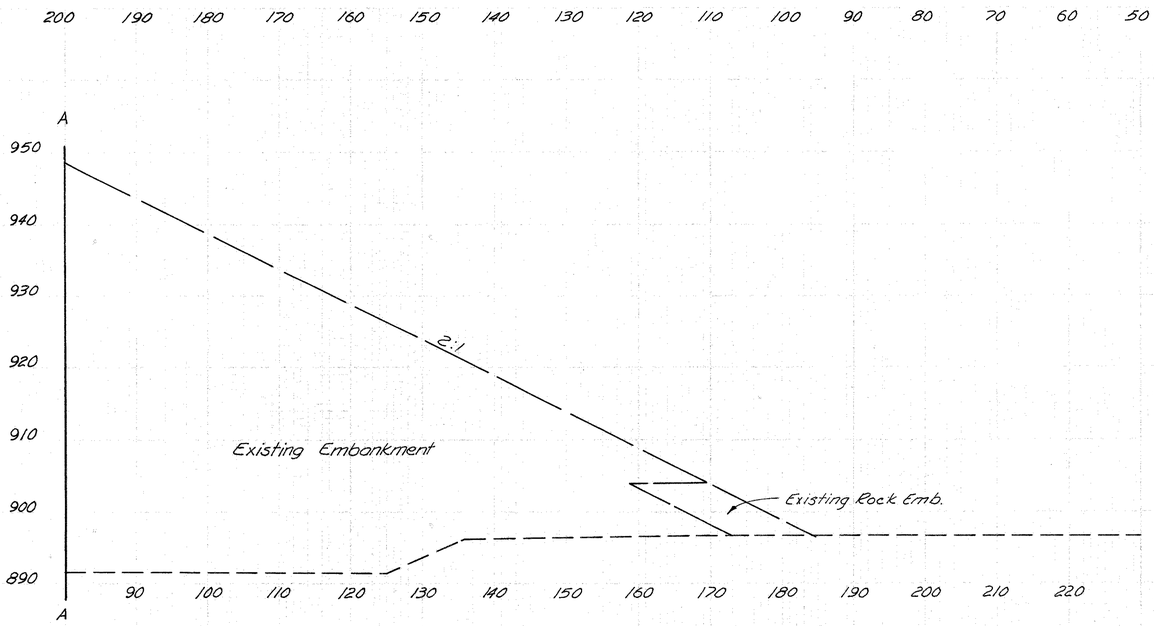


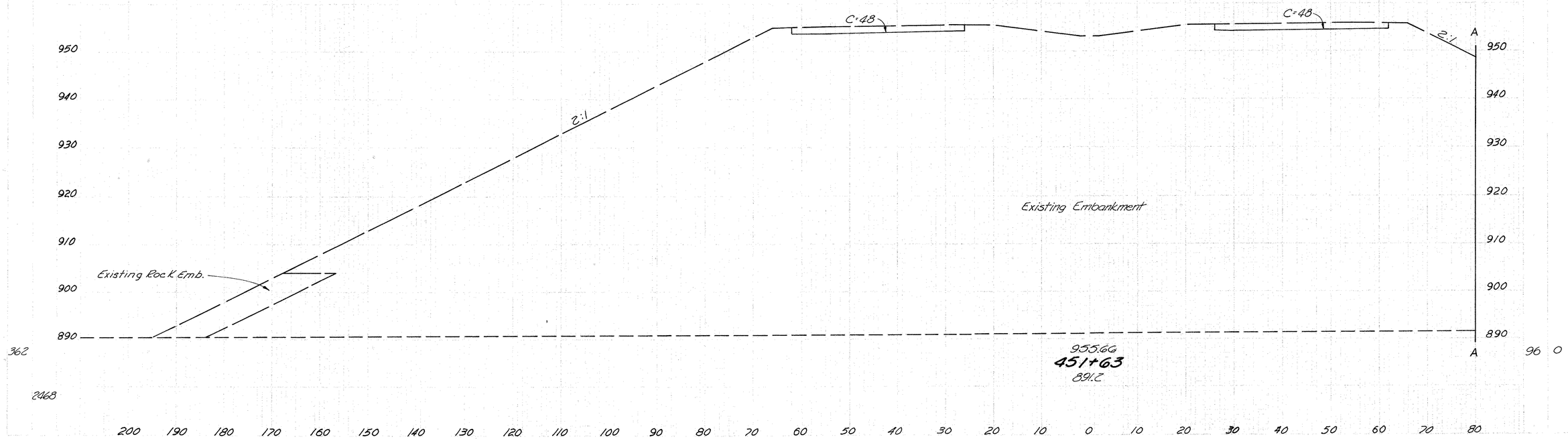
COL-11-10.22
COL-154-1.71



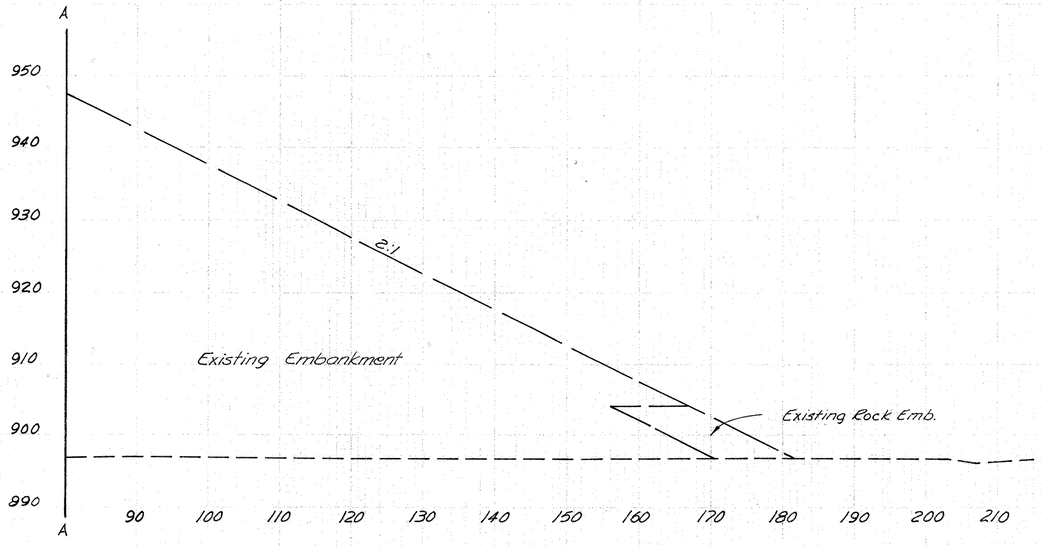


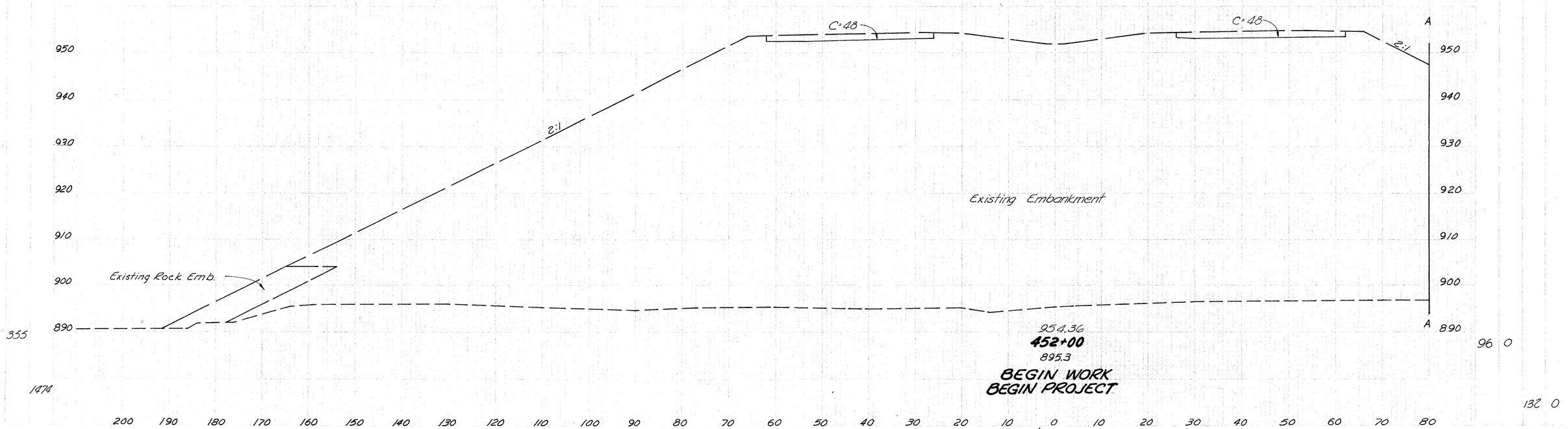
COL-11-10.22
COL-154-1.71

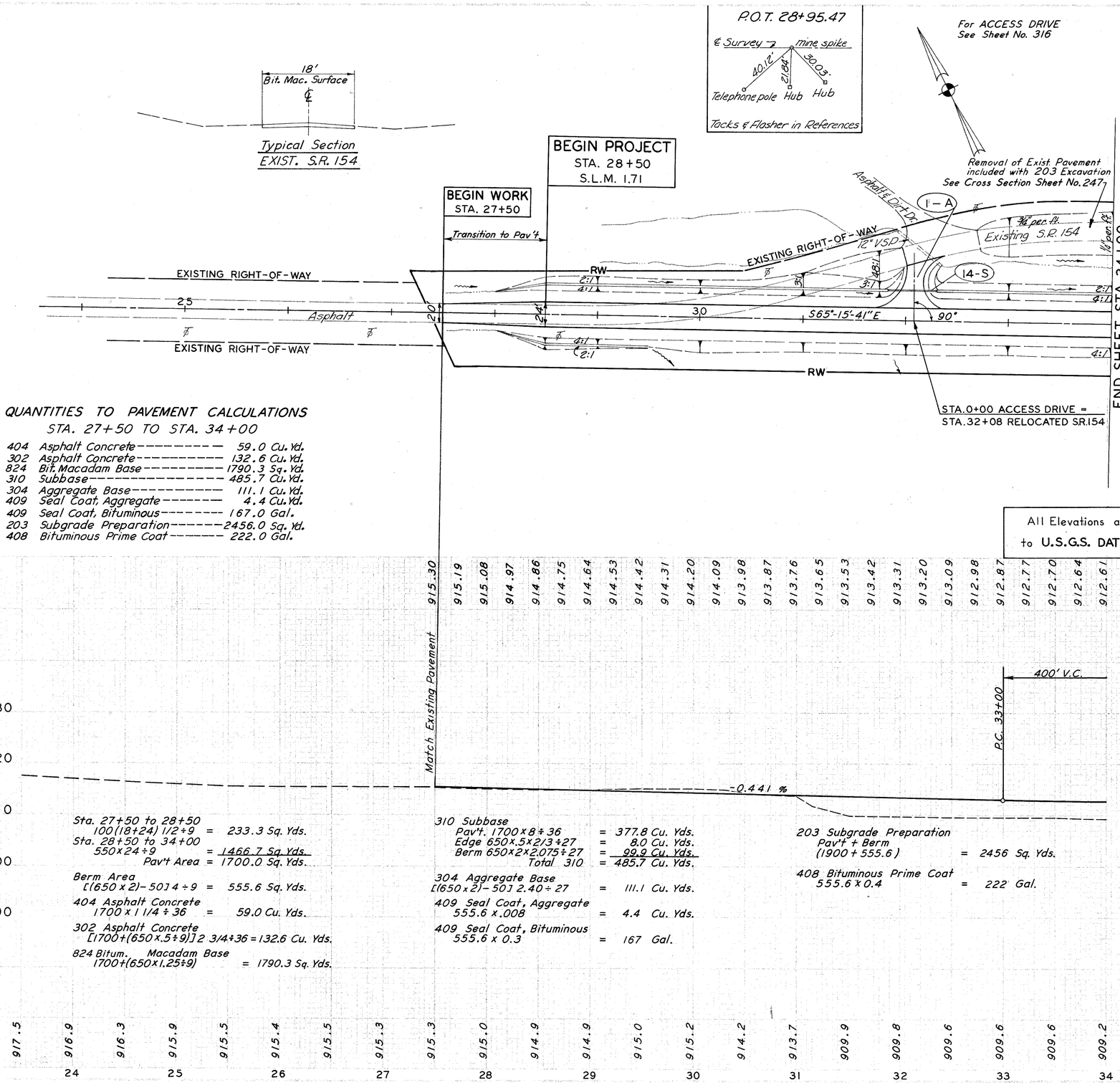




COL-11-10.22
COL-154-1.71







QUANTITIES TO PAVEMENT CALCULATIONS
STA. 27+50 TO STA. 34+00

404	Asphalt Concrete	59.0 Cu. Yd.
302	Asphalt Concrete	132.6 Cu. Yd.
824	Bit. Macadam Base	1790.3 Sq. Yd.
310	Subbase	485.7 Cu. Yd.
304	Aggregate Base	111.1 Cu. Yd.
409	Seal Coat, Aggregate	4.4 Cu. Yd.
409	Seal Coat, Bituminous	167.0 Gal.
203	Subgrade Preparation	2456.0 Sq. Yd.
408	Bituminous Prime Coat	222.0 Gal.

Sta. 27+50 to 28+50
100(18+24) 1/2÷9 = 233.3 Sq. Yds.
Sta. 28+50 to 34+00
550x24÷9 = 1466.7 Sq. Yds.
Pav't Area = 1700.0 Sq. Yds.

Berm Area
[(650 x 2)- 50] 4 ÷ 9 = 555.6 Sq. Yds.

404 Asphalt Concrete
1700 x 1 1/4 ÷ 36 = 59.0 Cu. Yds.

302 Asphalt Concrete
[1700+(650x.5÷9)] 2 3/4÷36 = 132.6 Cu. Yds.

824 Bitum. Macadam Base
1700+(650x1.25÷9) = 1790.3 Sq. Yds.

310 Subbase
Pav't. 1700x8÷36 = 377.8 Cu. Yds.
Edge 650x.5x2/3÷27 = 8.0 Cu. Yds.
Berm 650x2x2.075÷27 = 99.9 Cu. Yds.
Total 310 = 485.7 Cu. Yds.

304 Aggregate Base
[(650x2)- 50] 2.40 ÷ 27 = 111.1 Cu. Yds.

409 Seal Coat, Aggregate
555.6 x.008 = 4.4 Cu. Yds.

409 Seal Coat, Bituminous
555.6 x 0.3 = 167 Gal.

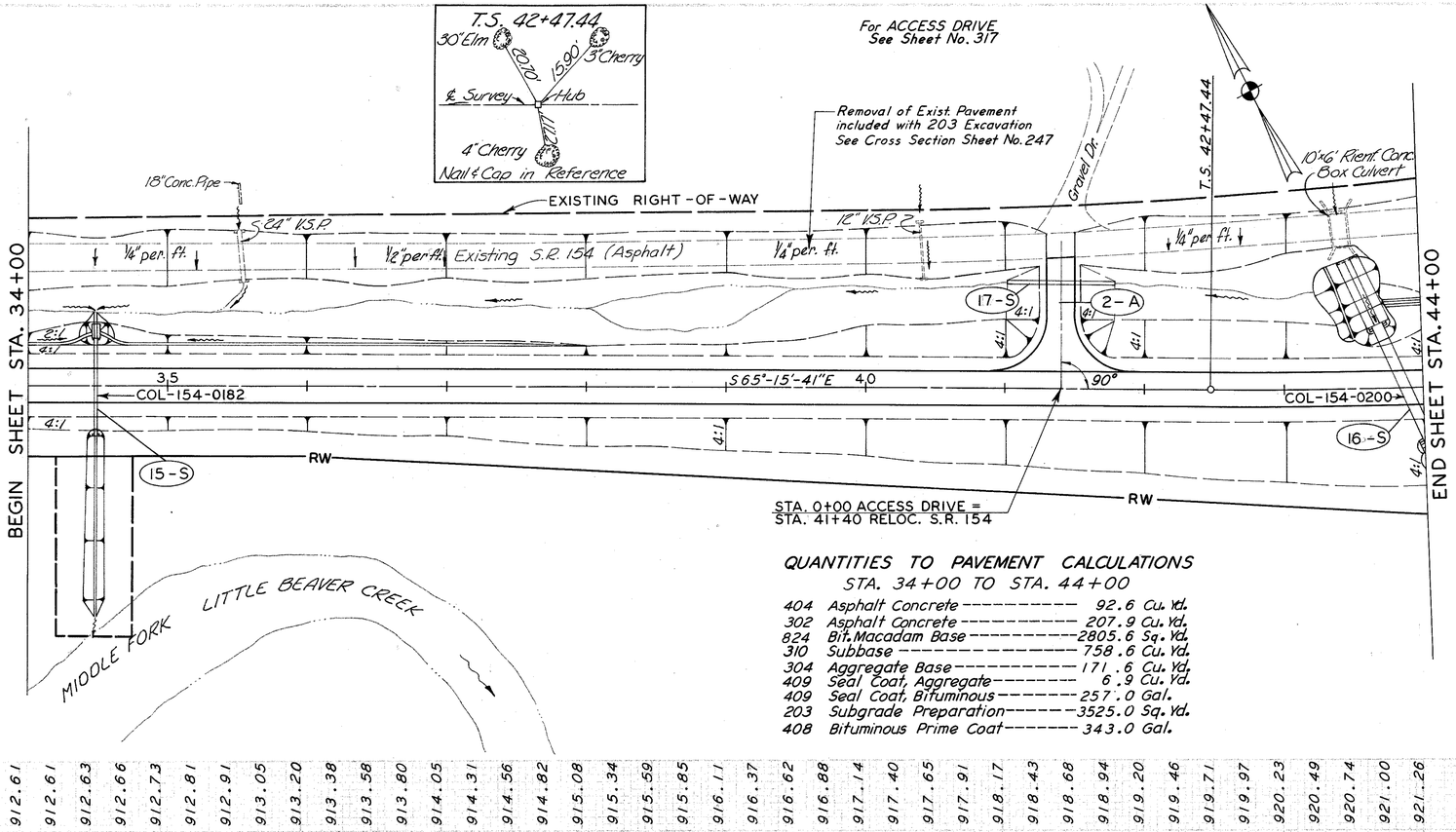
203 Subgrade Preparation
Pav't + Berm
(1900 + 555.6) = 2456 Sq. Yds.

408 Bituminous Prime Coat
555.6 x 0.4 = 222 Gal.

ESTIMATED QUANTITIES

603 Conduit 15" Type D	L.F.	316	353	48	48
304 7" Aggr. Base	C.Y.	27	8		27 8 0.60
404 2" Asphalt Concr.	C.Y.				0.60
602 Concrete Masonry	C.Y.				
1-A	Lt.	32+08			
14-S 0+29.8 ACCESS DR	L&R				

RELOCATED S.R. 154 STA. 27+50 TO STA. 34+00

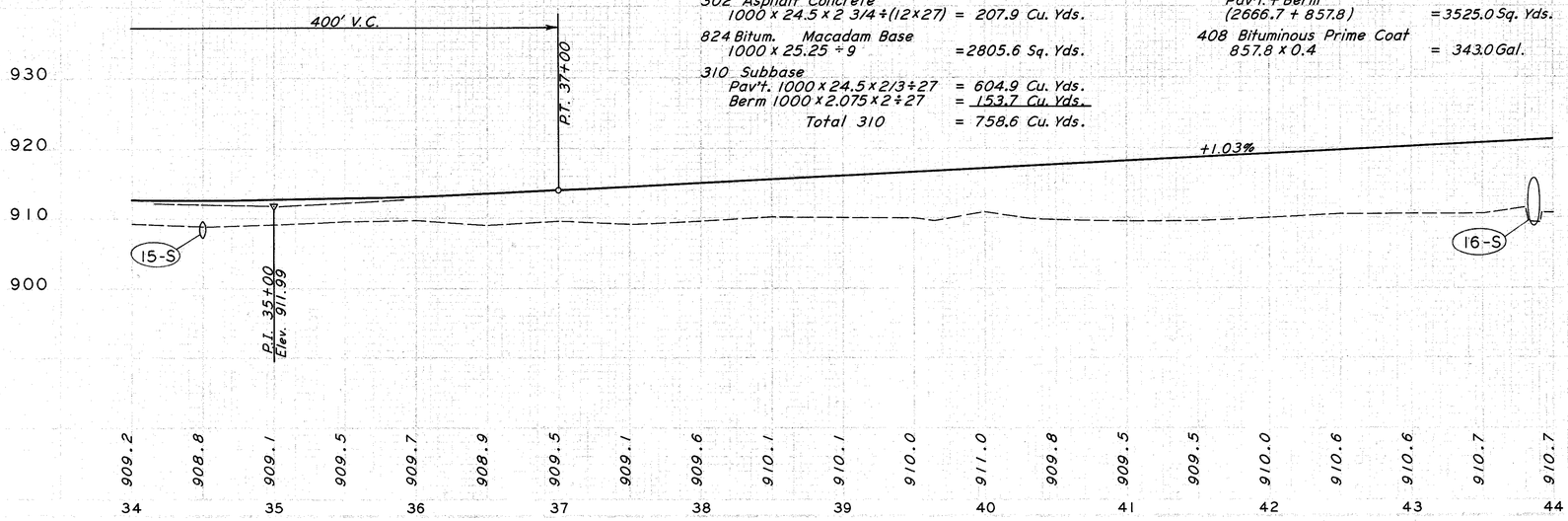


QUANTITIES TO PAVEMENT CALCULATIONS

STA. 34+00 TO STA. 44+00

404	Asphalt Concrete	92.6 Cu. Yd.
302	Asphalt Concrete	207.9 Cu. Yd.
824	Bit. Macadam Base	2805.6 Sq. Yd.
310	Subbase	758.6 Cu. Yd.
304	Aggregate Base	171.6 Cu. Yd.
409	Seal Coat, Aggregate	6.9 Cu. Yd.
409	Seal Coat, Bituminous	257.0 Gal.
203	Subgrade Preparation	3525.0 Sq. Yd.
408	Bituminous Prime Coat	343.0 Gal.

912.61 912.61 912.63 912.66 912.73 912.81 912.91 913.05 913.20 913.38 913.58 913.80 914.05 914.31 914.56 914.82 915.08 915.34 915.59 915.85 916.11 916.37 916.62 916.88 917.14 917.40 917.65 917.91 918.17 918.43 918.68 918.94 919.20 919.46 919.71 919.97 920.23 920.49 920.74 921.00 921.26



Sta. 34+00 to 44+00

Pav't Area
1000 x 24 ÷ 9 = 2666.7 Sq. Yds.

Berm Area
[(1000 x 2)-701 4 ÷ 9 = 857.8 Sq. Yds.

404 Asphalt Concrete
2666.7 x 1 1/4 ÷ 36 = 92.6 Cu. Yds.

302 Asphalt Concrete
1000 x 24.5 x 2 3/4 ÷ (12 x 27) = 207.9 Cu. Yds.

824 Bitum. Macadam Base
1000 x 25.25 ÷ 9 = 2805.6 Sq. Yds.

310 Subbase
Pav't. 1000 x 24.5 x 2/3 ÷ 27 = 604.9 Cu. Yds.
Berm 1000 x 2.075 x 2 ÷ 27 = 153.7 Cu. Yds.
Total 310 = 758.6 Cu. Yds.

304 Aggregate Base
[(1000 x 2)-701 2.40 ÷ 27 = 171.6 Cu. Yds.

409 Seal Coat, Aggregate
(1930 x 4 ÷ 9) 857.8 x .008 = 6.9 Cu. Yds.

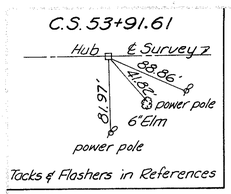
409 Seal Coat, Bituminous
(1930 x 4 ÷ 9) 857.8 x 0.3 = 257.0 Gal.

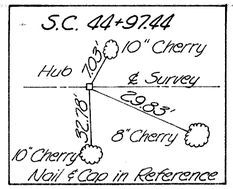
203 Subgrade Preparation
Pav't. + Berm
(2666.7 + 857.8) = 3525.0 Sq. Yds.

408 Bituminous Prime Coat
857.8 x 0.4 = 343.0 Gal.

| | | |

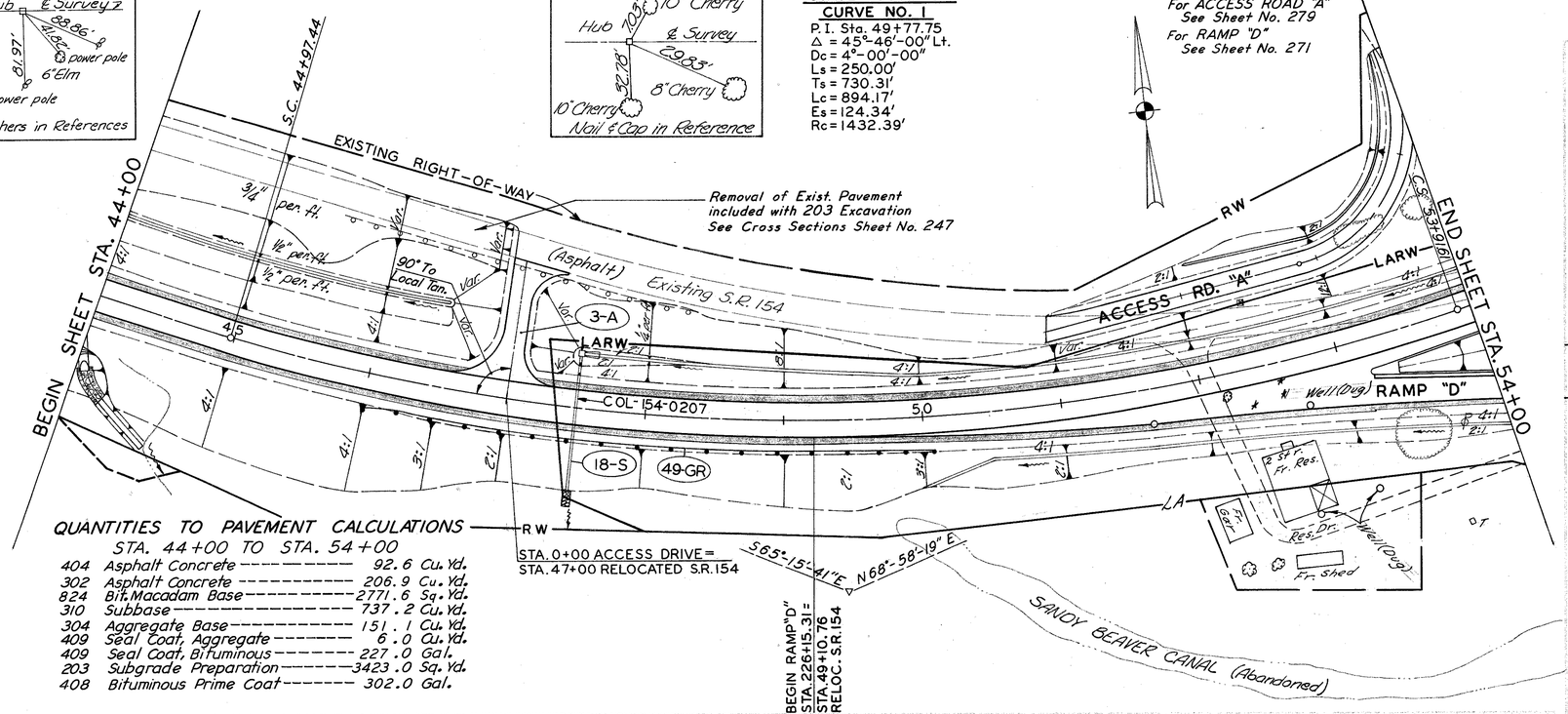
COL-11-10.22 COL-154-1.71





STATE ROUTE 154
CURVE NO. 1
P.I. Sta. 49+77.75
Δ = 45°-46'-00" Lt.
Dc = 4°-00'-00"
Ls = 250.00'
Ts = 730.31'
Lc = 894.17'
Es = 124.34'
Rc = 1432.39'

For ACCESS DRIVE
See Sheet No. 317
For ACCESS ROAD "A"
See Sheet No. 279
For RAMP "D"
See Sheet No. 271



QUANTITIES TO PAVEMENT CALCULATIONS

STA. 44+00 TO STA. 54+00

404	Asphalt Concrete	92.6 Cu. Yd.
302	Asphalt Concrete	206.9 Cu. Yd.
824	Bit. Macadam Base	2771.6 Sq. Yd.
310	Subbase	737.2 Cu. Yd.
304	Aggregate Base	151.1 Cu. Yd.
409	Seal Coat, Aggregate	6.0 Cu. Yd.
409	Seal Coat, Bituminous	227.0 Gal.
203	Subgrade Preparation	3423.0 Sq. Yd.
408	Bituminous Prime Coat	302.0 Gal.

921.26 921.52 921.77 922.03 922.29 922.55 922.80 923.06 923.32 923.58 923.83 924.09 924.35 924.61 924.86 925.12 925.38 925.64 925.89 926.15 926.41 926.67 926.92 927.18 927.44 927.70 927.95 928.21 928.47 928.73 928.98 929.24 929.50 929.76 930.01 930.27 930.53 930.79 931.04 931.30 931.56

Sta. 44+00 to 54+00
Pav't Area
1000 x 24 ÷ 9 = 2666.7 Sq. Yds.

Berm Area
Length Lt. + Length Rt. + Taper
(1000 + 510.76 + 250 = 1700.76 L.F.)
1700.76 x 4 ÷ 9 = 755.9 Sq. Yds.

404 Asphalt Concrete
2666.7 x 1 1/4 ÷ 36 = 92.6 Cu. Yds.

302 Asphalt Concrete
510.76 x 24.5 x .22917 ÷ 27 = 106.2 Cu. Yds.
489.24 x 24.25 x .22917 ÷ 27 = 100.7 Cu. Yds.
Total 302 = 206.9 Cu. Yds.

824 Bitum. Macadam Base
510.76 x 25.25 ÷ 9 = 1433.0 Sq. Yds.
489.24 x 24.625 ÷ 9 = 1338.6 Sq. Yds.
Total 824 = 2771.6 Sq. Yds.

310 Subbase
Pav't.
510.76 x 24.5 x 2/3 ÷ 27 = 309.0 Cu. Yds.
489.24 x 24.25 x 2/3 ÷ 27 = 292.9 Cu. Yds.
Berm
1760.76 x 2.075 ÷ 27 = 135.3 Cu. Yds.
Total 310 = 737.2 Cu. Yds.

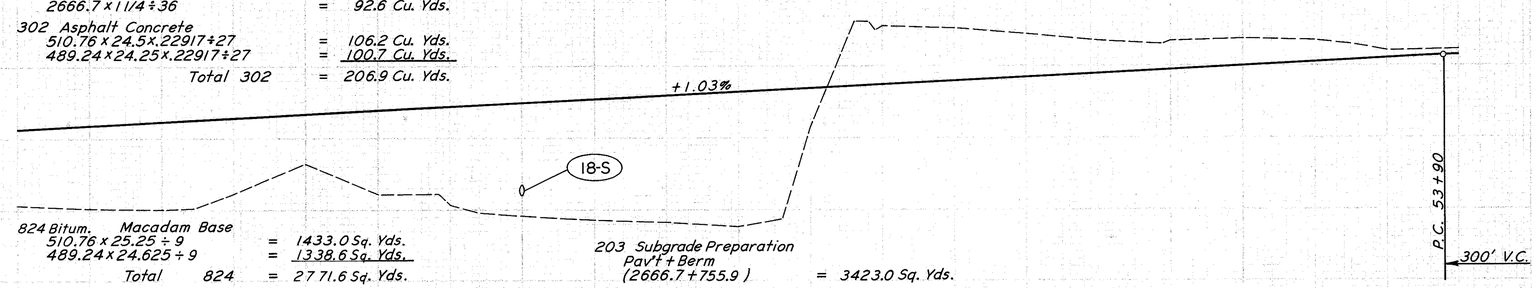
304 Aggregate Base
(1760.76 - 60) 2.40 ÷ 27 = 151.1 Cu. Yds.

409 Seal Coat, Aggregate
[(1760.76 - 60) 4 ÷ 9] 1755.9 x .008 = 6.0 Cu. Yds.

409 Seal Coat, Bituminous
[(1760.76 - 60) 4 ÷ 9] 755.9 x 0.3 = 227 Gal.

203 Subgrade Preparation
Pav't + Berm
(2666.7 + 755.9) = 3423.0 Sq. Yds.

408 Bituminous Prime Coat
755.9 x 0.4 = 302.0 Gal.

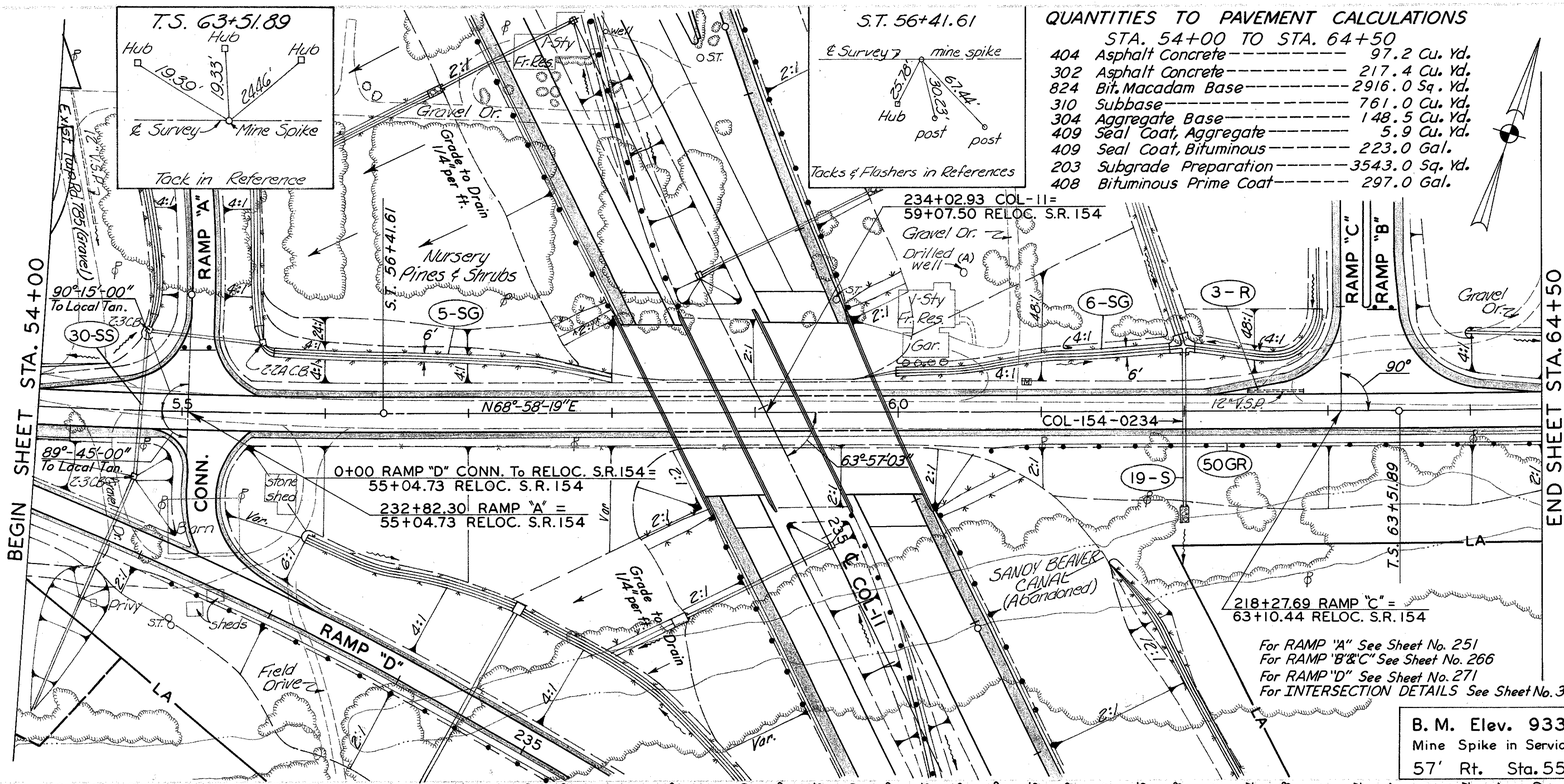


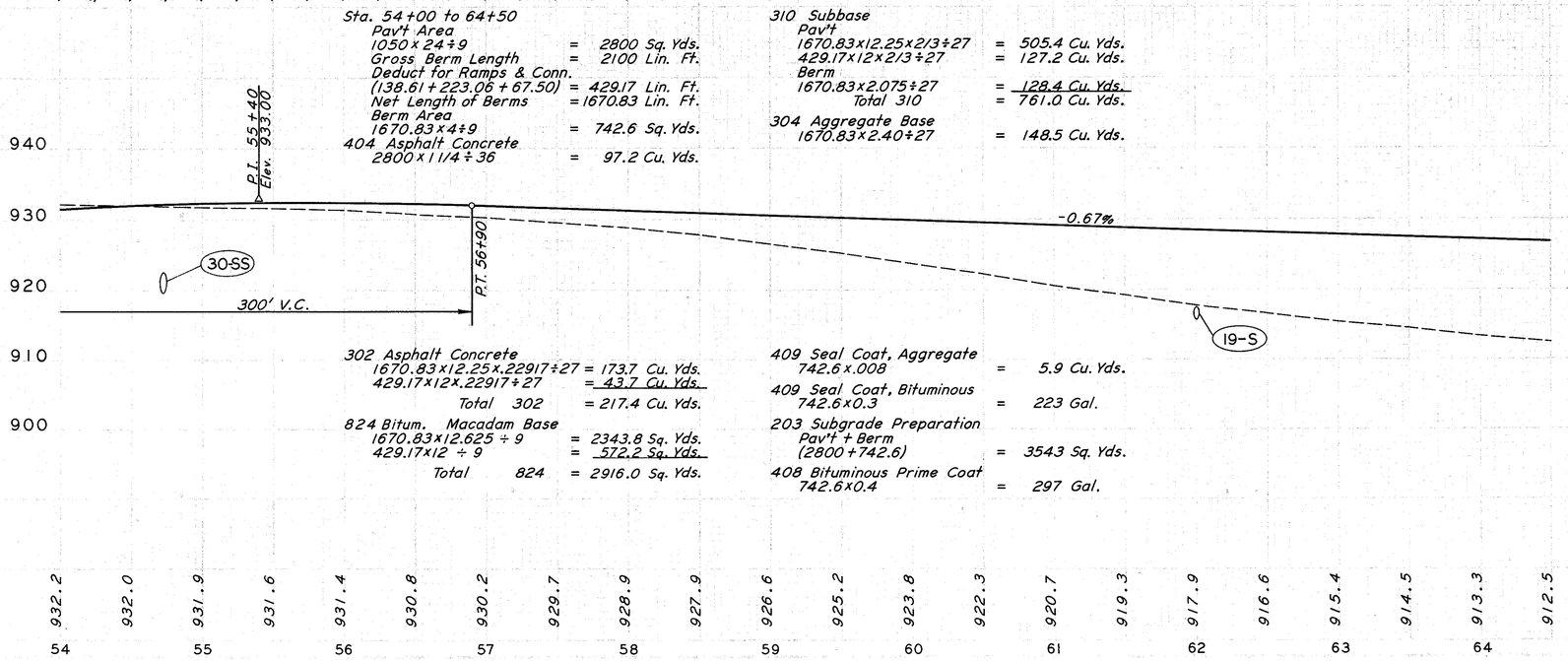
910.7 910.2 910.1 912.2 916.4 912.2 910.7 909.2 908.6 908.2 907.7 921.4 935.7 935.3 934.6 933.6 933.5 933.8 933.5 932.1 932.2

44 45 46 47 48 49 50 51 52 53 54

| | | |

COL-11-10.22 COL-154-1.71





Sta. 54+00 to 64+50
Pav't Area
1050 x 24 ÷ 9 = 2800 Sq. Yds.
Gross Berm Length = 2100 Lin. Ft.
Deduct for Ramps & Conn. (138.61 + 223.06 + 67.50) = 429.17 Lin. Ft.
Net Length of Berms = 1670.83 Lin. Ft.
Berm Area
1670.83 x 4 ÷ 9 = 742.6 Sq. Yds.
404 Asphalt Concrete
2800 x 1 1/4 ÷ 36 = 97.2 Cu. Yds.

302 Asphalt Concrete
1670.83 x 12.25 x .22917 ÷ 27 = 173.7 Cu. Yds.
429.17 x 12 x .22917 ÷ 27 = 43.7 Cu. Yds.
Total 302 = 217.4 Cu. Yds.

824 Bitum. Macadam Base
1670.83 x 12.625 ÷ 9 = 2343.8 Sq. Yds.
429.17 x 12 ÷ 9 = 572.2 Sq. Yds.
Total 824 = 2916.0 Sq. Yds.

310 Subbase
Pav't
1670.83 x 12.25 x 2/3 ÷ 27 = 505.4 Cu. Yds.
429.17 x 12 x 2/3 ÷ 27 = 127.2 Cu. Yds.
Berm
1670.83 x 2.075 ÷ 27 = 128.4 Cu. Yds.
Total 310 = 761.0 Cu. Yds.

304 Aggregate Base
1670.83 x 2.40 ÷ 27 = 148.5 Cu. Yds.

409 Seal Coat, Aggregate
742.6 x .008 = 5.9 Cu. Yds.

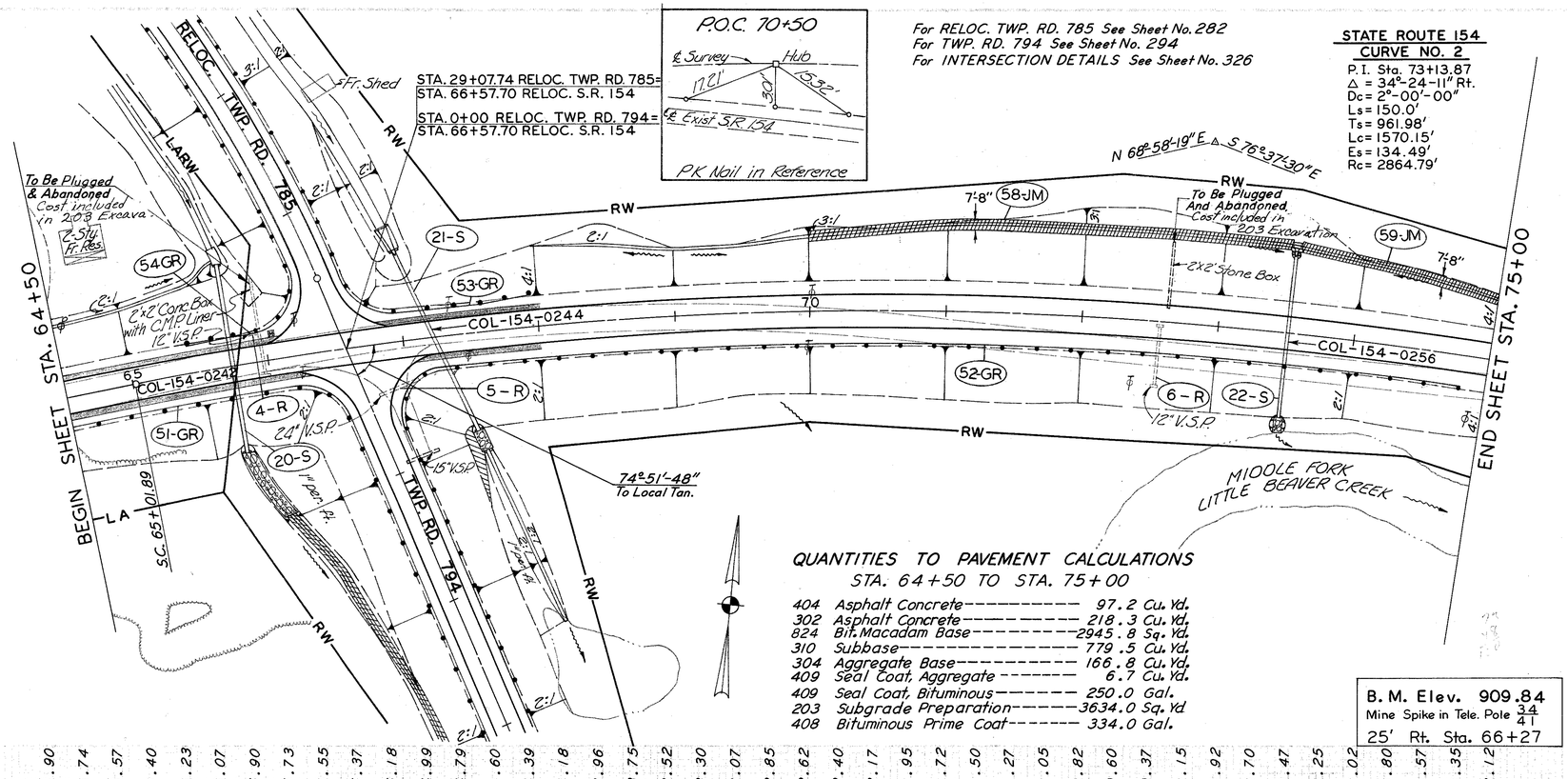
409 Seal Coat, Bituminous
742.6 x 0.3 = 223 Gal.

203 Subgrade Preparation
Pav't + Berm
(2800 + 742.6) = 3543 Sq. Yds.

408 Bituminous Prime Coat
742.6 x 0.4 = 297 Gal.

| | | |

COL-11-10.22 COL-154-1.71



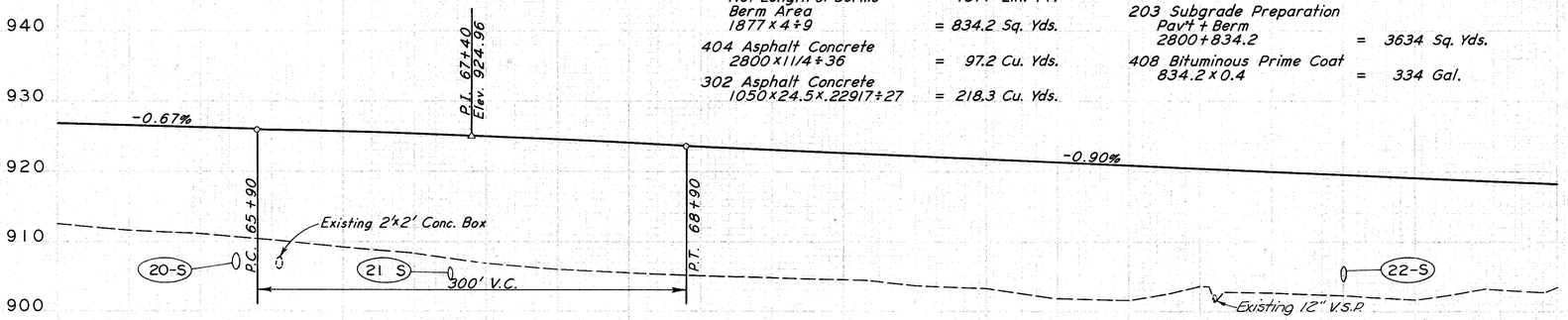
QUANTITIES TO PAVEMENT CALCULATIONS
STA. 64+50 TO STA. 75+00

404	Asphalt Concrete	97.2 Cu. Yd.
302	Asphalt Concrete	218.3 Cu. Yd.
824	Bit. Macadam Base	2945.8 Sq. Yd.
310	Subbase	779.5 Cu. Yd.
304	Aggregate Base	166.8 Cu. Yd.
409	Seal Coat, Aggregate	6.7 Cu. Yd.
409	Seal Coat, Bituminous	250.0 Gal.
203	Subgrade Preparation	3634.0 Sq. Yd
408	Bituminous Prime Coat	334.0 Gal.

926.90 926.74 926.57 926.40 926.23 926.07 925.90 925.73 925.55 925.37 925.18 924.99 924.79 924.60 924.39 924.18 923.96 923.75 923.52 923.30 923.07 922.85 922.62 922.40 922.17 921.95 921.72 921.50 921.27 921.05 920.82 920.60 920.37 920.15 919.92 919.70 919.47 919.25 919.02 918.80 918.57 918.35 918.12

Sta. 64+50 to 75+00
Pav't Area
1050 x 24 ÷ 9 = 2800 Sq. Yds.
Gross Length of Berms = 2100 Lin. Ft.
Deduct for T.R. 785 & 794 (109 + 114) = 223 Lin. Ft.
Net Length of Berms = 1877 Lin. Ft.
Berm Area
1877 x 4 ÷ 9 = 834.2 Sq. Yds.
404 Asphalt Concrete
2800 x 11/4 ÷ 36 = 97.2 Cu. Yds.
302 Asphalt Concrete
1050 x 24.5 x .22917 ÷ 27 = 218.3 Cu. Yds.

304 Aggregate Base
1877 x 2.40 ÷ 27 = 166.8 Cu. Yds.
409 Seal Coat, Aggregate
834.2 x .008 = 6.7 Cu. Yds.
409 Seal Coat, Bituminous
834.2 x 0.3 = 250 Gal.
203 Subgrade Preparation
Pav't + Berm
2800 + 834.2 = 3634 Sq. Yds.
408 Bituminous Prime Coat
834.2 x 0.4 = 334 Gal.



824 Bitum. Macadam Base
1050 x 25.25 ÷ 9 = 2945.8 Sq. Yds.
310 Subbase
Pav't.
1050 x 24.5 x 2/3 ÷ 27 = 635.2 Cu. Yds.
Berm
1877 x 2.075 ÷ 27 = 144.3 Cu. Yds.
Total 310 = 779.5 Cu. Yds.

912.5 911.7 911.1 910.1 909.2 908.3 906.9 906.0 905.4 905.0 904.8 904.5 903.7 903.2 901.8 901.6 903.5 902.7 902.2 901.7 903.2 903.4

65 66 67 68 69 70 71 72 73 74 75

606	202	203	601	601	601	602							
Guard Rail Type 4	Pipe Removed 24" & Under	Excav.	Dumped Riprap Rock Channel Protect.	6" Reinf. Concrete Slab	Concrete Masonry								
L.F.	Lin. Ft.	C.Y.	C.Y.	S.Y.	C.Y.								
		20	10	18	1.18								
		48	11	24	2.31								
		5	7	11	1.02								
L & R.													
L & R.													
L & R.													
Lt.													
Lt.													
20-S	65+75	L & R.											
21-S	67+25	L & R.											
22-S	73+50	L & R.											
58JM 70+00 to 72+47		Lt.											
58JM 72+53 to 75+00		Lt.											
51GR 64+50 to 66+16.5		Rt.	164.90										
52GR 67+26.5 to 74+82.3		Rt.	750										
53GR 66+96 to 67+95.24		Lt.	100										
54GR 65+43.88 to 65+93.5		Lt.	50										
4-R 65+88 to 65+95		Rt.		7									
5-R 66+78 to 67+10		Rt.		32									
6-R 72+57.5		Rt.		43									
			1064.90	82	73	28	53	4.51					
				16	321	120	284						

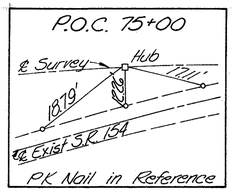
606	603 Conduit • Class B Bedding												
	• 30" • 36"												
	Jute Matting	Type A Emb.	Type A 707.05	706.02 Class III Gage 14									
		C.Y.	L.F.	L.F.									
		16		120									
				196									
				125									
					140	345							
					144	346							
						347							

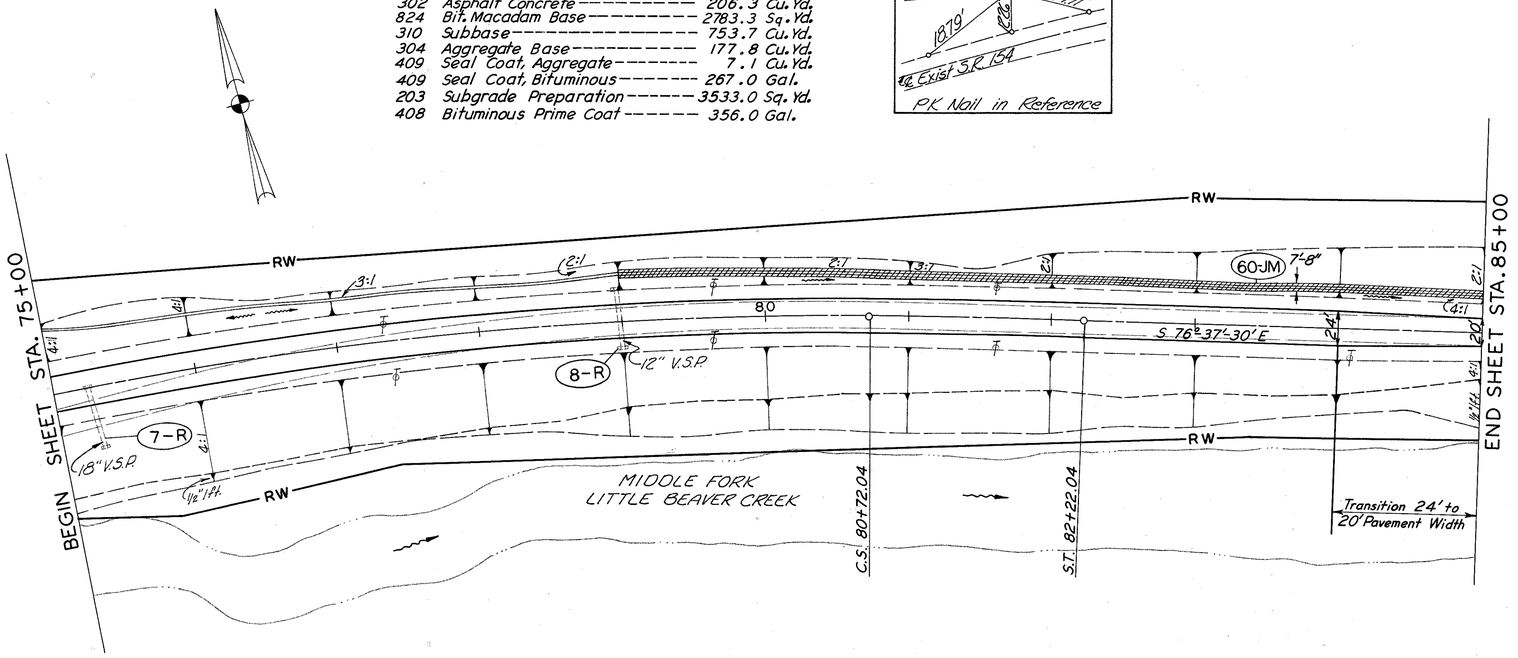
COL-11-10.22 COL-154-1.71

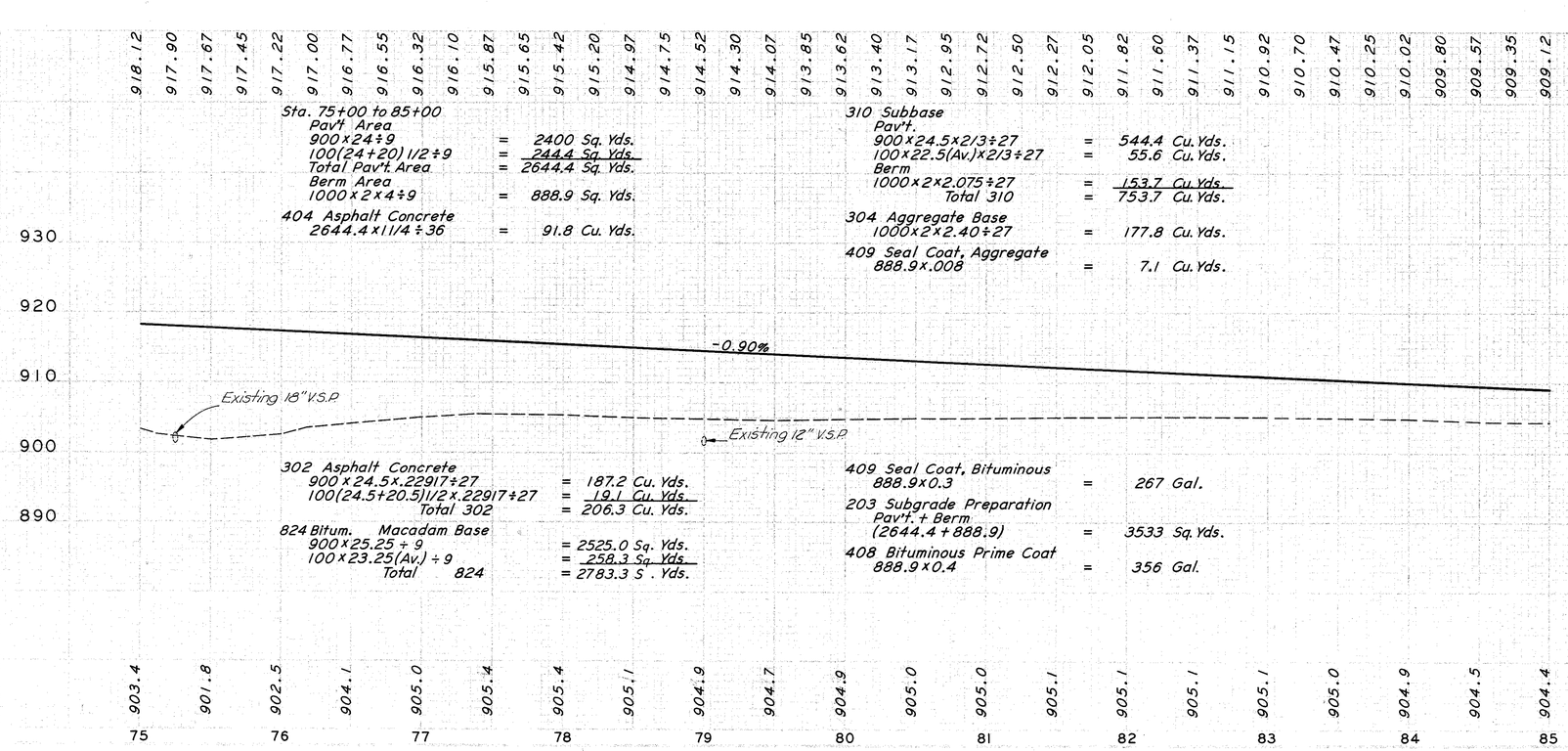
QUANTITIES TO PAVEMENT CALCULATIONS

STA. 75+00 TO STA. 85+00

404	Asphalt Concrete	91.8 Cu. Yd.
302	Asphalt Concrete	206.3 Cu. Yd.
824	Bit. Macadam Base	2783.3 Sq. Yd.
310	Subbase	753.7 Cu. Yd.
304	Aggregate Base	177.8 Cu. Yd.
409	Seal Coat, Aggregate	7.1 Cu. Yd.
409	Seal Coat, Bituminous	267.0 Gal.
203	Subgrade Preparation	3533.0 Sq. Yd.
408	Bituminous Prime Coat	356.0 Gal.







Sta. 75+00 to 85+00

Pav't Area

900 x 24 ÷ 9 = 2400 Sq. Yds.

100(24+20) 1/2 ÷ 9 = 244.4 Sq. Yds.

Total Pav't Area = 2644.4 Sq. Yds.

Berm Area

1000 x 2 x 4 ÷ 9 = 888.9 Sq. Yds.

404 Asphalt Concrete

2644.4 x 11/4 ÷ 36 = 91.8 Cu. Yds.

310 Subbase

Pav't.

900 x 24.5 x 2/3 ÷ 27 = 544.4 Cu. Yds.

100 x 22.5(Av.) x 2/3 ÷ 27 = 55.6 Cu. Yds.

Berm

1000 x 2 x 2.075 ÷ 27 = 153.7 Cu. Yds.

Total 310 = 753.7 Cu. Yds.

304 Aggregate Base

1000 x 2 x 2.40 ÷ 27 = 177.8 Cu. Yds.

409 Seal Coat, Aggregate

888.9 x .008 = 7.1 Cu. Yds.

302 Asphalt Concrete

900 x 24.5 x .22917 ÷ 27 = 187.2 Cu. Yds.

100(24.5+20.5) 1/2 x .22917 ÷ 27 = 19.1 Cu. Yds.

Total 302 = 206.3 Cu. Yds.

824 Bitum. Macadam Base

900 x 25.25 ÷ 9 = 2525.0 Sq. Yds.

100 x 23.25(Av.) ÷ 9 = 258.3 Sq. Yds.

Total 824 = 2783.3 S. Yds.

409 Seal Coat, Bituminous

888.9 x 0.3 = 267 Gal.

203 Subgrade Preparation

Pav't. + Berm

(2644.4 + 888.9) = 3533 Sq. Yds.

408 Bituminous Prime Coat

888.9 x 0.4 = 356 Gal.

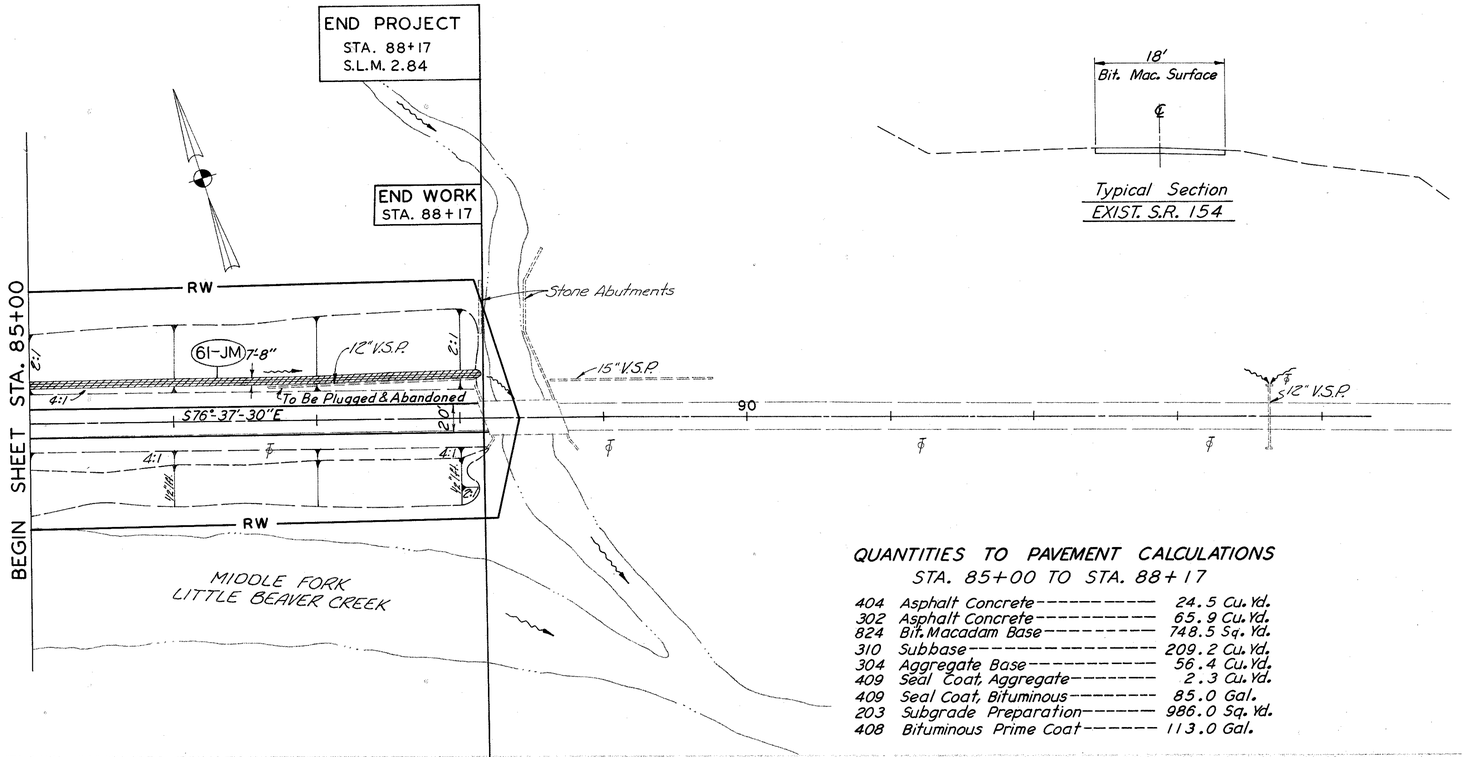
ESTIMATED QUANTITIES

202	667	Pipe Removed			
		24" & Matting Under			
		Lin. Ft.	S. Y.		
60-JM	79+00 to 85+00	Lt.	512		
7-R	75+24	Rt.	42		
8-R	78+98	L.&R.	39		

81 512

RELOCATED S.R. 154 STA. 75+00 TO STA. 85+00

COL-11-10.22 COL-154-1.71



Typical Section
EXIST. S.R. 154

QUANTITIES TO PAVEMENT CALCULATIONS
STA. 85+00 TO STA. 88+17

404	Asphalt Concrete----------	24.5 Cu. Yd.
302	Asphalt Concrete----------	65.9 Cu. Yd.
824	Bit. Macadam Base---------	748.5 Sq. Yd.
310	Subbase-------------------	209.2 Cu. Yd.
304	Aggregate Base----------	56.4 Cu. Yd.
409	Seal Coat, Aggregate-------	2.3 Cu. Yd.
409	Seal Coat, Bituminous-------	85.0 Gal.
203	Subgrade Preparation------	986.0 Sq. Yd.
408	Bituminous Prime Coat------	113.0 Gal.

Sta. 85+00 to 88+17

Pavt. Area
317x20÷9 = 704.4 Sq. Yds.

Berm Area
317x4x2÷9 = 281.8 Sq. Yds.

404 Asphalt Concrete
704.4x11/4÷36 = 24.5 Cu. Yds.

302 Asphalt Concrete
317x24.5x.22917÷27 = 65.9 Cu. Yds.

824 Bitum. Macadam Base
317x21.25 ÷ 9 = 748.5 Sq. Yds.

310 Subbase

Pavt.
317x20.5x2/3÷27 = 160.5 Cu. Yds.

Berms
317x2x2.075÷27 = 48.7 Cu. Yds.

Total 310 = 209.2 Cu. Yds.

304 Aggregate Base
317x2x2.40÷27 = 56.4 Cu. Yds.

409 Seal Coat, Aggregate
281.8x.008 = 2.3 Cu. Yds.

409 Seal Coat, Bituminous
281.8x0.3 = 85 Gal.

203 Subgrade Preparation
Pavt. + Berms
704.4 + 281.8 = 986 Sq. Yds.

408 Bituminous Prime Coat
281.8x0.4 = 113 Gal.

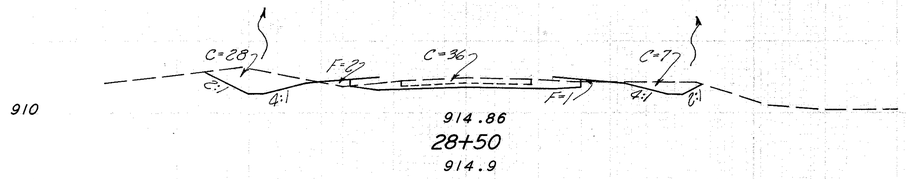
667 Jute Matting S.Y. 265

61-JM 85+00 to 88+10 Lt. 265

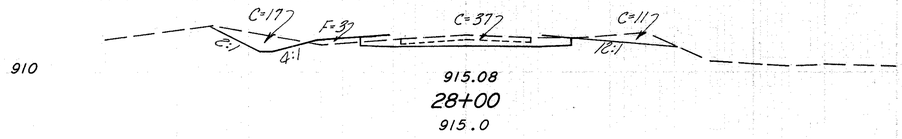
265

RELOCATED S.R. 154 STA. 85+00 TO STA. 88+17

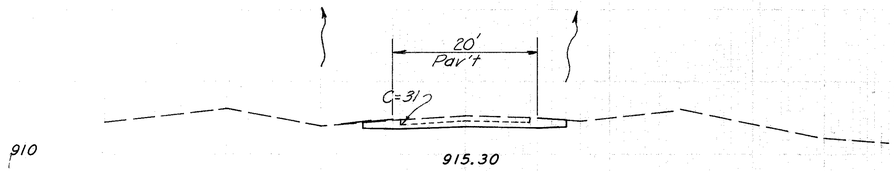
COL-11-10.22
COL-154-1.71



914.86
28+50
914.9



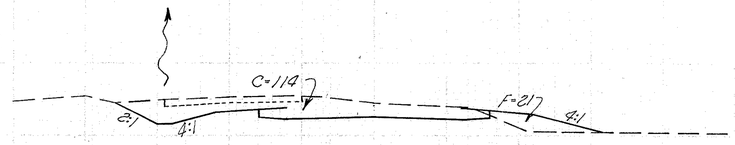
915.08
28+00
915.0



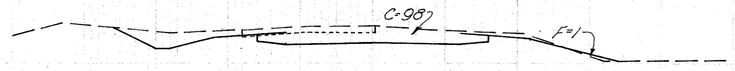
915.30
27+50
915.3

BEGIN EARTHWORK

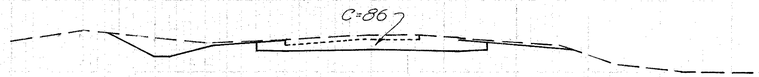
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
42		71	3		
	233			126	6
42		65	3		
	117			89	3
0		31	0		



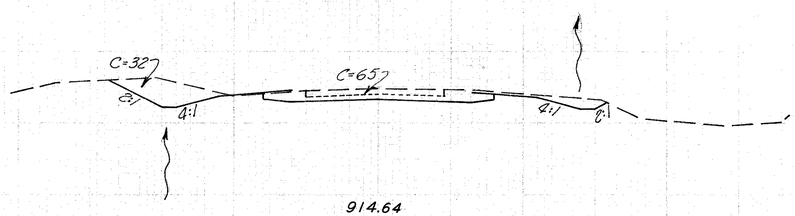
914.98
30+50
914.4



914.20
30+00
915.2



914.42
29+50
915.0



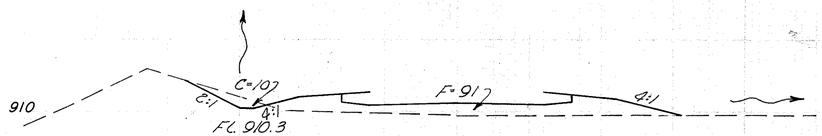
914.64
29+00
914.9

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
40		114	21		
	231			196	20
43		98	1		
	231			170	1
40		86	0		
	228			169	0
42		97	0		
	233			156	3

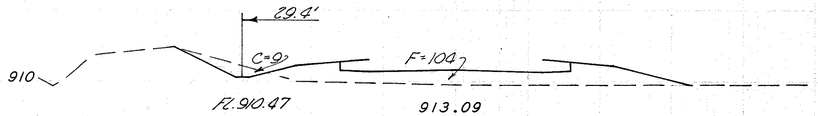
50 40 30 20 10 0 10 20 30 40 50 60

RELOCATED S.R. 154 STA. 27+50 TO STA. 30+50

COL-11-10.22
COL-154-1.71

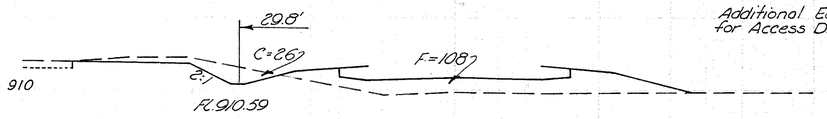


912.87
33+00
909.6

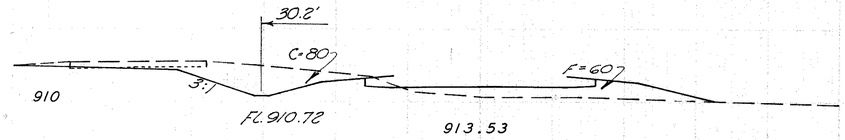


913.09
32+50
909.6

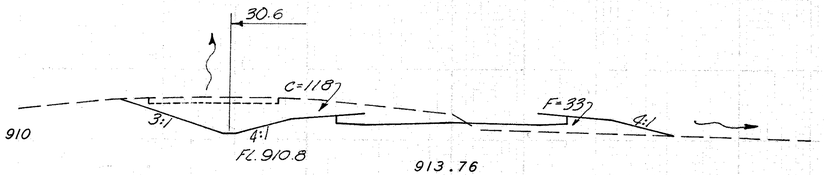
Access Drive Lt. Sta. 32+08
For Details, see sheet No. 316



913.31
32+00
909.8



913.53
31+50
910.7

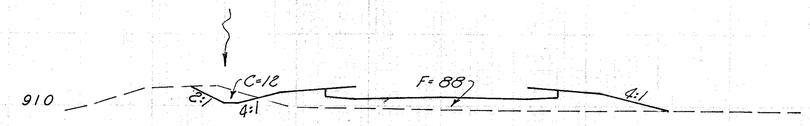


913.76
31+00
913.7

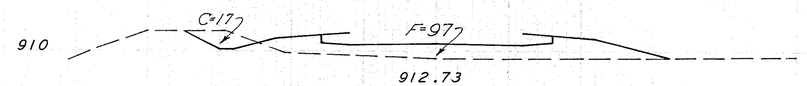
60 50 40 30 20 10 0 10 20 30 40 50

Additional Earthwork for Access Drive

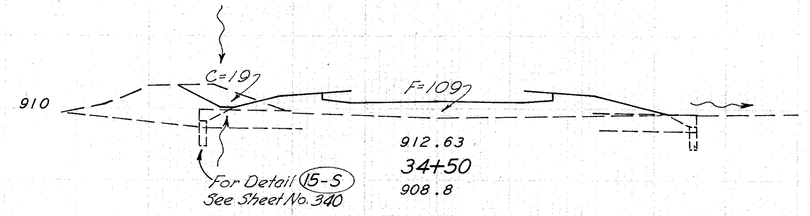
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
42		10	91		
	236			18	181
43		9	104		
	239			32	196
				47	30
43		26	108		
	242			98	156
44		80	60		
	242			183	86
43		118	33		
	231			215	50



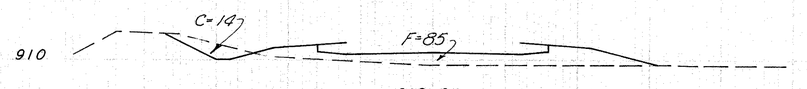
912.91
35+50
909.5



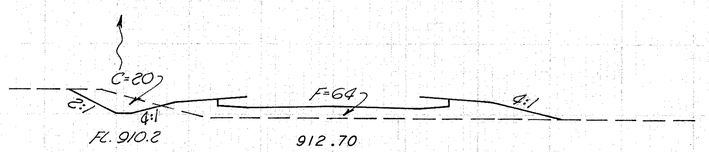
912.73
35+00
909.1



912.63
34+50
908.8



912.61
34+00
909.2



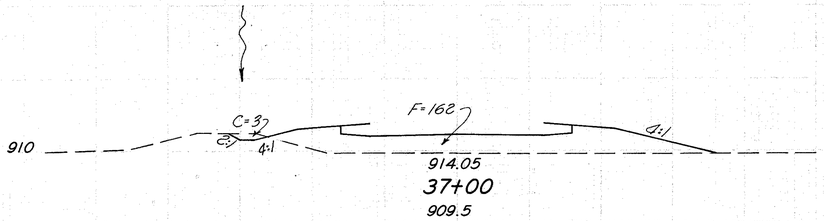
912.70
33+50
909.6

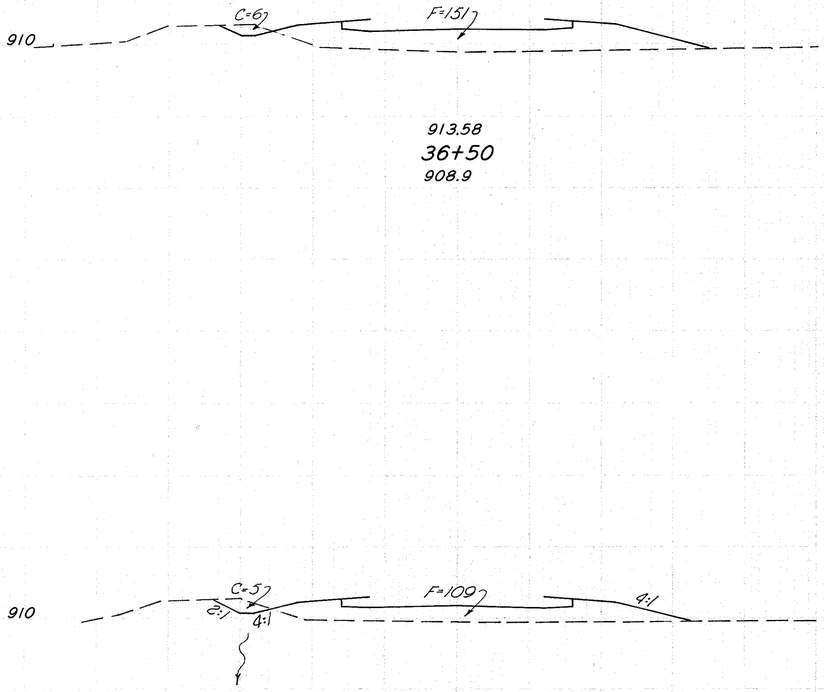
50 40 30 20 10 0 10 20 30 40 50

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
39		12	88		
	222			27	171
41		17	97		
	228			33	191
41		19	109		
	228			31	179
41		14	85		
	225			31	138
40		20	64		
	228			28	144

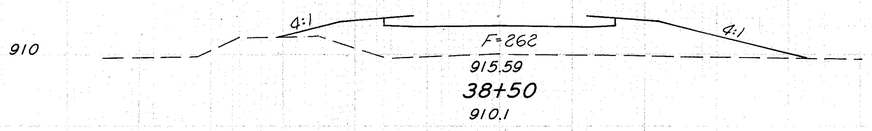
RELOCATED S.R. 154 STA. 31+00 TO STA. 35+50

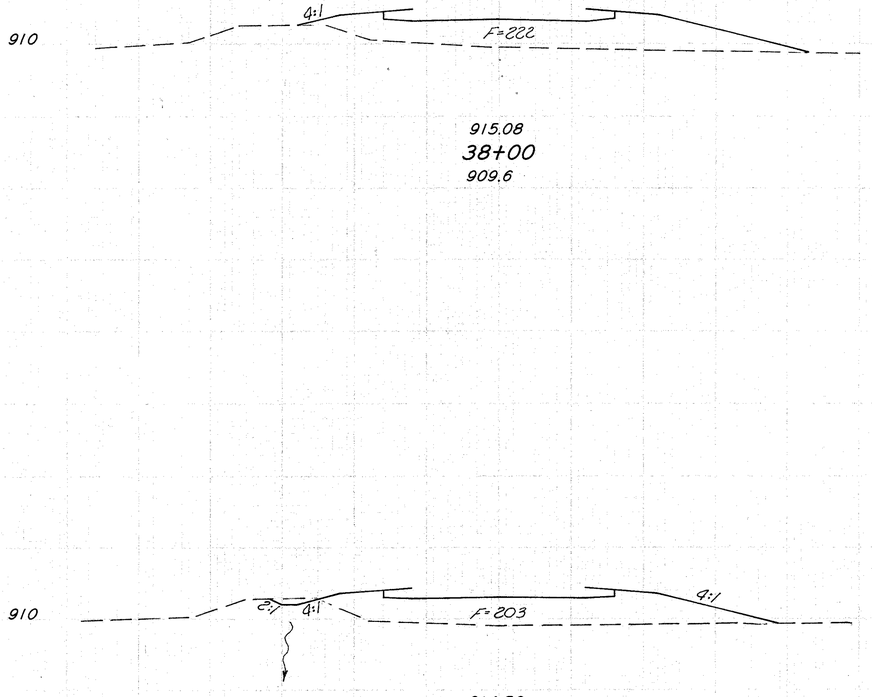
COL-11-10.22
COL-154-1.71





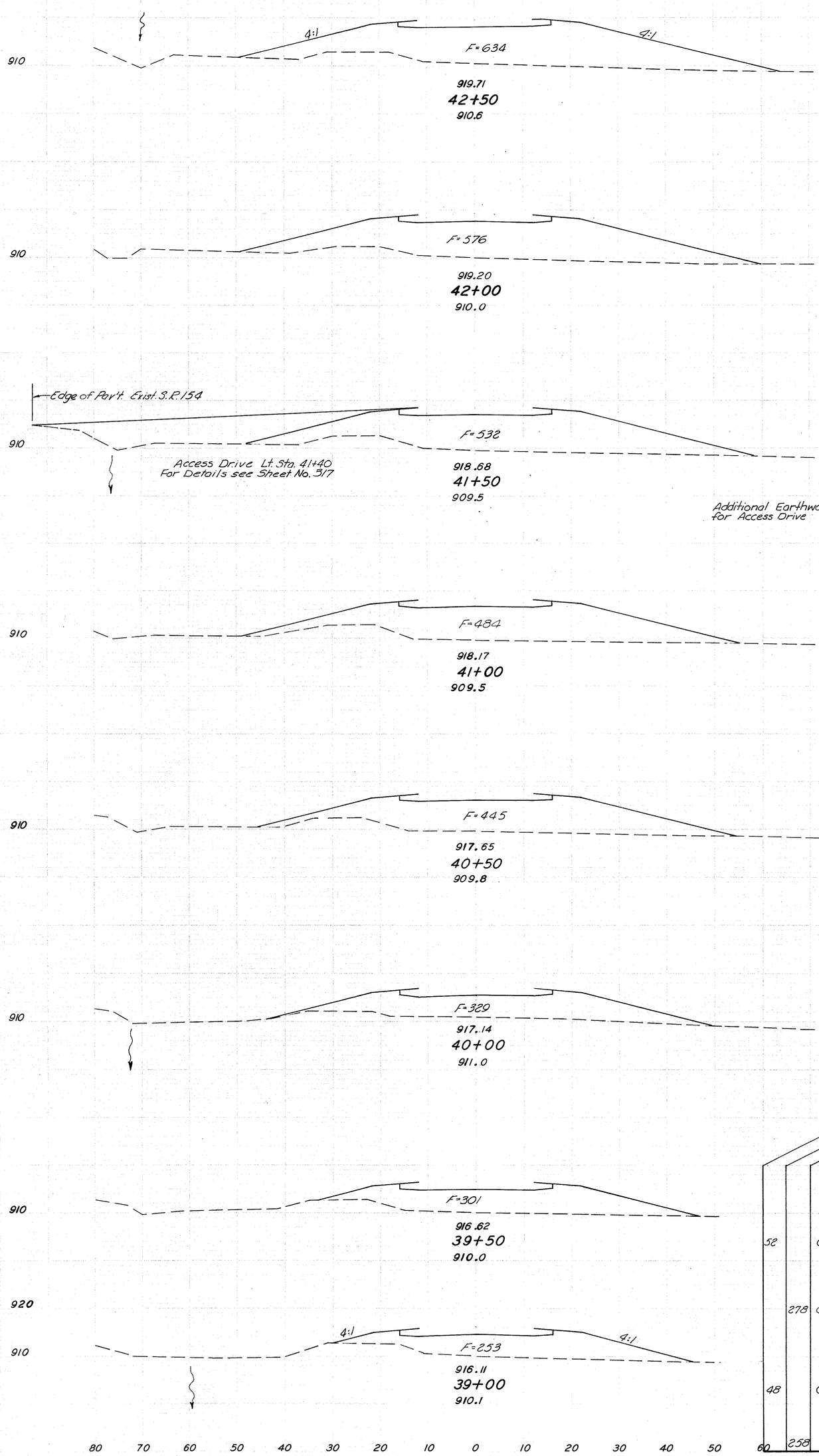
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
40		3	162		
	225			8	290
41		6	151		
	222			10	241
39		5	109		
	217			17	182





SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
45		0	262		
	244			0	448
43		0	222		
	239			4	394
43		4	203		
	231			6	338

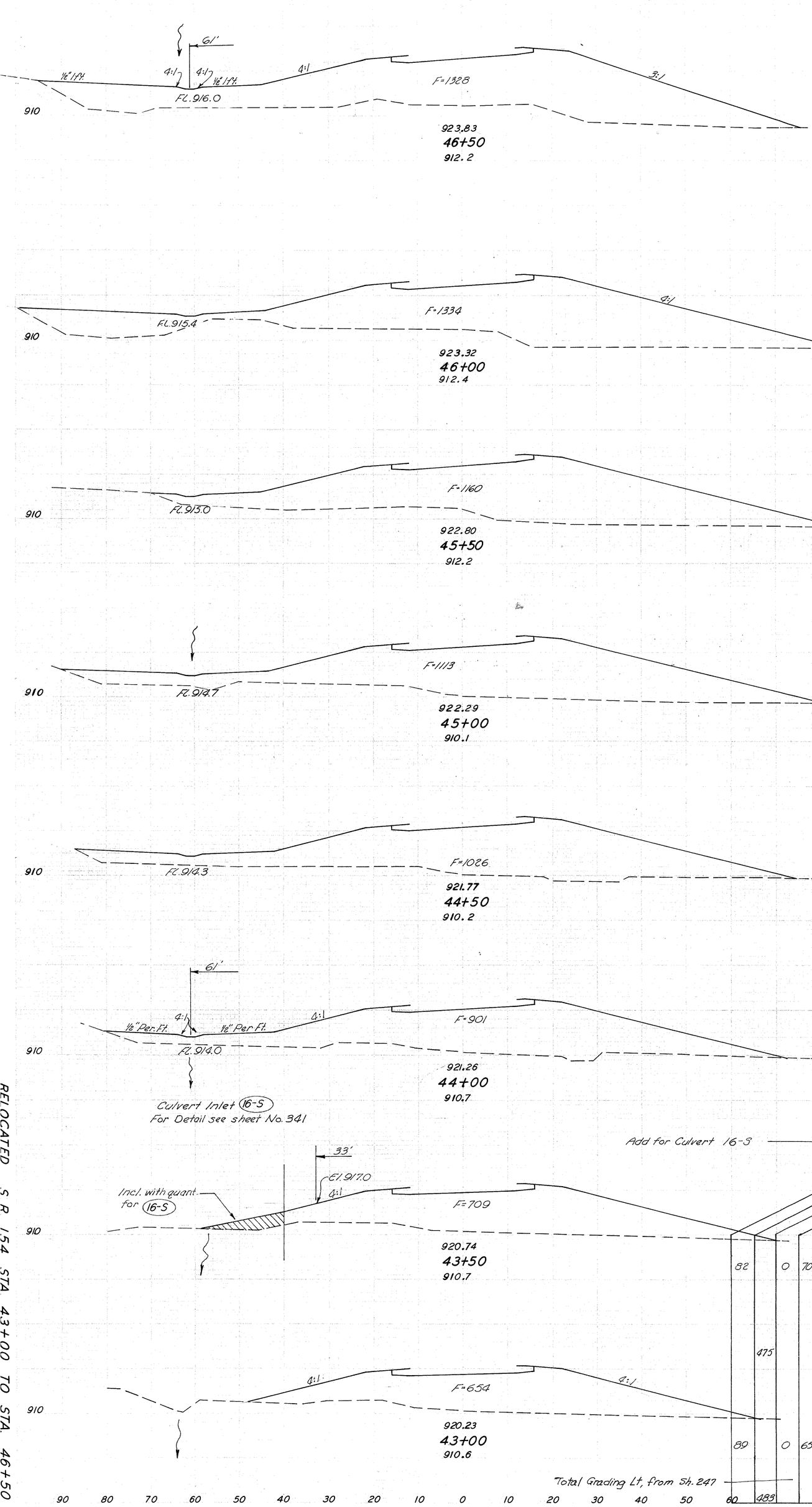
RELOCATED S.R. 154 STA. 36+00 TO STA. 38+50



SEEDING		END AREA		VOLUME	
WIDTH	S.Y	CUT	FILL	CUT	FILL
87		0	634		
	472			0	1180
83		0	576		
	453			0	1025
80		0	532		
Additional Earthwork for Access Drive →				33	291
	439			0	941
78		0	484		
	422			0	860
74		0	445		
	392			0	717
67		0	329		
	331			0	583
52		0	301		
	278	0		0	513
48		0	253		
	258			0	477

RELOCATED S.R. 154 STA. 39+00 TO STA. 42+50

COL-11-10.22
COL-154-1.71



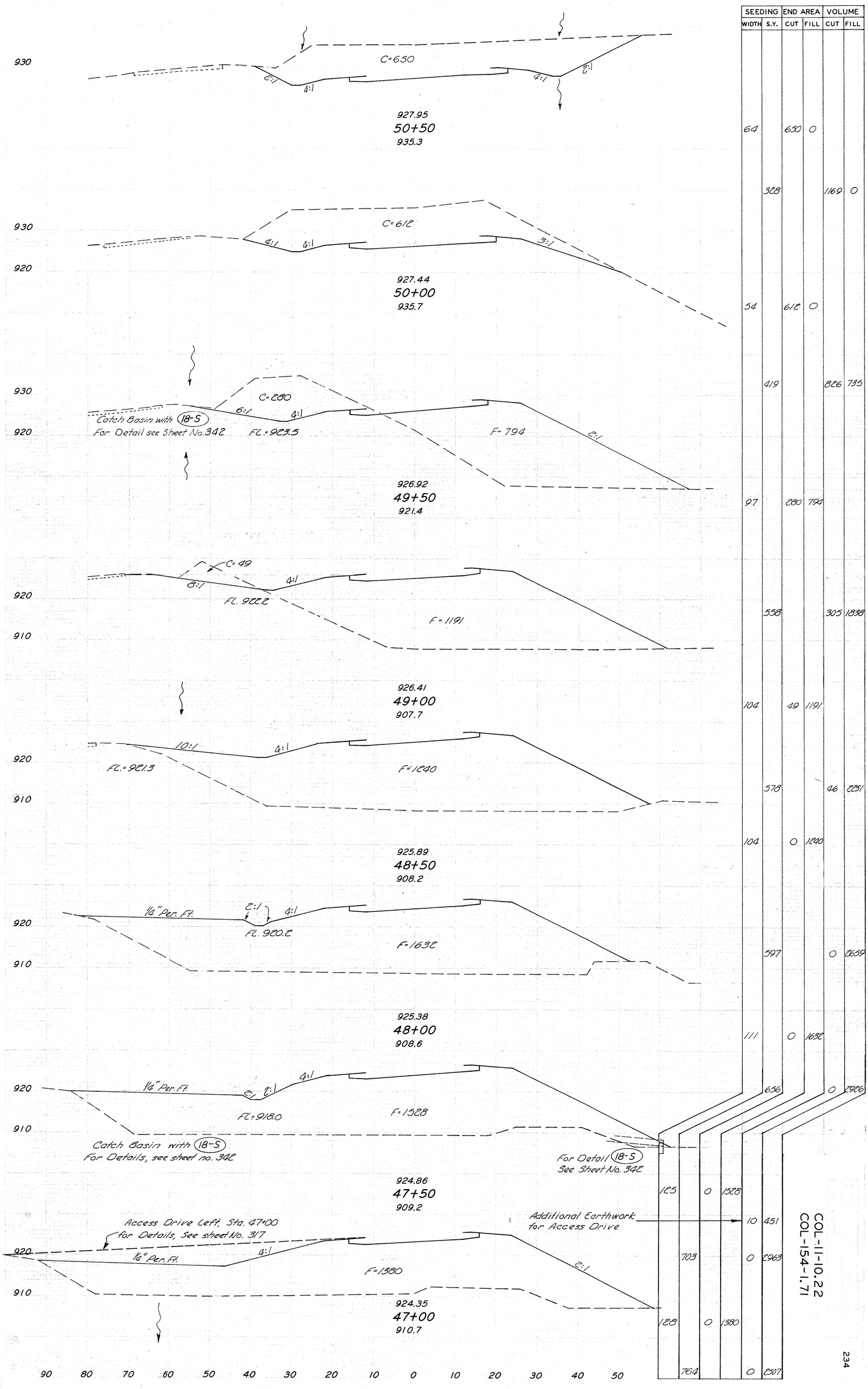
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
147		0	1328		
	856			0	2465
161		0	1334		
	800			0	2309
127		0	1160		
	758			0	2105
146		0	1113		
	756			0	1981
136		0	1026		
	731			0	1784
127		0	901		
				62	107
				0	1091
	581				
82		0	709		
	475			0	1262
89		0	654		
				2238	0
483				0	1193

Add for Culvert 16-3

Total Grading Lt. from Sh. 247

RELOCATED S.R. 154 STA. 43+00 TO STA. 46+50

COL-11-10.22
COL-154-1.71



SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
64		630	0		
	328			1169	0
54		612	0		
	419			826	735
97		280	794		
	558			305	1838
104		49	1191		
	578			46	2251
104		0	1240		
	597			0	2659
111		0	1632		
	656			0	2926
125		0	1528		
	703			0	2963
128		0	1380		
	764			0	2507
10	451				

COL-11-10.22
COL-154-1.71

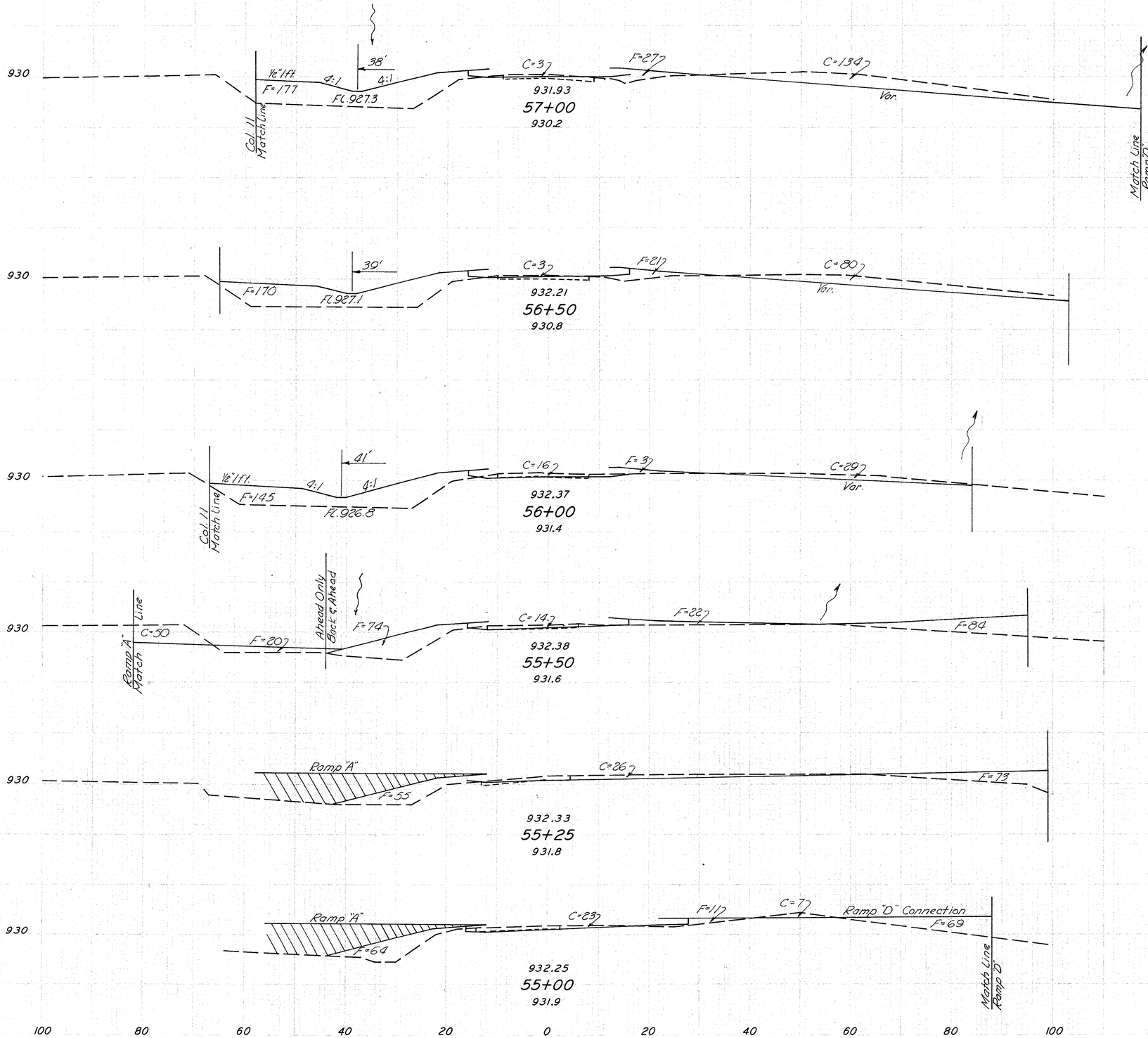
234

BEGIN DEFLECTION STA 47+00 TO STA 50+50

COL-11-10.22
COL-154-1.71

| | | |

COL-11-10.22
COL-154-1.71



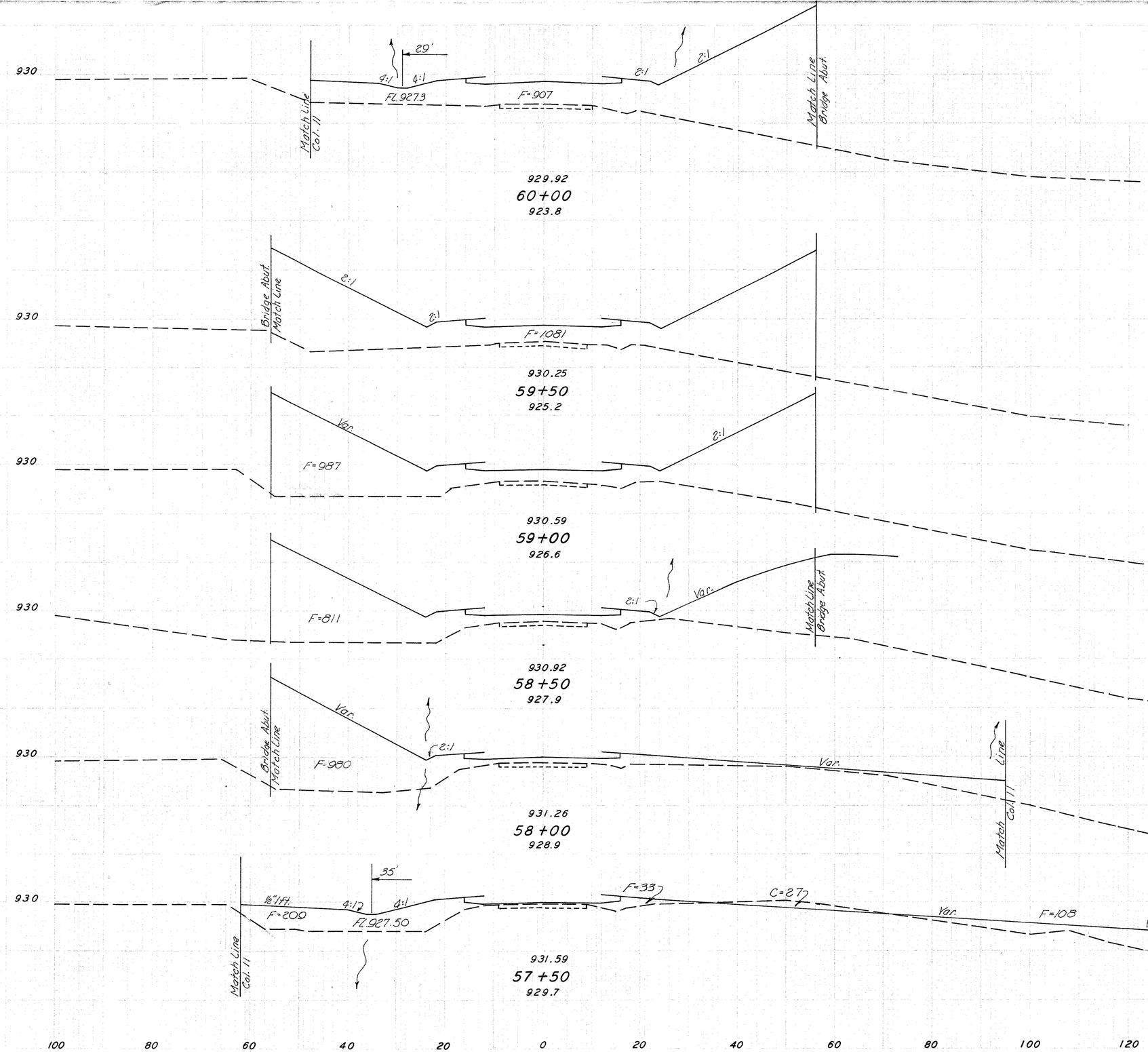
143 778 137 553 62 578 146 Ahead 0 Back 0 0 0 0 Ahead 90 Back 414

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

137 205 204 367 83 191 119 351 45 148 101 359 Ahead 64 200 Back 14 180 19 143 26 128 26 126 30 144 125 138

RELOCATED S.R. 154 STA. 55+00 TO STA. 57+00

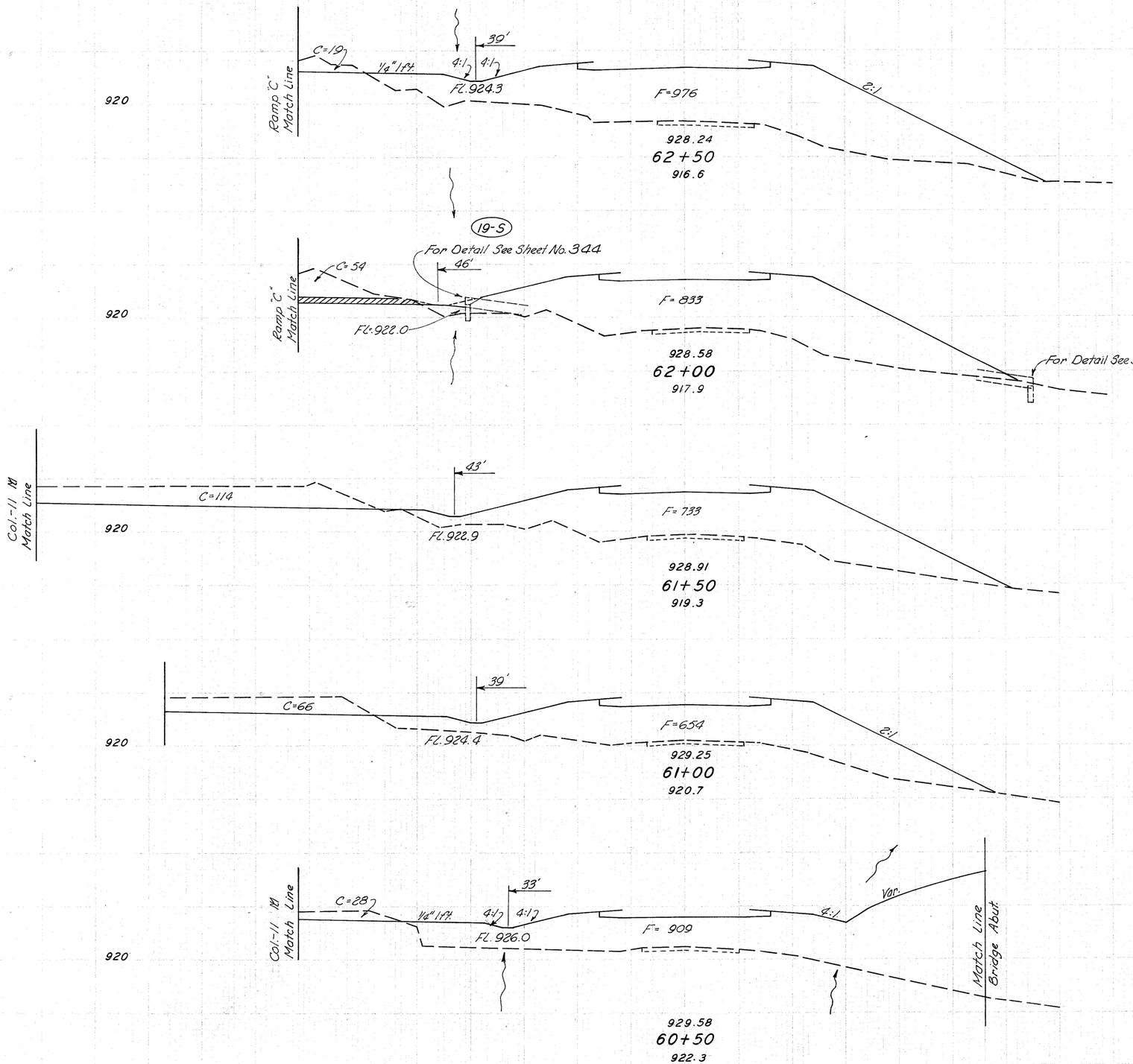
COL-11-10.22
COL-154-1.71



| | | |

238

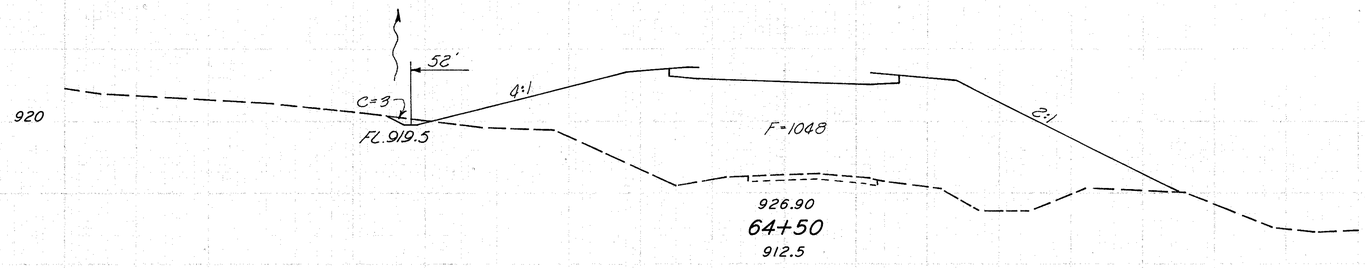
COL-11-10.22
COL-154-1.71



RELOCATED S.R. 154 STA. 60+50 TO STA. 62+50

COL-11-10.22
COL-154-1.71

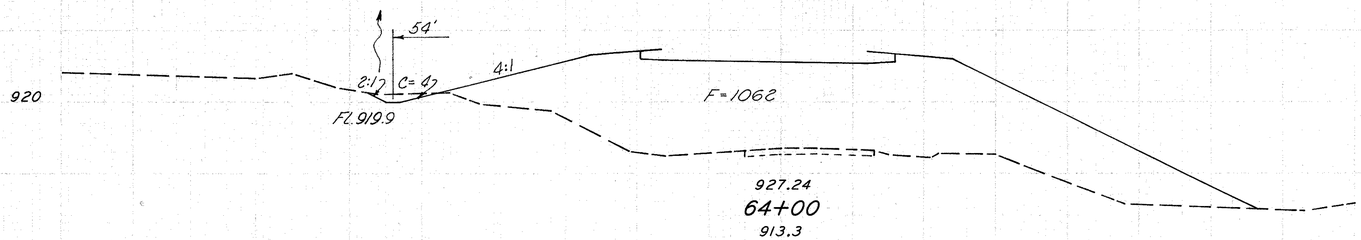
87



3 1048

514

6 1953

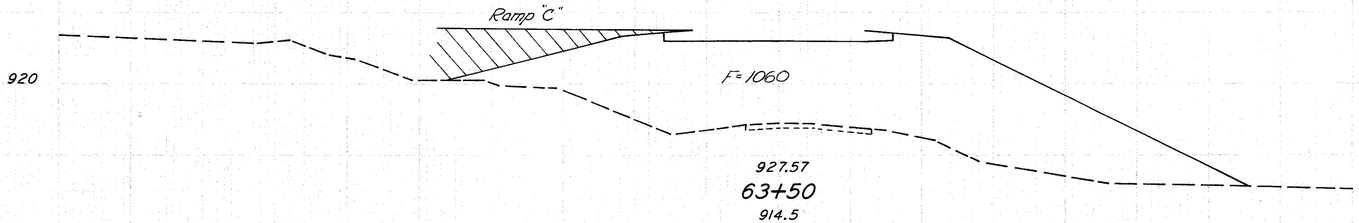


98

4 1062

428

4 1965

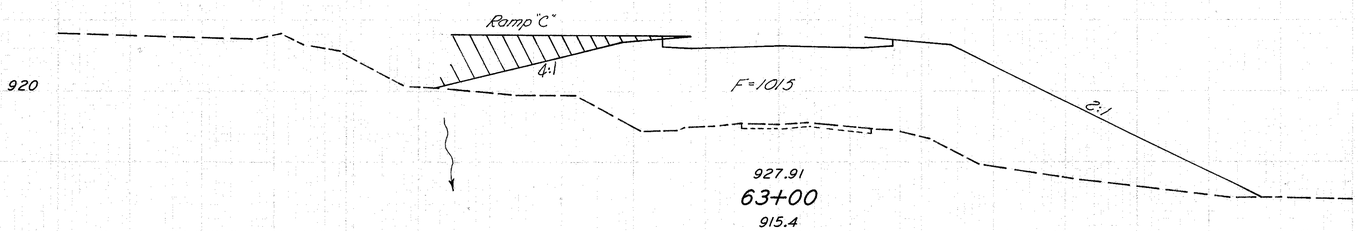


56

0 1060

317

0 1921



58 Ahead
92 Back

0 1015

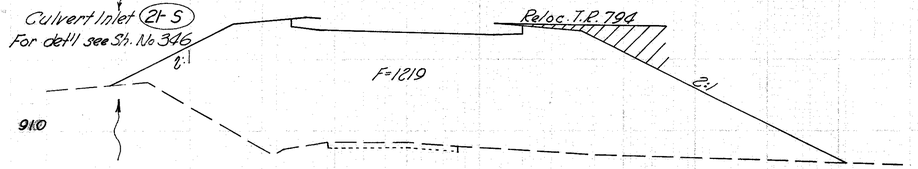
561 120 100 80 60 40 20 0 20 40 60 80 100 120

18 1843

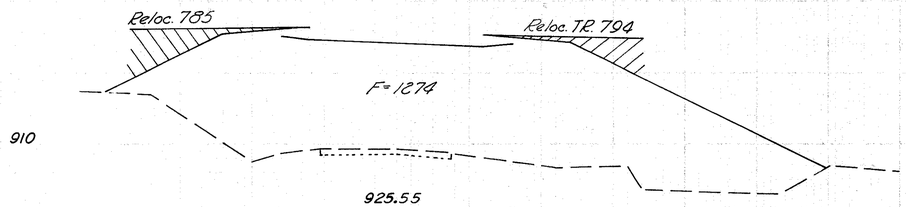
RELOCATED S.R. 154 STA. 63+00 TO STA. 64+50

COL-11-10.22
COL-154-1.71

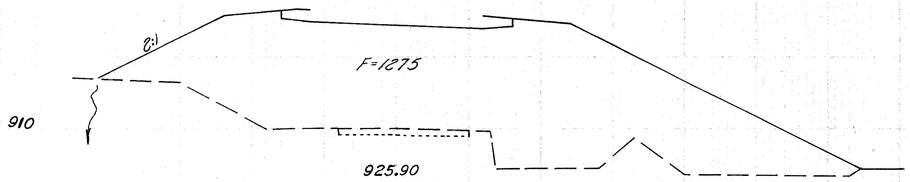
Culvert Inlet (21-S)
For det'l see Sh. No 346



925.18
67+00
908.3

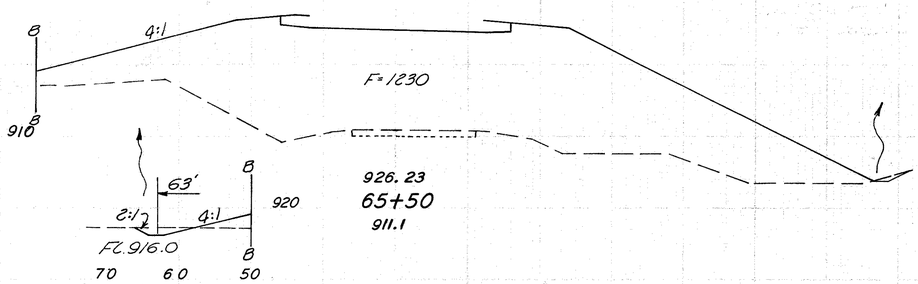


925.55
66+50
909.2



925.90
66+00
910.1

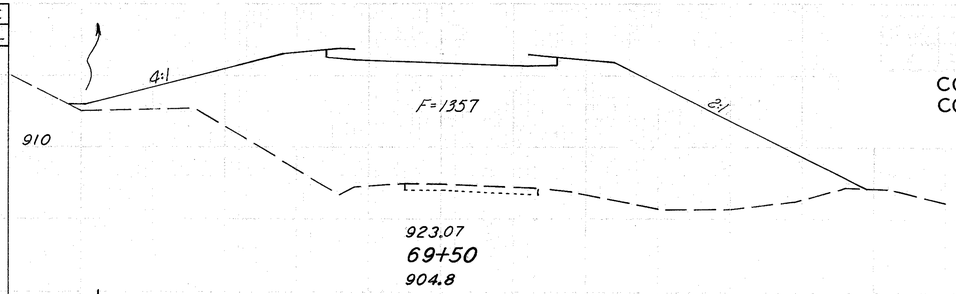
Culvert Inlet (20-S)
For Detail see sheet No. 345



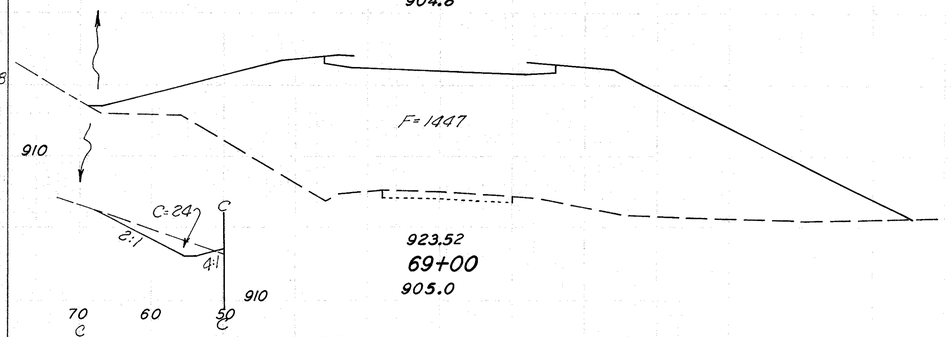
926. 23
65+50
911.1

926.57
65+00
911.7

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
80		0	1219		
	0			0	2308
78		0	1274		
	453			0	2360
85		0	1275		
	544			6	2319
111		6	1230		
	578			12	2230
97		7	1200		
	511			9	2081

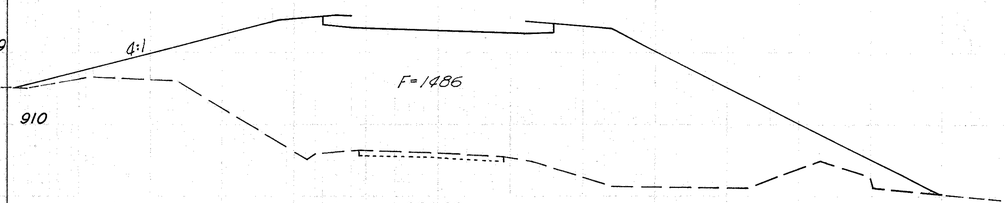


923.07
69+50
904.8

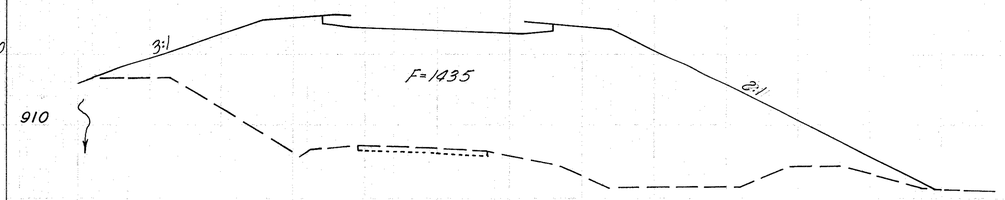


923.52
69+00
905.0

923.96
68+50
905.4



924.39
68+00
906.04

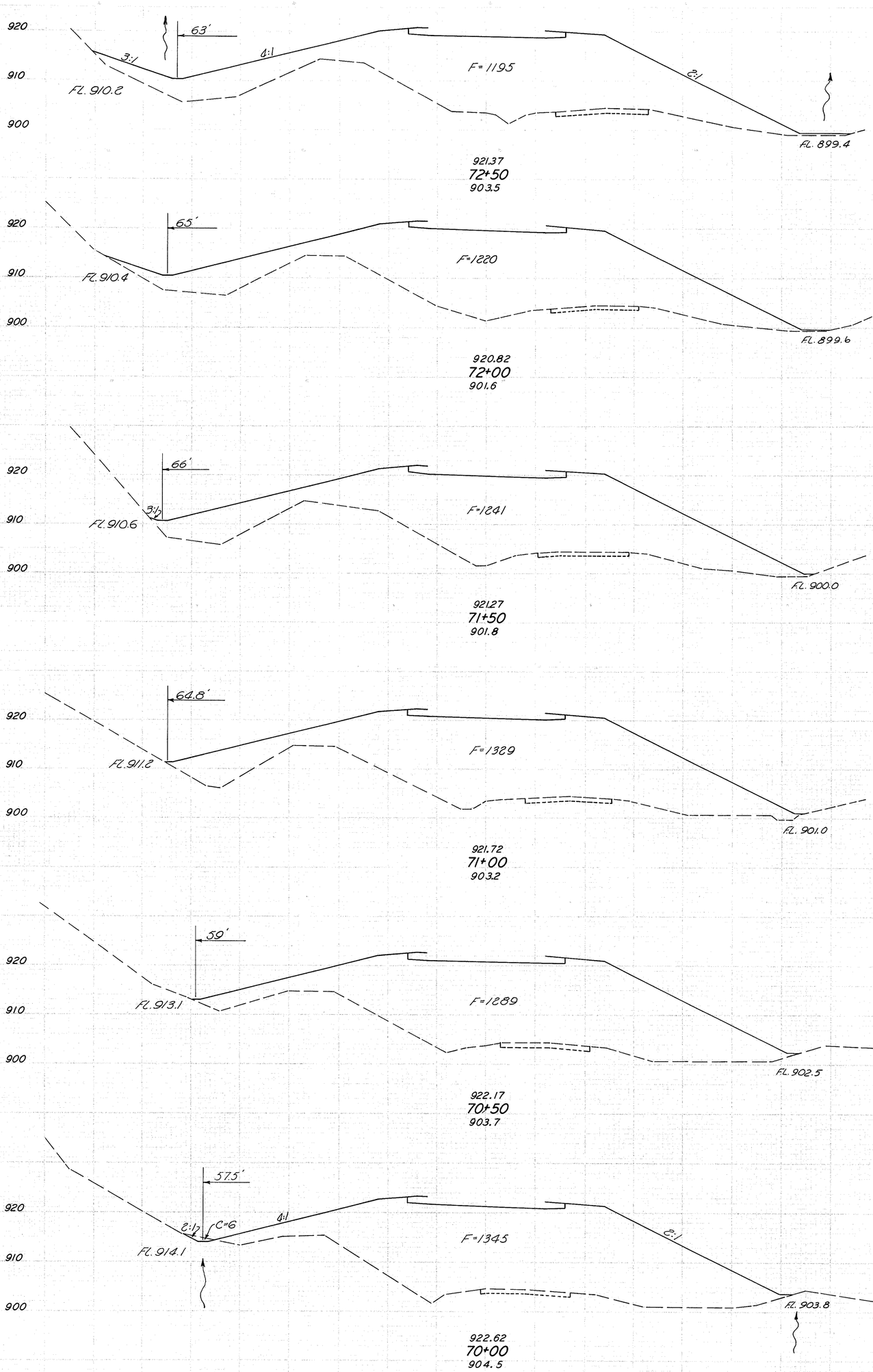


924.79
67+50
906.9

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
88		0	1357		
	503			0	2596
93		0	1447		
	581			22	2726
116		24	1497		
	619			22	2762
107		0	1486		
	561			0	2705
95		0	1435		
	486			0	2657

50 40 30 20 10 0 10 20 30 40 50 60 70

RELOCATED S.R. 154 STA. 65+00 TO STA. 69+50

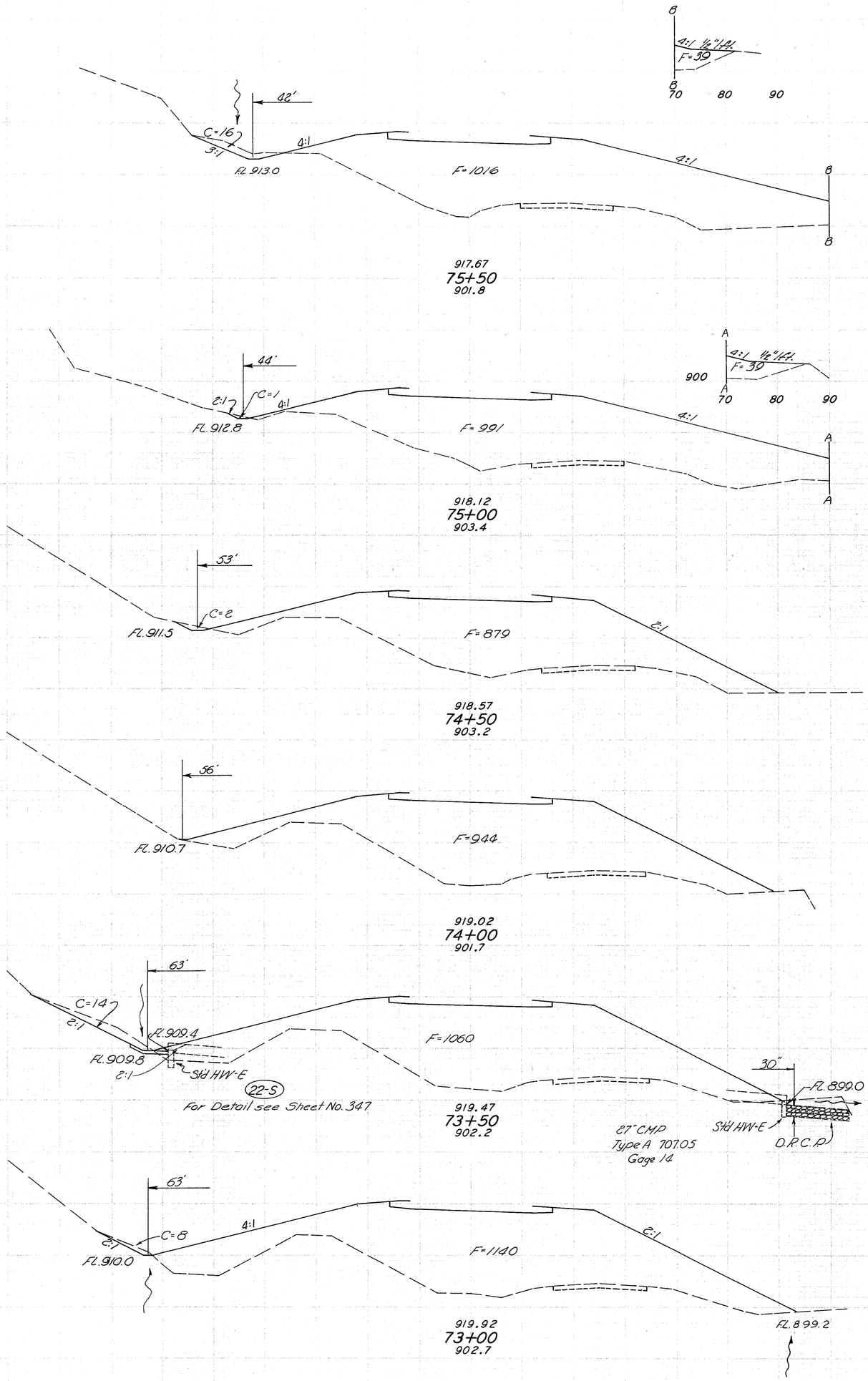


SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
123		0	1195		
	678			0	2236
121		0	1220		
	647			0	2279
112		0	1241		
	606			0	2380
106		0	1329		
	569			0	2424
99		0	1289		
	553			6	2439
100		6	1345		
	522			6	2502

COL-11-10.22
COL-154-1.71

RELOCATED S.R.154 STA 70+00 TO STA 72+50

90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

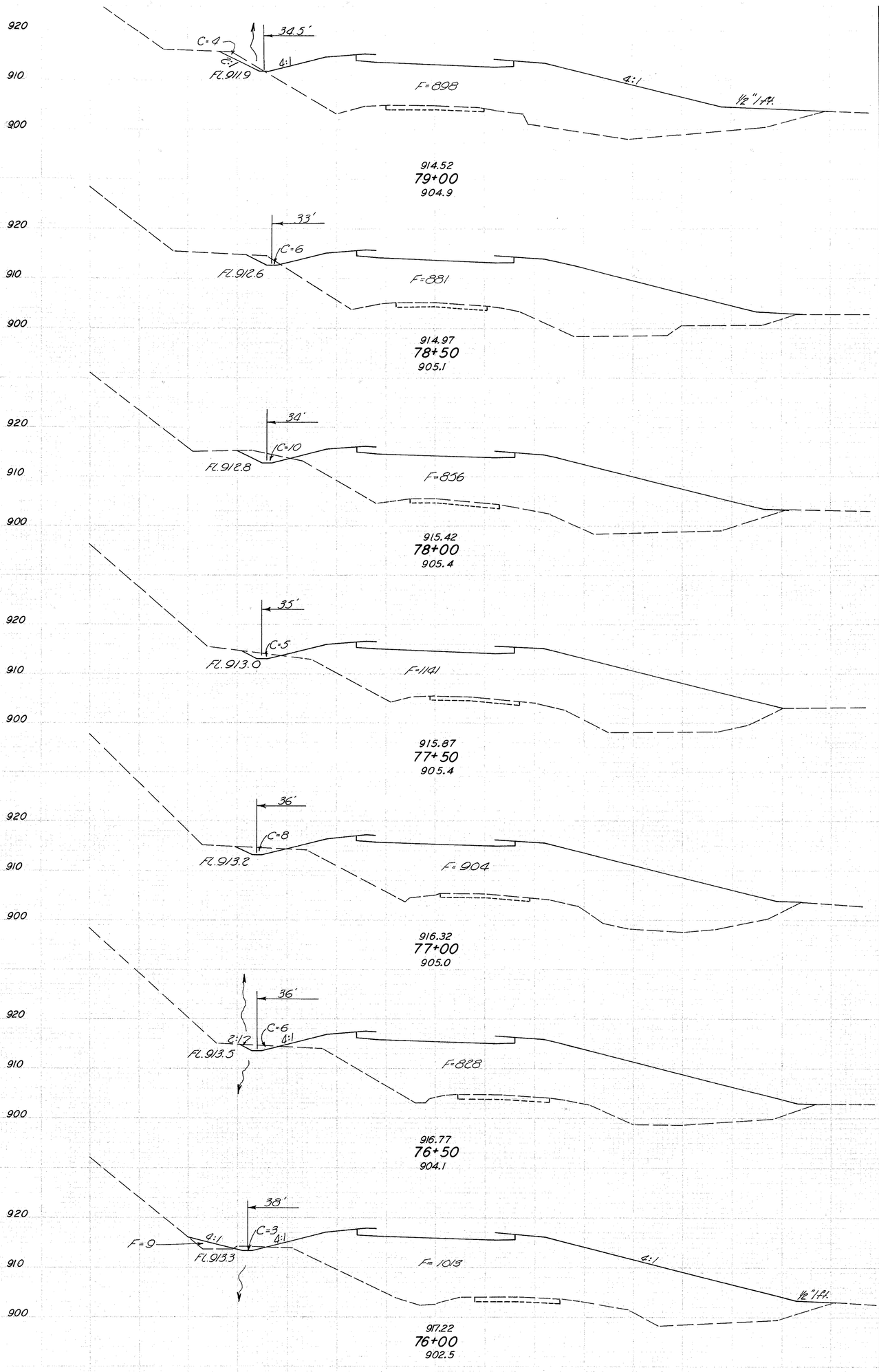


SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	EXC.	EMB.
110		16	1055		
	633			17	1931
118		2	1030		
	586			4	1768
93		2	879		
	517			2	1688
93		0	944		
	578			13	1856
115		14	1060		
	631			20	2037
112		8	1140		
	653			7	2162

RELOCATED SR.154 STA.73+00 TO STA.75+50

90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

COL-11-10.22
COL-154-1.71

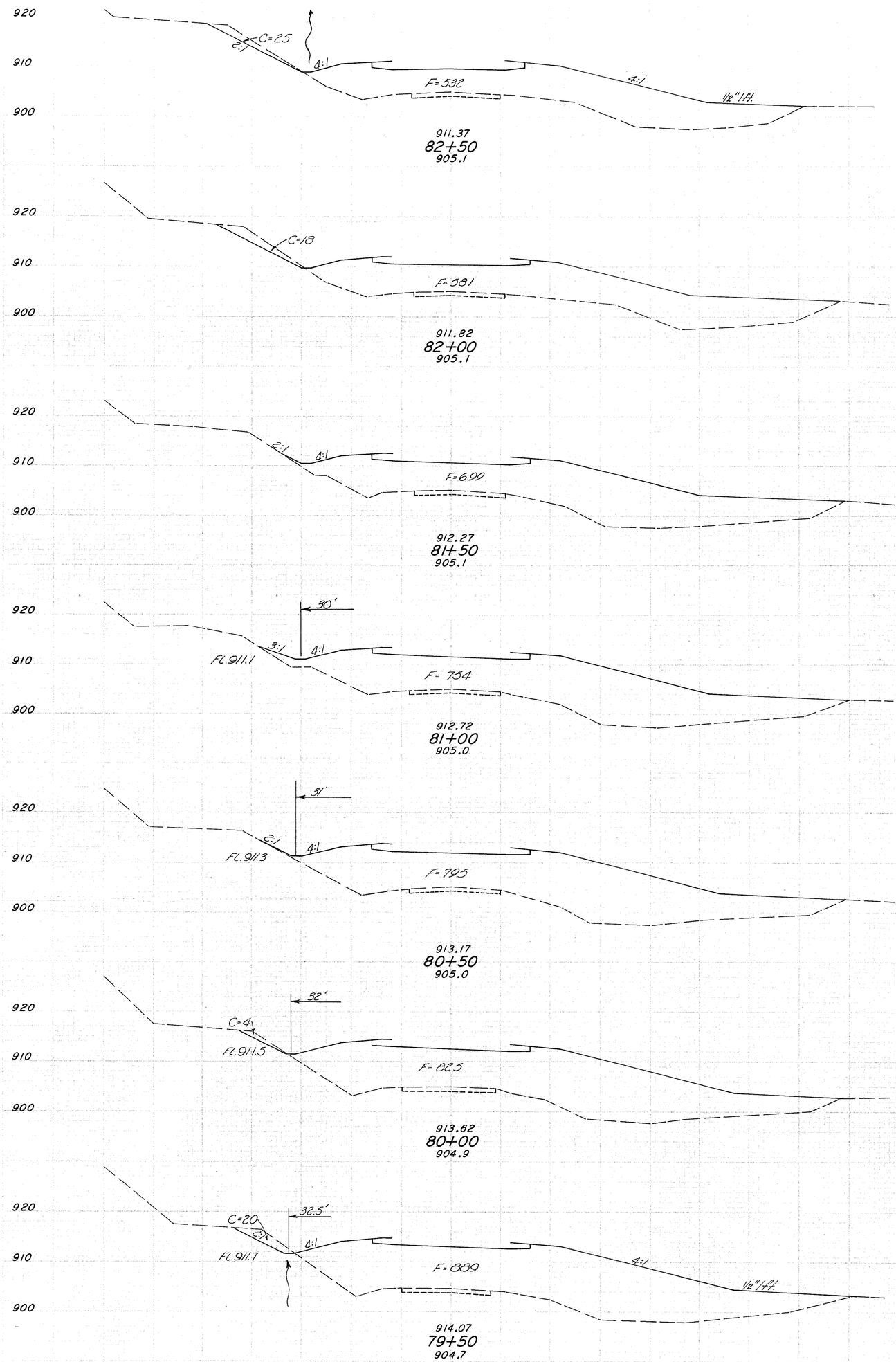


SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
95		4	898		
	497			9	1649
84		6	881		
	469			15	1608
85		10	856		
	461			14	1849
81		5	1141		
	467			12	1894
87		8	904		
	492			13	1604
90		6	828		
	569			8	1713
115		3	1022		
	625			18	1923

RELOCATED S.R.154 STA.76+00 TO STA.79+00

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

COL.-11-10.22
COL.-154-1.71

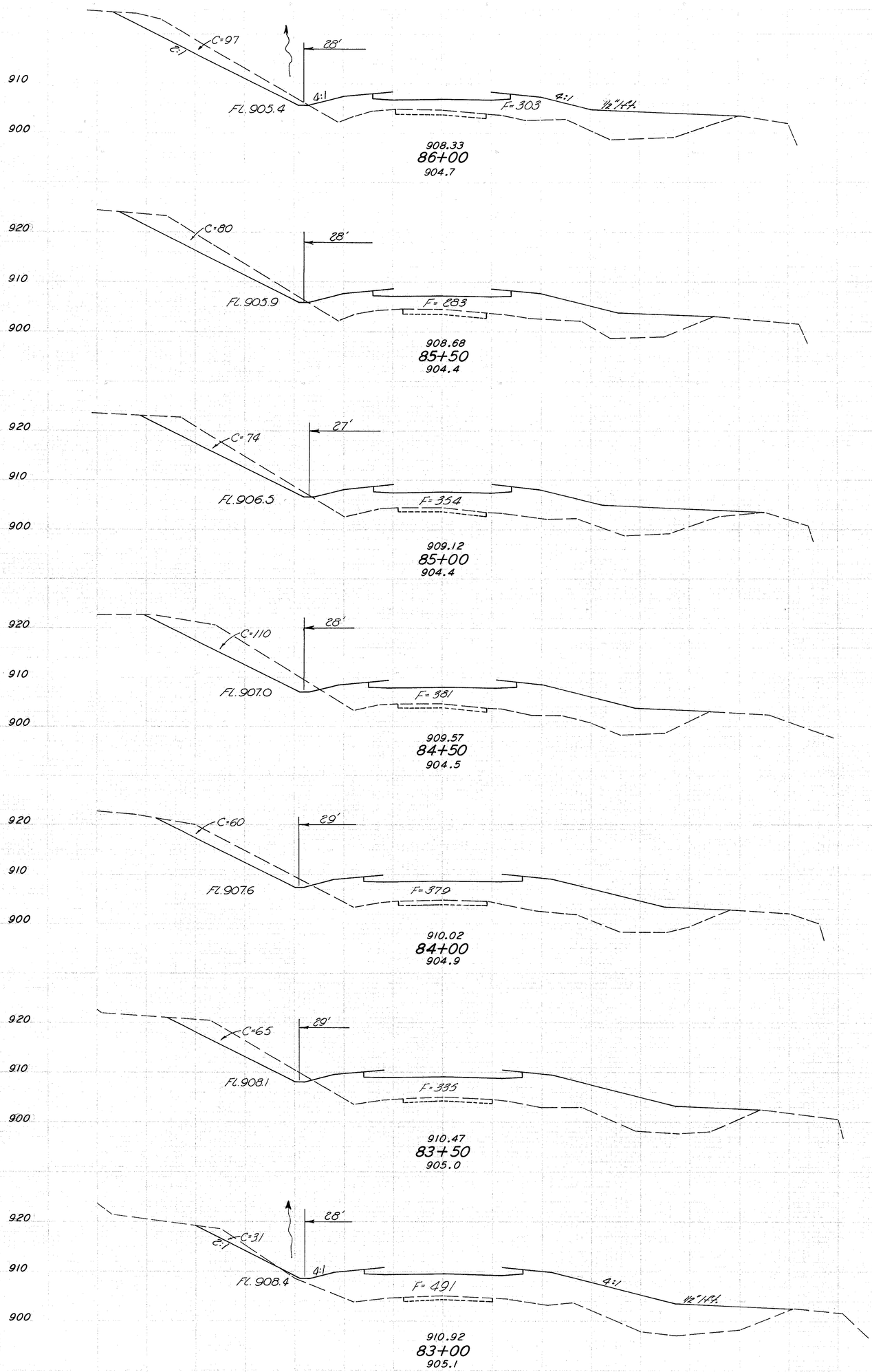


SEEDING		END AREA		VOLUME	
WIDTH	S. Y.	CUT	FILL	EXC.	EMB.
96		25	592		
	544			40	1031
100		18	581		
	511			17	1185
84		0	699		
	489			0	1345
92		0	754		
	506			0	1435
90		0	795		
	511			4	1300
94		4	825		
	539			22	1387
100		20	889		
	542			22	1655

RELOCATED SR 154 STA. 79+50 TO STA. 82+50

COL-11-10.22
COL-154-1.71

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

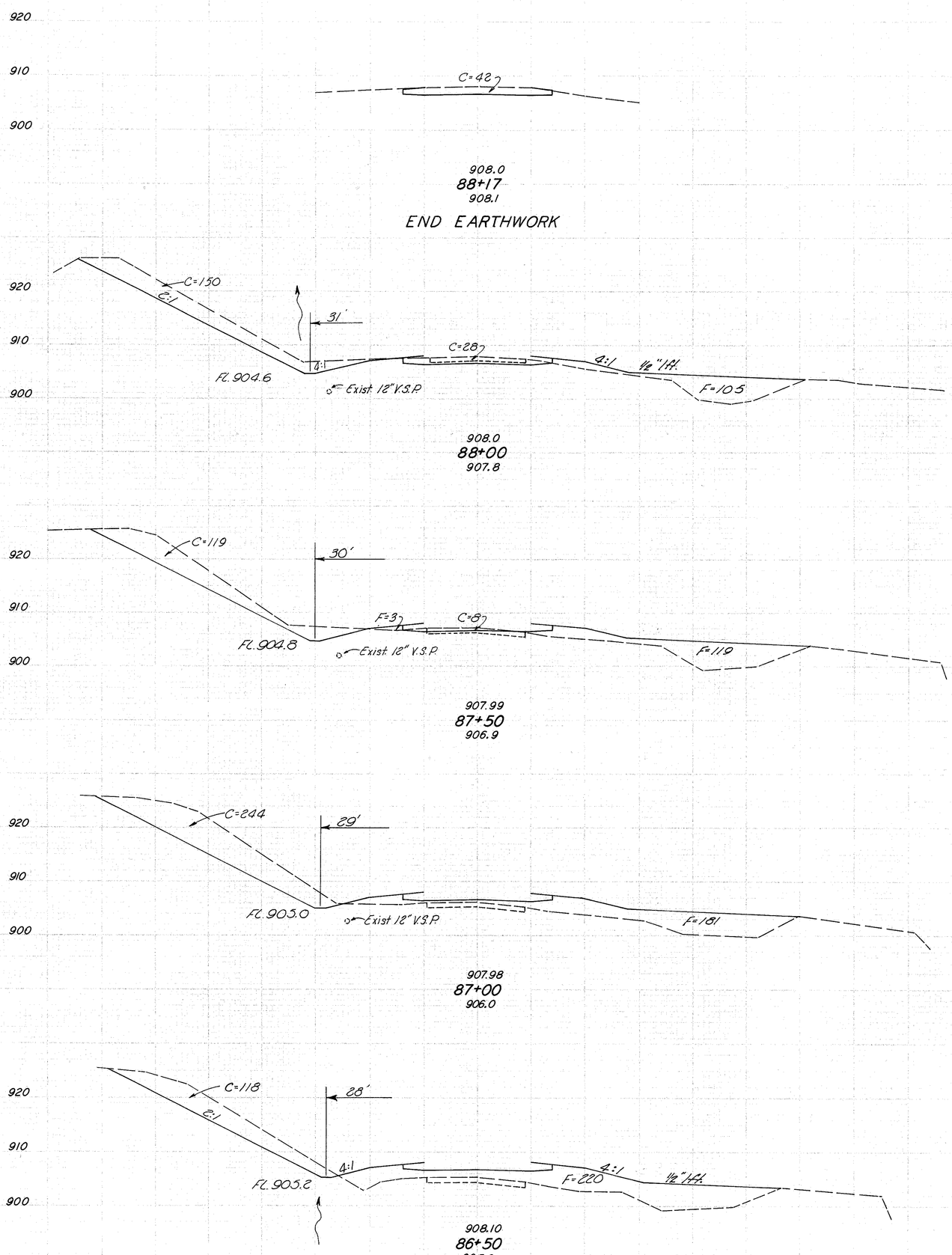


SEEDING		END AREA		VOLUME	
WIDTH	S. Y.	CUT	FILL	EXC.	EMB.
108		97	303		
	578			164	543
100		80	283		
	572			143	590
106		74	354		
	553			170	681
93		110	381		
	506			157	704
89		60	379		
	506			116	661
93		65	335		
	531			89	765
98		31	491		
	539			52	947

RELOCATED S.R.154 STA. 83+00 TO STA. 86+00

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

COL-11-10.22
COL-154-1.71



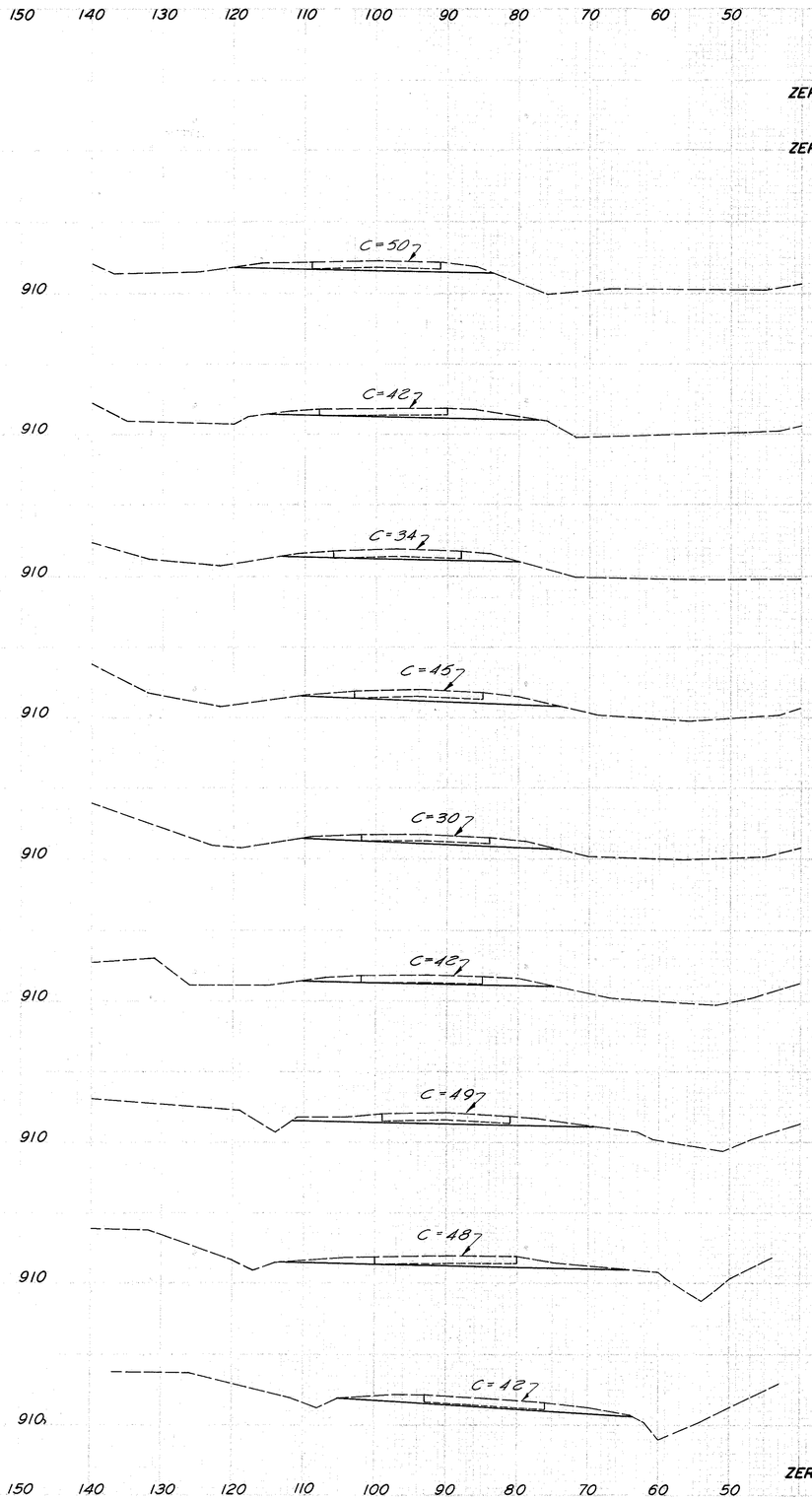
SEEDING		END AREA		VOLUME	
WIDTH	S. Y.	CUT	FILL	CUT	FILL
0		42	0		
	85			69	33
90		178	105		
	567			282	210
114		127	122		
	625			344	281
111		244	181		
	600			335	
105		118	220		
	592			199	484

RELOCATED SR.154 STA.86+50 TO STA.88+17

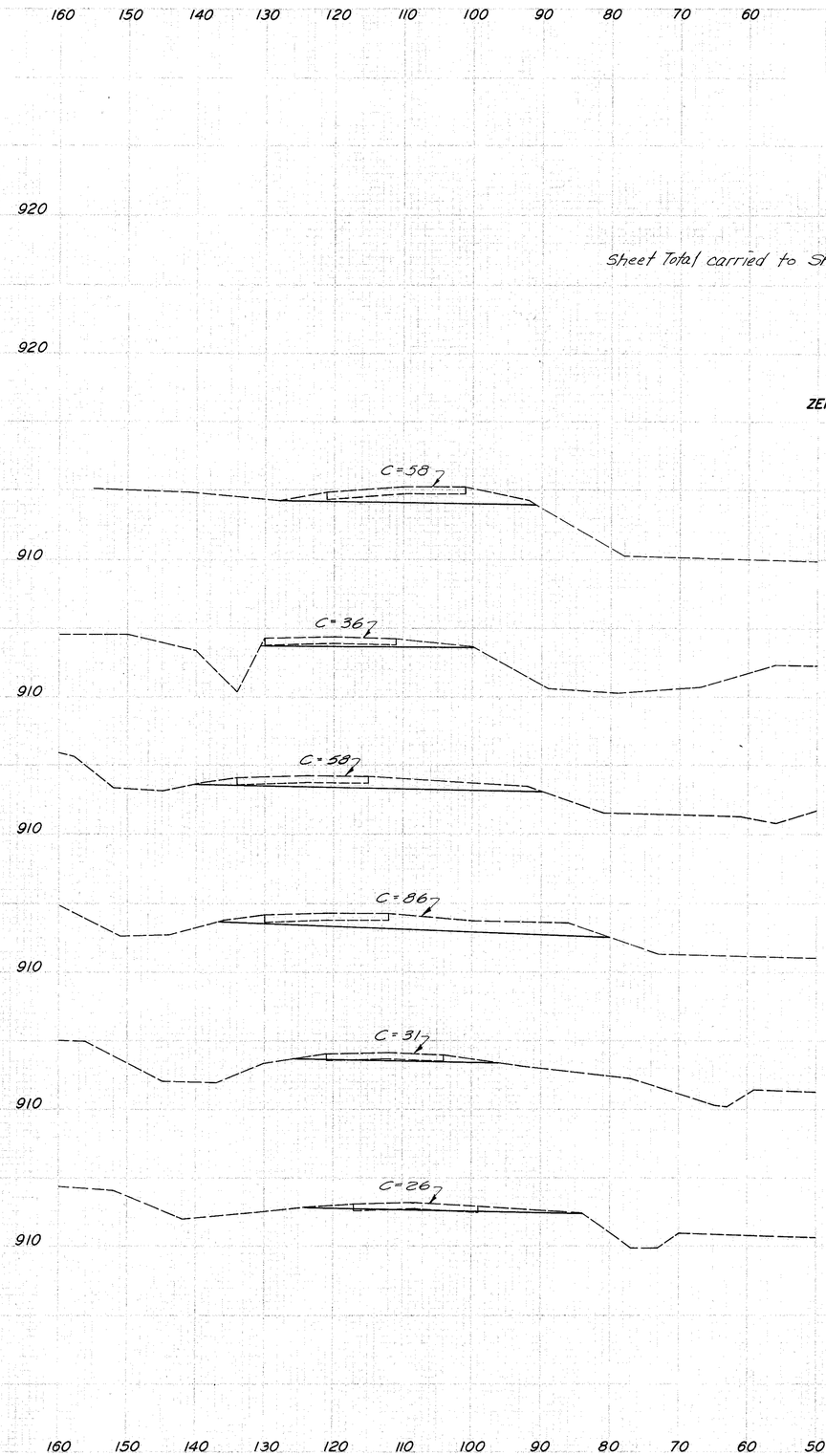
COL-11-10.22
COL-154-1.71

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

COL-11-10.22
COL-154-1.71



	SEEDING		ENDAREA		VOLUME	
	WIDTH	S.Y.	CUT	FILL	CUT	FILL
STA. 41+50 ZERO EARTHWORK	0		0	0		
STA. 41+30 ZERO EARTHWORK	0		0	0		
		60			28	0
STA. 41+00	36		50	0		
		411			170	0
STA. 40+00	38		42	0		
		400			141	0
STA. 39+00	34		34	0		
		394			146	0
STA. 38+00	37		45	0		
		406			139	0
STA. 37+00	36		30	0		
		394			133	0
STA. 36+00	35		42	0		
		428			169	0
STA. 35+00	42		49	0		
		511			180	0
STA. 34+00	50		48	0		
		511			167	0
STA. 33+00	42		42	0		
		75			25	0
STA. 32+68 ZERO EARTHWORK	0		0	0		



	SEEDING		ENDAREA		VOLUME	
	WIDTH	S.Y.	CUT	FILL	CUT	FILL
Sheet Total carried to Sh. 233					2238	0
STA. 46+92 ZERO EARTHWORK	0		0	0		
		25			13	0
STA. 46+80	37		58	0		
		302			189	0
STA. 46+00	31		36	0		
		450			174	0
STA. 45+00	50		58	0		
		594			267	0
STA. 44+00	57		86	0		
		483			217	0
STA. 43+00	30		31	0		
		389			106	0
STA. 42+00	40		26	0		
		111			24	0

Note: All stations and distances are left of ℄ survey of proposed S.R.154

GRADING EXISTING S.R. 154 - CROSS SECTIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

248

COL-11-10.22
COL-154-1.71

SCALE 0 50' 100'

222 225 230 235 239

℄ COL-11

RAMP "A"

RAMP "D"

CHAMBERLAIN DRIVE

ACCESS RD. "A"

RELOC. S.R. 154

Grade to Drain 1/4" per ft.

Grade to Drain 1/4" per ft.

1/4" per ft.

1/2" per ft.

Var.

Typ.

55

50

INTERCHANGE — GRADING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

249

COL-11-10.22
COL-154-1.71

SCALE 0 50' 100'

RELOC. TWP. RD. 785

RAMP "B"

RAMP "C"

RELOC. SR. 154

This Area Grade to Drain

This Ared Grade to Drain

Grade to Drain 1/4" per ft.

1" per ft.

1/4" per ft.

℄ COL-11

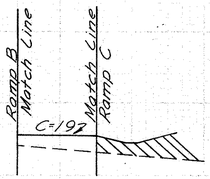
221 225 230 235

INTERCHANGE - GRADING PLAN

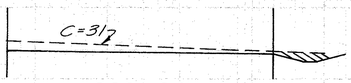
250

COL-11-10.22
COL-154-1.71

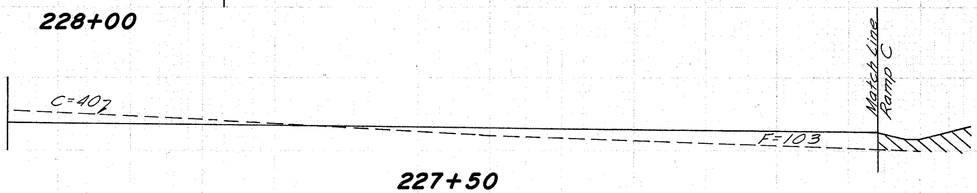
ZERO EARTHWORK
229+00



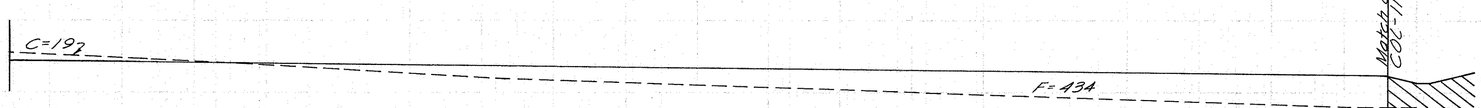
228+50



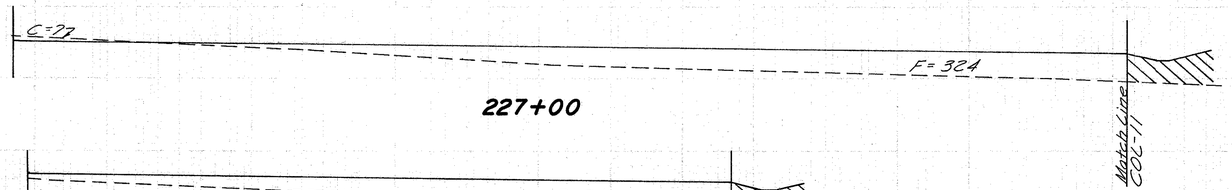
228+00



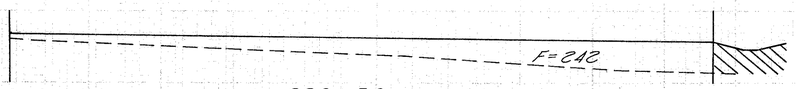
227+50



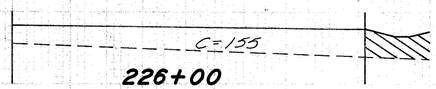
227+35



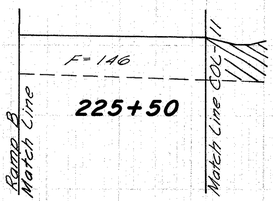
227+00



226+50



226+00



225+50

225+20
ZERO EARTHWORK

NOTE: Stations & Distances are from ℄ Survey RAMP "B"

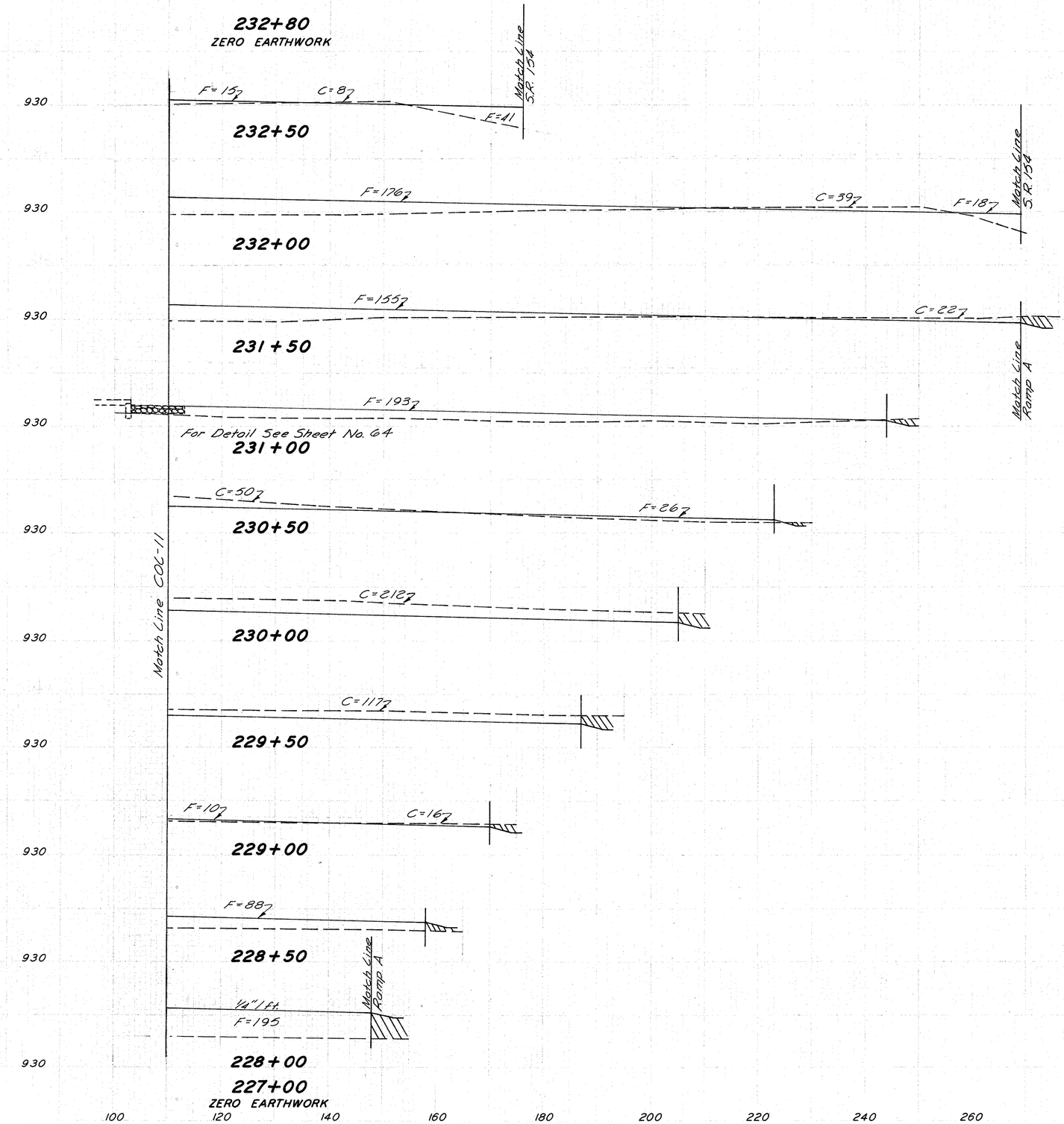
℄ Survey RAMP "B"

0 20 40 60 80 100 120 140 160 180 200 220 240 260

0													0	0
	31	950												
													Sheet Total Carried to Sh. 265 (Ramp B) —	215 2546
	11												18	0
													19	0
	133	950												
													46	0
	37												31	0
		950												
	439												66	95
	121												40	103
		950												
	261													55 497
	192												19	434
		950												
	675													24 702
	155												7	324
		950												
	703													6 524
	98												0	242
		950												
	408												0	368
	49												0	155
		950												
	208												0	279
	26												0	146
		950												
	43												0	81
	0												0	0

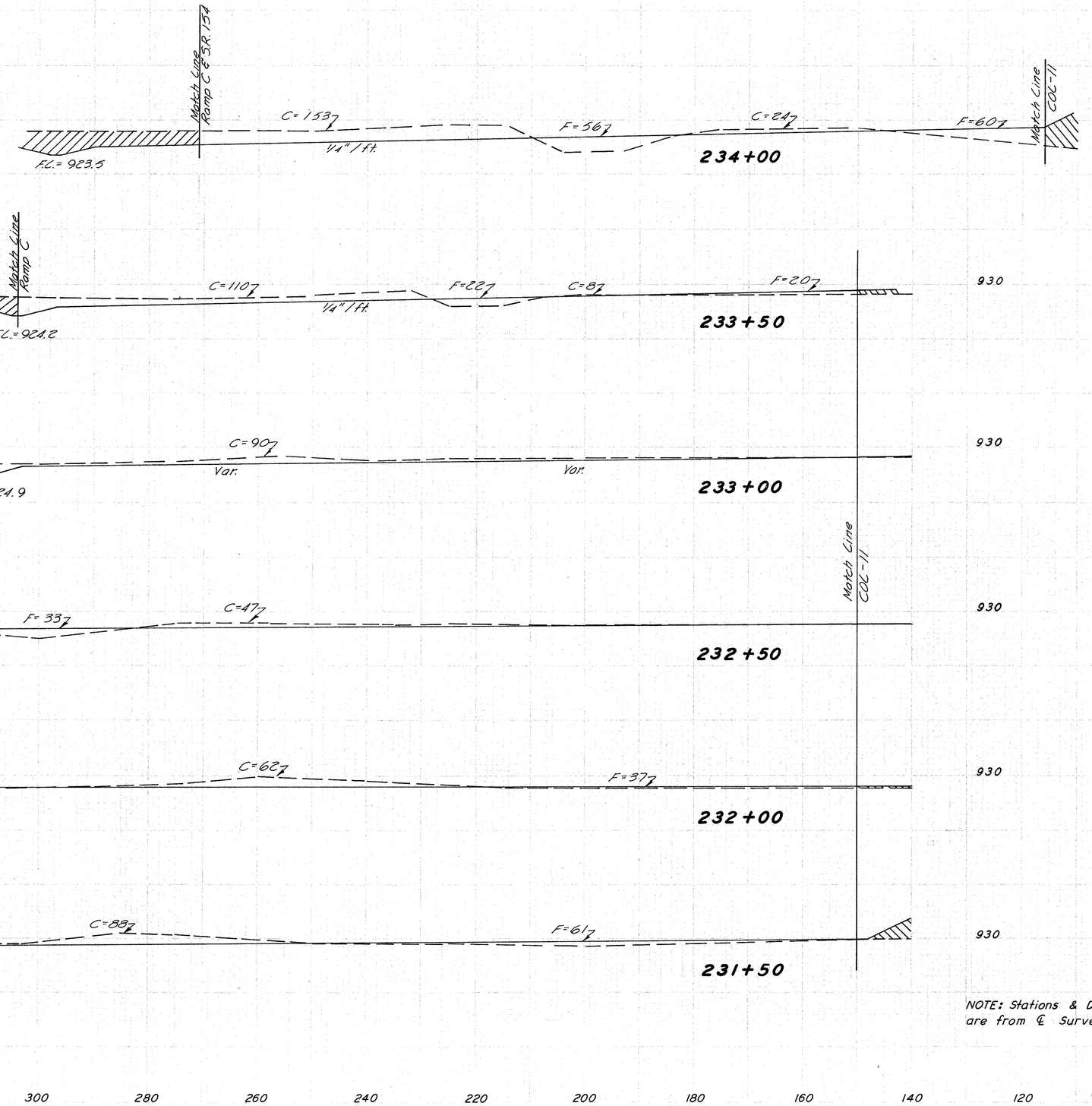
GRADING PLAN CROSS SECTIONS

COL-11-10.22
COL-154-1.71



| | | |

COL-11-10.22
COL-154-1.71



155 858 154 817 140 853 167 947 174 983 180

930 930 930 930 930 930 930

Total, Sh. 251 & 252 To Sh. 64 — 1707 2246
Ahead 0 0
Back 177 116

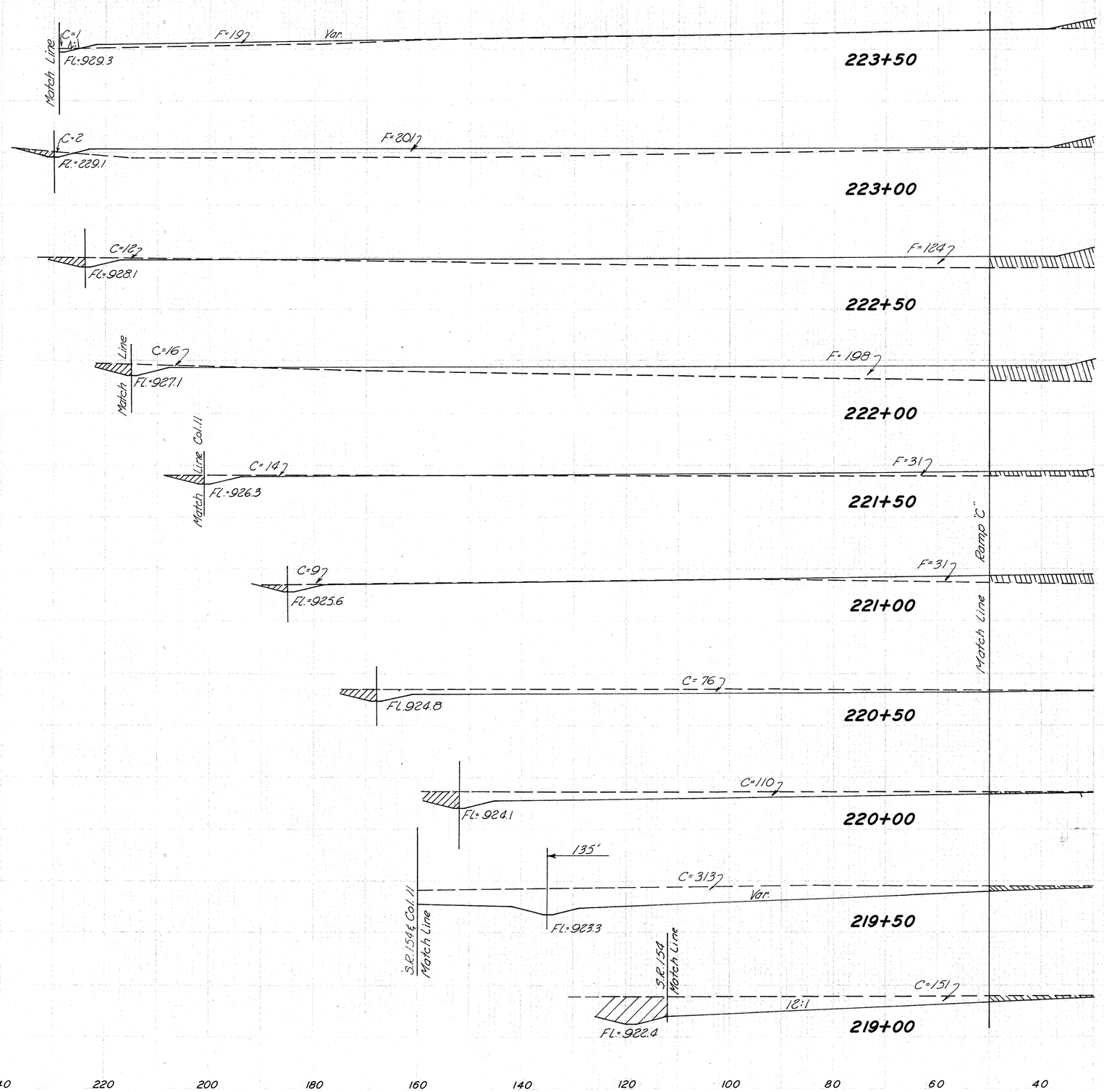
273 146 118 42 193 39 90 0 129 31 49 33 105 69 64 42 141 95 88 61

NOTE: Stations & Distances are from ℄ Survey COL-11-10.22

340 320 300 280 260 240 220 200 180 160 140 120

GRADING PLAN CROSS SECTIONS

COL-11-10.22
COL-154-1.71



930 930 930 930 930 930 930 930 930

179 997 180 983 174 942 165 878 151 794 135 706 119 64 102 589 110 478 62

240 220 200 180 160 140 120 100 80 60 40 20

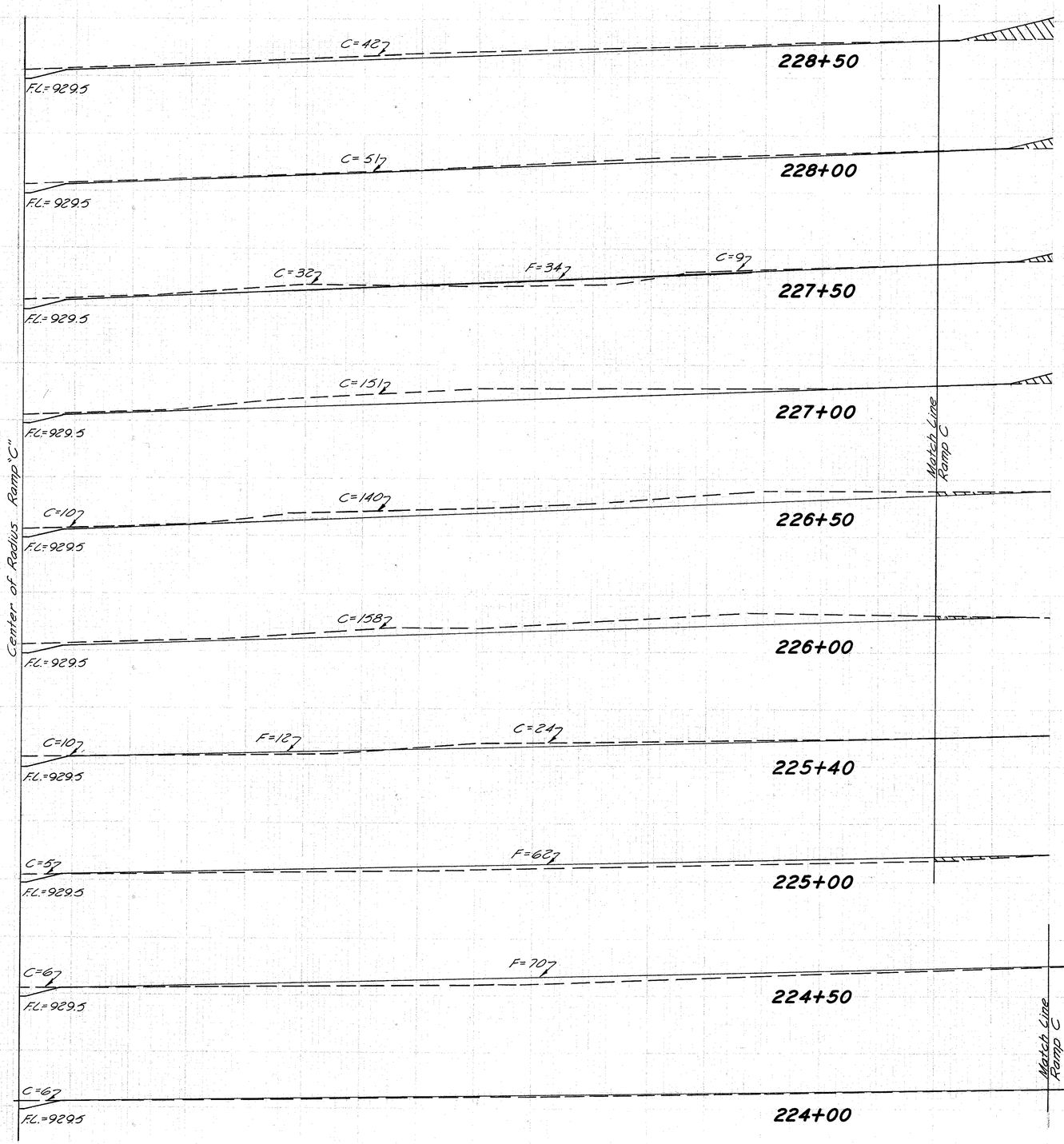
1 10
3 204
2 201
13 301
12 124
26 298
16 198
28 212
14 31
21 57
9 31
79 29
76 0
172 0
110 0
392 0
313 0
430 0
151 0

NOTE: Stations & Distances are from ℄ Survey RAMP "C"

℄ Survey RAMP "C"

GRADING PLAN CROSS SECTIONS

COL-11-10.22
COL-154-1.71



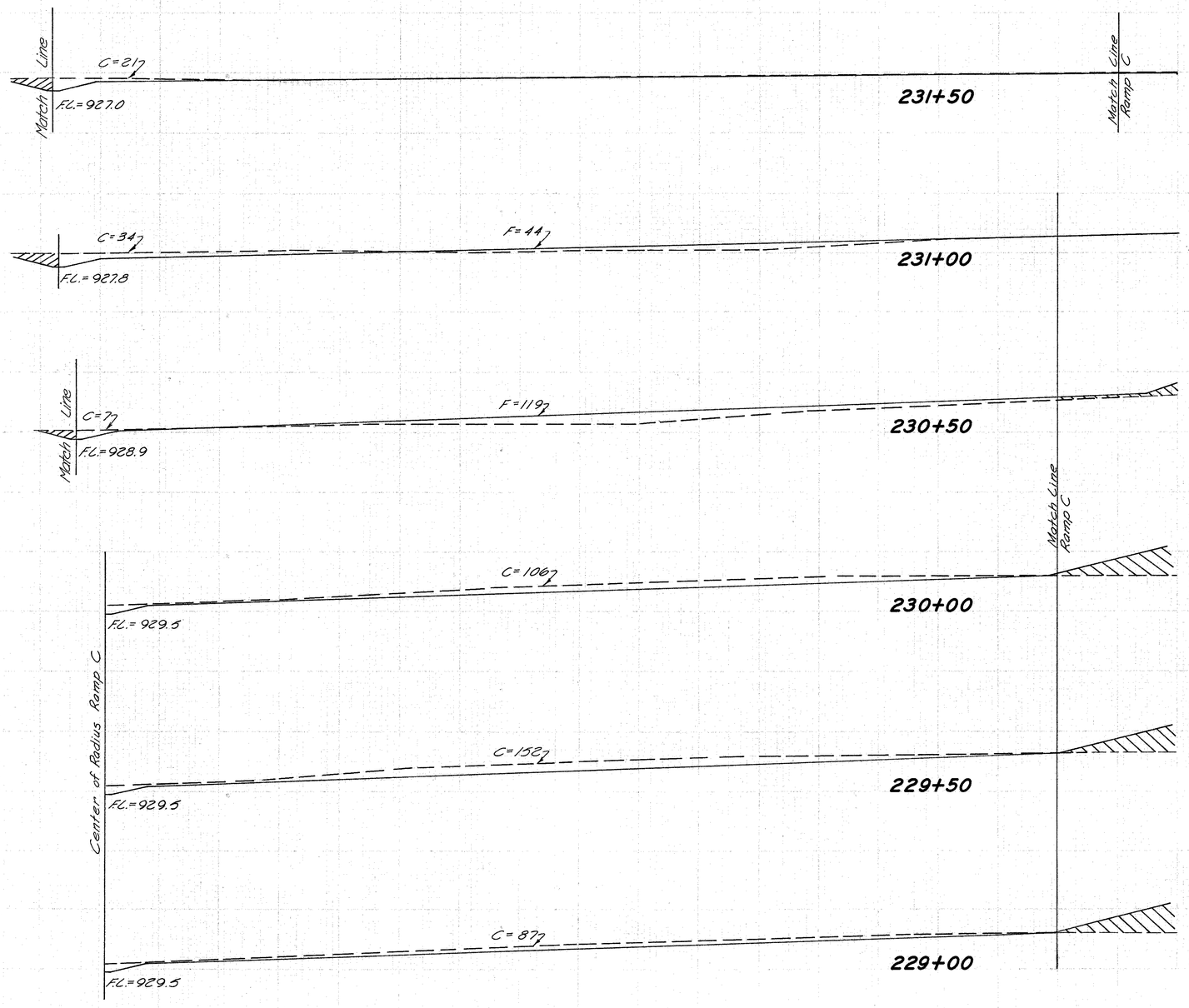
159 883 930 42 0
159 883 930 86 0
159 883 930 51 0
159 883 930 85 31
159 883 930 41 34
159 883 930 178 31
159 883 930 151 0
159 883 930 279 0
159 883 930 150 0
159 883 930 285 0
159 1073 930 158 0
163 724 930 213 13
163 930 34 12
163 967 930 29 55
185 1025 930 5 62
184 1008 930 10 122
6 70
11 65
6 0
6 18

NOTE: Stations & Distances are from ℄ Survey RAMP "C"

℄ Survey RAMP "C"

GRADING PLAN - CROSS SECTIONS

COL-11-10.22
COL-154-1.71



Total, Sh 253-255 (extensions) carried to Sh. 269 (Ramp C) ——— 3119 1738

178	958	167	919	164	897	159
930		930		930		930
Ahead 0 0	51 41		38 151		105 110	
Back 21 0		34 44		7 119		106 0
883	159	883	159	883	159	883
	239 0		221 0		87 0	119 0
	930		930		930	
						152 0

NOTE: Station & Distances are from ℄ Survey RAMP "C"

260 240 220 200 180 160 140 120 100 80 60 40 20

℄ Survey RAMP "C"

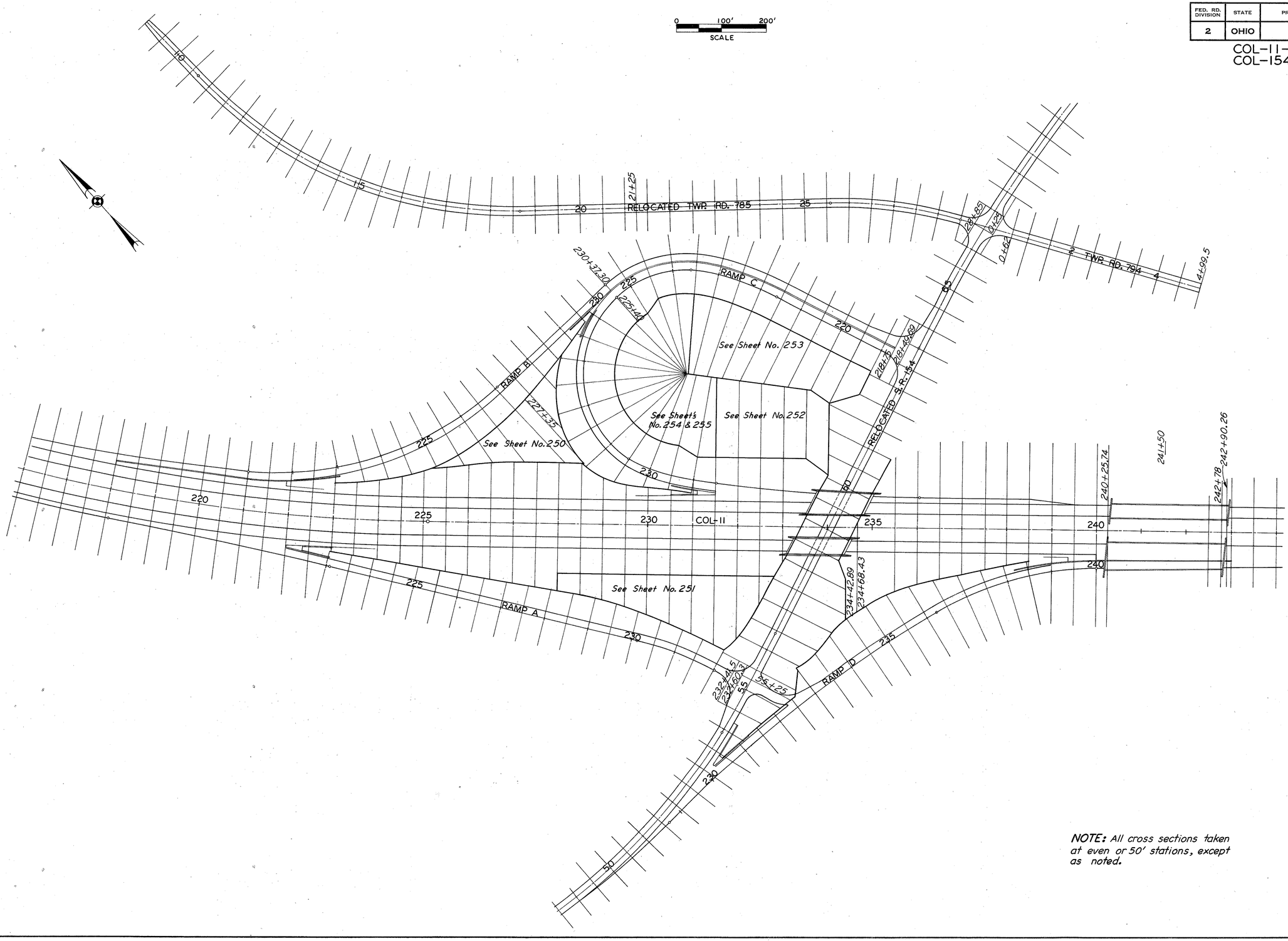
GRADING PLAN CROSS SECTIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

256

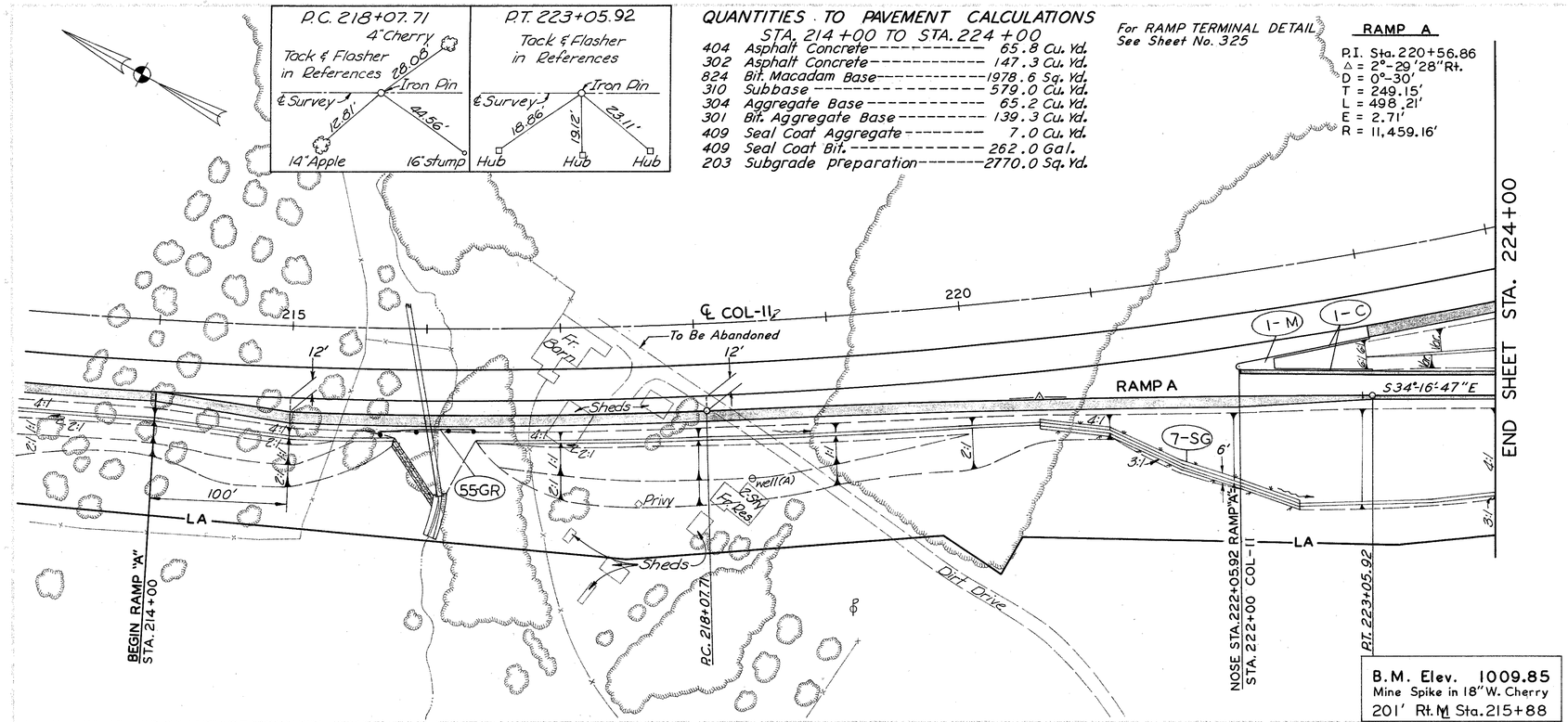
COL-11-10.22
COL-154-1.71

0 100' 200'
SCALE



NOTE: All cross sections taken at even or 50' stations, except as noted.

INTERCHANGE – CROSS SECTION PLAN



For RAMP TERMINAL DETAIL See Sheet No. 325

RAMP A

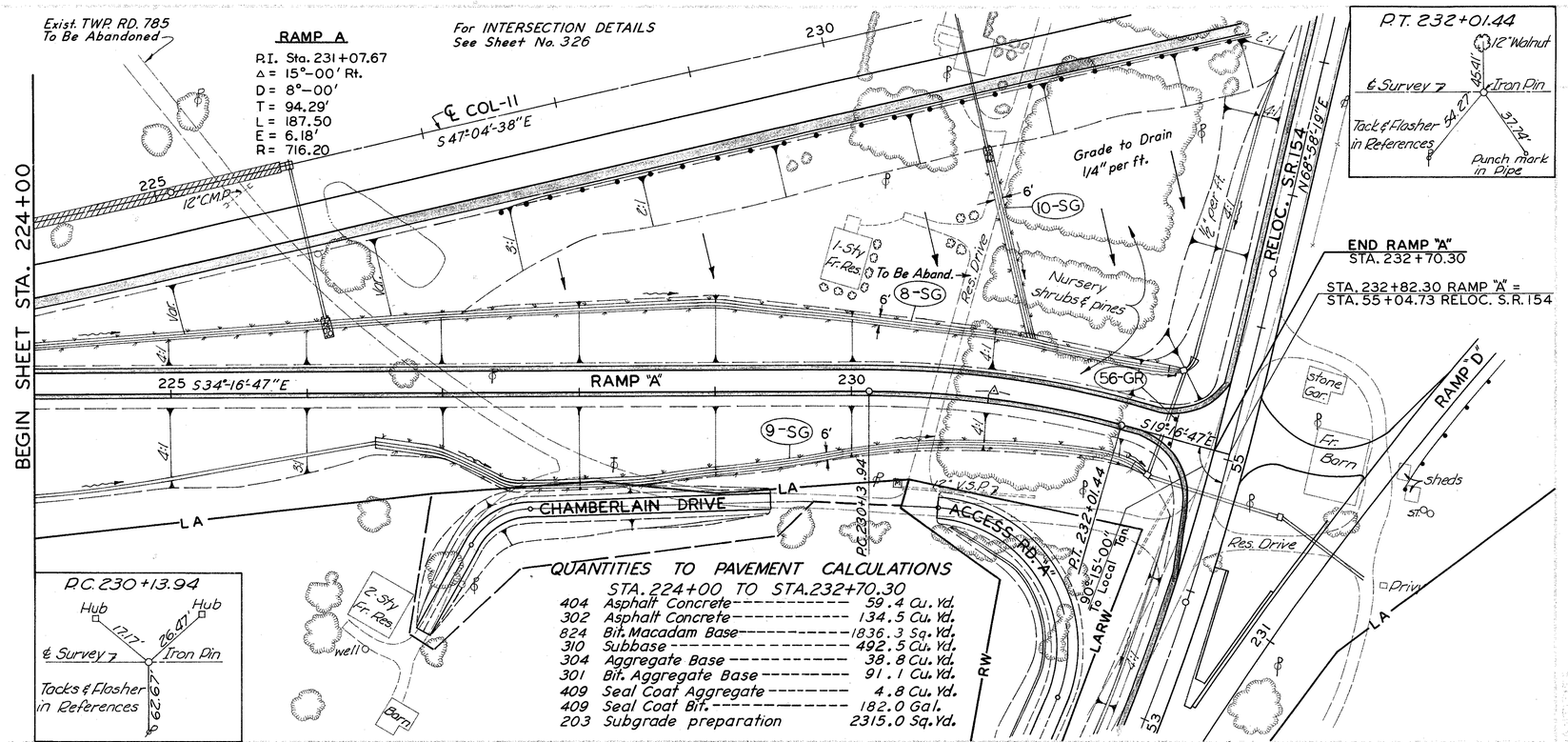
P.I. Sta. 220+56.86
Δ = 2°-29'28" Rt.
D = 0°-30'
T = 249.15'
L = 498.21'
E = 2.71'
R = 11,459.16'

QUANTITIES TO PAVEMENT CALCULATIONS
STA. 214+00 TO STA. 224+00

404	Asphalt Concrete	65.8 Cu. Yd.
302	Asphalt Concrete	147.3 Cu. Yd.
824	Bit. Macadam Base	1978.6 Sq. Yd.
310	Subbase	579.0 Cu. Yd.
304	Aggregate Base	65.2 Cu. Yd.
301	Bit. Aggregate Base	139.3 Cu. Yd.
409	Seal Coat Aggregate	7.0 Cu. Yd.
409	Seal Coat Bit.	262.0 Gal.
203	Subgrade preparation	2770.0 Sq. Yd.

Left Edge of Pavt. RAMP "A" same Elev. as Right Edge of Pavt. COL-11

| | | |



QUANTITIES TO PAVEMENT CALCULATIONS

STA. 224+00 TO STA. 232+70.30

404	Asphalt Concrete	59.4 Cu. Yd.
302	Asphalt Concrete	134.5 Cu. Yd.
824	Bit. Macadam Base	1836.3 Sq. Yd.
310	Subbase	492.5 Cu. Yd.
304	Aggregate Base	38.8 Cu. Yd.
301	Bit. Aggregate Base	91.1 Cu. Yd.
409	Seal Coat Aggregate	4.8 Cu. Yd.
409	Seal Coat Bit.	182.0 Gal.
203	Subgrade preparation	2315.0 Sq. Yd.

969.81 968.81 967.78 966.72 965.62 964.49 963.32 962.12 960.89 959.64 958.39 957.14 955.89 954.64 953.39 952.14 950.89 949.64 948.39 947.14 945.89 944.65 943.41 942.21 941.05 939.97 938.85 937.70 936.65 935.72 934.92 934.19 933.47

969.56 968.56 967.53 966.47 965.37 964.24 963.07 961.87 960.64 959.39 958.14 956.89 955.64 954.39 953.14 951.89 950.64 949.39 948.14 946.89 945.64 944.39 943.14 941.89 940.64 939.39 938.14 936.95 935.90 934.97 934.17 933.50 932.96 932.54 932.26 932.08

Left Edge Elevation

Profile Grade Elevation

P.I. 224+00
Elev. 970.64

970
960
950
940
930

400' V.C.

P.T. 226+100

-5.00%

200' V.C.

P.C. 230+50

P.T. 232+50
END RAMP "A"
STA. 232+70.30

-0.876%

P.I. 231+50
Elev. 933.14

℄ RELOC. S.R. 154

955.36 951.41 949.85 952.58 953.81 952.23 942.46 937.02 935.78 935.84 934.72 935.44 934.53 933.06 931.82 931.37 931.59 924.60

224 225 226 227 228 229 230 231 232

PAVEMENT AREA

870.3 x 15 ÷ 9 = 1547.2 Sq.Yds.
Add for Flares
116 + 47 = 163.0 Sq.Yds.
TOTAL PAVEMENT AREA = 1710.2 Sq.Yds.

BERM AREA

Lt.(823.79+56.64)3 ÷ 9 = 293.5 Sq.Yds.
Rt.(813.00+122.01)3 ÷ 9 = 311.7 Sq.Yds.
TOTAL BERM AREA = 605.2 Sq.Yds

404 ASPHALT CONCRETE

1710.2 x 1 1/4 ÷ 36 = 59.4 Cu.Yds.

302 ASPHALT CONCRETE

1710.2 x 2 3/4 ÷ 36 = 130.6 Cu.Yds.
Edges Lt. & Rt.
(880.43+935.01)1/4 x.2292÷27= 3.9 Cu.Yds.
TOTAL 302 = 134.5 Cu.Yds.

824 BITUMINOUS MACADAM BASE

Pavement Area = 1710.2Sq.Yds.
Edges Lt. & Rt.
1815.44 x.625÷9 : = 126.1 Sq.Yds.
TOTAL 824 = 1836.3 Sq.Yds.

310 SUBBASE

1710.2 x 8 ÷ 36 = 380.0 Cu.Yds.
Edge 1815.44 x 1/4 x2/3÷ 27 11.2 Cu.Yds.
Berm 1815.44 x 1.506 ÷ 27 =101.3 Cu.Yds.
TOTAL 310 = 492.5 Cu.Yds.

304 AGGREGATE BASE

1815.44 x.5575 ÷ 27 = 38.8 Cu.Yds.

301 BITUMINOUS AGGREGATE BASE

1815.44 x 1.355 ÷ 27 = 91.1 Cu.Yds.

409 SEAL COAT, AGGREGATE

605.2 x .008 = 4.8 Cu.Yds.

409 SEAL COAT, BITUMINOUS

605.2 x 0.30 = 182.0 Gals.

203 SUBGRADE PREPARATION

Pav't. & Berms
1710.2 + 605.2 = 2315.0 Sq.Yds.

970
960
950
940
930

606 Temp. Guard Rail, as per plan L.F. 25

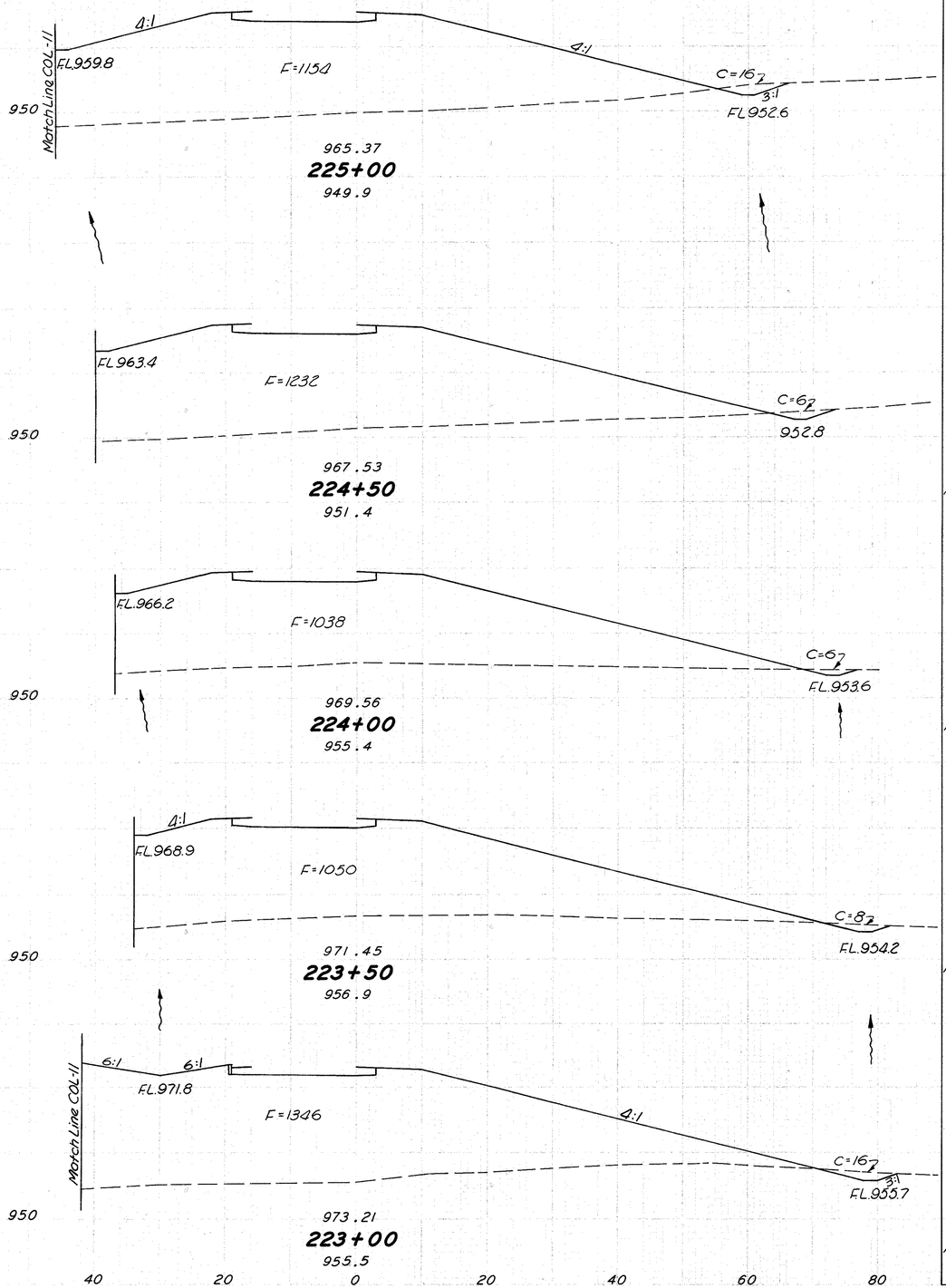
660 Sodding S.Y. 560

8-SG	224+00 to 232+13	Lt.	378
9-SG	226+50 to 232+15	Rt.	88
10SG	230+80 to 231+27	Lt.	
56GR	232+41	Lt&Rt.	

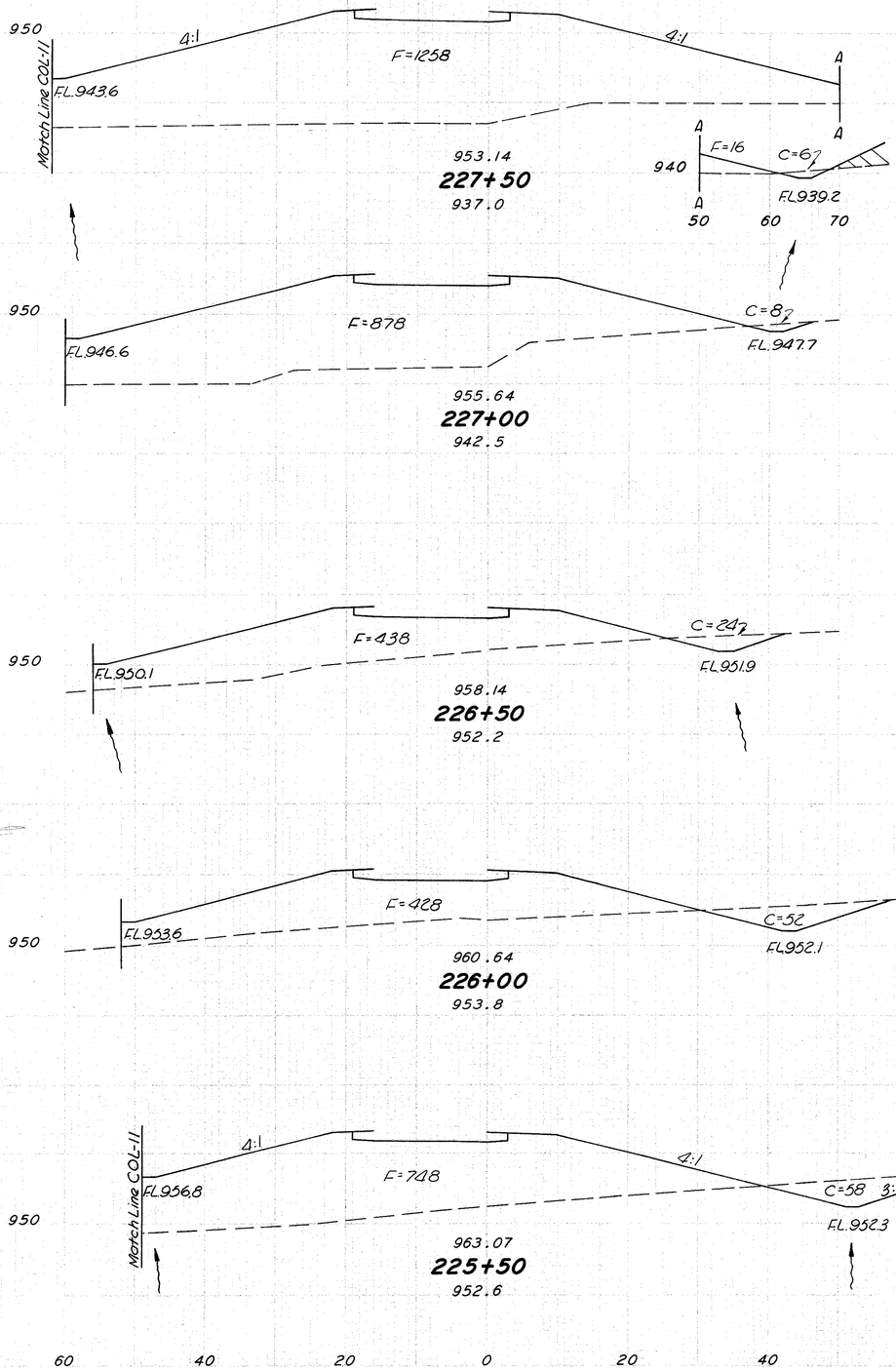
1026 25

RAMP "A" STA. 224+00 TO STA. 232+70.30

COL-11-10.22
COL-154-1.71



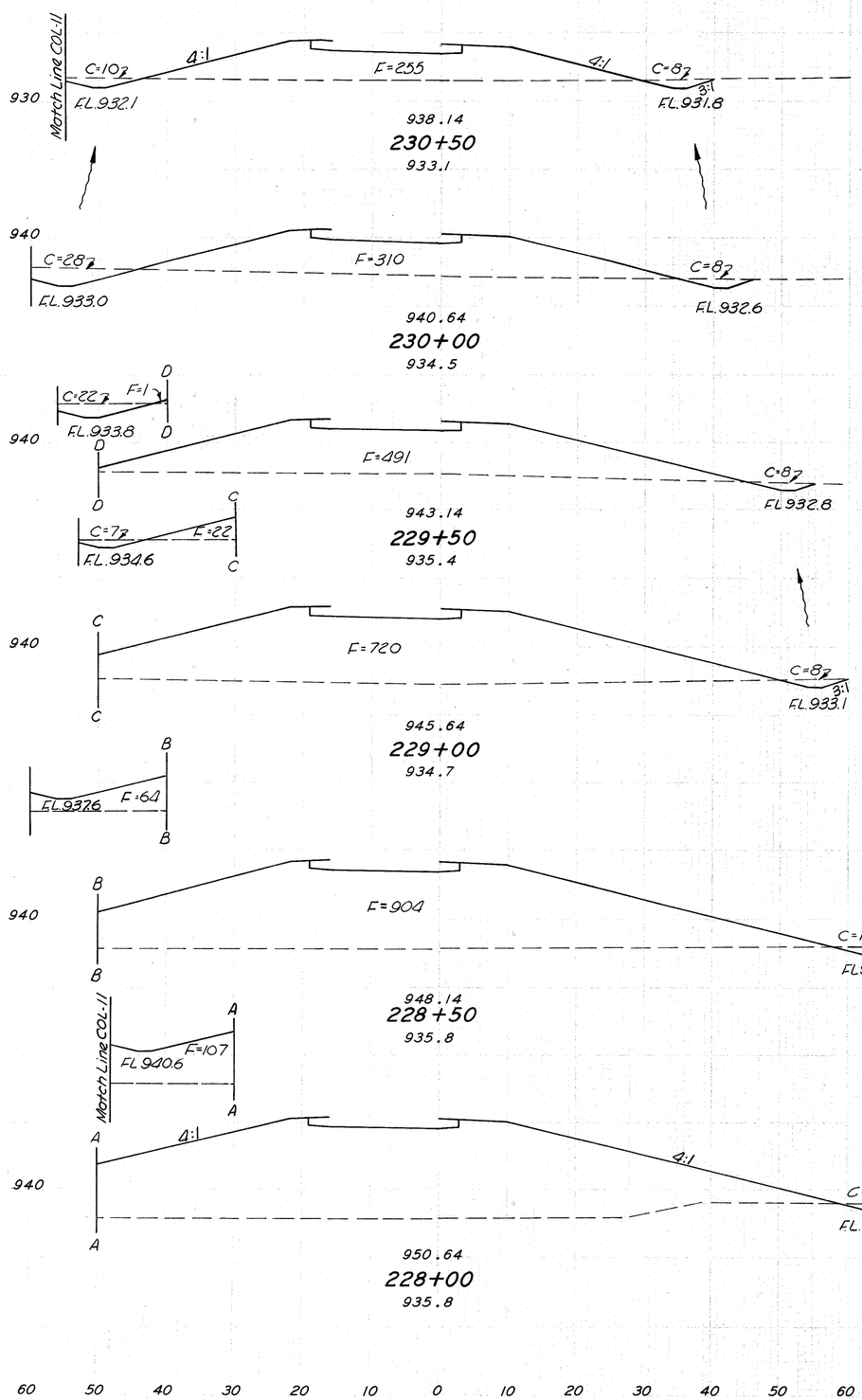
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
106		16	1154		
	589			20	2207
106		6	1232		
	589			11	2100
106		6	1038		
	594			13	1931
108		8	1050		
	625			22	2216
117		16	1346		



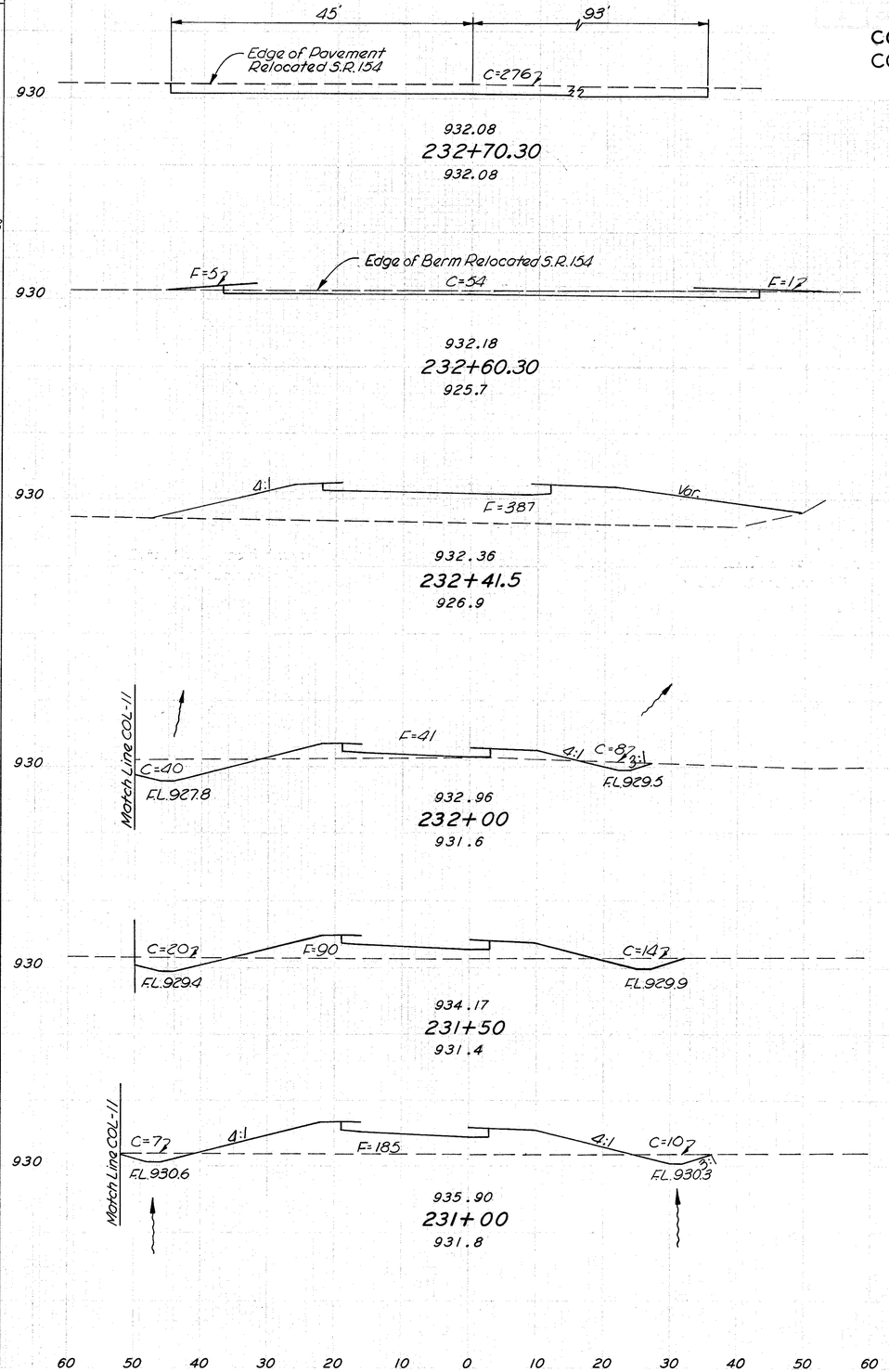
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
111		6	1274		
	581			13	1990
98		8	878		
	525			30	1217
91		24	438		
	536			70	801
102		52	428		
	586			102	1088
109		58	748		
	597			68	1759

RAMP "A" STA. 223+00 TO STA. 227+50

COL-11-10.22
COL-154-1.71



SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
87		18	255		
	514			50	523
98		36	310		
	586			57	742
113		30	492		
	661			42	1101
125		15	742		
	672			25	1582
117		12	968		
	647			17	1992
116		6	1186		
	631			11	2275

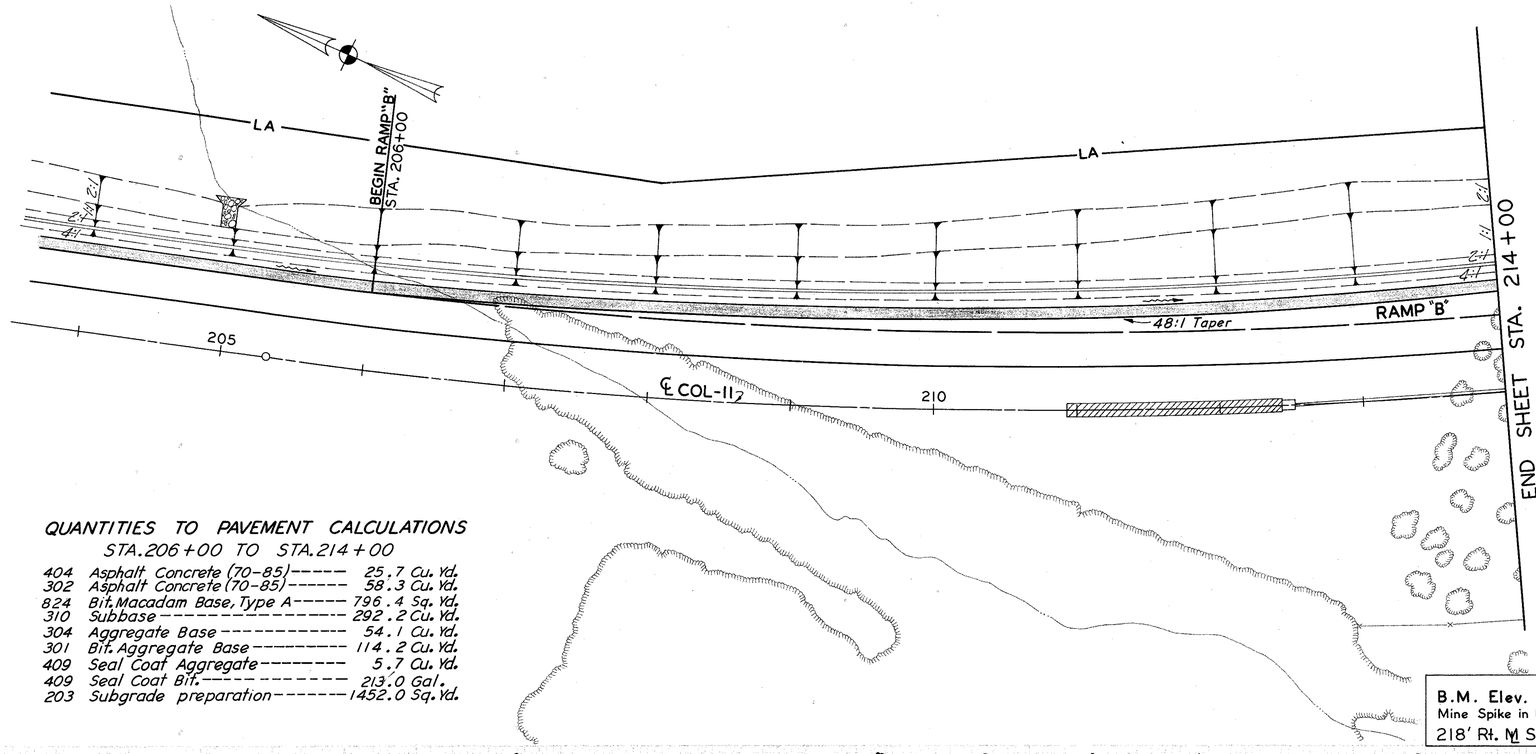


SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
0		276	0		
	12			61	1
22		54	6		
	115			19	137
88		0	387		
	360			36	327
68		48	41		
	394			76	121
74		34	90		
	431			47	254
81		17	185		
	467			32	410

60 50 40 30 20 10 0 10 20 30 40 50 60

RAMP "A" STA 228+00 TO STA 232+50

COL-11-10.22 COL-154-1.71



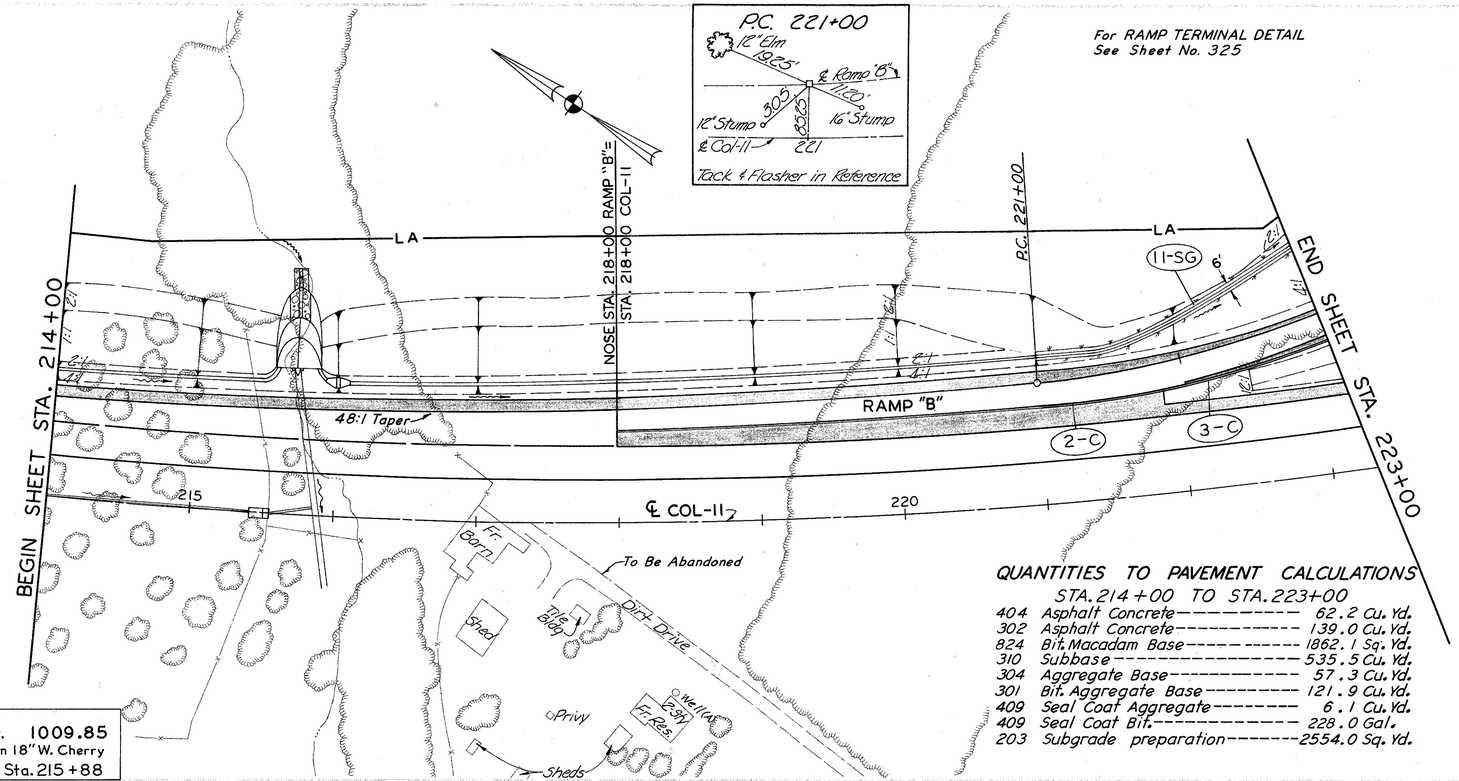
QUANTITIES TO PAVEMENT CALCULATIONS

STA. 206+00 TO STA. 214+00

404	Asphalt Concrete (70-85)-----	25.7 Cu. Yd.
302	Asphalt Concrete (70-85)-----	58.3 Cu. Yd.
824	Bit. Macadam Base, Type A-----	796.4 Sq. Yd.
310	Subbase-----------	292.2 Cu. Yd.
304	Aggregate Base----------	54.1 Cu. Yd.
301	Bit. Aggregate Base----------	114.2 Cu. Yd.
409	Seal Coat Aggregate---------	5.7 Cu. Yd.
409	Seal Coat Bit.----------	213.0 Gal.
203	Subgrade preparation-------	1452.0 Sq. Yd.

B.M. Elev. 1044.48
Mine Spike in 18" Locust
218' Rt. ℳ Sta. 208+20

| | | |



B.M. Elev. 1009.85
Mine Spike in 18" W. Cherry
201' Rt. ℳ Sta. 215+88

QUANTITIES TO PAVEMENT CALCULATIONS

STA. 214+00 TO STA. 223+00

404	Asphalt Concrete	62.2 Cu. Yd.
302	Asphalt Concrete	139.0 Cu. Yd.
824	Bit. Macadam Base	1862.1 Sq. Yd.
310	Subbase	535.5 Cu. Yd.
304	Aggregate Base	57.3 Cu. Yd.
301	Bit. Aggregate Base	121.9 Cu. Yd.
409	Seal Coat Aggregate	6.1 Cu. Yd.
409	Seal Coat Bit.	228.0 Gal.
203	Subgrade preparation	2554.0 Sq. Yd.

	214	215	216	217	218	219	220	221	222	223
Profile Grade Elevation	994.05	993.38	992.70	992.03	991.35	990.68	990.00	989.33	988.65	987.98	987.30	986.63	985.95	985.28	984.60	983.93	983.25	982.57	981.90	981.22	980.55	979.87	979.19	978.52	977.84	977.17	976.49	975.81	975.14	974.46	973.79	973.11	972.44	971.76	971.08	970.40	969.68
Right Edge Elevation																													975.02	974.51	974.04	973.44	972.76	972.08	971.40	970.68

Right Edge Pav't. Ramp "B" same Elevation as Left Edge Pav't. Col-11

See Ramp Terminal Detail, Sheet No. 325

990.0 978.0 966.2 960.1 955.2

-2.70%

P.C. 222+50

200' V.C.

990 980 970 960 950

Pavement Area
Sta. 214+00 to 218+00
(16.67+25) ½ x 400 ÷ 9 = 926 Sq.Yds.
Sta. 218+00 to 221+00
300 (14+16) ½ ÷ 9 = 500 Sq.Yds.
Sta. 221+00 to 222+00
100 (16+18) ½ ÷ 9 = 188.9 Sq.Yds.
Sta. 222+00 to 223+00
100 x 16 ÷ 9 = 177.8 Sq.Yds.
Total Pavement Area = 1792.7 Sq.Yds.

Berm Area
Sta. 214+00 to 221+00 Lt.
700 x 8 ÷ 9 = 622.2 Sq.Yds.
Sta. 221+00 to 223+00 Lt.
[150 (8+3) ½ + (50 x 3)] ÷ 9 = 108.3 Sq.Yds.
Sta. 222+00 to 223+00 Rt.
[(2.5 x 50) + (50 x 3)] ÷ 9 = 30.6 Sq.Yds.
Total Berm Area = 761.1 Sq.Yds

404 – Asphalt Concrete
1792.7 x 1¼ ÷ 36 = 62.2 Cu.Yds.

302 – Asphalt Concrete
1792.7 x 2 ¾ ÷ 36 = 136.9 Cu.Yds.
Edges Lt. & Rt.
(900+100) ¼ x .22917 ÷ 27 = 2.1 Cu.Yds.
Total 302 = 139.0 Cu.Yds.

824 – Bituminous Macadam Base
Pavement Area = 1792.7 Sq.Yds.
Edges Lt. & Rt.
(900+100) .625 ÷ 9 = 69.4 Sq.Yds.
Total 824 = 1862.1 Sq.Yds.

310 – Subbase
1792.7 x 8 ÷ 36 = 398.4 Cu.Yds.
Edge Lt. 900 x ¼ x ⅔ ÷ 27 = 5.6 Cu.Yds.
8' Berm Lt. 700 x 4.141 ÷ 27 = 107.4 Cu.Yds.
Transition 150 (4.141+1.506) ½ ÷ 27 = 15.7 Cu.Yds.
3' Berm Lt. & Rt. (50+100) 1.506 ÷ 27 = 8.4 Cu.Yds.
Total 310 = 535.5 Cu.Yds.

304 – Aggregate Base
8' Berm 700 x 1.8275 ÷ 27 = 47.4 Cu.Yds.
Transition 150 (1.8275+.5775) ½ ÷ 27 = 6.7 Cu.Yds.
3' Berm Lt. & Rt. 150 x .5775 ÷ 27 = 3.2 Cu.Yds.
Total 304 = 57.3 Cu.Yds.

301 – Bituminous Aggregate Base
8' Berm 700 x 3.855 ÷ 27 = 99.9 Cu.Yds.
Transition 150 (3.855+1.355) ½ ÷ 27 = 14.5 Cu.Yds.
3' Berm 150 x 1.355 ÷ 27 = 7.5 Cu.Yds.
Total 301 = 121.9 Cu.Yds.

409 – Seal Coat, Aggregate
761.1 x .008 = 6.1 Cu.Yds.

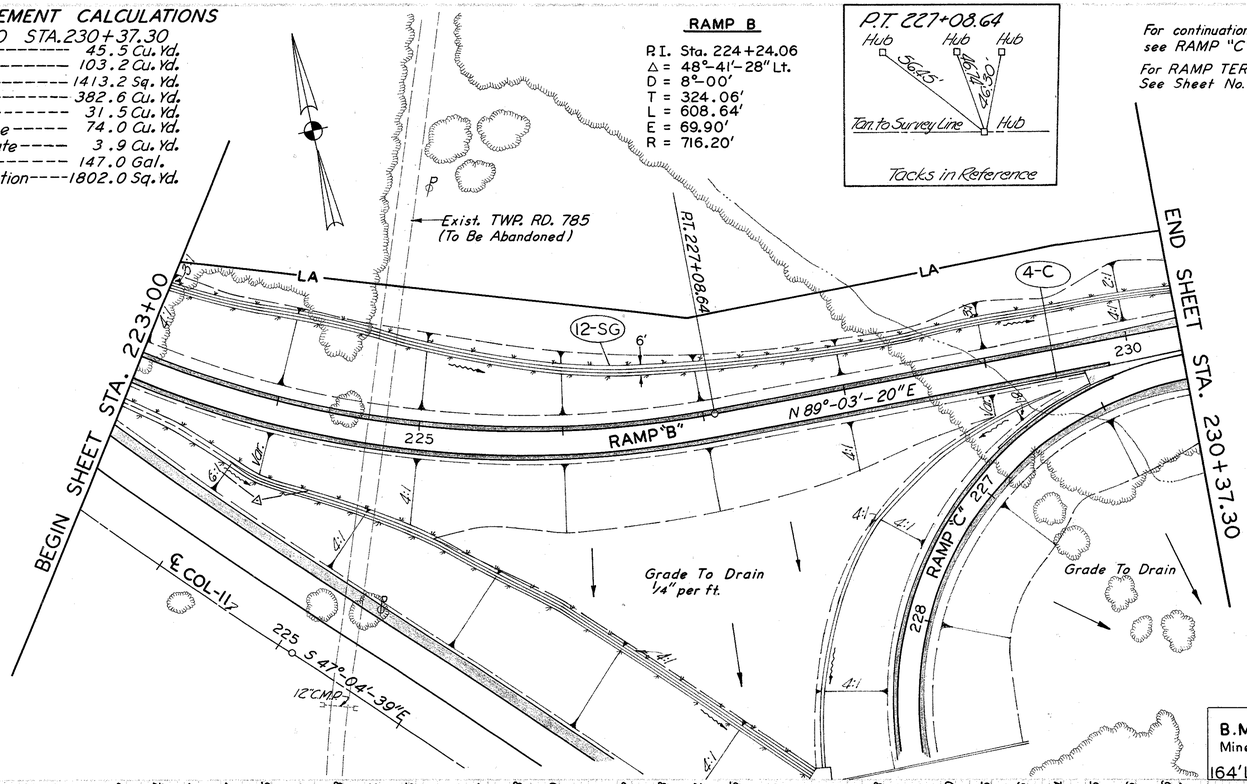
409 – Seal Coat, Bituminous
761.1 x 0.30 = 228.0 Gal.

203 – Subgrade Preparation
Pavement + Berm
1792.7 + 761.1 = 2554 Sq.Yds.

QUANTITIES TO PAVEMENT CALCULATIONS

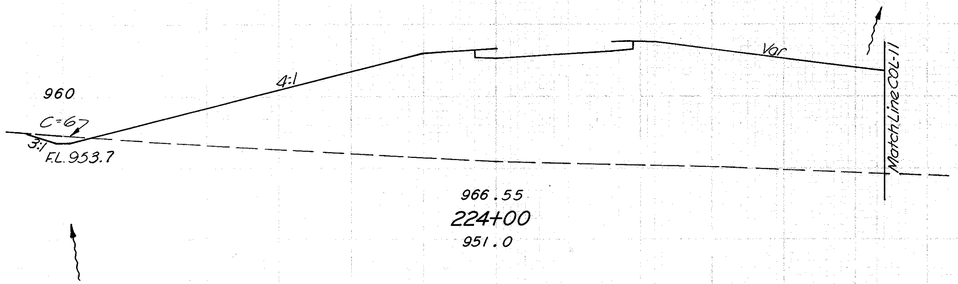
STA. 223+00 TO STA. 230+37.30

404	Asphalt Concrete	45.5 Cu. Yd.
302	Asphalt Concrete	103.2 Cu. Yd.
824	Bit. Macadam Base	1413.2 Sq. Yd.
310	Subbase	382.6 Cu. Yd.
304	Aggregate Base	31.5 Cu. Yd.
301	Bit. Aggregate Base	74.0 Cu. Yd.
409	Seal Coat Aggregate	3.9 Cu. Yd.
409	Seal Coat Bit.	147.0 Gal.
203	Subgrade preparation	1802.0 Sq. Yd.

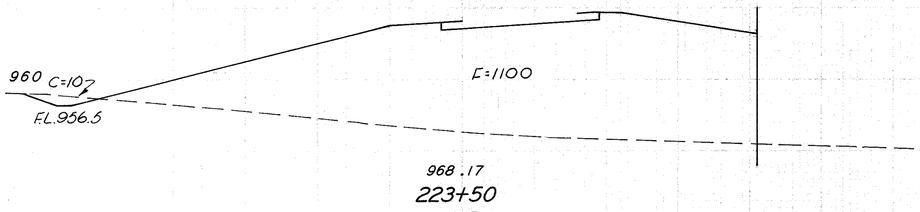


| | | |

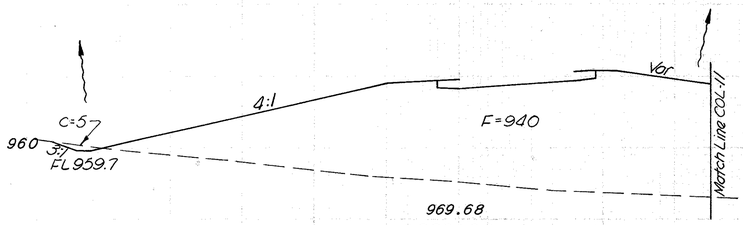
COL-11-10.22
COL-154-1.71



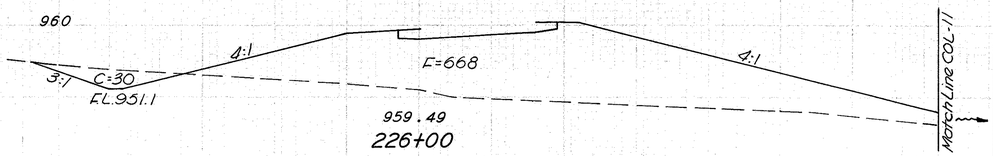
966.55
224+00
951.0



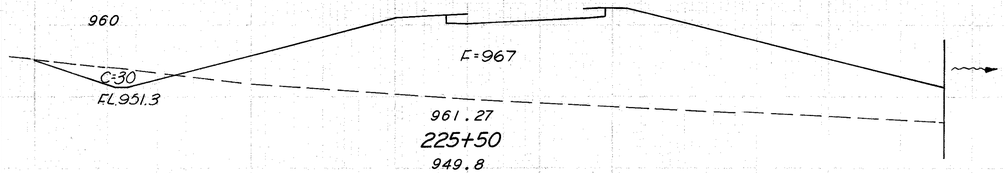
968.17
223+50
952.7



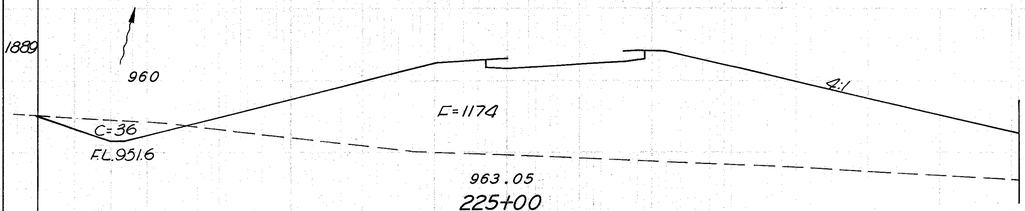
969.68
223+00
955.2



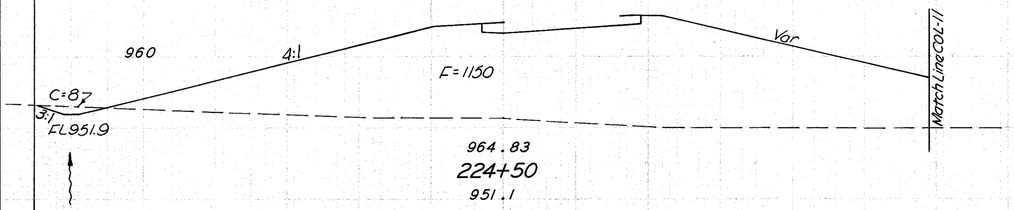
959.49
226+00
950.8



961.27
225+50
949.8



963.05
225+00
949.8



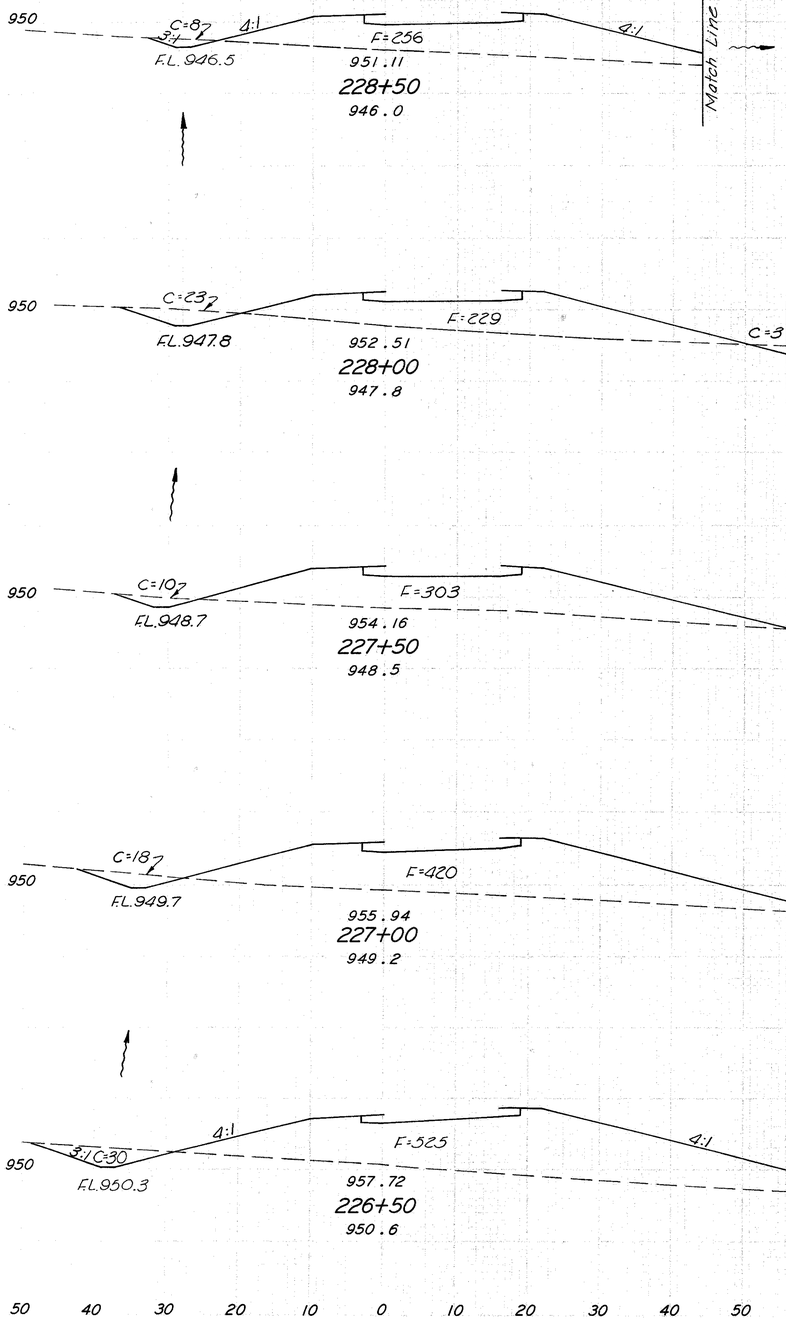
964.83
224+50
951.1

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
112		6	1347		
	569			15	2266
93		10	1100		
	489			14	1889
83		5	940		
120		30	668		
	667			56	1514
120		30	967		
	694			61	1982
130		36	1174		
	686			41	2152
117		8	1150		
	636			13	2312

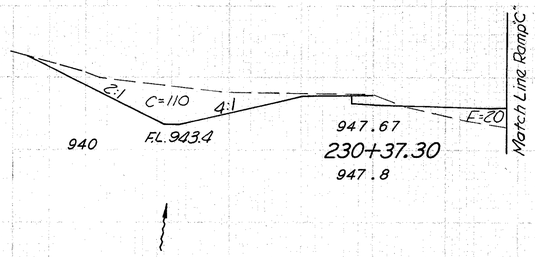
60 50 40 30 20 10 0 10 20 30 40 50 60 50 40 30 20 10 0 10 20 30 40 50 60 70

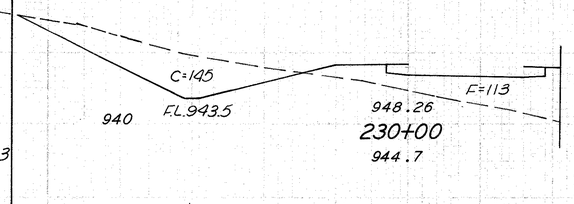
RAMP "B" STA. 223+00 TO STA. 226+00

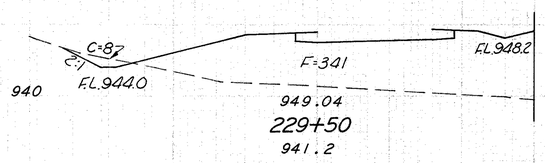
COL-11-10.22
COL-154-1.71

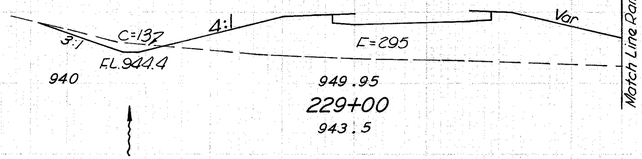


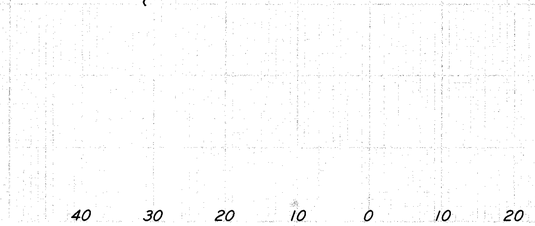
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
69		8	256		
	428			31	449
85		26	229		
	492			37	493
92		14	303		
	539			31	669
102		20	420		
	589			46	875
110		30	525		
	642			56	1105









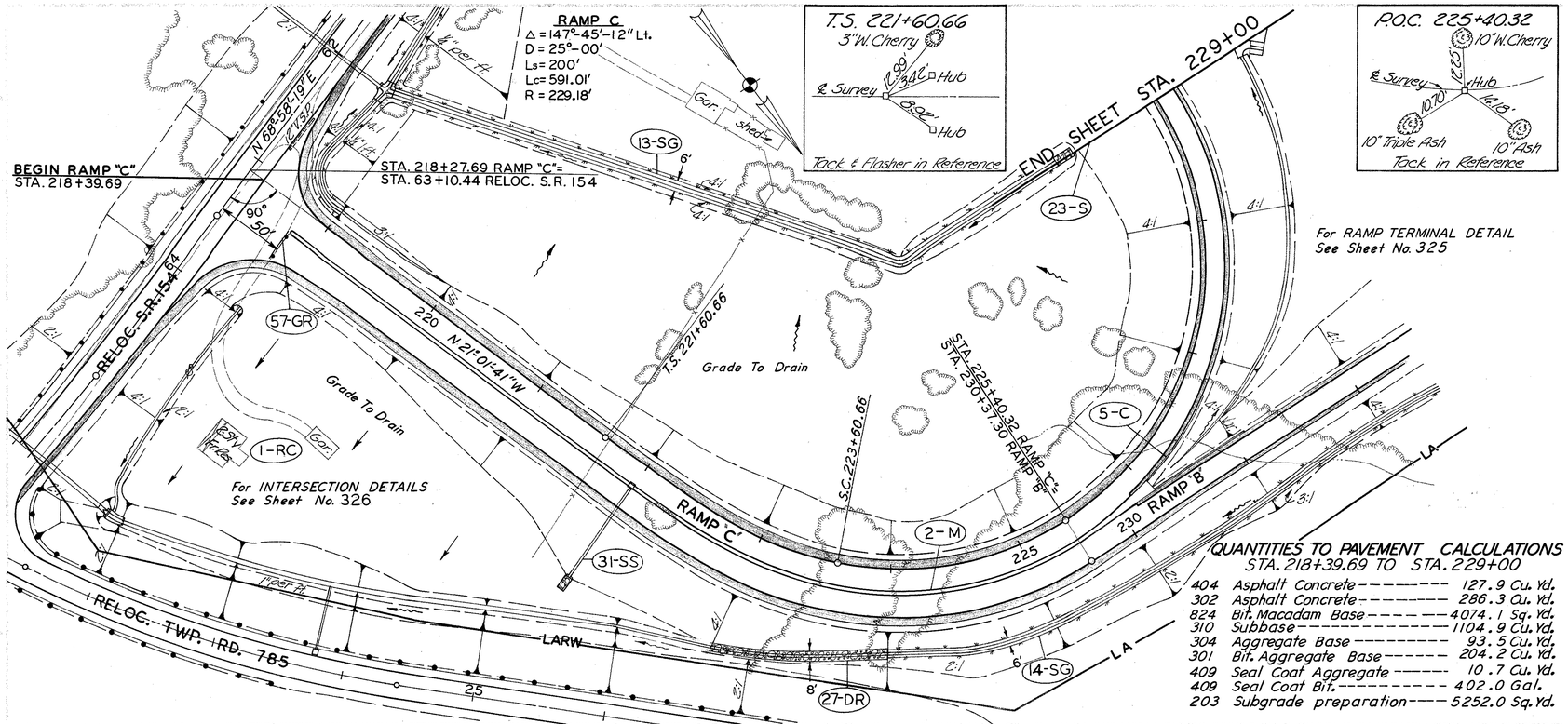


Grading from Sh. 2.50

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
				215	2546
60		110	80		
	267			176	92
69		145	113		
	350			142	420
57		8	341		
	361			19	589
73		13	295		
	394			19	510

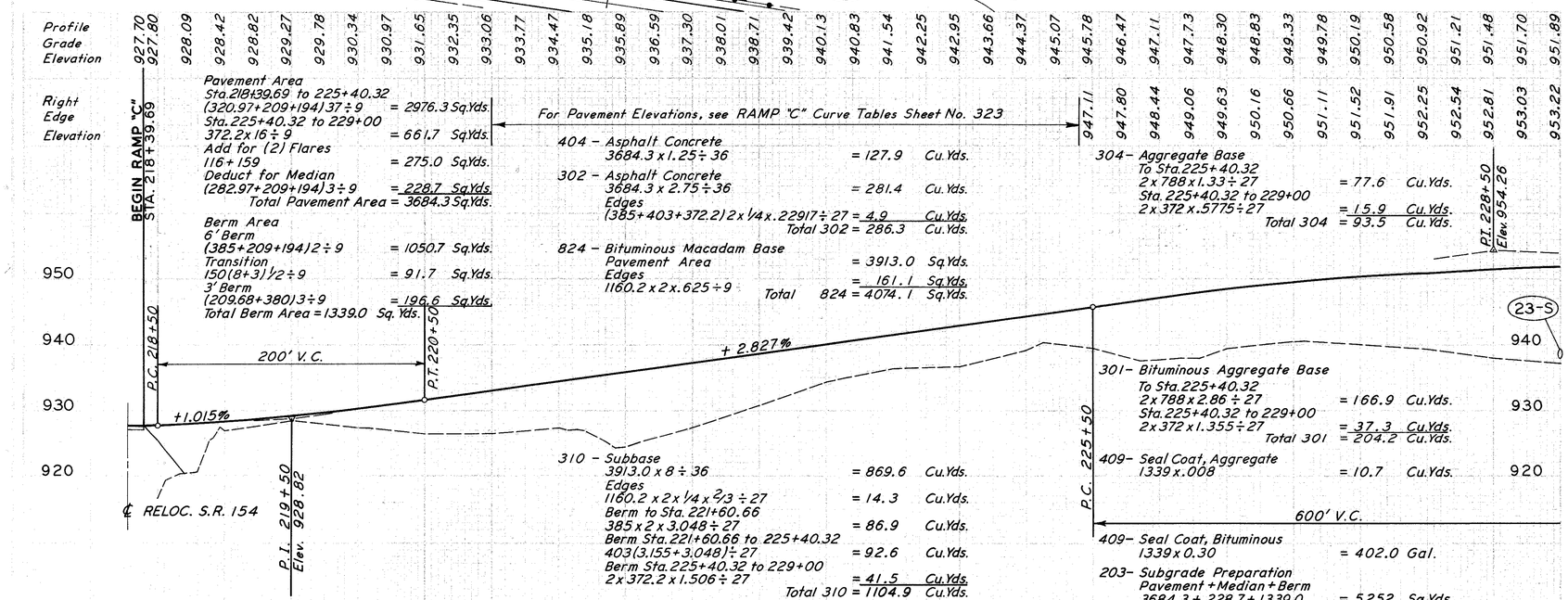
RAMP "B" STA 226+50 TO STA 230+37.30

COL-11-10.22 COL-154-1.71



QUANTITIES TO PAVEMENT CALCULATIONS
STA. 218+39.69 TO STA. 229+00

404	Asphalt Concrete	127.9 Cu. Yd.
302	Asphalt Concrete	286.3 Cu. Yd.
824	Bit. Macadam Base	4074.1 Sq. Yd.
310	Subbase	1104.9 Cu. Yd.
304	Aggregate Base	93.5 Cu. Yd.
301	Bit. Aggregate Base	204.2 Cu. Yd.
409	Seal Coat Aggregate	10.7 Cu. Yd.
409	Seal Coat Bit.	402.0 Gal.
203	Subgrade preparation	5252.0 Sq. Yd.



Pavement Area
Sta. 218+39.69 to 225+40.32
(320.97+209+194)37÷9 = 2976.3 Sq.Yds.
Sta. 225+40.32 to 229+00
372.2x16÷9 = 661.7 Sq.Yds.
Add for (2) Flares
116+159 = 275.0 Sq.Yds.
Deduct for Median
(282.97+209+194)3÷9 = 228.7 Sq.Yds.
Total Pavement Area = 3684.3 Sq.Yds.

Berm Area
6' Berm
(385+209+194)2÷9 = 1050.7 Sq.Yds.
Transition
150(5+3)½÷9 = 91.7 Sq.Yds.
3' Berm
(209.68+380)3÷9 = 196.6 Sq.Yds.
Total Berm Area = 1339.0 Sq. Yds.

For Pavement Elevations, see RAMP "C" Curve Tables Sheet No. 323

404 – Asphalt Concrete
3684.3 x 1.25 ÷ 36 = 127.9 Cu.Yds.

302 – Asphalt Concrete
3684.3 x 2.75 ÷ 36 = 281.4 Cu.Yds.
Edges
(385+403+372.2)2 x ¼ x .22917 ÷ 27 = 4.9 Cu.Yds.
Total 302 = 286.3 Cu.Yds.

824 – Bituminous Macadam Base
Pavement Area = 3913.0 Sq.Yds.
Edges = 161.1 Sq.Yds.
1160.2 x 2 x .625 ÷ 9
Total 824 = 4074.1 Sq.Yds.

310 – Subbase
3913.0 x 8 ÷ 36 = 869.6 Cu.Yds.
Edges
1160.2 x 2 x ¼ x ⅔ ÷ 27 = 14.3 Cu.Yds.
Berm to Sta. 221+60.66
385 x 2 x 3.048 ÷ 27 = 86.9 Cu.Yds.
Berm Sta. 221+60.66 to 225+40.32
403(3.155+3.048)÷27 = 92.6 Cu.Yds.
Berm Sta. 225+40.32 to 229+00
2 x 372.2 x 1.506 ÷ 27 = 41.5 Cu.Yds.
Total 310 = 1104.9 Cu.Yds.

304 – Aggregate Base
To Sta. 225+40.32
2 x 788 x 1.33 ÷ 27 = 77.6 Cu.Yds.
Sta. 225+40.32 to 229+00
2 x 372 x .5775 ÷ 27 = 15.9 Cu.Yds.
Total 304 = 93.5 Cu.Yds.

301 – Bituminous Aggregate Base
To Sta. 225+40.32
2 x 788 x 2.86 ÷ 27 = 166.9 Cu.Yds.
Sta. 225+40.32 to 229+00
2 x 372 x 1.355 ÷ 27 = 37.3 Cu.Yds.
Total 301 = 204.2 Cu.Yds.

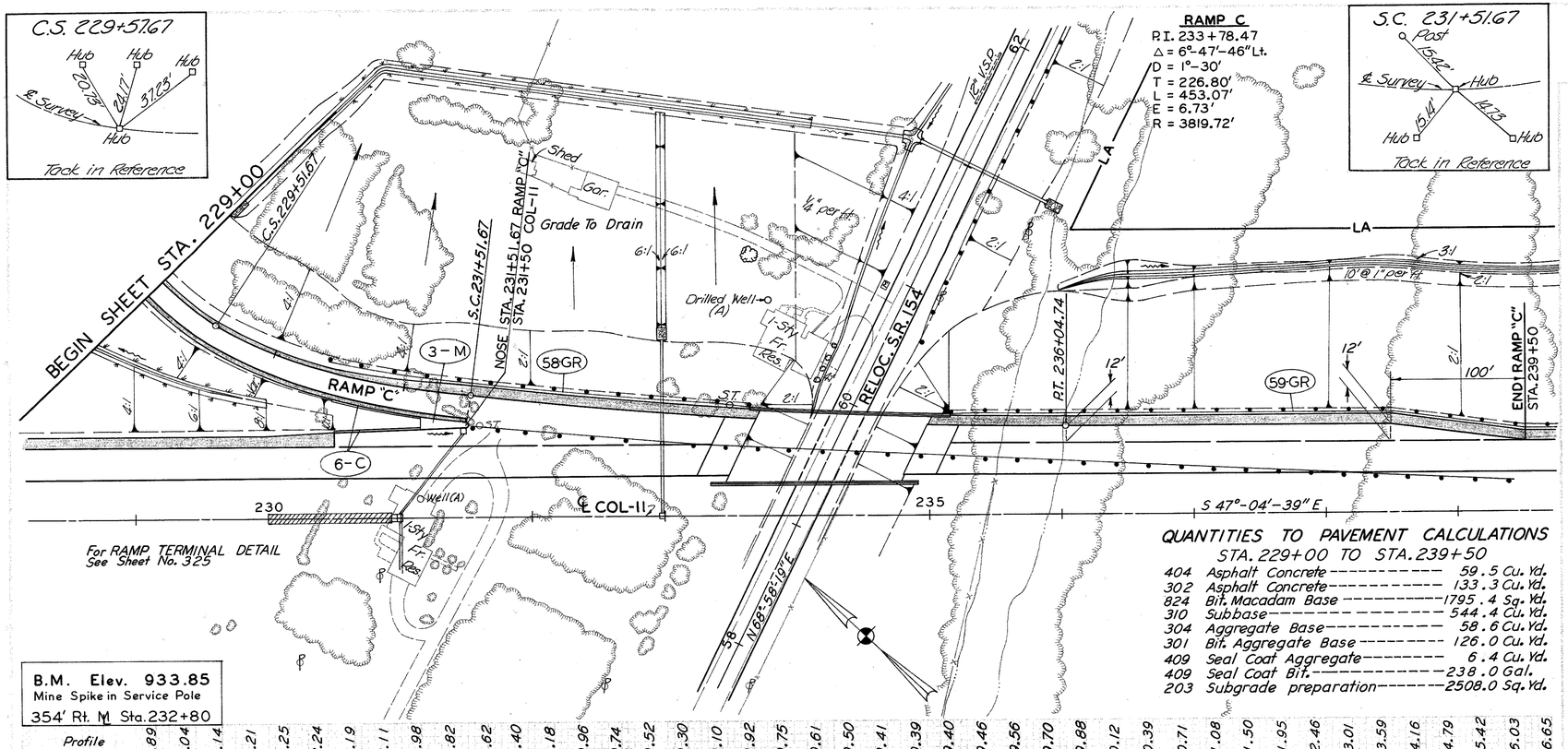
409 – Seal Coat, Aggregate
1339 x .008 = 10.7 Cu.Yds.

409 – Seal Coat, Bituminous
1339 x 0.30 = 402.0 Gal.

203 – Subgrade Preparation
Pavement + Median + Berm
3684.3 + 228.7 + 1339.0 = 5252 Sq.Yds.

ESTIMATED QUANTITIES

| | | |

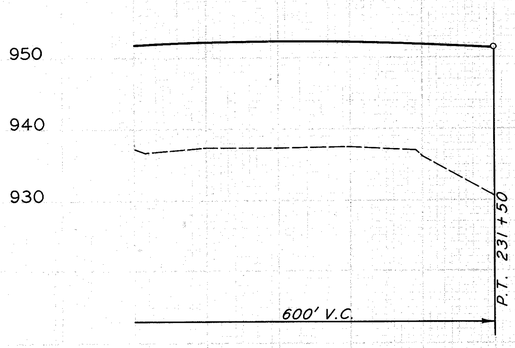


B.M. Elev. 933.85
Mine Spike in Service Pole
354' Rt. ℳ Sta. 232+80

QUANTITIES TO PAVEMENT CALCULATIONS
STA. 229+00 TO STA. 239+50

404	Asphalt Concrete	59.5 Cu. Yd.
302	Asphalt Concrete	133.3 Cu. Yd.
824	Bit. Macadam Base	1795.4 Sq. Yd.
310	Subbase	544.4 Cu. Yd.
304	Aggregate Base	58.6 Cu. Yd.
301	Bit. Aggregate Base	126.0 Cu. Yd.
409	Seal Coat Aggregate	6.4 Cu. Yd.
409	Seal Coat Bit.	238.0 Gal.
203	Subgrade preparation	2508.0 Sq. Yd.

	229	230	231	232	233	234	235	236	237	238	239
Profile Grade Elevation	951.89	952.04	952.14	952.21	952.25	952.24	952.19	952.11	951.98	951.82	951.62	951.40	951.18	950.96	950.74	950.52	950.30	950.10	949.92	949.75	949.61	949.50	949.41	949.39	949.40	949.46	949.56	949.70	949.88	950.12	950.39	950.71	951.08	951.50	951.95	952.46	953.01	953.59	954.16	954.79	955.42	956.03	956.65
Right Edge Elevation	953.22	953.37	953.47	953.51	953.43	953.28	953.08	952.85	952.60	952.35	952.11	Right Edge Pav't. RAMP C same Elevation as Left Edge Pav't. Col-11																																



Pavement Area
Sta. 229+00 to 230+51.67
151.67 x 16 ÷ 9 = 269.6 Sq.Yds.
Sta. 230+51.67 to 231+51.67
100 (16+18) ½ ÷ 9 = 188.9 Sq.Yds.
Sta. 231+51.67 to 236+04.74
453.07 x 12 ÷ 9 = 604.1 Sq.Yds.
Add for Transition
453.06 x 27 x ⅓ ÷ 9 = 453.1 Sq.Yds.
Add for Nose
100 (10+14) ½ ÷ 9 = 133.3 Sq.Yds.
Sta. 236+04.74 to 238+50
245.26 x 12 ÷ 9 = 327.0 Sq.Yds.
Sta. 238+50 to 239+50
100 x 12 x ½ ÷ 9 = 66.7 Sq.Yds.
Deduct for Bridge
181 x 16.4 (Av.) ÷ 9 = 329.8 Sq.Yds.
Total Pavement Area = 1712.9 Sq.Yds.

Berm Area
3' Berm
(269.3 + 151.67) 3 ÷ 9 = 140.3 Sq.Yds.
Transition
100 (3+8) ½ ÷ 9 = 61.1 Sq.Yds.
Lt. Berm
(798.33 - 131 Bridge) 8 ÷ 9 = 593.2 Sq.Yds.
Total Berm Area = 794.6 Sq.Yds.

404 - Asphalt Concrete
1712.9 x 1.25 ÷ 36 = 59.5 Cu.Yds.

302 - Asphalt Concrete
1712.9 x 2.75 ÷ 36 = 130.8 Cu.Yds.
Edges Rt. & Lt.
(269.3 + 919) ¼ x .22917 ÷ 27 = 2.5 Cu.Yds.
Total 302 = 133.3 Cu.Yds.

824 - Bituminous Macadam Base
Pavement Area = 1712.9 Sq.Yds.
Edges Rt. & Lt.
(269.3 + 919) .625 ÷ 9 = 82.5 Sq.Yds.
Total 824 = 1795.4 Sq.Yds.

310 - Subbase
1712.9 x 8 ÷ 36 = 380.6 Cu.Yds.
Edges Rt. & Lt.
(269.3 + 919) x ⅔ x ¼ ÷ 27 = 7.3 Cu.Yds.
3' Berm
421 x 1.506 ÷ 27 = 23.5 Cu.Yds.
Transition
100 (1.506 + 4.141) ½ ÷ 27 = 10.5 Cu.Yds.
8' Berm
667.33 x 4.141 ÷ 27 = 102.3 Cu.Yds.
Add for Approach Slabs
50 x 16.4 (Av.) x ⅔ ÷ 27 = 20.2 Cu.Yds.
Total 310 = 544.4 Cu.Yds.

304 - Aggregate Base
3' Berm
421 x .5775 ÷ 27 = 9.0 Cu.Yds.
Transition
100 (.5775 + 1.8275) ½ ÷ 27 = 4.4 Cu.Yds.
8' Berm
667.33 x 1.8275 ÷ 27 = 45.2 Cu.Yds.
Total 304 = 58.6 Cu.Yds.

301 - Bituminous Aggregate Base
3' Berm
421 x 1.355 ÷ 27 = 21.1 Cu.Yds.
Transition
100 (1.355 + 3.855) ½ ÷ 27 = 9.6 Cu.Yds.
8' Berm
667.33 x 3.855 ÷ 27 = 95.3 Cu.Yds.
Total 301 = 126.0 Cu.Yds.

409 - Seal Coat, Aggregate
794.6 x .008 = 6.4 Cu.Yds.

409 - Seal Coat, Bituminous
794.6 x 0.30 = 238.0 Gal.

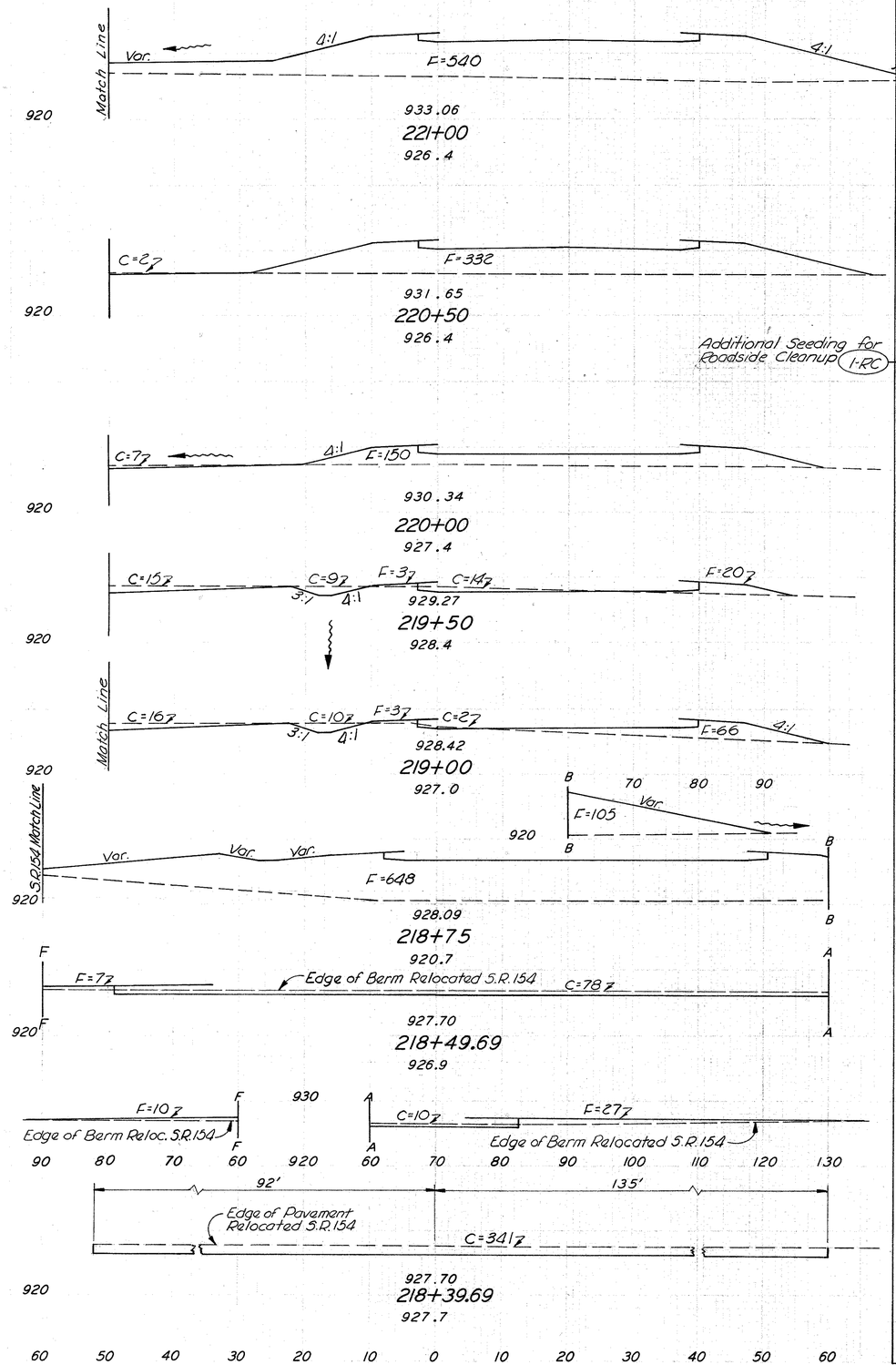
203 - Subgrade Preparation
Pavement + Berm
1712.9 + 794.6 = 250.8 Sq.Yds.

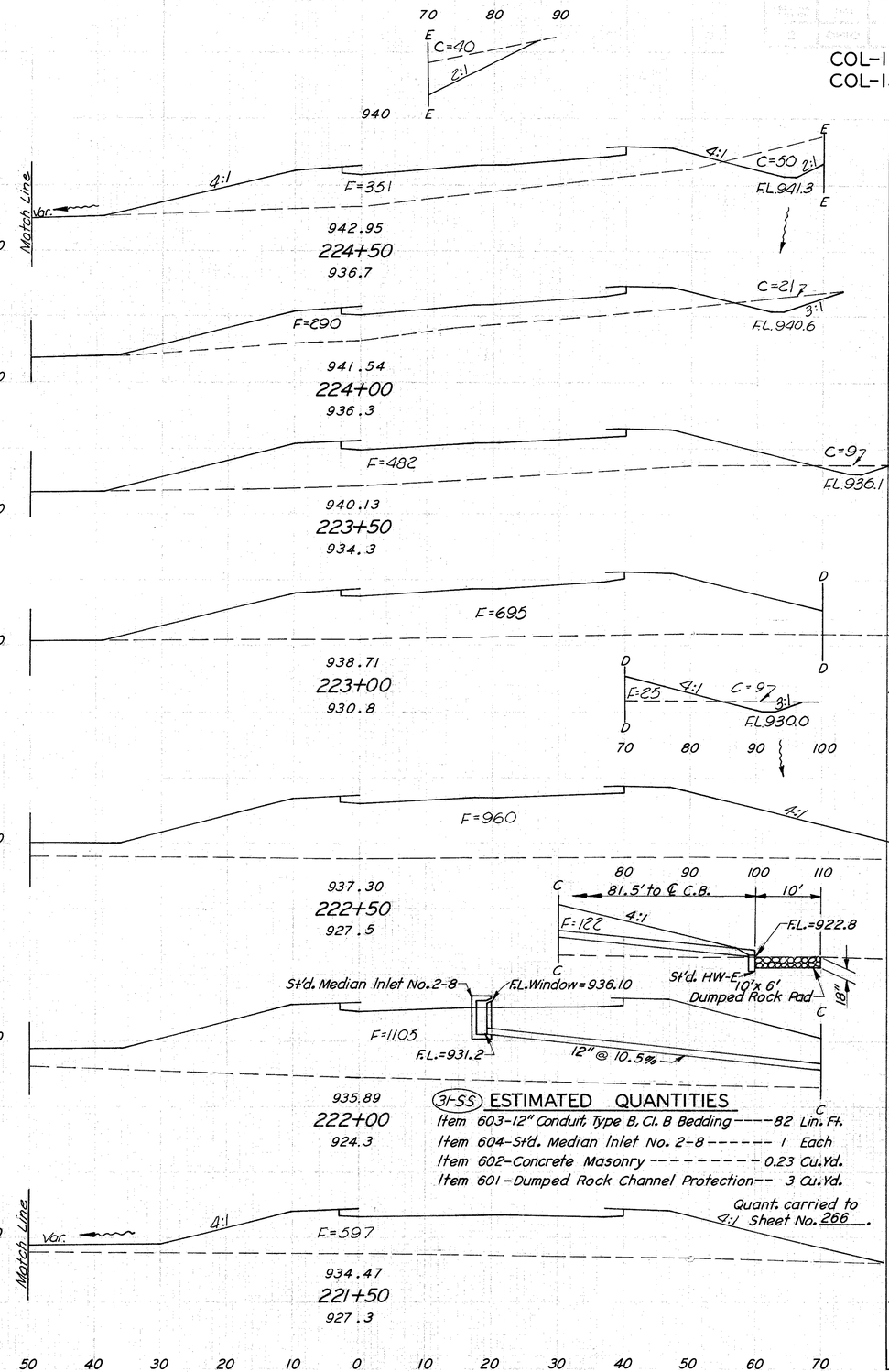
606	Guard Rail Type 4 L.F.	609	Conc. Curb Std. Type 6 L.F.	612	Conc. Median S.Y.					
					29	3-M	231+51.67 to 231+88.67	Rt.		
						6-C	231+88.67 to 232+54.67	Rt.	133	
						58GR	230+40 to 233+65.70	Lt.	325.0	
						59GR	235+18.56 to 239+50	Lt.	431.71	
									756.71	133 29

RAMP "C" STA. 229+00 TO STA. 239+50

COL-11-10.22
COL-154-1.71

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
94		0	540		
	503			2	807
87		2	332		
	3839				
	461			8	446
79		7	150		
	425			42	160
74		38	23		
	428			61	85
80		28	69		
	257			13	381
105		0	753		
	249			41	359
72		88	44		
	40			79	8
0		341	0		





SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
109		90	351		
	536			103	594
84		21	290		
	186			28	715
91		9	482		
	556			17	1113
109		9	720		
	611			8	1556
111		0	960		
	611			0	2025
109		0	1227		
	583			0	1689
101		0	597		
	542			0	1053

(31-SS) ESTIMATED QUANTITIES

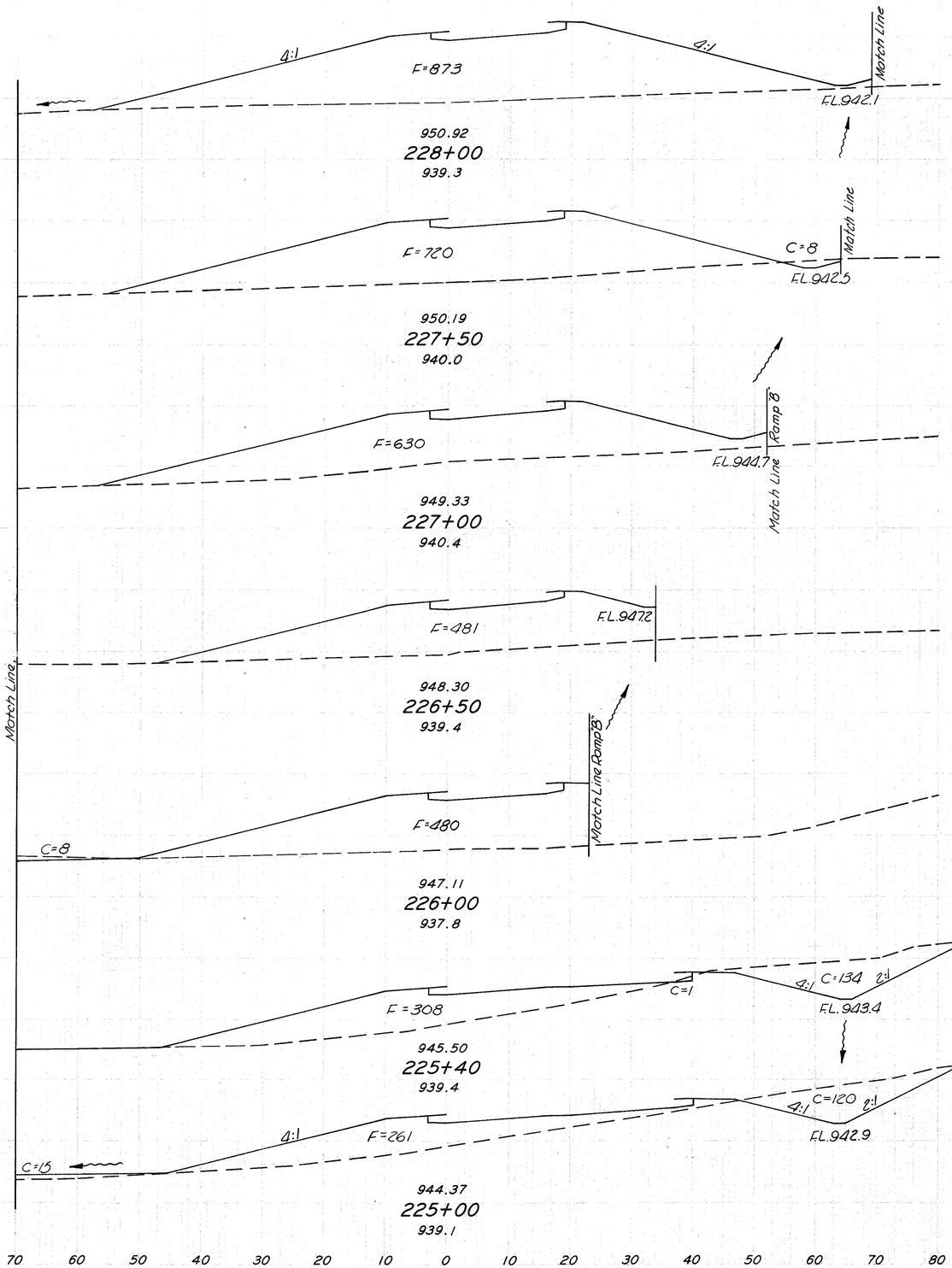
Item 603-12" Conduit, Type B, Cl. B Bedding ---- 82 Lin. Ft.
Item 604-Std. Median Inlet No. 2-8 ------- 1 Each
Item 602-Concrete Masonry ---------- 0.23 Cu.Yd.
Item 601-Dumped Rock Channel Protection-- 3 Cu.Yd.

Quant. carried to 4:1 Sheet No. 266.

RAMP "C" STA. 218+39.69 TO STA. 224+50

COL-11-10.22
COL-154-1.71

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



930 940 950

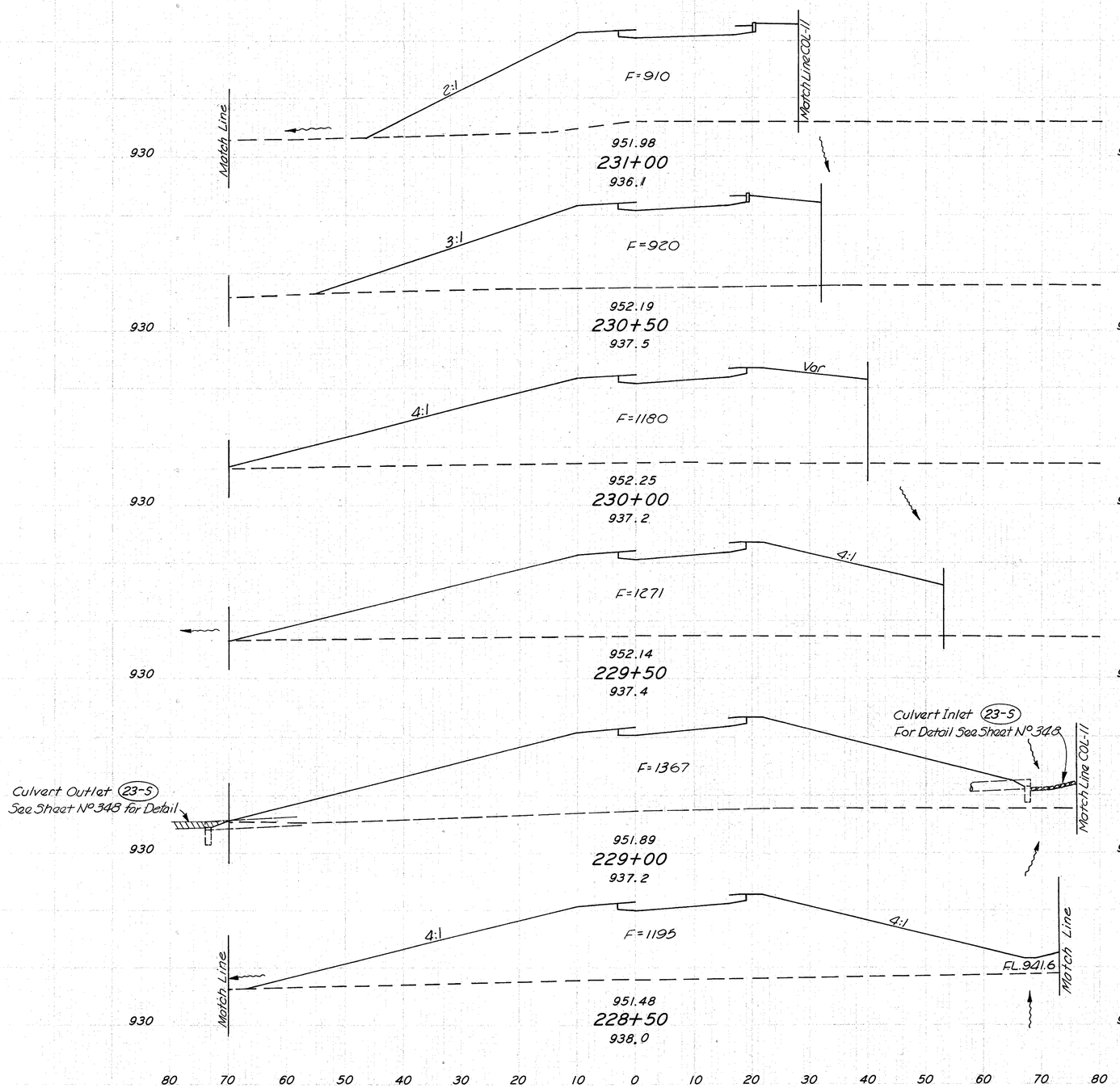
119 650 115 606 103 517 83 431 72 667 128 564 126 653

0 873
7 1475
Match line extensions, from Sh 255 ——— 3119 1738
8 720
7 1250
0 630
0 1029
0 481
0 890
8 480
159 876
135 308
200 421
135 261
208

RAMP "C" STA. 225+00 TO STA. 228+

COL-11-10.22
COL-154-1.71

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80



270

78 444 82 478 90 539 104 619 119 675 124 675

0 910
0 1694
0 920
0 1944
0 1180
0 2269
0 1271
0 2443
0 1367
0 2372
0 1195
0 1915

RAMP "C" STA. 228+50 TO STA. 231+00

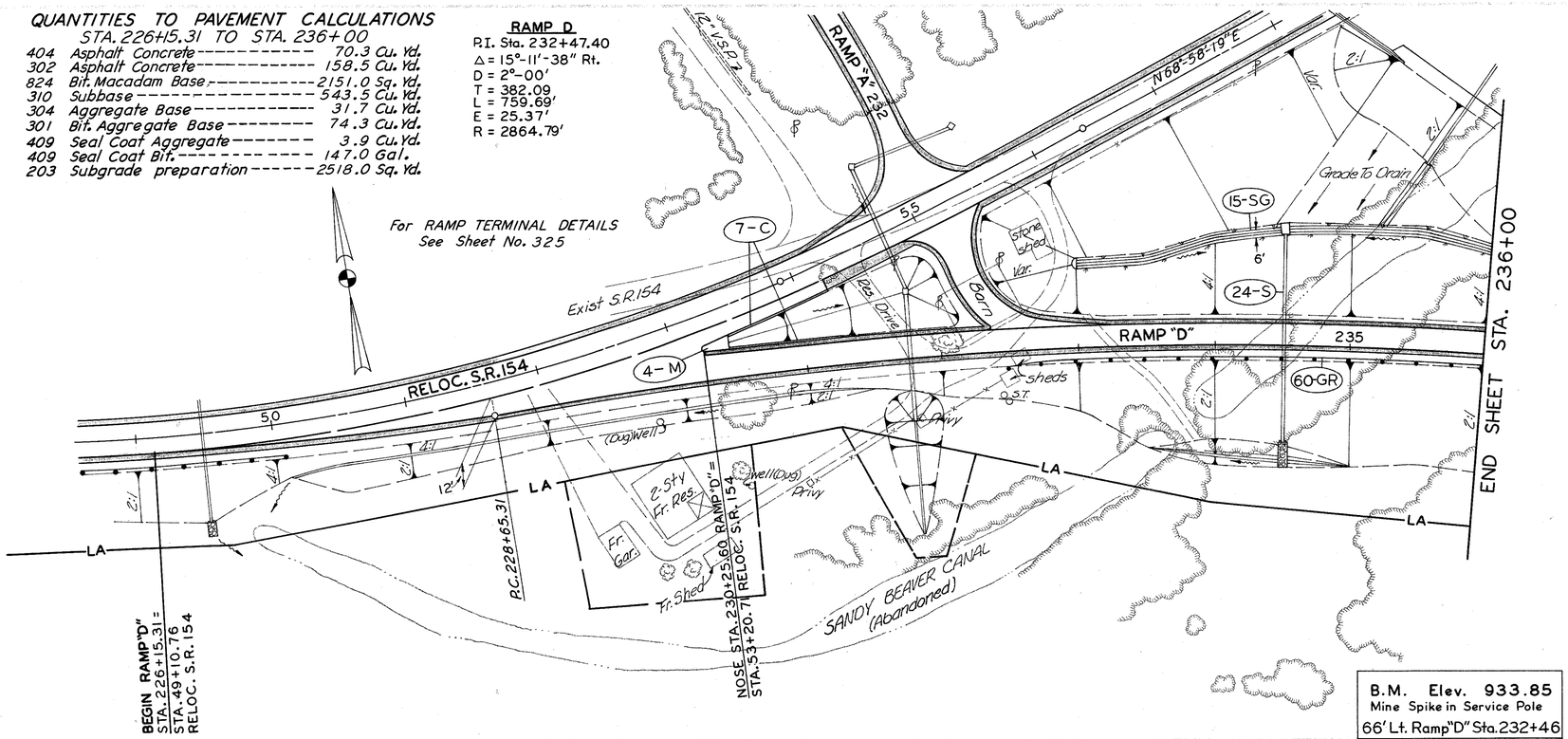
COL-11-10.22 COL-154-1.71

QUANTITIES TO PAVEMENT CALCULATIONS
STA. 226+15.31 TO STA. 236+00

404	Asphalt Concrete	70.3 Cu. Yd.
302	Asphalt Concrete	158.5 Cu. Yd.
824	Bit. Macadam Base	2151.0 Sq. Yd.
310	Subbase	543.5 Cu. Yd.
304	Aggregate Base	31.7 Cu. Yd.
301	Bit. Aggregate Base	74.3 Cu. Yd.
409	Seal Coat Aggregate	3.9 Cu. Yd.
409	Seal Coat Bit.	147.0 Gal.
203	Subgrade preparation	2518.0 Sq. Yd.

RAMP D
P.I. Sta. 232+47.40
Δ = 15°-11'-38" Rt.
D = 2°-00'
T = 382.09
L = 759.69'
E = 25.37'
R = 2864.79'

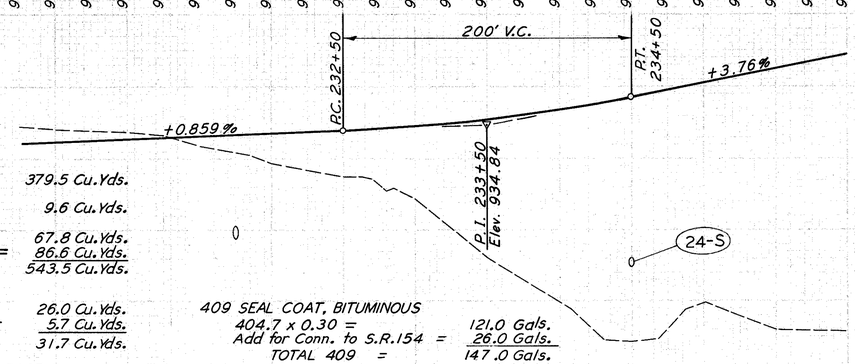
For RAMP TERMINAL DETAILS
See Sheet No. 325



B.M. Elev. 933.85
Mine Spike in Service Pole
66' Lt. Ramp "D" Sta. 232+46

Left Edge of Pavt. RAMP "D" same Elev. as Right Edge of Pavt. RELOC. S.R. 154

	226	227	228	229	230	231	232	233	234	235	236
Left Edge Elevation					932.34	932.53	932.75	932.95	933.16	933.37	933.59
Profile Grade Elevation	928.01	928.27	928.54	928.84	929.14	929.44	929.73	930.00	930.27	930.53	930.76
Left Edge Elevation	933.80	934.02	934.23	934.50	934.84	935.29	935.82	936.44	937.15	937.96	938.85
Profile Grade Elevation	930.97	931.19	931.40	931.62	931.83	932.05	932.26	932.48	932.69	932.91	933.12
Left Edge Elevation	939.79	940.73	941.67	942.61	943.60	944.61					
Profile Grade Elevation	933.34	933.55	933.77	933.98	934.25	934.59	934.90	935.19	935.57	936.00	936.61



PAVEMENT AREA
Sta. 226+15.31 to 228+65.31
250 x 12 x 1/2 ÷ 9 = 166.7 Sq.Yds.
Sta. 228+65.31 to 230+25.60
160 x 23(Av.) ÷ 9 = 408.9 Sq.Yds.
Add for Transition
100(10+8)1/2 ÷ 9 = 100.0 Sq.Yds.
Sta. 230+25.60 to 231+25.60
100(18+16)1/2 ÷ 9 = 188.9 Sq.Yds.
Sta. 231+25.60 to 236+00
474.4 x 16 ÷ 9 = 843.4 Sq.Yds.
TOTAL PAVEMENT AREA 1707.9 Sq.Yds.

BERM AREA
Rt.
(984.69 - 250)3 ÷ 9 = 244.9 Sq.Yds.
Lt.
(574.4 - 95±)3 ÷ 9 = 159.8 Sq.Yds.
TOTAL BERM AREA = 404.7 Sq.Yds.

404 ASPHALT CONCRETE
1707.9 x 1.25 ÷ 36 = 59.3 Cu.Yds.
Add for Conn. to S.R.154 = 11.0 Cu.Yds.
TOTAL 404 = 70.3 Cu.Yds.

302 ASPHALT CONCRETE
1707.9 x 2.75 ÷ 36 130.5 Cu.Yds.
Edges
1559 x 1/4 x .22917 ÷ 27 = 3.3 Cu.Yds.
Add for Conn. to S.R. 154 = 24.7 Cu.Yds.
TOTAL 302 = 158.5 Cu.Yds.

824 BITUMINOUS MACADAM BASE
Pavement Area = 1707.9 Sq.Yds.
Edges
1559 x .625 ÷ 9 = 108.3 Sq.Yds.
Add for Conn. to S.R.154 = 334.8 Sq.Yds.
TOTAL 824 = 2151.0 Sq.Yds.

310 SUBBASE
1707.9 x 8 ÷ 36 = 379.5 Cu.Yds.
Edges
1559 x 1/4 x 2/3 ÷ 27 = 9.6 Cu.Yds.
Berm
1215 x 1.506 ÷ 27 = 67.8 Cu.Yds.
Add for Conn. to S.R.154 = 86.6 Cu.Yds.
TOTAL 310 = 543.5 Cu.Yds.

304 AGGREGATE BASE
1215 x .5775 ÷ 27 = 26.0 Cu.Yds.
Add for Conn. to S.R.154 = 5.7 Cu.Yds.
TOTAL 304 = 31.7 Cu.Yds.

301 BITUMINOUS AGGREGATE BASE
1215 x 1.355 ÷ 27 = 61.0 Cu.Yds.
Add for Conn. to S.R.154 = 13.3 Cu.Yds.
TOTAL 301 74.3 Cu.Yds.

409 SEAL COAT, AGGREGATE
404.7 x .008 = 3.2 Cu.Yds.
Add for Conn. to S.R.154 = 0.7 Cu.Yds.
TOTAL 409 3.9 Cu.Yds.

409 SEAL COAT, BITUMINOUS
404.7 x 0.30 = 121.0 Gals.
Add for Conn. to S.R.154 = 26.0 Gals.
TOTAL 409 = 147.0 Gals.

203 SUBGRADE PREPARATION
Pavement + Berm + Conn.
1707.9 + 404.7 + 405 = 2518 Sq.Yds.

| | | | | |

COL-11-10.22 COL-154-1.71

P.C.C. 236+25
Hub 21.06' 21.43' P Hub
℄ Survey ℄ Iron Pin
24.12'
Hub
Tack & Flasher in References

RAMP D
P.I. Sta. 238+16.91
Δ = 30°-00' Rt.
D = 8°-00'
T = 191.91'
L = 375.00
E = 25.26'
R = 716.20'

P.I. 238+16.91
18.92' 4" Ash
Tang. Line ℄ P.T. Tangent Line
34.68'
℄ Survey ℄ Iron Pin
27.68' 25.26'
8" Elm P.O.C. 16" Sycamore
Tack & Flasher in References

P.T. 240+00.00
80.62' 12" Sycamore
68.57' 16" Sycamore
89.69'
8" Sycamore
Tack & Flasher in References

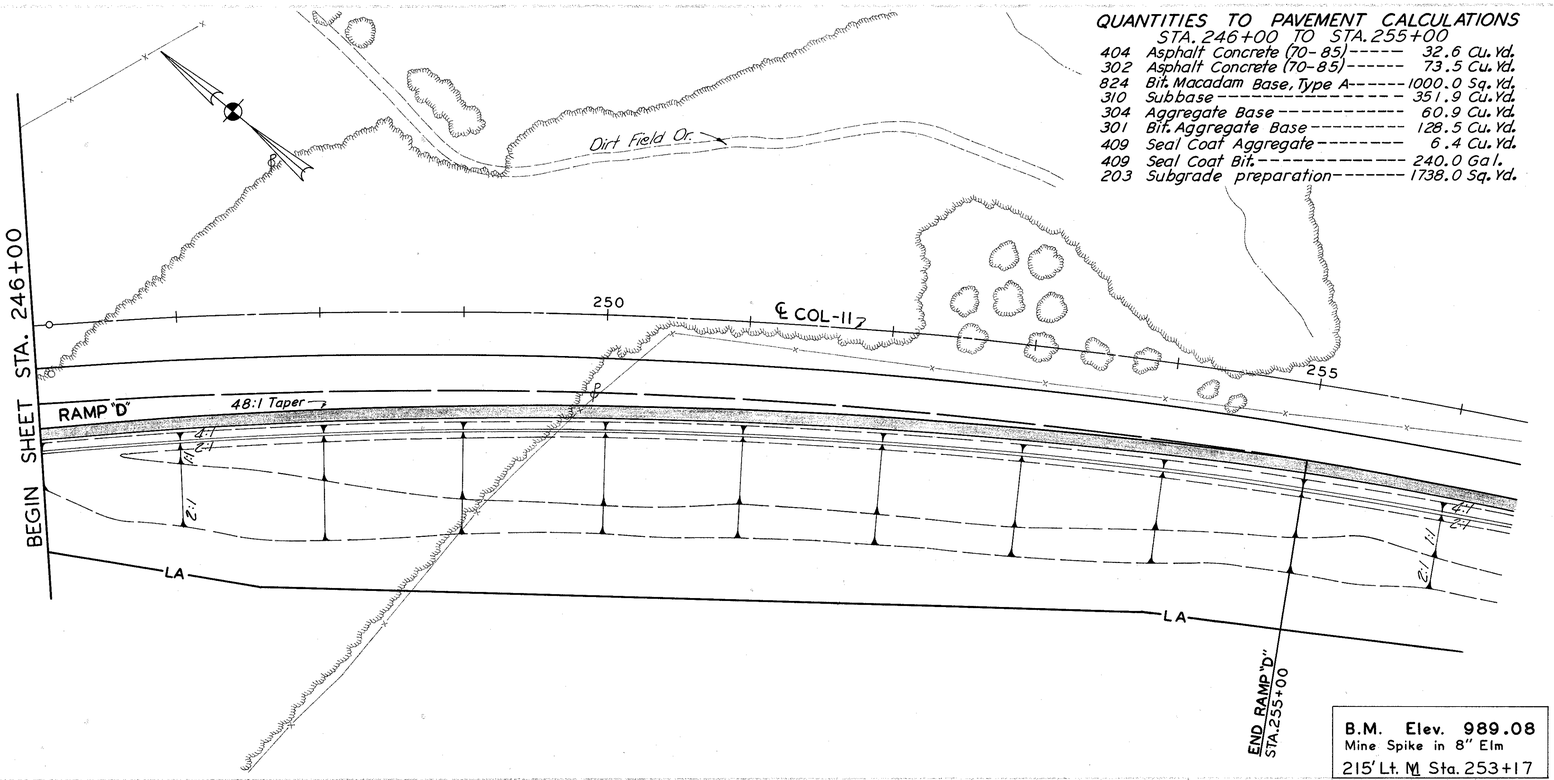
QUANTITIES TO PAVEMENT CALCULATIONS
STA. 236+00 TO STA. 246+00

404	Asphalt Concrete (70-85)	49.6 Cu. Yd.
302	Asphalt Concrete (70-85)	111.2 Cu. Yd.
824	Bit. Macadam Base, Type A	1499.0 Sq. Yd.
310	Subbase	421.3 Cu. Yd.
304	Aggregate Base	41.2 Cu. Yd.
301	Bit. Aggregate Base	90.0 Cu. Yd.
409	Seal Coat Aggregate	4.6 Cu. Yd.
409	Seal Coat Bit.	171.0 Gal.
203	Subgrade preparation	1998.0 Sq. Yd.

S 47°-04'-38" E
Existing TWP. RD. 893 (to be Abandoned)
℄ COL-11
240
245
246+00
BEGIN SHEET STA. 236+00
END SHEET STA.
8-C
9-C
16-SG
6'
Var.
8:1
RAMP "D"
61-GR
62-GR
48:1 Taper
2:1
4:1
P.C. 236+25
P.T. 240+00
12" CM.P.
LA
3:1
MIDDLE FORK LITTLE BEAVER CREEK
NOSE STA. 243+00 RAMP "D"
STA. 243+00 COL-11
1 Sty Fr. Res.
shed
Dog Kennel
For RAMP TERMINAL DETAIL
See Sheet No. 325

B.M. Elev. 949.77
Mine Spike in Tele. Pole 156
362' Lt. M Sta. 243+98

| | | |



QUANTITIES TO PAVEMENT CALCULATIONS
STA. 246+00 TO STA. 255+00

404	Asphalt Concrete (70-85)	32.6 Cu. Yd.
302	Asphalt Concrete (70-85)	73.5 Cu. Yd.
824	Bit. Macadam Base, Type A	1000.0 Sq. Yd.
310	Subbase	351.9 Cu. Yd.
304	Aggregate Base	60.9 Cu. Yd.
301	Bit. Aggregate Base	128.5 Cu. Yd.
409	Seal Coat Aggregate	6.4 Cu. Yd.
409	Seal Coat Bit.	240.0 Gal.
203	Subgrade preparation	1738.0 Sq. Yd.

B.M. Elev. 989.08
Mine Spike in 8" Elm
215' Lt. ℳ Sta. 253+17

Left Edge of Pavt. RAMP "D" same Elev. as Right Edge of Pavt. COL-11

Profile Grade Elevation	970.75	970.95	971.22	971.55	972.00	972.55	973.15	973.75	974.35	974.95	975.55	976.15	976.75	977.35	977.95	978.55	979.15	979.75	980.35	980.95	981.55	982.15	982.75	983.35	983.95	984.55	985.15	985.75	986.35	986.95	987.55	988.15	988.75	989.35	989.95	990.55	991.15
Station	246		247			248			249			250			251			252			253			254			255			256								

PAVEMENT AREA
900 x 18.75 x 1/2 ÷ 9 = 937.5 Sq.Yds.

BERM AREA
900 x 8 ÷ 9 = 800.0 Sq.Yds.

404 ASPHALT CONCRETE
937.5 x 1.25 ÷ 36 = 32.6 Cu.Yds.

302 ASPHALT CONCRETE
937.5 x 2.75 ÷ 36 = 71.6 Cu.Yds.
Edge
900 x 1/4 x .22917 ÷ 27 = 1.9 Cu.Yds.
TOTAL 302 = 73.5 Cu.Yds.

824 BITUMINOUS MACADAM BASE
Pavement Area = 937.5 Sq.Yds.
Edges
900 x .625 ÷ 9 = 62.5 Sq.Yds.
TOTAL 824 = 1000.0 Sq.Yds

310 SUBBASE
937.5 x 8 ÷ 36 = 208.3 Cu.Yds.
Edge
900 x 1/4 x 2/3 ÷ 27 = 5.6 Cu.Yds.
Berm
900 x 4.141 ÷ 27 = 138.0 Cu.Yds.
TOTAL 310 = 351.9 Cu.Yds.

304 AGGREGATE BASE
900 x 1.8275 ÷ 27 = 60.9 Cu.Yds.

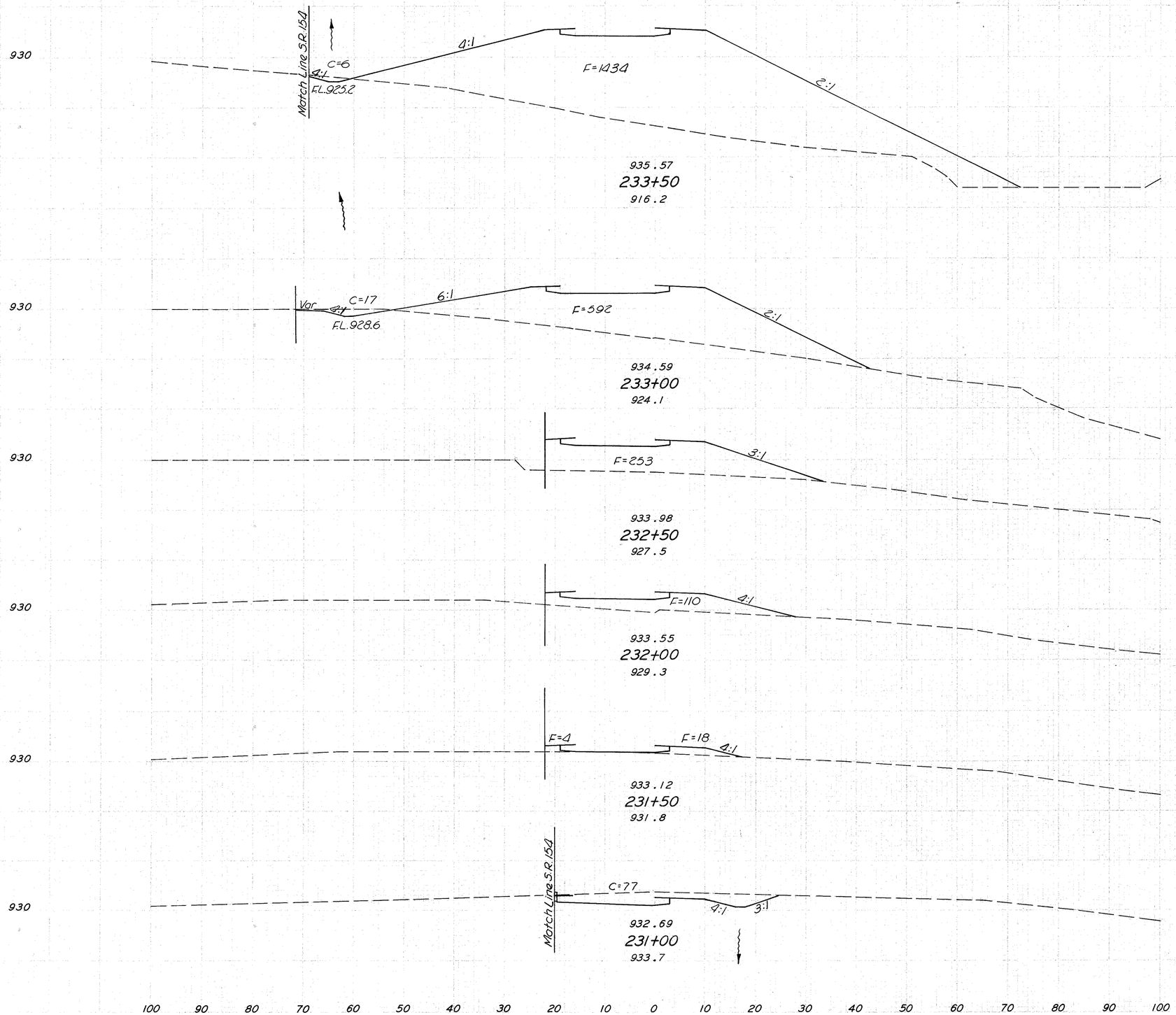
301 BITUMINOUS AGGREGATE BASE
900 x 3.855 ÷ 27 = 128.5 Cu.Yds.

409 SEAL COAT, AGGREGATE
800 x .008 = 6.4 Cu.Yds.

409 SEAL COAT, BITUMINOUS
800 x 0.30 = 240.0 Gals.

203 SUBGRADE PREPARATION
Pav't. and Berm
937.5 + 800 = 1738.0 Sq.Yds.

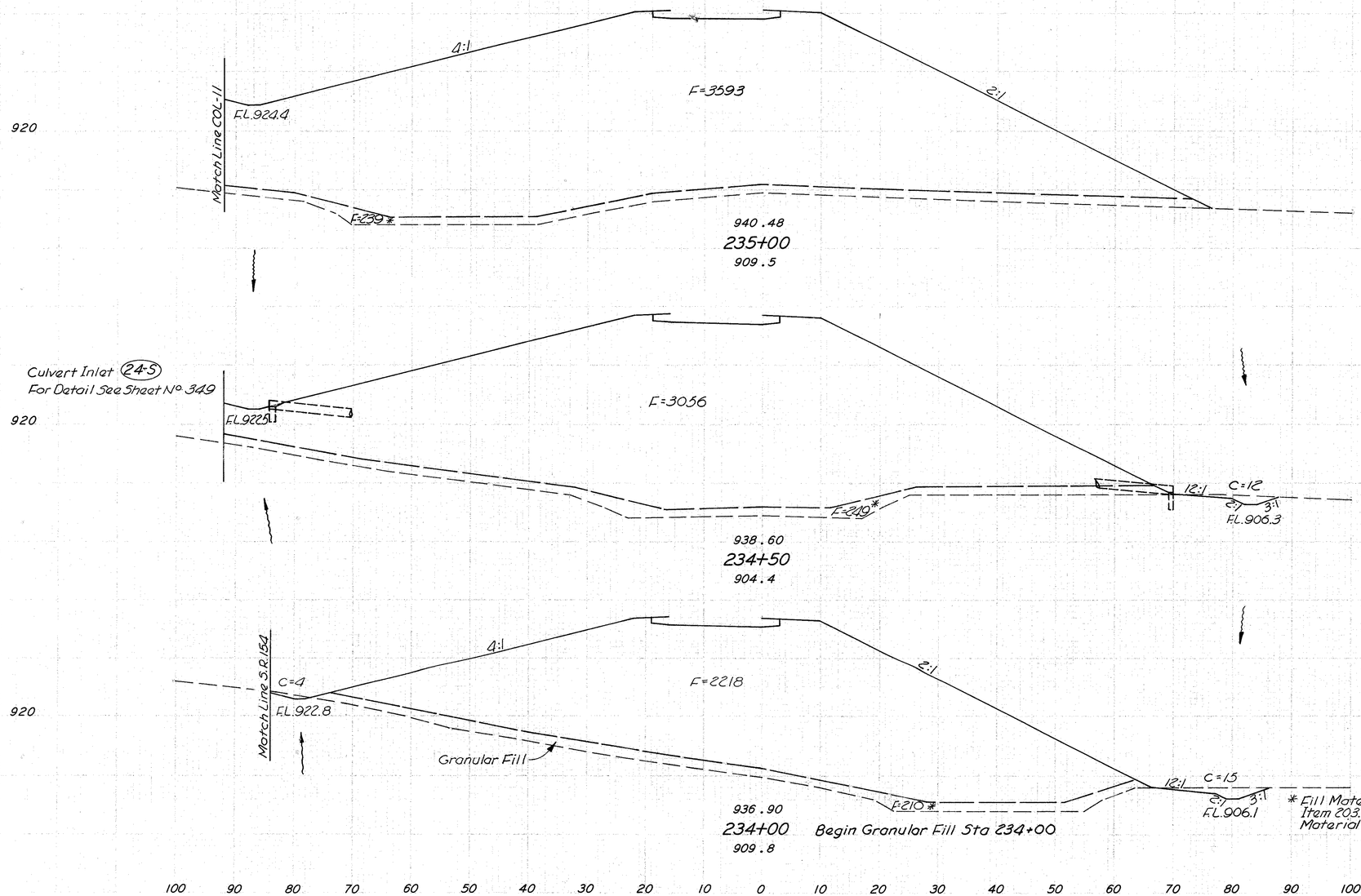
COL-11-10.22
COL-154-1.71



SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
138		6	1434		
	675			21	1876
105		17	592		
	417			16	782
45		0	253		
	233			0	336
39		0	110		
	186			0	122
28		0	22		
	167			71	20
32		77	0		

RAMP "D" STA. 231+00 TO STA. 233+50

COL-11-10.22
COL-154-1.71

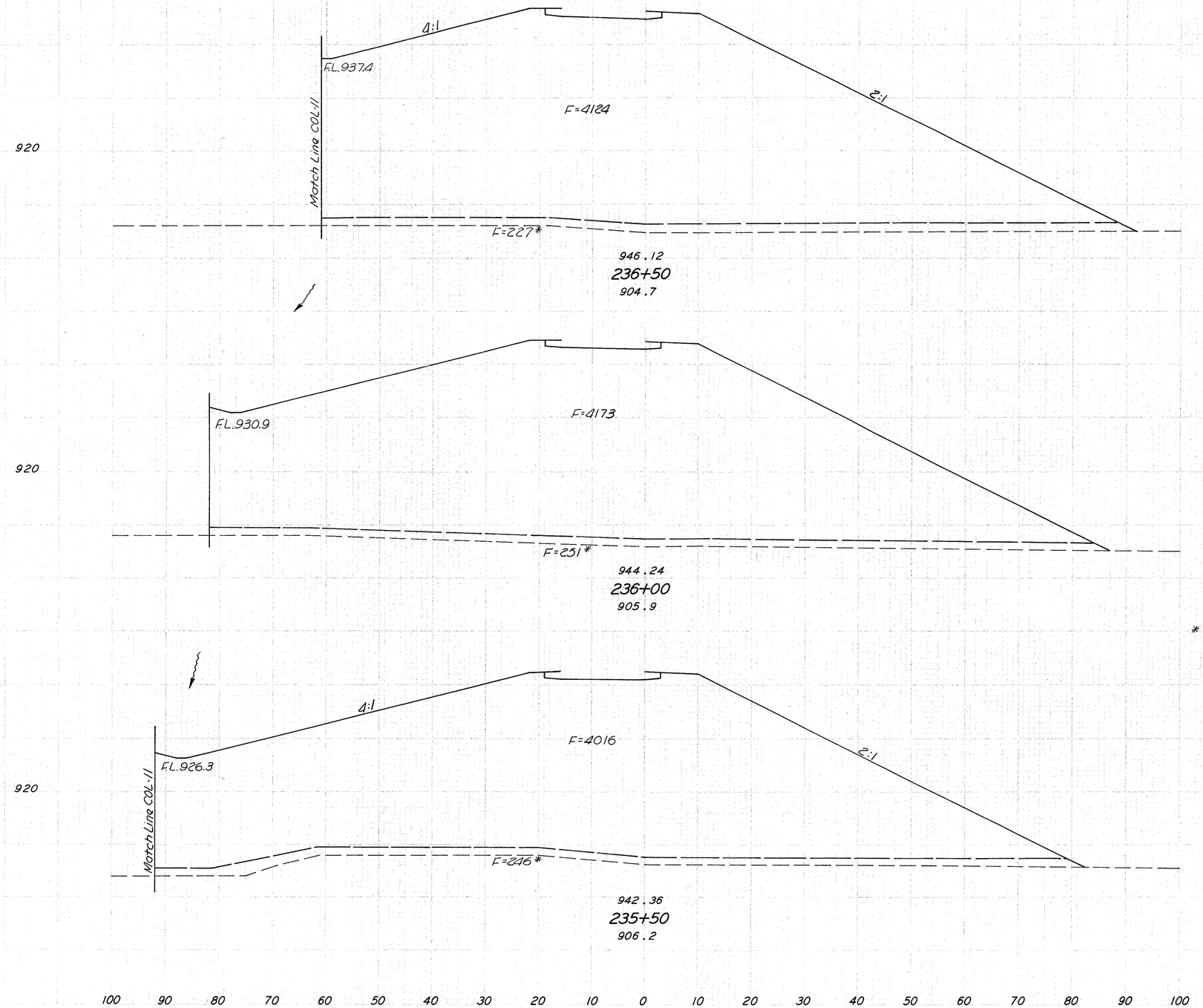


* Fill Material Included for Payment in Item 203.03 Borrow, Using Granular Material as per plan

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
166		0	3593		
	953			11	6156
177		12	3056		
	956			29	4883
167		19	2218		
	847			23	3381

RAMP "D" STA 234+00 TO STA 235+00

COL-11-10.22
COL-154-1.71

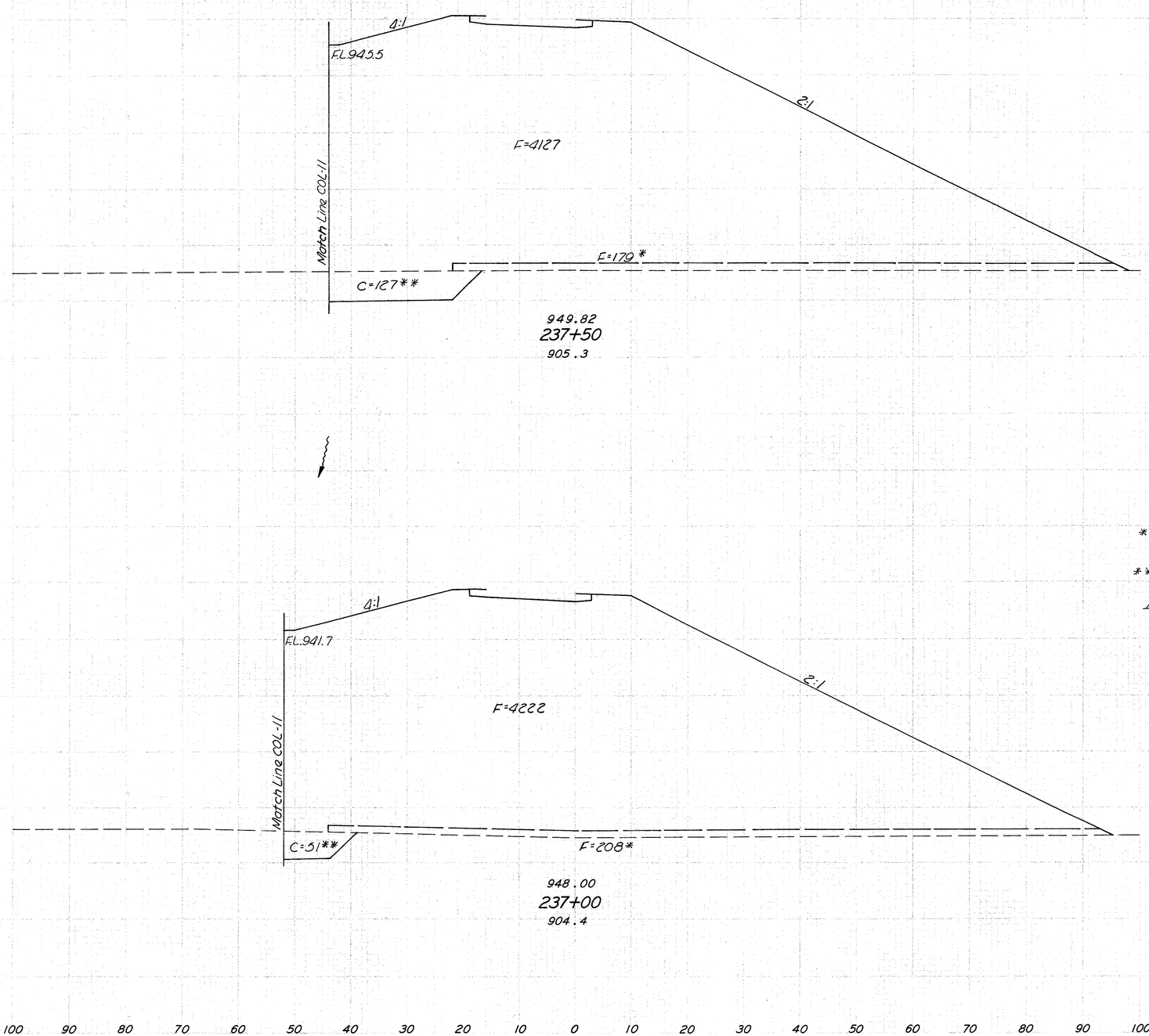


SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
152		0	4124		
	889			0	7682
168		0	4173		
	947			0	7582
173		0	4016		
	942			0	7045

* Fill Material Included for Payment in Item 203.03 Borrow Using Granular Material as per plan

RAMP "D" STA 235+50 TO STA 236+50

COL-11-10.22
COL-154-1.71



* Fill Material Included for Payment in Item 203.03 Borrow, Using Granular Material as per plan

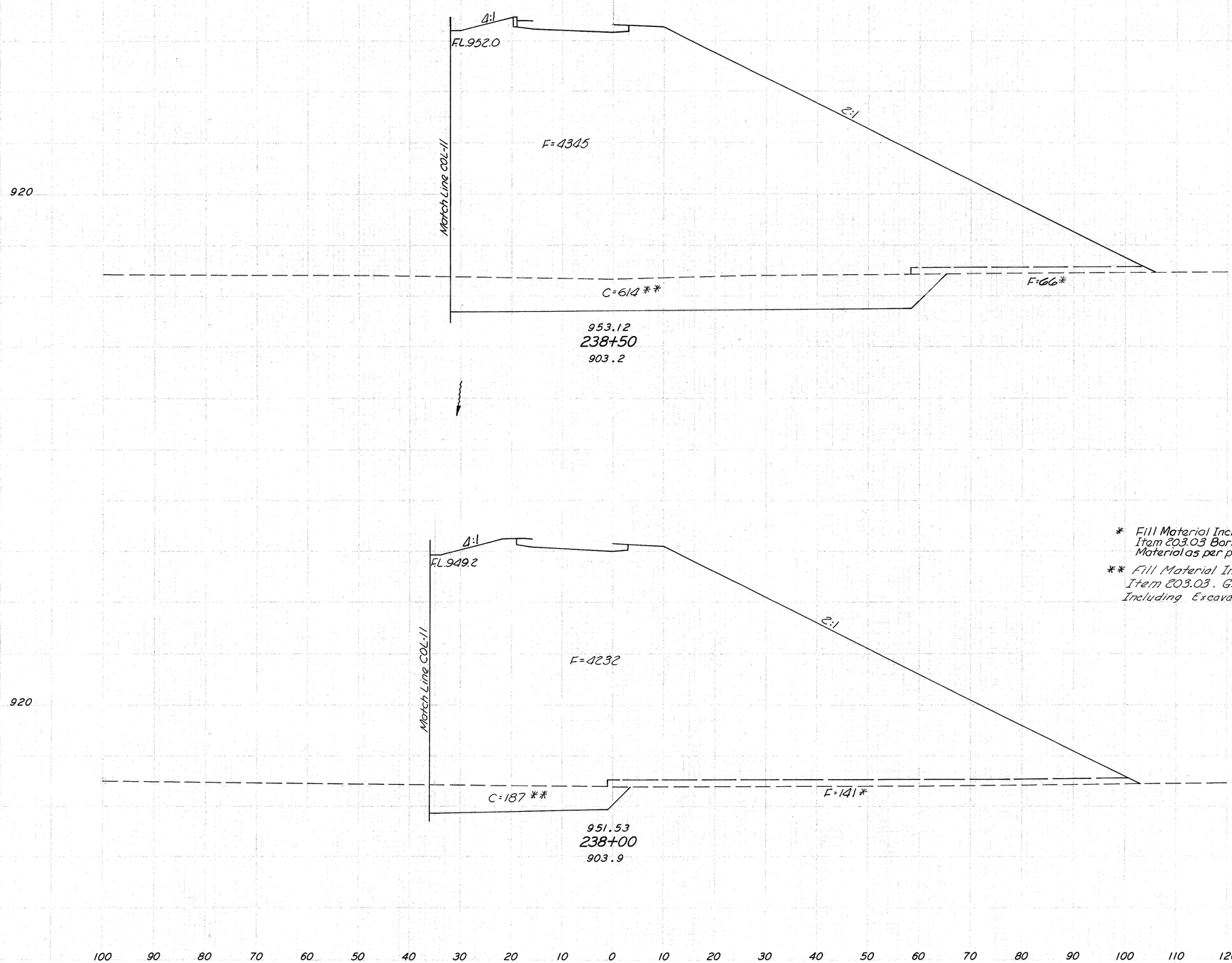
** Fill Material Included for Payment in Item 203.03. Granular Material Including Excavation

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
141		127	4127		
	800			165	7731
147		51	4222		
	831			47	7728

RAMP "D" STA. 237+00 TO STA. 237+50

COL-11-10.22
COL-154-1.71

Remainder of Ramp "D" is Carried with Main Line Cross Sections



* Fill Material Included for Payment in Item 203.03 Borrow, Using Granular Material as per plan

** Fill Material Included for Payment in Item 203.03. Granular Material Including Excavation

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
137		614	4345		
	767			742	7942
139		187	4232		
	778			291	7140

RAMP "D" STA 238+00 TO STA 238+50

COL-11-10.22 COL-154-1.71

P.T. 13+78.74
5"W Cherry
20.16' to Survey
47.67'
21.96'
P.K.
5"W Cherry
Tack & Flasher in References

20'
Bit. Mac. Surface
℄
Typical Section
EXIST. S.R. 154

Varies
Dirt
℄
Typical Section
EXIST. DIRT DRIVE

ACCESS ROAD A
P.I. Sta. 13+29.27
Δ = 109°-40'
D = 57°-17'-45"
T = 141.93'
L = 191.40'
E = 73.62'
R = 100.0'

Exist. S.R. 154
RW
LARW
4:1
8:1
50
RELOC. S.R. 154
90° To Local Tang.
52.56' Lt. STA. 51+00 RELOC. S.R. 154 = STA. 10+00 ACCESS RD. "A"
BEGIN WORK STA. 10+00
82°-08'-49"
N 77°-44'-E
ACCESS RD A
P.C. 11+87.34
END WORK STA. 13+78.74
P.T. 13+78.74
3°-34'-55"
N 31°-53'-W
53
Var.
RAMP "D"
RAMP "A"
Barn
2-Sty. Fr. Res.
END WORK STA. 18+00
S 85°-24'-05"-W
P.T. 17+27.76
P.C. 16+75.98
50' R.
LA
BEGIN WORK STA. 15+00
STA. 14+78.74
CHAMBERLAIN DRIVE
N 33°-27'-55"-W
Exist. TWP. RD. 785 (To Be Abandoned)
225
230
229
℄ COL-11
1-Sty. Fr. Res.
Res. Drive

QUANTITIES TO PAVEMENT CALCULATIONS
Access Rd."A" Sta. 10+00 to Sta. 13+78.74
304—Aggregate Base ——————— 149.6 Cu.Yds.

Chamberlain Drive - Sta. 15+00 to Sta. 18+00
304—Aggregate Base ——————— 88.9 Cu.Yds.

930.21 Match Exist. | 930.56 | 930.90 | 931.25 | 931.59 | 931.94 | 932.29 | 932.63 | 932.83 Match Exist. | 935.38 Match Exist. | 936.15 | 937.15 | 938.38 | 939.85 | 941.55 | 943.4 | 947.58 | 951.68 | 955.99 Match Exist.

ACCESS RD. "A"
Pavement Area
378.74 x 16 ÷ 9 = 673.3 Sq.Yds.
304 - Aggregate Base
673.3 x 8 ÷ 36 = 149.6 Cu.Yds.
203 - Subgrade Preparation = 673 Sq.Yds.

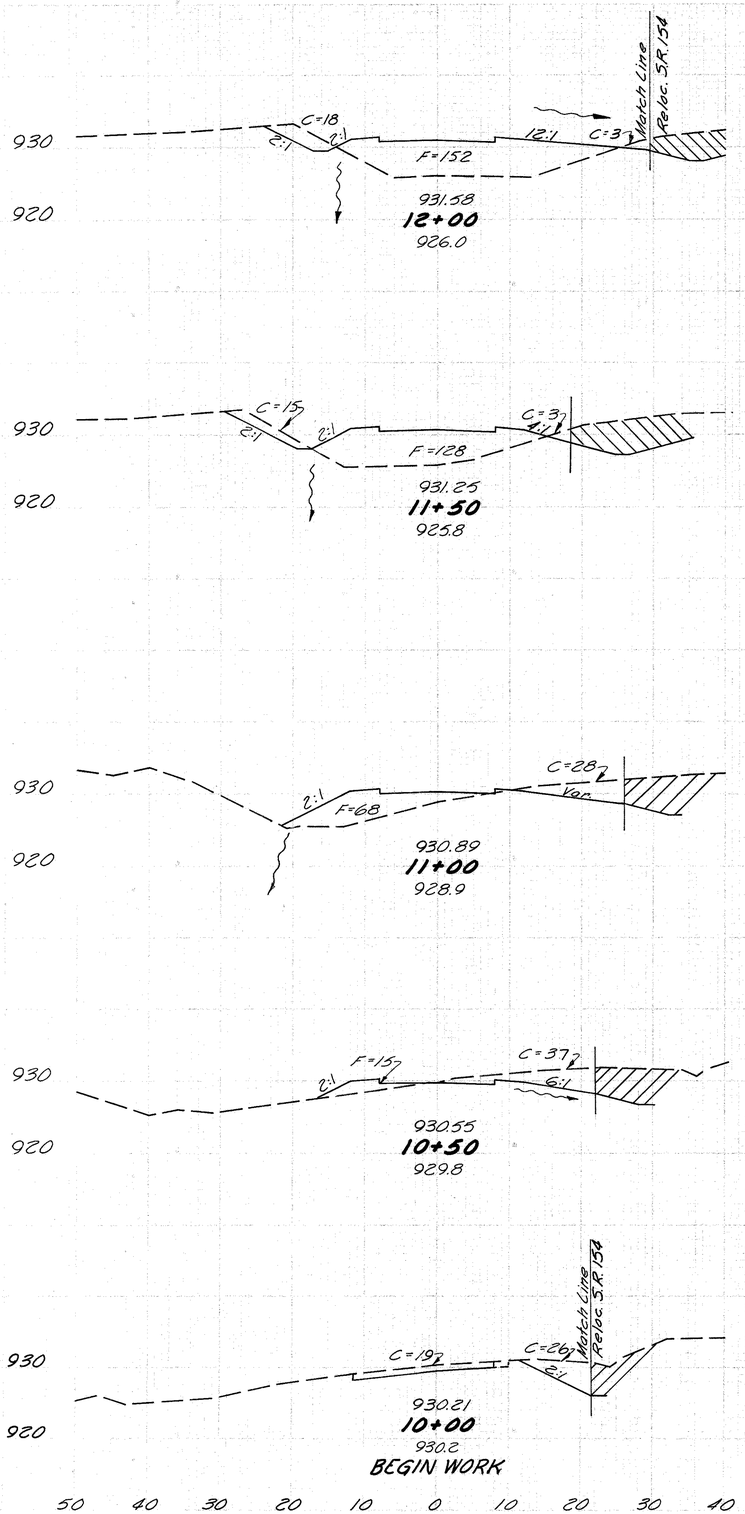
CHAMBERLAIN DRIVE
Pavement Area
300 x 12 ÷ 9 = 400 Sq.Yds.
304 - Aggregate Base
400 x 8 ÷ 36 = 88.9 Cu.Yds.
203 - Subgrade Preparation = 400 Sq.Yds.

960
950
940
930
920
+0.69%
+2.6%
+8.2%
150' V.C.
P.C. 15+00
P.T. 16+50
P.I. 15+75
Elev. 937.33
BEGIN WORK STA. 10+00
END WORK STA. 13+78.74
BEGIN WORK STA. 15+00
END WORK STA. 18+00
PROFILE ACCESS RD. A
PROFILE CHAMERLAIN DRIVE

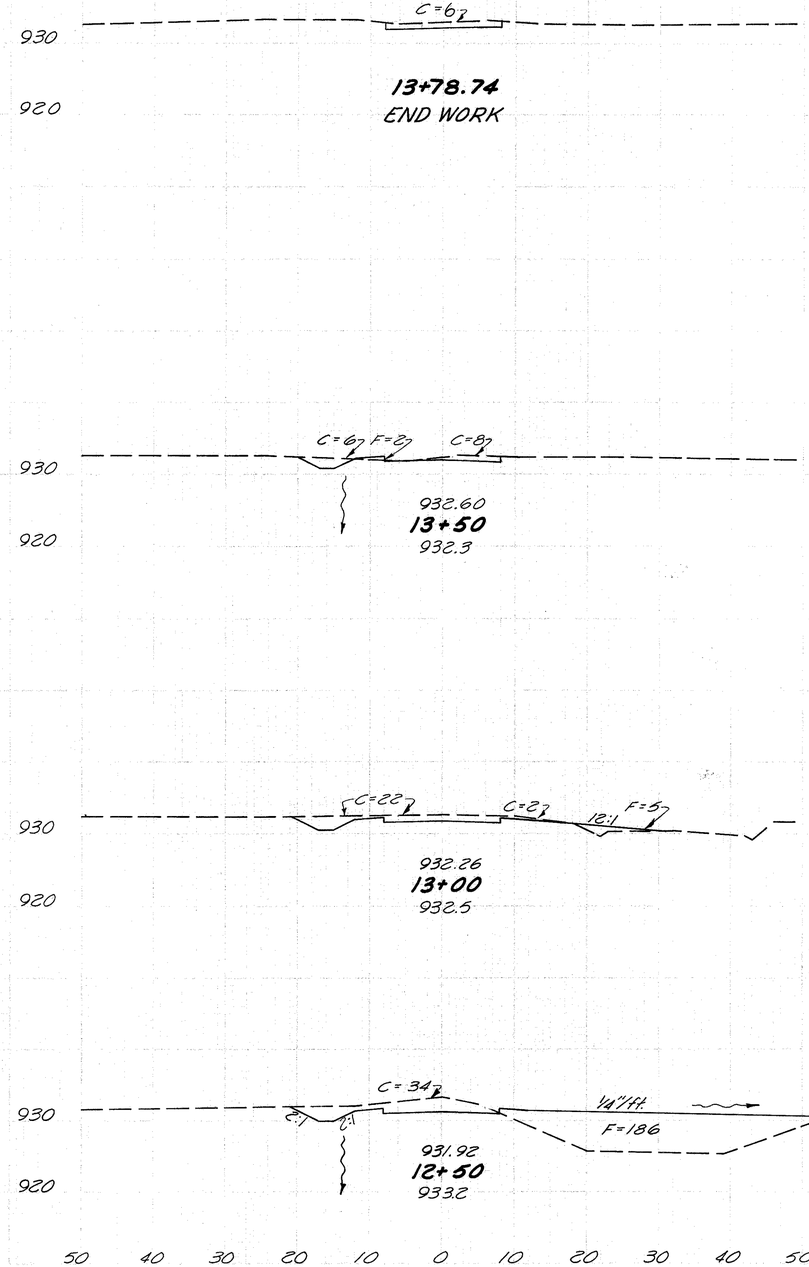
925.10 | 926.10 | 927.40 | 929.30 | 930.21 | 929.77 | 928.87 | 925.77 | 925.97 | 933.21 | 932.51 | 932.29 | 932.77 | 933.24 | 934.09 | 935.38 | 936.05 | 936.26 | 937.26 | 943.64 | 951.68 | 955.99 | 959.60
8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18

ACCESS ROAD "A" & CHAMBERLAIN DRIVE STA. 10+00 TO STA. 18+00

COL-11-10.22
COL-154-1.71



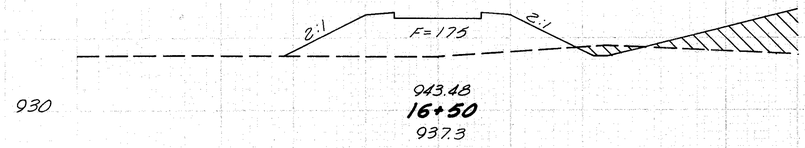
Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yd. Exc.	Cu. Yd. Emb.
42		18	152		
	225			33	259
35		18	128		
	211			42	181
34		28	68		
	181			60	77
24		37	15		
	111			76	14
15		45	0		

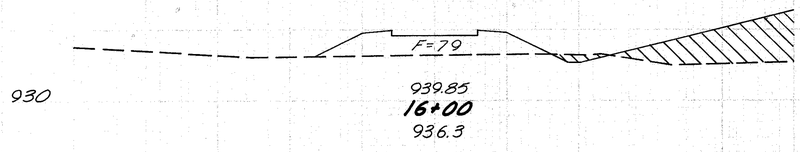


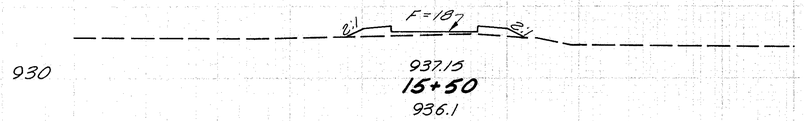
Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yd. Exc.	Cu. Yd. Emb.
0		11	0		
	47			13	1
17		14	2		
	156			44	6
37		30	5		
	283			75	177
63		45	186		
	292			58	313

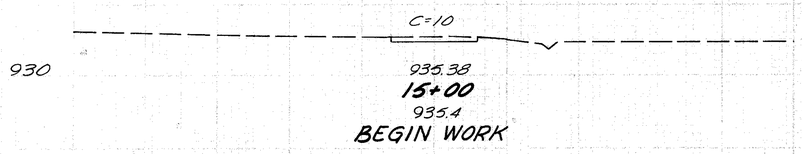
ACCESS ROAD "A" STA. 10+00 TO STA. 13+78.74

COL-11-10.22
COL-154-1.71

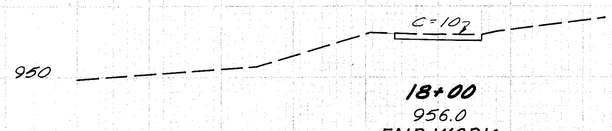


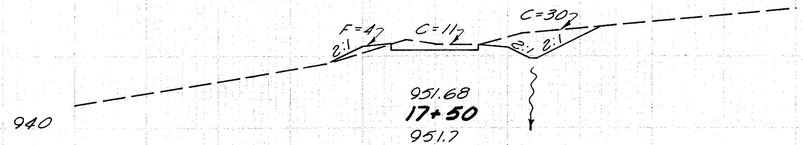


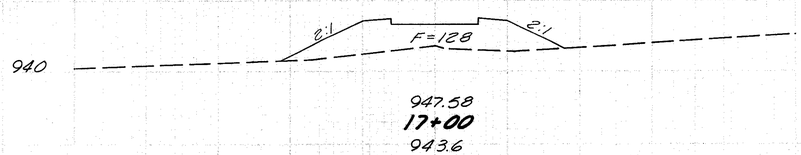




Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
32		0	175		
	153			0	235
23		0	79		
	106			0	90
15		0	18		
	42			9	17
0		10	0		







Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
0		10	0		
				47	4
30		41	4		
	172			38	122
32		0	128		
	178			0	281

CHAMBERLAIN DR. STA. 15+00 TO STA. 18+00

COL-11-10.22 COL-154-1.71

P.C. 10+67.28
30" Maple
R.R. spike ℄ Survey
22.9'
27.8'
5" Oak
36" Oak
Tack & Flasher in References

P.I. 14+92.44
4" Maple
12.5'
Tangent Line
Hub ℄ Tan. Line
9.3'
9.3'
6" Elm
8" Elm
P.O.C.
Tack & Flasher in References

QUANTITIES TO PAVEMENT CALCULATIONS
STA. 9+00 TO STA. 19+00

404	Asphalt Concrete	91.7 Cu. Yd.
310	Subbase	263.0 Cu. Yd.
304	Aggregate Base	313.3 Cu. Yd.
203	Subgrade Preparation	2200.0 Sq. Yd.
408	Bituminous Prime Coat	880.0 Gal.

RELOC. TWP. RD. 785
P.I. Sta. 14+92.44
Δ = 48°-00' Lt.
D = 6°-00'
T = 425.16
L = 800'
E = 90.37'
R = 954.93'

P.T. 18+67.28
12" Oak
14" Oak
5.8'
6.75'
℄ Survey
16.98'
14" Oak
Tack & Flasher in References

BEGIN WORK STA. 9+00
Transition to Match Existing Road STA. 9+50
P.C. 10+67.28
RW
51°-06'-46" E
R=20
10
12:1
63-JM
62-JM
7'-8"
28-DR
30-DR
4'
25-S
65-JM
63-GR
4-A
64-JM
9-R
12" C.M.P.
64GR
29DR
S 49°-06'-46" E
RELOC. TWP. RD. 785
1.5
P.T. 18+67.28
END SHEET STA. 19+00

16' Aggregate ℄
Typical Section
EXIST. TWP. RD. 785

Exist. TWP. RD. 785
(To Be Abandoned)

B. M. Elev. 1042.86
Mine Spike in Power Pole 4109/9
17' Lt. Sta. 9+71

1065.44 Match Exist. 1064.36 1063.29 1062.16 1060.88 1059.49 1057.98 1056.32 1054.55 1052.65 1050.61 1048.52 1046.42 1044.32 1042.23 1040.13 1038.03 1035.94 1033.84 1031.74 1029.65 1027.55 1025.45 1023.35 1021.26 1019.16 1017.06 1014.97 1012.87 1010.77 1008.68 1006.58 1004.48 1002.39 1000.29 998.19 996.10 994.00 991.90 989.81 987.71

+4.29%
P.I. 10+50
Elev. 1059.0
-8.39%
BEGIN WORK STA. 9+00
P.C. 9+50
P.T. 11+50
200' V.C.
25-S

1060
1050
1040
1030
1020
1010
1000

1066.9 1065.4 1063.3 1061.7 1059.0 1056.6 1054.8 1052.4 1050.9 1043.2 1021.6 994.4 1007.4 1015.4 1026.6 1033.3 1036.8 1036.1 1033.5 1025.7 1014.3 1004.1

9 10 11 12 13 14 15 16 17 18 19

Pavement Area
Sta. 9+00 to 9+50
50(12+20) 1/2 ÷ 9 = 88.9 Sq.Yds.
Sta. 9+50 to 19+00
950 x 20 ÷ 9 = 2111.1 Sq.Yds.
Total Pavement Area = 2200 Sq.Yds.

404 - Asphalt Concrete
2200 x 1 1/2 ÷ 36 = 91.7 Cu.Yds.

304 - Aggregate Base
2200 x 5 ÷ 36 = 305.6 Cu.Yds.
Edge
(1000 x 2 x 1/4 ÷ 9) 5 ÷ 36 = 7.7 Cu.Yds.
Total 304 = 313.3 Cu.Yds.

310 - Subbase
2200 x 4 ÷ 36 = 244.5 Cu.Yds.
Edges
(1000 x 2 x 3/4 ÷ 9) 4 ÷ 36 = 18.5 Cu.Yds.
Total 310 = 263.0 Cu.Yds.

408 - Bituminous Prime Coat
2200 x 0.4 = 880.0 Gal.

203 - Subgrade Preparation = 2200 Sq.Yds.

203 Excav.	304 Aggre. Base	404 2" Asphalt Concrete	603 Conduit 12" Type D	• Class B Bedding • 30" Type A 706.02 Class II	
C.Y.	C.Y.	C.Y.	L.F.	L.F.	
4	32	5	56	188	317
					350

606 Guard Rail Type 4	601 Riprap 6" Reinf. Conc. Slab	601 Dumped Rock Channel Prot.	602 Concrete Masonry	667 Jute Matting	202 Pipe Removed 24" & Under	
L.F.	S.Y.	C.Y.	C.Y.	S.Y.	L.F.	
	14	7	1.02			362.5
				149	33	
				234		
				85		
				64		
		15				
		42				
		6				
175						
187.5						

| | L&R. | | | | | |

COL-11-10.22 COL-154-1.71

P.C. 25+58.80
14" Twin Elm
6" Triple Elm
℄ Survey
25.39'
4" Elm
Tack & Flasher in References

QUANTITIES TO PAVEMENT CALCULATIONS
STA. 19+00 TO STA. 28+95.31

404	Asphalt Concrete	96.4 Cu. Yd.
310	Subbase	276.0 Cu. Yd.
304	Aggregate Base	329.3 Cu. Yd.
203	Subgrade Preparation	2314.0 Sq. Yd.
408	Bituminous Prime Coat	926.0 Gal.

For INTERSECTION DETAILS
See Sheet No. 326

RELOC. TWP RD. 785
P.I. Sta. 27+06.32
Δ = 17°-33'-51" Rt.
D = 6°-00'
T = 147.52
L = 292.74
E = 11.33'
R = 954.93'

STA. 29+07.74 RELOC. TWP RD. 785
STA. 66+57.70 RELOC. S.R. 154

END WORK
STA. 28+95.31

BEGIN SHEET STA. 19+00

RW
LA
LARW
RELOC. TWP. RD. 785
S 49°-06'-46" E
S 31°-32'-55" E
74°-51'-48" To Local Tan.
RELOC. S.R. 154
P.I. 28+51.54
P.C. 25+58.80
Spring
1 per ft.
Sft. Shed
Gar.
Post & Fence

31-DR 4' 3:1
67-JM 7'-8" 2:1
66-JM 7'-8"
65-GR
66GR 8'
1-SD
32 DR 8'
20
25
2:1
1:1
3:1

RAMP "B"
RAMP "C"
230
225
229

B.M. Elev. 909.84
Mine Spike in Tele. Pole 34/41
18' Rt. S.R.154 Sta. 66+27

400' V.C.
P.C. 24+00
P.T. 28+00
P.I. 26+00
Elev. 929.00
-8.39%
-0.99%
END WORK
STA. 28+95.31
Match Reloc. S.R.154
℄ RELOC. S.R.154

987.71 985.61 983.52 981.42 979.32 977.23 975.13 973.03 970.94 968.84 966.74 964.65 962.55 960.45 958.35 956.26 954.16 952.06 949.97 947.87 945.77 943.74 941.81 940.00 938.32 936.74 935.27 933.93 932.70 931.58 930.59 929.71 928.94 928.29 927.75 927.34 927.03 926.78 926.54 926.29 926.09

1004.1 996.2 990.4 982.7 970.4 952.4 946.7 949.5 949.2 945.4 939.0 933.2 927.9 924.4 920.0 918.0 915.3 913.7 911.7 911.4 909.2

990 980 970 960 950 940 930 920 910

19 20 21 22 23 24 25 26 27 28 29

Pavement Area
Sta. 19+00 to 28+95.40
995.4 x 20 ÷ 9 = 2212.0 Sq.Yds.
Add for (2) Flares = 102.0 Sq.Yds.
Total Pavement Area = 2314.0 Sq.Yds.

404 - Asphalt Concrete
2314 x 1 1/2 ÷ 36 = 96.4 Cu.Yds.

304 - Aggregate Base
2314 x 5 ÷ 36 = 321.4 Cu.Yds.
Edges Lt. & Rt.
(2038 x 1/4 ÷ 9) 5 ÷ 36 = 7.9 Cu.Yds.
Total 304 = 329.3 Cu.Yds.

310 - Subbase
2314 x 4 ÷ 36 = 257.1 Cu.Yds.
Edges
(2038 x 3/4 ÷ 9) 4 ÷ 36 = 18.9 Cu.Yds.
Total 310 = 276.0 Cu.Yds.

408 - Bituminous Prime Coat
2314 x 0.4 = 926.0 Gal.

203 - Subgrade Preparation = 2314 Sq.Yds.

ESTIMATED QUANTITIES

605	6" Unclass. Pipe Underdrain L.F.	Aggre. Drains for Springs L.F.			
					12
					49 3
					49 3
667	Jute Matting S.Y.				139 126
601	Dumped Rock Channel Prot. C.Y.				22 67
606	Guard Rail Type 4 Lin. Ft.				
	66JM 19+00 to 21+50	20+60 to 23+00	Rt. Lt.		
	67JM 19+00 to 21+50	20+60 to 23+00	Rt. Lt.		
	31DR 20+50 to 23+00	21+50 to 24+50	Lt. Rt.		
	32DR 20+50 to 23+00	21+50 to 24+50	Lt. Rt.		
	1-SD 19+00 to 26+23		Rt.		
	65GR Rt. Twp. Rd. 785 Sta. 24+30.86 to Lt. S.R. 154 Sta. 65+93.5		Rt.	750	
	66GR Lt. Twp. Rd. 785 Sta. 26+50.37 to Lt. S.R. 154 Sta. 66+96		Lt.	262.5	
					1012.5
					89
					265

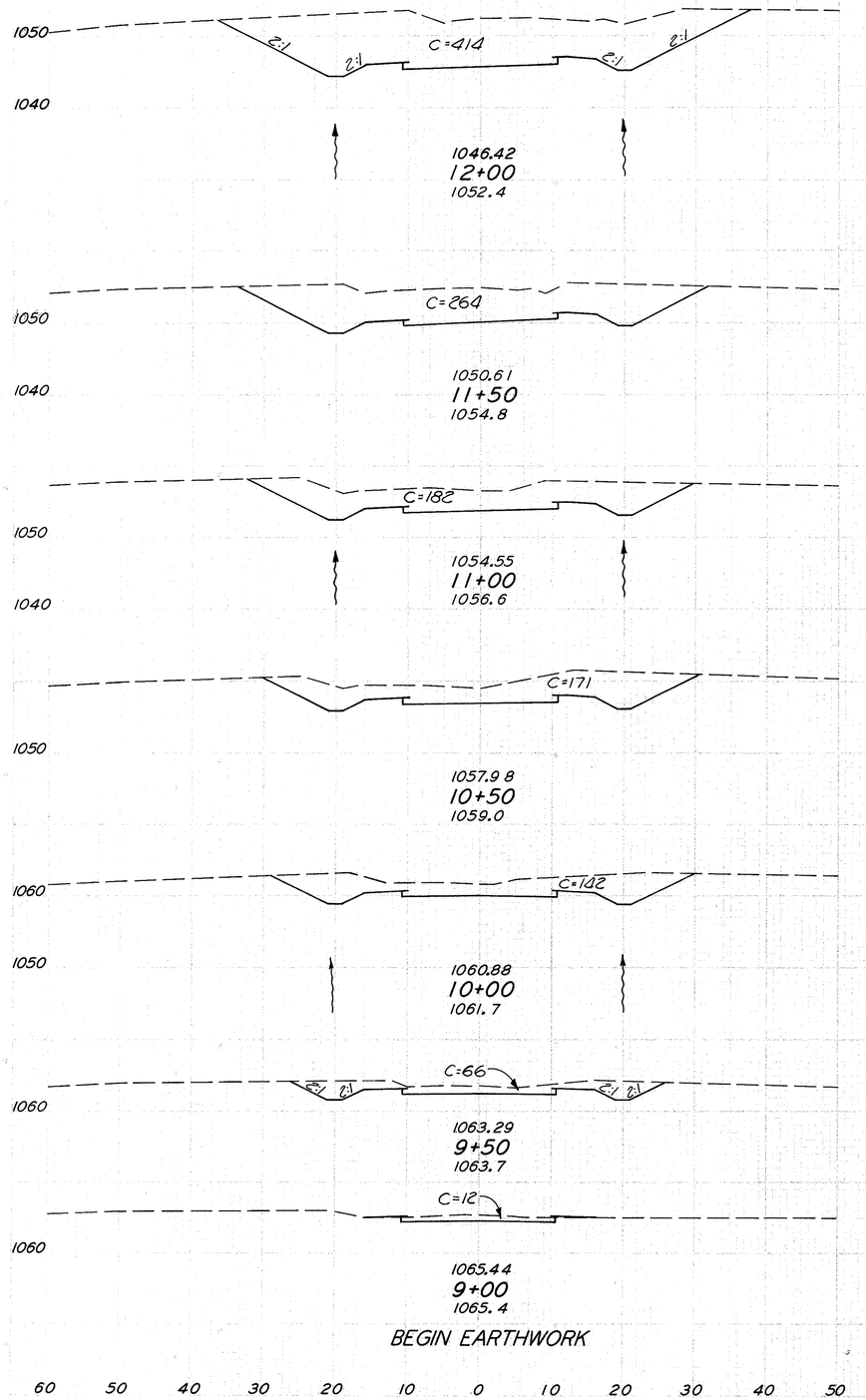
RELOCATED TWP. RD. 785 STA. 19+00 TO STA. 28+

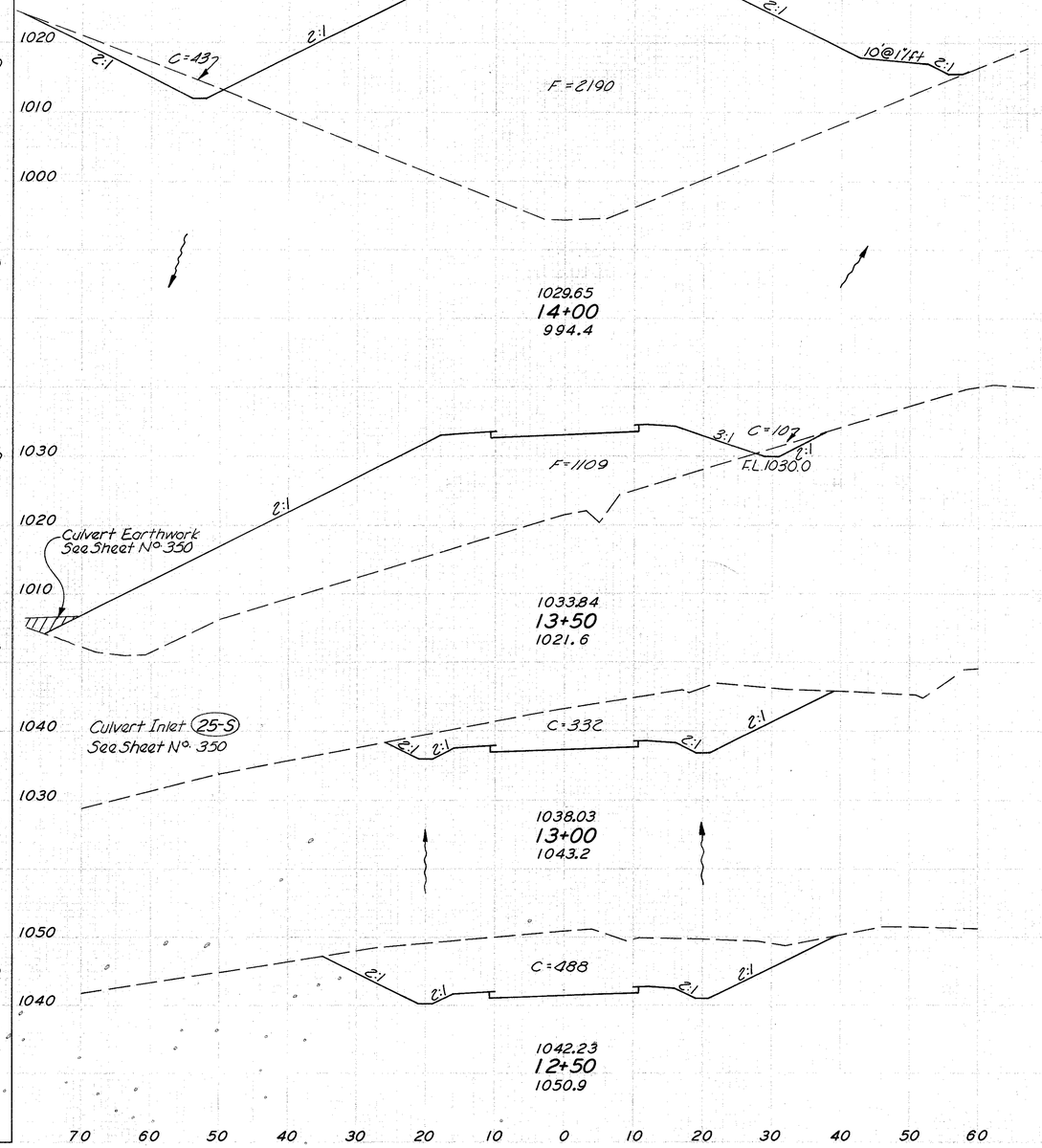
COL-11-10.22
COL-154-1.71

Private Drive Rt. Sta. 12+31
For Details, see sheet No. 317

Additional Earthwork for Private Drive

SEEDING		END AREA		VOLUME	
WIDTH	S Y.	CUT	FILL	CUT	FILL
				337	22
59		414	0		
	297			628	0
48		264	0		
	258			413	0
45		182	0		
	244			327	0
43		171	0		
	236			290	0
42		142	0		
	211			193	0
34		66	0		
	131			72	0
13		12	0		
124		43	2190		
	608			19	3055
95		10	1109		
	397			317	1027
48		332	0		
	297			759	0
59		488	0		
	328			835	0





RELOCATED TWP. RD. 785 STA. 9+00 TO STA. 14+00

285

COL-11-10.22
COL-154-1.71

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

1040
1030
1020

2:1 1:1 2:1 1:2 C=1470 2:1 1:2 1:1 2:1

1012.87
16+00
1033.3

1470.0

30

1040
1030
1020

2:1 1:1 2:1 C=632

1946.0

111

1017.06
15+50
1026.6

632.0

130

1030
1020
1010

C=537 F.L.1019.2 F=976 2:1

794

661 904

1021.26
15+00
1015.4

156

82 976

1030
1020
1010

C=32 2:1 2:1 F.L.1017.8 F=1679 2:1 1"/ft C=29 F.L.983.7

858

1752458

1025.45
14+50
1007.5

C=75 2:1 1"/ft 2:1 F.L.999.5

153

107 1679

769

1393582

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

RELOCATED TWP. RD. 785 STA. 14+50 TO STA. 16+00

286

COL-11-10.22
COL-154-1.71

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

1040
1030
1020
1010

2:1 1:1 1:2 2:1 C=2695 2:1 1:2 1:1 2:1

1000.29
17+50
1033.5

39 2695 0

1040
1030
1020
1010

C=2528

1004.48
17+00
1036.1

39 2528 0

1040
1030
1020
1010

2:1 1:1 2:1 2:1 C=3173 2:1 2:1 1:1 2:1

1008.68
16+50
1036.8

39 3173 0

217 4836 0

217 5279 0

192 4299 0

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

RELOCATED TWP. RD. 785 STA.16+50 TO STA.17+50

287

COL-11-10.22
COL-154-1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

1030
1020
1010

2:1
1:1
2:1 1:2
C=1552
1:2 2:1

987.71
19+00
1004.1

49

1552 0

1030
1020
1010

244

2:1
1:1
C=2123
1:2 2:1

991.90
18+50
1014.3

39

2123 0

1030
1020
1010
1000

217

2:1
1:1
C=2277
2:1 2:1
1:2 2:1

996.10
18+00
1025.7

39
217

2277 0

3403 0
4074 0
4604 0

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

RELOCATED TWP. RD. 785 STA. 18+00 TO STA. 19+00

COL-11-10.22
COL-154-1.71

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

980
970
960
950

3:1 3:1 C=47 2:1 FL. 956.0 F=449

968.84
21+25
960.5

84 4 449

210 970 960 C=967 3:1 2:1 F=67 C=87 F=417 3:1 FL.961.8

970.94
21+00
970.4

67 30 230

980 300 2:1 1:1 2:1 1:1 C=564 2:1 2:1

975.13
20+50
982.7

104 47

610 44

1010
1000

41 564 0

242 1030 1020 2:1 C=948

979.32
20+00
990.4

1400 0

46 1010 948 0

1000 256 990 980 1:1 C=1333 2:1 2:1 2:1 2:1

983.52
19+50
996.2

46 1333 0

264 2671 0

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

RELOCATED TWP. RD. 785 STA. 19+50 TO STA. 21+25

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

290

COL-11-10.22
COL-154-1.71

970
960
950

6'
2:1
C=188
F=12
F.L.948.0
F=400
2:1
C=87
F.L.929.7

949.97
23+50
945.4

970 — 117 — 128 401

4'
C=64
F=368
F.L.952.0

960 — 581 — 178 712
950

954.16
23+00
949.2

970 — 92 — 64 368

Carried with Ramp "C"

960 — 542 — 189 951
950

C=140
3:1
FL 953.5
F=659

Carried with Ramp "C"

958.35
22+50
949.5

970 — 103 — 140 659

960 — 536 — 152 1253
950

C=247
FL=955.4
F=912
℄ Ditch
Carried with Ramp "C"

962.55
22+00
946.7

90 — 24 912

960 — 522 — 66 1662
950

C=477
2:1
3:1
FL 955.7
F=883
2:1

966.74
21+50
952.4

940 — 98 — 47 883 — 253 — 24 617

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

RELOCATED TWP. RD. 785 STA. 21+50 TO STA. 23+50

COL-11-10.22
COL-154-1.71

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

940
930
960
950

8'
C=97
3:1
2:1
F.L.926.0
F=787
2:1
4'
C=312
1"/Ft
2:1
2:1
F.L.914.1

932.70
26+00
918.5

114 40 787

960
950

8'
C=197
F.L.931.0
F=650
C=122
F.L.916.6

597 66 1331

935.27
25+50
922.8

960
950

C=297
7'
F.L.935.5
F=610

101 31 650

970
960

C=227
F.L.919.1

938.32
25+00
927.9

569 76 1167
104 51 610

C=567
3:1
F.L.939.5
F=456

611 229.987

4'
C=322
F.L.921.6

941.81
24+50
933.2

116 88 456

960
950

2:1
C=98
7'
2:1
F.L.943.6
F=396
2:1
C=337
1"/Ft
2:1
2:1
F.L.924.6

681 203.789
940

945.77
24+00
939.0

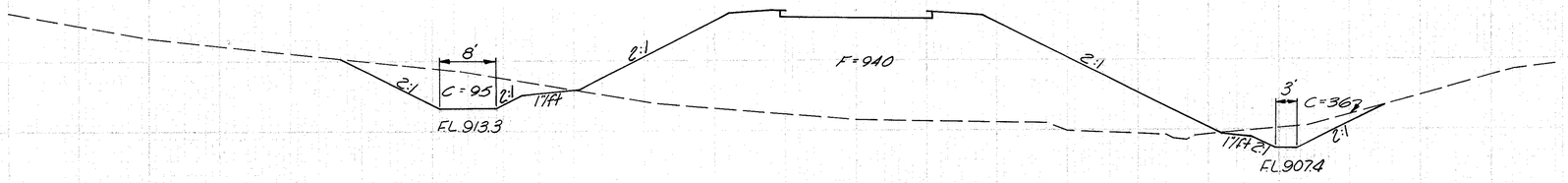
129 131 396
683 240.738

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

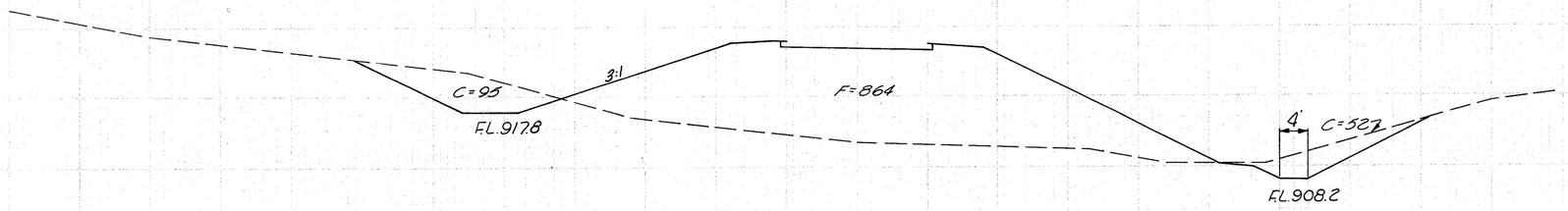
RELOCATED TWP. RD. 785 STA. 24+00 TO STA. 26+00

COL-11-10.22
COL-154-1.71

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



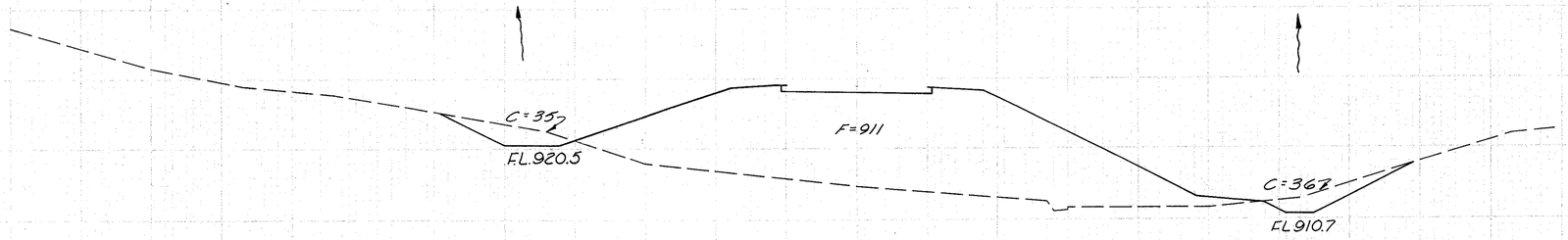
138 927.03 28+00 911.6 131 940



778 257 1670

927.75 27+50 913.5

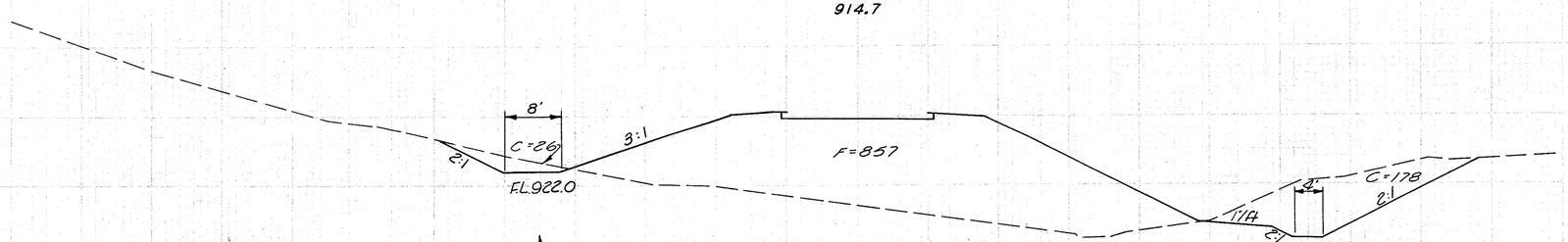
142 147 864



747 202 1644

928.94 27+00 914.7

127 71 911



731 255 1637

930.59 26+50 917.1

136 204 857

694 226 1522

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

RELOCATED TWP. RD. 785 STA. 26+50 TO STA. 28+00

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

293

COL-11-10.22
COL-154-1.71

C=100Z

920

926.09
28+95.31
926.1

END EARTHWORK

0

100 0

32

F=12Z C=21Z F=11Z S.R.154 Berm Line

23 4

920

926.17
28+85
925.4

55

21 23

270

920

Excavation Carried with (21-S)

2:1

F=994

Var

S.R.154 Fill Slope

19 942

910

926.54
28+50
910.6

84

End Roadway Ditch Earthwork at Sta. 28+40

0 994

617

920

121 1791

910

110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

RELOCATED TWP. RD. 785 STA. 28+50 TO STA. 28+95.31

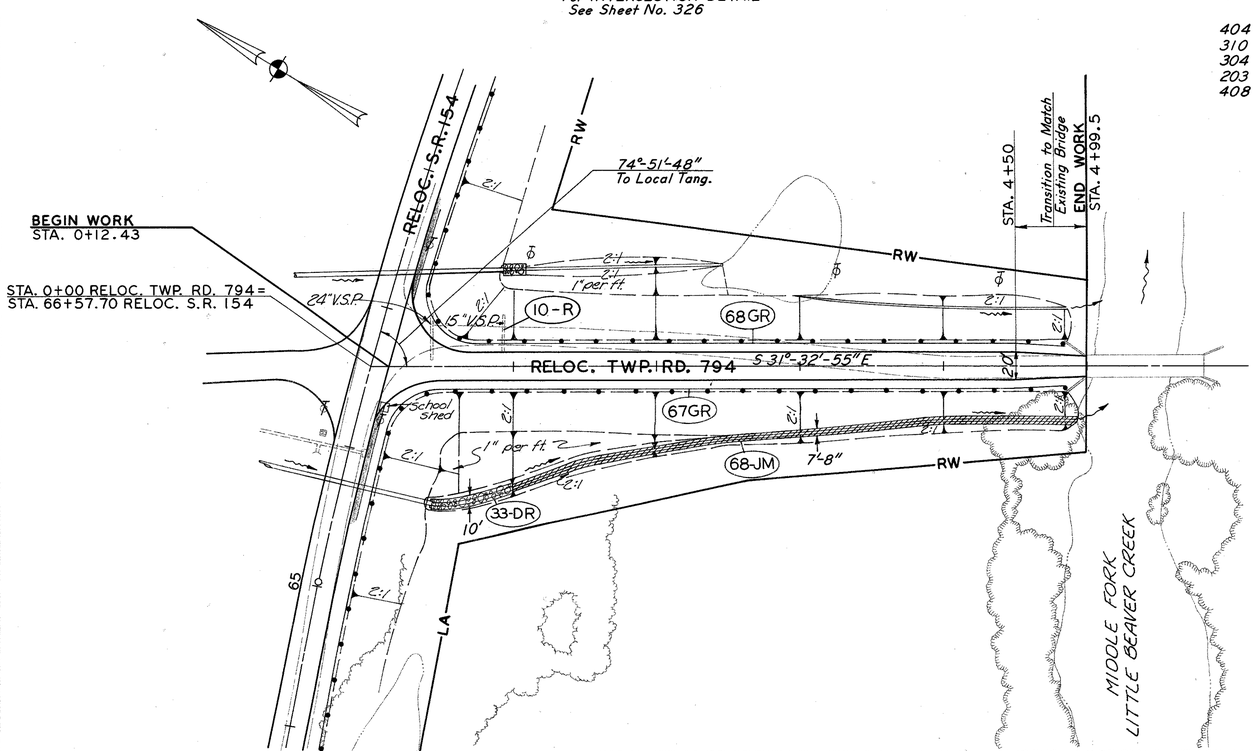
COL-11-10.22 COL-154-1.71

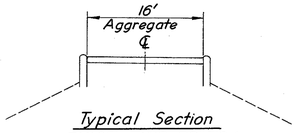
For INTERSECTION DETAIL
See Sheet No. 326

QUANTITIES TO PAVEMENT CALCULATIONS

STA. 0+00 TO STA. 4+99.5

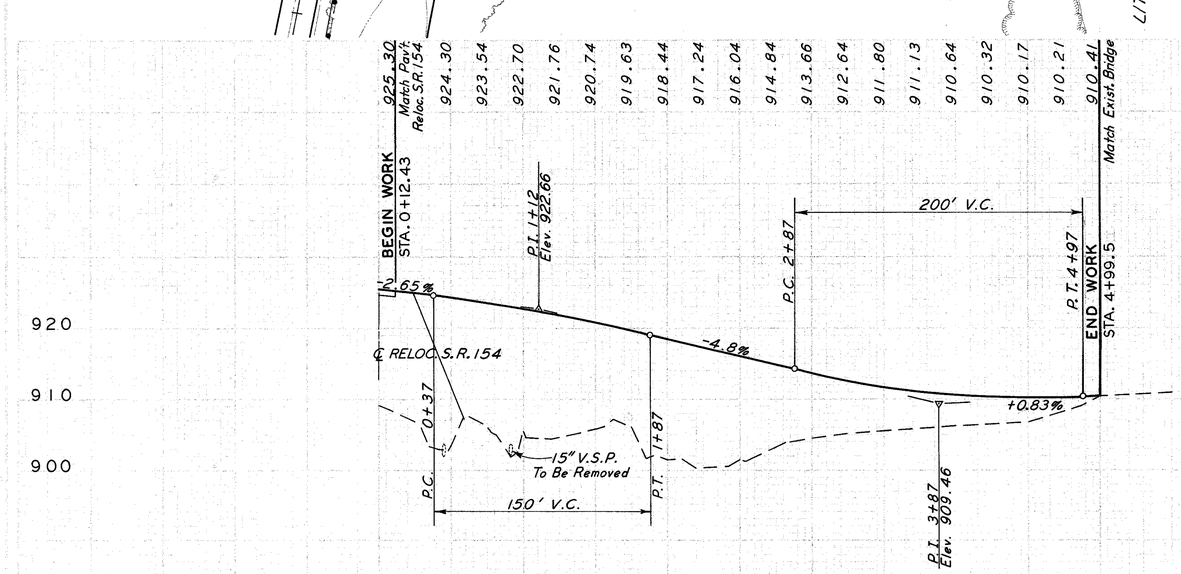
404	Asphalt Concrete	48.9	Cu. Yd.
310	Subbase	139.6	Cu. Yd.
304	Aggregate Base	166.8	Cu. Yd.
203	Subgrade Preparation	1173.0	Sq. Yd.
408	Bituminous Prime Coat	469.0	Gal.





Typical Section
EXIST. TWP. RD. 794

B. M. Elev. 909.84
Mine Spike in Tele Pole 34/41
23' Rt. Sta. 0+32



Pavement Area
Sta.0+12.43 to 4+50
437.57 x 20 ÷ 9 = 972.4 Sq.Yds.
Sta.4+50 to 4+99.5
49.5(20+16) 1/2 ÷ 9 = 99.0 Sq.Yds.
Add for (2) Flares = 102.0 Sq.Yds.
Total Pavement Area = 1173.4 Sq.Yds.

404 - Asphalt Concrete
1173.4 x 1 1/2 ÷ 36 = 48.9 Cu.Yds.

304 - Aggregate Base
1173.4 x 5 ÷ 36 = 163.0 Cu.Yds.
Edges Lt. & Rt.
(500 x .5 ÷ 9) 5 ÷ 36 = 3.8 Cu.Yds.
Total 304 = 166.8 Cu.Yds.

310 - Subbase
1173.4 x 4 ÷ 36 = 130.4 Cu.Yds.
Edges Lt. & Rt.
(500 x 1.5 ÷ 9) 4 ÷ 36 = 9.2 Cu.Yds.
Total 310 = 139.6 Cu.Yds.

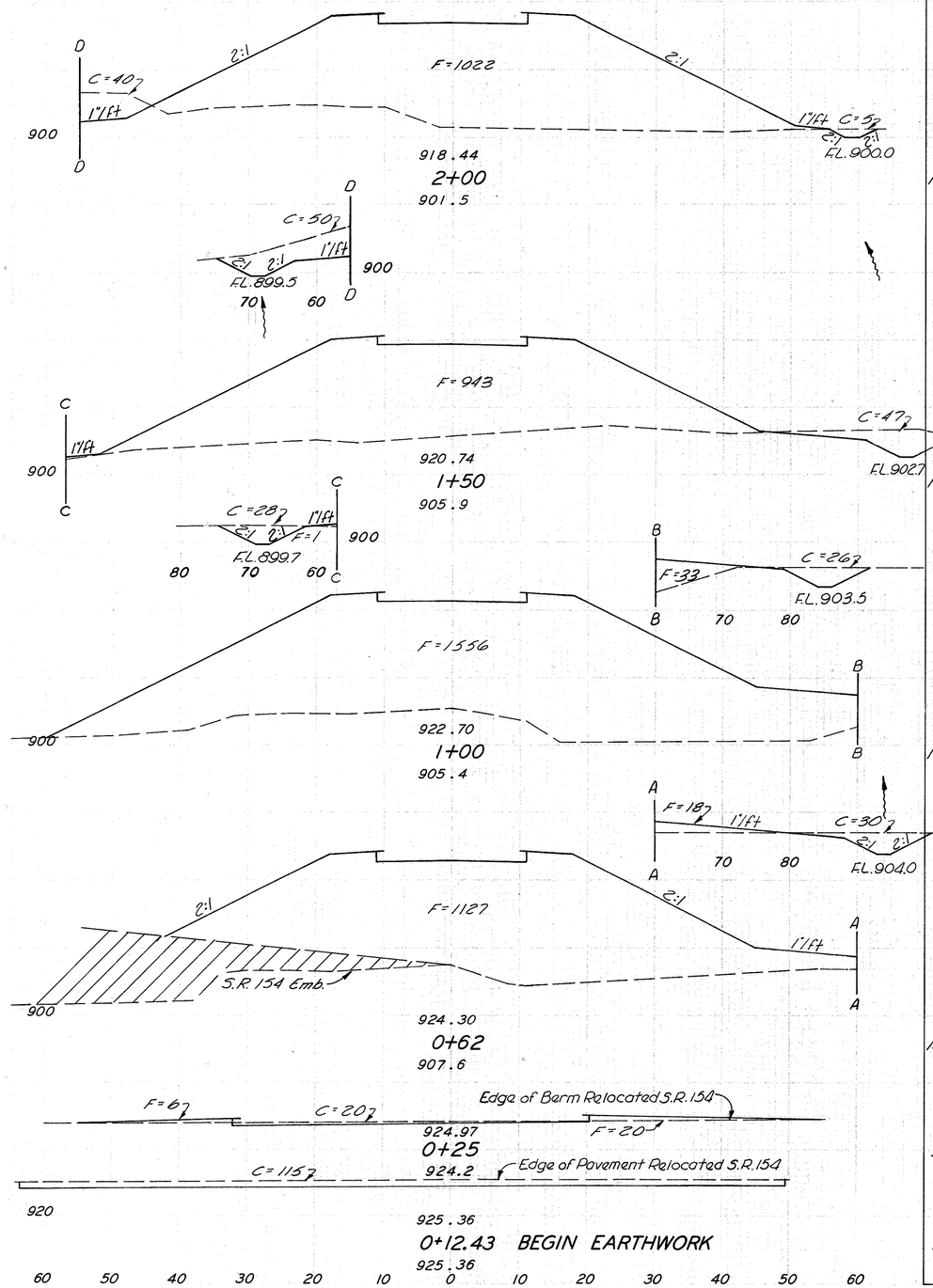
408 - Bituminous Prime Coat
1173.4 x 0.4 = 469.0 Gal.

203 - Subgrade Preparation = 1173.0 Sq.Yds.

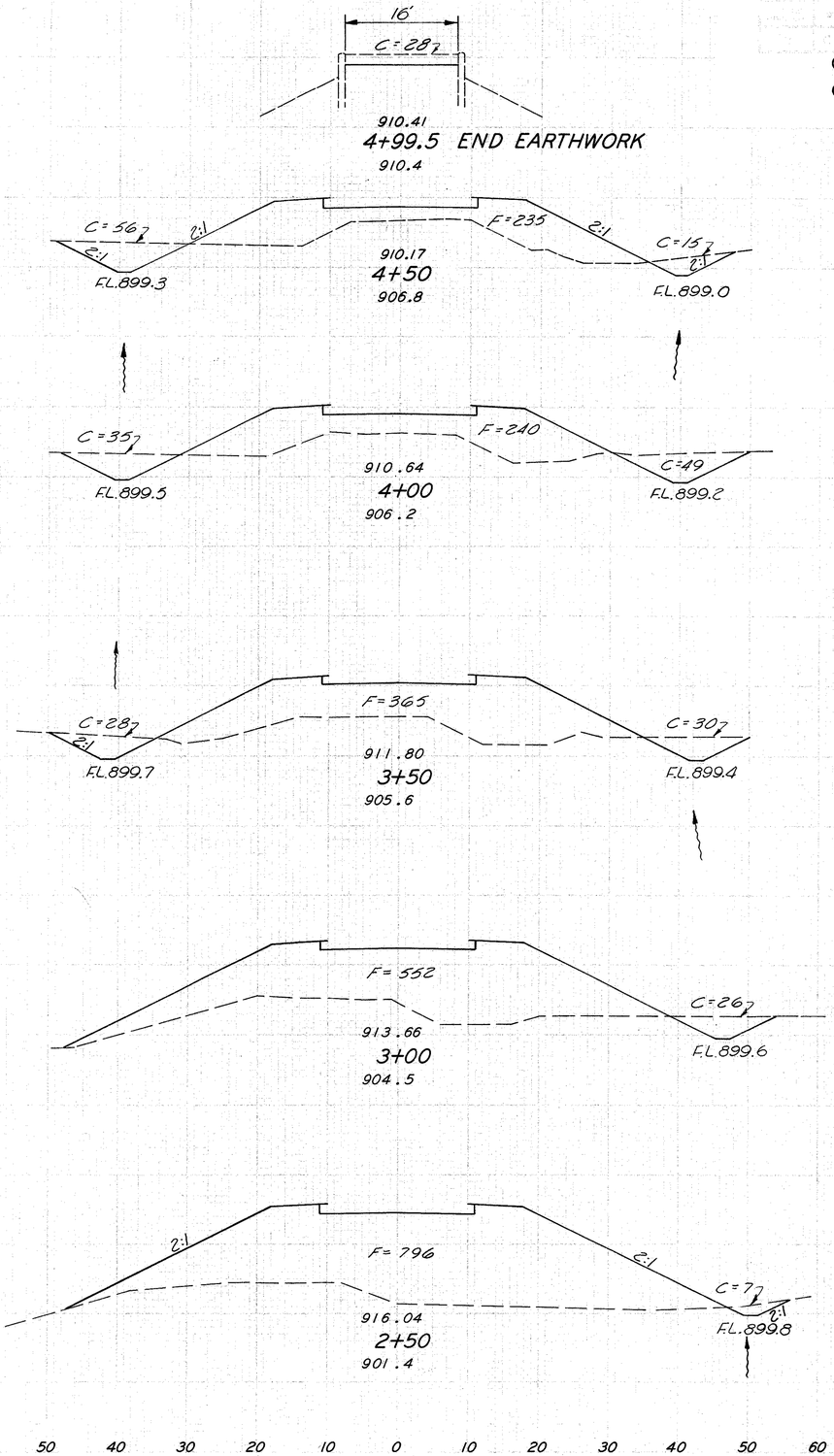
| | | |

COL-11-10.22
COL-154-1.71

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
0		28	0		
	231			91	215
84		71	235		
	467			144	440
84		84	240		
	472			131	560
86		58	365		
	489			78	849
90		26	552		
	503			31	1248
91		7	796		
	603			94	1683

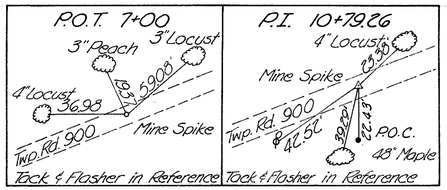


SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
126		95	1022		
	736			157	1841
139		75	944		
778				94	2345
141		26	1589		
585				39	1924
136		30	1145		
401				34	802
59		20	26		
41				31	6
0		115	0		



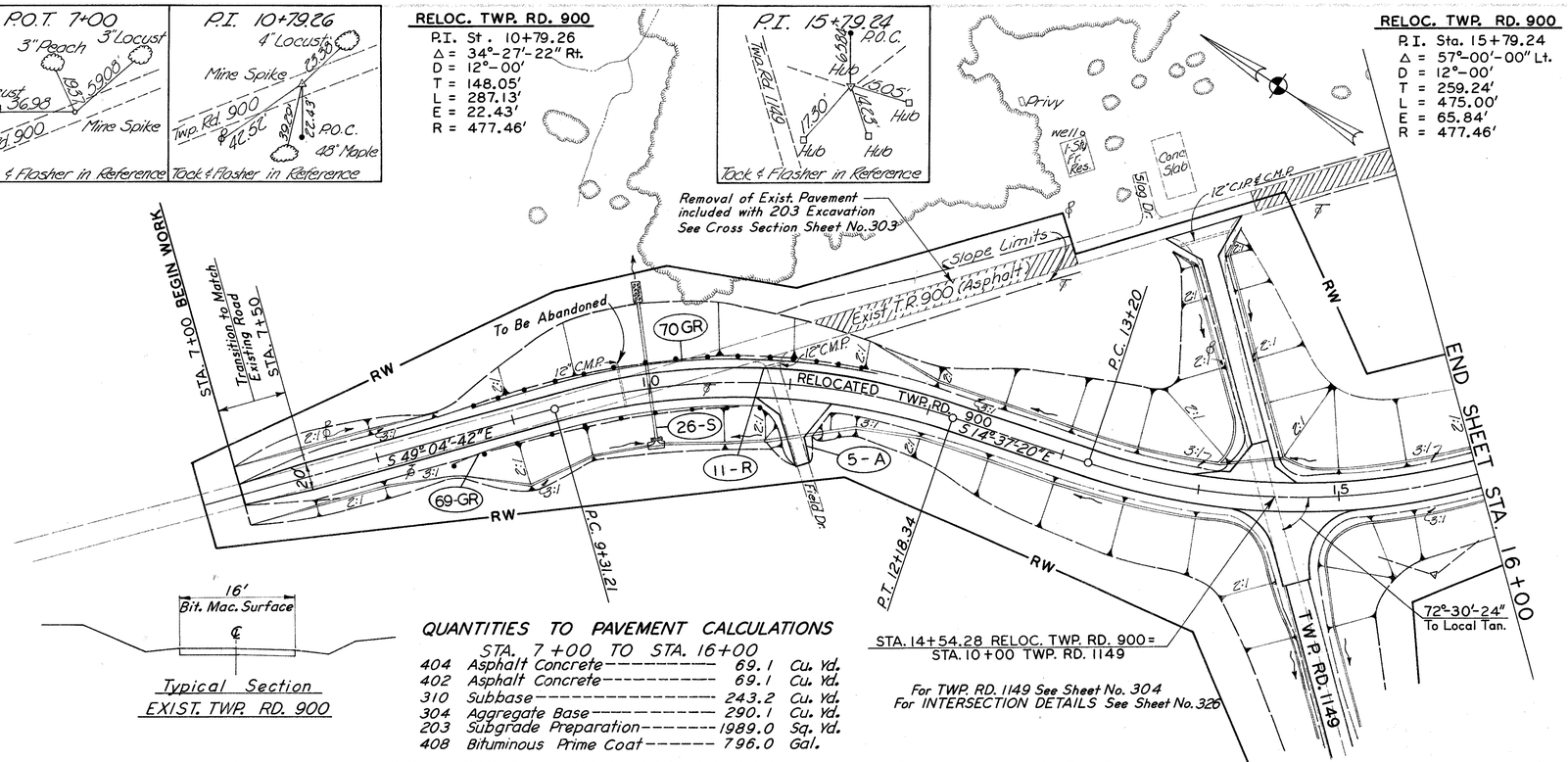
RELOCATED TWP RD 794 STA 0+13 TO STA 4+99.5

COL-11-10.22 COL-154-1.71



RELOC. TWP. RD. 900
P.I. St. 10+79.26
Δ = 34°-27'-22" Rt.
D = 12°-00'
T = 148.05'
L = 287.13'
E = 22.43'
R = 477.46'

RELOC. TWP. RD. 900
P.I. Sta. 15+79.24
Δ = 57°-00'-00" Lt.
D = 12°-00'
T = 259.24'
L = 475.00'
E = 65.84'
R = 477.46'



Typical Section
EXIST. TWP. RD. 900

STA. 14+54.28 RELOC. TWP. RD. 900 = STA. 10+00 TWP. RD. 1149

For TWP. RD. 1149 See Sheet No. 304
For INTERSECTION DETAILS See Sheet No. 326

QUANTITIES TO PAVEMENT CALCULATIONS
STA. 7+00 TO STA. 16+00

404	Asphalt Concrete	69.1	Cu. Yd.
402	Asphalt Concrete	69.1	Cu. Yd.
310	Subbase	243.2	Cu. Yd.
304	Aggregate Base	290.1	Cu. Yd.
203	Subgrade Preparation	1989.0	Sq. Yd.
408	Bituminous Prime Coat	796.0	Gal.

1154.22 1153.62 1153.02 1152.43 1151.83 1151.23 1150.63 1150.03 1149.48 1149.01 1148.62 1148.31 1148.09 1147.97 1147.91 1147.95 1148.06 1148.27 1148.55 1148.92 1149.38 1149.92 1150.54 1151.25 1152.00 1152.75 1153.50 1154.25 1155.00 1155.75 1156.50 1157.25 1158.00 1158.75 1159.50 1160.25 1161.00

Match Exist. Pav't.

Pavement Area
Sta.7+00 to 7+50
50(16+20) 1/2 ÷ 9 = 100.0 Sq.Yds.
Sta.7+50 to 16+00
850 x 20 ÷ 9 = 1888.9 Sq.Yds.
Total Pavement Area = 1988.9 Sq.Yds.

404 – Asphalt Concrete
1988.9 x 1 1/4 ÷ 36 = 69.1 Cu.Yds.

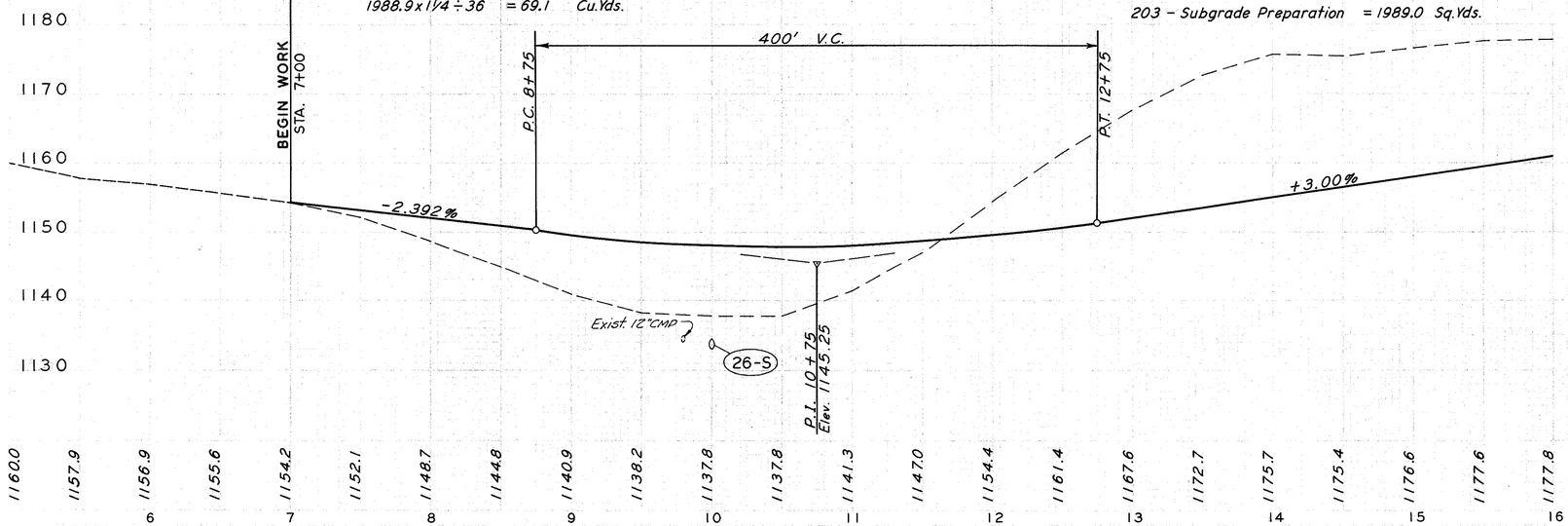
402 – Asphalt Concrete
1988.9 x 1 1/4 ÷ 36 = 69.1 Cu.Yds.

310 – Subbase
1988.9 x 4 ÷ 36 = 221.0 Cu.Yds.
Edges
(900 x 2 x 1 ÷ 9) 4 ÷ 36 = 22.2 Cu.Yds.
Total 310 = 243.2 Cu.Yds.

304 – Aggregate Base
1988.9 x 5 ÷ 36 = 276.2 Cu.Yds.
Edges
(900 x 2 x .5 ÷ 9) 5 ÷ 36 = 13.9 Cu.Yds.
Total 304 = 290.1 Cu.Yds.

408 – Bituminous Prime Coat
1988.9 x 0.4 = 796.0 Gal.

203 – Subgrade Preparation = 1989.0 Sq.Yds.



1160.0 1157.9 1156.9 1155.6 1154.2 1152.1 1148.7 1144.8 1140.9 1138.2 1137.8 1137.8 1141.3 1147.0 1154.4 1161.4 1167.6 1172.7 1175.7 1175.4 1176.6 1177.6 1177.8

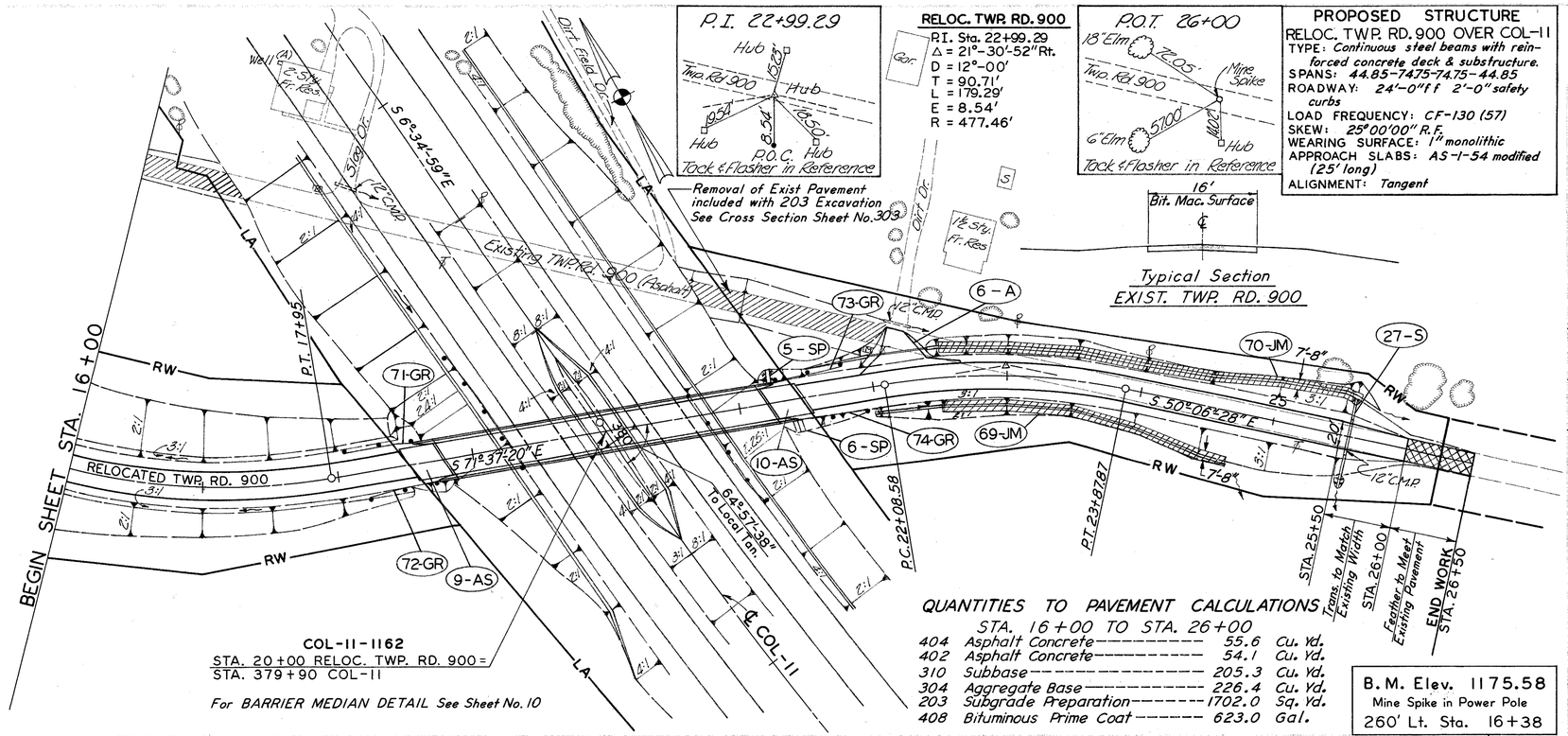
6 7 8 9 10 11 12 13 14 15 16

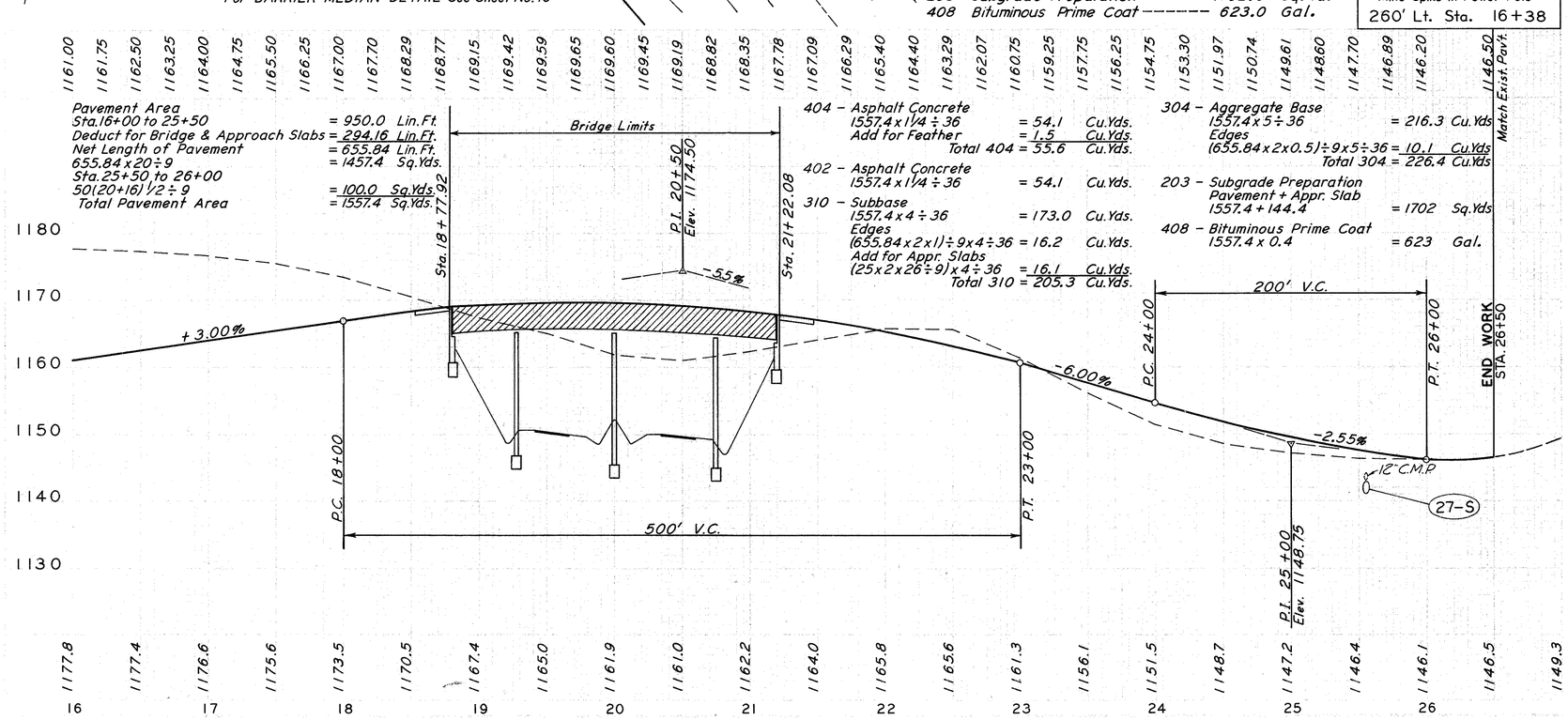
	203	304	601	601	602	602	202	
	Excav.	6" Aggre. Base	Dumped Rock Channel Prot.	Riprap & Reinf. Conc. Slab	Conc. Masonry		Pipe Removed 24" & Under	
	C.Y.	C.Y.	C.Y.	S.Y.	C.Y.		L.F.	
	1		9	11	1.73			
26-S 10+00 Lt.&Rt.	1		9	11	1.73			
69GR 8+50 to 10+79.98 Rt.							16	
70GR 8+75 to 11+06.62 Lt.								
5-A 10+91 Rt.		20						
11-R 10+90 Rt.								
	1	20	9	11	1.73		16	

RELOCATED TWP. RD. 900 STA. 7+00 TO STA. 16+00

606	Guard Rail Type 4	L.F.		225				
603	Conduit 12" Type D	L.F.		237.5	42			462.5 42
	• Class B Bedding							
	• 18" Type A 706.02 Class III	L.F.	102					102
			351		318			

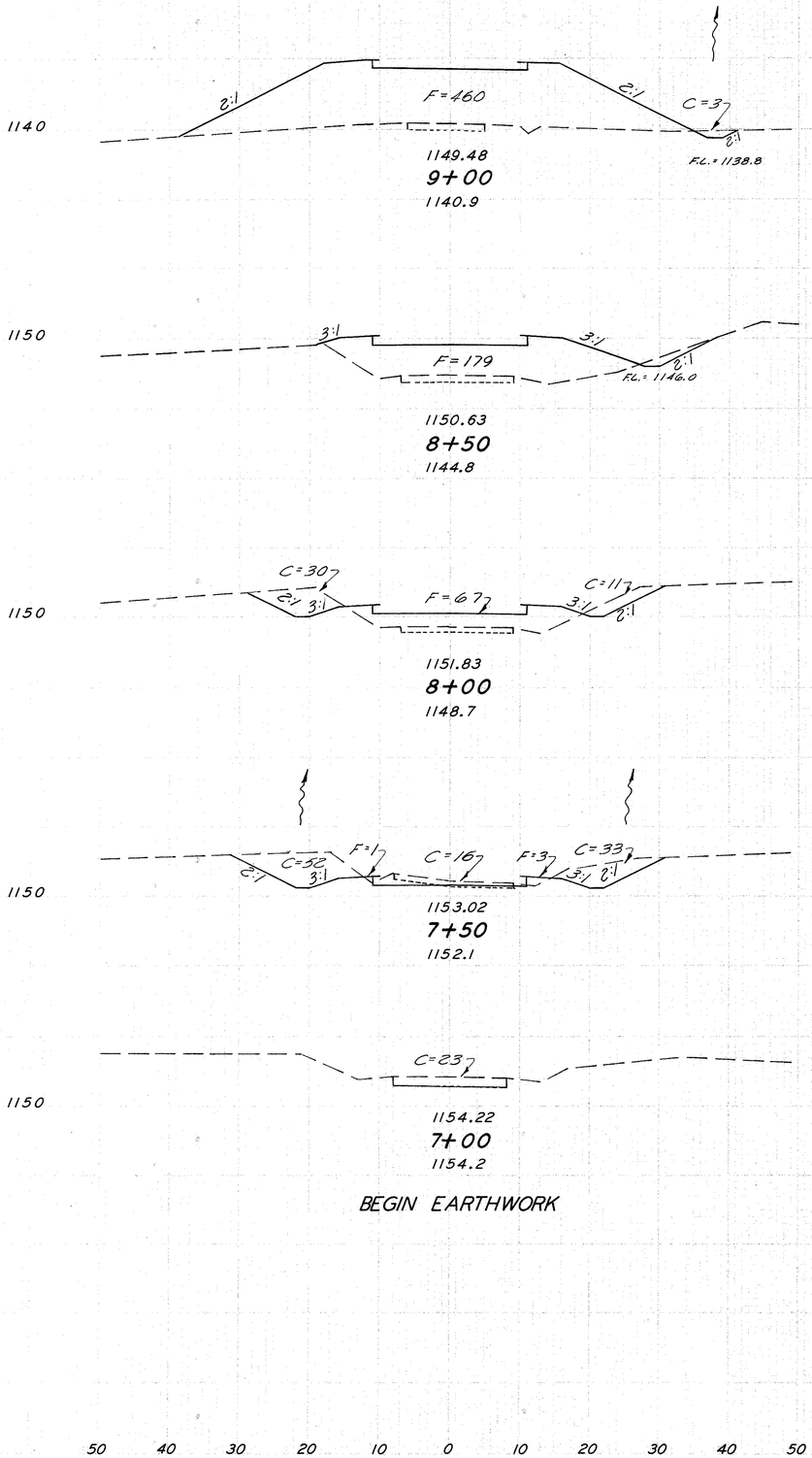
COL-11-10.22 COL-154-1.71



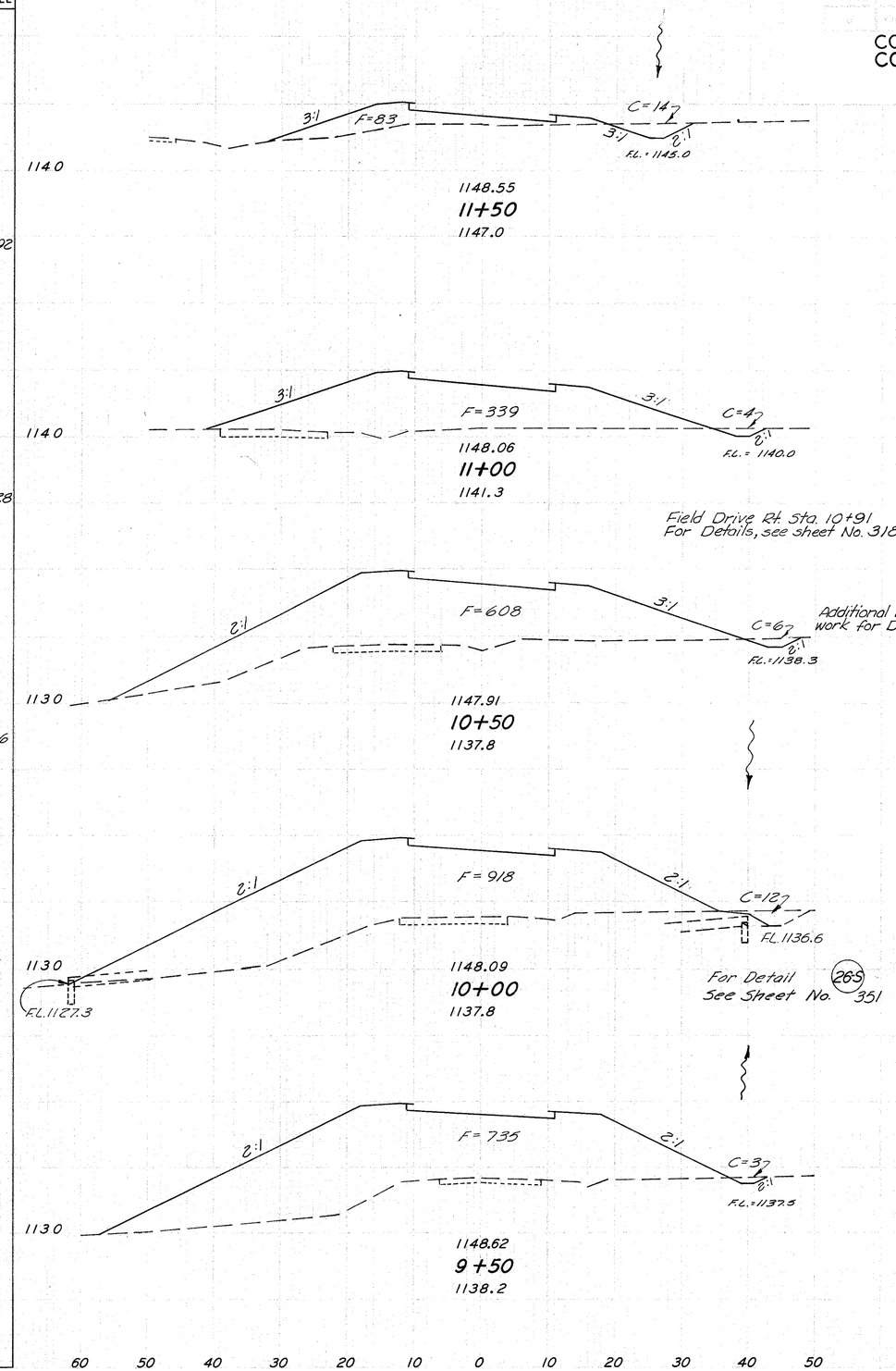


| | | |

COL-11-10.22
COL-154-1.71



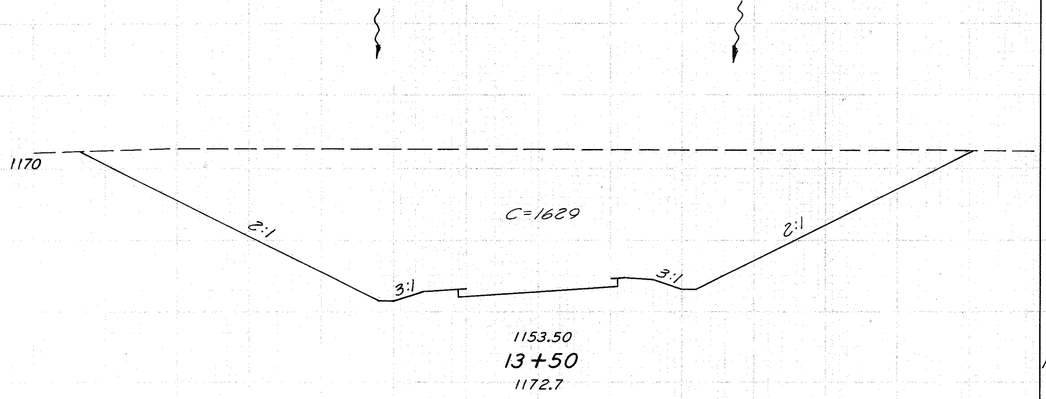
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
64		3	460		
	253			3	592
27		0	179		
	189			38	228
41		41	67		
	233			131	66
43		101	4		
	119			115	4
0		23	0		



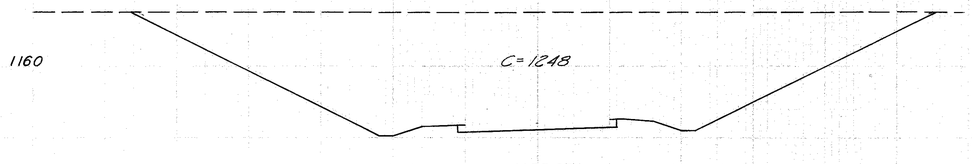
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
45		14	83		
	308			17	450
66		4	339		
	431			9	927
Additional Earthwork for Drive →				10	79
89		6	608		
	514			17	1413
96		12	918		
	508			14	1531
87		3	735		
	419			6	1106

RELOCATED TWP. RD. 900 STA. 7+00 TO STA. 11+50

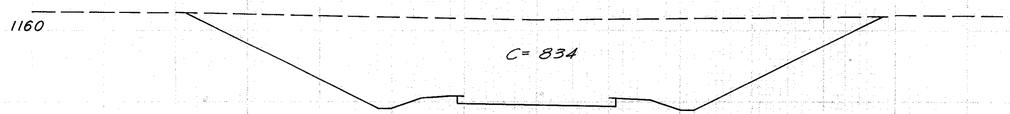
COL-11-10.22
COL-154-1.71



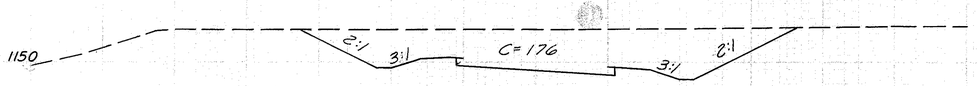
1153.50
13+50
1172.7



1152.00
13+00
1167.6



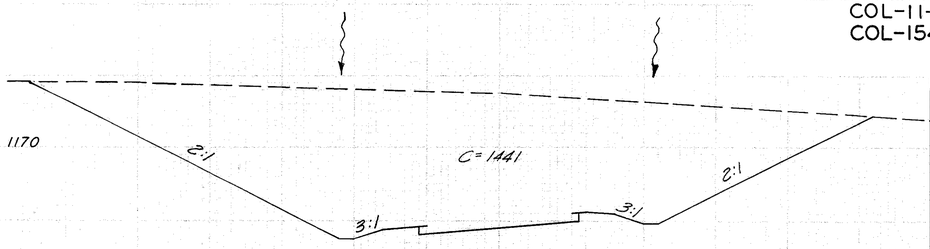
1150.54
12+50
1161.4



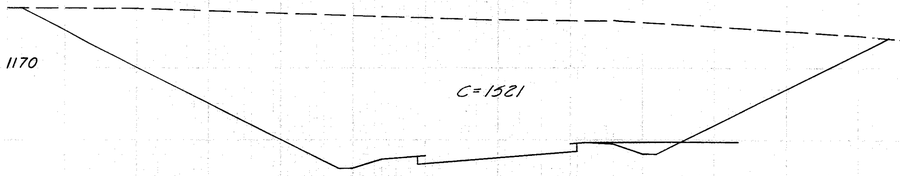
1149.38
12+00
1154.3

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

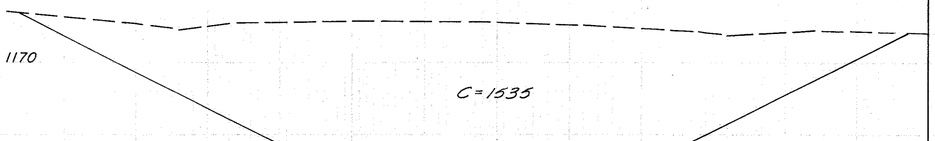
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
113		1629	0		
	589			2664	0
99		1248	0		
	500			1928	0
81		834	0		
	364			935	0
50		176	0		
	264			176	77



1159.50
15+50
1177.6



1158.00
15+00
1176.6

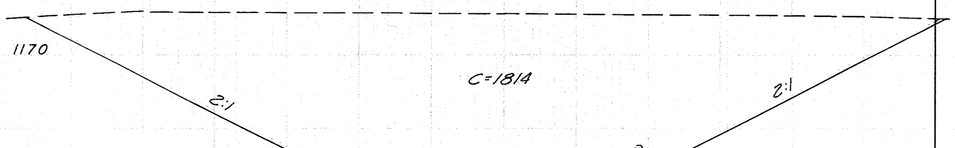


START SEEDING - STA. 14+55

For TWP. RD. Cross Sections
See Sheet No. 305

1156.50
14+50
1175.4

STOP SEEDING - STA. 14+41



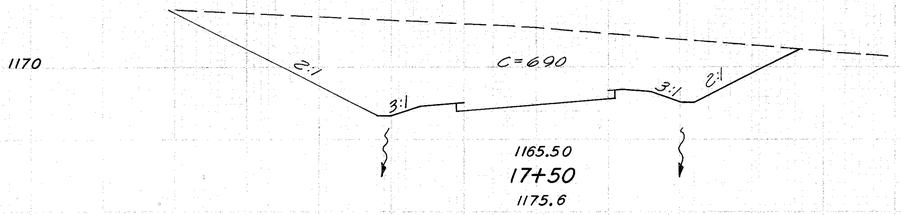
1155.00
14+00
1175.7

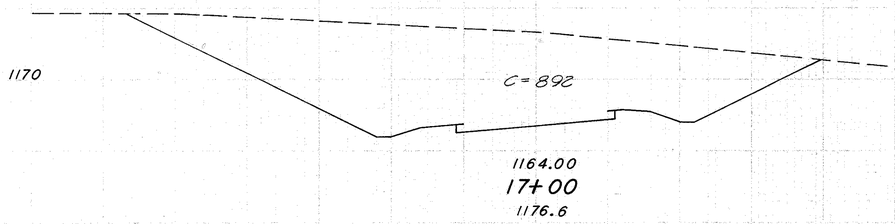
70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

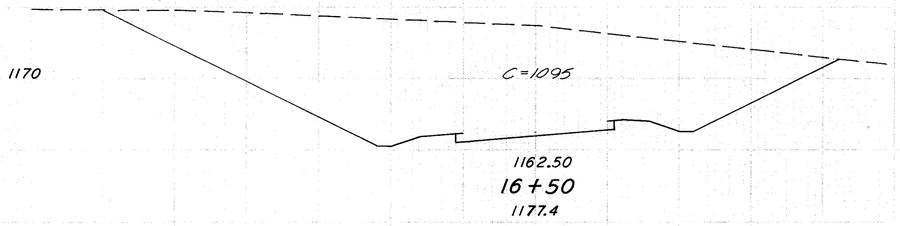
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
104		1441	0		
	589			2742	0
108		1521	0		
	587			2830	0
117					
				1535	0
117					
	531			3101	0
116		1814	0		
	636			3188	0

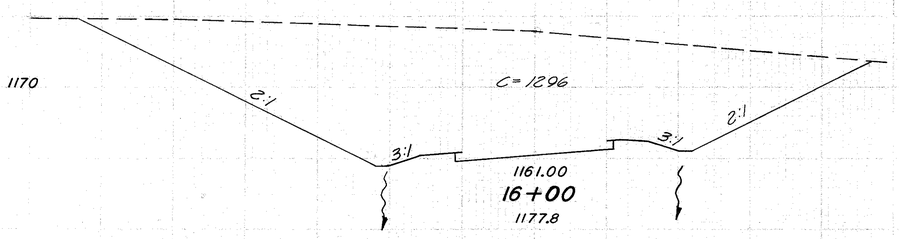
RELOCATED TWP. RD. 900 STA. 12+00 TO STA. 15+50

COL-11-10.22
COL-154-1.71



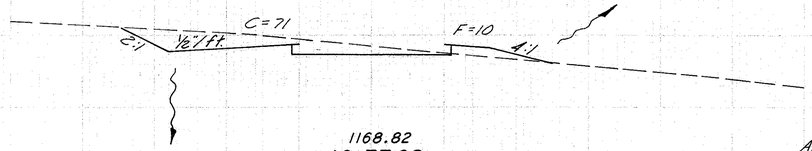


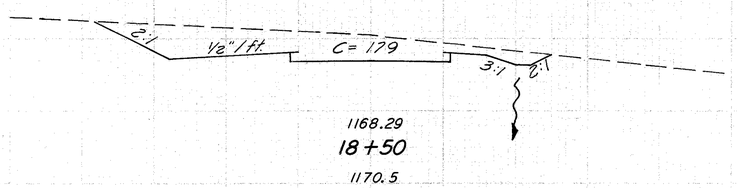


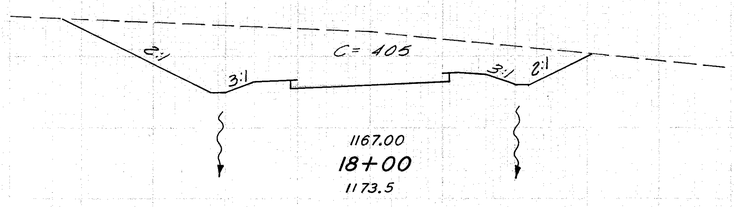


SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
71		690	0		
	422			1464	0
81		892	0		
	469			1839	0
88		1095	0		
	514			2213	0
97		1296	0		
	558			2534	0

BRIDGE



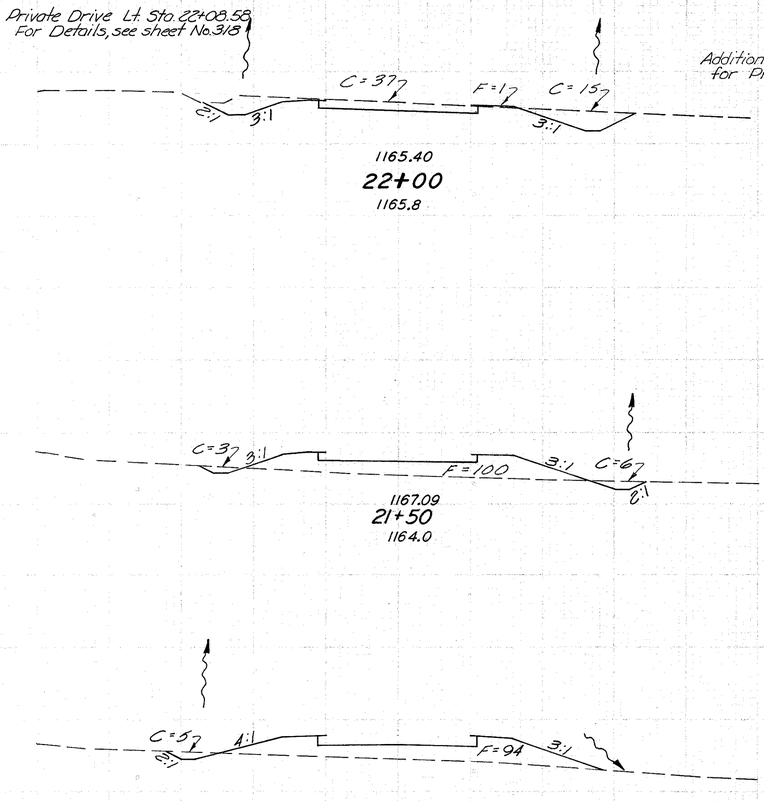




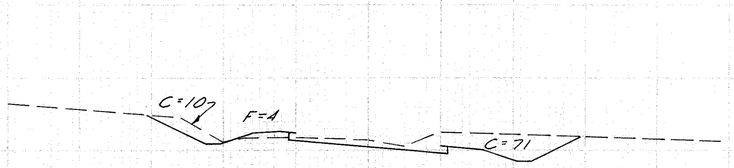
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
AHEAD		0	0		
BACK	40	71	10		
	132			129	5
45		179	0		
	278			531	0
55		405	0		
	350			1014	0

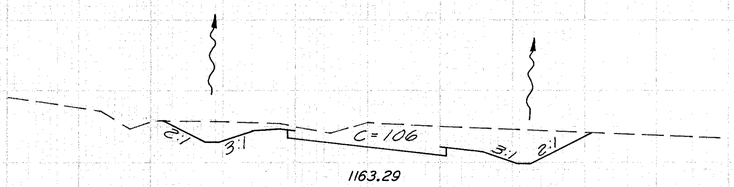
RELOCATED TWP. RD. 900 STA. 16+00 TO STA. 19+50

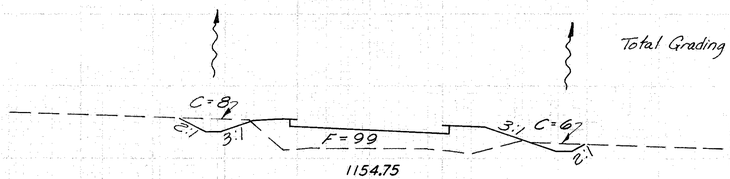
COL-11-10.22
COL-154-1.71

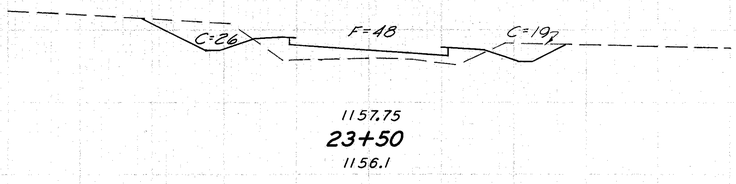


BRIDGE









SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
				12	25
41		52	1		
	236			56	94
44		9	100		
	132			7	100
AHEAD 41		5	94		
BACK		0	0		

Additional Earthwork for Private Drive

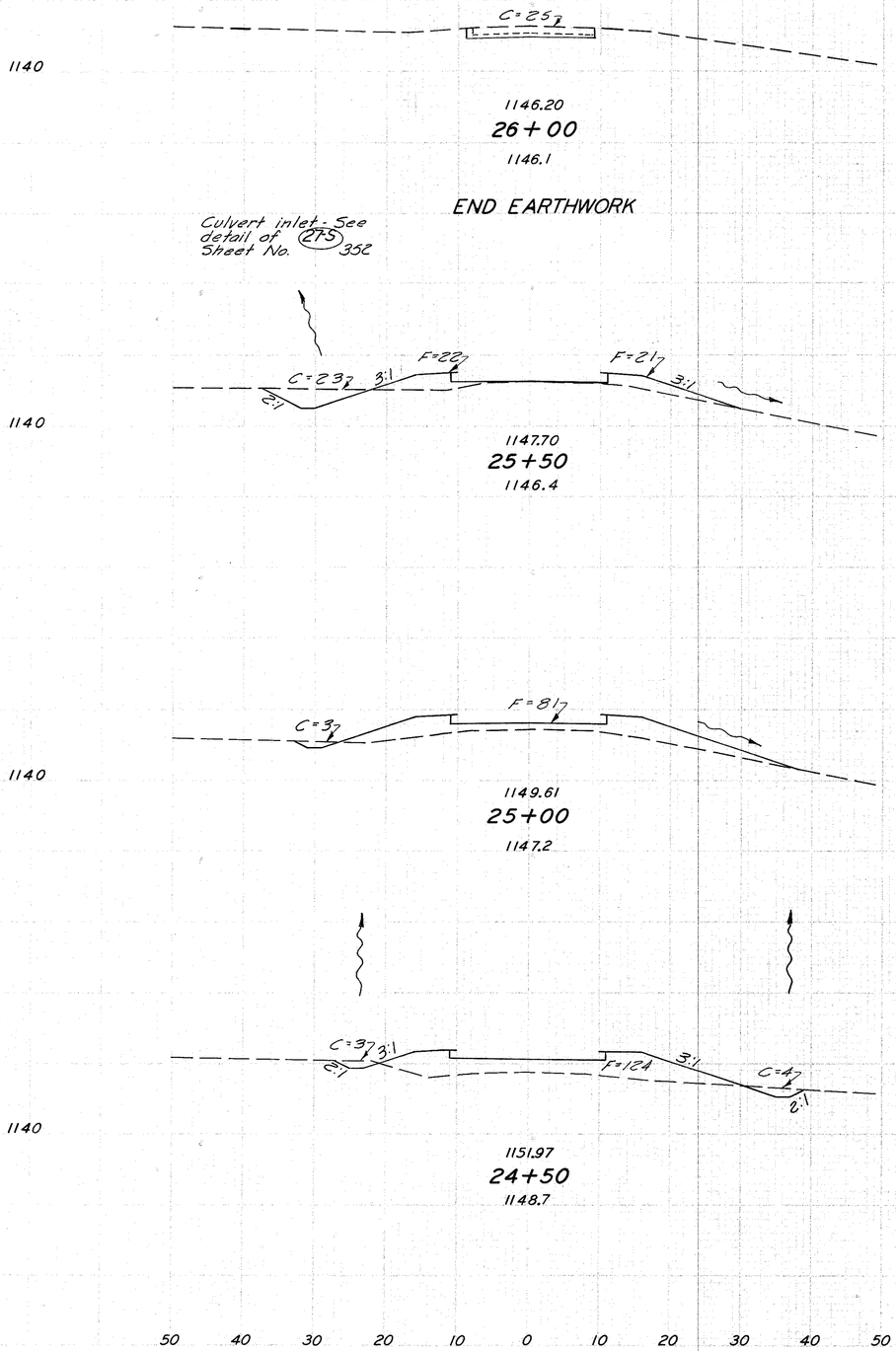
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
				387	0
37		14	99		
	217			55	136
41		45	48		
	233			117	48
43		81	4		
	233			173	4
41		106	0		
	228			146	1

Total Grading from Sh. 303

50 40 30 20 10 0 10 20 30 40 50

RELOCATED TWP. RD. 900 STA. 20+00 TO STA. 24+00

COL-11-10.22
COL-154-1.71

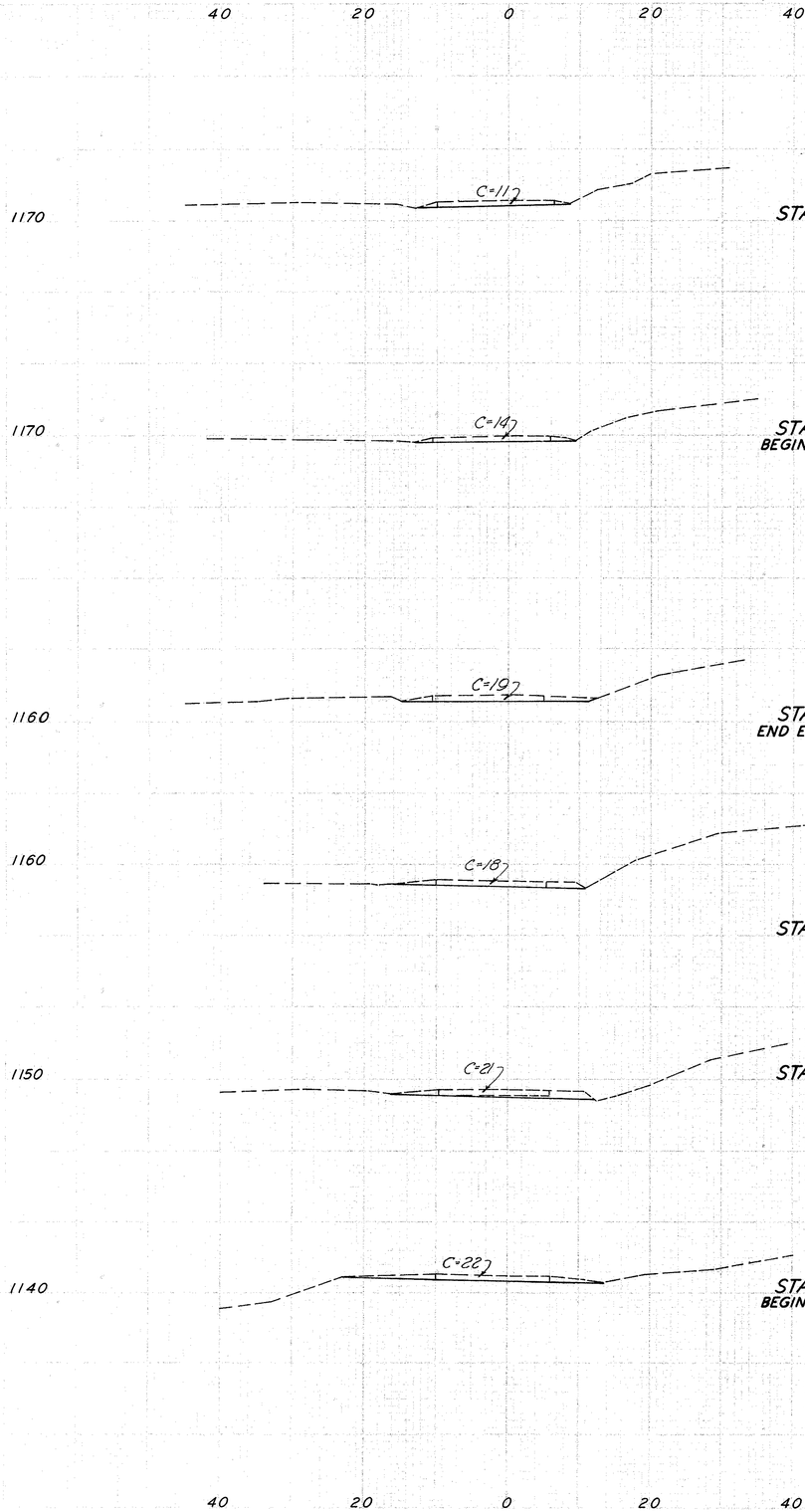


SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
0		25	0		
	139			44	40
50		23	43		
	289			24	115
54		3	81		
	283			9	189
48		7	124		
	236			19	206

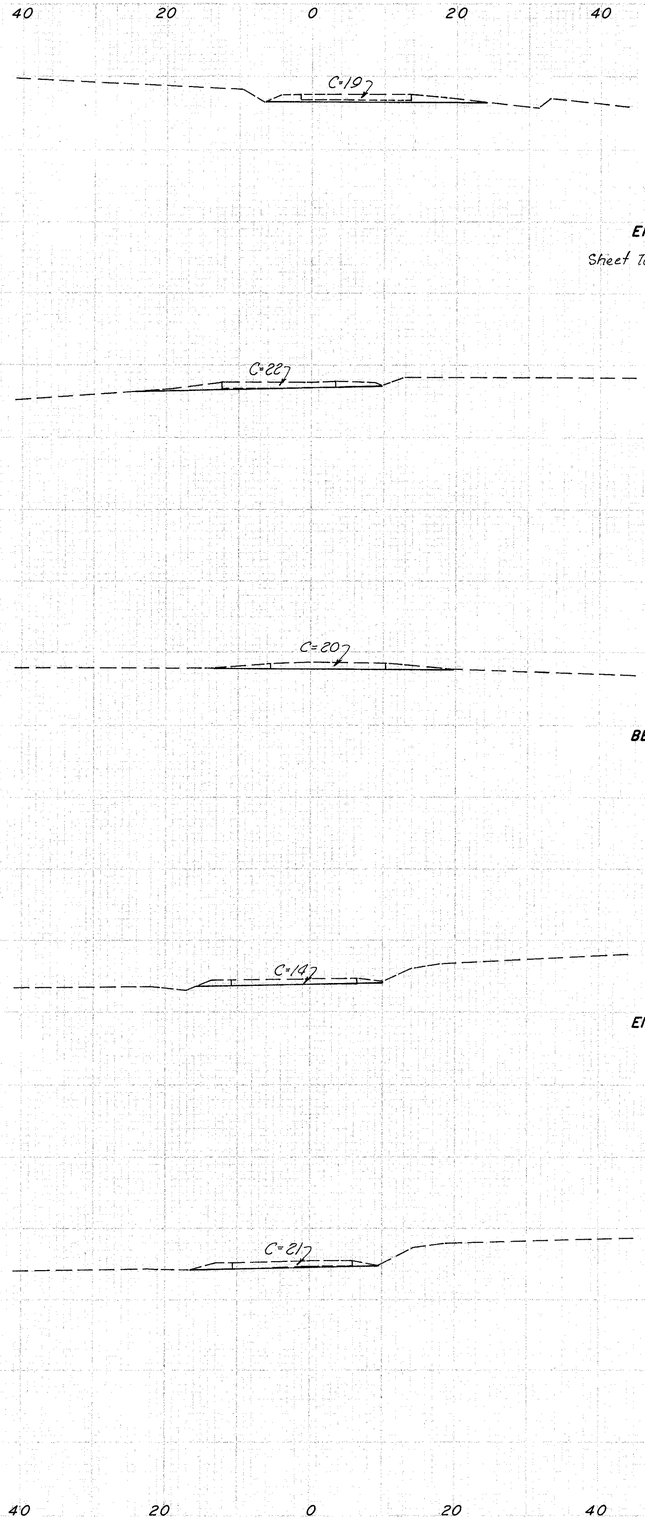
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL

RELOCATED TWP. RD. 900 STA. 24+50 TO STA. 26+00

COL-11-10.22
COL-154-1.71



	SEEDING		END AREA		VOLUME	
	WIDTH	S.Y.	CUT	FILL	EXC.	EMB.
STA. 18+00	21		11			
		122			23	
STA. 17+50 BEGIN EARTHWORK	23		14			
STA. 16+15 END EARTHWORK	27		19			
		46			10	
STA. 16+00	28		18			
		311			78	
STA. 15+00	28		21			
		285			63	
STA. 14+21 BEGIN EARTHWORK	37		22			

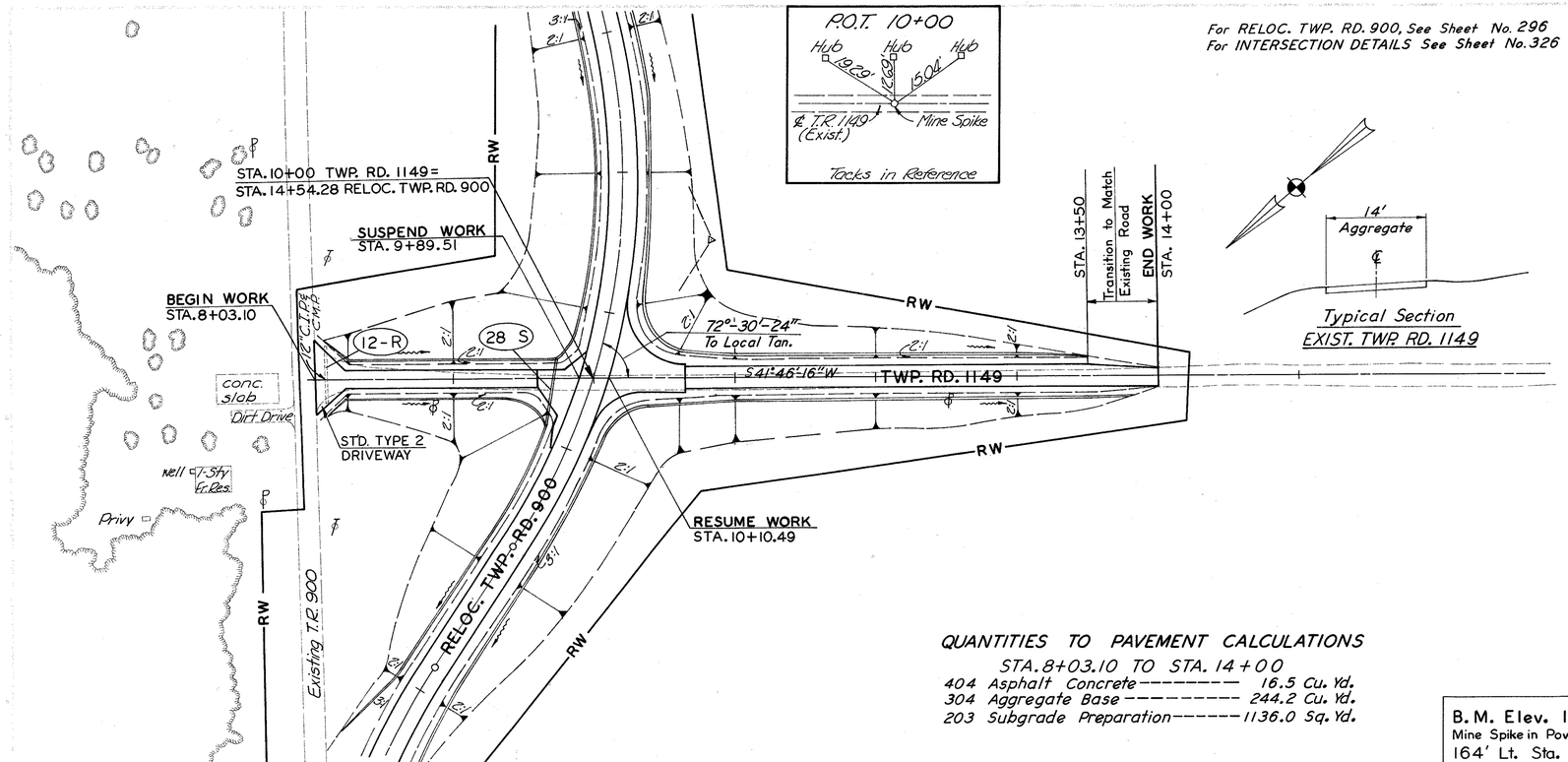


	SEEDING		END AREA		VOLUME	
	WIDTH	S.Y.	CUT	FILL	EXC.	EMB.
STA.24+08 END EARTHWORK	30		19			
Sheet Total (Grading) To Sh. 301					387	0
		384			82	
STA.23+00	34		22			
		249			55	
STA.22+65 BEGIN EARTHWORK	33		20			
STA.19+35 END EARTHWORK	26		14			
		101			23	
STA.19+00	26		21			
		261			59	

GRADING EXISTING TWP RD. 900 CROSS SECTION

COL-11-10.22 COL-154-1.71

For RELOC. TWP. RD. 900, See Sheet No. 296
For INTERSECTION DETAILS See Sheet No. 326



QUANTITIES TO PAVEMENT CALCULATIONS

STA. 8+03.10 TO STA. 14+00

404 Asphalt Concrete ——— 16.5 Cu. Yd.
304 Aggregate Base ——— 244.2 Cu. Yd.
203 Subgrade Preparation ——— 1136.0 Sq. Yd.

B.M. Elev. 1175.58
Mine Spike in Power Pole
164' Lt. Sta. 7+58

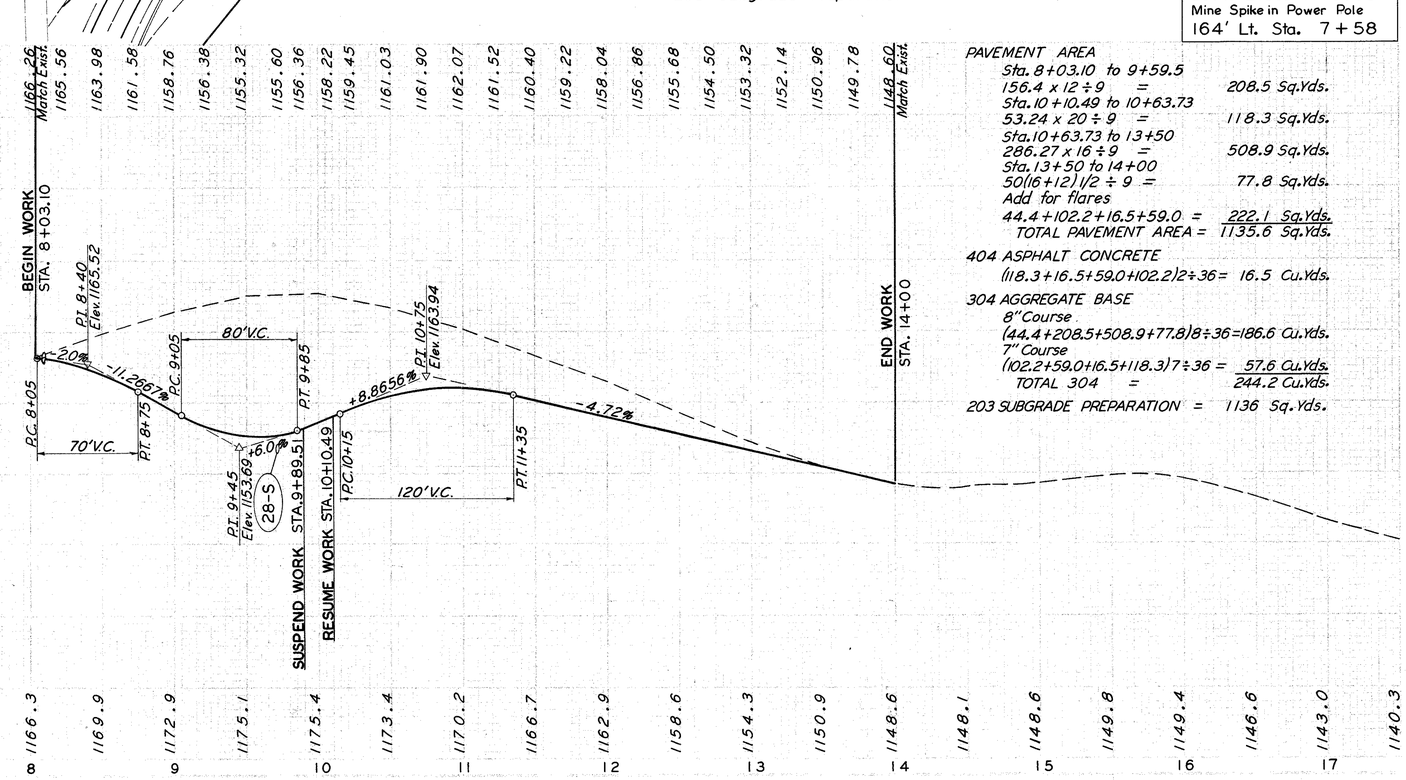
PAVEMENT AREA

Sta. 8+03.10 to 9+59.5
156.4 x 12 ÷ 9 = 208.5 Sq.Yds.
Sta. 10+10.49 to 10+63.73
53.24 x 20 ÷ 9 = 118.3 Sq.Yds.
Sta. 10+63.73 to 13+50
286.27 x 16 ÷ 9 = 508.9 Sq.Yds.
Sta. 13+50 to 14+00
50(16+12) 1/2 ÷ 9 = 77.8 Sq.Yds.
Add for flares
44.4+102.2+16.5+59.0 = 222.1 Sq.Yds.
TOTAL PAVEMENT AREA = 1135.6 Sq.Yds.

404 ASPHALT CONCRETE
(118.3+16.5+59.0+102.2)2÷36 = 16.5 Cu.Yds.

304 AGGREGATE BASE
8" Course
(44.4+208.5+508.9+77.8)8÷36 = 186.6 Cu.Yds.
7" Course
(102.2+59.0+16.5+118.3)7÷36 = 57.6 Cu.Yds.
TOTAL 304 = 244.2 Cu.Yds.

203 SUBGRADE PREPARATION = 1136 Sq.Yds.

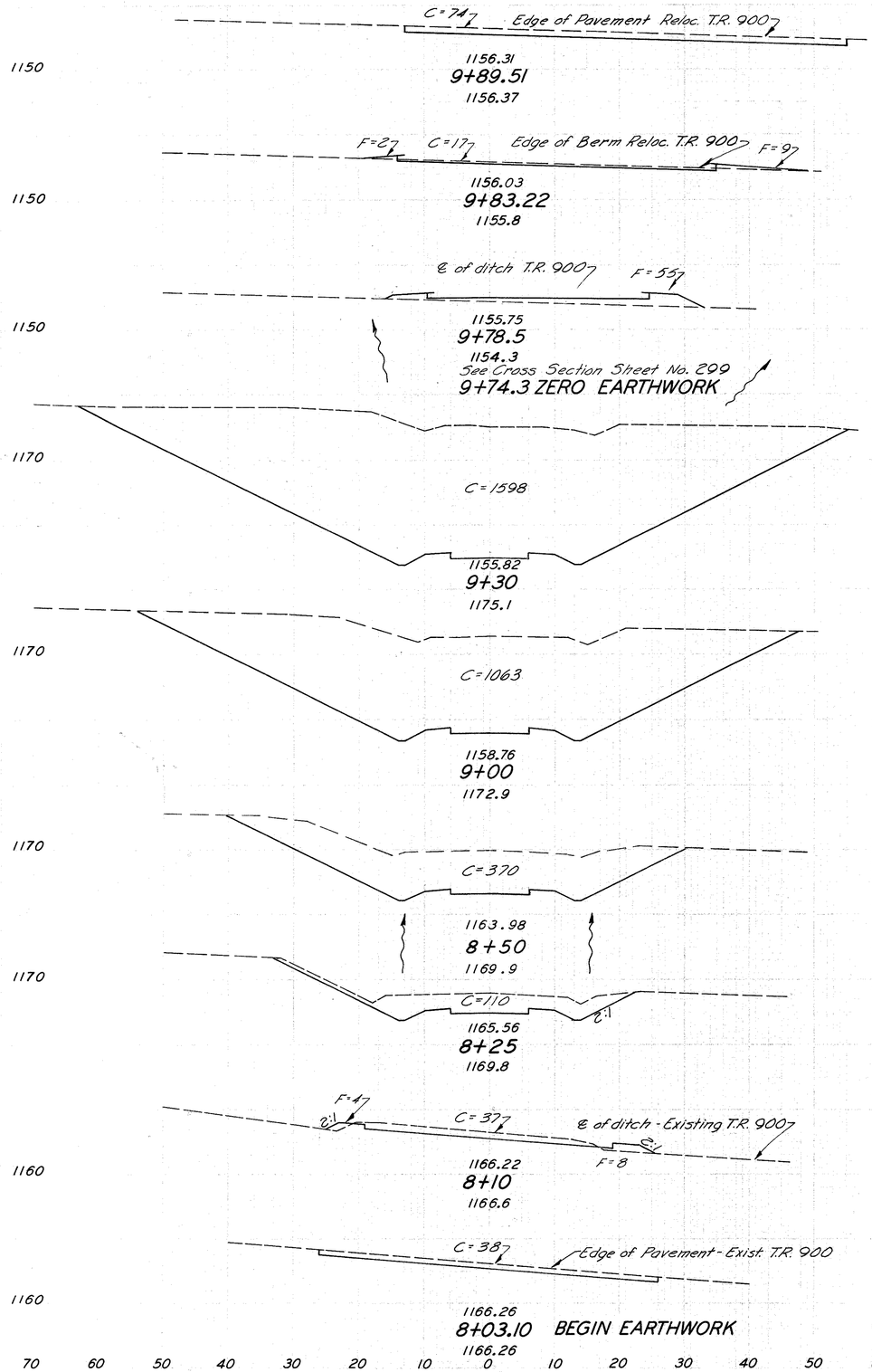


ESTIMATED QUANTITIES

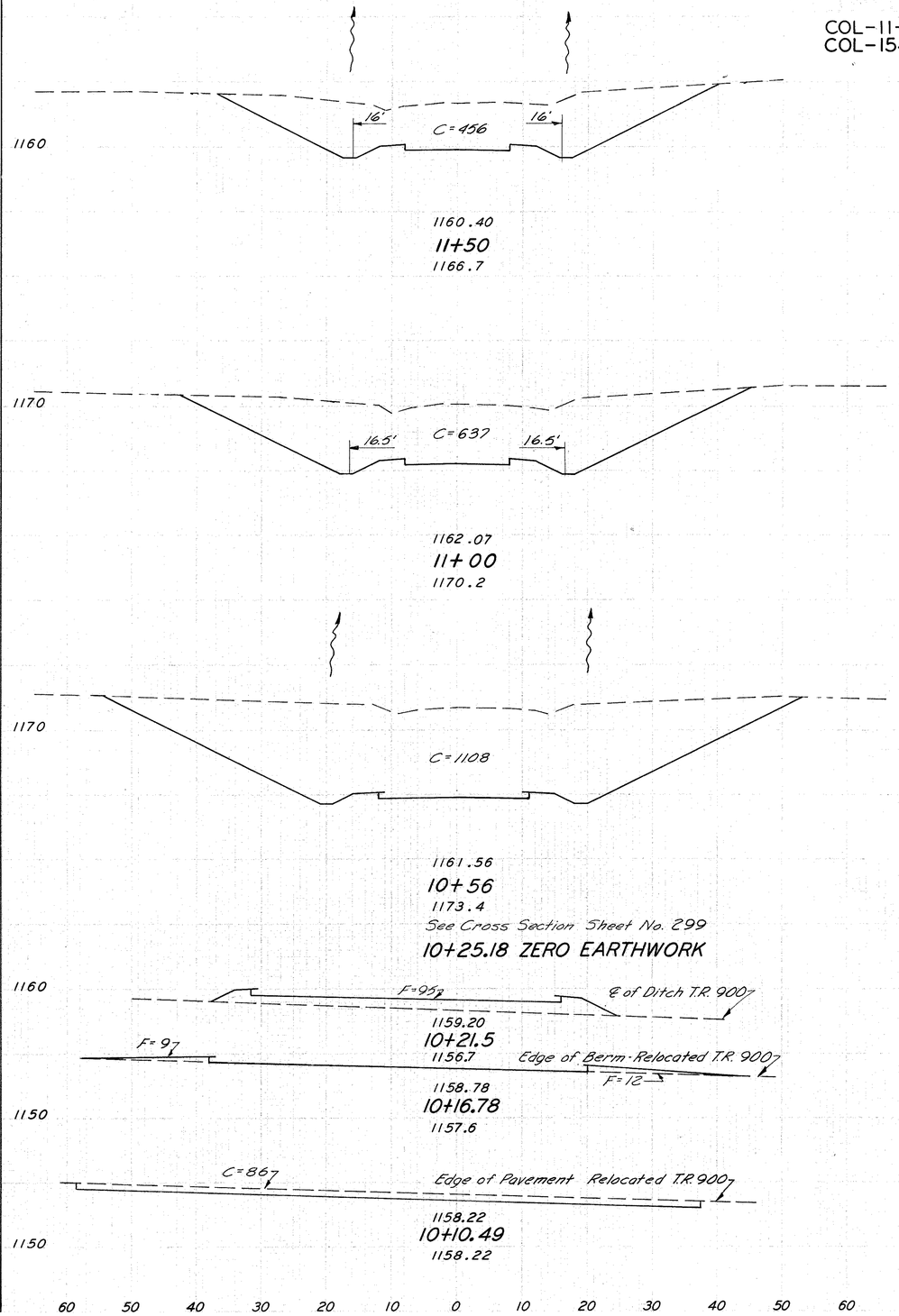
603	Conduit	• Class B Bedding			353
		• 15" Type A 706.02 706.08			46
602	Concrete Masonry	C.Y.			0.52
202	Pipe Removed 24" & Under	L.F.	40		40
			12-R	8+10	L&R.
			28-S	9+71.5	L&R.

TWP. RD. 1149 STA. 8+03.10 TO STA. 14+00

COL-11-10.22
COL-154-1.71



SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
		74	0		
				11	0
		17	11		
				3	10
		0	55		
				0	6
		0	0		
				1311	0
119		1598	0		
	365			1478	0
100		1063	0		
	461			1327	0
66		370	0		
	161			222	0
50		110	0		
	54			41	3
15		37	12		
	6			9	2
0		38	0		

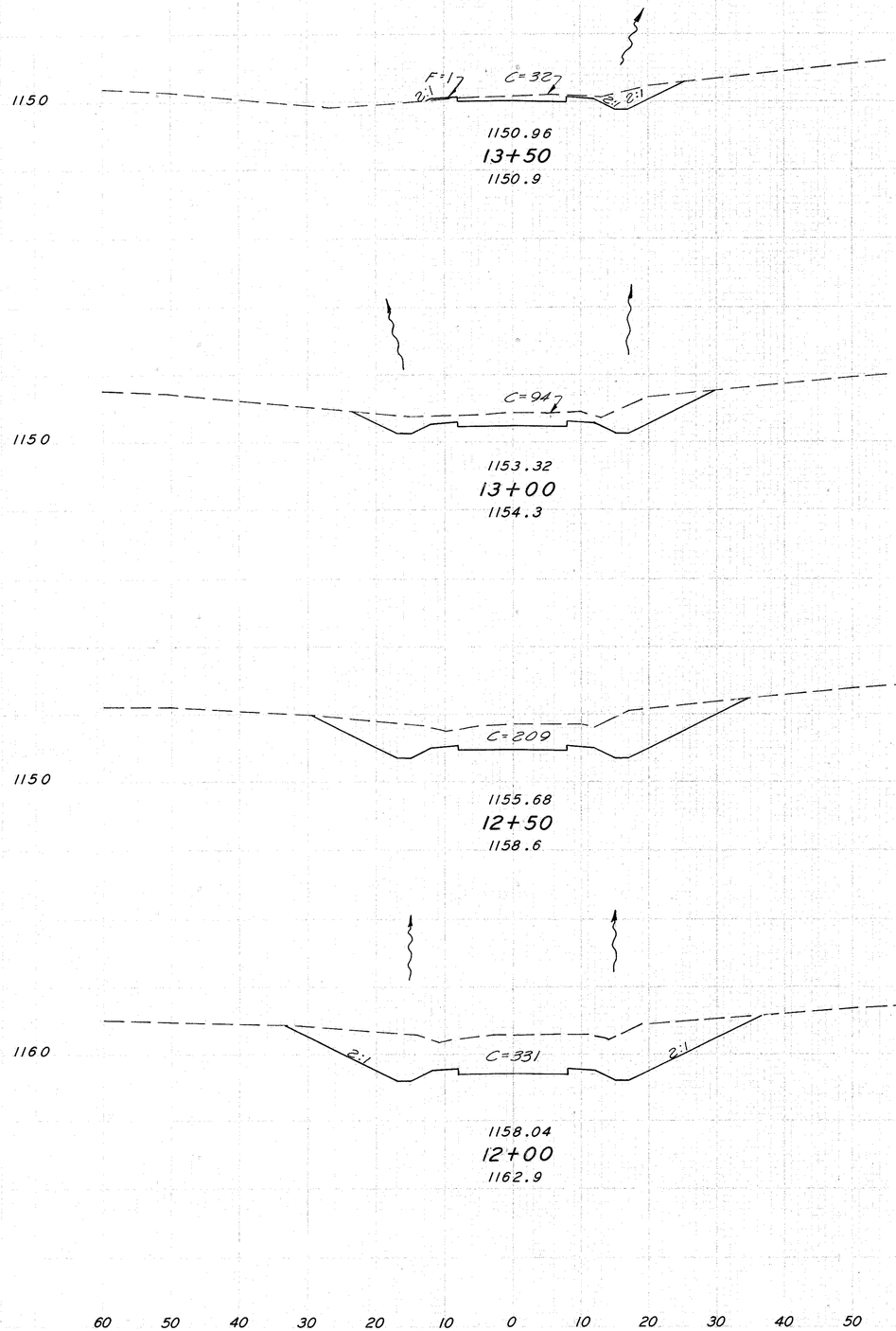


SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
69		456	0		
	419			1012	0
82		637	0		
	433			1422	0
95		1108	0		
				632	0
		0	0		
				0	6
		0	95		
				0	10
		0	21		
				10	2
		86	0		

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

TWP. RD. 1149 STA. 8+03.10 TO STA. 11+50

COL-11-10.22
COL-154-1.71



SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
25		32	1		
	186			117	1
42		94	0		
	269			281	0
55		209	0		
	322			500	0
61		331	0		
	361			729	0

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL

QUANTITIES TO PAVEMENT CALCULATIONS

STA. 297+23.55 TO STA. 307+00

404	Asphalt Concrete	57.3	Cu. Yd.
402	Asphalt Concrete	57.3	Cu. Yd.
310	Subbase	216.5	Cu. Yd.
304	Aggregate Base	240.3	Cu. Yd.
203	Subgrade Preparation	1795.0	Sq. Yd.
408	Bituminous Prime Coat	660.0	Gal.

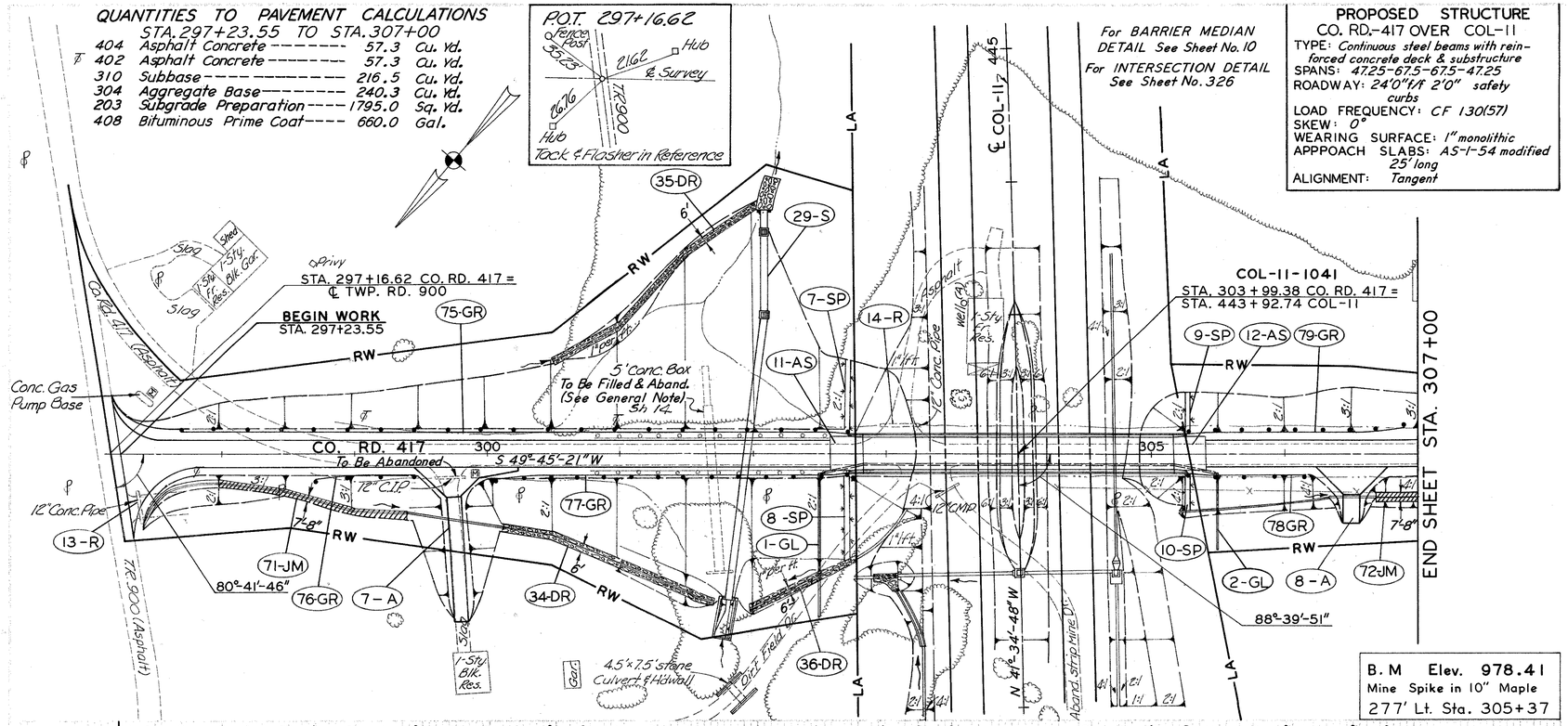
P.O.T. 297+16.62
Fence Post 35.23
2162 Hub & Survey
1476 7900
Hub
Tack & Flasher in Reference

For BARRIER MEDIAN DETAIL See Sheet No. 10

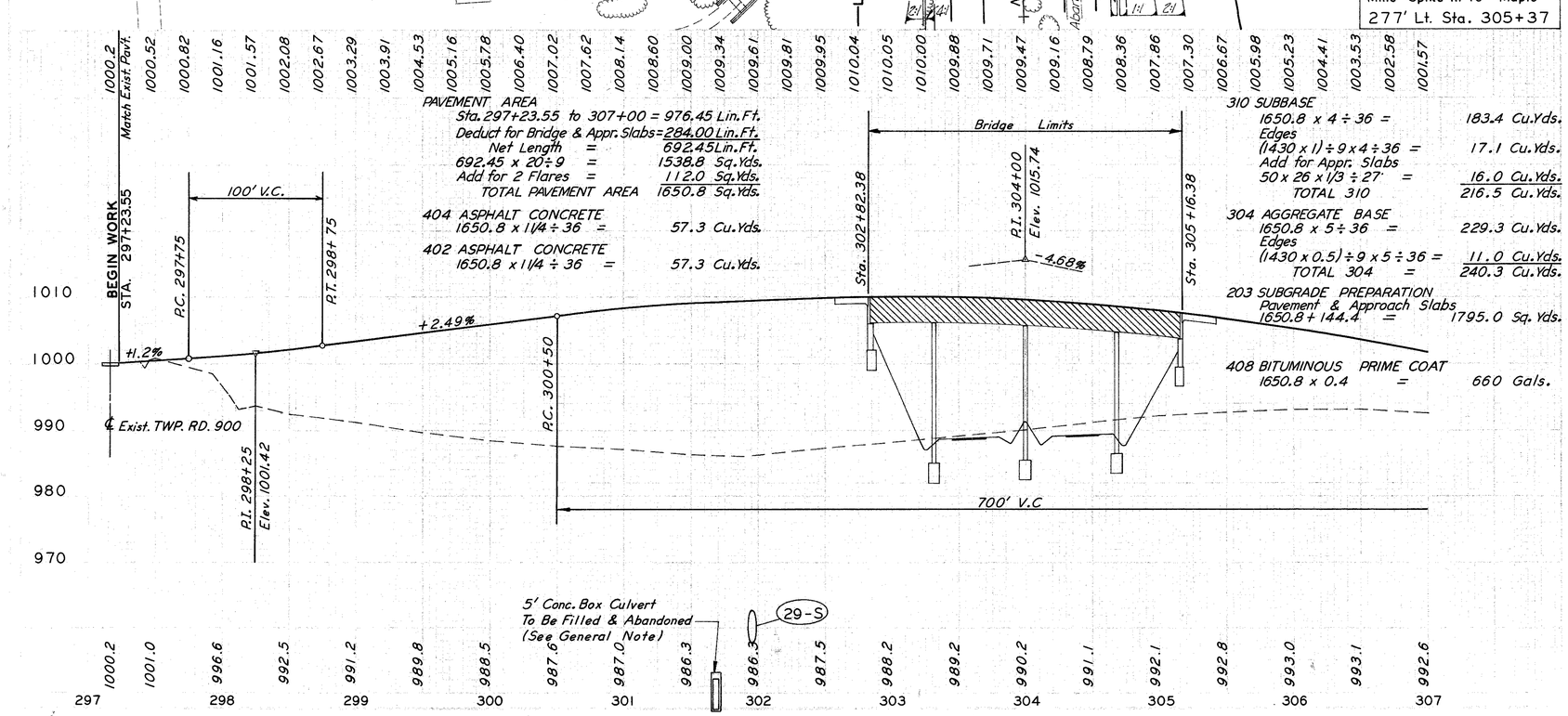
For INTERSECTION DETAIL See Sheet No. 326

PROPOSED STRUCTURE
CO. RD.-417 OVER COL-11

TYPE: Continuous steel beams with reinforced concrete deck & substructure
SPANS: 47.25-67.5-67.5-47.25
ROADWAY: 24'0" f/f 2'0" safety curbs
LOAD FREQUENCY: CF 130(57)
SKEW: 0°
WEARING SURFACE: 1" monolithic
APPROACH SLABS: AS-1-54 modified 25' long
ALIGNMENT: Tangent



B. M Elev. 978.41
Mine Spike in 10" Maple
277' Lt. Sta. 305+37



PAVEMENT AREA
Sta. 297+23.55 to 307+00 = 976.45 Lin. Ft.
Deduct for Bridge & Appr. Slabs = 284.00 Lin. Ft.
Net Length = 692.45 Lin. Ft.
692.45 x 20 ÷ 9 = 1538.8 Sq. Yds.
Add for 2 Flares = 112.0 Sq. Yds.
TOTAL PAVEMENT AREA 1650.8 Sq. Yds.

404 ASPHALT CONCRETE
1650.8 x 1 1/4 ÷ 36 = 57.3 Cu. Yds.

402 ASPHALT CONCRETE
1650.8 x 1 1/4 ÷ 36 = 57.3 Cu. Yds.

310 SUBBASE
1650.8 x 4 ÷ 36 = 183.4 Cu. Yds.
Edges
(1430 x 11) ÷ 9 x 4 ÷ 36 = 17.1 Cu. Yds.
Add for Appr. Slabs
50 x 26 x 1/3 ÷ 27 = 16.0 Cu. Yds.
TOTAL 310 216.5 Cu. Yds.

304 AGGREGATE BASE
1650.8 x 5 ÷ 36 = 229.3 Cu. Yds.
Edges
(1430 x 0.5) ÷ 9 x 5 ÷ 36 = 11.0 Cu. Yds.
TOTAL 304 = 240.3 Cu. Yds.

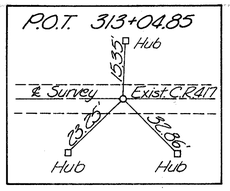
203 SUBGRADE PREPARATION
Pavement & Approach Slabs
1650.8 + 144.4 = 1795.0 Sq. Yds.

408 BITUMINOUS PRIME COAT
1650.8 x 0.4 = 660 Gals.

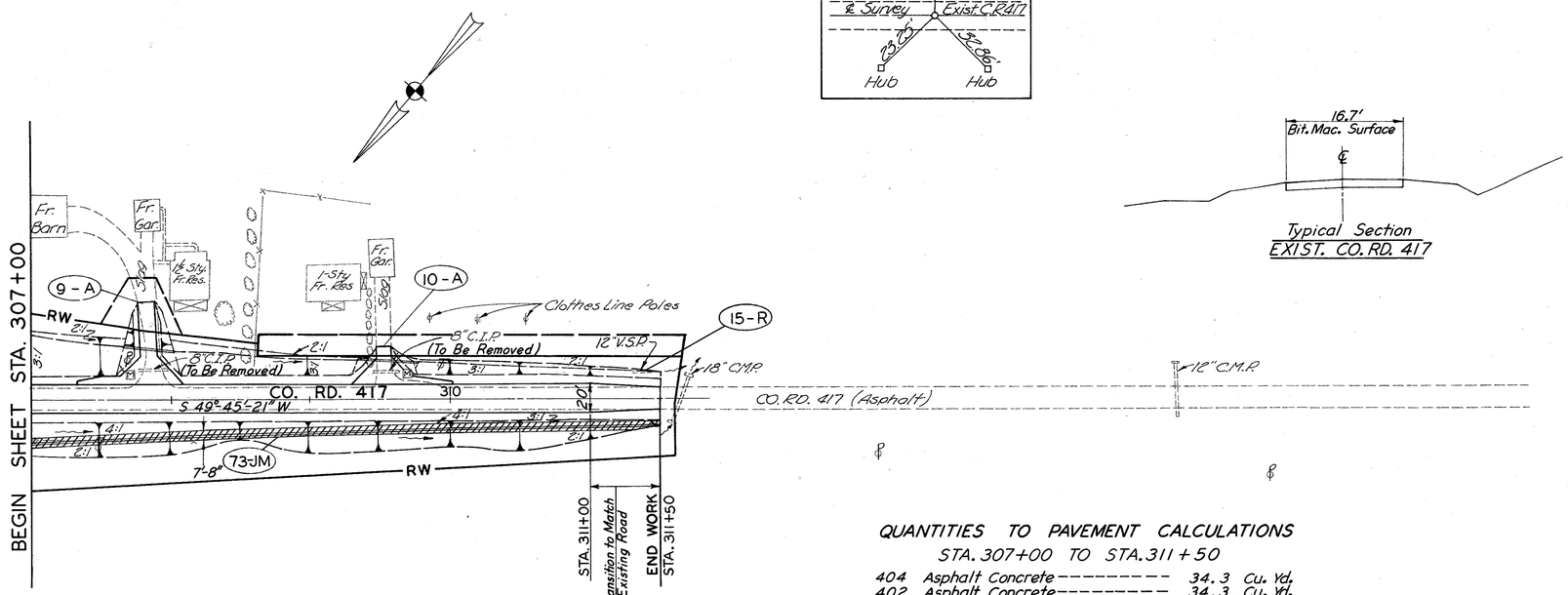
COL-11-10.22 COL-154-1.71

| | | |

COL-11-10.22 COL-154-1.71



Typical Section
EXIST. CO. RD. 417



QUANTITIES TO PAVEMENT CALCULATIONS

STA. 307+00 TO STA. 311+50

404	Asphalt Concrete	34.3	Cu. Yd.
402	Asphalt Concrete	34.3	Cu. Yd.
310	Subbase	121.0	Cu. Yd.
304	Aggregate Base	144.3	Cu. Yd.
203	Subgrade Preparation	989.0	Sq. Yd.
408	Bituminous Prime Coat	396.0	Gal.

B.M. Elev. 991.67
Mine Spike in Tele. Pole 22/5
179' Rt. Sta. 310+02

PAVEMENT AREA
Sta. 307+00 to 311+00
400 x 20 ÷ 9 = 888.9 Sq.Yds.
Sta. 311+00 to 311+50
50(20+16)1/2 ÷ 9 = 100.0 Sq.Yds.
TOTAL PAVEMENT AREA = 988.9 Sq.Yds.

404 ASPHALT CONCRETE
988.9 x 1 1/4 ÷ 36 = 34.3 Cu.Yds.

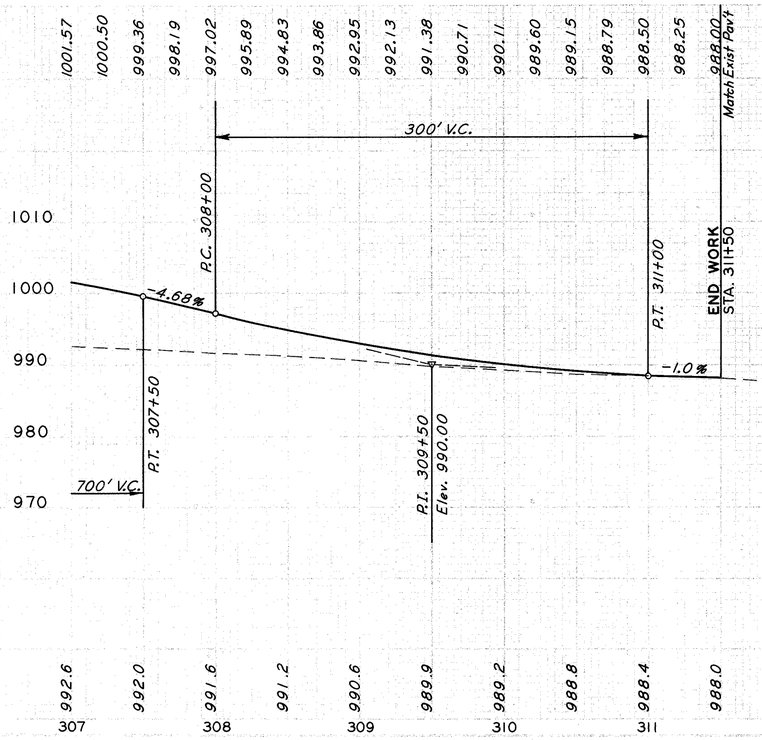
402 ASPHALT CONCRETE
988.9 x 1 1/4 ÷ 36 = 34.3 Cu.Yds.

310 SUBBASE
988.9 x 4 ÷ 36 = 109.9 Cu.Yds.
Edges
(450 x 2 x 1) ÷ 9 x 4 ÷ 36 = 11.1 Cu.Yds.
TOTAL 310 = 121.0 Cu.Yds.

304 AGGREGATE BASE
988.9 x 5 ÷ 36 = 137.4 Cu.Yds.
Edges
(450 x 2 x 0.5) ÷ 9 x 5 ÷ 36 = 6.9 Cu.Yds.
TOTAL 304 = 144.3 Cu.Yds.

203 SUBGRADE PREPARATION = 989 Sq.Yds.

408 BITUMINOUS PRIME COAT
988.9 x 0.4 = 396 Gals.

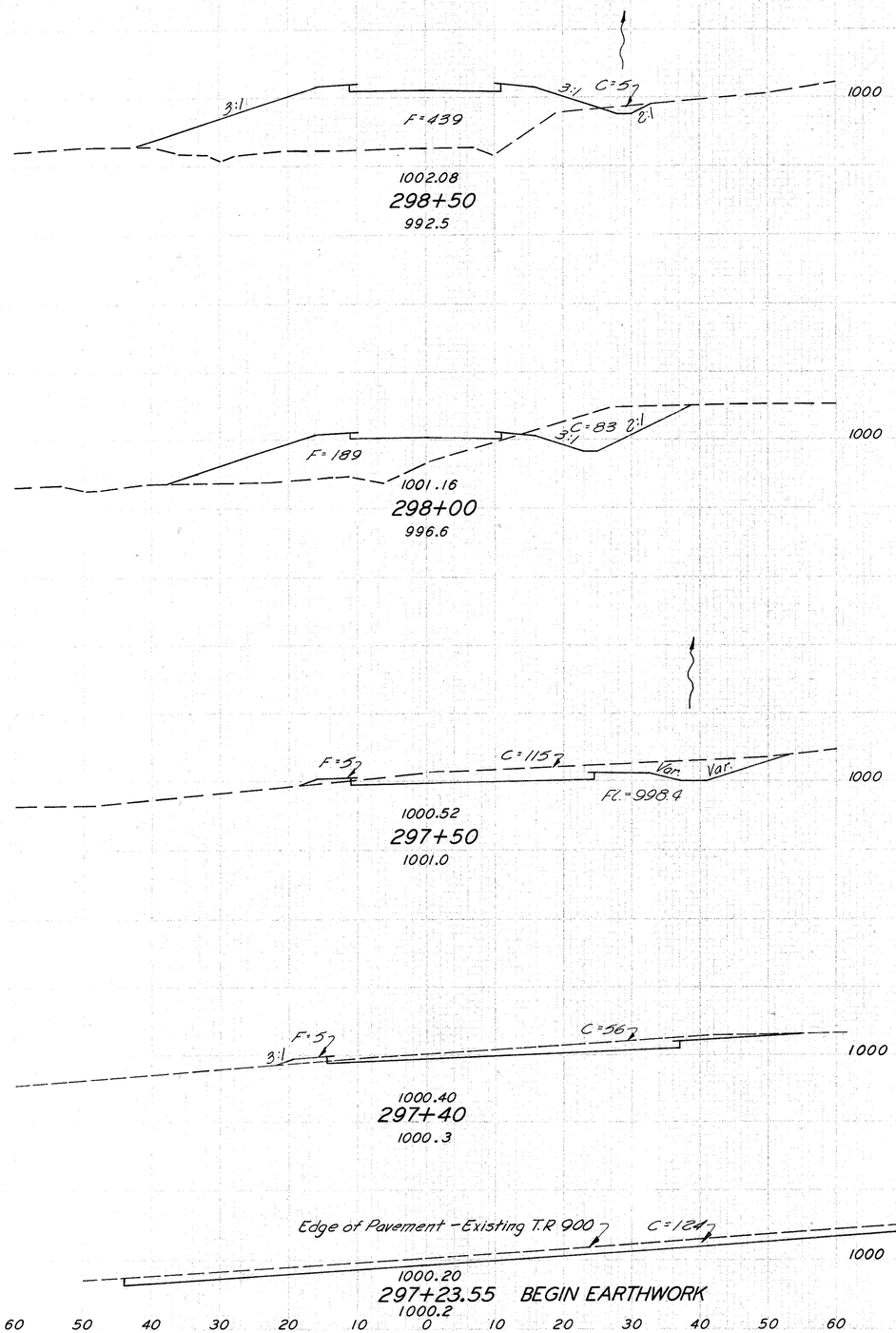


ESTIMATED QUANTITIES — STRUCTURE TO STRUCTURE

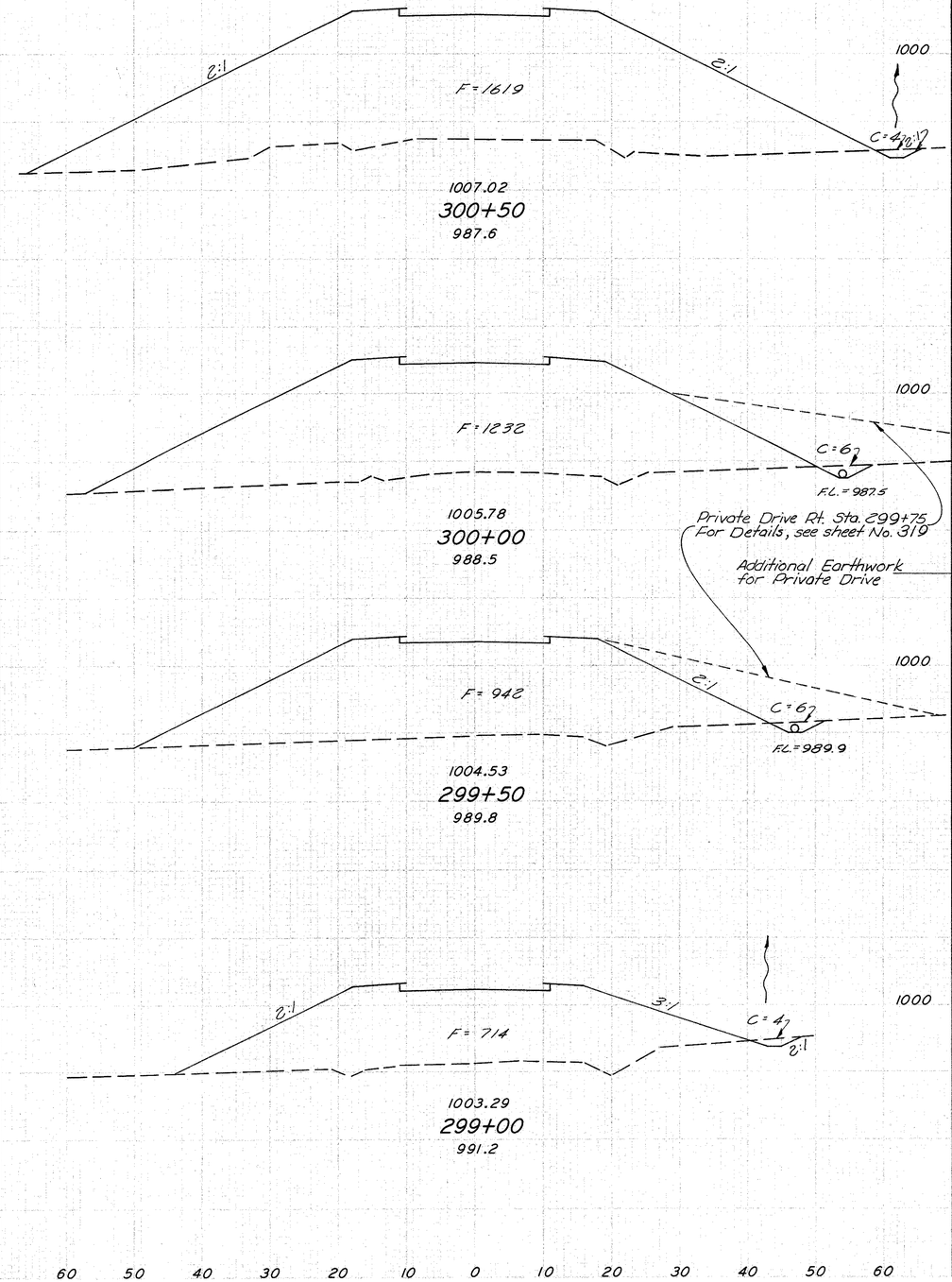
603 Conduit 12" Type D L.F.				36	44				80
								3/9	3/9
202 Pipe Removed	304 Aggre. Base C.Y.	404 2" Asphalt Concrete C.Y.	667 Jute Matting S.Y.						
24" & Under L.F.									
			367						
73-JM 307+00 to 311+50	Rt.								
9-A 307+86.4	Lt.	21	24	5					
10-A 309+54	Lt.	18	14	5					
15-R 311+32 to 311+45	Lt.	13							
								52	38	10	367

CO. RD. 417 STA. 307+00 TO STA. 311+50

COL-11-10.22
COL-154-1.71



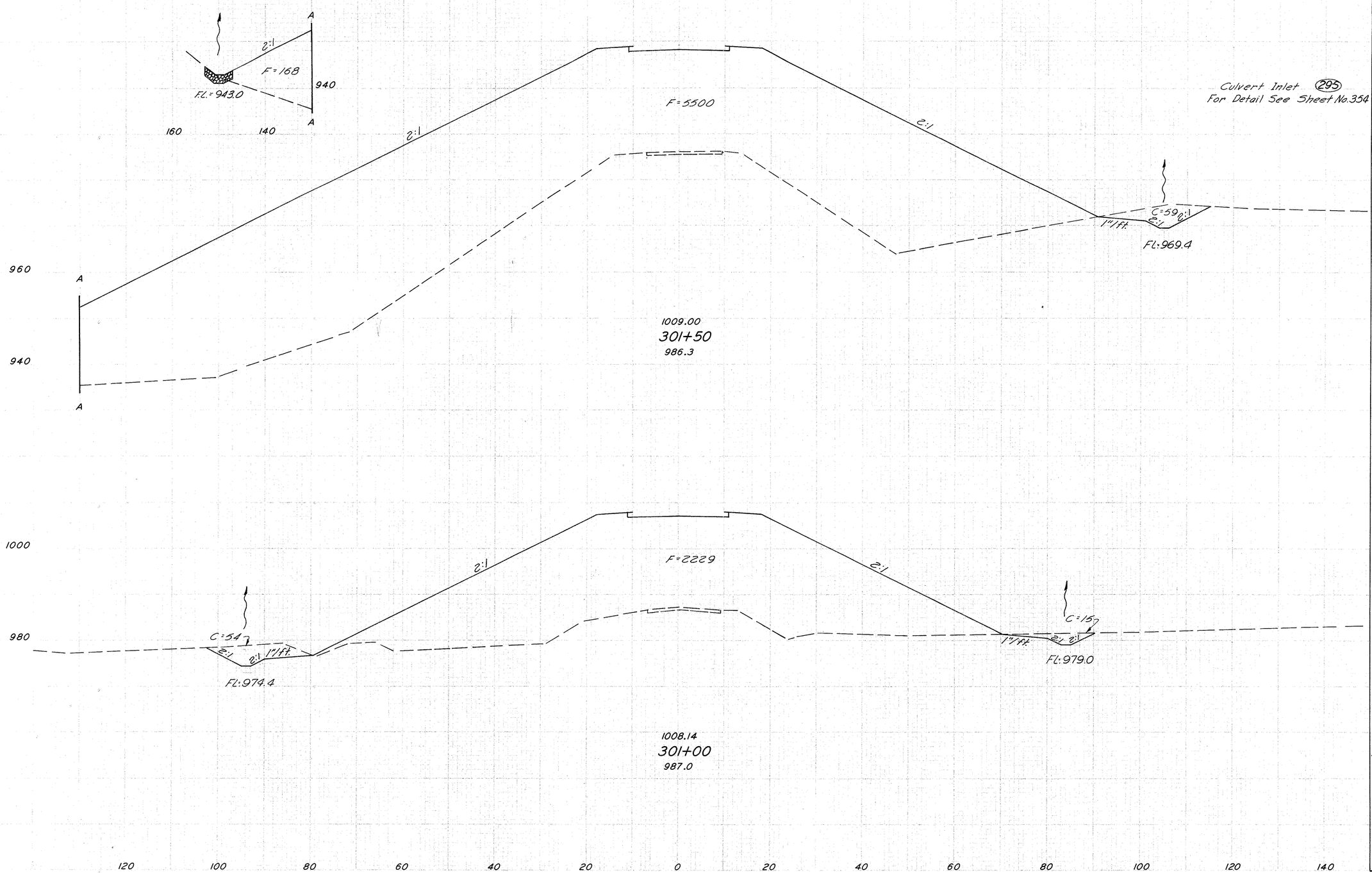
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
58		5	439		
	325			81	581
59		83	189		
	272			183	180
39		115	5		
	36			32	2
25		56	5		
	23			55	2
0		124	0		



SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
123		4	1619		
	631			11	2640
104		6	1232		
	536			11	2013
89		6	942		
	464			9	1533
78		4	714		
	378			8	1068

CO. RD. 417 STA. 297+23.55 TO STA. 300+50

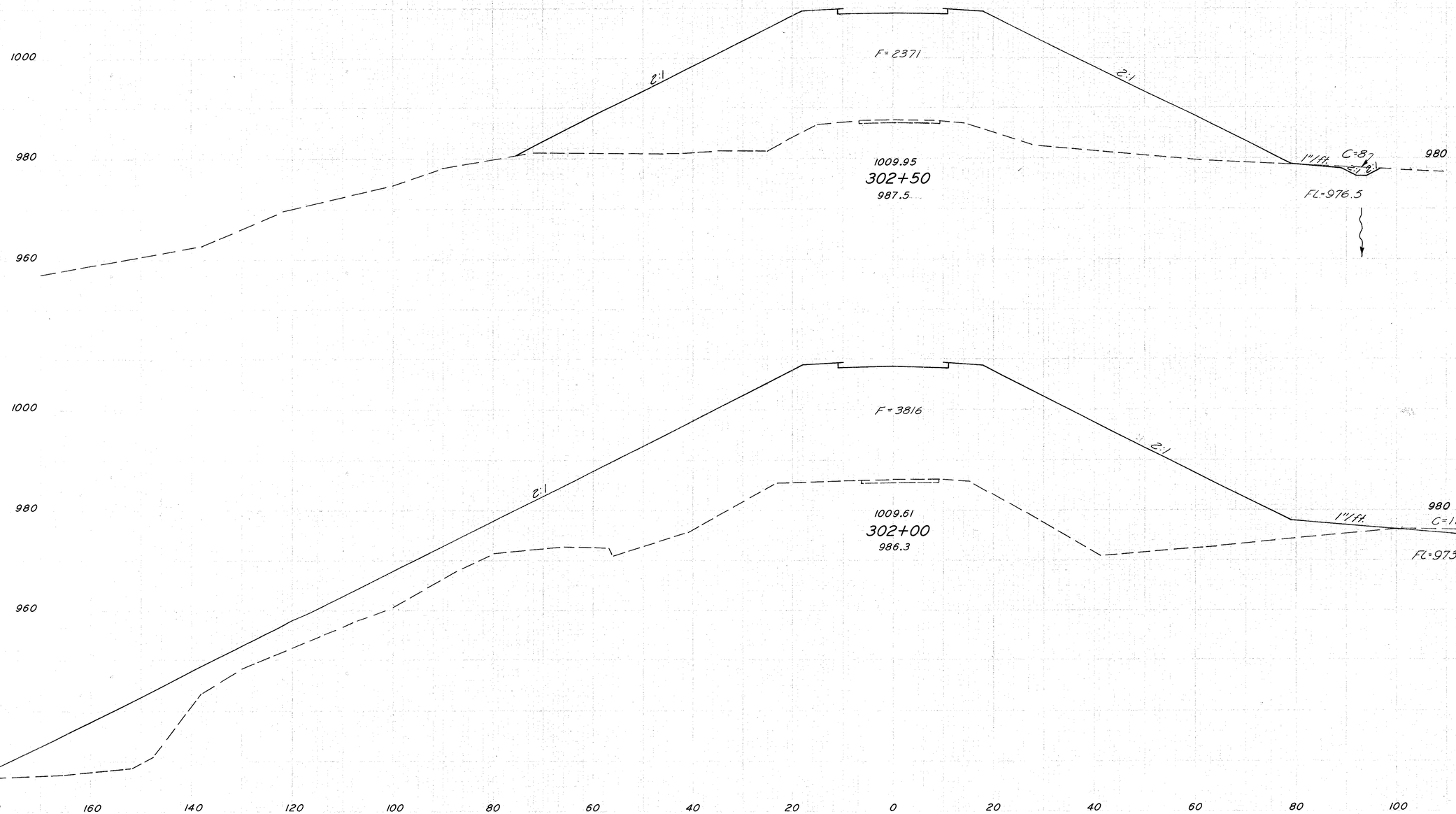
COL-11-10.22
COL-154-1.71



SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
265		59	5668		
1258				119	7312
188		69	2229		
864				68	3563

CO. RD. 417 STA. 301+00 TO STA. 301+50

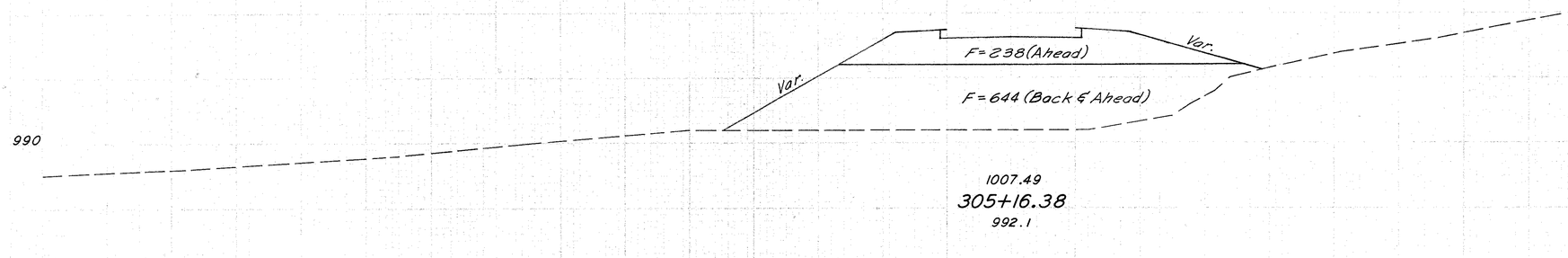
COL-11-10.22
COL-154-1.71



SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
167		8	2371		
1336		19	5729		
314		12	3816		
1608		66	8781		

CO. RD. 417 STA. 302+00 TO STA. 302+50

COL-11-10.22
COL-154-1.71

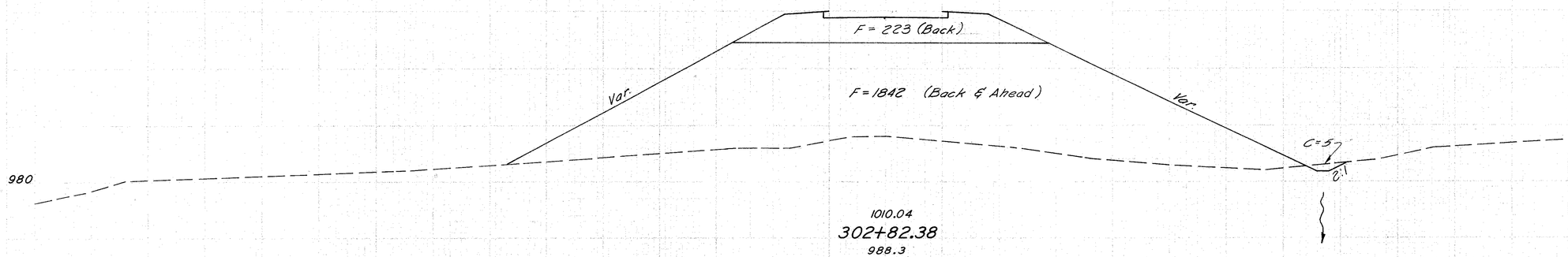


1007.49
305+16.38
992.1

304+92.50
ZERO EARTHWORK

BRIDGE

303+20
ZERO EARTHWORK



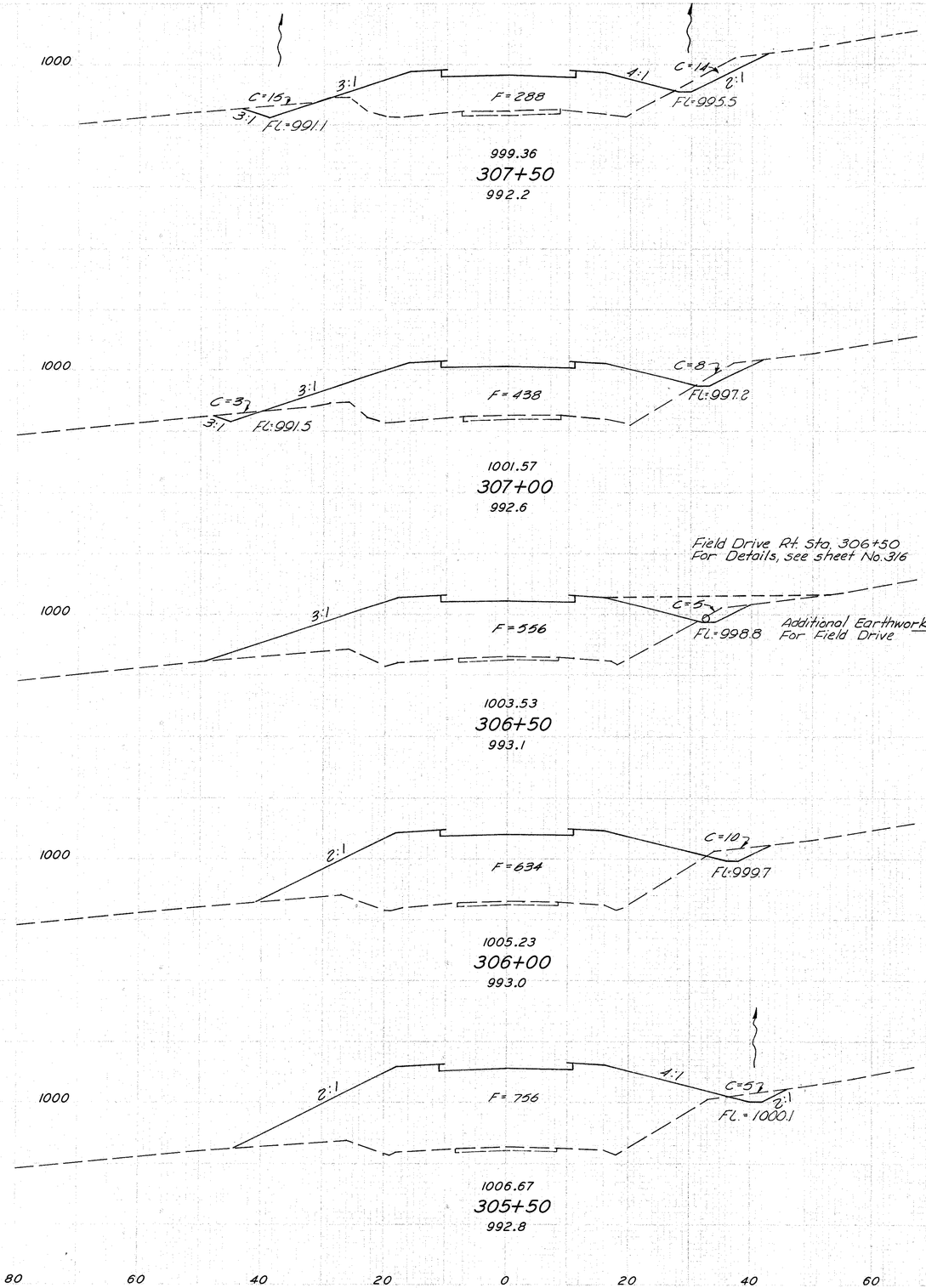
1010.04
302+82.38
988.3

	Seeding		End Area		Cu. Yds	
	Width	S.Y.	Cut	Fill	Exc.	Emb
AHEAD	69		0	882		
BACK	54		0	644		
		72			0	285
	0		0	0		
	0		0	0		
		263			3	1271
AHEAD	126		0	1842		
BACK	142		5	2065		
		556			8	2660

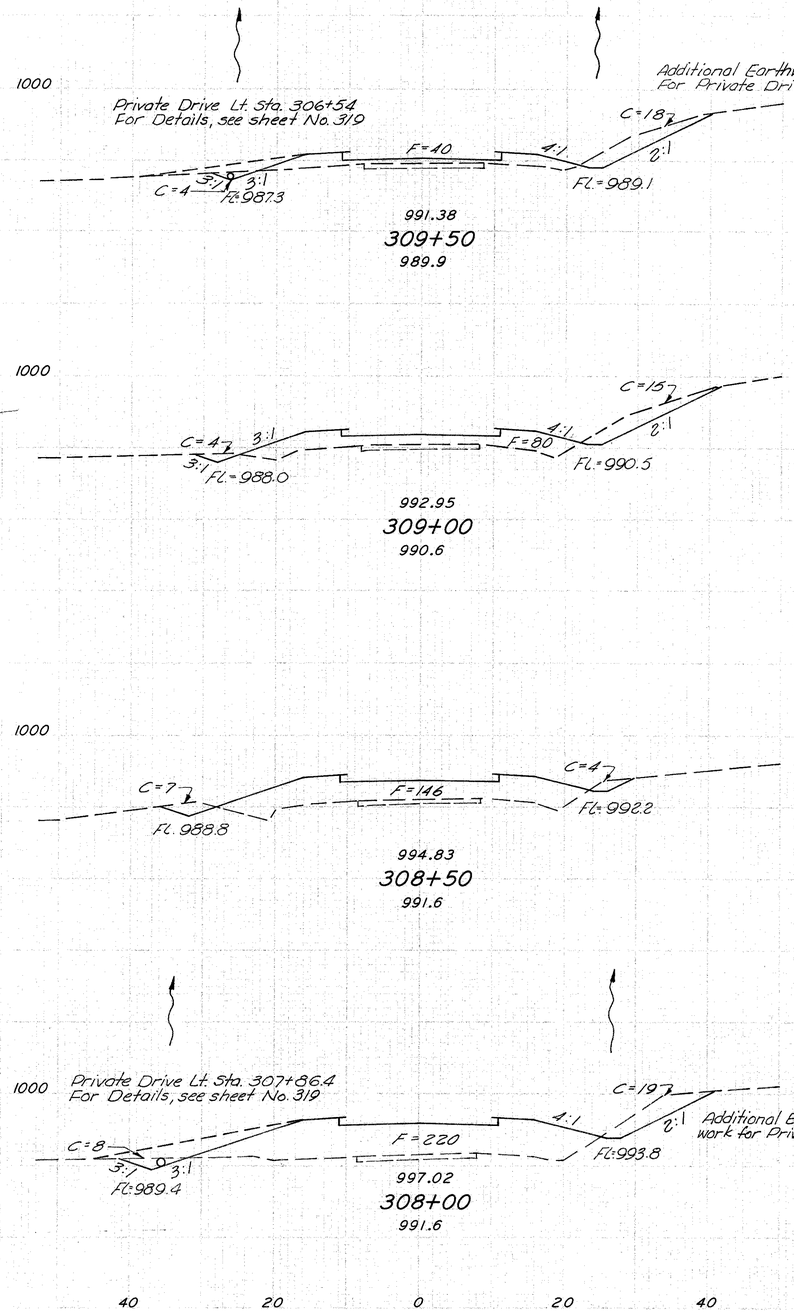
140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

CO. RD. 417 STA. 302+82.38 TO STA. 305+16.38

COL-11-10.22
COL-154-1.71



SEEDING WIDTH	SEEDING S.Y.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
68		29	288		
	392			37	672
73		11	438		
	400			15	919
				10	54
71		5	556		
	389			14	1102
69		10	634		
	397			14	1287
74		5	756		
	267			3	1020



Additional Earthwork For Private Drive

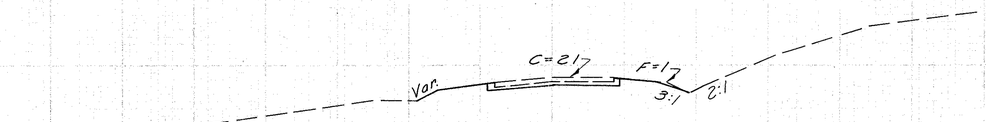
Additional Earthwork for Private Dr.

SEEDING WIDTH	SEEDING S.Y.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
				13	10
52		22	40		
	300			37	111
56		19	80		
	286			28	209
47		11	146		
	311			35	339
				13	73
65		27	220		
	369			32	470

CO. RD. 417 STA. 305+50 TO STA. 309+50

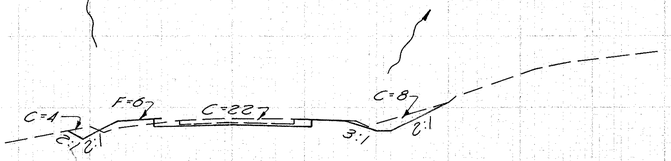
COL-11-10.22
COL-154-1.71

990



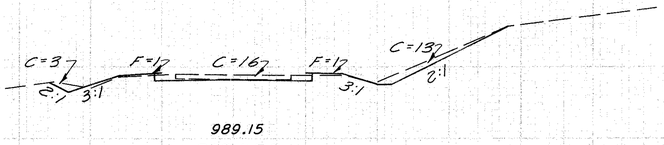
988.00
311+50
988.0
END EARTHWORK

990



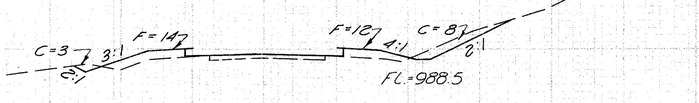
988.50
311+00
988.4

990



989.15
310+50
988.8

990

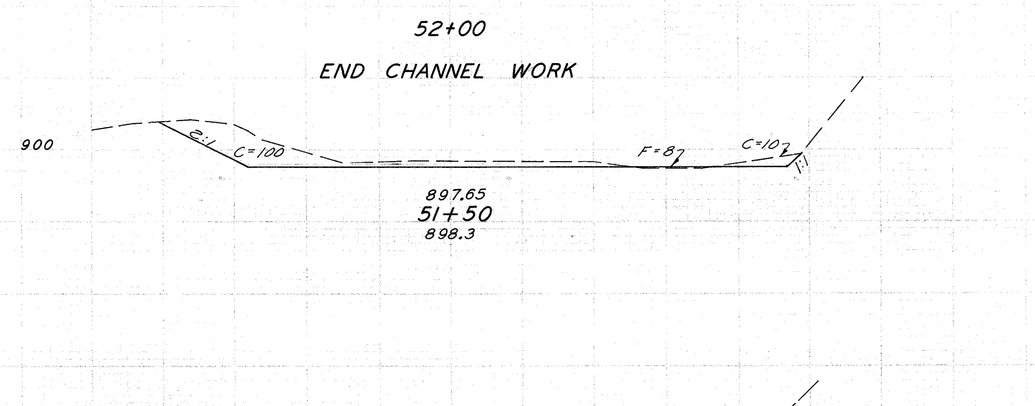


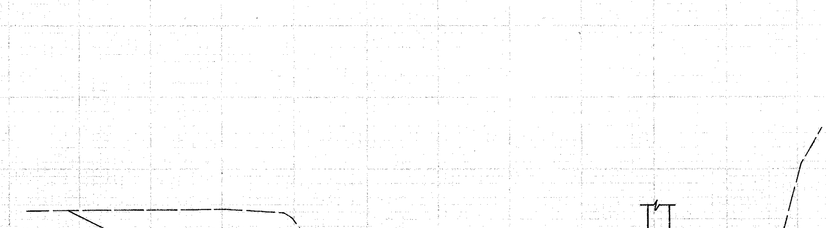
990.11
310+00
989.2

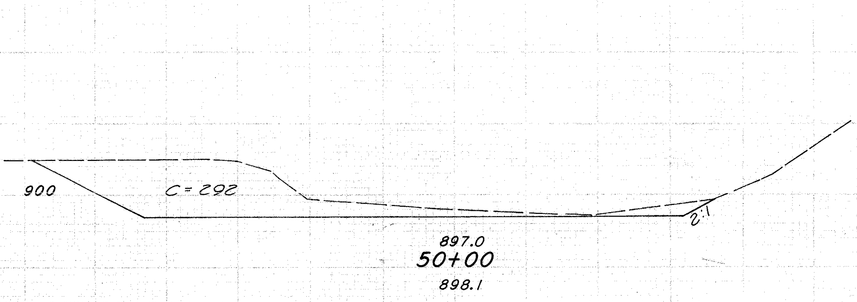
80 60 40 20 0 20 40 60 80

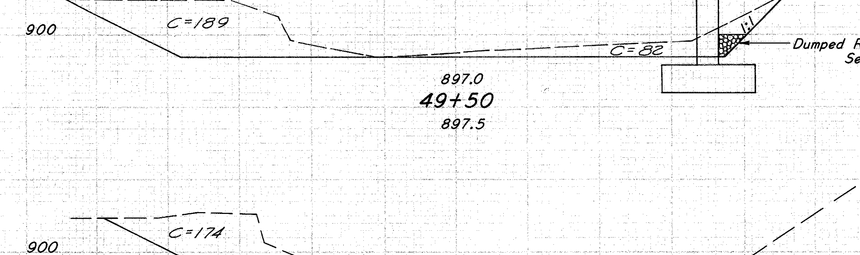
SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL
24		21	1		
	161			50	6
34		34	6		
	222			56	7
46		26	2		
	247			34	26
43		11	26		
	264			31	61

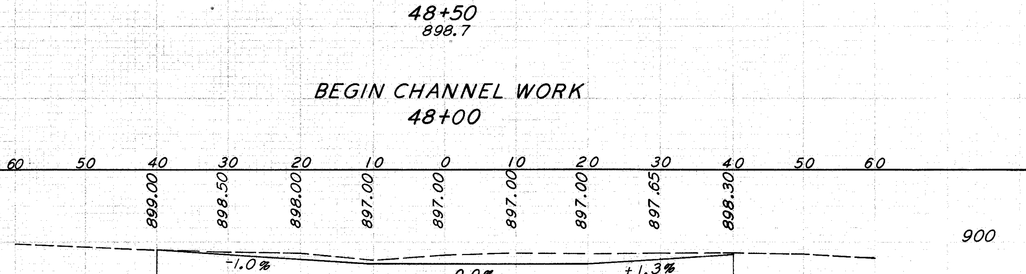
CO. RD. 417 STA. 310+00 TO STA. 311+50

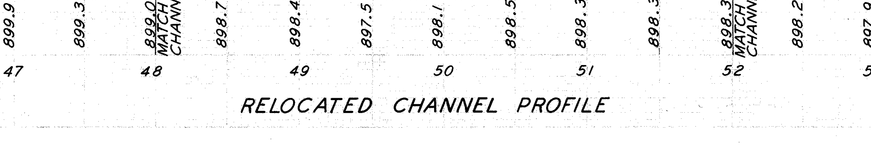






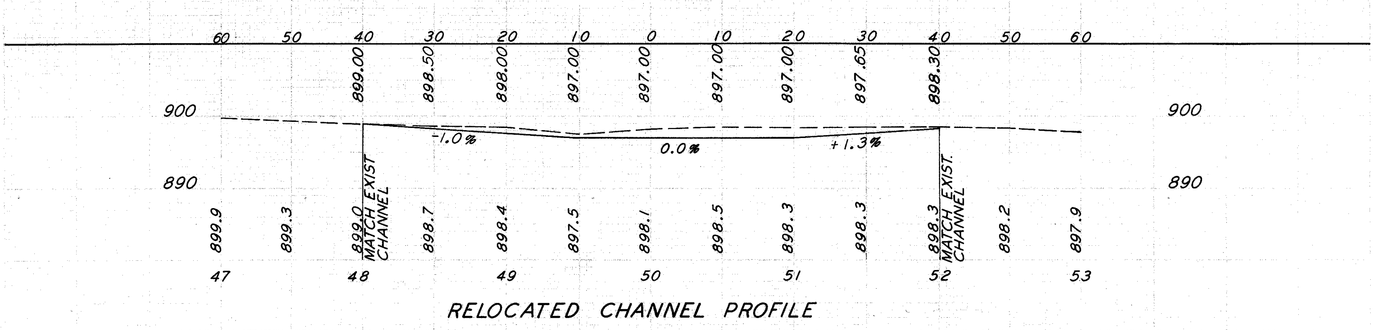






BEGIN CHANNEL WORK
48+00

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		102	7
110	8		
		302	7
216	0		
		452	0
272	0		
		522	0
292	0		
		521	0
271	0		
		412	0
174	0		
		265	0
112	0		
		104	0
0	0		



RELOCATED CHANNEL PROFILE

BEAVER CREEK CHANNEL RELOCATION STA. 48+50 TO STA. 51+50

COL-11-10.22
COL-154-1.71

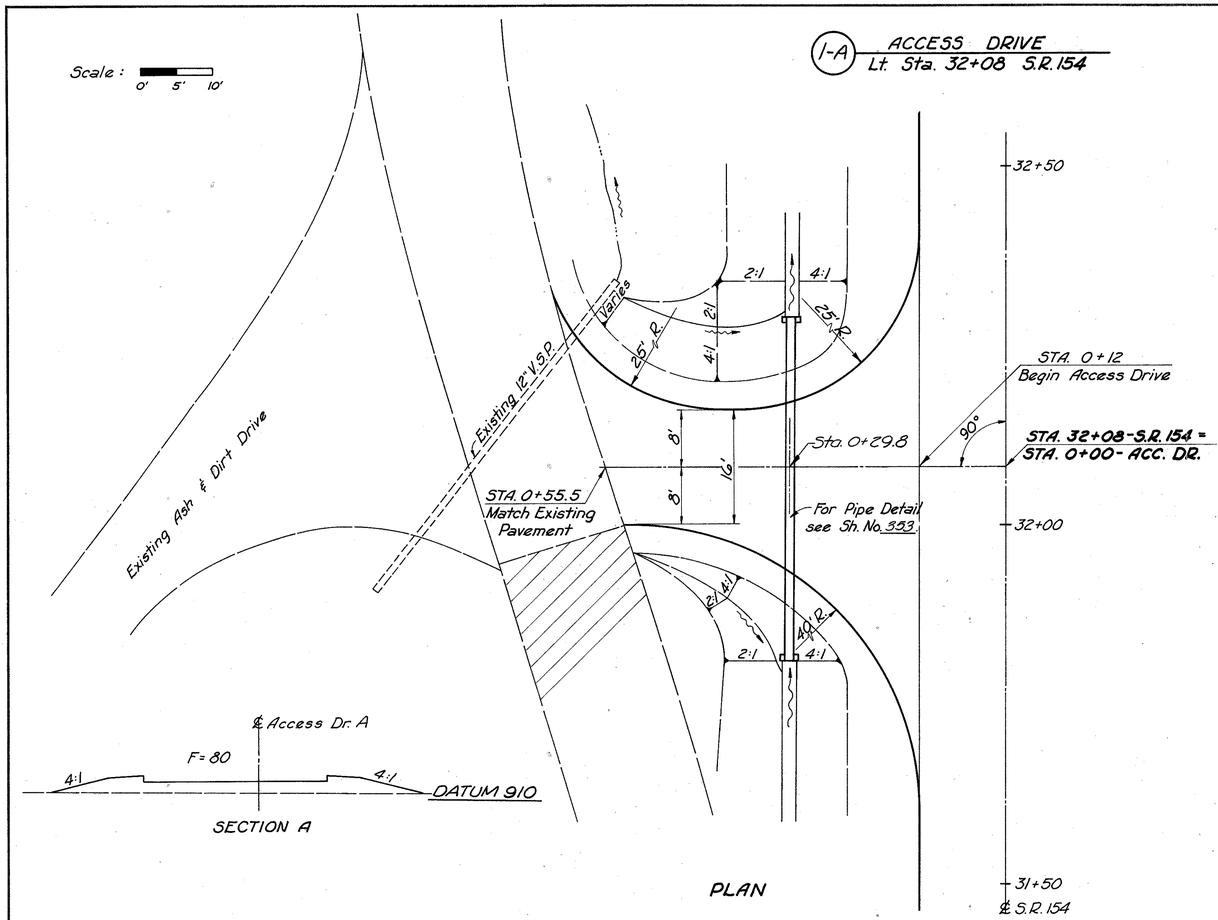
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

316

COL-11-10.22
COL-154-1.71

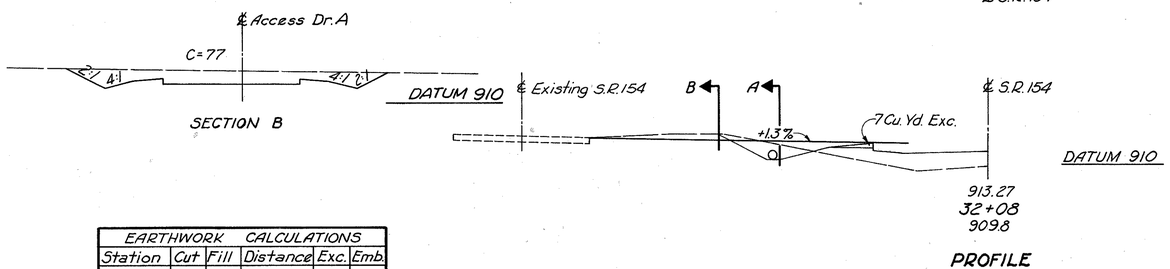
1-A ACCESS DRIVE
Lt. Sta. 32+08 S.R.154

Scale: 0' 5' 10'



PLAN

SECTION A



SECTION B

PROFILE

EARTHWORK CALCULATIONS					
Station	Cut	Fill	Distance	Exc.	Emb.
0+16	0	0	6	0	3
0+22	0	25	7	0	14
Section A	0	80	2	0	6
0+31	0	80	5	0	7
0+36	0	0	1.5	2	0
Section B	77	0	8.5	24	0
0+46	77	0	9.5	14	0
0+55.5	0	0			
Excavation = 47 Cu. Yd.					
Embankment = 30 Cu. Yd.					

Earthwork carried to sheet No. 230.

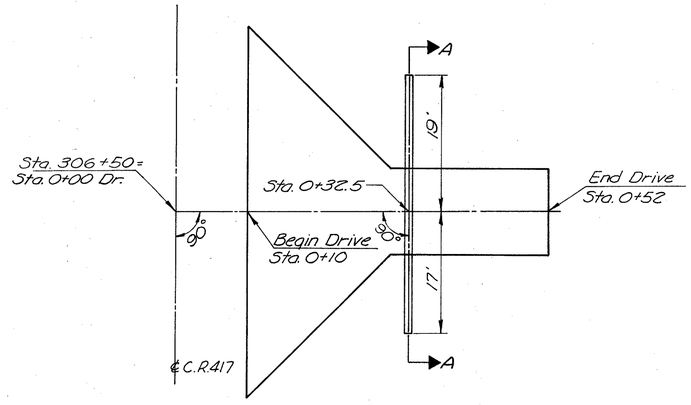
ESTIMATED QUANTITIES

Item 304 - 7" Aggregate Base Course____27 Cu. Yd.
Item 404 - 2" Asphalt Concrete_____ 8 Cu. Yd.

Quantities carried to sheet No. 222.

8-A TYPE 2 FIELD DRIVE
Rt Sta. 306+50 Co. Rd 417

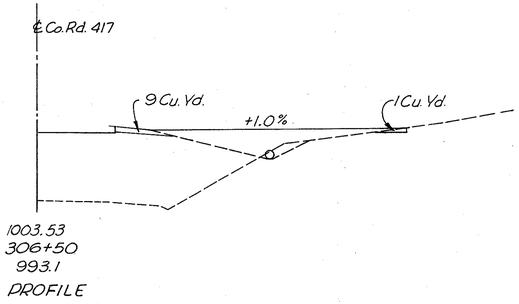
Scale: 0' 5' 10'



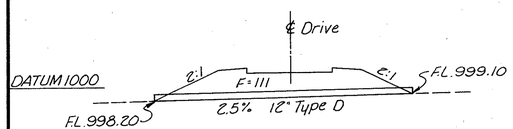
PLAN

Earthwork Calculations		
Station	End Area	Volume
0+16	0	
		34
0+32.5	111	
		14
0+38	24	
		6
0+52	0	
Embankment = 54 C.Y.		
Excavation = 10 C.Y.		

Earthwork carried to sheet No. 313



PROFILE



SECTION A-A

ESTIMATED QUANTITIES

Item 304 6" Aggregate Base Course	17 Cu. Yd.
Item 603 12" Conduit, Type D	36 Lin. Ft.

Quantities carried to sheet No. 307

DRIVE DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

317

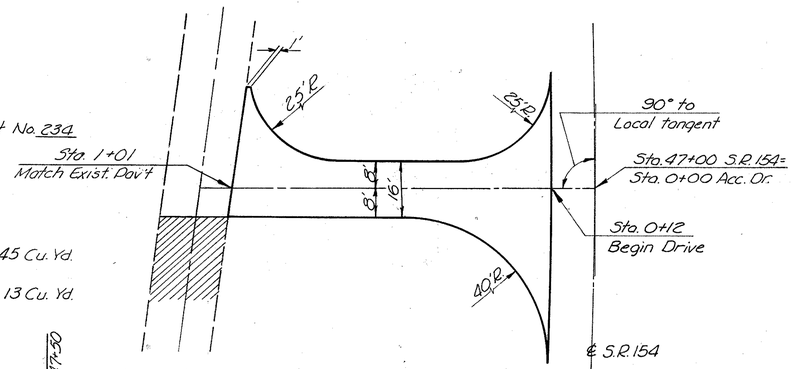
COL-11-10.22
COL-154-1.71

3-A ACCESS DRIVE
Lt. Sta. 47+00 S.R. 154

Scale: 0 10' 20'

Earthwork Calculations				
Station	Cut	Fill	Exc.	Emb.
0+20	0	0	0	124
Sec. A	0	304	0	327
1+00	0	0		
Embankment = 451 C.Y.				
Excavation = 10 C.Y.				

Earthwork carried to Sheet No. 234



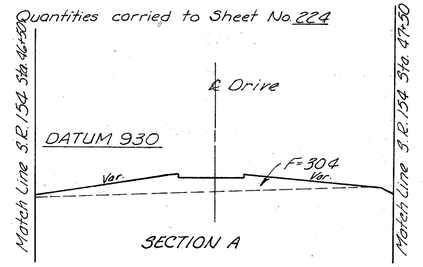
PLAN

ESTIMATED QUANTITIES

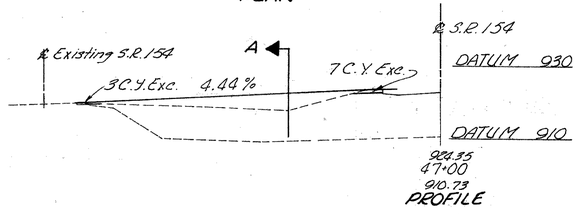
Item 304 7" Aggregate Base ———— 45 Cu. Yd.

Item 404 2" Asphalt Concrete ———— 13 Cu. Yd.

Quantities carried to Sheet No. 224



SECTION A



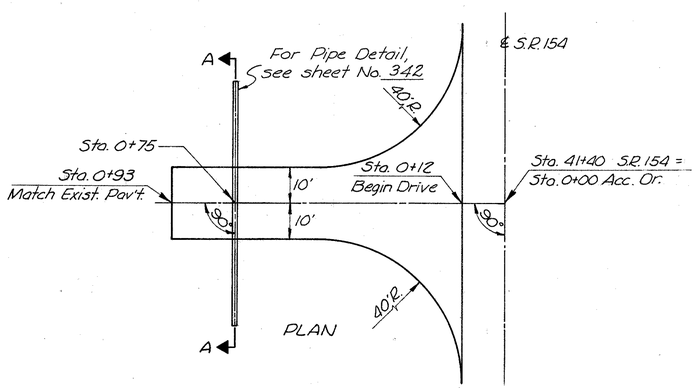
PROFILE

2-A ACCESS DRIVE
Lt. Sta. 41+40 S.R. 154

Scale: 0 10' 20'

Earthwork Calculations		
Station	End Area	Volume
0+22	0	75
0+49	150	157
0+75	176	59
0+93	0	
Embankment = 291 C.Y.		
Excavation = 33 C.Y.		

Earthwork carried to Sheet No. 232



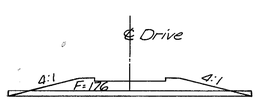
PLAN

ESTIMATED QUANTITIES

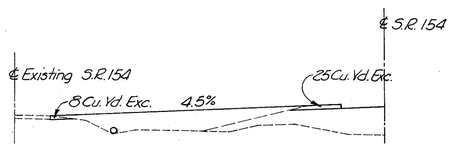
Item 304 7" Aggregate Base ———— 50 Cu. Yd.

Item 404 2" Asphalt Concrete ———— 15 Cu. Yd.

Quantities carried to Sheet No. 223



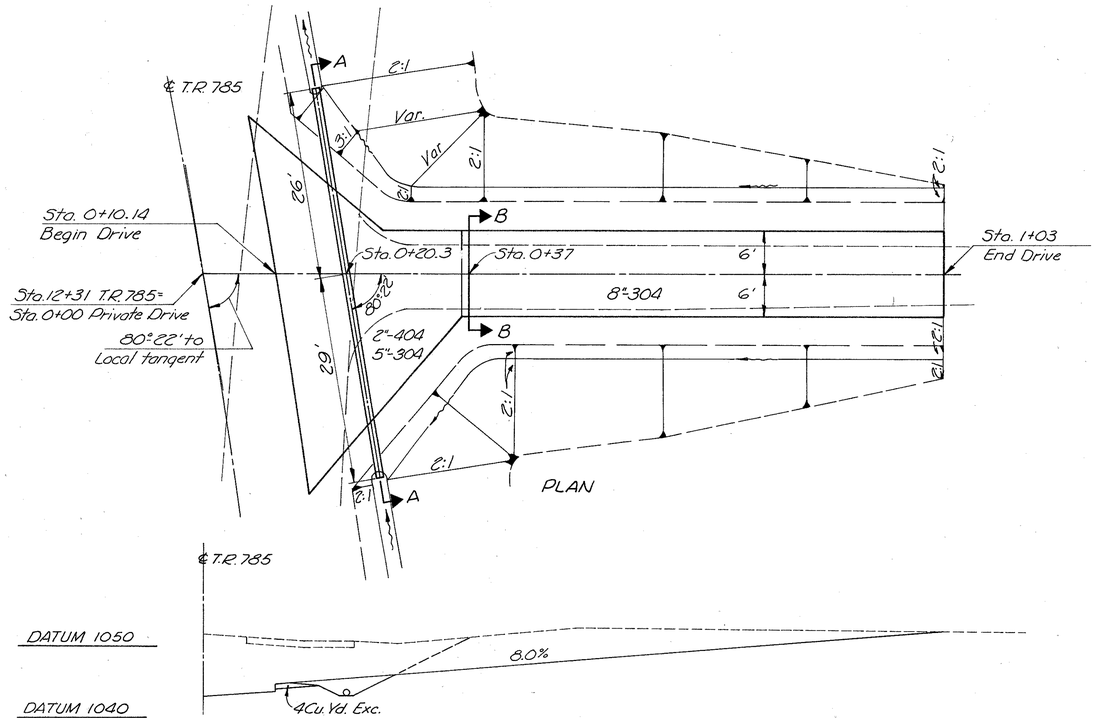
SECTION A-A



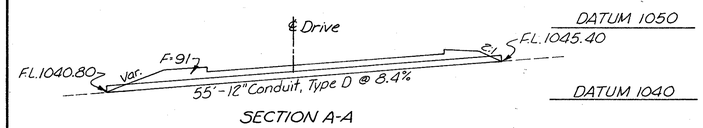
918.58
STA. 41+40
909.5
PROFILE

4-A TYPE 2 PRIVATE DRIVE
Rt. Sta. 12+31 T.R. 785

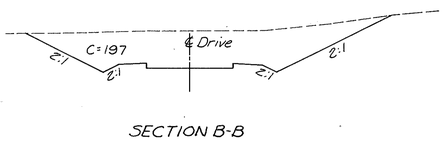
Scale: 0 5' 10'



PLAN



SECTION A-A



SECTION B-B

Earthwork Calculations			
Station	Cut	Fill	Volume
0+14		0	
0+20.3		91	11
0+26.5		0	11
0+26.5	0		
0+37	197		38
0+52	197		109
1+03	0		186
Embankment = 22 Cu. Yds.			
Excavation = 337 Cu. Yds.			

Earthwork carried to Sheet No. 284

ESTIMATED QUANTITIES

Item 304 - Aggregate Base Course ———— 32 Cu. Yd.
Item 603 - 12" Conduit, Type D ———— 56 Lin. Ft.
Item 404 - 2" Asphalt Concrete ———— 5 Cu. Yd
Quantities carried to Sheet No. 282

DRIVE DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

318

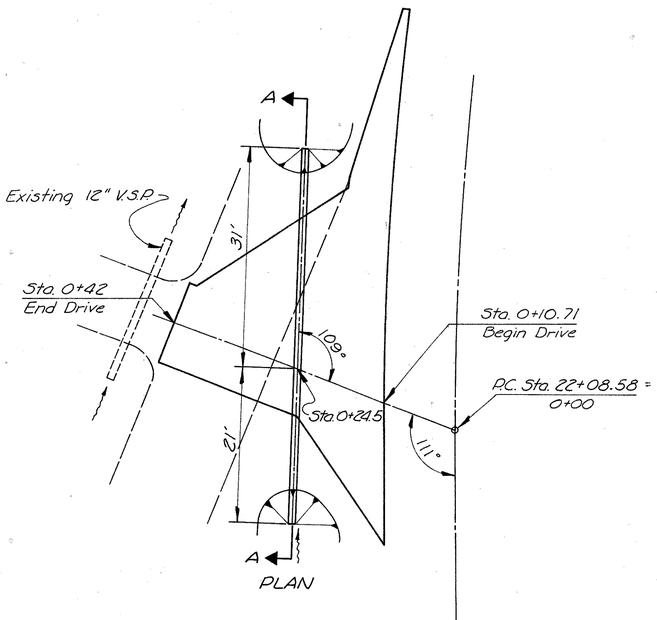
COL-11-10.22
COL-154-1.71

6-A Type 2 Private Drive & Mail Box Approach
T.R. 900 Sta. 22+08.58 Lt.

Scale: 0 5' 10'

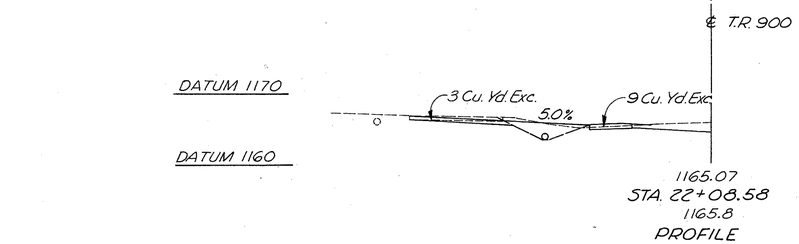
Earthwork Calculations		
Station	End Area	Volume
0+17	0	15
0+24.5	107	10
0+29.5	0	
Embankment = 25 C.Y.		
Excavation = 12 C.Y.		

Earthwork carried to Sheet No. 301

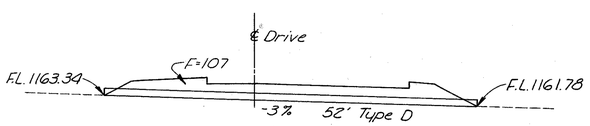


PLAN

ESTIMATED QUANTITIES
Item 304 5" Aggregate Base Course——— 15 Cu. Yd.
Item 603 12" Conduit, Type D———————— 52 Lin. Ft.
Item 404 2" Asphalt Concrete———————— 6 Cu. Yd.
Quantities carried to Sheet No. 297



PROFILE

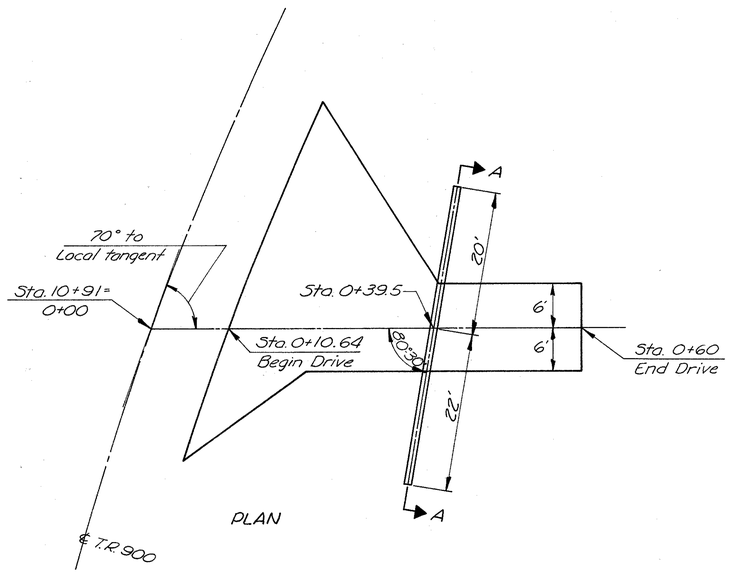


SECTION A-A

5-A Type 2 Field Drive
T.R. 900 Sta. 10+91 Rt.

Earthwork Calculations		
Station	End Area	Volume
0+17.5	0	53
0+39.5	130	12
0+43	44	14
0+60	0	
Embankment = 79 C.Y.		
Excavation = 10 C.Y.		

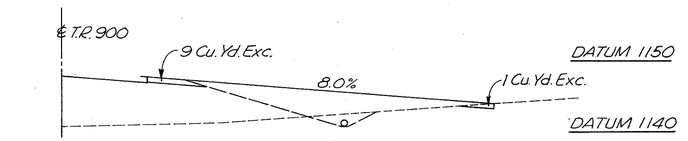
Earthwork carried to Sheet No. 293



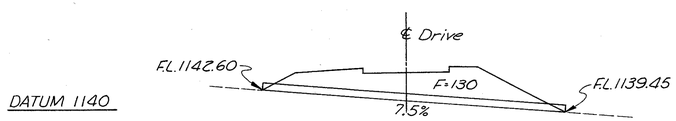
PLAN

ESTIMATED QUANTITIES
Item 304 6" Aggregate Base Course——— 20 Cu. Yd.
Item 603 12" Conduit, Type D———————42 Lin. Ft.

Quantities carried to Sheet No. 290



PROFILE



SECTION A-A

DRIVE DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

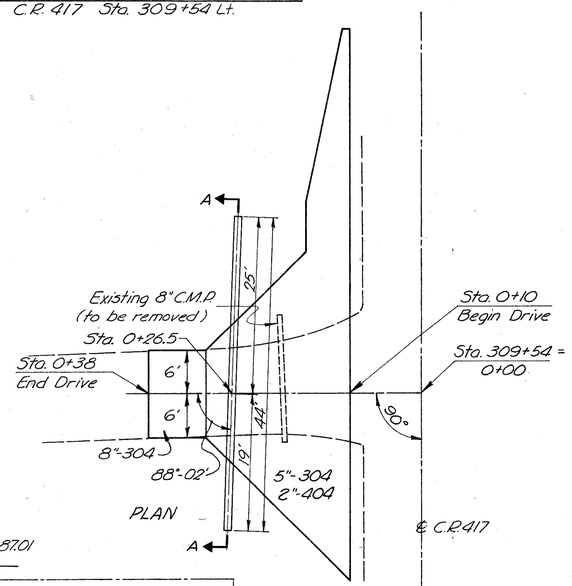
COL-11-10.22
COL-154-1.71

10-A Type 2 Private Drive & Mail Box Approach
C.R. 417 Sta. 309+54 Lt.

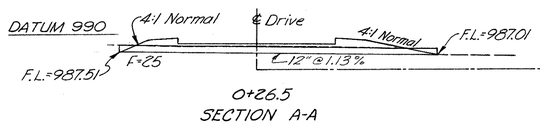
Scale: 0 5' 10'

Earthwork Calculations		
Station	End Area	Volume
0+16	0	4
0+25	25	6
0+38	0	
Embankment =		10 C.Y.
Excavation =		13 C.Y.

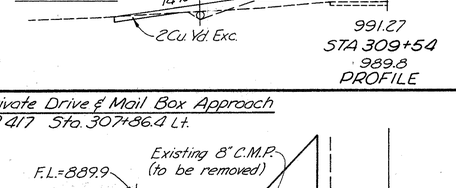
Earthwork carried to Sheet No. 313



ESTIMATED QUANTITIES
Item 202 Pipe Removed, 24" and under ——— 18 Lin. Ft.
Item 304 Aggregate Base Course ——— 14 Cu. Yd.
Item 404 2" Asphalt Concrete ——— 5 Cu. Yd.
Item 603 12" Conduit, Type D ——— 44 Lin. Ft.
Quantities carried to Sheet No. 308

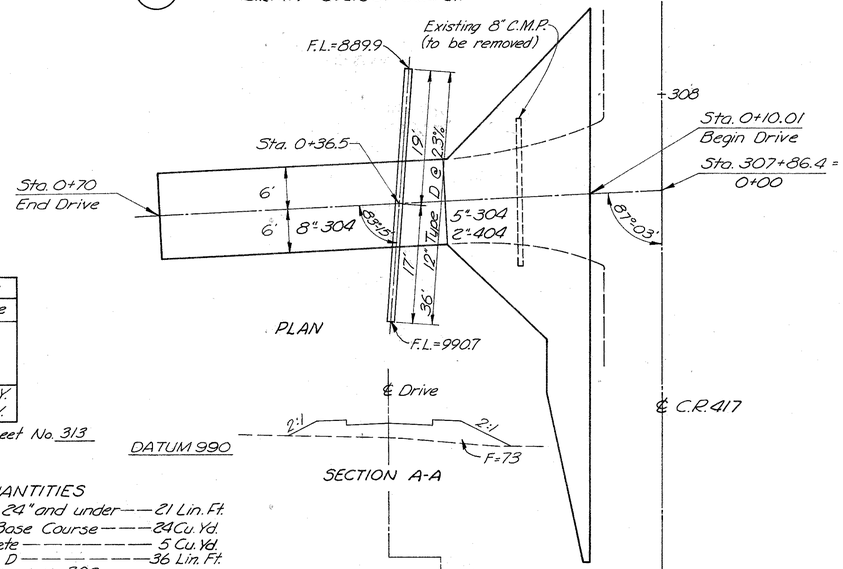


0+26.5
SECTION A-A



991.27
STA 309+54
989.8
PROFILE

9-A Type 2 Private Drive & Mail Box Approach
C.R. 417 Sta. 307+86.4 Lt.



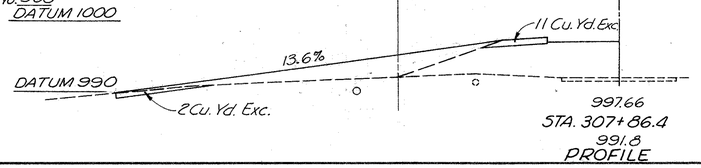
Earthwork Calculations		
Station	End Area	Volume
0+16	0	20
0+31	7.3	53
0+70	0	
Embankment =		7.3 C.Y.
Excavation =		13 C.Y.

Earthwork carried to sheet No. 313

SECTION A-A

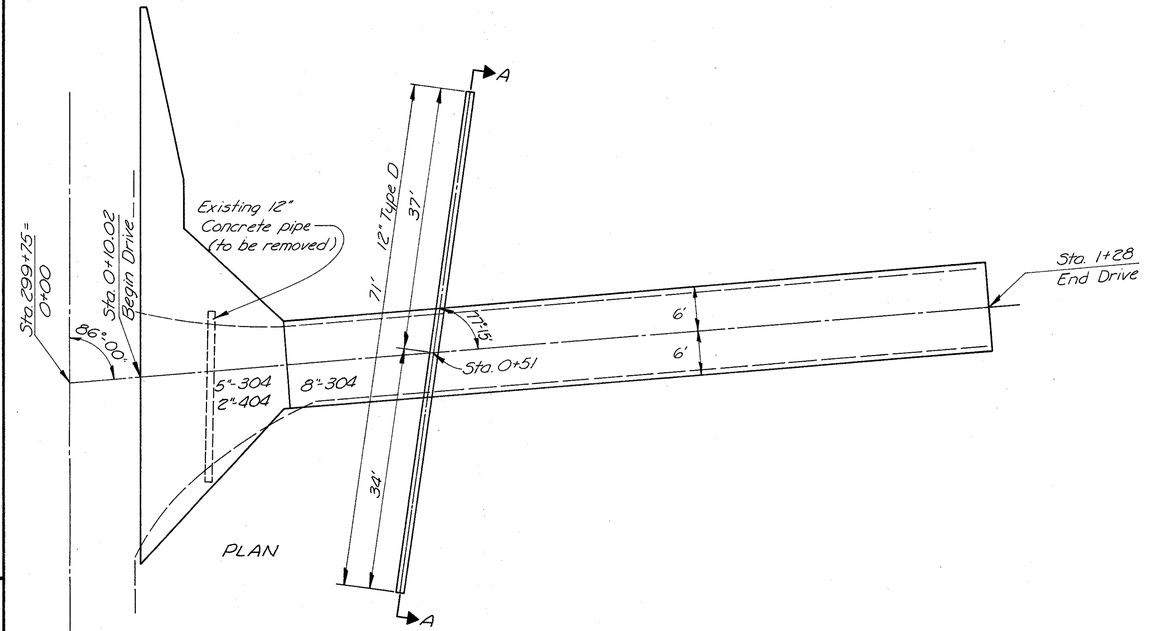
ESTIMATED QUANTITIES
Item 202 Pipe Removed 24" and under ——— 21 Lin. Ft.
Item 304 Aggregate Base Course ——— 24 Cu. Yd.
Item 404 2" Asphalt Concrete ——— 5 Cu. Yd.
Item 603 12" Conduit, Type D ——— 36 Lin. Ft.
Quantities carried to Sheet No. 308

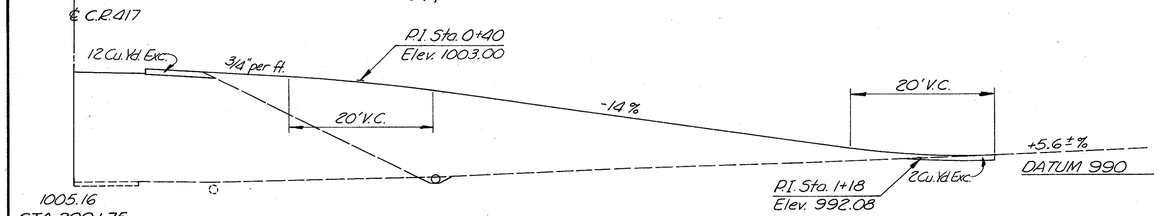
DATUM 1000



997.66
STA. 307+86.4
991.8
PROFILE

7-A Type 2 Private Drive & Mail Box Approach
C.R. 417 Sta. 299+75 Rt.



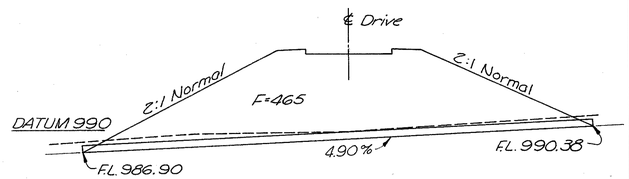


1005.16
STA. 299+75
989.3
PROFILE

Earthwork Calculations		
Station	End Area	Volume
0+18	0	284
0+51	46.5	663
1+28	0	
Embankment =		947 C.Y.
Excavation =		14 C.Y.

Earthwork carried to sheet No. 309

ESTIMATED QUANTITIES
Item 202 Pipe Removed 24" and under ——— 24 Lin. Ft.
Item 304 Aggregate Base Course ——— 41 Cu. Yd.
Item 603 12" Conduit, Type D ——— 72 Lin. Ft.
Item 404 2" Asphalt Concrete ——— 5 Cu. Yd.
Quantities carried to sheet No. 307



SECTION A-A

CURVE TABLES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

320

COL-11-10.22
COL-154-1.71

CURVE NO. 1

P.C. 205+33.03
P.T. 225+10.30
D=1° 28' LT.
MAX. SUPER 1.15'

LEFT LANE Pav't. Elev. Left Edge	LEFT LANE ℄ Pav't. Elev.	PROFILE GRADE	STATION	RIGHT LANE ℄ Pav't. Elev.	RIGHT LANE Pav't. Elev. Right Edge
1022.65	1022.84	1022.65	203+75	1022.84	1022.65
1021.99	1022.18	1022.00	204+00	1022.19	1022.01
1021.30	1021.49	1021.35	+25	1021.54	1021.38
1020.60	1020.79	1020.70	+50	1020.89	1020.78
1019.87	1020.06	1020.05	+75	1020.24	1020.22
1019.09	1019.28	1019.40	205+00	1019.59	1019.71
1018.24	1018.50	1018.75	+25	1019.00	1019.25
1017.97	1018.26	1018.54	P.C. +33.03	1018.83	1019.11
1017.39	1017.75	1018.10	+50	1018.46	1018.82
1016.57	1017.01	1017.45	+75	1017.90	1018.35
1015.77	1016.29	1016.80	206+00	1017.33	1017.85
1015.03	1015.59	1016.15	+25	1016.72	1017.28
1014.35	1014.93	1015.50	+50	1016.08	1016.65
1013.70	1014.28	1014.85	+75	1015.43	1016.00
1013.05	1013.63	1014.20	207+00	1014.78	1015.35
1012.40	1012.98	1013.55	+25	1014.13	1014.70
1011.75	1012.33	1012.90	+50	1013.48	1014.05
1011.10	1011.68	1012.25	+75	1012.83	1013.40
1010.45	1011.03	1011.60	208+00	1012.18	1012.75
1009.80	1010.38	1010.95	+25	1011.53	1012.10
1009.15	1009.73	1010.30	+50	1010.88	1011.45
1008.50	1009.08	1009.65	+75	1010.23	1010.80
1007.85	1008.43	1009.00	209+00	1009.58	1010.15
1007.20	1007.78	1008.35	+25	1008.93	1009.50
1006.55	1007.13	1007.70	+50	1008.28	1008.85
1005.90	1006.48	1007.05	+75	1007.63	1008.20
1005.25	1005.83	1006.40	210+00	1006.98	1007.55
1004.60	1005.18	1005.75	+25	1006.33	1006.90
1003.95	1004.53	1005.10	+50	1005.68	1006.25
1003.30	1003.88	1004.45	+75	1005.03	1005.60
1002.65	1003.23	1003.80	211+00	1004.38	1004.95
1002.00	1002.58	1003.15	+25	1003.73	1004.30
1001.35	1001.93	1002.50	+50	1003.08	1003.65
1000.70	1001.28	1001.85	+75	1002.43	1003.00
1000.05	1000.63	1001.20	212+00	1001.78	1002.35
999.40	999.98	1000.55	+25	1001.13	1001.70
998.75	999.33	999.90	+50	1000.48	1001.05
998.10	998.68	999.25	+75	999.83	1000.40
997.45	998.03	998.60	213+00	999.18	999.75
996.80	997.38	997.95	+25	998.53	999.10
996.15	996.73	997.30	+50	997.88	998.45
995.50	996.08	996.65	+75	997.23	997.80
994.85	995.43	996.00	214+00	996.58	997.15
994.20	994.78	995.35	+25	995.93	996.50
993.55	994.13	994.70	+50	995.28	995.85
992.90	993.48	994.05	+75	994.63	995.20
992.25	992.83	993.40	215+00	993.98	994.55
991.60	992.18	992.75	+25	993.33	993.90
990.95	991.53	992.10	+50	992.68	993.25
990.30	990.88	991.45	+75	992.03	992.60
989.65	990.23	990.80	216+00	991.38	991.95
989.00	989.58	990.15	+25	990.73	991.30
988.35	988.93	989.50	+50	990.08	990.65
987.70	988.28	988.85	+75	989.43	990.00
987.05	987.63	988.20	217+00	988.78	989.35
986.40	986.98	987.55	+25	988.13	988.70
985.75	986.33	986.90	+50	987.48	988.05
985.10	985.68	986.25	+75	986.83	987.40
984.45	985.03	985.60	218+00	986.18	986.75
983.80	984.38	984.95	+25	985.53	986.10
983.15	983.73	984.30	+50	984.88	985.45
982.50	983.08	983.65	+75	984.23	984.80
981.85	982.43	983.00	219+00	983.58	984.15
981.20	981.78	982.35	+25	982.93	983.50
980.55	981.13	981.70	+50	982.28	982.85
979.90	980.48	981.05	+75	981.63	982.20
979.25	979.83	980.40	220+00	980.98	981.55
978.60	979.18	979.75	+25	980.33	980.90
977.95	978.53	979.10	+50	979.68	980.25

CURVE NO. 1 CONTINUED

LEFT LANE Pav't. Elev. Left Edge	LEFT LANE ℄ Pav't. Elev.	PROFILE GRADE	STATION	RIGHT LANE ℄ Pav't. Elev.	RIGHT LANE Pav't. Elev. Right Edge
977.30	977.88	978.45	220+75	979.03	979.60
976.65	977.23	977.80	221+00	978.38	978.95
976.00	976.58	977.15	+25	977.73	978.30
975.35	975.93	976.50	+50	977.08	977.65
974.70	975.28	975.85	+75	976.43	977.00
974.05	974.63	975.20	222+00	975.78	976.35
973.40	973.98	974.55	+25	975.13	975.70
972.75	973.33	973.90	+50	974.48	975.05
972.10	972.68	973.25	+75	973.83	974.40
971.45	972.03	972.60	223+00	973.18	973.75
970.80	971.38	971.95	+25	972.53	973.10
970.15	970.73	971.30	+50	971.88	972.45
969.50	970.08	970.65	+75	971.23	971.80
968.85	969.43	970.00	224+00	970.58	971.15
968.23	968.79	969.35	+25	969.91	970.47
967.68	968.19	968.70	+50	969.22	969.73
967.18	967.62	968.05	+75	968.49	968.92
966.73	967.07	967.40	225+00	967.74	968.07
966.56	966.85	967.13	P.T. +10.30	967.42	967.70
966.29	966.52	966.75	+25	966.97	967.18
965.82	966.01	966.10	+50	966.29	966.36
965.28	965.47	965.45	+75	965.64	965.59
964.72	964.91	964.80	226+00	964.99	964.87
964.12	964.31	964.15	+25	964.34	964.18
963.49	963.68	963.50	+50	963.69	963.51
962.85	963.04	962.85	+75	963.04	962.85

CURVE NO. 2

P.C. 246+11.69
P.T. 260+71.10
D=1° 28' RT.
MAX. SUPER 1.15'

LEFT LANE Pav't. Elev. Left Edge	LEFT LANE ℄ Pav't. Elev.	PROFILE GRADE	STATION	RIGHT LANE ℄ Pav't Elev.	RIGHT LANE Pav't. Elev. Right Edge
968.15	968.34	968.15	244+50	968.34	968.15
968.74	968.92	968.73	+75	968.91	968.72
969.34	969.49	969.30	245+00	969.44	969.25
969.97	970.07	969.88	+25	969.96	969.77
970.62	970.64	970.45	+50	970.44	970.25
971.32	971.22	971.03	+75	970.89	970.70
972.08	971.84	971.60	246+00	971.36	971.12
972.44	972.16	971.87	P.C. +11.69	971.59	971.30
972.87	972.53	972.18	+25	971.83	971.48
973.64	973.20	972.75	+50	972.31	971.87
974.36	973.85	973.33	+75	972.81	972.29
975.03	974.47	973.90	247+00	973.34	972.77
975.63	975.06	974.48	+25	973.91	973.33
976.20	975.63	975.05	+50	974.48	973.90
976.78	976.21	975.63	+75	975.06	974.48
977.35	976.78	976.20	248+00	975.63	975.05
977.93	977.36	976.78	+25	976.21	975.63
978.50	977.93	977.35	+50	976.78	976.20
979.08	978.51	977.93	+75	977.36	976.78
979.65	979.08	978.50	249+00	977.93	977.35
980.23	979.66	979.08	+25	978.51	977.93
980.80	980.23	979.65	+50	979.08	978.50
981.38	980.81	980.23	+75	979.66	979.08
981.95	981.38	980.80	250+00	980.21	979.65
982.53	981.96	981.38	+25	980.81	980.23
983.10	982.53	981.95	+50	981.38	980.80
983.68	983.11	982.53	+75	981.96	981.38
984.25	983.68	983.10	251+00	982.53	981.95
984.83	984.26	983.68	+25	983.11	982.53
985.40	984.83	984.25	+50	983.68	983.10
985.98	985.41	984.83	+75	984.26	983.68
986.55	985.98	985.40	252+00	984.83	984.25
987.13	986.56	985.98	+25	985.41	984.83
987.70	987.13	986.55	+50	985.98	985.40
988.28	987.71	987.13	+75	986.56	985.98
988.85	988.28	987.70	253+00	987.13	986.55

CURVE NO. 2 CONTINUED

LEFT LANE Pav't. Elev. Left Edge	LEFT LANE ℄ Pav't. Elev.	PROFILE GRADE	STATION	RIGHT LANE ℄ Pav't. Elev.	RIGHT LANE Pav't. Elev. Right Edge
989.43	988.86	988.28	253+25	987.71	987.13
990.00	989.43	988.85	+50	988.28	987.70
990.58	990.01	989.43	+75	989.86	988.28
991.15	990.58	990.00	254+00	989.43	988.85
991.73	991.16	990.58	+25	990.01	989.43
992.30	991.73	991.15	+50	990.58	990.00
992.88	992.31	991.73	+75	991.16	990.58
993.45	992.88	992.30	255+00	991.73	991.15
994.03	993.46	992.88	+25	992.31	991.73
994.60	994.03	993.45	+50	992.88	992.30
995.18	994.61	994.03	+75	993.46	992.88
995.75	995.18	994.60	256+00	994.03	993.45
996.33	995.76	995.18	+25	994.61	994.03
996.90	996.33	995.75	+50	995.18	994.60
997.48	996.91	996.33	+75	995.76	995.18
998.05	997.48	996.90	257+00	996.33	995.75
998.63	998.06	997.48	+25	996.91	996.33
999.20	998.63	998.05	+50	997.48	996.90
999.78	999.21	998.63	+75	998.06	997.48
1000.35	999.78	999.20	258+00	998.63	998.05
1000.93	1000.36	999.78	+25	999.21	998.63
1001.50	1000.93	1000.35	+50	999.78	999.20
1002.08	1001.51	1000.93	+75	1000.36	999.78
1002.65	1002.08	1001.50	259+00	1000.93	1000.35
1003.23	1002.66	1002.08	+25	1001.51	1000.93
1003.80	1003.23	1002.65	+50	1002.08	1001.50
1004.34	1003.79	1003.23	+75	1002.66	1002.09
1004.85	1004.33	1003.80	260+00	1003.26	1002.72
1005.30	1004.84	1004.38	+25	1003.90	1003.41
1005.68	1005.32	1004.95	+50	1004.57	1004.18
1006.01	1005.73	1005.44	P.T. +71.10	1005.16	1004.87
1006.07	1005.80	1005.53	+75	1005.26	1004.98
1006.48	1006.29	1006.10	261+00	1005.91	1005.72
1006.94	1006.87	1006.68	+25	1006.61	1006.42
1007.42	1007.44	1007.25	+50	1007.28	1007.09
1007.93	1008.02	1007.83	+75	1007.91	1007.72
1008.45	1008.59	1008.40	262+00	1008.54	1008.35
1008.99	1009.17	1008.98	+25	1009.61	1008.97
1009.55	1009.74	1009.55	+50	1009.74	1009.55

CURVE NO. 3

P.C. 306+96.69
P.T. 345+14.58
0° 30' RT.
MAX. SUPER 0.38'

LEFT LANE Pav't. Elev. Left Edge	LEFT LANE ℄ Pav't. Elev.	PROFILE GRADE	STATION	RIGHT LANE ℄ Pav't. Elev.	RIGHT LANE Pav't. Elev. Right Edge
1110.18	1110.37	1110.18	306+25	1110.37	1110.18
1110.76	1010.94	1110.75	+50	1110.91	1110.72
1111.41	1111.52	1111.33	+75	1111.42	1111.23
1112.00	1112.00	1111.81	P.C. +96.69	1111.81	1111.62
1112.12	1112.09	1111.90	307+00	1111.88	1111.69
1112.78	1112.67	1112.48	+25	1112.35	1112.16
1113.42	1113.24	1113.05	+50	1112.87	1112.68
1114.01	1113.82	1113.63	+75	1113.44	1113.25
1114.58	1114.39	1114.20	308+00	1114.01	1113.82
1115.16	1114.97	1114.78	+25	1114.59	1114.40
1115.73	1115.54	1115.35	+50	1115.16	1114.97
1116.31	1116.12	1115.93	+75	1115.74	1115.55
1116.88	1116.69	1116.50	309+00	1116.31	1116.12
1117.46	1117.27	1117.08	+25	1116.89	1116.70
1118.03	1117.84	1117.65	+50	1117.46	1117.27
1118.61	1118.42	1118.23	+75	1118.04	1117.85
1119.18	1118.99	1118.80	310+00	1118.61	1118.42
1119.76	1119.57	1119.38	+25	1119.19	1119.00
1120.33	1120.14	1119.95	+50	1119.76	1119.57
1120.91	1120.72	1120.53	+75	1120.94	1120.15
1121.48	1121.29	1121.10	311+00	1120.91	1120.72
1122.06	1121.87	1121.68	+25	1121.49	1121.30
1122.63	1122.44	1122.25	+50	1122.06	1121.87
1123.21	1123.02	1122.83	+75	1122.64	1122.45

CURVE NO. 3 CONTINUED

LEFT LANE Pav't. Elev. Left Edge	LEFT LANE ℄ Pav't. Elev.	PROFILE GRADE	STATION	RIGHT LANE ℄ Pav't. Elev.	RIGHT LANE Pav't. Elev. Right Edge
1123.78	1123.59	1123.40	312+00	1123.21	1123.02
1124.36	1124.17	1123.98	+25	1123.79	1123.60
1124.93	1124.74	1124.55	+50	1124.36	1124.17
1125.51	1125.32	1125.13	+75	1124.94	1124.75
1126.08	1125.89	1125.70	313+00	1125.51	1125.32
1126.66	1126.47	1126.28	+25	1126.09	1125.90
1127.23	1127.04	1126.85	+50	1126.66	1126.47
1127.81	1127.62	1127.43	+75	1127.24	1127.05
1128.38	1128.19	1128.00	314+00	1127.81	1127.62
1128.96	1128.77	1128.58	+25	1128.39	1128.20
1129.53	1129.34	1129.15	+50	1128.96	1128.77
1130.11	1129.92	1129.73	+75	1129.54	1129.35
1130.68	1130.49	1130.30	315+00	1130.11	1129.92
1131.26	1131.07	1130.88	+25	1130.69	1130.50
1131.83	1131.64	1131.45	+50	1131.26	1131.07
1132.41	1132.22	1132.03	+75	1131.84	1131.65
1132.98	1132.79	1132.60	316+00	1132.41	1132.22
1133.56	1133.37	1133.18	+25	1132.99	1132.80
1134.13	1133.94	1133.75	+50	1133.56	1133.37
1134.51	1134.52	1134.33	+75	1134.14	1133.95
1135.28	1135.09	1134.90	317+00	1134.71	1134.52
1135.86	1135.67	1135.48	+25	1135.29	1135.10
1136.43	1136.24	1136.05	+50	1135.86	1135.67
1137.01	1136.82	1136.63	+75	1136.44	1136.25
1137.58	1137.39	1137.20	318+00	1137.01	1136.82
1138.16	1137.97	1137.78	+25	1137.59	1137.40
1138.73	1138.54	1138.35	+50	1138.16	1137.97
1139.31	1139.12	1138.93	+75	1138.74	1138.55
1139.88	1139.69	1139.50	319+00	1139.31	1139.12
1140.46	1140.27	1140.08	+25	1139.89	1139.70
1141.03	1140.84	1140.65	+50	1140.46	1140.27
1141.61	1141.42	1141.23	+75	1141.04	1140.85
1142.18	1141.99	1141.80	320+00	1141.61	1141.42
1142.76	1142.57	1142.38	+25	1142.19	1142.00
1143.33	1143.14	1142.95	+50	1142.76	1142.57
1143.91	1143.72	1143.53	+75	1143.34	1143.15
1144.48	1144.29	1144.10	321+00	1143.91	1143.72
1145.06	1144.87	1144.68	+25	1144.49	1144.30
1145.63	1145.44	1145.25	+50	1145.06	1144.87
1146.21	1146.02	1145.83	+75	1145.64	1145.45
1146.78	1146.59	1146.40	322+00	1146.21	1146.02
1147.36	1147.17	1146.98	+25	1146.79	1146.60
1147.93	1147.74	1147.55	+50	1147.36	1147.17
1148.51	1148.32	1148.13	+75	1147.94	1147.75
1149.08	1148.89	1148.70	323+00	1148.51	1148.32
1149.66	1149.47	1149.28	+25	1149.09	1148.90
1150.23	1150.04	1149.85	+50	1149.66	1149.47
1150.81	1150.62	1150.43	+75	1150.24	1150.05
1151.38	1151.19	1151.00	324+00	1150.81	1150.62
1151.96	1151.77	1151.58	+25	1151.39	1151.20
1152.53	1152.34	1152.15	+50	1151.96	1151.77
1153.11	1152.92	1152.73	+75	1152.54	1152.35
1153.68	1153.49	1153.30	325+00	1153.11	1152.92
1154.26	1154.07	1153.88	+25	1153.69	1153.50
1154.83	1154.64	1154.45	+50	1154.26	1154.07
1155.41	1155.22	1155.03	+75	1154.84	1154.65
1155.98	1155.79	1155.60	326+00	1155.41	1155.22
1156.56	1156.37	1156.18	+25	1155.99	1155.80
1157.13	1156.94	1156.75	+50	1156.56	1156.37
1157.71	1157.52	1157.33	+75	1157.14	1156.95
1158.28	1158.09	1157.90	327+00	1157.71	1157.52
1158.86	1158.67	1158.48	+25	1158.29	1158.10
1159.43	1159.24	1159.05	+50	1158.86	1158.67
1160.01	1159.82	1159.63	+75	1159.44	1159.25
1160.58	1160.39	1160.20	328+00	1160.01	1159.82
1161.16	1160.97	1160.78	+25	1160.59	1160.40
1161.73	1161.54	1161.35	+50	1161.16	1160.97
1162.31	1162.12	1161.93	+75	1161.74	1161.55
1162.88	1162.69	1162.50	329+00	1162.31	1162.12
1163.46	1163.27	1163.08	+25	1162.89	1162.70

FOR CONTINUATION (See Sheet 321)

CURVE TABLES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

321

COL-11-10.22
COL-154-1.71

CURVE NO. 3 CONTINUED

LEFT LANE Pav't. Elev. Left Edge	LANE ℄ Pav't. Elev.	PROFILE GRADE	STATION	RIGHT LANE ℄ Pav't. Elev.	RIGHT LANE Pav't. Elev. Right Edge
1164.03	1163.84	1163.65	329+50	1163.46	1163.27
1164.61	1164.42	1164.23	+75	1164.04	1163.85
1165.18	1164.99	1164.80	330+00	1164.61	1164.42
1165.76	1165.57	1165.38	+25	1165.19	1165.00
1166.33	1166.14	1165.95	+50	1165.76	1165.57
1166.91	1166.72	1166.53	+75	1166.34	1166.15
1167.48	1167.29	1167.10	331+00	1166.91	1166.72
1168.06	1167.87	1167.68	+25	1167.49	1167.30
1168.63	1168.44	1168.25	+50	1168.06	1167.87
1169.21	1169.02	1168.83	+75	1168.64	1168.45
1169.78	1169.59	1169.40	332+00	1169.21	1169.02
1170.36	1170.17	1169.98	+25	1169.79	1169.60
1170.93	1170.74	1170.55	+50	1170.36	1170.17
1171.51	1171.32	1171.13	+75	1170.94	1170.75
1172.08	1171.89	1171.70	333+00	1171.51	1171.32
1172.66	1172.47	1172.28	+25	1172.09	1171.90
1173.23	1173.04	1172.85	+50	1172.66	1172.47
1173.81	1173.62	1173.43	+75	1173.24	1173.05
1174.38	1174.19	1174.00	334+00	1173.81	1173.62
1174.96	1174.77	1174.58	+25	1174.39	1174.20
1175.53	1175.34	1175.15	+50	1174.96	1174.77
1176.11	1175.92	1175.73	+75	1175.54	1175.35
1176.68	1176.49	1176.30	335+00	1176.11	1175.92
1177.25	1177.06	1176.87	+25	1176.68	1176.49
1177.79	1177.60	1177.41	+50	1177.22	1177.03
1178.32	1178.13	1177.94	+75	1177.75	1177.56
1178.82	1178.63	1178.44	336+00	1178.25	1178.06
1179.30	1179.11	1178.92	+25	1178.73	1178.54
1179.75	1179.56	1179.37	+50	1179.18	1178.99
1180.19	1180.00	1179.81	+75	1179.62	1179.43
1180.60	1180.41	1180.22	337+00	1180.03	1179.84
1180.99	1180.80	1180.61	+25	1180.42	1180.23
1181.36	1181.17	1180.98	+50	1180.79	1180.60
1181.71	1181.52	1181.33	+75	1181.14	1180.95
1182.02	1181.83	1181.64	338+00	1181.45	1181.26
1182.33	1182.14	1181.95	+25	1181.76	1181.57
1182.60	1182.41	1182.22	+50	1182.03	1181.84
1182.86	1182.67	1182.48	+75	1182.29	1182.10
1183.09	1182.90	1182.71	339+00	1182.52	1182.33
1183.30	1183.11	1182.92	+25	1182.73	1182.54
1183.49	1183.30	1183.11	+50	1182.92	1182.73
1183.66	1183.47	1183.28	+75	1183.09	1182.90
1183.80	1183.61	1183.42	340+00	1183.23	1183.04
1183.92	1183.73	1183.54	+25	1183.35	1183.16
1184.01	1183.82	1183.63	+50	1183.44	1183.25
1184.10	1183.91	1183.72	+75	1183.53	1183.34
1184.14	1183.95	1183.76	341+00	1183.57	1183.38
1184.18	1183.99	1183.80	+25	1183.61	1183.42
1184.19	1184.00	1183.81	+50	1183.62	1183.43
1184.18	1183.99	1183.80	+75	1183.61	1183.42
1184.14	1183.95	1183.76	342+00	1183.57	1183.38
1184.08	1183.89	1183.70	+25	1183.51	1183.32
1184.00	1183.81	1183.62	+50	1183.43	1183.24
1183.90	1183.71	1183.52	+75	1183.33	1183.14
1183.77	1183.58	1183.39	343+00	1183.20	1183.01
1183.63	1183.44	1183.25	+25	1183.06	1182.87
1183.45	1183.26	1183.07	+50	1182.88	1182.69
1183.27	1183.08	1182.89	+75	1182.70	1182.51
1183.05	1182.86	1182.67	344+00	1182.48	1182.29
1182.81	1182.62	1182.43	+25	1182.24	1182.05
1182.54	1182.36	1182.17	+50	1181.99	1181.80
1182.22	1182.09	1181.90	+75	1181.76	1181.57
1181.87	1181.81	1181.62	345+00	1181.56	1181.37
1181.65	1181.65	1181.46	P.T. +14.58	1181.46	1181.27
1181.48	1181.54	1181.35	+25	1181.37	1181.18
1181.13	1181.26	1181.07	+50	1181.19	1181.00
1180.82	1180.99	1180.80	+75	1180.97	1180.78
1180.52	1180.71	1180.52	346+00	1180.71	1180.52

CURVE NO. 4

P.C. 379+84.11
P.T. 406+08.88

D=1° 20' LT.
MAX. SUPER 1.02'

LEFT LANE Pav't. Elev. Left Edge	LANE ℄ Pav't. Elev.	PROFILE GRADE	STATION	RIGHT LANE ℄ Pav't. Elev.	RIGHT LANE Pav't. Elev. Right Edge
1151.17	1151.36	1151.17	378+25	1151.36	1151.17
1151.00	1151.19	1151.02	+50	1151.21	1151.03
1150.83	1151.02	1150.87	+75	1151.06	1150.90
1150.64	1150.83	1150.72	379+00	1150.91	1150.80
1150.42	1150.61	1150.57	+25	1150.76	1150.72
1150.17	1150.36	1150.42	+50	1150.61	1150.68
1149.85	1150.06	1150.27	+75	1150.49	1150.70
1149.71	1149.97	1150.22	P.C. +84.11	1150.48	1150.73
1149.48	1149.80	1150.12	380+00	1150.44	1150.76
1149.16	1149.57	1149.97	+25	1150.38	1150.78
1148.87	1149.35	1149.82	+50	1150.29	1150.76
1148.66	1149.17	1149.67	+75	1150.18	1150.68
1148.50	1149.01	1149.52	381+00	1150.03	1150.54
1148.35	1148.86	1149.37	+25	1149.88	1150.39
1148.20	1148.71	1149.22	+50	1149.73	1150.24
1148.05	1148.56	1149.07	+75	1149.58	1150.09
1147.90	1148.41	1148.92	382+00	1149.43	1149.94
1147.75	1148.26	1148.77	+25	1149.28	1149.79
1147.60	1148.11	1148.62	+50	1149.13	1149.64
1147.45	1147.96	1148.47	+75	1148.98	1149.49
1147.30	1147.81	1148.32	383+00	1148.83	1149.34
1147.15	1147.66	1148.17	+25	1148.68	1149.19
1147.00	1147.51	1148.02	+50	1148.53	1149.04
1146.85	1147.36	1147.87	+75	1148.38	1148.89
1146.70	1147.21	1147.72	384+00	1148.23	1148.74
1146.55	1147.06	1147.57	+25	1148.08	1148.59
1146.40	1146.91	1147.42	+50	1147.93	1148.44
1146.25	1146.76	1147.27	+75	1147.78	1148.29
1146.10	1146.61	1147.12	385+00	1147.63	1148.14
1145.95	1146.46	1146.97	+25	1147.48	1147.99
1145.80	1146.31	1146.82	+50	1147.33	1147.84
1145.65	1146.16	1146.67	+75	1147.18	1147.69
1145.50	1146.01	1146.52	386+00	1147.03	1147.54
1145.35	1145.86	1146.37	+25	1146.88	1147.39
1145.20	1145.71	1146.22	+50	1146.73	1147.24
1145.05	1145.56	1146.07	+75	1146.58	1147.09
1144.90	1145.41	1145.92	387+00	1146.43	1146.94
1144.75	1145.26	1145.77	+25	1146.28	1146.79
1144.60	1145.11	1145.62	+50	1146.13	1146.64
1144.45	1144.96	1145.47	+75	1145.98	1146.49
1144.30	1144.81	1145.32	388+00	1145.83	1146.34
1144.15	1144.66	1145.17	+25	1145.68	1146.19
1144.00	1144.51	1145.02	+50	1145.53	1146.04
1143.84	1144.35	1144.86	+75	1145.37	1145.88
1143.64	1144.15	1144.66	389+00	1145.17	1145.68
1143.42	1143.93	1144.44	+25	1144.95	1145.46
1143.17	1143.68	1144.19	+50	1144.70	1145.21
1142.90	1143.41	1143.92	+75	1144.43	1144.94
1142.59	1143.10	1143.61	390+00	1144.12	1144.63
1142.26	1142.77	1143.28	+25	1143.79	1144.30
1141.89	1142.40	1142.91	+50	1143.42	1143.93
1141.51	1142.02	1142.53	+75	1143.04	1143.55
1141.09	1141.60	1142.11	391+00	1142.62	1143.13
1140.65	1141.16	1141.67	+25	1142.18	1142.69
1140.17	1140.68	1141.19	+50	1141.70	1142.21
1139.69	1140.20	1140.71	+75	1141.22	1141.73
1139.20	1139.71	1140.22	392+00	1140.73	1141.24
1138.71	1139.22	1139.73	+25	1140.24	1140.75
1138.22	1138.73	1139.24	+50	1139.75	1140.26
1137.73	1138.24	1138.75	+75	1139.26	1139.77
1137.25	1137.76	1138.27	393+00	1138.78	1139.29
1136.76	1137.27	1137.78	+25	1138.29	1138.80
1136.27	1136.78	1137.29	+50	1137.80	1138.31
1135.78	1136.29	1136.80	+75	1137.31	1137.82
1135.30	1135.81	1136.32	394+00	1136.83	1137.34
1134.81	1135.32	1135.83	+25	1136.34	1136.85
1134.32	1134.83	1135.34	+50	1135.85	1136.36
1133.83	1134.34	1134.85	+75	1135.36	1135.87
1133.35	1133.86	1134.37	395+00	1134.88	1135.39

CURVE NO. 4 CONTINUED

LEFT LANE Pav't. Elev. Left Edge	LANE ℄ Pav't. Elev.	PROFILE GRADE	STATION	RIGHT LANE ℄ Pav't. Elev.	RIGHT LANE Pav't. Elev. Right Edge
1132.86	1133.37	1133.88	395+25	1134.39	1134.90
1132.37	1132.88	1133.39	+50	1133.90	1134.41
1131.88	1132.39	1132.90	+75	1133.41	1133.92
1131.39	1131.90	1132.41	396+00	1132.92	1133.43
1130.91	1131.42	1131.93	+25	1132.44	1132.95
1130.42	1130.93	1131.44	+50	1131.95	1132.46
1130.93	1130.44	1130.95	+75	1131.46	1131.97
1129.44	1129.95	1130.46	397+00	1130.97	1131.48
1128.96	1129.47	1129.98	+25	1130.49	1131.00
1128.47	1128.98	1129.49	+50	1130.00	1130.51
1127.98	1128.49	1129.00	+75	1129.51	1130.02
1127.49	1128.00	1128.51	398+00	1129.02	1129.53
1127.00	1127.51	1128.02	+25	1128.53	1129.04
1126.52	1127.03	1127.54	+50	1128.05	1128.56
1126.03	1126.54	1127.05	+75	1127.56	1128.07
1125.54	1126.05	1126.56	399+00	1127.07	1127.58
1125.05	1125.56	1126.07	+25	1126.58	1127.09
1124.57	1125.08	1125.59	+50	1126.10	1126.61
1124.08	1124.59	1125.10	+75	1126.61	1126.12
1123.59	1124.10	1124.61	400+00	1125.12	1125.63
1123.10	1123.61	1124.12	+25	1124.63	1125.14
1122.62	1123.13	1123.64	+50	1124.15	1124.66
1122.13	1122.64	1123.15	+75	1123.66	1124.17
1121.64	1122.15	1122.66	401+00	1123.17	1123.68
1121.15	1121.66	1122.17	+25	1122.68	1123.19
1120.66	1121.17	1121.68	+50	1122.19	1122.70
1120.18	1120.69	1121.20	+75	1121.71	1122.22
1119.69	1120.20	1120.71	402+00	1121.22	1121.73
1119.20	1119.71	1120.22	+25	1120.73	1121.24
1118.71	1119.22	1119.73	+50	1120.24	1120.75
1118.23	1118.74	1119.25	+75	1119.76	1120.27
1117.74	1118.25	1118.76	403+00	1119.27	1119.78
1117.25	1117.76	1118.27	+25	1118.78	1119.29
1116.76	1117.27	1117.78	+50	1118.29	1118.80
1116.27	1116.78	1117.29	+75	1117.80	1118.31
1115.79	1116.30	1116.81	404+00	1117.32	1117.83
1115.30	1115.81	1116.32	+25	1116.83	1117.34
1114.81	1115.32	1115.83	+50	1116.34	1116.85
1114.32	1114.83	1115.34	+75	1115.85	1116.36
1113.84	1114.35	1114.86	405+00	1115.37	1115.88
1113.37	1113.87	1114.37	+25	1114.87	1115.36
1112.98	1113.43	1113.88	+50	1114.33	1114.78
1112.63	1113.01	1113.39	+75	1113.77	1114.14
1112.32	1112.62	1112.91	406+00	1113.19	1113.47
1112.22	1112.48	1112.73	P.T. +08.88	1112.99	1113.24
1112.03	1112.23	1112.42	+25	1112.61	1112.79
1111.68	1111.87	1111.93	+50	1112.12	1112.16
1111.31	1111.50	1111.44	+75	1111.63	1111.58
1110.88	1111.07	1110.95	407+00	1111.14	1111.04
1110.43	1110.62	1110.47	+25	1110.66	1110.50
1109.97	1110.16	1109.98	+50	1110.17	1110.00
1109.49	1109.68	1109.49	+75	1109.68	1109.49

CURVE NO. 5

P.C. 443+97.98
P.T. 479+87.52

D=0° 30' LT.
MAX. SUPER 0.38'

LEFT LANE Pav't. Elev. Left Edge	LANE ℄ Pav't. Elev.	PROFILE GRADE	STATION	RIGHT LANE ℄ Pav't. Elev.	RIGHT LANE Pav't. Elev. Right Edge
991.83	992.02	991.83	443+25	992.02	991.83
990.92	991.11	990.95	+50	991.14	990.97
989.97	990.16	990.08	+75	990.27	990.18
989.08	989.27	989.27	P.C.+97.98 =	989.46	989.46
989.08	989.27	989.27	442+02.52	989.46	989.46
988.19	988.38	988.48	+25	988.67	988.75
987.24	987.43	987.61	+50	987.80	987.95
986.35	986.54	986.73	+75	986.92	987.11
985.48	985.67	985.86	443+00	986.05	986.24
984.60	984.79	984.98	+25	985.17	985.36
983.73	983.92	984.11	+50	984.30	984.49
982.85	983.04	983.23	+75	983.42	983.61
981.98	982.17	982.36	444+00	982.55	982.74
981.10	981.29	981.48	+25	981.67	981.86
980.23	980.42	980.61	+50	980.80	980.99
979.35	979.54	979.73	+75	979.92	980.11
978.48	978.67	978.86	445+00	979.05	979.24
977.60	977.79	977.98	+25	978.17	978.36
976.73	976.92	977.11	+50	977.30	977.49
975.85	976.04	976.23	+75	976.42	976.61
974.98	975.17	975.36	446+00	975.55	975.74
974.10	974.29	974.48	+25	974.67	974.86
973.23	973.42	973.61	+50	973.80	973.99
972.35	972.54	972.73	+75	972.92	973.11
971.48	971.67	971.86	447+00	972.05	972.24
970.60	970.79	970.98	+25	971.17	971.36
969.73	969.92	970.11	+50	970.30	970.49
968.85	969.04	969.23	+75	969.42	969.61
967.98	968.17	968.36	448+00	968.55	968.74
967.10	967.29	967.48	+25	967.67	967.86
966.23	966.42	966.61	+50	966.80	966.99
965.35	965.54	965.73	+75	965.92	966.11
964.48	964.67	964.86	449+00	965.05	965.24
963.60	963.79	963.98	+25	964.17	964.36
962.73	962.92	963.11	+50	963.30	963.49
961.85	962.04	962.23	+75	962.42	962.61
960.98	961.17	961.36	450+00	961.55	961.74
960.10	960.29	960.48	+25	960.67	960.86
959.23	959.42	959.61	+50	959.80	959.99
958.35	958.54	958.73	+75	958.92	959.11
957.48	957.67	957.86	451+00	958.05	958.24
956.60	956.79	956.98	+25	957.17	957.36
955.73	955.92	956.11	+50	956.30	956.49
954.85	955.04	955.23	+75	955.42	955.61
953.98	954.17	954.36	452+00	954.55	954.74
			END OF PROJECT		

CURVE TABLES

S.R. 154 — CURVE NO. 1				
T.S. 42+47.44 S.C. 44+97.44	D = 4°00' LT.		C.S. 53+91.61 S.T. 56+41.61	
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
41+50	918.68	918.49	919.68	918.49
41+75	918.94	918.75	919.94	918.76
42+00	919.20	919.01	919.20	919.04
42+25	919.46	919.27	919.46	919.37
T.S. 42+47.44	919.69	919.50	919.69	919.69
42+50	919.71	919.52	919.71	919.73
42+75	919.97	919.78	919.97	920.16
43+00	920.23	920.04	920.31	920.58
43+25	920.49	920.30	920.66	921.02
43+50	920.74	920.55	921.00	921.44
43+75	921.00	920.81	921.34	921.87
44+00	921.26	921.07	921.69	922.30
44+25	921.52	921.33	922.02	922.70
44+50	921.77	921.58	922.33	923.07
44+75	922.03	921.84	922.62	923.40
S.C. 44+97.44	922.26	922.07	922.86	923.65
45+00	922.29	922.10	922.89	923.68
45+25	922.55	922.36	923.15	923.94
45+50	922.80	922.61	923.40	924.19
45+75	923.06	922.87	923.66	924.45
46+00	923.32	923.13	923.92	924.71
46+25	923.58	923.39	924.18	924.97
46+50	923.83	923.64	924.43	925.22
46+75	924.09	923.90	924.69	925.48
47+00	924.35	924.16	924.95	925.74
47+25	924.61	924.42	925.21	926.00
47+50	924.86	924.67	925.46	926.25
47+75	925.12	924.93	925.72	926.51
48+00	925.38	925.19	925.98	926.77
48+25	925.64	925.45	926.24	927.03
48+50	925.89	925.70	926.49	927.28
48+75	926.15	925.96	926.75	927.54
49+00	926.41	926.22	927.01	927.80
49+25	926.67	926.48	927.27	928.06
49+50	926.92	926.73	927.52	928.31
49+75	927.18	926.99	927.78	928.57
50+00	927.44	927.25	928.04	928.83
50+25	927.70	927.51	928.30	929.09
50+50	927.95	928.76	929.05	929.34
50+75	928.21	928.02	928.81	929.60
51+00	928.47	928.28	929.07	929,86
51+25	928.73	928.54	929.33	930.12
51+50	928.98	928.79	929.58	930.37
51+75	929.24	929.05	929.84	930.63

S.R. 154 CURVE NO.1 CONTINUED				
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
52+00	929.50	929.31	930.10	930.89
52+25	929.76	929.57	930.36	931.15
52+50	930.01	929.82	930.61	931.40
52+75	930.27	930.08	930.87	931.66
53+00	930.53	930.34	931.13	931.92
53+25	930.79	930.60	931.39	932.18
53+50	931.04	930.85	931.64	932.43
53+75	931.30	931.11	931.90	932.69
C.S. 53+91.61	931.47	931.28	932.07	932.86
54+00	931.56	931.37	932.16	932.94
54+25	931.79	931.60	932.36	933.11
54+50	931.97	931.78	932.48	933.17
54+75	932.13	931.94	932.56	933.17
55+00	932.25	932.06	932.59	933.12
55+25	932.33	932.14	932.58	933.02
55+50	932.38	932.19	932.54	932.88
55+75	932.40	932.21	932.48	932.74
56+00	932.37	932.18	932.38	932.57
56+25	932.31	932.12	932.31	932.39
S.T. 56+41.61	932.25	932.06	932.25	932.25
56+50	932.21	932.02	932.21	932.16
56+75	932.09	931.90	932.09	931.94
57+00	931.93	931.74	931.93	931.75
57+25	931.76	931.57	931.76	931.57

S.R. 154 — CURVE NO. 2				
T.S. 63+51.89 S.C. 65+01.89	D = 2°00' RT.		C.S. 80+72.04 S.T. 82+22.04	
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
62+75	928.08	927.89	928.08	927.89
63+00	927.91	927.75	927.91	927.72
63+25	927.74	927.64	927.74	927.55
63+50	927.57	927.57	927.57	927.38
T.S. 63+51.89	927.56	927.56	927.56	927.37
63+75	927.41	927.52	927.41	927.22
64+00	927.24	927.48	927.27	927.05
64+25	927.07	927.44	927.16	926.88
64+50	926.90	927.38	927.05	926.71
64+75	926.74	927.30	926.93	926.55
65+00	926.57	927.16	926.77	926.38
S.C. 65+01.89	926.56	927.14	926.76	926.37
65+25	926.40	927.01	926.61	926.21
65+50	926.23	926.84	926.44	926.04
65+75	926.07	926.68	926.28	925.88
66+00	925.90	926.51	926.11	925.71

S.R. 154 CURVE NO. 2 CONTINUED				
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
66+25	925.73	926.34	925.94	925.54
66+50	925.55	926.16	925.76	925.36
66+75	925.37	925.98	925.58	925.18
67+00	925.18	925.79	925.39	924.99
67+25	924.99	925.60	925.20	924.80
67+50	924.79	925.40	925.00	924.60
67+75	924.60	925.21	924.81	924.41
68+00	924.39	925.00	924.60	924.20
68+25	924.18	924.79	924.39	923.99
68+50	923.96	924.57	924.17	923.77
68+75	923.75	924.36	923.96	923.56
69+00	923.52	924.13	923.73	923.33
69+25	923.30	923.91	923.51	923.11
69+50	923.07	923.68	923.28	922.88
69+75	922.85	923.46	923.06	922.66
70+00	922.62	923.23	922.83	922.43
70+25	922.40	923.01	922.61	922.21
70+50	922.17	922.78	922.38	921.98
70+75	921.95	922.56	922.16	921.76
71+00	921.72	922.33	921.93	921.53
71+25	921.50	922.11	921.71	921.31
71+50	921.27	921.88	921.48	921.08
71+75	921.05	921.66	921.26	920.86
72+00	920.82	921.43	921.03	920.63
72+25	920.60	921.21	920.81	920.41
72+50	920.37	920.98	920.58	920.18
72+75	920.15	920.76	920.36	919.96
73+00	919.92	920.53	920.13	919.73
73+25	919.70	920.31	919.91	919.51
73+50	919.47	920.08	919.68	919.28
73+75	919.25	919.86	919.46	919.06
74+00	919.02	919.63	919.23	918.83
74+25	918.80	919.41	919.01	918.61
74+50	918.57	919.18	918.78	918.38
74+75	918.35	918.96	918.56	918.16
75+00	918.12	918.73	918.33	917.93
75+25	917.90	918.51	918.11	917.71
75+50	917.67	918.28	917.88	917.48
75+75	917.45	918.06	917.66	917.26
76+00	917.22	917.83	917.43	917.03
76+25	917.00	917.61	917.21	916.81
76+50	916.77	917.38	916.98	916.58
76+75	916.55	917.16	916.76	916.36
77+00	916.32	916.93	916.53	916.13
77+25	916.10	916.71	916.31	915.91
77+50	915.87	916.48	916.08	915.68
77+75	915.65	916.26	915.86	915.46

FOR CONTINUATION (See Sheet 323)

CURVE TABLES

S.R. 154 CURVE NO.2 CONTINUED				
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
78+00	915.42	916.03	915.63	915.23
78+25	915.20	915.81	915.41	915.01
78+50	914.97	915.58	915.18	914.78
78+75	914.75	915.36	914.96	914.56
79+00	914.52	915.13	914.73	914.33
79+25	914.30	914.91	914.51	914.11
79+50	914.07	914.68	914.28	913.88
79+75	913.85	914.46	914.06	913.66
80+00	913.62	914.23	913.83	913.43
80+25	913.40	914.01	913.61	913.21
80+50	913.17	913.78	913.38	912.98
C.S. 80+72.04	912.97	913.58	913.18	912.78
80+75	912.95	913.55	913.16	912.76
81+00	912.72	913.30	912.92	912.53
81+25	912.50	913.01	912.66	912.31
81+50	912.27	912.68	912.38	912.08
81+75	912.05	912.33	912.10	911.86
82+00	911.82	911.95	911.82	911.63
S.T. 82+22.04	911.62	911.62	911.62	911.43
82+25	911.60	911.58	911.60	911.41
82+50	911.37	911.28	911.37	911.18
82+75	911.15	911.00	911.15	910.96
83+00	910.92	910.73	910.92	910.73

TWP. RD. 785				
P.C. 10+67.28	D=6°00' LT.		P.T. 18+67.28	
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
9+50	1063.29	1063.13	1063.29	1063.13
9+75	1062.16	1062.00	1062.16	1062.00
10+00	1060.88	1060.72	1060.88	1060.74
10+25	1059.49	1059.33	1059.49	1059.43
10+50	1057.98	1057.82	1057.98	1058.04
P.C. 10+67.28	1056.85	1056.69	1056.87	1057.04
10+75	1056.32	1056.16	1056.36	1056.56
11+00	1054.55	1054.39	1054.67	1054.94
11+25	1052.65	1052.49	1052.81	1053.13
11+50	1050.61	1050.45	1050.80	1051.15
11+75	1048.52	1048.36	1048.71	1049.06
12+00	1046.42	1046.26	1046.61	1046.96
12+25	1044.32	1044.16	1044.51	1044.86
12+50	1042.23	1042.07	1042.42	1042.77
12+75	1040.13	1039.97	1040.32	1040.67

TWP. RD. 785 CONTINUED				
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
13+00	1038.03	1037.87	1038.22	1038.57
13+25	1035.94	1035.78	1036.13	1036.48
13+50	1033.84	1033.68	1034.03	1034.38
13+75	1031.74	1031.58	1031.93	1032.28
14+00	1029.65	1029.49	1029.84	1030.19
14+25	1027.55	1027.39	1027.74	1028.09
14+50	1025.45	1025.29	1025.64	1025.99
14+75	1023.35	1023.19	1023.54	1023.89
15+00	1021.26	1021.10	1021.45	1021.80
15+25	1019.16	1019.00	1019.35	1019.70
15+50	1017.06	1016.90	1017.25	1017.60
15+75	1014.97	1014.81	1015.16	1015.51
16+00	1012.87	1012.71	1013.06	1013.41
16+25	1010.77	1010.61	1010.96	1011.31
16+50	1008.68	1008.52	1008.87	1009.22
16+75	1006.58	1006.42	1006.77	1007.12
17+00	1004.48	1004.32	1004.67	1005.02
17+25	1002.39	1002.23	1002.58	1002.93
17+50	1000.29	1000.13	1000.48	1000.83
17+75	998.19	998.03	998.38	998.73
18+00	996.10	995.94	996.28	996.62
18+25	994.00	993.84	994.14	994.44
18+50	991.90	991.74	991.97	992.20
P.T. 18+67.28	990.45	990.29	990.47	990.64
18+75	989.81	989.65	989.81	989.93
19+00	987.71	987.55	987.71	987.69
19+25	985.61	985.45	985.61	985.49
19+50	983.52	983.36	983.52	983.36

TWP. RD. 785				
P.C. 25+58.80	D=6°00' RT.		P.T. 28+51.54	
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
24+75	940.00	939.84	940.00	939.84
25+00	938.32	938.17	938.32	938.16
25+25	936.74	936.63	936.74	936.58
25+50	935.27	935.25	935.27	935.11
P.C. 25+58.80	934.79	934.79	934.79	934.63
25+75	933.93	934.00	933.93	933.77
26+00	932.70	932.84	932.70	932.54
26+25	931.58	931.74	931.58	931.42
26+50	930.59	930.75	930.59	930.43
26+75	929.71	929.87	929.71	929.55
27+00	928.94	929.10	928.94	928.78
27+25	928.29	928.45	928.29	928.13
27+50	927.75	927.91	927.75	927.59
27+75	927.34	927.50	927.34	927.18
28+00	927.03	927.17	927.03	926.87
28+25	926.78	926.84	926.78	926.62
28+50	926.54	926.54		
P.T. 28+51.54	926.52			
28+75	926.29	SEE INTERSECTION DETAIL (Sheet No.326)		
28+95.31	926.09			

RAMP "C"					
STATION	Left Lane		Median Edge	Right Lane	
	℄ Survey Left Edge	Right Edge		Left Edge	Right Edge
221+00	933.06	933.31	933.33	933.31	933.06
221+25	933.77	934.02	934.04	934.02	933.82
221+50	934.47	934.72	934.74	934.72	934.62
T.S. 221+60.66	934.77	935.02	935.04	935.02	935.02
221+75	935.18	935.45	935.47	935.45	935.55
222+00	935.89	936.24	936.26	936.26	936.55
222+25	936.59	937.10	937.13	937.14	937.63
222+50	937.30	938.00	938.04	938.07	938.77
222+75	938.01	938.91	938.97	939.02	939.95
223+00	938.71	939.80	939.87	939.95	941.05
223+25	939.42	940.64	940.72	940.82	942.03
223+50	940.13	941.43	941.51	941.62	942.90
S.C. 223+60.66	940.43	941.76	941.84	941.93	943.23
223+75	940.83	942.16	942.24	942.33	943.66
224+00	941.54	942.87	942.95	943.04	944.37
224+25	942.25	943.58	943.66	943.75	945.08
224+50	942.95	944.28	944.36	944.46	945.75
224+75	943.66	944.99	945.07	945.17	946.37
225+00	944.37	945.70	945.78	945.88	946.93
225+25	945.07	946.40	946.48	946.59	947.42
225+40.32	945.51	946.84	946.92	947.02	947.67

FOR CONTINUATION (See Sheet 266)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

COL-11-10.22
COL-154-1.71

CURVE TABLES

TWP. RD. 900				
P.C. 9+31.21	D=12°00' RT.		P.T. 12+18.34	
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
8+25	1151.23	1151.07	1151.23	1151.07
8+50	1150.63	1150.52	1150.63	1150.47
8+75	1150.03	1150.07	1150.03	1149.87
9+00	1149.48	1149.74	1149.53	1149.32
9+25	1149.01	1149.58	1149.22	1148.85
P.C. 9+31.21	1148.90	1149.57	1149.16	1148.74
9+50	1148.62	1149.57	1149.02	1148.46
9+75	1148.31	1149.56	1148.86	1148.15
10+00	1148.09	1149.53	1148.73	1147.93
10+25	1147.97	1149.47	1148.64	1147.81
10+50	1147.91	1149.41	1148.58	1147.75
10+75	1147.95	1149.45	1148.62	1147.79
11+00	1148.06	1149.56	1148.73	1147.90
11+25	1148.27	1149.77	1148.94	1148.11
11+50	1148.55	1150.02	1149.21	1148.39
11+75	1148.92	1150.22	1149.49	1148.76
12+00	1149.38	1150.38	1149.80	1149.22
P.T. 12+18.34	1149.77	1150.44	1150.03	1149.61
12+25	1149.92	1150.46	1150.11	1149.76
12+50	1150.54	1150.72	1150.57	1150.41

TWP. RD. 900				
P.C. 13+20.00	D=12°00' LT.		P.T. 17+95.00	
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
12+75	1151.25	1151.18	1151.24	1151.30
13+00	1152.00	1151.84	1152.10	1152.35
P.C. 13+20.00	1152.60	1152.44	1152.86	1153.27
13+25	1152.75	1152.59	1153.04	1153.48
13+50	1153.50	1153.34	1153.96	1154.58
13+75	1154.25	1154.09	1154.84	1155.58
14+00	1155.00	1154.84	1155.66	1156.48
14+25	1155.75	1155.59	1156.42	1157.25
14+50	1156.50	1156.34	1157.17	1158.00
14+75	1157.25	1157.09	1157.92	1158.75
15+00	1158.00	1157.84	1158.67	1159.50
15+25	1158.75	1158.59	1159.42	1160.25
15+50	1159.50	1159.34	1160.17	1161.00
15+75	1160.25	1160.09	1160.92	1161.75
16+00	1161.00	1160.84	1161.67	1162.50
16+25	1161.75	1161.59	1162.42	1163.25
16+50	1162.50	1162.34	1163.17	1164.00
16+75	1163.25	1163.09	1163.92	1164.75
17+00	1164.00	1163.84	1164.67	1165.50
17+25	1164.75	1164.59	1165.40	1166.20
17+50	1165.50	1165.34	1166.07	1166.79
17+75	1166.25	1166.09	1166.67	1167.24
P.T. 17+95.00	1166.85	1166.69	1167.11	1167.52
18+00	1167.00	1166.84	1167.21	1167.58
18+25	1167.70	1167.54	1167.74	1167.94
18+50	1168.29	1168.13	1168.29	1168.29
18+75	1168.77	1168.61	1168.77	1168.64
19+00	1169.15	1168.99	1169.15	1168.99

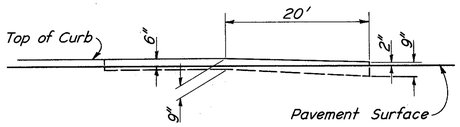
TWP. RD. 900				
P.C. 22+08.65	D=12°00' RT.		P.T. 23+88.14	
STATION	PROFILE GRADE	Pavement Elevation Lt. Edge	℄ Pav't. Elevation	Pavement Elevation Rt. Edge
21+00	1168.35	1168.19	1168.35	1168.19
21+25	1167.78	1167.63	1167.78	1167.62
21+50	1167.09	1167.06	1167.09	1166.93
21+75	1166.29	1166.49	1166.31	1166.13
22+00	1165.40	1165.93	1165.59	1165.24
P.C. 22+08.65	1165.06	1165.72	1165.31	1164.90
22+25	1164.40	1165.29	1164.77	1164.24
22+50	1163.29	1164.49	1163.81	1163.13
22+75	1162.07	1163.51	1162.71	1161.91
23+00	1160.75	1162.25	1161.42	1160.59
23+25	1159.25	1160.68	1159.89	1159.09
23+50	1157.75	1158.97	1158.28	1157.59
23+75	1156.25	1157.13	1156.61	1156.09
P.T. 23+88.14	1155.46	1156.13	1155.72	1155.30
24+00	1154.75	1155.23	1154.91	1154.59
24+25	1153.30	1153.45	1153.30	1153.14
24+50	1151.97	1151.92	1151.97	1151.81
24+75	1150.74	1150.58	1150.74	1150.58

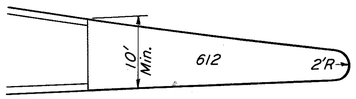
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

325

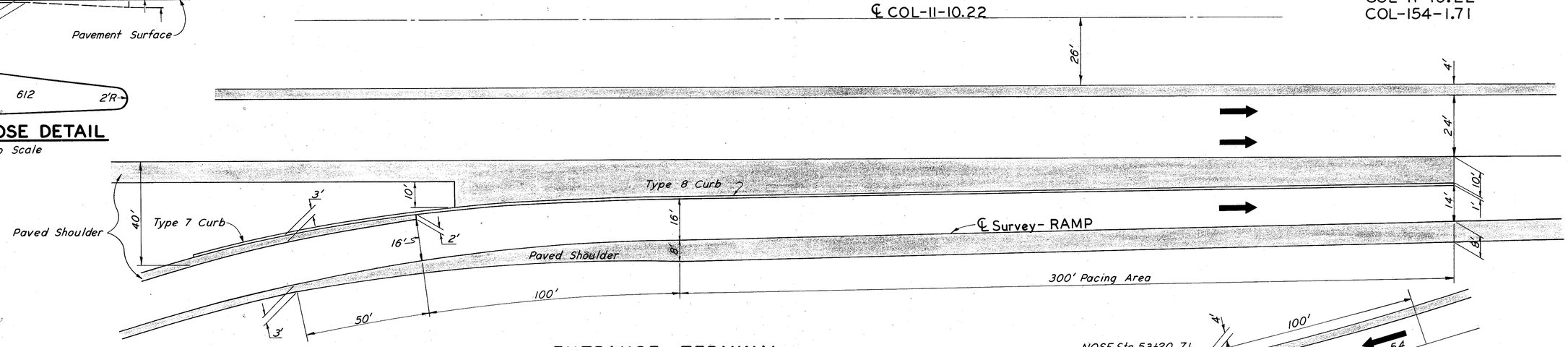
COL-11-10.22
COL-154-1.71

Scale: 0 10' 20'

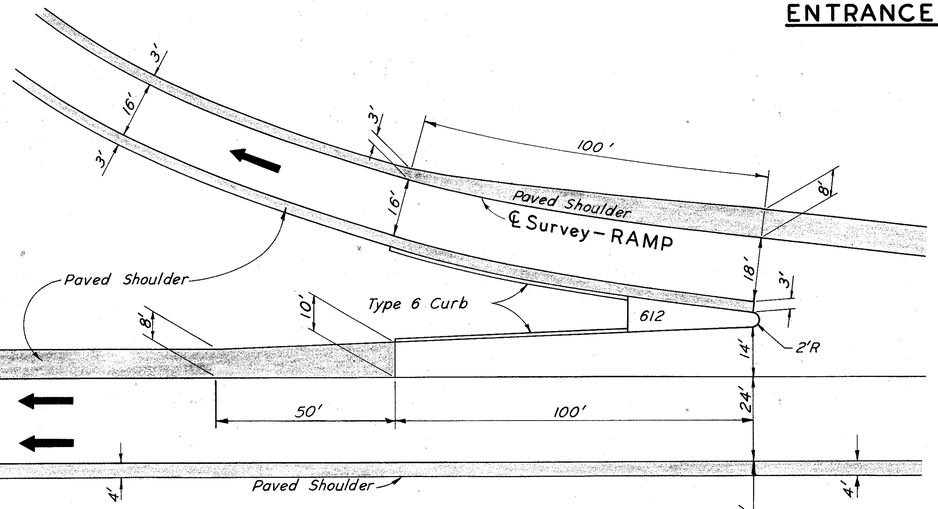




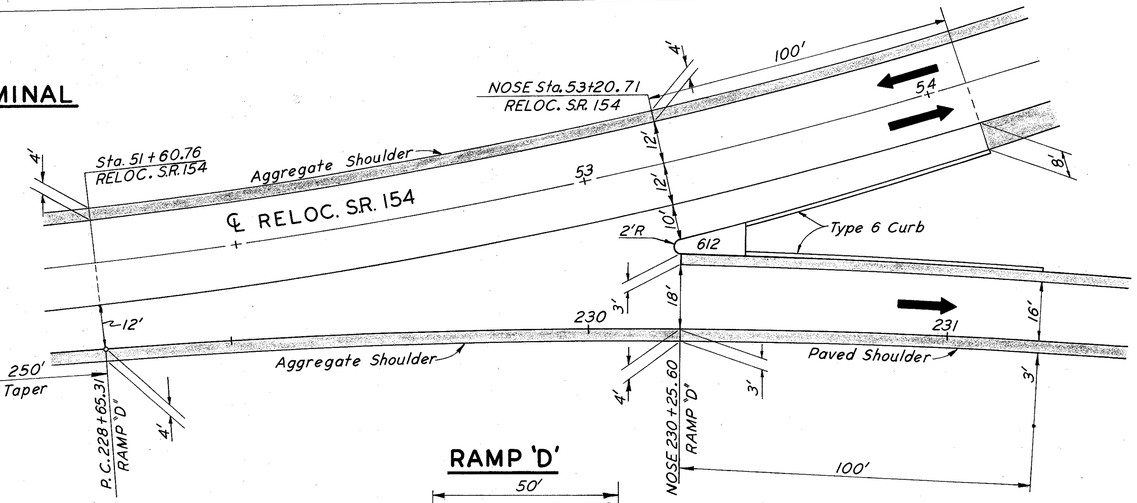
EXIT NOSE DETAIL
No Scale



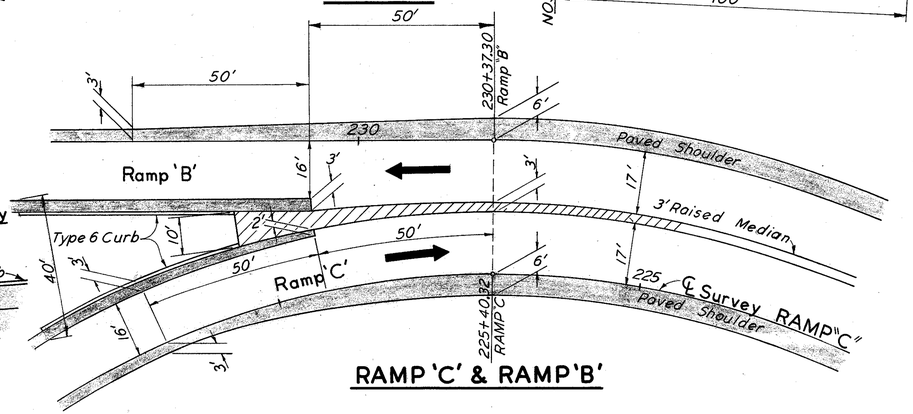
ENTRANCE TERMINAL



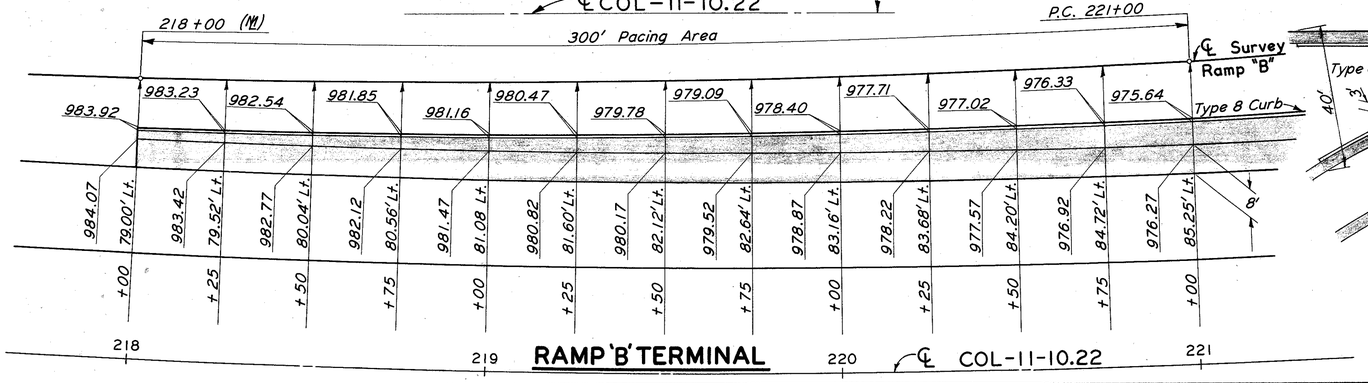
EXIT TERMINAL



RAMP 'D'



RAMP 'C' & RAMP 'B'



RAMP 'B' TERMINAL

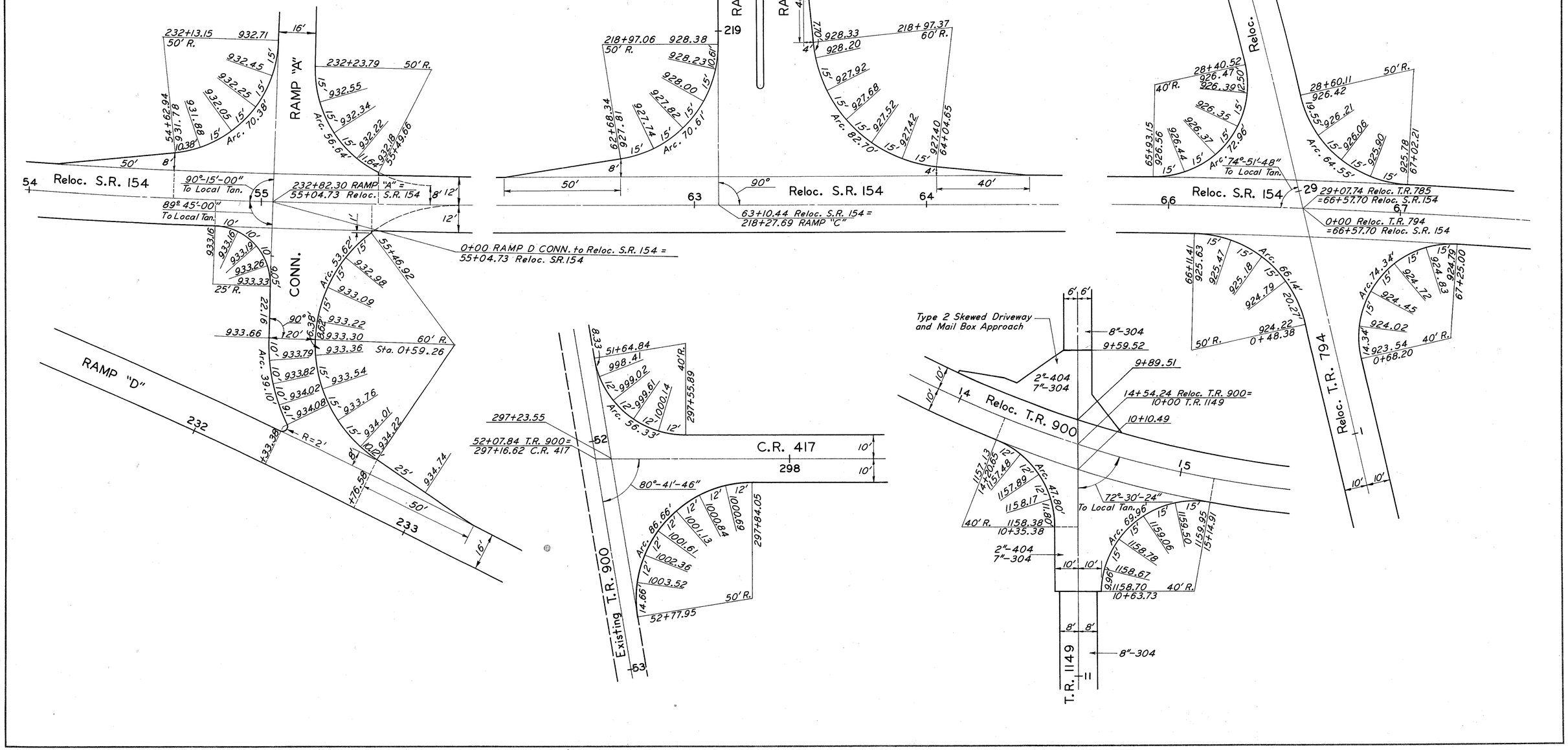
RAMP TERMINAL DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

326

COL-11-10.22
COL-154-1.71

SCALE 1"=20'

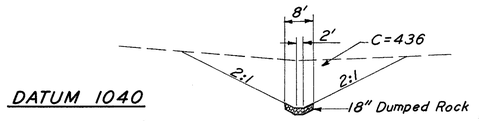


INTERSECTION DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

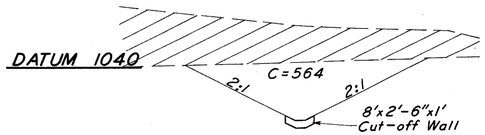
327

COL-11-10.22
COL-154-1.71



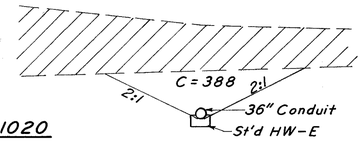
DATUM 1040

STA. 8+75



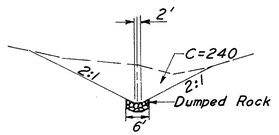
DATUM 1040

STA. 9+04



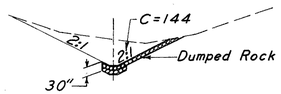
DATUM 1020

STA. 9+10



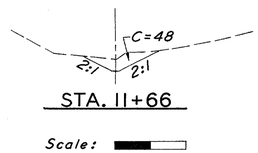
DATUM 1020

STA. 11+10



DATUM 1020

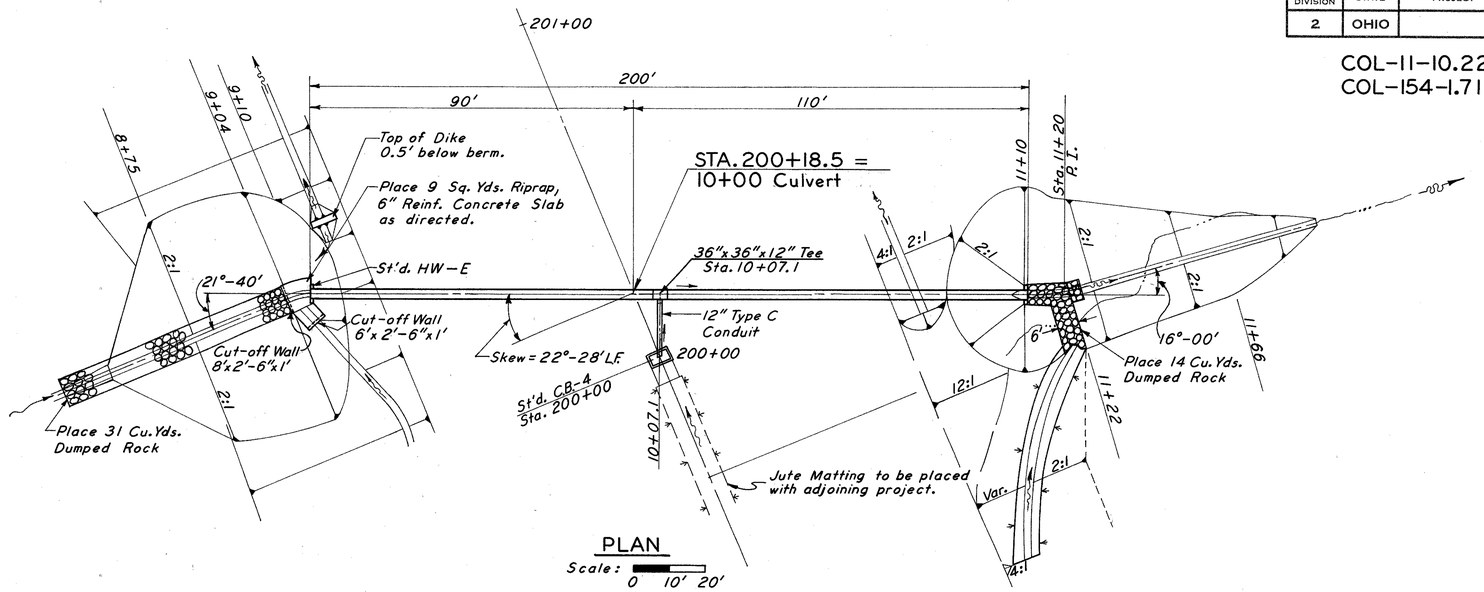
STA. 11+22



DATUM 1020

STA. 11+66

Scale: 0 10' 20'



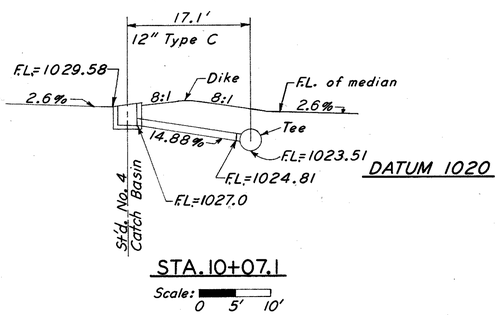
PLAN

Scale: 0 10' 20'

ESTIMATED QUANTITIES

Item 603-36" Conduit Type A, 706.02 or 706.08 Cl. B Bedding	200	Lin.Ft.
Item 603-12" Conduit Type C with Class B Bedding	18	Lin.Ft.
Item 601-Riprap, 6" Reinforced Concrete Slab	9	Sq.Yd.
Item 601-Dumped Rock Channel Protection	45	Cu.Yd.
Item 203-Excavation, not including Embankment Construction	1110	Cu.Yd.
Item 602-Concrete Masonry	1.18	Cu.Yd.
Item 604-St'd. No. 4 Catch Basin	1	Each

Quantities carried to Sheet No. 20.
Drainage Area = 33 Acres
Q_{25} = 60 c.f.s.



DATUM 1020

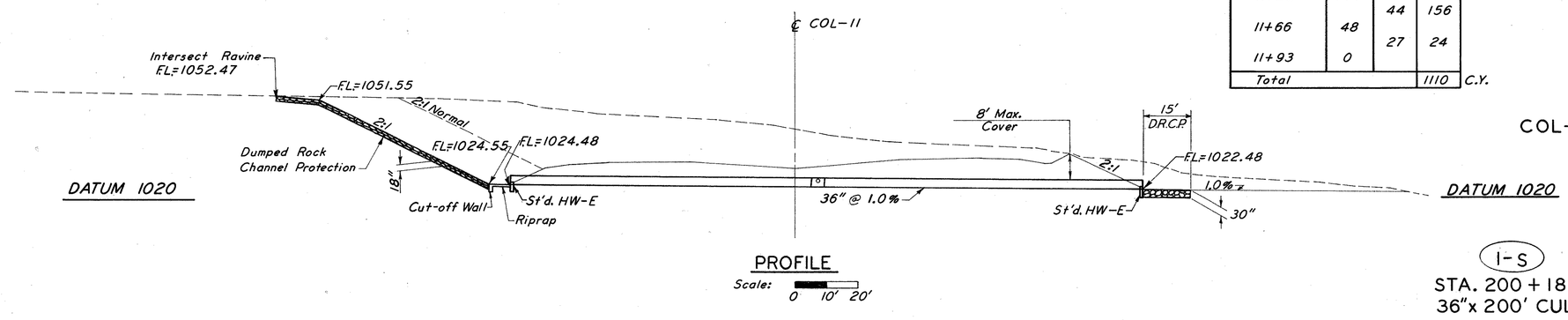
STA. 10+07.1

Scale: 0 5' 10'

BENDS & BRANCHES

36"x 36"x12" Tee, Type A, 706.02 or 706.08---1 Each

Excavation		Quantities	
Station	E. Area	Dist.	Vol.
8+50	0		
		25	202
8+75	436		
		29	537
9+04	564		
		6	106
9+10	388		
11+10	240		
		12	85
11+22	144		
		44	156
11+66	48		
		27	24
11+93	0		
Total			1110 C.Y.



DATUM 1020

DATUM 1020

PROFILE

Scale: 0 10' 20'

COL-11-1502

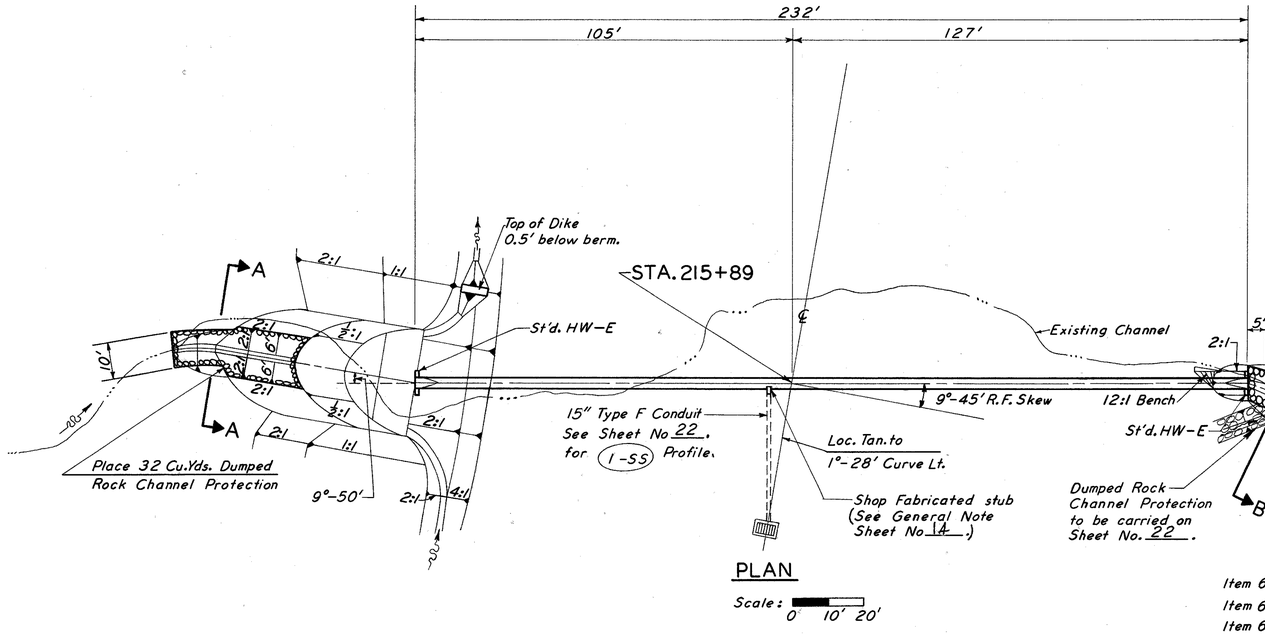
1-S

STA. 200 + 18.5
36"x 200' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

328

COL-11-10.22
COL-154-1.71



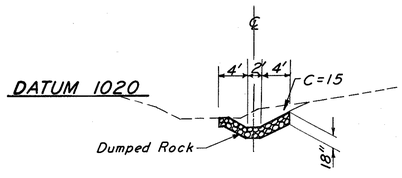
PLAN

Scale: 0 10' 20'

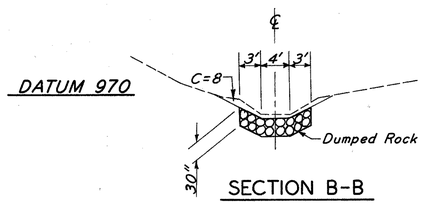
NOTE: Connect Proposed Channel to existing with smooth curve.

ESTIMATED QUANTITIES

Item 603— 42" Conduit, Type A, 707.05, with Class "B" Bedding ——— 232 Lin. Ft.
Item 602— Concrete Masonry ——— 2.91 Cu. Yds.
Item 601— Dumped Rock Channel Protection ——— 53 Cu.Yds.
Item 203— Excavation, not including embankment Construction ——— 22 Cu.Yds.
Quantities carried to Sheet No. 22.
Drainage Area = 69 Acres
Q_{25} = 75 c.f.s.

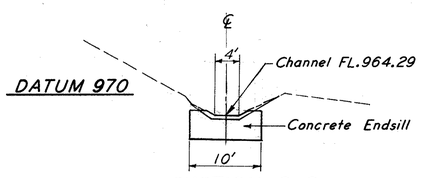


SECTION A-A



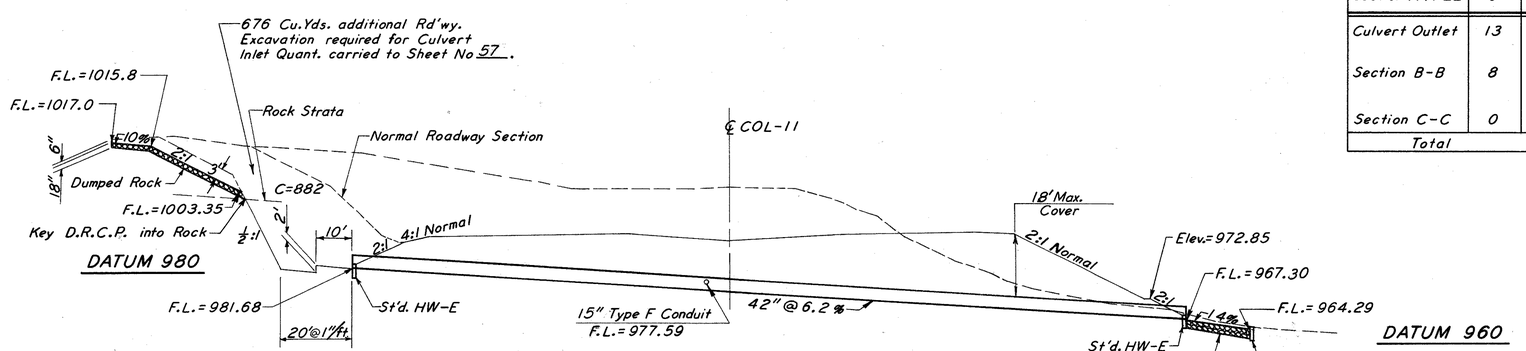
SECTION B-B

Scale: 0 5' 10'



SECTION C-C

Excavation Station	Quantities E. Area	Dist.	Vol.
Begin Excav.	0		
		14'	4
Section A-A	15		
		20'	11
Section A-A+20'	15		
		2'	1
Section A-A+22'	0		
Culvert Outlet	13		
		10'	4
Section B-B	8		
		12'	2
Section C-C	0		
Total			22 C.Y.



PROFILE

Scale: 0 10' 20'

COL-11-1474

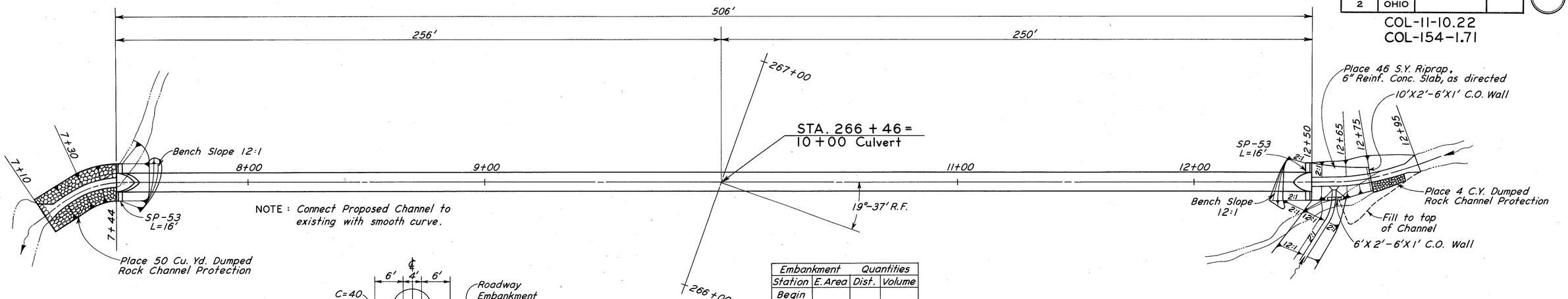
2-S

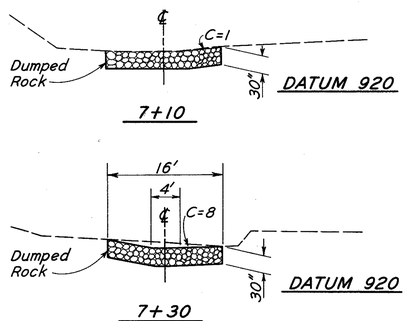
STATION 215+89
42"x 232' CULVERT

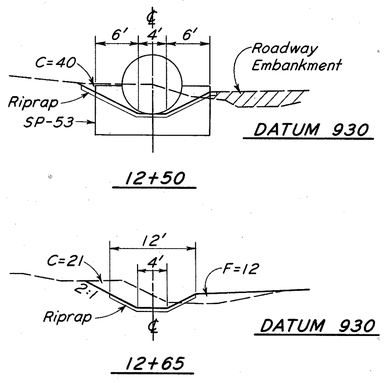
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

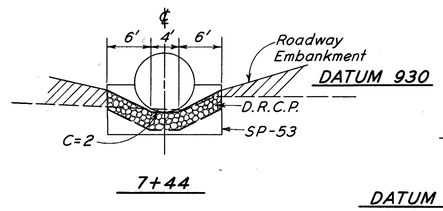
329

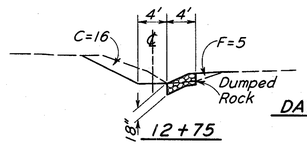
COL-11-10.22
COL-154-1.71











PLAN
Scale : 0 10' 20'

Embankment Quantities			
Station	E. Area	Dist.	Volume
Begin Fill	0	5'	1
12+65	12	10'	3
12+75	5	10'	1
12+95	0		
Total			5 C.Y.

Excavation Quantities			
Station	E. Area	Dist.	Volume
7+10	1	20'	3
7+30	8	14'	3
7+44	2		
12+50	40	15'	17
12+65	21	10'	7
12+75	16	20'	6
12+95	1		
Total			36 C.Y.

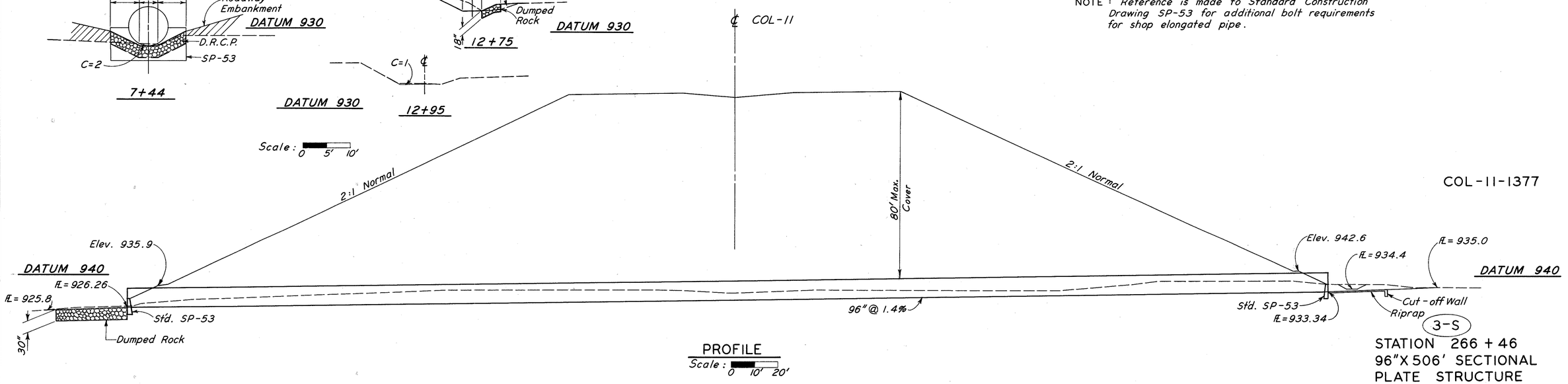
ESTIMATED QUANTITIES

*-Shop Elongated

Item 603 - 96" Conduit, Type A, 707.03*, Gage 1-1 with Class "B" Bedding ——— 506 Lin. Ft.
Item 602 - Concrete Masonry ——— 11.26 Cu. Yd.
Item 601 - Dumped Rock Channel Protection ——— 54 Cu. Yd.
Item 601 - Riprap, 6" Reinforced Concrete Slab ——— 46 Sq. Yd.
Item 203 - Excavation, not including Embankment Construction ——— 36 Cu. Yd.
Item 203 - Embankment ——— 5 Cu. Yd.

Quantities Carried to Sheet No. 27 .
Drainage Area = 920 Acres
Q25 = 535 c.f.s.

NOTE : Reference is made to Standard Construction Drawing SP-53 for additional bolt requirements for shop elongated pipe.



PROFILE
Scale : 0 10' 20'

COL-11-1377

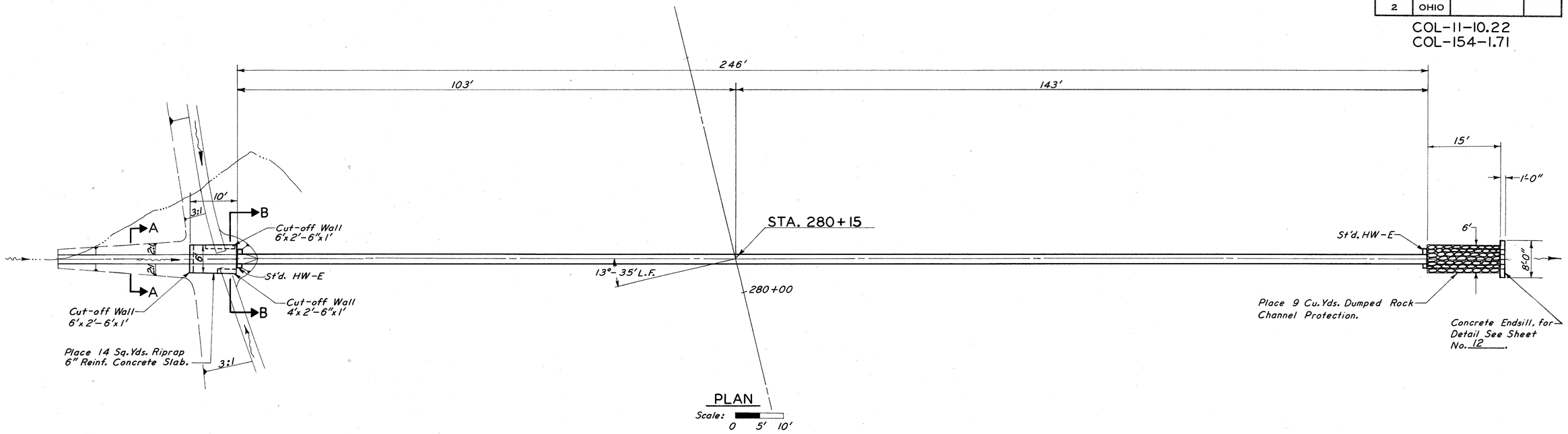
3-S

STATION 266 + 46
96"X 506' SECTIONAL
PLATE STRUCTURE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

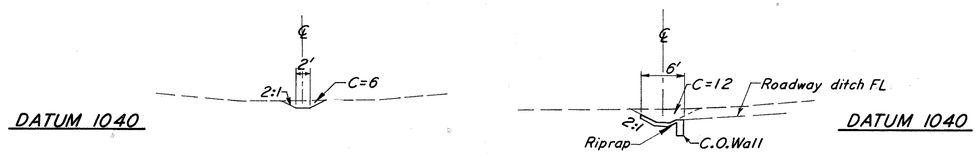
330

COL-11-10.22
COL-154-1.71



PLAN

Scale: 0 5' 10'



SECTION A-A

SECTION B-B

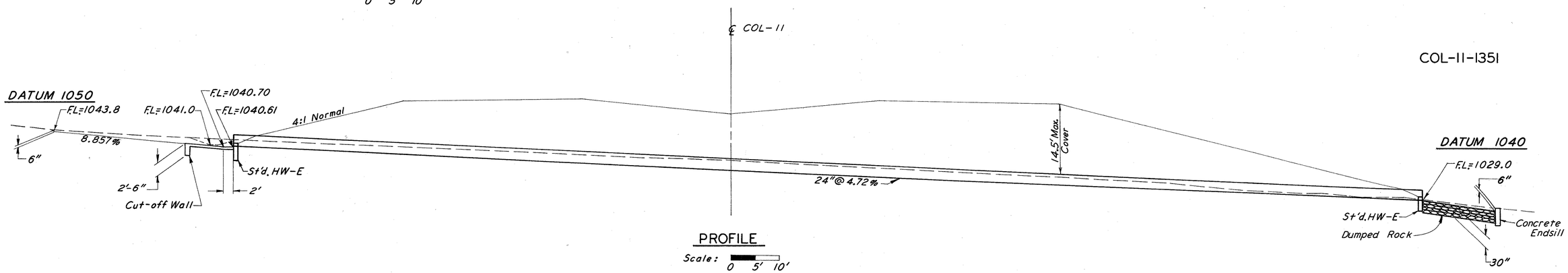
Scale: 0 5' 10'

ESTIMATED QUANTITIES

Item 603 – 24" Conduit, Type A, 706.02, Class IV with Class "B" bedding	246	Lin.Ft.
Item 602 – Concrete Masonry	1.97	Cu.Yd.
Item 203 – Excavation, not including Embankment Construction	5	Cu.Yd.
Item 601 – Dumped Rock Channel Protection	9	Cu.Yd.
Item 601 – Riprap, 6" Reinforced Concrete Slab	14	Sq.Yd.

Quantities carried to Sheet No. 29.

Drainage Area = 11 Acres
Q_{25} = 29 c.f.s.



PROFILE

Scale: 0 5' 10'

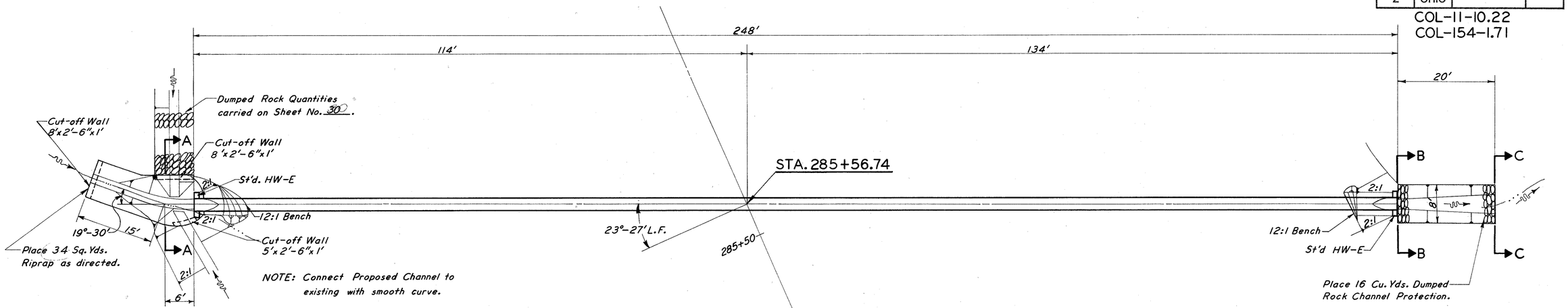
4-S

STATION 280+15
24"x246' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

331

COL-11-10.22
COL-154-1.71

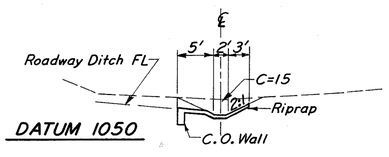


PLAN
Scale: 0 5' 10'

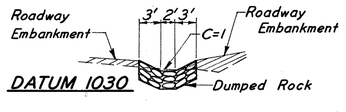
ESTIMATED QUANTITIES

Item 603 – 30" Conduit, Type A, 707.05, 14 Gage with Class B bedding ——— 248 Lin. Ft.
Item 602 – Concrete Masonry ——— 1.02 Cu. Yd.
Item 601 – Riprap, 6" Reinforced Concrete Slab ——— 34 Sq. Yd.
Item 601 – Dumped Rock Channel Protection ——— 15 Cu. Yd.
Item 203 – Excavation, not including Embankment Construction ——— 7 Cu. Yd.

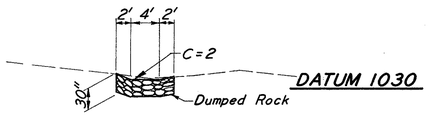
Quantities carried to Sheet No 30.
Drainage Area = 12 Acres
Q_{25} = 30 c.f.s.



SECTION A-A



SECTION B-B

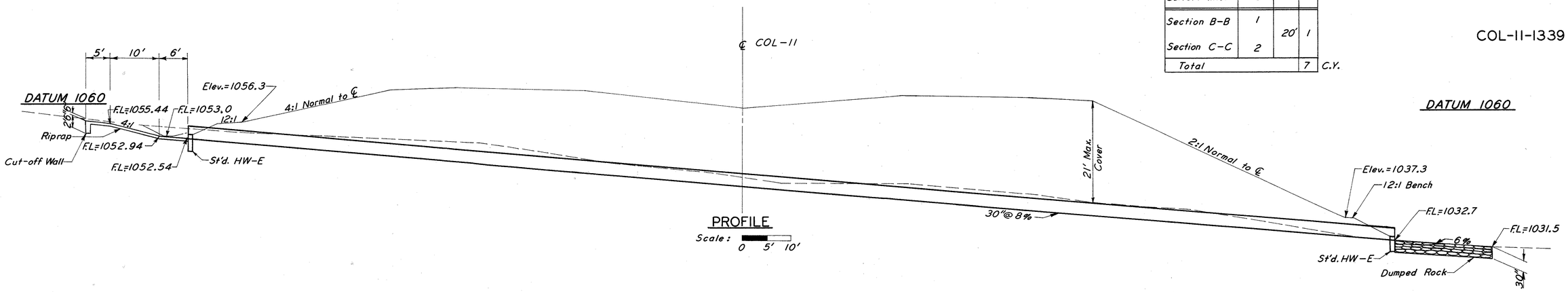


SECTION C-C

Scale: 0 5' 10'

Earthwork Quantities			
Station	E Area	Dist.	Vol.
Begin Excav.	0	10'	3
Section A-A	15	6'	3
Culvert Inlet	15		
Section B-B	1	20'	1
Section C-C	2		
Total			7 C.Y.

COL-11-1339



PROFILE
Scale: 0 5' 10'

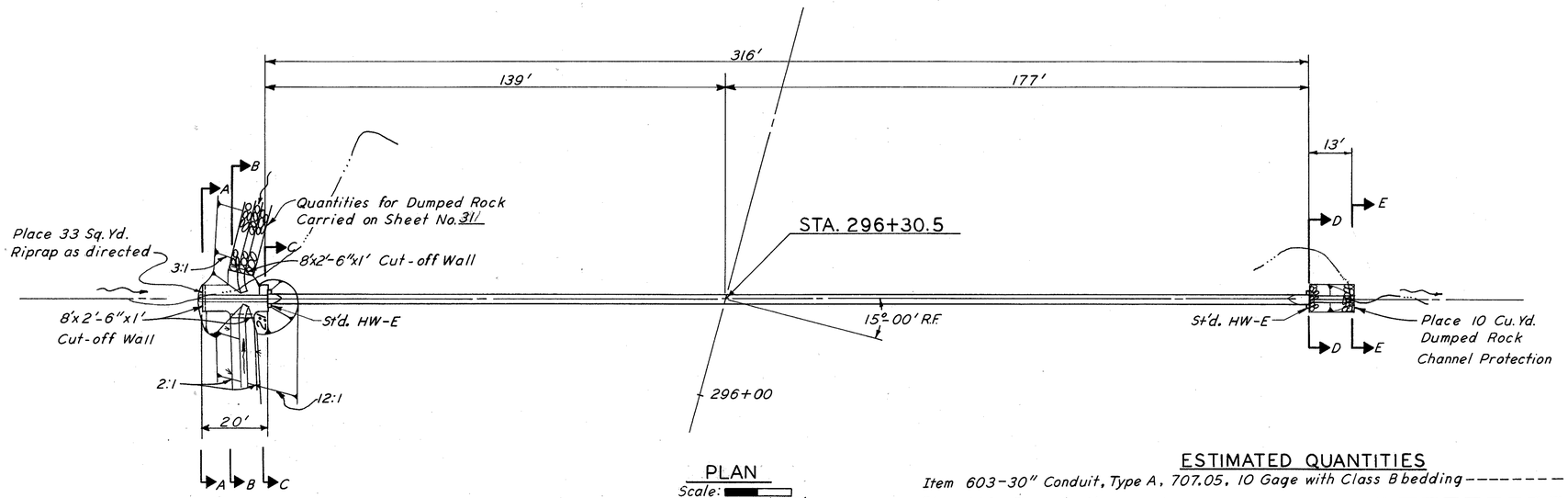
5-S

STATION 285+56.74
30"x 248' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

332

COL-11-1022
COL-154-1.71



PLAN
Scale: 0 10' 20'

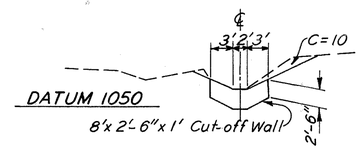
ESTIMATED QUANTITIES

Item 603-30" Conduit, Type A, 707.05, 10 Gage with Class B bedding ——— 316 Lin. Ft.
Item 602-Concrete Masonry ——— 1.02 Cu. Yd.
Item 601-Riprap, 6" Reinforced Concrete Slab ——— 33 Sq. Yd.
Item 601-Dumped Rock Channel Protection ——— 10 Cu. Yd.
Item 203-Excavation, not Including Embankment Construction ——— 20 Cu. Yd.

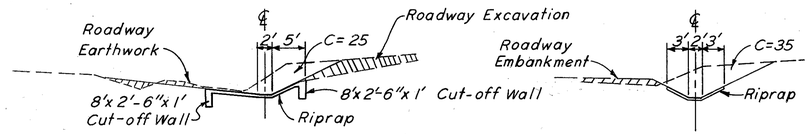
Quantities carried to Sheet No. 31.

Drainage Area = 19 Acres

Q_{25} = 41 c.f.s.

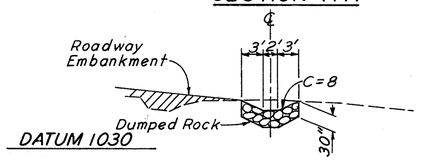


SECTION A-A



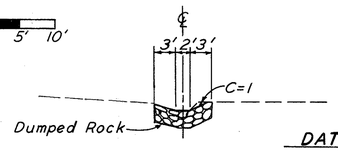
SECTION B-B

SECTION C-C



SECTION D-D

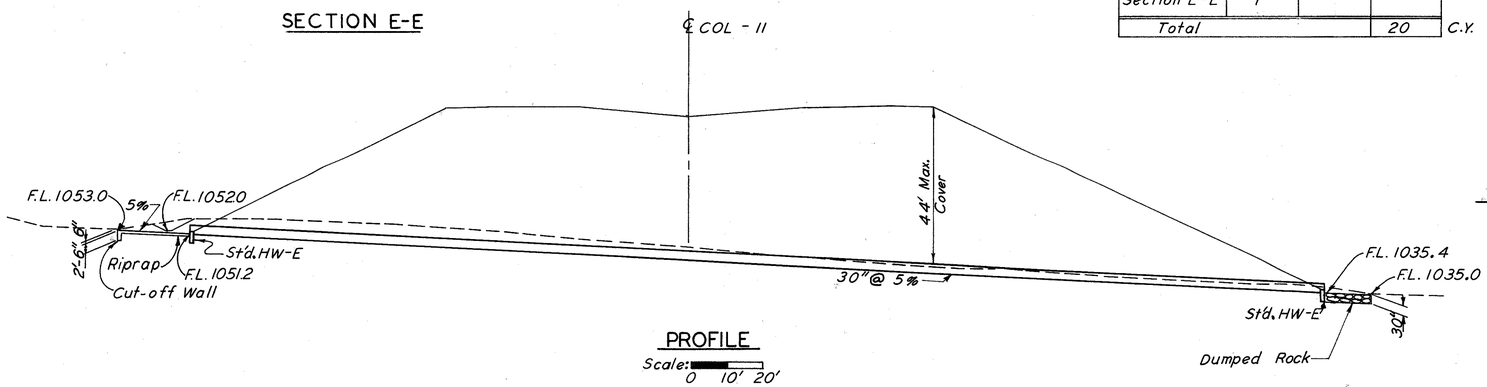
Scale: 0 5' 10'



SECTION E-E

Excavation Quantities			
Station	E. Area	Distance	Volume
Begin Excav.	0	1'	—
Section A-A	10	9'	6
Section B-B	25	11'	12
Culvert Inlet	35		
Section D-D	8	13'	2
Section E-E	1		
Total			20 C.Y.

COL-11-1320



PROFILE
Scale: 0 10' 20'

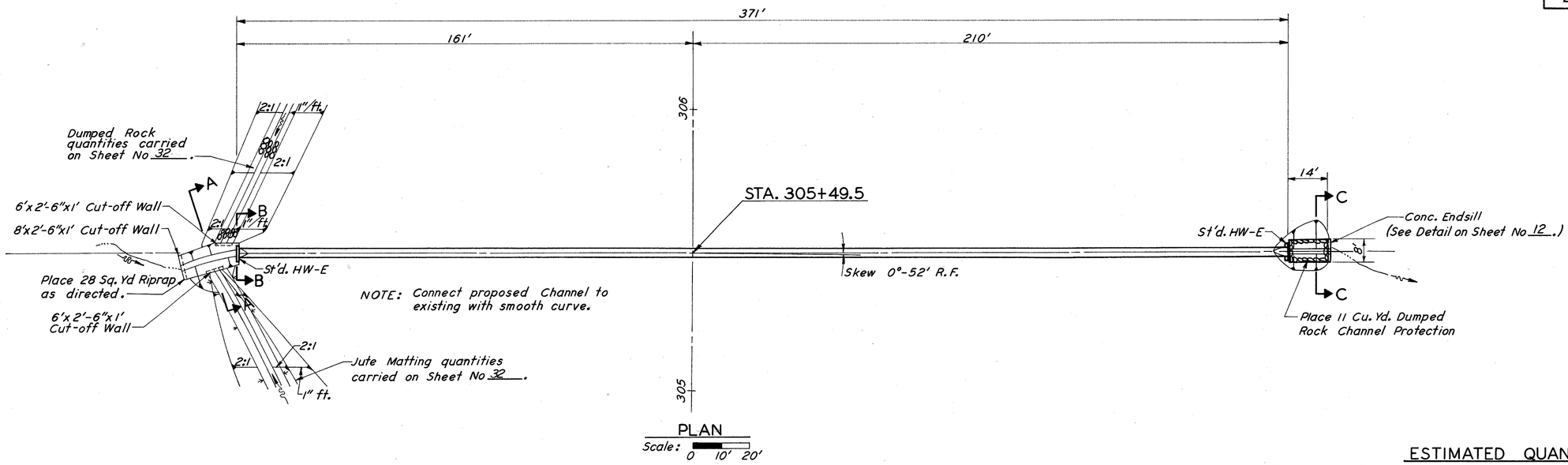
6-S

STATION 296+30.5
30"x316' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

333

COL-11-10.22
COL-154-1.71



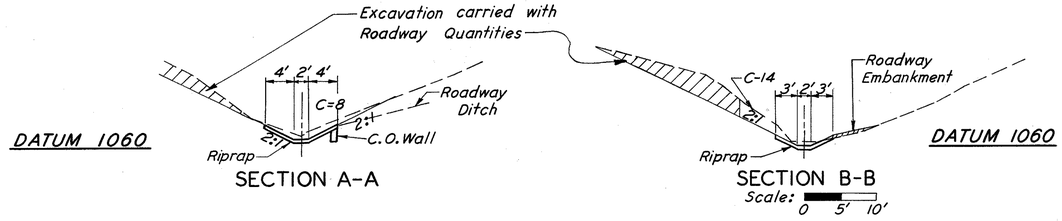
PLAN
Scale: 0 10' 20'

ESTIMATED QUANTITIES

Item 603 - 36" Conduit, Type A, 707.05, Gage 8, Class "B" bedding --- 372 Lin. Ft.
Item 602 - Concrete Masonry ---------- 2.31 Cu. Yd.
Item 601 - Dumped Rock Channel Protection ---------- 11 Cu. Yd.
Item 203 - Excavation, not including Embankment Construction ------ 14 Cu. Yd.
Item 601 - Riprap, 6" Reinforced Concrete Slab ---------- 28 Sq. Yd.

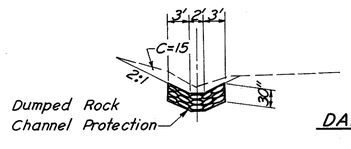
Quantities carried to Sheet No. 32.

Drainage Area = 24 Acres
Q_{25} = 51 c.f.s.



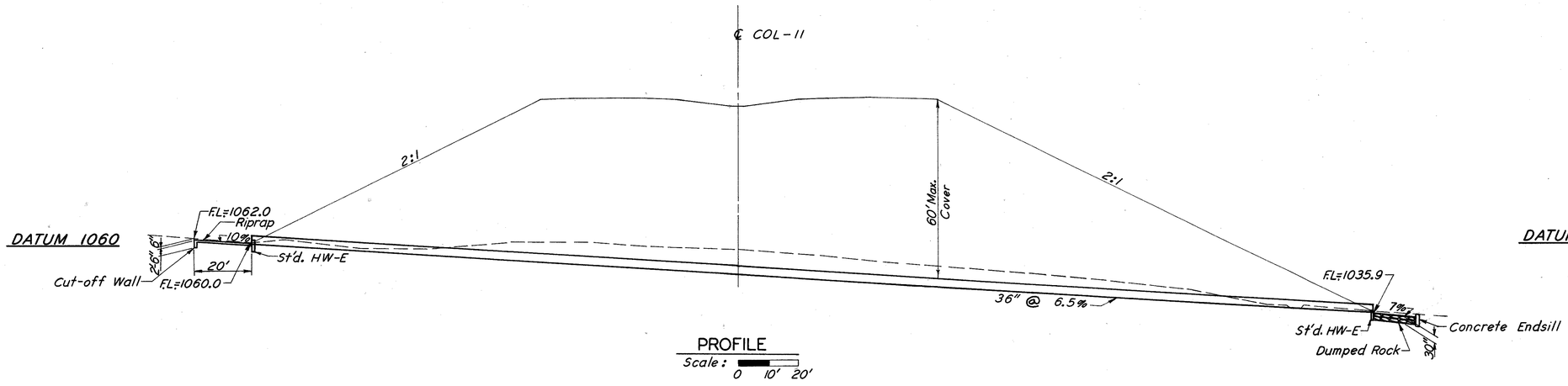
SECTION A-A

SECTION B-B
Scale: 0 5' 10'



SECTION C-C

Excavation Quantities			
Station	E. Area	Dist.	Vol.
Begin Cut	0		
		10'	2
Sec. A-A	8		
		10'	4
Culvert Inlet	14		
Culvert Outlet	15		
		14'	8
Endsill	15		
Total			14 C.Y.



PROFILE
Scale: 0 10' 20'

COL-11-1303

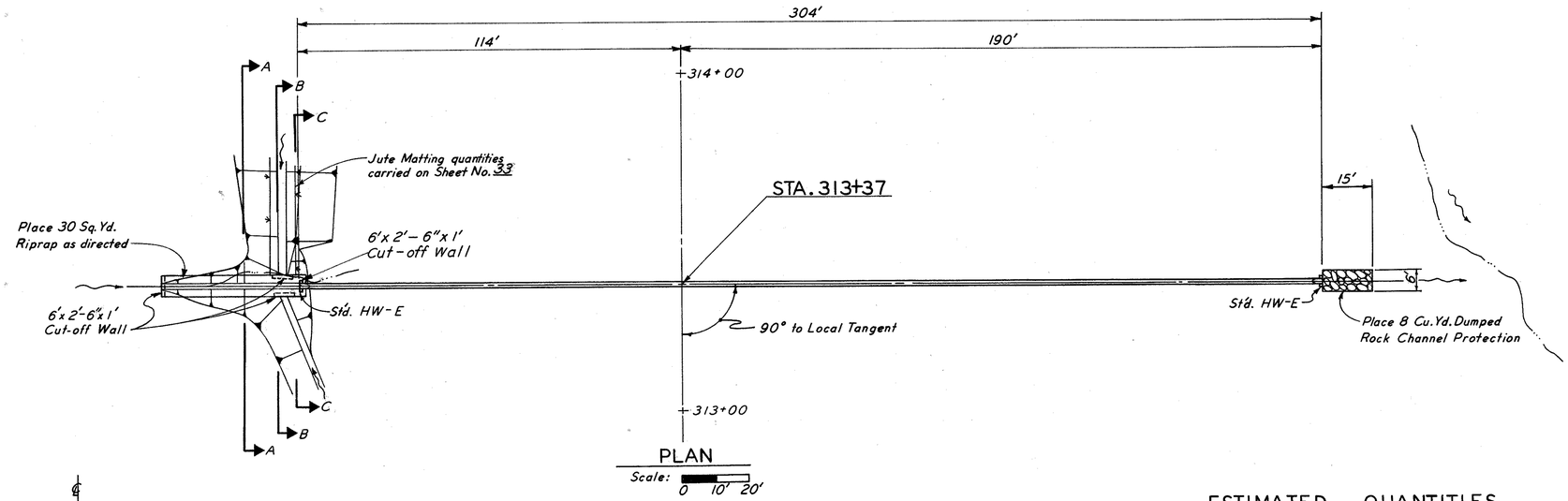
7-S

STA. 305 + 49.5
36" x 371' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

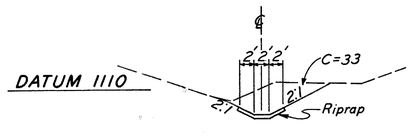
334

COL-11-10.22
COL-154-1.71

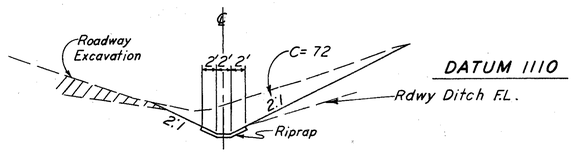


PLAN

Scale: 0 10' 20'

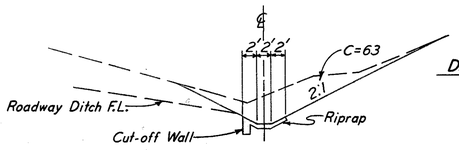


SECTION A-A



SECTION C-C

Scale: 0 5' 10'



SECTION B-B

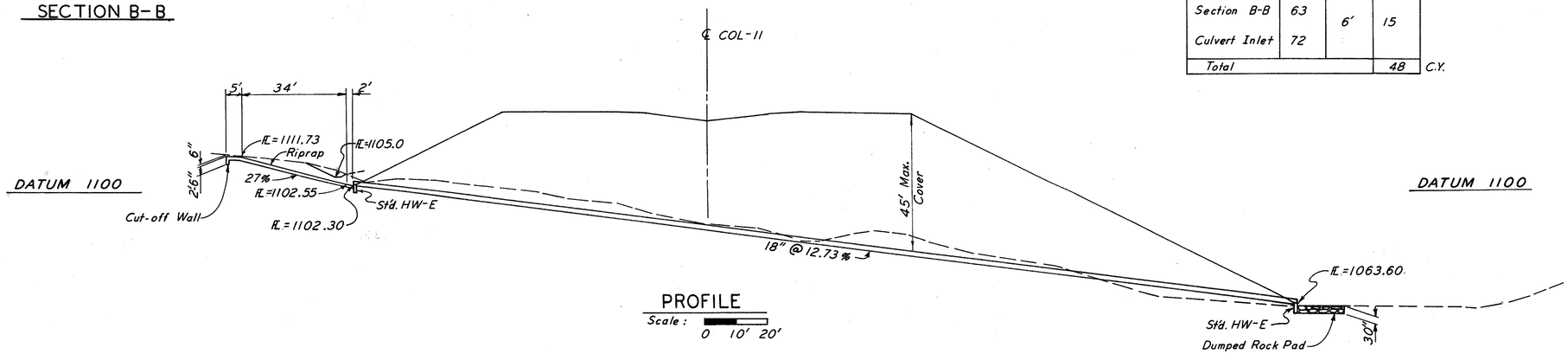
ESTIMATED QUANTITIES

Item 603 - 18" Conduit, Type A, 707.05, 14 Gage with Class B bedding ---------- 304 Lin.Ft.
Item 602 - Concrete Masonry ---------- 0.60 Cu. Yd.
Item 601 - Riprap, 6" Reinforced Concrete Slab ---------- 30 Sq.Yd.
Item 601 - Dumped Rock Channel Protection ---------- 8 Cu.Yd.
Item 203 - Excavation, not including Embankment Construction ---------- 48 Cu.Yd.

Quanitities carried to Sheet No. 33.

Drainage Area = 5 Acres
Q_{25} = 10 c.f.s.

Excavation Quantities			
Station	E.Area	Dist.	Vol.
Begin Excav.	0	25'	15
Section A-A	33	10'	18
Section B-B	63	6'	15
Culvert Inlet	72		
Total			48 C.Y.



PROFILE

Scale: 0 10' 20'

COL-11-1288

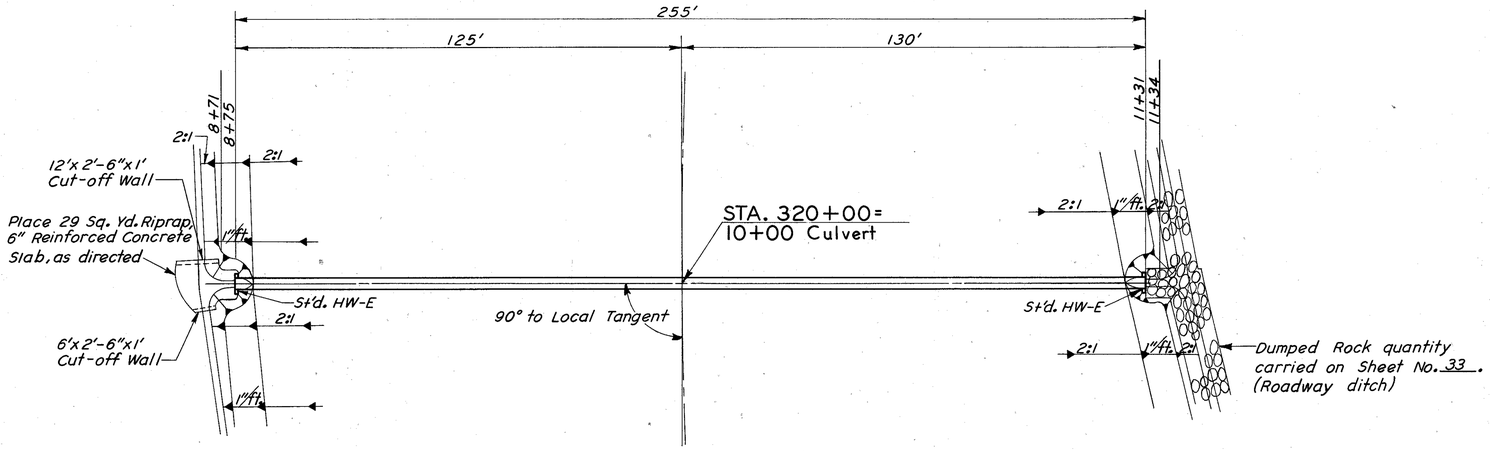
8-S

STATION 313+37
18"x 304' CULVERT

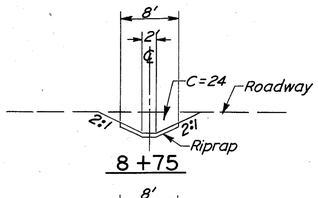
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

335

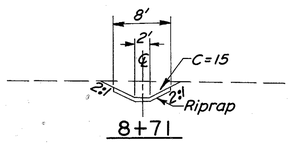
COL-11-10.22
COL-154-1.71



PLAN
Scale: 0 10' 20'



8+75

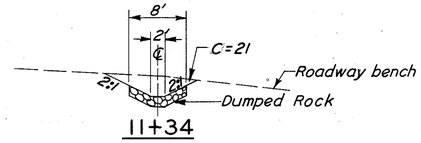


8+71

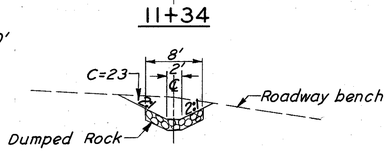
DATUM 1110

Scale: 0 5' 10'

DATUM 1110



11+34



11+30

Excavation Quantities			
Station	E. Area	Dist.	Vol.
8+67	0		
		4'	1
8+71	15		
		4'	3
8+75	24		
11+31	23		
		3'	3
11+34	21		
		6'	2
11+40	0		
Total			9 C.Y.

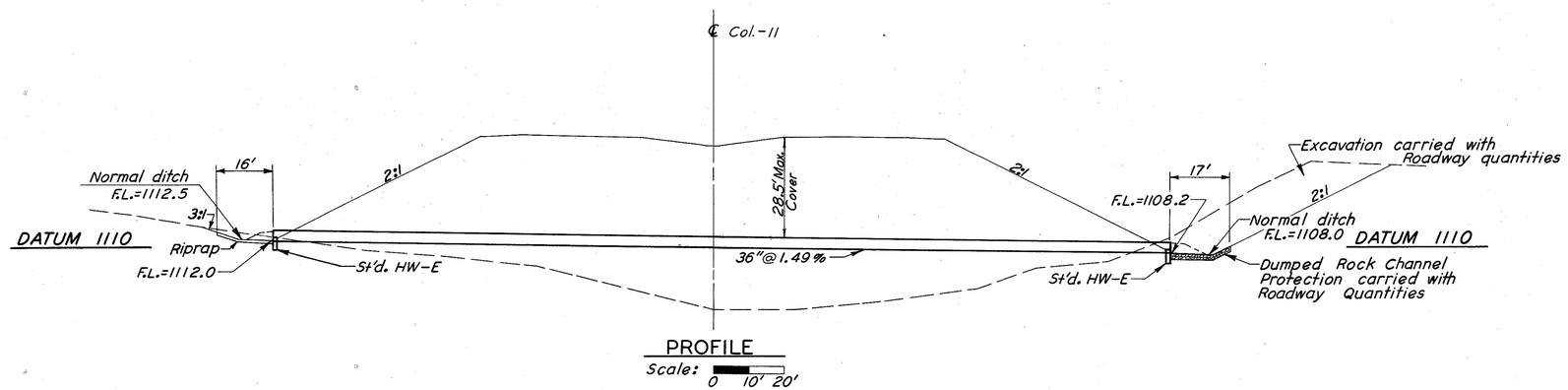
ESTIMATED QUANTITIES

Item 603 – 36" Conduit, Type A, 707.05, Gage 10 with Class B Bedding ——— 256 Lin. Ft.
or 706.02 Class IV
Item 602 – Concrete Masonry ——— 1.18 Cu. Yd.
Item 601 – Riprap, 6" Reinforced Concrete Slab ——— 29 Sq. Yd.
Item 203 – Excavation, not including Embankment Construction ——— 9 Cu. Yd.

Quantities carried to Sheet No. 33.

Drainage Area = 34.5 Acres

Q_{25} = 62 c.f.s.



PROFILE
Scale: 0 10' 20'

COL-11-1275

9-S

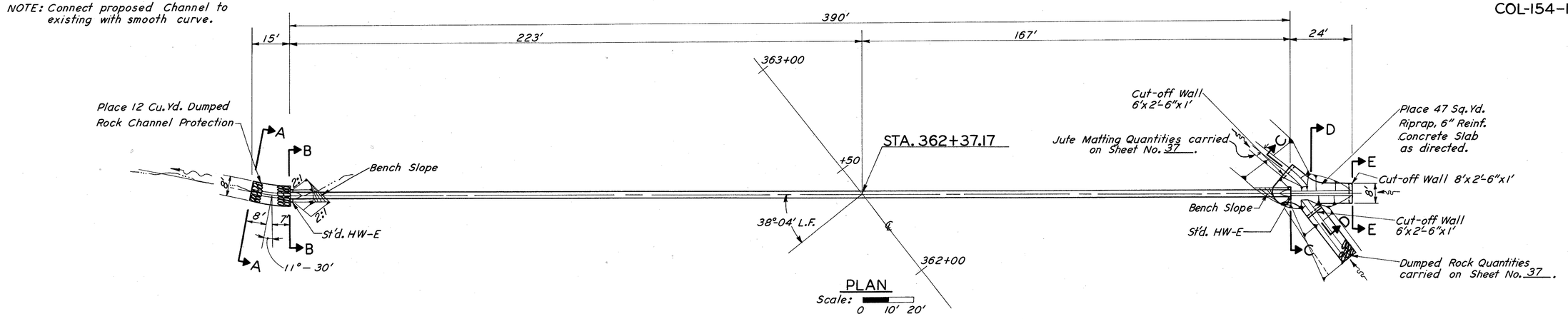
STATION 320+00
36"x255' CULVERT

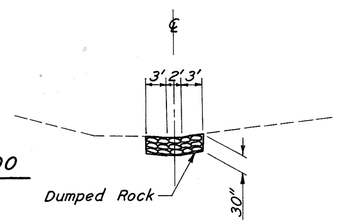
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

336

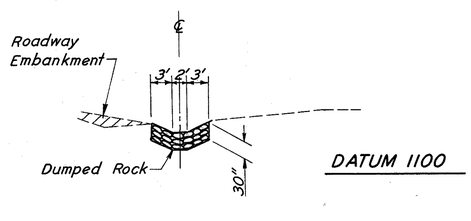
COL-11-10.22
COL-154-1.71

NOTE: Connect proposed Channel to existing with smooth curve.





SECTION A-A



SECTION B-B

Excavation Quantities			
Station	End Area	Dist.	Vol.
Section C-C	23	8'	6
Section D-D	17	16'	6
Section E-E	2		
Total			12 C.Y.

ESTIMATED QUANTITIES

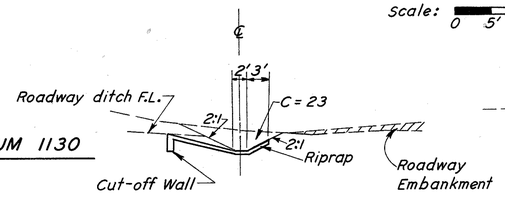
Item 603 – 30" Conduit, Type A, 707.05, 10 Gage with Class "B" Bedding ----- 390 Lin. Ft.
Item 602 – Concrete Masonry ----- 1.02 Cu. Yd.
Item 601 – Riprap, 6" Reinforced Concrete Slab ----- 47 Sq. Yd.
Item 601 – Dumped Rock Channel Protection ----- 12 Cu. Yd.
Item 203 – Excavation, not including Embankment Construction ----- 12 Cu. Yd.

Quantities carried to Sheet No. 37.

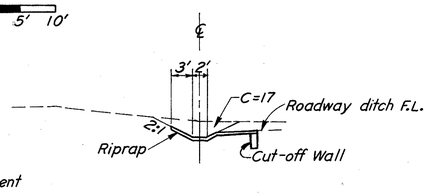
Drainage Area = 17 Acres

Q_{25} = 37 c. f. s.

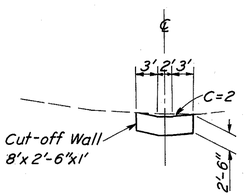
Scale: 0 5' 10'



SECTION C-C



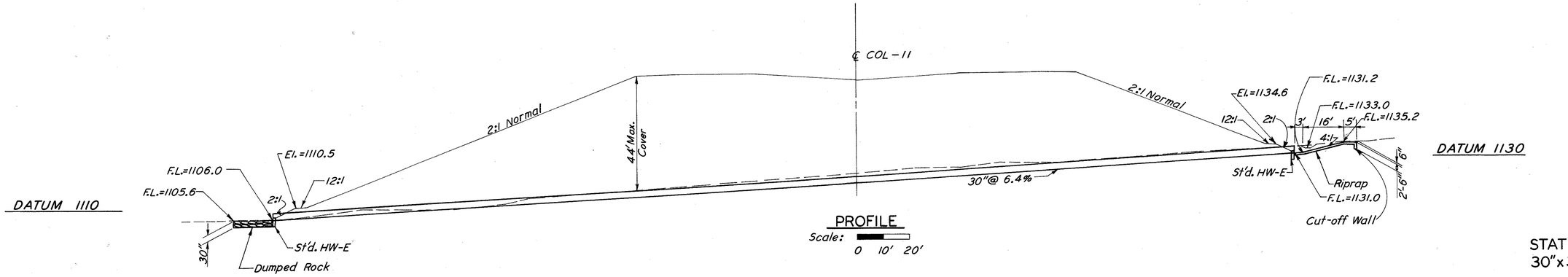
SECTION D-D



SECTION E-E

DATUM 1130

COL-11-1195



PROFILE
Scale: 0 10' 20'

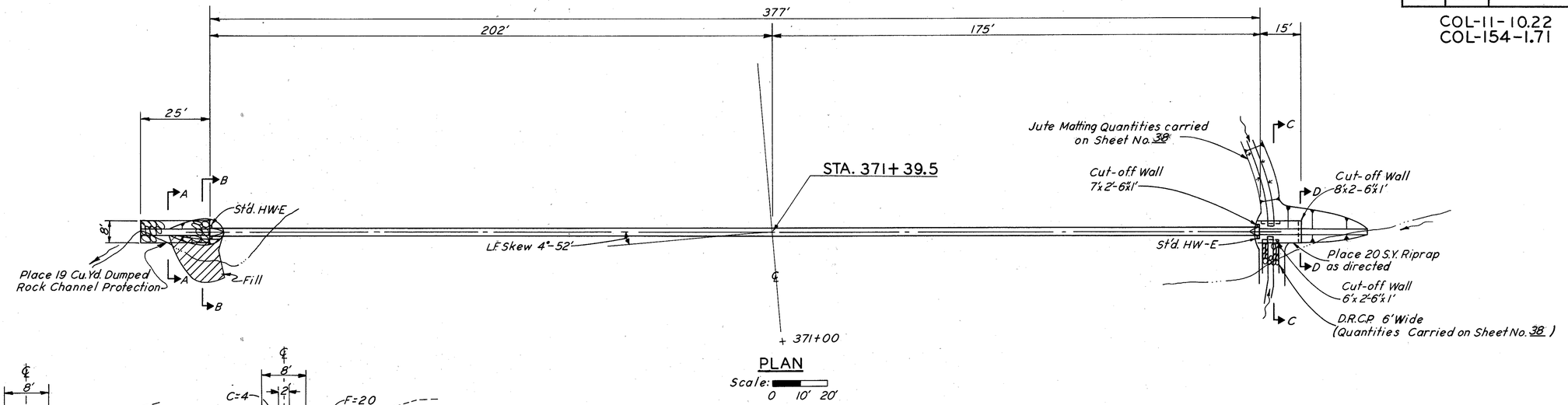
10-S

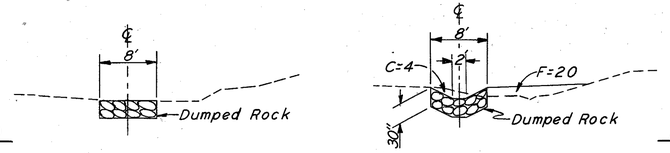
STATION 362+37.17
30"x390' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

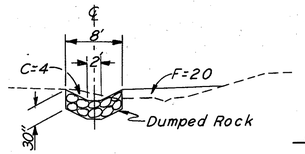
337

COL-11-10.22
COL-154-1.71

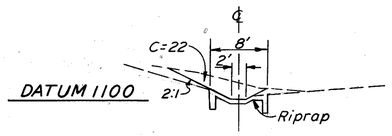




SECTION A-A

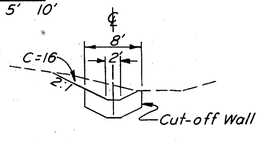


SECTION B-B



SECTION C-C

Scale: 0 5' 10'



SECTION D-D

ESTIMATED QUANTITIES

Item 602-36" Conduit, Type A, 707.05, 8 Gage with Class B Bedding ——— 378 Lin. Ft.
Item 602-Concrete Masonry ——————————— 1.18 Cu.Yd.
Item 601-Dumped Rock Channel Protection ——————————— 19 Cu.Yd.
Item 601-Riprap-6" Reinforced Concrete Slab ——————————— 20 Sq.Yd
Item 203-Excavation, not including Embankment Construction ——————— 20 Cu.Yd.
Item 203-Embankment ——————————— 6 Cu.Yd.

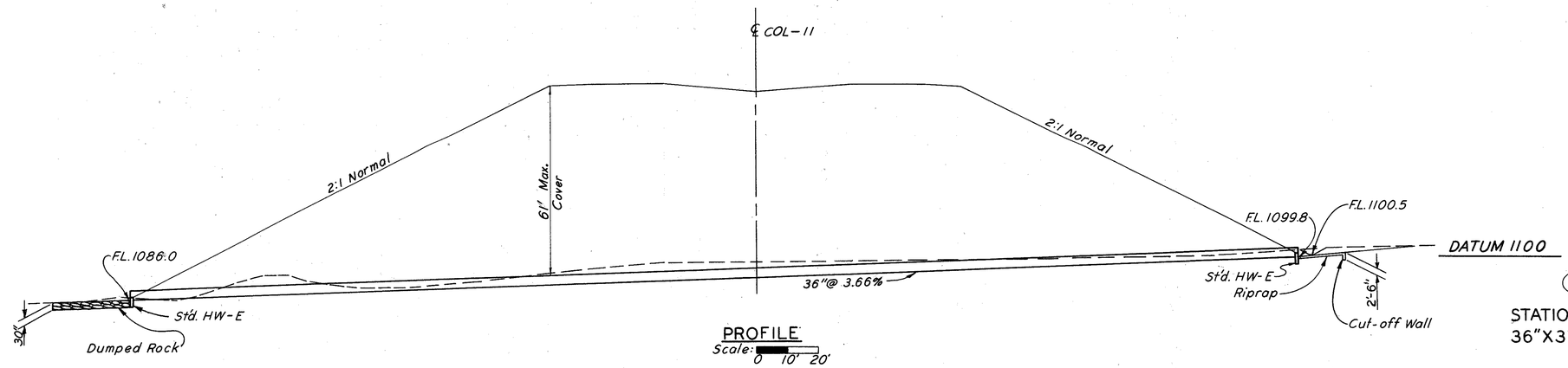
Quantities carried to Sheet No. 38

Drainage Area = 24 Acres
Q_{25} = 48 c.f.s.

Excavation Quantities			
Section	E. Area	Dist.	Vol.
A-A	0	12'	1
B-B	4	3'	1
Culvert Outlet	4		
Culvert Inlet	22	5'	4
C-C	22	10'	7
D-D	16	24'	7
End Excav	0		
Total			20 C.Y.

Embankment Quantities			
Section	E. Area	Dist.	Vol.
A-A	0	12'	4
B-B	20	3'	2
Culvert Outlet	20		
Total			6 C.Y.

COL-11-1178



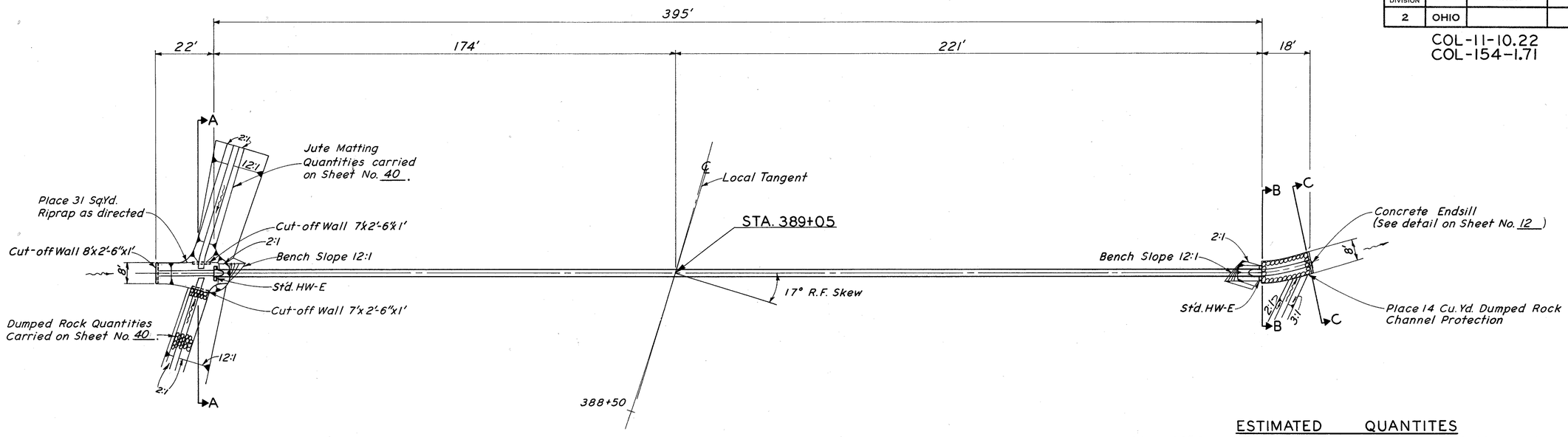
11-S

STATION 371+39.5
36"X377' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

338

COL-11-10.22
COL-154-1.71

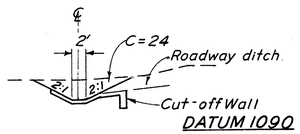


PLAN
Scale: 0 10' 20'

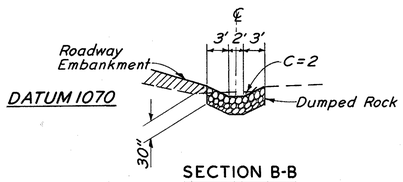
ESTIMATED QUANTITES

Item 603 - 36" Conduit, Type A, 707.05, 8 Gage with Class B Bedding — — 396 Lin. Ft.
Item 602 - Concrete Masonry — — — — — — — — — — — — — — — — — 2.31 Cu. Yd.
Item 601 - Dumped Rock Channel Protection — — — — — — — — — — 14 Cu. Yd.
Item 601 - Riprap, 6" Reinforced Concrete Slab — — — — — — — — — 31 Sq. Yd.
Item 203 - Excavation, not including Embankment Construction — — — — 14 Cu. Yd.

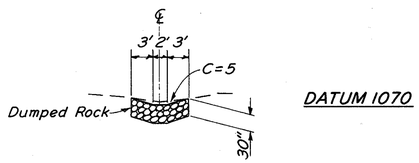
Quantities carried to Sheet No. 40.
Drainage Area = 28.7 Acres
Q_{25} = 54 c.f.s



SECTION A-A



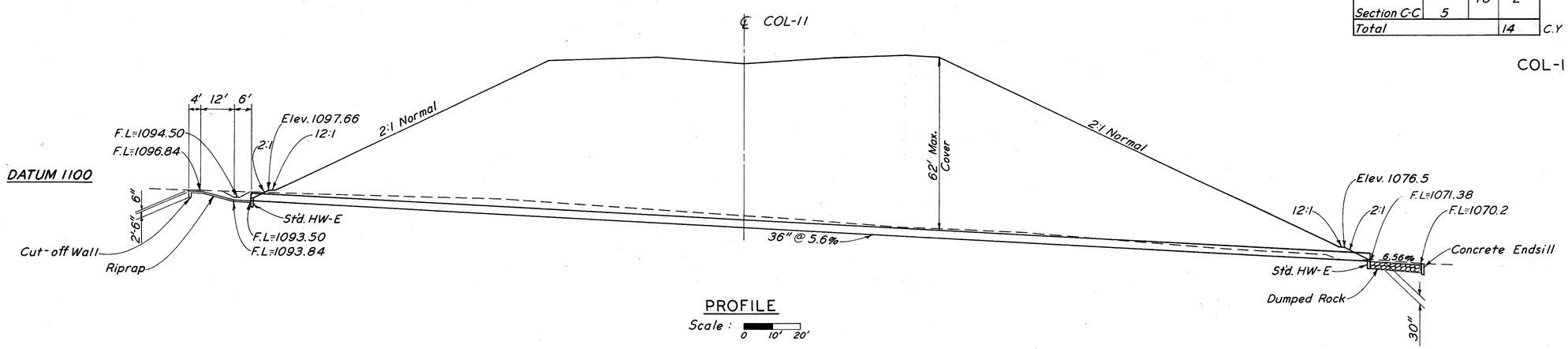
SECTION B-B
Scale: 0 5' 10'



SECTION C-C

Excavation Quantities			
Station	E. Area	Dist.	Volume
Begin Cut	0	14'	6
Section A-A	24	6'	6
Culvert Inlet	24		
Section B-B	2	18'	2
Section C-C	5		
Total			14 C.Y

COL-11-1144



PROFILE
Scale: 0 10' 20'

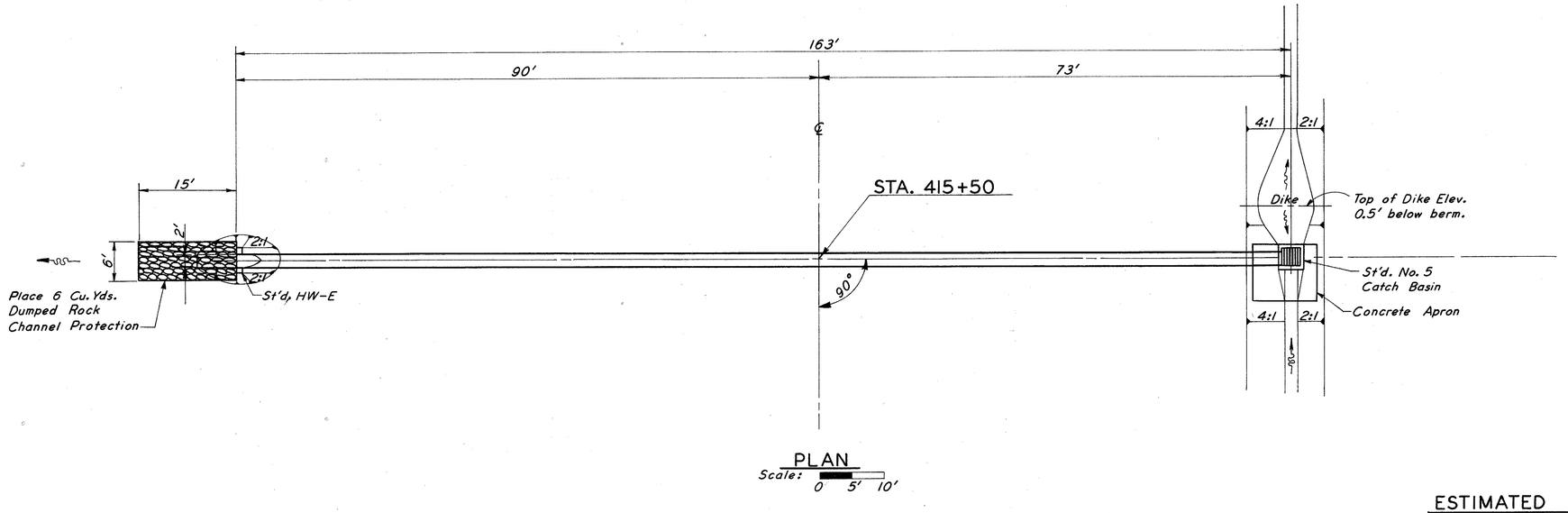
12-S

STATION 389+05
36"x 395' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

339

COL-11-10.22
COL-154-1.71



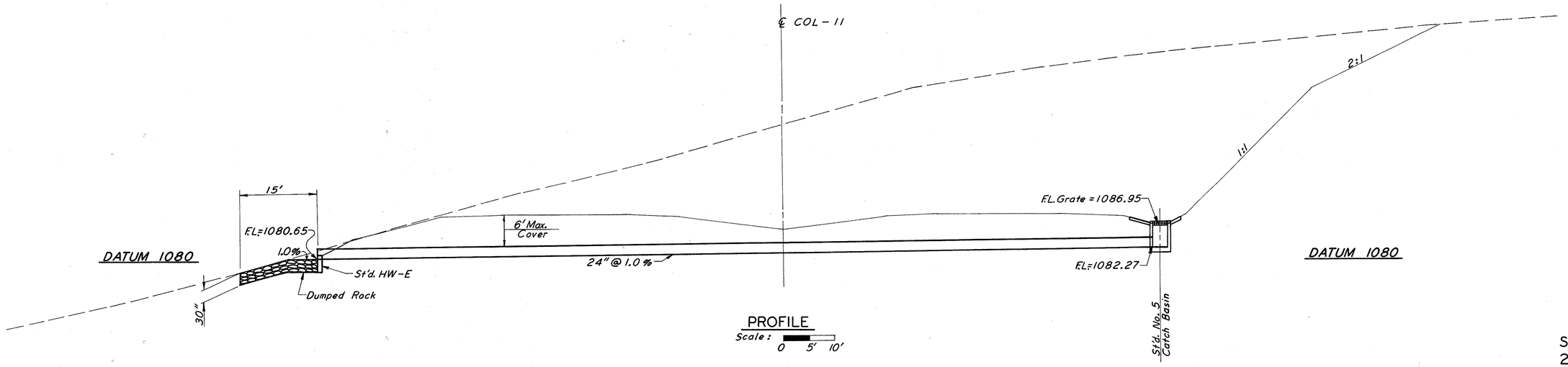
PLAN
Scale: 0 5' 10'

ESTIMATED QUANTITIES

Item 603 — 24" Conduit, Type A, 706.02 or 706.08; Class B Bedding	164 Lin. Ft.
Item 604 — St'd. No. 5 Catch Basin	1 Each
Item 602 — Concrete Masonry	0.41 Cu. Yd.
Item 601 — Dumped Rock Channel Protection	6 Cu. Yd.
Item 203 — Excavation, not including Embankment Construction	1 Cu. Yd.

Quantities carried to Sheet No. 43.

Drainage Area = 9 Acres
Q_{25} = 25 c.f.s.



PROFILE
Scale: 0 5' 10'

COL-11-1094

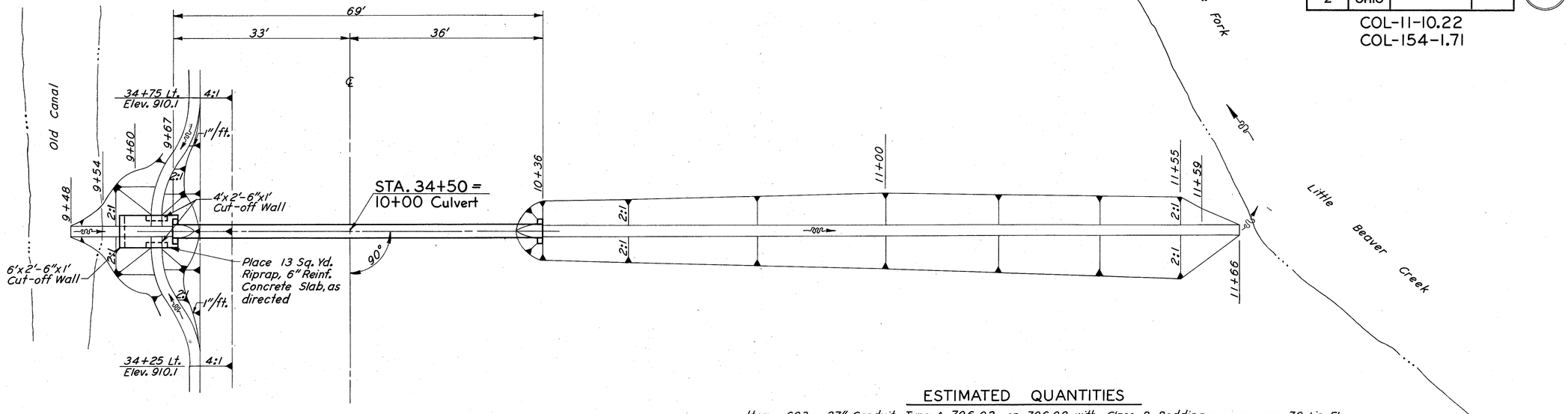
13-S

STATION 415+50
24"x163' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

340

COL-11-10.22
COL-154-1.71



PLAN
Scale: 0 5' 10'

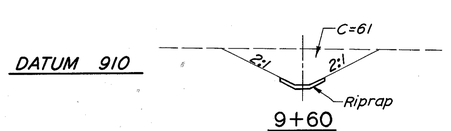
ESTIMATED QUANTITIES

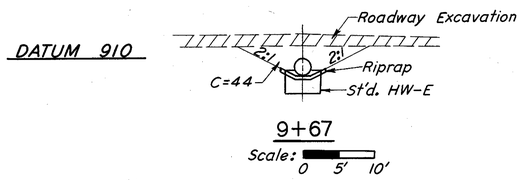
Item 603 — 27" Conduit, Type A, 706.02 or 706.08 with Class B Bedding ——— 70 Lin. Ft.
Item 602 — Concrete Masonry ——————————————————— 0.94 Cu. Yd.
Item 601 — Riprap, 6" Reinforced Concrete Slab ——————————— 13 Sq. Yd.
Item 203 — Excavation, not including Embankment Construction ———————— 132 Cu. Yd.

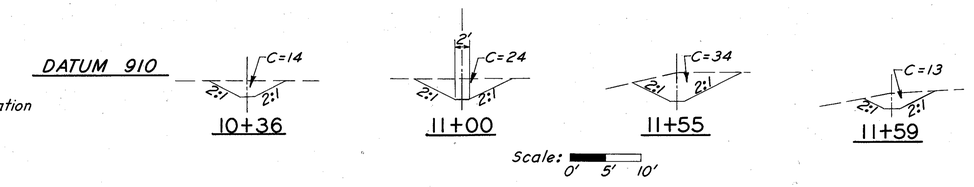
Quantities carried to Sheet No 223.

Drainage Area = 10 Acres

Q_{25} = 27 c.f.s.

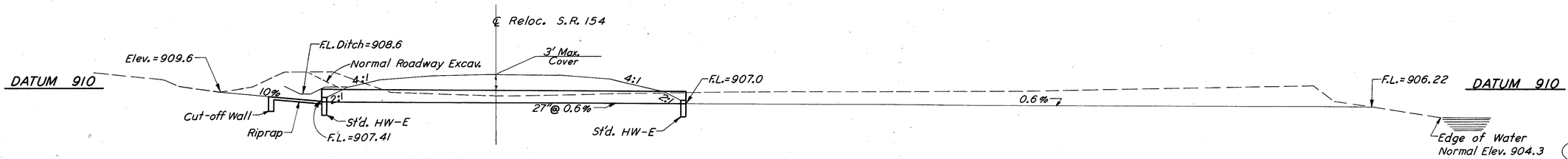






Excavation Quantities			
Station	E. Area	Dist.	Vol.
9+48	0		
		6'	1
9+54	11		
		6'	8
9+60	61		
		7'	14
9+67	44		
10+36	14		
		64'	45
11+00	24		
		55'	59
11+55	34		
		4'	3
11+59	13		
		7'	2
11+66	0		
Total			132 C.Y.

COL-154- 0182



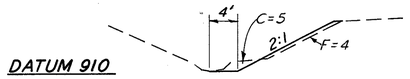
PROFILE
Scale: 0 5' 10'

15-S

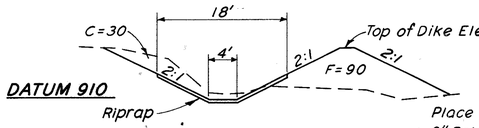
RELOC. S. R. 154
STATION 34+50
27"x69' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

COL-11-10.22
COL-154-1.71

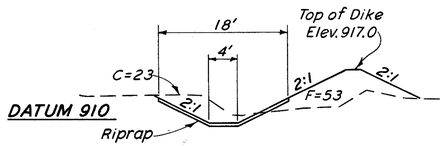


9+00

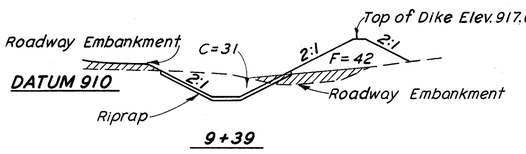


9+15

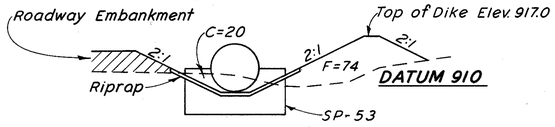
Place 114 Sq. Yd. Riprap
6" Reinf. Conc. Slab
as directed.



9+30

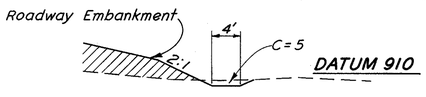


9+39



9+50

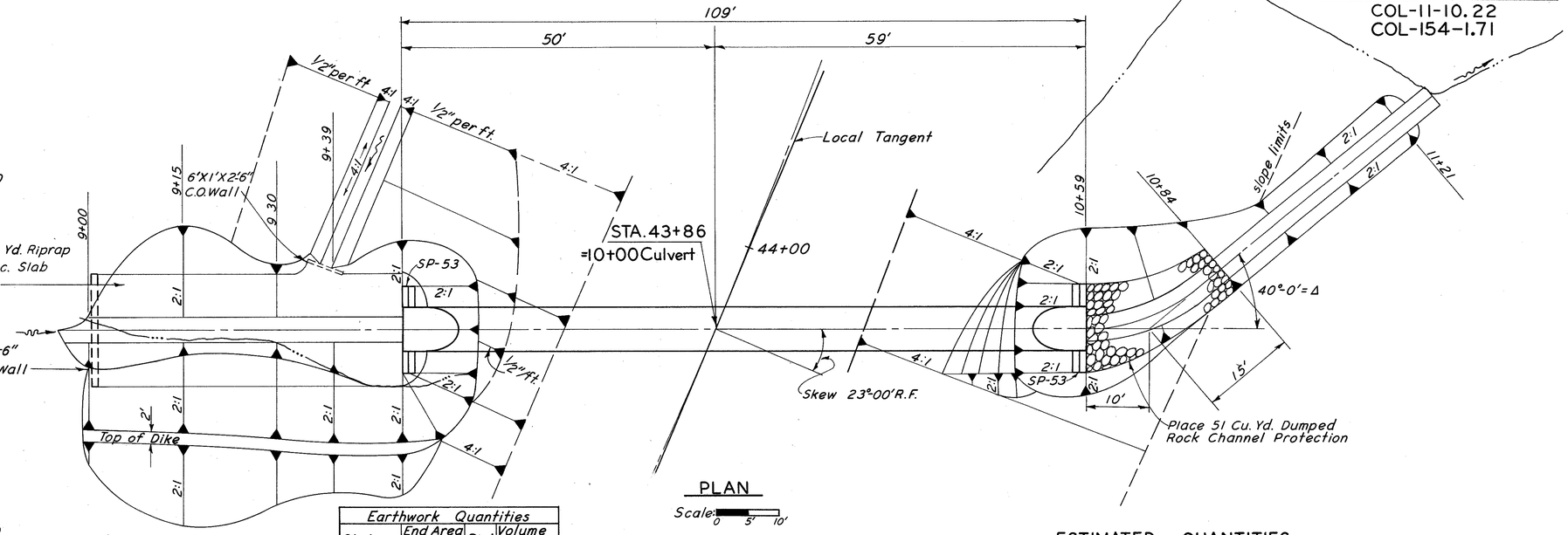
10+59



10+84

11+21

Scale: 0 5' 10'



PLAN

Scale: 0 5' 10'

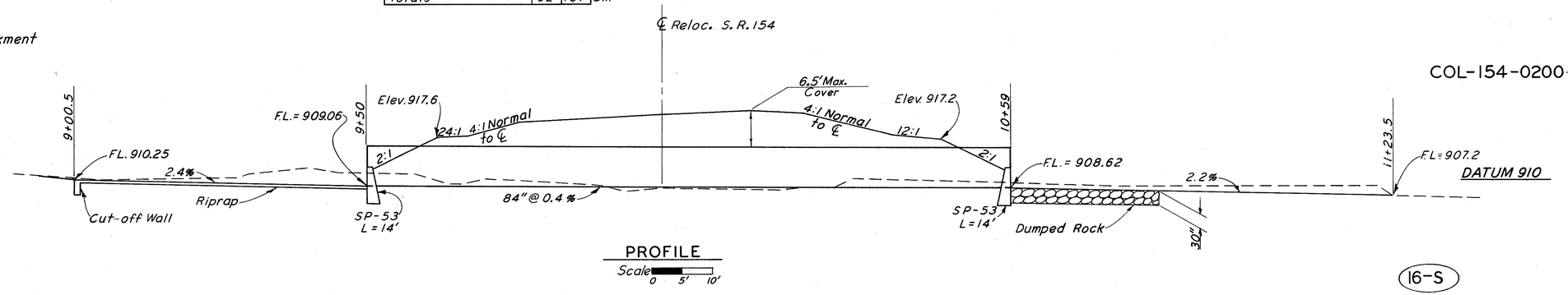
Earthwork Quantities					
Station	End Area Cut	End Area Fill	Dist.	Volume Cut	Volume Fill
Begin Excav.	0	0	5'	1	1
9+00	5	4	15'	10	26
9+15	30	90	15'	15	40
9+30	23	53	9'	9	16
9+39	31	42	11'	10	24
9+50	20	74			
10 59	7	0	25'	6	0
10+84	5	0	37'	10	0
11+21	10	0	2.5'	1	0
11+23.5	0	0			
Totals				62	107 C.Y.

Earthwork Quantities Carried
on Cross-Section Sheet No. 233

ESTIMATED QUANTITIES

Item 603 - 84" Conduit, Type A, 706.02 with Class B Bedding ——— 110 Lin.Ft.
Item 602 - Concrete Masonry, Class E ——— 8.02 Cu.Yd.
Item 601 - Riprap, 6" Reinforced Concrete Slab ——— 114 Sq.Yd.
Item 601 - Dumped Rock Channel Protection ——— 51 Cu.Yd

Quantities Carried to Sheet No. 223.
Drainage Area = 400 Acres
Q_{25} = 312 c.f.s.



PROFILE

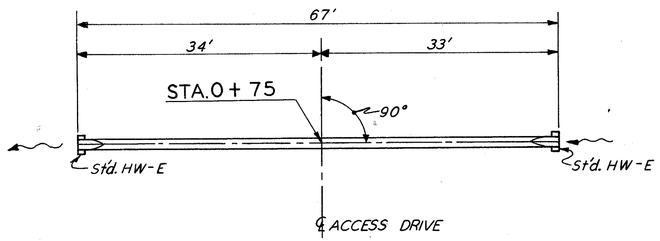
Scale 0 5' 10'

COL-154-0200

16-S

RELOC. S. R. 154
STATION 43+86
84" x 109' CULVERT

COL-11-10.22
COL-154-1.71



PLAN
Scale 0 5' 10'

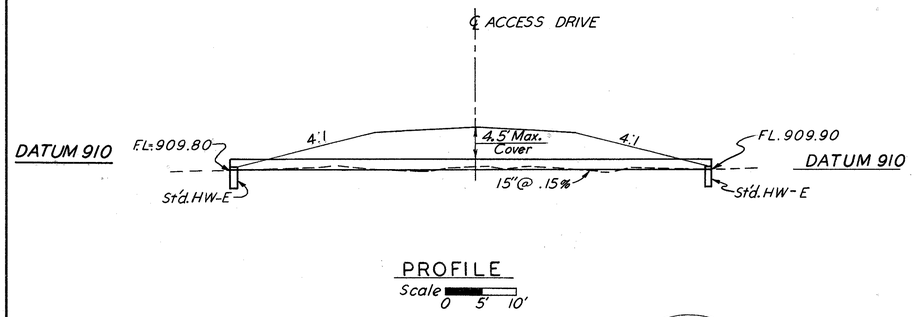
ESTIMATED QUANTITIES

Item 603 - 15" Conduit, Type D. ---68 Lin. Ft.
Item 602 - Concrete Masonry ---0.52 Cu.Yd.

Quantities carried to sheet No. 223

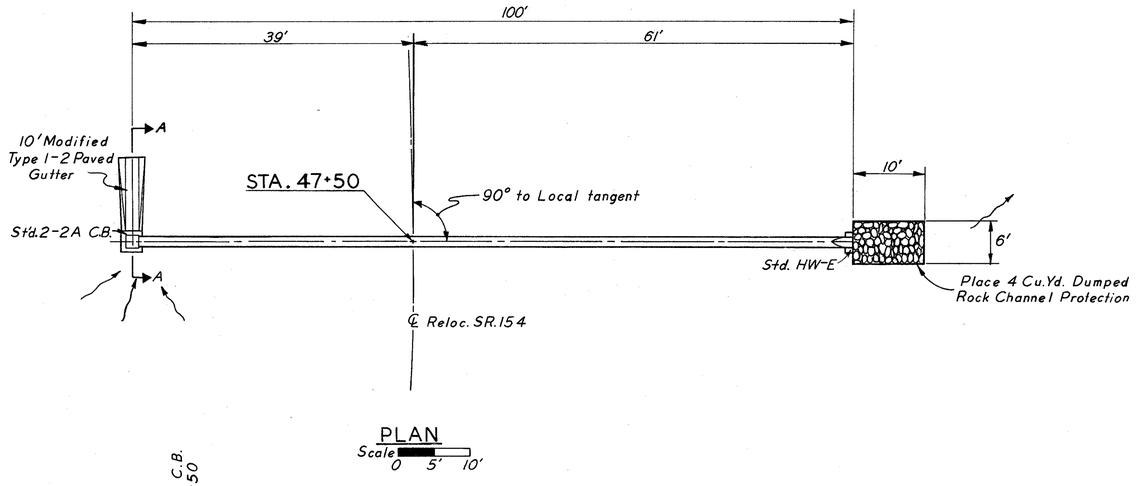
Drainage Area = 1 Acre

Q_{25} = 5 c.f.s.

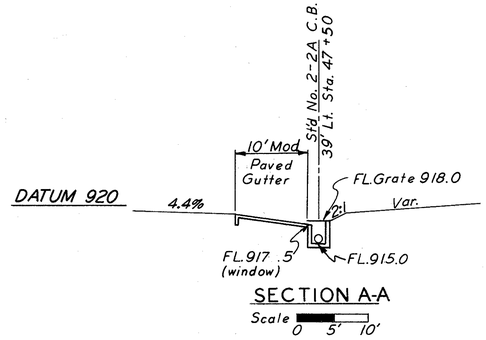


PROFILE
Scale 0 5' 10'

17-S
ACCESS DRIVE
STATION 0+75
15" x 67' CULVERT
2-A



PLAN
Scale 0 5' 10'



SECTION A-A
Scale 0 5' 10'

ESTIMATED QUANTITIES

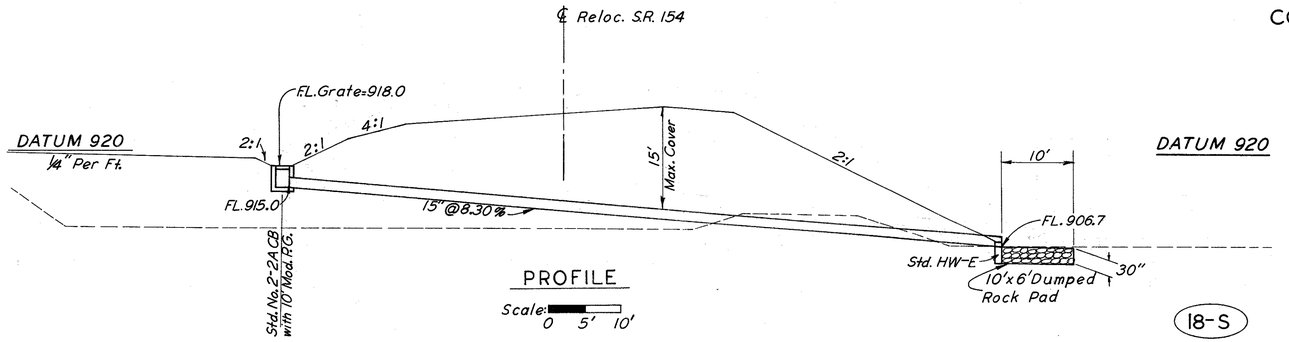
Item 603 - 15" Conduit, Type A, 706.02 Class III with Class B Bedding --- 100 Lin. Ft.
Item 602 - Concrete Masonry ---0.26 Cu. Yd.
Item 604 - Std. No. 2-2A Catch Basin --- 1 Each
Item 601 - Modified Paved Gutter, Type 1-2 ---10 Lin. Ft.
Item 601 - Dumped Rock Channel Protection ---6 Cu. Yd.

Quantities carried to sheet No. 224

Drainage Area = 2 Acre

Q_{25} = 8 c.f.s.

COL-154-0207



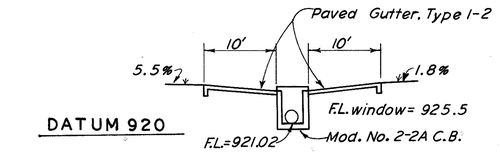
PROFILE
Scale: 0 5' 10'

18-S
RELOC. S.R. 154
STATION 47+50
15" x 100' CULVERT

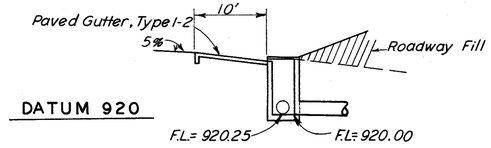
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

343

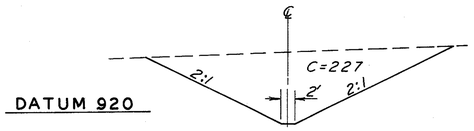
COL-11-10.22
COL-154-1.71



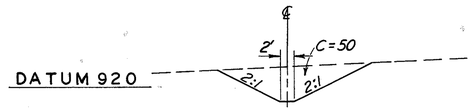
SECTION A-A



SECTION B-B

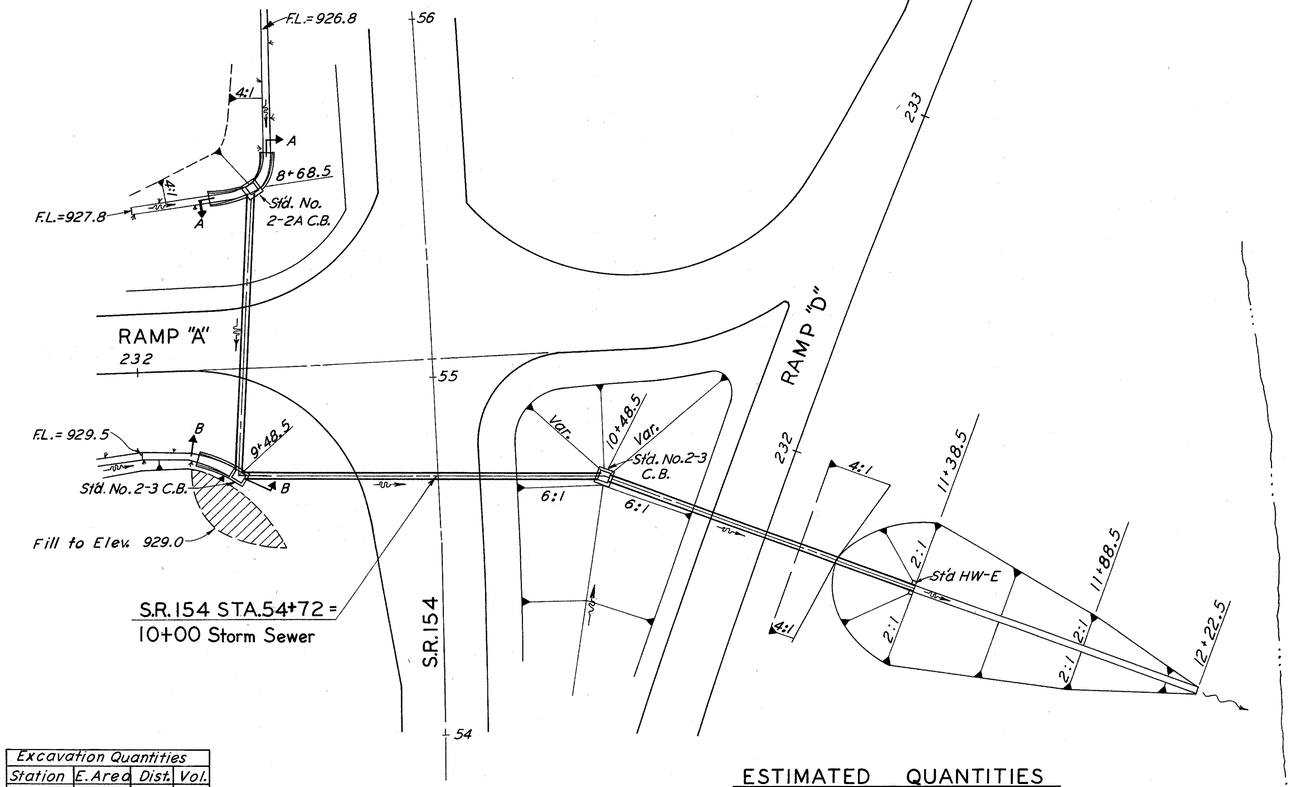


11+38.5



11+88.5

Scale: 0 5' 10'



PLAN

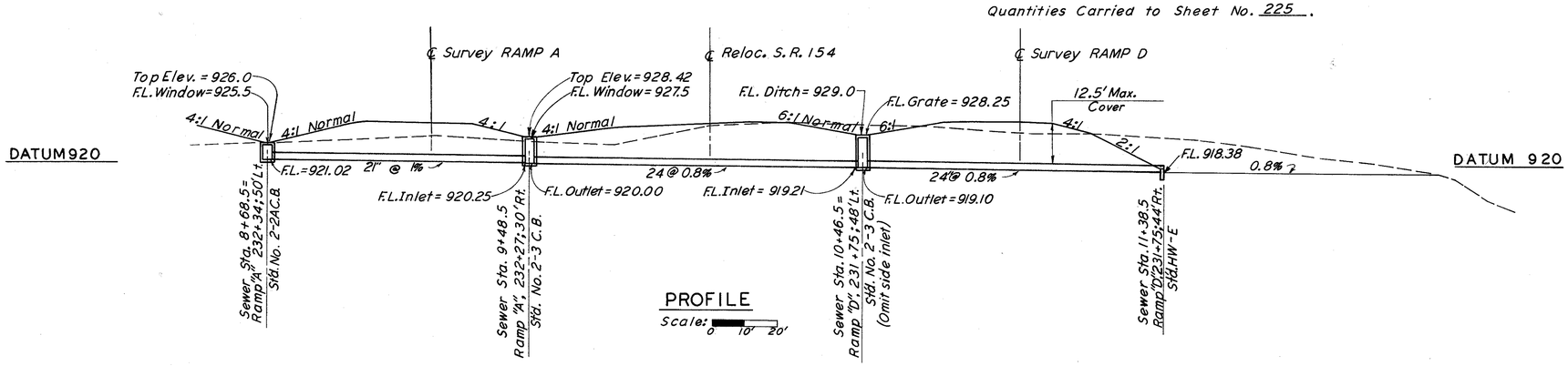
Scale: 0 10' 20'

Excavation Quantities			
Station	E. Area	Dist.	Vol.
11+38.5	227	50'	256
11+88.5	50	34'	32
12+22.5	0		
Total			288 C.Y.

ESTIMATED QUANTITIES

Item 603 – 21" Conduit, Type B, with Class B Bedding ---------- 80 Lin. Ft.
Item 603 – 24" Conduit, Type B, with Class B Bedding 706.02 C,III or 706.08 ---- 190 Lin. Ft.
Item 604 – Std. No. 2-3 Catch Basin ---------- 2 Each
Item 604 – Std. No. 2-2A Catch Basin ---------- 1 Each
Item 602 – Concrete Masonry ---------- 0.41 Cu. Yd.
Item 601 – Modified Paved Gutter, Type 1-2 ---------- 30 Lin. Ft.
Item 203 – Excavation, not including Embankment Construction ---------- 288 Cu. Yd.

Quantities Carried to Sheet No. 225 .



PROFILE

Scale: 0 10' 20'

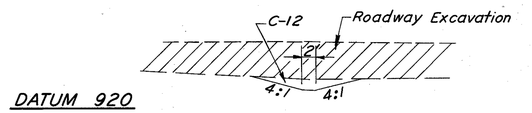
30-SS

RELOC. S.R. 154
STATION 54+72

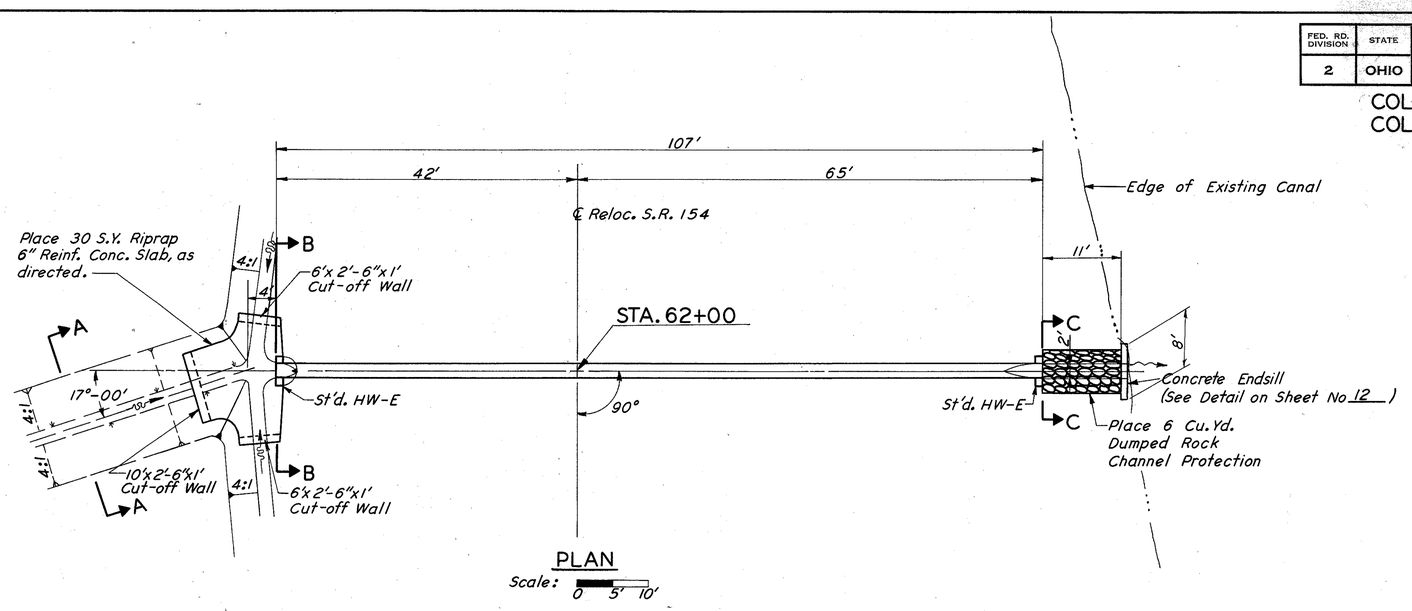
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

344

COL-11-10.22
COL-154-1.71

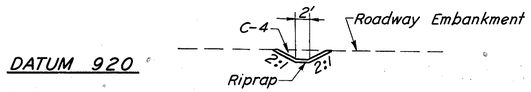


SECTION A-A



PLAN

Scale: 0 5' 10'



SECTION B-B

Excavation Quantities			
Section	E. Area	Dist.	Vol.
Section A-A	12	19'	8
Sec. A-A+19'	12	6'	1
Sec. A-A+25' (℄ Ditch)	0	3'	1
Section B-B	4		
Section C-C	4	11'	2
Sec. C-C+11'	4		
Total			12 C.Y.

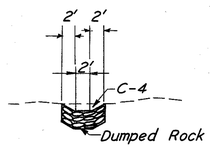
ESTIMATED QUANTITIES

Item 603 – 24" Conduit, Type A, 707.05, 16 Gage with Class B Bedding _____ 108 Lin. Ft.
Item 602 – Concrete Masonry _____ 1.95 Cu. Yd.
Item 601 – Dumped Rock Channel Protection _____ 6 Cu. Yd.
Item 601 – Riprap, 6" Reinf. Concrete Slab _____ 30 Sq. Yd.
Item 203 – Excavation, not including Embankment Construction _____ 12 Cu. Yd.

Quantities carried to Sheet No 225 .

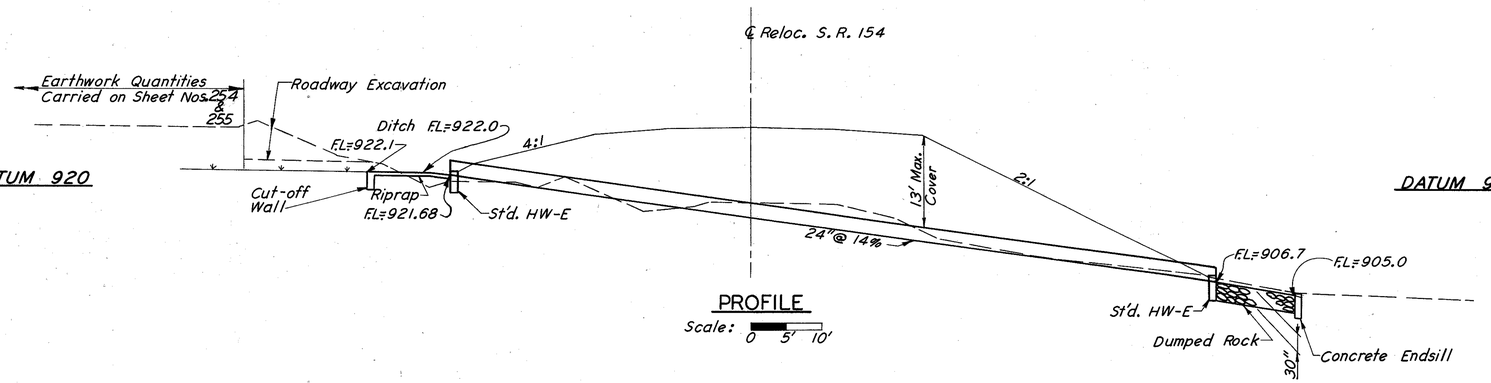
Drainage Area = 10 Acres

Q_{25} = 22 c.f.s.



SECTION C-C

Scale: 0 5' 10'



PROFILE

Scale: 0 5' 10'

COL-154-0234

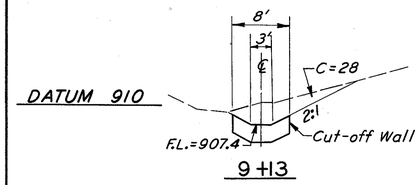
19-S

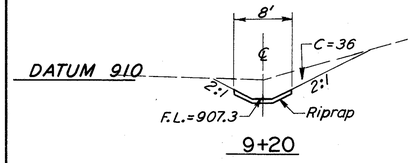
RELOC. S. R. 154
STATION 62+00
24"x 107' CULVERT

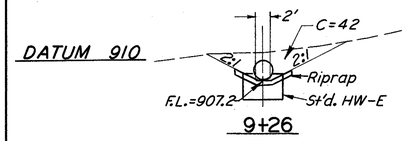
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

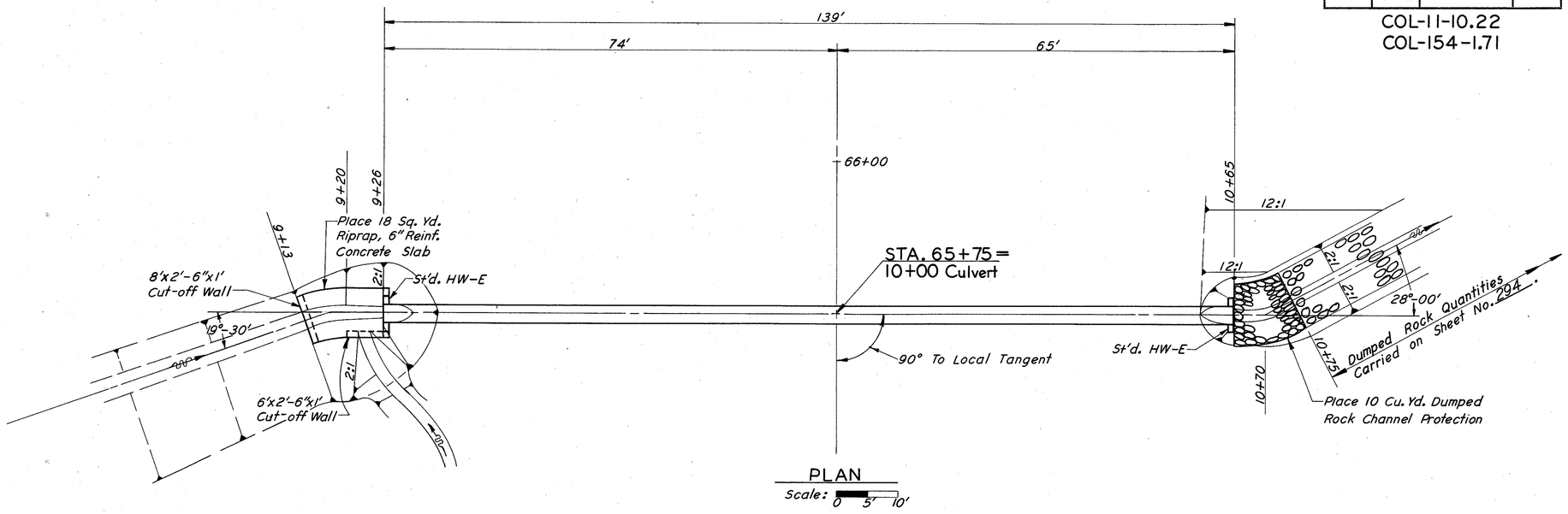
345

COL-11-10.22
COL-154-1.71









PLAN
Scale: 0 5' 10'

ESTIMATED QUANTITIES

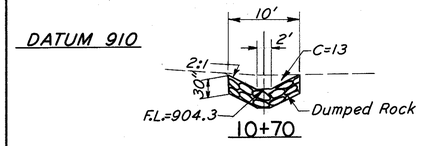
Item 603 — 36" Conduit, Type A, 706.02, Class IV with Class B Bedding ———— 140 Lin. Ft.
Item 602 — Concrete Masonry ———— 1.18 Cu. Yd.
Item 601 — Riprap, 6" Reinforced Concrete Slab ———— 18 Sq. Yd.
Item 601 — Dumped Rock Channel Protection ———— 10 Cu. Yd.
Item 203 — Excavation, not including Embankment Construction ———— 20 Cu. Yd.

Quantities carried to Sheet No. 226.

Drainage Area = 58 Acres

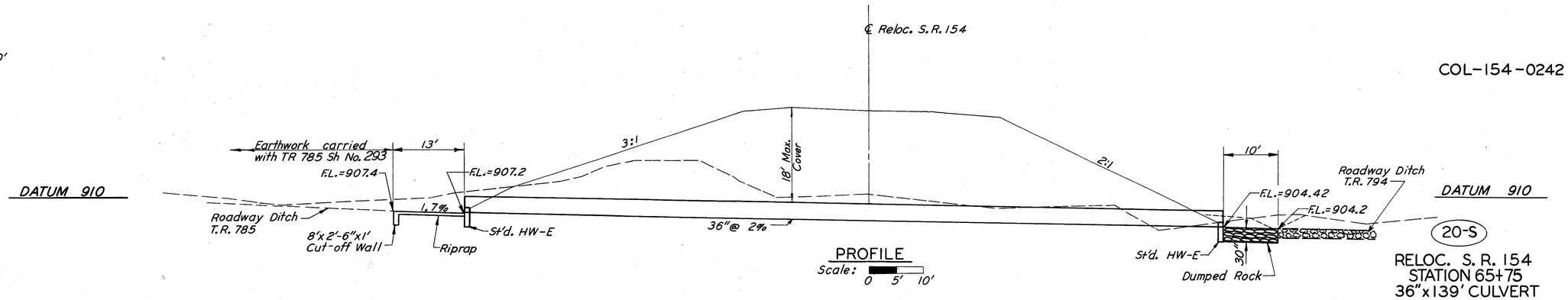
Q_{25} = 68 c. f. s.

Excavation Quantities			
Station	E. Area	Dist.	Vol.
9+13	28	7'	8
9+20	36	6'	9
9+26	42		
10+65	13	5'	2
10+70	13	5'	1
10+75	0		
Total			20 C.Y.



Scale: 0 5' 10'

COL-154-0242



PROFILE
Scale: 0 5' 10'

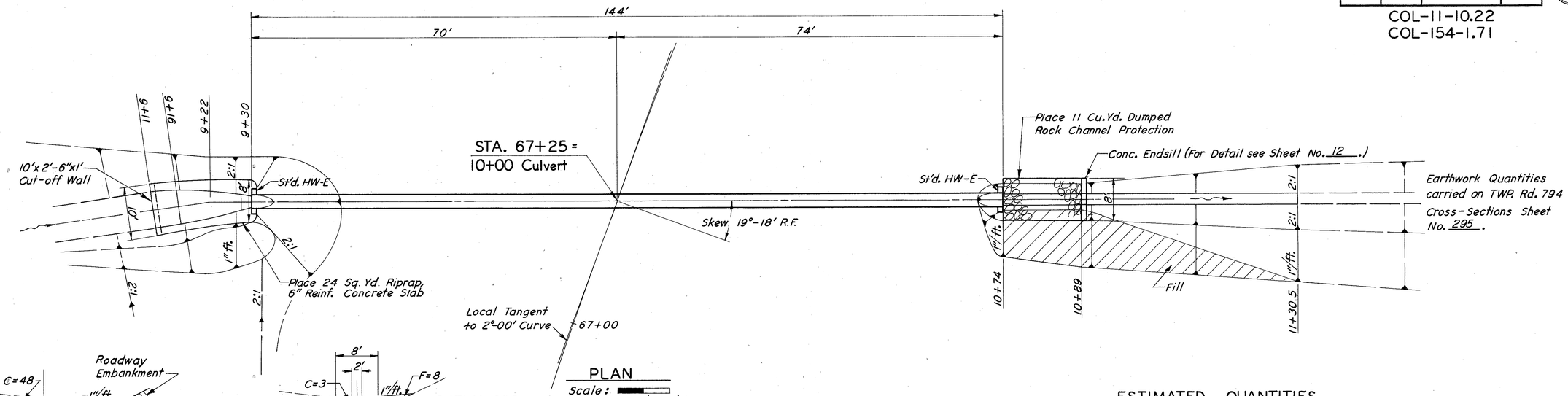
20-S

RELOC. S. R. 154
STATION 65+75
36"x139' CULVERT

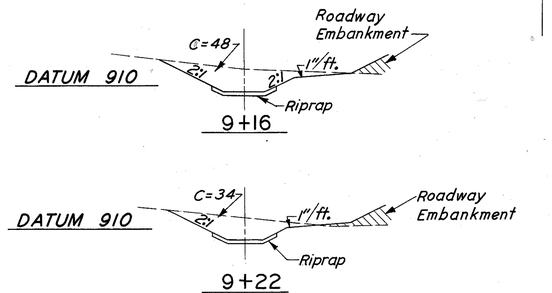
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

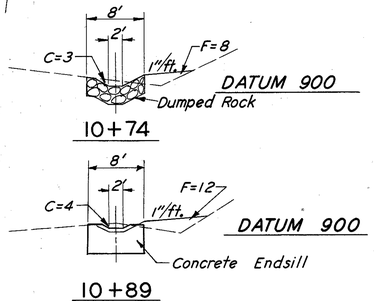
346

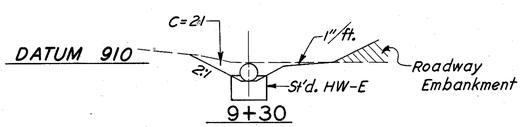
COL-11-10.22
COL-154-1.71

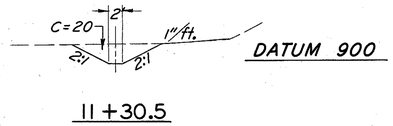


PLAN
Scale: 0 5' 10'









Scale: 0 5' 10'

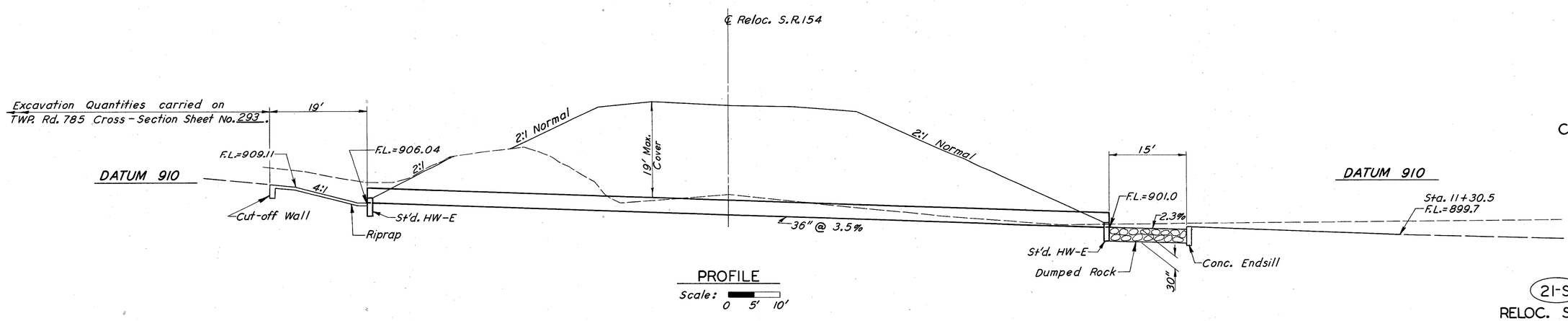
ESTIMATED QUANTITIES

Item 603	36" Conduit, Type A, 706.02, Class IV with Class B Bedding	144 Lin. Ft.
Item 602	Concrete Masonry	2.31 Cu. Yd.
Item 601	Riprap, 6" Reinforced Concrete Slab	24 Sq. Yd.
Item 601	Dumped Rock Channel Protection	11 Cu. Yd.
Item 203	Excavation, not including Embankment Construction	48 Cu. Yd.
Item 203	Embankment	16 Cu. Yd.

Quantities carried to Sheet No. 226 .

Drainage Area = 55 Acres

Q_{25} = 68 c. f. s.



PROFILE
Scale: 0 5' 10'

COL-154-0244

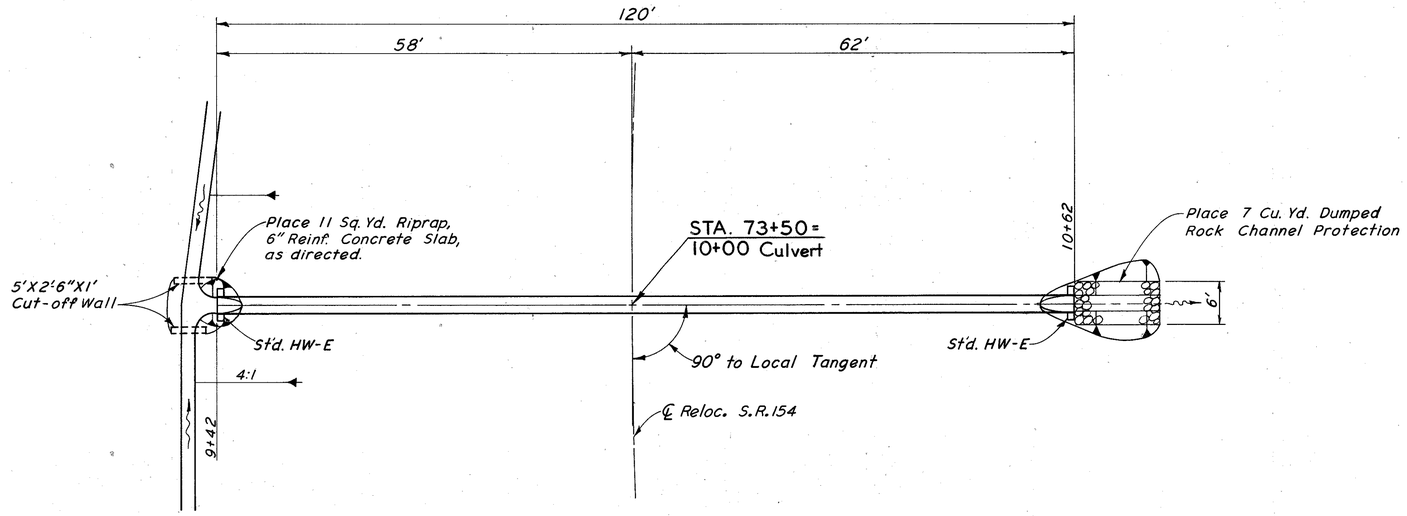
21-S

RELOC. S.R. 154
STATION 67+25
36"x144' CULVERT

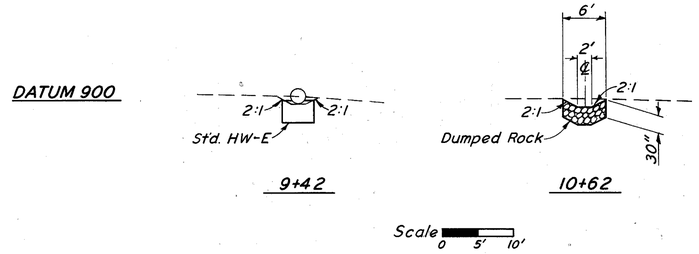
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

347

COL-11-10.22
COL-154-1.71



PLAN
Scale 0 5' 10'



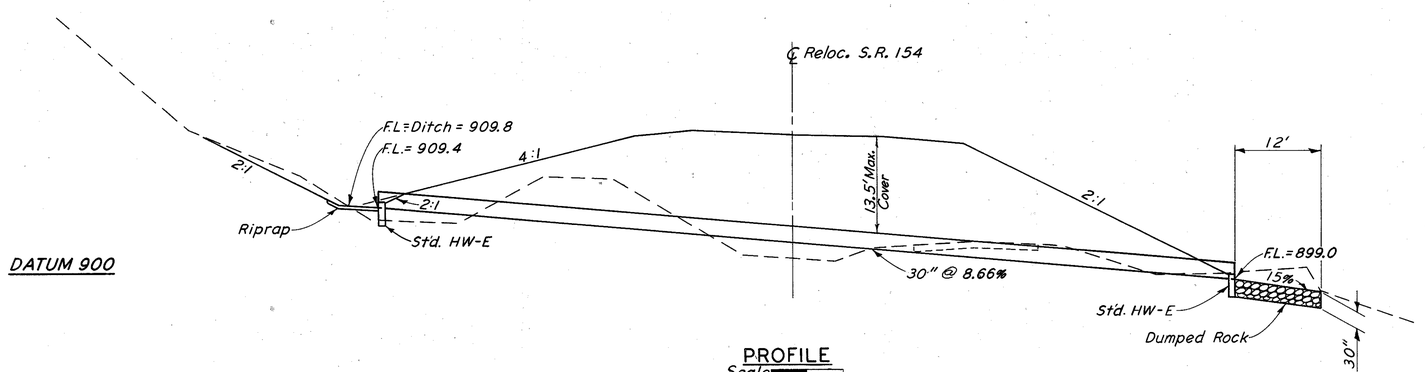
Scale 0 5' 10'

ESTIMATED QUANTITIES

Item	603 - 30" Conduit, Type A, 707.05 Gage 14 with Class B Bedding	120 Lin. Ft.
Item	602 - Concrete Masonry	1.02 Cu. Yd.
Item	601 - Riprap, 6" Reinforced Concrete Slab	11 Sq. Yd.
Item	601 - Dumped Rock Channel Protection	7 Cu. Yd.
Item	203 - Excavation, not including Embankment Construction	5 Cu. Yd.

Quantities carried to Sheet No. 226.

Drainage Area = 11 Acres
Q_{25} = 28 c.f.s.



PROFILE
Scale 0 5' 10'

COL-154-0256

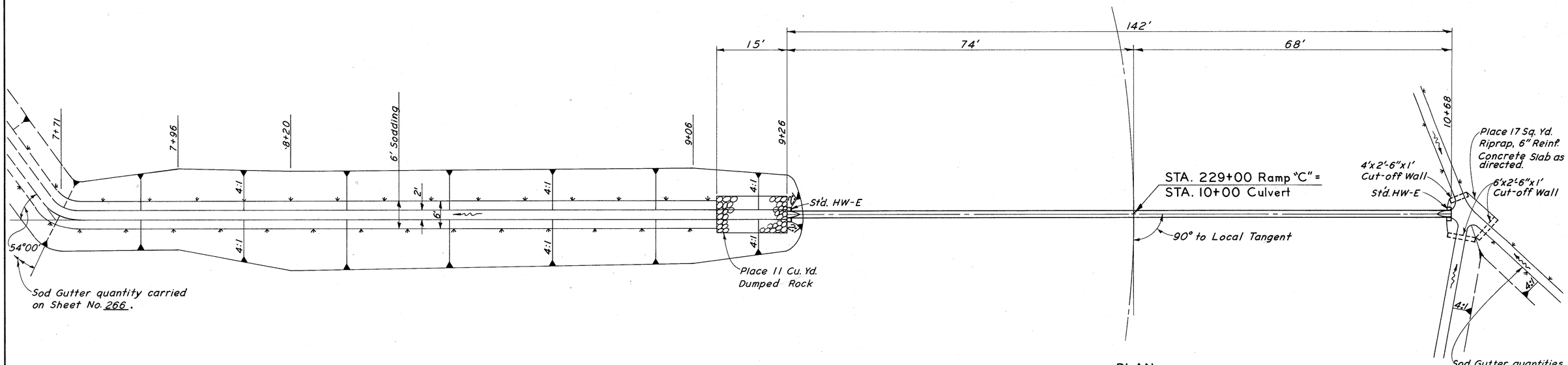
22-S

RELOC. S.R. 154
STATION 73+50
30"X120' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

348

COL-11-10.22
COL-154-1.71



PLAN
Scale: 0 5' 10'



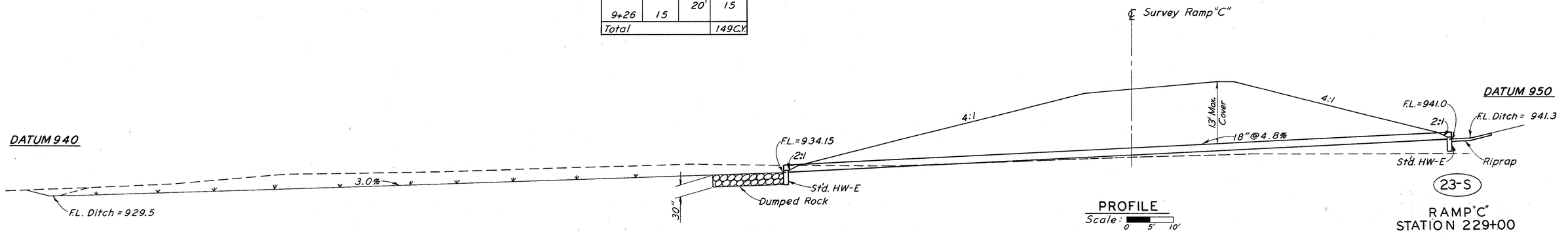
Scale: 0 5' 10'

Excavation Quantities			
Station	E.Area	Dist.	Volume
7+71	18	25'	17
7+96	18	24'	23
8+20	34	86'	94
9+06	25	20'	15
9+26	15		
Total			149C.Y.

ESTIMATED QUANTITIES

Item 603 –	18" Conduit, Type A, 706.02 Class III or 706.08 with Class B Bedding	142 Lin. Ft.
Item 602 –	Concrete Masonry	0.60 Cu. Yd.
Item 601 –	Dumped Rock Channel Protection	11 Cu. Yd.
Item 203 –	Excavation, not including Embankment Construction	149 Cu. Yd.
Item 660 –	Sodding	94 Sq. Yd.
Item 601	Riprap, 6" Reinforced Concrete Slab	17 Sq. Yd.

Quantities Carried to Sheet No. 266
Drainage Area = 3 Acres
Q_{25} = 11 c.f.s.



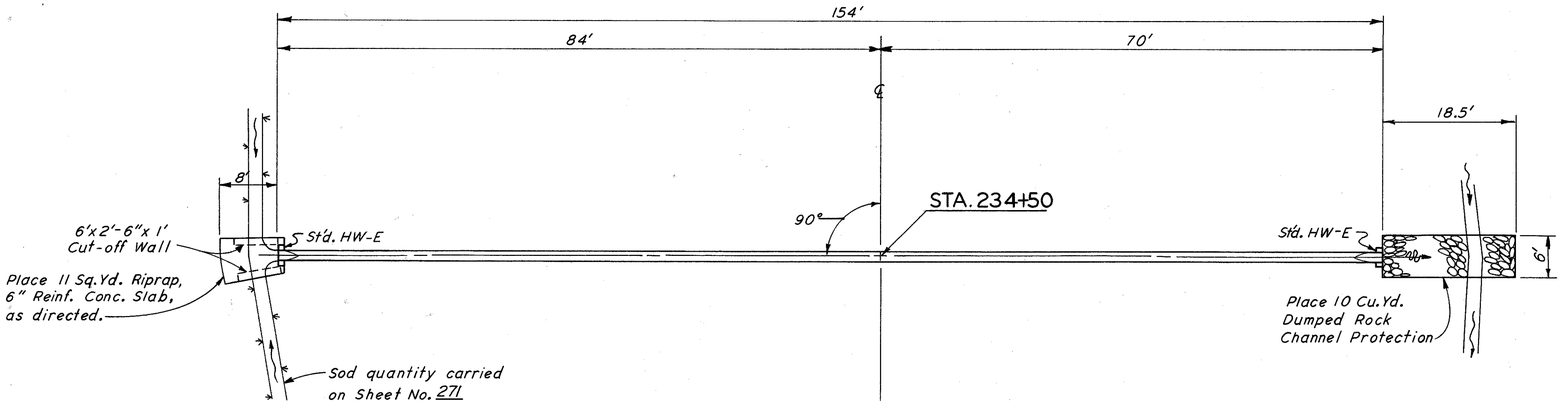
PROFILE
Scale: 0 5' 10'

23-S

RAMP "C"
STATION 229+00
18" X 142' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

COL-11-10.22
COL-154-1.71



PLAN

SCALE: 0 5' 10'

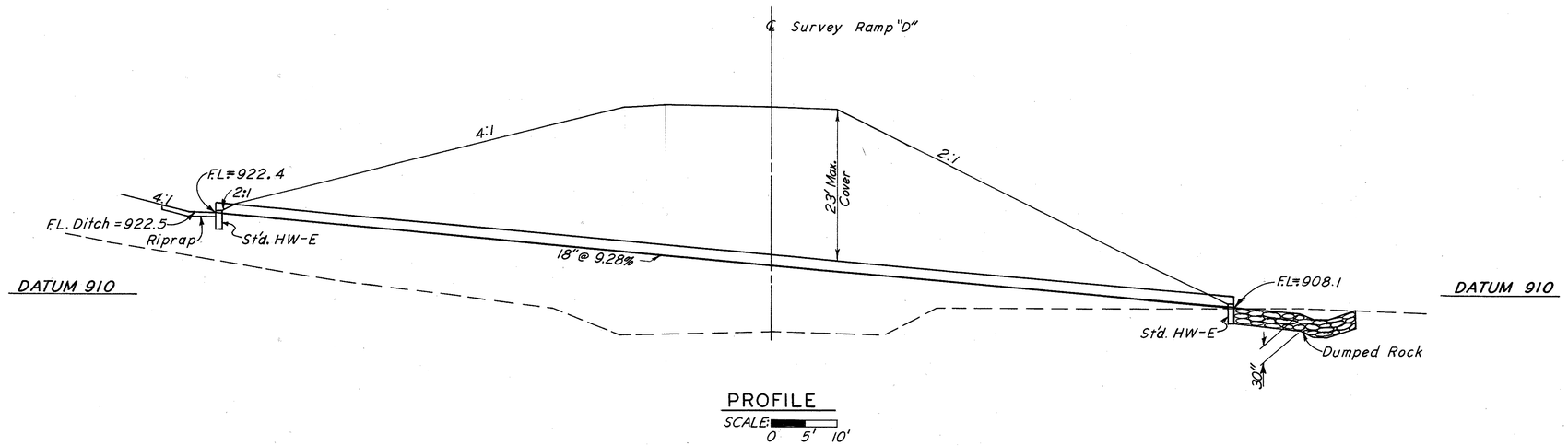
ESTIMATED QUANTITIES

Item 603 - 18" Conduit, Type A, 706.02 Class V, Class B Bedding — — — — — 154 Lin. Ft.
Item 602 - Concrete Masonry — 0.60 Cu. Yd.
Item 601 - Dumped Rock Channel Protection — — — — — — — — — — — — — 10 Cu. Yd.
Item 601 - Riprap, 6" Reinforced Concrete Slab — — — — — — — — — — — 11 Sq. Yd.

Quantities Carried to Sheet No. 271

Drainage Area = 3.5 Acres

Q_{25} = 12 c.f.s.



PROFILE

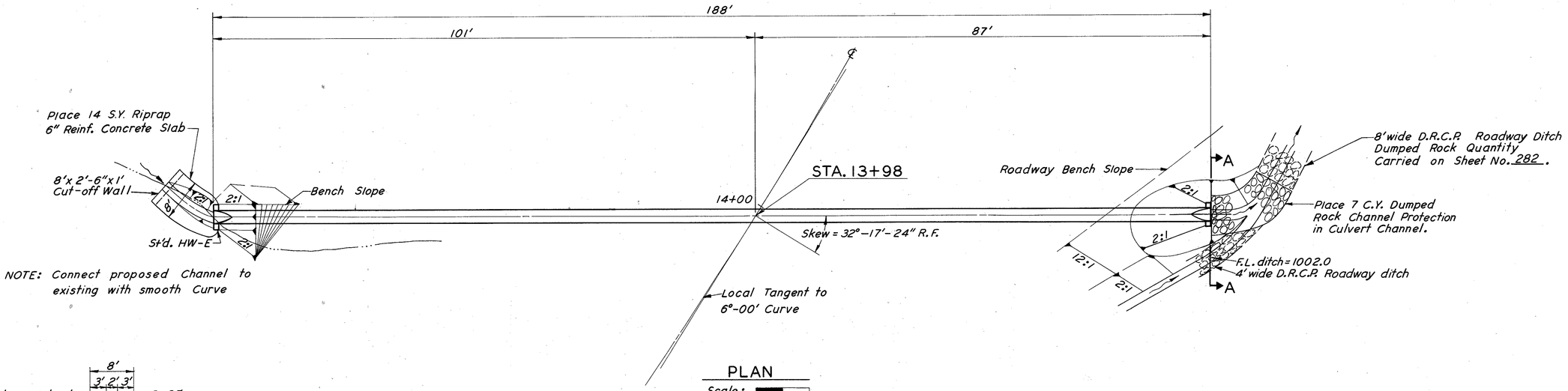
SCALE: 0 5' 10'

24-S
RAMP "D"
STATION 234+50
18"x154' CULVERT

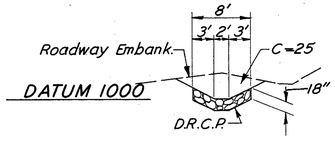
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

350

COL-11-10.22
COL-154-1.71



PLAN
Scale: 0 5' 10'



SECTION A-A
Scale: 0 5' 10'

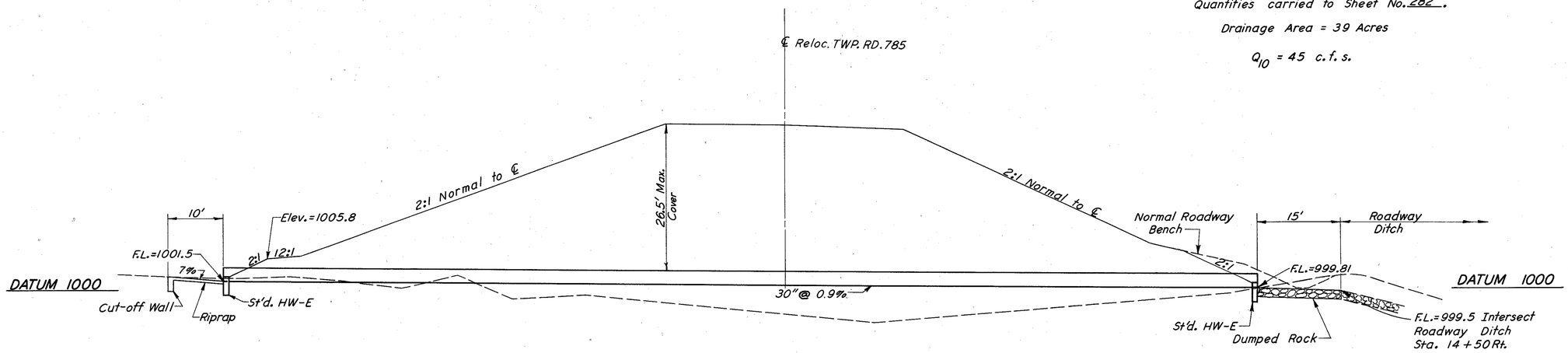
ESTIMATED QUANTITIES

Item 603 — 30" Conduit, Type A, 706.02, Class V with Class B Bedding	188	Lin. Ft.
Item 602 — Concrete Masonry	1.02	Cu. Yd.
Item 601 — Dumped Rock Channel Protection	7	Cu. Yd.
Item 601 — Riprap, 6" Reinforced Concrete Slab	14	Sq. Yd.
Item 203 — Excavation, not including Embankment Construction	4	Cu. Yd.

Quantities carried to Sheet No. 282 .

Drainage Area = 39 Acres

Q_{10} = 45 c.f.s.



PROFILE
Scale: 0 5' 10'

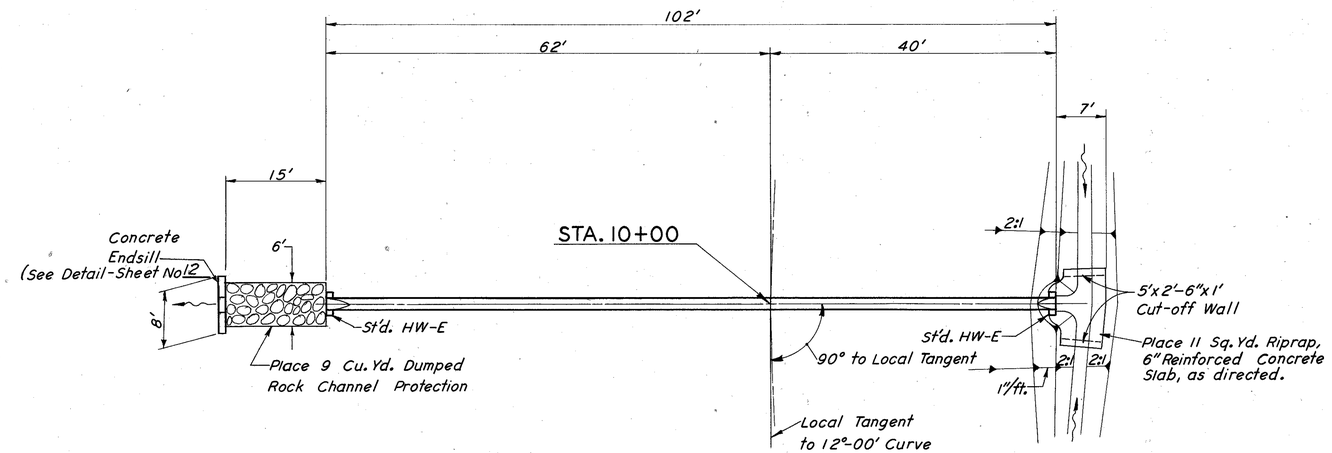
25-S

RELOC. TWP. RD. 785
STATION 13+98
30"x 188' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

351

COL-11-10.22
COL-154-1.71



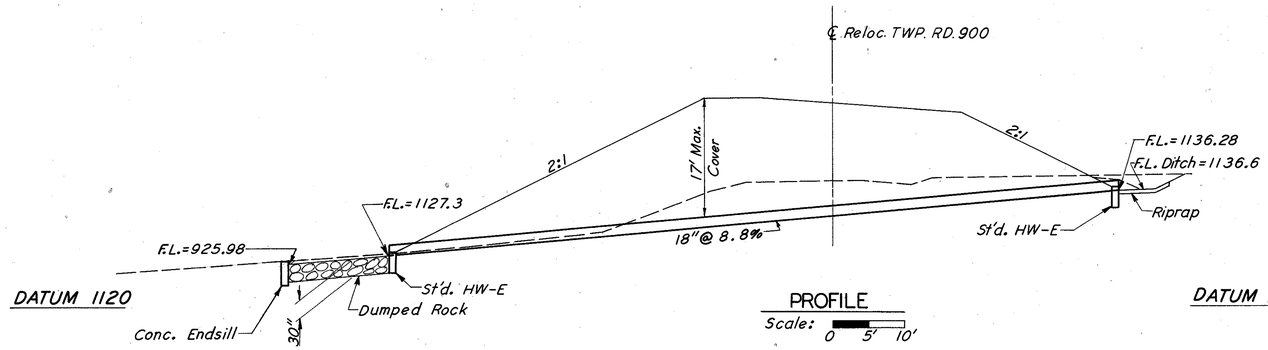
PLAN
Scale: 0 5' 10'

ESTIMATED QUANTITIES

Item 603 – 18" Conduit, Type A 706.02, Class IV with Class B Bedding ------ 102 Lin. Ft.
Item 602 – Concrete Masonry ------ 1.73 Cu. Yd.
Item 601 – Riprap, 6" Reinforced Concrete Slab ------ 11 Sq. Yd.
Item 601 – Dumped Rock Channel Protection ------ 9 Cu. Yd.
Item 203 – Excavation, not including Embankment Construction ------ 1 Cu. Yd.

Quantities carried to Sheet No. 296

Drainage Area = 8 Acres
Q_{10} = 12 c.f.s.



PROFILE
Scale: 0 5' 10'

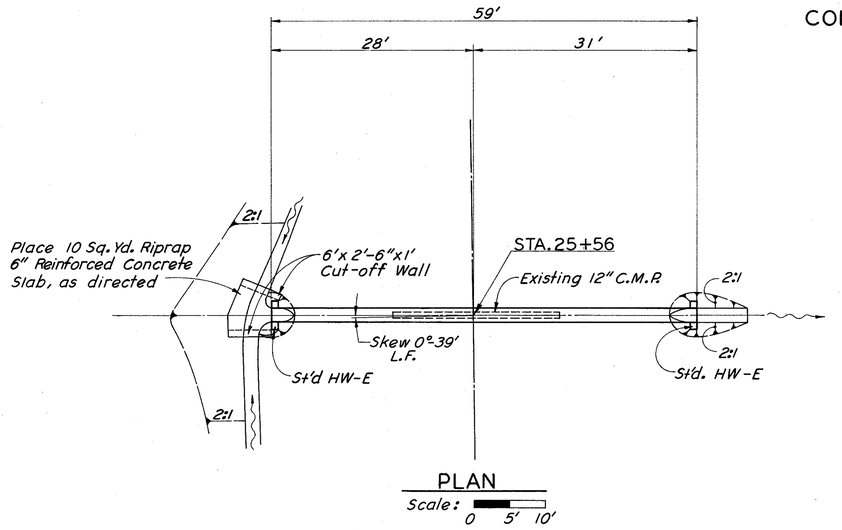
26-S

RELOC. TWP. RD. 900
STATION 10+00
18"x102' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

352

COL-11-10.22
COL-154-1.71



PLAN

Scale: 0 5' 10'

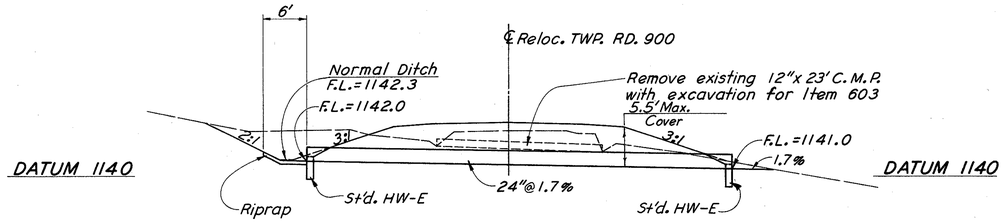
ESTIMATED QUANTITIES

Item 603 - 24" Conduit, Type A, 706.02 or 706.08 with Class B Bedding --- 60 Lin. Ft.
Item 602 - Concrete Masonry ---------- 0.82 Cu. Yd.
Item 601 - Riprap, 6" Reinforced Concrete Slab ---------- 10 Sq. Yd.
Item 203 - Excavation, not including Embankment Construction ---------- 1 Cu. Yd.

Quantities carried to Sheet No. 297.

Drainage Area = 7 Acres

Q_{10} = 22 c.f.s.

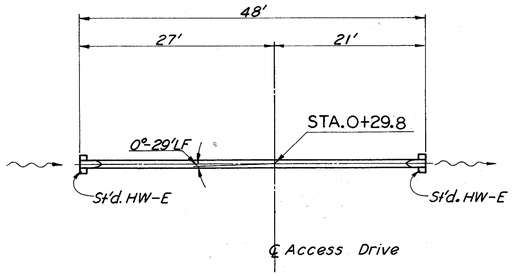


PROFILE

Scale: 0 5' 10'

27-S

RELOC. TWP. RD. 900
STATION 25+56
24"x 59' CULVERT



PLAN
Scale: 0 5' 10'

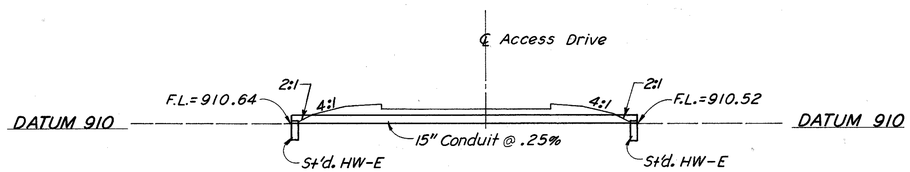
ESTIMATED QUANTITIES

Item 603 - 15" Conduit, Type D ---------- 48 Lin. Ft.
Item 602 - Concrete Masonry ---------- 0.52 Cu. Yd.

Quantities carried to Sheet No. 222.

Drainage Area = 1 Acre

Q_{25} = 5 c.f.s.



PROFILE
Scale: 0 5' 10'

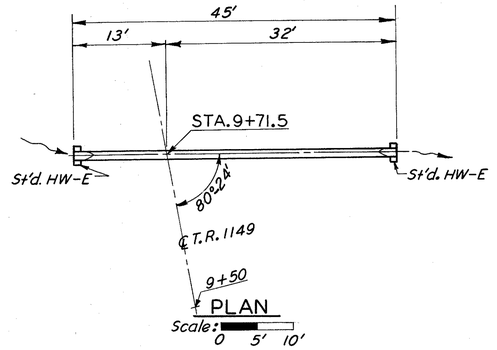
14-S

ACCESS DRIVE (1-A)
STATION 0+29.8
15"x 48' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

353

COL-11-10.22
COL-154-1.71



PLAN
Scale: 0 5' 10'

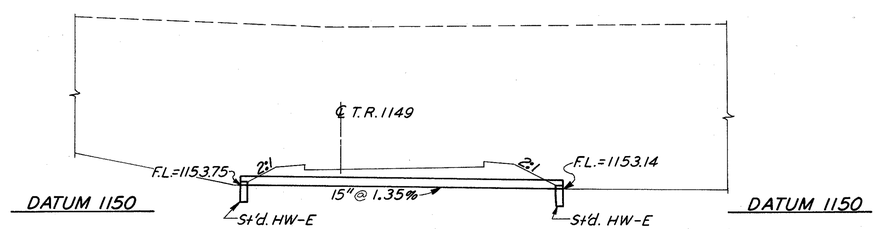
ESTIMATED QUANTITIES

Item 603 - 15" Conduit, Type A, 706.02 or 706.08 with Class B Bedding ---- 46 Lin. Ft.
Item 602 - Concrete Masonry ---------- 0.52 Cu. Yd.

Quantities carried to Sheet No. 304 .

Drainage Area = 1.6 Acres

Q_{10} = 7.0 c.f.s.



1156.61
STA. 9+71.5

PROFILE
Scale: 0 5' 10'

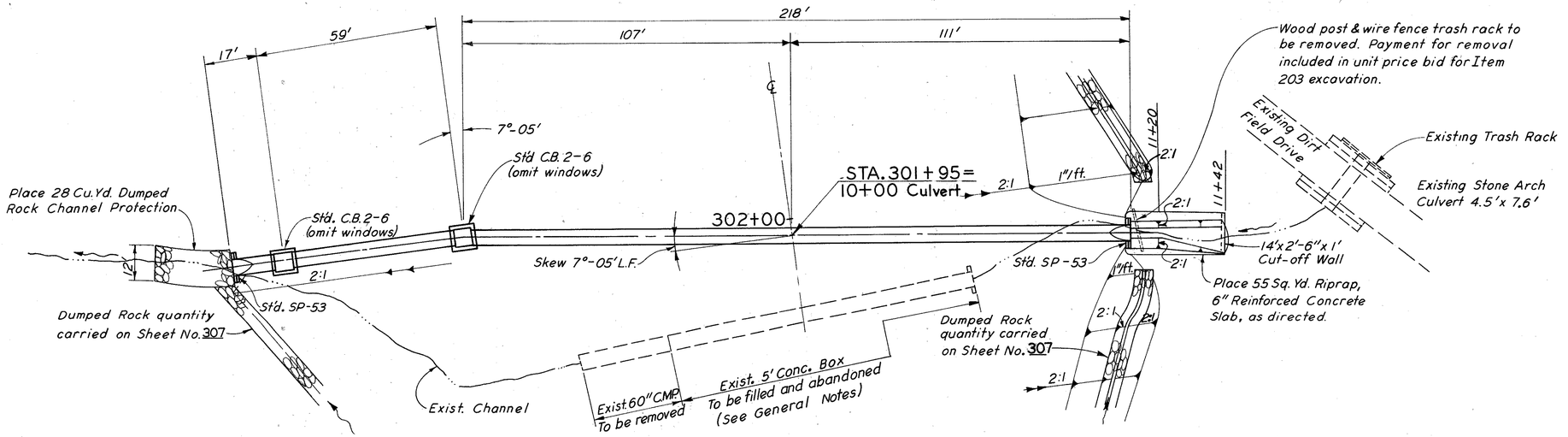
28-S

TWP. RD. 1149
STATION 9+71.5
15"x 45' CULVERT

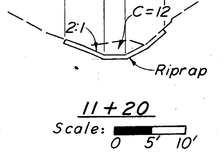
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

354

COL-11-10.22
COL-154-1.71



PLAN
Scale: 0 10' 20'



DATUM 960

11+20
Scale: 0 5' 10'

Excavation Quantities			
Station	E. Area	Dist.	Vol.
Culvert Inlet	12	9'	4
11+20	12	22'	5
11+42	0		
Total			9 C.Y.

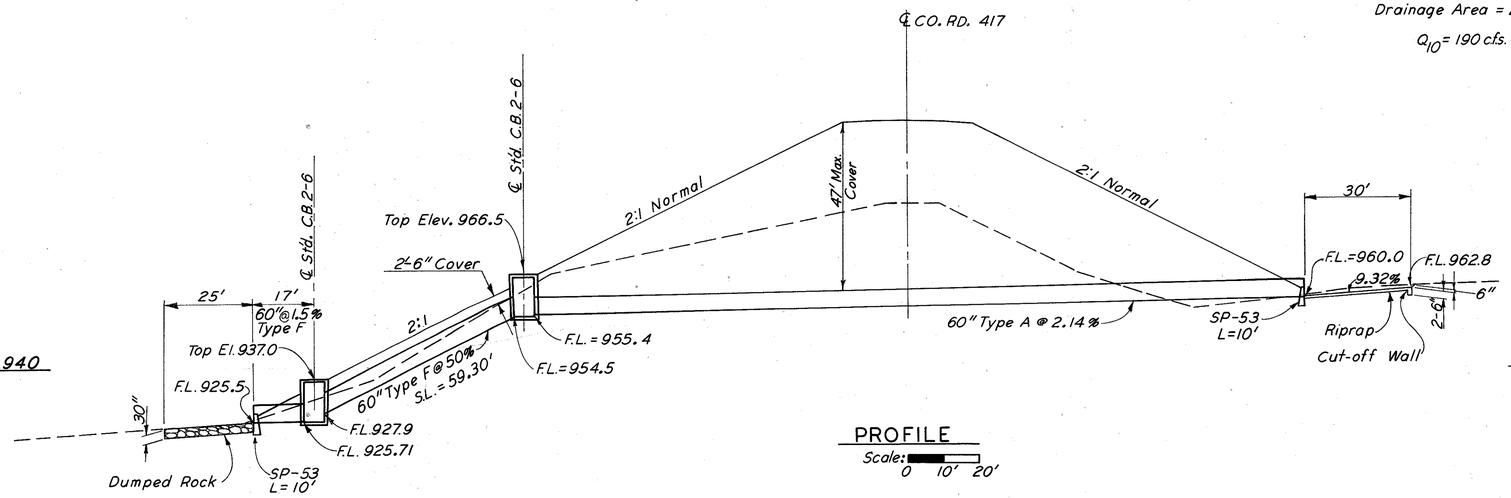
ESTIMATED QUANTITIES

Item 603 - 60" Conduit, Type A, 707.03, Gage 10-8 with Class B Bedding — 216 Lin. Ft.
Item 603 - 60" Conduit, Type F — 76 Lin. Ft.
Item 602 - Concrete Masonry — 4.92 Cu. Yd.
Item 601 - Riprap, 6" Reinforced Concrete Slab — 55 Sq. Yd.
Item 601 - Dumped Rock Channel Protection — 28 Cu. Yd.
Item 203 - Excavation, not including Embankment Construction — 9 Cu. Yd.
Item 604 - Standard Catch Basin No. 2-6 — 2 Each
Item 202 - Pipe Removed (Over 24") — 30 Lin. Ft.

Quantities Carried to Sheet No. 307

Drainage Area = 240 Acres

Q_{10} = 190 cfs.



PROFILE
Scale: 0 10' 20'

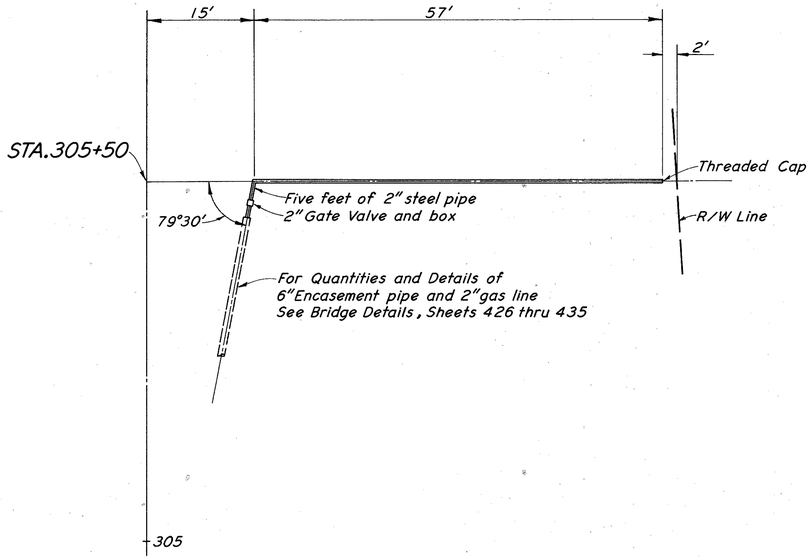
29-S

CO. RD. 417
STATION 301+95
60"X 294' CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

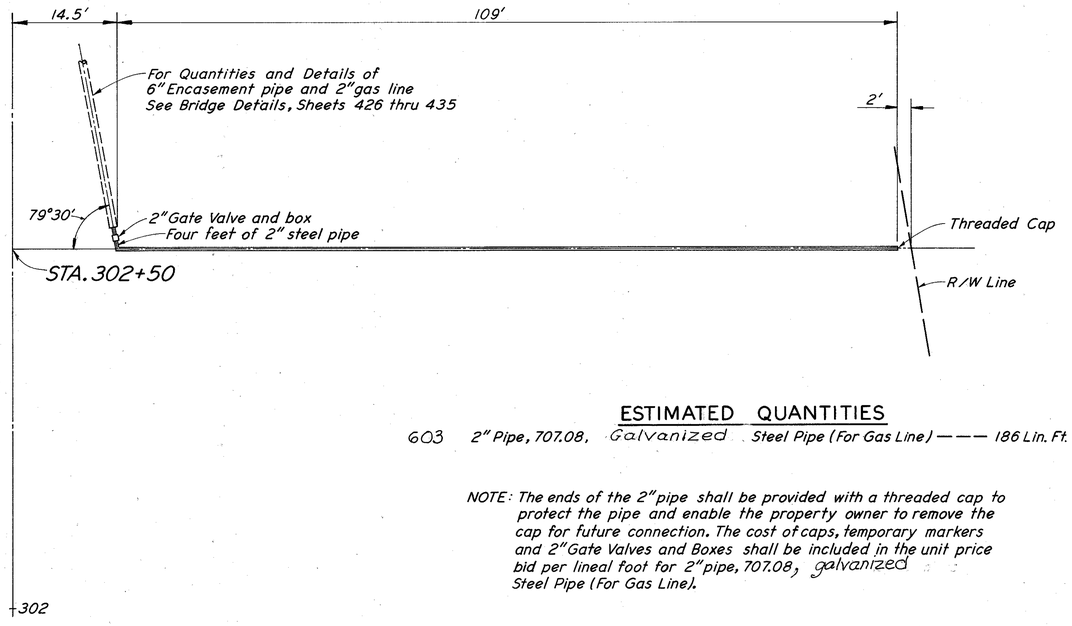
354A

COL-11-10.22
COL-154-1.71



PLANS

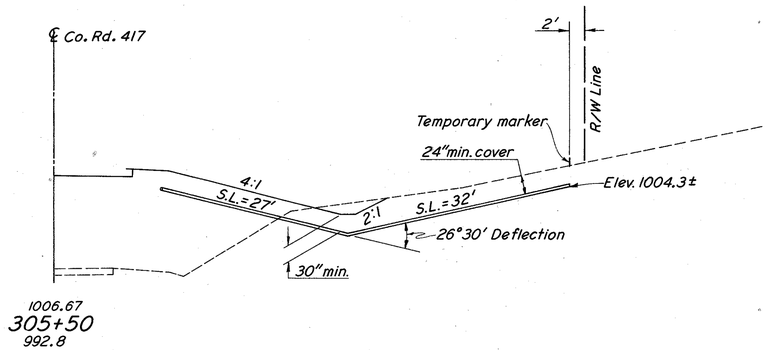
Scale 0 5' 10'



ESTIMATED QUANTITIES

603 2" Pipe, 707.08, Galvanized Steel Pipe (For Gas Line) ——— 186 Lin. Ft.

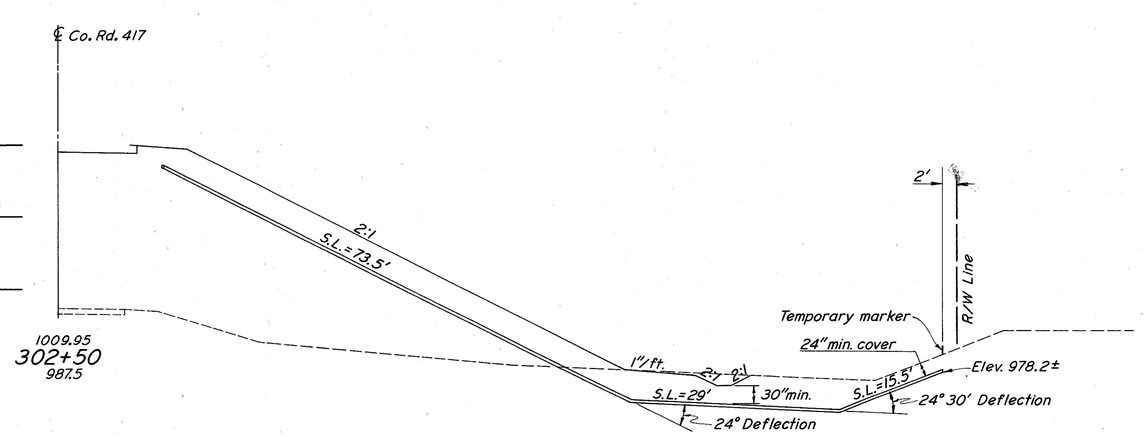
NOTE: The ends of the 2" pipe shall be provided with a threaded cap to protect the pipe and enable the property owner to remove the cap for future connection. The cost of caps, temporary markers and 2" Gate Valves and Boxes shall be included in the unit price bid per lineal foot for 2" pipe, 707.08, galvanized Steel Pipe (For Gas Line).



DATUM 1010

DATUM 1000

DATUM 990



PROFILES

Scale: 0 5' 10'

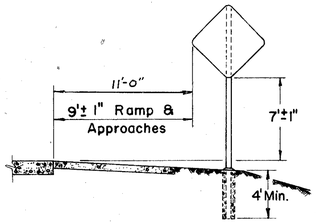
RELOCATED GAS LINE
CO. RD. 417

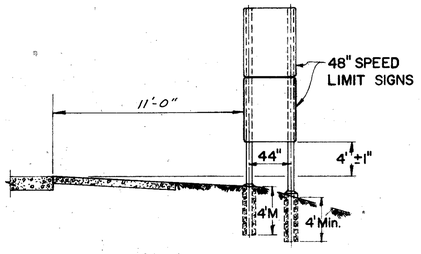
(1-GL) STA. 302+50 2"x122'
(2-GL) STA. 305+50 2"x 64'

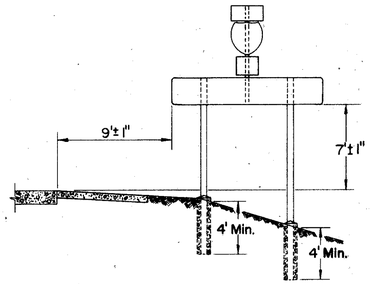
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

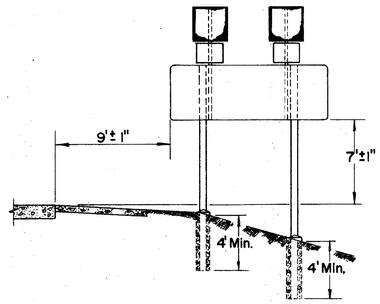
354B

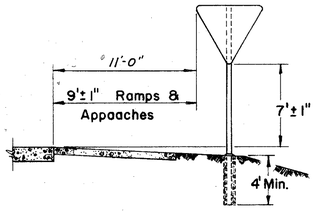
COL-11-10.22
COL-154-1.71

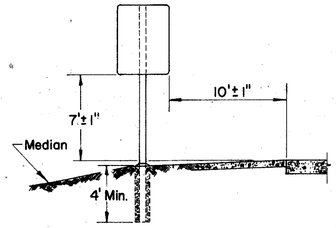


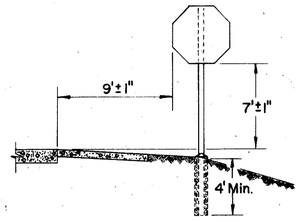


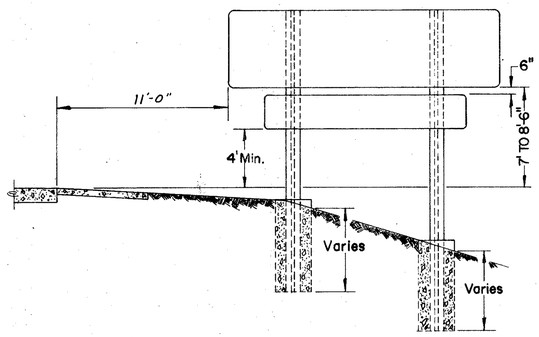


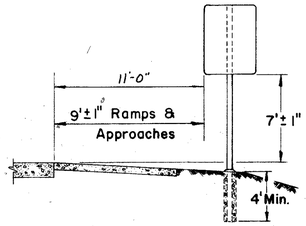


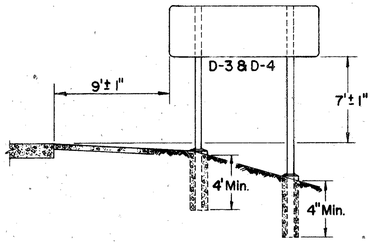


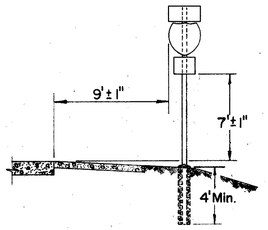


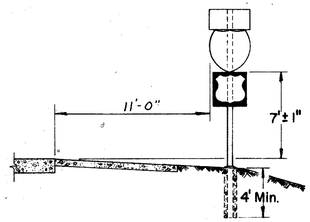


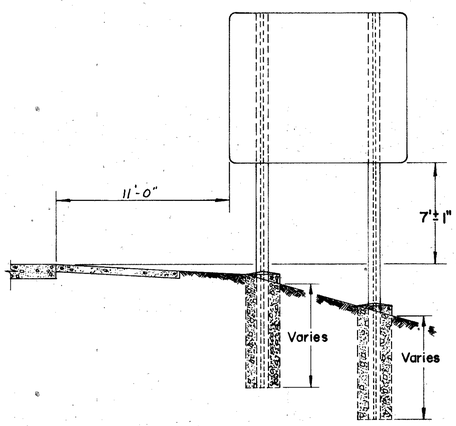


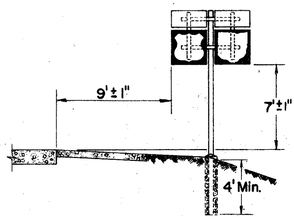


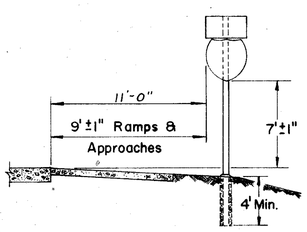


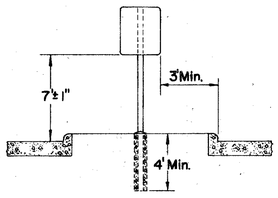












NOTES

1. BOLT HOLE LOCATIONS ARE INDICATED ON THE SIGN DESIGN SHEET NO. 354C.

2. HORIZONTAL BACK BRACING SHALL ALWAYS BE MOUNTED ON THE FRONT FLANGE OF THE SUPPORT EXCEPT WHERE SIGNS ARE MOUNTED BACK TO BACK. BACK BRACING SHALL NEVER EXTEND ABOVE TOP EDGE OF UPPERMOST SIGN PLATE AND SHALL BE ATTACHED TO SUPPORTS USING 5/16" GALVANIZED STEEL BOLTS.

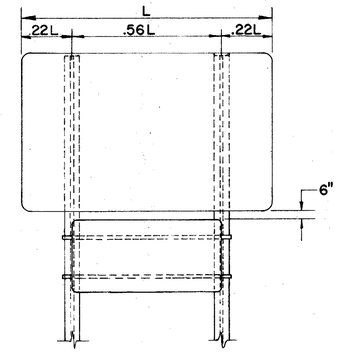
3. SCREWS, NUTS, AND WASHERS FOR SIGN ERECTION SHALL BE ALUMINUM EXCEPT AS NOTED ABOVE. 5/16" TRUSS HEAD SLOTTED MACHINE SCREWS WITH HEX. NUTS PLAIN AND LOCKWASHERS SHALL BE USED. PLAIN WASHERS SHALL BE $\frac{5}{16}$" "WIDE", USED ON SIGN FACE ONLY.

4. SIGN INSTALLATIONS SHALL BE PLACED SO THAT SUPPORTS ARE NOT PLACED IN DRAINAGE DITCHES.

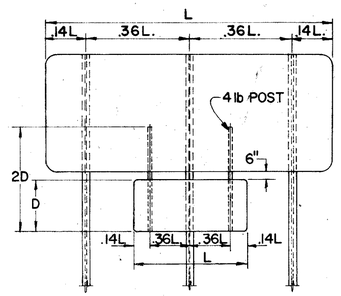
5. HORIZONTAL CLEARANCES SHOWN PERTAIN TO NON-CURBED SECTIONS. SECTIONS WITH UNMOUNTABLE CURB SHALL HAVE A HORIZONTAL CLEARANCE OF 3'-0" MINIMUM FROM THE CURB FACE TO THE SIGN EDGE. ALL SIGN SHALL BE ERECTED 1'-0"±1" BEHIND EXISTING GUARD RAIL UNLESS OTHERWISE SPECIFIED ON PLANS OR BY THE ENGINEER.

6. VERTICAL AND HORIZONTAL CLEARANCE BETWEEN SIGNS ON ONE ASSEMBLY SHALL BE A MAXIMUM OF 2" AND A MINIMUM OF 1".

7. GALVANIZED STEEL BEARING PLATES SHALL BE INCLUDED BETWEEN ALL SHEET ALUMINUM SIGNS ATTACHED TO VERTICAL SUPPORTS AT EACH SIGN BOLT LOCATION. FOR BEARING PLATE DETAILS SEE SHEET NO. 354D.



ERECTION OF SECONDARY SIGN WHEN "L" IS 13'-0" AND 14'-0"



BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

TYPICAL PLACEMENT OF SIGNS	TPS-1	DATE 10-12-65 2-28-66

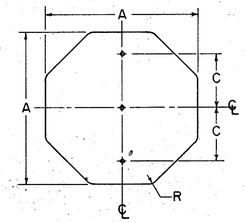
APPROVED Fred C. Tasbo
ENGINEER OF TRAFFIC

TYPICAL PLACEMENT OF SIGNS . .

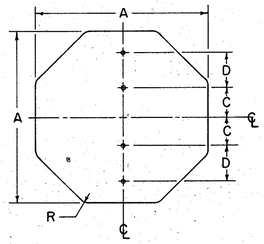
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

354 C

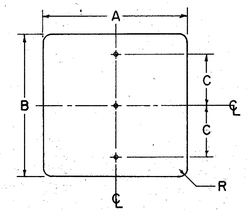
COL-11-10.22 COL-154-1.71



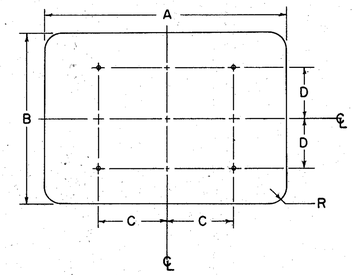
A	C	R	GAUGE
30	8	1 1/2	.080
36	8	1 1/2	.080



A	C	D	R	GAUGE
48	8	10	1 1/2	.100

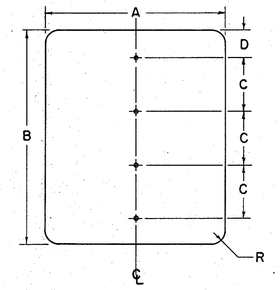


A	B	C	R	GAUGE
30	42	12	1 1/2	.080
36	36	11	1 1/2	.080
36	42	15	1 1/2	.080
36	48	15	1 1/2	.080
48	24	10	3	.100
48	36	13	3	.100

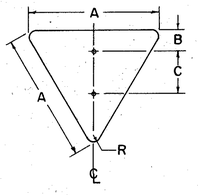


A	B	C	D	R	GAUGE
48	48	22	16	3	.100
48	60	22	22	3	.100

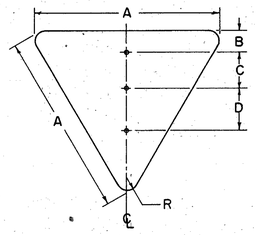
SPEED LIMIT SIGNS ON TWO SUPPORTS



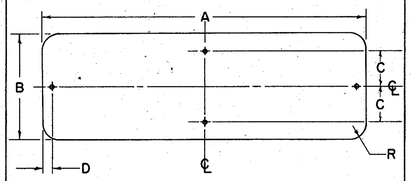
A	B	C	D	R	GAUGE
48	48	12	6	3	.100
48	60	15	7 1/2	3	.100



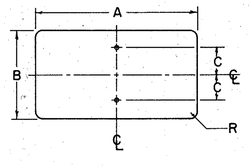
A	B	C	R	GAUGE
36	3	16	2 1/2	.080



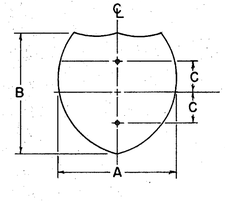
A	B	C	D	R	GAUGE
48	4	10	15	3	.100
60	5	10	15	4	.100



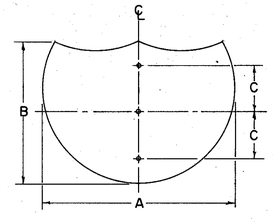
A	B	C	D	R	GAUGE
36	12	4	1	1 1/2	.080



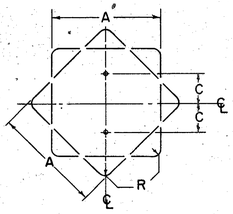
A	B	C	R	GAUGE
12	6	3	1 1/2	.063
20	15	6	1 1/2	.063
24	12	4 1/2	1 1/2	.063
24	18	15	1 1/2	.063
24	30	8	1 1/2	.063
24	48	10	1 1/2	.100
30	36	10 1/2	1 1/2	.080
36	18	7 1/2	1 1/2	.080



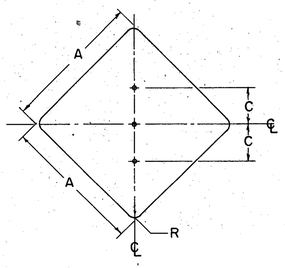
A	B	C	GAUGE
24	24	8	.063
30	24	8	.080



A	B	C	GAUGE
36	36	11	.080
48	36	11	.100

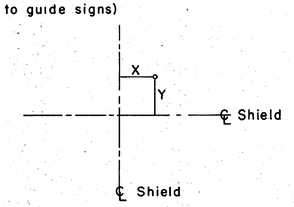


A	C	R	GAUGE
18	7 1/2	1 1/2	.063
24	8	1 1/2	.063
30	8	1 1/2	.080



A	C	R	GAUGE
36	12	3	.080
48	14	3	.100

Location of holes on "Demountable Shields" (attached to guide signs)



SIZE	NO. HOLES	X	Y
(26) 24X24	4	7	7
30X24	4	8	8
(39) 36X36	4	10	10
		0	10
48X36	6	15	10

For notes on fastening see drawing for miscellaneous "Signing Items" sheet.

NOTES:

ALL DEMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.

MATERIAL

FLAT SIGN BLANKS SHALL BE FURNISHED IN ALUMINUM ALLOY 6061-T6, (ASTM-B209, GSIIA-T6) WITH MILL FINISH.

BOLT HOLES

THE BOLT HOLES SHALL BE 3/8" IN DIAMETER, AND MAY BE DRILLED, BLANKED OR PUNCHED TO FINISHED SIZE.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

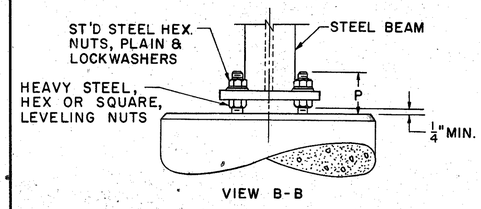
SIGN BLANK DETAILS

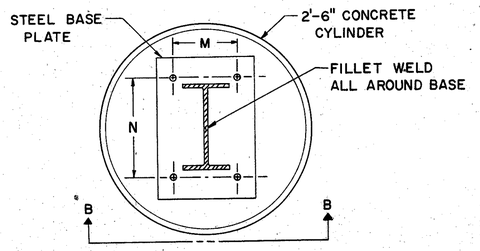
SBD

DATE 4-14-67

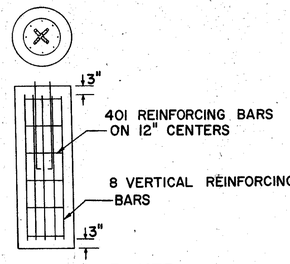
APPROVED_____
ENGINEER OF TRAFFIC

BEAM SIZE	ANCHOR BOLTS DIA.	ANCHOR BOLTS LENGTH	BASE PLATE	HOLE SIZE	DIM. M	DIM. N	DIM. P	WELD SIZE	DIM. H	DIM. W	CU. YDS. FOR 2 POST	MARK	TYPE	NO.	LENGTH	WEIGHT FOR 1 POST
10 B11.5	3/4"	3'-0"	7/8"x6"x18"	7/8"	3 1/2"	14"	3 1/2"	1/4"	5.25'	2'-6"	1.9	401	101	6	7'-6"	45
												402	STR.	8	5'-0"	
10 B17	1"	3'-6"	7/8"x6"x18"	1 1/8"	3 3/4"	14"	4 1/4"	1/4"	6.0'	2'-6"	2.2	401	101	7	7'-6"	52
												403	STR.	8	6'-9"	
12 B22	1"	4'-0"	1"x9"x19"	1 1/8"	5 1/2"	15"	4 1/4"	1/4"	6.75'	2'-6"	2.5	401	101	8	7'-6"	61
												404	STR.	8	7'-0"	
12 WF 27	1 1/4"	4'-0"	1"x9"x19"	1 3/8"	5 1/2"	15"	5 1/4"	1/4"	8.0'	2'-6"	2.9	401	101	9	7'-6"	94
												501	STR.	8	8'-0"	
14 WF 30	1 1/4"	4'-0"	1"x11"x20"	1 3/8"	7 1/2"	16"	5 1/4"	5/16"	8.25'	2'-6"	3.0	401	101	10	7'-6"	101
												502	STR.	8	8'-6"	
14 WF 34	1 1/4"	4'-0"	1"x12"x22"	1 3/8"	9"	18"	5 1/4"	5/16"	9.0'	2'-6"	3.3	401	101	10	7'-6"	103
												503	STR.	8	8'-9"	
16 WF 36	1 1/2"	5'-0"	1 1/4"x14"x23"	1 5/8"	10"	19"	6"	5/16"	9.75'	2'-6"	3.5	401	101	11	7'-6"	145
												601	STR.	8	9'-3"	
16 WF 40	1 1/2"	5'-6"	1 1/4"x14"x24"	1 5/8"	10"	20"	6"	5/16"	10.0'	2'-6"	3.6	401	101	11	7'-6"	148
												602	STR.	8	9'-6"	
16 WF 45	1 1/2"	6'-0"	1 1/4"x14"x24"	1 5/8"	10"	20"	6"	5/16"	10.5'	2'-6"	3.8	401	101	11	7'-6"	155
												603	STR.	8	10'-0"	
18 WF 50	1 3/4"	7'-6"	1 1/2"x14"x26"	1 7/8"	10"	22"	6 3/4"	5/16"	11.5'	2'-6"	4.2	401	101	12	7'-6"	164
												604	STR.	8	10'-6"	



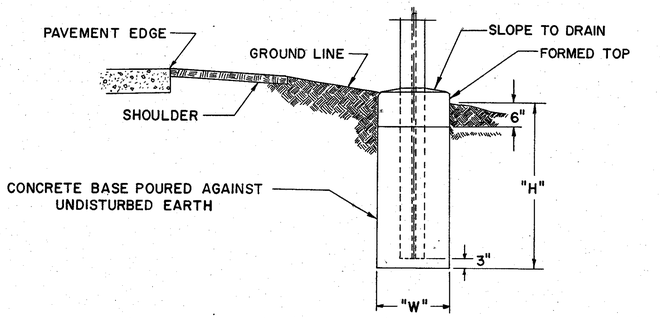


ALTERNATE ANCHOR BASE DETAILS



REINFORCING FOR ALTERNATE ANCHOR BASE

BEAM SIZE	DIM. W	DIM. HO	CU. YDS. CONC. 2 POST
4# POST	1'-0"	4.0'	0.2
6#BEAM	1'-0"	4.0'	0.2
8#BEAM	1'-0"	4.0'	0.2
10B11.5	2'-6"	5.25'	1.9
10B17	2'-6"	6.0'	2.2
12B22	2'-6"	6.75'	2.5
12WF27	2'-6"	8.0'	2.9
14WF30	2'-6"	8.25'	3.0
14WF34	2'-6"	9.0'	3.3
16WF36	2'-6"	9.75'	3.5
16WF40	2'-6"	10.0'	3.6
16WF45	2'-6"	10.5'	3.8
18WF50	2'-6"	11.5'	4.2



FOUNDATION DETAILS FOR EMBEDDED POSTS AND BEAMS

NOTES

PLAN QUANTITIES FOR POSTS AND STRUCTURAL SUPPORTS ARE BASED UPON THE "FOUNDATION DETAILS FOR EMBEDDED POSTS AND BEAMS".

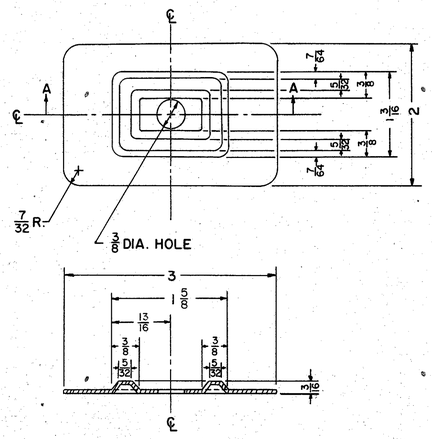
IF THE CONTRACTOR ELECTS TO USE THE METHOD SHOWN FOR "ALTERNATE ANCHOR BASE DETAILS", THE PLAN QUANTITY OF EMBEDDED BEAM ONLY WILL BE ALLOWED IN EXCHANGE AND FULL PAYMENT FOR THE BASE PLATE, ANCHOR BOLTS AND REINFORCING STEEL.

WHERE ANCHOR BASES ARE USED, THE BEAM SIZE SHALL DETERMINE THE ANCHOR BOLT AND BASE PLATE SIZE.

DEMOUNTABLE UNITS SHALL BE ATTACHED TO THE ALUMINUM PANELS WITH ALUMINUM BLIND RIVETS. CARE SHALL BE TAKEN TO INSURE THAT ALL SEGMENTS OF EACH LETTER OR SYMBOL ARE SECURELY AFFIXED TO THE BACKING. LETTERS CONTAINING REFLECTIVE UNITS SHALL BE FASTENED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.

DEMOUNTABLE SHIELDS SHALL BE AFFIXED TO THE BACKING UTILIZING 5/16" TRUSS HEAD BOLTS, PLAIN AND LOCKWASHERS. FOR HOLE LOCATION DETAILS SEE SHEET NO. 354C.

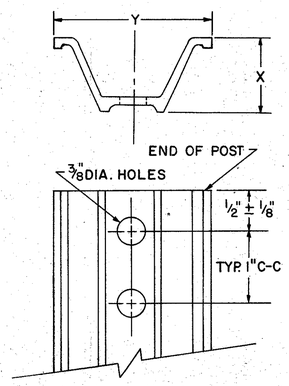
IN LIEU OF THE .040" THICK FRAME SPECIFIED IN SUPPLEMENTAL SPECIFICATION 815.08, THE FRAMES FOR THE REFLECTIVE UNITS IN THE SIGN OUTLINES ONLY, MAY BE .032" THICK ALUMINUM. (A.S.T.M. B209GSIIA-T6).



SECTION AA

NOTE:
THE PLATE IS SYMMETRICAL ABOUT EITHER CENTERLINE.
METAL SHALL BE 16 GAUGE STEEL.
ALL DIMENSIONS ARE IN INCHES.

BEARING PLATE DETAIL

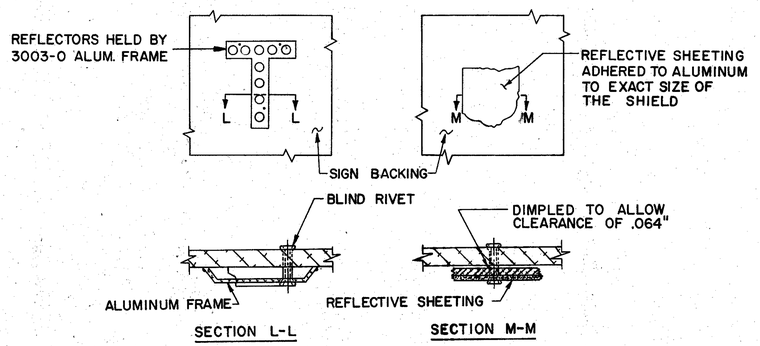


WEIGHT PER FOOT	X ± 3/32"	Y ± 1/8"
2.00 #	1 5/32"	3 1/16"
3.00 #	1 7/8"	3 1/2"
4.00 #	2"	3 5/8"

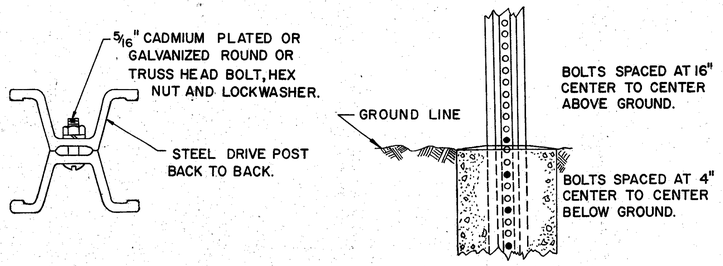
DRIVE POST DETAILS

CUTOUT LETTER OR SYMBOL WITH REFLECTIVE UNITS

CUTOUT LETTER OR SYMBOL WITH REFLECTIVE SHEETING



DEMOUNTABLE LETTERS & SYMBOLS



6# & 8# BEAM DETAILS

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

MISCELLANEOUS SIGNING ITEMS | MS1 | DATE 10-29-63, 8-19-64, 10-13-65, 4-14-67

APPROVED Fred C. Tarbet
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

354D

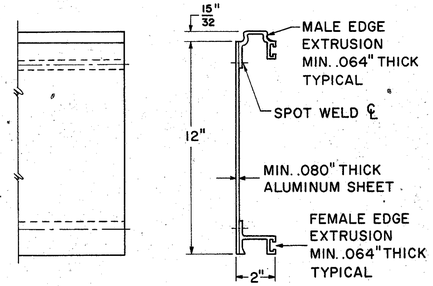
COL-11-10.22 COL-154-1.71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

COL-11-10.22 COL-154-1.71

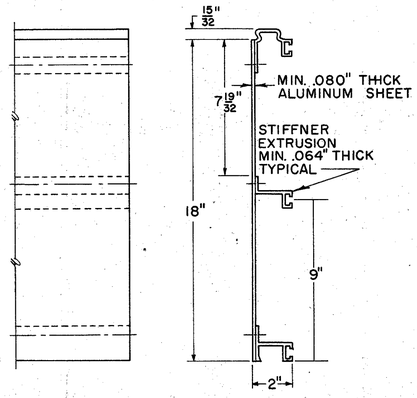
354 E

12" EXTRUSHEET PANEL



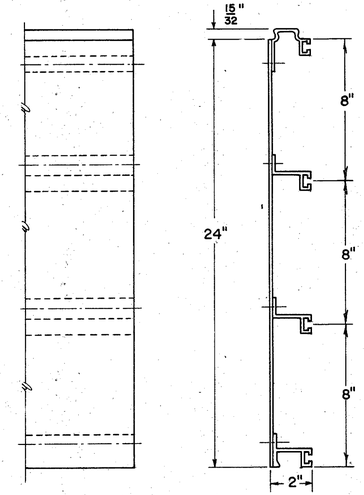
FRONT VIEW SIDE VIEW

18" EXTRUSHEET PANEL



FRONT VIEW SIDE VIEW

24" EXTRUSHEET PANEL



FRONT VIEW SIDE VIEW

NOTES:

EXTRUSHEET PANELS SHALL BE ALUMINUM; SPOT WELDING AND ALL MATERIALS SHALL CONFORM WITH SUPPLEMENTAL SPECIFICATION

COMBINATIONS OF 12", 18", AND 24" PANELS ARE USED TO ATTAIN REQUIRED SIGN HEIGHT.

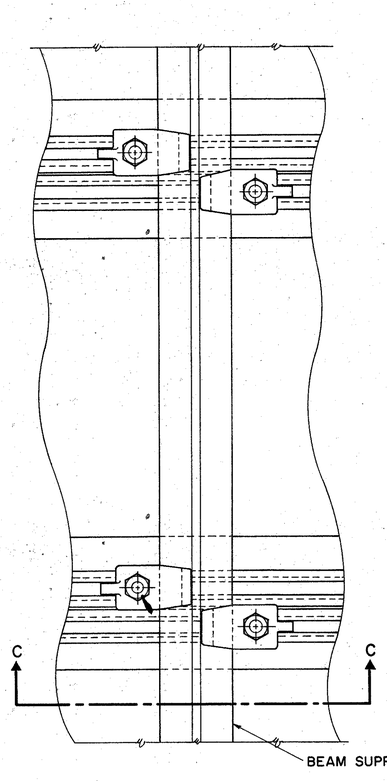
INDIVIDUAL PANELS SHALL BE THE SAME LENGTH AS THE HORIZONTAL LENGTH OF SIGN WITH NO SPLICES.

PANELS SHALL BE INTERLOCKED AND ERECTED WITH THE MALE EXTRUSION LOCATED AT THE TOP EDGE OF THE SIGN.

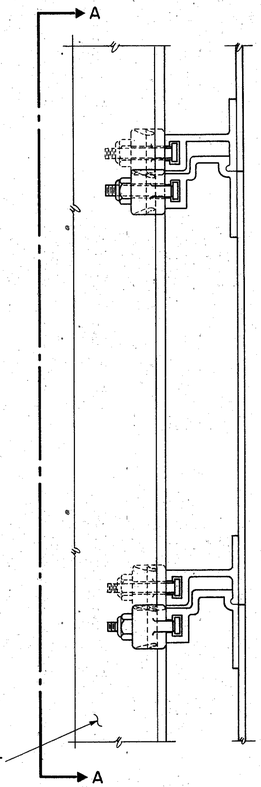
EXTRUSHEET PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND ON BOTH SIDES AT TOP AND BOTTOM EDGE OF SIGN.

THE PANELS SHALL BE DESIGNED TO WITHSTAND A WIND LOAD OF 35 POUNDS PER SQUARE FOOT, IN ACCORDANCE WITH THE A.A.S.H.O. SPECIFICATION FOR DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS.

THE MAXIMUM SIGN LENGTH FOR TWO SUPPORTS IS 19'-0".
THE MAXIMUM SIGN LENGTH FOR THREE SUPPORTS IS 29'-0".

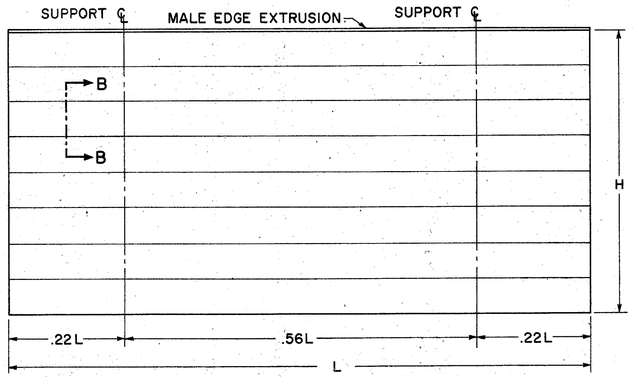


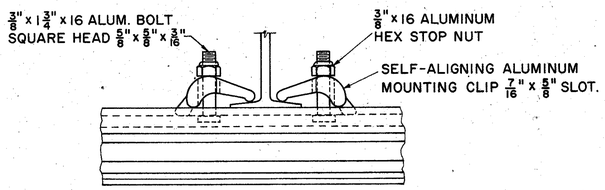
SECTION A-A



SECTION B-B

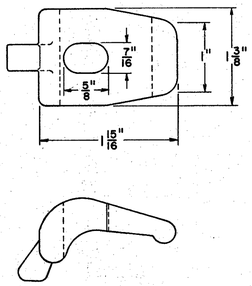
GENERAL ARRANGEMENT





SECTION C-C

CLIP DETAIL



SPOT WELDS

PANEL SIZE	MAXIMUM SPOT WELD SPACING	
	CENTER TO CENTER	BETWN ROWS
12 INCH	4 INCH	10 INCH
18 & 24 INCH	4 INCH	8 INCH

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

ALUMINUM EXTRUSHEET PANEL SIGN

ECD 1

DATE 9-25-63 5-19-64 10-21-65

APPROVED Fred C Tasbey
ENGINEER OF TRAFFIC

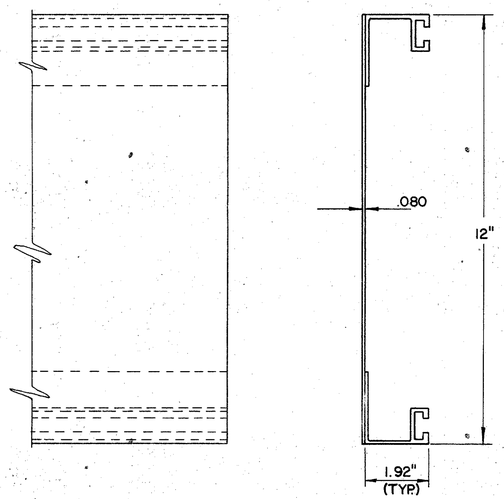
ALUMINUM EXTRUSHEET PANEL SIGN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

354-F

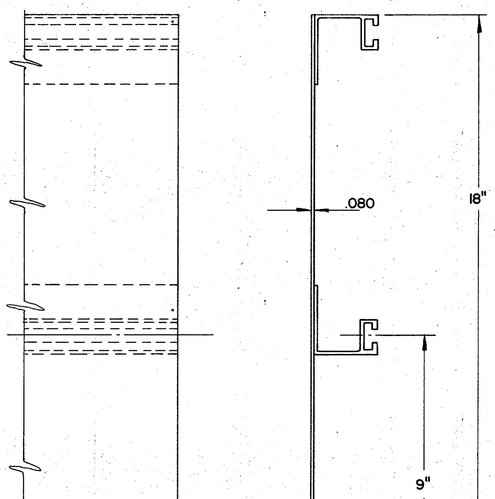
COL-11-10.22 COL-154-1.71

12" BOLTED-EXTRUSHEET PANEL



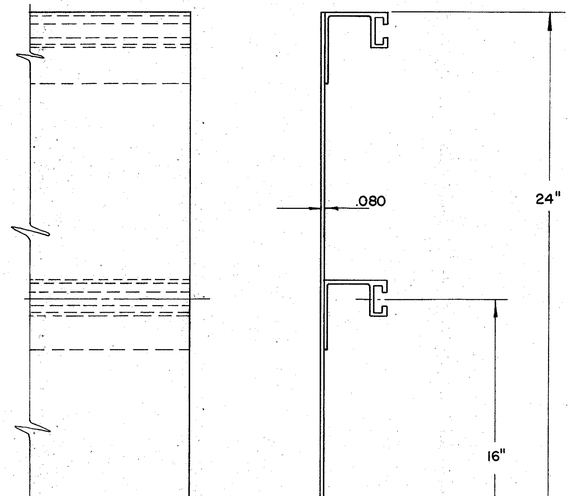
FRONT VIEW SIDE VIEW

18" BOLTED-EXTRUSHEET PANEL

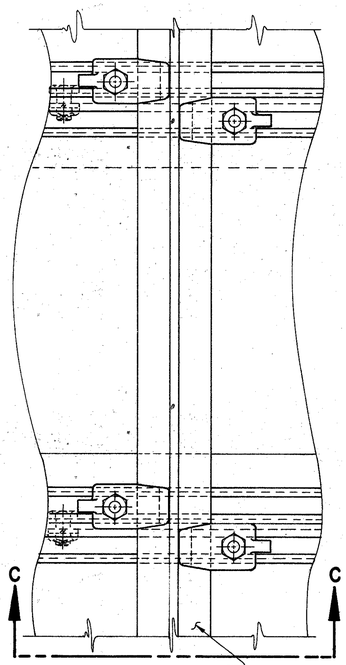


FRONT VIEW SIDE VIEW

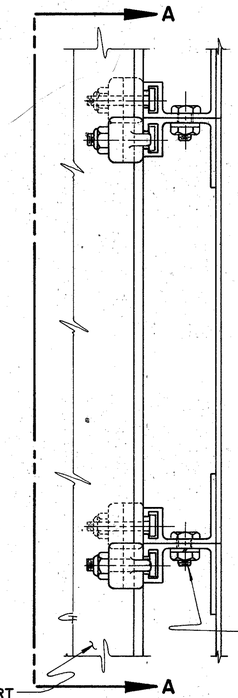
24" BOLTED-EXTRUSHEET PANEL



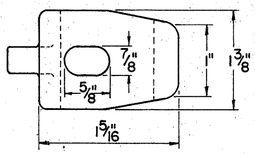
FRONT VIEW SIDE VIEW

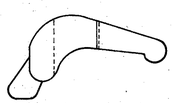


SECTION A-A

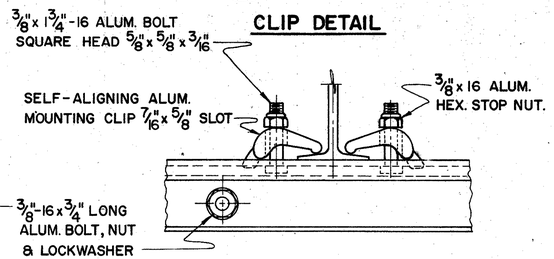


SECTION B-B

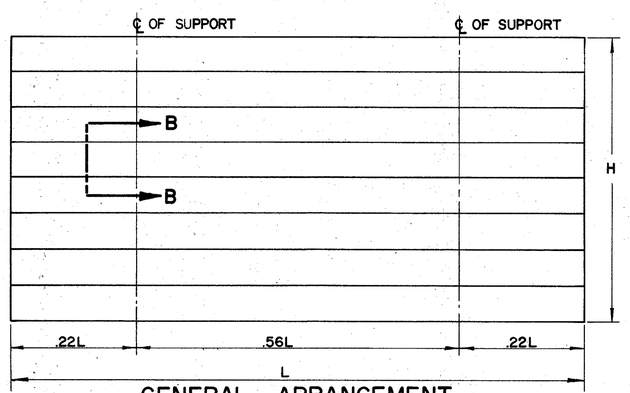




CLIP DETAIL



SECTION C-C



GENERAL ARRANGEMENT

NOTES

EXTRU-SHEET PANELS SHALL BE ALUMINUM; SPOT WELDING, MATERIALS AND HARDWARE SHALL CONFORM WITH SPECIFICATION NO. 815

COMBINATIONS OF 12", 18" AND 24" PANELS ARE TO BE USED TO ATTAIN REQUIRED SIGN HEIGHT.

INDIVIDUAL PANELS SHALL BE THE SAME LENGTH AS THE HORIZONTAL LENGTH OF SIGN, WITH NO. SPLICES.

THE PANELS SHALL BE ERECTED HORIZONTALLY AND BOLTED ON 24" CENTERS.

THE PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND BOTH SIDES AT TOP AND BOTTOM EDGES OF SIGN.

THE PANELS SHALL BE DESIGNED IN ACCORDANCE WITH THE A.A.S.H.O SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, BASE ON A WIND LOAD OF 35#/SQ. FT.

THE MAXIMUM SIGN LENGTH FOR TWO SUPPORTS IS 19'-0". THE MAXIMUM SIGN LENGTH FOR THREE SUPPORTS IS 29'-0".

SPOT WELDS

PANEL SIZE	MAXIMUM SPOT WELD SPACING	
	CENTER TO CENTER	BETWN ROWS
12 INCH	4 INCH	10 INCH
18&24 INCH	4 INCH	8 INCH

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

ALUMINUM BOLTED EXTRUSHEET PANEL SIGN

ECD 2

DATE 10-14-65

APPROVED Fred C. Tarboy
ENGINEER OF TRAFFIC

ALUMINUM BOLTED-EXTRUSHEET PANEL SIGN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

355

COL-11-10.22
COL-154-1.71

GENERAL NOTES

GALVANIZED SUPPORTS
The Structural Steel Beam Supports including the 6, & 8 pound beams, and 3 pound drive post shall be galvanized (after punching) in accordance with A.S.T.M. A-123.

816 STRUCTURAL SUPPORTS STEEL BEAM TYPE
Quantities for Item 816 Structural Supports, Steel Beam Type appearing in the quantity tables are approximate. The Contractor shall be responsible for determining exact support lengths prior to fabrication and galvanizing of supports. Payment shall be at the contract unit price bid per lin. ft. which price and payment shall include all costs in connection with the embedment of the supports.

816 CONCRETE FOR SIGN SUPPORT FOUNDATIONS, BY Type, AS PER PLAN
Payment for this item shall be per Cubic Yard based on approved plan dimensions as modified by the Engineer in lieu of plan quantites as specified in supplemental specification 816.

ORIENTATION OF SIGN FACES
Signs shall be erected so that the face of the sign is vertical and at a right angle to the center of the lane which the sign serves except where other wise noted. Where lanes divide and on sharp horizontal curves, sign faces shall be placed perpendicular to the tangent point of the curve at the station location, so as to be most effective both day & night.

SIGN ERECTION
The Contractor shall erect sign panels shown on the Sign Layout Sheet.
A schedule for sign erection shall be submitted to the Engineer, Bureau of Traffic, 450 E. Town Street, Columbus, Ohio, 60 colendar days prior to the start of any scheduled erection work. The schedule shall include proposed dates, time, sign numbers, and delivery point.
The price bid per square foot for "Item 815 Sign Erection, as per plan," shall include all necessary equipment, manpower, and tools to erect the signs noted. All sign material and accessories will be furnished and transported to a designated delivery point, on or near the subject project, by others.
The Contractor shall be responsible for the handling and storage of the sign panels and accessories from the time of arrival at the delivery point.

GENERAL SUMMARY

ESTIMATED TRAFFIC CONTROL

TOTAL From Sheet 356	UNIT	ITEM	DESCRIPTION
44	L.F.	816	Structural Steel Support, Steel Beam 10B11.5
136	L.F.	816	Structural Steel Support, Steel Beam 10B17
282	L.F.	816	Steel Drive Post 3# per ft.
238	L.F.	816	Structural Support 6" Beam
454	L.F.	816	Structural Support 8" Beam
15.3	Cu.Yd.	816	Foundation Concrete for Ground Mounted Sign Supports,
			as per Plan.
14	Each	620	Mono-directional Delineators, Type A-1 Post Mounted
4	Each	620	Mono-directional Delineators, Type A-1 Bracket Mounted
161	Each	620	Mono-directional Delineators, Type C-2 Post Mounted
2	Each	620	Mono-directional Delineators, Type C-2 Bracket Mounted
2	Each	620	Mono-directional Delineators, Type C-3 Post Mounted
23.61	Miles	621	4" Edge Line
4.25	Miles	621	6" Lane Line
1932	L.F.	621	8" Channelizing Line
Lump	Lump	621	Broad Transverse Stripes
Lump	Lump	621	Curb and Island Marking
Lump	Lump	621	24" Stop Lines
846	Sq.Ft.	815	Sign Erection, Extrusheet Type
267	Sq.Ft.	815	Sign Erection, Flat Sheet Type

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

356

COL-11-10.22 COL-154-1.71

621 PAVEMENT MARKING

SIDE	STATION FROM	STATION TO	4" EDGE LINE Lin. Ft.	6" LANE LINE Lin. Ft.	8" CHAN. LINE Lin. Ft.	BROAD TRANS. STRIPES Lump	CURB & ISLAND MARKING Lump		24" STOP LINES
NORTH BOUND									
℄	200+00	452+00		25,396					
R&L	200+00	230+50	5332						
R&L	230+50	239+50	900	260					
R&L	239+50	452+00	42,891						
SOUTH BOUND									
℄	200+00	452+00		25,396					
R&L	200+00	214+00	2800						
R&L	214+00	223+00	900	275					
R&L	223+00	243+00	4000						
R&L	243+00	255+00	1632	288	144 "O"				
R&L	255+00	452+00	39,791						
RAMP "A"									
R	214+00	232+13.00	1813		600	Lump	Lump		
R	72+50		122						
L	214+00	232+23.8	1824						LUMP
L	Flare		57						
RAMP "B"									
	218+00	230+37.30	1975	288	144		Lump		
RAMP "C"									
	S.R. 154	225+40.3	2320						LUMP
	225+40.3	239+50	2022		450	Lump	Lump		
RAMP "O"									
	49+10.76	230+25	410		300		Lump		
	230+25	255+00	3350	288	144		Lump		
S.R. 154									
	27+50	88+17		6067					
	27+50	49+10.76	4322						
	49+10.76	54+20.71	510						
	54+20.71	88+17	6180		150				
C.R. 417									
	297+23.55	311+50	1500	1426					
RAMP O CONNECTION									
	Beg.	End	105						
TOTAL			124,641	39,789	1932	Lump	Lump		LUMP
TOTAL IN MILES			23.61	4.25	0.37				

SIGN SUPPORT QUANTITIES

	Sign Support No.	STATION LOCATION	EFFECTIVE SIGN SIZE	Sq. Ft. Sign Area	8|6 Structural Support Steel Beam 108.15 Lin. Ft.	8|6 Structural Support Steel Beam 108.17 Lin. Ft.	8|6 Steel Drive Post 3" per Ft. Lin. Ft.	8|6 Steel Drive Post 6" Beam Lin. Ft.	8|6 Steel Drive Post 8" Beam Lin. Ft.	Foundation Concrete for Grouted Mounted Sign Supports Cu. Yds.
*	1	230+75 Rt. Lt.	60"×72"	30*					3.5	0.24
	2	231+50 Ramp "C" Lt.	36"×42	10.5				15.8		0.12
	3	229+50 Rt. Lt.	24"×24"	4			13.6			0.12
	4	218+80 Ramp "C" Lt.	36"×36"	6.4			14.7			0.12
*	5	63+25 S.R. 154 Rt.	8'0"×4'0", 24"×24", 20"×15"	32* 6			7.5		40	0.24
*	6	63+50 S.R. 154 Rt.	12"×2', 2"×1' 2"×2', 20"×15"	24* 8			6.5		40	0.24
	7	219+40 & Ramp "C"	24"×30"	5			15.0			0.12
*	8	239+60 Rt. Lt	8'0"×9'6"	76*	43.8					1.90
	9	28+40 T.R. 785 Rt.	30"×30"	6.25			14.5			0.12
	10	0+70 T.R. 794 Lt.	30"×30"	6.25			14.5			0.12
	11	68+00 S.R. 154 Rt.	2'×2', 20"×15"	6.0			15.7			0.12
*	12	70+40 S.R. 154 Lt.	8'0"×2'6"	20*				32.0		0.24
	13	73+70 S.R. 154 Lt.	2'×2', 2'×1'	6			15.9			0.12
*	14	256+40 Rt. Lt.	12'×4' (Temporary)	48*					33	0.24
*	15	256+40 Rt. ℄	12'×4' (Temporary)	48*					34	0.24
	16	263+00 Rt. Rt.	2'×2', 2'×1'	6			15.1			0.12
*	17	214+00 Rt. Rt.	8'0"×9'6"	76*		44.3				2.20
*	18	222+70 Ramp "A" Lt.	60"×72"	30*					34	0.24
	19	224+00 Rt. Rt.	2'×2'	4			13.4			0.12
	20	226+00 Rt. Lt.	3'×3'	9				14.5		0.12
*	21	227+50 Ramp "A" Rt.	8'×4', 2'×2' 20"×15"	32* 6			7.5		34	0.24
*	22	55+70 S.R. 154 Lt.	12'×2', 20"×15" 2'×2', 2'×1'	24* 8			6.5	38.0		0.24
	23	232+35 Ramp "A" Lt.	2'×2'	4			14.0			0.12
	24	232+35 Ramp "A" Rt.	36"×36", 2'×2'	13			14.8			0.12
	25	53+80 S.R. 154 Lt.	2'×2', 20"×15"	6			15.4			0.12
*	26	54+00 S.R. 154 Rt.	8'×2.5'	20*				28		0.24
*	27	50+00 S.R. 154 Rt.	12'×4'	48*					34	0.24
*	28	46+00 S.R. 154 Rt.	8'0"×2'6"	20*				31		0.24
	29	43+00 S.R. 154 Rt.	2'×2', 2'×1'	6			14.4			0.12
*	30	64+00 S.R. 154 Lt.	2'4', 20"×15", 2'×2', 2'×2' 2'4', 20"×15", 12'×4'	48* 16			17		16 17 18	0.36
	31	235+50 Rt. Rt.	36"×36"	9			16.0			0.12
	32	275+00 Rt. Rt.	4'5', 4'×4'	36					35	0.24
*	33	283+05 Rt. Lt.	10'0"×9'6"	95*		47.4				2.20
*	34	285+00 Rt. Rt.	6'8"×3'4"	22.2*				32		0.24
*	35	291+00 Rt. Lt.	12'×4' (Temporary)	48*					32	0.24
	36	295+00 Rt. Rt.	4'×3'	12				15.1		0.12
	37	305+00 Rt. Rt.	4'×5'	20					16.8	0.12
*	38	410+00 Rt. Rt.	11'0"×7'6"	82.5*		43.8				2.20
	39	262+00 Rt. Lt.	2'×2', 2'×1'	6			15.0			.12
*	40	425+00 Rt. Lt.	6'8"×3'-4"	22.2*				32		.24
	41	435+00 Rt. Lt.	4'×5', 4'×4'	36					35	.24
	42	447+00 Rt. Lt.	2'×2', 2'×1'	6			15.0			.12
		TOTAL			43.8	135.5	282.0	238.4	453.8	15.34

SIGN ERECTION AREA

	QUANT.	UNIT	DESCRIPTION
*	845.9	Sq. Ft.	Sign Erection, Extrusheet Type
	267.4	Sq. Ft.	Sign Erection, Flat Sheet Type

620 DELINEATORS

SIDE	REF. NO.	STATION FROM	STATION TO	SPACING	A-1 POST	A-1 BRACKET	C-2 POST	C-2 BRACKET	C-3 POST
Lt.	Rt.	222+50	230+50	200	5				
Rt.	Rt.	222+75	238+75	200	9				
Lt./Rt.	Rt.	240+50	260+50	200		4			
Lt.	S.R. 154	54+10					1		
Rt.	Ramp A	214+00	230+00	100			17		
Lt.	Ramp A	230+00	232+00	50			4		
Lt./Rt.	Ramp A	232+25	On Flares	30			6		
Lt.	Ramp B	206+00							1
Lt.	Ramp B	207+00	220+00	100			14		
Lt.	Ramp B		220+80	80			1		
Lt.	Ramp B	220+80	222+30	50			2		
Rt.	Ramp B	222+30	226+80	50			10		
Lt.	Ramp B		227+60	80			1		
Lt.	Ramp B	227+60	229+60	100			3		
Lt.	Ramp B		230+37				1		
Lt.	Ramp C	219+90	221+90	100			3		
Rt.	Ramp B/C	On Flares	218+90 C	30			10		
Rt.	Ramp B	219+75 C	220+75 C	100			2		
Rt.	Ramp B		221+35 C				1		
Rt.	Ramp B	221+80 C	225+40 C	30			12		
Rt.	Ramp C	221+90	230+90	30			30		
Lt.	Ramp C	230+90	231+50	60			1		
Lt.	Ramp C	231+50	239+50	100			8	1	
Rt.	Lt. Lane D	40'S & 154	80'S				2		
Rt.	Ramp O	226+15	235+15	100			10		
Lt.	Ramp O		235+65				1		
Lt.	Ramp O	236+20	239+20	50			7		
Rt.	Ramp O	239+20	240+20	50			2		
Rt.	Ramp O		241+00	80				1	
Rt.	Ramp O	241+00	254+00	100			12		
Rt.	Ramp O	255+00							1
TOTAL					14	4	161	2	2

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

357

COL-11-10.22
COL-154-1.71

0 200 400
SCALE

SIGNING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

358

COL-11-10.22
COL-154-1.71

0 200 400
SCALE

Note: This Sign is Temporary

MATCH LINE STA. 269+00

270 275 280 285 290 295 300 305 310 315 320 325 330

MATCH LINE STA. 334+00

MATCH LINE STA. 334+00

335 340 345 350 355 360 365 370 375 385 390 395

MATCH LINE STA. 398+00

MATCH LINE STA. 398+00

400 405 410 415 420 425 430 435 440 445 450 455

(32) SPEED LIMIT 70 R10-48
TRUCKS 55 R16-48
275+00

(33) 11-11-2 G8-5 154 LISBON ROGERS EXIT 1 MILE 120" 283+05

(34) ELIVERPOOL 151 D-6-80 285+00

(35) W-55-144 EXPRESSWAY ENDS 1 MILE 291+00

(36) R-70-48 EMERGENCY STOPPING ONLY 295+00

(37) R-24-48 KEEP OFF MEDIAN 305+00

(38) 30 45 WELLSVILLE JCT. 1 MILE 11-11-1 G8-5 132" 90" 410+00

(40) D-6-80 YOUNGSTOWN 39 425+00

(41) R-10-48 SPEED LIMIT 70 R-16-48 TRUCKS 55 435+00

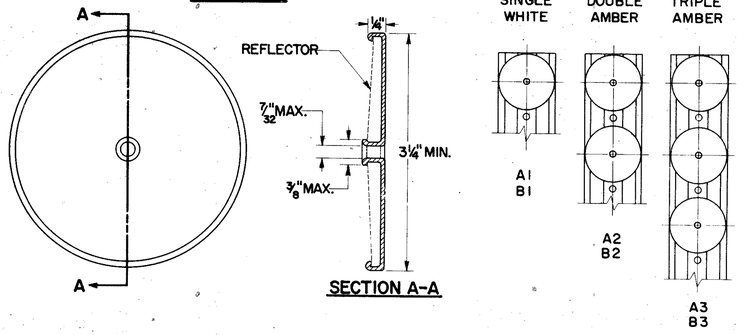
(42) NORTH M-37-24 M-2-24 11 447+00

SIGNING PLAN

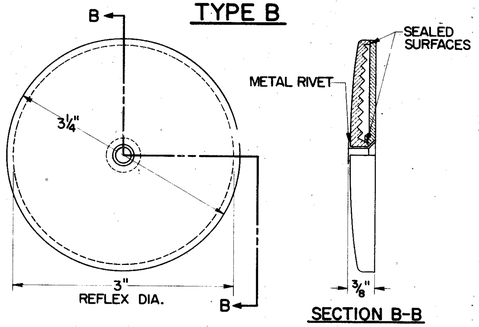
FED. RD. DIVISION	STATE	PROJECT		359
2	OHIO			

COL-11-10.22
COL-154-1.71

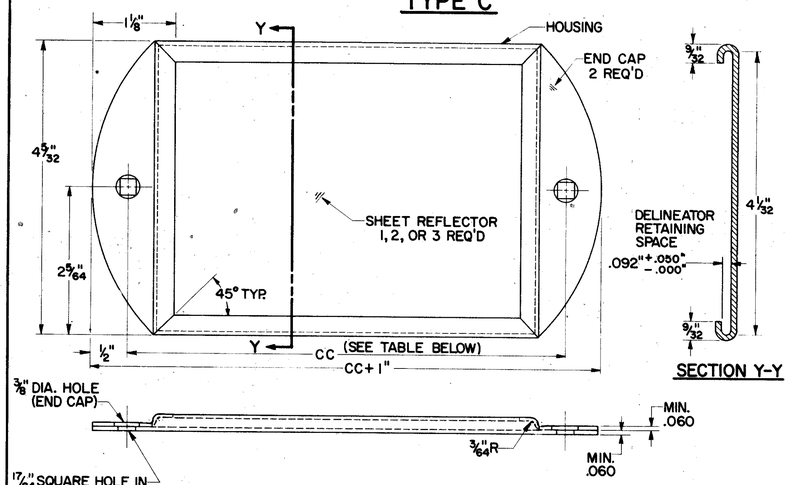
TYPE A



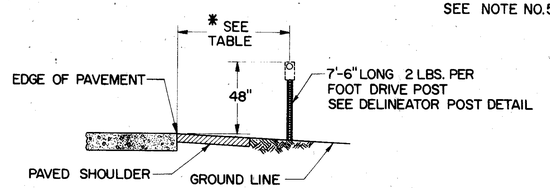
TYPE B



TYPE C



TYPE	DIM. CC
C1- SINGLE WHITE	6"
C2- DOUBLE AMBER	11"
C3- TRIPLE AMBER	16"

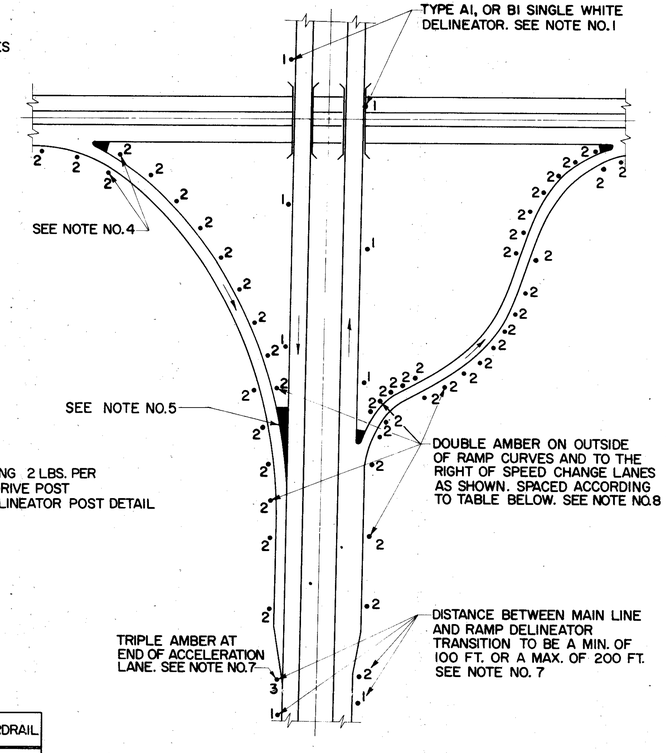


LATERAL PLACEMENT OF DELINEATORS

* TABLE

TYPE DELINEATOR	NO GUARDRAIL	GUARDRAIL
SINGLE WHITE	12'-6"	6" OUTSIDE
DOUBLE AMBER RIGHT SIDE	** 8'-6"	6" OUTSIDE
DOUBLE AMBER LEFT SIDE	4'-6"	6" OUTSIDE
TRIPLE AMBER	12'-6"	6" OUTSIDE

** THIS DIMENSION SHALL VARY ON SPEED CHANGE LANES TO MAINTAIN MINIMUM DISTANCE OF 2'-6" FROM EDGE OF PAVED SHOULDER.



TYPICAL DELINEATOR PLACEMENT

NOTES

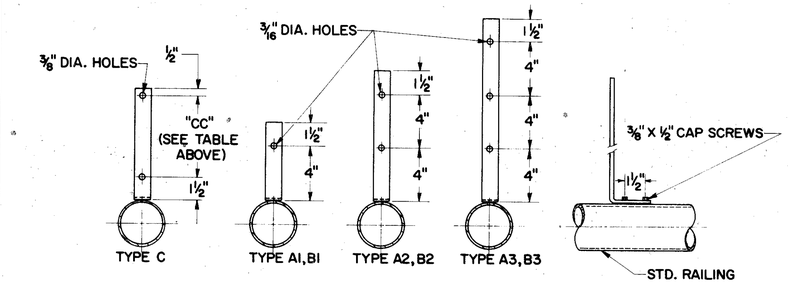
1. TYPE A1 OR B1 DELINEATORS ON THE RIGHT OF THE THROUGH ROADWAY ARE TO BE SPACED AT 200 FT. INTERVALS THROUGHOUT, REGARDLESS OF CURVES, BEGINNING AT STA. +00, +25, +50, OR + 75.
2. DELINEATORS SHALL BE FURNISHED AND ERECTED IN ACCORDANCE WITH 620, (5-1-65)
3. PAYMENT FOR SUPPORTS (DRIVEPOST OR BRACKET) SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH FOR "ITEM 620 DELINEATORS".
4. WHEN CROSSING FROM LEFT TO RIGHT OR FROM RIGHT TO LEFT ON THE RAMPS THE DELINEATORS AT THE POINT OF CROSSOVER ARE TO BE AT THE SAME STATION ON EACH SIDE.
5. NO DELINEATORS ARE TO BE PLACED IN PAVED BERM
6. WHEN RADII OF CURVE ON RAMPS REQUIRE 100' SPACING THE DELINEATORS SHALL BE PLACED ON THE RIGHT IN RELATION TO THE FLOW OF TRAFFIC.
7. RAMP DELINEATOR AT END OF ACCELERATION & BEGINNING OF DECELERATION LANES TO BE A MAXIMUM OF 5' FROM POINT OF TANGENCY AT MAIN LINE.
8. ALL RAMP DELINEATORS SHALL BE PLACED TO THE NEAREST 5' INCREMENTS, SUCH AS +05, +10, +15. +20 AND SO ON.

DELINEATOR SPACING ON RAMP HORIZONTAL CURVES

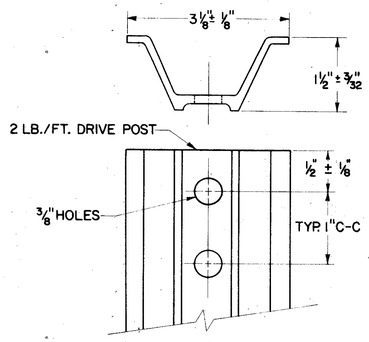
RADII, FT. FROM	RADII, FT. TO	SPACING ON CURVE	* TRANSITION SPACING	
TANGENT	1,801	100'	100'	100'
1,800	1,401	80'	100'	100'
1,400	1,001	70'	100'	100'
1,000	751	60'	100'	100'
750	551	50'	80'	100'
550	326	40'	70'	100'
325	———	30'	60'	100'

* SUCH AS 40' TO 70' TO 100' OR 100' TO 80' TO 50' OR ANY OTHER COMBINATION SHOWN ABOVE.

ALL BRACKETS 1/4" X 1 1/4" STAINLESS STEEL



BRIDGE RAIL BRACKET



DELINEATOR POST

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

DELINEATOR DETAILS	620	DATE 9-25-62 10-2-63 5-24-65

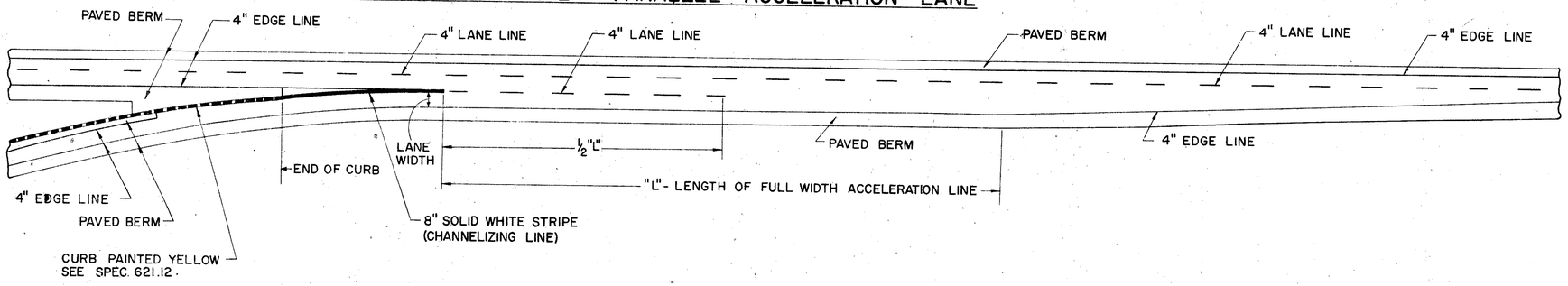
APPROVED Robert A. Comer
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

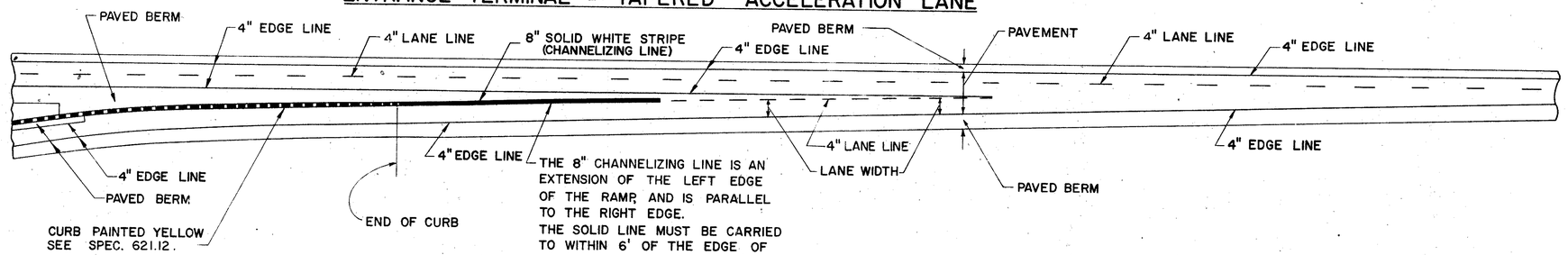
360

COL-11-10.22
COL-154-1.71

ENTRANCE TERMINAL - PARALLEL ACCELERATION LANE

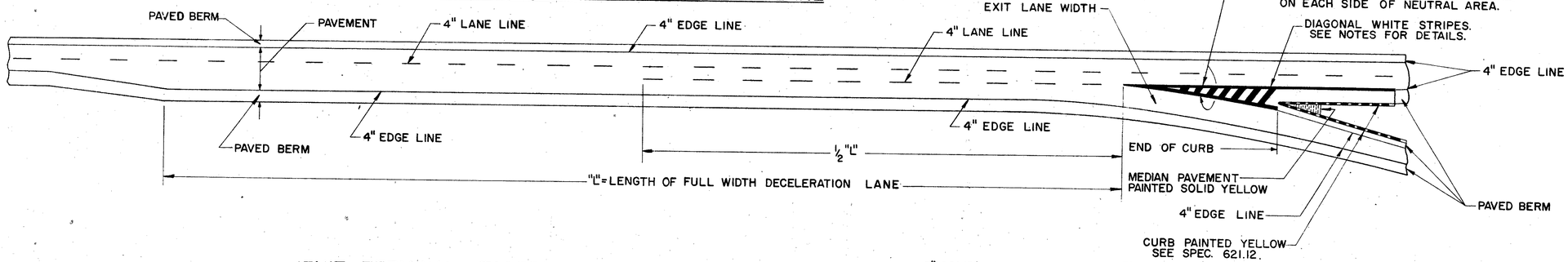


ENTRANCE TERMINAL - TAPERED ACCELERATION LANE

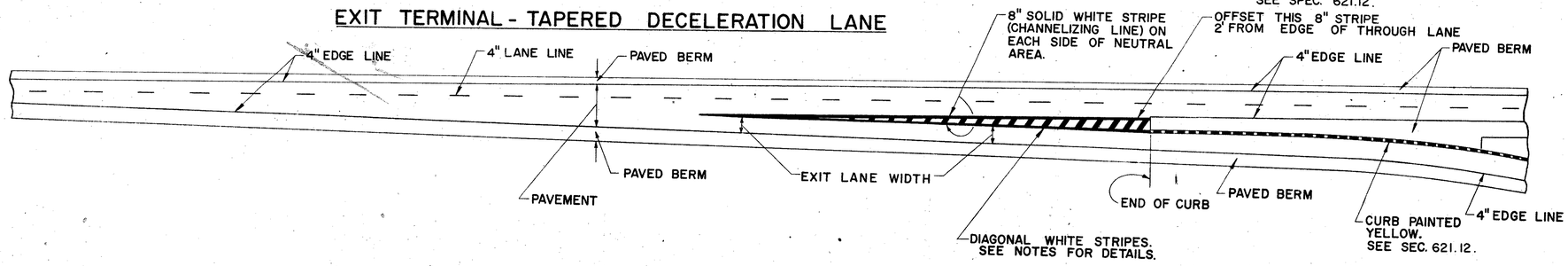


THE 8" CHANNELIZING LINE IS AN EXTENSION OF THE LEFT EDGE OF THE RAMP, AND IS PARALLEL TO THE RIGHT EDGE. THE SOLID LINE MUST BE CARRIED TO WITHIN 6' OF THE EDGE OF THE THROUGH LANE, OR TO THE END OF THE RAMP CURVE IF CLOSER. THE 4" DASHED LINE SHOULD CONTINUE TO THE EDGE OF THE THROUGH LANE.

EXIT TERMINAL - PARALLEL DECELERATION LANE



EXIT TERMINAL - TAPERED DECELERATION LANE



NOTES

EDGE LINES SHALL BE PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO ITEM No. 621 AND DEFINED IN SECTION 621.06.

LANE LINES SHALL BE PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO ITEM No. 621 AND DEFINED IN SECTION 621.07.

CHANNELIZING LINES SHALL BE CONTINUOUS WHITE BEADED STRIPES 8" IN WIDTH PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO ITEM No. 621 AND DEFINED IN SECTION 621.09.

DIAGONAL STRIPES IN EXIT RAMP MARKINGS SHALL BE 2' WIDE WHITE BEADED STRIPES SET AT A 45° ANGLE TO THE CENTER LINE OF THE THROUGH PAVEMENT AND SLANTED IN THE DIRECTION OF THE FLOW OF TRAFFIC ON SAID PAVEMENT. SPACE BETWEEN THE 2' DIAGONAL STRIPES SHALL BE 6' AS MEASURED PARALLEL TO THE CENTER LINE OF THE THROUGH PAVEMENT. PAINT ON THE DIAGONAL STRIPES SHALL BE APPLIED AT THE RATE OF ONE GALLON TO EACH 100 SQUARE FEET AND GLASS BEADS SHALL BE APPLIED AT THE RATE OF SIX POUNDS PER GALLON OF PAINT. DIAGONAL WHITE STRIPES SHALL BE PLACED BETWEEN THE TWO 8" WHITE CHANNELIZING LINES AT EXIT RAMPS AS SHOWN TO CONFORM TO ITEM No. 621 AND DEFINED IN SECTION 621.11.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

PAVEMENT MARKING | 621

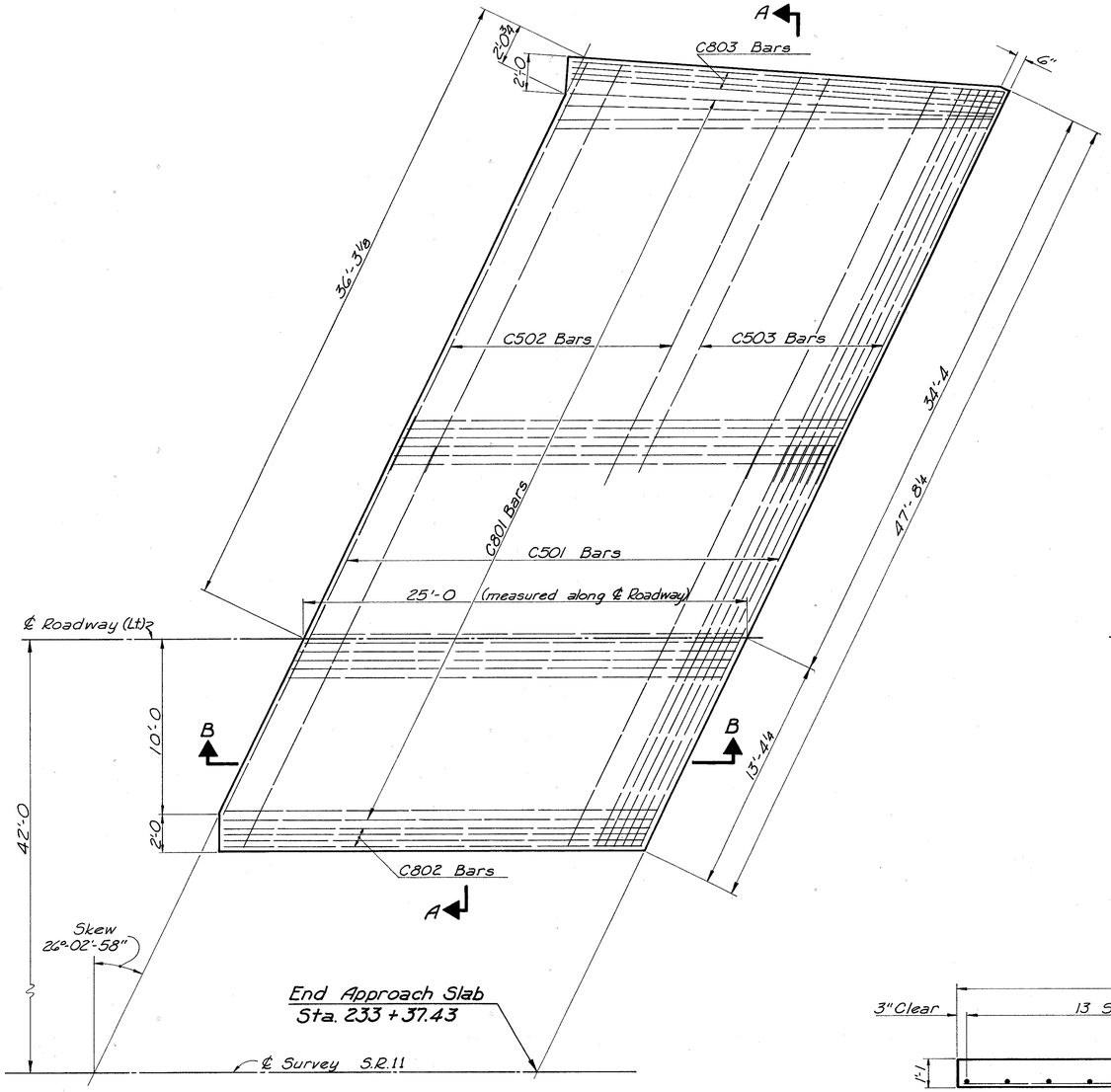
DATE
7-17-61
4-6-62
5-24-65

APPROVED Robert E. Lower
ENGINEER OF TRAFFIC

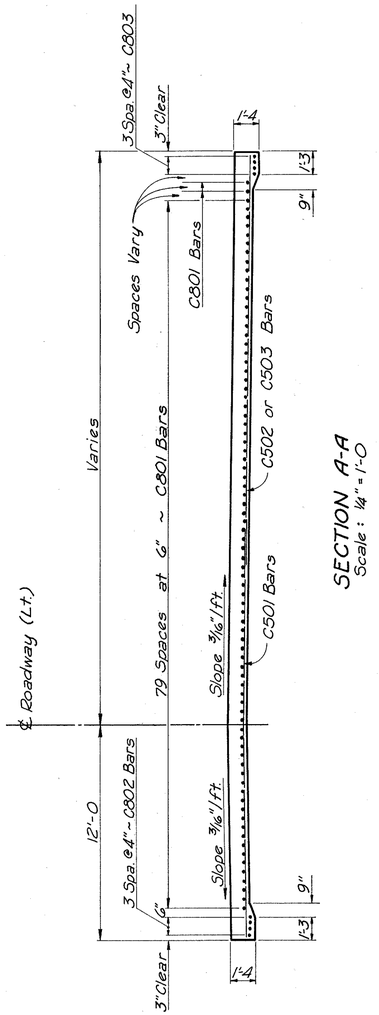
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

361

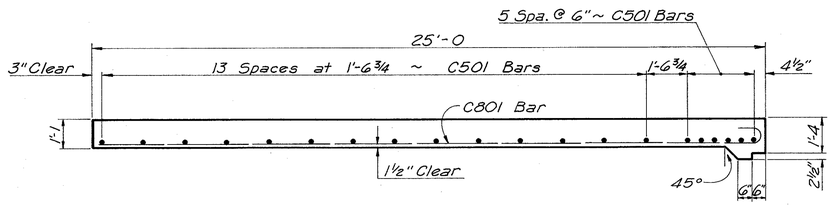
COL-11-10.22
COL-154-1.71



PLAN
Scale: 1/4" = 1'-0



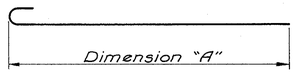
SECTION A-A
Scale: 1/4" = 1'-0



SECTION B-B
Scale: 3/8" = 1'-0

STEEL LIST

MARK	SIZE	NO.	LENGTH	DIMEN. "A"	DIM. "A" INCREMT.
C801	1" ϕ	82	25'-7	24'-6	——
C802	1" ϕ	One Series of 4	24'-9 to 25'-3	23'-8 to 24'-2	2"
C803	1" ϕ	One Series of 4	25'-1 to 25'-7	24'-0 to 24'-6	2"
C501	5/8" ϕ	20	25'-0	——	——
C502	5/8" ϕ	9	25'-9	——	——
C503	5/8" ϕ	11	24'-9	——	——



Note:
For other typical details not shown, see Standard Drawing No. AS-1-54.

Quantity:
Sta. 233+12.43 to Sta. 233+37.43 = 123.3 Sq.Yd.

AS 2

BRIDGE NO. COL-11-1439 L

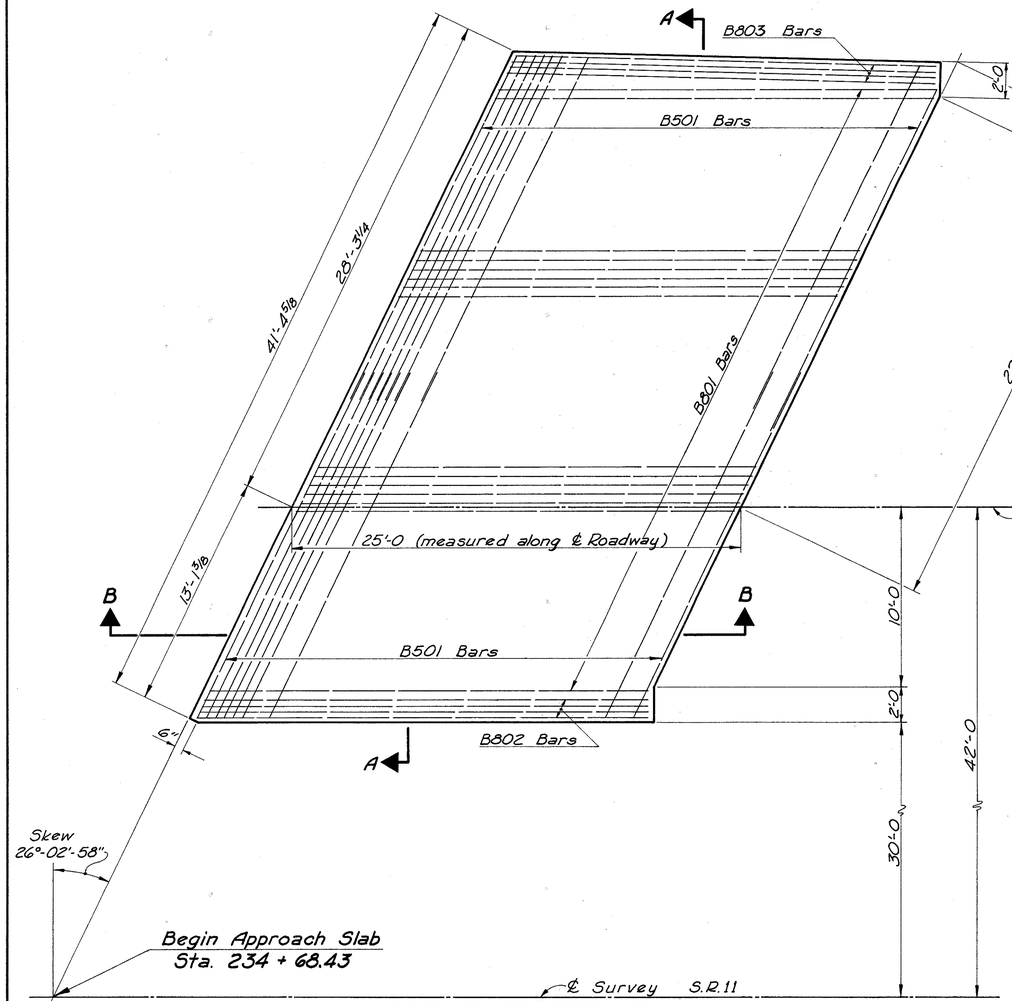
APPROACH SLAB DETAILS

Sta. 233+12.43 to Sta. 233+37.43

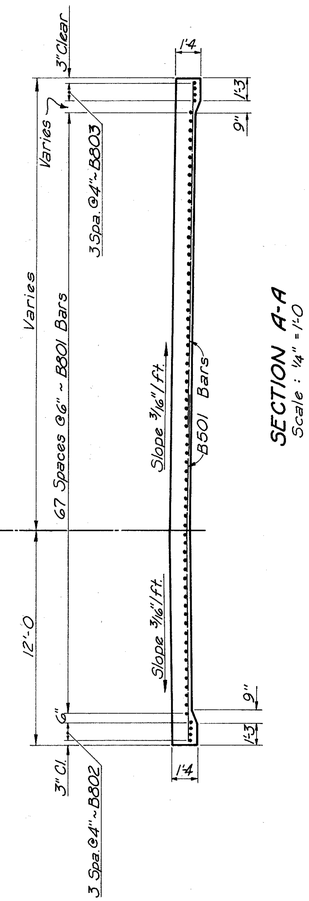
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

362

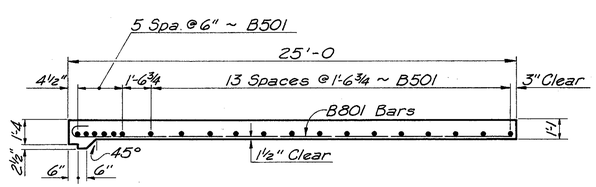
COL-11-10.22
COL-154-1.71



PLAN
Scale: ¼" = 1'-0



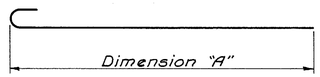
SECTION A-A
Scale: ¼" = 1'-0



SECTION B-B
Scale: ¼" = 1'-0

STEEL LIST

MARK	SIZE	NO.	LENGTH	DIMEN. "A"	DIM. "A" INCREM'T.
B801	1" ϕ	68	25'-7	24'-6	——
B802	1" ϕ	One Series of 4	25'-11 to 26'-5	24'-10 to 25'-4	2"
B803	1" ϕ	One Series of 4	24'-6 to 25'-0	23'-5 to 23'-11	2"
B501	⅝" ϕ	40	21'-6	——	——



Note:
For other typical details not shown, see Standard Drawing No. AS-1-54.

Quantity:
Sta. 234 + 68.43 to Sta. 234 + 93.43 = 102.7 Sq. Yds.

AS 4

BRIDGE NO. COL-11-1439 L

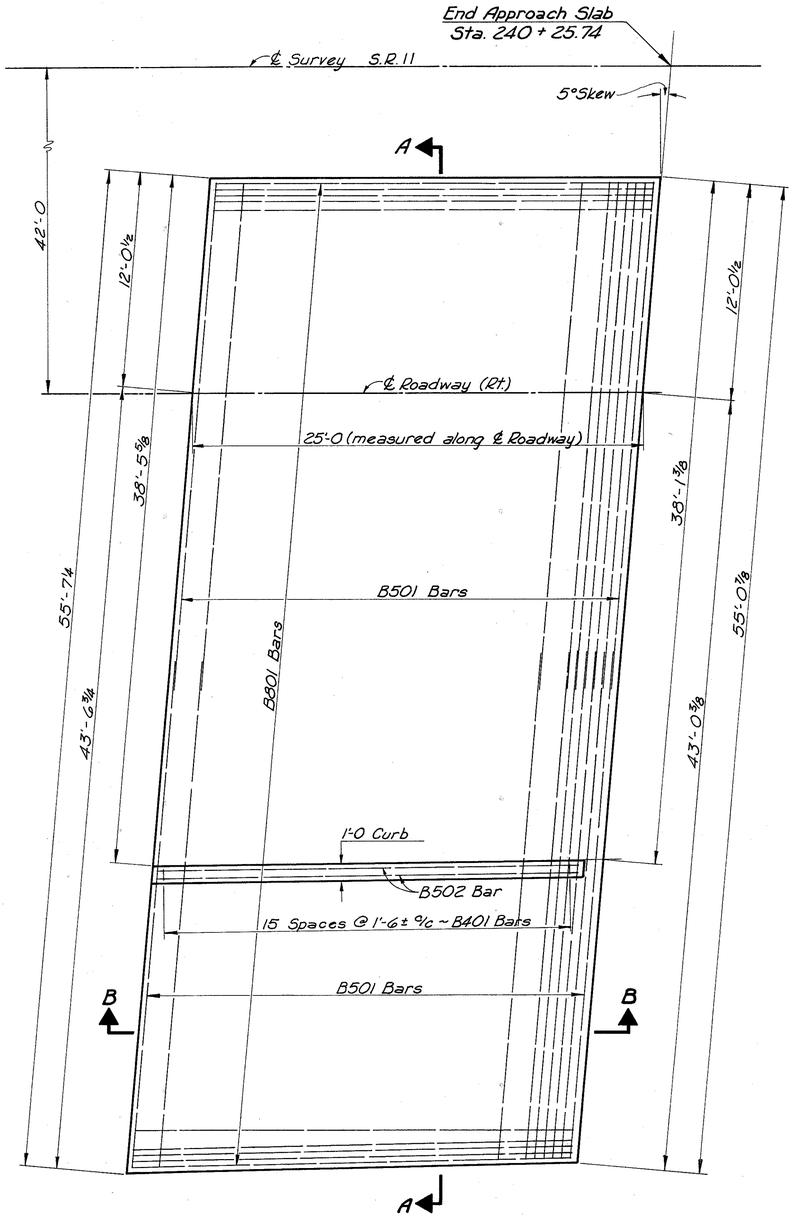
APPROACH SLAB DETAILS

Sta. 234+68.43 to Sta. 234+93.43

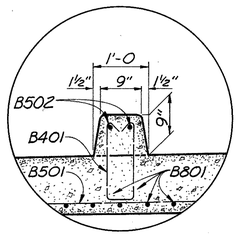
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

363

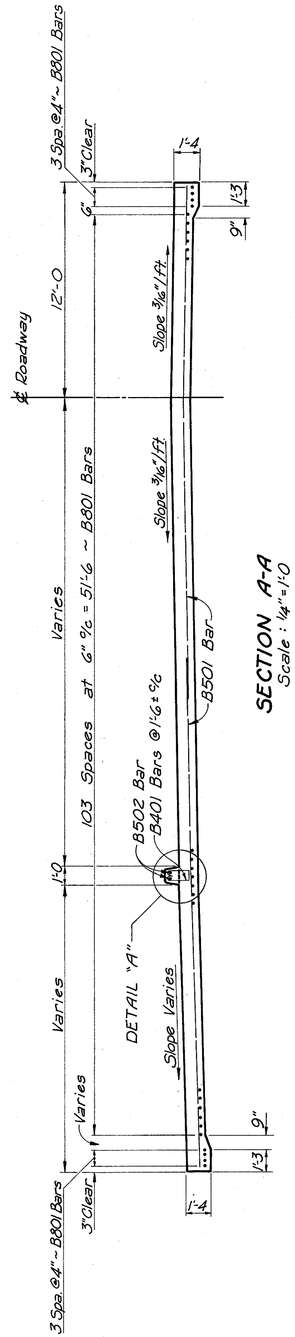
COL-11-10.22
COL-154-1.71



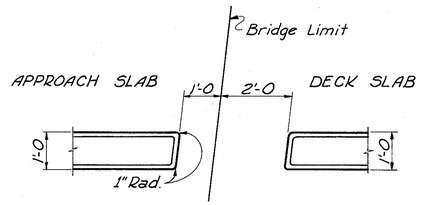
PLAN
Scale: ¼" = 1'-0



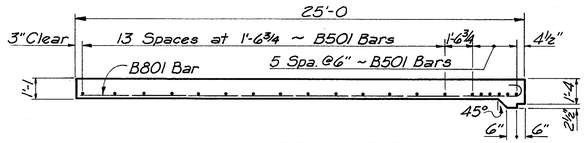
DETAIL "A"
Scale: ¾" = 1'-0



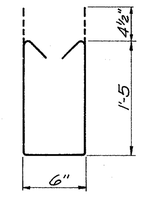
SECTION A-A
Scale: ¼" = 1'-0



PLAN OF 1'-0 CURB ENDINGS



SECTION B-B
Scale: ¼" = 1'-0



B401 Bar

STEEL LIST

MARK	SIZE	NO.	LENGTH	DIM. "A"
B801	1" ϕ	112	25'-7	24'-6
B501	⅝" ϕ	40	28'-5	——
B502	⅝" ϕ	2	23'-6	——
B401	½" ϕ	16	3'-10	——



Note:

For other typical details not shown, see Standard Drawing No. AS-1-54.

Quantity:

Sta. 240 + 00.74 to Sta. 240 + 25.74 = 153.1 Sq. Yds.

AS
5

BRIDGE NO. COL-11-1424 R

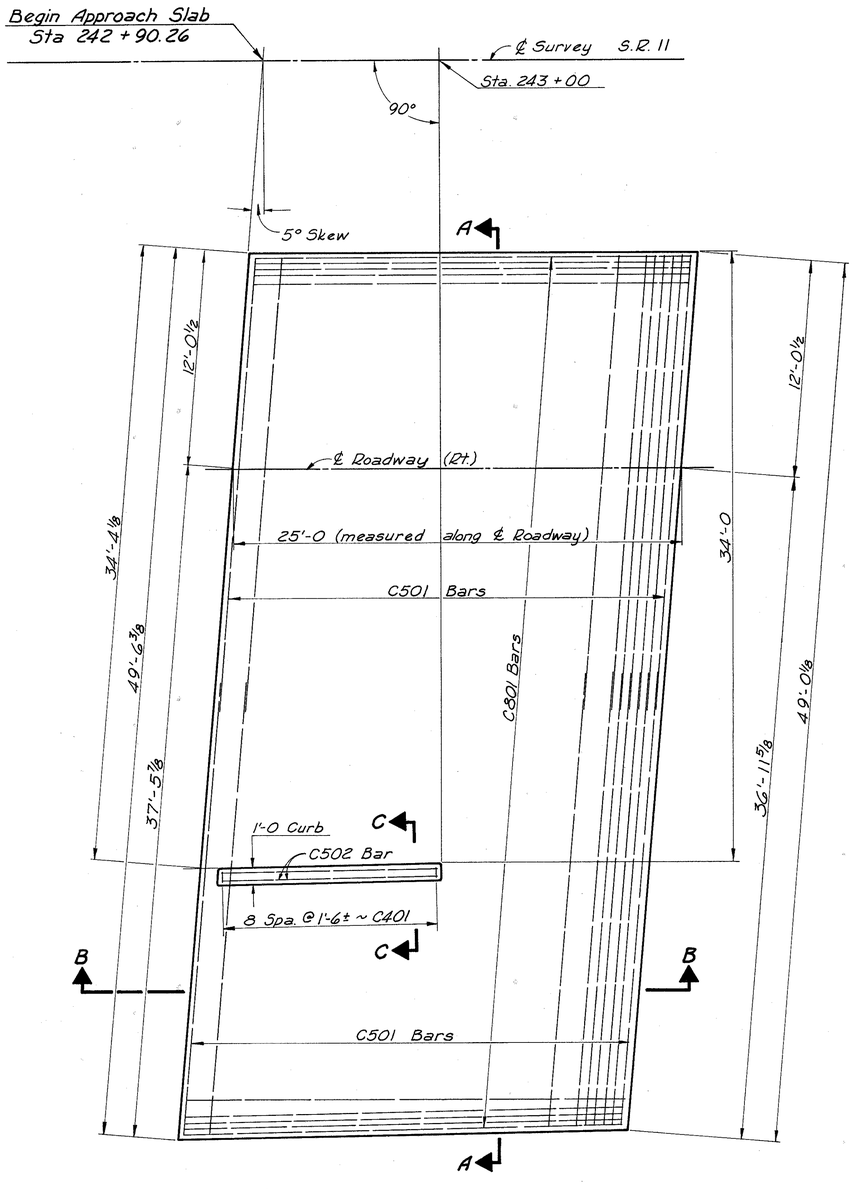
APPROACH SLAB DETAILS

Sta. 240 + 00.74 to Sta. 240 + 25.74

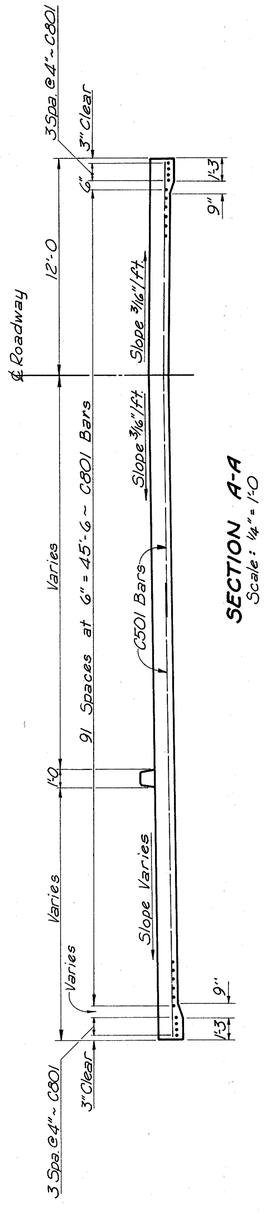
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

364

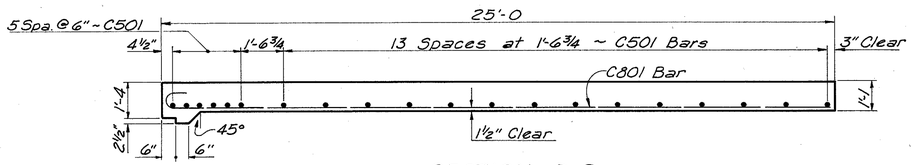
COL-11-10.22
COL-154-1.71



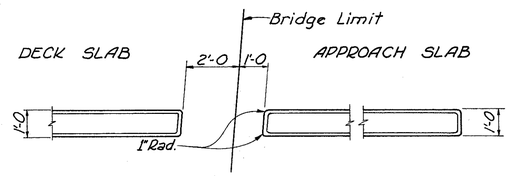
PLAN
Scale : ¼" = 1'-0



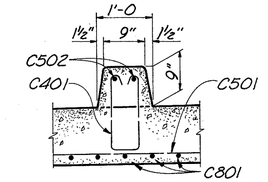
SECTION A-A
Scale : ¼" = 1'-0



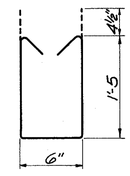
SECTION B-B
Scale : ⅜" = 1'-0



PLAN OF 1'-0 CURB ENDINGS
Scale : ⅜" = 1'-0

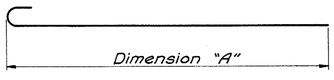


SECTION C-C
Scale : ¾" = 1'-0



C401 Bar

STEEL LIST				
MARK	SIZE	NO.	LENGTH	DIM. "A"
C801	1" ϕ	100	25'-7	24'-6
C501	⅝" ϕ	40	25'-4	——
C502	⅝" ϕ	2	12'-0	——
C401	½" ϕ	9	3'-10	——



Note: For other typical details not shown, see Standard Drawing No. AS-1-54.

Quantity: Sta. 242 + 90.26 to Sta. 243 + 15.26 = 136.4 Sq.Yds.

AS 7

BRIDGE NO. COL-11-1424 R

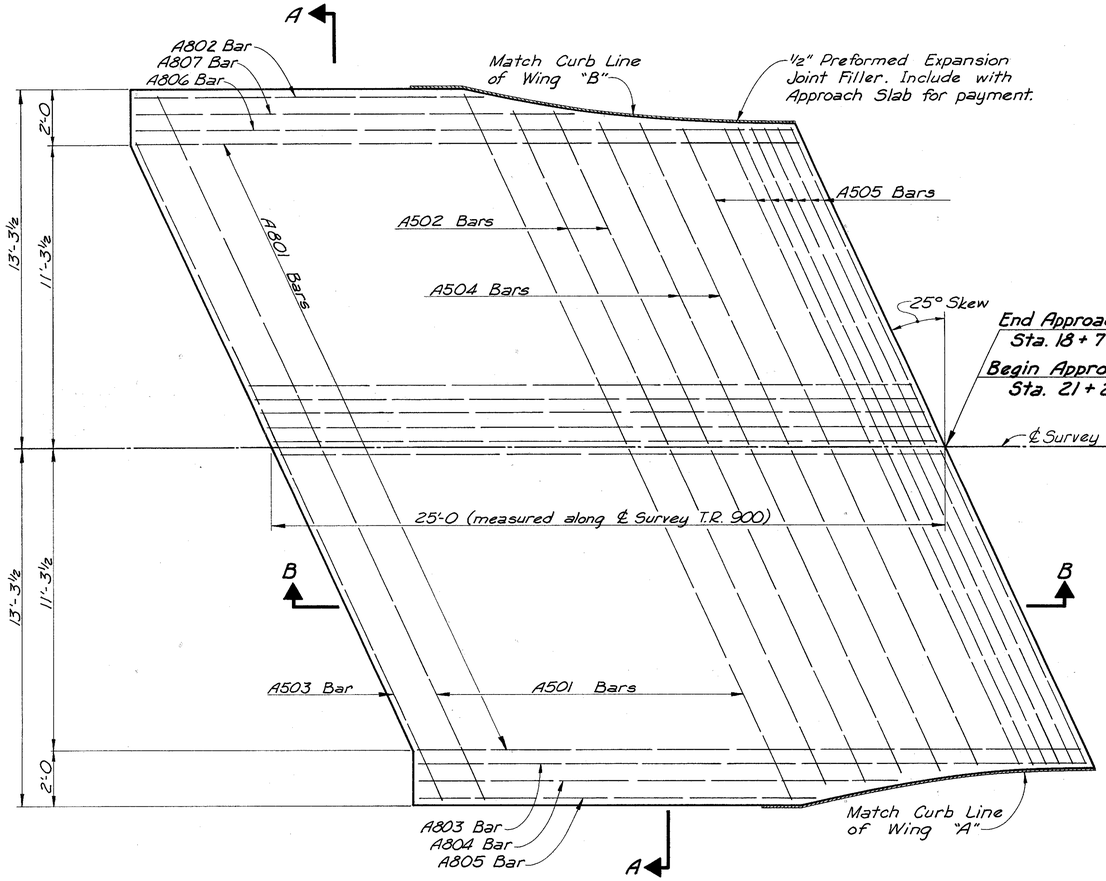
APPROACH SLAB DETAILS

Sta. 242 + 90.26 to Sta. 243 + 15.26

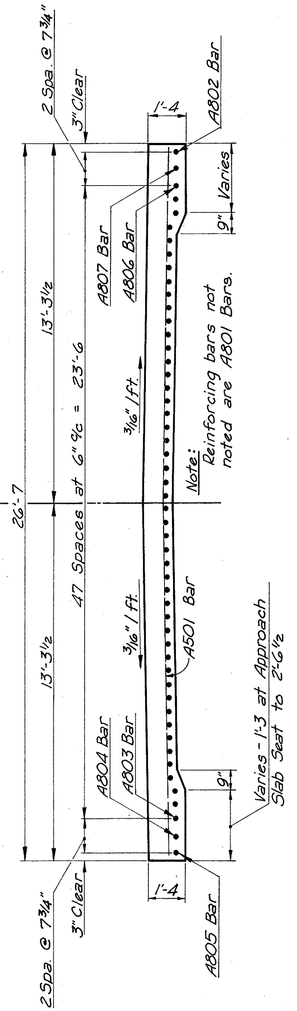
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

365

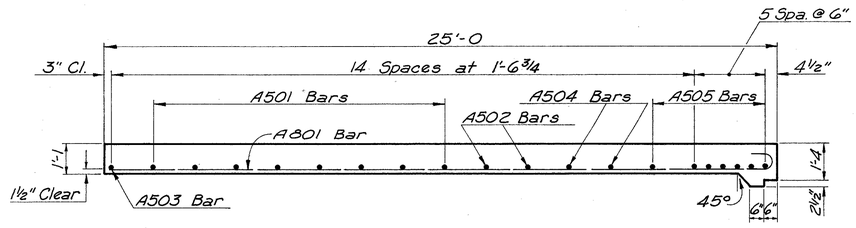
COL-11-10.22
COL-154-1.71



PLAN
Scale : 3/8" = 1'-0



SECTION A-A
Scale : 3/8" = 1'-0

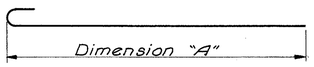


SECTION B-B
Scale : 3/8" = 1'-0

STEEL LIST

MARK	SIZE	NO.	LENGTH	DIM. "A"
A801	1" ϕ	46	25'-7	24'-6
A802	1" ϕ	1	13'-0	——
A803	1" ϕ	1	25'-10	24'-9
A804	1" ϕ	1	17'-9	——
A805	1" ϕ	1	14'-9	——
A806	1" ϕ	1	25'-4	24'-3
A807	1" ϕ	1	16'-3	——
A501	5/8" ϕ	8	28'-9	——
A502	5/8" ϕ	2	27'-6	——
A503	5/8" ϕ	1	26'-9	——
A504	5/8" ϕ	2	26'-6	——
A505	5/8" ϕ	7	25'-11	——

Note: Steel List is for one Approach Slab only.



NOTES

1. Details shown are for Approach Slab Sta. 18 + 52.92 to Sta. 18 + 77.92. Approach Slab Sta. 21 + 22.08 to Sta. 21 + 47.08 is opposite and details are similar.
2. For other typical details not shown, see Standard Drawing No. AS-1-54.

QUANTITIES

Sta. 18 + 52.92 to Sta. 18 + 77.92 = 71.8 Sq. Yds.
Sta. 21 + 22.08 to Sta. 21 + 47.08 = 71.8 Sq. Yds.

AS 9 & AS 10

BRIDGE NO. COL-11-1162

APPROACH SLAB DETAILS

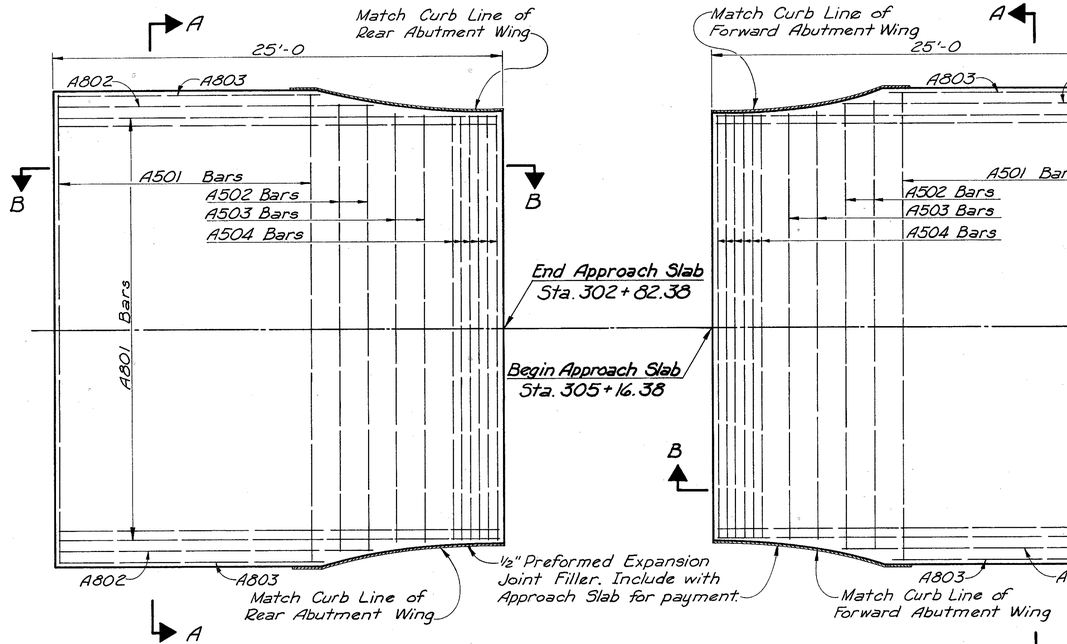
Sta. 18 + 52.92 to Sta. 18 + 77.92
Sta. 21 + 22.08 to Sta. 21 + 47.08

RELOCATED TWP. RD. 900

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

366

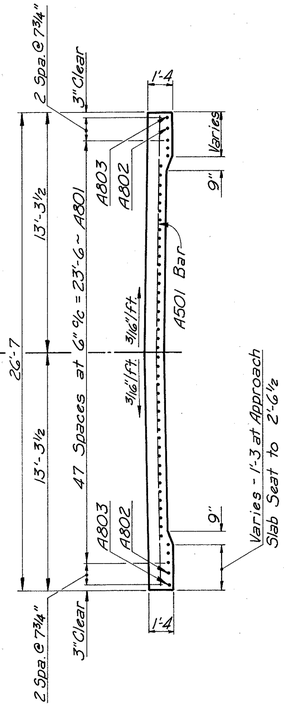
COL-11-10.22
COL-154-1.71



PLAN
Scale: ¼" = 1'-0
AS 11

PLAN
Scale: ¼" = 1'-0
AS 12

SECTION B-B
Scale: ⅜" = 1'-0



SECTION A-A
Scale: ¼" = 1'-0

Note:
For other typical details not shown, see Standard Drawing No. AS-1-54.

QUANTITIES

Sta. 302 + 57.38 to Sta. 302 + 82.38 = 72.0 Sq. Yds.
Sta. 305 + 16.38 to Sta. 305 + 41.38 = 72.0 Sq. Yds.

STEEL LIST				
MARK	SIZE	NO.	LENGTH	DIM. "A"
A801	1" ϕ	96	25'-7	24'-6
A802	1" ϕ	4	17'-6	——
A803	1" ϕ	4	14'-9	——
A501	⅝" ϕ	20	26'-1	——
A502	⅝" ϕ	4	24'-10	——
A503	⅝" ϕ	4	23'-10	——
A504	⅝" ϕ	12	23'-6	——



AS 11 & AS 12

BRIDGE NO. COL-11-1041

APPROACH SLAB DETAILS

Sta. 302+57.38 to Sta. 302+82.38
Sta. 305+16.38 to Sta. 305+41.38

CO. RD. 417

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

367

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71
1.70 Miles South East of Lisbon

CURVE DATA ~ RAMP "C"
P.T. Sta. 236+04.73
Δ = 6°-47'-46"
D_c = 1°-30'-00"
L_c = 453.07'
R = 3819.72'
S.C. Sta. 231+51.67

S.C. 231+51 ℄ Survey Ramp "C" 232 233 234 235 236 P.T. 236+04.73
Sta. 233+65.70
Sta. 235+18.56
Sod Gutter
Slope Varies
10'-0" Min.
10'-1 1/8" Act.
Skew 26°-02'-58" (Typ.)
End Approach Slab Sta. 233+37.43
Begin Approach Slab Sta. 234+68.43
234+02.93 ~ S.R. 11
59+07.50 ~ S.R. 154
116°-02'-58"
Sta. 233+14.46
Sta. 234+91.96
Sta. 232+92.70
Sta. 234+48.39
Critical Clearance Pt. "A"
Nursery
℄ Survey S.R. 154
Variable
℄ Survey S.R. 11

B.M. ~ Mine Spike in power pole, Ohio Power Co. No 34/38, south side S.R. 154. Elev. 930.01.

S.R. 11 1980 A.D.T. = 10,400
S.R. 154 1980 A.D.T. = 6,874

PROPOSED STRUCTURE

TYPE: Continuous steel beams with reinforced concrete deck and substructure.
SPANS: 36.75' - 52.5' - 36.75'
ROADWAY: Rt. ~ 40'-0" f/f parapet and Lt. ~ Varies from 52'± to 58'± f/f parapet with 1'-0 safety curbs.
LOAD FREQUENCY: CF 2000 (57)
SKEW: 26°-02'-58" L.F.
WEARING SURFACE: 1" monolithic
APPROACH SLABS: AS-1-54 modified 25' long.
ALIGNMENT: Tangent.

1000' V.C. Unequal Legs
600' Leg 400' Leg
Bridge Limits 131.0'
Sta. 233+37.43 Sta. 234+68.43
P.I. 234+00 Elev. 944.00
Pt. "A" 15'-0 Min. 15'-4 Act.
Top of Slope Elev. Rt. Bridge - 944.9± Lt. Bridge - 944.2±
Top of Slope Elev. Rt. Bridge - 944.1± Lt. Bridge - 943.8±
-2.6%
+2.3%
2:1 normal
Existing Ground Line
Footing Elevation Rt. Bridge - 938.90 Lt. Bridge - 938.20
Footing Elevation Rt. Bridge - 938.10 Lt. Bridge - 937.80
Rt. Bridge Elev. 924.70 Lt. Bridge Elev. 924.00
951.81 951.21 950.68 950.24 949.80 949.65 949.61 949.75 950.07
923.6 928.7 928.3 923.1 926.3 922.2 911.8 905.0 907.8
960 940 920 900
232 233 234 235 236
TYPICAL AT FWD. PIERS

Note: All piles 10BP42. Estimated Ave. Pay Lengths: Abutments ~ 30'; Piers ~ 15'.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS · NEW PHILADELPHIA, OHIO

SITE PLAN
BRIDGE NO. COL-11-1439 L&R
S.R. 11 OVER S.R. 154
COLUMBIANA COUNTY
Sta. 233+37.43
Sta. 234+68.43

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
H. & O.	P.H.S.	W.D.A.	W.D.A.	DLM	5/26/65

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

368

COL-11-10.22
COL-154-1.71

GENERAL NOTES

REFERENCE SHALL BE MADE TO:
Standard Drawings:
BR-1-65, revised 11-24-65 Sheet 1
RB-1-55, revised 2-2-59
SD-1-65, dated 11-8-65 Sheets

Supplemental Specifications:
808, dated 1-13-67.
811, dated 1-1-67.
825, dated 1-1-67.
828, dated 1-1-67.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

DESIGN INFORMATION:
Design loading_____ CF 2000 (57)
Concrete Class "C"_____ Basic unit stress, 1333 p.s.i.
Concrete Class "E"_____ Basic unit stress, 1133 p.s.i.
Structural Steel_____ ASTM A36 - Basic unit stress, 20,000 p.s.i.
Reinforcing Steel_____ ASTM A16, A15, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i.. Spiral Reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

MACHINE FINISH: The concrete bridge deck of the right structure shall be finished by the use of a finishing machine. At the Contractor's option, the bridge deck of the left structure may be finished by a finishing machine.

PROCEDURE: The approach embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a minimum distance of 200 feet back of the abutments after which excavation shall be made for the abutments and piers and piles driven.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the abutments and piers.

PILES shall be driven with a hammer of not less than 11,000 ft. lbs. per blow to firm contact with rock. If the length of penetration is approximately equal to the depth of rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. 507.05 is not less than the following for a pile hammer of the indicated energy rating:

Abutment Piles:
45 tons per pile using a 11,000 ft. lb. hammer
40 tons per pile using a 15,000 ft. lb. hammer

Pier Piles:
56 tons per pile using a 11,000 ft. lb. hammer
50 tons per pile using a 15,000 ft. lb. hammer

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 35 tons per pile.

MAINTENANCE AND PROTECTION OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 26'-0" shall be maintained on S.R.154 at all times. The Contractor shall safeguard the traveling public by providing platforms, nets, or other suitable protection above the traveled lanes. A minimum vertical clearance of 12'-9" shall be provided at all times.

WELDS on secondary stress carrying members are shown thus: .

RIGHT STRUCTURE DECK SLAB ELEVATIONS

STATION	PROFILE GRADE	CURB LINE* Left	CURB LINE* Right
233 + 09.14	950.60	———	950.46
233 + 25	950.45	———	950.32
233 + 27.71	950.43	950.35	———
233 + 45.89	950.27	———	950.13
233 + 50	950.24	950.18	950.11
233 + 64.46	950.13	950.05	———
233 + 75	950.05	949.98	949.93
233 + 98.39	949.89	———	949.75
234 + 00	949.88	949.81	949.74
234 + 16.96	949.78	949.70	———
234 + 25	949.75	949.67	949.61
234 + 35.14	949.70	———	949.56
234 + 53.71	949.64	949.56	———

LEFT STRUCTURE DECK SLAB ELEVATIONS

STATION	PROFILE GRADE	CURB LINE* Left	CURB LINE* Right
233 + 52.15	950.22	———	950.15
233 + 75	950.05	———	949.98
233 + 78.89	950.02	949.62	———
233 + 88.90	949.95	———	949.88
234 + 00	949.88	949.50	949.81
234 + 14.88	949.79	949.42	———
234 + 25	949.75	949.38	949.68
234 + 41.40	949.68	———	949.60
234 + 50	949.65	949.31	949.57
234 + 66.29	949.62	949.28	———
234 + 75	949.61	949.27	949.53
234 + 78.15	949.60	———	949.53
235 + 02.29	949.61	949.29	———

Note:

*Elevations shown are at the intersection of face of curb and ℄ Bearing of the substructure units and at even 25' stations.

*Elevations are those required before deck concrete is placed to allow for dead load deflections caused by the weight of the concrete.

GENERAL NOTES AND DECK SLAB ELEVATIONS
BRIDGE NO. COL-11-1439L&R
S.R. 11 OVER S.R.154
COLUMBIANA COUNTY STA. 233 +37.43 ,, 234 +68.43

WDA DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

369

COL-11-10.22
COL-154-1.71

ESTIMATED QUANTITIES ~ RIGHT STRUCTURE

ITEM	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER.	GEN'L.	
503	401	Cu. Yds.	Unclassified Excavation	246	155			
511	169	Cu. Yds.	Class "C" concrete, superstructure			169		
511	63	Cu. Yds.	Class "C" concrete, pier caps and columns		63			
511	174	Cu. Yds.	Class "E" concrete, abutments	174				
511	61	Cu. Yds.	Class "E" concrete, pier footings		61			
509	73,880	Lbs.	Reinforcing Steel	10,823	15,646	47,411		
513	108,500	Lbs.	Structural Steel			108,500		
514	108,500	Lbs.	Field Painting of structural steel			108,500		
517	305.44	Lin. Ft.	Railing - Type I	48.98		256.46		
505	Lump	Sum	First test pile				Lump	
507	1230	Lin. Ft.	Piles : 10 BP 42	780	450			
518	36	Cu. Yds.	Porous Backfill	36				
518	8	Each	Scuppers, including supports			8		
518	78	Lin. Ft.	6" Perforated helical C.M.P. including specials (707.06)	78				
518	50	Lin. Ft.	6" Non-perforated helical C.M.P. (707.06)	50				
601	487	Sq. Yds.	Crushed aggregate slope protection	~~487~~			~~51~~ 436	
808	169	Units	Water-reducing, set-retarding admixture			~~169~~	~~69~~	
825	718	Sq. Yds.	Concrete surface treatment	56		662		
828	85	Lin. Ft.	Joint sealer			~~85~~	~~85~~	

ESTIMATED QUANTITIES ~ LEFT STRUCTURE

ITEM	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER.	GEN'L.	
503	540	Cu. Yds.	Unclassified Excavation	315	225			
511	217	Cu. Yds.	Class "C" concrete, superstructure			217		
511	88	Cu. Yds.	Class "C" concrete, pier caps and columns		88			
511	226	Cu. Yds.	Class "E" concrete, abutments	226				
511	89	Cu. Yds.	Class "E" concrete, pier footings		89			
512	9	Lin. Ft.	Waterproofing, premolded sealing strip	9				
509	99,641	Lbs.	Reinforcing Steel	13,720	20,946	64,975		
513	150,500	Lbs.	Structural Steel			150,500		
514	150,500	Lbs.	Field Painting of structural steel			150,500		
517	303.39	Lin. Ft.	Railing - Type I	49.45		253.94		
507	1620	Lin. Ft.	Piles : 10 BP 42	960	660			
518	46	Cu. Yds.	Porous Backfill	46				
518	8	Each	Scuppers, including supports			8		
518	109	Lin. Ft.	6" Perforated helical C.M.P. including specials (707.06)	109				
518	56	Lin. Ft.	6" Non-perforated helical C.M.P. (707.06)	56				
601	590	Sq. Yds.	Crushed aggregate slope protection	590				
808	217	Units	Water-reducing, set-retarding admixture			217	~~217~~	
825	1052	Sq. Yds.	Concrete surface treatment	67		985	~~159~~ 893	
828	116	Lin. Ft.	Joint sealer			116	~~116~~	

ITEM 505, FIRST TEST PILE: Payment will be made for only one "first test pile". The one tabulated in the quantity table for Bridge No. COL-11-1439R may be driven at either bridge no. COL-11-1439R or COL-11-1439L.

ESTIMATED QUANTITIES
BRIDGE NO. COL-11-1439L&R
S.R. 11 over S.R. 154

COLUMBIANA COUNTY STA. 233+37.43
" 234+68.43

WDA DLM 5/20/66

GFJ 9-10-70 Revised As-Built GFJ

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

370

COL-11-10.22
COL-154-1.71

DEFLECTION AND CAMBER FOR LEFT STRUCTURE

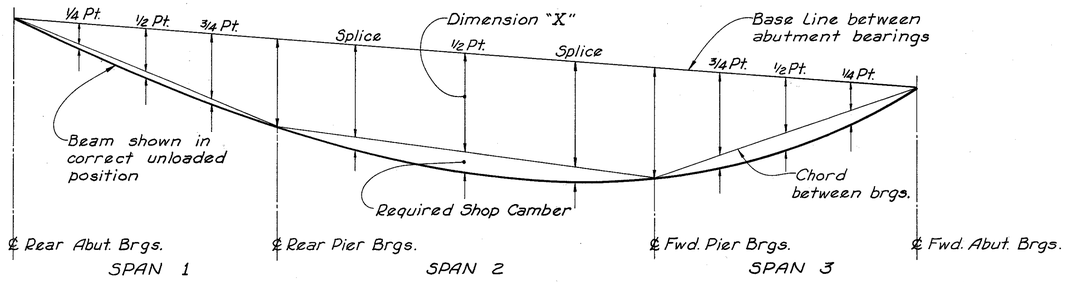
LOCATION		SPAN 1			℄ Brg.	SPAN 2			℄ Brg.	SPAN 3		
		¼ Pt.	½ Pt.	¾ Pt.		@Splice	½ Pt.	@Splice		¾ Pt.	½ Pt.	¼ Pt.
Dimension "X" (Difference in elevation between chord and base line)	Beam Line 1	5/16	11/16	1	1 5/16	1 5/16	1 5/16	1 5/16	1 5/16	1	11/16	5/16
	Beam Line 2	5/16	5/8	1	1 5/16	1 5/16	1 5/16	1 5/16	1 5/16	1	11/16	5/16
	Beam Line 3	5/16	5/8	15/16	1 1/4	1 5/16	1 5/16	1 5/16	1 3/8	1	11/16	5/16
	Beam Line 4	5/16	5/8	15/16	1 1/4	1 1/4	1 5/16	1 5/16	1 3/8	1	11/16	5/16
	Beam Line 5	5/16	9/16	7/8	1 3/16	1 1/4	1 1/4	1 5/16	1 5/16	1	11/16	5/16
	Beam Line 6	5/16	9/16	7/8	1 1/8	1 3/16	1 1/4	1 5/16	1 5/16	1	11/16	5/16
	Beam Line 7	1/4	9/16	13/16	1 1/16	1 1/8	1 3/16	1 1/4	1 5/16	15/16	5/8	5/16
* Deflection due to weight of steel		0	0	0	0	0	0	0	0	0	0	0
* Deflection due to remaining dead load		1/16	1/16	0	0	1/8	3/16	1/8	0	0	1/16	1/16
*Adjustment required for vertical sag curve		-1/16	-1/16	-1/16	0	-3/16	-5/16	-3/16	0	-1/8	-1/8	-1/8
*Required Shop Camber		0	0	-1/16	0	-1/16	-1/8	-1/16	0	-1/8	-1/16	-1/16

DEFLECTION AND CAMBER FOR RIGHT STRUCTURE

LOCATION		SPAN 1			℄ Brg.	SPAN 2			℄ Brg.	SPAN 3		
		¼ Pt.	½ Pt.	¾ Pt.		@Splice	½ Pt.	@Splice		¾ Pt.	½ Pt.	¼ Pt.
Dimension "X" (Difference in elevation between chord and base line)	Beam Line 1	3/16	7/16	5/8	13/16	7/8	15/16	1	1 1/16	13/16	9/16	1/4
	Beam Line 2	3/16	7/16	5/8	13/16	7/8	15/16	1	1 1/16	3/4	1/2	1/4
	Beam Line 3	3/16	3/8	9/16	3/4	13/16	7/8	15/16	15/16	3/4	1/2	1/4
	Beam Line 4	3/16	3/8	9/16	3/4	13/16	13/16	7/8	15/16	11/16	7/16	1/4
	Beam Line 5	3/16	3/8	9/16	3/4	3/4	13/16	13/16	7/8	5/8	7/16	3/16
* Deflection due to weight of steel		0	0	0	0	0	0	0	0	0	0	0
* Deflection due to remaining dead load		1/16	1/16	0	0	1/8	1/4	1/8	0	0	1/16	1/16
* Adjustment required for vertical sag curve.		-1/16	-1/16	-1/16	0	-1/8	-3/16	-1/8	0	-1/8	-1/8	-1/8
* Required Shop Camber		0	0	-1/16	0	0	-1/16	0	0	-1/8	-1/16	-1/16

Note :

* Indicates same value for all Beam Lines. Minus values indicate a sag camber, plus values indicate a crest or normal camber.



DEFLECTION AND CAMBER DIAGRAM

BEAM DEFLECTION & CAMBER
BRIDGE NO. COL-11-1439 L&R.
S.R. 11 OVER S.R. 154

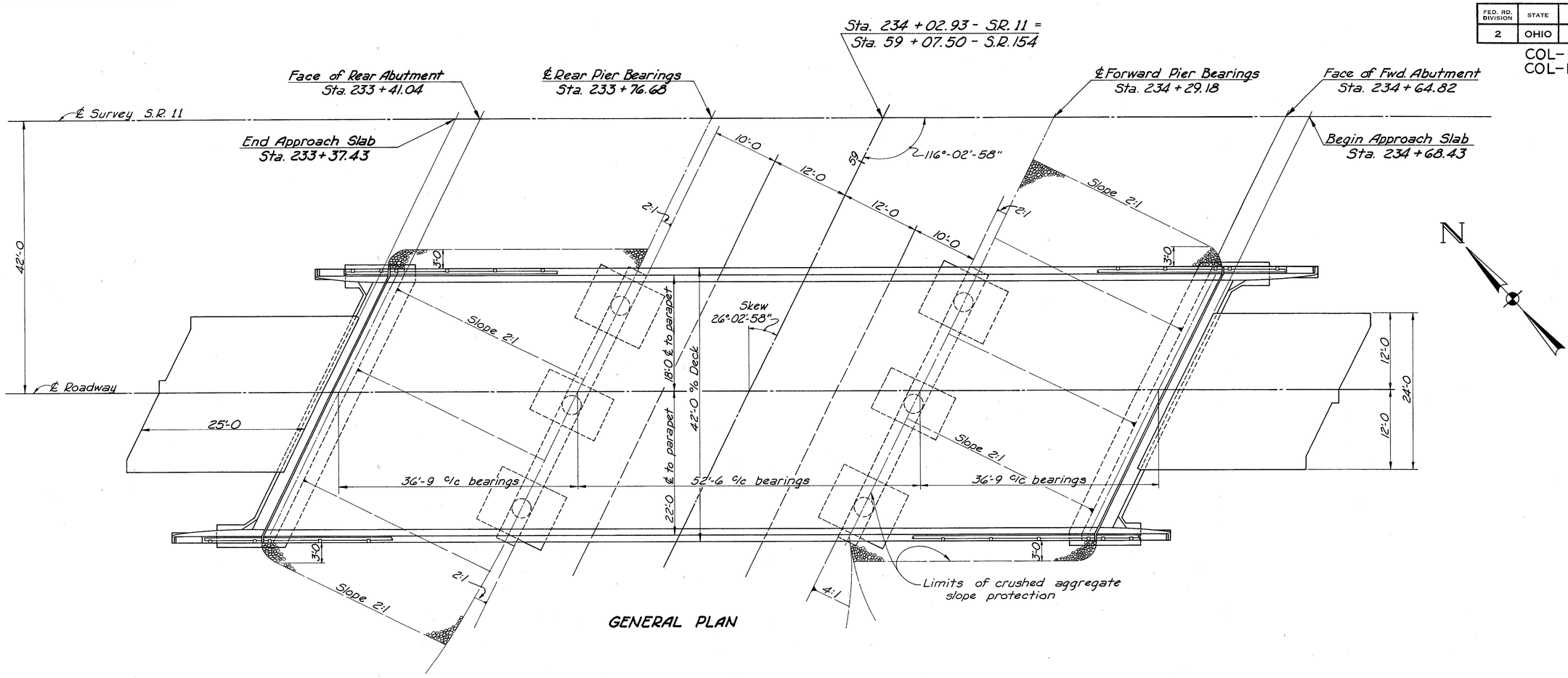
COLUMBIANA COUNTY STA. 233+37.43
" 234+68.43

W.D.A. WDA DLM 5/20/66

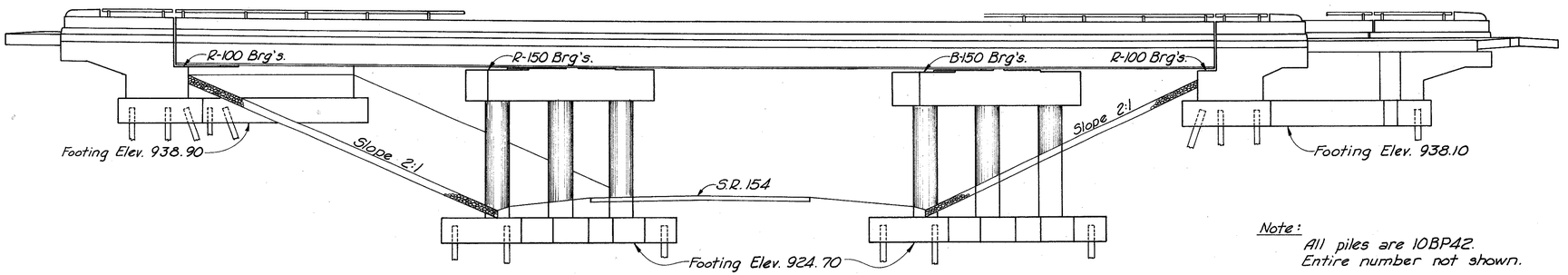
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

371

COL-11-10.22
COL-154-1.71



GENERAL PLAN



ELEVATION

Note:
All piles are 10BP42.
Entire number not shown.

GENERAL PLAN & ELEVATION
BRIDGE NO. COL-11-1439 R
S.R. 11 over S.R. 154

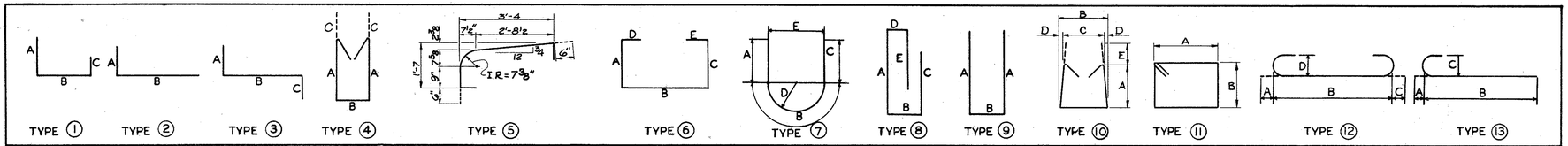
COLUMBIANA COUNTY Sta. 233+37.43
Sta. 234+68.43

W.D.A. RJ RJ DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

372

COL-11-10.22
COL-154-1.71



REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
A801	Str.						14	25'-5	950
A802	Str.						6	10'-2	163
A803	9	8'-1	1'-2				2	17'-0	91
A804	9	8'-6	1'-2				3	17'-10	143
A805	Str.						2	10'-0	53
A806	Str.						4	10'-6	112
A807	9	8'-5	1'-2				4	17'-8	189
A601	1	6'-8	5'-5	2'-6			26	14'-3	556
A602	9	6'-3	1'-5				16	13'-7	326
A603	8	6'-3	1'-5	4'-11	11"	3'-0	27	15'-10	642
A501	9	1'-7	5'-5				26	8'-4	226
A502	9	1'-7	3'-5				26	6'-4	172
A503	2	7½"	6'-8				26	7'-2	194
A504	Str.						30	23'-11	748
A505	Str.						8	13'-4	111
A506	Str.						1	5'-5	6
A507	12	7"	7'-9	7"	4"		4	8'-11	37
A508	Str.						2	3'-8	8
A509	2	7½"	5'-1				15	5'-7	87
A510	2	7½"	5'-8				4	6'-2	26
A511	2	7½"	4'-6				4	5'-0	21
A512	9	2'-1	1'-2				9	5'-1	48
A513	11	3'-0	2'-6				10	11'-6	120
A514	Str.						2	5'-3	11
A515	4	2'-2	8"	5"			17	5'-7	99
A516	Str.						4	7'-5	31
A517	2	7½"	3'-4				18	3'-10	72
A518	Str.						6	7'-6	47
A519	2	7½"	4'-2				4	4'-8	19
A520	12	7"	5'-2	7"	4"		5	6'-4	33
A521	Str.						8	11'-1	92
A522	Str.						1	3'-7	4

RAILING

R501	Str.						8	13'-0	*
R502	Str.						8	10'-9	*
R503	5	See Detail					8	5'-4	*
R504	10	1'-6	8"	6½"	3¼"	5"	12	4'-2	*
R505	Str.						56	14'-4	*
R506	Str.						16	12'-2	*

FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
B801	Str.						14	25'-5	950
B802	Str.						6	10'-2	163
B803	9	7'-8	1'-2				2	16'-2	86
B804	9	8'-5	1'-2				7	17'-8	330
B805	Str.						2	10'-0	53
B806	Str.						4	10'-6	112
B601	1	6'-7	5'-5	2'-6			26	14'-2	553
B602	9	6'-3	1'-5				17	13'-7	347
B603	8	6'-3	1'-5	4'-11	11"	3'-0	26	15'-10	618
B501	9	1'-7	5'-5				26	8'-4	226
B502	9	1'-7	3'-5				26	6'-4	172
B503	2	7½"	6'-7				26	7'-1	192
B504	Str.						30	23'-11	748
B505	Str.						8	13'-4	111
B506	Str.						1	5'-4	6
B507	12	7"	7'-9	7"	4"		4	8'-11	37
B508	Str.						3	3'-8	11
B509	2	7½"	5'-1				19	5'-7	111
B510	2	7½"	5'-9				4	6'-3	26
B511	2	7½"	4'-2				6	4'-8	29
B512	9	2'-1	1'-2				8	5'-1	42
B513	11	3'-0	2'-6				10	11'-6	120
B514	Str.						4	7'-5	31
B515	4	2'-2	8"	5"			17	5'-7	99
B516	Str.						8	11'-1	92
B517	2	7½"	3'-4				16	3'-10	64
B518	12	7"	5'-2	7"	4"		4	6'-4	26
B519	Str.						4	7'-6	31

PIERS

P1001	2	1'-4½	5'-11				66	7'-0	1988
P1002	Str.						11	17'-9	840
P1003	Str.						22	17'-6	1657
P1004	Str.						11	17'-5	824
P1005	Str.						22	17'-2	1625
P1006	Str.						10	33'-2	1427
P1007	Str.						10	15'-8	674
P901	Str.						44	10'-8	1596
P801	Str.						24	24'-1	1543
P701	Str.						40	8'-8	709
P601	Str.						20	6'-8	200
P501	9	3'-0	2'-8				96	8'-5	843
P502	Str.						8	23'-8	198

SUPERSTRUCTURE

MARK	TYPE	A*	B	C	D	E	NO.	LENGTH	WEIGHT
S701	Str.						157	41'-8	13371
S702	Str.	Vary by 1'-4⅞ increments					Two Series of 27	3'-3¼ to 39'-10	2379
S703	Str.						2	3'-6	14
S601	Str.						157	41'-8	9826
S602	Str.						316	33'-3	15782
S603	Str.						60	21'-0	1893
S604	Str.	Vary by 1'-4⅞ increments					Two Series of 27	3'-3¼ to 39'-10	1748
S605	Str.						2	3'-6	11
S501	6	1'-4	1'-6	1'-4	7½"	7½"	176	4'-11	903
S502	9	7½"	1'-6				176	2'-6	459
S503	4	2'-2	8"	5"			176	5'-7	1025

REPLACEMENT BARS

RE1001	Str.						1	7'-2	——
RE901	Str.						1	6'-10	——
RE801	Str.						1	6'-6	——
RE701	Str.						1	6'-2	——
RE601	Str.						2	5'-11	——
RE501	Str.						1	5'-7	——
RE401	Str.						1	5'-3	——

SPIRAL REINFORCING

MARK	CORE DIA.	PITCH	NO. TURNS	NO.	LENGTH	WEIGHT
SP401	32"	4½"	39	3	13'-7⅞	770
SP402	32"	4½"	39	3	13'-3⅞	752

NOTES

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
The "No." of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 509. 1 1/2 closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

* Include with railing for payment.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

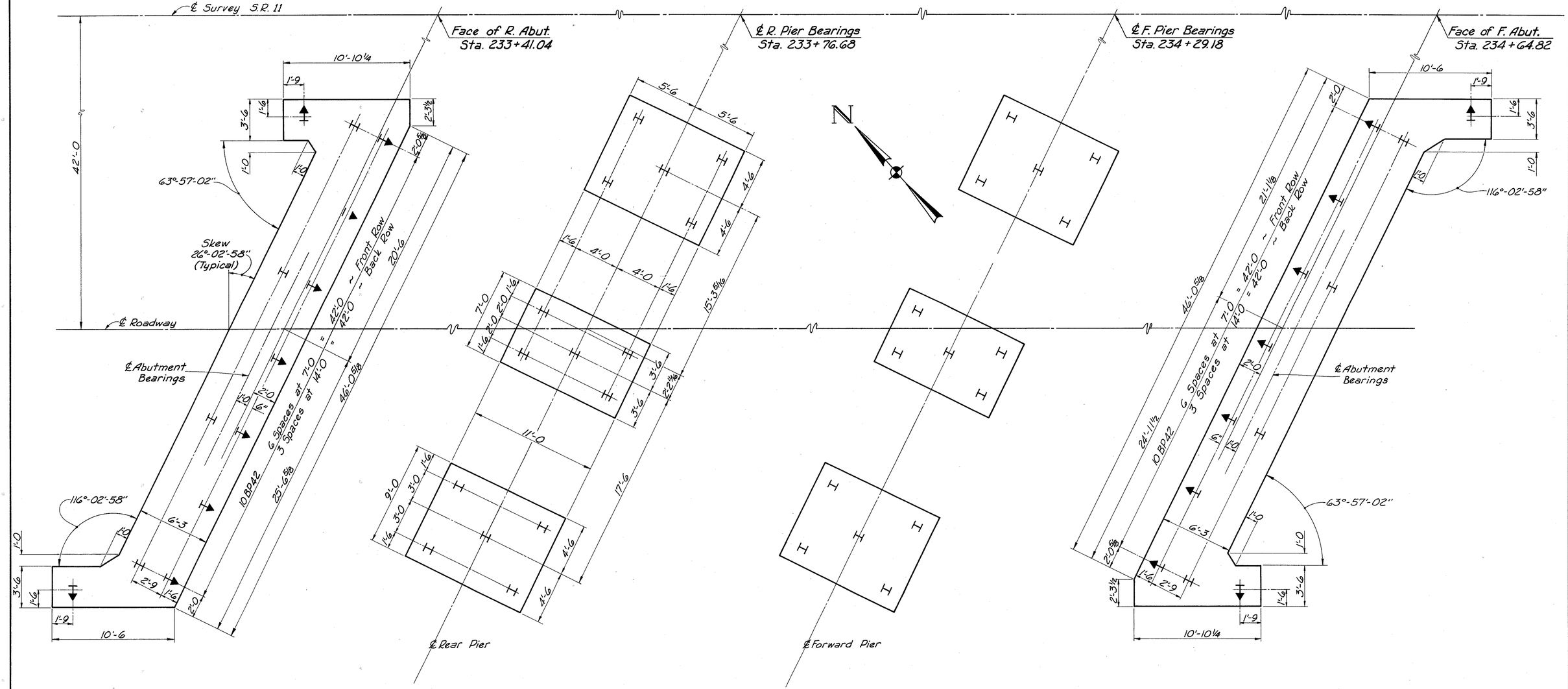
REINFORCING BAR SCHEDULE
BRIDGE NO. COL-11-1439 R
S.R. 11 over S.R. 154
COLUMBIANA COUNTY STA. 233+37.43 " 234+68.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		RB	WDA	DLM	5/20/66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

373

COL-11-10.22
COL-154-1.71



FOOTING PLAN AND PILE LAYOUT

Notes:

▼ denotes the direction of a 4:1 battered pile.

All piles are 10BP42.

All dimensions shown for Rear Pier Footings are typical for Forward Pier Footings.

FOOTING PLAN & PILE LAYOUT
BRIDGE NO. COL-11-1439 R
S.R. 11 OVER S.R. 154

COLUMBIANA COUNTY
Sta. 233+37.43
Sta. 234+68.43

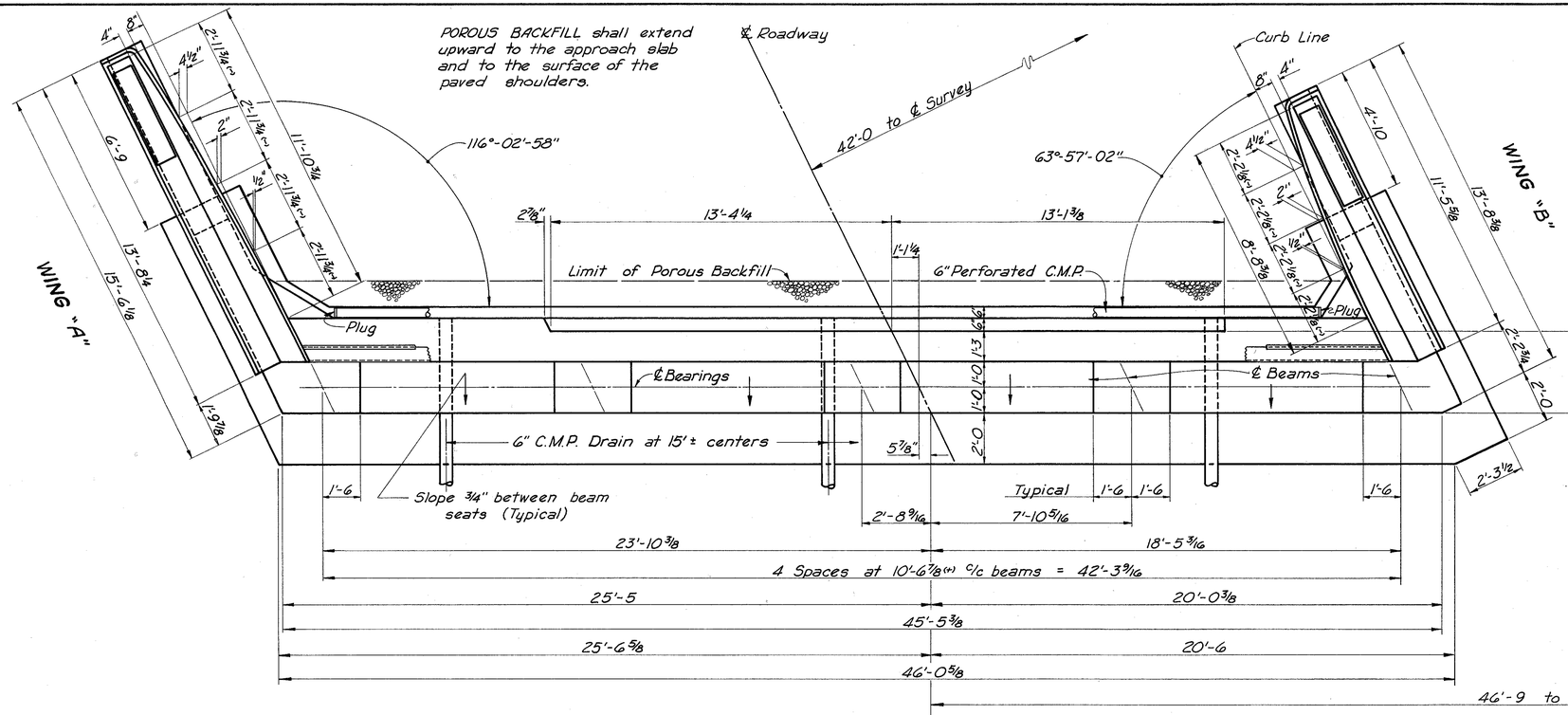
W.D.A. RJ RJ DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

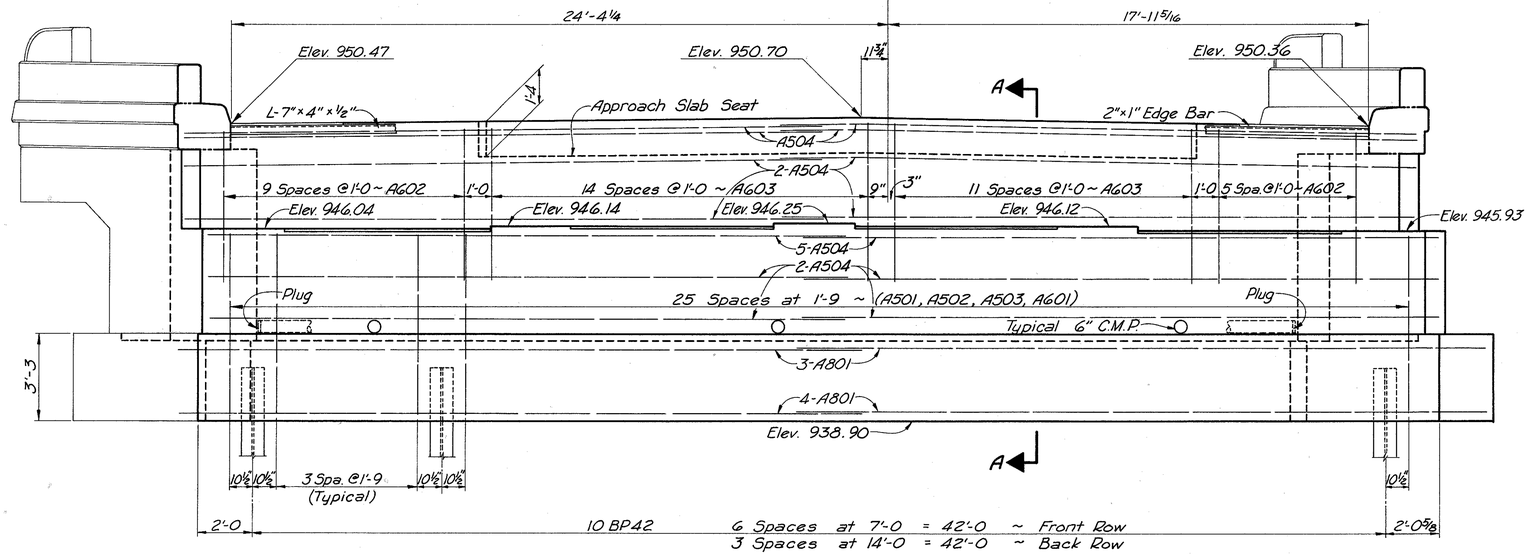
374

COL-11-10.22
COL-154-1.71

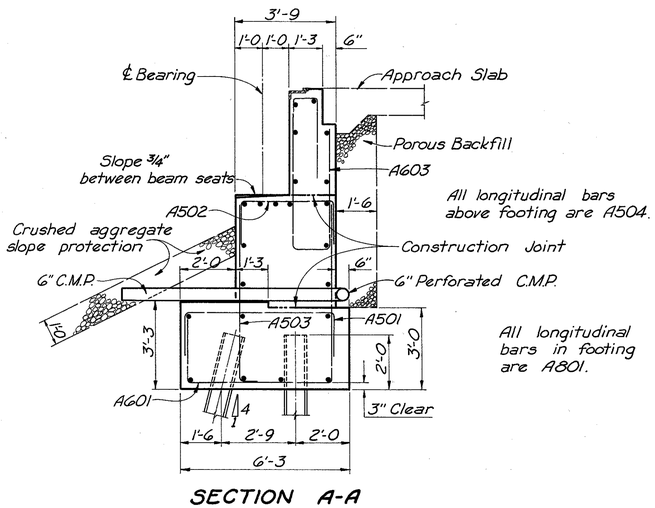
POROUS BACKFILL shall extend upward to the approach slab and to the surface of the paved shoulders.



PLAN



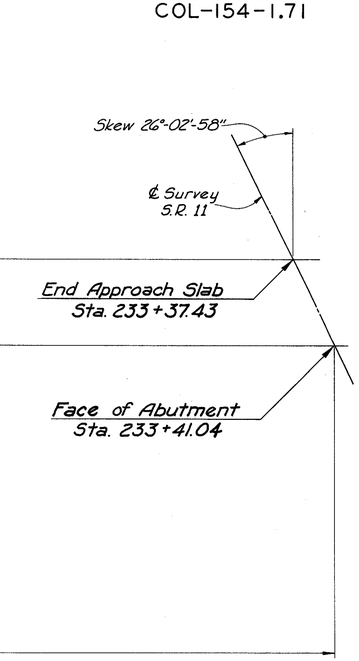
ELEVATION



All longitudinal bars above footing are A504.

All longitudinal bars in footing are A801.

SECTION A-A



For additional details see sheets 375

REAR ABUTMENT DETAILS

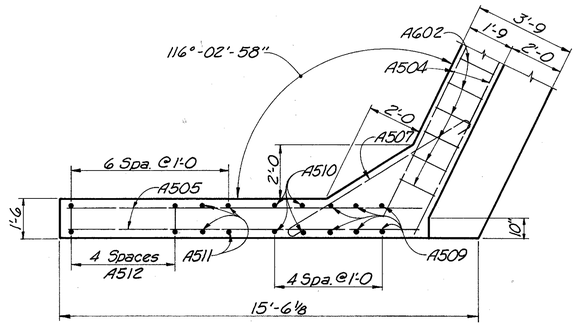
BRIDGE NO. COL-11-1439 R
S.R. 11 OVER S.R. 154
COLUMBIANA COUNTY Sta. 233+37.43 Sta. 234+68.43

W.D.A. RG RG DLM 5/20/66

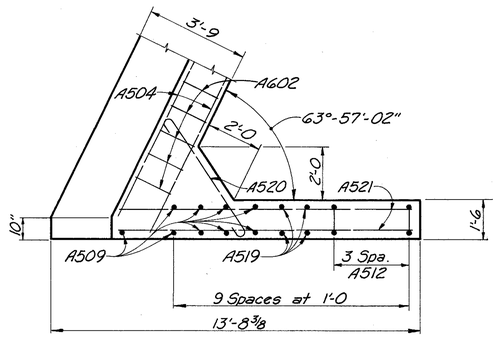
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

375

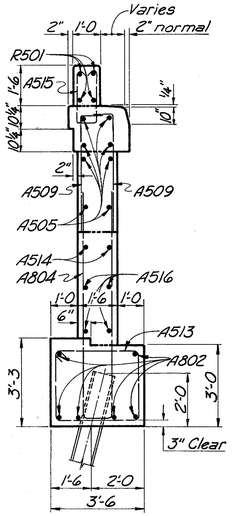
COL-11-10.22
COL-154-1.71



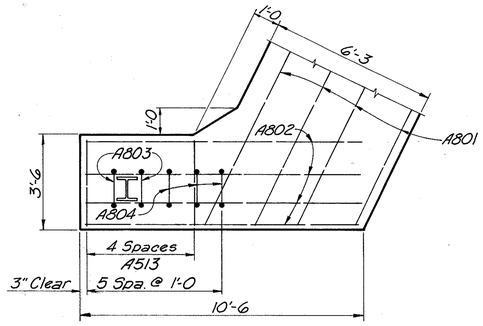
SECTION D-D



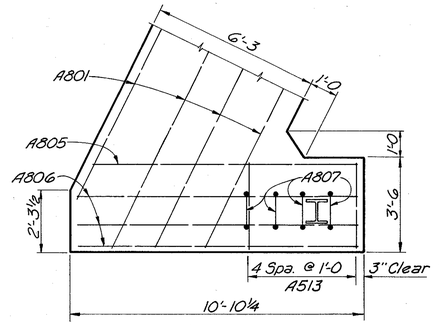
SECTION G-G



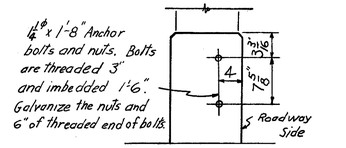
SECTION C-C



SECTION E-E



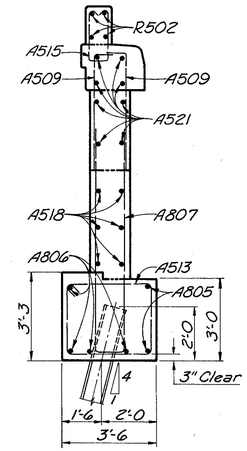
SECTION H-H



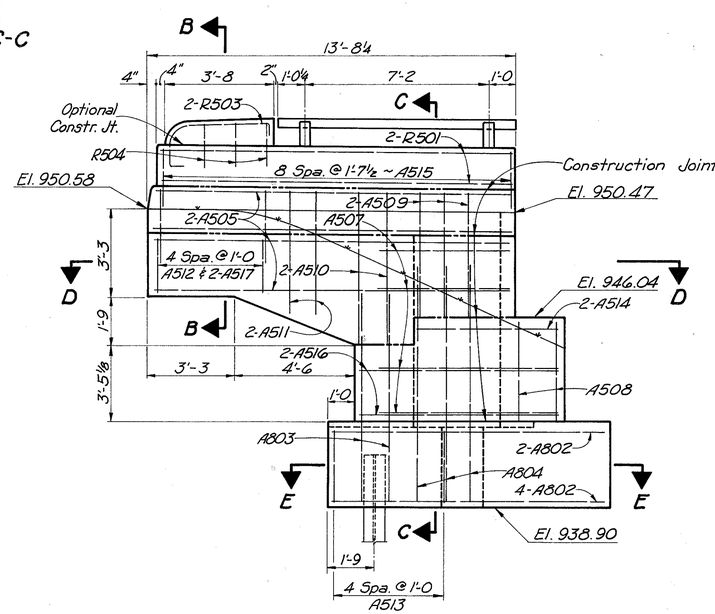
End View of Railing

Use this detail ONLY WHERE APPROACH GUARD RAIL Is Shown on roadway plan and profile sheets

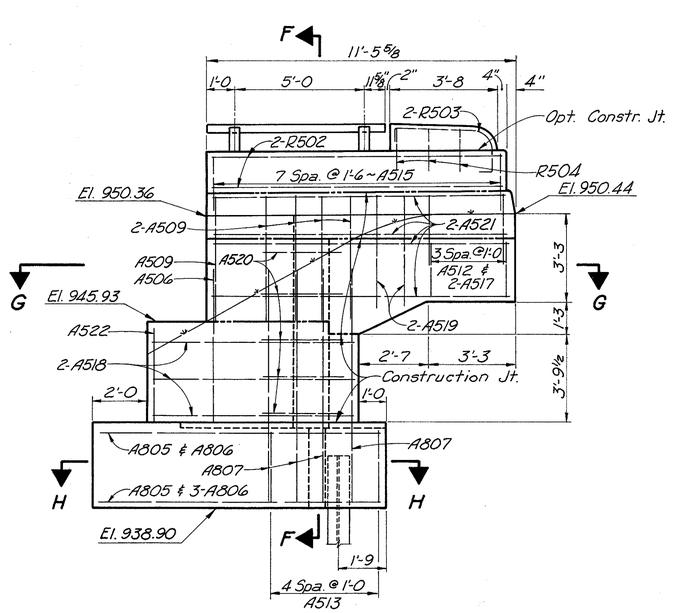
ANCHORS FOR ATTACHMENT OF APPROACH GUARD RAIL TO BRIDGE RAILING



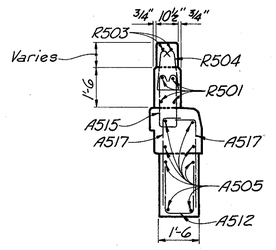
SECTION F-F



ELEVATION OF WING "A"



ELEVATION OF WING "B"



SECTION B-B

REAR ABUTMENT DETAILS
BRIDGE NO. COL-11-1439 R
S.R. 11 OVER S.R. 154

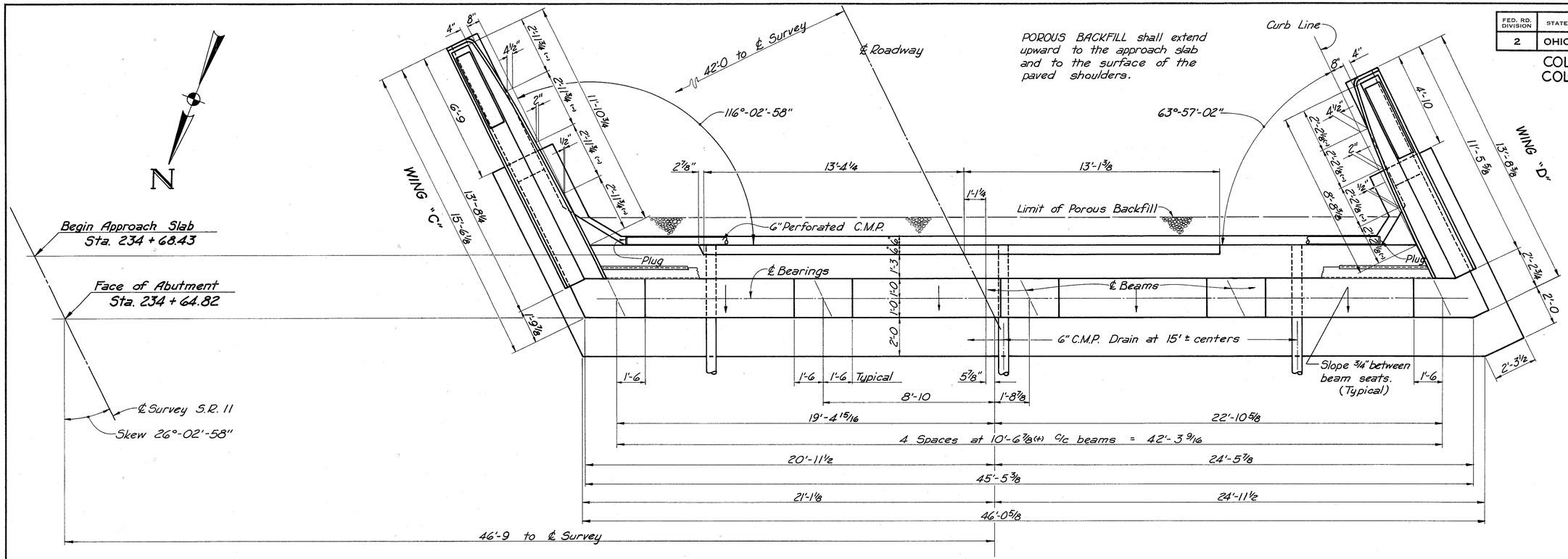
COLUMBIANA COUNTY Sta. 233 + 37.43
Sta. 234 + 68.43

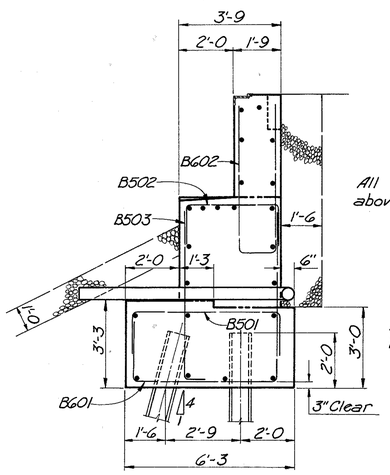
W.D.A. RA RA DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

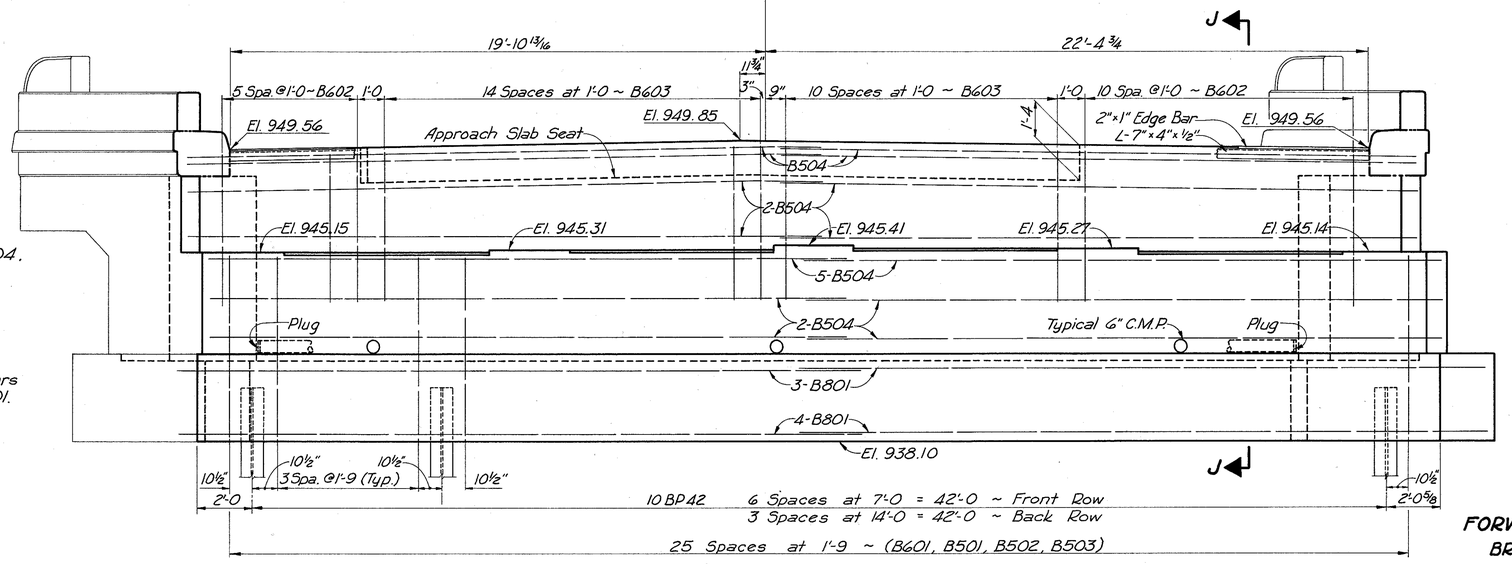
376

COL-11-10.22
COL-154-1.71





SECTION J-J



ELEVATION

FORWARD ABUTMENT DETAILS
BRIDGE NO. COL-11-1439 R
S.R. 11 over S.R. 154
COLUMBIANA COUNTY Sta. 233 + 37.43 Sta. 234 + 68.43

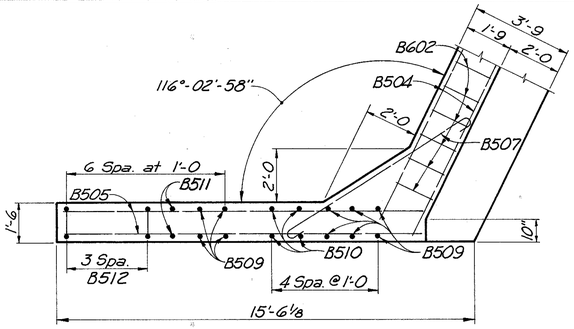
For additional details see sheets 377

W.D.A. RJ RJ DLM 5/20/66

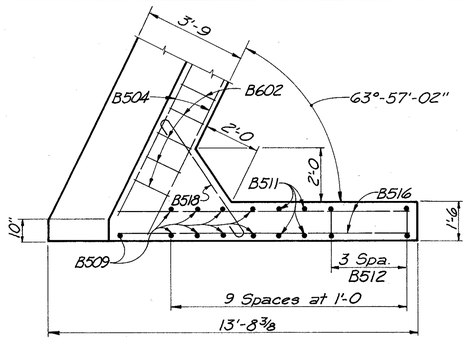
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

377

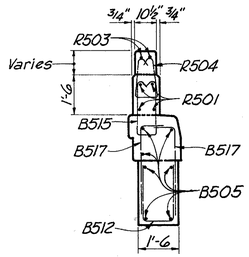
COL-11-10.22
COL-154-1.71



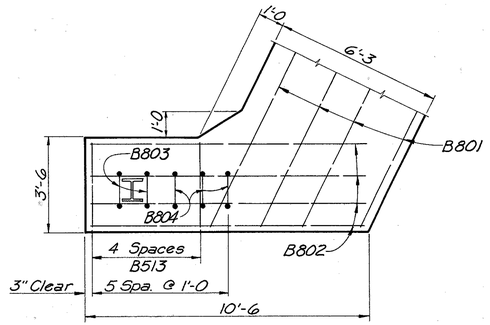
SECTION K-K



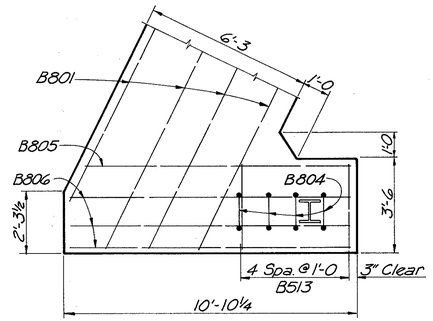
SECTION P-P



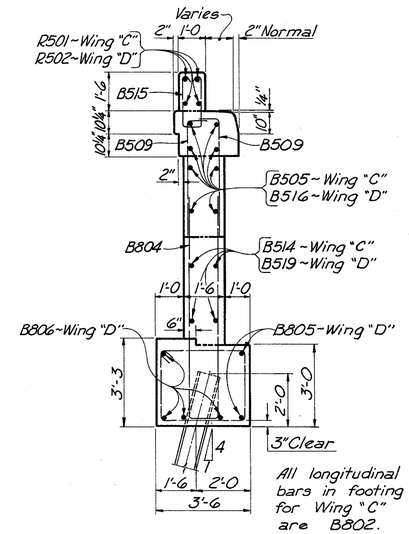
SECTION M-M



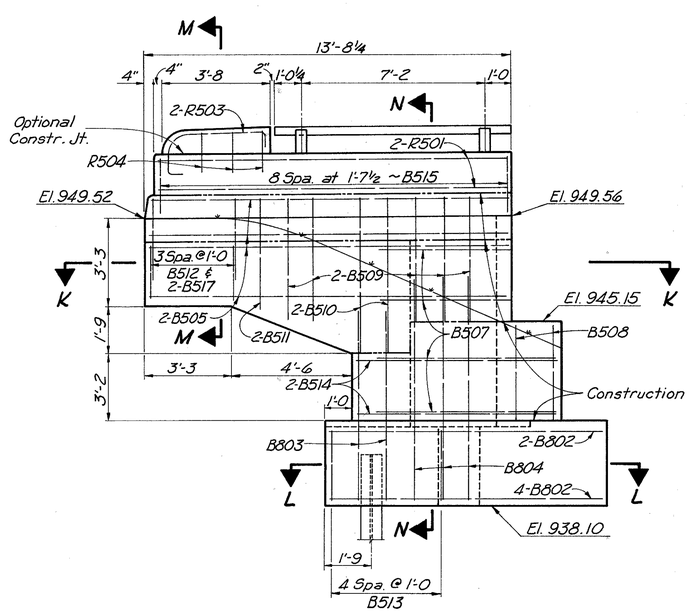
SECTION L-L



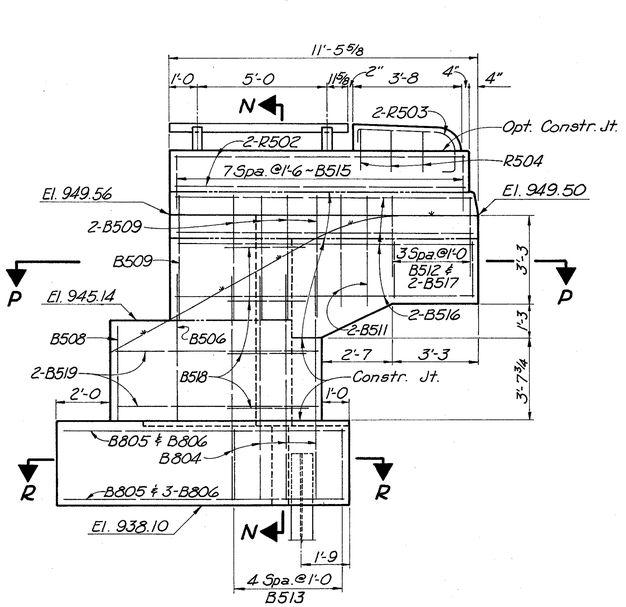
SECTION R-R



SECTION N-N



ELEVATION OF WING "C"



ELEVATION OF WING "D"

FORWARD ABUTMENT DETAILS
BRIDGE NO. COL-11-1439 R
S.R. 11 OVER S.R. 154

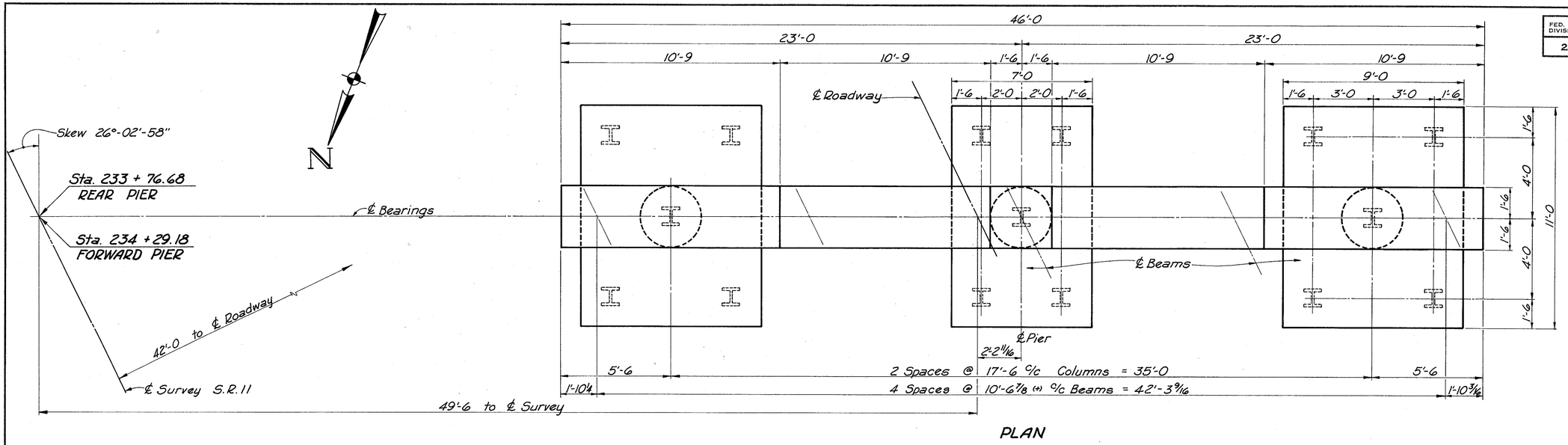
COLUMBIANA COUNTY Sta. 233 + 37.43
Sta. 234 + 68.43

W.D.A. RA RA DLM 5/20/66

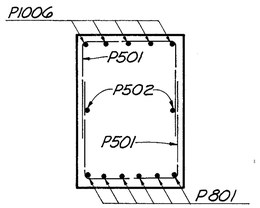
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

378

COL-11-10.22
COL-154-1.71

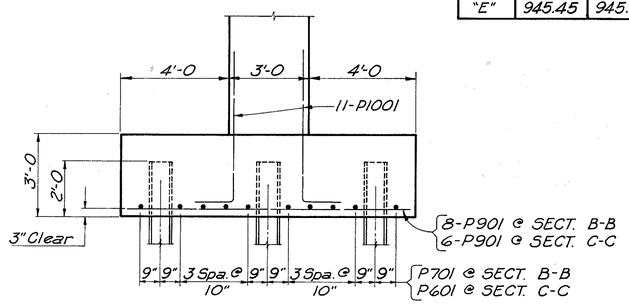


PLAN

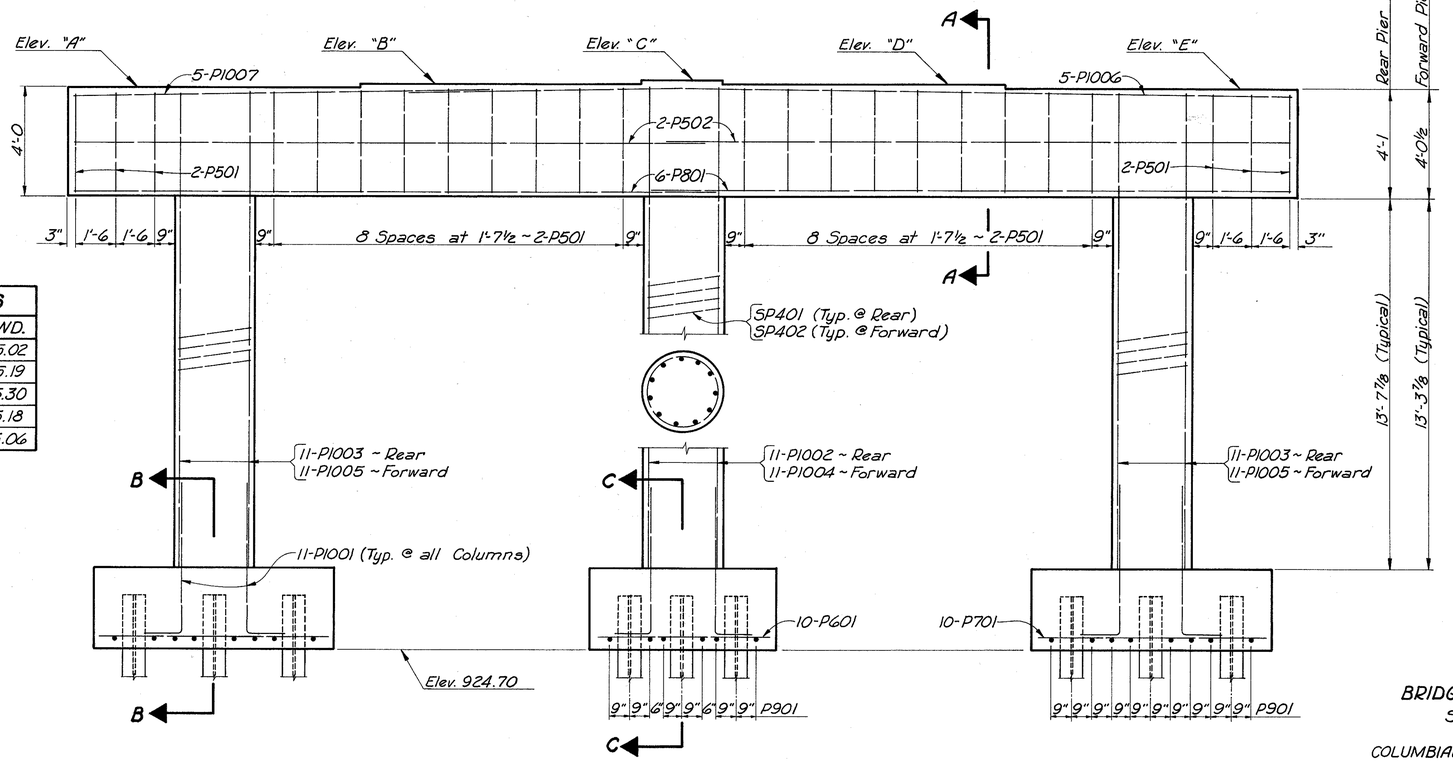


SECTION A-A

ELEVATIONS		
ELEV.	REAR	FWD.
"A"	945.36	945.02
"B"	945.54	945.19
"C"	945.67	945.30
"D"	945.56	945.18
"E"	945.45	945.06



SECTION B-B
SECTION C-C



ELEVATION

Note:

Special care shall be taken in placing the reinforcing steel in the pier cap of the Forward Pier so as to not interfere with the bearing anchor bolts.

PIER DETAILS

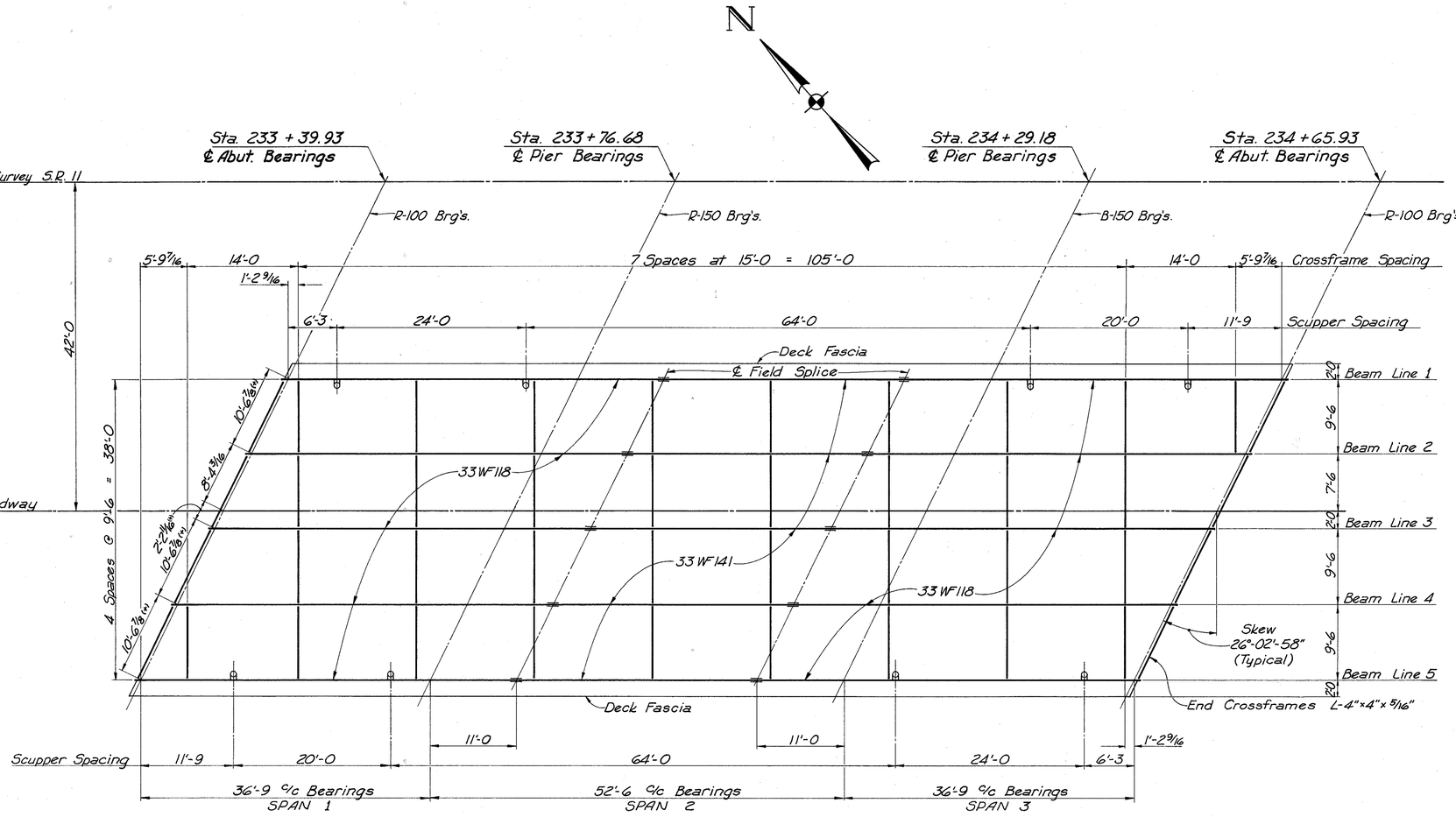
BRIDGE NO. COL-11-1439 R
S.R. 11 over S.R. 154
COLUMBIANA COUNTY Sta. 233 + 37.43
Sta. 234 + 68.43

W.D.A. RA RA DLM 5/20/66

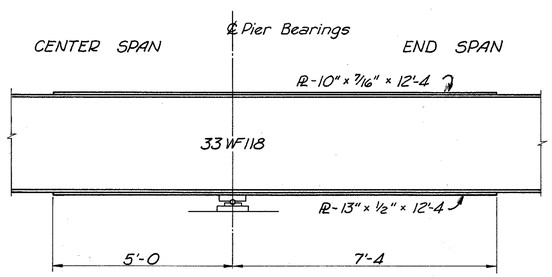
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

379

COL-11-10.22
COL-154-1.71



STEEL FRAMING PLAN



MOMENT PLATE DETAIL

SUPERSTRUCTURE NOTES

ADDITIONAL DETAILS : Refer to Standard Drawings RB-1-55, BR-1-65, and SD-1-65 for details not shown.

SCUPPERS: All scuppers are Type 1 as per Standard Drawing SD-1-65.

DECK SLAB HAUNCH: A typical haunch width of 9" shall be used for computing quantities of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall not be greater than 1:4 for a haunch less than 9" wide.

SLAB THICKNESS shown includes 1" for monolithic wearing surface.

* THIS DIMENSION is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

FIELD SPLICES shall be for 33WF118 as detailed on Standard Drawing SD-1-65.

Note:
For additional details see sheet 380.

SUPERSTRUCTURE DETAILS

BRIDGE NO. COL-11-1439 R
S.R. 11 OVER S.R. 154

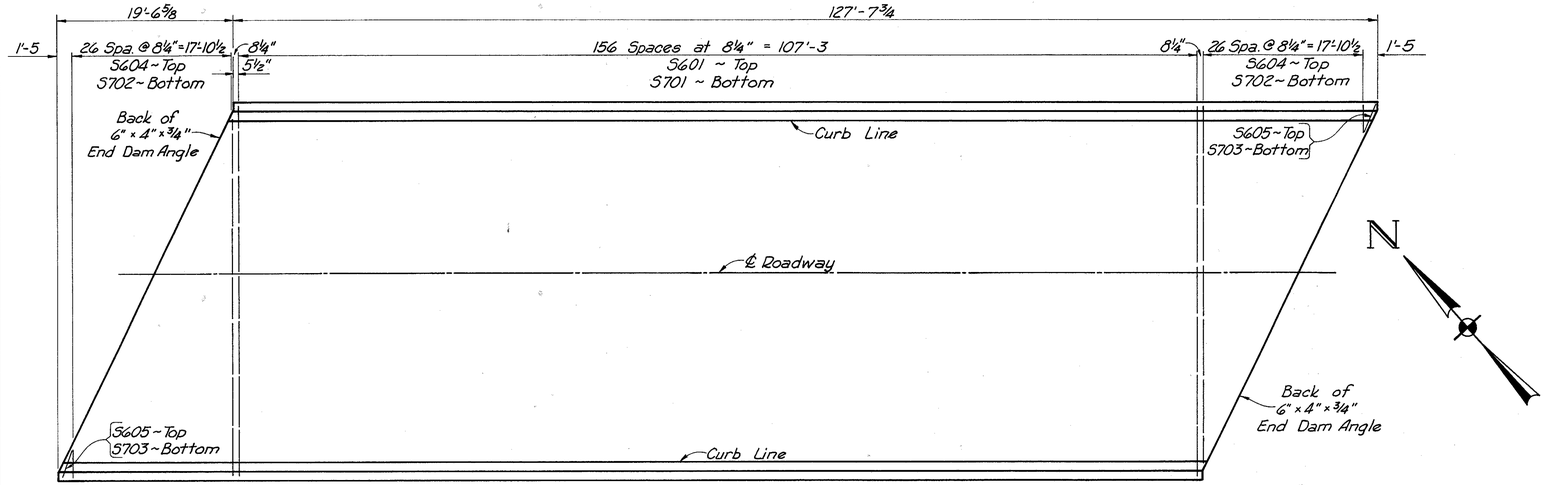
COLUMBIANA COUNTY Sta. 233 + 37.43 Sta. 234 + 68.43

W.D.A. RG RG DLM 5/20/66

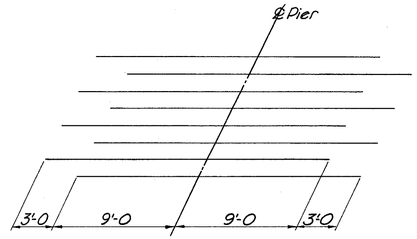
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

380

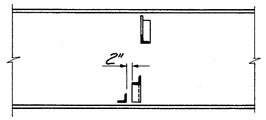
COL-11-10.22
COL-154-1.71



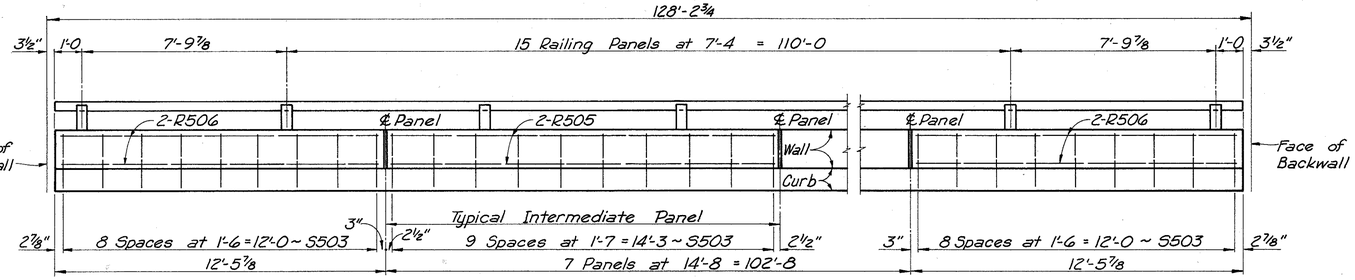
PLAN OF TRANSVERSE REINFORCING STEEL



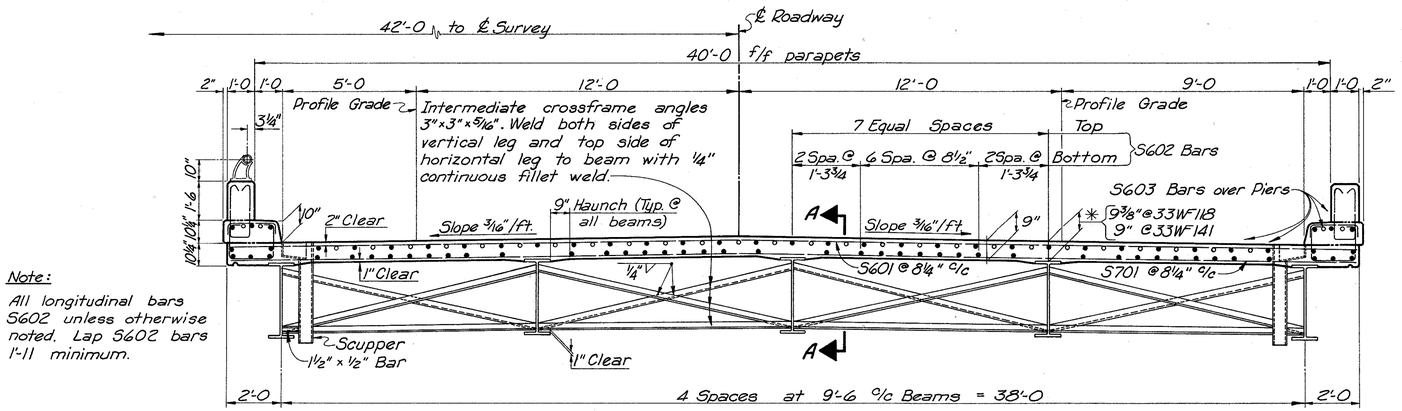
ALTERNATE STAGGER SYSTEM OF S603 BARS OVER PIERS



SECTION A-A

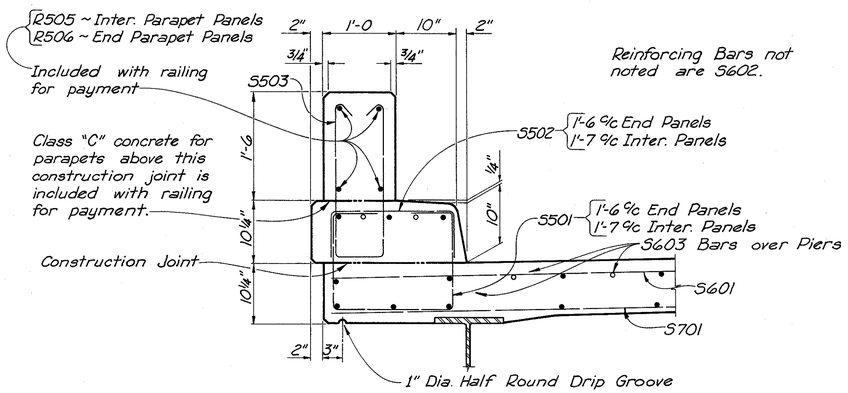


RAILING ELEVATION



TRANSVERSE SECTION

Note:
All longitudinal bars S602 unless otherwise noted. Lap S602 bars 1'-11 minimum.



CURB DETAILS

* Refer to Superstructure Notes, sheet 379

SUPERSTRUCTURE DETAILS
BRIDGE NO. COL-11-1439R
S.R. 11 OVER S.R. 154

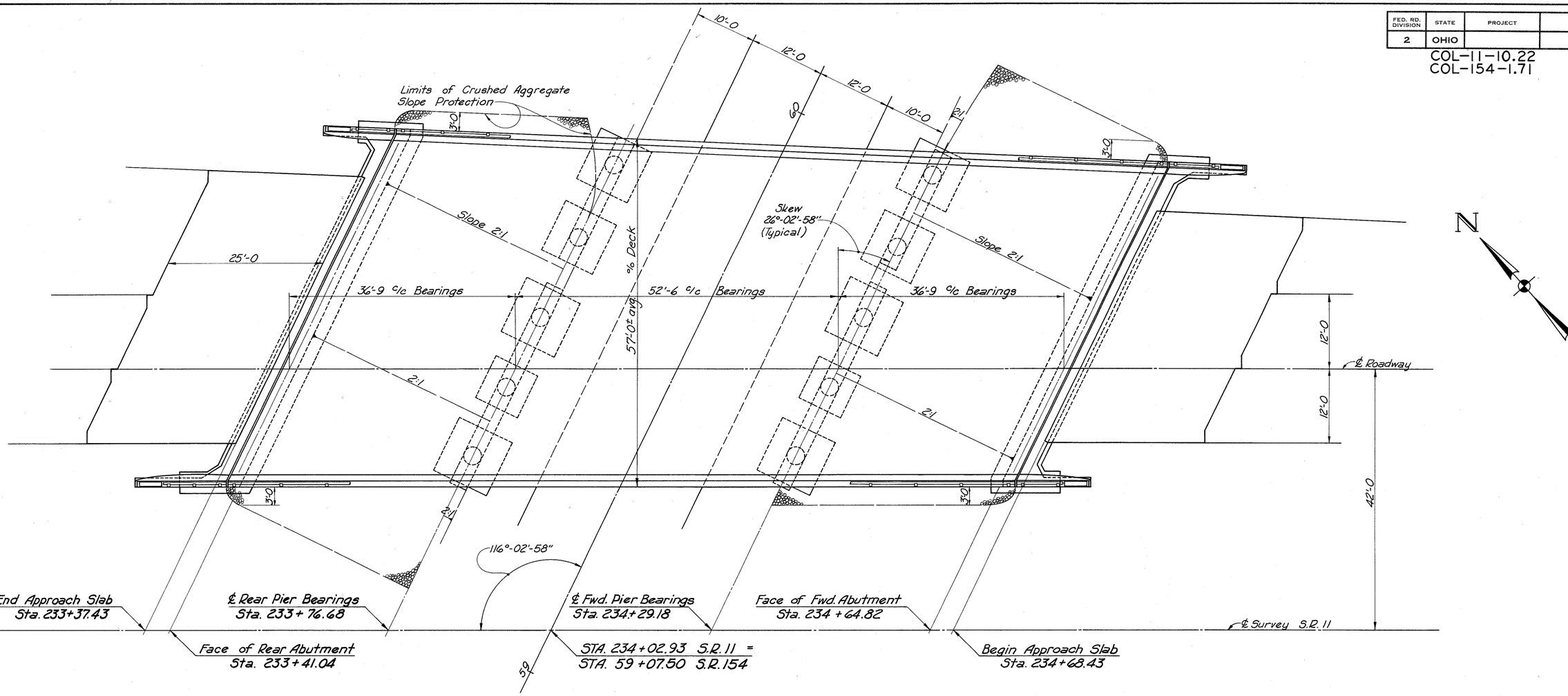
COLUMBIANA COUNTY Sta. 233 + 37.43
Sta. 234 + 68.43

W.D.A. RJ TJ DLM 5/20/66

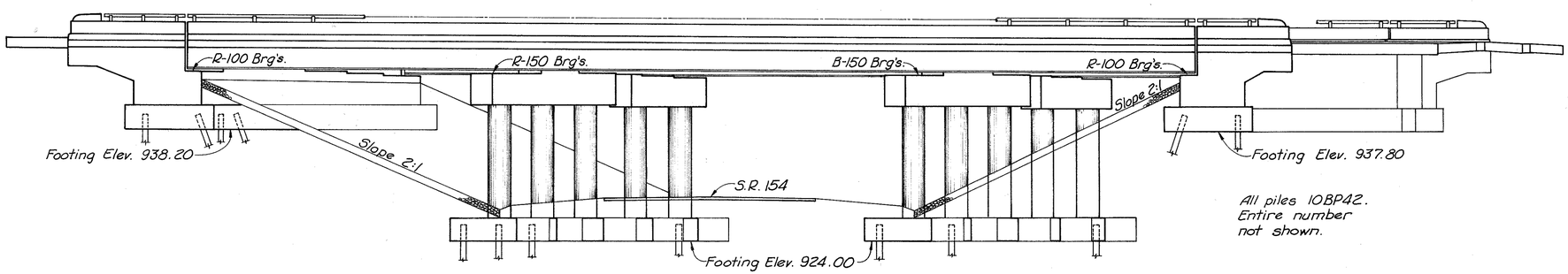
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

381

COL-11-10.22
COL-154-1.71



GENERAL PLAN



All piles 10BP42.
Entire number not shown.

ELEVATION

GENERAL PLAN AND ELEVATION

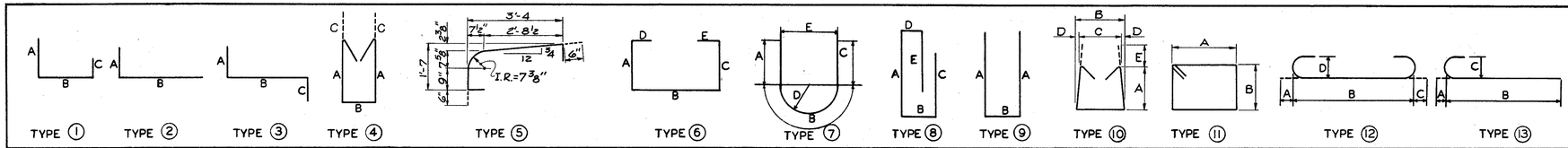
BRIDGE NO. COL-11-1439 L
S.R. 11 OVER S.R. 154
COLUMBIANA COUNTY Sta. 233+37.43 Sta. 234+68.43

W.D.A. RJ RJ DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

382

COL-11-10.22
COL-154-1.71



REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
C801	Str.						14	34'-9	1299
C802	Str.						6	11'-1	178
C803	9	8'-10	1'-2				2	18'-6	99
C804	9	8'-2	1'-2				3	17'-2	138
C805	Str.						2	10'-0	53
C806	Str.						4	10'-6	112
C807	9	8'-4	1'-2				3	17'-6	140
C808	9	7'-10	1'-2				1	16'-6	44
C601	1	7'-1	5'-5	2'-6			23	14'-8	507
C602	1	6'-11	5'-5	2'-6			7	14'-6	152
C603	1	6'-9	5'-5	2'-6			6	14'-4	129
C604	1	6'-7	5'-5	2'-6			7	14'-2	149
C605	8	6'-3	1'-5	4'-11	11"	3'-0	48	15'-10	1142
C606	9	6'-3	1'-5				13	13'-7	265
C501	9	1'-7	5'-5				43	8'-4	374
C502	9	1'-7	3'-5				43	6'-4	284
C503	2	7½"	7'-1				23	7'-7	182
C504	2	7½"	6'-11				7	7'-5	54
C505	2	7½"	6'-9				6	7'-3	45
C506	2	7½"	6'-7				7	7'-1	52
C507	Str.						15	33'-0	516
C508	Str.						15	29'-8	464
C509	2	7½"	3'-4				20	3'-10	80
C510	9	2'-1	1'-2				10	5'-1	53
C511	2	7½"	4'-6				4	5'-0	21
C512	2	7½"	5'-4				2	5'-10	12
C513	2	7½"	5'-10				6	6'-4	40
C514	Str.						1	5'-10	6
C515	Str.						8	14'-4	120
C516	12	7"	8'-0	7"	4"		4	9'-2	38
C517	11	3'-0	2'-6				11	11'-6	132
C518	4	2'-2	8"	5"			18	5'-7	105
C519	Str.						4	8'-3	34
C520	Str.						1	4'-1	4
C521	Str.						8	10'-10	90
C522	12	7"	5'-3	7"	4"		4	6'-5	27
C523	2	7½"	5'-8				2	6'-2	13
C524	2	7½"	5'-1				12	5'-7	70
C525	Str.						1	5'-4	6
C526	Str.						1	3'-7	4
C527	Str.						4	7'-6	31

FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
D801	Str.						14	31'-6	1177
D802	Str.						6	9'-8	155
D803	9	7'-10	1'-2				2	16'-6	88
D804	9	8'-5	1'-2				2	17'-8	94
D805	Str.						2	10'-3	55
D806	Str.						4	10'-10	116
D807	9	8'-8	1'-2				2	18'-2	97
D808	9	8'-7	1'-2				2	18'-0	96
D601	9	6'-3	1'-5				15	13'-7	306
D602	8	6'-3	1'-5	4'-11	11"	3'-0	41	15'-10	975
D603	1	6'-9	5'-5	2'-6			9	14'-4	194
D604	1	6'-11	5'-5	2'-6			18	14'-6	392
D605	1	7'-1	5'-5	2'-6			7	14'-8	154
D501	9	1'-7	5'-5				34	8'-4	296
D502	9	1'-7	3'-5				34	6'-4	225
D503	2	7½"	6'-9				9	7'-3	68
D504	2	7½"	6'-11				18	7'-5	139
D505	2	7½"	7'-1				7	7'-7	55
D506	Str.						30	30'-1	941
D507	12	7"	7'-10	7"	4"		4	9'-0	38
D508	Str.						8	12'-2	102
D509	9	2'-1	1'-2				10	5'-1	53
D510	2	7½"	3'-4				20	3'-10	80
D511	2	7½"	5'-8				4	6'-2	26
D512	2	7½"	5'-1				16	5'-7	93
D513	11	3'-0	2'-6				10	11'-6	120
D514	Str.						4	6'-10	29
D515	Str.						1	5'-5	6
D516	Str.						1	3'-8	4
D517	4	2'-2	8"	5"			18	5'-7	105
D518	Str.						8	11'-5	95
D519	12	7"	5'-3	7"	4"		4	6'-5	27
D520	2	7½"	5'-2				2	5'-8	12
D521	Str.						4	7'-10	33
D522	Str.						1	5'-8	6
D523	Str.						1	3'-11	4

RAILING

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
E501	Str.						4	14'-1	*
E502	Str.						4	10'-9	*
E503	5	See Detail					8	5'-4	*
E504	10	1'-6	8"	6½"	¾"	5"	12	4'-2	*
E505	Str.						56	14'-4	*
E506	Str.						8	12'-2	*
E507	Str.						8	10'-11	*

SPIRAL REINFORCING

MARK	CORE DIA.	PITCH	NO. TURNS	NO.	LENGTH	WEIGHT

NOTES

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
The "No." of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 509. 1 1/2 closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

* Include with railing for payment.

1/61
7/66

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE
BRIDGE NO. COL-11-1439 L
S.R. 11 OVER S.R. 154

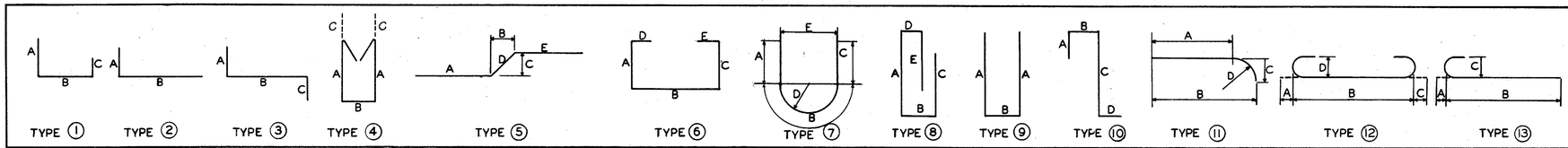
COLUMBIANA COUNTY STA. 233+37.43
" 234+68.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		RL	WDA	DLM	5/20/66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

383

COL-11 -10.22
COL-154 - 1.71



SUPERSTRUCTURE

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
T701	Str.						164	31'-5	10531
T702	Str.						41	29'-1	2437
T703	Str.						41	27'-11	2340
T704	Str.						41	26'-9	2242
T705	Str.						38	25'-7	1987
T706	Str.	Vary by 1'-5¼ increments					One Series of 18	3'-4¾ to 27'-10	574
T707	Str.	Vary by 1'-4⅞ increments					One Series of 16	8'-5⅞ to 29'-7	623
T708	Str.	Vary by 1'-4⅞ increments					One Series of 19	4'-7½ to 29'-11	671
T709	Str.	Vary by 1'-4⅞ increments					One Series of 17	4'-10 to 27'-4	559
T710	Str.						1	4'-7	9
T711	Str.						1	3'-6	7
T601	Str.						164	26'-7	6548
T602	Str.						436	33'-3	21774
T603	Str.						88	21'-0	2776
T604	Str.						41	33'-8	2073
T605	Str.						41	32'-6	2001
T606	Str.						41	31'-4	1930
T607	Str.						38	30'-2	1722
T608	Str.	Vary by 1'-5¼ increments					One Series of 18	3'-4¾ to 27'-10	422
T609	Str.	Vary by 1'-4⅞ increments					One Series of 15	5'-0¾ to 24'-9	336
T610	Str.	Vary by 1'-4⅞ increments					One Series of 19	4'-7½ to 29'-11	493
T611	Str.	Vary by 1'-4⅞ increments					One Series of 19	6'-7¼ to 31'-11	550
T612	Str.						1	4'-0	6
T613	Str.						1	3'-6	5
T501	6	1'-4	1'-6	1'-4	7½"	7½"	174	4'-11	892
T502	9	7½"	1'-6				174	2'-6	454
T503	4	2'-2	8"	5"			174	5'-7	1013

REPLACEMENT BARS

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
RA1001	Str.						1	7'-2	——
RA801	Str.						1	6'-6	——
RA701	Str.						2	6'-2	——
RA601	Str.						3	5'-11	——
RA501	Str.						1	5'-7	——
RA401	Str.						1	5'-3	——

PIERS

MARK	TYPE	A*	B	C	D	E	NO.	LENGTH	WEIGHT
F1001	2	1'-4½	5'-11				100	7'-0	3012
F1002	Str.						10	18'-2	782
F1003	Str.						20	18'-0	1549
F1004	Str.						10	17'-11	771
F1005	Str.						30	17'-9	2291
F1006	Str.						20	17'-7	1513
F1007	Str.						10	17'-5	749
F801	Str.						64	9'-2	1566
F802	Str.						64	8'-8	1481
F803	Str.						32	7'-2	612
F804	Str.						14	35'-8	1333
F701	Str.						6	21'-8	266
F702	Str.						6	20'-2	247
F601	Str.						10	35'-8	536
F602	Str.						6	21'-8	195
F603	Str.						6	20'-2	182
F501	9	3'-0	2'-8				116	8'-5	1018
F502	Str.						4	35'-8	149
F503	Str.						2	21'-8	45
F504	Str.						2	20'-2	42

SPIRAL REINFORCING

MARK	CORE DIA.	PITCH	NO. TURNS	NO.	LENGTH	WEIGHT
AP 401	32"	4½"	41	3	14'-2⅛	797
AP 402	32"	4½"	40	2	13'-8¾	516
AP 403	32"	4½"	39	2	13'-7⅛	511
AP 404	32"	4½"	40	3	13'-10⅛	783

NOTES

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
The "No." of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 509. 1 1/2 closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

* Include with railing for payment.

1/7/66

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

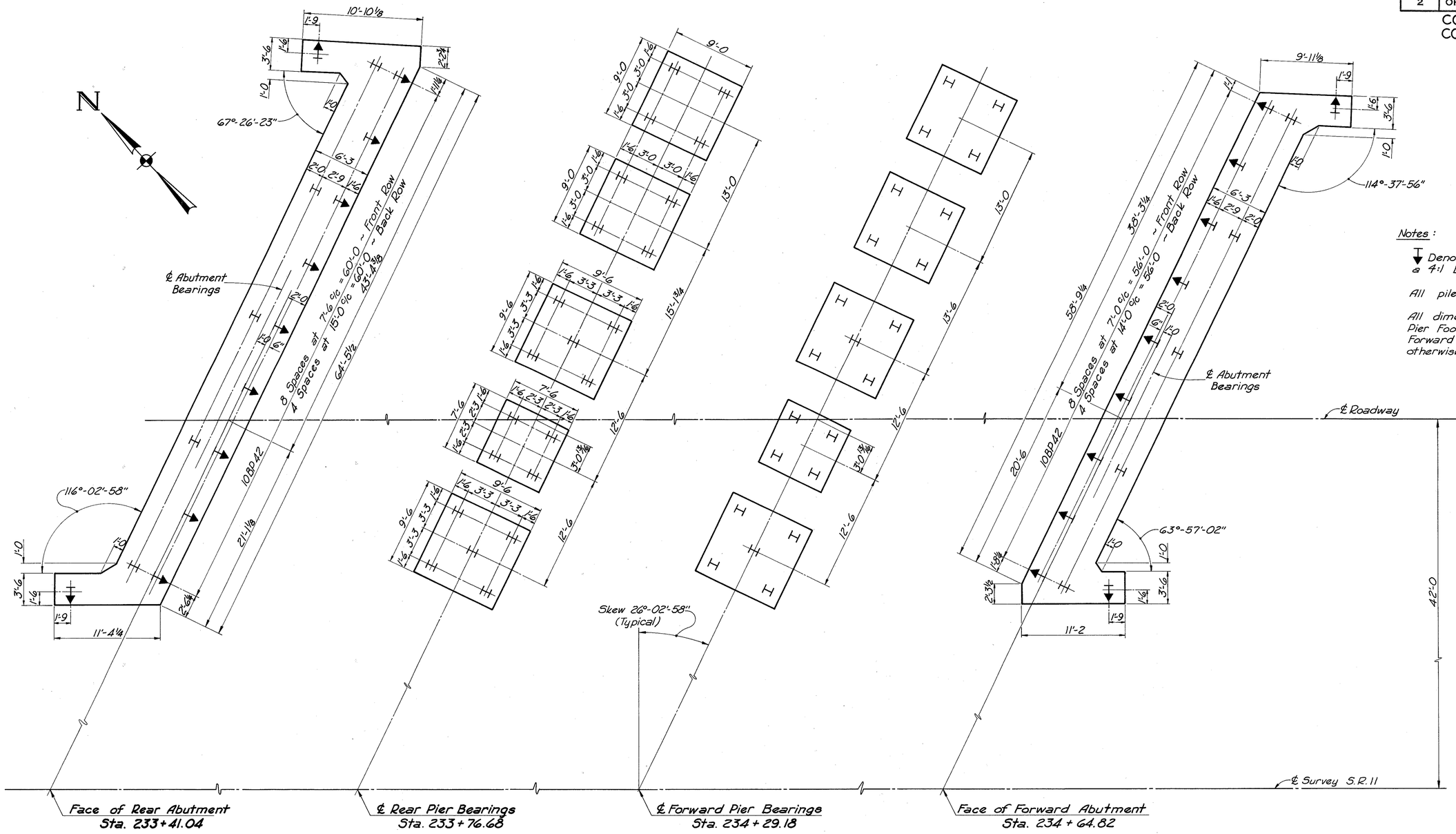
REINFORCING BAR SCHEDULE
BRIDGE NO. COL-11-1439 L
S.R. 11 OVER S.R. 154
COLUMBIANA COUNTY STA. 233 + 37.43
" 234 + 68.43

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		R	WDA	DLM	5/20/66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

COL-11-10.22
COL-154-1.71

384



Notes :

▼ Denotes the direction of a 4:1 battered pile.

All piles are 10BP42.

All dimensions shown for Rear Pier Footings are typical for Forward Pier Footings unless otherwise noted.

FOOTING PLAN AND PILE LAYOUT

FOOTING PLAN & PILE LAYOUT
BRIDGE NO. COL-11-1439 L
S.R. 11 OVER S.R. 154

COLUMBIANA COUNTY Sta. 233+37.43
Sta. 234+68.43

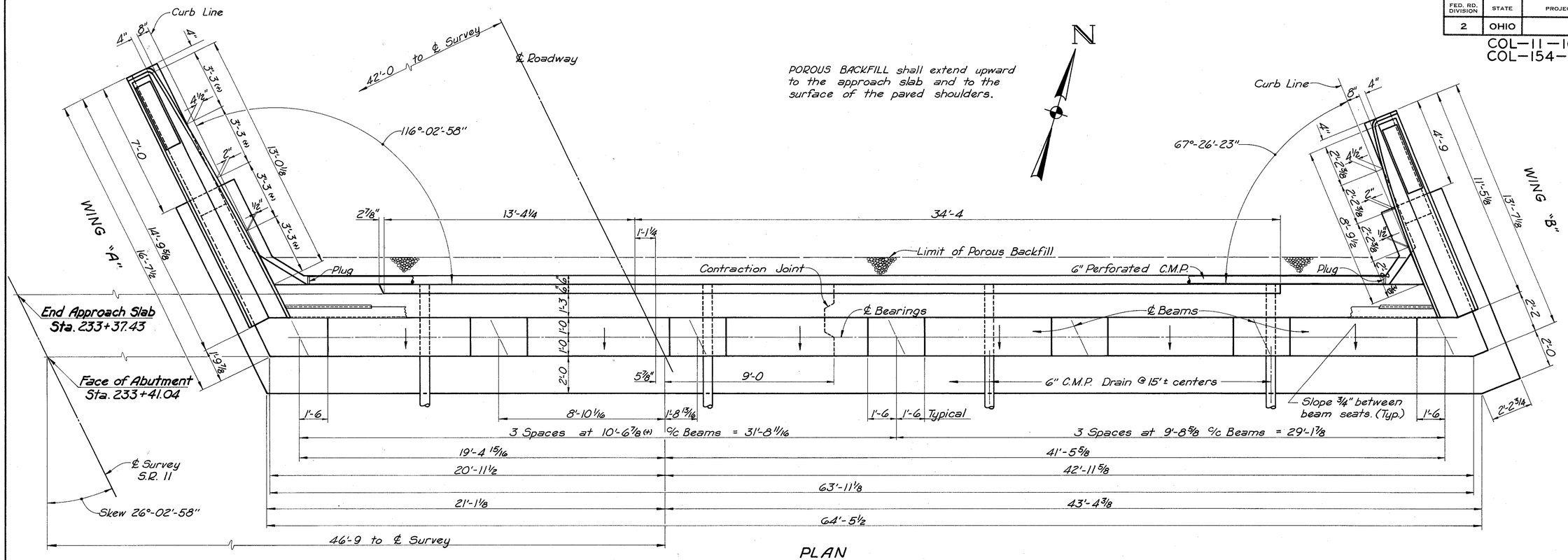
W.D.A. RJ RJ DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

385

COL-11-10.22
COL-154-1.71

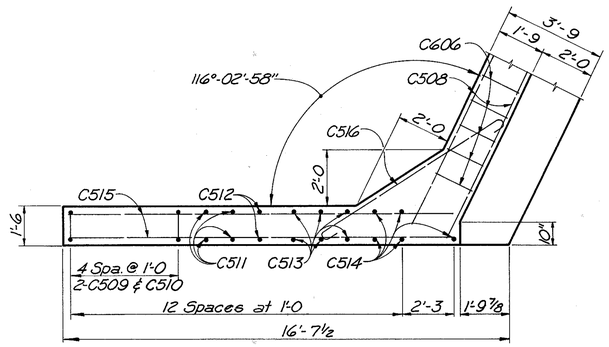
POROUS BACKFILL shall extend upward to the approach slab and to the surface of the paved shoulders.


Curb Line
4"
8"
4"
42'-0 to ℄ Survey
℄ Roadway
116°-02'-58"
WING "A"
3'-3 (4)
4½"
2"
1½"
13'-0⅛
7'-0
14'-9⅝
16'-7½
1'-9⅞
End Approach Slab
Sta. 233+37.43
Face of Abutment
Sta. 233+41.04
℄ Survey
S.R. 11
Skew 26°-02'-58"
46'-9 to ℄ Survey
2⅞"
13'-4¼
1'-1¼
34'-4
Plug
Contraction Joint
Limit of Porous Backfill
6" Perforated C.M.P.
Plug
1'-6
1'-3
1'-0
1'-0
2'-0
5⅞"
9'-0
℄ Bearings
℄ Beams
6" C.M.P. Drain @ 15' ± centers
1'-6
8'-10⅛16
1'-8 13/16
1'-6
1'-6 Typical
Slope ¾" between beam seats. (Typ.)
1'-6
2'-2¾
3 Spaces at 10'-6⅞ (±) ℄c Beams = 31'-8 11/16
3 Spaces at 9'-8⅝ ℄c Beams = 29'-1⅞
19'-4 15/16
41'-5⅝
20'-11½
42'-11⅝
63'-11⅛
21'-1⅛
43'-4⅜
64'-5½
Curb Line
8"
4"
4"
67°-26'-23"
WING "B"
4'-9
11'-5⅛
13'-7⅛
2'-2⅜
2'-2⅜
2'-2⅜
2'-2⅜
2'-2⅜
8'-9½
2'-0
1'-0
2"
1½"
1½"
2"
1½"
1½"
2"
1½"
1½"

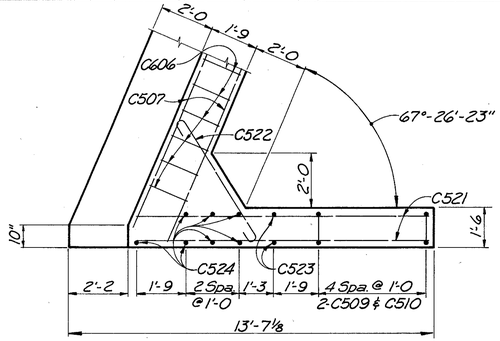
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

386

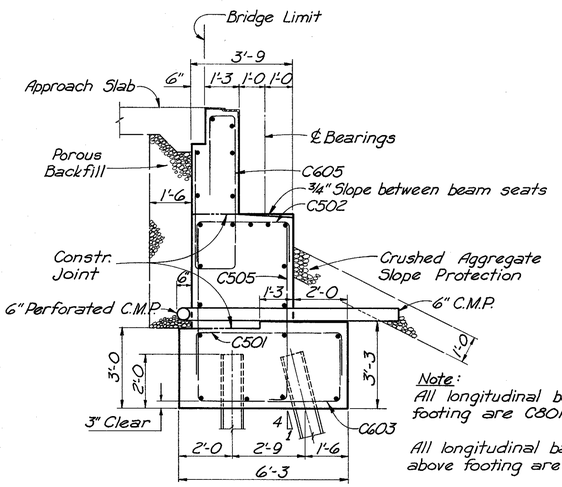
COL-11-10.22
COL-154-1.71



SECTION B-B



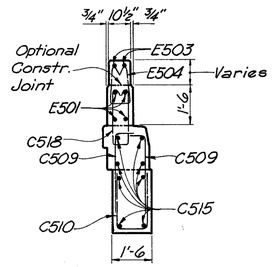
SECTION F-F



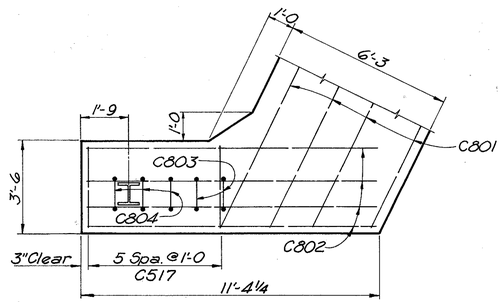
Note:
All longitudinal bars in footing are C801.

All longitudinal bars above footing are C507.

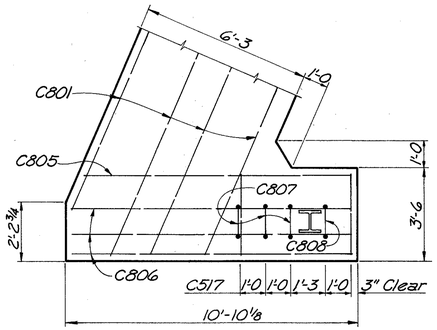
SECTION A-A



SECTION E-E

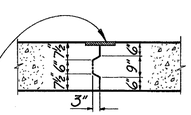


SECTION C-C

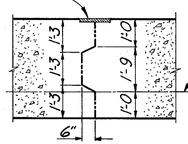


SECTION G-G

12" x 1/2" Premolded Sealing Strip in 13" x 3/4" recess from top of footing to bottom of approach slab seat.

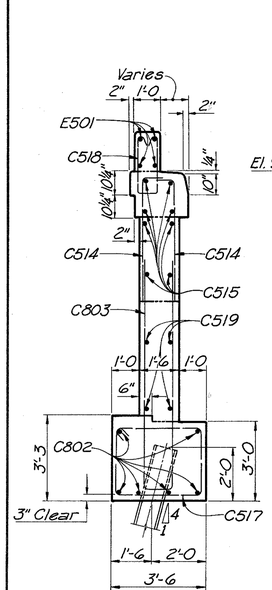


Section Thru Backwall

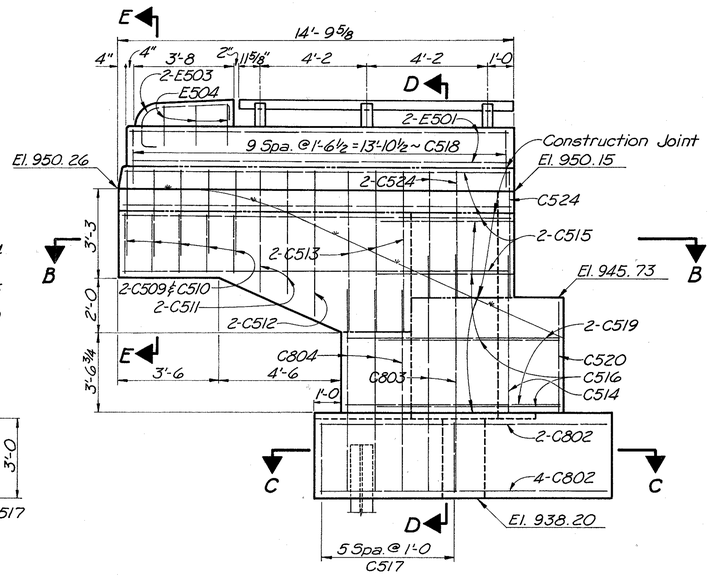


Section Thru Bridge Seat

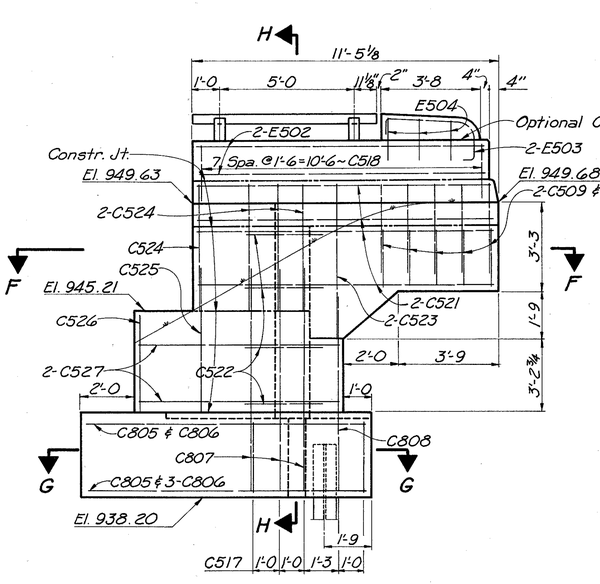
CONTRACTION JOINT DETAILS



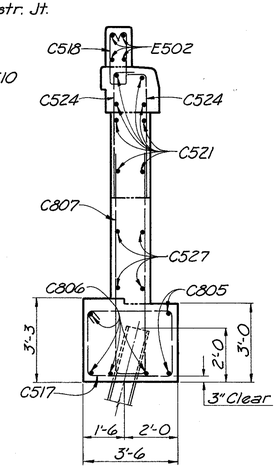
SECTION D-D



ELEVATION OF WING "A"



ELEVATION OF WING "B"



SECTION H-H

REAR ABUTMENT DETAILS
BRIDGE NO. COL-11-1439 L
S.R. 11 over S.R. 154

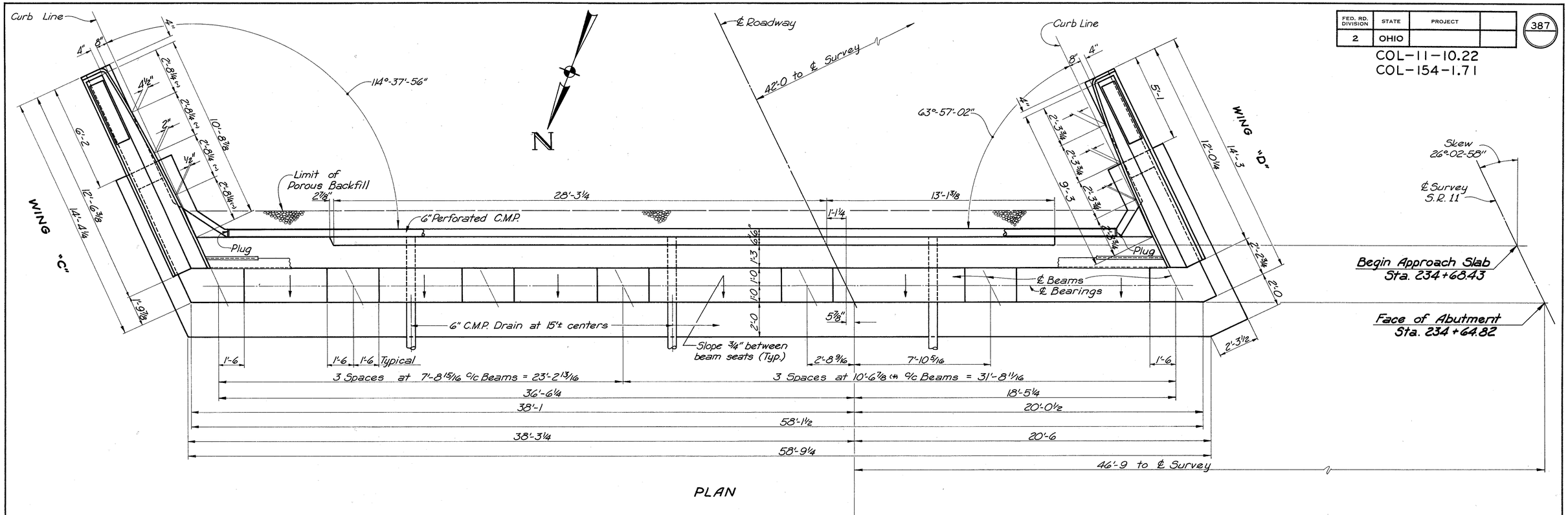
COLUMBIANA COUNTY Sta. 233 + 37.43
Sta. 234 + 68.43

W.D.A. RJ RJ DLM 5/20/66

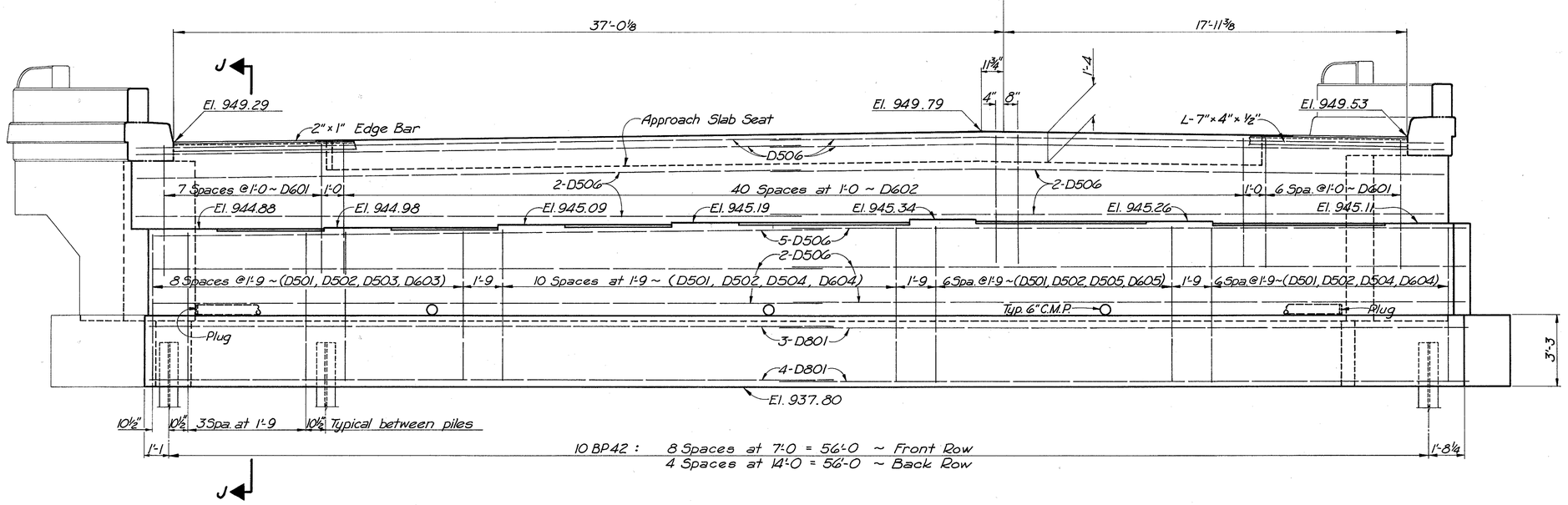
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

387

COL-11-10.22
COL-154-1.71



PLAN



ELEVATION

Note: For additional details see sheets 388.

FORWARD ABUTMENT DETAILS
BRIDGE NO. COL-11-1439 L

S.R. 11 OVER S.R. 154

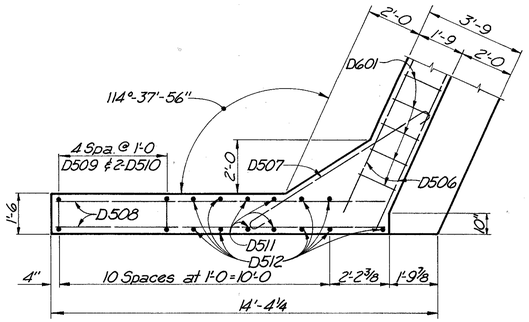
COLUMBIANA COUNTY Sta. 233+37.43 Sta. 234+68.43

W.D.A. RG RG DLM 5/20/66

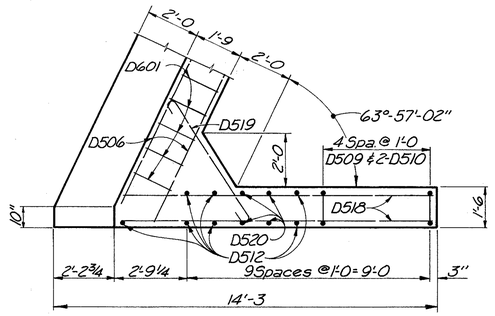
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

388

COL-11-10.22
COL-154-1.71



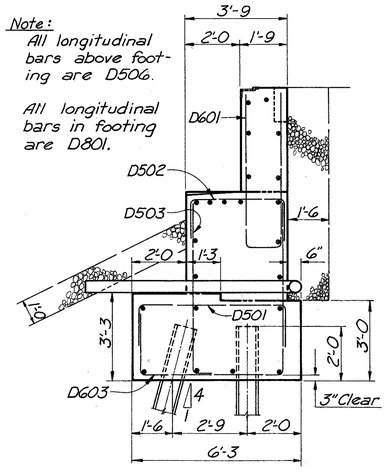
SECTION K-K



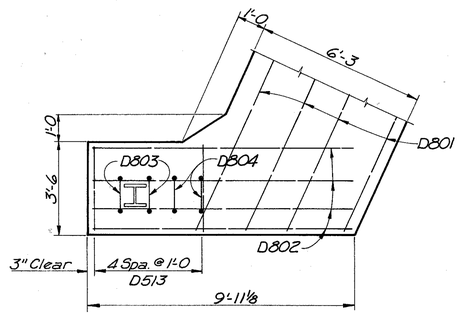
SECTION N-N

Note:
All longitudinal bars above footing are D506.

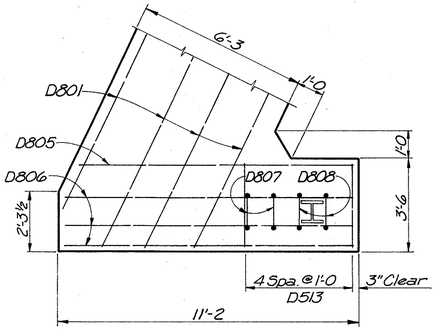
All longitudinal bars in footing are D801.



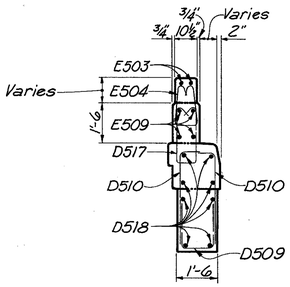
SECTION J-J



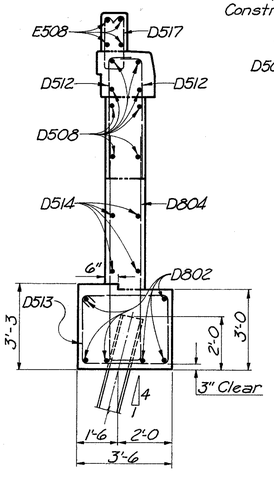
SECTION M-M



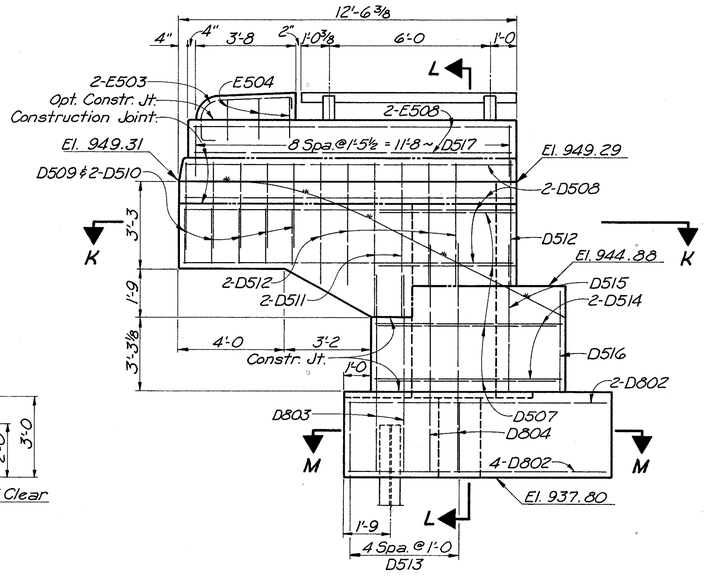
SECTION P-P



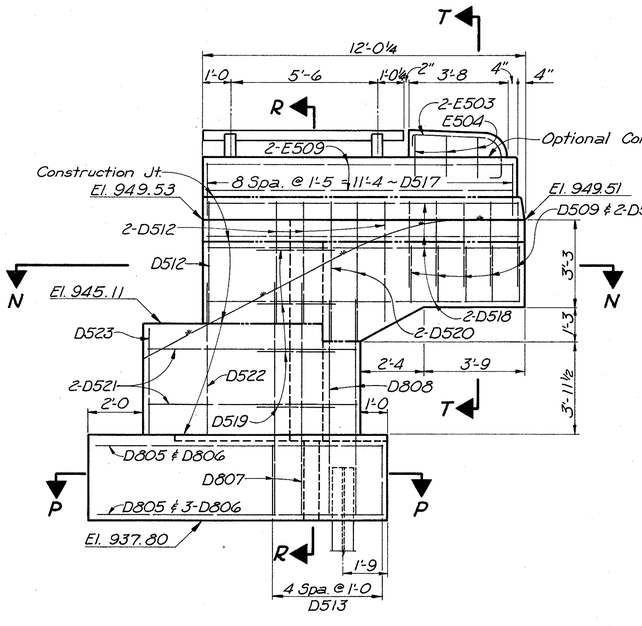
SECTION T-T



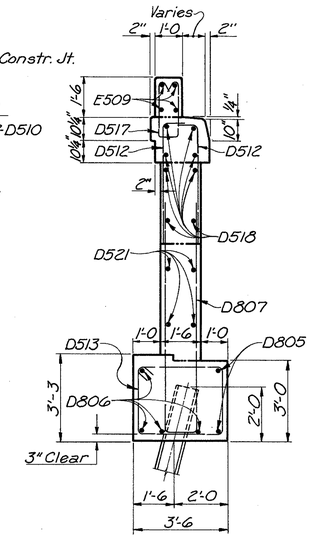
SECTION L-L



SECTION L-L ELEVATION OF WING "C"



ELEVATION OF WING "D"



SECTION R-R

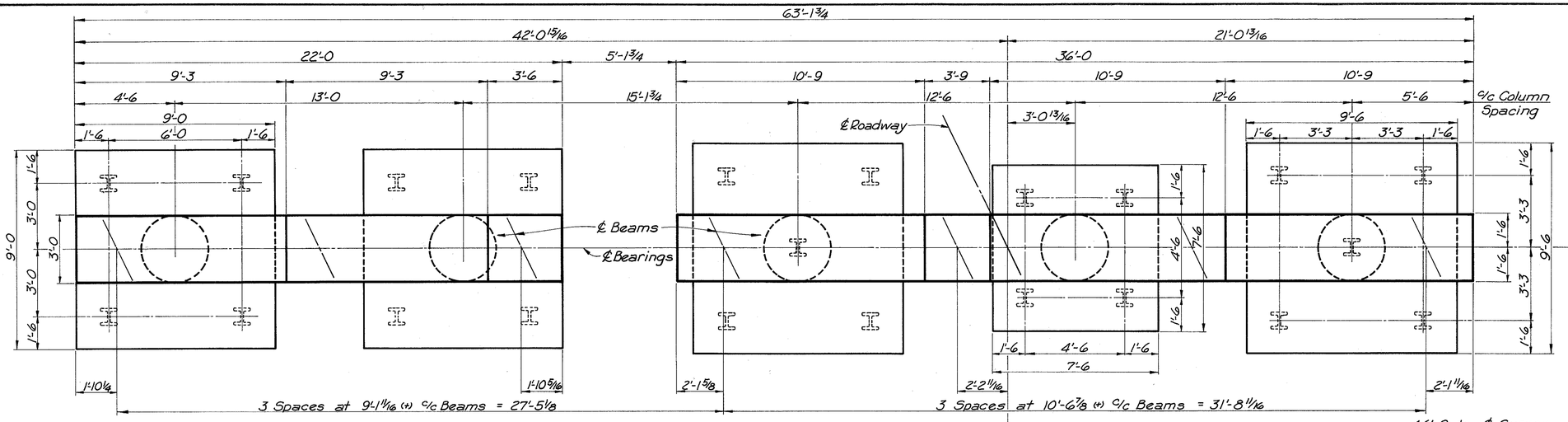
FORWARD ABUTMENT DETAILS
BRIDGE NO. COL-11-1439 L
S.R. 11 OVER S.R. 154
COLUMBIANA COUNTY
Sta. 233+37.43
Sta. 234+68.43

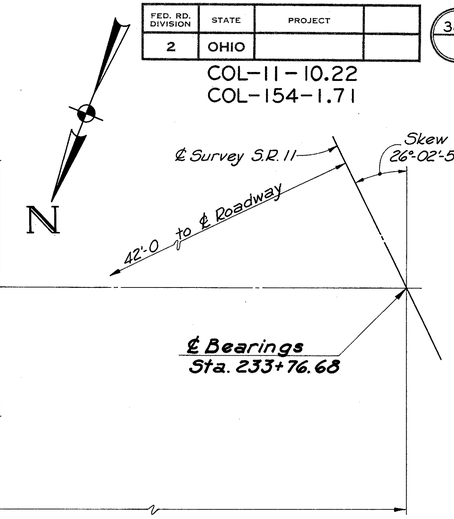
W.D.A. RG RG DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

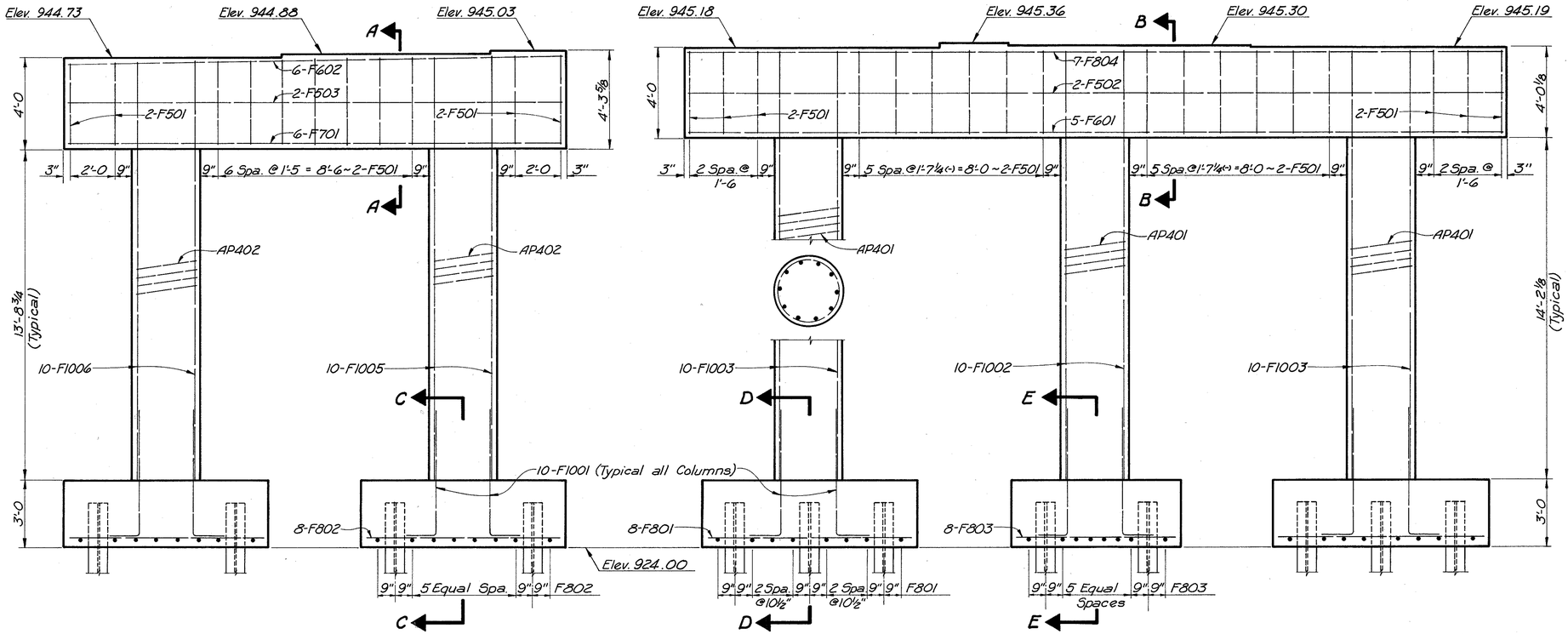
389

COL-11-10.22
COL-154-1.71

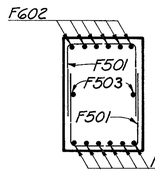




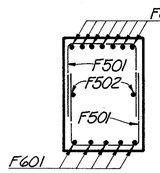
PLAN



ELEVATION

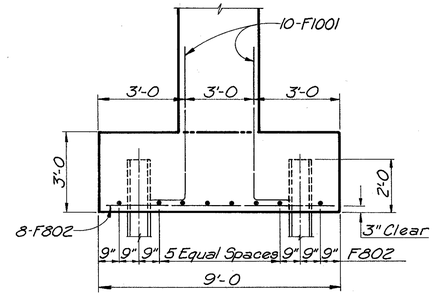


SECTION A-A



SECTION B-B

Note:
Turn F1001 bars to miss piles where pile occurs.



SECTION C-C

Note:
For additional details see sheet 390.

REAR PIER DETAILS
BRIDGE NO. COL-11-1439 L

S.R. 11 over S.R. 154

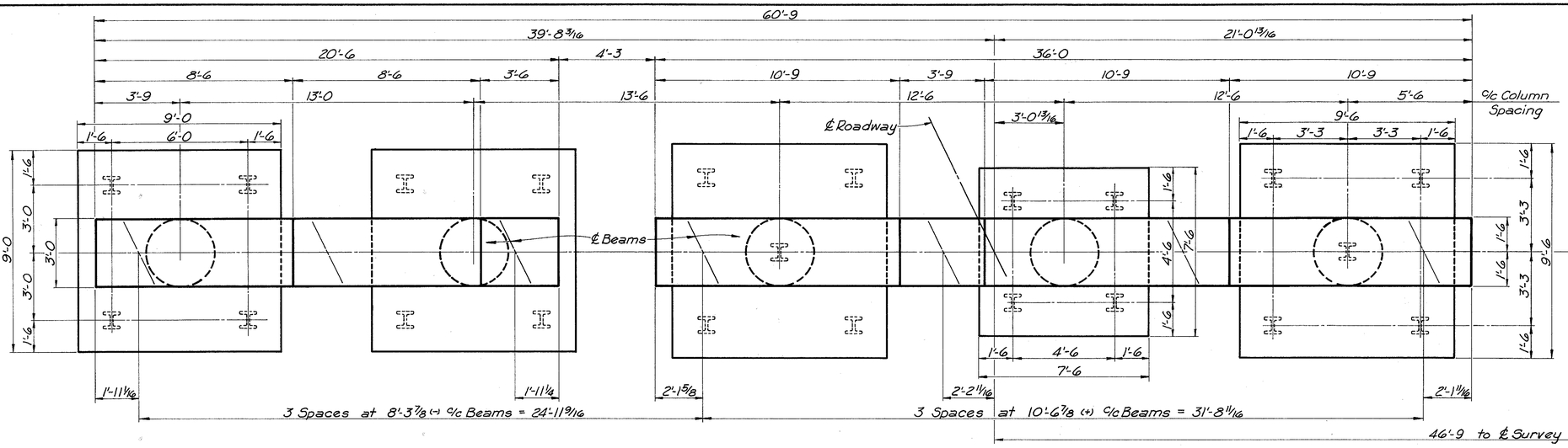
COLUMBIANA COUNTY Sta. 233+37.43 Sta. 234+68.43

W.D.A. TG TG DLM 5/20/66

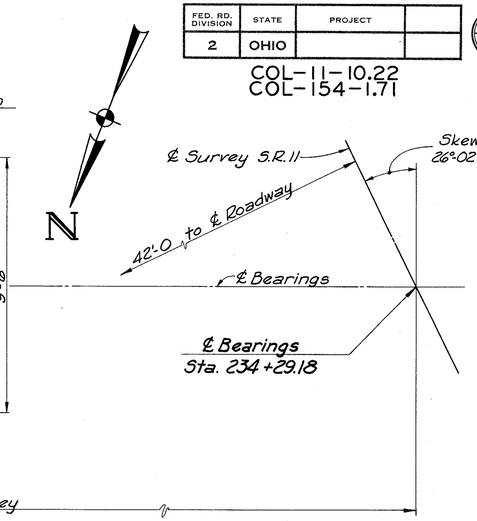
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

390

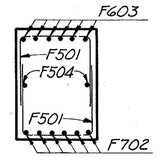
COL-11-10.22
COL-154-1.71



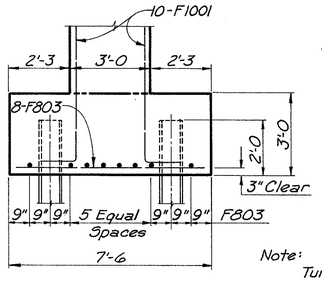
PLAN



Note:
Special care shall be taken in placing the reinforcing steel in the pier cap so as to not interfere with the bearing anchor bolts.

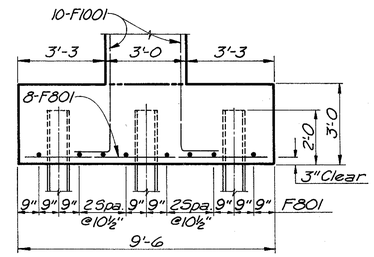


SECTION F-F

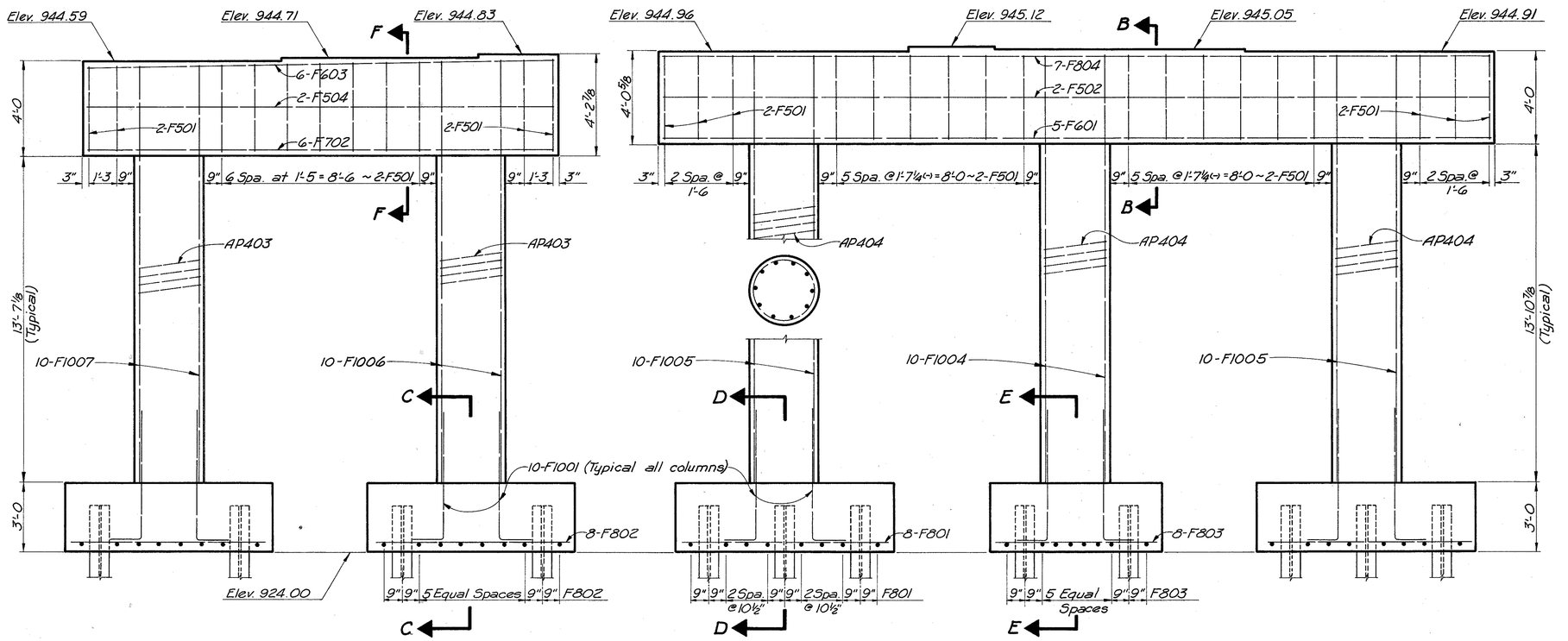


SECTION E-E

Note:
Turn F1001 bars to miss piles where pile occurs.



SECTION D-D



ELEVATION

Note:
For additional details see sheet 389 .

FORWARD PIER DETAILS
BRIDGE NO. COL-11-1439 L

S.R. 11 OVER S.R. 154

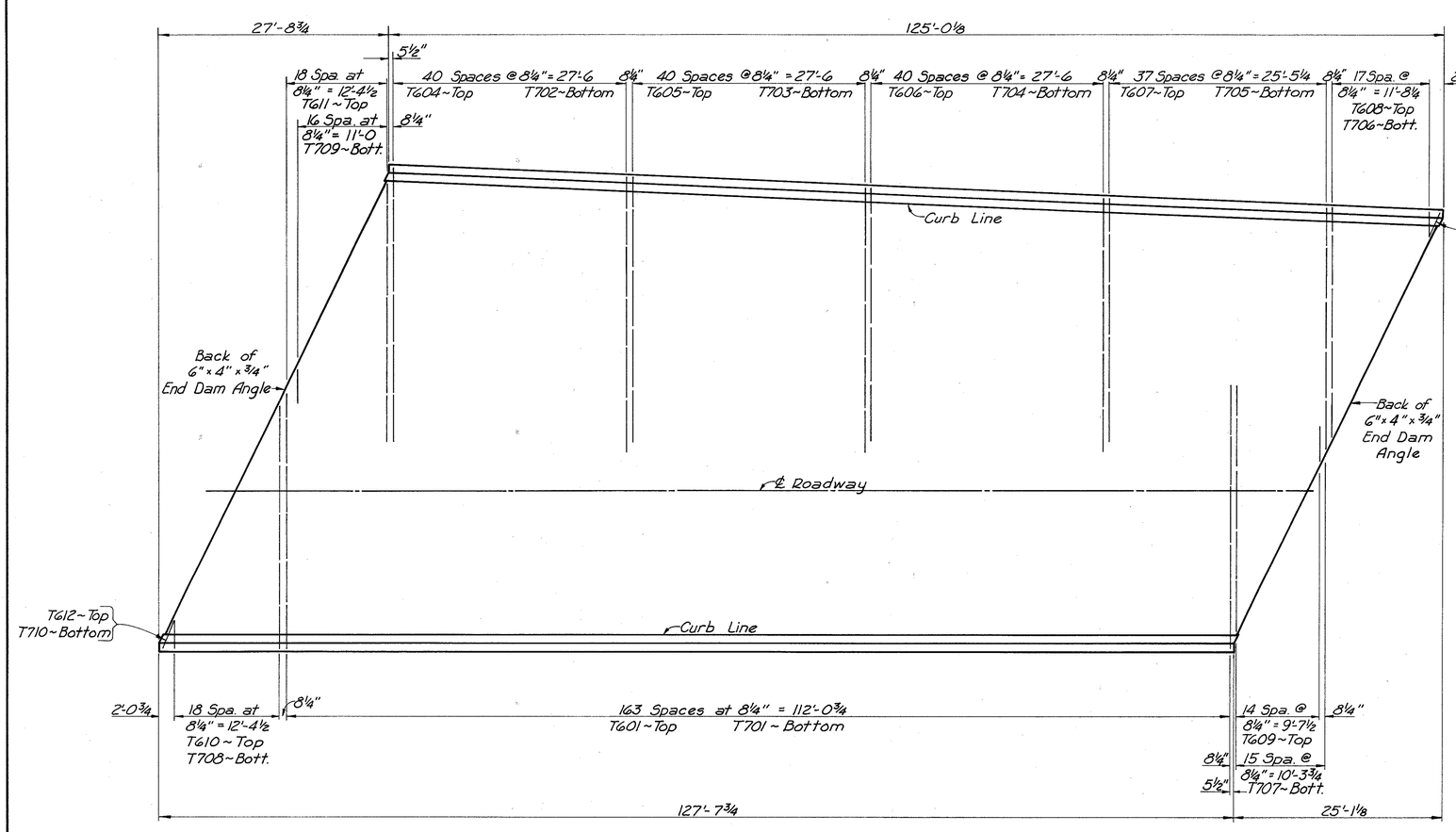
COLUMBIANA COUNTY Sta. 233+37.43 Sta. 234+68.43

W.D.A. RJ RJ DLM 5/20/66

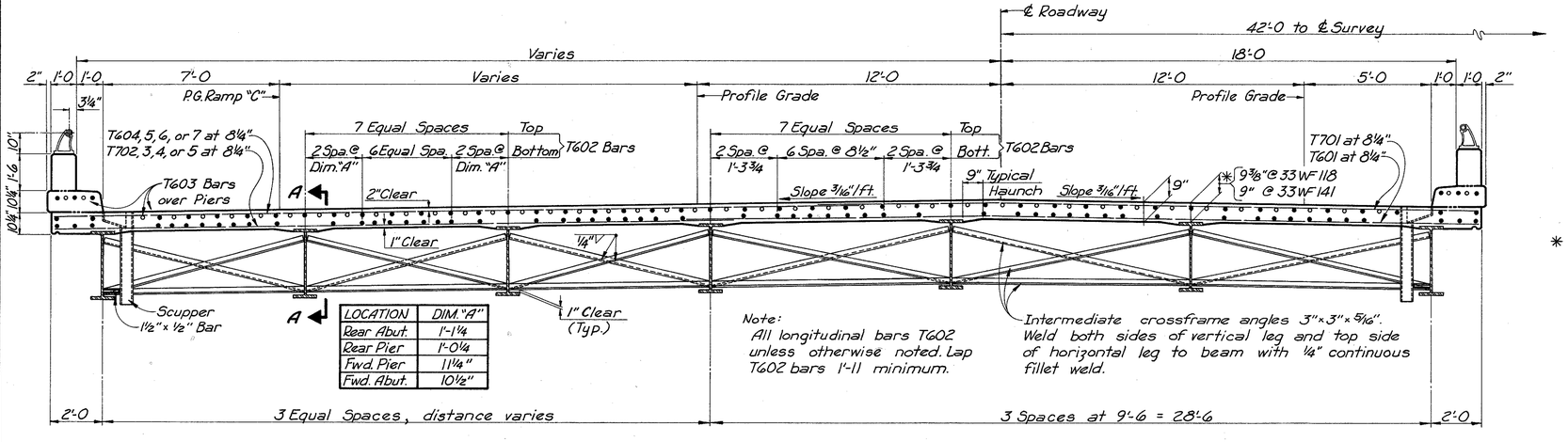
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

391

COL-11-10.22
COL-154-1.71



PLAN OF TRANSVERSE REINFORCING STEEL

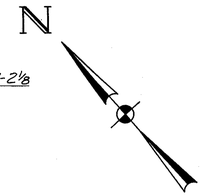


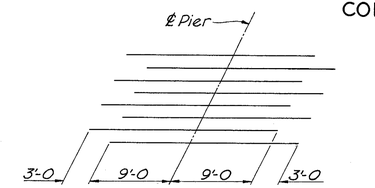
LOCATION	DIM. "A"
Rear Abut.	1'-1¼
Rear Pier	1'-0¼
Fwd. Pier	11¼"
Fwd. Abut.	10½"

Note:
All longitudinal bars T602 unless otherwise noted. Lap T602 bars 1'-11 minimum.

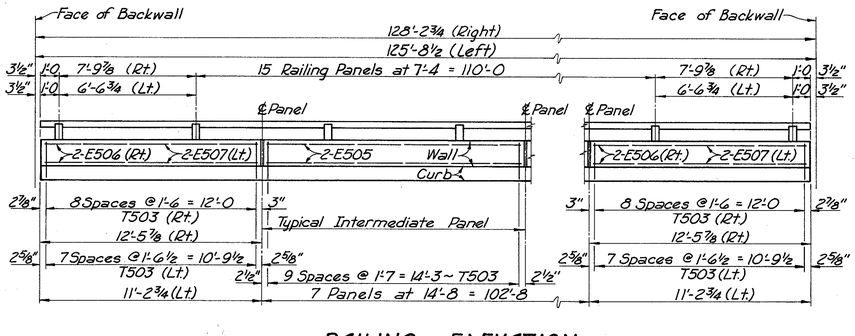
Intermediate crossframe angles 3"x3"x5/16". Weld both sides of vertical leg and top side of horizontal leg to beam with ¼" continuous fillet weld.

TRANSVERSE SECTION

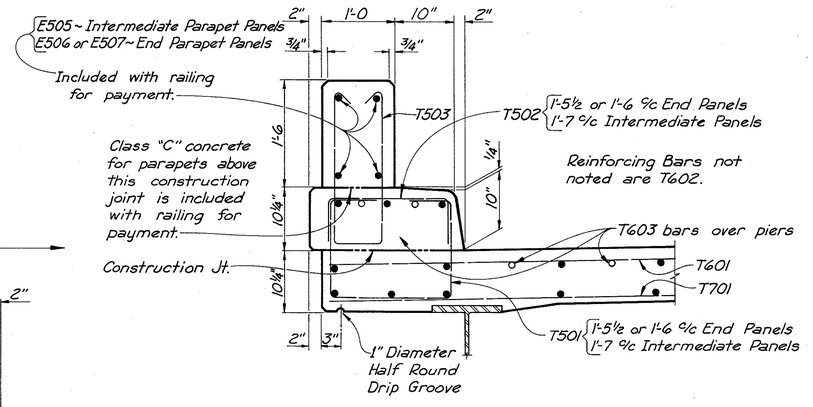




ALTERNATE STAGGER SYSTEM OF T603 BARS OVER PIERS

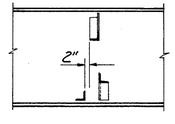


RAILING ELEVATION



CURB DETAILS

* Refer to Superstructure Notes, sheet 379



SECTION A-A

SUPERSTRUCTURE DETAILS
BRIDGE NO. COL-11-1439 L
S.R. 11 OVER S.R. 154

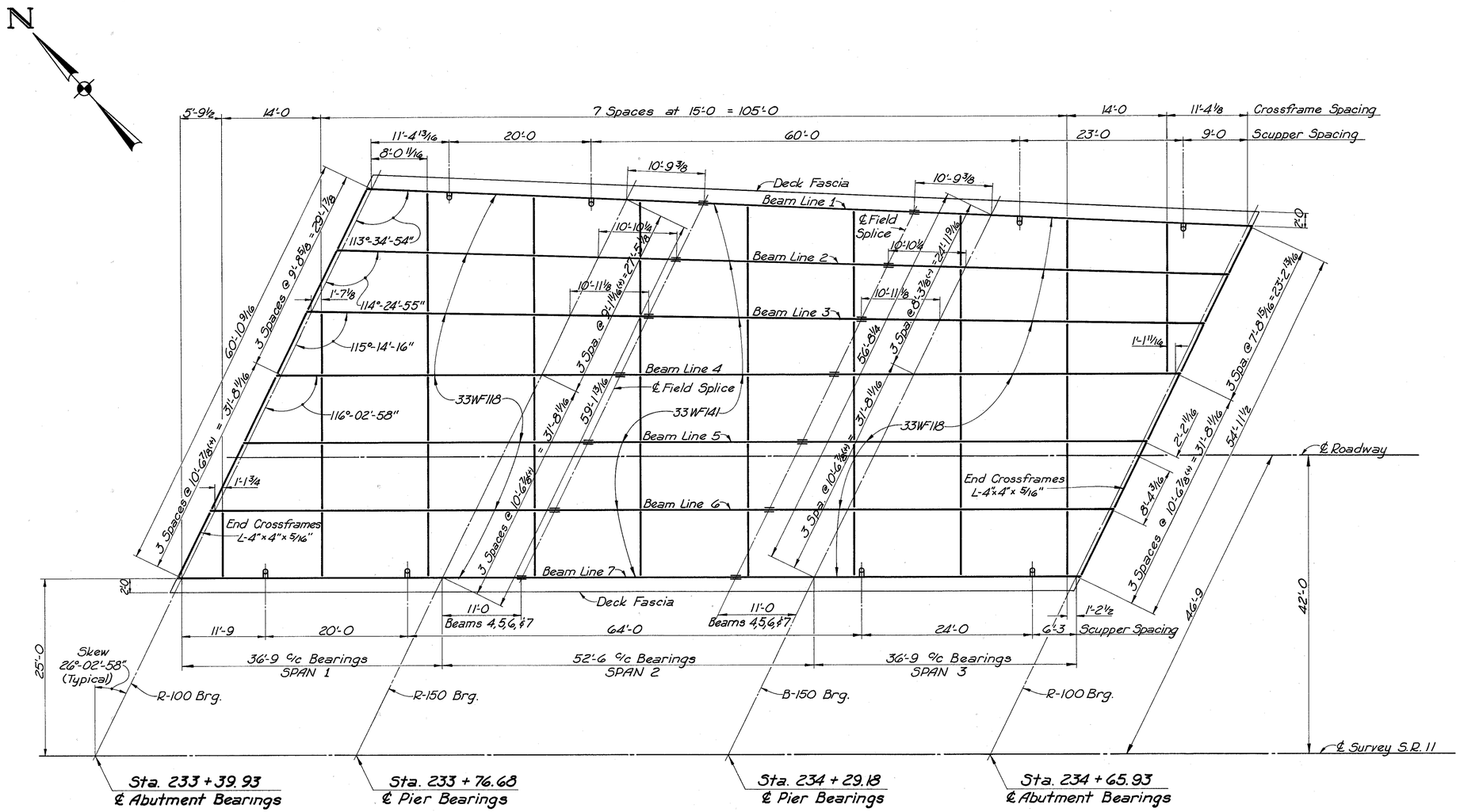
COLUMBIANA COUNTY Sta. 233+37.43 Sta. 234+68.43

W.D.A. TG TG DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

392

COL-11-10.22
COL-154-1.71



STEEL FRAMING PLAN

Note:
For additional details refer to sheets 379, 391.

SUPERSTRUCTURE DETAILS
BRIDGE NO. COL-11-1439 L
S.R. 11 OVER S.R. 154
COLUMBIANA COUNTY
Sta. 233+37.43
Sta. 234+68.43

W.D.A. RJ RJ DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

393

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71
1.70± Miles South East of Lisbon

N

Middle Fork Little Beaver Creek

Toe of Slope at ledge

Sta. 240+28.80

End Approach Slab
Sta. 240 + 25.74

Sta. 240+21.44

℄ Survey Ramp "D" 240

Sta. 240+15.77

92°-53'-00"

241+80
=50+00

78°-18'-00"

Skew
5°-00'
(Typ.)

Dumped Rock Channel Protection behind pier to Elev. 900.00

Elev. 952.0

Sta. 242+97.54

Sta. 242+94.56

Begin Approach Slab
Sta. 242 + 90.26

℄ Survey S.R. 11

Sta. 242+84.47

Edge of Ramp Pavement

Slope Varies

Flat

Varies

Bridge Limits 264.52'

+2.30%

Footing Elev.
Lt. 943.6
Rt. 942.8

Top of Slope Elev.
Lt.~ 951.3
Rt.~ 950.5 to 951.3

2:1 Normal

Top of Slope Elev.
Lt.~ 957.2
Rt.~ 956.7

Pedestals to Rock
Elev. 947.00

Clears 25 Yr. High Water by 50'±

25 Yr. High Water
Elev. 907.0 ±

Normal Water
Elev. 899.0

Toe of Slope at ledge

Elev. 892.00

Excavate Channel to Elev. 897.0±

B.M.: Mine Spike in power pole, Ohio Power Co. No. 34/38 south side S.R.154. Elev. 930.01.

S.R. 11 1982 A.D.T. = 10,400

PROPOSED STRUCTURE

TYPE: Continuous welded plate girders with reinforced concrete deck and substructure.
SPANS: 80'-100'-80'
ROADWAY: Lt.~30'-0 f/f 2'-0 safety curbs and Rt.~Varies from 59'-0± to 64'-0± f/f 2'-0 safety curbs.
LOAD FREQUENCY: CF-2000 (57)
SKEW: 5°-00' L.F.
WEARING SURFACE: 1" monolithic
APPROACH SLABS: AS-1-54 modified, 25' long.
ALIGNMENT: Tangent

Drainage Area: 118 Sq. Miles

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS · NEW PHILADELPHIA, OHIO

SITE PLAN

BRIDGE NO. COL-11-1424 L. & R.
S.R. 11 over MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY
Sta. 240 + 25.74
Sta. 242 + 90.26

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
H&O	T.A.P.	W.D.A	W.D.A	D.L.M	11/5/64

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

394

COL-11-10.22
COL-154-1.71

GENERAL NOTES

REFERENCE shall be made to Standard Drawings SD-1-65 & Sheets — dated 11-8-65, RB-1-55, revised 2-2-59, AS-1-54, revised 8-10-65, and to Supplemental Specifications 808, dated 1-13-67, 811, dated 1-1-67, 825, dated 1-1-67, and 828, dated 1-1-67.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures of the State of Ohio, Department of Highways, dated 9-1-57", together with current revisions thereof.

PROCEDURE: The approach embankment at the Rear Abutment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a minimum distance of 200 feet back of the abutment. The embankment shall be in place a minimum period of 90 days before excavation may begin for the Rear Abutment and Rear Pier.

After the pedestals have been constructed at the Forward Abutment, earth fill shall be placed and compacted up to the height of the finished spill-thru slope and to the level of the subgrade, after which excavation shall be made for the crossbeam.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the Rear Pier and Rear Abutment.

MACHINE FINISH: The concrete bridge deck of the left structure shall be finished by the use of a finishing machine. At the contractor's option, the bridge deck of the right structure may be finished by a finishing machine.

FOOTINGS: Pier footings and Pedestal footings at the Forward Abutment shall extend a minimum of 3" into undisturbed rock or to the elevation shown, whichever is lower.

FOUNDATION BEARING PRESSURE: Footings are designed for a maximum bearing pressure of 2 tons per sq. ft. at the Rear Abutment; 7 tons per sq. ft. at the Piers; and 5 tons per sq. ft. at the Forward Abutment.

DESIGN INFORMATION:

Design Loading _____ CF 2000 (57)
Concrete Class "C" _____ Basic unit stress, 1333 p.s.i.
Concrete Class "E" _____ Basic unit stress, 1133 p.s.i.
Structural Steel _____ ASTM A36 --- Basic unit stress, 20,000 p.s.i.
Reinforcing Steel _____ ASTM A16, A15, A160 Deformed - Intermediate or Hard Grade. Basic unit stress, 20,000 p.s.i.

WELDS on secondary stress carrying members are shown thus: 

LEFT STRUCTURE DECK SLAB ELEVATIONS

STATION	PROFILE GRADE	CURB ELEVATION *	
		Lt.	Rt.
240 + 30.36	958.50	———	958.45
240 + 32.99	958.56	958.51	———
240 + 50	958.95	958.94	958.94
240 + 75	959.53	959.52	959.52
241 + 00	960.10	960.07	960.06
241 + 10.36	960.34	———	960.29
241 + 12.99	960.40	960.35	———
241 + 25	960.68	960.65	960.65
241 + 50	961.25	961.25	961.25
241 + 75	961.83	961.82	961.82
242 + 00	962.40	962.37	962.37
242 + 10.36	962.64	———	962.59
242 + 12.99	962.70	962.65	———
242 + 25	962.98	962.94	962.94
242 + 50	963.55	963.55	963.55
242 + 75	964.13	964.12	964.11
242 + 90.36	964.48	———	964.43
242 + 92.99	964.54	964.49	———

Note:

* Elevations shown are at the intersection of face of curb and ℄ bearing of the substructure units and at even 25' stations. Elevations are those required before deck concrete is placed to allow for dead load deflections caused by the weight of the concrete.

RIGHT STRUCTURE DECK SLAB ELEVATIONS

STATION	PROFILE GRADE	1' CURB ELEVATION *		2' CURB ELEVATION *	
		Lt.	Rt.	Lt.	Rt.
240 + 20.05	958.26	———	———	———	957.53
240 + 21.97	958.31	———	958.09	———	———
240 + 22.06	958.31	958.09	———	———	———
240 + 25.64	958.39	———	———	958.34	———
240 + 50	958.95	958.78	958.78	958.95	958.29
240 + 75	959.53	959.35	959.35	959.51	958.87
241 + 00.20	960.11	———	———	———	959.44
241 + 02.07	960.15	———	959.95	———	———
241 + 02.16	960.15	959.95	———	———	———
241 + 05.64	960.23	———	———	960.18	———
241 + 25	960.68	960.51	960.51	960.66	960.07
241 + 50	961.25	961.12	961.12	961.26	960.69
241 + 75	961.83	961.68	961.68	961.82	961.26
242 + 00	962.40	962.23	962.23	962.36	961.83
242 + 00.38	962.41	———	———	———	961.84
242 + 02.19	962.45	———	962.28	———	———
242 + 02.28	962.45	962.28	———	———	———
242 + 05.64	962.53	———	———	962.48	———
242 + 25	962.98	962.83	962.83	962.95	962.45
242 + 50	963.55	963.43	963.43	963.55	963.06
242 + 75	964.13	963.98	963.98	964.10	963.62
242 + 80.53	964.25	———	———	———	963.74
242 + 82.29	964.29	———	964.14	———	———
242 + 82.38	964.30	964.14	———	———	———
242 + 85.64	964.37	———	———	962.32	———

GENERAL NOTES AND DECK SLAB ELEVATIONS
BRIDGE NO. COL-11-1424 L & R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
" 242 + 90.26

WDA · ℞ WDA DLM 11-16-65

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

395

COL-11-10.22
COL-154-1.71

ESTIMATED QUANTITIES

ITEM	TOTAL LEFT STRUCT.	TOTAL RIGHT STRUCT.	UNIT	DESCRIPTION	LEFT STRUCTURE					RIGHT STRUCTURE				
					ABUT.	PIER	SUPER.	GEN'L.		ABUT.	PIER	SUPER.	GEN'L.	
503	72	147	Cu. Yd.	Rock Excavation	2	70		275	147	3	144		276 +136	273
503	390	681	Cu. Yd	Unclassified Excavation	276	114				427	254			
503	Lump		Sum	Cofferdams, cribs & sheeting				Lump					Lump	
511	291	536	Cu. Yd.	Class "C" concrete, superstructure			291					536		
511	212	498	Cu. Yd.	Class "C" concrete, piers above footing		212					498			
511	159	268	Cu. Yd.	Class "E" concrete, abutments	159					268				
511	70	145	Cu. Yd.	Class "E" concrete, pier footings		70					145			
512		21	Lin. Ft.	Waterproofing, premolded sealing strip						21				
509	110,963	214,883	Lbs.	Reinforcing Steel	10,511	23,964	76,488			17,294	55,590	141,999		
513	281,000	527,000	Lbs.	Structural Steel			281,000					527,000		
514	281,000	527,000	Lbs.	Field Painting of structural steel			281,000					527,000		
517	529.04	529.39	Lin. Ft.	Railing - Deep beam rail with galvanized steel posts and bolts and hand rail			529.04					529.39		
518	38	76	Cu. Yd.	Porous Backfill	38					76				
518	14	22	Each	Scuppers, including supports			14					22		
518	67	129	Lin. Ft.	6" Perforated helical C.M.P. including specials (707.06)	67					129				
518	40	102	Lin. Ft.	6" Non-perforated helical C.M.P. (707.06)	40					102				
601	785	1312	Sq. Yd.	Crushed aggregate slope protection	785					1312				
825	1047	2015	Sq. Yd.	Concrete surface treatment	12		1035			23		1992		
808	291	536	Units	Water-reducing, set-retarding, admixture			291					536		
828	62	123	Lin. Ft.	Joint sealer			62	62	~			123	123	~

ESTIMATED QUANTITIES
BRIDGE NO. COL-11-1424 L&R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240+25.74
" 242+90.26

WDA WDA RG RWL DLM 11-16-65

Revised As-Built 7-10-70

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

396

COL-11-10.22
COL-154-1.71

End Approach Slab
Sta. 240+25.74

Face of Abutment
Sta 240+29.00

℄ Bearings
Sta. 241+08.00

℄ Survey
S.R. 11

℄ Bearings
Sta. 242+08.00

Face of Abutment
Sta. 242+87.00

Begin Approach Slab
Sta 242+90.26

20-Guard rail panels @ 6'-3 = 125'-0

20-Guard rail panels @ 6'-3 = 125'-0

3-1½

MIDDLE FORK LITTLE BEAVER CR.

5° Skew (Typical)

42'-0

12'-0

Varies

Varies

3'-0

2:1 Slope

℄ Roadway

17'-0

15'-0

65'-6 avg. % Deck

℄ Bridge

1. 2. 1' Curb 3. 4. 5. 6. 7. 8.

2:1

½ % Slope

2:1

3'-0

Dumped rock channel protection behind pier wall to elev. 900.0

25'-0

1:1

℄ Survey, Ramp "D"

½ % Slope

2:1

3'-0

8'-0

6'-0

3'-0

2:1 Slope

Limits of crushed aggregate slope protection

Elev. 899.0

1:1

3-1½

20-Guard rail panels @ 6'-3 = 125'-0

20-Guard rail panels @ 6'-3 = 125'-0

GENERAL PLAN

N

SPECIAL SCUPPER LOCATION AT 1' CURB		
NO.	STATION	OFFSET*
1.	240+31	25'-9 3/4
2.	240+60	25'-4 13/16
3.	240+90	24'-11 11/16
4.	241+30	24'-4 7/8
5.	241+60	23'-11 13/16
6.	241+90	23'-6 11/16
7.	242+20	23'-1 5/8
8.	242+40	22'-10 3/16

*Normal Distance from ℄ Roadway to Face Curb

R-125 Bearings

B-300 Bearings

R-300 Bearings

R-125 Bearings

Elev. 942.80

Elev. 947.00

Elev. 897.0

Elev. 892.00

Elev. 892.00

ELEVATION

W.E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

GENERAL PLAN & ELEVATION

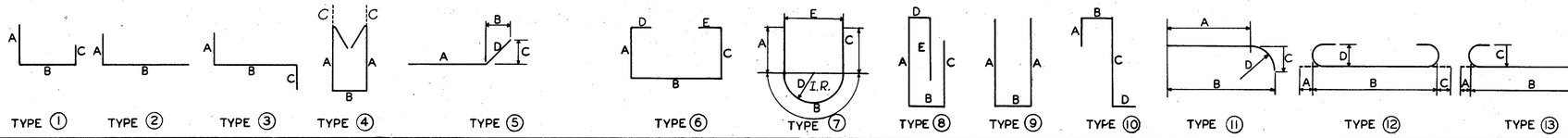
BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		TG	WLH	4-26-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

397

COL-11-10.22
COL-154-1.71



REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
C901	Str.						15	27'-3	1390
C701	8	7'-10	1'-5	6'-5	11"	3'-5	55	19'-4	2173
C702	9	7'-10	1'-5				10	16'-9	342
C703	Str.						3	13'-4	82
C704	Str.	Vary by 6" increments					One Series of 11	7'-10 to 12'-10	232
C705	Str.						51	6'-11	721
C706	Str.						2	14'-2	58
C707	Str.	Vary by 6" increments					One Series of 11	8'-8 to 13'-8	251
C601	2	10"	8'-2				6	8'-10	80
C602	2	10"	8'-5				6	9'-1	82
C603	2	10"	8'-8				6	9'-4	84
C604	2	10"	8'-10				6	9'-6	86
C605	2	10"	9'-0				13	9'-8	189
C606	2	10"	9'-1				8	9'-9	117
C501	9	7½"	3'-5				45	4'-5	207
C502	2	7½"	8'-2				6	8'-8	54
C503	2	7½"	8'-5				6	8'-11	56
C504	2	7½"	8'-8				6	9'-2	57
C505	2	7½"	8'-10				6	9'-4	58
C506	Str.	Vary by 1'-0 increments					One Series of 6	7'-10 to 12'-10	65
C507	Str.						38	33'-0	1308
C508	Str.						16	14'-5	241
C509	Str.						4	11'-10	49
C510	Str.						4	8'-0	33
C511	5	12'-1	2'-0	1'-0	2'-3		4	14'-4	60
C512	Str.						3	13'-1	41
C513	2	7½"	9'-0				13	9'-6	129
C514	2	7½"	9'-1				8	9'-7	80
C515	Str.						2	13'-11	29
C516	Str.	Vary by 1'-0 increments					One Series of 6	8'-8 to 13'-8	70

FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
D801	Str.						10	29'-7	790
D802	Str.						10	31'-0	828
D803	2	1'-1	8'-9				40	9'-8	1032
D804	Str.						20	6'-3	334
D805	Str.						6	6'-8	107
D701	8	7'-10	1'-5	6'-5	11"	3'-5	49	19'-4	1936
D702	9	7'-10	1'-5				10	16'-9	342
D703	Str.						2	10'-4	42
D704	Str.	Vary by 6" increments					One Series of 11	5'-0 to 10'-0	169
D705	Str.						25	7'-8	392
D706	Str.						8	4'-11	80
D707	Str.	Vary by 6" increments					One Series of 11	5'-8 to 10'-8	184
D708	Str.						3	10'-11	67
D501	9	2'-9	3'-5				82	8'-8	741
D502	Str.						2	10'-4	22
D503	Str.	Vary by 1'-0 increments					One Series of 6	5'-0 to 10'-0	47
D504	Str.						8	29'-8	248
D505	Str.						12	14'-5	180
D506	Str.						2	11'-0	23
D507	Str.						2	7'-2	15
D508	5	12'-1	2'-0	1'-0	2'-3		4	14'-4	60
D509	Str.						16	3'-8	61
D510	Str.						60	4'-8	292
D511	9	2'-8	1'-8				4	6'-9	28
D512	9	2'-3	1'-8				8	5'-11	49
D513	9	3'-1	2'-8				10	8'-7	90
D514	9	2-10	2'-8				20	8'-1	169
D515	Str.						15	7'-8	120
D516	Str.						6	4'-11	31
D517	Str.						3	10'-11	34
D518	Str.						2	12'-6	26
D519	Str.						2	8'-0	17
D520	Str.	Vary by 1'-0 increments					One Series of 6	5'-8 to 10'-8	51
D521	Str.						8	31'-3	261

PIERS

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
F14501	Str.						36	33'-1	9111
F14502	Str.						36	32'-1	8836
F1101	2	1'-5½	7'-3				168	8'-5	7513
F1102	Str.						48	10'-0	2551
F1103	Str.						32	15'-0	2551
F1001	Str.						51	12'-8	2780
F901	Str.						50	17'-11	3046
F902	5	15'-4	1'-11⅛	6¼"	2'-0		28	17'-4	1650
F903	Str.						49	12'-8	2110
F701	Str.						7	38'-2	546
F702	Str.						20	12'-8	518
F703	Str.						38	21'-11	1702
F704	Str.						7	36'-2	517
F601	Str.						64	21'-7	2075
F602	9	3'-0	2'-8				12	8'-4	150
F603	9	4'-4	2'-8				10	11'-0	165
F604	9	5'-6	2'-8				20	13'-4	401
F605	9	6'-2	2'-8				14	14'-8	308
F606	9	3'-9	2'-8				12	9'-10	177
F607	9	5'-0	2'-8				10	12'-4	185
F608	9	6'-3	2'-8				20	14'-10	446
F609	9	6'-10	2'-8				14	16'-0	336
F610	9	3'-7	2'-8				112	9'-6	1598
F501	7	1'-7	4'-2	1'-7	1'-3⅜		100	7'-4	765
F502	Str.						48	33'-6	1677
F503	9	3'-3	2'-8				28	8'-11	260
F504	Str.						26	19'-10	538
F505	Str.						2	36'-6	76
F506	Str.						4	27'-3	114
F507	Str.						4	33'-11	141
F508	Str.						52	31'-6	1708
F509	Str.						38	18'-2	720
F510	Str.						2	34'-6	72
F511	Str.						4	26'-3	110
F512	Str.						4	32'-11	137

SUPERSTRUCTURE

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
T701	Str.						380	30'-9	23,884
T702	Str.						127	35'-6	9215
T703	Str.						127	37'-4	9691
T704	Str.						126	39'-2	10,087
T601	Str.						380	35'-4	20,167
T602	Str.						127	30'-9	5866
T603	Str.						127	32'-7	6215
T604	Str.						126	34'-5	6513
T605	Str.						824	34'-4	42,493
T606	Str.						88	40'-0	5287
T501	Str.						16	33'-4	556
T401	9	6½"	1'-6				348	2'-4	542
T402	6	1'-4	1'-6	1'-4	6½"	6½"	348	4'-9	1104
T403	4	1'-2	6"	4½"			170	3'-4	379

NOTES

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
The "No." of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 509. 1 1/2 closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

* Include with railing for payment.

REINFORCING BARS No. 14S shall be of intermediate or hard grade conforming to ASTM A-408.

REPLACEMENT BARS

MARK	TYPE	NO.	LENGTH	WEIGHT
RE14501	Str.	1	4'-0	——
RE1101	Str.	1	7'-6	——
RE1001	Str.	1	7'-2	——
RE901	Str.	1	6'-10	——
RE801	Str.	1	6'-6	——
RE701	Str.	4	6'-2	——
RE601	Str.	5	5'-11	——
RE501	Str.	1	5'-7	——
RE401	Str.	1	5'-3	——

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE

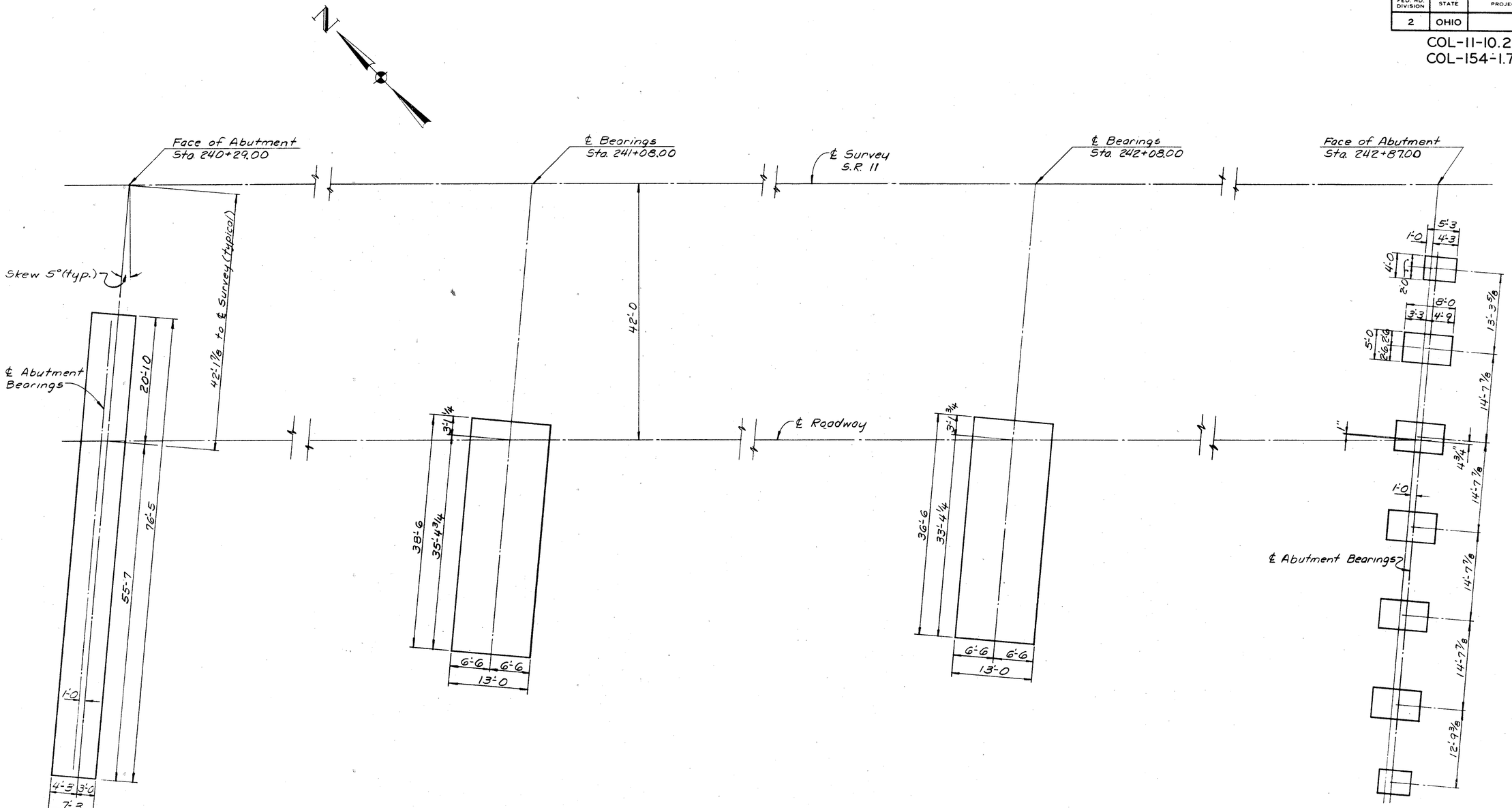
BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA		BJ	RWL	DLM	4-26-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

398

COL-11-10.22
COL-154-1.71



FOOTING PLAN

W.E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

FOOTING PLAN

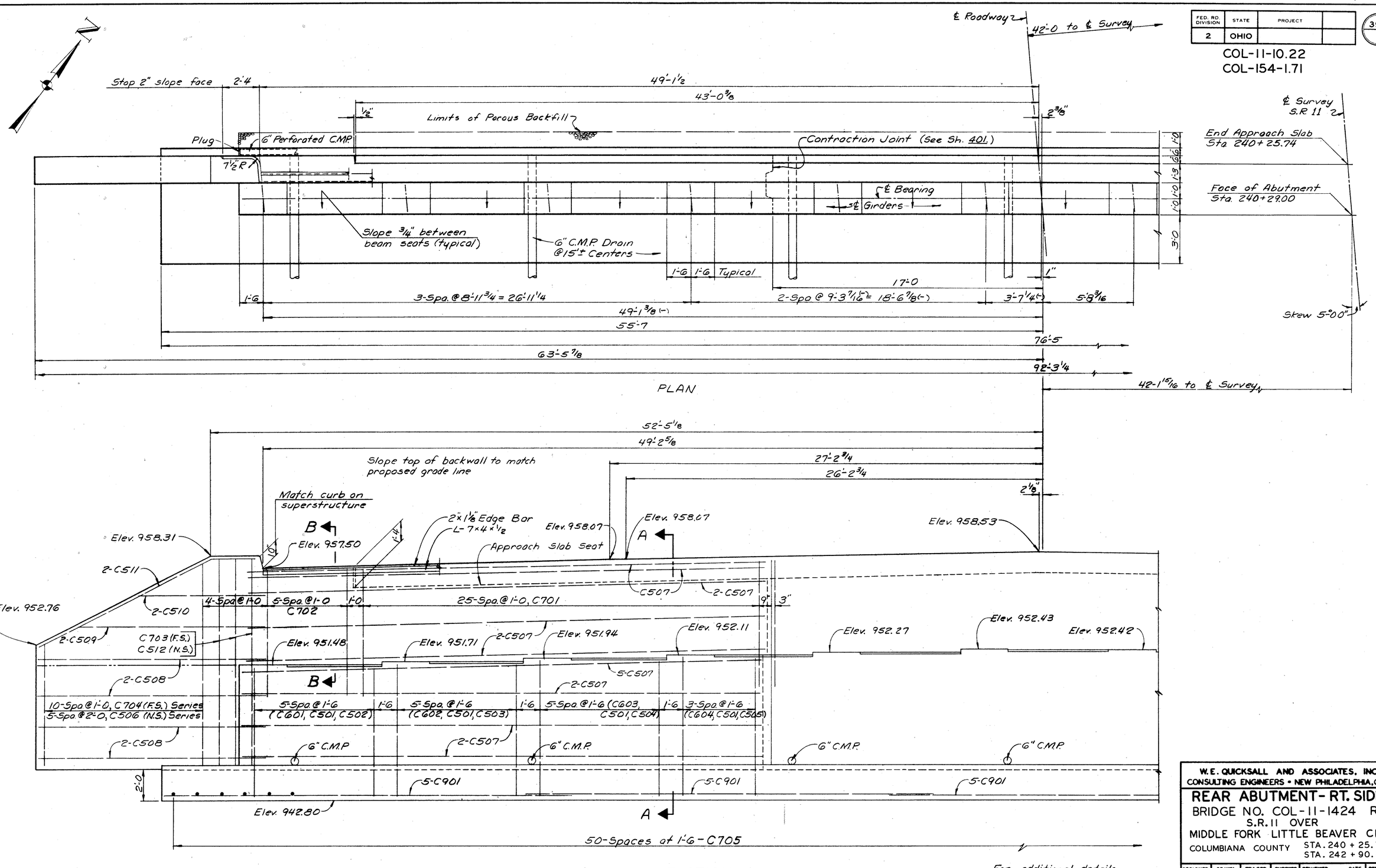
BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		R	DLM	4-26-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

399

COL-11-10.22
COL-154-1.71



W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

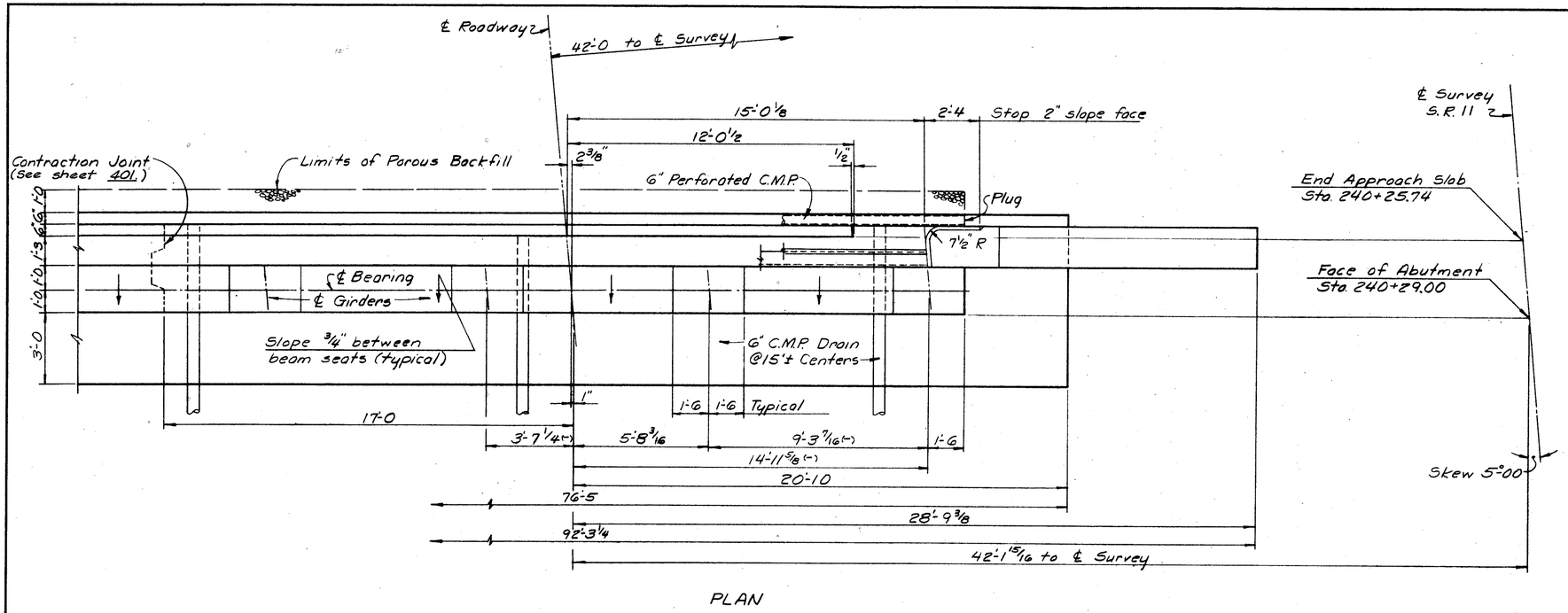
REAR ABUTMENT - RT. SIDE

BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

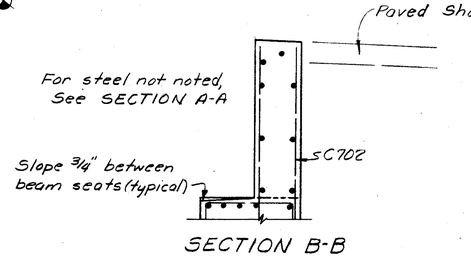
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		TR	WLH	4-26-66	

FED. RD. DIVISION	STATE	PROJECT		400
2	OHIO			

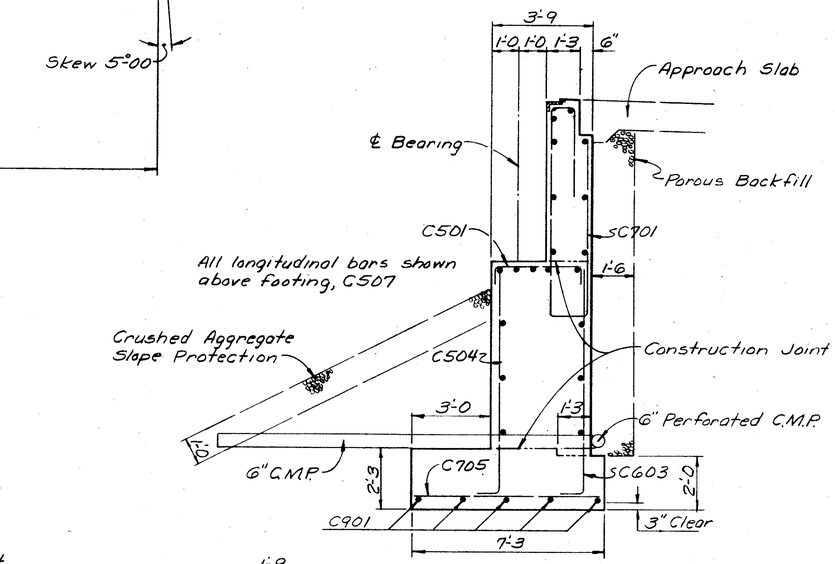
COL-11-10.22
COL-154-1.71



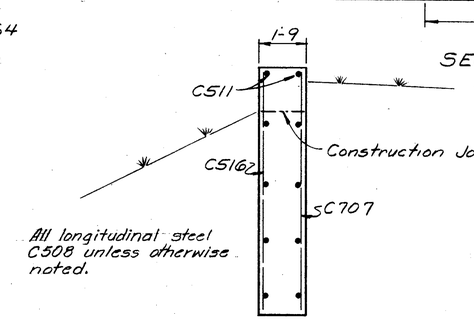
Note: F.S. = For Side
N.S. = Near Side



SECTION B-B



SECTION A-A



SECTION C-C

For additional details See Sh. 399

W.E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REAR ABUTMENT - LT. SIDE

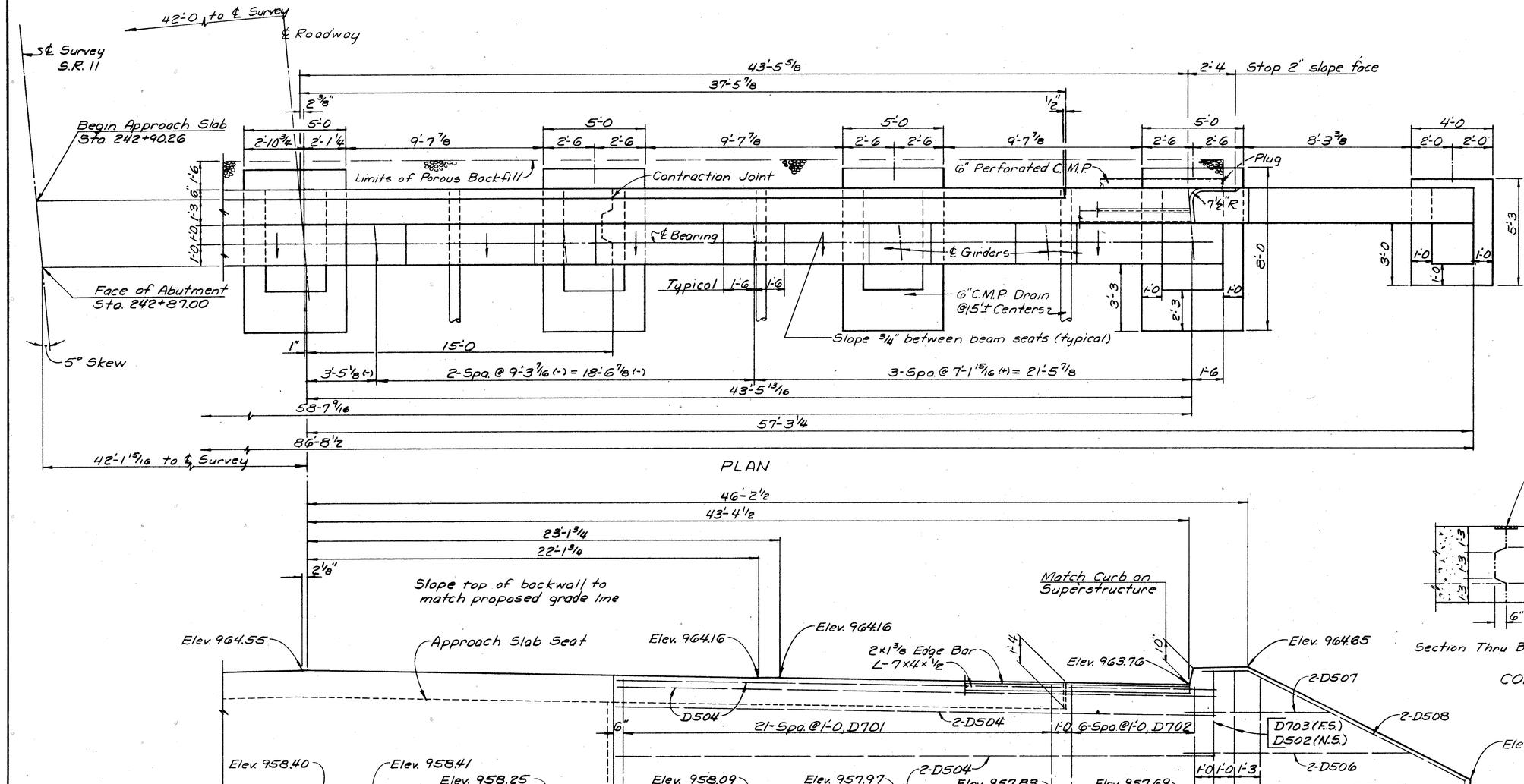
BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY
STA. 240 + 25.74
STA. 242 + 90.26

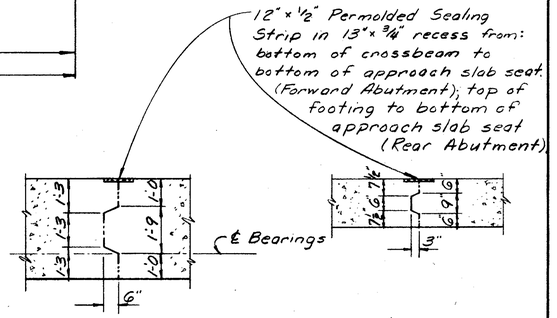
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		RJ	DLM	4-26-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

401

COL-11-10.22
COL-154-1.71





For additional details See Sheet 402

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

FORWARD ABUTMENT-RT. SIDE

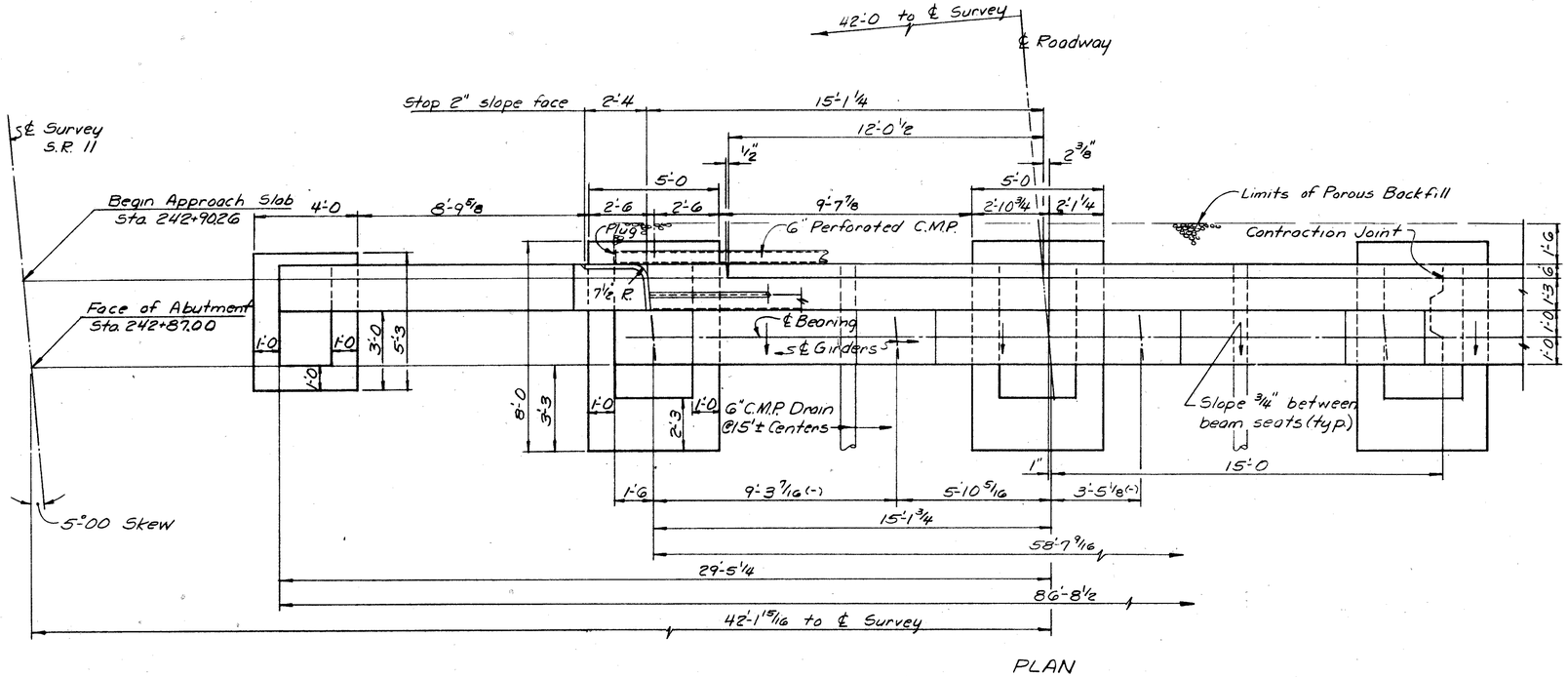
BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY
STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		TG	DLM	4-26-66	

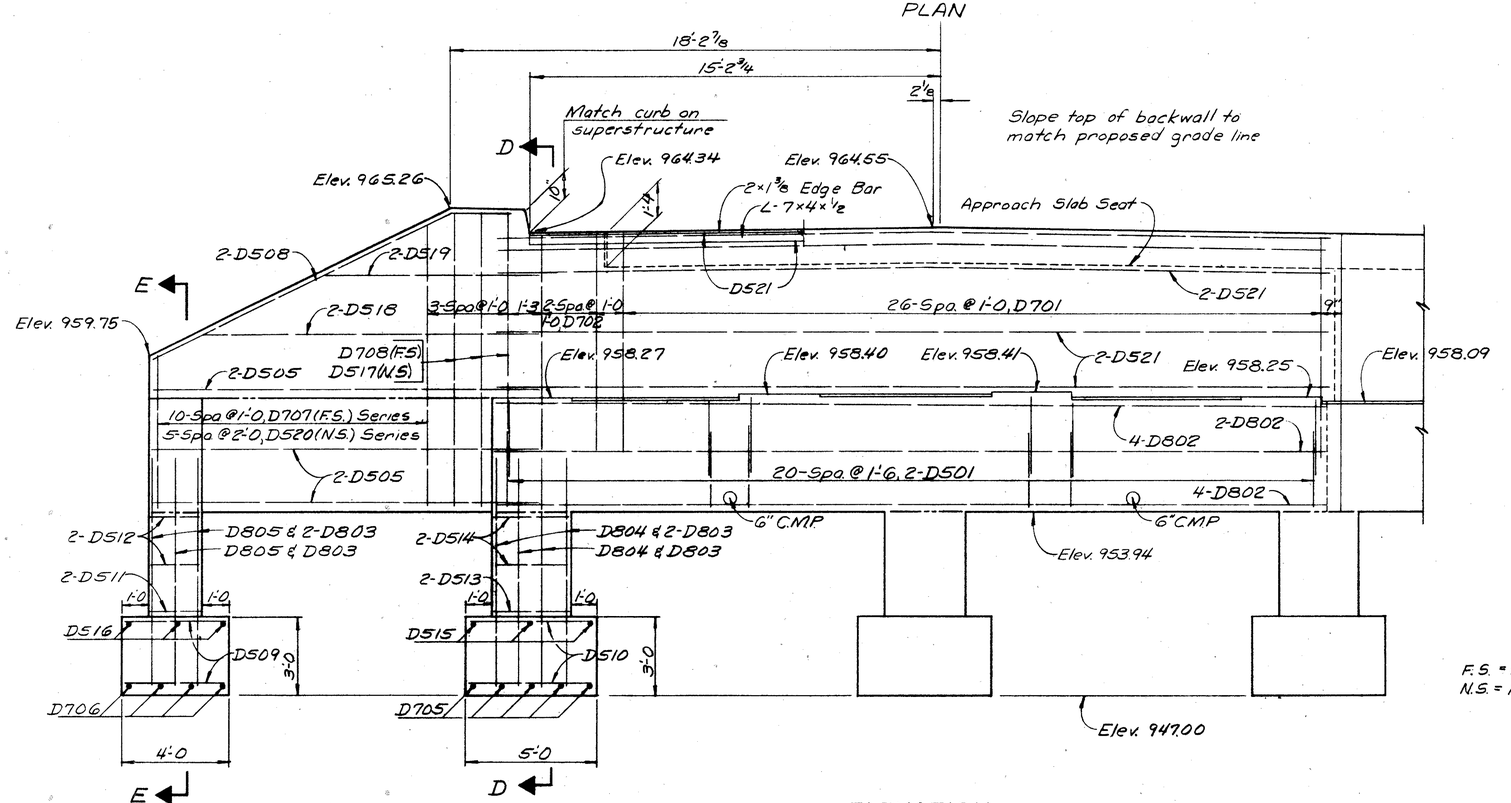
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

402

COL-11-10.22
COL-154-1.71

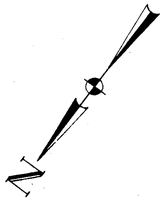


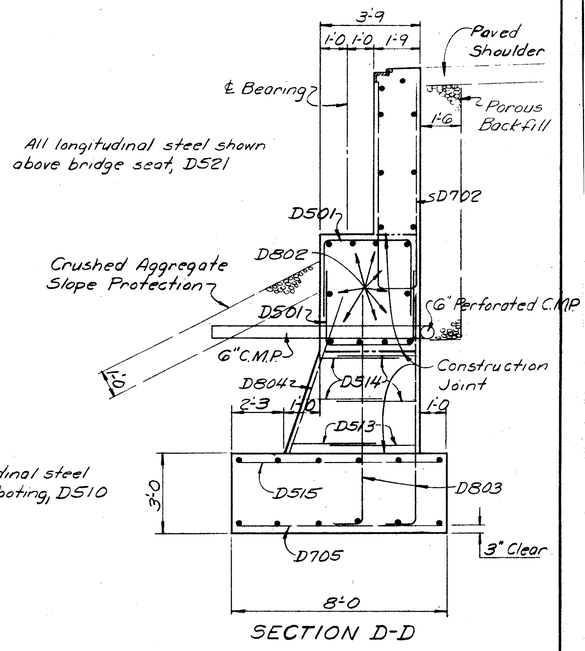
PLAN



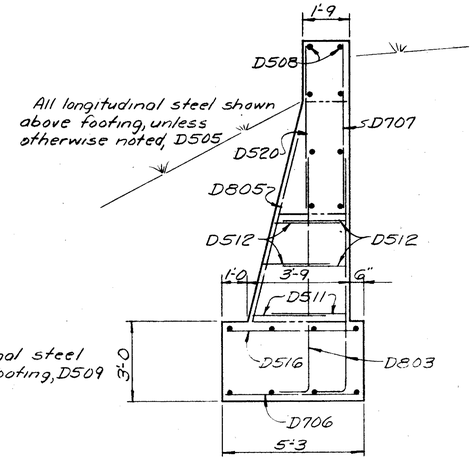
ELEVATION

F.S. = Far Side
N.S. = Near Side





SECTION D-D



SECTION E-E

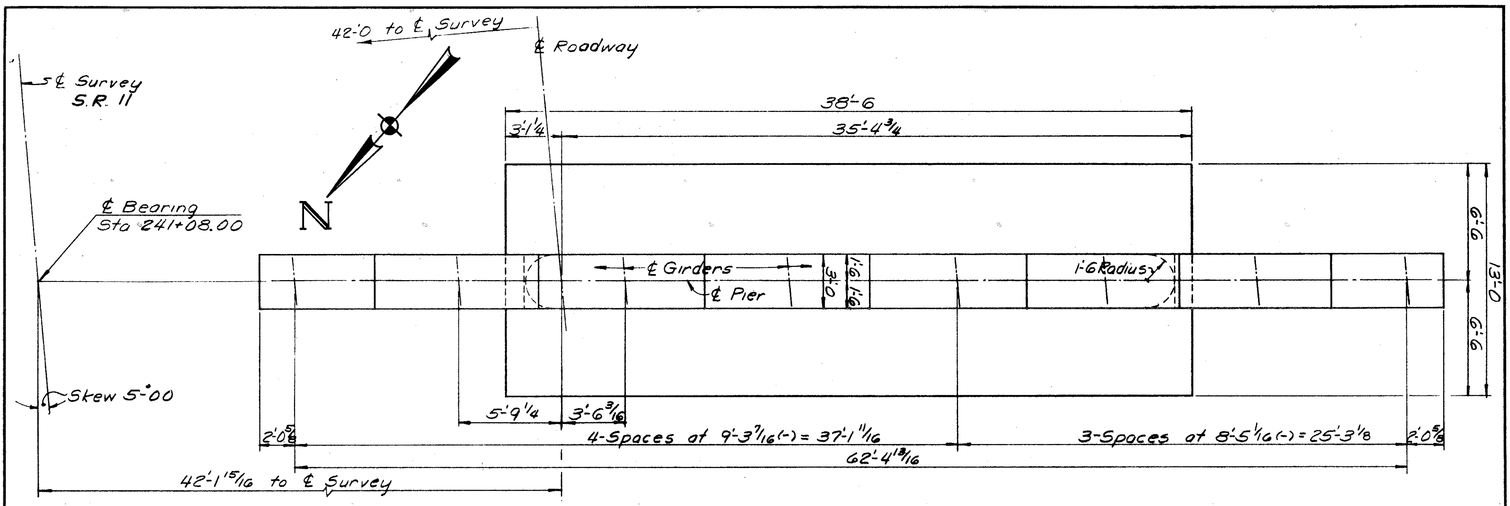
W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

FORWARD ABUTMENT-LT. SIDE

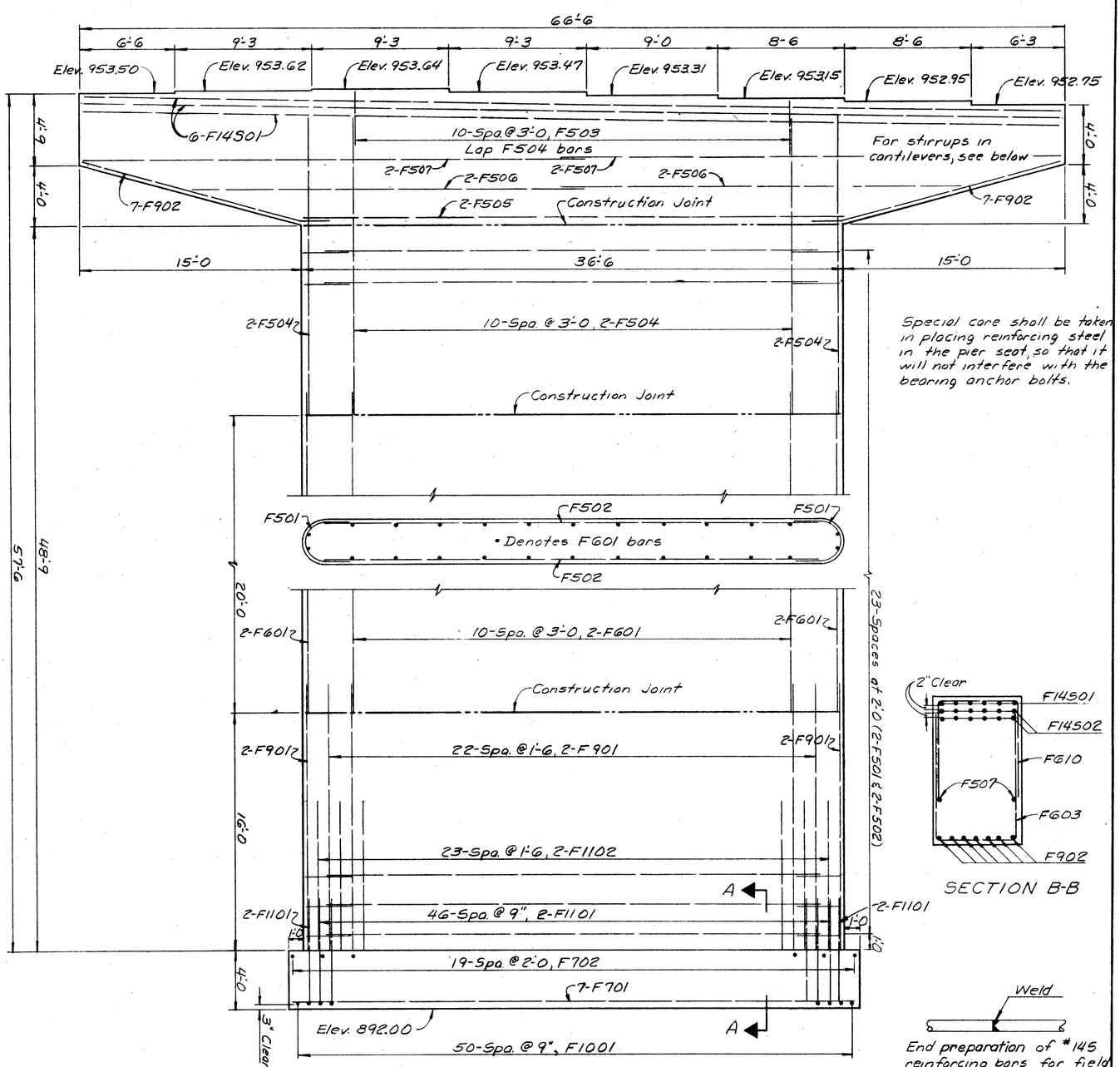
BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		TG	DLH	4-26-66	

For additional details see Sheet 401.



PLAN

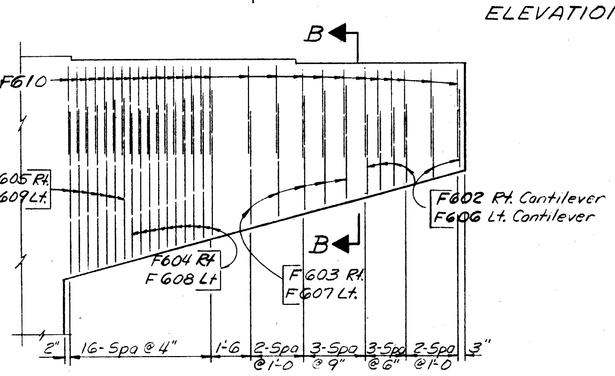


ELEVATION

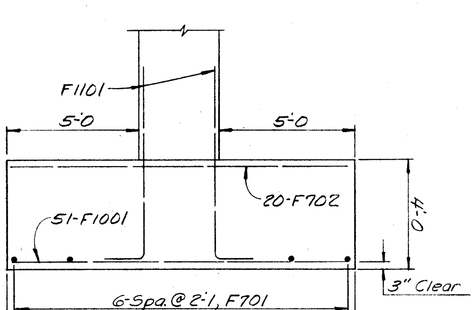
Special care shall be taken in placing reinforcing steel in the pier seat, so that it will not interfere with the bearing anchor bolts.

SECTION B-B

End preparation of #14S reinforcing bars for field welding



VERTICAL REINFORCING STEEL IN CANTILEVERS



SECTION A-A

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE REVISED
WDA	WDA		RT	RLH	4-22-66

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REAR PIER DETAILS

BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY
STA. 240+25.74
STA. 242+90.26

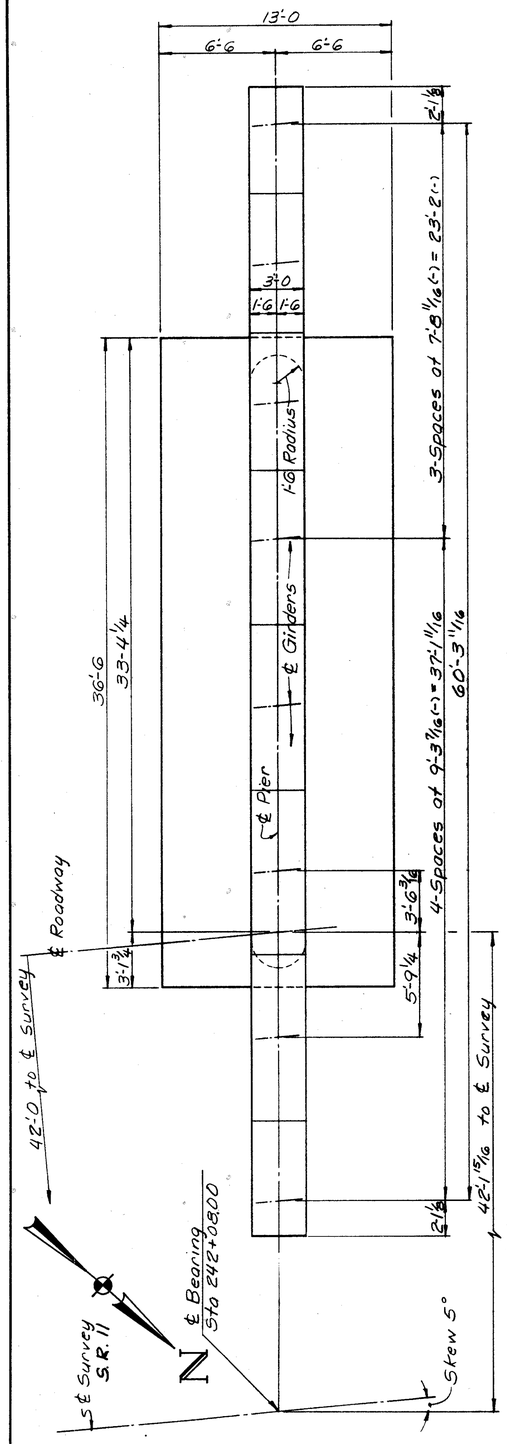
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	COL-11-10.22 COL-154-1.71

403

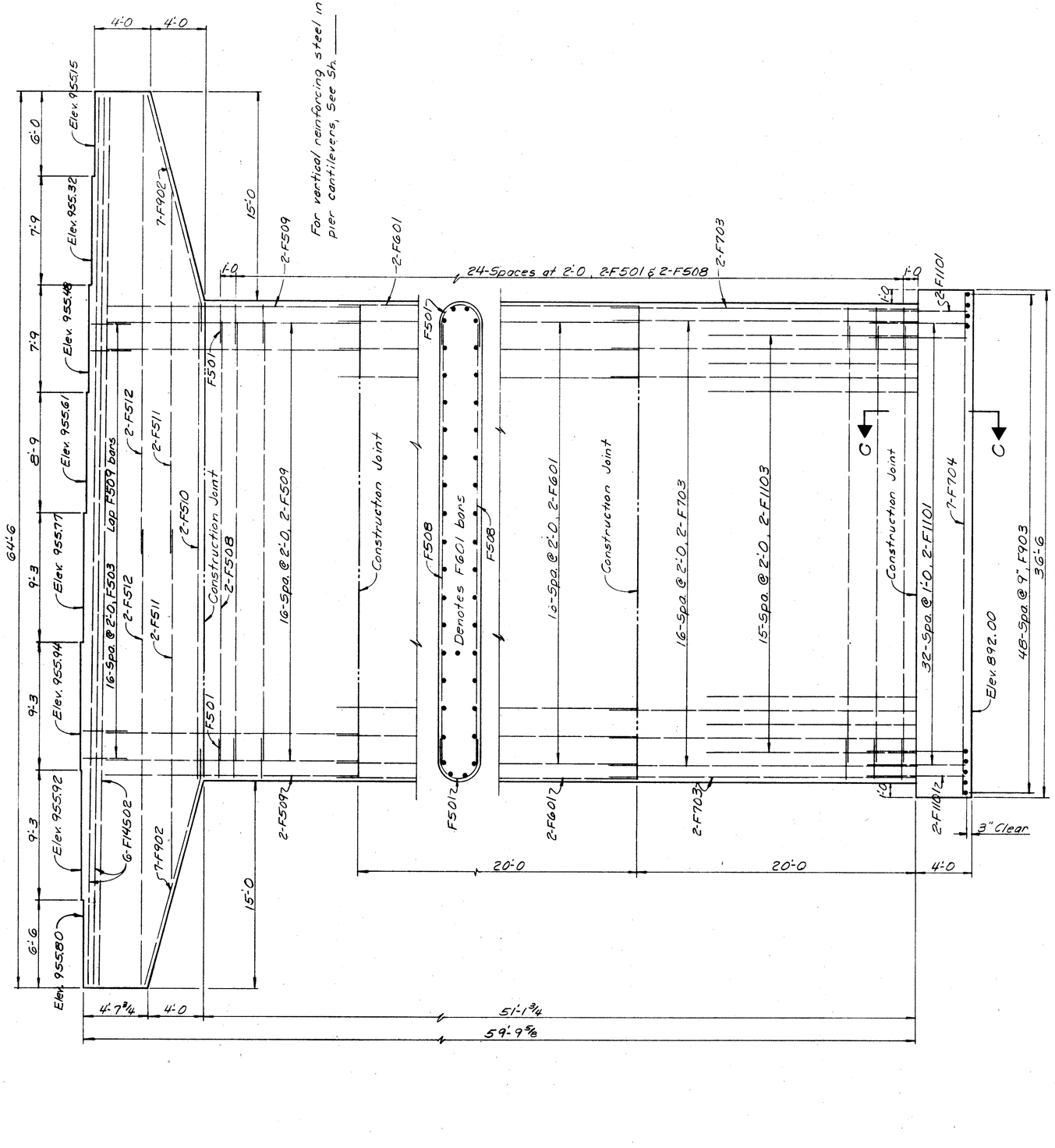
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

404

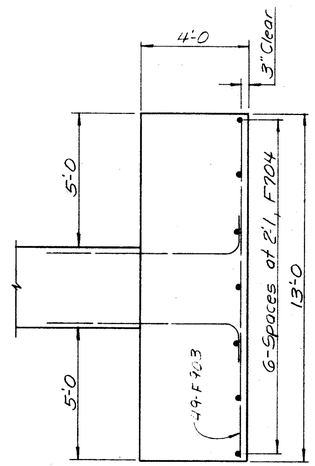
COL-11-10.22
COL-154-1.71



PLAN



ELEVATION



SECTION C-C

For additional details See Sh. 403

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

FORWARD PIER DETAILS

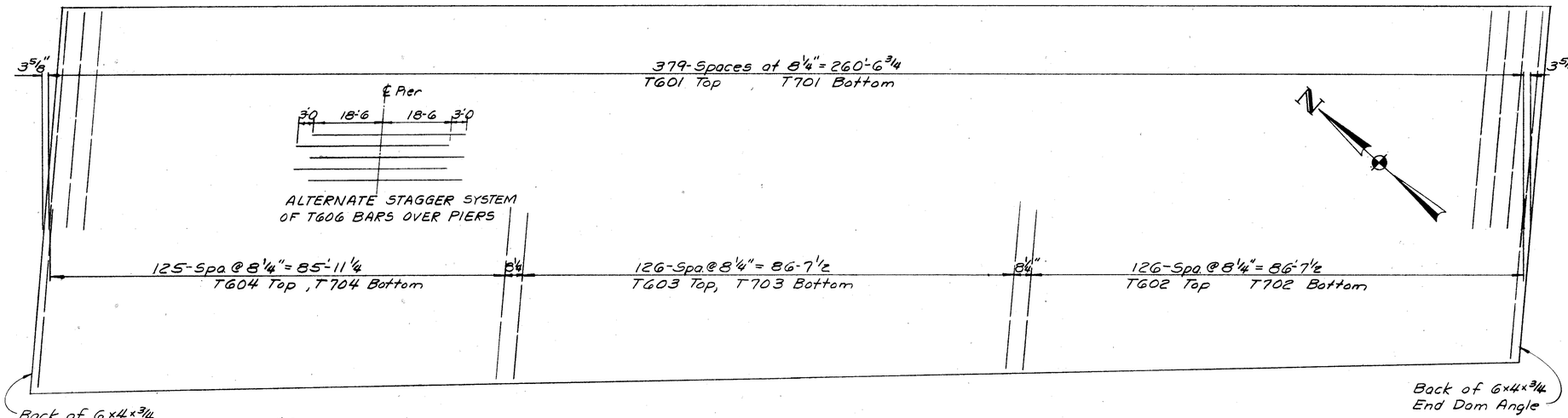
BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

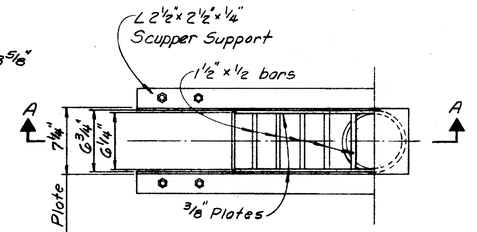
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
WDA	WDA		TG	DLM	4-26-66

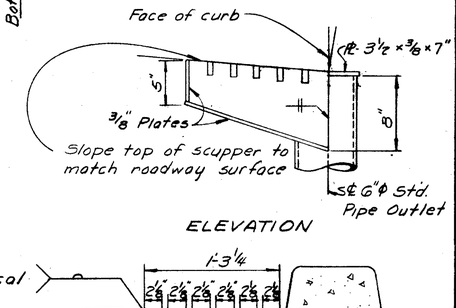
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

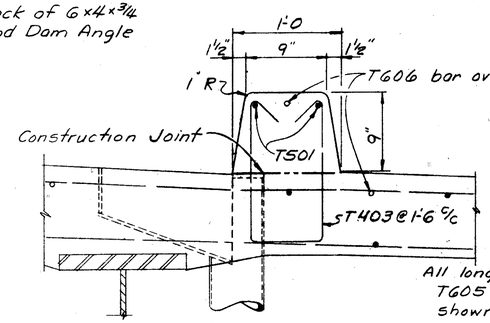
405

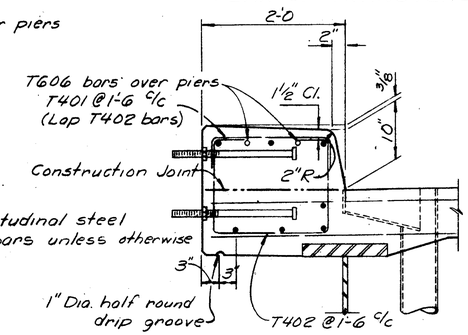
COL-11-10.22
COL-154-1.71



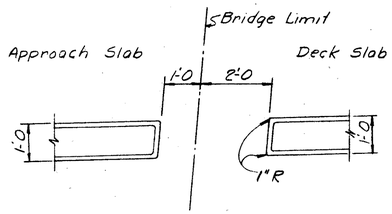


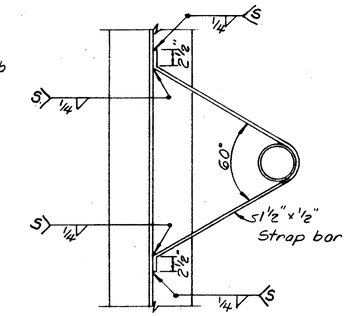


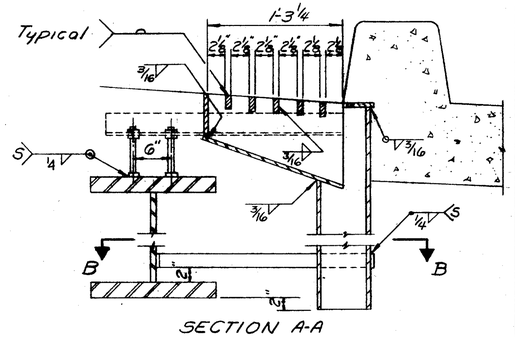




PLAN OF TRANSVERSE REINFORCING STEEL





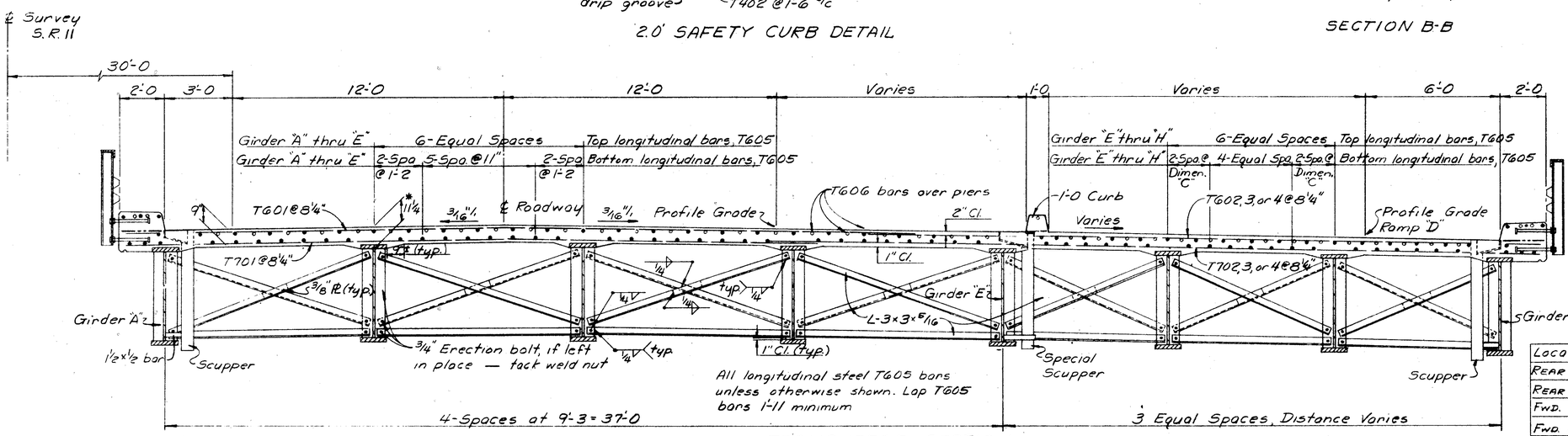


SPECIAL SCUPPER DETAILS

NOTES:

SCUPPERS: All scuppers as per Std. Dwg. SD-1-65 (Type 1) except "SPECIALS" along 1' curb.

*THIS DIMENSION is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the girder may not have the camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of encased steel plates as per item 511.19 of the Construction and Material Specifications.



TRANSVERSE SECTION

Location	Dimen. "C"
Rear Abut.	1'-3±
Rear Pier	1'-2±
Fwd. Pier	1'-1±
Fwd. Abut.	1'-0±

For railing details and additional Superstructure Notes, See Sh. 414

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

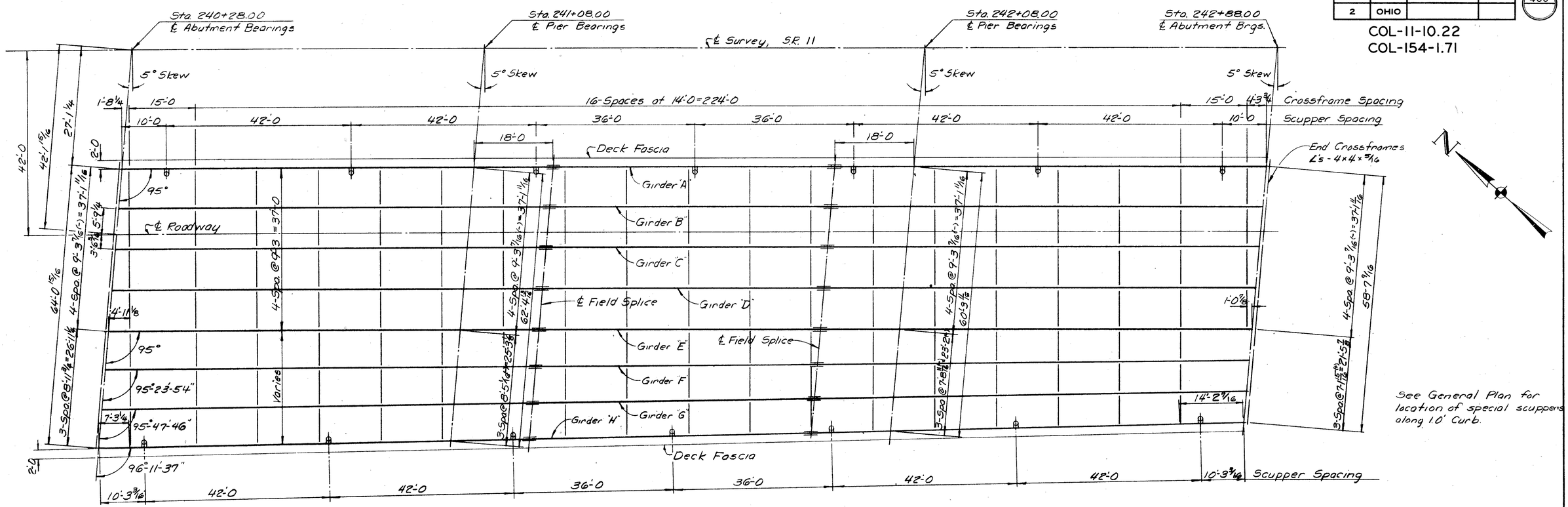
BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY
STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		RL	DLM	4-26-66	

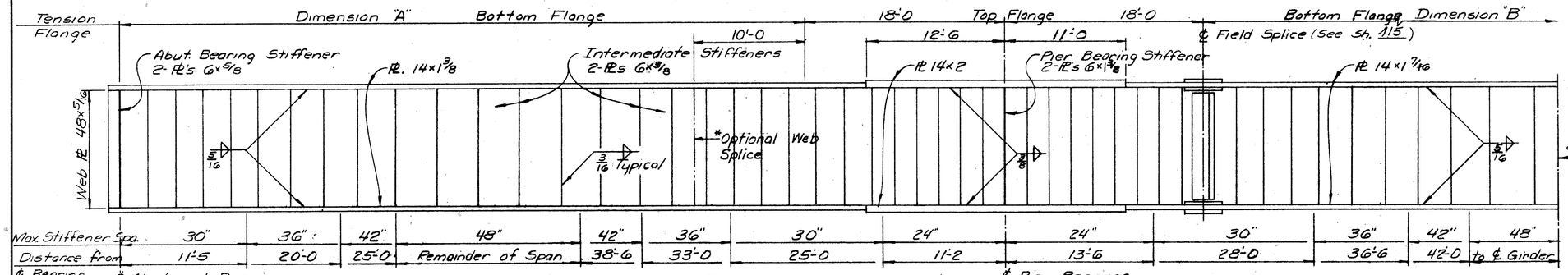
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

406

COL-11-10.22
COL-154-1.71



STEEL FRAMING PLAN



Max. Stiffener Spg.	30"	36"	42"	48"	42"	36"	30"	24"	24"	30"	36"	42"	48"
Distance from ℄ Bearing	11'-5	20'-0	25'-0	Remainder of Span	38'-6	33'-0	25'-0	11'-2	13'-6	28'-0	36'-6	42'-0	to ℄ Girder

℄ Abutment Bearings Rocker R-125

*See Superstructure Notes and Shop Splice details, Lt. bridge, sheets 414 & 415.

℄ Pier Bearings Bolster B-300, Rear Pier Rocker R-300, Fwd Pier

1/8" allowable clearance between stiffeners and tension flange and tight fit with compression flange

Adjust the intermediate stiffener spacing to coincide with the crossframes shown in the Framing Plan and to the maximum stiffener spacing shown at left.

HALF GIRDER ELEVATION

GIRDER	GIRDER LENGTH (℄ Brg.) SPAN 1	SPAN 2	SPAN 3	DIMEN. "A"	DIMEN. "B"
A	80'	100'	80'	62'	64'
B	80'	100'	80'	62'	64'
C	80'	100'	80'	62'	64'
D	80'	100'	80'	62'	64'
E	80'	100'	80'	62'	64'
F	80'-0 5/16	100'-0 3/4	80'-0 5/16	62'-0 5/8	64'-0 3/4
G	80'-1 1/4	100'-1 9/16	80'-1 1/4	62'-1 1/4	64'-1 9/16
H	80'-1 5/16	100'-2 7/16	80'-1 5/16	62'-1 5/16	64'-2 7/16

For additional details See Sh. 414 & 415

DEFLECTION AND CAMBER

LOCATION	SPAN 1 1/4	SPAN 1 1/2	SPAN 1 3/4	SPAN 2 SPLICE	SPAN 2 1/2	SPAN 2 SPLICE	SPAN 3 3/4	SPAN 3 1/2	SPAN 3 1/4
Deflection due to weight of steel	1/8	1/8	1/16	1/16	3/16	1/16	1/16	1/8	1/8
Deflection due to remaining dead load	1/2	9/16	1/4	5/16	11/16	5/16	1/4	9/16	1/2
Required Shop Camber	5/8	11/16	9/16	3/8	7/8	3/8	5/16	11/16	5/8

For DEFLECTION AND CAMBER DIAGRAM, See Sh. 414, Lt. Bridge.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

STRUCTURAL STEEL DETAILS

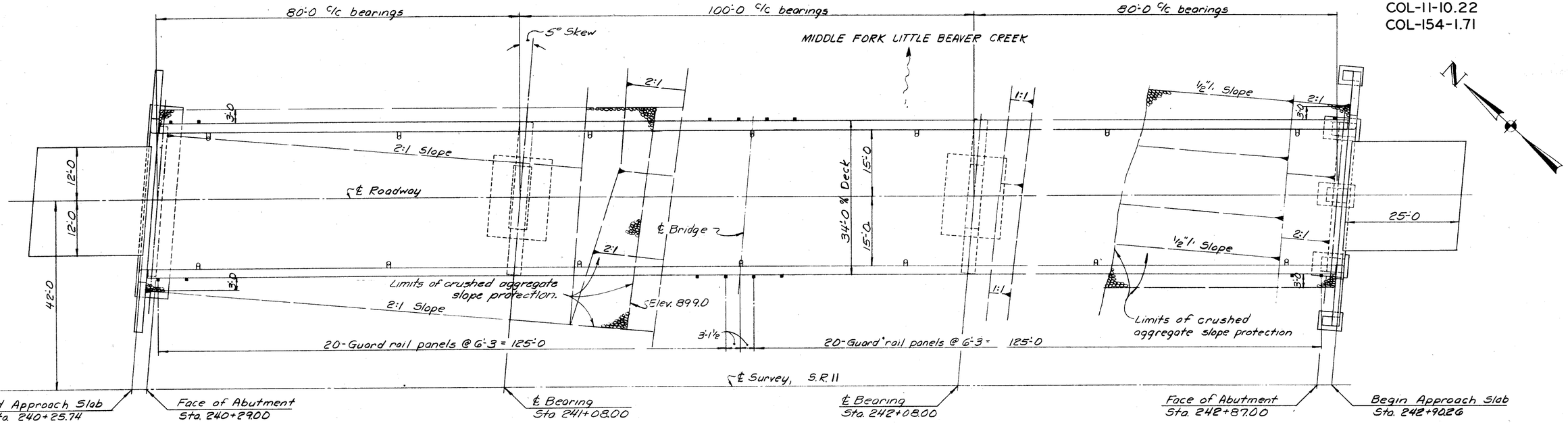
BRIDGE NO. COL-11-1424 R
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY
STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		TG	DLM	4-26-66	

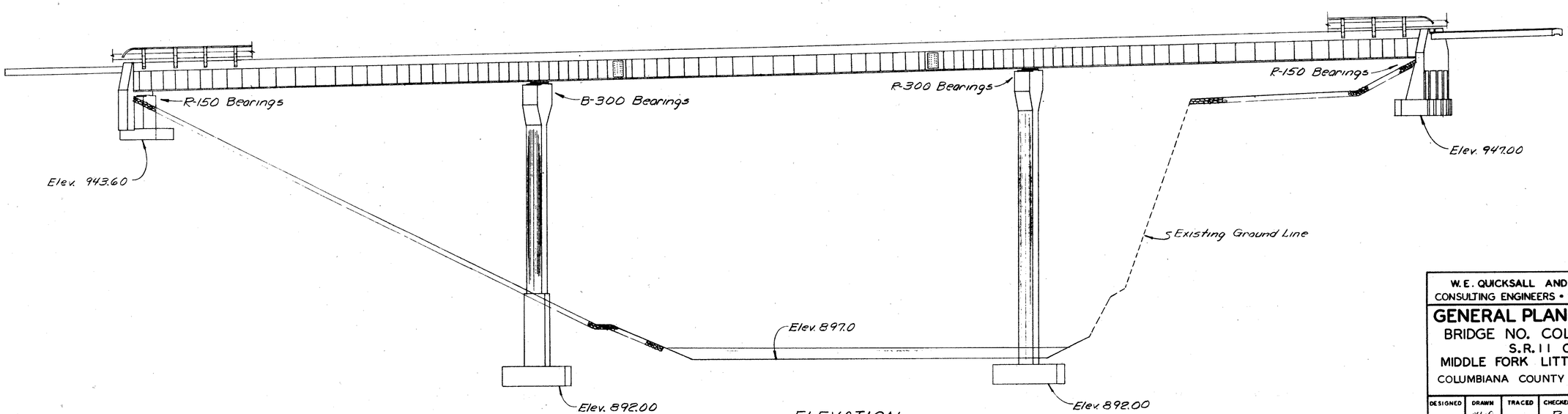
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

407

COL-11-10.22
COL-154-1.71



GENERAL PLAN



ELEVATION

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

GENERAL PLAN & ELEVATION

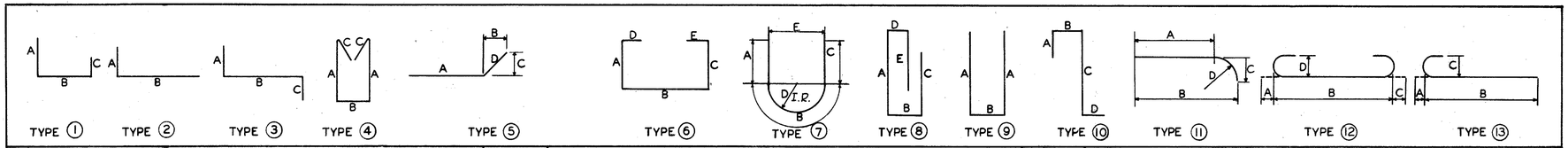
BRIDGE NO. COL-11-1424 L
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY
STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	NVA		RB	DLM	4-26-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

408

COL-11-10.22
COL-154-1.71



REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
A901	Str.						5	42'-2	717
A701	Str.						29	6'-11	410
A702	8	7'-10	1'-5	6'-5	11"	3'-5	24	19'-6	957
A703	9	7'-10	1'-5				7	16'-9	240
A704	Str.	Vary by 6" increments					Two Series of 11	7'-10 to 12'-10	465
A705	Str.						5	13'-6	138
A601	2	10"	8'-3				14	8'-11	188
A602	2	10"	8'-5				8	9'-1	109
A501	9	7½"	3'-5				22	4'-5	101
A502	2	7½"	8'-3				14	8'-9	128
A503	2	7½"	8'-5				8	8'-11	74
A504	Str.	Vary by 1'-0 increments					Two Series of 6	7'-10 to 12'-10	129
A505	Str.						5	13'-3	69
A506	Str.						19	32'-8	647
A507	Str.						20	14'-4	299
A508	Str.						4	12'-3	51
A509	Str.						4	8'-0	33
A510	5	12'-1	2'-0	1'-0	2'-3		4	14'-4	60

REPLACEMENT BARS

RA1101	Str.						1	7'-6	——
RA1001	Str.						1	7'-2	——
RA901	Str.						1	6'-10	——
RA801	Str.						1	6'-6	——
RA701	Str.						2	6'-2	——
RA601	Str.						3	5'-11	——
RA501	Str.						1	5'-7	——
RA401	Str.						1	5'-3	——

FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
B801	Str.						10	32'-8	872
B802	Str.						12	6'-10	219
B803	2	1'-1	9'-4				28	10'-3	766
B804	Str.						6	6'-9	108
B701	8	7'-10	1'-5	6'-5	11"	3'-5	24	19'-4	948
B702	9	7'-10	1'-5				7	16'-9	240
B703	Str.						5	10'-6	107
B704	Str.	Vary by 6" increments					Two Series of 11	5'-3 to 10'-3	349
B705	Str.						15	7'-6	230
B706	Str.						8	4'-9	78
B501	9	2'-9	3'-5				44	8'-8	398
B502	Str.						8	32'-8	273
B503	Str.	Vary by 1'-0 increments					Two Series of 6	5'-3 to 10'-3	97
B504	Str.						5	10'-6	55
B505	Str.						16	14'-4	239
B506	Str.						4	12'-6	52
B507	Str.						4	8'-2	34
B508	5	12'-1	1'-11	1'-1	2'-3		4	14'-4	60
B509	9	2'-3	1'-8				8	5'-11	49
B510	Str.						16	3'-8	61
B511	Str.						6	4'-11	31
B512	9	2'-10	2'-8				12	8'-1	101
B513	9	3'-1	2'-8				6	8'-7	54
B514	Str.						9	7'-8	72
B515	Str.						36	4'-8	175
B516	9	2'-8	1'-8				4	6'-9	28

SUPERSTRUCTURE

S701	Str.						392	33'-9	27,042
S601	Str.						392	33'-9	19,871
S602	Str.						488	34'-4	25,165
S603	Str.						46	40'-0	2764
S401	9	6½"	1'-6				348	2'-4	542
S402	6	1'-4	1'-6	1'-4	6½"	6½"	348	4'-9	1104

PIERS

MARK	TYPE	A*	B	C	D	E	NO.	LENGTH	WEIGHT
P1101	2	1'-5½	7'-3				76	8'-5	3399
P1102	Str.						18	11'-0	1052
P1103	12	1'-7	33'-8	1'-7	11"		14	35'-10	2665
P1104	Str.						14	33'-4	2479
P1105	Str.						18	15'-0	1435
P1001	Str.						48	12'-6	2582
P901	Str.						20	22'-2	1507
P801	Str.						14	6'-0	224
P802	Str.						30	5'-0	401
P701	Str.						11	12'-6	281
P702	Str.						22	13'-10	622
P703	Str.						26	17'-6	930
P704	Str.						20	21'-11	896
P601	Str.						32	21'-11	1053
P602	Str.						16	18'-3	439
P603	Str.						11	12'-6	207
P501	9	3'-3	2'-8				96	8'-11	893
P502	Str.						4	33'-8	140
P503	9	4'-3	2'-8				12	10'-11	137
P504	9	5'-9	2'-8				16	13'-11	232
P505	5	10'-9	2'-1	10"	2'-3		16	13'-0	217
P506	7	1'-7	4'-2	1'-7	1'-3⅜	2'-8	88	7'-4	673
P507	Str.						88	11'-0	1010
P508	Str.						14	13'-8	200
P509	9	1'-7	3'-8				14	6'-7	96
P510	Str.						4	18'-0	75
P511	Str.						4	28'-5	119

SPIRAL REINFORCING

MARK	CORE DIA.	PITCH	NO. TURNS	NO.	LENGTH	WEIGHT

NOTES

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
The "No." of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 509. 1 1/2 closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

* Include with railing for payment.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE

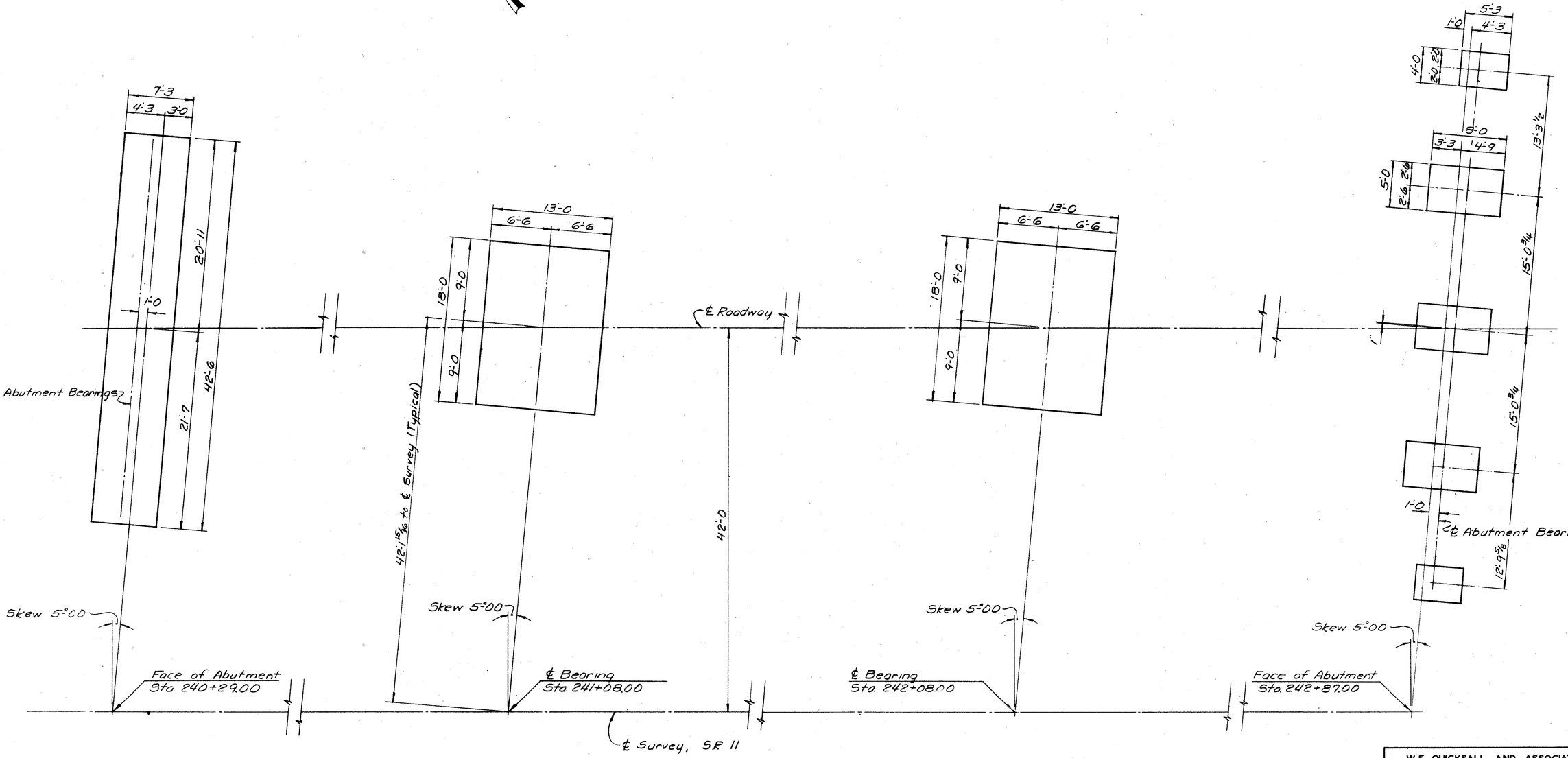
BRIDGE NO. COL-11-1424 L
S.R.11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA		RG	RWL	DLM	4-26-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

409

COL-11-10.22
COL-154-1.71



FOOTING PLAN

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

FOOTING PLAN

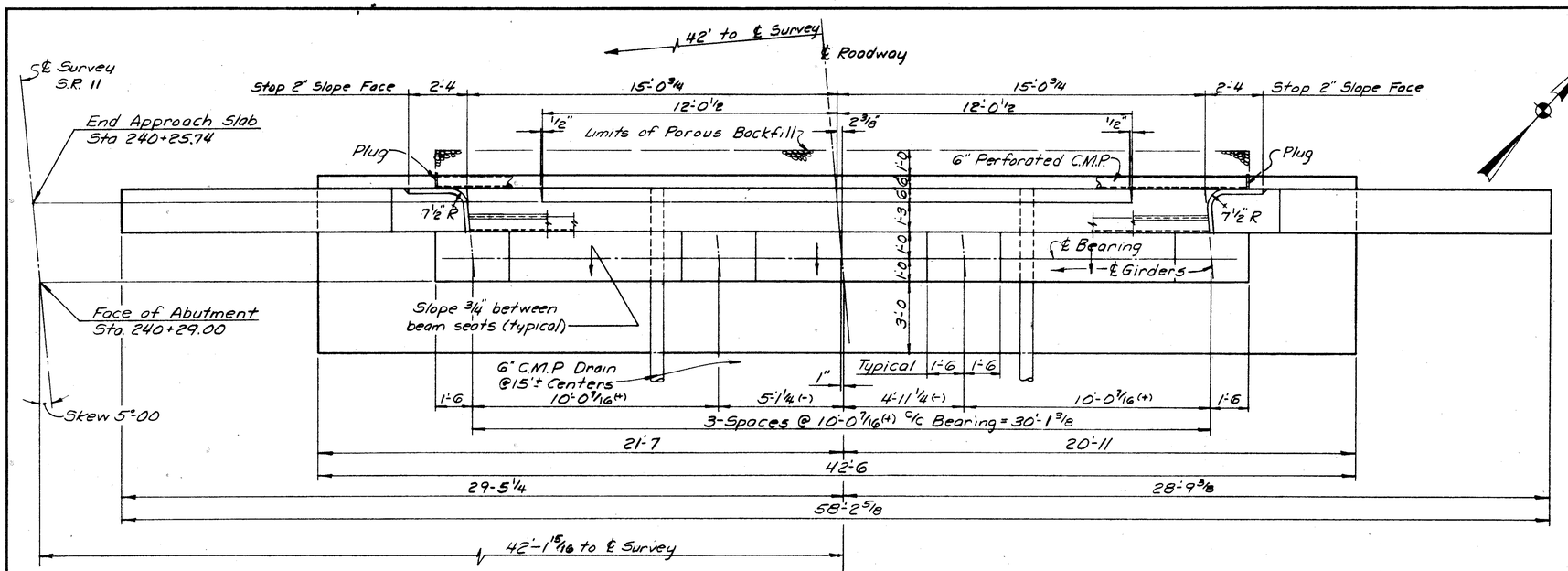
BRIDGE NO. COL-11-1424 L
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY
STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		TG	DLM	4-26-66	

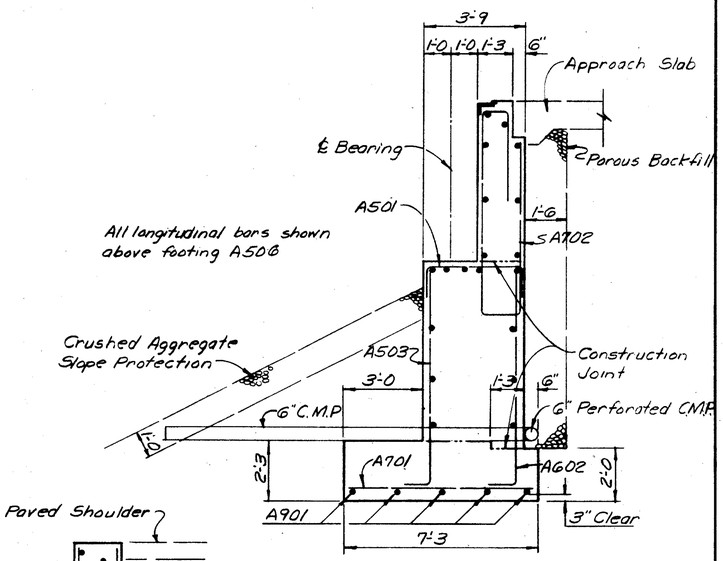
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

410

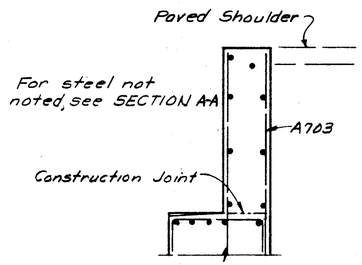
COL-11-10.22
COL-154-1.71



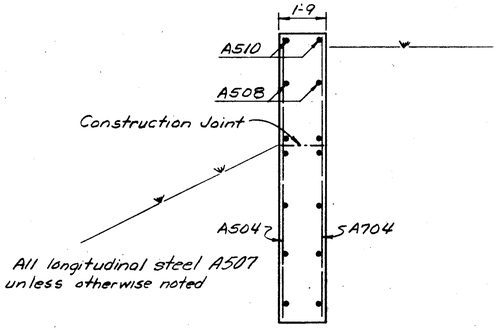
PLAN



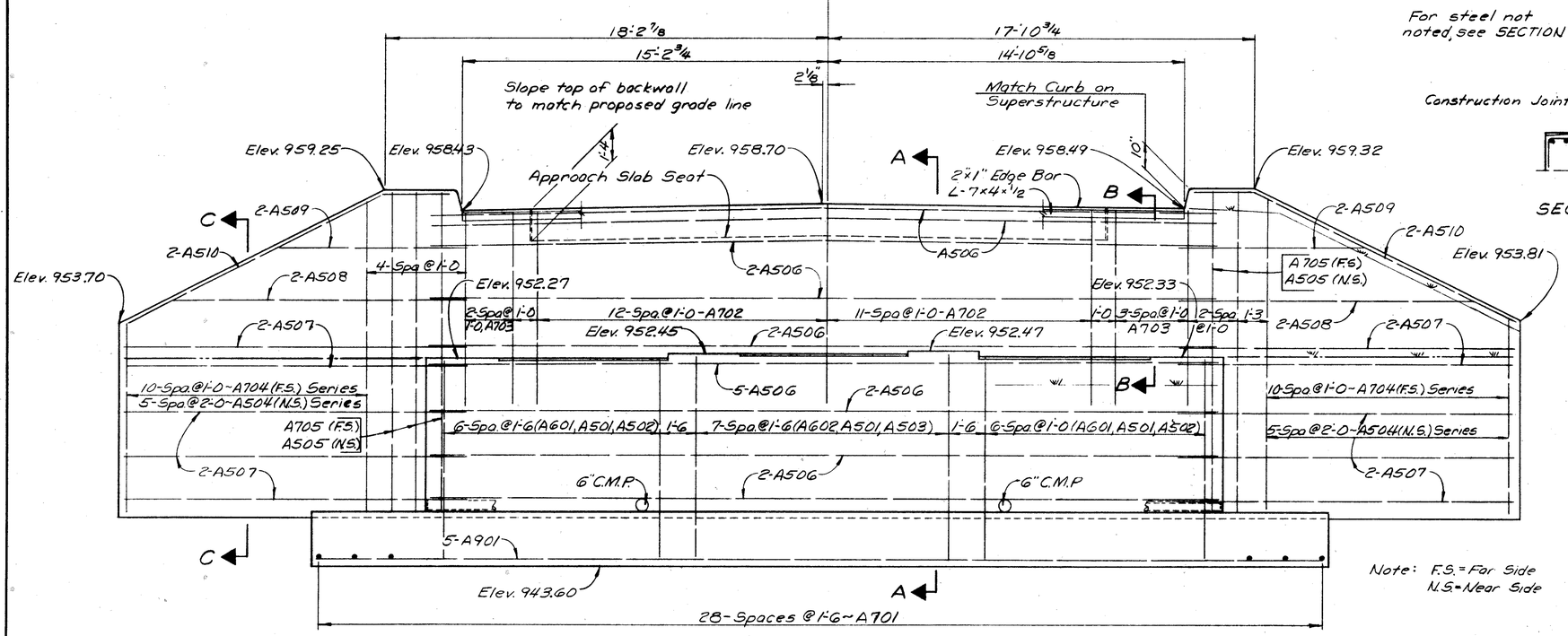
SECTION A-A



SECTION B-B



SECTION C-C



ELEVATION

Note: F.S. = For Side
N.S. = Near Side

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS NEW PHILADELPHIA, OHIO

REAR ABUTMENT DETAILS

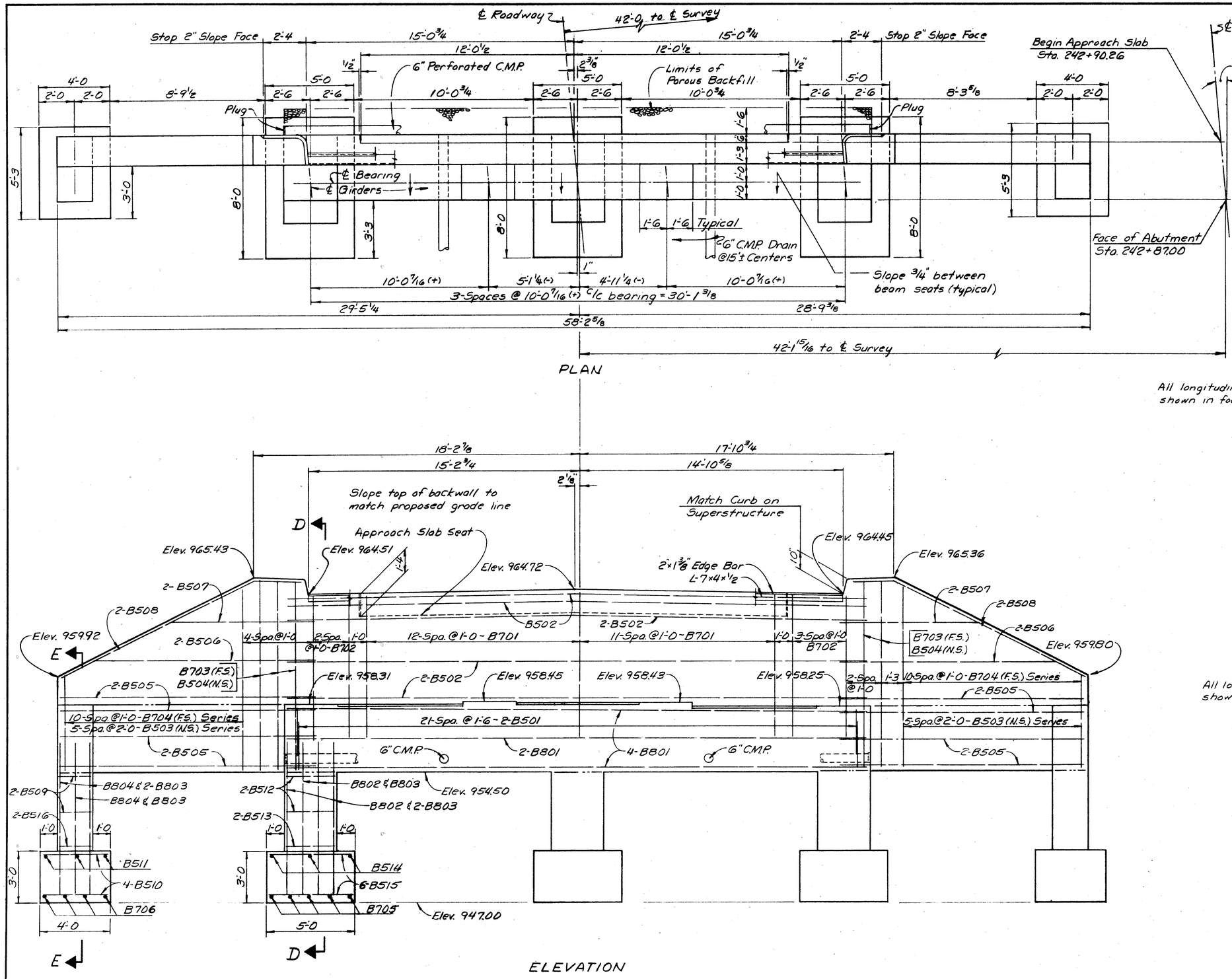
BRIDGE NO. COL-11-1424 L
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		RS	DLM	4-26-66	

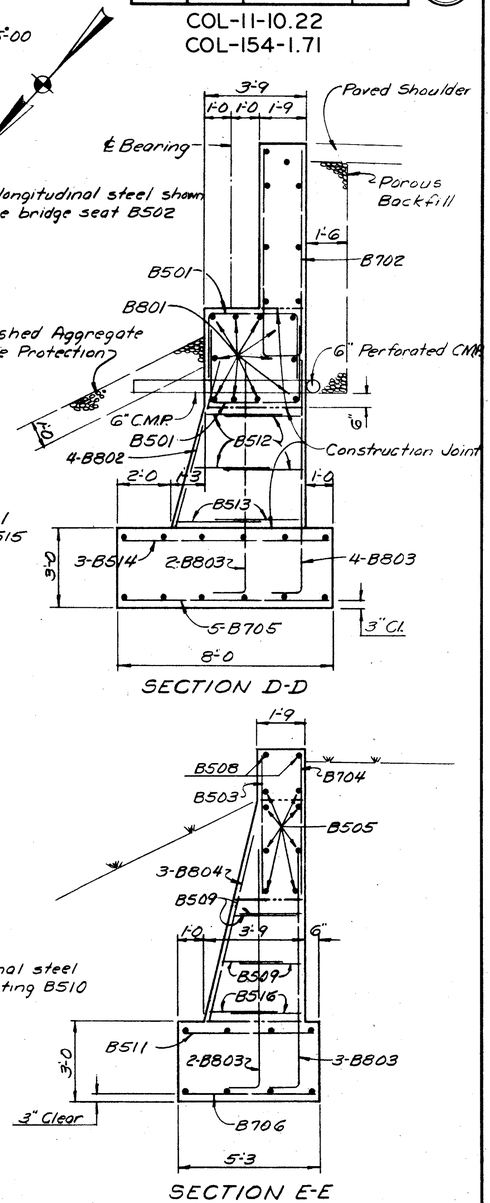
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

411

COL-11-10.22
COL-154-1.71



ELEVATION



W.E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS NEW PHILADELPHIA, OHIO

FORWARD ABUTMENT DETAILS

BRIDGE NO. COL-11-1424 L
S.R.11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		RG	DLM	4-26-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

412

COL-11-10.22
COL-154-1.71

PLAN

ELEVATION

SECTION C-C

SECTION B-B

SECTION A-A

Note: Special care shall be taken in placing reinforcing steel in the pier seat so that it will not interfere with the bearing anchor bolts.

REAR PIER DETAILS

W.E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS NEW PHILADELPHIA, OHIO

BRIDGE NO. COL-11-1424 L
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

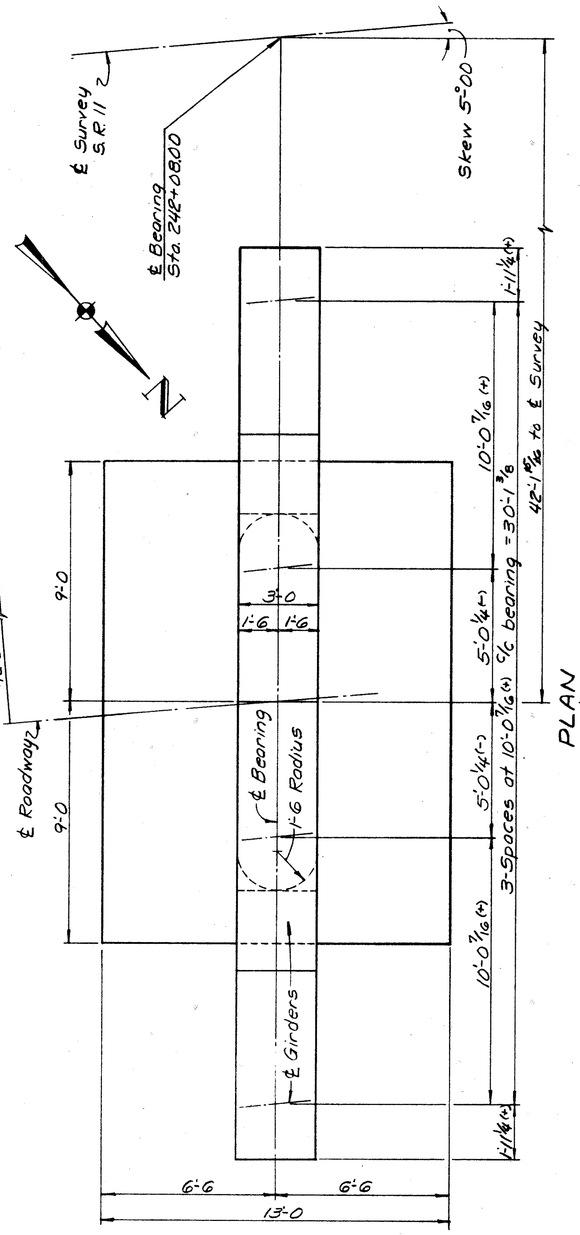
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA			DLM	4-26-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

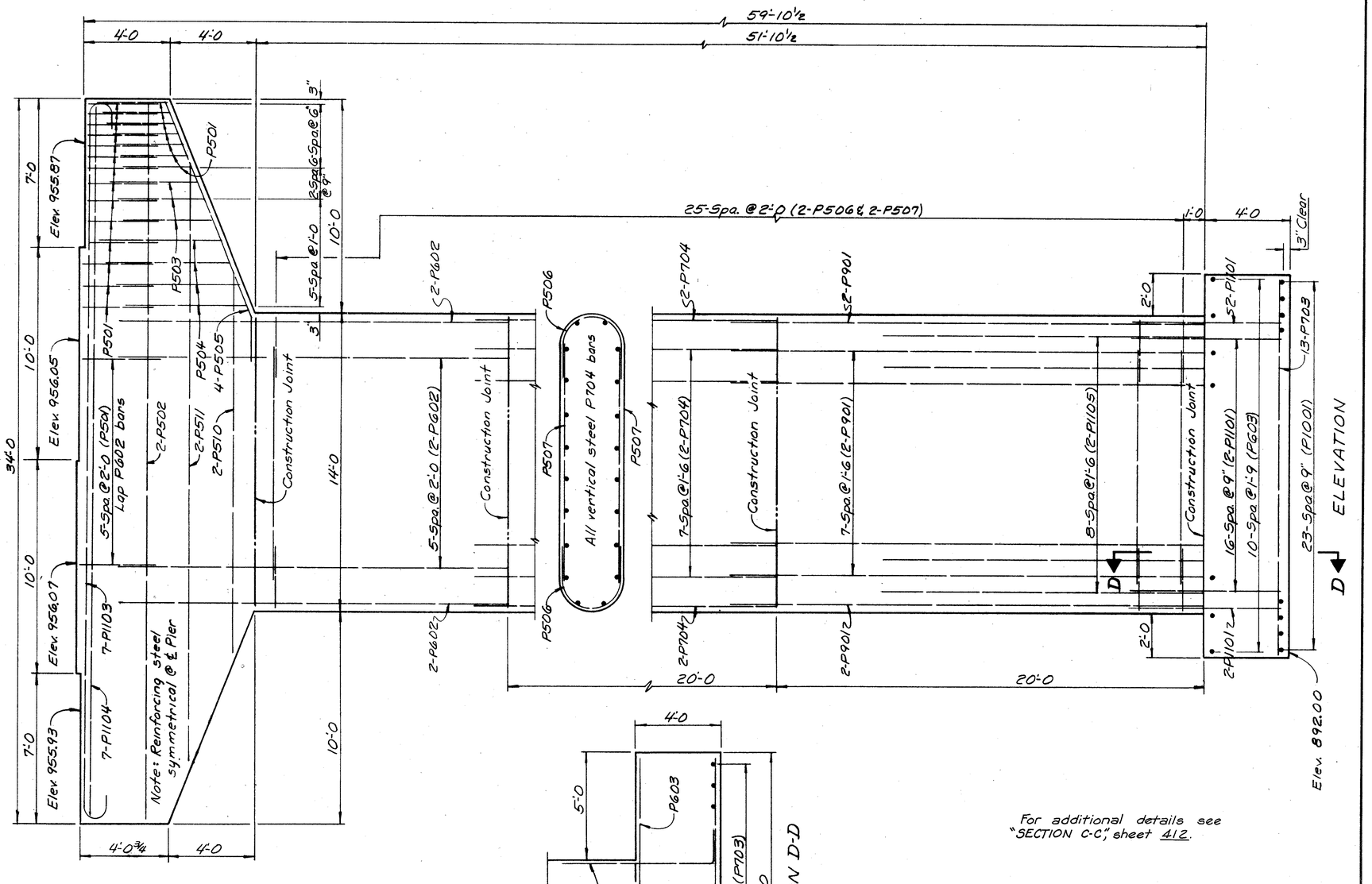
413

COL-11-10.22
COL-154-1.71

PLAN

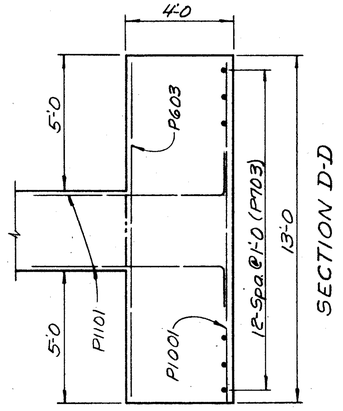


ELEVATION



For additional details see "SECTION C-C", sheet 412.

SECTION D-D



W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS NEW PHILADELPHIA, OHIO

FORWARD PIER DETAILS

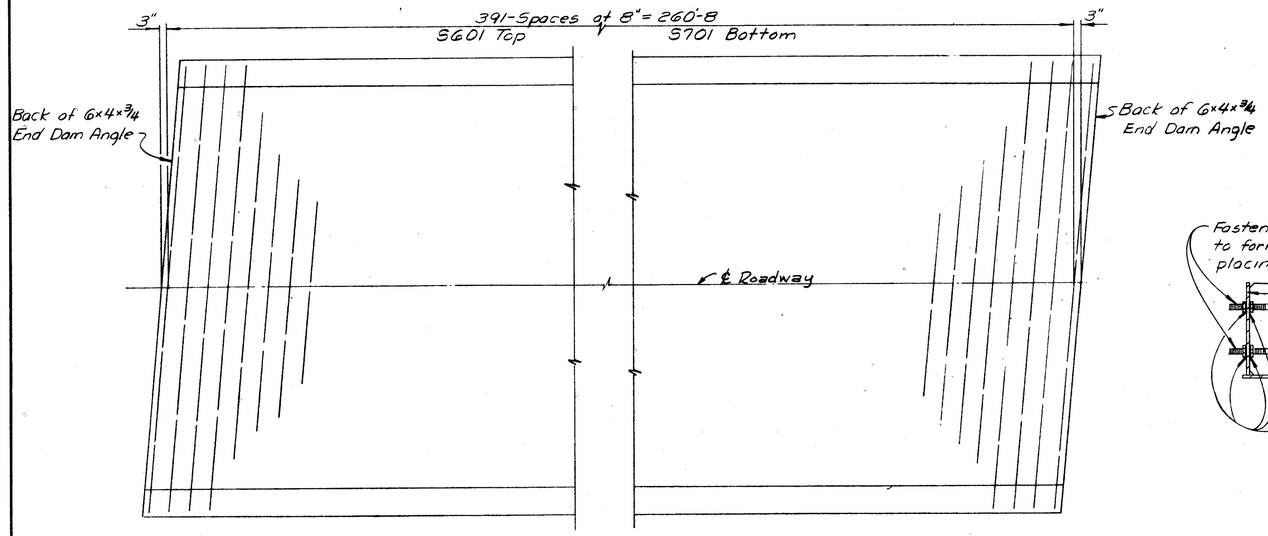
BRIDGE NO. COL-11-1424 L
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		RG	DLM	4-26-66	

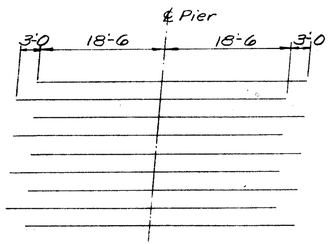
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

414

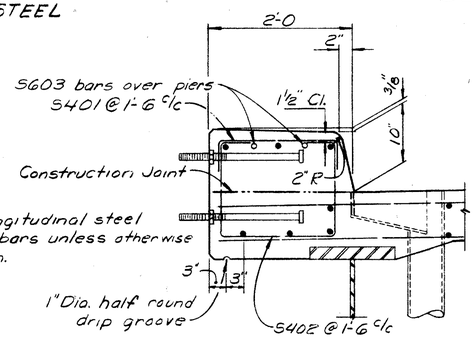
COL-11-10.22
COL-154-1.71



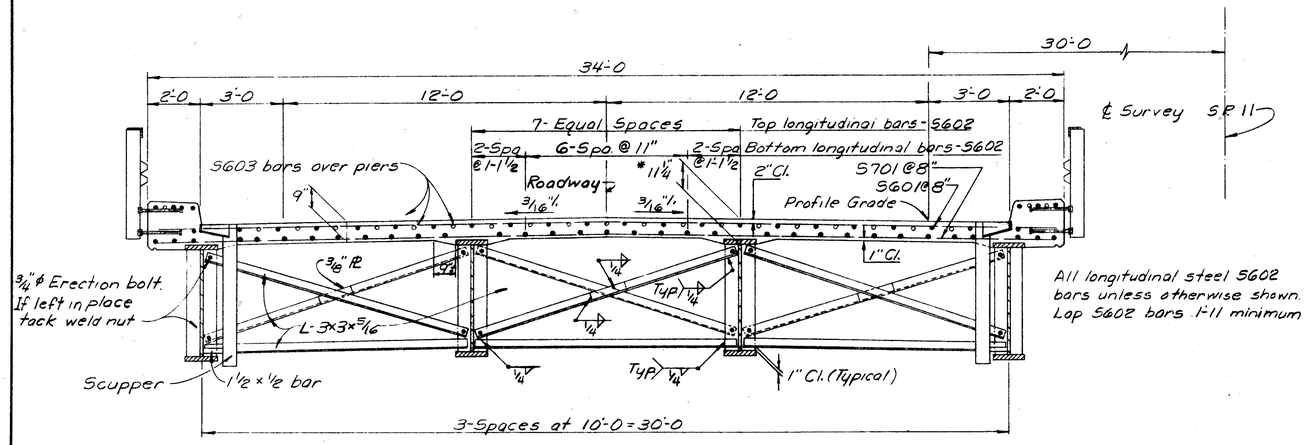
PLAN OF TRANSVERSE REINFORCING STEEL



ALTERNATE STAGGER SYSTEM OF S603 BARS OVER PIERS

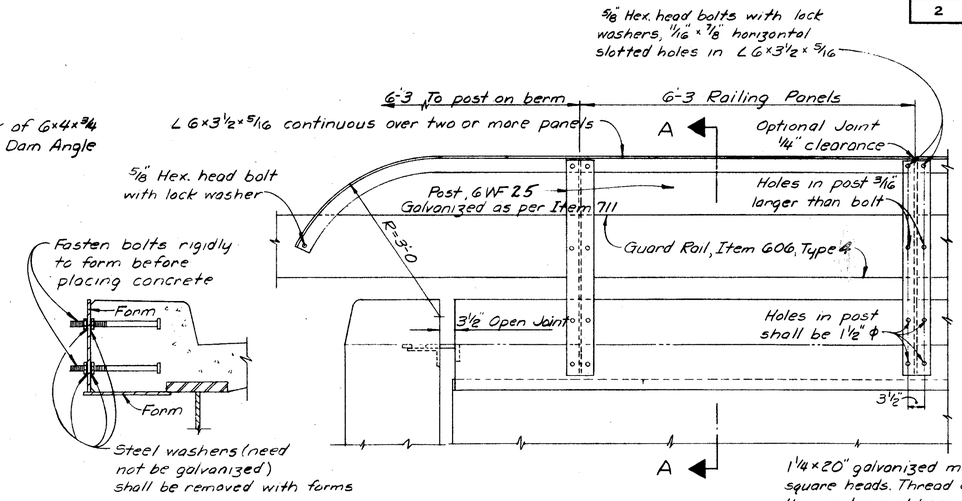


CURB DETAILS



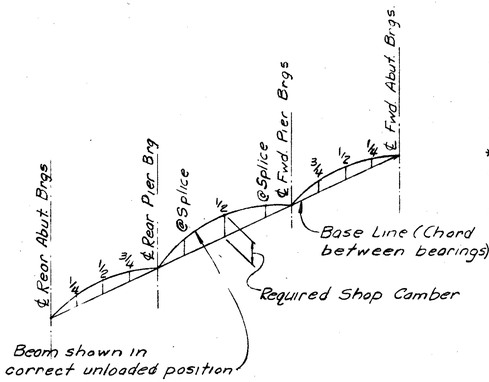
TRANSVERSE SECTION

All longitudinal steel S602 bars unless otherwise shown. Lap S602 bars 1'-11 minimum



DETAIL A ELEVATION SECTION A-A

RAILING DETAILS



DEFLECTION AND CAMBER DIAGRAM

SUPERSTRUCTURE NOTES:

ADDITIONAL DETAILS: Refer to Std. Dwg's. SD-1-65 and RB-1-55 for details not shown.

SCUPPERS: All scuppers as per Std. Dwg. SD-1-65 (Type I)

DECK SLAB HAUNCH: A typical haunch width of 9" shall be used for computing quantities of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" wide.

* THIS DIMENSION is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the girder may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of encased steel plates as per Item 511.19 of the Construction and Material Specifications.

SLAB THICKNESS shown includes 1" for monolithic wearing surface

ANY CHANGE in location of the indicated girder splices shall be approved by the director before ordering the material.

DEFLECTION AND CAMBER

LOCATION	SPAN 1			SPAN 2			SPAN 3		
	1/4	1/2	3/4	SPLICE	1/2	SPLICE	3/4	1/2	1/4
Deflection due to weight of steel	1/8	1/8	1/16	1/16	3/16	1/16	1/16	1/8	1/8
Deflection due to remaining dead load	7/16	1/2	1/4	1/4	5/8	1/4	1/4	1/2	7/16
Required Shop Camber	9/16	5/8	5/16	5/16	13/16	5/16	5/16	5/8	9/16

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

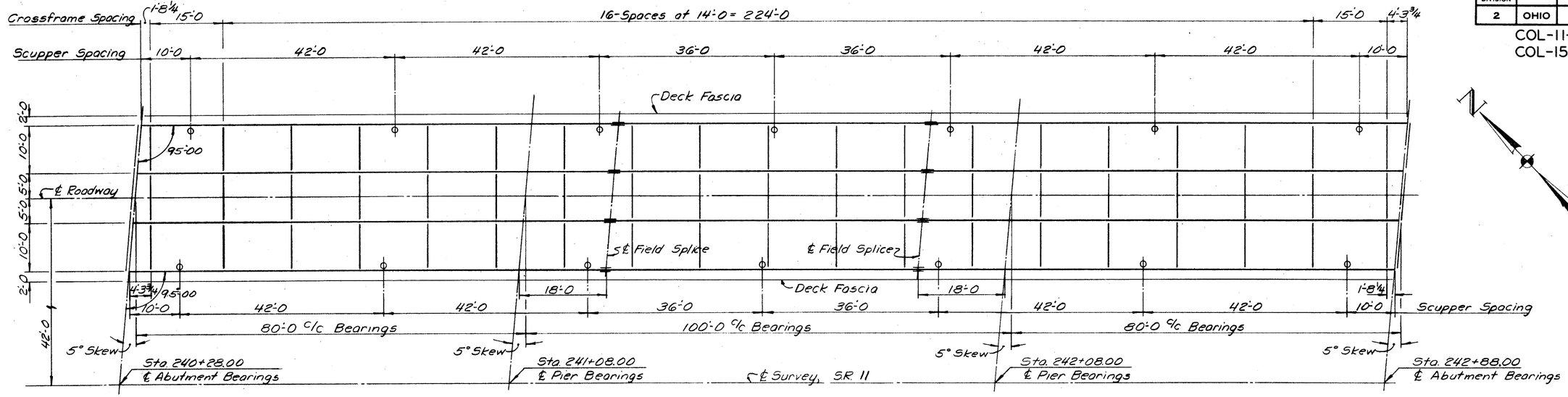
BRIDGE NO. COL-11-1424 L
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		RG	DLM	4-26-66	

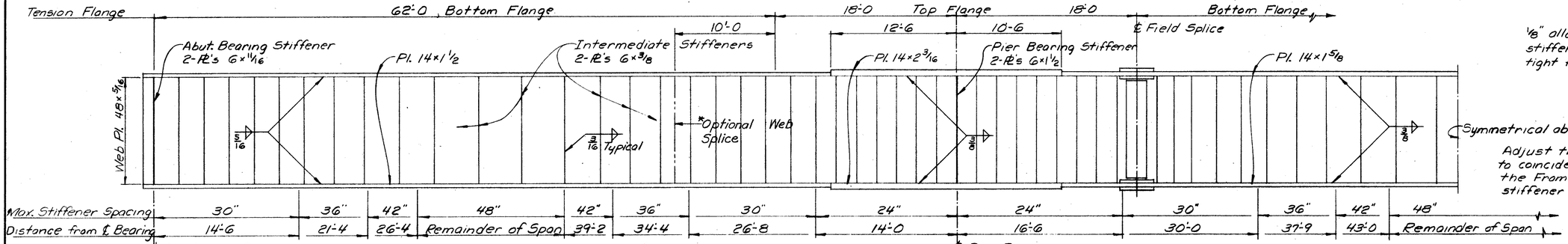
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

415

COL-11-10.22
COL-154-1.71



STEEL FRAMING PLAN



℄ Abutment Bearings
Rocker R-150

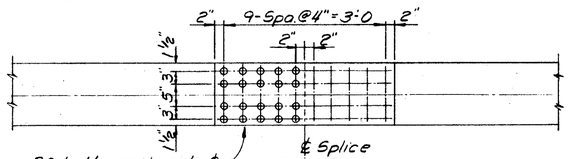
*See Superstructure Notes, Sheet ____

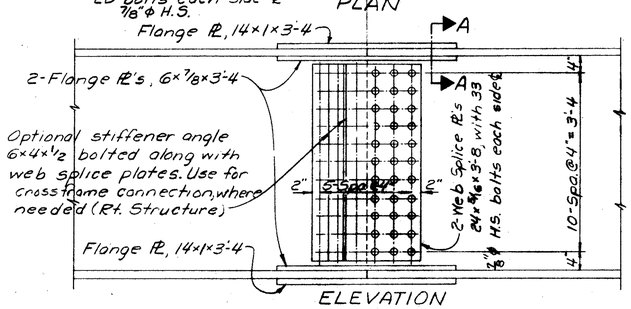
℄ Pier Bearings
Bolster B-300, Rear Pier
Rocker R-300, Fwd. Pier

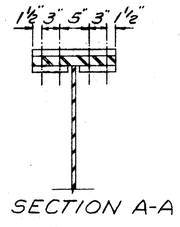
HALF GIRDER ELEVATION

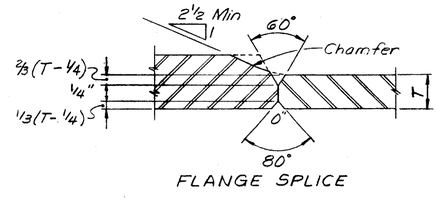
1/8" allowable clearance between stiffeners and tension flange and tight fit with compression flange.

Adjust the intermediate stiffener spacing to coincide with the crossframes shown in the Framing Plan and to the maximum stiffener spacing shown at left.





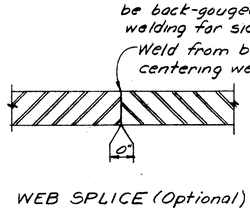




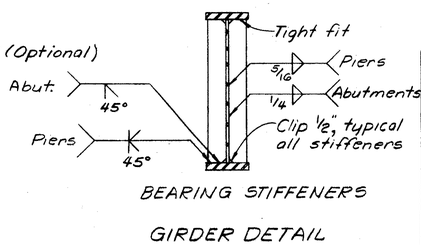
SHOP SPLICES
(Automatic Submerged Arc)

Butt welds on girder flange plates shall be ground flush, the finish grinding being parallel to the direction of stress.

All of the full penetration welds shall be back-gouged and welded after welding for side.



WEB SPLICE (Optional)



BEARING STIFFENERS

GIRDER DETAIL

W.E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS NEW PHILADELPHIA, OHIO

STRUCTURAL STEEL DETAILS

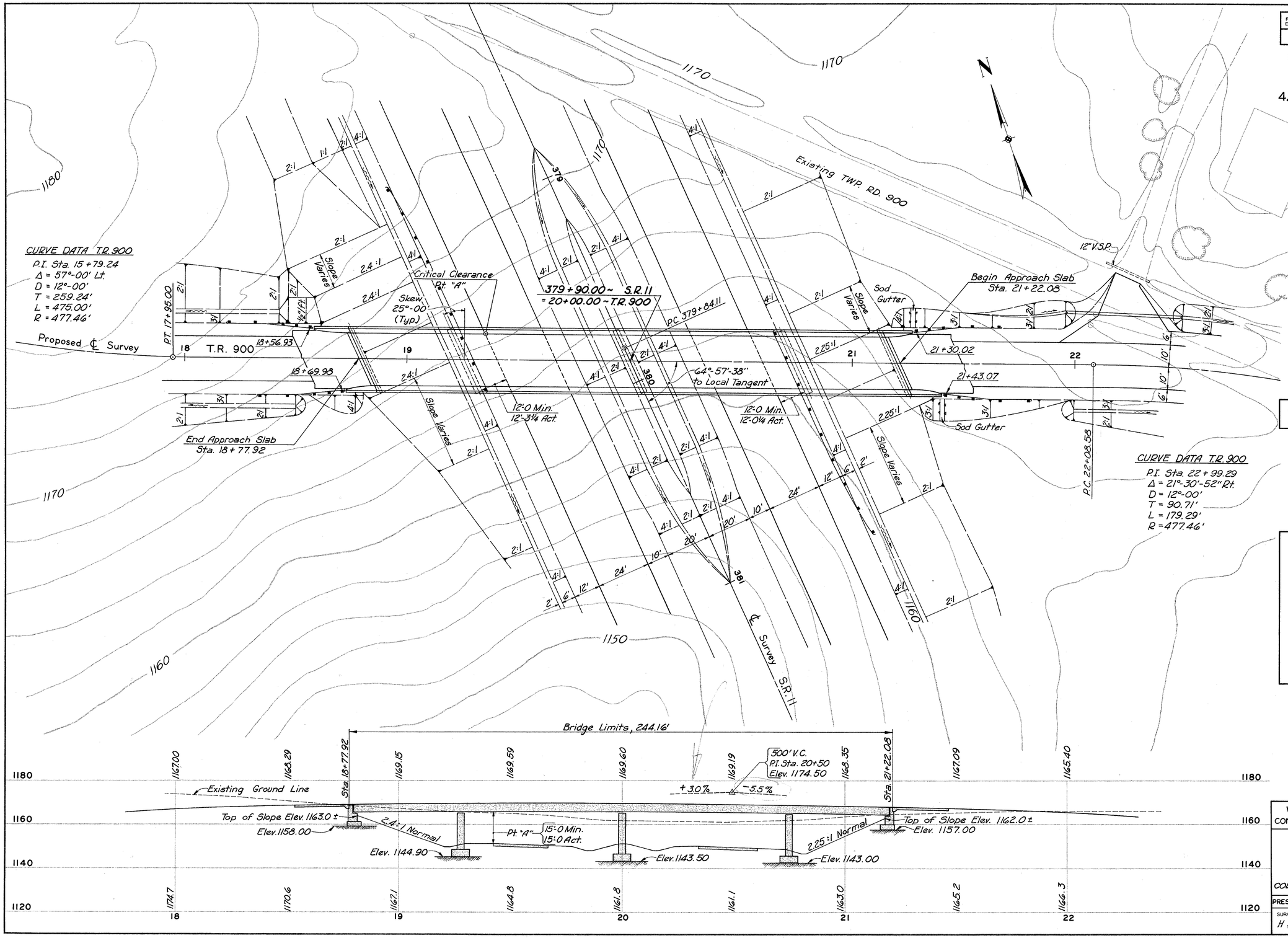
BRIDGE NO. COL-11-1424 L
S.R. 11 OVER
MIDDLE FORK LITTLE BEAVER CR.
COLUMBIANA COUNTY STA. 240 + 25.74
STA. 242 + 90.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WDA	WDA		RG	DLM	4-26-66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

416

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71
4.0 ± Miles South East of Lisbon



CURVE DATA T.R. 900
P.I. Sta. 15+79.24
Δ = 57°-00' Lt.
D = 12°-00'
T = 259.24'
L = 475.00'
R = 477.46'

CURVE DATA S.R. 11
P.I. Sta. 393+38.88
Δ = 34°-59'-49" Lt.
D = 1°-20'-00"
T = 1354.77'
L = 2624.78'
R = 4297.18'

B.M. Elev. 1175.58 ; Mine Spike in Power Pole # 699 N.56 222' Lt. Sta. 16+51.

CURVE DATA T.R. 900
P.I. Sta. 22+99.29
Δ = 21°-30'-52" Rt.
D = 12°-00'
T = 90.71'
L = 179.29'
R = 477.46'

TWP. RD. 900 1982 A.D.T. = 260
S.R. 11 1982 A.D.T. = 11,040

PROPOSED STRUCTURE
TYPE: Continuous steel beams with reinforced concrete deck and substructure.
SPANS: 44.85' - 74.75' - 74.75' - 44.85'
ROADWAY: 24'-0 f/f 2:0 safety curbs.
LOAD FREQUENCY: CF 130(57)
SKEW: 25°-00' R.F.
WEARING SURFACE: 1" monolithic
APPROACH SLABS: AS-1-54 modified (25' long)
ALIGNMENT: Tangent

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

SITE PLAN
BRIDGE NO. COL-11-1162
S.R. 11 UNDER TWP. RD. 900

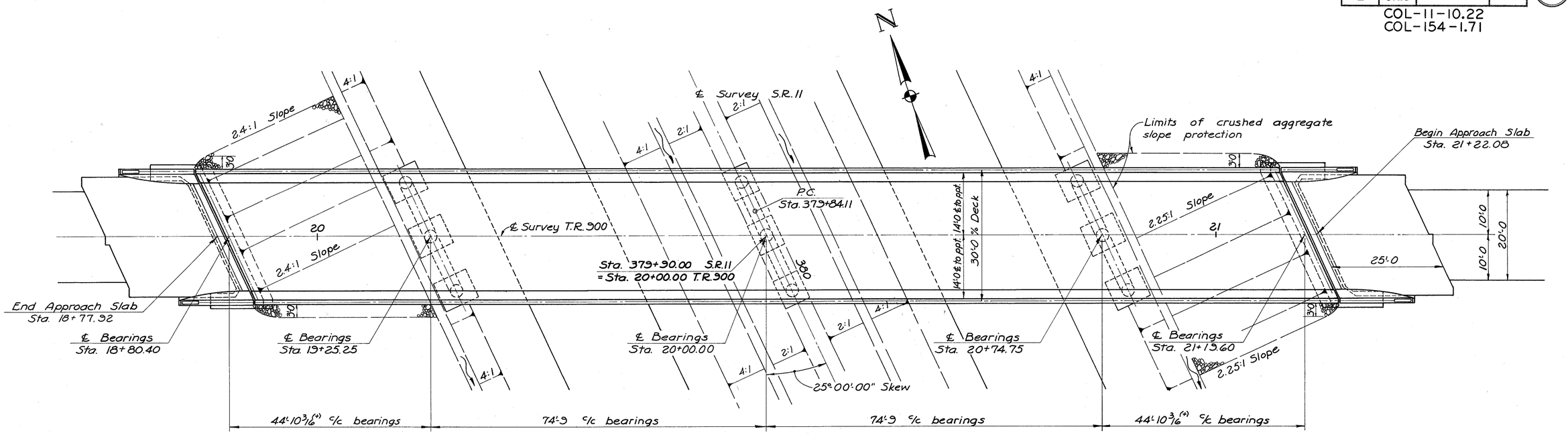
COLUMBIANA COUNTY Sta. 379+90.00

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
H & O	D.D.K.	WDA	WDA	DLM	3/30/65

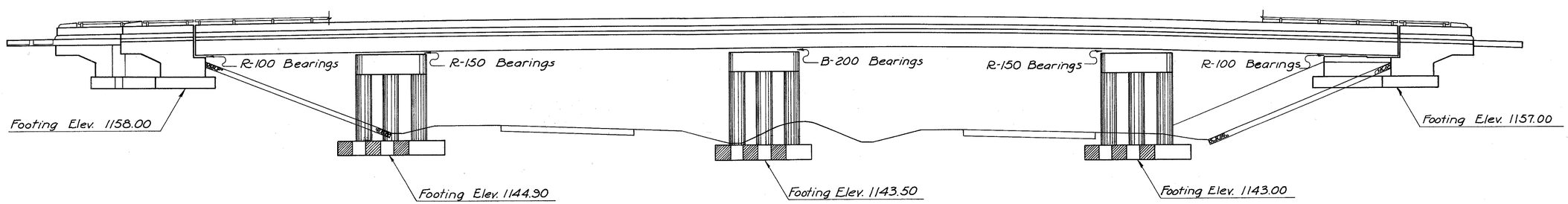
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

COL-11-10.22
COL-154-1.71

417



GENERAL PLAN



ELEVATION

GENERAL PLAN and ELEVATION
BRIDGE NO. COL-11-1162
S.R. 11 under T.R. 300
COLUMBIANA COUNTY STA. 379+90.00

W.D.A. W.D.A. C.H.B. D.L.M. 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

418

COL-11-10.22
COL-154-1.71

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER	GEN'L.		
503	279	Cu. Yd.	Unclassified Excavation	174	105			105	174
503	10	Cu. Yd.	Rock Excavation	5	5			35	35
509	79,804	Lbs.	Reinforcing Steel	6,450	16,860	56,494			
511	238	Cu. Yd.	Class "C" concrete, superstructure			238			
511	72	Cu. Yd.	Class "C" concrete, pier caps & columns		72				
511	116	Cu. Yd.	Class "E" concrete, abutments	116					
511	52	Cu. Yd.	Class "E" concrete, pier footings		52				
513	172,600	Lbs.	Structural Steel			172,600			
514	172,600	Lbs.	Field Painting of structural steel			172,600			
517	540.19	Lin. Ft.	Railing - Type 1	57.38		482.81			
518	20	Cu. Yd.	Porous Backfill	20					
518	12	Each	Scuppers, including supports			12			
518	50	Lin. Ft.	6" Perforated helical C.M.P. including specials (707.06)	50					
518	34	Lin. Ft.	6" Non-perforated helical C.M.P. (707.06)	34					
601	384	Sq. Yd.	Crushed aggregate slope protection	384					
825	974	Sq. Yd.	Concrete surface treatment	45		929			
808	238	Units	Water-reducing, set-retarding, admixture			238		238	2
828	53	Lin. Ft.	Joint sealer			53		53	2

DECK SLAB ELEVATIONS

STATION	PROFILE GRADE	CURB LINE ELEV. *	
		Lt.	Rt.
18 + 74.80	1168.77	1168.58	———
18 + 86.00	1168.95	———	1168.76
19 + 00	1169.15	1168.96	1168.97
19 + 19.65	1169.37	1169.19	———
19 + 25	1169.42	1169.24	1169.23
19 + 30.85	1169.47	———	1169.28
19 + 50	1169.59	1169.43	1169.42
19 + 75	1169.65	1169.48	1169.49
19 + 94.40	1169.62	1169.43	———
20 + 00	1169.60	1169.42	1169.42
20 + 05.60	1169.58	———	1169.39
20 + 25	1169.45	1169.29	1169.28
20 + 50	1169.19	1169.02	1169.03
20 + 69.15	1168.92	1168.73	———
20 + 75	1168.82	1168.63	1168.65
20 + 80.35	1168.73	———	1168.54
21 + 00	1168.35	1168.17	1168.16
21 + 14.00	1168.04	1167.85	———
21 + 25.20	1167.77	———	1167.58

Note:
* Elevations shown are at the intersection of face of curb and ℄ Bearing of the substructure units and at even 25' stations. Elevations are those required before deck concrete is placed to allow for dead load deflections caused by the weight of the concrete.

GENERAL NOTES

REFERENCE SHALL BE MADE TO:
Standard Drawings:
50-1-65, dated 11-8-65, Sheets ———
RB-1-55, revised 2-2-59
BR-1-65, revised 11-24-65, Sheet 1
AS-1-54, revised 8-10-65

Supplemental Specifications:
808, dated 1-13-67.
811, dated 1-1-67.
825, dated 1-1-67.
828, dated 1-1-67.

DESIGN SPECIFICATIONS:
This structure conforms to the requirements of "Design Specifications for Highway Structures of the State of Ohio, Department of Highways, dated 9-1-57", together with current revisions thereof.

MACHINE FINISH:
The concrete bridge deck shall be finished by the use of a finishing machine.

DESIGN INFORMATION:
Design Loading ---------- CF130(57)
Concrete Class "C" ---------- Basic unit stress 1333 p.s.i.
Concrete Class "E" ---------- Basic unit stress 1133 p.s.i.
Structural Steel ---------- ASTM A36 Basic Unit Stress 20,000 p.s.i.
Reinforcing Steel ---------- ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic Unit Stress 20,000 p.s.i. Spiral Reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

FOUNDATION BEARING PRESSURE:
Footings are designed for a maximum bearing pressure of 2 tons per sq. ft. at the abutments and 5 tons per sq. ft. at the piers.

FOOTINGS:
Footings shall extend a minimum of 3 inches into undisturbed rock or to the elevation shown, whichever is lower.

WELDS on secondary stress carrying members are shown thus: ⚲

ESTIMATED QUANTITIES - DECK SLAB ELEVATIONS & GEN'L. NOTES
BRIDGE NO. COL.-11-1162
S.R. 11 UNDER TWP. RD. 900
COLUMBIANA COUNTY STA. 379 + 90.00

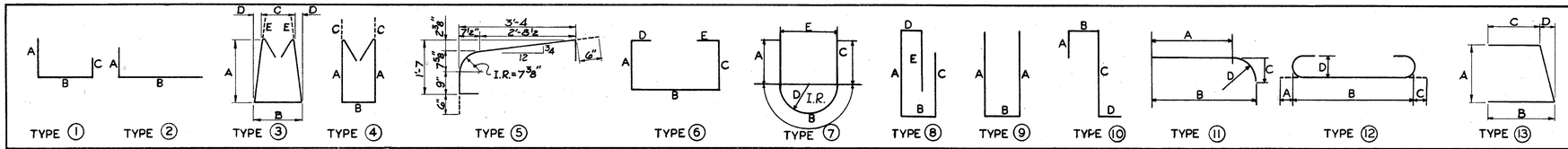
W.D.A. W.D.A. RG RG DLM 5/20/66

EFO Revised to Sheet 4-10-70

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

419

COL-11-10.22
COL-154-1.71



ABUTMENTS

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
A601	8	6'-2	1'-5	4'-10	11"	3'-3	54	15'-11	1291
A602	9	6'-2	1'-5				8	13'-5	161
A603	2	5'-9	5'-5				28	11'-0	463
A604	2	5'-6	5'-5				14	10'-9	226
A605	Str.						6	34'-6	311
A606	Str.						2	32'-7	98
A607	9	7'-2	1'-2				8	15'-2	182
A608	9	7'-6	1'-2				12	15'-10	285
A609	Str.						4	11'-5	69
A610	Str.						4	11'-6	69
A501	9	1'-7	3'-5				42	6'-4	277
A502	2	7½"	5'-9				28	6'-3	183
A503	2	7½"	5'-6				14	6'-0	88
A504	Str.						30	31'-10	996
A505	12	7"	7'-2	7"	4"		8	8'-4	70
A506	Str.						24	5'-1	127
A507	Str.						16	5'-6	92
A508	9	4'-8	1'-2				4	10'-3	43
A509	9	4'-0	1'-2				4	8'-11	37
A510	9	3'-6	1'-2				12	7'-11	99
A511	Str.						24	14'-4	359
A512	Str.						8	8'-2	68
A513	4	2'-2	8"	5"			40	5'-7	233
A514	9	1'-0	1'-3				32	3'-0	100
A515	13	1'-3	1'-2	1'-0	2"		32	3'-2	106
A516	9	7½"	1'-2 to 2'-6 (Vary by 2" increments)				Four Series of 8	2'-2 to 3'-6	95
A517	Str.						8	8'-3	69
A518	Str.						4	10'-0	42
A519	12	7"	5'-2	7"	4"		8	6'-4	53
A520	Str.						4	13'-6	56
A521	Str.						4	15'-3	64
A522	9	1'-3	2'-0				2	4'-3	9
A523	13	1'-3	2'-11	2'-11	2"		2	6'-10	14
A524	Str.						2	3'-8	8
A525	Str.						2	3'-6	7

SUPERSTRUCTURE

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
S701	Str.						263	29'-8	15,948
S702	Str.	Vary by 1'-9½ increments					Two Series of 13	6'-4 to 27'-10	908
S703	Str.						8	6'-3	102
S601	Str.						263	29'-8	11,719
S602	Str.						357	36'-0	19,304
S603	Str.						57	30'-0	2568
S604	Str.	Vary by 1'-9½ increments					Two Series of 13	6'-4 to 27'-10	667
S605	Str.						8	6'-3	75
S606	Str.						24	8'-6	306
S501	9	7½"	1'-3				688	2'-3	1615
S502	9	7½"	2'-6				344	3'-6	1256
S503	4	2'-2	8"	5"			344	5'-7	2003
S504	9	1'-3	2'-0				2	4'-3	9
S505	13	1'-3	2'-11	2'-11	2"		2	6'-10	14

RAILING

R501	5	See Detail					8	5'-4	*
R502	4	1'-6	8"	6½"	¾"	5"	12	4'-2	*
R503	Str.						16	14'-0	*
R504	Str.						112	15'-2	*
R505	Str.						16	11'-7	*

REPLACEMENT BARS

RE1101	Str.						1	7'-6	—
RE1001	Str.						1	7'-2	—
RE901	Str.						1	6'-10	—
RE801	Str.						1	6'-6	—
RE701	Str.						1	6'-2	—
RE601	Str.						2	5'-11	—
RE501	Str.						1	5'-7	—
RE401	Str.						1	5'-3	—

PIERS

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
P1101	Str.						42	7'-8	1711
P1001	Str.						30	16'-4	2108
P1002	Str.						30	17'-7	2270
P1003	2	1'-4½	5'-11				90	7'-0	2711
P901	Str.						75	6'-8	1700
P801	Str.						6	26'-6	425
P802	9	3'-9	28'-2				6	35'-4	566
P803	9	3'-9	28'-9				6	35'-11	575
P804	9	3'-9	29'-0				6	36'-2	579
P701	Str.						15	26'-6	813
P702	7	2'-2	3'-8	2'-2	1'-1 3/8	2'-4½	6	8'-0	98
P703	Str.						15	5'-8	174
P501	9	2'-9	2'-8				72	7'-11	595
P502	Str.						6	26'-6	166
P401	7	1'-3	4'-2	1'-3	1'-3½	2'-8	24	6'-8	107

SPIRAL REINFORCING

MARK	CORE DIA.	PITCH	NO. TURNS	NO.	LENGTH	WEIGHT
SP401	32"	4½"	36	3	12-5 7/8	709
SP402	32"	4½"	40	3	13'-10 1/8	779
SP403	32"	4½"	40	3	13'-8 7/8	774

NOTES

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
The "No." of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 509. 1 1/2 closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

* Include with railing for payment.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE
BRIDGE NO. COL-11-1162
S.R. 11 UNDER TWP. RD. 900

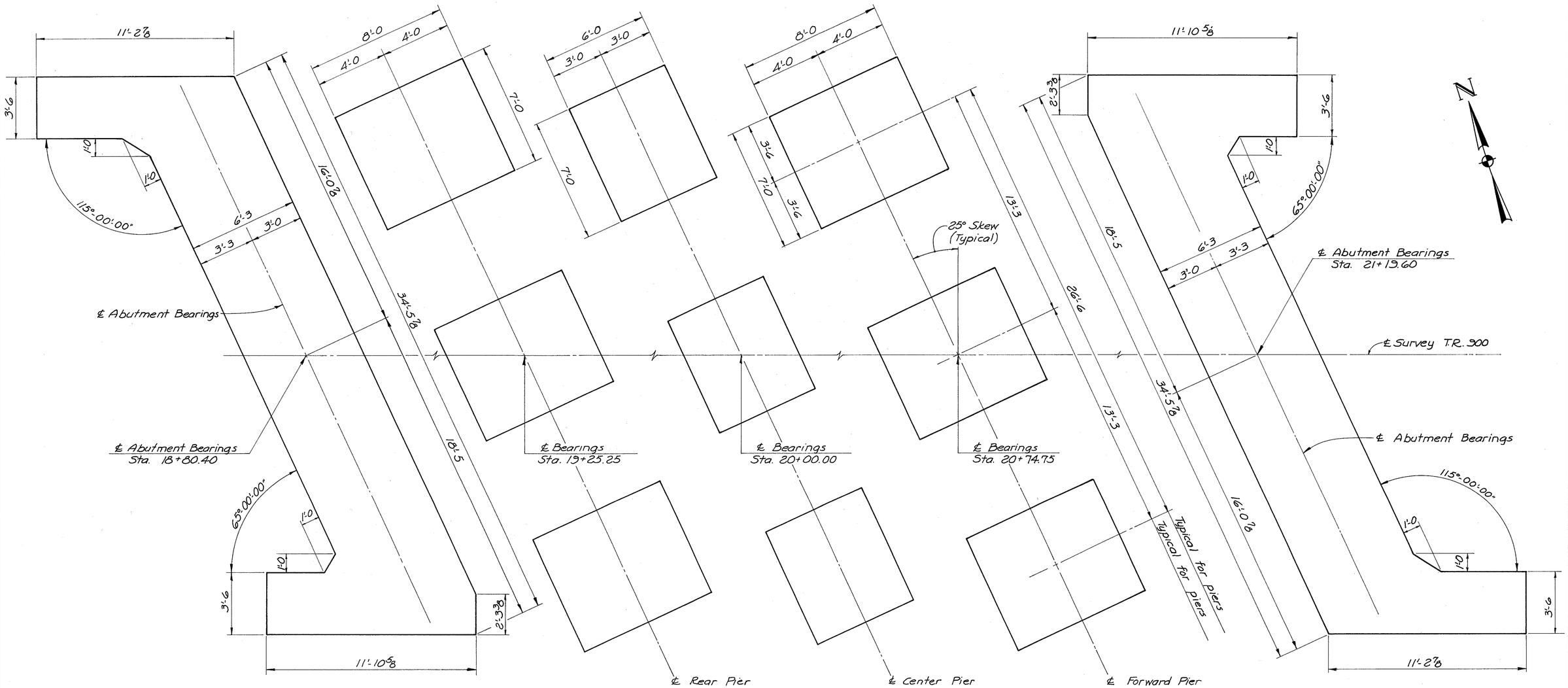
COLUMBIANA COUNTY STA. 379+90.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
W.D.A.	W.D.A.	RJ	RJ	DLM	5/20/66	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

420

COL-11-10.22
COL-154-1.71



FOOTING PLAN

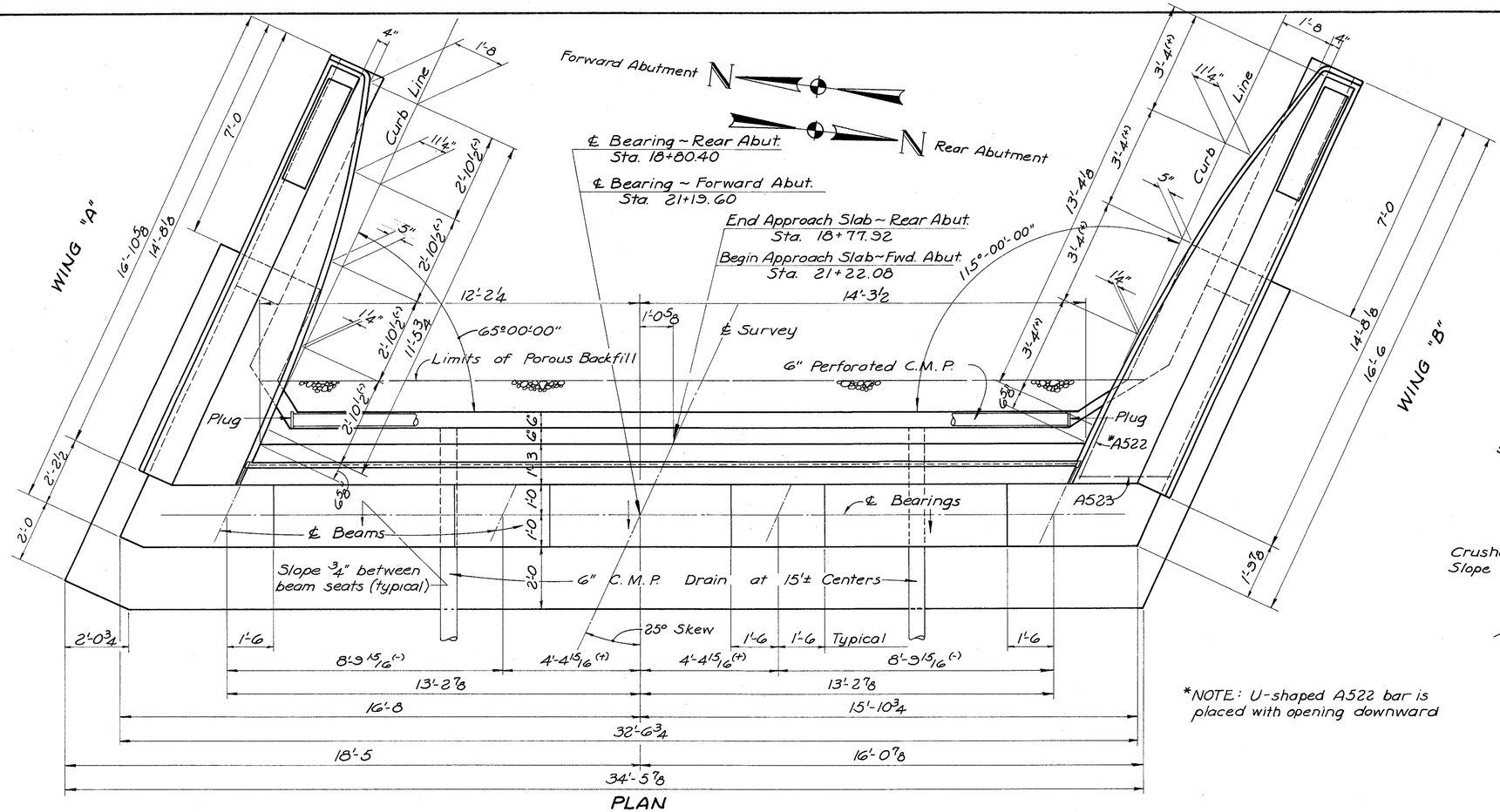
FOOTING PLAN
BRIDGE NO. COL.-11-1162
S.R.11 under T.R.300
COLUMBIANA COUNTY STA.373+30.00

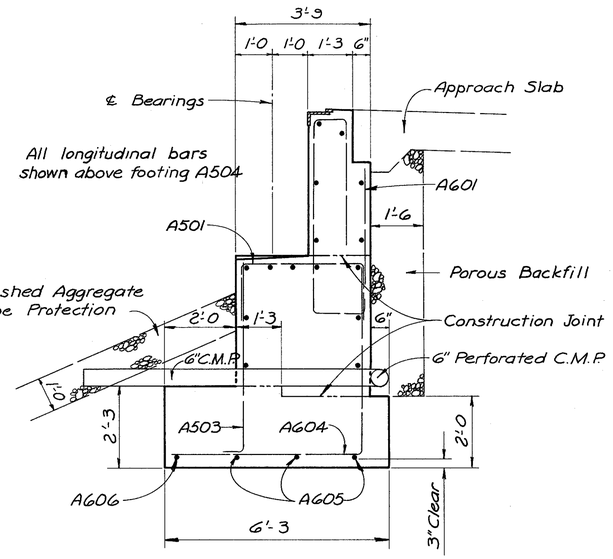
W.D.A. W.D.A. C.H.B. DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

421

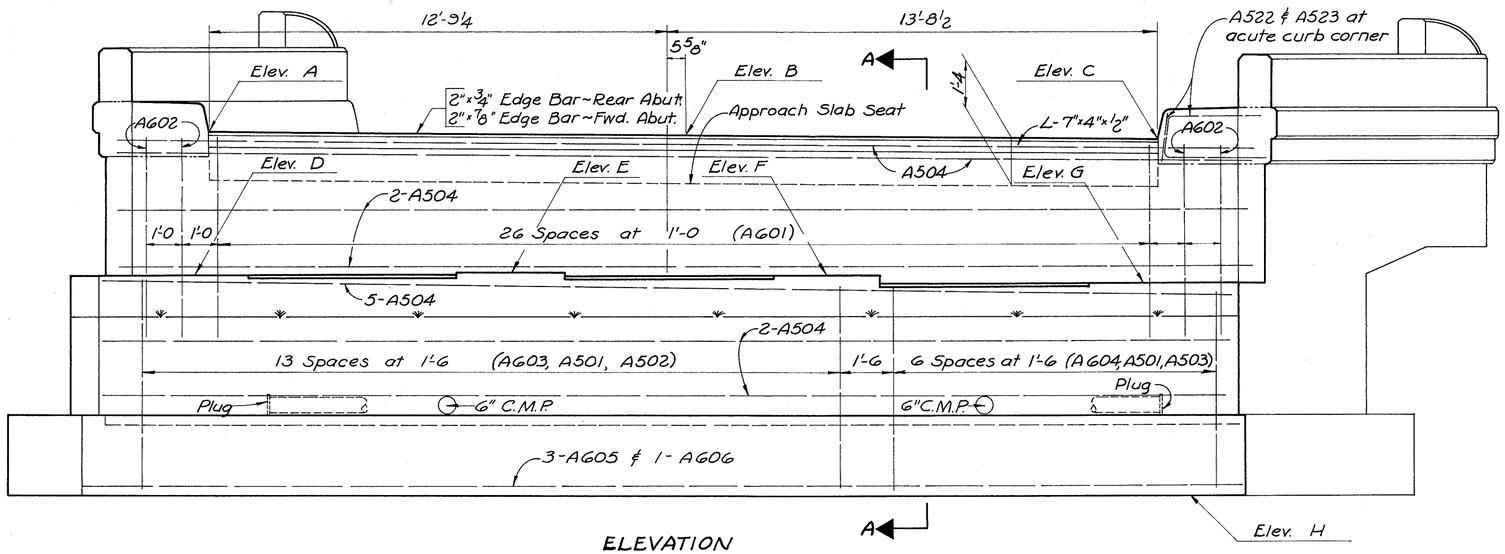
COL-11-10.22
COL-154-1.71





SECTION A-A

*NOTE: U-shaped A522 bar is placed with opening downward



ELEVATION

TABLE OF ELEVATIONS								
LOCATION	A	B	C	D	E	F	G	H
Rear Abutment	1168.75	1160.66	1168.56	1164.23	1164.30	1164.24	1164.05	1158.00
Forward Abutment	1167.83	1167.69	1167.55	1163.32	1163.36	1163.27	1163.05	1157.00

ANCHORS FOR ATTACHMENT of approach guardrail to bridge railing are described on Sheet 375

ABUTMENT DETAILS
BRIDGE NO. COL-11-1162

S.R. 11 under T.R. 300

COLUMBIANA COUNTY STA. 375+30.00

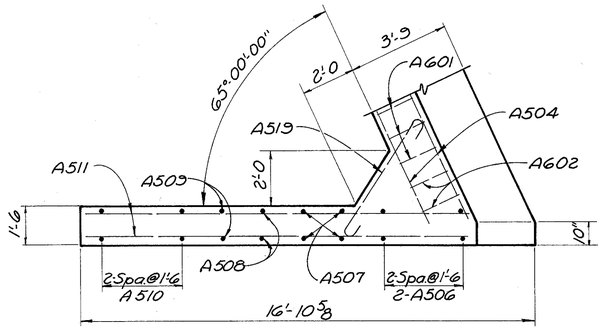
W.D.A. W.D.A. C.H.B. DLM 5/20/66

For additional details, see sheet 422.

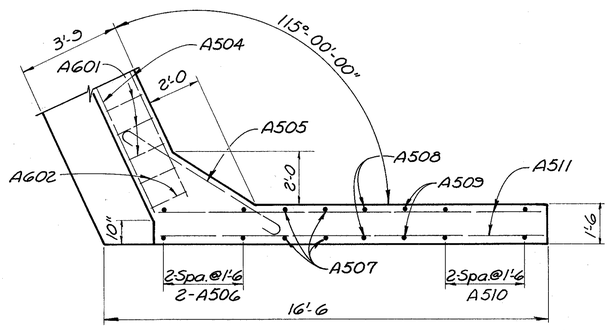
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

422

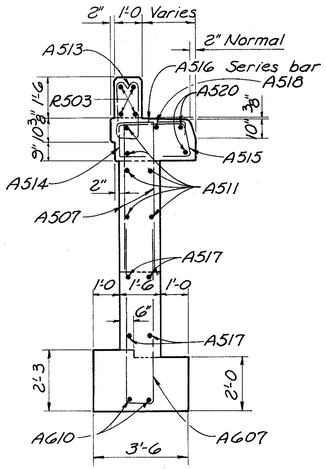
COL-11-10.22
COL-154-1.71



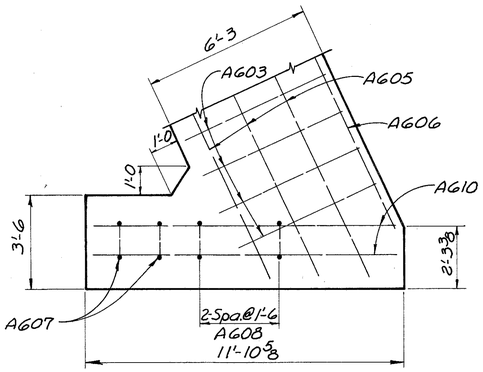
SECTION C-C



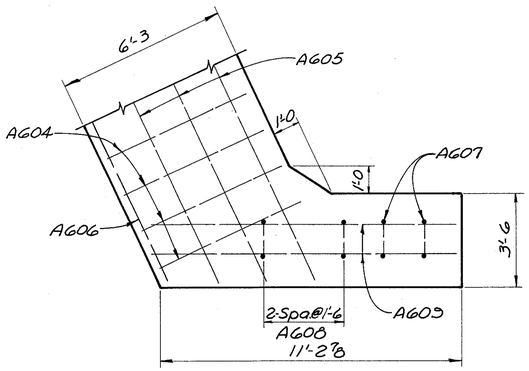
SECTION F-F



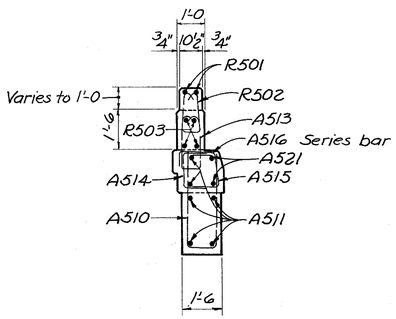
SECTION B-B



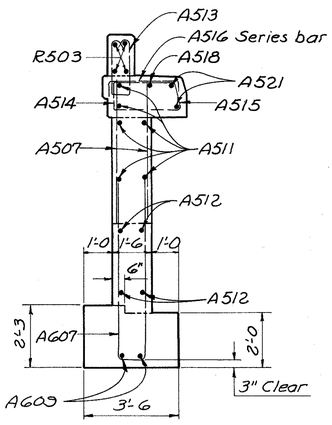
SECTION D-D



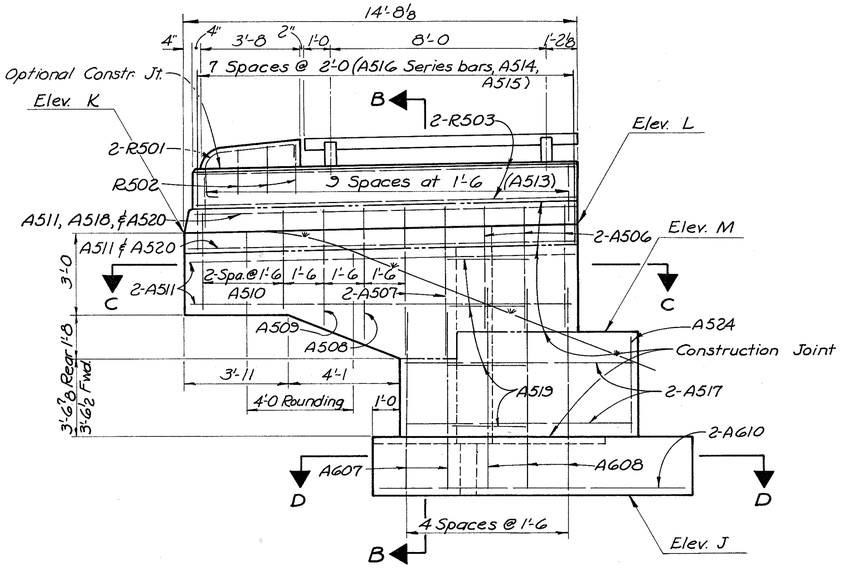
SECTION G-G



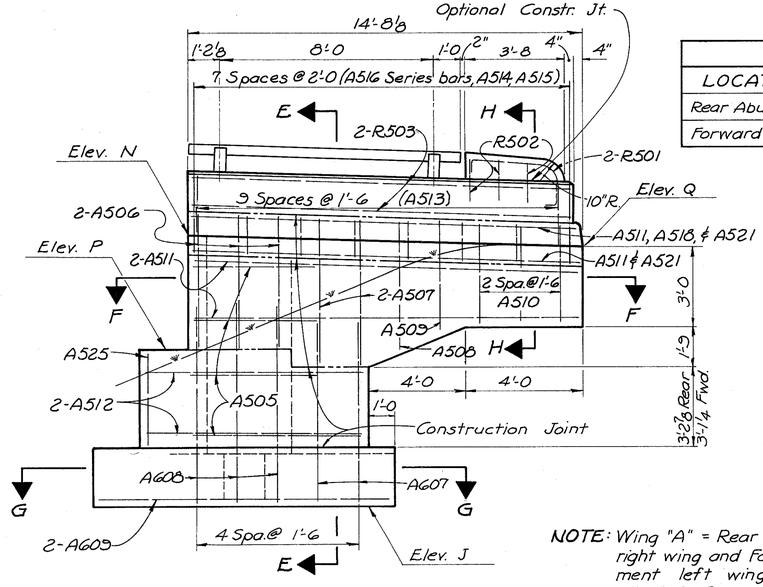
SECTION H-H



SECTION E-E



ELEVATION OF WING "A"



ELEVATION OF WING "B"

TABLE OF ELEVATIONS							
LOCATION	J	K	L	M	N	P	Q
Rear Abutment	1158.00	1168.49	1168.75	1164.23	1168.56	1164.05	1168.24
Forward Abutment	1157.00	1167.46	1167.63	1163.32	1167.55	1163.05	1167.10

NOTE: Wing "A" = Rear Abutment right wing and Forward Abutment left wing.
Wing "B" = Rear Abutment left wing and Forward Abutment right wing.

ABUTMENT DETAILS

BRIDGE NO. COL-11-1162
S.R. 11 under T. R. 900

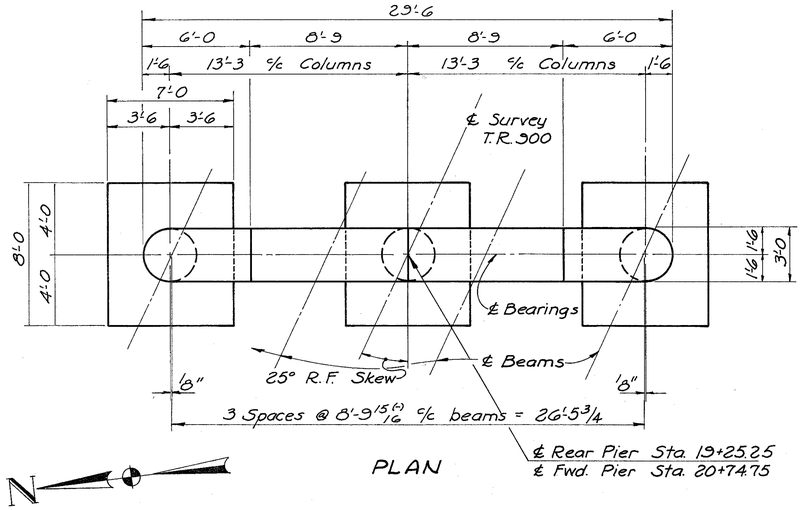
COLUMBIANA COUNTY STA. 379+30.00

W.D.A. W.D.A. C.H.B. DLM 5/20/66

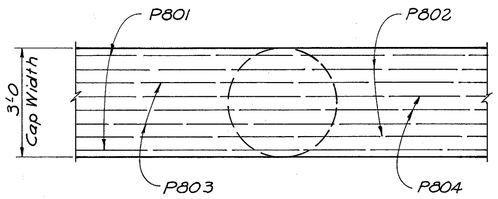
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

423

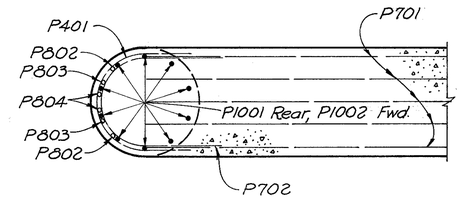
COL-11-10.22
COL-154-1.71



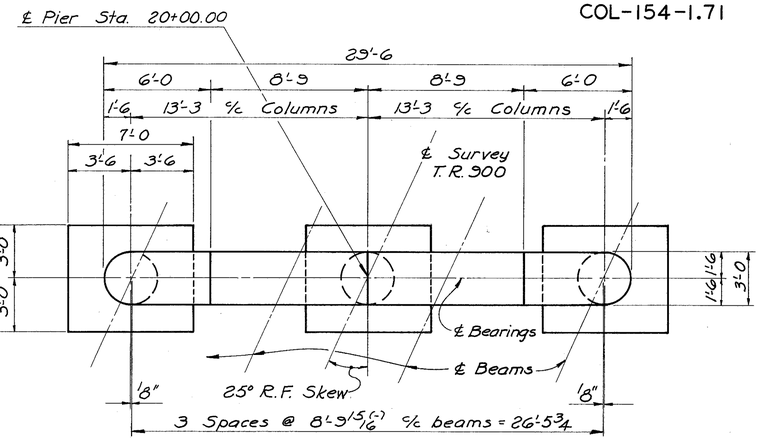
PLAN



VIEW C-C



SECTION D-D

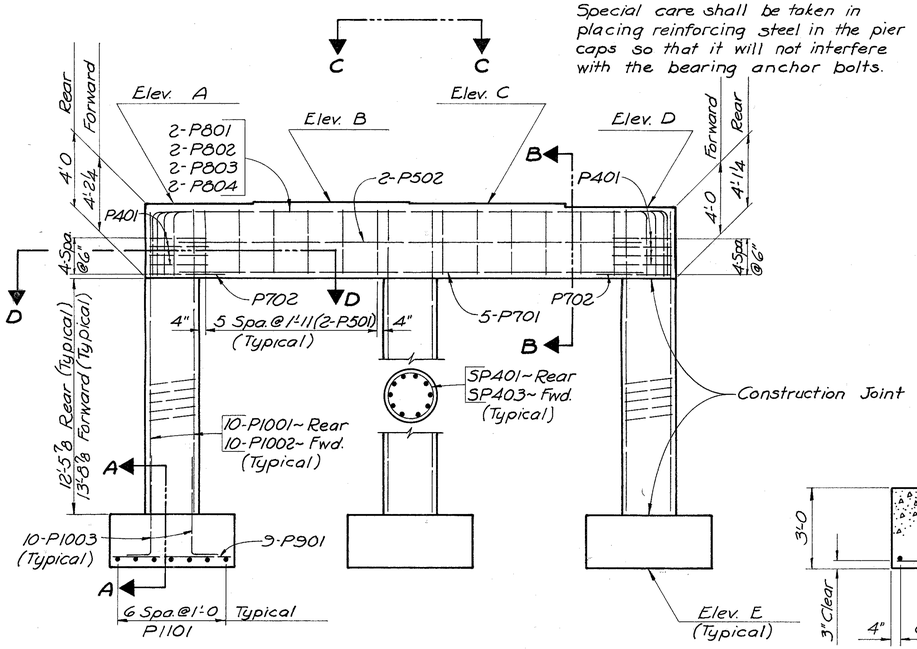


PLAN

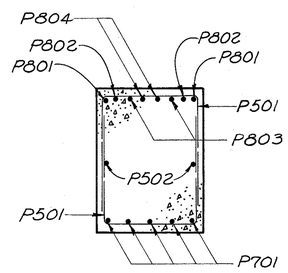
N
Center Pier

TABLE OF ELEVATIONS					
LOCATION	A	B	C	D	E
Rear Pier	1164.39	1164.54	1164.58	1164.48	1144.30
Forward Pier	1163.93	1163.95	1163.93	1163.74	1143.00

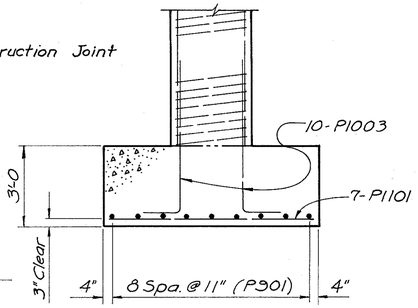
Special care shall be taken in placing reinforcing steel in the pier caps so that it will not interfere with the bearing anchor bolts.



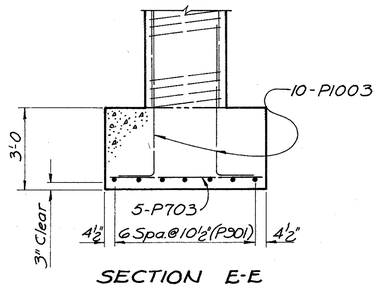
ELEVATION
REAR and FORWARD PIERS



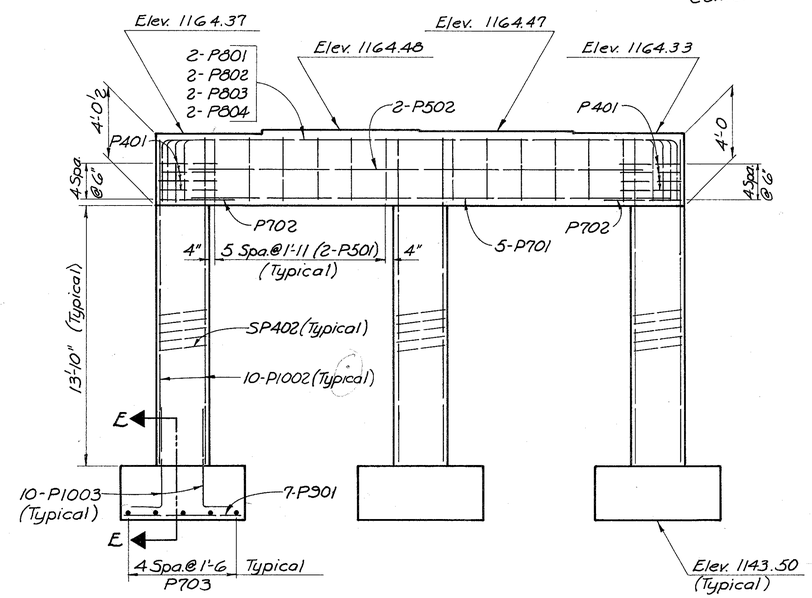
SECTION B-B



SECTION A-A



SECTION E-E



ELEVATION
CENTER PIER

PIER DETAILS
BRIDGE NO. COL-11-1162
S.R. 11 under T.R. 900

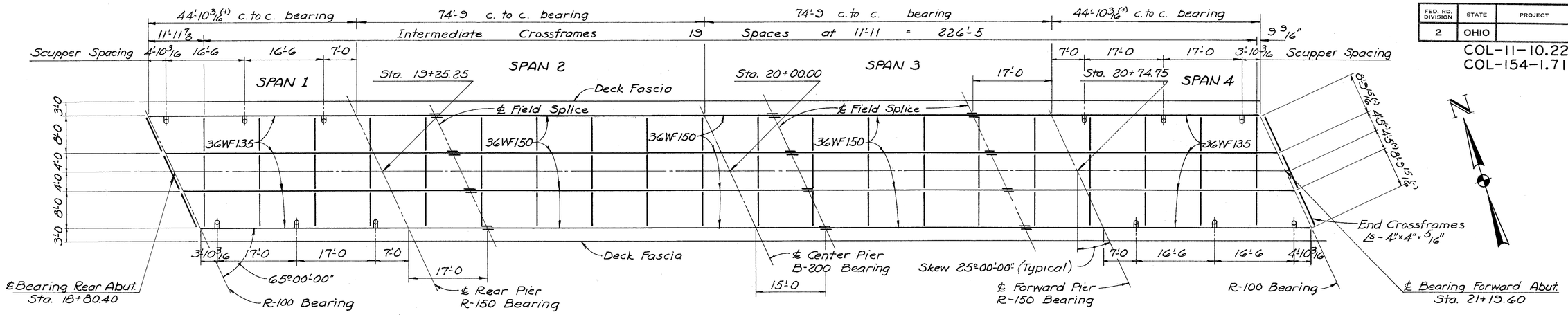
COLUMBIANA COUNTY STA. 379+90.00

W.D.A. W.D.A. C.H.B. DLM 5/20/66

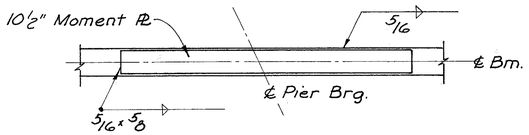
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

424

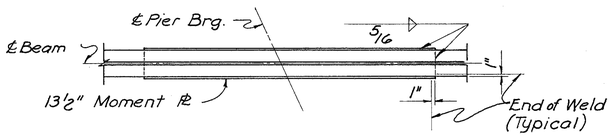
COL-11-10.22
COL-154-1.71



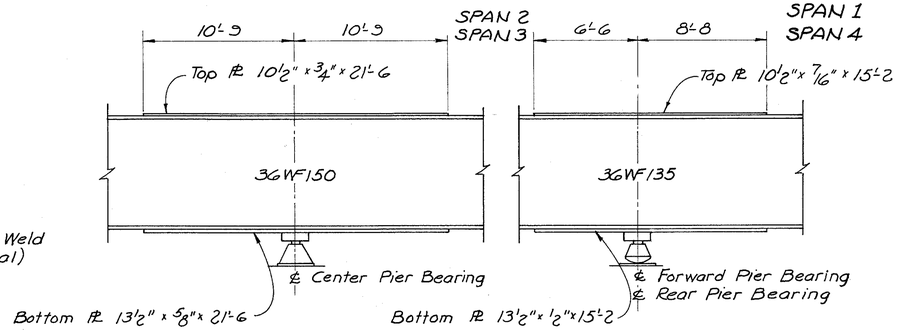
STEEL FRAMING PLAN



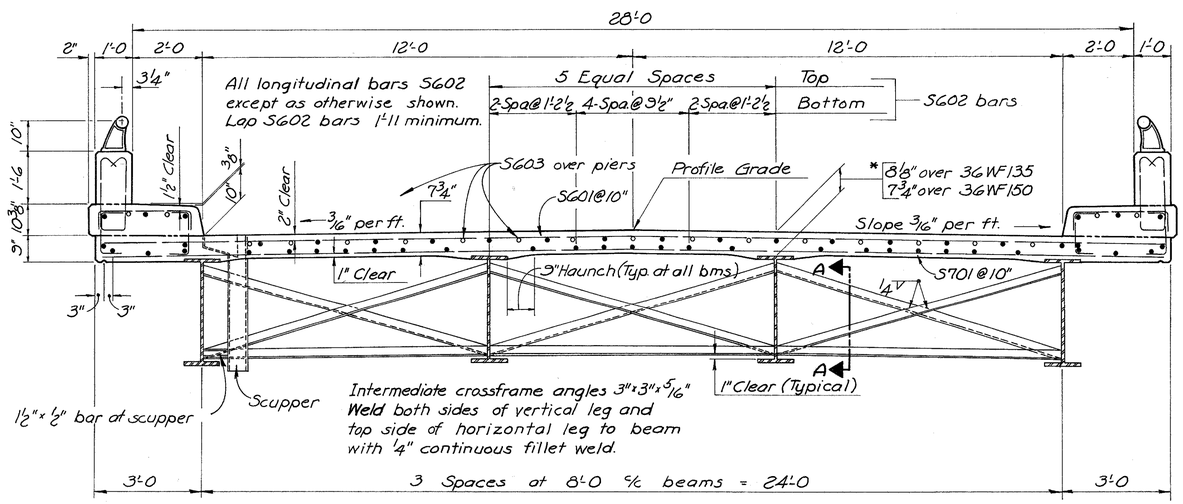
TYPICAL TOP VIEW



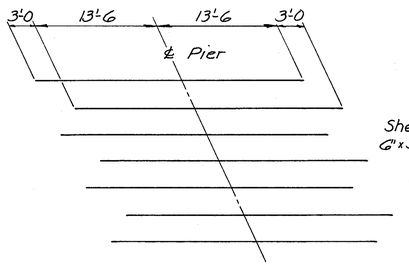
TYP. SECTION THRU BEAM



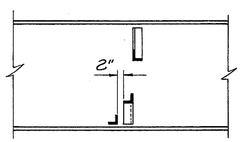
MOMENT PLATE DETAILS



TRANSVERSE SECTION



ALTERNATE STAGGER SYSTEM OF S603 BARS OVER PIERS



SECTION A-A

SUPERSTRUCTURE NOTES

ADDITIONAL DETAILS: Refer to Standard Drawings SD-1-65, sheets 1, 2, and 3, BR-1-65, sheet 1, and RB-1-55 for details not shown.

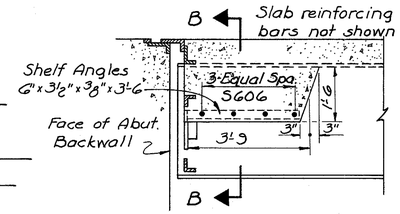
WHERE FIELD SPLICE of 36WF135 and 36WF150 occurs, the smaller beam splice is to be used as detailed on Std. Dwg. SD-1-65.

ALL SCUPPERS are per Standard Drawing SD-1-65 (Type 1).

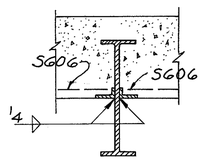
DECK SLAB HAUNCH: A typical haunch width of 3" shall be used for computing quantities of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall not be greater than 1:4 for a haunch less than 3" in width.

SLAB THICKNESS shown includes 1" for monolithic wearing surface.

*THIS DIMENSION is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.



BEAM COUNTERWEIGHT DETAILS



SECTION B-B

SUPERSTRUCTURE DETAILS
BRIDGE NO. COL- 11 - 1162
S.R. 11 under T.R. 300
COLUMBIANA COUNTY STA. 373+90.00

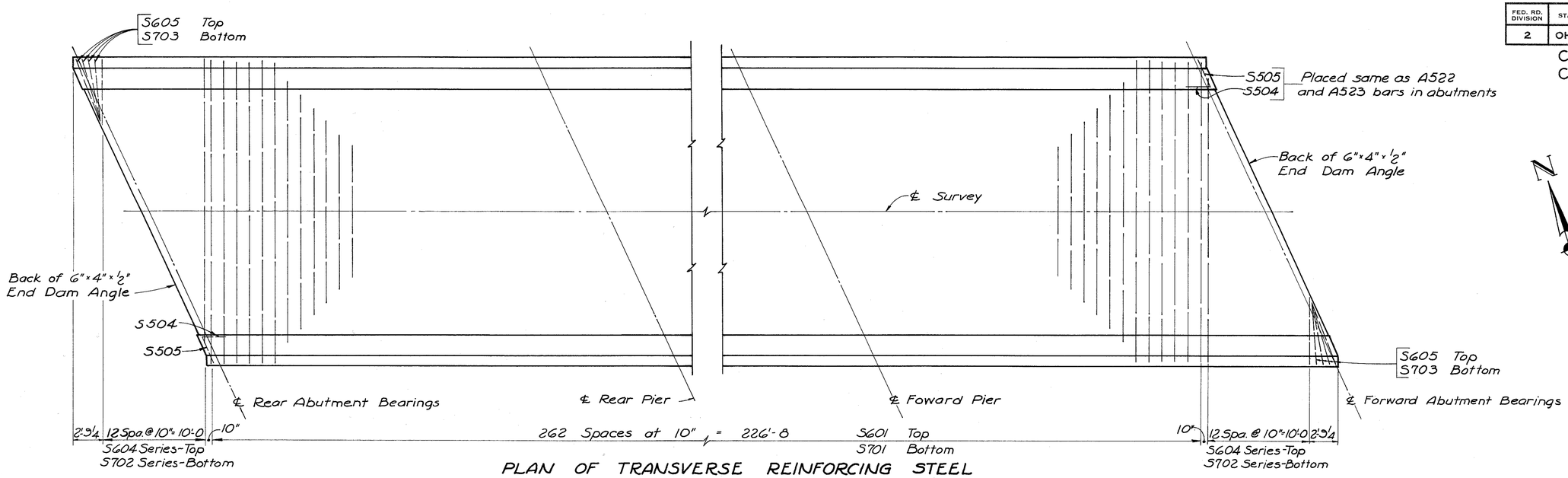
W.D.A. W.D.A. C.H.B. DLM 5/20/66

For additional details, see sheet 425.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

425

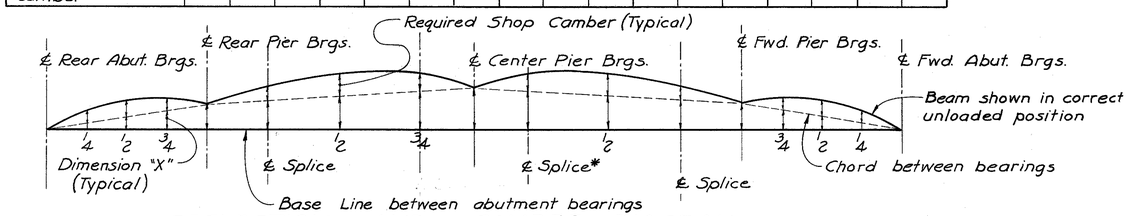
COL-11-10.22
COL-154-1.71



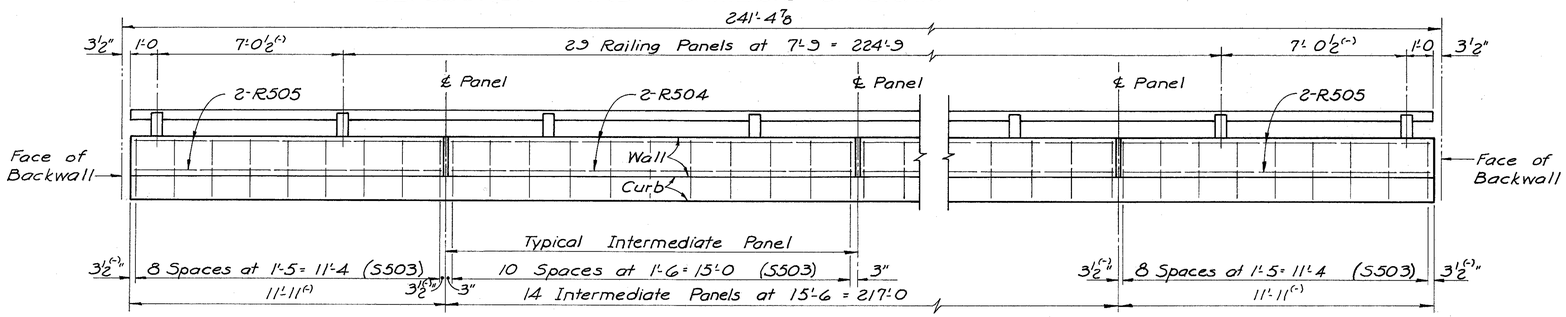
PLAN OF TRANSVERSE REINFORCING STEEL

DEFLECTION AND CAMBER

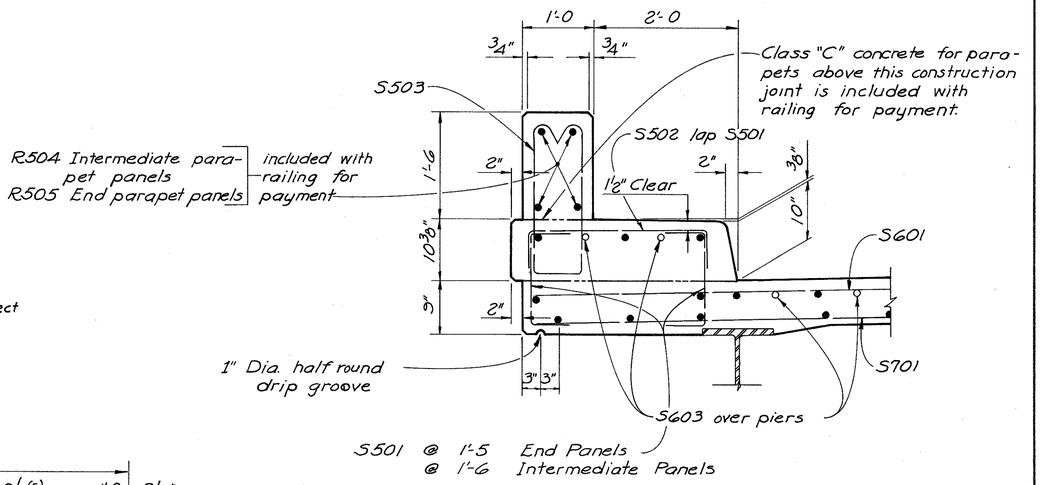
LOCATION	SPAN 1				SPAN 2				SPAN 3				SPAN 4				
	℄ Brg.	¼ Pt.	½ Pt.	¾ Pt.	℄ Brg.	@Splice	½ Pt.	¾ Pt.	℄ Brg.	@Splice	½ Pt.	@Splice	℄ Brg.	¾ Pt.	½ Pt.	¼ Pt.	℄ Brg.
Dimension "X"	0	2'4"	4'11/16"	6'11/16"	8'3/8"	10'3/16"	11'3/4"	1'-1'7/16	1'-2'9/16	1'-1'7/16	11'3/4"	10'3/16"	8'3/8"	6'1/16"	4'7/16"	2'4"	0
Deflection due to weight of steel	0	0	0	0	0	1/16"	1/8"	1/16"	0	1/16"	1/8"	1/16"	0	0	0	0	0
Deflection due to remaining D.L.	0	1/16"	0	-1/16"	0	1/4"	3/8"	3/16"	0	3/16"	3/8"	1/4"	0	-1/16"	0	1/16"	0
Adjustment required for vertical curve	0	3/8"	1/2"	3/8"	0	1'1/16"	1'7/16"	1'1/16"	0	1'1/16"	1'7/16"	1'1/16"	0	3/8"	1/2"	3/8"	0
Required shop camber	0	7/16"	1/2"	5/16"	0	1'3/8"	1'7/8"	1'3/16"	0	1'5/16"	1'7/8"	1'3/8"	0	5/16"	1/2"	7/16"	0



DEFLECTION AND CAMBER DIAGRAM



ELEVATION
CURB AND PARAPET DETAILS



CURB DETAILS

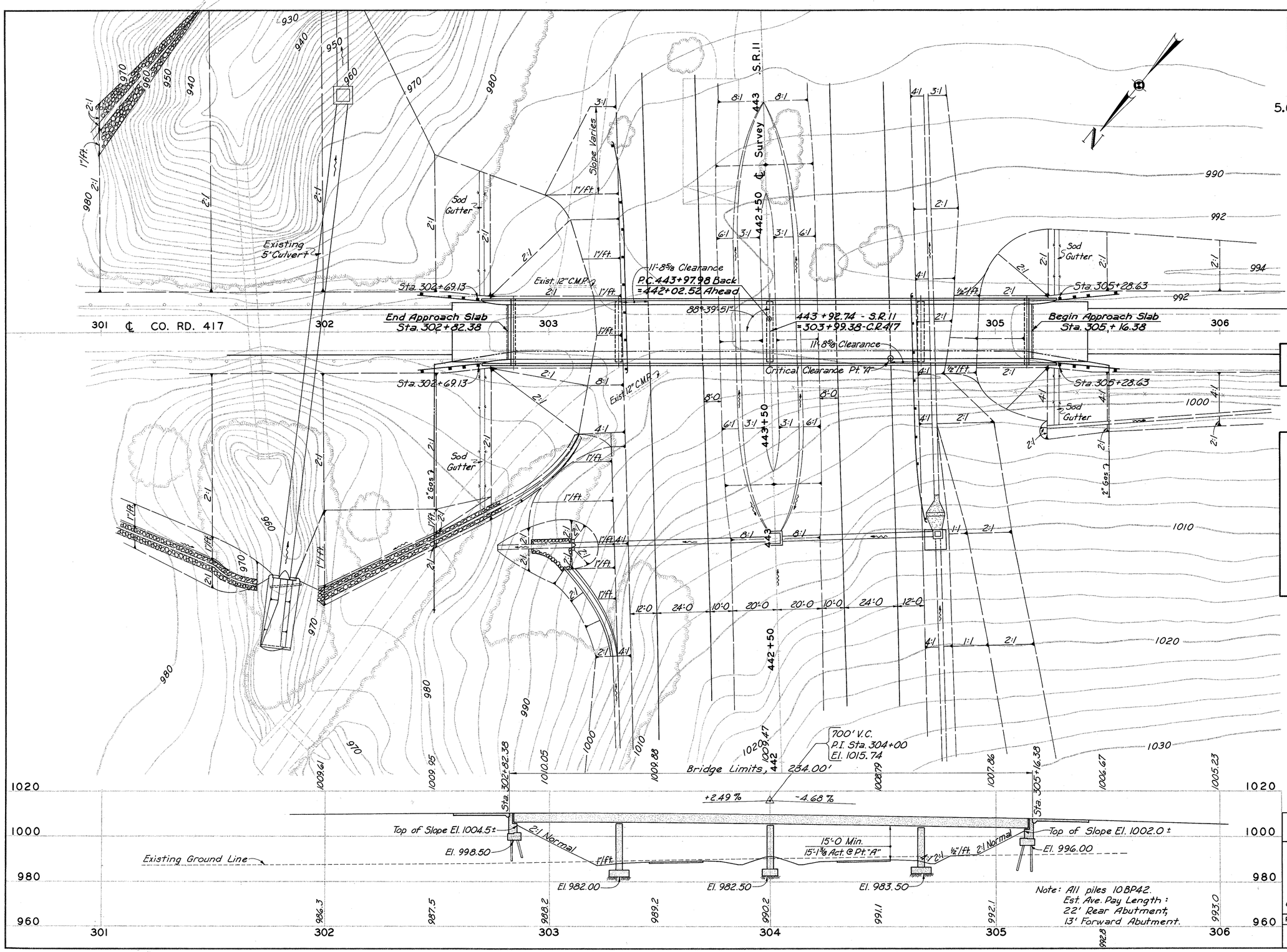
SUPERSTRUCTURE DETAILS
BRIDGE NO. COL-11-1162
S.R. 11 under T.R. 300
COLUMBIANA COUNTY STA. 373+30.00

W.D.A. W.D.A. C.H.B. DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

426

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71
5.6± Miles South East of Lisbon



CURVE DATA S.R. 11

D = 0°-30'
Δ = 18°-55'-30" Lt.
L = 3785.00'
T = 1909.90'
R = 11,459.2'
P.I. STA. 461 + 12.42

B.M. Elev. 997.02 USGS Traverse monument TT-1G 1936, 25'± east of intersection C.R. 417 and T.R. 900.

PROPOSED STRUCTURE

TYPE: Continuous steel beams with reinforced concrete deck and sub-structure.
SPANS: 47.25' - 67.5' - 67.5' - 47.25'
ROADWAY: 24'-0 & 2'-0 safety curbs.
LOAD FREQUENCY: CF 130 (57).
SKEW: 0°
WEARING SURFACE: 1" monolithic.
APPROACH SLABS: AS-1-54 modified, 25' long.
ALIGNMENT: Tangent.

C.R. 417 1982 A.D.T. = 190
S.R. 11 1982 A.D.T. = 11,040

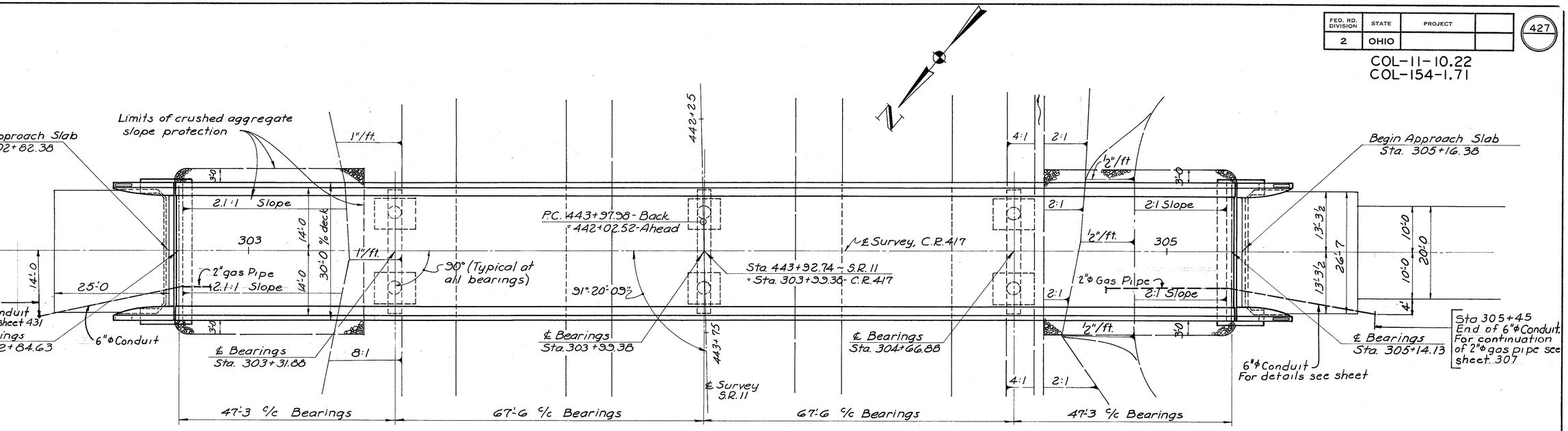
SITE PLAN
BRIDGE NO. COL-11-1041
S.R. 11 UNDER C.R. 417
COLUMBIANA COUNTY STA. 443+92.74

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
H & O	PDM	WDA	WDA	DLM	7/15/65

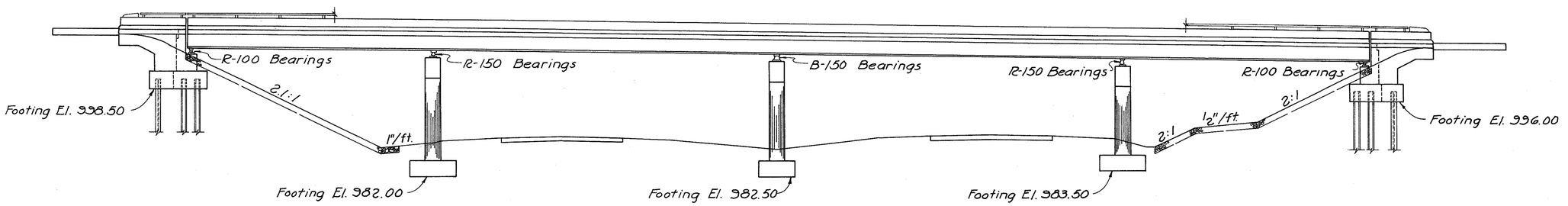
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

427

COL-11-10.22
COL-154-1.71



GENERAL PLAN



Note:
All piles 10BP42
Entire number not shown

ELEVATION

GENERAL PLAN and ELEVATION
BRIDGE NO. COL.-11-1041
S.R. 11 under C.R. 417

COLUMBIANA COUNTY STA. 443+92.74

W.D.A. W.D.A. C.H.B. DLM DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

428

COL-11-10.22
COL-154-1.71

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER.	GEN'L.		
503	294	Cu. Yd.	Unclassified Excavation including rock	181	113				
505	Lump	Sum	First test pile				Lump		
507	350	Lin. Ft.	Piles : 10 BP 42	350					
509	76,313	Lbs.	Reinforcing Steel	8248	13,423	54,642			
511	216	Cu. Yd.	Class "C" concrete, superstructure			216			
511	61	Cu. Yd.	Class "C" concrete, pier caps and columns		61				
511	122	Cu. Yd.	Class "E" concrete, abutments	122					
511	39	Cu. Yd.	Class "E" concrete, pier footings		39				
513	150,100	Lbs.	Structural Steel			150,100			
514	150,100	Lbs.	Field Painting of structural steel			150,100			
517	513.00	Lin. Ft.	Railing - Type 1	50.00		463.00			
518	12	Each	Scuppers, including supports			12			
518	19	Cu. Yd.	Porous Backfill	19					
518	34	Lin. Ft.	6" Non-perforated helical C.M.P. (707.06)	34					
518	46	Lin. Ft.	6" Perforated helical C.M.P. including specials (707.06)	46					
601	346	Sq. Yd.	Crushed aggregate slope protection	346					
707	66	Lin. Ft.	6" Conduit (707.08) Welded and Seamless St'l. Pipe incl. spacers. (Gas line)				66		
707	293	Lin. Ft.	2" Pipe (707.08) Welded and Seamless St'l. Pipe incl. specials. (Gas line)				293		
825	930	Sq. Yd.	Concrete surface treatment	40		890			
808	216	Units	Water-reducing, set-retarding, admixture			216		216	2
828	48	Lin. Ft.	Joint sealer			48		48	2

DECK SLAB ELEVATIONS

STATION	PROFILE GRADE	CURB LINE ELEV.*	
		Lt.	Rt.
302+84.63	1010.05	1009.86	1009.86
303+00	1010.05	1009.87	1009.87
303+25	1010.00	1009.81	1009.81
303+31.88	1009.98	1009.79	1009.79
303+50	1009.89	1009.72	1009.72
303+75	1009.71	1009.55	1009.55
303+99.38	1009.47	1009.29	1009.29
304+25	1009.16	1009.00	1009.00
304+50	1008.79	1008.62	1008.62
304+66.88	1008.51	1008.32	1008.32
304+75	1008.36	1008.17	1008.17
305+00	1007.86	1007.68	1007.68
305+14.13	1007.55	1007.36	1007.36

Note :

* Elevations shown are at the intersection of face of curb and ℄ Bearing of the substructure units and at even 25' stations. Elevations are those required before deck concrete is placed to allow for dead load deflections caused by the weight of the concrete.

GENERAL NOTES

REFERENCE SHALL BE MADE TO:

Standard Drawings:
- SD-1-65, revised 11-8-65, Sheet ——
- RB-1-55, revised 2-2-59
- BR-1-65, revised 11-24-65, Sheet 1
- AS-1-54, revised 8-10-65

Supplemental Specifications:
- 808, dated 1-13-67.
- 811, dated 1-1-67.
- 825, dated 1-1-67.
- 828, dated 1-1-67.

DESIGN SPECIFICATIONS:

This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

PROCEDURE:

The approach embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a minimum distance of 200 feet back of the abutments after which excavation shall be made for the abutments and piles driven.

EXCAVATION QUANTITY:

Excavation Quantity includes the removal of fill material required for construction of the abutments.

PILES:

Piles shall be driven with a hammer of not less than 11,000 ft.lbs. per blow to firm contact with rock. If the length of penetration is approximately equal to the depth of rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. 507.05 is not less than the following for a pile hammer of the indicated energy rating:

40 tons per pile using a 11,000 ft. lb. hammer
35 tons per pile using a 15,000 ft. lb. hammer

If the energy rating of the hammer is between the rating as shown above, the required formula capacity shall be determined by interpolation. The design load is 30 tons per pile.

FOUNDATION BEARING PRESSURE:

Pier footings are designed for a maximum bearing pressure of 4.0 tons per square foot.

FOOTINGS:

Pier footings shall extend a minimum of three inches into undisturbed rock or to the elevation shown, whichever is lower.

MACHINE FINISH:

The concrete bridge deck shall be finished by the use of a finishing Machine.

DESIGN INFORMATION:

Design loading -------- C.F. 2000 (57)
Concrete Class "C" ---- Basic unit stress, 1,333 p.s.i.
Concrete Class "E" ---- Basic unit stress, 1,133 p.s.i.
Structural Steel ------ ASTM A36 - Basic unit stress, 20,000 p.s.i.
Reinforcing Steel ---- ASTM A16, A15, A160, Deformed - Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. Spiral Reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

WELDS on secondary stress carrying members are shown thus: S ——.

ESTIMATED QUANTITIES ~ DECK SLAB ELEVATIONS & GEN'L. NOTES
BRIDGE NO. COL-11-1041
S.R. 11 UNDER C.R. 417
COLUMBIANA COUNTY STA. 443+92.74

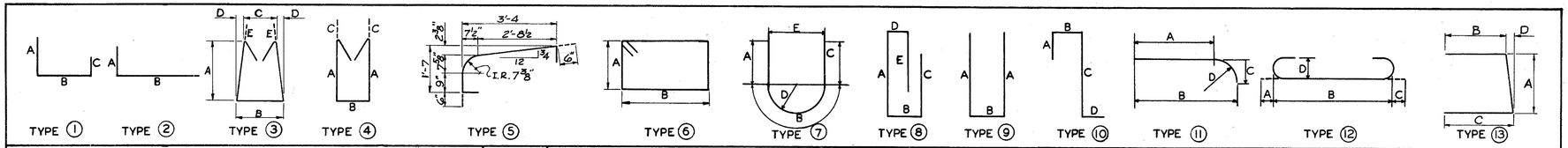
WDA RG RG DLM 5/20/66

GFJ Revised Re-Drawn 9-12-70

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

429

COL-11-10.22
COL-154-1.71



ABUTMENTS

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
A801	Str.						14	31'-4	1171
A802	Str.						12	10'-0	320
A803	Str.						12	11'-0	352
A601	8	6'-0	1'-5	4'-8	11"	3'-3	48	15'-7	1123
A602	9	6'-0	1'-5				8	13'-1	157
A603	9	8'-5	1'-2				18	17'-8	478
A604	1	6'-7	5'-5	2'-6			24	14'-2	511
A605	1	6'-9	5'-5	2'-6			16	14'-4	344
A501	9	1'-7	3'-5				40	6'-4	264
A502	9	1'-7	5'-5				40	8'-4	348
A503	2	7½"	6'-7				24	7'-1	177
A504	2	7½"	6'-9				16	7'-3	121
A505	Str.						34	29'-4	1040
A506	9	3'-6	1'-2				12	7'-11	99
A507	9	4'-0	1'-2				4	8'-11	37
A508	9	4'-9	1'-2				4	10'-5	43
A509	Str.						36	4'-10	181
A510	Str.						16	12'-0	200
A511	6	2'-7	3'-2				22	12'-0	275
A512	4	2'-2	8"	5"			36	5'-7	210
A513	9	1'-0	1'-3				36	3'-0	113
A514	13	1'-3	1'-0	1'-2	2"		36	3'-2	119
			1'-1				Four Series of 9	2'-1	
A515	9	7½"	to	(Vary by 2⅜" increments)				to	108
			2'-8					3'-8	
A516	Str.						16	13'-0	217
A517	Str.						4	6'-0	25
A518	Str.						8	8'-0	67
A519	12	7"	6'-0	7"	4"		12	7'-2	90
A520	Str.						8	7'-0	58

SUPERSTRUCTURE

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
S701	Str.						277	29'-8	16,797
S601	Str.						277	29'-8	12,343
S602	Str.						357	34'-7	18,544
S603	Str.						57	27'-0	2312
S501	9	7½"	1'-3				656	2'-3	1539
S502	9	7½"	2'-6				328	3'-6	1197
S503	4	2'-2	8"	5"			328	5'-7	1910

RAILING

R501	Str.						96	16'-7	*
R502	Str.						16	13'-7	*
R503	5	See Detail					8	5'-4	*
R504	3	1'-6	8"	6½"	¾"	5"	12	4'-2	*
R505	Str.						8	11'-8	*
R506	Str.						8	12'-8	*

REPLACEMENT BARS

RE1001	Str.						1	7'-2	—
RE 901	Str.						1	6'-10	—
RE 801	Str.						1	6'-6	—
RE 701	Str.						1	6'-2	—
RE 601	Str.						2	5'-11	—
RE 501	Str.						1	5'-7	—
RE 401	Str.						1	5'-3	—

PIERS

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
P1001	Str.						20	20'-0	1721
P1002	Str.						20	17'-1	1470
P1003	2	1'-4½	5'-11				60	7'-0	1807
P1004	Str.						20	19'-0	1635
P901	Str.						21	26'-8	1904
P801	Str.						40	6'-8	712
P802	Str.						12	26'-8	854
P701	Str.						32	8'-8	567
P702	Str.						14	6'-8	191
P501	9	2'-8	2'-8				90	7'-9	727
P502	Str.						6	26'-8	167

SPIRAL REINFORCING

MARK	CORE DIA.	PITCH	NO. TURNS	NO.	LENGTH	WEIGHT
SP 401	32"	4½"	46	2	16'-2⅜	603
SP 402	32"	4½"	38	2	13'-2¾	498
SP 403	32"	4½"	44	2	15'-2⅜	567

NOTES

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
The "No." of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 509.
1 1/2 closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

* Include with railing for payment.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE

BRIDGE NO. COL-11-1041
S.R. 11 UNDER C.R. 417

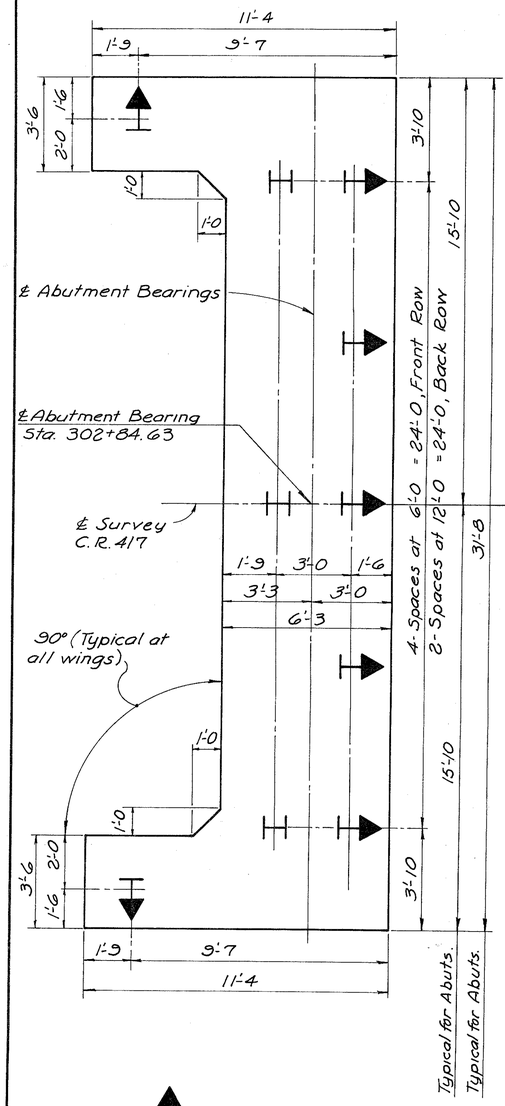
COLUMBIANA COUNTY STA. 443+92.74

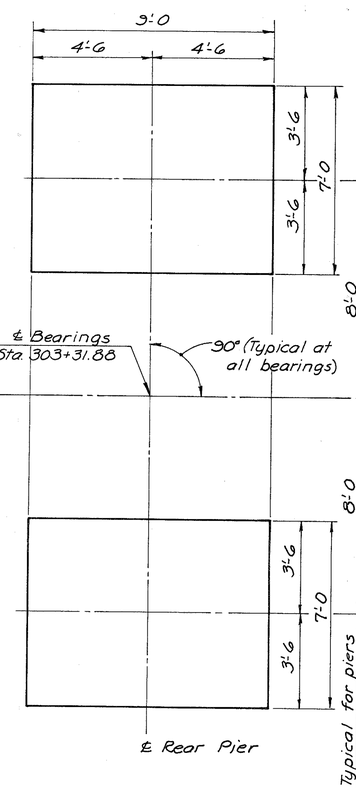
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
W.D.A	W.D.A.	RJ	RJ	DLM	5/20/66	

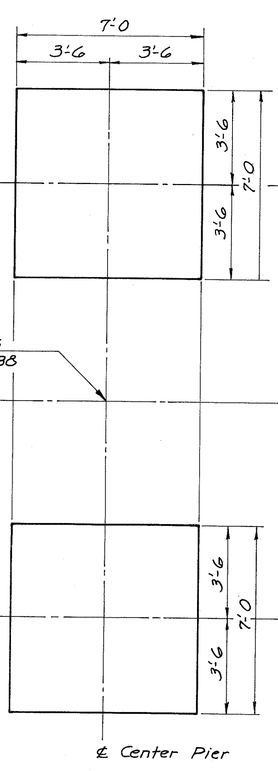
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

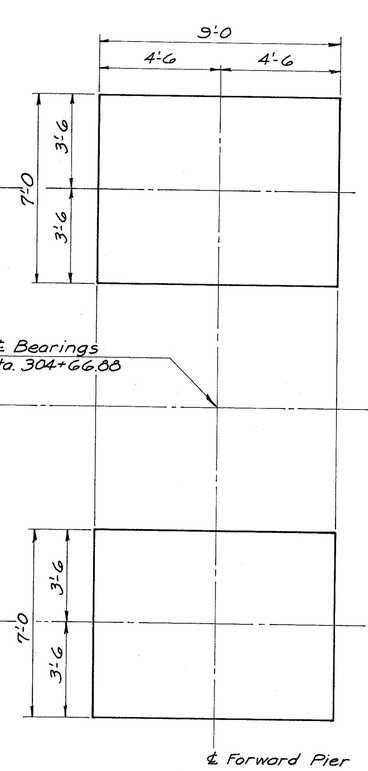
430

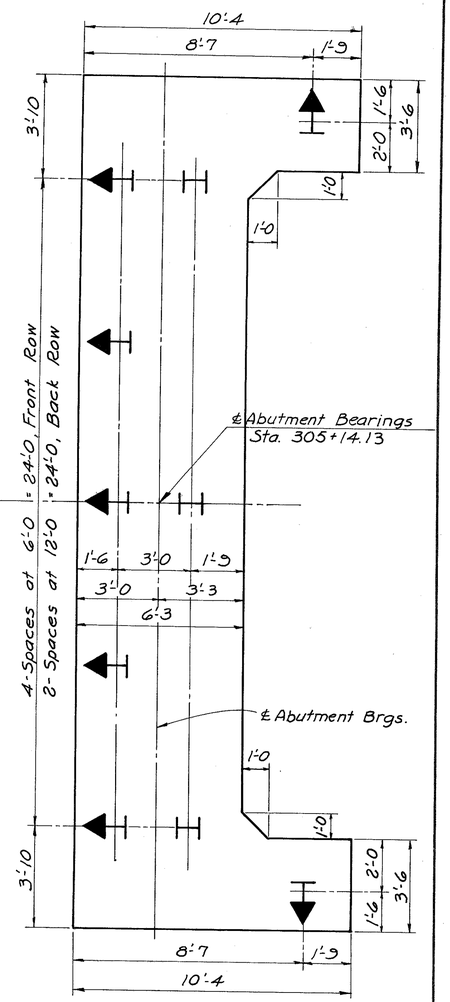
COL-11-10.22
COL-154-1.71











FOOTING PLAN AND PILE LAYOUT

Indicates a battered pile (4:1) and direction of batter.

All piles 10 BP 42

FOOTING PLAN & PILE LAYOUT

BRIDGE NO. COL- 11 - 1041
S.R. 11 under C.R. 417

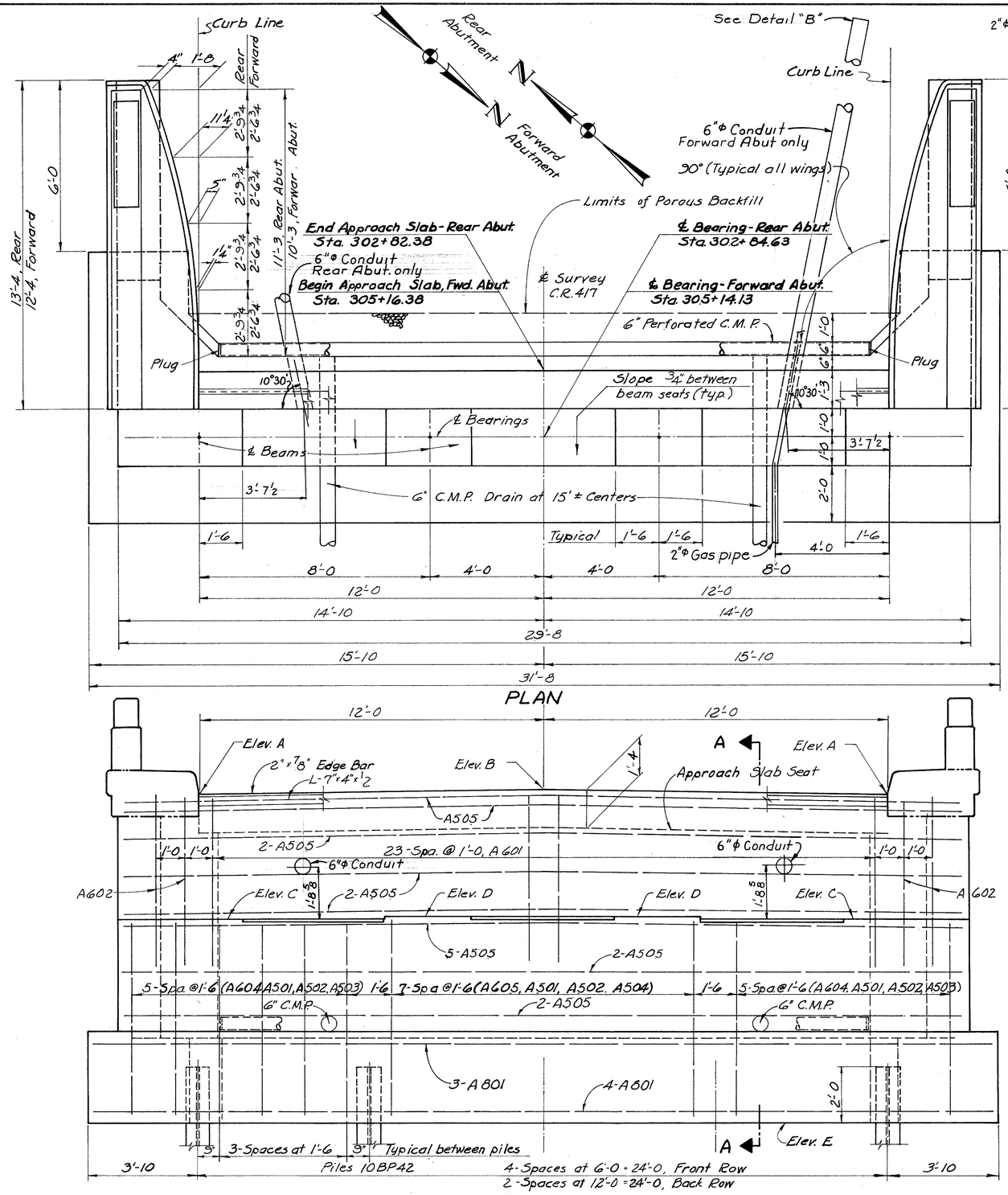
COLUMBIANA COUNTY STA. 443+92.74

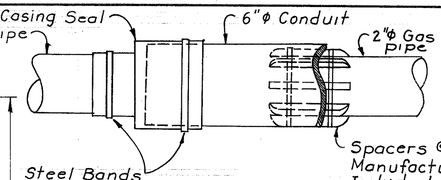
W.D.A. W.D.A. C.H.B. DLM 5/20/66

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

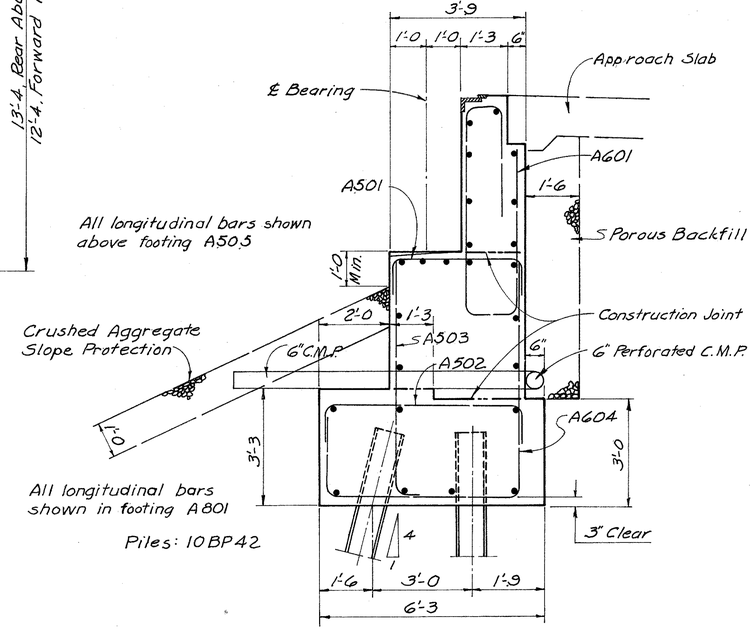
COL-11-10.22
COL-154-1.71

431





DETAIL - B
6"ϕ Conduit End Closure



SECTION A-A

TABLE OF ELEVATIONS					
LOCATION	A	B	C	D	E
Rear Abutment	1003.86	1010.05	1005.55	1005.67	998.50
Forward Abutment	1007.34	1007.53	1003.05	1003.18	996.00

ANCHORS FOR ATTACHMENT of approach guardrail to bridge railing are described on Sheet 3.75.

ABUTMENT DETAILS

BRIDGE NO. COL.- 11 - 1041
S.R. 11 under C.R. 417

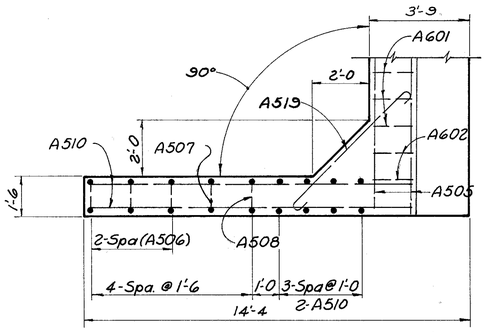
COLUMBIANA COUNTY STA. 443+92.74

W.D.A. W.P.A. C.H.B. DLM 5/20/66

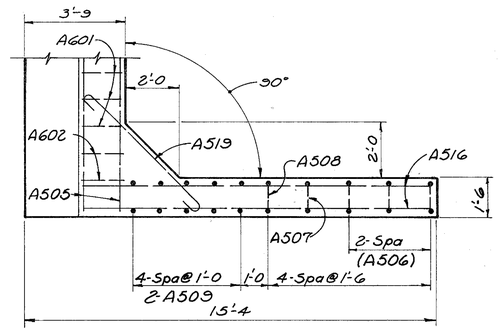
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

432

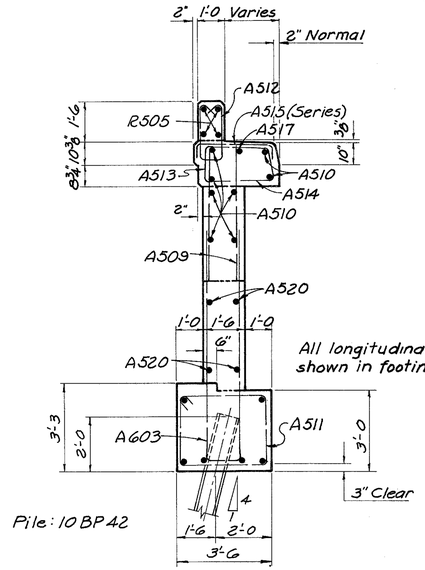
COL-11-10.22
COL-154-1.71



SECTION C-C

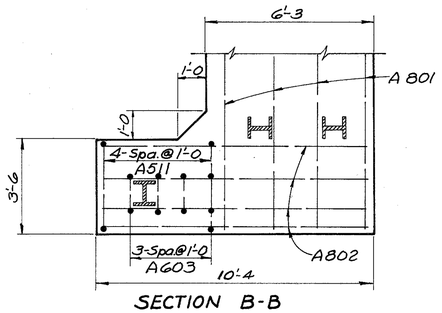


SECTION G-G

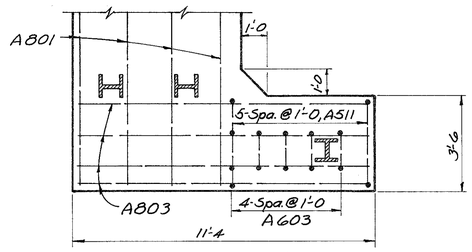


Pile: 10 BP 42

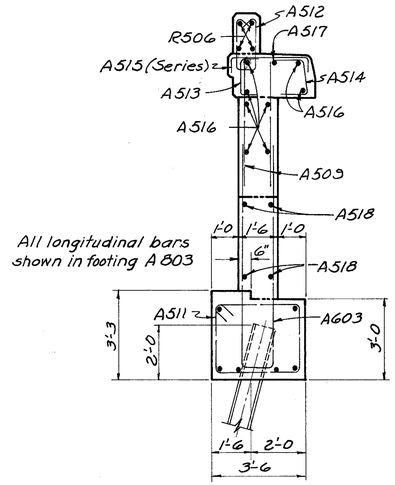
SECTION D-D



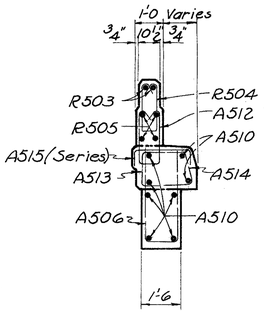
SECTION B-B



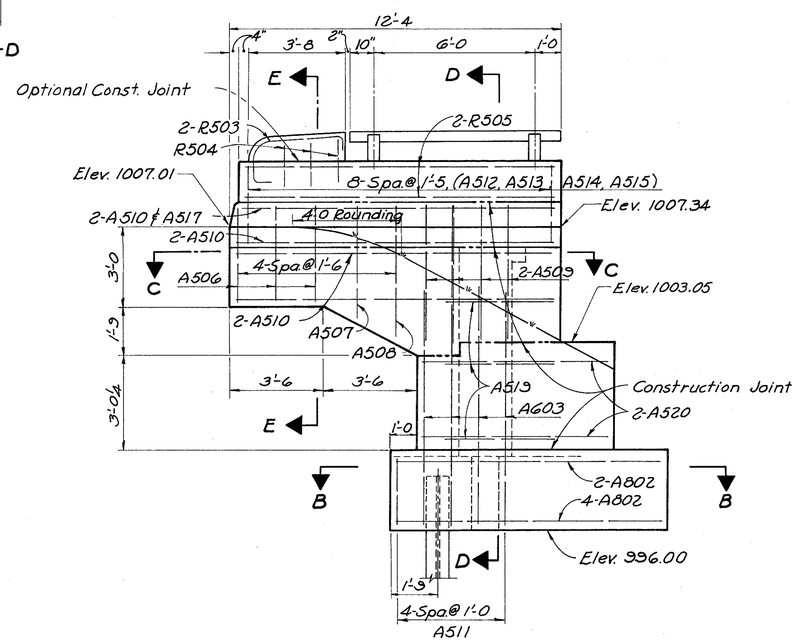
SECTION F-F



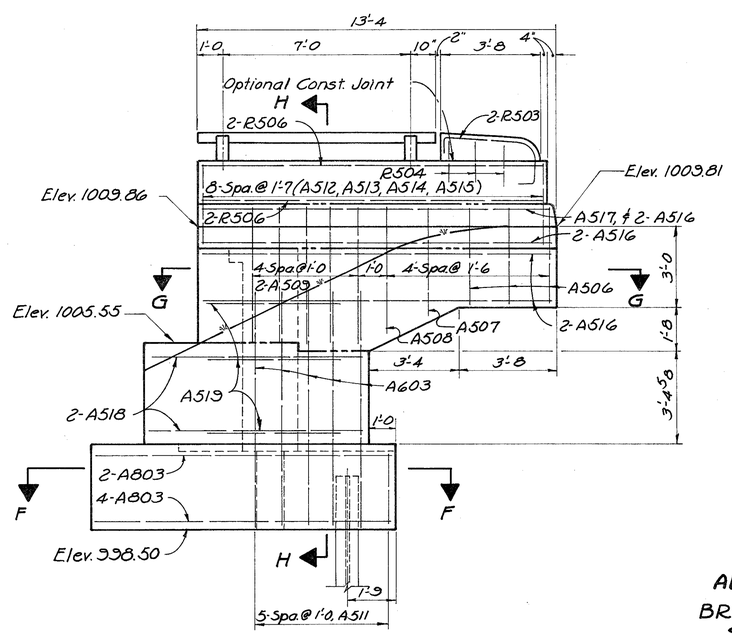
SECTION H-H



SECTION E-E



TYPICAL WING, FORWARD ABUTMENT



TYPICAL WING, REAR ABUTMENT

ABUTMENT DETAILS
BRIDGE NO. COL.-11-1041
S.R. 11 under C.R. 417

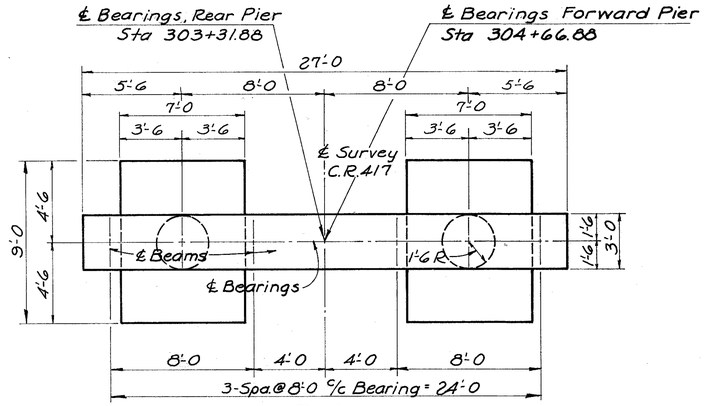
COLUMBIANA COUNTY STA. 443+92.74

W.D.A. W.D.A. C.H.B. DLM 5/20/66

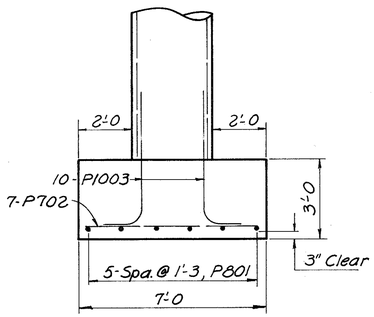
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

433

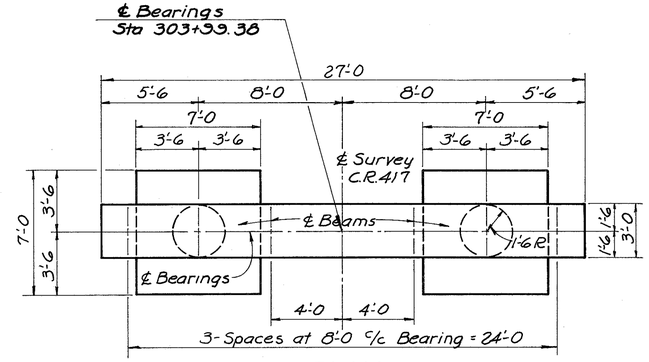
COL-11-10.22
COL-154-1.71



PLAN

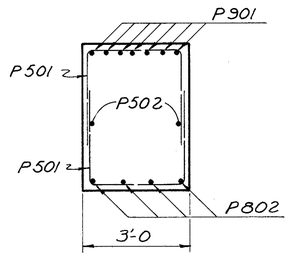


SECTION C-C

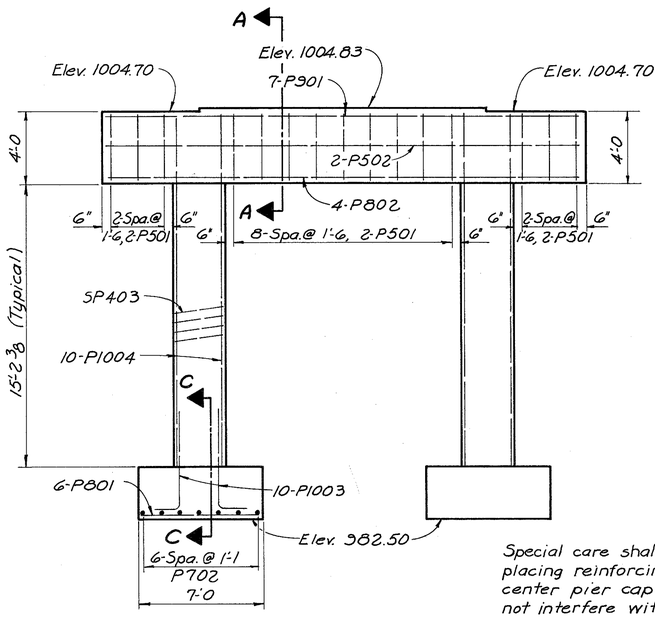


PLAN

TABLE OF ELEVATIONS			
LOCATION	A	B	C
Rear Pier	1005.20	1005.33	382.00
Forward Pier	1003.73	1003.86	383.50

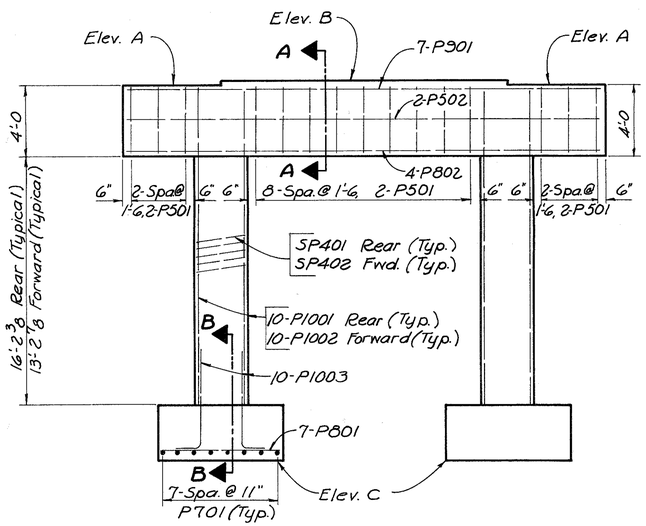


SECTION A-A

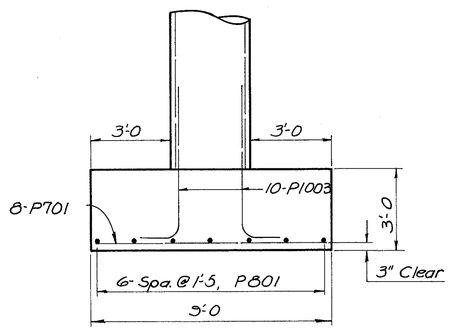


ELEVATION
CENTER PIER

Special care shall be taken in placing reinforcing steel in the center pier cap so that it will not interfere with the bearing anchor bolts.



ELEVATION
REAR and FORWARD PIERS



SECTION B-B

PIER DETAILS
BRIDGE NO. COL.-11-1041
S.R.11 under C.R. 417

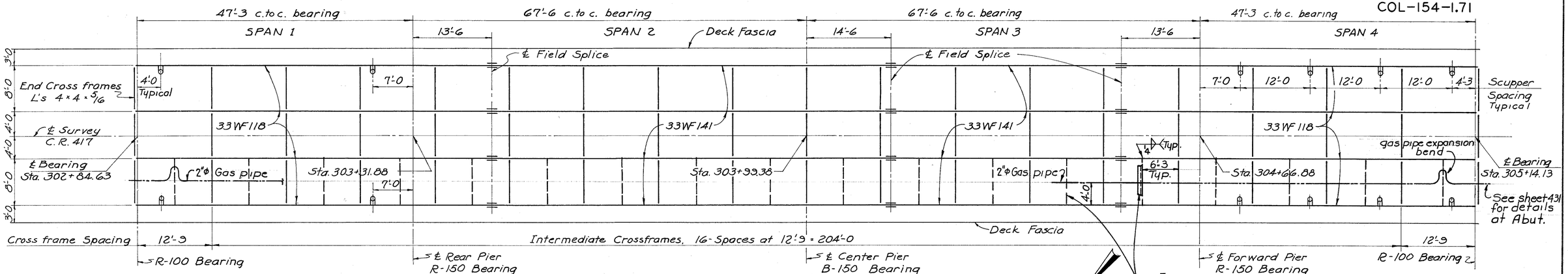
COLUMBIANA COUNTY STA.443+32.74

W.D.A. W.D.A. C.H.B. DLM 5/20/66

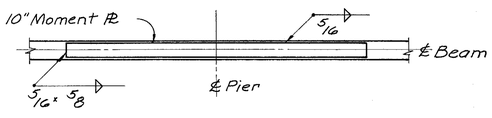
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

434

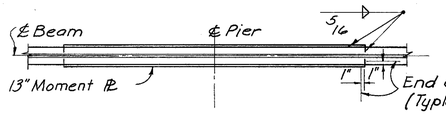
COL-11-10.22
COL-154-1.71



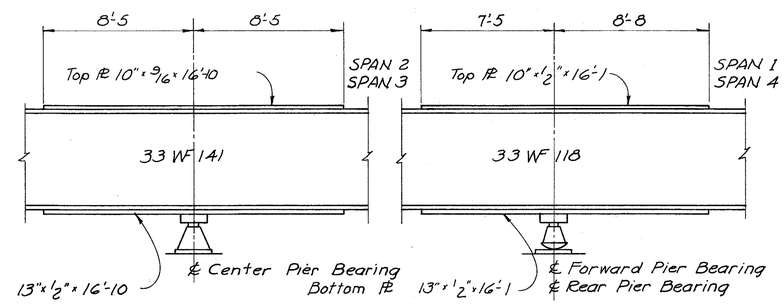
STEEL FRAMING PLAN



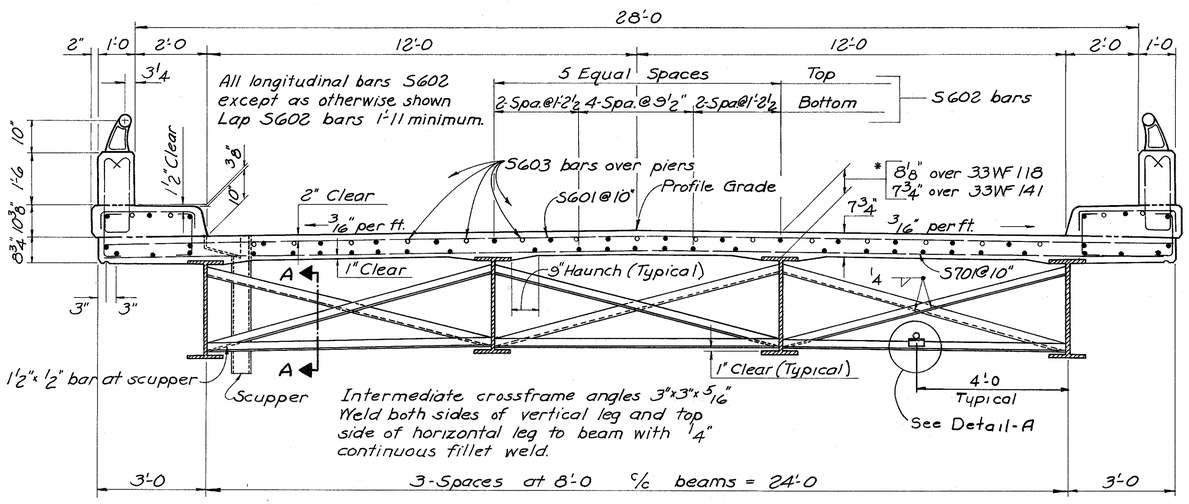
TYPICAL TOP VIEW



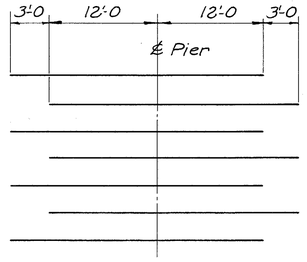
TYPICAL SECTION THRU BEAM



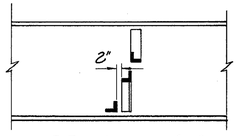
MOMENT PLATE DETAILS



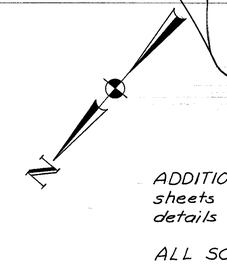
TRANSVERSE SECTION



ALTERNATE STAGGER SYSTEM OF S603 BARS OVER PIERS



SECTION A-A



SUPERSTRUCTURE NOTES

ADDITIONAL DETAILS: Refer to Standard Drawing: SD-1-65 sheets 1, 2, and 3, BR-1-65, sheet 1, and RB-1-55 for details not shown.

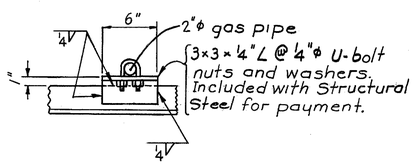
ALL SCUPPERS are per Standard Drawing SD-1-65 (Type 1)

DECK SLAB HAUNCH: A typical haunch width of 9" shall be used for computing quantities of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall not be greater than 1:4 for a haunch less than 9" in width.

SLAB THICKNESS shown includes 1" for monolithic wearing surface.

* THIS DIMENSION is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

WHERE FIELD SPLICE of 33WF118 and 33WF141 occurs, the smaller beam splice is to be used as detailed on St'd. Dwg. SD-1-65



DETAIL - A

SUPERSTRUCTURE DETAILS
BRIDGE NO. COL.- 11 -1041
S.R. 11 under C.R. 417

COLUMBIANA COUNTY STA. 443+92.74

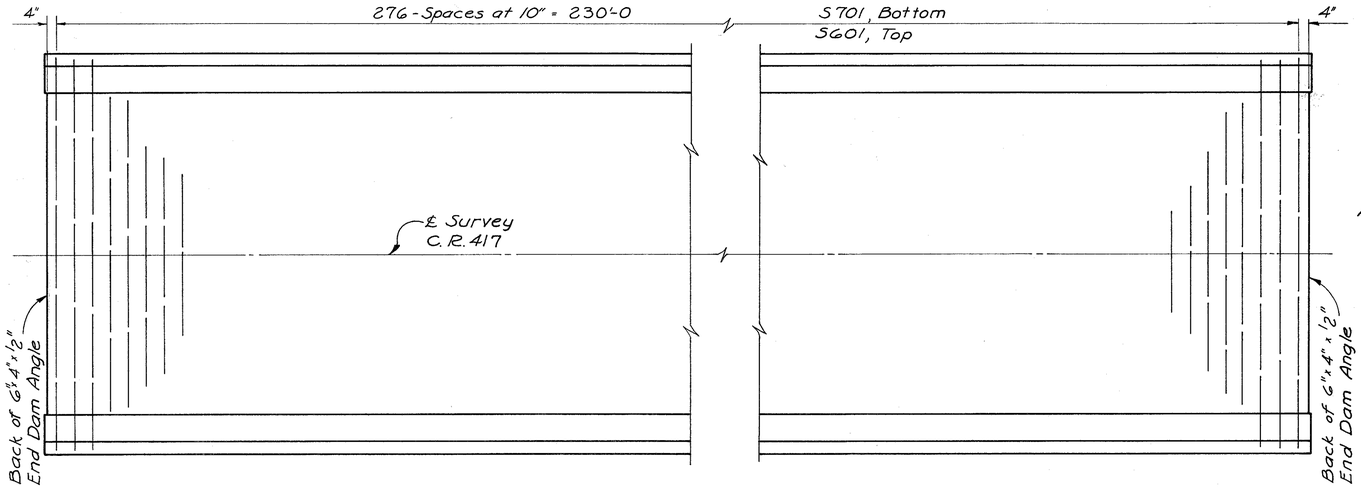
W.D.A. W.D.A. C.H.B. DLM DLM 5/20/66

For additional details See sheet 435

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

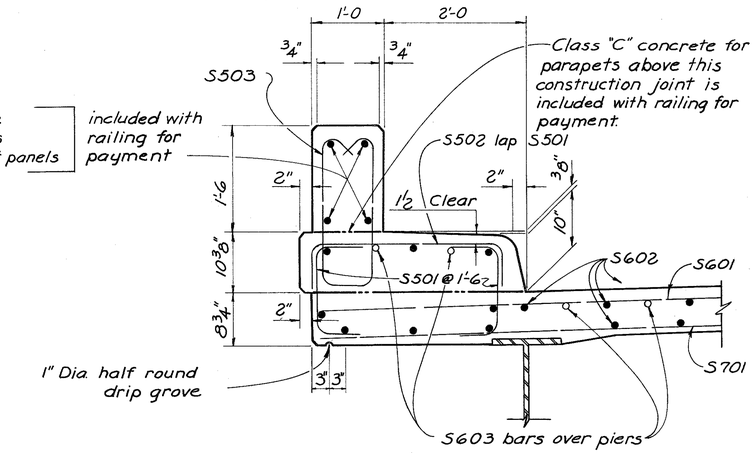
435

COL-11-10.22
COL-154-1.71



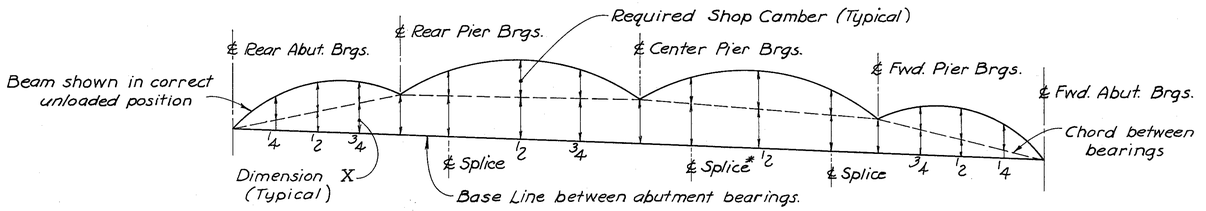
PLAN OF TRANSVERSE REINFORCING STEEL

R501 Intermediate parapet panels
R502 End parapet panels
} included with railing for payment

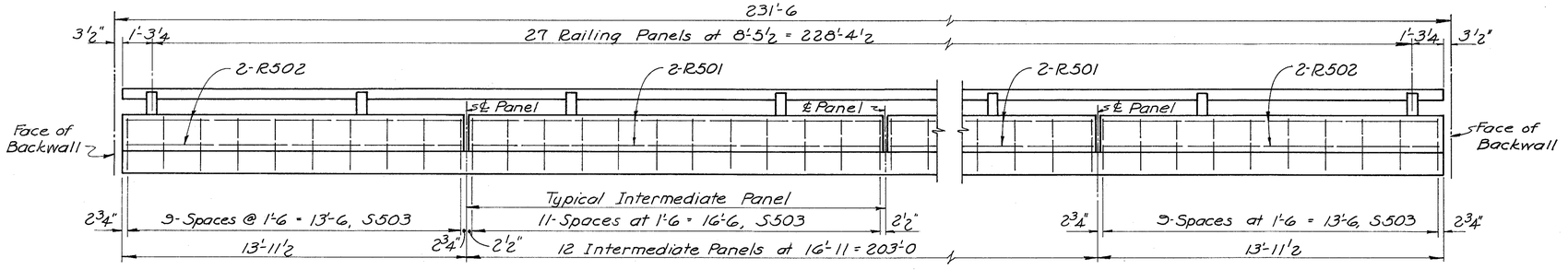


CURB DETAILS

DEFLECTION AND CAMBER																	
LOCATION	SPAN 1				SPAN 2				SPAN 3				SPAN 4				
	℄ Brg.	1/4 Pt.	1/2 Pt.	3/4 Pt.	℄ Brg.	@ Splice	1/2 Pt.	3/4 Pt.	℄ Brg.	@ Splice	1/2 Pt.	@ Splice	℄ Brg.	3/4 Pt.	1/2 Pt.	1/4 Pt.	℄ Brg.
Dimension X	0	1 5/16	2 5/8	4	5 5/16	5 7/8	6 11/16	7 3/8	8 1/16	7 1/2	6 11/16	5 7/8	5 5/16	3 15/16	2 5/8	1 5/16	0
Deflection due to weight of steel	0	0	0	0	0	1/16	1/16	1/16	0	0	1/16	1/16	0	0	0	0	0
Deflection due to remaining dead load	0	1/8	1/8	0	0	3/16	3/8	3/16	0	1/8	3/8	3/16	0	0	1/8	1/8	0
Adjustment required for vertical curve	0	3/16	3/8	5/16	0	7/16	11/16	1/2	0	1/2	11/16	7/16	0	1/4	5/16	1/4	0
Required Shop Camber	0	5/16	1/2	5/16	0	11/16	1 1/8	3/4	0	5/8	1 1/8	11/16	0	1/4	7/16	3/8	0



DEFLECTION AND CAMBER DIAGRAM



ELEVATION
CURB and PARAPET DETAILS

SUPERSTRUCTURE DETAILS
BRIDGE NO. COL.- 11 - 1041
S.R. 11 under C.R. 417

COLUMBIANA COUNTY STA. 443+92.74

W.D.A. W.D.A. C.H.B. DLM DLM 5/20/66

10-65
400-1-67

GENERAL INFORMATION

INTRODUCTION

The project consists of the relocation of 4.8 miles of USR 30, beginning 2500 feet north of SR 154, 1500 feet west of Twp. Rd. 785, extending south-southeastward, and terminating immediately north of existing USR 30, one-half mile east of West Point. Included in this report are profiles of SR 154 and the Ramps of the SR 154 Interchange and Twp. Rds. 785 and 794.

Maximum proposed cuts and fills are shown in the Project Index, on this sheet.

GEOLOGY AND OBSERVATIONS OF THE PROJECT

The alignment traverses a dissected portion of the glaciated Allegheny Plateau, west of the Flushing Escarpment, crossing Middle Fork Little Beaver Creek near the project's inception, crosses the West Fork Little Beaver Creek, and terminates in the valley of West Fork Little Beaver Creek, at the southern limit of glacial advance. Areas of strip mining were noted particularly between approximately stations 308+00 to 312+00 and 322+00 and 324+00. Also noted were several measured stratigraphic rock exposures and areas of poor surface drainage.

EXPLORATION

Exploratory borings were made by means of truck-mounted mechanical soil auger, hand auger (in areas of difficult access), and rotary type-drill during September, October, and December, 1964. Also included in this report is the log of boring made in conjunction with the Twp. Rd. 900 structure foundation investigation.

INVESTIGATIONAL FINDINGS

Materials occurring immediately below proposed grade consist predominantly of bedrock and sandy silts (A-4a) and silt clays (A-6a) with few sandy gravels.

Bedrock is anticipated in the excavations in the following areas:

Stations 200+00 to 212+00 - sandstone at both grades and in the ditches and backslopes.

Stations 212+00 to 220+50 - shale at both grades and in the ditches; shale and sandstone in the backslopes.

Stations 220+50 to 221+00 - shale and sandstone in the left ditch and backslope.

Stations 246+00 to 246+50 - shale in the right ditch and lower portion of the backslope.

Stations 246+50 to 248+25 - shale at right grade and in the right ditch and backslope.

Stations 248+25 to 248+90 - shale at both grades and in the ditches and backslopes; little indurated clay and sandstone in the right backslope.

Stations 248+90 to 263+40 - shale with some indurated clay at both grades and in the ditches and backslopes; some sandstone in the upper portions of the backslopes and possibly at grade beyond station 261+00.

Stations 263+40 to 263+50 - sandstone or shale at both grades and in the right ditch; sandstone in the right backslope.

Stations 263+50 to 263+70 - shale or sandstone at right grade and in the right ditch; sandstone in the right backslope.

Stations 273+50 to 274+50 - shale in both ditches.

Stations 274+50 to 275+00 - shale at left grade and in both ditches.

Stations 275+00 to 278+00 - shale at left grade and in the left ditch and lower portion of the left backslope.

Stations 278+00 to 278+75 - shale in the left ditch.

Stations 287+40 to 287+70 - shale at left grade and in the left ditch and lower portion of the left backslope.

Stations 287+70 to 288+00 - shale at both grades and in the left ditch and lower portion of the left backslope.

Stations 288+00 to 292+60 - shale at both grades and in the ditches and backslopes; some indurated clay in the backslopes.

Stations 292+60 to 292+90 - shale at both grades and in the left ditch and backslope.

Stations 293+75 to 294+00 - shale in the left ditch and backslope.

Stations 299+00 to 299+70 - indurated clay at left grade and in the left ditch.

Stations 299+70 to 302+75 - indurated clay at both grades and in the ditches and backslopes.

Stations 302+75 to 303+00 - indurated clay at both grades and in the left ditch and backslope.

Stations 303+00 to 303+30 - indurated clay at left grade and in the left ditch and lower portion of the left backslope.

Stations 303+30 to 303+60 - indurated clay in the left ditch.

Stations 327+25 to 328+00 - shale at left grade and in the left ditch.

Stations 328+00 to 336+00 - shale at both grades and in the ditches and backslopes.

Stations 336+00 to 337+00 - shale at both grades and in the right ditch and lower portion of the right backslope.

Stations 337+00 to 359+10 - shale at both grades and in the ditches and backslopes.

Stations 359+10 to 359+60 - shale at left grade and in the left ditch.

Stations 364+90 to 367+60 - shale in the right ditch.

Stations 374+60 to 374+80 - sandstone or shale in the right ditch.

Stations 374+80 to 375+30 - sandstone and shale at right grade and in the right ditch and backslope.

Stations 375+30 to 375+70 - shale and sandstone at both grades and in the right ditch and backslope.

Stations 375+70 to 381+00 - shale and sandstone at both grades, and in the ditches and backslopes.

Stations 381+00 to 381+50 - shale and sandstone at both grades and in the left ditch and backslope.

Stations 381+50 to 382+00 - shale and sandstone at left grade and in the left ditch and backslope.

Stations 382+00 to 382+50 - shale and sandstone at both grades and in the left ditch and backslope.

Stations 382+50 to 384+90 - shale and sandstone at both grades and in the ditches and backslopes.

Stations 384+90 to 385+25 - shale at right grade and in the right ditch; shale and sandstone in the right backslope.

LEGEND FOR PROFILE AVERAGE RESULTS OF TESTS — 366 SAMPLES TESTED

DESCRIPTION	SOIL BASE	SOIL CLASS	% PASS NO. 10	% GRAVEL	% SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
Gravel and/or stone fragments	A-1-a(0)	A-1-a	69	9	10	7	5	NP	NP	14	18
Gravel and/or stone fragments with sand	A-1-b(0)	A-1-b	55	11	13	12	9	NP	NP	15	19
Fine sand	A-3(0)	A-3	19	28	43	- 10 -		NP	NP	25	1
Coarse and fine sand	----	A-3a	5	7	60	16	12	NP	NP	18	6
Gravel and/or stone fragments with sand and silt	A-2-4(0)	A-2-4	52	10	13	14	11	28	7	14	41
Gravel and/or stone fragments with sand, silt, and clay	A-2-6(1)	A-2-6	58	5	14	11	12	40	16	21	8
Sandy silt	A-4(3)	A-4a	24	7	18	31	20	28	6	18	76
Silt	A-4(8)	A-4b	2	2	9	56	31	30	6	19	9
Silt and clay	A-6(7)	A-6a	19	5	11	33	32	34	12	21	63
Silty clay	A-6(8)	A-6b	9	2	16	46	27	34	16	26	3
Elastic clay	A-7-5(15)	A-7-5	6	2	16	37	39	55	20	42	13
Clay	A-7-6(14)	A-7-6	5	4	19	36	36	48	22	33	13
Random fill			VISUAL CLASSIFICATION								1
Underclay			VISUAL CLASSIFICATION								1
Coal			VISUAL CLASSIFICATION								
Coal blossom			VISUAL CLASSIFICATION								
Clay bedrock			VISUAL CLASSIFICATION								1
Weathered indurated clay			VISUAL CLASSIFICATION								5
Weathered shale			VISUAL CLASSIFICATION								61
Weathered sandstone			VISUAL CLASSIFICATION								14
Indurated clay			VISUAL CLASSIFICATION								
Shale			VISUAL CLASSIFICATION								13
Sandstone			VISUAL CLASSIFICATION								
Various other material			VISUAL CLASSIFICATION								

Sod and/or Topsoil =X'= Approximate depth.

Berm material.

Auger boring - plan view.

Drive sample and/or core boring - plan view.

Auger boring plotted to vertical scale only.

Drive sample and/or core boring plotted to vertical scale only.

Water content nearly equal to or greater than liquid limit.

Indicates a non-plastic material with a high water content.

Free water.

Number of blows for "Standard Penetration" test.
X=number of blows for first 6 inches.
Y=numbers of blows for second 6 inches.

Indicates broken rock interval.

NOTE: Figures beside borings indicate water content in percent. e. g. 15

Stations 385+25 to 385+40 - shale at right grade and in the right ditch.

Stations 392+50 to 392+90 - shale in the left ditch and backslope.

Stations 392+90 to 394+10 - shale at left grade and in the left ditch and backslope.

Stations 394+10 to 394+60 - shale at both grades and in the left ditch and backslope.

Stations 394+60 to 398+25 - shale at both grades and in the ditches and backslopes.

Stations 398+25 to 399+60 - shale at right grade and in the right grade and in the right ditch and backslope.

Stations 399+70 to 400+55 - shale in the right ditch and lower portion of the right backslope.

Stations 402+50 to 404+00 - shale in the right ditch and backslope.

Stations 404+00 and 411+50 - shale at right grade and in the right ditch and backslope.

Stations 411+50 to 413+00 - shale at both grades and in the right ditch and backslope.

Stations 413+00 to 413+75 - shale at right grade and in the right ditch and backslope.

Stations 413+75 to 415+80 - shale at both grades and in the right ditch and backslope.

Stations 415+80 to 433+10 - shale at both grades and in the ditches and backslopes.

Stations 433+10 to 433+60 - shale at both grades and in the right ditch and backslope.

Stations 433+60 to 443+08 (Back) - shale at both grades and in the ditches and backslopes.

Station 442+02 (Ahead) to station 453+00 (Ahead) - shale at both grades and in the right ditch and backslope.

Relocated Twp. Rd. 785

Stations 15+00 to 20+50 - shale and sandstone at grade and in the ditches and backslopes.

Stations 22+00 to 24+50 - shale at grade and in the ditches and backslopes.

Embankment foundation materials comprise gravel (A-1-a), sandy gravels (A-2-4), sandy silts (A-4a), and silt clays (A-6a), having low moisture contents and moisture contents generally below the plastic range.

Wet and/or organic materials were encountered at mainline stations 225+00, 236+00, 237+00, 238+00, 239+00, 240+00, 241+00, 320+50, 371+70, and 449+00.

Wet and/or organic materials were encountered at SR 154 stations 32+25, 36+00, 47+00, 67+00, 72+00, and 88+10; Ramp A station 224+60; Ramp B station 238+00; and Twp. Rd. 785 station 13+75.

At-surface random fill was encountered at Twp. Rd. 794 station 3+60.

Elastic clays (A-7-5) were encountered in the embankment foundation at Mainline stations 236+00, 237+00, 238+00, 240+00, 287+00, and 371+60, and SR 154 station 72+00.

REVISED 6/18/65

SOIL PROFILE

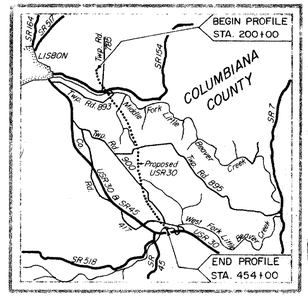
1/43

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

1/30

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

NOTE: INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS OBTAINED SOLELY FOR USE IN ESTABLISHING DESIGN CONTROLS FOR THE PROJECT. THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THIS DATA AND IT IS NOT TO BE CONSIDERED AS A PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT.



LOCATION MAP

Recon — J.S.M. — 9/11/64
Drilling — Auger — A.J.P. — 9/22/64 - 10/2/64, 12/10/64 - 12/16/64
Core — K.J.F, C.F.C. — 10/15/64 - 10/29/64, 12/15/64 - 12/17/64
Drafting — R.C.B., R.D.C, A.B.D. - 2/1/65

SUPPLEMENTAL
Drilling - Auger - C.M.C., A.J.P. - 5/11/65, 5/17/65, 5/18/65
Drafting - R.C.B., C.L.I. - 6/18/65

PROJECT INDEX

STATIONS FROM - TO	PLAN VIEW SHEET	PROFILE SHEET	CUT MAX.	FILL EMB. MAX.
Mainline				
200+00 - 232+00	4	5	42'	24'
232+00 - 264+00	4	6	47'	64'
264+00 - 296+00	7	8	36'	88'
296+00 - 328+00	9	9	21'	60'
328+00 - 360+00	10	10	52'	6'
360+00 - 392+00	11	11	20'	62'
392+00 - 424+00	12	12	36'	23'
424+00 - 454+00	13	14	41'	72'
SR 154 INTERCHANGE				
Relocated SR 154				
25+00 - 57+00	16	16	9'	19'
57+00 - 89+00	17	17	-	19'
Ramp A				
220+00 - 232+83	15	18	-	18'
Ramp B				
220+00 - 230+40	15	18	20'	16'
Ramp C				
218+22 - 234+00	15	19	-	21'
Ramp D				
230+00 - 243+00	15	19	-	60'
Relocated Twp. Rd. 785				
10+00 - 29+08	15	20	36'	40'
Twp. Rd. 794				
0+00 - 5+00	15	20	-	19'

TE-85
4-63

REVISED 6/18/65

SOIL PROFILE

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

2/43

SUMMARY OF SOIL TEST DATA

NOTE: NP shown in Liquid Limit and Plasticity Index columns indicates that the material is non-plastic.
*Denotes sample taken at or near grade.

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
200+00	CL	0.2-2.0	35	6	7	27	25	26	4	9	A-4a
205+00	CL	0.6-2.0	48	4	9	19	20	27	6	8	A-4a
208+30	CL	0.0-4.0	60	3	6	15	16	NP	NP	10	A-2-4
213+30	CL	0.6-3.0	40	8	11	22	19	24	4	8	A-4a
217+00	CL	0.3-2.0	73	2	5	8	12	25	4	6	A-1-b
219+00	CL	0.5-5.0	49	9	12	15	15	22	3	5	A-2-4
221+00	CL	0.3-4.0	17	5	9	34	35	26	11	12	A-6a *
		4.0-7.5	32	5	3	21	39	38	13	12	A-6a
		7.5-10.0	Coal Blossom								Visual
		10.0-11.0	0	1	3	31	65	32	11	12	A-6a
225+00	CL	0.5-6.0	0	3	6	43	48	36	15	22	A-6a
		6.0-11.0	54	11	9	12	14	25	5	22	A-2-4
		11.0-15.0	34	8	7	30	21	27	8	26	A-4a
		15.0-19.0	55	9	8	13	15	25	6	12	A-2-4
229+00	CL	0.5-4.5	27	2	7	34	30	24	11	13	A-6a
		4.5-10.0	53	13	12	9	13	25	4	11	A-1-b
233+50	CL	0.0-3.0	62	13	9	6	10	29	10	9	A-2-4
		3.0-8.0	65	9	13	5	8	NP	NP	14	A-1-a
		8.0-14.0	59	13	14	6	8	NP	NP	12	A-1-a
238+00	CL	0.4-3.0	0	1	21	33	45	36	11	26	A-6a
		3.0-5.0	0	0	40	34	26	44	13	41	A-7-5
		5.0-7.0	0	3	26	34	37	71	31	74	A-7-5
		7.0-10.0	21	12	24	18	25	36	7	36	A-4a
		10.0-16.0	48	9	17	12	14	NP	NP	17	A-2-4
243+00	CL	0.0-6.0	0	2	33	38	27	NP	NP	9	A-4a
		6.0-11.0	58	11	6	14	11	26	7	8	A-2-4
		11.0-12.0	Brownish-Gray Weathered Siliceous Shale							5	Visual
247+00	CL	0.0-2.5	29	3	8	28	32	30	11	13	A-6a *
247+00	80'Rt	0.0-1.5	Brown Broken Clay Shale							18	Visual
252+00	CL	0.3-4.0	0	2	5	58	35	NP	NP	9	A-4b
		4.0-6.0	Brown Weathered Sandstone							7	Visual
262+00	CL	0.5-2.0	37	5	8	28	22	26	7	5	A-4a
263+70	CL	0.5-2.0	60	3	10	15	12	NP	NP	6	A-2-4 *
265+00	CL	0.0-2.0	50	2	15	14	19	33	7	15	A-2-4
267+00	CL	0.3-3.5	0	2	9	41	48	36	11	26	A-6a
		3.5-8.0	62	4	11	11	12	31	7	21	A-2-4
269+50	CL	0.2-2.0	59	3	12	18	8	NP	NP	7	A-2-4
273+00	CL	0.4-3.5	31	2	7	39	21	27	4	12	A-4a *
277+00	CL	0.4-3.0	32	3	11	33	21	25	5	10	A-4a
		3.0-7.0	27	2	13	31	27	24	4	12	A-4a
		7.0-10.0	Brown Weathered Shale							4	Visual *
277+50	CL	0.4-6.0	14	3	5	49	29	27	4	16	A-4a *
		6.0-9.5	Brown Broken Clay Shale							12	Visual *
283+00	CL	0.4-3.0	17	1	2	50	38	30	5	12	A-4b
		3.0-7.0	40	3	17	22	18	23	5	8	A-4a
		7.0-10.0	Dark Brown Broken Clay Shale							8	Visual
287+00	CL	0.2-2.0	20	4	3	31	42	36	11	16	A-6a *
		2.0-4.0	27	0	2	25	45	46	13	20	A-7-5
		4.0-7.0	0	1	2	47	50	37	11	17	A-6a
		7.0-10.0	Gray Broken Clay Shale							7	Visual
290+50	34'Lt	0.3-4.5	Brown Weathered Sandstone							4	Visual
		4.5-11.0	Brown Weathered Indurated Clay							10	Visual
		11.0-18.0	Brown Broken Clay Shale							7	Visual
293+50	CL	0.0-2.5	Light Brown Weathered Siliceous Shale							6	Visual *
295+75	CL	0.3-6.0	0	2	3	44	51	34	11	14	A-6a
		6.0-12.0	Brown Weathered Shale							4	Visual
		12.0-14.0	Brown Broken Clay Shale							6	Visual
		14.0-15.5	Gray Weathered Shale							14	Visual
		15.5-16.5	Gray Weathered Shale							4	Visual
297+00	CL	0.0-4.0	Light Brown Broken Clay Shale							13	Visual
299+40	CL	0.0-5.0	Light Brown Weathered Indurated Clay							11	Visual *
		5.0-11.0	Brown Weathered Shale							6	Visual
302+00	CL	0.0-2.0	Reddish-Brown Weathered Indurated Clay							17	Visual
		2.0-7.0	Brown and Gray Weathered Indurated Clay							9	Visual
303+40	CL	0.4-3.0	29	4	14	30	23	32	4	12	A-4a *
304+80	CL	0.3-3.0	46	1	2	30	21	34	11	12	A-6a
308+65	CL	0.0-2.5	23	6	11	20	40	32	11	8	A-6a *
312+00	CL	0.0-2.5	Brown Weathered Sandstone							6	Visual
314+00	CL	0.4-2.0	0	0	0	35	65	40	11	21	A-6a
		2.0-4.5	30	1	2	36	31	30	11	11	A-6a
314+00	100'Rt	0.0-2.0	Brown Weathered Sandstone							8	Visual
315+85	CL	0.0-3.0	Light Brown Weathered Shale							7	Visual
316+00	130'Rt	0.0-3.0	71	3	7	10	9	37	11	20	A-2-6
318+00	CL	0.0-2.0	Brown Weathered Sandstone							12	Visual
319+00	40'Rt	0.0-2.0	Brown Weathered Sandstone							6	Visual
320+50	CL	0.2-1.5	0	18	3	41	38	40	11	34	A-6a
		1.5-4.0	39	8	10	24	19	NP	NP	31	A-4a
322+90	CL	0.0-6.0	67	3	9	10	11	27	7	12	A-2-4
		6.0-12.0	Brown Sandy Silt with Sandstone Fragments								Visual
		12.0-18.0	Brown Silty Clay with Sandstone Fragments								Visual
		18.0-24.0	31	4	14	25	26	28	6	16	A-4a
		24.0-28.0	Coal								Visual
		28.0-30.0	Gray Underclay							14	Visual
327+10	CL	0.3-4.0	33	3	5	32	27	30	11	15	A-6a *
		4.0-9.0	39	2	3	35	21	30	11	10	A-6a
		9.0-10.0	Brown Weathered Shale							8	Visual
336+60	CL	0.4-4.5	28	5	4	37	26	30	3	13	A-4a
		4.5-12.0	Gray Weathered Shale							9	Visual *
347+00	CL	0.3-3.0	Brown Weathered Shale							8	Visual
		3.0-8.0	Brown Weathered Shale							4	Visual
353+50	CL	0.4-6.0	Brown Weathered Shale							5	Visual
		6.0-12.0	Brown Weathered Shale							3	Visual
359+50	25'Rt	0.3-5.0	Brown Weathered Shale							5	Visual
		5.0-10.0	Brown Weathered Shale							7	Visual
362+30	CL	0.0-3.0	0	3	2	53	42	29	5	17	A-4b
		3.0-4.5	38	1	1	30	30	36	14	18	A-6a
364+50	80'Lt	0.0-2.0	Light Brown Weathered Siliceous Shale							4	Visual
367+00	CL	0.5-6.0	Brown Weathered Shale							4	Visual
		6.0-10.0	Brown Weathered Shale							6	Visual
371+60	CL	0.4-4.0	0	0	8	49	43	34	11	21	A-6a
		4.0-6.0	0	2	7	16	75	54	18	20	A-7-5
		6.0-10.0	0	12	9	29	50	37	11	15	A-6a
		10.0-12.0	47	4	5	15	29	36	11	18	A-6a
		12.0-14.0	41	7	11	15	26	35	7	20	A-4a
371+70	110'Lt	0.0-2.0	0	11	3	47	39	39	11	32	A-6a
		2.0-4.0	0	8	3	44	45	33	11	28	A-6a
		4.0-6.0	0	1	3	20	76	52	16	30	A-7-5
		6.0-8.0	36	1	8	18	37	41	11	23	A-7-5
		8.0-10.0	48	5	6	25	16	27	6	17	A-4a
374+70	CL	0.4-5.0	Brown Weathered Sandstone							6	Visual
		5.0-9.0	Brown Weathered Sandstone							5	Visual
378+00	CL	0.3-2.0	15	4	9	36	36	33	11	14	A-6a
		2.0-6.0	Brown Weathered Sandstone							8	Visual
		6.0-11.0	Brown Weathered Sandstone							6	Visual
381+50	CL	0.5-4.0	Brown Weathered Sandstone							7	Visual *
		4.0-7.0	Brown Weathered Shale							5	Visual *
386+20	CL	0.4-4.0	Brown Weathered Shale							7	Visual
		4.0-8.0	Brown Weathered Shale							6	Visual
389+00	CL	0.0-4.0	50	4	5	12	29	30	11	12	A-6a
		4.0-9.0	30	7	17	25	21	21	2	14	A-4a
		9.0-13.0	27	8	10	27	28	27	8	13	A-4a
		13.0-15.0	22	9	7	25	37	37	11	21	A-6a
392+40	CL	0.4-4.0	Brown Weathered Shale							7	Visual
		4.0-9.0	Brown Weathered Shale							7	Visual
397+00	CL	0.4-2.0	29	9	16	24	22	27	8	11	A-4a
		2.0-7.0	Brown Weathered Shale							6	Visual
399+50	80'Lt	0.0-2.5	Brown Broken Siliceous Shale							8	Visual
399+50	CL	0.3-2.0	30	9	5	30	26	28	3	7	A-4a
399+50	120'Rt	0.2-2.5	32	9	11	28	20	29	8	10	A-4a
		2.5-9.0	Brown Weathered Shale							7	Visual
401+00	70'Rt	0.4-3.5	56	10	3	16	13	24	5	5	A-2-4
		3.5-8.0	Brown Weathered Shale							7	
401+50	75'Lt	0.4-6.0	Brown Weathered Shale							9	Visual
404+00	80'Lt	0.4-5.0	36	13	6	27	18	29	6	10	A-4a
		5.0-10.0	Brown Weathered Siliceous Shale							12	Visual
404+00	CL	0.4-6.0	Brown Weathered Shale							9	Visual
		6.0-8.0	Brown Weathered Shale							9	Visual
		8.0-10.0	Brown Weathered Shale							16	Visual
406+50	85'Lt	0.4-5.0	Brown Weathered Shale							9	Visual
		5.0-10.0	Brown Weathered Shale							10	Visual
406+50	CL	0.3-5.0	Brown Weathered Shale							10	Visual *
		5.0-9.0	Brown Weathered Shale							7	Visual
406+50	100'Rt	0.4-3.0	Brown Weathered Siliceous Shale							5	Visual
		3.0-6.0	Brown Weathered Siliceous Shale							5	Visual
409+50	85'Lt	0.4-6.0	41	22	5	18	14	28	4	9	A-2-4
		6.0-10.0	Brown Weathered Shale							13	Visual
409+50	100'Rt	0.4-4.0	Brown Weathered Shale							8	Visual
		4.0-9.0	Brown Weathered Shale							7	Visual
410+00	CL	0.4-5.0	Brown Weathered Shale							6	Visual *
		5.0-10.0	Brown Weathered Siliceous Shale							5	Visual *
414+00	CL	0.4-6.0	Brown Weathered Shale							5	Visual
		6.0-11.0	Brown Weathered Shale							7	Visual *
414+00	90'Rt	0.4-7.0	Brown Weathered Shale							7	Visual
418+00	CL	0.2-5.0	Brown Weathered Shale							6	Visual
426+00	CL	0.3-5.0	Brown Weathered Shale							9	Visual
		5.0-9.0	Brown Broken Clay Shale							10	Visual
		9.0-13.0	Brown Broken Siliceous Shale							9	Visual
430+15	CL	0.4-6.0	44	15	5	21	15	30	5	6	A-4a
		6.0-10.0	Brown Weathered Shale							11	Visual
		10.0-13.0	Brown Broken Clay Shale							10	Visual
		13.0-14.0	Dark Gray Carbonaceous Shale							10	Visual
435+70	CL	0.3-3.0	Brown Weathered Shale							9	Visual
		3.0-6.5	Dark Brown Weathered Shale							12	Visual
		6.5-11.5	Brown Weathered Shale							7	Visual
437+00	100'Lt	0.4-5.0	38	8	5	26	23	31	5	12	A-4a
		5.0-7.5	Brown Weathered Shale							7	Visual
437+00	CL	0.4-4.0	38	6	3	43	10	34	7	16	A-4a
		4.0-11.0	Brown Weathered Shale							15	Visual
		11.0-12.5	Brownish-Gray Clay Bedrock							24	Visual
		12.5-14.0	Dark Brown Weathered Shale							12	Visual
440+00	CL	0.3-6.0	32	7	5	48	8	32	7	13	A-4a
		6.0-12.0	Brown Weathered Siliceous Shale							8	Visual
442+00	CL	0.3-5.0	Brown Weathered Shale							6	Visual
446+00	CL	0.4-2.0	Light Brown Weathered Sandstone							5	Visual *
449+00	CL	0.5-3.0	0	0	1	53	46	35	9	27	A-4b
		3.0-6.0	19	28	43	-10-		NP	NP	25	A-3
452+00	CL	0.4-3.0	Brown Weathered Sandstone							10	Visual
		3.0-6.5	Gray Weathered Shale							6	Visual
454+00	CL	0.5-6.0	C	3	17	43	37	35	11	20	A-6a
		6.0-9.0	65	4	7	9	15	41	12	17	A-2-7

SR 154 INTERCHANGE
SR 154

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
32+25	CL	0.0-4.0	C	5	35	28	32	NP	NP	33	A-4a
		4.0-9.0	81	6	7	-6-		NP	NP	16	A-1-a
		9.0-13.0	69	10	9	-12-		NP	NP	25	A-1-a
		13.0-14.0	46	7	9	21	17	31	5	13	A-4a
36+00	CL	0.0-4.0	0	0	43	33	24	NP	NP	31	A-4a
		4.0-9.0	Brownish-Gray Clayey Silty Sand							-	Visual
		9.0-11.0	78	3	9	5	5	24	4	11	A-1-a
		11.0-15.0	51	4	24	11	10	NP	NP	26	A-1-b
41+50	CL	0.6-4.0	32	2	14	25	27	37	13	33	A-6a
47+00	CL	0.0-5.0	33	16	15	18	18	31	8	19	A-4a
		5.0-11.0	30	15	21	16	18	31	8	21	A-2-4
		11.0-17.0	48	9	14	16	13	29	8	9	A-2-4
50+75	CL	0.5-2.0	0	3	18	46	33	27	6	20	A-4a
		2.0-7.5	75	6	7	5	7	28	7	11	A-2-4 *
53+00	25'Rt	0.4-2.0	0	2	10	58	30	27	5	23	A-4b *
		2.0-6.0	72	9	7	5	7	29	7	10	A-2-4 *
		6.0-9.0	0	16	70	2	12	NP	NP	5	A-3a *
		9.0-11.5	54	19	6	6	NP	NP	NP	8	A-1-b
58+00	15'Rt	0.0-5.0	65	5	8	12	10	26	NP	16	A-2-4 *
		5.0-10.0	74	7	7	6	6	NP	NP	13	A-1-a
61+10	15'Rt	0.0-6.0	75	7	11	1	6	NP	NP	15	A-1-a
		6.0-9.0	48	2	3	29	18	33	11	28	A-6a
63+50	15'Rt	0.0-6.0	36	0	3	41	20	27	5	23	A-4a
		6.0-10.0	31	8	20	22	19	44	19	27	A-7-6
67+00	15'Lt	0.0-5.0	35	8	27	16	14	32	10	17	A-2-4
		5.0-8.0	0	7	12	37	44	41	21	30	A-7-6
		8.0-9.0	0	7	21	38	34	34	13	36	A-6a
		9.0-14.0	0	1	5	64	30	27	6	9	A-4a
		14.0-15.0	Gray Broken Clay Shale							8	Visual
72+00	6'Rt	0.0-5.0	0	24	7	38	31	28	6	29	A-4a
		5.0-7.0	0	1	32	38	29	45	16	38	A-7-6
		7.0-11.0	48	7	17	15	12	28	6	21	A-4a
		11.0-13.0	61	6	10	13	10	29	6	18	A-4a
77+00	5'Lt	0.0-5.0	31	5	10	32	22	37	13	19	A-6a
		5.0-9.0	28	7	12	16	37	37	11	23	A-6a
		9.0-10.0	34	4	3	22	37	40	15	20	A-6a
83+00	10'Lt	0.0-5.0	31	10	9	16	34	39	11	30	A-6a
		5.0-9.0	32	9	8	11	40	45	16	19	A-7-6
		9.0-10.0	0	2	2	28	68	45	17	29	A-7-6
88+10	15'Rt	0.8-4.0	28	12	17	26	17	29	7	18	A-4a *
		4.0-8.0	51	7	12	16	14	35	9	35	A-7-6
		8.0-10.0	0	3	32	34	31	52	19	50	A-7-6
		10.0-12.0	66	9	11	9	5	NP	NP	16	A-1-a
		12.0-15.0	0	1	21	56	22	54	14	52	A-7-6
		15.0-17.0	66	5	7	12	10	32	8	19	A-2-4

Ramp A

220+85	BL	0.0-5.5	34	2	6	32	26	36	14	14	A-6a *
224+60	BL	0.0-1.5	0	6	7	55	32	29	5	22	A-4b
		1.5-5.0	62	17	7	8	6	26	5	11	A-1-a
		5.0-10.5	67	10	8	7	8	38	19	21	A-2-4
		10.5-12.0	22	42	19	7	10	NP	NP	28	A-1-a
227+00	BL	0.0-4.0	42	7	13	23	15	26	6	17	A-4a
		4.0-8.5	61	9	11	11	8	25	5	10	A-1-b
230+00	BL	0.5-4.0	52	14	12	9	13	30	8	14	A-2-4
		4.0-10.0	57	15	13	14	1	NP	NP	16	A-1-a
232+40	BL	0.0-2.0	30	26	25	17	2	NP	NP	14	A-1-b
		2.0-4.0	67	11	9	12	1	NP	NP	13	A-1-a

Ramp B

221+70	BL	0.0-4.0	31	3	8	31	27	30	11	13	A-6a
		4.0-8.0	40	4	11	24	21	27	6	9	A-4a
224+25	15'Rt	0.4-6.0	28	5	7	38	22	31	16	17	A-4a
		6.0-10.0	55	18	9	9	9	31	10	18	A-2-4
227+00	BL	0.4-5.0	26	5	20	21	28	30	5	20	A-4a
		5.0-6.0	0	1	6	44	49	42	16	23	A-7-6
		6.0-10.0	35	3	9	30	23	36	15	19	A-6a
230+00	BL	0.0-2.0	39	8	14	15	24	32	7	22	A-4a
		2.0-8.0	32	7	25	17	19	26	5	10	A-2-4
		8.0-10.0	36	6	11	18	29	37	11	17	A-6a

Ramp C

220+50	20'Rt	0.5-1.5	29	13	12	21	25	32	11	16	A-4a *
		1.5-7.0	64	12	11	7	6	25	6	11	A-1-a
		7.0-10.0	72	4	12	8	4	NP	NP	16	A-1-a
222+50	25'Rt	0.0-4.0	26	7	12	30	25	31	11	18	A-6a
		4.0-8.0	25	5	12	40	18	32	13	20	A-4a
		8.0-12.0	62	8	11	10	9	32	14	22	A-6a
225+75	25'Lt	0.5-4.0	65	1	5	14	15	34	12	18	A-6a
		4.0-7.0	66	13	4	15	10	28	7	9	A-2-4
229+00	BL	0.4-5.0	57	11	14	8	10	28	7	12	A-2-4
		5.0-10.0	73	13	8	-6-		NP	NP	10	A-1-a
232+00	BL	0.6-2.0	0	11	17	38	34	29	7	21	A-4a
		2.0-7.0	0	6	74	12	8	NP	NP	6	A-1-a
		7.0-11.0	66	6	14	9	5	NP	NP	18	A-1-a
		11.0-11.5	0	15	15	39	31	30	6	14	A-4a

Ramp D

234+00	BL	0.4-3.0	38	8	12	37	5	34	9	14	A-4a
		3.0-7.0	32	5	10	23	26	34	12	14	A-6a
		7.0-9.0	Brown Weathered Shale							9	Visual
236+00	BL	0.0-4.0	0	2	32	24	42	34	11	27	A-6a
		4.0-8.0	56	7	15	14	4	29	8	14	A-4a
		8.0-11.0	0	1	24	45	30	30	8	29	A-6a
		11.0-15.0	50	19	13	15	3	NP	NP	15	A-1-a

Twp. Rd. 785

10+50	CL	0.0-5.0	73	3	2	8	14	32	6	12	A-1-a
		5.0-8.0	38	6	11	17	28	34	11	23	A-6a
		8.0-10.0	35	8	16	30	11	24	5	13	A-6a
13+75	CL	0.0-2.0	59	8	10	21	2	NP	NP	21	A-1-a
15+15	CL	0.0-2.0	68	4	3	17	8	NP	NP	12	A-1-a
18+00	CL	0.0-3.0	40	5	16	32	7	23	4	17	A-4a
20+40	CL	0.0-1.5	Brown Weathered Shale							10	Visual
21+10	CL	0.0-1.5	Grayish-Brown Weathered Shale							11	Visual
[illegible]		4.0-6.0	Brown Weathered Sandstone							5	Visual
		6.0-12.5	Light Brown Weathered Indurated Clay							6	Visual

Twp. Rd. 794

[illegible]	10'Lt	0.0-3.5	Gray Clayey sandy silt, field tile, cinders, and ashes								Visual
		3.5-5.0	36	8	20	24	12	NP	NP	17	A-4a

SOIL PROFILE

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W BROAD ST COLUMBUS 23, OHIO

3/43

3/30

SUPPLEMENT 6/18/65

SUMMARY OF SOIL TEST DATA

NOTE: NP shown in Liquid Limit and Plasticity Index columns indicates that the material is non-plastic.

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
236+00	50'Lt	0.0-4.5	11	2	7	57	23	35	12	33	A-6a
236+00	50'Rt	0.6-2.0	0	4	10	56	30	31	12	22	A-6a
		2.0-4.0	0	2	7	64	27	73	33	43	A-7-5
		4.0-8.0	17	5	15	39	23	28	12	18	A-6a
		8.0-11.0	0	3	26	48	23	26	11	21	A-6a
		11.0-15.0	21	15	12	37	15	28	10	19	A-4a
		15.0-16.0	45	15	6	23	11	27	6	15	A-2-4
236+00	150'Rt	0.6-4.0	0	11	8	47	34	41	20	28	A-7-6
		4.0-8.0	25	19	9	30	17	27	13	18	A-6a
		8.0-11.0	43	6	14	22	15	27	11	18	A-6a
		11.0-13.0	Brown Sandy Silty Clay with Stone Fragments								
		13.0-14.0	42	11	6	26	15	25	9	22	Visual
								29	7	14	A-4a
236+00	300'Rt	0.5-3.0	0	1	17	46	36	41	16	27	A-7-6
		3.0-7.5	9	5	22	39	25	27	9	19	A-4a
		7.5-13.0	33	14	19	19	15	26	7	18	A-2-4
		13.0-17.0	56	9	14	12	9	25	9	21	A-2-4
237+00	100'Lt	0.5-2.0	0	1	8	50	41	78	41	57	A-7-5
		2.0-5.0	0	0	21	35	44	69	44	34	A-7-6
		5.0-7.0	0	3	6	50	41	57	30	34	A-7-6
		7.0-10.0	51	0	4	34	11	23	11	26	A-6a
		10.0-12.0	56	7	4	13	20	30	11	13	A-6a
237+00	CL	0.5-3.0	0	2	10	46	42	50	16	35	A-7-5
		3.0-6.0	0	1	16	49	34	33	16	26	A-6b
		6.0-10.0	39	13	11	23	14	24	8	11	A-4a
		10.0-12.0	80	5	5	5	5	24	8	16	A-2-4
		12.0-14.0	56	11	6	15	12	63	39	11	A-2-7
237+00	100'Rt	0.5-4.0	0	3	22	39	36	33	14	28	A-6a
		4.0-9.0	0	10	45	24	21	24	7	24	A-4a
		9.0-14.0	45	14	16	13	12	21	6	15	A-1-b
237+00	200'Rt	0.5-4.0	0	2	26	43	29	32	13	31	A-6a
		4.0-8.0	0	3	49	24	24	30	10	38	A-4a
		8.0-13.0	30	19	19	18	14	22	4	14	A-2-4
238+00	150'Lt	0.5-3.0	0	1	30	45	24	33	11	32	A-6a
		3.0-7.0	0	1	35	41	23	47	23	51	A-7-6
		7.0-9.0	0	3	38	45	19	52	26	47	A-7-6
		9.0-12.0	41	16	13	17	13	24	5	14	A-2-4
		12.0-14.5	46	7	8	22	17	29	9	9	A-4a
238+00	200'Rt	0.6-2.0	0	2	26	50	22	32	15	28	A-6a
		2.0-5.0	46	15	24	10	9	24	8	22	A-2-4
		5.0-10.0	14	6	44	27	9	NP	NP	18	A-4a
		10.0-15.0	12	9	44	24	11	NP	NP	23	A-3a
		15.0-18.0	16	5	47	23	9	NP	NP	21	A-3a
		18.0-20.0	50	9	13	19	9	NP	NP	13	A-2-4
239+00	85'Lt	0.6-3.0	0	1	65	16	18	NP	NP	26	A-3a
		3.0-6.0	0	3	63	14	20	45	12	53	A-2-6
		6.0-12.0	0	12	21	38	29	29	14	16	A-6a

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
239+00	100'Rt	0.6-4.0	0	2	34	33	31	34	9	33	A-4a
		4.0-7.0	0	1	29	39	31	56	28	45	A-7-6
		7.0-10.0	59	15	15	-	11 -	NP	NP	18	A-1-a
		10.0-14.0	70	6	12	7	5	-	-	15	A-1-a
239+00	200'Rt	0.6-4.0	0	1	25	48	26	40	15	38	A-6a
		4.0-10.0	0	4	52	27	17	42	15	32	A-7-6
		10.0-15.0	71	8	5	11	5	28	6	12	A-1-b
240+00	150'Lt	0.6-3.0	21	5	36	28	10	NP	NP	34	A-4a
		3.0-9.0	58	10	12	15	5	NP	NP	16	A-1-b
		9.0-14.5	20	5	34	30	11	36	13	24	A-6a
		14.5-15.5	16	9	19	43	13	NP	NP	13	A-4a
240+00	50'Lt	0.6-3.0	0	2	30	47	21	28	11	25	A-6a
		3.0-7.0	0	3	37	44	16	25	5	30	A-4a
		7.0-12.0	46	7	7	28	16	NP	NP	27	A-1-b
		12.0-14.0	43	7	7	28	15	29	8	10	A-4a
240+00	50'Rt	0.6-5.0	0	2	35	46	17	30	10	37	A-4a
		5.0-11.0	50	9	19	15	7	NP	NP	22	A-1-b
		11.0-13.0	17	2	17	50	14	34	21	49	A-7-5
		13.0-14.0	30	16	14	27	13	23	5	16	A-4a
240+00	150'Rt	0.6-5.0	0	0	25	50	25	37	16	34	A-6b
		5.0-9.0	27	16	25	26	7	NP	NP	26	A-2-4
		9.0-13.0	50	8	17	17	8	NP	NP	17	A-1-b
		13.0-14.0	37	10	12	29	12	NP	NP	18	A-4a
241+00	175'Lt	0.6-3.0	17	5	15	44	19	45	14	36	A-6a
		3.0-8.0	67	11	9	9	4	NP	NP	22	A-1-a
		8.0-9.0	20	11	23	33	13	24	7	12	A-4a
241+00	100'Lt	0.6-3.5	0	1	26	52	21	35	10	25	A-4b
		3.5-8.0	30	11	21	27	11	28	6	32	A-4a
		8.0-9.0	21	14	13	31	21	29	7	14	A-4a
241+00	CL	0.6-3.0	0	4	32	46	18	NP	NP	26	A-4a
		3.0-5.0	0	8	52	28	12	NP	NP	27	A-4a
		5.0-9.0	31	9	25	24	11	NP	NP	22	A-2-4
		9.0-10.0	17	6	19	43	15	NP	NP	20	A-4a
241+00	100'Rt	0.6-4.0	0	1	27	58	14	NP	NP	23	A-4b
		4.0-9.0	39	13	22	18	8	NP	NP	17	A-2-4
		9.0-10.0	33	13	8	32	14	30	7	13	A-4a
241+00	200'Rt	0.6-4.0	0	2	51	32	15	NP	NP	20	A-4a
		4.0-7.0	0	3	63	20	14	NP	NP	24	A-3a
		7.0-10.0	31	14	28	17	10	NP	NP	26	A-4a

DRIVE SAMPLE SOIL TEST DATA

235+08	74'Lt	5.0-5.6	Brown Silty Clay and Shale Fragments	14 Visual
		10.0-10.4	Brown and Gray Silty Clay and Shale Fragments	15 Visual

SOIL PROFILE

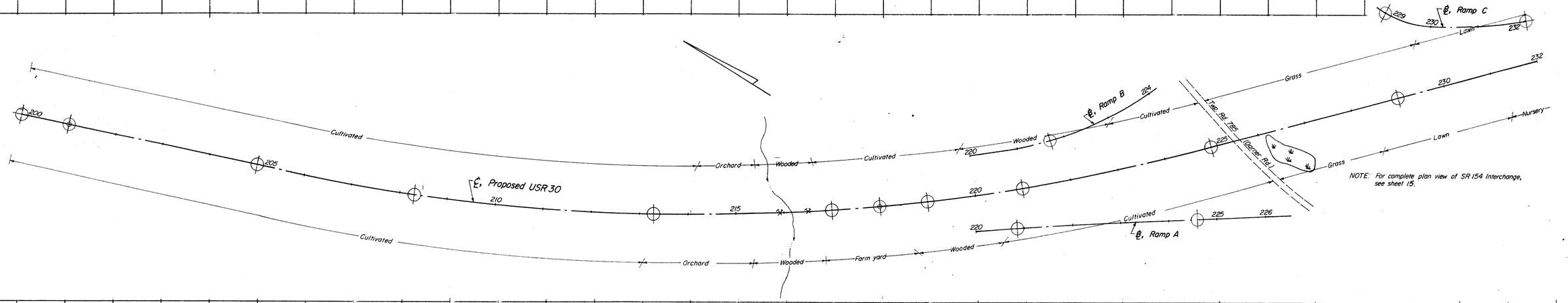
COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

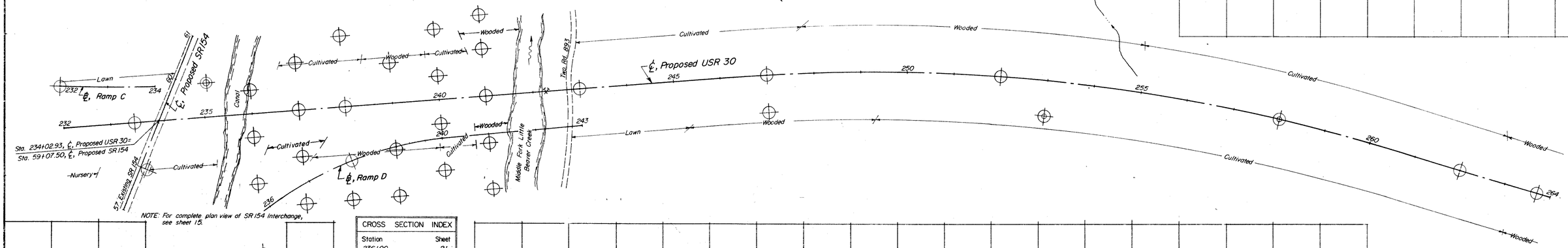
4/43

4/30

REVISED 6/18/65



NOTE: For complete plan view of SR 154 Interchange, see sheet 15.



NOTE: For complete plan view of SR 154 Interchange, see sheet 15.

CROSS SECTION INDEX	
Station	Sheet
236+00	21
237+00	21
238+00	22
239+00	22
240+00	23
241+00	23

SOIL PROFILE

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

5/43 · 5/30

REVISED 6/18/65

DRIVE SAMPLE SOIL TEST DATA

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
201+00	CL	5.0-6.0	28	9	16	26	21	25	9	15	A-4a
		10.0-11.0	29	6	16	27	22	26	8	9	A-4a

DRIVE SAMPLE SOIL TEST DATA

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
218+00	CL	5.0-6.0	57	1	18	15	9	NP	NP	16	A-1-b

Sod=0.2' 9 Refusal
15 9 Top of Rock
Sandstone, brown to gray, fine-grained firm, slightly weathered in top 8.0', with many carbonaceous shale seams and stringers throughout. Core loss 15%.
TS=0.6' 8 Refusal (Hand auger)
10 Refusal
TS=0.6' 8 Refusal
Sod=0.3' 6 Refusal
20/20 16
Top of Rock
Sandstone, firm, medium to thick-bedded, slightly weathered.
TS=0.5' 5 Refusal
A
B
C
D

A. Sandstone, brown, fine-grained, firm, with clay seams, slightly weathered. Core loss 25%.

B. Shale, gray, fissile, soft to medium-firm, slightly weathered with many sandstone seams, broken. Core loss 28%.

C. Shale, black, carbonaceous, fissile, medium-firm, jointed and broken. Core loss 18%.

D. Clay shale, gray, medium-firm, fissile, with limestone seams. Core loss 31%.

Sod=0.3' 12 12 CB 12
Sod=0.5' 22 22 26 12 Refusal
Sod & TS=0.5' 13 11

1060 1050 1040 1030 1020 1010 1000 990 980 970 960 950 940 930 920

200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232

SOIL PROFILE

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

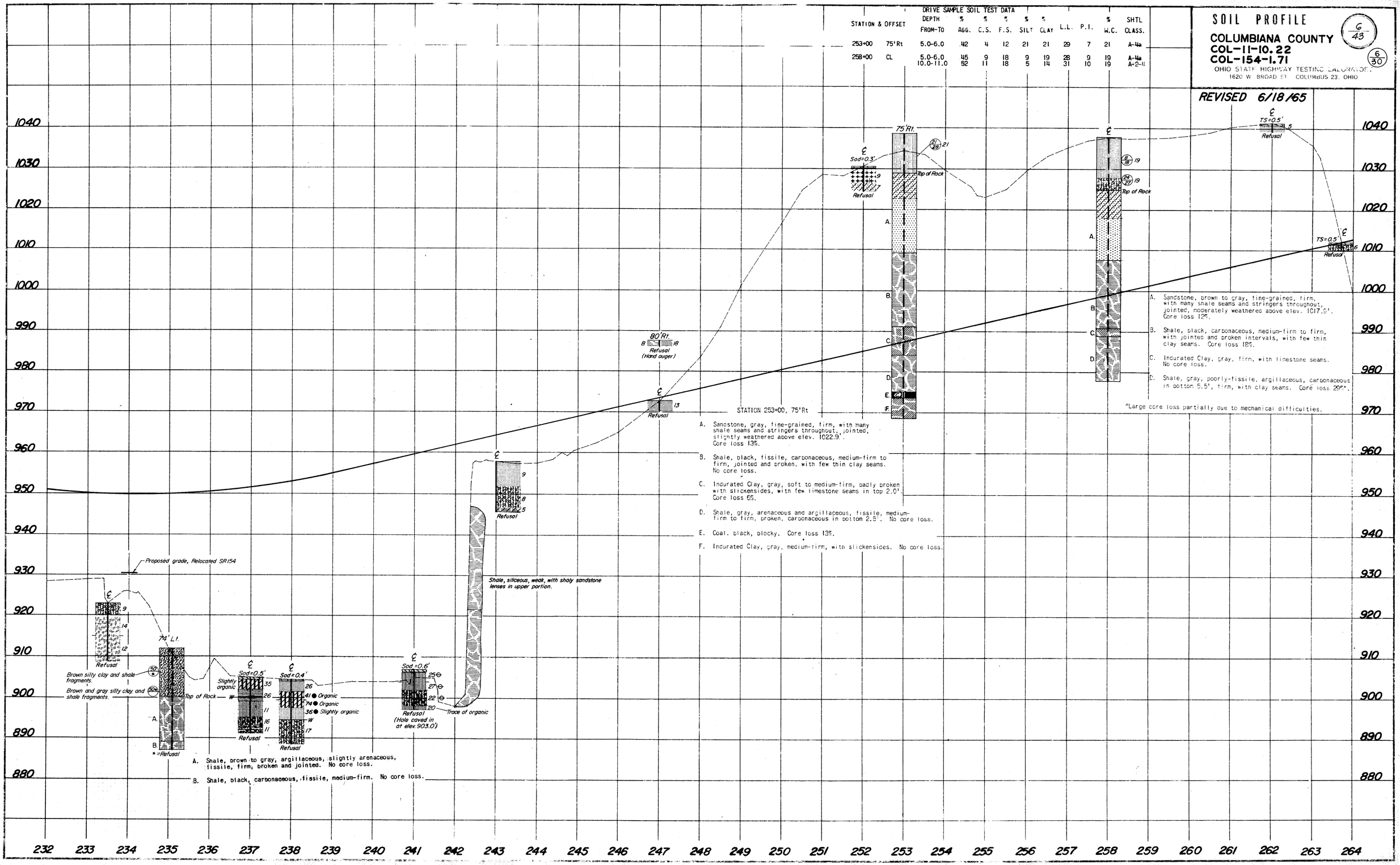
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

6/43
6/30

REVISED 6/18/65

DRIVE SAMPLE SOIL TEST DATA

STATION & OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
253+00 75'Rt	5.0-6.0	42	4	12	21	21	29	7	21	A-4a
258+00 CL	5.0-6.0	45	9	18	9	19	28	9	19	A-4a
	10.0-11.0	52	11	18	5	14	31	10	19	A-2-4



SOIL PROFILE

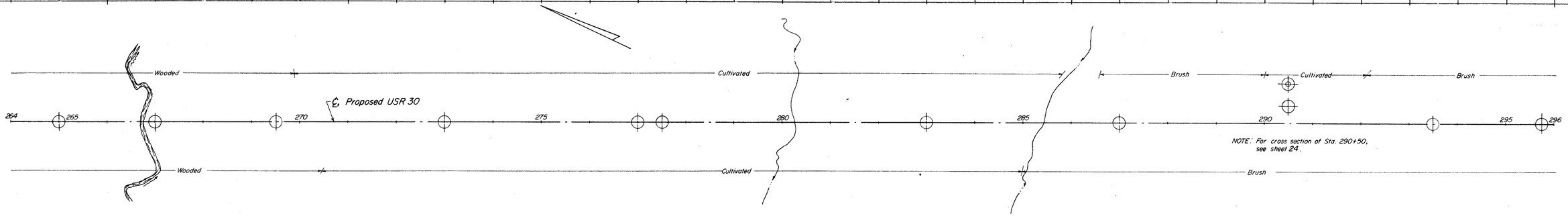
7/43

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

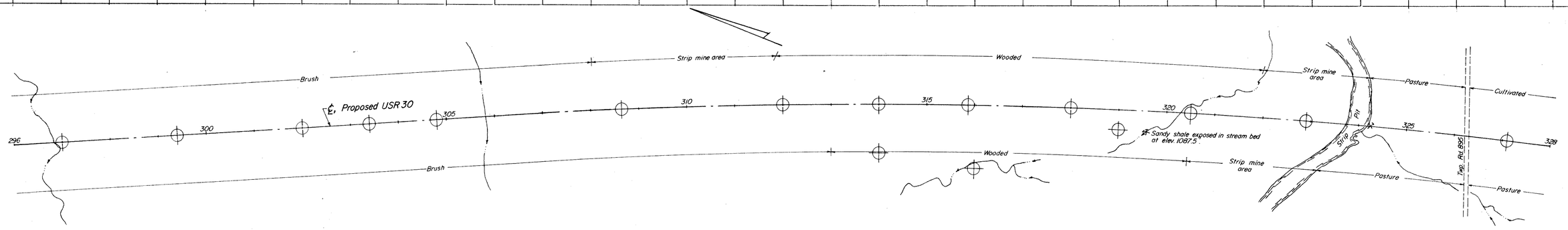
7/30

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 6/18/65



NOTE: For cross section of Sta. 290+50, see sheet 24.



SOIL PROFILE

8/43

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

8/30

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 6/18/65

1120 1110 1100 1090 1080 1070 1060 1050 1040 1030 1020 1010 1000 990 980 970 960 950 940 930

264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296

℄ Sod=0.4' 12 Refusal

℄ Sod=0.4' 10 12 4 Refusal

℄ Sod=0.4' 16 12 8 Refusal

℄ Sod=0.4 12 8 B 8

℄ Sod=0.2' 16 20 With coal blossom 17 B 7

34' Lt. TS=0.3' 4 10 B 7 Refusal

81' Lt. D. E. F.

NOTE: For complete log of boring, see sheet 24.

℄ 6 Refusal (Hand auger)

℄ TS=0.3' 14 4 6 14 B 4 Refusal

℄ Sod=0.2' 17 Refusal (Hand auger)

℄ 15 Refusal (Hand auger)

℄ Sod=0.3' 26 21 Refusal (Hand auger)

SOIL PROFILE

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1120 W. BROAD ST. COLUMBUS 23, OHIO

9/43

9/30

REVISED 6/18/65

1180 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050 1040 1030

296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328

℄ 17 9 Refusal

℄ Sod=0.4' 12 Refusal (Hand auger)

℄ 11 6 Refusal

℄ B 13 Refusal (Hand auger)

℄ 8 Refusal (Hand auger)

℄ 6 Refusal (Hand auger)

℄ Sod=0.3' 12 Refusal (Hand auger)

℄ 7 Refusal (Hand auger)

℄ 12 Refusal (Hand auger)

℄ TS=1.04' 21 11 Refusal (Hand auger)

100'Rt. B Refusal (Hand auger)

130'Rt. 20 Refusal

40'Rt. 6 Refusal (Hand auger)

℄ TS=0.2' 34 Trace of organic 31 Trace of organic Refusal (Hand auger)

℄ Sod=0.3' 15 10 8

℄ 12 Brown sandy silt with sandstone fragments

Brown silty clay with sandstone fragments

Thin to medium-bedded sandstone

16 G W 14

SOIL PROFILE

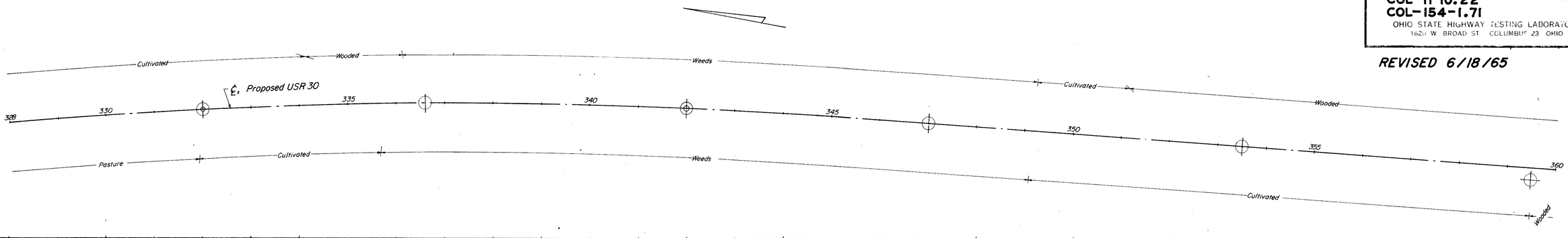
COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

10/43

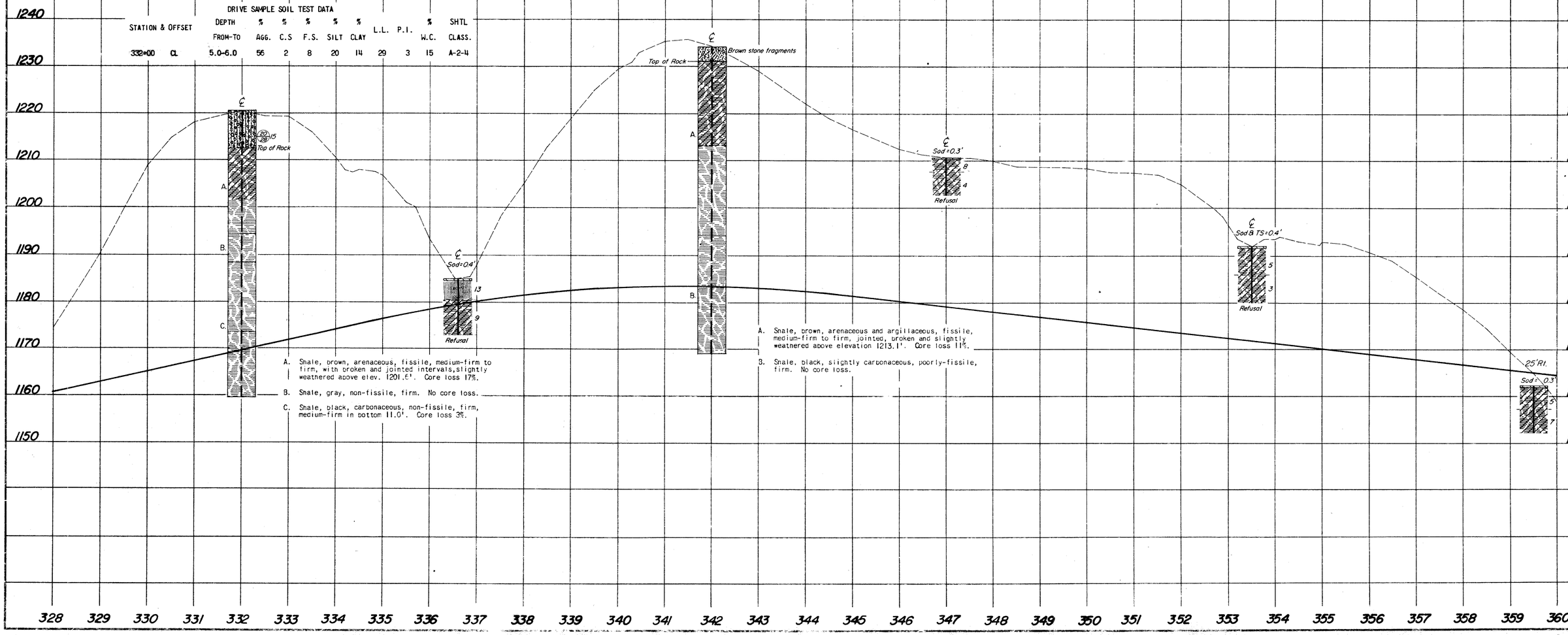
10/30

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 6/18/65



STATION & OFFSET	DRIVE SAMPLE SOIL TEST DATA DEPTH FROM-TO	% AGG.	% C.S	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
332+00 CL	5.0-6.0	56	2	8	20	14	29	3	15	A-2-4



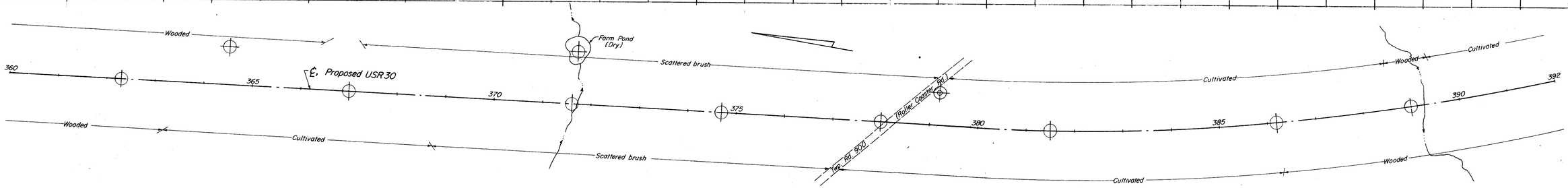
SOIL PROFILE

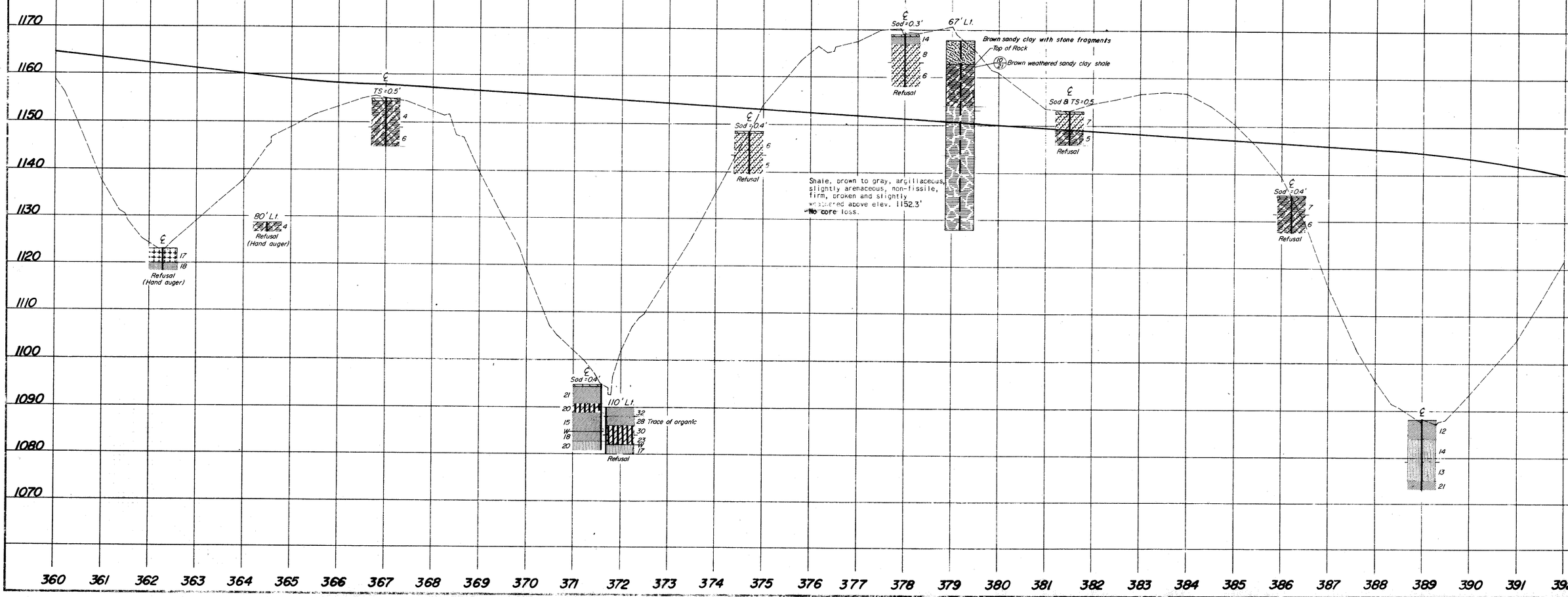
COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

11/43
11/30

REVISED 6/18/65





SOIL PROFILE

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

12/43
12/30

REVISED 6/18/65

Cultivated | Wooded | Farm Pond | Wooded | Weeds | Weeds & scattered brush | Cultivated | Wooded | Cultivated

Wooded | Wooded | Weeds | Cultivated

℄ Proposed USR30

392 395 400 405 410 415 420 424

CROSS SECTION INDEX	
Station	Sheet
399+50	25
401+00	25
404+00	26
406+50	26
409+50	27
414+00	27
420+00	28
422+50	28

℄ Sod BTS=0.4' — 7, 7 — Refusal

℄ Sod=0.4' — 11, 6 — Refusal

℄ TS=0.3' — 7 — Refusal (Hand auger)

℄ Sod=0.4' — 9, 9, 16

℄ Sod=0.3' — 10, 7 — Refusal

℄ Sod=0.4' — 6, 5

℄ Sod=0.4' — 5, 7 — Refusal

℄ Sod=0.2' — 6 — Refusal

100' Rt.
A. Brown silty clay
B.
C.
D. Top of Rock

NOTE: For complete log of boring, see sheet 28

90' Rt.
A. Brown sandy silt
B.
C. Top of Rock

NOTE: For complete log of boring, see sheet 28

1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050

392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424

SOIL PROFILE

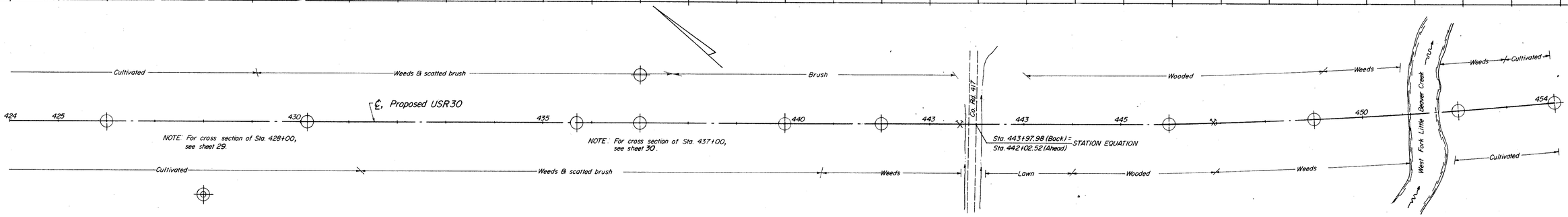
COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

13/43

13/30

REVISED 6/18/65



SOIL PROFILE

14/43

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

14/30

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 6/18/65

1080 1070 1060 1050 1040 1030 1020 1010 1000 990 980 970 960 950 940 930 920 910 900 890

424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 443 444 445 446 447 448 449 450 451 452 453 454

℄ Sod=0.3'
9
B 10
B 9
Refusal

150' Rt.
B
C

NOTE: For complete log of boring, see sheet 29.

℄ Sod=0.4'
6
B 11
10
10
Refusal

℄ Sod=0.3'
9
12
7
Refusal

℄ Sod=0.4'
16
15
24
12
Refusal

235' Rt.
C
D
E
F

Note. For complete log of boring, see sheet 30.

℄ Sod=0.3'
13
8
Refusal

℄ Sod=0.3'
6
Refusal

Sandy shale

Sta 443+97.98 (Back)=
Sta 442+02.52 (Ahead)

STATION EQUATION

℄ TS=0.4'
5
Refusal

Sandstone, firm, medium-to thick-bedded.

℄ Sod=0.5'
27
W
25
Refusal
(Hand auger)

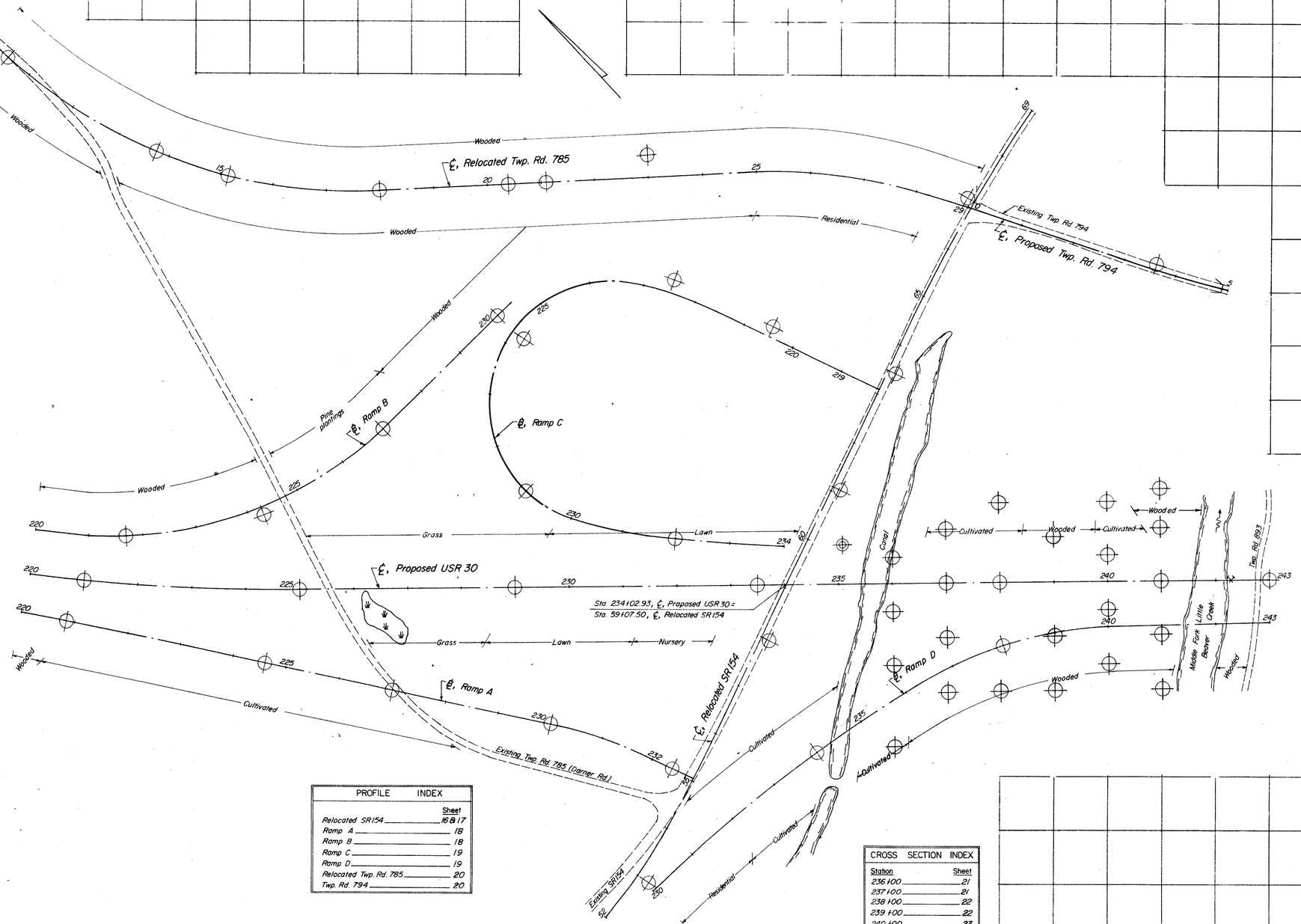
℄ Sod=0.4'
10
W
6
Refusal

℄ Sod=0.5'
20
17
Refusal

SOIL PROFILE

COLUMBIANA COUNTY (15/43)
COL-11-10.22
COL-154-1.71 (15/30)
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W BROAD ST COLUMBUS 23 OHIO

REVISED 6/18/65



PROFILE INDEX	
	Sheet
Relocated SR 154	16 & 17
Ramp A	18
Ramp B	18
Ramp C	19
Ramp D	19
Relocated Twp. Rd. 785	20
Twp. Rd. 794	20

CROSS SECTION INDEX	
Station	Sheet
236+00	21
237+00	21
238+00	22
239+00	22
240+00	23
241+00	23

SR 154 INTERCHANGE

SOIL PROFILE

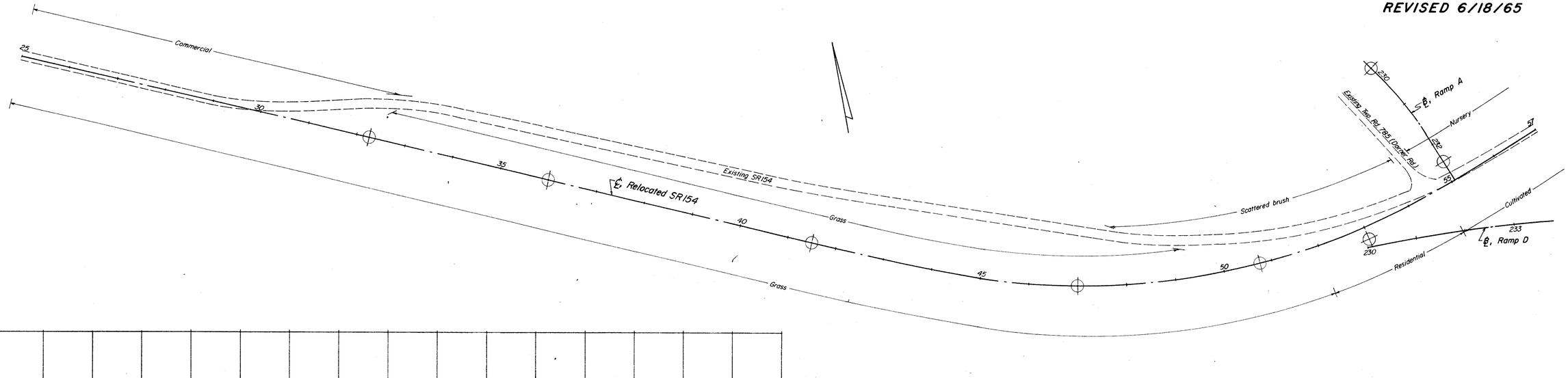
COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

16/43

16/30

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 6/18/65



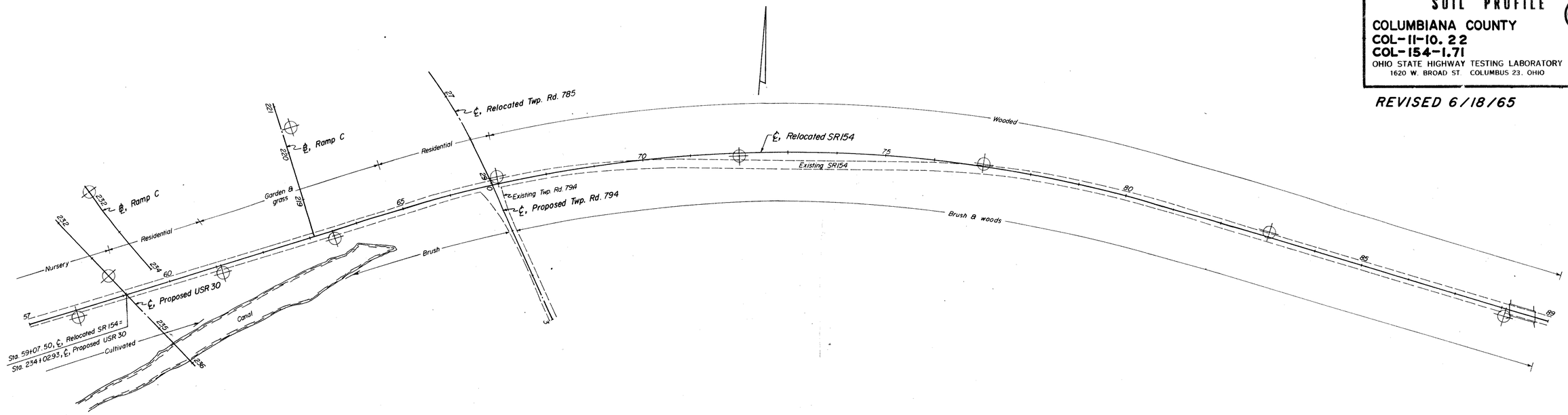
SOIL PROFILE

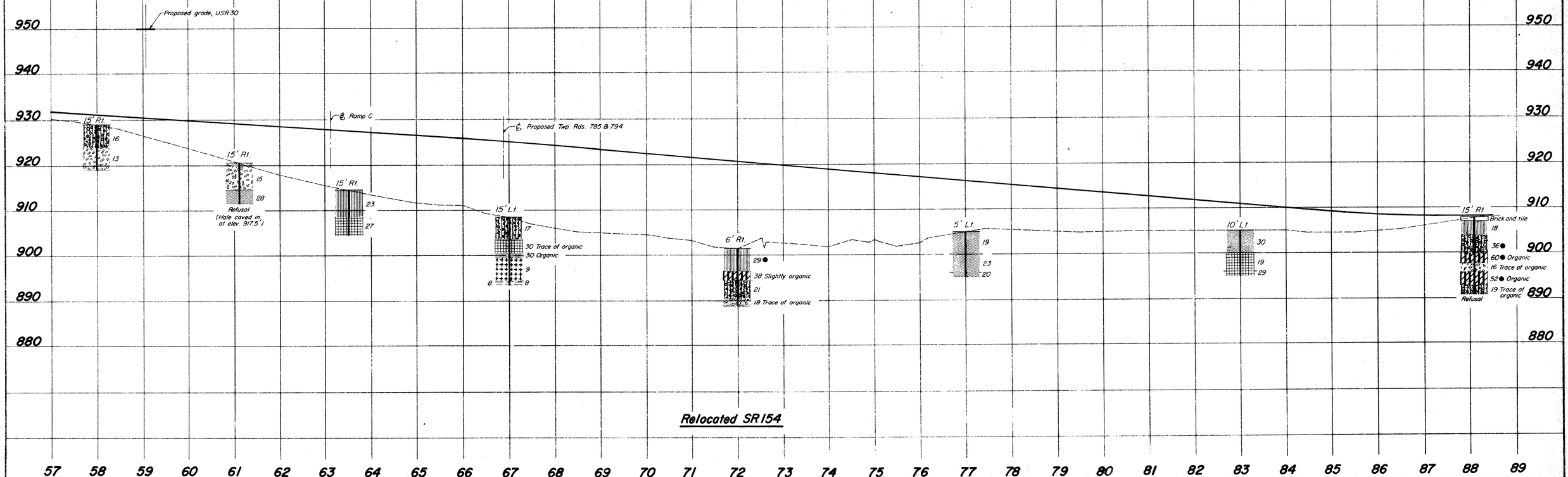
(17/43)

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY (17/30)
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 6/18/65





SOIL PROFILE

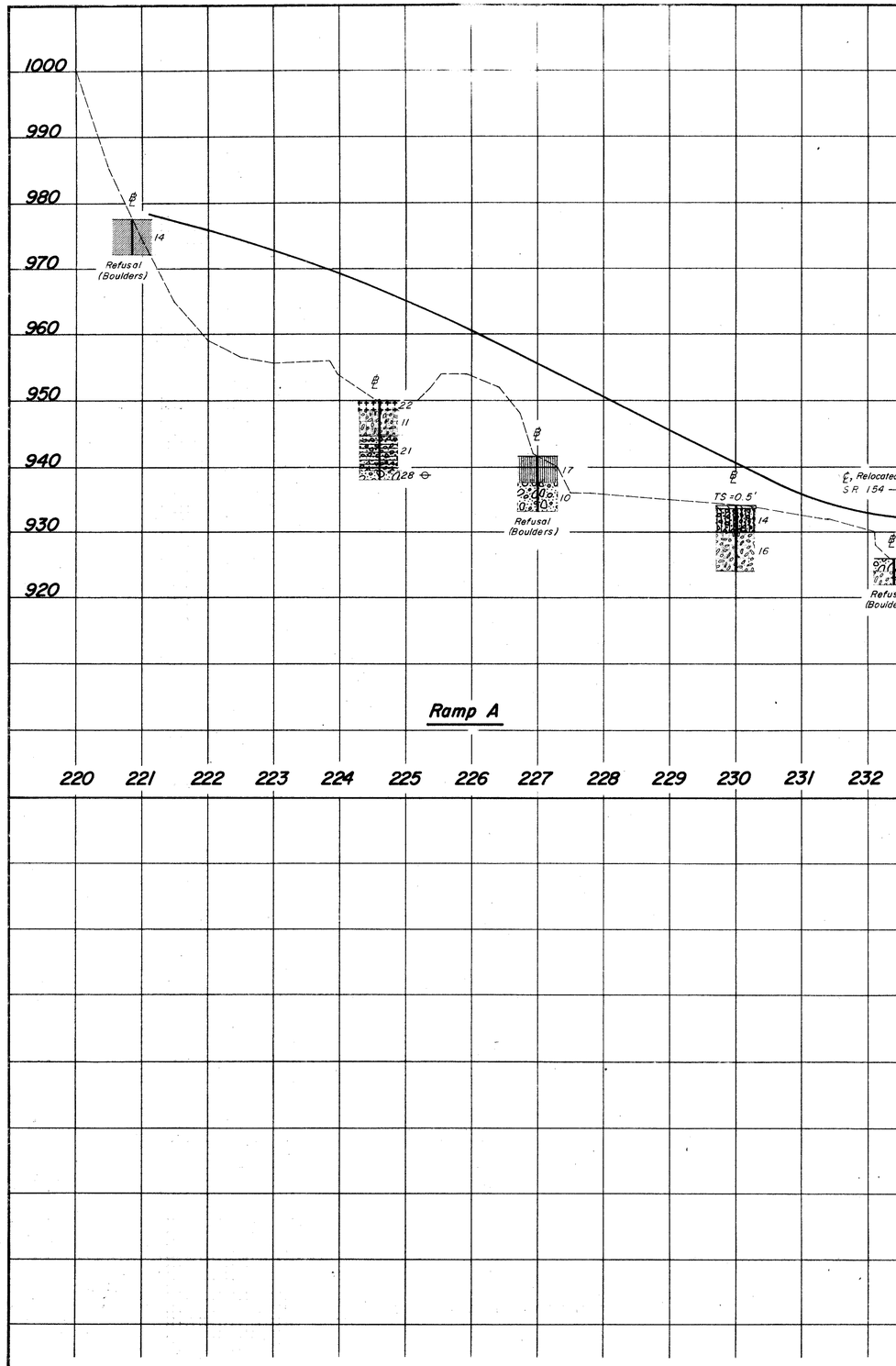
COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

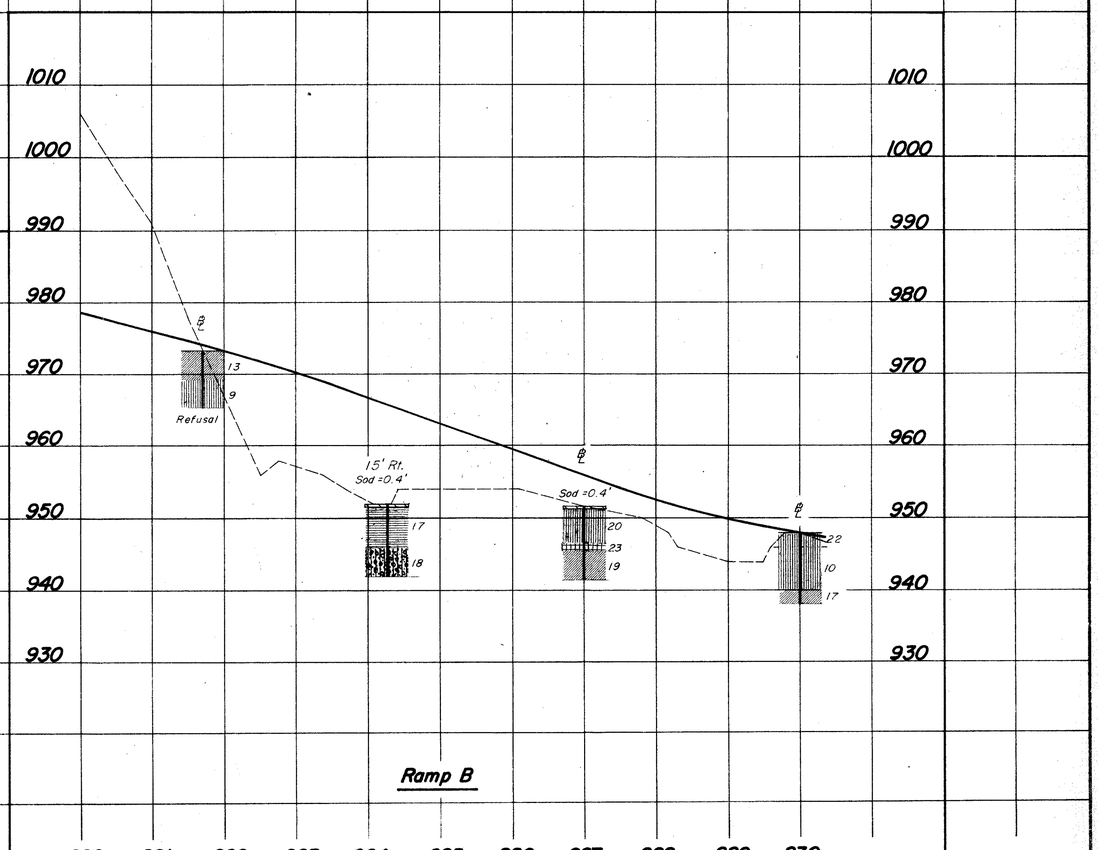
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

18/43

18/30

REVISED 6/18/65





SOIL PROFILE

(19/43)

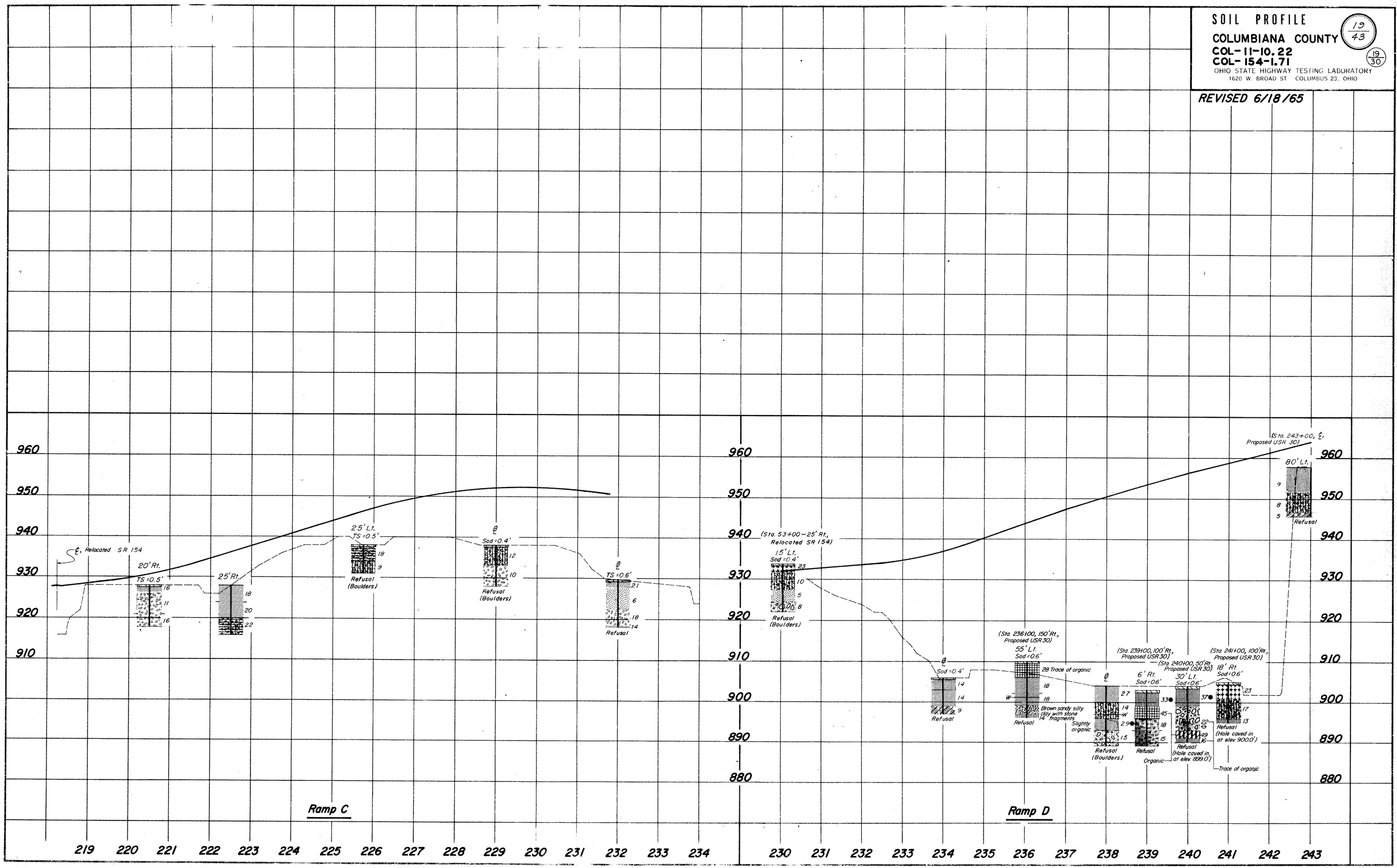
COLUMBIANA COUNTY

COL-11-10.22
COL-154-1.71

(19/30)

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 6/18/65



FE-36
2590-8-64

SOIL PROFILE

20/43

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

20/30

REVISED 6/18/65

1060 1050 1040 1030 1020 1010 1000 990 980 970 960 950 940 930 920 910 900 890

℄ 12 23 13

℄ 12 Refusal (Hand auger)

℄ 17 Refusal (Hand auger)

℄ 21 Slightly organic Refusal (Hand auger)

℄ 10 Refusal (Hand auger)

40' Lt. 15 5 6 Refusal

℄ 11 Refusal (Hand auger)

℄, Relocated SR 154

(Sta. 67+00 - 15' Lt., Relocated SR 154)

16' Lt. 17 Trace of organic 30 Organic 30 9 B 8

Relocated Twp. Rd. 785

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

℄, Relocated SR 154

10' Lt. Gray clayey sandy silt, field tile, cinders, and ashes 17 Hole caved in at surface

Twp. Rd. 794

0 1 2 3 4 5

SOIL PROFILE

21/43

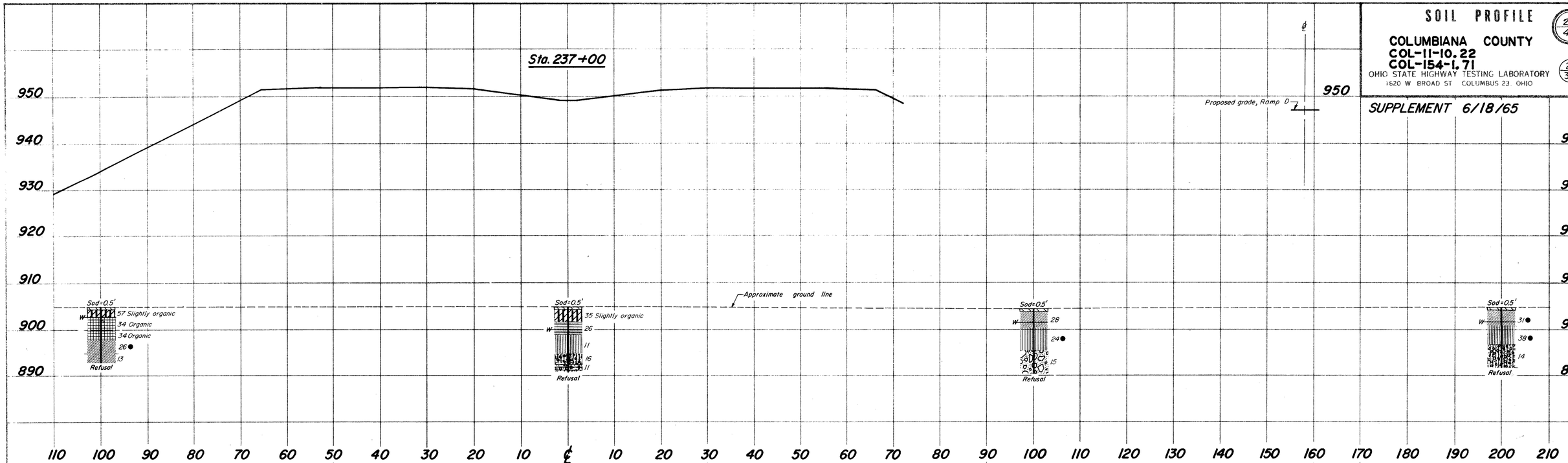
COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

21/30

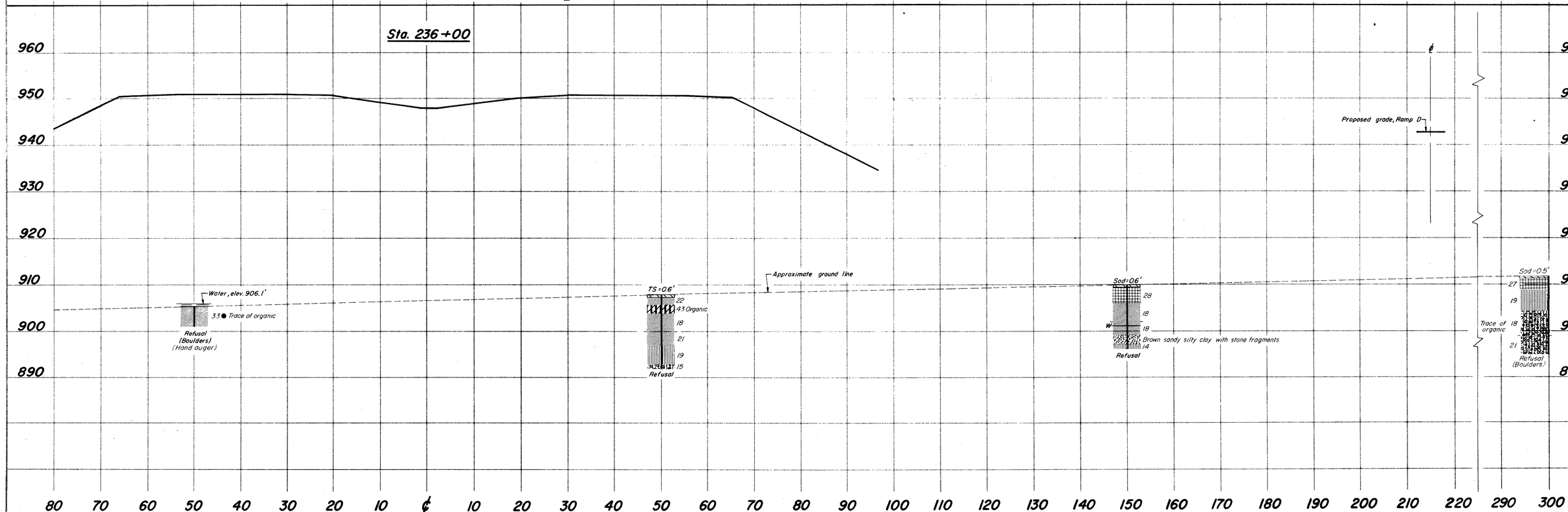
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W BROAD ST COLUMBUS 23 OHIO

SUPPLEMENT 6/18/65

Sta. 237+00



Sta. 236+00



SOIL PROFILE

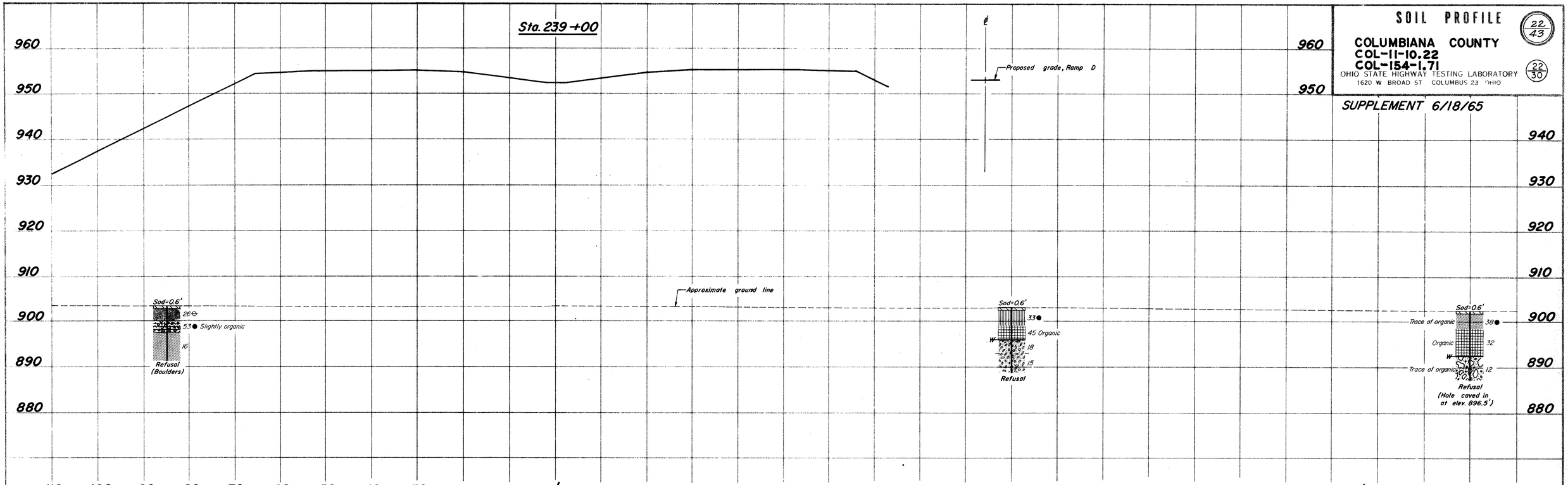
(22/43)

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

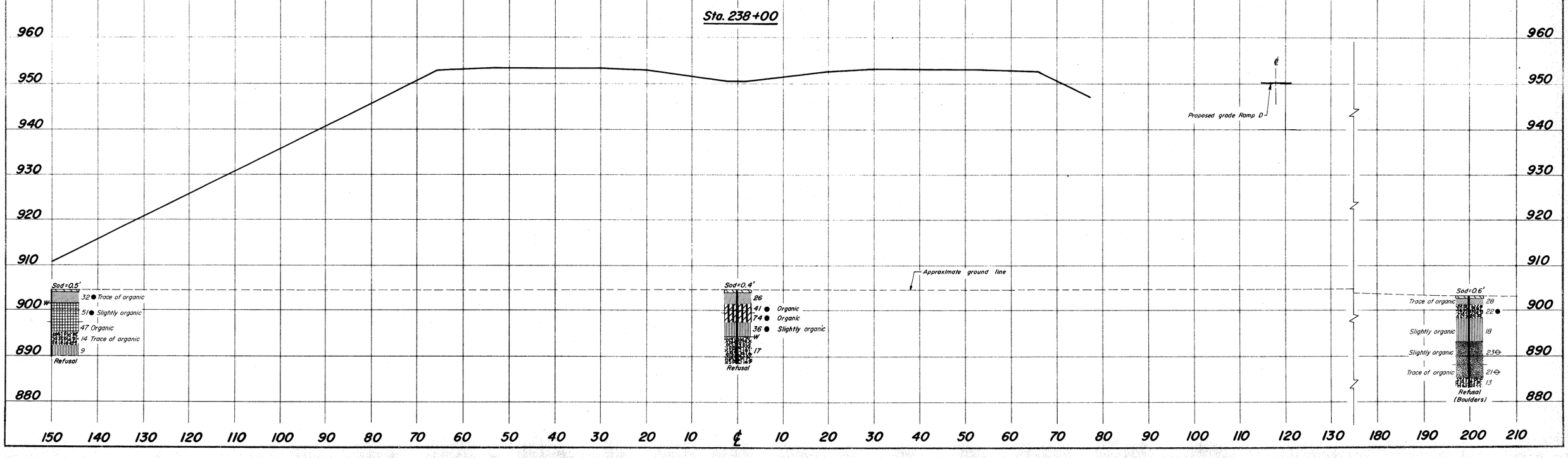
OHIO STATE HIGHWAY TESTING LABORATORY (22/30)
1620 W BROAD ST COLUMBUS 23 OHIO

SUPPLEMENT 6/18/65

Sta. 239+00



Sta. 238+00



SOIL PROFILE

(23/43)

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY (23/30)
1620 W BROAD ST COLUMBUS 23 OHIO

SUPPLEMENT 6/18/65

Sta.241+00

Proposed grade, Ramp D

Approximate ground line

Sod=0.6'
36
22⊖ Trace of organic
12 Trace of organic
Refusal
(Hole caved in at elev.898.0')

Sod=0.6'
25
32●
14 Trace of organic
Refusal
(Hole caved in at elev. 898.1')

Sod=0.6'
25⊖
27⊖
22⊖
20 Trace of organic
Refusal
(Hole caved in at elev. 903.0')

Sod=0.6'
23
17
13
Refusal
(Hole caved in at elev. 900.0')

Sod=0.6'
20
24⊖
26⊖
Refusal
(Hole caved in at elev. 899.6')

Sta.240+00

Proposed grade, Ramp D

Approximate ground line

Sod=0.6'
W
34⊖ Trace of organic
16 Trace of organic
24 Organic
13
Refusal
(Hole caved in at elev. 901.0')

Sod=0.6'
25●
30●
27⊖ Trace of organic
10 Trace of organic
Refusal
(Hole caved in at elev. 897.0')

Sod=0.6'
37●
22⊖ Trace of organic
49 Organic
16 Trace of organic
Refusal
(Hole caved in at elev. 899.0')

Sod=0.6'
34●
25⊖
Trace of organic
17
18
Refusal
(Hole caved in at elev. 900.0')

SOIL PROFILE

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

24/43

24/30

REVISED 6/18/65

DRIVE SAMPLE SOIL TEST DATA

STATION & OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
290+50 81'Lt	5.0-5.5	75	2	8	7	8	-	-	15	A-1-a

Sta. 290+50

1120 1110 1100 1090 1080 1070 1060 1050

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

Top of Rock

50/* 15

A. Shale, brown, very arenaceous, fissile, soft, very badly broken, extremely weathered. Core loss 61%.

B. Indurated Clay, gray, very soft to soft and crumbly, very badly broken, with slickensides, slightly weathered. Core loss 24%.

C. Shale, gray, fissile, medium-firm, jointed and badly broken, slightly weathered. Core loss 7%.

D. Shale, black, carbonaceous, fissile, medium-firm, with jointed and broken intervals, slightly weathered intervals. Core loss 5%.

E. Indurated Clay, gray, very soft to medium-firm, broken. Core loss 26%.

F. Shale, gray, very arenaceous, non-fissile, firm, jointed and broken. Core loss 16%.

* = Refusal

TS = 0.3'

4

10

7

Refusal

SOIL PROFILE

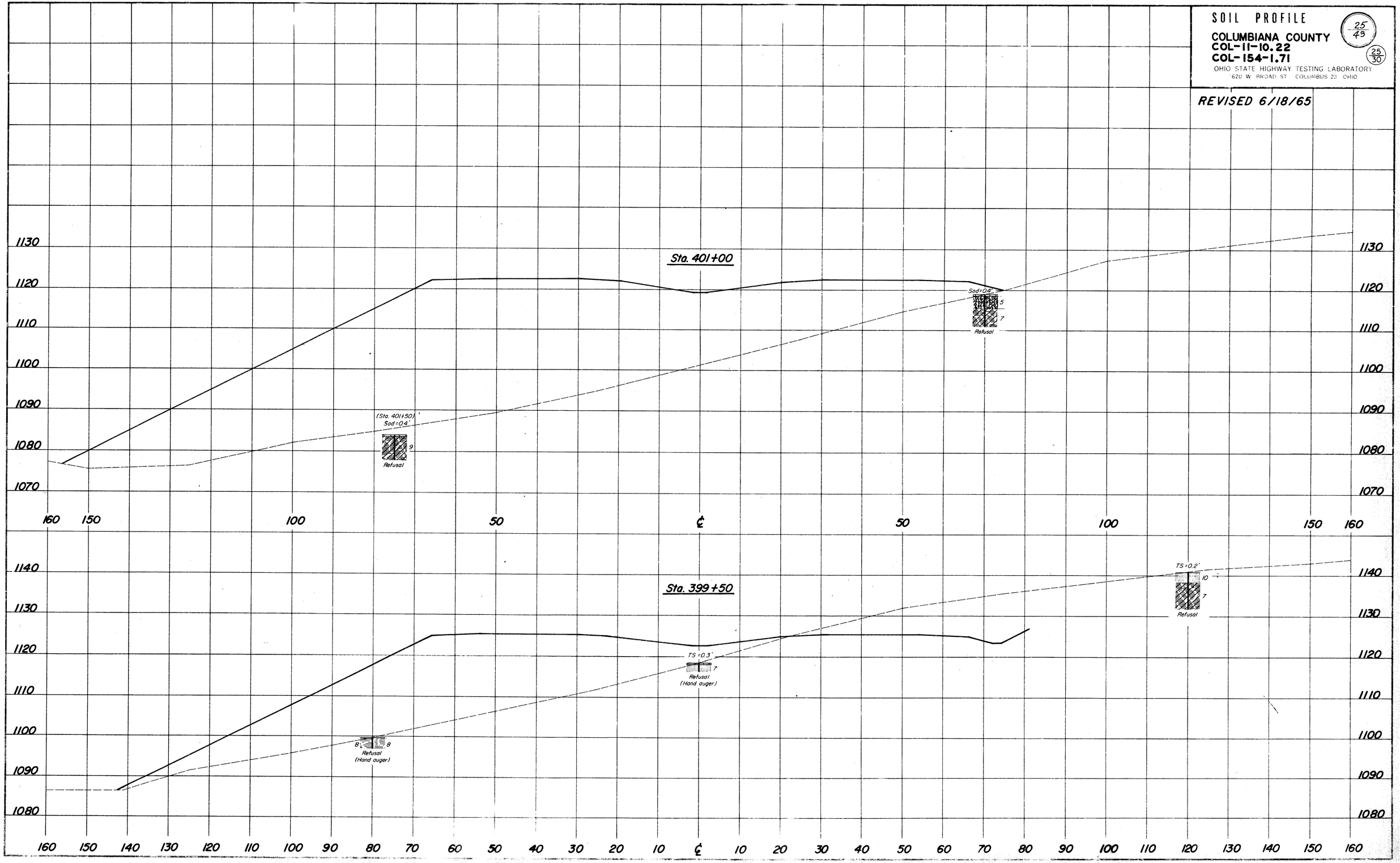
25/43

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

25/30

OHIO STATE HIGHWAY TESTING LABORATORY
620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 6/18/65



SOIL PROFILE

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

26
43

26
30

REVISED 6/18/65

Sta. 406+50

Sod = 0.4'
5
5
Refusal

Sod = 0.3'
10
7
Refusal

Sod = 0.4'
9
10

1130
1120
1110
1100
1090
1080
1070

160 150 100 50 ℄ 50 100 150 160

Sta. 404+00

Sod = 0.4'
9
9
16

Sod = 0.4'
10
12

1130
1120
1110
1100
1090
1080
1070
1060

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

SOIL PROFILE

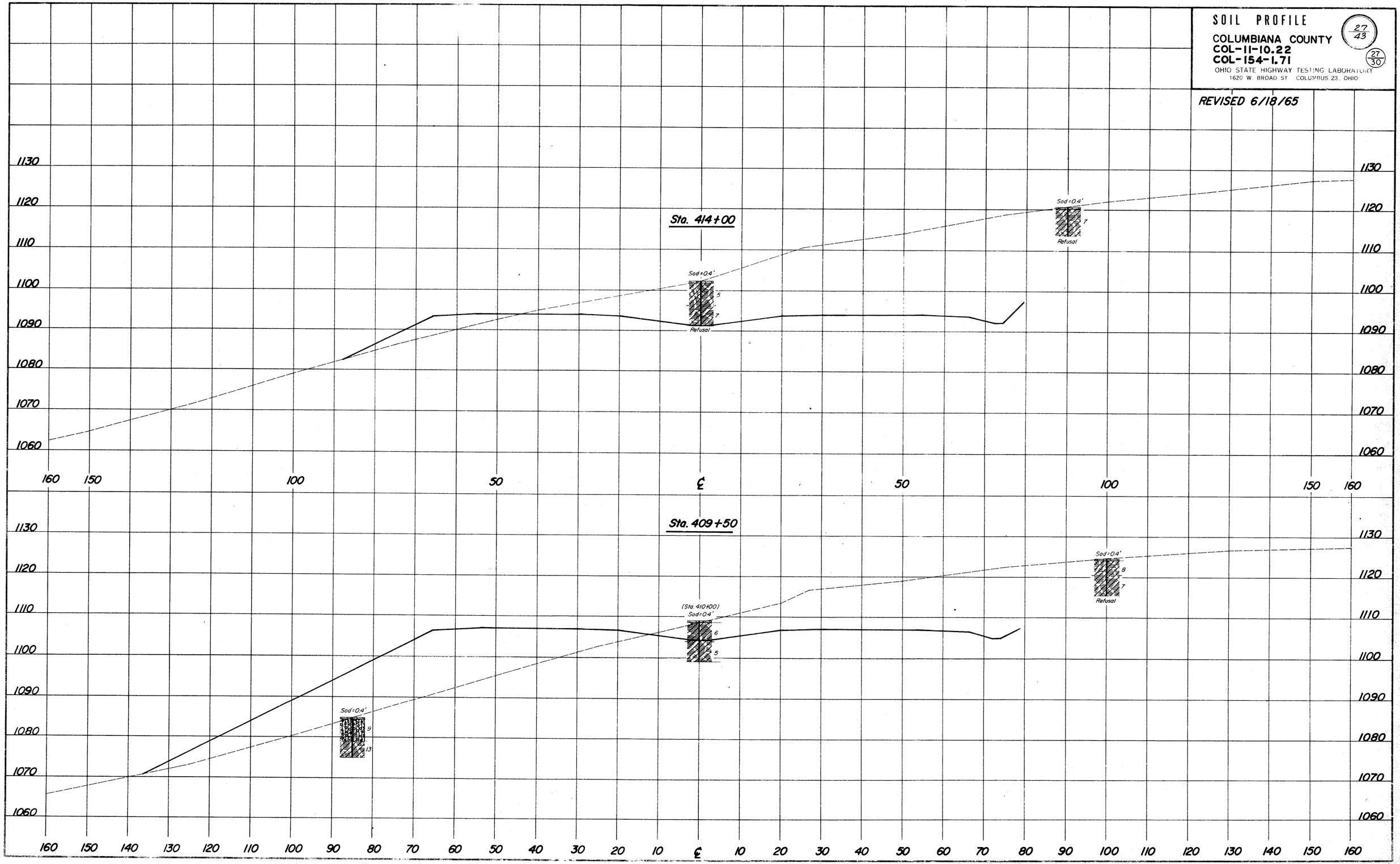
27/43

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

27/30

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 6/18/65



SOIL PROFILE

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

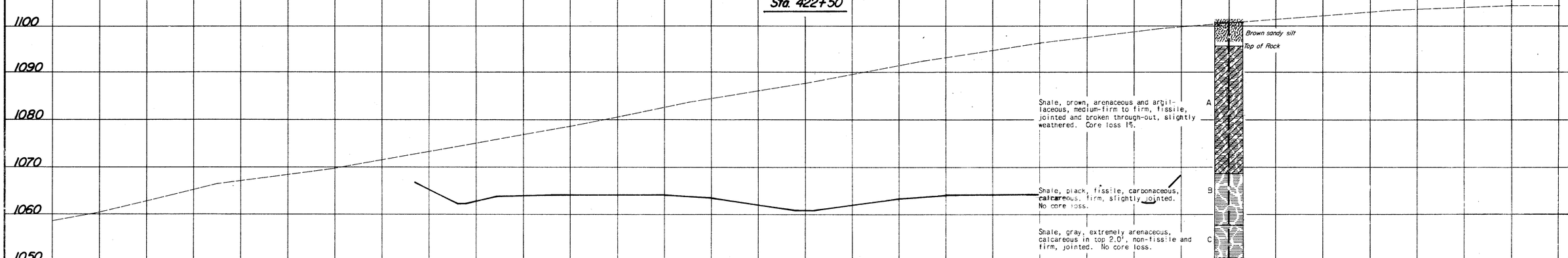
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

28/43

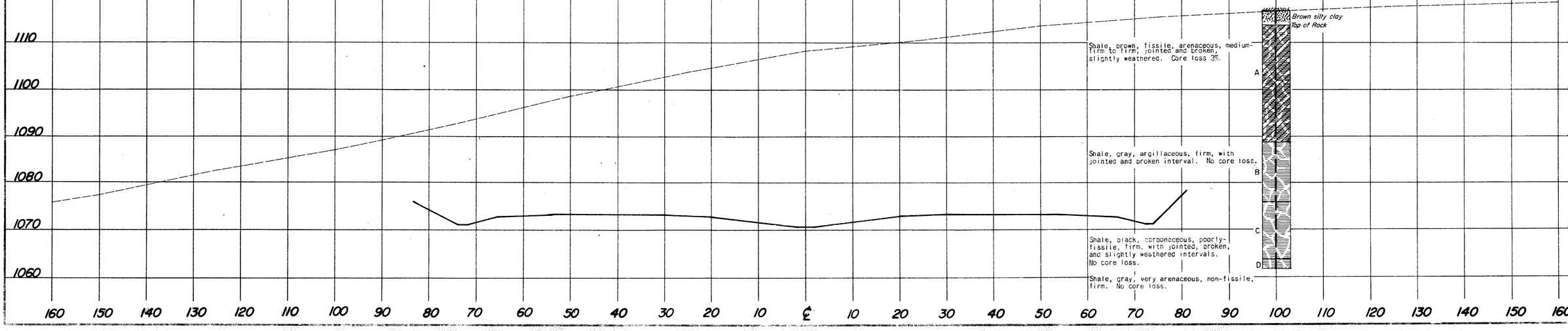
28/30

REVISED 6/18/65

Sta. 422+50



Sta. 420+00



SOIL PROFILE

29/43

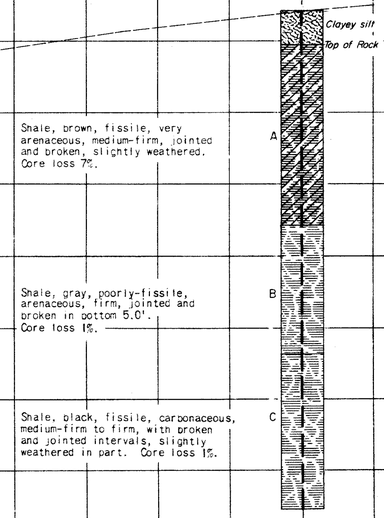
COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

29/30

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 6/18/65

Sta. 428+00



Shale, brown, fissile, very arenaceous, medium-firm, jointed and broken, slightly weathered. Core loss 7%.

Shale, gray, poorly-fissile, arenaceous, firm, jointed and broken in bottom 5.0'. Core loss 1%.

Shale, black, fissile, carbonaceous, medium-firm to firm, with broken and jointed intervals, slightly weathered in part. Core loss 1%.

1100
1090
1080
1070
1060
1050
1040
1030

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

SOIL PROFILE

30/43

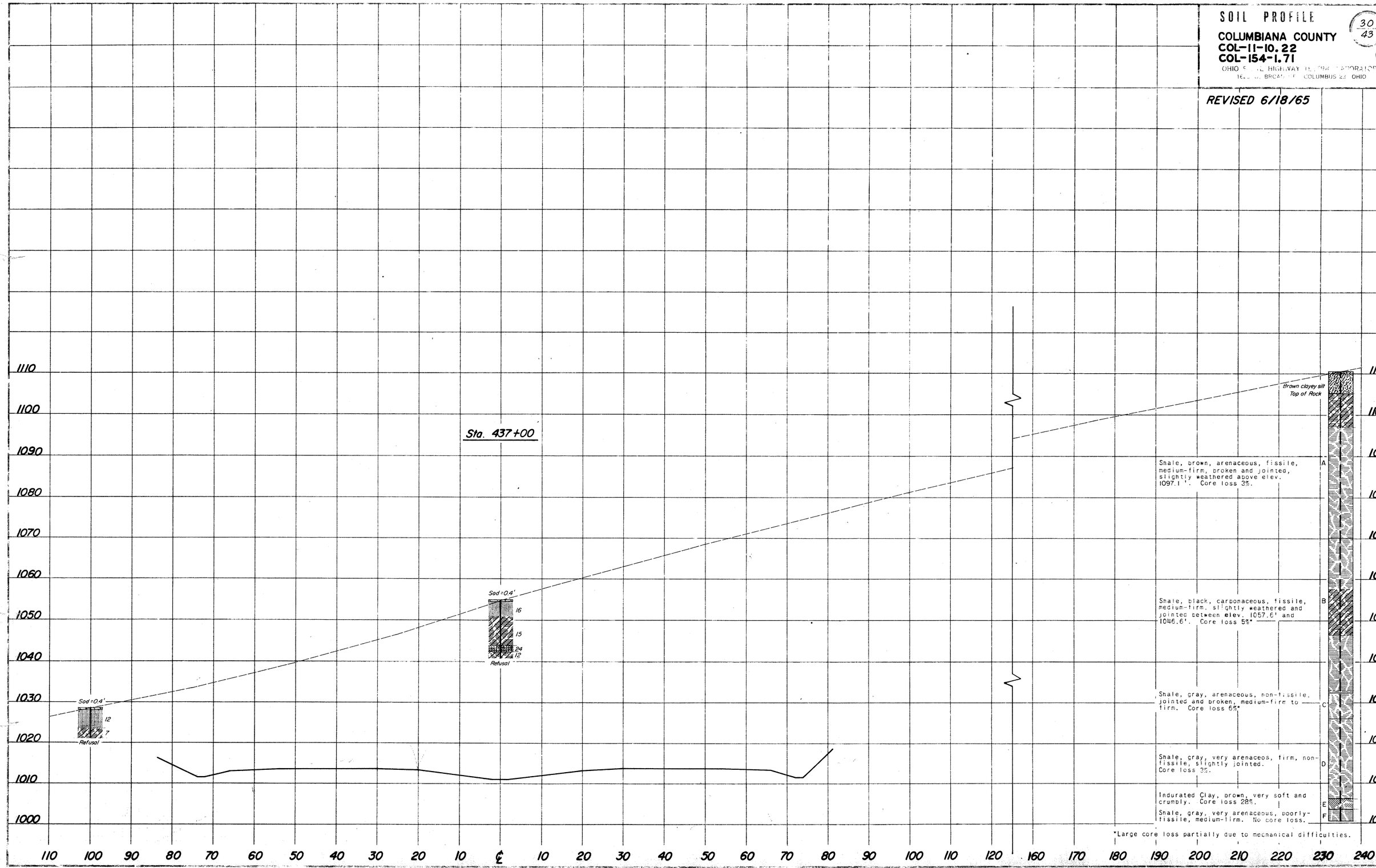
COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

30/30

OHIO STATE HIGHWAY TESTING LABORATORY
1600 W. BROAD ST. COLUMBUS 23 OHIO

REVISED 6/18/65

Sta. 437+00



*Large core loss partially due to mechanical difficulties.

TL - 1.2
60. - - 64

31/43
1/3

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

GEOLOGY OF THE SITE
The structure site is located on an upland portion of the unglaciated Allegheny Plateau Region, adjacent to West Fork of Beaver Creek, in an area where shallow residual soils overlie shale and sandstone bedrock of Pennsylvanian age.

EXPLORATION
The exploration consisted of two drive sample-core borings and five drive rod penetration tests, made between July 28 and August 5, 1965.

INVESTIGATIONAL DISCLOSURES
The borings disclosed that gradually sloping bedrock surface, encountered at 8-foot depth, elevation 983 feet in the forward portion of the structure site, and 10-foot depth, elevation 978 feet in the rear portion of the structure site, is overlain by very dense silt and boulders. The borings were terminated 12 and 15 feet below bedrock surface, elevations 971 and 963 feet.

Rod soundings met rapid increase in penetration resistance with increase in depth and were terminated at 5 and 11-foot depths, elevations 985 and 977 feet, considered to be on bedrock surface, as revealed by the borings.

No free water was encountered in the rod sounding holes.

If it is the intention to found pier substructure units on bedrock, it is considered advisable that the open excavations be inspected in the field in order to insure that the excavations have been extended to rock throughout the entire founding area.

Unconfined compression tests on similar shale bedrock indicates a crushing strength on the order of 100 tons per square foot.

LEGEND

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- TR — Top of Rock
- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y — Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test. X = Number of Blows for First 6 inches. Y = Number of Blows for Second 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z — Indicates Final Measurement of Penetration, in Inches.
- W — Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and / or 5-foot depth intervals, driven by means of a 140 - pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
	8" / 3"	2.0mm (No. 10 sieve)	0.42mm (No. 40 sieve)	0.074mm (No. 200 sieve)	0.005mm	

LOG OF BORING

Date Started 7-28-65 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 7-29-65 — Casing: Length — Dia. —
Boring No. B-1 — Station & Offset 302+92, 13' Lt. (Rear Abutment) — Surface Elev. 987.7'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
987.7	0														
	2														
	4														
982.7	6	12/17			Brown Clayey Silt (Description)	1	0	8	11	49	32	35	10	16	
980.2	8				No Sample Recovered-Boulders (Driller's)										
977.7	10				TOP OF ROCK										
	12				Shale, brown, fissile, soft, very badly jointed and broken, extremely to moderately weathered. Core Loss 18%										
	14		1.9	0.3											
972.2	16				Sandstone, brown, coarse-grained, massive, firm, slightly friable and weathered. Core Loss 2%										
	18		4.6	0.4											
	20														
	22														
	24		5.0	0.0											
962.7					BOTTOM OF BORING										

LOG OF BORING

Date Started 7-29-65 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 7-29-65 — Casing: Length — Dia. —
Boring No. B-8 — Station & Offset 304+68, 15' Rt. (Forward Pier) — Surface Elev. 990.9'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
990.9	0														
	2														
985.9	4														
	6	12/38			Brownish-Gray Sandy Silt	1	0	9	22	43	26	28	6	14	
983.4	8				TOP OF ROCK										
	10		2.3	0.2											
	12				Shale, brown to gray, arenaceous, fissile, medium-firm, badly jointed and broken, slightly weathered in top 2.5' Core Loss 9%										
	14		4.3	0.7											
	16														
	18														
970.9	20		4.8	0.2	BOTTOM OF BORING										

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL-11-1041
UNDER COUNTY ROAD 417
SEC. COL-11-10.22
COL-154-1.71

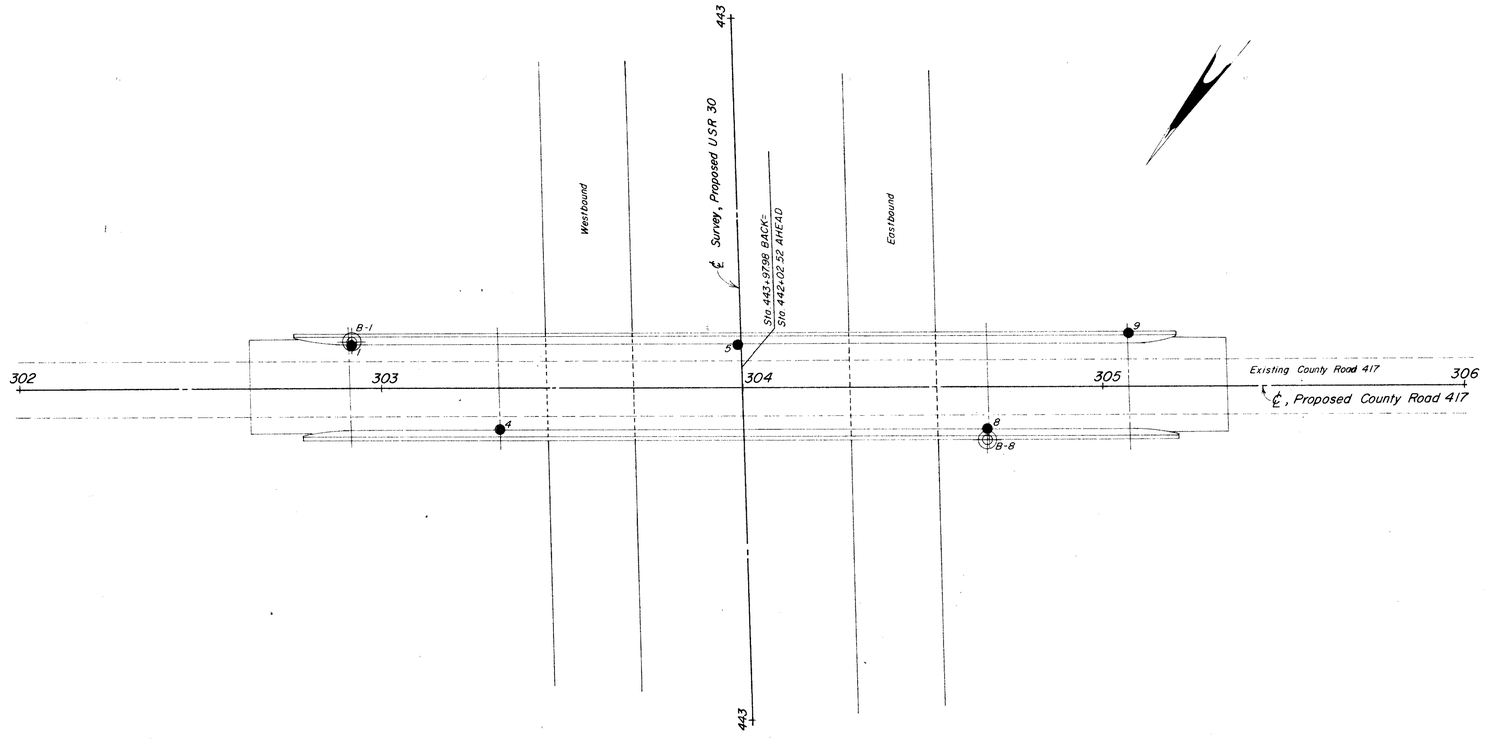
CHECKED BY	REVIEWED BY	DATE
R.H.P.	R.D.R.	9/1/65

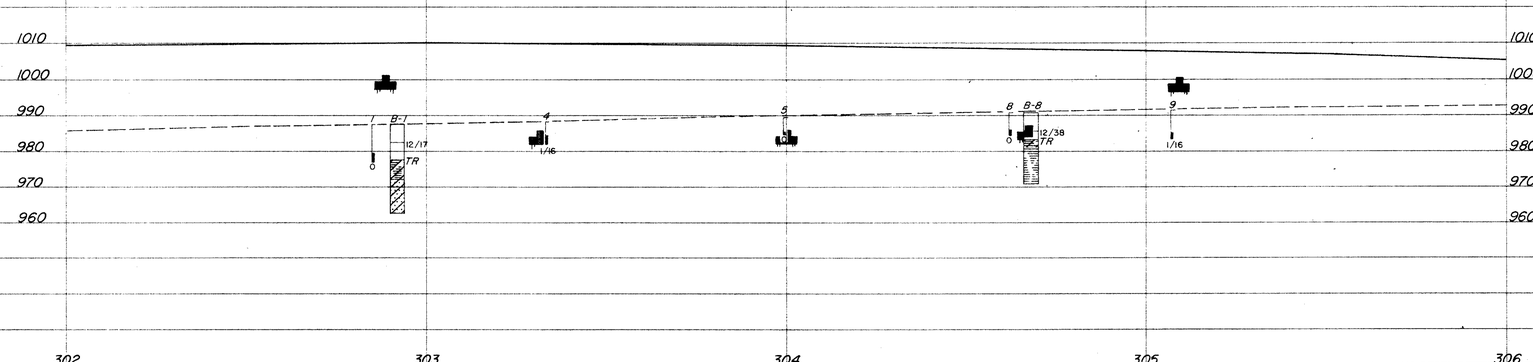
TE - 119
500 - 11 - 64

32/43

2/3

COL-11-10.22
COL-154-1.71





SCALE: 1" = 20'

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. COL-11-1041
UNDER COUNTY ROAD 417

SEC. COL-11-10.22
COL-154-1.71

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.H.P.	R.D.R.	9/1/65

TE-11A
1000—1-64

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

991
987
983
979
975

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 1
Station & Offset 302+92 - 12' Lt.
REAR ABUTMENT
Surface Elev. 987.5 Water Elev. DRY-HOLE OPEN
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 4
Station & Offset 303+33 - 12' Rt.
REAR PIER
Surface Elev. 988.4 Water Elev. DRY-HOLE OPEN
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

991
987
983
979
975

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 5
Station & Offset 303+99 - 12' Lt.
CENTER PIER
Surface Elev. 989.6' Water Elev. DRY-HOLE OPEN
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 8
Station & Offset 304+68 - 12' Rt.
FORWARD PIER
Surface Elev. 990.9' Water Elev. DRY-HOLE OPEN
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 9
Station & Offset 305+07 - 15' Lt.
FORWARD ABUTMENT
Surface Elev. 991.6' Water Elev. DRY-HOLE OPEN

33/43

COL-11-10.22
COL-154-1.71
3/3

Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

991
987
983
979
975

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL - 11-1041
UNDER COUNTY ROAD 417
SEC. COL-11-10.22
COL-154-1.71

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R L C	R H P	R D R	9/1/65

COLUMBIANA COUNTY
COL-11-10.22
COL-154-1.71

34/43

1/3

GEOLOGY OF THE SITE

The structure site is located on the unglaciated Allegheny Plateau Region, in an area where shallow soil cover overlies shale bedrock, of Pennsylvanian age.

EXPLORATION

The exploration consisted of two core borings, made between October 1 and 6, 1964, and ten drive rod penetration tests, made on September 15, 1964.

INVESTIGATIONAL FINDINGS

Borings encountered gradually sloping bedrock surface at 4 and 5-foot depths, elevations 1170 and 1163 feet. The borings were terminated at 30 and 40-foot depths, elevations 1144 and 1128 feet, 25 and 35 feet below bedrock surface.

Rod soundings met rapid increase in penetration resistance with increase in depth and were terminated upon abrupt refusal to penetration at 4 to 9-foot depths, elevations 1170 to 1156 feet, considered to approximate bedrock surface, as revealed by the borings.

No free water was encountered in any of the rod sounding holes.

Since the substructure units will be on bedrock, it is suggested that the area of the footing contact not be subjected to prolonged atmospheric exposure, and that the excavation be well drained at all times.

Unconfined compression tests on similar shale bedrock indicates a crushing strength on the order of 150 tons per square foot.

LEGEND

- Auger Boring Location - Plan View.
- Press and/or Drive Sample and/or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- TR Top of Rock

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y Figures Beside the Boring Log in Profile Indicate the Number of Blows For Standard Penetration Test.
  X = Number of Blows for First 6 Inches.
  Y = Number of Blows for Second 6 Inches.
- Drive Rod Penetration Resistance Sounding Log - Profile.
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer, with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity 'R', in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value 'R' against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer, with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt + Clay
8"	3"	2.0mm (No. 10 sieve)	0.42mm (No. 40 sieve)	0.074mm (No. 200 sieve)	0.005mm

LOG OF BORING

Date Started 10-6-64 | Sampler Type SS Dia 1 3/8" | Water Elev. ---
Date Completed 10-6-64 | Casing Length --- Dia --- | Surface Elev. 1173.6'
Boring No. B-1 | Station & Offset 19+10, 14' Lt (REAR ABUTMENT)

Elev.	Depth	Std. Pen (N)	Rec ft.	Loss ft.	Description	Sample No.	Physical Characteristics Agg %	C %	S %	Si %	Clay %	Loss %
1173.6	0											
	2				Brown Stone Fragments							
1169.6	4		1.0	0.0	TOP OF ROCK							
	6											
	8		5.0	0.0								
	10											
	12				Shale, brown, argillaceous and very arenaceous, non-fissile, medium-firm to firm, moderately weathered in top 10.0', slightly jointed. No core loss.								
	14											
	16		10.0	0.0								
	18											
	20											
	22											
	24											
	26											
	28		10.0	0.0								
1143.6	30				BOTTOM OF BORING							

LOG OF BORING

Date Started 10-1-64 | Sampler Type SS Dia 1 3/8" | Water Elev. ---
Date Completed 10-6-64 | Casing Length 6 1/2' Dia 3 1/2" | Surface Elev. 1167.8'
Boring No. B-2 | Station & Offset 22+27, 34' Rt (FORWARD PIER)

Elev.	Depth	Std. Pen (N)	Rec ft.	Loss ft.	Description	Sample No.	Physical Characteristics Agg %	C %	S %	Si %	Clay %	Loss %
1167.8	0											
	2				Brown sandy clay with stone fragments (Driller's Description)							
	4											
1162.8					TOP OF ROCK							
1161.3	6	10/21			Brown Broken Sandy Clayey Shale							
	8		3.5	0.0								
	10											
	12		5.0	0.0	Shale, brown to gray, argillaceous, slightly arenaceous, non-fissile, firm, broken and slightly weathered in top 9.0', slightly jointed. No core loss.							
	14											
	16		5.0	0.0								
	18											
	20											
	22											
	24											
	26		10.0	0.0								
	28											
	30											
	32											
	34											
	36		10.0	0.0								
	38											
1127.8	40				BOTTOM OF BORING							

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

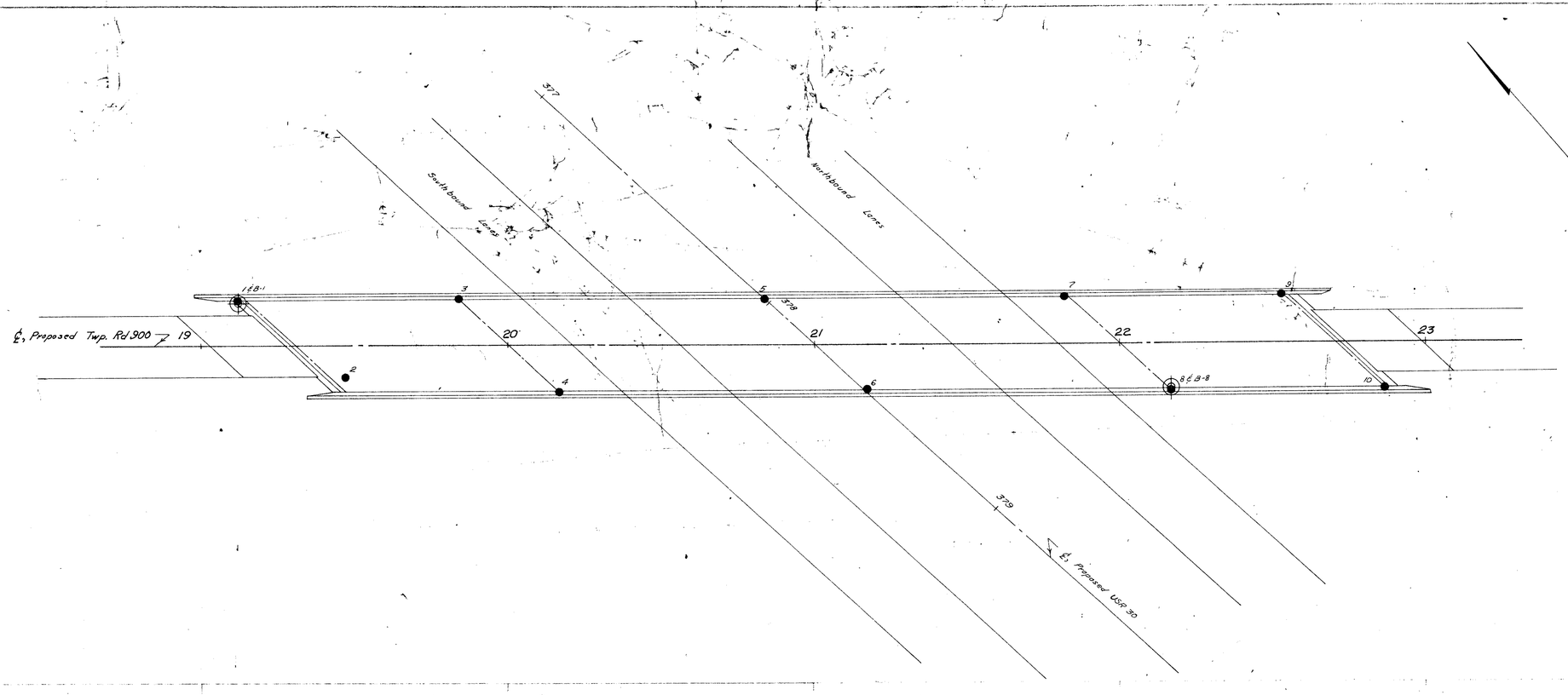
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL-11-1162
SR 11 UNDER TWP. RD. 900
SEC. COL-11-10.22
COL-154-1.71

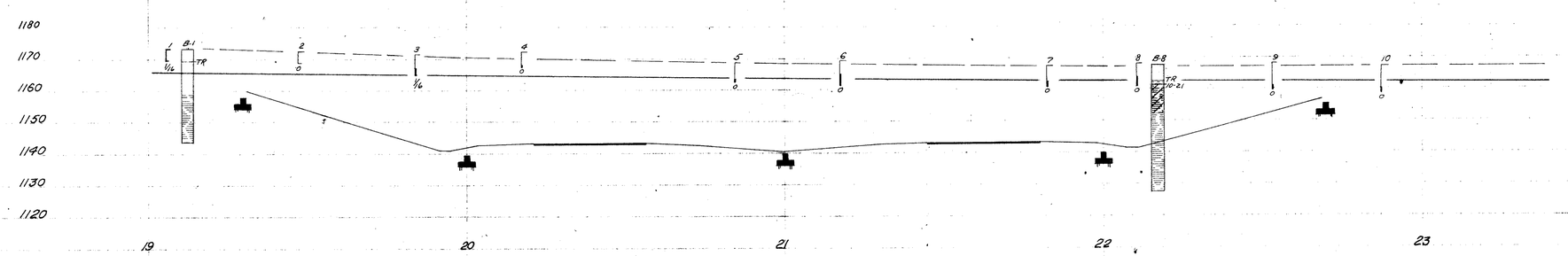
CHECKED BY	REVIEWED BY	DATE
R.H.P.	R.D.R.	10/23/64

COL-11-10.22
COL-154-1.71

35
43

2
3





OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST., COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL-11-1162
SR 11 UNDER TWP. RD. 900
SEC. COL-11-10.22
COL-154-1.71

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
R.L.F.	R.H.P.	R.D.R.	10/23/64

TC-115
5-00-11-64

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

1180 1176 1172 1168 1164 1160 1156

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 1
Station & Offset 19+12, 15' LT
REAR ABUTMENT
Surface Elev. 1173.8 Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition POINT SLIGHTLY BENT

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 2
Station & Offset 19+47, 10' RT
REAR ABUTMENT
Surface Elev. 1172.3 Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

1172 1168 1164 1160 1156

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 3
Station & Offset 19+84, 15' LT
REAR PIER
Surface Elev. 1171.1' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 4
Station & Offset 20+17, 15' RT
REAR PIER
Surface Elev. 1172.1 Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition POINT SLIGHTLY BENT

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 5
Station & Offset 20+84, 15' LT
CENTER PIER
Surface Elev. 1168.8' Water Elev. DRY
COL-11-10.22
COL-154-1.71
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

1172 1168 1164 1160 1156 1152

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

36
43
3
3

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

1180 1176 1172 1168 1164 1160 1156

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 6
Station & Offset 21+17, 15' RT
CENTER PIER
Surface Elev. 1169.4' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 7
Station & Offset 21+82, 15' LT
FORWARD PIER
Surface Elev. 1167.7' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

1172 1168 1164 1160 1156

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 8
Station & Offset 22+17, 15' RT
FORWARD PIER
Surface Elev. 1168.0' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 9
Station & Offset 22+53, 15' LT
FORWARD ABUTMENT
Surface Elev. 1168.1' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 10
Station & Offset 22+82, 15' RT
FORWARD ABUTMENT
Surface Elev. 1167.3 Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

1172 1168 1164 1160 1156

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL-11-1162
SEC. SR 11 UNDER TWP. RD. 900
COL-11-10.22
COL-154-1.71

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	R.H.P.	R.D.R.	10/23/64

GEOLOGY OF THE SITE

The structure site is located on the flood plain of the Middle Fork of Beaver Creek, over Middle Fork Creek, and on the east valley wall of Middle Fork Creek, in an area where shallow soil cover overlies shale and some coal bedrock, of Pennsylvanian age.

EXPLORATION

The exploration consisted of two drive sample-core borings, made on October 7 and 8, 1964, and twelve drive rod penetration tests, made between September 17 and 22, 1964.

INVESTIGATIONAL FINDINGS

Borings disclosed that bedrock surface, encountered at 10 and 13-foot depths, is overlain by loose and very dense gravels and silts. Bedrock surface is considered to be flat-lying across the rear abutment and pier locations at elevation 895 feet, and at elevation 947 feet in the forward abutment area. The borings were terminated 17 and 20 feet below bedrock surface, elevation 935 and 874 feet.

Rod soundings met rapid increase in penetration resistance with increase in depth and were terminated upon abrupt refusal to penetration at 10 to 13-foot depths, elevations 948 in the forward abutment area and 893 feet in the rear area, considered to approximate bedrock surface, as revealed by the borings.

Free water was encountered in the rod sounding holes in the rear area, at elevations 898 and 897 feet.

If it is the intention to found piers and forward abutment of bedrock, it is considered advisable that the open excavation be inspected in the field in order to insure that the excavations have been extended to rock throughout the entire founding area. It is further suggested that the area of the footing contact not be subjected to prolonged atmospheric exposure, and that the excavation be well drained at all times.

Unconfined compression tests on similar shale bedrock indicates a crushing strength on the order of 150 tons per square foot.

LEGEND

- Auger Boring Location - Plan View.
- Press and/or Drive Sample and/or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- Top of Rock
- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y — Figures Beside the Boring Log in Profile Indicate the Number of Blows For Standard Penetration Test. X = Number of Blows for First 6 Inches. Y = Number of Blows for Second 6 Inches.
- Drive Rod Penetration Resistance Sounding Log - Profile.
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" ≥ 10,000 lbs.
- Z — Indicates Final Measurement of Penetration, in Inches.
- W — Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive - Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer, with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
8"	3"	2.0mm (No. 10 sieve)	0.42mm (No. 40 sieve)	0.074mm (No. 200 sieve)	0.005mm	

LOG OF BORING

Date Started 10-7-64
Date Completed 10-8-64
Boring No. B-5
Sampler Type SS Dia 1 3/8"
Casing Length 11' Dia 3 1/2"
Station & Offset 241+02, 84' Rt (REAR PIER)
Water Elev. —
Surface Elev. 905.2'

Elev.	Depth	Str. Pen. (N)	Rec. ft	Loss ft	Description	Sample No	Physical Characteristics: % Agg	% CS	% FS	% Silt	% Clay	LL	PI	W	Class
905.2	0														
902.7	2	3/4			Brown Sandy Silt, Trace of Roots	1	0	3	39	34	24	NP	NP	22	
900.2	4	5/6			Brown Silty Sandy Gravel	2	35	9	23	18	15	NP	NP	17	
897.7	6	7/7			Brown and Gray Sandy Silt with Stone Fragments	3	38	7	12	29	14	NP	NP	10	
895.2	8				TOP OF ROCK										
	10														
	12														
	14		4.0	0.0	Shale, black, carbonaceous, fissile, firm, slightly jointed, with 0.5' coal seam at base, extremely weathered in top 1.5'. Core loss 2%.										
	16														
	18														
	20		5.5	0.5											
885.7	22														
	24		4.4	0.6	Shale, gray, argillaceous and arenaceous, non-fissile, firm. Core loss 8%.										
	26														
	28														
	30		5.0	0.0											
874.2					BOTTOM OF BORING										

LOG OF BORING

Date Started 10-7-64
Date Completed 10-7-64
Boring No. B-16
Sampler Type SS Dia 1 3/8"
Casing Length 11' Dia 3 1/2"
Station & Offset 242+97, 60' Lt (FORWARD ABUTMENT)
Water Elev. —
Surface Elev. 959.8'

Elev.	Depth	Str. Pen. (N)	Rec. ft	Loss ft	Description	Sample No	Physical Characteristics: % Agg	% CS	% FS	% Silt	% Clay	LL	PI	W	Class
959.8	0														
	2														
	4														
954.8	6	13/12			Brown Silty Sandy Gravel	1	V	I	S	U	A	L		15	
952.3	8	33/20			Brown Silty Sandy Gravel	2	57	12	11	10	10	NP	NP	15	
949.8	10														
949.3	12	50/*			Brown Sandstone Fragments	3	V	I	S	U	A	L		6	
946.8	14		2.6	1.9	Brown, fine-grained sandstone and gray limestone cobbles.										
	16				TOP OF ROCK										
	18														
	20		5.0	0.0	Shale, brown, argillaceous and very arenaceous, non-fissile, jointed, broken and slightly weathered in top 5.0'. No core loss										
	22														
	24		5.0	0.0											
934.8					BOTTOM OF BORING										

*REFUSAL

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

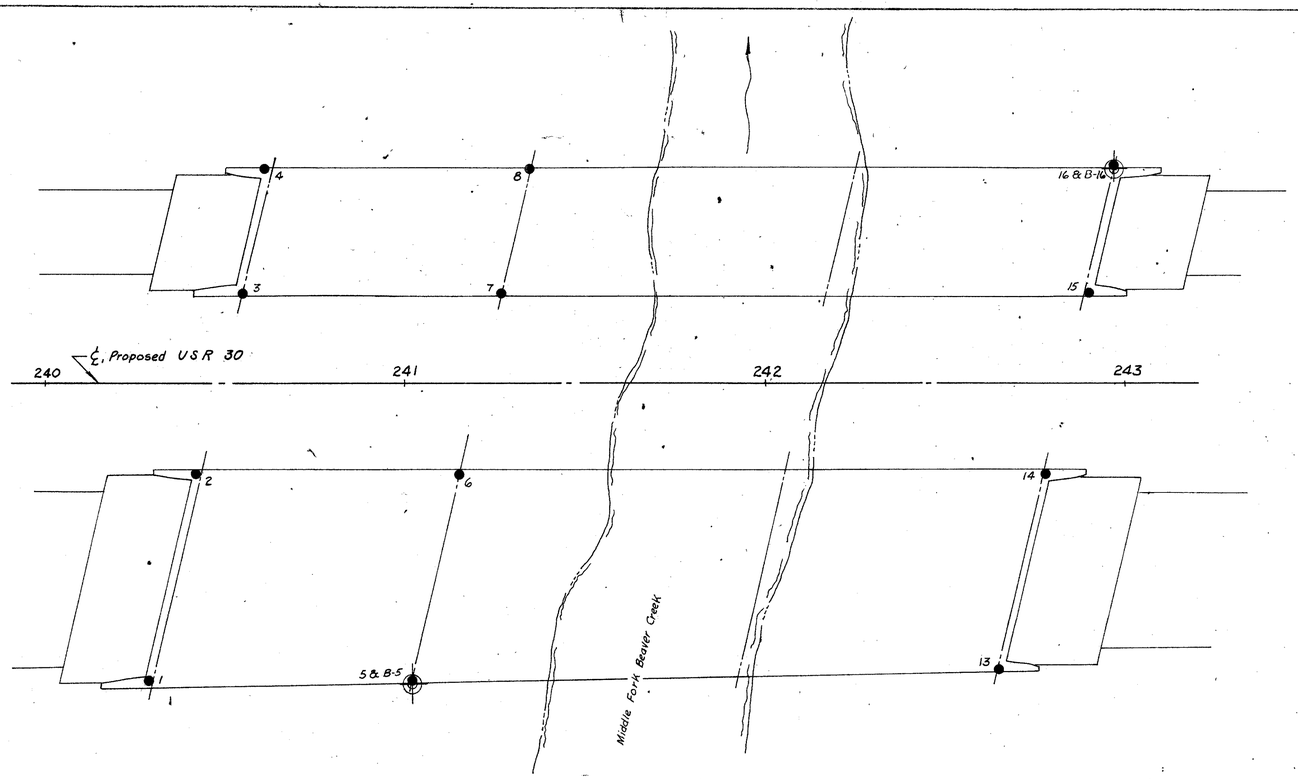
OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

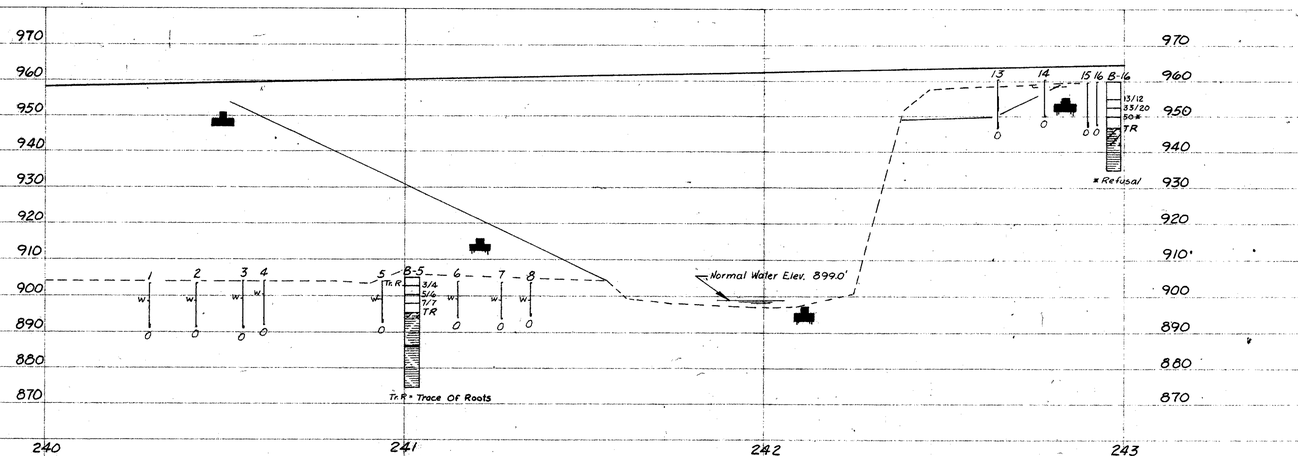
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL-11-1424
OVER MIDDLE FORK BEAVER CREEK
SEC. COL-11-10.22
COL-154-1.7

CHECKED BY	REVIEWED BY	DATE
R.H.P.	R.D.R.	10/23/64

COL-11-10.22
COL-154-1.71

2/4





SCALE: 1"=20'

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST., COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL-11-1424
OVER MIDDLE FORK BEAVER CREEK
SEC. COL-11-10.22
COL-154-1.71

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
R.L.C.	R.H.P.	R.D.R.	10/23/64

TE-114
1000-1-64

39
43

3
4

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

947 943 939 935 931 927 923 919 915 911 907 903 899 895 891 887

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 1
Station & Offset 240+29 83' RT
REAR ABUTMENT
Surface Elev. 903.4' Water Elev. 898.4'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 2
Station & Offset 240+42 25' RT
REAR ABUTMENT
Surface Elev. 903.7' Water Elev. 898.7'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

939 935 931 927 923 919 915 911 907 903 899 895 891 887

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 3
Station & Offset 240+55 25' LT
REAR ABUTMENT
Surface Elev. 904.2' Water Elev. 899.2'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 4
Station & Offset 240+61 60' LT
REAR ABUTMENT
Surface Elev. 904.2' Water Elev. 900.2'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 5
Station & Offset 241+02 83' RT
REAR PIER
Surface Elev. 904.1' Water Elev. 899.1'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 6
Station & Offset 241+15 25' RT
REAR PIER
Surface Elev. 904.1' Water Elev. 899.1'

COL-11-10.22
COL-154-1.71

Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

939 935 931 927 923 919 915 911 907 903 899 895 891 887

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL-11-1424
OVER MIDDLE FORK BEAVER CREEK
SEC. COL-11-10.22
COL-154-1.71

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	R.H.P.	R.D.R.	10/23/64

TE-114
1000-1-64

40
43
4
4

COL-11-10.22
COL-154-1.71

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

967 963 959 955 951 947 943 939 935 931 927 923 919 915 911 907 903 899 895 891

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 7
Station & Offset 241+27.25' LT
REAR PIER
Surface Elev. 903.9' Water Elev. 898.9'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 8
Station & Offset 241+35.60' LT
REAR PIER
Surface Elev. 903.9' Water Elev. 898.9'
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 13
Station & Offset 242+65.80' RT
FORWARD ABUTMENT
Surface Elev. 960.5' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 14
Station & Offset 242+78.25' RT
FORWARD ABUTMENT
Surface Elev. 960.5' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 15
Station & Offset 242+90.25' LT
FORWARD ABUTMENT
Surface Elev. 959.7' Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

Test Location No. 16
Station & Offset 242+97.61' LT
FORWARD ABUTMENT
Surface Elev. 959.9' Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD

TEST ROD

959 955 951 947 943 939 935 931 927 923 919 915 911 907 903 899 895 891

10 20 30 40 50 60 70 80 90 100
Capacity "R" in Thousands of Pounds

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL-11-1424
OVER MIDDLE FORK BEAVER CREEK
SEC. COL-11-10.22
COL-154-1.71

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	R.H.P.	R.D.R.	10/23/64

GEOLOGY OF THE SITE

The structure site is located on the flood plain of the Middle Fork of Little Beaver Beaver Creek adjacent to the valley wall, in an area where shallow soil cover overlies shale and some coal bedrock, of Pennsylvanian age.

EXPLORATION

The exploration consisted of two drive sample-core borings, made between October 8 and 14, 1964, and eleven drive rod penetration tests, made on September 16 and 17, 1964.

INVESTIGATIONAL FINDINGS

Borings disclosed that sloping bedrock surface, encountered at 12 and 17-foot depths, is overlain by very to extremely dense gravels, silts, and boulders. Bedrock surface is considered to be flat-lying across the rear abutment and pier locations at elevation 909 feet, and at elevation 900 feet in the forward abutment area. The borings were terminated 12 feet below bedrock surface, elevation 896 and 889 feet.

Rod soundings met rapid increase in penetration resistance with increase in depth and were terminated due to near-refusal and abrupt refusal to penetration at 6 to 18-foot depths, elevations 911 to 909 feet, in the rear abutment and pier area, and 905 feet in the forward abutment area, considered to be above bedrock surface, as revealed by the borings.

No free water was encountered in any of the rod sounding holes.

LEGEND

- Auger Boring Location - Plan View.
- Press and/or Drive Sample and/or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- TR — Top of Rock
- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y — Figures Beside the Boring Log in Profile Indicate the Number of Blows For Standard Penetration Test. X = Number of Blows for First 6 Inches. Y = Number of Blows for Second 6 Inches.
- Drive Rod Penetration Resistance Sounding Log - Profile.
- Casing
- Resistance "R" ≤ 10,000 lbs.
- Resistance "R" ≥ 10,000 lbs.
- Z — Indicates Final Measurement of Penetration, in Inches.
- W — Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive - Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
8"	3"	2.0mm	0.42mm	0.074mm	0.005mm	
		No. 10 sieve	No. 40 sieve	No. 200 sieve		

LOG OF BORING

Date Started 10-14-64 — Sampler Type SS — Dia 1 3/8" — Water Elev. —
Date Completed 10-15-64 — Casing Length 16' — Dia 3 1/2" — Surface Elev. 926.0'
Boring No. B-5 — Station & Offset 233+45, 75' Rt (REAR PIER)

Elev	Depth	Std. Pen. (N)	Rec ft	Loss ft	Description	Sample No	Physical Characteristics							Class
926.0	0													
	2													
923.5	4	17/37			Brown Silty Sandy Gravel	1	V	I	S	U	A	L		17
921.0	6	24/25			Brown Sandy Gravel	2	V	I	S	U	A	L		12
918.5	8				No Sample Recovered - Boulder									
916.0	10	11/17			Brown Sandy Gravel	3	V	I	S	U	A	L		11
913.5	12	23/28			Brown Sandy Gravel	4	V	I	S	U	A	L		11
911.0	14	50* (0.4')			Brown and Gray Sandy Silt & Shale Fragments TOP OF ROCK	5	V	I	S	U	A	L	NP NP	13
908.9	16		2.9	1.1										
	18													
	20				Shale, gray, argillaceous, slightly arenaceous, fissile, firm. No core loss.									
	22													
	24													
	26		10.0	0.0										
	28													
896.	30				BOTTOM OF BORING									

*REFUSAL

LOG OF BORING

Date Started 10-0-64 — Sampler Type SS — Dia 1 3/8" — Water Elev. —
Date Completed 10-14-64 — Casing Length 7' — Dia 3 1/2" — Surface Elev. 912.0'
Boring No. B-16 — Station & Offset 235+08, 74' Lt (FORWARD ABUTMENT)

Elev	Depth	Std. Pen. (N)	Rec ft	Loss ft	Description	Sample No	Physical Characteristics							Class
912.0	0													
	2													
	4													
907.0	6	50* (0.6')			Brown Silty Clay and Shale Fragments	1	V	I	S	U	A	L		14
	8													
902.0	10	50* (0.4')			Brown and Gray Silty Clay & Shale Fragments	2	V	I	S	U	A	L		15
900.2	12				TOP OF ROCK									
	14		3.2	1.8										
	16				Shale, brown to gray, argillaceous, slightly arenaceous, fissile, firm, broken and jointed. No core loss.									
	18		5.0	0.0										
	20													
	22													
889.0	24		5.0	0.0	Shale, black, carbonaceous, fissile, medium-firm. No core loss.									
887.0					BOTTOM OF BORING									

*REFUSAL

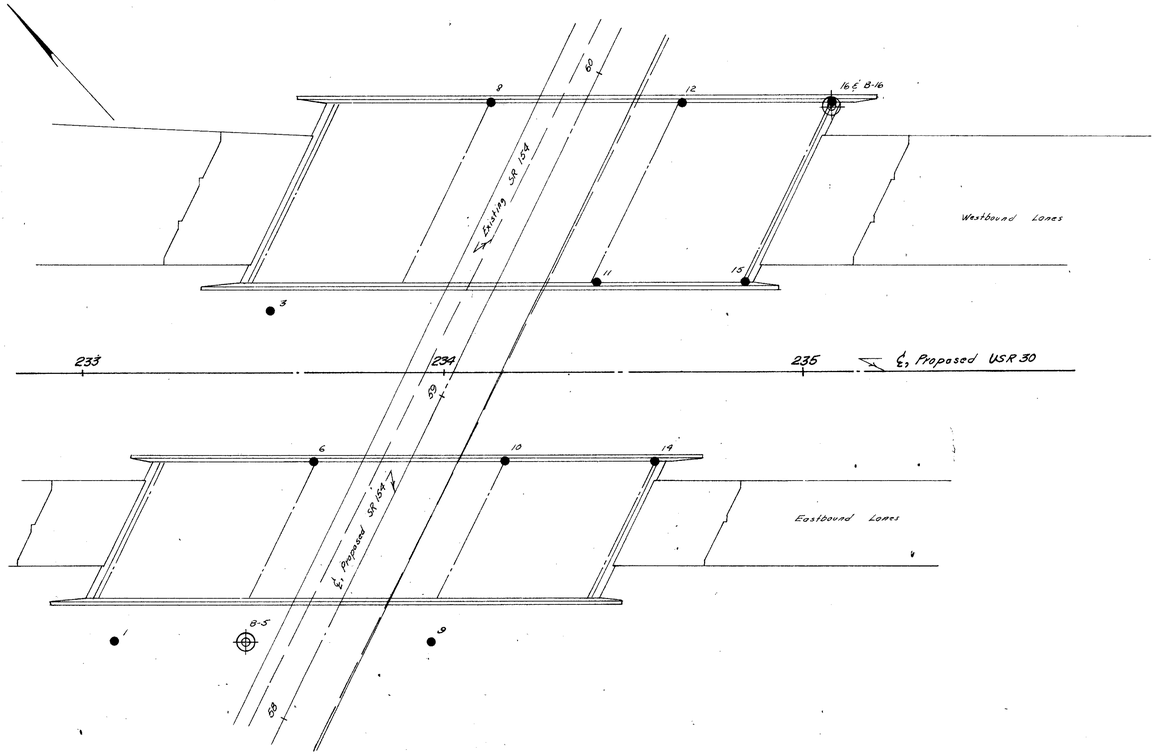
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

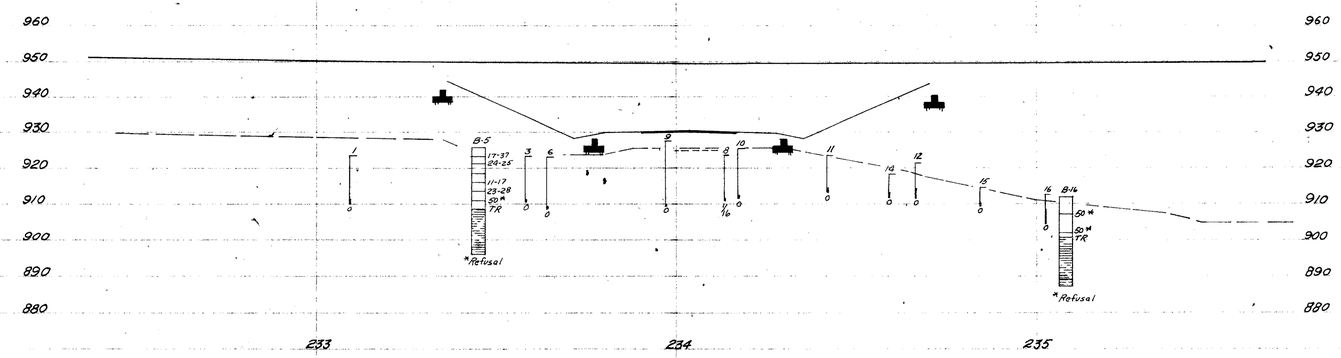
OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL-11-1439
SR11 OVER SR 154
SEC. COL-11-10.22
COL-154-1.71

CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	10/28/64

COL-11-10.22
COL-154-1.71





SCALE: 1"=20'

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST., COLUMBUS 23, OHIO

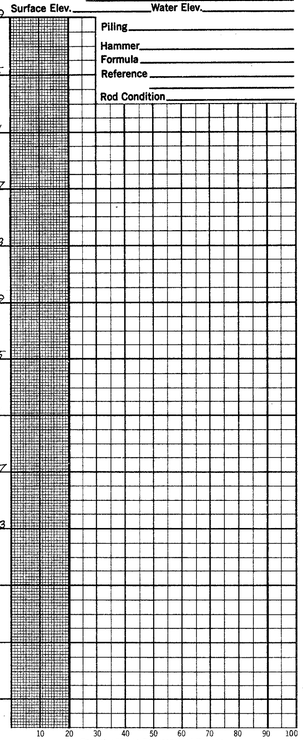
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. COL-11-1439
SR11 OVER SR154
SEC. COL-11-10.22
COL-154-1.71

PLAN AND PROFILE

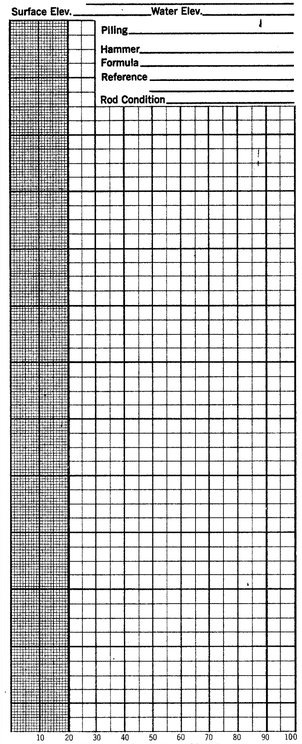
DRAWN BY	CHECKED BY	REVIEWED BY	DATE
R.L.F.	L.N.L.	R.D.R.	10/28/64

TE-115
5001-11-64

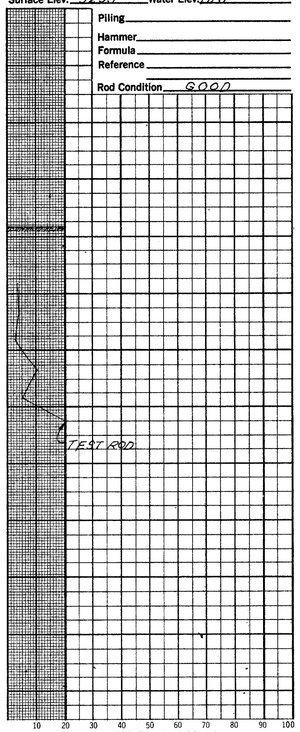
Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____



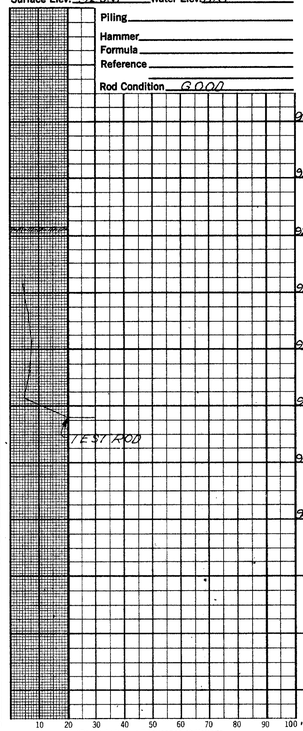
Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____



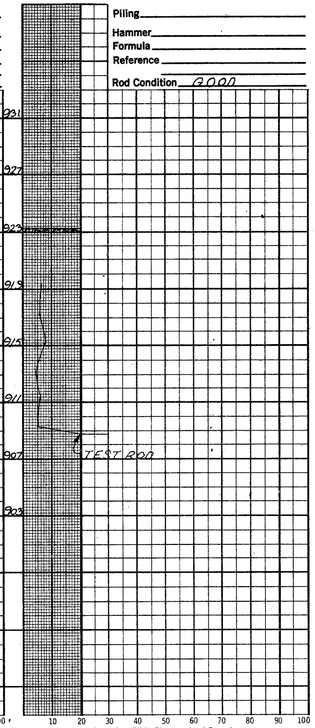
Test Location No. 1
Station & Offset 233+09.75' RT
REAR ABUTMENT
Surface Elev. 923.7' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD



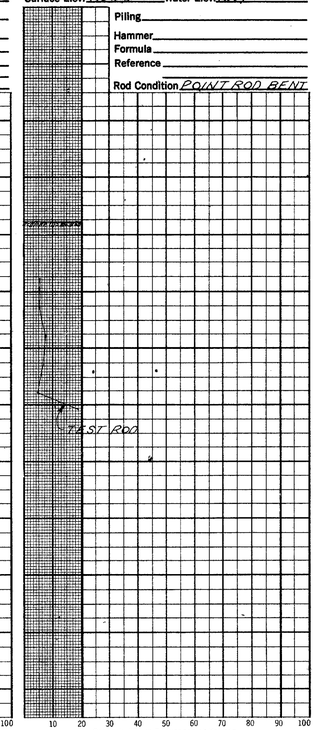
Test Location No. 3
Station & Offset 233+52.17' LT
REAR ABUTMENT
Surface Elev. 923.6' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD



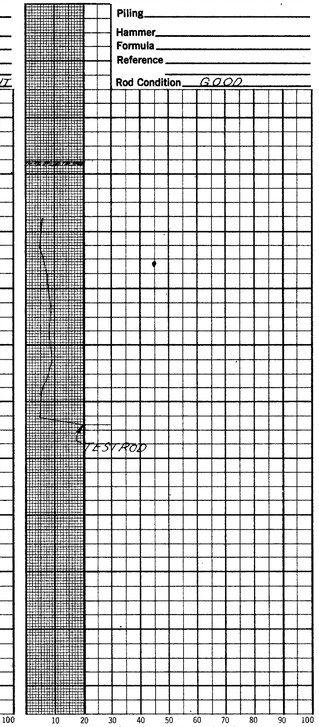
Test Location No. 6
Station & Offset 233+64.25' RT
REAR PIER
Surface Elev. 923.3' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD



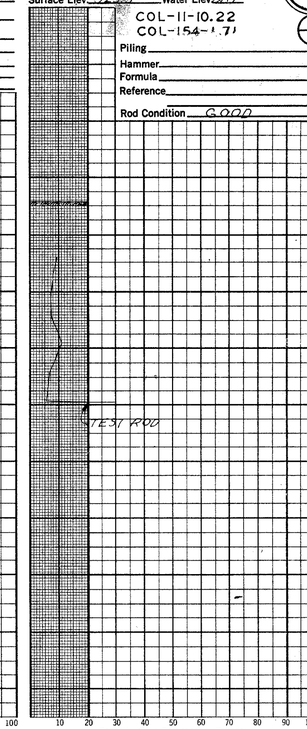
Test Location No. 8
Station & Offset 234+13.75' LT
REAR PIER
Surface Elev. 923.9' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition POINT ROD BENT



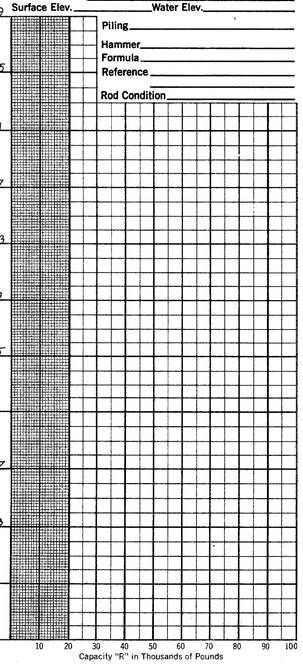
Test Location No. 9
Station & Offset 233+97.75' RT
FORWARD PIER
Surface Elev. 927.9' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD



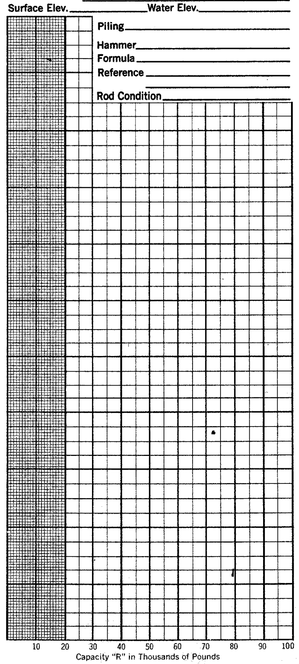
Test Location No. 10
Station & Offset 234+17.25' RT
FORWARD PIER
Surface Elev. 925.3' Water Elev. DRY
COL-11-10.22
COL-154-1.71
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD



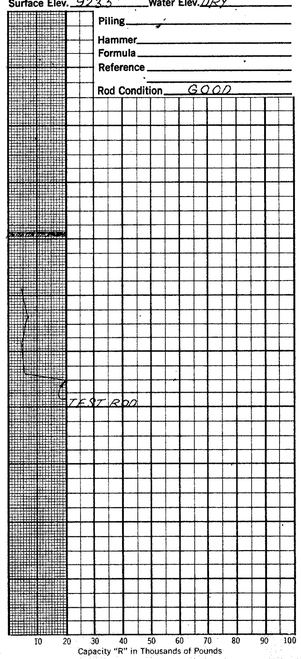
Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____



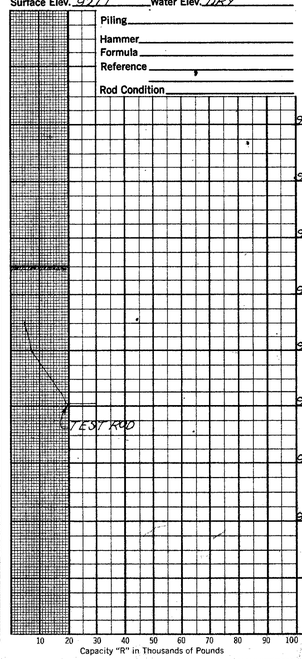
Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____



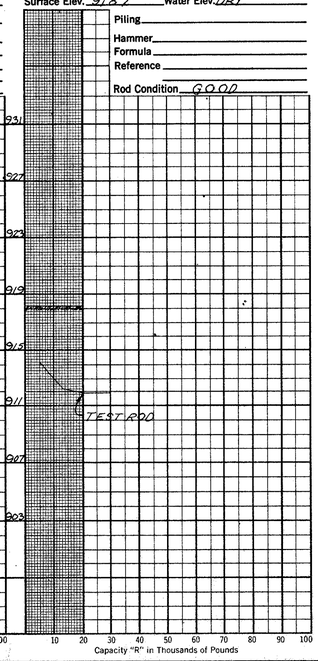
Test Location No. 11
Station & Offset 234+42.25' LT
FORWARD PIER
Surface Elev. 923.5' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD



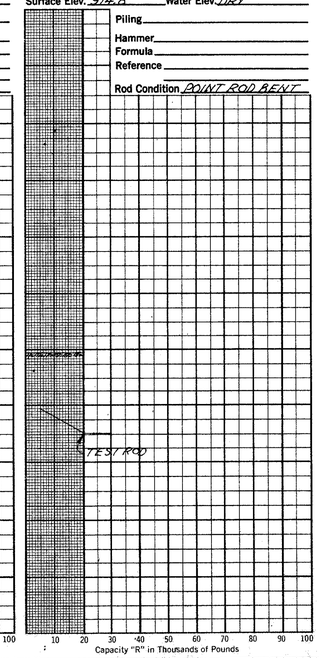
Test Location No. 12
Station & Offset 234+66.75' LT
FORWARD PIER
Surface Elev. 921.1' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____



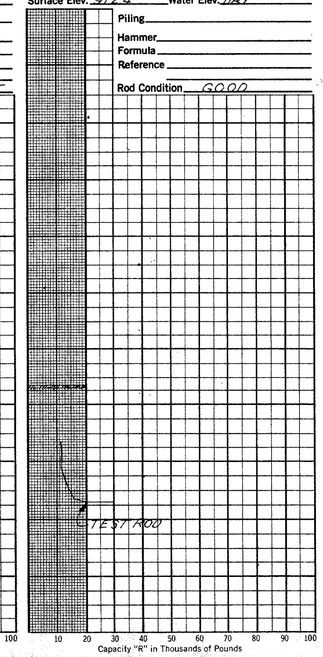
Test Location No. 14
Station & Offset 234+50.25' RT
FORWARD ABUTMENT
Surface Elev. 918.2' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD



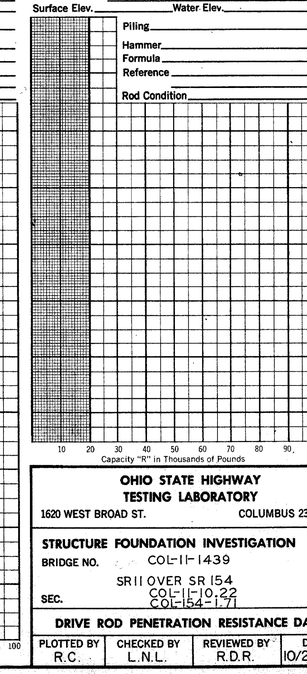
Test Location No. 15
Station & Offset 234+84.25' LT
FORWARD ABUTMENT
Surface Elev. 918.8' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition POINT ROD BENT



Test Location No. 16
Station & Offset 235+08.75' LT
FORWARD ABUTMENT
Surface Elev. 912.4' Water Elev. DRY
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition GOOD



Test Location No. ____
Station & Offset ____
Surface Elev. ____ Water Elev. ____
Piling ____
Hammer ____
Formula ____
Reference ____
Rod Condition ____



OHIO STATE HIGHWAY TESTING LABORATORY

1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. COL-11-1439

SEC. SR11 OVER SR 154
COL-11-10.22
COL-154-1.71

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	L.N.L.	R.D.R.	10/28/64