MICROFILMED MAR 2 1971

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	STATE	

1/516

JEF-22-3.86

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

JEF-22-3.86

JEFFERSON COUNTY
WAYNE & CROSS CREEK TOWNSHIPS
GRADE SEPARATION WITH THE PENN CENTRAL CO.

DESIGN DESIGNATION

Current ADT (1968)	4080	v.p.d.
Design Year ADT (1988)	6730	v.p.d.
D.H.V.	808	v.p.h.
D. (Directional Distribution)	4038	v.p.h.
T. (Percent B & C Trucks)	16	percent.
V. (Design Speed)	70	m.p.h.

Sheet No. 463 revised 1-10-69 EBL
Sheet No. 464 revised 2-20-69 EBL
Sheet No. 466A supersedes Sheet No. 466 2-20-69
Sheet No. 452 revised 7-18-69 EBL
Sheet No. 448 & 449 revised 8-4-69 EBL

LIMITED ACCESS

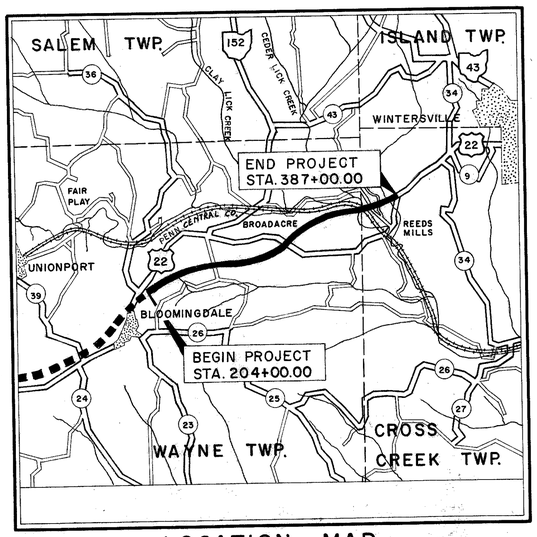
This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director of Highways in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

CONVENTIONAL SIGNS

State Line
County Line
Township Line
Section Line
Center Line
Corporation Line
Fence Line
Guard Rail (existing)
Guard Rail (proposed)
Railroads
Power Poles
Telephone Poles
Trees or Stumps (existing)
Property Line — P/L
Right of Way with Limited Access — LA RW
Right of Way without Limited Access — RW
Existing Right of Way
Right of Way Limited Access Only — LA

INDEX OF SHEETS

Title Sheet	1	U.S.R. 22 Interchange	313–317
Location Plan	2–3	Existing U.S.R. 22 Relocation	318–349
Typical Sections	4–8	Service Road	350–355, 350A
Miscellaneous & Guard Rail Details	9-11, 11A & 11B	Private Drive	356–360
General Notes	2 & 12–13	Ramps	361–401
Calculations	14–16	Interchange Pavement Details	402–408
General Summary	17–19	Existing U.S.R. 22 Approach	409–411
Plan & Profile Sheets	20–52	Temp. Conn. & Approach Details	412–414
Curve Tables	53–55	Structures 20' Span & Under	415–437
Cross Sections	56–306	Structures over 20' Span	438–468
Township Road 214 Cul-de-sacs	307–309	Traffic Control Plans	469–484
Service Road Highland Park	310–312 & 310A	Right-of-Way	485–516



LOCATION MAP

SCALE OF MILES 0 1 2 3 4

Portion to be improved
Portion to be improved under separate contract
State Roads
Other Roads

SCALE

Plans
Profile: Horizontal — 0 20 40 60 80 100
Profile: Vertical
Cross Sections — 0 4 8 12 16 20

N

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 of the highway to traffic and that provisions for the maintenance and safety of traffic will be as set forth on these plans and estimates.

Approved Lewis Kimball
Date 9-23-68 Division Deputy Director.

Approved C. H. Albrates
Date 10-14-68 Engineer of Bridges

Approved R. E. Gatlin
Date 10-14-68 Engineer of Location & Design

Approved George J. Thompson
Date 10-14-68 Deputy Director of Design & Construction

Approved
Date Deputy Director of Right of Way

Approved Thomas M. Mapes
Date 10-23-68 Deputy Director of Planning & Programming

Approved F. W. Nielsen
Date 10-23-68 First Assistant Director

Approved P. Elmacklin
Date 10-23-68 Director of Highways

LINE DATA (See Sheet No. 2)

Begin Project Sta.	204 + 00	
End Project Sta.	387 + 00	
No Additions or Deductions		
Net Length of Project	= 18,300 Lin. Ft., or 3.465 Miles	
Work Additions	= 7,473.16 Lin. Ft.	
Net Length of Work	= 25,873.16 Lin. Ft. or 4.900 Miles	

PLANS PREPARED BY:
STICKLEN-BELSHEIM & ASSOC.
WORTHINGTON, OHIO.

File No.	JEFFERSON CO.	JEF-22-3.86
	Date of Letting	196
	Contract No.	

Supplemental Prints of Standard Construction Drawings

Drawing No.	Date	Drawing No.	Date	Drawing No.	Date	Drawing No.	Date	Drawing No.	Date
BP-1	6/1/65	CB-8	6/6/68	L-1	6/1/65	MH-1	6-1-65	AS-1-67	1/11/68
BP-2	1/17/68	CB 2-3 & 2-4	6/1/65	GR-6	7-15-68	MH-1A	8-1-66	BR-1-67	2/1/68
BP-3	5/1/68	CB 2-5 & 2-6	6/1/65	MC-1	10/1/67			RB-1-55	2/2/59
BP-4	1/10/67	GR-2B	2/15/68	MC-3	5/1/66	F-1	6/1/65	SD-1-65	11/8/65
BP-5	6/1/65	GR-1	1/1/67	MC-4	6/1/65	F-2	6/1/65		
BP-6	6/1/65	GR-2A	1/1/67	MC-5	6/1/65	F-3	2/20/68		
BP-7	1/1/66	GR-5B	6/1/65	MC-6	6/1/65	F-5	2/20/68		
CB-2-2-A&B	6/1/65	HW-2	6/1/65	MC-7	3/1/66	F-6	10/1/66		
CB-5	6/6/68	HW-E	6/1/65	MC-8	12/1/67				
CB-6	6/1/65	HW-3	6/1/65	SP-53	6/30/61				

Supplemental Specifications No.	Date	No.	Date
801	1-1-67	1001	3-21-66
804	3-28-67		
808	1-13-67		
811	1-1-67		
815	1-1-67		
816	8-6-65		
825	12-19-67		
828	1-1-67		
832	5-25-67		
931	5-25-67		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

2/516

JEF-22-3.86

LOCATION PLAN

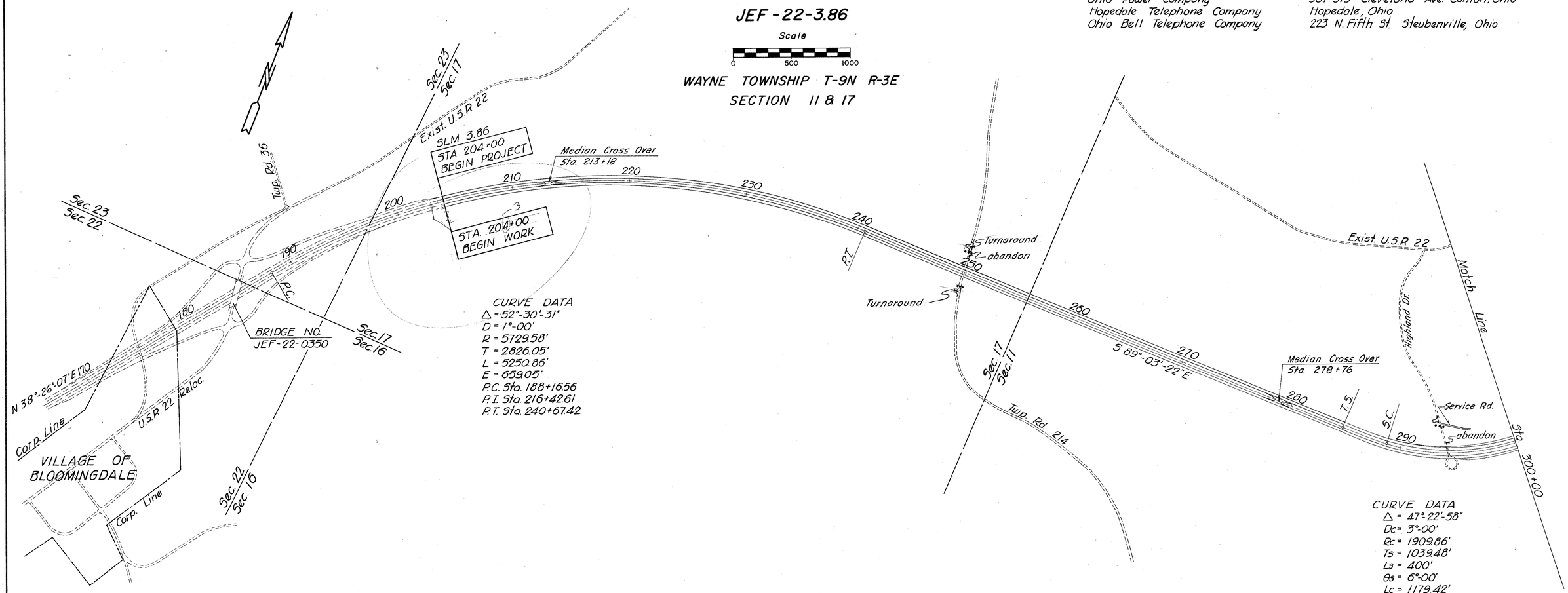
U.S. ROUTE 22
JEF-22-3.86

Scale
0 500 1000

WAYNE TOWNSHIP T-9N R-3E
SECTION 11 & 17

UTILITY COMPANIES
Ohio Power Company
Hopedale Telephone Company
Ohio Bell Telephone Company

ADDRESSES
301-315 Cleveland Ave. Canton, Ohio
Hopedale, Ohio
223 N. Fifth St. Steubenville, Ohio



CURVE DATA
△ = 52°-30'-31"
D = 1°-00'
R = 5729.58'
T = 2826.05'
L = 5250.86'
E = 659.05'
P.C. Sta. 188+16.56
P.I. Sta. 216+42.61
P.T. Sta. 240+67.42

CURVE DATA
△ = 47°-22'-58"
Dc = 3°-00'
Rc = 1909.86'
Ts = 1039.48'
Ls = 400'
θs = 6°-00'
Lc = 1179.42'
Es = 179.59'
P.I. Sta. 295+13.05
T.S. Sta. 284+73.56
S.C. Sta. 288+73.56
C.S. Sta. 300+52.99
S.T. Sta. 304+52.99

TRAFFIC NOTES

TEMPORARY ROADWAYS, USE AND PAYMENT
Temporary roadways shall be surfaced with 410 traffic compacted surface, Type "A" or "B" and stabilized with 616 Calcium Chloride.

Item 410 and 616 shall be applied where directed and in the amounts requested by the Engineer.

It is not intended that temporary roadways be used exclusively for maintaining traffic on this project but that maximum usage be made of existing and proposed pavements.

The limits and duration of use of temporary roadways shall be held to an absolute minimum and in all cases shall be subject to the approval of the Engineer.

Payment for the construction, maintenance and subsequent removal wherever required of temporary roadways, not separately itemized under 615, except for furnishing and placing of 410 and 616, shall be included in the lump sum price bid for Item 614, maintaining traffic.

MAINTAINING TRAFFIC

The Contractor shall maintain two way traffic at all times on Existing U.S.R. 22 Relocation and Existing U.S.R. 22 Approach, by use of the existing pavement, the proposed pavement & temporary roadways. Except that one way traffic will be permitted for minimum periods of time consistent with the requirements of the specifications for protection of the completed asphalt concrete courses, during paving operations where construction overlaps existing pavement. Two-way traffic lanes shall be surfaced at least (20) feet wide and one-way traffic lanes shall have the surfacing not less than (12) feet wide.

LINE DATA

Begin Project Sta. 204+00
End Project Sta. 387+00
No Additions or Deductions
Net Length of Project = 18,300.00 Lin. Ft. or 3.465 Miles

Begin Work Sta. 203+00
End Work Sta. 416+00 = 21,300.00 Lin. Ft.
Add for Approaches
Existing U.S.R. 22 Relocation Sta. -2+50 to Sta. 29+00 = 3,150.00 Lin. Ft.
Existing U.S.R. 22 Approach Sta. 0+46.84 to Sta. 6+50 = 603.16 Lin. Ft.
Addition for Temporary Guard Rail Removal = 800.00 Lin. Ft. See Sheet No. 471

Addition for Sign Removal 20.00 Lin. Ft. See Sheet No. 471
Net Length of Work 25,873.16 Lin. Ft. or 4.900 Miles

LOCATION PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

3
5/6

JEF-22-3.86

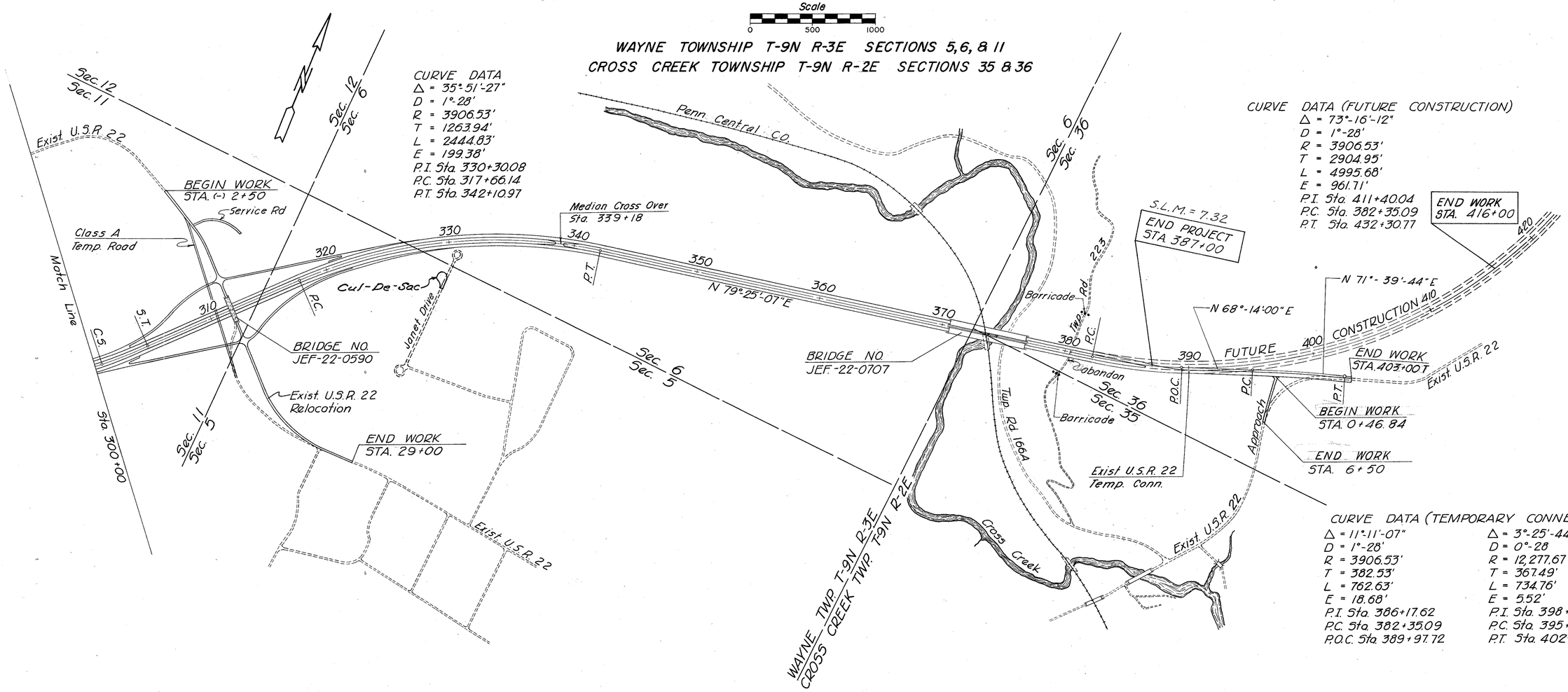
LOCATION PLAN

U.S. ROUTE 22

JEF-22-3.86

Scale
0 500 1000

WAYNE TOWNSHIP T-9N R-3E SECTIONS 5, 6, & 11
CROSS CREEK TOWNSHIP T-9N R-2E SECTIONS 35 & 36



CURVE DATA
Δ = 35°-51'-27"
D = 1°-28'
R = 3906.53'
T = 1263.94'
L = 2444.83'
E = 199.38'
P.I. Sta. 330+30.08
P.C. Sta. 317+66.14
P.T. Sta. 342+10.97

CURVE DATA (FUTURE CONSTRUCTION)
Δ = 73°-16'-12"
D = 1°-28'
R = 3906.53'
T = 2904.95'
L = 4995.68'
E = 961.71'
P.I. Sta. 411+40.04
P.C. Sta. 382+35.09
P.T. Sta. 432+30.77

CURVE DATA (TEMPORARY CONNECTION)

Δ = 11°-11'-07"	Δ = 3°-25'-44"
D = 1°-28'	D = 0°-28
R = 3906.53'	R = 12,277.67'
T = 382.53'	T = 367.49'
L = 762.63'	L = 734.76'
E = 18.68'	E = 5.52'
P.I. Sta. 386+17.62	P.I. Sta. 398+69.45
P.C. Sta. 382+35.09	P.C. Sta. 395+01.96
P.O.C. Sta. 389+97.72	P.T. Sta. 402+36.72

ESTIMATED QUANTITIES for MAINTAINING TRAFFIC

410	Traffic compacted surface Type A or B	331	Cu. Yds.
410	Traffic compacted surface Type C	1025	Cu. Yds.
616	Calcium Chloride	27	Tons (Carried to Sht. No. 16)
616	Water	11	M/Gals. (Carried to Sht. No. 16)

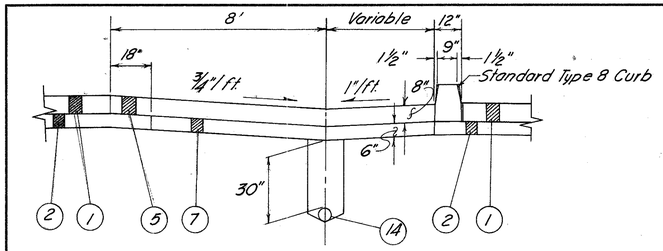
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

4/516

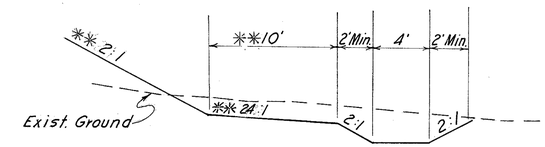
JEF - 22 - 3.86

TYPICAL SECTIONS

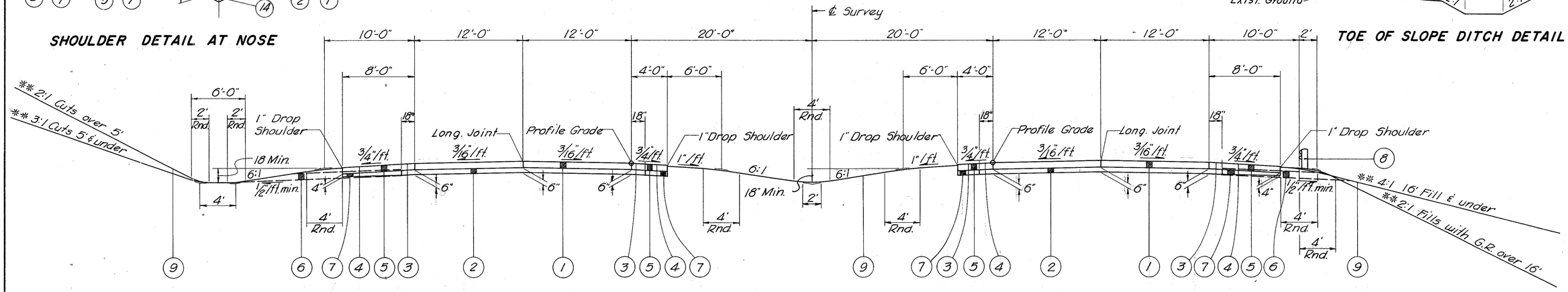
TYPE 451 ON 804



SHOULDER DETAIL AT NOSE



TOE OF SLOPE DITCH DETAIL



LEGEND

1. Item 451 8" Reinforced Portland Cement Concrete Pavement
2. Item 804 6" Cement Stabilized Subbase
3. Item 408 Bit. Prime Coat; 702.09, RT-2 or RT-3 applied at the rate of 0.4 Gal/Sq.Yd.
4. Item 409 Seal Coat, using 0.008 cu.yd. No.8 cover aggregate per sq. yd. and 0.30 gal. 702.09 RT-9 or RT-10 or 702.02, MC-800 or MC-3000 per sq. yd.
5. Item 304 8" Aggregate Base
6. Item 605 Aggregate Drains (See General Note)
7. Item 310 Subbase (4" Min.)
8. Item 606 Guard Rail Type 4 Modified as per plan
9. Item 659 Seeding and Mulching (See General Note)
14. Item 605 Shallow Pipe Underdrains

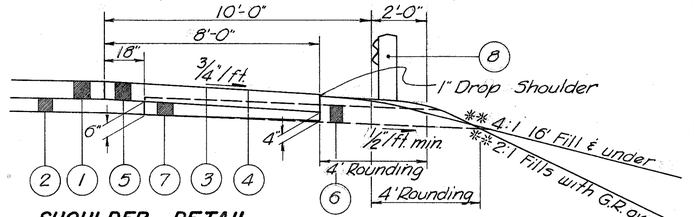
NORMAL SECTION

WESTBOUND LANES

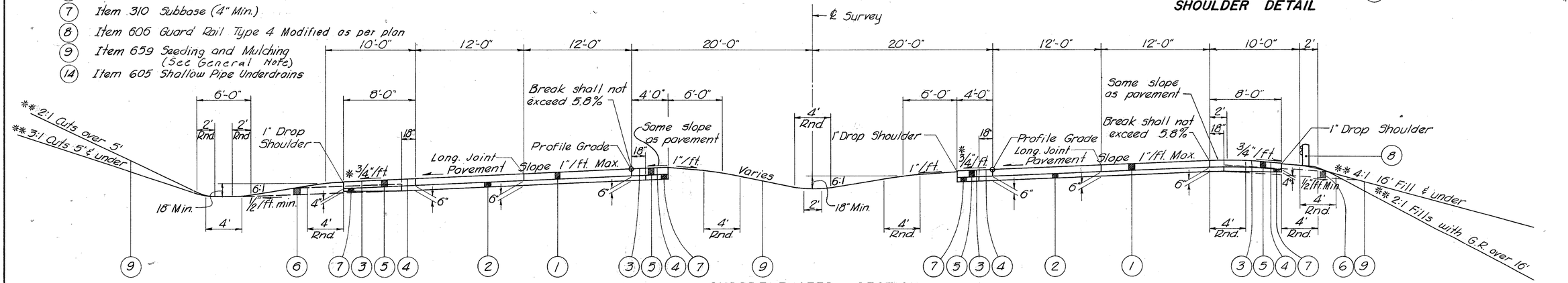
LIMITING STATIONS			
Sta. 242+25	to	Sta. 284+00	= 4175.00 L.F.
Sta. 305+50	to	Sta. 315+25	= 975.00 L.F.
Sta. 343+75	to	Sta. 380+25	= 3650.00 L.F.
		TOTAL	= 8,800.00 L.F.
Deduct for Bridge			= 836.50 L.F.
		TOTAL	7,963.50 L.F.

EASTBOUND LANES

LIMITING STATIONS			
Sta. 242+25	to	Sta. 284+00	= 4175.00 L.F.
Sta. 305+50	to	Sta. 315+25	= 975.00 L.F.
Sta. 343+75	to	Sta. 380+25	= 3650.00 L.F.
		TOTAL	= 8,800.00 L.F.
Deduct for Bridge			= 774.50 L.F.
		TOTAL	8,025.50 L.F.



SHOULDER DETAIL



SUPERELEVATED SECTION

WESTBOUND LANES

LIMITING STATIONS			
Sta. 204+00	to	Sta. 242+25	= 3825.00 L.F.
Sta. 284+00	to	Sta. 305+50	= 2150.00 L.F.
Sta. 315+25	to	Sta. 343+75	= 2850.00 L.F.
Sta. 380+25	to	Sta. 380+50	= 25.00 L.F.
		TOTAL	= 8,850.00 L.F.

EASTBOUND LANES

LIMITING STATIONS			
Sta. 204+00	to	Sta. 242+25	= 3825.00 L.F.
Sta. 284+00	to	Sta. 305+50	= 2150.00 L.F.
Sta. 315+25	to	Sta. 343+75	= 2850.00 L.F.
Sta. 380+25	to	Sta. 387+00	= 675.00 L.F.
		TOTAL	= 9,500.00 L.F.

For Pavement edge elevs. see sheets No. 53, 54 & 55

Notes:
In lieu of 605.05 of the specifications the aggregate drains shall be constructed prior to construction of the paved shoulders.
* Same slope as pavement if greater than ¾" per ft.
** Unless otherwise shown on X-Sect.

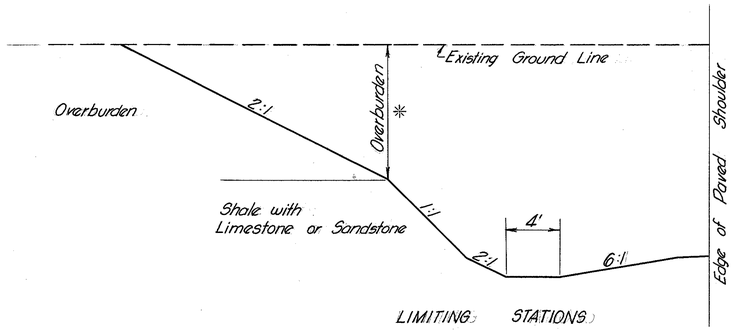
TYPICAL SECTION THRU PAVEMENT (NORMAL & SUPERELEVATED)

TYPICAL SECTIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

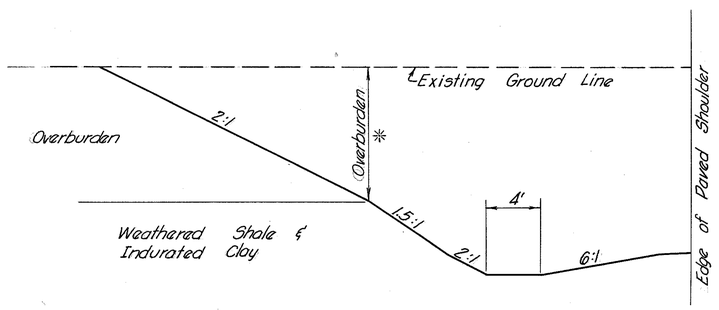
5/516

JEF-22-3.86



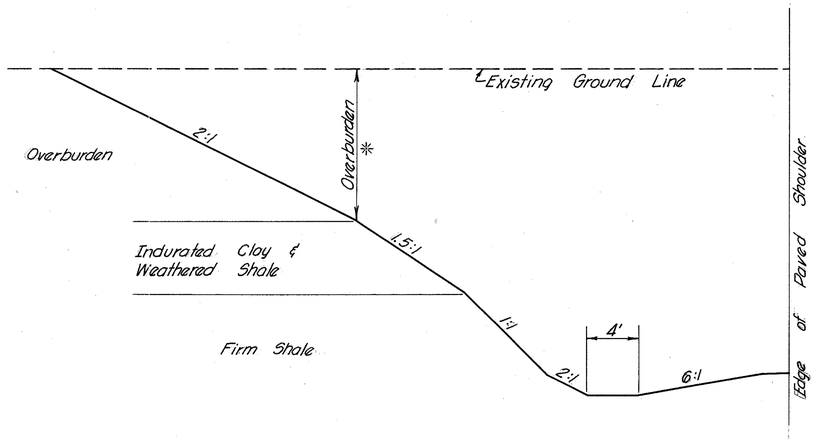
LIMITING STATIONS

Sta. 219+00 to Sta. 226+00
Sta. 227+00 to Sta. 240+00
Sta. 243+00 to Sta. 247+00
Sta. 291+00 to Sta. 298+50



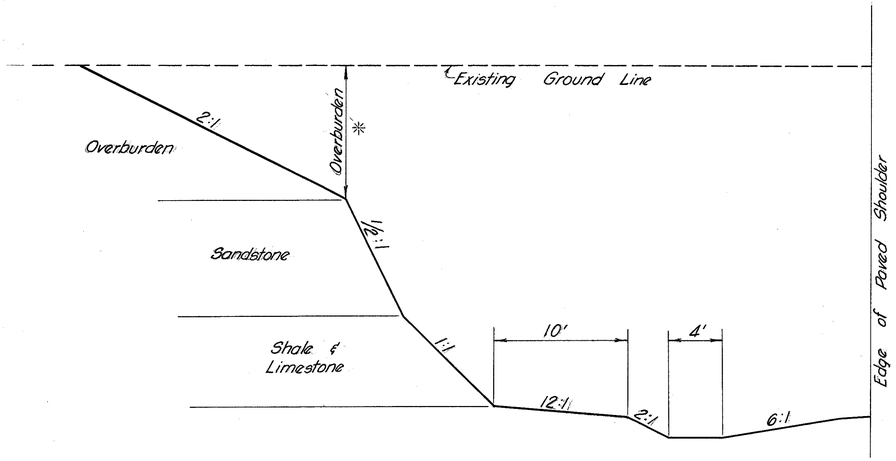
LIMITING STATIONS

Sta. 251+00 to Sta. 260+00



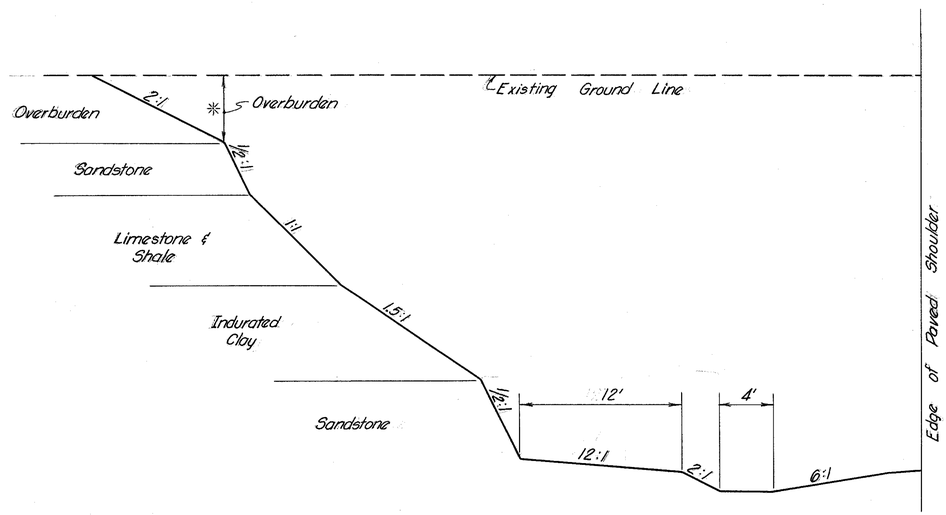
LIMITING STATIONS

Sta. 279+50 to Sta. 288+00



LIMITING STATIONS

Sta. 345+00 to Sta. 368+00



LIMITING STATIONS

Sta. 376+00 to Sta. 389+00

* Overburden Depth as shown on Cross Sections

PART TYPICALS SHOWING BACK SLOPE TREATMENTS

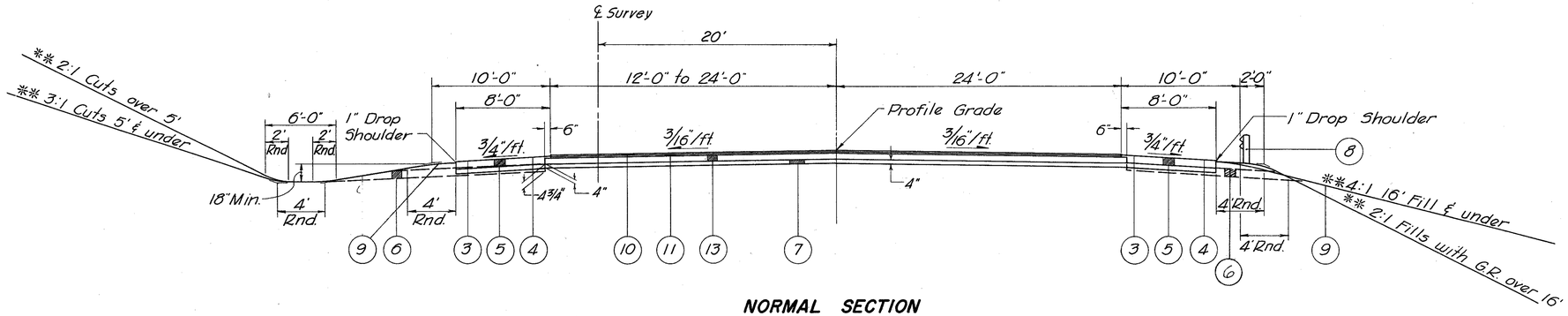
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

6
516

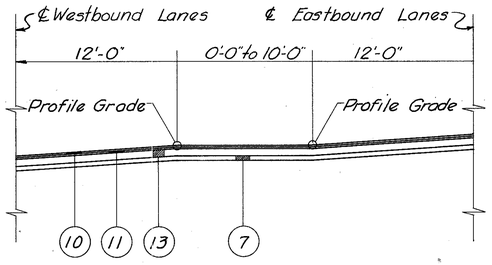
JEF - 22 - 3.86

TYPICAL SECTIONS

TYPE 404 ON 301



NORMAL SECTION
LIMITING STATIONS
Sta. 392+04.38 to Sta. 403+00
TOTAL LENGTH 1095.62 L.F.



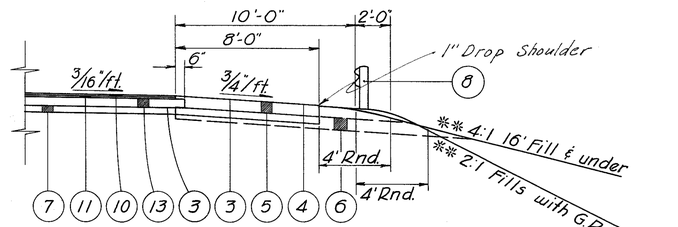
PAVED MEDIAN DETAIL
LIMITING STATIONS

WESTBOUND LANES
Sta. 389+07.89 to Sta. 391+99.62
TOTAL LENGTH = 291.73 L.F.

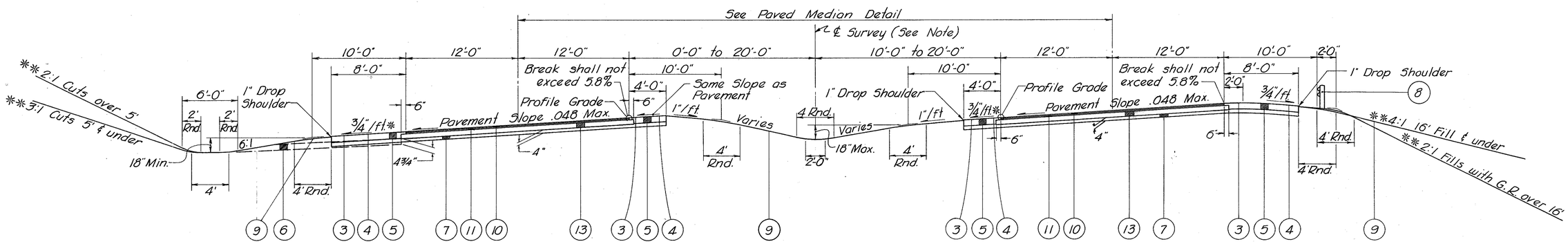
EASTBOUND LANES
Sta. 389+11.28 to Sta. 392+04.38
TOTAL LENGTH = 293.10 L.F.

LEGEND

(3) Item 408 Bit. Prime Coat: 702.09, RT-2 or RT-3 applied at the rate of 0.4 Gal. per sq. yd.
(4) Item 409 Seal Coat, using 0.008 cu. yd. No 8 cover aggregate per sq. yd. and 0.30 gal. 702.09, RT-9 or RT-10 or 702.02, MC-800 or MC-3000 per sq. yd.
(5) Item 304 8" Aggregate Base
(6) Item 605 Aggregate Drains (See General Note)
(7) Item 310 Subbase (4" Min.)
(8) Item 606 Guard Rail, Type 4, Modified as per plan
(9) Item 659 Seeding and Mulching (See General Note)
(10) Item 404 1 1/4" Asphalt Concrete (70-85)
(11) Item 402 1 1/2" Asphalt Concrete (70-85)
(13) Item 301 6" Bituminous Aggregate Base, 702.01 (85-100) or 702.09, RT-10



SHOULDER DETAIL



SUPERELEVATED SECTION

WESTBOUND LANES
LIMITING STATIONS
Sta. 380+50 to Sta. 391+99.62
TOTAL LENGTH = 1149.62 L.F.

EASTBOUND LANES
LIMITING STATIONS
Sta. 387+00 to Sta. 392+04.38
TOTAL LENGTH = 504.38 L.F.

NOTES:
In lieu of 605.05 of Specifications, the aggregate drains shall be constructed prior to construction of the poved shoulder
* Same slope as pavement if greater than 3/4" per. ft.
** Unless otherwise shown on Cross Sections
For Pavement Transitions and Alignment, See Pavement Details

TYPICAL SECTION EXIST. U.S.R. 22 TEMP. CONNECTION

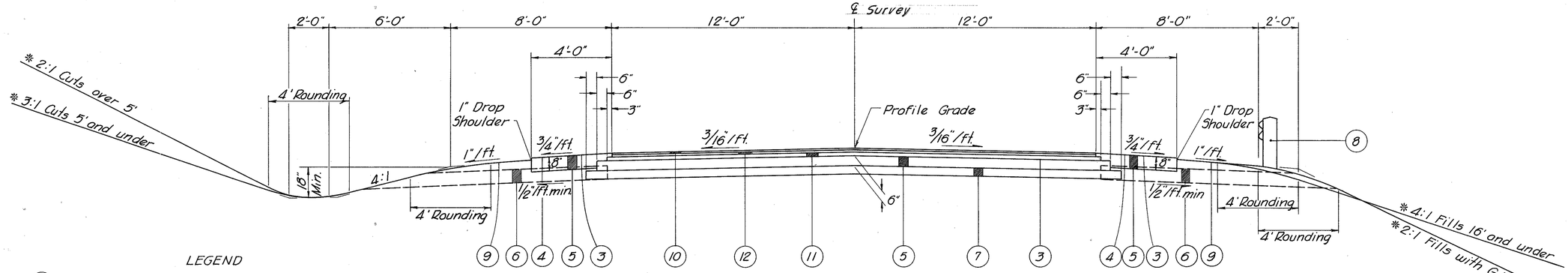
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

7
516

JEF-22-3.86

TYPICAL SECTIONS

TYPE-404 ON 304



LEGEND

(3) Item 408 Bit. Prime Coat: 702.09, RT-2 or RT-3 applied at the rate of 0.4 gal. per sq. yd.

(4) Item 409 Seal Coat, using 0.008 cu. yd. No. 8 cover aggregate per sq. yd. and 0.30 gal. 702.09, RT-9 or RT-10 or 702.02, MC-800 or MC-3000 per sq. yd.

(5) Item 304 Aggregate Base (Thicknesses as shown)

(6) Item 605 Aggregate Drains (See General Note)

(7) Item 310 5" Subbase

(8) Item 606 Guard Rail, Type 4, Modified as per plan

(9) Item 659 Seeding & Mulching (See General Note)

(10) Item 404 1¼" Asphalt Concrete (70-85)

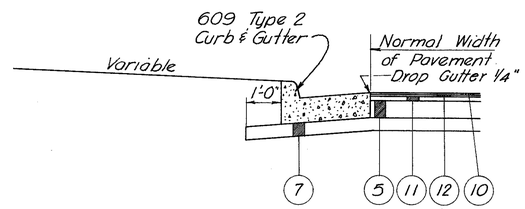
(11) Item 402 1½" Asphalt Concrete (70-85)

(12) Item 402 1¼" Asphalt Concrete (70-85)

NORMAL SECTION
EXIST. U.S.R. 22 RELOC.

LIMITING STATIONS

Sta. ↪2+00	to Sta. 11+25	325.00 L.F.
Sta. 8+50	to Sta. 16+00	750.00 L.F.
Sta. 27+25	to Sta. 28+50	125.00 L.F.
	TOTAL	1200.00 L.F.
Deduct for Bridge		251.50 L.F.
	TOTAL	948.50 L.F.



CURB & GUTTER DETAIL

LIMITING STATIONS

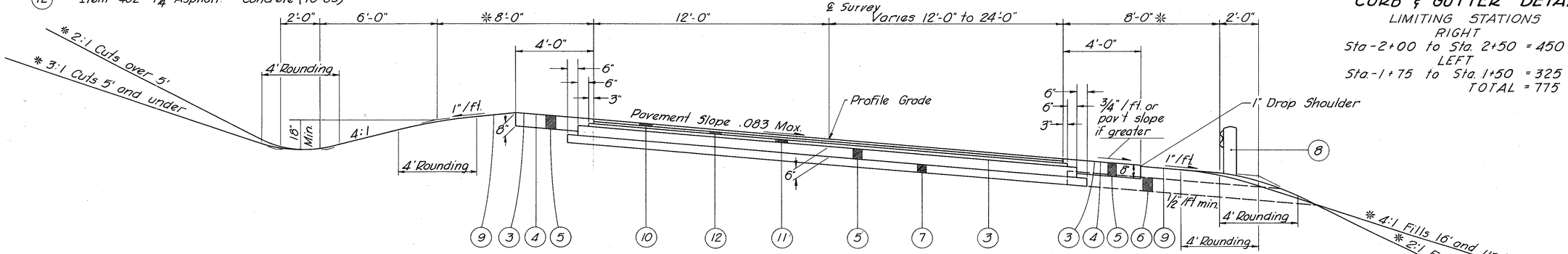
RIGHT

Sta. -2+00 to Sta. 2+50 = 450 L.F.

LEFT

Sta. -1+75 to Sta. 1+50 = 325 L.F.

TOTAL = 775 L.F.



NOTE:
In lieu of 605.05 of the specifications the aggregate drains shall be constructed prior to construction of the aggregate shoulders.

SUPERELEVATED SECTION
EXIST. U.S.R. 22 RELOC.

LIMITING STATIONS

Sta. 1+25 to Sta. 8+50 = 725.00 L.F.

Sta. 16+00 to Sta. 27+25 = 1125.00 L.F.

TOTAL = 1850.00 L.F.

EXIST. U.S.R. 22 APPROACH

Sta. 0+46.84 to Sta. 6+00 = 553.16 L.F.

TOTAL = 553.16 L.F.

* Unless otherwise shown on Cross Sections

TYPICAL SECTION THRU PAVEMENT EXISTING U.S.R. 22

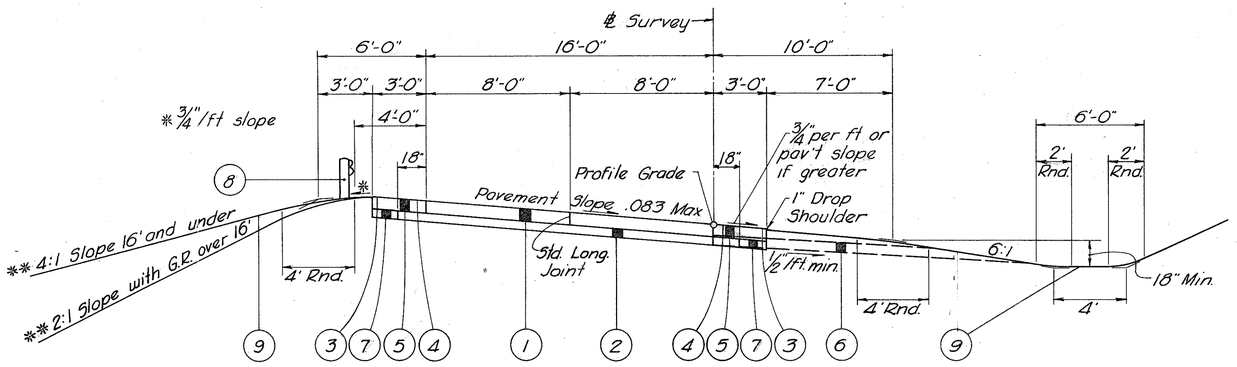
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

8
516

JEF-22-3.86

TYPICAL SECTIONS

TYPE - 451 ON 804



SUPERELEVATED SECTION (RAMPS)

Ramp A	Sta. 2+20	to Sta. 7+25	= 505.00 L.F.
Ramp B	Sta. 16+00	to Sta. 17+25	= 125.00 L.F.
Ramp C	Sta. 4+02.45	to Sta. 9+00	= 497.55 L.F.
Ramp D	Sta. 18+00	to Sta. 23+50	550.00 L.F.
Total			1677.55 L.F.

LEGEND

(1) Item 451 8" Reinforced Portland Cement Concrete Pavement

(2) Item 804 6" Cement Stabilized Subbase

(3) Item 408 Bit. Prime Coat: 702.09, RT-2 or RT-3 applied at the rate of 0.4 gal. per sq. yd.

(4) Item 409 Seal Coat, using 0.008 cu. yd. No. 8 Cover Aggr. per sq. yd. and 0.30 gal. 702.09 RT-9 or RT-10 or 702.02, MC-800 or MC-3000 per sq. yd.

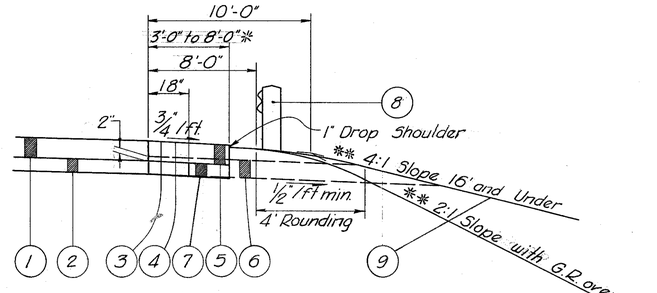
(5) Item 304 8" Aggregate Base

(6) Item 605 Aggregate Drains (See General Note)

(7) Item 310 6" Subbase

(8) Item 606 Guard Rail, Type 4, Modified as per plan

(9) Item 659 Seeding & Mulching (See General Note)



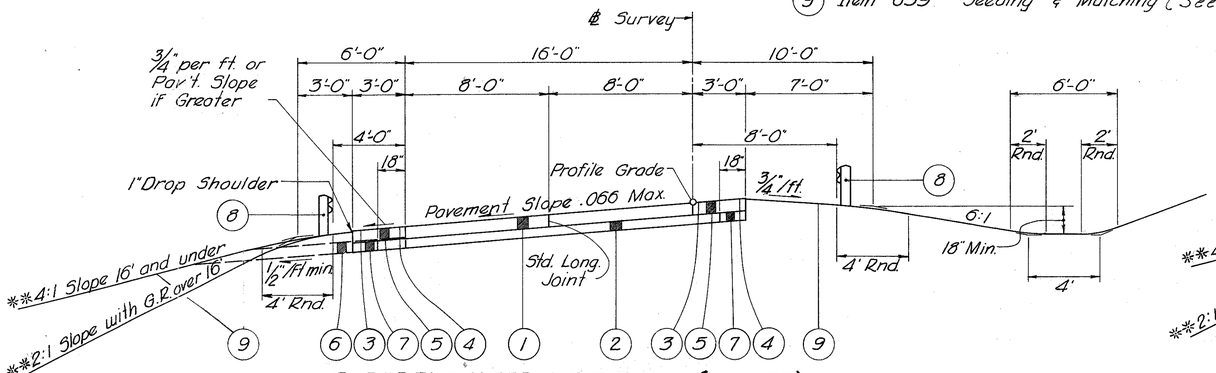
SHOULDER DETAIL
RAMPS & SPEED CHANGE LANES

* 8'-0" on acceleration and deceleration lane

For slope treatment in cut see mainline Typical Sections

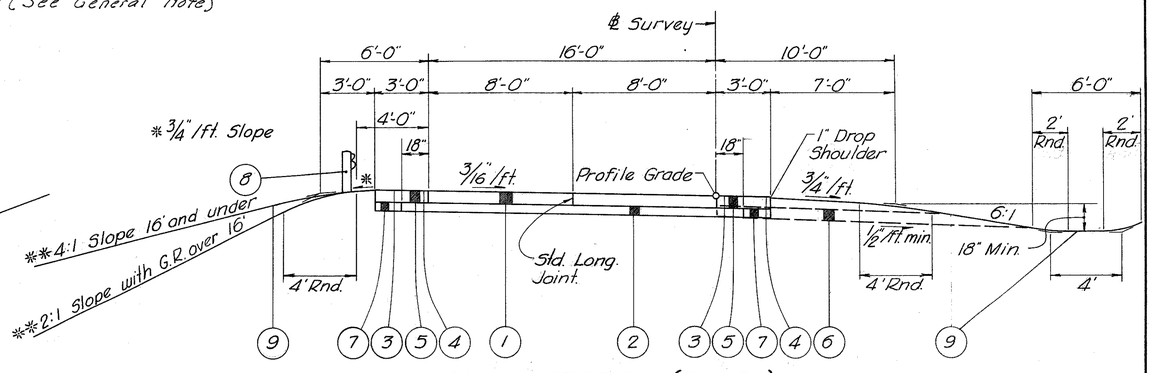
** Unless otherwise shown on Cross Sections

NOTE: In lieu of 605.05 of the specifications the aggregate drain shall be constructed prior to construction of the paved shoulders



SUPERELEVATED SECTION (RAMPS)

Ramp B Sta. 11+60.84 to Sta. 16+00 = 439.16 L.F.
Total 439.16 L.F.



NORMAL SECTION (RAMPS)

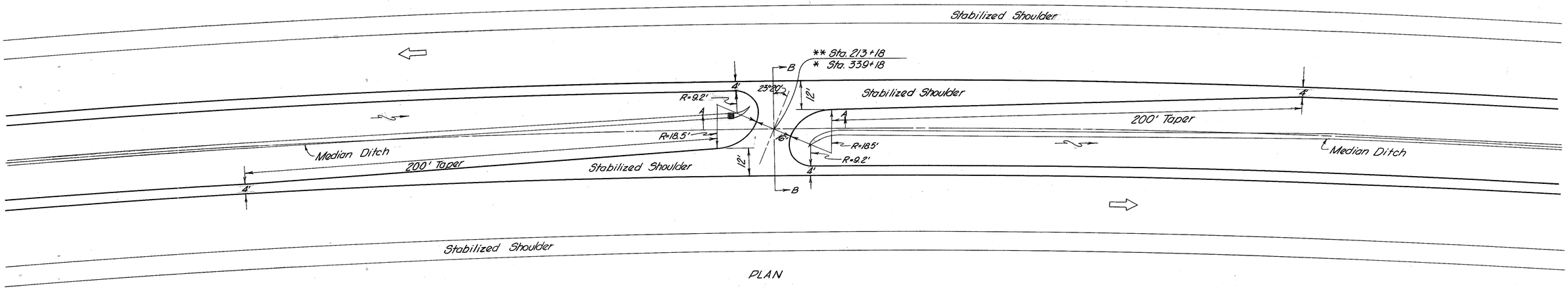
Ramp A	Sta. 7+25	to Sta. 11+95.59	= 470.59 L.F.
Ramp B	Sta. 17+25	to Sta. 22+27.39	= 502.39 L.F.
Ramp C	Sta. 9+00	to Sta. 11+91.68	= 291.68 L.F.
Ramp D	Sta. 11+84.90	to Sta. 18+00	615.10 L.F.
Total			1879.76 L.F.

TYPICAL SECTION THRU PAVEMENT RAMPS (NORMAL & SUPERELEVATED)

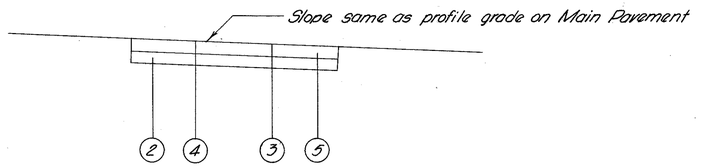
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

9
516

JEF-22-3.86



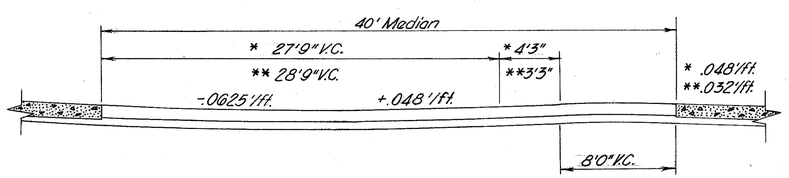
PLAN



SECTION AA

LEGEND

(2)	Item 310	6" Subbase
(3)	Item 408	Bit. Prime Coat: 702.09, Rt 2 or Rt 3 applied at the rate of 0.4 gal./sq. yd.
(4)	Item 409	Seal Coat, using 0.008 cu. yd. No. 8 cover aggregate per sq. yd. and 0.30 gal. 702.09, Rt-9 or Rt-10 or 702.02, MC-800 or MC-3000 per sq. yd.
(5)	Item 304	8" Aggregate Base



SECTION B-B

ESTIMATED QUANTITIES

Item	304	Aggregate Base	60.91 cu. yds.
Item	310	Subbase	45.68 cu. yds.
Item	408	Prime Coat	109.64 gals.
Item	409	Seal Coat (Bit. Mat.)	82.23 gals.
		Seal Coat (Cover Aggr.)	2.19 cu. yds.
Item	203	Subgrade Preparation	274.11 sq. yds.

* Superelevation Rate 0.048'/ft.
** Superelevation Rate 0.032'/ft.

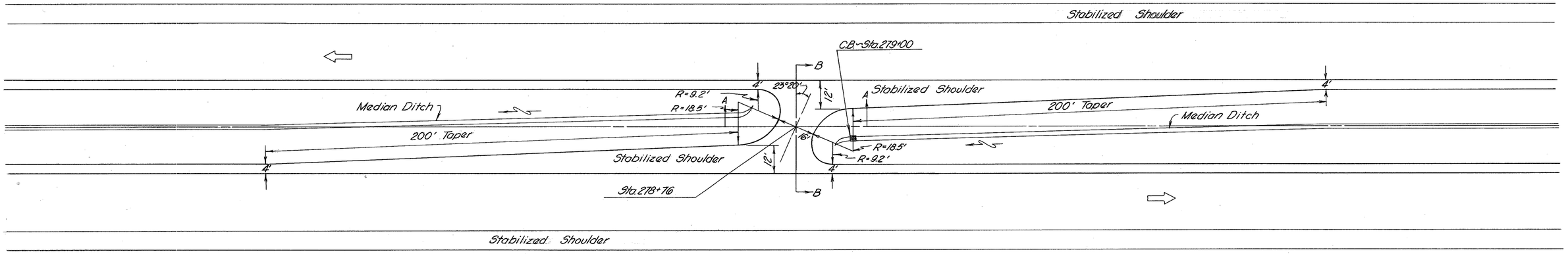
Computed by : A.W.L. 10-25-67
Checked by : J.W.W. 10-26-67

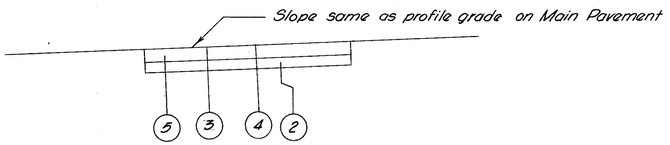
MEDIAN CROSS OVER (SUPERELEVATION)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

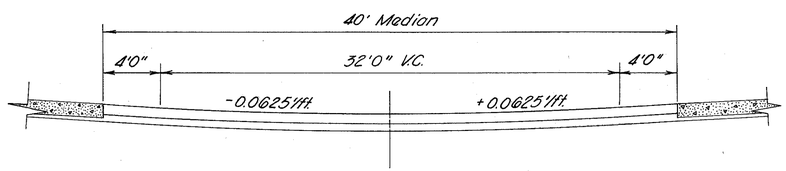
10
516

JEF-22-3.86





SECTION A-A



SECTION B-B

LEGEND

(2)	Item 310	6" Subbase
(3)	Item 408	Bit. Prime Coat: 702.09, Rt. 2 or Rt. 3 applied at the rate of 0.4 gal./sq. yd.
(4)	Item 409	Seal Coat, using 0.008 cu.yd. No. 8 cover aggregate per sq.yd. and 0.30 gal. 702.09, Rt-9 or Rt-10 or 702.02, MC-800 or MC-3000 per sq.yd.
(5)	Item 304	8" Aggregate Base.

ESTIMATED QUANTITIES

Item 304	Aggregate Base	60.91 cu.yds.
Item 310	Subbase	45.68 cu.yds.
Item 408	Prime Coat	109.64 gals.
Item 409	Seal Coat (Bit. Mat.)	82.23 gals.
	Seal Coat (cover aggr.)	2.19 cu.yds.
Item 203	Subgrade Preparation	274.11 sq.yds.

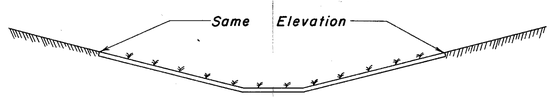
Computed by : A.W.L. 10-25-67
checked by : J.W.W. 10-26-67

MEDIAN CROSS OVER

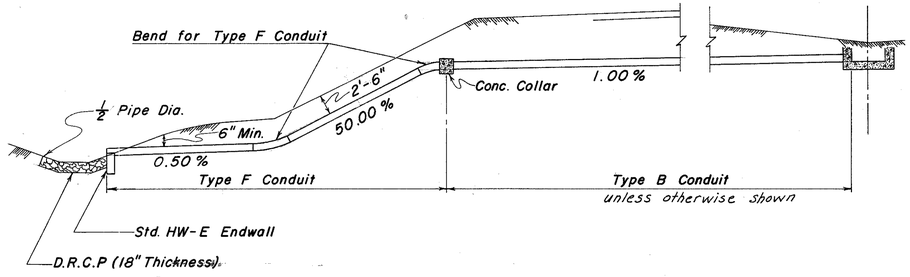
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

11/516

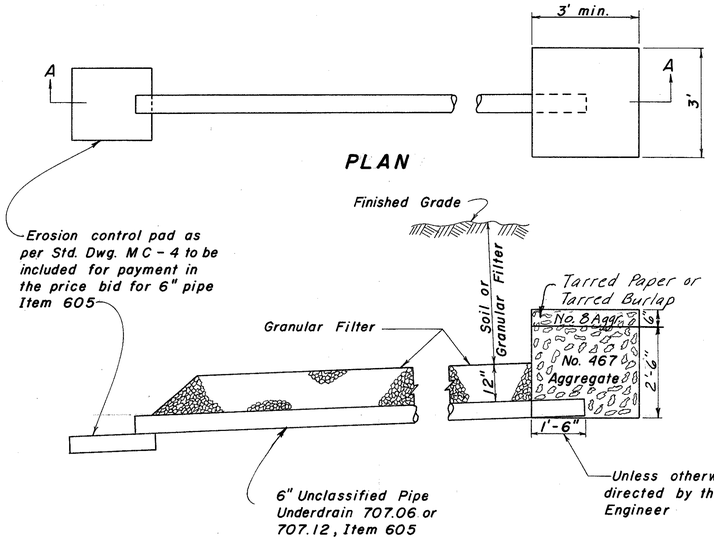
JEF - 22 - 3.86



SOD DITCH DETAIL



MEDIAN OUTLET DETAIL IN HIGH FILL



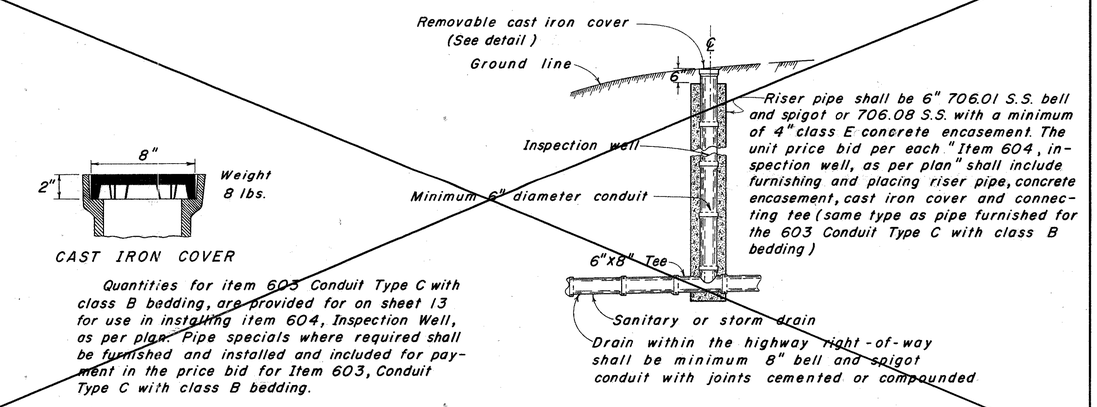
SECTION A-A

SPRING DRAIN DETAIL

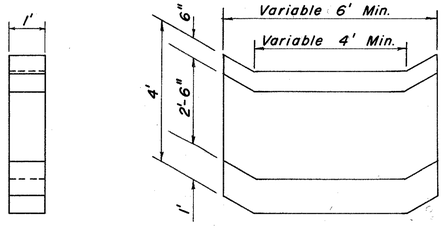
NOTE: Aggregates, tarred paper or tarred burlap, and necessary excavation for spring drains shall be included for payment in the unit price bid per lin. ft. for "Item 605, Aggregate Drains for Springs, as per plan."

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 material placed in accordance with 603.08, Type "E".

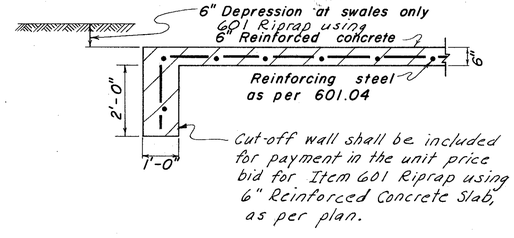
Spring drains shall be built in reasonably close conformity with the detail shown above. The lengths and exact locations of the drains shall be determined by the Engineer. See note on Sht. No. 12.



INSPECTION WELL FOR PRIVATE DRAINAGE TAPS

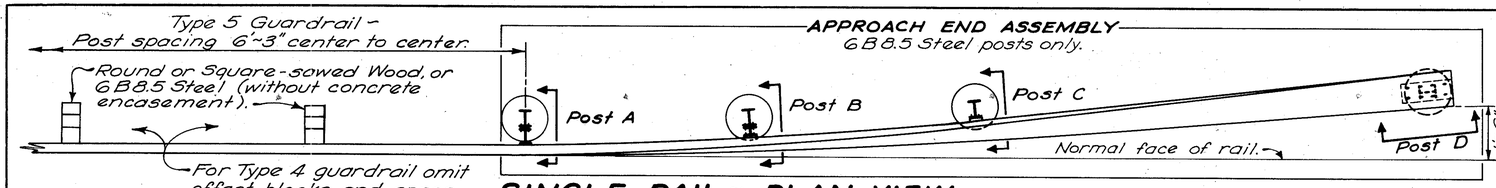


END SILL DETAIL

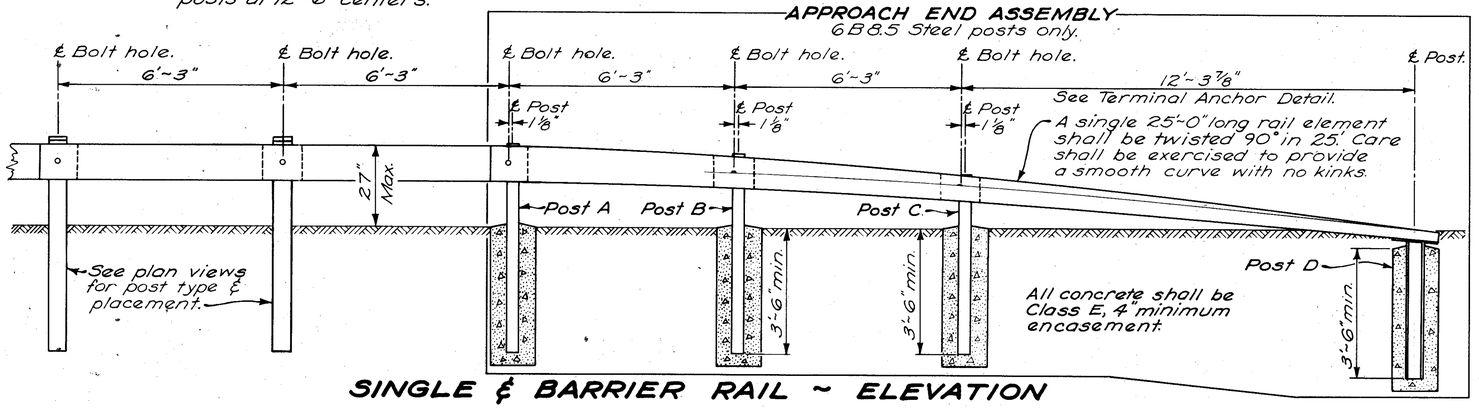


RIPRAP 6" REINFORCED CONCRETE SLAB, as per plan
TYPICAL SECTION CUTOFF WALL

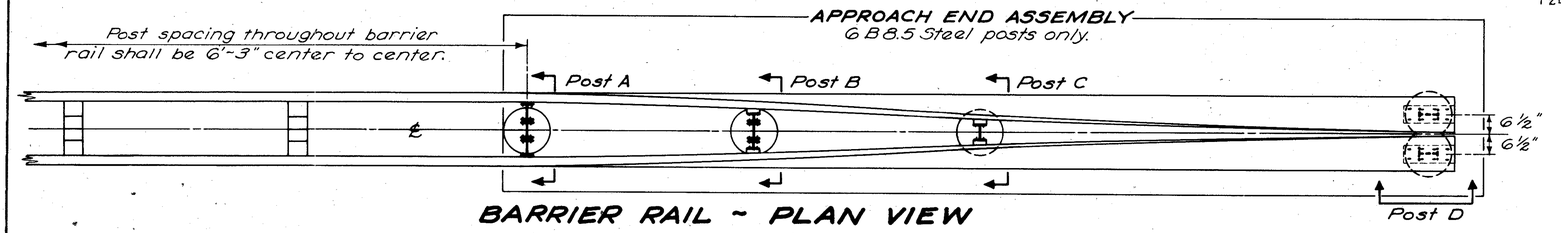
DRAINAGE DETAILS



SINGLE RAIL ~ PLAN VIEW



SINGLE & BARRIER RAIL ~ ELEVATION



BARRIER RAIL ~ PLAN VIEW

NOTES

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

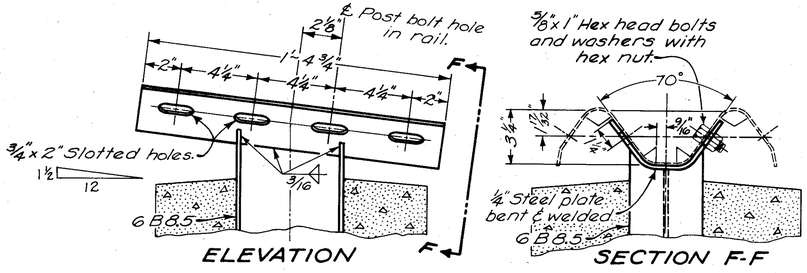
All steel parts shall be galvanized in accordance with ASTM A123, A153 or A525, whichever may apply.

This drawing shall govern where a conflict arises.

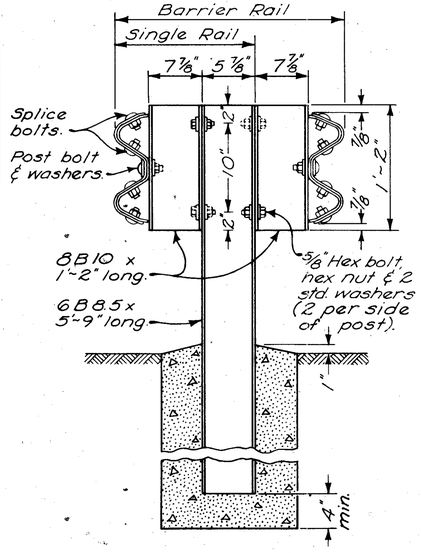
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

11A 5168

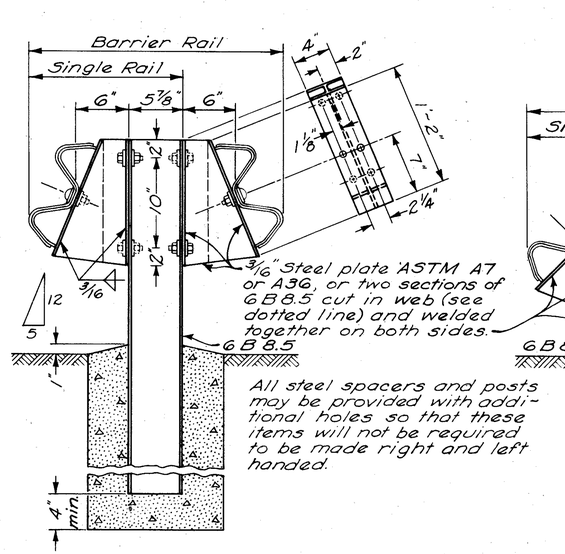
JEF - 22 - 3.86



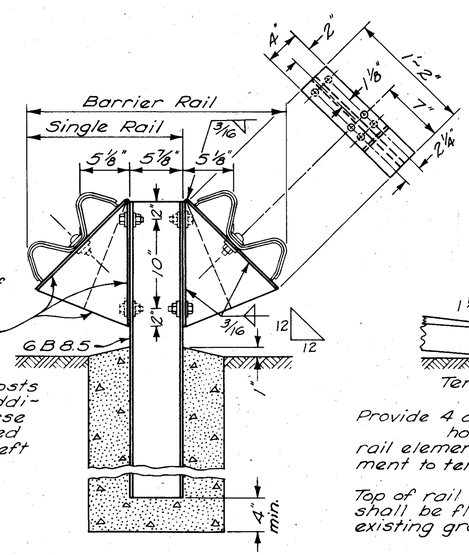
TERMINAL ANCHOR DETAIL



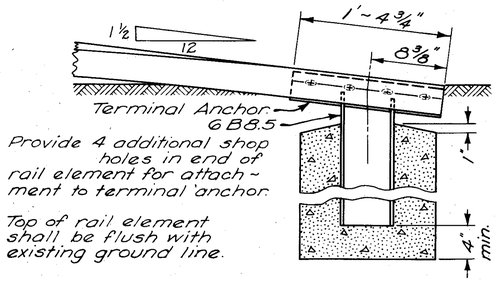
POST A



POST B



POST C



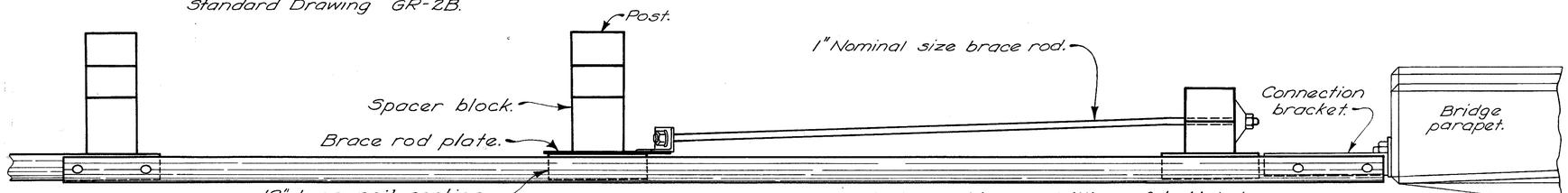
POST D

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

11B 56B

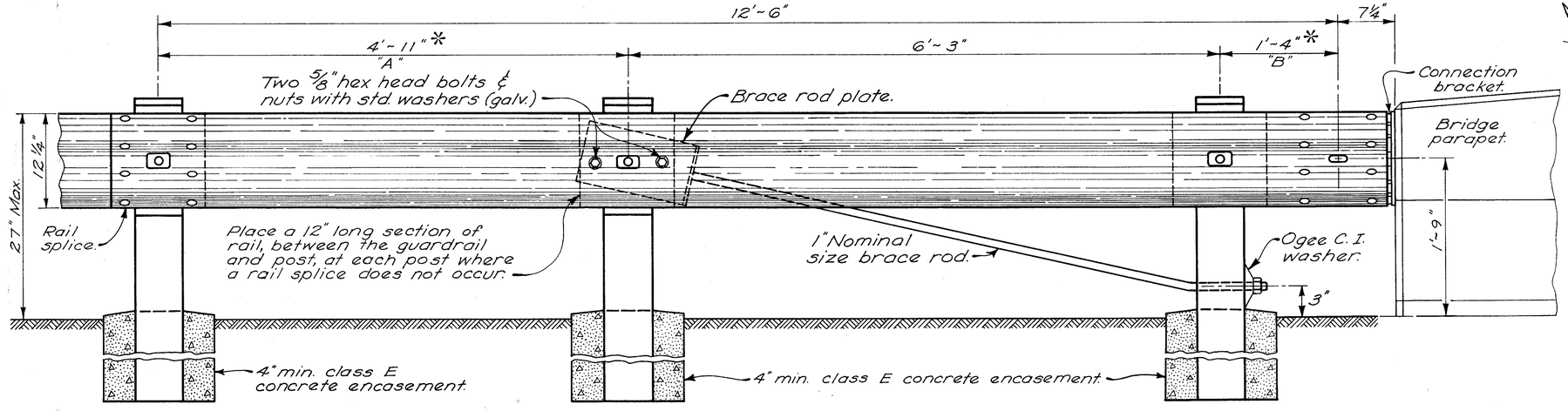
JEF-22-3.86

Posts may be round or square-sawed wood, or 6B8.5 steel. See Standard Drawing GR-2B.



PLAN VIEW

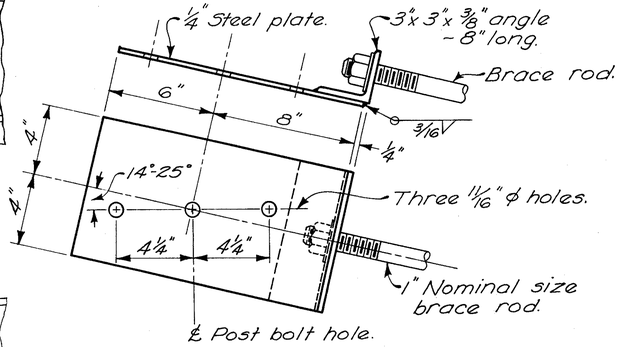
Field punching or drilling of bolt holes for the brace rod assembly shall be accomplished as provided for in 606.04.



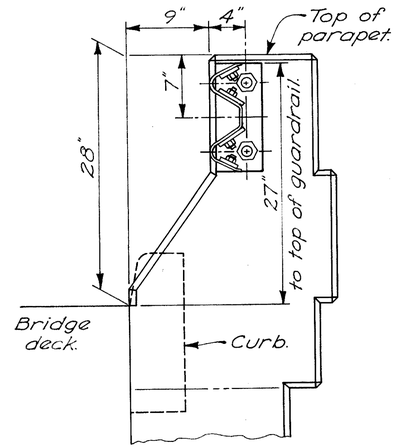
ELEVATION

GUARDRAIL TERMINAL AT BRIDGE

* Dimension "A" shall decrease as dimension "B" increases to accommodate interference by the bridge substructure.

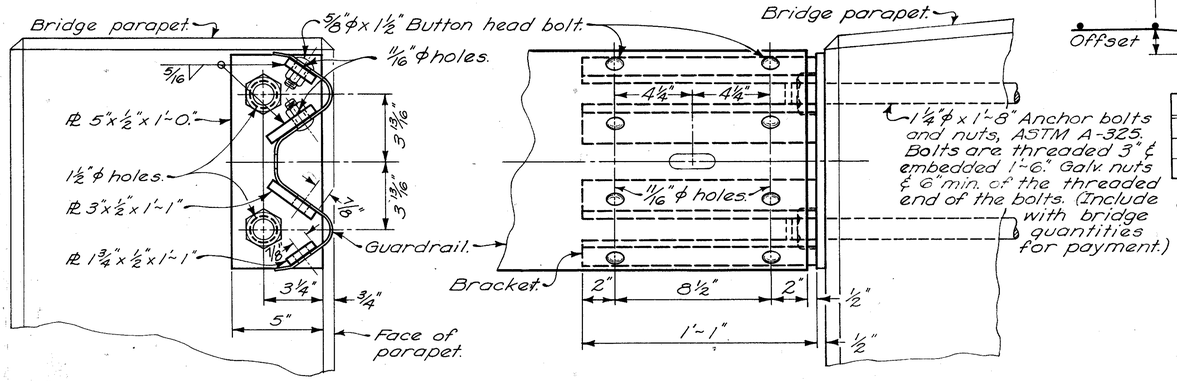


BRACE ROD PLATE



PARAPET APPROACH

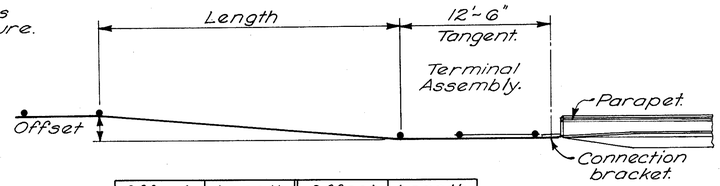
For uncurbed approaches, guardrail shall be set 27" above ground line at face of rail. For curbed approaches guardrail shall be located 27" above gutter line and 9" behind the face of curb.



CONNECTION BRACKET DETAIL

GUARDRAIL ~ BRIDGE CONNECTION

The connection bracket shall be galvanized after welding and shall be included with guardrail for payment.



Offset	Length	Offset	Length
1'-0"	25.00'	5'-0"	100.00'
2'-0"	50.00'	6'-0"	100.00'
4'-0"	100.00'	7'-0"	100.00'

GUARDRAIL OFFSET DETAIL

Rev. 7-10-68

GR-3 : BRIDGE TERMINAL ASSEMBLY

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

12
516

JEF-22-3.86

GENERAL NOTES

FIELD OFFICE

The Contractor shall, in addition to the requirements of 105.152, provide a suitable field office having a minimum of 800 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 location 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 does not guarantee their accuracy or completeness.
For utility owners and addresses, see sht. No. 2.

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 super-elevation equals twice the crown.

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"	2400	240
30"	325	34
48"	70	2
60"	4	

The above estimate is approximate and the State of Ohio reserves the right to order the removal of additional trees or stumps outside 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.

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 202 & 203.

SEEDING

MAINLINE

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.

SIDE ROADS

Quantities for seeding are calculated for the soil areas between the work limits, as shown on the cross sections.

ITEM SPECIAL - CLEANING AND DISPOSING OF SEPTIC TANKS

This item shall include cleaning, backfilling and removing of all or any portion of existing septic tanks, as required.

All septic tanks lying within the proposed right-of-way limits shall be cleaned and emptied. Material removed from these tanks shall be classified as unsuitable and disposed of outside the right-of-way or easement lines.

When the septic tanks are located above the finished pavement or ground lines, they shall be entirely removed and disposed of in accordance with 202.

When the tanks are located below the finished pavement or ground lines, the tops of the tanks shall be removed, and the walls shall be removed to a depth of 3 feet below the finished subgrade or ground lines. The removed material shall be disposed of as explained above. The tanks shall be backfilled with suitable soil or granular material in accordance with 203.

This item shall be paid for at the unit price bid per each for "Item Special - Cleaning and Disposing of Septic Tanks", which price and payment shall constitute full compensation for cleaning, removing and disposing of excess materials, backfilling and for all labor, tools, equipment and incidentals necessary to complete this item including incidental excavation.

EROSION CONTROL

Item 601 and 660 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.

REINFORCED CONCRETE CATCH BASINS

Catch basins over 12 feet in depth shall be built of Class C Concrete reinforced by placing 1/2" diameter bars 12" center to center both vertically and horizontally with a 2" clearance from the inside face of the wall. Payment for furnishing and placing reinforcing steel shall be included in the unit price bid for Item 604, Reinforced Concrete Catch Basin.

CONTRACTION AND EXPANSION JOINTS

Although specific locations of certain expansion and contraction joints have been detailed on this plan, no waiver of the specifications is intended. Provision of expansion joints at all major structures and the maximum spacing between contraction joints shall in all cases be in accordance with Standard Construction Drawings and the Specifications.

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 the 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 eighteen (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.

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.

ITEM SPECIAL, DRILLED WELL ABANDONED

The existing concrete or stone slab well cover and pumping equipment shall be removed and disposed of. The casing shall be cut off at least two (2) feet below the proposed finished grade outside proposed pavement areas or at least two (2) 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.

STANDARD No. 6 CATCH BASIN

In lieu of the provisions for depressing the pavement one (1) inch as shown on the Standard Construction Drawing CB-6, the pavement shall be depressed two (2) inches on this project.

CUT-OFF WALLS FOR RIPRAP

The cut-off walls for item 601, Riprap using 6" Reinforced Concrete Slab, as per plan, shall be included for payment with this 601 item.

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 as set forth in 203.09. No additional payment will be made for benching required by the provisions of 203.09.

ITEM 605 AGGREGATE DRAINS

Aggregate Drains shall be placed at all pavement joints on the outside of normal crowned sections for 451 pavement in earth cuts and fills, and on the low side only of superelevated sections, except where item 605 Pipe Underdrain has been provided.

Aggregate Drains shall be placed at fifty (50) foot intervals on each side of normal crowned sections for 404 pavement and at twenty five (25) foot intervals on the low side only of superelevated sections.

Aggregate Drains shall be placed at the low point of each sag vertical curve.

SPRING DRAINS

Reference is made to the detailed drawing on Sheet No. 11 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 400 L.F.
Item 605 Aggregate Drains for springs, as per plan 40 L.F.

The Contractor shall not order materials for "Spring Drains" until authorized by the Engineer and in the event no springs are encountered, the Item shall be non-performed.

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.

GENERAL NOTES

GUARD RAIL, MODIFIED AS PER PLAN

Type 4 -

1. The post spacing for this guard rail shall be at 6'-3" intervals with spacer blocks attached between the posts and rail element instead of 12'-6" spacing without spacer blocks as indicated on the plans.
2. All approach (entrance) ends of this guard rail shall be constructed with the new guard rail approach end assemblies as detailed on Sheet No. 11A (GR-4). Where either end of the guard rail is adjacent to proposed bridge parapets, the new bridge connector assembly will apply as detailed on Sheet No. 11B (GR-3). The exit (trailing) ends of this guard rail on the right of directional lanes shall be as detailed on Standard Drawing GR-2B. Both ends of all runs of deep beam guard rail shall be constructed with the new approach end assemblies when used on two-lane highways.

Type 4 Barrier Design -

1. The post spacing for all Type 4 barrier design rail shall be at 6'-3" intervals with spacer blocks attached between the post and rail elements instead of 12'-6" spacing without spacer block as indicated on the plans.
2. Both ends of Type 4 barrier design rail shall be constructed with the new guard rail approach end assemblies as detailed on Sheet No. 11A (GR-4).

Basis of Payment -

Type 4 guard rail with post spacing at 6'-3", spacer blocks, new approach end assemblies and bridge connection will be paid for as "606 Guard Rail, Type 4, modified as per plan", complete in place.

Type 4 barrier design with post spacing at 6'-3", spacer blocks and new approach end assemblies will be paid for as "606 Guard Rail, Type 4, barrier design, modified as per plan", complete in place.

GUARD RAIL; TYPE 4, MODIFICATION A AS PER PLAN

1. The post spacing for all Type 4 guard rail modification A shall be as detailed on Standard Drawing GR-2A without spacer blocks.
2. Both ends of this guard rail on two-lane highways shall be constructed with the new guard rail approach end assemblies as detailed on Sheet No. 11A (GR-4). Where either end is adjacent to proposed bridges, the new bridge connector assembly will apply as detailed on Sheet No. 11B (GR-3).

Basis of Payment -

This guard rail with the new approach end assemblies and bridge connection will be paid for as "606 Guard Rail, Type 4, modification A as per plan," complete in place.

LOCATIONS OF GUARD RAIL

The locations of guard rail runs as shown in these plans are subject to adjustment to assure that the planned installations will afford maximum protection for traffic.

CLEANING PRIVY VAULTS

Privy vaults shall be cleaned and filled with suitable material as directed by the Engineer. Material removed from these vaults shall be classified as unsuitable and disposed of outside the limits of right-of-way or easement lines. The cleaning of the privy vaults shall be paid for under Item Special, cleaning of privy vaults.

The backfilling of privy vaults shall be paid for under Item 203 Embankment. The price bid for this item shall constitute full compensation for performing all other requirements of the item and for all labor, equipment, tools and incidentals necessary to complete this item.

CONNECTIONS TO EXISTING PIPE

At places where the plans provide for proposed pipe to be connected to existing pipe, it shall be the responsibility of the Contractor to locate the existing pipe both as to line and grade before he starts to lay the proposed pipe. The cost of this operation shall be included in the unit price bid for the pertinent 603 conduit item.

ITEM 605 DEEP PIPE UNDERDRAINS

The following quantities have been included in the General Summary to be used as directed by the Engineer.

Item 605	Deep Pipe Underdrain	1000 L.F.
Item 603	6" Conduit Type B with class B bedding	50 L.F.
Item 603	6" Conduit Type F	30 L.F.

Deep Pipe Underdrains shall be a minimum of 50" from the bottom of subbase to the top of pipe.

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 in 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 items of 603 Conduit.

ITEM 604 2-2-B, 2-3, 2-4, & 2-5 CATCH BASINS MODIFIED AS PER PLAN

All 2-2-B, 2-3, 2-4, & 2-5 catch basins modified as per plan in addition to the details shown in the plan shall be modified by the use of a 3/8 inch solid steel plate in place of the grate. Plate shall be provided with a pick hole for removal.

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.

EXCESS EXCAVATION

It is the intent of the plans that all material excavated on the east side of Cross Creek shall be used in construction of the embankment from Sta. 403+00 to Sta. 416+00. If the excavated material is not of sufficient quantity to construct the embankment to the elevation shown in the plan the Contractor shall construct only that embankment as directed by the Engineer.

U.S.G.S. DATUM

All elevations are based on U.S.G.S. DATUM.

TREATED SANITARY FLOW INTO HIGHWAY DRAINAGE SYSTEMS

Treated sanitary flow may be discharged into the highway drainage system provided the owner has secured the approval of the local health authorities and has acquired from the State Highway Department, the official permit to have the connection made.

In each case where a permit has been issued for a sanitary connection to be made into a highway drainage conduit, it shall be provided with an inspection well, in accordance with Standard Drawing MG-8.

The following estimated quantities have been included in the general summary, for use as directed by the Engineer, in making the above described connections:

Item 603, 8" Conduit, Type C with Class B Bedding 400 Lin. Ft.

*Item 604, Standard Inspection Well 4 Each

And necessary bends and branches shall be included for payment in the pertinent conduit item.

None of the above materials shall be ordered by the Contractor until authorized by the Engineer.

*No inspection well is required if effluent is discharged into an open ditch, channel, catch basin or manhole.

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.

ROCK EMBANKMENT AREAS

In the area between Stations 322+60 and 324+25, rock embankment indicated on the plans may be placed by the method of end dumping if surface water is present at the time of construction. End dumping methods may be used up to an elevation two feet above the water level. Above this elevation, embankment construction shall be in accordance with 203.07 to 203.12 inclusive. Where end dumping of rock is permitted, normal clearing and grubbing shall be performed but the requirements of 201.04 for scalping shall be waived.
Payment for the furnishing and placement of rock embankment shall be included in Item 203, Rock Embankment.

Nothing in the above shall be constructed as to preclude the use of rock in embankment in accordance with 203, which is to be paid for as Item 203 Embankment.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

14
516

JEF-22-3.86

TABLE OF CONSTANTS

ITEM 301 (Pavement)

Con.	Cu. Yds./Lin. Ft.
A	0.46296296
B	0.45370370
C	0.23148148
D	(Not Used)
E	0.34259259
F	0.68518518
G	0.79629629
H	1.08791481

ITEM 304 (Shoulders)

Con.	Cu. Yds. / Lin. Ft.
A	0.09876543
B	0.19753086
C	0.07407407
D	0.59259258
E	0.39506172
F	0.19753086
G	0.32098765
H	0.13580246
J	0.06172839
K	0.14814814
L	0.22222222
M	0.29629629
N	0.08641975
U	0.34567900
V	0.27456790
W	0.31012345
Y	0.18942901
Z	0.09066358
AA	0.14004629
BB	0.08334878
CC	0.47762346
DD	0.23070988
EE	0.35416667

ITEM 304 (Pavement)

Con.	Cu.Yds./ Lin. Ft.
P	0.54668211
Q	0.44444444
R	0.64891978
S	0.56057100
T	0.68743830
X	0.36728395
FF	0.49198518
GG	0.69444444
HH	0.59321481
JJ	0.26234567

ITEM 310 (Shoulders)

Con.	Cu. Yds. / Lin. Ft.
A	0.04629629
B	0.10030864
C	0.02777777
D	0.29320986
E	0.19290122
F	0.09259258
G	0.06404321
H	0.00925926
J	0.01851852
K	0.13117283
L	0.11574073
M	0.14660493
N	0.05555554
P	0.03703703
Q	0.10995370
R	1.44444444
S	1.26666666
T	1.51377776
U	0.55822220
V	0.62222220
W	(See Calc.)
X	1.11111110
Y	0.66666666
Z	0.80000000
AA	0.71111110
BB	2.17777777
CC	1.64444444
DD	1.91111110
EE	0.26666666
FF	1.13632000
GG	1.60000000
HH	1.36816000

ITEM 409 (0.3 Gal./Sq.Yd.)

Con.	Gal./Lin. Ft.
A	0.13333333
B	0.26666666
C	0.10000000
D	0.80000000
E	0.53333333
F	0.26666666
G	0.43333333
H	0.18333333
J	0.08333333
K	0.20000000
L	0.30000000
M	0.40000000
N	0.11666666
P	0.31866666
Q	0.41866666
R	0.46666666
S	0.50000000
T	0.20000000

ITEM 402 (Pavement)

Con.	Cu. Yds/Lin. Ft.
A	0.22222222
B	0.20370370
C	0.20486110
D	0.20601851
E	(See Calc.)
F	0.11111111
G	0.05555555
H	0.08333333
J	0.16666666
K	0.19444444
L	0.21507653
M	0.30787036
N	0.26147344

ITEM 404 (Pavement)

Con.	Cu.Yd./Lin. Ft.
A	0.18518518
B	0.09259259
C	(See Calc.)
D	0.09876543
E	(See Calc.)
F	(See Calc.)
G	0.04629629
H	0.06944444
J	0.13888888
K	0.16203703
L	0.09670987
M	0.11779937

ITEM 408 (0.4 Gal./Sq.Yd.)

Con.	Gal./Lin. Ft.
A	0.17777778
B	0.35555555
C	0.13333333
D	1.06666666
E	0.71111110
F	0.35555555
G	0.57777777
H	0.24444444
J	0.11111110
K	0.26666666
L	0.40000000
M	0.53333333
N	0.15555555
P	1.25555555
Q	1.06666666
R	1.44444444
S	1.26666666
T	1.51377776

ITEM 451 (Pavement)

Con.	Sq.Yds./Lin.Ft.
A	5.33333333
B	1.66666667
C	1.88888888
D	2.66666667
E	1.77777778

ITEM 804 (Pavement)

Con.	Sq. Yds./Lin.Ft.
A	6.00000000
B	5.83333333
C	5.66666667
D	3.00000000
E	2.11111111
F	0.16666667

ITEM 804 (Pavement)

Con.	Bbls./Lin.Ft.
A	0.76595744
B	0.74468085
C	0.72340425
D	0.38297872
E	0.26950354
F	0.02127659

ITEM 409 0.008 Cu.Yd./Sq.Yd.

Con.	Cu. Yds./Lin.Ft.
A	0.00355555
B	0.00711111
C	0.00266666
D	0.02133333
E	0.01422222
F	0.00711111
G	0.01155555
H	0.00488888
J	0.00222222
K	0.00533333
L	0.00800000
M	0.01066666
N	0.00311111
P	0.00849776
Q	0.01116444
R	0.01244444
S	0.01333333
T	0.00533333

CALCULATIONS

Station to Station	L.F.	Remarks	203 Subgrade Prep.	301 Bituminous Aggregate Base		304 Aggregate Base		310 Subbase		402 Asphalt Concrete		404 Asphalt Concrete		408 Prime Coat		409 Seal Coat (Bituminous)		409 Seal Coat Cover No. 8 Agg.		451 8" Reinf. Concrete		804 Cement Stabil. Subbase		804 Cement Stabil. Subbase	
Mainline (JEF-22-3.86)			Sq. Yds.	Con.	Cu. Yds.	Con.	Cu. Yds.	Con.	Cu. Yds.	Con.	Cu. Yds.	Con.	Cu. Yds.	Con.	Gal.	Con.	Gal.	Con.	Cu. Yds.	Con.	Sq. Yds.	Con.	Sq. Yds.	Con.	Bbls.
204+00 to 220+00	1,600.00	Normal - 4 Lanes	12,800.00			D	948.15	D	469.14					D	1706.67	D	1280.00	D	34.13	A	8,533.33	A	9,600.00	A	1225.53
220+00 to 225+00	500.00	Rock - 4 Lanes				D	296.30	D	146.60					D	533.33	D	400.00	D	10.67	A	2,666.67	A	3,000.00	A	382.98
225+00 to 227+50	250.00	Normal - 4 Lanes	2,000.00			D	148.15	D	73.30					D	266.67	D	200.00	D	5.33	A	1,333.33	A	1,500.00	A	191.49
227+50 to 239+00	1,150.00	Rock - 4 Lanes				D	681.48	D	337.19					D	1226.67	D	920.00	D	24.53	A	6,133.33	A	6,900.00	A	880.85
239+00 to 244+00	500.00	Normal - 4 Lanes	4,000.00			D	296.30	D	146.60					D	533.33	D	400.00	D	10.67	A	2,666.67	A	3,000.00	A	382.98
244+00 to 246+00	200.00	Rock - 4 Lanes				D	118.52	D	58.64					D	213.33	D	160.00	D	4.27	A	1,066.67	A	1,200.00	A	153.19
246+00 to 254+00	800.00	Normal - 4 Lanes	6,400.00			D	474.07	D	234.57					D	853.33	D	640.00	D	17.07	A	4,266.67	A	4,800.00	A	612.77
254+00 to 260+00	600.00	Rock - 4 Lanes				D	355.56	D	175.93					D	640.00	D	480.00	D	12.80	A	3,200.00	A	3,600.00	A	459.57
260+00 to 280+50	2,050.00	Normal - 4 Lanes	16,400.00			D	1,214.81	D	601.08					D	2,186.67	D	1640.00	D	43.73	A	10,933.33	A	12,300.00	A	1,570.21
280+50 to 286+50	600.00	Rock - 4 Lanes				D	355.56	D	175.93					D	640.00	D	480.00	D	12.80	A	3,200.00	A	3,600.00	A	459.57
286+50 to 291+00	450.00	Normal - 4 Lanes	3,600.00			D	266.67	D	131.94					D	480.00	D	360.00	D	9.60	A	2,400.00	A	2,700.00	A	344.68
291+00 to 292+20	120.00	Rock - 4 Lanes				D	71.11	D	35.19					D	128.00	D	96.00	D	2.56	A	640.00	A	720.00	A	91.91
292+20 to 296+00.26	380.26	Rock - 4 Lanes				E	150.23	E	73.35					E	270.41	E	202.81	E	5.41	A	2,028.05	B	2,218.18	B	283.17
296+00.26 to 296+50	49.74	Rock - 4 Lanes				F	9.83	F	4.61					F	17.69	F	13.26	F	0.35	A	265.28	C	281.86	C	35.98
296+50 to 304+08.50	758.50	Normal - 4 Lanes	4,719.56			F	149.83	F	70.23					F	269.69	F	202.27	F	5.39	A	4,045.33	C	4,298.17	C	548.70
304+08.50 to 305+50.26	141.76	Normal - 4 Lanes	1,008.07			E	56.00	E	27.35					E	100.81	E	75.61	E	2.02	A	756.05	B	826.93	B	105.57
305+50.26 to 310+00	449.74	Normal - 4 Lanes	3,597.92			D	266.51	D	131.87					D	479.72	D	359.79	D	9.59	A	2,398.61	A	2,698.44	A	344.48
310+00 to 314+50	450.00	Rock - 4 Lanes				D	266.67	D	131.94					D	480.00	D	360.00	D	9.60	A	2,400.00	A	2,700.00	A	344.68
314+50 to 320+81.46	631.46	Normal - 4 Lanes	5,051.68			D	374.20	D	185.15					D	673.56	D	505.17	D	13.47	A	3,367.79	A	3,788.76	A	483.67
320+81.46 to 321+57.00	75.54	Normal - 4 Lanes	537.17			E	29.84	E	14.57					E	53.72	E	40.29	E	1.07	A	402.87	B	440.65	B	56.25
321+57.00 to 330+31.46	874.46	Normal - 4 Lanes	5,441.08			F	172.73	F	80.97					F	310.92	F	233.19	F	6.22	A	4,663.79	C	4,955.27	C	632.59
330+31.46 to 333+50	318.54	Normal - 4 Lanes	2,265.17			E	125.84	E	61.45					E	226.52	E	169.89	E	4.53	A	1,698.88	B	1,858.15	B	237.21
333+50 to 345+00	1,150.00	Normal - 4 Lanes	9,200.00			D	681.48	D	337.19					D	1,226.67	D	920.00	D	24.53	A	6,133.33	A	6,900.00	A	880.85
345+00 to 368+00	2,300.00	Rock - 4 Lanes				D	1,362.96	D	674.38					D	2,453.33	D	1,840.00	D	49.07	A	12,266.67	A	13,800.00	A	1,761.70
368+00 to 376+50	44.50	** Normal-4 Lanes	356.00			D	26.37	D	13.05					D	47.47	D	35.60	D	0.95	A	237.33	A	267.00	A	34.09
376+50 to 380+50	400.00	Rock - 4 Lanes				D	237.04	D	117.28					D	426.67	D	320.00	D	8.53	A	2,133.33	A	2,400.00	A	306.38
380+50 to 387+00	653.81	* Rock - 2 Lanes (EB)				M	193.72	M	95.85					M	348.70	M	261.52	M	6.97	D	1,743.49	D	1,961.43	D	250.40
Sub-Totals		→	77,376.65				9,329.93		4,605.35						16,793.88		12,595.38		335.86		91,580.80		102,314.84		13,061.45
Valley View Int.																									
Ramp A																									
4+20 to 9+00	480.93	* Normal	1,175.61			K	71.25	N	26.72					K	128.25	K	96.19	K	2.56	E	854.99	E	1015.30	E	129.61
9+00 to 11+01.88	201.88	Rock				K	29.90	N	11.22					K	53.83	K	40.38	K	1.08	E	358.90	E	426.19	E	54.41
Ramp B																									
12+17.24 to 15+00	281.18	* Rock				K	41.66	N	15.62					K	74.98	K	56.24	K	1.50	E	499.88	E	593.60	E	75.78
15+00 to 21+27.39	627.39	Normal	1,533.62			K	92.95	N	34.85					K	167.30	K	125.48	K	3.35	E	1,115.36	E	1,324.49	E	169.08
Ramp C																									
5+02.45 to 9+50	448.35	* Normal	1,095.98			K	66.42	N	24.91					K	119.56	K	89.67	K	2.39	E	797.07	E	946.52	E	120.83
9+50 to 11+27.40	177.40	Rock				K	26.28	N	9.86					K	47.31	K	35.48	K	0.95	E	315.38	E	374.51	E	47.81
Ramp D																									
12+74.14 to 16+00	325.86	Rock				K	48.28	N	18.10					K	86.90	K	65.17	K	1.74	E	579.31		687.93	E	87.82
16+00 to 21+50	551.42	* Normal	1,347.92			K	81.69	N	30.63					K	147.05	K	110.28	K	2.94	E	980.30		1,164.11	E	148.61
Detail Sheets																									
292+00 to 296+00		from sheet No. 402					73.01		37.08						131.42		101.24		2.70		204.59		266.19		33.97
296+00 to 302+00		from sheet No. 403	2,710.26				236.87		120.28						426.37		320.34		8.55		1,860.13		2,058.10		262.74
302+00 to 306+00		from sheet No. 404	2,036.33				164.08		110.04						295.34		221.50		5.91		1,203.51		1,373.51		175.34
321+00 to 325+00		from sheet No. 405	2,689.19				200.65		124.07						361.15		270.86		7.23		1,685.49		1,889.53		241.21
325+00 to 330+00		from sheet No. 406	2,358.79				197.55		100.32						355.60		266.70		7.11		1,469.79		1,636.48		208.90
330+00 to 333+50		from sheet No. 407	509.70				74.56		37.86						134.20		103.89		2.77		184.94		247.85		31.63
Ramp Int. Details		from sheet No. 408					65.66		25.46						118.21		90.83		2.43		1,230.33		1,373.03		175.29
Sub-Totals		→	15,457.40				1,470.81		727.02						2,647.47		1,994.25		53.21		13,339.88		15,377.34		1,963.05
Exist. U.S.R. 22 Reloc.										E	3.61	C	2.22	W	26.67										
-2+50 to -2+00	50.00	Feathering																							
-2+00 to -1+75	25.00	Normal (2.5+24+25÷9)=	13.61	P	13.67	Q	11.09	C	5.12	B	2.31	P	31.39	A	3.33	A	0.09								
-1+75 to 1+75	350.00	Normal (25+24+25×350÷9)=	1,127.78	Q	155.56	R	167.44	B	71.30	B	32.41	Q	373.33												
1+75 to 2+75	100.00	Normal (24+25×100÷9)=	294.44	P	54.67	Q	44.37	C	20.49	B	9.26	P	125.56	A	1333	A	0.36								
2+75 to 4+00	125.00	Normal (24×125÷9) =	333.33	R	81.11	S	51.12	D	25.75	B	11.57	R	180.56	F	3333	F	0.89								
4+00 to 4+38.68	38.68	Rock		R	25.10	S	15.82	D	7.97	B	3.58	R	55.87	F	10.31	F	0.28								
4+38.68 to 5+21.31	82.63	Rock		S	46.32	S	33.79	D	17.02	B	7.65	P	103.75	A	11.02	A	0.29								
5+21.31 to 7+77.15	255.84	Rock		R	166.02	S	104.63	D	52.71	B	23.69	R	369.55	F	68.22	F	1.82								
7+77.15 to 7+90.16	13.01	Rock		S	7.29	T	5.07	C	2.67	B	1.20	P	16.33	A	1.73	A	0.05								

* Corrected for true radius
** Less Structure

Computed by J.W.W. 10-4-67
Checked by A.W.L. 10-4-67

CALCULATIONS

Station to Station	L.F.	Remarks	203 Subgrade Prep.	301 Bituminous Aggregate Base		304 Aggregate Base		310 Subbase		402 Asphalt Concrete		404 Asphalt Concrete		408 Prime Coat		409 Seal Coat (Bituminous)		409 Seal Coat Cover No. 8 Agg.		451 8" Reinf. Concrete		804 Cement Stabil. Subbase		804 Cement Stabil. Subbase	
Exist. U.S.R. 22 Reloc. (Continued)			Sq. Yds.	Con.	Cu. Yds.	Con.	Cu. Yds.	Con.	Cu. Yds.	Con.	Cu. Yds.	Con.	Cu. Yds.	Con.	Gal.	Con.	Gal.	Con.	Cu. Yds.	Con.	Sq. Yds.	Con.	Sq. Yds.	Con.	Bbls.
7+90.16 to 9+13.29	123.13	Rock				Q	54.72	U	45.60	B	25.08	B	11.40	Q	131.34										
9+13.29 to 9+21.91	8.62	Rock				S	4.83	T	3.36	C	1.77	B	0.80	P	10.82	A	1.15	A	0.03						
9+21.91 to 9+96.25	74.34	Rock				R	48.24	S	30.40	D	15.32	B	6.88	S	94.16	F	19.82	F	0.53						
9+96.25 to 10+09.25	13.00	Rock				T	8.94	S	5.32	D	2.68	B	1.20	T	19.68	P	4.14	P	0.11						
10+09.25 to 10+21.25	12.00	Rock				W	3.72							U	6.70	Q	5.02	Q	0.13						
10+21.25 to 10+34.25	13.00	Rock				U	4.49							V	8.09	R	6.07	R	0.16						
12+35.75 to 12+48.75	13.00	Rock				U	4.49							V	8.09	R	6.07	R	0.16						
12+48.75 to 12+60.75	12.00	Rock				W	3.72							U	6.70	Q	5.02	Q	0.13						
12+60.75 to 12+73.75	13.00	Rock				T	8.94	S	5.32	D	2.68	B	1.20	T	19.68	P	4.14	P	0.11						
12+73.75 to 13+39.28	65.53	Rock				R	42.52	S	26.80	D	13.50	B	6.07	R	94.65	F	17.47	F	0.47						
13+39.28 to 13+51.61	12.33	Rock				S	6.91	T	4.80	C	2.54	B	1.14	P	15.48	A	1.64	A	0.04						
13+51.61 to 14+82.62	131.01	Rock				Q	58.23	U	48.52	B	26.69	B	12.13	Q	139.74										
14+82.62 to 14+83.00	0.38	Rock				S	0.21	T	0.15	C	0.08	B	0.04	P	0.48	A	0.05	A	0.01						
14+83 to 16+20	137.00	Rock				R	88.90	S	56.03	D	28.22	B	12.69	R	197.89	F	36.53	F	0.97						
16+20 to 16+76	56.00	Rock				S	31.39	S	22.90	D	11.54	B	5.19	P	70.31	A	7.45	A	0.20						
16+76 to 19+00	224.00	Rock				R	145.36	S	91.60	D	46.15	B	20.74	R	323.56	F	59.73	F	1.59						
19+00 to 23+59	459.00	Normal (24×459÷9) =	1,224.00			R	297.85	S	187.71	D	94.56	B	42.50	R	663.00	F	122.40	F	3.26						
23+59 to 24+09	50.00	Normal (24×50÷9) =	133.33			S	28.03	S	20.45	D	10.30	B	4.63	P	62.78	A	6.67	A	0.18						
24+09 to 24+12.12	3.12	Normal (24×3.12÷9) =	8.33			R	2.02	S	1.28	D	0.64	B	0.29	R	4.51	F	0.83	F	0.02						
24+12.12 to 25+17.59	105.47	Normal (24×105.47÷9) =	281.25			S	59.12	S	43.13	D	21.72	B	9.76	P	132.42	A	14.06	A	0.38						
25+17.59 to 25+22.57	4.98	Normal (24×4.98÷9) =	13.28			Q	2.21	S	2.04	D	1.03	B	0.46	Q	5.31										
25+22.57 to 25+92.12	69.55	Normal (24×69.55÷9) =	185.47			S	38.99	S	28.44	D	14.33	B	6.44	P	87.32	A	9.27	A	0.25						
25+92.12 to 28+50.00	257.88	Normal (24×257.88÷9) =	687.68			R	167.34	S	105.46	D	53.13	B	23.88	R	372.49	F	68.77	F	1.83						
28+50 to 29+00	50.00	Feathering								E	3.61	C	2.22	W	26.67										
Sub Totals		→	4,362.50				1,660.91		1,162.64		582.21		263.55		3,784.88		537.57		14.34						
(Service Road)																									
0+12 to 0+46.23	34.23	Rock (See Calculations)					33.61						6.43		64.31		13.50		0.36						
0+46.23 to 1+00	53.77	Rock				X	19.75					D	5.31	AA	38.24										
1+00 to 4+55	355.00	Normal (16×355÷9) =	631.11			X	130.39					D	33.06	AA	252.44										
Sub Totals		→	631.11				183.74						44.80		354.99		13.50		0.36						
Private Drives																									
0+12 to 0+32	20.00	Rock					11.42						4.44												
0+32 to 2+54.42	222.42	Rock				JJ	58.35					D	21.97												
2+54.42 to 2+98.63	44.21	Rock					17.83						6.79												
0+00 to 0+55.53	55.53						13.32						5.25												
Sub Totals		→					100.92						38.45												
Donna Drive		See Calculations	205.04				42.95						11.39		108.06		19.53		0.52						
Alley & Pvt. Drive		See Calculations	251.44				36.24						13.97												
Twp Rd. 214 (Cul-de-sacs)		See Sheet No. 307					138.00																		
Jonet Dr. (Cul-de-sac)		See Sheet No. 35	709.57				137.97						39.42		55.37										
Median Cross Over		See Sheet No. 9	274.11				60.91		45.68						109.64		82.23		2.19						
Median Cross Over		See Sheet No. 10	274.11				60.91		45.68						109.64		82.23		2.19						
Sub-Totals		→	1714.27				476.98		91.36				64.78		382.71		183.99		4.90						
Exist. U.S.R. 22 Temp. Conn. and Approach		See Sheet No. 414	11,539.46		1676.84		1244.73		1890.81		570.32		421.31		2543.03		1,291.54		34.43						

SUMMARY

JEF-22-3.86	from sheet No. 14	✳77,376.65		9,329.93	4,605.35				16,793.88	12,595.38	335.86	91,580.80	102,314.84	13,061.45			
Valley View Int.	from sheet No. 14	✳15,457.40		1,470.81	72.02				2,647.47	1,994.25	53.21	13,339.83	15,377.34	1,963.03			
Exist. U.S.R. 22 Reloc.		4,362.50		1,660.91	1,162.64	582.21	263.55	3,784.88	537.57	14.34							
Service Road		631.11		183.74			44.80	354.99	13.50	0.36							
Private Drive				100.92			38.45										
Exist. U.S.R. 22 Temp. Conn.		11,539.46	1,676.84	1,244.73	1,890.81	570.32	421.31	2543.03	1,291.54	34.43							
Drives, (Cul-de-sacs)		1,714.27		476.98	91.36		64.78	382.71	183.99	4.90							
GRAND TOTAL	→	111,081.39	1,676.84	14,468.02	8477.18	1152.53	832.89	26,506.96	16,616.23	443.10	104,920.63	117,692.18	15,024.48	✳✳			

✳ Proof Rolling

✳✳ Conversion Factor for Item 804 Cement Stabilized Subbase
= 15,024.48 × 282 ÷ 376 = 11,268.36 bbls.
to General Summary

Computed By J.W.W. 10-4-67
Checked By A.W.L. 10-4-67

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

16/516

JEF-22-3.86

203 EARTHWORK & PROTECTION QUANTITIES

Station From	Station To	Excavation Cu. yds.	Embankment Cu. Yds.	Area of Protection Sq. Yds.
204+00	210+00	58,859	2,170	10,675
210+00	220+00	55,878	12,210	15,819
220+00	230+00	151,756	4,090	19,749
230+00	240+00	456,285		30,323
240+00	250+00	42,910	211,172	26,967
250+00	260+00	249,484	74,054	27,380
260+00	270+00	33,585	78,840	20,015
270+00	280+00	6,483	442,784	35,887
280+00	290+00	222,106	56,027	27,023
290+00	300+00	179,656	113,035	26,685
300+00	310+00	4,334	598,836	23,151
310+00	320+00	118,558	30,438	7,988
320+00	330+00	1,989	216,962	21,442
330+00	340+00	9,031	507,559	37,228
340+00	350+00	79,768	158,104	23,048
350+00	360+00	376,267		22,250
360+00	370+00	458,829		23,820
370+00	380+00	155,631	742	17,310
380+00	390+00	1,019,529	2,051	36,614
390+00	400+00	5,519	526,515	39,999
400+00	410+00	1,938	546,354	28,937
410+00	416+00	241	48,948	3,816
Temporary Connection				
390+00	400+00	1,241	3,136	2,376
400+00	403+00	484	8,920	3,653
Total JEF-22-3.86		3,690,361	3,642,947	532,155
Township Road 214				
Cul-de-sacs		584	60	840
Highland Park Service Rd.		269	454	1,394
Exist. U.S.R. 22 Relocation				
-10+00	0+00	546	140	988
0+00	10+00	71,230		9,908
10+00	20+00	115,201	11	11,256
20+00	30+00	4,030	3,610	8,234
Exist. U.S.R. 22 Service Rd.		10,763	443	3,756
Private Drive		25,744		3,763
Exist. U.S.R. 22 Approach		19	3,871	2,856
Total Sideroads		228,386	8,589	42,995
Valley View Interchange				
Ramp A				
2+20	11+50	54,987	102,432	17,884
Ramp B				
11+85	22+50	90,084	15,292	18,149
Ramp C				
3+81	11+50	28,319	82,571	13,971
Ramp D				
12+00	23+50	107,662	41,048	19,609
Total Ramps		281,052	241,343	69,613
Grand Totals		4,199,799	3,892,879	644,763

611 APPROACH SLABS

Bridge No. and Location	Concrete Sq. Yds.	310 Cu. Yds.
JEF-22-0590 Under Exist. U.S.R. 22 Reloc.	133.33	22.22
JEF.-22-0707L Over Cross Creek	133.33	22.22
JEF-22-0707R Over Cross Creek	133.33	22.22
Grand Total	399.99	66.66

203 PROOF ROLLING (2,000/hr.)

Location	Hrs.
(from sheet No. 15) 92,834 S.Y	46.42
Total Proof Rolling	46.42

203 SUBGRADE PREPARATION

Location	Sq. Yds
See sheet No. 15 (Summary)	111,081.39
Item 611 Approach Slabs	400.00
Total Subgrade Preparation	111,481.39

605 AGGREGATE DRAINS

Lin. ft. x Avg. Length / (25' 30' or 60')	L.F.
Mainline 33,760 ÷ 2 x 16.18 ÷ 30 =	9,103.95
Ramps 3,996.47 x 16.63 ÷ 60 =	1,107.69
Ex. U.S.R. 22 Reloc. 2,323.50 x 13.30 ÷ 25 =	1,236.10
Ex. U.S.R. 22 Approach 403.16 x 13.59 ÷ 25 =	219.16
Ex. U.S.R. 22 Temp. Conn. 3005.04 ÷ 2 x 17.5 ÷ 25	1,051.76
Total	12,718.66

616 WATER

Dust Control	M/G
See sheet No. 15 (Summary)	
110,910.24 x 1/4 ÷ 1000 =	27.73
Maintaining Traffic (See sheet No. 3)	11.00
Total Water	38.73

616 CALCIUM CHLORIDE

Dust Control	Tons
38.73 x 1000 x 0.0024 =	92.95
Maintaining Traffic (See sheet No. 3)	27.00
Total Calcium Chloride	119.95

612 CONCRETE MEDIANS
609 CONCRETE CURBS

JEF-22-3.86	Concrete Median Sq.Yds.	Concrete Curb Type 6 L.F.	Type 7 L.F.	Type 8 L.F.
from sheet No. 404	31.81	120	118	188
from sheet No. 405	35.24	112	139	190
Grand Totals	67.05	232	257	378

604 LOCATION AND TYPE OF MONUMENT TO BE SET ON CENTERLINE DURING CONSTRUCTION

Concrete Monument JEF-22-3.86	Monument Assembly Exist. U.S.R. 22 Reloc.
P.O.C. Sta. 208+00	P.O.T. Sta. (-12+00
P.O.C. Sta. 214+00	T.S. Sta. 2+24.95
P.O.C. Sta. 219+00	S.C. Sta. 4+24.95
P.O.C. Sta. 225+00	C.S. Sta. 5+54.83
P.O.C. Sta. 230+00	S.T. Sta. 7+54.83
P.O.C. Sta. 235+00	P.O.T. Sta. 13+00
P.T. Sta. 240+67.42	T.S. Sta. 16+99.53
P.O.T. Sta. 246+00	S.C. Sta. 18+99.53
P.O.T. Sta. 252+00	C.S. Sta. 24+27.03
P.O.T. Sta. 258+00	S.T. Sta. 26+27.03
P.O.T. Sta. 264+00	P.O.T. Sta. 28+00
P.O.T. Sta. 270+00	
P.O.T. Sta. 275+00	
P.O.T. Sta. 280+00	
T.S. Sta. 284+73.56	
S.C. Sta. 288+73.56	
P.O.C. Sta. 295+00	
C.S. Sta. 300+52.99	
S.T. Sta. 304+52.99	
P.O.T. Sta. 309+00	
P.O.T. Sta. 313+00	
P.C. Sta. 317+66.14	
P.O.C. Sta. 324+00	
P.O.C. Sta. 330+00	
P.O.C. Sta. 336+00	
P.T. Sta. 342+10.97	
P.O.T. Sta. 348+00	
P.O.T. Sta. 354+00	
P.O.T. Sta. 357+00 (2)	
P.O.T. Sta. 363+00 (2)	
P.O.T. Sta. 368+40	
P.O.T. Sta. 376+15	
P.C. Sta. 382+35.09	
Total 35	Total 11

659 SEEDING AND MULCHING

Area Seeding - M/L, Ramps & Sideroads	Sq. Yds.	Sq. Yds.
Total Area of Protection		644,763
Total Dumped Rock Channel Protection	11,355	
Total Riprap	475	
Total Sodding 5,983+81 =	6,064	
Total Paved Gutter	236	
Less Total Erosion Control	18,130	-18,130
Total Seeding & Mulching		626,633

659 COMMERCIAL FERTILIZER (12-12-12)

* Area Seeding - M/L, Ramps & Sideroads	Tons
626633 + 6064 = 632,697	
Vol = (632,697 x 20 x 9) ÷ (1000 x 2000) =	56.94
Total Commercial Fertilizer	56.94

659 AGRICULTURAL LIMING

* Area Seeding - M/L, Ramps & Sideroads	Tons
Vol = (632,697 x 100 x 9) ÷ (1000 x 2000) =	284.71
Total Agricultural Liming	284.71

* Plus sodding

Sheet No.	607 Fence Type 47 Lin. Ft.	607 Fence Type CL Lin. Ft.	601 Dumped Rock Channel Protection Cu. Yds.
494	3210		28
495	1898		14
496	2658		7
497	3092		14
498	3179		14
499	3168		14
500	2641	613	
501	1401	1943	
508	1827		
509	1826		
Totals	24,900	2,556	91

Computed By J.W.W. 10-4-67
Checked By A.W.L. 10-4-67

CALCULATIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

17 / 516

JEF - 22 - 3.86

GENERAL SUMMARY

Item	Sheet Number																																						Total Quantity	Item	Unit	DESCRIPTION
	3	12	16	20	21	22	23	24	25	27	28	29	30	32	34	35	36	38	40	42	44	46	48	50	307	310	318	319	320	322	350	39	310-A	361		409	426	434				ROADWAY
Special													1			1		1																					3	Special	each	drilled well abandoned
Special													1			1	1	1													3								7	Special	each	cleaning and disposing of septic tank
201		lump																																					lump	201	lump	clearing and grubbing
202																													4050	3575						275			1037.5	202	lin. ft.	guard rail removed for storage
202																											1400	2030	1226	700									5356	202	sq.yds.	existing pavement removed and disposed of
202																												65	24										89	202	lin. ft.	pipe removed, 18" and under
203			111,482																														165						111,647	203	sq.yds.	subgrade preparation
203			4199799																														29					1741	4,201,569	203	cu.yds.	excavation not including embankment construction,
																																										as per plan.
203			3892879																														64						3,892,943	203	cu.yds.	embankment
203																409																							409	203	cu.yds.	rock embankment
203			46																																				46	203	hrs.	proof rolling
410	331																																						331	410	cu.yds.	traffic compacted surface, type A or B
410	1025																																						1,025	410	cu.yds.	traffic compacted surface, type C
604			11																																				11	604	each	standard monument assembly
604			35																																				35	604	each	standard centerline reference monument
606																												350	324.91	375.09	237.50								1,287.5	606	lin. ft.	guard rail, type 4, modification A as per plan
606															50				62.50	62.50																			175	606	lin. ft.	guard rail, type 4, barrier design, modified as per plan
606				150.00	300.00		25.24	1262.26	675.00	950.00	1850.00	408.42	906.10	618.28	825.00	1050.49	1665.85	1027.92	225.00	225.00		642.26												1697.94		395.24			14,900	606	lin. ft.	guard rail, type 4, modified as per plan
606																4	1			5	5				6	5			21	6									53	606	each	guard post
607			24900																																				24,900	607	lin. ft.	fence, type 47
607			2556																																				2,556	607	lin. ft.	fence, type CL
615																											895	2202	138										3,235	615	sq.yds.	class A temporary pavement
615																											lump	lump	lump										lump	615	lump	temporary roads
616			120																																				120	616	tons	calcium chloride
616			39																																				39	616	m/gals.	water
																																										EROSION CONTROL
601																						42	300																342	601	lin.ft.	paved gutter, standard type 4
601																																				147			147	601	lin.ft.	paved gutter, standard type I-2
601			91		168	103	2	417	15	337	567	137	179	266		420	636	110	144	384		825		445	60				32	3				672			2	53	6,068	601	cu.yds.	dumped rock channel protection
601					33	26		44		25	48	13		23			30	24		116				82						11									475	601	sq.yds.	riprap, using 6" reinforced concrete slab, as per plan
601																																										
659			284.71																																				284.71	659	tons	agricultural liming
659			56.94																																				56.94	659	tons	commercial fertilizer (12-12-12)
659			626,633																														99						626,732	659	sq.yds.	seeding and mulching
660				405	496	100	200	125	100	299	100	138	100	400	601	700	403	145	265	65	100	94		69			18		227		50	235		548					5,983	660	sq.yds	sodding
660																												81											81	660	sq.yds.	sodding for special berm & slope protection, as per plan

GENERAL SUMMARY

ITEM	SHEET NUMBER																											TOTAL QUANTITY	ITEM	UNIT	DESCRIPTION
	12	13	16	21	22	23	24	25	27	28	29	30	32	35	36	38	39	40	42	46	50	318	320	322	361	426	434				
																															DRAINAGE
602				4.4	2.3	0.3	6.9	0.2	2.4	7.6	1.2	0.2	6.4	0.2	5.4	8.4		0.3	2.3	0.3	8.8			0.6	0.9	0.3		59.4	602	cu. yds.	concrete masonry
603																						54						54	603	lin.ft.	15" conduit, type A with class B bedding, 706.01, 706.02 or 706.08
603																								45				45	603	lin. ft.	18" conduit, type A 706.01, 706.02 or 706.08 with class B bedding
603																				226								226	603	lin. ft.	18" conduit, type A 707.05 with class B bedding
603											18								72									90	603	lin. ft.	30" conduit, type A 707.05 with class B bedding
603											355																	355	603	lin. ft.	30" conduit, type A 707.05 10 gage with class B bedding
603									294																			294	603	lin. ft.	30" conduit, type A 707.05 12 gage with class B bedding
603				196																								196	603	lin. ft.	36" conduit, type A 706.02 or 706.08 with class B bedding
603					244																							244	603	lin. ft	36" conduit, type A 707.05 with class B bedding
603										504																		504	603	lin. ft.	36" conduit, type A 707.05 8 gage with double riveted longitudinal seams with class B bedding
603				234																								234	603	lin. ft.	36" conduit, type A 707.05 10 gage with class B bedding
603																17												17	603	lin. ft.	42" conduit, type A with class B bedding
603										501						428												929	603	lin. ft.	42" conduit, type A 707.05 8gage, shop elongated and shop strutted with class B bedding
603										59																		59	603	lin. ft.	48" conduit, type A with class B bedding, 707.05 10 gage
603							844																					844	603	lin. ft.	48" conduit, type A 707.05 8gage, shop elongated and shop strutted with class B bedding
603													688															688	603	lin. ft.	60" conduit, type A 707.03 1 gage, shop elongated with class B bedding, as per plan
603															518													518	603	lin. ft.	60" conduit, type A 707.03 3-1 gage, with class B bedding
603																					372							372	603	lin. ft.	84" conduit, type A 707.03 7-5 gage, with class B bedding
603		50																										50	603	lin. ft.	6" conduit, type B with class B bedding
603				92	82		98	80	78	60	69	97		65	86	103									322	119		1,351	603	lin. ft.	12" conduit, type B with class B bedding
603						82			58				130					79							87			436	603	lin. ft.	15" conduit, type B with class B bedding
603																			87						64	47		198	603	lin. ft.	18" conduit, type B with class B bedding
603															398													398	603	lin ft.	10" conduit, type C with class B bedding, 706.08, with compression joints
603		400																										400	603	lin. ft.	8" conduit, type C with class B bedding
603						300			100						200		300									107		1007	603	lin. ft.	12" conduit, type C with class B bedding
603																							56					56	603	lin. ft.	12" conduit, type D, 707.01 or 707.02 14 gage
603																							120	11				131	603	lin. ft.	12" conduit, type D
603																							50	82				132	603	lin. ft.	15" conduit, type D, 707.01 or 707.02 14 gage
603																							138					138	603	lin. ft.	12" conduit, type E 706.01 E.S., 706.02 Class III or 706.08 E.S.
603																	200	805										1,005	603	lin. ft.	15" conduit, type C with class B bedding
603																			360									360	603	lin. ft.	18" conduit, type C with class B bedding
603		30																										30	603	lin. ft.	6" conduit, type F
603				69						38				86														193	603	lin. ft.	12" conduit, type F
603									64																161			225	603	lin. ft.	15" conduit, type F
603																				63						78		141	603	lin. ft.	18" conduit, type F
604		4																										4	604	each	standard inspection well
604																		1	1									2	604	each	standard no. 2-2-B catch basin
604																								1				1	604	each	standard no. 2-2-B catch basin, modified as per plan
604													2													1		3	604	each	standard no. 5 catch basin
604																									4	1		5	604	each	standard no. 6 catch basin, modified as per plan
604				2	1	2	1	1	3	1	1	1	1	1	2	1	2	3	2						1	1		27	604	each	standard no. 8 catch basin
604											1																	1	604	each	standard no. 2-3 catch basin, modified as per plan
604																1												1	604	each	standard no. 2-4 catch basin, modified as per plan
604										1																		1	604	each	standard no. 2-5 reinforced concrete catch basin, modified as per plan
604															3													3	604	each	standard no. 1 manhole
605													174	180														354	605	lin. ft.	6" shallow pipe underdrains
605	400																											400	605	lin. ft.	6" unclassified pipe underdrains, 707.06 or 707.12, as per plan
605		1000																										1,000	605	lin. ft.	6" deep pipe underdrains, as per plan
605			12719																									12,719	605	lin. ft.	aggregate drains
605	40																											40	605	lin. ft.	aggregate drains for springs, as per plan
503																											721	721	503	cu. yds.	unclassified excavation
509																											304452	304,452	509	lbs.	reinforcing steel
511																											1916	1,916	511	cu. yds.	class C concrete
513																											2094	2,094	513	lbs.	structural steel

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

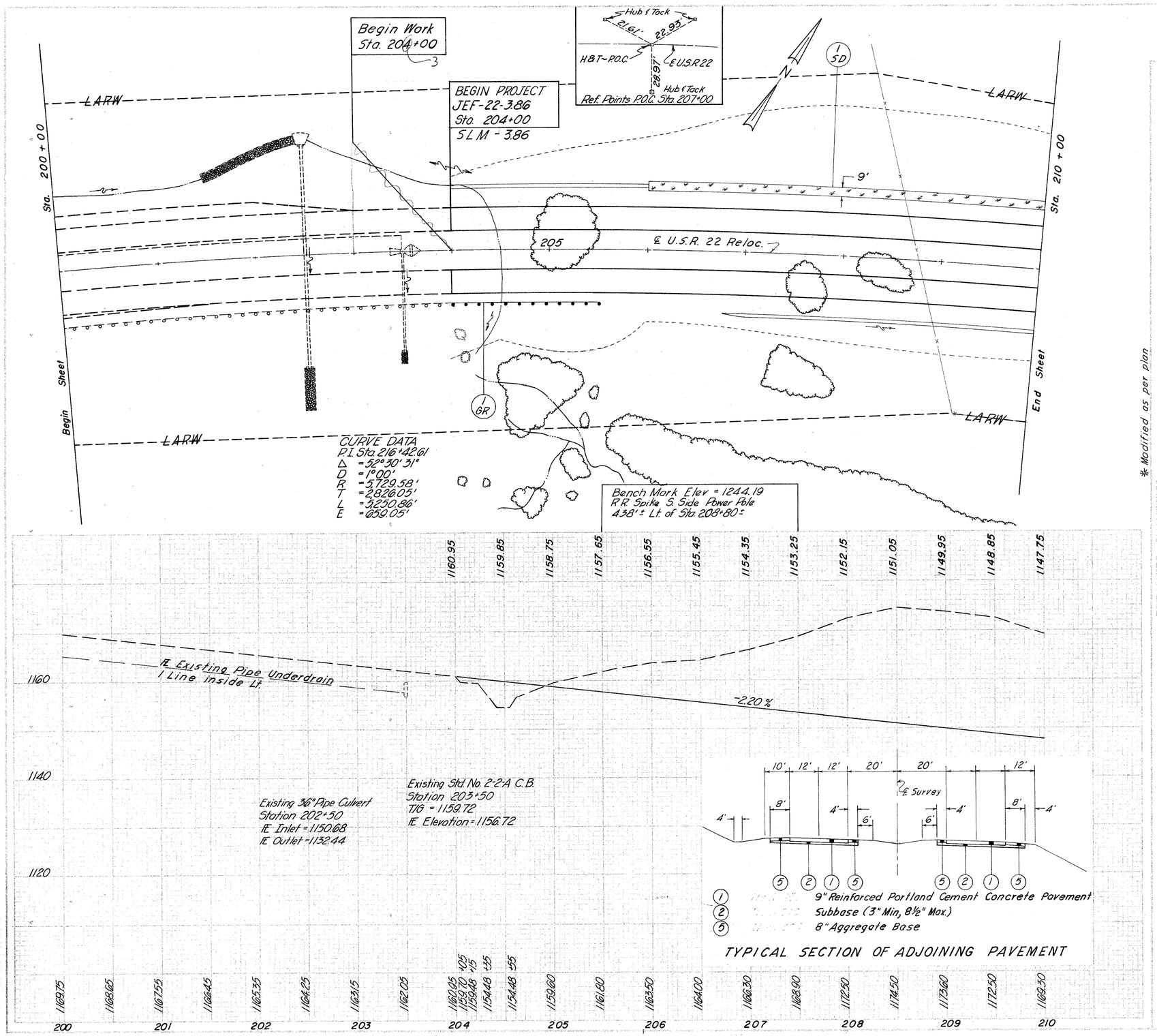
JEF-22-3.86

19
516

GENERAL SUMMARY

Item	Sheet Number												Total Quantity	Item	Unit	Description
	2	12	15	16	310	310A	318	320	322		350					PAVEMENT
301			1,677										1677	301	cu.yds.	bituminous aggregate base, 702.01 (85-100) or 702.09, RT-10
304			14,468		92	32	33	50	22		15		14,712	304	cu.yds.	aggregate base
310			8,477	67									8,544	310	cu.yds.	subbase
402			1,153										1,153	402	cu.yds.	asphalt concrete (70-85)
404			833		26	9	12	6	9		6		901	404	cu.yds.	asphalt concrete (70-85)
408			26,507										26,507	408	gal.	bituminous prime coat; 702.09, Rt-2 or Rt-3
409			443										443	409	cu.yds.	seal coat cover aggregate no.8
409			16,616										16,616	409	gal.	seal coat bituminous material; 702.09, Rt-9 or Rt-10; or 702.02, MC-800 or MC-3000
451			104,921										104,921	451	sq.yds.	8" reinforced portland cement concrete pavement
609							820						820	609	lin.ft.	combination curb and gutter, standard type 2
609				232									232	609	lin.ft.	concrete curb, standard type 6
609				257									257	609	lin.ft.	concrete curb, standard type 7
609				378									378	609	lin.ft.	concrete curb, standard type 8
611				400									400	611	sq.yds.	reinforced concrete approach slabs (T=13")
612				67									67	612	sq.yds.	concrete median
804			117,692										117,692	804	sq.yds.	6" cement stabilized subbase
804			11,268										11,268	804	bbls.	portland cement
																BUILDING REMOVAL
202													lump	lump	202	parcel 60-WL, removal of one 1 story frame residence
202													lump	lump	202	parcel 62-AWL, removal of one 1 story frame residence
202													lump	lump	202	parcel 63-WL, removal of one 1 story concrete block building, one frame building
202													lump	lump	202	parcel 63-AWL, removal of one frame motel
202													lump	lump	202	parcel 66-WL, removal of one frame shed
202													lump	lump	202	parcel 83-WL, removal of one 1 story frame residence
202													lump	lump	202	parcel 90-WL, removal of one 1 story frame residence
																traffic control devices, see sheet no. 470
614	lump												lump	614	lump	maintaining traffic
		lump											lump		lump	field office
		lump											lump		lump	construction layout stakes
																STRUCTURES OVER 20' SPAN For Estimated Quantities
																BR. NO. JEF-22-0590, see sheet no. 440
																BR. NO. JEF-22-0707R, see sheet no. 448
																BR. NO. JEF-22-0707L, see sheet no. 447

JEF-22-3.86



* Modified as per plan

ESTIMATED QUANTITIES

ITEM NO.	STATION TO STATION	SIZE		
			660 Sodding	S.Y.
			606 Guard Rail Type 4 *	L.F.
1GR	ROADWAY 204+00 to 205+51.43	Rt.	150.00	
				405
1SD	DRAINAGE 206+00 to 210+00	Lt.		150.00

Sta. 204+00 to Sta. 210+00

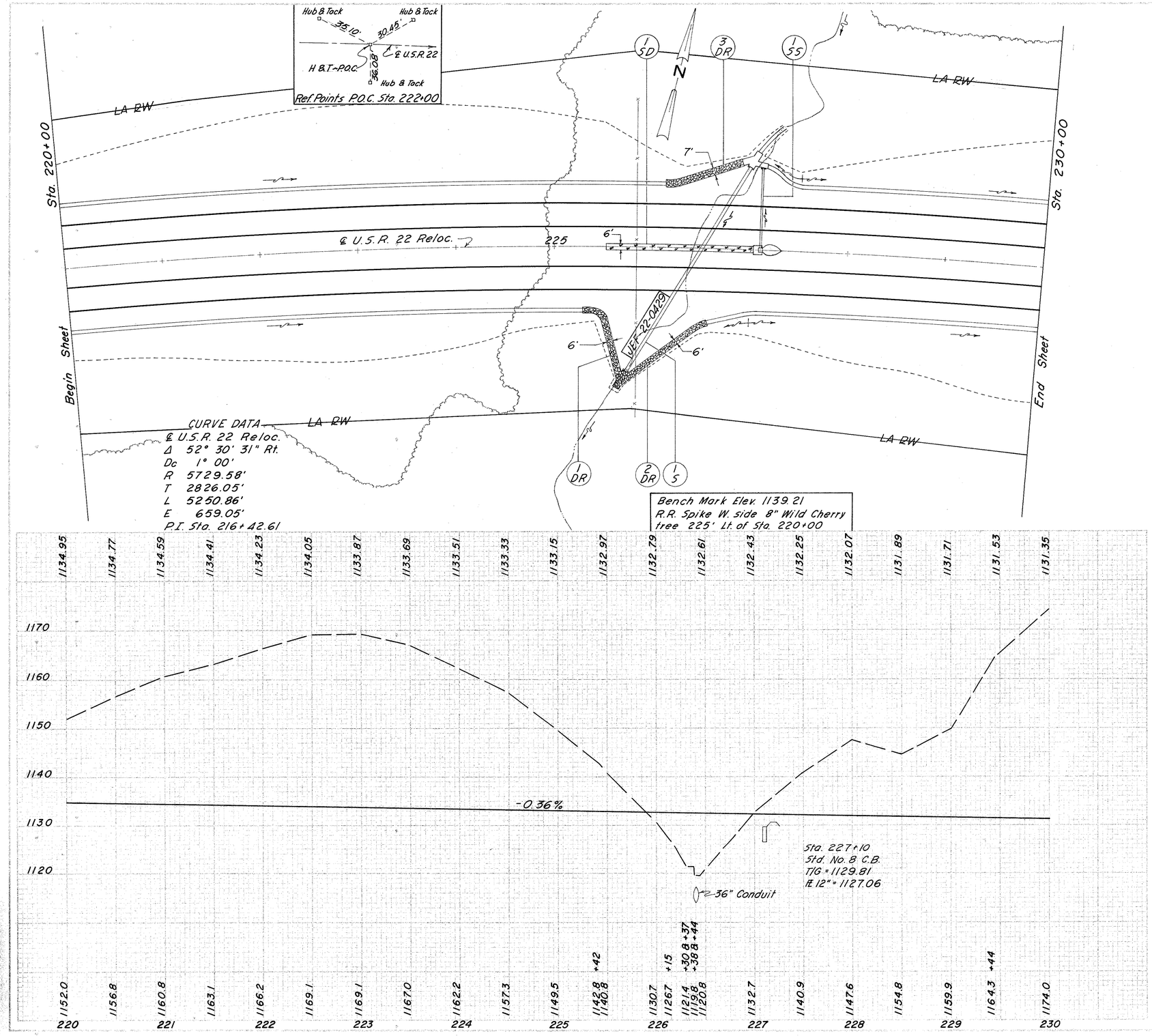
* Modified as per plan

ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	601 Dumped Rock Channel Prot. C.Y.	601 6" Reinf. Concrete Riprap S.Y.	602 Concrete Masonry C.Y.	603 Conduit With Class B Bedding Type B 12" L.F.	603 Type A 706.02 or 706.08 36" L.F.	603 Type A 707.05 10 Ga. 36" L.F.	603 Type F 12" L.F.	604 Std. No. 8 Catch Basin Ea.	606 Guard Rail Type A * L.F.	660 Sodding S.Y.	Bends and Branches 12"	Ref. Sheet No.
	ROADWAY													
1GR	217+50 to 219+01.43	Rt.									150.00			
2GR	218+00 to 219+48.60	Lt.									150.00			
	DRAINAGE													
1SS	213+00	Lt.				34				1				62
2SS	218+60	℄	2		0.2	58			69	1			2	68
1SD	210+78 to 212+93	℄										143		
2SD	217+03 to 218+53	℄										100		
3SD	210+00 to 212+50	Lt.										253		
1DR	212+50 to 213+08	Lt.	28											
2DR	217+56 to 218+38	Lt.	44											
3DR	212+47 to 213+50	Rt.	37											
4DR	217+60 to 218+43	Rt.	35											
5DR	218+49 to 218+57	Rt.	3											
	Structures 20' & Under													
1S	213+33	℄	8	16	2.1		196							415
2S	218+47	℄	11	17	2.1			234						416
			168	33	4.4	92	196	234	69	2	300	496		

Sta. 210 + 00 to Sta. 220 + 00

JEF - 22 - 3.86

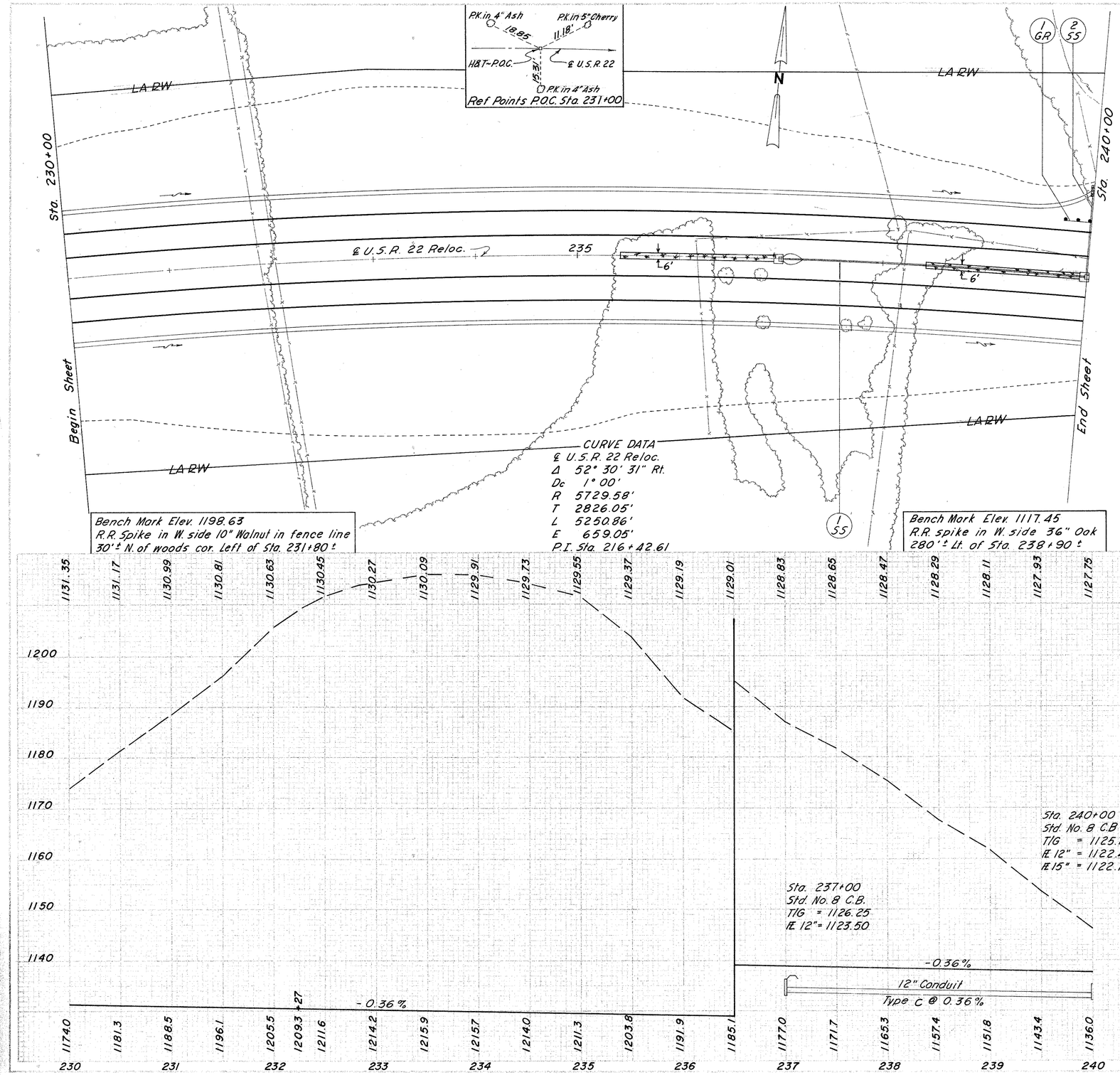


ESTIMATED QUANTITIES

Rev. No.	Station to Station	Side	601 Dumped Rock Channel Prot. C.Y.	601 6" Reinf. Concrete Riprap S.Y.	602 Concrete Masonry C.Y.	603 Conduit with class B bedding Type A 707.05 36" L.F.	603 Conduit with class B bedding Type B 12" L.F.	604 Std. No. 8 Catch Basin Ea.	660 Sodding S.Y.	See Sheet No.
	DRAINAGE									
1SS	227+10	℄			0.2		82	1		73
1SD	225+53 to 227+03	℄							100	
1DR	225+29 to 225+67	Rt.	28							
2DR	225+73 to 226+57	Rt.	33							
3DR	226+12 to 226+90	Lt.	32							
	Structures 20' & Under									
1S	226+50		10	26	2.1	244				417
			103	26	2.3	244	82	1	100	

Sta. 220 + 00 to Sta. 230 + 00

JEF-22-3.86



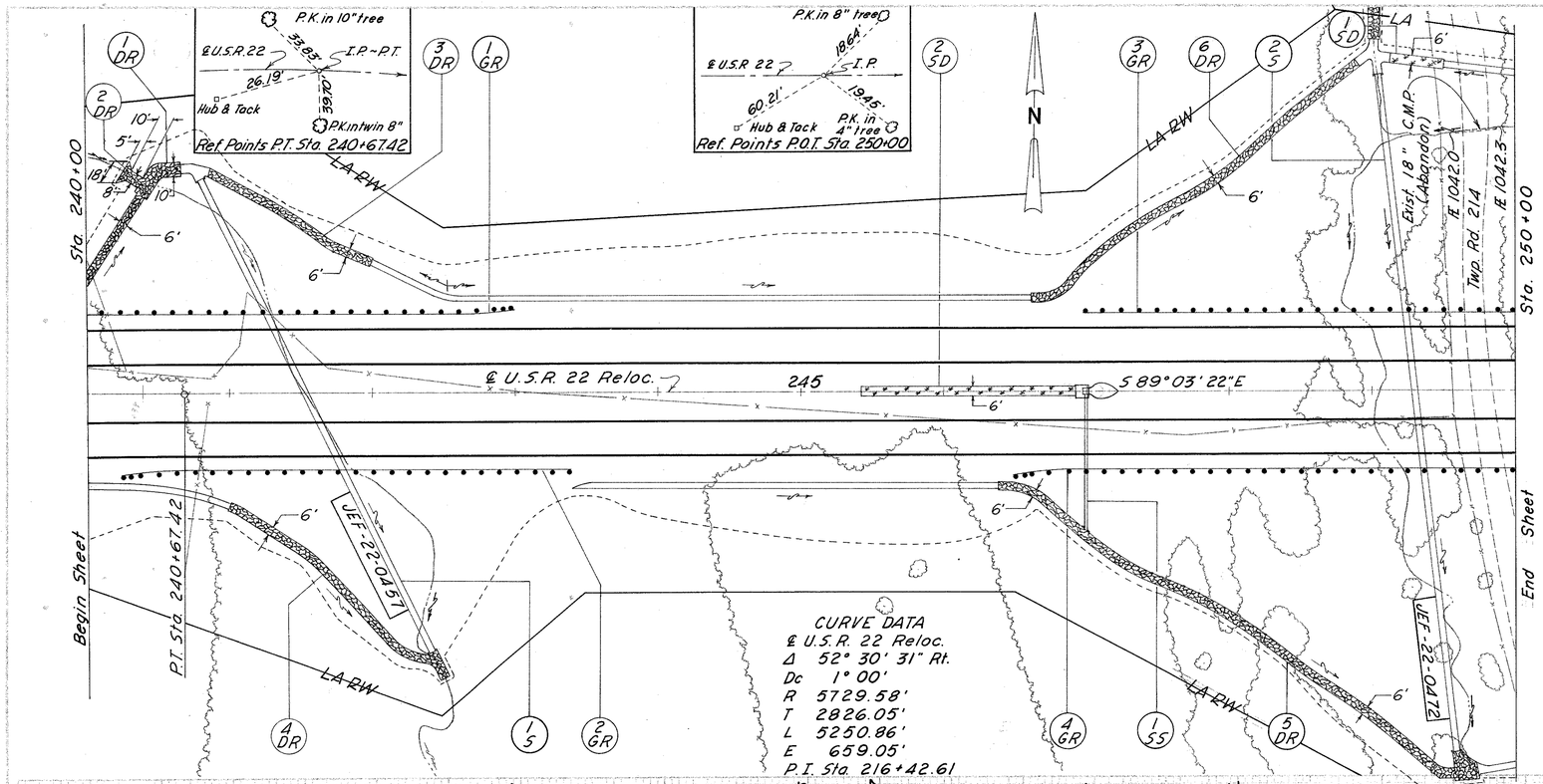
† Modified as per plan

* With class B bedding

ESTIMATED QUANTITIES

	602 Concrete Masonry C.Y.	603 Conduit Type B * 15" L.F.	603 Conduit Type C * 12" L.F.	601 Dumped Rock Channel Prot. C.Y.	604 Std. No. 8 Catch Basin Ea.	606 Guard Rail Type 4 † L.F.	660 SODDING S.Y.	SEE SHEET NO.
ROADWAY 1GR 239+75 to 240+00 Lt.						25.24		
DRAINAGE 1SS 237+00 to 240+00 ℄			300		1		100	86
2SS 240+00 ℄-Lt.	0.3	82		2	1		100	88
Sta. 230+00 to Sta. 240+00	0.3	82	300	2	2	25.24	200	

JEF-22-3.86



CURVE DATA
℄ U.S.R. 22 Reloc.
Δ 52° 30' 31" Rt.
Dc 1° 00'
R 5729.58'
T 2826.05'
L 5250.86'
E 659.05'
P.I. Sta. 216+42.61

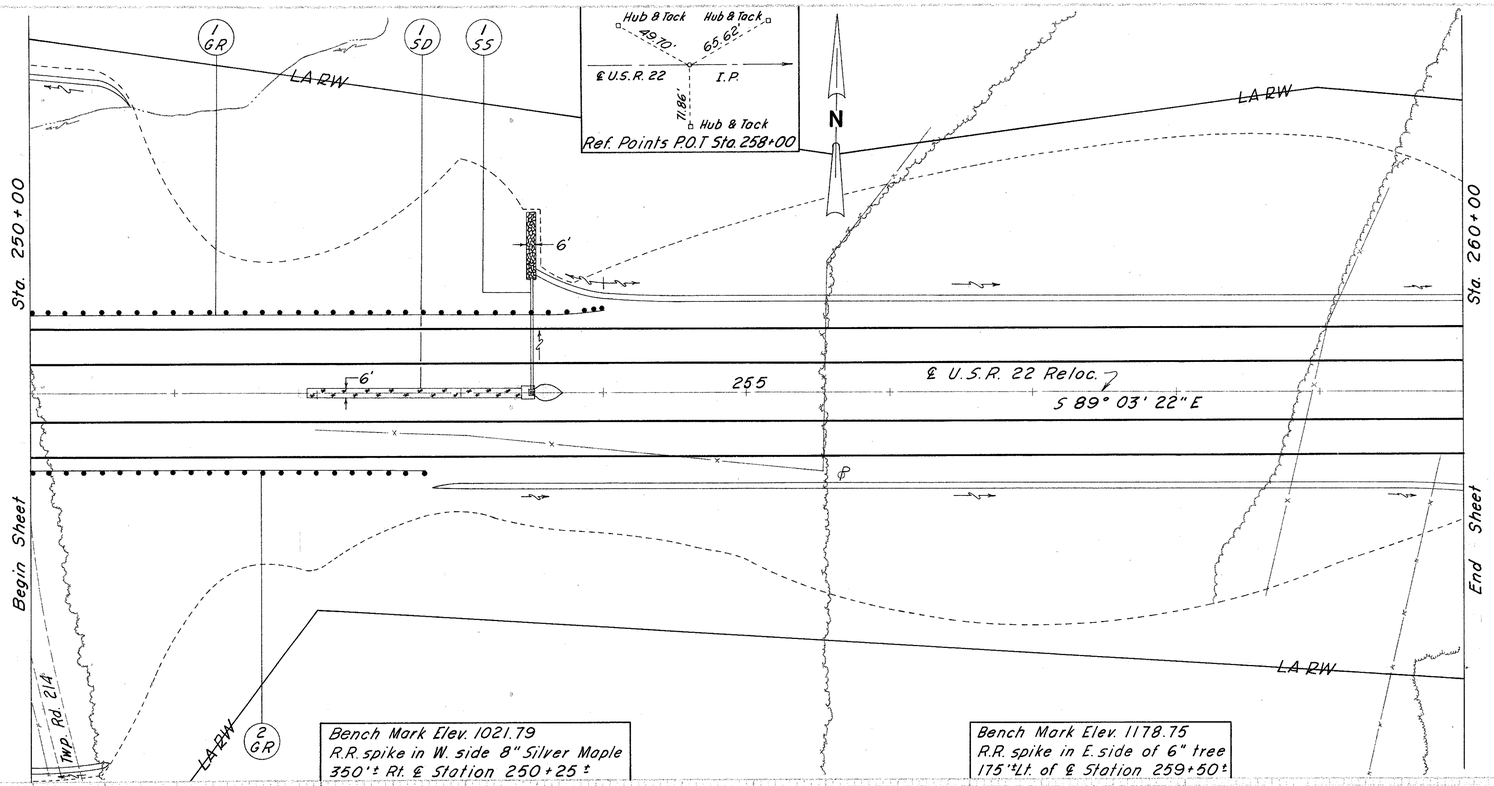
* Shop Elongated and Strutted
** Modified as per plan

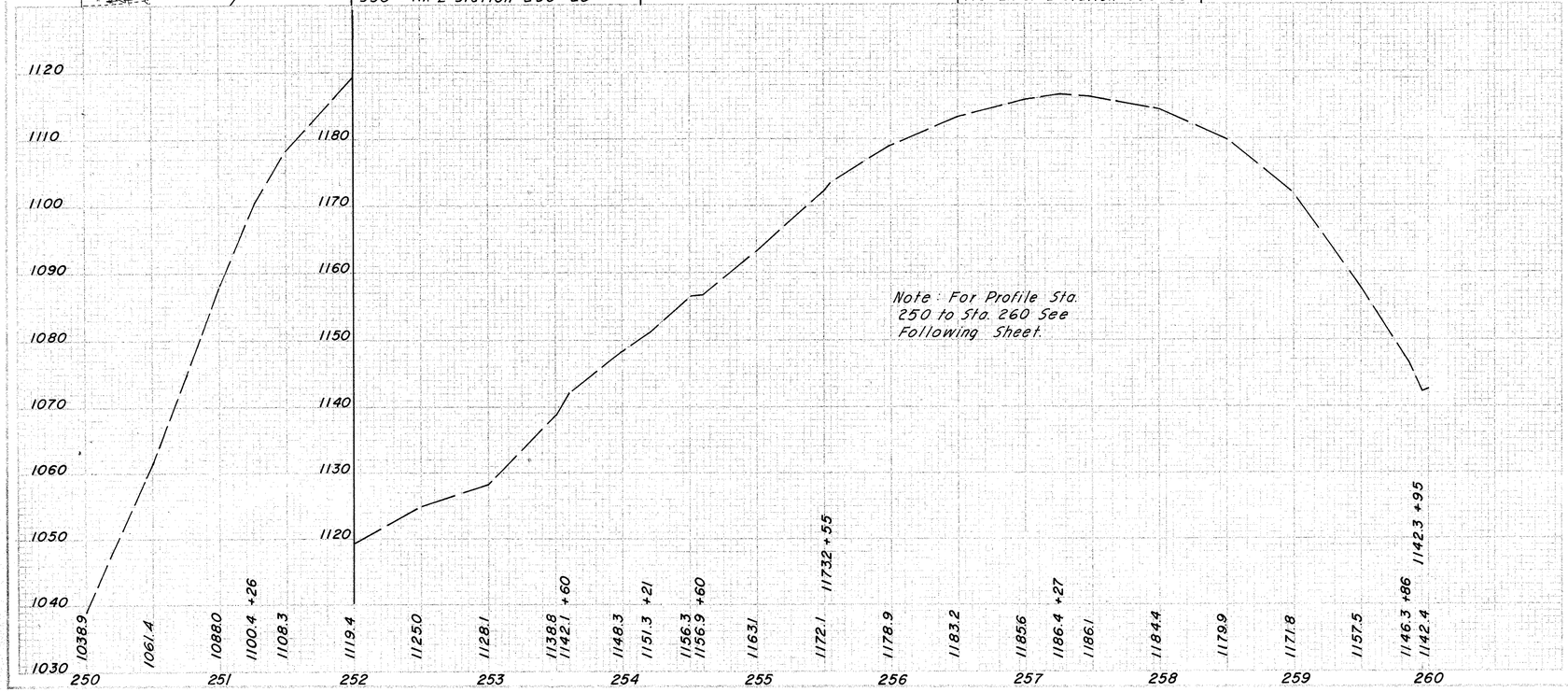
ESTIMATED QUANTITIES

CST. NO.	STATION TO STATION	SIZE	601 Dumped 6" Reinf. Rock Concrete Channel Riprap C.Y.	601 S.Y.	602 Concrete Masonry C.Y.	603 Conduit With class B Bedding Type B 12" L.F.	603 Type A 18" L.F.	603 Type A 48" L.F.	604 Std. No. 8 catch Basin Ea.	606 guard Rail Type 4 * L.F.	606 guard Rail Type 4 ** L.F.	660 Sodding S.Y.	SHEET NO.
	ROADWAY												
1GR	240+00 to 242+99.2	Lt.											
2GR	240+25 to 243+37.90	Rt.											
3GR	247+00 to 250+00	Lt.											
4GR	246+50 to 250+00	Rt.											
	DRAINAGE												
1SS	247+00	℄-Rt	2		0.2								
1SD	239+12 to 239+50	Lt.											
2SD	245+43 to 246+93	℄											
1DR	240+02 to 240+68	Lt.				43							
2DR	240+25 to 240+39	Lt.				8							
3DR	240+86 to 242+00	Lt.				43							
4DR	241+00 to 242+42	Rt.				60							
5DR	246+37 to 249+58	Rt.				126							
6DR	246+60 to 248+89	Lt.				94							
	Structures 20' & Under												
1 S	241+52	℄		11	16	2.6			1	95		418	
2 S	249+30	℄		30	28	4.1					25 100	419	
				41.7	44	6.9	98	844	1	125	126226		

Sta. 240+00 to Sta. 250+00

JEF - 22 - 3.86





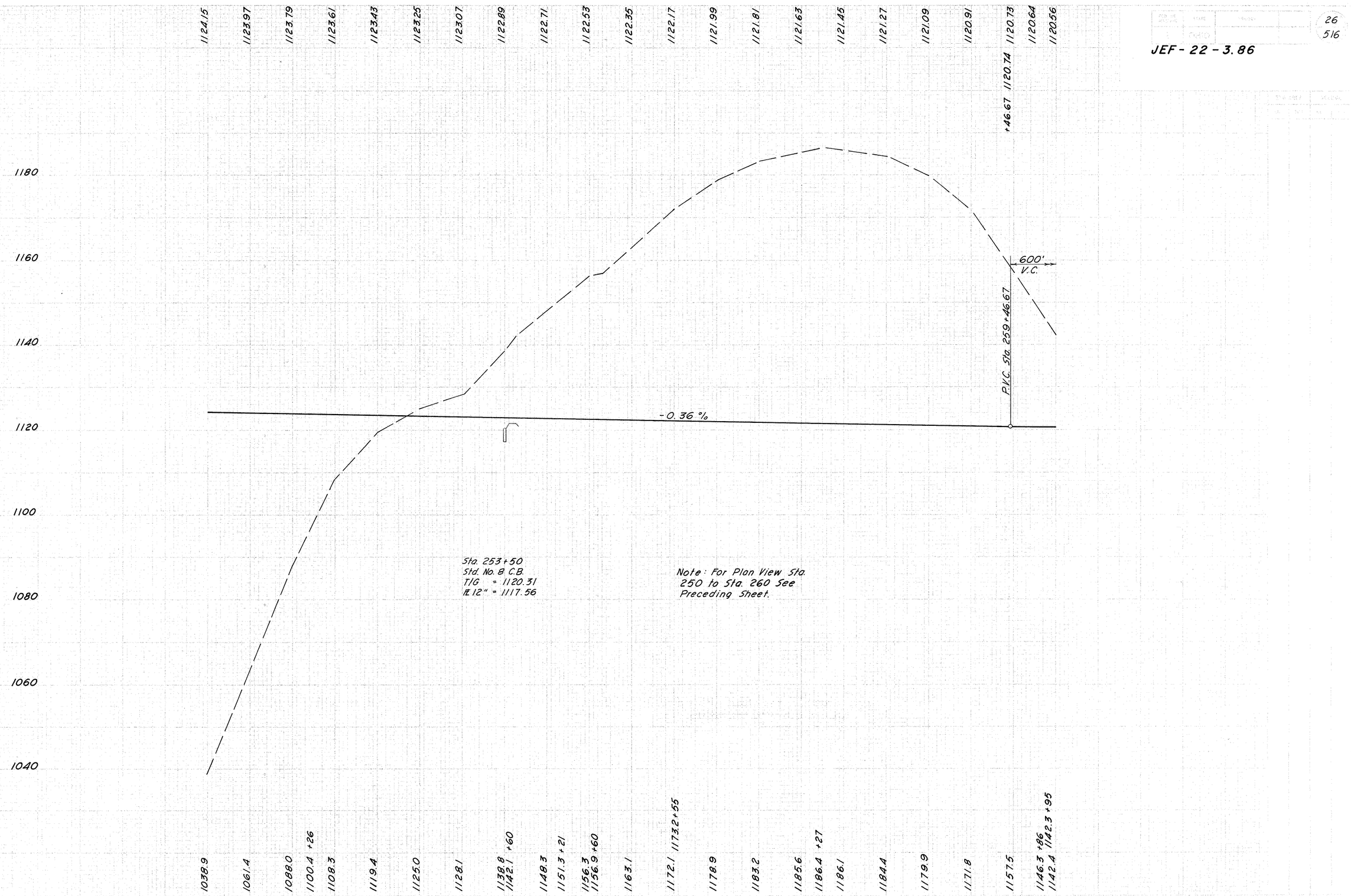
** Modified as per plan
* With Class B Bedding

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	601 Dumped Rock Channel Prot. C.Y.	602 Concrete Masonry C.Y.	603 Conduit Type B 12" L.F.	604 Std. No. 8 Catch Basin Ea.	606 Guard Rail Type 4 ** L.F.	660 Sodding S.Y.	SEE SHEET NO.
	ROADWAY								
1GR	250+00 to 254+00	Lt.					400.00		
2GR	250+00 to 252+75	Rt.					275.00		
	DRAINAGE								
1SS	253+50	℄-Lt.	15	0.2	80	1			102
1SD	251+93 to 253+43	℄						100	
			15	0.2	80	1	675.00	100	

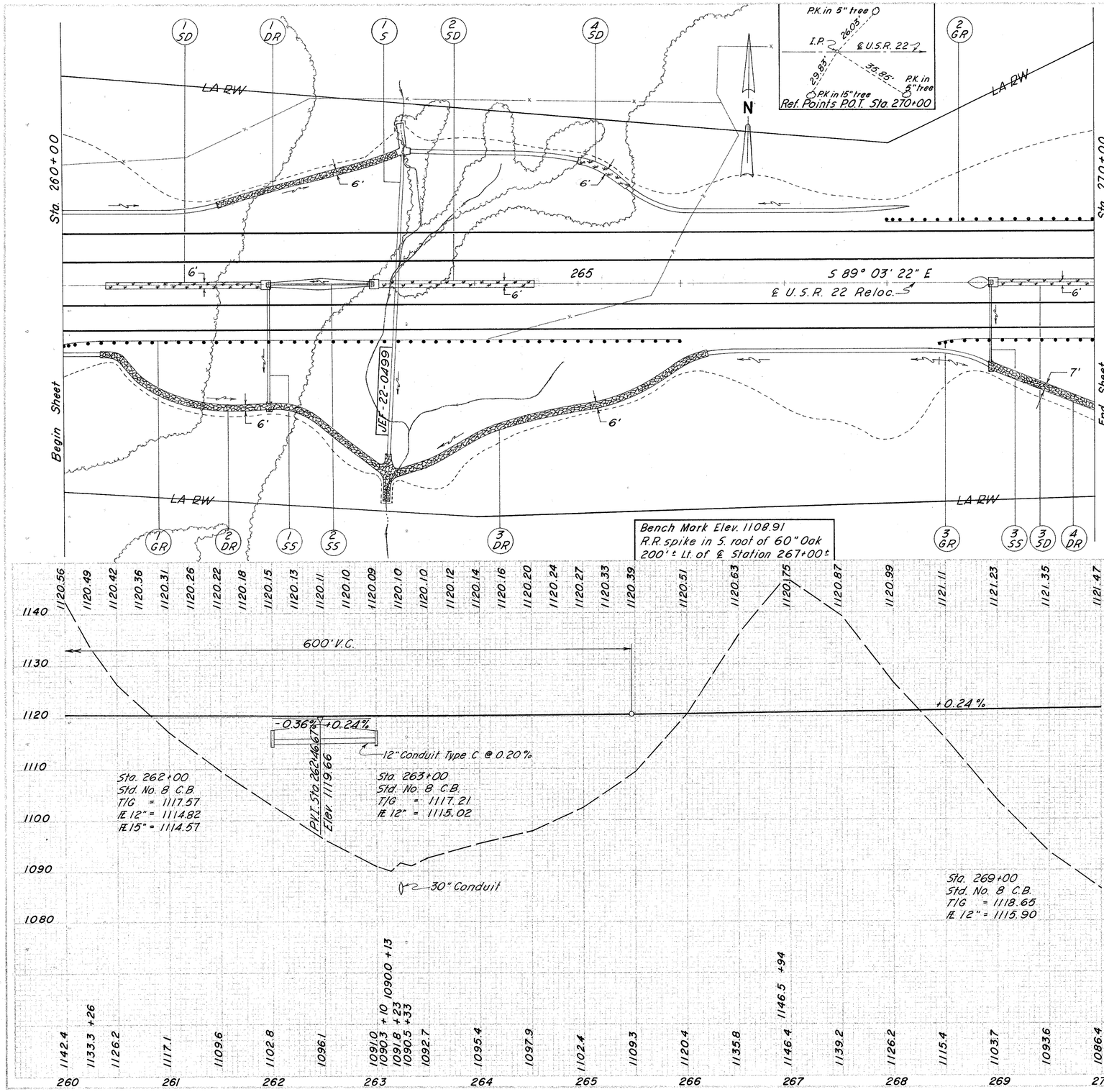
Sta. 250+00 to Sta. 260+00

JEF - 22 - 3.86



PROFILE Sta. 250+00 to Sta. 260+00

JEF - 22 - 3.86

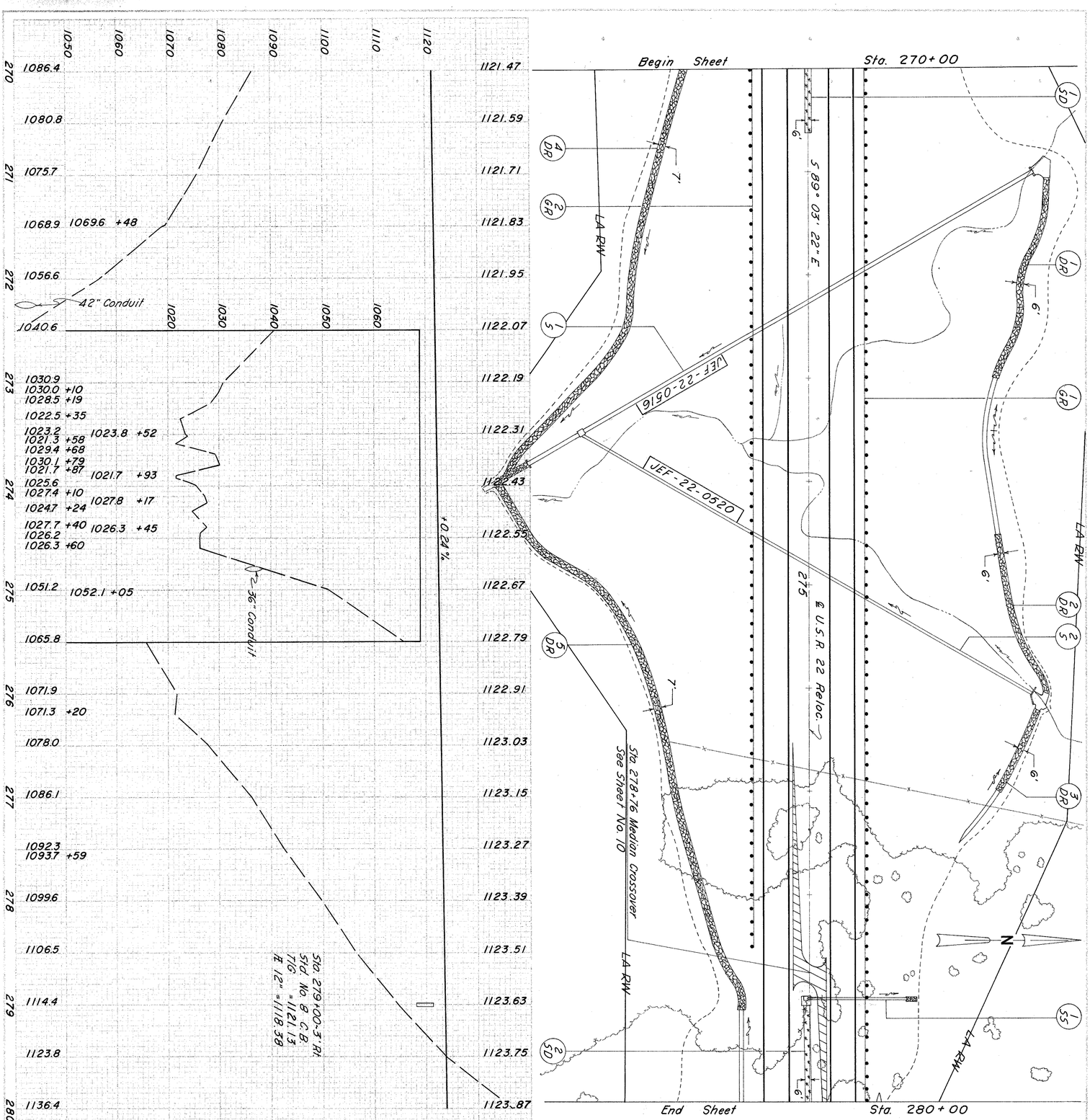


** Modified as per plan
* With Class B Bedding

ESTIMATED QUANTITIES

Item	Station to Station	Side	601 Dumped Rock Channel Prot. C.Y.	601 6" Reinf. Concrete Riprap S.Y.	602 Concrete Masonry C.Y.	603 Conduit Type A 707.05 12Ga. * 30" L.F.	603 Conduit Type B * 15" L.F.	603 Conduit Type F 15" L.F.	603 Conduit Type C * 12" L.F.	603 Conduit Type B * 12" L.F.	604 Std. No. 8 Catch Basin Ea.	606 Guard Rail Type 4 ** L.F.	660 Sodding S.Y.	Bends and Branches 12"	Sod. Sheet No.
ROADWAY															
1GR	260+00 to 266+00	Rt.										600.00			
2GR	268+00 to 270+00	Lt.										200.00			
3GR	268+50 to 270+00	Rt.										150.00			
DRAINAGE															
1SS	262+00	℄-Rt.	2		0.3		58	64	100		1			2	110
2SS	262+00 to 263+00	℄									1				110
3SS	269+00	℄-Rt.	2		0.2					78	1				114
1SD	260+43 to 261+93	℄											100		
2SD	263+07 to 264+57	℄											100		
3SD	269+07 to 270+00	℄											62		
4SD	265+00 to 265+50	Lt.											37		
1DR	261+50 to 263+25	Lt.	61												
2DR	260+37 to 263+10	Rt.	102												
3DR	263+16 to 266+25	Rt.	110												
4DR	269+02 to 270+00	Rt.	36												
Structures 20' & Under															
1S	263+24	℄	24	25	1.9	294								420	
			337	25	2.4	294	58	64	100	78	3	950.00	299		

Sta. 260+00 to Sta. 270+00



‡ Reinforced Concrete Catch Basin Modified as per plan

※ With Double Riveted Longitudinal Seams
※※ Shop Elongated and Strutted

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	601 Dumped Rock Channel Prot. C.Y.	601 6" Reinf. Concrete Riprap S.Y.	602 Concrete Masonry C.Y.	603 Conduit With Class B Bedding Type A 707.05 8 Gage * 36" L.F.	603 Conduit With Class B Bedding Type A 707.05 8 Gage ** 42" L.F.	603 Conduit With Class B Bedding Type A 707.05 10 Ga. 48" L.F.	603 Conduit With Class B Bedding Type B 12" L.F.	603 Conduit Type F 12" L.F.	604 Std. No. 8 Catch Basin Ea.	604 Std. No. 2-5 C.B. ‡ Mod. Ea.	606 Guard Rail Type A ‡ L.F.	660 Sodding S.Y.	Bends and Branches 12"	SEE SHEET NO.
	ROADWAY															
1GR	270+00 to 280+00	Lt.											1000.00			
2GR	270+00 to 278+50	Rt.											850.00			
	DRAINAGE															
1S	279+00	Lt-Rt	2		0.2				60	38	1				2	125
1SD	270+00 to 270+57	℄												38		
2SD	279+07 to 280+00	℄												62		
1DR	271+06 to 273+00	Lt.	67													
2DR	274+50 to 276+03	Lt.	54													
3DR	276+20 to 277+00	Lt.	29													
4DR	270+00 to 273+88	Rt.	170													
5DR	273+99 to 279+11	Rt.	226													
	Structures 20' & Under															
1S	272+25	℄	19	25	1.6			501	59							421
2S	274+80.91	℄		23	5.8		504					1				422
			567	48	7.6		504	501	59	60	38	1	1	1850.00	100	

Sta. 270+00 to Sta. 280+00

JEF-22-3.86

28
516

JEF-22-3.86

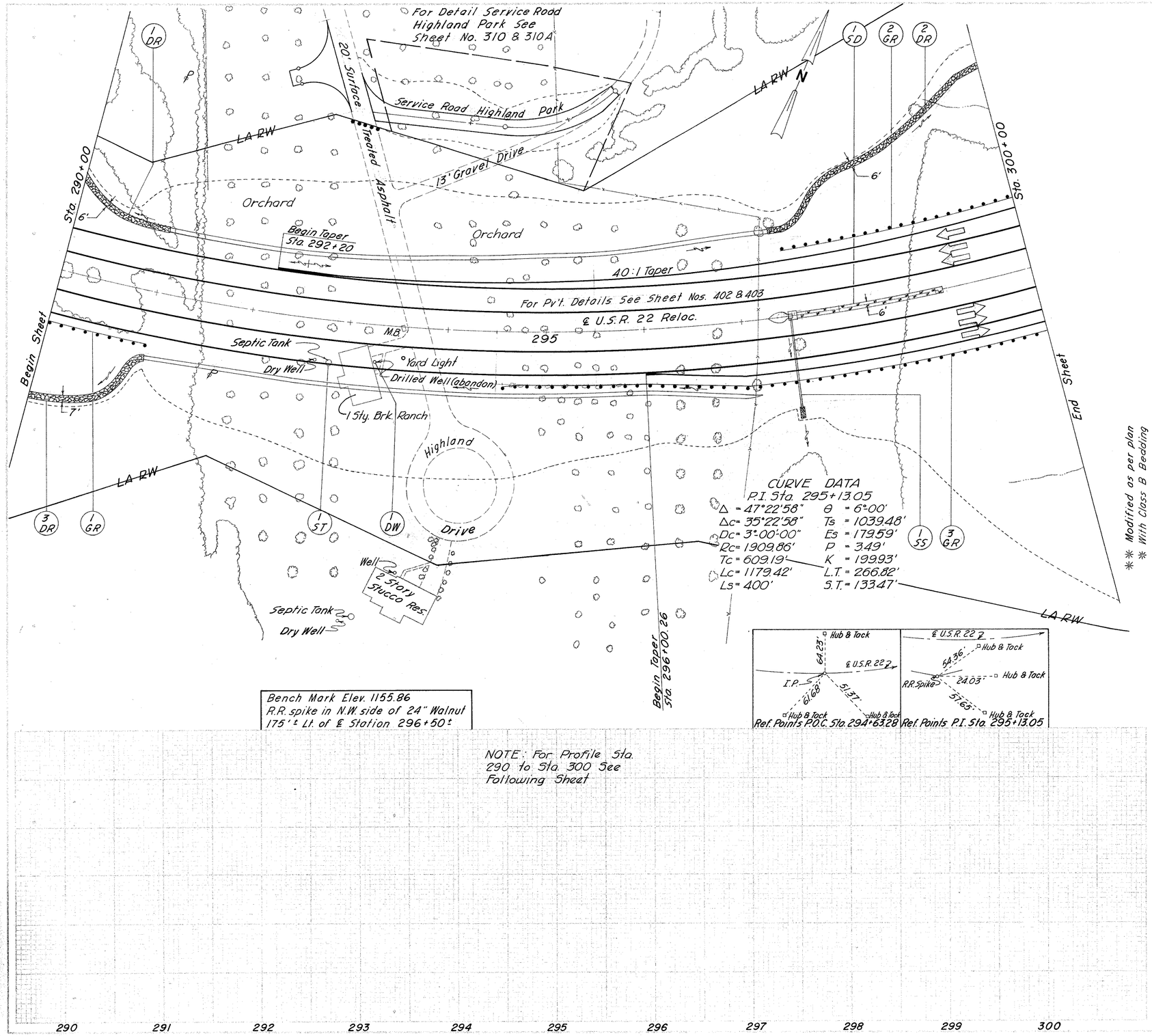
† Modified as per plan
* With Class B Bedding

ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	601 Dumped Rock Channel Prot. C.Y.	601 6" Reinf Concrete Riprap S.Y.	602 Concrete Masonry C.Y.	603 Conduit Type A 707.05 * 30" L.F.	603 Conduit Type A 707.05 10 Gage * 30" L.F.	603 Conduit Type B * 12" L.F.	604 Std. No. 8 Catch Basin Ea.	604 Std No. 2-3 C.B. † Mod. Ea.	606 Guard Rail Type 4 † L.F.	660 Sodding S.Y.	See Sheet No.
	ROADWAY												
1GR	280+00 to 280+25	Lt.									25.00		
2GR	286+25 to 290+00	Rt.									383.42		
	DRAINAGE												
1SS	287+50	℄	2		0.2			69	1				132
1SD	280+00 to 280+57	℄										38	
2SD	287+57 to 289+07	℄										100	
1DR	288+00 to 289+26	Lt.	48										
2DR	289+38 to 290+00	Lt.	21										
3DR	289+09 to 290+00	Rt.	66										
	Structures 20' & Under												
1S	289+24	℄		13	1.0	18	355			1			423
			137	13	1.2	18	355	69	1	1	408.42	138	

Sta. 280+00 to Sta. 290+00

JEF-22-3.86



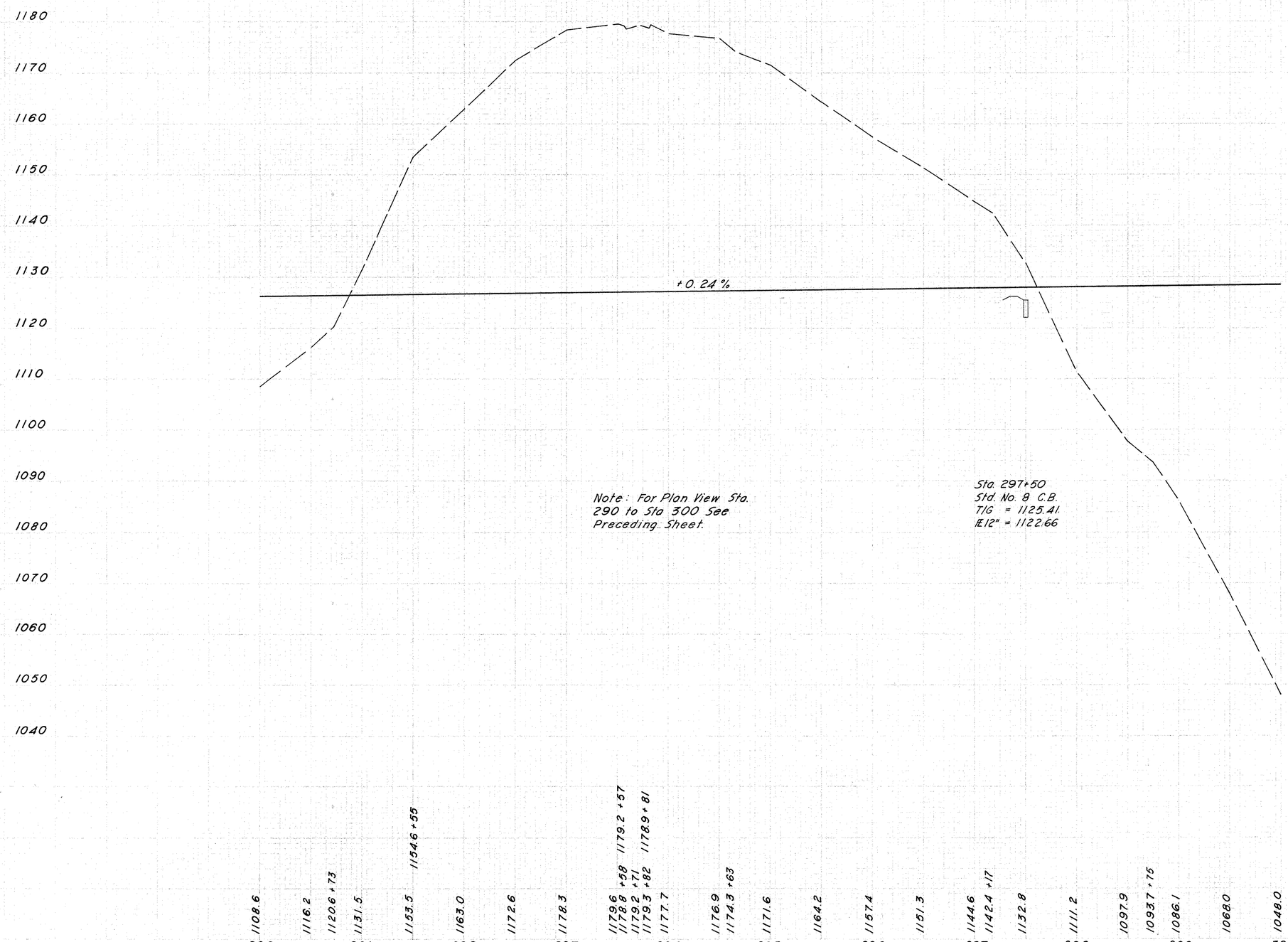
** Modified as per plan
** With Class B Bedding

ESTIMATED QUANTITIES

Item No.	Station to Station	Side	Special Special Cleaning Drilled & disposal Well of septic abandon Tanks Ea.	Ea.	601 Dumped Rock Channel Prot. C.Y.	602 Concrete Masonry C.Y.	603 Conduit Type B * 12" L.F.	604 Std. No. 8 Catch Basin Ea.	606 Guard Rail Type 4 ** L.F.	660 Sodding S.Y.	See Sheet No.
	ROADWAY										
1GR	290+00 to 291+01.22	Rt.							104.08		
2GR	297+50 to 300+00	Lt.							240.79		
3GR	294+53.97 to 300+00	Rt.							561.23		
1ST	292+83	Rt.	1								
1DW	293+28	Rt.		1							
	DRAINAGE										
1SS	297+50	℄-Rt.			2	0.2	97	1		140	
1SD	297+57 to 299+07	℄								100	
1DR	290+00 to 291+00	Lt.			34						
2DR	297+39 to 300+00	Lt.			92						
3DR	290+00 to 291+00	Rt.			51						
			1	1	179	0.2	97	1	906.10	100	

Sta. 290 + 00 to Sta. 300 + 00

JEF - 22 - 3.86



PROFILE Sta. 290 + 00 to Sta. 300 + 00

ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	601 Dumped Rock Channel Prot. C.Y.	601 6" Reinf. Concrete Riprap S.Y.	602 Concrete Masonry C.Y.	603 Conduit With Class B Bedding Type A 707.03 1Ga. * 60" L.F.	603 Conduit With Class B Bedding Type B 15" L.F.	604 Std. No. 8 Catch Basin Ea.	604 Std. No. 5 Catch Basin Ea.	605 6" Pipe Underdrain Shallow L.F.	606 Guard Rail Type 4 ** L.F.	660 Sodding S.Y.	See Sheet No.
	ROADWAY												
1GR	300+00 to 302+20	Lt.									212.62		
2GR	300+00 to 304+00.26	Rt.									405.66		
	DRAINAGE												
1SS	305+50	Lt~Rt.					130	1	2				162
1SD	305+57 to 307+07	Lt.										150	
2SD	305+57 to 307+07	Rt.										150	
3SD	305+57 to 307+07	℄										100	
1DR	300+00 to 301+88	Lt.	66										
2DR	302+14 to 302+20	Lt.	3										
3DR	300+83 to 303+70	Rt.	123										
4DR	303+12 to 303+60	Rt.	51										
1U	302+31 to 304+08	Lt.								174			
	Structures 20'8 Under												
1S	301+38	℄	23	23	6.4	688							424
			266	23	64	688	130	1	2	174	618.28	400	

* Shop Elongated as per plan
** Modified as per plan

JEF-22-3.86

1128.67 1128.79 1128.91 1129.03 1129.15 1129.27 1129.39 1129.51 1129.63 1129.75 1129.87 1129.99 1130.11 1130.23 1130.35 1130.40 1130.42 1130.42 1130.40 1130.35 1130.28 1130.18 1130.06 1129.92 1129.75 1129.56 1129.34

1150
1140
1130
1120
1110
1100
1090
1080
1070
1060
1050
1040
1030
1020
1010
1000
990

+0.24%

Underdrain Lt.

℄ 6"=1124.97

℄ 12"=1123.73

℄ 6"=1124.54

12" Type B @ 0.20%

℄ 12"=1123.10

1000' V.C.

Sta. 305+50
Std. No. 5 C.B.-65' Lt.
T/G = 1127.61
℄ = 1123.10
Std. No. 8 C.B.
T/G = 1127.41
℄ = 1122.80
Std. No. 5 C.B.-65' Rt.
T/G = 1127.78
℄ = 1122.50

60" Conduit

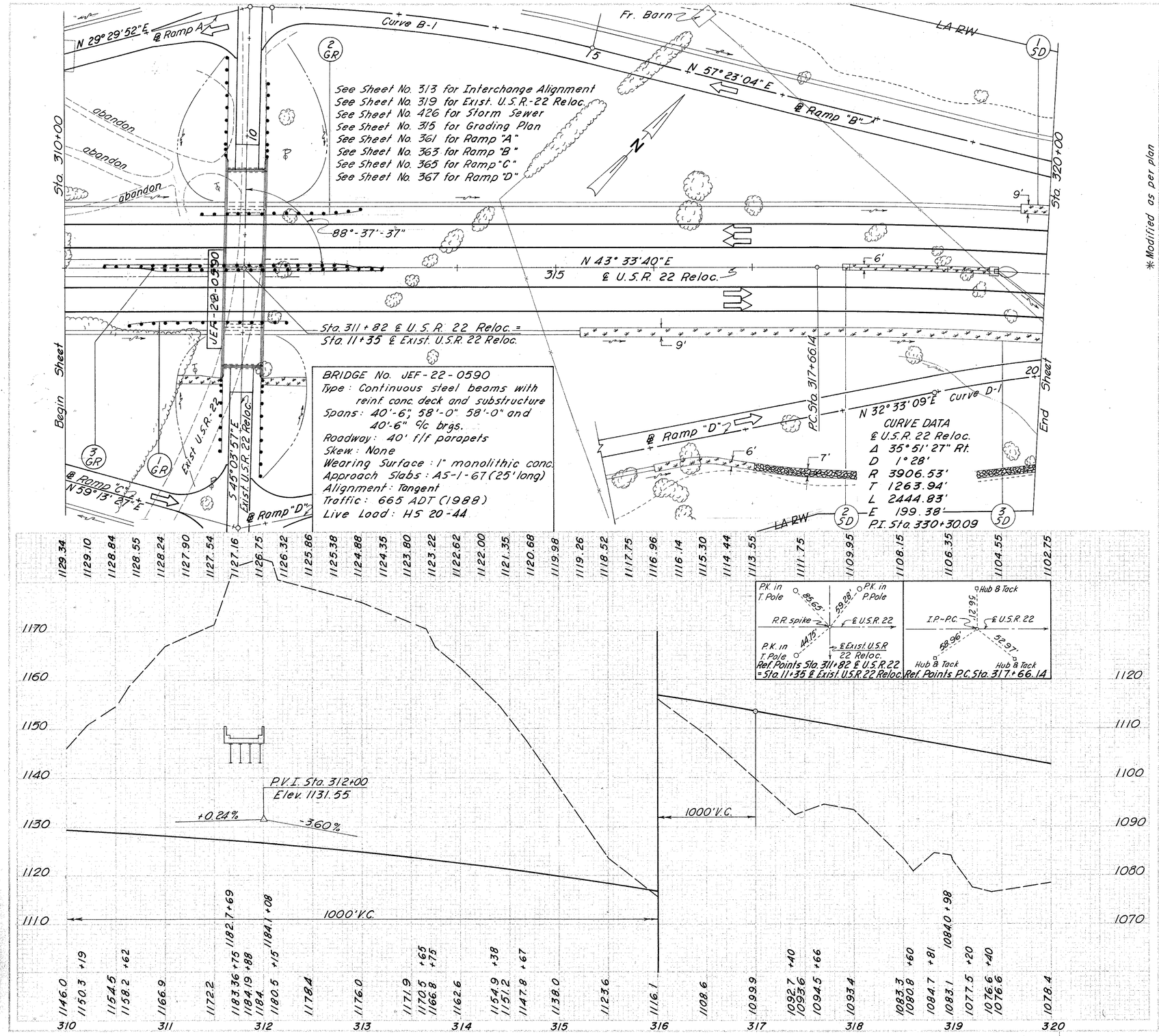
Note: For Plan View Sta. 300 to Sta. 310 See Preceding Sheet.

1048.0 1023.2 +53 1010.1 +82 1002.3 +07 997.1 997.9 +33 999.6 +42 999.1 +54 999.1 +61 999.0 +69 1001.9 1000.7 +95 1030.6 +40 1043.1 +80 1048.3 1057.6 1058.1 1057.3 +20 1050.2 +41 1055.1 +55 1057.0 +78 1058.1 1059.4 1075.0 1082.3 +47 1081.2 +70 1091.6 +02 1093.7 +14 1093.3 +32 1098.6 1107.3 +88 1112.2 1118.2 +90 1123.2 +20 1132.9 +60 1146.0

300 301 302 303 304 305 306 307 308 309 310

PROFILE Sta. 300+00 to Sta. 310+00

JEF-22-3.86



* Modified as per plan

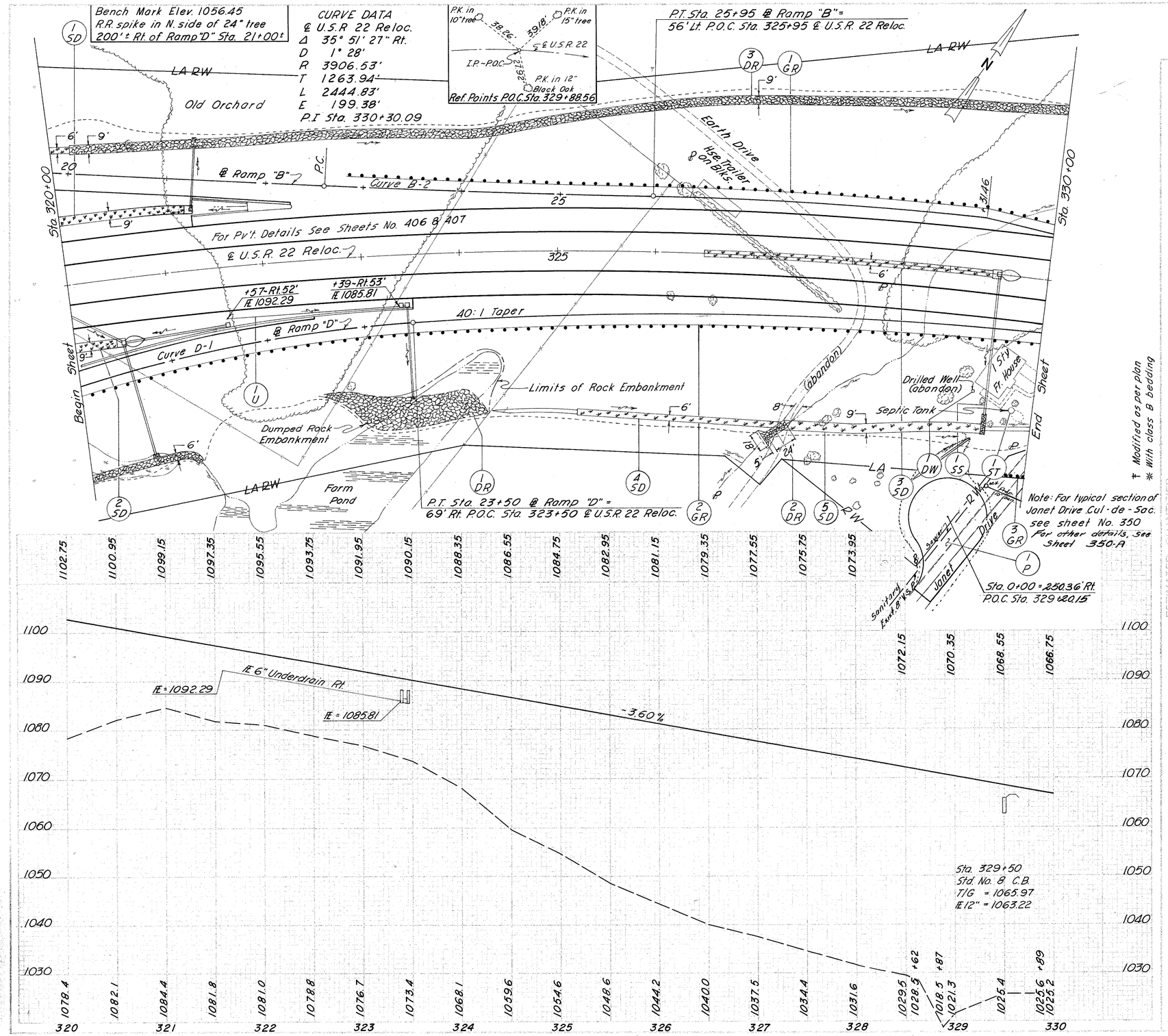
606 Guard Rail Type 4 *	606 G.R. Type 4 Barrier Design *	660 Sodding	
L.F.	L.F.	S.Y.	
162.50			
162.50			
500	50		
		30	
		100	
		471	
825	50	601	

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE
	ROADWAY	
1GR	310+64.50 to 312+27	Rt.
2GR	311+37 to 312+99.50	Lt.
3GR	310+32 to 313+32	Med.
	DRAINAGE	
1SD	319+70 to 320+00	Lt.
2SD	317+93 to 319+43	℄
3SD	315+25 to 320+00	Rt.

Sta. 310+00 to Sta. 320+00

JEF-22-3.86

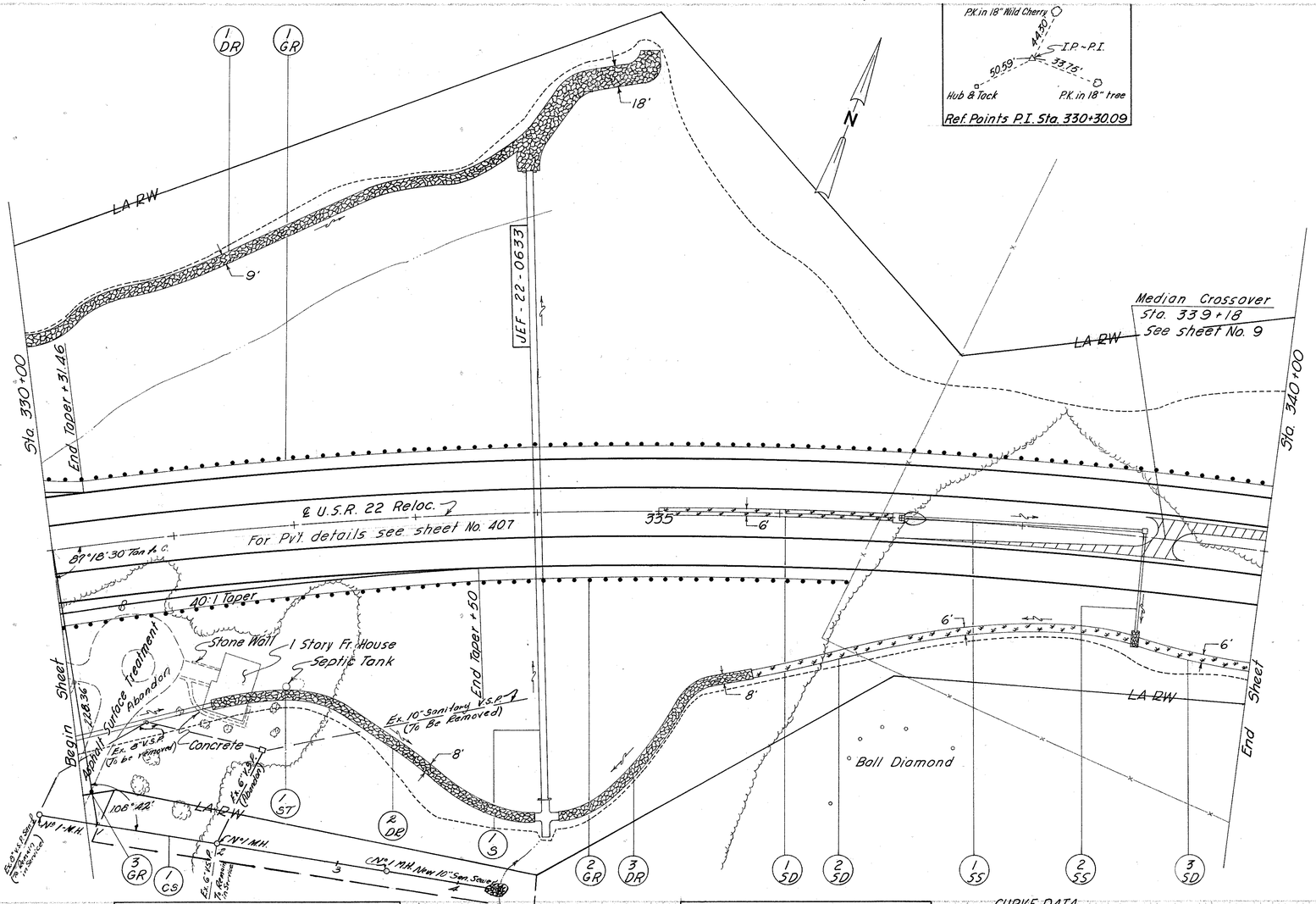


† Modified as per plan
* With class B bedding

ESTIMATED QUANTITIES

Item No.	Station to Station	Side	Special Cleaning & disposal of Septic Tanks Ea.	Special Drilled Well abandon Ea.	601 Dumped Rock Channel Prot. C.Y.	601 Rock Emb. C.Y.	602 Concrete Masonry C.Y.	304 Aggregate Base C.Y.	404 Asphalt Concrete C.Y.	603 Conduit Type B * 12" L.F.	603 Conduit Type F 12" L.F.	408 Prime Coat GAL.	604 Std. No. 8 Catch Basin Ea.	606 Guard Posts Ea.	606 Guard Rail Type 4 † L.F.	605 6" Pipe Under-drain Shallow L.F.	660 Sodding S.Y.	Bends and Branches 12"	See Sheet No.
	ROADWAY																		
1GR	325+95 to 330+00	Lt.													412.28				
2GR	323+50 to 330+00	Rt.													638.21				
3GR	329+90 to 330+00	Rt.												4					
1ST	329+80	Rt.	1																
1DW	329+35	Rt.		1															
1DR	322+60 to 324+25	Rt.				409													
	PAVEMENT																		
1P	329+20.15	Rt.										55.37							350A
	DRAINAGE																		
1SS	329+50	℄-Rt.			4		0.2			65	86		1					2	183
1SD	320+00 to 321+27	Lt.															127		
2SD	320+00 to 320+43	Rt.															43		
3SD	326+50 to 329+43	℄															195		
4SD	325+20 to 327+40	Rt.															137		
5SD	327+40 to 329+48	Rt.															198		
2DR	327+10 to 327+38	Rt.			14														
3DR	322+31.46 to 330+00	Lt.			402														
1U	321+57 to 323+39	Rt.														180			
			1	1	420	409	0.2			65	86	55.37	1	4	1050.49	180	700		

Sta. 320+00 to Sta. 330+00

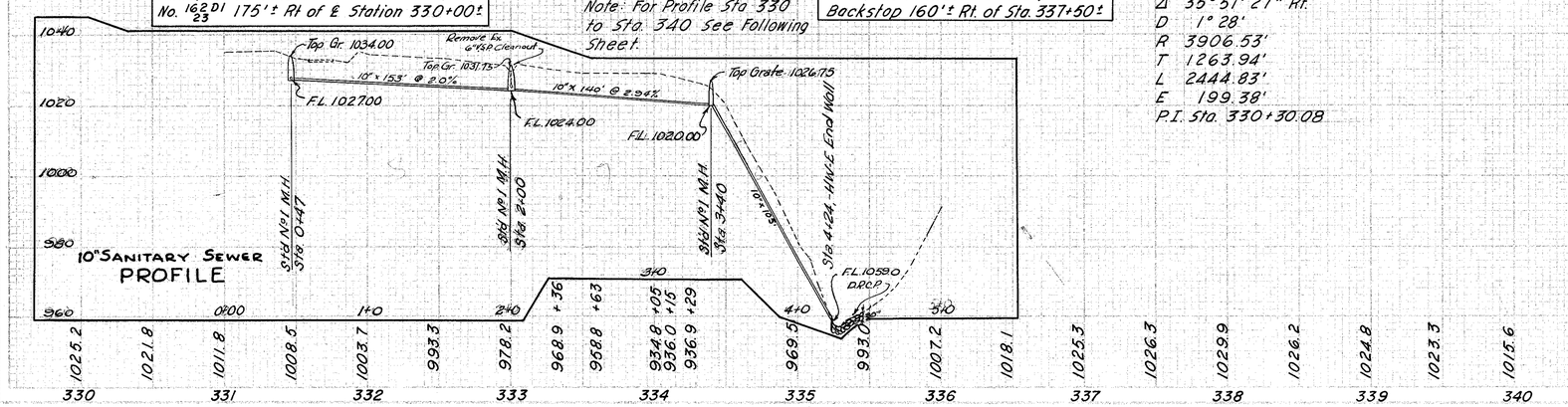


Bench Mark Elev. 1034.63
R.R. spike in N.E. side of Transformer Pole No. 16 2/23 D1 175'± Rt. of ℄ Station 330+00±

Bench Mark Elev. 1032.62
R.R. spike in N. side of N.E. pole of Backstop 160'± Rt. of Sta. 337+50±

Note: For Profile Sta 330 to Sta. 340 See Following Sheet.

CURVE DATA
℄ U.S.R. 22 Reloc.
Δ 35°51'27" Rt.
D 1°28'
R 3906.53'
T 1263.94'
L 2444.83'
E 199.38'
P.I. Sta. 330+30.08



ESTIMATED QUANTITIES

REF. NO.	STATIONS TO STATION	SIDE	Special 601 Cleaning Dumped C. Reinf. and d/s Pkt. Apron & Channel Stone Riprap Tons	601 Concrete Riprap	602 Concrete Masonry	603 Conduit With Class B Bedding Type A 70103 3/4a 60"	603 Conduit With Class B Bedding Type B 12"	603 Conduit With Class B Bedding Type C 70608 10"	604 Std No. 8 Catch Basin	606 Guard Post	606 Guard Rail Type 4 *	604 Std No. 1 Manhole	660 Sodding	SEE SHEET NO.
			Ea.	C.Y.	C.Y.	L.F.	L.F.	L.F.	Ea.	Ea.	L.F.	Each	S.Y.	
	ROADWAY													
1GR	330+00 to 340+00	Lt.								1	101.03			
2GR	330+00 to 336+61.35	Rt.									65.82			
3GR	330+05	Rt.								1				
1ST	331+82	Rt.	1											
	DRAINAGE													
1SS	337+00 to 339+00	℄ Lt-Rt.	2		0.2		86		1					199 201
2SS	339+00								1					
1SD	335+00 to 336+93	℄ Rt.												
2SD	336+80 to 338+98	Rt.												
3SD	339+05 to 340+00	Rt.												
1DR	330+00 to 333+91	Lt.				219							129	
2DR	331+20 to 333+90	Rt.				130							211	
3DR	334+10 to 335+80	Rt.				95							63	
1CS	323+63 to 333+65	Rt.	18		0.3							3		
	Structures 20' & Under													427
1S	334+00		172	30	4.9	518			2	1	166585	3	403	
			1	636	54	518	86	398	200	398				

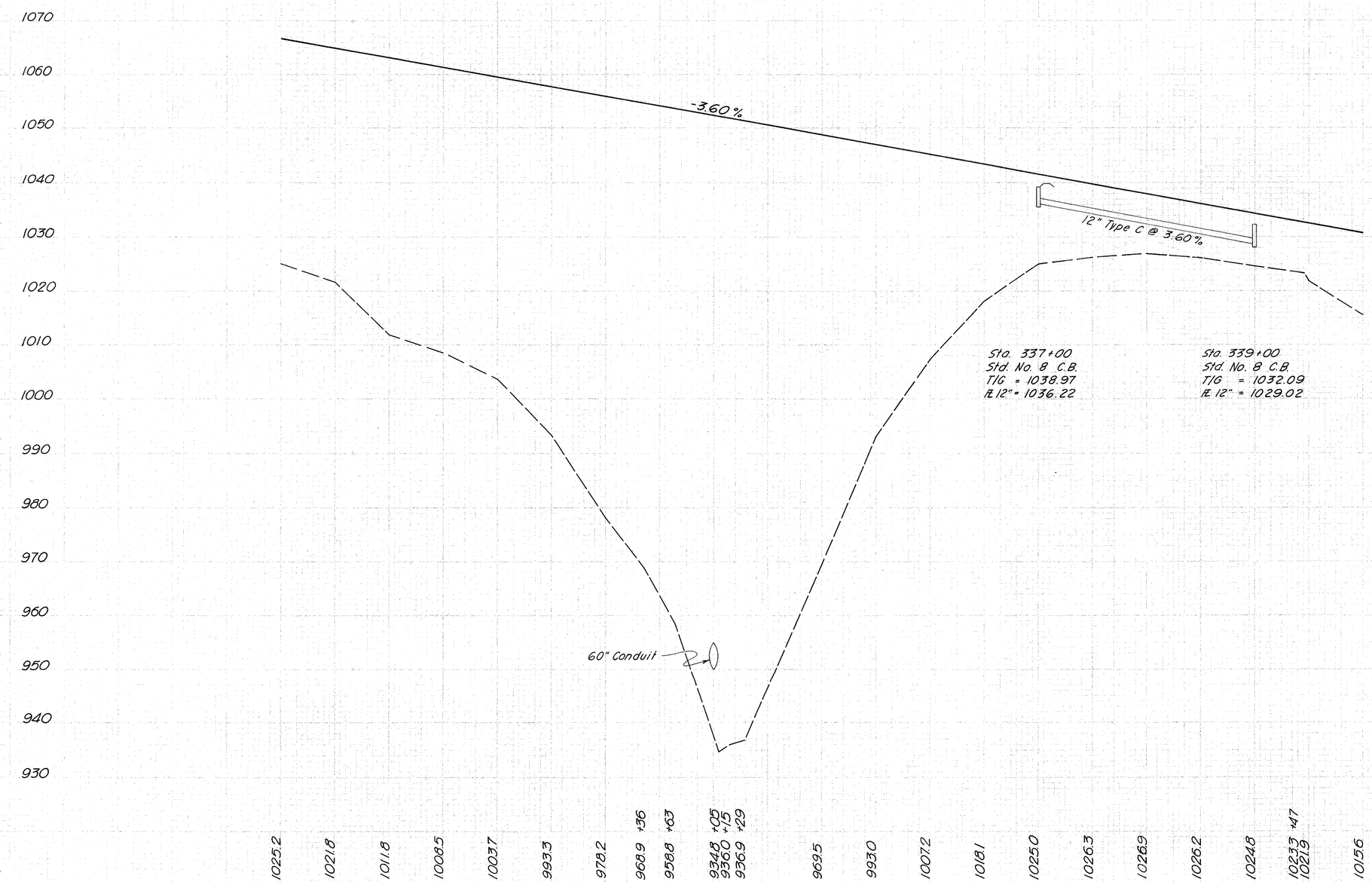
▲ with compression rings
* Modified as per plan

Sta. 330+00 to Sta. 340+00

JEF - 22 - 3.86

1066.75 1064.95 1063.15 1061.35 1059.55 1057.75 1055.95 1054.15 1052.35 1050.55 1048.75 1046.95 1045.15 1043.35 1041.55 1039.75 1037.95 1036.15 1034.35 1032.55 1030.75

Note: For Plan View Sta 330 to Sta. 340 See Preceding Sheet.



1025.2 1021.8 1011.8 1008.5 1003.7 993.3 978.2 968.9 +36 958.8 +63 934.8 +05 936.0 +15 936.9 +29 969.5 993.0 1007.2 1018.1 1025.0 1026.3 1026.9 1026.2 1024.8 1023.3 +47 1021.9 1015.6

330 331 332 333 334 335 336 337 338 339 340

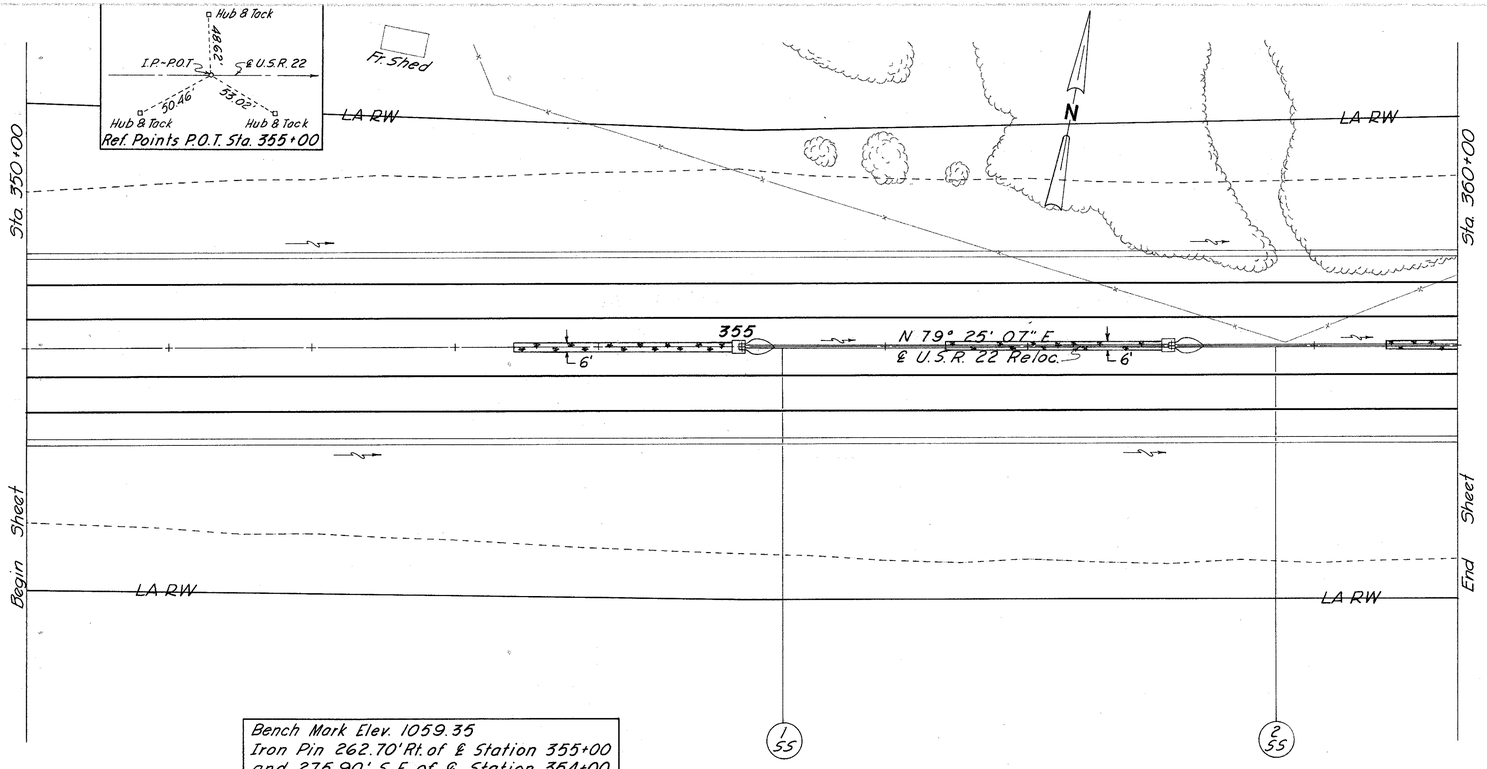
PROFILE Sta. 330+00 to Sta. 340+00

† Modified as per plan
* Shop Elongated and Strutted 8 gage 707.05

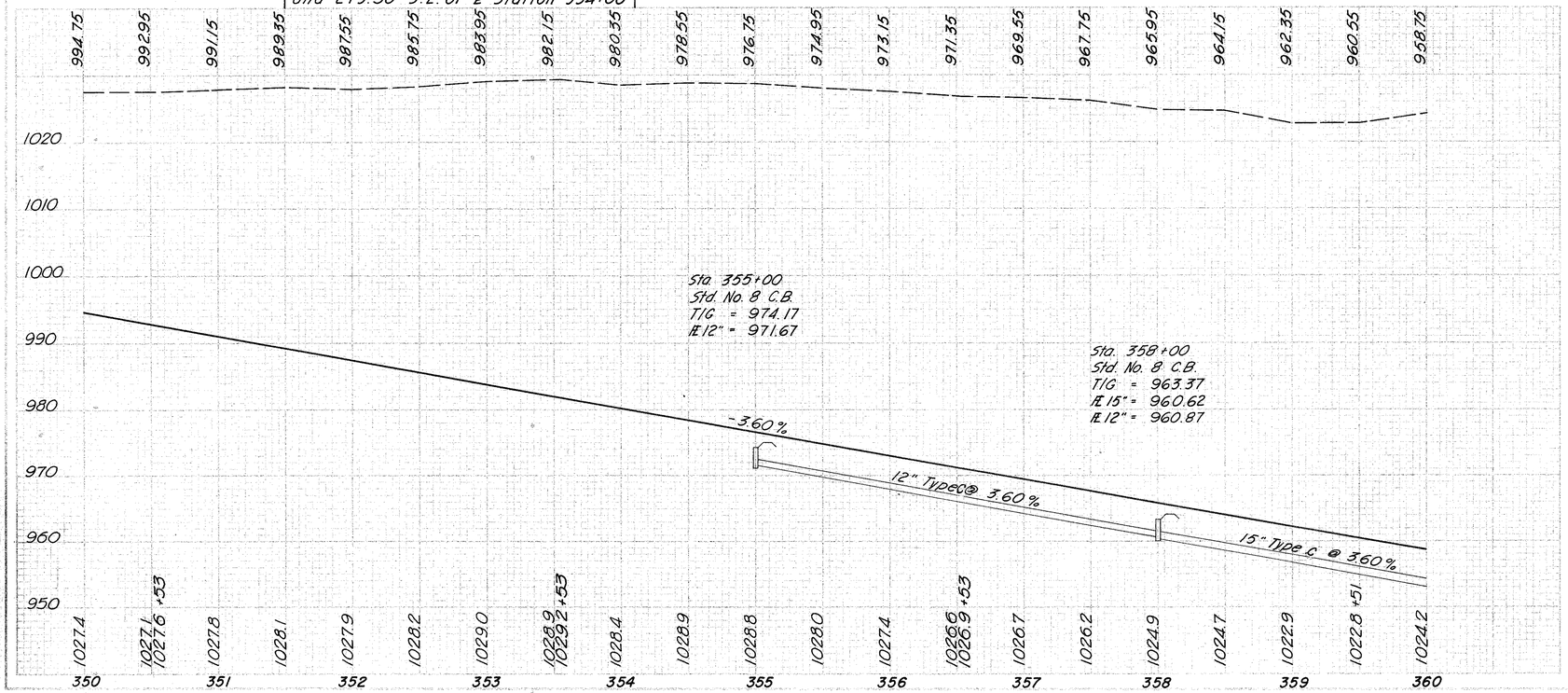
ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	Special Removal & Disposal of Septic Tanks Ea.	Special Drilled Well abandon Ea.	601 6" Reinf. Concrete Riprap S.Y.	601 Dumped Rock Channel Prot. C.Y.	602 Concrete Masonry C.Y.	603 Conduit With Class B Bedding Type A * 42" L.F.	603 42" L.F.	603 Type B 12" L.F.	604 Std. No. 2-4 C.B. † Mod. Ea.	604 Std. No. 8 Catch Basin Ea.	606 Guard Rail Type 4 † L.F.	660 Sodding S.Y.	See Sheet No.
	ROADWAY														
1GR	340+00 to 345+50	Lt.											552.92		
2GR	340+25 to 345+02.57	Rt.											475.00		
1ST	345+00	Lt.	1												
1DW	345+57	Lt.		1											
	DRAINAGE														
1SD	343+43 to 344+93	℄												100	
2SD	340+00 to 340+70	Rt.												45	
1SS	345+00	℄-Rt.				2	0.2			103		1			206
1DR	340+70 to 343+36	Rt.				108									
	Structures 20' & Under														
1S	342+87				24		8.2	428	17		1				428
			1	1	24	110	8.4	428	17	103	1	1	1027.92	145	

JEF - 22 - 3.86



Bench Mark Elev. 1059.35
Iron Pin 262.70' Rt. of ℄ Station 355+00
and 275.90' S.E. of ℄ Station 354+00



* 706.01, 706.02 or 706.08
** w.i.th Class B Bedding

ESTIMATED QUANTITIES

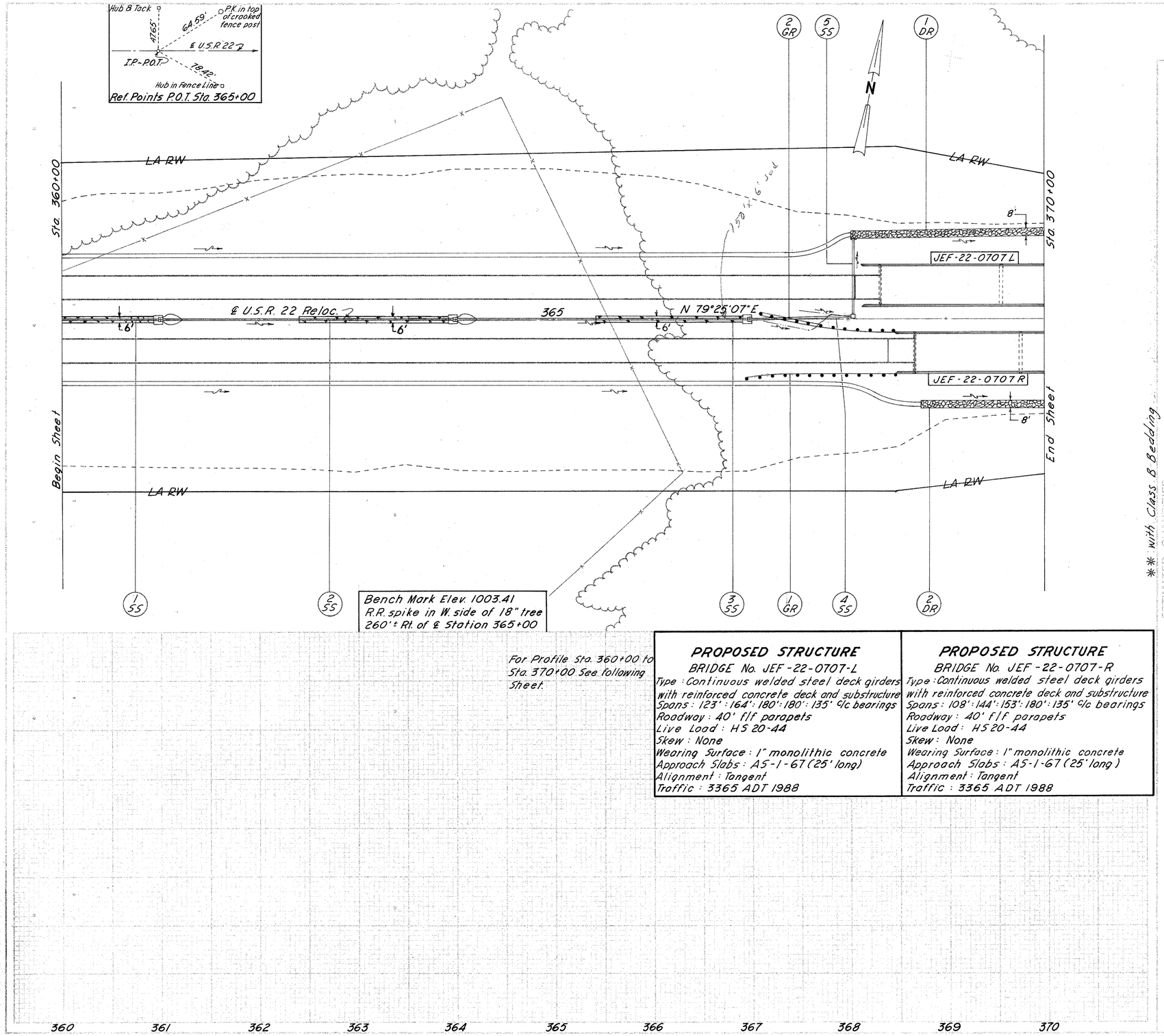
SEE SHEET NO.				
			214	217
660 SODDING	S.Y.		100	135
				235
604 Std No 8 catch basin Ea.			1	1
				2
603 Conduit Type C *	12"	L.F.		300
	15"	L.F.		200
				300
				200

DRAINAGE

NO.	STATION TO STATION	SIDE
155	355+00 to 358+00	℄
255	358+00 to 360+00	℄

Sta. 350 + 00 to Sta. 360 + 00

JEF - 22 - 3.86



For Profile Sta. 360+00 to Sta. 370+00 See following Sheet.

PROPOSED STRUCTURE	PROPOSED STRUCTURE
BRIDGE No. JEF-22-0707-L	BRIDGE No. JEF-22-0707-R
Type: Continuous welded steel deck girders with reinforced concrete deck and substructure	Type: Continuous welded steel deck girders with reinforced concrete deck and substructure
Spans: 123': 164': 180': 180': 135' c/c bearings	Spans: 108': 144': 153': 180': 135' c/c bearings
Roadway: 40' f/f parapets	Roadway: 40' f/f parapets
Live Load: HS 20-44	Live Load: HS 20-44
Skew: None	Skew: None
Wearing Surface: 1" monolithic concrete	Wearing Surface: 1" monolithic concrete
Approach Slabs: AS-1-67 (25' long)	Approach Slabs: AS-1-67 (25' long)
Alignment: Tangent	Alignment: Tangent
Traffic: 3365 ADT 1988	Traffic: 3365 ADT 1988

ESTIMATED QUANTITIES

PER. NO.	STATION TO STATION	SIDE	601 Dumped Rock Channel Prot. C.Y.	602 Concrete Masonry C.Y.	603 Conduit Type B with Class B bedding 15" L.F.	603 Conduit ** Type C 15" L.F.	604 Std. No. B Catch Basin Ea.	604 Std. No. 2-2-B Catch Basin Ea.	606 Guard Rail Mod. as per plan Type 4 Type 4 Barrier L.F.	606 Guard Rail Mod. as per plan Type 4 Barrier L.F.	660 SODDING S.Y.	SEE SHEET NO.
	ROADWAY											
1GR	366+965 to 368+46.5	Rt.							150.00			
2GR	367+11 to 368+46.5	Rt.Lt.							75.00	62.50		
	DRAINAGE											
1SS	360+00 to 361+00	℄				100					65	220
2SS	361+00 to 364+00	℄				300	1				100	225
3SS	364+00 to 367+00	℄				300	1				100	231
4SS	367+00 to 368+05	℄				105	1					232
5SS	368+05	Lt.	2	0.3	79			1				
1DR	368+07 to 370+00	Lt.	86									
2DR	368+75 to 370+00	Rt.	56									
			144	0.3	79	805	3	1	225.00	62.50	265	

** with Class B Bedding

Sta. 360+00 to Sta. 370+00

JEF - 22 - 3.86

958.75 956.95 955.15 953.35 951.55 949.75 947.95 946.15 944.35 942.55 940.75 938.95 937.15 935.35 933.55 931.75 929.95 929.06 928.19 927.34 926.51 925.70 924.91 924.13 923.38

1030
1020
1010
1000
990
980
970
960
950
940
930
920
910
900
890
880
870

For Plan View Sta. 360 to Sta. 370 See Preceding Sheet.

Bridge Limits = 786.5'
Left Bridge

Sta. 368+30.75

2400' V.C.

Bridge Limits = 724.5'
Right Bridge

Sta. 368+65.75

-3.60%

15" Type C @ 3.60%

15" Type C @ 4.02%

Sta. 361+00
Std. No. 8 C.B.
T/G = 952.57
Æ 15" = 949.82

Sta. 364+00
Std. No. 8 C.B.
T/G = 941.77
Æ 15" = 939.02

Sta. 367+00
Std. No. 8 C.B.
T/G = 930.97
Æ 15" = 927.86

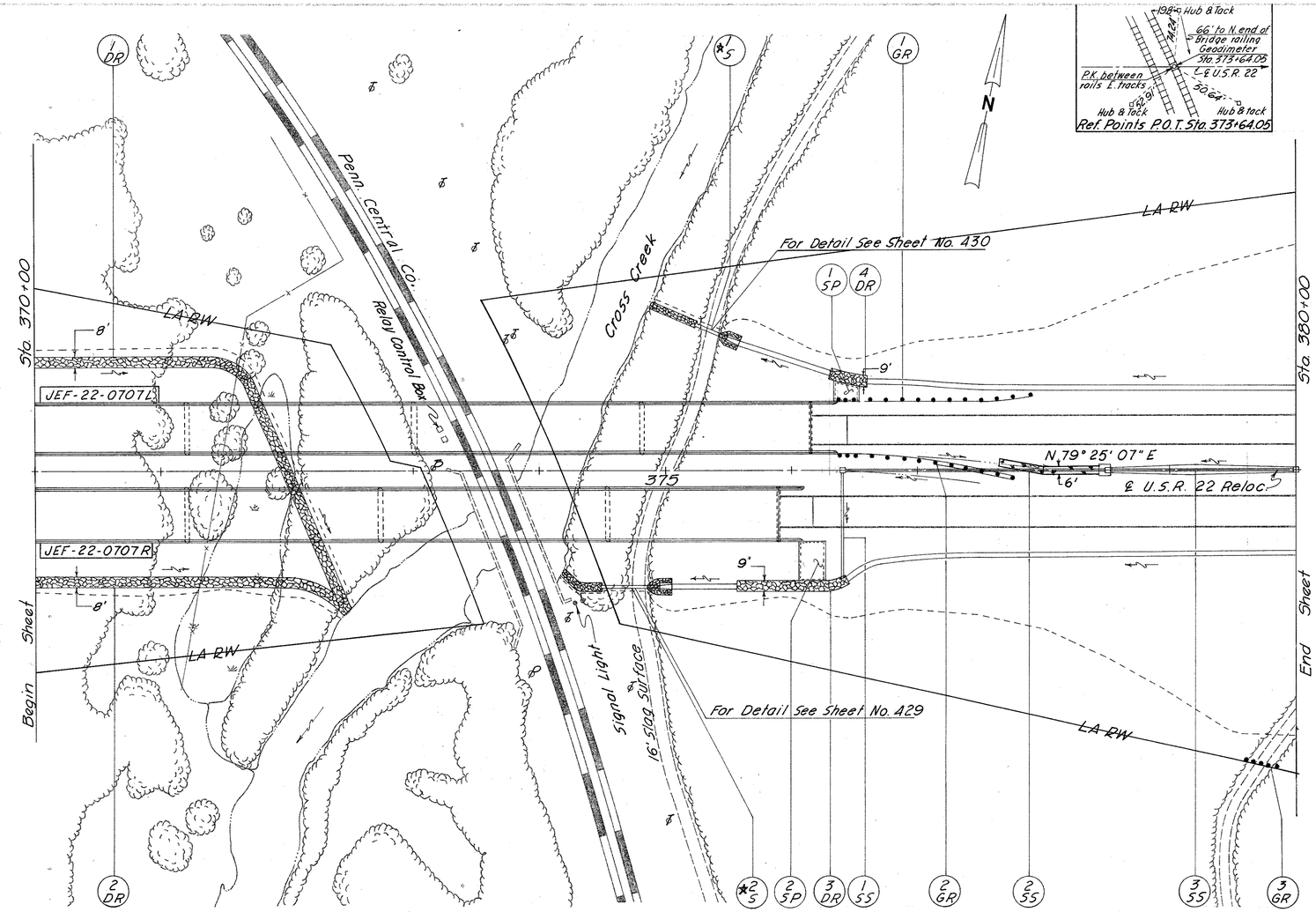
Sta. 368+05
Std. No. 2-2'-8 C.B.
T/G = 927.00
Æ 15" = 924.00

1024.2 1025.0 1025.6 1026.1 1026.6 1026.8 1026.4 1025.4 1023.9 1021.7 1018.1 1015.9 1009.1 999.7 988.2 984.9 +13 970.4 948.6 929.2 +42 925.7 907.3 887.7 871.1

360 361 362 363 364 365 366 367 368 369 370

PROFILE Sta. 360 + 00 to Sta. 370 + 00

JEF-22-3.86



PROPOSED STRUCTURE
BRIDGE No. JEF-22-0707-L

Type: Continuous welded steel deck girders with reinforced concrete deck and substructure
Spans: 123' : 164' : 180' : 180' : 135' ℄ bearings
Roadway: 40' f/f Parapets
Live Load: H S 20-44
Skew: None
Wearing Surface: 1" monolithic concrete
Approach Slabs: A5-1-67 (25' long)
Alignment: Tangent
Traffic: 3365 ADT 1988

PROPOSED STRUCTURE
BRIDGE No. JEF-22-0707-R

Type: Continuous welded steel deck girders with reinforced concrete deck and substructure
Spans: 108' : 144' : 153' : 180' : 135' ℄ bearings
Roadway: 40' f/f parapets
Live Load: H S 20-44
Skew: None
Wearing Surface: 1" monolithic concrete
Approach Slabs: A5-1-67 (25' long)
Alignment: Tangent
Traffic 3365 ADT 1988

For Profile Sta. 370 to Sta. 380 See Following Sheet.

Bench Mark Elev. 844.82
R.R. spike in E. side of 6" tree
250'± Rt. of ℄ Station 374+00

★ Provide pavement replacement in accordance with 603.02.
★★ with Class B bedding

ESTIMATED QUANTITIES

ITEM NO.	STATION TO STATION	SIDE	601 Dumped Rock Channel Lining C.Y.	601 6" Reinf. Concrete Riprap S.Y.	602 Concrete Masonry C.Y.	603 conduit With Class A Bedding Type 5 L.F.	603 conduit With Class B Bedding Type C ** 18" L.F.	604 Std. No. 8 Catch Basin Ea.	604 Std. No. 2-2-8 Catch Basin Ea.	606 Guard Rail Mod as per plan Type 4 Barrier L.F.	606 Guard Posts Ea.	660 SODDING S.Y.	SHEET NO.
	ROADWAY												
1GR	376+38 to 377+88	Lt.											244
2GR	376+38 to 377+65.5	Rt.											246
3GR	379+85.50 to 379+85	Rt.											248
	DRAINAGE												
1SS	376+40 to 378+50	℄-Rt.	2		0.3							65	430
2SS	376+40 to 380+00	℄				87	210						429
1SP	376+42	Lt.											
2SP	376+22	Rt.		31			150						
1DR	370+00 to 372+42	Lt.	160										
2DR	370+00 to 372+48	Rt.	113										
3DR	375+60 to 376+38	Rt.	44										
4DR	376+30 to 376+60	Lt.	15	69									
	Structures 20' & Under												
1S	375+23 to 375+49	Lt.	21	8	10	26			1	150.00	5	5	
2S	374+51 to 374+96	Rt.	29	8	10	46		2		150.00			
			384	116	23	72	87	360	1	225.00	6250	65	

Sta. 370+00 to Sta. 380+00

JEF - 22 - 3.86

923.38 922.65 921.94 921.25 920.57 919.92 919.29 918.68 918.08 917.51 916.96 916.42 915.91 915.41 914.94 914.48 914.05 913.63 913.24 912.86 912.51 912.17 911.85 911.56 911.28 911.02 910.79 910.57 910.37 910.19 910.04 909.90 909.78 909.68 909.60 909.54 909.50 909.48 909.49 909.51 909.55

1020 1010 1000 990 980 970 960 950 940 930 920 910 900 890 880 870 860 850 840 830 820

980 970 960 950 940 930 920 910 900 890 880

For Plan View Sta 370 to Sta. 380 See Preceding Sheet.

Temp. Conn.

2400' V.C.

Bridge Limits = 786.5' Left Bridge

Bridge Limits = 724.5' Right Bridge

Sta. 375+90.25

Sta. 376+17.25

18" Type C @ 0.28%

Sta. 376+40
Std. No. 2-2-B C.B.
T/G = 908.56
IE 18" = 902.96

Sta. 378+50
Std. No. 8 C.B.
T/G = 907.02
IE 18" = 903.55

18" Type C @ 0.28%

-3.60%

P.I. Sta. 380+00
Elev. 886.75

Sta. 380+00
Std. No. 8 C.B.
T/G = 906.97
IE 18" = 903.97

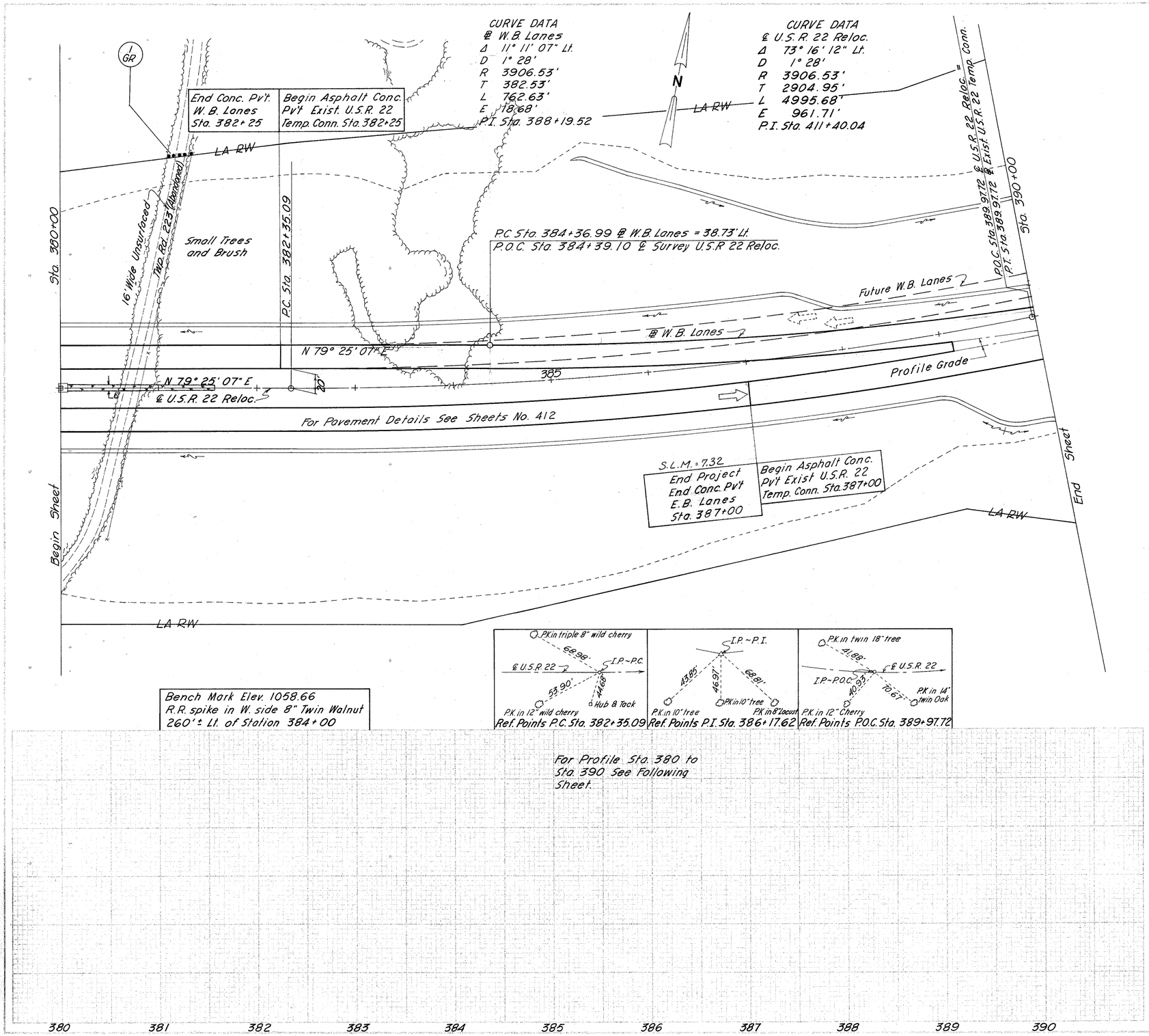
T.R. 848.02
T.R. 847.61
T.R. 848.16
T.R. 848.59

871.1 857.3 843.5 +24 835.3 830.0 828.5 831.1 832.8 +08 832.1 +25 838.2 +45 846.7 +69 847.5 +75 847.7 +95 E.W. 845.7 +90 ℄ E.W. 824.2 821.8 +12 821.0 +34 E.W. 821.8 830.8 859.0 +94 859.7 +01 860.4 +08 889.6 +03 895.1 904.2 916.2 928.1 939.3 949.8 963.0 977.9 995.5 1016.3

370 371 372 373 374 375 376 377 378 379 380

PROFILE Sta. 370+00 to Sta. 380+00

JEF-22-3.86



ESTIMATED QUANTITIES

ITEM NO.	STATION TO STATION	SIDE	606 Guard Posts	660 Sodding
			Ea.	S.Y.
	ROADWAY			
1GR	381+10.50 to 381+34.25	Lt.	5	
1SJ	380+00 to 381+50	℄		100

Sta. 380+00 to Sta. 390+00

45
516

JEF - 22 - 3.86

Profile Grade Temporary Connection: 909.55 909.61 909.69 909.78 909.90 910.04 910.20 910.38 910.58 910.80 911.04 911.29 911.57 911.87 912.19 912.52 912.88 913.26 913.65 914.07 914.51 914.96 915.44 915.93 916.45 916.98 917.54 918.11 918.71 919.30 919.85 920.36 920.85 921.29 921.71 922.08 922.43 922.73 923.00 923.24 923.44

Profile Grade Future Construction: 918.71 919.52 919.96 920.61 921.28 921.98 922.69 923.42 924.17 924.95 925.74 926.55 927.38

1060
1050
1040
1030
1020
1010
1000
990
980
970
960
950
940
930
920
910

2400' V.C.

Profile Future Const. 2.417%

Profile Temporary Connection

700' V.C.

P.V.I. Sta. 380+00
Elev. 886.75

+4.00%

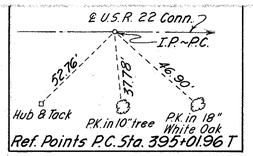
1016.3 1035.4 1040.8 +60 1041.1 +71 1041.1 +65 1045.7 +86 1048.3 1040.8 +77 1055.8 1057.2 +70 1058.6 1058.5 +3509 1058.6 1059.6 1059.6 1058.1 1056.1 1046.0 1029.0 1019.5 +83 1010.0 992.3 979.1 966.8 950.5 945.5 +12 940.5 935.1 +38 917.3 911.9 +24 915.7 916.4 +75 913.4

380 381 382 383 384 385 386 387 388 389 390

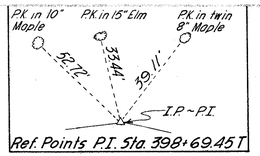
PROFILE Sta. 380+00 to Sta. 390+00

JEF-22-3.86

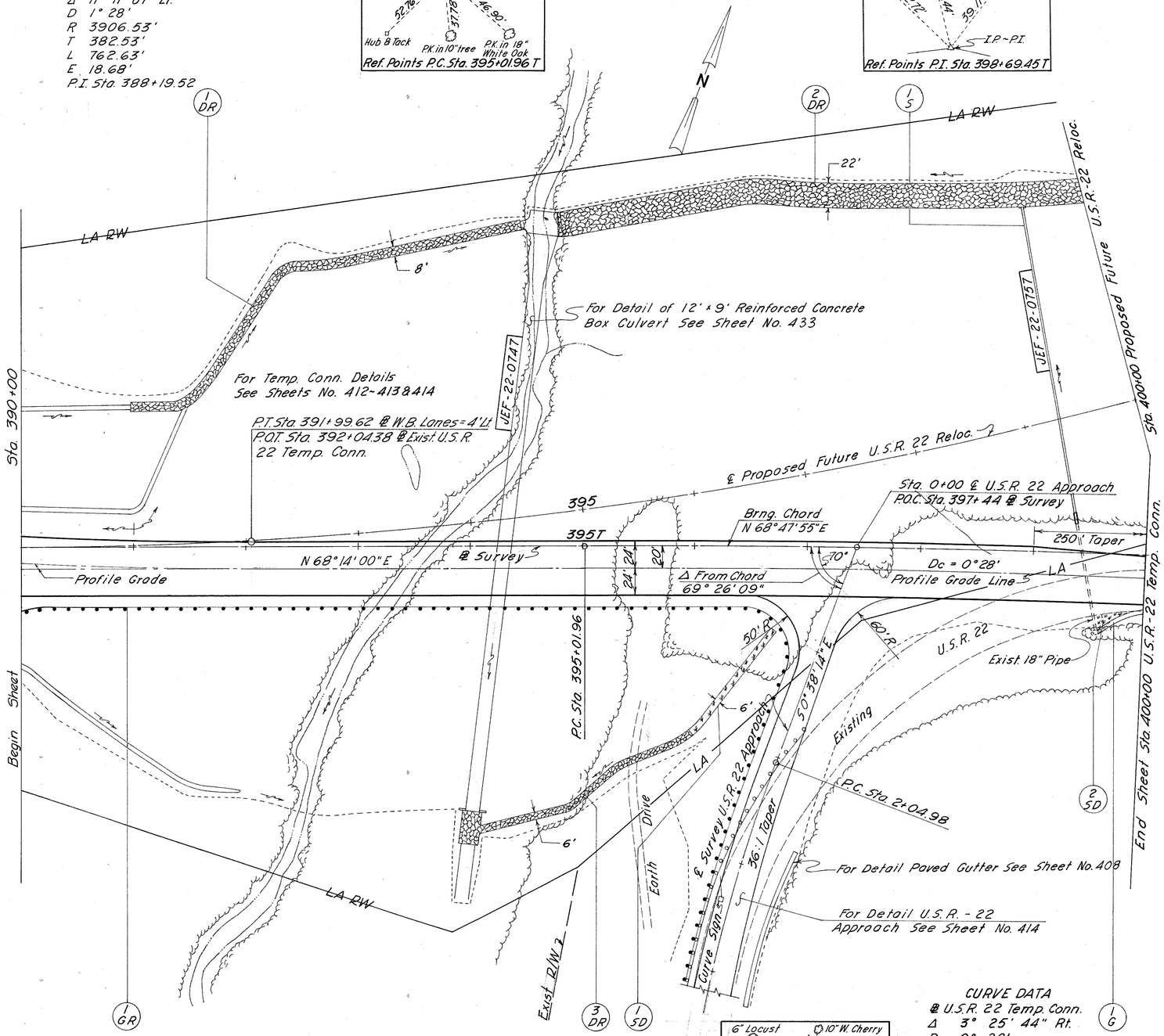
CURVE DATA
℄ W.B. Lanes
Δ 11° 11' 07" Lt.
D 1° 28'
R 3906.53'
T 382.53'
L 762.63'
E 18.68'
P.I. Sta. 388+19.52



Ref. Points P.C. Sta. 395+01.96 T

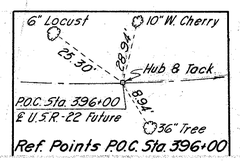


Ref. Points P.I. Sta. 398+69.45 T



For Profile Sta. 390+00 to Sta. 400+00 See Following Sheet

Bench Mark Elev. 844.05
R.R. spike in W. side of triple 24" Sycamore
320'± Rt. of ℄ Station 394+00



Ref. Points P.O.C. Sta. 396+00

CURVE DATA
℄ U.S.R. 22 Temp. Conn.
Δ 3° 25' 44" Rt.
D 0° 28'
R 12,277.67'
T 367.49'
L 734.76'
E 5.52'
P.I. Sta. 398+69.45

* Modified as per plan
** With class B bedding

ESTIMATED QUANTITIES

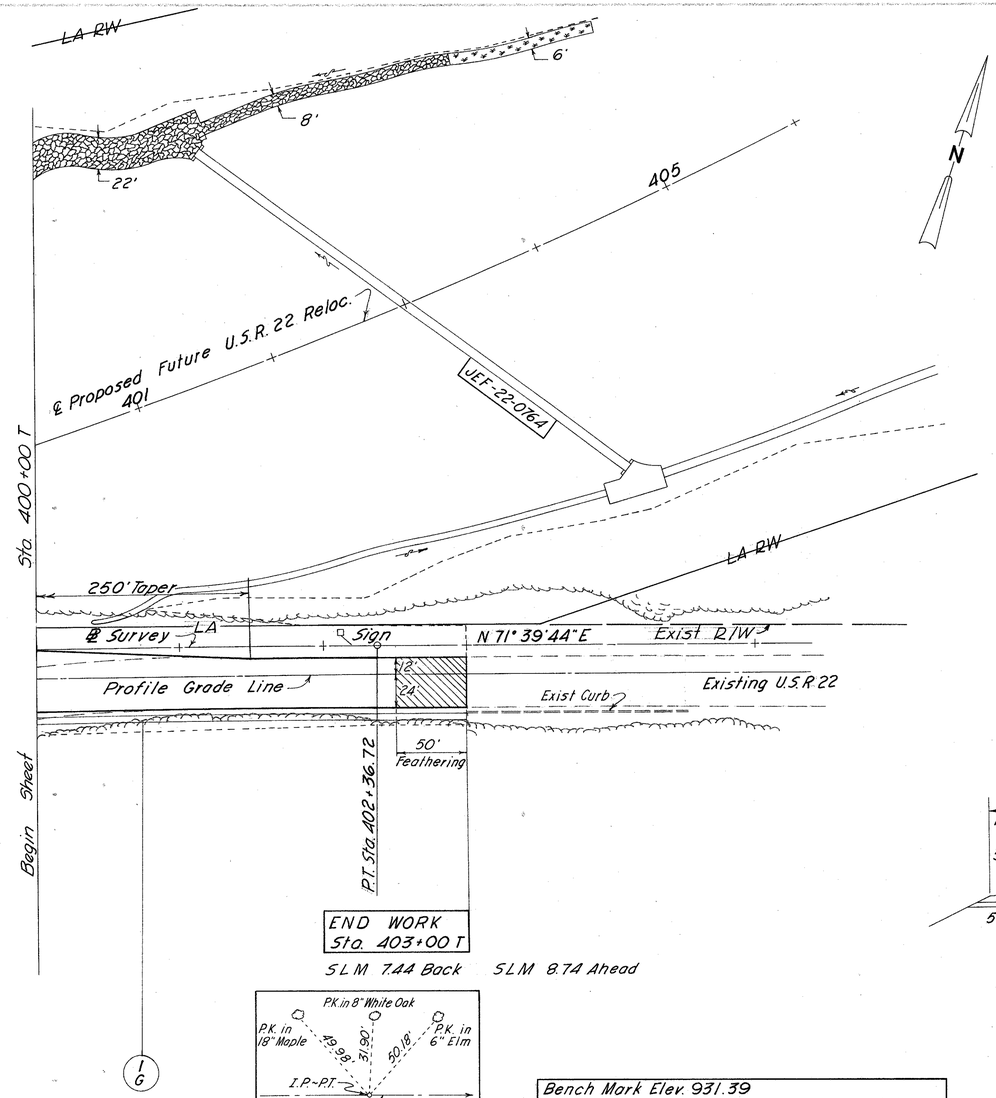
REF. NO.	STATION TO STATION	SIDE	660 Sodding S.Y.	606 Guard Rail Type 4 ** L.F.	603 Conduit Type A 707.05 * 18" L.F.	603 Conduit Type F 18" L.F.	602 Concrete Masonry C.Y.	601 Type 1 Paved Gutter L.F.	601 Dumped Rock Channel Lining C.Y.
	ROADWAY								
1GR	390+00 to 396+88	Rt.	79 15	642.26					
	DRAINAGE								
1G	399+62 to 400+00	Rt.						42	
1SD	395+65 to 396+30	Rt.							
2SD	399+62 to 399+86	Rt.							
1DR	391+00 to 394+76	Lt.				183			
2DR	395+15 to 400+00	Lt.				572			
3DR	393+82 to 395+65	Rt.				70			
	Structures 20' & Under								
1S	399+30.89	℄			226	63	0.3	42	825
			79 15	642.26	226	63	0.3	42	825

Sta. 390+00 to Sta. 400+00

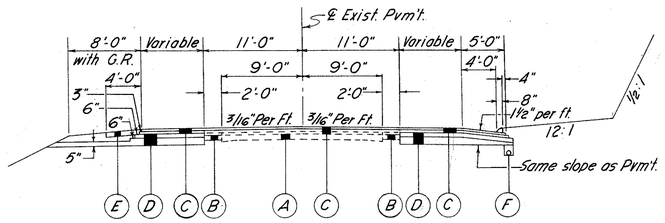
JEF-22-3.86

PROFILE Sta. 390+00 to Sta. 400+00

JEF - 22 - 3.86



Bench Mark Elev. 931.39
Chiseled □ on top of S.E. corner of catch basin 70' ± Rt. of ℄ Station 400+00 Temp. Conn.



Ⓐ 9"~7"~7"~9" Concrete Pavement
Ⓑ Slag Base
Ⓒ Asphalt Concrete Surface Course
Ⓓ Subbase
Ⓔ Crushed Aggregate Shoulders
Ⓕ 6" Pipe Underdrain

Typical Section Adjoining Pavement

For Profile Sta. 400+00 to Sta. 404+50 See Following Sheet.

400 401 402 403 404 405

ESTIMATED QUANTITIES

601 Type A Paved Gutter L.F.		300	300
DRAINAGE			
1 G	400+00 to 403+00		

Sta. 400 +00 to Sta. 404 +50

JEF-22-3.86

938.56 939.64 940.41 942.28 944.15 946.02 947.89 949.76 951.63 953.50 953.37 957.24 959.11 960.98

+14.70

990
980
970
960
950
940
930

END WORK
Temporary Conn.
Sta. 403+00

50'
Feather

600' V.C.

Profile Temporary Connection
+7.48%

For Plan View Sta. 400+00 to Sta. 403+00 See Preceding Sheet.

937.82 941.42 944.72 948.71 952.51 956.30 960.00 963.50 966.90 970.42 973.92 977.52 981.21 984.71 988.31

400 401 402 403 404 405 406 407

PROFILE Sta. 400+00 to Sta. 407+00

For Profile Sta. 400+00 to Sta. 410+00 See Following Sheet.

400 401 402 403 404 405 406 407 408 409 410

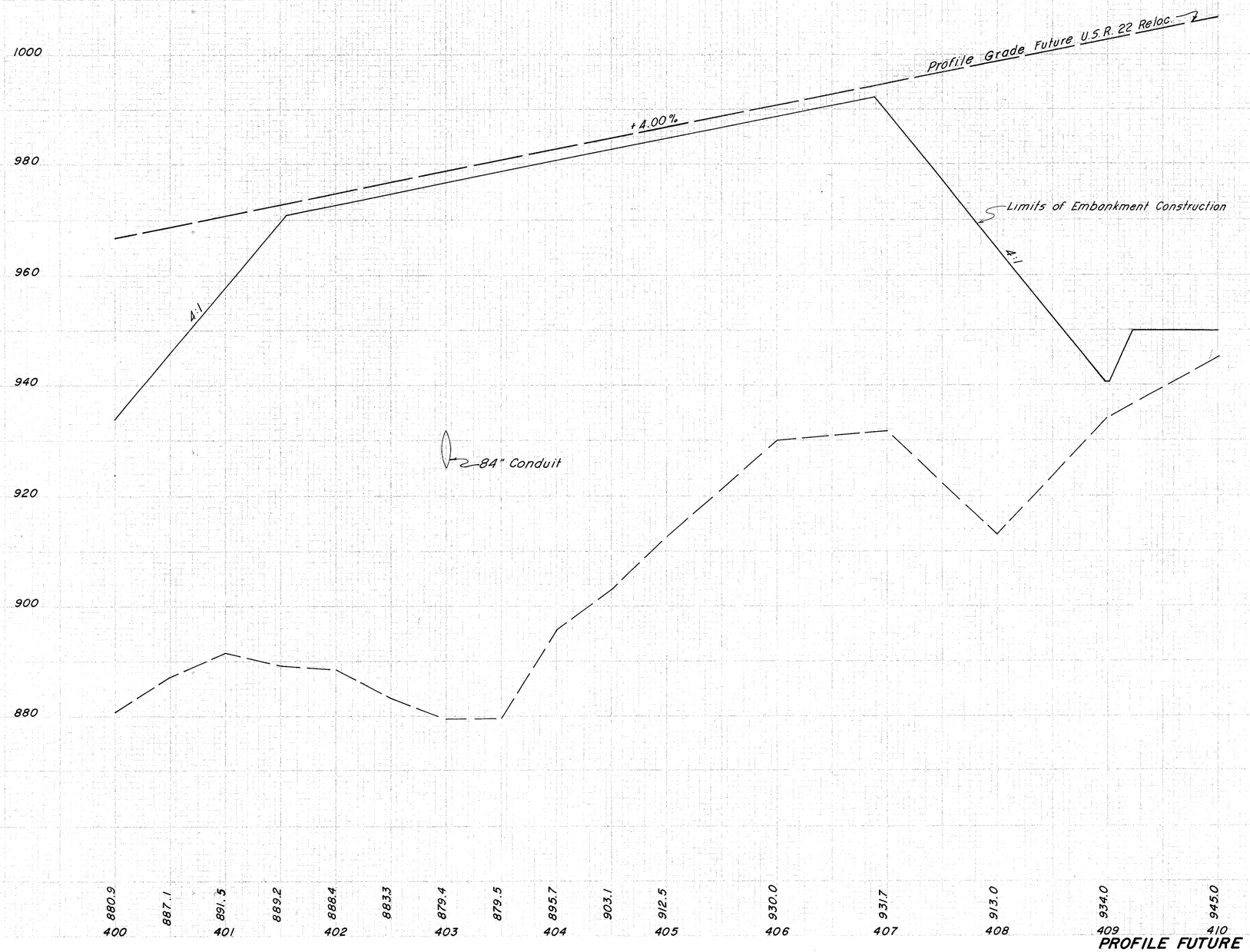
ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	601 Dumped Rock Channel Prot. C.Y.	601 6" Reinf. Concrete Riprap S.Y.	602 Concrete Masonry C.Y.	603 Conduit Type A * 84" L.F.	660 Sodding S.Y.	See Sheet No.
	DRAINAGE							
1DR	400+00 to 401+68	Lt.	202					
2DR	402+14 to 404+00	Lt.	80					
3DR	409+00	Rt.	10					
4DR	408+00 to 408+95	Rt.	67					
1SD	404+00 to 405+00	Lt.					69	
	Structures 20' & Under							
1S	403+00	℄	86	82	8.8	372		432
			445	82	8.8	372	69	

* 70703 7.5 Gage with class B bedding

JEF-22-3.86

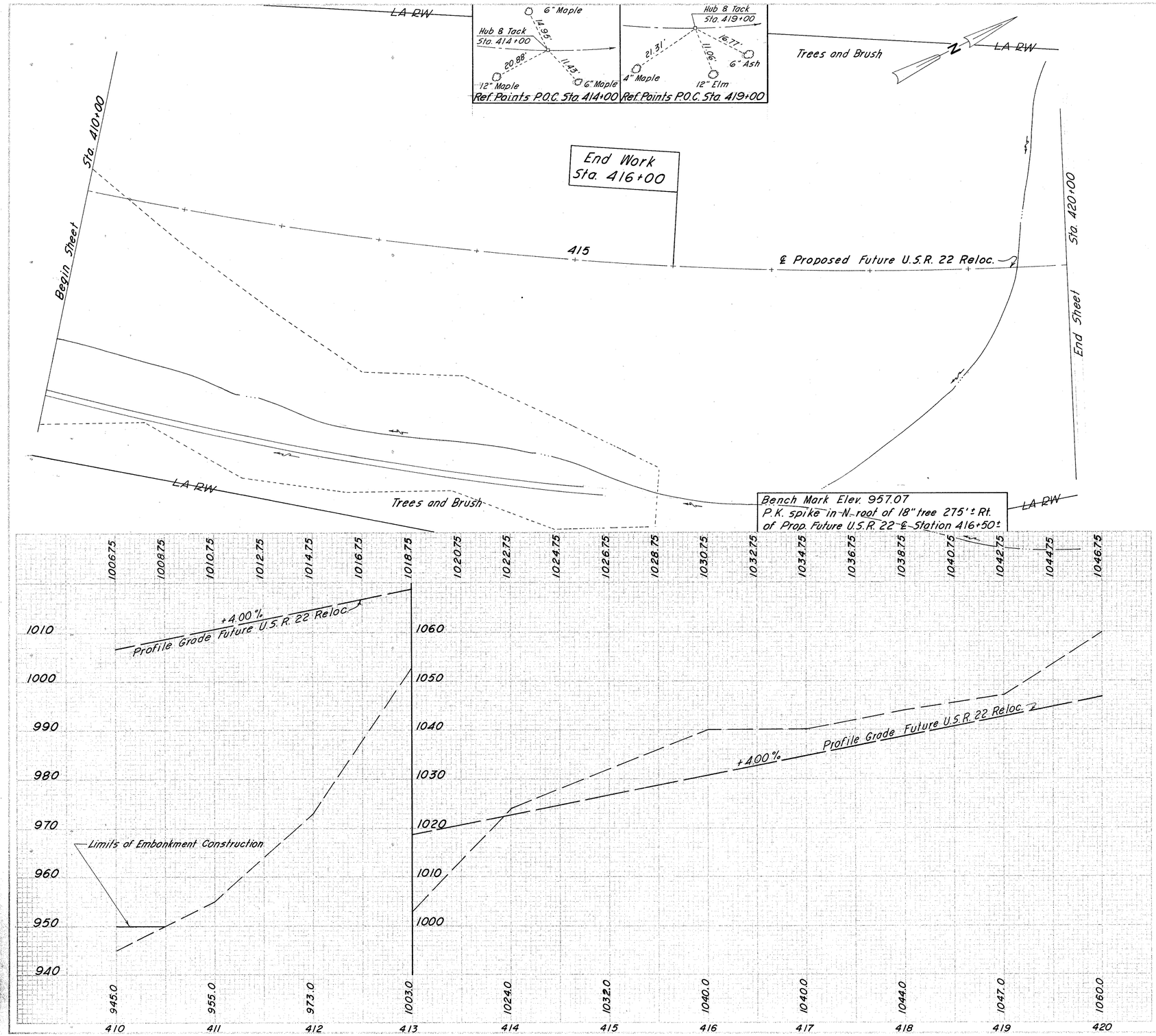
966.75 968.75 970.75 972.75 974.75 976.75 978.75 980.75 982.75 984.75 986.75 988.75 990.75 992.75 994.75 996.75 998.75 1000.75 1002.75 1004.75 1006.75



880.9 887.1 891.5 889.2 888.4 883.3 879.4 879.5 895.7 903.1 912.5 930.0 931.7 913.0 934.0 945.0

400 401 402 403 404 405 406 407 408 409 410

PROFILE FUTURE U.S.R. 22 Sta. 400+00 to Sta. 410+00



ESTIMATED QUANTITIES

SEE SHEET NO.

STATION TO STATION | SIDE

PROFILE FUTURE U.S.R. 22 Sta. 410+00 to Sta. 420+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF-22-3.86

53
516

CURVE TABLES

P.O.C. Sta. 204+00.00			Dc = 1°-00' Max. Super .032	P.T. Sta. 240+67.42		
Left Lanes				Right Lanes		
Lt. Edge	℄	Rt. Edge Profile Grade	STATION	Lt. Edge Profile Grade	℄	Rt. Edge
1161.71	1161.33	1160.95	204+00	1160.95	1160.57	1160.19
1161.16	1160.78	1160.40	+25	1160.40	1160.02	1159.64
1160.61	1160.23	1159.85	+50	1159.85	1159.47	1159.09
1160.06	1159.68	1159.30	+75	1159.30	1158.92	1158.54
1159.51	1159.13	1158.75	205+00	1158.75	1158.37	1157.99
1158.96	1158.58	1158.20	+25	1158.20	1157.82	1157.44
1158.41	1158.03	1157.65	+50	1157.65	1157.27	1156.89
1157.86	1157.48	1157.10	+75	1157.10	1156.72	1156.34
1157.31	1156.93	1156.55	206+00	1156.55	1156.17	1155.79
1156.76	1156.38	1156.00	+25	1156.00	1155.62	1155.24
1156.21	1155.83	1155.45	+50	1155.45	1155.07	1154.69
1155.66	1155.28	1154.90	+75	1154.90	1154.52	1154.14
1155.11	1154.73	1154.35	207+00	1154.35	1153.97	1153.59
1154.56	1154.18	1153.80	+25	1153.80	1153.42	1153.04
1154.01	1153.63	1153.25	+50	1153.25	1152.87	1152.49
1153.46	1153.08	1152.70	+75	1152.70	1152.32	1151.94
1152.91	1152.53	1152.15	208+00	1152.15	1151.77	1151.39
1152.36	1151.98	1151.60	+25	1151.60	1151.22	1150.84
1151.81	1151.43	1151.05	+50	1151.05	1150.67	1150.29
1151.26	1150.88	1150.50	+75	1150.50	1150.12	1149.74
1150.71	1150.33	1149.95	209+00	1149.95	1149.57	1149.19
1150.16	1149.78	1149.40	+25	1149.40	1149.02	1148.64
1149.61	1149.23	1148.85	+50	1148.85	1148.47	1148.09
1149.06	1148.68	1148.30	+75	1148.30	1147.92	1147.54
1148.51	1148.13	1147.75	210+00	1147.75	1147.37	1146.99
1147.96	1147.58	1147.20	+25	1147.20	1146.82	1146.44
1147.41	1147.03	1146.65	+50	1146.65	1146.27	1145.89
1146.86	1146.48	1146.10	+75	1146.10	1145.72	1145.34
1146.31	1145.93	1145.55	211+00	1145.55	1145.17	1144.79
1145.76	1145.38	1145.00	+25	1145.00	1144.62	1144.24
1145.21	1144.83	1144.45	+50	1144.45	1144.07	1143.69
1144.66	1144.28	1143.90	+75	1143.90	1143.52	1143.14
1144.11	1143.73	1143.35	212+00	1143.35	1142.97	1142.59
1143.57	1143.19	1142.81	+25	1142.81	1142.43	1142.05
1143.05	1142.67	1142.29	+50	1142.29	1141.91	1141.53
1142.55	1142.17	1141.79	+75	1141.79	1141.41	1141.03
1142.06	1141.68	1141.30	213+00	1141.30	1140.92	1140.54
1141.60	1141.22	1140.84	+25	1140.84	1140.46	1140.08
1141.16	1140.78	1140.40	+50	1140.40	1140.02	1139.64
1140.73	1140.35	1139.97	+75	1139.97	1139.59	1139.21
1140.32	1139.94	1139.56	214+00	1139.56	1139.18	1138.80
1139.94	1139.56	1139.18	+25	1139.18	1138.80	1138.42
1139.57	1139.19	1138.81	+50	1138.81	1138.43	1138.05
1139.22	1138.84	1138.46	+75	1138.46	1138.08	1137.70
1138.89	1138.51	1138.13	215+00	1138.13	1137.75	1137.37
1138.58	1138.20	1137.82	+25	1137.82	1137.44	1137.06
1138.29	1137.91	1137.53	+50	1137.53	1137.15	1136.77
1138.02	1137.64	1137.26	+75	1137.26	1136.88	1136.50
1137.76	1137.38	1137.00	216+00	1137.00	1136.62	1136.24
1137.53	1137.15	1136.77	+25	1136.77	1136.39	1136.01
1137.32	1136.94	1136.56	+50	1136.56	1136.18	1135.80
1137.12	1136.74	1136.36	+75	1136.36	1135.98	1135.60

P.O.C. Sta. 204+00.00			Dc = 1°-00' Max. Super .032	P.T. Sta. 240+67.42		
Left Lanes				Right Lanes		
Lt. Edge	℄	Rt. Edge Profile Grade	STATION	Lt. Edge Profile Grade	℄	Rt. Edge
1136.94	1136.56	1136.18	217+00	1136.18	1135.80	1135.42
1136.79	1136.41	1136.03	+25	1136.03	1135.65	1135.27
1136.65	1136.27	1135.89	+50	1135.89	1135.51	1135.13
1136.53	1136.15	1135.77	+75	1135.77	1135.39	1135.01
1136.43	1136.05	1135.67	218+00	1135.67	1135.29	1134.91
1136.34	1135.96	1135.58	+25	1135.58	1135.20	1134.82
1136.25	1136.87	1135.49	+50	1135.49	1135.11	1134.73
1136.16	1135.78	1135.40	+75	1135.40	1135.02	1134.64
1136.07	1135.69	1135.31	219+00	1135.31	1134.93	1134.55
1135.98	1135.60	1135.22	+25	1135.22	1134.84	1134.46
1135.89	1135.51	1135.13	+50	1135.13	1134.75	1134.37
1135.80	1135.42	1135.04	+75	1135.04	1134.66	1134.28
1135.71	1135.33	1134.95	220+00	1134.95	1134.57	1134.19
1135.62	1135.24	1134.86	+25	1134.86	1134.48	1134.10
1135.53	1135.15	1134.77	+50	1134.77	1134.39	1134.01
1135.44	1135.06	1134.68	+75	1134.68	1134.30	1133.92
1135.35	1134.97	1134.59	221+00	1134.59	1134.21	1133.83
1135.26	1134.88	1134.50	+25	1134.50	1134.12	1133.74
1135.17	1134.79	1134.41	+50	1134.41	1134.03	1133.65
1135.08	1134.70	1134.32	+75	1134.32	1133.94	1133.56
1134.99	1134.61	1134.23	222+00	1134.23	1133.85	1133.47
1134.90	1134.52	1134.14	+25	1134.14	1133.76	1133.38
1134.81	1134.43	1134.05	+50	1134.05	1133.67	1133.29
1134.72	1134.34	1133.96	+75	1133.96	1133.58	1133.20
1134.63	1134.25	1133.87	223+00	1133.87	1133.49	1133.11
1134.54	1134.16	1133.78	+25	1133.78	1133.40	1133.02
1134.45	1134.07	1133.69	+50	1133.69	1133.31	1132.93
1134.36	1133.98	1133.60	+75	1133.60	1133.22	1132.84
1134.27	1133.89	1133.51	224+00	1133.51	1133.13	1132.75
1134.18	1133.80	1133.42	+25	1133.42	1133.04	1132.66
1134.09	1133.71	1133.33	+50	1133.33	1132.95	1132.57
1134.00	1133.62	1133.24	+75	1133.24	1132.86	1132.48
1133.91	1133.53	1133.15	225+00	1133.15	1132.77	1132.39
1133.82	1133.44	1133.06	+25	1133.06	1132.68	1132.30
1133.73	1133.35	1132.97	+50	1132.97	1132.59	1132.21
1133.64	1133.26	1132.88	+75	1132.88	1132.50	1132.12
1133.55	1133.17	113279	226+00	1132.79	1132.41	1132.03
1133.46	1133.08	1132.70	+25	1132.70	1132.32	1131.94
1133.37	1132.99	1132.61	+50	1132.61	1132.23	1131.85
1133.28	1132.90	1132.52	+75	1132.52	1132.14	1131.76
1133.19	1132.81	1132.43	227+00	1132.43	1132.05	1131.67
1133.10	1132.72	1132.34	+25	1132.34	1131.96	1131.58
1133.01	1132.63	1132.25	+50	1132.25	1131.87	1131.49
1132.92	1132.54	1132.16	+75	1132.16	1131.78	1131.40
1132.83	1132.45	1132.07	228+00	1132.07	1131.69	1131.31
1132.74	1132.36	1131.98	+25	1131.98	1131.60	1131.22
1132.65	1132.27	1131.89	+50	1131.89	1131.51	1131.13
1132.56	1132.18	1131.80	+75	1131.80	1131.42	1131.04
1132.47	1132.09	1131.71	229+00	1131.71	1131.33	1130.95
1132.38	1132.00	1131.62	+25	1131.62	1131.24	1130.86
1132.29	1131.91	1131.53	+50	1131.53	1131.15	1130.77
1132.20	1131.82	1131.44	+75	1131.44	1131.06	1130.68

P.O.C. Sta. 204+00.00			Dc = 1°-00' Max. Super .032	P.T. Sta. 240+67.42		
Left Lanes				Right Lanes		
Lt. Edge	℄	Rt. Edge Profile Grade	STATION	Lt. Edge Profile Grade	℄	Rt. Edge
1132.11	1131.73	1131.35	230+00	1131.35	1130.97	1130.59
1132.02	1131.64	1131.26	+25	1131.26	1130.88	1130.50
1131.93	1131.55	1131.17	+50	1131.17	1130.79	1130.41
1131.84	1131.46	1131.08	+75	1131.08	1130.70	1130.32
1131.75	1131.37	1130.99	231+00	1130.99	1130.61	1130.23
1131.66	1131.28	1130.90	+25	1130.90	1130.52	1130.14
1131.57	1131.19	1130.81	+50	1130.81	1130.43	1130.05
1131.48	1131.10	1130.72	+75	1130.72	1130.34	1129.96
1131.39	1131.01	1130.63	232+00	1130.63	1130.25	1129.87
1131.30	1130.92	1130.54	+25	1130.54	1130.16	1129.78
1131.21	1130.83	1130.45	+50	1130.45	1130.07	1129.69
1131.12	1130.74	1130.36	+75	1130.36	1129.98	1129.60
1131.03	1130.65	1130.27	233+00	1130.27	1129.89	1129.51
1130.94	1130.56	1130.18	+25	1130.18	1129.80	1129.42
1130.85	1130.47	1130.09	+50	1130.09	1129.71	1129.33
1130.76	1130.38	1130.00	+75	1130.00	1129.62	1129.24
1130.67	1130.29	1129.91	234+00	1129.91	1129.53	1129.15
1130.58	1130.20	1129.82	+25	1129.82	1129.44	1129.06
1130.49	1130.11	1129.73	+50	1129.73	1129.35	1128.97
1130.40	1130.02	1129.64	+75	1129.64	1129.26	1128.88
1130.31	1129.93	1129.55	235+00	1129.55	1129.17	1128.79
1130.22	1129.84	1129.46	+25	1129.46	1129.08	1128.70
1130.13	1129.75	1129.37	+50	1129.37	1128.99	1128.61
1130.04	1129.66	1129.28	+75	1129.28	1128.90	1128.52
1129.95	1129.57	1129.19	236+00	1129.19	1128.81	1128.43
1129.86	1129.48	1129.10	+25	1129.10	1128.72	1128.34
1129.77	1129.39	1129.01	+50	1129.01	1128.63	1128.25
1129.68	1129.30	1128.92	+75	1128.92	1128.54	1128.16
1129.59	1129.21	1128.83	237+00	1128.83	1128.45	1128.07
1129.50	1129.12	1128.74	+25	1128.74	1128.36	1127.98
1129.41	1129.03	1128.65	+50	1128.65	1128.27	1127.89
1129.32	1128.94	1128.56	+75	1128.56	1128.18	1127.80
1129.23	1128.85	1128.47	238+00	1128.47	1128.09	1127.71
1129.14	1128.76	1128.38	+25	1128.38	1128.00	1127.62
1129.05	1128.67	1128.29	+50	1128.29	1127.91	1127.53
1128.96	1128.58	1128.20	+75	1128.20	1127.82	1127.44
1128.87	1128.49	1128.11	239+00	1128.11	1127.73	1127.35
1128.78	1128.40	1128.02	+25	1128.02	1127.64	1127.26
1128.69	1128.31	1127.93	+50	1127.93	1127.55	1127.17
1128.58	1128.21	1127.84	+75	1127.84	1127.50	1127.16
1128.43	1128.09	1127.75	240+00	1127.75	1127.45	1127.15
1128.22	1127.94	1127.66	+25	1127.66	1127.40	1127.14
1128.01	1127.79	1127.57	+50	1127.57	1127.35	1127.13
1127.82	1127.67	1127.48	+75	1127.48	1127.30	1127.11
1127.67	1127.58	1127.39	241+00	1127.39	1127.28	1127.09
1127.52	1127.49	1127.30	+25	1127.30	1127.26	1127.07
1127.37	1127.40	1127.21	+50	1127.21	1127.23	1127.04
1127.22	1127.31	1127.12	+75	1127.12	1127.20	1127.01
1127.07	1127.22	1127.03	242+00	1127.03	1127.17	1126.98
1126.94	1127.13	1126.94	+25	1126.94	1127.13	1126.94

Computed By J.W.W.
Checked By G.L.C.

CURVE TABLES

T.S. Sta. 284+79.85 S.C. Sta. 288+79.85			Dc = 3°-00' Max. Super. 083	C.S. Sta. 300+62.30 S.T. Sta. 304+62.30		
Left Lanes			STATION	Right Lanes		
Lt. Edge	℄	Rt. Edge Profile Grade		Lt. Edge Profile Grade	℄	Rt. Edge
1124.83	1125.02	1124.83	284+00	1124.83	1125.02	1124.83
1124.83	1125.02	1124.89	+25	1124.89	1125.08	1124.95
1124.83	1125.02	1124.95	+50	1124.95	1125.14	1125.07
1124.82	1125.01	1125.01	+75	1125.01	1125.20	1125.20
1124.82	1125.01	1125.07	285+00	1125.07	1125.26	1125.32
1124.81	1125.00	1125.13	+25	1125.13	1125.32	1125.44
1124.81	1125.00	1125.19	+50	1125.19	1125.39	1125.57
1124.77	1125.01	1125.25	+75	1125.25	1125.49	1125.73
1124.71	1125.01	1125.31	286+00	1125.31	1125.61	1125.91
1124.65	1125.01	1125.37	+25	1125.37	1125.73	1126.09
1124.57	1125.00	1125.43	+50	1125.43	1125.86	1126.29
1124.51	1125.00	1125.49	+75	1125.49	1125.98	1126.47
1124.45	1125.00	1125.55	287+00	1125.55	1126.10	1126.65
1124.39	1125.00	1125.61	+25	1125.61	1126.22	1126.83
1124.33	1125.00	1125.67	+50	1125.67	1126.34	1127.01
1124.25	1124.99	1125.73	+75	1125.73	1126.47	1127.21
1124.19	1124.99	1125.79	288+00	1125.79	1126.59	1127.39
1124.13	1124.99	1125.85	+25	1125.85	1126.71	1127.57
1124.07	1124.99	1125.91	+50	1125.91	1126.83	1127.75
1124.01	1124.99	1125.97	+75	1125.97	1126.95	1127.93
1124.03	1125.03	1126.03	289+00	1126.03	1127.03	1128.03
1124.09	1125.09	1126.09	+25	1126.09	1127.09	1128.09
1124.15	1125.15	1126.15	+50	1126.15	1127.15	1128.15
1124.21	1125.21	1126.21	+75	1126.21	1127.21	1128.21
1124.27	1125.27	1126.27	290+00	1126.27	1127.27	1128.27
1124.33	1125.33	1126.33	+25	1126.33	1127.33	1128.33
1124.39	1125.39	1126.39	+50	1126.39	1127.39	1128.39
1124.45	1125.45	1126.45	+75	1126.45	1127.45	1128.45
1124.51	1125.51	1126.51	291+00	1126.51	1127.51	1128.51
1124.57	1125.57	1126.57	+25	1126.57	1127.57	1128.57
1124.63	1125.63	1126.63	+50	1126.63	1127.63	1128.63
1124.69	1125.69	1126.69	+75	1126.69	1127.69	1128.69
1124.75	1125.75	1126.75	292+00	1126.75	1127.75	1128.75
1124.81	1125.81	1126.81	+25	1126.81	1127.81	1128.81
1124.87	1125.87	1126.87	+50	1126.87	1127.87	1128.87
1124.93	1125.93	1126.93	+75	1126.93	1127.93	1128.93
1124.99	1125.99	1126.99	293+00	1126.99	1127.99	1128.99
1125.05	1126.05	1127.05	+25	1127.05	1128.05	1129.05
1125.11	1126.11	1127.11	+50	1127.11	1128.11	1129.11
1125.17	1126.17	1127.17	+75	1127.17	1128.17	1129.17
1125.23	1126.23	1127.23	294+00	1127.23	1128.23	1129.23
1125.29	1126.29	1127.29	+25	1127.29	1128.29	1129.29
1125.35	1126.35	1127.35	+50	1127.35	1128.35	1129.35
1125.41	1126.41	1127.41	+75	1127.41	1128.41	1129.41

T.S. Sta. 284+79.85 S.C. Sta. 288+79.85			Dc = 3°-00' Max. Super .083	C.S. Sta. 300+62.30 S.T. Sta. 304+62.30		
Left Lanes			STATION	Right Lanes		
Lt. Edge	℄	Rt. Edge Profile Grade		Lt. Edge Profile Grade	℄	Rt. Edge
1125.47	1126.47	1127.47	295+00	1127.47	1128.47	1129.47
1125.53	1126.53	1127.53	+25	1127.53	1128.53	1129.53
1125.59	1126.59	1127.59	+50	1127.59	1128.59	1129.59
1125.65	1126.65	1127.65	+75	1127.65	1128.65	1129.65
1125.71	1126.71	1127.71	296+00	1127.71	1128.71	1129.71
1125.77	1126.77	1127.77	+25	1127.77	1128.77	1129.77
1125.83	1126.83	1127.83	+50	1127.83	1128.83	1129.83
1125.89	1126.89	1127.89	+75	1127.89	1128.89	1129.89
1125.95	1126.95	1127.95	297+00	1127.95	1128.95	1129.95
1126.01	1127.01	1128.01	+25	1128.01	1129.01	1130.01
1126.07	1127.07	1128.07	+50	1128.07	1129.07	1130.07
1126.13	1127.13	1128.13	+75	1128.13	1129.13	1130.13
1126.19	1127.19	1128.19	298+00	1128.19	1129.19	1130.19
1126.25	1127.25	1128.25	+25	1128.25	1129.25	1130.25
1126.31	1127.31	1128.31	+50	1128.31	1129.31	1130.31
1126.37	1127.37	1128.37	+75	1128.37	1129.37	1130.37
1126.43	1127.43	1128.43	299+00	1128.43	1129.43	1130.43
1126.49	1127.49	1128.49	+25	1128.49	1129.49	1130.49
1126.55	1127.55	1128.55	+50	1128.55	1129.55	1130.55
1126.61	1127.61	1128.61	+75	1128.61	1129.61	1130.61
1126.67	1127.67	1128.67	300+00	1128.67	1129.67	1130.67
1126.73	1127.73	1128.73	+25	1128.73	1129.73	1130.73
1126.79	1127.79	1128.79	+50	1128.79	1129.79	1130.79
1126.89	1127.87	1128.85	+75	1128.85	1129.83	1130.81
1127.07	1127.99	1128.91	301+00	1128.91	1129.83	1130.75
1127.25	1128.11	1128.97	+25	1128.97	1129.83	1130.69
1127.43	1128.23	1129.03	+50	1129.03	1129.83	1130.63
1127.61	1128.35	1129.09	+75	1129.09	1129.83	1130.57
1127.81	1128.48	1129.15	302+00	1129.15	1129.82	1130.49
1127.99	1128.60	1129.21	+25	1129.21	1129.82	1130.43
1128.17	1128.72	1129.27	+50	1129.27	1129.82	1130.37
1128.35	1128.84	1129.33	+75	1129.33	1129.82	1130.31
1128.53	1128.96	1129.39	303+00	1129.39	1129.82	1130.25
1128.73	1129.09	1129.45	+25	1129.45	1129.81	1130.17
1128.91	1129.21	1129.51	+50	1129.51	1129.81	1130.11
1129.09	1129.33	1129.57	+75	1129.57	1129.81	1130.05
1129.25	1129.44	1129.63	304+00	1129.63	1129.83	1130.01
1129.37	1129.56	1129.69	+25	1129.69	1129.88	1130.00
1129.50	1129.69	1129.75	+50	1129.75	1129.94	1130.00
1129.62	1129.81	1129.81	+75	1129.81	1130.00	1130.00
1129.75	1129.94	1129.87	305+00	1129.87	1130.06	1129.99
1129.87	1130.06	1129.93	+25	1129.93	1130.12	1129.99
1129.99	1130.18	1129.99	+50	1129.99	1130.18	1129.99

Computed By J.W.W.
Checked By G.L.C.

CURVE TABLES

P.C. Sta. 317+42.87			Dc = 1°-28' Max. Super .0475	P.T. Sta. 341+69.39		
Left Lanes				Right Lanes		
Lt. Edge	℄	Rt. Edge Profile Grade	STATION	Lt. Edge Profile Grade	℄	Rt. Edge
1119.26	1119.45	1119.26	315+25	1119.26	1119.45	1119.26
1118.54	1118.71	1118.52	+50	1118.52	1118.69	1118.50
1118.82	1118.94	1117.75	+75	1117.75	1118.87	1117.68
1117.09	1117.15	1116.96	316+00	1116.96	1117.02	1116.83
1116.33	1116.33	1116.14	+25	1116.14	1116.14	1115.95
1115.55	1115.49	1115.30	+50	1115.30	1115.24	1115.05
1114.76	1114.63	1114.44	+75	1114.44	1114.31	1114.12
1113.97	1113.76	1113.55	317+00	1113.55	1113.35	1113.13
1113.19	1112.92	1112.65	+25	1112.65	1112.38	1112.11
1112.41	1112.08	1111.75	+50	1111.75	1111.42	1111.09
1111.63	1111.24	1110.85	+75	1110.85	1110.46	1110.07
1110.85	1110.40	1109.95	318+00	1109.95	1109.50	1109.05
1110.07	1109.56	1109.05	+25	1109.05	1108.54	1108.03
1109.26	1108.70	1108.15	+50	1108.15	1107.60	1107.04
1108.39	1107.82	1107.25	+75	1107.25	1106.68	1106.11
1107.49	1106.92	1106.35	319+00	1106.35	1105.78	1105.21
1106.59	1106.02	1105.45	+25	1105.45	1104.88	1104.31
1105.69	1105.12	1104.55	+50	1104.55	1103.98	1103.41
1104.79	1104.22	1103.65	+75	1103.65	1103.08	1102.51
1103.89	1103.32	1102.75	320+00	1102.75	1102.18	1101.61
1102.99	1102.42	1101.85	+25	1101.85	1101.28	1100.71
1102.09	1101.52	1100.95	+50	1100.95	1100.38	1099.81
1101.19	1100.62	1100.05	+75	1100.05	1099.48	1098.91
1100.29	1099.72	1099.15	321+00	1099.15	1098.58	1098.01
1099.39	1098.82	1098.25	+25	1098.25	1097.68	1097.11
1098.49	1097.92	1097.35	+50	1097.35	1096.78	1096.21
1097.59	1097.02	1096.45	+75	1096.45	1095.88	1095.31
1096.69	1096.12	1095.55	322+00	1095.55	1094.98	1094.41
1095.79	1095.22	1094.65	+25	1094.65	1094.08	1093.51
1094.89	1094.32	1093.75	+50	1093.75	1093.18	1092.61
1093.99	1093.42	1092.85	+75	1092.85	1092.28	1091.71
1093.09	1092.52	1091.95	323+00	1091.95	1091.38	1090.81
1092.19	1091.62	1091.05	+25	1091.05	1090.48	1089.91
1091.29	1090.72	1090.15	+50	1090.15	1089.58	1089.01
1090.39	1089.82	1089.25	+75	1089.25	1088.68	1088.11
1089.49	1088.92	1088.35	324+00	1088.35	1087.78	1087.21
1088.59	1088.02	1087.45	+25	1087.45	1086.88	1086.31
1087.69	1087.12	1086.55	+50	1086.55	1085.98	1085.41
1086.79	1086.22	1085.65	+75	1085.65	1085.08	1084.51

P.C. Sta. 317+42.87			Dc = 1°-28' Max. Super .0475	P.T. Sta. 341+69.39		
Left Lanes				Right Lanes		
Lt. Edge	℄	Rt. Edge Profile Grade	STATION	Lt. Edge Profile Grade	℄	Rt. Edge
1085.89	1085.32	1084.75	325+00	1084.75	1084.18	1083.61
1084.99	1084.42	1083.85	+25	1083.85	1083.28	1082.71
1084.09	1083.52	1082.95	+50	1082.95	1082.38	1081.81
1083.19	1082.62	1082.05	+75	1082.05	1081.48	1080.91
1082.29	1081.72	1081.15	326+00	1081.15	1080.58	1080.01
1081.39	1080.82	1080.25	+25	1080.25	1079.68	1079.11
1080.49	1079.92	1079.35	+50	1079.35	1078.78	1078.21
1079.59	1079.02	1078.45	+75	1078.45	1077.88	1077.31
1078.69	1078.12	1077.55	327+00	1077.55	1076.98	1076.41
1077.79	1077.22	1076.65	+25	1076.65	1076.08	1075.51
1076.89	1076.32	1075.75	+50	1075.75	1075.18	1074.61
1075.99	1075.42	1074.85	+75	1074.85	1074.28	1073.71
1075.09	1074.52	1073.95	328+00	1073.95	1073.38	1072.81
1074.19	1073.62	1073.05	+25	1073.05	1072.48	1071.91
1073.29	1072.72	1072.15	+50	1072.15	1071.58	1071.01
1072.39	1071.82	1071.25	+75	1071.25	1070.68	1070.11
1071.49	1070.92	1070.35	329+00	1070.35	1069.78	1069.21
1070.59	1070.02	1069.45	+25	1069.45	1068.88	1068.31
1069.69	1069.12	1068.55	+50	1068.55	1067.98	1067.41
1068.79	1068.22	1067.65	+75	1067.65	1067.08	1066.51
1067.89	1067.32	1066.75	330+00	1066.75	1066.18	1065.61
1066.99	1066.42	1065.85	+25	1065.85	1065.28	1064.51
1066.09	1065.52	1064.95	+50	1064.95	1064.38	1063.61
1065.19	1064.62	1064.05	+75	1064.05	1063.48	1062.91
1064.29	1063.72	1063.15	331+00	1063.15	1062.58	1062.01
1063.39	1062.82	1062.25	+25	1062.25	1061.68	1061.11
1062.49	1061.92	1061.35	+50	1061.35	1060.78	1060.21
1061.59	1061.02	1060.45	+75	1060.45	1059.88	1059.31
1060.69	1060.12	1059.55	332+00	1059.55	1058.98	1058.41
1059.79	1059.22	1058.65	+25	1058.65	1058.08	1057.51
1058.89	1058.32	1057.75	+50	1057.75	1057.18	1056.61
1057.99	1057.42	1056.85	+75	1056.85	1056.28	1055.71
1057.09	1056.52	1055.95	333+00	1055.95	1055.38	1054.81
1056.19	1055.62	1055.05	+25	1055.05	1054.48	1053.91
1055.29	1054.72	1054.15	+50	1054.15	1053.58	1053.01
1054.39	1053.82	1053.25	+75	1053.25	1052.68	1052.11
1053.49	1052.92	1052.35	334+00	1052.35	1051.78	1051.21
1052.59	1052.02	1051.45	+25	1051.45	1050.88	1050.31
1051.69	1051.12	1050.55	+50	1050.55	1049.98	1049.41
1050.79	1050.22	1049.65	+75	1049.65	1049.08	1048.51

P.C. Sta. 317+69.39			Dc = 1°-28' Max. Super .0475	P.T. Sta. 341+69.39		
Left Lanes				Right Lanes		
Lt. Edge	℄	Rt. Edge Profile Grade	STATION	Lt. Edge Profile Grade	℄	Rt. Edge
1049.89	1049.32	1048.75	335+00	1048.75	1048.18	1047.61
1048.99	1048.42	1047.85	+25	1047.85	1047.28	1046.71
1048.09	1047.52	1046.95	+50	1046.95	1046.38	1045.81
1047.19	1046.62	1046.05	+75	1046.05	1045.48	1044.91
1046.29	1045.72	1045.15	336+00	1045.15	1044.58	1044.01
1045.39	1044.82	1044.25	+25	1044.25	1043.68	1043.11
1044.49	1043.92	1043.35	+50	1043.35	1042.78	1042.21
1043.59	1043.02	1042.45	+75	1042.45	1041.88	1041.31
1042.69	1042.12	1041.55	337+00	1041.55	1040.98	1040.41
1041.79	1041.22	1040.65	+25	1040.65	1040.08	1039.51
1040.89	1040.32	1039.75	+50	1039.75	1039.18	1038.61
1039.99	1039.42	1038.85	+75	1038.85	1038.28	1037.71
1039.09	1038.52	1037.95	338+00	1037.95	1037.38	1036.81
1038.19	1037.62	1037.05	+25	1037.05	1036.48	1035.91
1037.29	1036.72	1036.15	+50	1036.15	1035.58	1035.01
1036.39	1035.82	1035.25	+75	1035.25	1034.68	1034.11
1035.49	1034.92	1034.35	339+00	1034.35	1033.78	1033.21
1034.59	1034.02	1033.45	+25	1033.45	1032.88	1032.31
1033.69	1033.12	1032.55	+50	1032.55	1031.98	1031.41
1032.79	1032.22	1031.65	+75	1031.65	1031.08	1030.51
1031.89	1031.32	1030.75	340+00	1030.75	1030.18	1029.61
1030.99	1030.42	1029.85	+25	1029.85	1029.28	1028.71
1030.06	1029.50	1028.95	+50	1028.95	1028.40	1027.84
1029.07	1028.56	1028.05	+75	1028.05	1027.54	1027.03
1028.05	1027.60	1027.15	341+00	1027.15	1026.70	1026.25
1027.03	1026.64	1026.25	+25	1026.25	1025.86	1025.47
1026.01	1025.68	1025.35	+50	1025.35	1025.02	1024.69
1024.99	1024.72	1024.45	+75	1024.45	1024.18	1023.91
1023.97	1023.76	1023.55	342+00	1023.55	1023.35	1023.13
1022.97	1022.84	1022.65	+25	1022.65	1022.52	1022.33
1022.00	1021.94	1021.75	+50	1021.75	1021.69	1021.50
1021.04	1021.04	1020.85	+75	1020.85	1020.85	1020.66
1020.08	1020.14	1019.95	343+00	1019.95	1020.01	1019.82
1019.12	1019.24	1019.05	+25	1019.05	1019.17	1018.98
1018.17	1018.34	1018.15	+50	1018.15	1018.32	1018.13
1017.25	1017.44	1017.25	+75	1017.25	1017.44	1017.25

Computed By J.W.W.
Checked By G.L.C.

JEF - 22 - 3.86

130

2:1

5:1

1159.85
204+50
1155.8

Earthwork Limits JEF-22-0.00

2:1

1160 370 665

342 616

1160

Earthwork Limits JEF-22-0.00

0 0

1160.95
204+00
1151.0

Earthwork Limits JEF-22-0.00

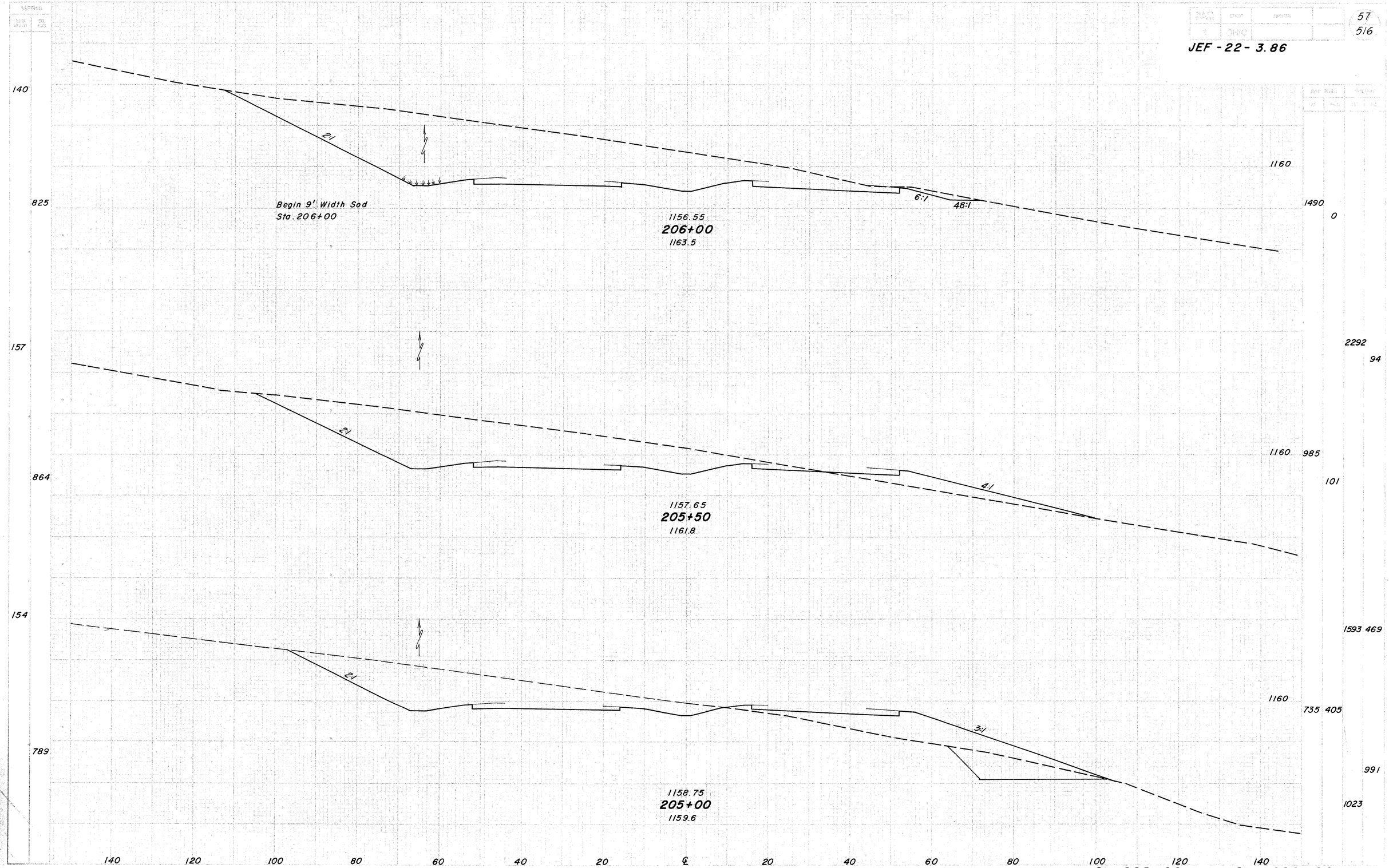
1140

1162.05
203+50
1146.4

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

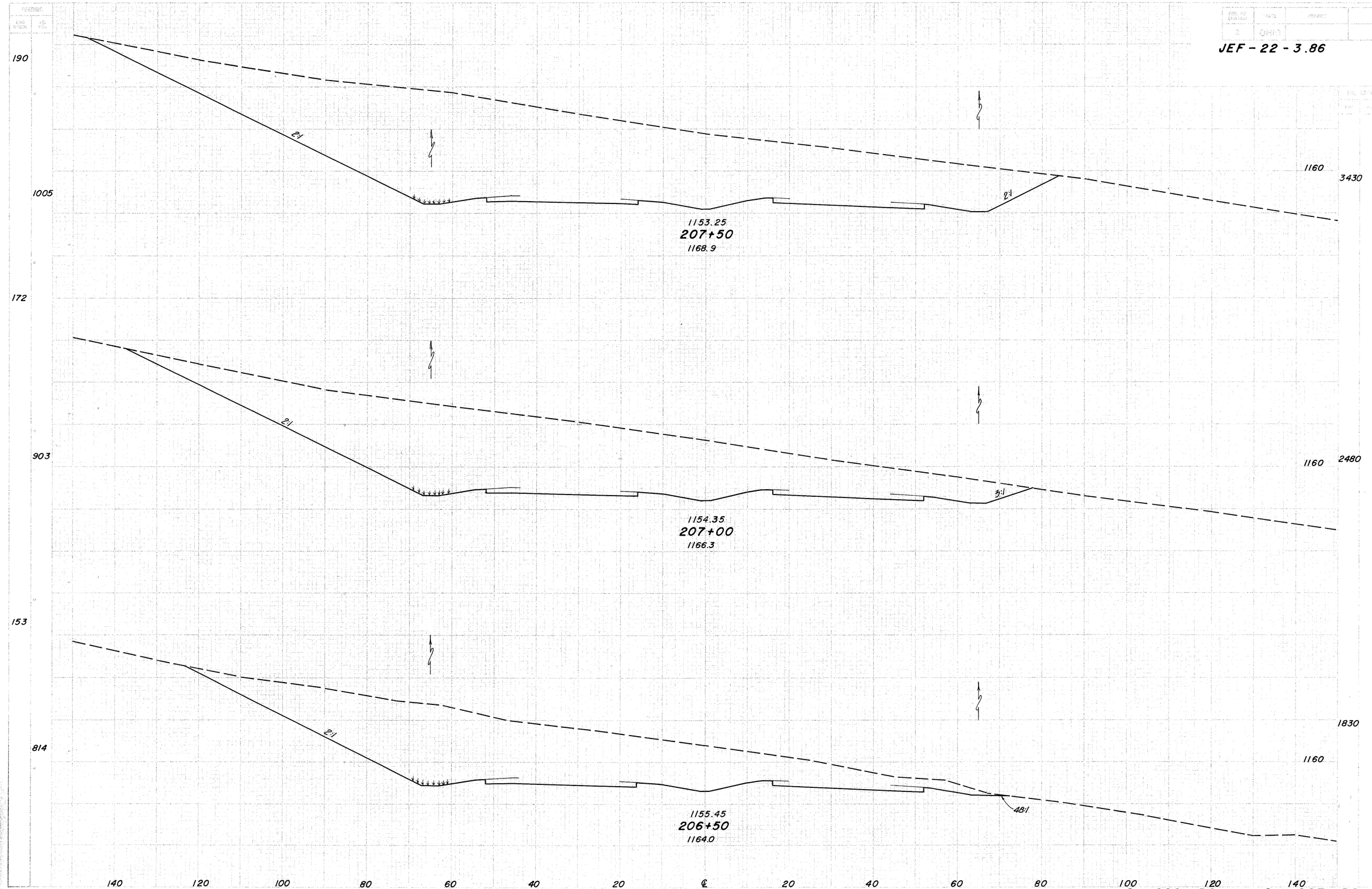
Sta. 203+50 to Sta. 204+50

JEF - 22 - 3.86



Sta. 205+00 to Sta. 206+00

JEF - 22 - 3.86



Sta. 206 + 50 to Sta. 207 + 50

JEF -22-3.86

200

1111

2:1

1160

2:1

4760

1149.95
209+00
1173.6

8796

200

2:1

4740

1160

2:1

1111

1151.05
208+50
1174.5

8305

200

1083

2:1

4230

1160

2:1

7092

1152.15
208+00
1172.5

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 208 + 00 to Sta. 209 + 00

FED. ROAD DIVISION	STATE	PROJECT
5	OHIO	

60
516

JEF -22- 3.86

SECTION

STA.	WIDTH	CUT	FILL
1146.65	172	997	1160
210+50			3720
1166.9			
1147.75	187	1067	1160
210+00			4190
1169.3			
1148.85	197	1103	1160
209+50			4640
1172.5			

STA.	SECT. AREA CUT	SECT. AREA FILL	VOLUME CUT	VOLUME FILL
1146.65				
210+50				
1166.9				
1147.75			7324	
210+00				
1169.3			8176	
1148.85				
209+50			8703	
1172.5				

2:1 2:1 2:1 2:1 2:1 2:1

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 209+50 to Sta. 210+50

SHEET NO.	STATE	PROJECT	
	OHIO		

6:1
516

JEF - 22 - 3.86

CUT	FILL
SQ. FT.	SQ. FT.
694	3037
811	4820
911	6292

VOLUME	
CU. YDS.	
3076	

114

2:1 6:1 4:1 2:1

1130 1150

1143.35
212+00
1150.9

136

2:1 6:1 4:1 2:1

2130

1130

1144.45
211+50
1157.7

156

2:1 2:1

1160

1145.55
211+00
1163.4
Begin 6' Width Sod
Sta. 210+78

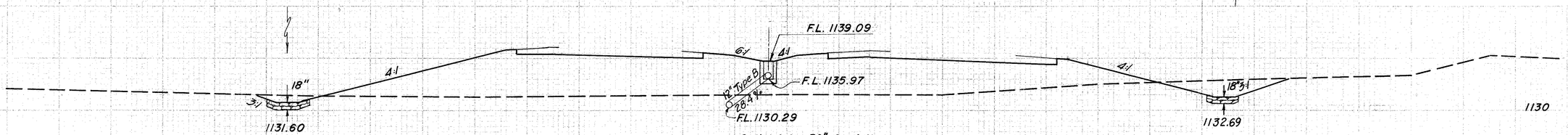
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 211+00 to Sta. 212+00

JEF - 22 - 3.86

62
516

End 8' Width D.R.C.P.
Sta. 213+08



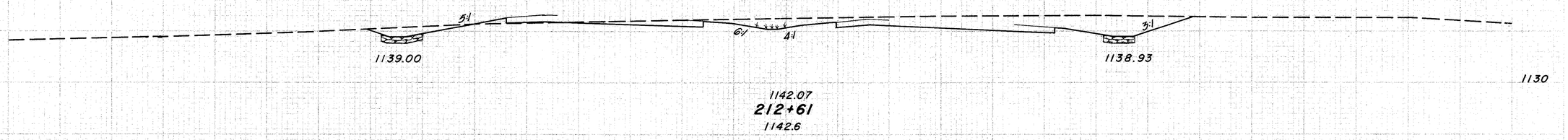
Outlet into 36" Conduit
11' Lt. Sta. 213+29.5

1141.30
213+00
1133.0

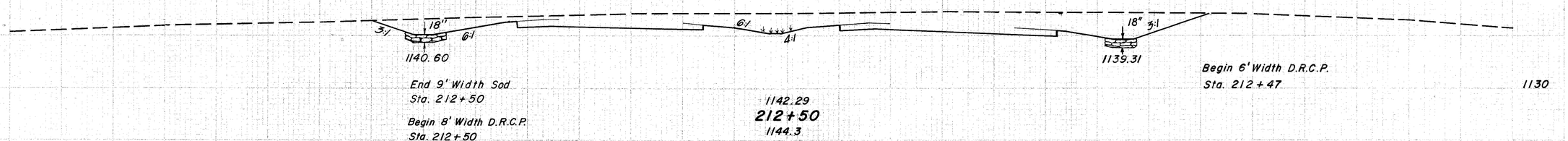
QUANTITIES

12" Conduit Type B with Class B bedding	34.0 L.F.
Std. No. 8 CB	1 Each

End 6' Width Sod
Sta. 212+93



1142.07
212+61
1142.6



End 9' Width Sod
Sta. 212+50

Begin 8' Width D.R.C.P.
Sta. 212+50

1142.29
212+50
1144.3

Begin 6' Width D.R.C.P.
Sta. 212+47

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 212+50 to Sta. 213+00

JEF -22-3.86

63
516

172

928

3:1

1138.0

1139.56
214+00
1141.4

4:1

1126.50

2:1

1140

550 245

526 1801

162

36

3:1

1132.60

4:1

1140.40
213+50
1128.3

4:1

1125.23

18"

Cut out as shown
on Culvert Drawing
Sheet No. 415

Ditch Excavation
Sta. 213+33

End 6' Width D.R.C.P.
Sta. 213+50

1140

1700

18

793

1 128

160

816

3:1

1132.58

4:1

1140.47
213+48
1127.7

4:1

1125.50

18"

1140

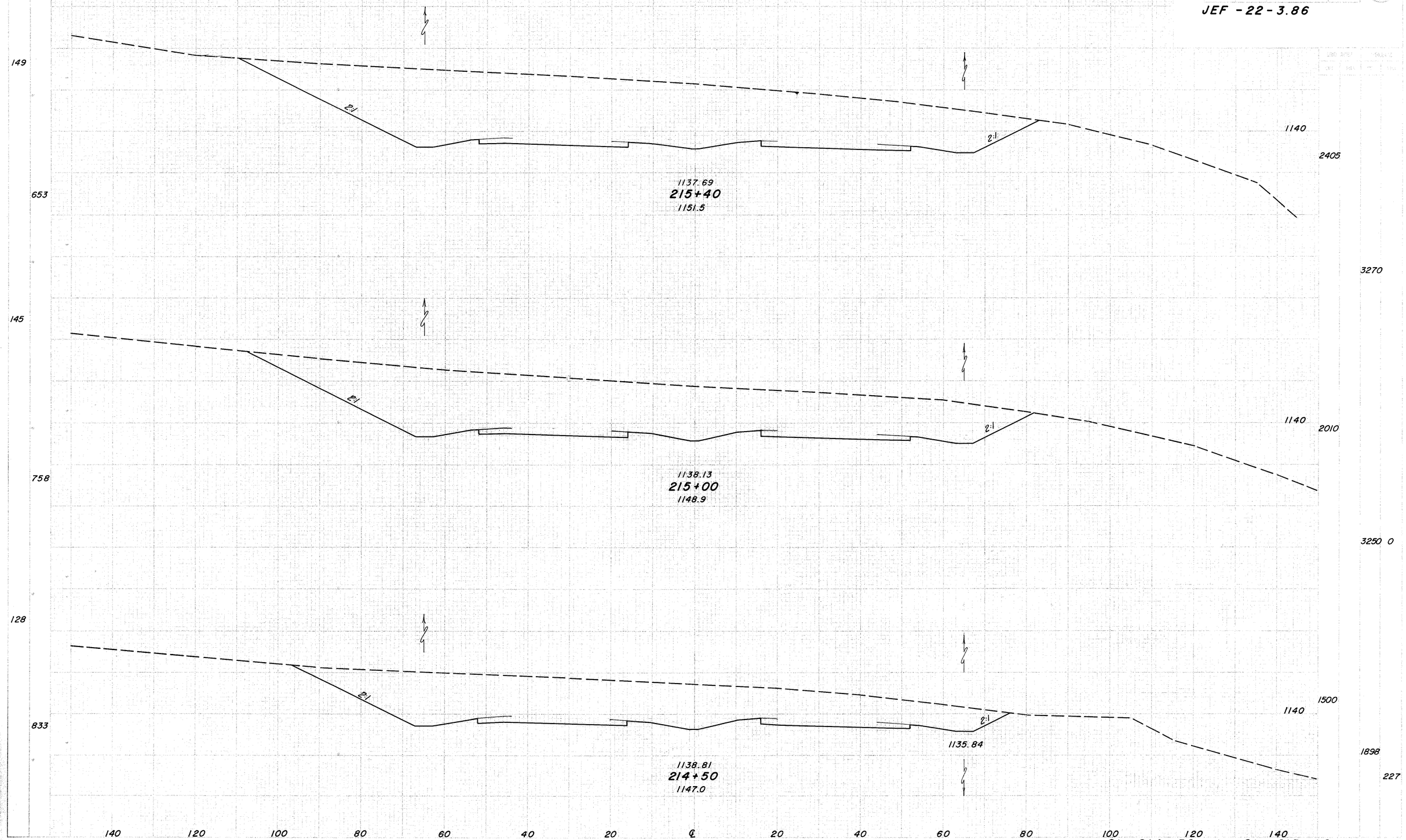
19 1765

70 2413

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

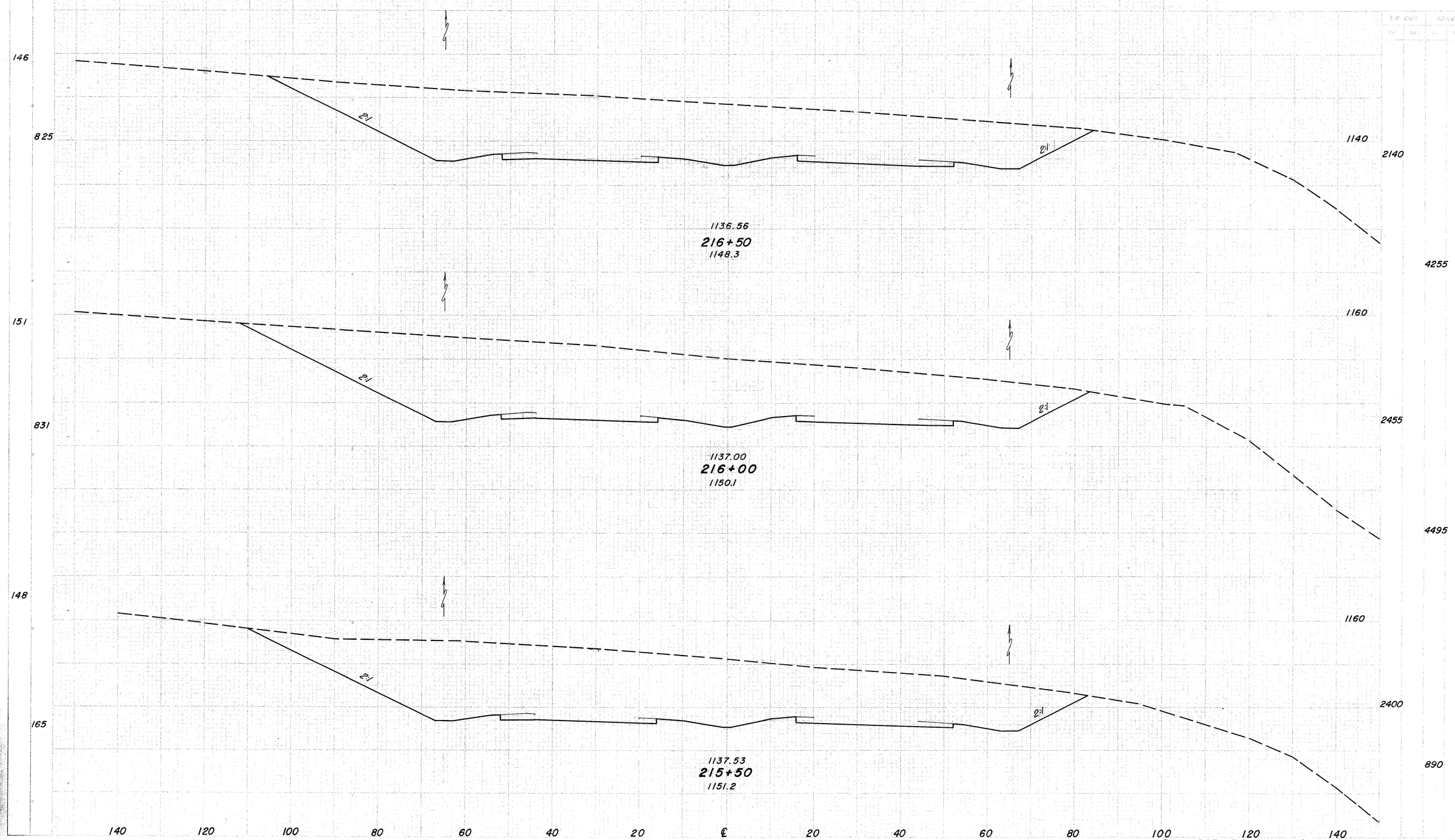
Sta. 213+48 to Sta. 214+00

JEF - 22 - 3.86



Sta. 214 + 50 to Sta. 215 + 40

JEF - 22 - 3.86



Sta. 215+50 to Sta. 216+50

JEF - 22 - 3.86

107

111

114

681

131

769

1140

325

145

1140

545

1907

1515

1140

3384

18"

2:1

3:1

2:1

3:1

2:1

1135.85
217+59
1136.5

Begin 8' Width D.R.C.P.
Sta. 217+56

1135.89
217+50
1137.7

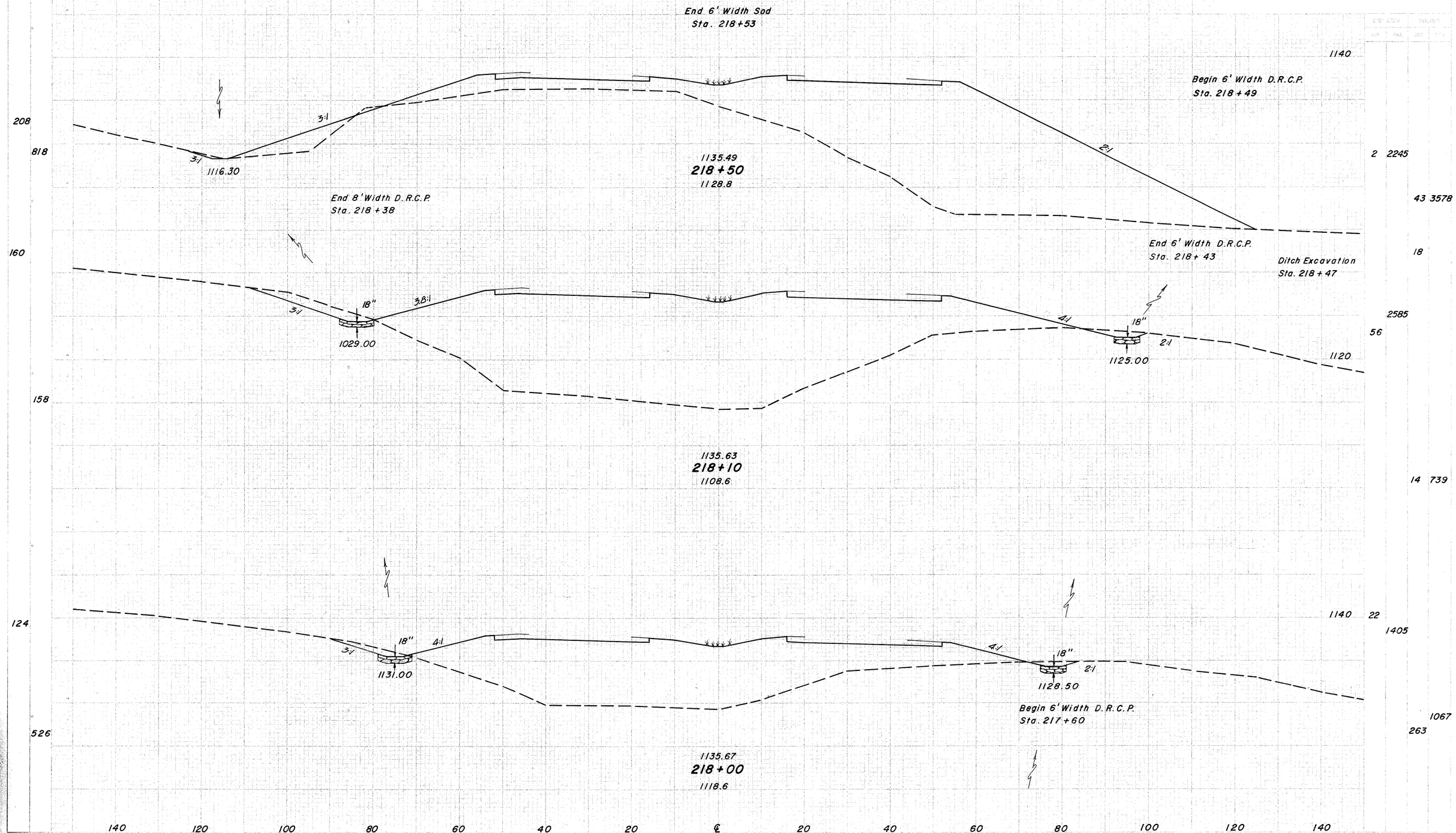
Begin 6' Width Sod
Sta. 217+03

1136.18
217+00
1144.7

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 217+00 to Sta. 217+59

JEF - 22 - 3.86



Sta. 218+00 to Sta. 218+50

SHEETING

CHD	BEAM	PILE

REG. NO. DIVISION	STATE	PROJECT	
7	OHIO		

68
516

JEF - 22 - 3.86

BRG. AREA		VOLUME	
	FILL		FILL

131

2:1

2:1

1140

1880

1135.13
219+50
1146.5

644

2273 0

101

2:1

1140

575

1135.31
219+00
1139.4

QUANTITIES

Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.2 C.Y.
12" Conduit Type B with Class B bedding	58 L.F.
12" Conduit Type F	69 L.F.
Std. No. 8 Catch Basin	1 Each

540 918

573

58'

54'

9'

1140

F.L. 1132.87

4:1

12" Type B @ 1.00 % Conc. Collar

12"x 30° Bend

End 6' Width D.R.C.P.
Sta. 218+57

157

F.L. 1130.12

F.L. 1129.56

60' Slope Length

2:1

12" Type F @ 50.00 %

1240

155

29 645

1135.45
218+60
1134.0

F.L. 1102.50

18"

12"x 30° Bend

F.L. 1102.54

3:1

8'x4' D.R.C.P.

12" Type F @ 0.50 %
Sta. 218+60 120' Rt.
Std. HW-E Endwall

203

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 218+60 to Sta. 219+50

JEF-22-3.86

69
516

196

1042

2:1

1:1

2:1

1150

5345

9143

1134.41
221+50
1163.1

179

958

1150

4530

7643

1134.59
221+00
1160.8

166

886

2:1

1:1

2:1

1150

3725

6162

1134.77
220+50
1156.8

153

789

2:1

2:1

1150

2930

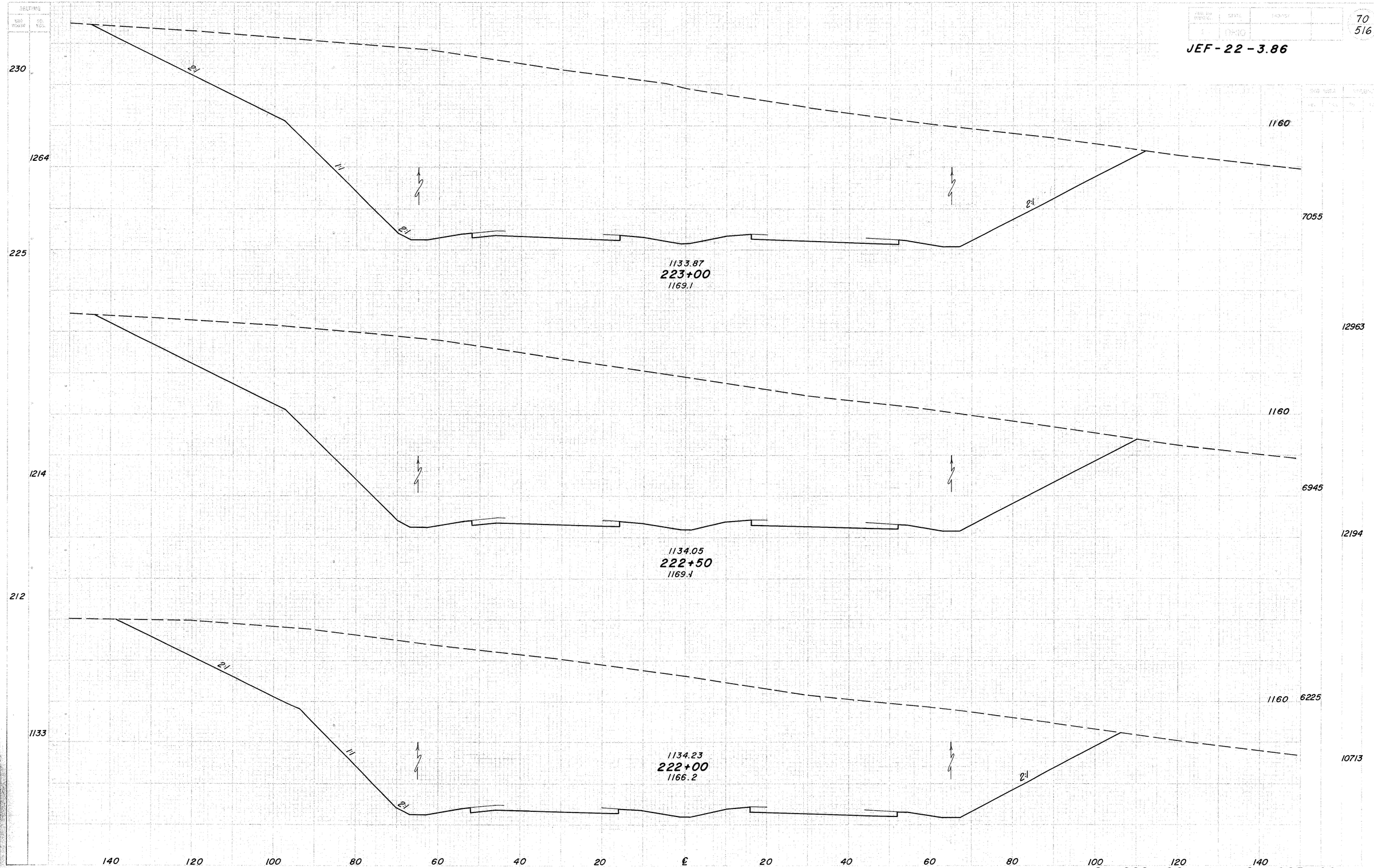
4454

1134.95
220+00
1152.0

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 220+00 to Sta. 221+50

JEF-22-3.86



Sta. 222 + 00 to Sta. 223 + 00

71
516

JEF-22-3.86

191

1117

2:1

1:1

2:1

2:1

1160

4475

1133.33

224+50

1157.3

9379

211

1160

5655

1206

11384

1133.51

224+00

1162.2

223

2:1

1:1

2:1

2:1

1160

6640

1258

1133.69

223+50

1167.0

12680

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 223+50 to Sta. 224+50

JEF - 22 - 3.86

172

900

2:1

Begin 6' Width Sod
Sta. 225+53

1132.79
226+00
1130.7

4:1

18"

3:1

1118.00
Begin 6' Width D.R.C.P.
Sta. 225 + 73

End 6' Width D.R.C.P.
Sta. 225 + 67

1120

350

680

630

2065

152

894

2:1

1132.97
225+50
1140.8

18"

3:1

Begin 6' Width D.R.C.P.
Sta. 225 + 29

1140

1880

170

1003

2:1

1:1

2:1

2:1

1133.15
225+00
1149.5

1140

3115

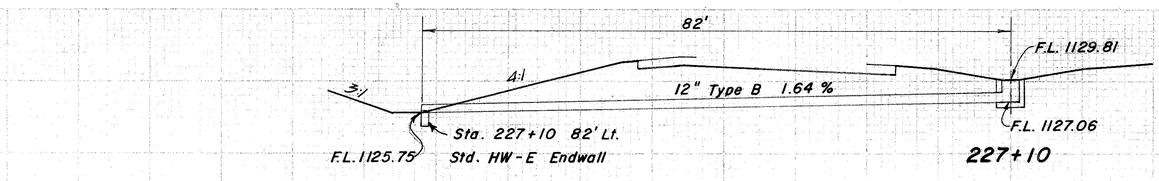
4625

7028

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

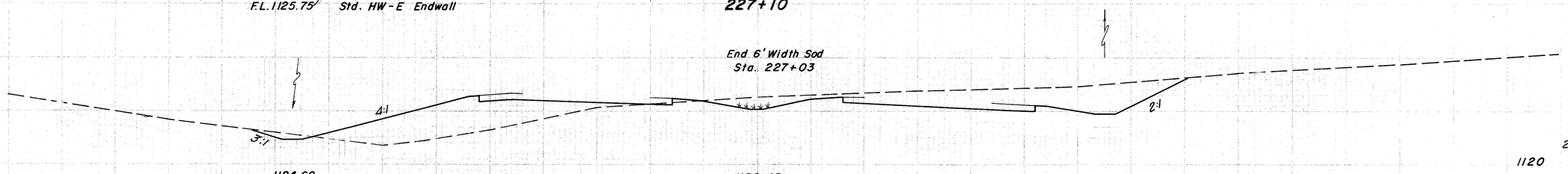
Sta. 225 + 00 to Sta. 226 + 00

JEF-22-3.86



227+10

End 6' Width Sod
Sta. 227+03

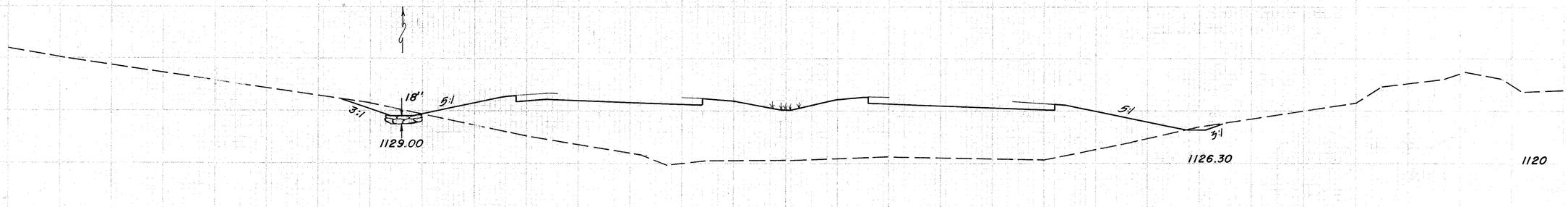


1132.43
227+00
1132.7

QUANTITIES
Sta. 227+10

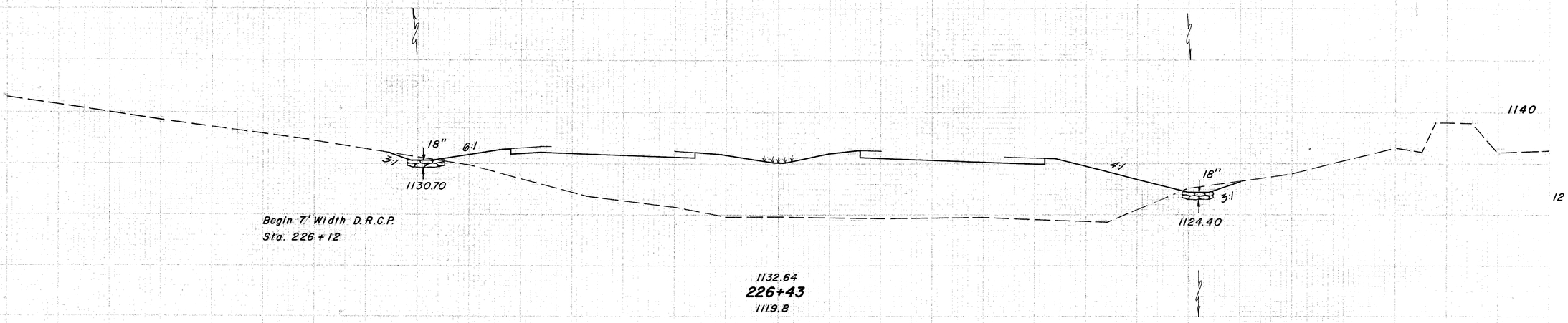
Concrete Masonry	0.2 C.Y.
12" Conduit Type B with Cl. B bedding	82 L.F.
Std. No. 8 Catch Basin	1 Each

End 7' Width D.R.C.P.
Sta. 226+90



1132.61
226+50
1120.8

End 6' Width D.R.C.P.
Sta. 226+57



Begin 7' Width D.R.C.P.
Sta. 226+12

1132.64
226+43
1119.8

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 226+43 to Sta. 227+00

SECURITY

FED. ROAD DIST. NO.	STATE	PROJECT	
8	OHIO		

74
516

JEF-22-3.86

CUT WIDTH	CUT HEIGHT	AREA CUT	AREA FILL	VOLUME CUT	VOLUME FILL
177					
				1140	4055
925					6245
156				1140	2690
					3731
792					
				1140	1340
129					208
711					1472

2:1 1:1 2:1

1131.89
228+50
1154.8

2:1 1:1 2:1

1132.07
228+00
1147.5

2:1

1132.25
227+50
1140.9

3:1

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 227+50 to Sta. 228+50

FED. ROAD PROJECT	STATE	PROJECT
	OHIO	

75
516

JEF-22-3.86

SECTION		SUB AREA		VOLUMES	
ENG. WIDTH	NO. TOT.	CUT	FILL	CUT	FILL

240

1294

226

911

102

775

2:1

1:1

2:1

1131.35
230+00
1174.0

1160

8440

14027

2:1

1:1

2:1

1131.53
229+50
1165.4

1160

6710

11111

2:1

1:1

2:1

1131.71
229+00
1159.9

1160

5290

8653

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

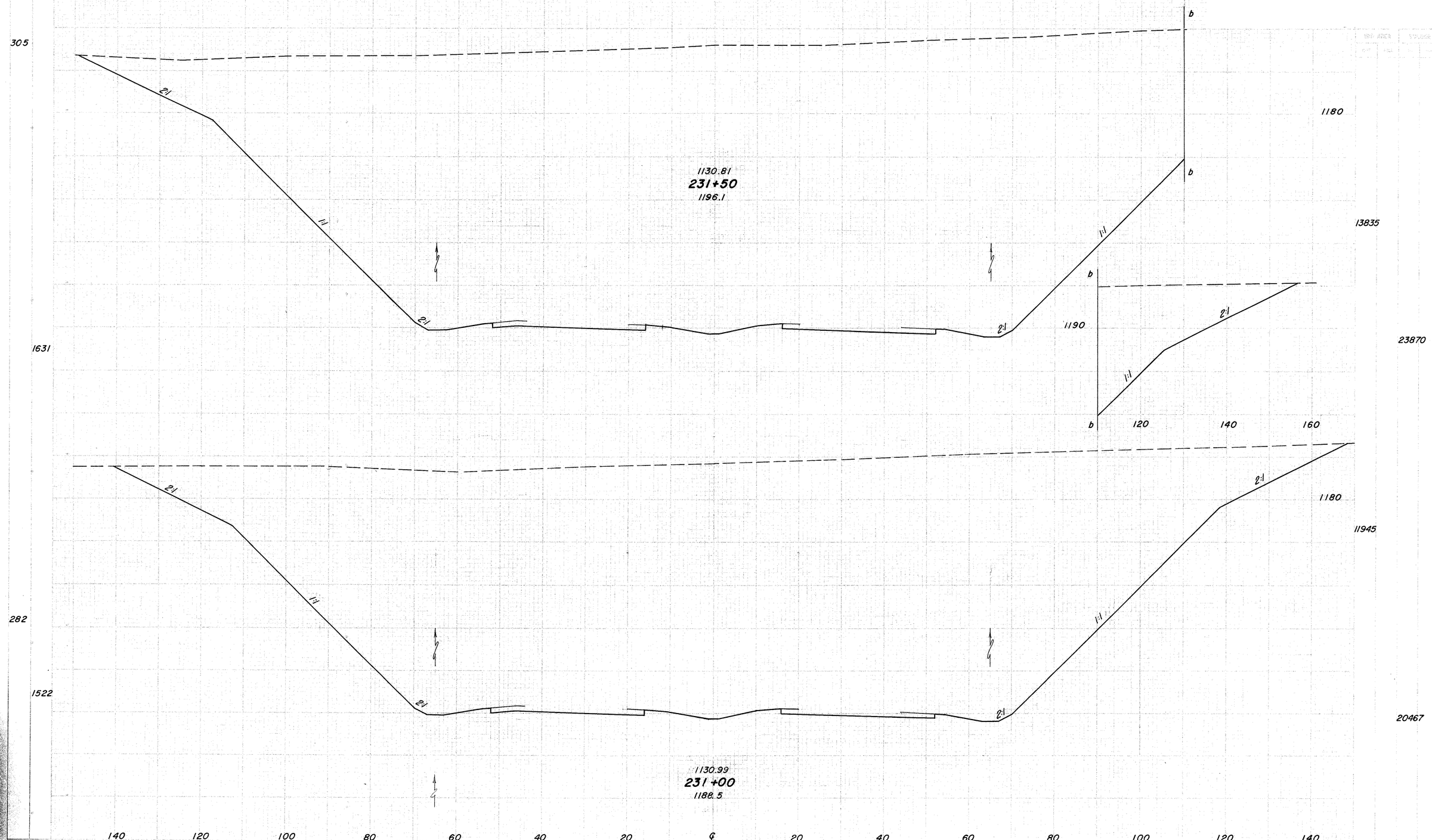
Sta. 229+00 to Sta. 230+00

JEF - 22 - 3.86

76
516

Sta. 230 + 50

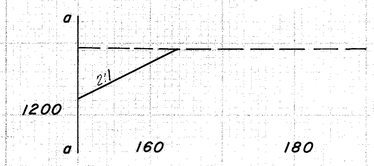
JEF-22-3.86

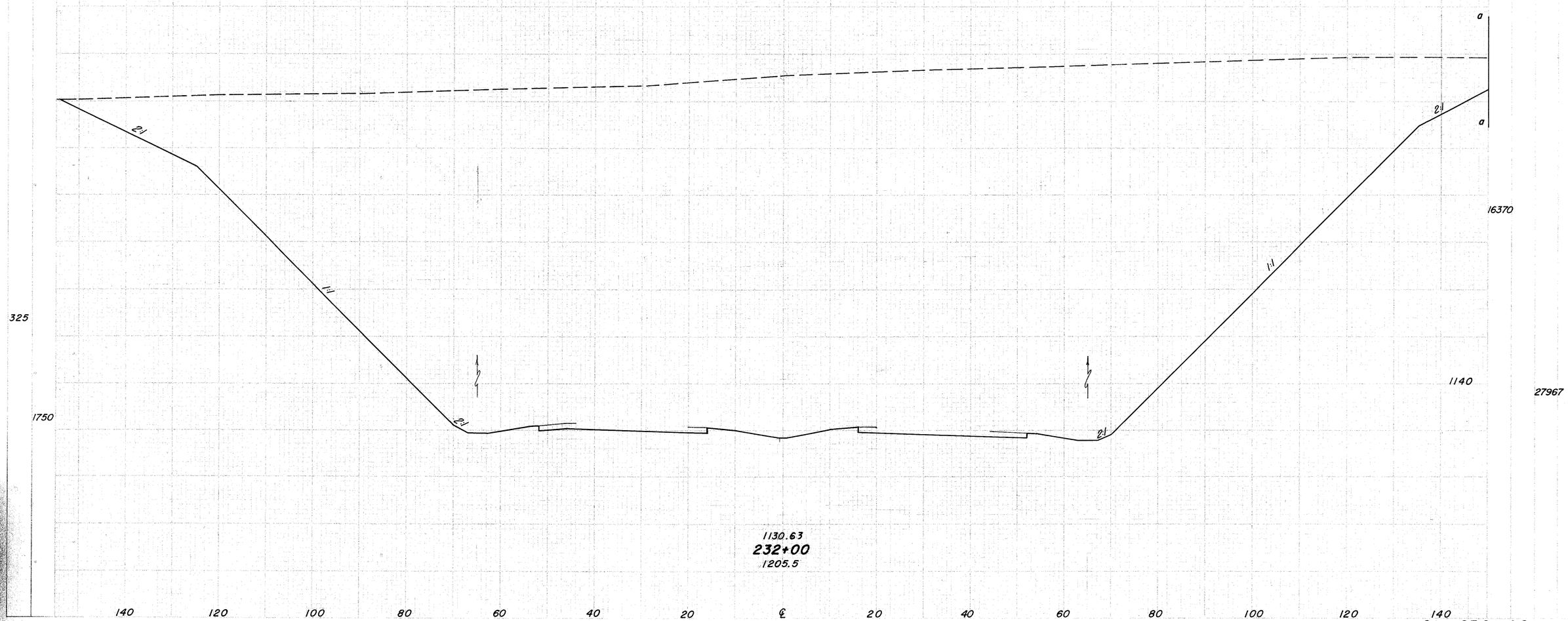


Sta. 231+00 to Sta. 231+50

78
516

JEF-22-3.86





SEEDING

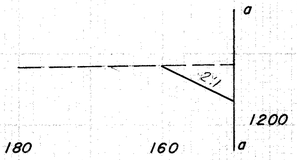
END WIDTH	SQ. YDS.

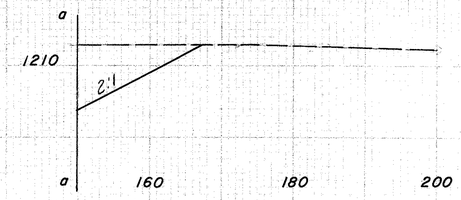
FED. AID DIVISION	STATE	PROJECT	
2	OHIO		

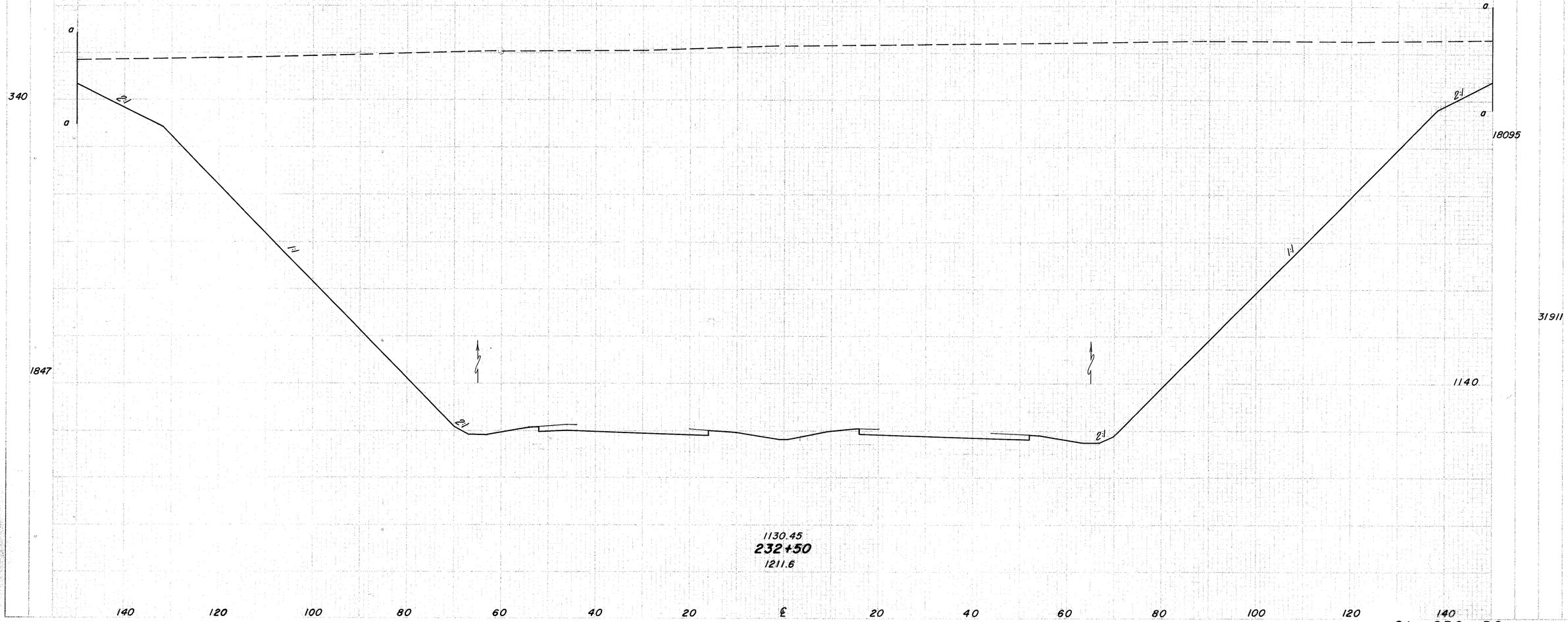
79
516

JEF-22-3.86

END AREA		VOLUME	
CUT	FILL	CUT	FILL

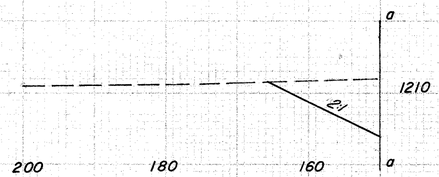


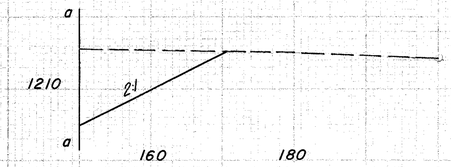


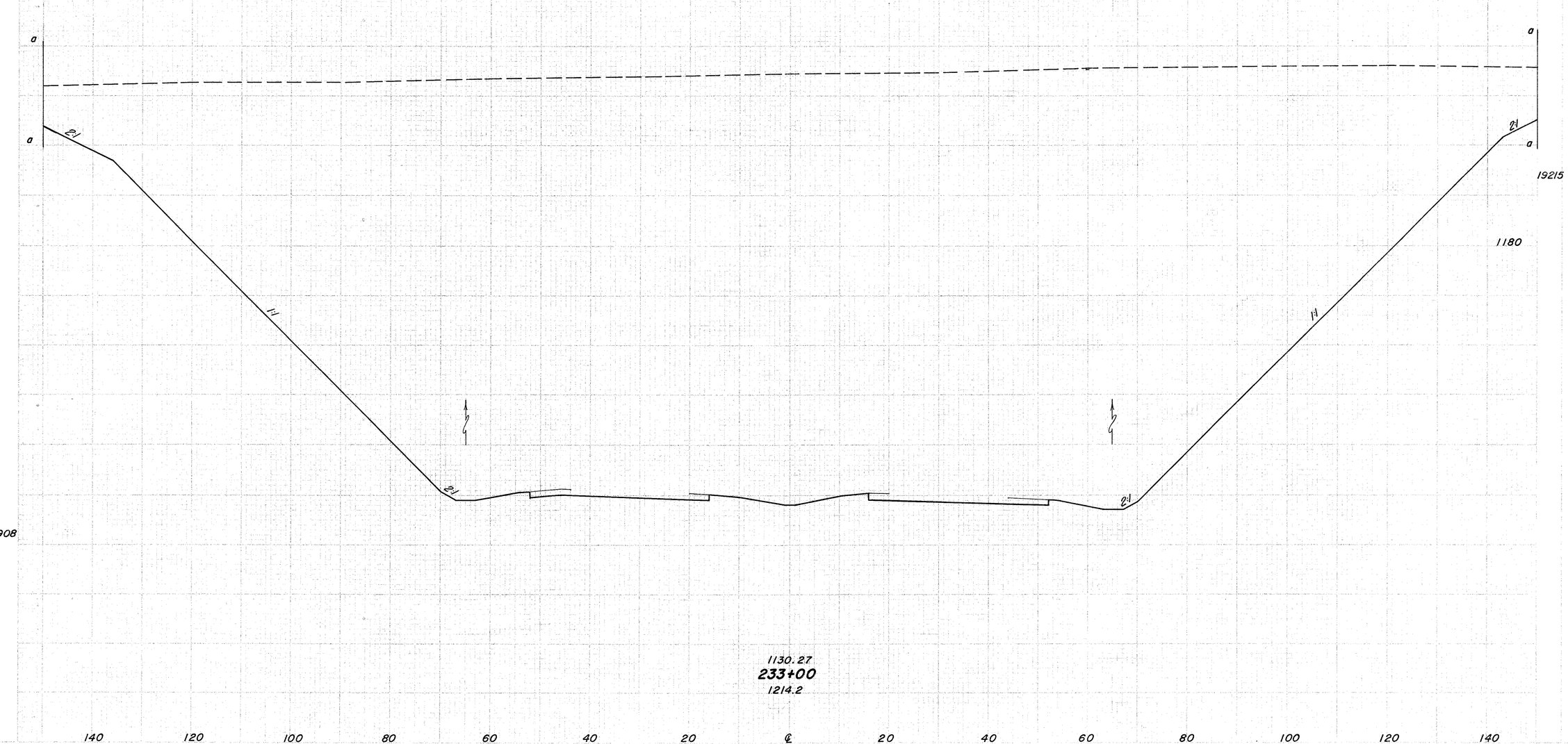


80
516

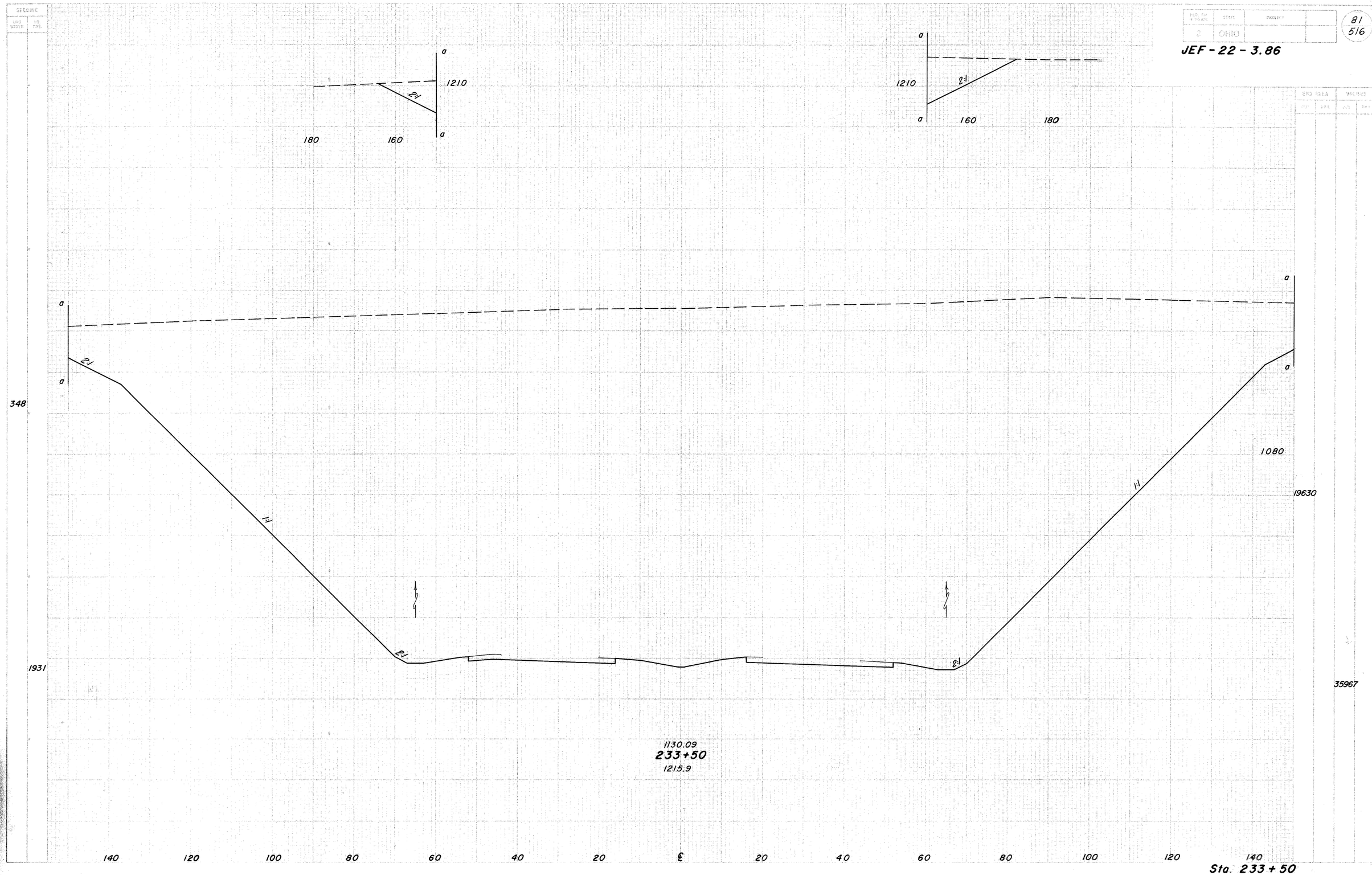
JEF-22-3.86







JEF - 22 - 3.86

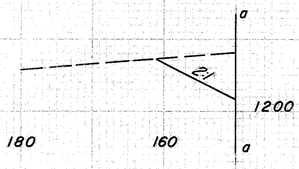


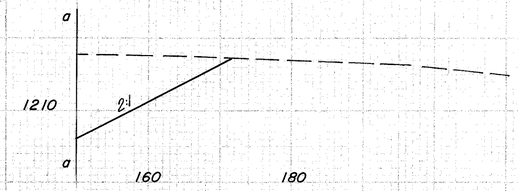
Sta. 233 + 50

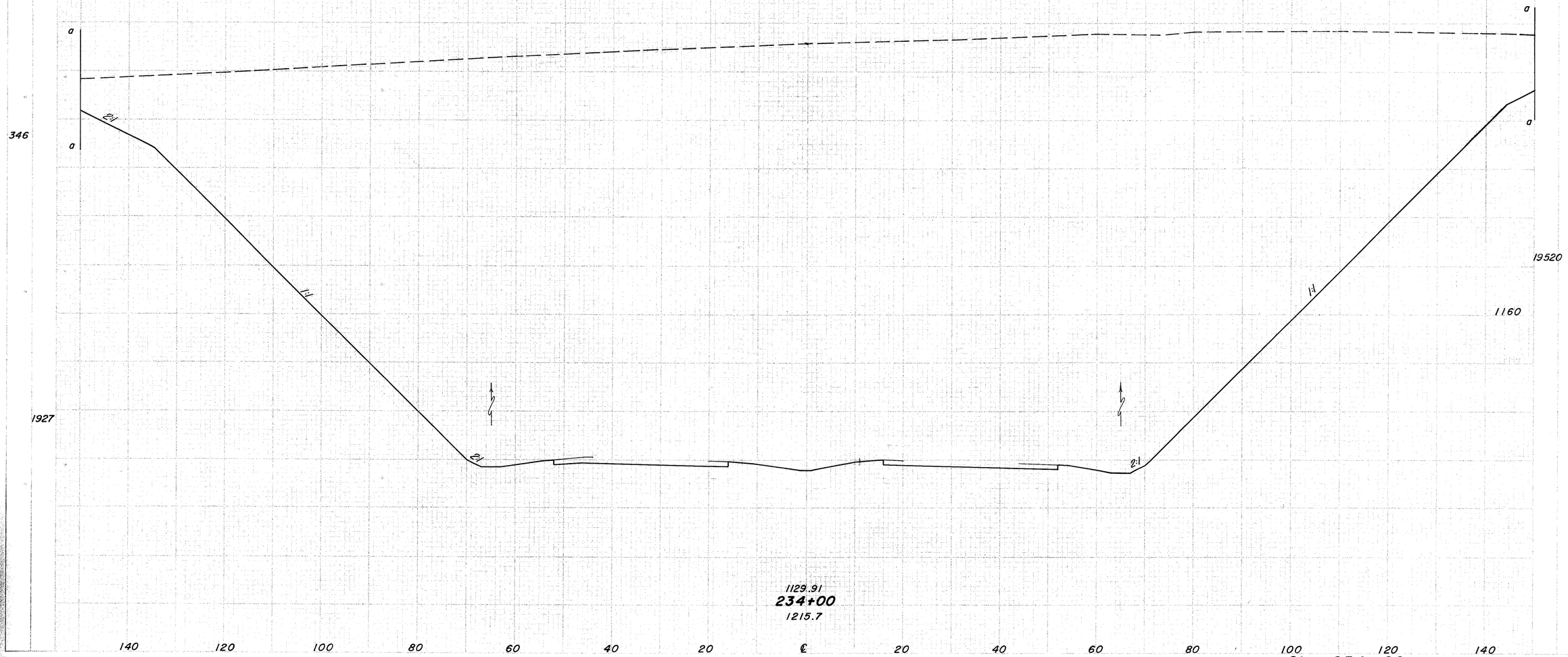
SHEET NO.	STATE	PROJECT	
2	OHIO		

82
516

JEF-22-3.86







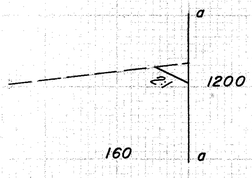
SEEDING

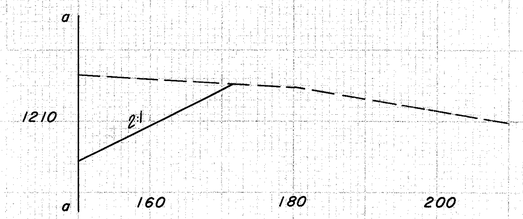
END AREA		VOLUMES	
CUT	FILL	CUT	FILL

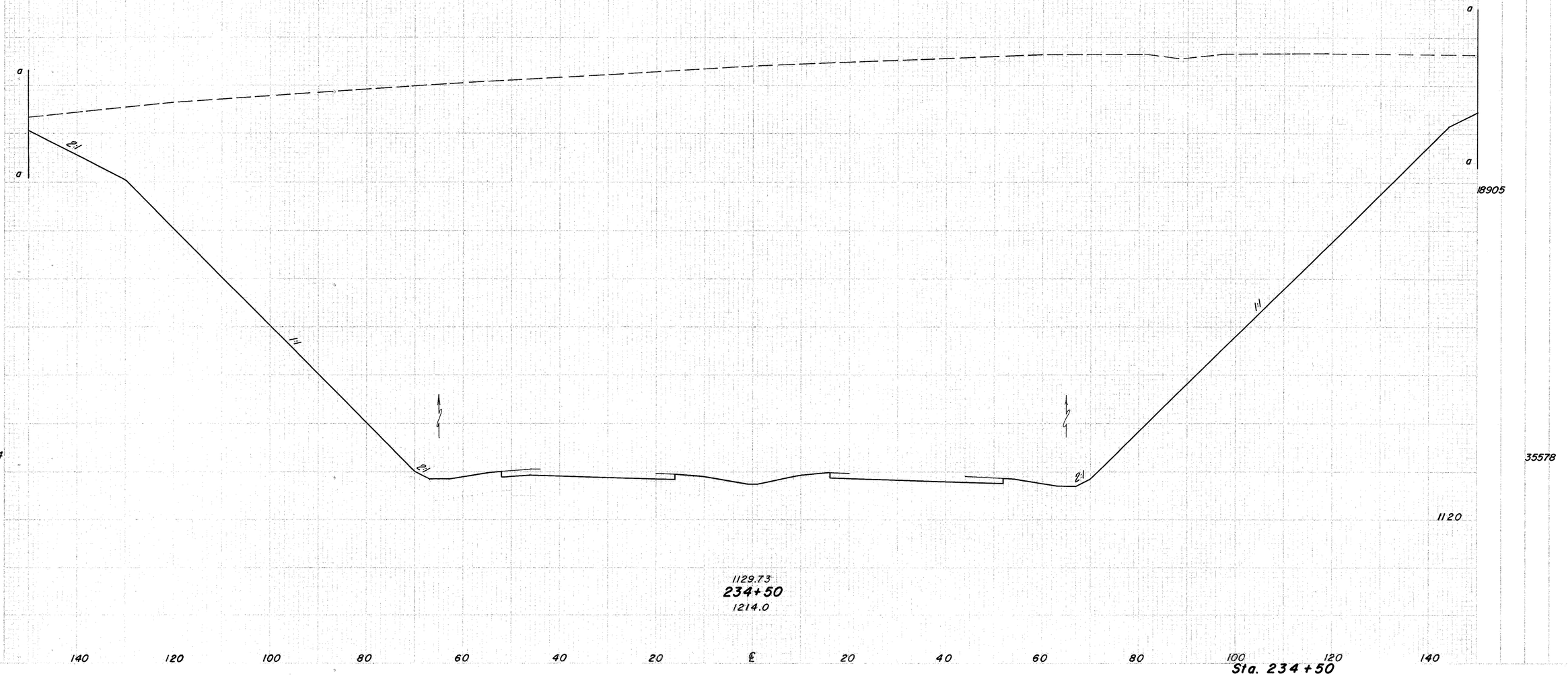
SEQ. NO. CONTROL	STATE	PROJECT	
2	OHIO		

83
516

JEF-22-3.86



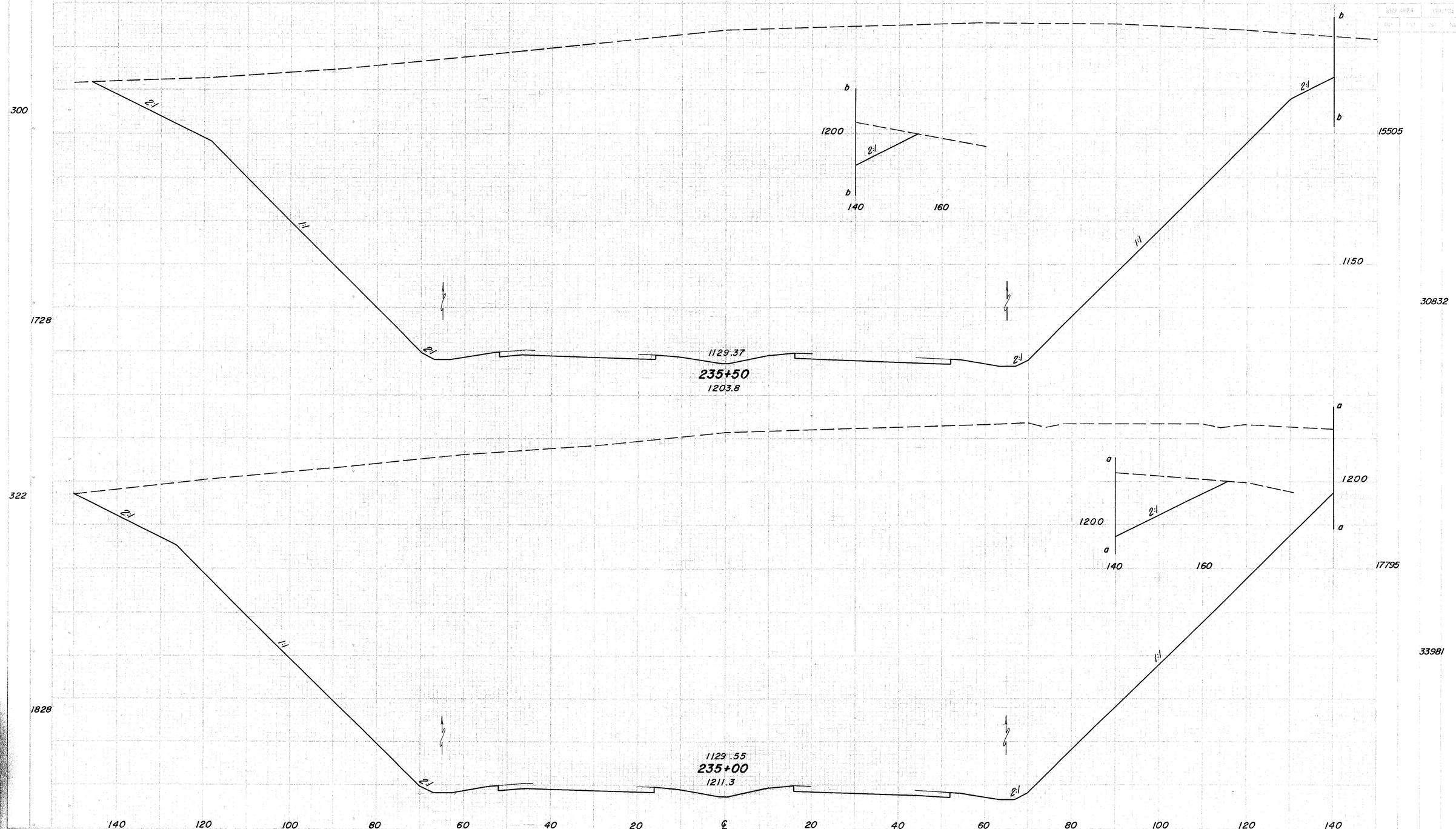




1129.73
234+50
1214.0

Sta. 234+50

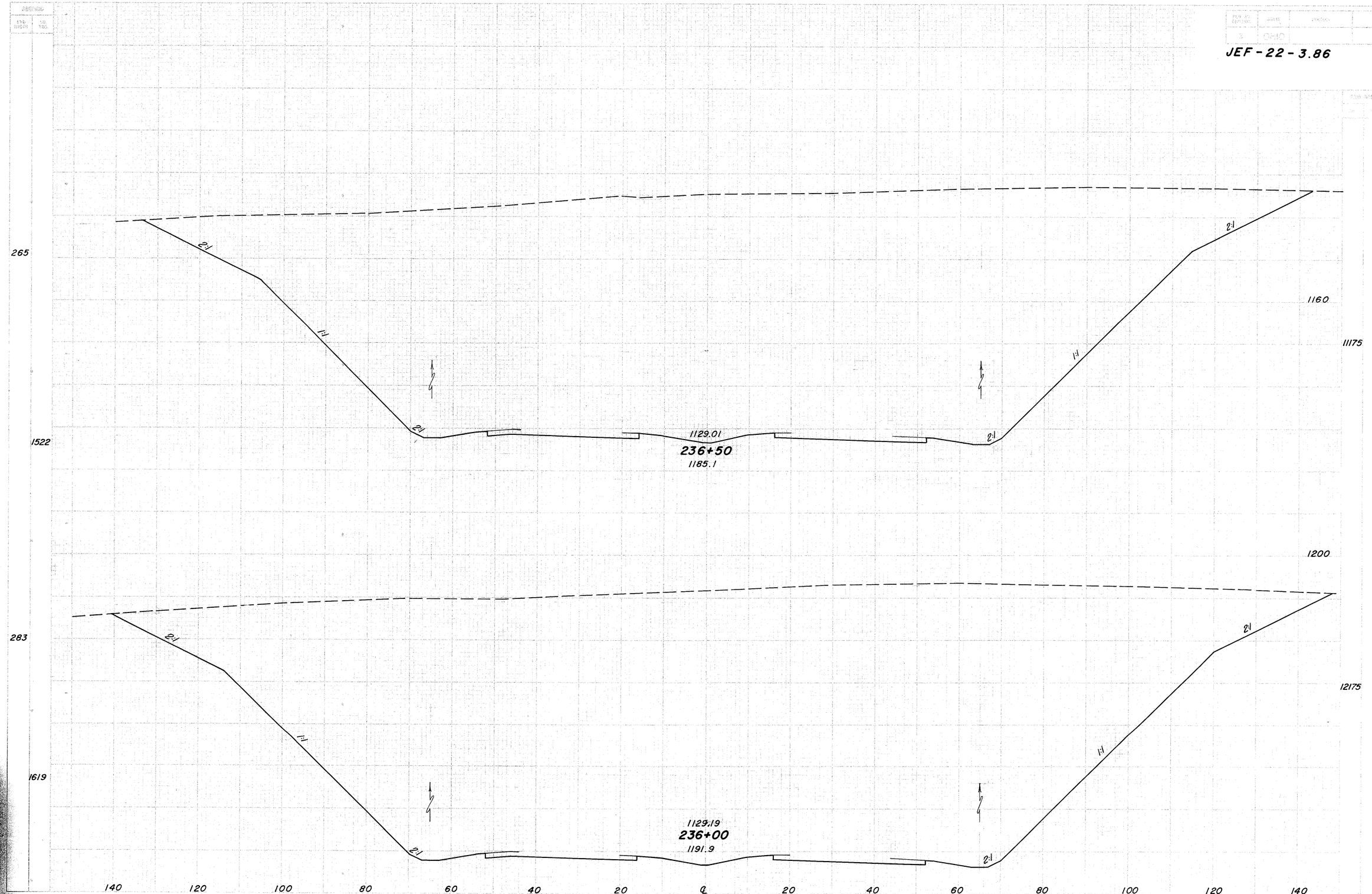
JEF - 22 - 3.86



Sta. 235+00 to Sta. 235+50

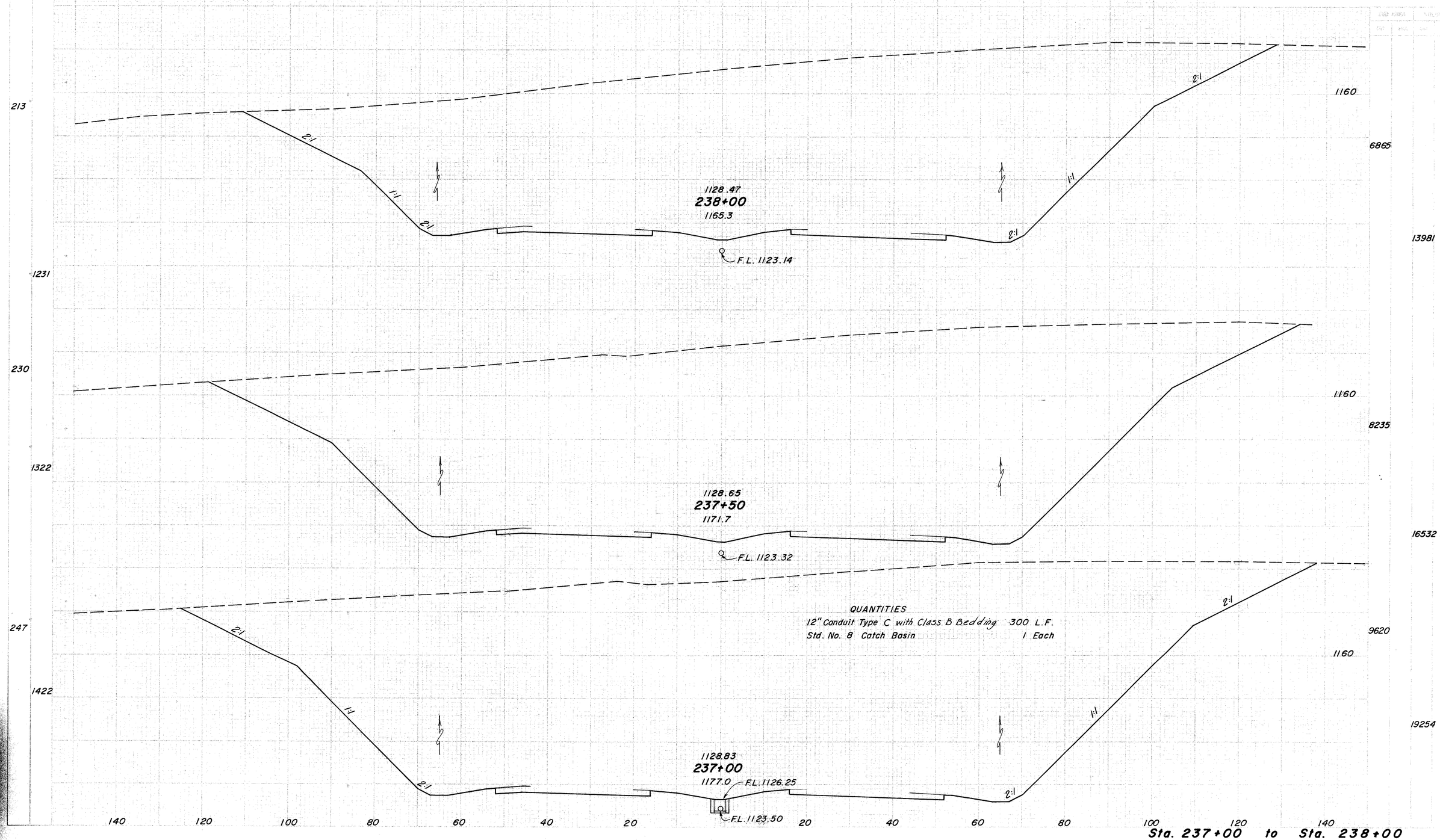
JEF-22-3.86

85
516



Sta. 236+00 to Sta. 236+50

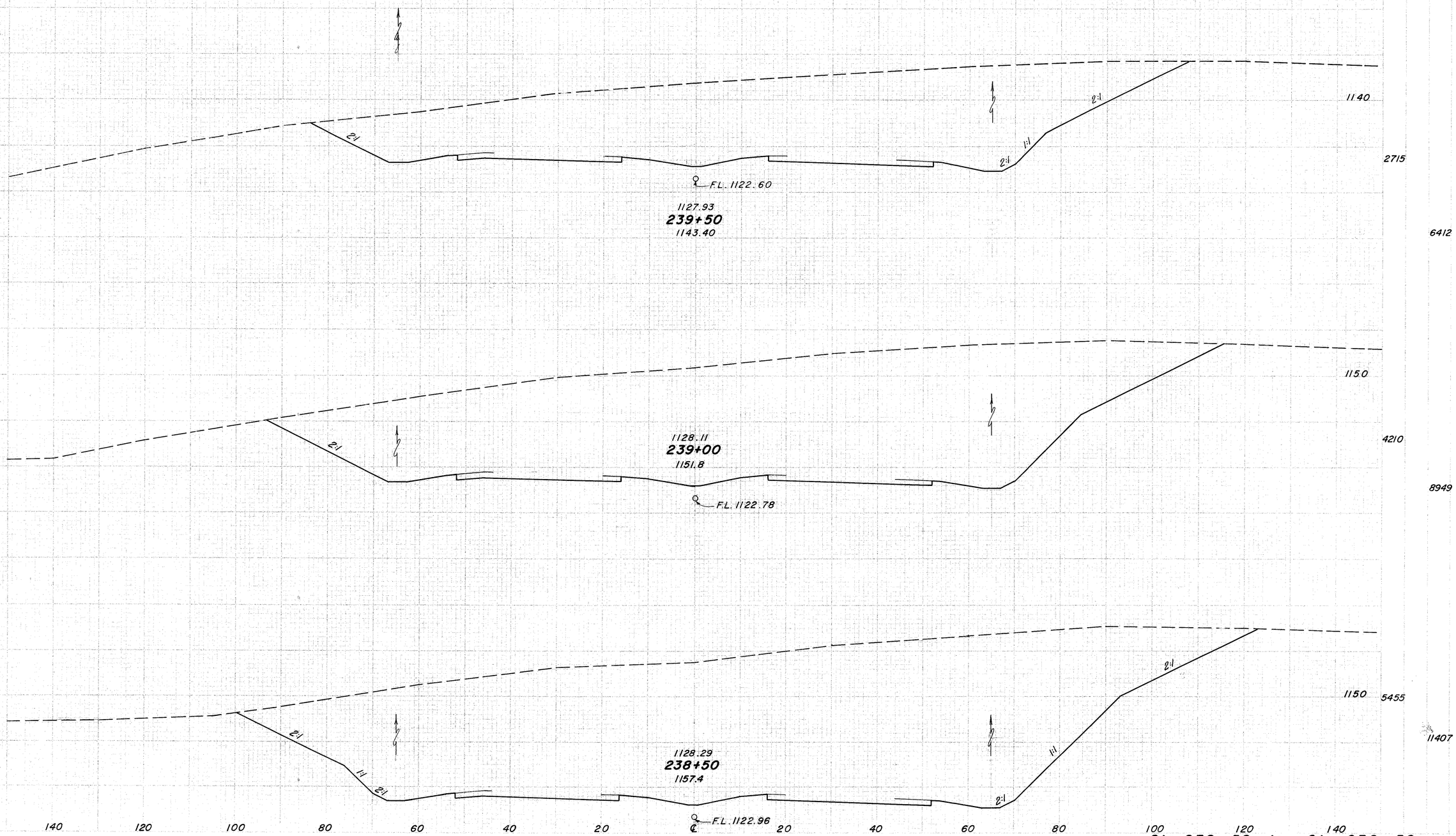
JEF-22-3.86



QUANTITIES
12" Conduit Type C with Class B Bedding 300 L.F.
Std. No. 8 Catch Basin 1 Each

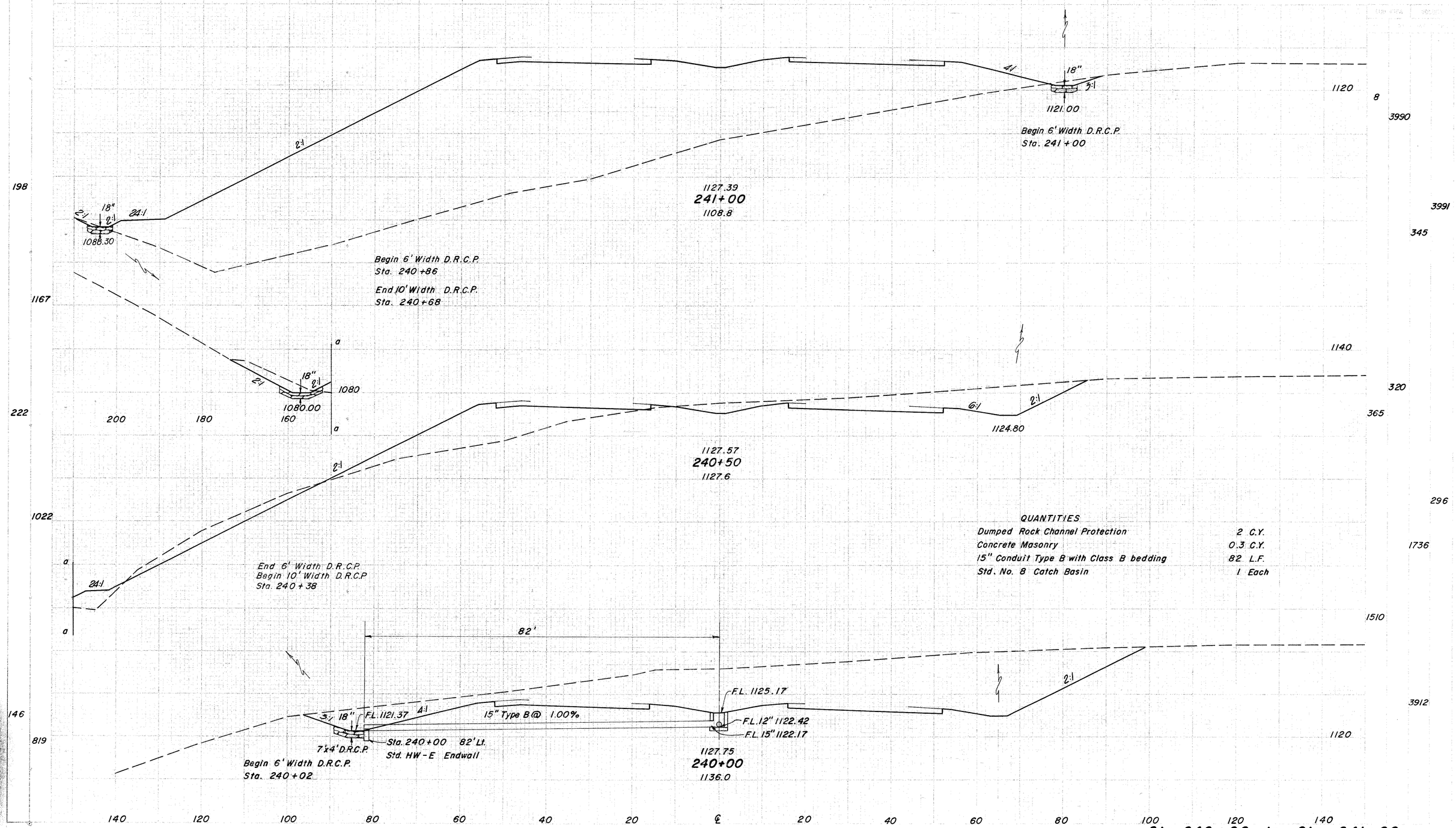
Sta. 237+00 to Sta. 238+00

JEF - 22 - 3.86



Sta. 238 + 50 to Sta. 239 + 50

JEF-22-3.86

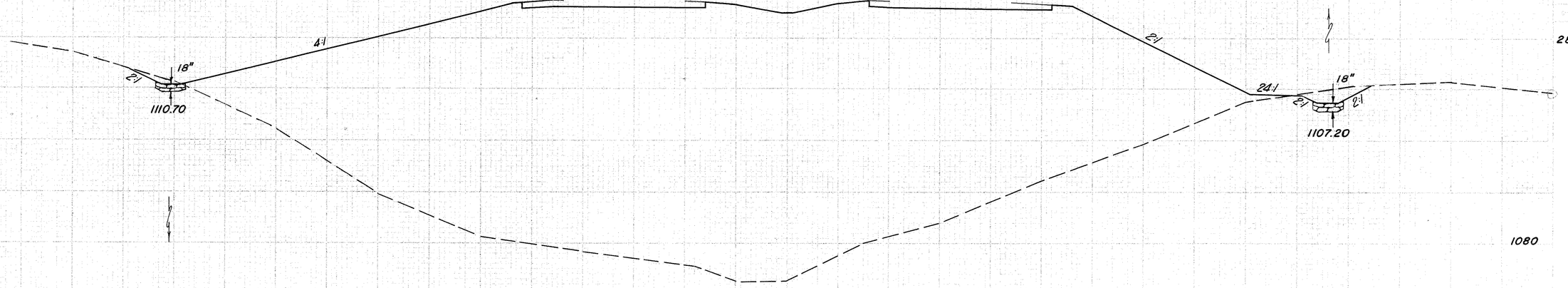


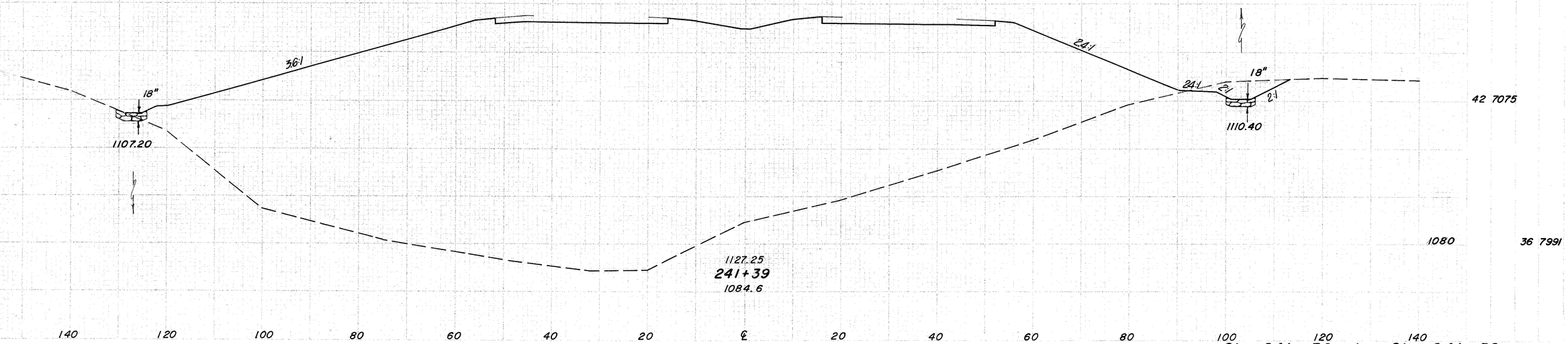
QUANTITIES

Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.3 C.Y.
15" Conduit Type B with Class B bedding	82 L.F.
Std. No. 8 Catch Basin	1 Each

Sta. 240+00 to Sta. 241+00

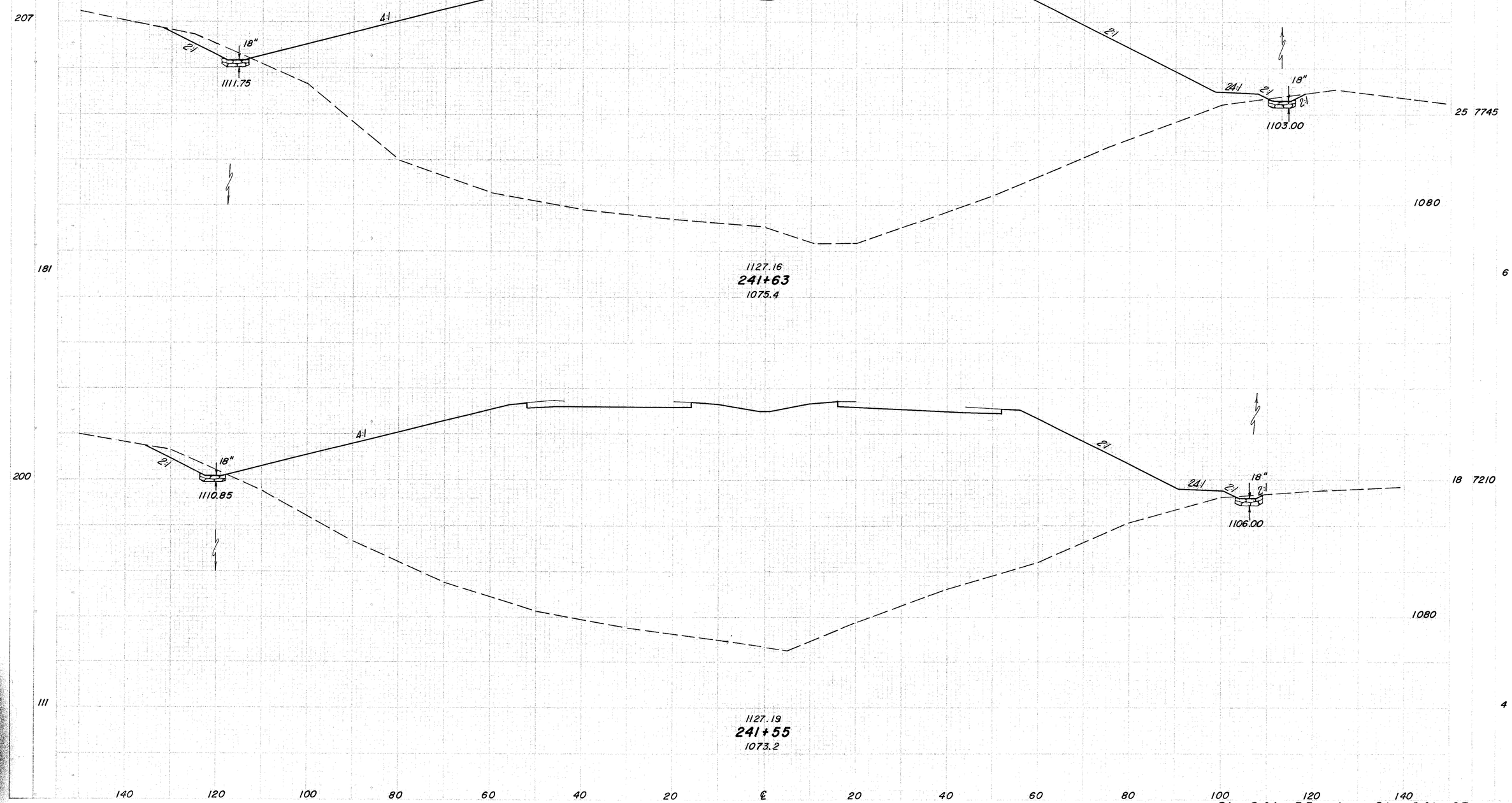
JEF-22-3.86





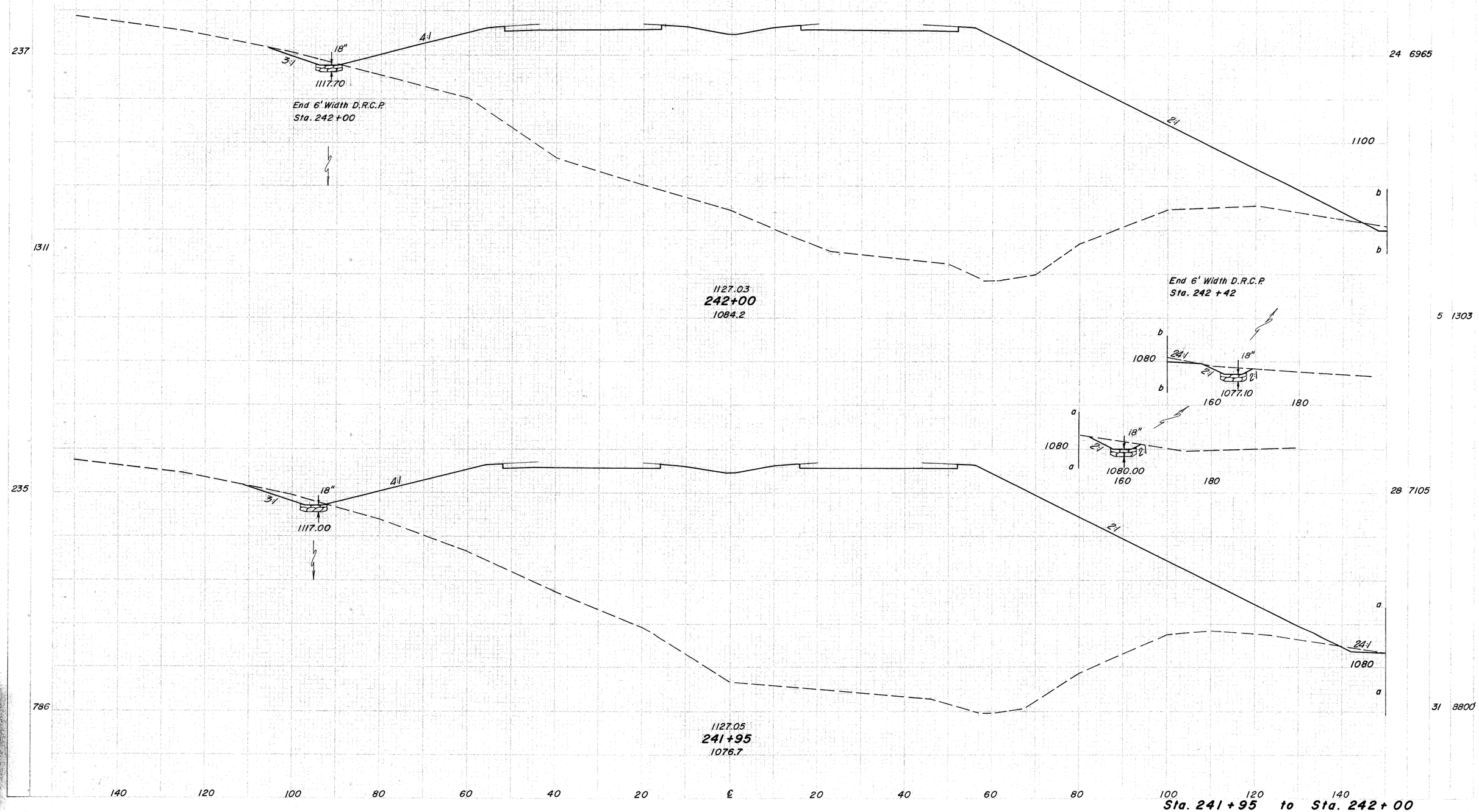
Sta. 241+39 to Sta. 241+50

JEF-22-3.86



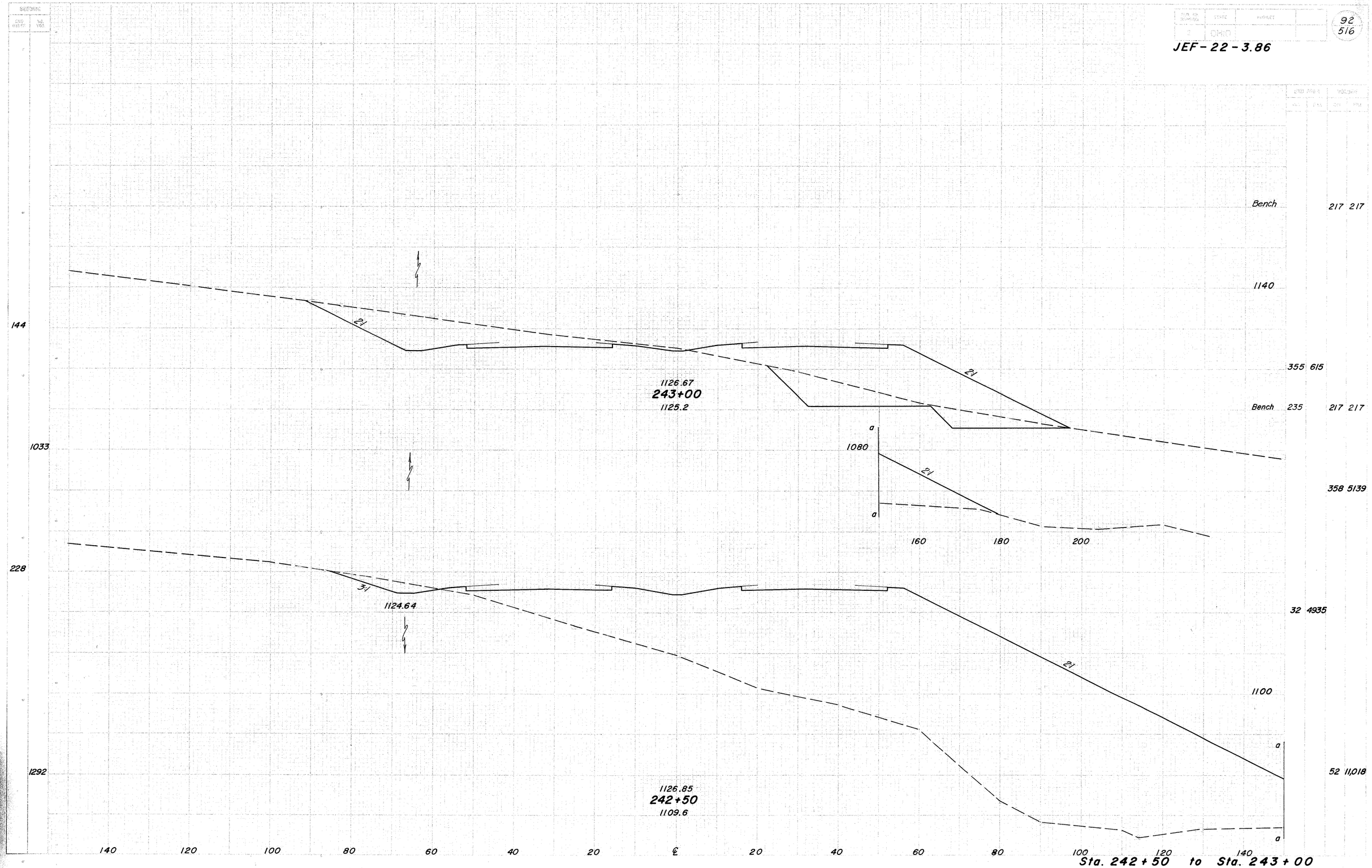
Sta. 241+55 to Sta. 241+63

JEF-22-3.86



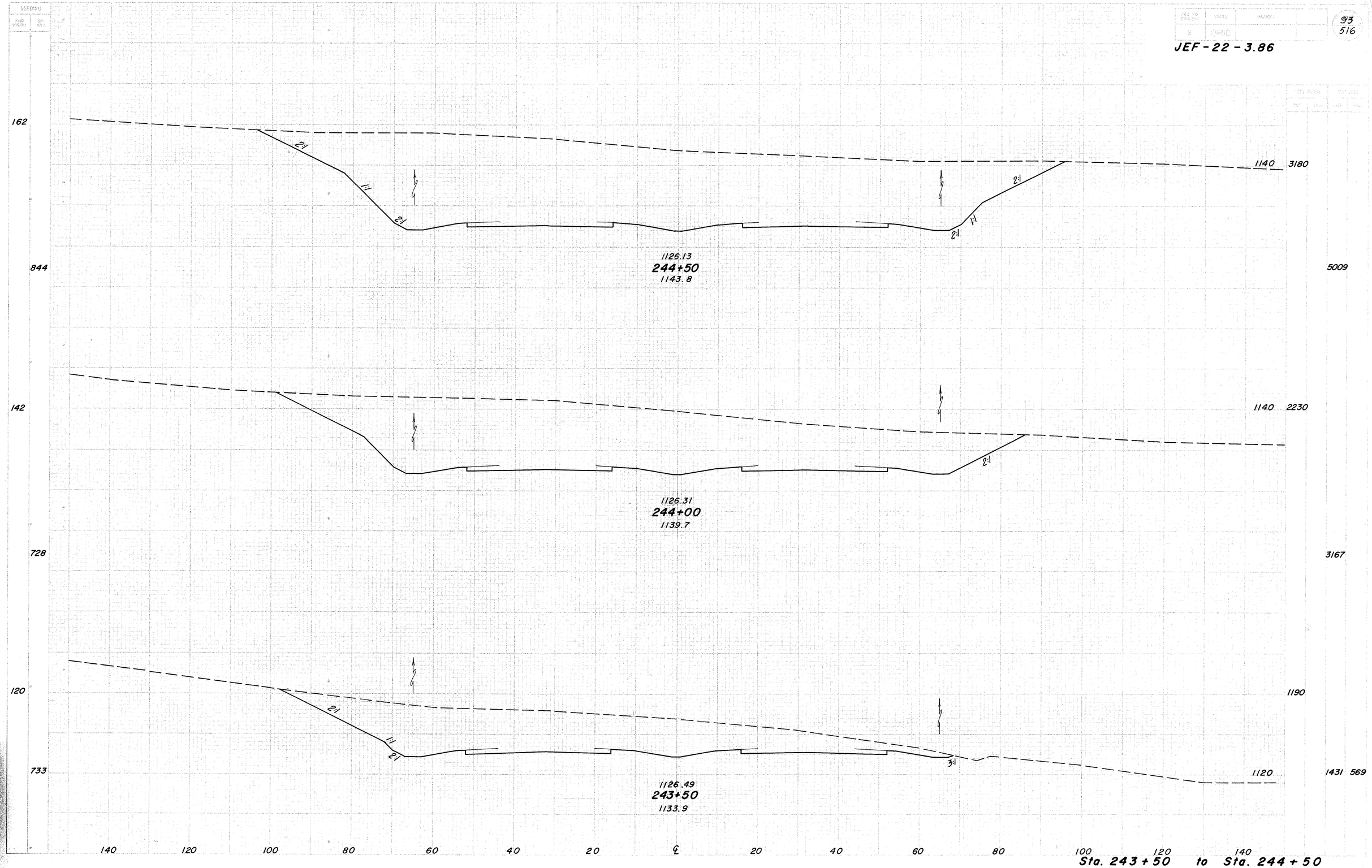
Sta. 241+95 to Sta. 242+00

JEF-22-3.86



Sta. 242+50 to Sta. 243+00

JEF-22-3.86



Sta. 243+50 to Sta. 244+50

SUBCUTTING

END WIDTH	SQ. YDS

SHEET NO.	STATE	PROJECT	
2	OHIO		

94
516

JEF-22-3.86

END AREA		VOLUME	
CUT	FILL	CUT	FILL

175

2:1

1:1

2:1

989

1125.59
246+00
1149.1

2:1

1:1

2:1

4090

1120

8125

181

4685

1140

989

1125.77
245+50
1152.1
Begin 6' Width Sod
Sta. 245 + 43

8129

175

2:1

1:1

2:1

4095

1140

936

1125.95
245+00
1149.0

2:1

1:1

2:1

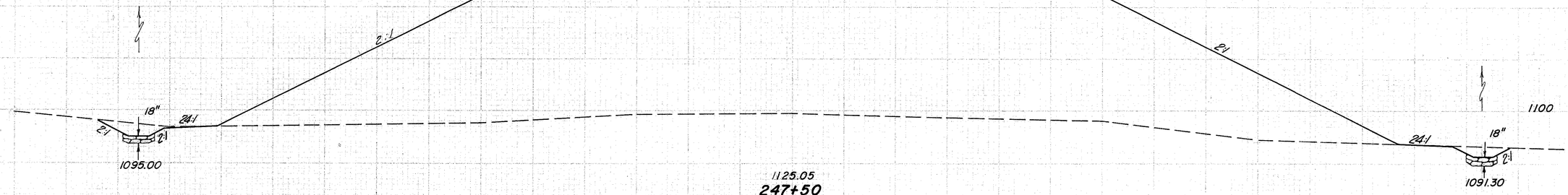
6736

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 245 + 00 to Sta. 246 + 00

95
516

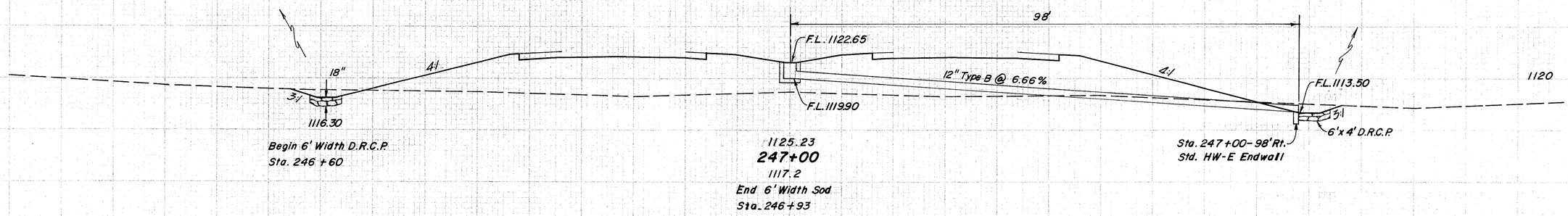
JEF-22-3.86



235 34 4330

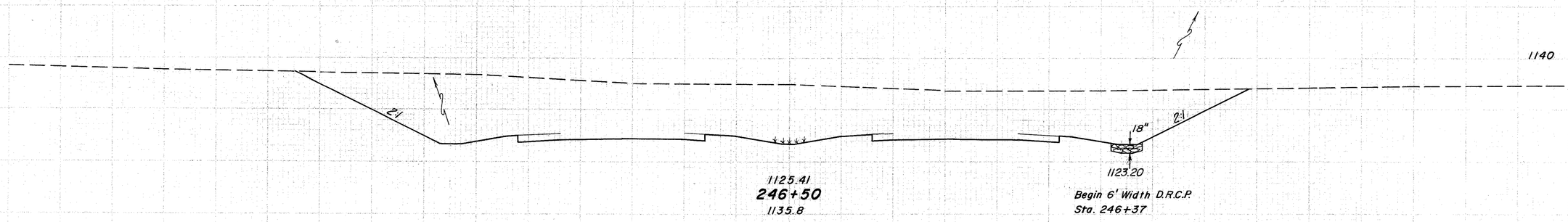
1078 56 4935

QUANTITIES	
Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.2 C.Y.
12" Conduit Type B w/Class B Bedding	98 L.F.
Std. No. 8 Catch Basin	1 each



153 1120 26 1000

808 1598 926



138 1140 1700

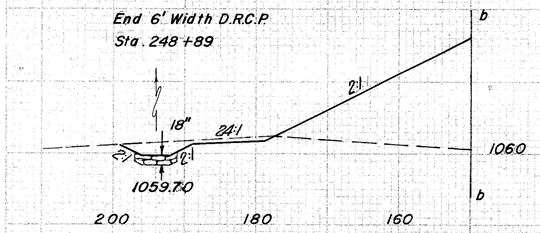
869 5361

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

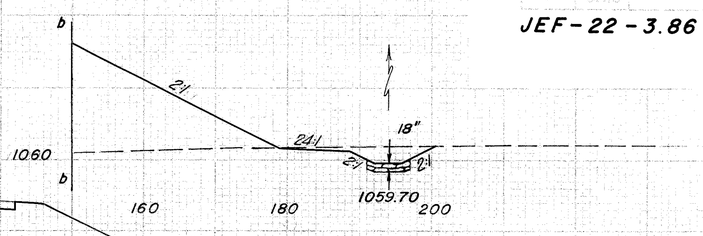
Sta. 246+50 to Sta. 247+50

JEF-22-3.86

End 6' Width D.R.C.P.
Sta. 248+89



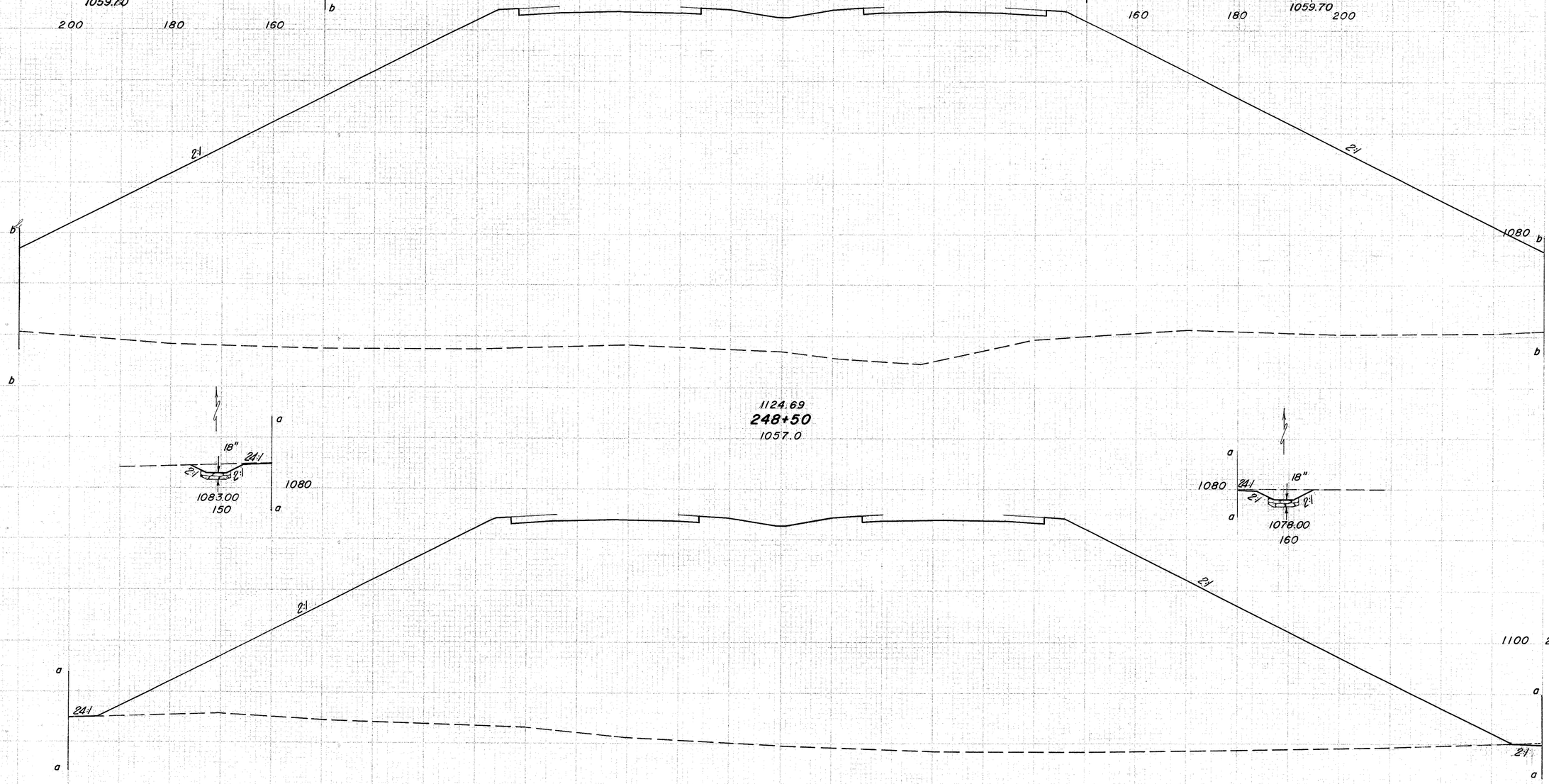
200 180 160



160 180 200

378

38 15,485



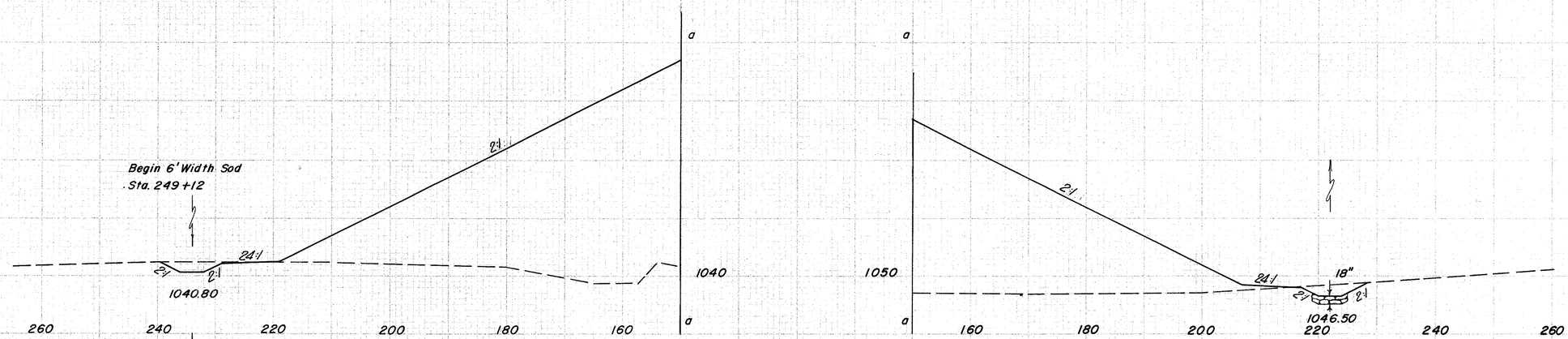
57 21,430

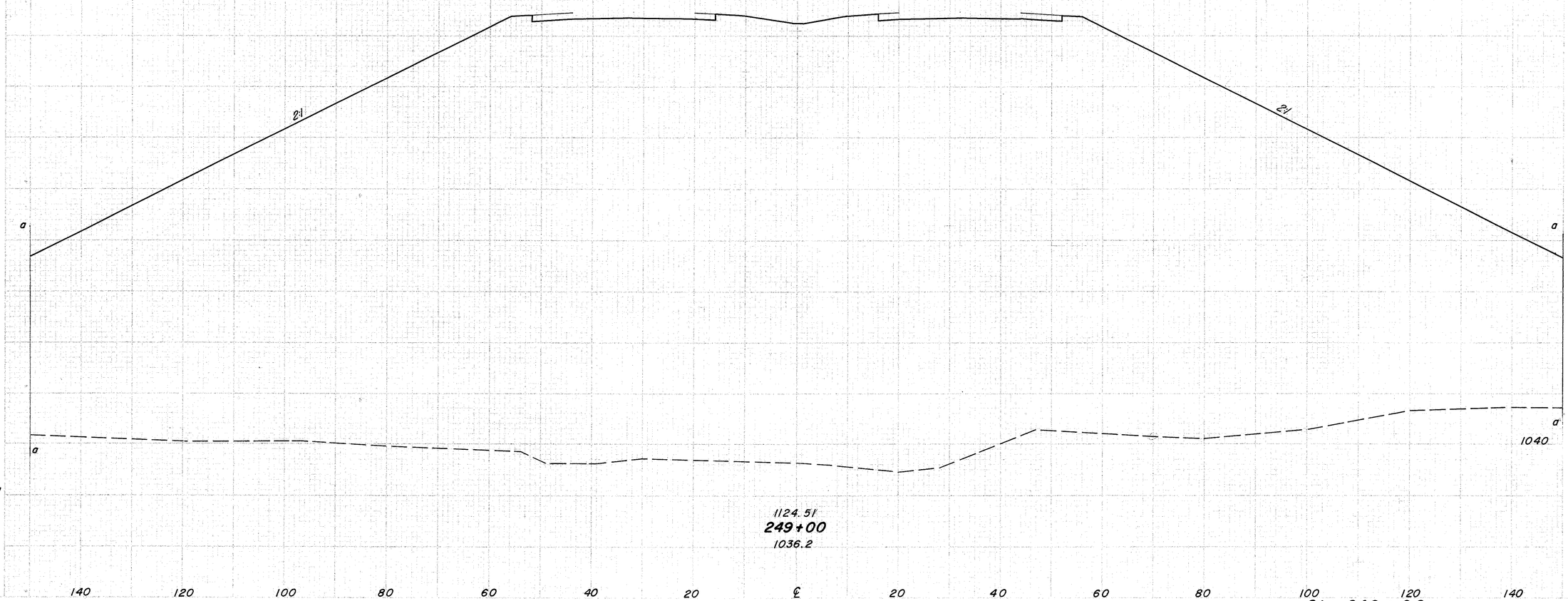
24 7660

54 11,102

Sta. 248+00 to Sta. 248+50

JEF-22-3.86





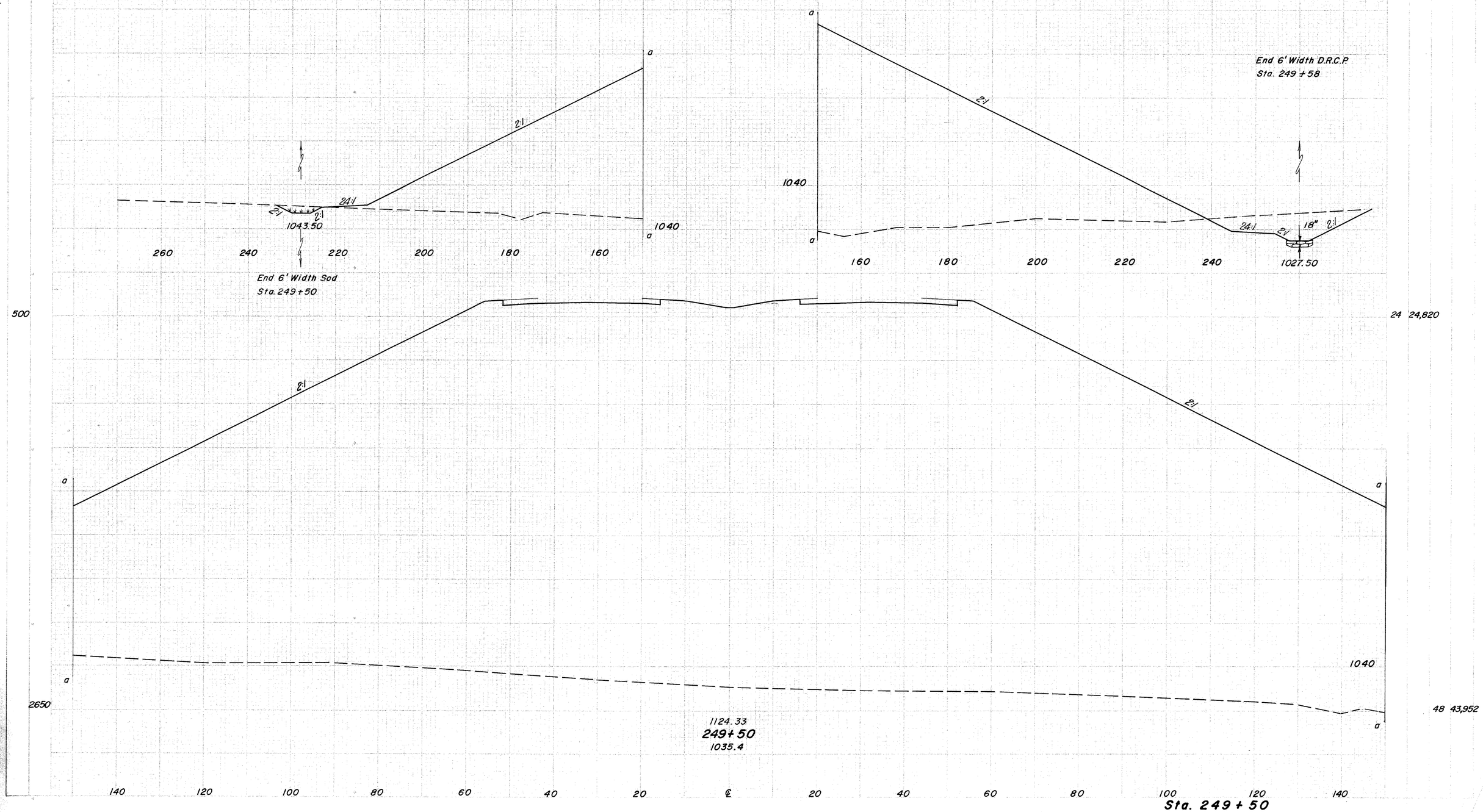
454

28 22,650

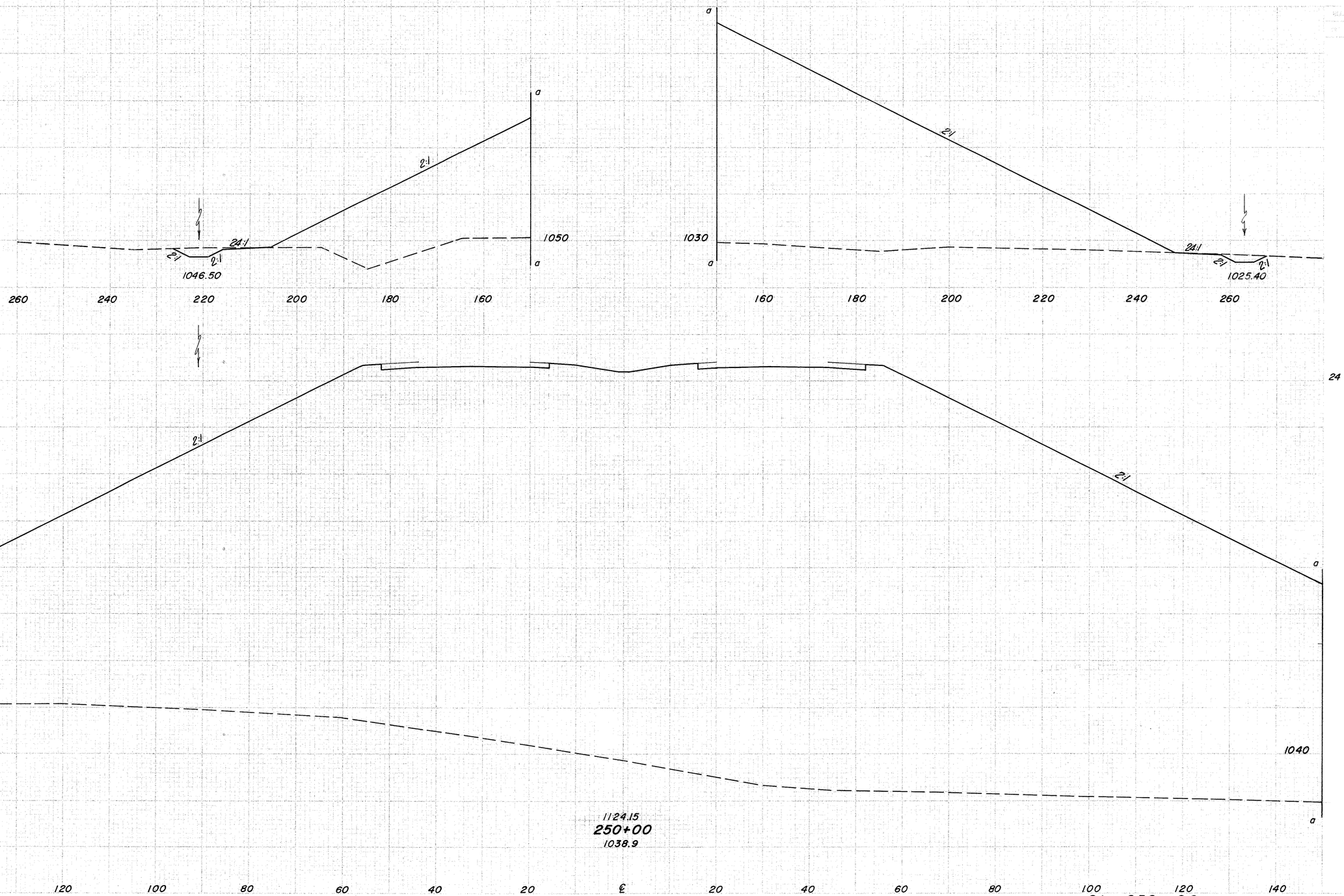
2311

61 35,309

JEF - 22 - 3.86


End 6' Width D.R.C.P.
Sta. 249 + 58
End 6' Width Sod
Sta. 249 + 50
2:1
24:1
1043.50
1040
1027.50
18"
260
240
220
200
180
160
500
24 24,820
2650
48 43,952
1124.33
249+50
1035.4
140
120
100
80
60
40
20
℄
Sta. 249 + 50

JEF - 22 - 3.86



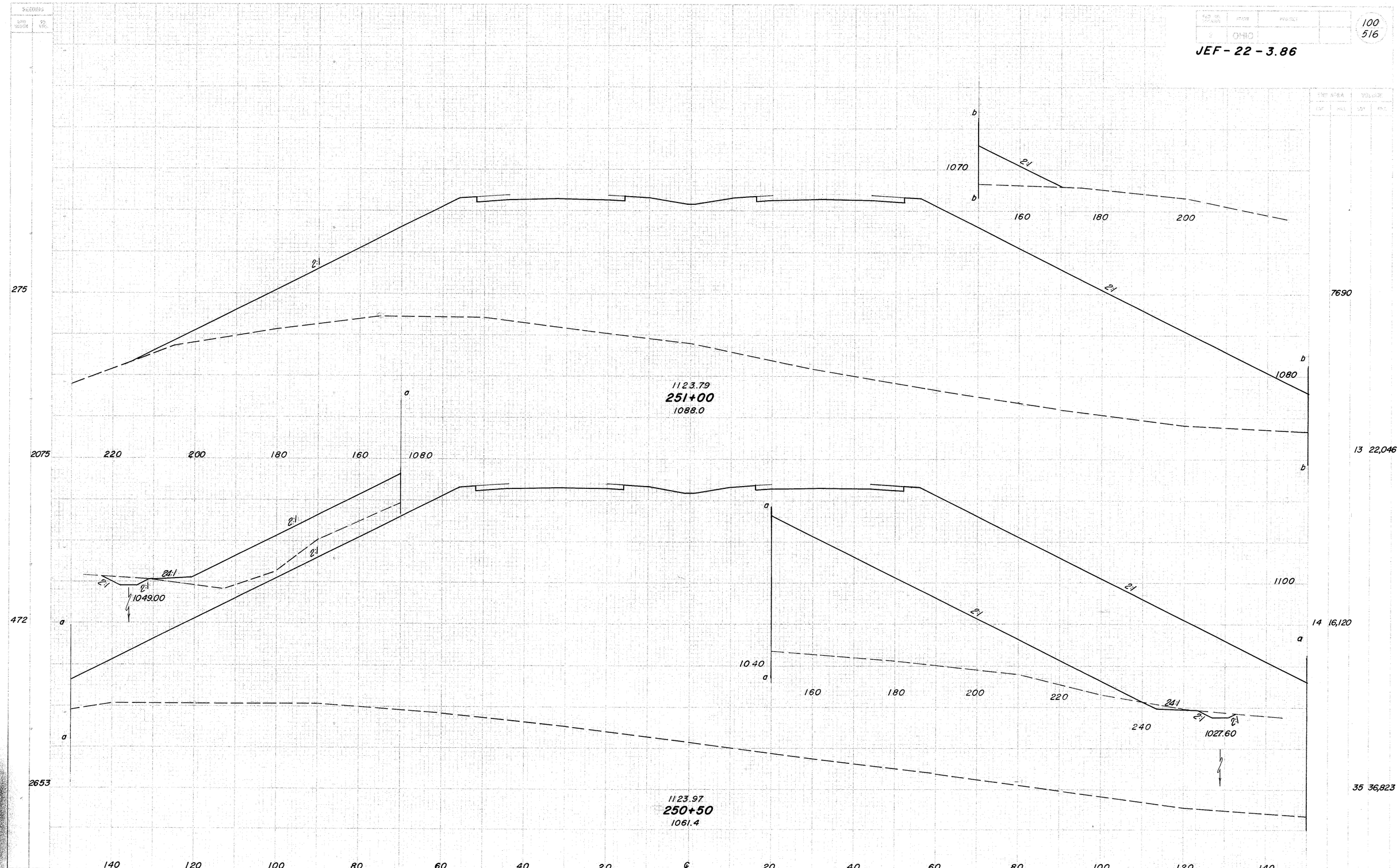
483

2731

24 23,650

44 44,878

JEF - 22 - 3.86

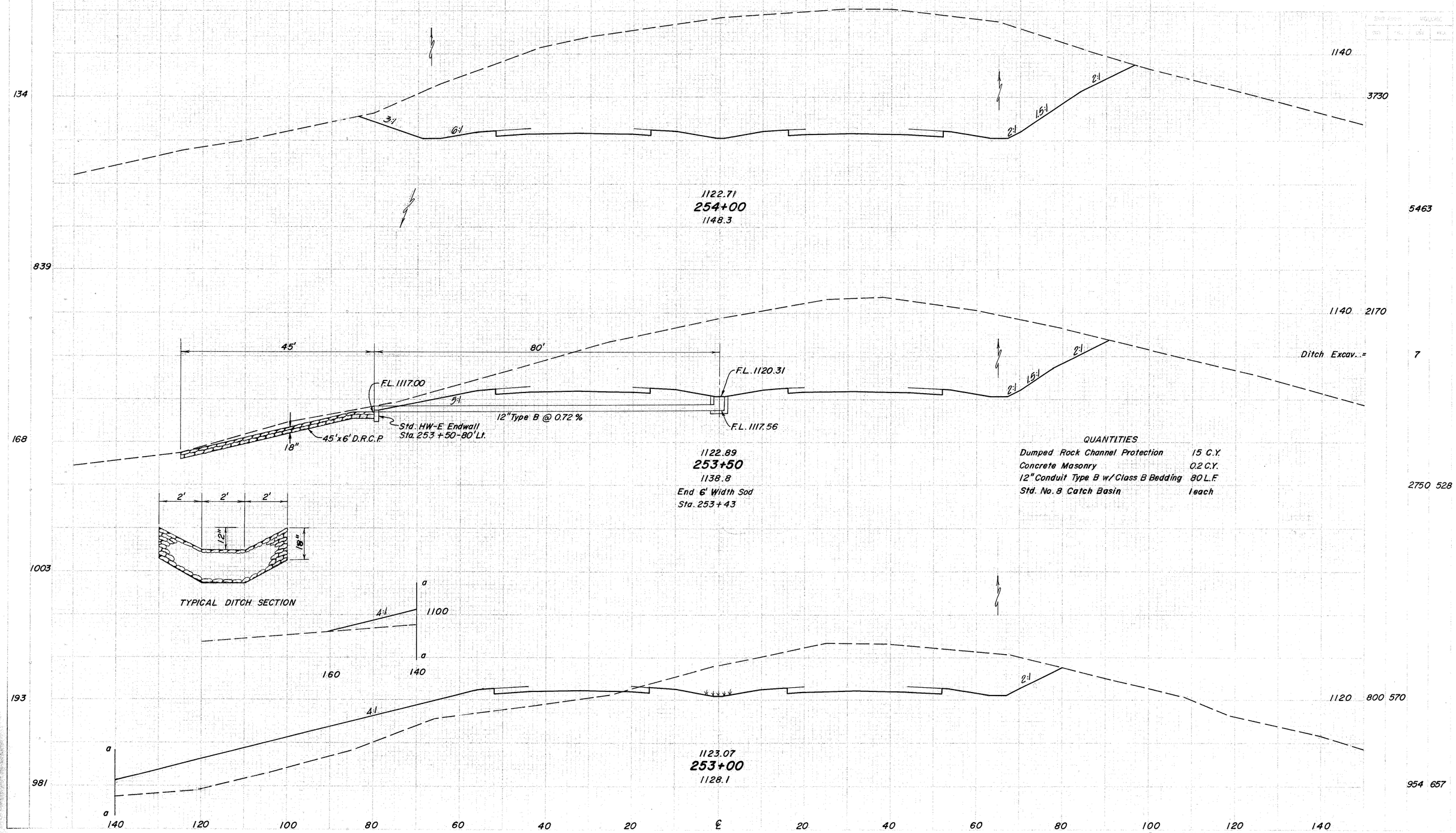


Sta. 250 + 50 to Sta. 251 + 00

JEF-22-3.86

Sta. 251+50 to Sta. 252+50

JEF - 22 - 3.86

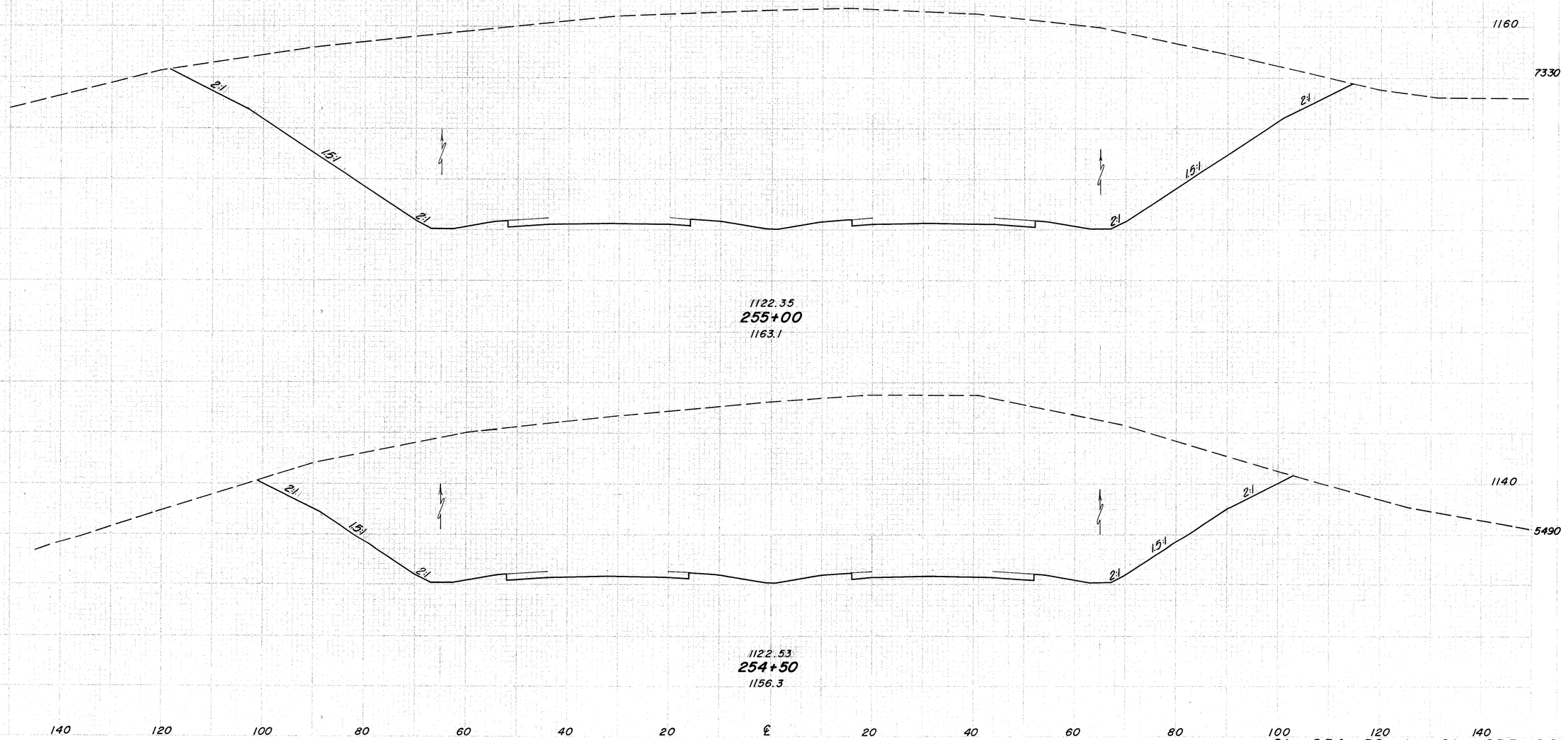


QUANTITIES

Dumped Rock Channel Protection	15 C.Y.
Concrete Masonry	0.2 C.Y.
12" Conduit Type B w/Class B Bedding	80 L.F.
Std. No. 8 Catch Basin	1 each

Sta. 253+00 to Sta. 254+00

JEF-22-3.86

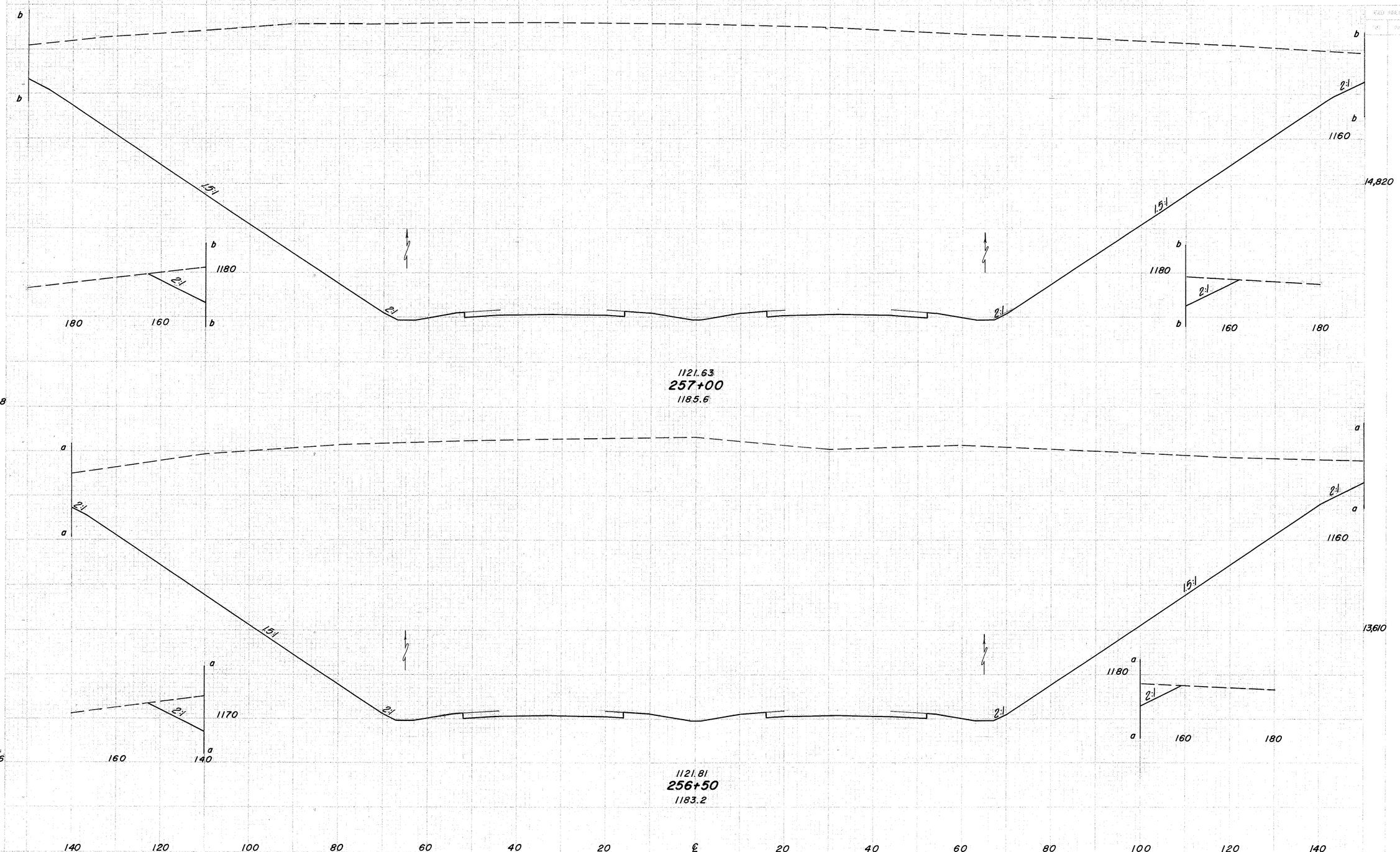


Sta. 254+50 to Sta. 255+00

JEF-22-3.86

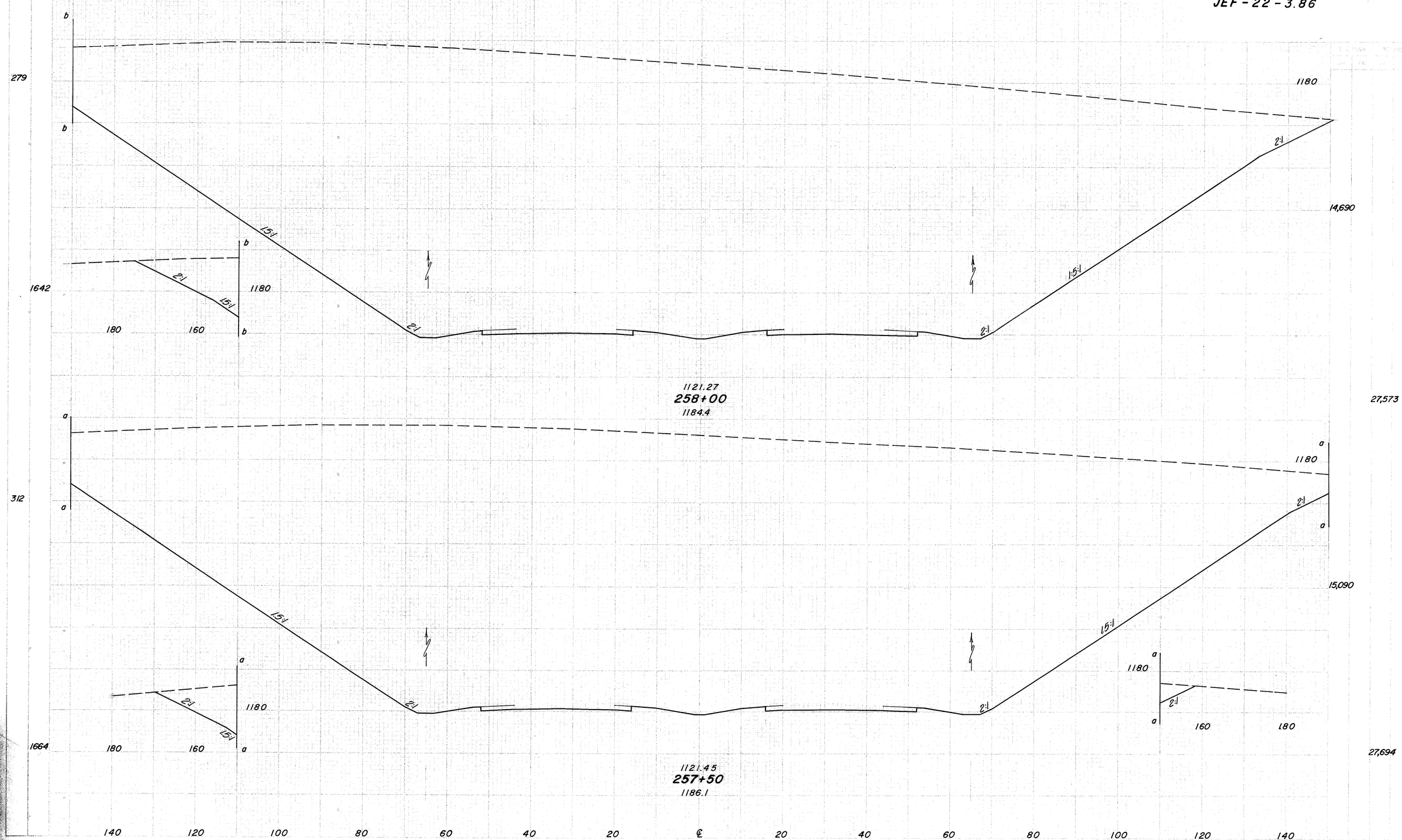
Sta. 255+50 to Sta. 256+00

JEF-22-3.86



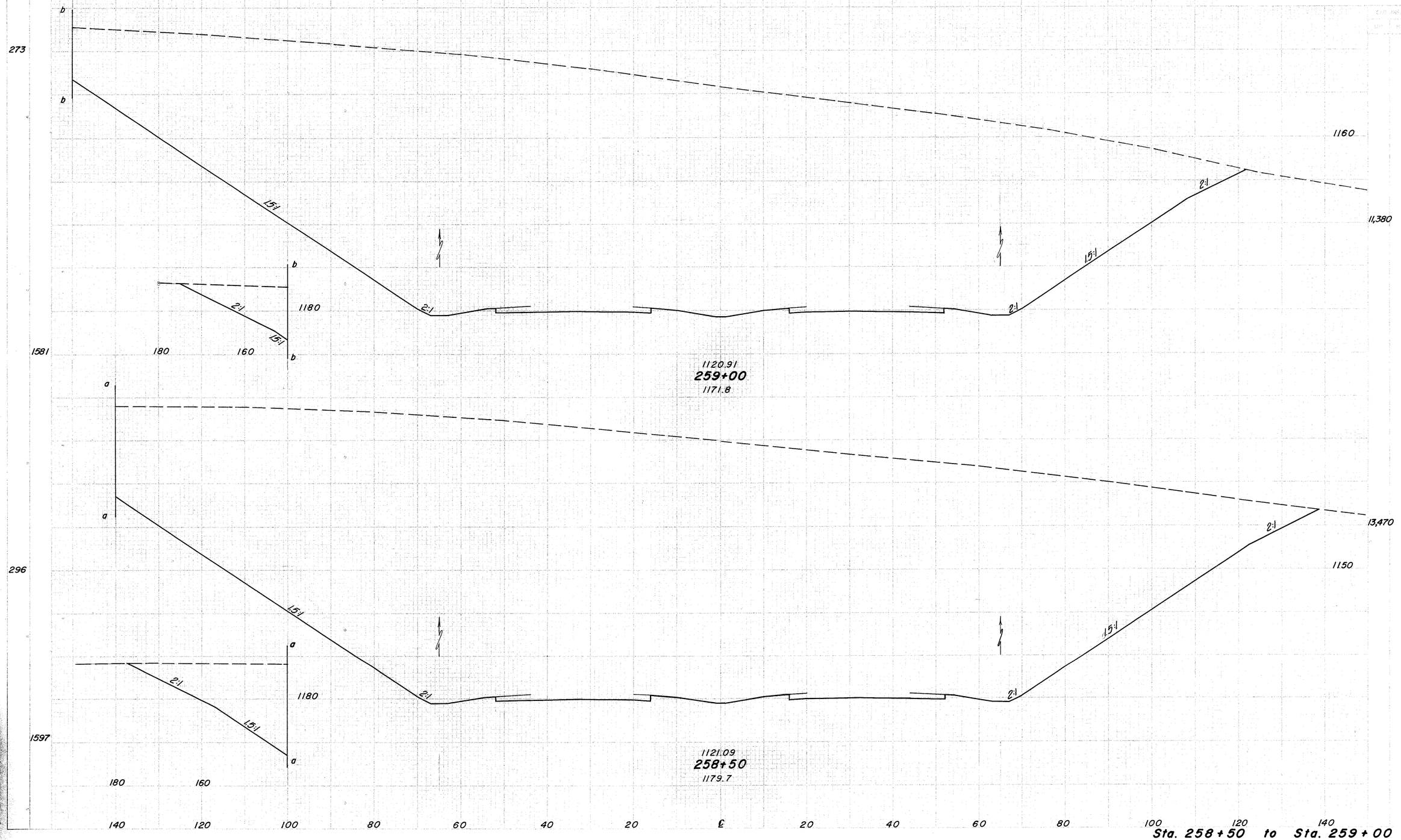
Sta. 256+50 to Sta. 257+00

JEF-22-3.86



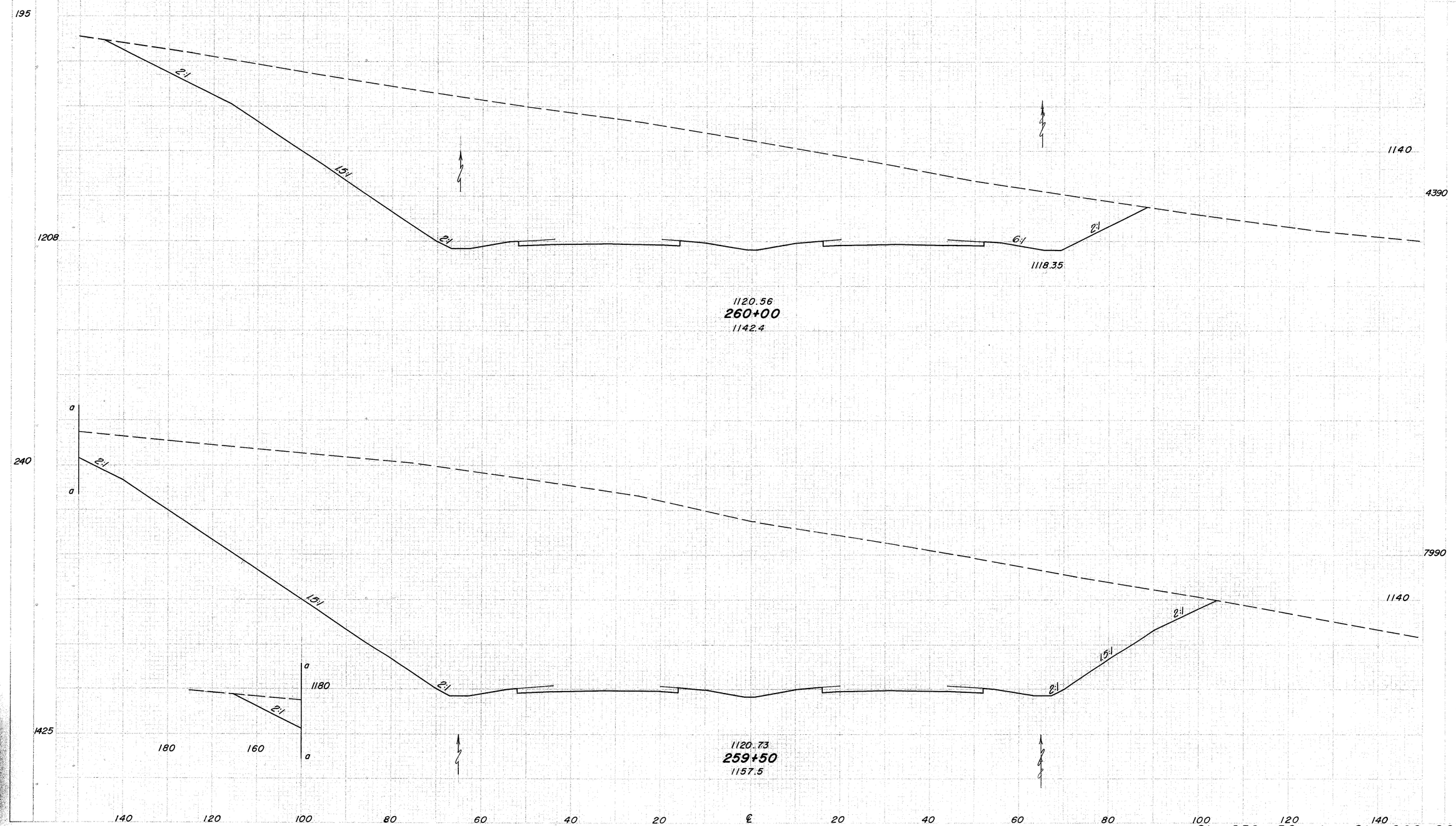
Sta. 257+50 to Sta. 258+00

JEF - 22 - 3.86



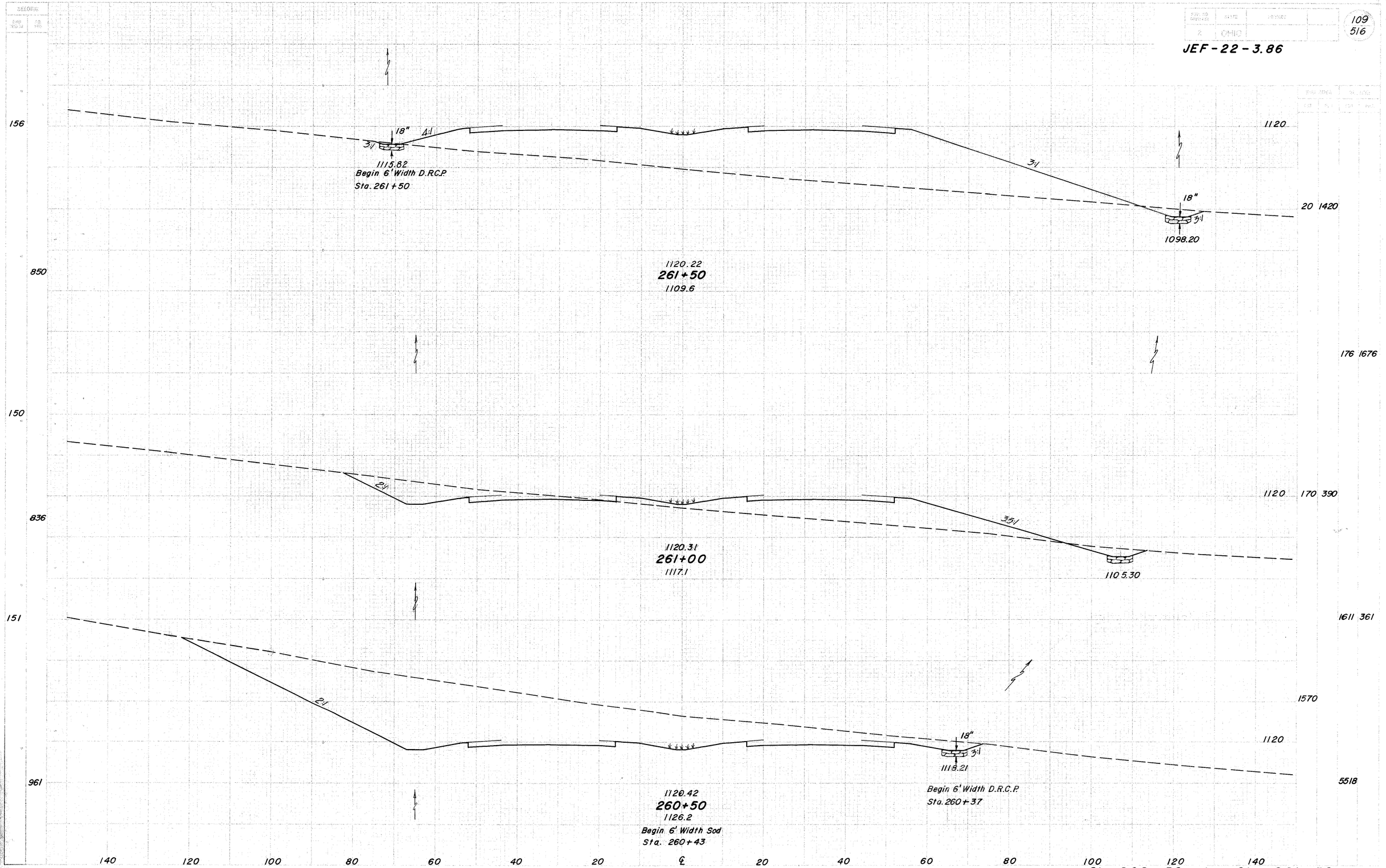
Sta. 258 + 50 to Sta. 259 + 00

JEF - 22 - 3.86



Sta. 259 + 50 to Sta. 260 + 00

JEF-22-3.86


156
850
150
836
151
961
18"
4:1
3:1
1115.82
Begin 6' Width D.R.C.P.
Sta. 261+50
1120.22
261+50
1109.6
1120
3:1
18"
20
1420
3:1
1098.20
176
1676
2:1
1120.31
261+00
1117.1
1120
170
390
3:1
1105.30
1611
361
2:1
1570
18"
3:1
1118.21
1120
5518
1120.42
260+50
1126.2
Begin 6' Width Sod
Sta. 260+43
Begin 6' Width D.R.C.P.
Sta. 260+37
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 260+50 to Sta. 261+50

110
516

JEF - 22 - 3.86

End 6' Width D.R.C.P.
Sta. 263+25

18"
3:1
1104.00
4:1

Begin 6' Width Sod
Sta. 263+07
F.L. 1117.21
F.L. 1115.02

Begin 6' Width D.R.C.P.
Sta. 263 + 16
2:1

104
1100 230 5615

a
a

1120.09
263+00
1091.0

QUANTITIES

12" Conduit Type C w/ Class B Bedding	100 L.F.
Std. No. 8 Catch Basin	1 each

861

End 6' Width D.R.C.P.
Sta. 263 + 10

a
a
2:1
24:1
2:1
18"
2:1
1068.50
1070
160
180

228 8708

F.L. 1118.57
F.L. 1114.92

206
3:1
1106.00
4:1
2:1
24:1
2:1
2:1
1086.50
1100

16 3790

1120.11
262+50
1096.1

Median Ditch shall be built up to elevation 1118.57 at Sta. 262+50 forming a divide at this point. Median drainage will flow from this divide to the Catch Basins at Sta. 262+00 and Sta. 263+00

QUANTITIES

Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.3 C.Y.
15" Conduit Type B w/ Class B Bedding	58 L.F.
15" Conduit Type F	64 L.F.
Std. No. 8 Catch Basin	1 each

1058

26 5741

58'
42'
17'
F.L. 1117.57
15" Type B @ 1.00 %
175
18"
3:1
1111.00
4:1
F.L. 12" 1114.82
F.L. 15" 1114.57
Conc. Collar
15" x 30° Bend
F.L. 1114.01
15" Type F @ 50.00 %
Slope Length = 47'
2:1
15" x 30° Bend
15" Type F @ 0.50 %
18"
24:1
2:1
2:1
6' x 4' D.R.C.P.
F.L. 1093.19
1093.10
Sta. 262 +00 117' Rt.
Std. HW-E Endwall
1100 12 2410

1120.15
262+00
1102.8
End 6' Width Sod
Sta. 261+93

919

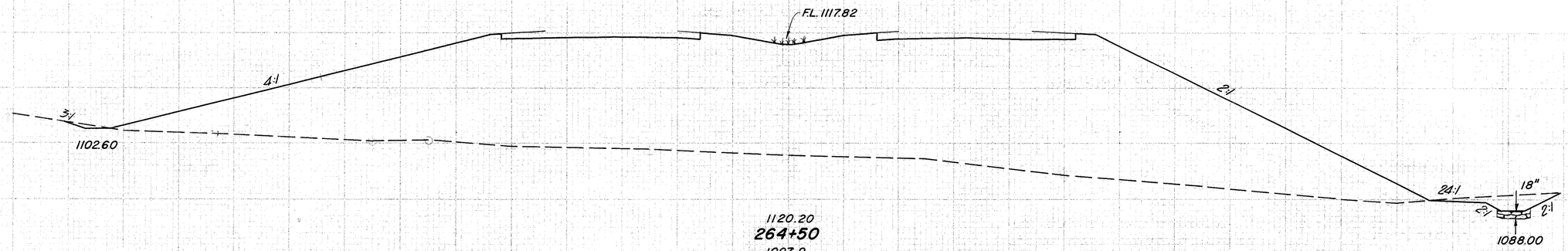
30 3546

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 262 + 00 to Sta. 263 + 00

JEF-22-3.86

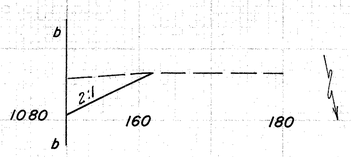
End 6' Width Sod
Sta. 264+57

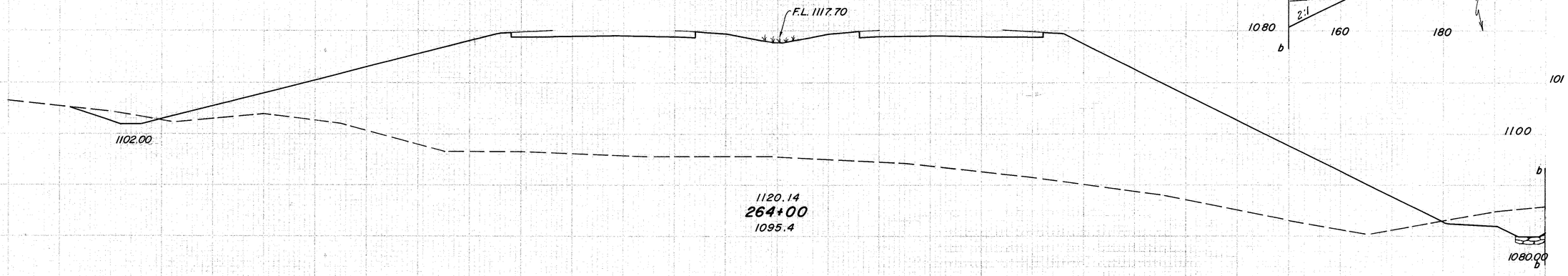


1120.20
264+50
1097.9

207 | 34 3830

1300 | 125 7731

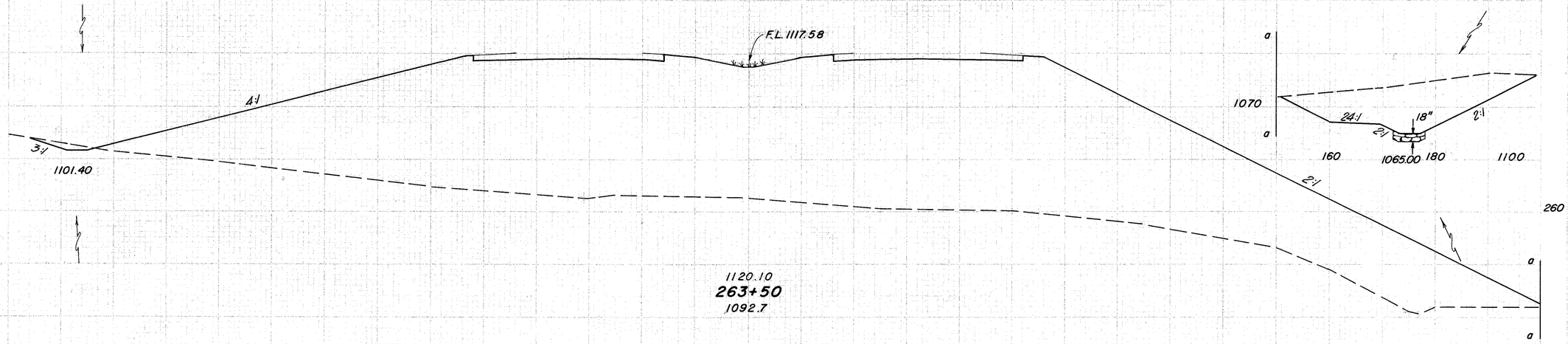




1120.14
264+00
1095.4

261 | 101 4520

1558 | 334 9083



1120.10
263+50
1092.7

300 | 260 5290

1122 | 454 10,097

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Culvert Excav. | 34

Sta. 263+50 to Sta. 264+50

JEF - 22 - 3.86

End 6' Width D.R.C.P.
Sta. 266+25

1120

3:1
1118.30
4:1
18"
3:1
1114.50

116

220 30

1120.51
266+00
1120.4

778

235 1352

F.L. 1118.06

4:1
3:1
1111.50
End 6' Width Sod
Sta. 265+50
3:1
1103.50

164

34 1430

1100

1120.39
265+50
1109.3

1028

59 3842

F.L. 1117.94

206

4:1
3:1
1104.00
Begin 6' Width Sod
Sta. 265+00
2:1
2:1
2:1
18"
1095.75

30 2720

1100

1120.27
265+00
1102.4

1147

59 6065

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 265 + 00 to Sta. 266 + 00

SEEDING

NO.	DATE	BY	CHK'D
2		GMO	

113
516

JEF-22-3.86

SHEET	VOLUME

166

3:1

a

a

2:1

3560

1120

942

1120.87
267+50
1139.2

a

2:1

1140

a

7416

120 140 160

173

2:1

4450

1120

1120.75
267+00
1146.4

894

6592

149

2:1

2:1

2670

1120

1120.63
266+50
1135.8

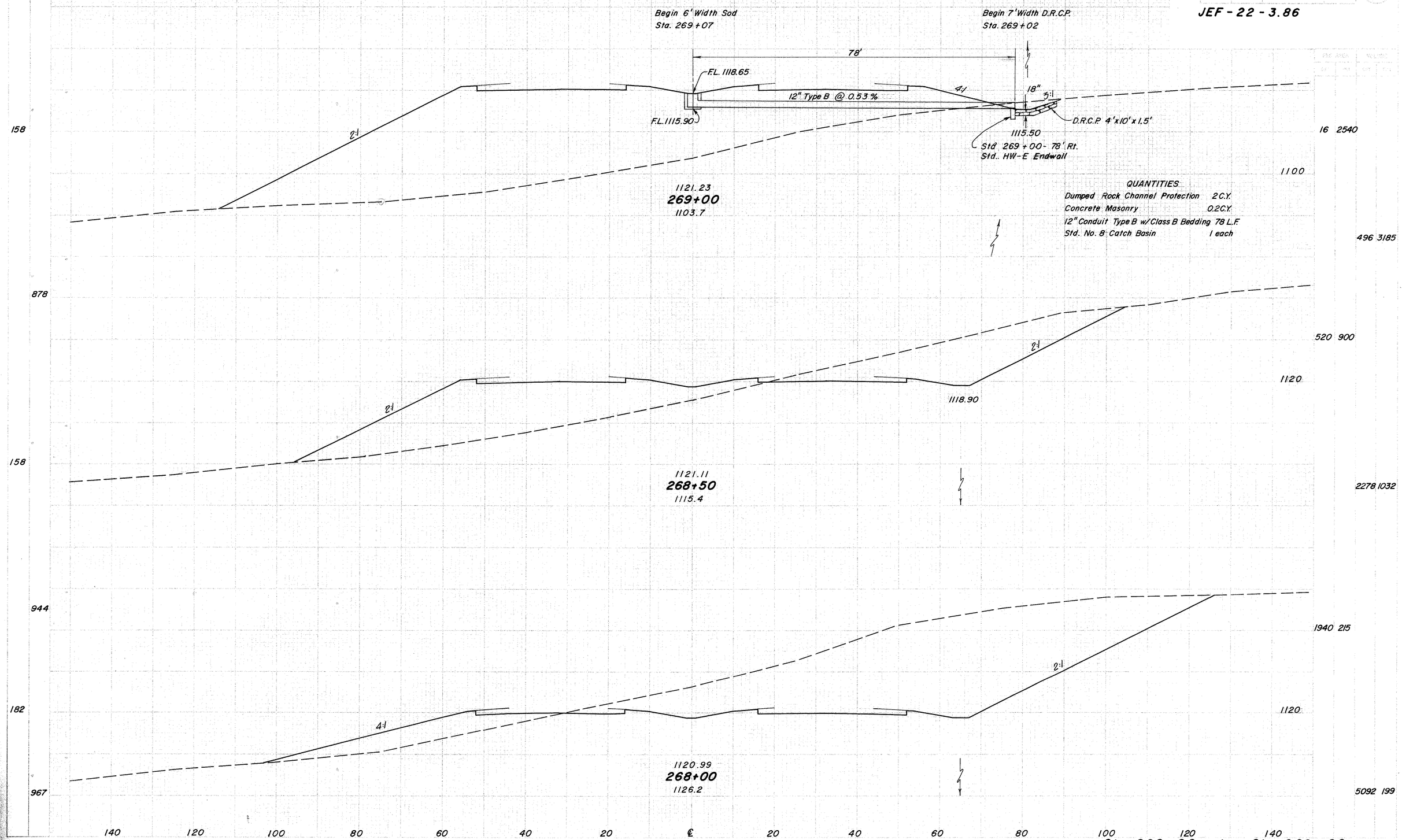
736

2676 28

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 266+50 to Sta. 267+50

JEF - 22 - 3.86



QUANTITIES

Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.2 C.Y.
12" Conduit Type B w/Class B Bedding	78 L.F.
Std. No. 8 Catch Basin	1 each

Sta. 268+00 to Sta. 269+00

115
516

JEF - 22 - 3.86

End 6' Width Sod
Sta. 270+57

280

1447

241

1233

203

1003

1060

180 160

2:1

a

1121.59
270+50
1080.8

1121.47
270+00
1086.4

1121.35
269+50
1093.6

30 8100

24:1

18"

1087.75

1080

74 13,250

1094.75

1080

89 9796

46 4370

1100

1104.00

57 6398

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 269 + 50 to Sta. 270 + 50

JEF-22-3.86

406

b

2:1

2:1

2:1

18"

24:1

2:1

1041.00

1050

b

b

260 240 220 200 180 160

2:1

b

85 13,680

b

1160

1121.83
271+50
1068.9

2206

b

a

1060

2:1

2:1

18"

24:1

2:1

240 1040.00 220 200 180 160

a

1080

b

b

24:1

18"

2:1

2:1

1073.00

160 180

227 22,360

388

Begin 6' Width D.R.C.P.
Sta. 271+06

2:1

2:1

160 10,470

a

a

24:1

a

a

1856

1080

18"

2:1

2:1

1081.00

160 180

1060

176 17,194

1121.71
271+00
1075.7

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 271+00 to Sta. 271+50

117
516

JEF - 22 - 3.86

388

2:1

b

2:1

b

220 20,070

b

2:1

18"

2:1

24:1

1054.60

1050

b

200 180 160

1070

b

24:1

18"

2:1

2:1

1068.50

160 180 200

1040

1122.07

272+50

1040.6

324 33,971

2161

2:1

a

2:1

a

130 16,620

a

2:1

18"

2:1

24:1

1051.50

1050

a

200 180 160

1070

a

18"

24:1

2:1

2:1

1070.50

160 180

390

2211

a

1040

199 28,055

1121.95

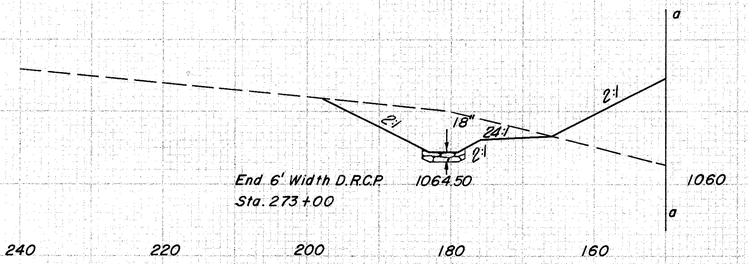
272+00

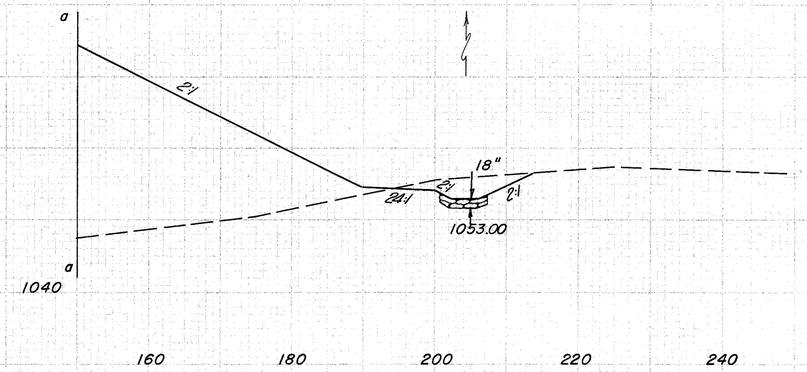
1056.6

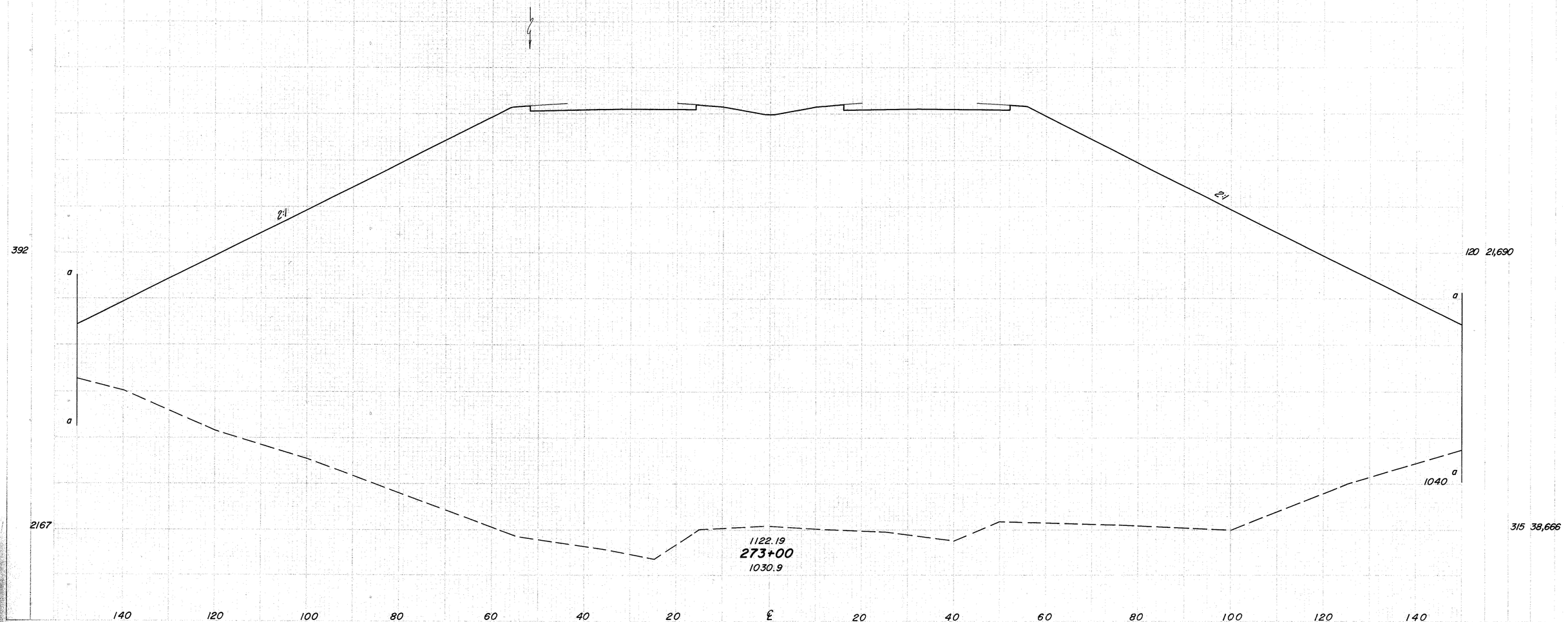
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 272 + 00 to Sta. 272 + 50

JEF - 22 - 3.86


a
2:1
18"
2:1
2:1
2:1
End 6' Width D.R.C.P.
Sta. 273+00
1064.50
1060
a
240
220
200
180
160

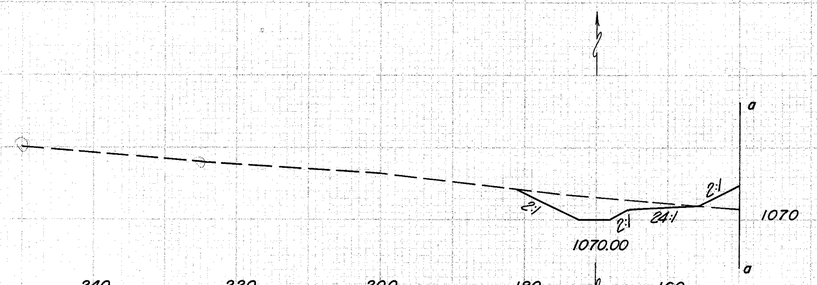

a
2:1
18"
2:1
2:1
2:1
1053.00
a
1040
160
180
200
220
240

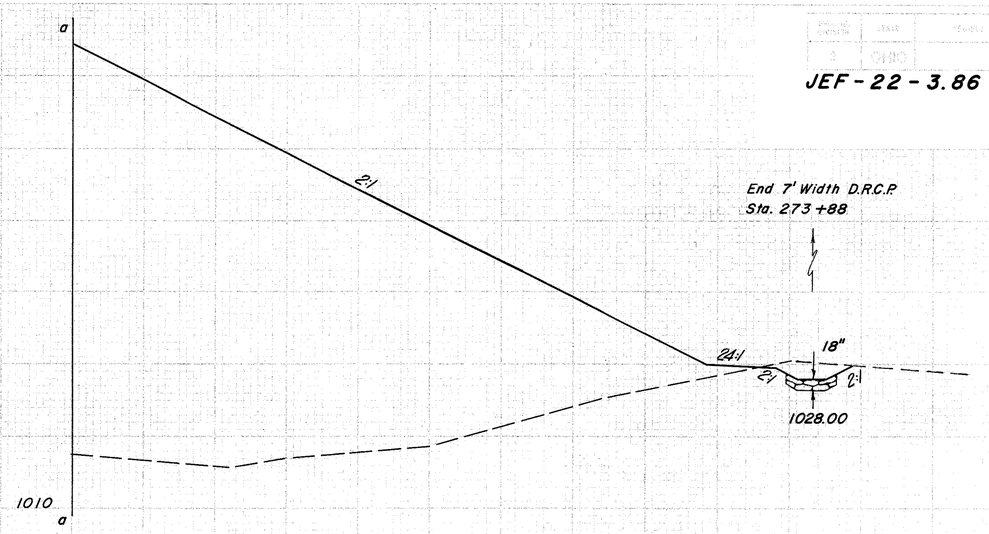

392
2:1
2:1
a
a
120 21,690
a
a
1040
2167
315 38,666
1122.19
273+00
1030.9
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 273 + 00

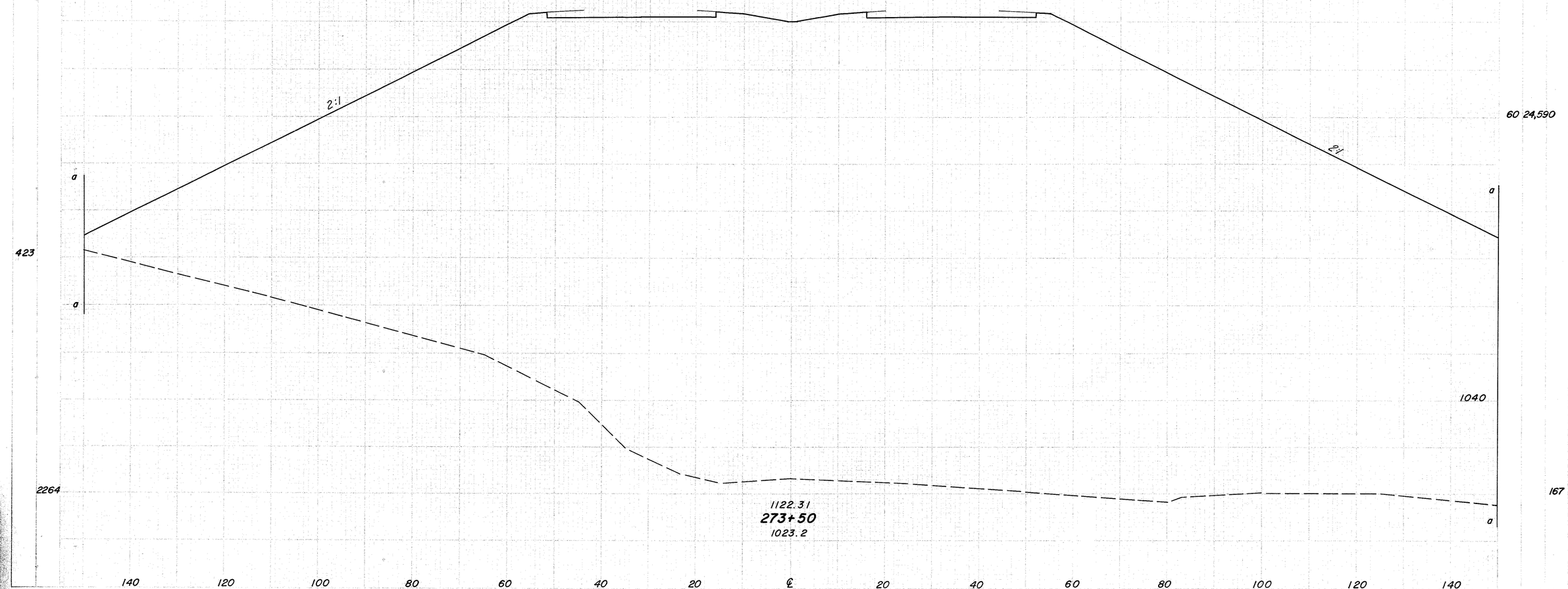
119
516

JEF - 22 - 3.86

End 7' Width D.R.C.P.
Sta. 273 + 88



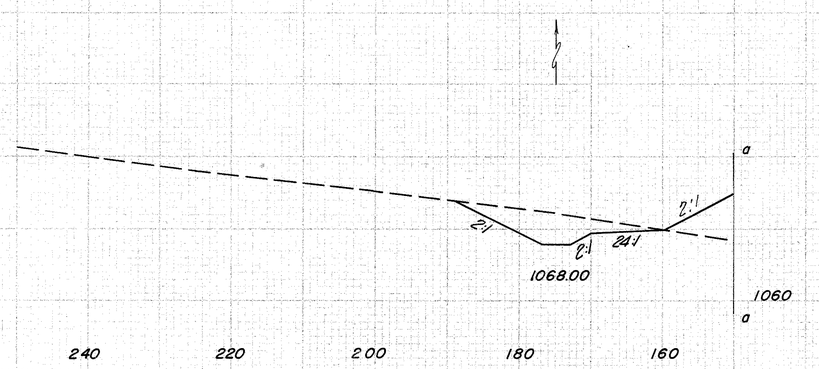


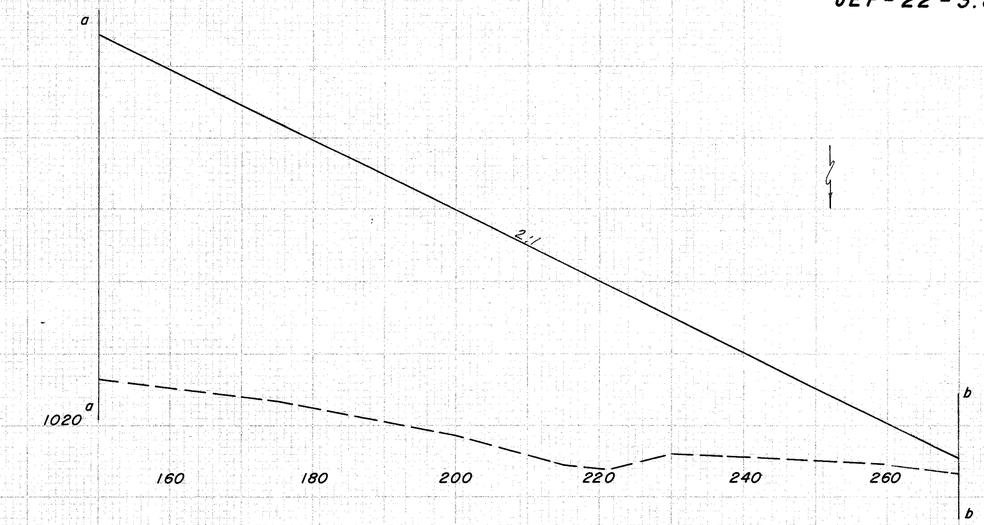


Sta. 273 + 50

JEF-22-3.86

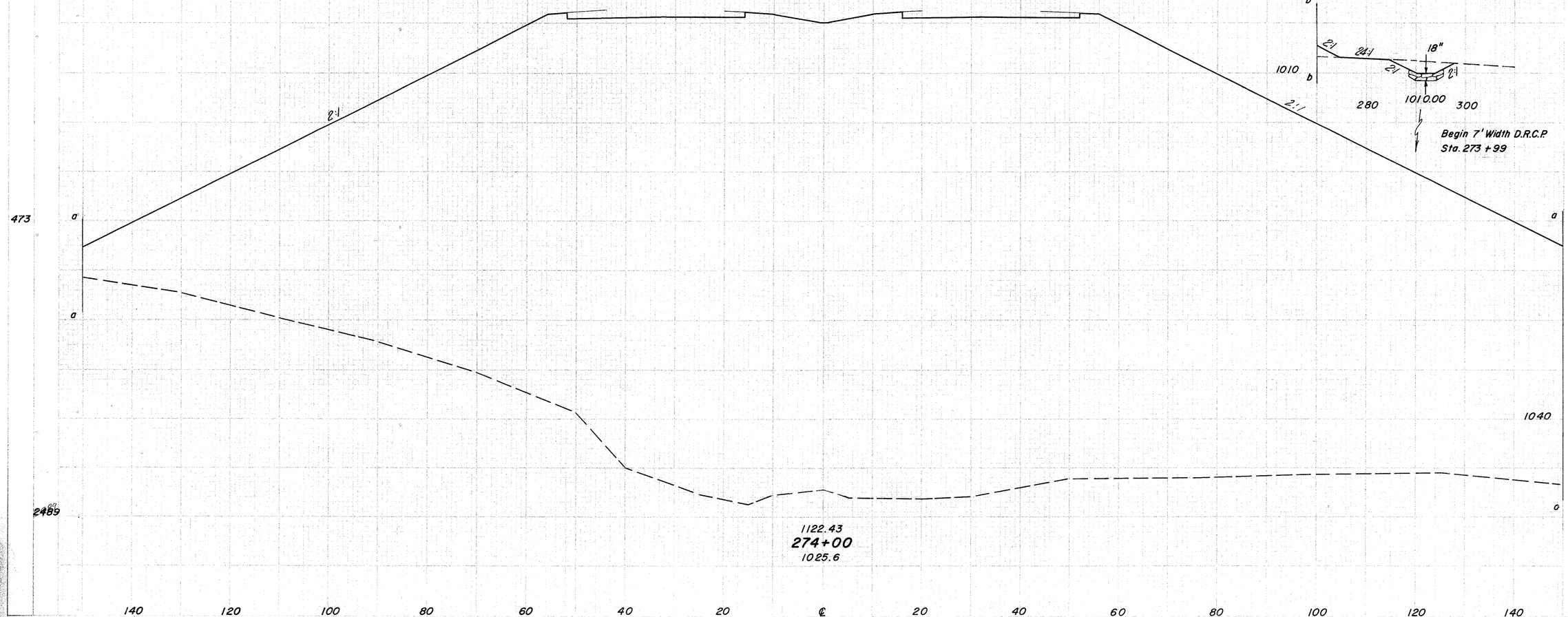
120
516





70 24,150

Begin 7' Width D.R.C.P
Sta. 273+99

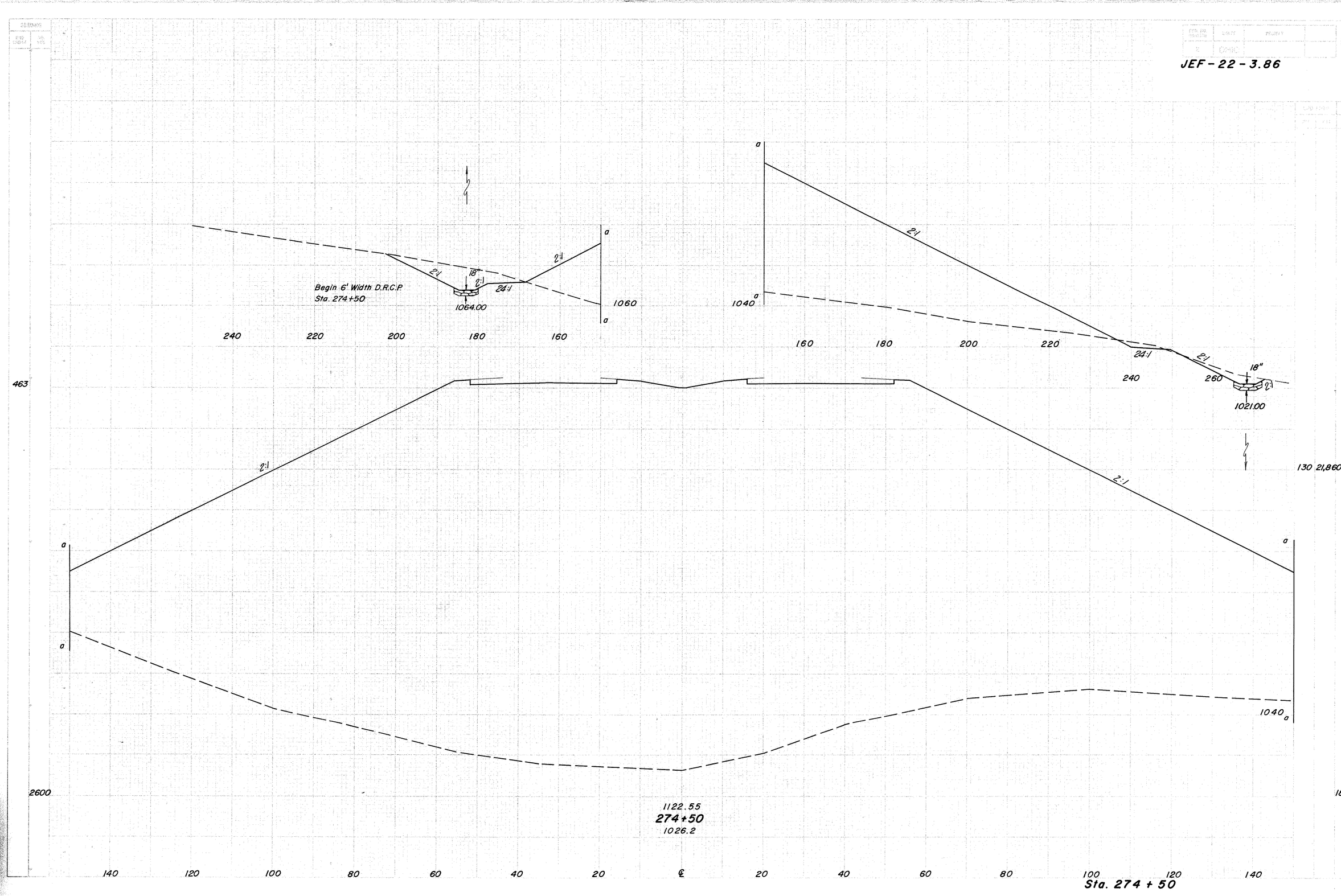


120 45,128

Sta. 274+00

121
516

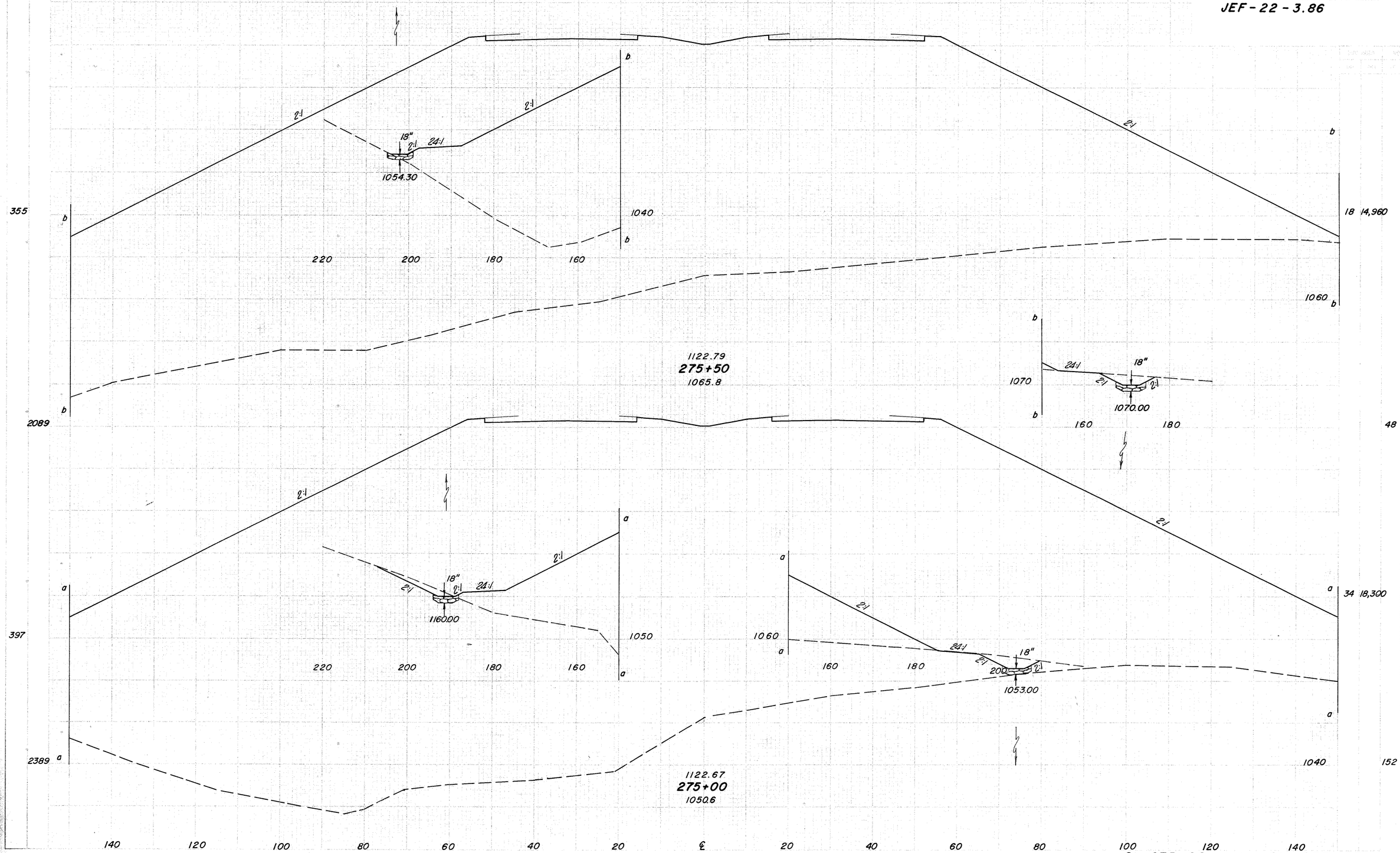
JEF-22-3.86



463

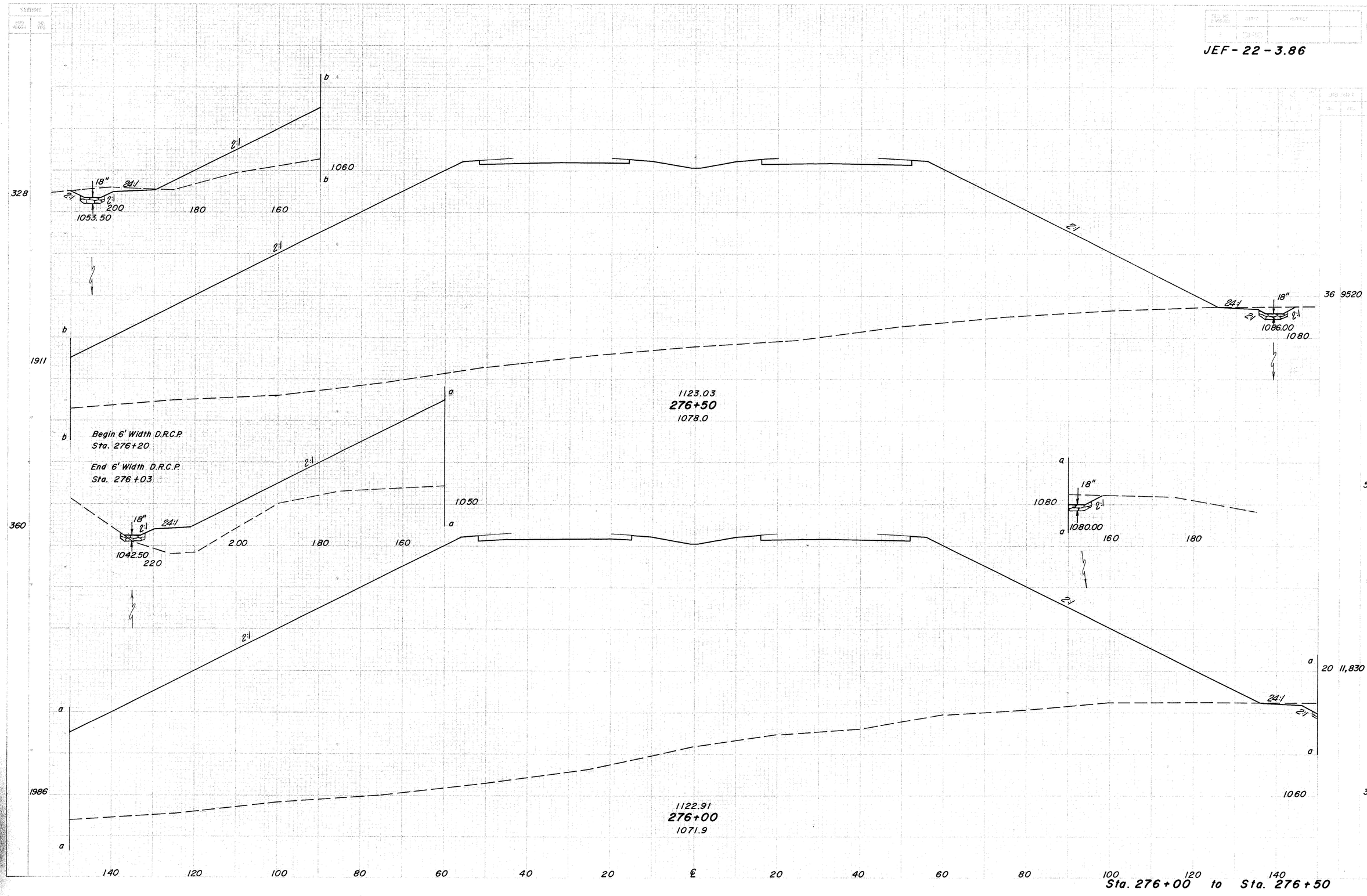
122
516

JEF - 22 - 3.86



Sta. 275+00 to Sta. 275+50

JEF - 22 - 3.86



Sta. 276+00 to Sta. 276+50

124
516

JEF-22-3.86

201

2:1

2:1

24:1

18"

2:1

2:1

1105.00

1100

54 3690

1123.39
278+00
1099.6

87 8463

1203

2:1

1100

1098.00

40 5450

232

1123.27
277+50
1092.3

1478

a

2:1

18"

24:1

2:1

2:1

1070

a

1066.00

200 180 160

End 6' Width D.R.C.P.
Sta. 277+00

98 11,805

2:1

2:1

300

66 7300

24:1

18"

2:1

2:1

1091.00

1744

a

1080

94 15,574

a

1123.15
277+00
1086.1

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 277+00 to Sta. 278+00

JEF-22-3.86

180
894
142
845
162
1008

890 310
1120
861 1259
40 1050
1100
54 3162
18 2365
1100
67 5606

1123.75
279+50
1123.8

4:1
2:1
6:1

Begin 6' Width Sod
Sta. 279+07

End 7' Width D.R.C.P.
Sta. 279+11

8'
27'
60'
3'
F.L. 1121.13
18"
3:1
Conc. Collar
12" Type B. @ 1.0%
2:1
12" Type F @ 50.00%
Slope Length 30'
12"x 30° Bend
F.L. 1117.73
F.L. 1118.3
F.L. 1114.40
F.L. 1104.44
10'x 4'x 18" D.R.C.P.
12"x 30° Bend
12" Type F @ 0.50 %
Sta. 279+00 - 92' Lt.
Std. HWE-Endwall

1123.63
279+00
1114.4

QUANTITIES

Dumped Rock Channel Protection	2.0 C.Y.
Concrete Masonry	0.2 C.Y.
12" Conduit, Type B Class B	60.0 L.F.
12" Conduit, Type F	38.0 L.F.
Std. No. 8 C.B.	1 each

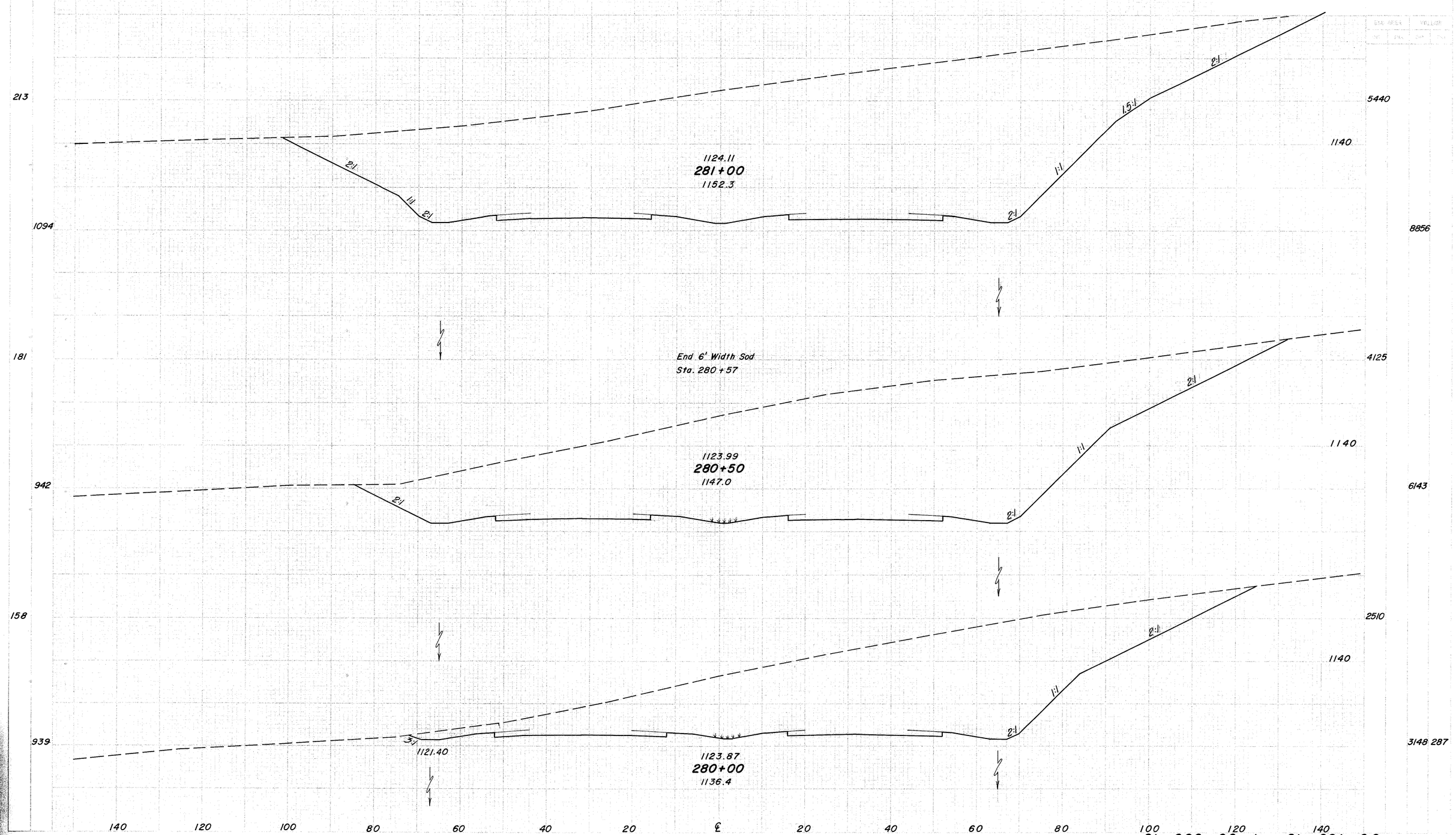
4:1
18"
3:1
2:1
1115.00

1123.51
278+50
1106.5

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 278+50 to Sta. 279+50

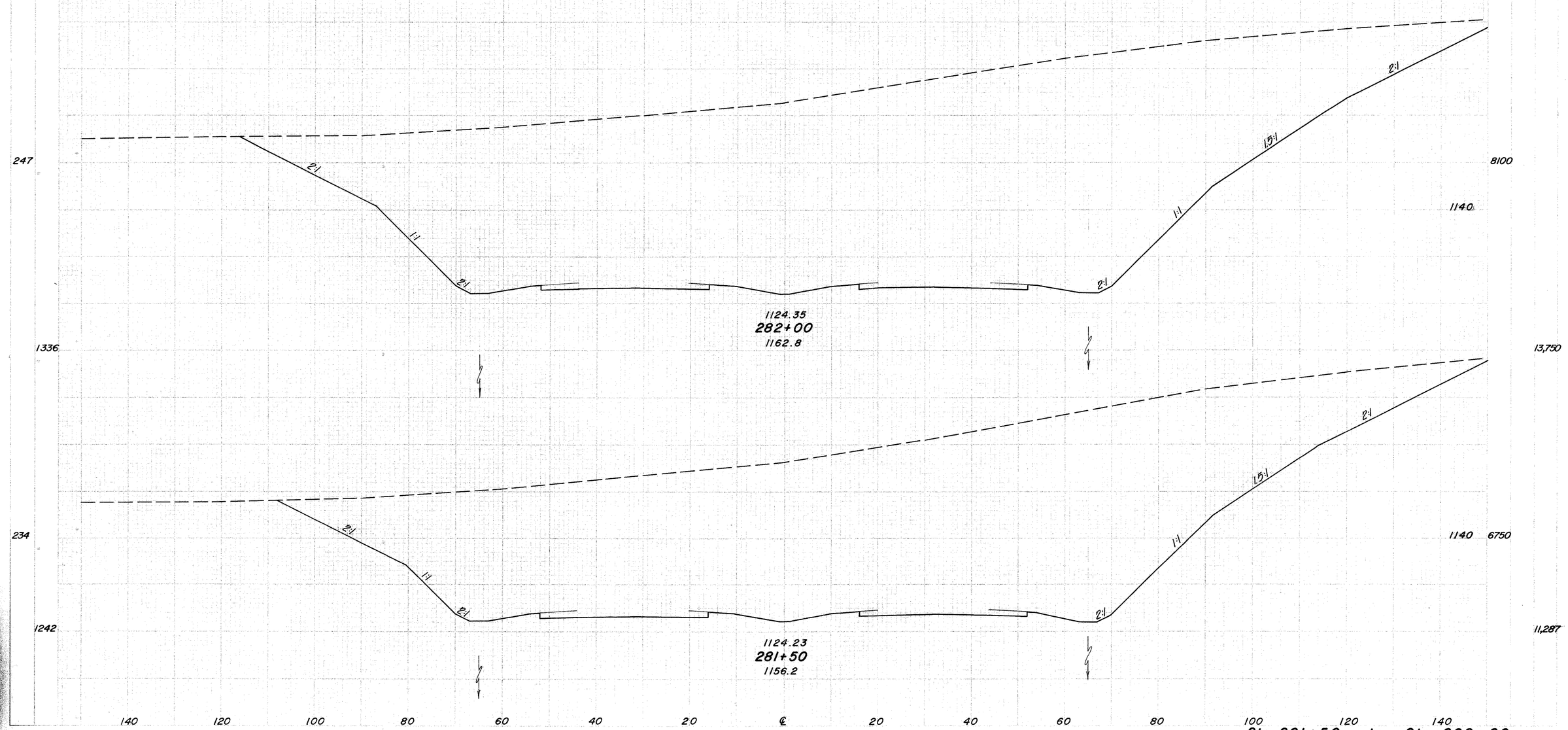
JEF - 22 - 3.86



Sta. 280+00 to Sta. 281+00

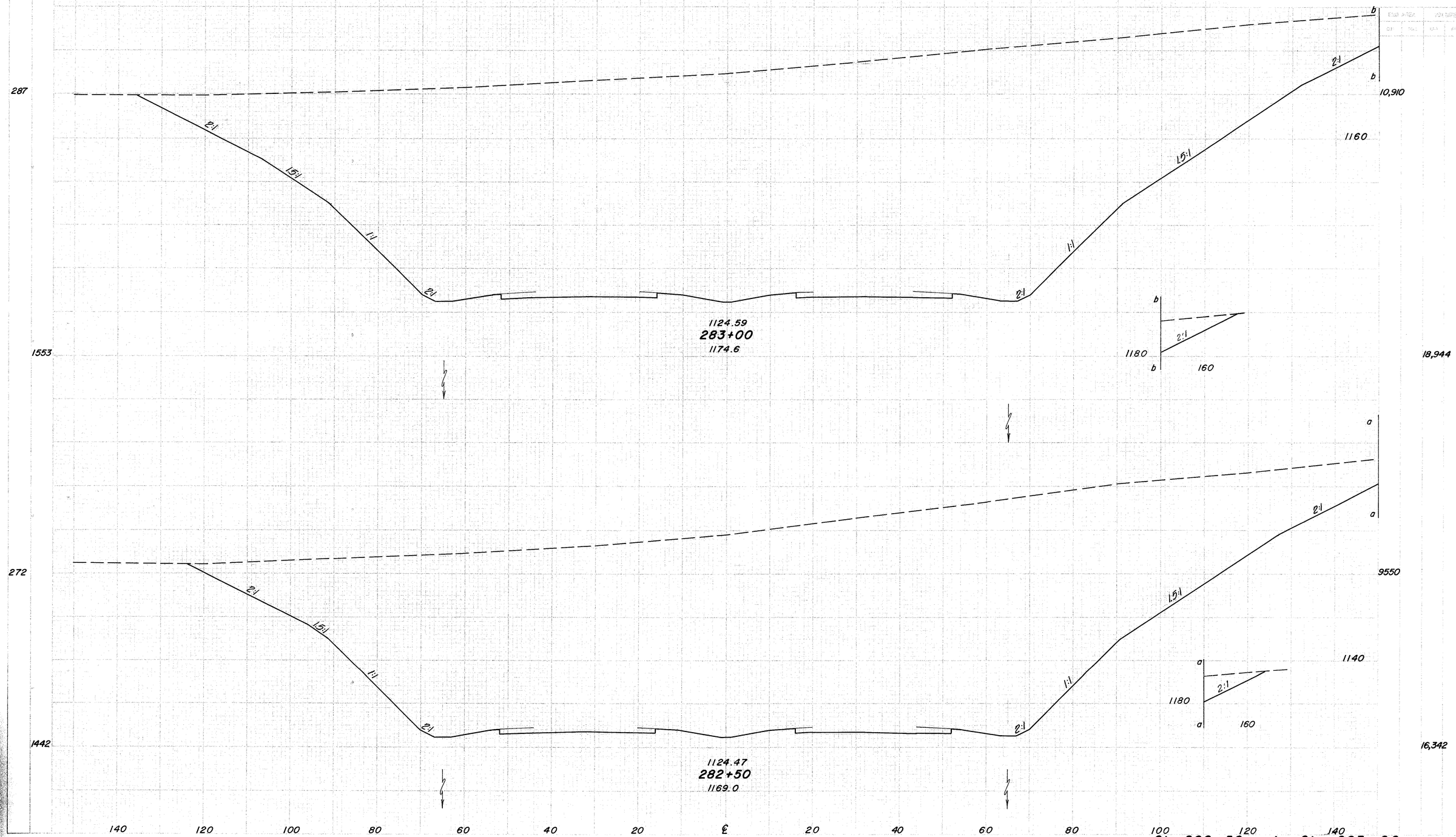
127
516

JEF-22-3.86



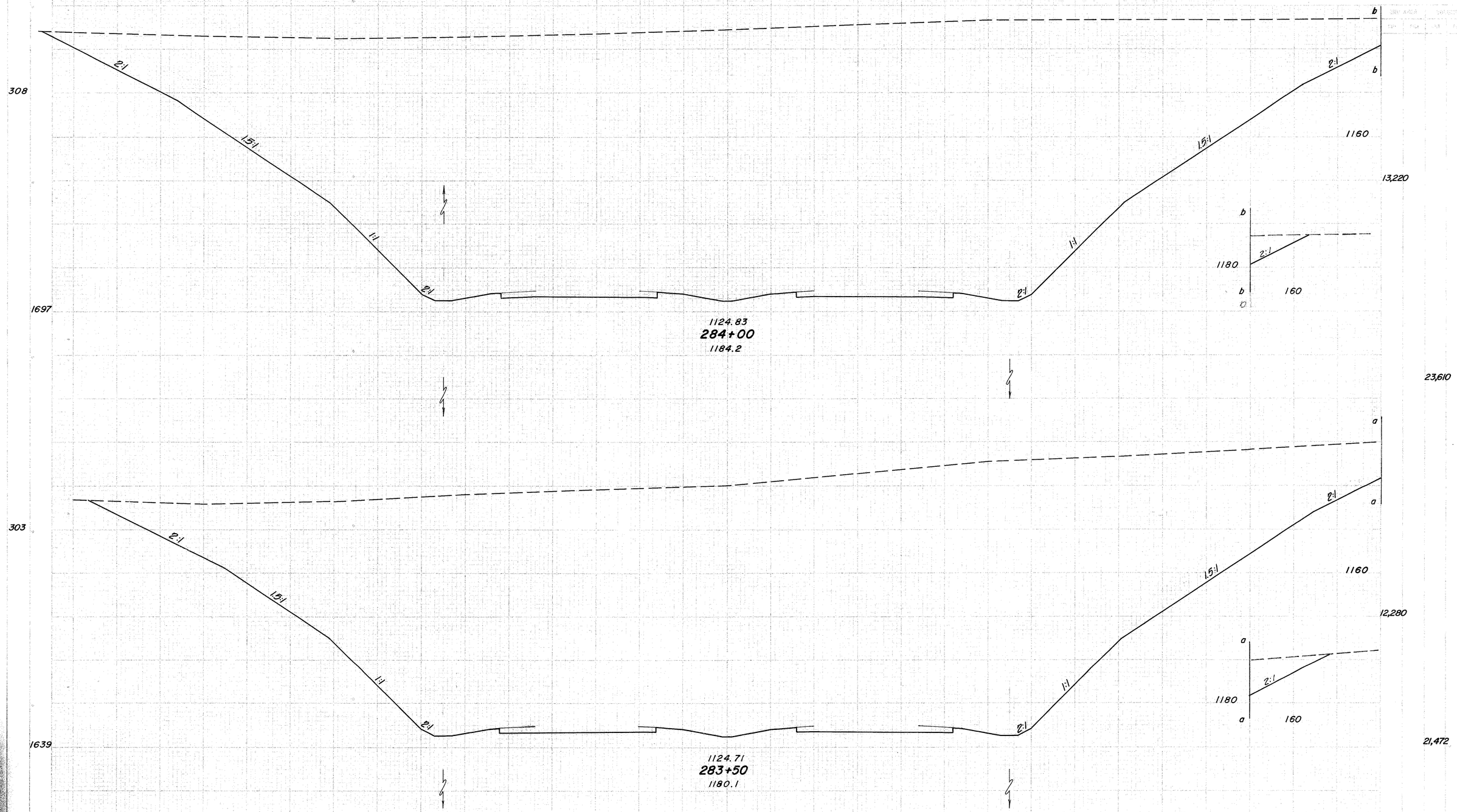
Sta. 281+50 to Sta. 282+00

JEF - 22 - 3.86



Sta. 282+50 to Sta. 283+00

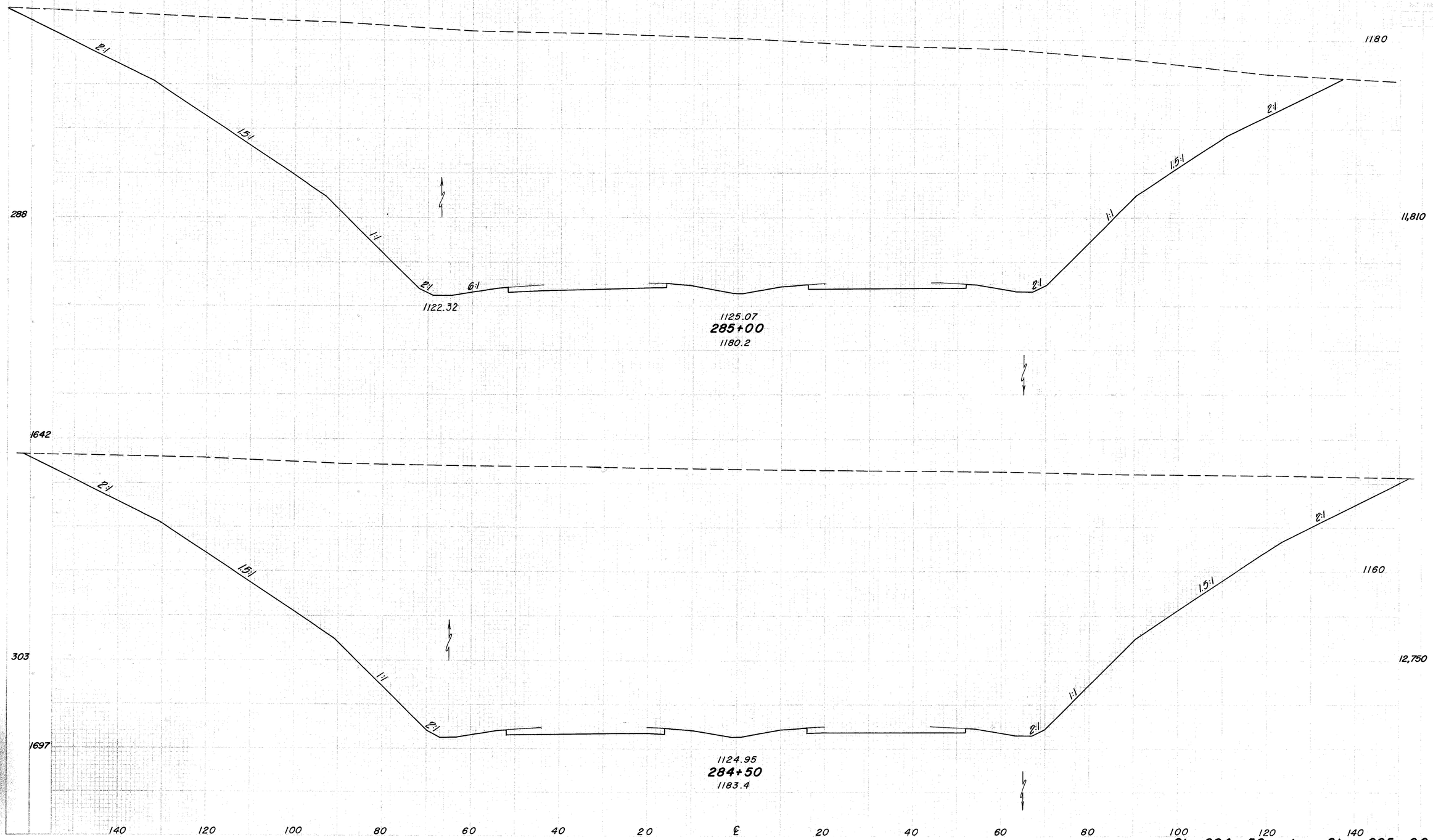
JEF-22-3.86



Sta. 283 + 50 to Sta. 284 + 00

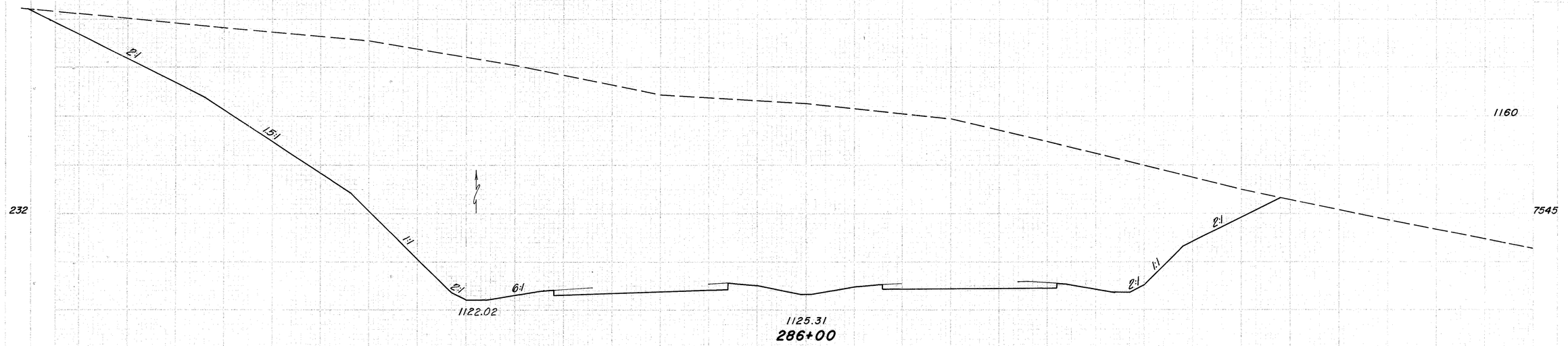
130
516

JEF - 22 - 3.86



Sta. 284 + 50 to Sta. 285 + 00

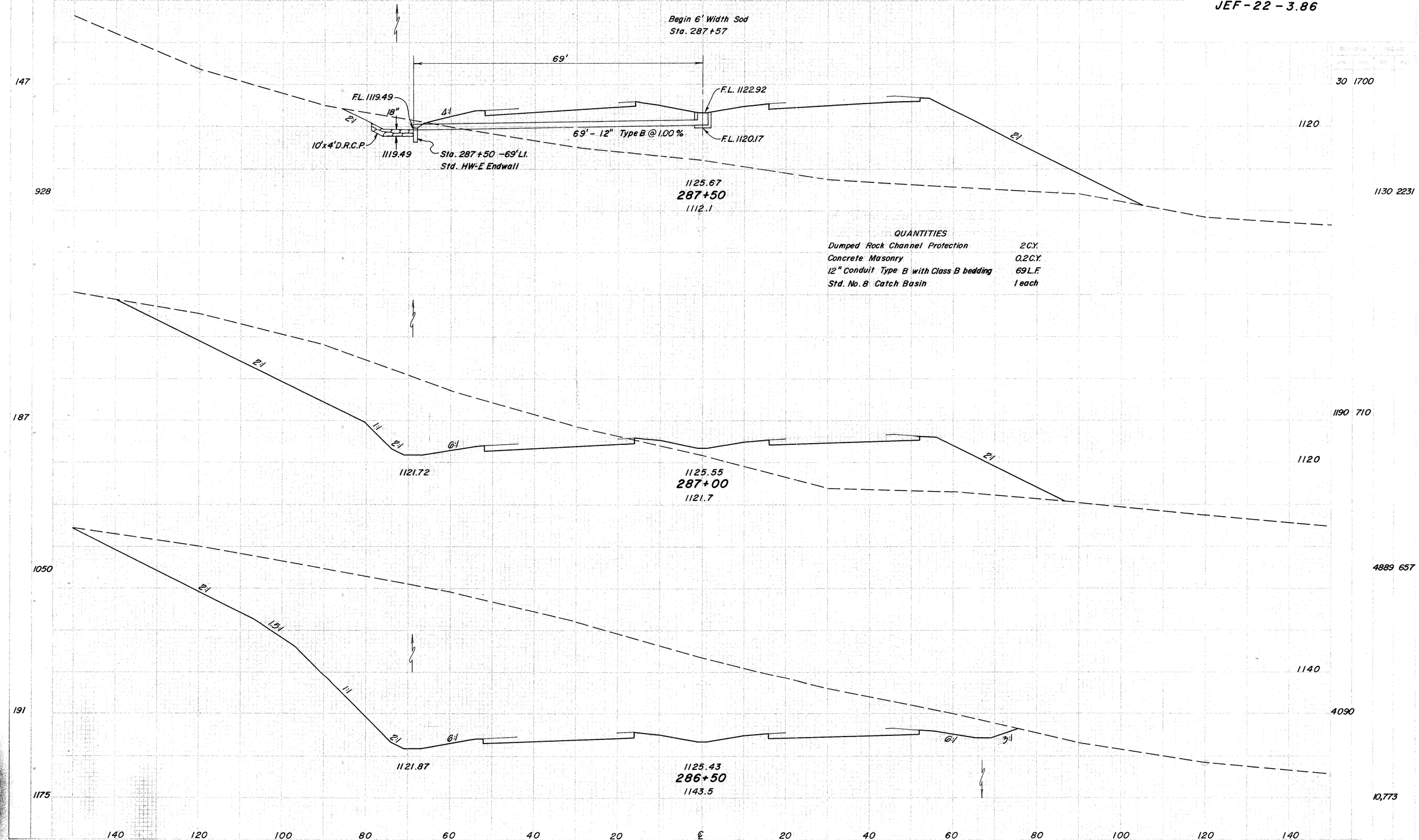
JEF - 22 - 3.86



Sta. 285 + 50 to Sta. 286 + 00

132
516

JEF-22-3.86



QUANTITIES

Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.2 C.Y.
12" Conduit Type B with Class B bedding	69 L.F.
Std. No. 8 Catch Basin	1 each

Sta. 286+50 to Sta. 287+50

JEF - 22 - 3.86

End 7' Width
D.R.C.P. Sta. 289+26

18"

4:1

3:1

1107.80

End 6' Width Sod
Sta. 289+07

b

2:1

2:1

Ditch Embankment
Ditch Excavation
Sta. 289+24

1050

b

b

1080

1126.03
289+00
1088.2

160 180 200 220 240

b

1110.00

1125.91
288+50
1098.2

a

a

2:1

24:1

1070

a

160 180 200

1114.00

Begin 7' Width D.R.C.P.
Sta. 288+00

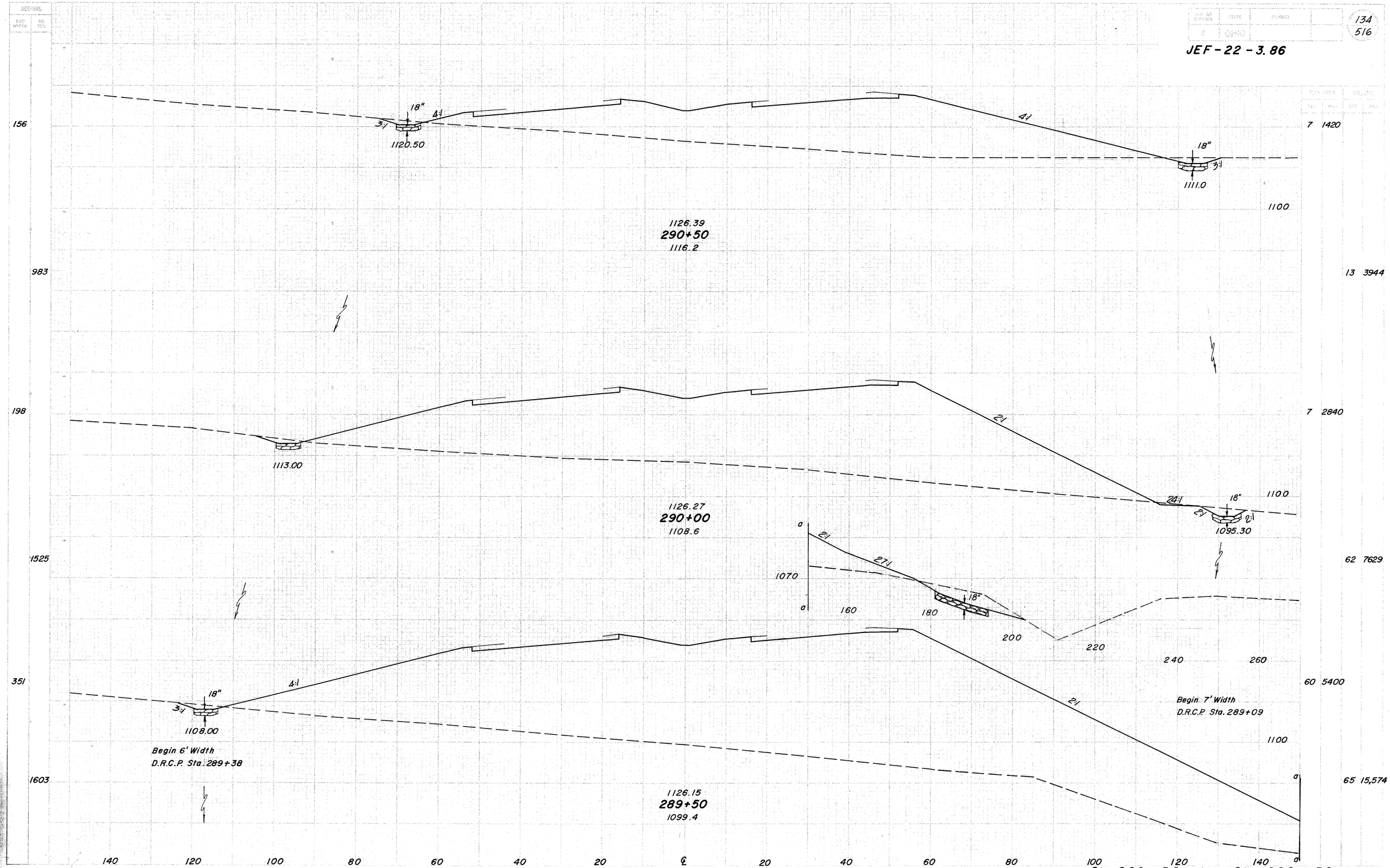
1125.79
288+00
1104.2

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 288 + 00 to Sta. 289 + 00

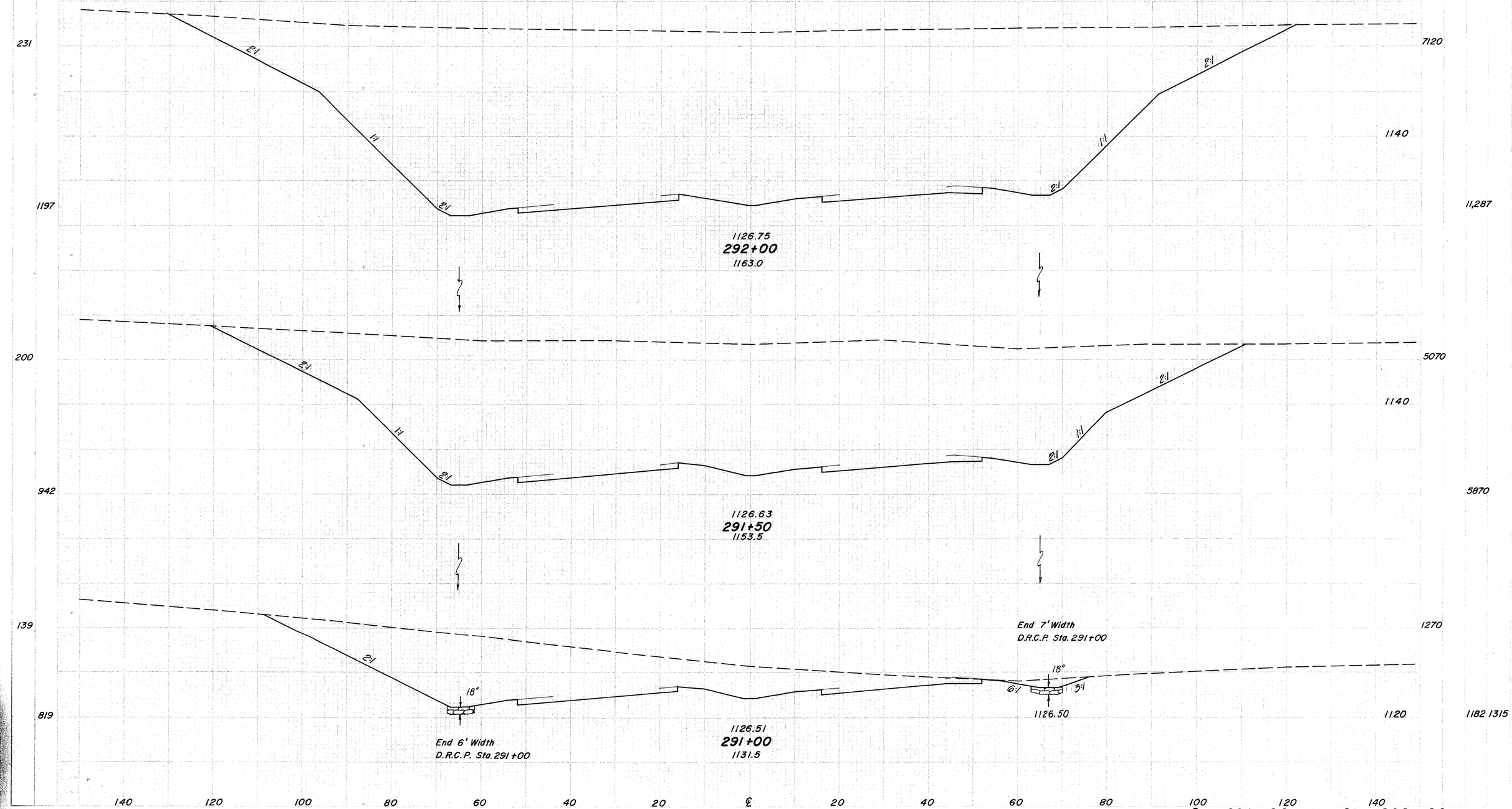
				10	11,420
226					1068 58
1350				20	16,138
260				12	6010
1258				28	8865
193				18	3565
944				44	4875

JEF-22-3.86



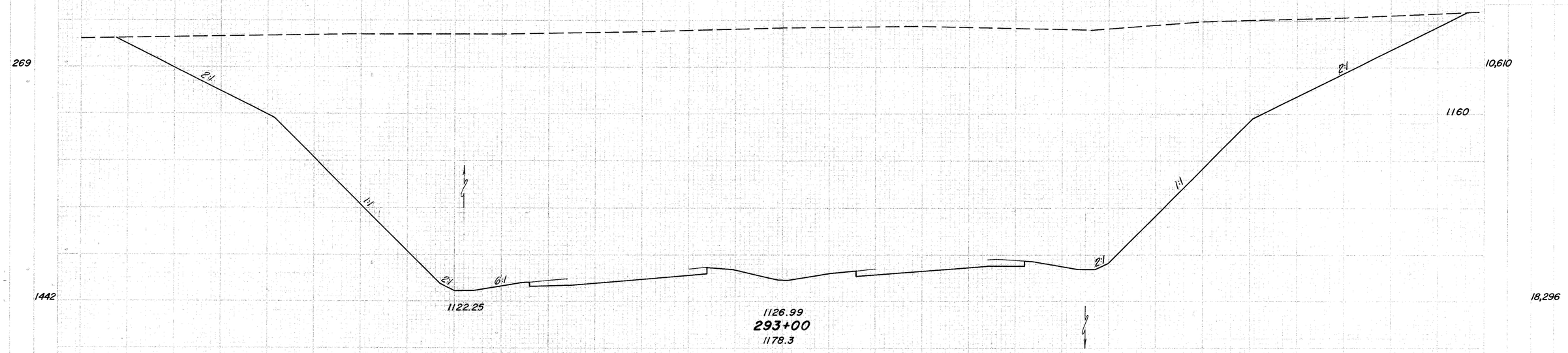
Sta. 289 + 50 to Sta. 290 + 50

JEF - 22 - 3.86



Sta. 291+00 to Sta. 292+00

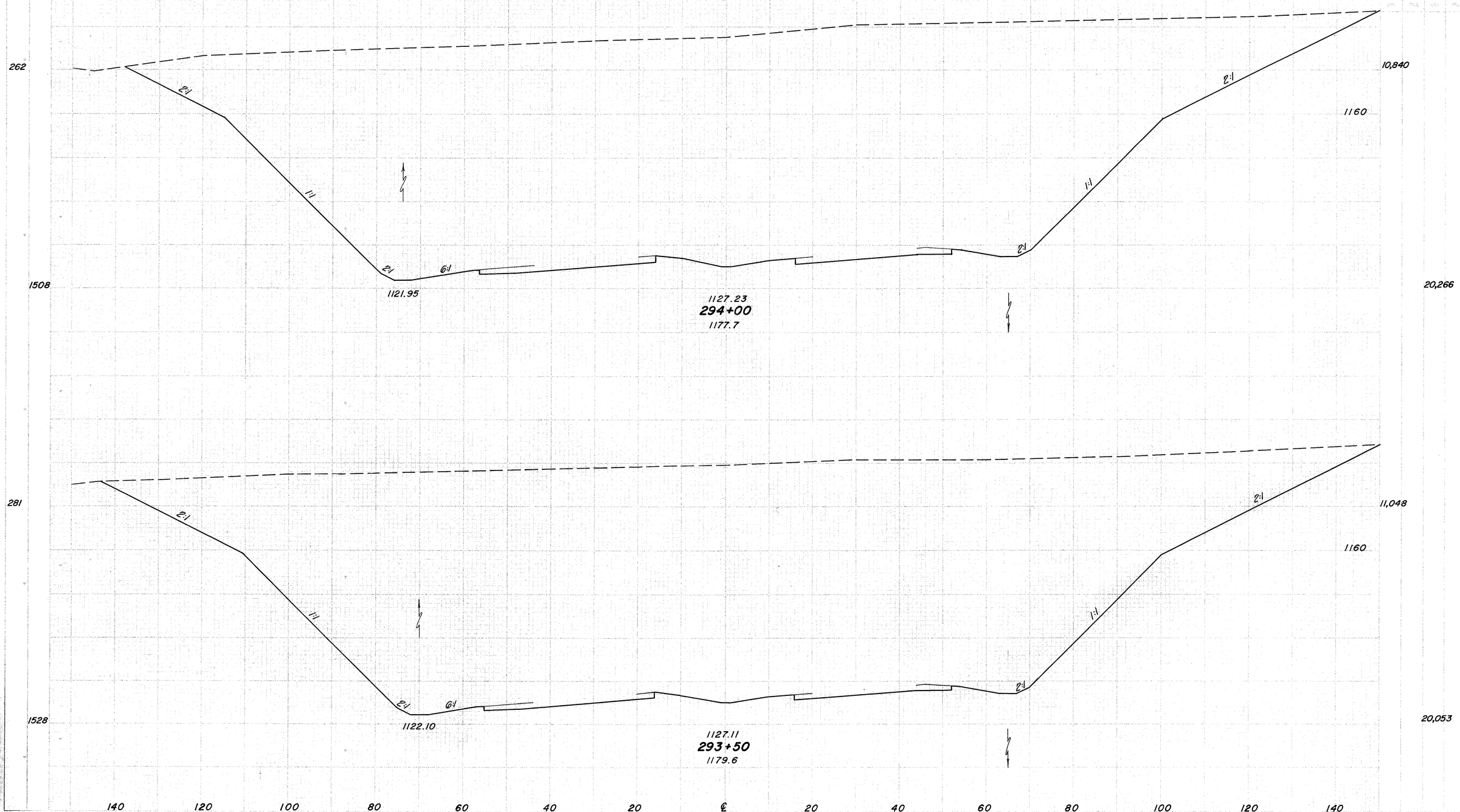
JEF-22-3.86



Sta. 292 + 50 to Sta. 293 + 00

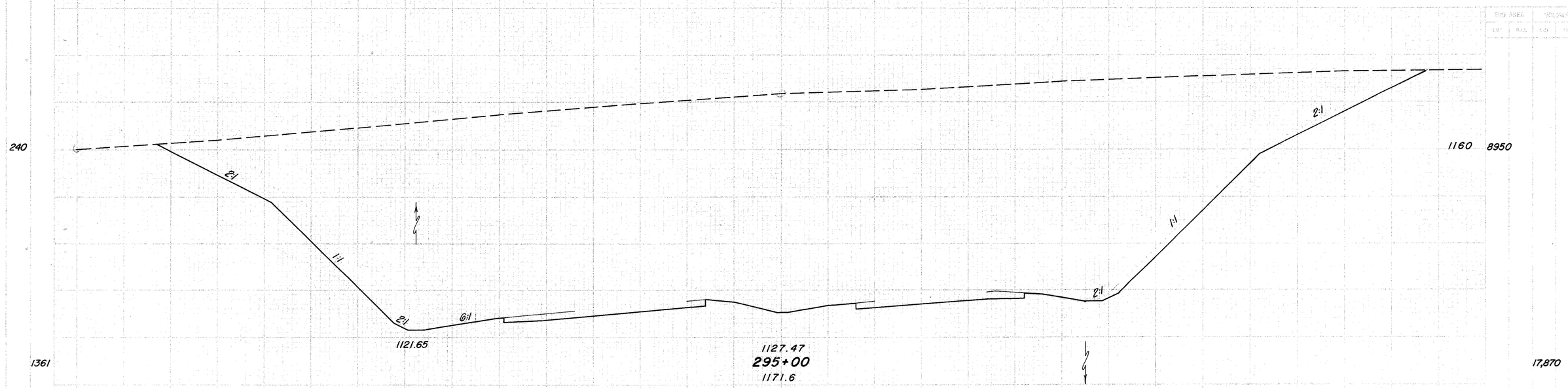
137
516

JEF - 22 - 3.86



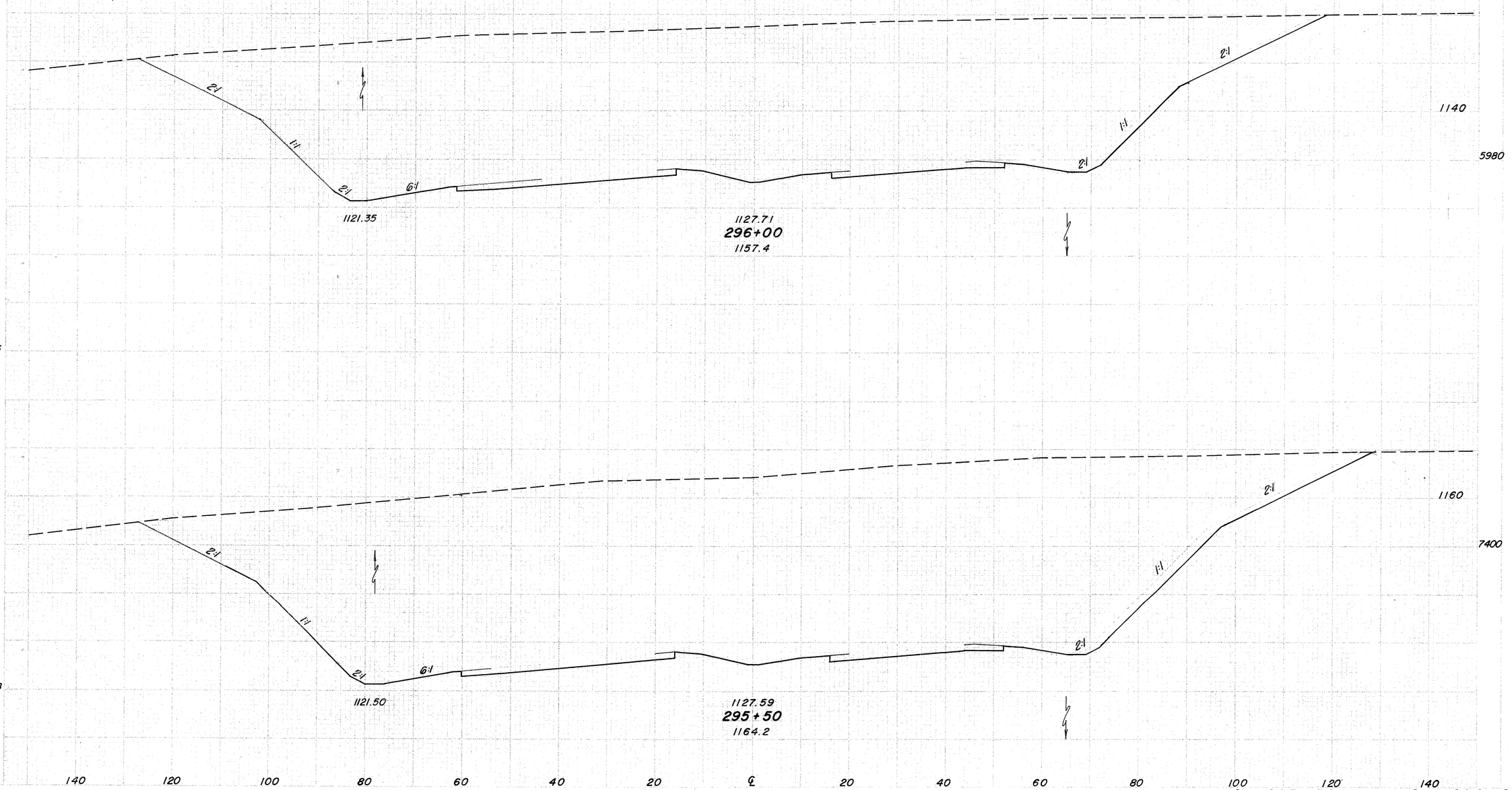
Sta. 293 + 50 to Sta. 294 + 00

JEF-22-3.86



Sta. 294+50 to Sta. 295+00

JEF-22-3.86



Sta. 295+50 to Sta. 296+00

SEEDING

SHEET NUMBER	NO. SHEETS

SHEET NO.	STATE	PROJECT	
	OHIO		

140
516

JEF-22-3.86

Begin 6' Width Sod
Sta. 297+57

97'

10'

F/L 1125.41

12" Type B @ 1.74 %

3:1

F.L. 1121.00

18"

10'x 4' D.R.C.P.

Sta. 297+50 97' Rt.
Std. HWE Endwall

F.L. 1122.66

1128.07

297+50

1132.8

3:1 18" 6:1

1120.90

Begin 6' Width D.R.C.P.
Sta. 297+39

130

1130

640 160

825

3685 148

2:1

6:1

1121.05

1128.94

1127.95

297+00

1144.6

167

997

1130 3340

7778

2:1

6:1

1121.20

1128.49

1127.83

296+50

1151.3

192

1097

1140

5060

10,222

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 296+50 to Sta. 297+50

QUANTITIES

Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.2 C.Y.
12" Conduit, Type B, Class B	97 L.F.
Std. No. 8 Catch Basin	1 each

141
516

JEF - 22 - 3.86

End 6' Width Sod
Sta. 299+07

353

1647

a
a
2:1
18"
2:1
2:1
1090
1084.00
180
160
1128.43
299+00
1086.1
1060
160
180
200
220
240
1110
34 12,110
54 17,157

240

1208

2:1
2:1
2:1
1094.94
1128.31
298+50
1097.9
1100
24 6420
29 9463

195

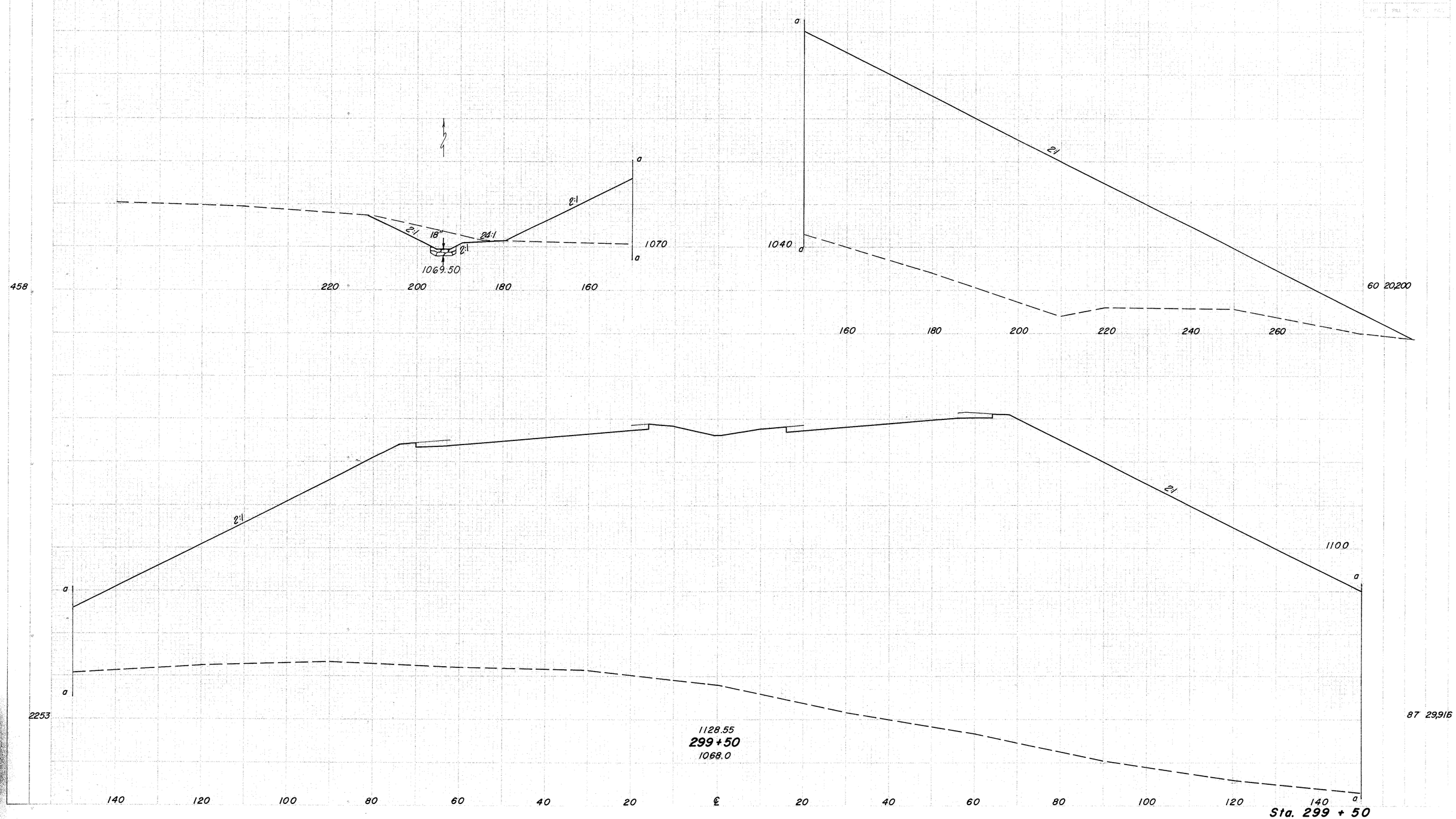
903

3:1
18"
2:1
2:1
1107.92
1128.19
298+00
1111.2
1120
7 3800
599 3667

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 298 + 00 to Sta. 299 + 00

JEF-22-3.86

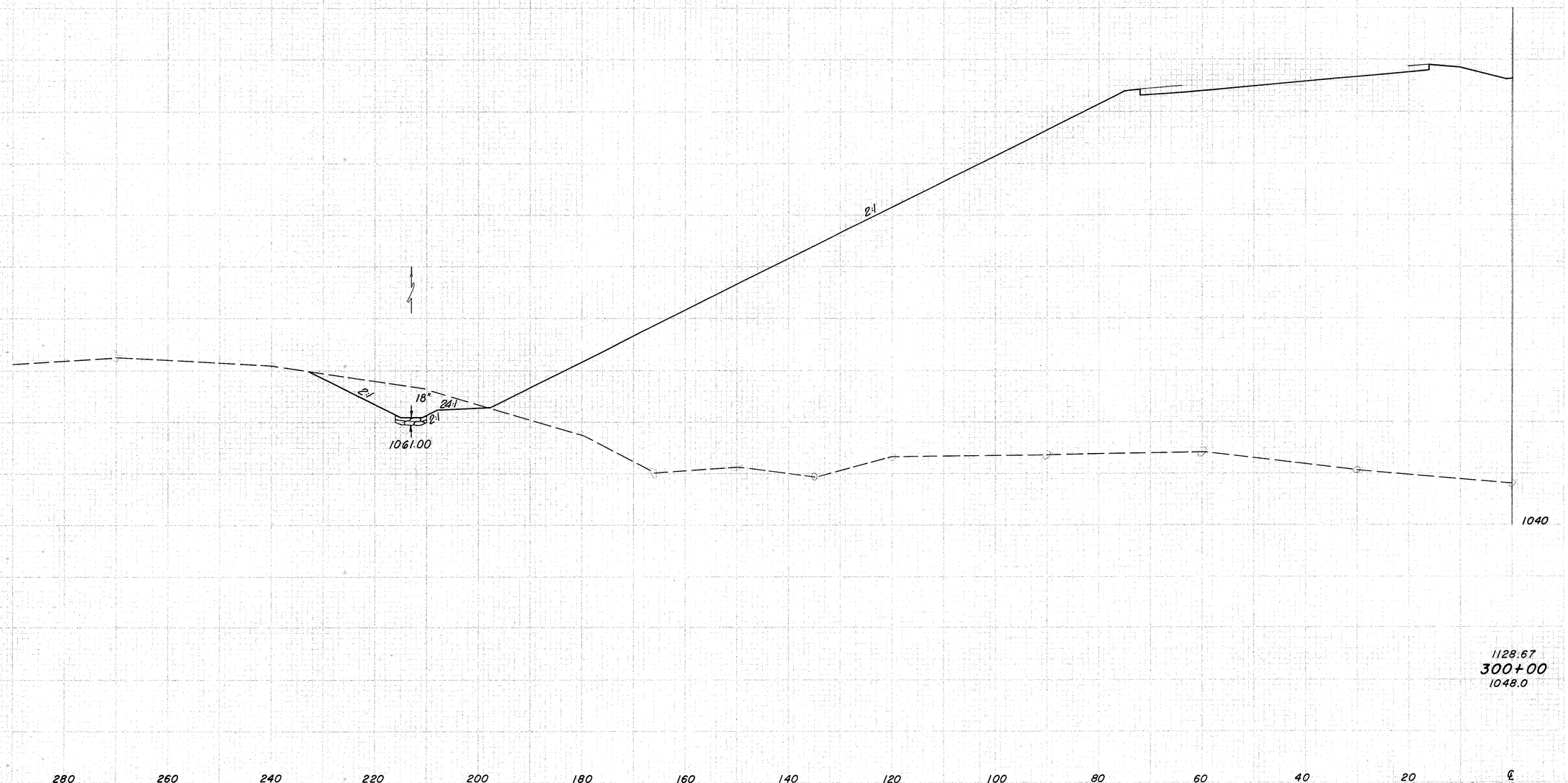


Sta. 299 + 50

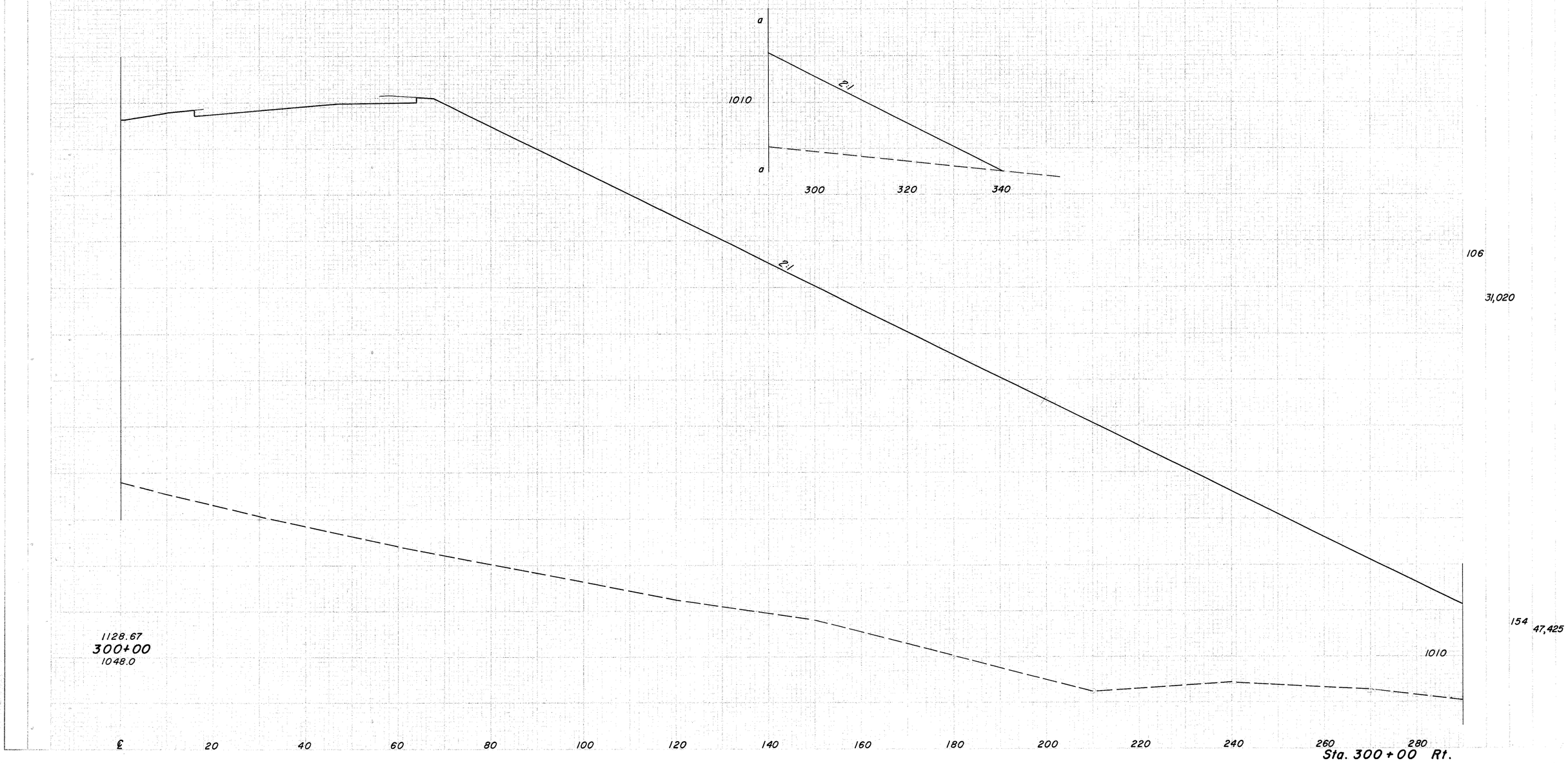
SECTION	STATE	PROJECT	
2	OHIO		

143
516

JEF - 22 - 3.86

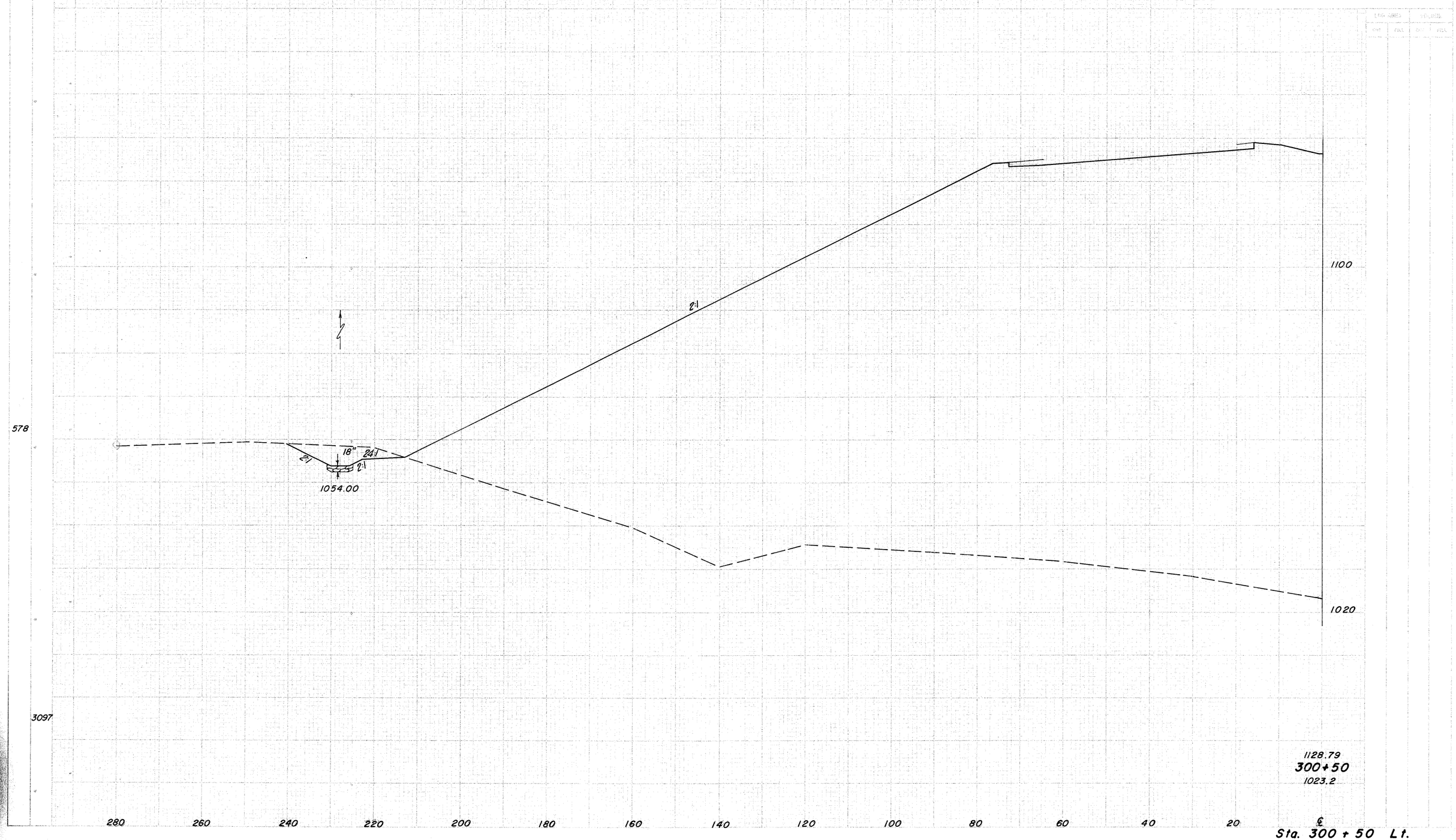


JEF-22-3.86



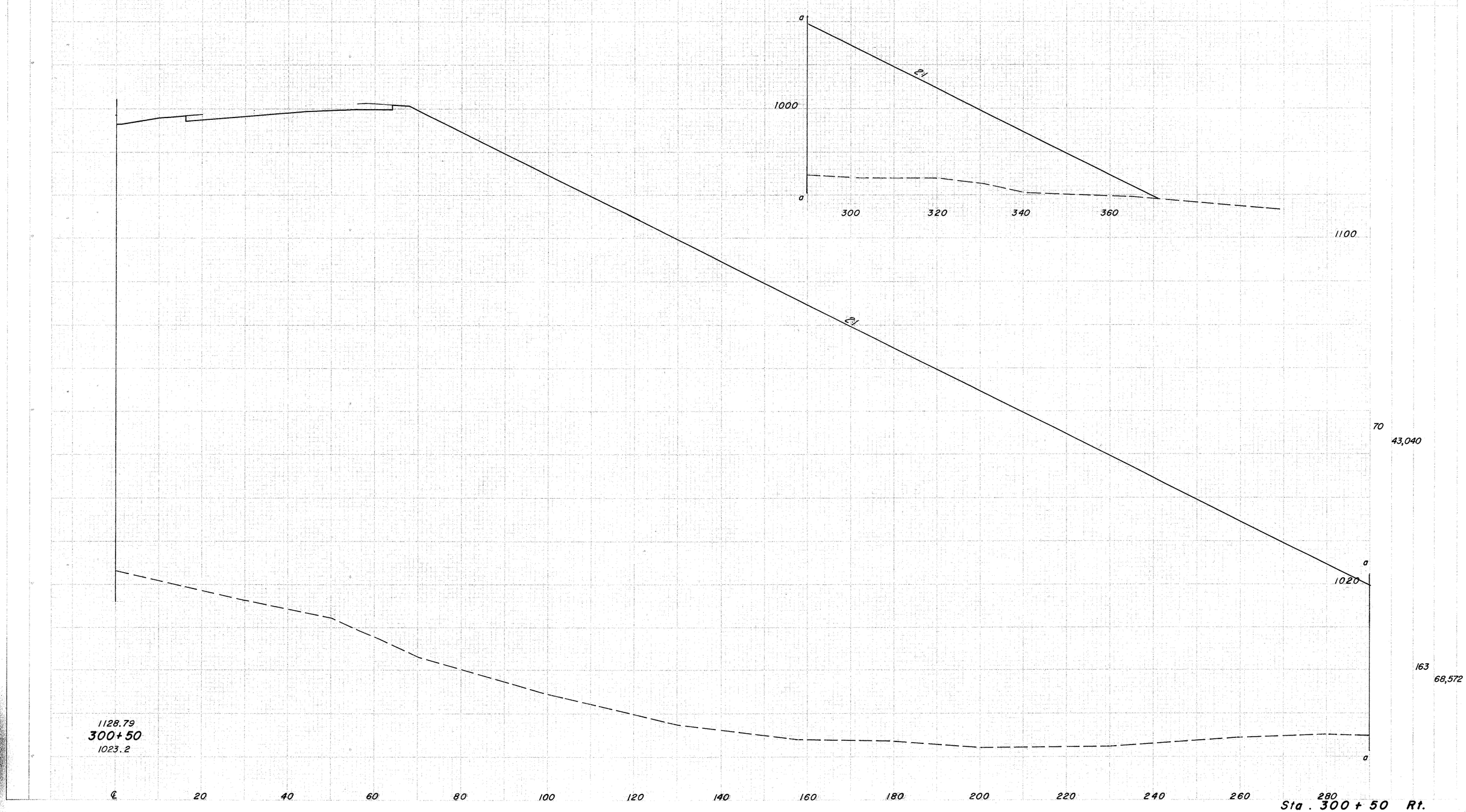
Sta. 300+00 Rt.

JEF-22-3.86



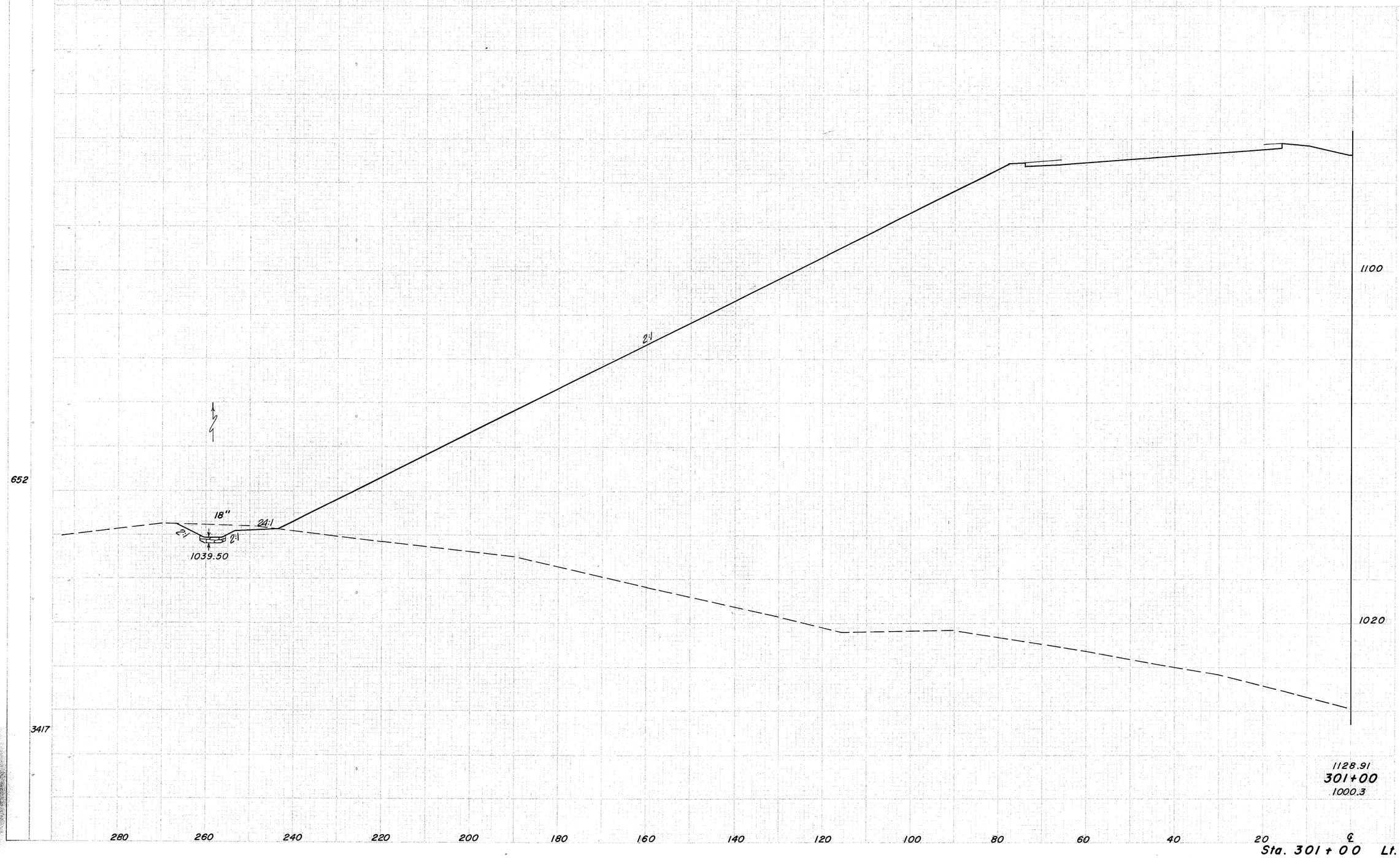
Sta. 300 + 50 Lt.

JEF-22-3.86



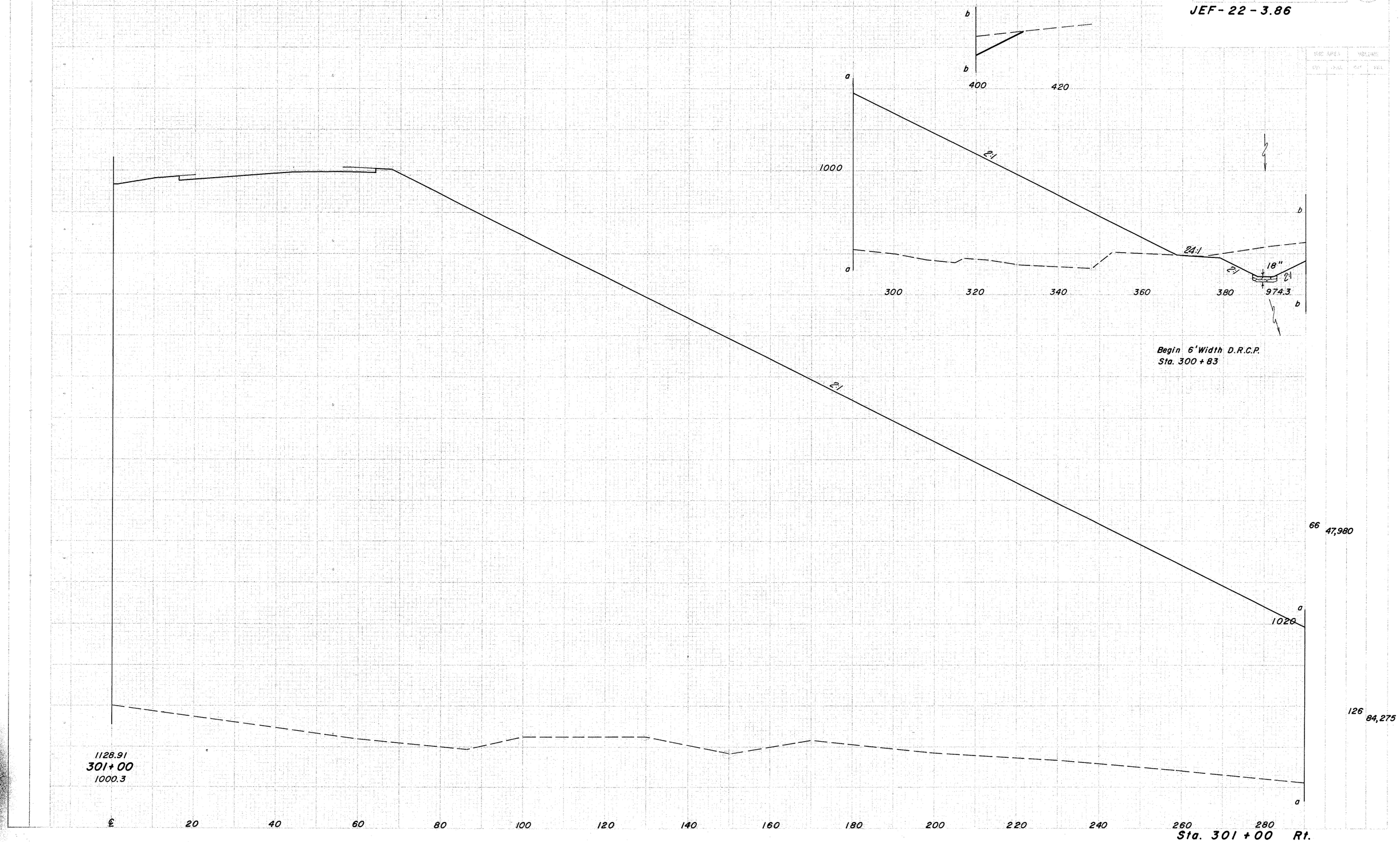
Sta. 300 + 50 Rt.

JEF-22-3.86



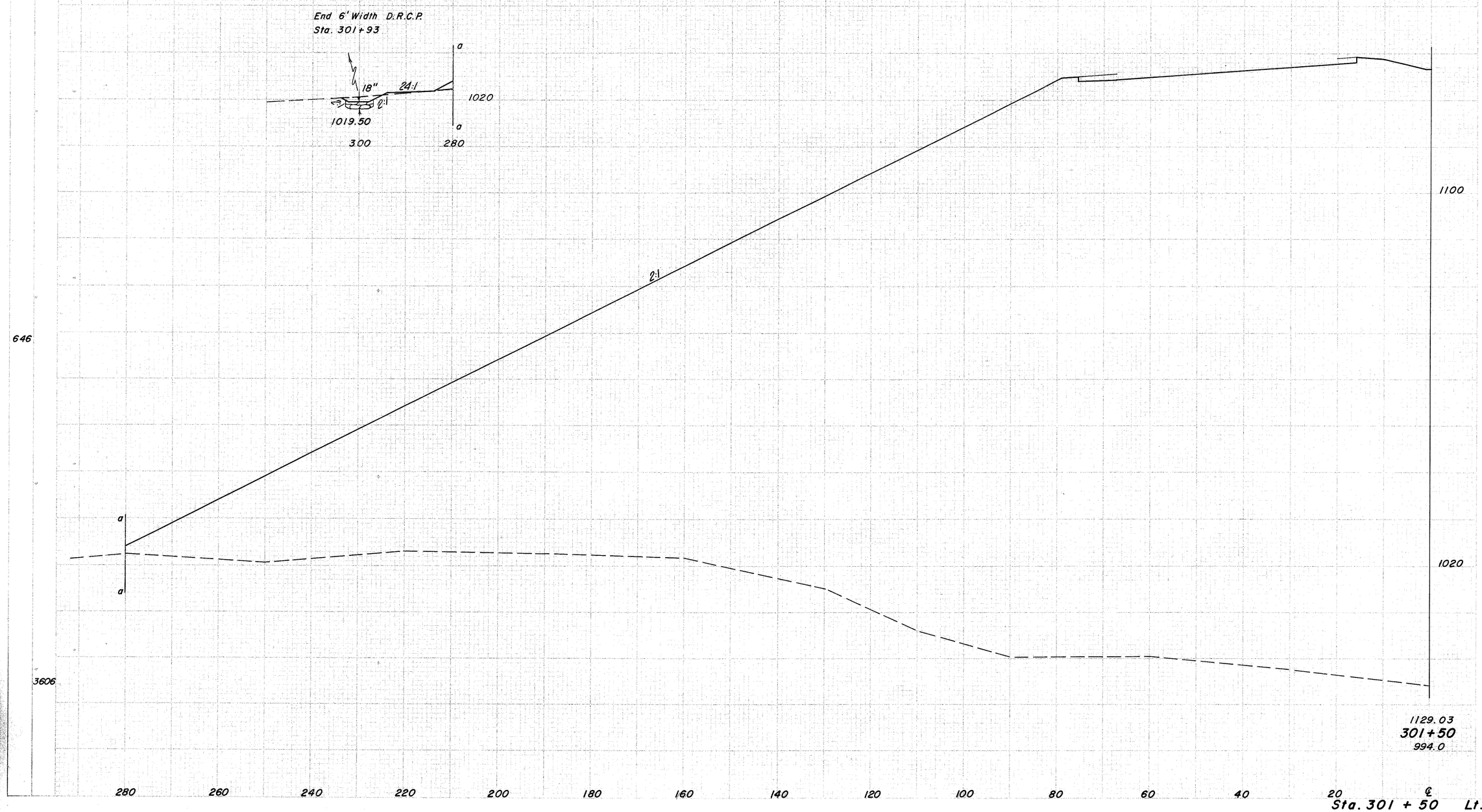
Sta. 301+00 Lt.

JEF-22-3.86



Sta. 301 + 00 Rt.

JEF-22-3.86

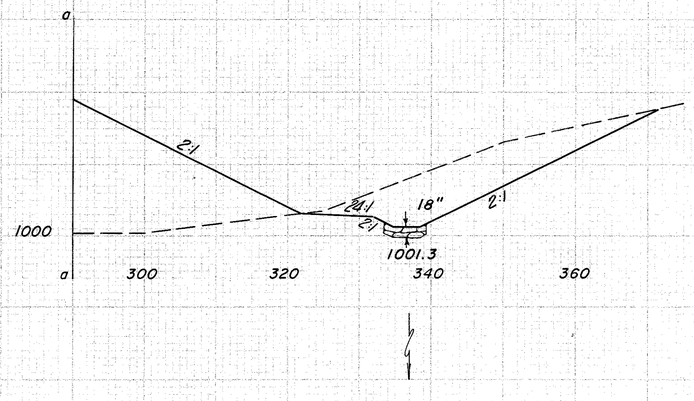

End 6' Width D.R.C.P.
Sta. 301+93
18"
24:1
2:1
1019.50
1020
300
280
a
a
2:1
1100
1020
646
3606
1129.03
301+50
994.0
280
260
240
220
200
180
160
140
120
100
80
60
40
20
℄
Sta. 301 + 50 Lt.

FED. ROAD DIVISION	STATE	PROJECT
2	OHIO	

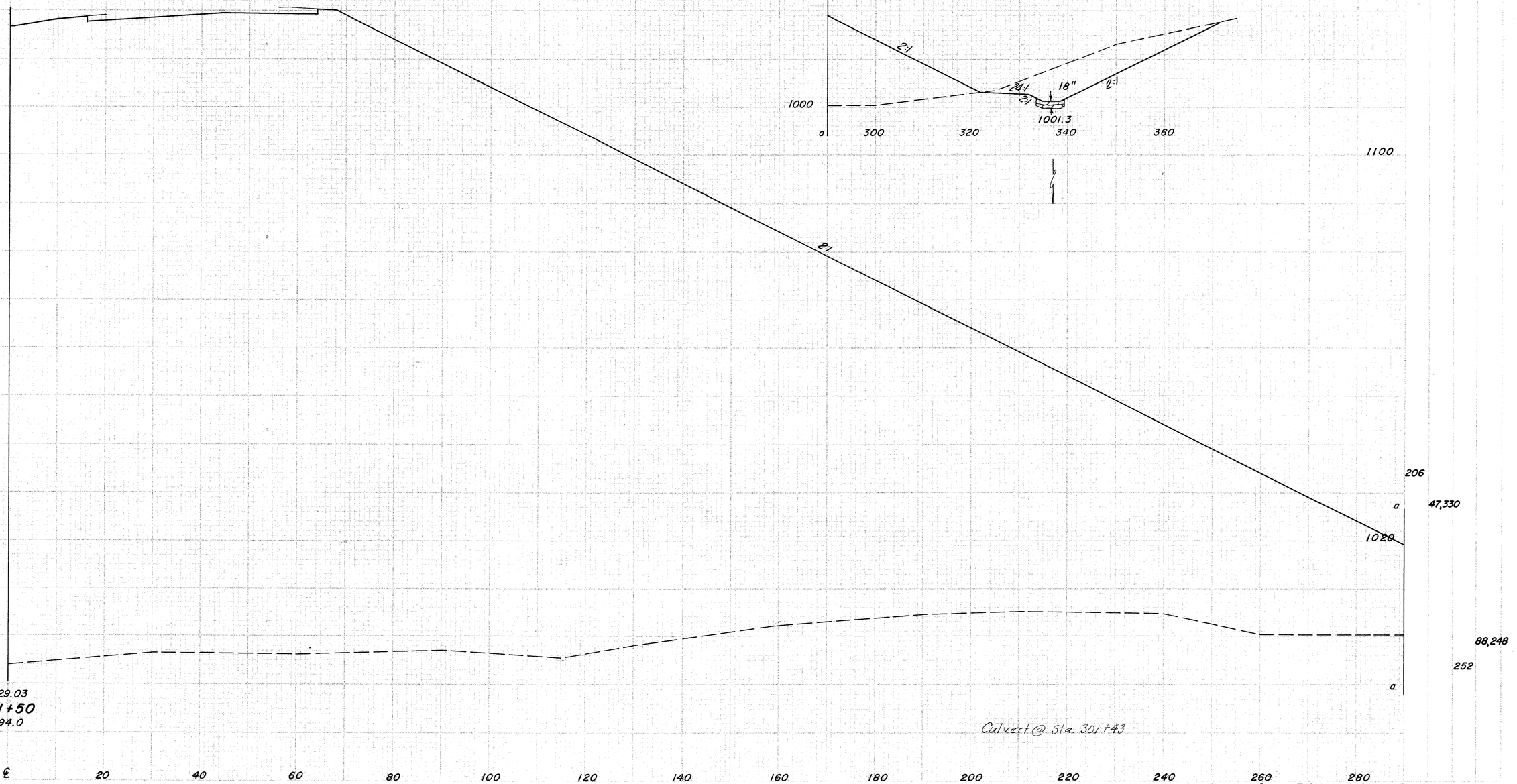
150
516

JEF-22-3.86

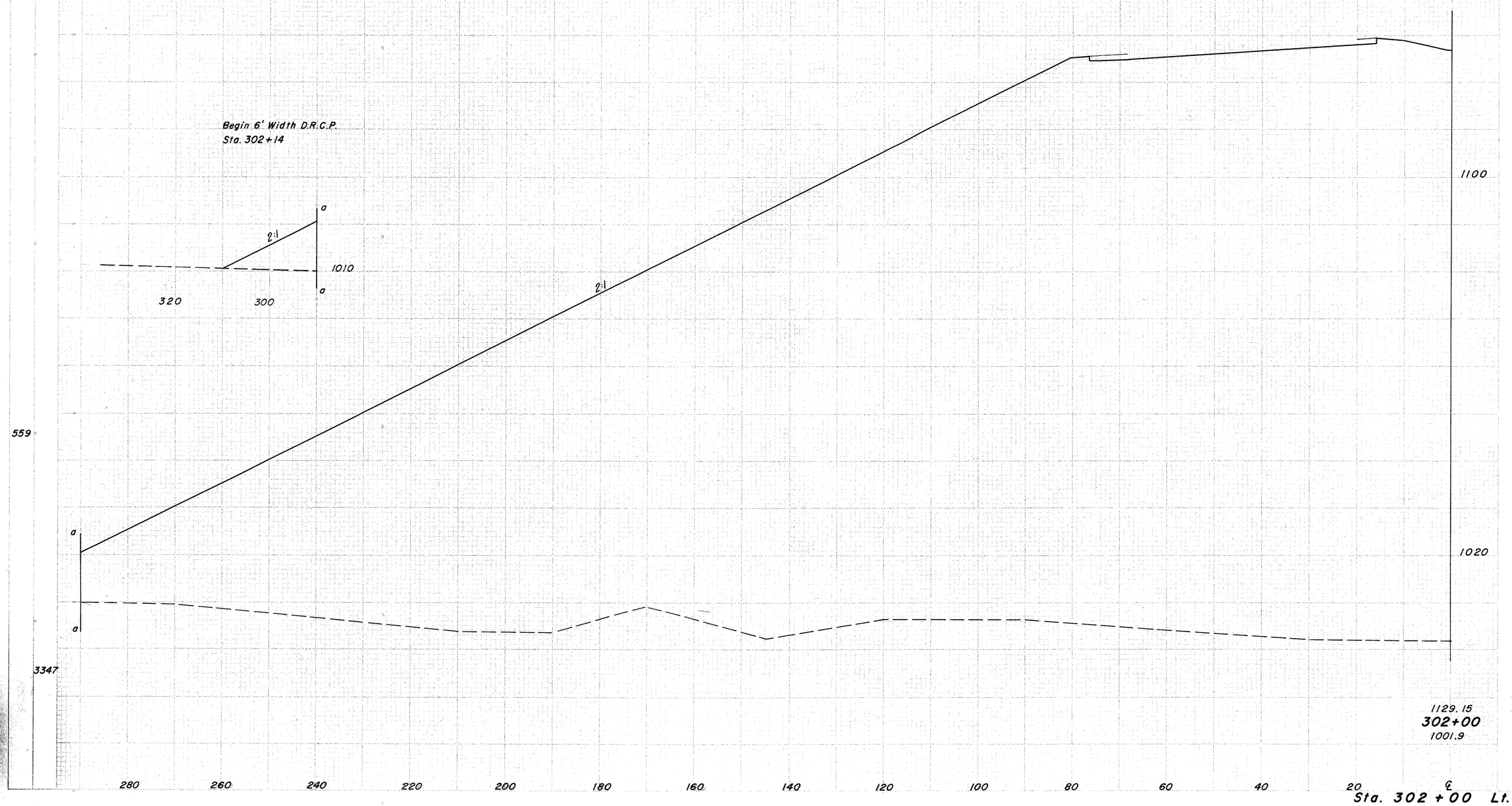
GRID AXES		VOLUMES	
HOR.	VERT.	CUT	FILL



1100

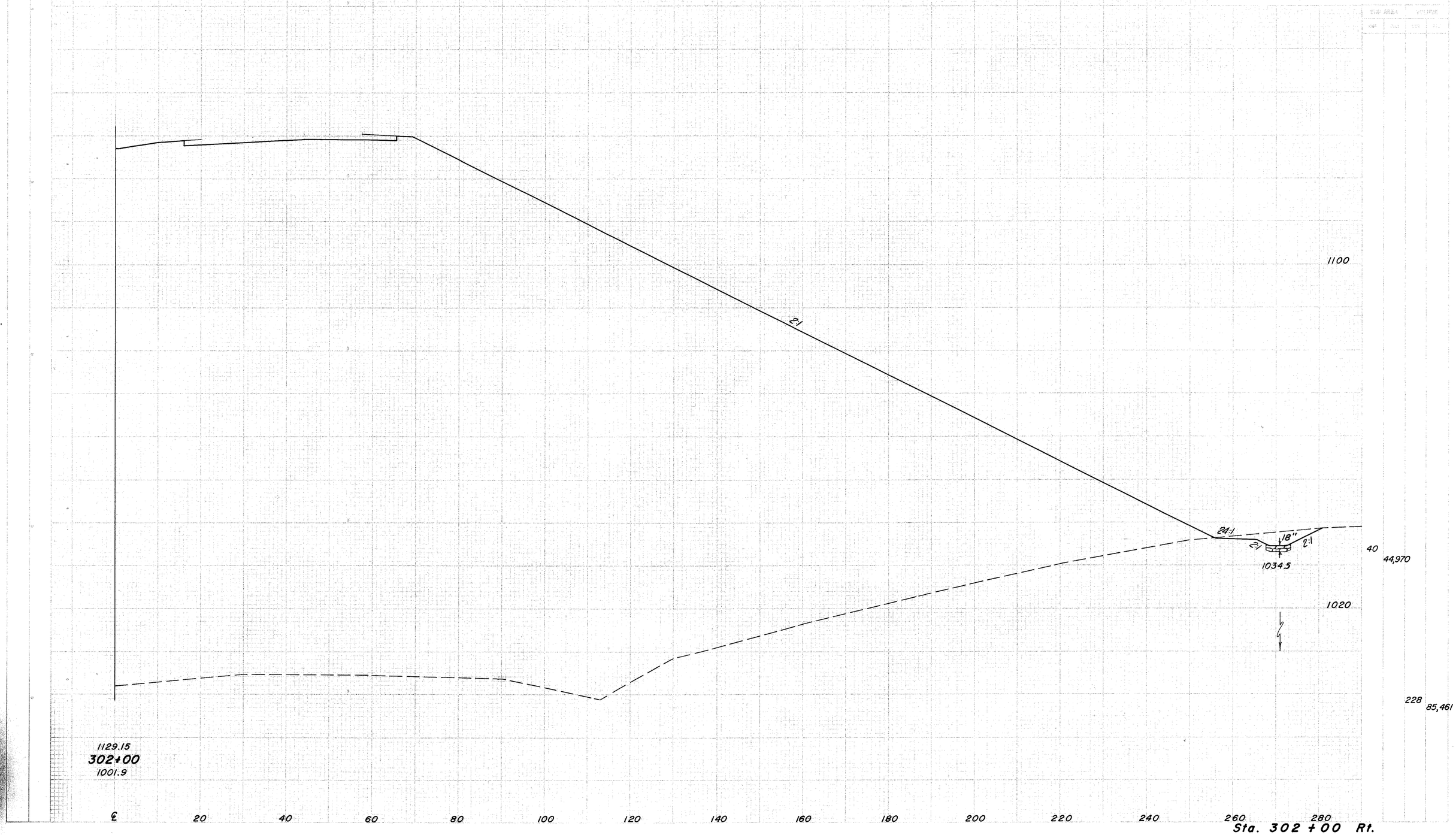


JEF - 22 - 3.86



Sta. 302 + 00 Lt.

JEF-22-3.86



Sta. 302 + 00 Rt.

2 OHIO
153
516
JEF-22-3.86
2:1
24:1
2:1
18"
2:1
1042.0
Ahead 66 25,700
Back 66 41,690
1010
39 32,099
1129.20
302+20
1016.8
℄
20
40
60
80
100
120
140
160
180
200
220
240
260
280
Sta. 302+20 Rt.

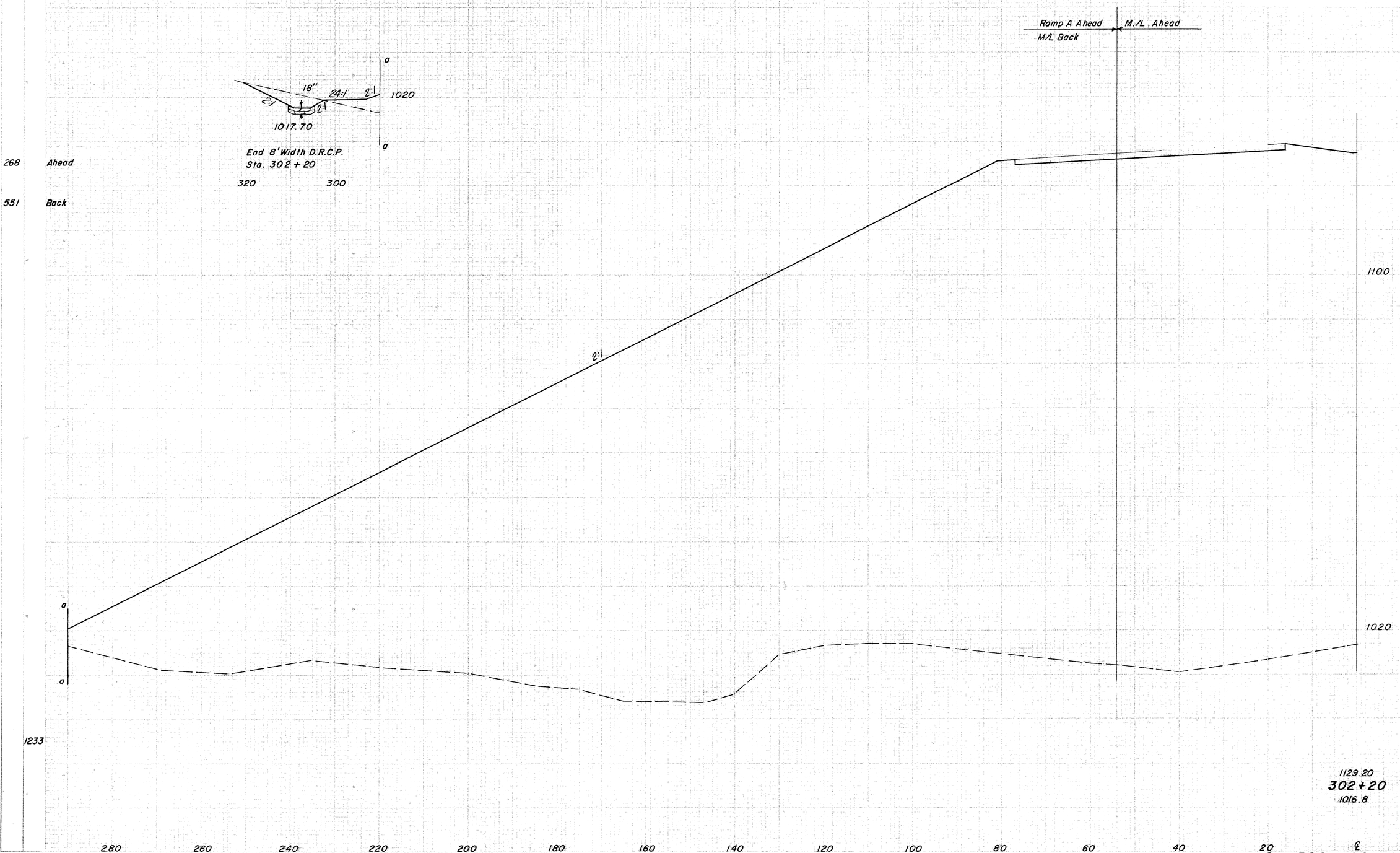
JEF - 22 - 3.86

End 8' Width D.R.C.P.
Sta. 302 + 20

268 Ahead

320 300

551 Back

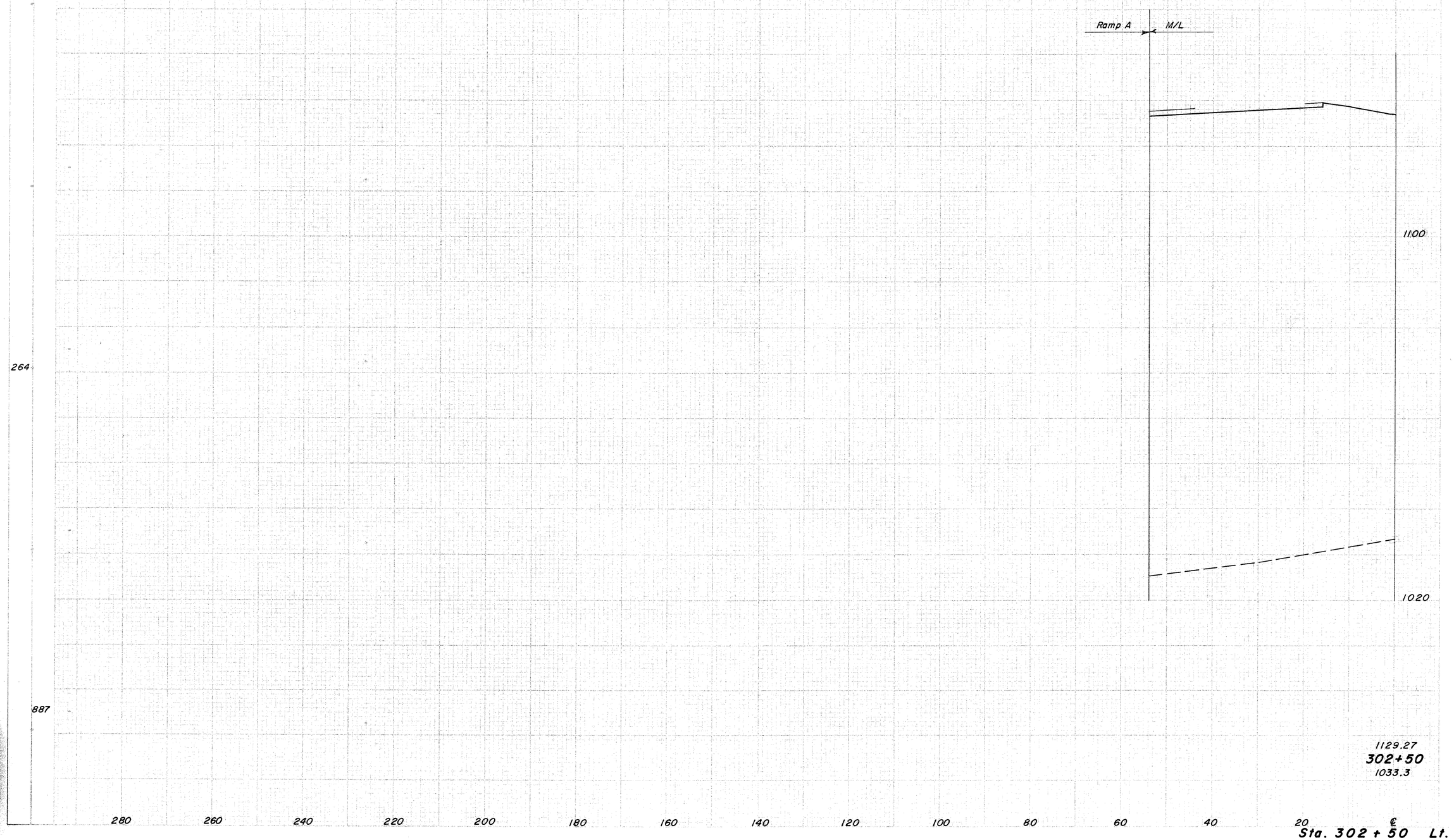


155
516

JEF-22-3.86

Sta. 302 + 50 Rt.

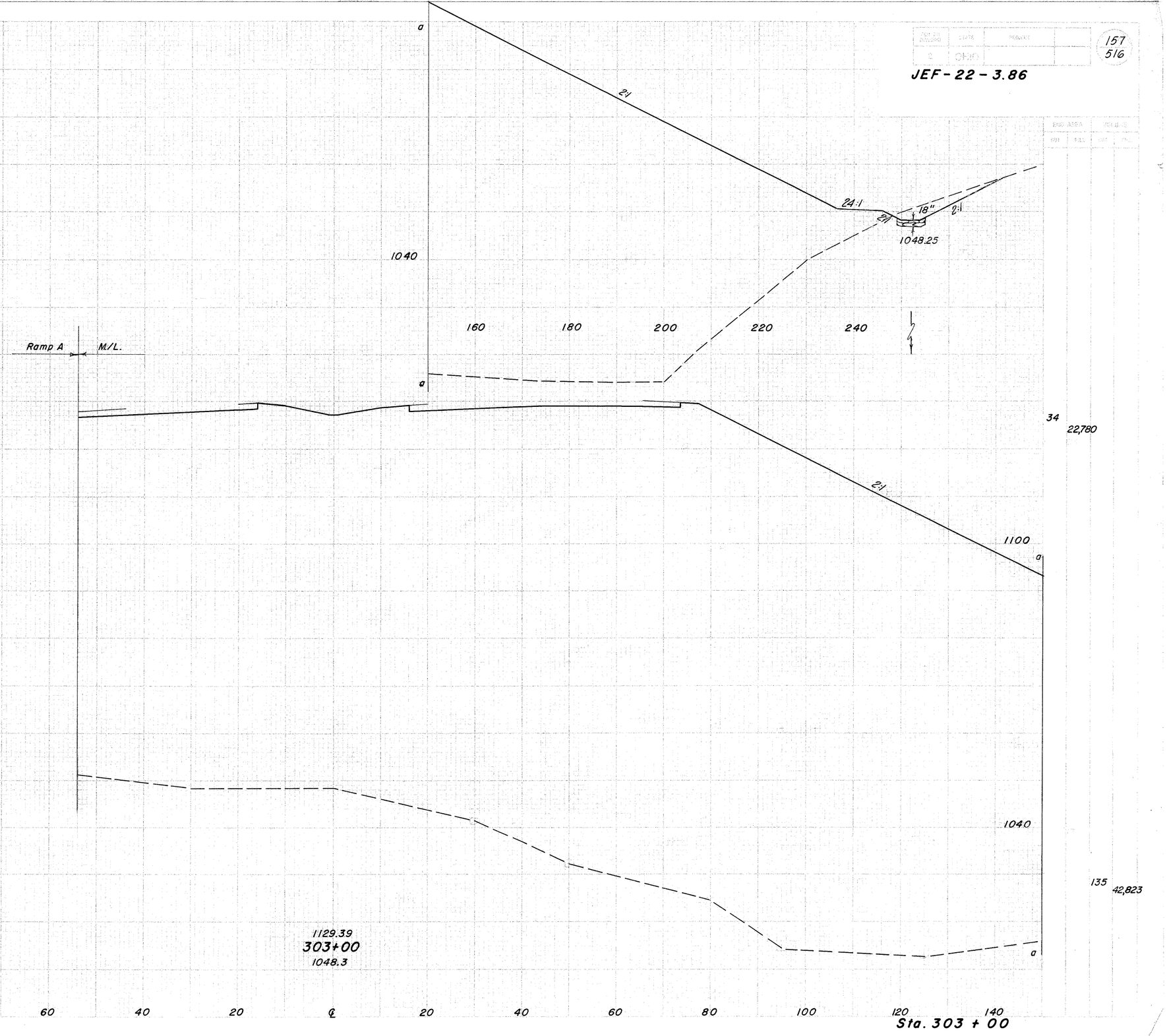
JEF-22-3.86



Sta. 302 + 50 Lt.

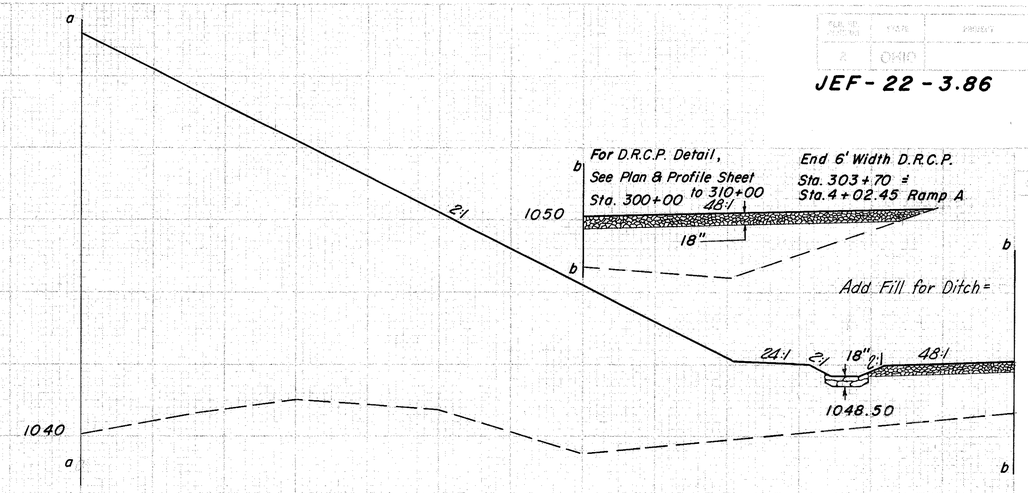
JEF-22-3.86

157
516

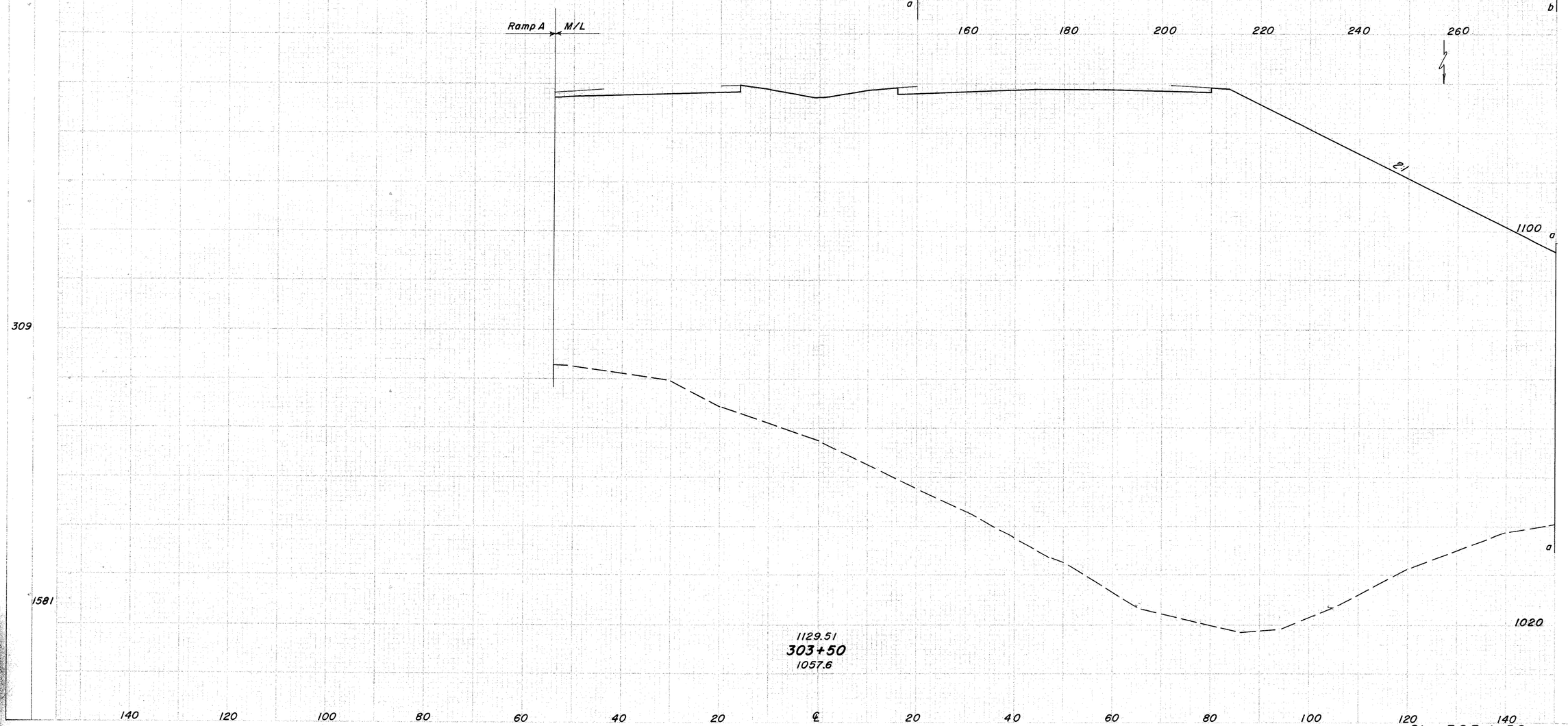


158
516

JEF-22-3.86



628

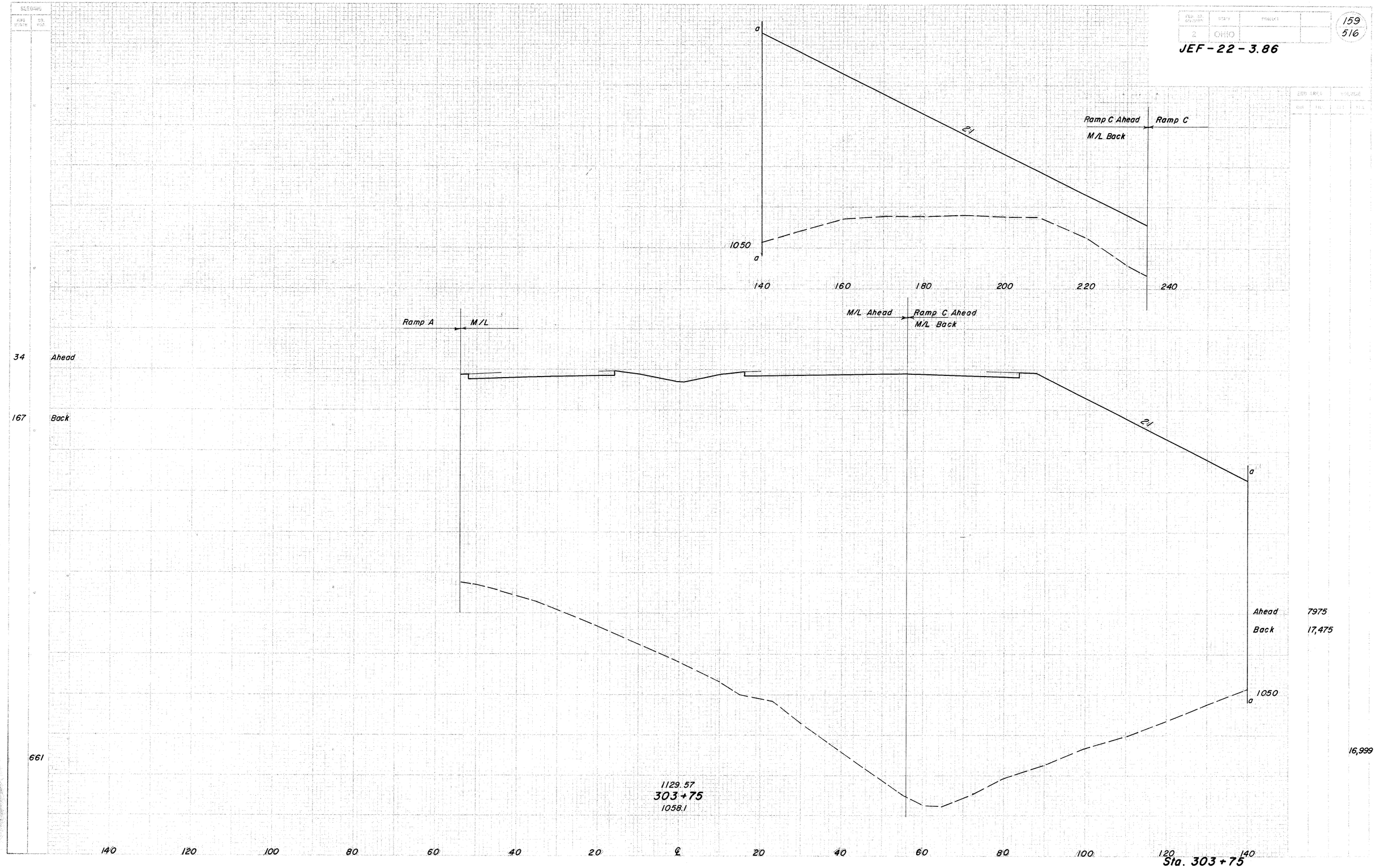


19,240

32 38,906

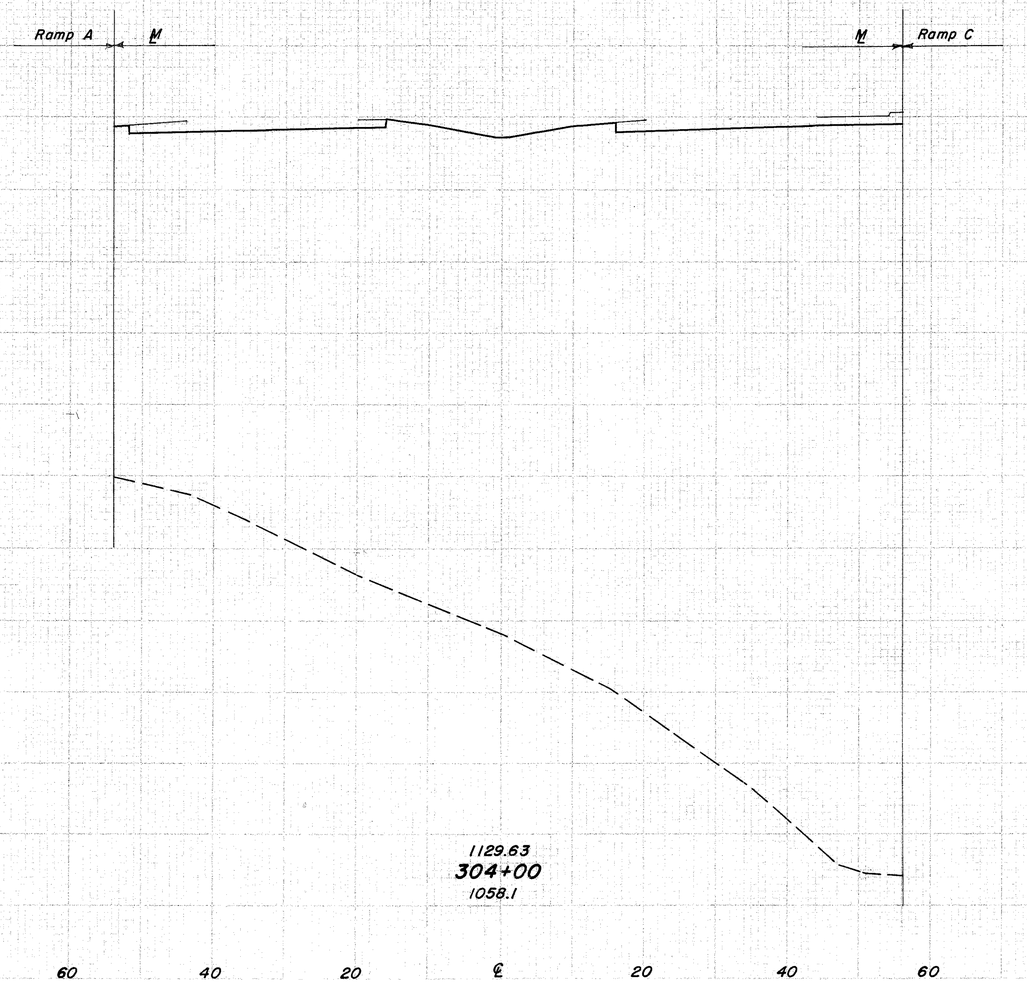
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF-22-3.86



Sta. 303+75

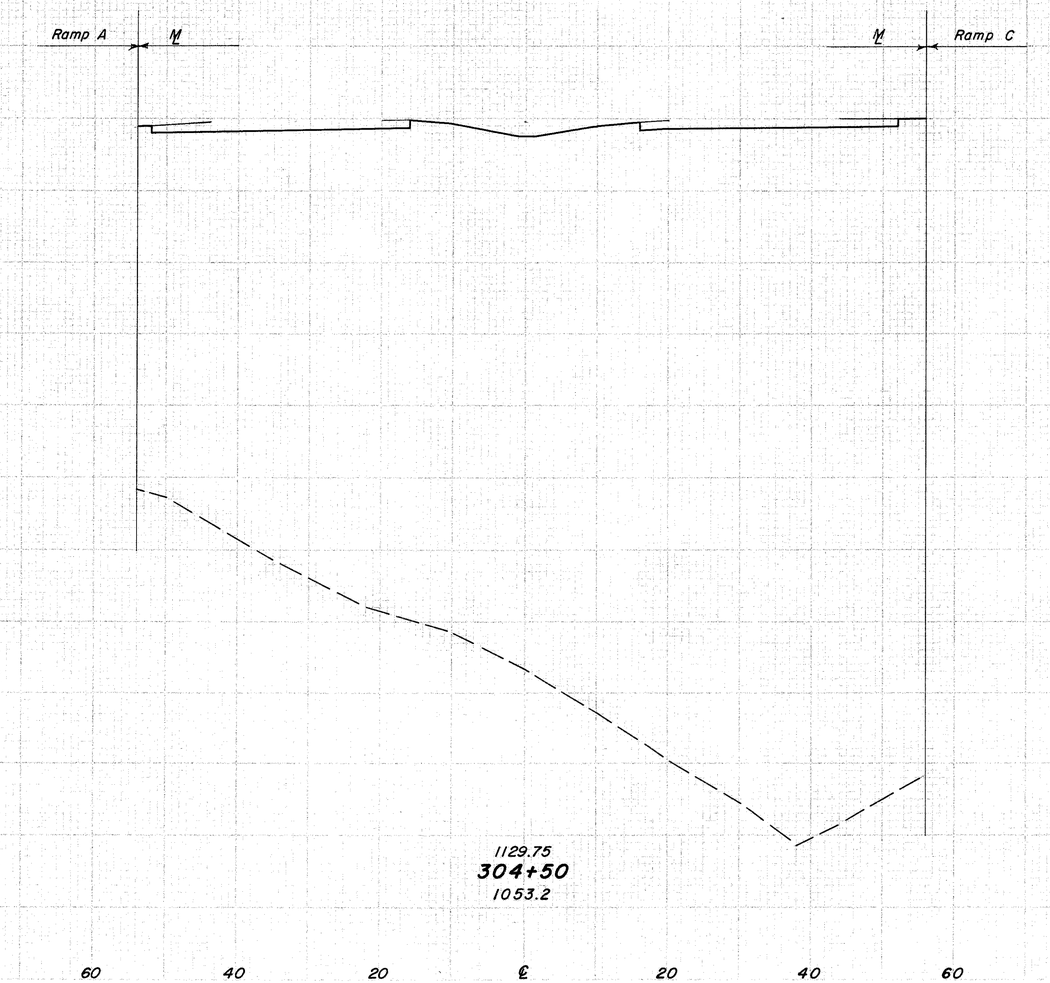
JEF-22-3.86


Ramp A
℄
℄
Ramp C
1100
8080
7433
1020
35
96
1129.63
304+00
1058.1
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 304 + 00

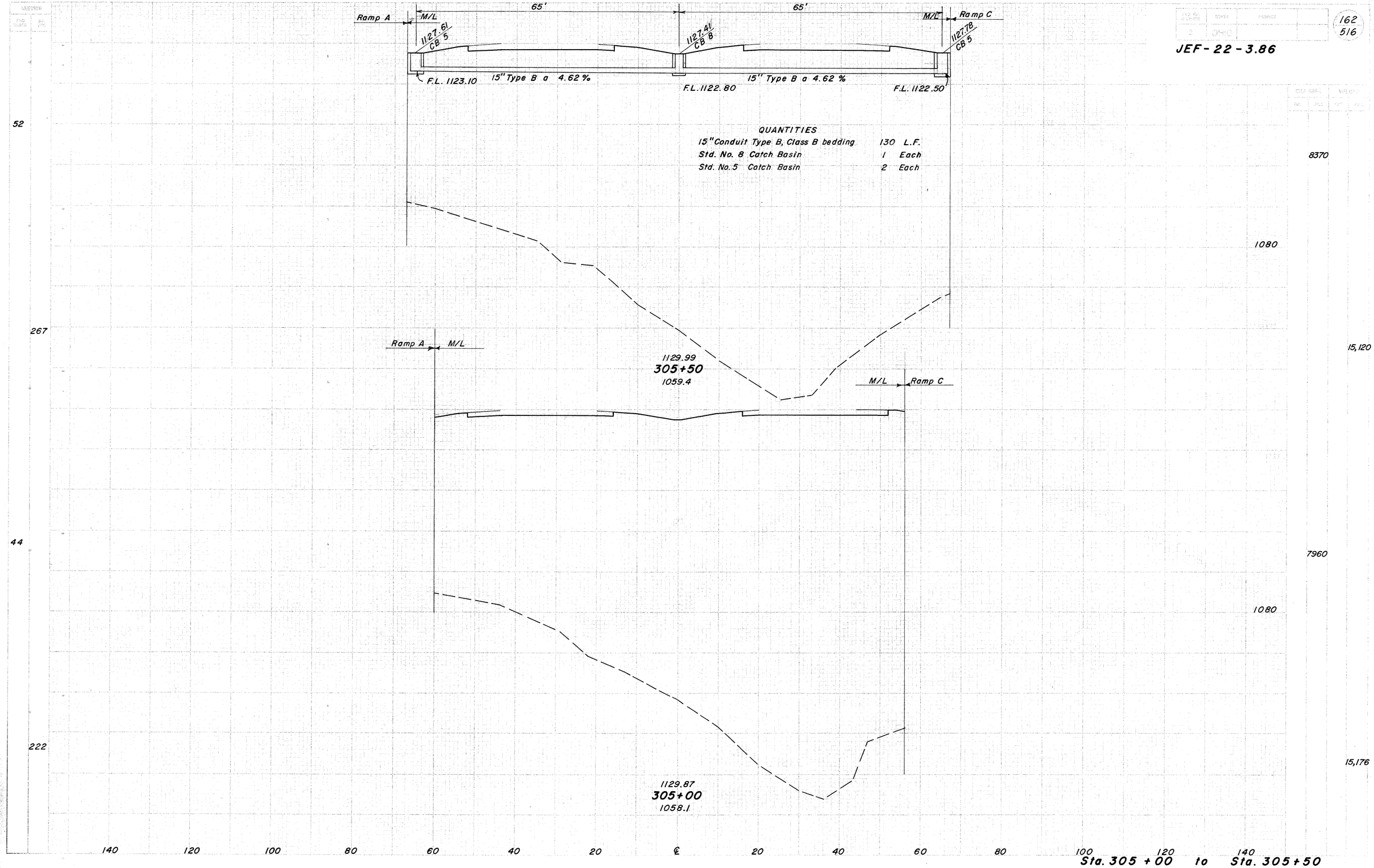
SHEET NO.	STATE	PROJECT
3	OHIO	

161
516

JEF-22-3.86

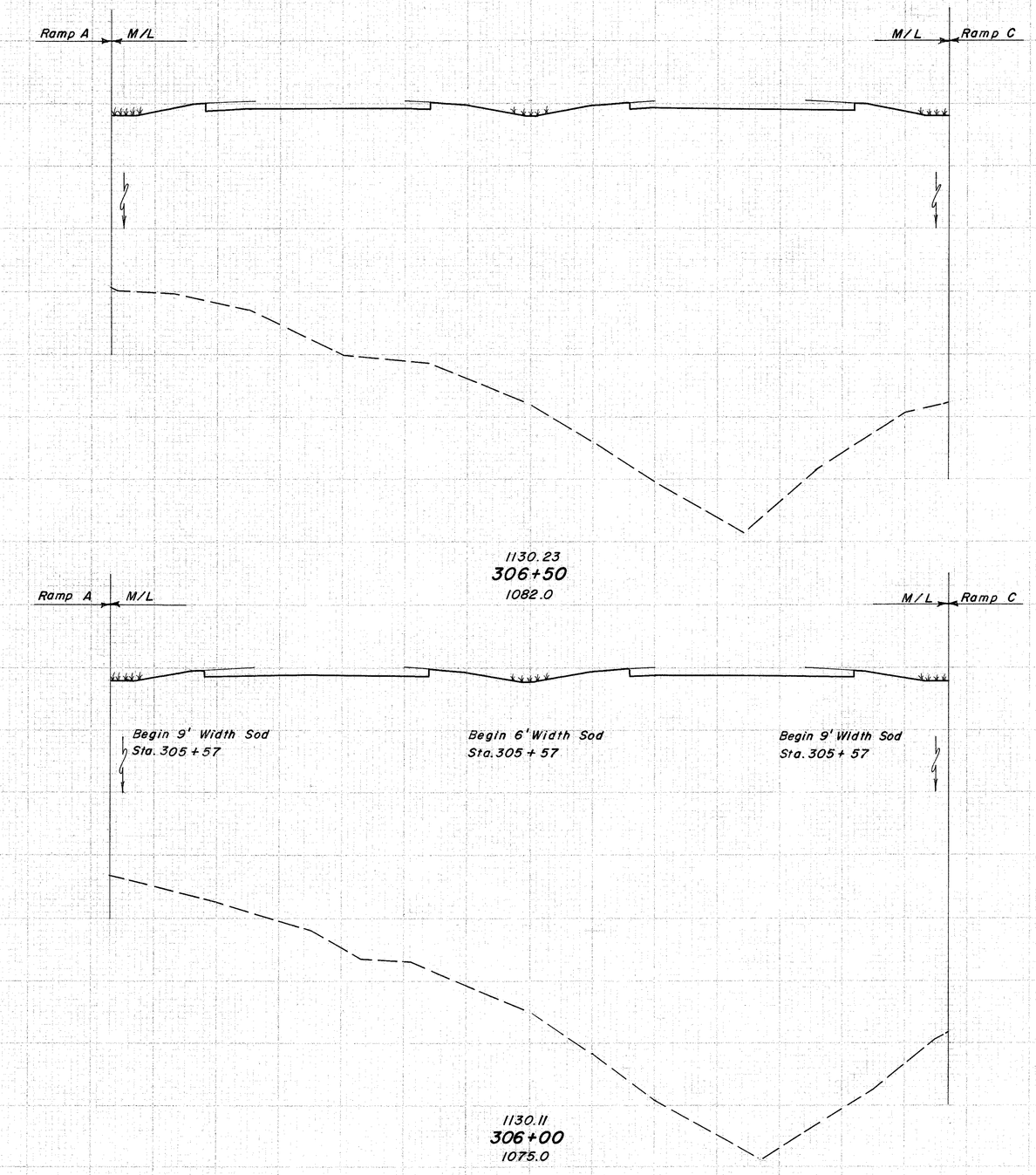


JEF-22-3.86



Sta. 305 + 00 to Sta. 305 + 50

JEF - 22 - 3.86



63

344

6230

1080

12,518

61

314

7290

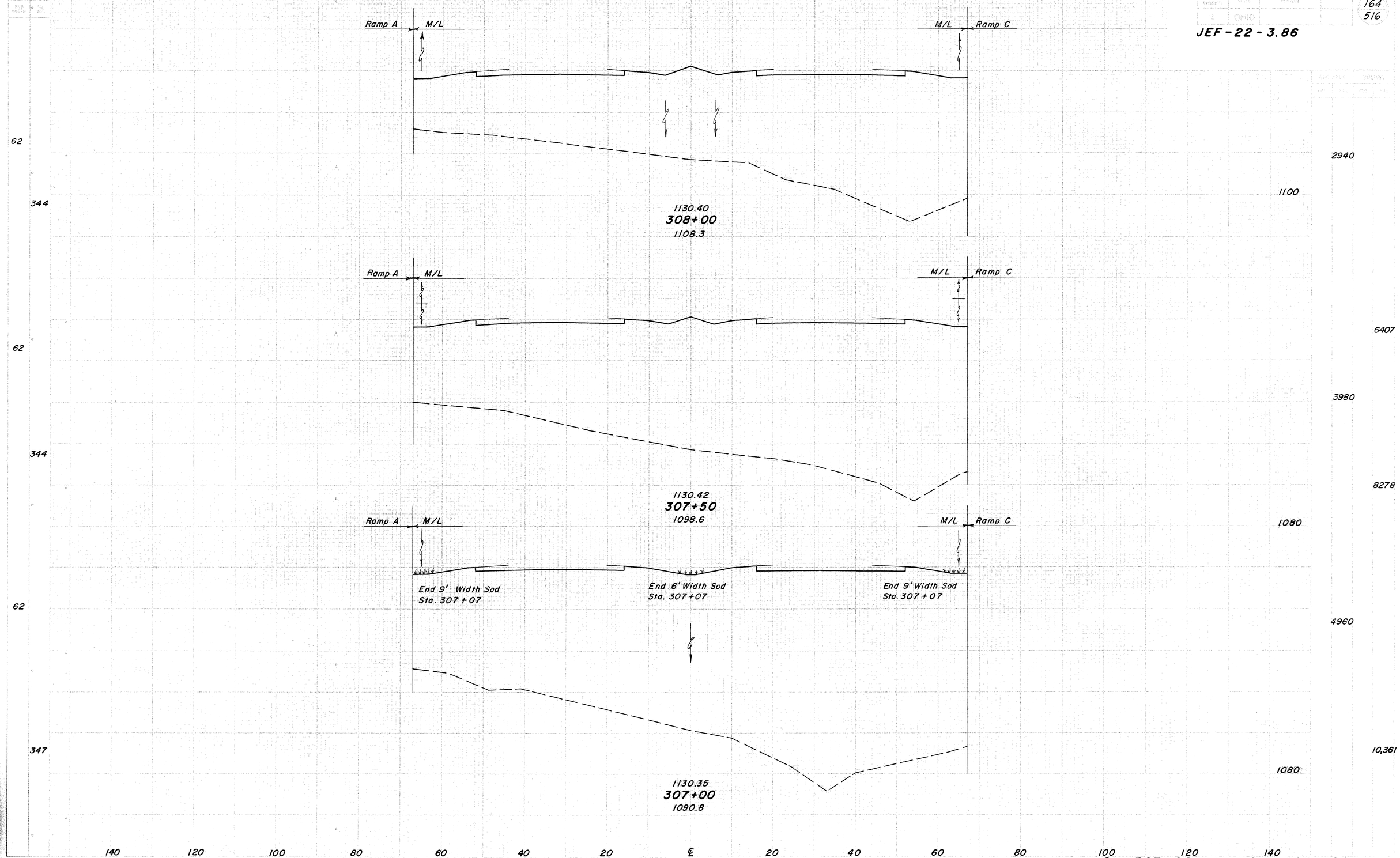
1080

14,500

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

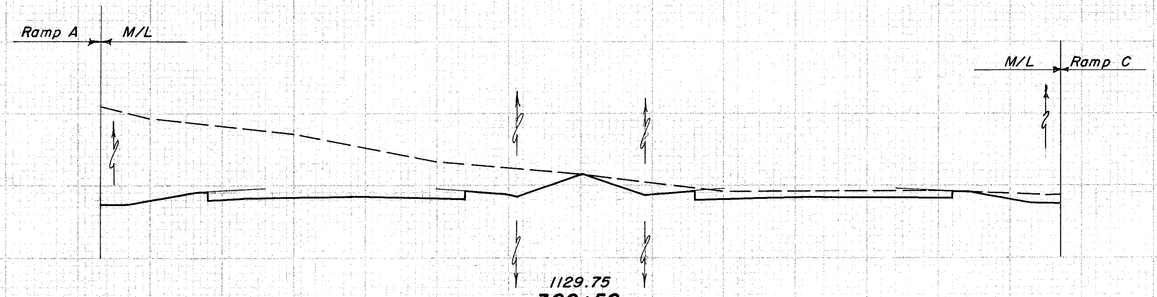
Sta. 306 + 00 to Sta. 306 + 50

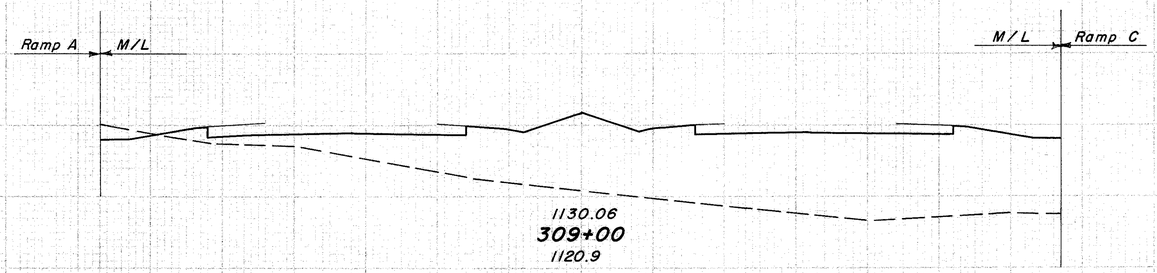
JEF-22-3.86

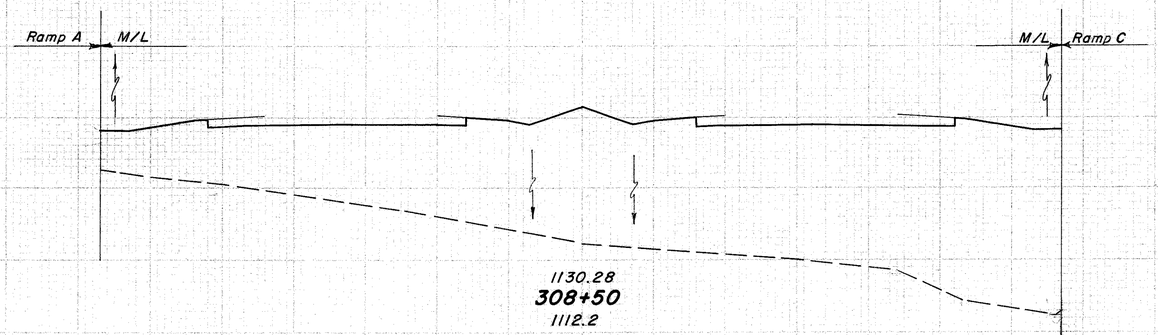


Sta. 307+00 to Sta. 308+00

JEF - 22 - 3.86



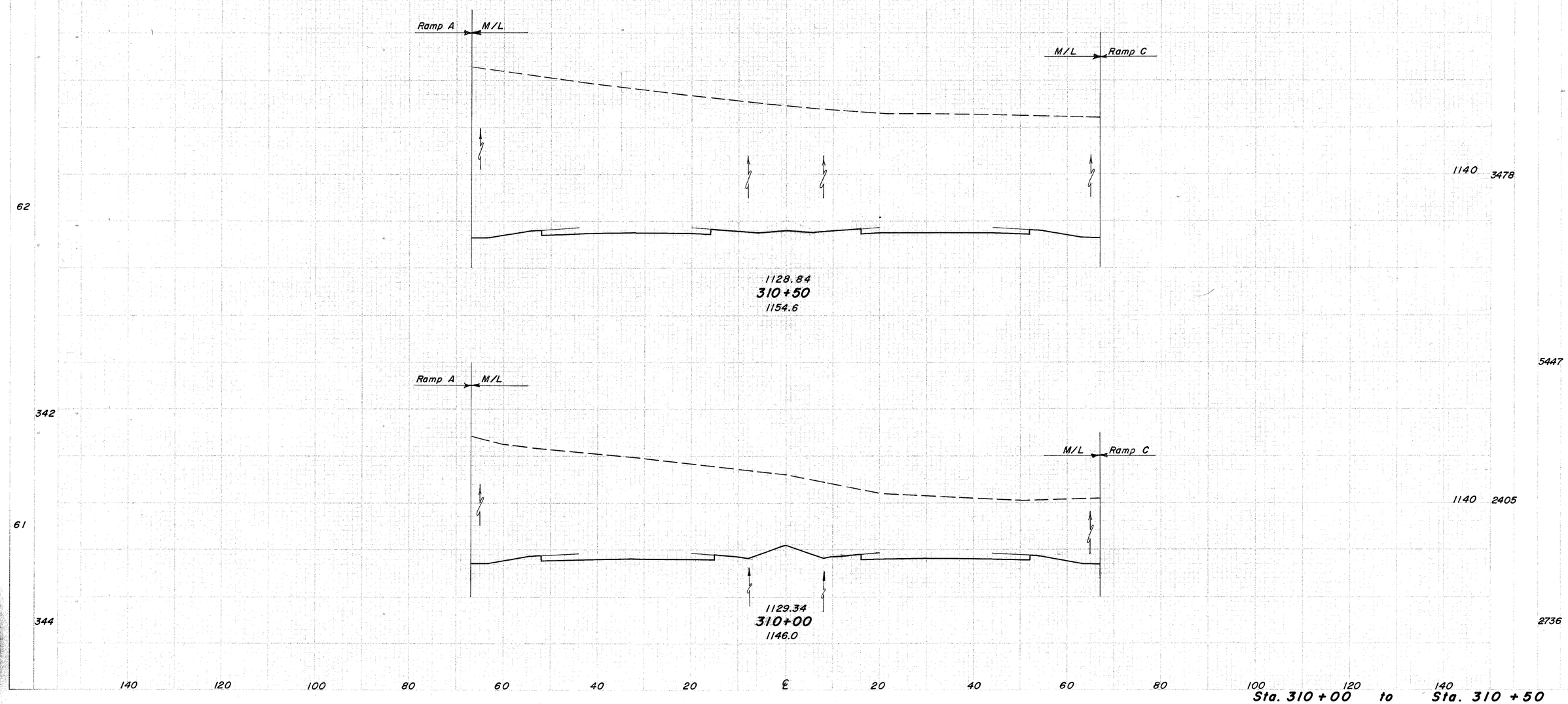




63
353
64
350
62
344
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
1140
550
0
517
907
8
980
1120
7
2852
1120
2100
4667

Sta. 308 + 50 to Sta. 309 + 50

JEF - 22 - 3.86

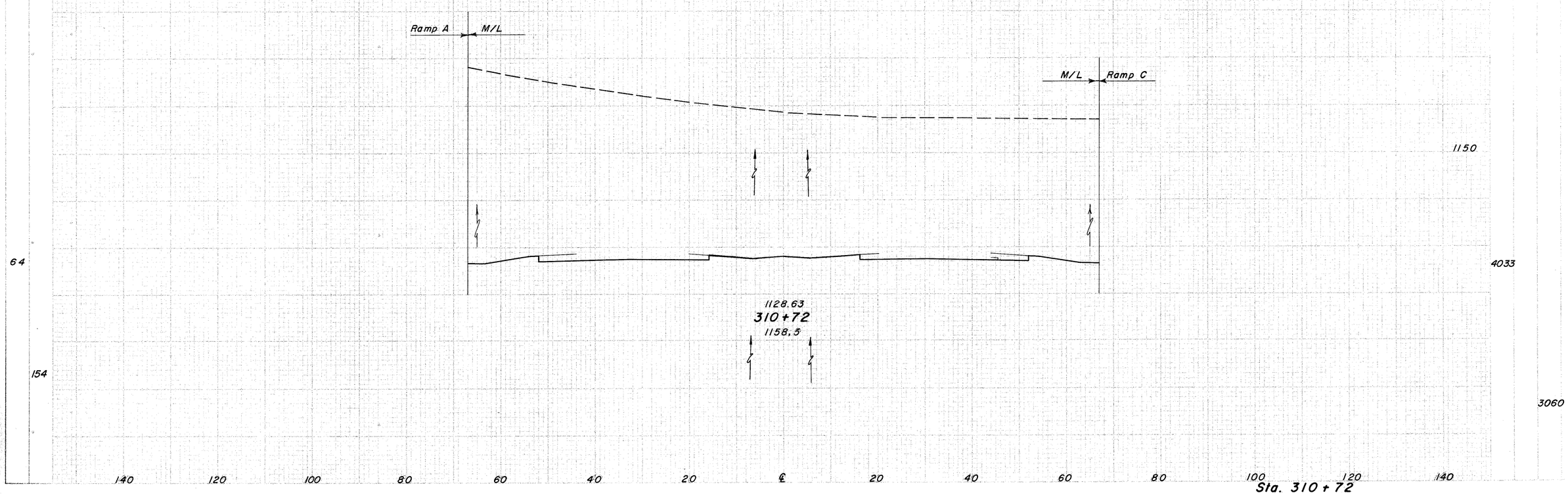


Sta. 310 + 00 to Sta. 310 + 50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

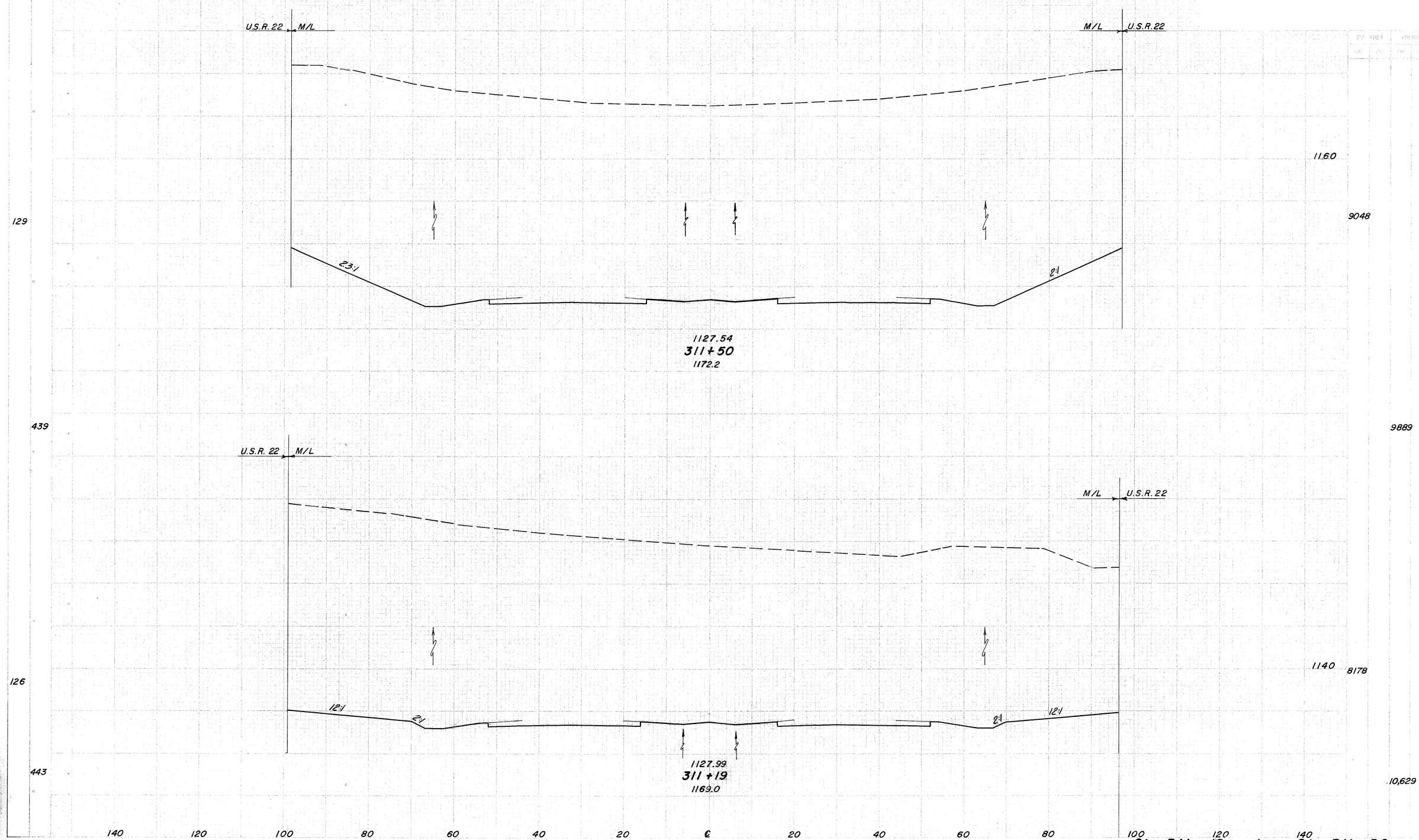
167
516

JEF-22-3.86



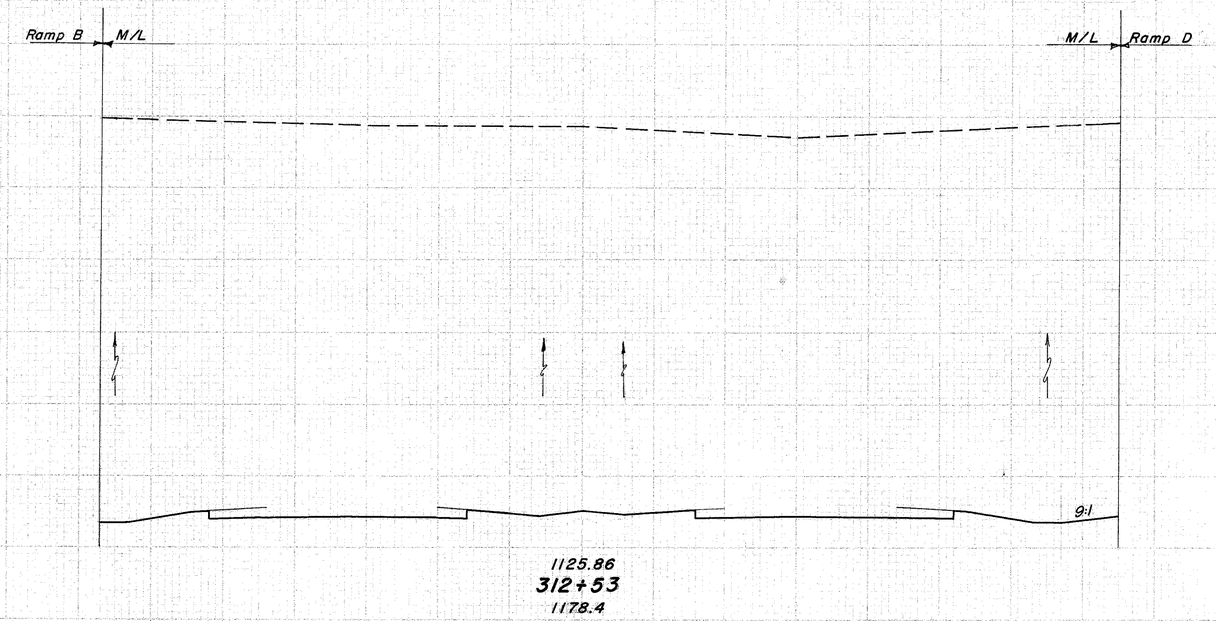
Sta. 310+72

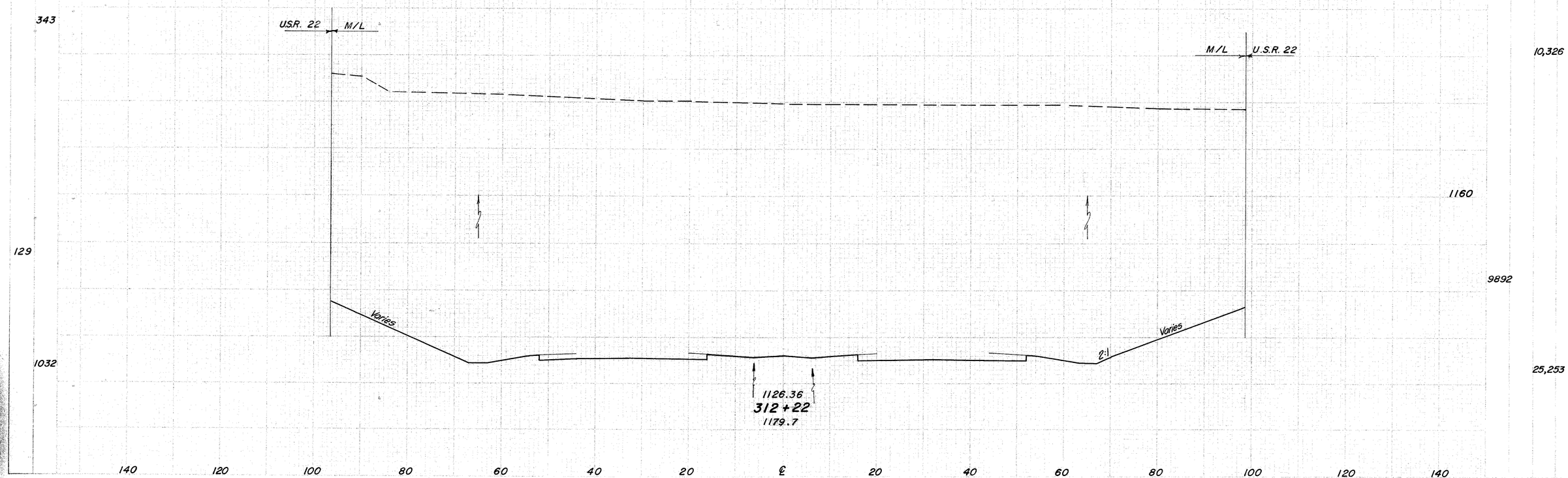
JEF-22-3.86



Sta. 311+19 to Sta. 311+50

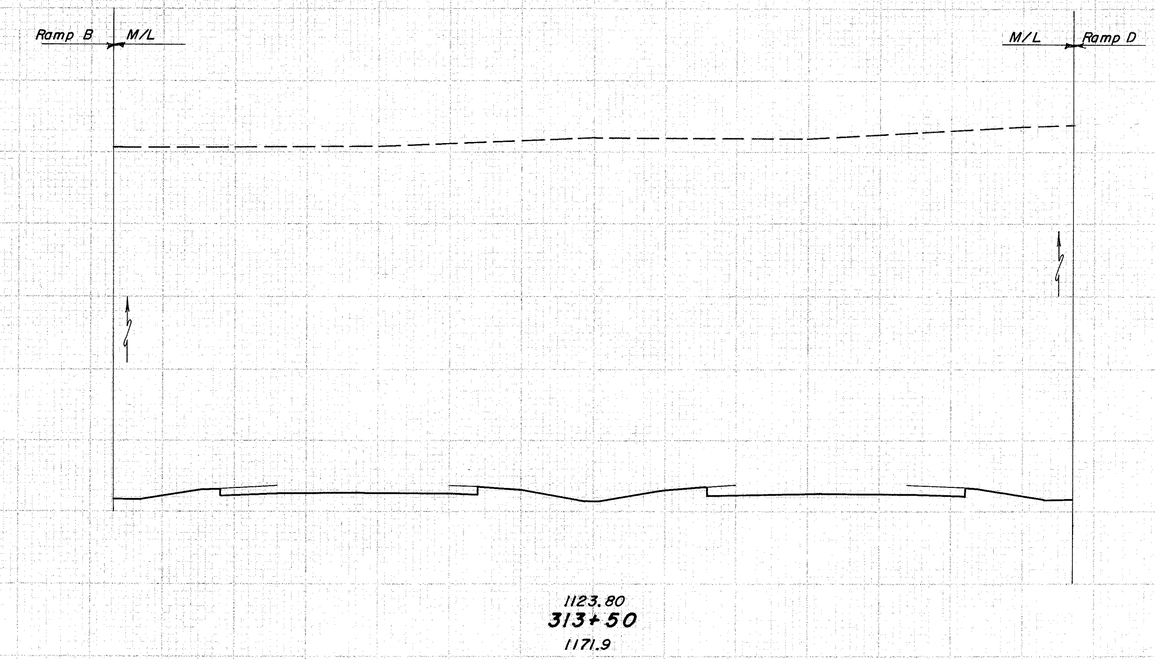
JEF-22-3.86

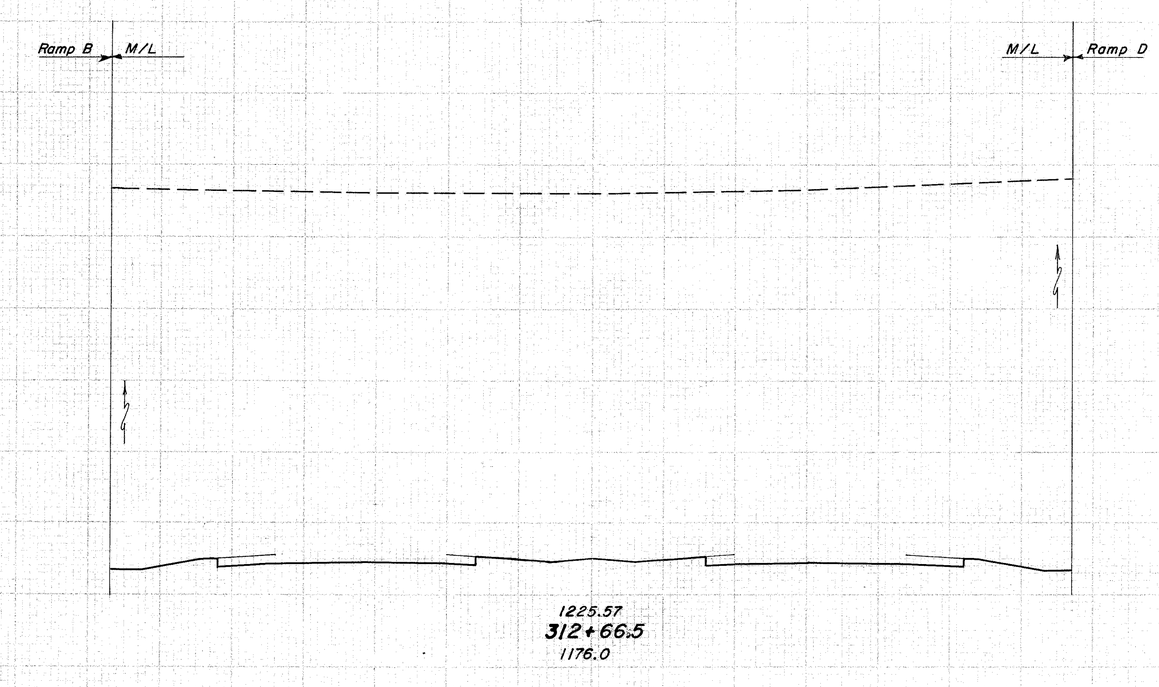




Sta. 312+22 to Sta. 312+50

JEF - 22 - 3.86

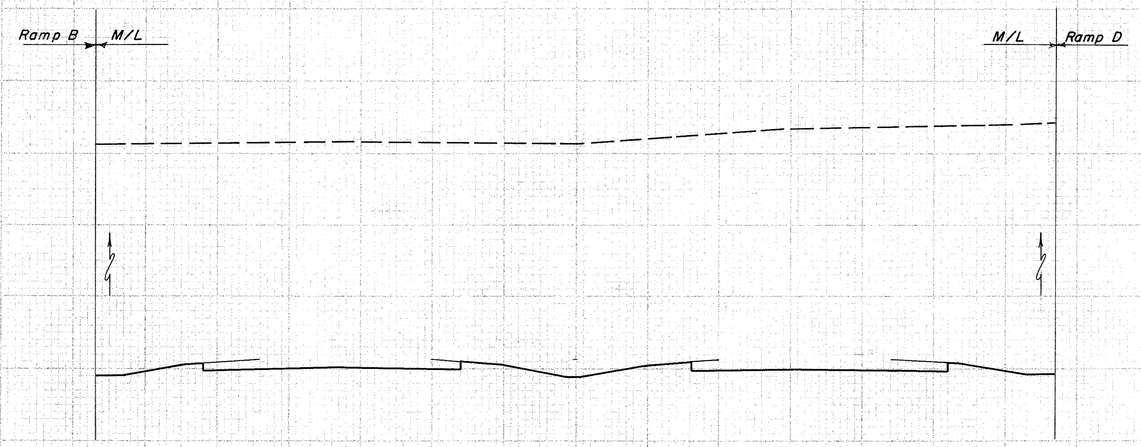




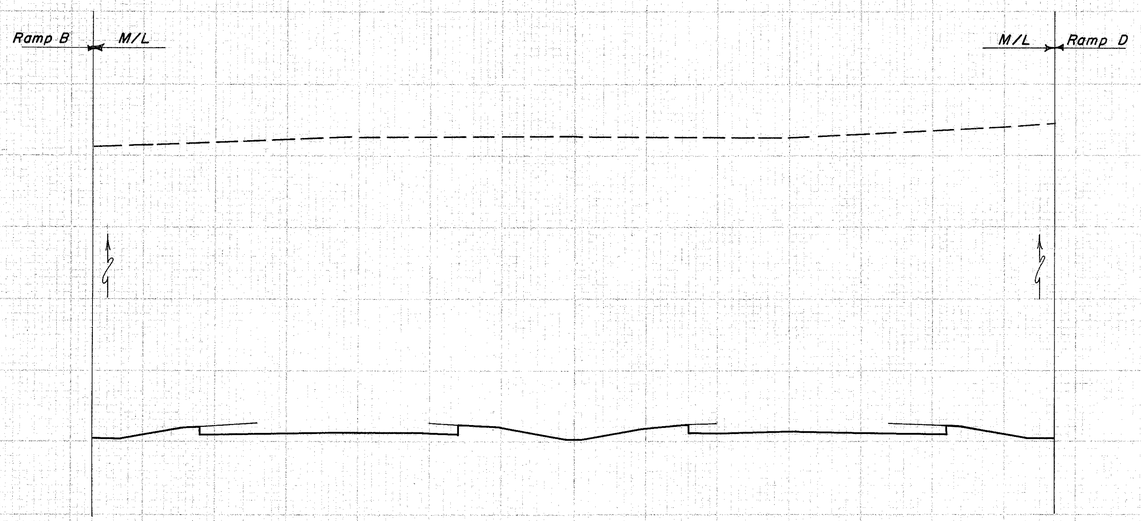
63
585
63
100
1160
6150
19,567
1160
6505
3656
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140

Sta. 312 + 66.5 to Sta. 313 + 50

JEF-22-3.86



1121.35
314+50
1151.2



1122.62
314+00
1162.6

63
350
350
63

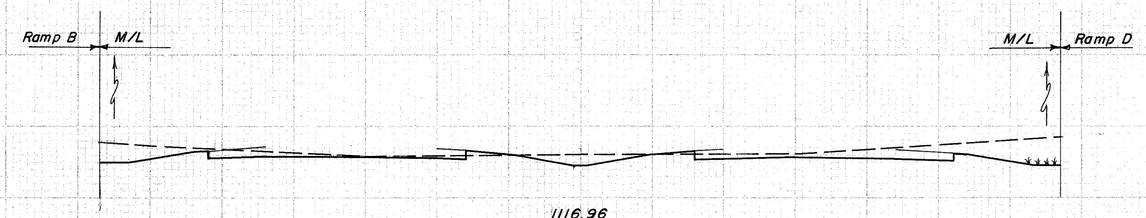
1140
4300
9102
5530
1140
10,815

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

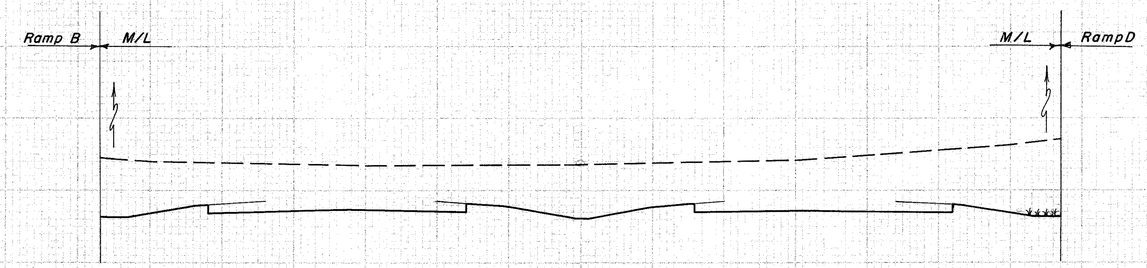
Sta. 314+00 to Sta. 314+50

172
516

JEF-22-3.86

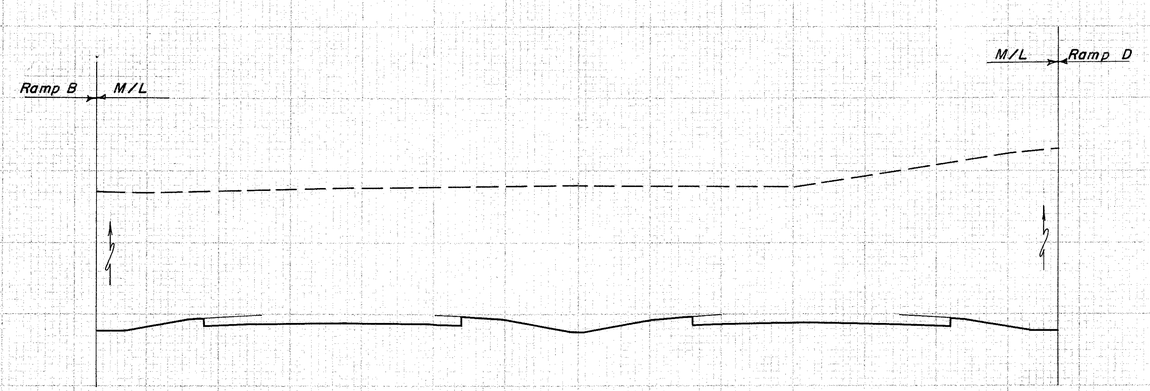


1116.96
316+00
1116.0



1118.52
315+50
1123.6

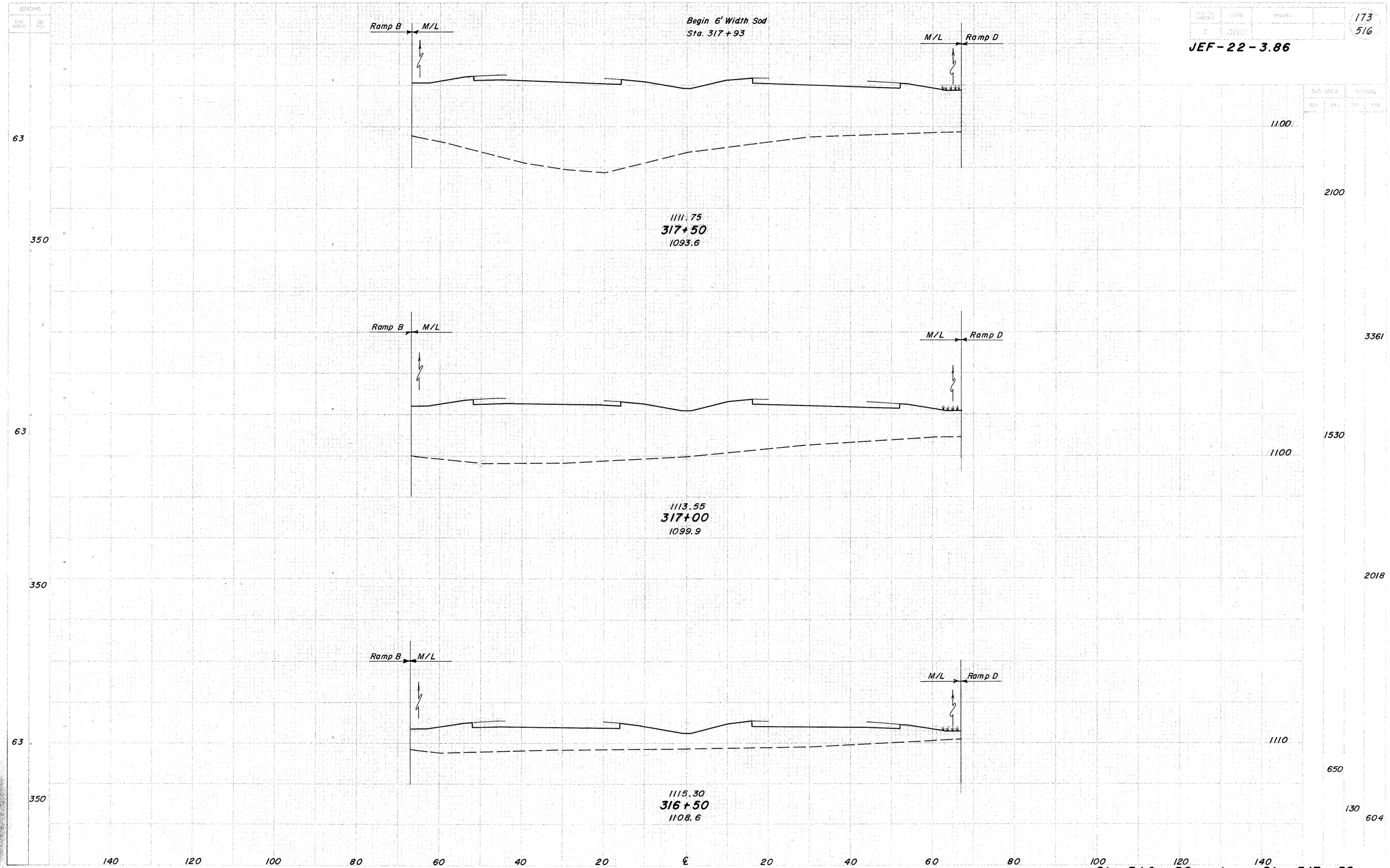
Begin 9' Width Sod
Sta. 315+25



1119.98
315+00
1138.0

Sta. 315+00 to Sta. 316+00

JEF-22-3.86



Sta. 316 + 50 to Sta. 317 + 50

JEF-22-3.86

Sta. 318 + 00 to Sta. 319 + 00

JEF-22-3.86

Sta. 319 + 50 to Sta. 320 + 50

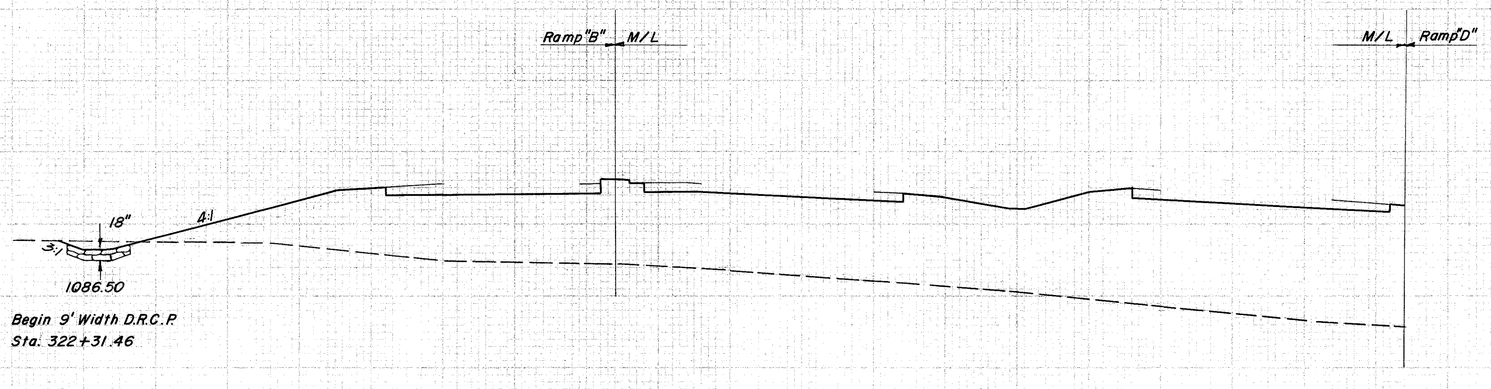
176
516

JEF-22-3.86

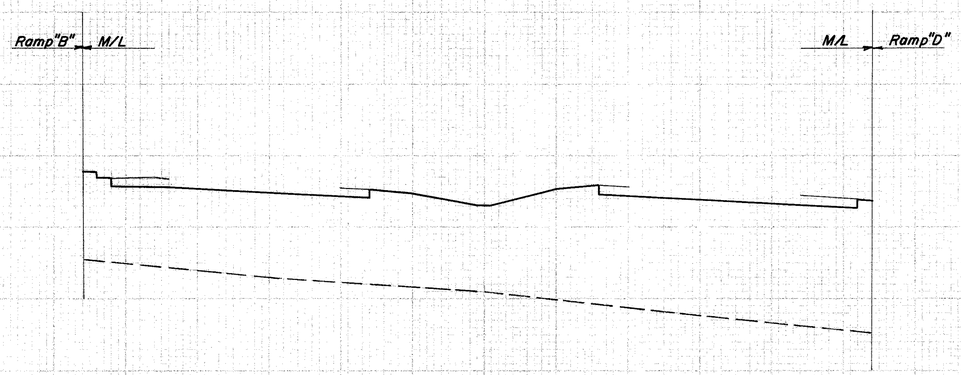
Sta. 321+00 to Sta. 321 + 50

177
516

JEF-22-3.86



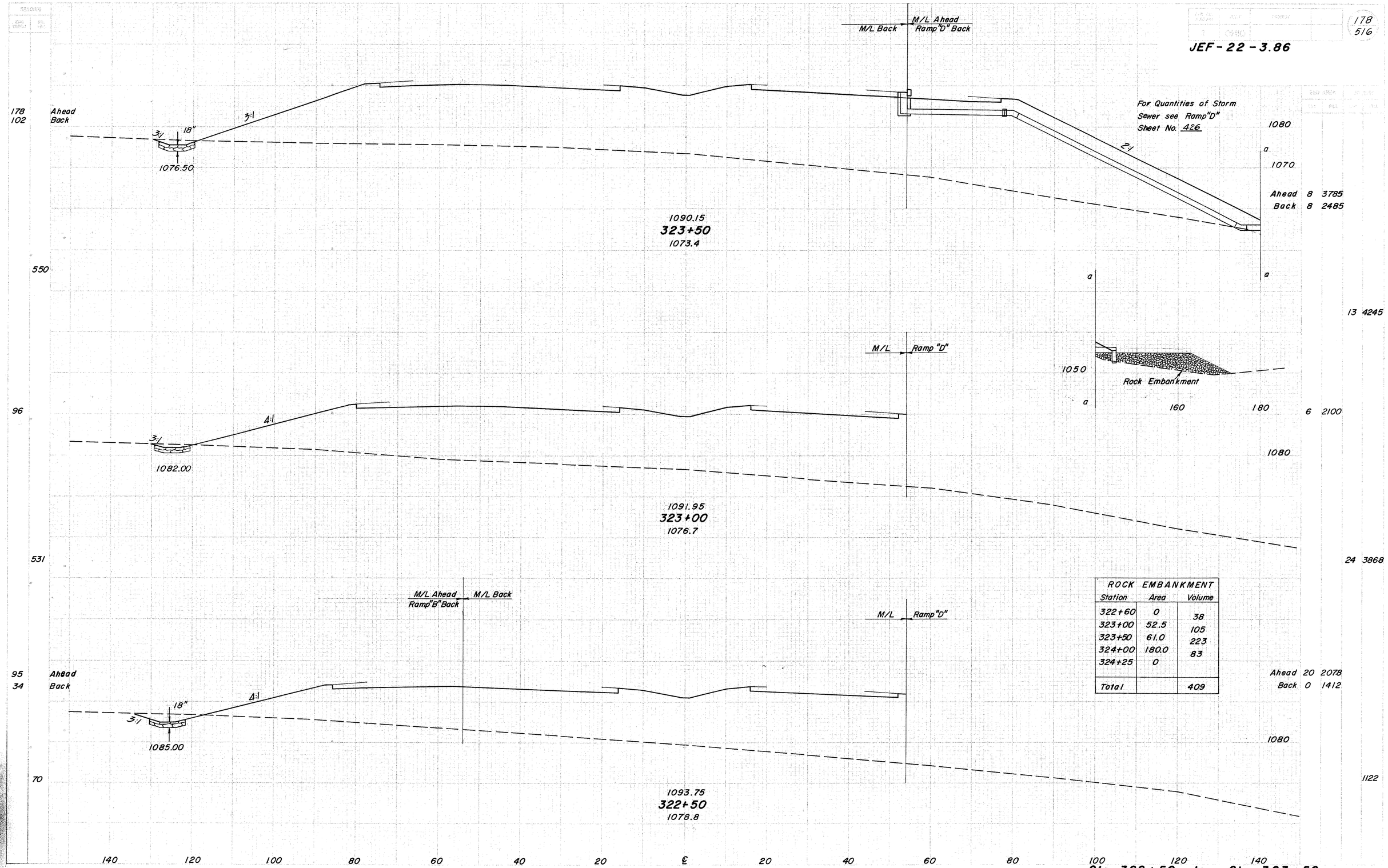
1094.42
322+31.46
1080.6



1095.55
322+00
1081.0

Sta. 322+00 to Sta. 322+31.46

JEF-22-3.86



ROCK EMBANKMENT		
Station	Area	Volume
322+60	0	38
323+00	52.5	105
323+50	61.0	223
324+00	180.0	83
324+25	0	
Total		409

Sta. 322+50 to Sta. 323+50

238

2:1 | 18" | 2:1 | 2:1 | 2:1 | 2:1

1058.20

1084.75
325+00
1054.6

c
1050 | 2:1 | 2:1 | 2:1
1044.00
160 | 1060
c

30 6070

c

66 10,502

1278

222

1065.00

1086.55
324+50
1059.6

b
1050 | 2:1 | 2:1 | 2:1
1047.2
160 | 180
b

41 5273

b

1060

b

127 9024

1100

174

2:1 | 18" | 2:1 | 2:1 | 2:1 | 2:1

1071.00

1088.35
324+00
1068.1

a
1050 | 2:1 | End Rock Embankment at Sta. 324+25
a
160 | 180

1080 96 4473

a

2:1

Rock Embankment

96 7646

978

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 324+00 to Sta. 325+00

JEF-22-3.86

Begin 6' Width Sod
Sta. 326 +50

274 | 1500 | 266 | 1444 | 254 | 1367

2:1 | 24:1 | 18" | 1042.50 | 1047.00 | 1050 | 1051.50 | 1040 | 1030 | 1034.50 | 1060 | 1037.00

1079.35
326+50
1040.0

1081.15
326+00
1044.2

1082.95
325+50
1048.6

Begin 6' Width Sod
Sta. 325 +20

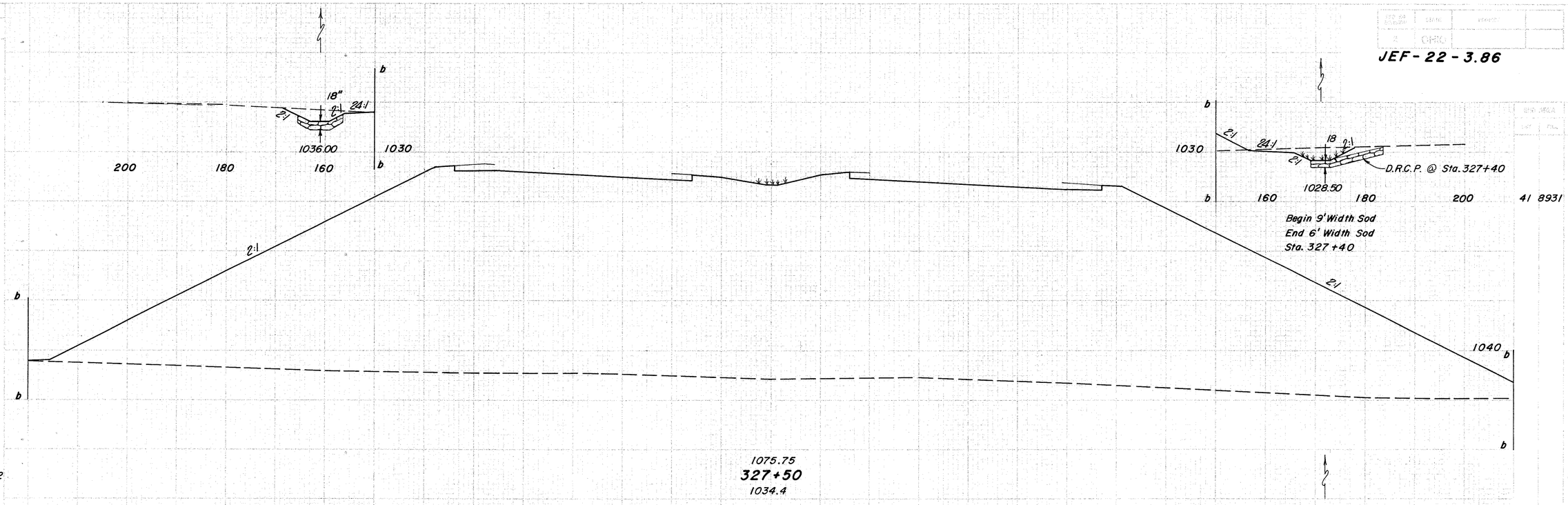
180 | 160 | 160 | 180 | 1040 | 1040.00

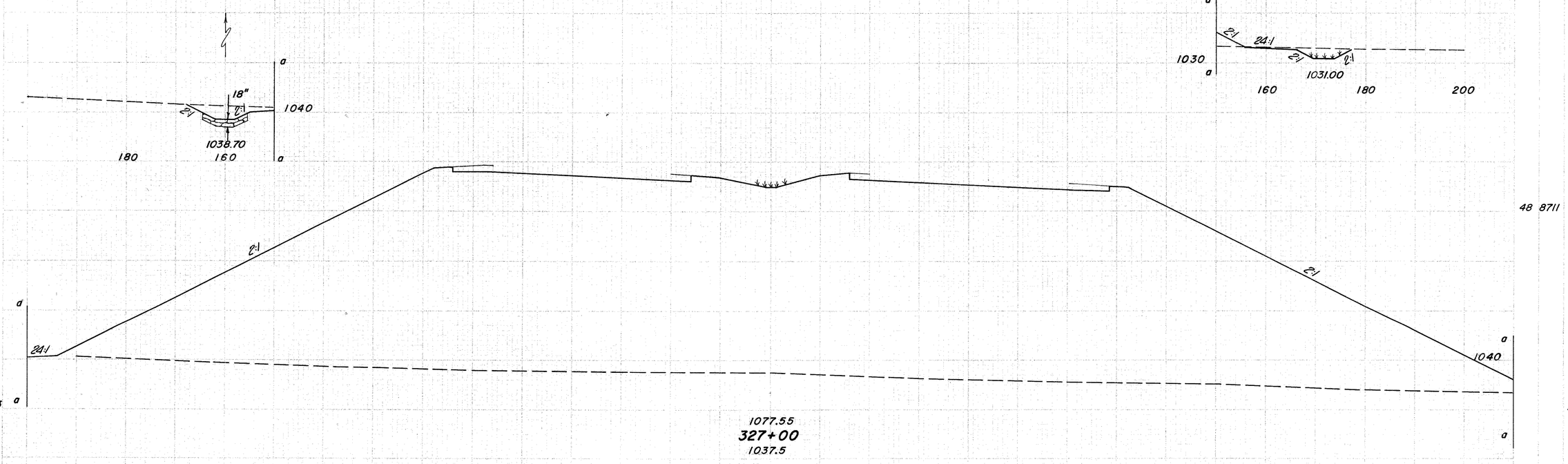
32 8213 | 72 14,726 | 46 7692 | 74 13,650 | 34 7050 | 59 12,148

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 325 +50 to Sta. 326 +50

JEF-22-3.86

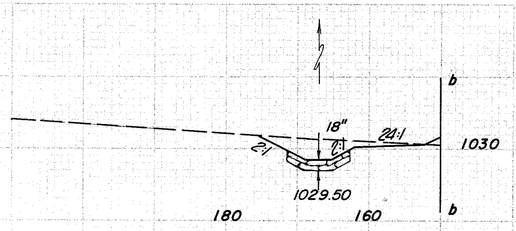


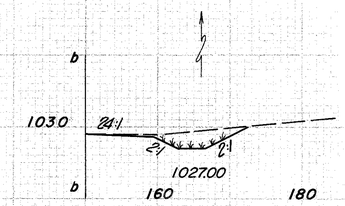


Sta. 327+00 to Sta. 327+50

182
516

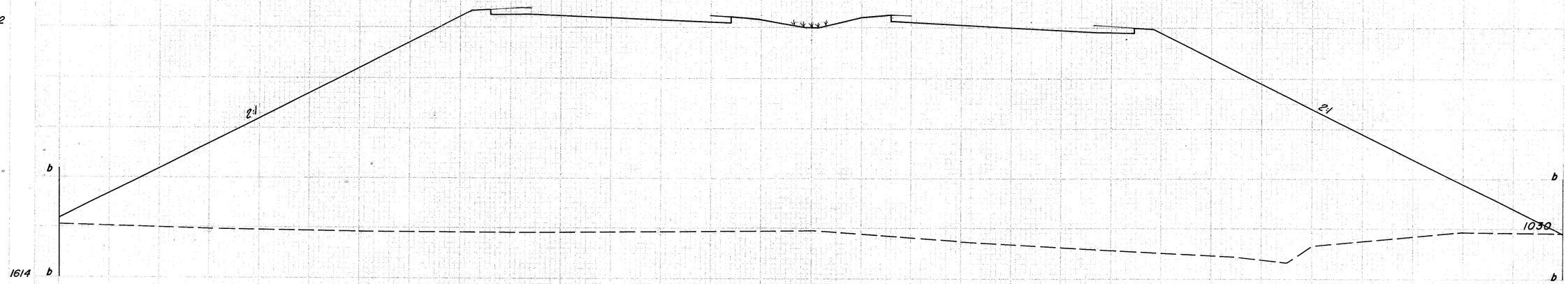
JEF-22-3.86



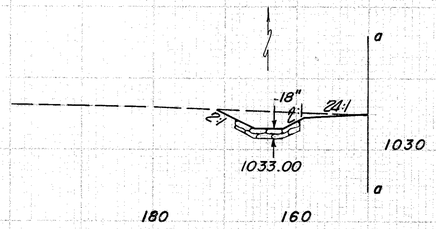


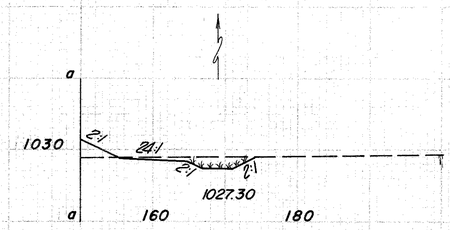
292

51 9547



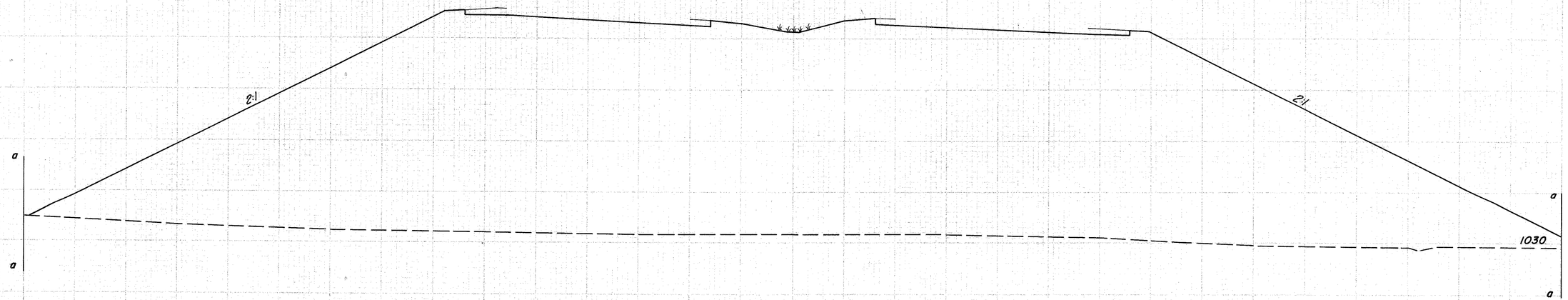
1072.15
328+50
1029.5





289

34 9230



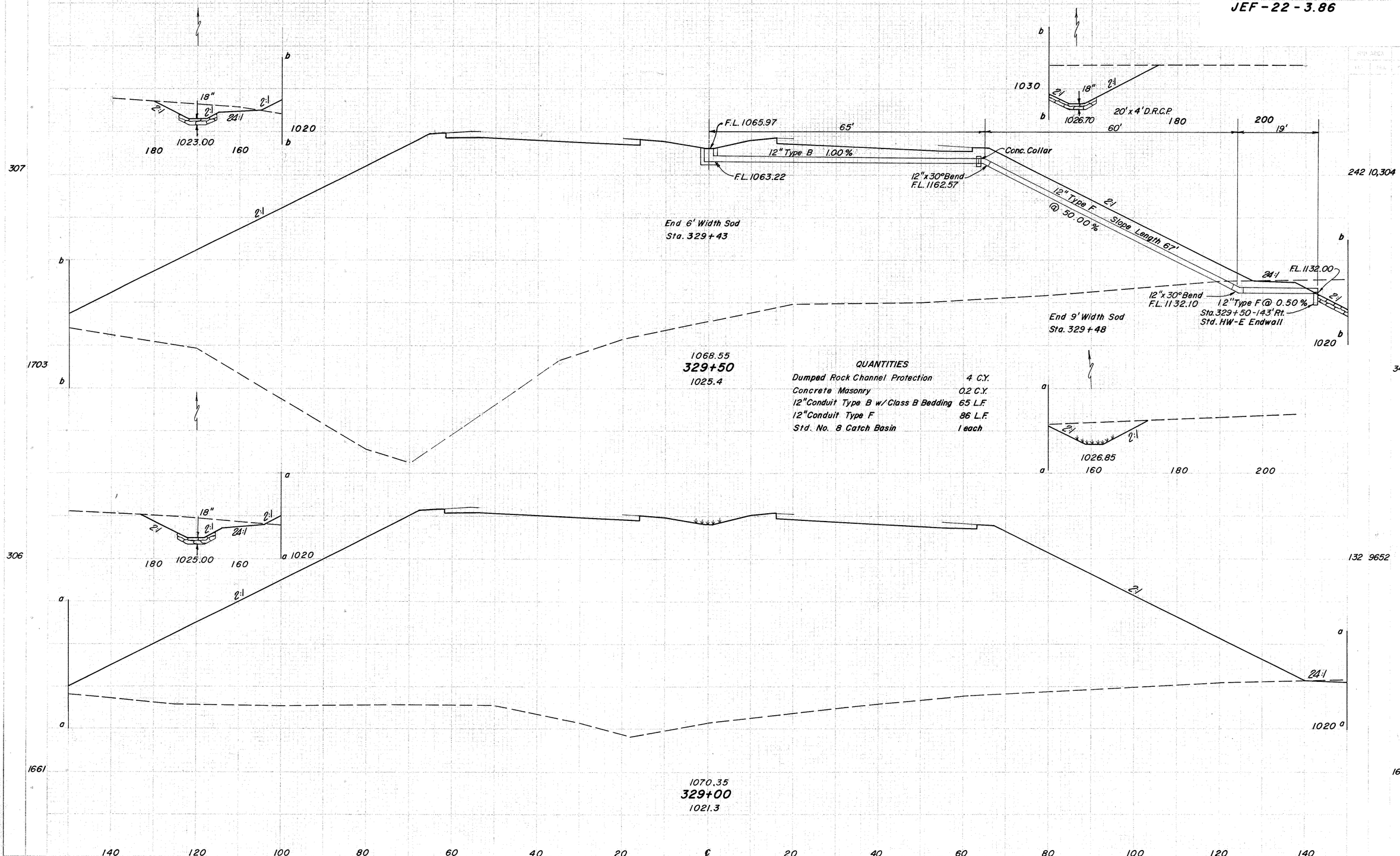
1073.95
328+00
1031.6

69 16,815

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 328+00 to Sta. 328+50

JEF-22-3.86

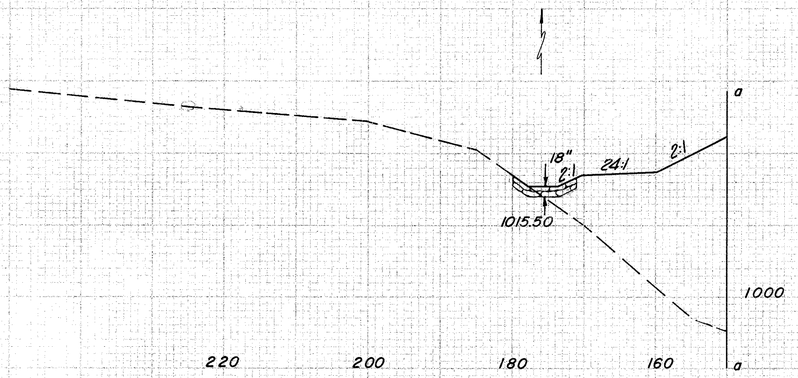


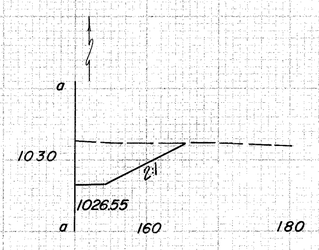
QUANTITIES

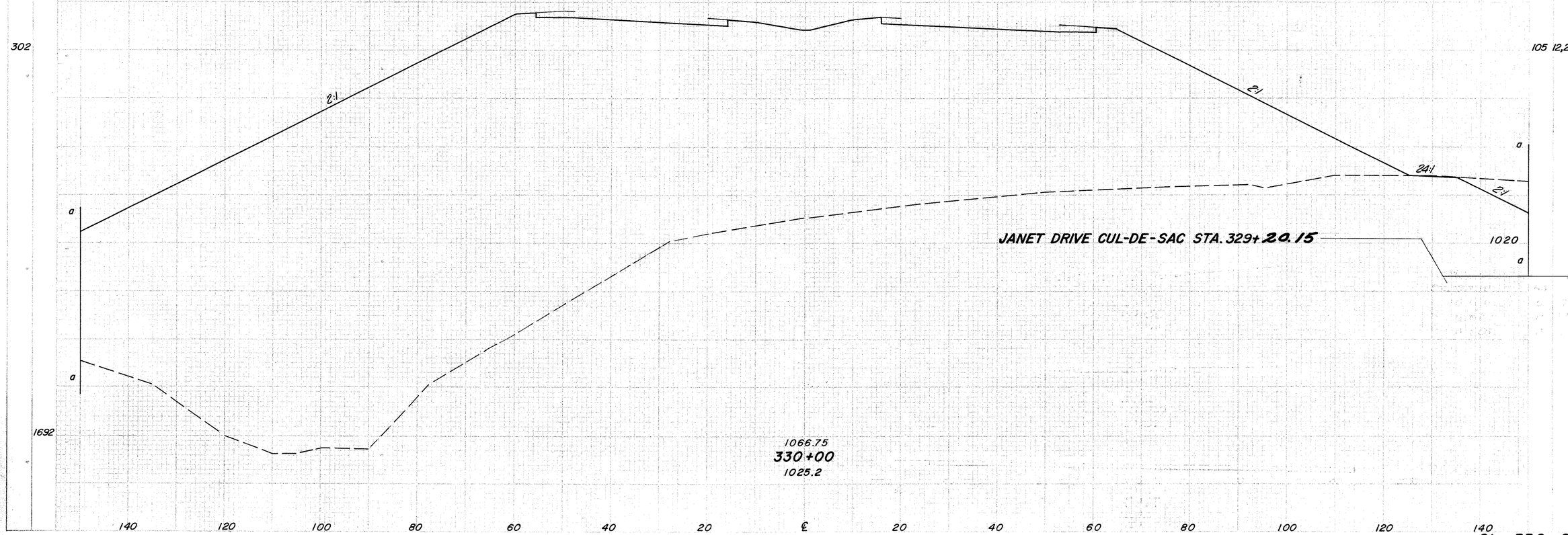
Dumped Rock Channel Protection	4 C.Y.
Concrete Masonry	0.2 C.Y.
12" Conduit Type B w/Class B Bedding	65 L.F.
12" Conduit Type F	86 L.F.
Std. No. 8 Catch Basin	1 each

Sta. 329 + 00 to Sta. 329 + 50

JEF - 22 - 3.86

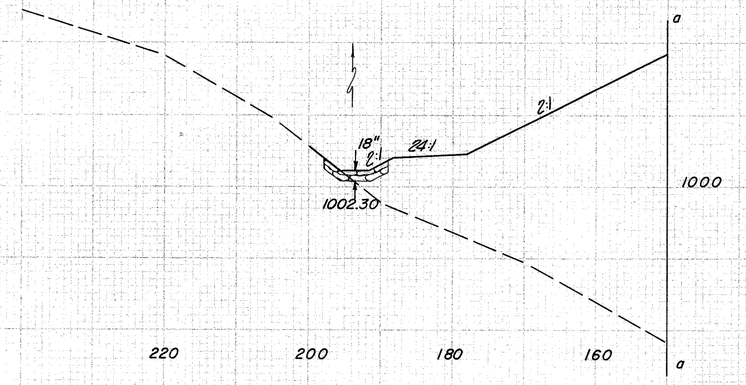

a
18"
2:1
24:1
2:1
1015.50
1000
a
220
200
180
160

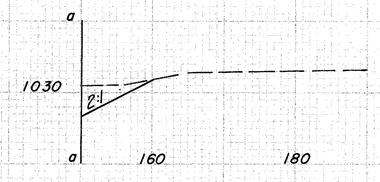

a
1030
2:1
1026.55
a
160
180

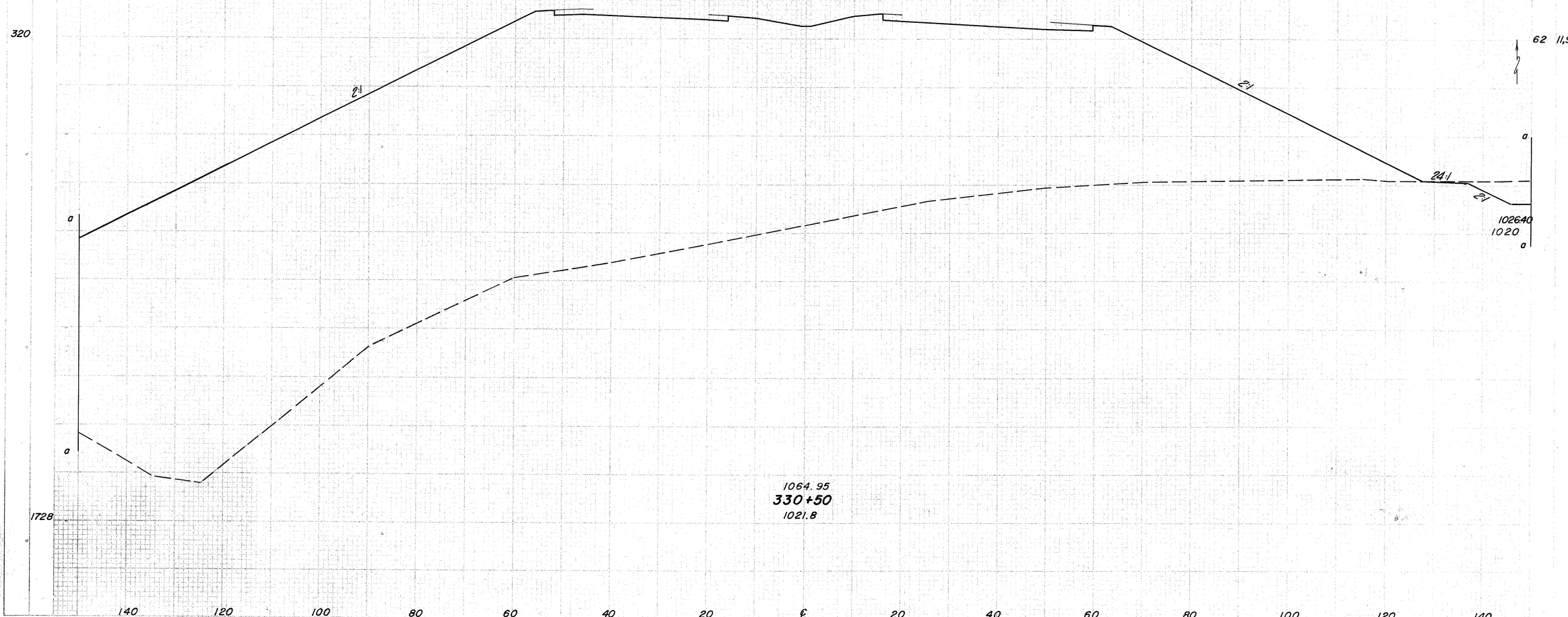

302
2:1
2:1
105 12,218
a
24:1
2:1
JANET DRIVE CUL-DE-SAC STA. 329+20.15
1020
a
318 114
a
1692
321 20,853
1066.75
330+00
1025.2
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 330+00

185
5/6

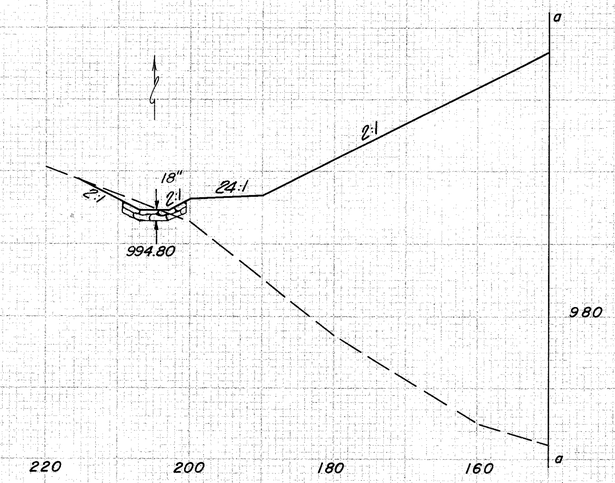
JEF-22-3.86

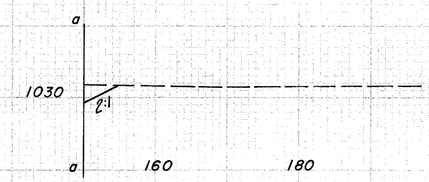


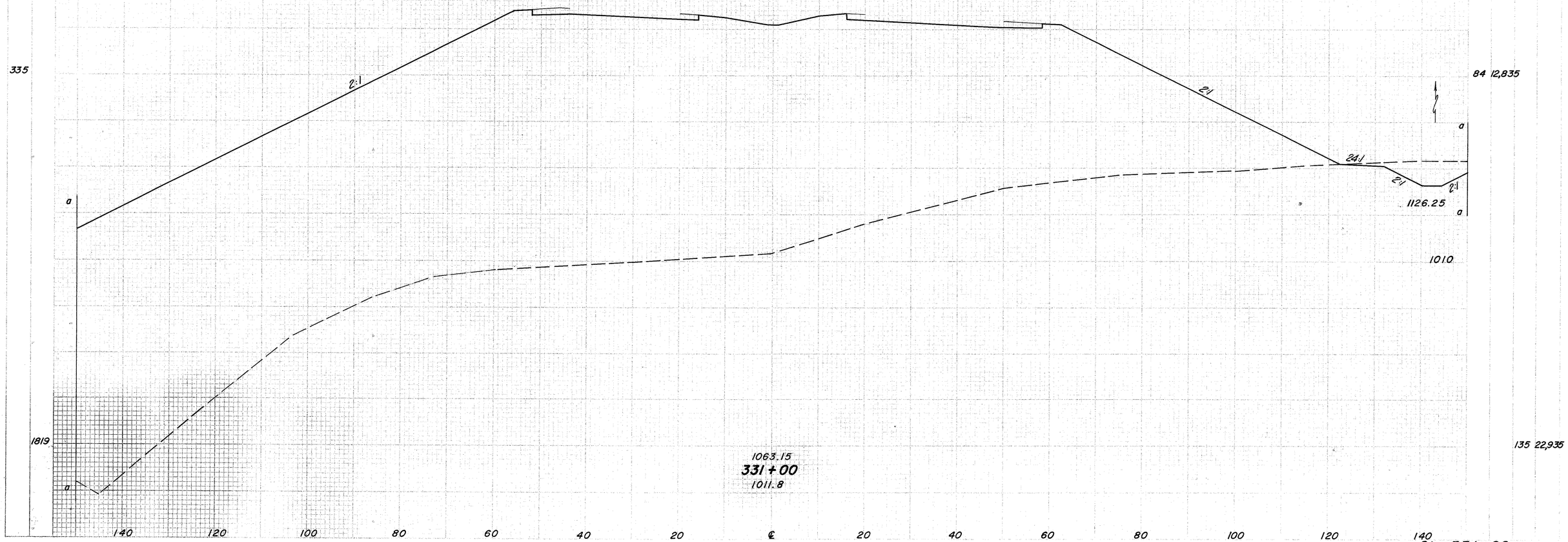




JEF-22-3.86

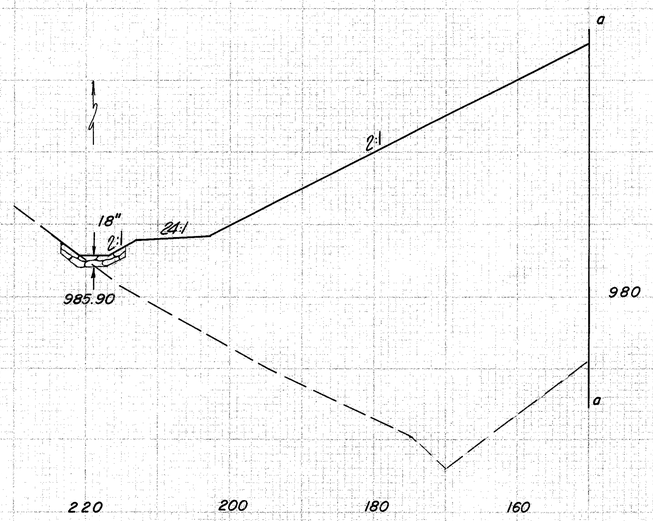

a
2:1
18"
2:1
24:1
2:1
994.80
980
a
220
200
180
160


a
1030
2:1
a
160
180


335
2:1
a
1819
a
2:1
84 12,835
a
24:1
2:1
2:1
1126.25
a
1010
135 22,935
1063.15
331+00
1011.8
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 331+00

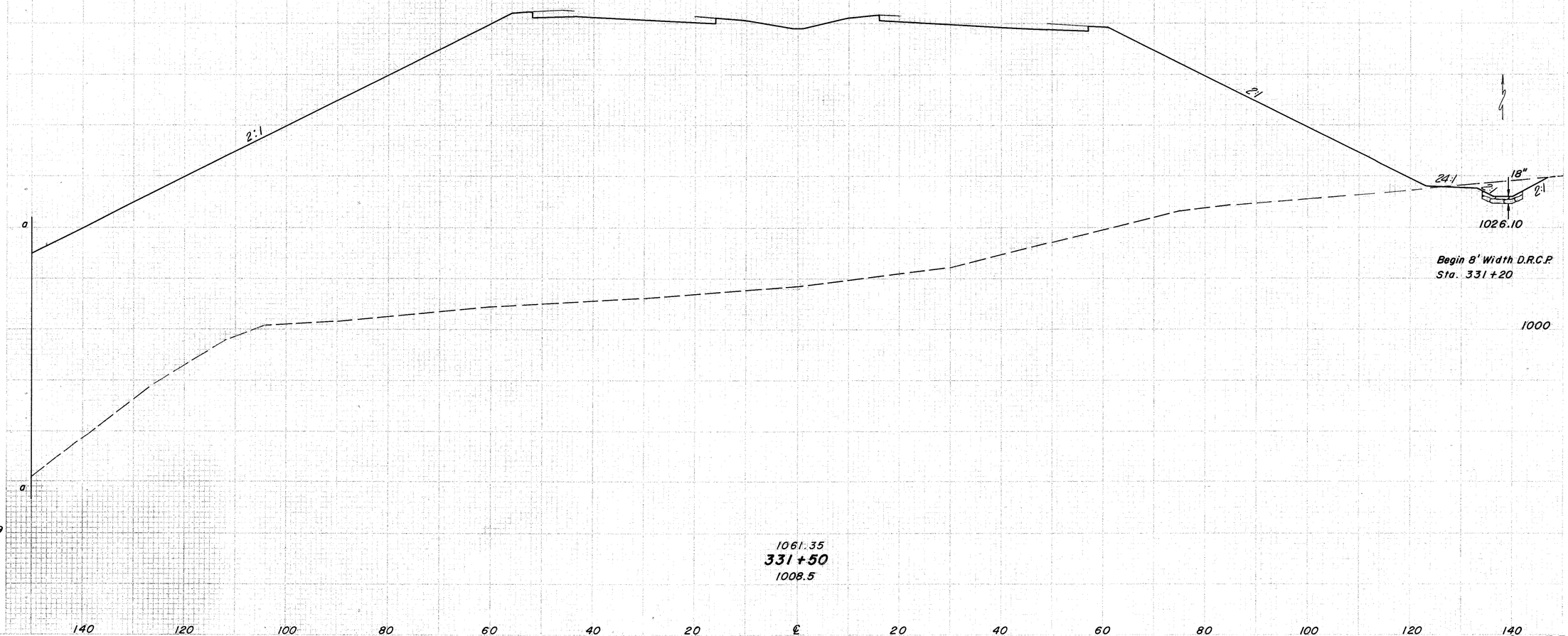
187
516

JEF - 22 - 3.86



338

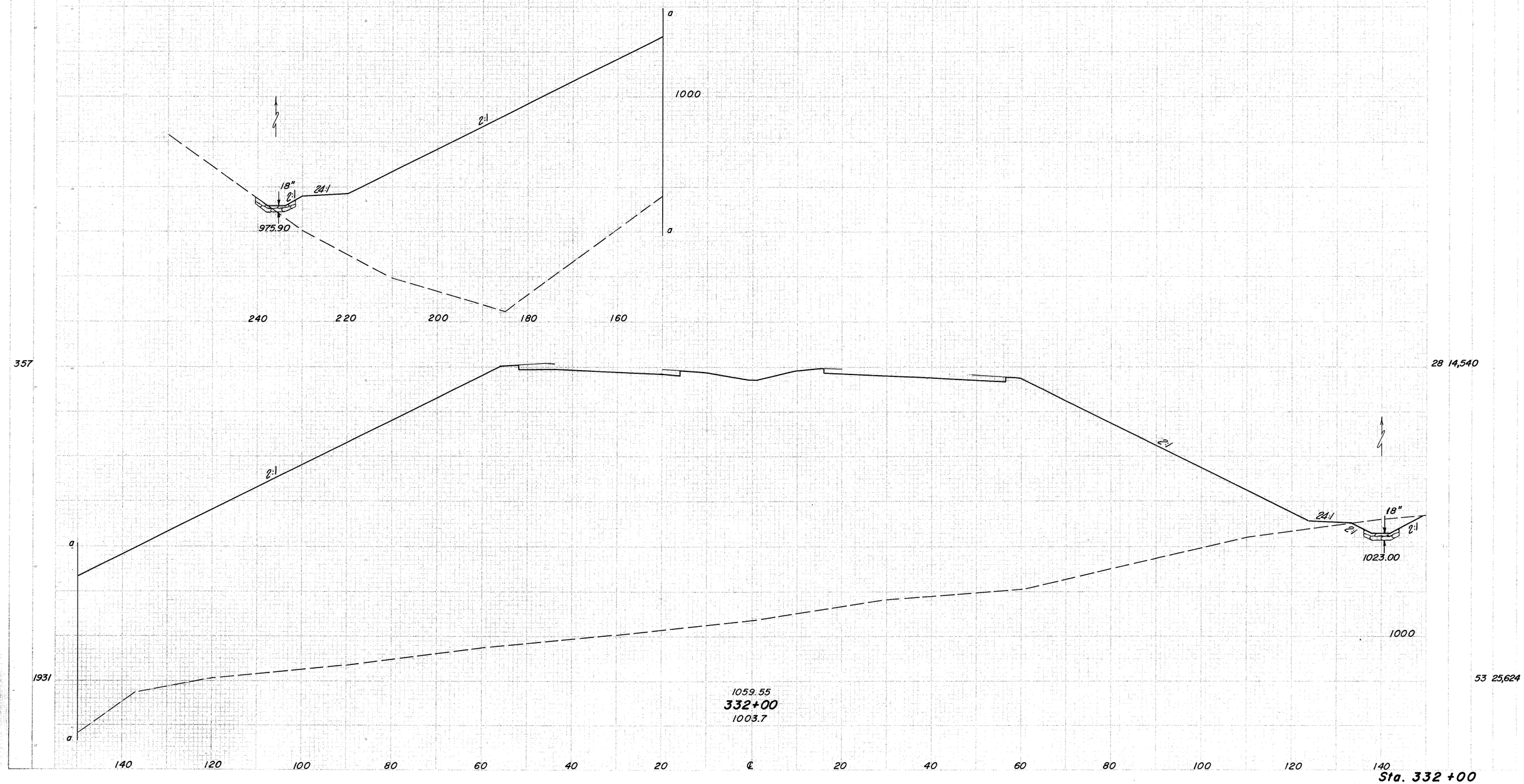
29 13,135



1869

105 24,046

JEF-22-3.86

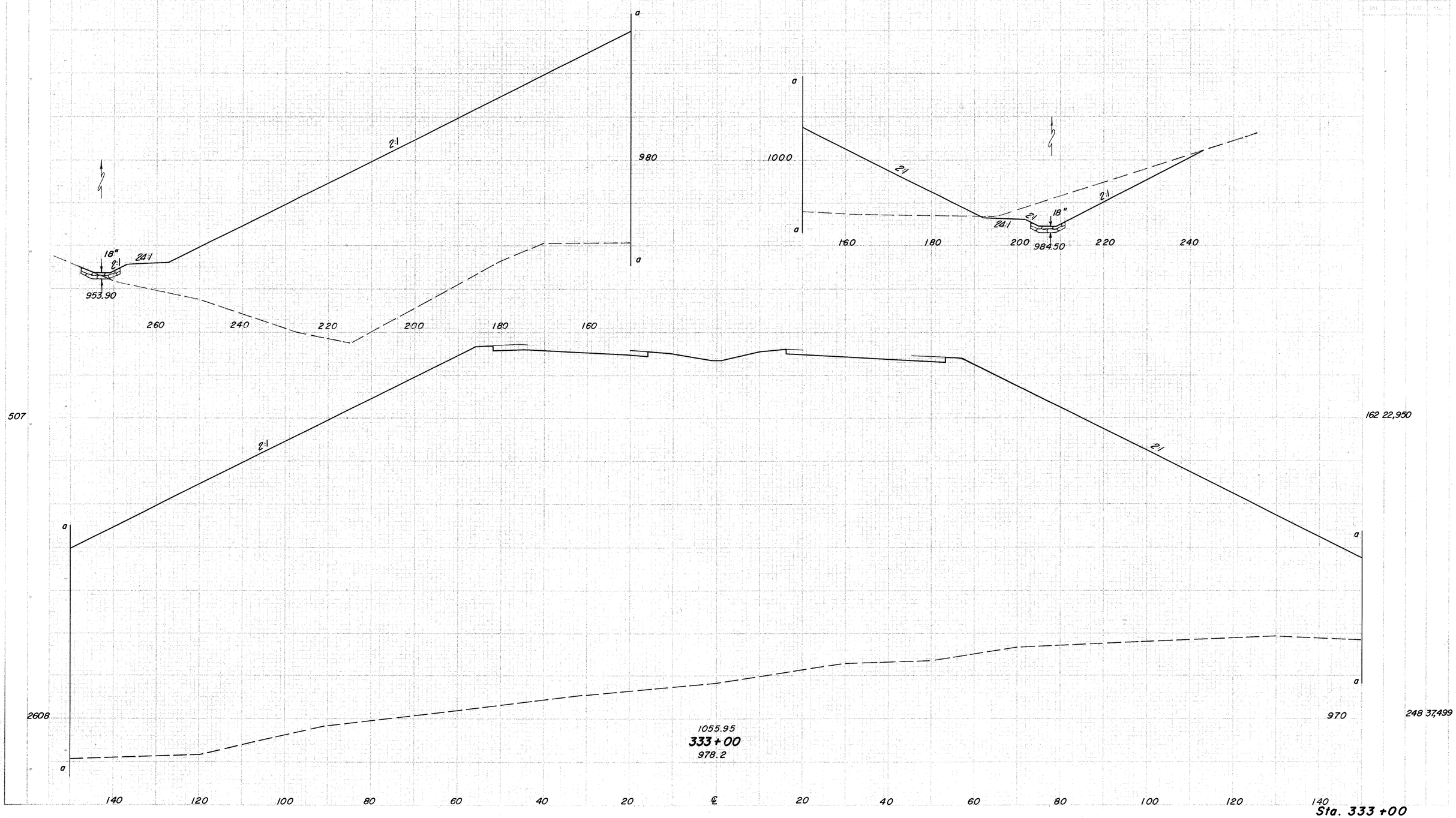


Sta. 332+00

JEF - 22 - 3.86

Sta. 332 + 50

JEF - 22 - 3.86



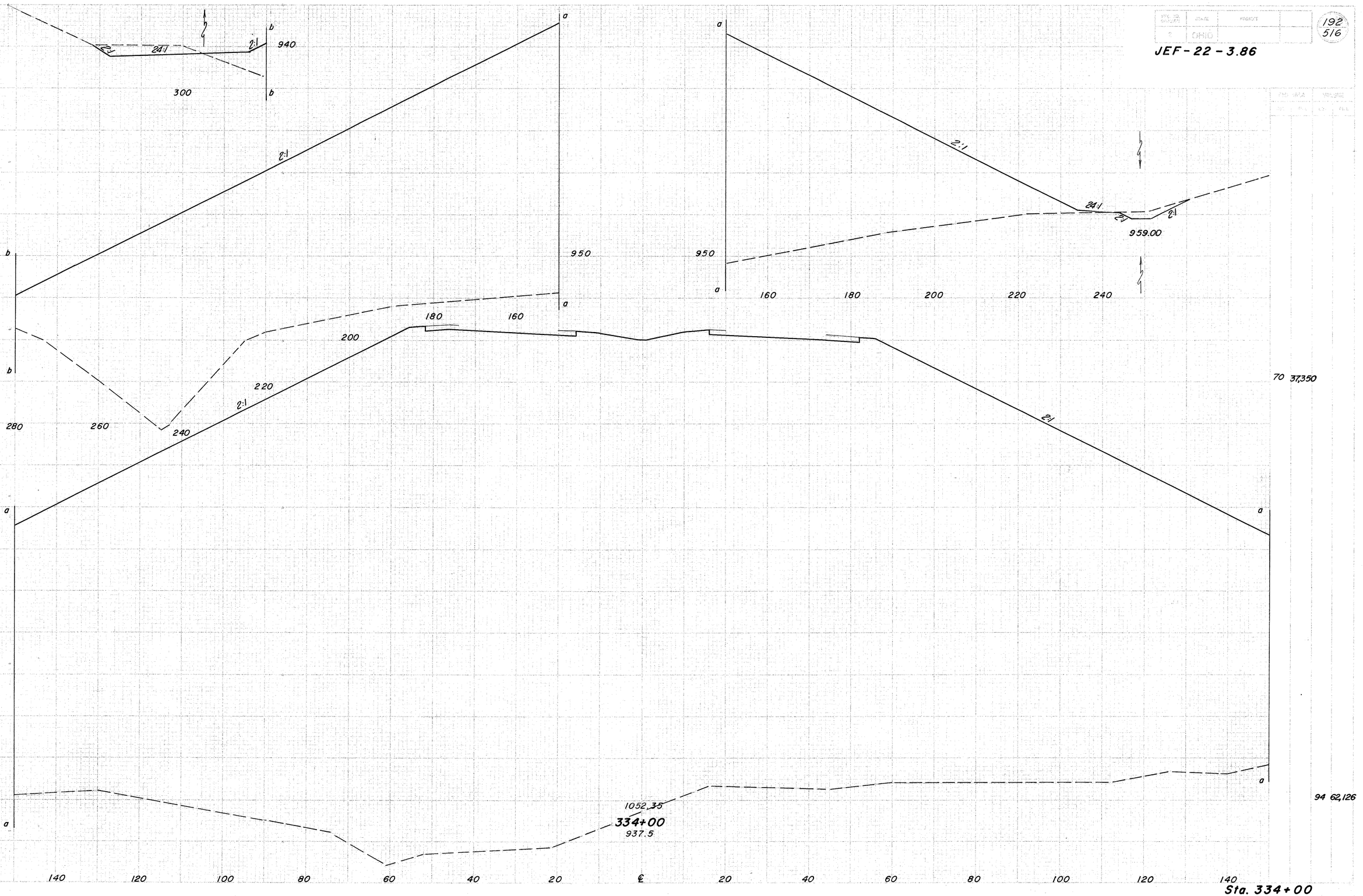
Sta. 333+00

JEF - 22 - 3.86

Sta. 333 + 50

JEF-22-3.86

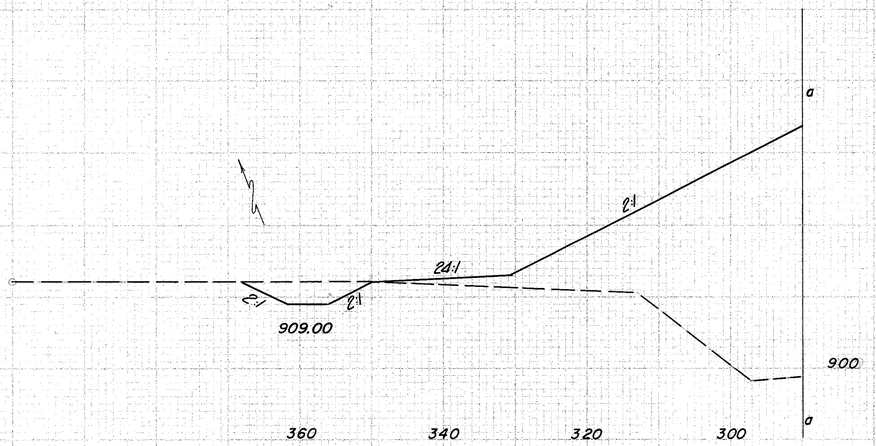
192
516

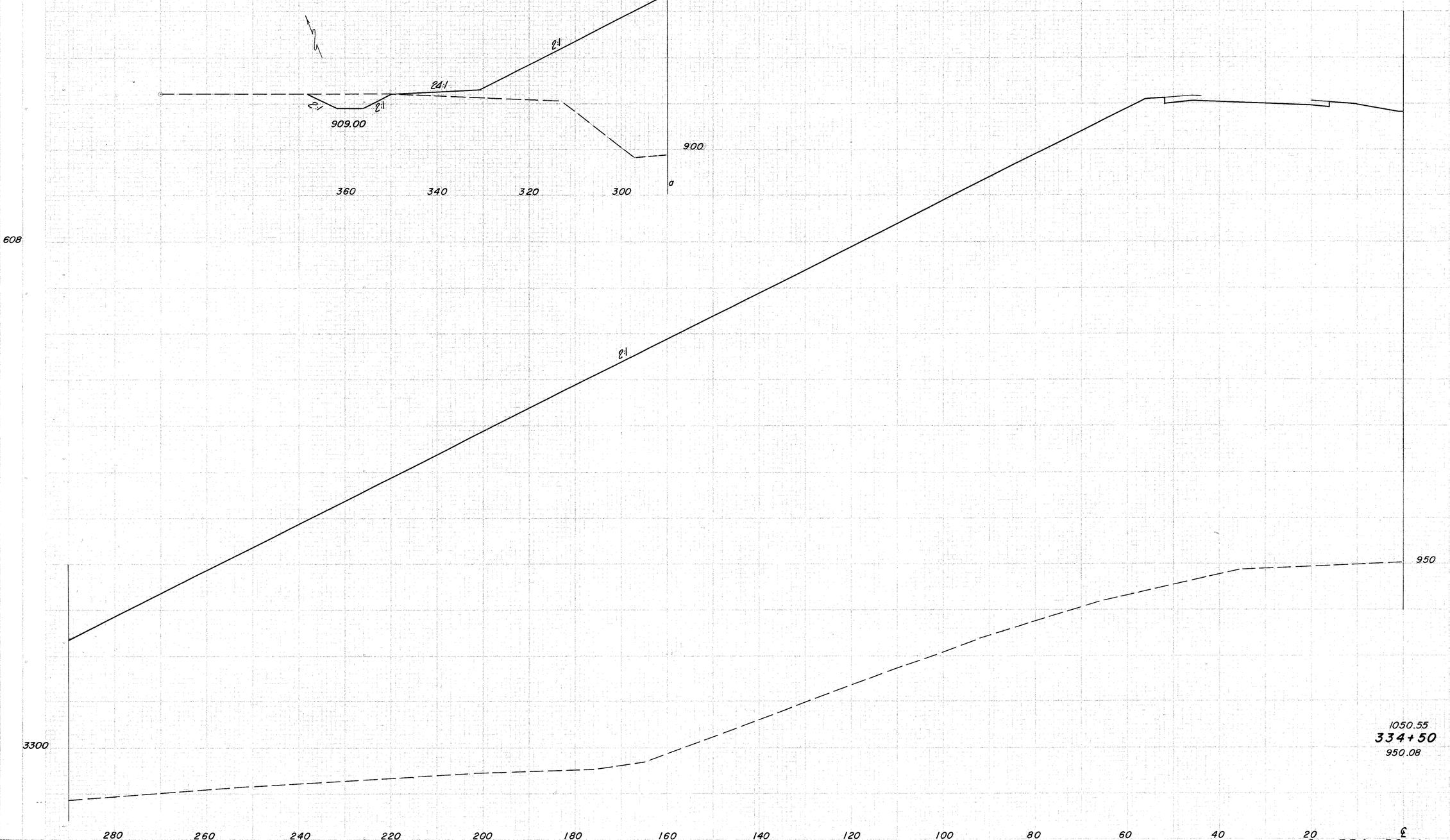


Sta. 334+00

JEF - 22 - 3.86

608

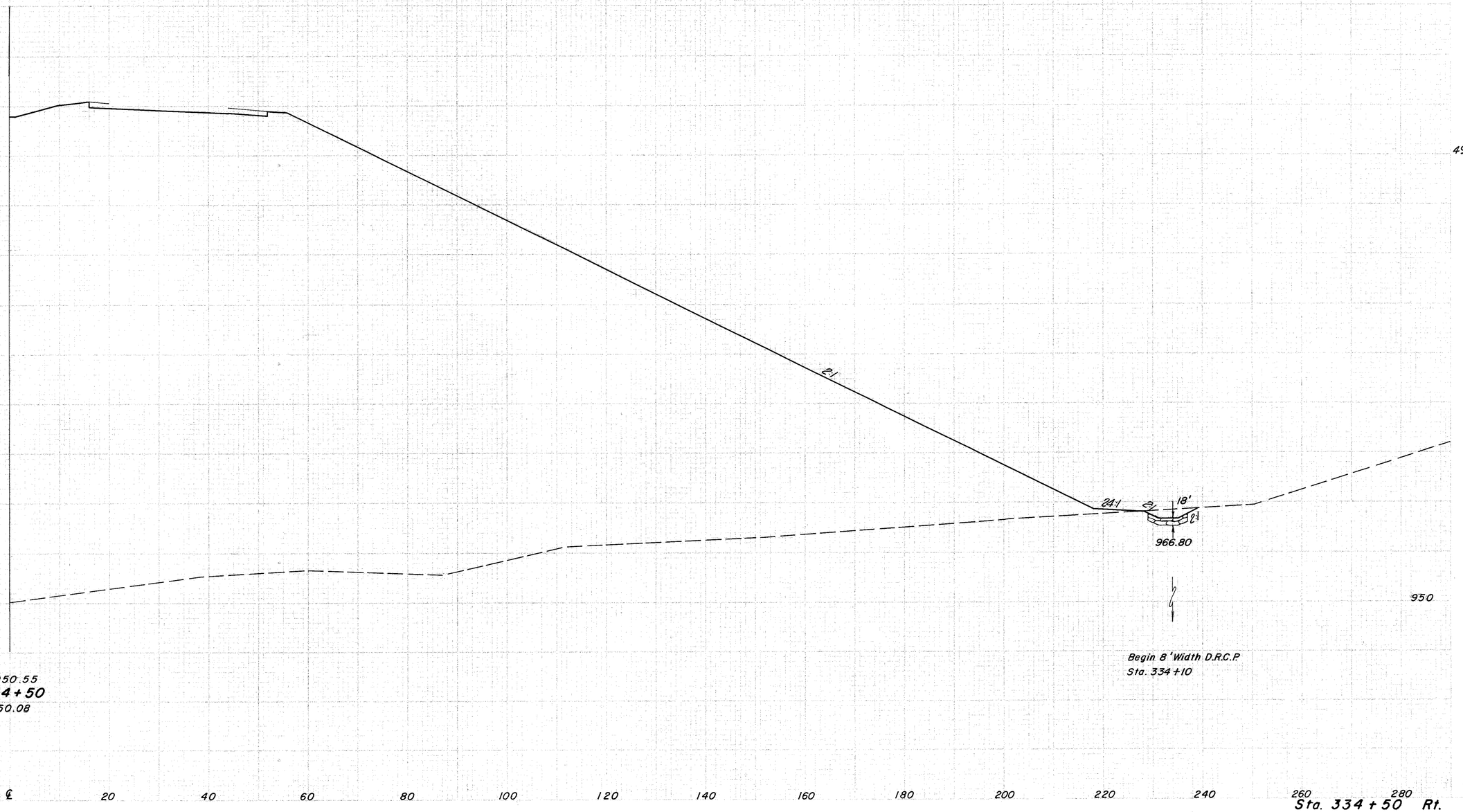




194
516

JEF - 22 - 3.86

49 38,390

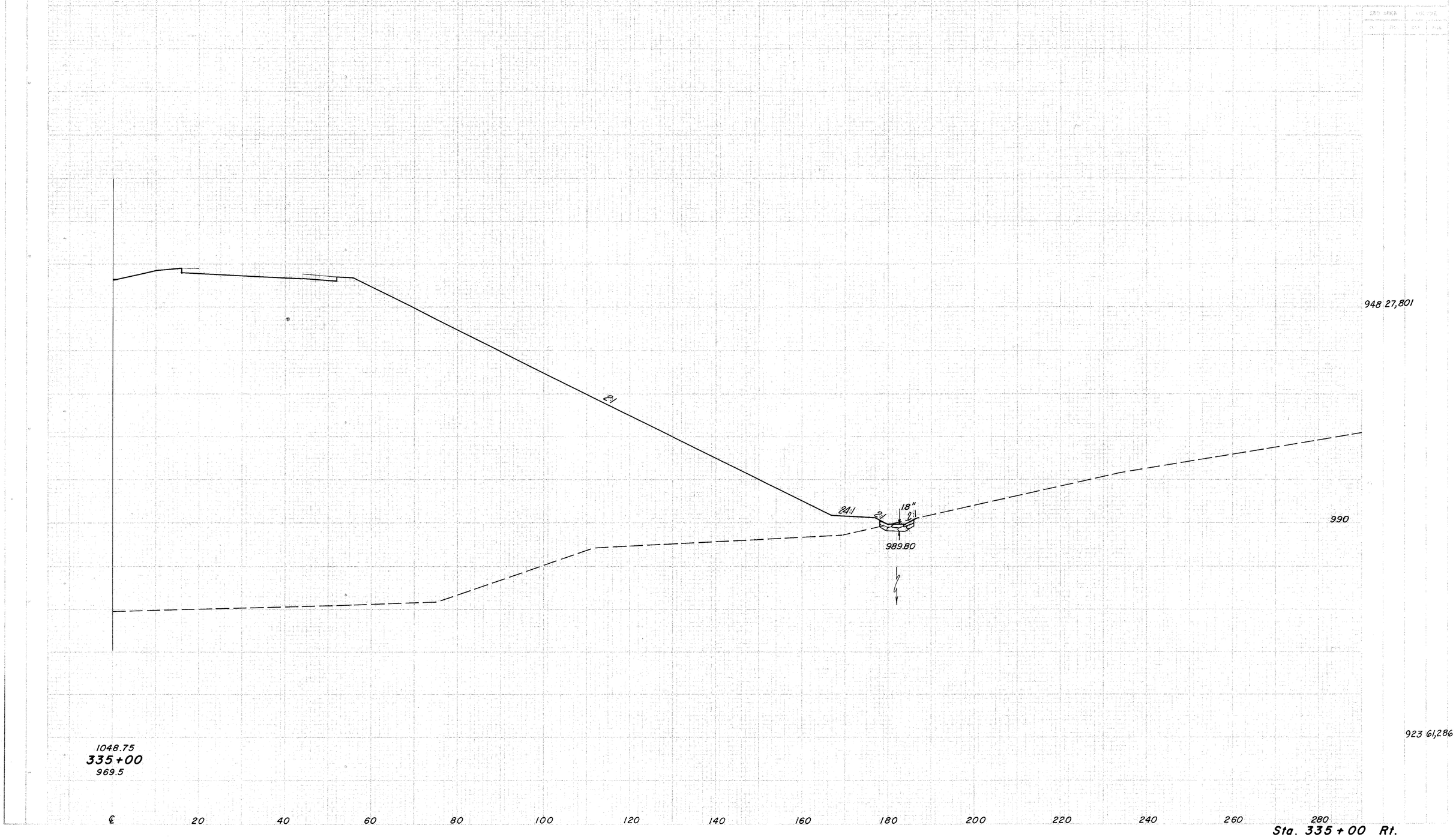


110 70,128

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

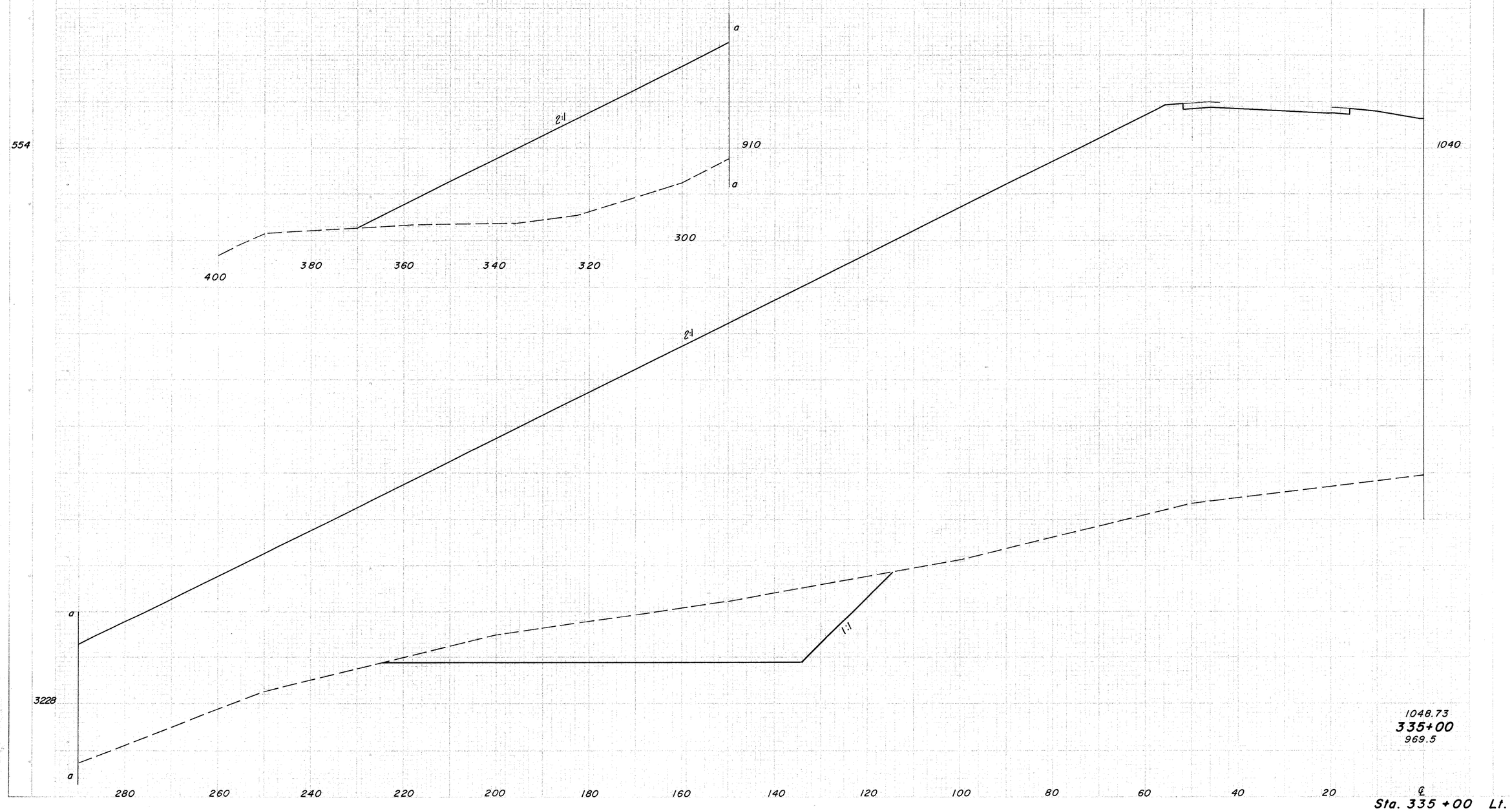
195
516

JEF - 22 - 3.86



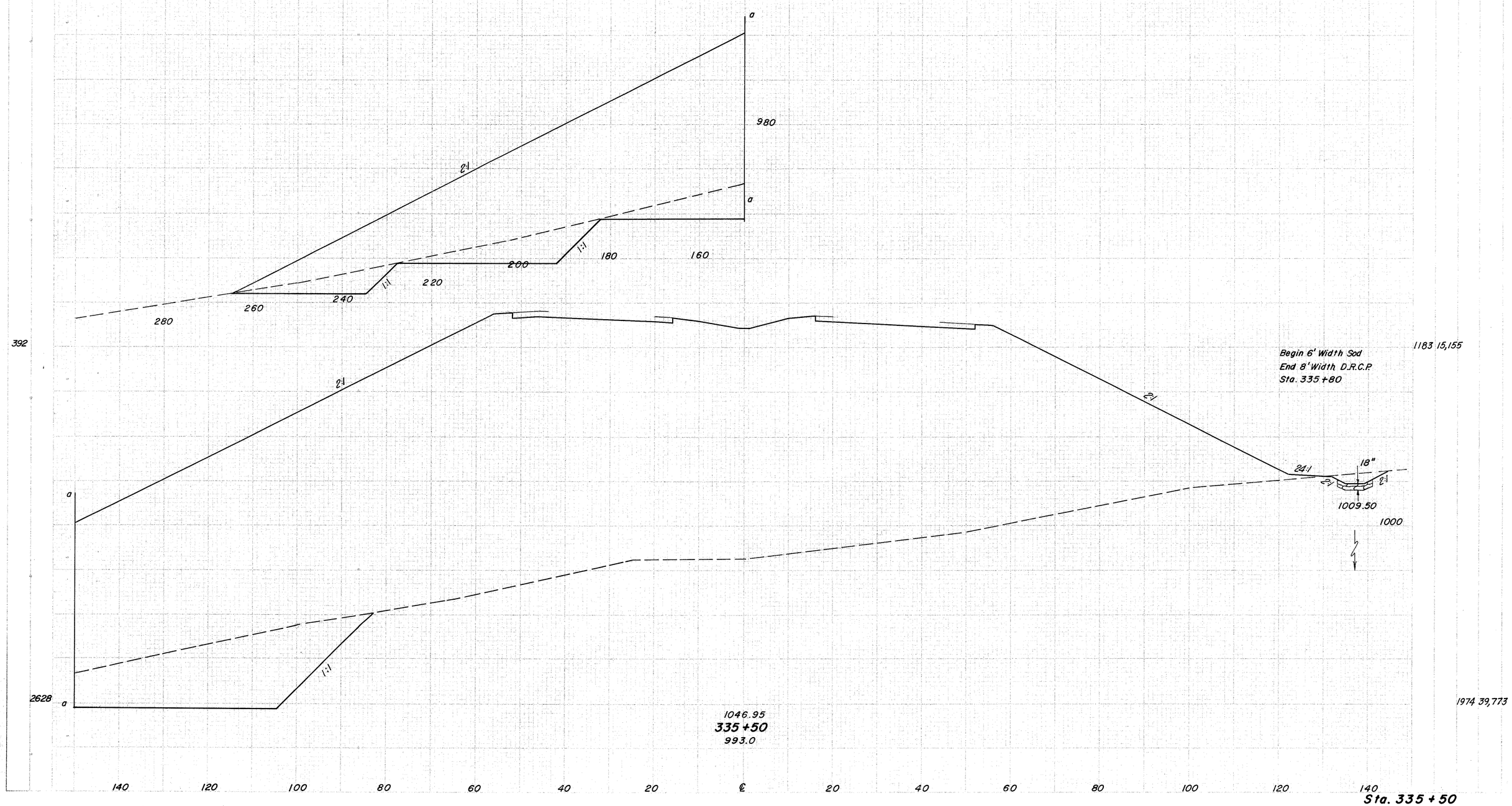
Sta. 335 + 00 Rt.

JEF-22-3.86



Sta. 335 +00 Lt.

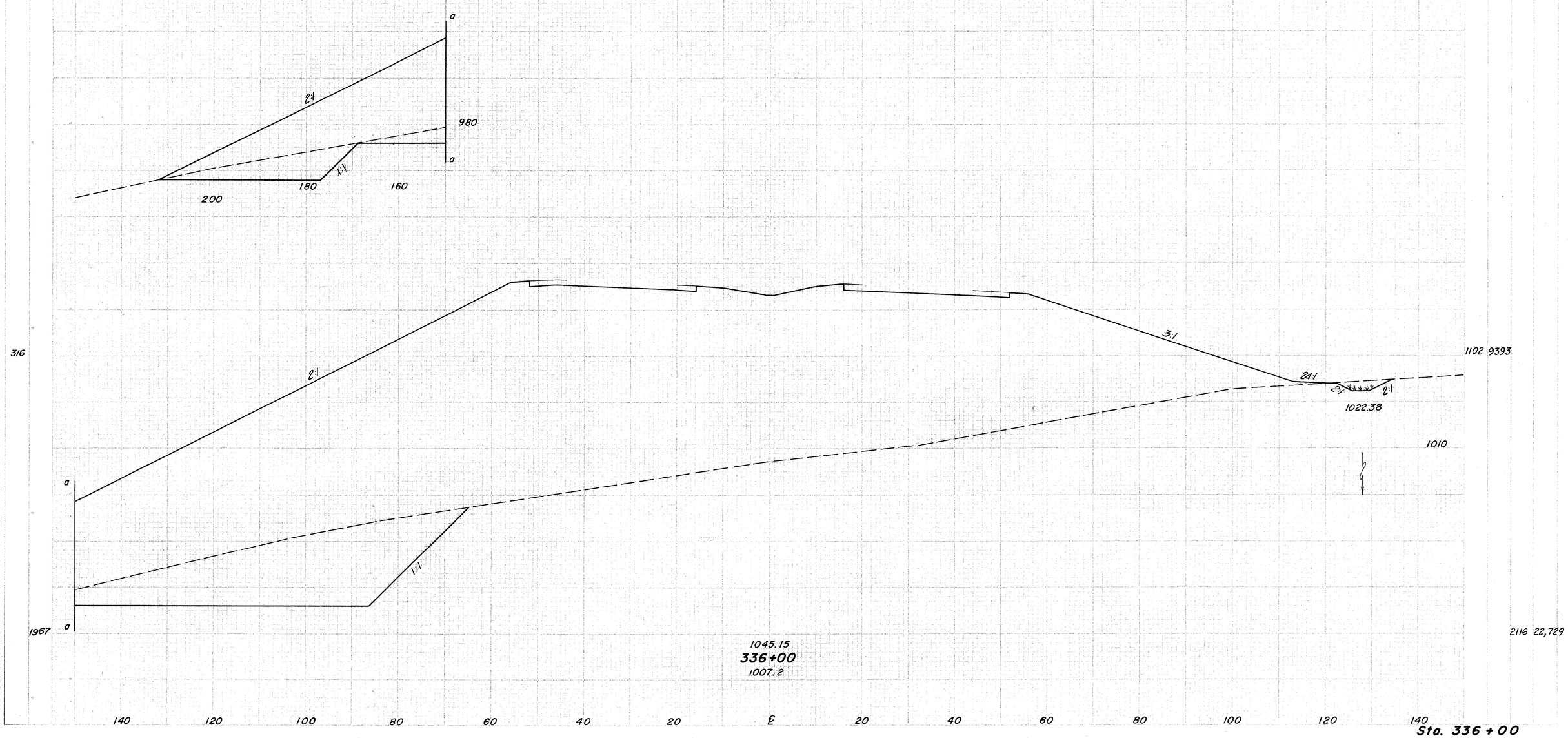
JEF-22-3.86


a
980
2:1
a
1:1
180
160
200
220
1:1
240
260
280
392
1183 15,155
Begin 6' Width Sod
End 8' Width D.R.C.P.
Sta. 335+80
2:1
2:1
24:1
18"
2:1
2:1
1009.50
1000
a
1:1
2628
a
1974 39,773
1046.95
335+50
993.0
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 335+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

198
516

JEF-22-3.86



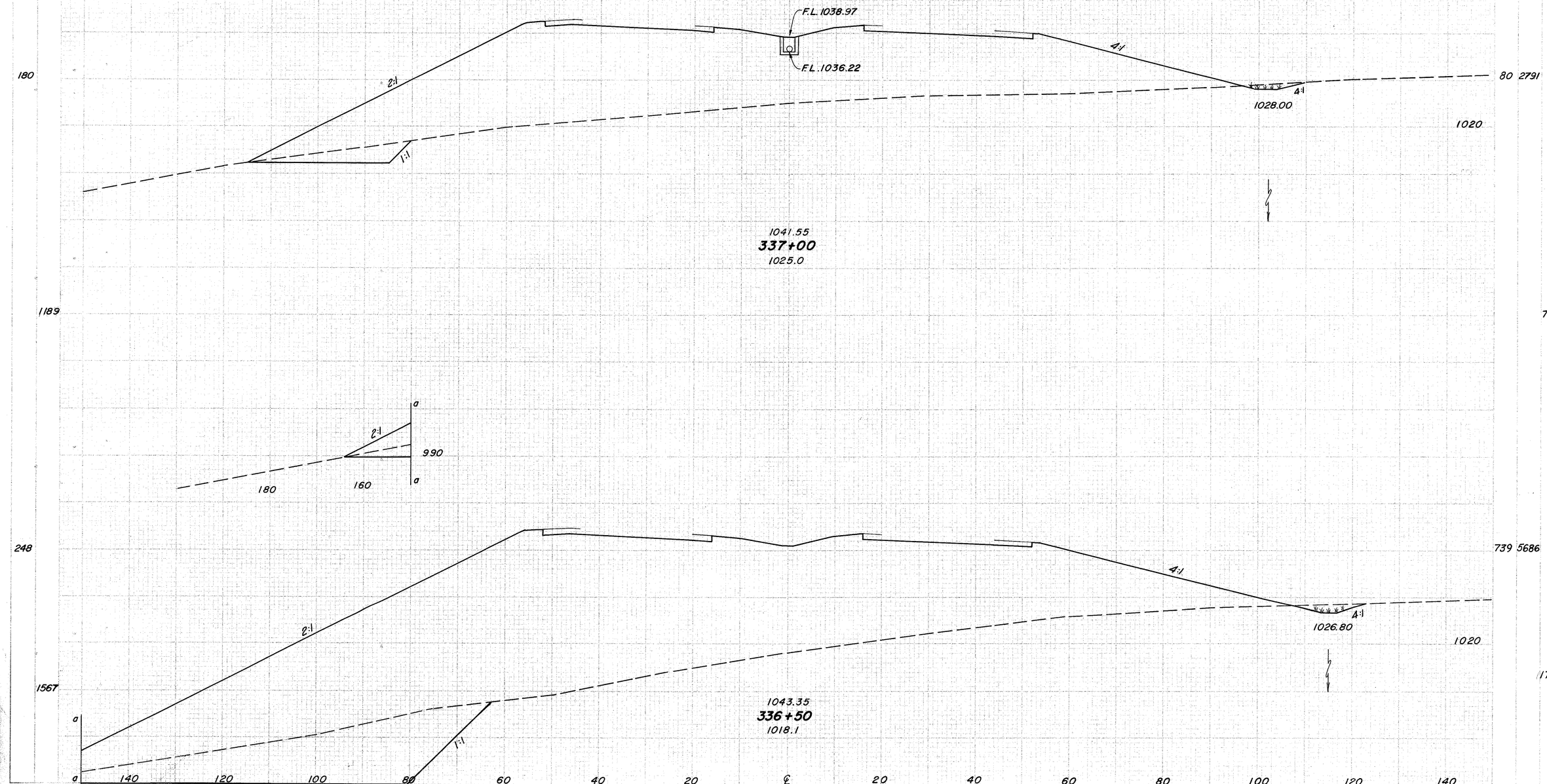
Sta. 336+00

SHEET NO.	STATE	PROJECT
7	OHIO	

199
516

JEF-22-3.86

QUANTITIES
12" Conduit Type C w/ Class B Bedding 200 L.F.
Std. No. 8 Catch Basin 1 Each



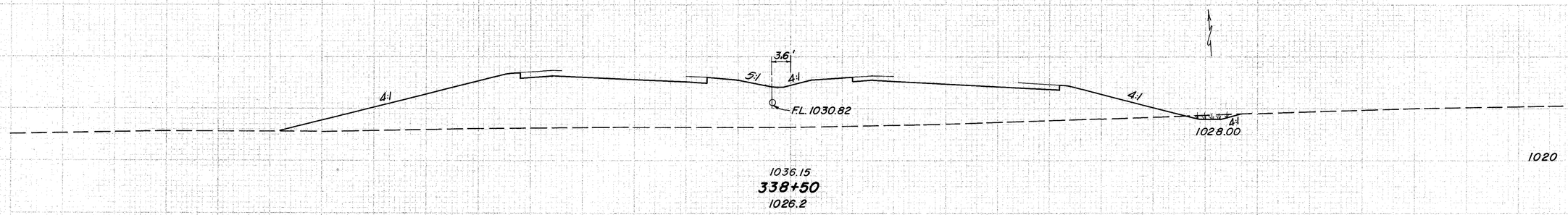
Sta. 336+50 to Sta. 337+00

FED. ROAD DIVISION	STATE	PROJECT	
5	OHIO		

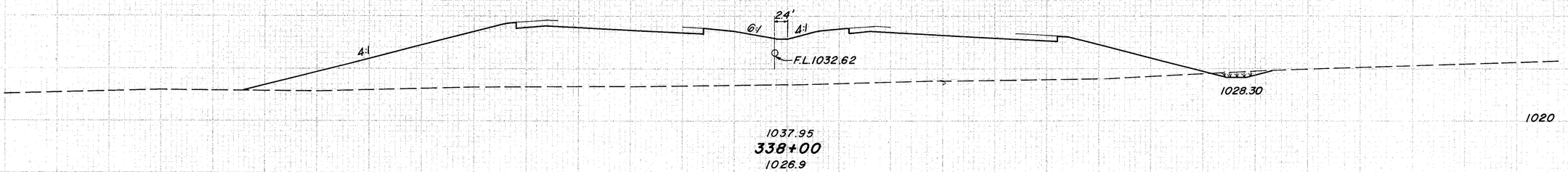
200
516

JEF-22-3.86

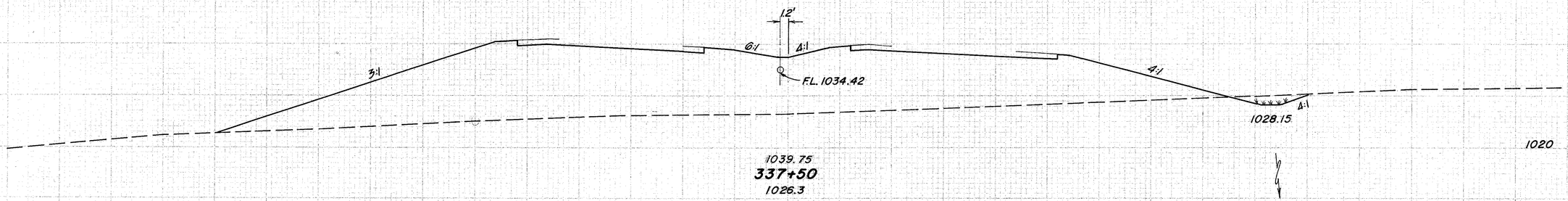
SEEDING		END AREA		VOLUMES	
FERTILIZER	SEED LBS.	CUT	FILL	CUT	FILL



136 781 — 6 1244 — 12 2532 — 1020



145 847 — 7 1491 — 23 3089 — 1020

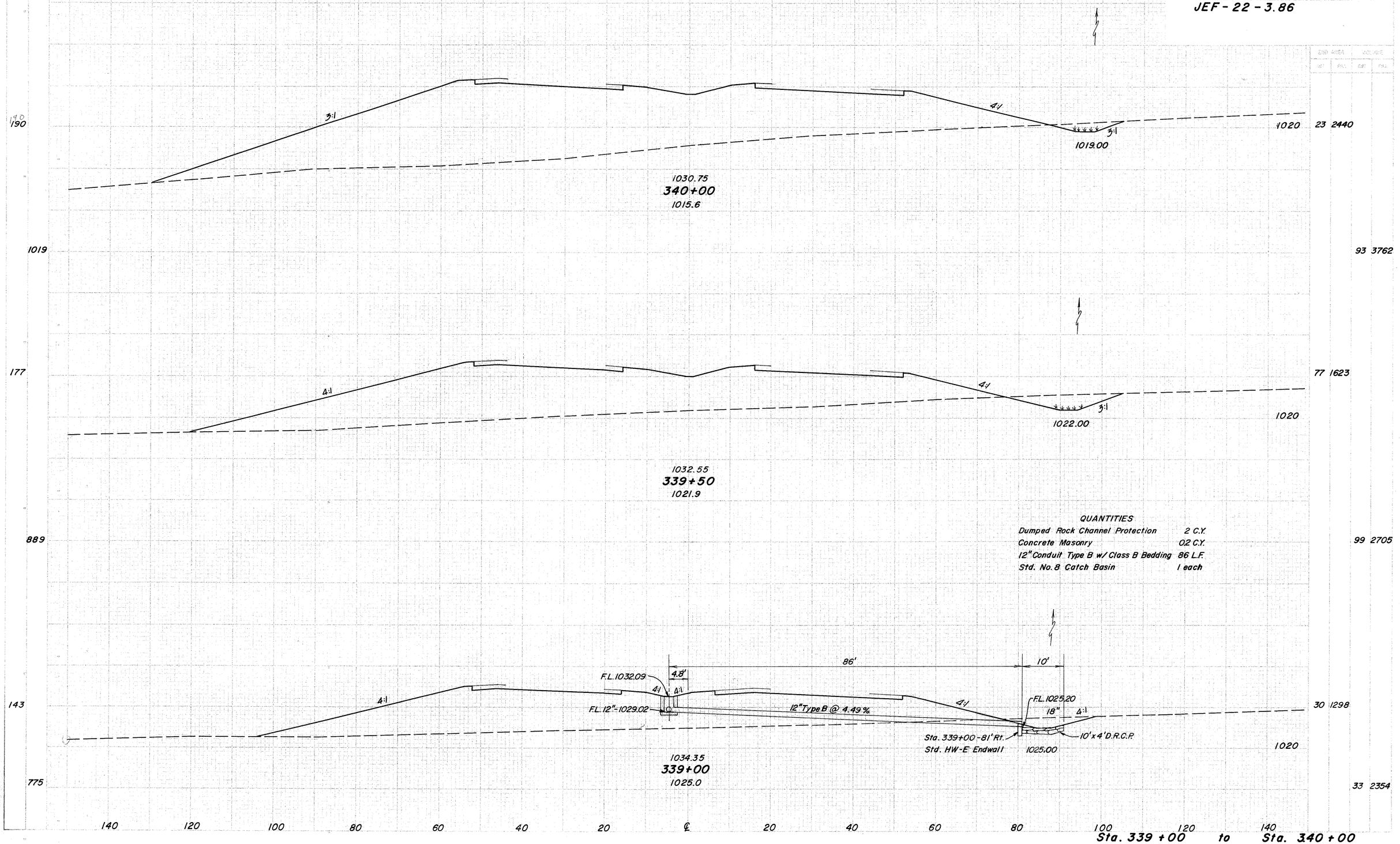


160 944 — 18 1845 — 91 4293 — 1020

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 337+50 to Sta. 338+50

JEF - 22 - 3.86



QUANTITIES

Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.2 C.Y.
12" Conduit Type B w/ Class B Bedding	86 L.F.
Std. No. 8 Catch Basin	1 each

Sta. 339 + 00 to Sta. 340 + 00

SECTIONS

CUT AREA	CUT VOL.	FILL AREA	FILL VOL.

FED. ROAD DIVISION	STATE	PROJECT
	OHIO	

202
516

JEF-22-3.86

a

2:1

960

180 160

a

2:1

300

2:1

2:1

24:1

18"

2:1

994.30

46 9492

a

980

1471

60 14,288

a

1025.35

341+50

979.5

230

19 5940

3:1

2:1

18"

3:1

1009.00

1000

1147

1027.15

341+00

995.3

28 8731

Begin 7' Width D.R.C.P.
End 6' Width Sod
Sta. 340+70

183

11 3490

4:1

2:1

1020

3:1

1016.00

1036

1028.95

340+50

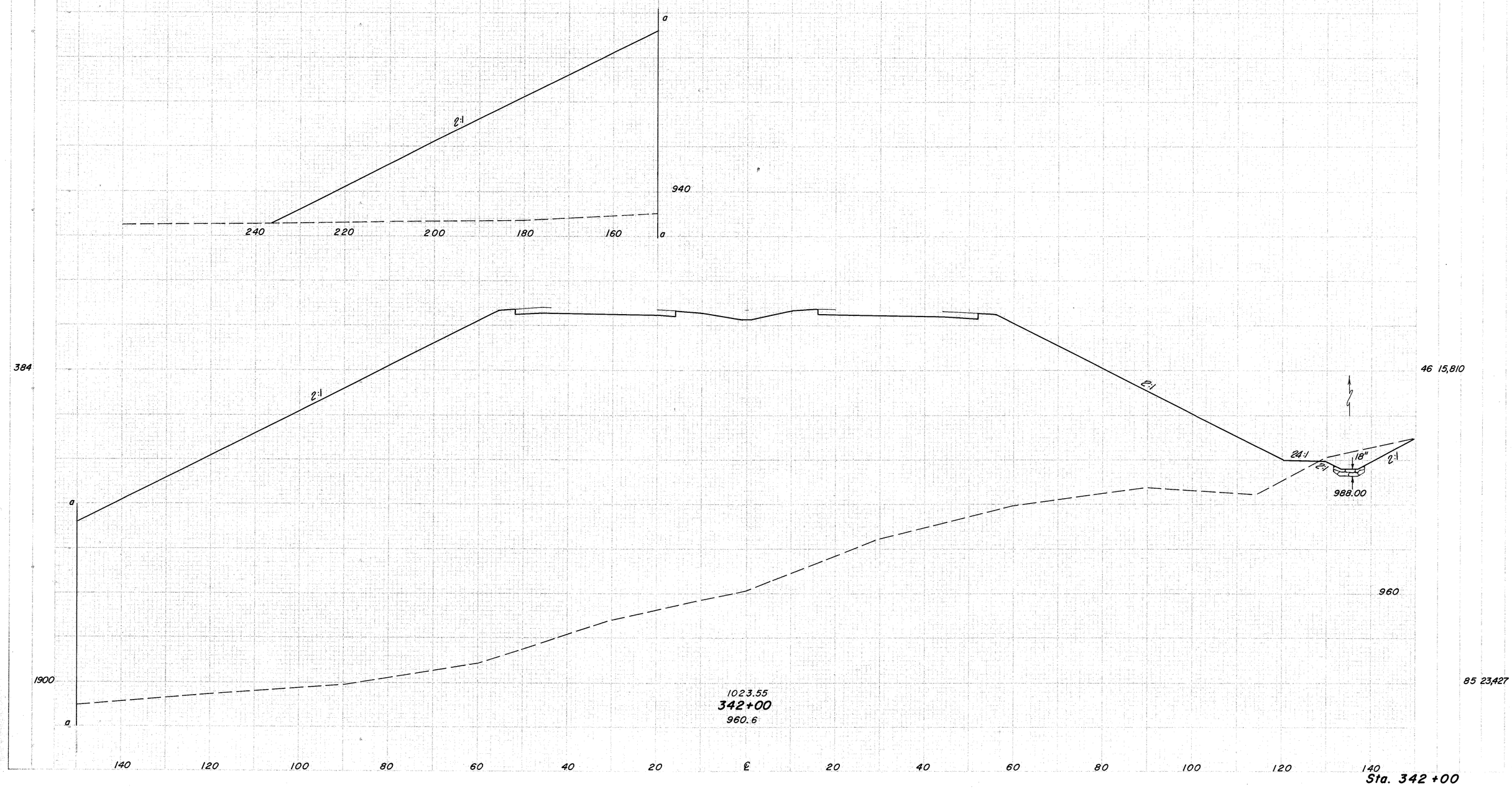
1005.9

31 5491

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

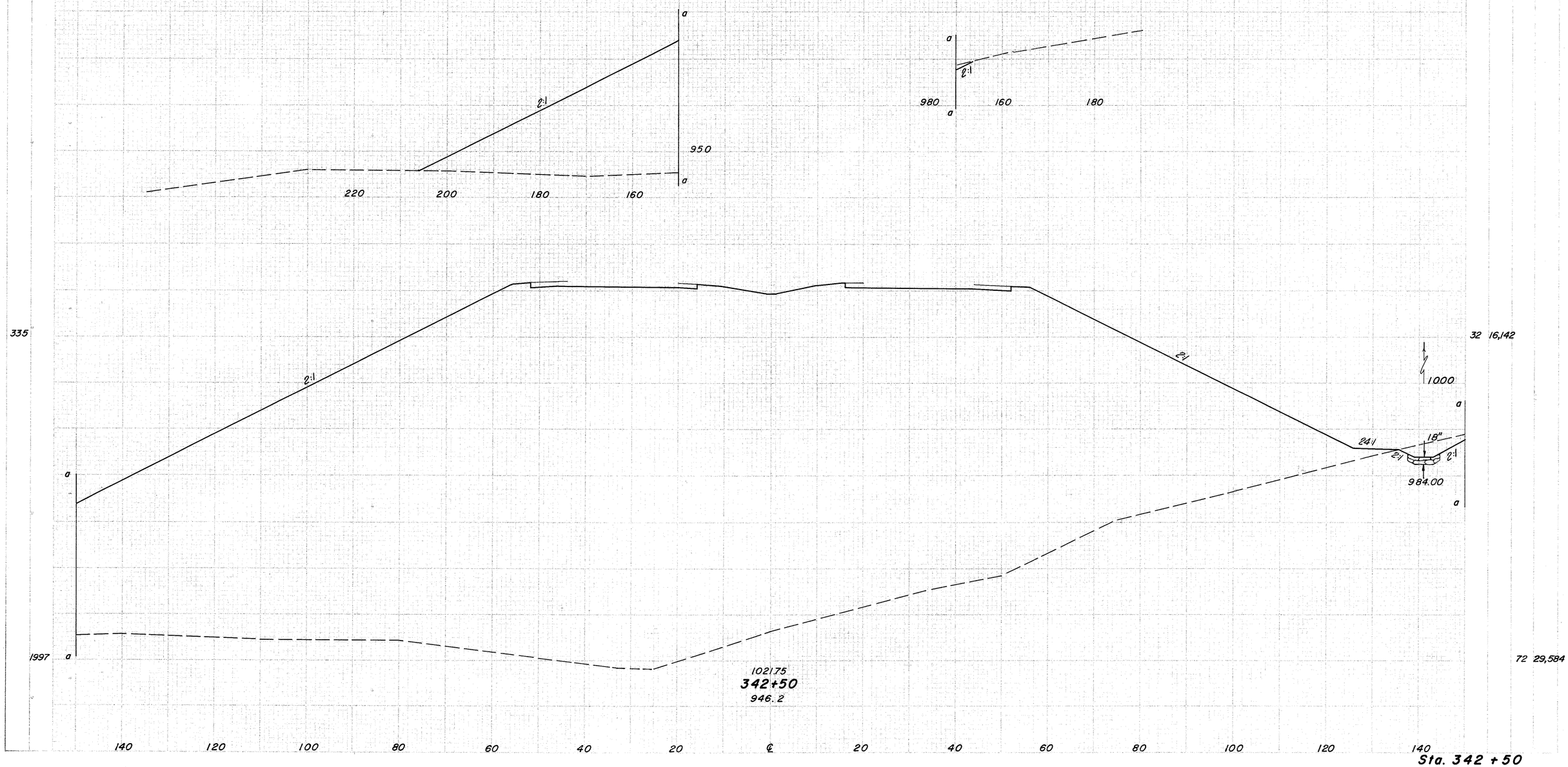
Sta. 340 +50 to Sta. 341 + 50

JEF-22-3.86



Sta. 342+00

JEF - 22 - 3.86



Sta. 342 + 50

SHEETING

SHT. NO.	NO. SHTS.

SEC. NO. DIVISION	STATE	PROJECT
2	OHIO	

205
516

JEF-22-3.86

312

Begin 6' Width Sod
Sta. 343+43

1:1

2:1

15 9600

970

b

b

1772

1018.15
343+50
973.9

960

b

2:1

24:1

2:1

1:1

160 180 954.00 200

22 22,050

End 7' Width D.R.C.P.
Sta. 343+36

a

970

24:1

18"

2:1

2:1

969.50

a

160 180

a

960

180 160

a

326

2:1

2:1

9 14,215

a

a

a

1836

950

38 28,108

1019.35
343+00
951.6

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 343+00 to Sta. 343+50

Sta. 344 + 00 to Sta. 345 + 00

FED. RD. DIVISION	STATE	PROJECT
5	OHIO	

207
516

JEF-22-3.86

STATIONS	END AREA	VOLUME
	CUT FILL	CUT FILL

150

2:1 2:1 12:1 2:1 2:1 12:1 2:1

1007.35
346+50
1028.7

3886 1010

831 6552

149

2:1 2:1 12:1 2:1 2:1 12:1 2:1

1009.15
346+00
1027.0

3190 1010

822 4801

147

2:1 12:1 2:1 2:1 12:1 2:1

1010.95
345+50
1021.7

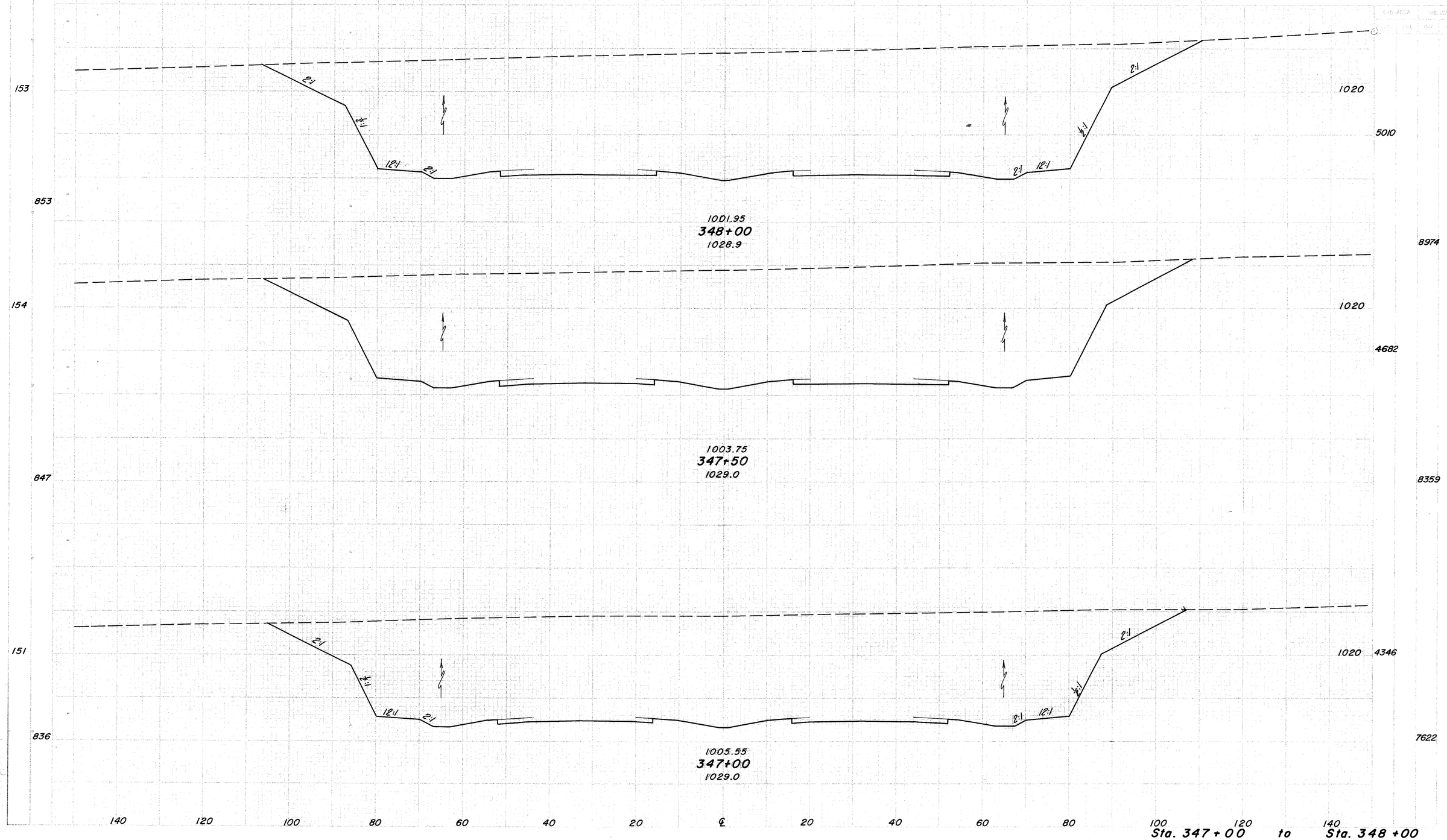
1995 1010

803 2113 409

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 345+50 to Sta. 346+50

JEF-22-3.86



Sta. 347+00 to Sta. 348+00

SECTIONS

STA. NO. BEGINNING	STATE	PROJECT
E	OHIO	

209
516

JEF-22-3.86

SECTION AREA		VOLUME	
CUT	FILL	CUT	FILL

166

886

1020

5777

2:1 2:1 1:1 12:1 2:1 2:1 12:1 1:1

996.55
349+50
1026.0

10,343

153

1020

5394

2:1 2:1 1:1 12:1 2:1 2:1 12:1 1:1

998.35
349+00
1027.4

861

9808

157

1020

5199

2:1 2:1 1:1 12:1 2:1 2:1 12:1 1:1

861

9453

1000.15
348+50
1028.6

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 348 + 50 to Sta. 349 + 50

SHEETING
END DIST'S | EA VOL

SEQ NO DIVISION	STATE	PROJECT	
4	OHIO		

210
516

JEF-22-3.86

BKH AREA CUT | BKH AREA FILL | VOLUME CUT | VOLUME FILL

181

2:1 2:1 1:1 12:1 2:1

991.15
351+00
1027.8

2:1 12:1 1:1 2:1 2:1

c c c c

1020 7038

1030

120 140 160

981 12,651

172

2:1 2:1 1:1 12:1 2:1

992.95
350+50
1027.1

2:1 12:1 1:1 2:1 2:1

1020 6626

944 11,914

168

2:1 2:1 1:1 12:1 2:1

994.75
350+00
1027.4

2:1 12:1 1:1 2:1 2:1

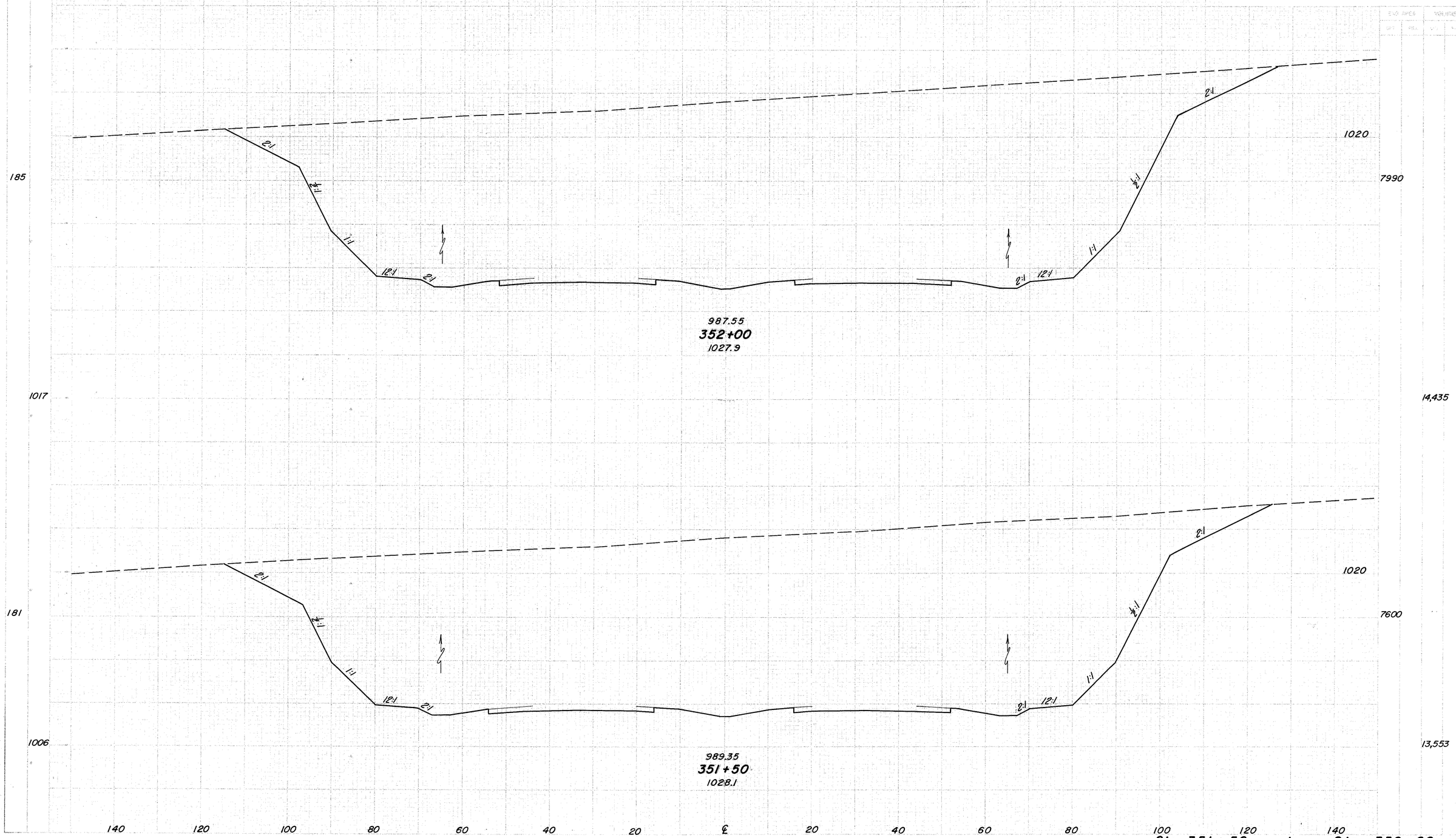
1020 6241

928 11,127

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

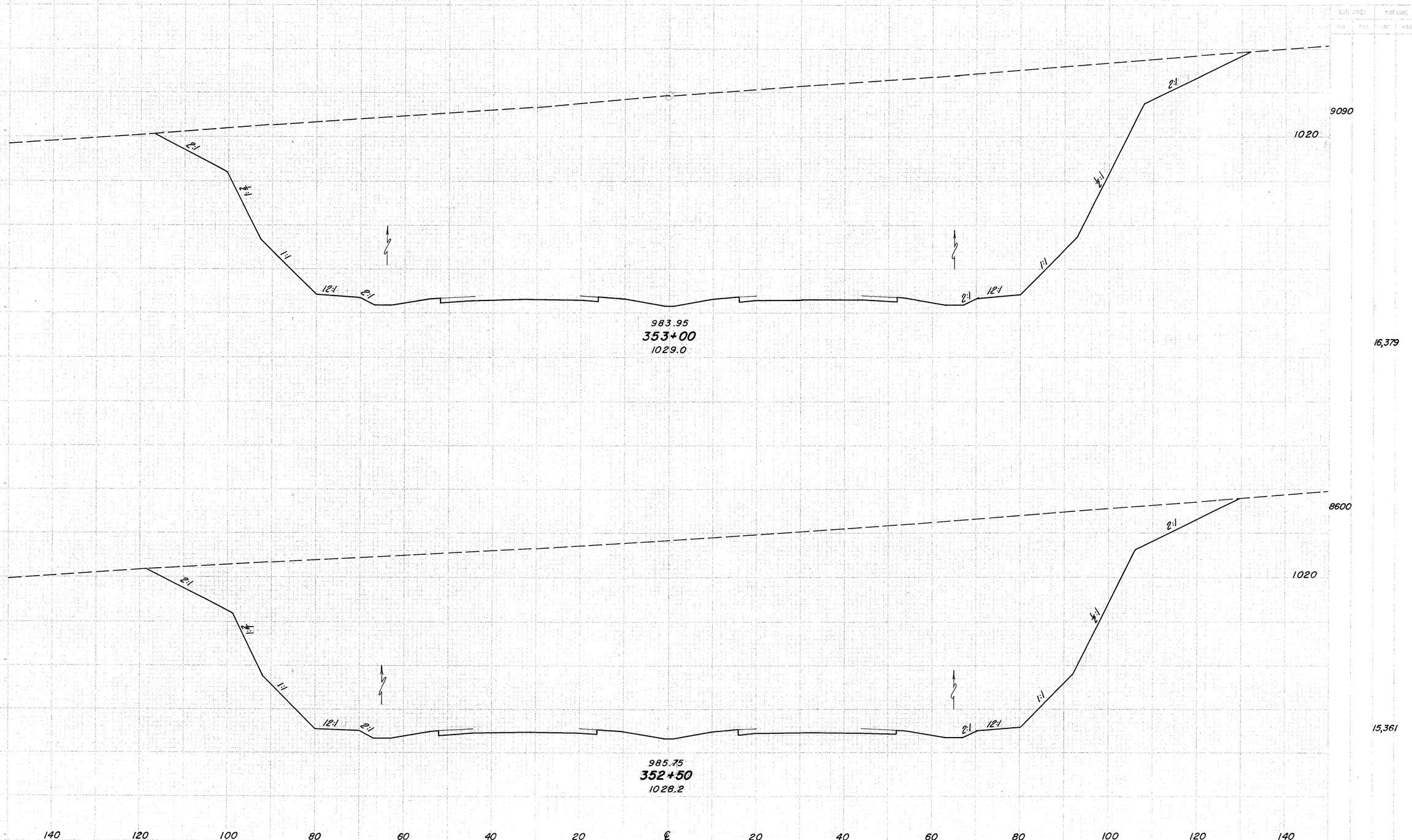
Sta. 350+00 to Sta. 351+00

JEF-22-3.86



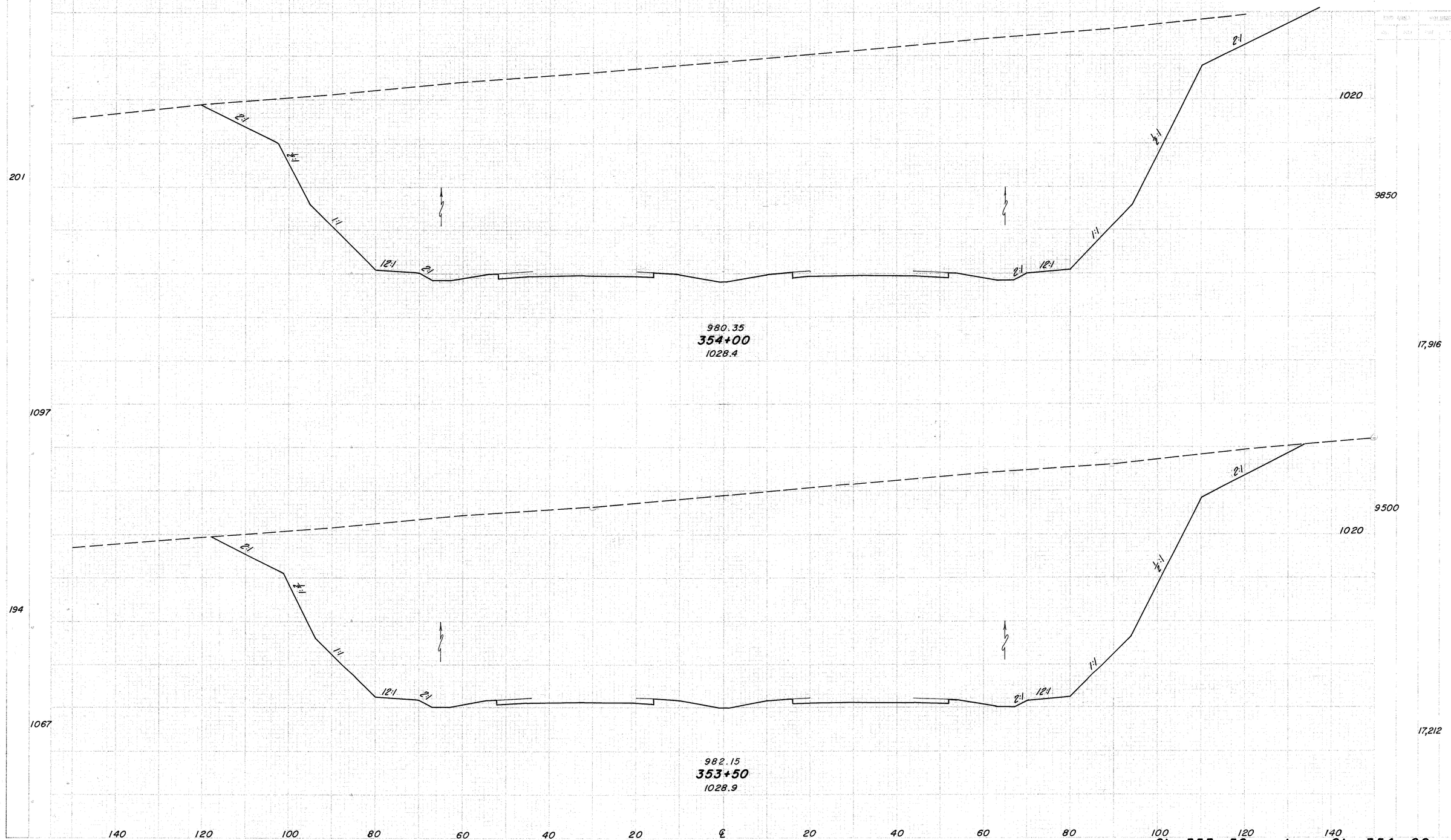
Sta. 351+50 to Sta. 352+00

JEF-22-3.86



Sta. 352 + 50 to Sta. 353 + 00

JEF-22-3.86

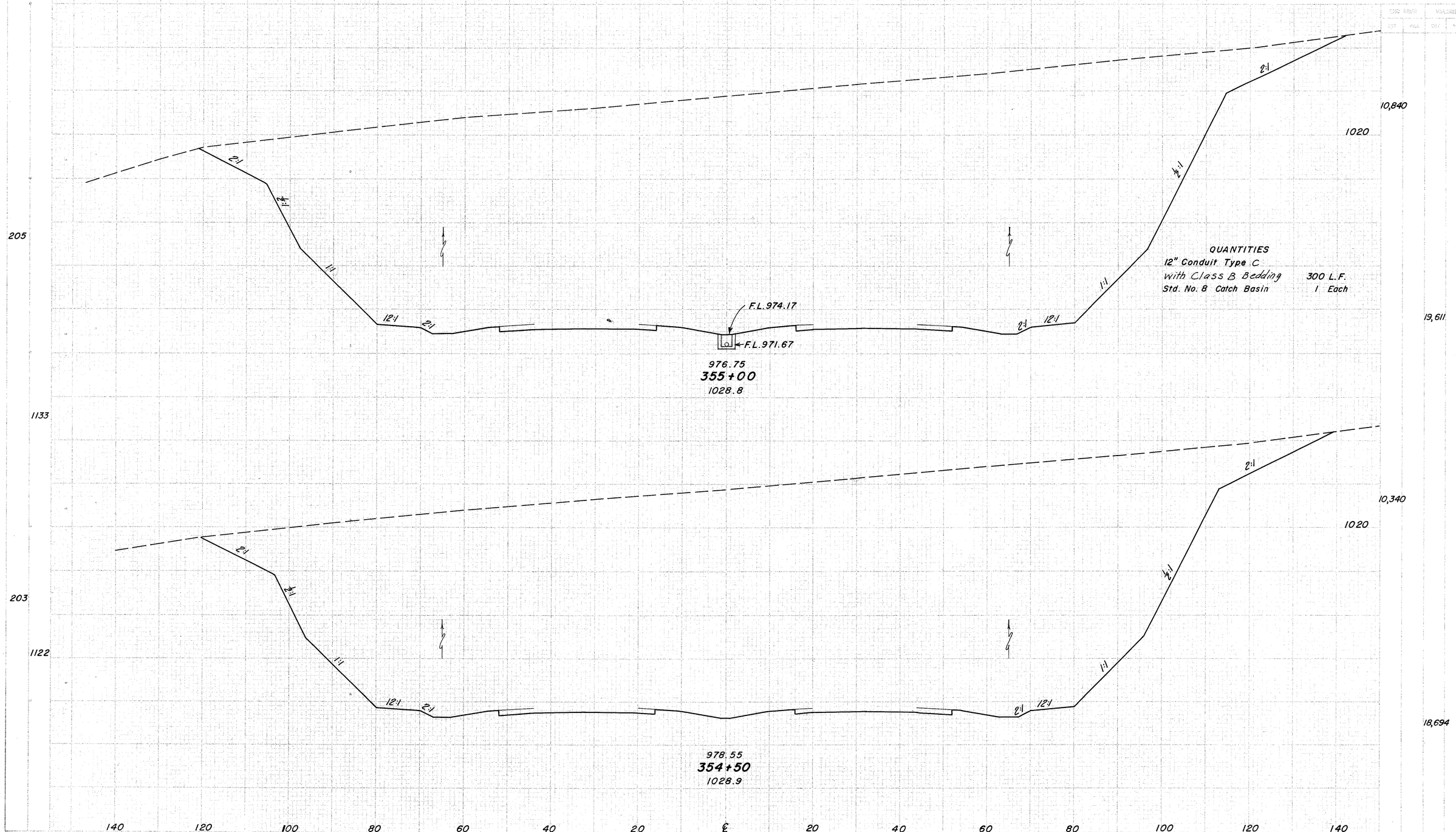


Sta. 353+50 to Sta. 354+00

DIST.	STATE	PROJECT	
2	OHIO		

214
516

JEF-22-3.86



QUANTITIES

12" Conduit Type C	
With Class B Bedding	300 L.F.
Std. No. 8 Catch Basin	1 Each

Sta. 354+50 to Sta. 355+00

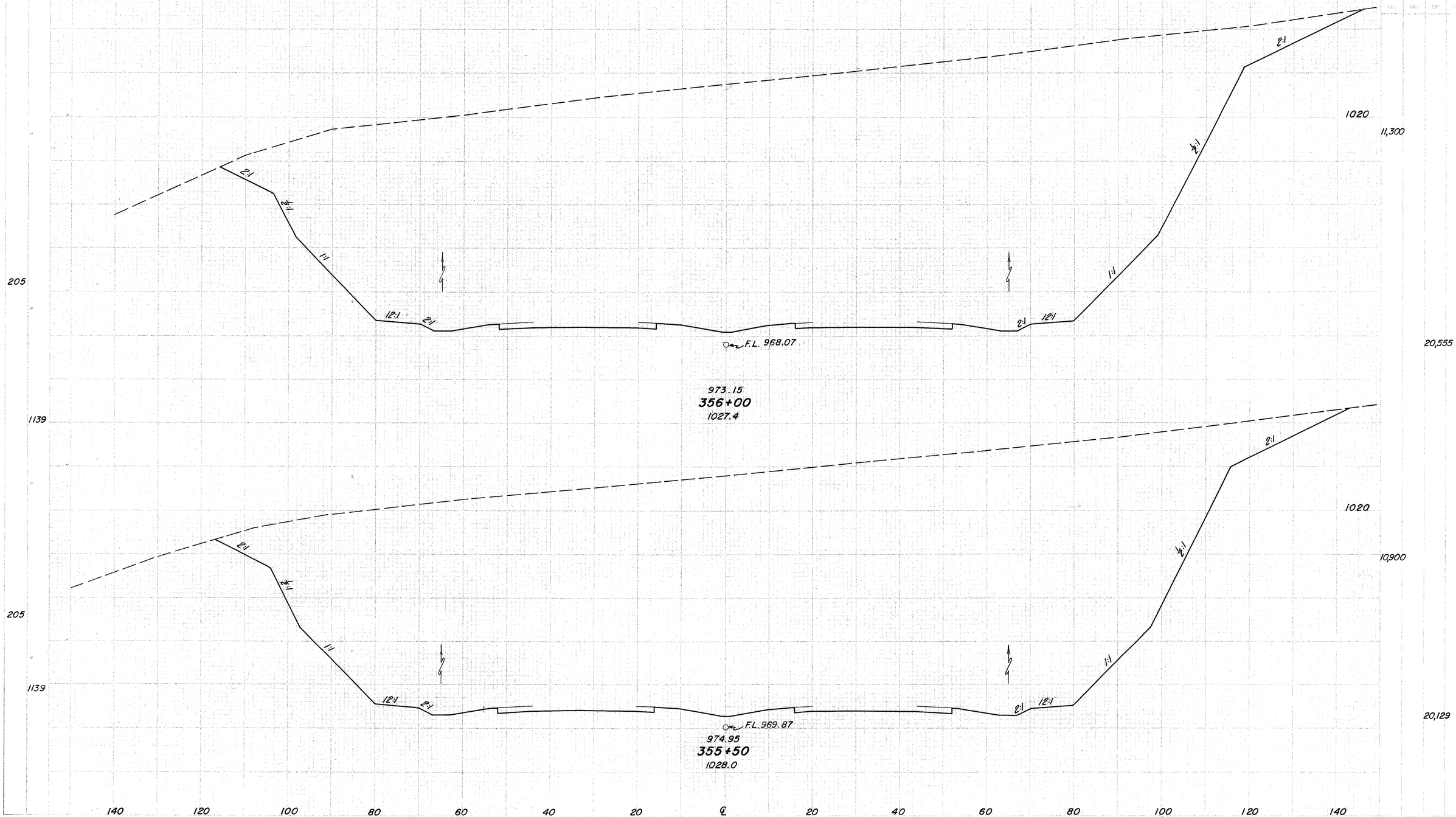
FED. ROAD DIVISION	STATE	PROJECT	
2	OHIO		

215
516

JEF-22-3.86

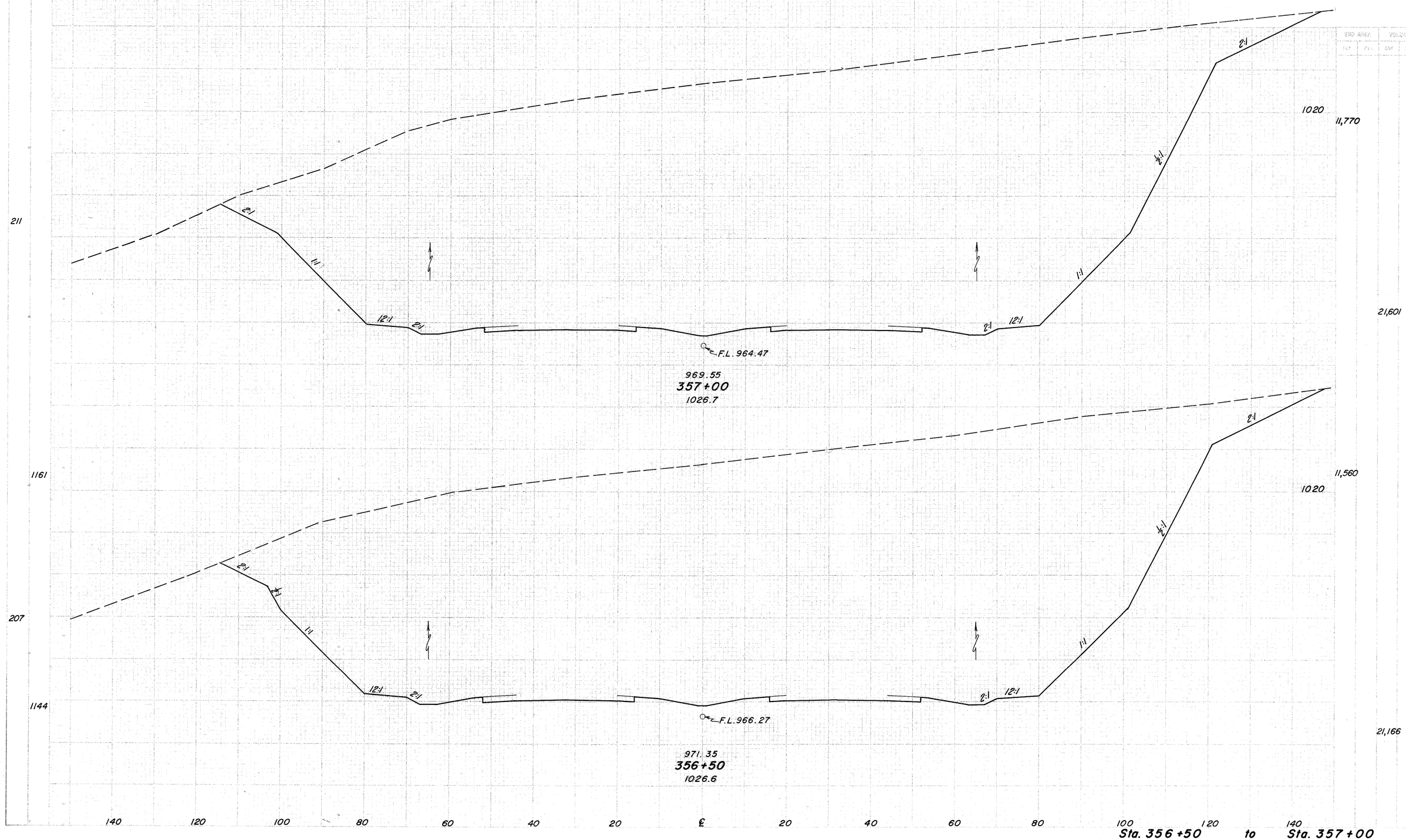
SLOPING

END AREA		VOLUMES	
CUT	FILL	CUT	FILL



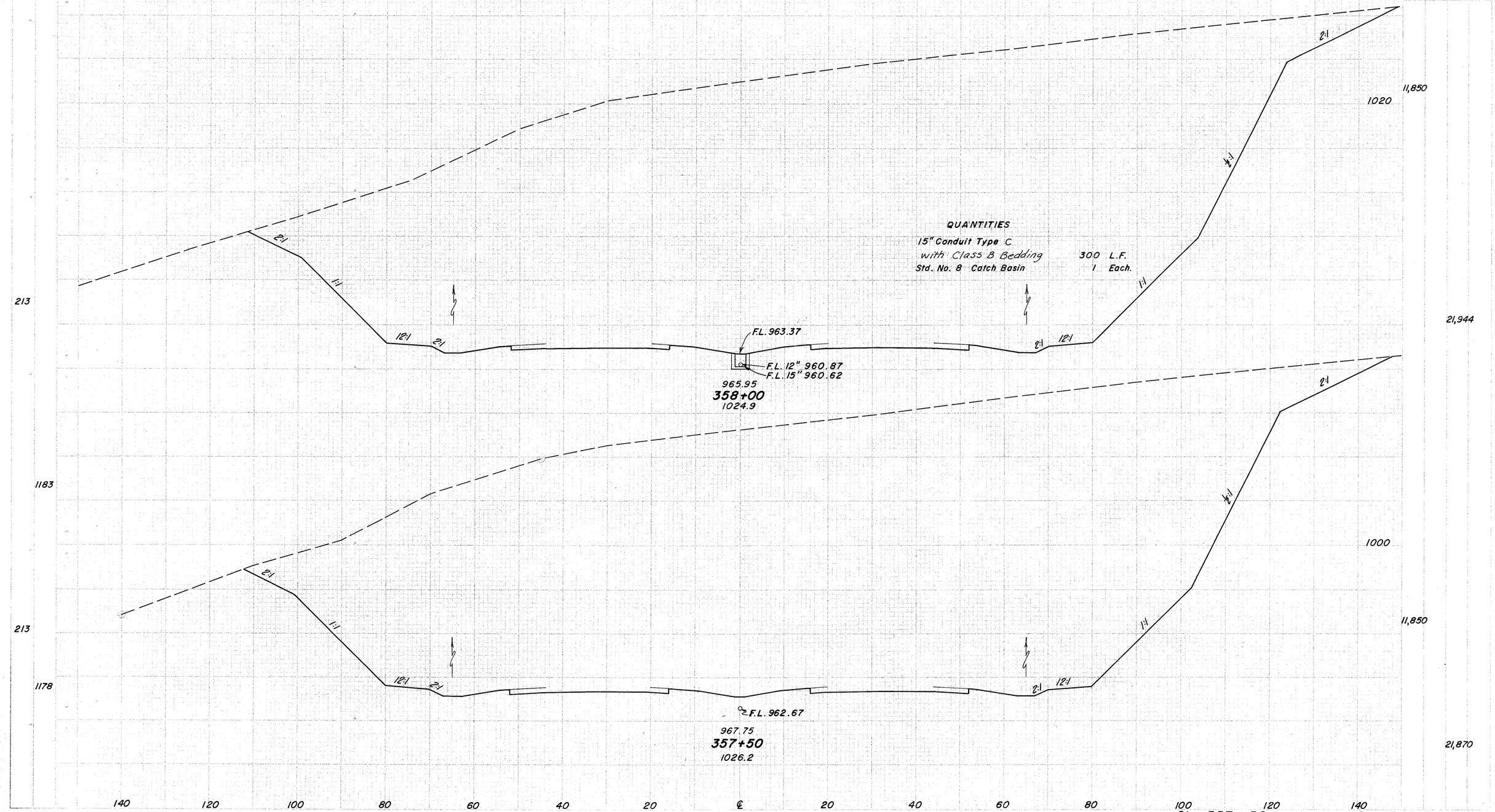
Sta. 355+50 to Sta. 356+00

JEF - 22 - 3.86



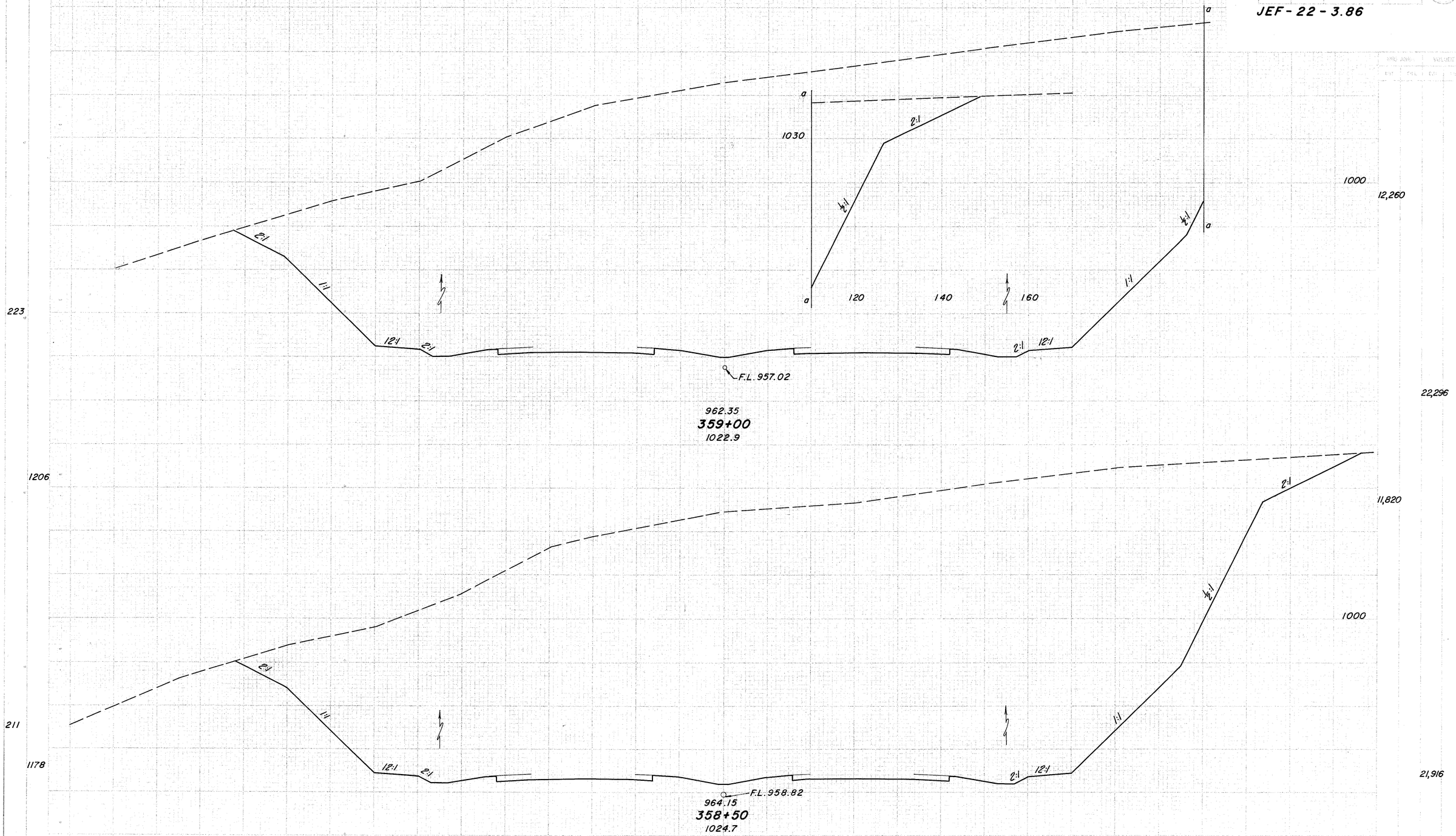
Sta. 356+50 to Sta. 357+00

JEF-22-3.86



Sta. 357+50 to Sta. 358+00

JEF-22-3.86



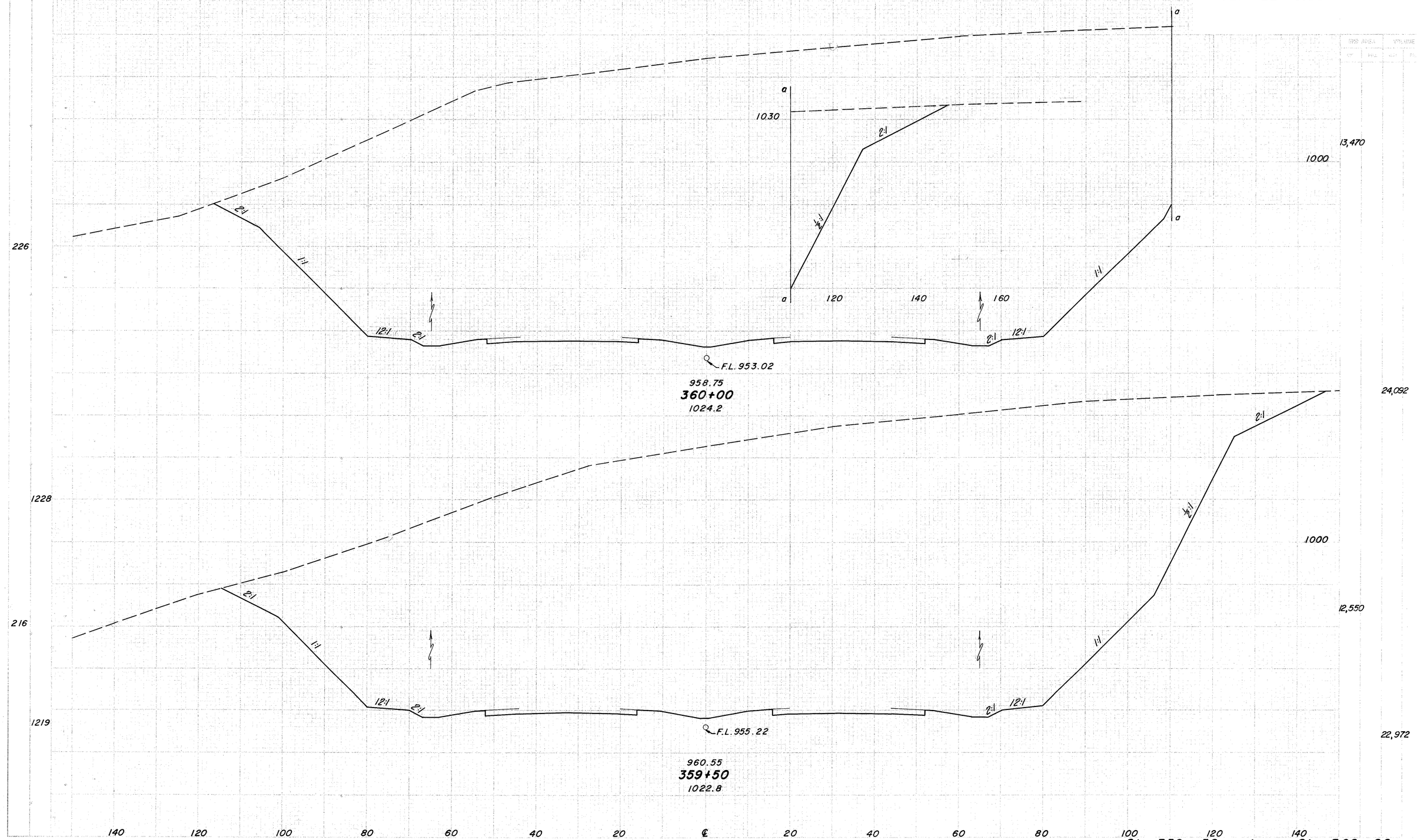
Sta. 358+50 to Sta. 359+00

SHEET NO.	STATE	PROJECT
9	OHIO	

219
516

JEF - 22 - 3.86

END AREA		VOLUME	
CUT	FILL	CUT	FILL

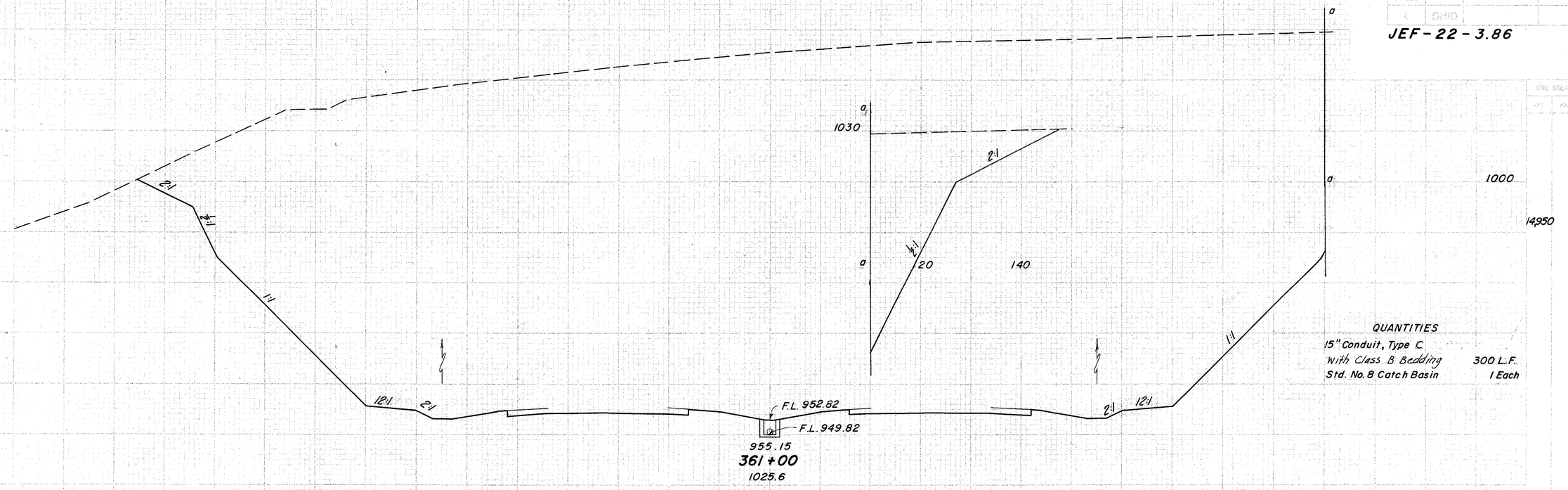


Sta. 359 + 50 to Sta. 360 + 00

STATE	PROJECT
OHIO	

220
516

JEF-22-3.86



SECTIONS

ITEM OR DIVISION	STAGE	PROJECT
		JEF-22-3.86

221
516

JEF-22-3.86

EARTHWORKS		VOLUMES	
CUT	FILL	CUT	FILL

a

2:1

1020

1000

16,675

2:1

1½:1

1:1

a

a

238

1:1

120 140 160

1:1

a

12:1 2:1 2:1 12:1

F.L. 946.22

951.55

362+00

1026.6

1275

30,008

2:1

2:1

1000

1½:1

15,735

221

1:1

1253

1:1

12:1 2:1 2:1 12:1

F.L. 948.02

28,411

953.35

361+50

1026.1

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 361+50 to Sta. 362+00

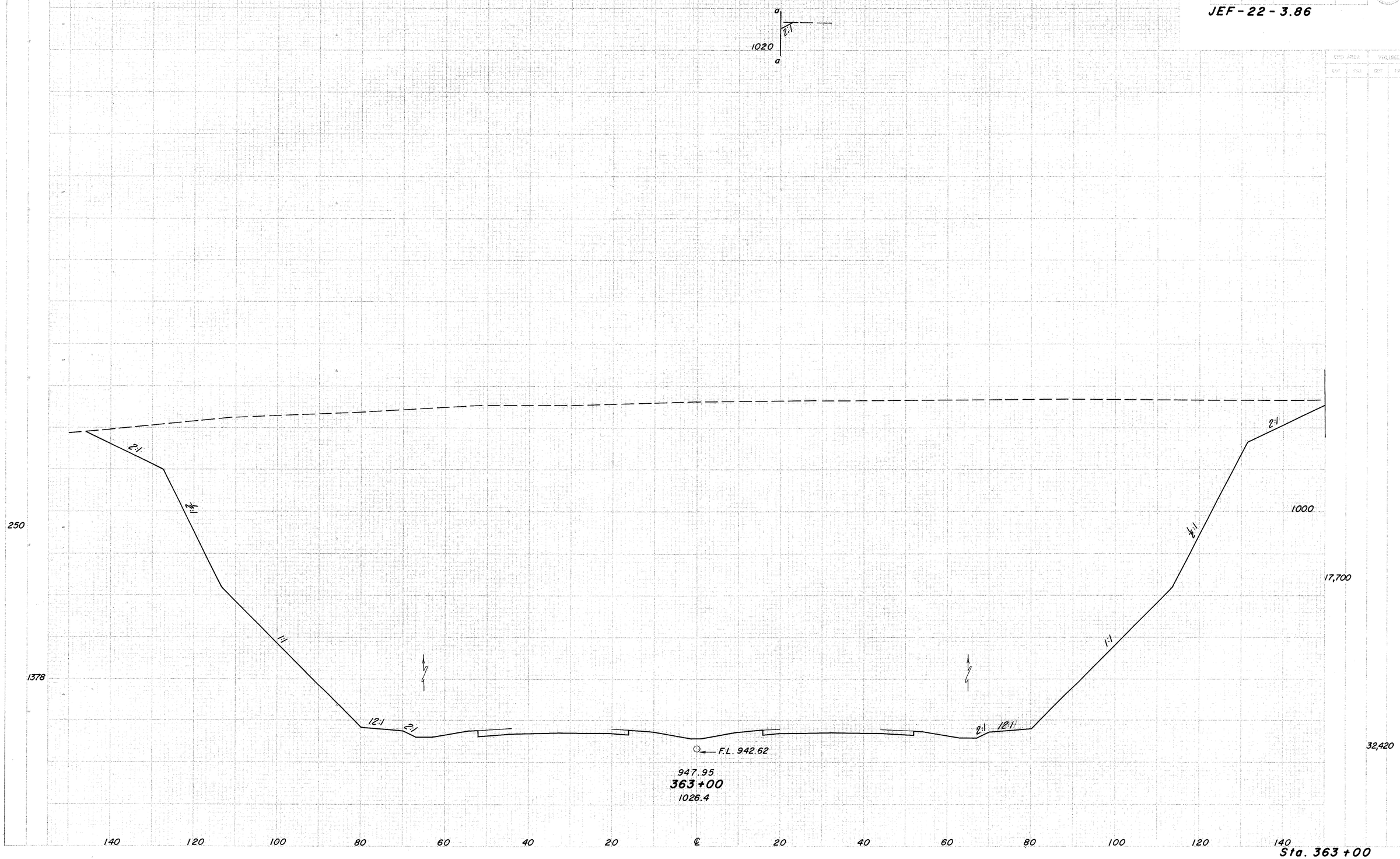
222
516

JEF - 22 - 3.86

Sta. 362 + 50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF-22-3.86

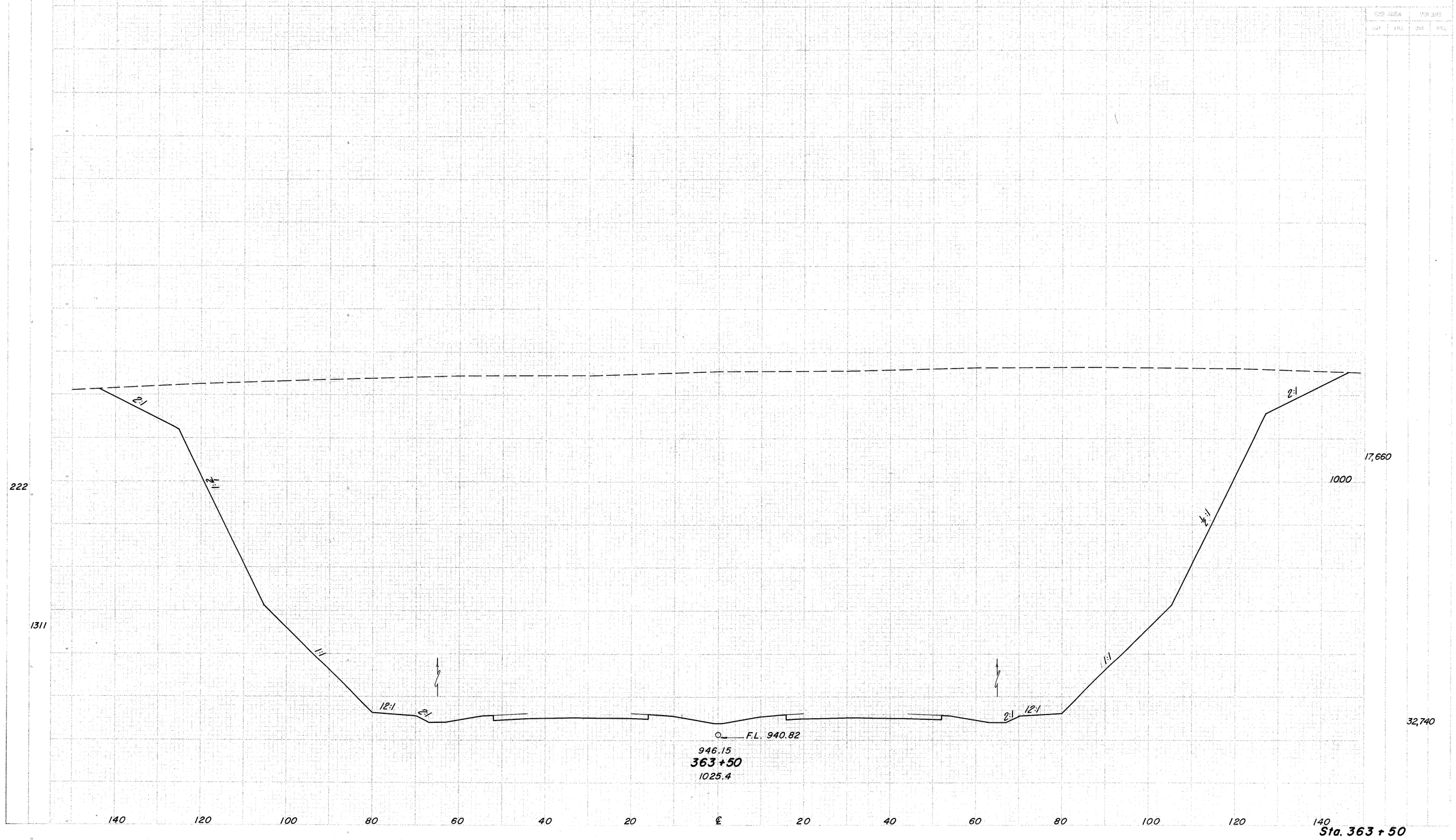


Sta. 363+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

224
516

JEF-22-3.86

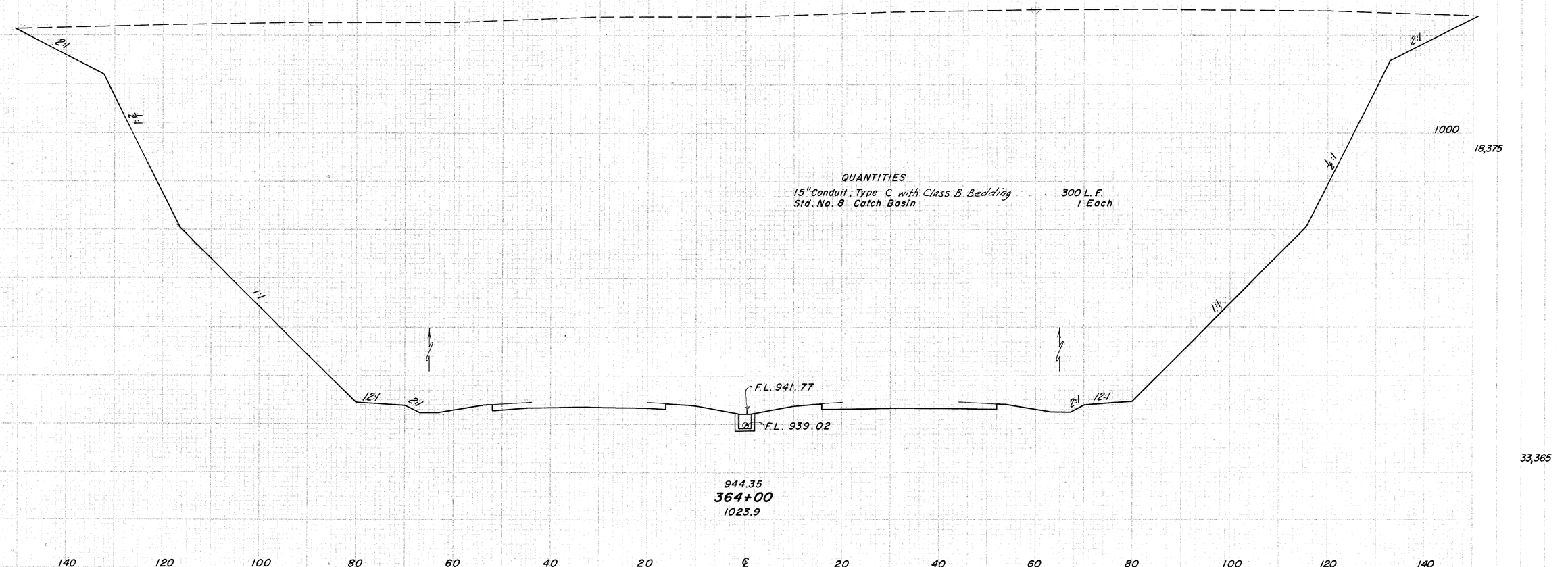


Sta. 363+50

FED. AID DIVISION	STATE	PROJECT	
2	OHIO		

225/516

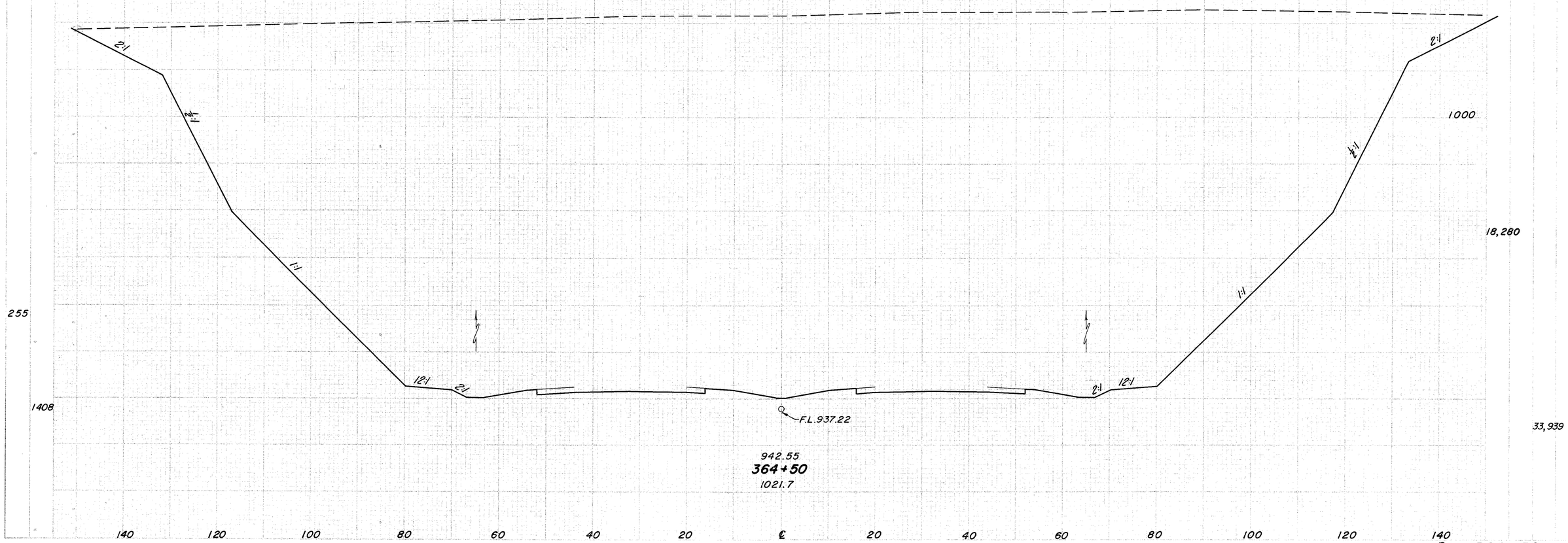
JEF-22-3.86



QUANTITIES

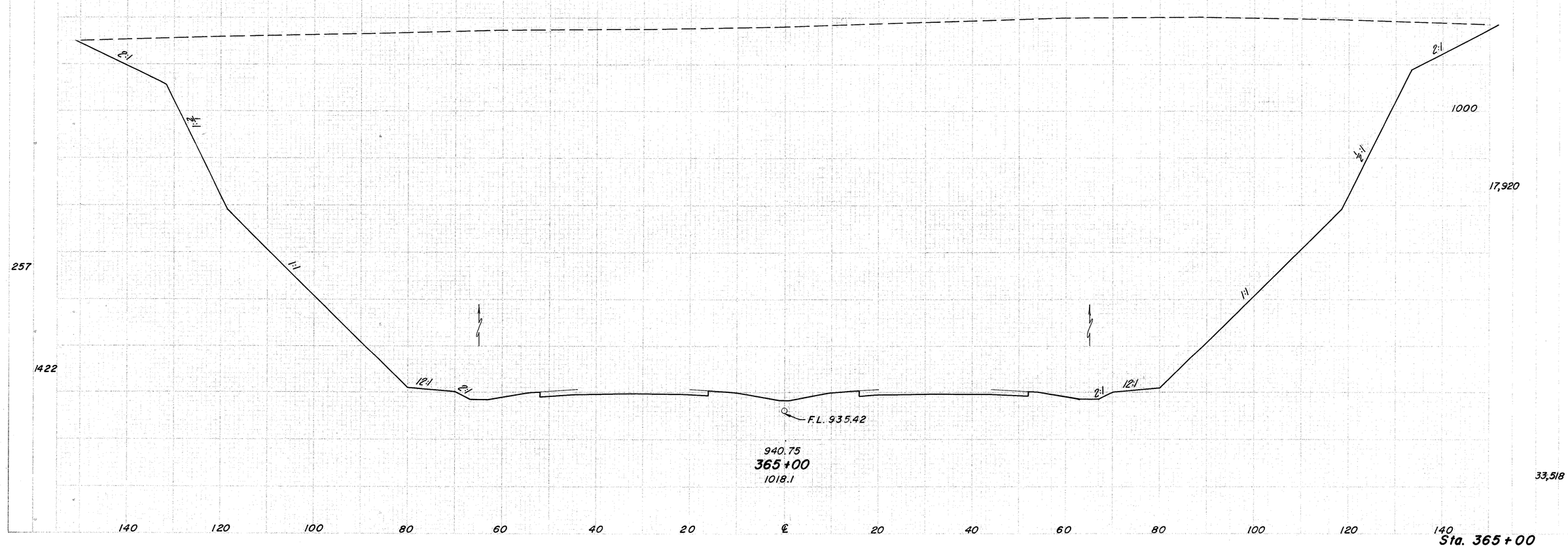
15" Conduit, Type C with Class B Bedding	300 L.F.
Std. No. 8 Catch Basin	1 Each

JEF-22-3.86

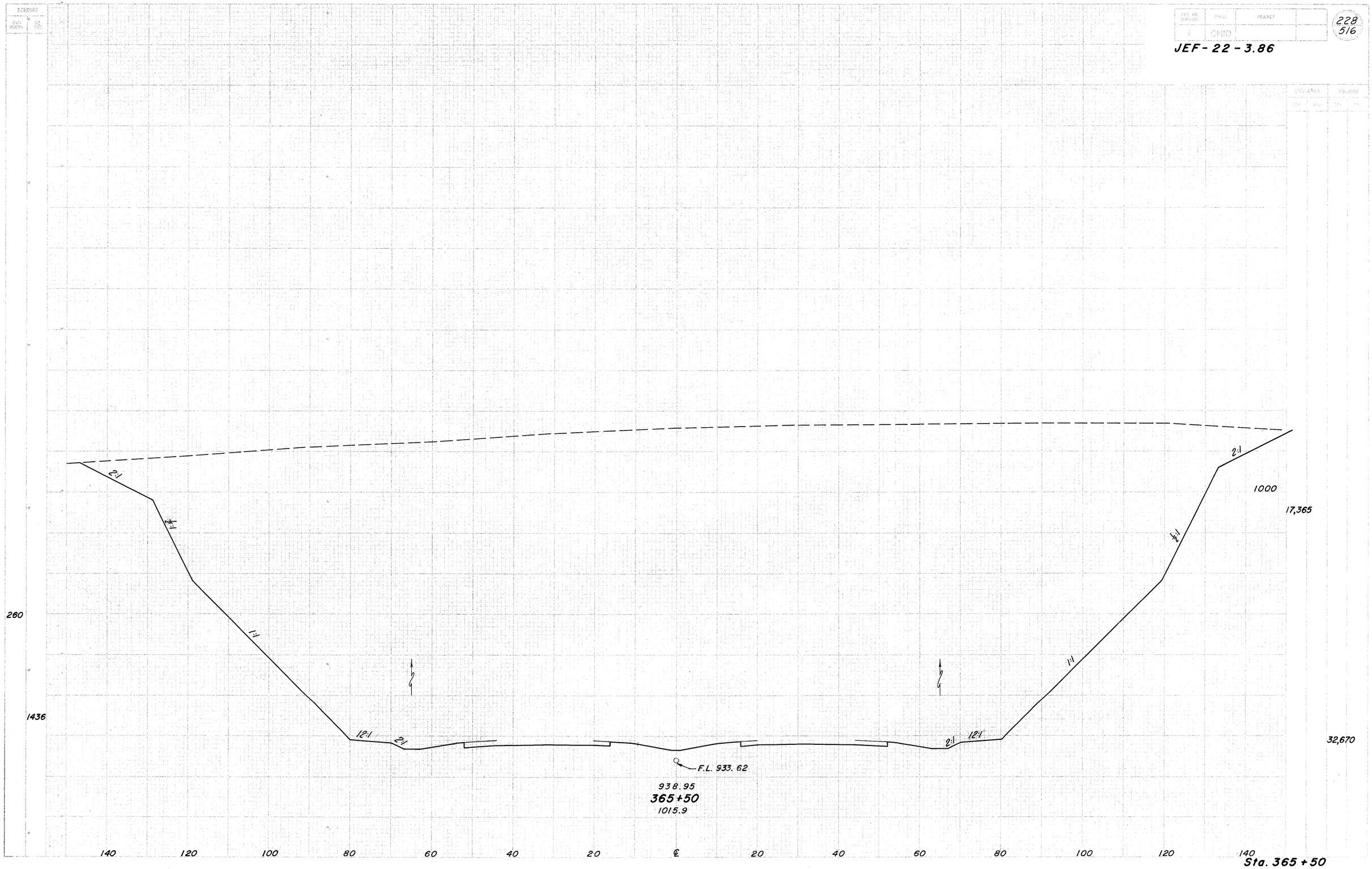


Sta. 364+50

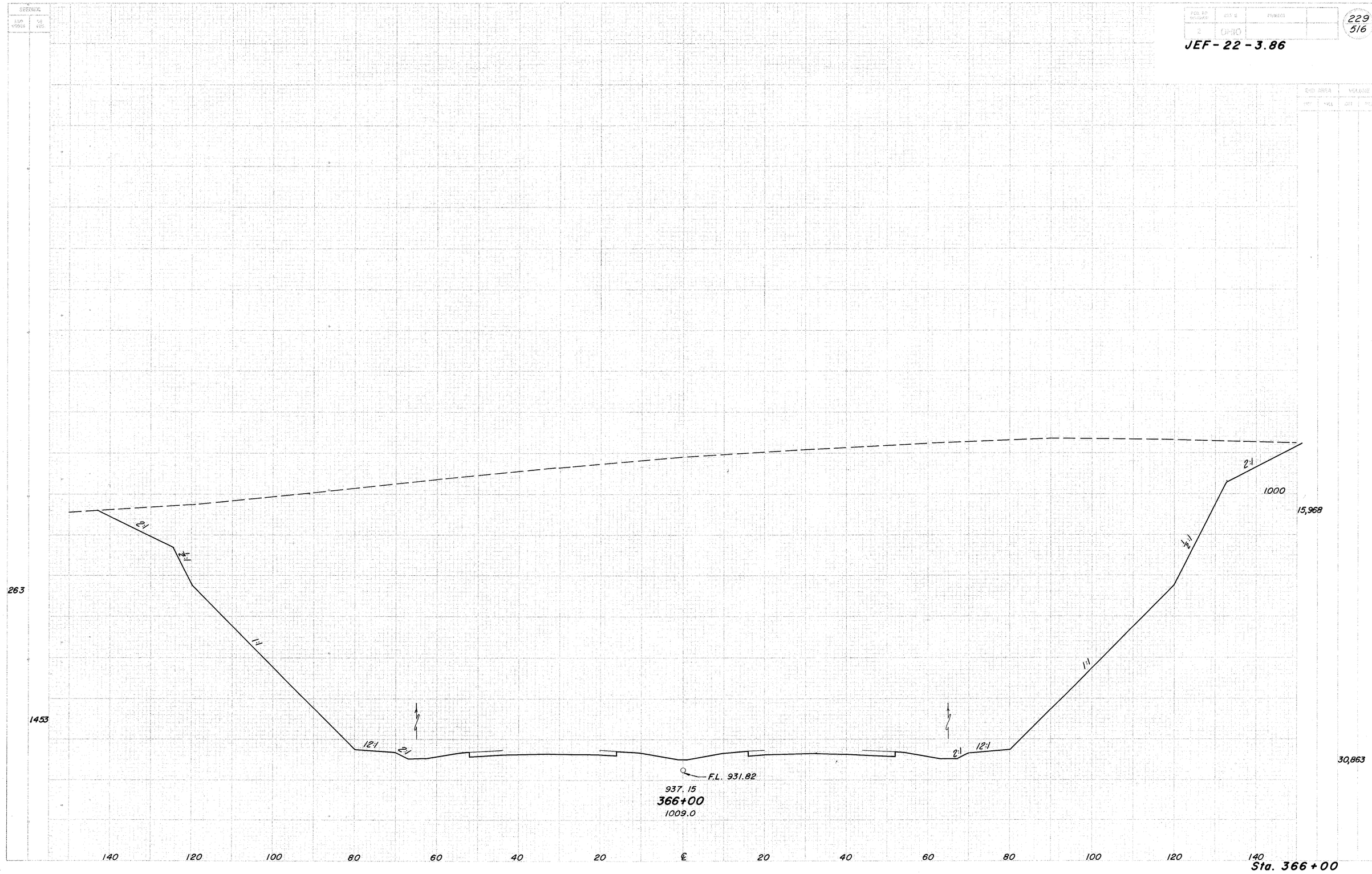
JEF-22-3.86



Sta. 365+00



228
516
JEF-22-3.86
2:1
1:1
12:1
1000
17,365
32,670
260
1436
F.L. 933.62
938.95
365+50
1015.9
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 365+50



229
516
JEF-22-3.86
2:1
1:1
12:1
1000
15,968
263
1453
30,863
F.L. 931.82
937.15
366+00
1009.0
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 366+00

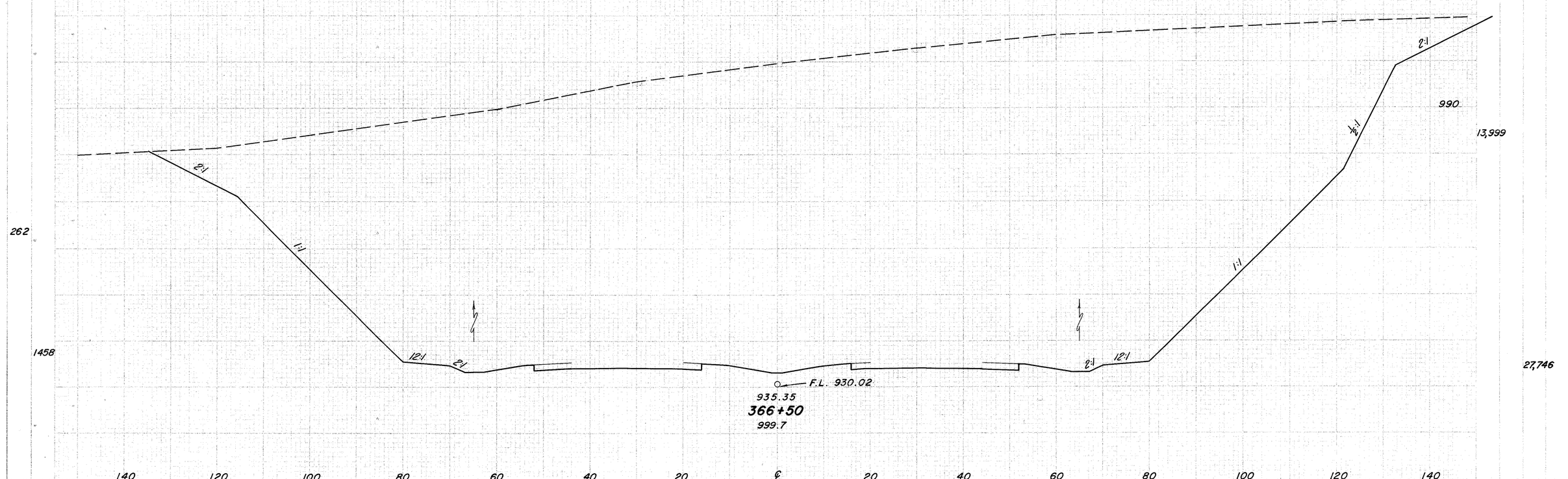
BEGINNING	
END SHEET	NO.

FED. AID PROJECT	STATE	PROJECT	
3	OHIO		

230
516

JEF - 22 - 3.86

BAR AREA		VOLUME	
CUT	FILL	CUT	FILL

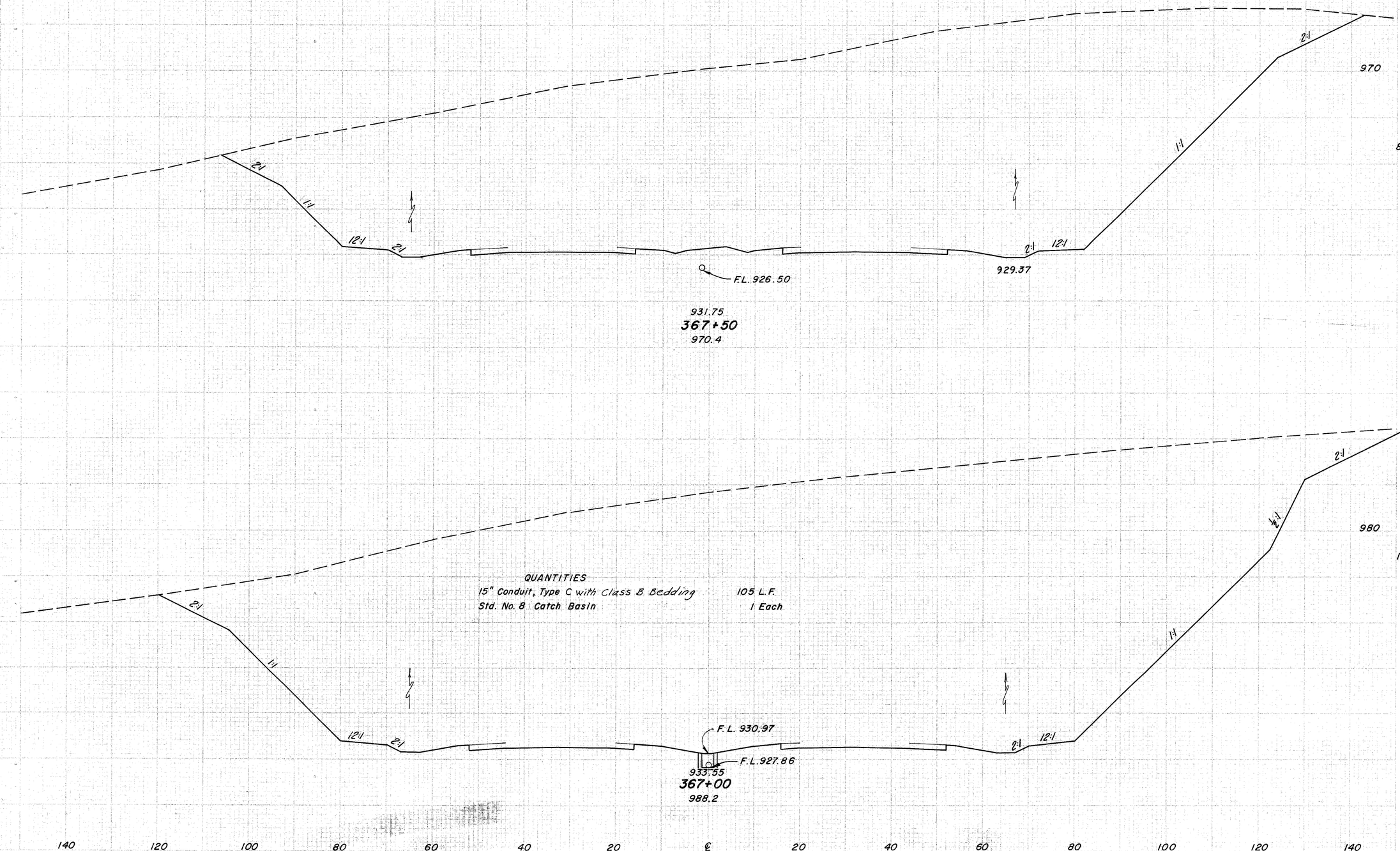


SHEET NO.	STATE	PROJECT
2	OHIO	

231
516

JEF-22-3.86

CUT AREA		FILL AREA		CUT VOLUME		FILL VOLUME	



QUANTITIES

15" Conduit, Type C with Class B Bedding	105 L.F.
Std. No. 8 Catch Basin	1 Each

Sta. 367+00 to Sta. 367+50

Sta. 368 + 05

QUANTITIES

Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.3 C.Y.
15" Conduit Type B with Class B bedding	79 L.F.
Std. No. 2-2B Catch Basin	1 Each

Sta. 368 + 00 to Sta. 369 + 00

SEEDING

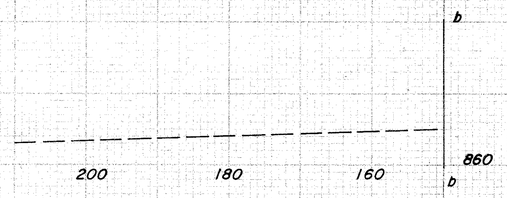
END WIDTH	SEED YIELD
86	56
478	96
86	146
503	48

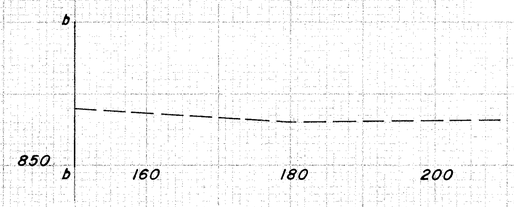
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

233
516

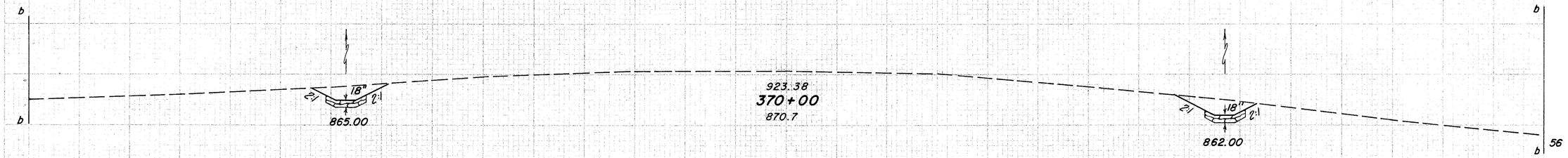
JEF-22-3.86

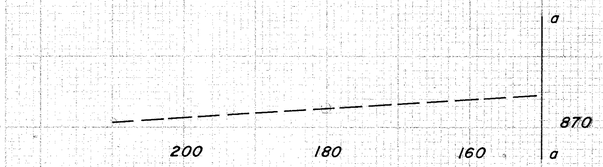
END BANK	VOLUME
CUT	FILL



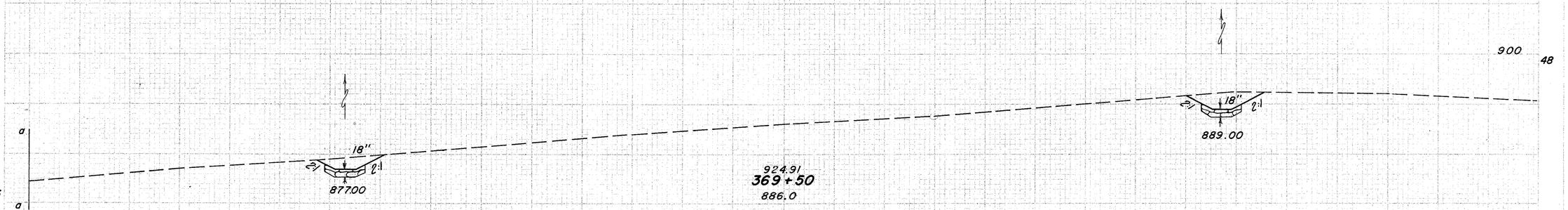


900





900



140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 369 + 50 to Sta. 370 + 00

SEEDING

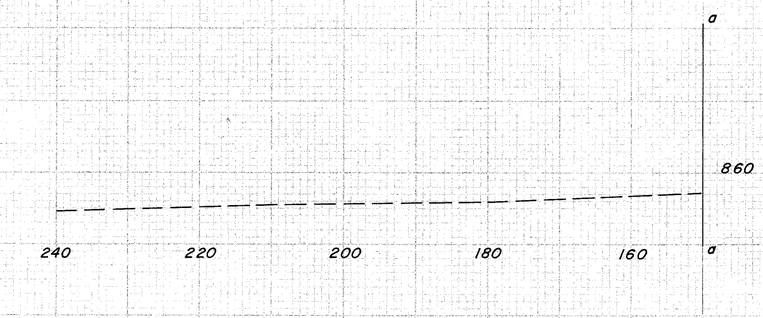
KIND	SQ. YDS.
WATER	

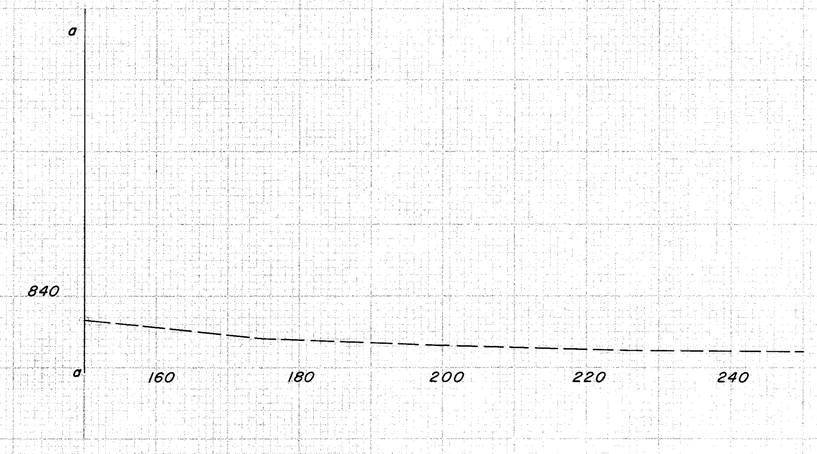
FED. ID. DIVISION	STATE	PROJECT	
2	OHIO		

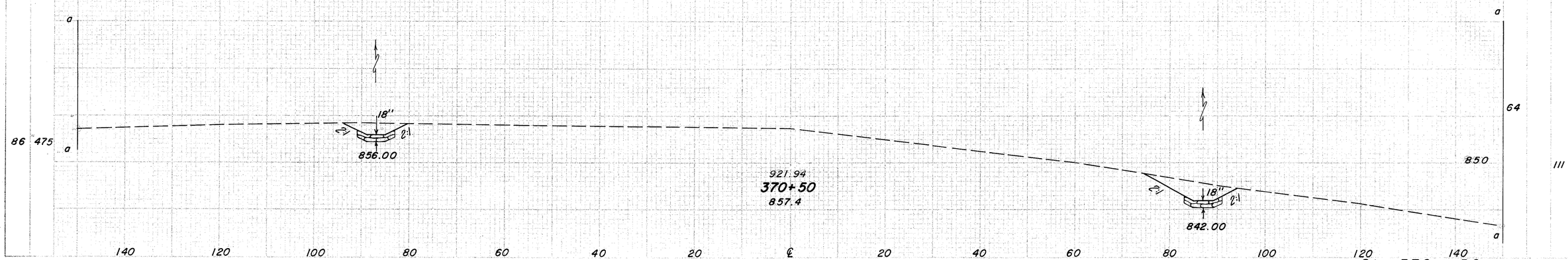
234
516

JEF-22-3.86

SED. AREA		VOLUME	
CUT	FILL	CUT	FILL







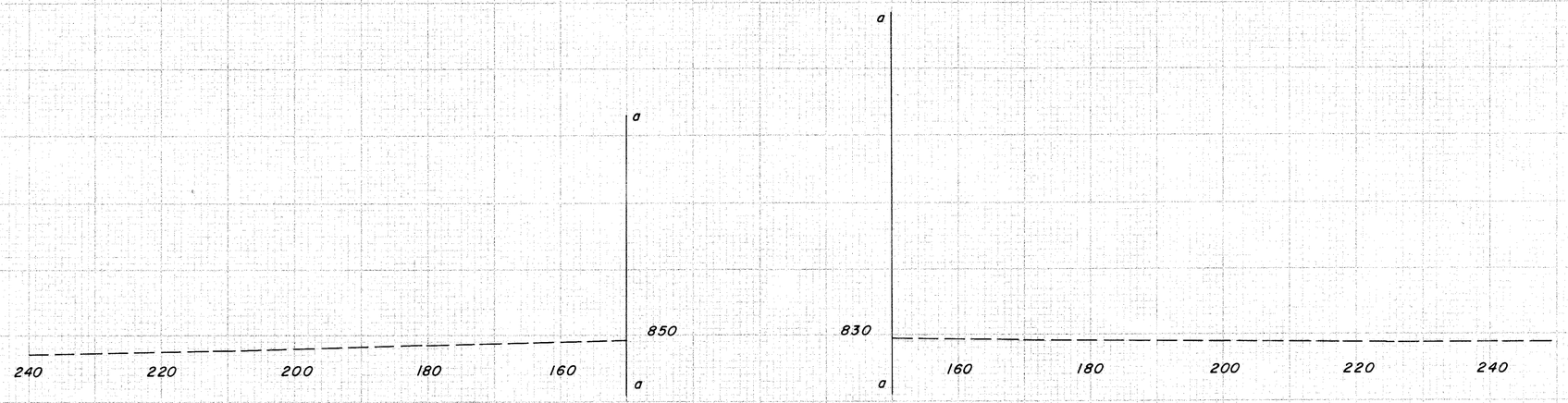
Sta. 370 + 50

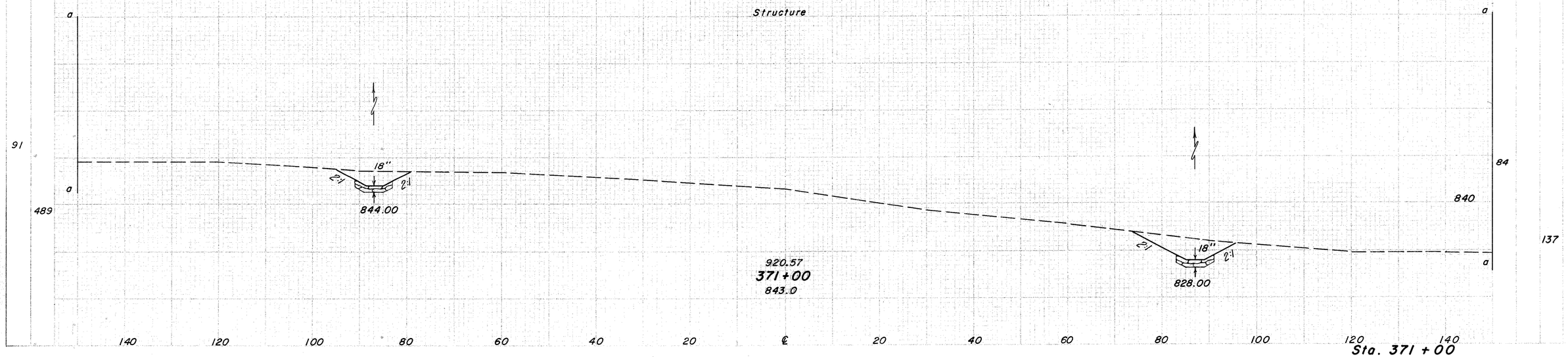
FED. ROAD DIVISION	STATE	PROJECT	
2	OHIO		

235
516

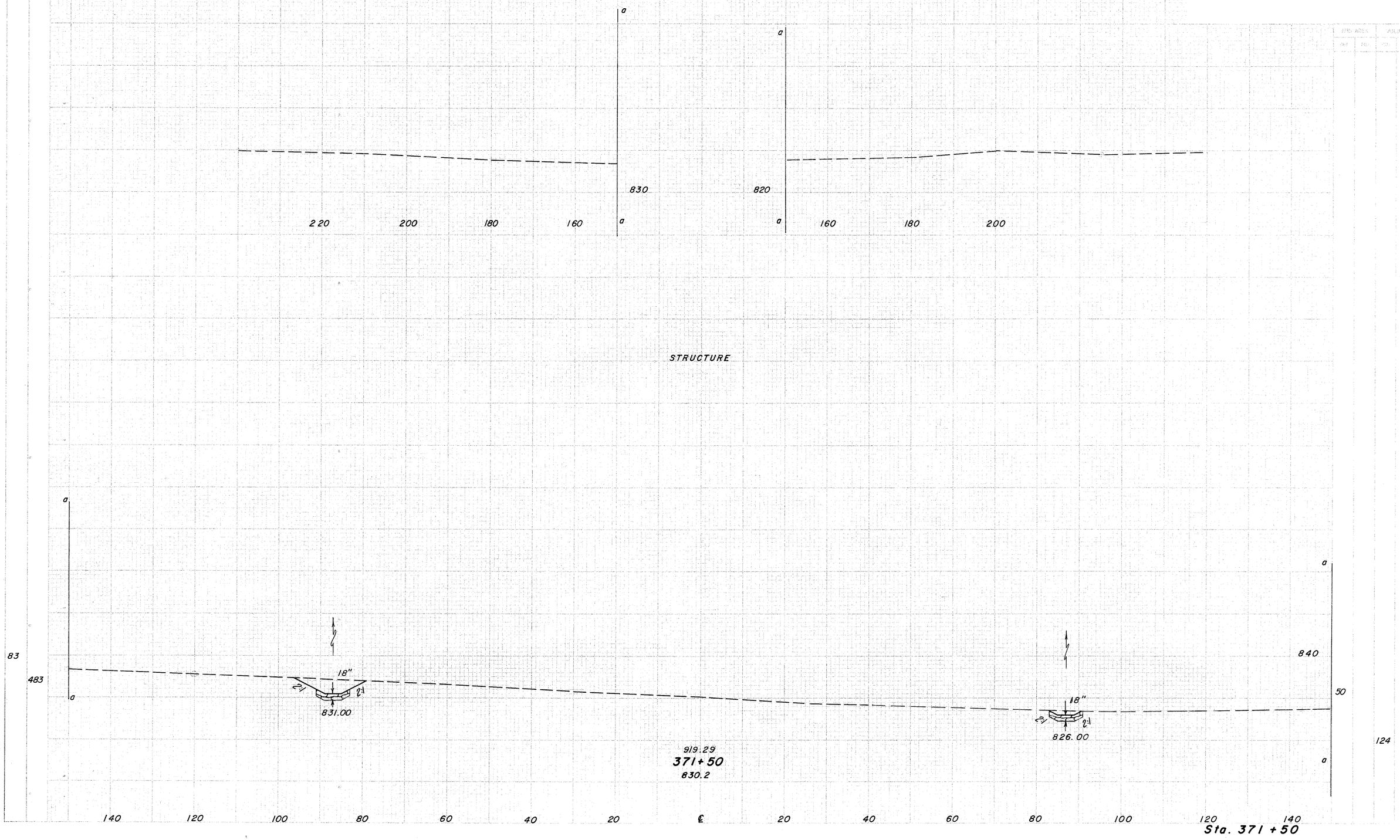
JEF-22-3.86

CUT AREA		FILL AREA	
CUT	FILL	CUT	FILL





JEF-22-3.86



Sta. 371 + 50

JEF - 22 - 3.86

a
850
a
220
200
180
160
a
830
a
160
180
STRUCTURE
a
a
190
758
16"
2:1
2:1
827.00
918.08
372+00
828.5
18"
2:1
2:1
825.70
a
44
a
820
87
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 372 + 00

SECTION

SUB DIVISION | NO.

SUB DIVISION	STATE	PROJECT	
2	OHIO		

238
516

JEF - 22 - 3.86

SUB AREA		DRAWING	
CAP	PVA	APP	CC

STRUCTURE

End 8' Width D.R.C.P. (Lt. Ditch)
Sta. 372+42

End 8' Width D.R.C.P. (Rt. Ditch)
Sta. 372+48
(Lt. & Rt. Ditches Coverage)

192

1061

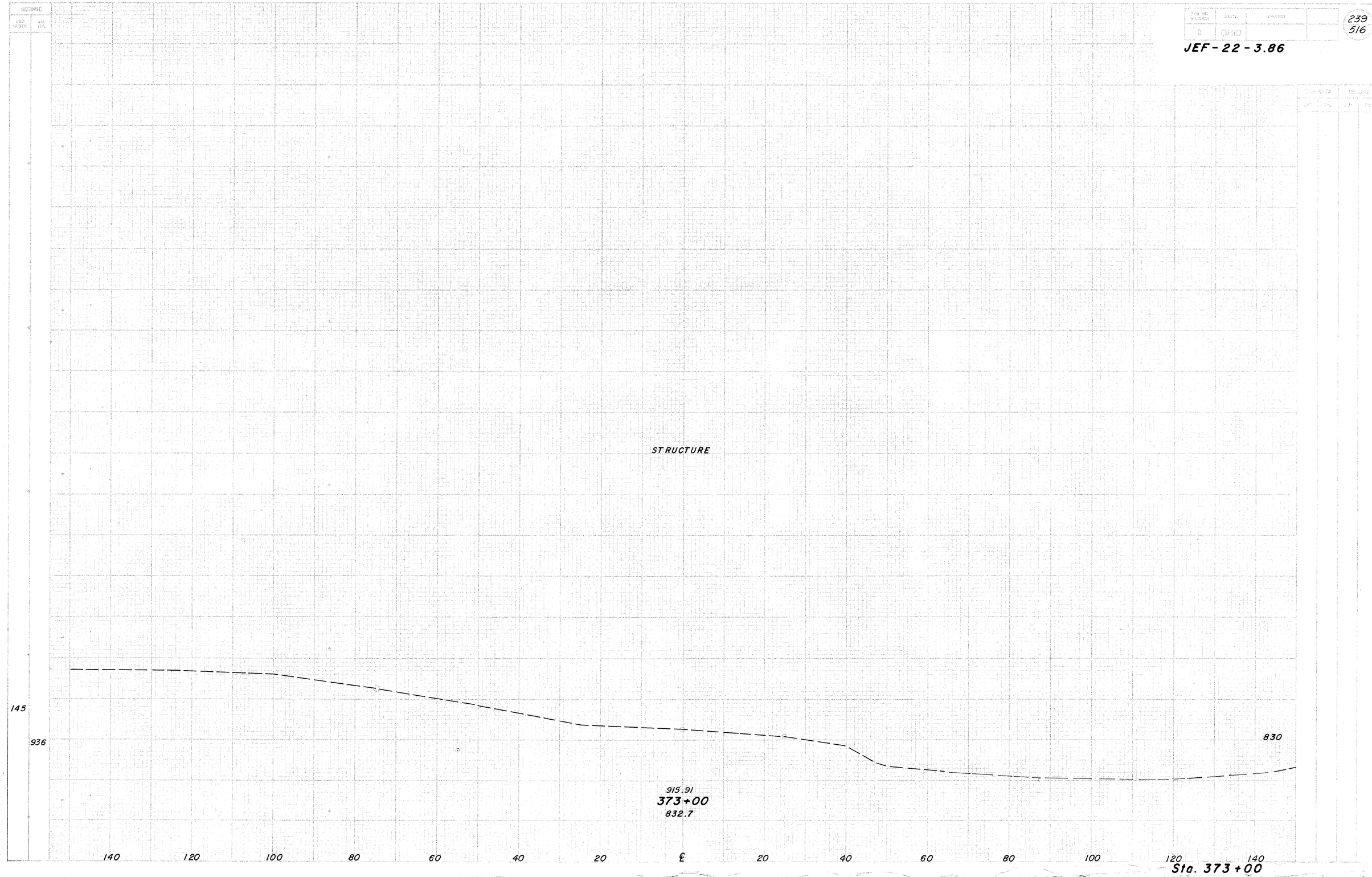
830

916.96
372+50
831.1

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 372 + 50

JEF-22-3.86



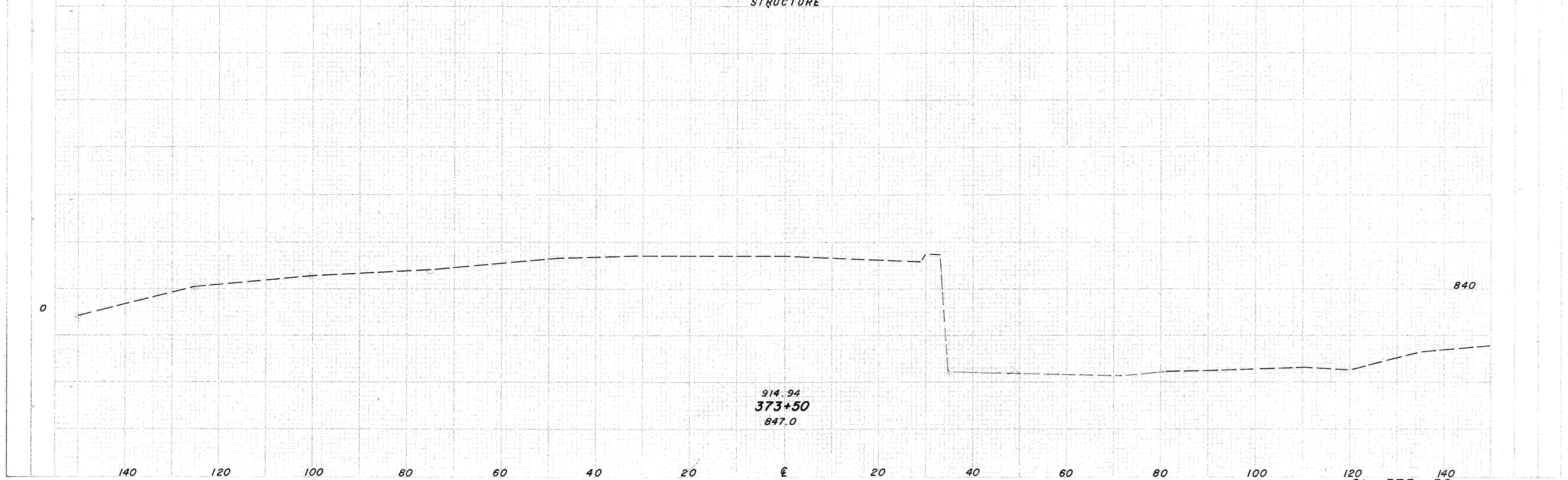
Sta. 373+00

FED. AID DIVISION	STATE	PROJECT	
5	OHIO		

240
516

JEF-22-3.86

STRUCTURE



FED. ROAD DIVISION	STATE	PROJECT	
2	OHIO		

241
516

JEF-22-3.86

STRUCTURE

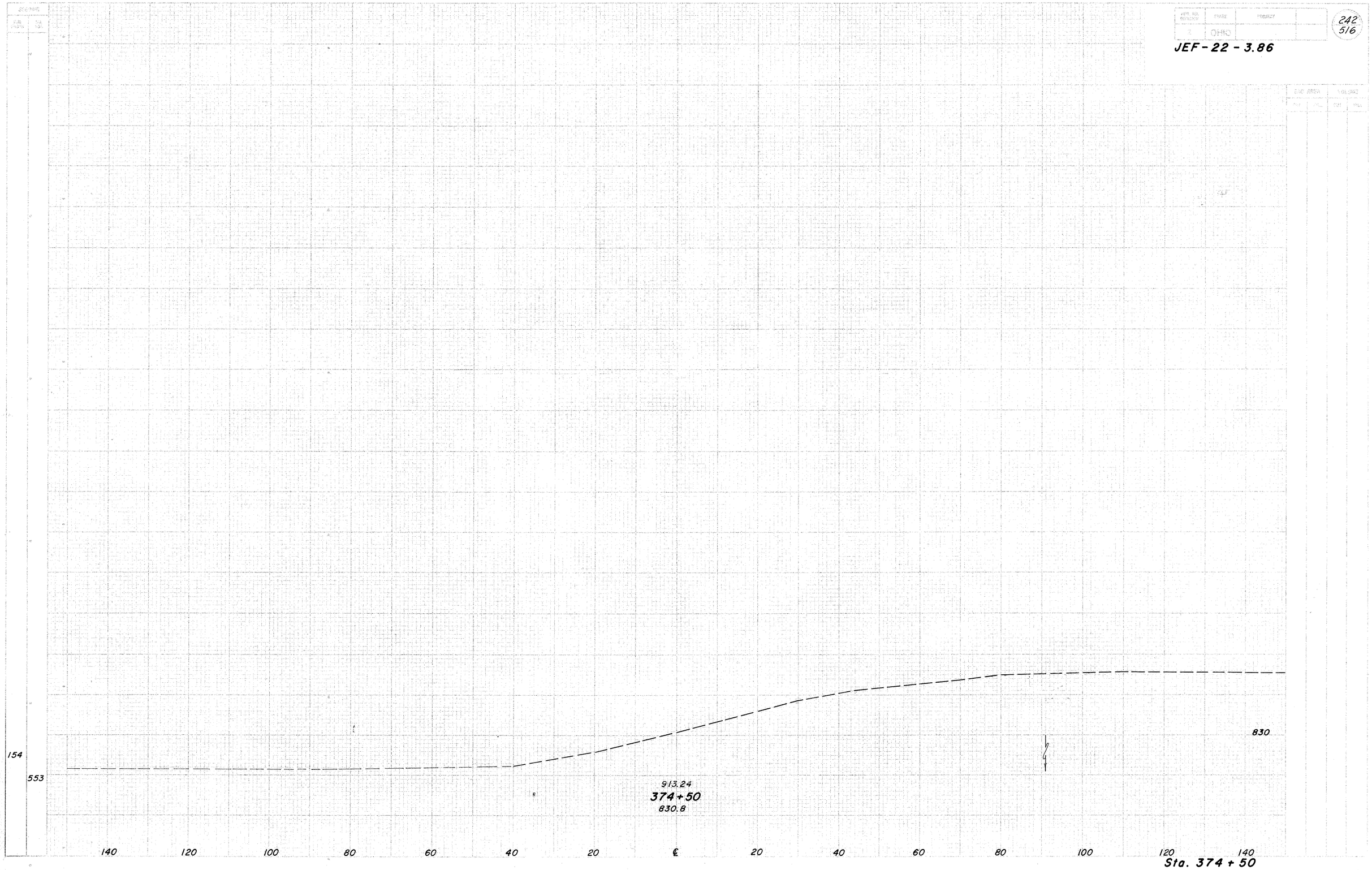
45

914.05
374+00
321.2

820

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 374 + 00



242
516
JEF-22-3.86
154
553
830
913.24
374+50
830.8
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 374 + 50

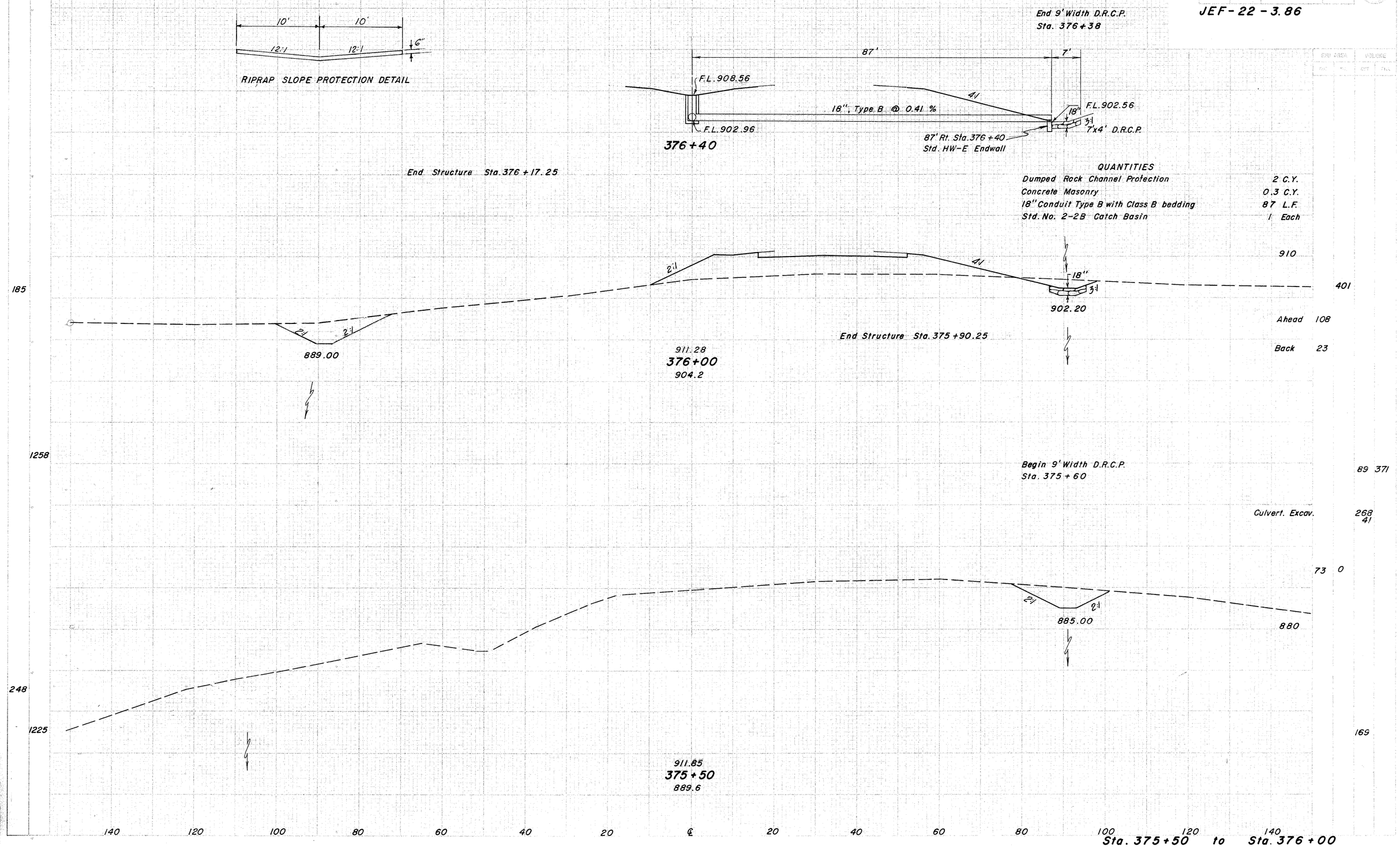
2 OHIO

243
516

JEF - 22 - 3.86

Sta. 375 + 00

JEF-22-3.86



QUANTITIES

Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.3 C.Y.
18" Conduit Type B with Class B bedding	87 L.F.
Std. No. 2-2B Catch Basin	1 Each

Sta. 375+50 to Sta. 376+00

FED. AID SYSTEM	STATE	PROJECT	
2	OHIO		

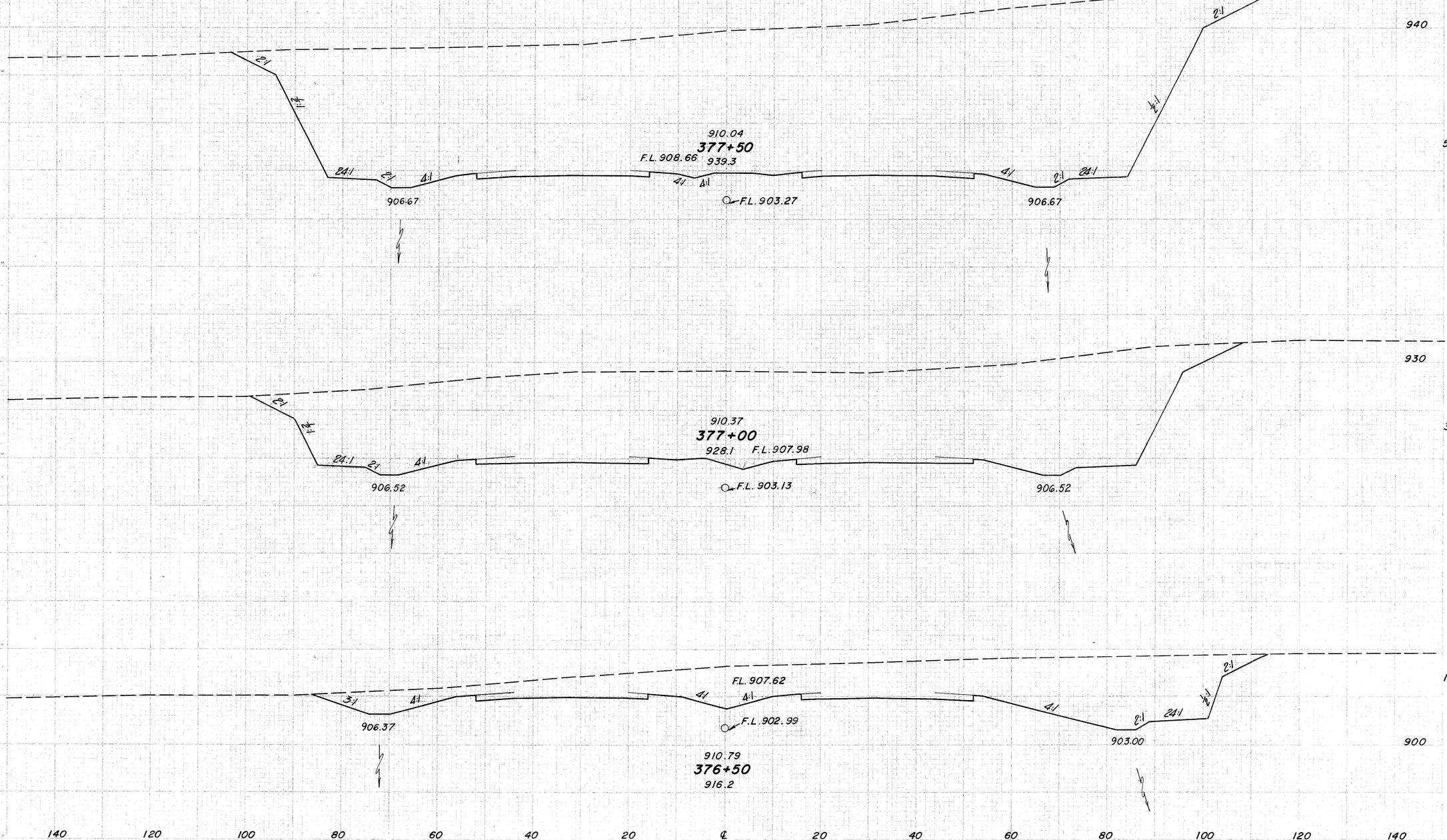
245
516

JEF-22-3.86

SEEDING

SQ. YDS.	SQ. YDS.

SEED AREA		VOLUME	
CUT	FILL	CUT	FILL



Sta. 376 +50 to Sta. 377 +50

SEEDING

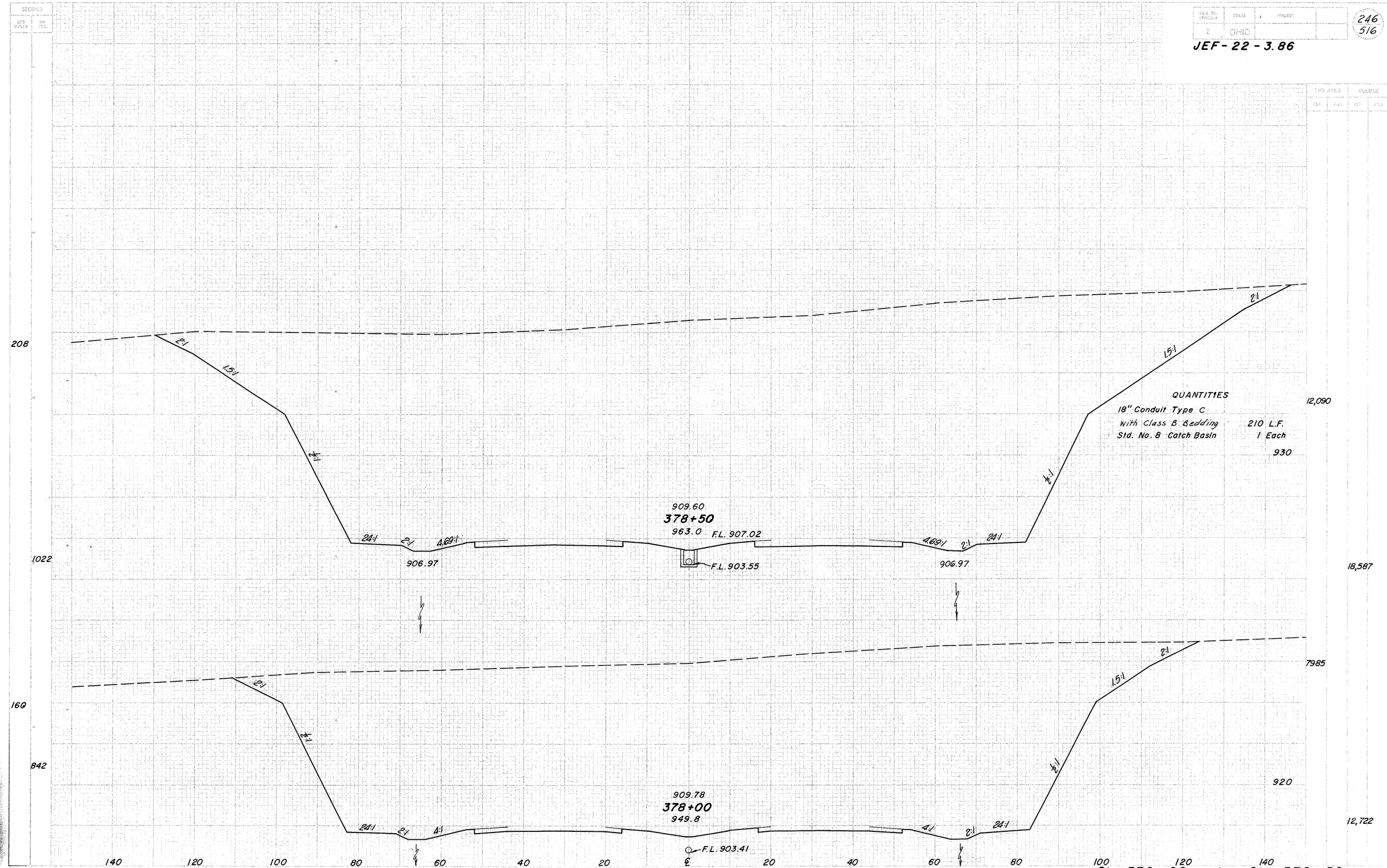
SQ. YARDS	SQ. YDS.

FED. ROAD DIVISION	STATE	PROJECT	
2	OHIO		

246
516

JEF-22-3.86

TWO AREA		VOLUME	
CUT	FILL	CUT	FILL



QUANTITIES

18" Conduit Type C	
With Class B Bedding	210 L.F.
Std. No. 8 Catch Basin	1 Each

12,090
930
18,587
7985
920
12,722

Sta. 378+00 to Sta. 378+50

FED. ROAD DIVISION	STATE	PROJECT	
5	OHIO		

247
516

JEF - 22 - 3.86

DIAGONAL

SUB WIDTH	SUB AREA

SUB WIDTH	SUB AREA

322

1644

270

1328

22,135

930

35,305

930

15,995

26,004

b

1:1

1.5:1

2:1

24:1

160

980

120

140

160

180

950

909.49

379+50

995.5

F.L. 903.83

542:1

907.13

909.50

379+00

977.9

F.L. 903.69

a

990

Median Ditch Shall be built up to Elevation 907.73 at Sta. 379+25 forming a divide at this point Median drainage will flow from this divide to the catch basins at Sta. 378+50 & Sta. 380+00

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

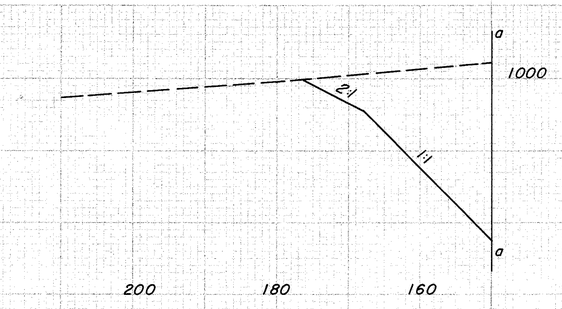
Sta. 379+00 to Sta. 379+50

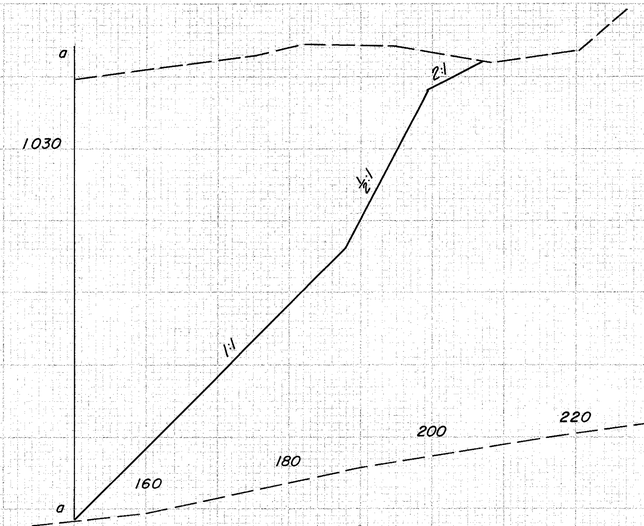
FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

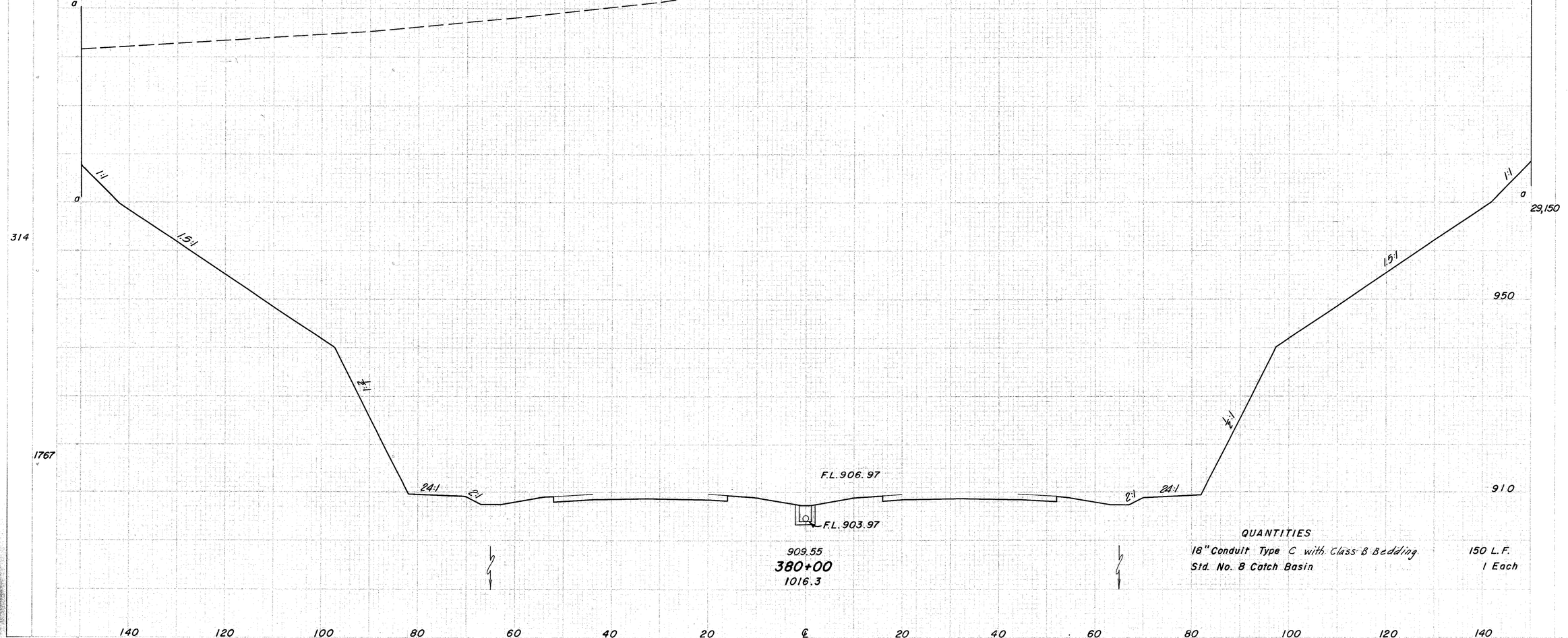
248
516

JEF-22-3.86

GRID AREA		VOLUME	
EXT.	FILL	EXT.	FILL







QUANTITIES

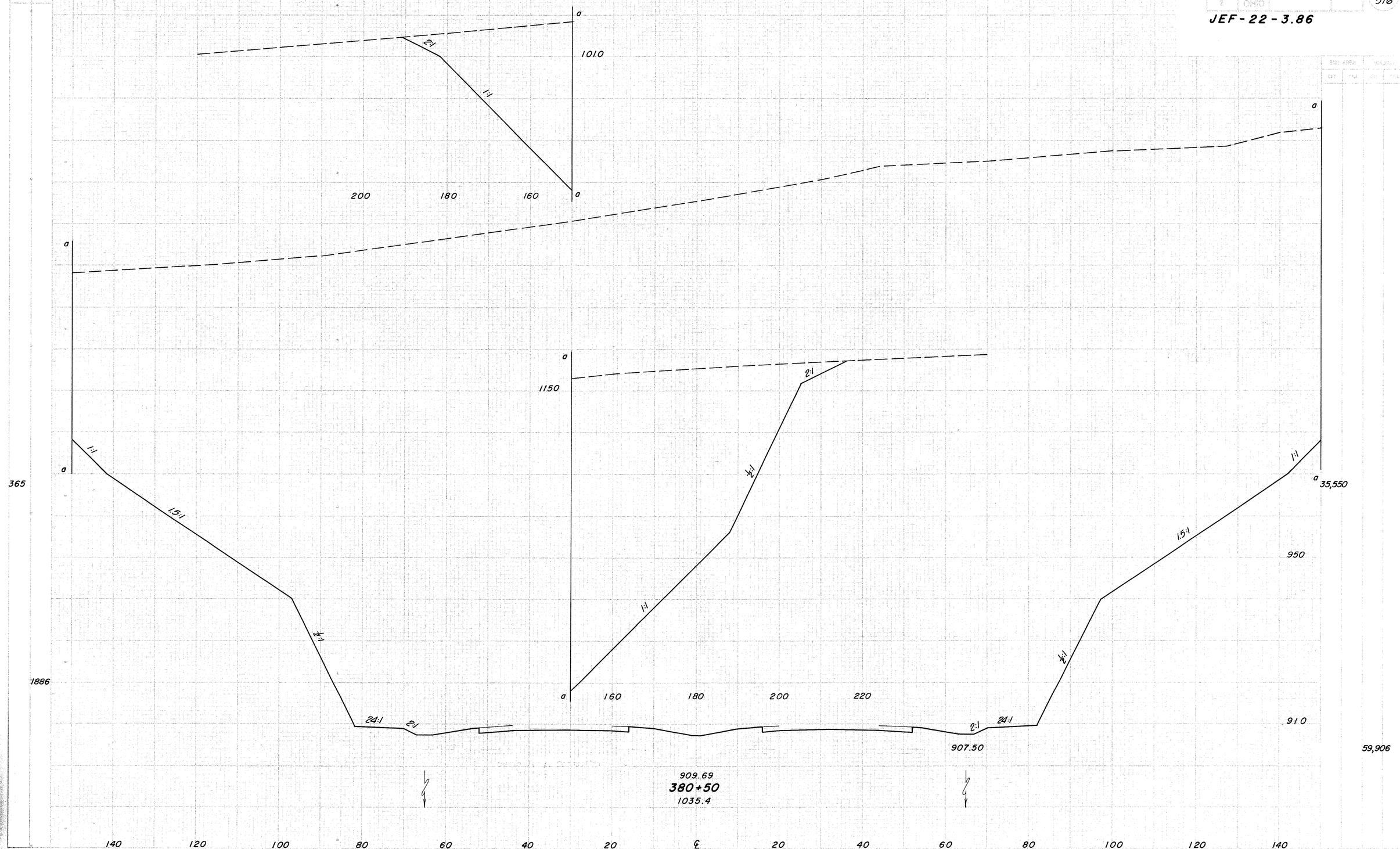
18" Conduit Type C with Class B Bedding	150 L.F.
Std. No. 8 Catch Basin	1 Each

SEQ. NO.	STATE	PROJECT	
2	OHIO		

249
516

JEF-22-3.86

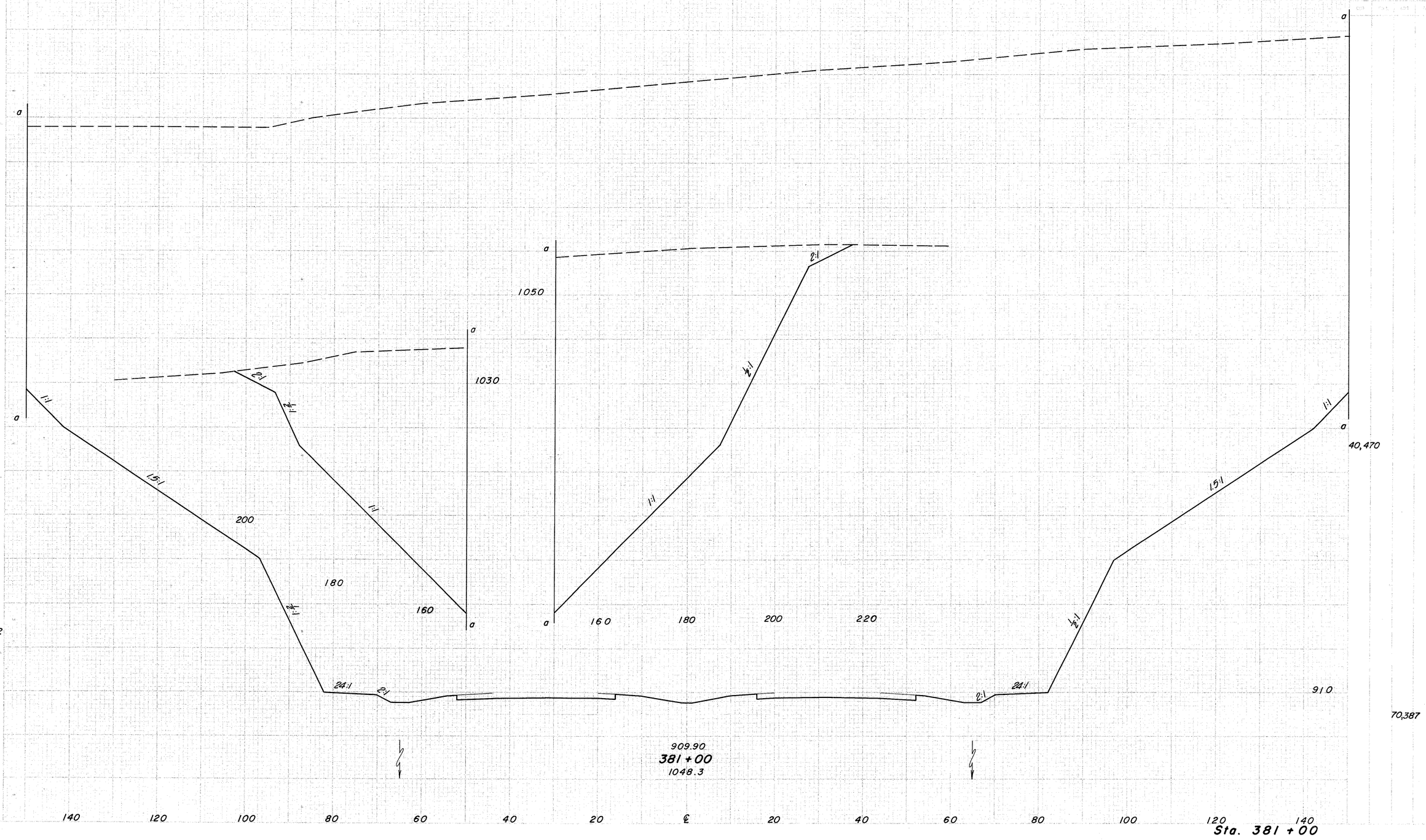
SOIL AREA		VALUE	
CUT	FILL	CUT	FILL



FED. ROAD SYSTEM	STATE	PROJECT	
	OHIO		

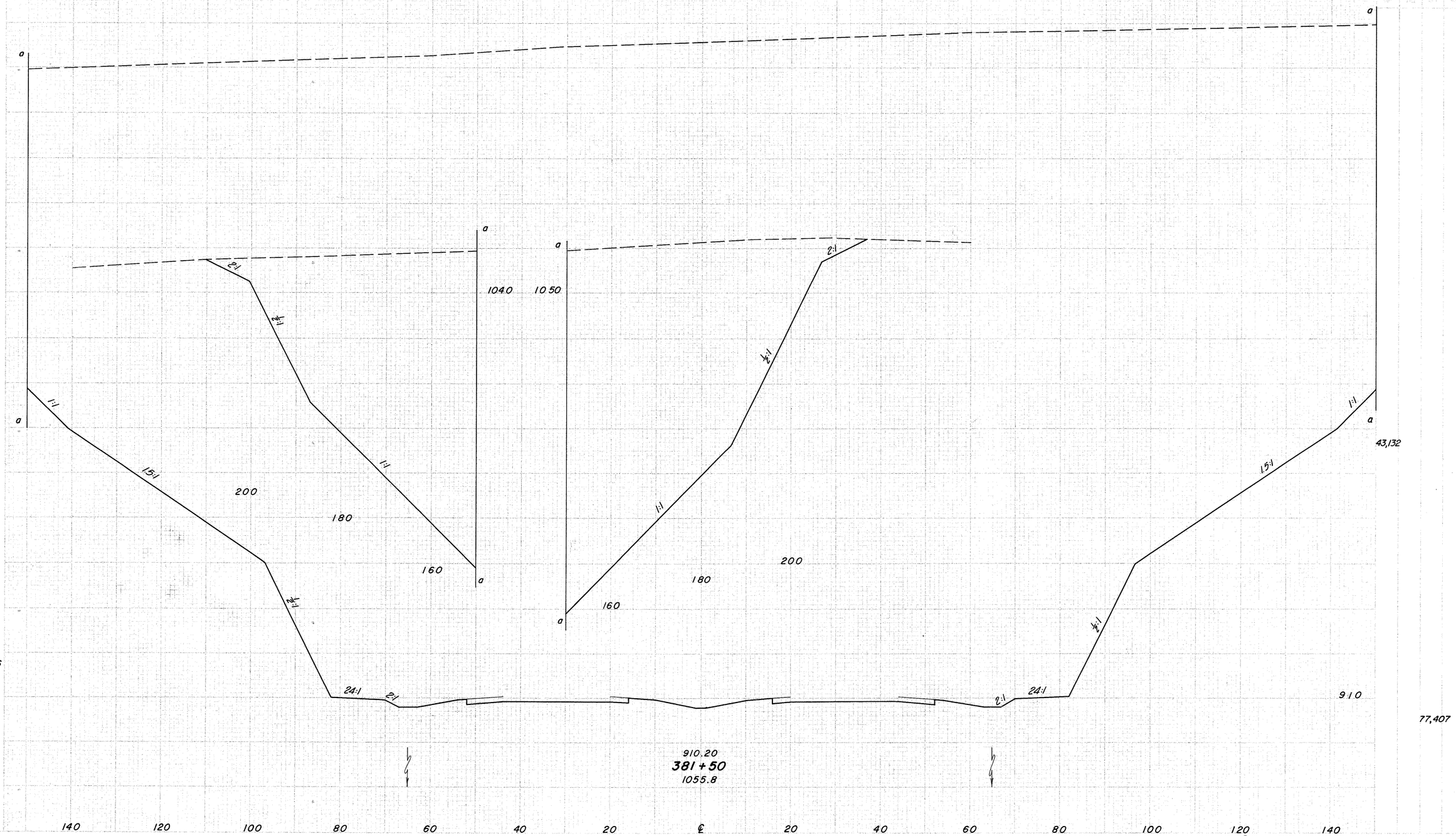
250
516

JEF-22-3.86



Sta. 381+00

JEF-22-3.86

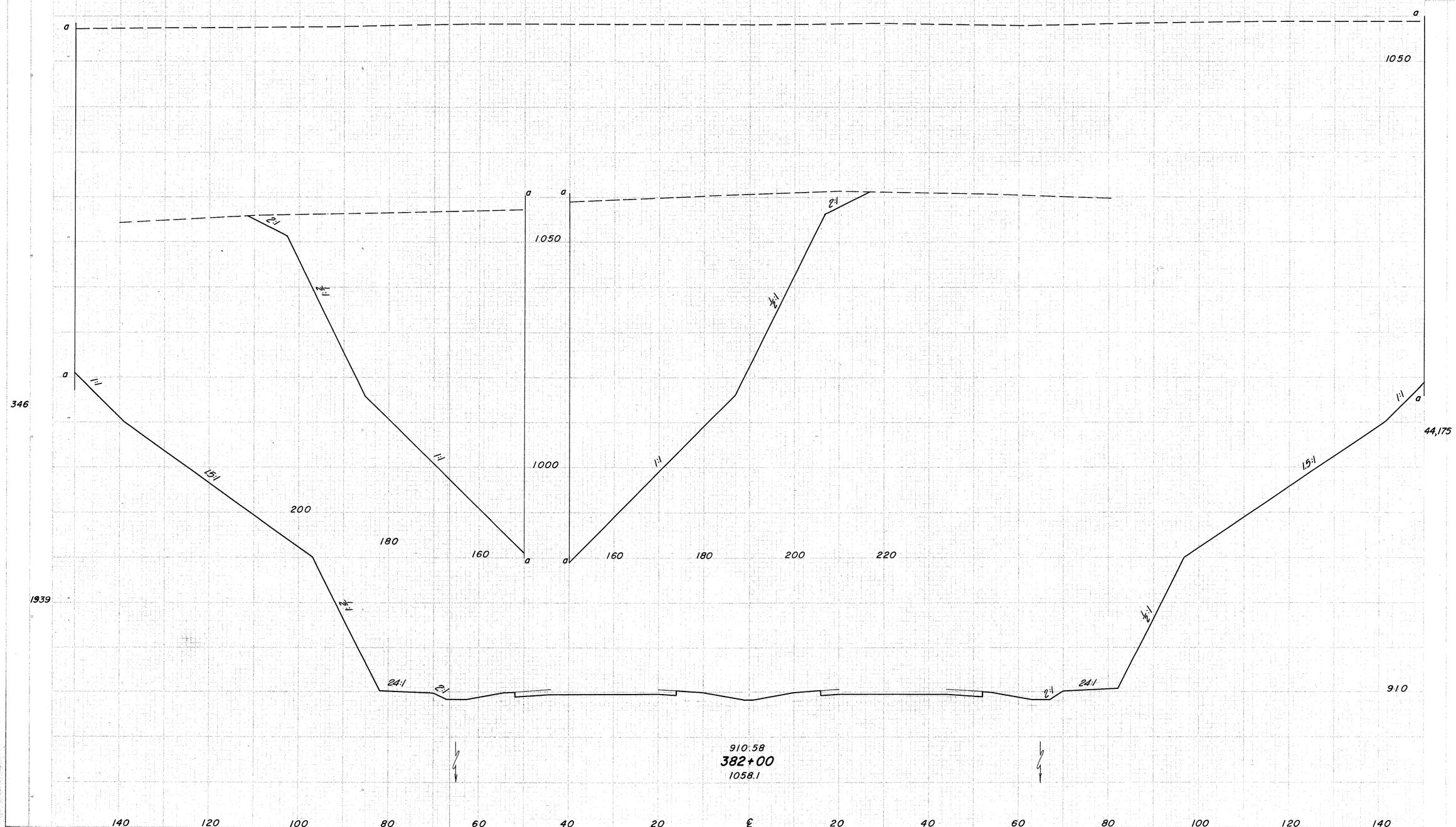


Sta. 381 + 50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

252
516

JEF-22-3.86



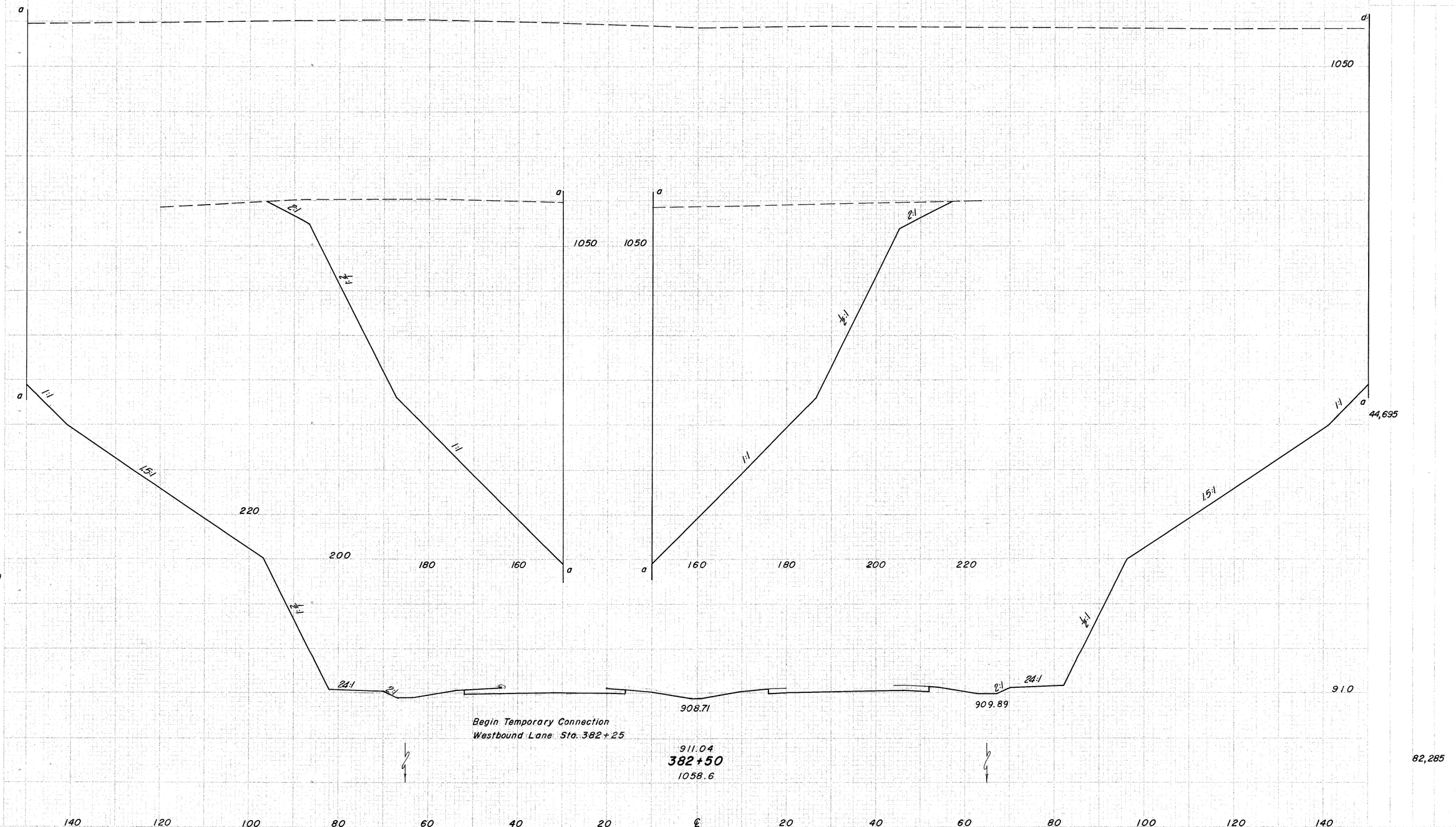
Sta. 382 + 00

ROUTE NO.	STATE	PROJECT	
2	OHIO		

253
516

JEF - 22 - 3.86

ROAD AHEAD		VISIBILITY	
FEET	MILES	FEET	MILES

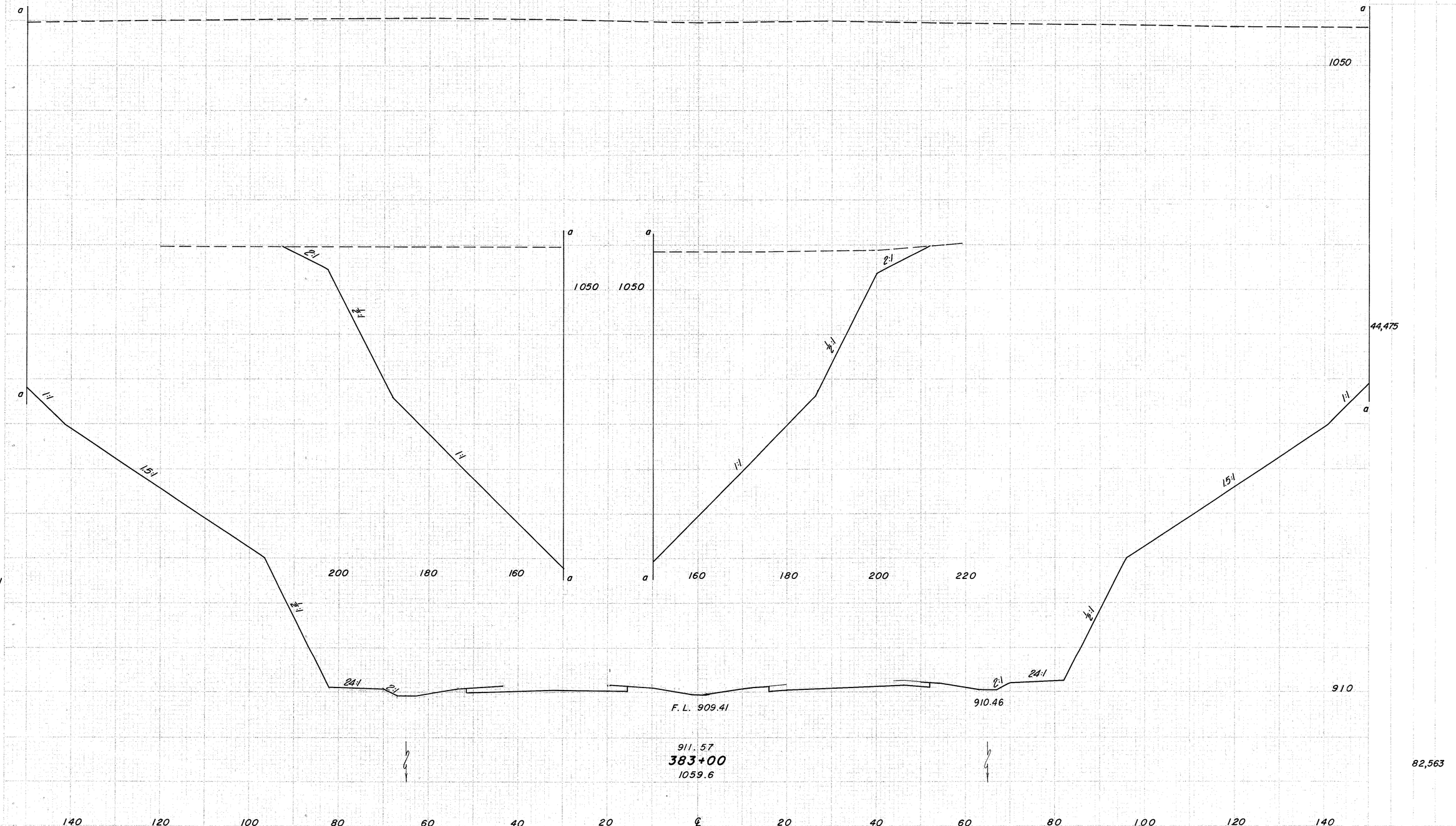


SHEET NO.	STATE	PROJECT	
	OHIO		

254
516

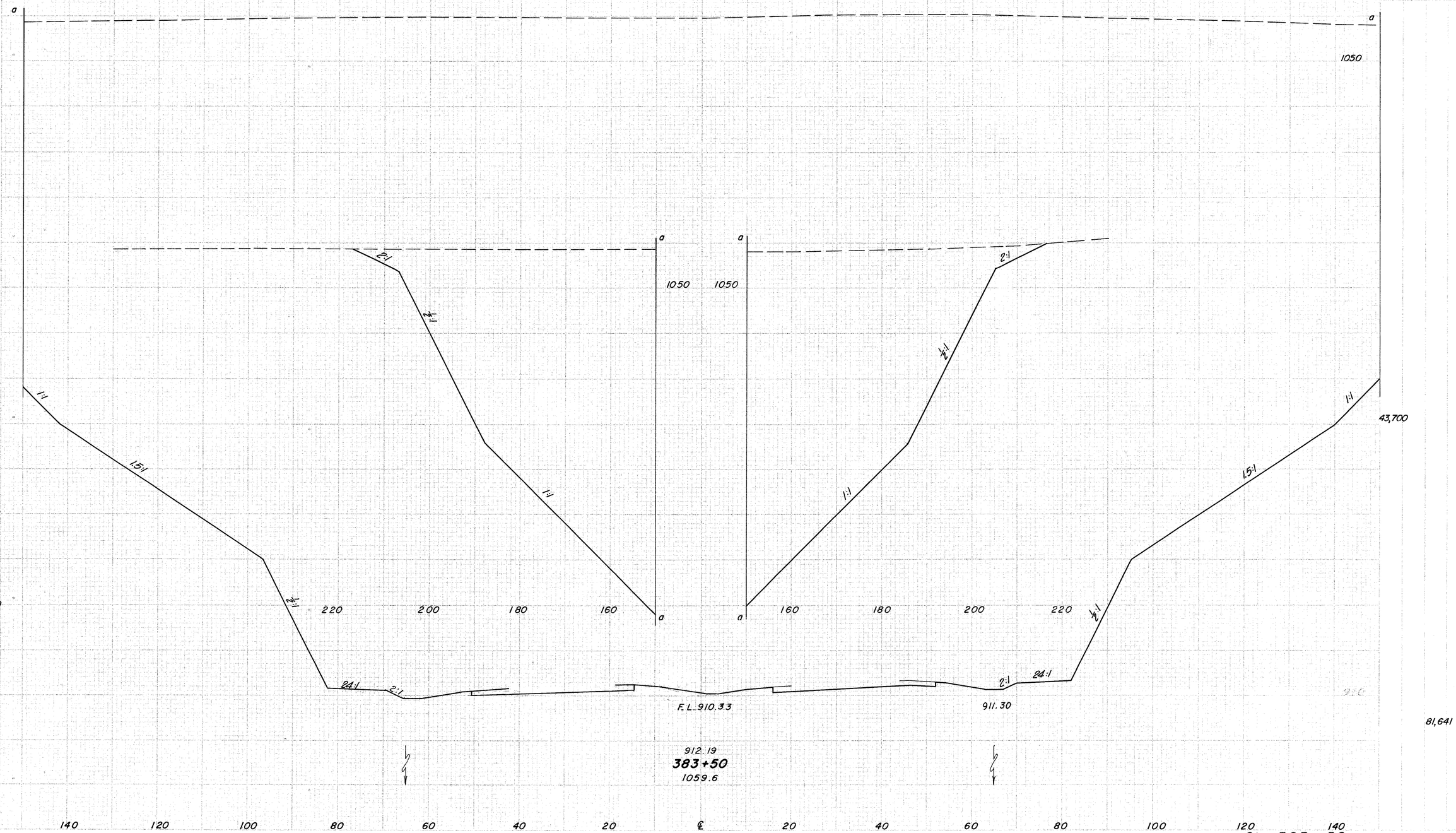
JEF - 22 - 3.86

END AREA		VOLUMES	
CUT	FILL	CUT	FILL



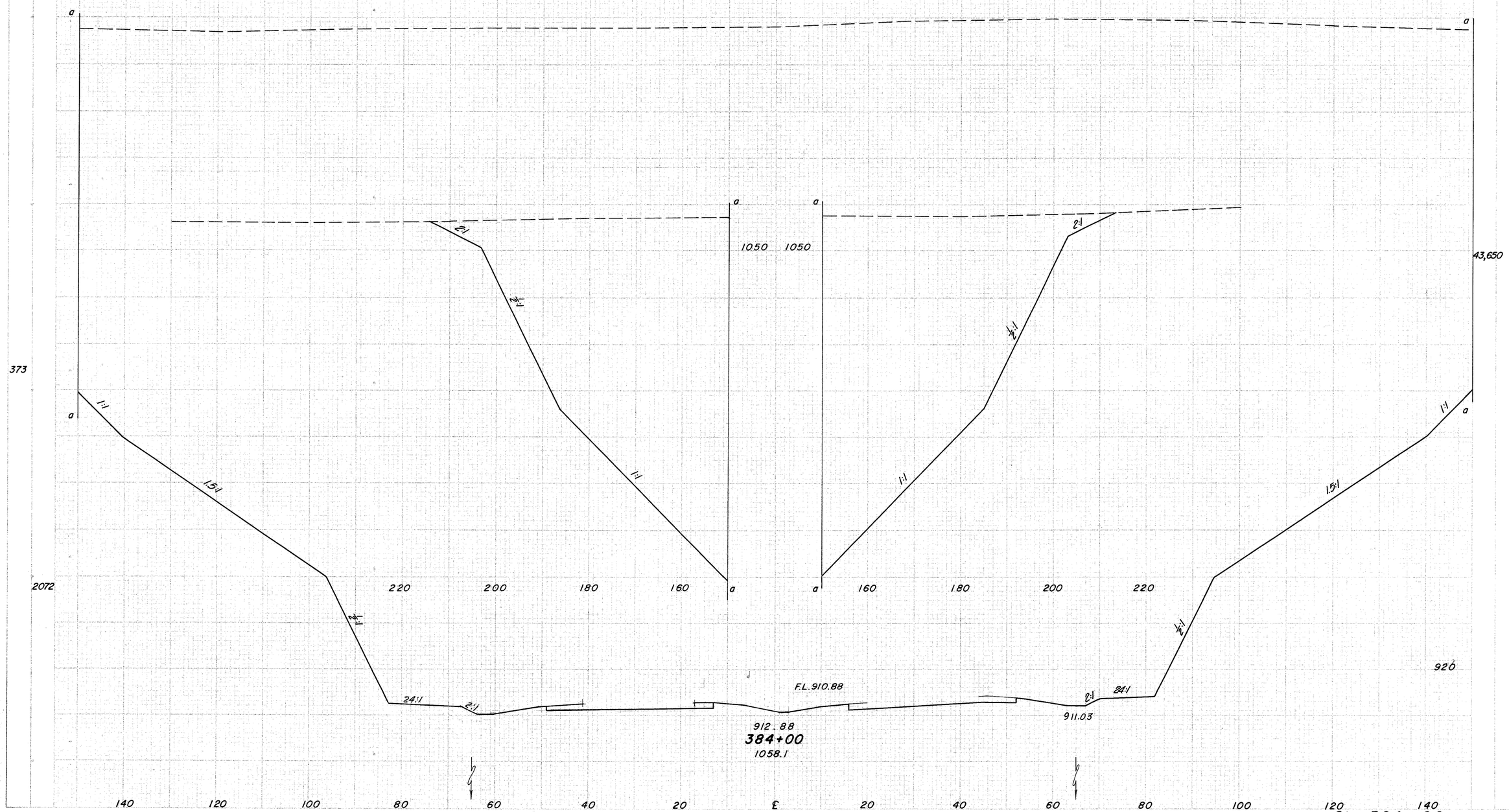
Sta. 383 + 00

JEF-22-3.86



Sta. 383 + 50

JEF-22-3.86



Sta. 384 + 00

SECTIONS

GRID WIDTH	GRID TICS

FED. DIV. SECTION	STATE	PROJECT	
5	OHIO		

257
516

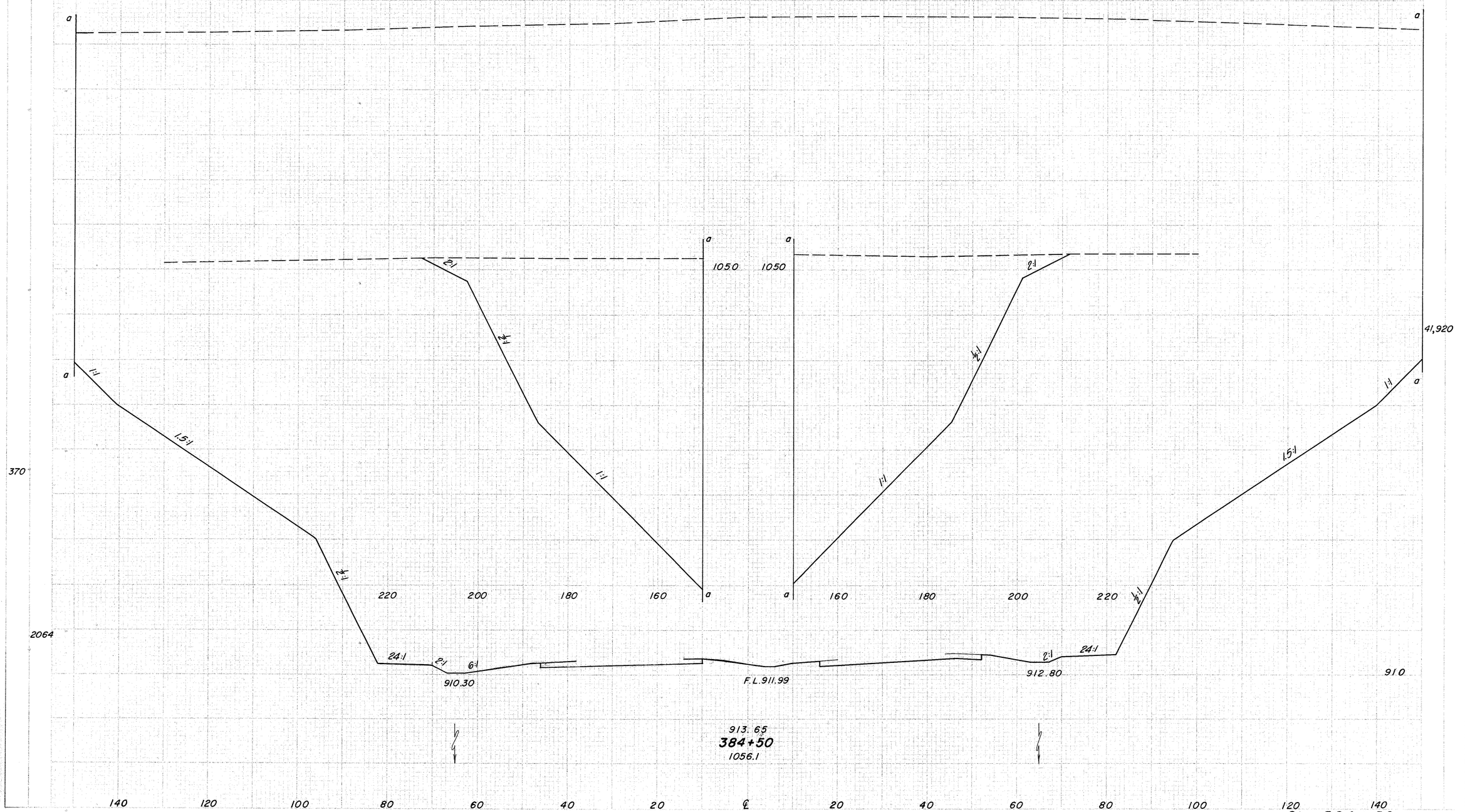
JEF-22-3.86

END AREA

SQ. FT.	SQ. YDS.

VOLUME

CU. FT.	CU. YDS.



Sta. 384 + 50

STATE	PROJECT
OHIO	

258
516

JEF-22-3.86

END AREA		VOLUME	
CUT	FILL	CUT	FILL

a

a

40,395

1040

1040

a

a

2:1

2:1

1:1

1:1

370

a

a

1:1

1:1

1.5:1

1.5:1

2:1

2:1

2056

24:1

2:1

6:1

48:1

24:1

2:1

F.L. 913.01

911.16

914.51

913.66

385+00

1046.0

76,215

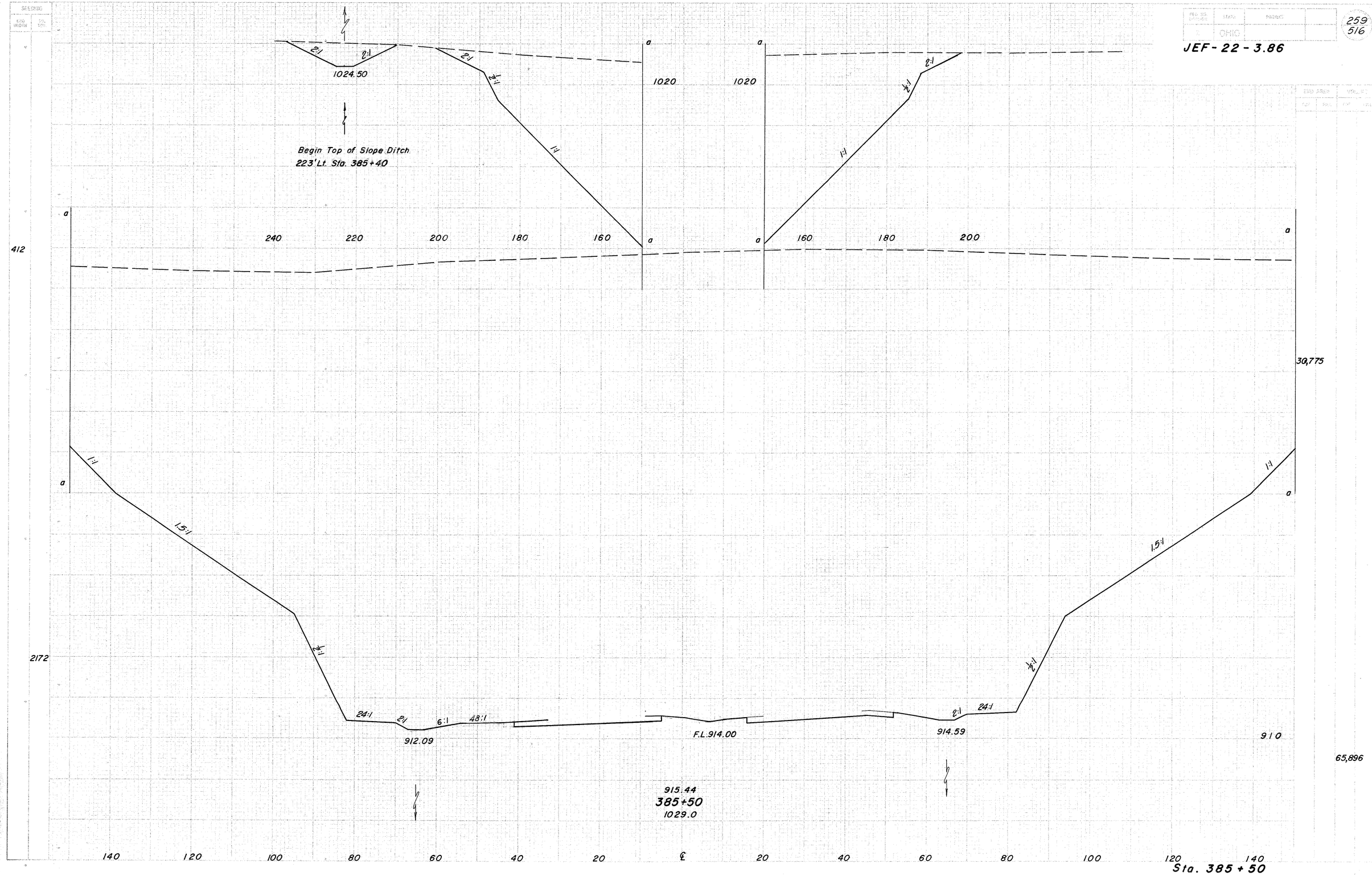
910

220 200 180 160 160 180 200 220

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

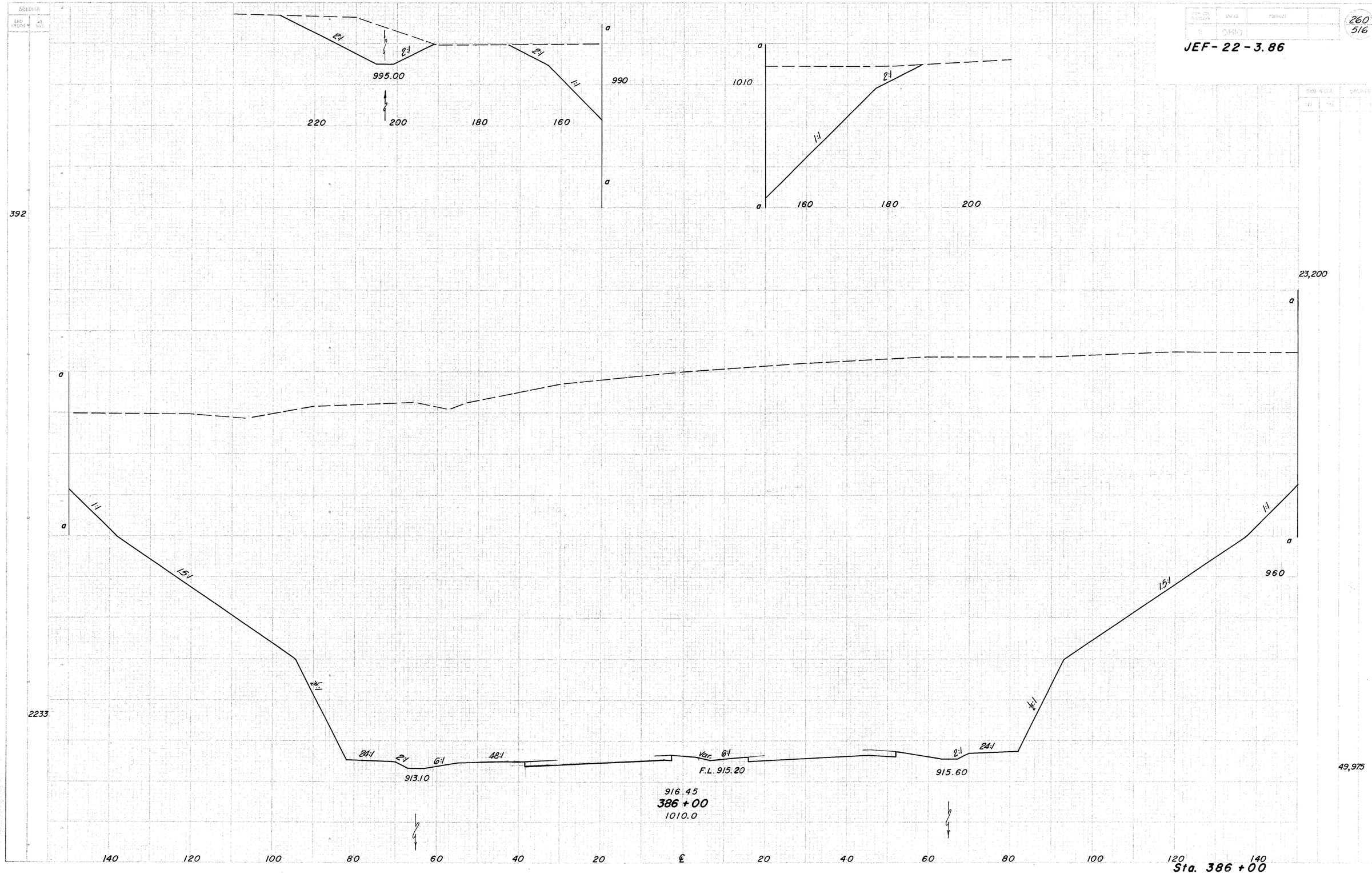
Sta. 385 + 00

JEF-22-3.86

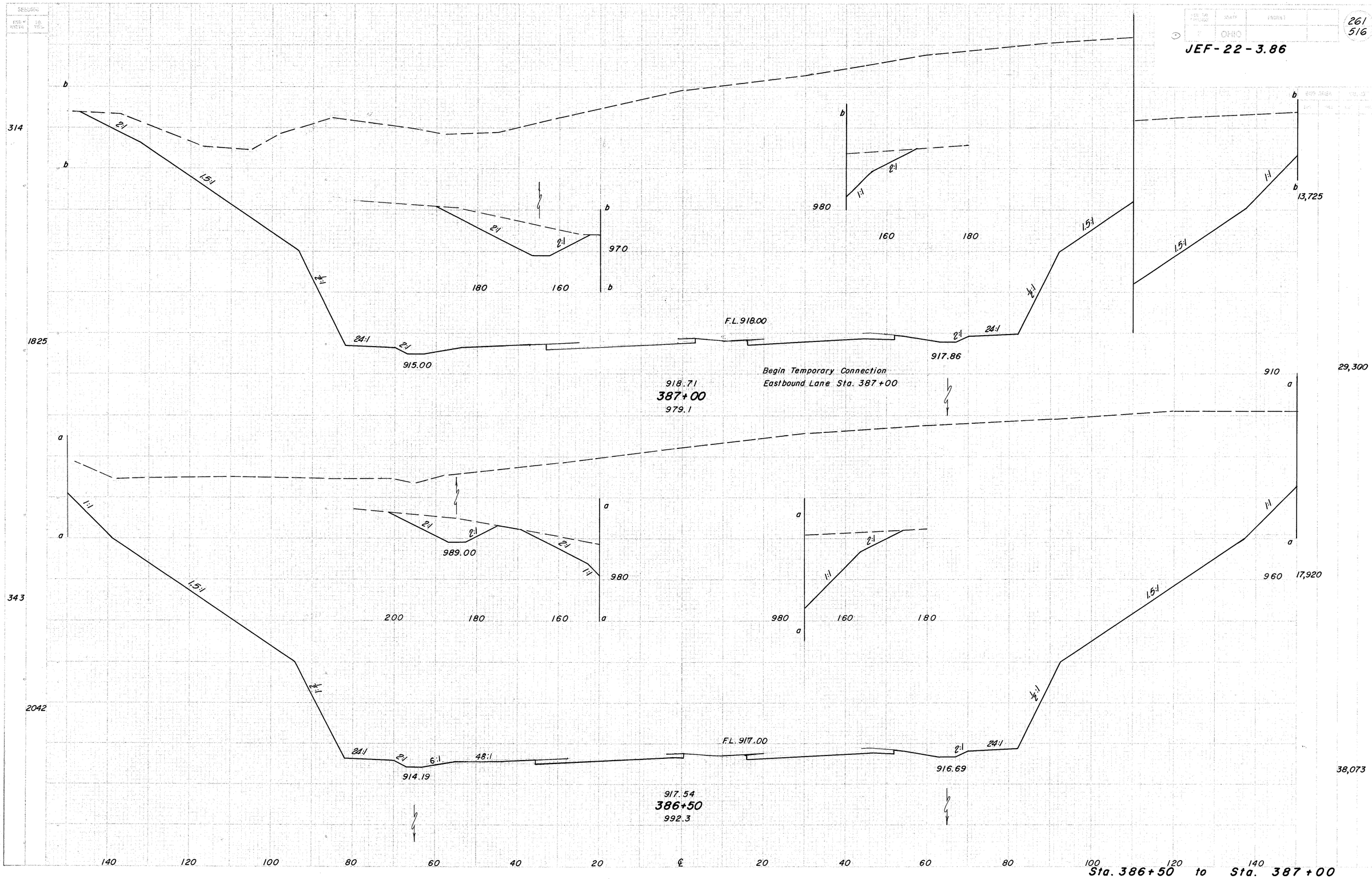


Sta. 385 + 50

JEF-22-3.86



Sta. 386+00



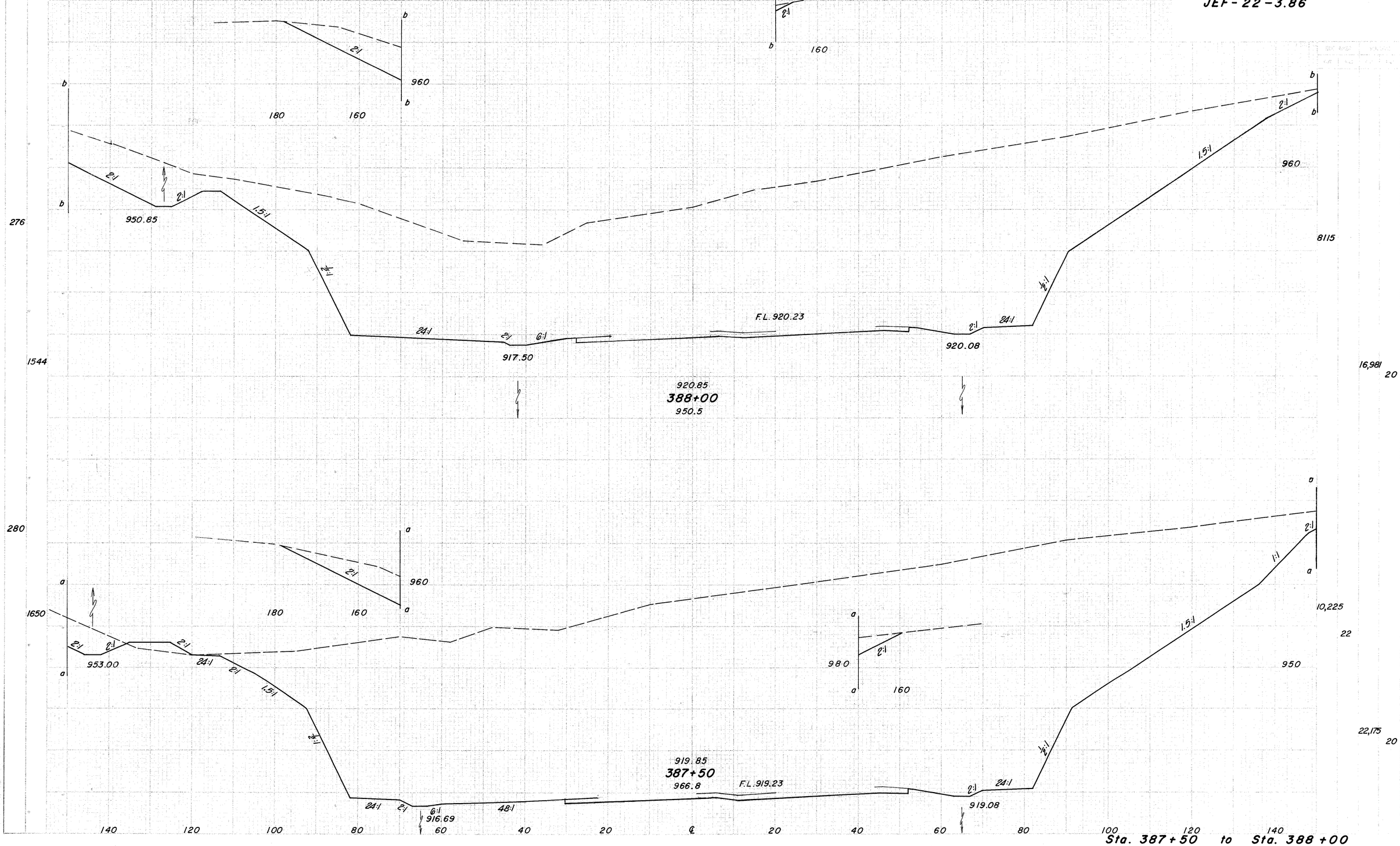
261
516
JEF-22-3.86
314
1825
343
2042
F.L. 918.00
915.00
917.86
918.71
387+00
979.1
Begin Temporary Connection
Eastbound Lane Sta. 387+00
13,725
29,300
17,920
38,073
989.00
F.L. 917.00
914.19
916.69
917.54
386+50
992.3
Sta. 386+50 to Sta. 387+00

SCORING

STATE	PROJECT	
OHIO		

262
516

JEF-22-3.86



JEF-22-3.86

263
516

2:1
1.5:1
2:1
950.40
1.5:1
2:1
24:1
920.13
F.L. 922.75
2:1
24:1
2:1
921.76
923.00
389+50
915.7

230
1228
b
b
180
160
960
b
212
364
1725
920
4185
385

2:1
52
2795
F.L. 922.15
919.33
921.33
920
922.43
389+00
917.3

1250
a
97.0
160
a
a
7018
48

238
a
2:1
1.5:1
2:1
950.70
1.5:1
2:1
24:1
F.L. 921.24
1:2
24:1
1:2
1:1½
2:1
1.5:1
2:1
4785
940
11,944
921.71
388+50
935.1
918.49
920.83

1428

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 388 + 50 to Sta. 389 + 50

JEF - 22 - 3.86

Begin 8' D.R.C.P.
Sta. 391 +00

939.80 — 18" — 2:1 — 2:1 — 2:1 — 1.5:1 — 2:1 — 24:1 — 2.7:1

923.90
391+00
911.4

931.45 — P.G. — 6:1 — 48:1 — 920.95 — 2:1

c — 2:1 — 24:1 — 2:1 — 2:1 — 876.00 — c

870 — 160 — 180

286 — 475 — 900 — 3885

1492

950.10 — 2:1 — 2:1 — 2:1 — 1.5:1 — 2:1 — 24:1 — 2:1

923.74
390+50
918.8

929.65 — P.G. — 6:1 — 48:1 — 921.80 — 2:1

b — 890 — 160 — b

1745 — 6319

1317 — 920

a — 950.25 — 2:1 — 2:1 — 2:1 — 1.5:1 — 2:1 — 24:1 — 2:1 — a

b — 24:1 — 2:1 — 2:1 — 893.00 — b

1410 — 2940

223 — 3963

1258 — 2343

927.92 — P.G. — 6:1 — 48:1 — 921.27 — 4:1 — 2:1 — 916.30

a — 160 — 960 — a

923.44
390+00
913.4

920 — 1120 — 1340 — 1578 — 2634

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

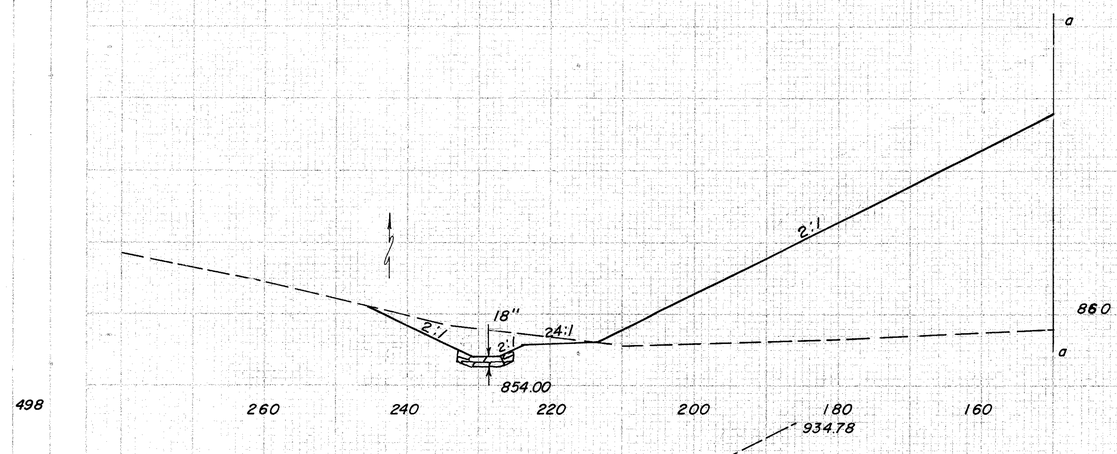
Sta. 390 + 00 to Sta. 391 + 00

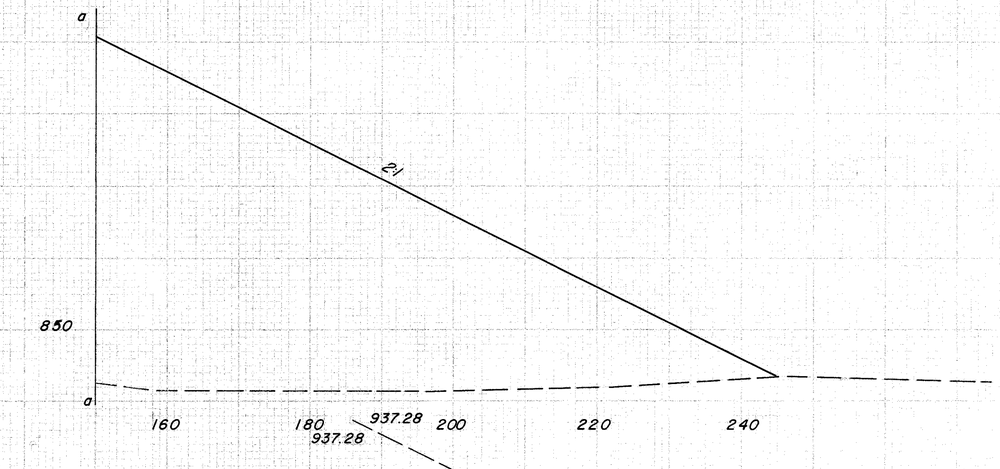
JEF - 22 - 3.86

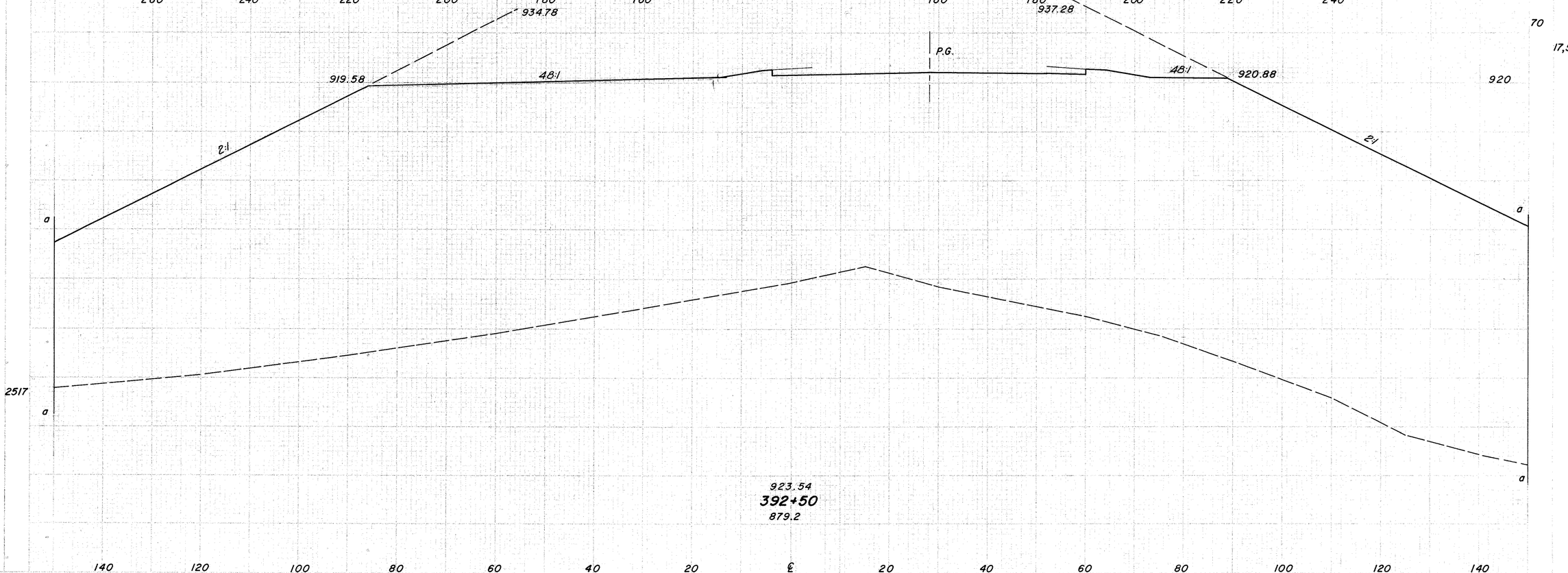
932.78
919.78
2:1
24:1
b
b
408
2016
880
180
160
884.00
18"
2:1
24:1
2:1
930.85
919.25
4:1
48:1
3:1
18"
914.00
End Top of Slope Ditch
125' Lt. Sta. 391+50
318
1678
934.29
48:1
921.14
P.G.
2:1
880
43
10,075
923.80
392+00
887.7
860
2:1
24:1
933.33
180
200
220
240
260
16.0
P.G.
48:1
921.03
2:1
900
81
14,648
a
a
44
5745
2:1
24:1
2:1
2:1
860
858.6
923.92
391+50
907.3
160
180
200
220
481
8916
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140

Sta. 391+50 to Sta. 392+00

JEF - 22 - 3.86

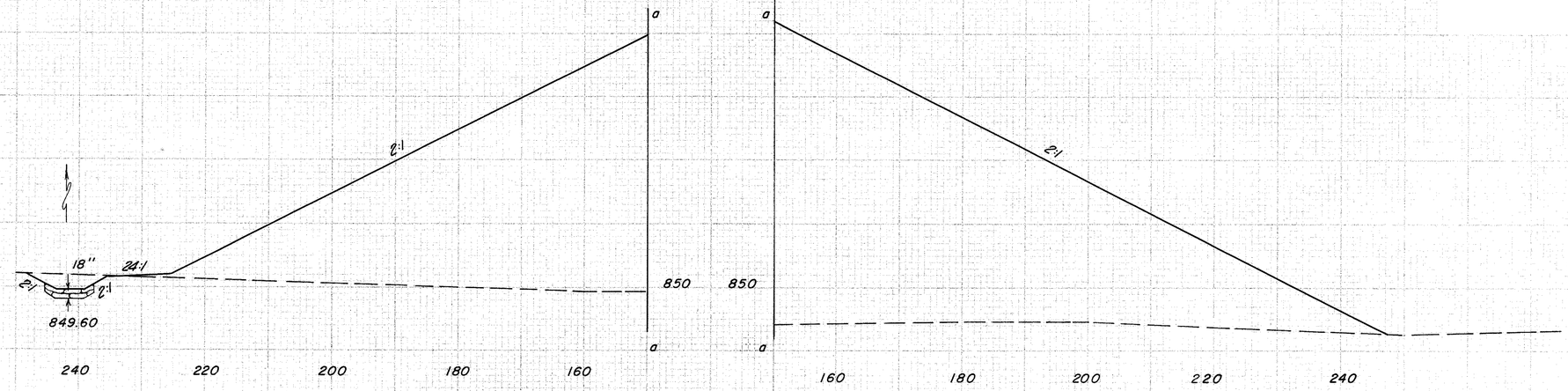






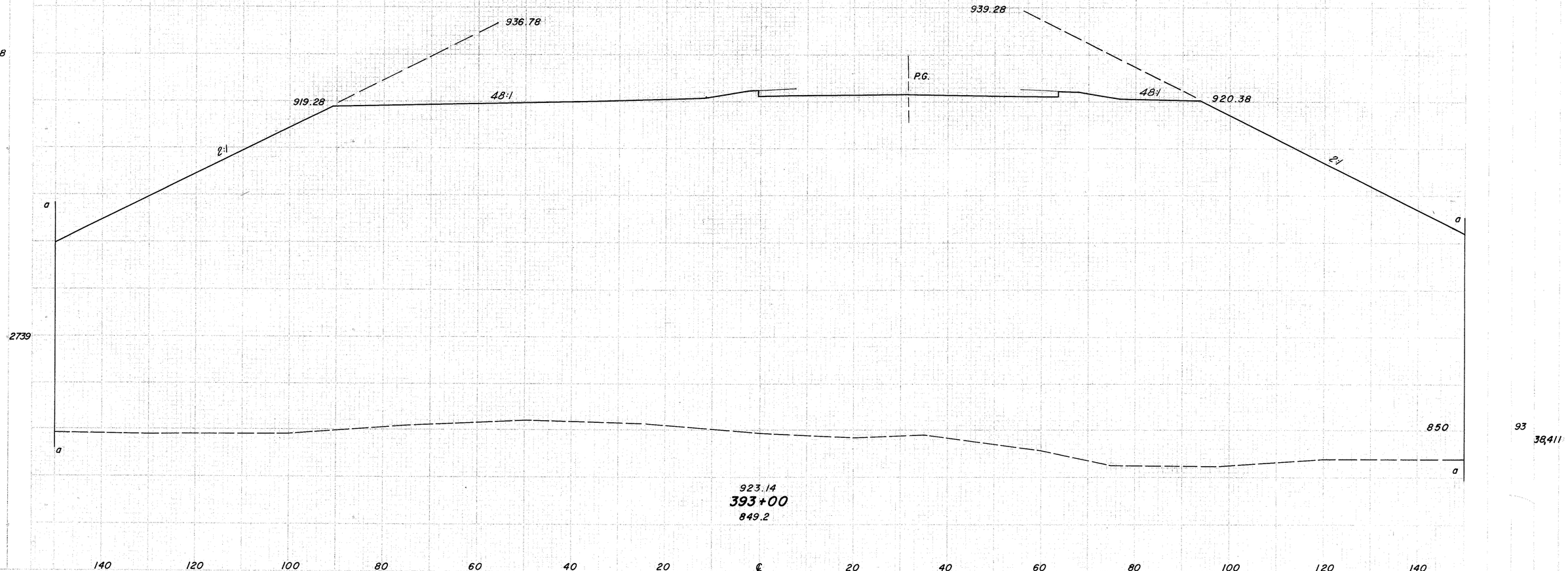
Sta. 392 + 50

JEF - 22 - 3.86



30
23,910

488

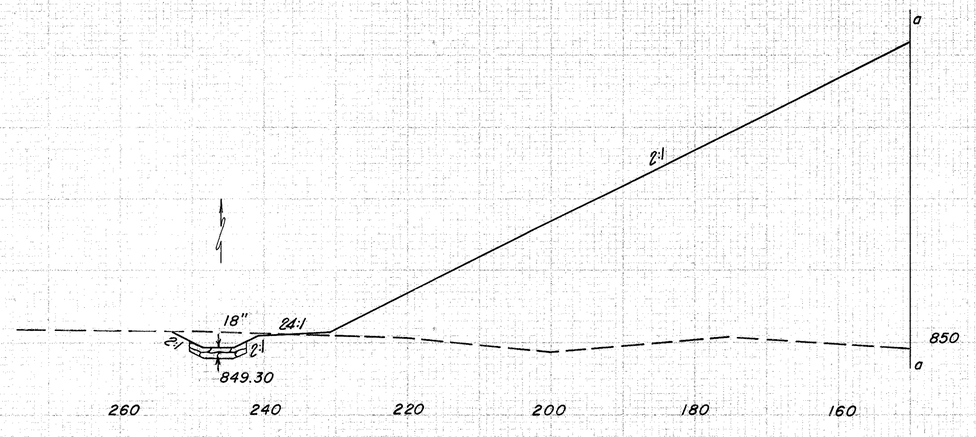


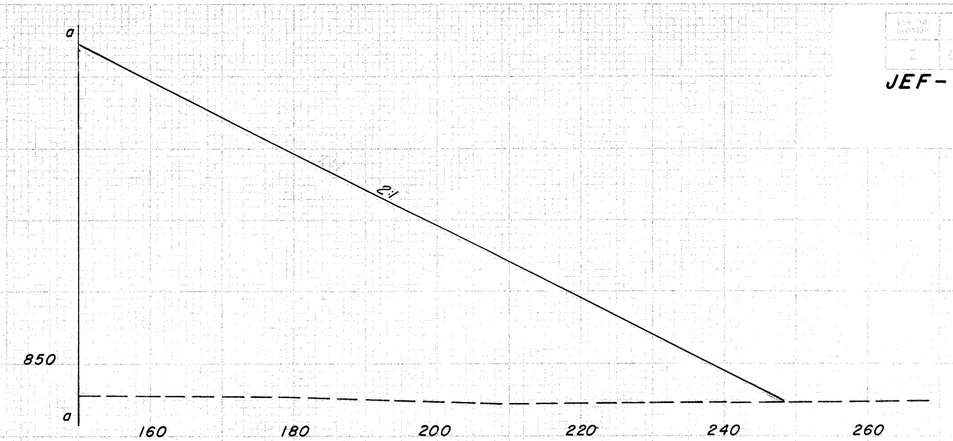
93
38,411

Sta. 393 + 00

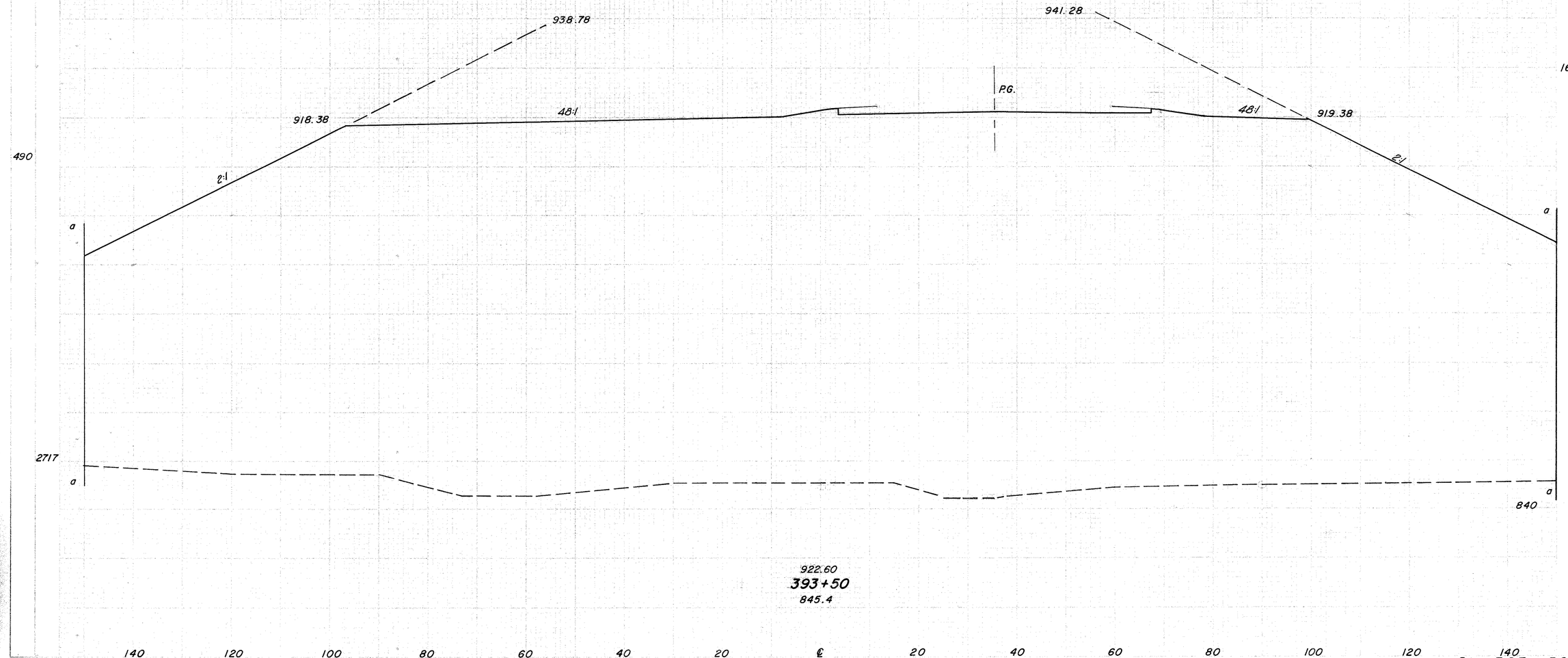
268
516

JEF-22-3.86





16
25,600



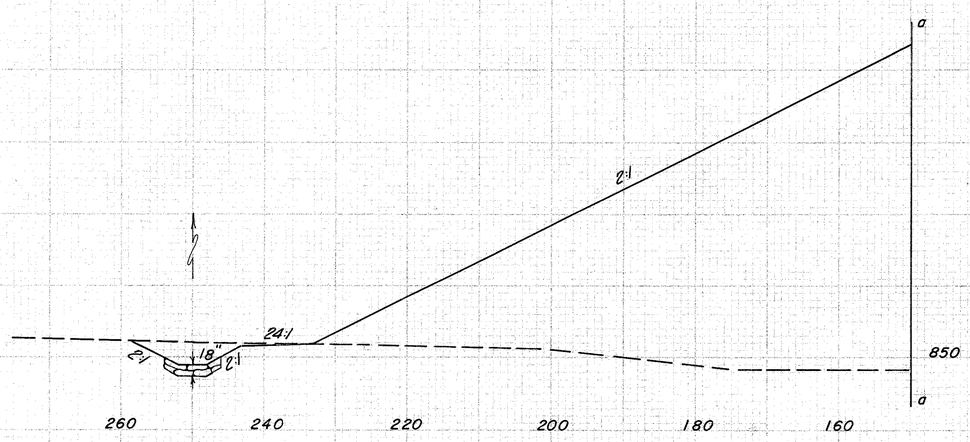
43
45,841

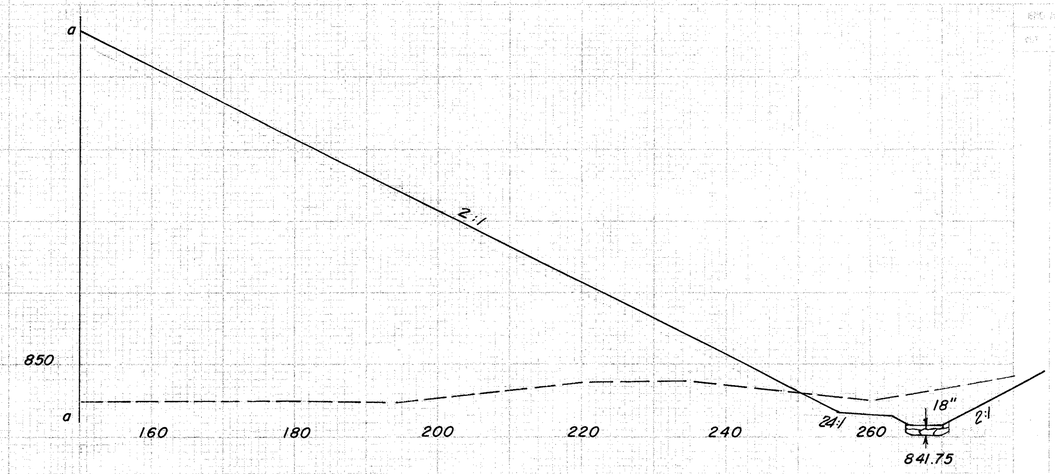
Sta. 393 + 50

JEF-22-3.86

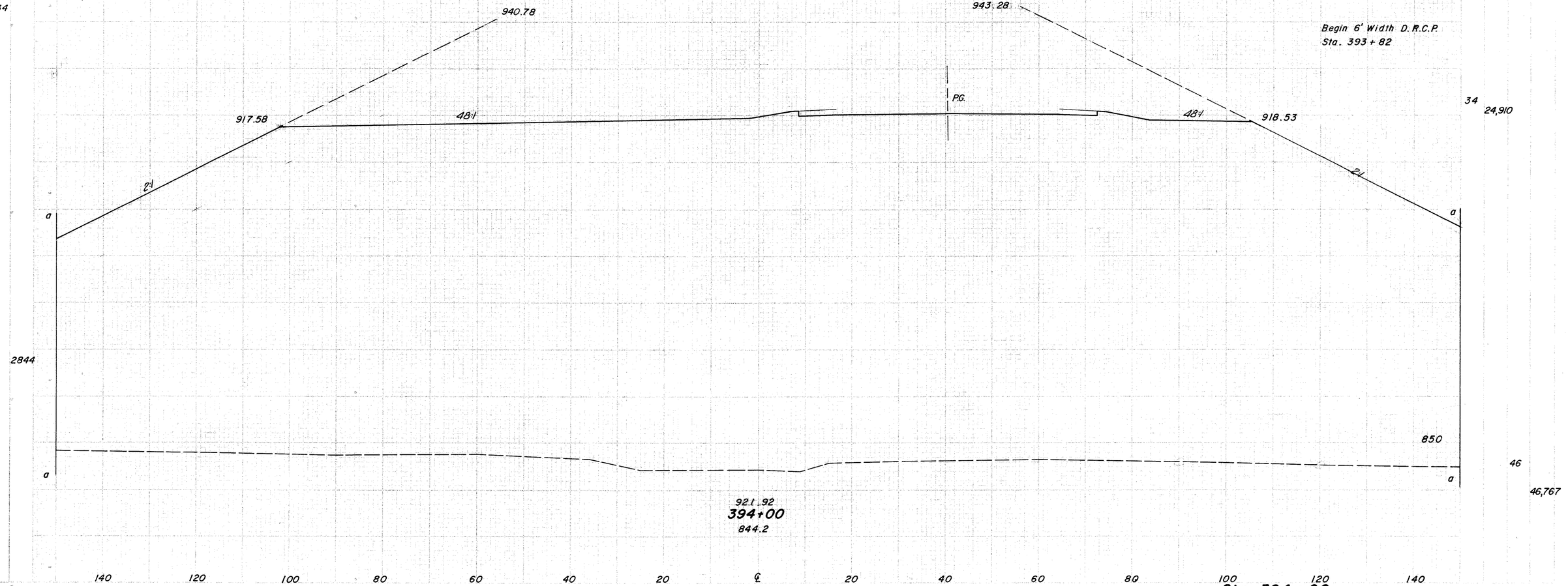
269
516

534





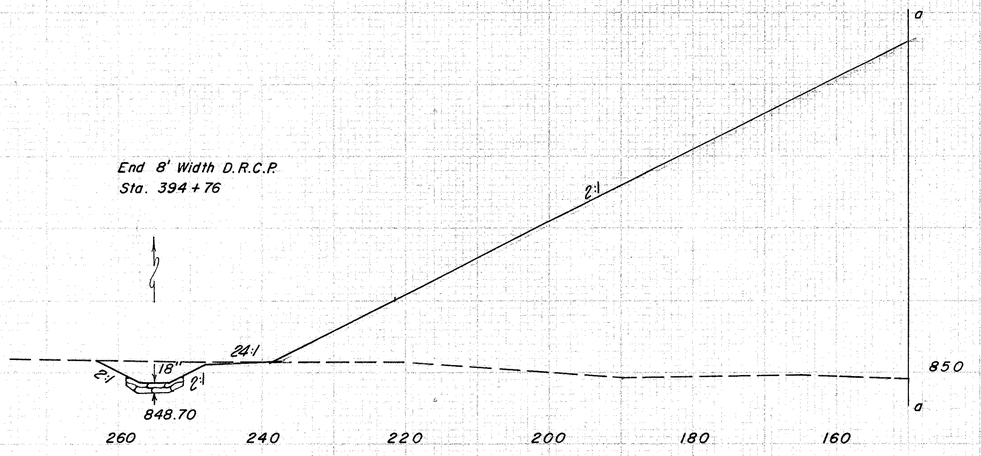
Begin 6' Width D.R.C.P.
Sta. 393 + 82

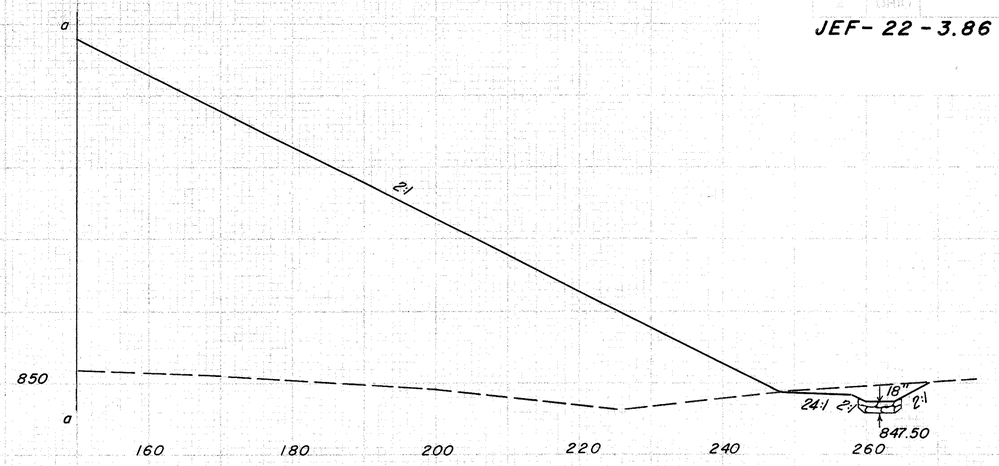


270
516

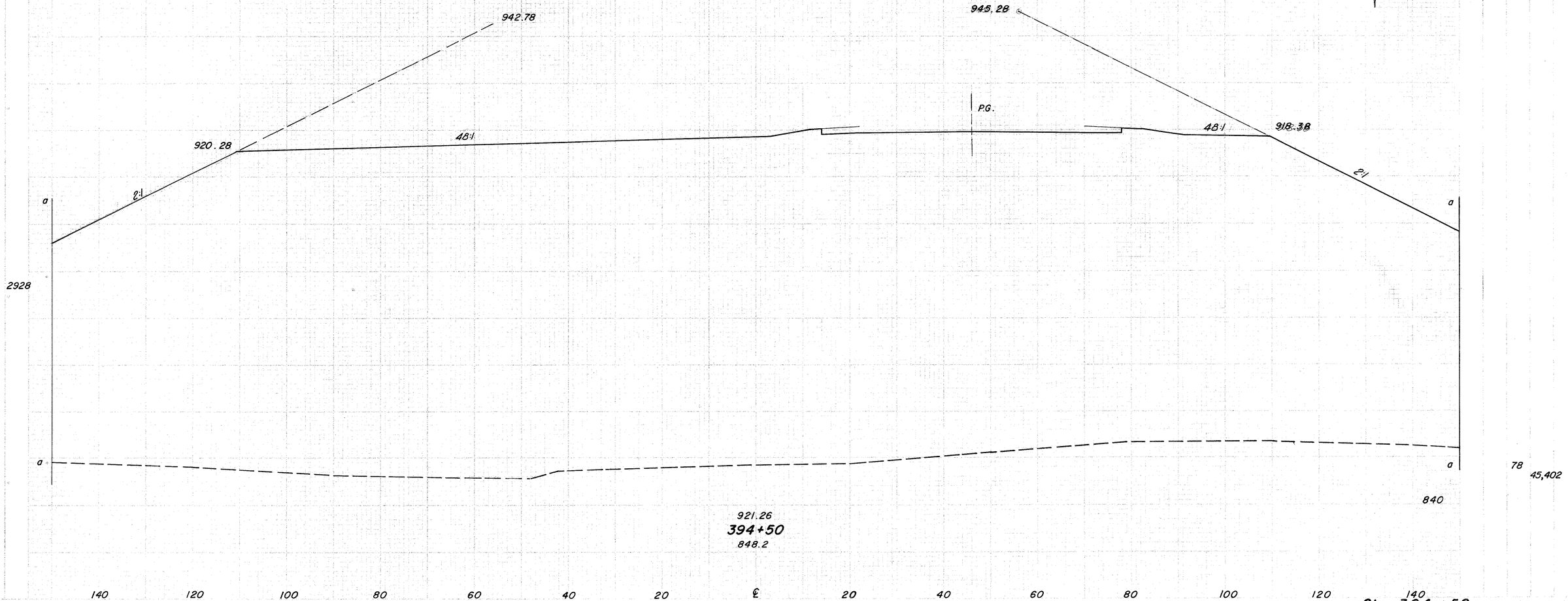
JEF- 22 - 3.86

End 8' Width D.R.C.P.
Sta. 394 + 76





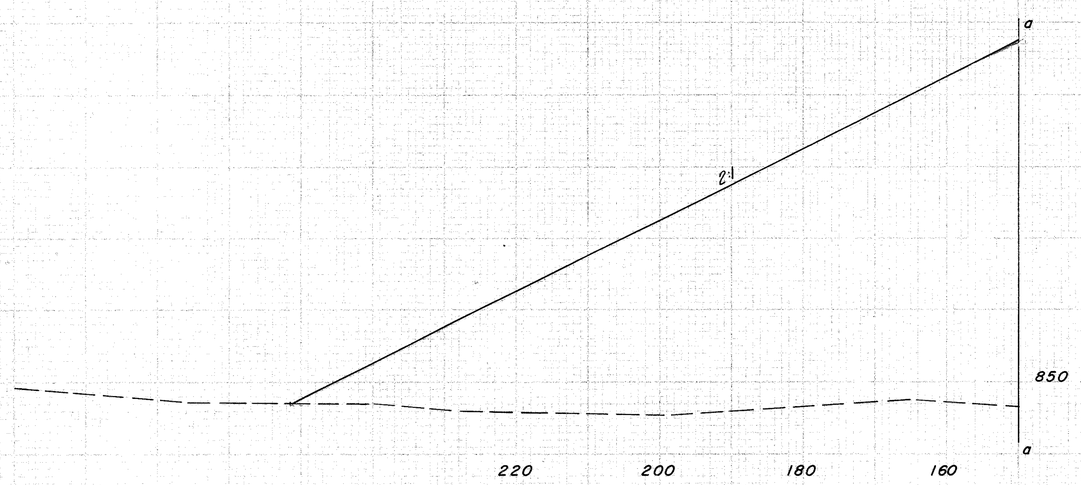
50
24,125

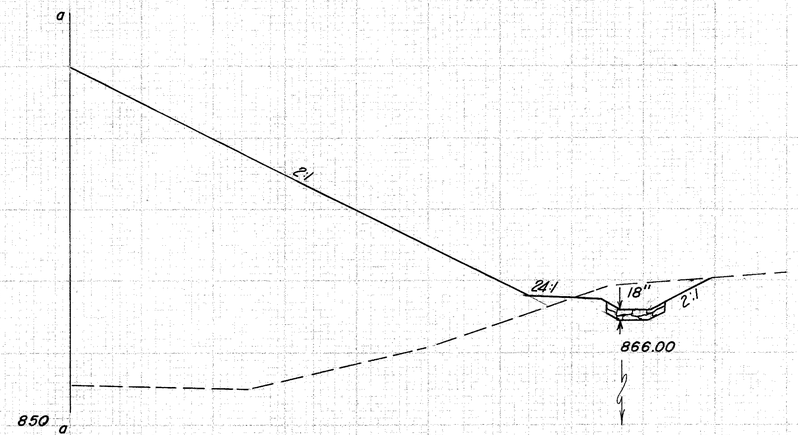


Sta. 394 + 50

271
516

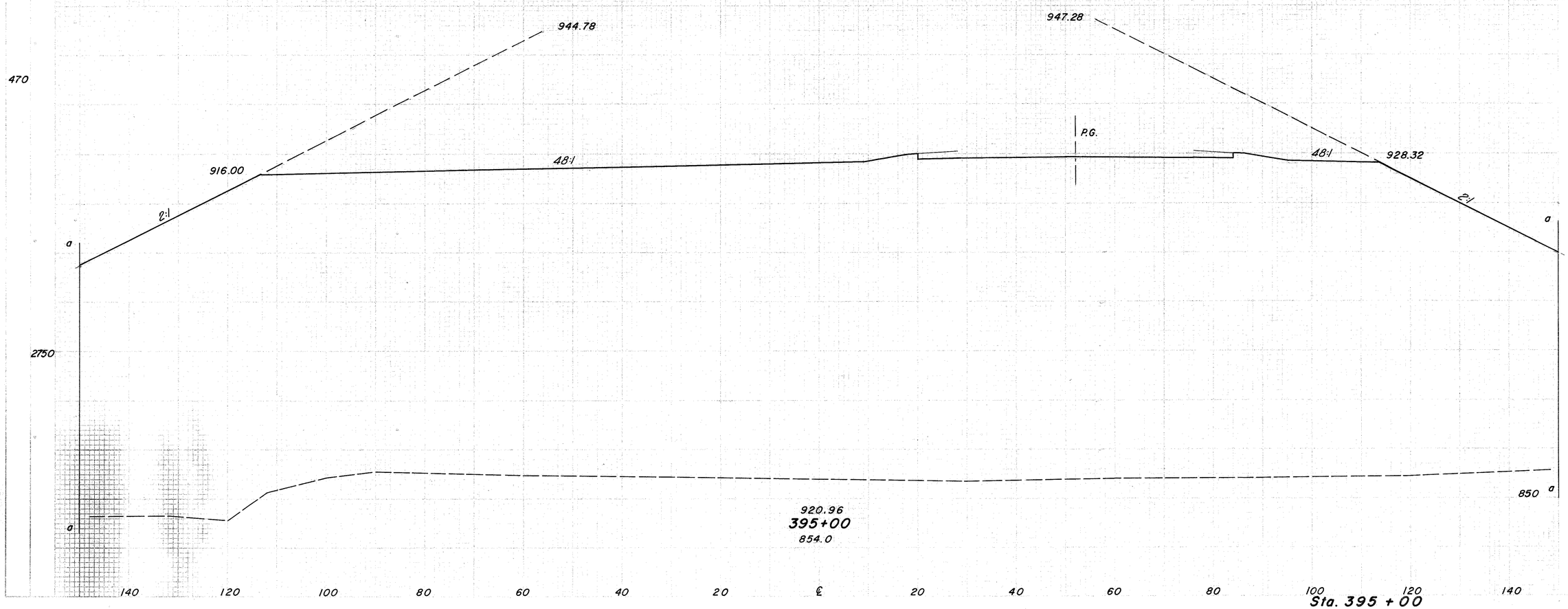
JEF-22-3.86





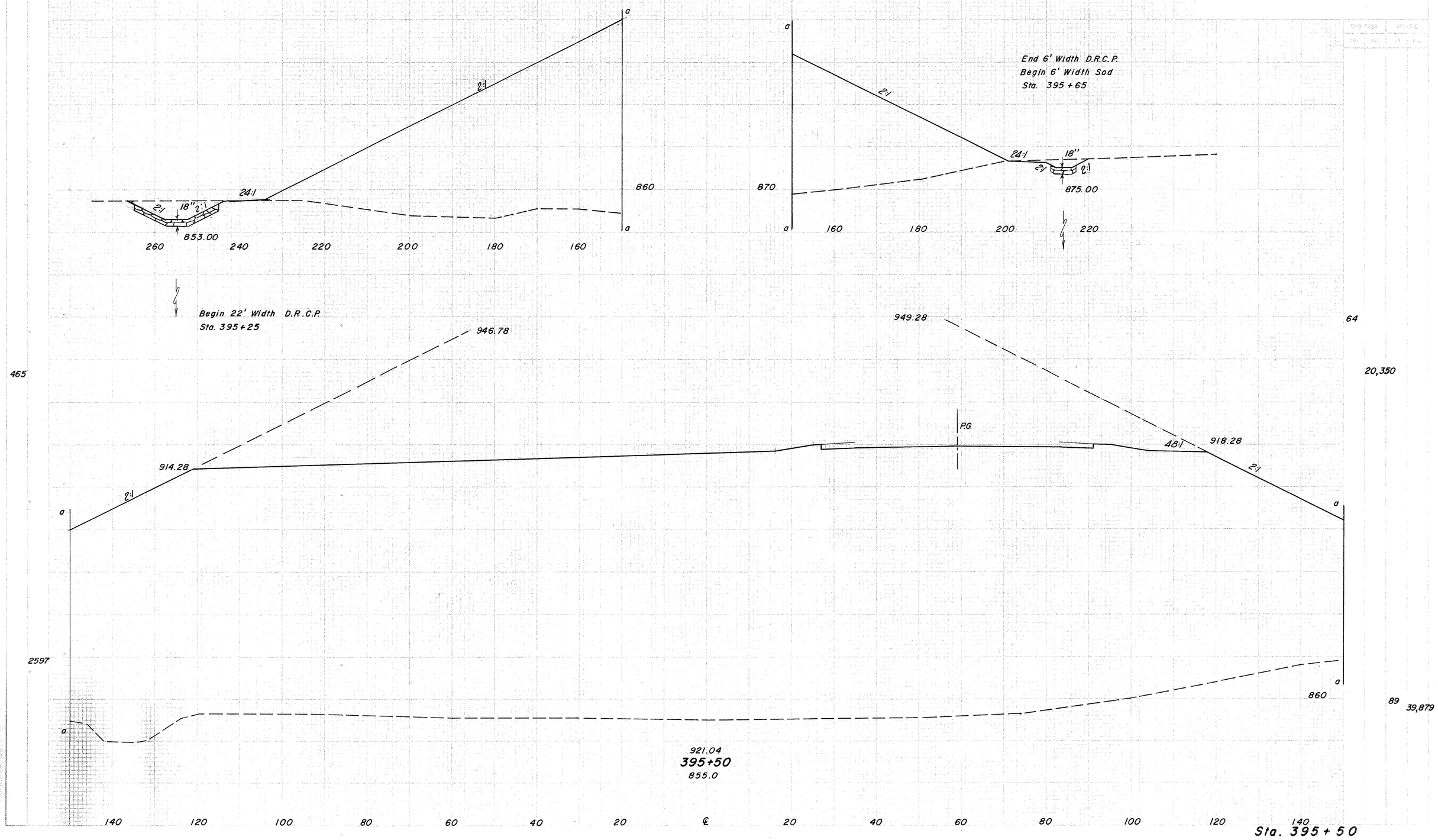
32

22,720



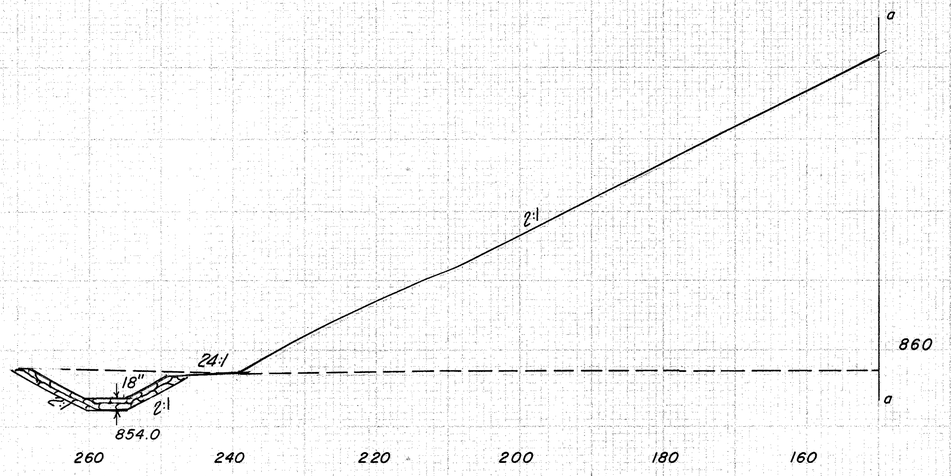
76 43,374

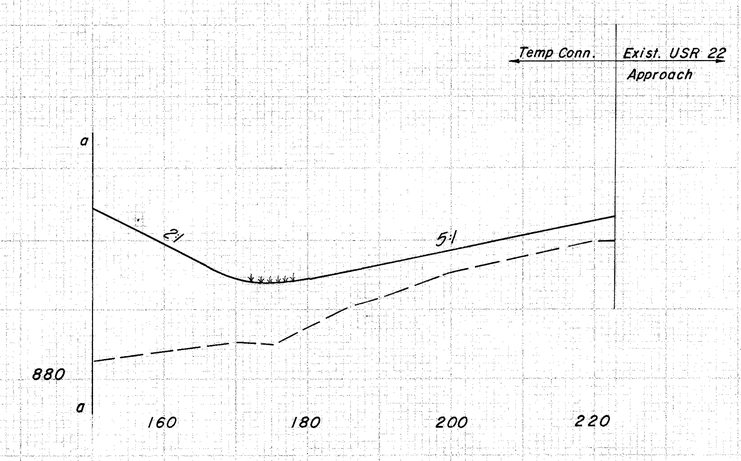
JEF-22-3.86



Sta. 395+50

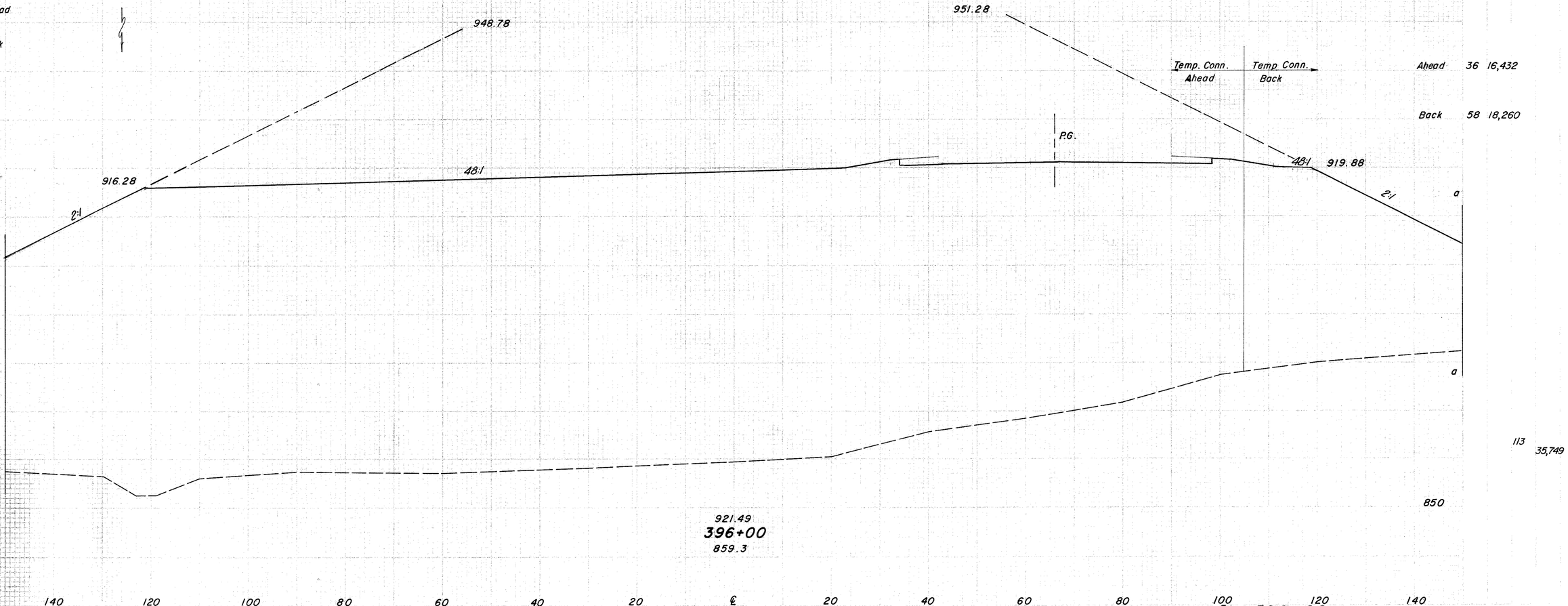
JEF-22-3.86





320 Ahead

124 Back



951.28

Temp. Conn. Ahead — Temp Conn. Back

Ahead 36 16,432

Back 58 18,260

113 35,749

850

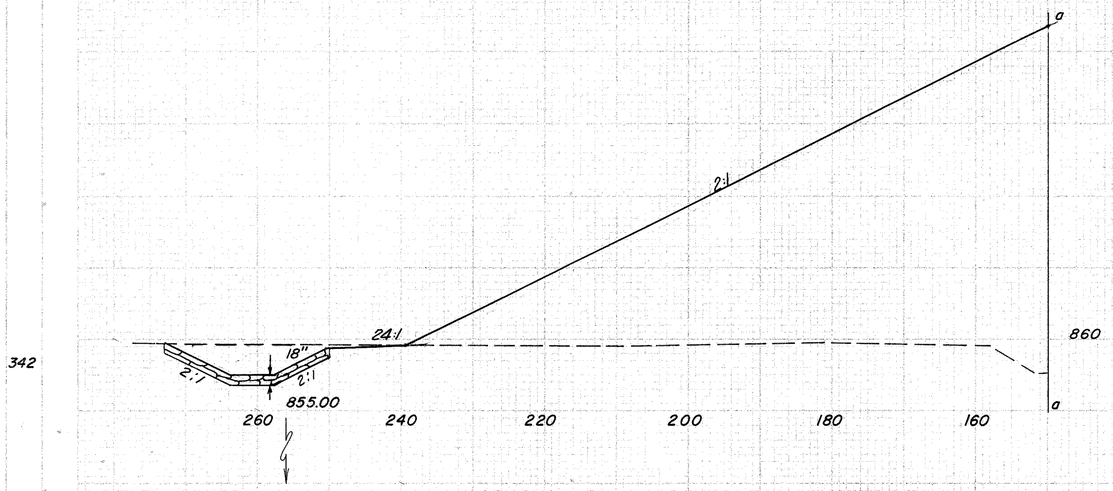
Sta. 396+00

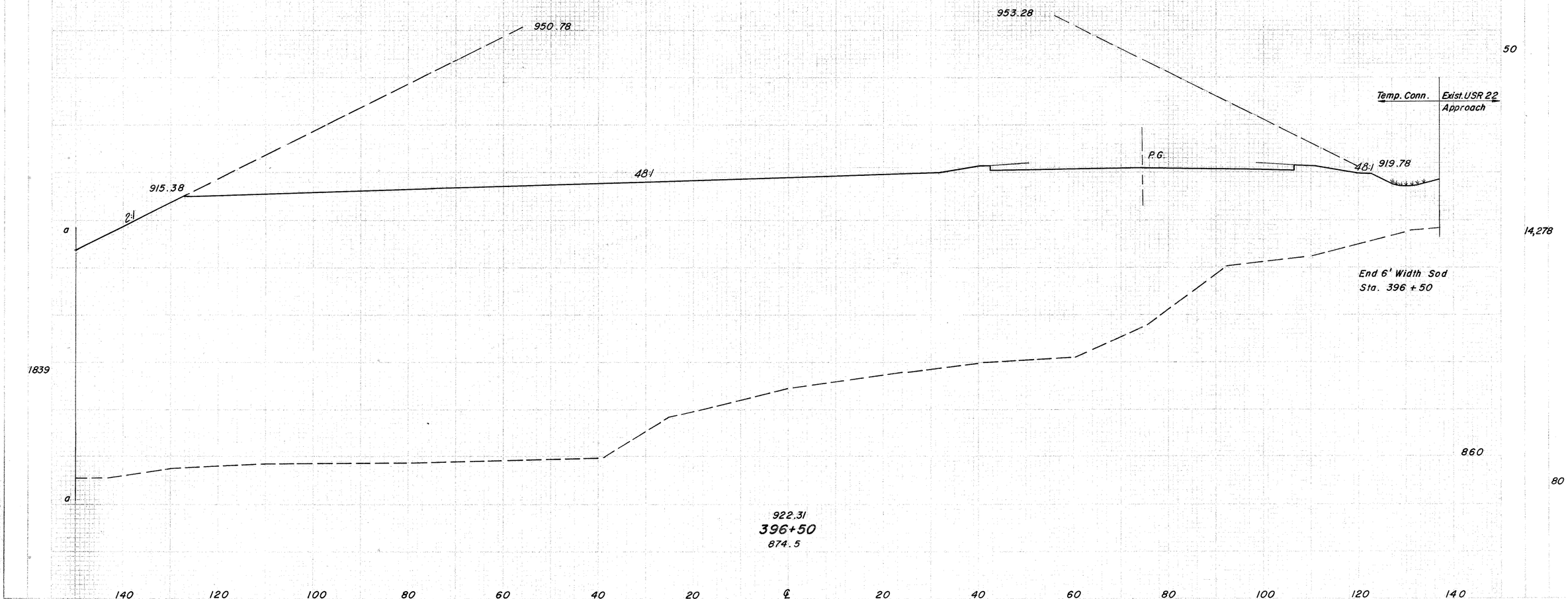
SEEDING

SHT. NO. OF SHTS.	STATE	PROJECT	
2	OHIO		

274
516

JEF-22-3.86

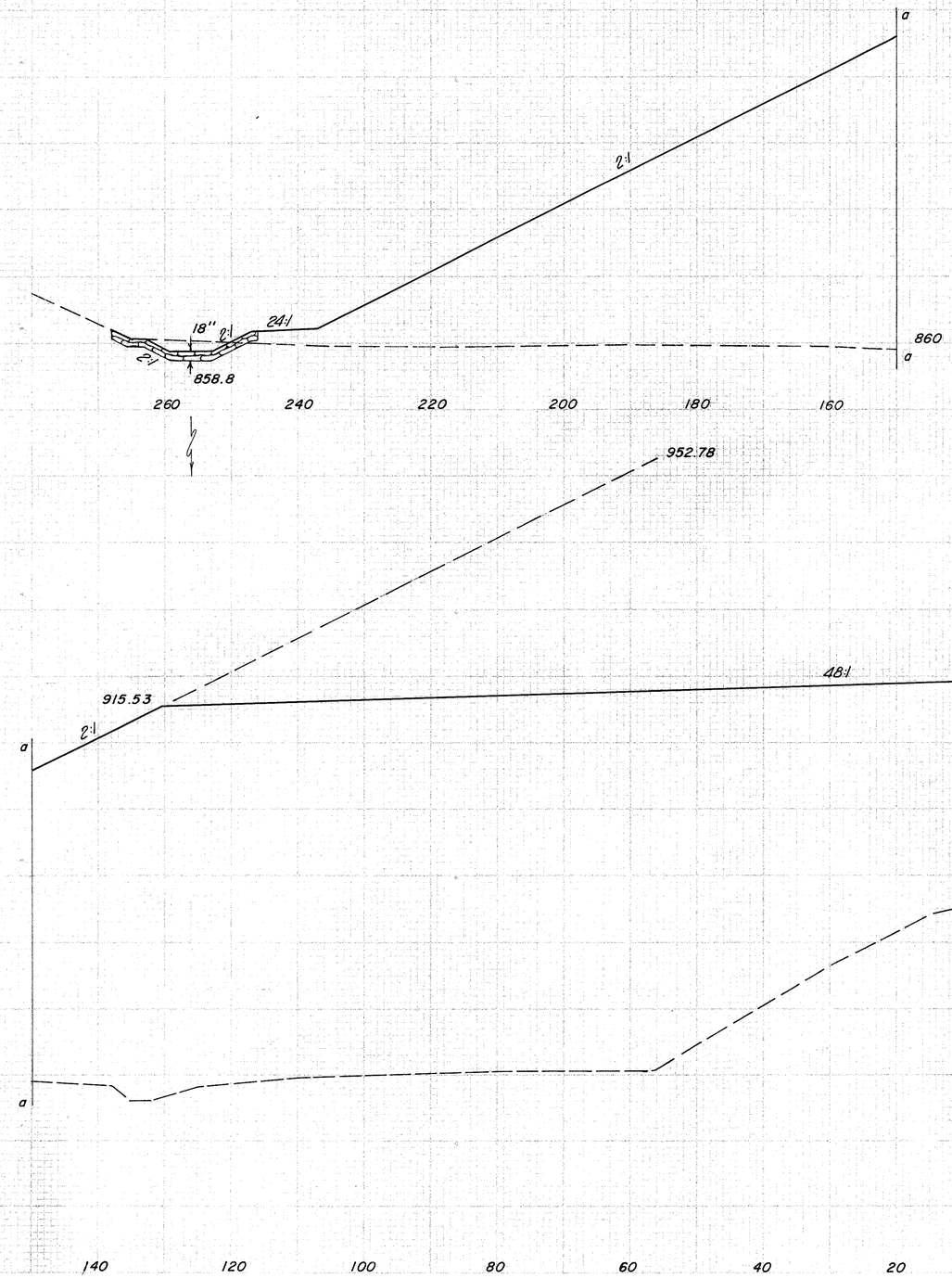


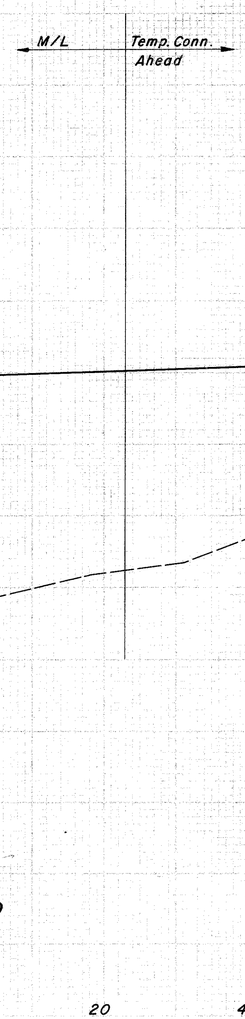


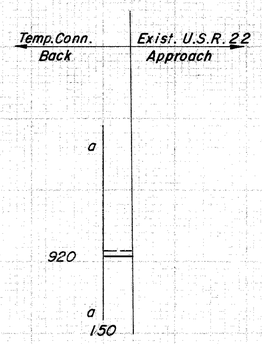
STATE	PROJECT
OHIO	

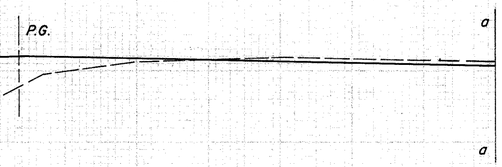
275
516

JEF - 22 - 3.86









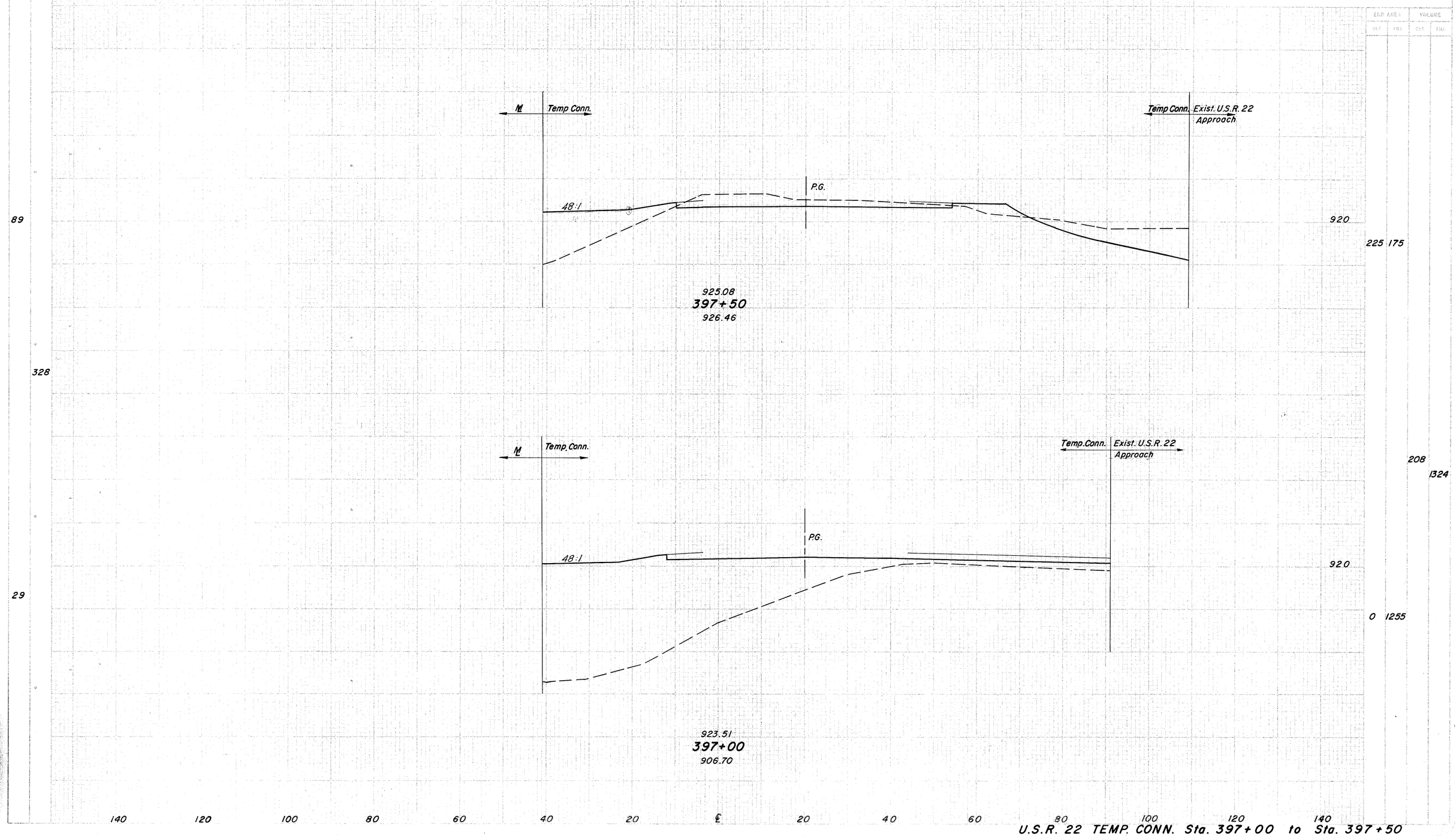
Ahead	27	10,200	
Back	42	11,973	
		850	85
			24,306

290

Sta. 397+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF-22-3.86

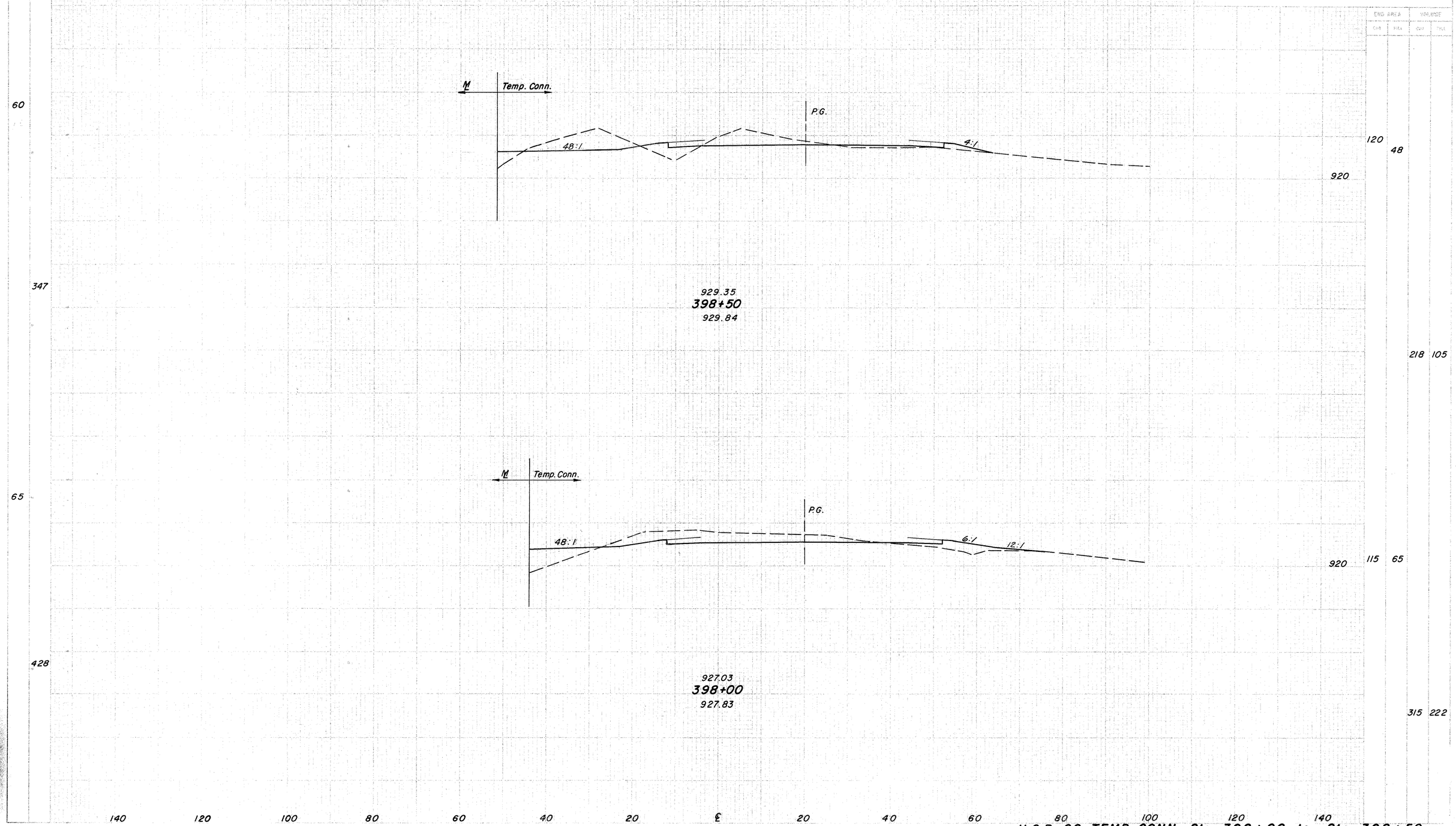


U.S.R. 22 TEMP. CONN. Sta. 397+00 to Sta. 397+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

277
516

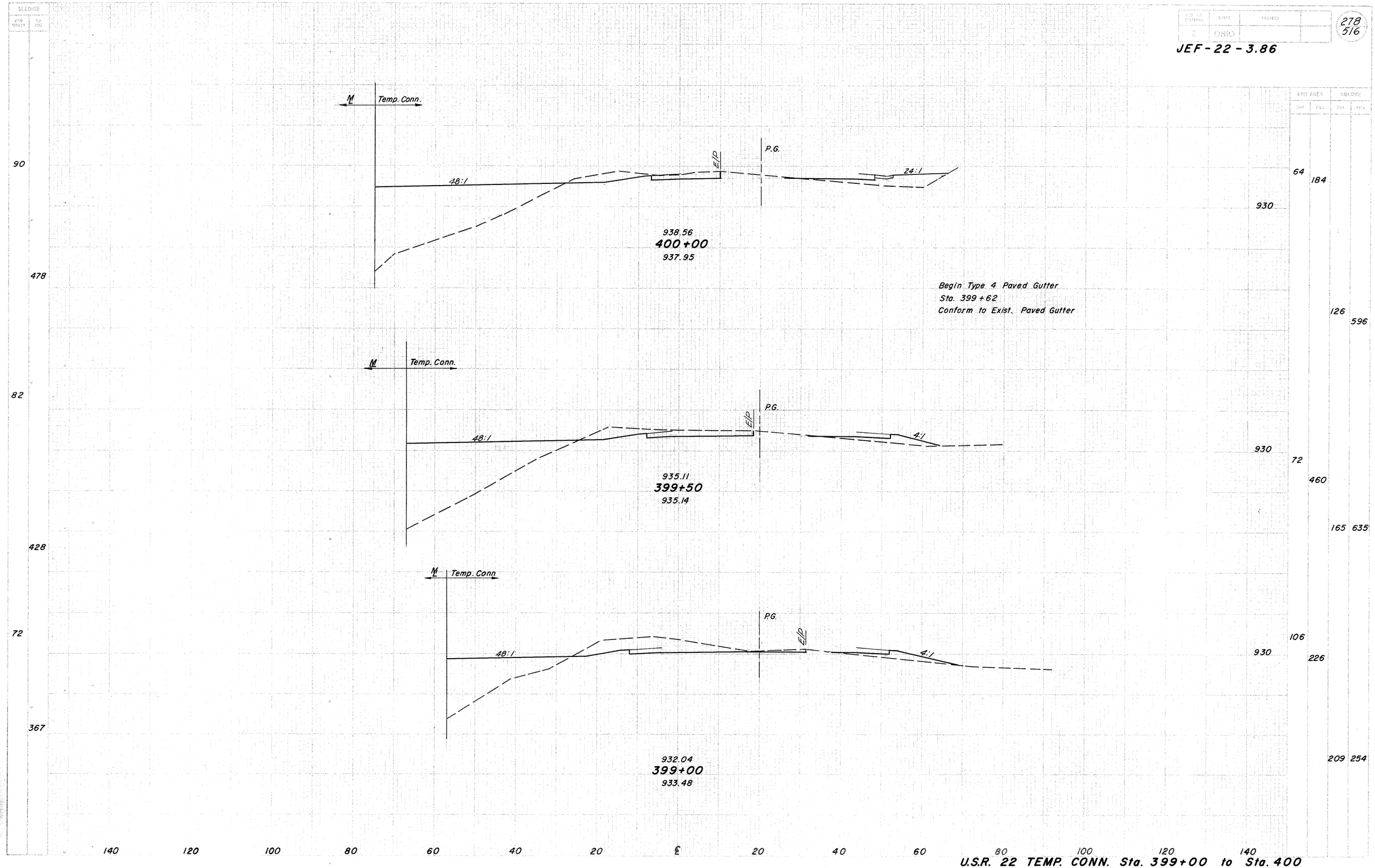
JEF-22-3.86



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
120	48		
		218	105
115	65		
		315	222

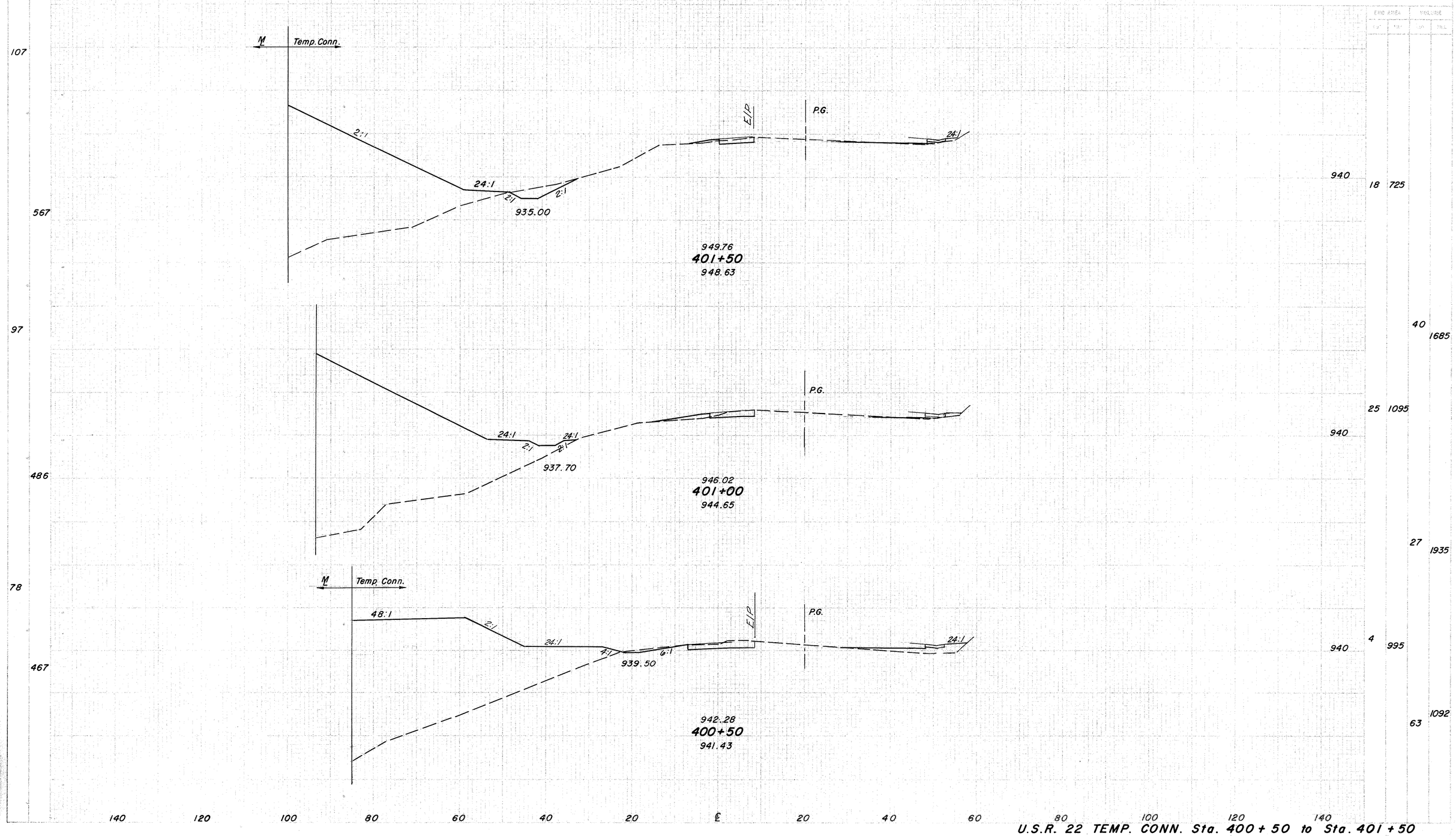
U.S.R. 22 TEMP. CONN. Sta. 398+00 to Sta. 398+50

JEF-22-3.86



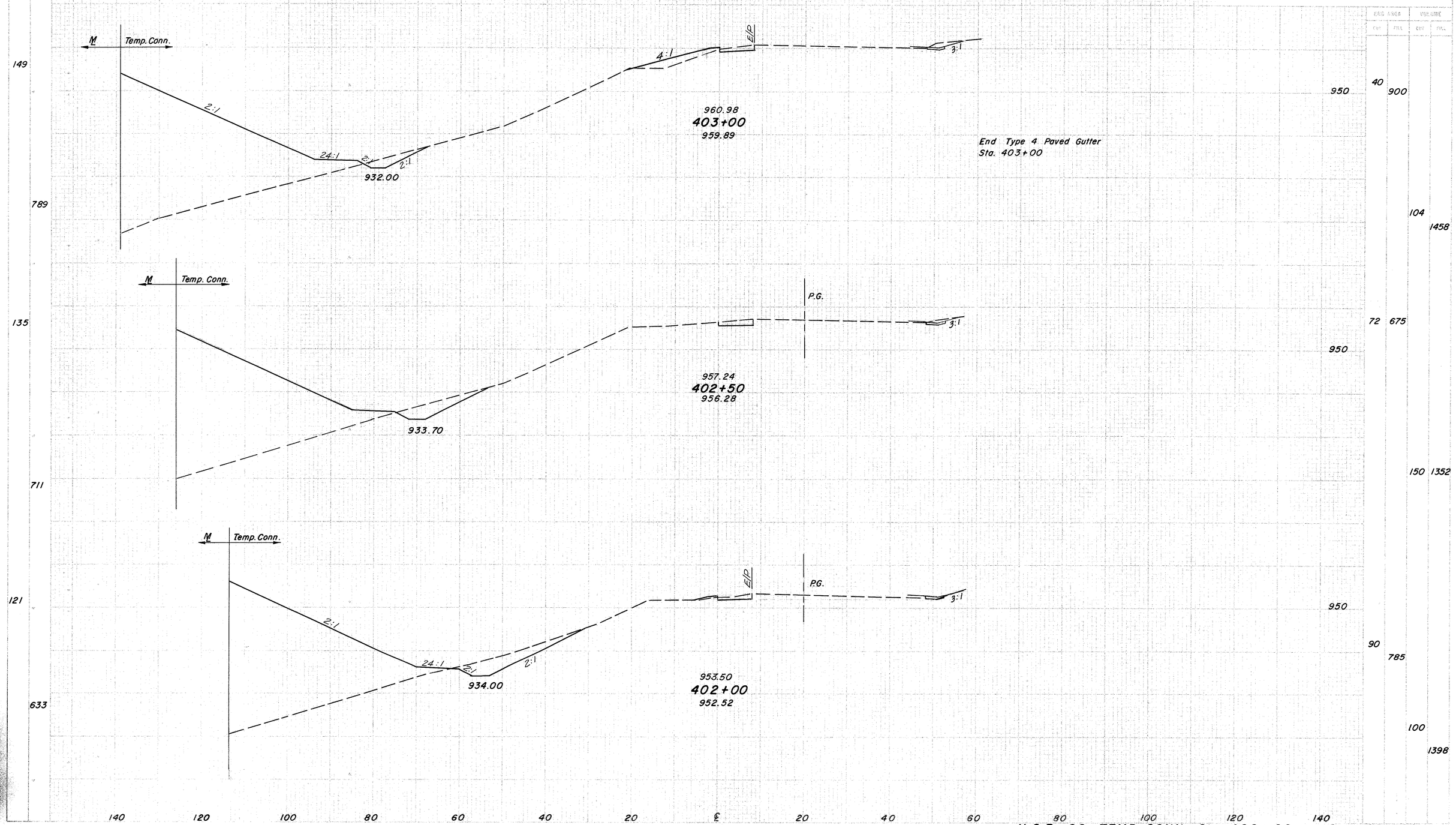
U.S.R. 22 TEMP. CONN. Sta. 399+00 to Sta. 400

JEF-22-3.86



U.S.R. 22 TEMP. CONN. Sta. 400+50 to Sta. 401+50

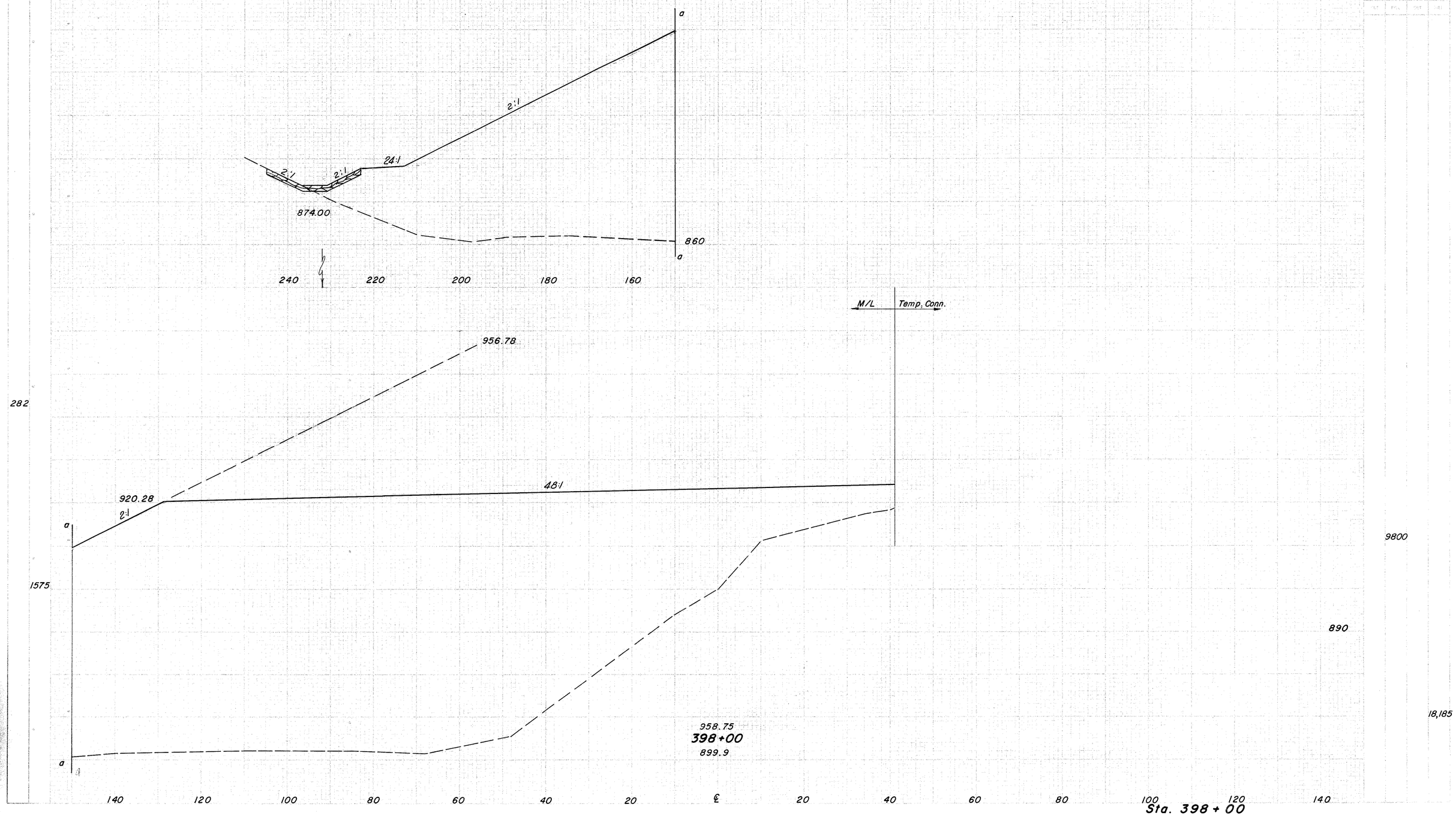
JEF-22-3.86



U.S.R. 22 TEMP. CONN. Sta. 402+00 to Sta. 403+00

2 OHIO
281
516
JEF-22-3.86
2:1
24:1
2:1
18"
2:1
860
a
a
260
240
220
200
180
160
M/L
Temp. Conn.
285
954.78
918.78
48:1
2:1
a
a
9840
1597
880
25 18,555
956.75
397+50
902.0
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 397 + 50

JEF-22-3.86



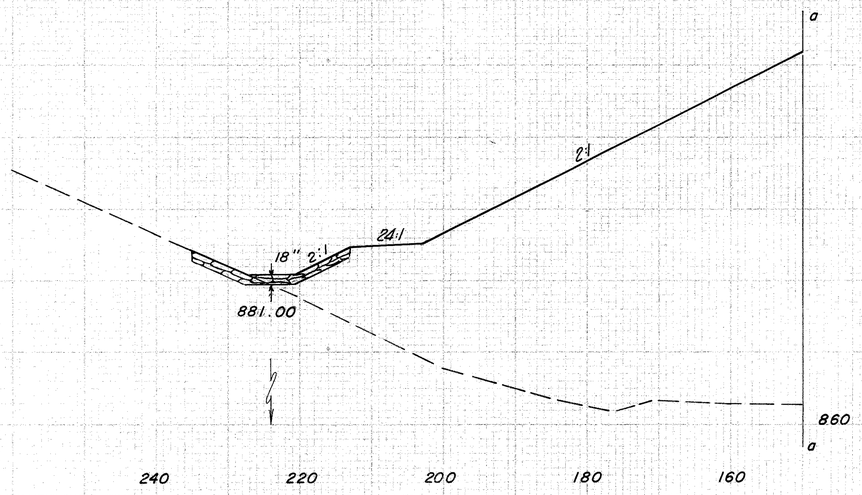
Sta. 398 + 00

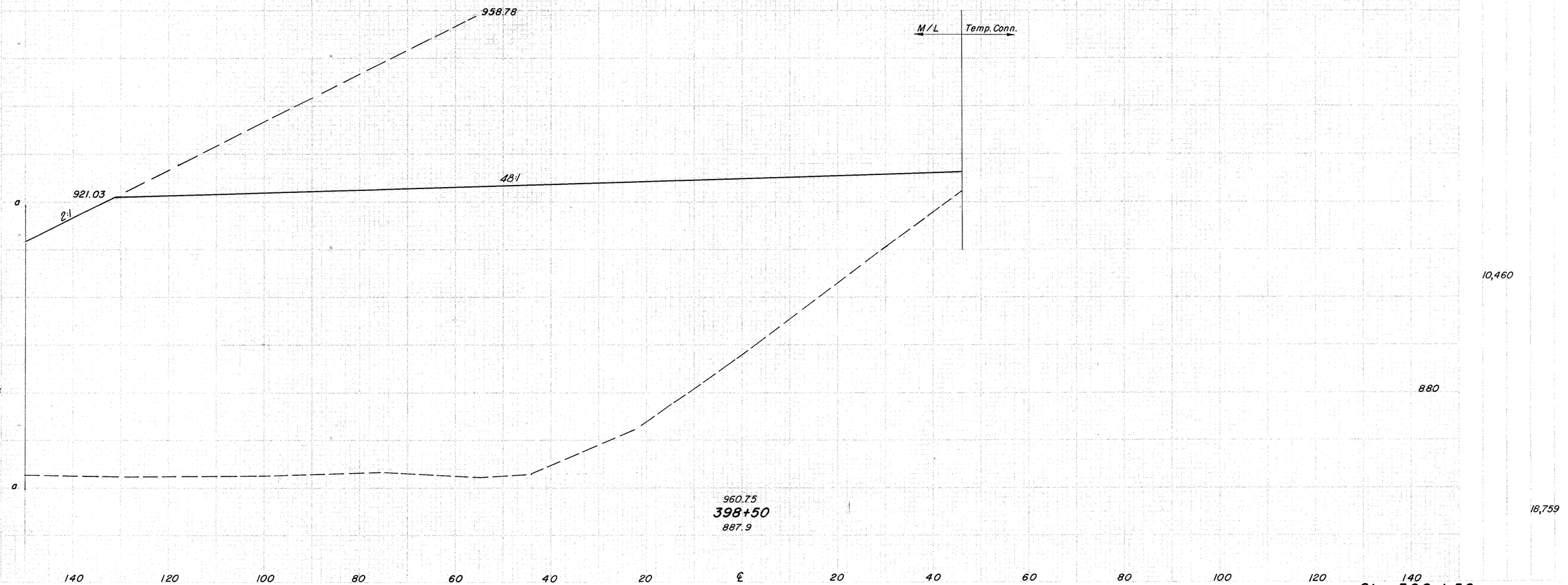
FED. AID PROJECT	STATE	PROJECT		SHEET NO.
2	OHIO			283 516

JEF - 22 - 3.86

CUT AREA		VOLUME	
FILL	FILL	CUT	FILL

277

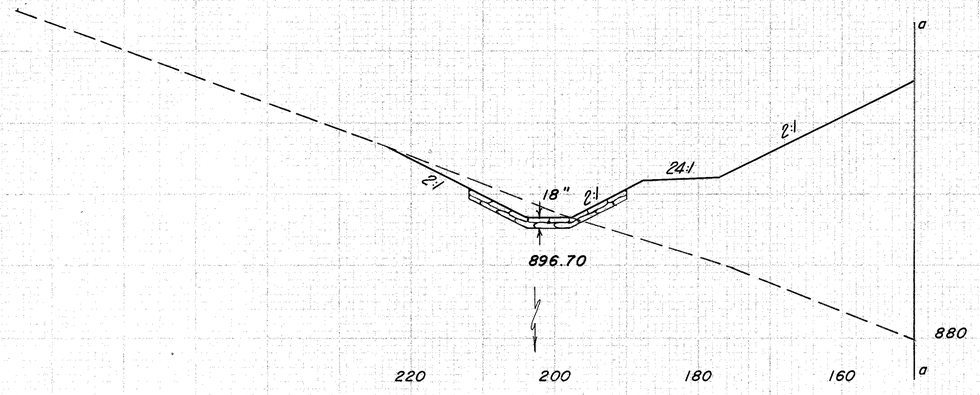




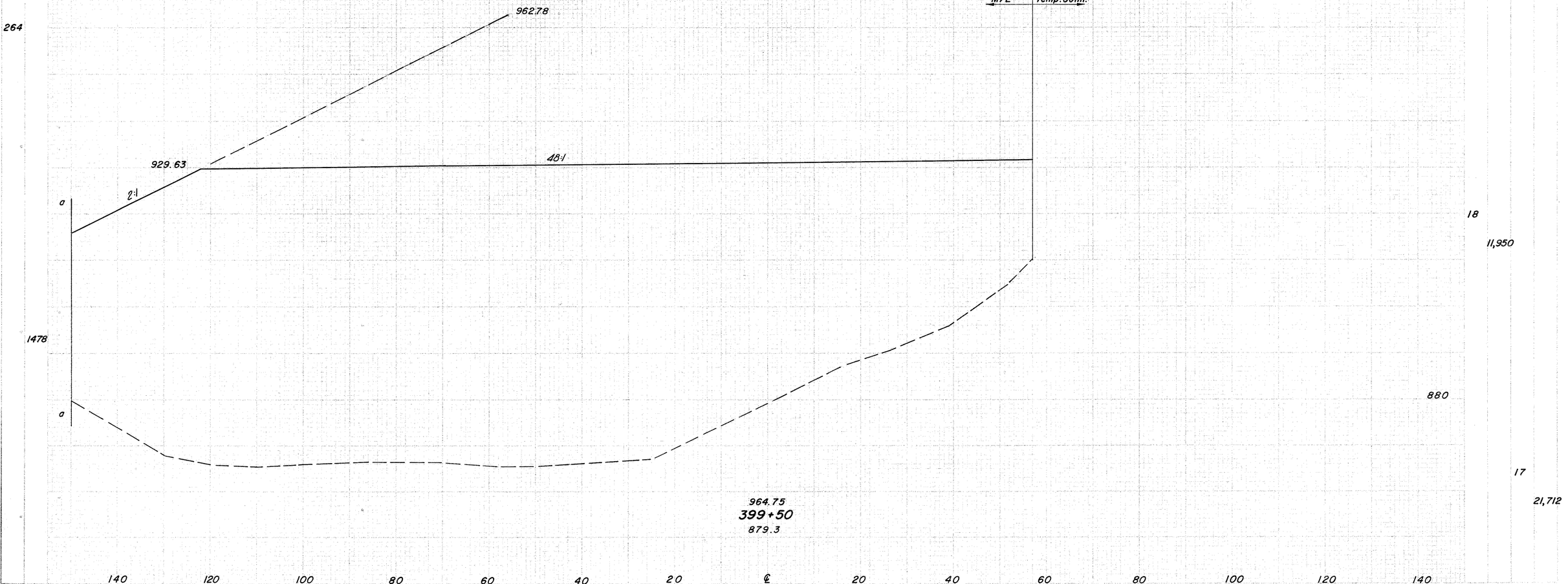
JEF-22-3.86

Sta. 399+00

JEF-22-3.86

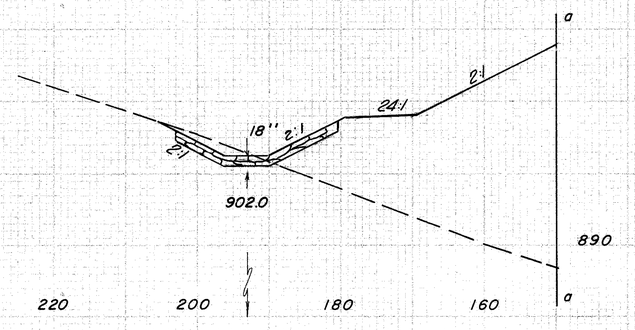


264

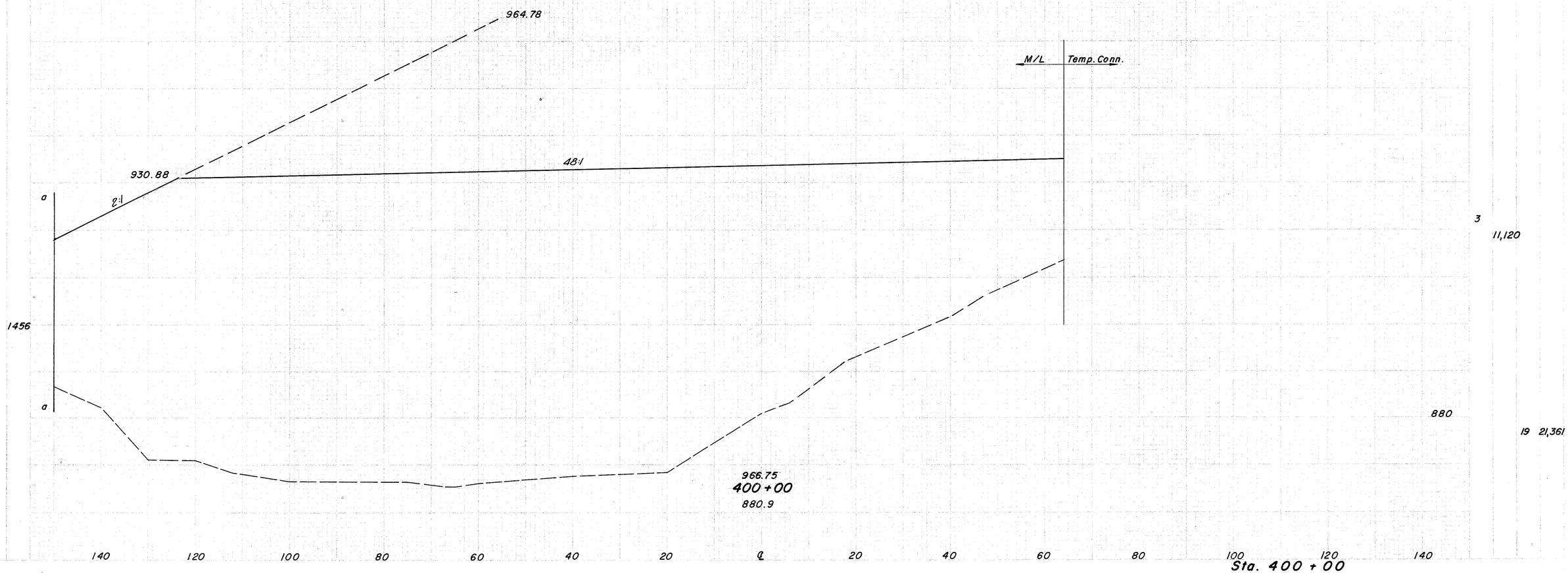


Sta. 399 + 50

JEF-22-3.86

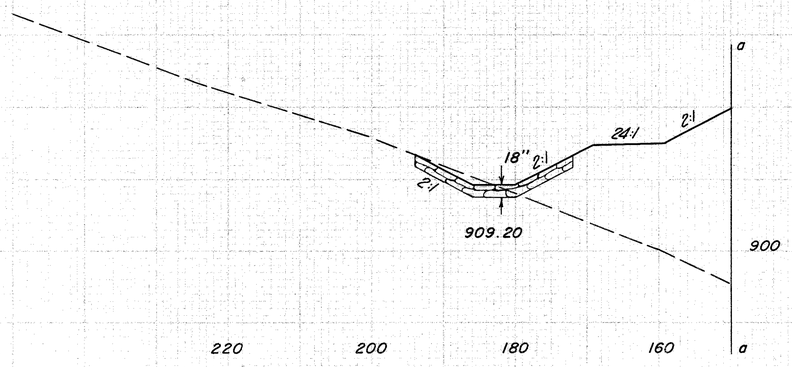


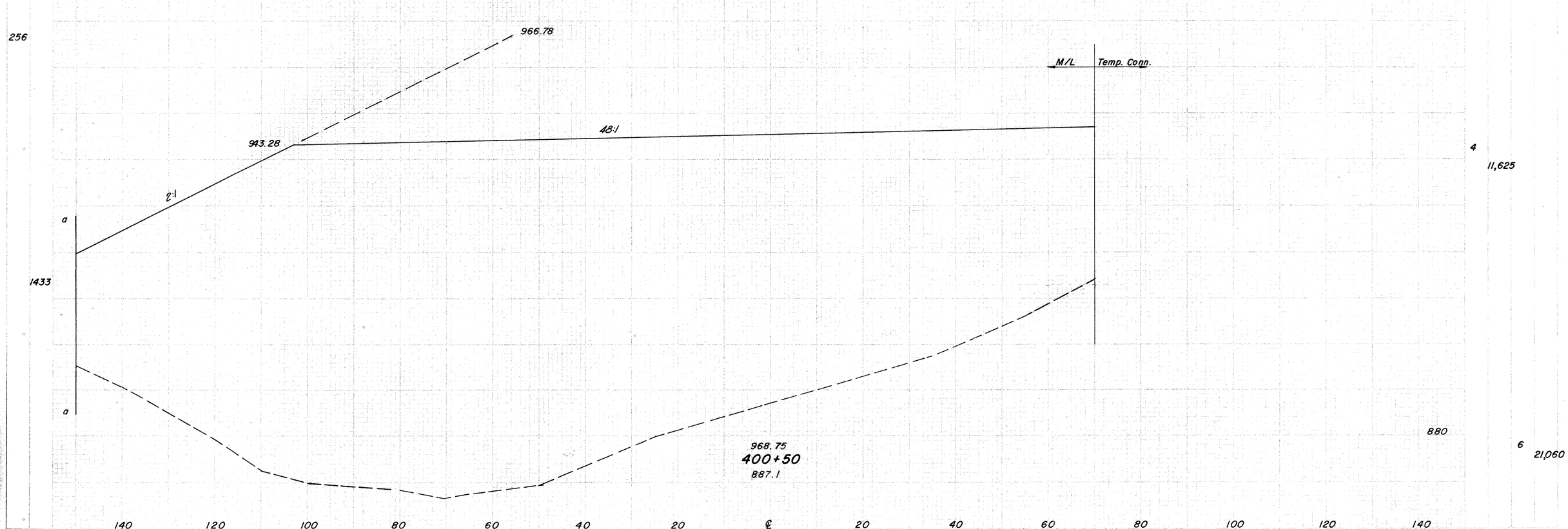
260



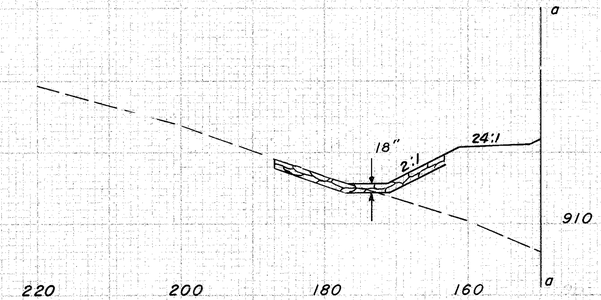
3
11,120
880
19 21,361

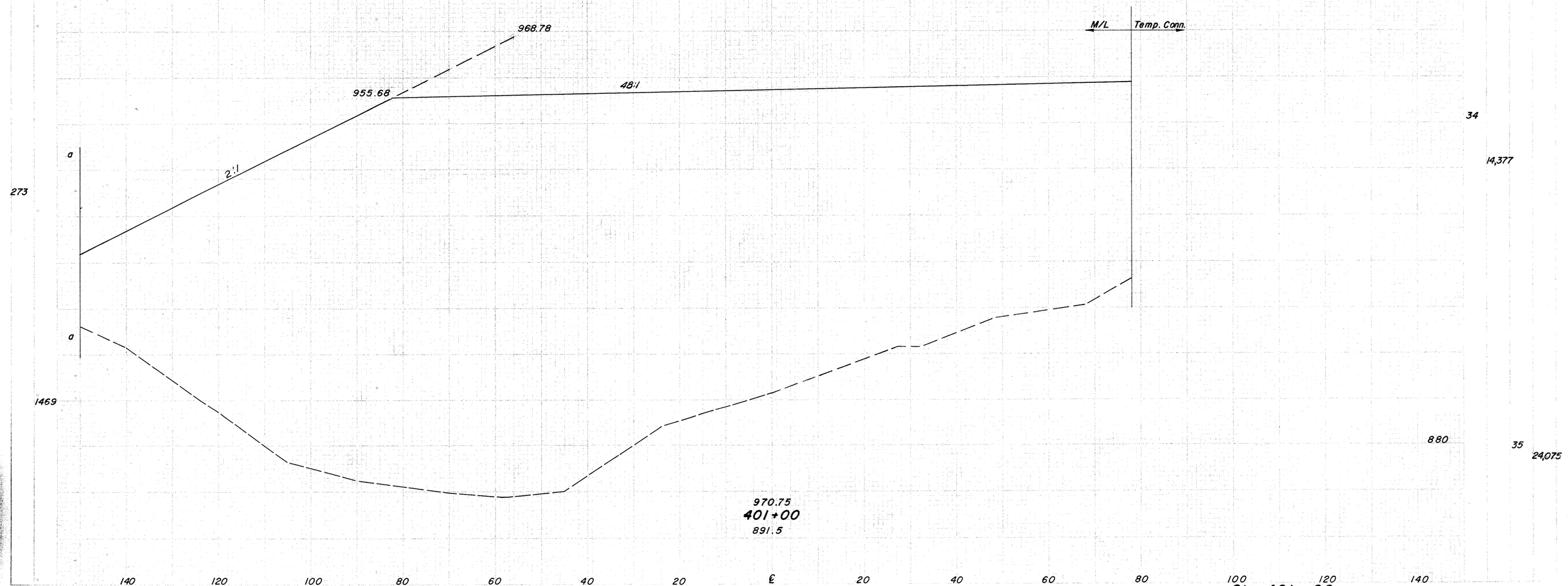
JEF-22-3.86


a
18" 2:1
24:1
2:1
2:1
909.20
900
220
200
180
160
a

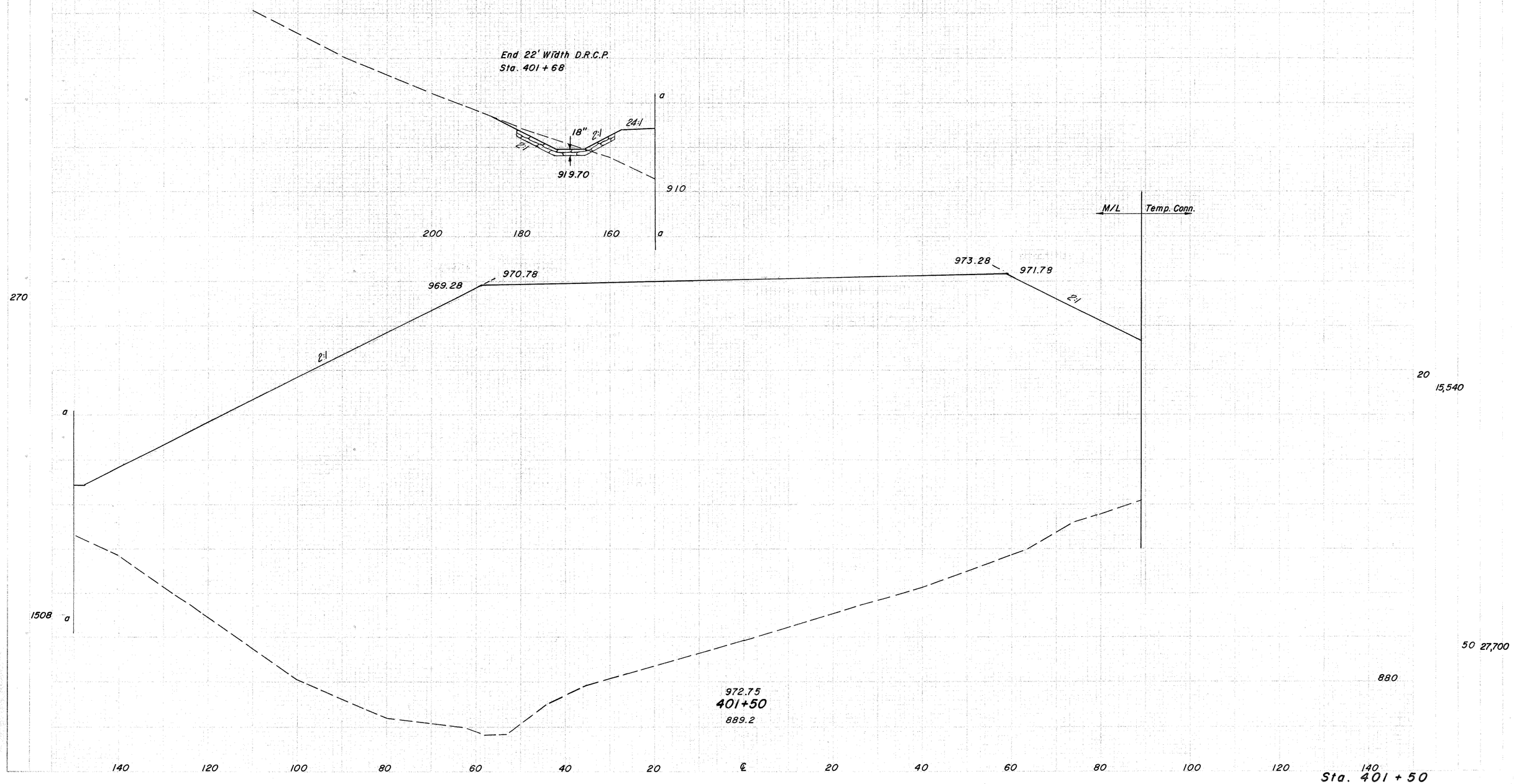

256
966.78
M/L
Temp. Conn.
943.28
48:1
4
11,625
2:1
a
1433
a
880
6
21,060
968.75
400+50
887.1
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 400 +50

JEF - 22 - 3.86


a
18"
2:1
24:1
910
a
220
200
180
160


968.78
955.68
48:1
M/L
Temp. Conn.
34
14,377
a
2:1
273
a
1469
8.80
35
24,075
970.75
401+00
891.5
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 401 + 00

JEF-22-3.86



Sta. 401 + 50

290
516

JEF-22-3.86

Begin 8' Width D.R.C.P.
Sta. 402 + 22

2:1
2:1
24:1
923.00
a
910
a
200
180
160

M/L
Temp. Conn.

45
16,890

310

971.28
972.78
975.28
973.78
2:1
2:1
24:1
a
a

900

1611

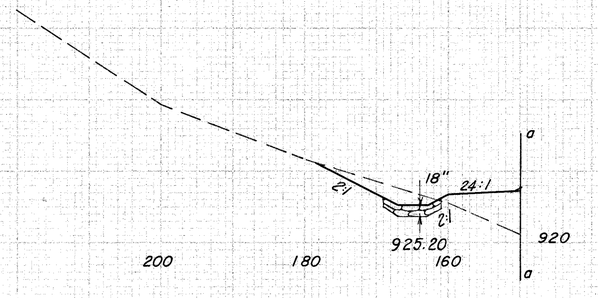
30,027
60

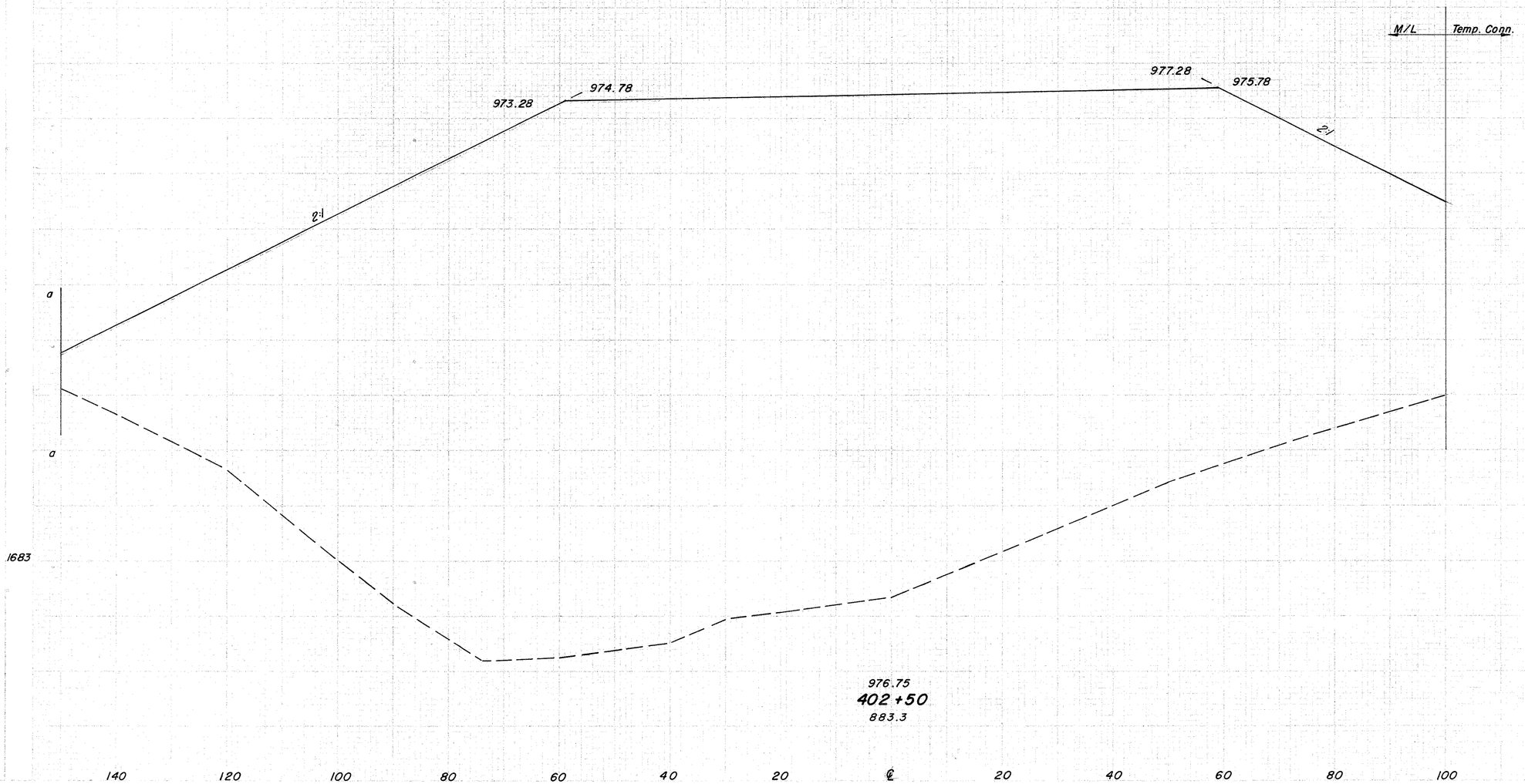
974.75
402+00
888.4

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 402 + 00

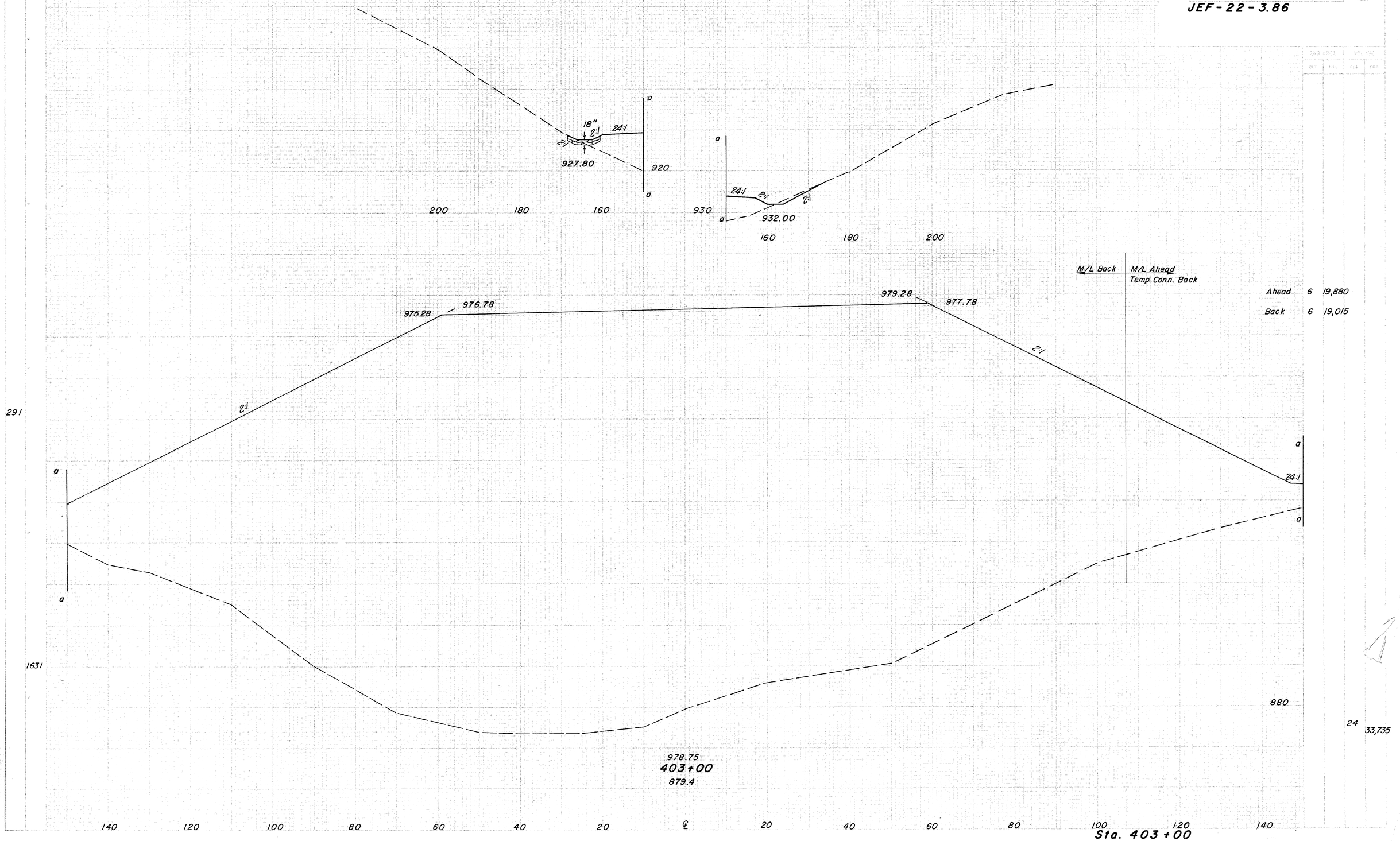
JEF-22-3.86





296

JEF-22-3.86

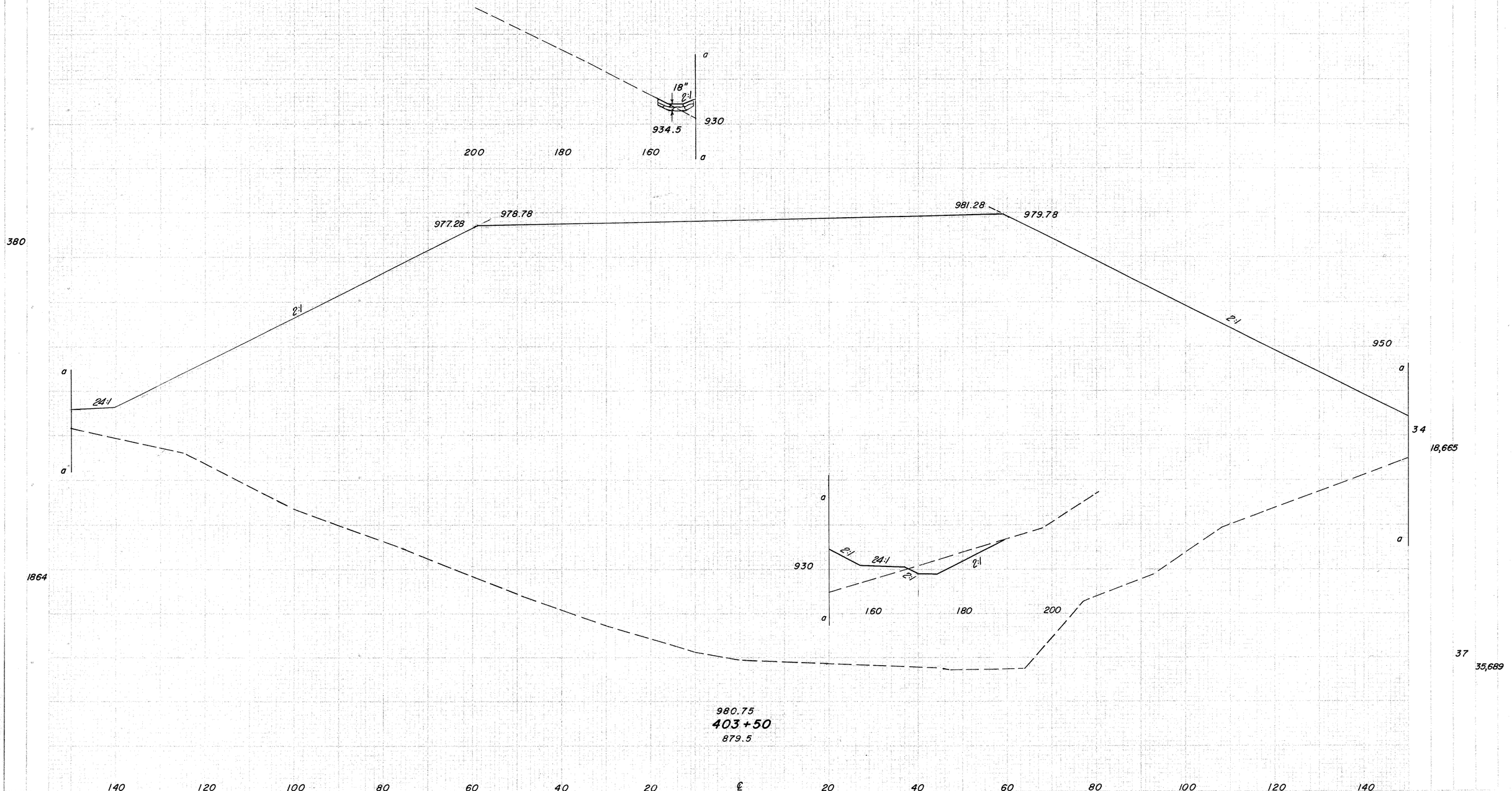


Sta. 403+00

SHEET NO.	STATE	PROJECT	
2	OHIO		

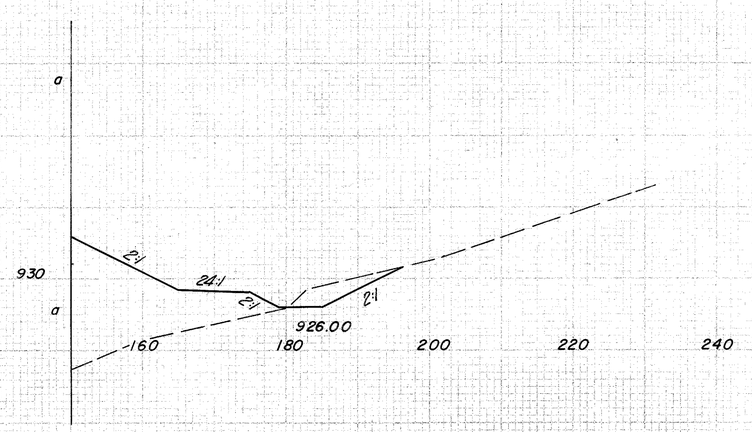
293
516

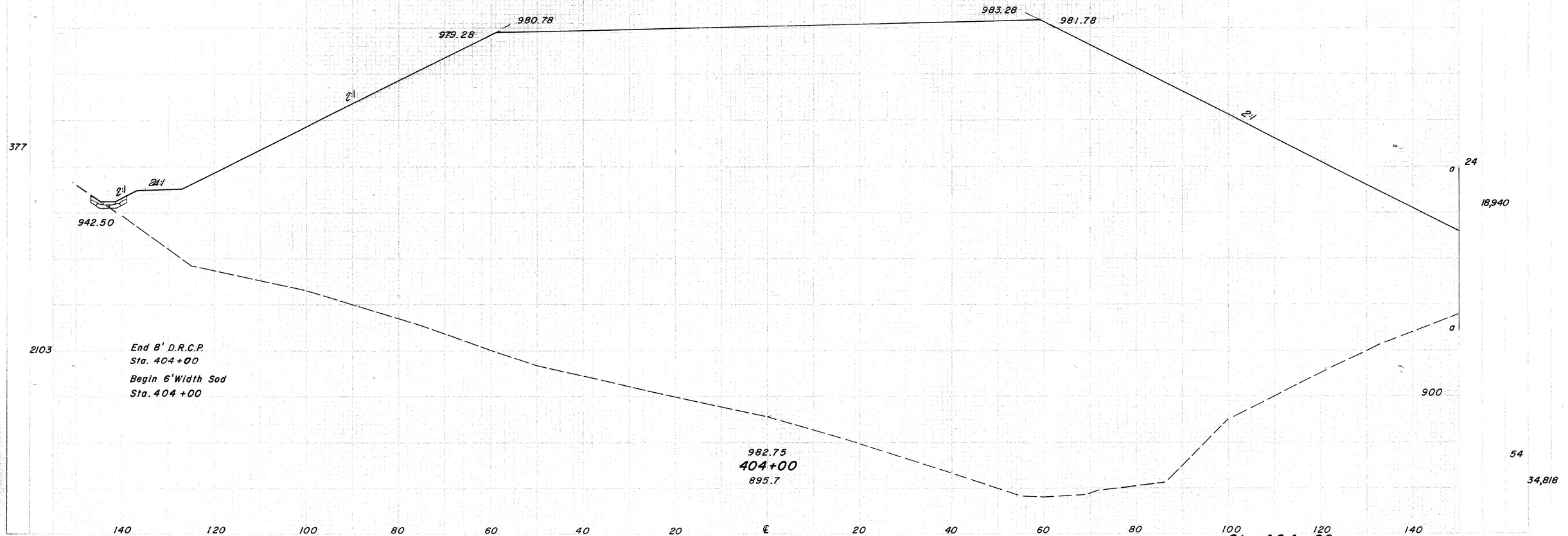
JEF-22-3.86



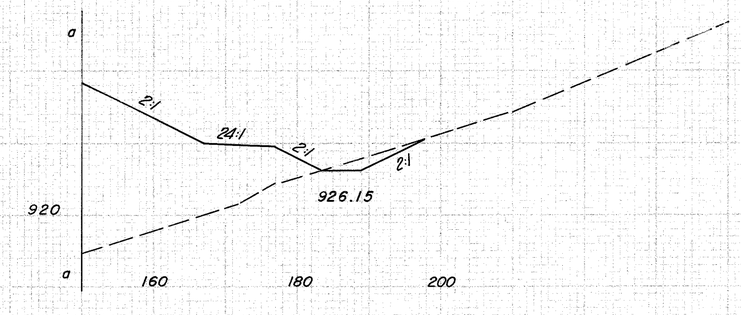
Sta. 403+50

JEF-22-3.86


a
930
a
2:1
24:1
2:1
2:1
926.00
160
180
200
220
240

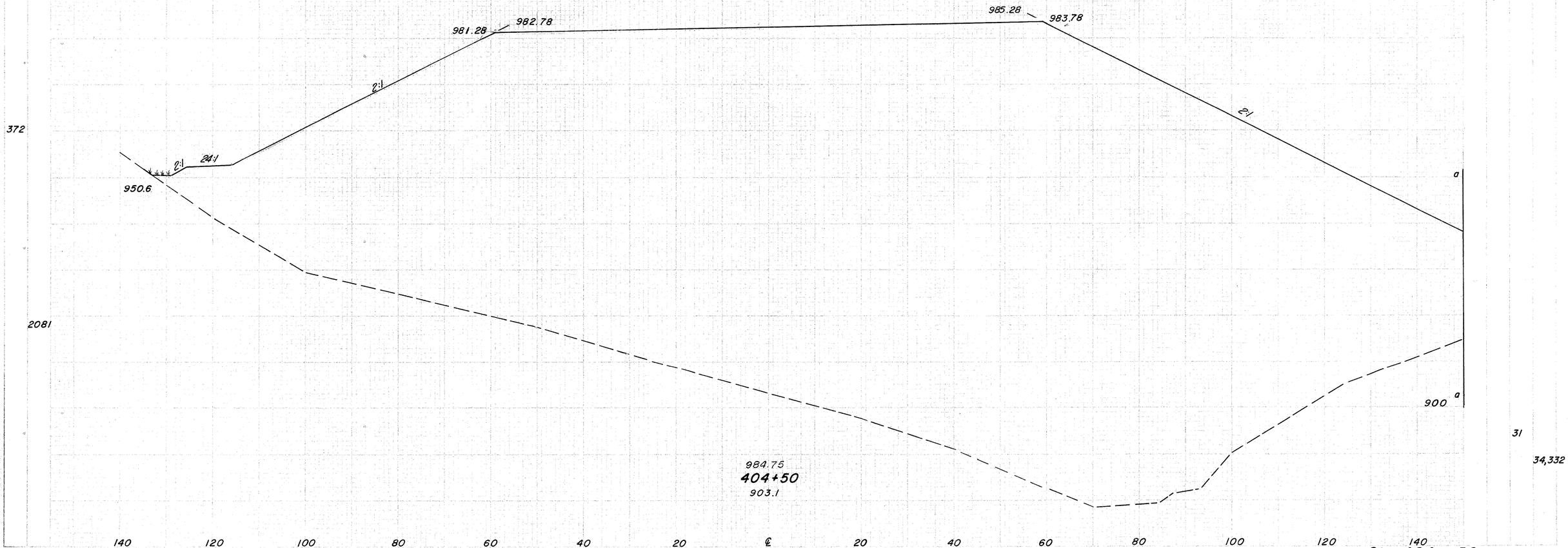

980.78
979.28
983.28
981.78
2:1
2:1
2:1
24:1
377
942.50
a
24
18,940
a
2103
End 8' D.R.C.P.
Sta. 404+00
Begin 6' Width Sod
Sta. 404+00
900
982.75
404+00
895.7
54
34,818
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 404+00

JEF - 22 - 3.86



10

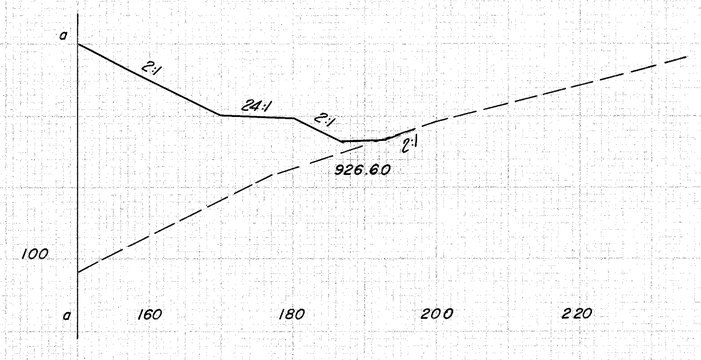
18,140

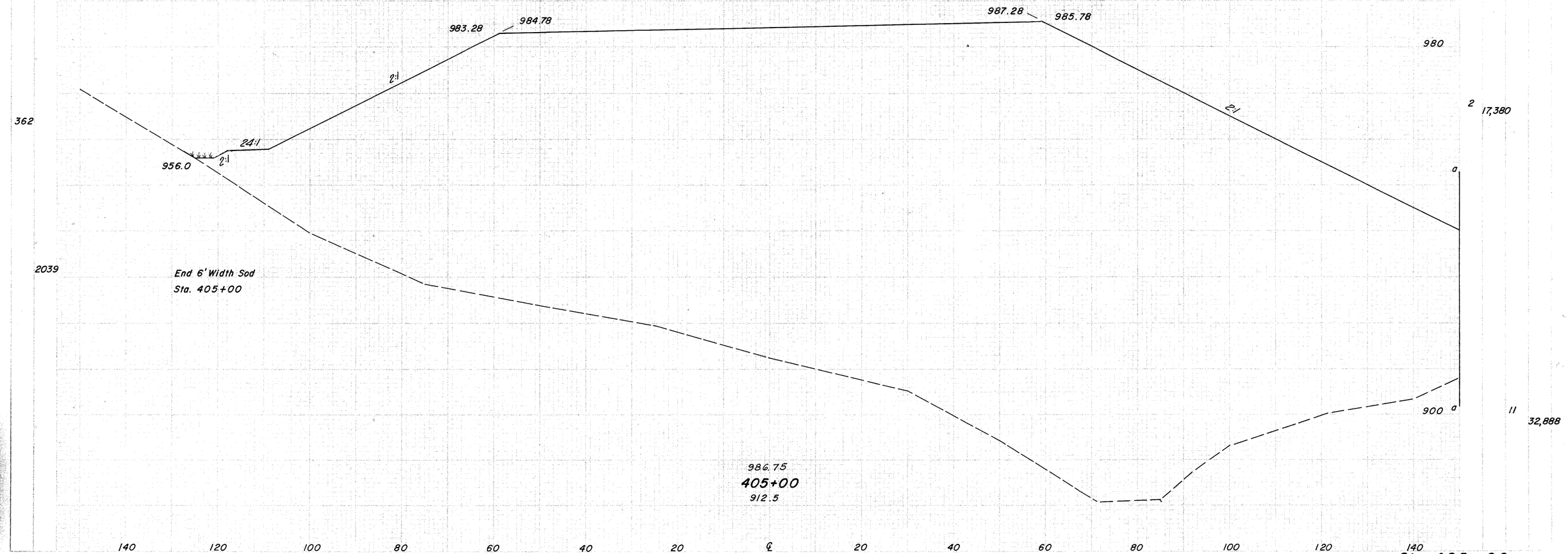


Sta. 404 + 50

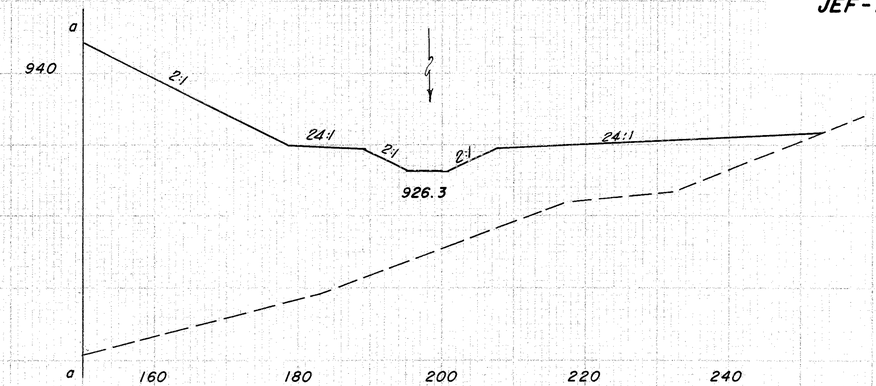
296
516

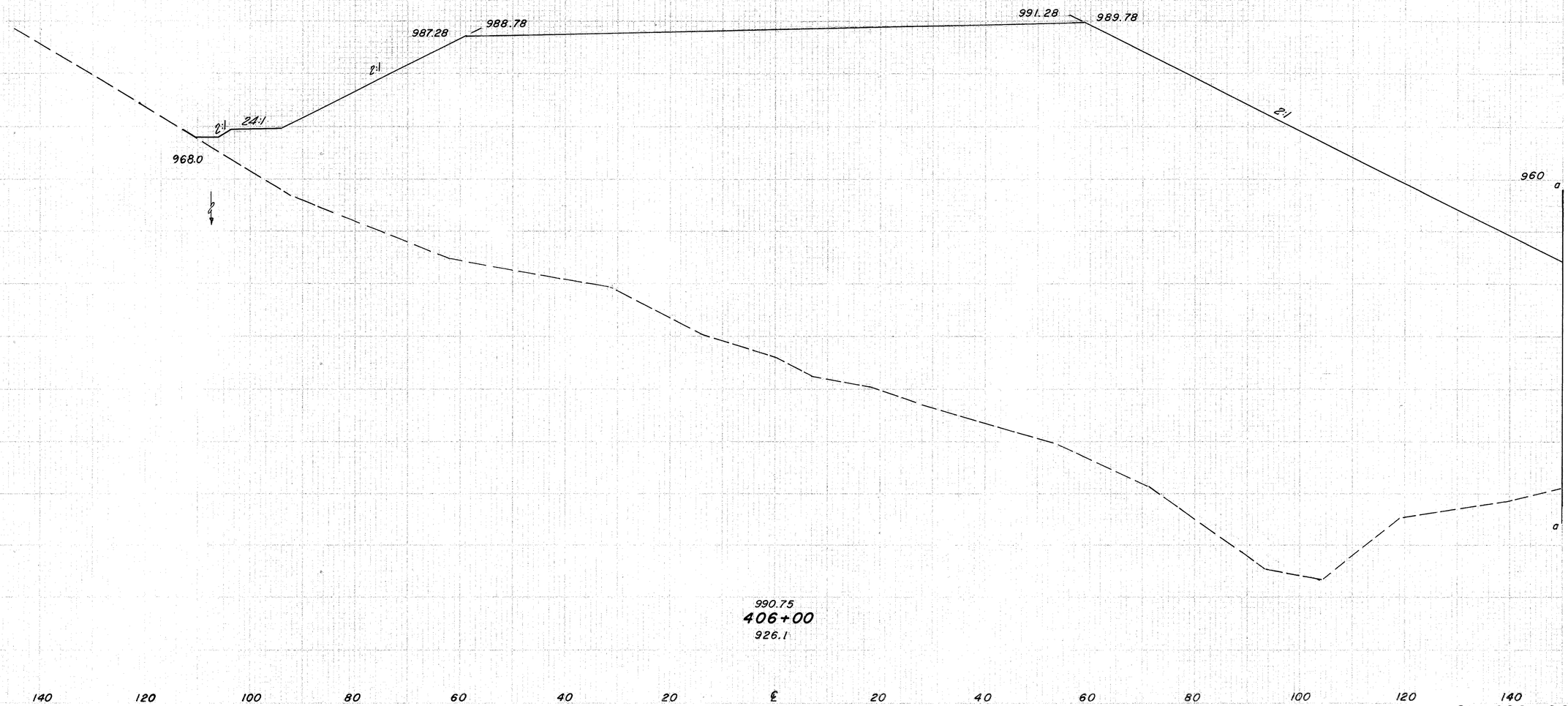
JEF-22-3.86





JEF-22-3.86



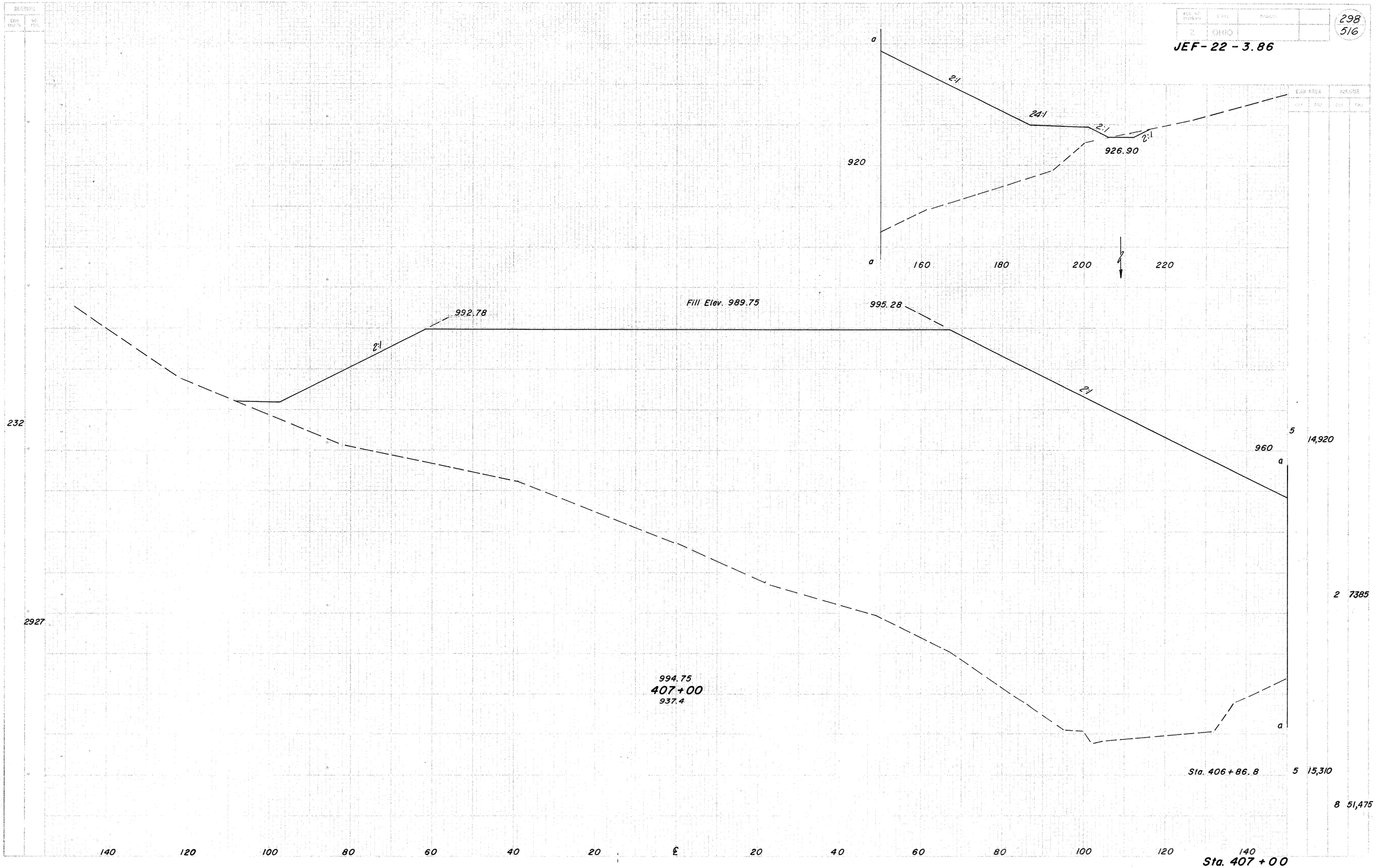


295

3649

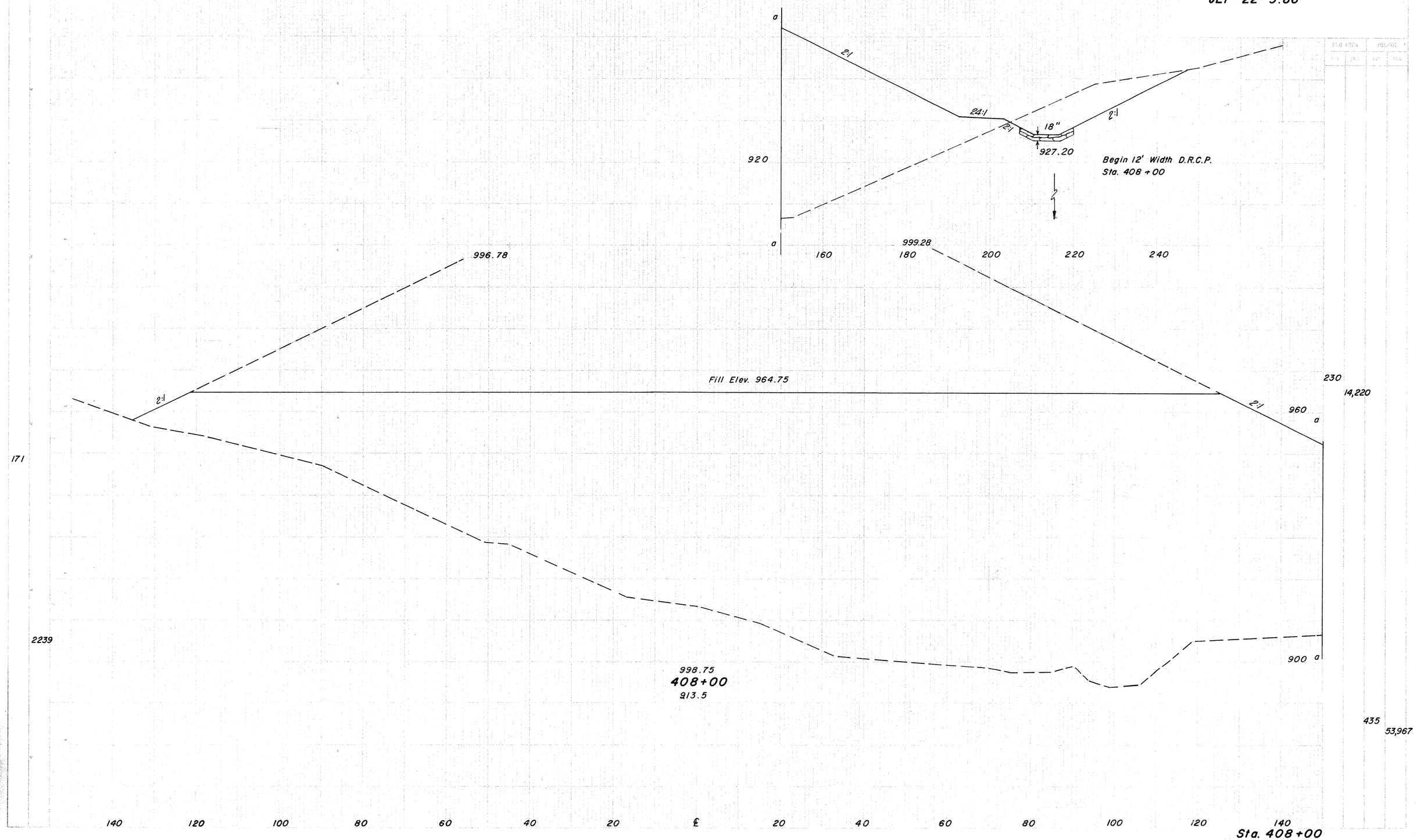
16,640

4 63,002

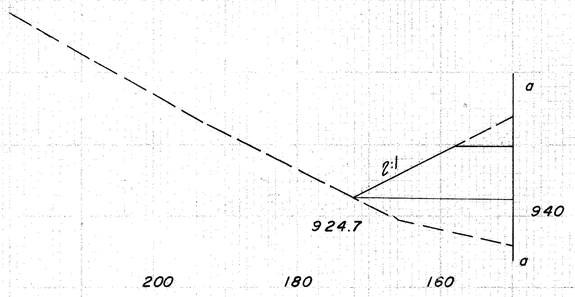


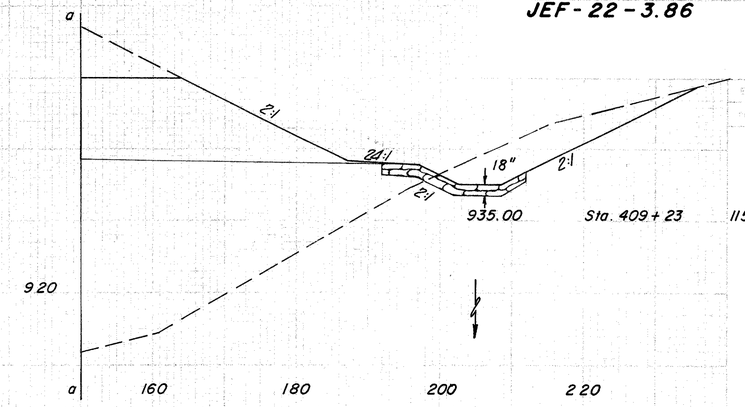
2 OHIO
298
516
JEF-22-3.86
a
2:1
24:1
2:1
2:1
926.90
920
a
160
180
200
220
Fill Elev. 989.75
992.78
995.28
2:1
2:1
232
5
14,920
960
a
2 7385
2927
994.75
407+00
937.4
a
Sta. 406+86.8
5 15,310
8 51,475
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 407+00

JEF-22-3.86


a
2:1
24:1
2:1
18"
2:1
927.20
920
Begin 12' Width D.R.C.P.
Sta. 408+00
a
160
180
200
220
240
999.28
996.78
Fill Elev. 964.75
2:1
2:1
230
14,220
960
a
171
2239
900
a
998.75
408+00
913.5
435
53,967
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 408+00

JEF-22-3.86





Sta. 409+23 115 8810

120 5356

Sta. 409+03 210 5650

End 12' Width D.R.C.P.
Sta. 408+95

47 1255

1003.28

Sta. 408+97 210 5650

1000.78

115

a

Sta. 409+23 Fill Elev. 950.0

1589

Bottom of Ditch @ 2.19 %

940

a

1002.75
409+00
942.0

790 35,692

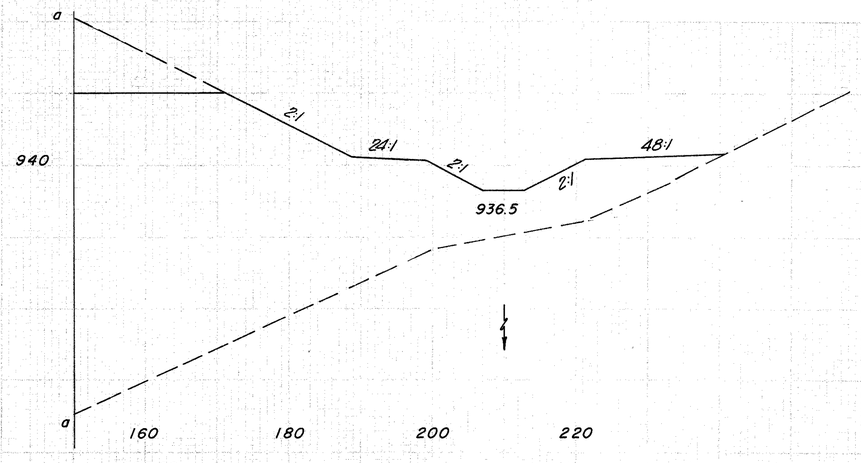
a

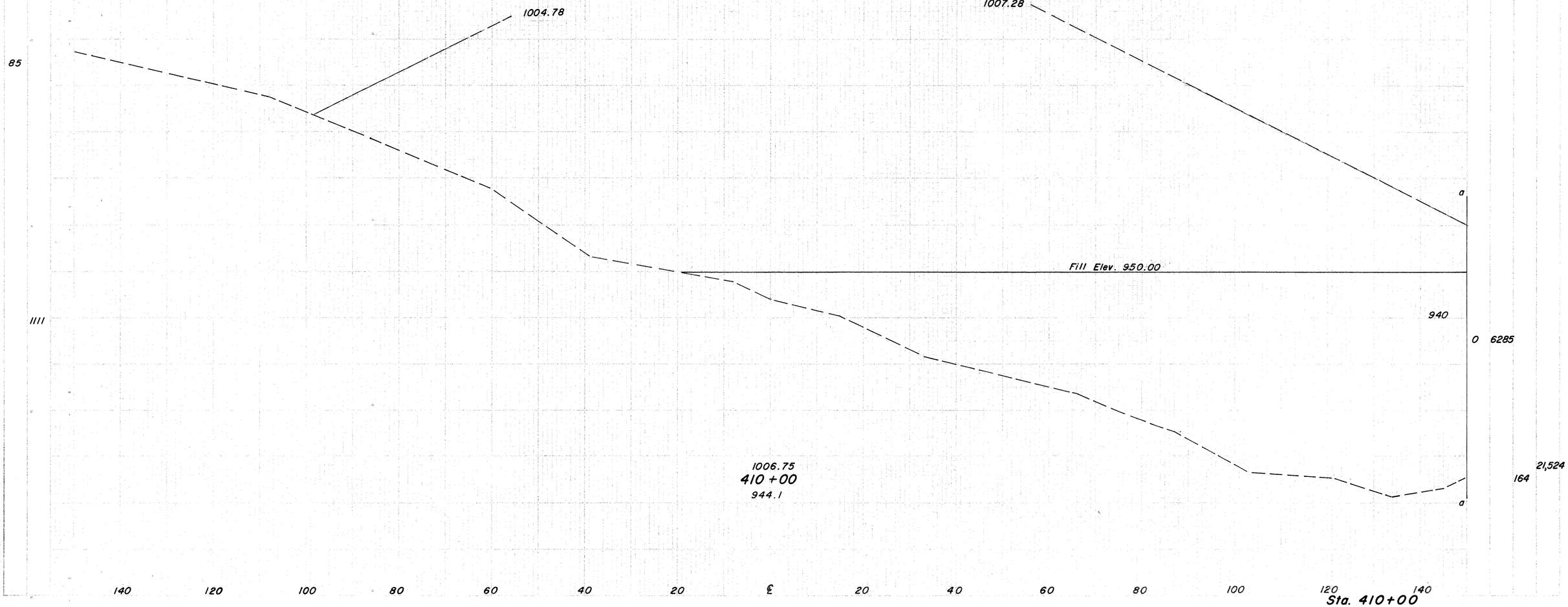
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 409+00

JEF-22-3.86

301
516



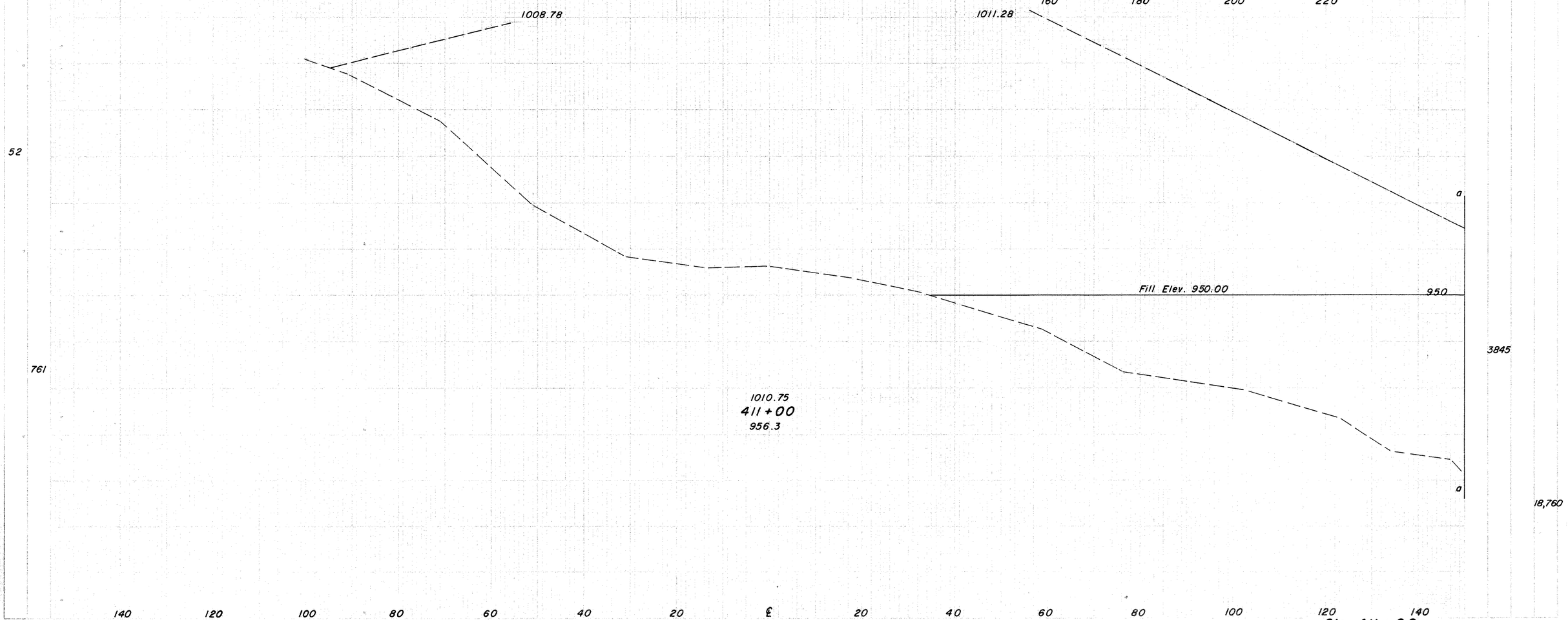


DIST. NO.	STATE	PROJECT	
2	OHIO		

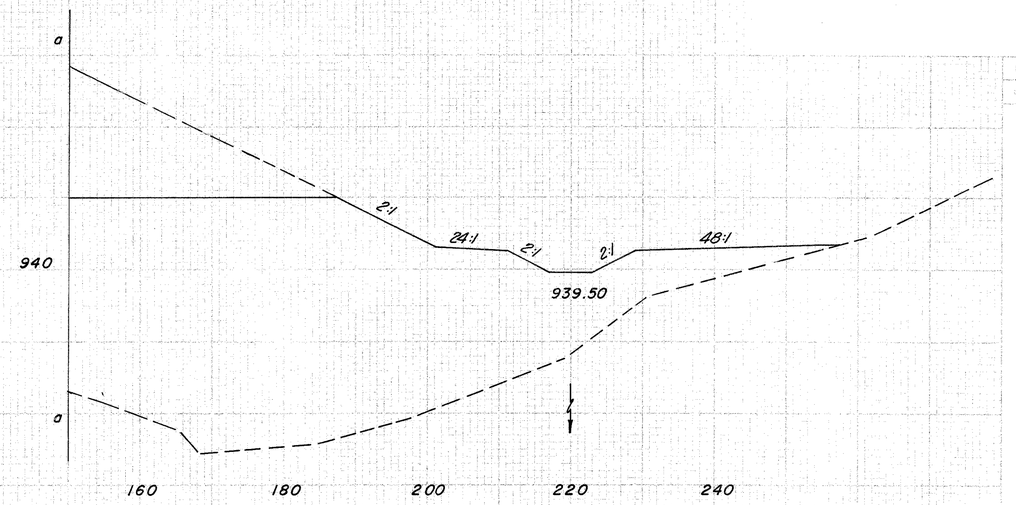
302
516

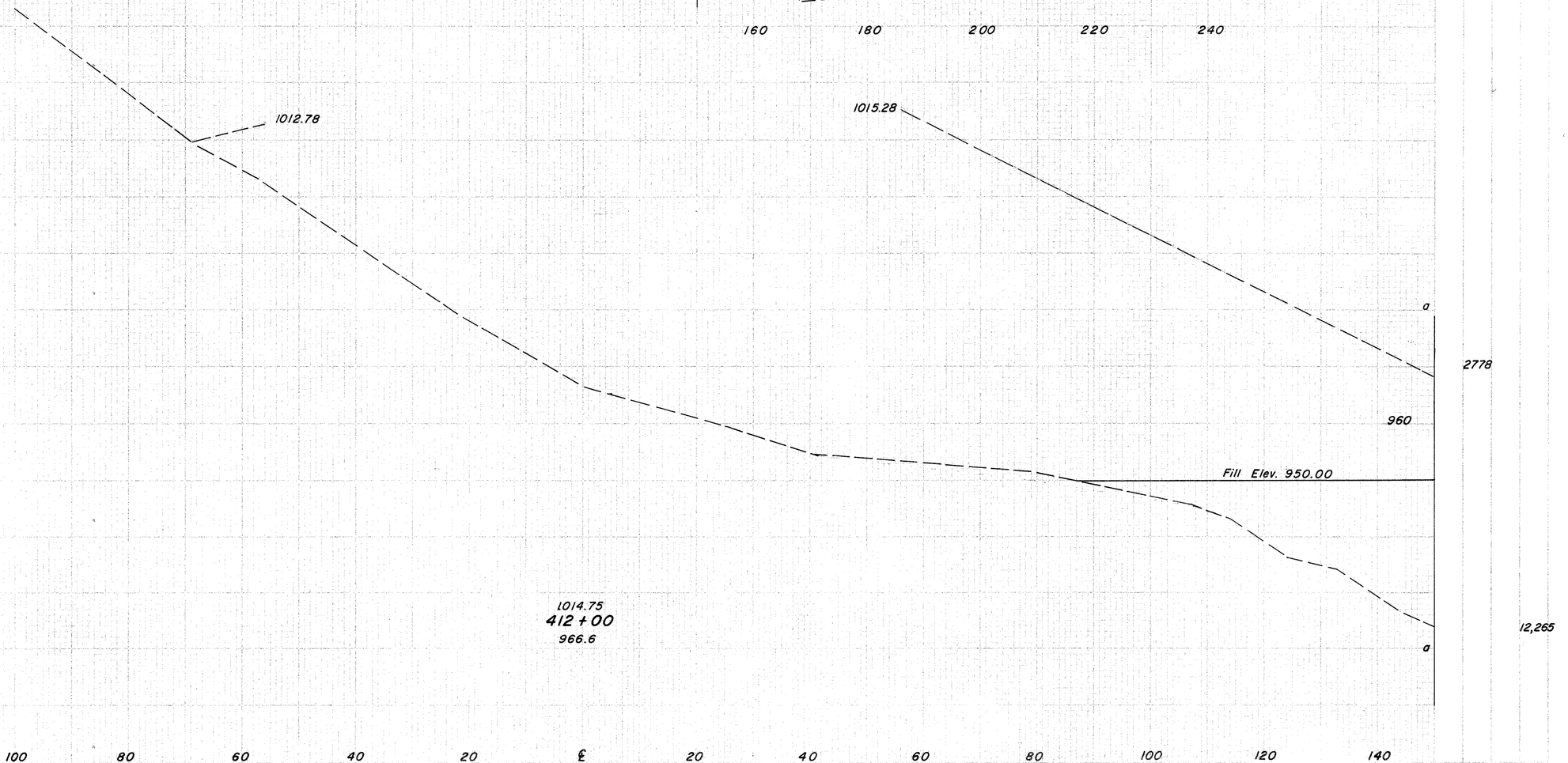
JEF-22-3.86

END AREA		VOLUME	
CUT	FILL	CUT	FILL

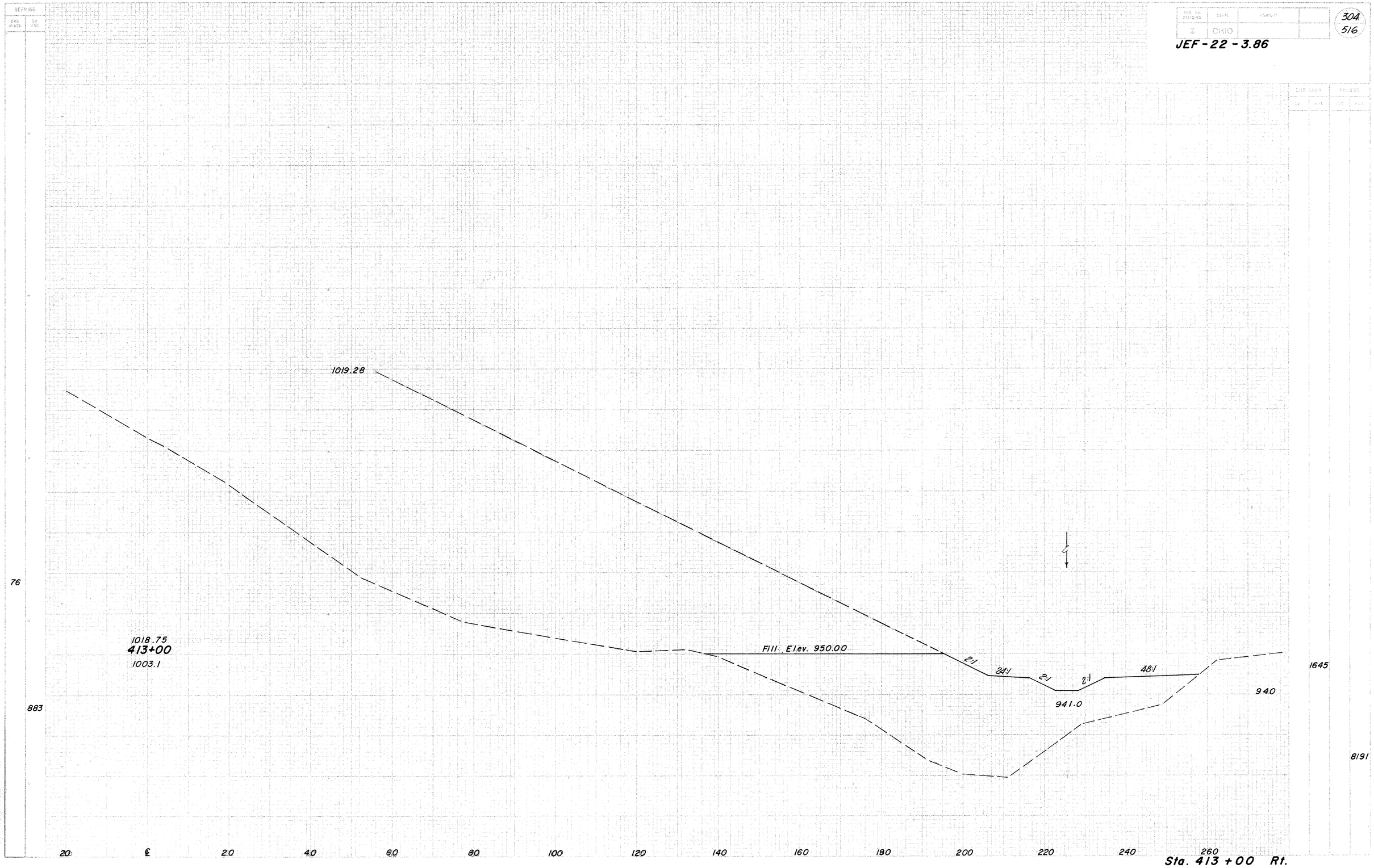


JEF-22-3.86


a
940
2:1
24:1
2:1
2:1
48:1
939.50
a
160
180
200
220
240


1012.78
1015.28
a
2778
960
750
Fill Elev. 950.00
1014.75
412 + 00
966.6
12,265
a
140
120
100
80
60
40
20
℄
20
40
60
80
100
120
140
Sta. 412 + 00

83



2
OHIO
304
516
JEF-22-3.86
1019.28
76
1018.75
413+00
1003.1
Fill Elev. 950.00
2:1
24:1
2:1
2:1
48:1
941.0
940
1645
883
8191
20
℄
20
40
60
80
100
120
140
160
180
200
220
240
260
Sta. 413+00 Rt.

JEF - 22 - 3.86

1023.28

Fill Elev. 950.00

2:1 2:1 2:1 2:1

943.0

1022.75
414+00
1022.3

50
700

23
1080
940

43
5046

20 ℄ 20 40 60 80 100 120 140 160 180 200 220 240 260

Sta. 414 + 00 Rt.

306
516

JEF-22-3.86

1031.28

1030.75
416+00
1037.4

2:1 Future Slope

0 0

940

78 1343

1027.28

1026.75
415+00
1032.5

80

722

950

2:1 24:1 2:1 2:1

944.20

940

42 725

120 3343

20 ℄ 20 40 60 80 100 120 140 160 180 200 220 240 260

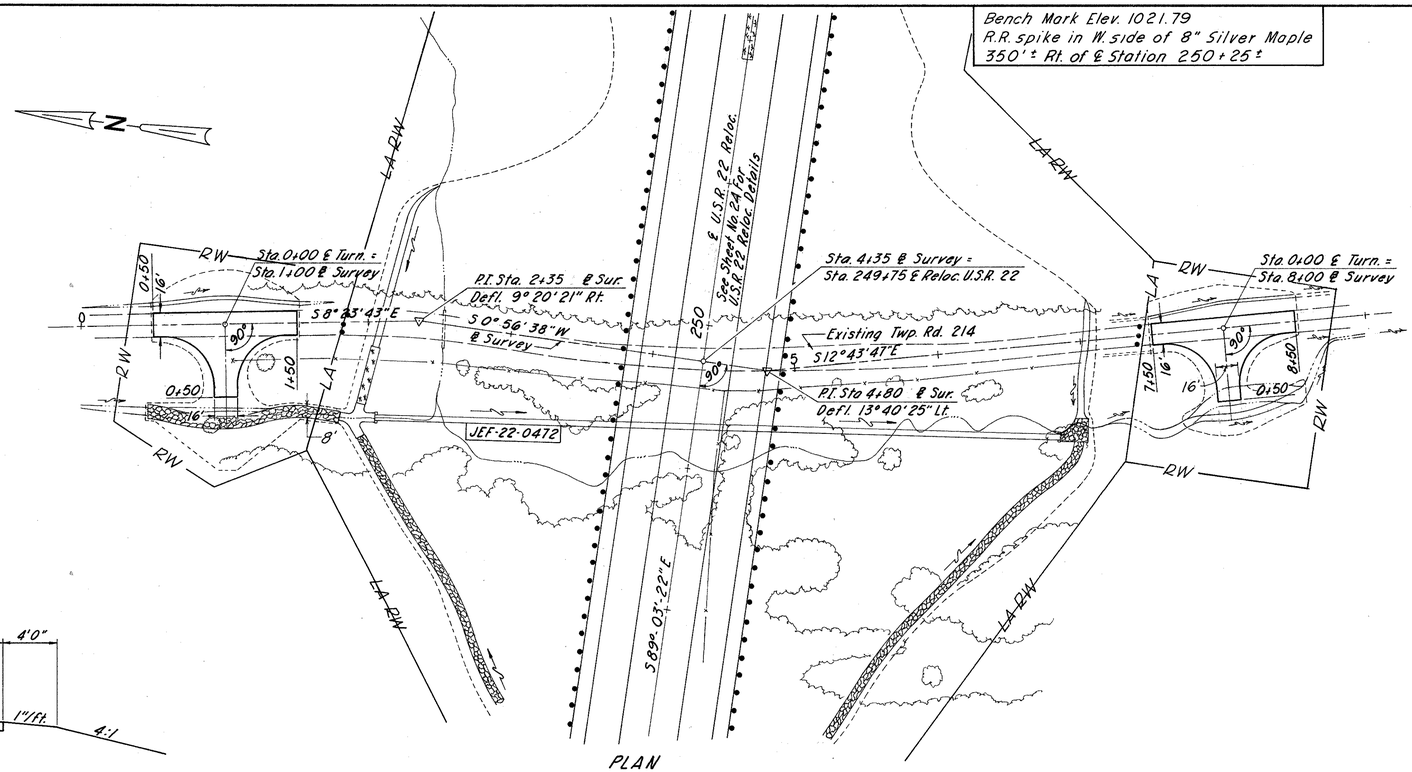
Sta. 415 + 00 to Sta. 416 + 00 Rt.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

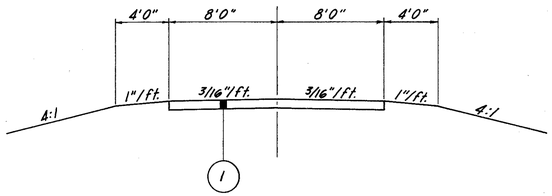
307
516

JEF-22-3.86

Bench Mark Elev. 1021.79
R.R. spike in W. side of 8" Silver Maple
350'± Rt. of ℄ Station 250+25±

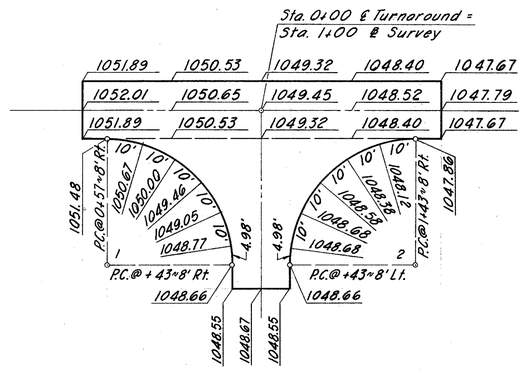


PLAN
Scale 1"=50'



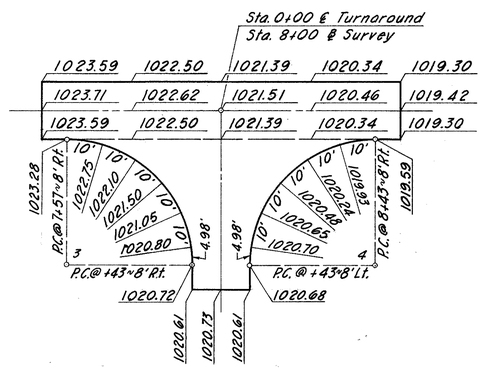
(1) Item 304 8" Aggregate Base

TYPICAL SECTION
Scale 3/16"=1'



CURVE DATA
Curves 1-2-3-4
Δ 90°00'
R 35.00'
L 54.98'

PAVEMENT DETAILS
Scale 1"=20'



QUANTITIES
Area = 310.86 Sq. Yds. per Turnaround
Item 304 = 310.86 × 8" × 2 ÷ 36 = 138 Cu. Yds. Total
Item 601 Dumped Rock Channel Protection
135' × 8' × 15' ÷ 27 = 60 Cu. Yds. Total
Item 606 Guard Posts 6 Each

Area per Turnaround

+ 100 × 16	=	+ 1600	Sq. Ft.
+ 7 × 16	=	+ 112	Sq. Ft.
+ 86 × 35	=	+ 3010	Sq. Ft.
− π × 35² ÷ 2	=	− 1924.23	Sq. Ft.
Total Area		2797.77 ÷ 9 = 310.86	Sq. Yd.

Twp. Rd. 214 @ Cul-de-Sacs

SECTION	
CUT WIDTH	CU. YDS.
0	
231	
83	
231	
0	

End 8' Width D.R.C.P.
Sta. 1+78 Rt.

18"

1 + 75
1047.2

1 + 50
1047.8

2:1
4:1
1147.55
-1.56%
4:1
2:1
1 + 00
1049.5

0 + 50
1052.1

Begin 8' Width D.R.C.P.
Sta. 0+45

0 + 00
1055.1

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		167	27
		180	29
		0	0

SEC. NO.	STATE	PROJECT	
	OHIO		

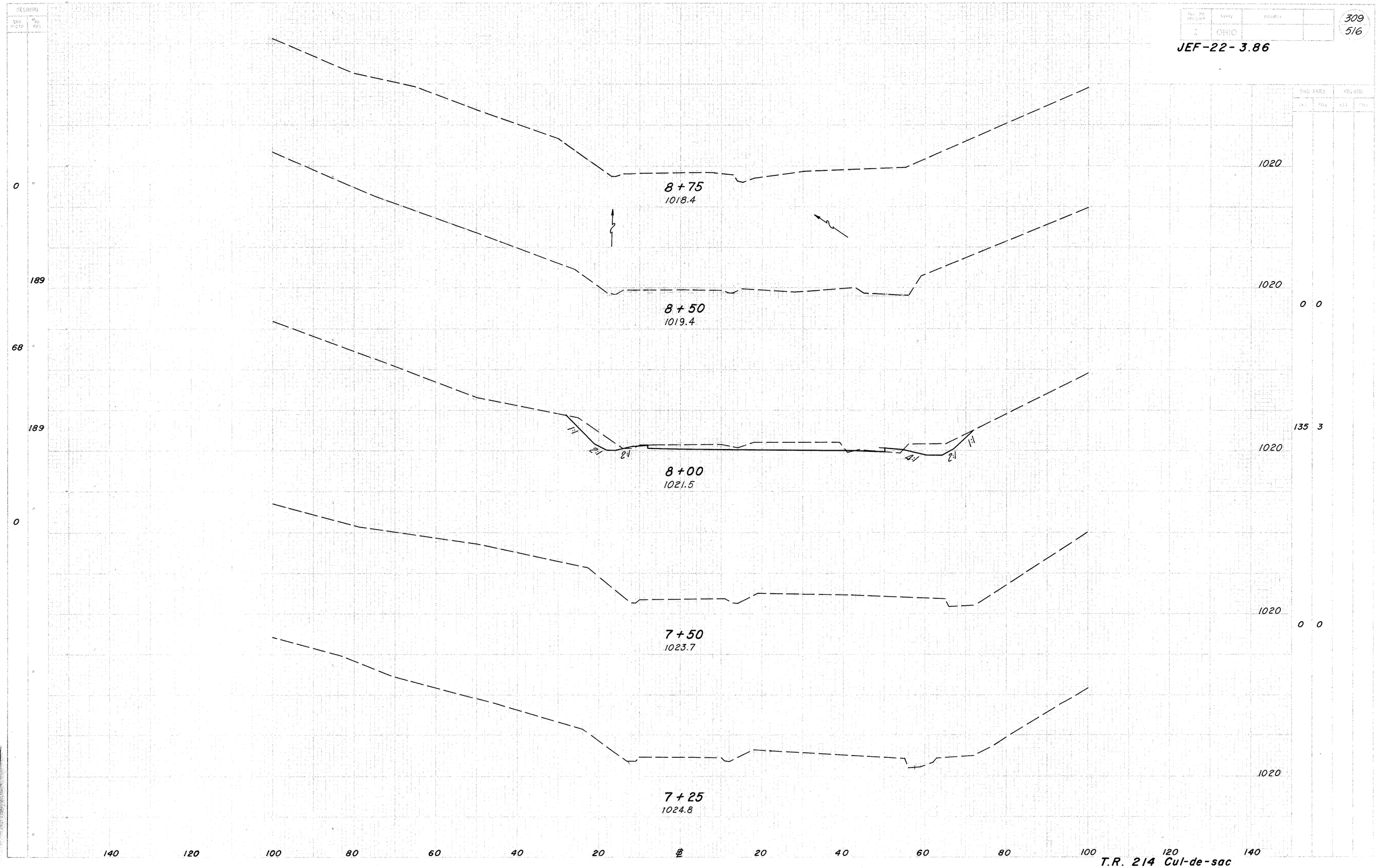
308
516

JEF - 22 - 3.86

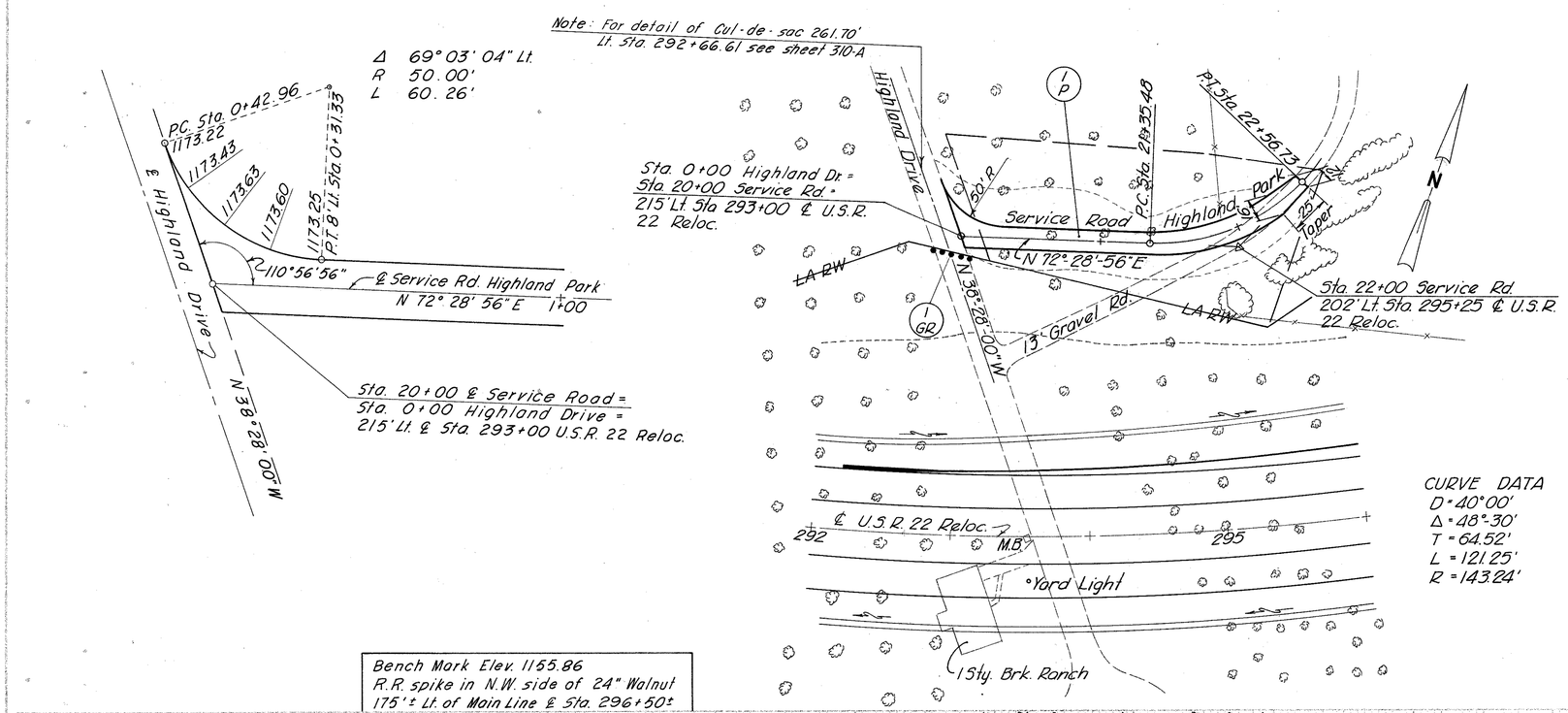
1040
1040
1040
1050
1050

T.R. 214 Cul-de-sac

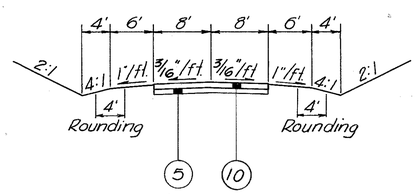
JEF-22-3.86



T.R. 214 Cul-de-sac



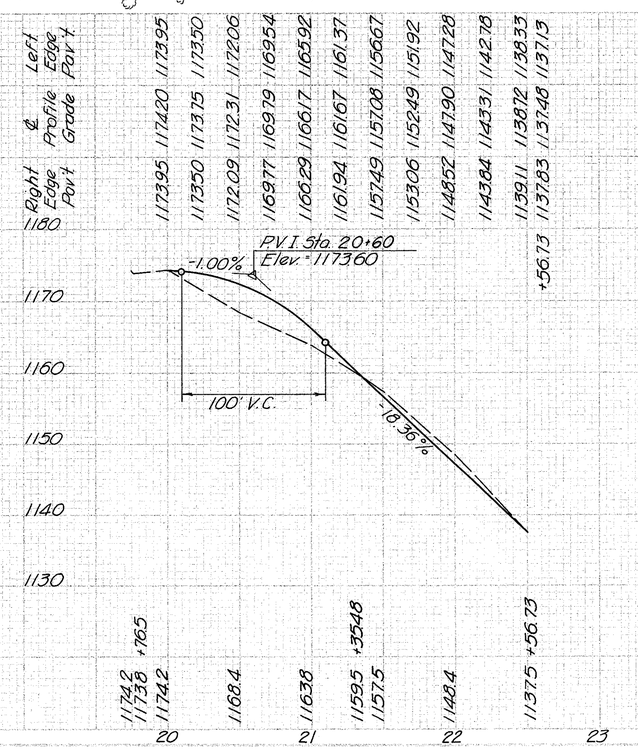
Bench Mark Elev. 1155.86
R.R. spike in N.W. side of 24" Walnut
175'± Lt. of Main Line ℄ Sta. 296+50±



TYPICAL SECTION
Service Road Highland Park

(5) Item 304 7" Aggregate Base

(10) Item 404 2-1" Courses Asphalt Concrete (70-85)



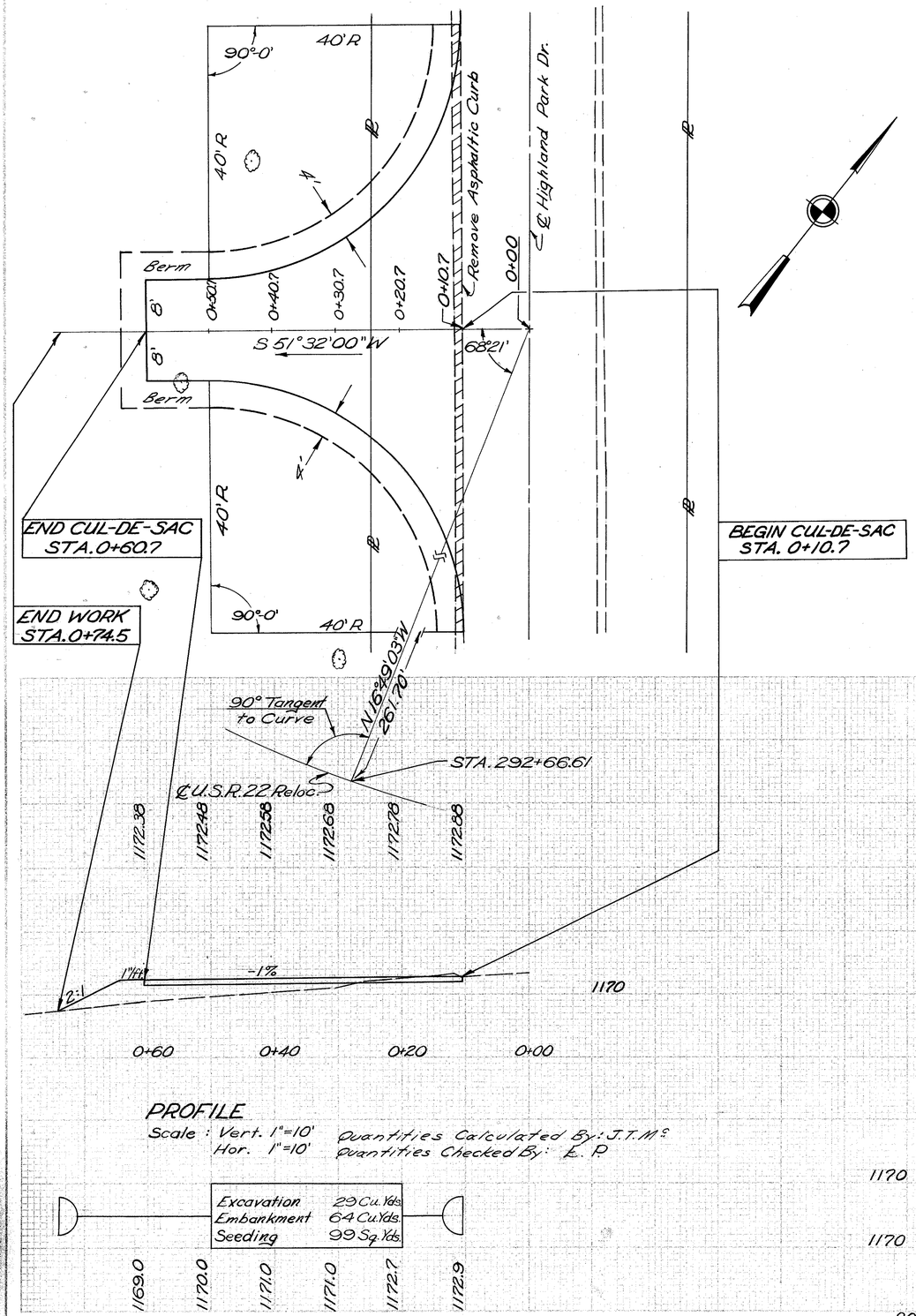
ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	304 Aggregate Base C.Y.	404 Asphalt Concrete C.Y.	606 Guard Posts Ea.
	PAVEMENT				
1-P	20+00 to 22+56.73	℄	92.26	26.36	
	ROADWAY				
1GR	292+80 to 293+05	Lt.			5
			92.26	26.36	5

SERVICE ROAD HIGHLAND PARK Sta. 20+00 to Sta. 22+56.73

REG. NO. DIVISION	STATE	PROJECT		310A 516
2	OHIO			

JEF-22-3.86



PROFILE

Scale : Vert. 1"=10'
Hor. 1"=10'

Quantities Calculated By: J.T.M.s
Quantities Checked By: E.P.

Excavation	29 Cu. Yds.
Embankment	64 Cu. Yds.
Seeding	99 Sq. Yds.

1169.0 1170.0 1171.0 1171.0 1172.7 1172.9

QUANTITIES

Area:
[(96'x40')+(16'x10')-(3.14159x 40² ÷ 2)] ÷ 9 = 165.2 Sq. Yds.

Item 304~7" Aggregate Base
(165.2 S.Y.) x 7/36 = 32.1 Cu. Yds.

Item 404~2" Asphalt Concrete
(2-1" Courses) (70-85)
(165.2 S.Y.) x 2/36 = 9.2 Cu. Yds.

Item 203, Subgrade Preparation = 165 Sq. Yds.

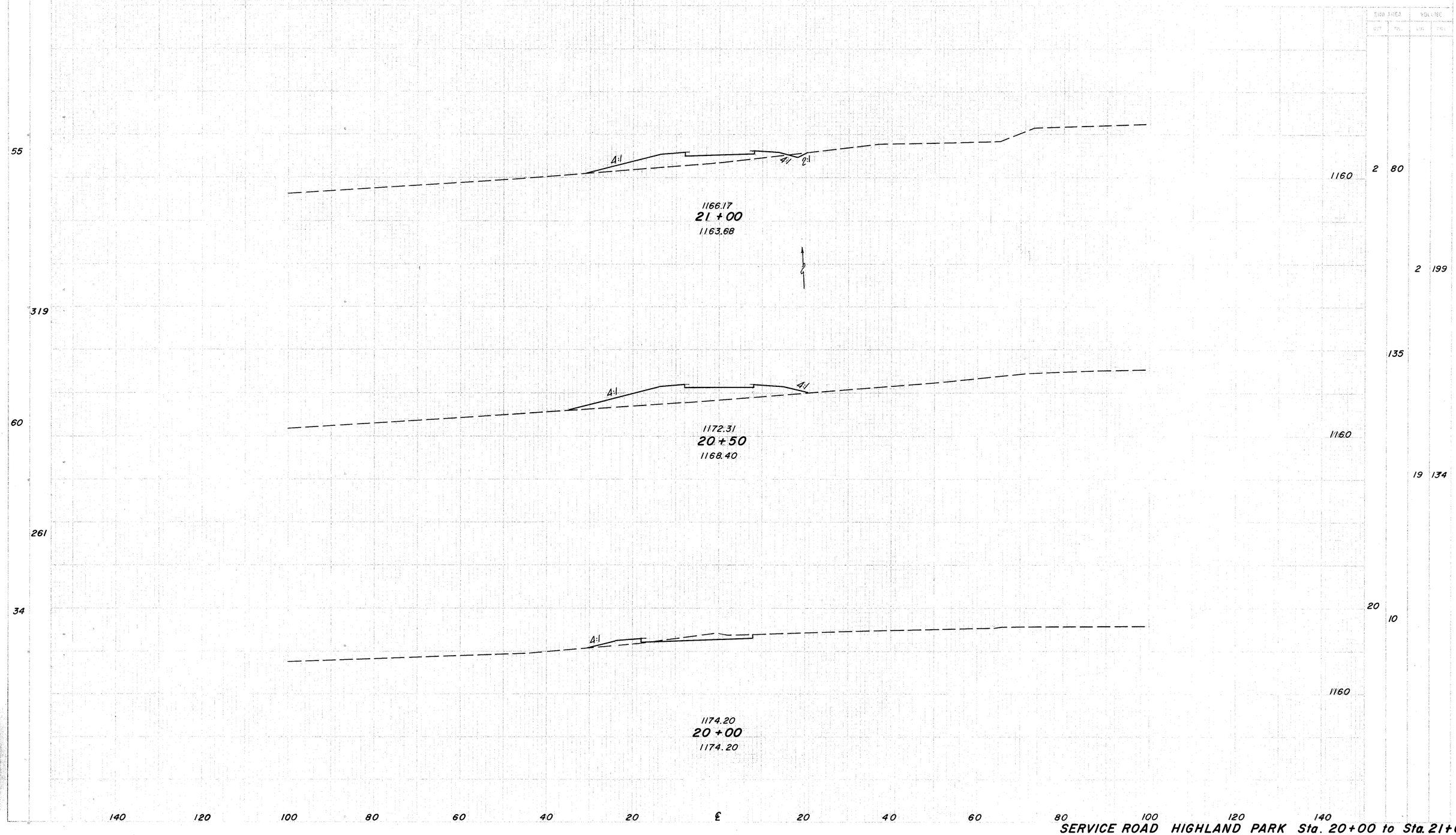
Quantities Calculated By: J.T.M.s
Quantities Checked By: E.P.

Note: For typical section of Highland Park Drive Cul-de-Sac see sheet No. 310

Seeding Width	End Area Sq. Yds.	Cu. Yds. Cut	Fill	Exc.	Emb.
26		0	87		
	27			0	27
23		0	58		
	23			0	17
19		0	31		
	20			0	13
17		0	39		
	18			7	7
16		40	0		
	11			22	0
4		78	0		

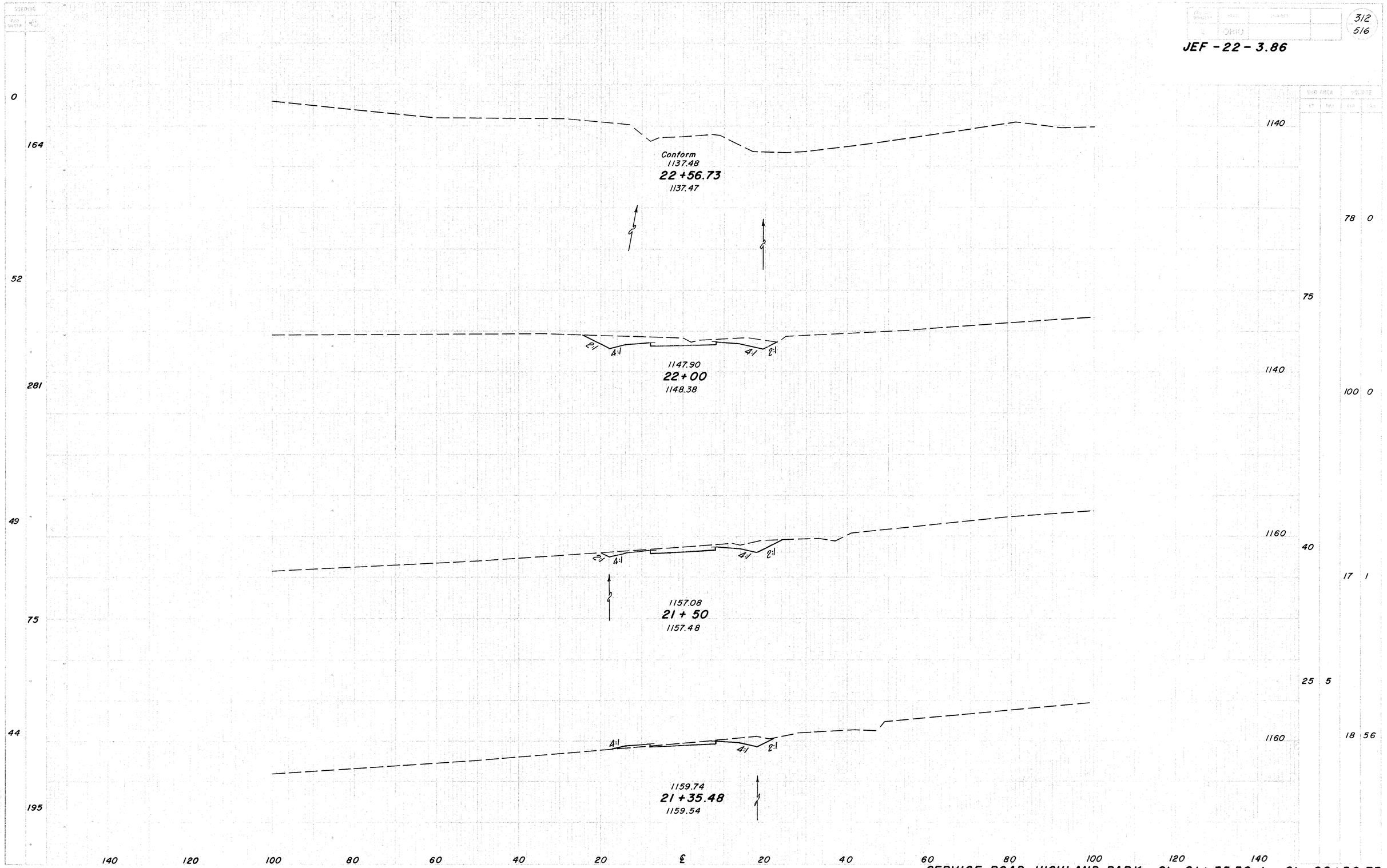
HIGHLAND PARK DRIVE CUL-DE-SAC ~ Lt. STA. 292+66.61

JEF-22-3.86



SERVICE ROAD HIGHLAND PARK Sta. 20+00 to Sta. 21+00

JEF - 22 - 3.86

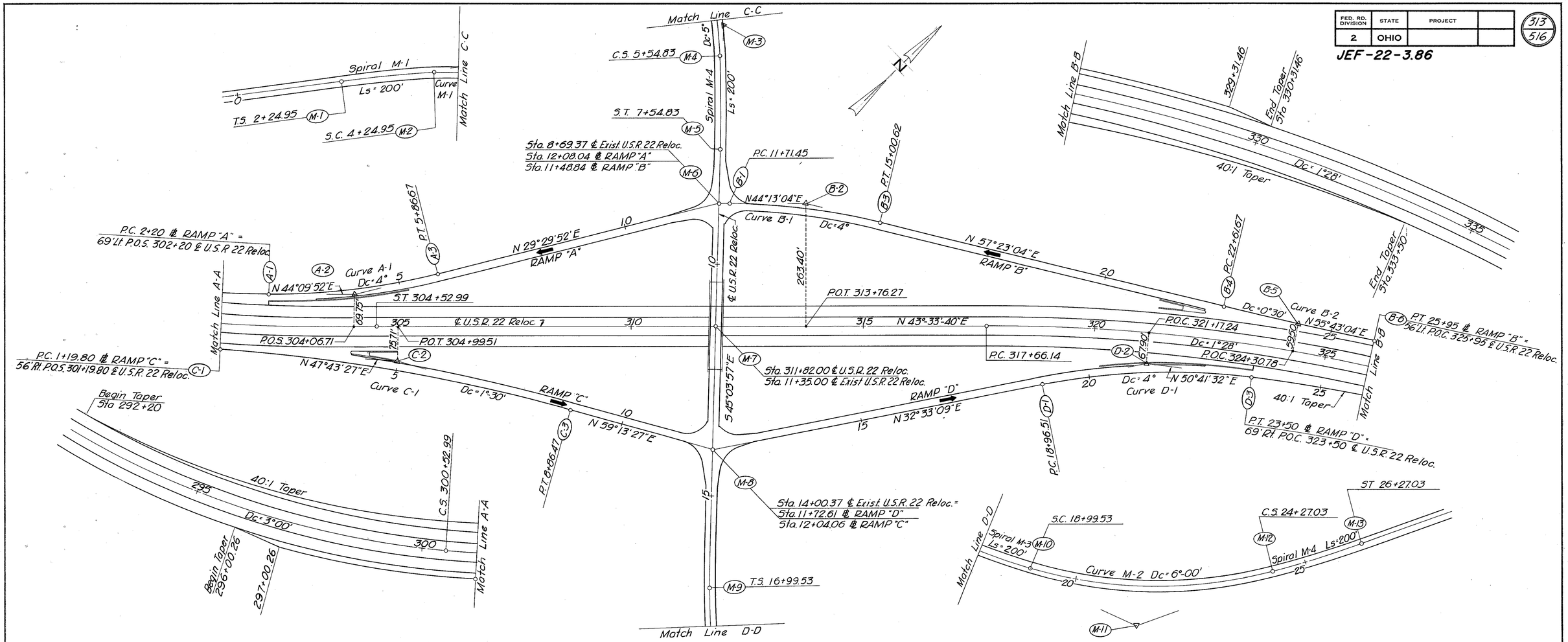


SERVICE ROAD HIGHLAND PARK Sta. 21 + 35.38 to Sta. 22 + 56.73

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

313
516

JEF-22-3.86



CURVE DATA

RAMP	CURVE OR SPIRAL NO.	P.I. STATION	Δc	Dc	Rc	Lc	Tc	E
A	Curve A-1	4+04.34	14°40'	4°00'	1432.39'	366.67'	184.34'	11.82'
B	Curve B-1	13+36.76	13°10'	4°00'	1432.39'	329.17'	165.31'	9.51'
	Curve B-2	24+28.35	1°40'	0°30'	11,459.16'	333.33'	166.68'	1.26'
C	Curve C-1	5+04.42	11°30'	1°30'	3819.72'	766.67'	384.62'	19.33'
D	Curve D-1	21+25.17	18°08'-23"	4°00'	1432.39'	453.49'	228.66'	17.57'
EXIST. U.S.R. 22 RELOC.	Spiral M-1							
	Curve M-1	4+91.22	6°-29'-38"	5°00'	1145.92'	129.88'	65.01'	
	Spiral M-2							
	Spiral M-3							
	Curve M-2	21+82.62	31°39'00"	6°00'	954.93'	527.50'	270.67'	
	Spiral M-4							

SPIRAL DATA

Δ	θs	Ls	Ts (Bk)	Ts (Ahd)	Es	P	K	Xc	Yc	L.T.	S.T.
	5°-00'	200'	266.27'	266.27'	13.44'	1.45'	99.97'	199.85'	5.81'	133.39'	66.72'
16°29'38"											
	5°-00'	200'	266.27'	266.27'	13.44'	1.45'	99.97'	199.85'	5.81'	133.39'	66.72'
	6°-00'	200'	483.09'	483.09'	75.60'	1.74'	99.96'	199.78'	6.98'	133.41'	66.74'
43°39'00"											
	6°-00'	200'	483.09'	483.09'	75.60'	1.74'	99.96'	199.78'	6.98'	133.41'	66.74'

CO-ORDINATES

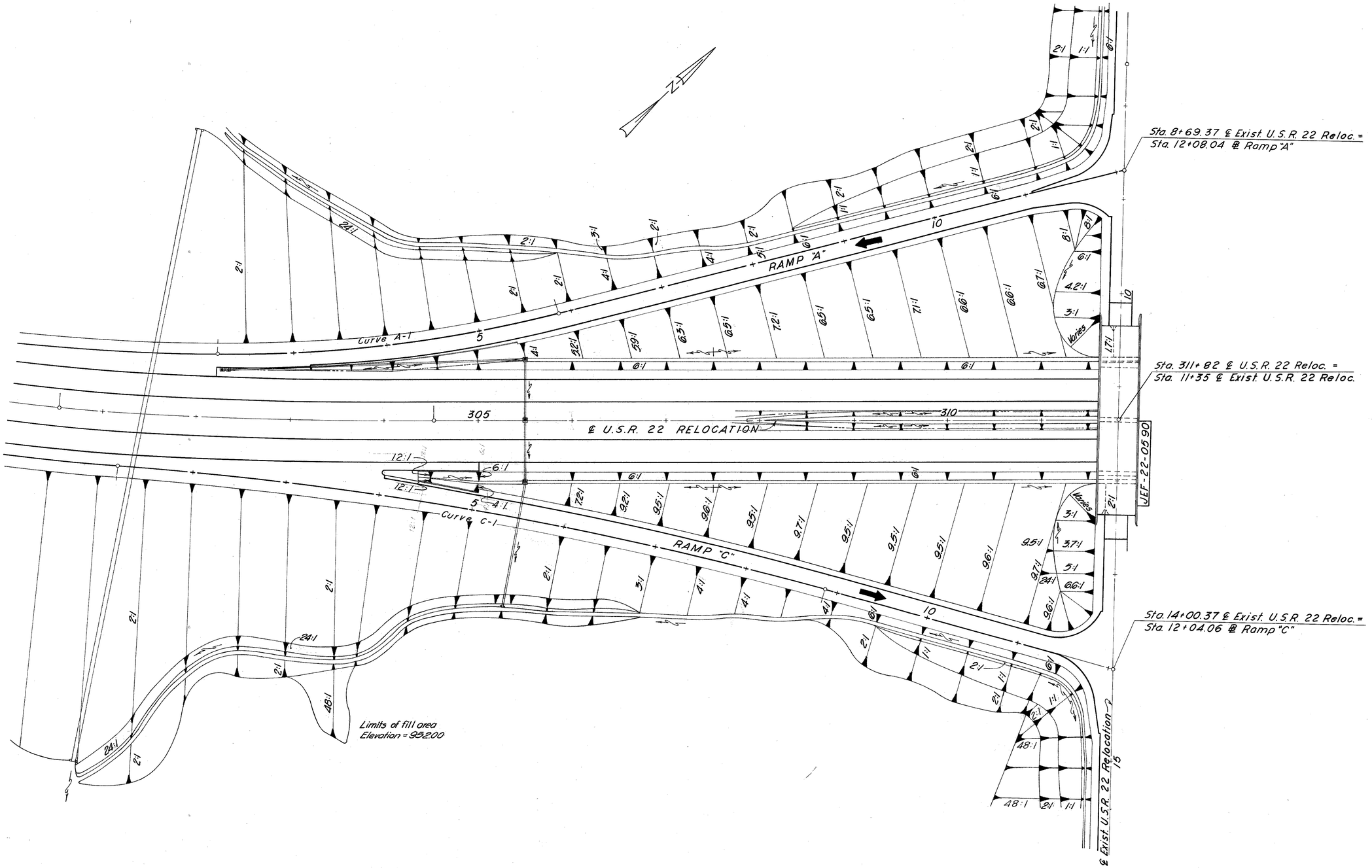
No.	NORTH	EAST	No.	NORTH	EAST
A-1	678,775.78	1,644,172.42	M-5	679,690.18	1,644,616.50
A-2	678,908.01	1,644,300.85	M-6	679,609.28	1,644,697.58
A-3	679,068.46	1,644,391.62	M-7	679,421.67	1,644,885.63
			M-8	679,234.24	1,645,073.48
B-1	679,625.48	1,644,713.35	M-9	679,022.94	1,645,285.27
B-2	679,743.96	1,644,828.63	M-10	678,886.78	1,645,431.62
B-3	679,833.06	1,644,967.88	M-11	678,681.74	1,645,627.26
B-4	680,243.27	1,645,608.91	M-12	678,682.37	1,645,910.65
B-5	680,333.11	1,645,749.31	M-13	678,670.91	1,646,110.22
B-6	680,426.99	1,645,887.03			
C-1	678,616.20	1,644,185.57			
C-2	678,874.93	1,644,470.16			
C-3	679,071.74	1,644,800.63			
D-1	679,844.42	1,645,462.99			
D-2	680,037.15	1,645,586.03			
D-3	680,182.00	1,645,762.96			
M-1	680,005.06	1,644,193.86			
M-2	679,904.77	1,644,366.82			
M-3	679,878.25	1,644,428.00			
M-4	679,827.21	1,644,470.92			

ALIGNMENT PLAN VALLEY VIEW INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF - 22 - 3.86

3/4
5/6



GRADING & DRAINAGE PLAN VALLEY VIEW INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

315
516

JEF-22-3.86

Sta. 8+69.37 ℄ Exist. U.S.R. 22 Reloc. =
Sta. 11+48.84 ℄ Ramp "B"

Sta 311+82 ℄ U.S.R. 22 Reloc. =
Sta. 11+35 Exist. U.S.R. 22 Reloc.

Sta. 14+00.37 ℄ Exist. U.S.R. 22 Reloc. =
Sta. 11+72.61 ℄ Ramp "D"

JEF-22-05.90

℄ Exist. U.S.R. 22 Relocation

Curve B-1

RAMP "B"

Curve B-2

315

℄ U.S.R. 22 RELOCATION

320

RAMP "D"

Curve D-1

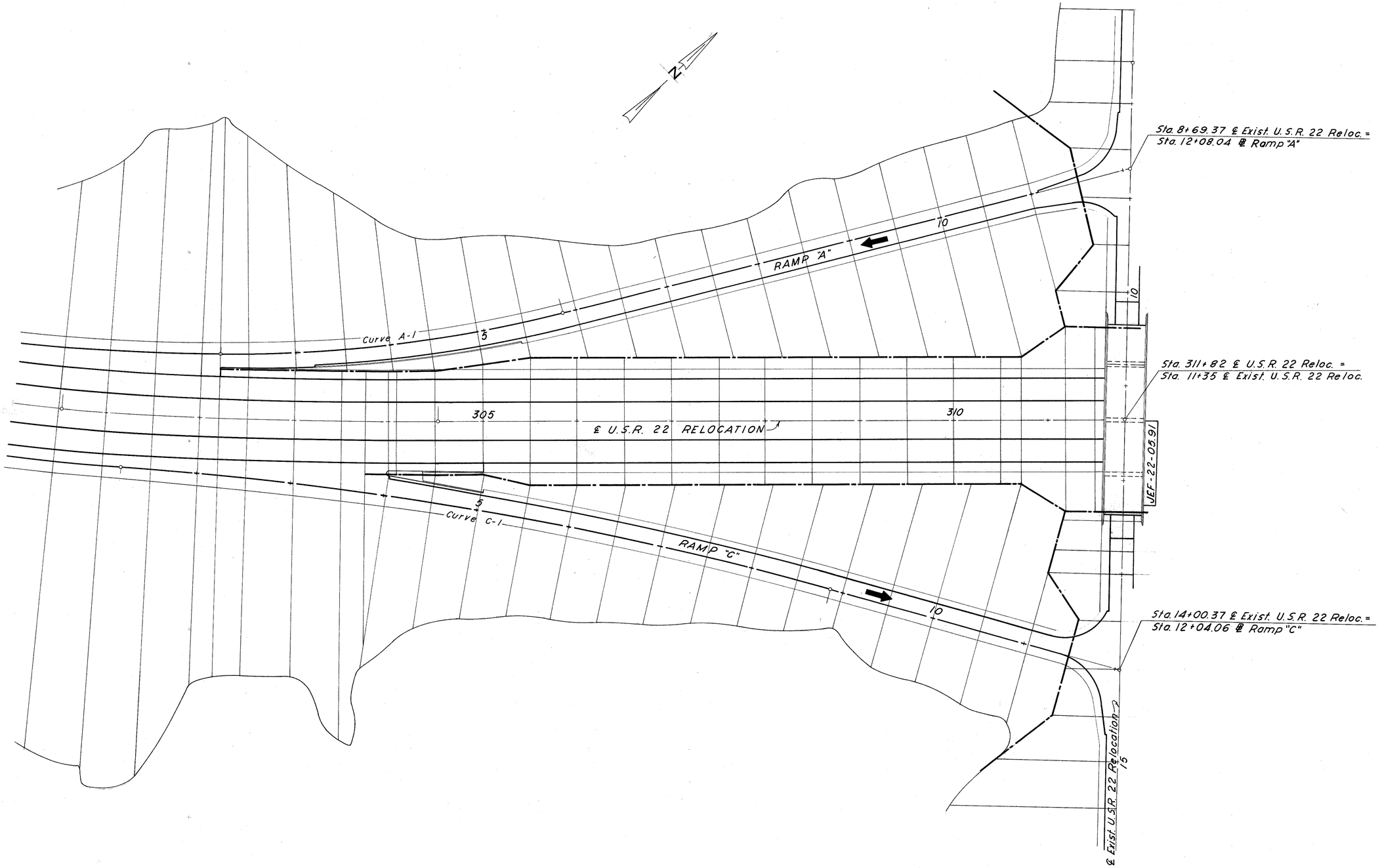
Limits of Rock Emb.

GRADING & DRAINAGE PLAN VALLEY VIEW INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

316
516

JEF - 22 - 3.86



CROSS SECTION LAYOUT VALLEY VIEW INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF - 22 - 3.86

317
516

Sta. 8+69.37 ℄ Exist. U.S.R. 22 Reloc. =
Sta. 11+48.84 ℄ Ramp "B"

Sta. 311+82 ℄ U.S.R. 22 Reloc. =
Sta. 11+35 Exist. U.S.R. 22 Reloc.

Sta. 14+00.37 ℄ Exist. U.S.R. 22 Reloc. =
Sta. 11+72.61 ℄ Ramp "D"

N

Curve B-1

15

RAMP "B"

10

20

Curve B-2

315

℄ U.S.R. 22 RELOCATION

320

JEF-22-05.91

20

Curve D-1

RAMP "D"

15

℄ Exist. U.S.R. 22 Relocation

15

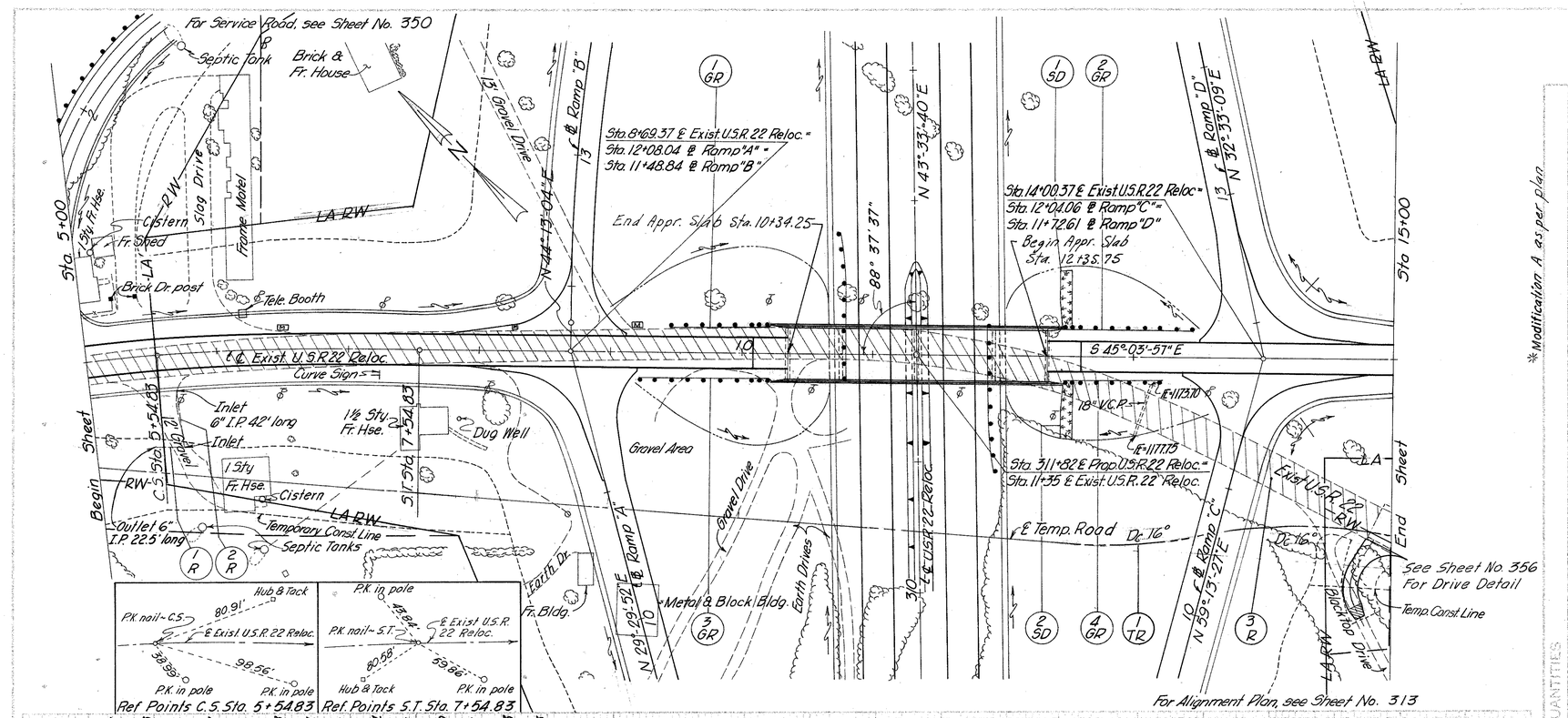
CROSS SECTION LAYOUT VALLEY VIEW INTERCHANGE

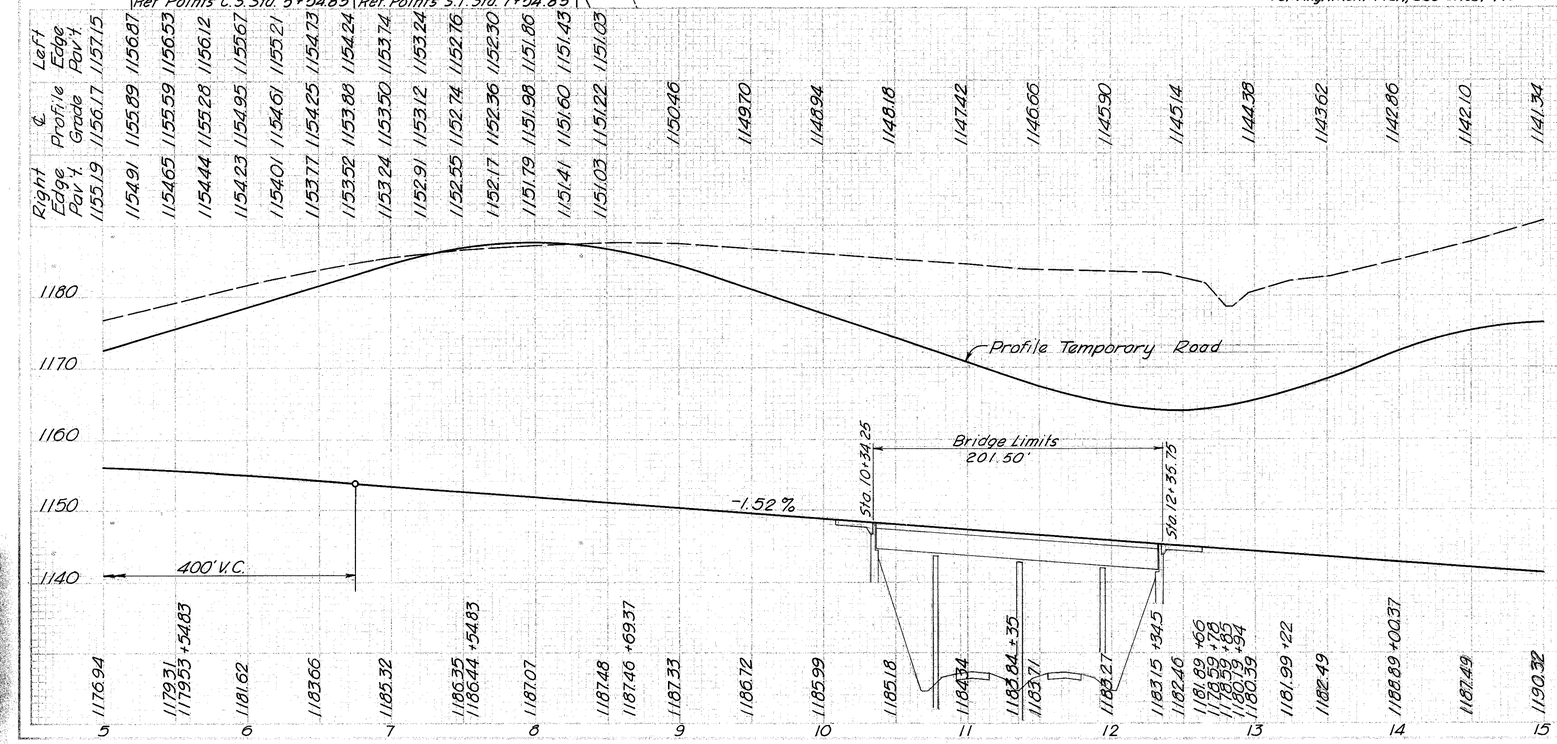
ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	202 Exist. Pvt. removed and disposed of S.Y.	304 Aggregate Base C.Y.	404 Asphalt Concrete C.Y.	603 Conduit Type A *15" L.F.	609 Type 2 Curb & Gutter L.F.	660 Sodding S.Y.	615 Class A Temp. Pavement S.Y.	615 Temp. Roads Lump	See Sheet No.
	ROADWAY										
1 R	(-) 2+00 to 5+00	℄	1400								
1 TR	1+00 to 5+00	Rt.							895	Lump	
1 C	(-) 1+70 to 1+75	Lt.					345				
2 C	(-) 2+00 to 2+15	Rt.					475				
	PAVEMENT										
1 P	(-) 1+90	Lt.		4.84	1.85						
2 P	(-) 0+80	Lt.		3.10	1.18						
3 P	(-) 0+05	Lt.		6.62	2.51						
4 P	(-) 0+57	Rt.		3.10	1.18						
5 P	0+16	Rt.		2.41	0.90						
6 P	1+86	Rt.		6.42	2.38						
7 P	1+35	Lt.		6.02	2.24						
	DRAINAGE										
1 SD	2+77	Rt.						9			
2 SD	1+77	Lt.						9			
	Structures 20' & Under										
1 S	4+75 to 5+08	Lt.				54					
			1400	32.51	12.24	54	820	18	895	Lump	

* with Class B Bedding, 706.01, 706.02 or 706.08

EXIST. U.S.R. 22 Reloc. Sta. -2+50 to Sta. 5+00





Station	Right Edge Pav't.	℄ Profile Grade	Left Edge Pav't.
5	1155.19	1156.17	1157.15
1176.94	1154.91	1155.89	1156.87
1179.31 +54.83	1155.65	1155.59	1156.53
1179.53	1154.44	1155.28	1156.12
6	1154.23	1154.95	1155.67
1181.62	1154.01	1154.61	1155.21
1183.66	1153.77	1154.25	1154.73
7	1153.52	1153.88	1154.24
1185.32	1153.24	1153.50	1153.74
1186.35 +54.83	1152.91	1153.12	1153.24
1186.44	1152.55	1152.74	1152.76
8	1152.17	1152.36	1152.30
1187.07	1151.79	1151.98	1151.86
1187.48	1151.41	1151.60	1151.43
1187.46 +69.37	1151.03	1151.22	1151.03
9		1150.46	
1187.33		1149.70	
1186.72		1148.94	
10		1148.18	
1185.99		1147.42	
1185.18		1146.66	
11		1145.90	
1184.34		1145.14	
1183.84 +35		1144.38	
1183.71		1143.62	
12		1142.86	
1183.27		1142.10	
1183.15 +34.5		1141.34	
13			
1182.46			
1181.89 +66			
1181.59 +70			
1181.39 +85			
1180.73 +94			
1180.39			
1181.99 +22			
14			
1182.49			
1188.89 +0.037			
1187.49			
15			
1190.32			

ESTIMATED QUANTITIES

Item	Station to Station	Side	202 Exist. Pav't. Removed (P) and Removed and Disposed of Under Exc. S.Y.	202 Exist. Pav't. Removed and Disposed of L.F.	*606 Guard Rail Type 4 L.F.	660 Special Slope & Berm Mat. S.Y.	6.15 Class A Temp. Pavement S.Y.	6.15 Temp. Roads Lump
ROADWAY								2202 Lump
1GR	9+46.50 to 10+21.50	Lt.			75.00			
2GR	12+48 to 13+48	Lt.			100.00			
3GR	9+21.50 to 10+21.50	Rt.			100.00			
4GR	12+48 to 13+23	Rt.			75.00			
1-R	5+45 to 5+68	Rt.	23					
2-R	5+68 to 5+71	Rt.	42					
3-R	5+00 to 15+00			2030				
1TR	5+00 to 15+00							
	DRAINAGE							
1SD	12+50	Lt.				42		
2SD	12+50	Rt.				39		
							65	2030
								350
								81

*Modification A as per plan

EXIST. U.S.R. 22 Reloc. Sta. 5+00 to Sta. 15+00

For Typical Section Adjoining Pavement, see Sheet No. 318

Bench Mark Elev. 1174.65
R.R. spike in T. pole No. 162/219 200' ± Rt. of ℄ Sta. 15+95 ± Exist. U.S.R. 22 Reloc.

Ref. Points T.S. Sta. 16+99.53 | Ref. Points S.C. Sta. 18+99.53 | Ref. Points P.I. Sta. 21+82.62 | Ref. Points C.S. Sta. 24+27.03

For Profile Sta. 15+00 to Sta. 25+00
See Following Sheet.

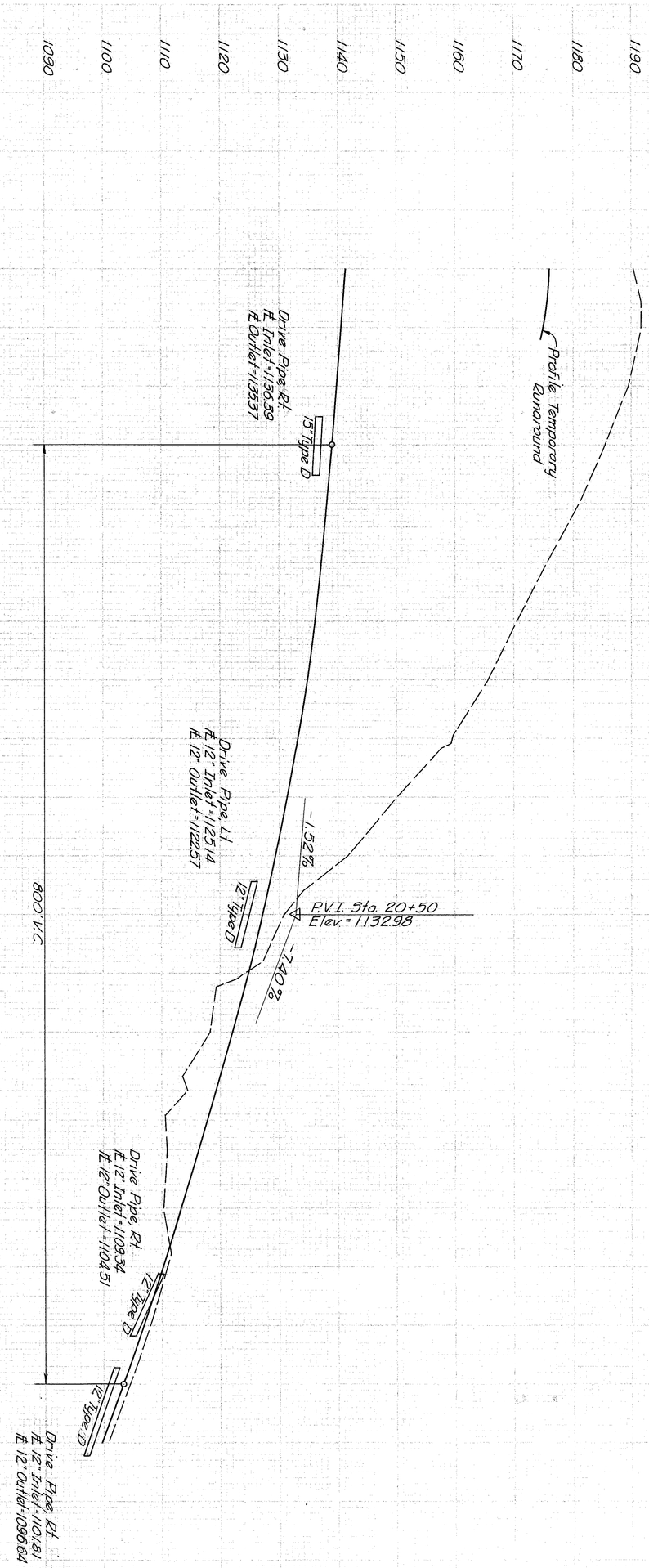
15 16 17 18 19 20 21 22 23 24 25

ESTIMATED QUANTITIES

Sheet No.	Station to Station	Side	202 Exist. Pipe Removed 18" and Under L.F.	202 Guard Rail Re-moved for Storage L.F.	202 Exist. Pvt. Removed and Dis-posed of S.Y.	304 Agg. Base C.Y.	404 Asph. Conc. C.Y.	601 Dumped Rock Channel Prot. C.Y.	603 Conduit Type D ★15" L.F.	603 Conduit Type D ★12" L.F.	603 Conduit Type D 12" L.F.	603 Conduit Type E *12" L.F.	615 Class A Temp. Pav't. S.Y.	615 Temp. Roads Lump	606 Guard Rail †Type 4 L.F.	606 Guard Posts Ea.	660 Sodding S.Y.	See Sheet No.
	ROADWAY																	
1-R	19+25 to 25+00	Rt.			1226													
2-R	20+82 to 21+03	Rt.	24															
3-R	21+05 to 25+00	Lt.-Rt.		405														
1TR	15+00 to 16+50	Rt.											138	Lump				
1GR	21+68.14 to 25+00	Lt.													324.91			
2GR	2+00 to 9+64.13	Rt.														21		
	DRAINAGE																	
1-S	16+26 to 16+76	Rt.							50									
2-S	20+22 to 20+78	Lt.								56								
3-S	23+56 to 24+09	Rt.									54							
4-S	24+36 to 25+00	Rt.									66							
5-S	23+02 to 24+50	Lt.										138						
1SD	20+00 to 20+22	Lt.															15.0	
2SD	20+00 to 22+90	Rt.															212.0	
1DR	20+78 to 21+75	Lt.						32										
	PAVEMENT																	
1-P	20+50	Lt.				17.63												
2-P	22+93	Rt.				16.46												
3-P	23+76	Rt.				16.02	5.94											
			24	405	1226	50.11	5.94	32	50	56	120	138	138	Lump	324.91	21	227.0	

† Modification A as per plan
* 706.01 E.S., 706.02 Class III or 706.08 E.S.
★ 707.01 or 707.02 14 gage

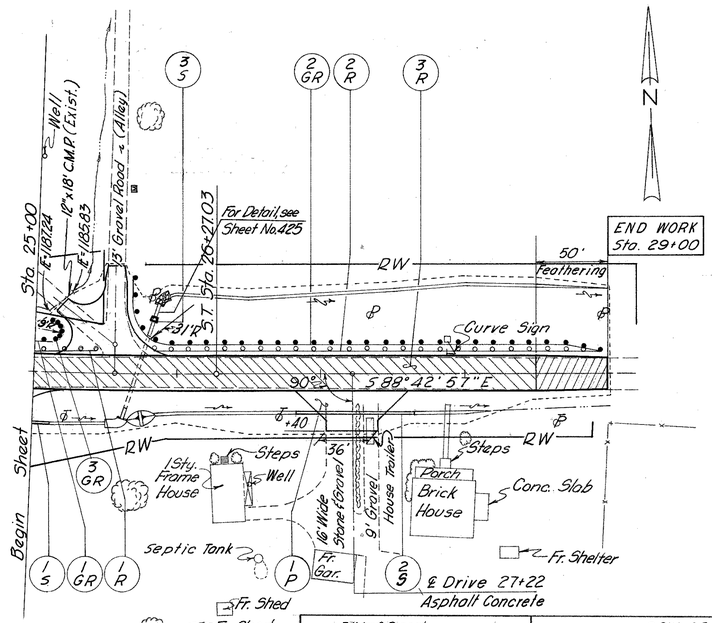
EXIST. U.S.R. 22 Reloc. Sta. 15+00 to Sta. 25+00



			Right Edge Pav't	℄ Profile Grade	Left Edge Pav't
15	1190.3			1141.34	
	1191.8	+28			
	1191.8			1140.58	
16	1189.4		1139.63	1139.82	1139.63
			1139.27	1139.44	1139.25
	1185.3		1138.94	1139.06	1138.87
			1138.60	1138.66	1138.47
17	1181.1	+99.53	1138.23	1138.21	1138.02
			1137.83	1137.71	1137.50
	1175.5		1137.41	1137.17	1136.91
			1136.95	1136.59	1136.23
18	1170.4		1136.43	1135.95	1135.47
			1135.87	1135.27	1134.67
	1165.6		1135.27	1134.55	1133.83
			1134.62	1133.78	1132.94
19	1159.7	+99.53	1133.89	1132.96	1132.03
	1159.2	+05			
	1157.9	+08	1133.08	1132.10	1131.12
	1150.0		1132.19	1131.19	1130.19
			1131.24	1130.24	1129.24
20	1141.8		1130.24	1129.24	1128.24
	1134.1	+29	1129.19	1128.19	1127.19
	1130.8		1128.10	1127.10	1126.10
			1126.96	1125.96	1124.96
	1127.2	+90			
21	1124.0		1125.78	1124.78	1123.78
	1123.1	+04			
	1119.2	+12	1124.55	1123.55	1122.55
	1118.2		1123.27	1122.27	1121.27
			1121.95	1120.95	1119.95
	1113.6	+88			
22	1114.4		1120.58	1119.58	1118.58
	1110.6	+21	1119.17	1118.17	1117.17
	1111.0		1117.71	1116.71	1115.71
			1116.20	1115.20	1114.20
23	1110.2		1114.65	1113.65	1112.65
			1113.06	1112.06	1111.06
	1111.6	+39	1111.41	1110.41	1109.41
	1111.0				
			1109.72	1108.72	1107.72
	1108.4	+93			
24	1108.0		1107.97	1106.99	1106.01
			1106.14	1105.21	1104.28
	1106.1	+27.03	1104.22	1103.38	1102.54
	1104.5		1102.25	1101.53	1100.81
25	1100.8		1100.28	1099.68	1099.08

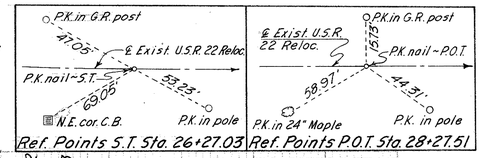
PROFILE EXIST. U.S.R. 22 Reloc. Sta. 15+00 to Sta. 25+00

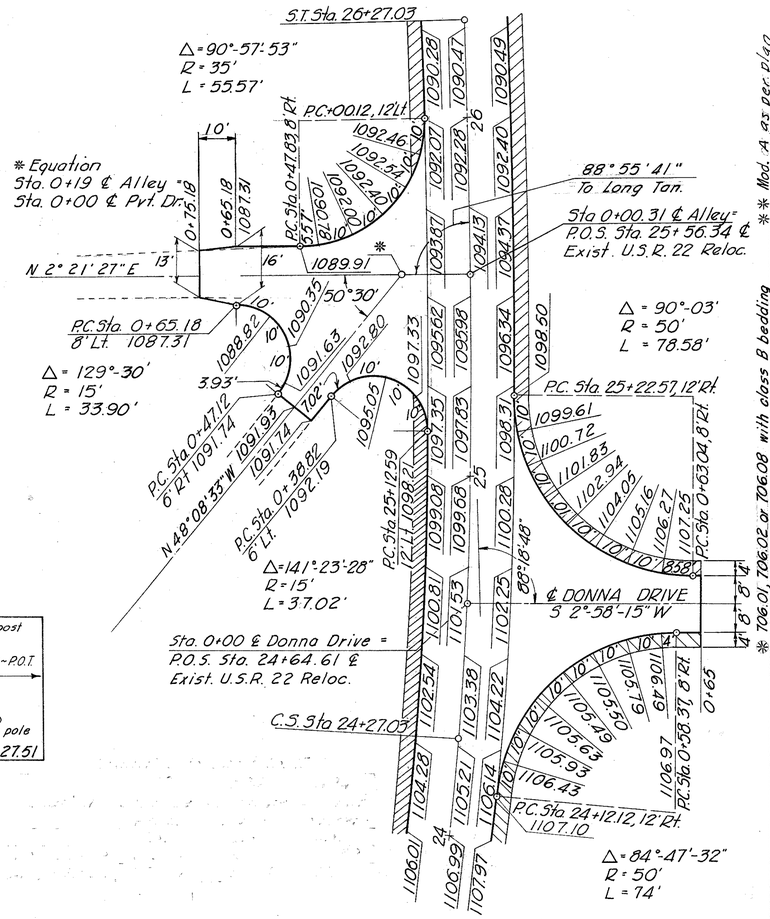
JEF-22-3.86



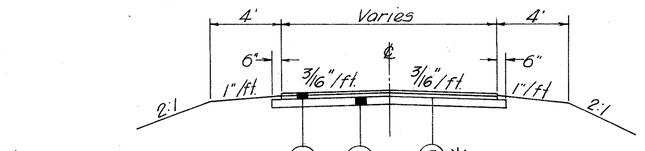
For Typical Section Adjoining Pavement, see sheet No. 318

Bench Mork Elev. 1072.33
R.R. spike in N. side of Utility Pole 35'± Rt. of ℄ Sta. 28+50 Exist. U.S.R. 22 Reloc.





* 106.01, 106.02 or 106.08 with class B bedding
** Mod. A as per plan
*** 101.01 or 707.02 1 gage

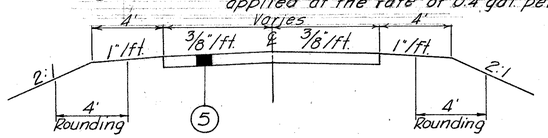


TYPICAL SECTION DONNA DRIVE, ALLEY and RESIDENCE DRIVE

(5) Item 304 5" Aggregate Base

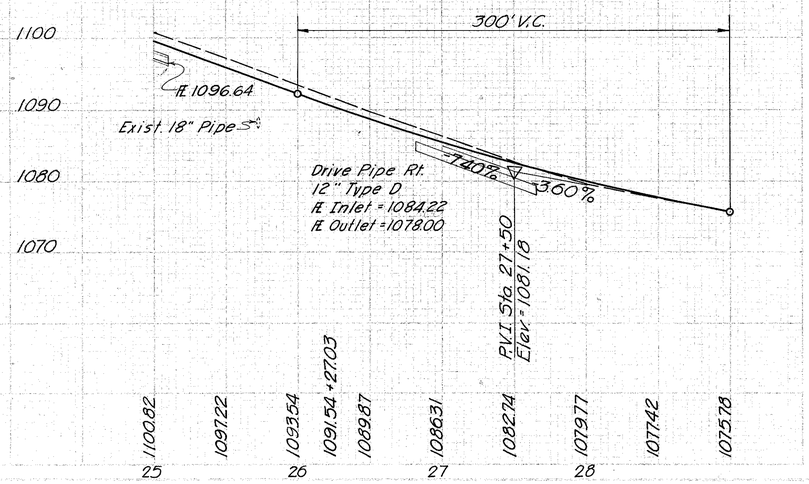
(10) Item 404 2-1" Layers Asphalt Concrete 70-85

* (3) Item 408 Prime Coat 702.09 RT-2 or RT-3 applied at the rate of 0.4 gal. per sq. yd.



TYPICAL SECTION FIELD DRIVE

(5) Item 304 6" Aggregate Base



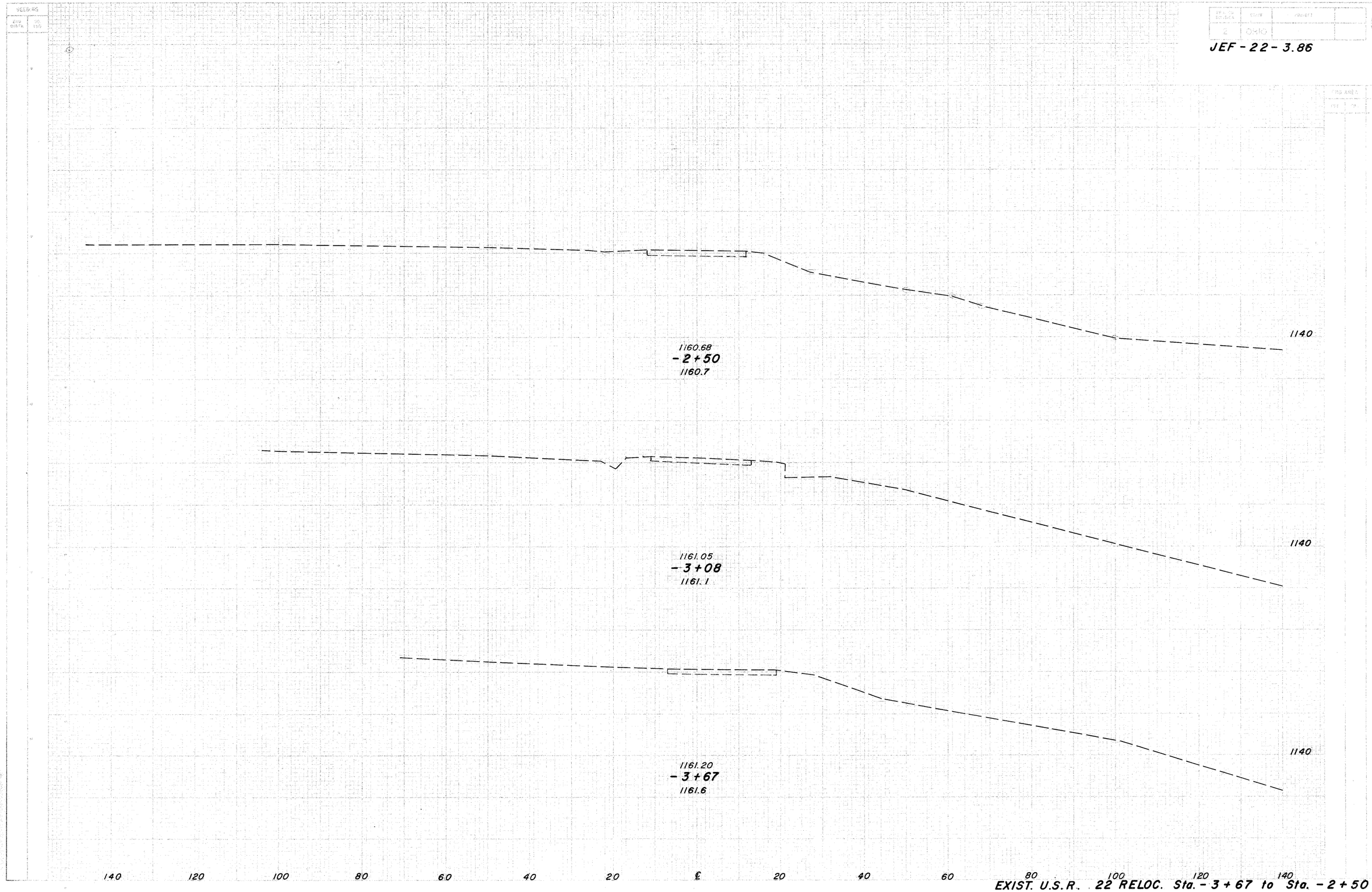
ESTIMATED QUANTITIES

603	Conduit, Type D 12"	L.F.				82
	Type D 15"	L.F.				82
	Type A * 18"	L.F.				11
606	Guard Rail Type 1	** L.F.				425
606	Guard Rail Posts	Ea.				6
604	Std. No. C.B.	** Ea.				1
602	Concrete Masonry	C.Y.				0.6
601	6" Reinf. Concrete Rock Channel Riprap	C.Y.				1
601	Dumped Rock Channel Riprap	S.Y.				6
		C.Y.				3
						11
304	Aggregate Base	C.Y.				375.09
404	Asphalt Concrete	C.Y.				82
202	Extr. Pvt. and dispose of	S.Y.		700		11
202	Guard Rail removed Storage	L.F.				11
						45
						22.29
						869
						45
						22.29
						869
						700
						35750

			45.00		
			312.50		
				700	
ROADWAY					
1 R	25+00 to 25+45	Lt.			
2 R	28+96.6 to 28+50	Lt.			
3 R	25+00 to 28+50	℄			
1 GR	25+00 to 25+12.59	Lt.			
2 GR	25+00 to 28+96.5	Lt.			
3 GR	25+12.59 to 0+47.12	Lt.			
PAVEMENT					
1 P	27+22	Rt.		22.29	869
DRAINAGE					
15	25+00 to 25+11	Rt.			11
25	26+82 to 27+64	Rt.			
Structures 20'8 Under					45
35	25+71.70	℄			

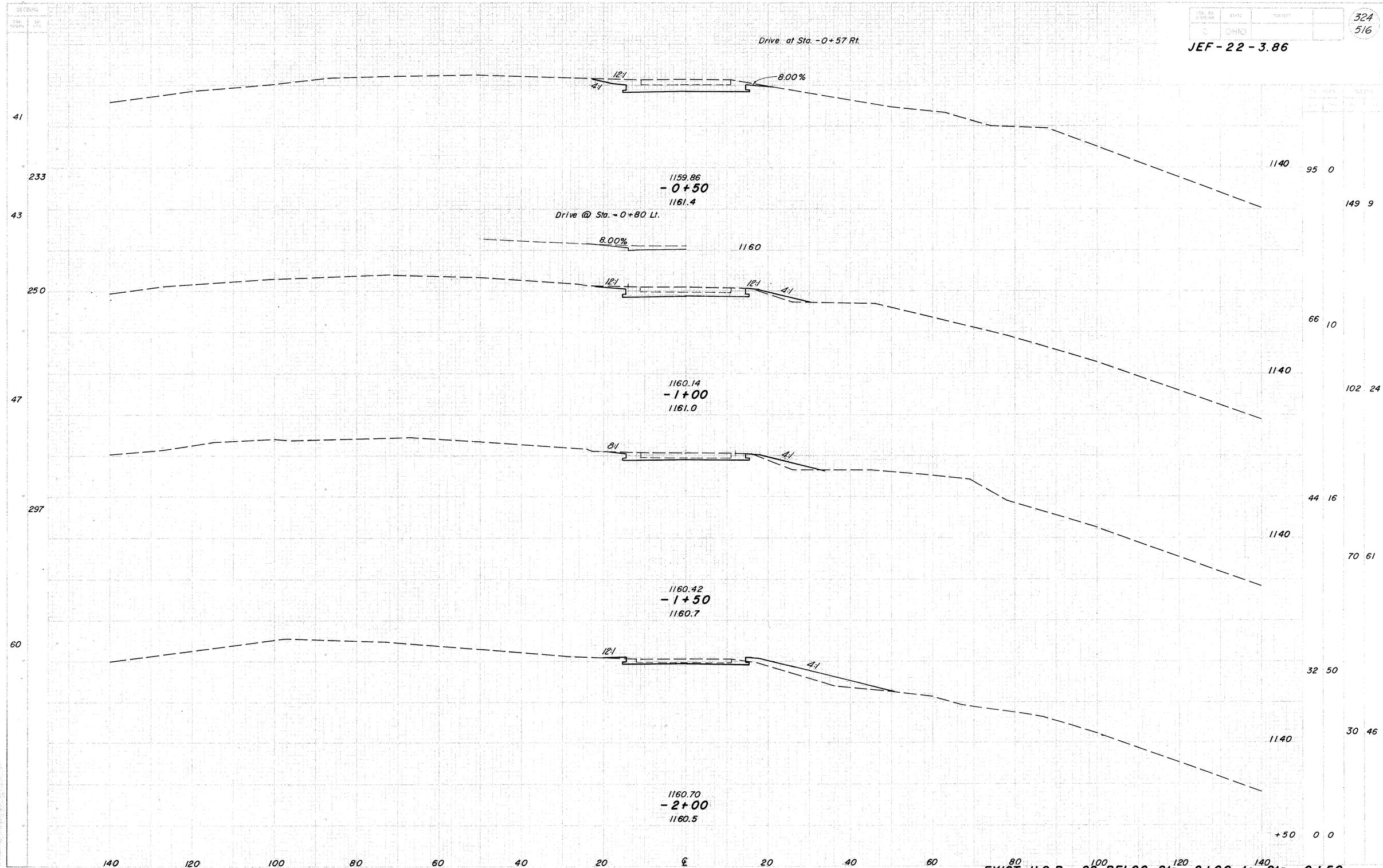
EXIST. U.S.R. 22 Reloc. Sta. 25+00 to Sta. 29+00

JEF - 22 - 3.86



EXIST. U.S.R. 22 RELOC. Sta. - 3 + 67 to Sta. - 2 + 50

JEF-22-3.86



EXIST. U.S.R. 22 RELOC. Sta. -2+00 to Sta. -0+50

SHEET NO. 325
TOTAL SHEETS 516

JEF - 22 - 3.86

Drive Lt.
Sta. 1+35

End Area
Cut

1159.8
0 + 40
1159.8

7

1159.29
0 + 27
1161.7

80

1158.94
0 + 18
1159.02

19

1159.8
4:1
12:1
3.91 %
Drive Lt. Sta. 1+35
12:1
4:1

1158.74
1 + 50
1163.1

1159.02
1 + 00
1162.7

1159.30
0 + 50
1162.3

Drive @ Sta 0+05 Lt.

1159.58
0 + 00
1161.8

Drive @ Sta. 0+16 Rt.

1160
8.00 %

8.00% 12:1
12:1

4:1
12:1
12:1
4:1

46
239
40
214
37
197
34
208

Drive
37
200 0
1150
361 0
190 0
1150
315 0
150 0
1150
241 0
5 0
Drive Lt.
110 0
1150
190 0
Drive Rt.
5

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

EXIST. U.S.R. 22 RELOC. Sta. 0+00 to Sta. 1+50

SHEET NO. | TOTAL SHEETS | STATE | PROJECT

2 | OHIO | |

326
516

JEF - 22 - 3.86

℄ Temp. Road

3:1 4:1 12:1 3:1

1158.18
2 +50
1165.5

℄ Temp. Road

1158.21
2 +45
1164.7

℄ Temp. Road

1158.32
2 + 24.95
1164.7

℄ Temp. Road

1158.46
2 +00
1164.1

Drive @ Sta. 1+86 Rt.

0+00 0+10 0+23

8.00%

1061.00
0 +23
1061.0

1060.00
0+10
1062.00

1059.2
0 +00
1059.2
Drive Rt. 1+86

0+23	0	0	13 0
0+10	53	0	
0+00	0	0	10 0

Drive Rt.

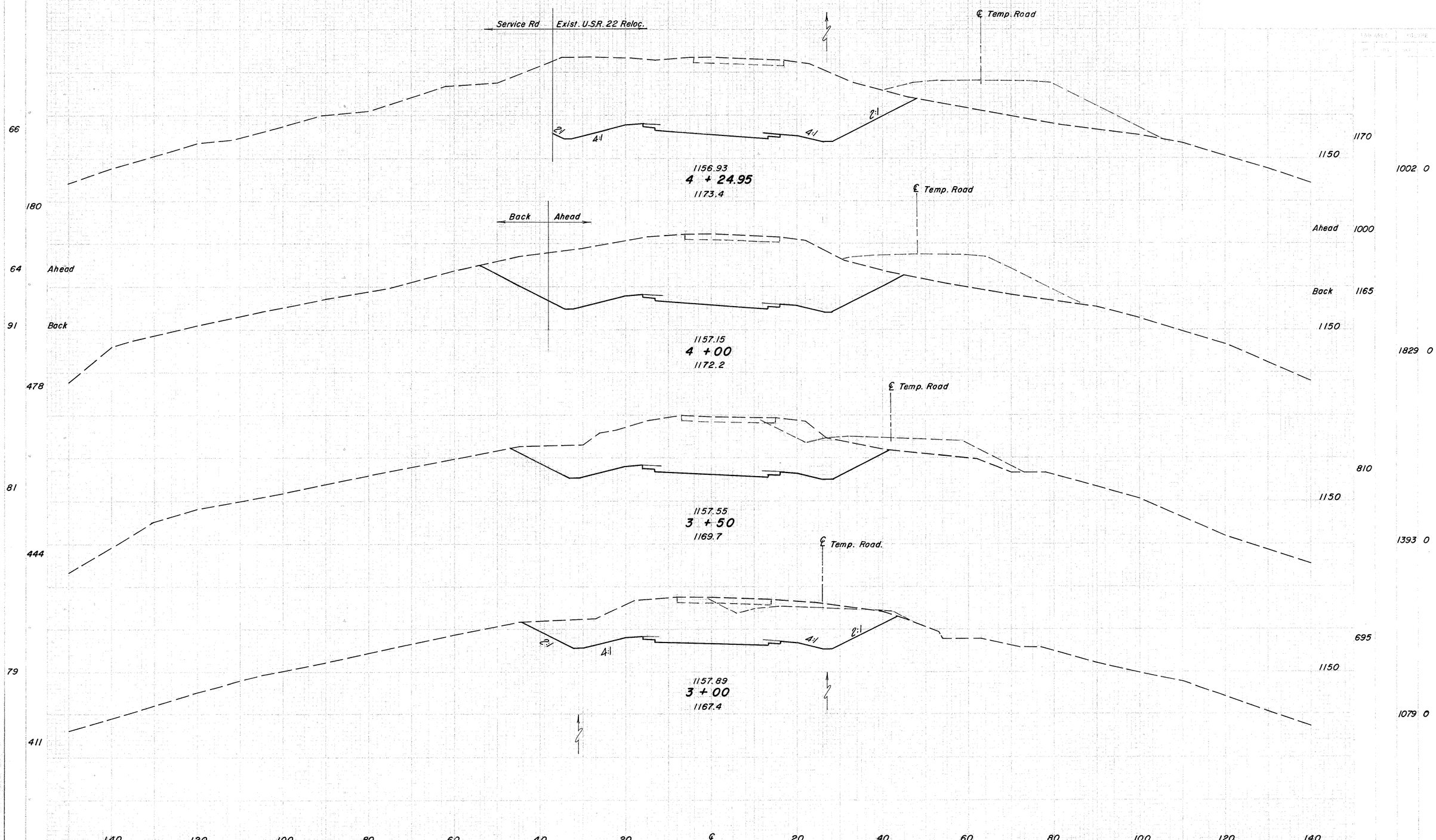
69 37 64 141 63 170 60 294

1150 470 81 0
1150 400 295 0
1150 395 339 0
340 500 0
1150
1160

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

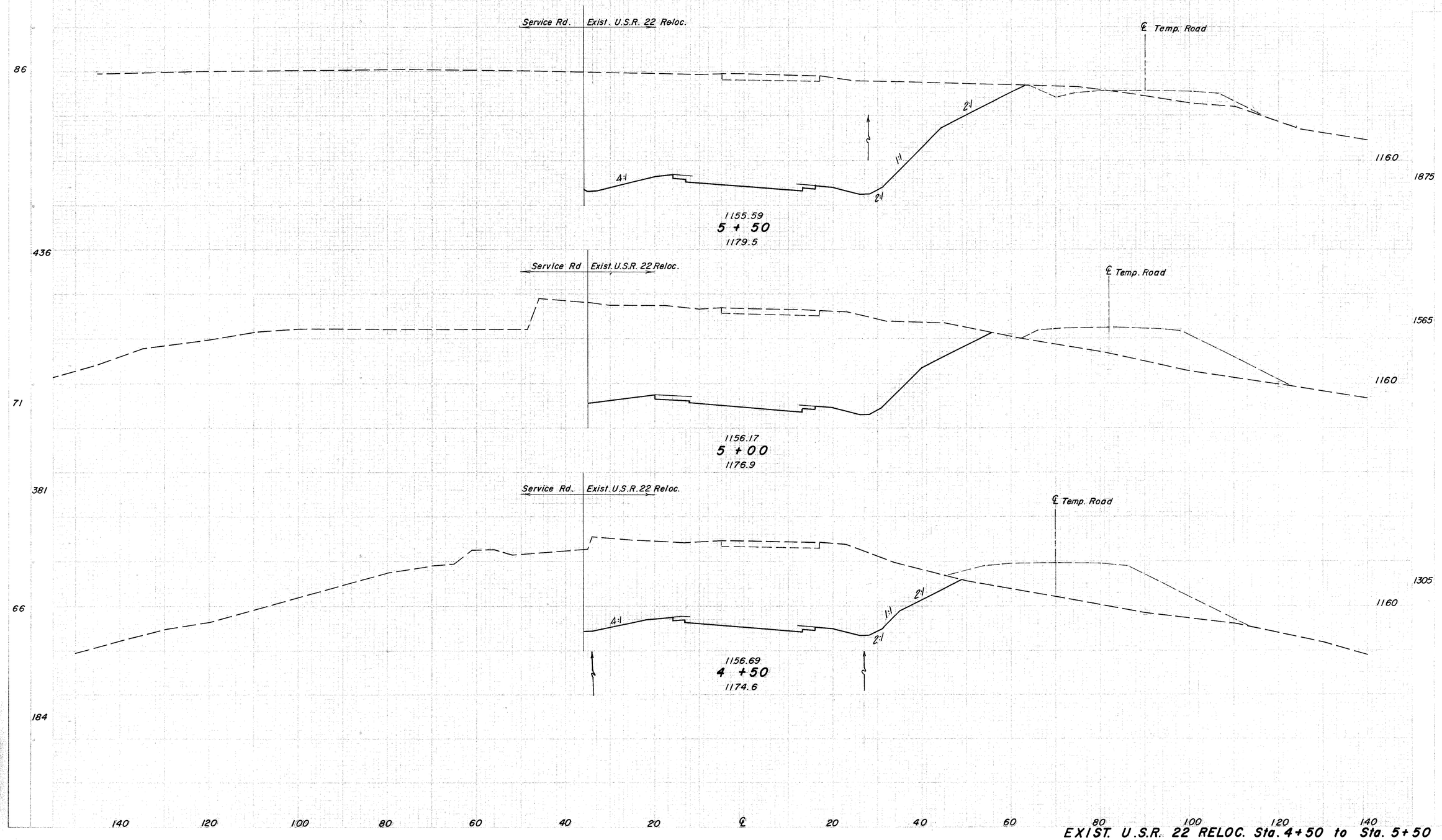
EXIST. U.S.R. 22 RELOC. Sta. 2+00 to Sta. 2+50

JEF-22-3.86



EXIST. U.S.R. 22 RELOC. Sta. 3+00 to Sta. 4+24.95

JEF-22-3.86



EXIST. U.S.R. 22 RELOC. Sta. 4+50 to Sta. 5+50

JEF-22-3.86

167

872

147 Ahead

103 Back

477

℄ Temp. Road

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

1154.25
6+50
1183.7

Ahead
Back

℄ Temp. Road

Ahead 2835

Back 2365

1160

3250

1160

5634 0

3567 0

Service Rd. Exist. U.S.R 22 Reloc.

℄ Temp. Road

87

527

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

1155.54
5+54.83
1179.5

1900

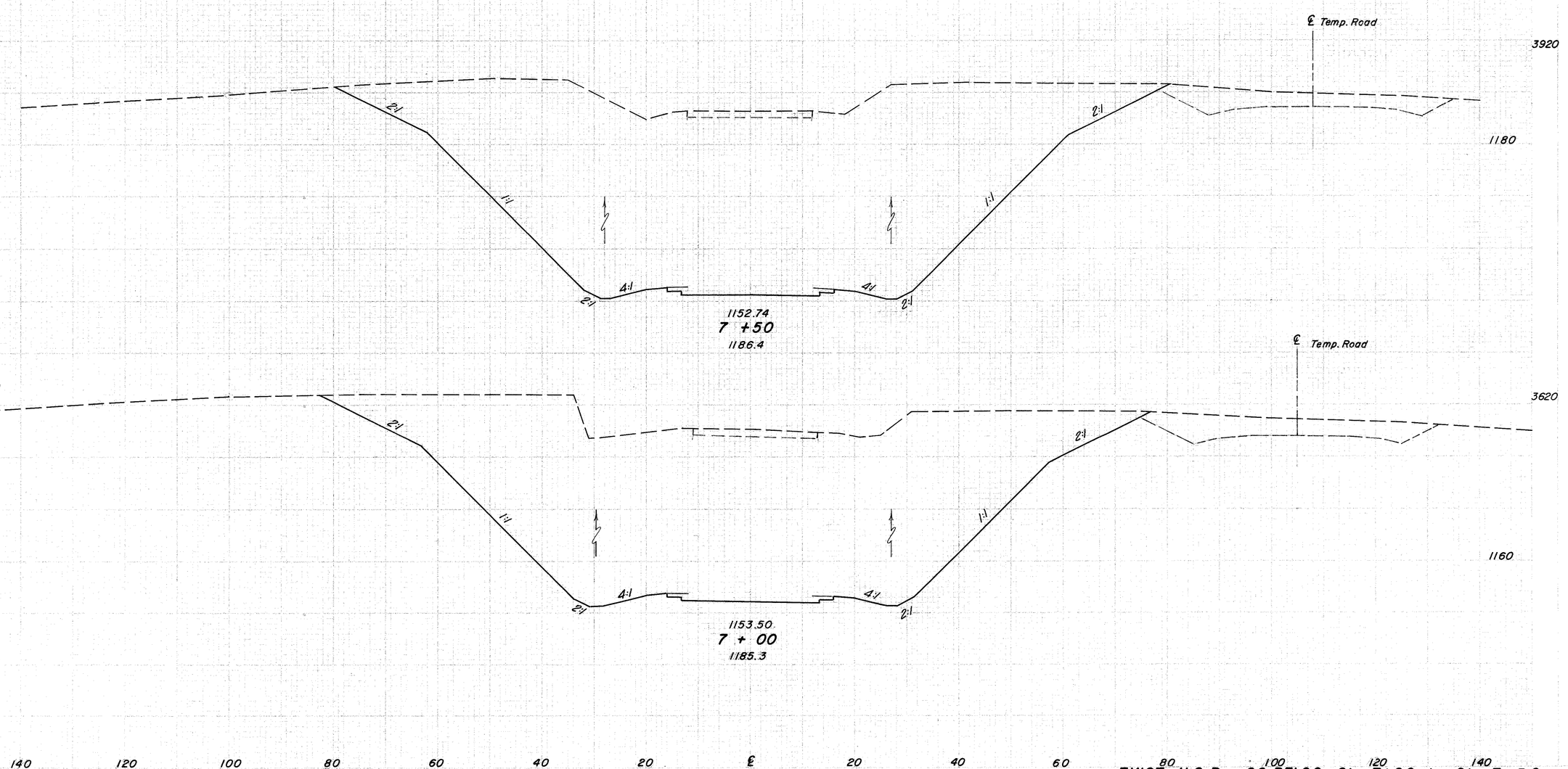
1150

337 0

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

EXIST. U.S.R. 22 RELOC. Sta. 5+54.83 to Sta. 6+50

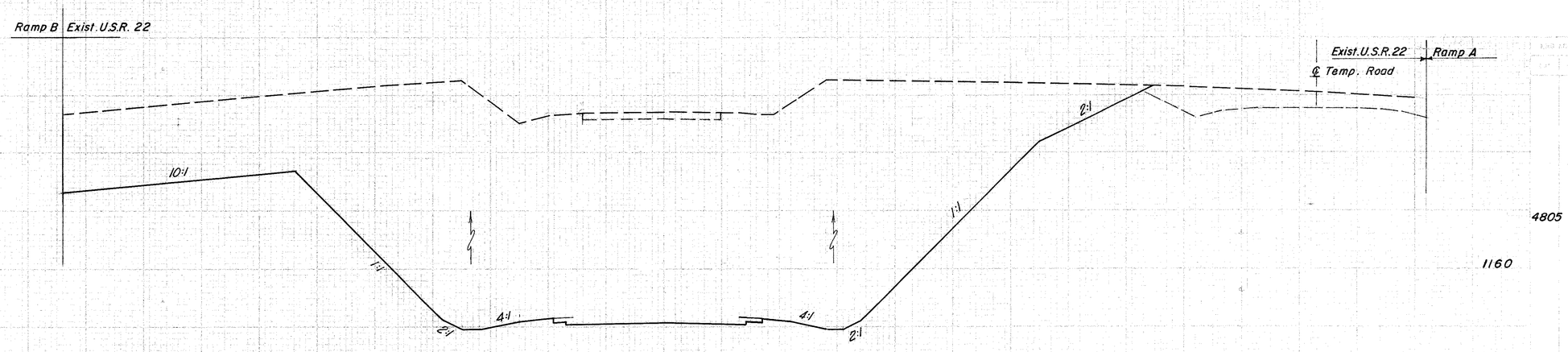
JEF-22-3.86

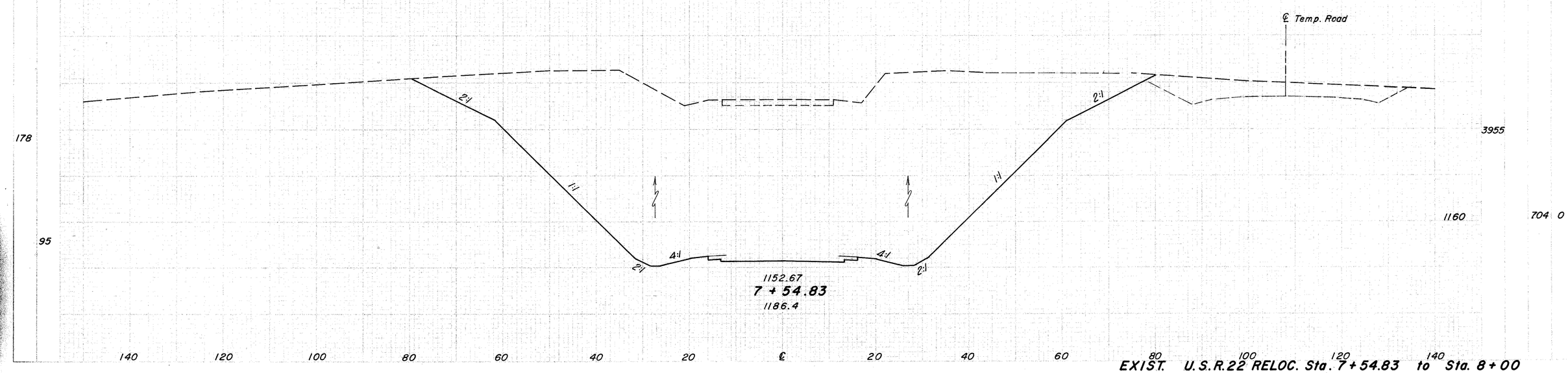


EXIST. U.S.R. . 22 RELOC. Sta. 7+00 to Sta. 7+50

331
516

JEF-22-3.86

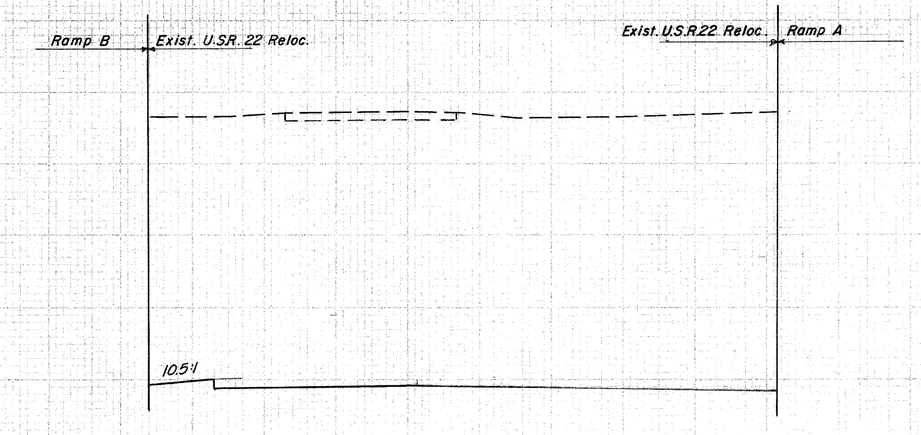




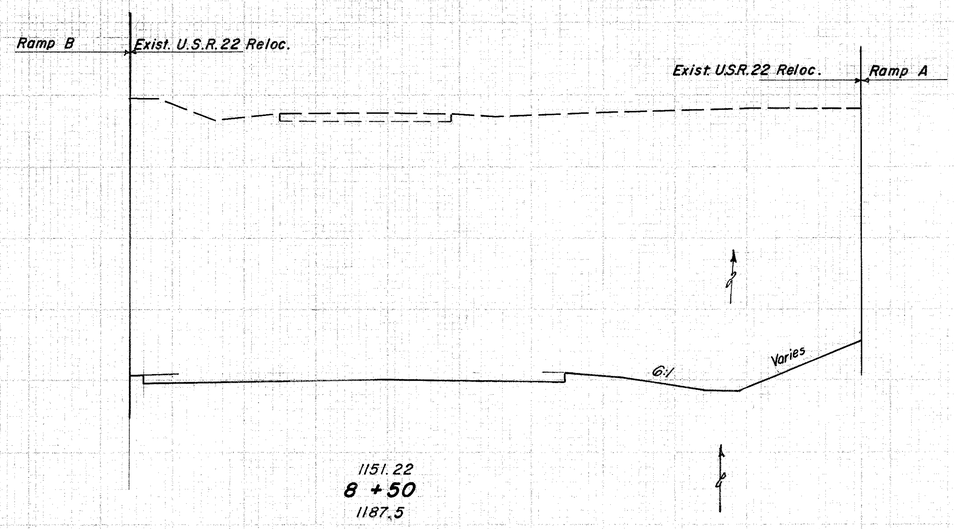
EXIST. U.S.R.22 RELOC. Sta. 7+54.83 to Sta. 8+00

332
516

JEF - 22 - 3.86



1150.46
9 + 00
1187.3



1151.22
8 + 50
1187.5

EXIST. U.S.R.. 22 Reloc. Sta. 8+50 to Sta. 9+00

JEF-22-3.86

77 231 82 344 42 142

1160 3810 3943 1180 4340 6301 0 1180 2465 5245

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

EXIST. U.S.R. 22 RELOC. Sta. 9+50 to Sta. 10+26.11

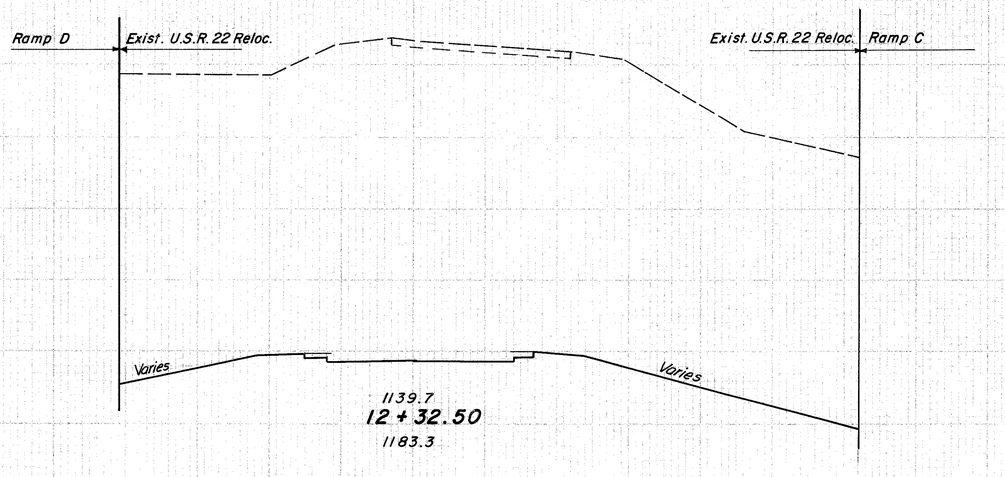
SEE MARK SEE MARK

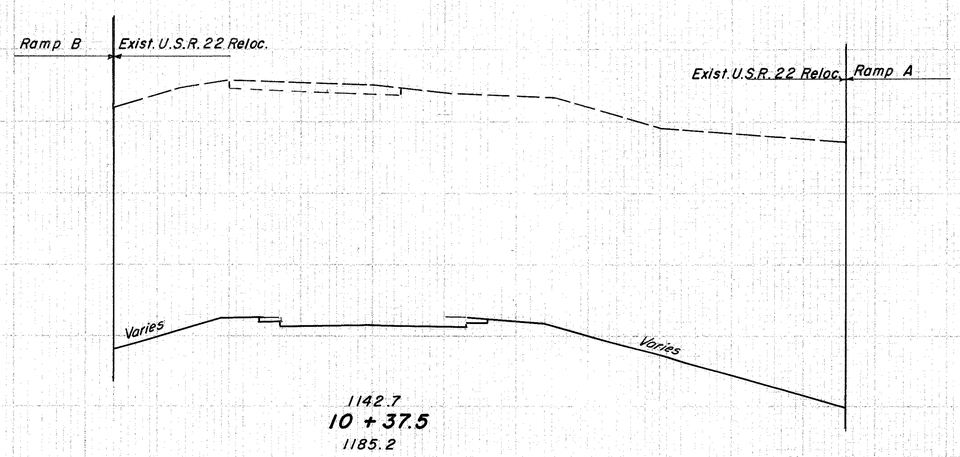
SHEET NO.	STATE	PROJECT	
2	OHIO		

334
516

JEF-22-3.86

EARTHWORK AREA: CUT 4065 FILL 1455 0 — VOLUME: CUT 1140 FILL 3090





64
66
90
1180
1140

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

EXIST. U.S.R. 22 RELOC. Sta. 10+37.5 to Sta. 12+32.5

335
516

JEF - 22 - 3.86

Ramp D — Exist. U.S.R. 22 Reloc.

Exist. U.S.R. 22 Reloc. — Ramp C

4:1 | 5:1 | 24:1

1144.38
13 + 00
1180.4

Ramp D — Exist. U.S.R. 22 Reloc.

Exist. U.S.R. 22 Reloc. — Ramp C

3.7:1 | 3.7:1 | 24:1

1144.76
12 + 75
1182.5

Ramp D — Exist. U.S.R. 22 Reloc.

Exist. U.S.R. 22 Reloc. — Ramp C

3:1 | 3:1 | 24:1

1145.25
12 + 43
1183.3

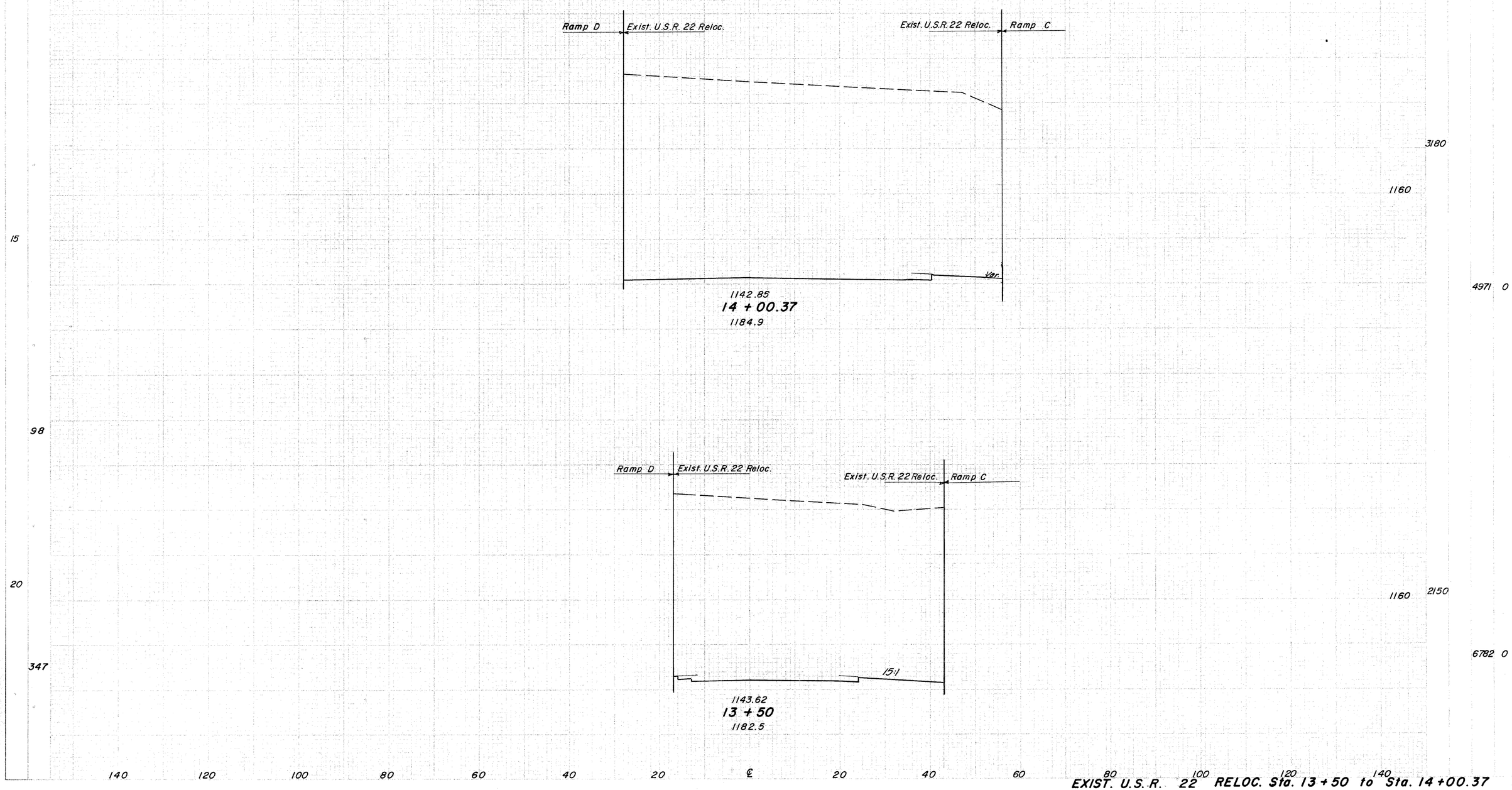
105
279
96
313
80
84

1160
5175
4662 0
4895
1160
4797 0
3200
1160
1412 0

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

EXIST. U.S.R. 22 RELOC. Sta. 12+43 to Sta. 13+00

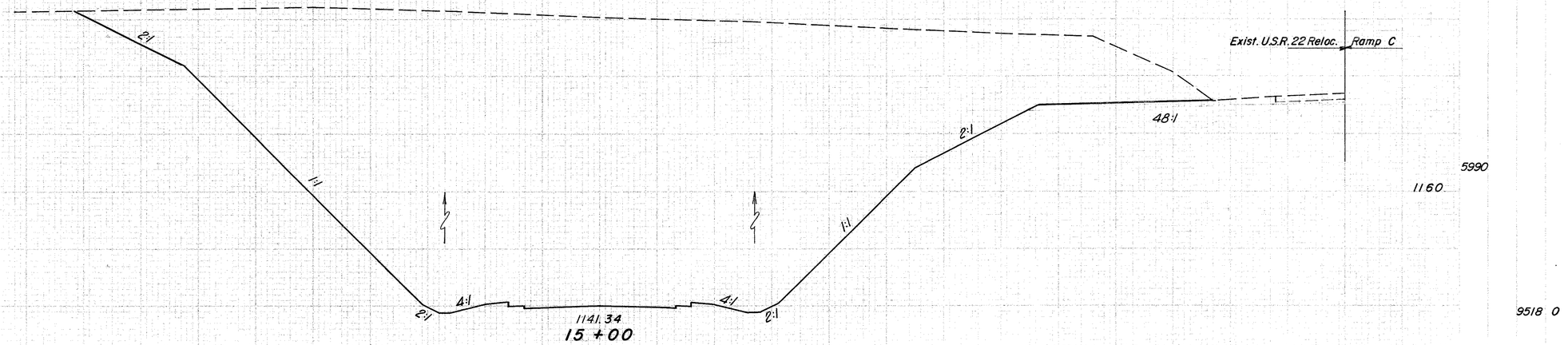
JEF-22-3.86

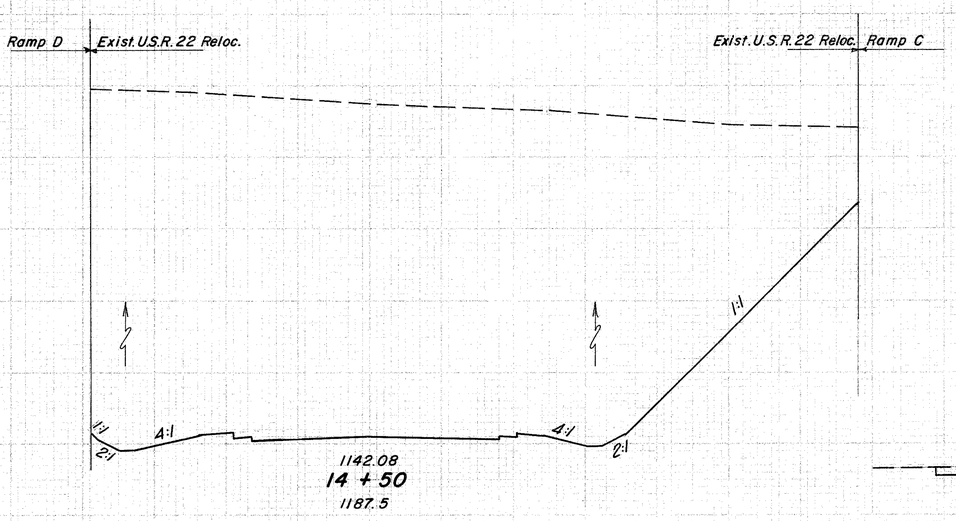


EXIST. U.S.R. 22 RELOC. Sta. 13 + 50 to Sta. 14 + 00.37

337
516

JEF-22-3.86





0+65.53	0	0	
0+55.53	10	4	40 2
0+37	24	0	
0+19	24	0	
0+00	0	0	

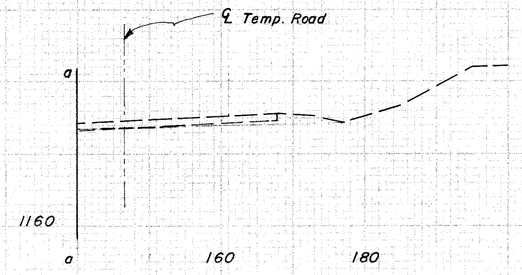
232
872
82
269
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140
5990
1160
9518 0
4290
1160
6865 0

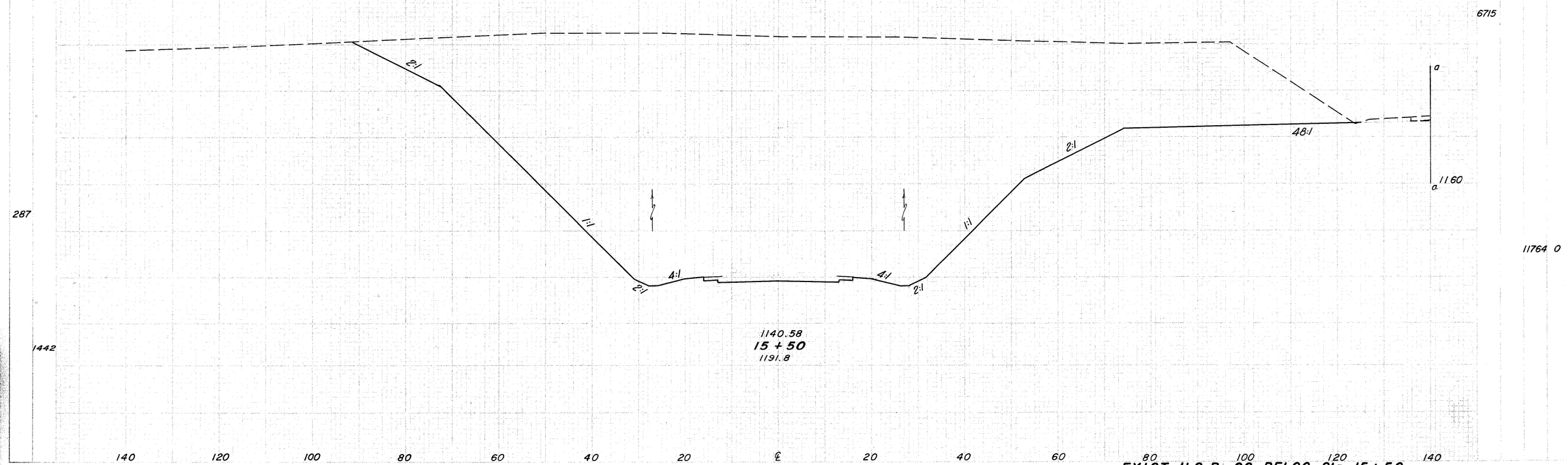
EXIST. U.S.R. 22 RELOC. Sta. 14+50 to Sta. 15+00

DIST. NO.	STATE	PROJECT	
2	OHIO		

338
516

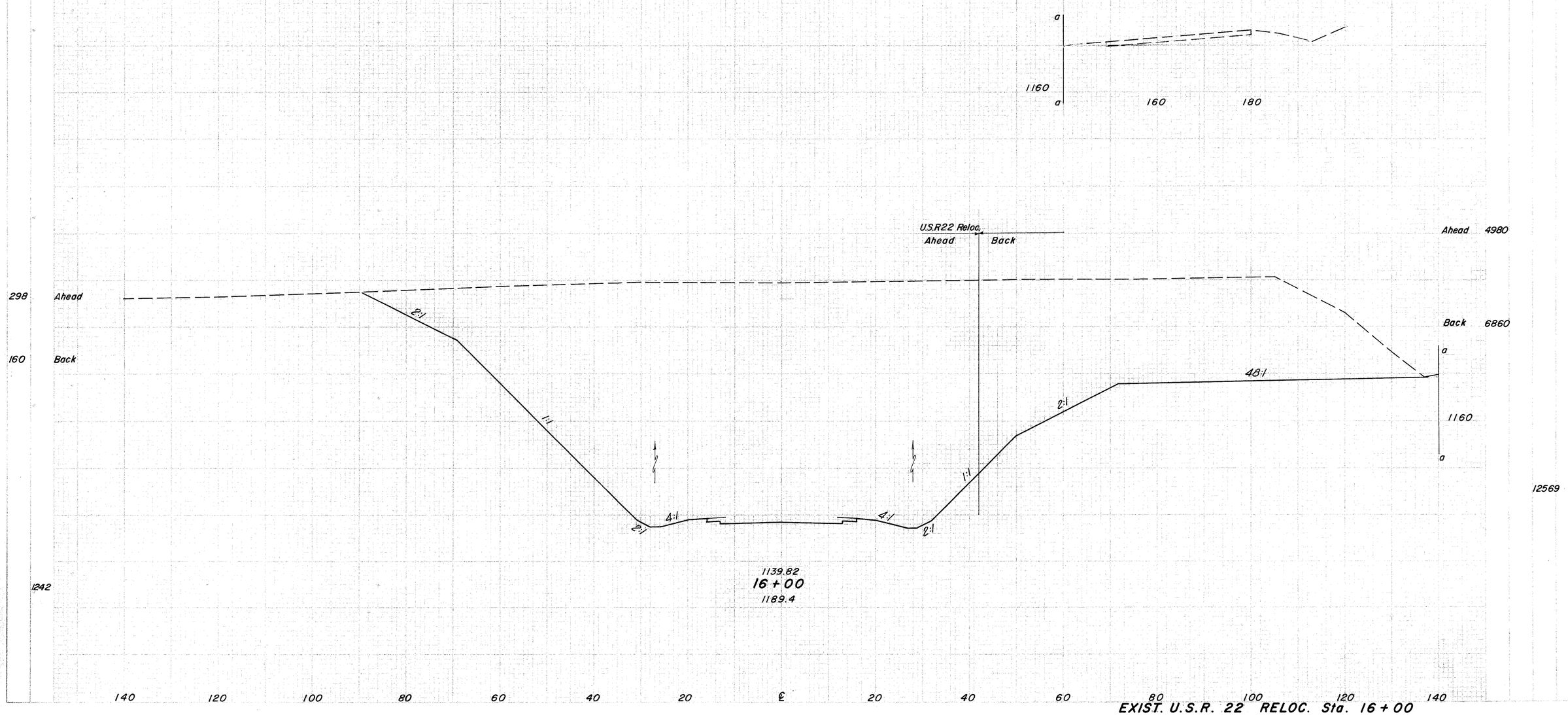
JEF-22-3.86





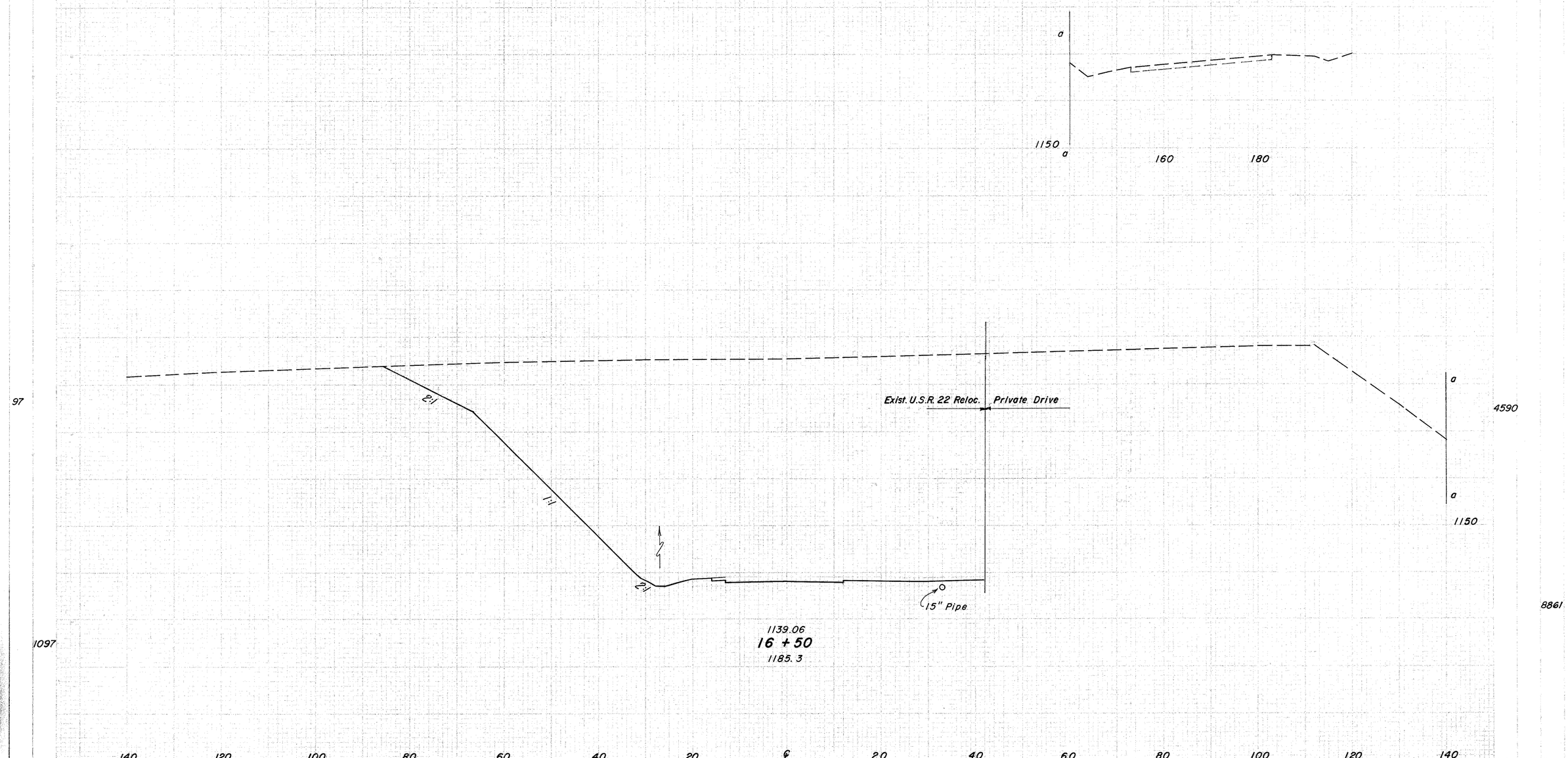
EXIST. U.S.R. 22 RELOC. Sta. 15+50

JEF-22-3.86



EXIST. U.S.R. 22 RELOC. Sta. 16+00

JEF-22-3.86

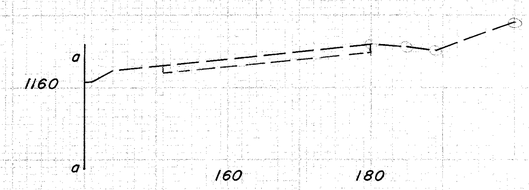


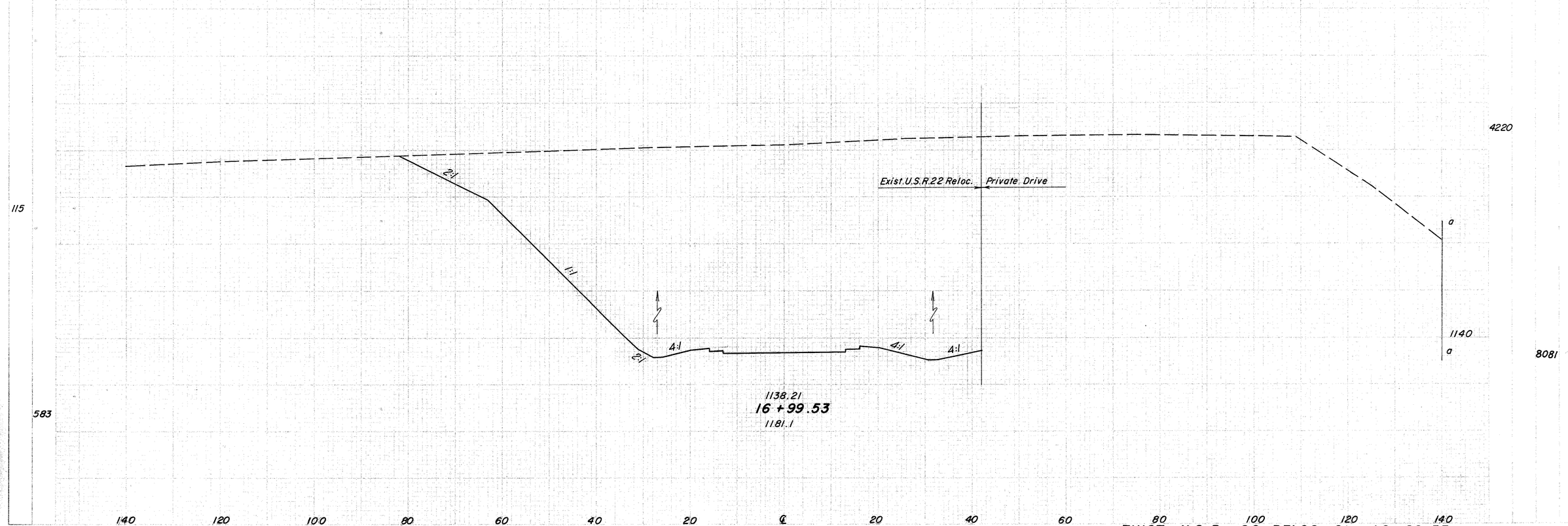
EXIST. U.S.R. 22 RELOC. Sta. 16+50

SHEET NO.	STATE	PROJECT	
2	OHIO		

341
516

JEF-22-3.86



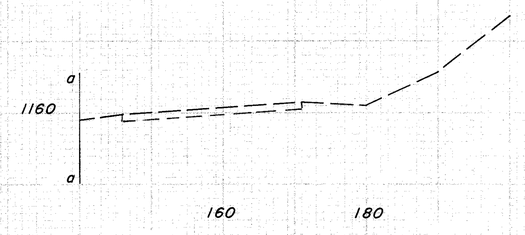


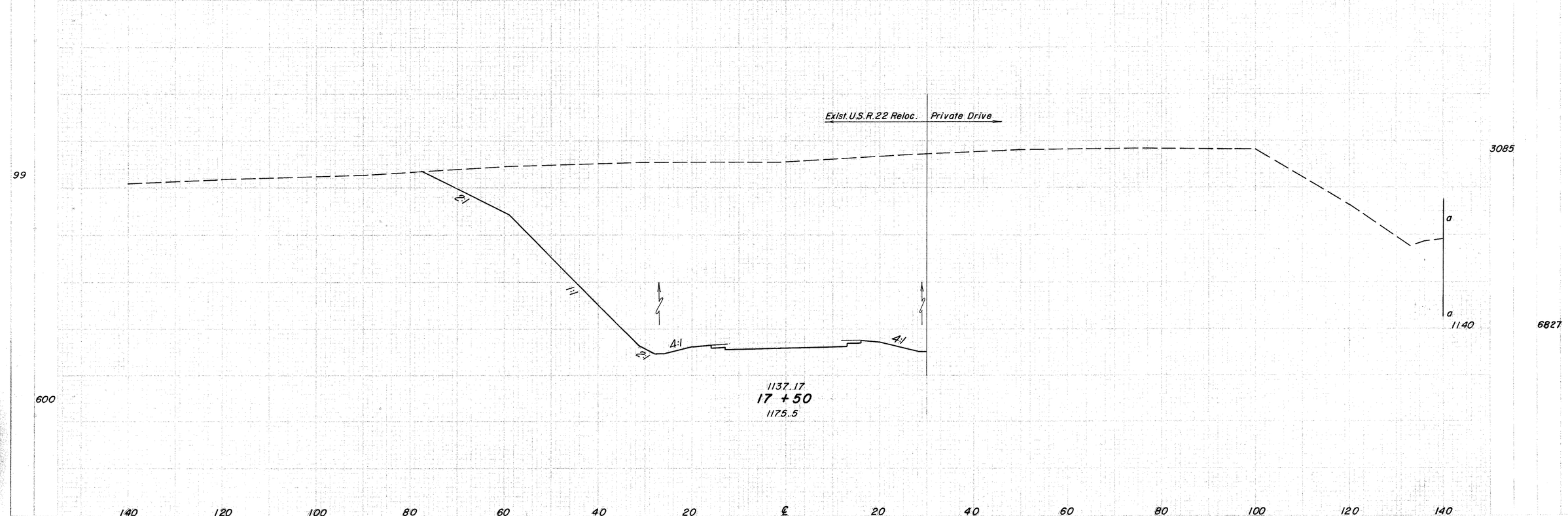
EXIST. U.S.R. 22 RELOC., Sta. 16+99.53

FED. AID PROJECT	STATE	PROJECT	
	OHIO		

342
516

JEF - 22 - 3.86

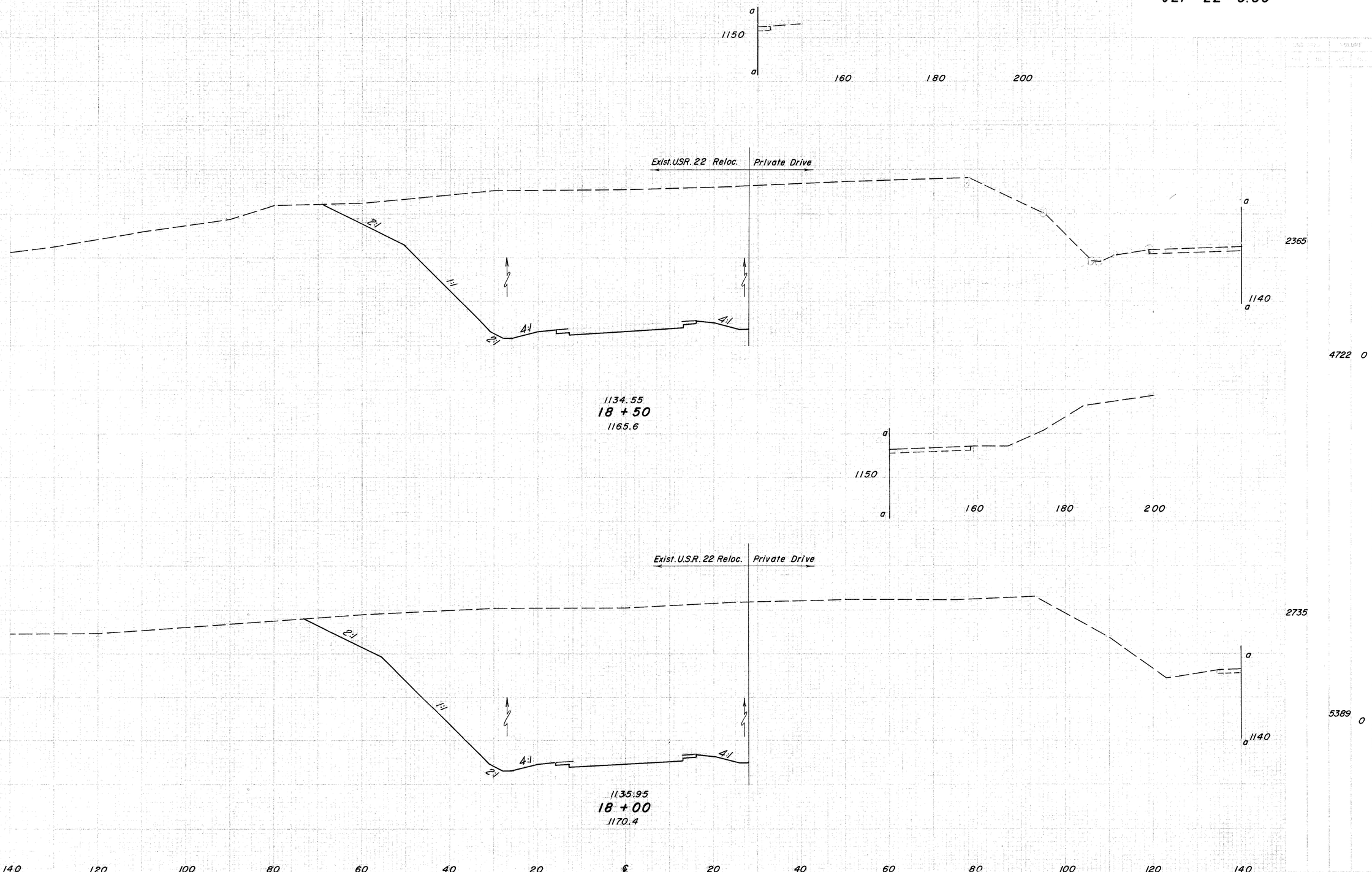




EXIST. U.S. R. 22 RELOC. Sta. 17 + 50

343
516

JEF-22-3.86



86

492

91

528

4722 0

5389 0

EXIST. U.S.R. 22 RELOC. Sta. 18+00 to Sta. 18+50

JEF-22-3.86

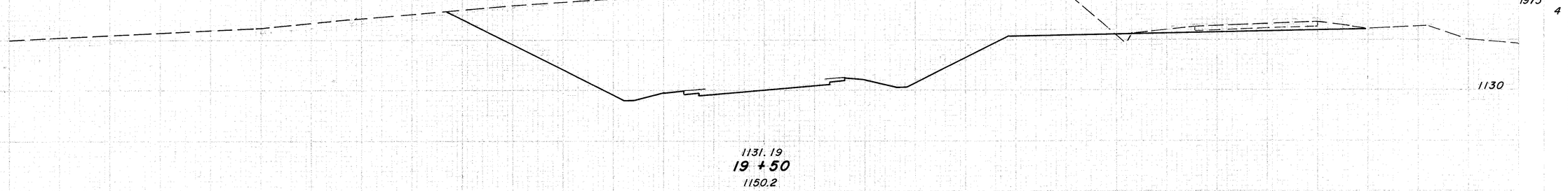
End 6' Width Sod
Sta. 20 + 22.5

Begin 6' Width Sod
Sta. 20+00

1129.24
20 + 00
1141.8

Begin 6' Width Sod
Sta. 20+00

152
914
1065 4
1130
2815 7



177
1068
1975 4
1130
4729 4

1131.19
19 + 50
1150.2

204 Ahead
171 Back
707

Back Ahead
Ahead 30
Back 30
1140
4999 0

1132.76
18 + 99.53
1159.8

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

EXIST. U.S.R. 22 RELOC. Sta. 18+99.53 to Sta. 20+00

GEOLOGIC | ROCK STRATUM | CR. TRAC.

FED. ROAD DIV. NO.	STATE	PROJECT	
2	OHIO		

345
5/6

JEF- 22 - 3.86

End 6' Width D.R.C.P.
Sta. 21+75

114

18"

4:1

3:1

4:1

3:1

48:1

66

165

158 153

1100

608

1122.27
21 + 50
1118.2

105

1129.0
0 + 38
1129.0

48:1

4:1

2:1

3:1

4:1

105

681

1110

434 7

Begin 6' Width D.R.C.P.
Sta. 20 + 78

1124.78
21 + 00
1124.2

1127.2
0+21
1130.5

Drive @ Sta. 20+50 Lt.

1126.8
0+14
1126.8

364 8

140

0+38

0+21

0+14

0+07

0+00

10 %

10%

9:1

12" Pipe

48:1

4:1

2:1

1120

1323 11

1126.4
0 + 07
1123.8

811

1127.10
20 + 50
1130.6

0+38	0	0	51		
0+21	161	0	22	1	
Drive Lt. 0+14	10	4	1	9	
0+07	0	68		9	
0+00	0	0			

1125.2
0+00
1125.2
Drive Sta. 20+50

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

EXIST. U.S.R. 22 RELOC. Sta. 20 + 50 to Sta. 21 + 50

DIV. NO.	STATE	PROJECT	
2	OHIO		

346
516

JEF-22-3.86

Drive @ Sta. 23+76 Rt.

8.00%

12" Pipe

1100

87

2:1

24:1

12" Pipe

4:1

3:1

1110.41
23+50
1110.8

60 236

108 436

1100

Ahead 23+02 62 255
Back 23+02 77 240

℄ Drive @ Sta. 22+93 Rt.

431

20%

6 18

77 240

113 463

1100

68

414

2:1

Begin 12" Type E Conduit
Sta. 23+02 Lt. 58'
F.L. 1099.00

1113.65
23+00
1109.7

End 6' Width
Sta. 22+90

81

2:1

4:1

3:1

48:1

45 260

88 454

1100

494

1116.71
22+50
1111.1

97

24:1

2:1

4:1

3:1

48:1

50 230

107 366

1100

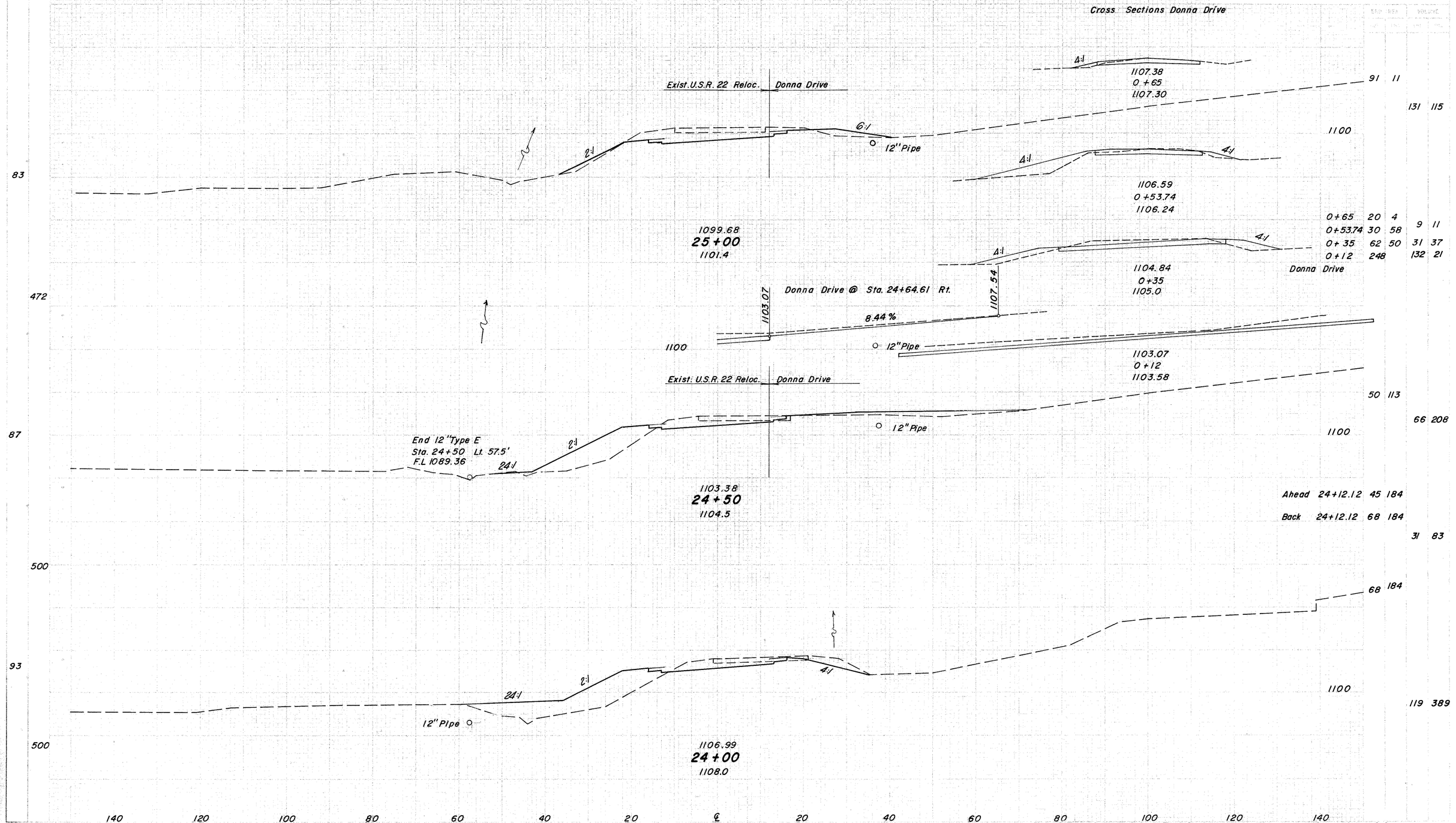
586

1119.58
22+00
1114.2

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

EXIST. U.S.R. 22 RELOC. Sta. 22+00 to Sta. 23+50

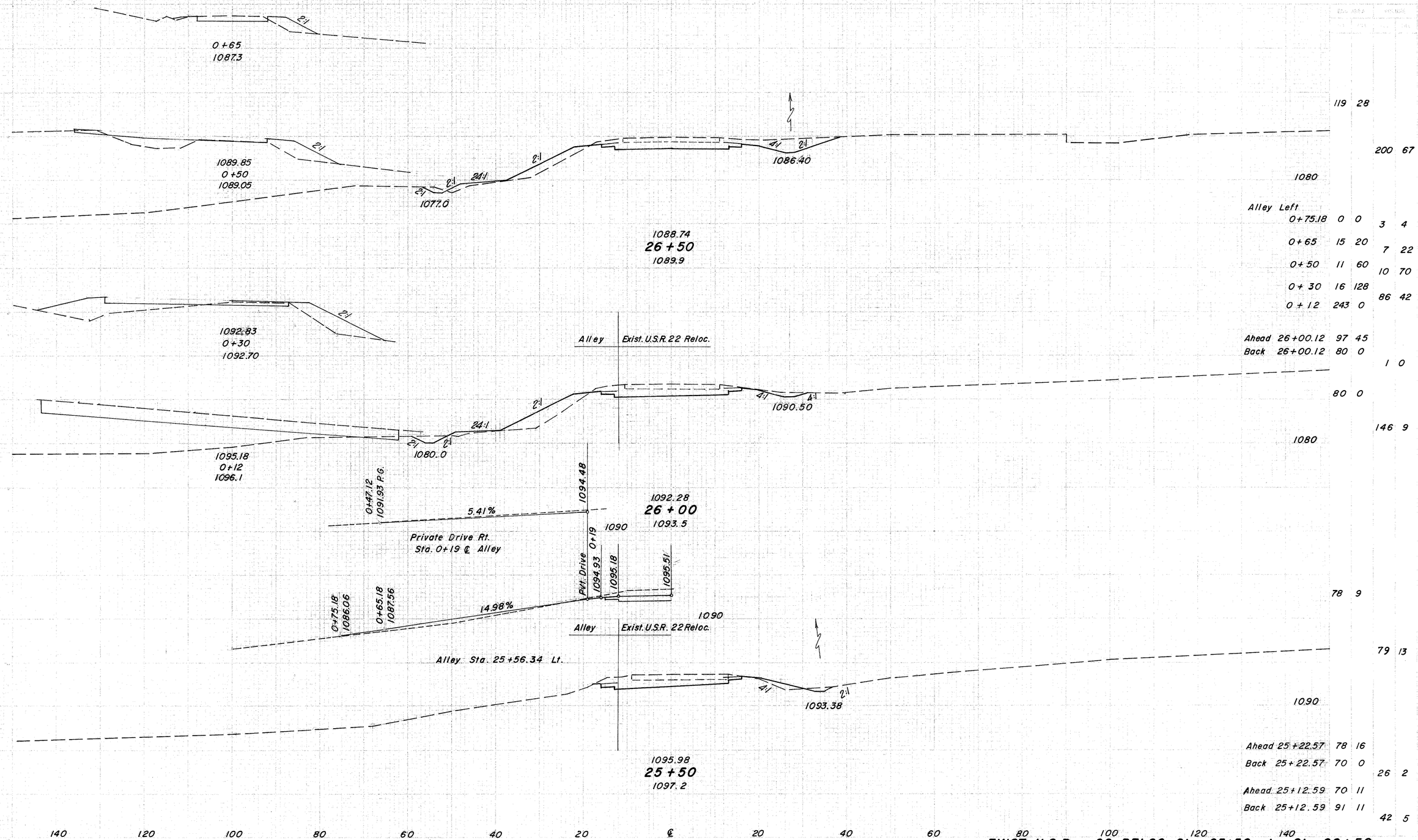
JEF - 22 - 3.86



EXIST. U.S.R. . 22 RELOC. Sta. 24+00 to Sta. 25+00

JEF - 22 - 3.86

Cross Sections Alley
Right of Sta. 25 +56.34



		119	28
			200 67
	1080		
Alley Left			
0+75.18	0 0		3 4
0+65	15 20		7 22
0+50	11 60		10 70
0+30	16 128		86 42
0+12	243 0		
Ahead 26+00.12	97 45		
Back 26+00.12	80 0		1 0
		80	0
			146 9
	1080		
		78	9
			79 13
	1090		
Ahead 25+22.57	78 16		
Back 25+22.57	70 0		26 2
Ahead 25+12.59	70 11		
Back 25+12.59	91 11		42 5

EXIST. U.S.R. . 22 RELOC. Sta. 25+50 to Sta. 26+50

EXIST. U.S.R. . 22 Reloc. Sta. 27+00 to Sta. 29+00

SERVICE ROAD APPROACH DETAIL

Scale: 1"=20'

CURVE DATA

P.I. Sta. 2+16.84
Δ=71°-36'-32" Rt.
R=225'
T=162.30'
L=281.21'

Bench Mark Elev. 1159.71
R.R. spike in N. side T. pole No. 162/277 30' ± Rt. of ℄ Sta. (-) 0+30 on Exist. U.S.R. 22 Reloc.

TYPICAL SECTION
Service Road @ Sta. 4+80
*Janet Drive @ Sta. 329+20.15, 250.36' Rt.
① Item 404 Asphalt Conc. (2-1" Courses)
② Item 304 Aggregate (7")
* Applies for Pav't Composition only

ESTIMATED QUANTITIES

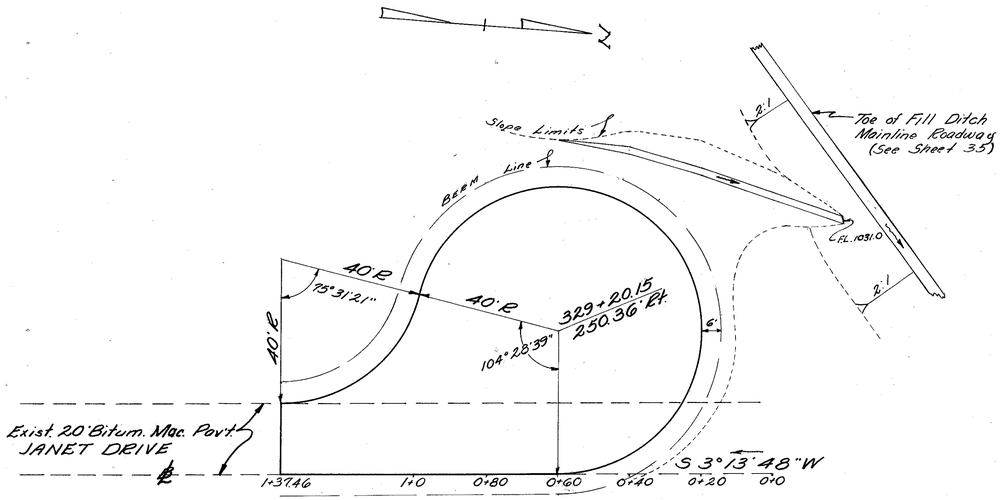
Ref. No.	Station to Station	Side	Special Cleaning & Disposal of Septic Tanks Ea.	304 Aggregate Base C.Y.	404 Asphalt Concrete C.Y.	606* Guard Rail Type 4 L.F.	660 Sodding S.Y.	See Sheet No.
	ROADWAY							
1-GR	1+25 to 3+50.47	Lt.				237.50		
1-ST	1+51	Lt.	1					
2-ST	2+91	Rt.	1					
3-ST	4+10	Lt.	1					
	DRAINAGE							
1-SD	3+25 to 4+00	Rt.					50	
	PAVEMENT							
1-P	1+00	Lt.		14.72	5.58			
			3	14.72	5.58	237.50	50	

* Modification A as per plan

EXIST. U.S.R. 22 RELOC. SERVICE ROAD LT. at Sta. 4+80

FED. RD. DIVISION	STATE	PROJECT		350 A 516
2	OHIO			

JEF-22-3.86



PLAN

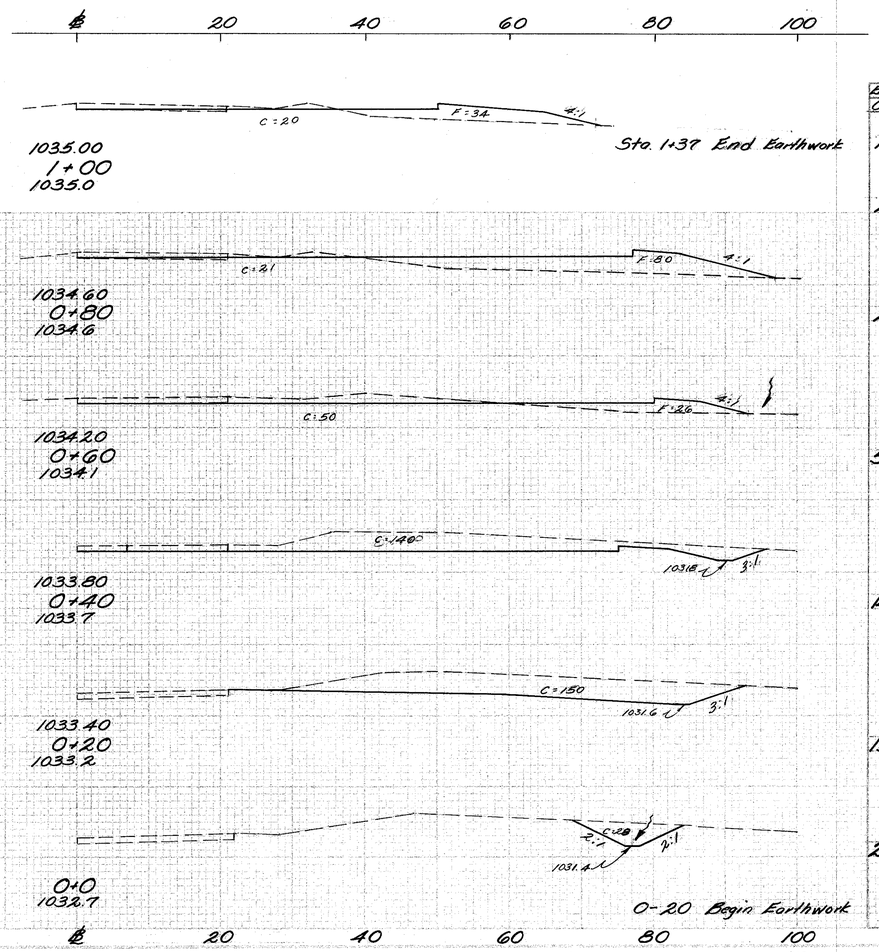
Scale: 0 10 20

Total Area Janet Dr. Cul-De-Sac = 6386.14 Sq. Ft. or 709.57 Sq. Yds.

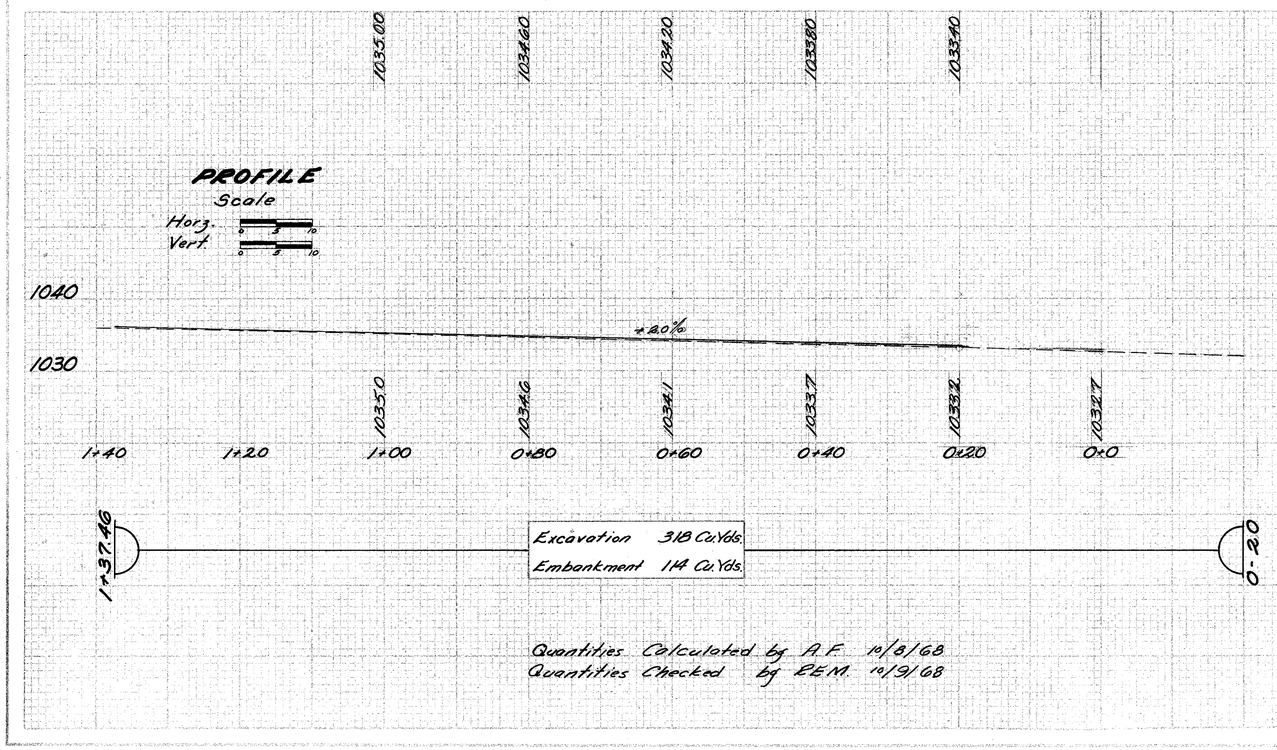
QUANTITIES

Item 304, Aggregate Base	: 6386.14 × 7/12 ÷ 27	= 137.97 Cu. Yds.
Item 404, Asphalt Concrete	: 6386.14 × 2/12 ÷ 27	= 39.42 Cu. Yds.
Item 203, Subgrade Preparation		= 709.57 Sq. Yds.

Quantities Calculated by R.J.S. 10/9/68
Quantities Checked by R.E.M. 10/10/68



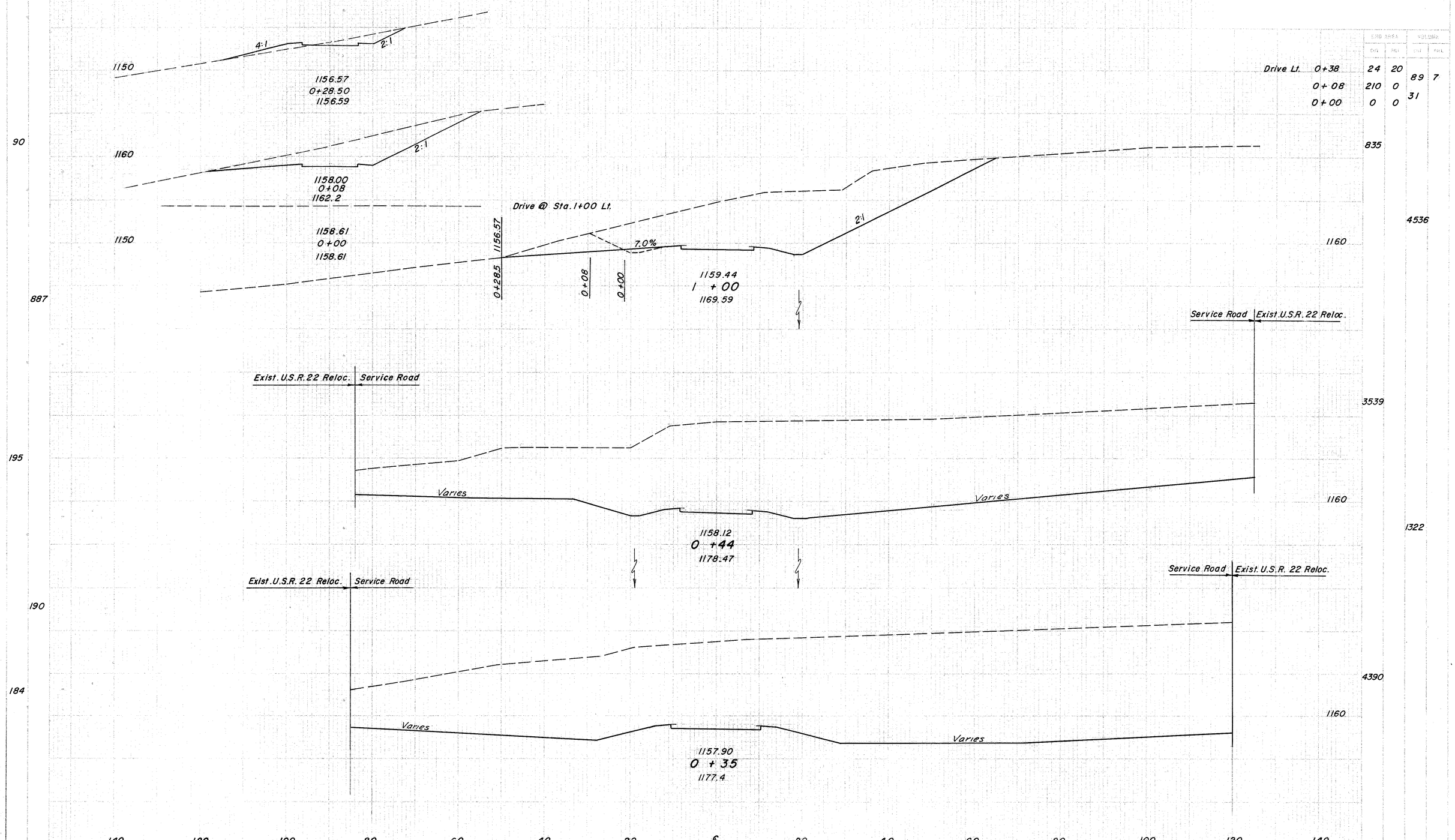
End Area		Cu. Yds.	
Cut	Fill	Exc.	Emb.
15	0		
		24	23
20	34		
		15	42
21	80		
		26	39
50	26		
		70	10
140	0		
		107	0
150	0		
		66	0
28	0		
		10	0
0	0		



Quantities Calculated by A.F. 10/8/68
Quantities Checked by R.E.M. 10/9/68

JANET DRIVE CUL-DE-SAC - STA. 329+20.15, 250.36' Rt.

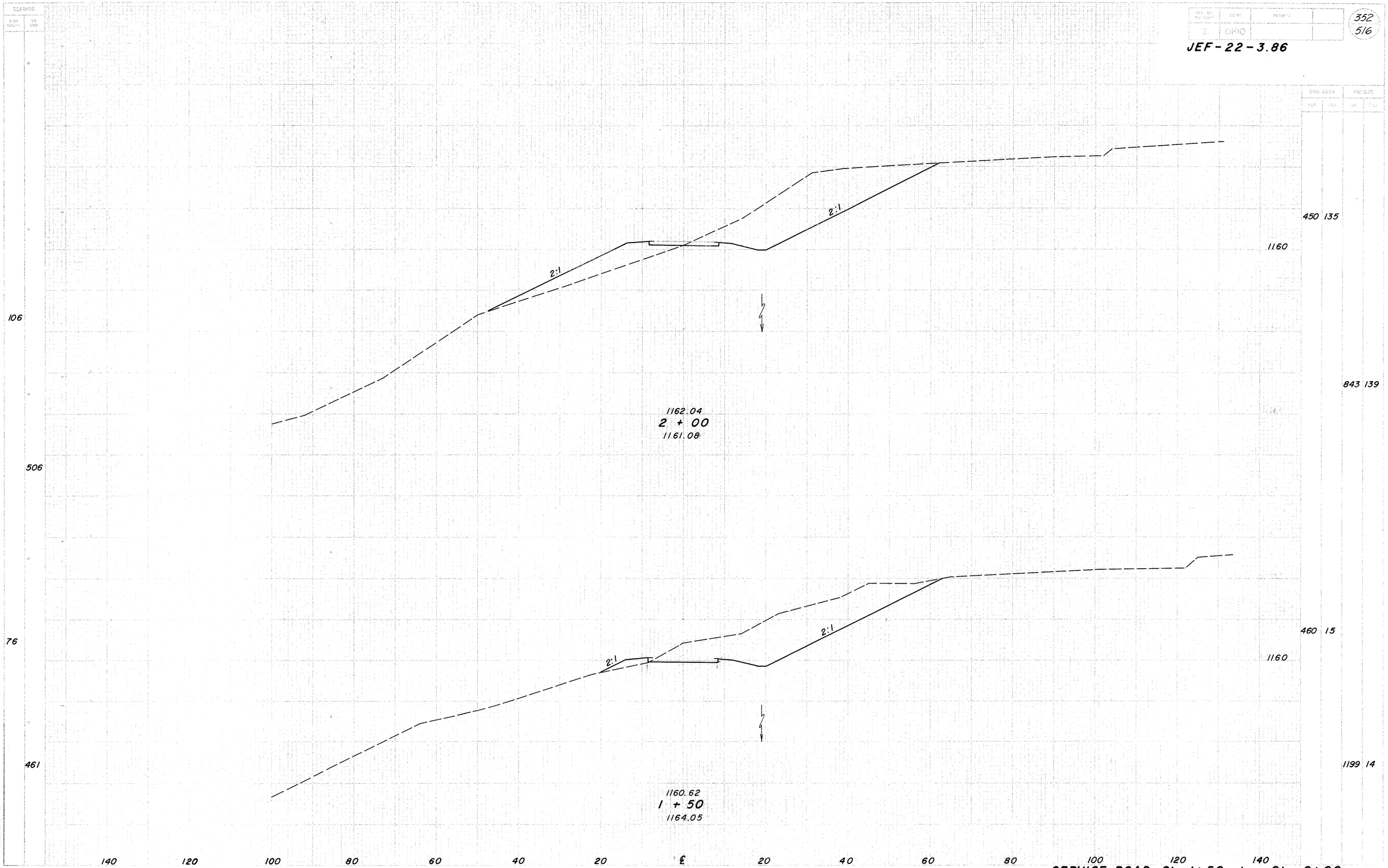
JEF - 22 - 3.86



		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
Drive Lt.	0+38	24	20	89	7
	0+08	210	0	31	
	0+00	0	0		

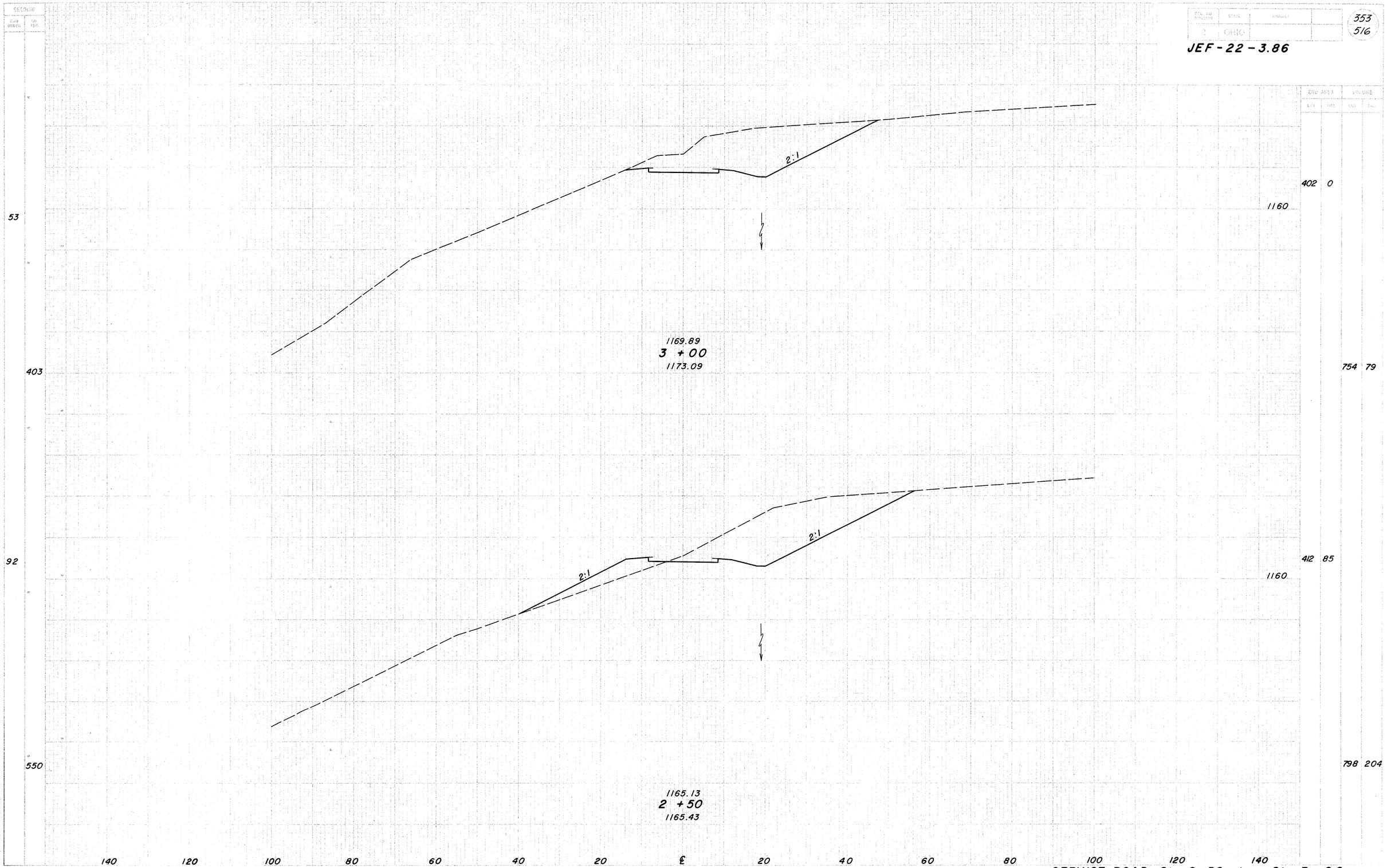
SERVICE ROAD Sta. 0 + 35 to Sta. 1 + 00

JEF-22-3.86



SERVICE ROAD Sta. 1+50 to Sta. 2+00

JEF-22-3.86

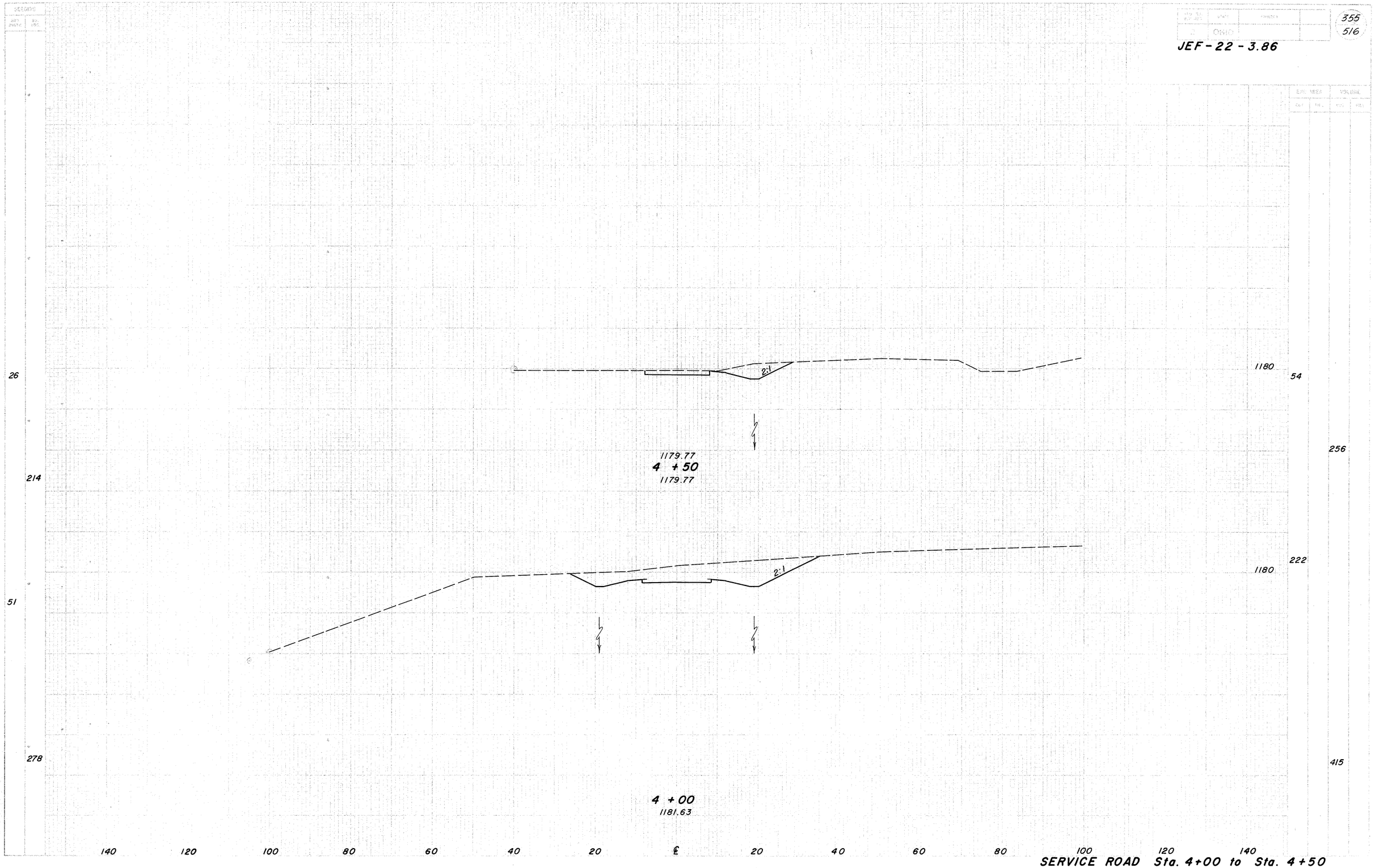


SERVICE ROAD Sta. 2+50 to Sta. 3+00

JEF-22-3.86

SERVICE ROAD Sta. 3+35.73 to Sta. 3+50

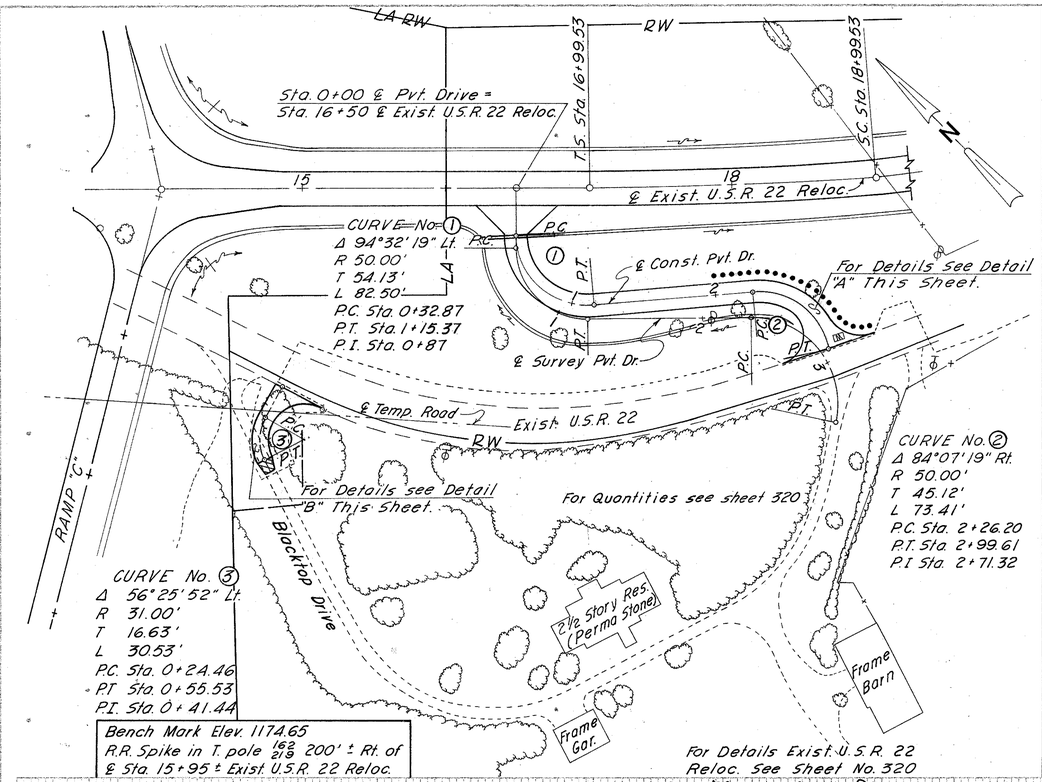
JEF-22-3.86



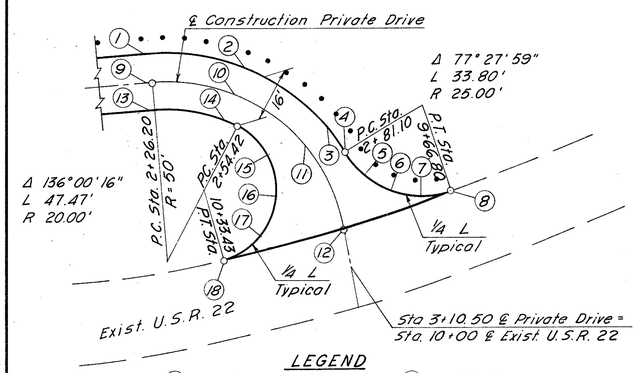
SERVICE ROAD Sta. 4+00 to Sta. 4+50

FED. RD. DIVISION	STATE	PROJECT		356
2	OHIO			516

JEF-22-3.86



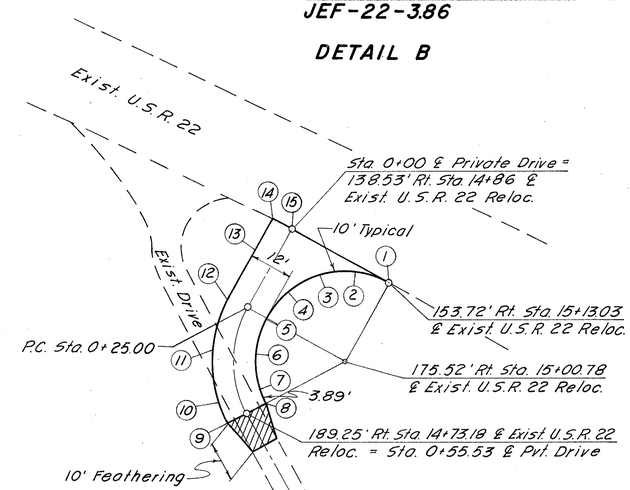
DETAIL A



LEGEND

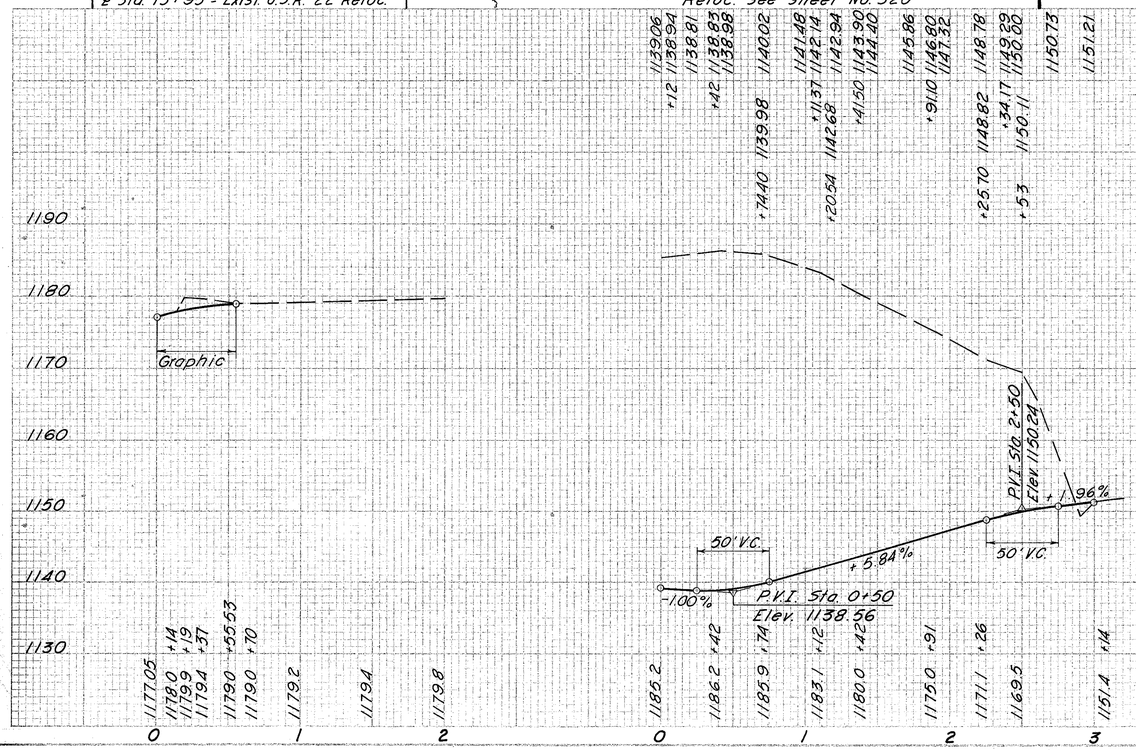
①	1148.90	⑩	1150.00
②	1150.12	⑪	1150.73
③	1150.51	⑫	1151.21
④	1050.46	⑬	1148.66
⑤	1150.22	⑭	1149.88
⑥	1149.74	⑮	1150.75
⑦	1149.25	⑯	1151.73
⑧	1148.71	⑰	1153.00
⑨	1148.78	⑱	1154.28

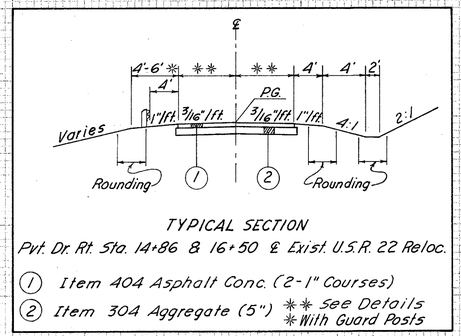
DETAIL B



LEGEND

①	1176.56	⑥	1178.77	⑪	1178.95
②	1177.05	⑦	1179.02	⑫	1178.60
③	1177.54	⑧	1179.08	⑬	1177.89
④	1178.03	⑨	1179.26	⑭	1177.15
⑤	1178.42	⑩	1179.21	⑮	1177.05





TYPICAL SECTION

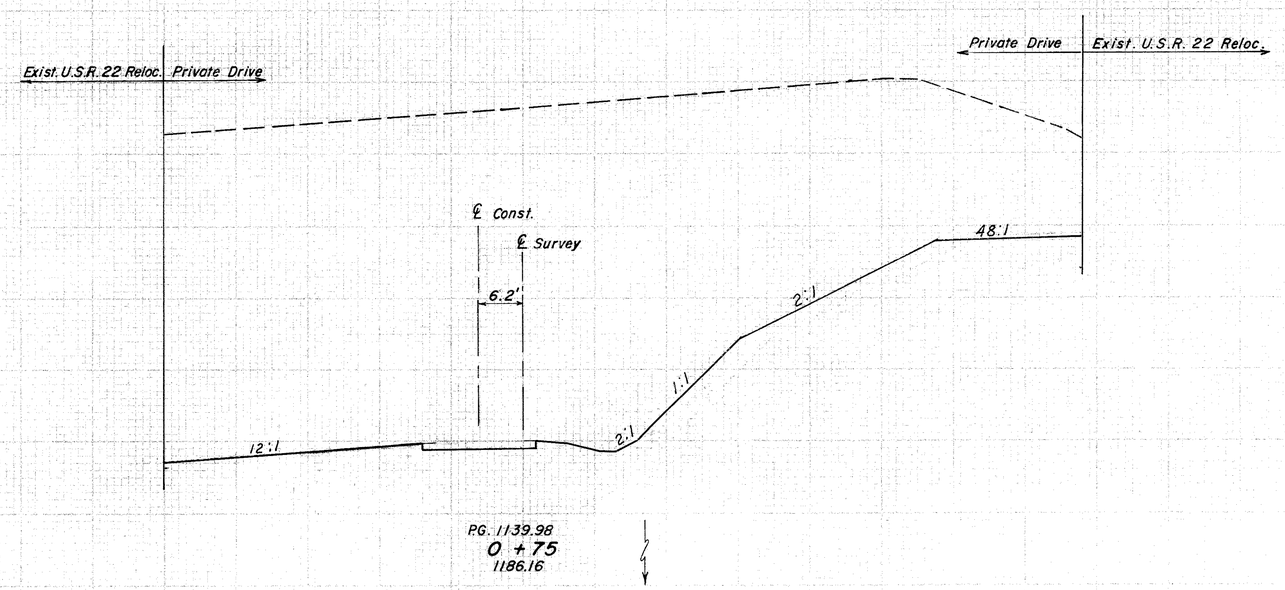
Pvt. Dr. Rt. Sta. 14+86 & 16+50 & Exist. U.S.R. 22 Reloc.

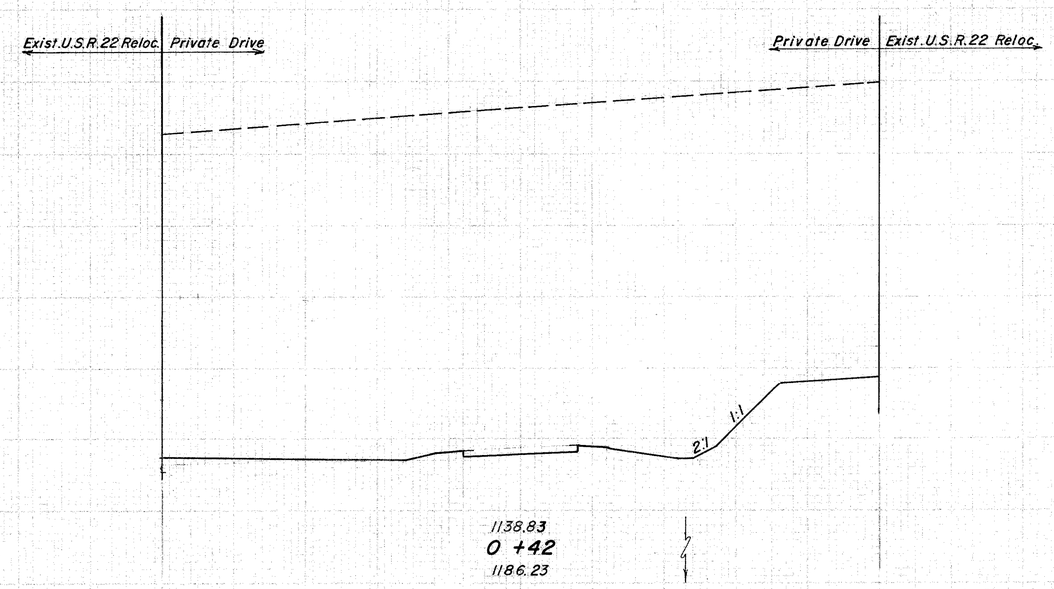
① Item 404 Asphalt Conc. (2-1" Courses)

② Item 304 Aggregate (5") ** See Details * With Guard Posts

PRIVATE DRIVES

JEF - 22 - 3.86





EXIST. U.S.R. 22 RELOC. PRIVATE DRIVE Sta. 0+42 to Sta. 0 +75

SEEDING

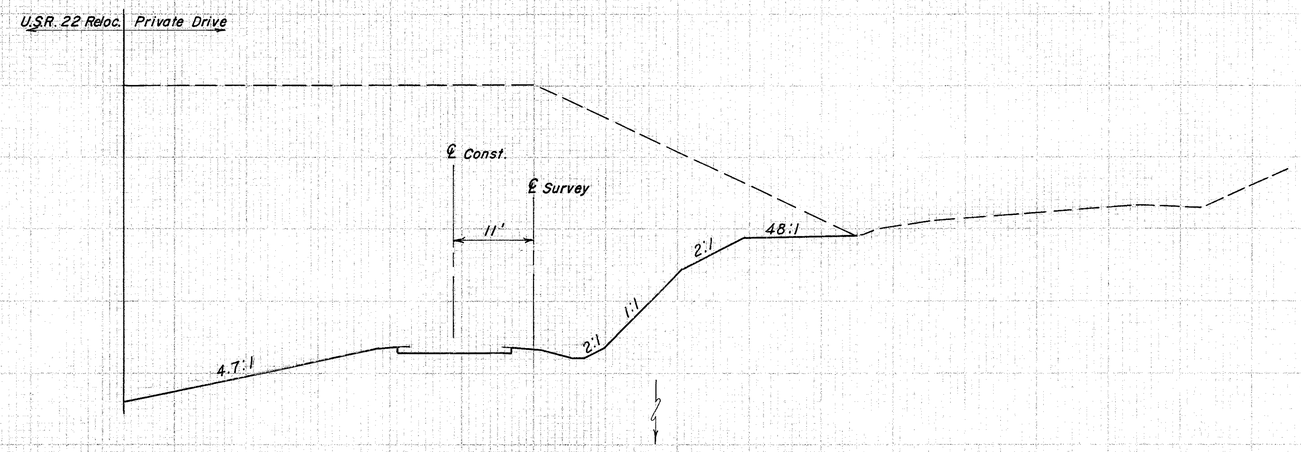
END WIDTH	LBS.

FED. DIST. DIVISION	STATE	PROJECT	
2.	OHIO		

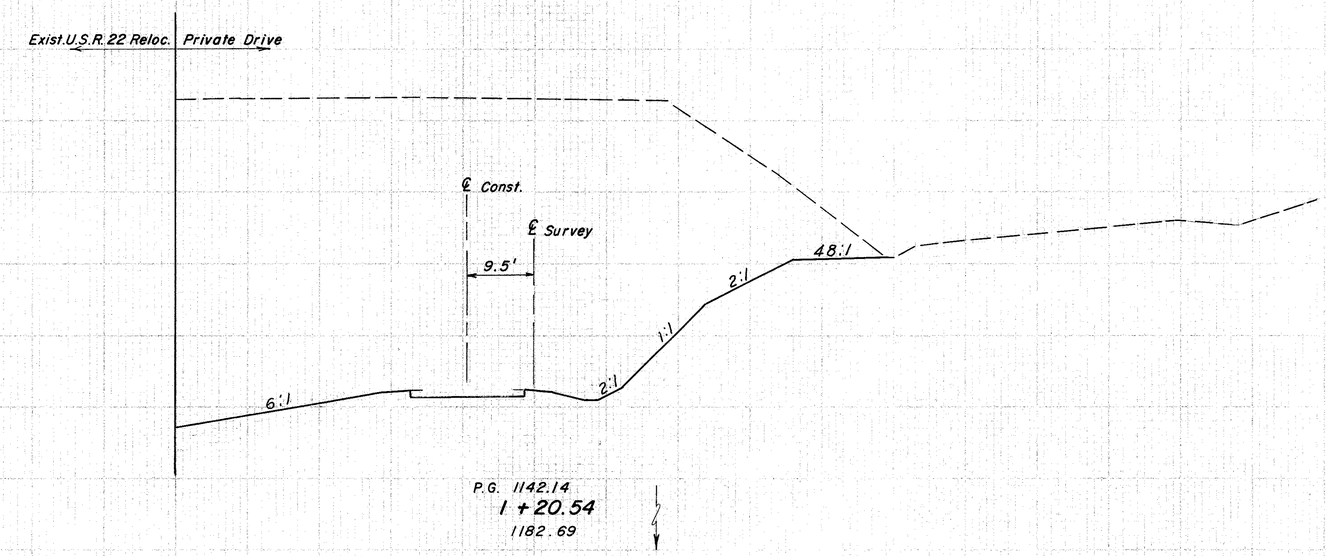
358
516

JEF-22-3.86

END AREA		VOLUME	
CUT	FILL	CUT	FILL



P.G. 1143.90
1 + 50
1180.0



P.G. 1142.14
1 + 20.54
1182.69

141
455
137
653
1180
2775
3240
1180
3165
6711
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

EXIST. U.S.R. 22 RELOC. PRIVATE DR. RT. Sta. 1+20.54 to Sta. 1+50

SEEDING

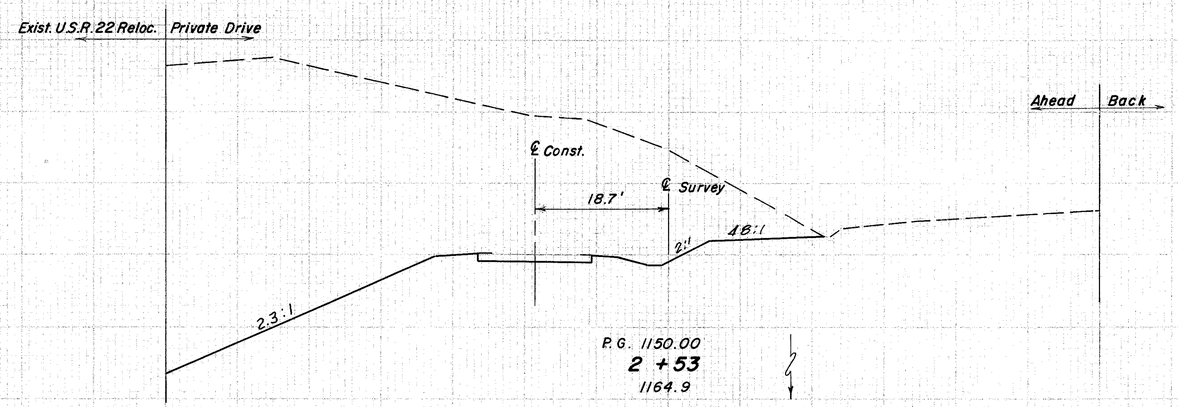
SQ. FT.	SQ. YDS.
117	
240	
112	
463	
132	
758	

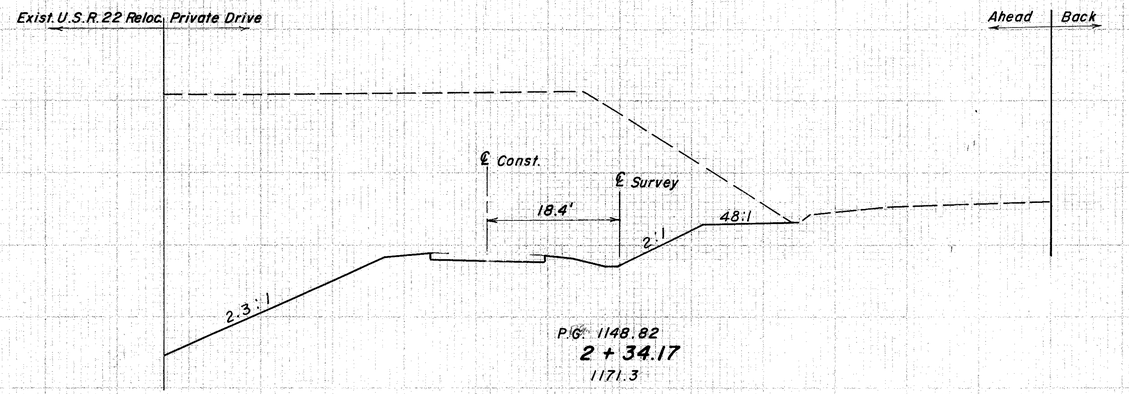
STATE	PROJECT	
OHIO		

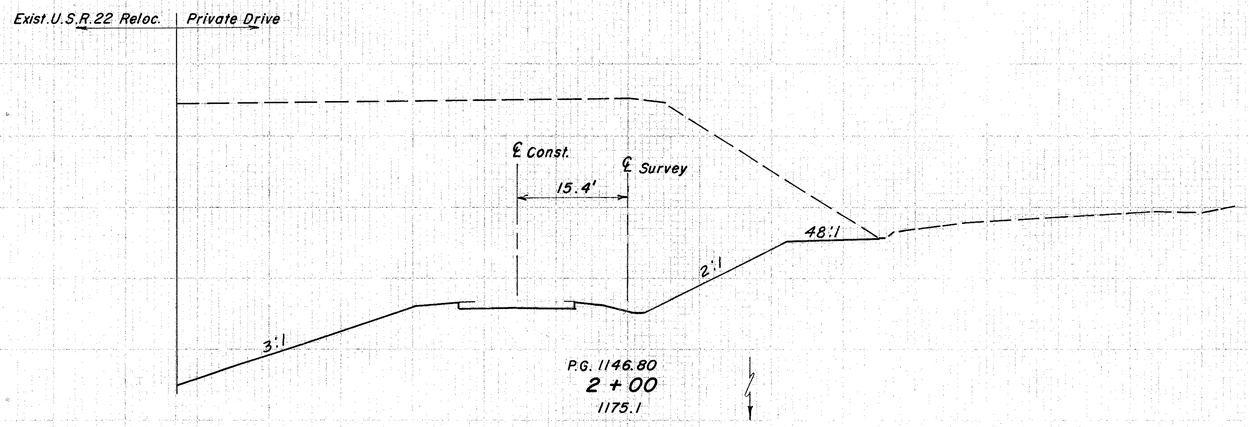
359
516

JEF-22-3.86

EXIST. AREA		VOLUME	
CUT	FILL	CUT	FILL
		1150	
		1945	0
		1315	
		1825	
		1150	
		2724	
		2480	
		1150	
		4866	







140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

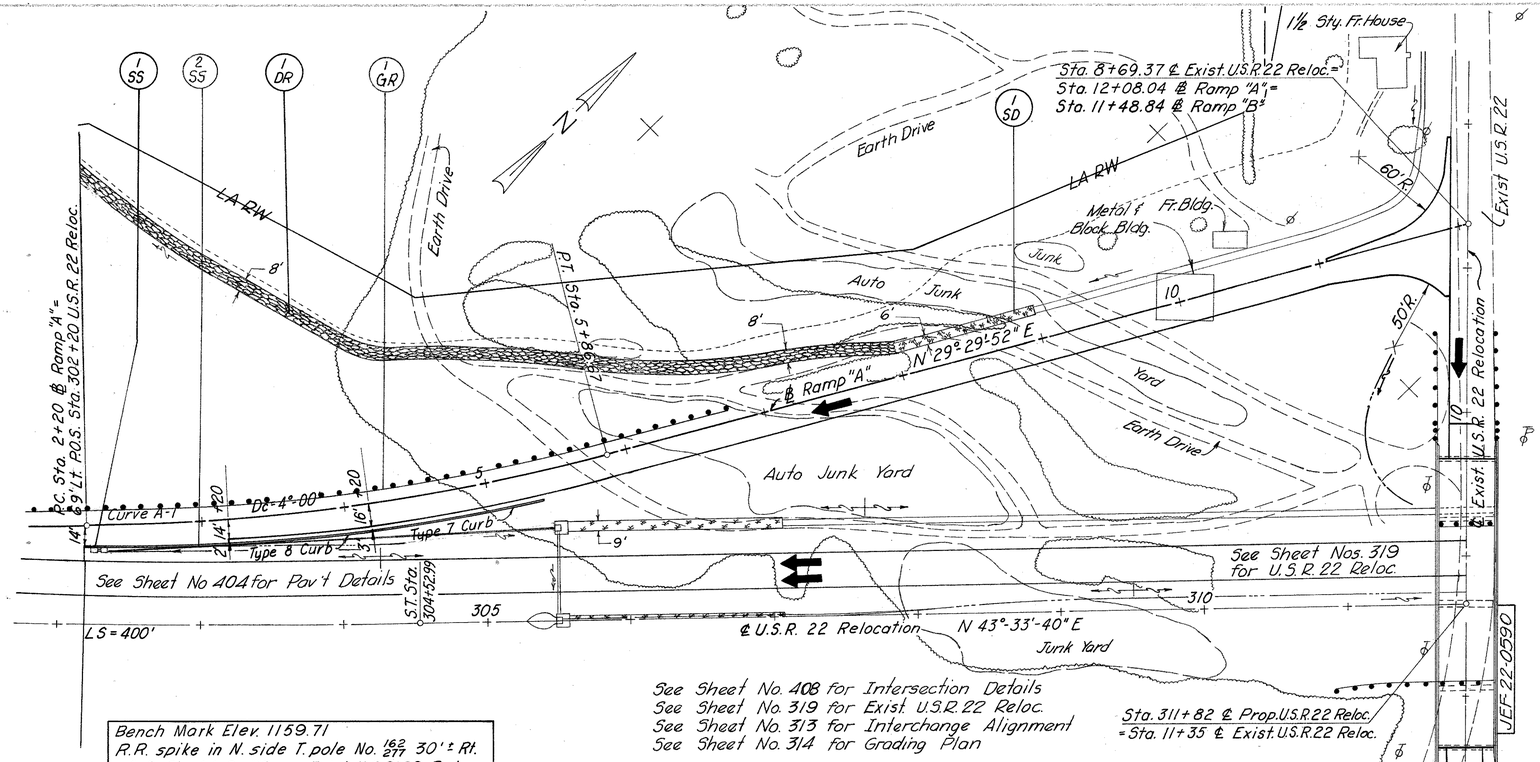
EXIST. U.S.R. 22 RELOC. PRIVATE DRIVE RT. Sta. 2+00 to Sta. 2+53

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

360
5/16

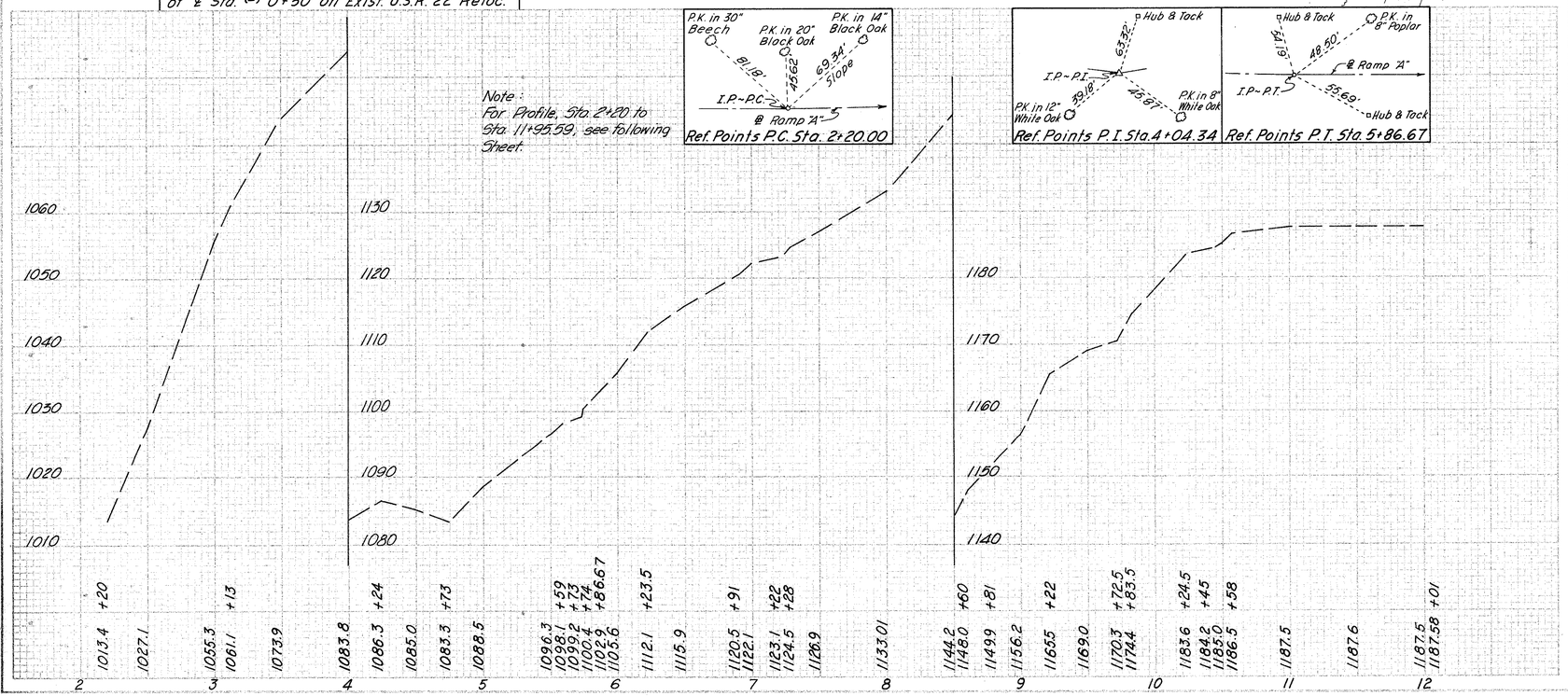
JEF - 22 - 3.86

EXIST. U.S.R. 22 RELOC. PRIVATE DRIVE RT. Sta. 3+00 to Sta. 3+50



Bench Mark Elev. 1159.71
R.R. spike in N. side T. pole No. 162/277 30' ± Rt. of ℄ Sta. (-) 0+30 on Exist. U.S.R. 22 Reloc.

Note:
For Profile, Sta. 2+20 to Sta. 11+95.59, see following Sheet.



* Mod. as per plan

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	601 Dumped Rock Channel Prot. C.Y.	602 Concrete Masonry C.Y.	603 Conduit With Loss & Bedding Type B 12" L.F.	603 Conduit With Loss & Bedding Type B 15" L.F.	603 Conduit With Loss & Bedding Type F 15" L.F.	604 Std No. 6 C.B. (Mod) Ea.	604 Std No. 8 Catch Basin Ea.	606 Guard Rail Type 1 L.F.	660 Seeding S.Y.	660 Bends and Branches 15" -	SHEET NO.	
	RAMP "A" QUANTITIES												369	
1GR	2+20 to 6+81.14	Lt.											369	
		Rt.												
1SS	2+25 to 2+31	Rt.												
2SS	2+31 to 5+50	Rt.												
1SD	8+00 to 9+00	Lt.									67			
1DR	2+20 to 8+00	Lt.	267						1	30827			382	
	RAMP "B" QUANTITIES													
1GR	22+86.48 to 25+95	Lt.												
1SS	21+27	Lt.	2	0.3							335	2	386	
1SD	15+00 to 20+00	Lt.												
1DR	20+00 to 22+27.39	Lt.	114							358.11	77			
	RAMP "C" QUANTITIES													
1GR	4+02.45 to 7+61.50	Rt.												
1SS	5+51	Lt&Rt	2	0.3										
1SD	8+15 to 9+25	Rt.	130										401	
1DR	4+02.45 to 8+15	Rt.								572.47				
	RAMP "D" QUANTITIES													
1GR	17+75 to 23+50	Rt.												
1SS	23+39	Lt.		0.3							69	2	401	
2SS	23+45	Lt&Rt												
1SD	16+00 to 17+00	Rt.												
1DR	17+00 to 21+05	Rt.	157											
TOTALS			672	0.9	322	87	64	161	1	169.94	548			

Ramp A Sta 2+20 to Sta 12+08.04

JEF-22-3.86

Profile Grade Lt. Edge
Rt. Edge

1128.25 1128.29 1128.53 1128.77 1127.01 1127.25 1127.52 1127.84 1128.22 1128.66 1129.15 1129.69 1130.30 1130.96 1131.67 1132.44 1133.27 1134.15 1135.06 1135.97 1136.88 1137.79 1138.70 1140.52 1141.41 1142.27 1143.09 1143.87 1144.62 1145.34 1146.01 1146.65 1147.26 1147.85 1148.36 1148.86 1149.82 1150.70

1123.72 1130.21 1130.73 1131.26 1131.80 1132.39 1133.04 1133.78 1134.59 1135.43 1136.28 1137.15 1138.04

Graphic

1180
1170
1160
1150
1140
1130
1120
1110
1100
1090
1080
1070
1060
1050
1040
1030
1020

300' V.C.

+0.96%

+3.64%

+20

12" Type B @ 0.20%

FE 12" = 1123.10

Sta. 2+25 - Rt. 15.83'
Std. No. 6 C.B.
T/G = 1127.00
FE 12" = 1124.20

Sta. 2+31 - Rt. 15.83'
Std. No. 6 C.B.
T/G = 1127.04
FE 12" = 1123.73

PVI Sta. 5+75
Elev. = 1128.09

PVI Sta. 9+50
Elev. = 1145.98

+3.64%

+1.92%

300' V.C.

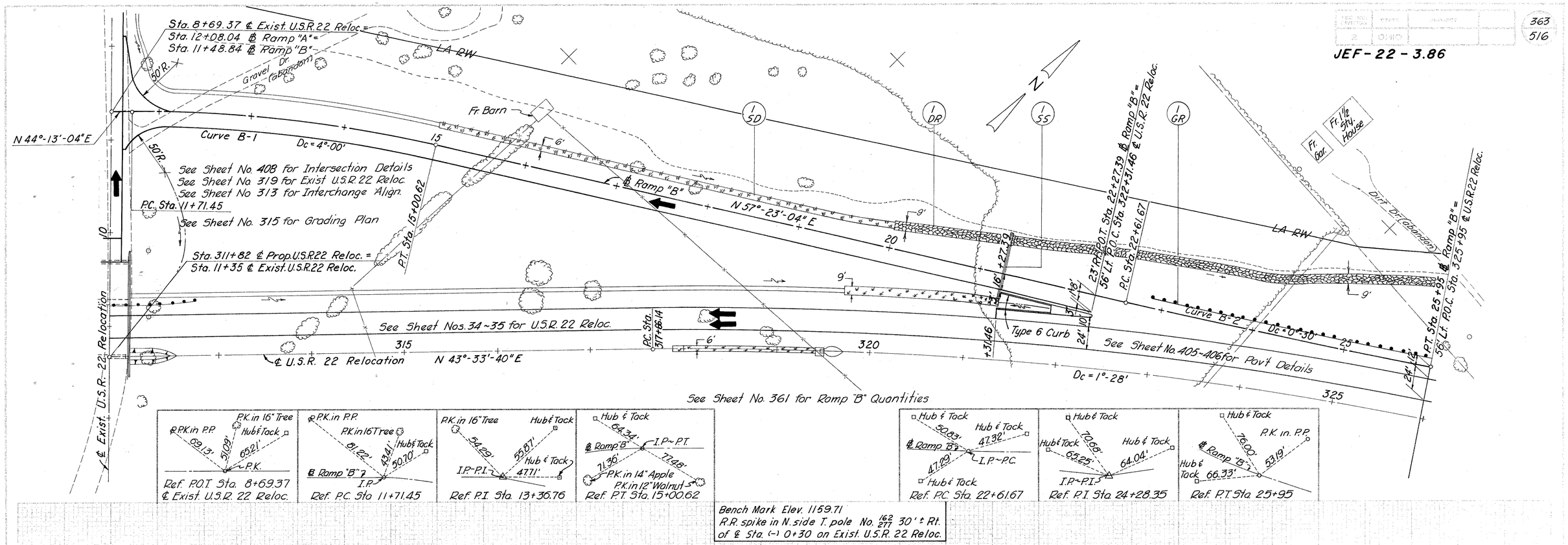
E/P = +95.59

1013.4 +20 1027.1 1055.3 1061.1 +13 1073.9 1083.8 1086.3 +24 1085.0 1083.3 +73 1088.5 1096.3 1098.1 +59 1099.2 +73 1100.4 +74 1102.9 +86.67 1105.6 1112.1 +23.5 1115.9 1120.5 +91 1122.1 1123.1 +22 1124.5 +28 1126.9 1133.01 1144.2 1148.0 +60 1149.9 +81 1156.2 1165.5 +22 1169.0 1170.3 +72.5 1174.4 +83.5 1183.6 +24.5 1184.2 +45 1185.0 1186.5 +58 1187.5 1187.6 1187.5 1187.58 +01

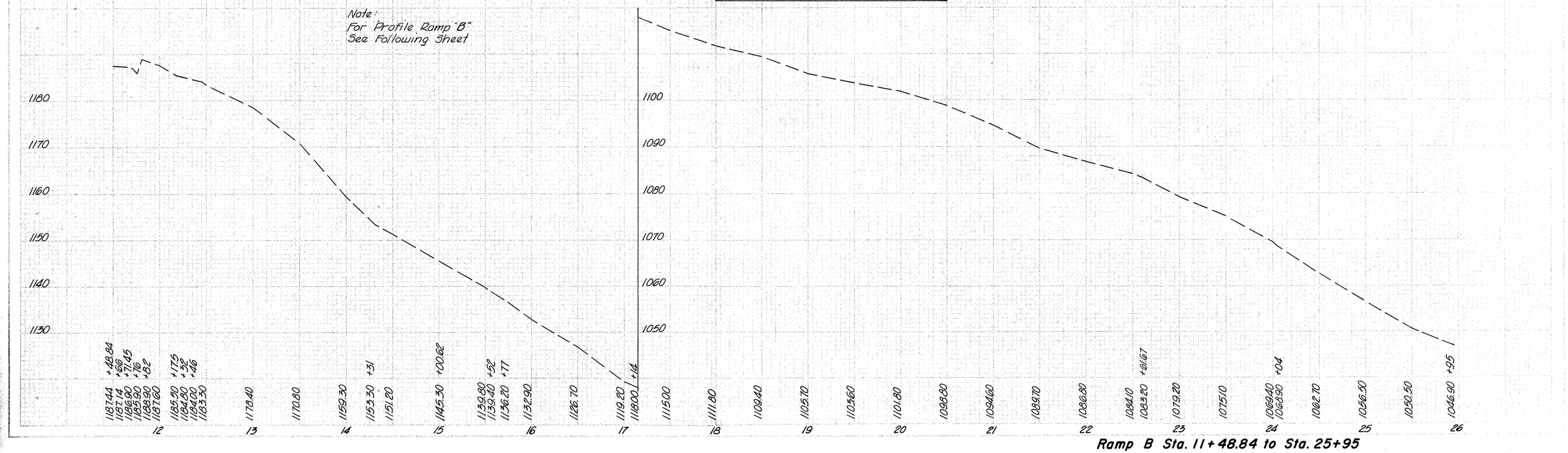
2 3 4 5 6 7 8 9 10 11 12

Profile Ramp A Sta. 2+20 to Sta 12+08.04

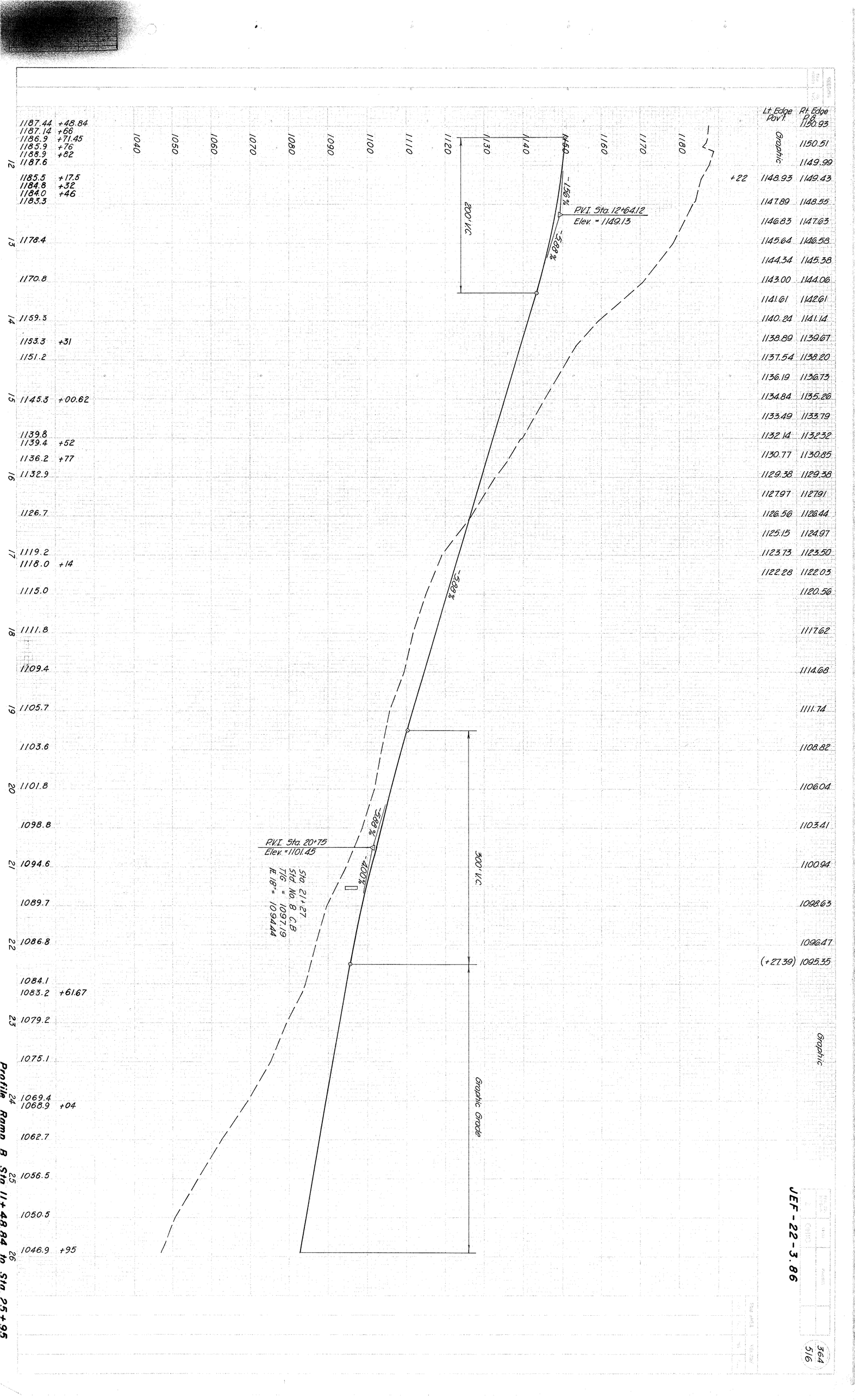
JEF-22-3.86



Bench Mark Elev. 1159.71
R.R. spike in N. side T. pole No. 162/277 30' ± Rt.
of ℄ Sta. (-) 0+30 on Exist. U.S.R. 22 Reloc.



Ramp B Sta. 11+48.84 to Sta. 25+95



Profile Ramp B Sta 11+48.84 to Sta 25+95

JEF-22-3.86

364
516

FED. AID DIVISION	STATE	PROJECT		365
5	OHIO			516

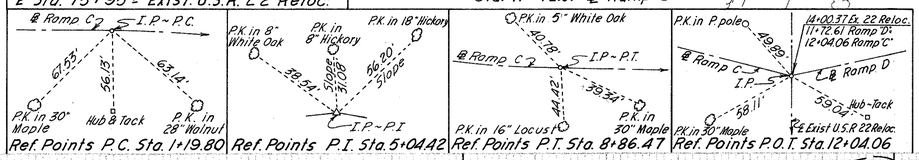
JEF - 22 - 3.86

Earth Dr. abandon
Earth Dr. abandon
Earth Dr. abandon
Auto Junk Yard
Earth Dr. abandon

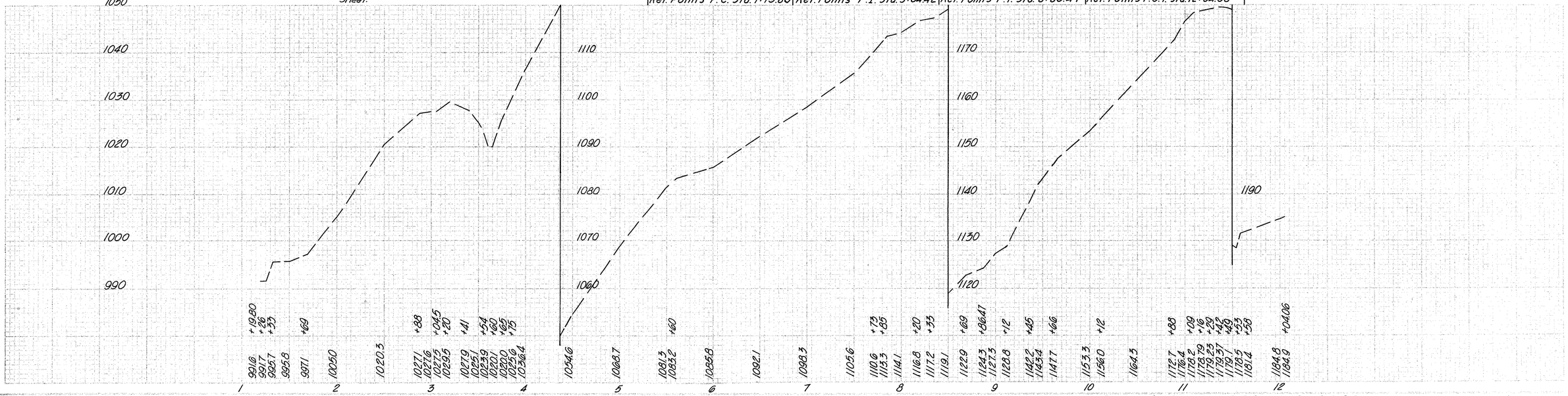
C.S. Sta. 300+52.99
S.T. Sta. 304+52.99
℄ U.S.R. 22 Relocation
N 43°-33'-40" E
305
310
LS = 400'
JEF-22-0590
See Sheet Nos. 32 & 33 for U.S.R. 22 Reloc.
See Sheet No. 403 & 404 for Pav't Details
24'
3'
Type 6 Curb
+00.26
18'
3'
16'
+02.45
Curve G
Dc = 12°-30'
℄ Ramp "C"
See Sheet No. 408 for Intersection Details
See Sheet No. 319 for Exist. U.S.R. 22 Reloc.
See Sheet No. 313 for Interchonge Alignment
See Sheet No. 314 for Grading Plan
Sta. 311+82 ℄ Prop. U.S.R. 22 Reloc.
Sta. 11+35 ℄ Exist. U.S.R. 22 Relocation
℄ Exist. U.S. 22 Relocation
50'R.
N 59°-13'-27" E
10
6'
6'
6'
P.C. Sta. 1+19.80 ℄ Ramp "C" = 56' Rt. P.O.S. Sta. 301+19.80
23'-11" P.O.C. Sta. 4+02.45 ℄ Ramp "C" = 56' Rt. P.O.S. Sta. 304+00.26 U.S.R. 22 Reloc.
I 55
I GR
I DR
I 5D
See Sheet No. 361 for Ramp "C" Quantities
P.T. Sta. 8+86.47
LA RW
LA
Asphalt Dr.
EXIST U.S.R. 22
60'R.
1.5
Sta. 14+00.37 ℄ Exist. U.S.R. 22 Reloc.
Sta. 12+04.06 ℄ Ramp "C" =
Sta. 11+72.61 ℄ Ramp "D"
LA RW

Bench Mark Elev. 1174.65
R.R. spike in T. pole No. 162/213 200'± Rt. of ℄ Sta. 15+95± Exist. U.S.R. 22 Reloc.

Note:
For Profile, Sta. 1+19.80 to Sta. 11+82.06, see following Sheet.



Ref. Points P.C. Sta. 1+19.80
Ref. Points P.I. Sta. 5+04.42
Ref. Points P.T. Sta. 8+86.47
Ref. Points P.O.T. Sta. 12+04.06



Ramp C Sta. 1+19.80 to 12+04.06

JEF-22-3.86

Profile Grade Rt. Edge Pav't.	Lt. Edge Pav't.	1130.05	1129.98	1129.95	1129.98	1130.08	1130.25	1130.48	1130.51	1130.78	1131.14	1131.56	1132.04	1132.53	1133.18	1133.24	1134.46	1135.74	1136.97	1138.15	1139.11	1139.66	1140.15	1140.28	1140.80	1141.00	1141.36	1141.68	1141.76	1142.24	1142.71
		1129.60	1129.54	1129.52	1129.57	1129.63	1129.85	1130.08	1130.11	1130.38	1130.74	1131.16	1131.64	1132.18	1132.78	1132.84	1134.06	1135.34	1136.62	1137.90	1138.09	1138.53									
		+02.45						+52.45								+02.45				+07.31				+07.31				+07.31		E.P. +91.68 ℄ +04.06	

Graphic Grade

Graphic Grade — 300' V.C. — 200' V.C.

P.V.I. Sta. 10+07.31
Elev. = 1140.64
+1.12 %

−0.40 % — +2.56 %

P.V.I. Sta. 5+52.45
Elev. = 1129.00

Sta. 5+51 ~ 123' Rt.
Outlet 15" Conduit

991.6	991.7	995.7	995.8	997.1	1005.0	1020.3	1027.1	1027.6	1027.5	1029.5	1027.9	1025.9	1023.9	1020.1	1020.0	1026.6	1036.4	1054.6	1068.7	1081.3	1083.2	1085.8	1092.1	1098.3	1105.6	1110.6	1113.3	1114.1	1116.8	1117.2	1119.1
+19.80	+26	+53		+69			+88		+045	+20	+41		+54	+60	+65	+75					+60					+73	+85		+20	+33	
1					2				3							4		5			6		7			8				9	

1122.9	1124.3	1127.3	1128.8	1142.2	1143.4	1147.7	1153.3	1156.0	1164.3	1172.7	1176.4	1178.29	1179.23	1179.37	1179.1	1178.5	1181.4	1184.8	1184.9
+69	+86.47	+12		+45		+66		+12		+88	+09	+16	+29	+43	+43	+53	+58		+04.06
									10									11				12	

Profile Ramp C Sta. 1+19.80 to Sta 12+04.06

SHEET NO.	STATE	PROJECT		367
2	OHIO			516

JEF-22-3.86

Sta. 311+82 ℄ Prop. U.S.R.22 Reloc. =
Sta. 111+35 ℄ Exist. U.S.R.22 Reloc.

℄ U.S.R. 22 Relocation

N 43°-33'-40"E

P.C. Sta. 317+66.14

See Sheet No 426 for Storm Sewer

See Sheet Nos. 34&35 for U.S.R. 22 Reloc.

See Sheet No. 405 for Pav't Detail

Dc = 1°-28'

JEF-22-0590

See Sheet No. 408 for Intersection Details
See Sheet No. 319 for Exist. U.S.R. 22 Reloc.
See Sheet No. 313 for Interchange Alignment
See Sheet No. 315 for Grading Plan

℄ Exist. U.S.R. 22 Relocation

℄ Ramp "D"

N 32°-33'-09" E

P.C. Sta. 18+96.51

Dc = 4°-00'

50' R.

LA RW

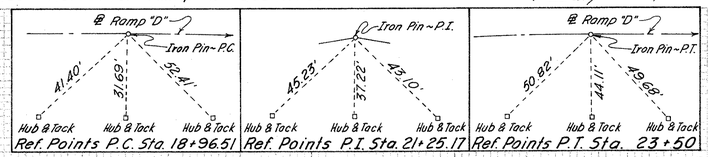
Sta. 14+00.37 ℄ Exist. U.S.R. 22 Reloc. =
Sta. 12+04.06 ℄ Ramp "C" =
Sta. 11+72.61 ℄ Ramp "D"

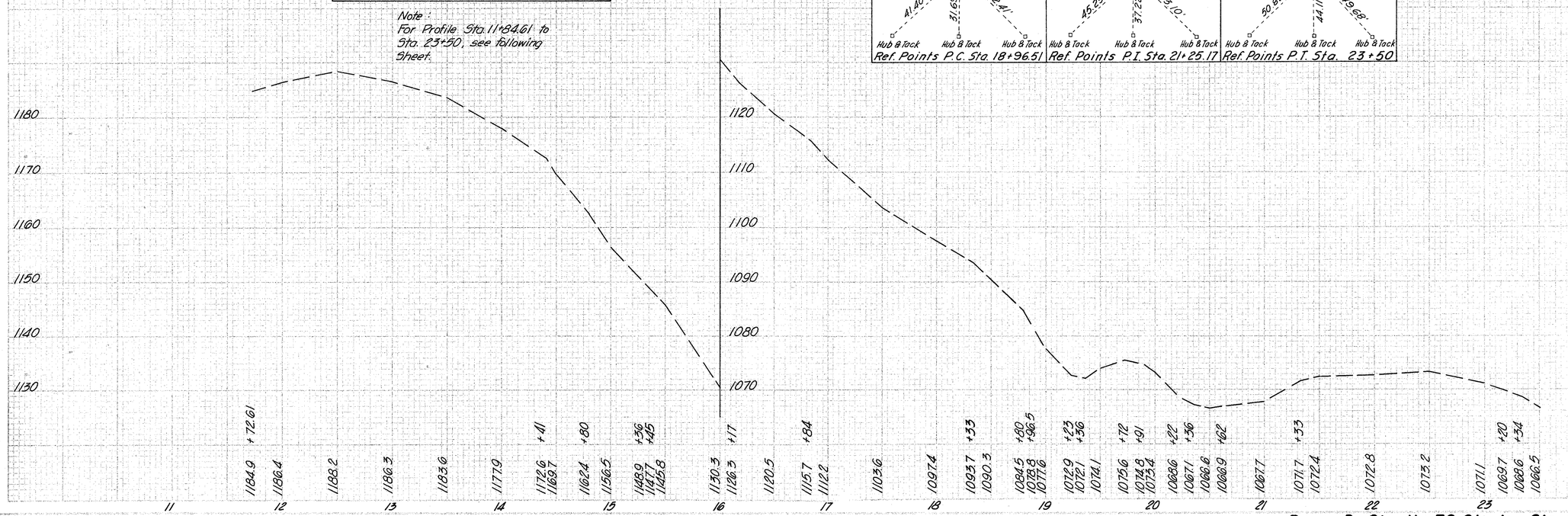
P.T. Sta. 23+50 ℄ Ramp "D"
69' Rt. P.O.C. Sta. 323+50 ℄ U.S.R.22 Reloc.

See Sheet No. 361 for Ramp "D" Quantities

Bench Mark Elev. 1174.65
R.R. spike in T. pole No. 162/219 200' ± Rt. of ℄ Sta. 15+95 ± Exist. U.S.R. 22 Reloc.

Note:
For Profile Sta. 11+84.61 to Sta. 23+50, see following Sheet.





Ramp D Sta. 11+72.61 to Sta. 23+50

JEF - 22 - 3.86

Lt. Edge

+72.61
+84.90
+99.16
+24.16
+49.16

Profile Grade

1142.85
1142.70
1142.52
1142.14
1141.64
1141.03
1140.30
1139.48
1138.48
1137.40
1136.19
1134.86
1133.47
1131.92
1130.42
1128.92
1127.42
1125.92
1124.42
1122.92
1121.42
1119.92
1118.42
1116.92
1115.42
1113.92
1112.42
1112.61
1111.20
1109.77
1108.36
1106.98
1105.63
1104.33
1103.09
1101.88
1100.66
1099.50
1098.37
1097.21
1096.27
1095.31
1094.25
1093.35
1092.50
1091.68
1090.86
1090.04
1089.22
1088.40
1087.58

Grophic

1180
1170
1160
1150
1140
1130
1120
1110
1100
1090
1080
1070
1060

P.V.I. Sta. 13+24.16
Elev. = 1140.97

-1.24%
-6.00%
250' V.C.
-6.00%
300' V.C.
-6.00%
-3.28%
-3.28%

P.V.I. Sta. 20+50
Elev. = 1097.42

Sta. 20+59 ~80' Rt.
Outlet 18" Conduit

Sta. 23+45 ~ 15.83' Lt.
Std. No 6 C.B.
T/G = 1088.35
I.E. 15" = 1084.50

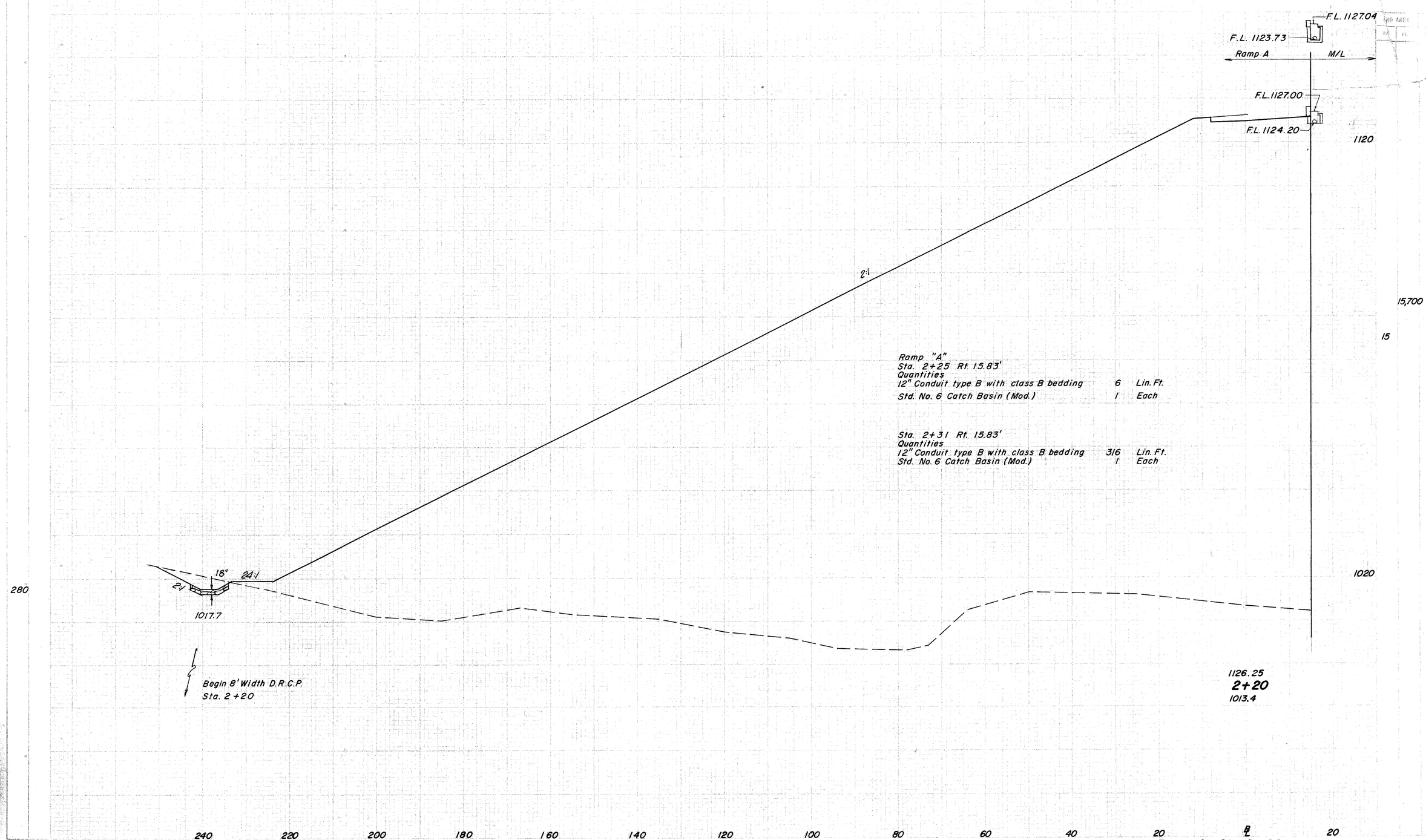
Sta. 23+41 ~ 15.83' Lt.
Std. No. 6 C.B.
T/G = 1088.38
I.E. 15" = 1085.38

1184.9 +72.61
1186.4
1188.2
1186.3
1183.6
1177.9
1172.6 +41
1169.7
1162.4 +80
1156.5
1148.9 +36
1147.2 +45
1145.8
1130.3
1126.3 +17
1120.5
1115.7 +84
1112.2
1103.6
1097.4
1093.7 +33
1090.3
1084.5 +80
1078.8 +96.51
1077.6
1072.9 +23
1072.1 +36
1074.1
1075.6 +72
1074.8 +91
1073.4
1068.6 +22
1067.1 +36
1066.6 +62
1066.9
1067.7
1071.7 +33
1072.4
1072.8
1073.2
1071.1
1069.7 +20
1068.6 +34
1066.5

11 12 13 14 15 16 17 18 19 20 21 22 23

Profile Ramp D Sta. 11+72.61 to Sta. 23+50

JEF-22-3.86



Ramp "A"
Sta. 2+25 Rt 15.83'
Quantities

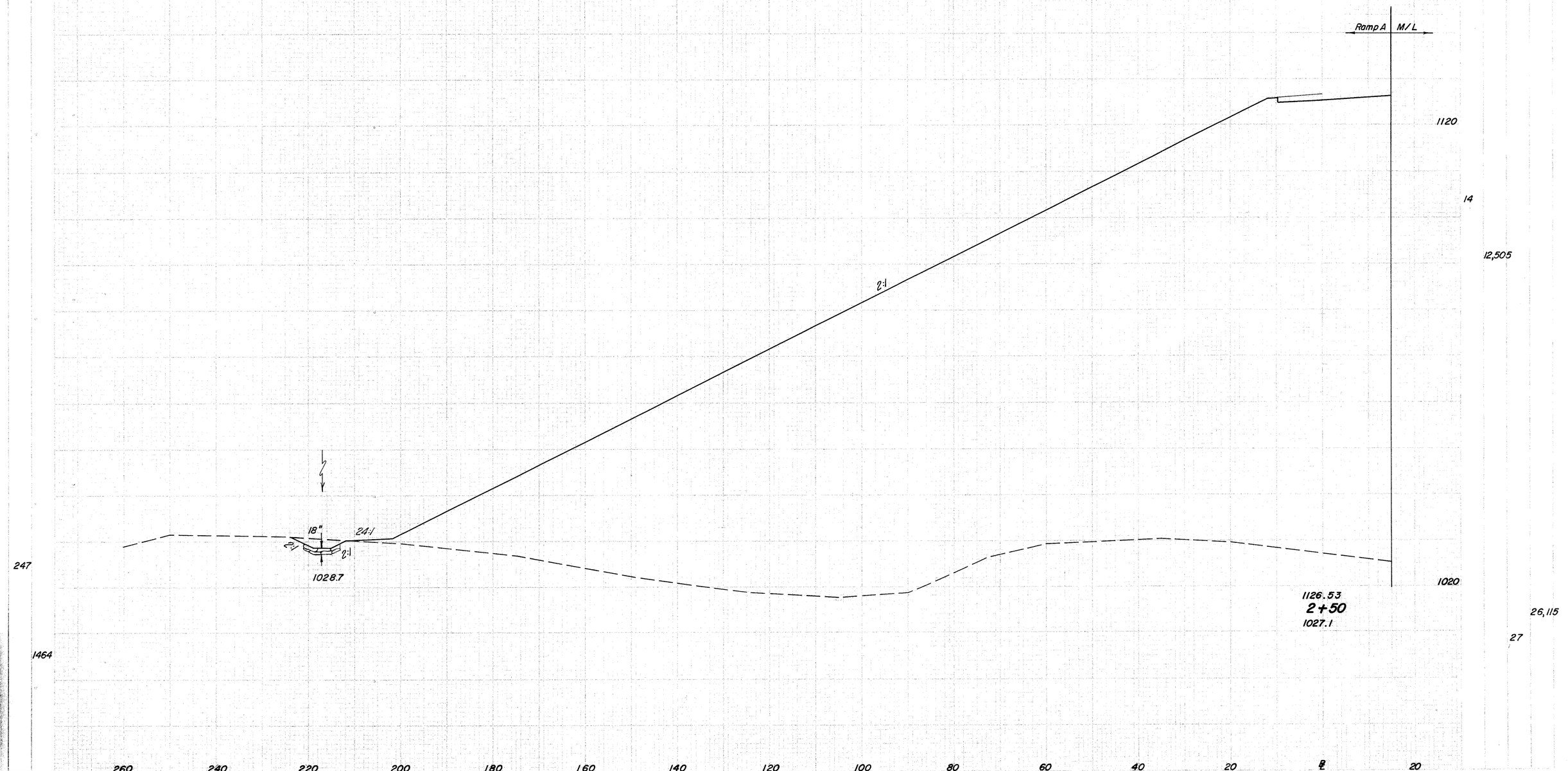
12" Conduit type B with class B bedding	6	Lin. Ft.
Std. No. 6 Catch Basin (Mod.)	1	Each

Sta. 2+31 Rt. 15.83'
Quantities

12" Conduit type B with class B bedding	316	Lin. Ft.
Std. No. 6 Catch Basin (Mod.)	1	Each

370
516

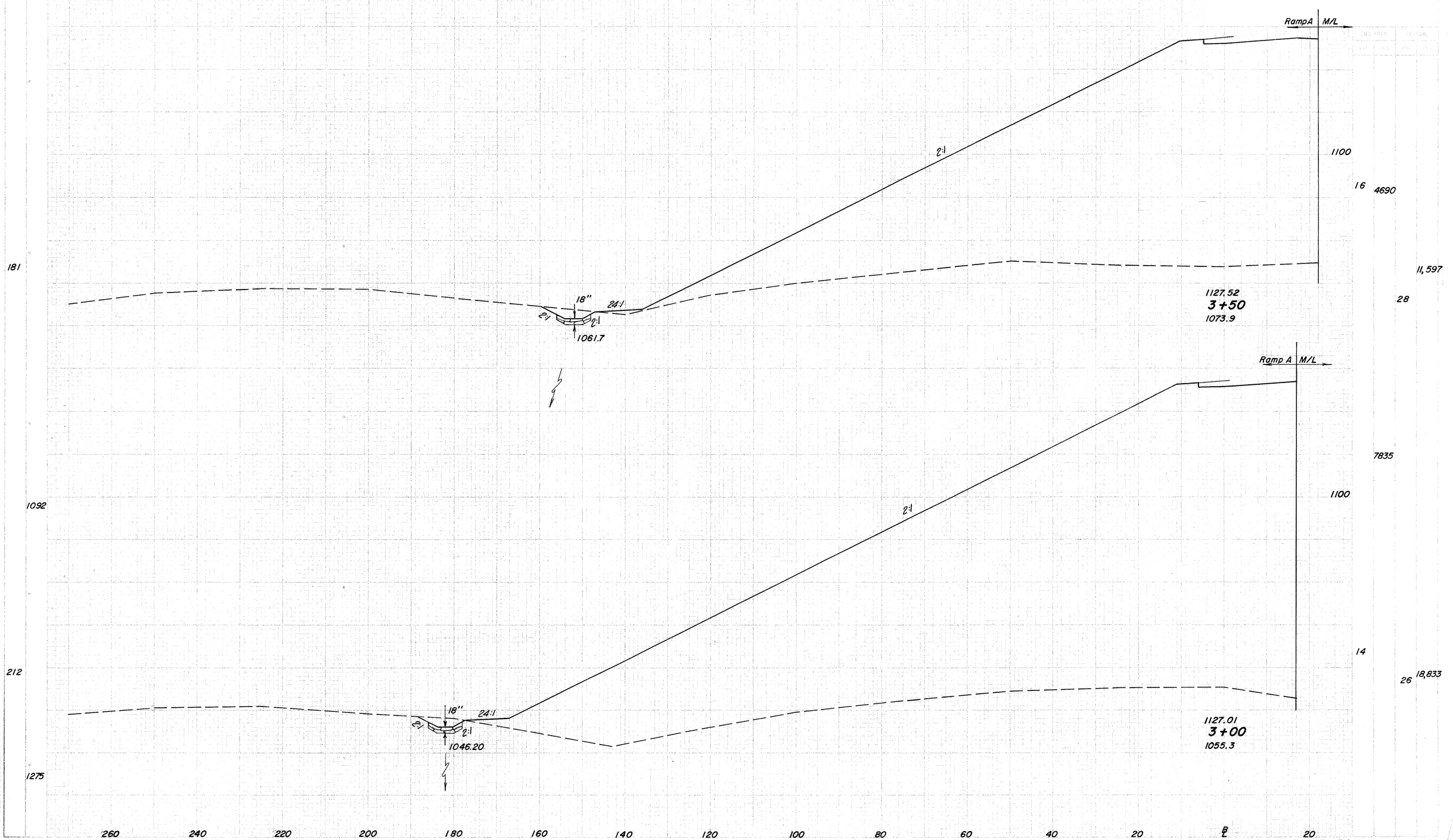
JEF - 22 - 3.86



Ramp A Sta. 2+50

371
516

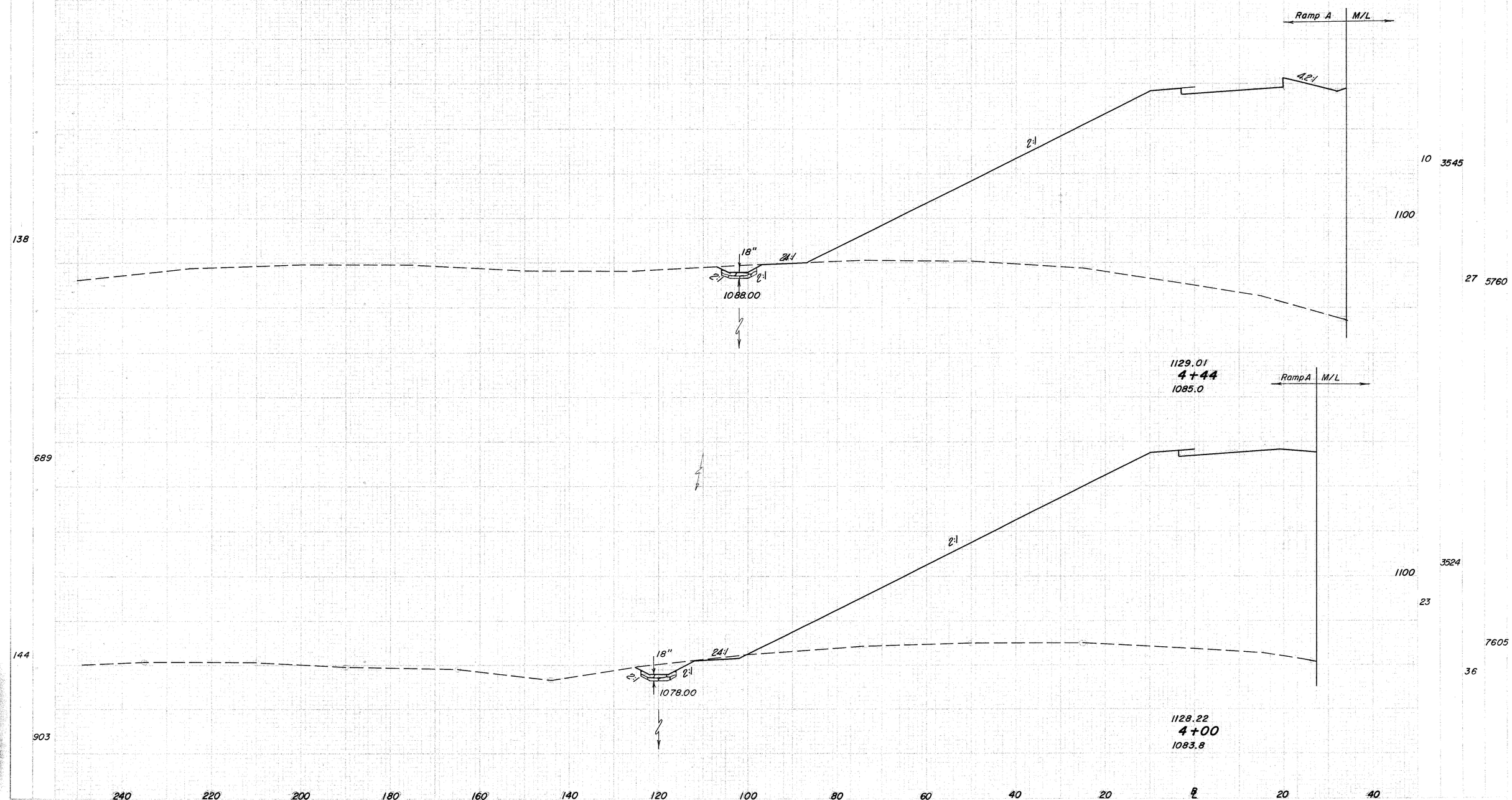
JEF-22-3.86



Ramp A Sta. 3+00 to Sta. 3+50

372
516

JEF - 22 - 3.86



Ramp A Sta. 4+00 to Sta. 4+44

DESIGNATION | STATE | SHEET | SHEETS
2 | OHIO | | 373 516

JEF - 22 - 3.86

Ramp A M/L

5.2:1

3:1

18"

3:1

1115.00

1120

10 2467

1133.27
6+00
1105.6

5527

51

Ramp A M/L

4:1

2:1

1120

38 2724

24:1

2:1

2:1

1100.7

1131.45
5+42.5
1095.7

Ramp A M/L

5530

48

4:1

1120

2:1

14 3309

18"

24:1

2:1

2:1

1094.0

6219

22

1130.13
4+93
1088.1

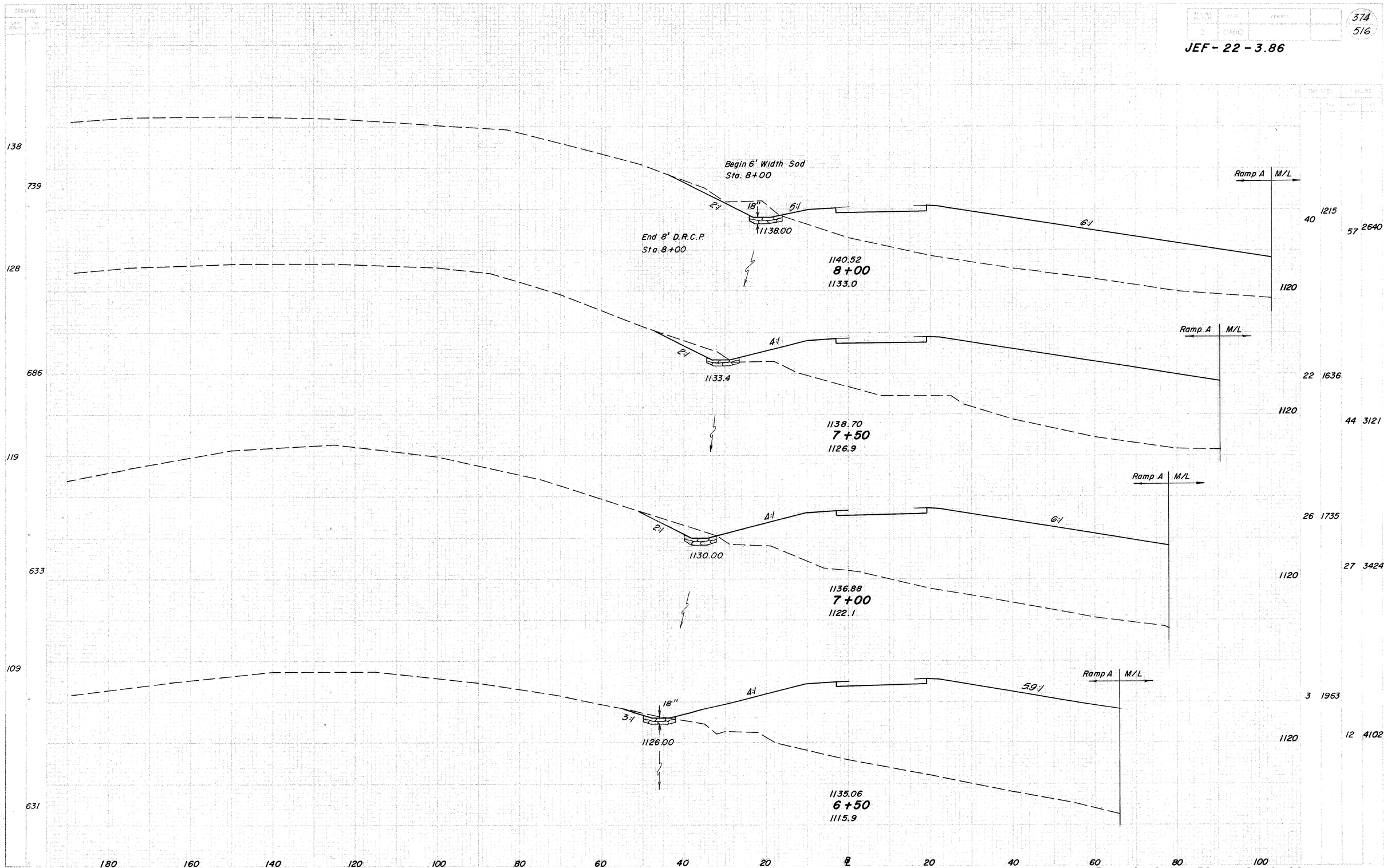
118
779
126
704
130
730

240 220 200 180 160 140 120 100 80 60 40 20 0 20 40

Ramp A Sta. 4+93 to Sta. 6+00

JEF - 22 - 3.86

374
516



Ramp A Sta. 6+50 to Sta. 8+00

JEF - 22 - 3.86

230
1214
207
1103
190
1017
176
872

2:1
1:1
2:1
6:1

1146.65
10+00
1175.0

Ramp A M/L
6120
1140
9259

2:1
1:1
2:1

1145.34
9+50
1169.0

Ramp A M/L
3880
1140
5047 0

2:1
1:1
2:1

End 6' Width Sod
Sta. 9+00

1143.87
9+00
1156.2

Ramp A M/L
1600
1140
1875
417

2:1
6:1

1142.27
8+50
1144.2

Ramp A M/L
425 450
1140
431
1542

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

Ramp A Sta. 8+50 to Sta. 10+00

376
516

JEF-22-3.86

Exist. U.S.R. 22 Reloc. Ramp A

Ramp A Exist. U.S.R. 22 Reloc.

77

751

1160

4070

1:1 2:1 6:1

188 Ahead

228 Back

1149.82
11+50
1187.7

Back

Ahead

Ramp A M/L

9690

2:1

1:1

Ahead 6190

1160

Back 8100

1364

1148.86
10+99
1187.5

15,745

Ramp A M/L

244

2:1

1:1

8250

1160

1238

1147.83
10+47
1185.0

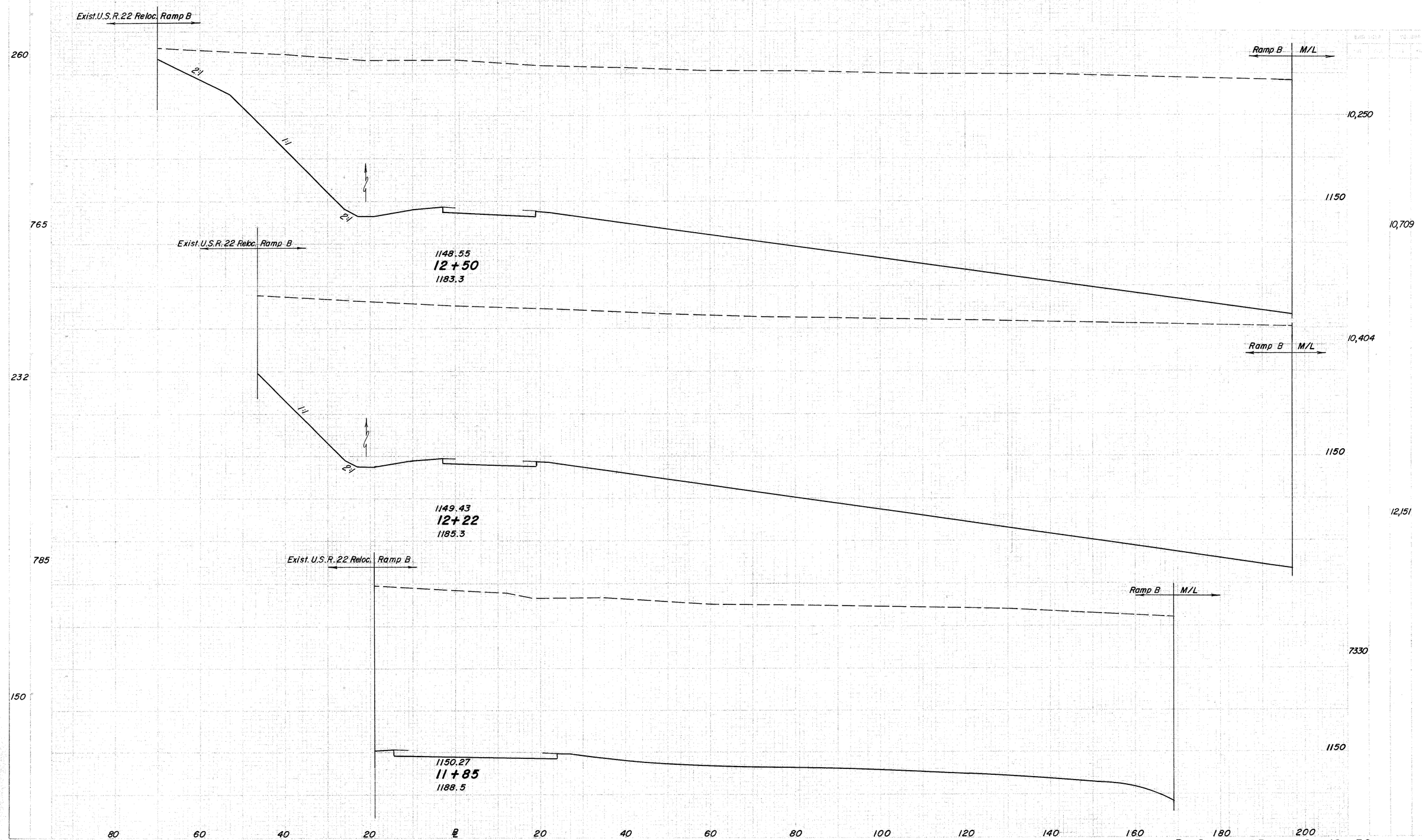
12,508 0

120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160

Ramp A Sta. 10+47 to Sta. 11+50

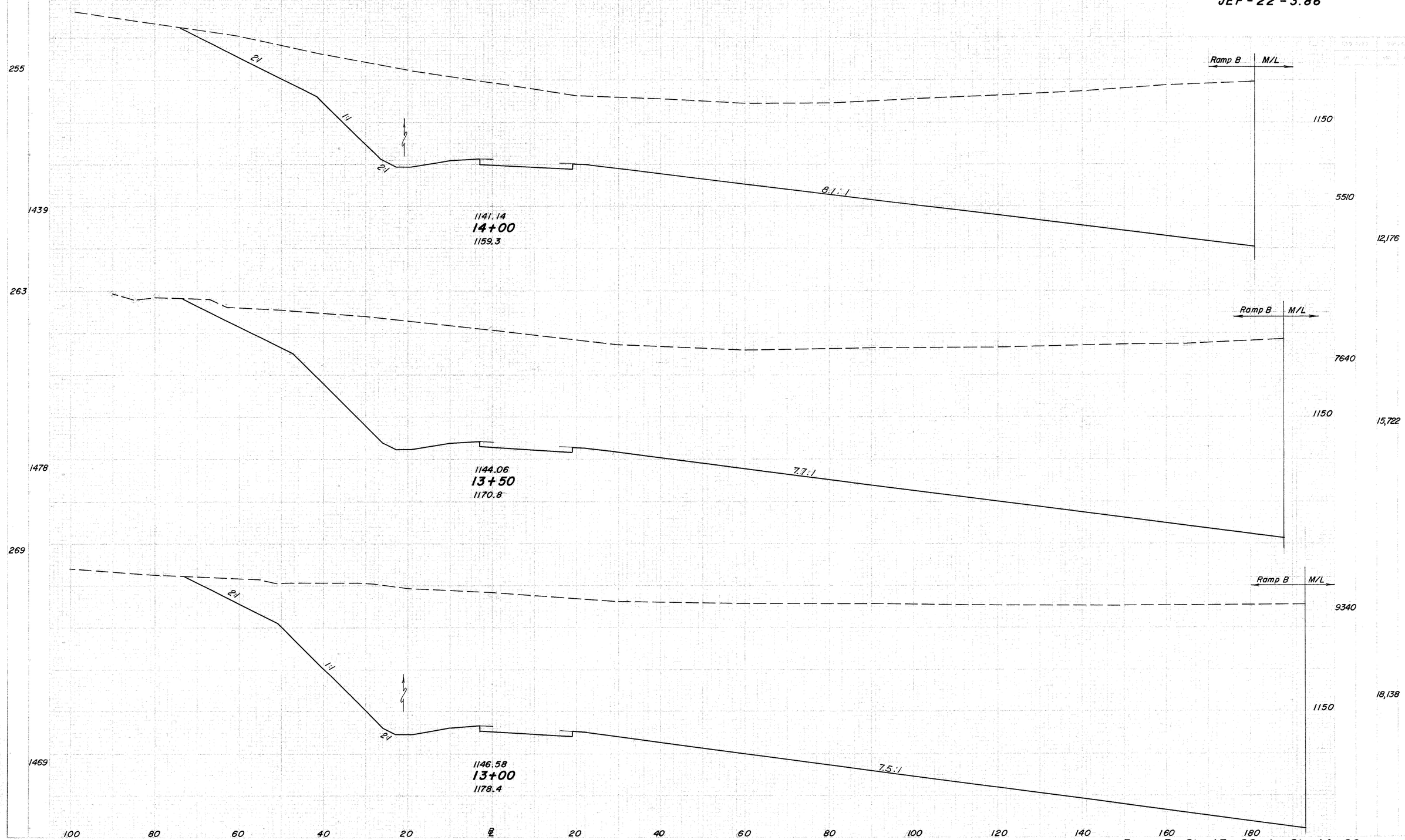
377
516

JEF - 22 - 3.86



Ramp B Sta. 11+85 to Sta. 12+50

JEF-22-3.86



Ramp B Sta. 13+00 to Sta. 14+00

JEF-22-3.86

186
1092
2:1
8:1
Ramp B M/L
1129.38
16+00
1132.9
556 198
1120
1617 183
207
1188
1132.32
15+50
1139.8
Ramp B M/L
1130
9.3:1
1190 0
226
1302
2:1
Ramp B M/L
1140
2500
3374
Begin 6' Width Sod
Sta. 15+00
1135.22
15+00.62
1145.3
8.5:1
5923
237
2:1
1:1
2:1
Ramp B M/L
3825
1140
1367
8.3:1
8643
1138.20
14+50
1151.2
120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

Ramp B Sta. 14+50 to Sta. 16+00

380
516

JEF-22-3.86

96
581
113
650
121
783
161
942
178
1011

3:1 6.8:1 Ramp B M/L
1114.68
18+50
1109.4

3:1 7.3:1 Ramp B M/L
1117.62
18+00
1111.8

3:1 7.5:1 Ramp B M/L
1120.56
17+50
1115.0

2:1 7.6:1 Ramp B M/L
1123.50
17+00
1119.2

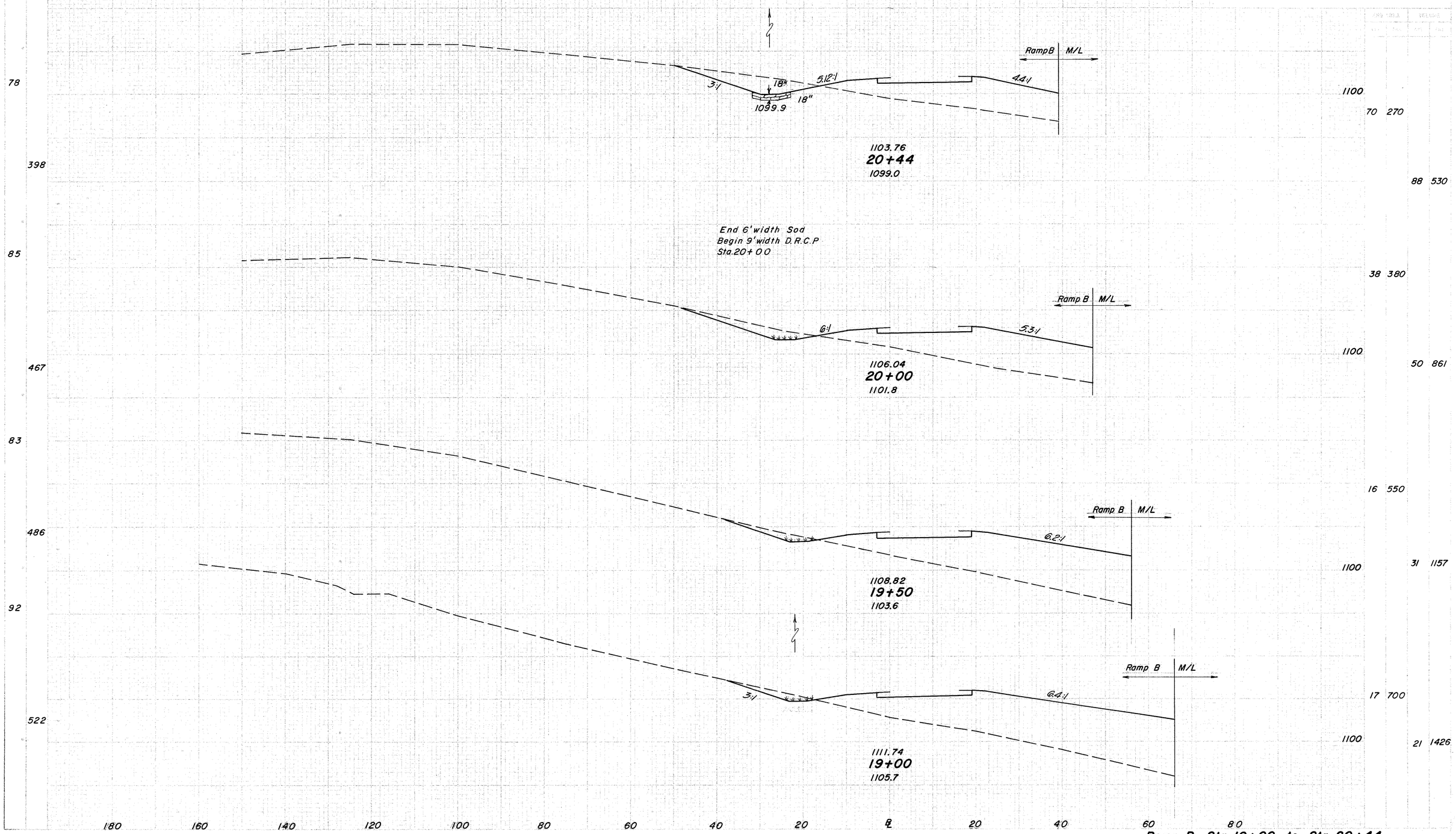
2:1 7.7:1 Ramp B M/L
1126.44
16+50
1126.7

1100 6 840
15 1704
1000
10
1110
15 1944
6 1100
1110
112
1995
1055
115
1110
375 1695
290 776
1120
783 902

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120

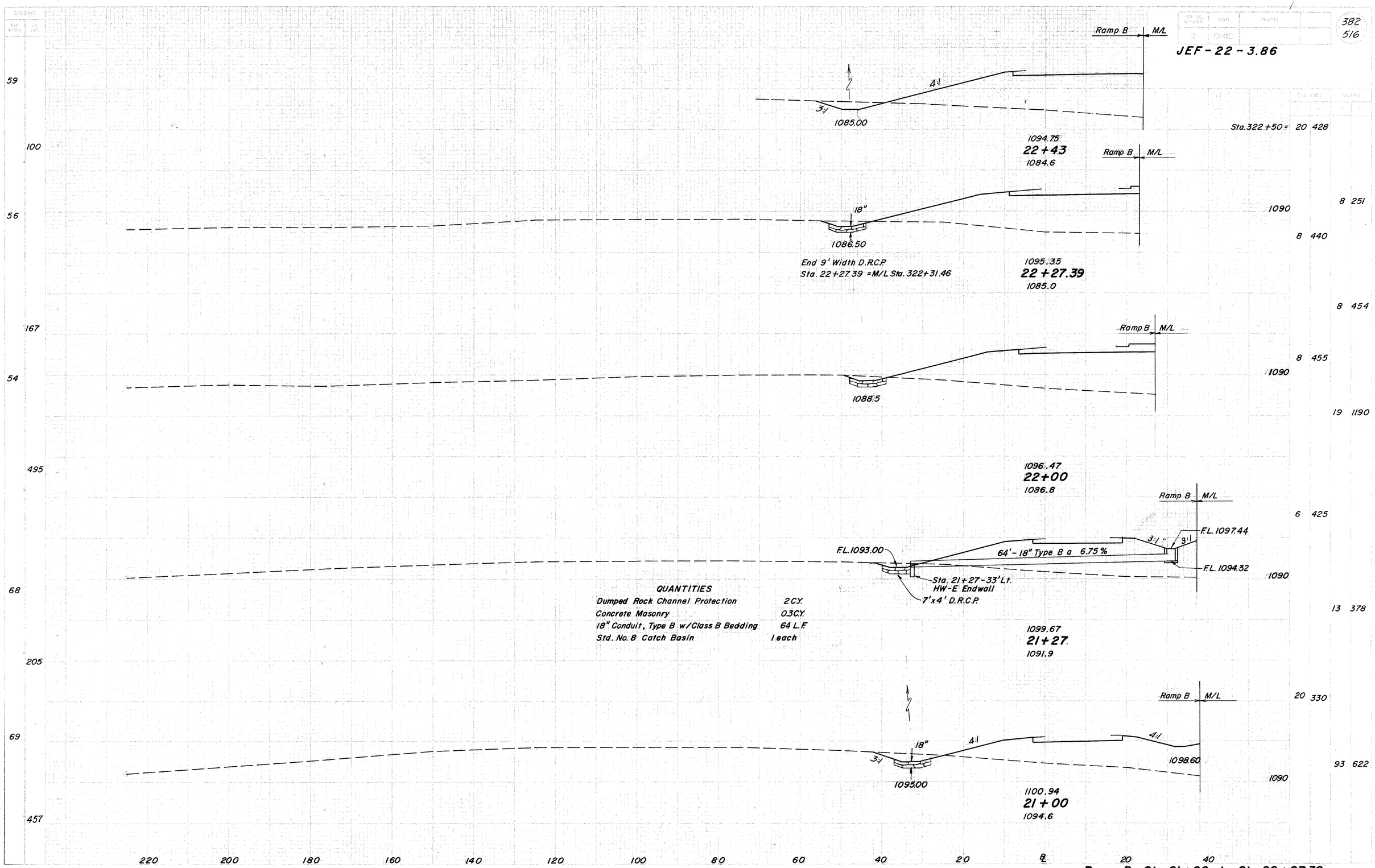
Ramp B Sta. 16+50 to Sta. 18+50

JEF-22-3.86



Ramp B Sta. 19+00 to Sta. 20+44

JEF-22-3.86

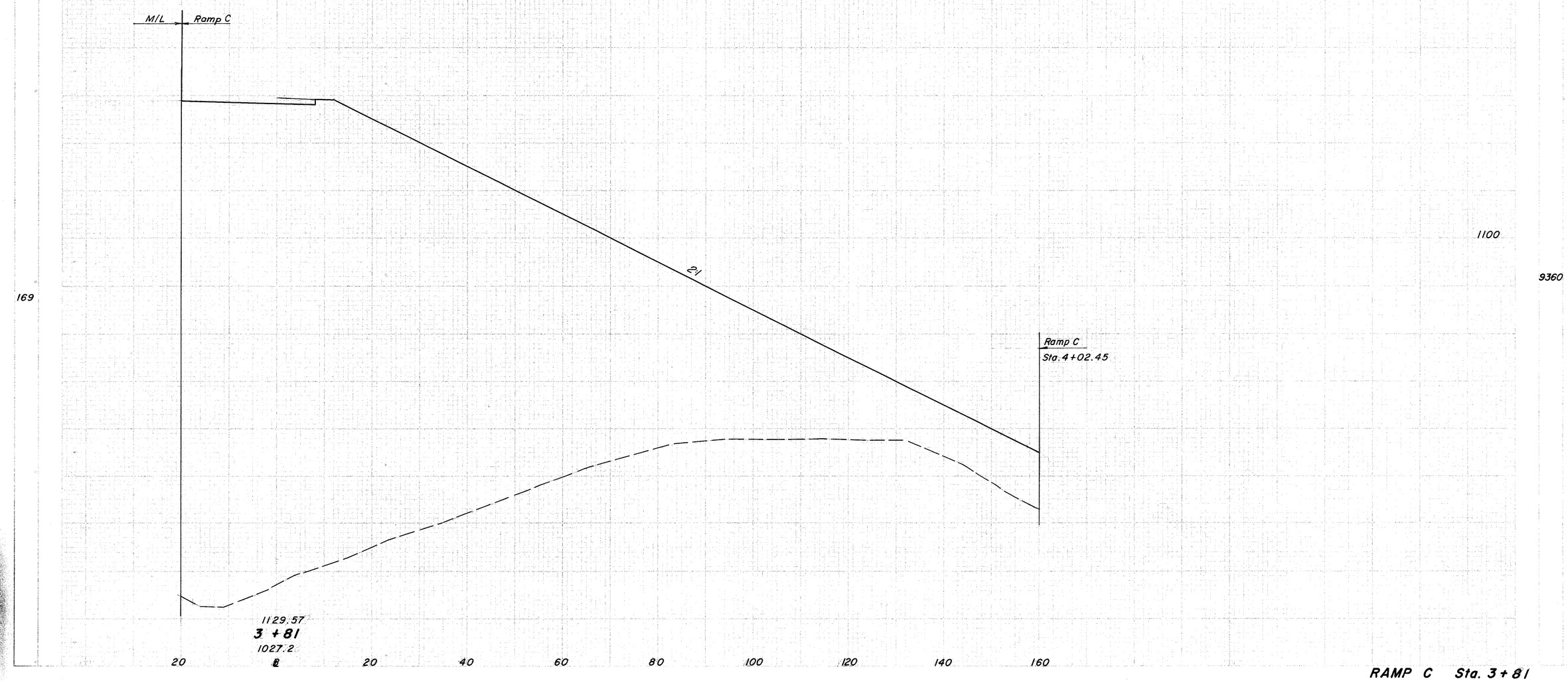


QUANTITIES

Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.3 C.Y.
18" Conduit, Type B w/Class B Bedding	64 L.F.
Std. No. 8 Catch Basin	1 each

Ramp B Sta. 21+00 to Sta. 22+27.39

JEF - 22 - 3.86



RAMP C Sta. 3 + 81

384
516

JEF - 22 - 3.86

27

13,709

211

M/L Ramp C

2:1

8680

19

22.1

2:1

18"

2:1

1052.50

1040

1040

1050

Begin 6' Width D.R.C.P.
Sta. 4+02.45

1129.60
4 +02.45
1037.3

453

40 20 ℄ 20 40 60 80 100 120 140 160 180 200 220 240

RAMP C Sta. 4 +02.45

385
516

JEF - 22 - 3.86

M/L Ramp C

6:1 4:1 2:1

143

1100

18"

24:1 2:1 2:1

1085.60

20

4812

846

1129.69

5 + 02.45

1069.3

M/L Ramp C

12:1 12:1

28 10,343

159

2:1

18

24:1 2:1 2:1

1076.00

10 6260

1060

1018

1129.52

4 + 52

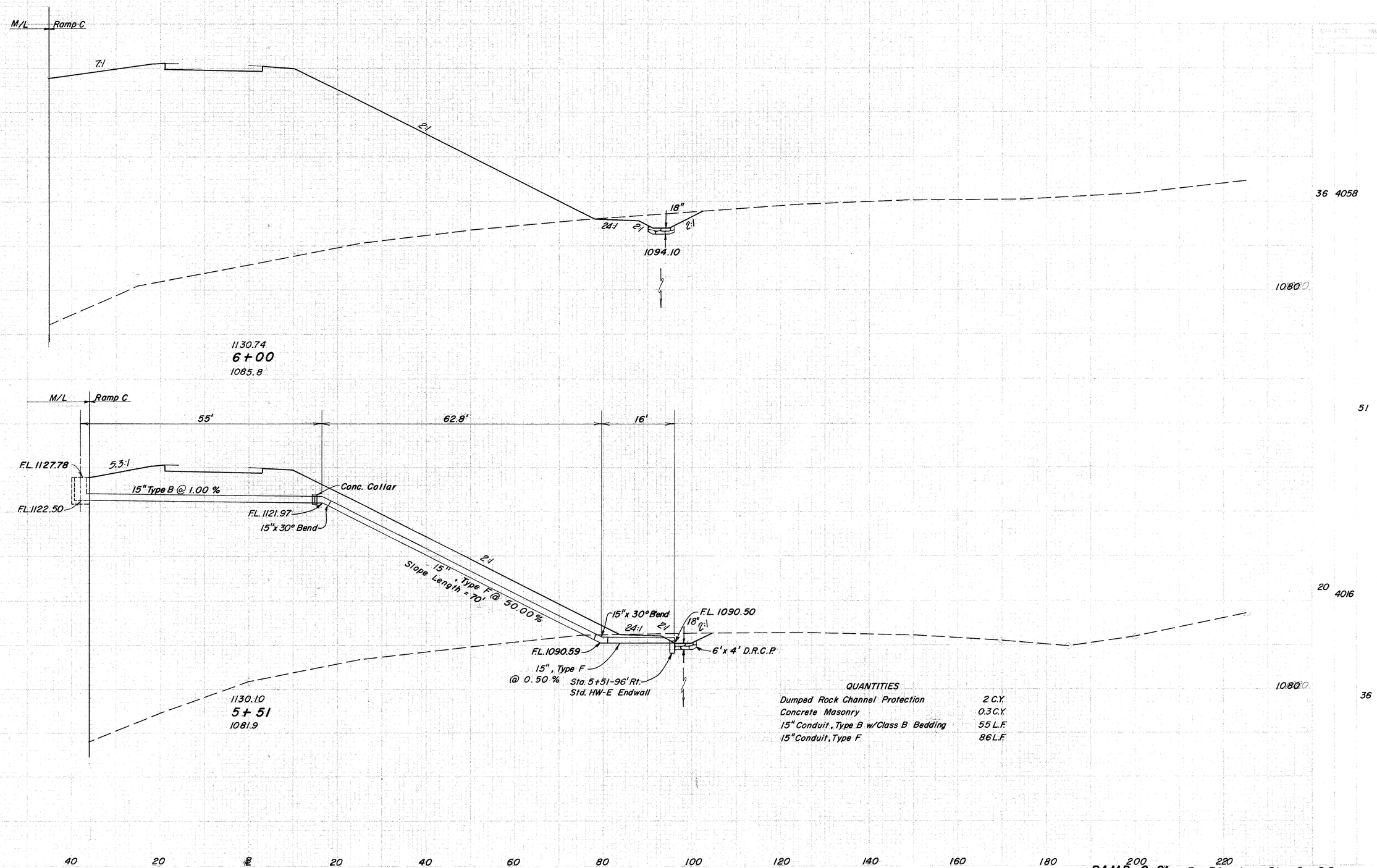
1054.6

60 40 20 0 20 40 60 80 100 120 140 160 180 200 220

RAMP C Sta. 4 + 52 to Sta. 5 + 02.45

386
516

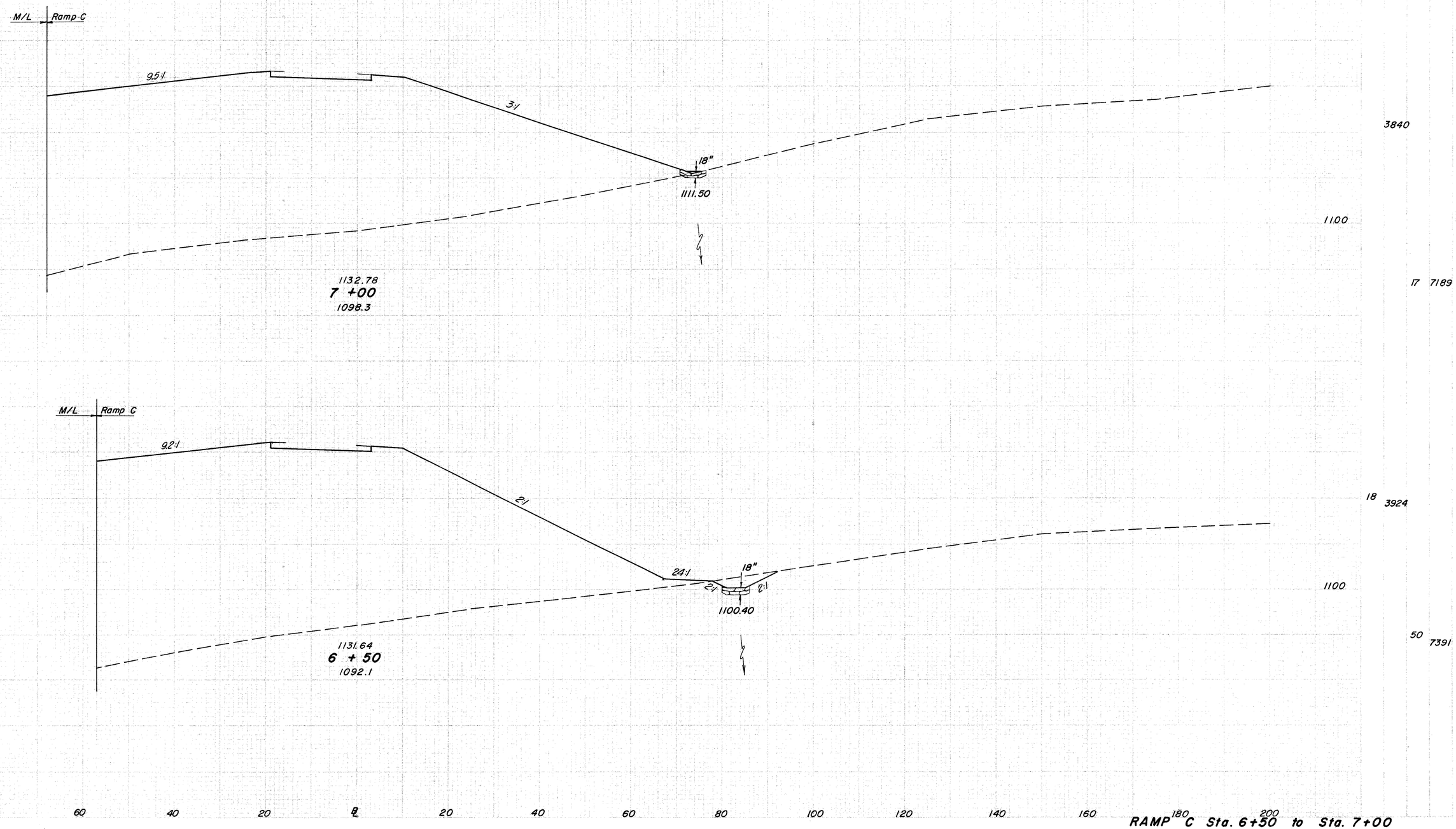
JEF - 22 - 3.86



QUANTITIES	
Dumped Rock Channel Protection	2 C.Y.
Concrete Masonry	0.3 C.Y.
15" Conduit, Type B w/Class B Bedding	55 L.F.
15" Conduit, Type F	86 L.F.

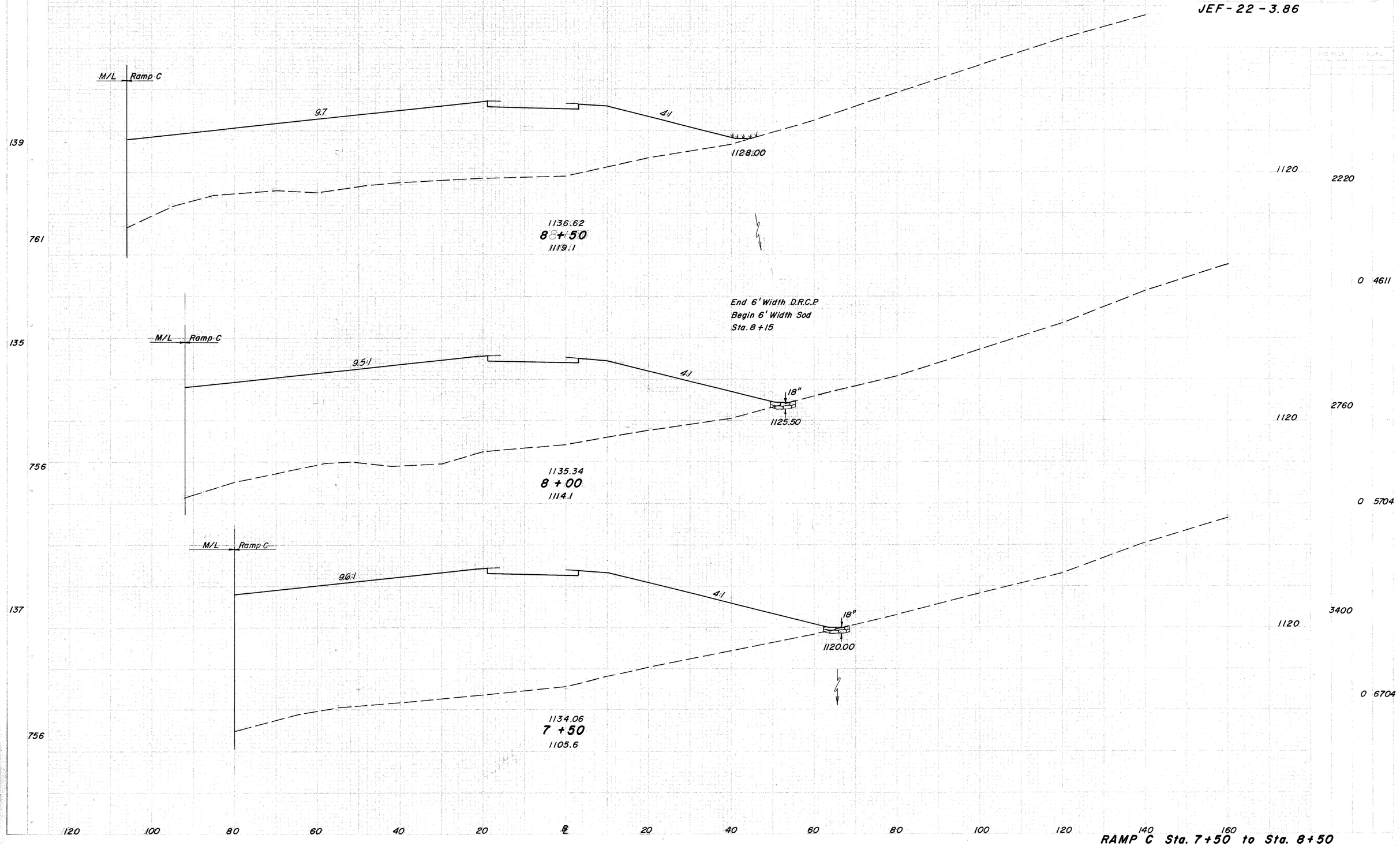
RAMP C Sta. 5+51 to Sta. 6+00

JEF - 22 - 3.86



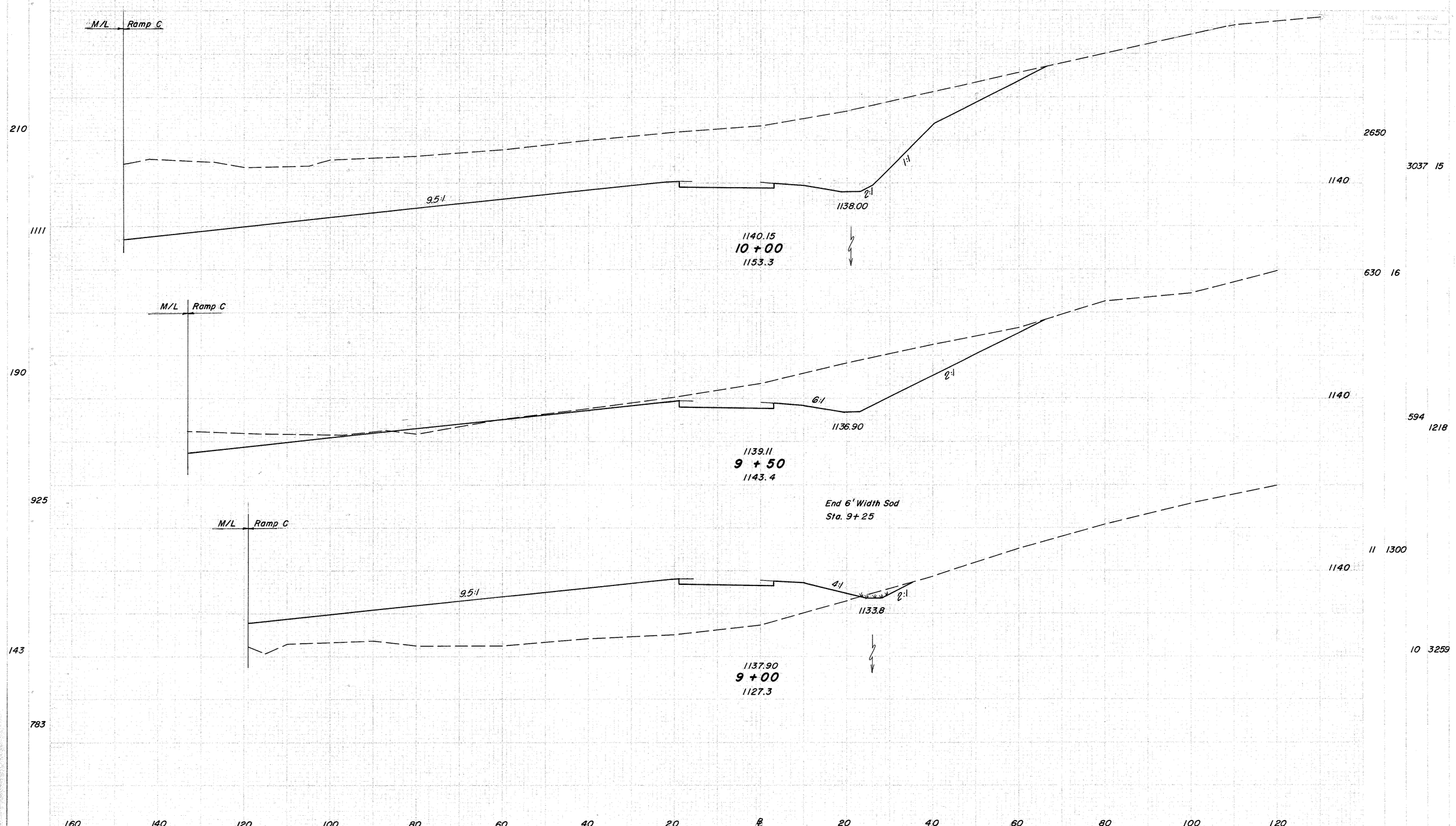
RAMP C Sta. 6+50 to Sta. 7+00

JEF-22-3.86



RAMP C Sta. 7+50 to Sta. 8+50

JEF-22-3.86



RAMP C Sta. 9+00 to Sta. 10+00

390
516

JEF - 22 - 3.86

Ramp C Exist. U.S.R. 22 Reloc.

a
1170
a
100
120

M/L Ramp C

Back
Ahead

197 Ahead

257 Back

9.7

1141.72
11 + 04
1176.4

2:1
1:1
2:1

a
Ahead 3382
a
Back 6860
1160

11,373 0

1433

M/L Ramp C

239

1297

9.6:1

1141.00
10 + 52
1164.3

1:1
2:1

4950
1150

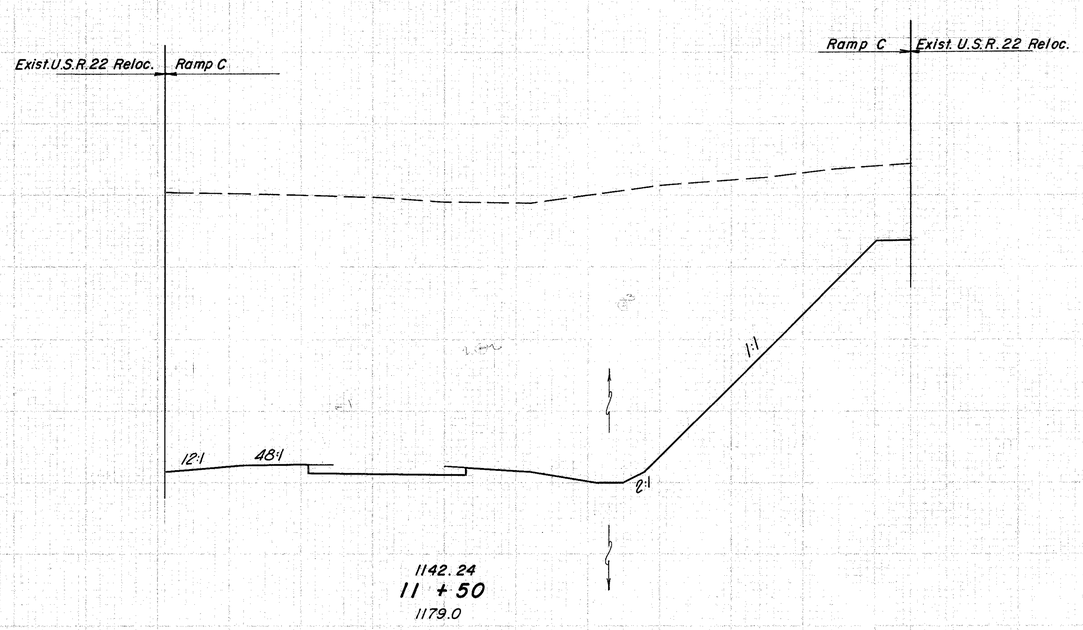
7319 0

180 160 140 120 100 80 60 40 20 ℄ 20 40 60 80 100

RAMP C Sta. 10 + 52 to Sta. 11 + 04

391
516

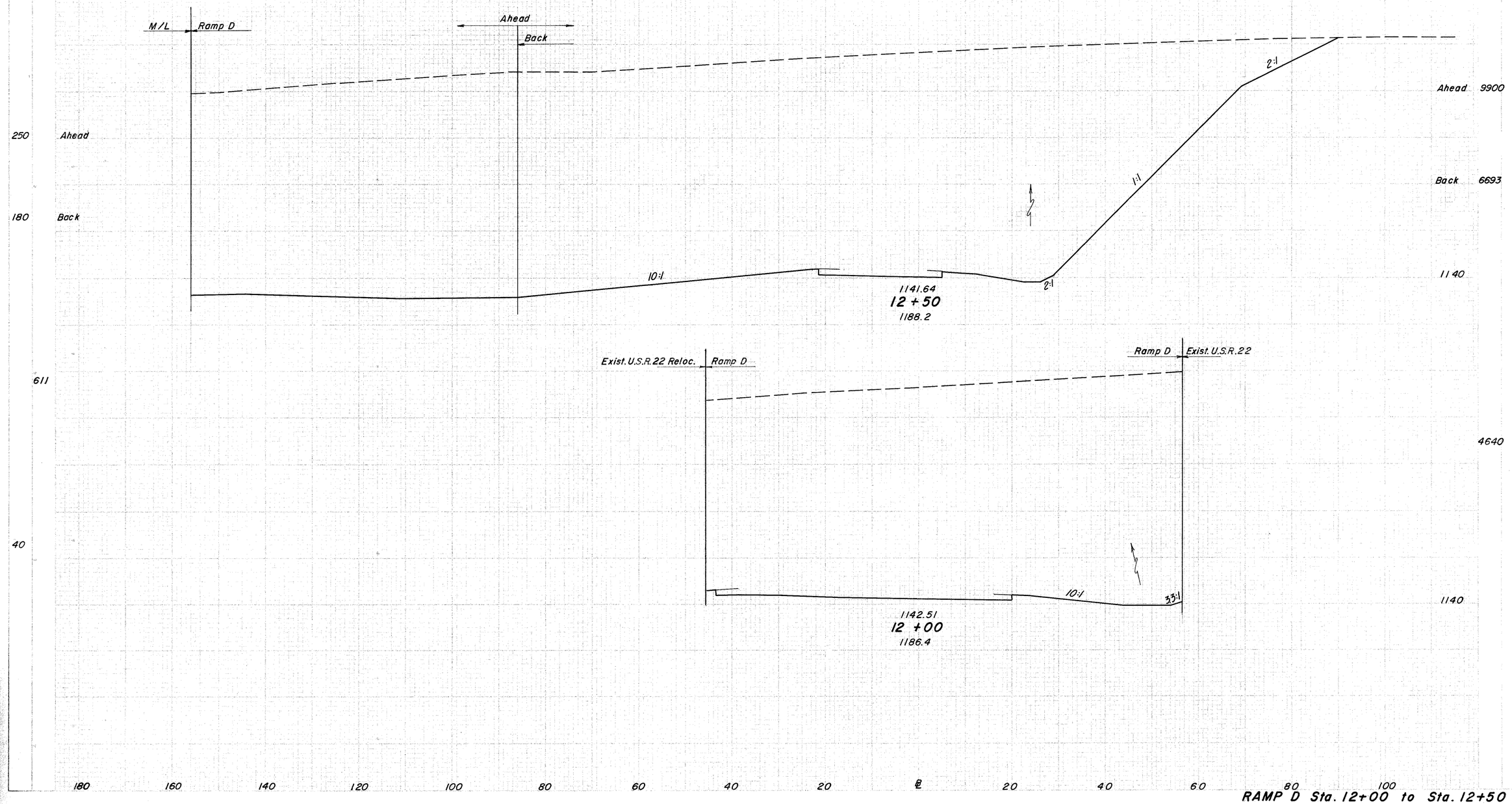
JEF-22-3.86



RAMP C Sta. 11+50

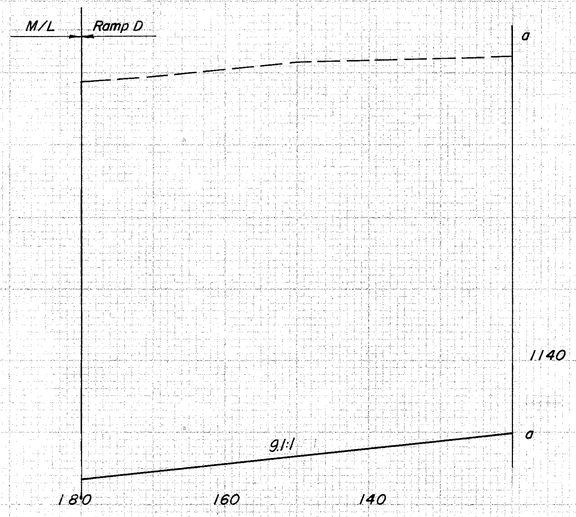
392
516

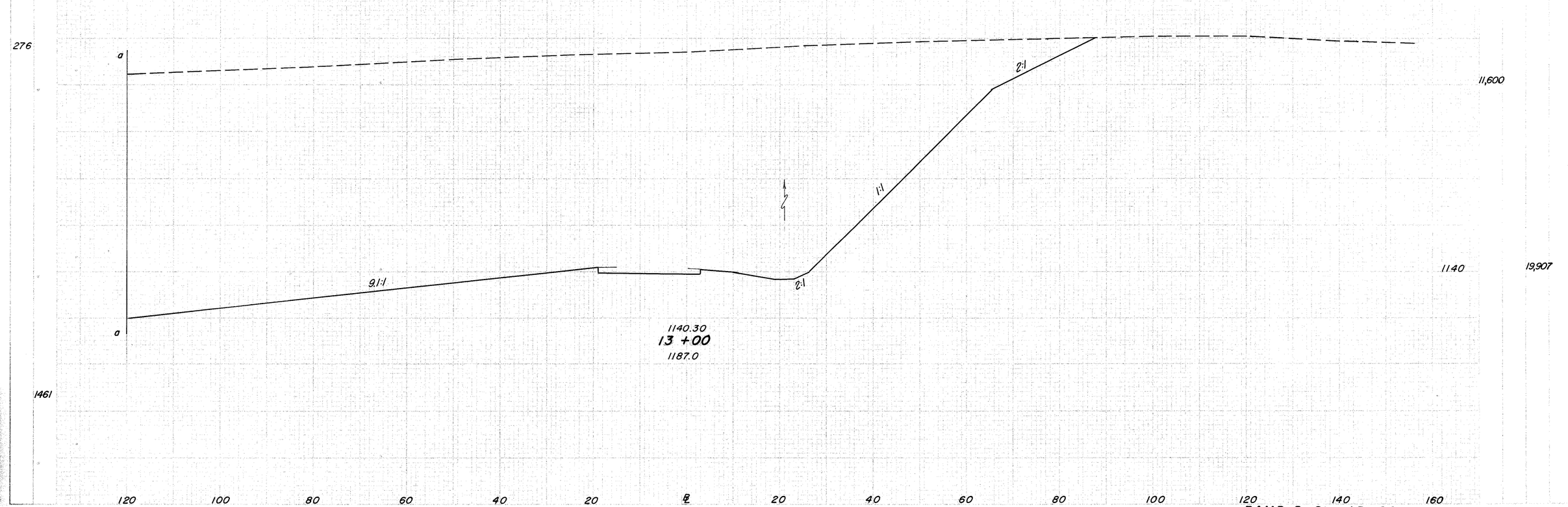
JEF-22-3.86



RAMP D Sta. 12+00 to Sta. 12+50

JEF - 22 - 3.86





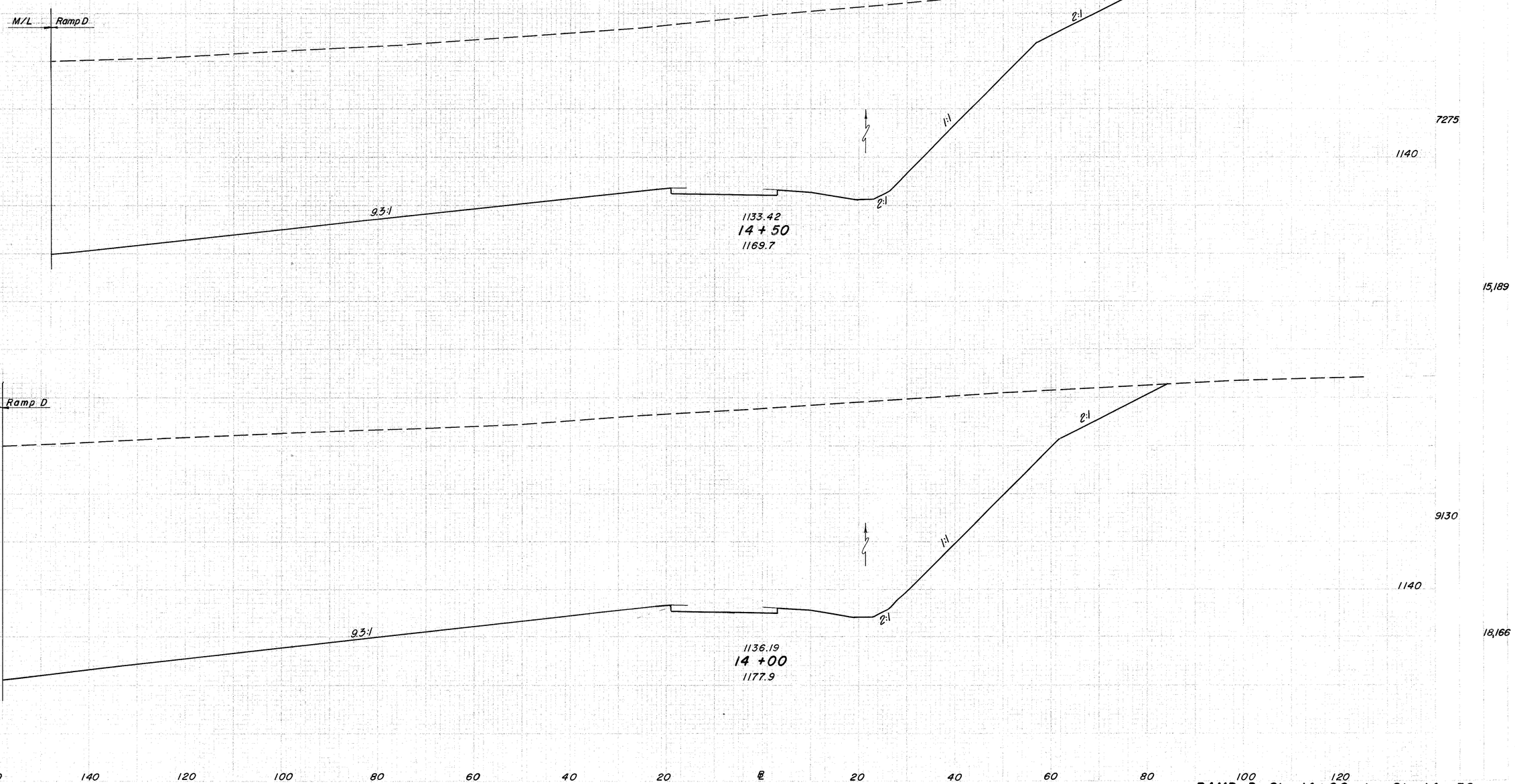
RAMP D Sta. 13+00

JEF-22-3.86

RAMP D Sta. 13+50

395
516

JEF - 22 - 3.86



RAMP D Sta. 14+00 to Sta. 14+50

396
516

JEF - 22 - 3.86

158

M/L Ramp "D"

10.7:1

2:1

935

1120

Begin 6' Width Sod
Sta. 16+00

1124.42
16 +00
1130.3

3606 0

961

2960

M/L Ramp "D"

188

10.3:1

2:1

1:1

2:1

1140

7352 0

1127.42
15 +50
1145.8

4980

1114

M/L Ramp "D"

213

9.8:1

2:1

1:1

2:1

1140

11347 0

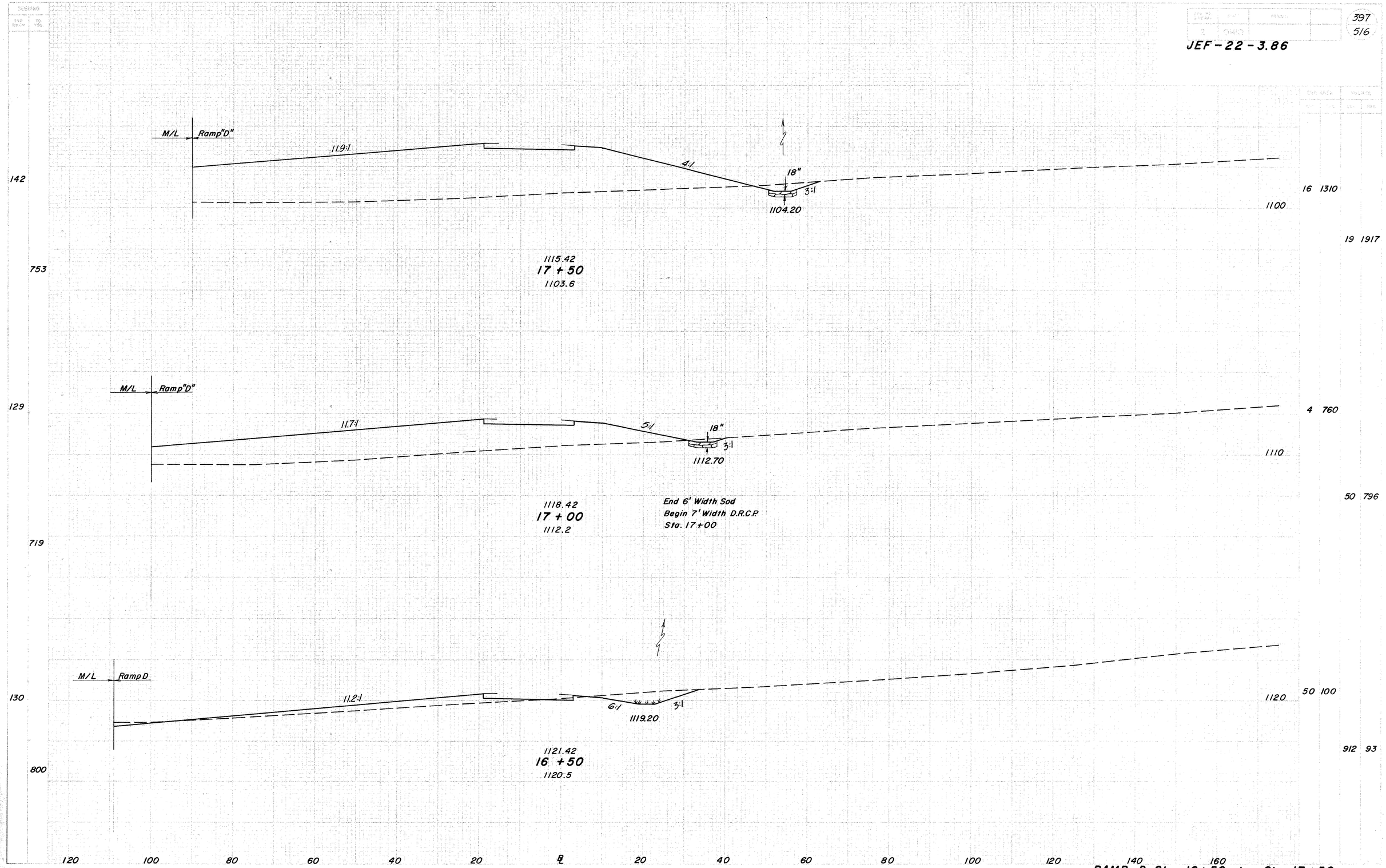
1130.42
15 +00
1156.5

1242

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

RAMP D Sta. 15+00 to Sta. 16+00

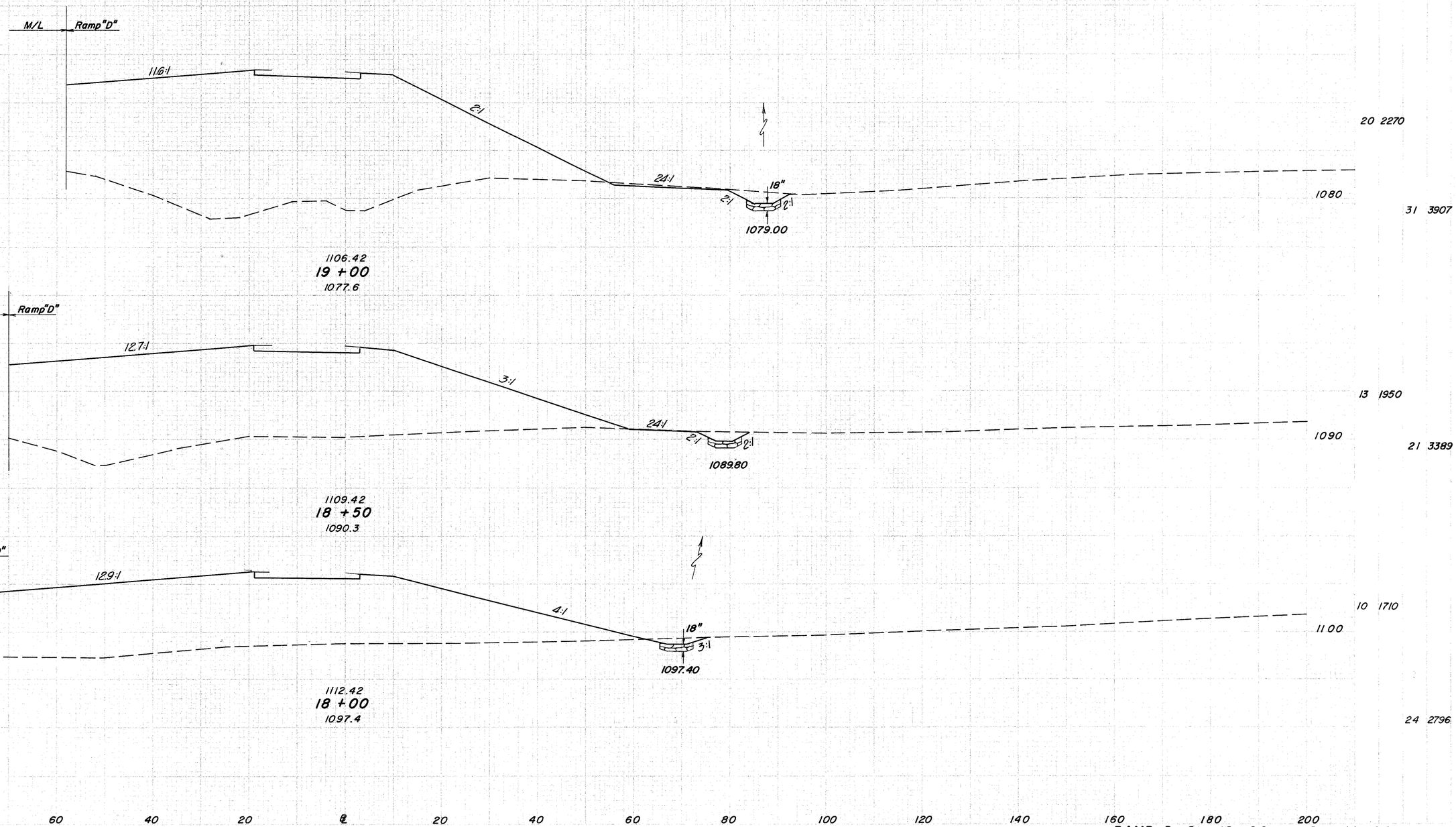
JEF-22-3.86



RAMP D Sta. 16+50 to Sta. 17+50

398
516

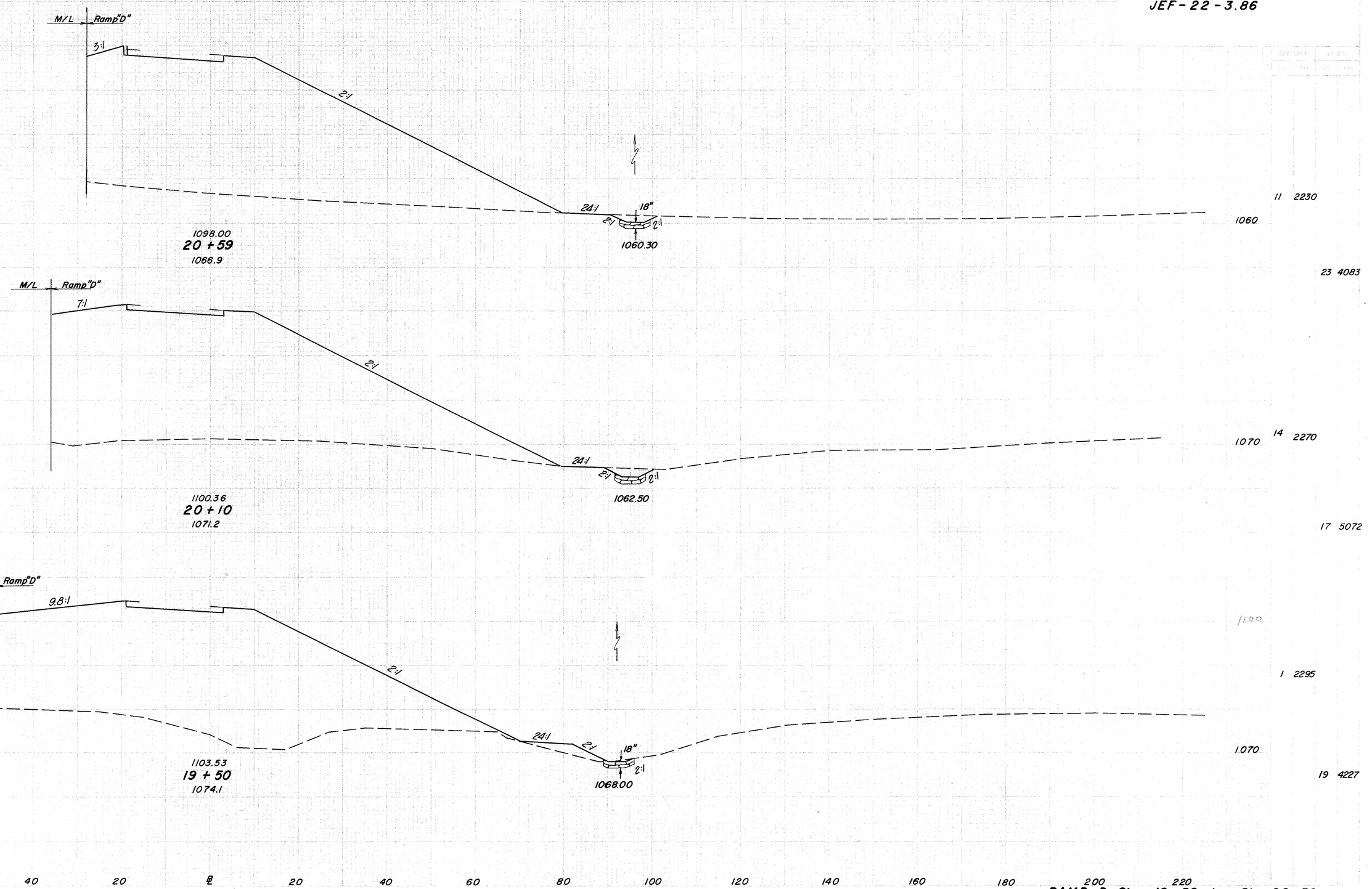
JEF-22-3.86



RAMP D Sta. 18+00 to Sta. 19+00

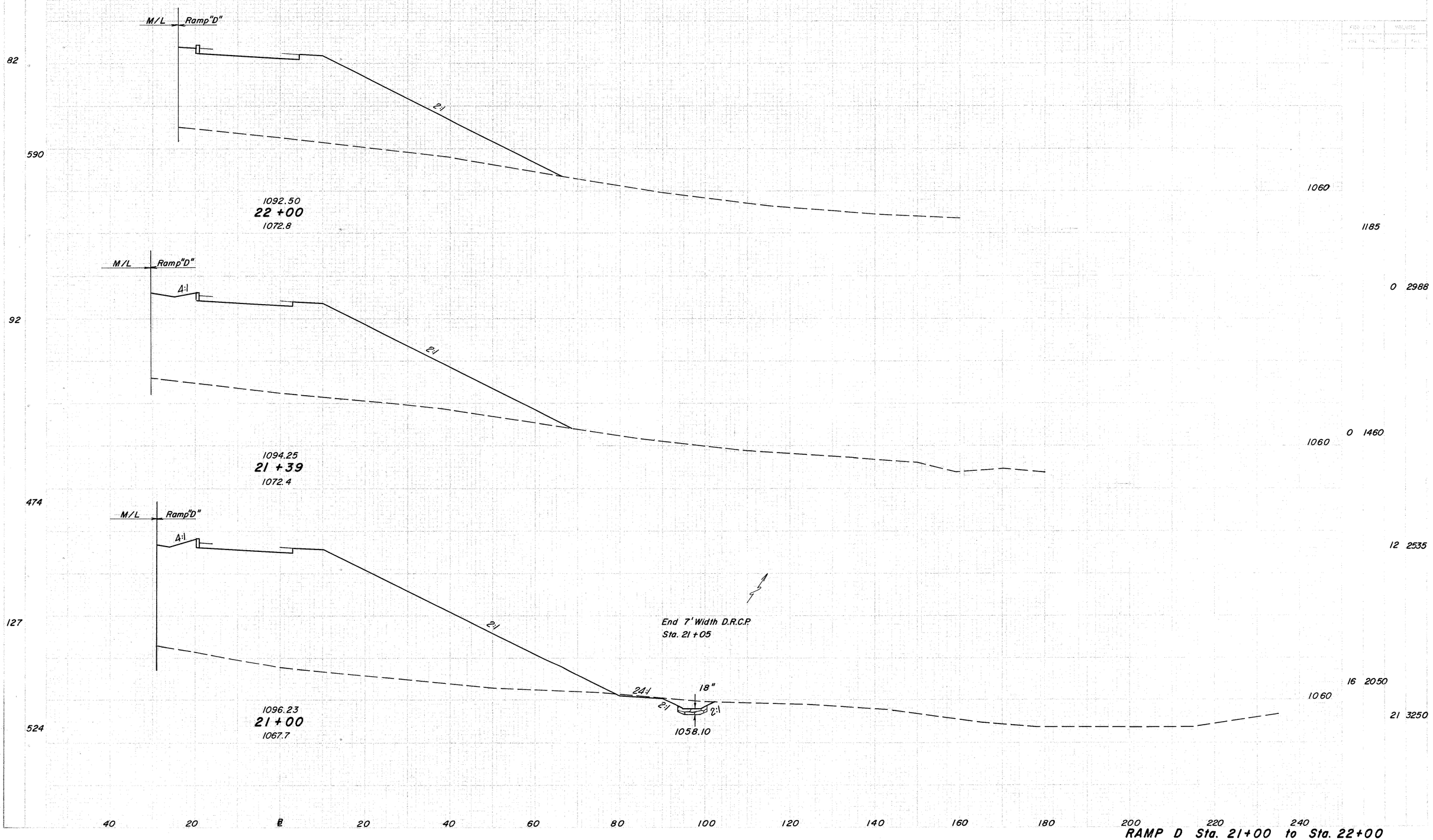
399
516

JEF-22-3.86



RAMP D Sta. 19+50 to Sta. 20+59

JEF - 22 - 3.86



RAMP D Sta. 21+00 to Sta. 22+00

JEF - 22 - 3.86

F.L.1088.38
F.L.1085.38
M/L Ramp "D"
℄ Sta. 23+45 #6 C.B.
26'-4"
56'-0"
9'-6"
F.L.1088.35
F.L.1084.50
Concrete Collar
15" Type B @ 5.76 %
F.L.1083.00
15" x 30° Bend
2:1
15" Type F Slope Length = 64'-9" @ 30.00 %
56'
15" x 30° Bend
F.L.1054.95
F.L.1054.86
Rock Embankment
1087.58
23 + 50
1066.5
F.L.1055.00
15" Type F @ 0.50 %
Sta. 23 + 50 - 76' Rt. HW-E Endwall

Sta. 23+45 Ramp D
QUANTITIES

Concrete Masonry	0.3 C.Y.
15" Conduit Type B with Cl. B bedding	26 L.F.
15" Conduit, Type F	75 L.F.
Std. No. 6 Catch Basin, modified	1 Each

Sta. 23+39 Ramp D
QUANTITIES

15" Conduit, Type B w/Class B Bedding	6 L.F.
Std. No. 6 Catch Basin, modified (15.83'Lt)	1 Each

M/L Ramp "D"
2:1
24:1
2:1
F.L.1058.00
Rock Embankment
1089.22
23 + 00
1071.1
Begin Dumped Rock Embankment Sta. 22+60

M/L Ramp "D"
2:1
1090.86
22 + 50
1073.2

101
506
81
433
75
436

1060 1290
0 2171
1055
1060
0 1852
945
1060
0 1972

20 ℄ 20 40 60 80 100 120 140 160 180 200 220 240

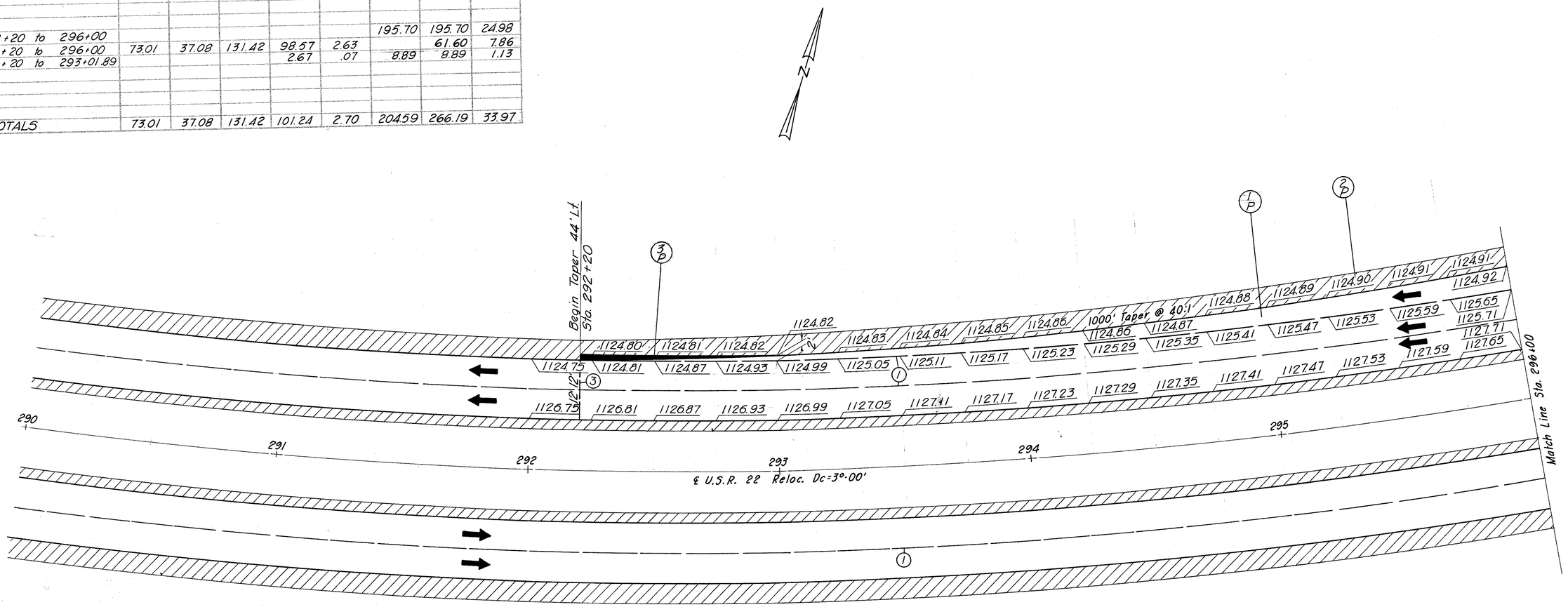
RAMP D Sta. 22+50 to Sta. 23+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

402
516

JEF - 22 - 3.86

		304 Aggregate Base	310 Subbase	408 Prime Coat	409 Seal Coat		451 Reinf. P.C.C.	804 Cement Stabilized Subbase	
Ref	Sta. to Sta.	C.Y.	C.Y.	GALS.	GALS.	C.Y.	S.Y.	S.Y.	BBL.
1 P	292+20 to 296+00						195.70	195.70	24.98
2 P	292+20 to 296+00	73.01	37.08	131.42	98.57	2.63		61.60	7.86
3 P	292+20 to 293+01.89				2.67	.07	8.89	9.89	1.13
	TOTALS	73.01	37.08	131.42	101.24	2.70	204.59	266.19	33.97



Joint Legend

① Standard Longitudinal Joint

③ Standard Contraction Joint

■ Note: The shaded area thus shown shall be constructed of concrete pavement to an elevation one-half inch lower than the adjacent pavement and surfaced with 409 using No. 8 aggregate as maximum size. The shaded area shall be paid for as full depth 451 and the surface treatment shall be paid for as 409.

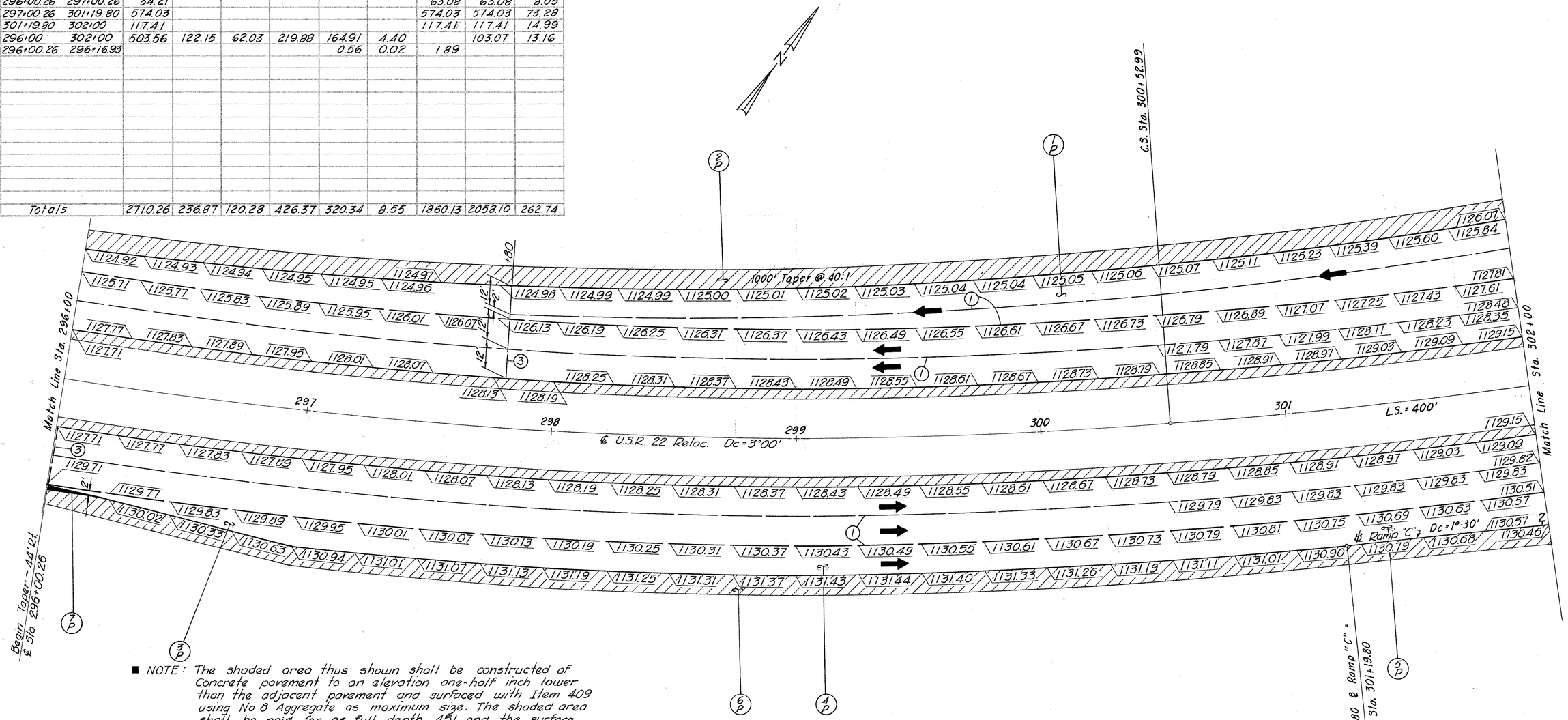
JOINT & PAV'T. GRADES VALLEY VIEW INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

403
516

JEF-22-3.86

			203 Subgrade Prep.	304 Aggregate Base	310 Subbase	408 Prime Coat	409 Seal Coat		451 8" Reinf. Conc.	804 Cement Stabilized Subbase	
Ref.	Sta.	to Sta.	S.Y.	C.Y.	C.Y.	GAL.	GAL.	C.Y.	S.Y.	S.Y.	BBL
1P	296+00	302+00	1009.27						1103.72	1103.72	140.90
2P	296+00	302+00	471.78	114.72	58.25	206.49	154.87	4.13		96.79	12.36
3P	296+00.26	297+00.26	34.21						63.08	63.08	8.05
4P	297+00.26	301+19.80	574.03						574.03	574.03	73.28
5P	301+19.80	302+00	117.41						117.41	117.41	14.99
6P	296+00	302+00	503.56	122.15	62.03	219.88	164.91	4.40		103.07	13.16
7P	296+00.26	296+16.93					0.56	0.02	1.89		
	Totals		2710.26	236.87	120.28	426.37	320.34	8.55	1860.13	2058.10	262.74



■ NOTE: The shaded area thus shown shall be constructed of Concrete pavement to an elevation one-half inch lower than the adjacent pavement and surfaced with Item 409 using No 8 Aggregate as maximum size. The shaded area shall be paid for as full depth 451 and the surface treatment shall be paid for as 409.

① Standard Longitudinal Joint

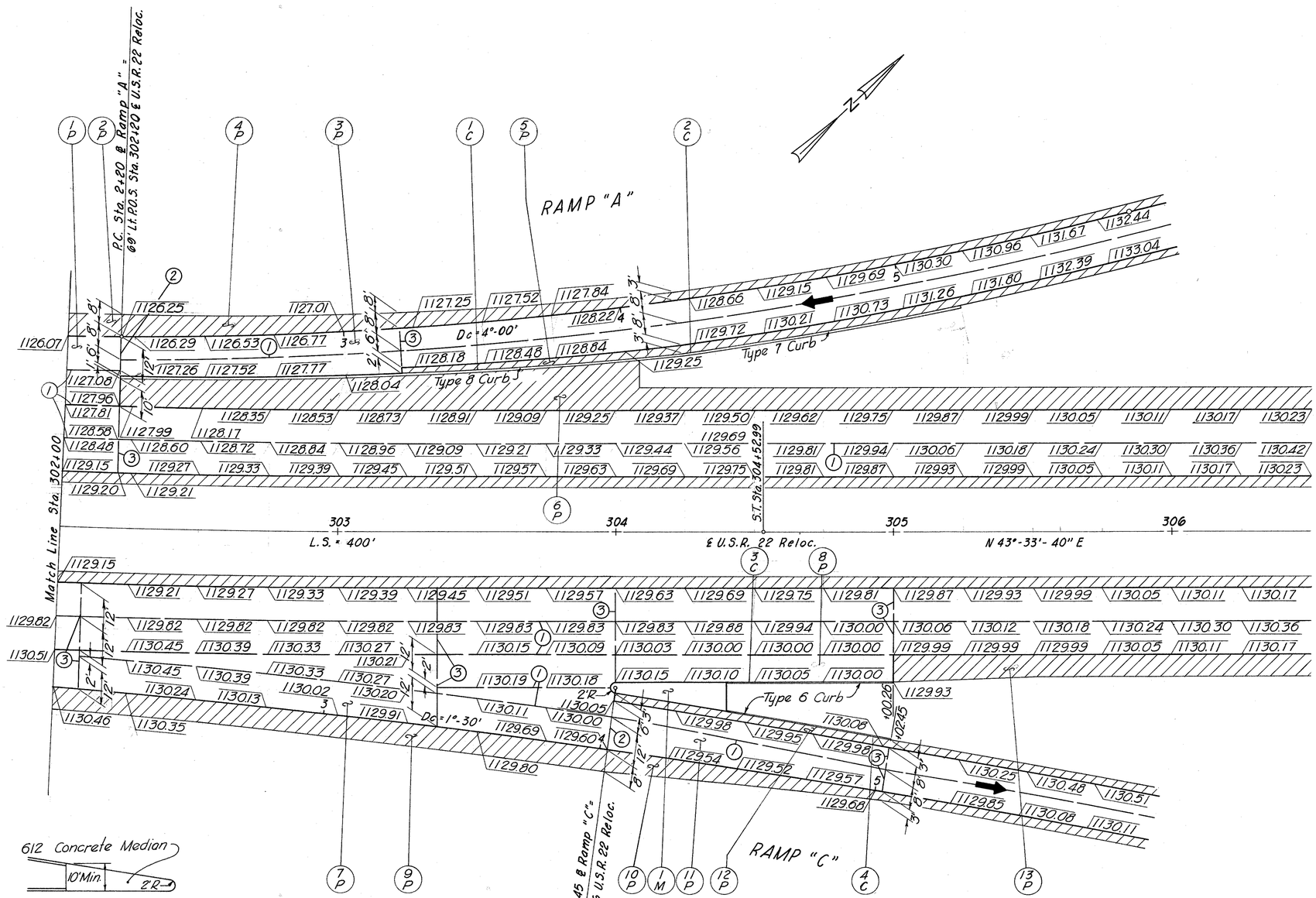
③ Standard Contraction Joint

JOINT & PAV'T. GRADES VALLEY VIEW INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

404/516

JEF-22-3.86



JOINT LEGEND

(1) Standard Longitudinal Joint
(2) Standard Expansion Joint
(3) Standard Contraction Joint

Ref	Sta.	to Sta.	203 Subgrade Prep. S.Y.	804 Cement Stabilized Subbase S.Y.	612 Conc. Median S.Y.	609 Curb Type 8 L.F.	609 Curb Type 7 L.F.	609 Curb Type 6 L.F.	451 8" Reinf. Conc. S.Y.	409 Seal Coat C.Y.	409 Seal Coat GALS	408 Prime Coat GALS	310 Subbase C.Y.	304 Aggregate Base C.Y.
1P	302+00	302+20	5	6.90					54.01	0.14	5.21	6.95	1.96	3.86
2P	302+00	302+20	54.01	54.01										
3C	304+40.26	305+00.26	17.37	0.42									1.30	
1M	304+00.26	304+40.26	10.00	3.26									8.89	
3P	2+20	4+20	31.81		31.81			60.00						
4P	2+20	4+20		335.20					335.20	0.98	36.63	48.84	12.80	27.13
5P	3+20	4+20		42.79										
1C	2+20	4+05.86		4.25									1.87	6.25
2C	4+05.86	5+22.28		122.09						0.22	8.44	11.25	1.74	
6P	302+20	304+08.50		2.15			188.00						3.65	
7P	302+00	304+00.26		28.12									41.34	55.18
8P	304+00.26	305+00.26		1.33										
13P	305+50.26	305+50.26		20.89										
9P	2+01.79	4+02.45		21.90										11.11
10P	4+02.45	5+02.45							31.13	3.97	248.02	20.00	5.79	20.11
11P	4+02.45	5+02.45							513.67	65.57	513.67	71.27	53.45	39.60
12P	4+02.45	4+42.75							111.21	14.20	111.21	24.43	18.31	13.57
4C										1.06	50.00			
									8.33	33.41	178.18			7.44
									33.41	4.27	61.09	13.39	10.05	
									16.66	2.13	189.28			0.27
									189.28	24.16	3349			
									16.74	2.14	10.00			
TOTALS			164.08	1110.04	31.81	188.00	118.00	120.00	1203.37	5.91	1373.51	295.34	221.50	164.08

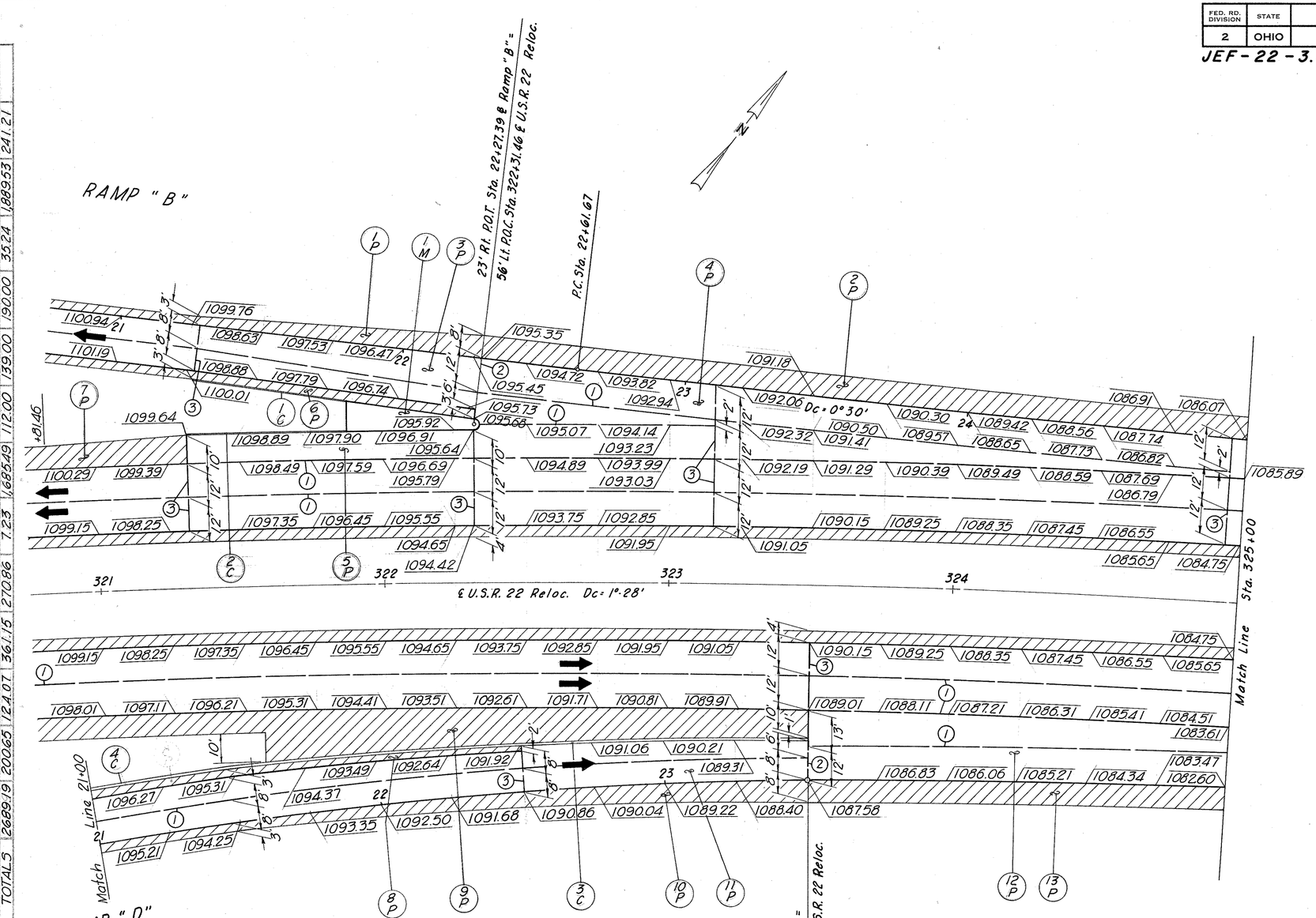
JOINT & PAVT. GRADES VALLEY VIEW INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

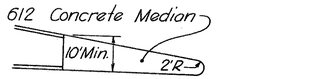
405
516

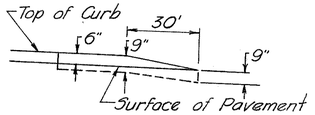
JEF - 22 - 3.86

Ref	Sta to Sta	409 Seal Coat GAL.	409 Seal Coat C.Y.	451 8" Reinf. Conc. S.Y.	609 Curb Type 6 L.F.	609 Curb Type 7 L.F.	609 Curb Type 8 L.F.	612 Conc. Median S.Y.	804 Cement Stabilized Subbase S.Y.	804 Cement Stabilized Subbase B.B.L.
1D	21+27.39 — 22+27.39	18.33	0.49						16.67	2.13
2P	22+27.39 — 24+98.61	72.30	1.93						45.19	5.77
3P	21+27.39 — 22+27.39			188.89					188.89	24.11
4P	322+31.46 — 325+00			668.97					668.97	85.40
5P	321+31.46 — 322+31.46			112.50					112.50	14.36
6P	21+27.39 — 22+27.39		0.27						16.67	2.13
7P	320+81.46 — 321+31.46		0.40						8.44	1.08
8P	21+50 — 22+50		0.22						16.87	2.15
9P	321+57 — 323+50		1.89						31.80	4.06
10P	21+50 — 23+50		0.98	335.20					33.30	4.25
11P	21+50 — 23+50			335.20					335.20	42.79
12P	323+50 — 325+00			379.93					379.93	48.50
13P	323+50 — 325+00		1.05						24.54	3.13
1C	21+27.39 — 21+82.39				55.00					
2C	321+31.46 — 321+87.68				57.00					
3C	21+62.23 — 23+50						190.00		10.56	1.35
4C	20+25.10 — 21+62.23					139.00				
1M	321+87.68 — 322+31.46							35.24		
TOTALS		270.86	7.23	1,685.49	112.00	139.00	190.00	35.24	1,889.53	241.21



Joint Legend
① Standard Longitudinal Joint
② Standard Expansion Joint
③ Standard Contraction Joint





TYPICAL EXIT NOSE DETAIL

JOINT & PAV'T. GRADES VALLEY VIEW INTERCHANGE

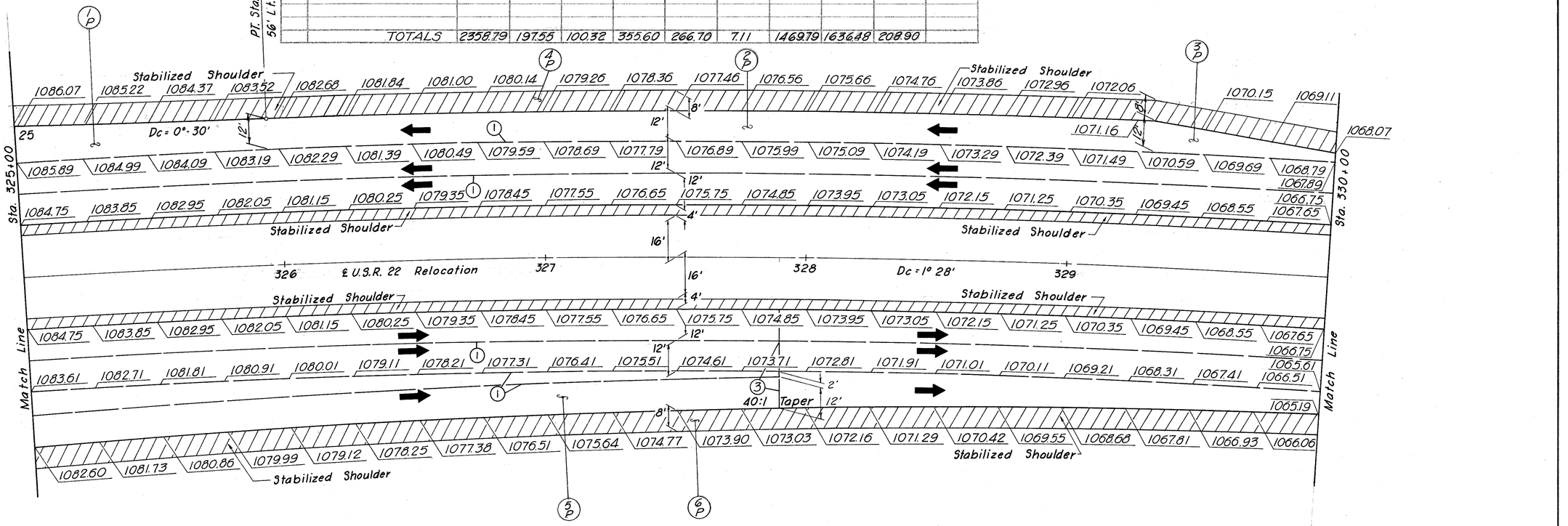
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

406
516

JEF - 22 - 3.86

		203 Subgrade Prep.	304 Aggregate Base	310 Subbase	408 Prime Coat	409 Seal Coat		451 8" Reinf. Conc.	804 Cement Stabilized Subbase		
Ref.	Sta. to Sta.	S.Y.	C.Y.	C.Y.	GAL.	GAL.	C.Y.	S.Y.	S.Y.	BBL.	
1P	325+00 to 325+95	134.14						134.14	134.14	17.72	
2P	325+95 to 329+31.46	454.36						454.36	454.36	58.00	
3P	329+31.46 to 330+00	58.87						58.87	58.87	7.51	
4P	325+00 to 330+00	451.58	100.35	50.96	180.63	135.47	3.61		84.67	10.81	
5P	325+00 to 330+00	822.42						822.42	822.42	104.99	
6P	325+00 to 330+00	437.42	97.20	49.36	174.97	131.23	3.50		82.02	10.47	
	TOTALS	2358.79	197.55	100.32	355.60	266.70	7.11	1469.79	1636.48	208.90	

PT. Sta. 25+95 & Ramp "B" = 56' Lt. P.O.C. Sta. 325+95 & U.S. 22 Reloc.



Joint Legend
① Standard Longitudinal Joint
③ Standard Contraction Joint

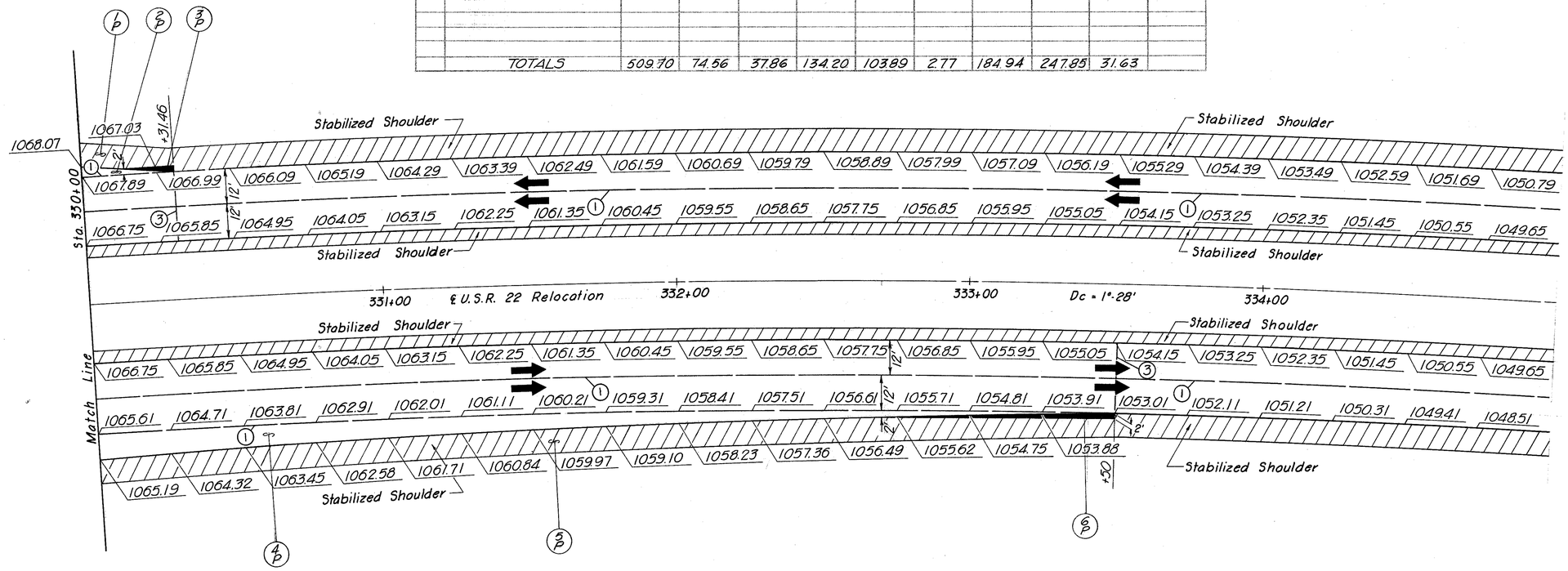
JOINT & PAV'T. GRADES VALLEY VIEW INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

407
516

JEF-22-3.86

Ref.	Sta. to Sta.	203 Subgrade Prep. S.Y.	304 Aggregate Base C.Y.	310 Subbase C.Y.	408 Prime Coat Gals.	409 Seal Coat Gals.	409 Seal Coat C.Y.	451 Reinf. P.C.C. S.Y.	804 Cement Stabilized Subbase S.Y.	804 Cement Stabilized Subbase BBL.
1P	330+00 to 330+31.46	28.49	6.33	3.21	11.39	8.55	0.23		5.34	0.68
2P	330+00 to 330+31.46	6.04						6.04	6.04	0.77
3P	330+14.79 to 330+31.46					0.56	0.01	1.87	1.87	0.24
4P	330+00 to 333+50	168.14						168.14	168.14	21.46
5P	330+00 to 333+50	307.03	68.23	34.65	122.81	92.11	2.46		57.57	7.35
6P	332+70 to 333+50					2.67	0.07	8.89	8.89	1.13
	TOTALS	509.70	74.56	37.86	134.20	103.89	2.77	184.94	247.85	31.63



Joint Legend

① Standard Longitudinal Joint

③ Standard Contraction Joint

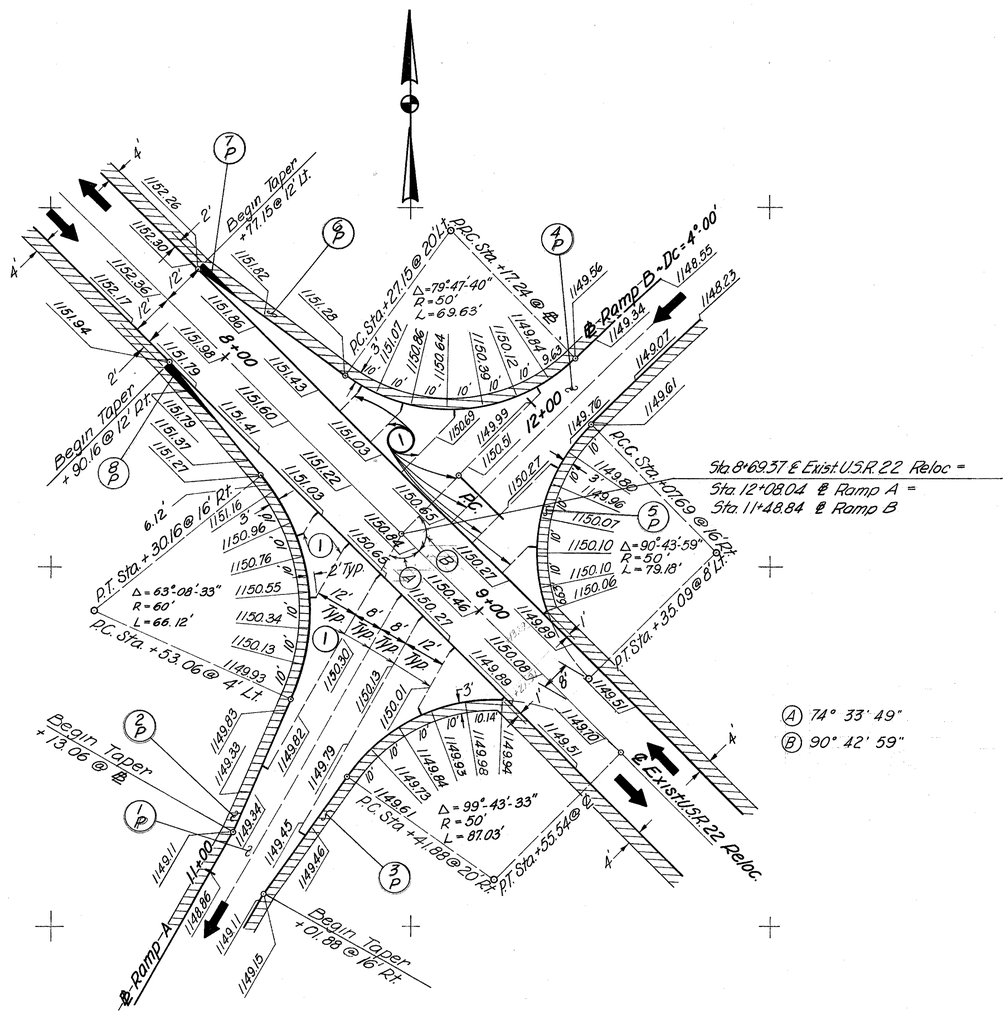
■ Note: The shaded area thus shown shall be constructed of Concrete pavement to an elevation one-half inch lower than the adjacent pavement and surfaced with Item 409 using No. 8 Aggregate as maximum size. The shaded area shall be paid for as full depth 451 and the surface treatment shall be paid for as 409.

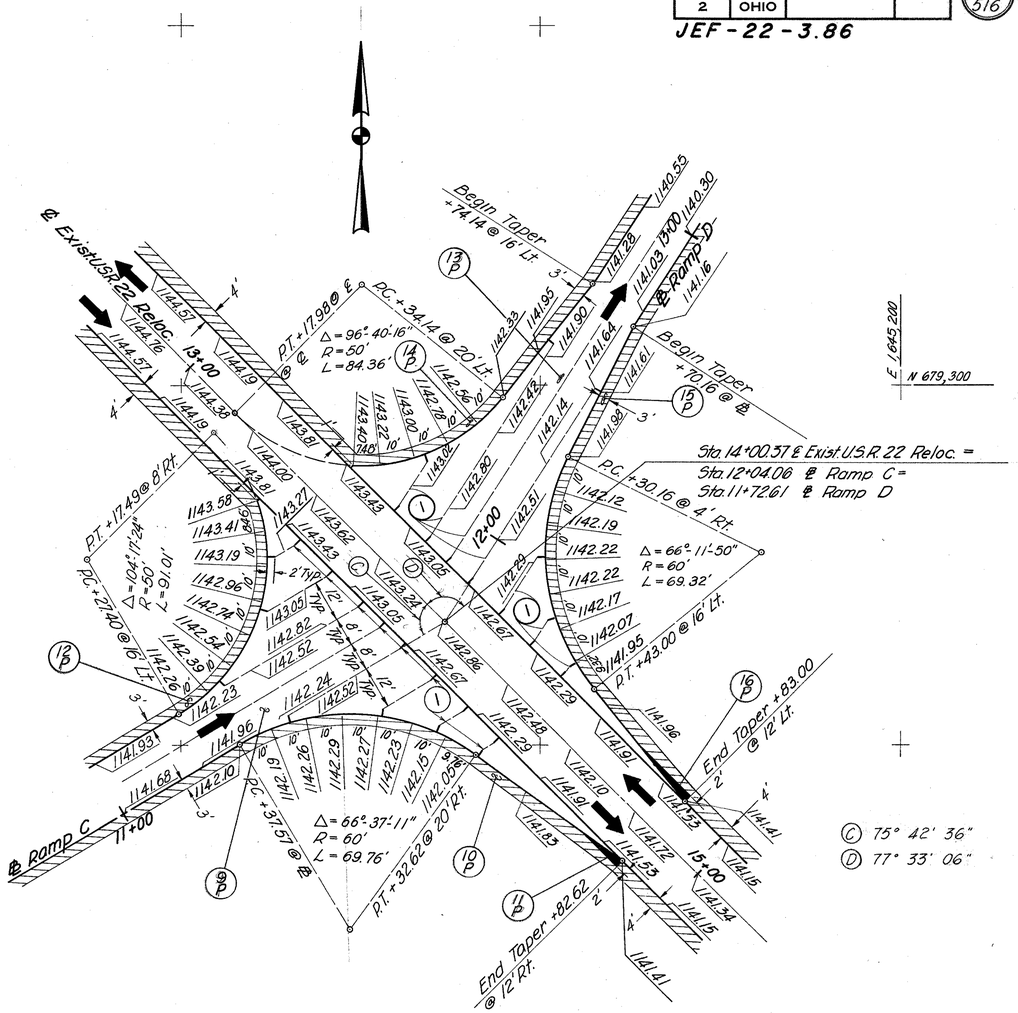
JOINT & PAV'T. GRADES VALLEY VIEW INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF-22-3.86

408 516





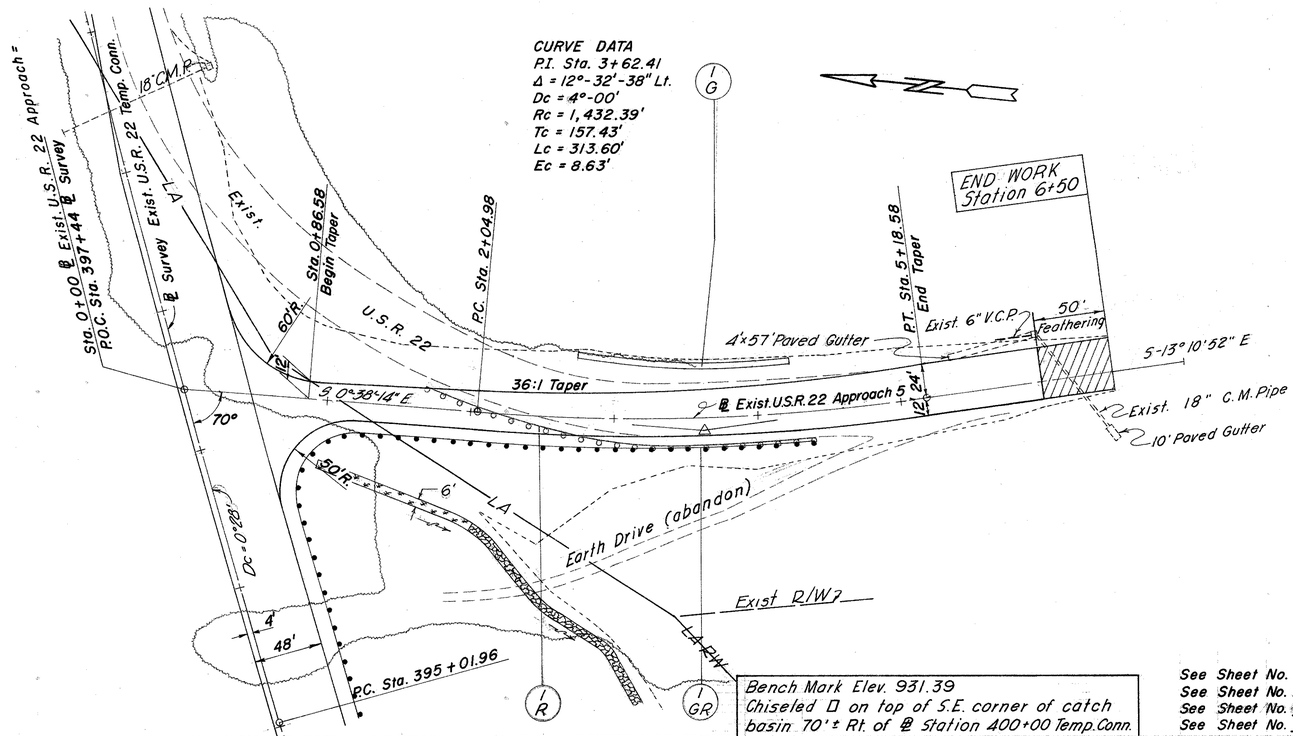
			203 Subgrade Prep	304 Aggregate Base	310 Subbase	408 Prime Coat	409 Seal Coat		451 Reinf. P.C.C.	804 Cement Stabilized Subbase	
Ref.	Sta.	to Sta.	S.Y.	C.Y.	C.Y.	Gals.	Gals.	C.Y.	S.Y.	S.Y.	BBL.
1P	11+01.88	11+95.59	Rock						341.08	341.08	43.54
2P	11+01.88	7+90.16	Rock	12.01	4.69	21.63	16.22	0.43		25.92	3.31
3P	11+01.88	9+21.91	Rock	6.54	2.45	11.78	8.83	0.24		14.72	1.88
4P	11+60.84	12+17.24	Rock						258.30	258.30	32.97
5P	9+13.29	12+17.24	Rock	4.73	1.77	8.51	6.38	0.17		10.63	1.36
6P	7+77.15	12+17.24	Rock	9.33	3.73	16.79	12.59	0.34		19.58	2.50
7P	7+77.15	7+89.65	Rock				0.42	0.01	1.39	1.39	0.18
8P	7+90.16	8+10.16	Rock				0.67	0.02	2.22	2.22	0.28
9P	11+27.40	11+91.68	Rock						290.35	290.35	37.07
10P	11+27.40	14+82.62	Rock	10.12	4.03	18.22	13.67	0.36		21.37	2.73
11P	14+70.12	14+82.62	Rock				0.42	0.01	1.39	1.39	0.18
12P	11+27.40	13+39.28	Rock	4.87	1.83	8.76	6.57	0.18		10.95	1.40
13P	11+84.90	12+74.14	Rock						333.38	333.38	42.56
14P	13+51.61	12+74.14	Rock	6.35	2.38	11.44	8.58	0.23		14.30	1.83
15P	12+74.14	14+83.00	Rock	11.71	4.58	21.08	15.81	0.42		25.23	3.22
16P	14+63.00	14+83.00	Rock				0.67	0.02	2.22	2.22	0.28
	Totals		Rock	65.66	25.46	118.21	90.83	2.43	1230.33	1,373.03	175.29

JOINT LEGEND

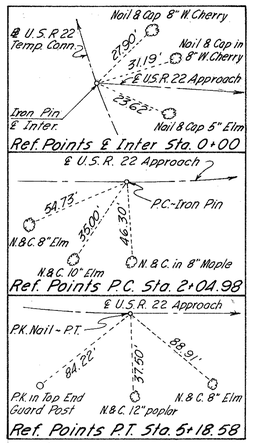
(1) Standard Longitudinal Joint

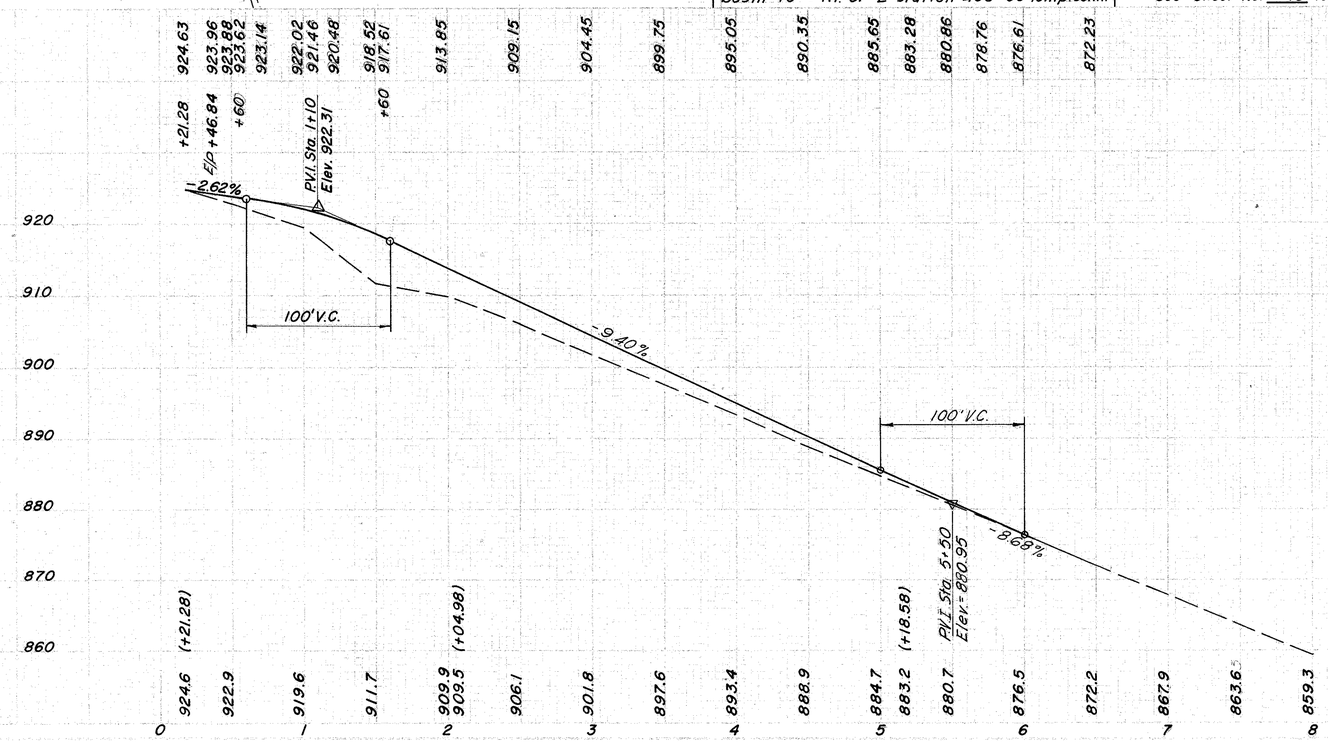
■ NOTE: The shaded area thus shown shall be constructed of concrete pavement to an elevation one-half inch lower than the adjacent pavement and surfaced with 409 using No. 8 aggregate as maximum size. The shaded area shall be paid for as full depth 451 and the surface treatment shall be paid for as 409.

INTERSECTION DETAILS



See Sheet No. 414 for Pav't. Details.
See Sheet No. 413 for Intersection Details.
See Sheet No. 412 for Exist. U.S.R. 22 Temp. Conn. Details
See Sheet No. 48 for Typical Section Adjoining Pvm't.





✻ Modified as per plan

			606 Guard Rail Type 4 ✻ L.F.	395.24	395.24
			601 Type 1-2 Paved Gutter L.F.		147
			202 Guard Rail Removed for Storage L.F.		275.00
			ROADWAY		
1G2	Sta. 396+42.88 Temp. Conn. to 4+36.00 U.S.R. 22 App. Rt.				
1R	1+68 to 4+37	Rt.	275.00		
	DRAINAGE				
1G	2+75 to 4+25	Lt.	147		

Exist. U.S.R. 22 Approach Sta. 0+00 to Sta. 6+50

JEF - 22 - 3.86

410
516

END AREA		VOLUME		SEEDING	
CUT	FILL	CUT	FILL	END WIDTH	SQ. YDS.
	373				
			649		267
	328				
	316		1126		275
			1093		228
			280		
					428

107
508
76 Ahead
56 Back
392
85
364
46

910
910
Ahead
Back
910
900
910

4:1
2:1

909.15
2+50
906.1

Exist. U.S.R. 22
Approach Back

Exist. U.S.R. 22
Approach Ahead

913.85
2+00
909.9

U.S.R. 22
Approach

U.S.R. 22
Temp. Conn.

918.52
1+50
911.7

U.S.R. 22
Temp. Conn.

Exist. U.S.R. 22
Approach

Var.

Exist. U.S.R. 22
Approach

U.S.R. 22
Temp. Conn.

922.04
1+00
919.6

End Type 1-2 Paved Gutter
Sta. 4+25

75
890
64
162

895.05
4+00
893.4

100
890
35
218

899.75
3+50
897.6

135
890
47

904.45
3+00
901.8

Begin Type 1-2 Paved Gutter
Sta. 2+75

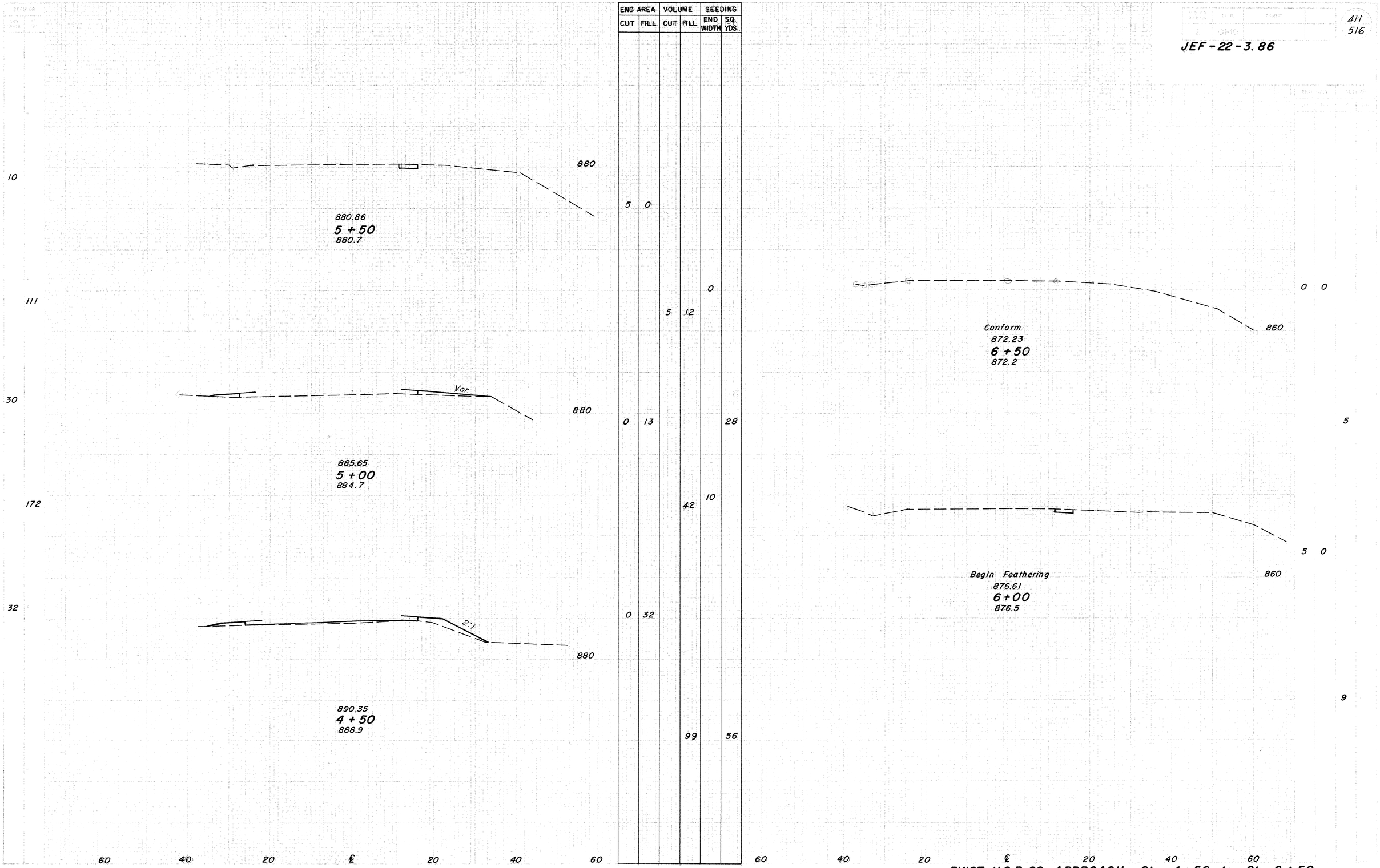
470

60 40 20 ℄ 20 40 60

40 20 ℄ 20 40 60

Exist. U.S.R. 22 Approach Sta. 1+00 to Sta. 4+00

JEF-22-3.86



EXIST. U.S.R. 22 APPROACH Sta. 4 + 50 to Sta. 6 + 50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF - 22 - 3.86

412
516

End Concrete W.B. Lanes Sta. 380+50	Begin Temp. Connection Sta. 380+50

N

P.O.T. Sta. 382+35.09 ℄ W.B. Lanes = 44' Lt.
P.C. Sta. 382+35.09 ℄ U.S.R. 22 Reloc.

P.C. Sta. 384+36.99 ℄ W.B. Lanes = 38.73' Lt. P.O.C. Sta. 384+39.10 ℄ Survey U.S.R. 22 Reloc.

Sta 380+00 — Match Line — Sta. 385+00

381 ℄ Survey U.S.R. 22 Reloc. 382 383 Dc = 1°28' 384

383 ℄ W.B. Lane — Dc 1°28' — 384

℄ W.B. Lanes

909.55	909.61	909.69	909.78	909.90	910.04	910.20	910.38	910.58	910.80	911.01	911.20	911.42	910.66	911.92	912.19	912.47	912.74	913.01	913.31
909.74	909.80	909.88	909.97	910.09	910.23	910.39	910.57	910.77	910.99	911.20	911.39	911.61	911.85	912.11	912.38	912.68	913.00	913.33	913.69
909.55	909.61	909.69	909.78	909.90	910.04	910.20	910.38	910.58	910.80	911.04	911.29	911.57	911.87	912.19	912.52	912.88	913.26	913.65	914.07

Match Line — Sta. 385+00

909.55	909.61	909.69	909.78	909.90	910.04	910.20	910.38	910.58	910.80	911.04	911.29	911.57	911.87	912.19	912.52	912.88	913.26	913.65	914.07
909.74	909.80	909.88	909.97	910.09	910.23	910.39	910.58	910.80	911.06	911.36	911.67	912.01	912.37	912.74	913.09				
909.55	909.61	909.72	909.87	910.05	910.25	910.47	910.71	910.99	911.32	911.68	912.05	912.45	912.87	913.29	913.66	914.02	914.40	914.79	915.21

24' Rt. P.O.C. Sta. 389+07.89 ℄ W.B. Lanes = 10' Rt. P.O.C. Sta. 389+11.28 ℄ U.S.R. 22 Reloc.

P.T. Sta. 389+97.72 ℄ E.B. Lanes = P.O.C. Sta. 389+97.72 ℄ U.S.R. 22 Reloc.

Joint Legend
(1) Standard Longitudinal Joint
(2) Standard Construction Joint
Seal vertical face with Item 402

Match Line — Sta. 385+00

385 386 387 Dc 1°28' 388 389

913.63	913.96	914.34	914.79	915.31	915.84	916.40	916.97	917.57	918.16	918.71	919.22	919.71	920.15	920.60	921.06	921.53	921.95	922.34	922.70
914.07	914.46	914.89	915.36	915.93	916.45	916.98	917.54	918.11	918.71	919.30	919.85	920.36	920.85	921.29	921.71	922.08	922.43	922.73	923.00	923.24
914.51	914.96	915.44	915.93	916.45	916.98	917.54	918.11	918.71	919.30	919.85	920.36	920.85	921.29	921.71	922.08	922.43	922.73	923.00	923.24
													920.72	921.15	921.57	921.98	922.34	922.67	922.97
													921.86	922.27	922.59	922.88	923.12	923.33	923.51
915.65	916.10	916.58	917.07	917.59	918.12	918.68	919.25	919.85	920.44	920.99	921.50	921.99	922.43	922.82	923.10	923.33	923.51	923.66	923.78

℄ W.B. Lanes — ℄ Survey U.S.R. 22 Reloc. — Profile Grade

21.25' — 29'

See Cross Sections for Median Ditch Elevations

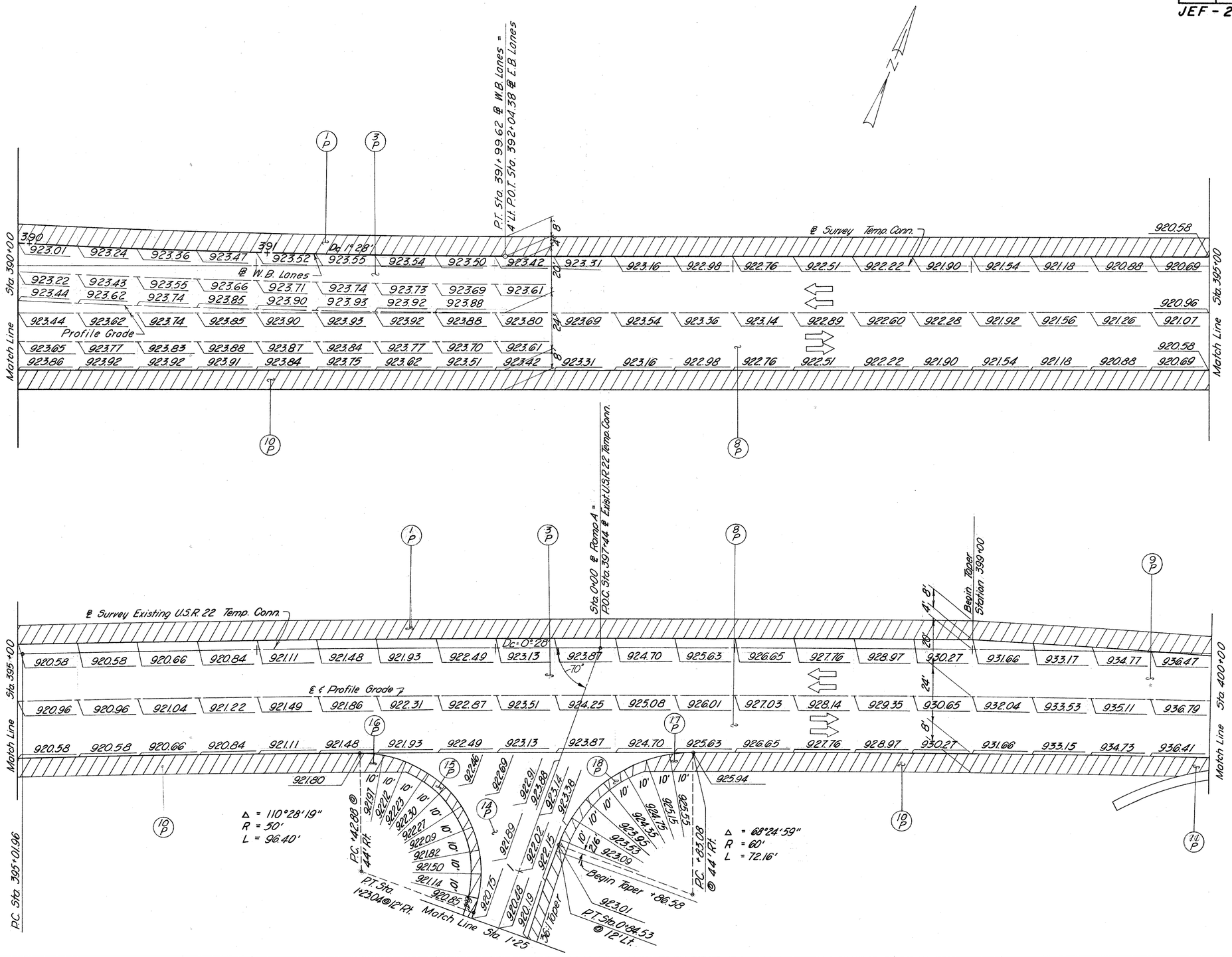
End Concrete E.B. Lanes Sta. 387+00	Begin Temp. Connection Sta. 387+00

TEMPORARY PAVEMENT DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

413
516

JEF - 22 - 3.86



TEMPORARY PAVEMENT DETAILS

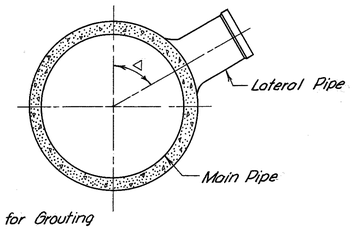
Ref.	Station	to Station	203 Subgrade Prep. S.Y.	301 Bit. Agg. Base C.Y.	304 Aggregate Base C.Y.	310 Subbase C.Y.	402 Asphalt Concrete C.Y.	404 Asphalt Concrete C.Y.	408 Prime Coat Gal.	409 Seal Coat Gal.	409 Seal Coat C.Y.
Exist. U.S.R. 22 Temp. Conn.											
1P	380+50	403+00	1,128.90		425.27	246.85			798.23	598.67	15.96
2P	380+50	389+07.89	Rock	398.39		265.59	95.61	79.68			
3P	389+07.89	399+00	2,634.63	448.25		298.84	109.78	91.48			
4P	380+50	387+18.50	Rock		60.78	34.40			119.18	89.38	2.38
5P	387+00	387+21.23	Rock		1.93	1.09			3.79	2.84	0.08
6P	387+21.23	389+11.28	Rock		49.88	39.58			127.14	95.35	2.54
7P	389+11.28	392+04.38	115.93	19.32		12.88	4.83	4.03			
8P	387+00	402+50	2,666.67	702.18		468.12	172.28	143.57			
9P	399+00	402+50	177.78	108.70		72.46	26.36	21.97			
10P	387+00	399+88	2,533.62		217.86	126.46			408.93	306.69	8.18
11P	399+88	400+00	8.00		1.67	0.96			3.19	2.39	0.06
12P	400+00	403+00	132.93		27.12	15.35			53.18	39.88	1.06
13P	402+50	403+00					4.17	5.20			
	Totals		9,398.46	1,676.84	784.51	1,582.58	413.03	345.93	1,513.64	1,135.20	30.26
U.S.R. 22 Approach											
14P	0+46.84	1+25	380.48		66.33	56.88	29.31	13.21	152.19		
15P	396+62.88	1+23.04	31.87		6.34				12.75	9.57	0.26
16P	396+42.88	396+62.88	13.87		2.89	1.14			5.55	4.16	0.11
17P	397+61.33	397+83.08	14.50		3.02	1.20			5.80	4.35	0.12
18P	0+86.58	397+61.33	39.33		7.82				15.73	11.80	0.31
19P	1+25	5+18.58	1,335.27		233.48	200.64	102.91	46.36	538.48		
20P	5+18.58	6+00	325.68		56.54	48.37	25.07	11.31	130.27		
21P	6+00	6+50						4.50			
22P	1+25	6+00			42.24				84.99	63.74	1.70
23P	1+25	6+00			41.56				83.63	62.72	1.67
	Totals		2,141.00		460.22	308.23	157.29	75.38	1,029.39	156.34	4.17
	Grand Totals		11,539.46	1,676.84	1,244.73	1,890.81	570.32	421.31	2,543.03	1,291.54	34.43

TEMPORARY PAVEMENT DETAILS

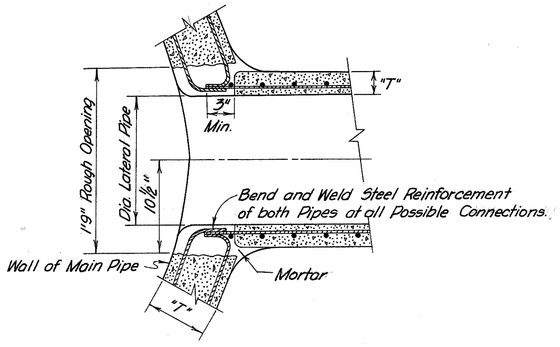
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

415
516

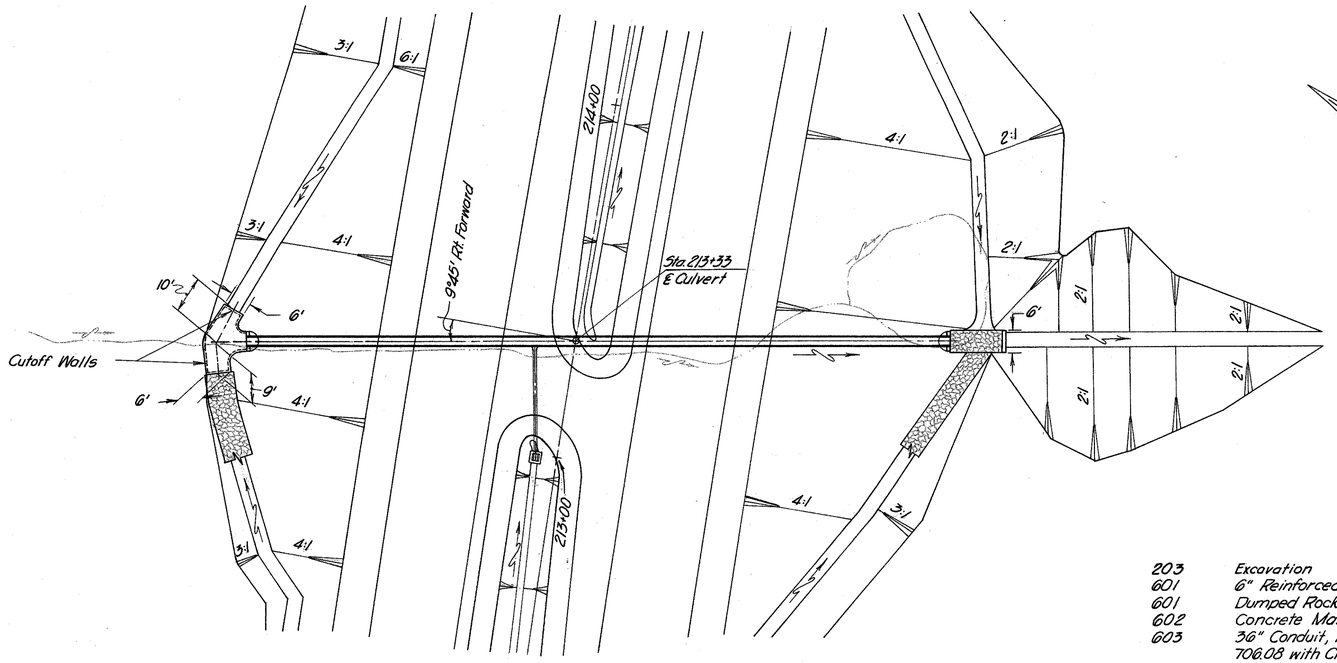
JEF-22-3.86



Note: Concrete for Grouting shall be the same as that Specified for Pertinent Pipe.



PRE-FABRICATED "T" CONNECTION



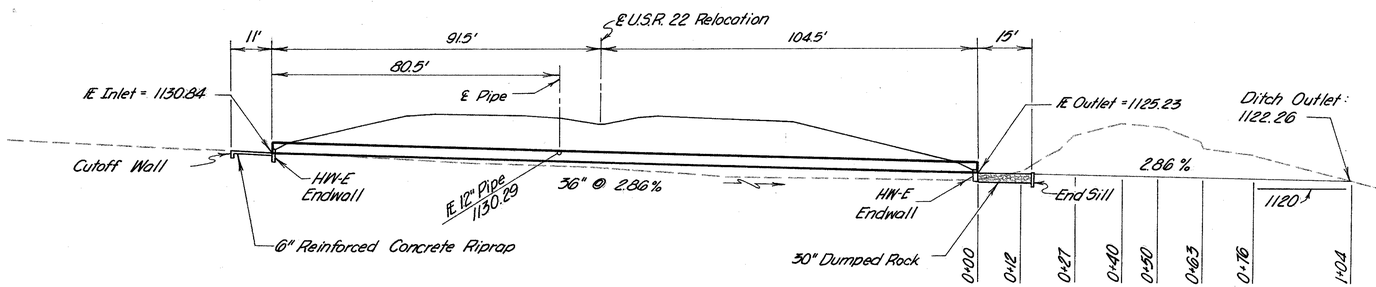
PLAN

0' 20' 40'

Drainage Area	26 oc.
Q 25	53 c.f.s.

QUANTITIES

203	Excavation	793	cu.yds.
601	6" Reinforced Concrete Riprap	16	sq.yds.
601	Dumped Rock Channel Protection	8	cu.yds.
602	Concrete Masonry	2.1	cu.yds.
603	36" Conduit, Type A, 706.02 ..... or 706.08 with Class "B" Bedding	196	lin.ft.



CROSS SECTION

JEF-22-0404

Note:
For Cutoff Wall Detail, see Sheet No.11
For End Sill Detail, see Sheet No.11

Datum 1120

1122.26
1+04

1123.06
0+76
1130.00

1123.43
0+63
1132.80

1123.80
0+50
1138.20

1124.09
0+40
1139.00

1124.46
0+27
1136.50

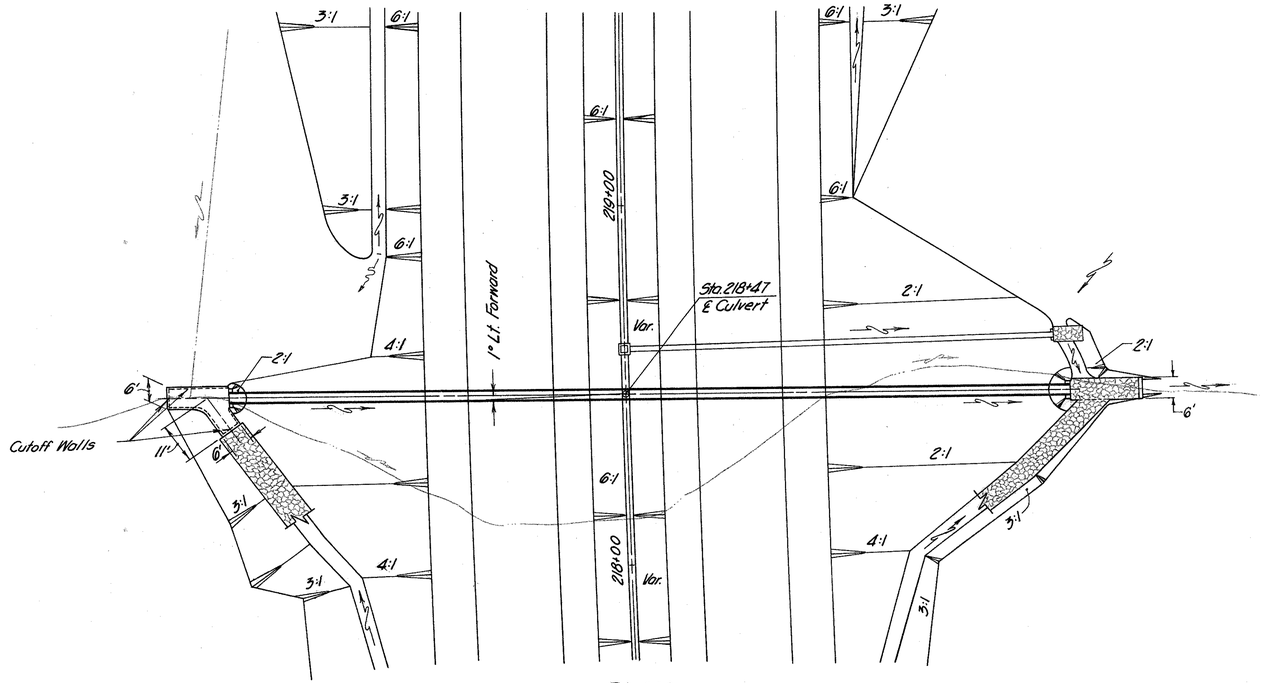
1124.89
0+12
1125.60

Sta.	Exc.	Vol.
0+00	0	
0+12	6	1
0+27	319	90
0+40	495	198
0+50	479	180
0+63	236	172
0+76	126	87
1+04	0	65
Total		793

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

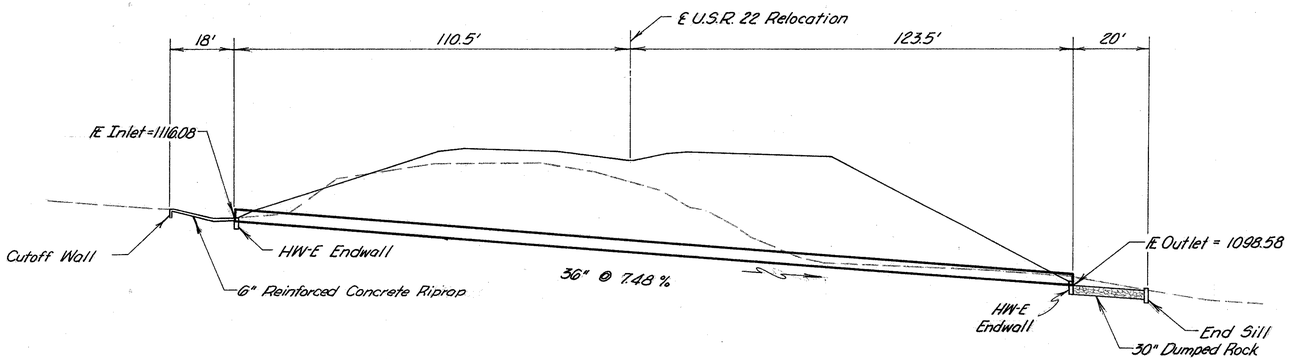
416
516

JEF-22-3.86



PLAN

0' 20' 40'



Datum 1080

CROSS SECTION

JEF-22-0414

Note:
For Cutoff Wall Detail, see Sheet No.11
For End Sill Detail, see Sheet No.11

0+20
1097.00

0+00
1098.90

Station	Area	Volume
0+00	40	
0+20	8	18
Total		18

QUANTITIES

203	Excavation	18	cu.yds.
601	6" Reinforced Concrete Riprap	17	sq.yds.
601	Dumped Rock Channel Protection	11	cu.yds.
602	Concrete Masonry	2.1	cu.yds.
603	36" Conduit, Type A, 707.05, 10 gage with Class "B" Bedding	234	lin.ft.

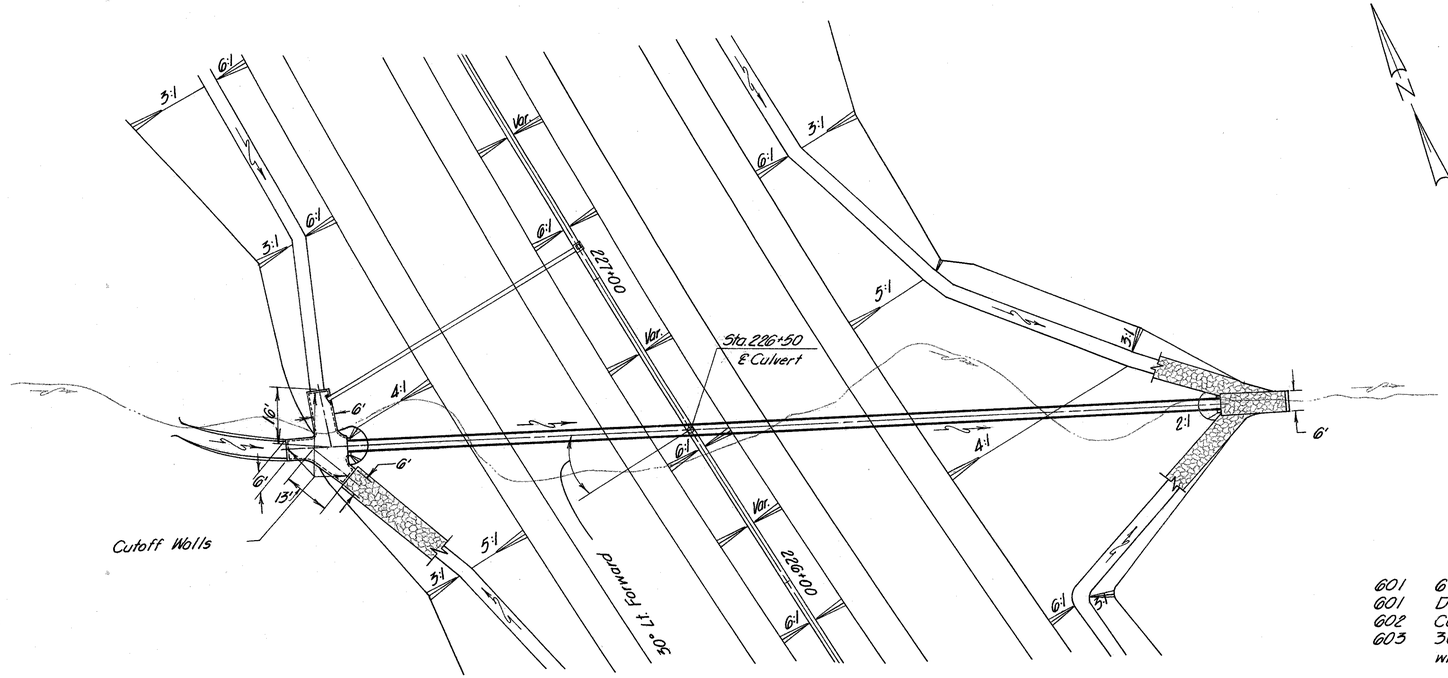
Drainage Area.	35 ac.
Q 25	64 c.f.s.

Datum 1080

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

417
516

JEF-22-3.86



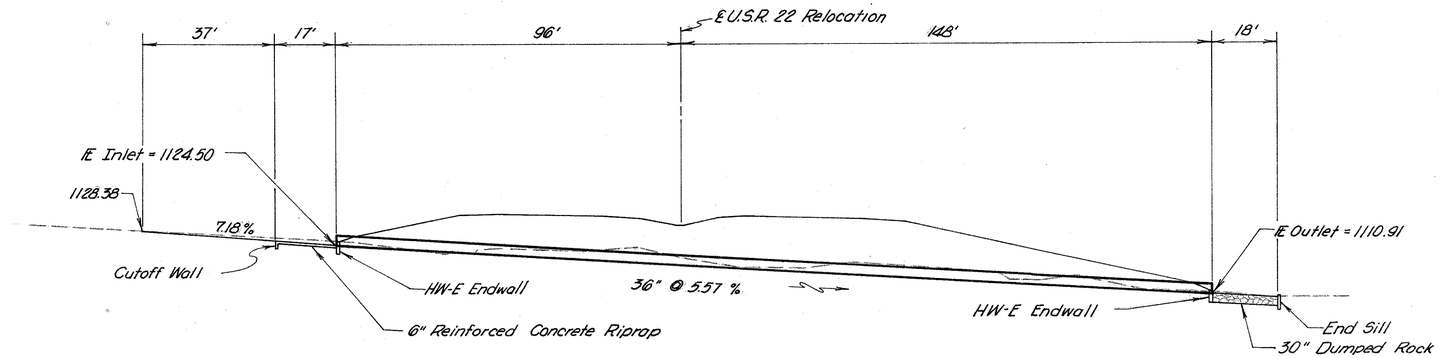
PLAN

0' 20' 40'

QUANTITIES

601	6" Reinforced Concrete Riprap	26	sq.yds.
601	Dumped Rock Channel Protection	10	cu.yds.
602	Concrete Masonry	2.1	cu.yds.
603	36" Conduit, Type A, 707.05 with Class "B" Bedding	244	lin.ft.

Drainage Area	28 ac.
Q25	56 c.f.s.



CROSS SECTION

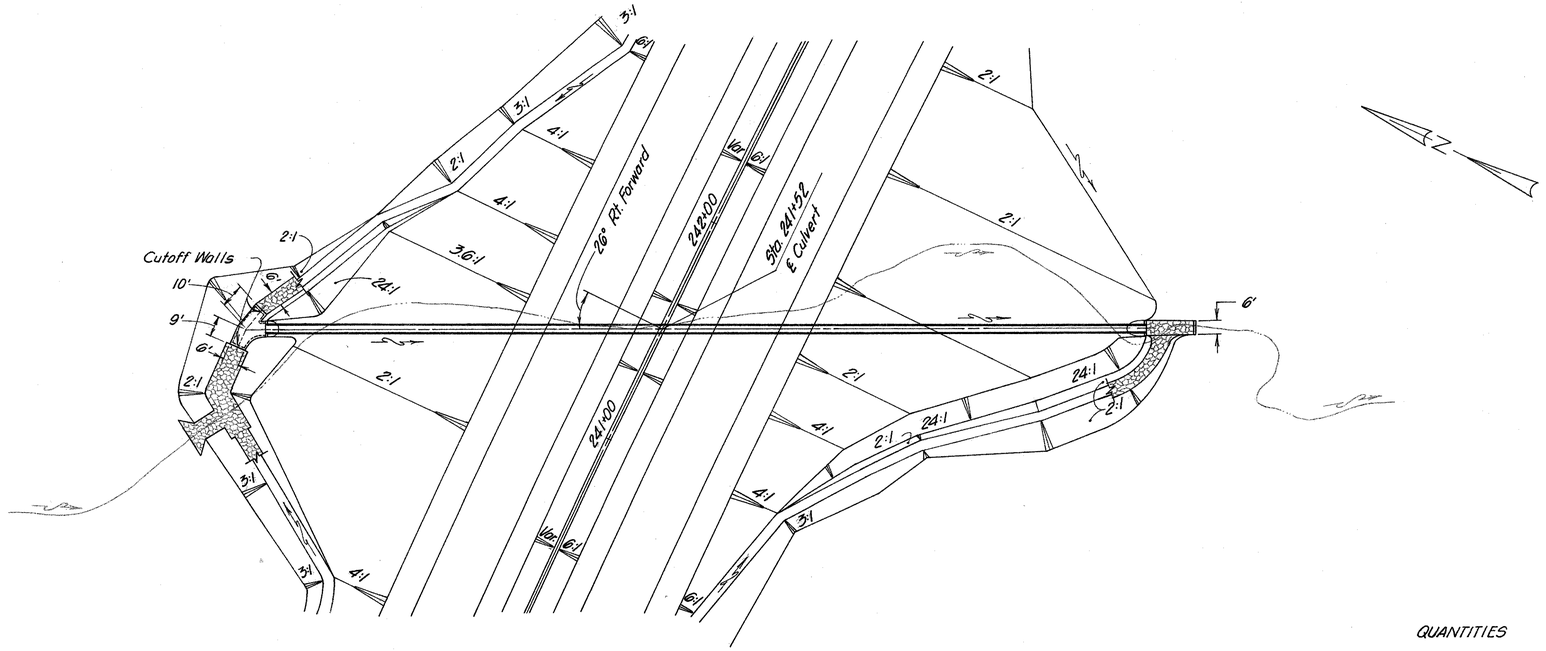
JEF-22-0429

Note:
For Cutoff Wall Detail, see Sheet No.11
For End Sill Detail, see Sheet No.11

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

418
516

JEF-22-3.86



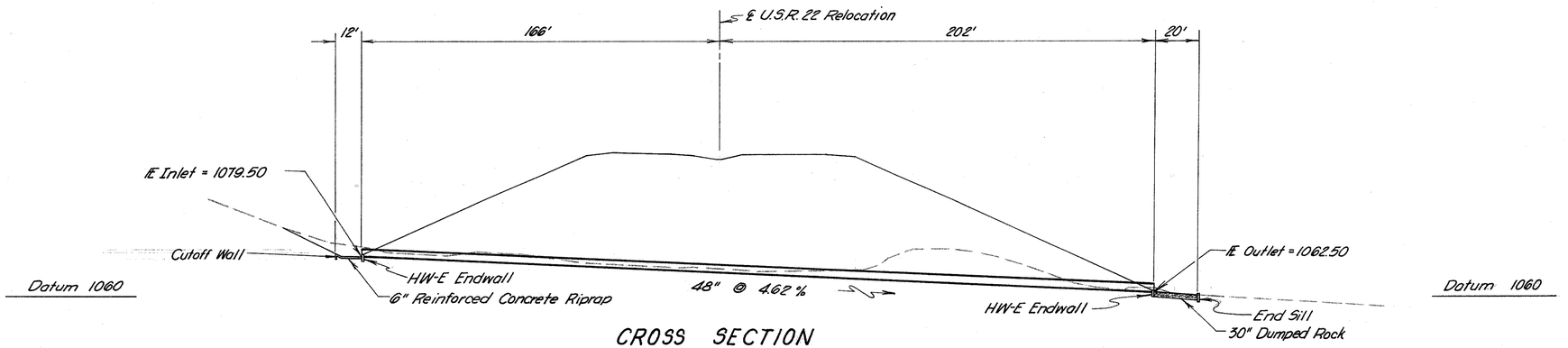
PLAN

0' 30' 60'

QUANTITIES

601	6" Reinforced Concrete Riprap	16 sq.yds.
601	Dumped Rock Channel Protection	11 cu.yds.
602	Concrete Masonry	26 cu.yds.
603	48" Conduit, Type A, 707.05 B gage. Shop Elongated and Strutted with Class "B" Bedding	368 lin.ft.

Drainage Area	71 ac.
Q25	105 c.f.s.



CROSS SECTION

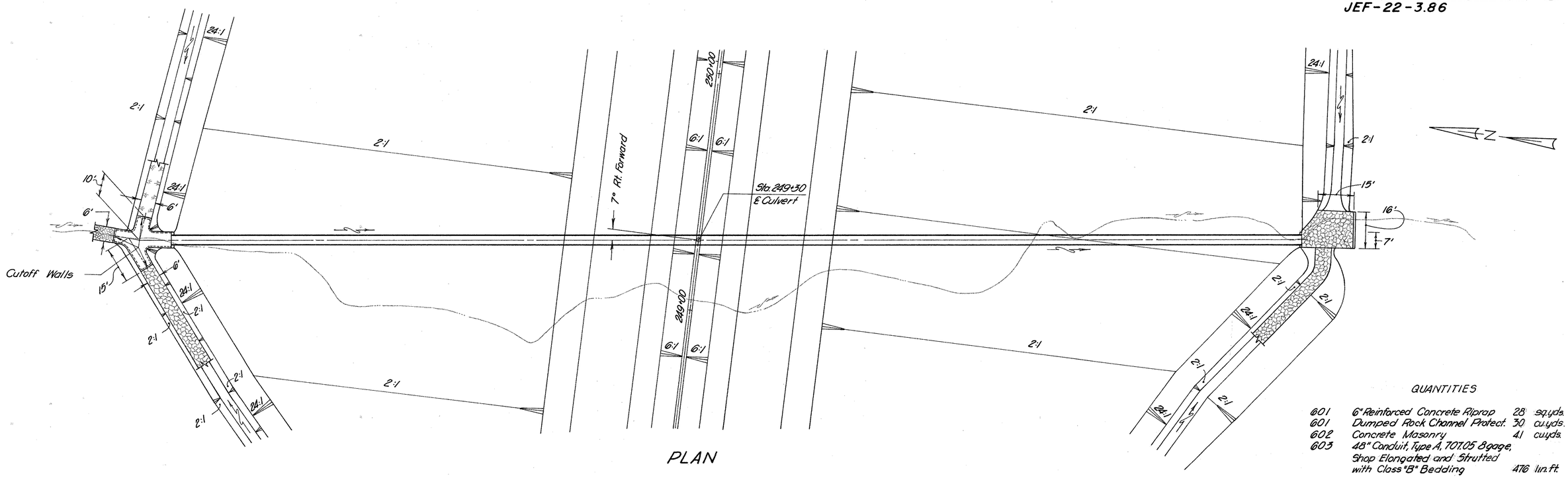
JEF-22-0457

Note:
For Cutoff Wall Detail, see Sheet No. 11
For End Sill Detail, see Sheet No. 11

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

419
516

JEF-22-3.86



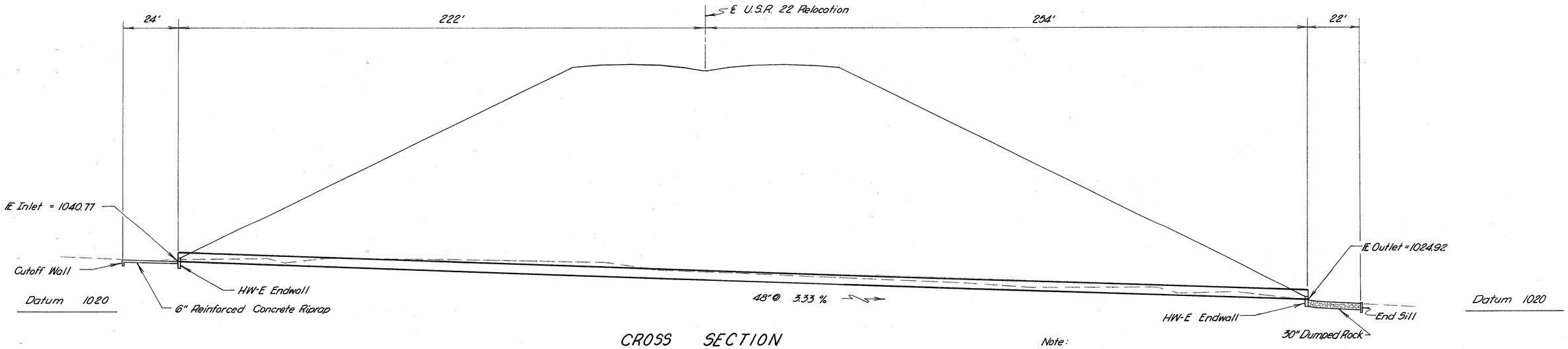
PLAN

0' 20' 40'

QUANTITIES

601	6" Reinforced Concrete Riprap	28	sq.yds.
601	Dumped Rock Channel Protect.	30	cu.yds.
602	Concrete Masonry	41	cu.yds.
603	48" Conduit, Type A, 707.05 8gage, Shop Elongated and Strutted with Class "B" Bedding	476	lin.ft.

Drainage Area	87 ac.
Q 25	119 c.f.s.



CROSS SECTION

JEF-22-0472

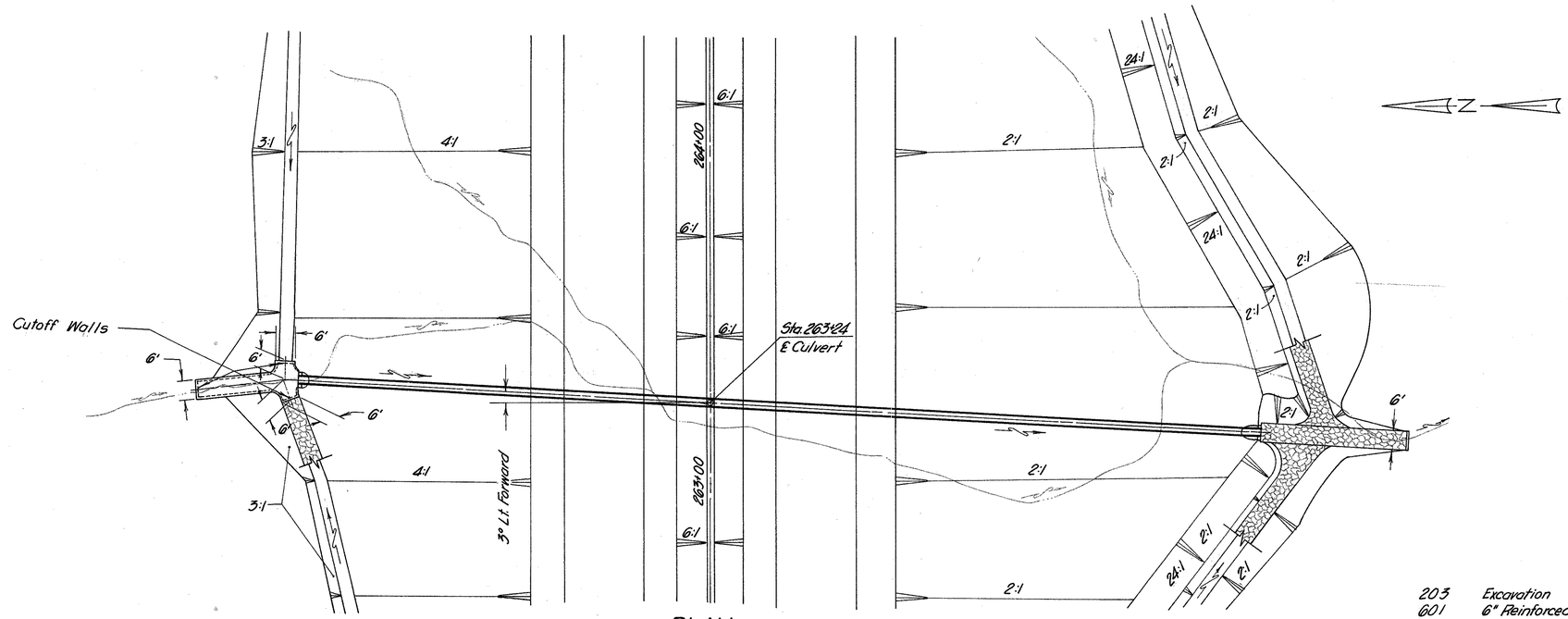
Note:
For Cutoff Wall Detail, see Sheet No.11
For End Sill Detail, see Sheet No.11

JEF-22-0472 CULVERT Sta. 249+30 U.S.R. 22 RELOC.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

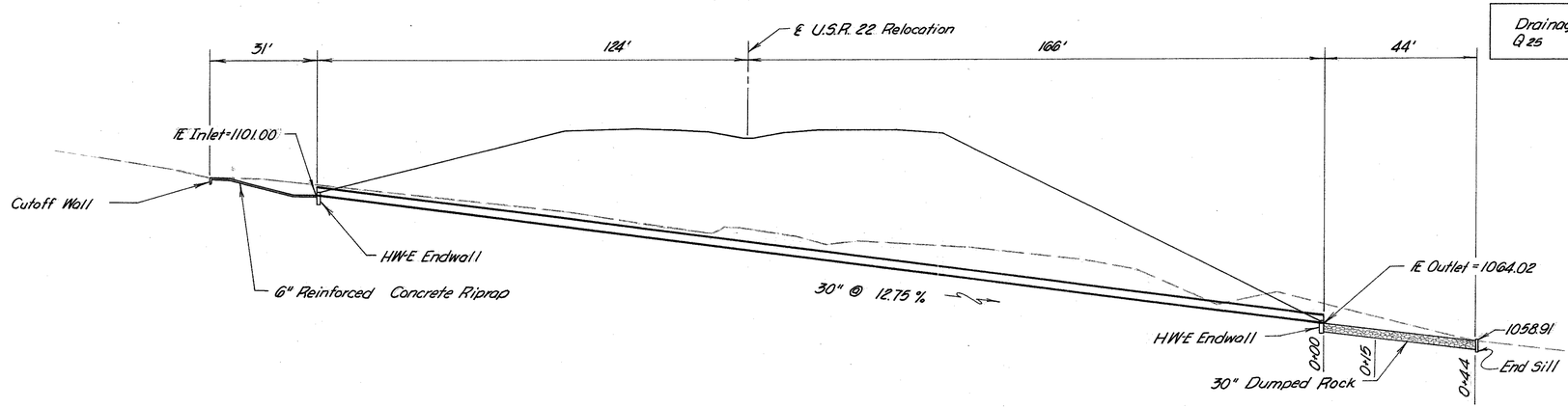
420
516

JEF-22-3.86



PLAN

0' 20' 40'



CROSS SECTION

JEF-22-0499

Drainage Area	9 oc.
Q 25	27 c.f.s.

QUANTITIES

203	Excavation	34	cu.yds.
601	6" Reinforced Concrete Riprap	25	sq.yds.
601	Dumped Rock Channel Protection	24	cu.yds.
602	Concrete Masonry	1.9	cu.yds.
603	30" Conduit, Type A, 707.05 12 gage, with Class "B" Bedding	294	lin.ft.

Note:
For Cutoff Wall Detail, see Sheet No.11
For End Sill Detail, see Sheet No.11

Station	Area	Volume
0+00	70	
		26
0+15	23	
		8
0+44	0	
Total		34

Datum 1060

1064.00
0+00
1069.97

1062.09
0+15
1066.20

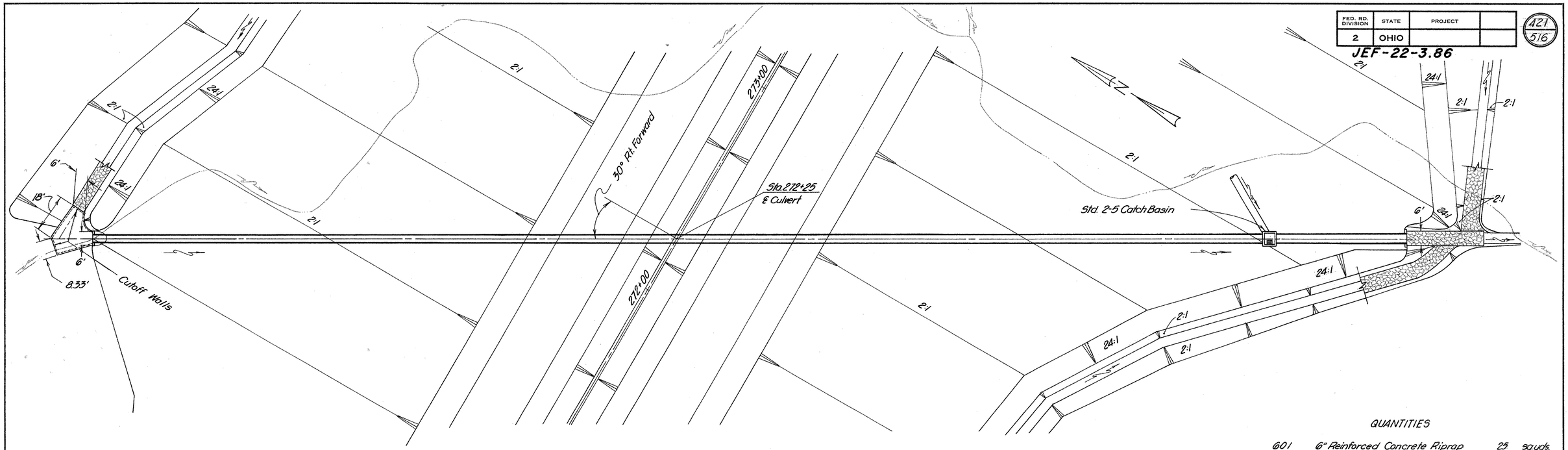
1058.88
0+44
1058.88

JEF-22-0499 CULVERT Sta. 263+24 U.S.R. 22 RELOC.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

421
516

JEF-22-3.86



QUANTITIES

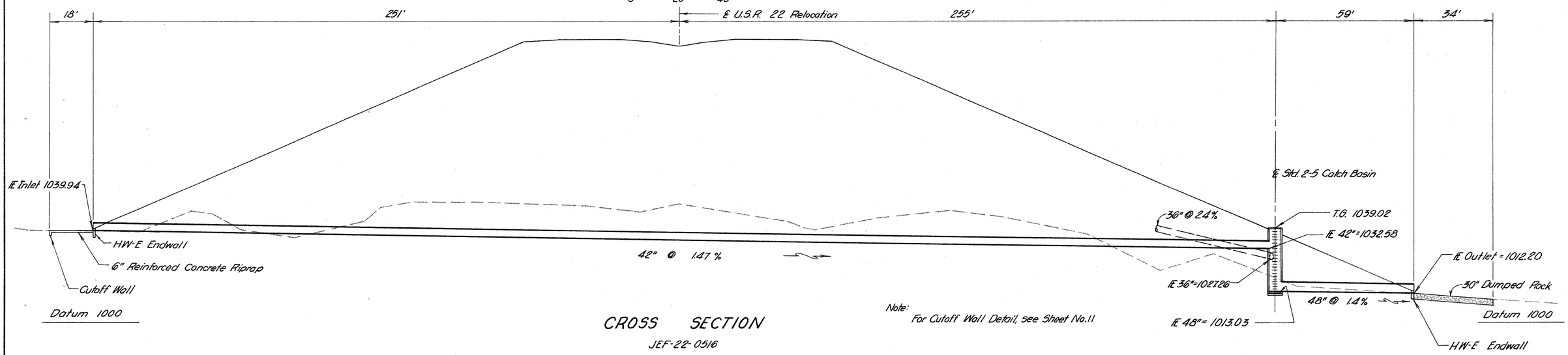
601	6" Reinforced Concrete Riprap	25	sq.yds.
601	Dumped Rock Channel Protection	19	cu.yds.
602	Concrete Masonry	1.6	cu.yds.
603	42" Conduit, Type A, 7.07.05 8gage, Shop Elongated and Strutted with Class "B" Bedding	501	lin.ft.
603	48" Conduit, Type A, 7.07.05 10 Gage with Class "B" Bedding	59	lin.ft.

42"	
Drainage Area	44 ac.
Q25	81 c.f.s.

48"	
Drainage Area	81 ac.
Q25	151 c.f.s.

PLAN

0' 20' 40'



CROSS SECTION

JEF-22-0516

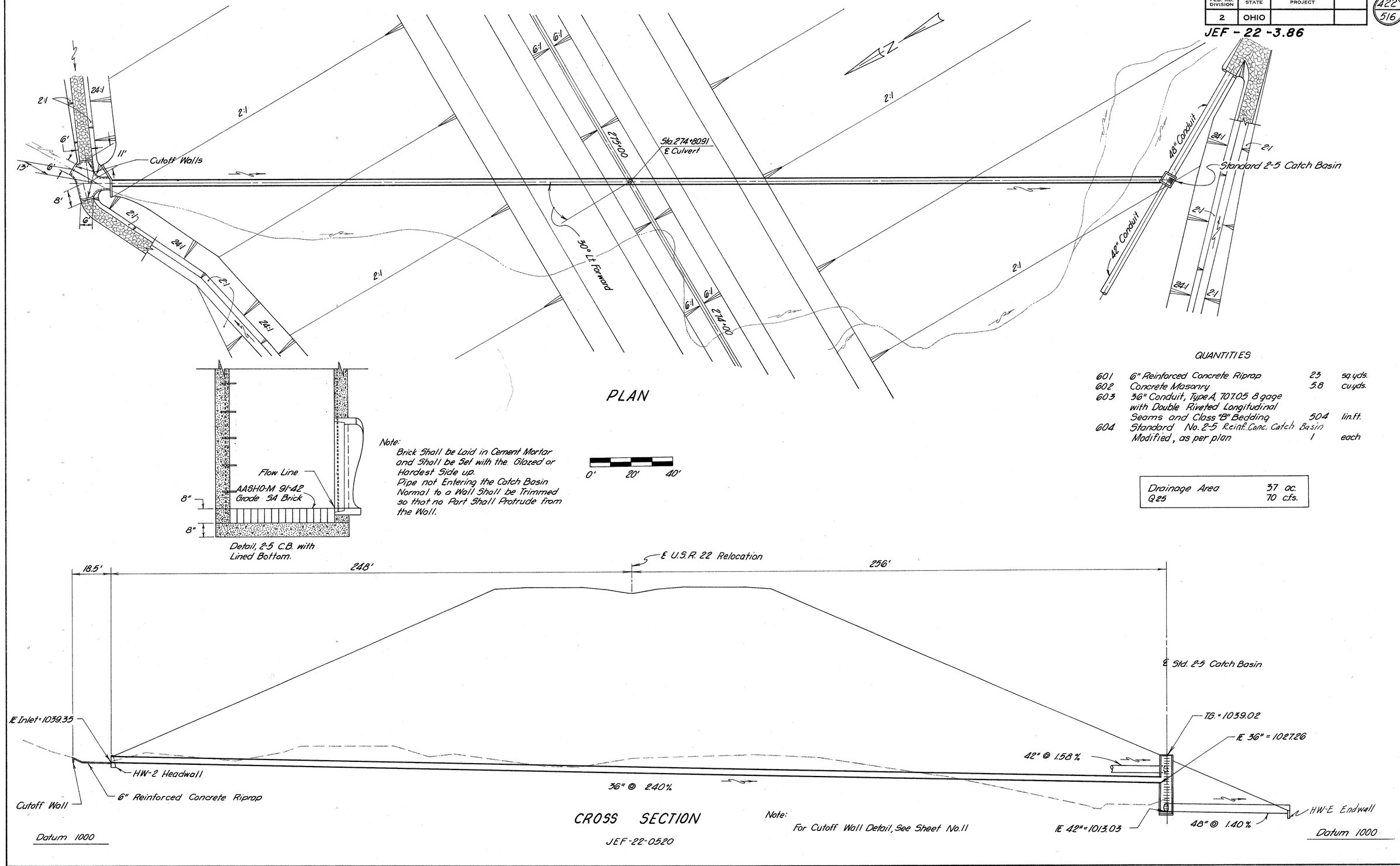
Note:
For Cutoff Wall Detail, see Sheet No.11

JEF-22-0516 CULVERT Sta. 272+25 U.S.R. 22 RELOC.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

422/516

JEF - 22 - 3.86



PLAN

Note:
Brick Shall be Laid in Cement Mortar and Shall be Set with the Glazed or Hardest Side up.
Pipe not Entering the Catch Basin Normal to a Wall Shall be Trimmed so that no Part Shall Protrude from the Wall.

QUANTITIES

601	6" Reinforced Concrete Riprap	23	sq.yds.
602	Concrete Masonry	5.8	cu.yds.
603	36" Conduit, Type A, 707.05 8 gage with Double Riveted Longitudinal Seams and Class "B" Bedding	504	lin.ft.
604	Standard No. 2-5 Reinf. Conc. Catch Basin Modified, as per plan	1	each

Drainage Area	37 ac.
Q25	70 c.f.s.

CROSS SECTION

JEF-22-0520

Note:
For Cutoff Wall Detail, See Sheet No. 11

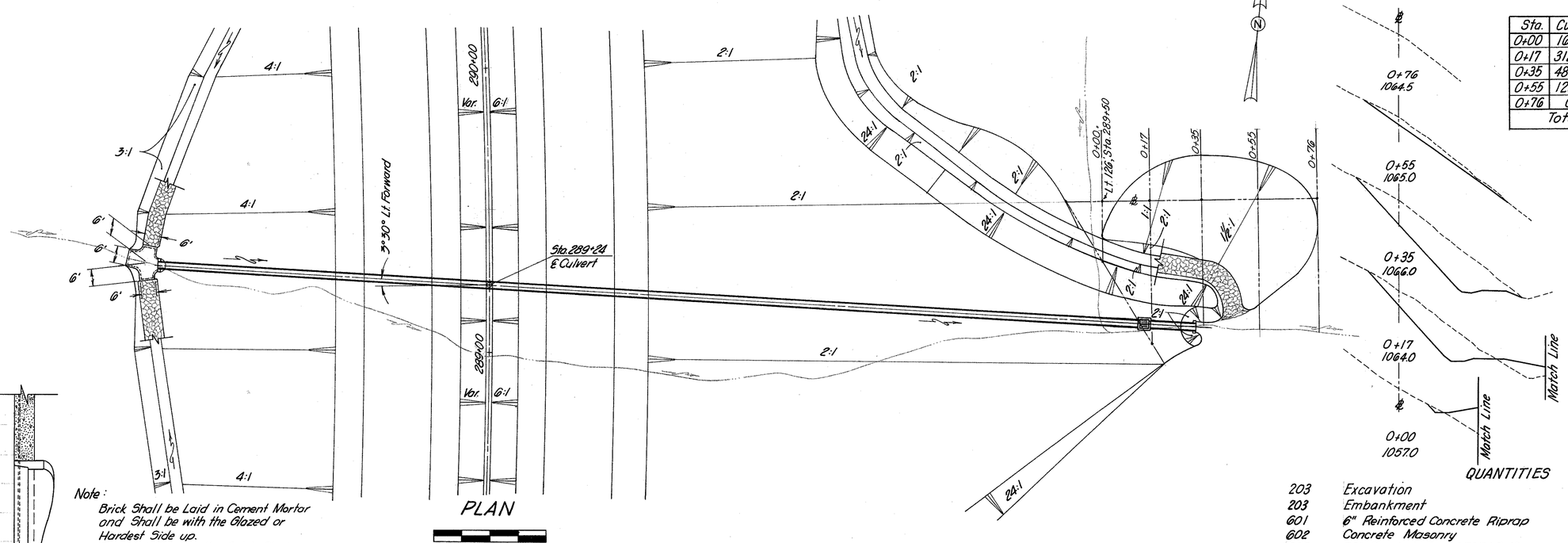
JEF-22-0520 CULVERT Sta. 274+80.91 U.S.R. 22 RELOC.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

423
516

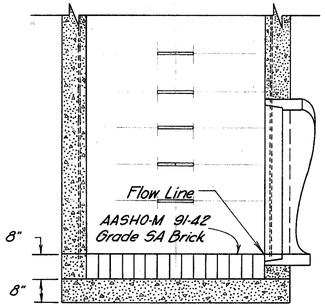
JEF-22-3.86

Sta.	Cut	Fill	Volume Cut	Volume Fill
0+00	16	60	135	38
0+17	312	60	264	20
0+35	480	0	222	0
0+55	120	0	47	0
0+76	0	0		
Total			1068	58



PLAN

0' 20' 40'



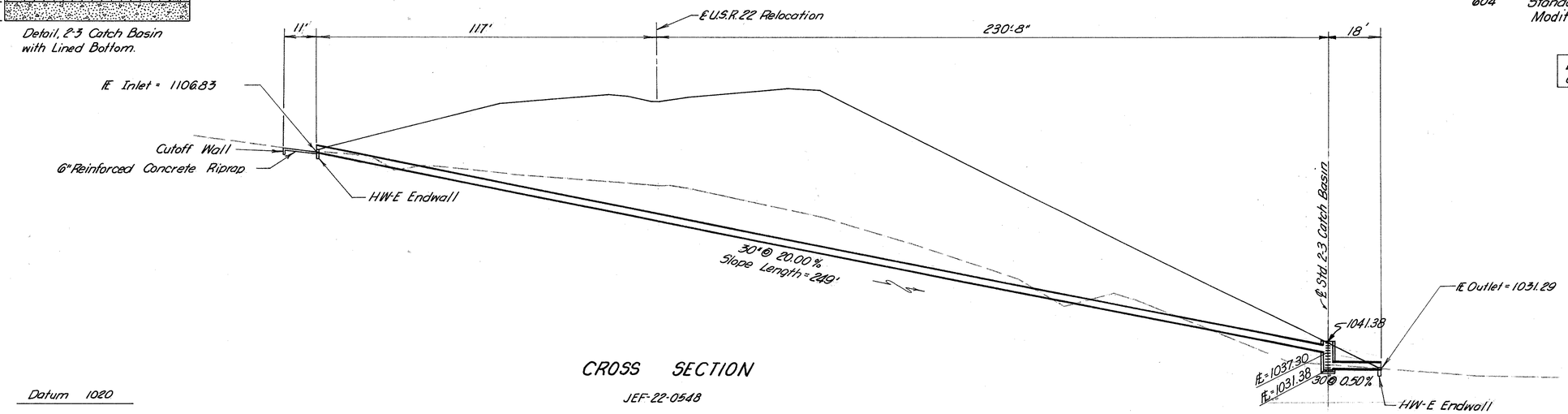
Detail, 2-3 Catch Basin with Lined Bottom.

Note:
Brick Shall be Laid in Cement Mortar and Shall be with the Glazed or Hardest Side up.
Pipe not Entering the Catch Basin Normal to the wall Shall be Trimmed so that no Part Shall Protrude from the Wall.

QUANTITIES

203	Excavation	1068	cu.yds.
203	Embankment	58	cu.yds.
601	6" Reinforced Concrete Riprap	13	sq.yds.
602	Concrete Masonry	1.0	cu.yds.
603	30" Conduit, Type A, 707.05 10 gage with Class "B" Bedding	355	lin.ft.
603	30" Conduit, Type A, 707.05 with Class "B" Bedding	18	lin.ft.
604	Standard No. 2-3 Catch Basin Modified, as per plan	1	each

Drainage Area	10 ac.
Q25	29 c.f.s.



CROSS SECTION

JEF-22-0548

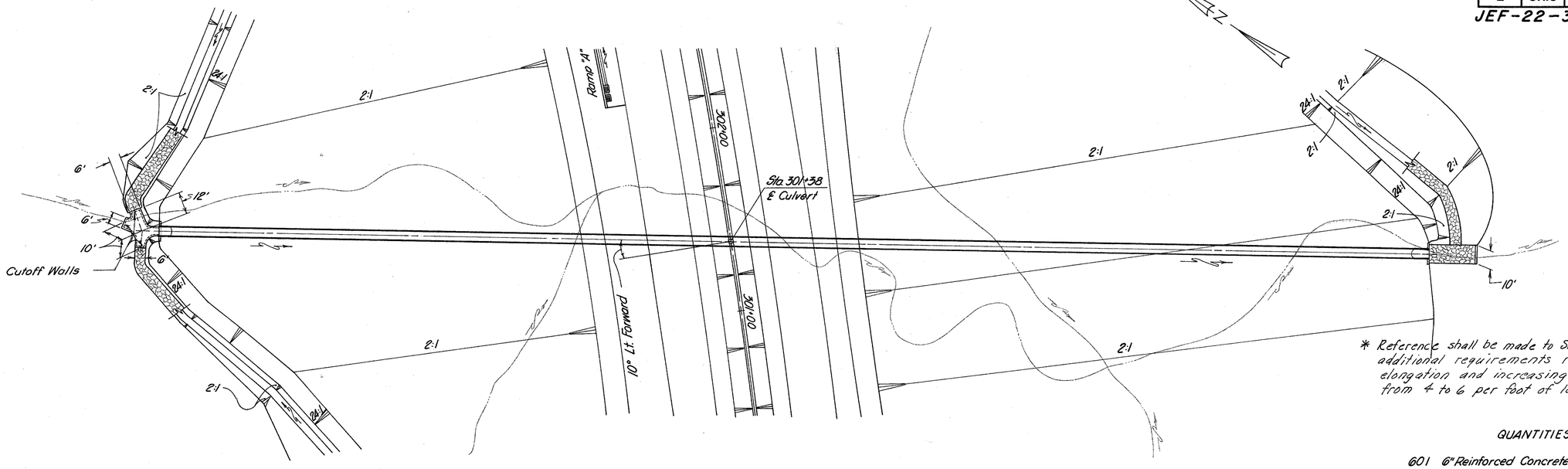
Note:
For Cutoff Wall Detail, see Sheet No. 11

JEF-22-0548 CULVERT Sta. 289+24 U.S.R. 22 RELOC.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF-22-3.86

424
516



PLAN

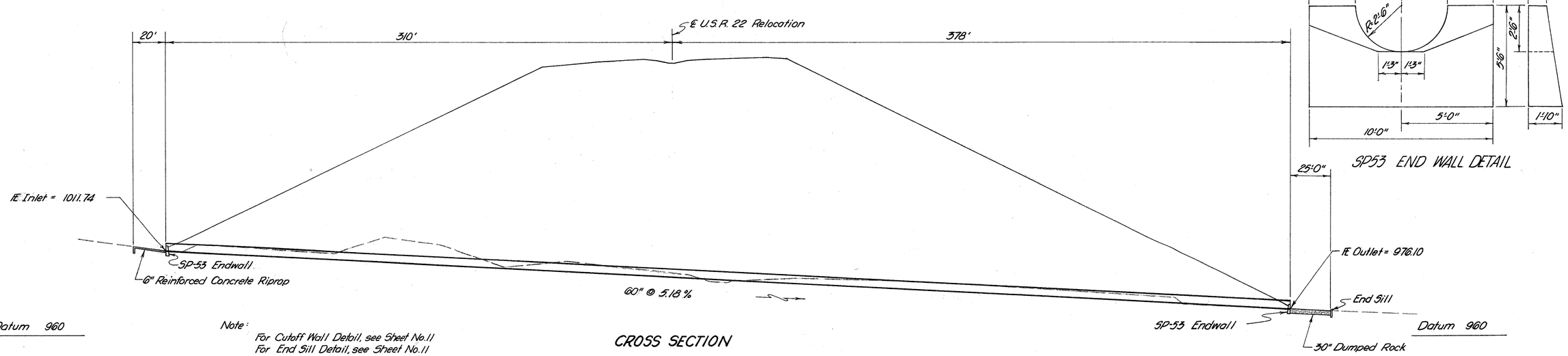
0' 30' 60'

* Reference shall be made to Std. Dwg. SP-53 for additional requirements regarding shop elongation and increasing bolt requirement from 4 to 6 per foot of longitudinal seam.

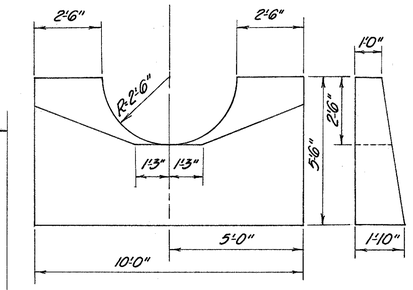
Drainage Area	62 ac.
Q25	98 c.f.s.

QUANTITIES

601	6" Reinforced Concrete Riprap	23	sq.yds.
601	Dumped Rock Channel Protection	23	cu.yds.
602	Concrete Masonry	6.4	cu.yds.
* 603	60" Conduit, Type A, 707.03 1 gage Shop Elongated with Class "B" Bedding	68.8	lin.ft.



CROSS SECTION



SP53 END WALL DETAIL

Note:
For Cutoff Wall Detail, see Sheet No.11
For End Sill Detail, see Sheet No.11

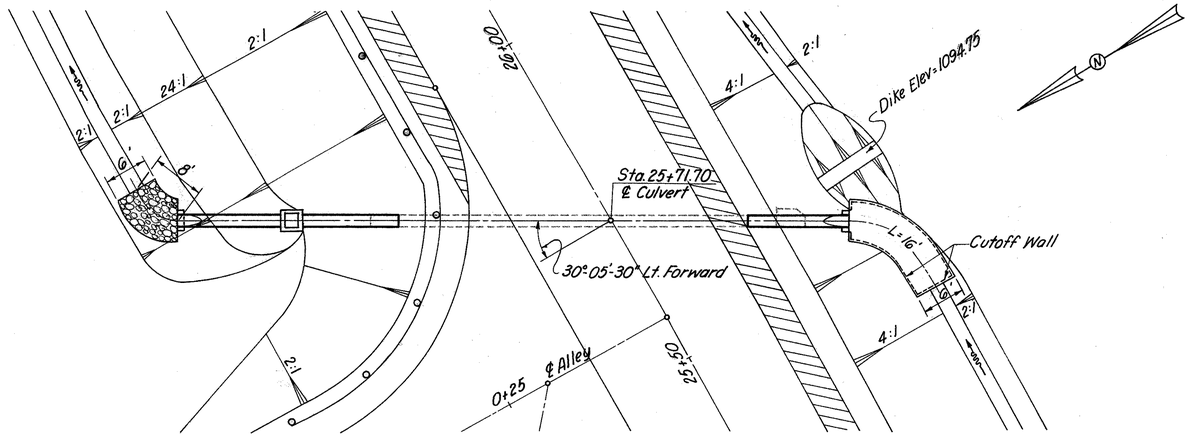
JEF-22-0571

JEF-22-0571 CULVERT Sta. 301+38 U.S.R. 22 RELOC.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

425
516

JEF-22-3.86

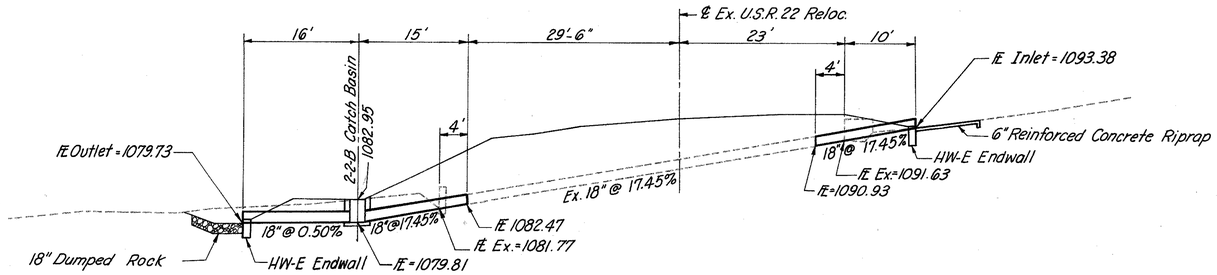


PLAN

0 10 20

QUANTITIES

601	6" Reinforced Concrete Riprap	11	sq.yds.
601	Dumped Rock Channel Protection	3	cu.yds.
602	Concrete Masonry	0.6	cu.yds.
603	18" Conduit, Type A 706.01, 706.02 or 706.08 with Class B Bedding	45	lin.ft.
604	Std. No. 2-2-B Catch Basin Modified, as per plan	1	ea.



CROSS SECTION

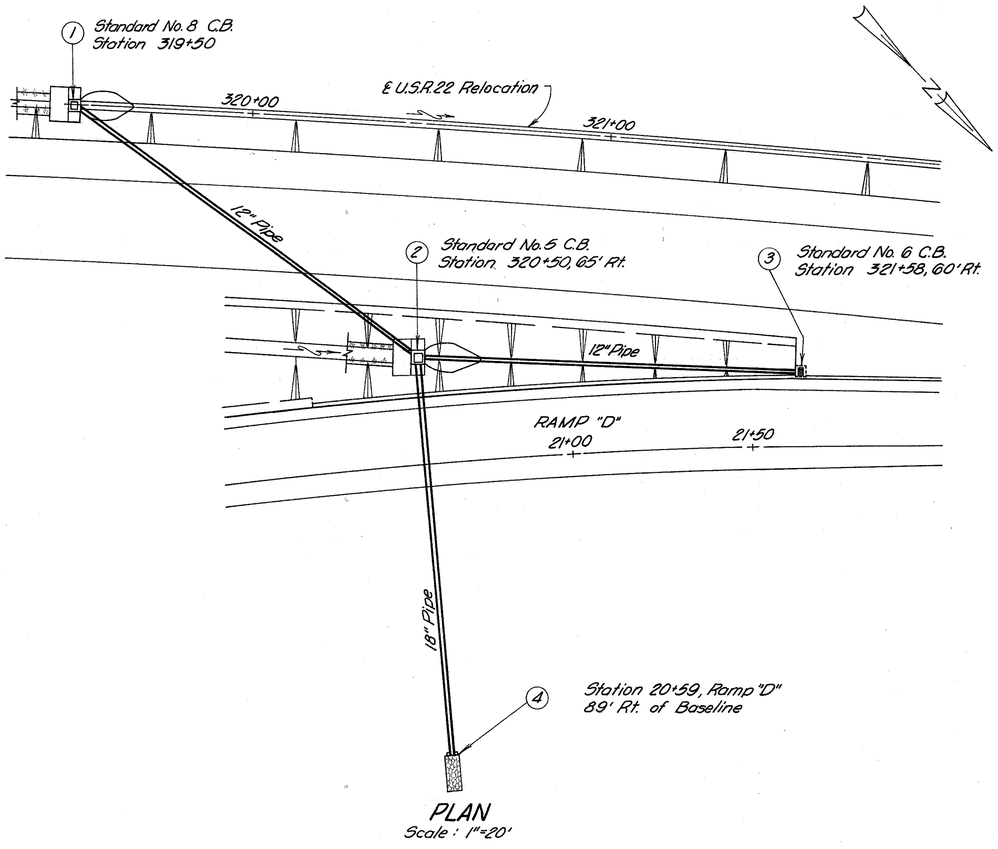
Note: For Cutoff Wall Detail see sheet 11.

CULVERT STA. 25+71.70 EXISTING USR 22 RELOC.

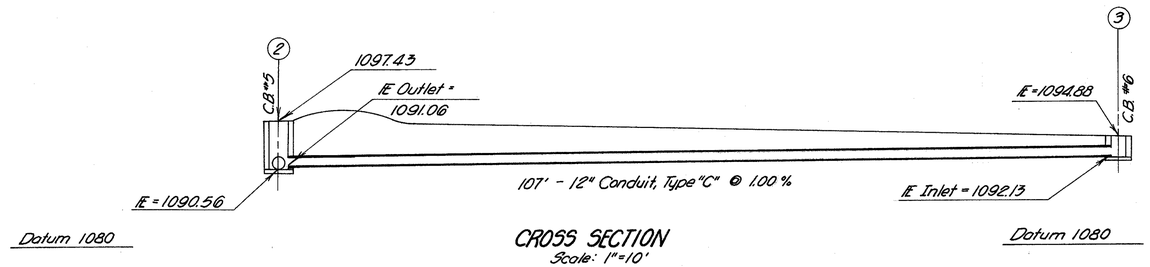
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

426/516

JEF - 22 - 3.86



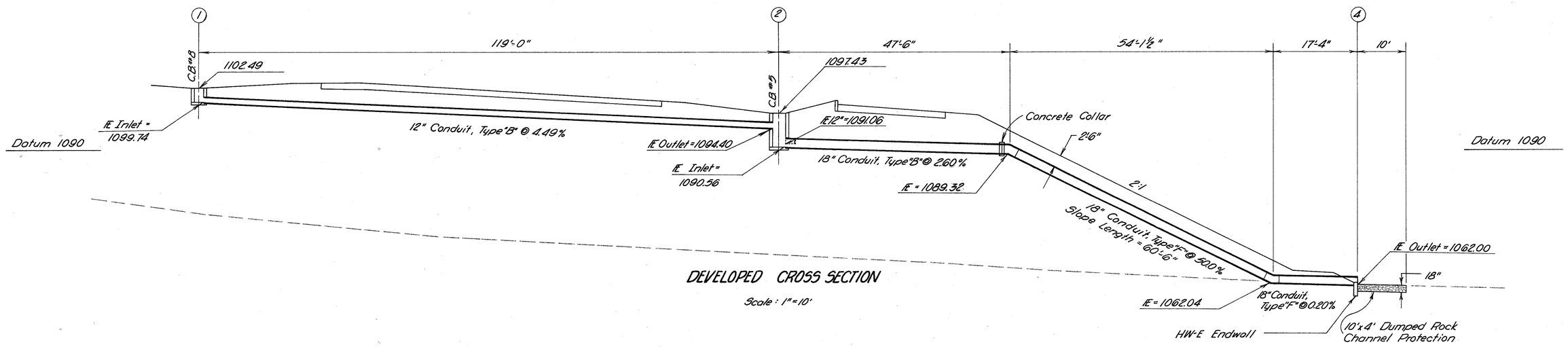
PLAN
Scale : 1"=20'



CROSS SECTION
Scale: 1"=10'

QUANTITIES

Item	601	Dumped Rock Channel Protection	2 cu.yds.
Item	602	Concrete Masonry	0.3 cu.yds.
Item	603	12" Conduit, Type "B" with Class "B" Bedding	119 lin.ft.
Item	603	18" Conduit, Type "B" with Class "B" Bedding	47 lin.ft.
Item	603	12" Conduit, Type "C" with Class "B" Bedding	107 lin.ft.
Item	603	18" Conduit, Type "F"	78 lin.ft.
Item	604	Standard No. 8 Catch Basin	1 each
Item	604	Standard No. 5 Catch Basin	1 each
Item	604	Standard No. 6 Catch Basin Modified, as per plan	1 each



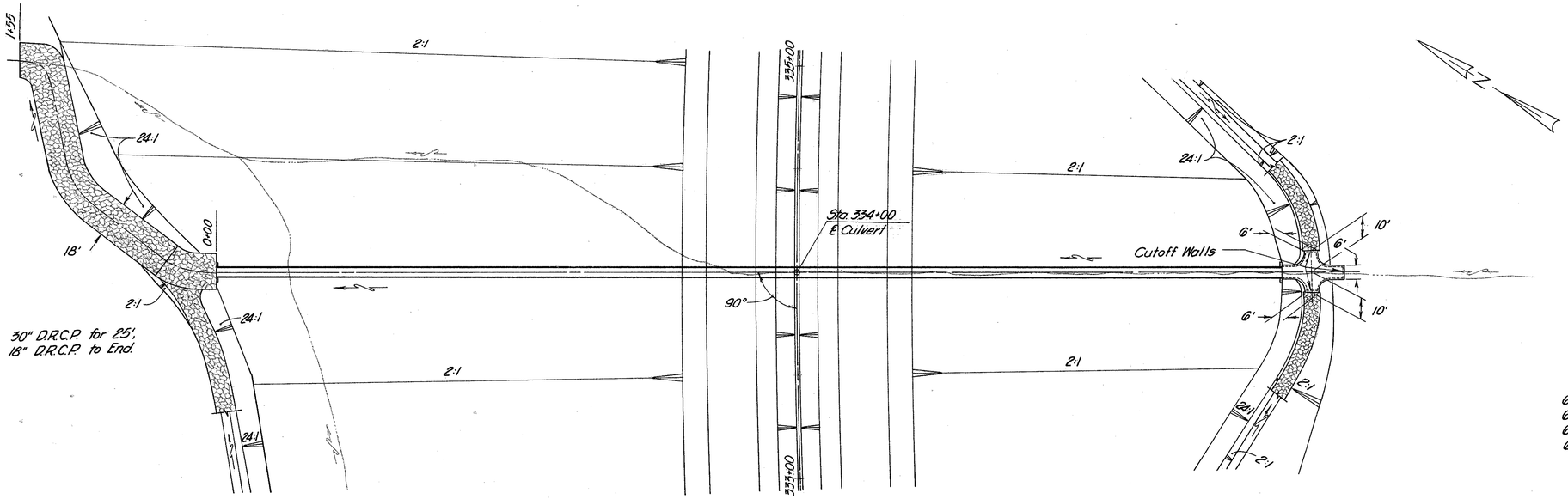
DEVELOPED CROSS SECTION
Scale : 1"=10'

STORM SEWER DETAIL U.S.R. 22 RELOC.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

427
516

JEF - 22 - 3.86



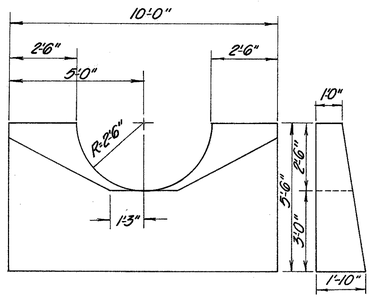
PLAN

0' 30' 60'

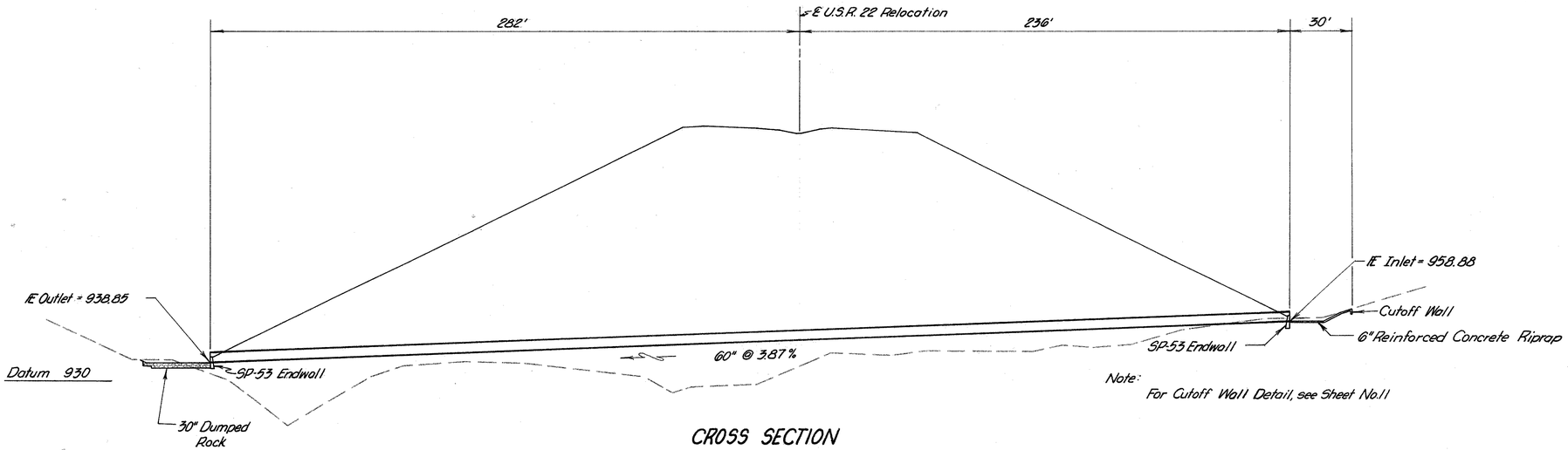
QUANTITIES

601	6" Reinforced Concrete Riprap	30	sq.yds.
601	Dumped Rock Channel Protection	172	cu.yds.
602	Concrete Masonry	49	cu.yds.
603	60" Conduit, Type A, 707.03, 3-1 gage, with Class "B" Bedding	518	lin.ft.

Drainage Area	107	ac.
Q25	140	c.f.s.



SP53 ENDWALL DETAIL



CROSS SECTION

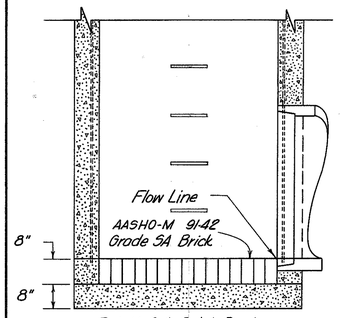
JEF-22-0633

Note:
For Cutoff Wall Detail, see Sheet No.11

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

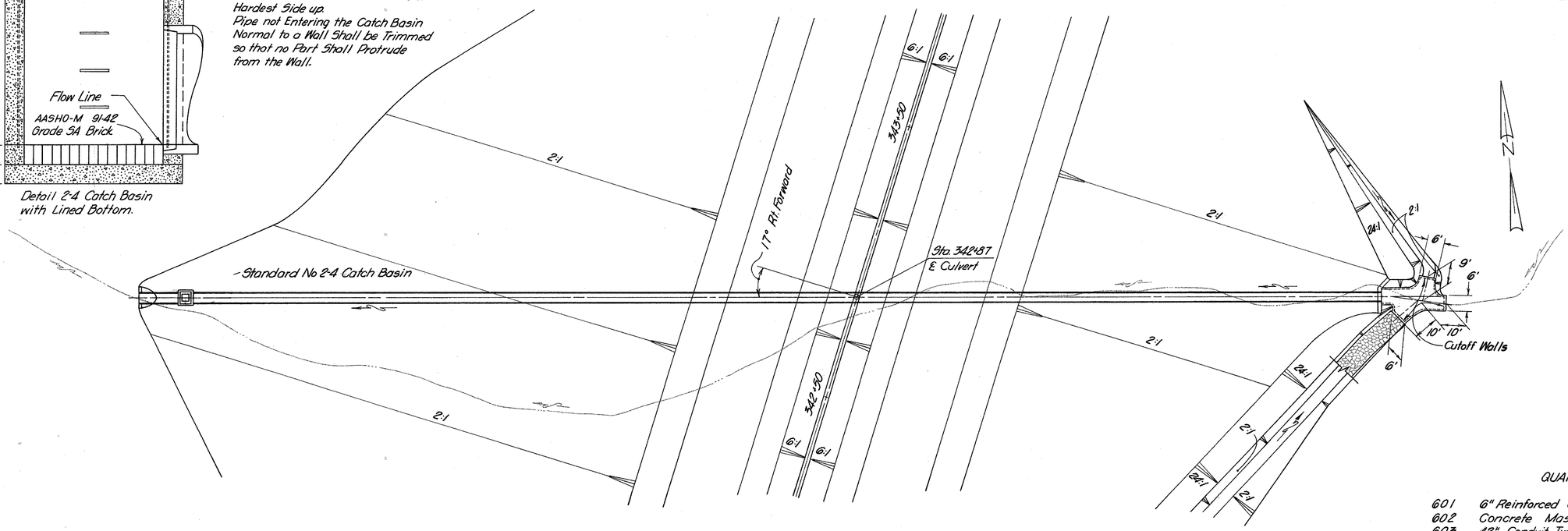
JEF-22-3.86

428
516



Detail 2-4 Catch Basin with Lined Bottom.

Note:
Brick Shall be Laid in Cement Mortar and Shall be set with the Glazed or Hardest Side up.
Pipe not Entering the Catch Basin Normal to a Wall Shall be Trimmed so that no Part Shall Protrude from the Wall.



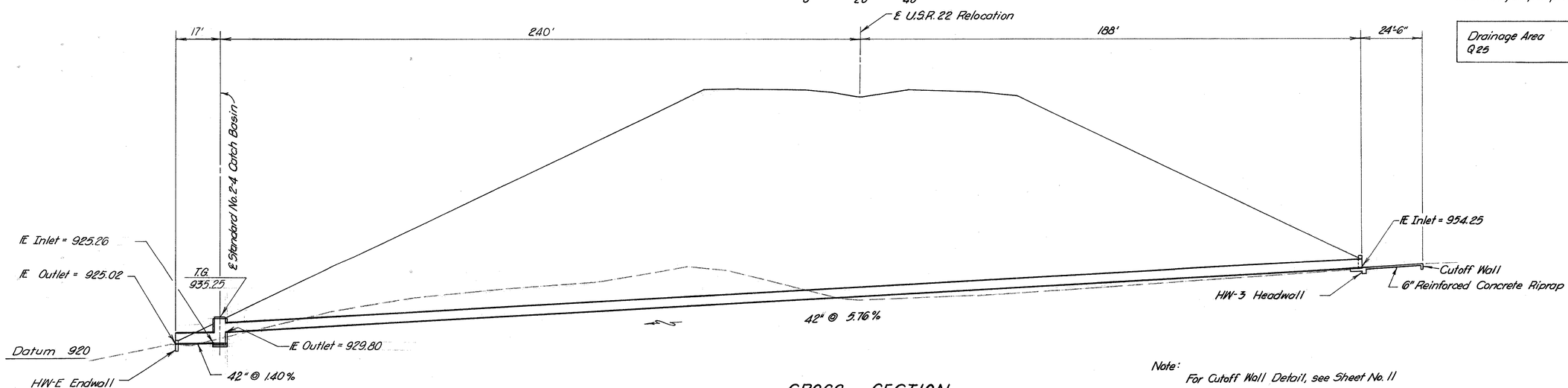
PLAN

0' 20' 40'

QUANTITIES

601	6" Reinforced Concrete Riprap	24	sq. yds.
602	Concrete Masonry	8.2	cu. yds.
603	42" Conduit, Type A, with Class "B" Bedding	17	lin. ft.
603	42" Conduit, Type A, 70705, 8 gage Shop Elongated and Strutted, with Class "B" Bedding	428	lin. ft.
604	Standard No. 2-4 Catch Basin Modified, as per plan	1	each

Drainage Area	75 ac.
Q25	105 c.f.s.



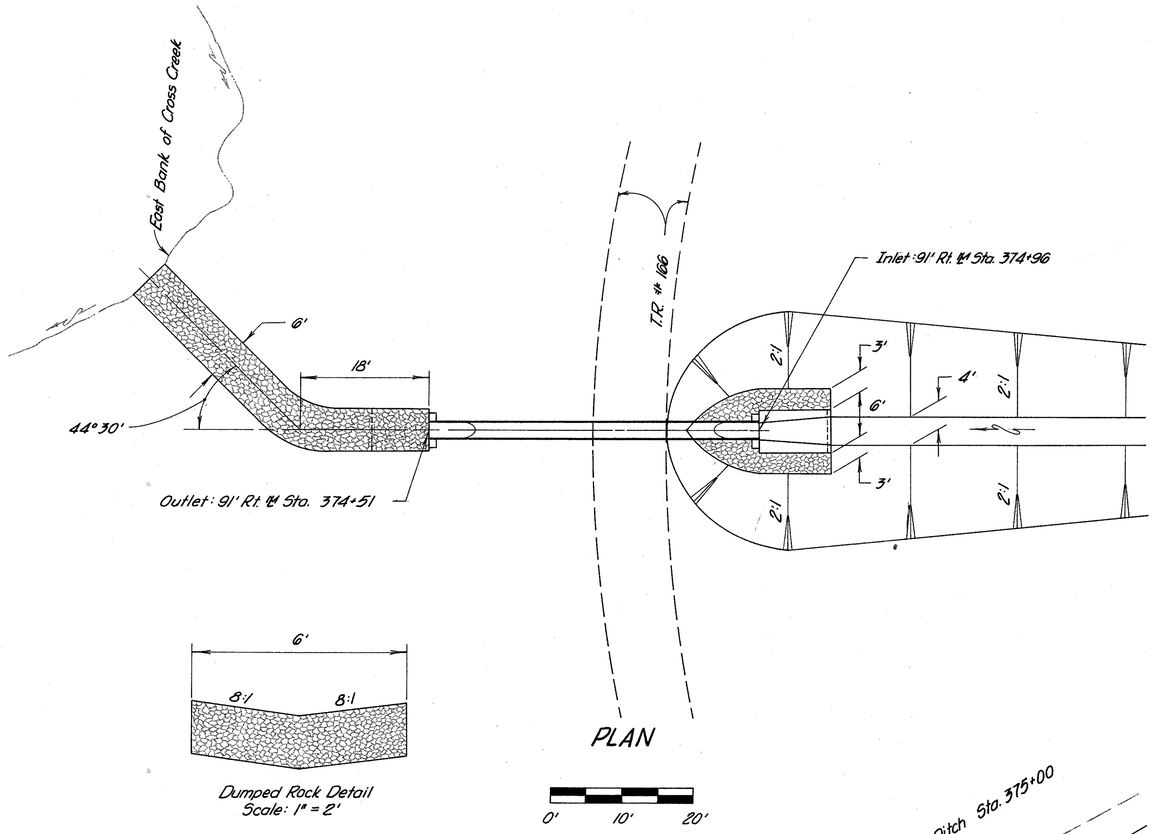
CROSS SECTION
JEF-22-0650

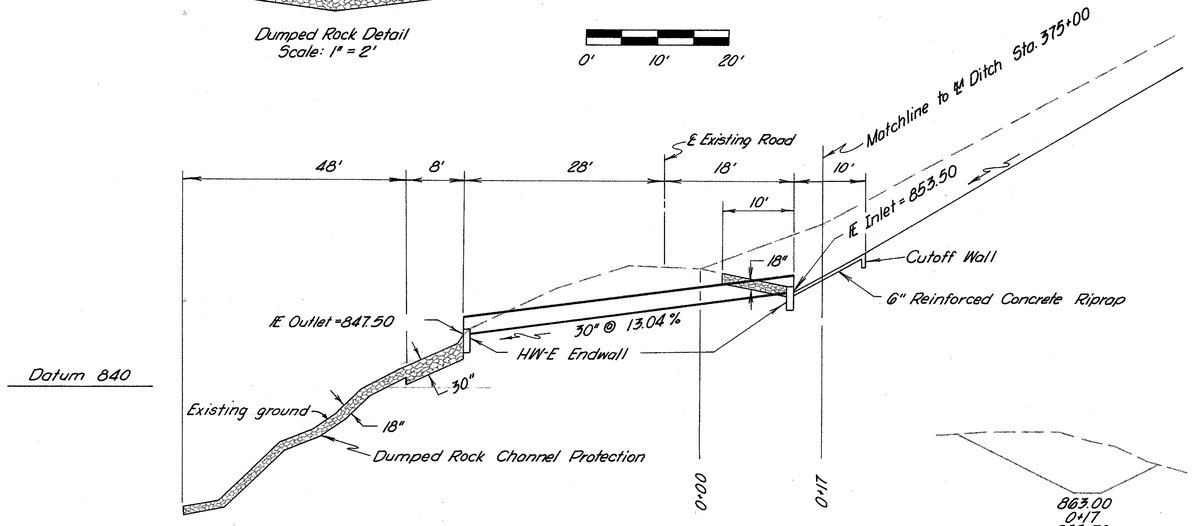
Note:
For Cutoff Wall Detail, see Sheet No. 11

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

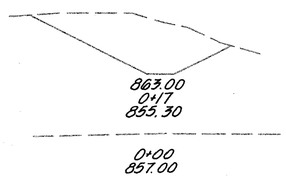
429
516

JEF-22-3.86





Note:
For Cutoff Wall Detail, see Sheet No. 11



Datum 840

Excavation : 129 sq. ft. x .3148 = 41 cu.yds.

QUANTITIES

203	Excavation	41	cu.yds.
601	6" Reinforced Concrete Riprap	8	sq.yds.
601	Dumped Rock Channel Protection	29	cu.yds.
602	Concrete Masonry	10	cu.yds.
603	30" Conduit, Type A, 707.05 with Class "B" Bedding	46	lin.ft.

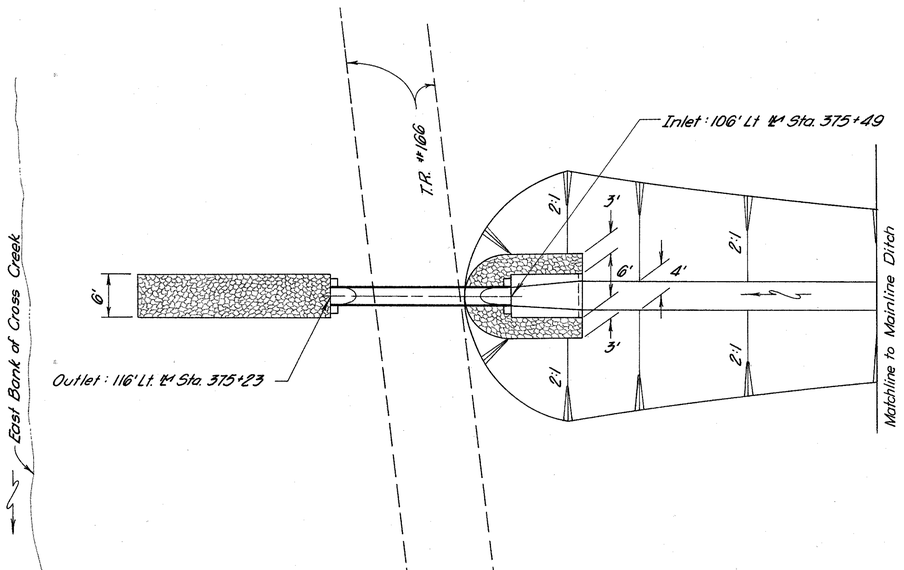
Drainage Area	8.5 ac.
Q10	21 c.f.s.

CULVERT ON T.R. 166 - 91' RT. Sta. 374+79 U.S.R. 22 RELOC.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

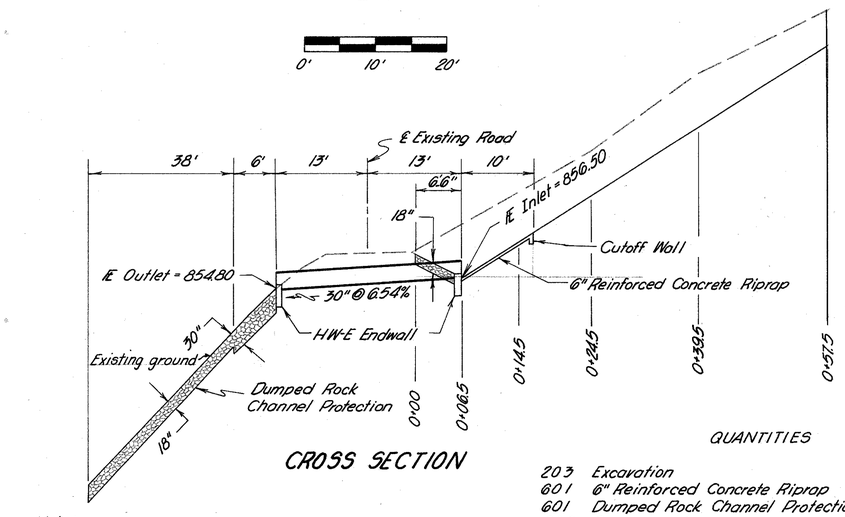
430
516

JEF-22-3.86



PLAN

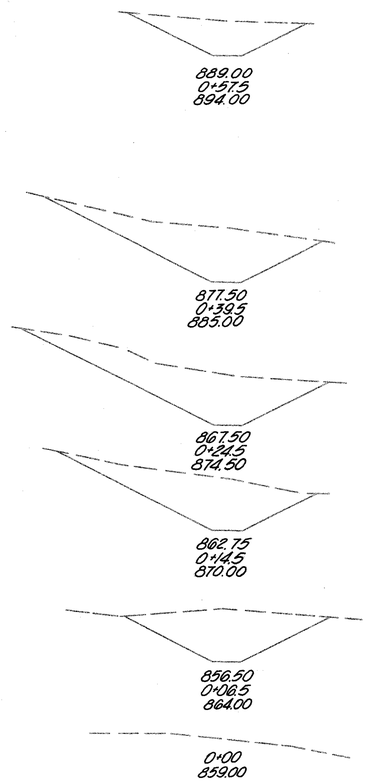
0' 10' 20'



CROSS SECTION

Note:
For Cutoff Wall Detail, see Sheet No. 11

Datum 840



Datum 840

Drainage Area	14	ac.
Q10	30	c.f.s.

QUANTITIES

203	Excavation	268	cuyds.
601	6" Reinforced Concrete Riprap	8	sq.yds.
601	Dumped Rock Channel Protection	21	cuyds.
602	Concrete Masonry	10	cuyds.
603	30" Conduit, Type A, 707.05 with Class "B" Bedding	26	lin.ft.

Station	Area	Volume
0+00	0	
		13
0+06.5	112	
		40
0+14.5	155	
		59
0+24.5	165	
		87
0+39.5	147	
		73
0+57.5	72	
Total		268 c.y.

Datum 840

CULVERT ON T.R. 166 - 111' LT. Sta. 375+49 U.S.R. 22 RELOC.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

431
516

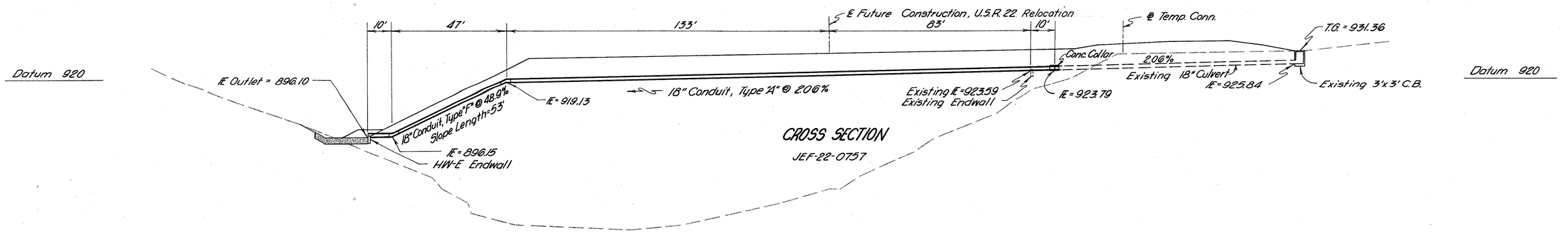
JEF-22-3.86

PLAN

0' 20' 40'

QUANTITIES

602	Concrete Masonry	0.3 cuyds.
603	18" Conduit, Type A, 707.05 with Class "B" Bedding	226 lin.ft.
603	18" Conduit, Type "F"	63 lin.ft.

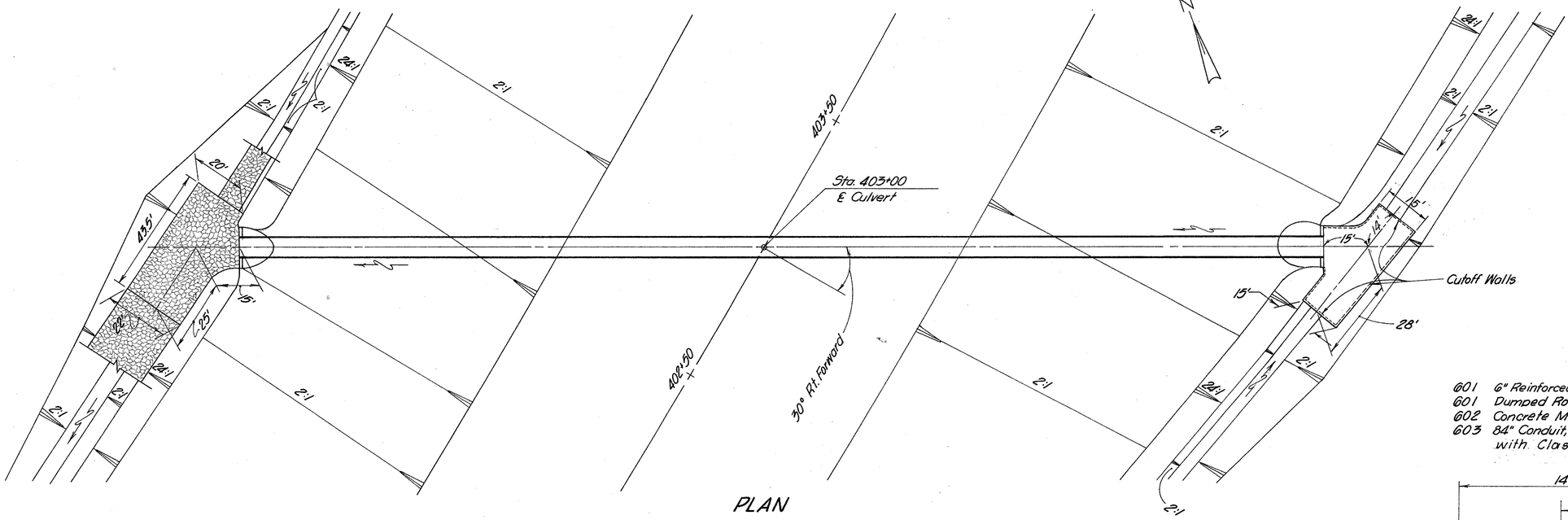


CROSS SECTION

JEF-22-0757

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF-22-3.86



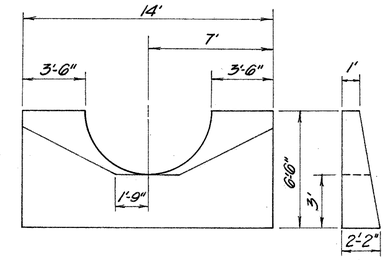
PLAN

0' 20' 40'

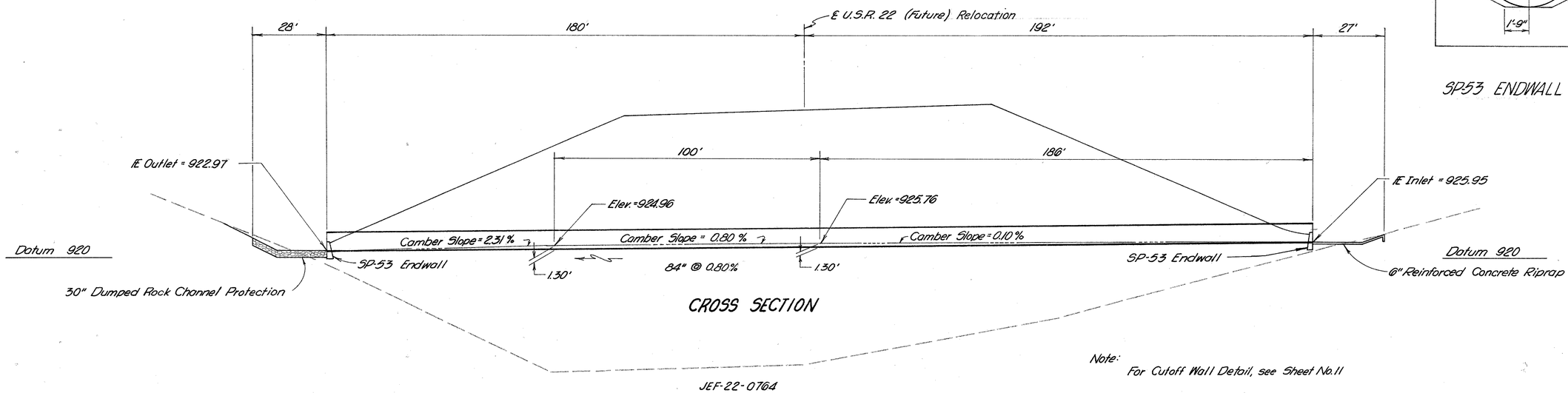
Drainage Area		317	ac.
Q25		280	c.f.s.

QUANTITIES

601	6" Reinforced Concrete Riprap	82	sqyds.
601	Dumped Rock Channel Protection	86	cuyds.
602	Concrete Masonry	88	cuyds.
603	84" Conduit, Type A, 7.0103, 7-5 gage, with Class "B" Bedding	372	lin ft.



SP-53 ENDWALL DETAILS



CROSS SECTION

Note:
For Cutoff Wall Detail, see Sheet No. 11

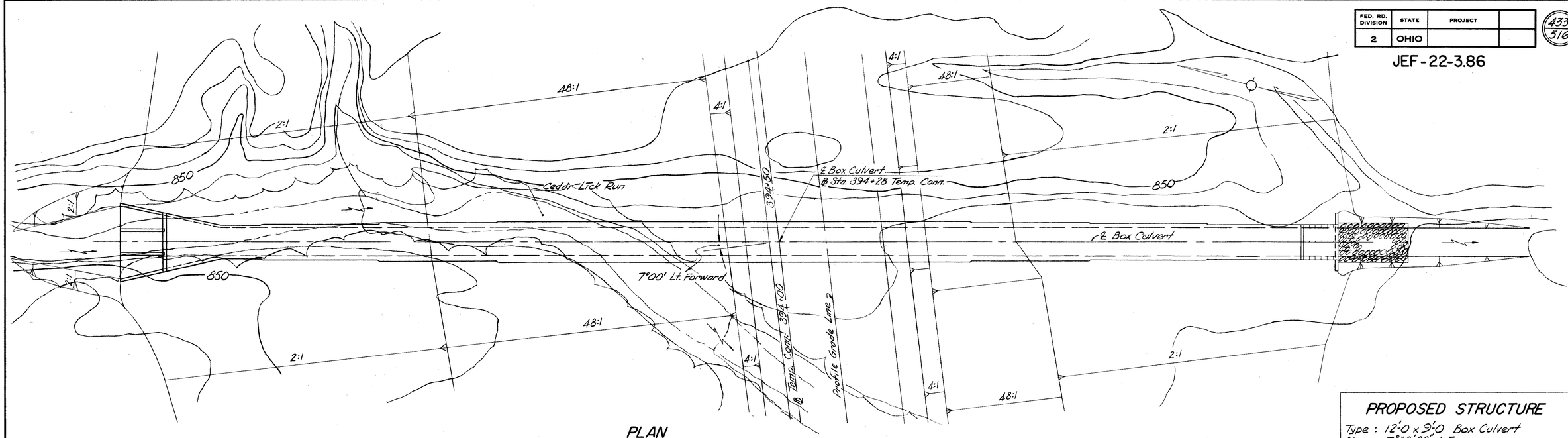
JEF-22-0764

JEF-22-0764 CULVERT Sta. 403+00 FUTURE U.S.R. 22 RELOC.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

433
516

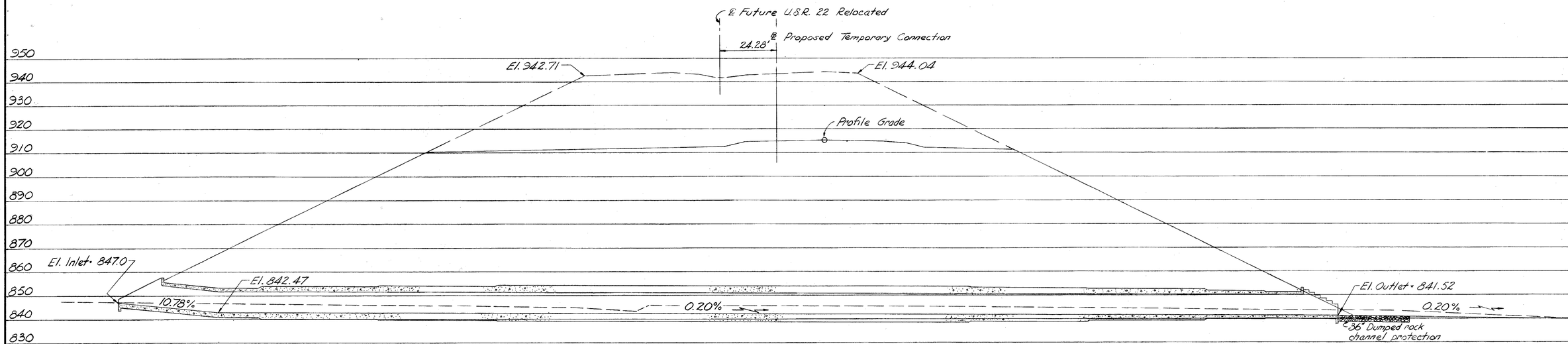
JEF-22-3.86



PLAN

PROPOSED STRUCTURE

Type : 12'-0 x 9'-0 Box Culvert
Skew : 7°00'00" L.F.
Drainage Area : 3.28 Sq. Miles
Q25 = 1134 c.f.s.



SECTION ALONG ℄ BOX CULVERT

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS — 1/5
WORTHINGTON OHIO

SITE PLAN
BRIDGE NO. JEF-22-0747
OVER CEDAR LICK RUN

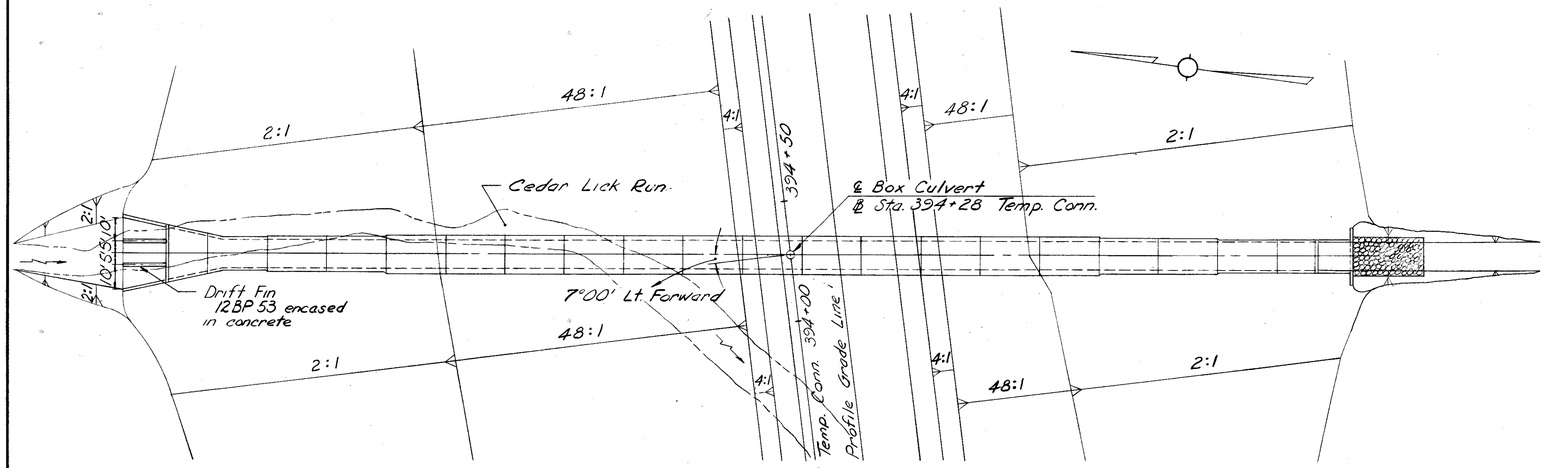
JEFFERSON CO.
SCALE = 1" = 20'
STA. 394+28

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		LCT	JGM	JM	TGW

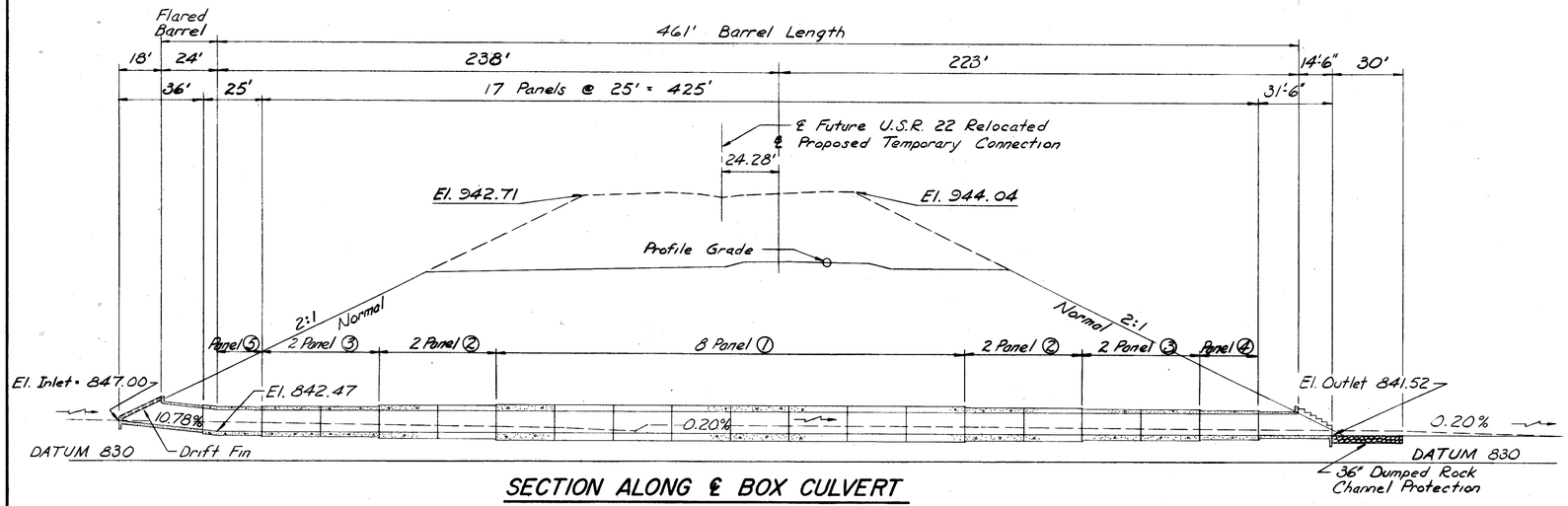
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

434/516

JEF-22-3.86



PLAN



SECTION ALONG ℄ BOX CULVERT

GENERAL NOTES:

- DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officals, 1965, including the Ohio "Supplement" to these specifications.
- DESIGN DATA:
  Concrete Class C - unit stress 1200 p.s.i.
  Structural Steel-ASTM A36- unit stress 20,000 p.s.i.
  Reinforcing Steel- ASTM A15, A16, A160, deformed, intermediate or hard grade. Unit stress 20,000 p.s.i.
  Welded Wire Fabric- ASTM A185.
- BOX EXCAVATION QUANTITY: Removal of material between the flow line of the box and existing ground will be paid for under Item 203, Roadway Excavation. Removal of material between the flow line and the bottom plane of the bottom slab will be paid for under Item 503, Unclassified Excavation.
- FOUNDATION BEARING PRESSURE: Maximum foundation bearing pressure is 6.3 tons per square foot.

ESTIMATED QUANTITES

JM 4-15-68

Item	Total	Unit	Description		
203	1741	Cu.Yd.	Roadway Excavation		
503	721	Cu.Yd.	Unclassified Excavation		
509	304452	Lbs.	* Reinforcing Steel		
511	1916	Cu.Yd.	Class C Concrete		
513	2094	Lbs.	Structural Steel		
601	53	Cu.Yd.	Dumped Rock Channel Protection		

* Includes 69 lbs. of 6x6-2/2 welded wire fabric.

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS 2/5
WORTHINGTON OHIO

GENERAL PLAN
BRIDGE NO. JEF-22-0747 OVER CEDAR LICK RUN

JEFFERSON CO. STA. 394+28

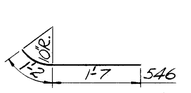
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	JGM	JGM	JM	TBW	8-12-68	

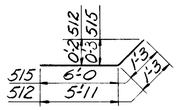
REINFORCING STEEL LIST

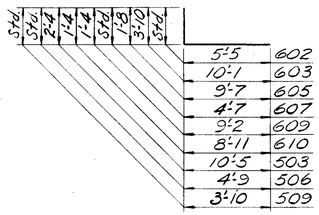
Mark	No.	Length	Weight	Shp	Incr	Mark	No.	Length	Weight	Shp	Incr
1101	208	23'-10	26,338	B		505	328	10'-0	3,421	S	
1102	208	30'-6	33,706	B		506	328	5'-3	1,796	B	
1103	84	22'-10	10,190	B		507	84	14'-4	1,256	S	
1104	84	29'-8	13,240	B		508	164	9'-1	1,554	S	
1105	88	20'-2	9,429	B		509	164	4'-4	741	B	
1106	88	26'-10	12,546	B		510	70	24'-8	1,801	S	
						511	14	17'-6	256	S	
						512	46	7'-2	344	B	
1001	37	18'-5	2,932	B		513	2 Ser. of	1'-4 to	72	S	4'-10
1002	37	24'-5	3,887	B			4	15'-10			
1003	200	15'-8	13,483	S		514	1 Ser. of	16'-6 to	352	S	5"
1004	80	15'-8	5,393	S			17	23'-3			
1005	1 Ser. of	18'-6 to	423	B	7"	515	28	7'-3	212	B	
	5	20'-10				516	70	18'-10	1,375	S	
1006	1 Ser. of	24'-6 to	553	B	7"	517	17	13'-8	242	S	
	5	26'-11				518	25	16'-8	435	S	
						519	25	35'-8	930	S	
						520	2 Ser. of	1'-9 to	307	S	4'-9
							8	35'-0			
901	200	15'-8	10,653	S		521	8	36'-5	304	S	
902	80	15'-8	4,261	S		522	4	18'-1	75	S	
903	84	14'-4	4,094	S		523	4 Ser. of	25'-4 to	498	S	3'-0
							4	34'-4			
						524	4	5'-0	21	S	
						525	4	6'-1	25	S	
801	84	14'-4	3,215	S		526	4	7'-8	32	S	
802	35	13'-8	1,277	S		527	3	31'-4	98	S	
803	1 Ser. of	13'-9 to	199	S	7"	528	2	23'-7	49	S	
	5	16'-1				529	4	20'-2	84	S	
						530	48	3'-8	184	B	
						531	38	3'-2	126	B	
						532	4	3'-5	14	S	
701	1 Ser. of	20'-7 to	889	B	5"	533	2	21'-8	45	S	
	18	27'-9				534	4	26'-8	111	S	
702	1 Ser. of	24'-7 to	1,102	B	5"	535	4	29'-2	122	S	
	19	32'-2				536	39	31'-2	1,268	S	
703	1 Ser. of	16'-4 to	780	S	5"	537	3	23'-8	74	S	
	19	23'-10				538	12	7'-9	97	S	
704	35	13'-8	979	S		539	8	7'-6	63	B	
705	328	24'-8	26,621	S		540	8	4'-5	37	B	
706	1 Ser. of	13'-9 to	152	S	7"	541	2	13'-8	29	S	
	5	16'-1				542	2 Ser. of	4'-0 to	56	S	4'-10
707	18	18'-0	662	B			3	13'-9			
708	18	22'-0	809	B		543	2 Ser. of	3'-0 to	248	S	4'-8
709	28	13'-8	782	S			7	31'-0			
710	3	31'-6	193	S		544	4	17'-2	72	S	
711	3	18'-0	110	S		545	11	16'-7	190	S	
						546	15	3'-9	59	B	
						547	3	23'-8	74	S	
601	816	10'-4	12,665	S							
602	816	6'-1	7,456	B							
603	328	13'-9	6,774	B		401	2 Ser. of	3'-0 to	128	S	7"
604	264	24'-8	9,781	S			14	10'-8			
605	344	11'-1	5,727	B		402	4	3'-9	10	S	
606	344	9'-6	4,909	S		403	128	3'-8	314	B	
607	344	5'-3	2,713	B		404	2 Ser. of	24'-2 to	514	S	6"
608	280	24'-8	10,374	S			14	30'-10			
609	164	10'-4	2,545	B		405	2	3'-1	4	B	
610	144	10'-1	2,181	B		406	2	3'-9	5	B	
611	2 Ser. of	3'-0 to	246	S	8"	407	2	4'-5	6	B	
	12	10'-8				408	80	23'-9	1,269	B	
612	1 Ser. of	32'-0 to	627	B	6"	409	84	21'-5	1,202	B	
	12	37'-7				410	52	13'-8	475	S	
613	12	21'-4	385	B		411	35	19'-11	466	B	
614	1	37'-5	56	B		412	1 Ser. of	14'-1 to	40	S	7"
615	6	10'-0	90	S			4	16'-0			
616	4	8'-9	53	S		413	1 Ser. of	16'-6 to	241	S	5"
617	4	7'-6	45	S			18	23'-8			
618	4	6'-3	38	S		414	1 Ser. of	19'-10 to	56	B	7"
619	4	5'-0	30	S			4	21'-9			
620	2	3'-9	11	S		415	1 Ser. of	22'-3 to	354	B	5"
621	1	39'-1	58	B			18	29'-5			
622	1	38'-3	57	B		416	70	8'-10	413	S	
						417	15	13'-8	137	S	
						418	6	5'-0	20	S	
						419	17	19'-5	220	B	
501	200	15'-8	3,268	S		420	6	10'-0	40	S	
502	200	25'-1	5,232	B		421	4	8'-9	23	S	
503	816	12'-7	10,710	B		422	6	7'-6	30	S	
504	80	15'-8	1,307	S		423	4	6'-3	17	S	

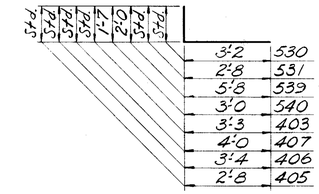
PANEL REINFORCING

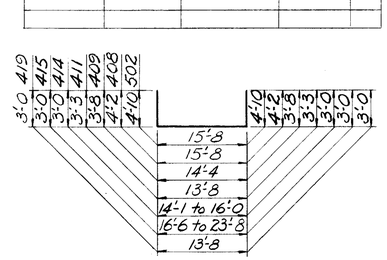
Panel	W	T	Y	L	A-Bar	B-Bar	C-Bar	D-Bar	E-Bar	F-Bar	G-Bar	H-Bar	J-Bar	K-Bar
①	24"	30"	12"	6"	26-1101 @12"	26-1102 @12"	25-901 @12"	25-1003 @12"	25-501 @12"	25-502 @12"	102-503 @6"	102-601 @6"	102-602 @6"	66-705 @12"
②	24"	26"	12"	6"	21-1103 @15"	21-1104 @15"	20-902 @15"	20-1004 @15"	20-504 @15"	20-408 @15"	82-603 @7½"	82-505 @7½"	82-506 @7½"	66-604 @12"
③	16"	20"	12"	6"	22-1105 @14"	22-1106 @14"	21-801 @14"	21-903 @14"	21-507 @14"	21-409 @14"	86-605 @7"	86-606 @7"	86-607 @7"	70-608 @12"
④	12"	15"	12"	6"	21-1001 @15"	21-1002 @15"	20-704 @15"	20-802 @15"	20-410 @15"	20-411 @15"	82-609 @7½"	82-508 @7½"	82-509 @7½"	70-510 @12"
⑤	12"	15"	12"	6"	16-1001 @15"	16-1002 @15"	15-704 @15"	15-802 @15"	15-410 @15"	15-411 @15"	62-609 @7½"	62-508 @7½"	62-509 @7½"	70-516 @12"

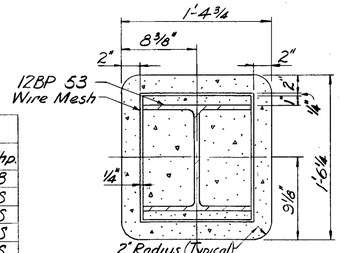






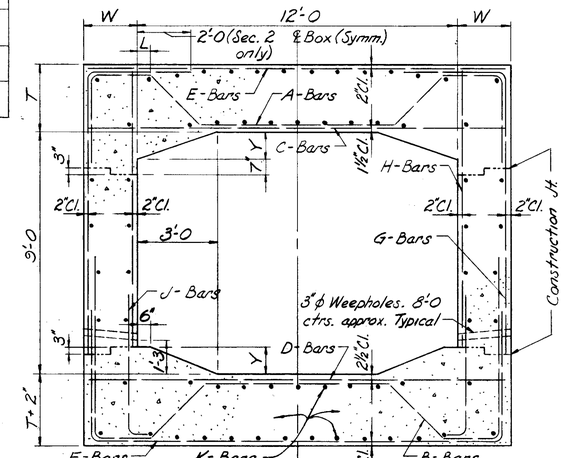




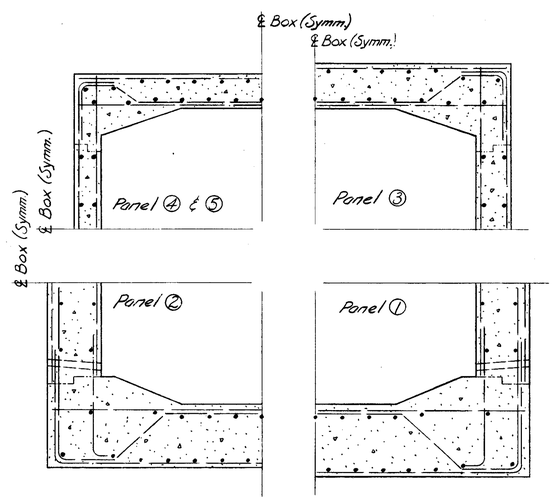


DRIFT FIN DETAIL
(Encased in concrete)
Scale: 1½"=1'-0

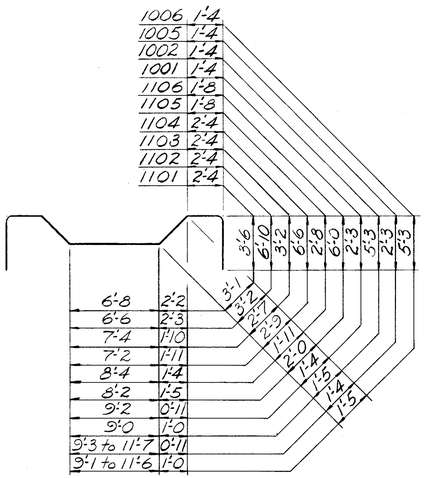
Replacement Bars				
Mark	No.	Length	Weight	Shp
RE 1101	6	8'-7		B
RE 1001	2	8'-3		S
RE 901	1	7'-10		S
RE 801	1	7'-6		S
RE 701	2	7'-3		S
RE 601	4	6'-11		S
RE 501	2	6'-7		S
RE 401	1	6'-3		S

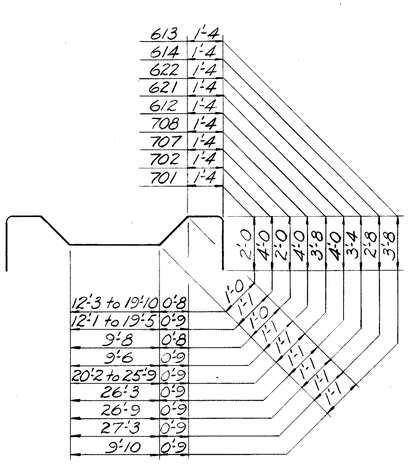


TYPICAL BOX SECTION
For number & arrangement of K-Bars see Longitudinal Bar Patterns



LONGITUDINAL BAR PATTERNS





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, 701 is a No. 7 size bar and 1101 is a No. 11 size.

For additional reinforcing see sheet 5/5

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

435/516

JEF-22-3.86

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS 3/5
WORTHINGTON OHIO

STEEL REINFORCING LIST TYPICAL BOX DETAILS BRIDGE NO. JEF-22-0747 OVER CEDAR LICK RUN

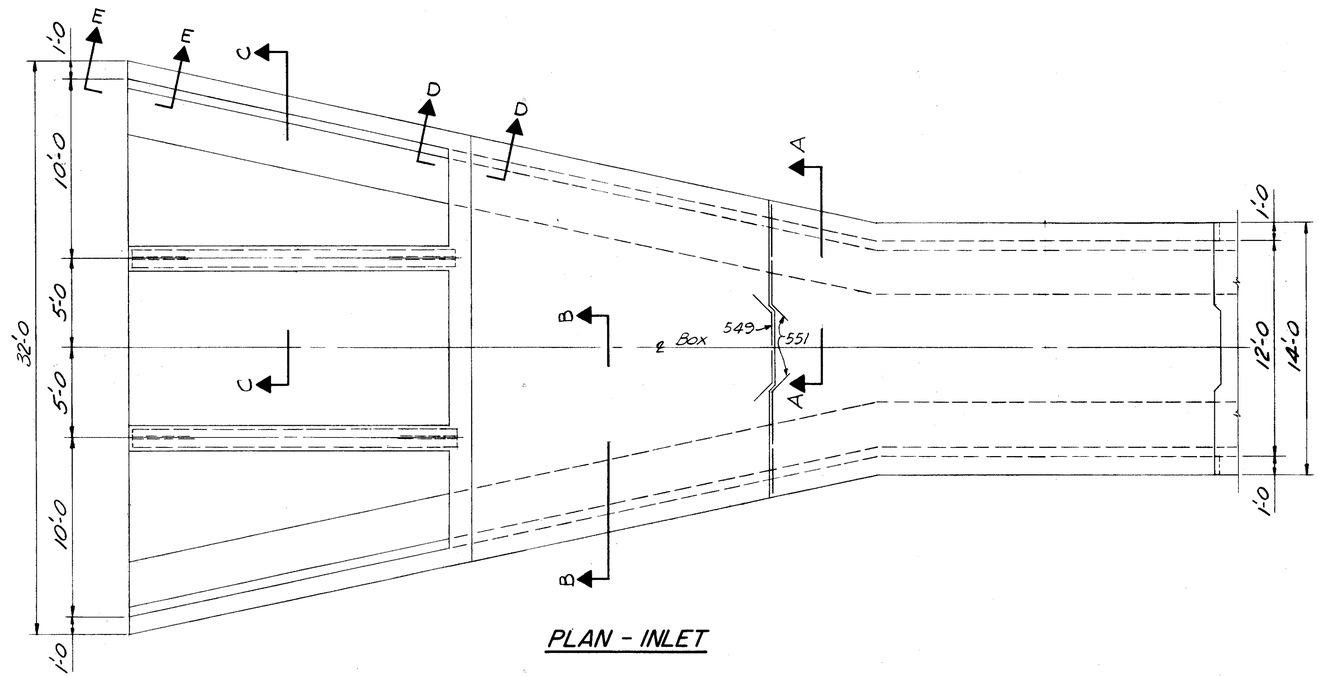
JEFFERSON CO. STA. 394+28

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	JGM	JGM	JM	MDW	8-12-96	

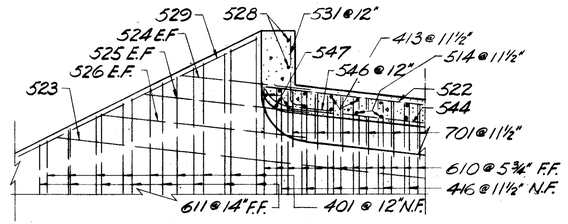
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

436/516

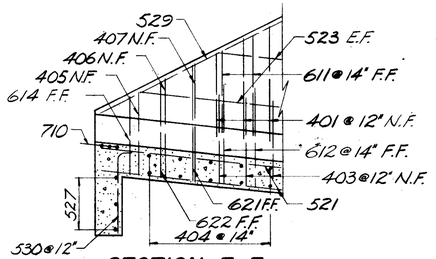
JEF-22-3.86



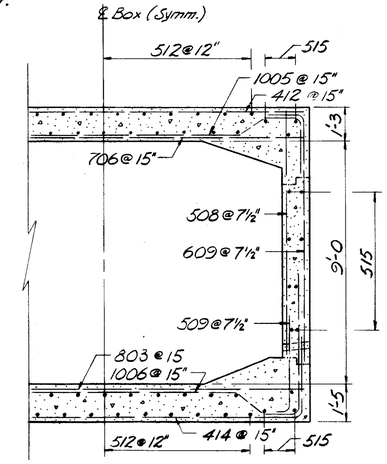
PLAN - INLET



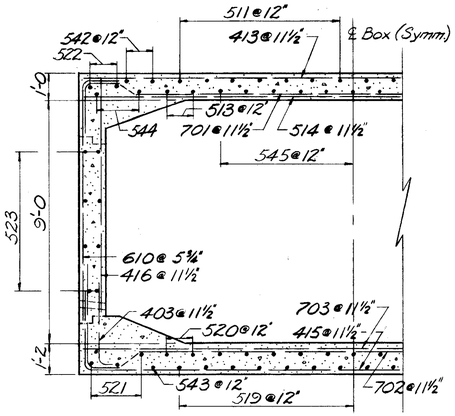
SECTION D-D



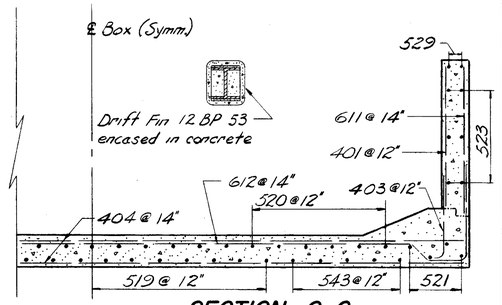
SECTION E-E



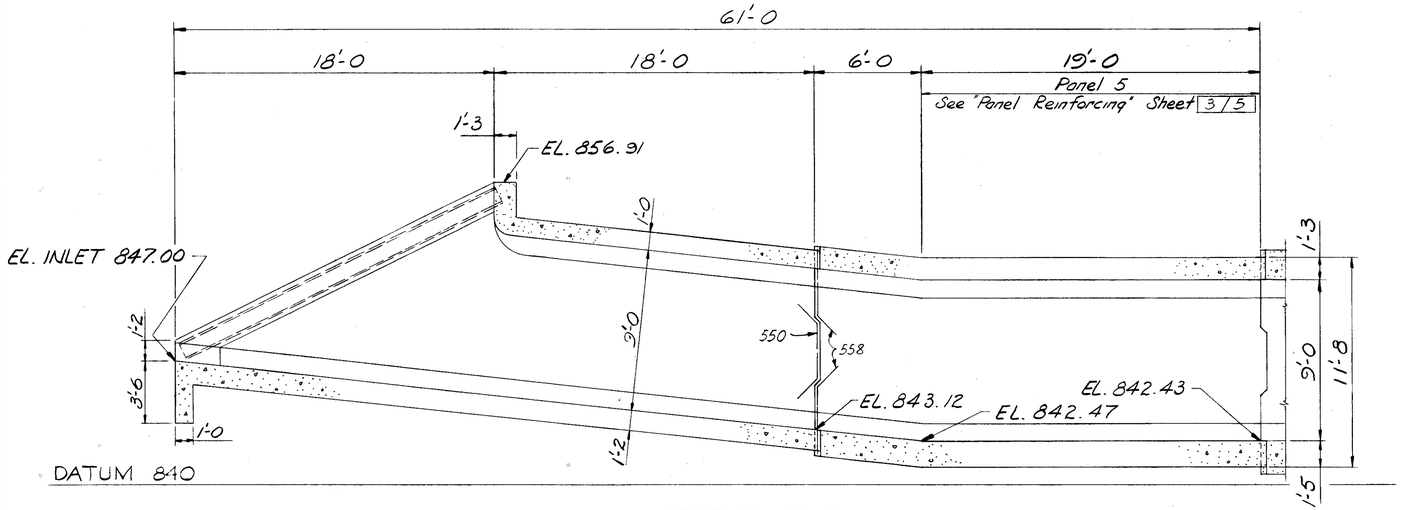
SECTION A-A



SECTION B-B



SECTION C-C



SECTION ON ℄

Notes:
N.F. = Near Face
F.F. = For Face
E.F. = Each Face

STICKLEN - BELSHEIM & ASSOCIATES 4/5
ENGINEERS
WORTHINGTON OHIO

DETAILS-INLET END
BRIDGE NO. JEF-22-0747
OVER CEDAR LICK RUN

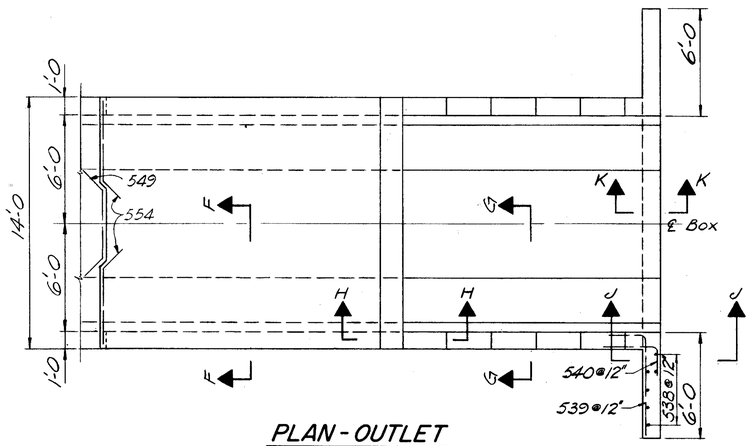
JEFFERSON CO. STA. 394+28

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	JGM	JGM	JM	TJSW	8-12-68	

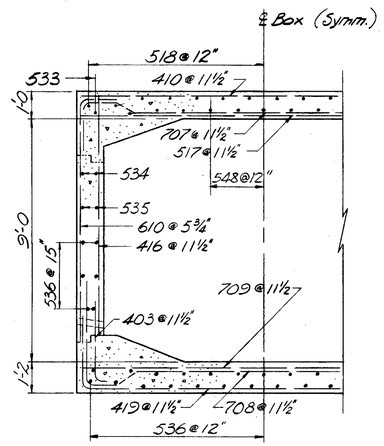
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

437/516

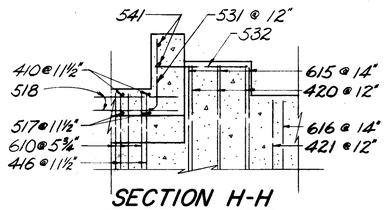
JEF-22-3.86



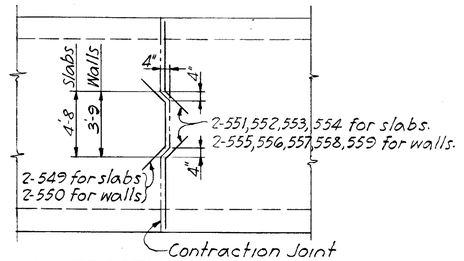
PLAN - OUTLET



SECTION F-F

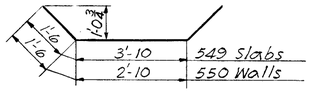


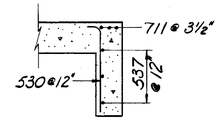
SECTION H-H



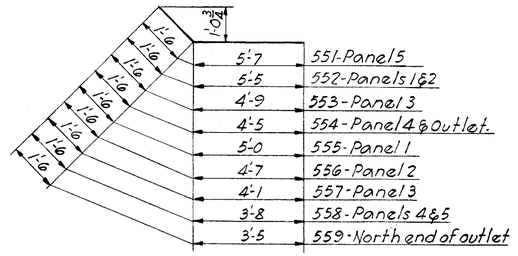
CONTRACTION JOINT DETAIL

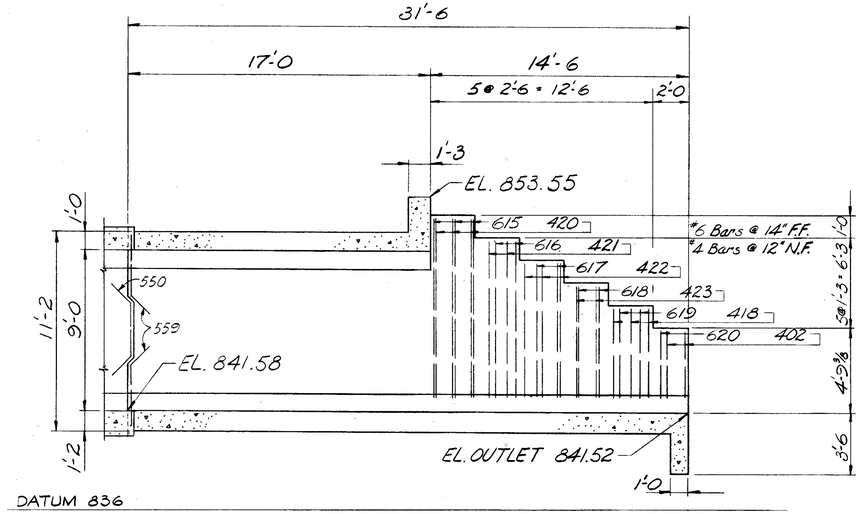
For reinforcing details see below.



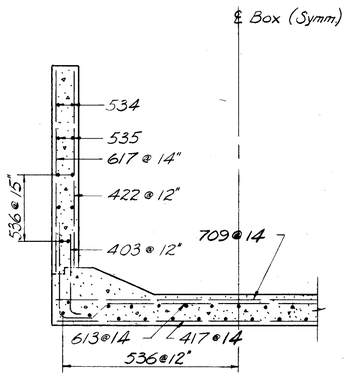


SECTION K-K

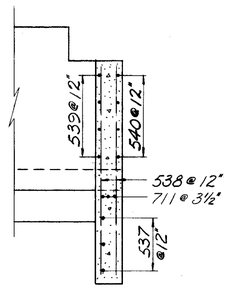




SECTION ON ℄



SECTION G-G



SECTION J-J

Mark	Nº	Length	Weight	Shp
549	76	6'-10	542	B
550	76	5'-10	462	B
551	8	7'-1	59	B
552	96	6'-11	693	B
553	32	6'-3	209	B
554	16	5'-11	99	B
555	64	6'-6	434	B
556	32	6'-1	203	B
557	32	5'-7	186	B
558	16	5'-2	86	B
559	8	4'-11	41	B

STICKLEN - BELSHEIM & ASSOCIATES 5/5
ENGINEERS
WORTHINGTON OHIO

DETAILS-OUTLET END

BRIDGE NO. JEF-22-0747
OVER CEDAR LICK RUN

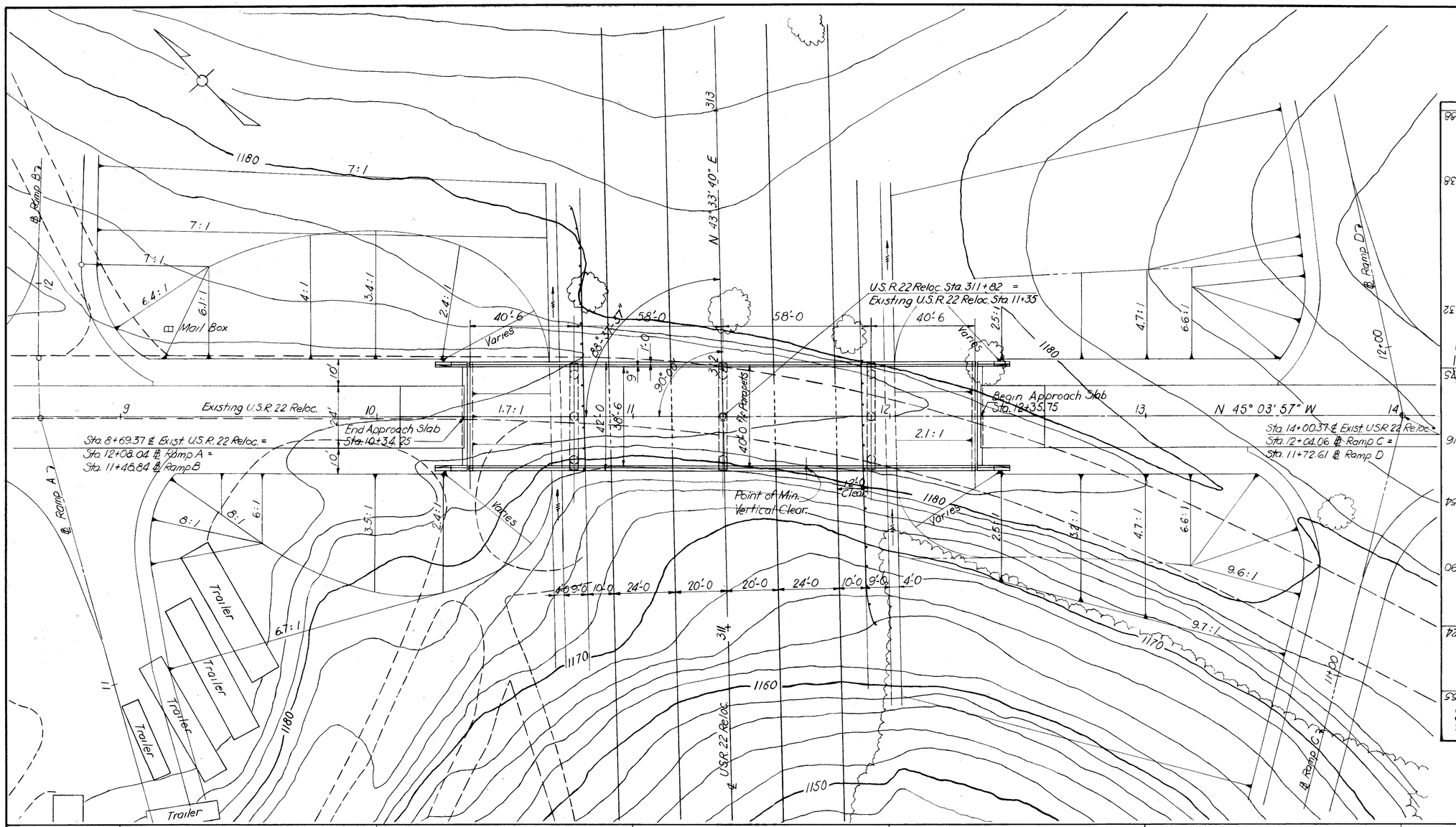
JEFFERSON CO. **STA. 394+28**

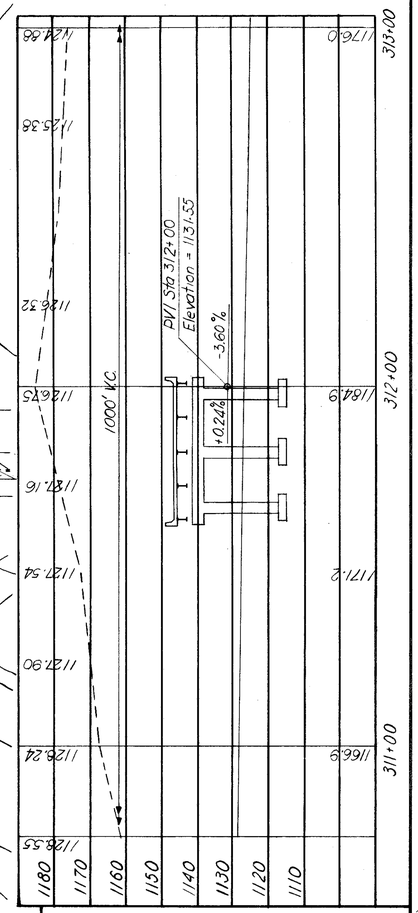
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	JGM	JGM	JM	MBW	8-12-48	

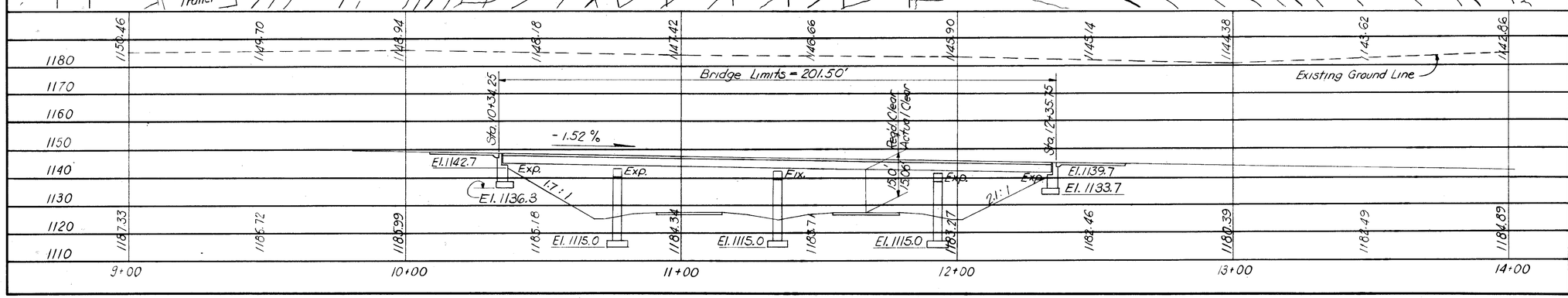
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

438
516

JEF-22-3.86







PROPOSED STRUCTURE

Type: Continuous steel beams with reinforced concrete deck and substructure.
Spans: 40'-6, 58'-0, 58'-0, 40'-6 c/c brgs.
Roadway: 40' f/f parapets.
Skew: None
Wearing Surface: 1" monolithic concrete.
Approach Slabs: AS-1-67 (25' long)
Alignment: Tangent.
Traffic: 665 ADT (1988).
Live Load: HS 20-44.

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS
WORTHINGTON OHIO

1 / 7

SITE PLAN
BRIDGE NO. JEF-22-0590
UNDER EXISTING U.S.R. 22 RELOC.

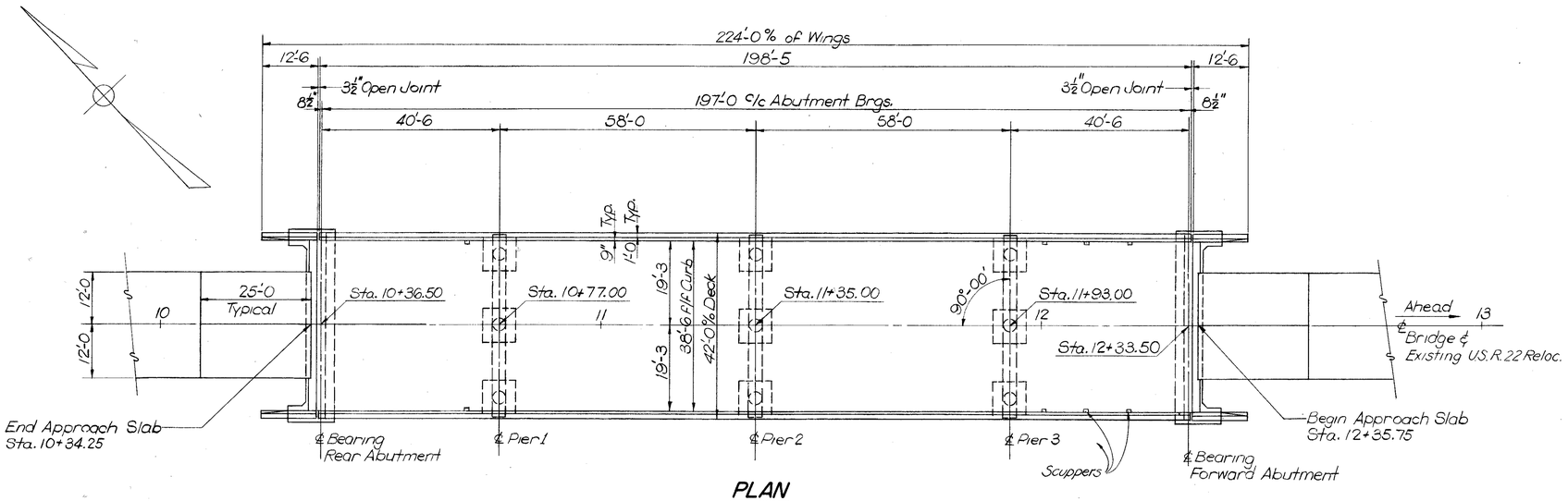
JEFFERSON CO.
SCALE = 1" = 20'
STA. 311 + 82

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
AERIAL SURVEY	AERIAL SURVEY	LCT	EH	JM	

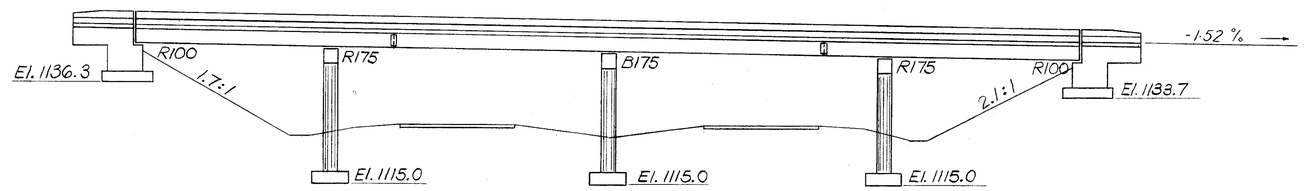
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

439
516

JEF-22-3.86

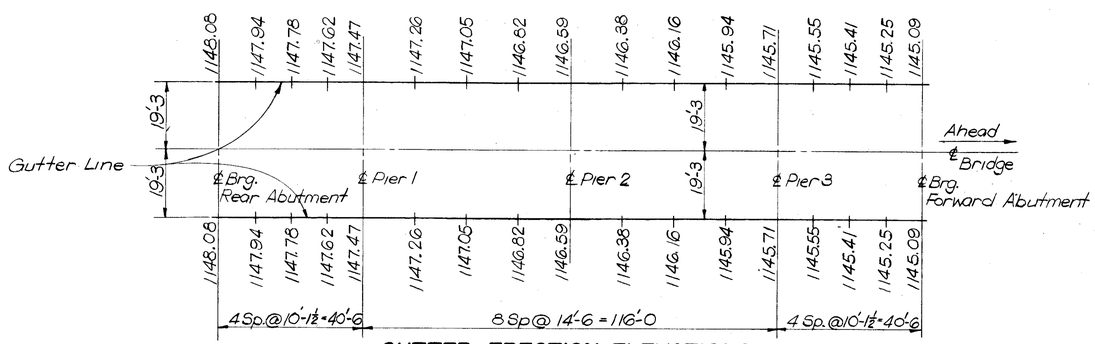


PLAN



DATUM 1100

ELEVATION



GUTTER ERECTION ELEVATIONS

Elevations shown are those required before deck concrete is placed

GENERAL NOTES:

- REFERENCE shall be made to Standard Drawings AS-1-67, revised 1-11-68, BR-1-67 dated 2-1-68, RB-1-55, revised 2-2-59, SD-1-65 dated 11-8-65, and to Supplemental Specifications 808 dated 1-13-67, 811 and 828, dated 1-1-67, 832 and 931, dated 5-25-67, 825, dated 12-19-67.

- DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications For Highway Bridges" adopted by the American Association of State Highway Officials, 1965, including the Ohio "Supplement" to these specifications.

- DESIGN DATA:
  Design Loading - HS20-44.
  Concrete Class C - unit stress 1200 p.s.i. for superstructure.
  unit stress 1333 p.s.i. for substructure.
  Structural Steel - ASTM A36 - unit stress 20,000 p.s.i.
  Reinforcing Steel - ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Unit stress 20,000 p.s.i. except that spiral reinforcement may be plain bars, Structural Grade with minimum ultimate strength of 58,000 p.s.i.

- MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.

- FOUNDATION BEARING PRESSURE: Footings are designed for a maximum bearing pressure of 1.5 Tons per square foot for the abutments and 4.7 Tons per square foot for the piers.

- PIER FOOTING: Pier footing elevations will be determined by the Director after the pier excavations are no lower than elevation 1121.0±. The final footing elevations will be based on field exploratory test pits below elevation 1121.0±.

- PAINTING of structural steel shall be according to Supplemental Specification 832.

- WELDED ATTACHMENTS: No attachments shall be made by field welding to the top flanges or flange plates of continuous beams within a distance of 0.10 of the span length on either side of the interior supports. Welding for attachments to the top flanges at other parts of the spans shall be kept at least 2 inches from edge of flange.

- WELDS on secondary stress carrying members are shown thus: S

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS 2/7
WORTHINGTON OHIO

GENERAL PLAN
BRIDGE NO. JEF-22-0590
UNDER EXISTING U.S.R. 22 RELOC.

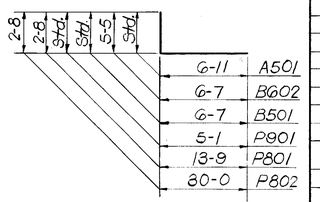
JEFFERSON CO. STA. 311+82

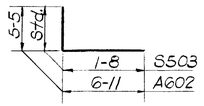
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	JM	TMW	8-12-68	

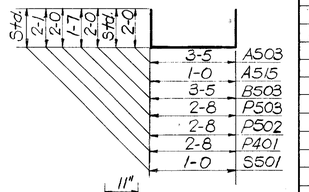
REINFORCING STEEL LIST

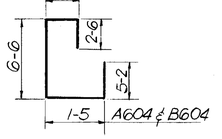
Mark	No.	Length	Weight	Shape
Superstructure				
S601	736	21-9	24,044	S
S602	616	30-0	27,757	S
S603	90	23-0	3109	S
S604	368	17-1	9443	S
S605	368	26-7	14,694	S
S501	300	2-0	626	B
S502	300	5-4	1669	B
S503	300	2-2	678	B
S504	300	3-3	1017	B
S505	96	11-8	1168	S
S506	48	4-8	234	S
S507	16	11-10	197	S
Rear Abutment				
A701	2	4-4	18	S
A702	2	4-9	19	B
A703	2	4-10	20	B
A704	2	4-11	20	B
A705	2	5-0	20	B
A601	8	22-7	271	S
A602	28	12-2	512	B
A603	16	13-9	330	B
A604	25	15-10	595	B
A605	10	19-0	285	B
A606	8	5-0	60	B
A501	28	7-5	217	B
A502	34	21-5	759	S
A503	28	7-2	209	B
A504	2	6-11	14	S
A505	1	26-0	27	S
A506	2	19-10	41	S
A507	16	7-2	120	S
A508	8	3-10	32	B
A509	4	10-2	42	S
A510	20	3-5	71	S
A511	10	7-5	77	B
A512	28	12-2	355	S
A513	4	7-3	30	S
A514	4	6-4	26	S

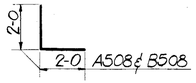
Bending Diagrams





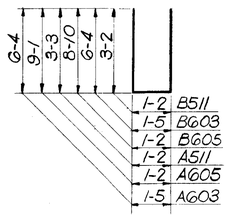


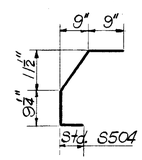


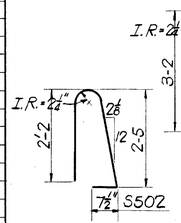


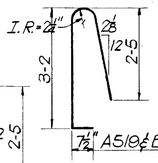
Mark	No.	Length	Weight	Shape
A515	18	2-0	38	B
A516	20	3-0	63	S
A517	10	2-10	30	S
A518	4	8-4	35	S
A519	8	6-4	53	B
A520	14	4-0	58	S
A521	4	7-1	30	S
Forward Abutment				
B701	2	5-0	20	B
B702	2	4-11	20	B
B703	2	4-10	20	B
B704	2	4-9	19	B
B705	2	4-4	18	S
B601	8	22-7	271	S
B602	28	11-10	498	B
B603	16	13-9	330	B
B604	25	15-10	595	B
B605	10	18-7	279	B
B606	8	5-0	60	B
B501	28	7-1	207	B
B502	34	21-5	759	S
B503	28	7-2	209	B
B504	2	6-11	14	S
B505	1	26-0	27	S
B506	2	19-10	41	S
B507	16	7-2	120	S
B508	8	3-10	32	B
B509	4	10-2	42	S
B510	20	3-4	70	S
B511	10	7-3	76	B
B512	28	12-2	355	S
B513	4	7-3	30	S
B514	4	6-4	26	S
B515	18	2-0	38	B
B516	20	3-0	63	S
B517	10	2-10	30	S
B518	4	7-11	33	S
B519	8	6-4	53	B

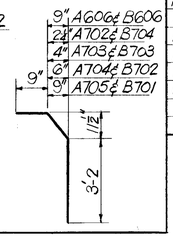
Bending Diagrams







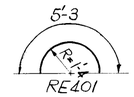




Mark	No.	Length	Weight	Shape
B520	14	4-0	58	S
B521	4	6-7	27	S
Piers				
P1001	42	22-3	4021	S
P901	108	6-1	2234	B
P902	108	24-2	8874	S
P903	108	23-4	8568	S
P904	108	22-5	8231	S
P801	21	16-2	906	B
P802	21	32-5	1818	B
P701	144	7-2	2109	S
P501	12	21-3	266	S
P502	27	6-5	181	B
P503	18	5-7	105	B
P401	228	6-7	1003	B
Replacement Bars				
RE1001	1	8-3		S
RE901	2	7-10		S
RE801	1	7-6		S
RE701	1	7-3		S
RE601	5	6-11		S
RE501	2	6-7		S
RE401	1	6-3		B

Mark	No.	Length %	No. Turns	Weight
Spiral Reinforcing List				
SP401	3	22-2	62	1207
SP402	3	21-4	60	1162
SP403	3	20-5	57	1113

Core dia. % Spiral = 2'-8
Pitch = 4½"



SPIRAL REINFORCING BARS: The "length" shown in the steel list for spiral bars is the distance from the top of the footing to the bottom of the per cap. The number of turns" shown is the "length" divided by the pitch, plus 3 turns, total no. 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, 1½ Closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.68 lbs. per Lin. Ft. of spacer shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lbs. per Lin. Ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

BAR SIZE: Is indicated in the bar mark. The first digit where three digits are used and the first two digits, where four digits are used, indicate the bar size number. For example, S601 is a No. 6 size bar and P1001 is a No. 10 size bar.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

440/516

JEF - 22 - 3.86

ESTIMATED QUANTITIES

LCT 7-24-68

Item	Total	Unit	Description	Superstr.	Rear Abutment	Pier 1	Pier 2	Pier 3	Forward Abutment	General		
503	~~394~~	Cu. Yds.	Shale excavation		102	69	62	69	92		-112 c.y.	282 c.y.
511	96	Cu. Yds.	Class C Concrete - Footings		24	16	16	16	24			
511	266	Cu. Yds.	Class C Concrete - Superstructure	266								
511	~~94~~	Cu. Yds.	Class C Concrete - Piers above footings			32	31	31			-14 c.y.	80 c.y.
511	105	Cu. Yds.	Class C Concrete - Abutments above footings		54				51			
509	~~135,396~~	Lbs.	Reinforcing Steel	84,636	4,522	14,294	13,944	13,560	4,440		-22,037	113,359
513	164,986	Lbs.	Structural Steel	164,986								
518	44	Cu. Yds.	Porous backfill		22				22			
518	8	Each	Scuppers (Type 2) including supports									
518	90	Lin. Ft.	6" perforated, helical corrugated metal pipe, including specials 707.06		45				45			
518	~~78~~ 70	Lin. Ft.	6" non-perforated, helical corrugated metal pipe, 707.06		~~39~~ 35				~~39~~ 35		-8 Lin. Ft.	70
808	266	Units	Water-reducing, set-retarding admixture	266								
825	1,049	Sq. Yds.	Concrete surface treatment	1,009	20				20			
828	78	Lin. Ft.	Joint Sealer		39				39			
832	164,986	Lbs.	Field painting of structural steel	164,986								
503	333	Cu. Yd.	Unclassified Excavation								+333	333 Cu. Yd.

STICKLEN - BELSHEIM & ASSOCIATES 3/7
ENGINEERS
WORTHINGTON OHIO

REINFORCING LIST
BRIDGE NO. JEF-22-0590
UNDER EXISTING U.S.R. 22 RELOC.
JEFFERSON CO. STA. 311+82

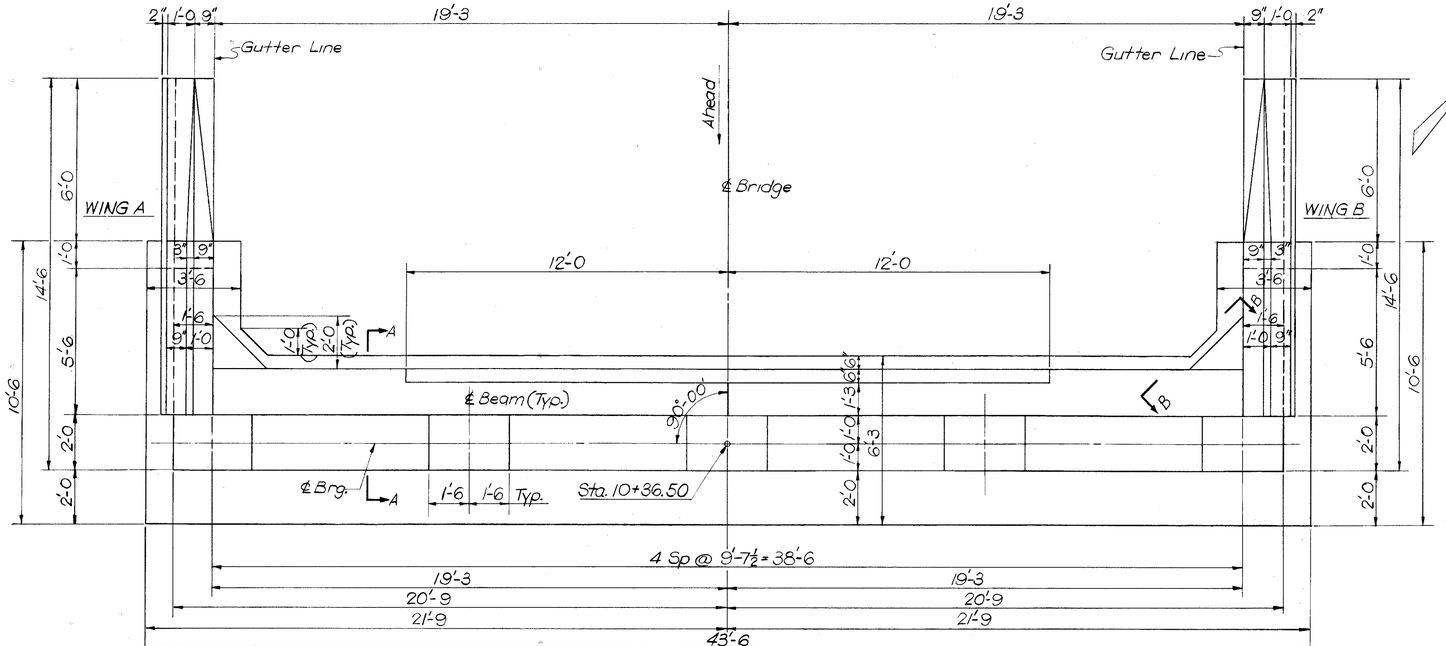
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Std.	EH	EH	JM	[illegible]	8.12.68	

16 Revised As-Built 5-11-72

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

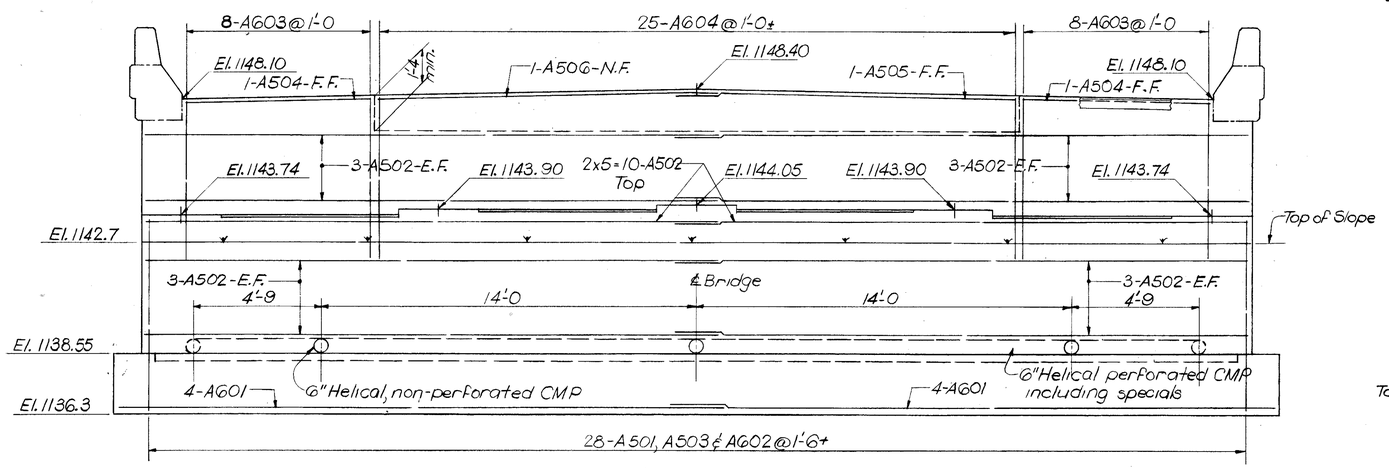
441/516

JEF - 22 - 3.86

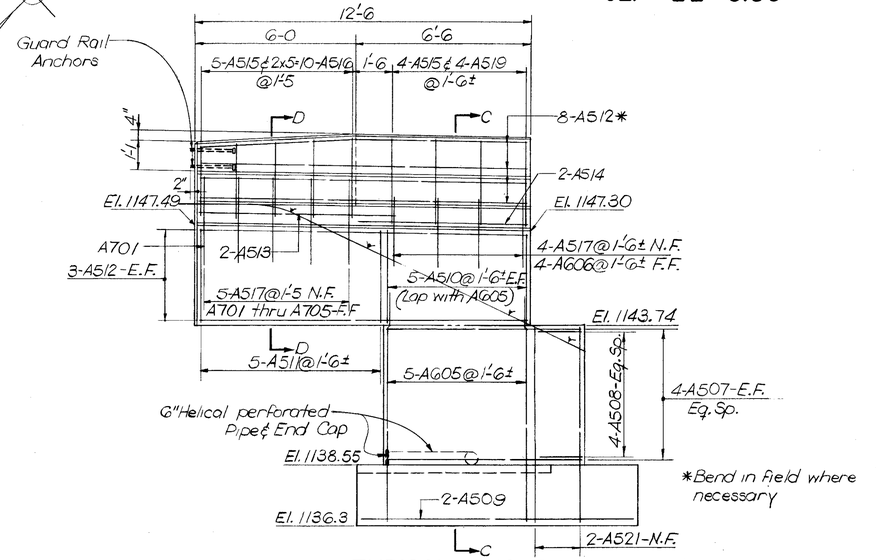


PLAN

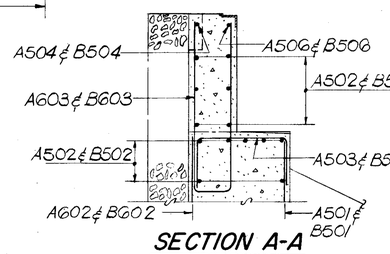
NOTES:
N.F. = Near Face, F.F. = For Face, E.F. = Each Face, Eq. Sp. = Equally Spaced.
POROUS BACKFILL: 1'-6 Thick, Full length of abutment and wings, shall extend up to the subgrade or to the finished ground surface.
ADJUSTABLE TYPE ELBOWS meeting specification requirements for gage and coating are acceptable for making bends in perforated corrugated metal pipe. Elbows and the stem of tees need not be perforated.
For Section C-C and Section D-D see Sheet No.



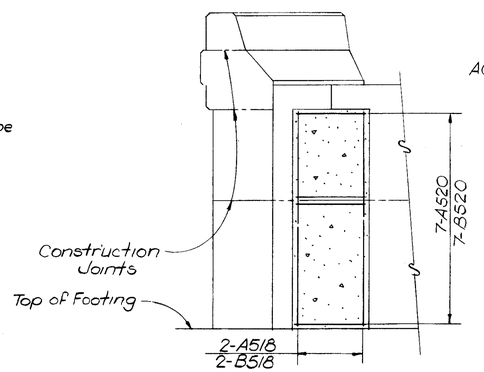
ELEVATION



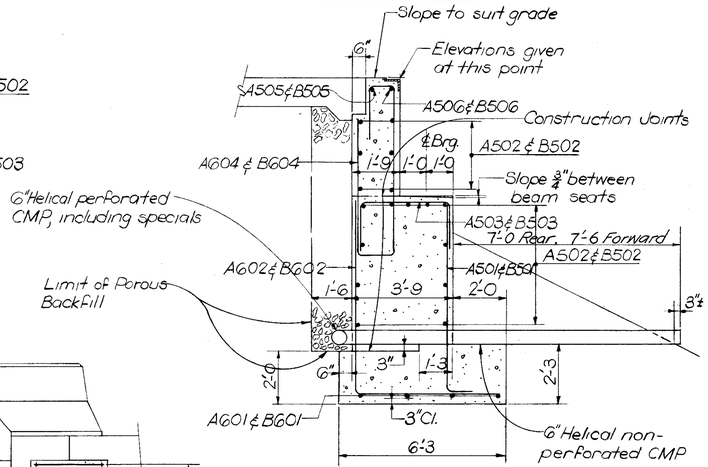
TYPICAL WING ELEVATION



SECTION A-A



SECTION B-B



TYPICAL ABUTMENT SECTION

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS
WORTHINGTON OHIO

4/7

REAR ABUTMENT
BRIDGE NO. JEF-22-0590
UNDER EXISTING U.S.R. 22 RELOC.

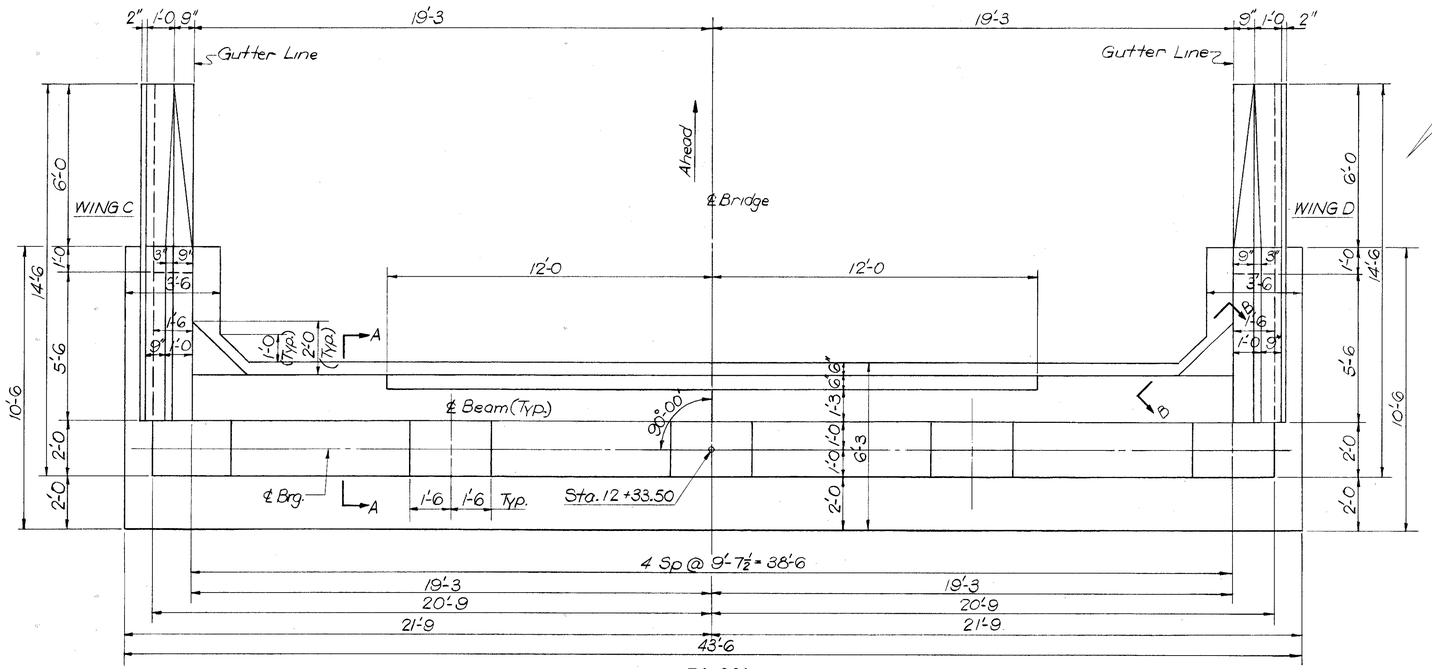
JEFFERSON CO. STA. 311+82

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AB	EH	EH	JM	MW	8-12-68	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

442
516

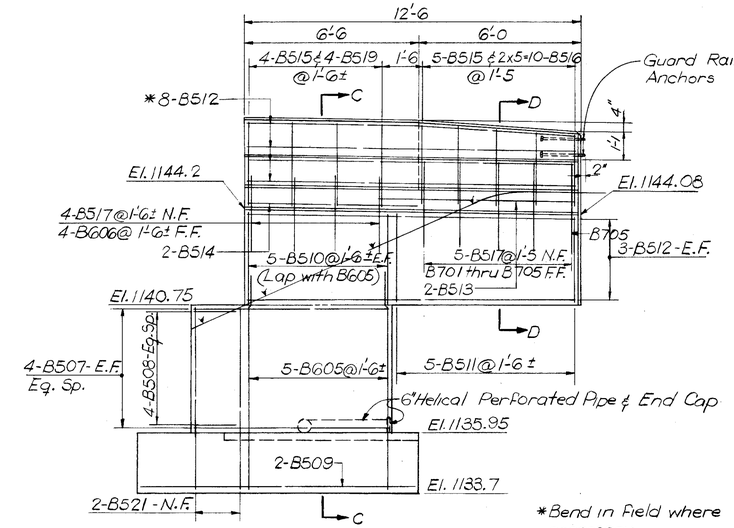
JEF - 22 - 3.86



PLAN

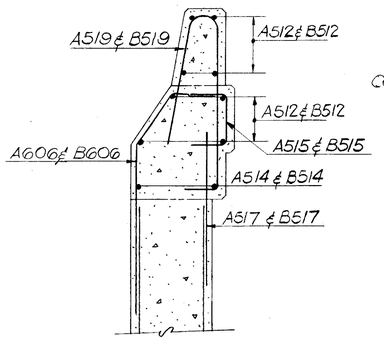
NOTES:

- N.F. = Near Face, F.F. = Far Face, E.F. = Each Face, Eq. Sp. = Equally Spaced.
- POROUS BACKFILL: 1'-6 Thick, full length of abutment and wings, shall extend up to the subgrade or to the finished ground surface.
- For typical abutment section, Section A-A and Section B-B see Sheet No.
- ADJUSTABLE TYPE ELBOWS meeting specification requirements for gage and coating are acceptable for making bends in perforated corrugated metal pipe. Elbows and the stem of tees need not be perforated.

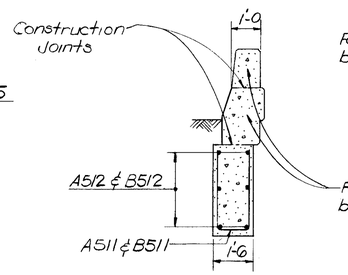


*Bend in Field where necessary

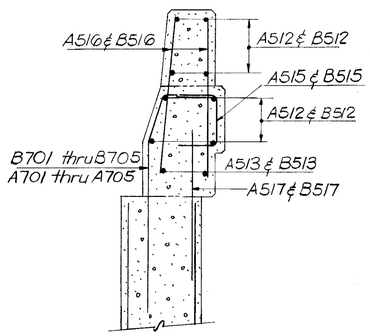
TYPICAL WING ELEVATION



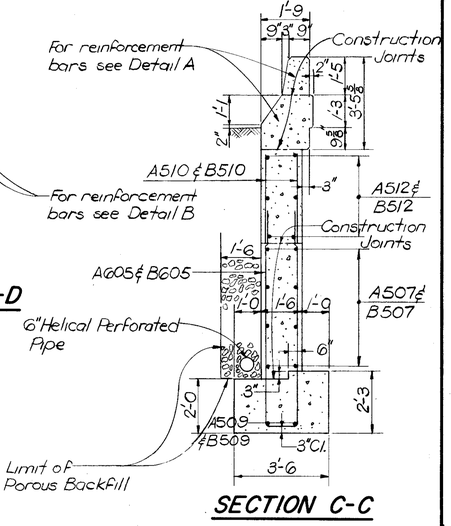
DETAIL A



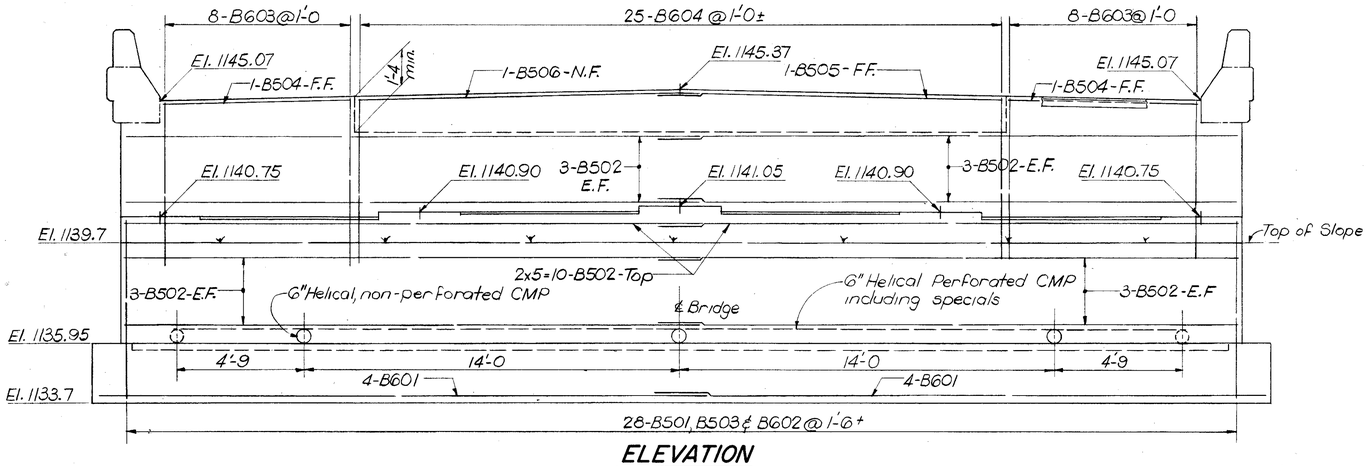
SECTION D-D



DETAIL B



SECTION C-C



ELEVATION

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS						5/7
WORTHINGTON					OHIO	
FORWARD ABUTMENT						
BRIDGE NO. JEF-22-0590						
UNDER EXISTING U.S.R. 22 RELOC.						
JEFFERSON CO.					STA. 311+82	
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AB	EH	EH	JM	MBW	8-12-68	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

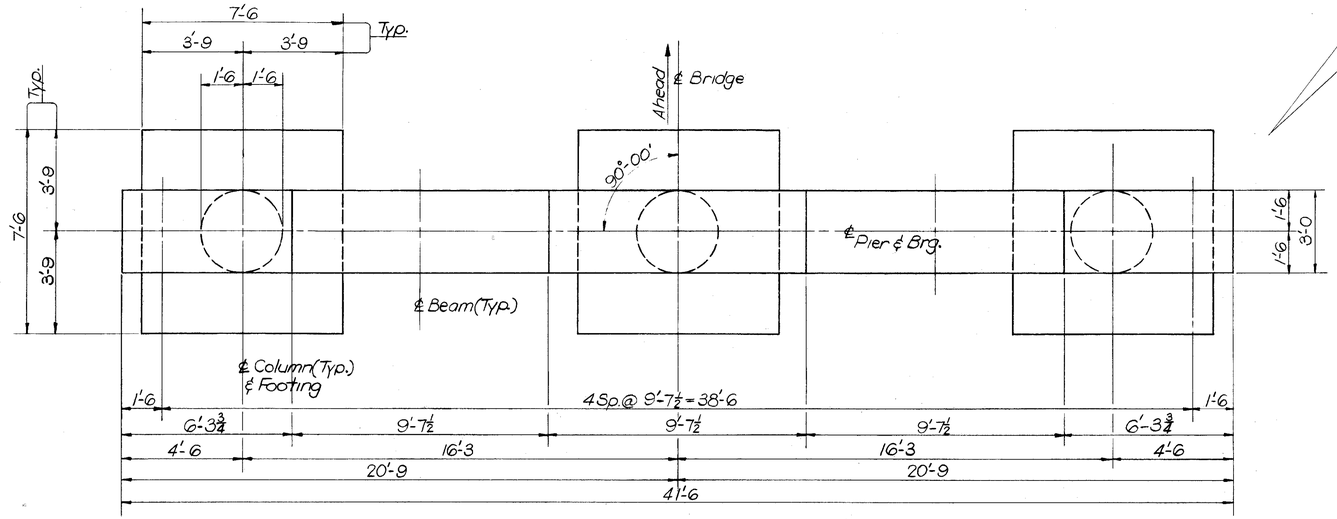
443/516

JEF-22-3.86

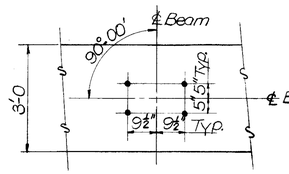
ELEVATIONS

Elevations	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ
PIER 1	1142.71	1142.86	1143.01	1142.86	1142.71	1139.71
PIER 2	1141.81	1141.96	1142.11	1141.96	1141.81	1138.81
PIER 3	1140.95	1141.10	1141.25	1141.10	1140.95	1137.95

	PIER 1	PIER 2	PIER 3
Dimension A	22'-2½	21'-3¾	20'-5⅜
Bar 'A'	P902	P903	P904
Spiral Bar	SP401	SP402	SP403

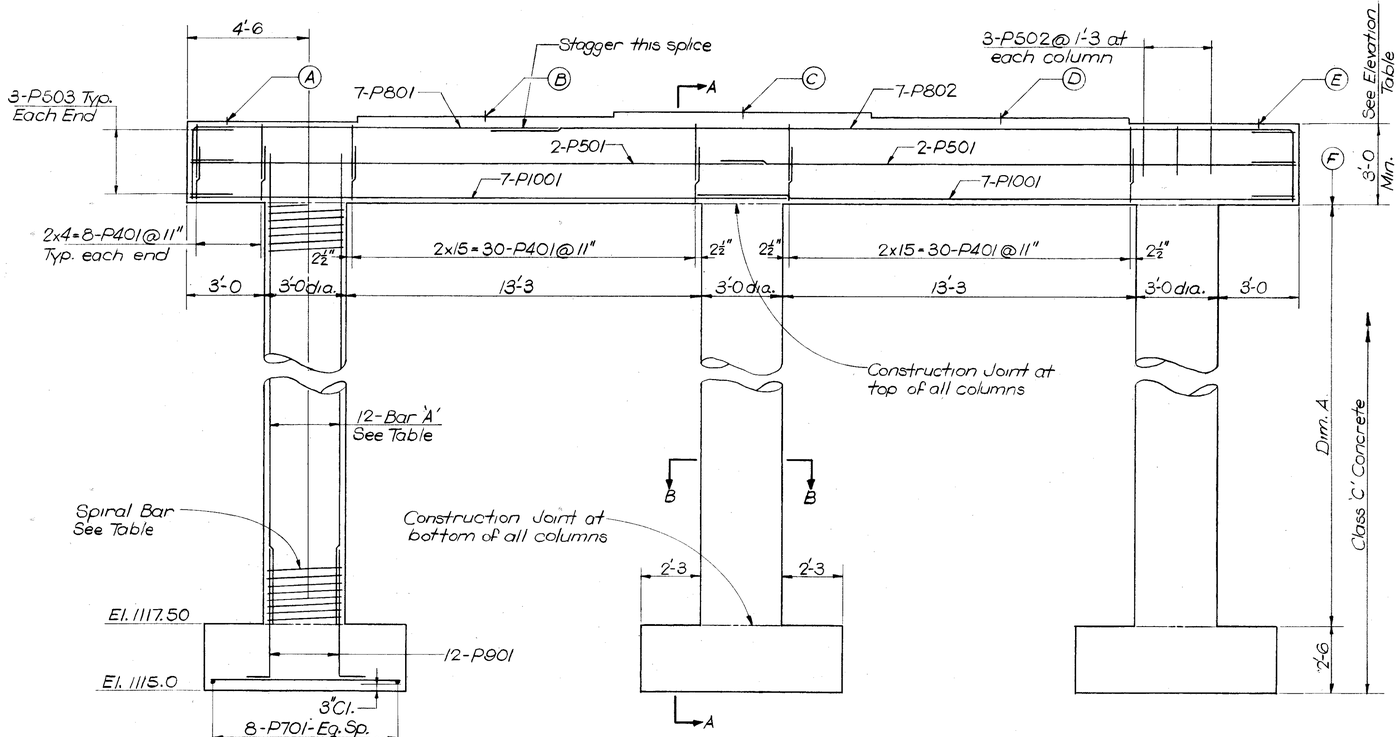


PLAN
(Typical for all piers)

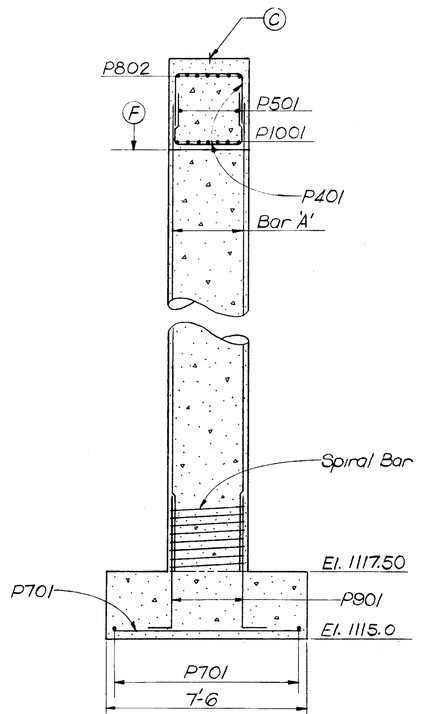


ANCHOR BOLT LAYOUT
(Pier 2 only)

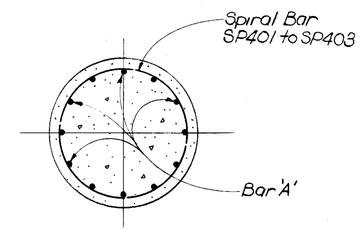
NOTES
- For pier designation number see General Plan.
- All concrete shall be Class 'C'.
- Anchor bolts shall be 1¼ø x 1'-8 long.
- BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of the Anchor Bolt Holes for Pier 2.



ELEVATION
(LOOKING AHEAD)



SECTION A-A



SECTION B-B

STICKLEN - BELSHEIM & ASSOCIATES 6/7
ENGINEERS
WORTHINGTON OHIO

PIERS
BRIDGE NO. JEF-22-0590
UNDER EXISTING U.S.R. 22 RELOC.

JEFFERSON CO. STA. 311+82

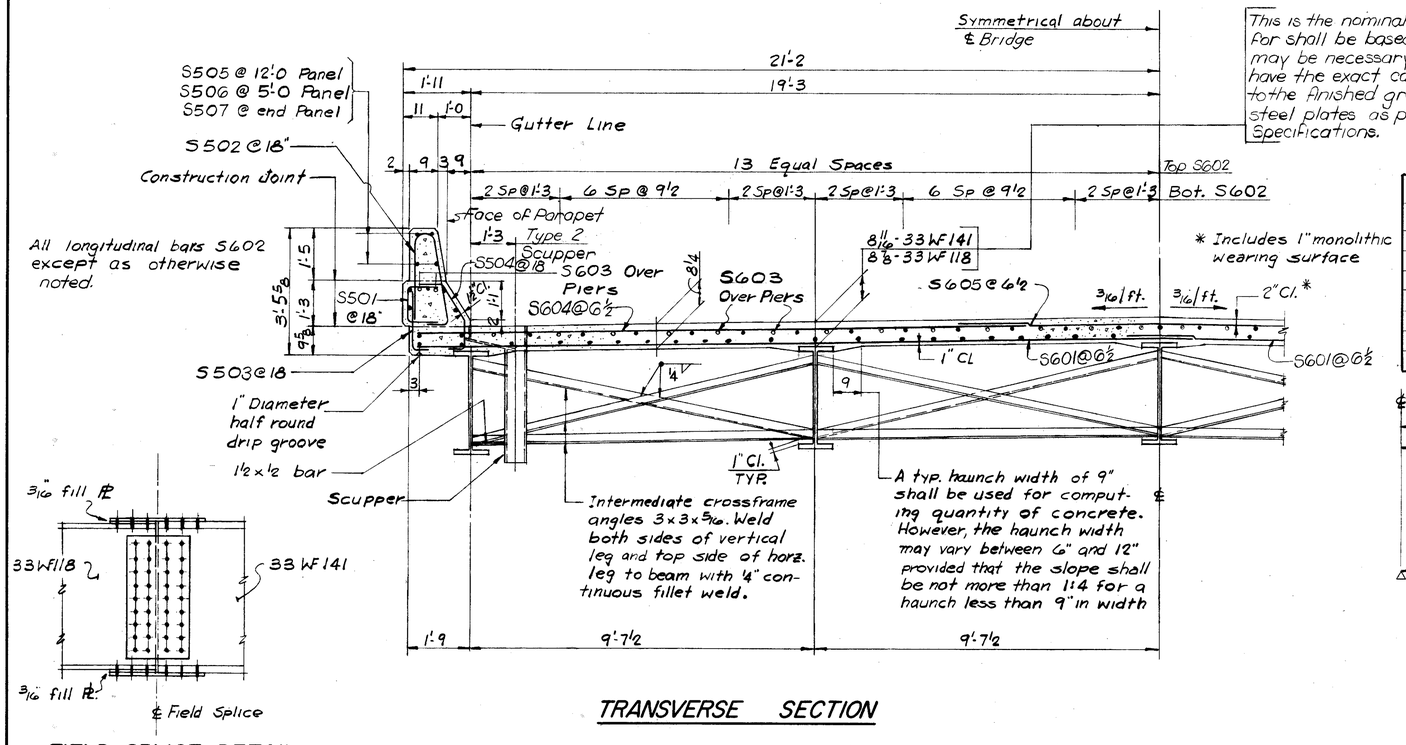
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AB	EH	EH	JM	[illegible]	8-12-68	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

444/516

JEF-22-3.86

This 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 sec. 511.19 of the Construction Material Specifications.

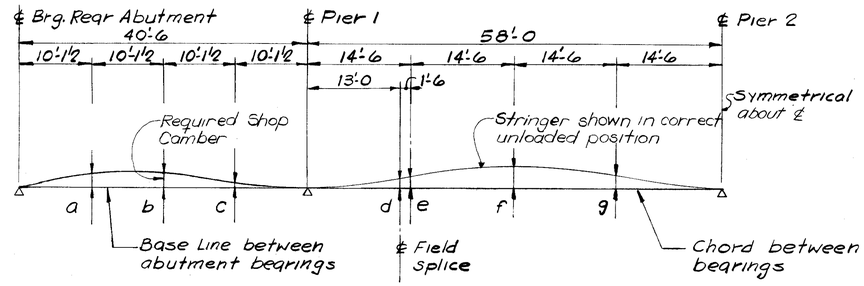


TRANSVERSE SECTION

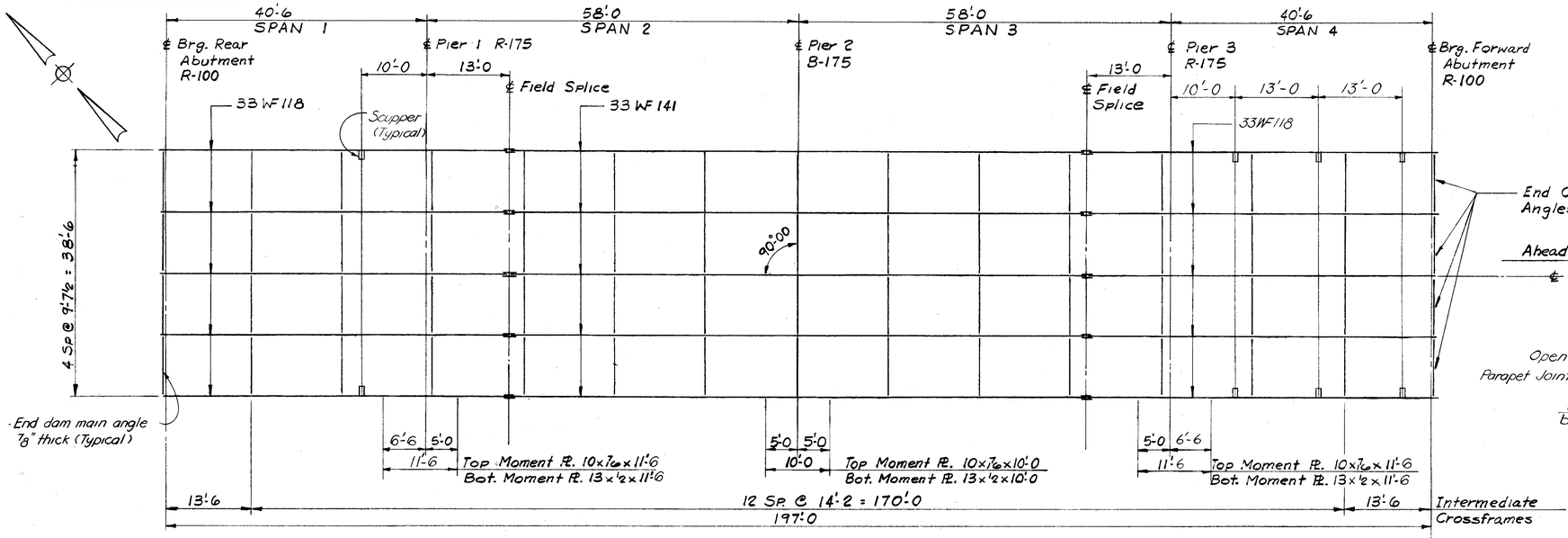
FIELD SPLICE DETAIL

DEFLECTIONS & CAMBERS

POINT	a		b		c		d		e		f		g	
BEAM	Exter.	Inter.	Exter.	Inter.	Exter.	Inter.	Exter.	Inter.	Exter.	Inter.	Exter.	Inter.	Exter.	Inter.
Deflection due to weight of steel	—	—	—	—	—	—	—	—	—	—	1/16	1/16	—	—
Deflection due to weight of concrete	1/16	1/8	1/16	1/8	—	—	1/8	1/8	1/8	3/16	3/16	1/4	1/8	1/8
Sum of deflection due to dead load	1/16	1/8	1/16	1/8	—	—	1/8	1/8	1/8	3/16	1/4	5/16	1/8	1/8
Convexity for vertical curve	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sum of deflection & convexity	1/16	1/8	1/16	1/8	—	—	1/8	1/8	1/8	3/16	1/4	5/16	1/8	1/8
Camber required	1/16	1/8	1/16	1/8	—	—	1/8	1/8	1/8	3/16	1/4	5/16	1/8	1/8

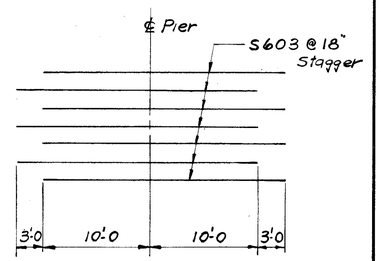


CAMBER DIAGRAM

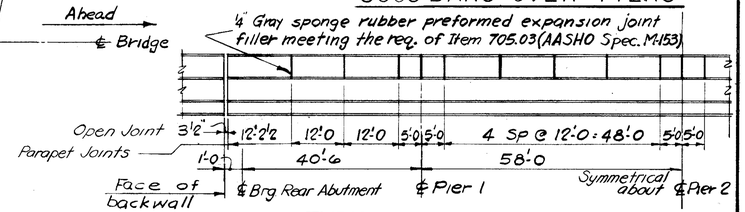


FRAMING PLAN

FOR DETAILS OF:
- Rockers & Bolsters see Standard Drawing RB-1-55.
- For superstructure details not shown see Standard Drawing SD-1-65.



S603 BARS OVER PIERS



TYPICAL PARAPET ELEVATION

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS 7/7
WORTHINGTON OHIO

SUPERSTRUCTURE

BRIDGE NO. JEF-22-0590
UNDER EXISTING U.S.R. 22 RELOC.

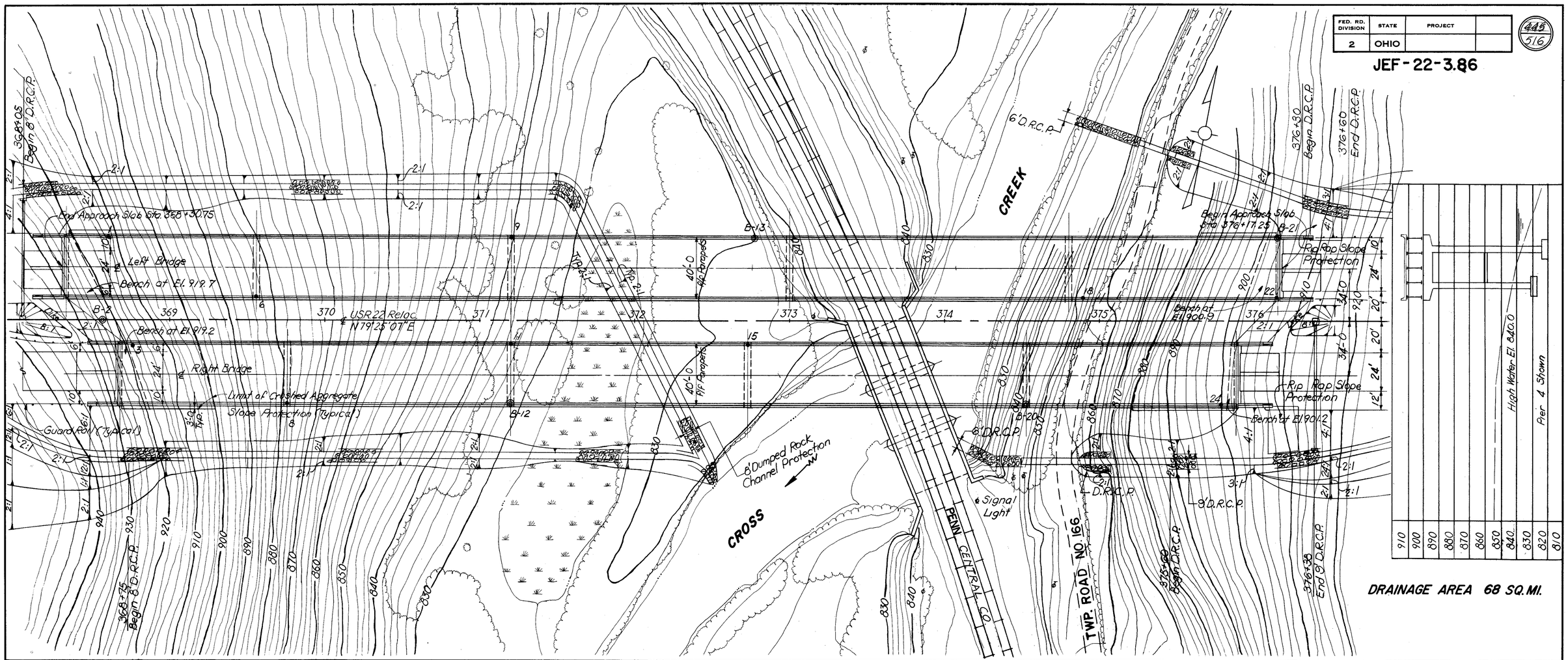
JEFFERSON CO. STA. 311+82

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	RG	RG	NW JM	mcw	8-12-68	

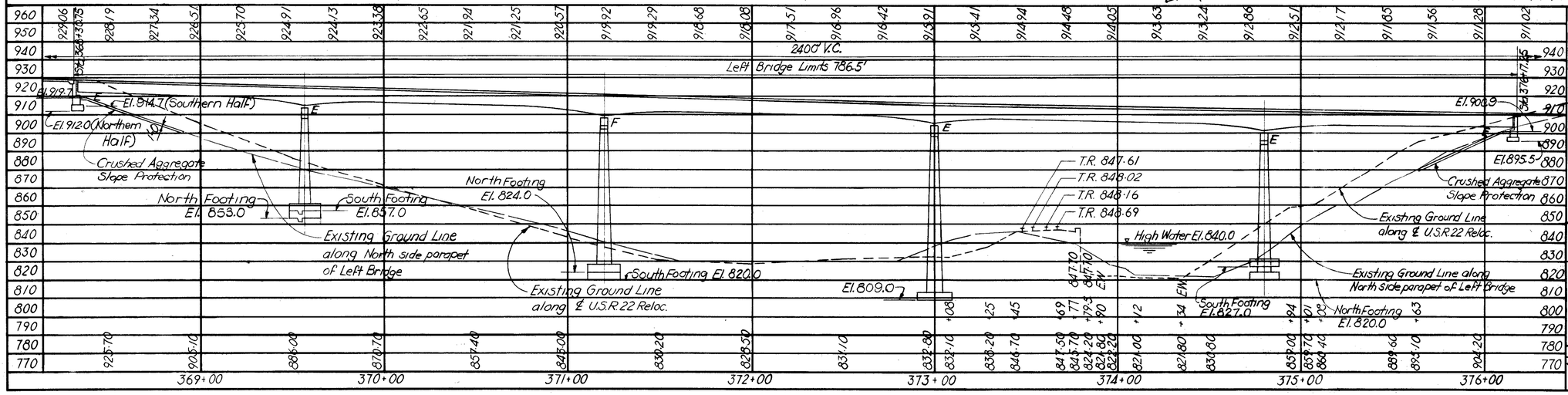
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

445/516

JEF-22-3.86



DRAINAGE AREA 68 SQ. MI.



PROPOSED STRUCTURE

Type : Continuous welded steel deck girders with reinforced concrete deck and substructure.
Spans : 123' : 164' : 180' : 180' : 135' c/c bearings.
Roadway : 40' f/f parapets.
Live Load : HS20-44
Skew : None
Wearing Surface : 1" monolithic concrete
Approach Slabs : AS-1-67 (25' long)
Alignment : Tangent
Traffic : 3365 ADT 1988

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS — 1/24
WORTHINGTON OHIO

SITE PLAN

BRIDGE NO. JEF-22-0707L U.S.R. 22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

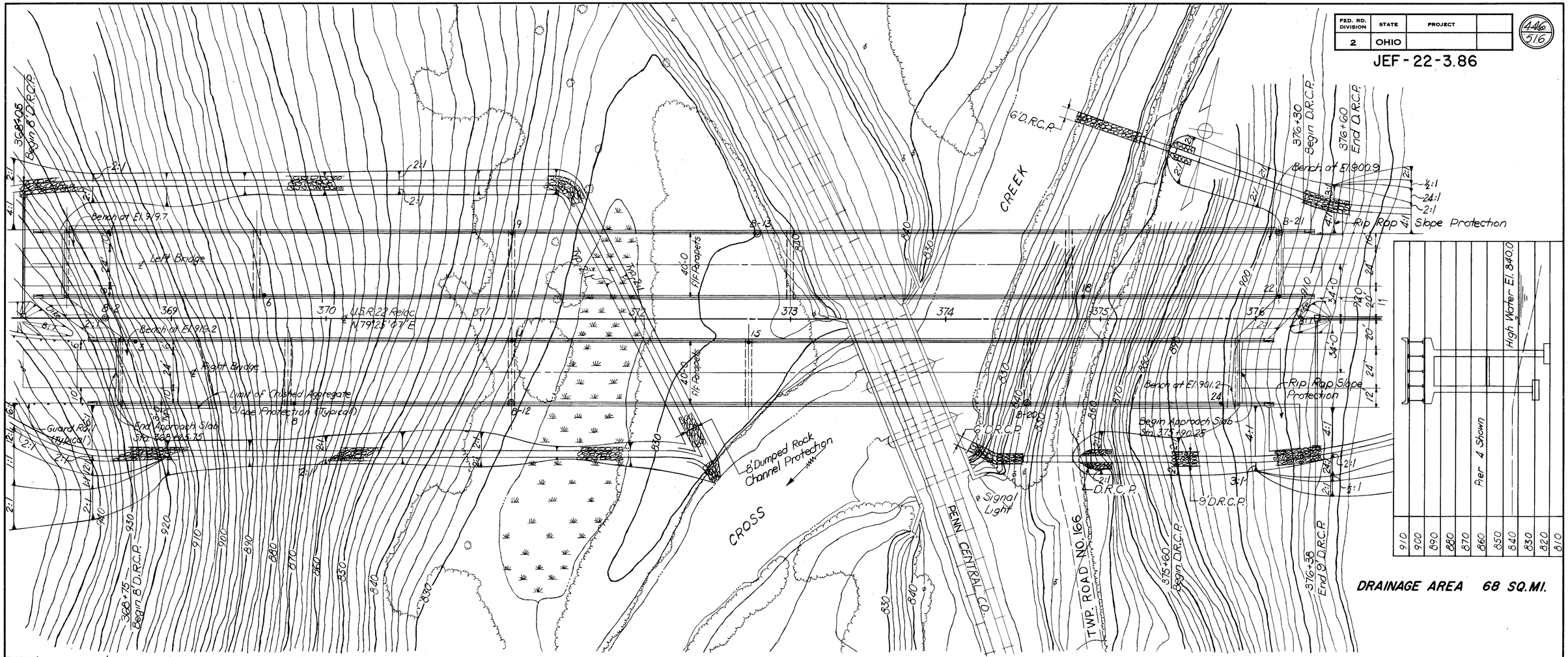
JEFFERSON C.O. STA. 368 + 30.75
SCALE 1"=30' STA. 376 + 17.25

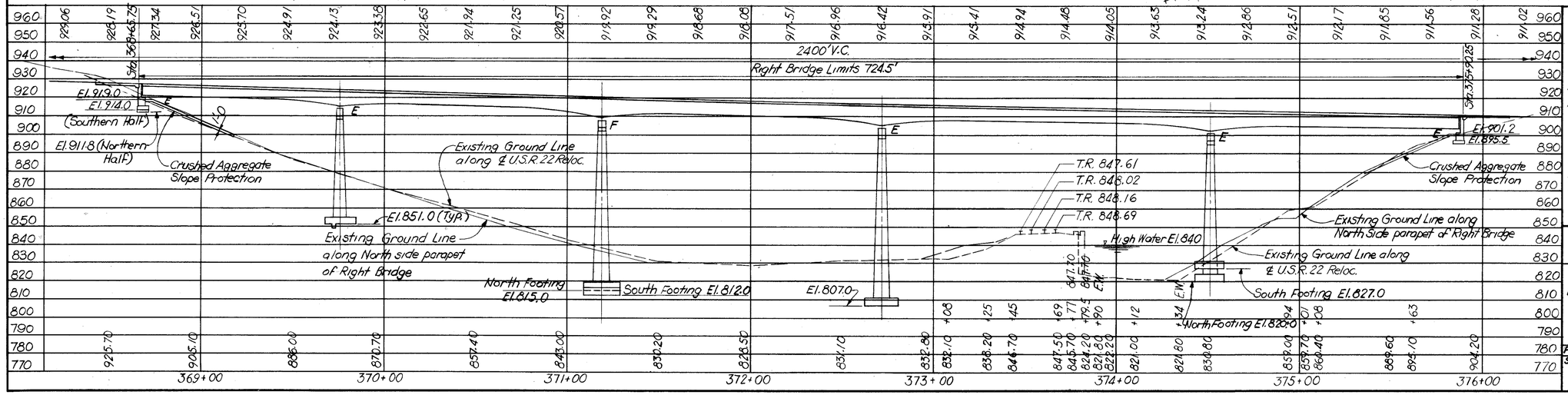
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
AERIAL SURVEY	AERIAL SURVEY	JCL	EH	JM	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

446/516

JEF-22-3.86





DRAINAGE AREA 68 SQ. MI.

PROPOSED STRUCTURE

Type: Continuous welded steel deck girders with reinforced concrete deck and substructure
Spans: 108': 144': 153': 180': 135' c/c bearings
Roadway: 40' f/f parapets
Live Load: HS 20-44
Skew: None
Wearing Surface: 1" monolithic concrete
Approach Slabs: AS-1-67 (25' long)
Alignment: Tangent
Traffic: 3365 ADT 1988

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS — 2/24
WORTHINGTON OHIO

SITE PLAN

BRIDGE NO. JEF-22-0707R U.S.R.22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

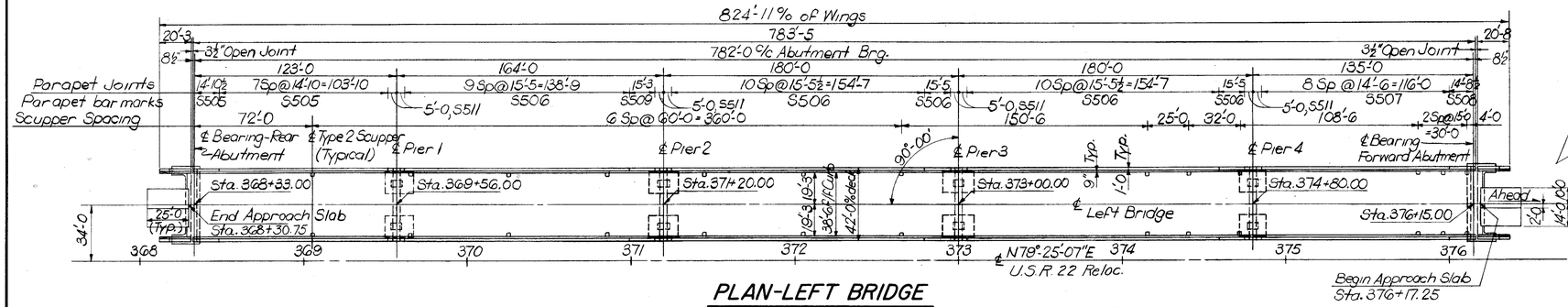
JEFFERSON CO. STA. 368+65.75
SCALE 1"=30' STA. 375+90.25

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
AERIAL SURVEY	AERIAL SURVEY	JCL	EH	JM	MDW

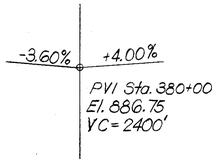
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

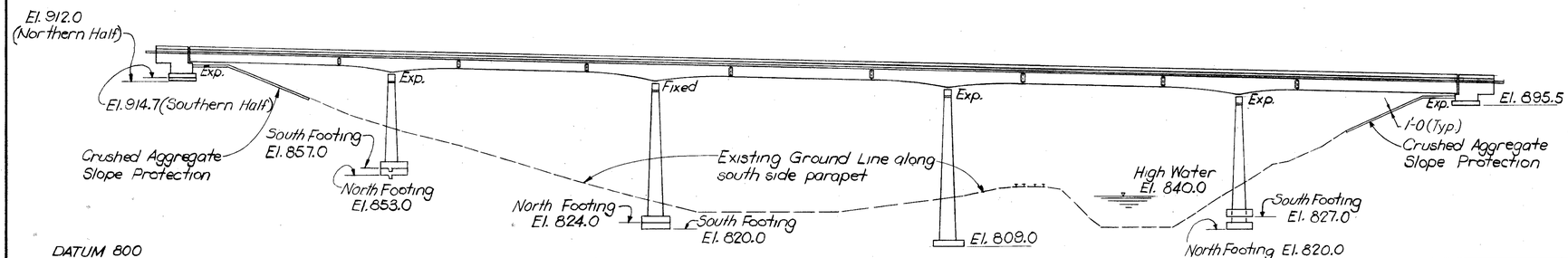
447
516

JEF-22-3.86



PLAN-LEFT BRIDGE





ELEVATION

SHEETING and BRACING plans shall be prepared by a Registered Professional Engineer and shall bear his signature or professional engineering seal. One copy of his design computations shall accompany the plans submitted for approval.

GENERAL NOTES:

•REFERENCE shall be made to Standard Drawings AS-1-67, revised 1-11-68, BR1-67, dated 2-1-68, SD-1-65, dated 11-8-65 and to Supplemental Specifications 808 dated 1-13-67, 811 and 828, dated 1-1-67, 832 and 831 dated 5-25-67, 825, dated 12-18-67.

•DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1965, including the Ohio Supplement to these specifications.

•DESIGN DATA:
Design Loading - HS20-44.
Concrete Class C - unit stress 1200 p.s.i. for superstructure
unit stress 1333 p.s.i. for substructure
Structural Steel - ASTM A36 - unit stress 20,000 p.s.i.
ASTM A441 - unit stress 25,000 p.s.i.
Reinforcing Steel - ASTM A15, A16, A160, A408, Deformed, Intermediate or Hard Grade. Unit stress 20,000 p.s.i.

•MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.

•ABUTMENT EXCAVATION QUANTITY, in addition to 503.10, includes the removal of material bounded by the proposed bench, by the front vertical plane described in 503.10 and by the finished slope of the cut.

•FOUNDATION BEARING PRESSURE: Abutment footings are designed for a maximum bearing pressure of 3.4 tons per square foot. Pier footings are designed for the following maximum bearing pressures in tons per square foot. Pier 1L, 6.7, Pier 1R, 7.1, Pier 2L, 6.5, Pier 2R, 5.8, Pier 3L, 6.5, Pier 3R, 6.5, Pier 4L, 6.0, Pier 4R, 6.0.

•ABUTMENT FOOTINGS shall extend a minimum of 3 inches into bedrock. If necessary, the footings should be lowered. However, if the low point of the surface of the bedrock at either rear abutment occurs 2 feet or more above plan elevation for the northern half, the footings may be raised, after approval by the Director, but to an elevation not higher than plan elevation for the southern half.

•PIER FOOTINGS shall extend a minimum of 3 inches into bedrock. If necessary, the footings should be lowered. However, if the low point of the surface of the bedrock occurs 2 feet or more above plan elevation, the footings may be raised at all all piers except Pier 4, after approval by the Director. Stepping of individual footings will not be permitted, but a differential between footings in any one pier will be allowed, provided that the slope between adjacent edges would not be steeper than 1:1. If any footings in Piers 1, 2 or 4 are lowered more than 3 feet, the affected pier should be reinvestigated for the increased overturning forces.

•PAINTING of structural steel shall be according to Supplemental Specification 832.

•WELDED ATTACHMENTS: No attachments shall be made by field welding to the top flange plates within a distance of 0.10 of the span length on either side of the interior supports. Welding for attachments to the top flanges at other parts of the spans shall be kept at least 2 inches from edge of flange.

•CONSTRUCTION CLEARANCE of 21 feet vertically above the top of railroad rails and 8 feet horizontally from the center of tracks shall be maintained at all times.

•RAILROAD AERIAL LINES will be relocated by the Railroad. The Contractor shall use all precautions necessary to see that the lines are not distrubed during the construction stage and shall cooperate with the railroad in the relocation of these lines. The cost of the relocation shall be included in the railroad force account work.

•MAINTENENCE OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 18' and a minimum vertical clearance of 12'-9 shall be maintained on Township Road 166 at all times.

•SPLICING OF REINFORCING BARS preferably should be done by lapping them 30 bar diameters, except that bars near top of girders having more than 12 inches of concrete under the bars shall be lapped 35 bar diameters. Welded splices shall not be used. Reinforcing steel splices in pier columns shall be approved positive connections designed to develop 125% of the specified yield strength of the bars. The Contractor may elect to reduce the number of splices and to furnish column bars in greater individual lengths, at no increased cost to State.

* Includes 28,063 lbs. of A441 Steel

ESTIMATED QUANTITIES

LCT 8-13-68

Item	Total	Unit	Description	Superstr.	Rear Abutment	Pier 1	Pier 2	Pier 3	Pier 4	Forward Abutment	General		
503	Lump	sum	Cofferdams, cribs and sheeting								Lump		
503	1655	Cu. Yds.	Unclassified Excavation		81	485	311	533	190	55		+1045	2700
503	376	Cu. Yds.	Rock Excavation		45	50	52	59	116	54		-212	164
511	324	Cu. Yds.	Class C Concrete - Footings		28	70	69	68	62	27			
511	1072	Cu. Yds.	Class C Concrete - Superstructure	1072									
511	585	Cu. Yds.	Class C Concrete - Piers above footings			110	158	177	140				
511	158	Cu. Yds.	Class C Concrete - Abutments above footings		77					81			
509	521,954	Lbs.	Reinforcing Steel	317,728	6,427	48,513	44,232	49,652	48,845	6,557			
513	1,388,208	Lbs.	Structural Steel *	1,388,208									
518	83	Cu. Yds.	Porous backfill		41					42			
518	26	Each	Scuppers (Type 2) including supports	26									
518	115	Lin. Ft.	6" perforated, helical corrugated metal pipe including specials, 707.06		57					58			
518	162	Lin. Ft.	6" non-perforated helical corrugated metal pipe, 707.06		72					90		-16 Lin.Ft.	146
601	847	Sq. Yds.	Crushed aggregate slope protection		438					409			
808	1072	Units	Water-reducing, set-retarding admixture	1072								-188	884
825	4088	Sq. Yds.	Concrete surface treatment								4088		
828	77	Lin. Ft.	Joint sealer	77									
832	1,388,208	Lbs.	Field painting of structural steel	1,388,208									

STICKLEN - BELSHEIM & ASSOCIATES 3/24
ENGINEERS
WORTHINGTON OHIO

GENERAL PLAN & ESTIMATED QUANTITIES

BRIDGE NO. JEF-22-0707 L U.S.R.22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.
STA. 368+30.75
JEFFERSON CO. STA. 376+17.25

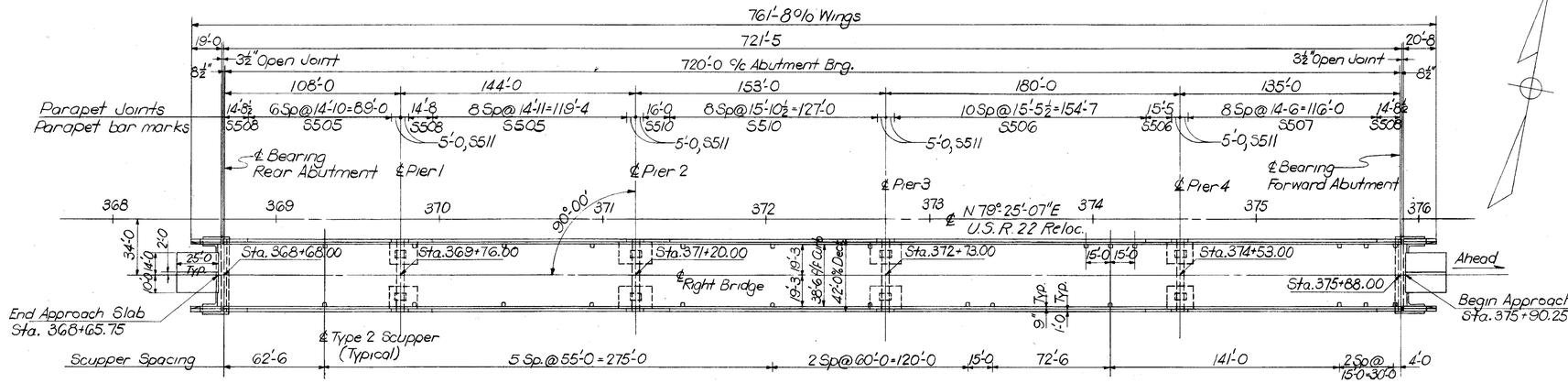
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL	EH	EH	LCT	MBW	8-14-68	

AB Revised As-Built 5-11-72

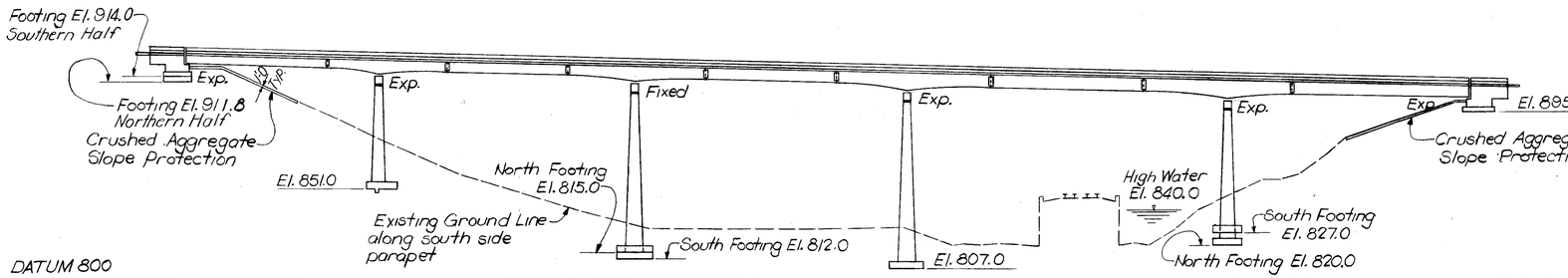
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

448
516

JEF-22-3.86



PLAN-RIGHT BRIDGE

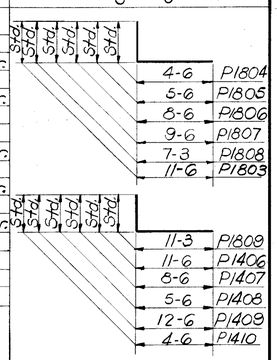


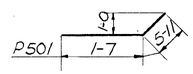
ELEVATION

REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shape
Piers - Left & Right Bridges				
P417	6 ser.	15-5 to	447	B
	of 7	16-5		2" incr.
P418	6 ser.	15-5 to	381	B
	of 6	16-3		2" incr.
P419	8	14-4	77	B
P420	16 ser.	13-0 to	2544	B
	of 16	16-9		3" incr.
P421	20 ser.	12-5 to	3056	B
	of 16	16-2		3" incr.
P422	16	12-2	130	B
				3" incr.
P301	88	7-1	234	B

Bending Diagrams





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, A601 is a No.6 size bar and P1101 is a No.11 size.

Mark	No.	Length	Weight	Shape
Replacement Bars				
RE1801	6	5-0		S
RE1401	8	5-0		S
RE1101	4	8-7		S
RE1001	1	8-3		S
RE901	1	7-10		S
RE801	1	7-6		S
RE701	1	7-3		S
RE601	30	6-11		S
RE501	4	6-7		S
RE401	2	6-3		S
RE301	1	6-0		S

501,044
* Includes 28,063 lbs. of A441 Steel

ESTIMATED QUANTITIES

LCT 8-13-68

Item	Total	Unit	Description	Superstr.	Rear Abutment	Pier 1	Pier 2	Pier 3	Pier 4	Forward Abutment	General		
503	Lump	sum	Cofferdams, cribs and sheeting								Lump		
503	1665	Cu. Yds.	Unclassified Excavation		86	507	416	436	180	40			
503	386	Cu. Yds	Rock Excavation		25	58	58	68	100	77			
511	331	Cu. Yds.	Class C Concrete - Footings		27	70	77	68	62	27			
511	987	Cu. Yds.	Class C Concrete - Superstructure	987									
511	623	Cu. Yds.	Class C Concrete - Piers above footings			120	180	183	140				
511	159	Cu. Yds.	Class C Concrete - Abutments above footings	292,573	75					84			
509	505,401	Lbs.	Reinforcing Steel	296,936	5879	50,803	45,519	50,862	48,845	6,557			
513	1,209,497	Lbs.	Structural Steel *	1,209,497									
518	79	Cu. Yds.	Porous backfill		37					42			
518	26	Each	Scuppers (Type 2) including supports	26									
518	113	Lin. Ft.	6" perforated, helical corrugated metal pipe including specials, 707.06		55					58			
518	126	Lin. Ft.	6" non-perforated helical corrugated metal pipe, 707.06		66					60		-28	98
601	786	Sq. Yds.	Crushed aggregate slope protection		379					407		-93	693
808	987	Units	Water-reducing, set retarding admixture	987.								-100%	-
825	3768	Sq. Yds.	Concrete surface treatment								3768		
828	77	Lin. Ft.	Joint sealer	77									
832	1,209,497	Lbs.	Field painting of structural steel	1,209,497									

LIST OF DRAWINGS

1. Site Plan L
2. Site Plan R
3. General Plan & Estimated Quantities L
4. General Plan & Estimated Quantities R
5. Steel Reinforcing List L/R
6. Rear Abutment L
7. Rear Abutment R
8. Forward Abutments L/R
9. Abutment Details L/R
10. Pier 1 L
11. Pier 1 R
12. Pier 2 L
13. Pier 2 R
14. Pier 3 L
15. Pier 3 R
16. Pier 4 L
17. Pier 4 R
18. Framing Plan & Section L/R
19. Girder Details L/R
20. Rockers, Bolsters & Details L/R
21. Field Splices L/R
22. Bracing Details L/R
23. Stresses, Deflections & Cambers L/R
24. Gutter Elevations L/R

STICKLEN - BELSHEIM & ASSOCIATES 4/24
ENGINEERS
WORTHINGTON OHIO

GENERAL PLAN & ESTIMATED QUANTITIES

BRIDGE NO. JEF-22-0707 R U.S.R. 22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.
JEFFERSON CO. STA. 368+65.75 STA. 379+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL	EH	EH	AB	MBS	8-16-68	8-4-69

AB Revised as-Built 511-72

REINFORCING STEEL LIST

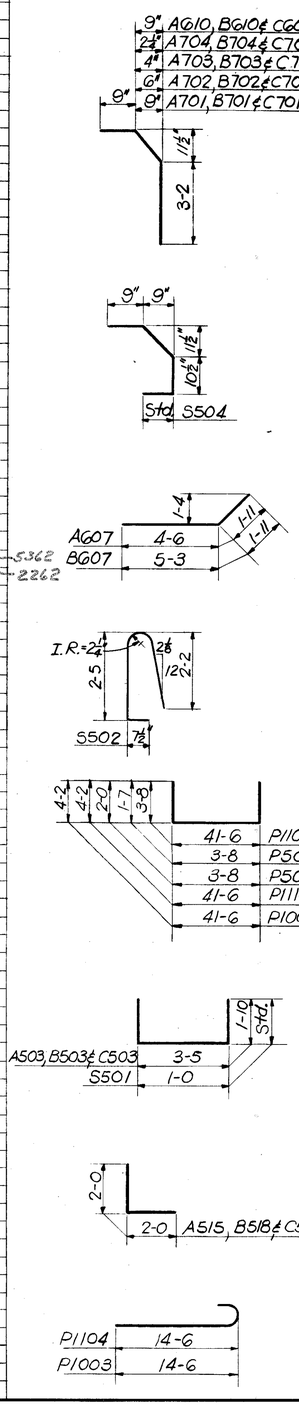
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

449/516

JEF-22-3.86

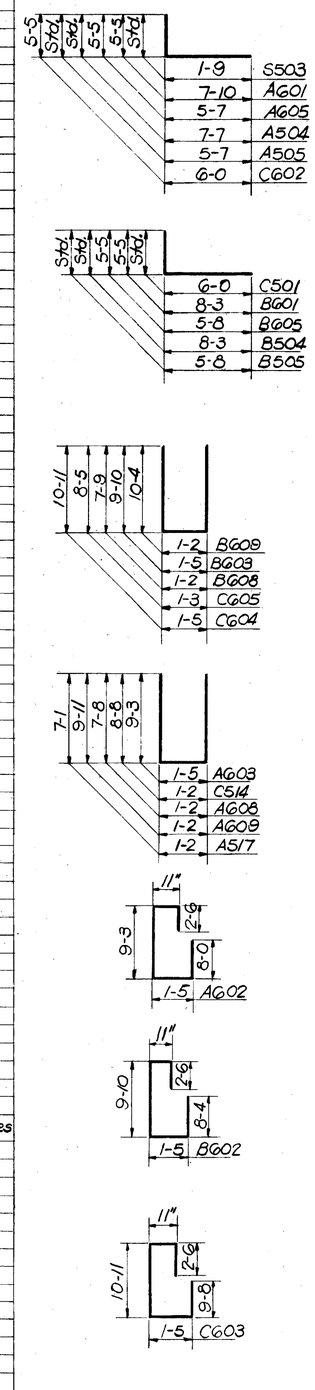
Mark	No.	Length	Weight	Shape
Superstructure - Left Bridge				
S601	1446	26-7	57,736	S
S602	2287	30-0	103,052	S
S603	26	10-0	381	S
S604	78	16-0	1874	S
S605	2892	21-9	94447	S
S606	1446	17-1	37,103	S
S607	77	23-0	2660	S
S501	1046	2-0	2182	B
S502	1046	5-4	5819	B
S503	1046	2-3	2455	B
S504	1046	3-4	3637	B
S505	64	14-6	968	S
S506	248	15-1	3802	S
S507	64	14-2	946	S
S508	8	14-4	120	S
S509	8	14-11	124	S
S511	64	4-8	312	S
Superstructure - Right Bridge				
S601	1332	26-7	53,184	S
S602	2133	30-0	96,113	S
S604	52	16-0	1250	S
S605	2664	21-9	87,029	S
S606	1332	17-1	34,178	S
S608	77	17-0	1966	S
S501	964	(2-0 4-11)	2011 4943	B
S502	964	5-2 2-8 4	2765	B
S503	964	2-6-3	6284	B
S504	964	3-4	3352	B
S505	112	14-6	1694	S
S506	88	15-1	1384	S
S507	64	14-2	946	S
S508	24	14-4	359	S
S510	72	15-8	1177	S
S511	64	4-8	312	S
Rear Abutment - Right Bridge				
A701	2	5-0	20	B
A702	2	4-11	20	B
A703	2	4-10	20	B
A704	2	4-9	19	B
A705	2	4-4	18	S
A601	15	13-1	295	B
A602	25	21-5	804	B
A603	16	19-7	471	B
A604	4	22-6	135	S
A605	13	10-10	212	B
A606	4	20-4	122	S
A607	4	6-5	39	B
A608	8	16-3	195	B
A609	8	20-8	248	B
A610	9	5-0	68	B
A501	4	20-6	86	S
A502	34	21-5	759	S
A503	29	6-10	207	B
A504	15	8-1	126	B
A505	13	6-1	82	B
A506	1	4-11	5	S
A507	1	26-0	27	S
A508	2	19-10	41	S
A509	1	8-11	9	S
A510	4	15-8	65	S
A511	2	5-8	12	S
A512	16	12-8	211	S
A513	18	4-0	75	S
A514	16	7-3	121	S
A515	8	3-10	32	B
A516	20	18-8	389	S

Bending Diagrams



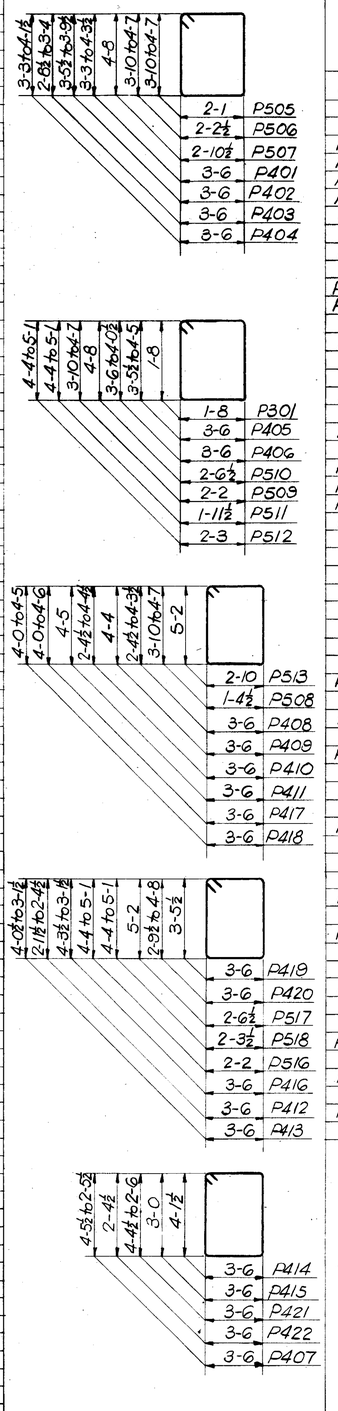
Mark	No.	Length	Weight	Shape
A517	12	15-1	189	B
A518	2	7-11	17	S
A519	16	18-8	312	S
A520	2	10-2	21	S
A521	4	13-0	54	S
A522	4	7-3	30	S
A523	10	2-10	30	S
A524	28	2-0	58	B
A525	20	2-11	61	S
A526	18	5-4	100	B
A527	18	2-7	48	S
A528	2	12-5	26	S
Rear Abutment - Left Bridge				
B701	2	5-0	20	B
B702	2	4-11	20	B
B703	2	4-10	20	B
B704	2	4-9	19	B
B705	2	4-4	18	S
B601	15	13-6	304	B
B602	25	22-4	837	B
B603	16	20-9	499	B
B604	4	22-6	135	S
B605	13	10-11	213	B
B606	4	19-9	119	S
B607	4	7-2	43	B
B608	9	16-4	221	B
B609	9	21-6	291	B
B610	20	5-0	150	B
B501	4	20-6	86	S
B502	34	21-5	759	S
B503	29	6-10	207	B
B504	15	8-9	137	B
B505	13	6-2	84	B
B506	1	8-11	9	S
B507	1	26-0	27	S
B508	2	19-10	41	S
B509	1	4-11	5	S
B510	4	16-11	71	S
B511	2	5-8	12	S
B512	2	8-3	17	S
B513	16	13-11	232	S
B514	2	11-0	23	S
B515	20	19-11	415	S
B516	2	13-5	28	S
B517	36	8-0	300	S
B518	8	3-10	32	B
B519	12	17-5	218	B
B520	10	2-10	30	S
B521	4	7-3	30	S
B522	20	2-7	54	S
B523	30	2-0	63	B
B524	20	5-4	111	B
B525	20	2-11	61	S
B526	4	14-3	59	S
B527	16	19-11	332	S
B528	18	4-0	75	S
Forward Abutment - Left & Right Bridges				
C701	4	5-0	41	B
C702	4	4-11	40	B
C703	4	4-10	40	B
C704	4	4-9	39	B
C705	4	4-4	35	S
CG01	16	22-7	543	S
CG02	58	11-3	980	B
CG03	50	24-9	1859	B
CG04	32	22-11	1101	B
CG05	36	17-8	955	B
CG06	20	5-0	150	B

Bending Diagrams



Mark	No.	Length	Weight	Shape
C501	58	6-6	393	B
C502	76	21-5	1608	S
C503	58	6-10	413	B
C504	4	19-10	83	S
C505	2	26-0	54	S
C506	2	4-11	10	S
C507	2	8-11	19	S
C508	8	17-4	145	S
C509	8	6-0	50	S
C510	40	2-7	108	S
C511	32	14-5	481	S
C512	40	4-8	195	B
C513	16	3-10	64	B
C514	24	18-3	457	B
C515	20	2-10	59	S
C516	72	8-11	670	S
C517	40	20-4	848	S
C518	8	12-5	104	S
C519	8	7-3	60	S
C520	8	14-6	121	S
C521	60	2-0	125	B
C522	40	5-4	223	B
C523	40	2-11	122	S
C524	32	20-4	679	S
C525	36	4-0	150	S
Piers - Left and Right Bridges				
P1801	96	30-0	39,168	S
P1802	136	20-0	36,992	S
P1803	40	14-3	7752	B
P1804	14	7-3	1380	B
P1805	14	8-3	1571	B
P1806	54	11-3	8262	B
P1807	14	12-3	2332	B
P1808	28	10-0	3808	B
P1809	28	14-0	5331	B
P1401	180	30-0	41,310	S
P1402	278	20-0	42,534	S
P1403	24	15-0	2754	S
P1404	144	40-0	44,064	S
P1405	18	18-0	2479	S
P1406	42	13-7	4364	B
P1407	18	10-7	1457	B
P1408	70	7-7	4061	B
P1409	46	14-7	5132	B
P1410	24	6-7	1209	B
P1101	46	30-0	7332	S
P1102	44	18-0	4208	S
P1103	18	48-2	4606	B
P1104	96	16-1	8203	B
P1105	124	16-6	10,870	S
P1106	160	12-6	10,626	S
P1107	42	17-6	3805	S
P1108	56	15-6	4612	S
P1109	46	19-6	4766	S
P1110	44	49-2	11,494	B
P1111	88	18-6	8650	S
P1001	54	12-6	2905	S
P1002	8	49-3	1695	B
P1003	16	15-11	1096	B
P1004	84	11-6	4157	S
P901	32	29-6	3210	S
P902	38	12-6	1615	S
P801	24	6-6	417	S
P601	124	3-6	652	S
P602	40	6-6	391	S

Bending Diagrams



Mark	No.	Length	Weight	Shape
P501	96	7-6	751	B
P502	64	21-8	1447	S
P503	32	6-7	220	B
P504	96	7-5	743	B
P505	2 ser.	12-3 to	271	B
	of 10	13-9		2" incr.
P506	4 ser.	12-6 to	553	B
	of 10	14-0		2" incr.
P507	22	15-6	356	B
P508	2 ser.	10-10	242	B
	of 10	to 12-4		2" incr.
P509	4 ser.	12-5 to	549	B
	of 10	13-11		2" incr.
P510	22	14-10	340	B
P511	8 ser.	13-0 to	1147	B
	of 10	14-6		2" incr.
P512	16 ser.	13-7 to	2392	B
	of 10	15-1		2" incr.
P513	88	16-5	1507	B
P514	50	12-6	652	S
P515	28	10-0	292	S
P516	8 ser.	13-5 to	1182	B
	of 10	14-11		2" incr.
P517	44	15-10	727	B
P518	4 ser.	13-8 to	602	B
	of 10	15-2		2" incr.
P401	2 ser.	13-11 to	502	B
	of 26	16-0		1" incr.
P402	4 ser.	14-4 to	353	B
	of 9	15-0		1" incr.
P403	8 ser.	12-10 to	1151	B
	of 16	14-1		1" incr.
P404	2 ser.	13-11 to	435	B
	of 22	15-8		1" incr.
P405	4 ser.	14-4 to	986	B
	of 24	16-5		1" incr.
P406	4 ser.	14-5 to	560	B
	of 14	15-6		1" incr.
P407	20 ser.	12-4 to	3255	B
	of 17	16-4		3" incr.
P408	6 ser.	12-2 to	1355	B
	of 24	16-0		2" incr.
P409	2	16-1	21	B
P410	6 ser.	12-2 to	1420	B
	of 25	16-2		2" incr.
P411	4	16-3	43	B
P412	24 ser.	12-2 to	1635	B
	of 8	13-4		2" incr.
P413	12 ser.	13-8 to	1403	B
	of 12	15-6		2" incr.
P414	8	15-8	84	B
P415	8	13-5	72	B
P416	12 ser.	13-8 to	1784	B
	of 15	16-0		2" incr.

For continuation of reinforcing steel list and bending diagrams see General Plan, Sheet 4/24

STICKLEN - BELSHEIM & ASSOCIATES 5/24
ENGINEERS
WORTHINGTON OHIO

STEEL REINFORCING LIST
BRIDGE NO. JEF-22-0707 L/R U.S.R.22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

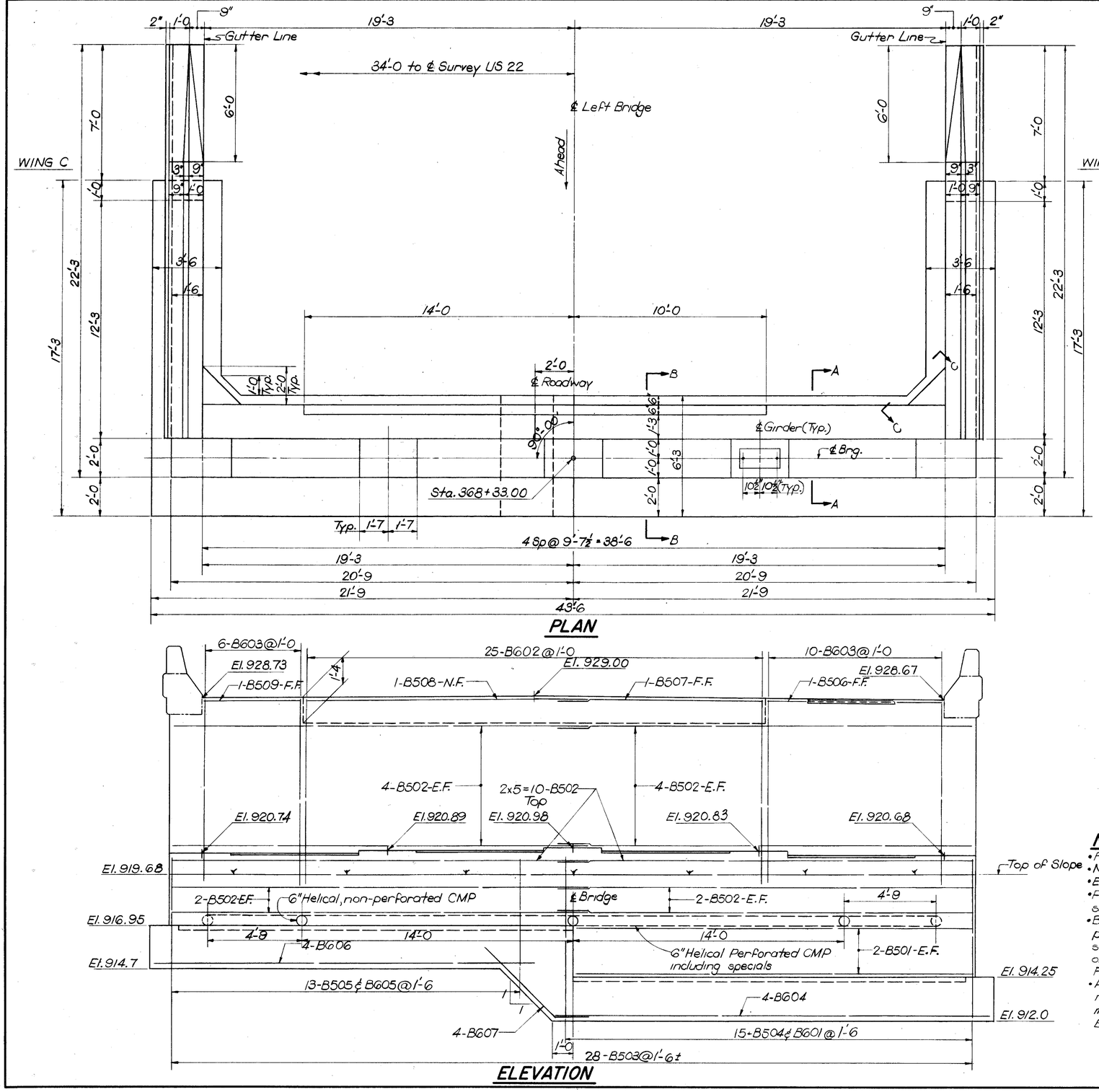
JEFFERSON CO. STA.368+30.75 STA.368+65.75 STA.376+17.25 STA.375+90.25

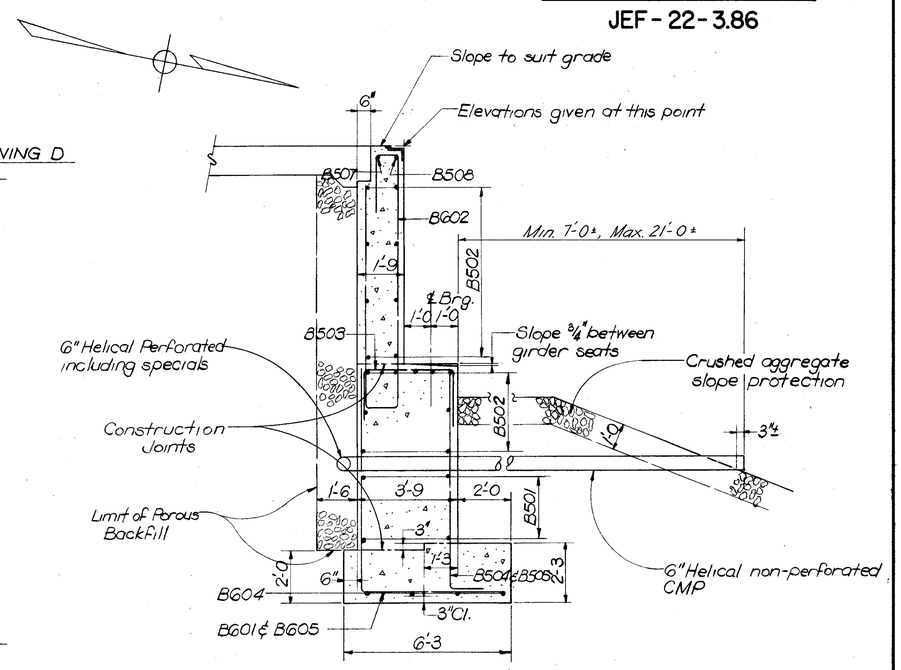
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Std.	EH	EH	JM	[illegible]	8-16-68	8-9-69

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

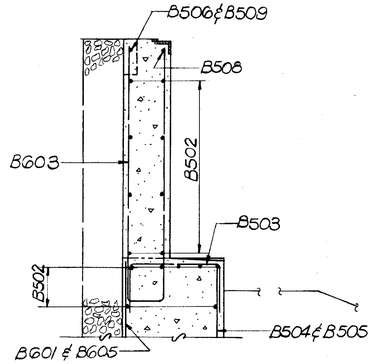
450/516

JEF-22-3.86





SECTION B-B



SECTION A-A

NOTES

- F.F. = Far Face
- N.F. = Near Face
- E.F. = Each Face
- POROUS BACKFILL: 1'-6 Thick, full length of abutment and wings shall extend up to underside of the approach slab.
- Bridge Seat Reinforcing: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seats so as to avoid interference with the drilling of anchor bolt holes. For Wing Elevation and Details not shown see Sheet 9/24
- ADJUSTABLE TYPE ELBOWS meeting specification requirements for gage and coating are acceptable for making bends in perforated corrugated metal pipe. Elbows and the stem of tees need not to be perforated.

STICKLEN - BELSHEIM & ASSOCIATES 6/24
ENGINEERS
WORTHINGTON OHIO

REAR ABUTMENT
BRIDGE NO. JEF-22-0707L U.S.R.22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

JEFFERSON CO.
STA. 368+30.75
STA. 376+17.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	JM	RBW	8-16-68	

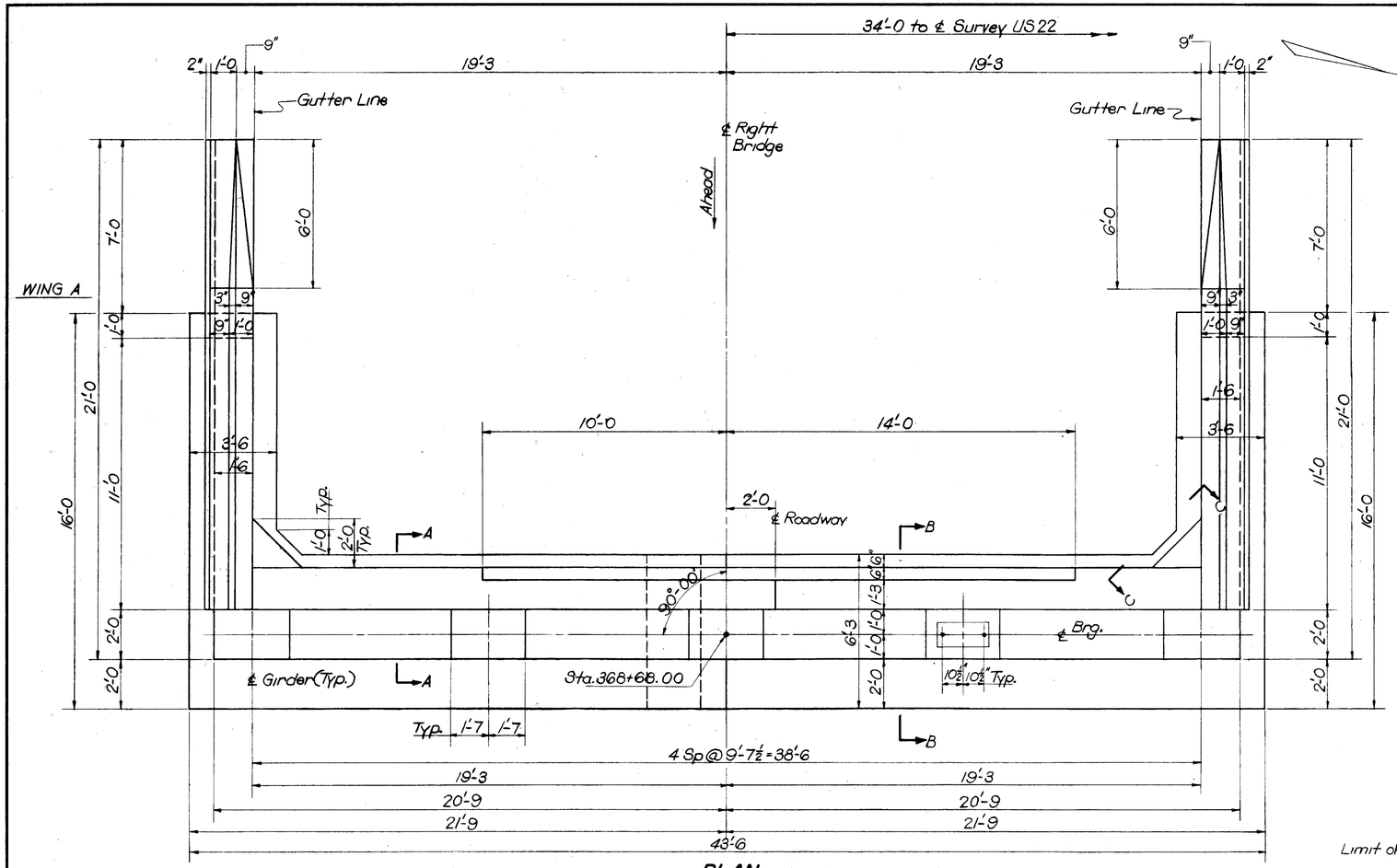
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

451/516

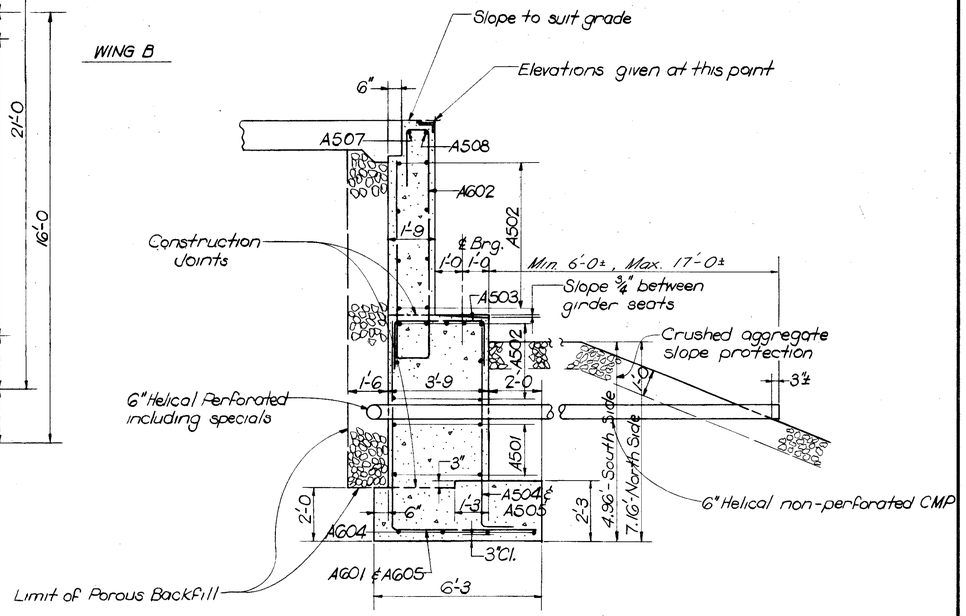
JEF-22-3.86

NOTES

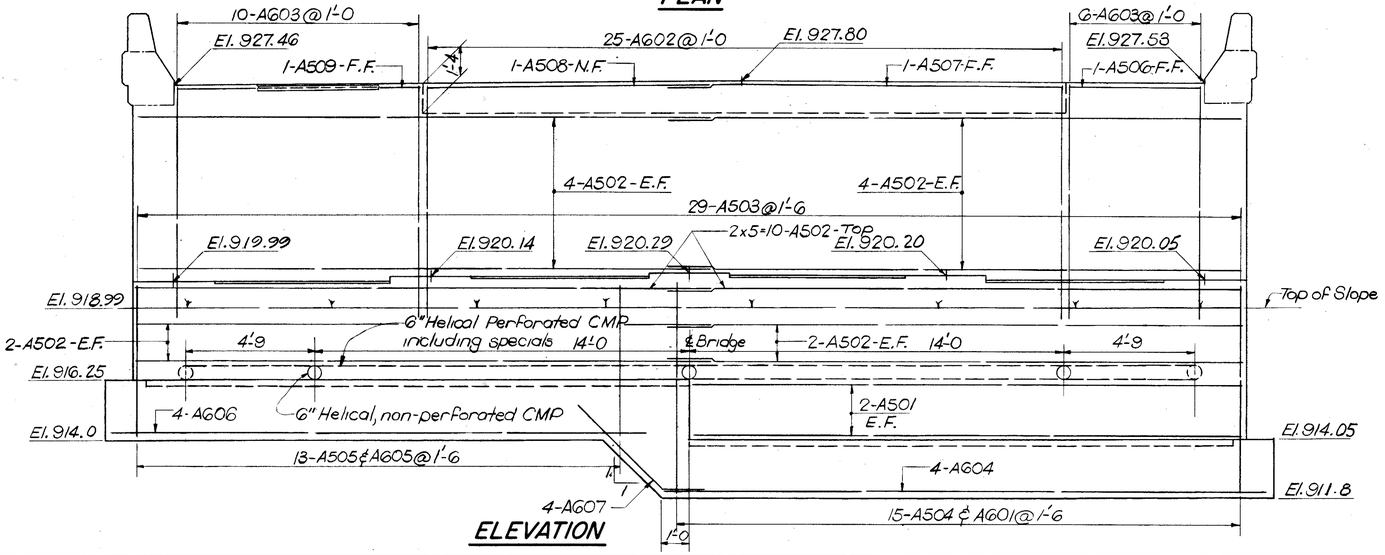
- F.F. = Far Face
- N.F. = Near Face
- E.F. = Each Face
- POROUS BACKFILL: 1'-6 Thick, Full length of Abutment shall extend up to underside of the approach slab.
- Bridge Seat Reinforcing: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seats so as to avoid interference with the drilling of anchor bolt holes.
- For Wing Elevation and details not shown see Sheet 9/24
- ADJUSTABLE TYPE ELBOWS meeting specification requirements for gage and coating are acceptable for making bends in perforated corrugated metal pipe. Elbows and the stem of tees need not to be perforated.



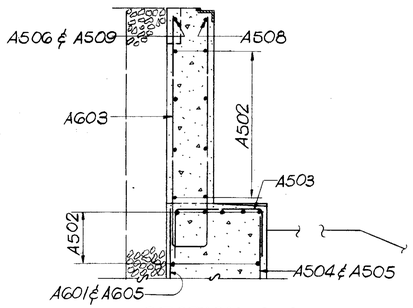
PLAN



SECTION C-C



ELEVATION



SECTION A-A

STICKLEN - BELSHEIM & ASSOCIATES 7/24
ENGINEERS
WORTHINGTON OHIO

REAR ABUTMENT
BRIDGE NO. JEF-22-0707 R U.S.R. 22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

JEFFERSON CO.

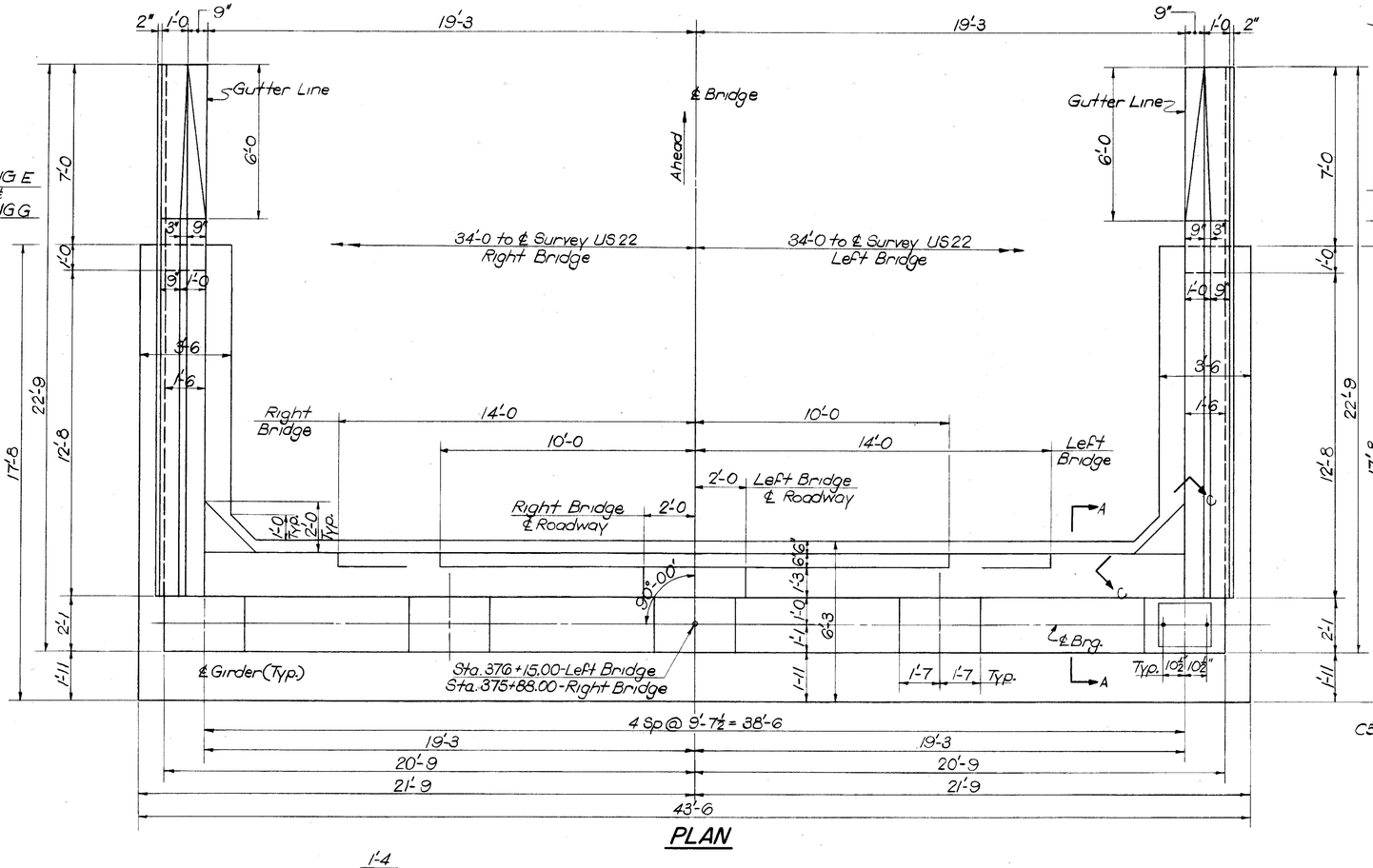
STA. 368+65.75
STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	JM	WBW	8-16-68	

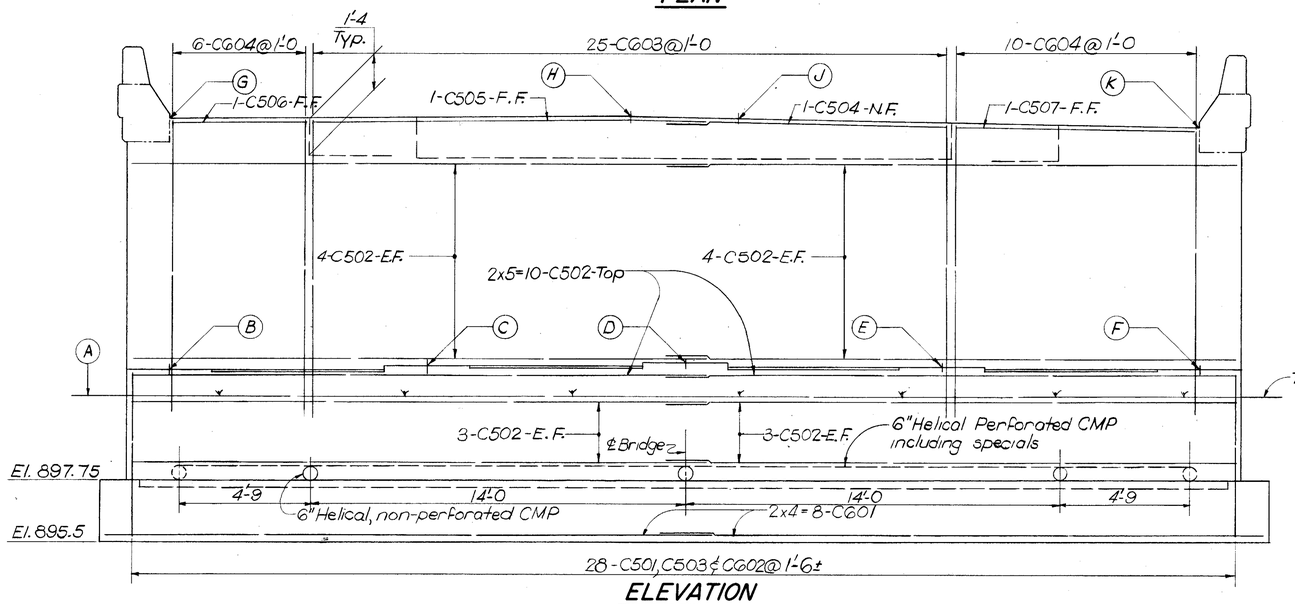
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

452/516

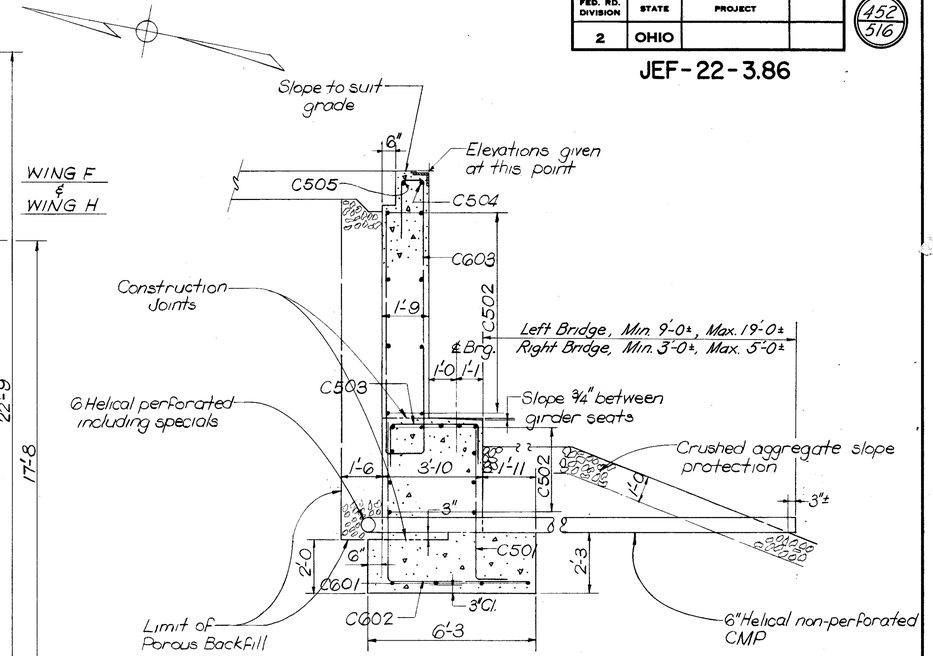
JEF-22-3.86



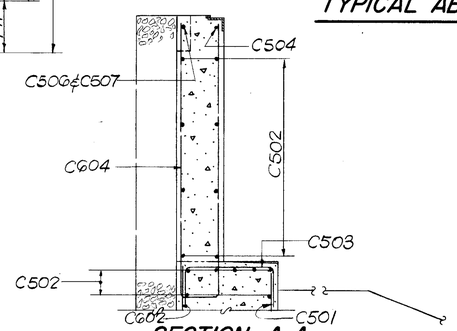
PLAN



ELEVATION



TYPICAL ABUTMENT SECTION



SECTION A-A

ELEVATIONS

FORWARD ABUTMENT	Ⓐ	Ⓑ .89	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	Ⓙ	Ⓚ
Left Bridge	900.9	901.87	902.04	902.19	902.10	901.95	910.97	——	911.30	911.03
Right Bridge	901.2	902.25	902.40	902.49	902.34	902.18	911.32	911.59	——	911.26

NOTES

- F.F. = Far Face
- N.F. = Near Face
- E.F. = Each Face
- POROUS BACKFILL: 1'-6 Thick, full length of abutment and wings shall extend up to the underside of the approach slab.
- Bridge Seat Reinforcing: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seats so as to avoid interference with the drilling of anchor bolt holes.
- For Wing Elevation and Details not shown see Sheet 9/24
- ADJUSTABLE TYPE ELBOWS meeting specification requirements for gage and coating are acceptable for making bends in perforated corrugated metal pipe. Elbows and the stem of tees need not be perforated.

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS 8/24
WORTHINGTON OHIO

FORWARD ABUTMENTS
BRIDGE NO. JEF-22-0707L/R U.S.R.22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

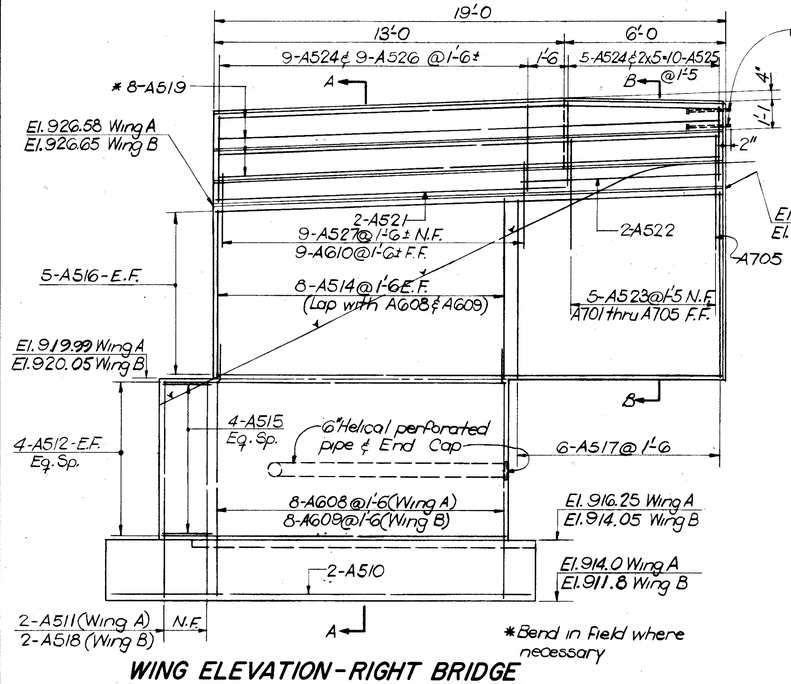
JEFFERSON CO. STA. 368+30.75 STA. 368+65.75 STA. 376+17.25 STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	JM	TWB	8-16-68	7-18-69

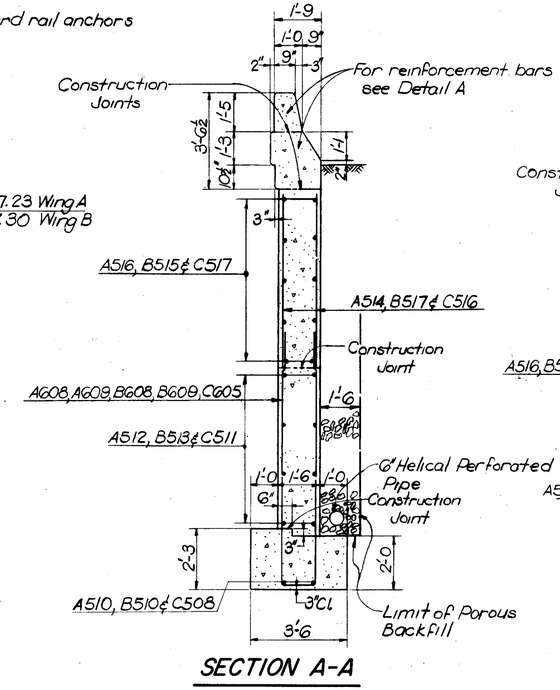
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

453
516

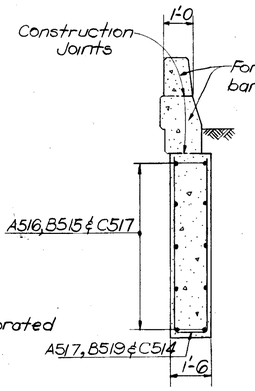
JEF-22-3.86



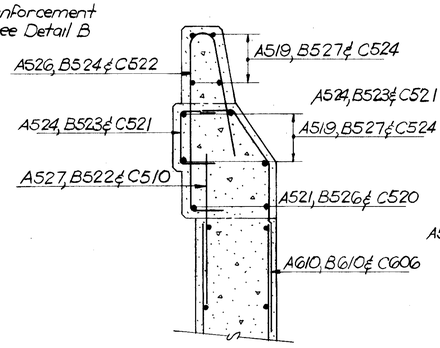
WING ELEVATION - RIGHT BRIDGE
REAR ABUTMENT



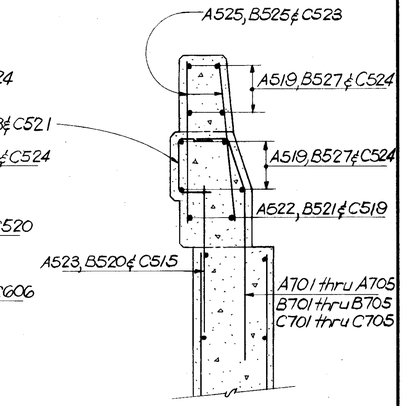
SECTION A-A



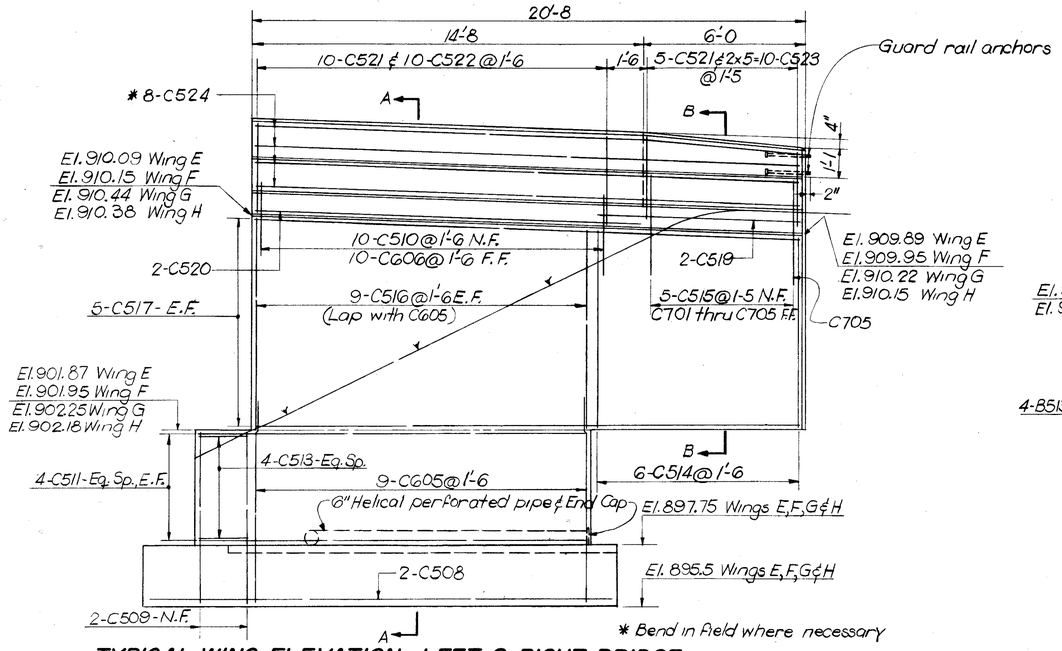
SECTION B-B



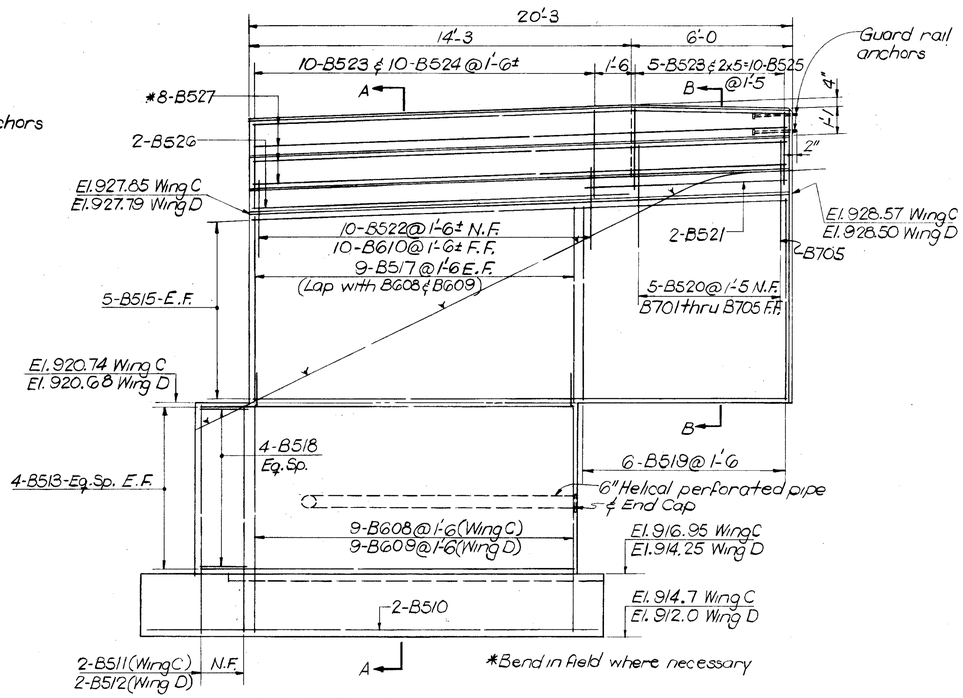
DETAIL A



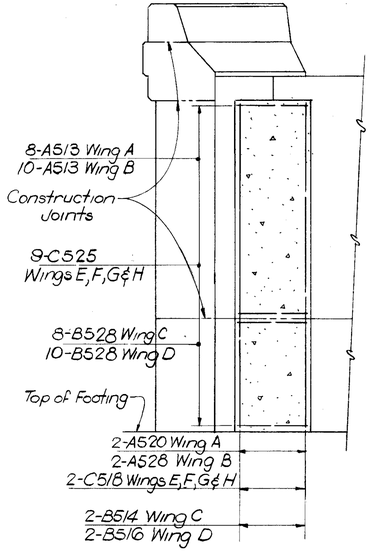
DETAIL B



TYPICAL WING ELEVATION - LEFT & RIGHT BRIDGE
FORWARD ABUTMENT



WING ELEVATION - LEFT BRIDGE
REAR ABUTMENT



SECTION C-C

STICKLEN - BELSHEIM & ASSOCIATES 9/24
ENGINEERS
WORTHINGTON OHIO

ABUTMENT DETAILS
BRIDGE NO. JEF-22-0707L/R U.S.R.22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

JEFFERSON CO. STA. 368+30.75 STA. 368+65.75
STA. 376+17.25 STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	J.M.	WDW	8-16-68	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

454/516

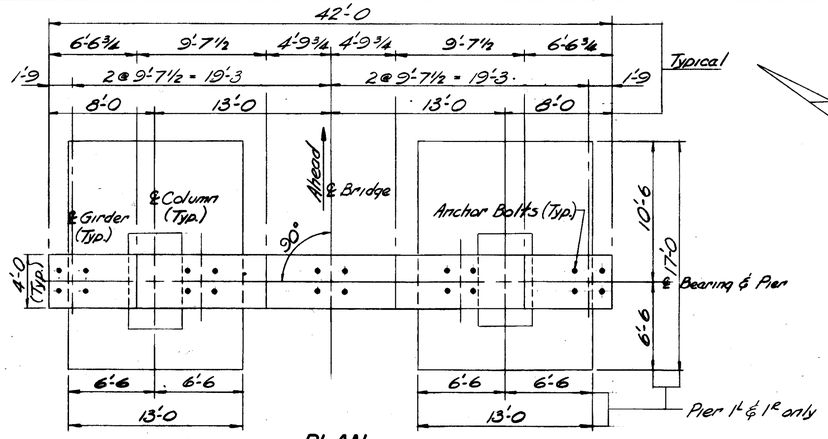
JEF-22-3.86

REINFORCING STEEL

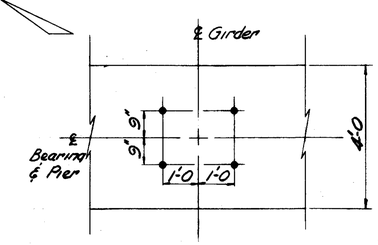
Mark	Number	Mark	Number
P1801	28	P601	62
P1802	28	P602	40
P1804	14	P501	12
P1805	14	P502	8
P1806	14	P503	4
P1807	14	P504	12
P1402	28	P505	2 Ser. of 10
P1101	10	P506	4 Ser. of 10
P1102	8	P507	22
P1103	10	P514	14
P1104	12	P401	2 Ser. of 26
P1105	62	P402	4 Ser. of 9
P901	4	P403	4 Ser. of 16
P902	38	P404	2 Ser. of 22
		P301	11

NOTES:

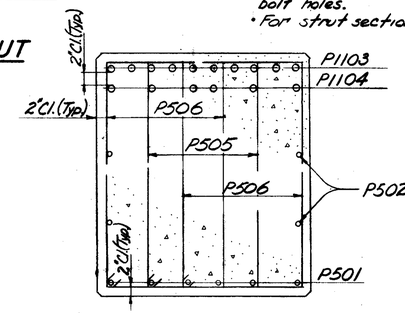
- ℄ Indicates approved positive connection
- For pier designation see General Plan.
- Class "C" concrete shall be used.
- For anchor bolt dimensions see Structural Steel Rocker & Bolster detail, Sheet No. 20|24
- Bridge Seat Reinforcing: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bolt holes.
- For strut section see Pier 1R Sheet 11|24



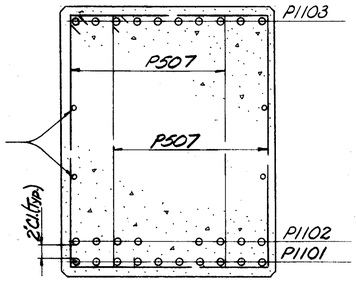
PLAN



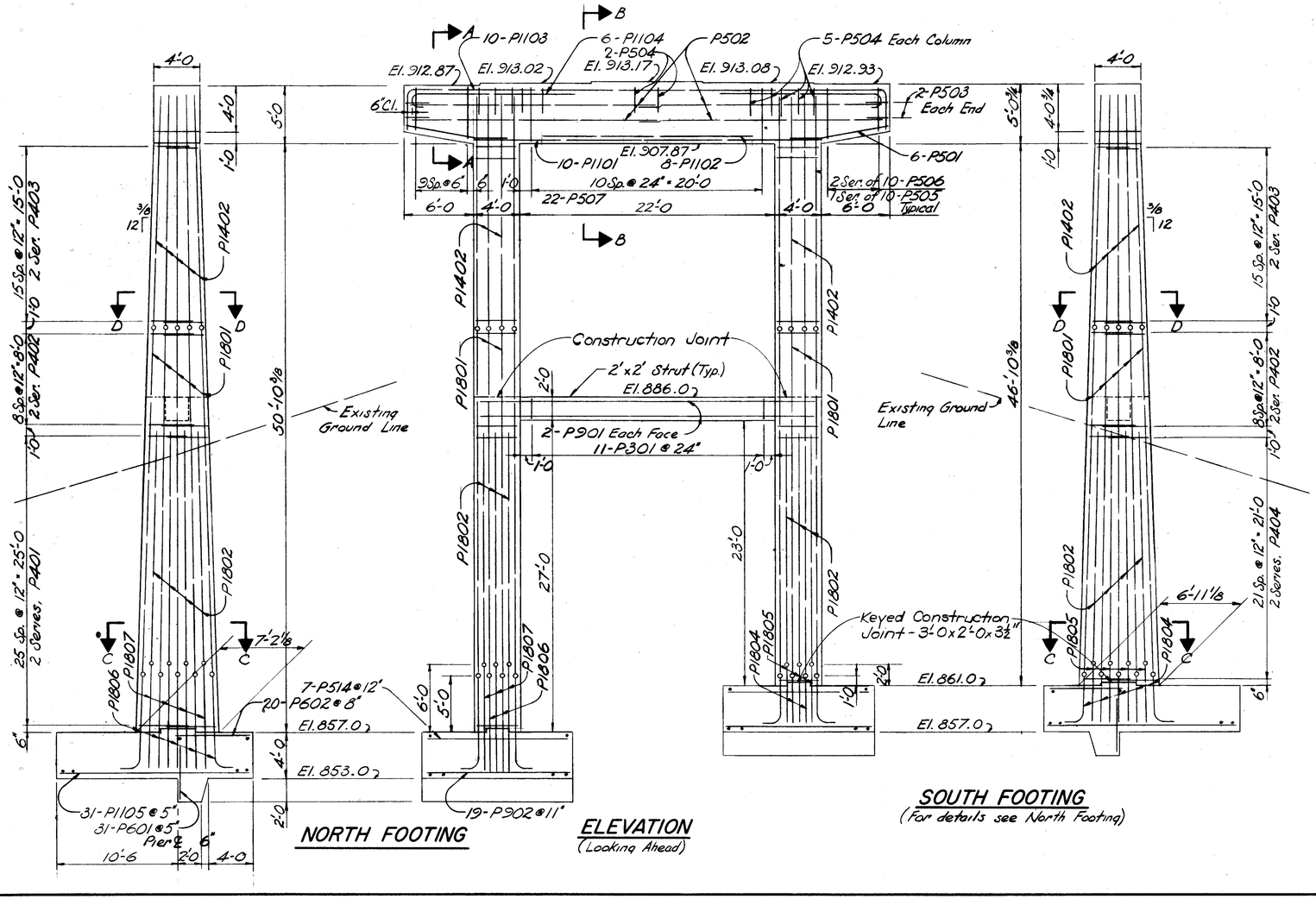
ANCHOR BOLT LAYOUT
Pier 1L & 1R



SECTION A-A



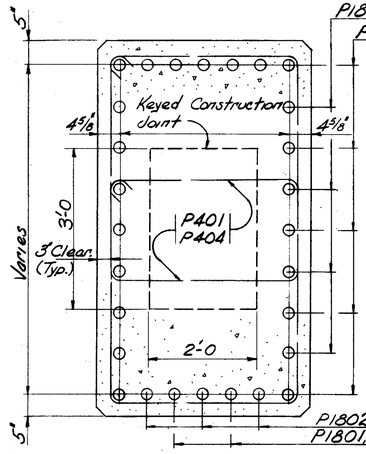
SECTION B-B



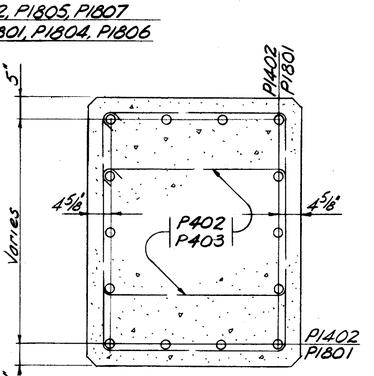
NORTH FOOTING

ELEVATION
(Looking Ahead)

SOUTH FOOTING
(For details see North Footing)



SECTION C-C



SECTION D-D

STICKLEN - BELSHEIM & ASSOCIATES 10|24
ENGINEERS
WORTHINGTON OHIO

PIER 1

BRIDGE NO. JEF-22-0707L U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN CENTRAL CO.

JEFFERSON CO. STA. 368+30.75
STA. 376+17.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL	JGM	JGM	LCT	TLW	8-16-68	

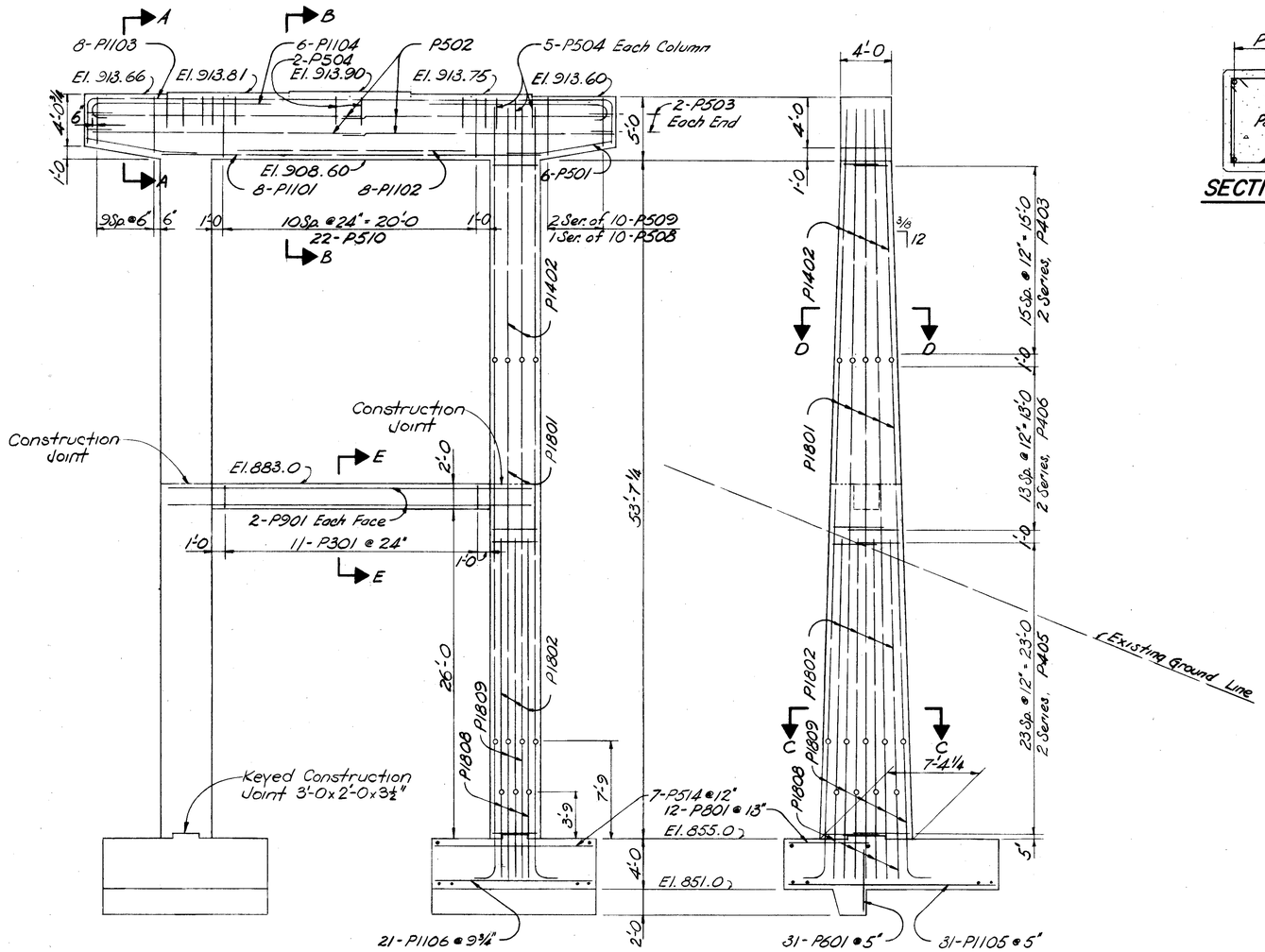
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

455/516

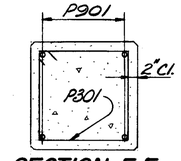
JEF-22-3.86

REINFORCING STEEL

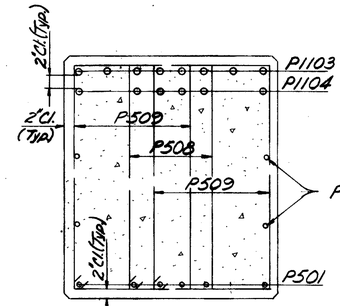
Mark	Number	Mark	Number
P1801	28	P601	62
P1802	28	P501	12
P1808	28	P502	8
P1809	28	P503	4
P1402	28	P504	12
P1101	8	P508	2 Ser. of 10
P1102	8	P509	4 Ser. of 10
P1103	8	P510	22
P1104	12	P514	14
P1105	62	P403	4 Ser. of 16
P1106	42	P405	4 Ser. of 24
P901	4	P406	4 Ser. of 14
P801	24	P301	11



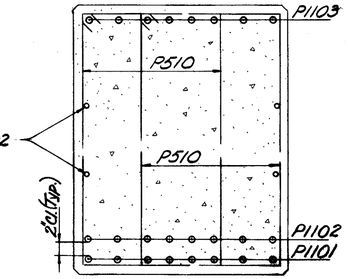
ELEVATION
(Looking Ahead)



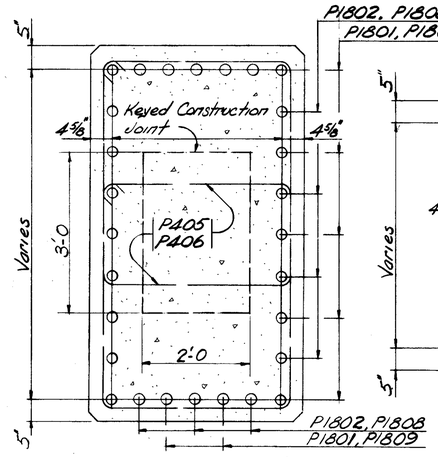
SECTION E-E



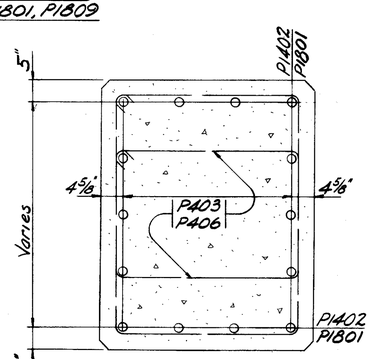
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

- For dimensions ℄ other notes not shown see Pier 1 Sheet 10/24
- For anchor bolts layout see Pier 1 Sheet 10/24

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS 11/24
WORTHINGTON OHIO

PIER I

BRIDGE NO. JEF-22-0707R U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN CENTRAL CO.

JEFFERSON CO.
STA. 368+65.75
STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	JGM	JGM	LCT	MBW	8-16-68	

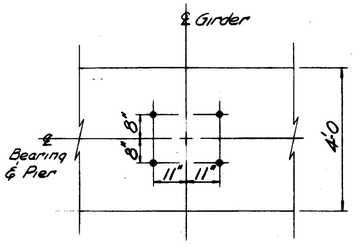
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

456
516

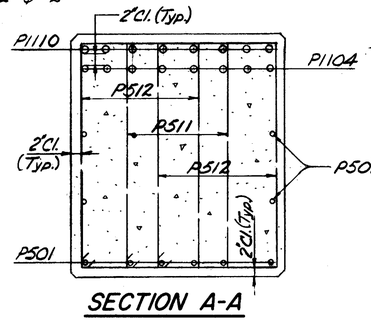
JEF-22-3.86

REINFORCING STEEL

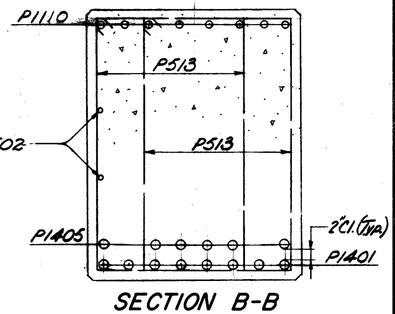
Mark	Number	Mark	Number
P1401	26	P501	12
P1402	48	P502	8
P1404	36	P503	4
P1405	6	P504	12
P1406	18	P511	2 Ser. of 10
P1407	12	P512	4 Ser. of 10
P1408	18	P513	22
P1104	16	P408	6 Ser. of 24
P1107	42	P409	2
P1110	8	P410	6 Ser. of 25
P1001	54	P411	4
P901	4	P301	11



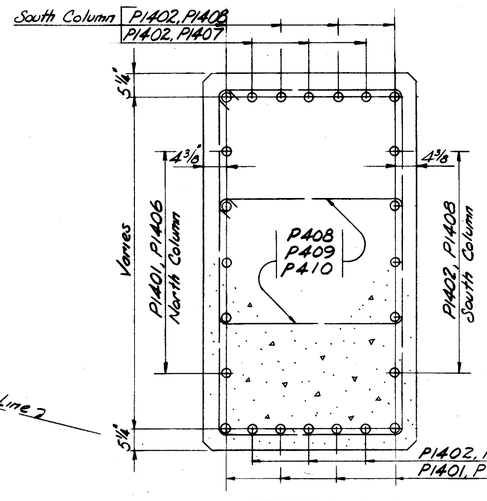
ANCHOR BOLT LAYOUT
Pier 2A & 2B



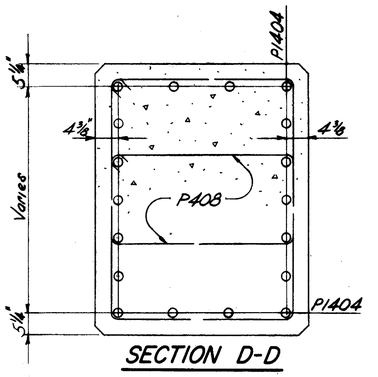
SECTION A-A



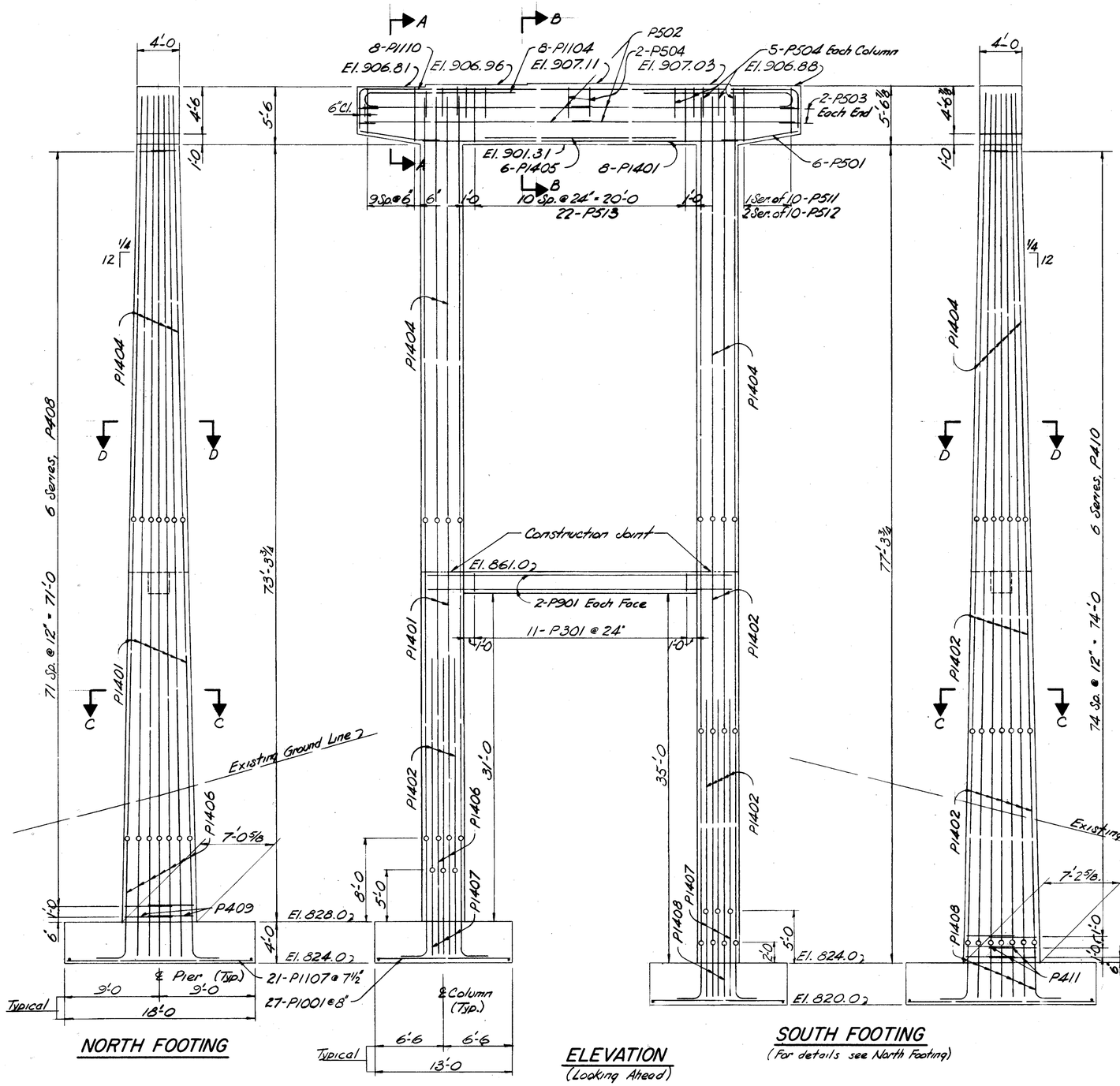
SECTION B-B



SECTION C-C



SECTION D-D



NORTH FOOTING

ELEVATION
(Looking Ahead)

SOUTH FOOTING
(For details see North Footing)

- For dimensions & other notes not shown see Pier 1A Sheet 10/24
- For strut section see Pier 1B Sheet 11/24

STICKLEN - BELSHEIM & ASSOCIATES 12/24
ENGINEERS
WORTHINGTON OHIO

PIER 2
BRIDGE NO. JEF-22-0707L U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN CENTRAL CO.

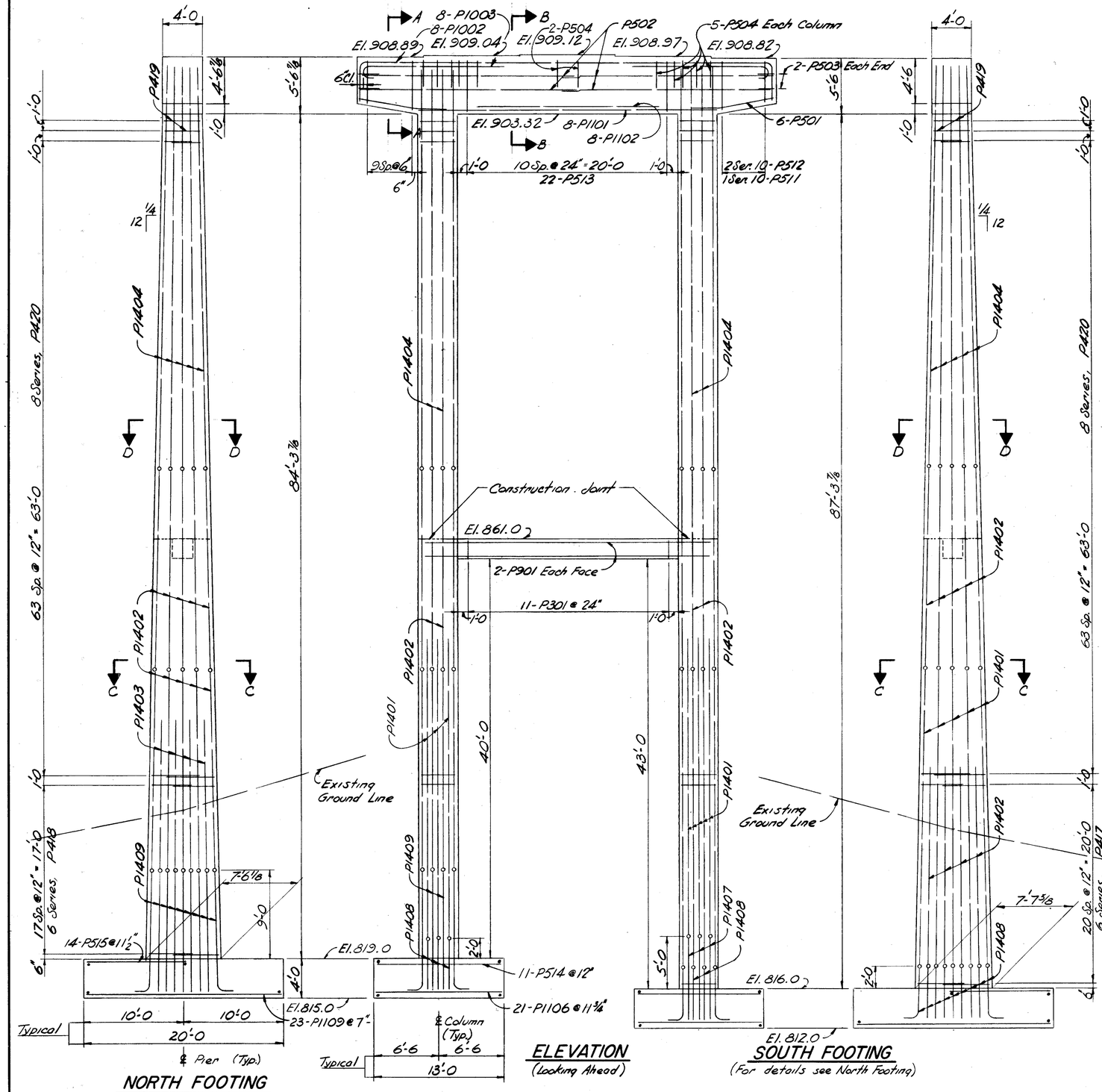
JEFFERSON CO.
STA. 368+30.75
STA. 376+17.25

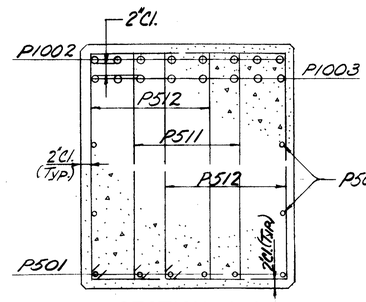
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL LCT	JGM	JGM	LCT	MBW	8-14-68	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

457
516

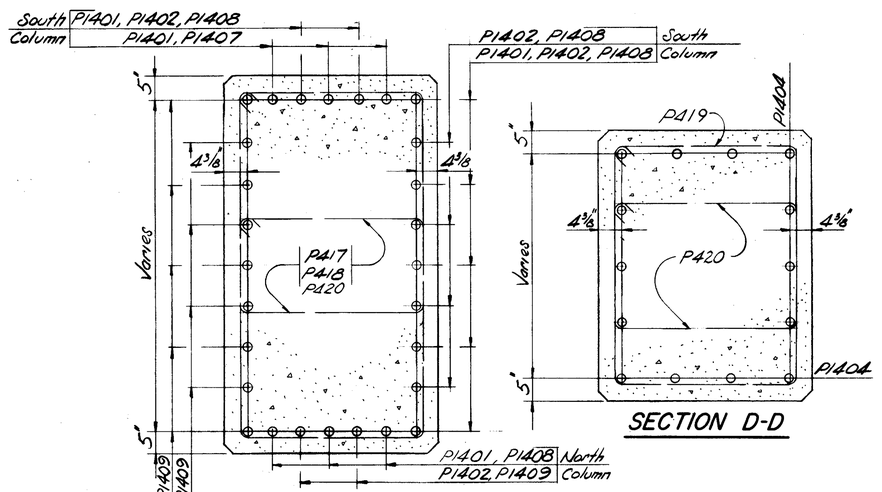
JEF-22-3.86





SECTION A-A

SECTION B-B



SECTION C-C

SECTION D-D

REINFORCING STEEL

Mark	Number	Mark	Number
P1401	26	P501	12
P1402	46	P502	8
P1403	8	P503	4
P1404	28	P504	12
P1407	6	P511	2 Ser. of 10
P1408	28	P512	4 Ser. of 10
P1409	22	P513	22
P1101	8	P514	22
P1102	8	P515	28
P1106	42	P417	6 Ser. of 7
P1109	46	P418	6 Ser. of 6
P1002	8	P419	4
P1003	16	P420	16 Ser. of 16
P901	4	P301	11

- For dimensions not shown & other notes see Pier 1st Sheet 10|24
- For anchor bolts layout see Pier 2nd Sheet 12|24
- For strut section see Pier 1st Sheet 11|24

STICKLEN - BELSHEIM & ASSOCIATES 13|24
ENGINEERS
WORTHINGTON OHIO

PIER 2

BRIDGE NO. JEF-22-0707R U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN CENTRAL CO.

JEFFERSON CO.

STA. 368+65.75
STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL LCT	JGM	JGM	LCT	TDW	8-16-68	

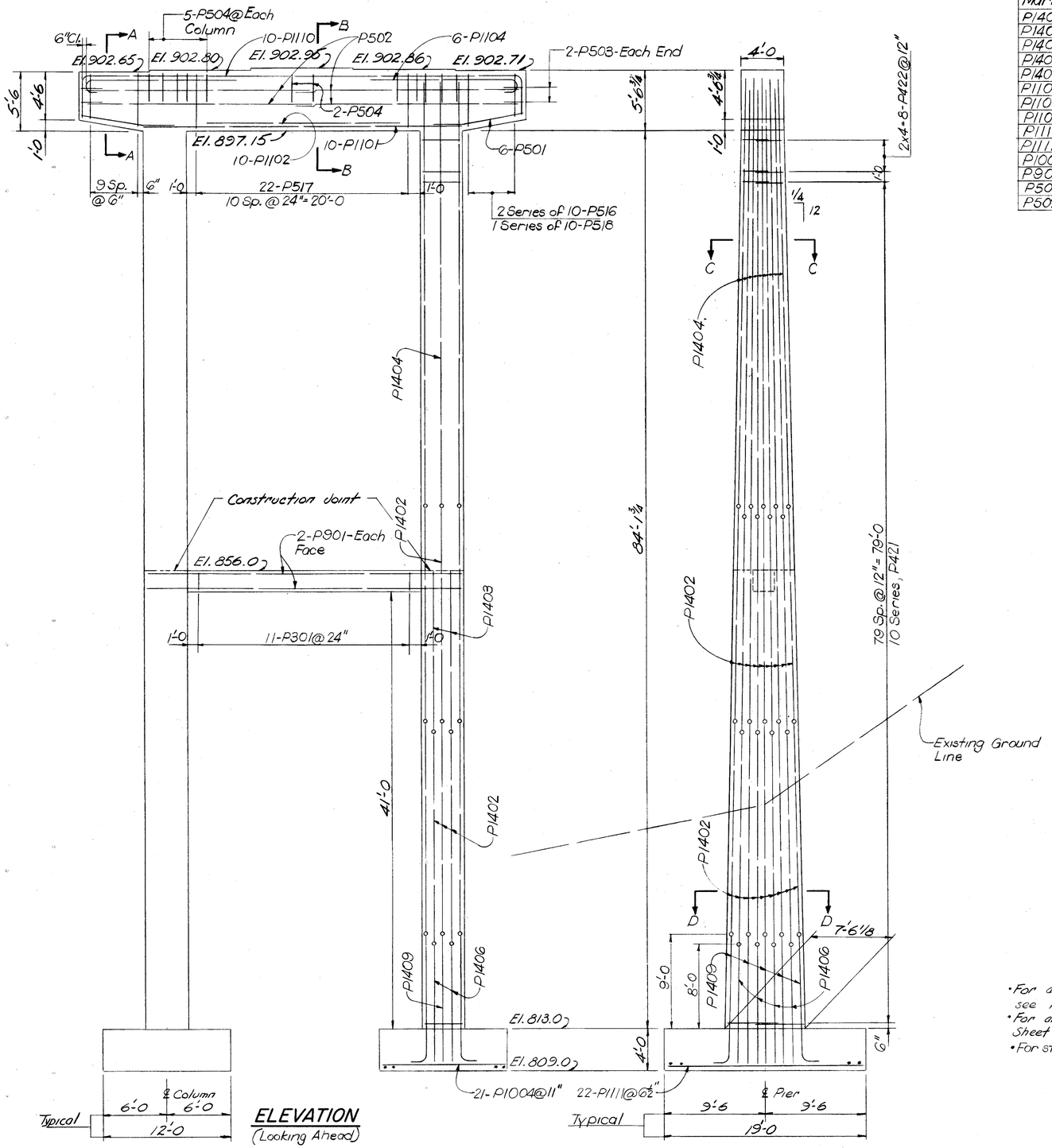
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

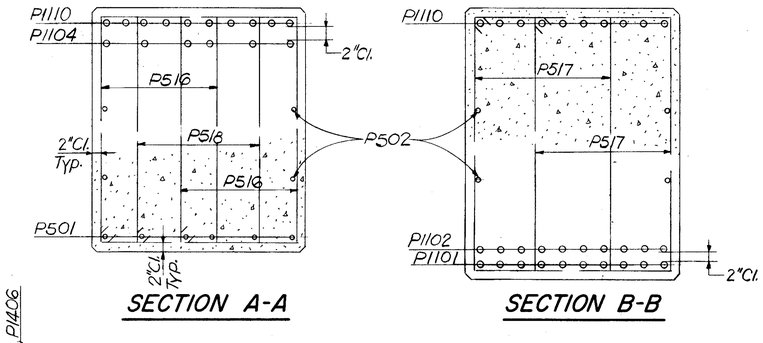
458
516

JEF-22-3.86

REINFORCING STEEL

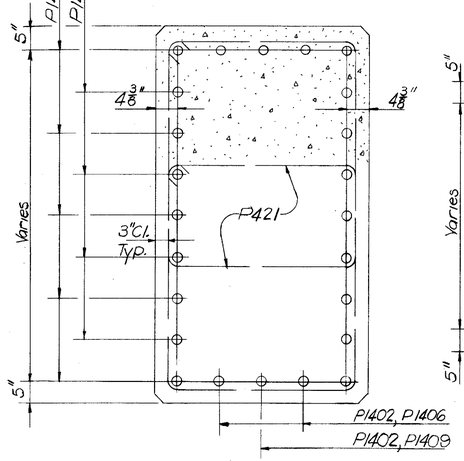
Mark	Number	Mark	Number
P1402	88	P503	4
P1403	8	P504	12
P1404	40	P518	2 Series of 10
P1406	24	P516	4 Series of 10
P1409	24	P517	22
P1101	10	P421	20 Series of 16
P1102	10	P422	16
P1104	12	P301	11
P1110	10		
P1111	44		
P1004	42		
P901	4		
P501	12		
P502	8		



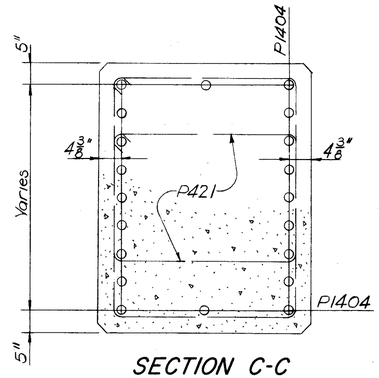


SECTION A-A

SECTION B-B



SECTION D-D



SECTION C-C

- For dimensions not shown & other notes see Pier 1L Sheet 10/24
- For anchor bolts layout see Pier 3R Sheet 15/24
- For strut section see Pier 1R Sheet 11/24

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS — WORTHINGTON OHIO — 14/24

PIER 3

BRIDGE NO. JEF-22-0707L U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN CENTRAL CO.

JEFFERSON CO.

STA. 368 + 30.75
STA. 376 + 17.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL	EH	EH	LCT	TBW	8-14-68	

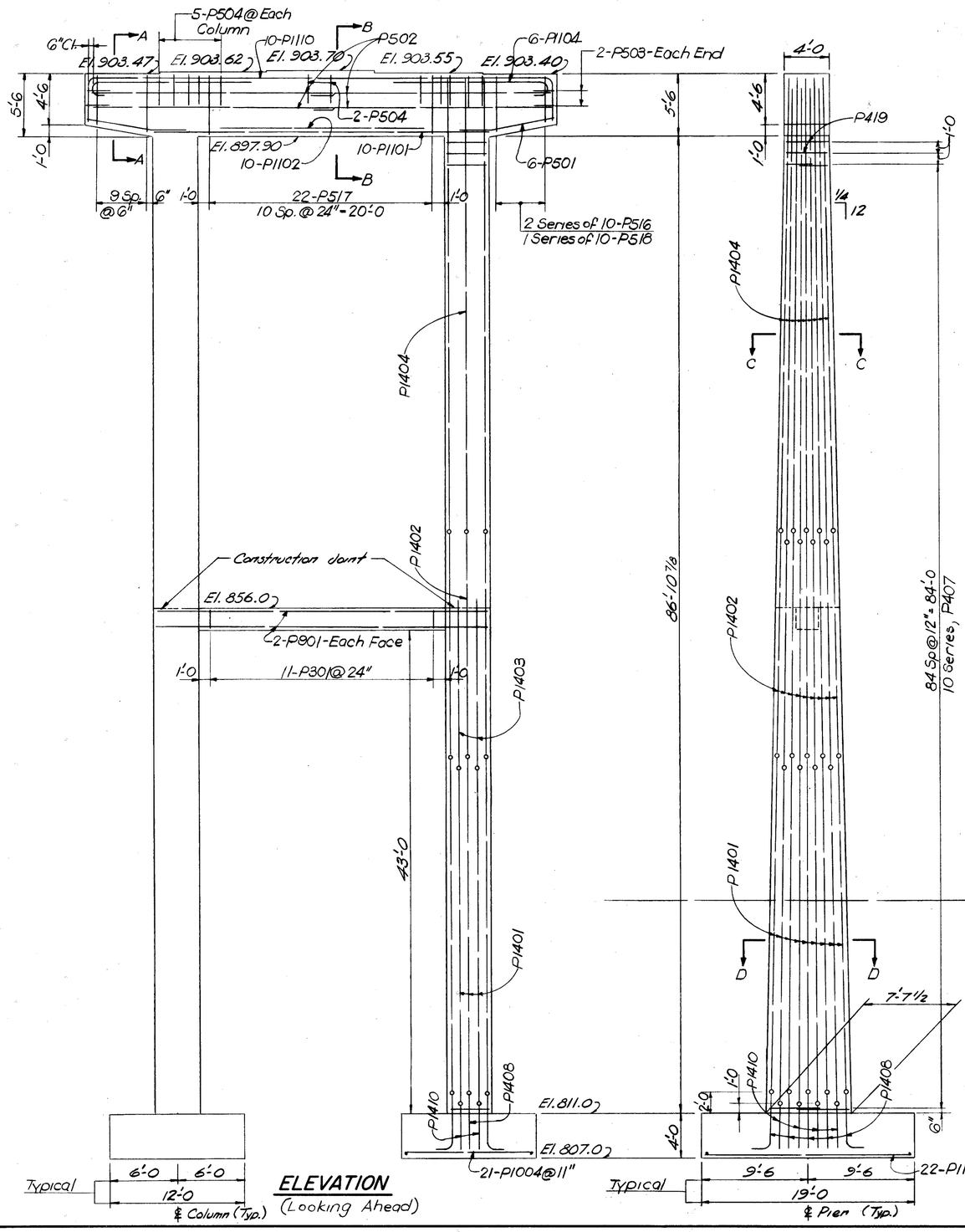
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

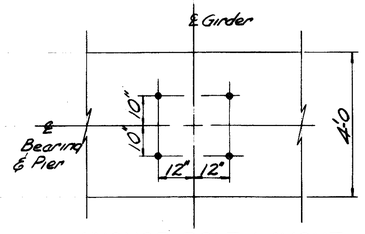
459/516

JEF-22-3.86

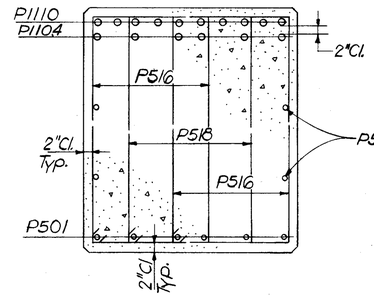
REINFORCING STEEL

Mark	Number	Mark	Number
P1401	48	P503	4
P1402	40	P504	12
P1403	8	P516	4 Series of 10
P1404	40	P517	22
P1408	24	P518	2 Series of 10
P1410	24	P407	20 Series of 17
P1101	10	P419	4
P1102	10	P301	11
P1104	12	P1004	42
P1110	10		
P1111	44		
P901	4		
P501	12		
P502	8		

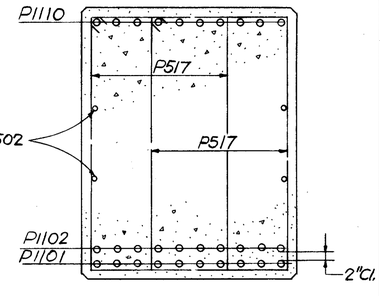




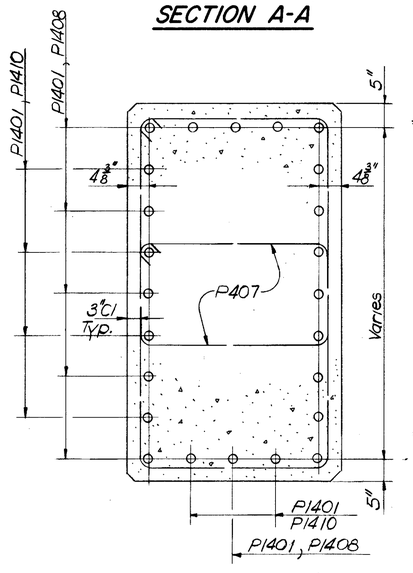
ANCHOR BOLT LAYOUT
Pier 3L & 3R



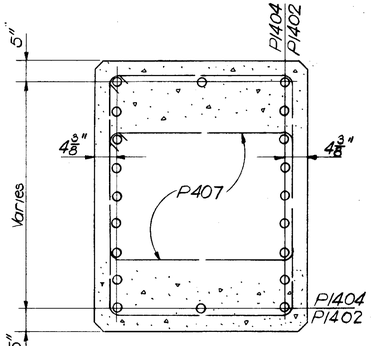
SECTION A-A



SECTION B-B



SECTION D-D



SECTION C-C

*For dimensions not shown & other notes see Pier 1L Sheet 10/24
For strut section see Pier 1R Sheet 11/24

STICKLEN - BELSHEIM & ASSOCIATES 15/24
ENGINEERS
WORTHINGTON OHIO

PIER 3
BRIDGE NO. JEF-22-0707R U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN. CENTRAL CO.

JEFFERSON CO. STA.368+65.75
STA.375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL	EH	EH	LCT	MBW	8-14-08	

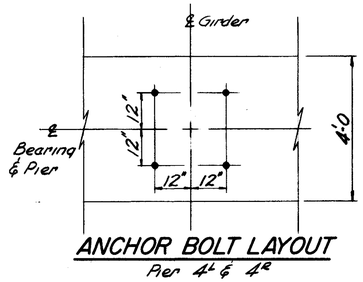
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

460
516

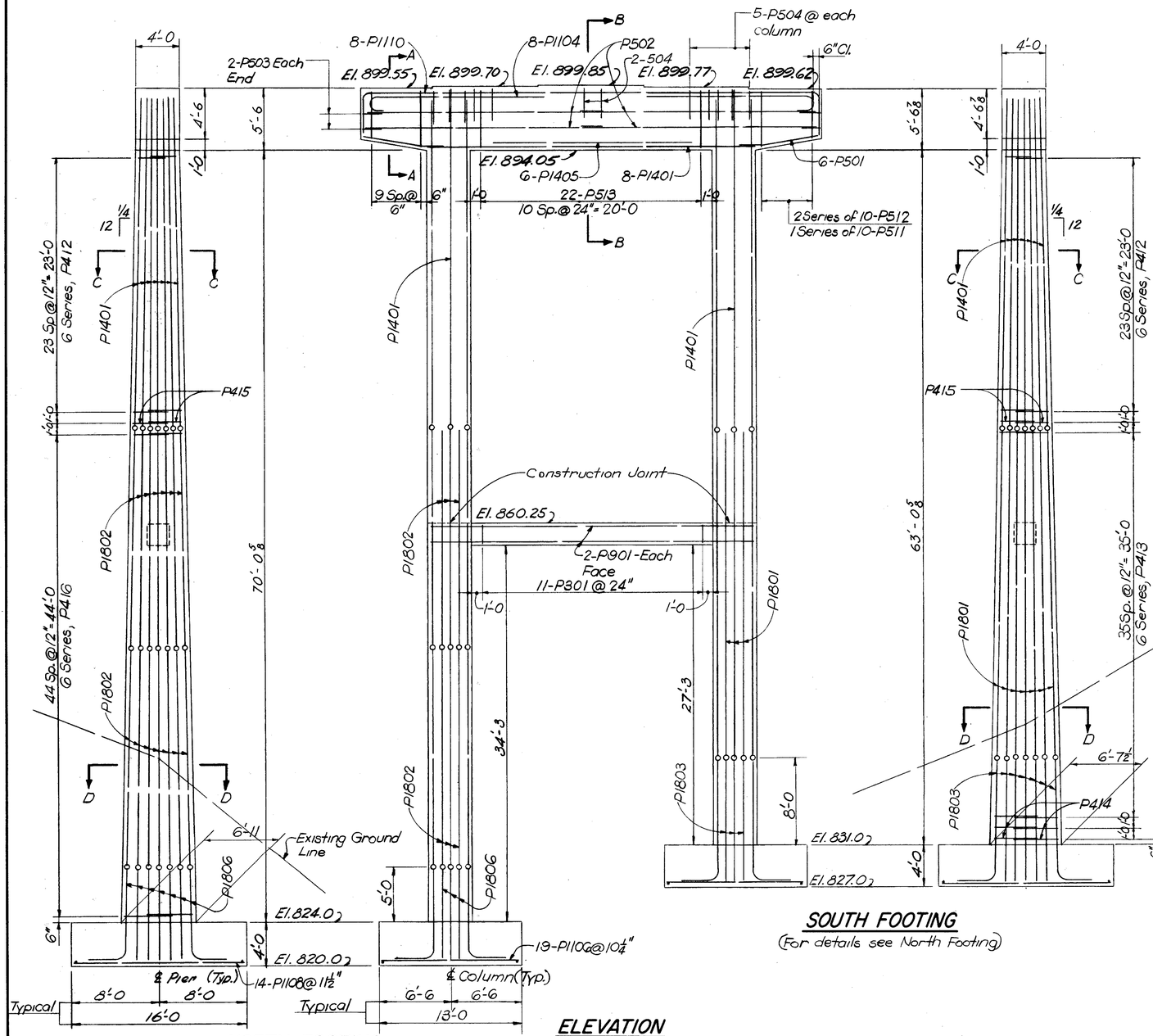
JEF-22-3.86

REINFORCING STEEL

Mark	Number	Mark	Number
P1801	20	P504	12
P1802	40	P511	2 Series of 10
P1806	20	P512	4 Series of 10
P1803	20	P513	22
P1401	40	P416	6 Series of 15
P1405	6	P412	12 Series of 8
P1110	8	P413	6 Series of 12
P1104	16	P414	4
P1106	38	P415	4
P1108	28	P301	11
P901	4		
P501	12		
P502	8		
P503	4		



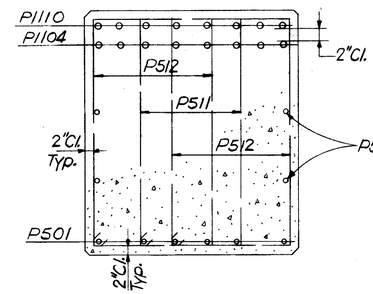
ANCHOR BOLT LAYOUT
Pier 4L & 4R



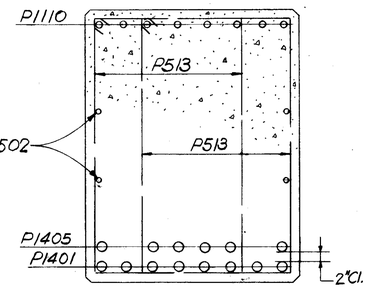
NORTH FOOTING

ELEVATION
(Looking Ahead)

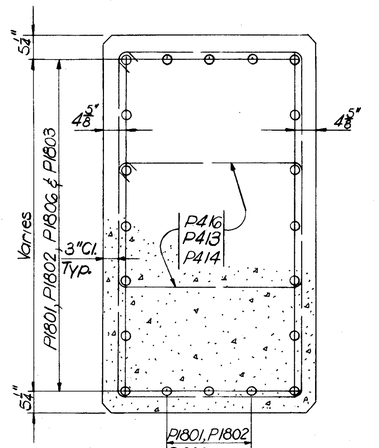
SOUTH FOOTING
(For details see North Footing)



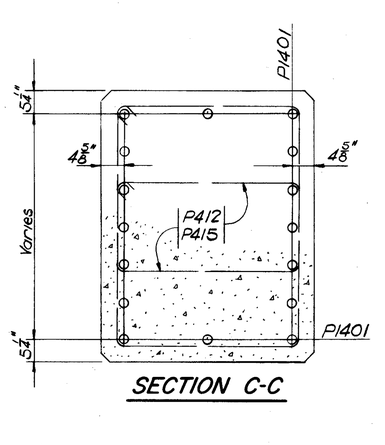
SECTION A-A



SECTION B-B



SECTION D-D



SECTION C-C

- For dimensions not shown & other notes see Pier 1L Sheet 10/24
- For strut section see Pier 1R Sheet 11/24

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS 6/24
WORTHINGTON OHIO

PIER 4
BRIDGE NO. JEF-22-0707L U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN CENTRAL CO.
JEFFERSON CO. STA. 368+30.75
STA. 376+17.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL LCT	EH	EH	LCT	MBW	8-16-03	

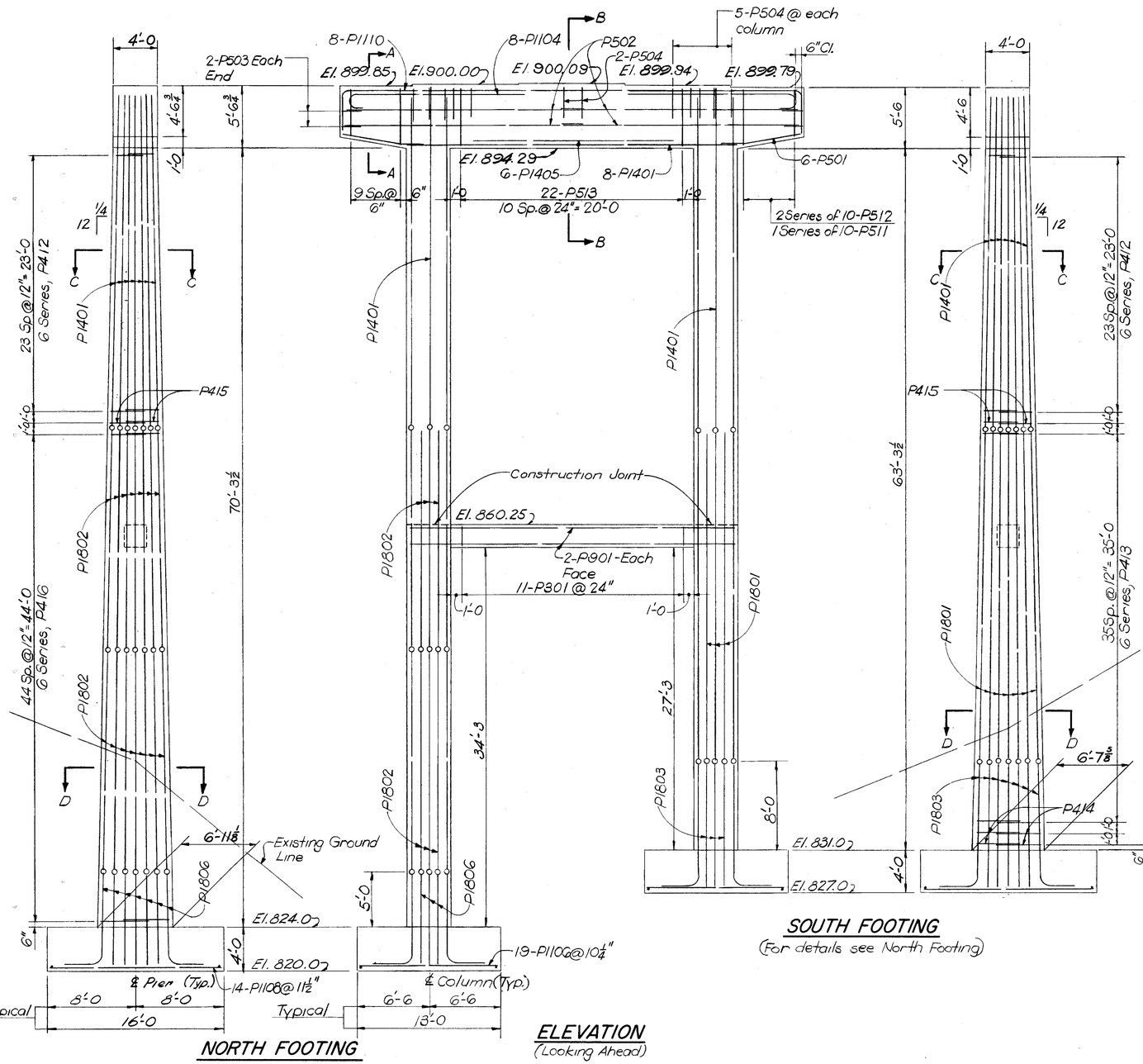
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

461/516

JEF-22-3.86

REINFORCING STEEL

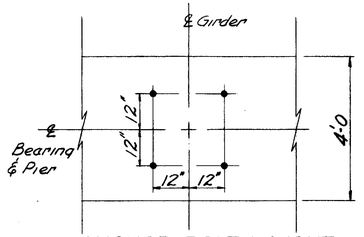
Mark	Number	Mark	Number
P1801	20	P504	12
P1802	40	P511	2 Series of 10
P1806	20	P512	4 Series of 10
P1803	20	P513	22
P1401	40	P416	6 Series of 15
P1405	6	P412	12 Series of 8
P1110	8	P413	6 Series of 12
P1104	16	P414	4
P1106	36	P415	4
P1108	28	P301	11
P901	4		
P501	12		
P502	8		
P503	4		



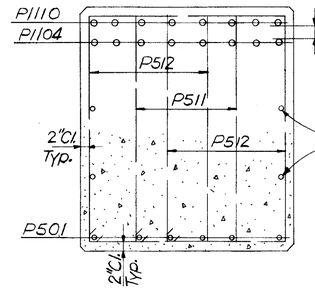
NORTH FOOTING

SOUTH FOOTING
(For details see North Footing)

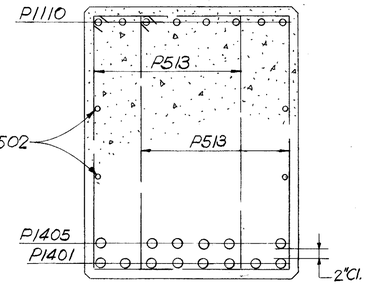
ELEVATION
(Looking Ahead)



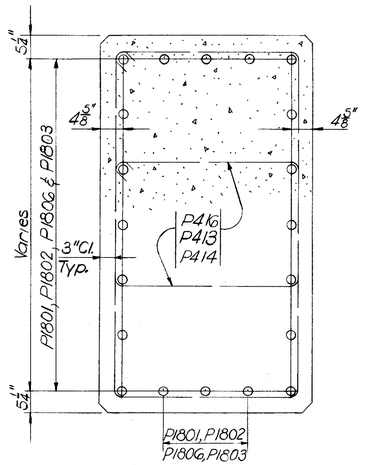
ANCHOR BOLT LAYOUT
Pier 4' & 4"



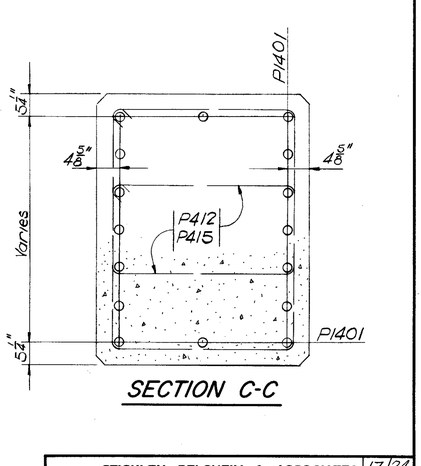
SECTION A-A



SECTION B-B



SECTION D-D



SECTION C-C

- For dimensions not shown & other notes see Pier 1 Sheet 10/24
- For strut section see Pier 1 & Sheet 11/24

STICKLEN - BELSHEIM & ASSOCIATES 17/24
ENGINEERS
WORTHINGTON OHIO

PIER 4

BRIDGE NO. JEF-22-0707R U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN CENTRAL CO.

JEFFERSON CO.

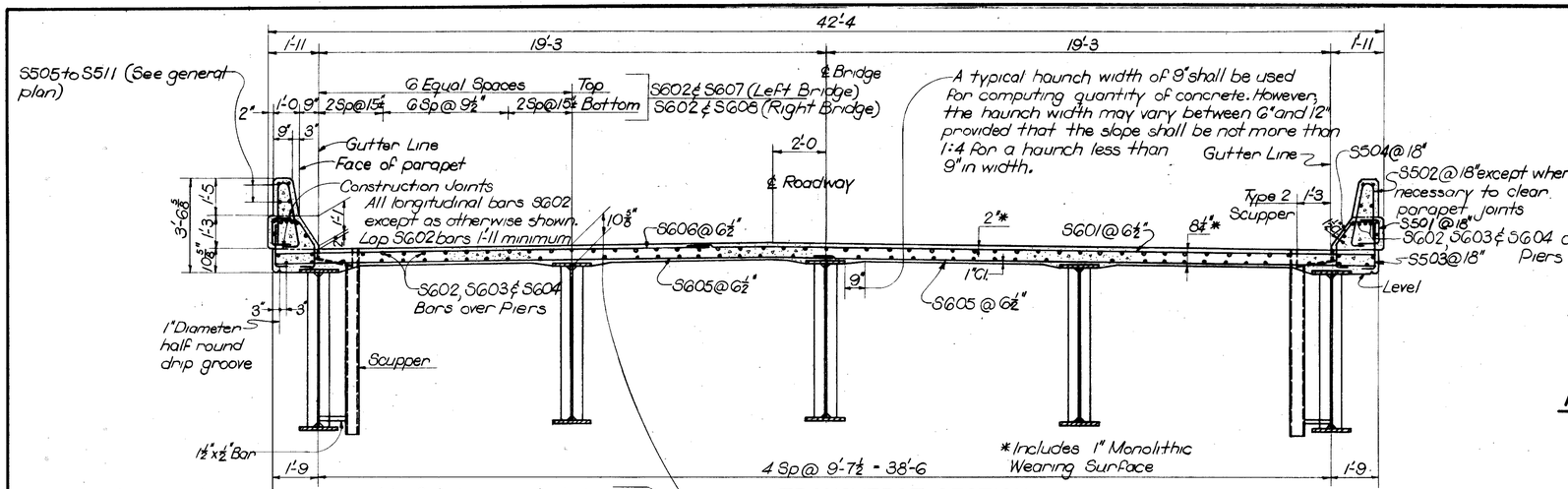
STA. 368+65.75
STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL LCT	EH	EH	LCT	TBW	8-14-08	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

462/516

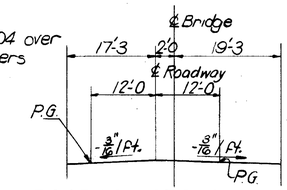
JEF-22-3.86



This 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 sec. 511.19 of the Construction Material Specifications.

TRANSVERSE SECTION

LEFT BRIDGE - LOOKING BACK
RIGHT BRIDGE - LOOKING AHEAD

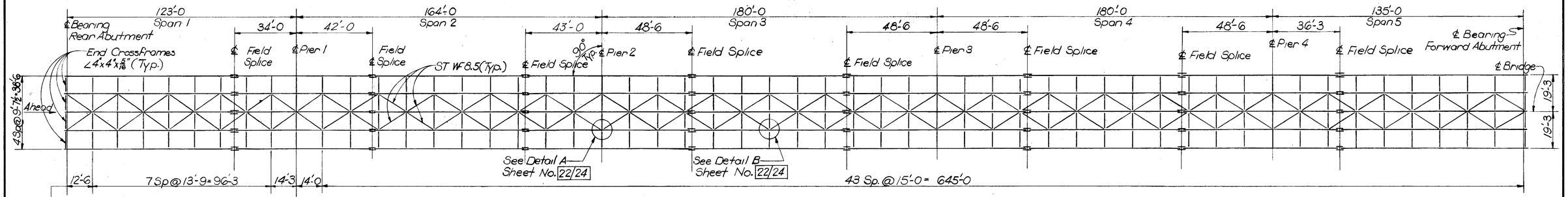


ROADWAY CROWN DIAGRAM

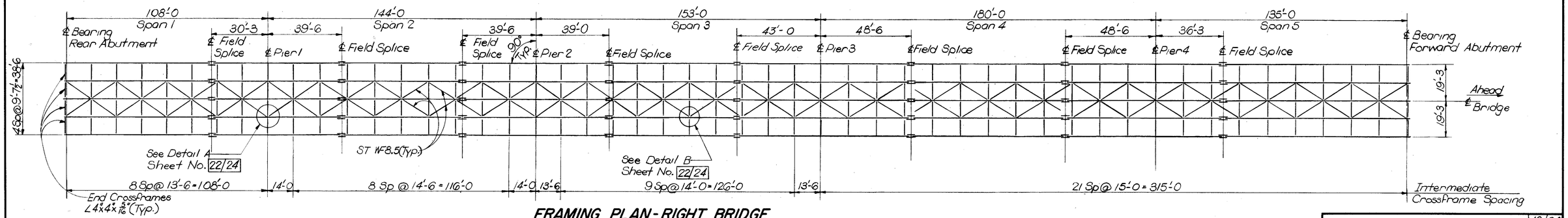
Left Bridge - Looking Back
Right Bridge - Looking Ahead

NOTES:

- For Intermediate Crossframe Details see Sheet No. 22/24
- For scupper location see General Plan. For scupper details see Standard Drawing SD-1-65, Sheet 2 of 3.
- For dead load deflection, camber diagram, moments, stresses, reactions & shear stresses see Sheet No. 23/24
- For Bolster & Rocker details see Sheet No. 20/24
- For girder elevations & stiffener spacing see Sheet No. 19/24
- For field splice details see Sheet No. 21/24
- For End Crossframe, End Dam Details at Fascia Girder and Longitudinal Section - bridge on grade see Standard Drawing SD-1-65, Sheet 1 of 3.



FRAMING PLAN - LEFT BRIDGE



FRAMING PLAN - RIGHT BRIDGE

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS 18/24
WORTHINGTON OHIO

FRAMING PLAN & SECTIONS

BRIDGE NO. JEF-22-0707 L/R U.S.R. 22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

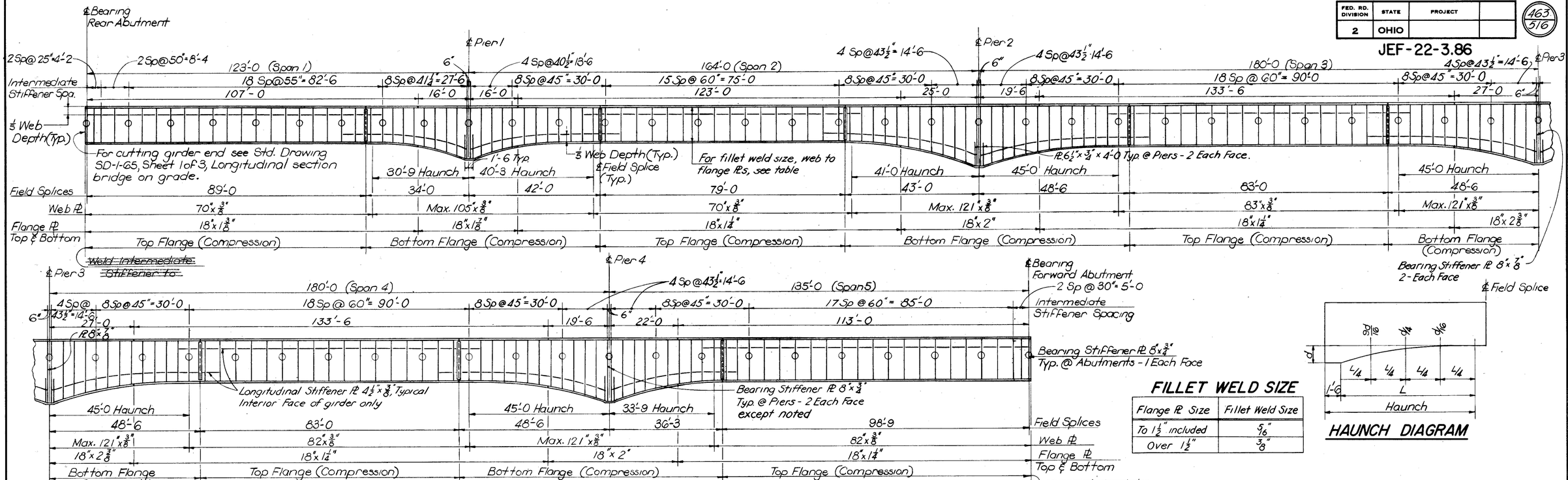
JEFFERSON CO. STA. 368+30.75 STA. 368+65.75 STA. 376+17.25 STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL LCT	EH	EH	LCT	7/SW	8-14-68	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

463/516

JEF-22-3.86

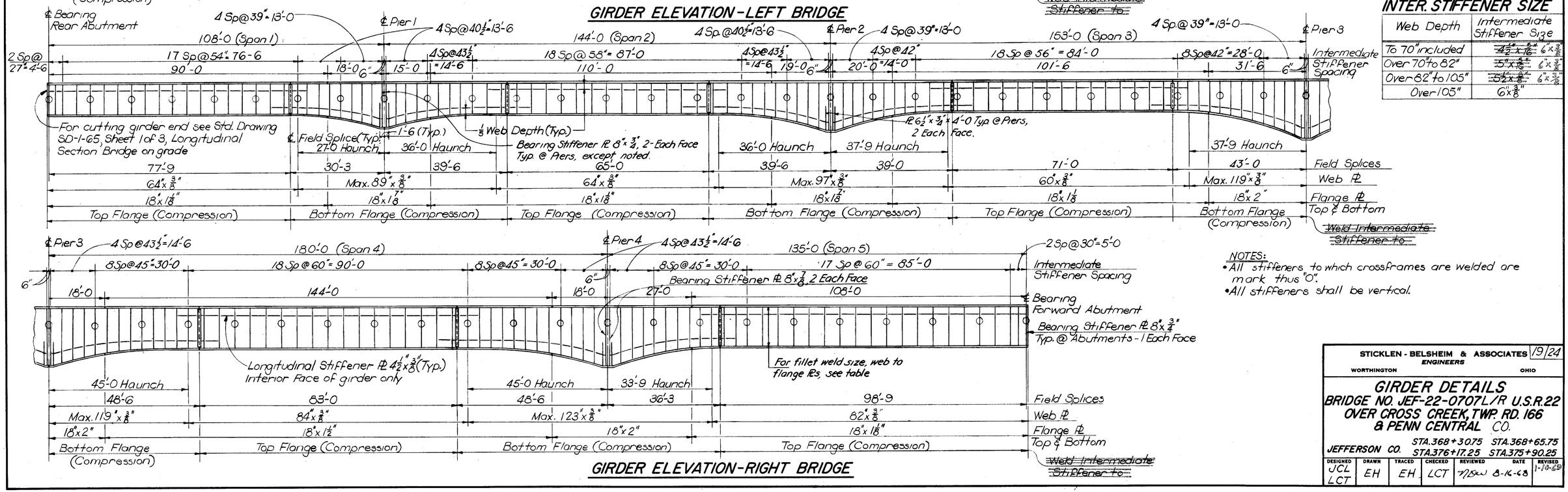


GIRDER ELEVATION - LEFT BRIDGE

FILLET WELD SIZE

Flange Pl Size	Fillet Weld Size
To 1 1/2" included	5/16"
Over 1 1/2"	3/8"

HAUNCH DIAGRAM



GIRDER ELEVATION - RIGHT BRIDGE

INTER. STIFFENER SIZE

Web Depth	Intermediate Stiffener Size
To 70" included	~~4 1/2" x 5/16"~~ 6" x 3/8"
Over 70" to 82"	~~5" x 5/16"~~ 6" x 3/8"
Over 82" to 105"	~~5" x 3/8"~~ 6" x 3/8"
Over 105"	6" x 3/8"

NOTES:
- All stiffeners to which crossframes are welded are mark thus "0".
- All stiffeners shall be vertical.

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS
WORTHINGTON OHIO

9/24

GIRDER DETAILS
BRIDGE NO. JEF-22-0707 L/R U.S.R. 22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

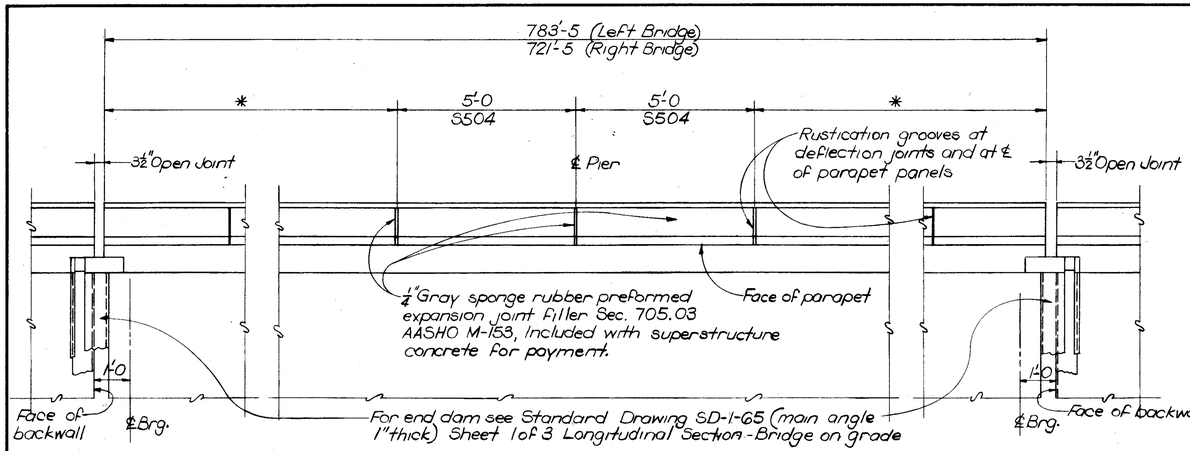
JEFFERSON CO. STA. 368+30.75 STA. 368+65.75 STA. 376+17.25 STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL LCT	EH	EH	LCT	TJSW	8-16-68	1-10-69

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

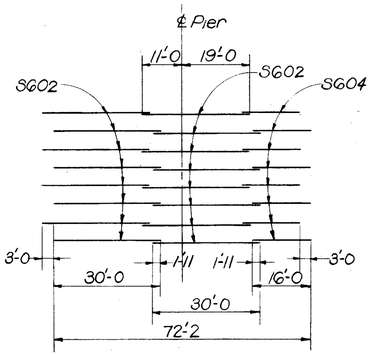
464/516

JEF-22-3.86

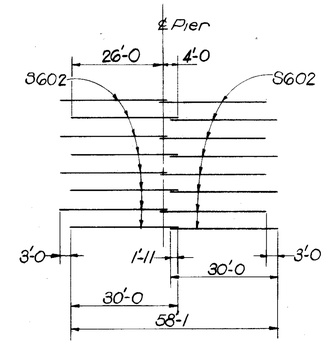


PARTIAL PARAPET PLAN

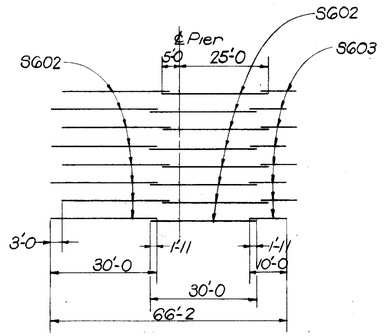
* See General Plan for parapet panel length and bar marks



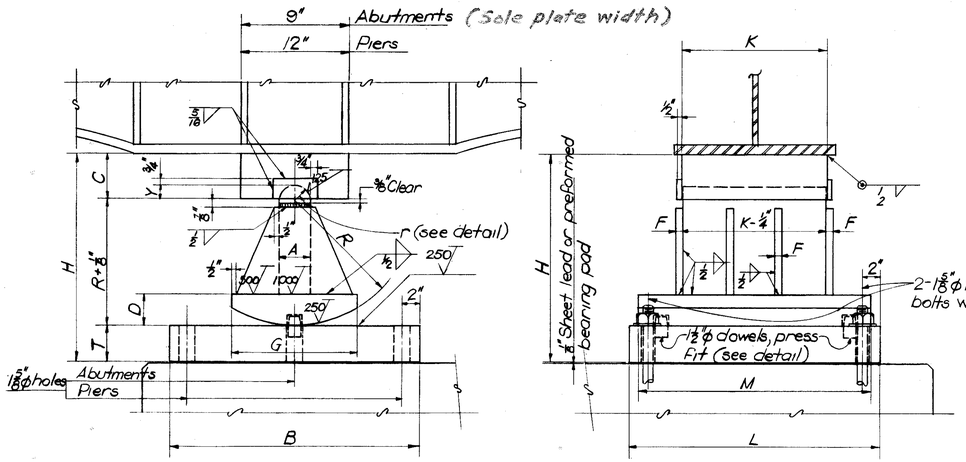
PIERS 2,3 & 4 - LEFT BRIDGE
PIERS 3 & 4 - RIGHT BRIDGE



PIERS 1 & 2 - RIGHT BRIDGE



PIER 1 - LEFT BRIDGE

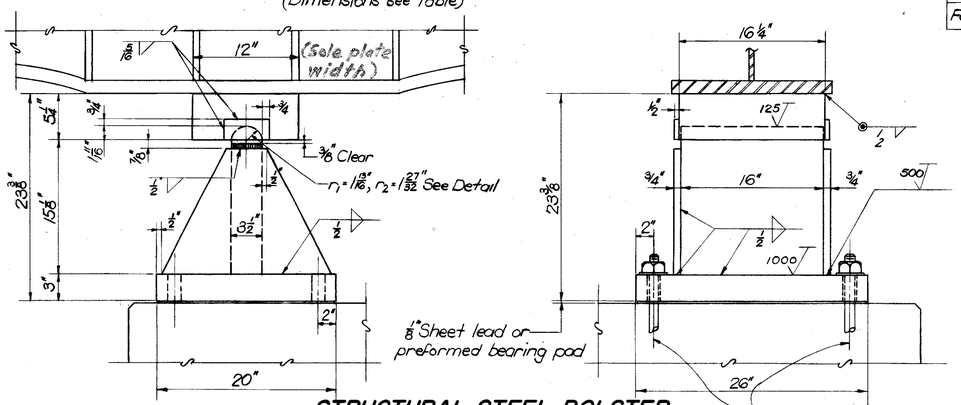


STRUCTURAL STEEL ROCKER

(Dimensions see table)

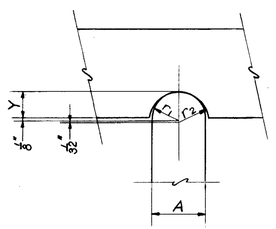
DIMENSION	A	B	C	D	F	G	H	K	L	M	R	T	Y	r_1	r_2	Total Design Load	Anticipated Movement	Structural Steel
Rear Abutment	3"	12"	3"	2¼"	½"	9"	13⅜"	12"	25"	17"	8½"	¼"	1 7/16"	1 9/16"	1 9/32"	150ᵏ	1.90"	A36
Pier 1	3½"	22"	5⅝"	3½"	¾"	12"	22¾"	16"	28"	26"	14"	3½"	1 1/16"	1 13/16"	1 27/32"	430ᵏ	1.09"	A441
Pier 3	3½"	24"	5⅝"	3½"	¾"	12"	23¼"	16"	28"	26"	14"	3¾"	1 1/16"	1 13/16"	1 27/32"	520ᵏ	1.19"	A441
Pier 4	3½"	28"	5⅝"	3½"	¾"	14"	23⅜"	16"	28"	26"	14"	4"	1 1/16"	1 13/16"	1 27/32"	500ᵏ	2.38"	A441
Forward Abutment	3"	20"	3½"	3¼"	½"	12"	15⅝"	12"	25"	17"	9½"	2"	1 7/16	1 9/16"	1 29/32"	160ᵏ	3.28"	A36

Data shown for Left & Right Bridge

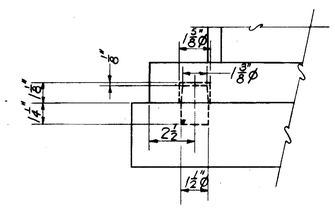


STRUCTURAL STEEL BOLSTER

(Pier 2, Left & Right Bridges
Design Load = 500ᵏ A441 Steel)



TOP BEARING DETAIL



DOWEL DETAIL

STICKLEN - BELSHEIM & ASSOCIATES 20/24
ENGINEERS
WORTHINGTON OHIO

ROCKERS, BOLSTERS & DETAILS
BRIDGE NO. JEF-22-0707 L/R U.S.R. 22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

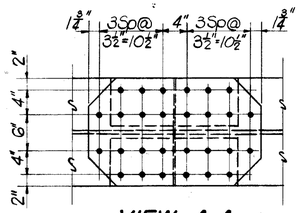
JEFFERSON CO. STA. 368+30.75 STA. 368+65.75
STA. 376+17.25 STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	LCT	TJW	8-14-68	2-20-68

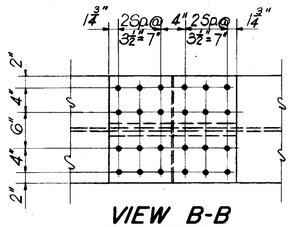
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

465/516

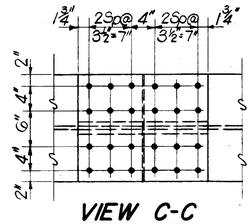
JEF-22-3.86



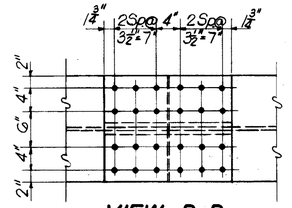
VIEW A-A



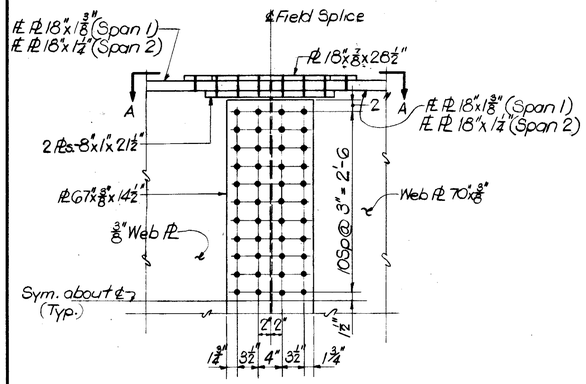
VIEW B-B



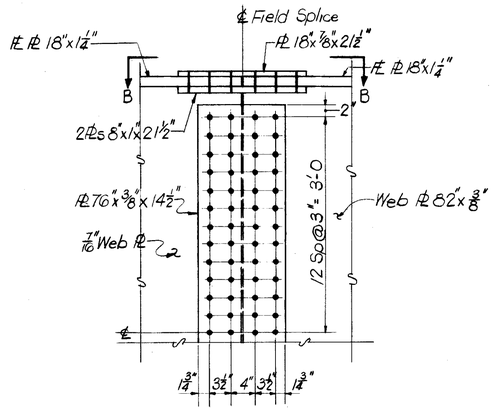
VIEW C-C



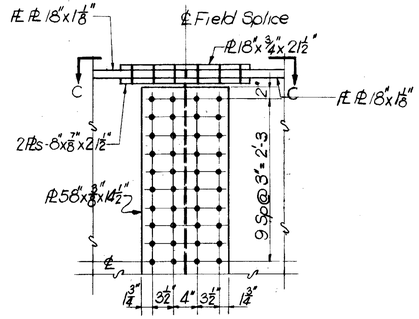
VIEW D-D



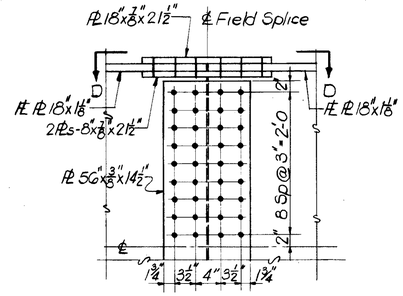
SPANS 1&2 - LEFT BRIDGE



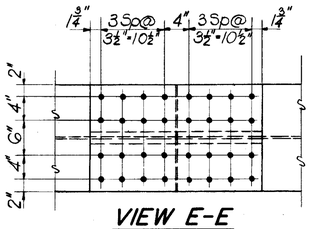
SPANS 3,4&5 - LEFT BRIDGE



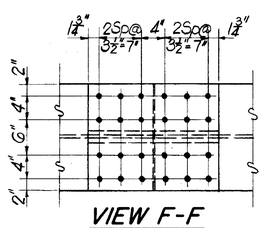
SPANS 1&2 - RIGHT BRIDGE



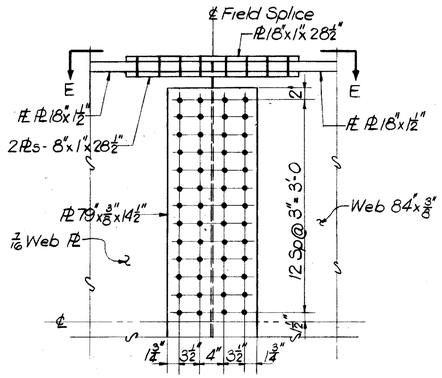
SPAN 3 - RIGHT BRIDGE



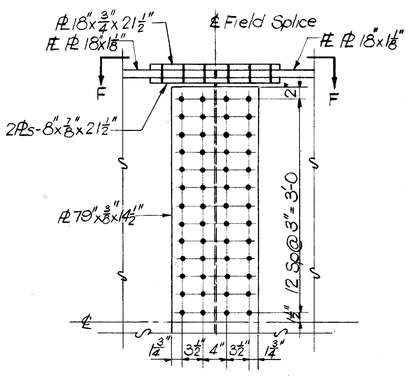
VIEW E-E



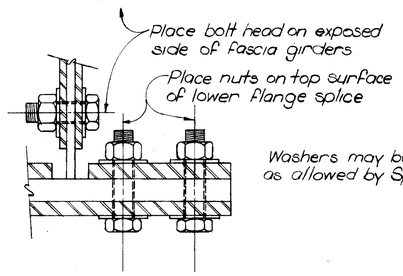
VIEW F-F



SPAN 4 - RIGHT BRIDGE



SPAN 5 - RIGHT BRIDGE



PARTIAL SECTION

(at ℄ of girder splice)

Bolts shall be 1" diameter, high strength.

STICKLEN - BELSHEIM & ASSOCIATES 21/24
ENGINEERS
WORTHINGTON OHIO

FIELD SPLICES

BRIDGE NO. JEF-22-0707 L/R U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN CENTRAL CO.

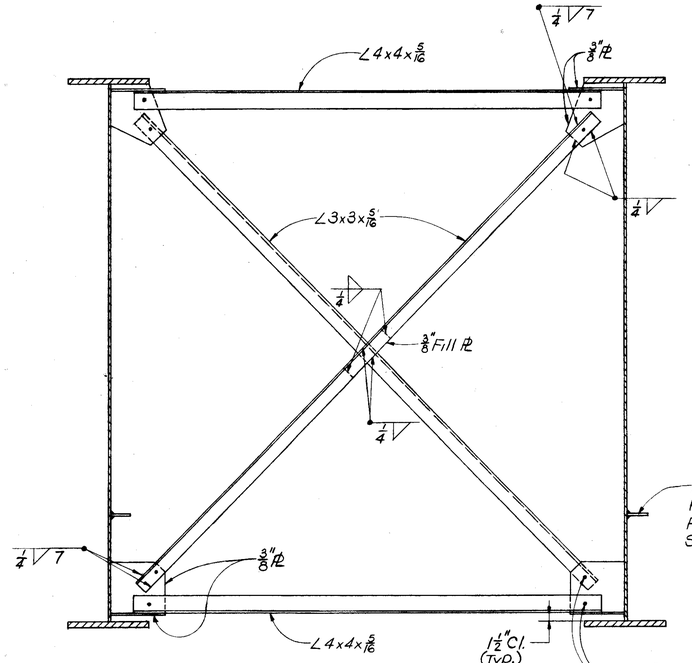
JEFFERSON CO. STA.368+30.75 STA.368+65.75
STA.376+17.25 STA.375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LCT	EH	EH	LCT	MDW	8-16-68	

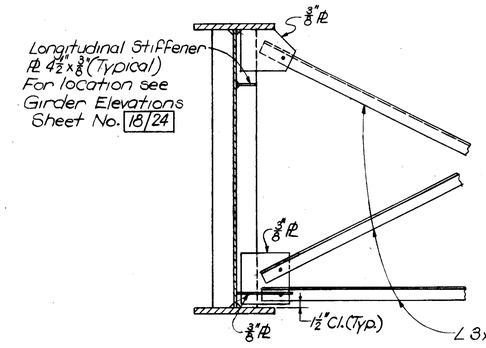
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

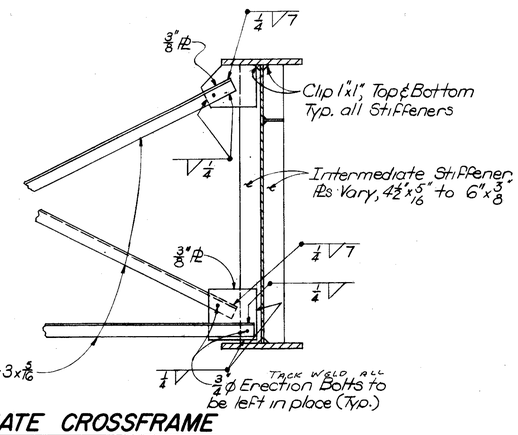
466/516

JEF-22-3.86

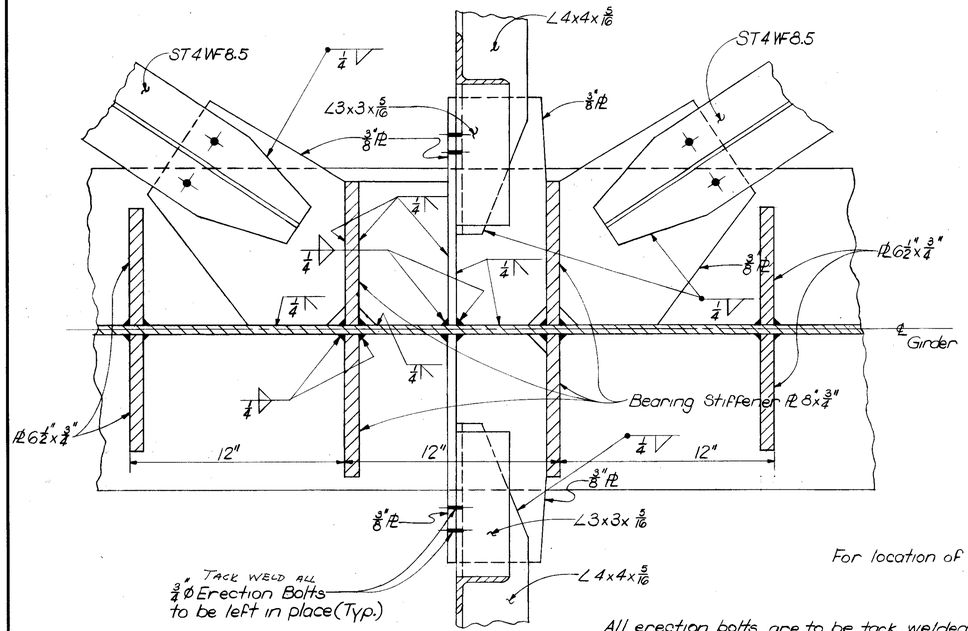


INTERMEDIATE CROSSFRAME AT PIER



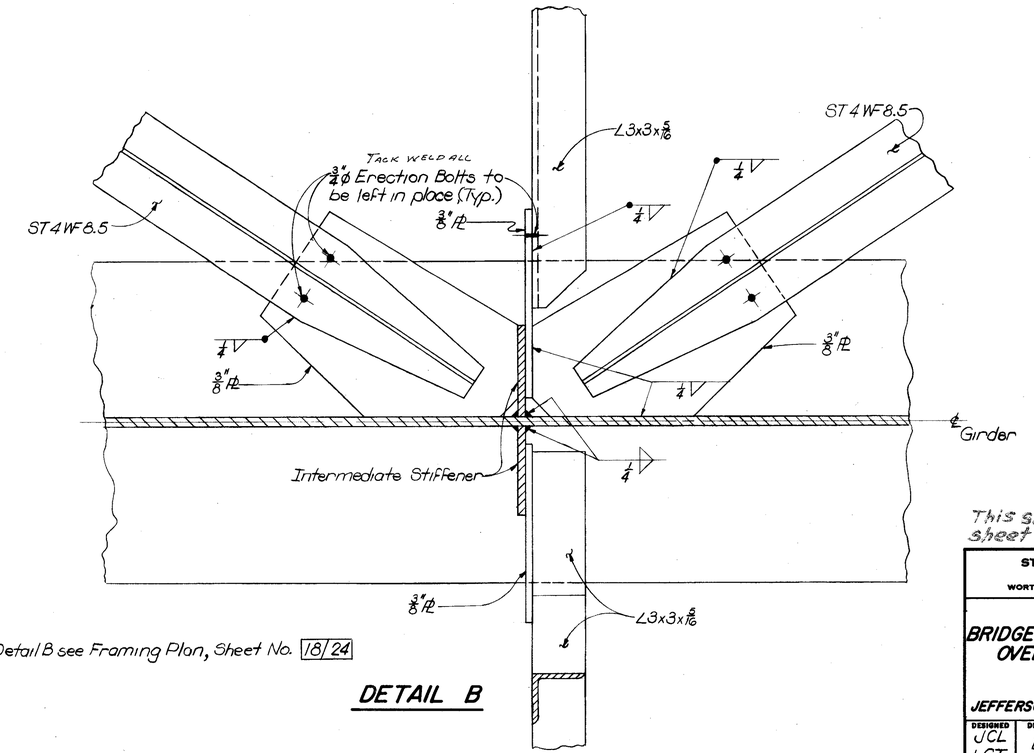


INTERMEDIATE CROSSFRAME
(except at pier)



DETAIL A

All erection bolts are to be tack welded



DETAIL B

For location of Detail A & Detail B see Framing Plan, Sheet No. 18/24

This sheet superseded by sheet No. 466A 2-20-69

STICKLEN - BELSHEIM & ASSOCIATES 22/24
ENGINEERS
WORTHINGTON OHIO

BRACING DETAILS
BRIDGE NO. JEF-22-0707 L/R U.S.R.22 OVER CROSS CREEK, TWP. RD. 166 & PENN CENTRAL CO.

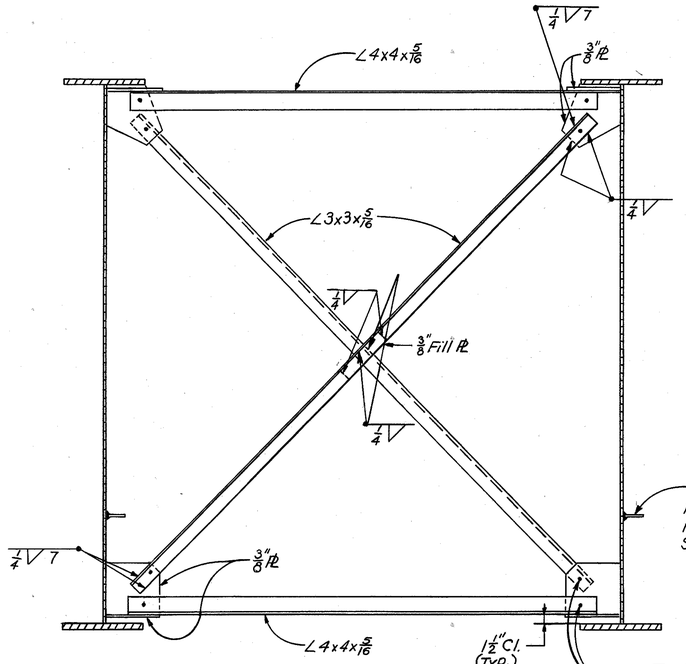
JEFFERSON CO. STA. 368+30.75 STA. 368+65.75 STA. 376+17.25 STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL LCT	EH	EH	LCT	TJW	8-16-68	

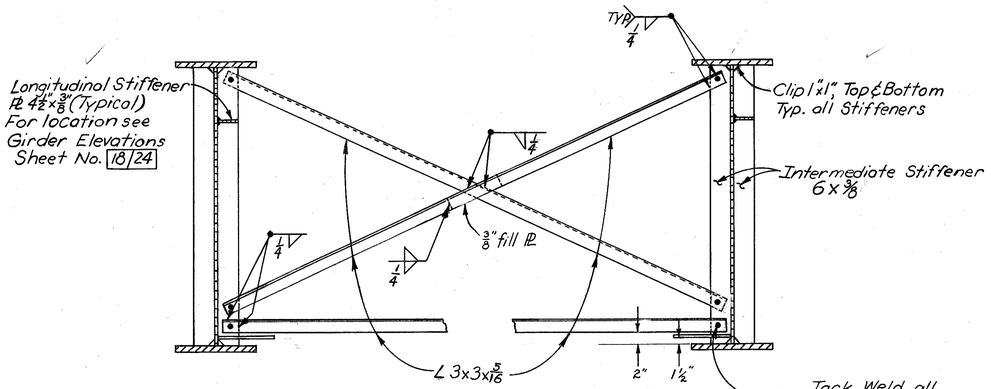
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

466A
511

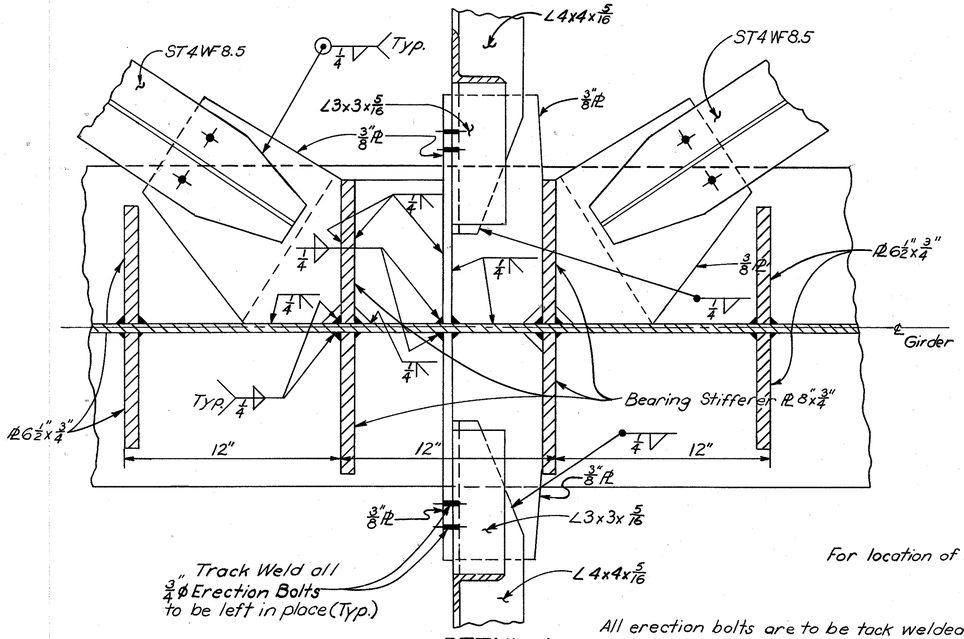
JEF-22-3.86



INTERMEDIATE CROSSFRAME AT PIER

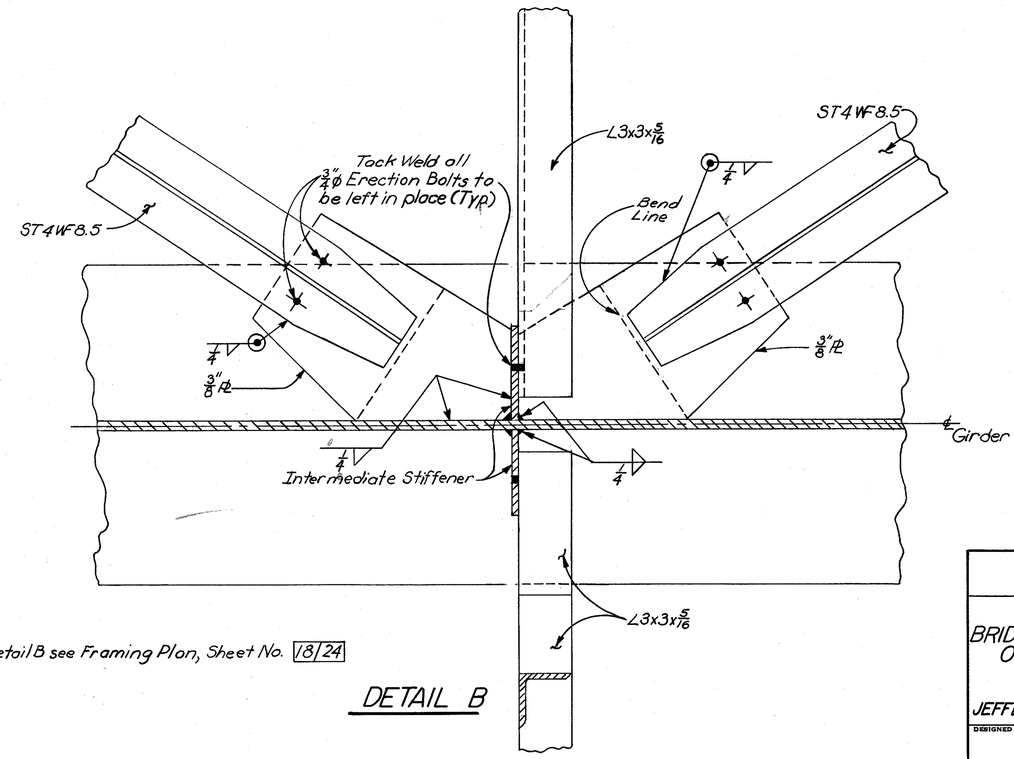


INTERMEDIATE CROSSFRAME
(except at pier)



DETAIL A

All erection bolts are to be tack welded



DETAIL B

For location of Detail A & Detail B see Framing Plan, Sheet No. 18/24

This Sheet Supersedes Sheet No. 466 2-20-69

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

BRACING DETAILS
BRIDGE NO. JEF-22-0707 L/R U.S.R. 22
OVER CROSS CREEK TWP. RD. 166
& PENN CENTRAL CO.
STA. 368+30.75 STA. 368+65.75
JEFFERSON CO. STA. 376+17.25 STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

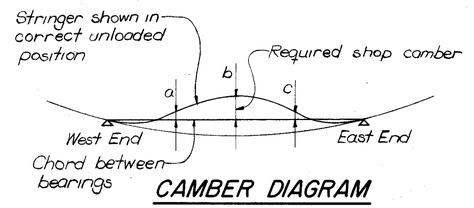
467 / 516

JEF-22-3.86

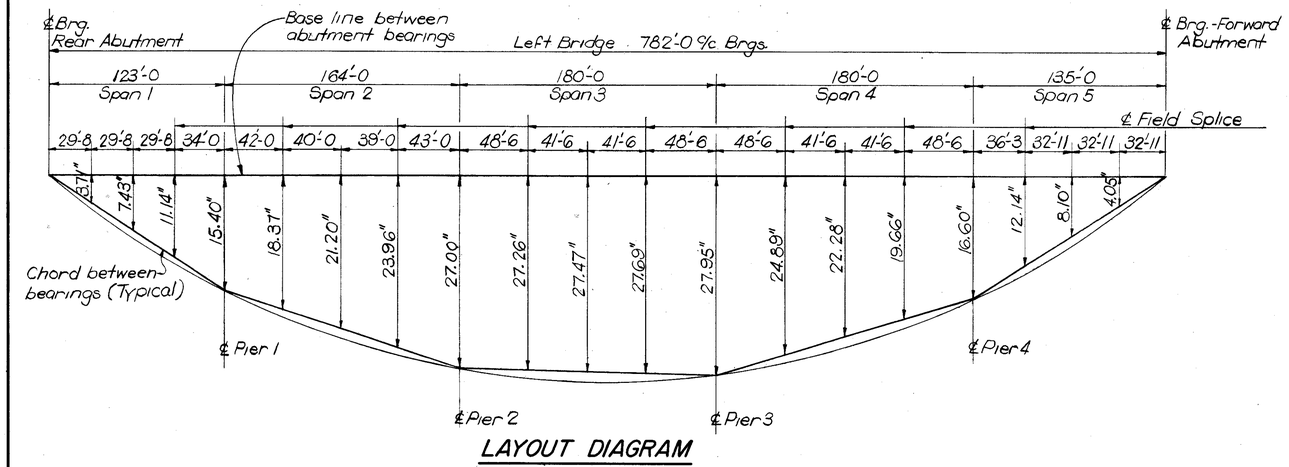
DEFLECTION & CAMBER

Cambers and Deflections in inches

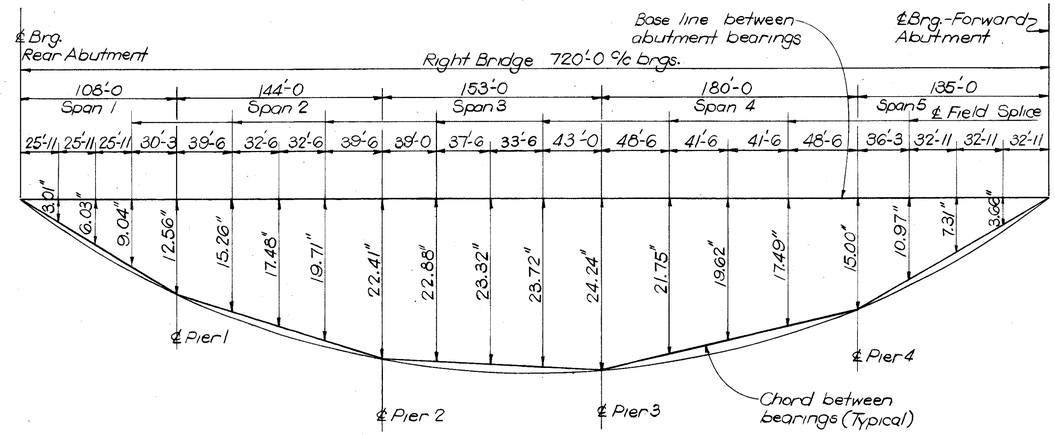
	LEFT BRIDGE															RIGHT BRIDGE														
	SPAN 1			SPAN 2			SPAN 3			SPAN 4			SPAN 5			SPAN 1			SPAN 2			SPAN 3			SPAN 4			SPAN 5		
POINT	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c
Deflection due to weight of Steel	.18	.21	.08	.15	.27	.13	.18	.33	.16	.16	.33	.18	.07	.20	.19	.14	.16	.05	.15	.27	.13	.13	.22	.10	.21	.38	.22	.06	.19	.18
Deflection due to weight of Concrete	.63	.70	.27	.52	.92	.41	.62	1.09	.54	.54	1.09	.62	.23	.66	.61	.49	.53	.19	.50	.88	.45	.41	.76	.30	.69	1.27	.70	.22	.64	.60
Sum of deflection due to Dead Load	.81	.91	.35	.67	1.19	.54	.80	1.42	.70	.70	1.42	.80	.30	.86	.80	.63	.69	.24	.65	1.15	.58	.54	.98	.40	.90	1.65	.92	.28	.83	.78
Convexity for Vertical Curve	-.52	-.72	-.57	-.97	-1.28	-.98	-1.21	-1.54	-1.21	-1.21	-1.54	-1.21	-.68	-.87	-.64	-.40	-.55	-.45	-.78	-.98	-.78	-.84	-1.11	-.90	-1.21	-1.54	-1.21	-.68	-.87	-.64
Sum of Deflection and Convexity	.29	.19	-.22	-.30	-.09	-.44	-.41	-.12	-.51	-.51	-.12	-.41	-.38	-.01	.16	.23	.14	-.21	-.13	.17	-.20	-.30	-.13	-.50	-.31	.11	-.29	-.40	-.04	.14



CAMBER DIAGRAM



LAYOUT DIAGRAM



LAYOUT DIAGRAM

	LEFT BRIDGE									RIGHT BRIDGE								
MOMENTS (Kip-Ft.)	SPAN 1	PIER 1	SPAN 2	PIER 2	SPAN 3	PIER 3	SPAN 4	PIER 4	SPAN 5	SPAN 1	PIER 1	SPAN 2	PIER 2	SPAN 3	PIER 3	SPAN 4	PIER 4	SPAN 5
Dead Load	1599	4212	1422	5205	1795	6069	1767	5262	1859	1173	3393	1189	3667	1036	4938	2148	5618	1720
Live Load	1332	2189	1366	2763	1731	3110	1645	2615	1528	1135	1791	1159	2085	1105	2624	1849	2661	1459
Impact	269	407	236	465	284	510	270	463	294	243	357	215	381	199	450	303	471	281
Total	3200	6808	3024	8433	3810	9689	3682	8340	3681	2551	5541	2563	6133	2340	8012	4300	8750	3460
Section Modulus Furnished in^3	2028	4211	1871	5243	2286	6056	2253	5243	2253	1544	3481	1544	3841	1432	5142	2695	5345	2070
Fibre Stress (KSI)	18.93	19.40	19.39	19.30	20.00	19.20	19.61	19.09	19.61	19.83	19.10	19.92	19.16	19.61	18.70	19.14	19.64	20.06

	LEFT BRIDGE						RIGHT BRIDGE					
REACTIONS (Kips)	REAR ABUT.	PIER 1	PIER 2	PIER 3	PIER 4	FORWARD ABUT.	REAR ABUT.	PIER 1	PIER 2	PIER 3	PIER 4	FORWARD ABUT.
Dead Load	76.7	292.2	320.5	347.3	326.9	83.0	66.0	260.6	267.4	314.3	338.8	80.4
Live Load	59.8	127.2	141.0	147.9	137.8	60.9	58.9	116.3	123.5	137.7	139.8	60.7
Impact	12.1	23.7	23.7	24.3	24.4	11.7	12.7	23.2	22.6	23.6	24.7	11.7
Total	148.6	443.1	485.2	519.5	489.1	155.6	137.6	400.1	413.5	475.6	503.3	152.8

NOTE: Moments, Reactions & Shears shown for interior girders only.
For Exterior girders the following ratios shall be used:
DL: 0.83±
LL: 0.859

	LEFT BRIDGE										
SHEARS (Kips)	REAR ABUT.	SPAN 1 @ PIER 1	SPAN 2 @ PIER 1	SPAN 2 @ PIER 2	SPAN 3 @ PIER 2	SPAN 3 @ PIER 3	SPAN 4 @ PIER 3	SPAN 4 @ PIER 4	SPAN 5 @ PIER 4	FORWARD ABUT.
Dead Load	76.7	147.2	145.0	157.8	162.7	173.8	173.5	163.0	163.9	83.0
Live Load	56.8	70.9	76.1	78.5	82.0	84.5	82.9	81.7	75.8	58.3
Impact	11.5	14.3	13.2	13.6	13.5	13.8	13.6	13.4	14.6	11.2
Total	145.0	232.4	234.3	249.9	258.2	272.1	270.0	258.1	254.3	152.5
Web Area (Square Inches)	26.25	39.38	39.38	45.38	45.38	45.38	45.38	45.38	45.38	30.75
Shear Stress (KSI)	5.52	5.90	5.95	5.51	5.69	6.00	5.95	5.69	5.60	4.96

	RIGHT BRIDGE										
SHEARS (Kips)	REAR ABUT.	SPAN 1 @ PIER 1	SPAN 2 @ PIER 1	SPAN 2 @ PIER 2	SPAN 3 @ PIER 2	SPAN 3 @ PIER 3	SPAN 4 @ PIER 3	SPAN 4 @ PIER 4	SPAN 5 @ PIER 4	FORWARD ABUT.
Dead Load	66.0	130.3	130.3	134.6	132.8	150.1	164.2	171.8	167.0	80.4
Live Load	55.9	65.5	70.7	70.9	72.2	76.8	80.2	83.1	76.0	57.2
Impact	12.0	14.0	13.2	13.2	13.0	13.8	13.2	13.6	14.6	11.0
Total	133.9	209.8	214.2	218.7	218.0	240.7	257.6	268.5	257.6	148.6
Web Area (Square Inches)	24.00	33.38	33.38	36.38	36.38	44.63	44.63	46.13	46.13	30.75
Shear Stress (KSI)	5.58	6.29	6.42	6.01	5.99	5.39	5.77	5.82	5.58	4.83

STICKLEN - BELSHEIM & ASSOCIATES 23/24
ENGINEERS
WORTHINGTON OHIO

STRESSES, DEFLECTIONS, CAMBER
BRIDGE NO. JEF-22-0707L/R U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN CENTRAL CO.

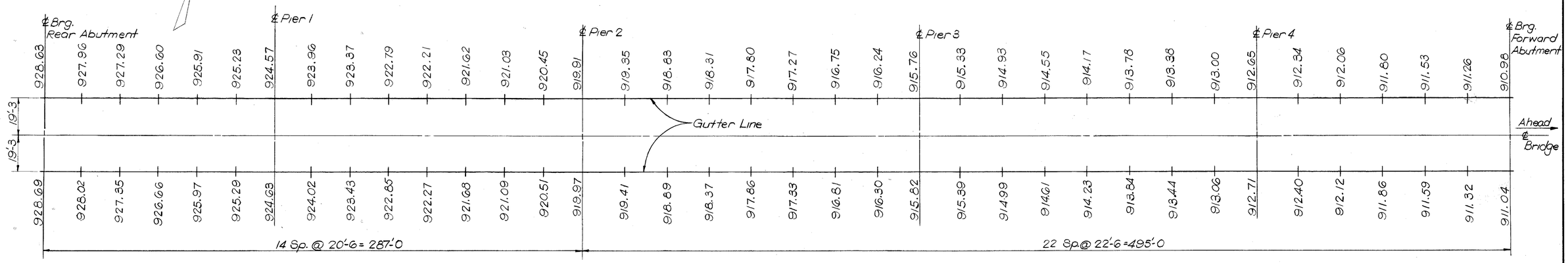
JEFFERSON CO. STA. 368+30.75 STA. 368+65.75
STA. 376+17.25 STA. 375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL	EH	EH	LCT	JBW	8-16-68	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

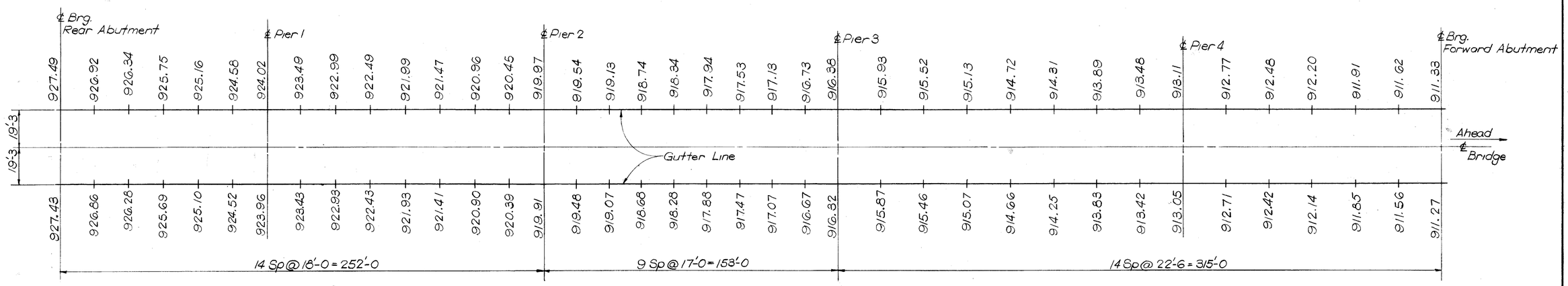
168
516

JEF-22-3.86



GUTTER ERECTION ELEVATIONS-LEFT BRIDGE

Elevations shown are those required before deck concrete is placed.



GUTTER ERECTION ELEVATIONS-RIGHT BRIDGE

Elevations shown are those required before deck concrete is placed.

STICKLEN - BELSHEIM & ASSOCIATES 24/24
ENGINEERS
WORTHINGTON OHIO

GUTTER ELEVATIONS
BRIDGE NO. JEF-22-0707L/R U.S.R.22
OVER CROSS CREEK, TWP. RD. 166
& PENN CENTRAL CO.

JEFFERSON CO. STA.368+30.75 STA.368+65.75
STA 376+17.25 STA.375+90.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JCL	EH	EH	LCT	MBW	8-14-68	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

469
516

JEF - 22 - 3.86

GENERAL NOTES

MATERIALS - GENERAL

Materials to be furnished may be specified in the plans by a given manufacturer's catalog number or type. This is for descriptive purposes only and the contractor may assume that approved equal materials may be furnished.

SIGN LOCATIONS

All signs shall be placed normal to the roadway on which they are stationed unless otherwise noted on the plans.

INTERIM MONO-DIRECTIONAL

DELINEATORS

This work shall consist of furnishing and installing interim delineators as specified on plan sheets.

This item shall include 2 pounds per foot steel drive posts 4'-0" long bolted to inside of interim barrels using a minimum of three 5/16" steel bolts spaced on 12" centers. Post flanges shall be 90° degrees to interim edge lines facing approaching traffic. Type C2 delineators shall be mounted on the drive post flanges with the top of the delineator 4' above the pavement.

The quantity furnished and installed will be paid for in the lump sum price bid for Maintainance of Traffic and shall include full compensation for furnishing and installing drive posts and delineators including necessary hardware, labor and equipment.

202 INTERIM GUARD RAIL, REMOVED & STORED,

AS PER PLAN

This work shall consist of the removal of existing temporary guard-rail, barrels, signs, delineators, and posts.

All items removed shall be stored neatly within the Right of way in an area specified by the Engineer. This work shall include disposal of all waste material.

To assure maintenance of adequate traffic control at all times, no items are to be removed without the approval of the Engineer.

The quantity removed and stored will be paid for at the price bid per linear foot which price shall be full compensation for removal and storage or disposal of guardrail, barrels, signs, delineators, post and cleaning of site including all necessary labor and equipment.

815 SIGN ERECTION, BY TYPE

The contractor shall erect sign panels furnished by others as noted on the schematic signing layout sheet number
The panels shall be mounted on the brackets or beam supports provided in the plans.

The contractor shall submit a schedule for sign erection to the division Traffic Engineer, and the Engineer, Bureau of Traffic, 450 East Town Street, Columbus, Ohio, 120 calendar 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, by type", shall include all necessary equipment, manpower and tools to erect the signs noted. All sign materials 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.

816 CONCRETE FOR SIGN SUPPORT

FOUNDATIONS, BY TYPE

Foundations shall be constructed in the manner called for under supplemental specification 816. Concrete shall be Class "C".

Payment for this item shall be per cubic yards based on approved plan dimensions as modified by the Engineer in lieu of plan quantities as specified in supplemental specification 816.

EXISTING SIGNS

The existing signs which are within the roadway work areas shall be removed and re-erected in the locations indicated by the plans. "STOP" signs will be maintained at all times while traffic is maintained. The cost of relocating these signs shall be considered a subsidiary work item, the cost of which shall be included in the price bid for the roadway work items. The signs which are to be re-erected on the berms shall be located with the center line of support on the P.I. of the shoulder.

816 ROCK EXCAVATION

Where solid rock is encountered in excavation for sign support foundations, the depth to be excavated below rock surface may be decreased as directed by the Engineer to a maximum of thirty-five (35) percent of depth specified in the plans.

816 STRUCTURAL SUPPORTS, 6 LB. BEAM,

AS PER PLAN

This item shall consist of the furnishing, assembly, and installation of two (2) 3lb. per foot drive posts (6lb beam) in combination with a square seamless tubular post extension spliced to the top of the 6Lb. beam. Details are shown on sheet S.O.W.

Square seamless tubular post material shall be mild steel conforming to ASA 1020 steel, minimum yield strength 35,000 PSI, ultimate yield 55,000 PSI.

Work shall include all labor, materials, equipment, tools, and hardware necessary to perform the required item of work.

Basis of payment shall be for STRUCTURAL SUPPORTS, 6LB. BEAM, AS PER PLAN per linear foot measured by total length of combination beam from end to end.

816 STRUCTURAL SUPPORTS,

STEEL BEAM (TYPE)

The structural steel beam support shall be galvanized in accordance with ASTM A-123.

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.

The cost of the concrete used for embedment will be a separate pay item.

202 REMOVAL OF EXISTING SIGN INSTALLATIONS,

AS PER PLAN

This work shall consist of the removal of all signs marked existing on main roadway, ramps and approach roadways within work limits of this project.

Work shall also include removal of sign supports and foundations as required in Section 202.07.

All signs, supports, and accessories shall be stored neatly within the limits of the project at locations approved by the Engineer for removal by State forces. This work shall include disposal of all waste material.

To assure maintenance of adequate traffic control at all times, no signs are to be removed without the approval of the Engineer.

Payment for removal of existing signs shall include all necessary labor and equipment required to perform the required work as indicated above.

Basis of payment shall be REMOVAL OF EXISTING SIGN INSTALLATIONS AS PER PLAN at the contract price per each.

RESTORATION OF DISTURBED AREAS

The Contractor shall replace all median pavement, seeded and sodded areas, paved shoulders, and all other disturbed surfaces to a condition equal to that existing before the work was started. All replacements shall be done in accordance with the pertinent specification items as directed by the Engineer. Payment for all restoration work, including materials, equipment, labor, incidentals and disposal of all surplus materials, shall be included in the Unit Prices bid for items 816.

TEMPORARY GUARD RAIL

Steel 55-gallon drums spaced at 12'-6" centers shall be used in lieu of posts for this item. The drums shall be painted yellow and shall be half filled with granular material in order to hold them in position. The rail elements shall be steel beam type meeting the requirements of either 710.06 (Deep) or 710.07 (Shallow), except that in lieu of furnishing new rail, used rail which is in good condition and approved by the Engineer may be used. The rail shall be placed on the traffic side of the drums with the center of the rail approximately 2 feet above the surface of the pavement or ground. The rail elements shall be securely bolted to the drums and reinforced by using 4"x4"x 1/4" (minimum) plates washers on the inside of the drums in a manner satisfactory to the Engineer.

INTERIM STEEL DRIVE POSTS,

4 LBS. PER FOOT

This work shall consist of furnishing and installing 4 pound per linear foot steel drive posts as specified for interim lane width transitions.

This item shall include 4 pounds per foot steel drive post 11'-0" long bolted to the inside of interim barrels using a minimum of three 5/16" steel bolts spaced on 12" centers.

Post flanges shall be 90 degrees to interim edge lines facing approaching traffic. Steel bearing plates 3"x2" shall be used at each bolt outside the barrel to prevent pull through. Mounting of signs on the drive posts with the bottom of the signs 7' above the pavement

The quantity furnished and installed will be paid for in the lump sum price bid for Maintainance of Traffic and shall include full compensation for furnishing and installing drive posts including necessary hardware, labor and equipment.

BREAKAWAY SIGN SUPPORT CONNECTION

This item shall include the cutting and drilling of the beam, the furnishing, welding, and assembly of the base and fuse plate for each beam.

The basis of payment for this item shall be per each (beam) at the contract unit price which shall include all labor, material, and equipment required to provide a complete breakaway beam in accordance with the plans and specifications.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

JEF-22-3.86

470
516

SUMMARY TABLES

620 DELINEATORS

Ref.	Side	Station From	Station To	Spacing (Ft.)	Post C2		Post A1	Brkt. A1
Jef. 22	Rt.	206+00	294+00	200'			45	
	"	296+00	301+00	100'	6			
	"	301+00	305+25	See Ramp "C"				
	"	305+25	321+25	200'			9	
	"	324+00	328+00	200'	3			
	"	328+00	330+60	130'	2			
	"							
	"	332+00	386+00	200'			25	3
Sub Total	Rt.				11		79	3
Jef. 22	Lt.	205+00	291+00	200'			44	
	"		292+00		1			
	"	294+00	302+00	200'	5			
	"	304+75	320+75	200'			9	
	"	320+75	323+00	See Ramp "B"				
	"	323+00	329+00	200'	4			
	"		330+36.46		1			
	"	332+00	386+00	200'			25	3
Sub Total	Lt.				11		78	3
U.S. 22 Int.								
Ramp "A"	Lt.	3+00	5+00	100'	3			
	Rt.	5+00	11+00	100'	7			
	Lt.	11+00	12+00	100'	2			
Sub Total					12			
Ramp "B"	Lt.	11+95	26+95	100'	16			
Sub Total					16			
Ramp "C"	Rt.	2+00	11+00	100'	10			
Sub Total					10			
Ramp "D"	Rt.	12+00	19+00	100'	8			
	Lt.	19+00	21+00	100'	3			
	Rt.	21+00	23+00	100'	3			
Sub Total					14			
Totals					74		157	6

620 INTERIM MONO-DIRECTIONAL DELINEATORS

U.S.R. Temp. Runaround								
	Lt.		2+02.5	as per plan	1			
	Lt.		2+77.5	as per plan	1			
Sub Total					2			
Total					2			

621 TRAFFIC ZONE PAINT MARKING

Ref.	Side	Station From	Station To	4" Edge Line		4" Lane Line	8" Chan. Line	Diagonal Stripes	Curb Island Marking	Barrier Line
				Lin. Ft.		Lin. Ft.	Lin. Ft.	Lump	Lump	Lin. Ft.
Jef. 22	Rt.	204+00	299+60	19,120		9,560				
	"	299+60	301+19.80	320		160				
	"	301+19.80	302+20	100		100				
	"	302+20	304+00	180		180	180	Lump		
	"	304+00	305+00	100		100	100		Lump	
	"	305+00	323+50	3,700		1850				
	"	323+50	325+80	690		230	230			
	"	325+80	328+00	660		440				
	"	328+00	389+88	12,376		6188				
	"	389+88	390+28	40		40	40		Lump	
	"	390+28	396+50	622		622				
	"	397+85	404+50	665		665				
Sub Total	Rt.			38,573		20,135	550	Lump	Lump	
	Lt.	204+00	297+50	18,700		9,350				
	"	297+50	300+00	750		500				
	"	300+00	302+20	660		220	220			
	"	302+20	321+31.46	3,823		1911				
	"	321+31.46	322+31.46	100		100	100		Lump	
	"	322+31.46	324+31.46	200		200	200			
	"	324+31.46	325+95	328		164				
	"	325+95	326+31.46	73		73				
	"	326+31.46	389+12	12,561		6,281				
	"	389+12	391+00	188		188	188	Lump	Lump	
	"	391+00	396+50	550		550				1,100
	"	397+55	399+00	145		145				290
	"	399+00	399+50	50						100
	"	399+50	402+50	300			600	Lump		600
	"	402+50	403+50	100						200
	"	403+50	404+50	100		100				
Sub Total	Lt.			38,628		19,782	1,308	Lump	Lump	2,290
Exist. U.S.R. 22 Relocation										
	℄	1+50	5+00			350				
	"	5+00	8+00							600
	"	8+00	14+70			670				
	"	14+70	17+70							600
	℄	17+70	28+27.51			1,028				
	Rt-Lt.	1+50	8+10	1,320						
	" "	9+10	13+50	880						
	" "	14+65	28+27.51	2,705						
Sub Total				4,905		2,048				1,200
U.S.R. 22 Approach										
	℄	0+50	6+50			*600				*1,200
	Rt.	0+50	6+50	600						
	Lt.	0+50	6+50	600						
Sub Total				1,200		600				1,200

*(2) Solid Yellow Lines & (1) Broken White Line.

621 TRAFFIC ZONE PAINT MARKING

Ref.	Side	Station From	Station To	4" Edge Line	4" Lane Line	Stop Line	8" Chan. Line	Diagonal Stripes	Curb Island Marking	Barrier Line
				Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lump	Lump	Lin. Ft.
Ramp "A"	Lt.	2+20	11+96.04	976						
	Rt.	2+20	3+20						Lump	
	Rt.	3+20	5+40	220					Lump	
	Rt.	5+40	11+96.04	656						
Sub Total				1,852					Lump	
Ramp "B"	Rt-Lt.		11+75			55				
	℄	11+73.84	11+96.84		23					
	Lt.	11+37	25+95	1,458						
	Rt.	11+36.84	21+27.39	991						
	Rt.	21+27.39	22+27.39	100					Lump	
	Rt.	22+27.39	24+27.39				200	Lump		
	Rt.	24+27.39	25+95		168					
Sub Total				2,549	191	55	200	Lump	Lump	
Ramp "C"	Rt-Lt.		11+75			60				
	Rt.	1+19.80	11+92.06	1,072						
	Lt.	1+19.80	2+21.80		102					
	Lt.	2+21.80	4+02.45				181			
	Lt.	4+02.45	5+02.45	100					Lump	
	Lt.	5+02.45	11+92.06	690						
	℄	11+32.06	11+92.06		23					
Sub Total				1,862	125	60	181		Lump	
Ramp "D"	Rt.	11+72.61	23+50	1,177						
	Lt.	11+72.61	22+50	1,077						
	Lt.	20+12	23+50						Lump	
Sub Total				2,254					Lump	
Total in Lin. Ft.				91,823	42,881	115	2,239	Lump	Lump	4,690
Factor (15/40 x Lin. Ft. / 5,280										
Total in Miles				17.39	3.05			Lump	Lump	0.89

GENERAL SUMMARY

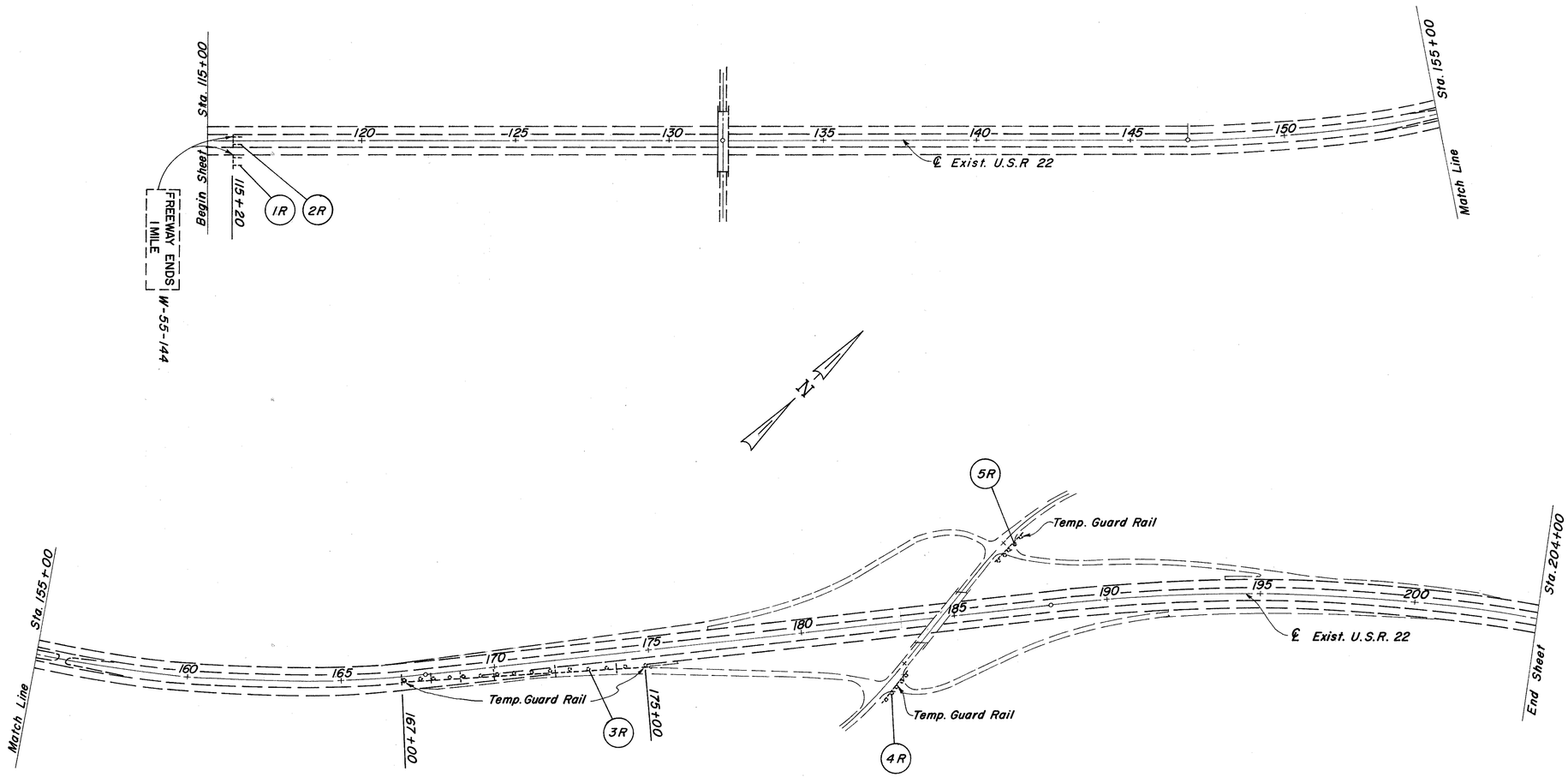
ESTIMATED TRAFFIC CONTROL QUANTITIES

From Sheet Number 470	471	472	473	474	475	Total	Unit	Item	Item Description
	2					2	Each	202	Removal of Existing Sign Installation, as per plan
	1012.5					1012.5	L.F.	202	Interim Guard Rail, Removed & Stored, as per plan
		84	203	90	40	417	S.F.	815	Sign Erection, Flat Sheet Type
		287	534	212	18	1051	S.F.	815	Sign Erection, Extrusheet Type
		6.0	11.0	2.4	0.6	20	C.Y.	816	Concrete for Ground Mounted Sign Support Foundation
			2			2	Ea.	816	Breakaway Connector
		30	64	66		160	L.F.	816	4 lb. Steel Drive Post
				32		32	L.F.	816	Structural Supports 6 lb. Beam, as per plan
		32	266	211	92	601	L.F.	816	Structural Supports 6 lb. Beam
		106	241	62		409	L.F.	816	Structural Supports 8 lb. Beam
		99	140			239	L.F.	816	Structural Supports Steel Beam, Type 10 WF 21
6						6	Each	620	Mono-Directional Delineator, Type A-1, Bracket Mounted
74						74	Each	620	Mono-Directional Delineator, Type G-2, Post Mounted
157						157	Each	620	Mono-Directional Delineator, Type A-1, Post Mounted
3.05						3.05	Miles	621	4" Lane Lines
115						115	L.F.	621	Stop Lines (24")
2,239						2,239	L.F.	621	8" Channelizing Lines
Lump						Lump	Lump	621	Diagonal Stripes
Lump						Lump	Lump	621	Curb and Island Marking
0.89						0.89	Miles	621	Barrier Lines
17.39						17.39	Miles	621	4" Edge Lines

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

471
516

JEF-22-3.86



202 INTERIM GUARD RAIL, REMOVED & STORED, as per plan		
Ref. No.	Location	Lin. Ft.
3R	167+00 to 175+00 Rt.	800.0
4R	13+60 to 14+47.5 Rt.	87.5
5R	19+52 to 20+77	125.0
	Total	1012.5

NOTE:

(1R) = Temporary Sign to be removed at the completion of JEF-22-3.86

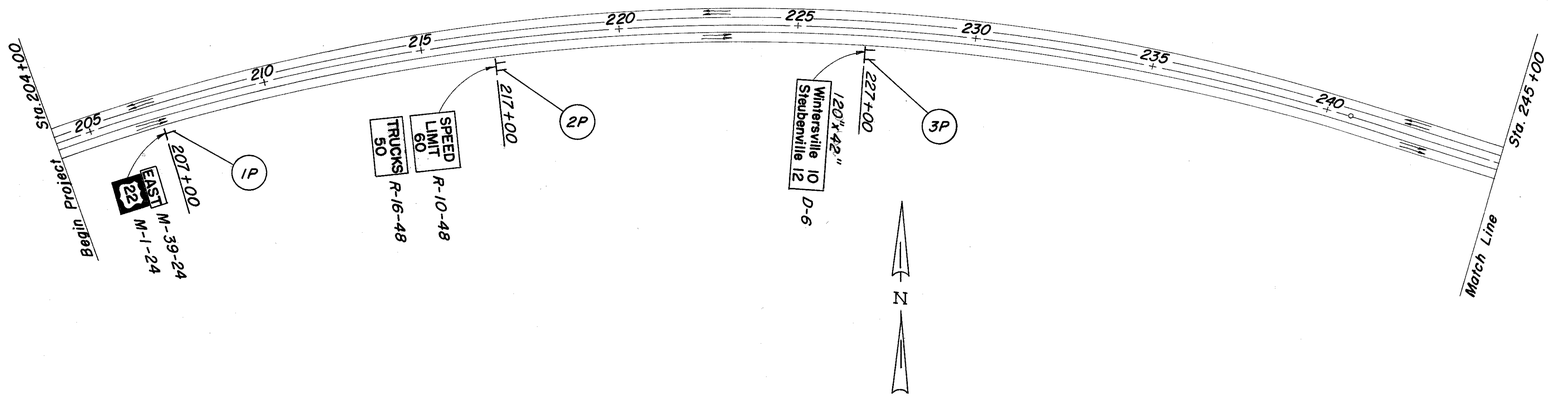
(2R) = Temporary Sign to be removed at the completion of JEF-22-3.86

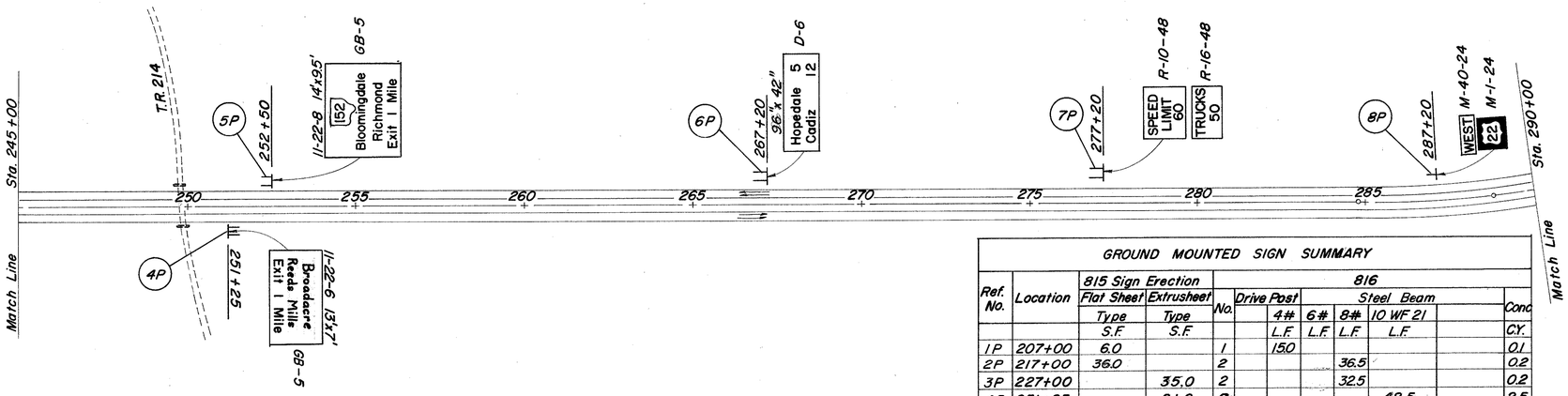
SIGN LAYOUT PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

472
516

JEF-22-3.86





GROUND MOUNTED SIGN SUMMARY

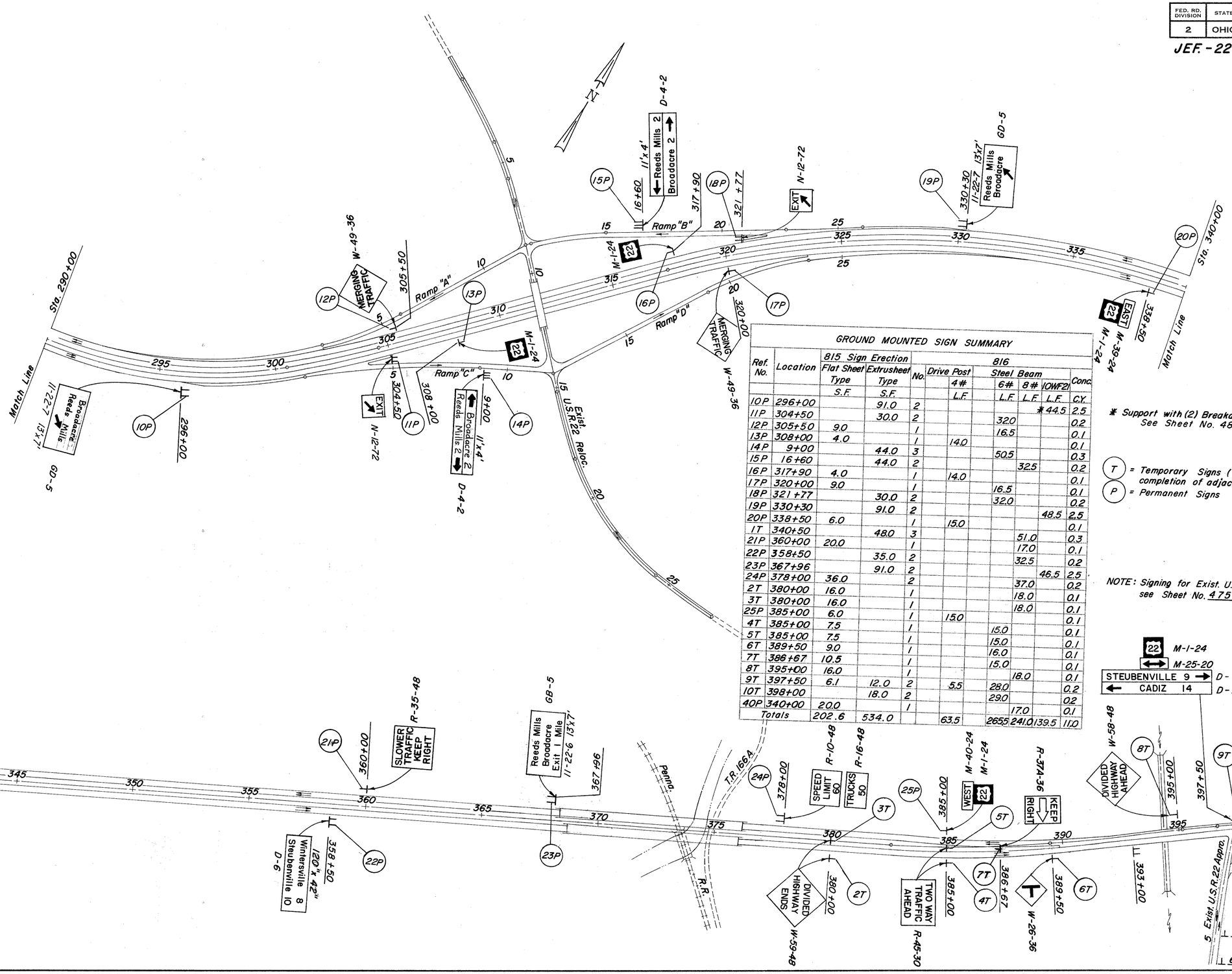
Ref. No.	Location	815 Sign Erection Flat Sheet Type	815 Sign Erection Flat Sheet S.F.	815 Sign Erection Extrusheet Type	815 Sign Erection Extrusheet S.F.	816 Drive Post No.		816 Drive Post 4# L.F.	816 Steel Beam 6# L.F.	816 Steel Beam 8# L.F.	816 Steel Beam 10 WF 21 L.F.		Conc C.Y.
1P	207+00	6.0				1		15.0					0.1
2P	217+00	36.0				2				36.5			0.2
3P	227+00			35.0		2				32.5			0.2
4P	251+25			91.0		2					48.5		2.5
5P	252+50			133.0		2					50.0		2.5
6P	267+20			28.0		2			32.0				0.2
7P	277+20	36.0				2				37.0			0.2
8P	287+20	6.0				1		15.0					0.1
Totals		84.0		287.0				30.0	32.0	106.0	98.5		6.0

Base Plan "A"
SIGN LAYOUT PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

473
516

JEF.-22-3.86



GROUND MOUNTED SIGN SUMMARY

Ref. No.	Location	815 Sign Erection			816					
		Flat Sheet Type	Extrusheet Type	No.	Drive Post	Steel Beam				
					4#	6#	8#	(OWF2)		Conc
		S.F.	S.F.		L.F.	L.F.	L.F.	L.F.		C.Y.
10P	296+00		91.0	2				* 44.5		2.5
11P	304+50		30.0	2						
12P	305+50	9.0		1		32.0				0.2
13P	308+00	4.0		1		16.5				0.1
14P	9+00		44.0	3	14.0					0.1
15P	16+60		44.0	2		50.5				0.3
16P	317+90	4.0		1			32.5			0.2
17P	320+00	9.0		1	14.0					0.1
18P	321+77		30.0	2		16.5				0.1
19P	330+30		91.0	2		32.0				0.2
20P	338+50	6.0		1				48.5		2.5
1T	340+50		48.0	3	15.0					0.1
21P	360+00	20.0		1			51.0			0.3
22P	358+50		35.0	2			17.0			0.1
23P	367+96		91.0	2			32.5			0.2
24P	378+00	36.0		2				46.5		2.5
2T	380+00	16.0		1			37.0			0.2
3T	380+00	16.0		1			18.0			0.1
25P	385+00	6.0		1			18.0			0.1
4T	385+00	7.5		1	15.0					0.1
5T	385+00	7.5		1		15.0				0.1
6T	389+50	9.0		1		15.0				0.1
7T	386+67	10.5		1		16.0				0.1
8T	395+00	16.0		1		15.0				0.1
9T	397+50	6.1	12.0	2			18.0			0.1
10T	398+00		18.0	2	5.5	28.0				0.2
40P	340+00	20.0		1		29.0				02
Totals		202.6	534.0		63.5	265.5	241.0	139.5		11.0

* Support with (2) Breakaway Connectors
See Sheet No. 484

(T) = Temporary Signs (to be removed by others at the completion of adjacent project.)
(P) = Permanent Signs

NOTE: Signing for Exist. U.S.R. 22 Approach see Sheet No. 475

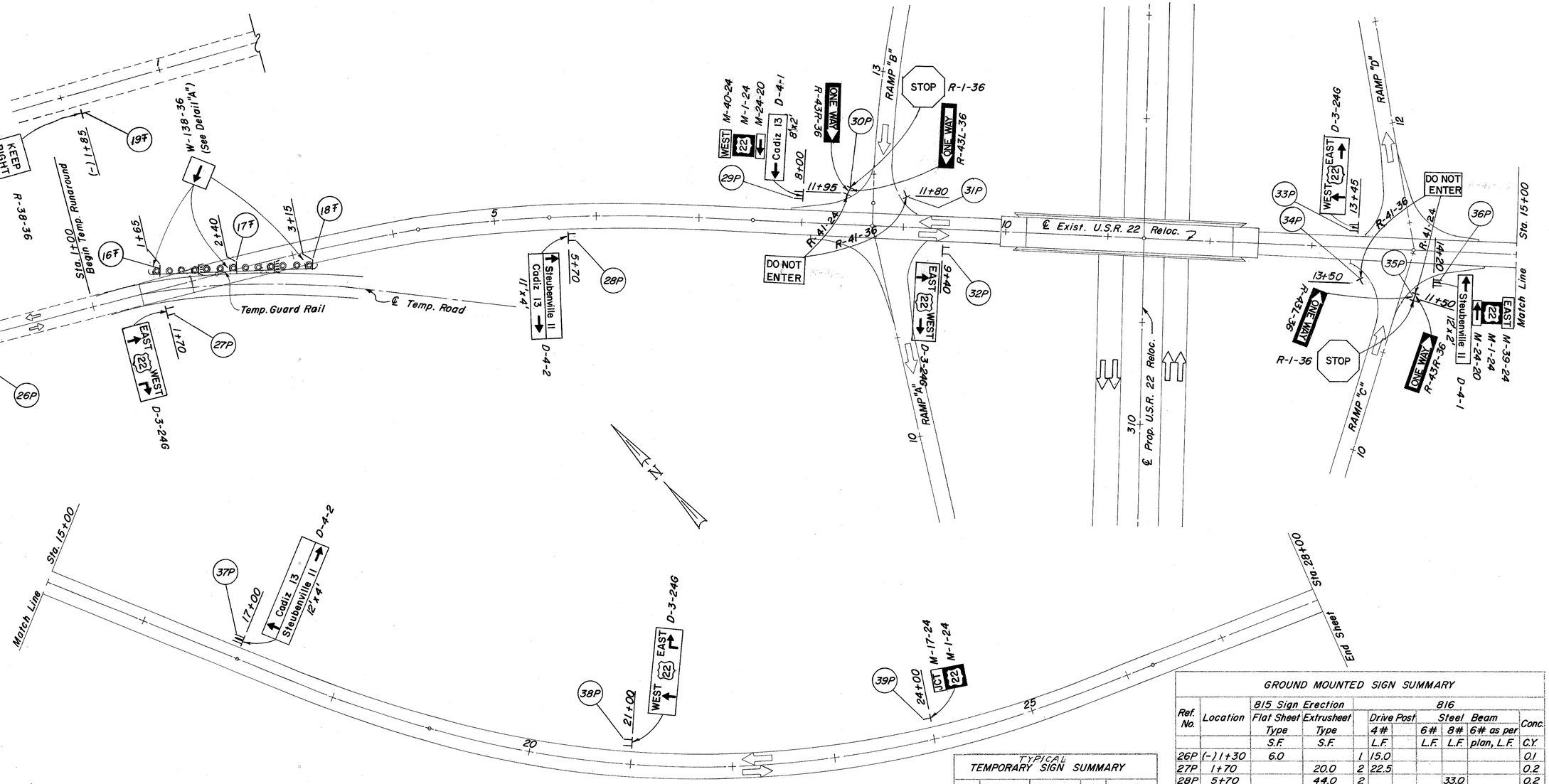
Base Plan "A"

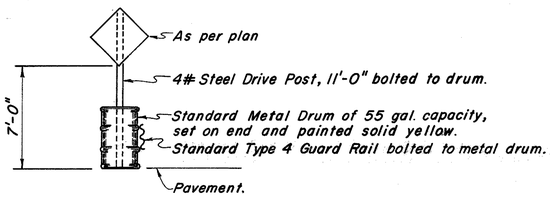
SIGN LAYOUT PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

474
516

JEF-22-3.86





DETAIL "A"

TEMPORARY GUARD Rail Assy.

Although specific locations of certain temporary barricades and signs have been detailed on this plan, no waiver of the specifications is intended. Provision of temporary signs, barricades, and guard rail shall in all cases be in accordance with the specifications

NOTE: Place 150' Temporary Guard Rail from Sta. 1+65 to Sta. 3+15 Lt. of Temporary Runaround (to be removed at completion of Exist. U.S.R. 22 Relocation. - Included in 6/14)

(F) = Temporary Signs (to be removed at completion of Exist. U.S.R. 22 Reloc. Included in 6/14)

(P) = Permanent Signs

= Road Edge Delineators Type C-2

TYPICAL
TEMPORARY SIGN SUMMARY

Ref. No.	Location	Sign Erect. Flat Sheet Type	No.	4# Interim Drive Post, as per plan
		S.F.		L.F.
16T	1+65	9.0	1	11.0
17T	2+40	9.0	1	11.0
18T	3+15	9.0	1	11.0

GROUND MOUNTED SIGN SUMMARY

Ref. No.	Location	815 Sign Erection Flat Sheet Type	815 Sign Erection Extrusheet Type	816 Drive Post 4#	816 Steel Beam 6#	816 Steel Beam 8#	816 Steel Beam 6# as per plan, L.F.	Conc.
		S.F.	S.F.	L.F.	L.F.	L.F.		C.Y.
26P	(-) 1+30	6.0		1 15.0				0.1
27P	1+70		20.0	2 22.5				0.2
28P	5+70		44.0	2		33.0		0.2
29P	8+00	8.1	16.0	2 6.5	28.5			0.2
30P	11+95	17.5		1			16.0	0.1
31P	11+80	9.0		1	15.0			0.1
32P	9+40		20.0	2	29.5			0.2
33P	13+45		20.0	2	29.5			0.2
34P	13+50	9.0		1	15.0			0.1
35P	11+50	17.5		1			16.0	0.1
36P	14+20	8.1	24.0	2 6.5		29.0		0.2
37P	17+00		48.0	3	47.5			0.3
38P	21+00		20.0	2	31.0			0.2
39P	24+00	6.0		1 15.0				0.1
19T	(-) 1+85	9.0		1	15.0			0.1
Totals		90.2	212.0	65.5	211.0	62.0	32.0	2.4

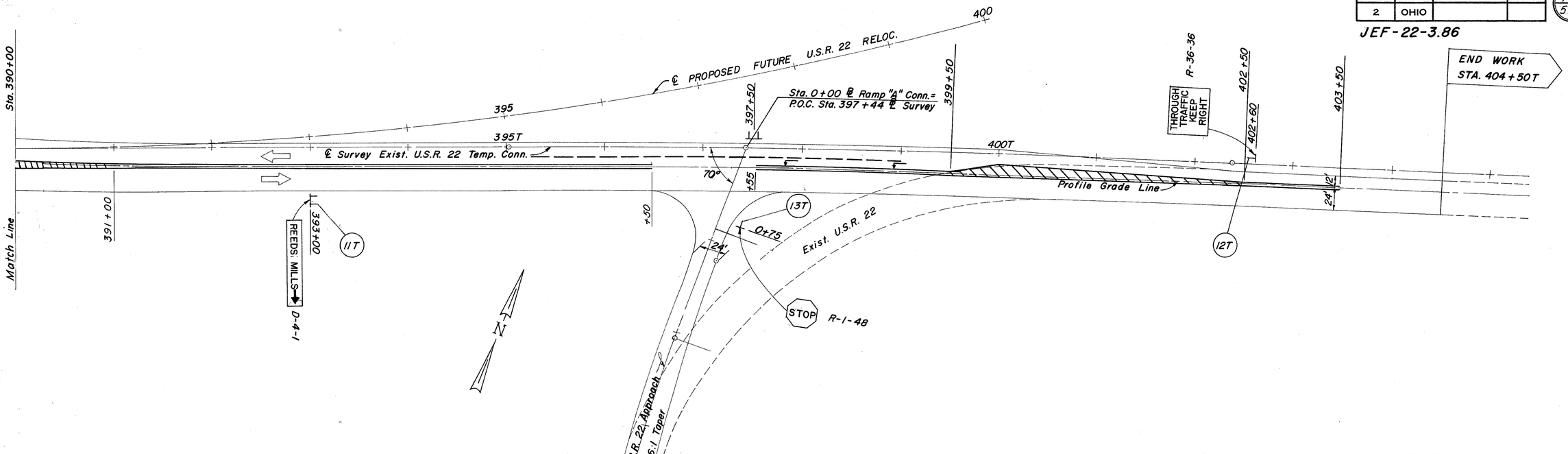
Base Plan "B"

SIGN LAYOUT PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

475
516

JEF-22-3.86



GROUND MOUNTED SIGN SUMMARY

Ref. No.	Location	815 Sign Erection Flat Sheet Type	815 Sign Erection Extrusheet Type	816 No.	816 Post 6#	816 Steel Beam L.F.	816 Conc. C.Y.
		S.F.	S.F.				
11T	393+00		18.0	2		29.0	0.2
12T	402+60	9.0		1		15.5	0.1
13T	0+75	13.3		1		16.0	0.1
14T	4+75	9.0		1		16.5	0.1
15T	7+00	9.0		1		15.0	0.1
Totals		40.3	18.0			92.0	0.6

(T) = Temporary Signs (to be removed by others at the completion of adjacent project).

Exist. U.S.R. 22 Approach
Base Plan "B"

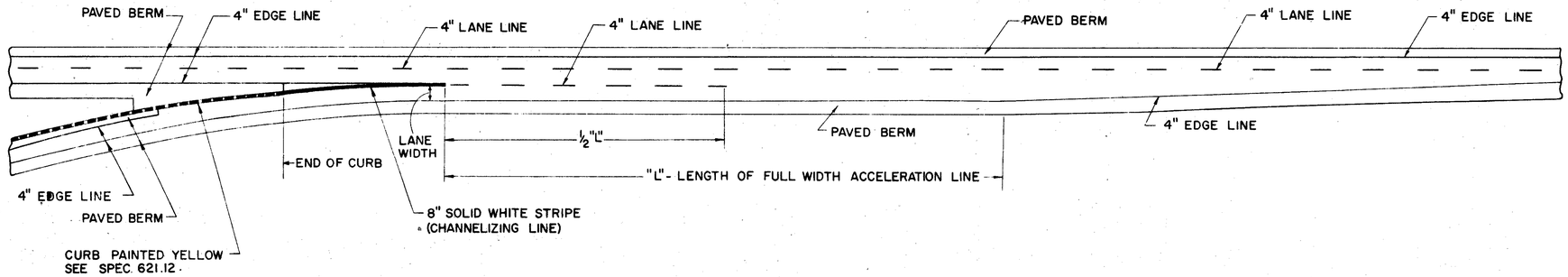
SIGN LAYOUT PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

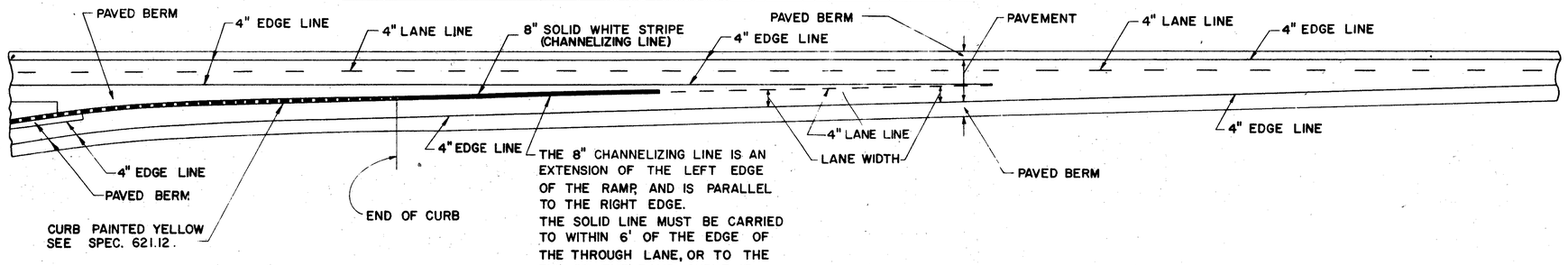
476
516

JEF-22-3.86

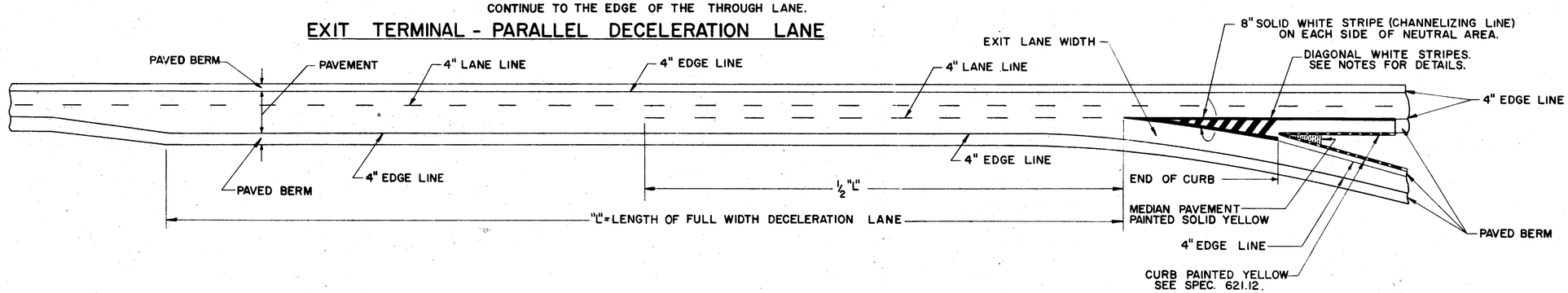
ENTRANCE TERMINAL - PARALLEL ACCELERATION LANE



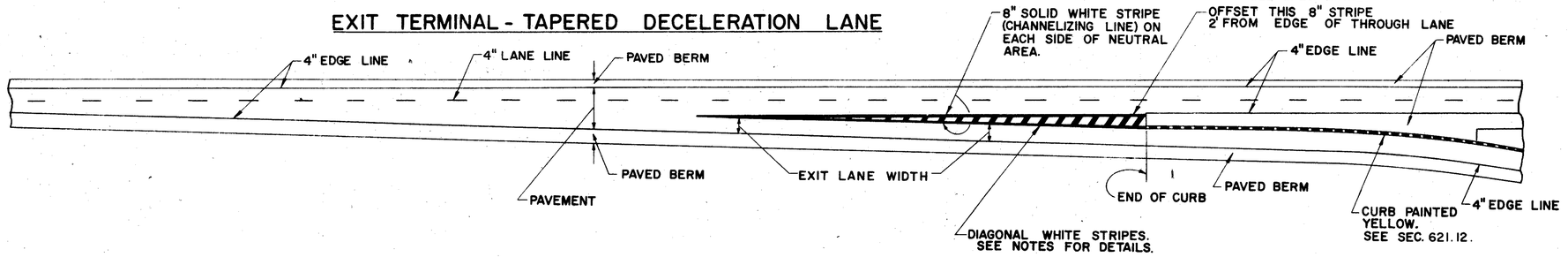
ENTRANCE TERMINAL - TAPERED ACCELERATION LANE



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

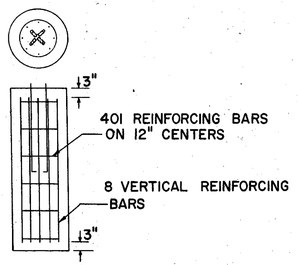
APPROVED Robert E. Lower
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

477/516

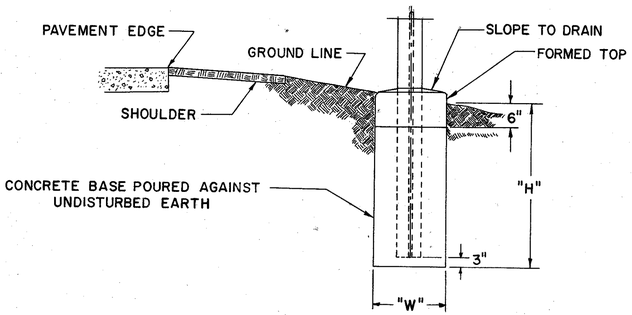
JEF-22-3.86

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	5'-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"	

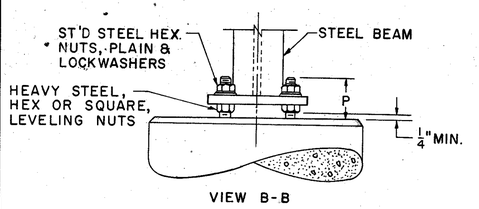


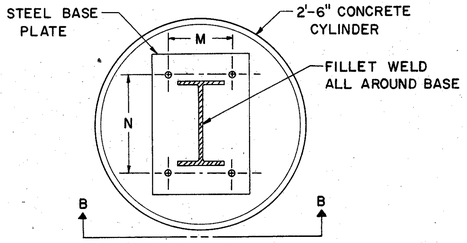
REINFORCING FOR ALTERNATE ANCHOR BASE

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

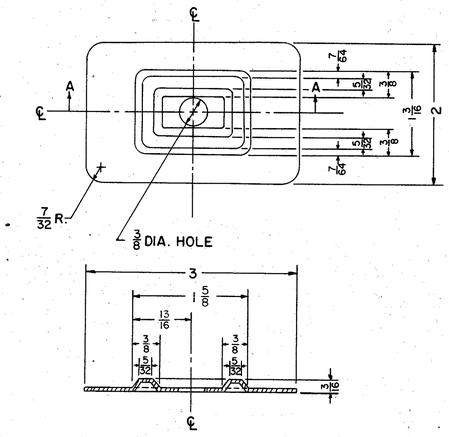


FOUNDATION DETAILS FOR EMBEDDED POSTS AND BEAMS





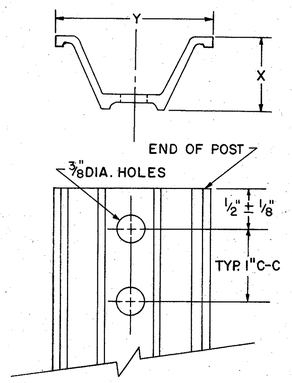
ALTERNATE ANCHOR BASE DETAILS



SECTION AA

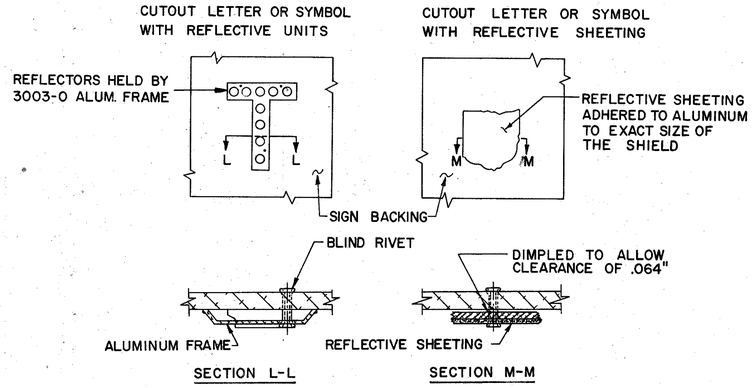
NOTE:
THE PLATE IS SYMMETRICAL ABOUT EITHER CENTERLINE.
METAL SHALL BE 16 GAUGE STEEL.
ALL DIMENSIONS ARE IN INCHES.

BEARING PLATE DETAIL

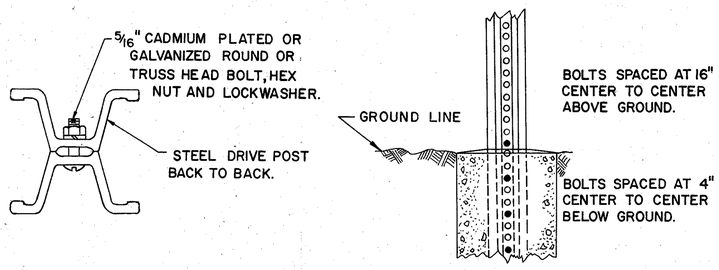


WEIGHT PER FOOT	X ± 3/32"	Y ± 1/8"
2.00 #	1 15/32"	3 1/16"
3.00 #	1 7/8"	3 1/2"
4.00 #	2 "	3 5/8"

DRIVE POST DETAILS



DEMOUNTABLE LETTERS & SYMBOLS



6# & 8# BEAM DETAILS

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. 483.

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).

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

MISCELLANEOUS SIGNING ITEMS | MSI | DATE 10-29-63, 8-19-64, 10-13-65, 4-14-67

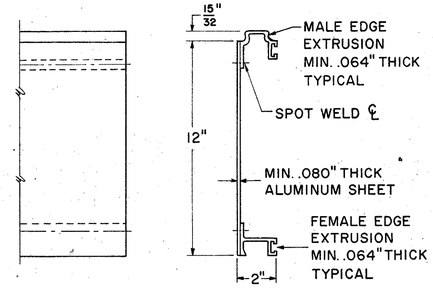
APPROVED Fred C. Tasker
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

478/516

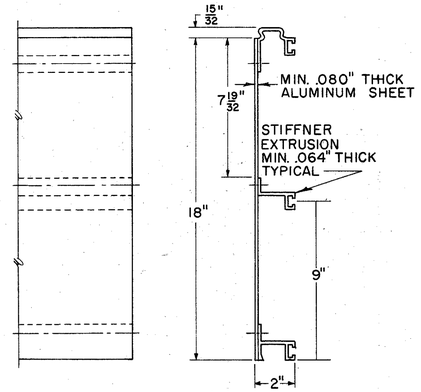
JEF-22-3.86

12" EXTRUSHEET PANEL



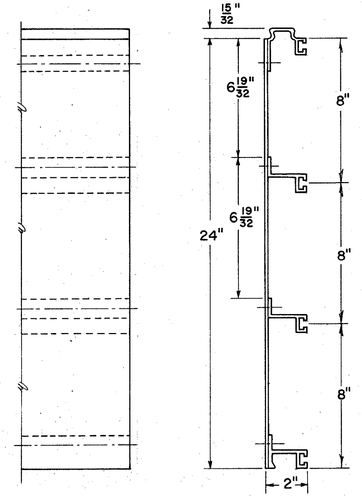
FRONT VIEW SIDE VIEW

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 NO. 815

COMBINATIONS OF 12", 18", AND 24" PANELS ARE USED TO ATTAIN REQUIRED SIGN HEIGHT.

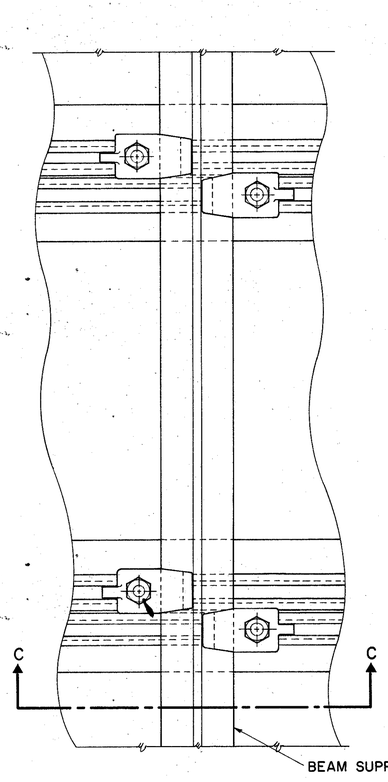
INDIVIDUAL PANELS SHALL BE THE SAME LENGTH AS THE HORIZONTAL LENGTH OF SIGN WITH NO SPLICES.

PANELS SHALL BE INTERLOCKED AND ERECTED WITH THE MALE EXTRUSION LOCATED AT THE TOP EDGE OF THE SIGN.

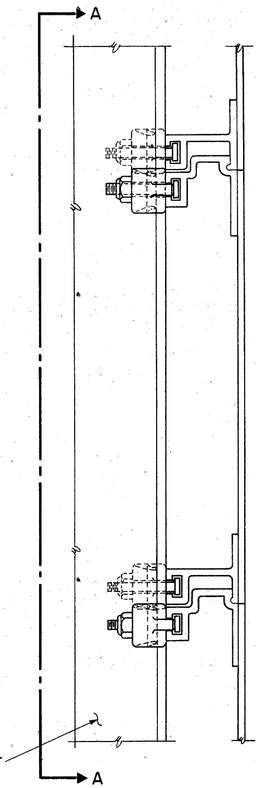
EXTRUSHEET PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND ON BOTH SIDES AT TOP AND BOTTOM EDGE OF SIGN.

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".

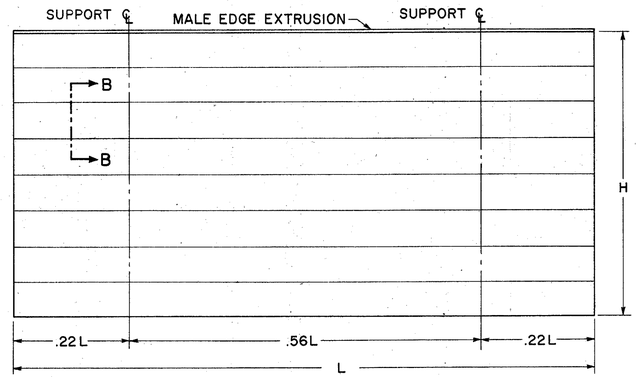


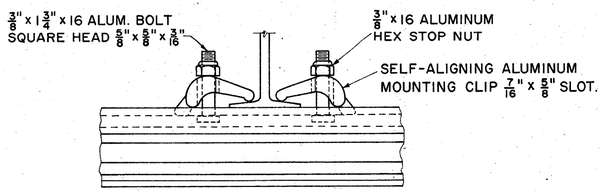
SECTION A-A



SECTION B-B

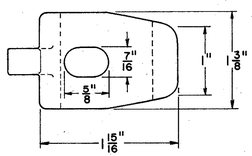
GENERAL ARRANGEMENT

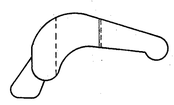




SECTION C-C

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

FOR INFORMATION ONLY

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

ALUMINUM EXTRUSHEET PANEL SIGN

ECD 1

DATE
9-25-63
5-19-64
10-21-65

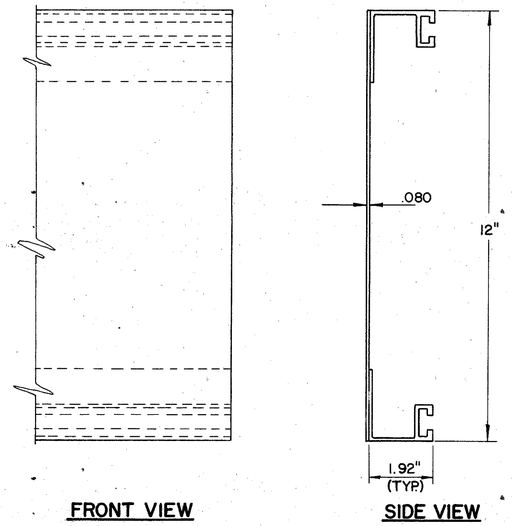
APPROVED Fred C. Gaskins
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

479/516

JEF-22-3.86

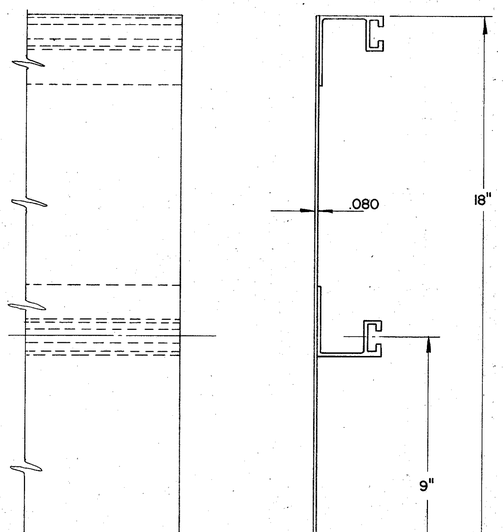
12" BOLTED-EXTRUSHEET PANEL



FRONT VIEW

SIDE VIEW

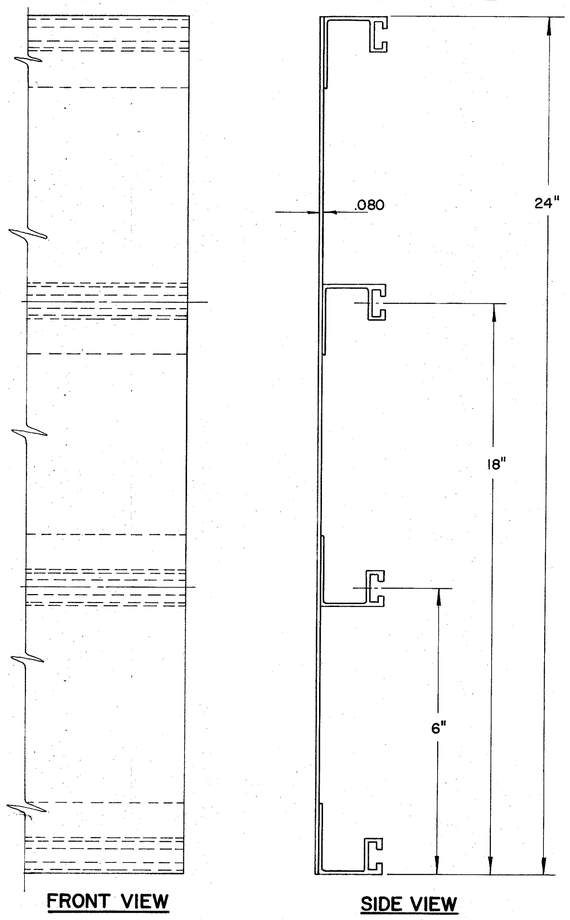
18" BOLTED-EXTRUSHEET PANEL



FRONT VIEW

SIDE VIEW

24" BOLTED-EXTRUSHEET PANEL



FRONT VIEW

SIDE VIEW

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.

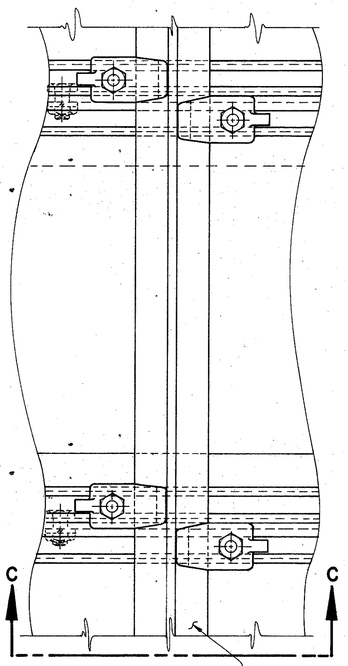
INDIVIDUAL PANELS SHALL BE THE SAME LENGTH AS THE HORIZONTAL LENGTH OF SIGN, WITH NO SPLICES.

THE PANELS SHALL BE ERECTED HORIZONTALLY AND BOLTED ON 24" CENTERS.

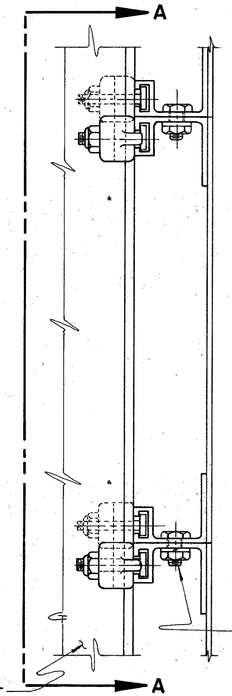
THE PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND BOTH SIDES AT TOP AND BOTTOM EDGES OF SIGN.

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.

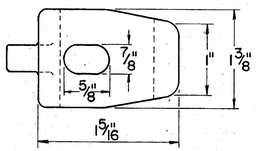
THE MAXIMUM SIGN LENGTH FOR TWO SUPPORTS IS 19'-0". THE MAXIMUM SIGN LENGTH FOR THREE SUPPORTS IS 29'-0".

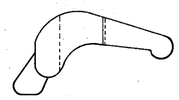


SECTION A-A

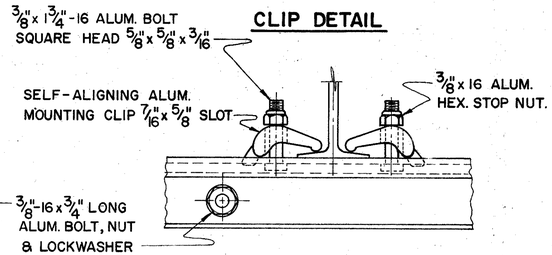


SECTION B-B

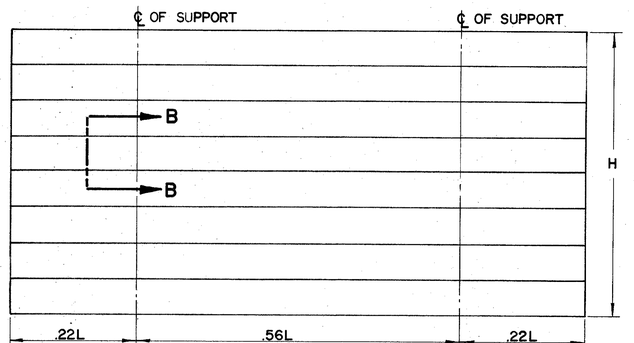




CLIP DETAIL



SECTION C-C



GENERAL ARRANGEMENT

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

FOR INFORMATION ONLY

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

ALUMINUM BOLTED EXTRUSHEET PANEL SIGN

ECD 2

DATE 10-14-65

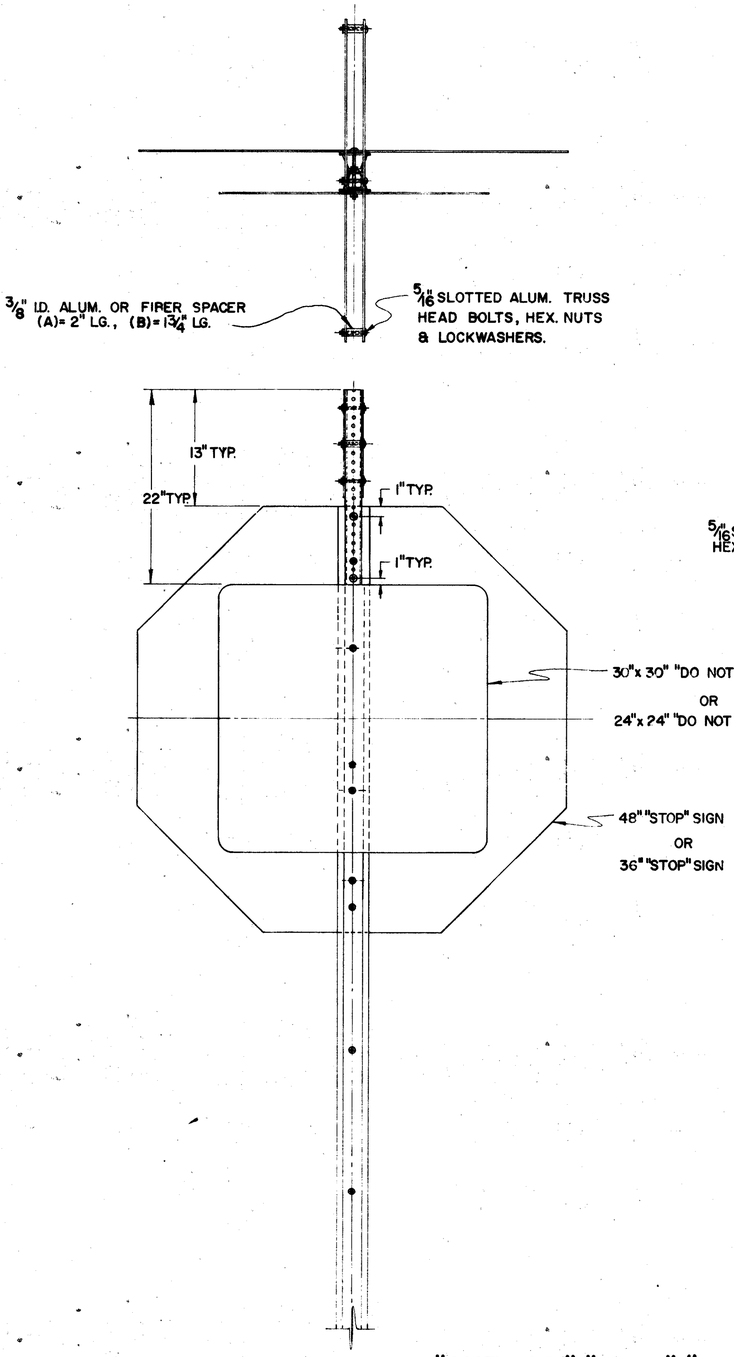
APPROVED Fred C. Talbot
ENGINEER OF TRAFFIC

ALUMINUM BOLTED-EXTRUSHEET PANEL SIGN

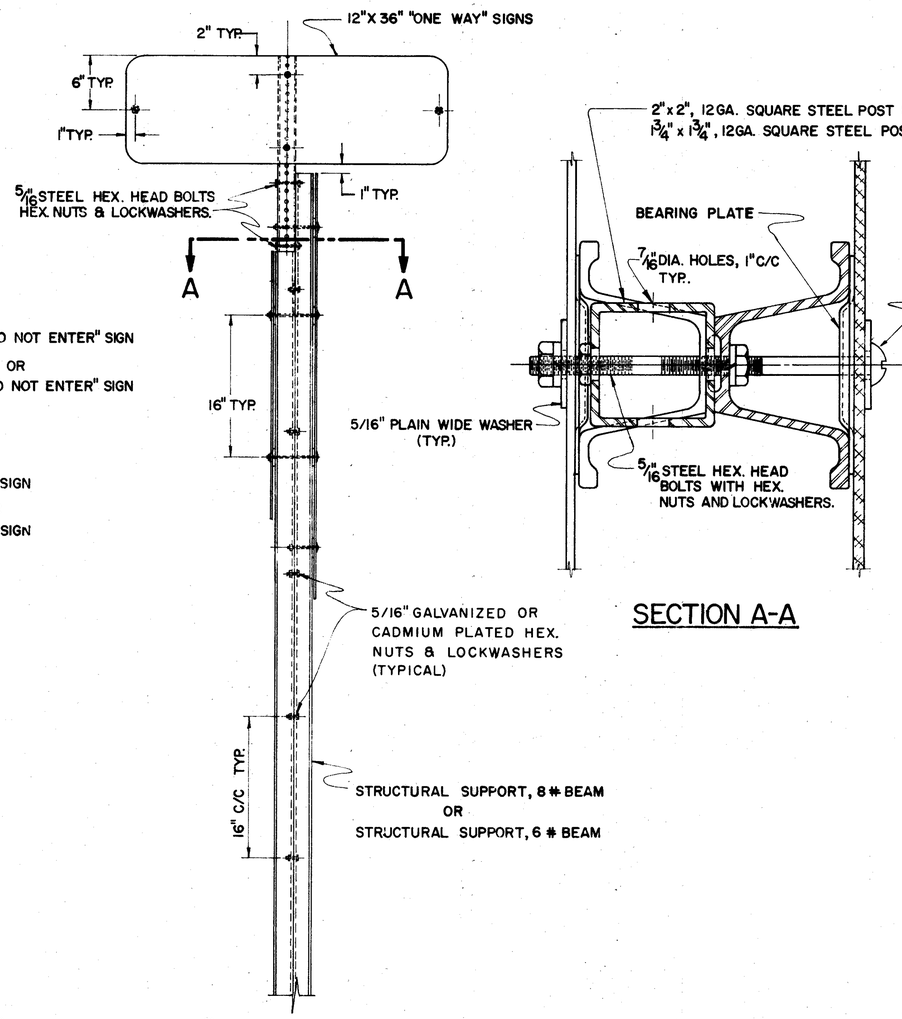
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

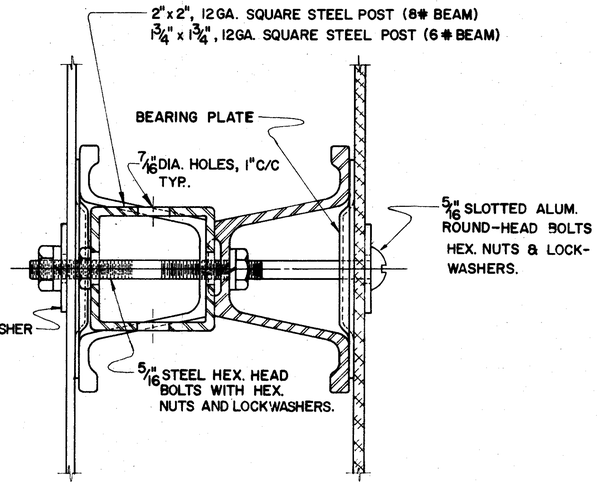
480/516

JEF-22-3.86



"ONE WAY", "STOP", "DO NOT ENTER", SIGN INSTALLATION.





SECTION A-A

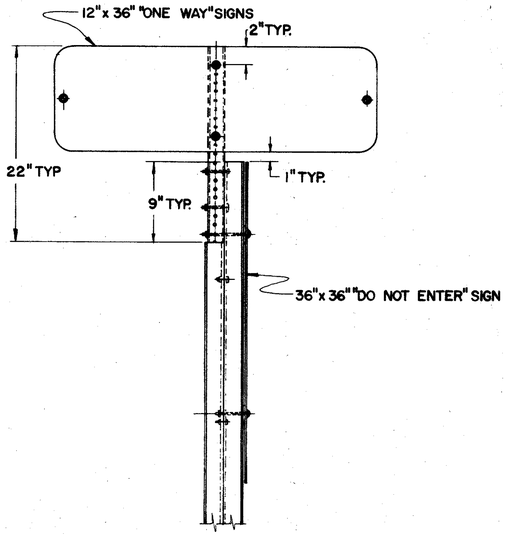
NOTES

MATERIALS

ALL SIGN MATERIALS SHALL BE IN ACCORDANCE WITH SUPPLEMENT SPECIFICATION 815.

ALL STRUCTURAL MATERIALS SHALL BE IN ACCORDANCE WITH SUPPLEMENT SPECIFICATION 816.

FOR SPECIFICATIONS FOR THE 2" & 1 3/4" SQUARE STEEL POST SEE GENERAL NOTES, SHEET NO. 469.



"ONE WAY", "DO NOT ENTER" SIGN INSTALLATION

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

SPECIAL "ONE WAY" SIGN SUPPORT DETAILS	SOW	DATE 2-7-66 4-18-67

APPROVED _____ ENGINEER OF TRAFFIC

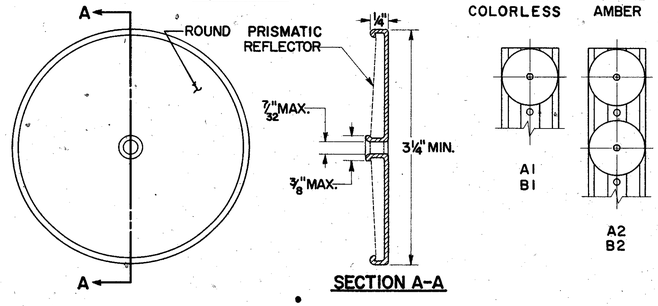
SPECIAL "ONE WAY" SIGN SUPPORT DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

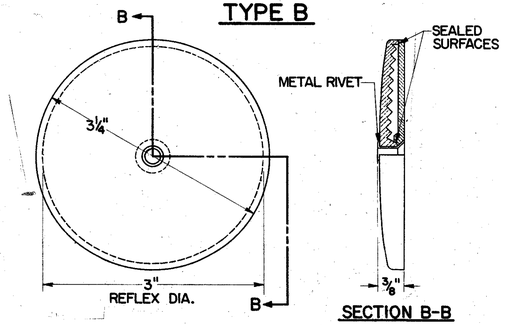
481
516

JEF-22-3.86

TYPE A



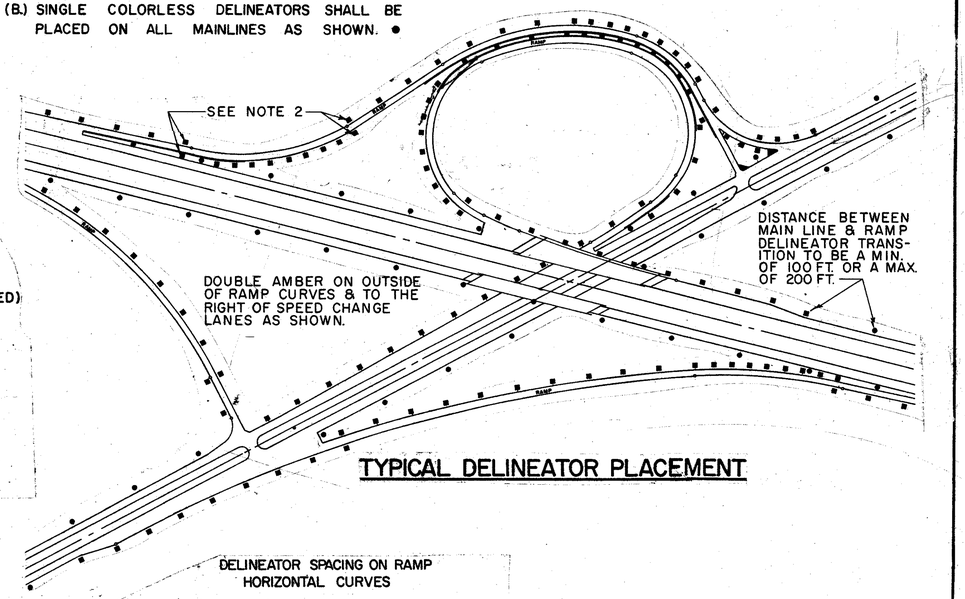
TYPE B



NOTE:

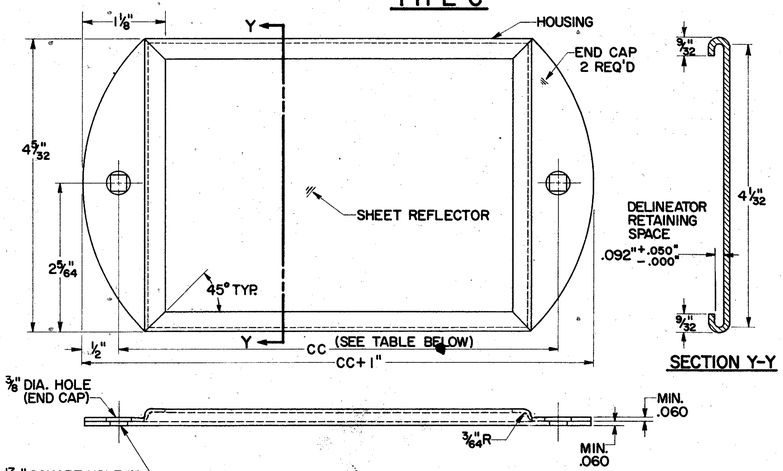
(A.) DOUBLE AMBER DELINEATORS SHALL BE PLACED ON ALL RAMPS AS SHOWN. ■

(B.) SINGLE COLORLESS DELINEATORS SHALL BE PLACED ON ALL MAINLINES AS SHOWN. ●

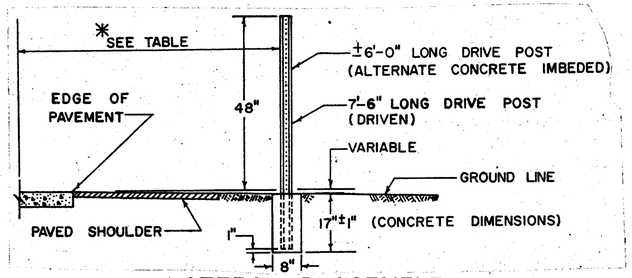


TYPICAL DELINEATOR PLACEMENT

TYPE C



TYPE	DIM. CC
C1 – SINGLE COLORLESS	6"
C2 – DOUBLE AMBER	11"



LATERAL PLACEMENT OF DELINEATORS

✱ TABLE

TYPE DELINEATOR	NO GUARDRAIL	GUARDRAIL
SINGLE COLORLESS	12'-6"	6" OUTSIDE
DOUBLE AMBER RIGHT SIDE	✱✱ 8'-6"	6" OUTSIDE
DOUBLE AMBER LEFT SIDE	4'-6"	6" OUTSIDE

✱✱ THIS DIMENSION SHALL VARY ON SPEED CHANGE LANES TO MAINTAIN MINIMUM DISTANCE OF 2'-6" FROM EDGE OF PAVED SHOULDER.

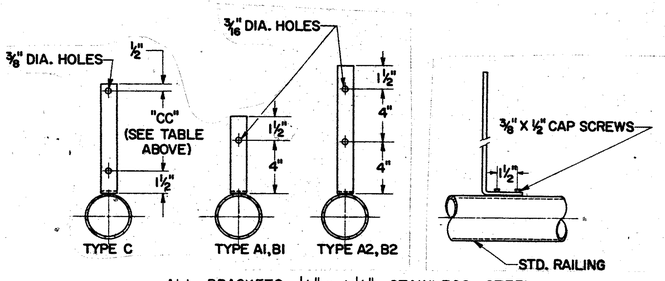
DELINEATOR SPACING ON RAMP HORIZONTAL CURVES

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.

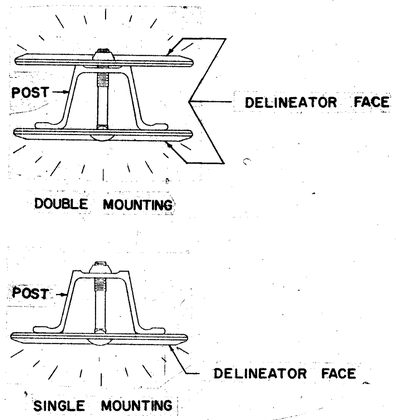
NOTES

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.
2. 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.
3. NO DELINEATORS ARE TO BE PLACED IN PAVED BERM
4. WHEN RADII OF CURVE ON RAMPS REQUIRE 100' SPACING THE DELINEATORS SHALL BE PLACED ON THE RIGHT IN RELATION TO THE FLOW OF TRAFFIC.



ALL BRACKETS 1/4" x 1 1/4" STAINLESS STEEL

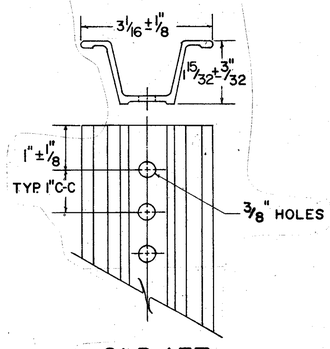
BRIDGE RAIL BRACKET



DELINEATOR MOUNTING

TAMPER RESISTANT FASTENERS SHALL BE USED TO FASTEN DELINEATORS TO POST AS/OR SIMILAR TO ONE SHOWN ABOVE.

TAMPER RESISTANT FASTENERS



2 LB./FT. DELINEATOR DRIVE POST

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

DELINEATOR DETAILS

620

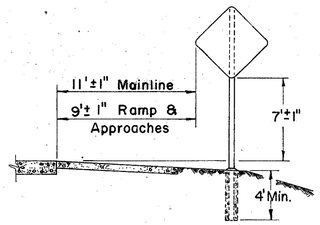
DATE
9-25-62
5-24-65
9-12-67

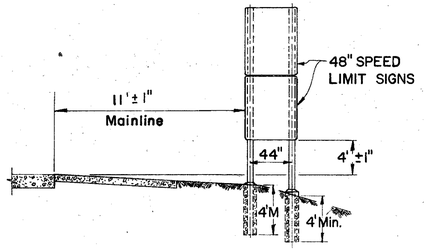
APPROVED Robert Elsner
ENGINEER OF TRAFFIC

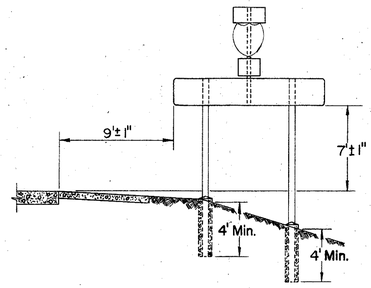
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

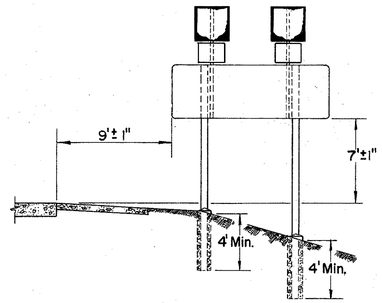
482/516

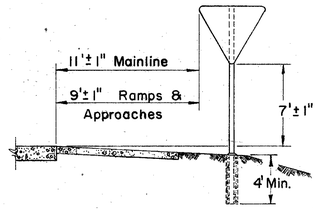
JEF-22-3.86

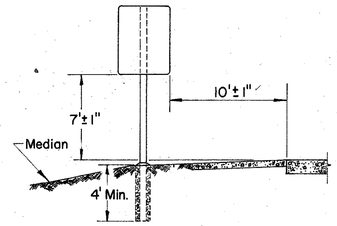


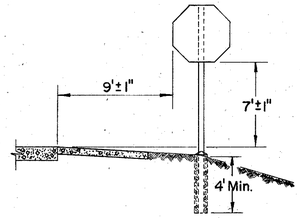


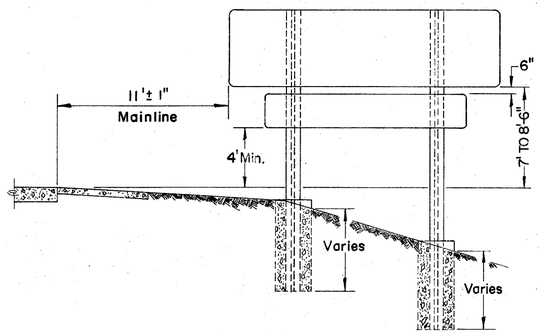


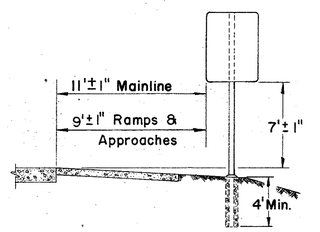


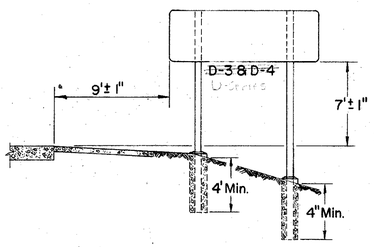


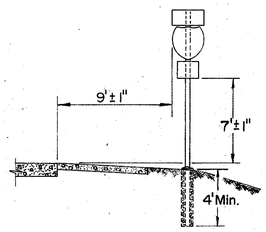


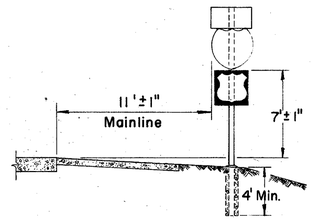


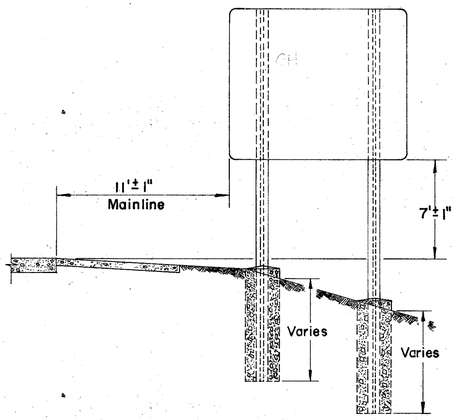


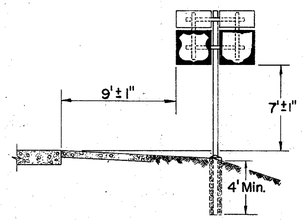


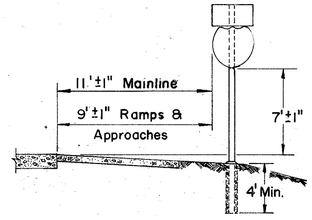


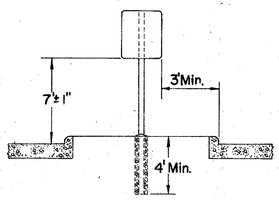












NOTES

1. BOLT HOLE LOCATIONS ARE INDICATED ON THE SIGN DESIGN SHEETS NO. 483.

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.

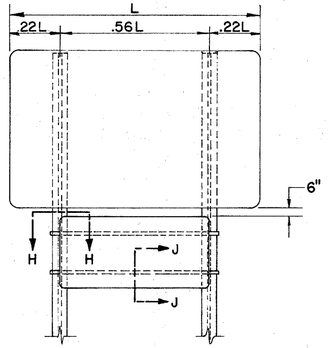
3. SCREWS, NUTS, AND WASHERS FOR SIGN ERECTION SHALL BE ALUMINUM EXCEPT AS NOTED ABOVE. 5/16" TRUSS HEAD SLOTTED MACHINE SCREWS WITH HEX. NUTS PLAIN AND LOCKWASHERS SHALL BE USED. PLAIN WASHERS SHALL BE 5/16" "WIDE", USED ON SIGN FACE ONLY.

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.

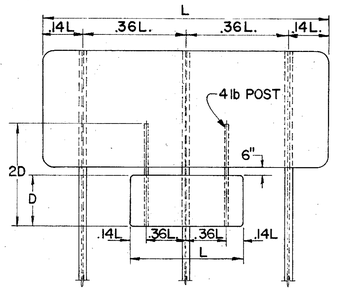
6. VERTICAL AND HORIZONTAL CLEARANCE BETWEEN SIGNS ON ONE ASSEMBLY SHALL BE A MAXIMUM OF 2" AND A MINIMUM OF 1".

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. 477.



ERECTION OF SECONDARY SIGN WHEN "L" IS 13'-0" AND 14'-0".

FOR SECTIONS "J-J" & "H-H" SEE DETAIL SHEET NO. ____.



BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

TYPICAL PLACEMENT OF SIGNS

TPS-1

DATE
10-12-65
2-28-66

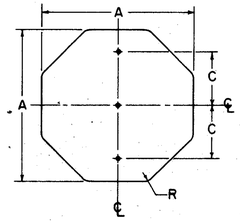
APPROVED Fred C. Jasbow
ENGINEER OF TRAFFIC

TYPICAL PLACEMENT OF SIGNS

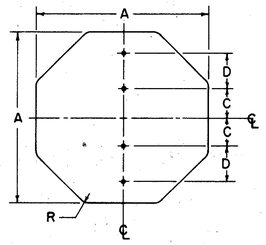
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

483/516

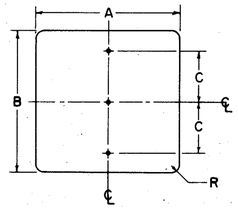
JEF-22-3.86



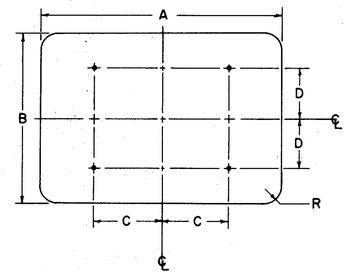
A	C	R	GAUGE
30	8	1 1/2	.080
36	8	1 1/2	.080



A	C	D	R	GAUGE
48	8	10	1 1/2	.100

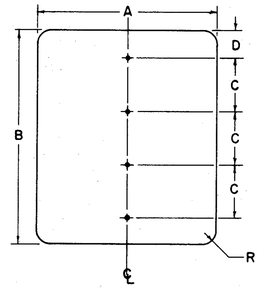


A	B	C	R	GAUGE
30	42	12	1 1/2	.080
36	36	11	1 1/2	.080
36	42	15	1 1/2	.080
36	48	15	1 1/2	.080
48	24	10	3	.100
48	36	13	3	.100

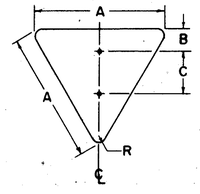


A	B	C	D	R	GAUGE
48	48	22	16	3	.100
48	60	22	22	3	.100

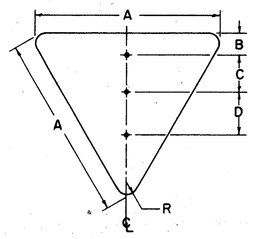
SPEED LIMIT SIGNS ON TWO SUPPORTS



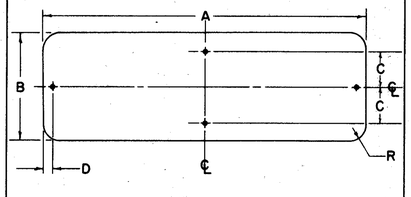
A	B	C	D	R	GAUGE
48	48	12	6	3	.100
48	60	15	7 1/2	3	.100



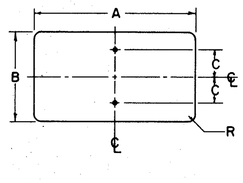
A	B	C	R	GAUGE
36	3	16	2 1/2	.080



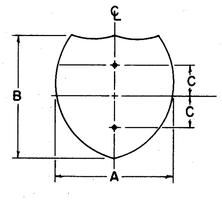
A	B	C	D	R	GAUGE
48	4	10	15	3	.100
60	5	10	15	4	.100



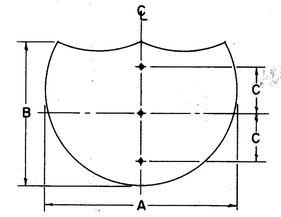
A	B	C	D	R	GAUGE
36	12	4	1	1 1/2	.080



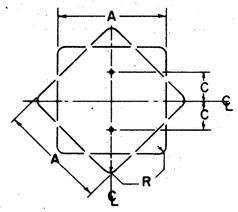
A	B	C	R	GAUGE
12	6	3	1 1/2	.063
20	15	6	1 1/2	.063
24	12	4 1/2	1 1/2	.063
24	18	15	1 1/2	.063
24	30	8	1 1/2	.063
24	48	10	1 1/2	.100
30	36	10 1/2	1 1/2	.080
36	18	7 1/2	1 1/2	.080



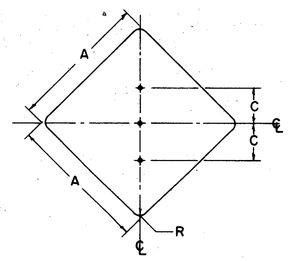
A	B	C	GAUGE
24	24	8	.063
30	24	8	.080



A	B	C	GAUGE
36	36	11	.080
48	36	11	.100

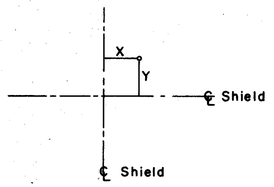


A	C	R	GAUGE
18	7 1/2	1 1/2	.063
24	8	1 1/2	.063
30	8	1 1/2	.080



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

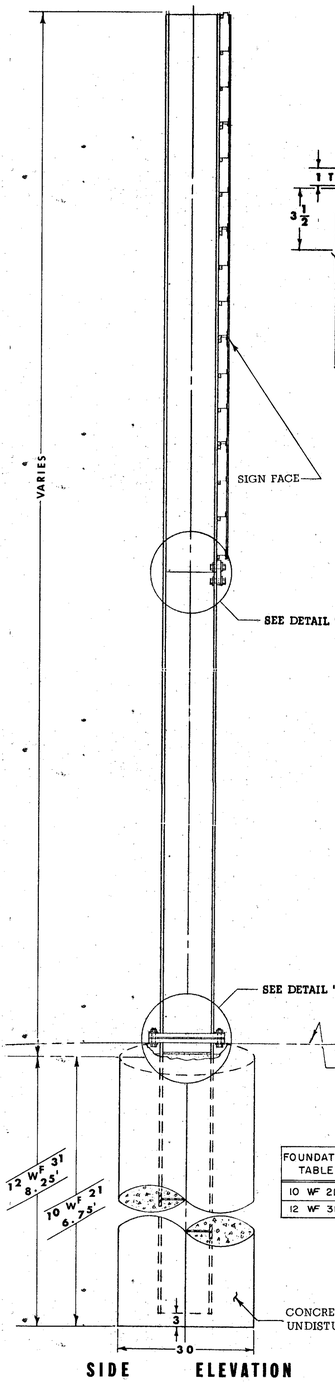
DATE 4-14-67

APPROVED_____
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

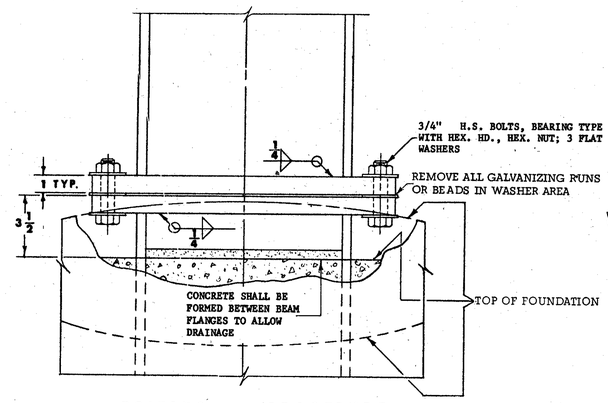
484
516

JEF-22-3.86



SIDE ELEVATION

BREAK-AWAY SUPPORT



BOLTING PROCEDURE

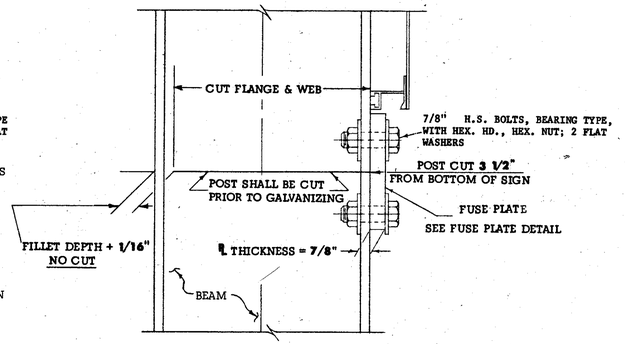
1. ASSEMBLE POST TO STUB W/BOLTS & ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.

2. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE W/12" TO 15" WRENCH TO BED & TO CLEAN BOLT THREADS. LOOSEN EACH BOLT IN TURN & RE-TIGHTEN BOLTS IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE OF 750 IN. LBS.

3. BURR THREADS AT JUNCTION W/NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

NOTE: TIGHTEN THE H.S. BOLTS IN THE BASE CONNECTION ONLY TO GIVEN TORQUE DO NOT OVER TIGHTEN

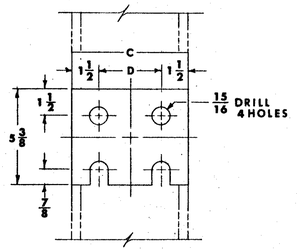
DETAIL 'A'



FABRICATOR NOTE: ALL FRICTION FUSE BOLTS SHALL BE TIGHTENED IN THE SHOP FOLLOWING A METHOD APPROVED BY THE ENGINEER. TIGHTENING SHALL BE TO SUCH A DEGREE AS TO OBTAIN MINIMUM RESIDUAL TENSION IN EACH BOLT OF 36,050 LBS.

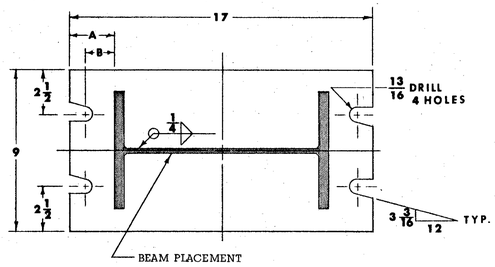
NOTE: INSTALL FUSE PLATE WITH NOTCHES TOWARD BASE

DETAIL B'



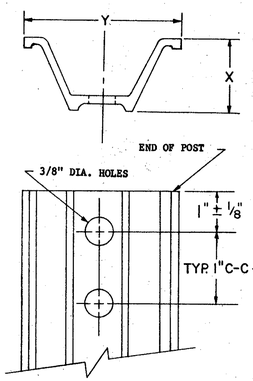
BEAM SIZE	C	D
10 WF 21	5 3/4	2 3/4
12 WF 31	6 1/2	3 1/2

FUSE PLATE DETAIL



BEAM SIZE	A	B
10 WF 21	3 1/2	2 5/8
12 WF 31	2 1/2	1 5/8

BASE PLATE DETAIL

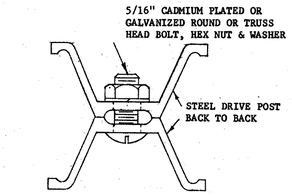


WEIGHT PER FOOT	X ± 3/32"	Y ± 1/8"
2.00 #	1 15/32"	3 1/16"
3.00 #	1 7/8"	3 1/2"
4.00 #	2"	3 5/8"

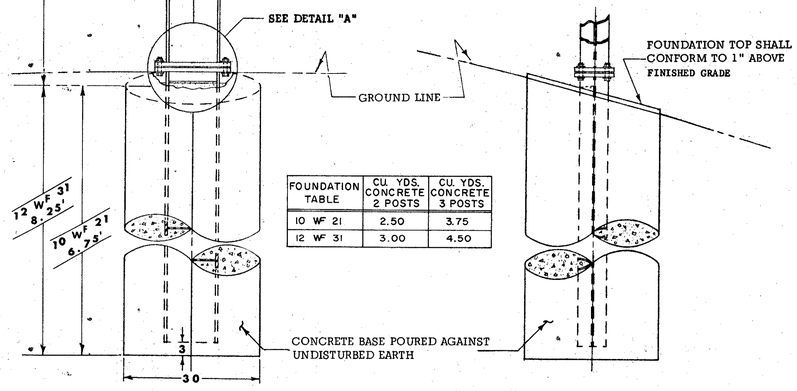
DRIVE POST DETAIL

NOTE

THE FOUNDATION FOR 4# DRIVE POST IS SIMILAR TO THE FOUNDATION SHOWN FOR 6# & 8# BEAM.



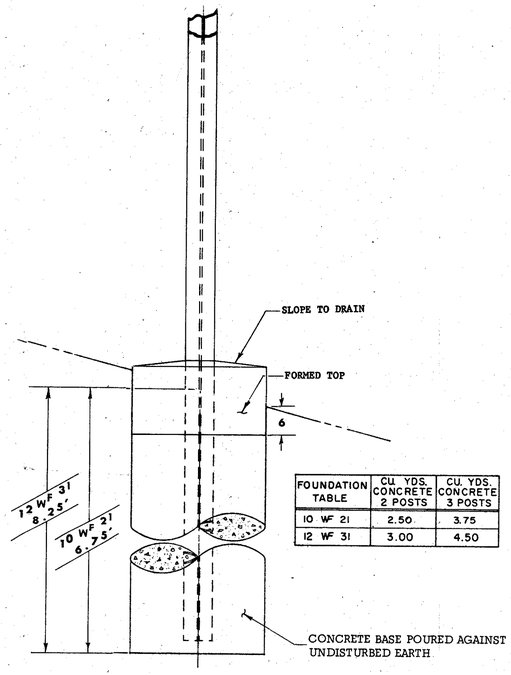
6# & 8# BEAM DETAIL



FOUNDATION TABLE	CU. YDS. CONCRETE 2 POSTS	CU. YDS. CONCRETE 3 POSTS
10 WF 21	2.50	3.75
12 WF 31	3.00	4.50

FRONT ELEVATION

BREAK-AWAY SUPPORT



FOUNDATION TABLE	CU. YDS. CONCRETE 2 POSTS	CU. YDS. CONCRETE 3 POSTS
10 WF 21	2.50	3.75
12 WF 31	3.00	4.50

FRONT ELEVATION

STANDARD SUPPORT

NOTE: ALL MATERIALS SHALL CONFORM TO THE STATE OF OHIO, CONSTRUCTION & MATERIALS SPECIFICATIONS OR AS OTHERWISE SPECIFIED

1) 511 FOUNDATIONS
2) 711.01 STRUCTURAL STEEL SHAPES & PLATES
3) 711.09 H.S. STEEL BOLTS, NUTS & WASHERS

NOTE: ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SHOWN

STRUCTURAL SUPPORTS

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

GROUND MOUNTED SIGN SUPPORTS

GMSS

DATE 8-22-67

APPROVED _____
ENGINEER OF TRAFFIC

GENERAL INFORMATION

INTRODUCTION

THE PROJECT CONSISTS OF THE RELOCATION OF 3.81 MILES OF USR 22, BEGINNING APPROXIMATELY 850 FEET SOUTHEAST OF EXISTING USR 22 AND APPROXIMATELY 0.5 MILE NORTHEAST OF BLOOMINGDALE, EXTENDING EASTWARD TO NORTHEASTWARD, TERMINATING AT EXISTING USR 22, APPROXIMATELY 1.5 MILES WEST OF WINTERSVILLE.

PROPOSED GRADE INDICATES MAXIMUM 150-FOOT CUTS AND 140-FOOT FILL EMBANKMENTS.

GEOLOGY AND OBSERVATIONS OF THE PROJECT

THE ALIGNMENT TRAVERSES A DEEPLY DISSECTED PORTION OF THE ALLEGHENY PLATEAU, IN AN AREA WHERE THIN TO MODERATELY DEEP RESIDUAL SOILS OVERLIE SHALE, SANDSTONE, INDURATED CLAY, LIMESTONE AND COAL, OF PENNSYLVANIAN AGE. SEVERAL ROCK EXPOSURES WERE OBSERVED AND MEASURED IN THE GULLIES AND STREAM BEDS THROUGHOUT THE PROJECT. A LOW WET AREA WAS OBSERVED IN THE VICINITY OF STATION 372+00.

EXPLORATION

EXPLORATORY BORINGS WERE MADE BY MEANS OF TRUCK-MOUNTED MECHANICAL SOIL AUGER, HAND AUGER (IN AREAS OF DIFFICULT ACCESS), AND ROTARY-TYPE DRILL RIG, BETWEEN FEBRUARY 15 AND MARCH 24, 1967. INCLUDED IN THIS REPORT ARE LOGS OF BORINGS MADE FOR PROJECT JEF-22-0.00.

INVESTIGATIONAL FINDINGS

MATERIALS ENCOUNTERED IMMEDIATELY BELOW PROPOSED GRADE ARE PREDOMINANTLY COMPRISED OF SHALE AND SANDSTONE BEDROCK, WITH OCCASIONAL SILT CLAY (A-6a) AND CLAY (A-7-6), GENERALLY HAVING MOISTURE CONTENTS BELOW THE PLASTIC RANGE.

BEDROCK IS ANTICIPATED IN THE FOLLOWING EXCAVATION AREAS:

STATIONS 205+50 TO 207+00 - SHALE AND INDURATED CLAY AT LEFT GRADE AND IN THE LEFT DITCH AND LOWER PORTION OF THE LEFT BACKSLOPE.

STATIONS 207+00 TO 211+50 - SHALE AND INDURATED CLAY AT GRADE AND IN THE DITCHES AND LOWER PORTIONS OF THE BACKSLOPES, WITH LIMESTONE AND SHALE IN THE MIDDLE AND UPPER PORTIONS OF THE BACKSLOPES.

STATIONS 211+50 TO 212+00 - POSSIBLY SHALE AND INDURATED CLAY AT GRADE AND IN THE DITCHES.

STATIONS 214+50 TO 217+00 - POSSIBLY SANDSTONE AT GRADE AND IN THE DITCHES.

STATIONS 219+50 TO 225+50 - SANDSTONE AT GRADE AND IN THE DITCHES AND LOWER AND MIDDLE PORTIONS OF THE BACKSLOPES, WITH SHALE IN THE UPPER PORTIONS OF THE BACKSLOPES.

STATIONS 227+50 TO 240+00 - SHALE AND SANDSTONE AT GRADE AND IN THE DITCHES AND BACKSLOPES, WITH SOME LIMESTONE IN THE UPPER PORTIONS OF THE BACKSLOPES.

STATIONS 243+50 TO 245+50 - SHALE AND SANDSTONE AT GRADE AND IN THE DITCHES AND BACKSLOPES.

STATIONS 253+00 TO 260+50 - INDURATED CLAY AT GRADE AND IN THE DITCHES AND LOWER PORTIONS OF THE BACKSLOPES, WITH LIMESTONE AND SHALE IN THE MIDDLE PORTIONS OF THE BACKSLOPES AND SHALE IN THE UPPER PORTIONS OF THE BACKSLOPES.

STATIONS 266+50 TO 268+00 - POSSIBLY SHALE AT GRADE AND IN THE DITCHES AND BACKSLOPES.

STATIONS 280+00 TO 286+80 - SHALE AND INDURATED CLAY AT GRADE AND IN THE DITCHES AND BACKSLOPES, WITH SOME LIMESTONE IN THE MIDDLE PORTIONS OF THE BACKSLOPES.

STATIONS 291+50 TO 297+00 - SHALE AT GRADE AND IN THE DITCHES AND LOWER AND UPPER PORTIONS OF THE BACKSLOPES, WITH LIMESTONE AND INDURATED CLAY IN THE MIDDLE PORTIONS OF THE BACKSLOPES.

STATIONS 310+00 TO 315+00 - SHALE AT GRADE AND IN THE DITCHES AND LOWER AND UPPER PORTIONS OF THE BACKSLOPES, WITH LIMESTONE AND INDURATED CLAY IN THE MIDDLE PORTIONS OF THE BACKSLOPES.

STATIONS 345+50 TO 368+00 - SHALE AND LIMESTONE AT GRADE AND IN THE DITCHES AND LOWER PORTIONS OF THE BACKSLOPES, WITH INDURATED CLAY IN THE MIDDLE PORTIONS OF THE BACKSLOPES AND SANDSTONE IN THE UPPER PORTIONS OF THE BACKSLOPES.

STATIONS 377+00 TO 388+50 - SANDSTONE AT GRADE AND IN THE DITCHES AND LOWER AND UPPER PORTIONS OF THE BACKSLOPES, WITH SHALE, LIMESTONE, AND INDURATED CLAY IN THE MIDDLE PORTIONS OF THE BACKSLOPES.

IN THE EMBANKMENT FOUNDATION AREAS, MATERIALS ARE PREDOMINANTLY COMPRISED OF SANDY SILTS (A-4a), SILT CLAYS (A-6a AND A-6b), AND CLAYS (A-7-6), GENERALLY HAVING LOW MOISTURE CONTENTS AND MOISTURE CONTENTS IN THE LOWER PORTIONS OF THE PLASTIC RANGE.

WET MATERIALS WERE ENCOUNTERED AT STATIONS 249+50, 372+50, AND USR 22 FUTURE RELOCATION STATION 398+50.

LEGEND FOR PROJECT AVERAGE RESULTS OF TESTS— 134 SAMPLES TESTED

DESCRIPTION	H.R.B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
STONE FRAGMENTS WITH SAND	A-1-b(0)	A-1-b	51	3	25	12	9	NP	NP	8	1
STONE FRAGMENTS WITH SAND AND SILT	A-2-4(0)	A-2-4	50	6	19	13	12	28	7	10	5
STONE FRAGMENTS WITH SAND, SILT, AND CLAY	A-2-6(1)	A-2-6	66	4	5	10	15	39	15	15	4
SANDY SILT	A-4(3)	A-4a	19	7	23	25	26	29	7	16	26
SILT AND CLAY	A-6(8)	A-6a	18	3	9	32	38	34	13	16	58
SILTY CLAY	A-6(11)	A-6b	17	2	4	31	46	32	17	16	19
CLAY	A-7-6(14)	A-7-6	12	2	5	25	56	47	22	18	22
BOULDERY ZONE					VISUAL CLASSIFICATION						-
COAL					VISUAL CLASSIFICATION						-
WEATHERED SHALE					VISUAL CLASSIFICATION						33
WEATHERED SANDSTONE					VISUAL CLASSIFICATION						7
INDURATED CLAY					VISUAL CLASSIFICATION						-
SHALE					VISUAL CLASSIFICATION						9
SANDSTONE					VISUAL CLASSIFICATION						-
LIMESTONE					VISUAL CLASSIFICATION						-
VARIOUS OTHER MATERIALS					VISUAL CLASSIFICATION						-

TOPSOIL=X'=APPROXIMATE DEPTH.

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.

W — FREE WATER.

NUMBER OF BLOWS FOR "STANDARD PENETRATION" TEST.
X=NUMBER OF BLOWS FOR FIRST 6 INCHES.
Y=NUMBER OF BLOWS FOR SECOND 6 INCHES.

B — INDICATES BROKEN ROCK INTERVAL.

NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT. E.G. 15

SOIL PROFILE

JEFFERSON COUNTY

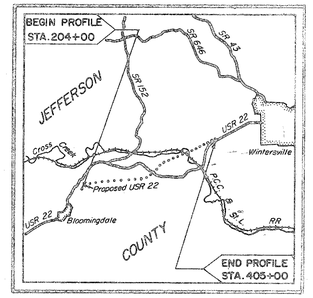
JEF-22-3.86

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

1/33

1/18

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 CONSTRUED AS A PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT.



LOCATION MAP

Recon- J.S.M.- 12/20/66
Drilling- Auger - T.R.S.
2/15/67 to 3/3/67
Core- C.F.C., W.C.S., E.F.L., C.A.P.
2/15/67 to 3/24/67
Drafting - R.A.W.; E.J.S., A.F.
4/4/67

REVISION
Drafting- A.F. 10/2/68

SOIL PROFILE

JEFFERSON COUNTY

JEF-22-3.86

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

2/33

2/18

REVISED 10/2/68

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.
* * 205+00	CL	0.0-4.0		18	6	7	27	42	45	19	20	A-7-6 *
		4.0-7.0		6	4	9	29	58	39	17	14	A-6b *
		7.0-10.0		(12	3	2	32	51	34	11	10)	
		GRAY WEATHERED CLAY SHALE										VISUAL
* * 208+00'	CL	0.0-4.0		0	2	3	28	67	49	23	22	A-7-6
		4.0-6.0		17	14	9	30	30	35	14	11	A-6a
		6.0-7.5		18	18	9	31	24	33	12	26	A-6a
210+00	CL	0.0-5.5		13	3	6	25	53	51	23	22	A-7-6
212+50	CL	0.0-4.5		4	3	3	31	54	43	15	19	A-7-6*
213+25	CL	0.0-3.0		12	9	12	33	34	37	11	31	A-6a
215+50	CL	0.0-6.0		44	4	15	22	15	28	5	11	A-4a
		6.0-11.0		42	7	13	23	15	NP	NP	10	A-4a *
218+75	CL	0.0-4.0		(39	3	29	17	13	NP	NP	11)	
		BROWN WEATHERED SHALE										VISUAL *
220+25	CL	0.0-5.0		(49	3	13	19	16	NP	NP	8)	
		BROWN WEATHERED SHALE										VISUAL
		5.0-9.0		(59	5	7	12	7	28	5	7)	
		BROWN WEATHERED SHALE										VISUAL
223+50	CL	0.0-5.0		5	5	7	18	65	62	34	29	A-7-6
		5.0-9.0		(67	5	6	10	12	33	13	6)	
		BROWN BROKEN SHALE										VISUAL
225+00	CL	0.0-3.0		(66	5	9	11	9	28	6	6)	
		BROWN WEATHERED SHALE										VISUAL
226+50	CL	0.0-2.0		(53	5	35	12	15	NP	NP	11)	
		BROWN BROKEN SHALE										VISUAL
228+50	CL	0.0-5.0		39	5	10	21	25	30	15	13	A-6a
		5.0-11.0		(68	5	6	12	9	30	6	7)	
		BROWN WEATHERED SHALE										VISUAL
233+50	CL	0.0-4.0		24	4	16	28	28	34	10	17	A-4a
		4.0-10.0		(44	4	9	28	15	27	4	10)	
		BROWN WEATHERED SHALE										VISUAL
243+50	CL	0.0-3.0		33	5	7	30	25	NP	NP	19	A-4a
		3.0-6.0		(63	3	15	11	8	NP	NP	7)	
		BROWN WEATHERED SANDSTONE										VISUAL
245+50	25'Lt	0.0-2.0		11	6	5	36	42	33	11	22	A-6a
		2.0-8.0		(74	5	5	8	8	30	8	8)	
		BROWN WEATHERED SHALE										VISUAL
246+75	CL	0.0-5.0		(43	3	12	27	15	NP	NP	11)	
		BROWN WEATHERED										VISUAL*
248+00	CL	0.0-2.0		38	4	8	30	20	28	3	9	A-4a
249+50	200'Lt	0.0-5.0		12	4	9	25	50	45	18	25	A-7-6
		5.0-10.0		45	9	9	20	17	32	9	15	A-4a
		10.0-11.0		(50	9	10	15	16	27	6	17)	
		BROWN WEATHERED CLAY SHALE										VISUAL
249+50	100'Lt	0.0-4.0		11	0	9	49	31	38	11	29	A-6a
		4.0-9.0		51	2	8	19	20	38	15	20	A-6a
249+50	CL	0.0-4.5		11	1	16	32	40	38	11	35	A-6a
		4.5-8.0		(66	10	6	7	11	32	10	15)	
		BROWN WEATHERED CLAY SHALE										VISUAL
249+80	100'Rt	0.0-5.0		40	6	9	18	27	39	16	17	A-6b
		5.0-7.0		(65	8	5	12	10	33	12	9)	
		BROWNISH-GRAY WEATHERED SHALE										VISUAL
249+80	200'Rt	0.0-5.0		39	4	10	18	29	42	16	21	A-7-6
		5.0-6.5		(86	3	2	4	5	-	-	10)	
		GRAY WEATHERED SHALE										VISUAL
252+00	CL	0.0-3.0		26	6	11	31	26	34	7	16	A-4a *
261+85	CL	0.0-4.0		17	4	11	16	52	42	20	20	A-7-6
		4.0-6.0		6	1	2	26	65	42	18	21	A-7-6
		6.0-8.0		23	7	9	20	41	39	17	17	A-6b
		8.0-10.0		0	1	3	30	67	39	18	17	A-6b
		10.0-11.0		0	1	2	30	67	40	21	19	A-6b
		11.0-16.0		0	1	2	41	56	33	12	20	A-6a
		16.0-17.0		0	0	1	35	64	36	16	17	A-6b
		17.0-18.0		(21	1	13	33	32	25	11	15)	
		BROWN WEATHERED SHALE										VISUAL
263+00	CL	0.0-5.0		30	6	9	26	29	34	13	16	A-6a
265+80	25'Lt	0.0-6.0		4	1	1	32	62	47	23	18	A-7-6
		6.0-11.0		24	0	1	28	47	41	19	13	A-7-6
		11.0-16.0		22	0	1	24	53	41	20	10	A-7-6
		16.0-21.0		8	0	1	37	54	39	19	7	A-6b
268+00	75'Rt	0.0-5.0		(42	14	10	13	21	32	9	-)	
		BROWN WEATHERED SHALE										VISUAL
		5.0-7.0		(68	10	5	7	10	31	9	-)	
		BROWN WEATHERED SHALE										VISUAL
268+25	CL	0.0-4.0		68	1	1	6	24	48	23	18	A-2-7 *
		4.0-10.0		0	1	2	39	58	40	15	15	A-6a
		10.0-15.0		10	1	2	32	55	45	18	13	A-6b
		15.0-20.0		10	2	2	38	48	35	12	12	A-6a
		20.0-25.5		4	1	3	32	60	38	16	26	A-6b
271+00	75'Lt	0.0-4.0		(36	8	10	25	21	31	10	9)	
		BROWN WEATHERED SHALE										VISUAL
271+00	CL	0.0-4.0		0	0	1	22	77	53	29	13	A-7-6
		4.0-10.0		11	2	2	22	63	43	19	14	A-7-6
		10.0-11.0		5	1	2	21	71	42	15	8	A-7-6
273+75	75'Rt	0.0-5.0		(49	14	13	14	10	27	6	12)	
		GRAY BROKEN SHALE										VISUAL
276+00	CL	0.0-5.0		(27	5	13	31	24	29	7	15)	
		BROWN WEATHERED SANDSTONE										VISUAL
279+50	CL	0.0-6.0		37	4	12	20	27	33	13	13	A-6a *
		6.0-13.0		23	1	3	30	43	38	18	12	A-6b
		13.0-20.0		14	2	2	35	47	38	16	26	A-6b
287+00	CL	0.0-3.0		28	5	9	24	34	35	12	16	A-6a
		3.0-5.0		55	4	3	15	23	39	16	14	A-6b
		5.0-10.0		4	1	3	41	51	37	14	10	A-6a
		10.0-16.0		0	1	3	41	55	37	17	9	A-6b
		16.0-22.0		0	1	11	45	43	32	11	10	A-6a
288+10	CL	0.0-2.0		15	5	5	33	42	39	17	19	A-6b
		2.0-7.0		16	7	8	31	38	34	15	13	A-6a
290+65	CL	0.0-4.0		50	4	5	19	22	30	11	13	A-6a
		4.0-5.0		33	3	4	20	40	54	25	21	A-7-6
		5.0-8.0		0	1	3	31	65	42	22	13	A-7-6
		8.0-13.0		0	2	7	45	46	36	15	7	A-6a
		13.0-18.0		18	1	2	38	41	37	16	7	A-6b
		18.0-24.0		(6	1	7	41	45	36	16	8)	
		RED WEATHERED CLAY SHALE										VISUAL
297+00	CL	0.0-5.0		(66	5	6	12	11	31	9	6)	
		BROWN WEATHERED CLAY SHALE										VISUAL
		5.0-10.0		(59	7	7	14	13	27	6	4)	
		BROWN WEATHERED CLAY SHALE										VISUAL
300+80	150'Lt	0.0-6.0		14	1	9	34	42	33	12	19	A-6a
301+00	CL	0.0-3.0		42	7	10	18	23	36	12	12	A-6a
301+00	150'Rt	0.0-4.5		65	6	6	12	11	39	11	12	A-2-6
301+10	300'Rt	0.0-3.0		26	6	7	31	30	45	17	16	A-7-6
302+80	CL	0.0-5.0		(73	3	6	11	7	26	8	5)	
		BROWN WEATHERED SHALE										VISUAL
		5.0-10.0		(78	2	5	9	6	26	8	4)	
		BROWN WEATHERED SHALE										VISUAL
		10.0-15.0		(49	5	9	22	15	25	5	5)	
		BROWN WEATHERED CLAY SHALE										VISUAL
307+00	60'Lt	0.0-6.0		55	2	6	18	19	35	11	11	A-6a
		6.0-9.0		12	8	12	37	31	31	11	16	A-6a
		9.0-14.0		0	1	8	46	45	35	14	10	A-6a
		14.0-18.0		(54	2	3	23	18	31	11	6)	
		BROWN WEATHERED SHALE										VISUAL
309+30	25'Lt	0.0-5.0		37	4	4	23	32	25	12	13	A-6a *
		5.0-9.0		23	2	3	29	43	38	15	11	A-6a
		9.0-15.0		19	1	2	38	40	35	11	11	A-6a
		15.0-20.0		17	1	2	28	52	39	16	11	A-6b
		20.0-25.0		8	2	8	39	43	32	11	7	A-6a
		25.0-30.0		33	1	11	25	30	32	11	7	A-6a
316+00	CL	0.0-5.0		10	4	8	41	37	32	11	16	A-6a *
		5.0-11.0		7	6	22	29	36	26	7	12	A-4a
		11.0-14.0		7	2	3	35	53	31	11	13	A-6a
		14.0-16.0		5	3	14	45	33	31	11	19	A-6a
		16.0-22.0		8	2	9	41	40	30	11	14	A-6a
		22.0-25.0		9	1	8	45	37	29	11	9	A-6a
318+00	CL	0.0-6.0		28	6	9	22	35	36	12	16	A-6a
		6.0-12.0		(40	7	15	23	15	23	4	6)	
		BROWN WEATHERED CLAY SHALE FRAGMENTS WITH SOIL										VISUAL
		12.0-15.0		22	6	13	33	26	30	9	15	A-4a
320+00	CL	0.0-6.0		24	7	6	32	31	36	13	14	A-6a
		6.0-10.0		(37	2	2	28	31	37	12	11)	
		BROWN WEATHERED SHALE										VISUAL
		10.0-11.0		(62	9	5	8	16	36	14	11)	
		BROWN BROKEN SHALE										VISUAL
320+00	50'Rt	0.0-5.0		0	2	13	25	60	51	25	20	A-7-6
		5.0-6.0		4	7	21	28	40	34	15	18	A-6a
		6.0-8.0		(8	11	15	28	18	29	7	9)	
		GRAY WEATHERED SHALE										VISUAL
323+00	CL	0.0-5.0		0	2	3	51	44	38	16	20	A-6b
		5.0-8.0		(30	4	9	24	33	33	10	11)	
		BROWN WEATHERED SHALE										VISUAL
328+00	CL	0.0-4.0		0	5	44	22	29	22	4	14	A-4a
		4.0-5.0		39	3	33	10	15	NP	NP	11	A-2-4
330+00	CL	0.0-5.0		(31	5	39	11	14	NP	NP	10)	
		BROWN WEATHERED SANDSTONE										VISUAL
		5.0-8.0		(58	2	26	6	8	NP	NP	8)	
		BROWN WEATHERED SANDSTONE										VISUAL
332+00	CL	0.0-5.0		7	1	19	25	48	36	13	16	A-6a
		5.0-11.0		48	1	5	20	26	38	15	12	A-6a
337+50	CL	0.0-3.0		2	2	57	11	28	NP	NP	17	A-4a
		3.0-8.0		(38	2	38	10	12	NP	NP	6)	
		BROWN WEATHERED SANDSTONE										VISUAL
340+10	CL	0.0-4.0		(50	2	23	16	9	NP	NP	10)	
		BROWN WEATHERED SANDSTONE										VISUAL
342+00	170'Lt	0.0-1.0		(62	8	9	10	11	29	7	23)	
		GRAY BROKEN SHALE										VISUAL
342+00	CL	0.0-4.0		9	5	33	21	32	24	6	21	A-4a
342+00	90'Rt	0.0-5.0		12	3	11	37	37	38	15	20	A-6a
		5.0-7.0		(26	5	7	17	45	47	21	-)	
		GRAY WEATHERED CLAY SHALE										VISUAL
343+50	CL	0.0-6.0		10	1	3	26	60	60	36	19	A-7-6
		6.0-7.0		0	0	1	36	63	46	24	13	A-7-6
		7.0-13.0		24	4	8	24	40	36	15	12	A-6a
		13.0-18.0		43	4	17	15	16	25	9	16	A-2-4
		18.0-18.5		(-	-	-	-	-	-	-	3)	
		BROWN BROKEN SHALE										VISUAL
345+00	CL	0.0-5.0		51	3	25	12	9	NP	NP	8	A-1-b *
		5.0-10.0		0	1	6	42	51	40	11	14	A-6a
		10.0-15.0		(10	2	10	45	33	33	10	9)	
		BROWN WEATHERED CLAY SHALE										VISUAL
348+00	CL	0.0-5.0		0	2	11	37	50	38	13	19	A-6a
		5.0-7.0		4	2	28	33	33	25	4	13	A-4a
		7.0-8.0		(33	2	36	14	15	NP	NP	10)	
		BROWN WEATHERED SANDSTONE										VISUAL
368+10	CL	0.0-6.0		(19	5	34	21	21	22	6	18)	
		BROWN WEATHERED CLAY SHALE										VISUAL
		6.0-9.0		(33	2	27	21	17	23	7	4)	
		BROWN WEATHERED SHALE										VISUAL
372+50	75'Lt	0.0-4.0		3	0	8	32	60	51	28	23	A-7-6
		4.0-7.0		3	6	50	13	28	27	10	23	A-4a
		7.0-11.0		4	6	26	26	38	28	10	25	A-4a
		11.0-14.0		19	3	31	23	24	26	8	20	A-4a
375+00	CL	0.0-4.0		35	1	5	20	39	33	11	14	A-6a
		4.0-6.0		(55	4	5	15	20	31	11	11)	
		BROWN WEATHERED SHALE										VISUAL
		6.0-10.0		(22	4	5	30	39	39	16	11)	
		BROWN WEATHERED SHALE										VISUAL
376+30	CL	0.0-5.0		0	17	20	31	32	29	8	22	A-4a *
		5.0-10.0		3	20	28	19	28	25	8	9	A-4a
		10.0-15.0		9	14	19	30	28	28	8	12	A-4a
		15.0-20.0		37	5	9	19	30	34	11	21	A-6a
		20.0-21.0		0	1	17	37	45	28	11	15	A-6a
		21.0-23.0		23	5	23	22	27	26	7	11	A-4a
388+10	CL	0.0-5.0		6	8	34	23	29	26	14	20	A-6a
		5.0-8.0		0	17	21	35	27	28	9	19	A-4a
		8.0-10.0		(28	6	24	21	21	26	8	7)	
		BROWN BROKEN SHALE										VISUAL

PROPOSED USR 22 (TEMPORARY CONNECTOR)

397+50	BL	0.0-5.0		8	6	16	33	37	32	11	16	A-6a
		5.0-10.0		22	5	14	26	33	33	12	12	A-6a
		10.0-15.0		46	8	10	20	16	29	10	7	A-4a
		15.0-19.0		68	3	4	12	13	35	13	8	A-2-6
400+00	BL	0.0-5.0		8	4	6	26	56	39	14	19	A-6a
		5.0-11.0		6	3	19	31	41	41	15	25	A-6a
		11.0-13.0		29	2	5	32	32	38	16	23	A-6b
		13.0-14.0		23	1	3	32	41	37	14	16	A-6a
404+00	BL	0.0-5.0		19	6	22	25	28	28	9	12	A-4a
		5.0-11.0		24	6	24	20	26	30	12	12	A-6a
404+00	60'Rt	0.0-4.0		7	4	12	40	37	29	11	16	A-6a

PROPOSED FUTURE USR 22-RELOCATION

394+00	CL	0.0-2.0		24	7	22	22	25	31	7	16	A-4a
		2.0-8.0		53	7	18	9	13	27	7	21	A-2-4
		8.0-10.5		56	7	11	13	13	29	8	19	A-2-4
395+25	CL	0.0-4.0		42	5	8	19	26	37	16	20	A-6b
398+50	75'Lt	0.0-5.0		50	7	13	16	14	32	9	30	A-2-4
		5.0-9.5		64	7	10	9	10	32	12	20	A-2-6

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.
208+50	90'Lt	5.0-6.0		0	2	4	37	57	28	14	19	A-6a
222+50	82'Lt	5.0-6.0		0	1	4	33	62	44	16	33	A-7-6
		10.0-10.3		(0	5	5	36	54	32	11	15)	
		GRAY WEATHERED SHALE										VISUAL
234+00	CL	10.0-11.0		24	9	6	19	43	36	14	25	A-6a
		15.0-16.0		20	8	7	18	38	40	17	18	A-6b
257+00	CL	5.0-6.0		16	8	10	34	32	35	9	15	A-4a
		10.0-11.0		(15	7	11	40	27	35	9	10)	
		BROWNISH-GRAY BROKEN CLAY SHALE										VISUAL
284+00	CL	5.0-6.0		48	1	1	22	28	37	12	15	A-6a
		10.0-11.0		0	1	4	40	55	38	12	23	A-6a
353+00	CL	5.0-6.0		0	0	52	23	25	NP	NP	16	A-4a
368+57	CL	5.0-6.0		50	2	8	17	23	33	12	19	A-6a
		10.0-10.5		(13	6	15	42	24	28	8	13)	
		GRAY BROKEN SHALE										VISUAL
386+50	CL	5.0-6.0		10	1	1	37	51	44	19	17	A-7-6
		10.0-11.0		14	5	15	34	32	35	12	16	A-6a

* * = Borings taken from JEF-22-0.00

SOIL PROFILE

JEFFERSON COUNTY

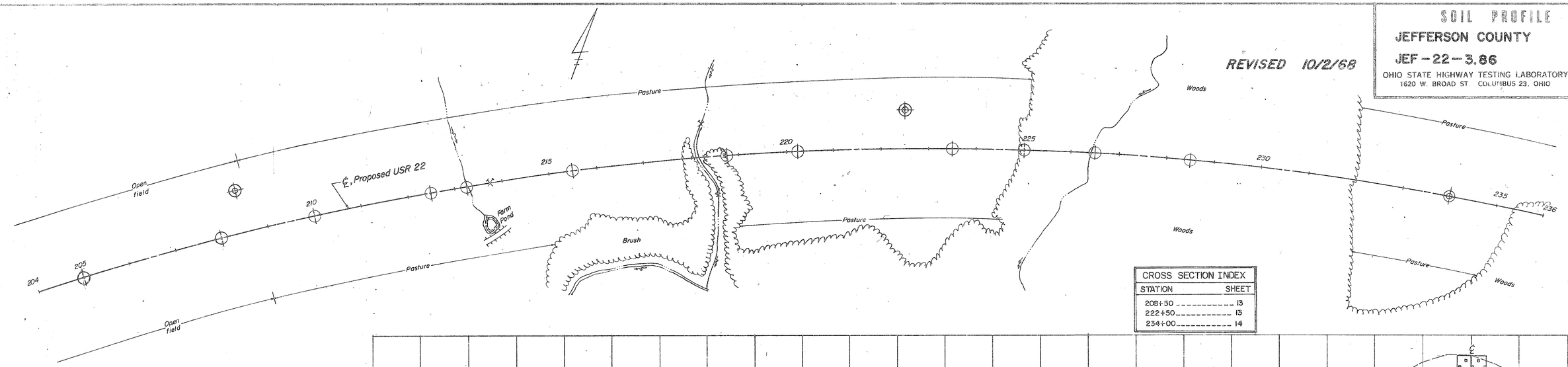
JEF-22-3.86

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

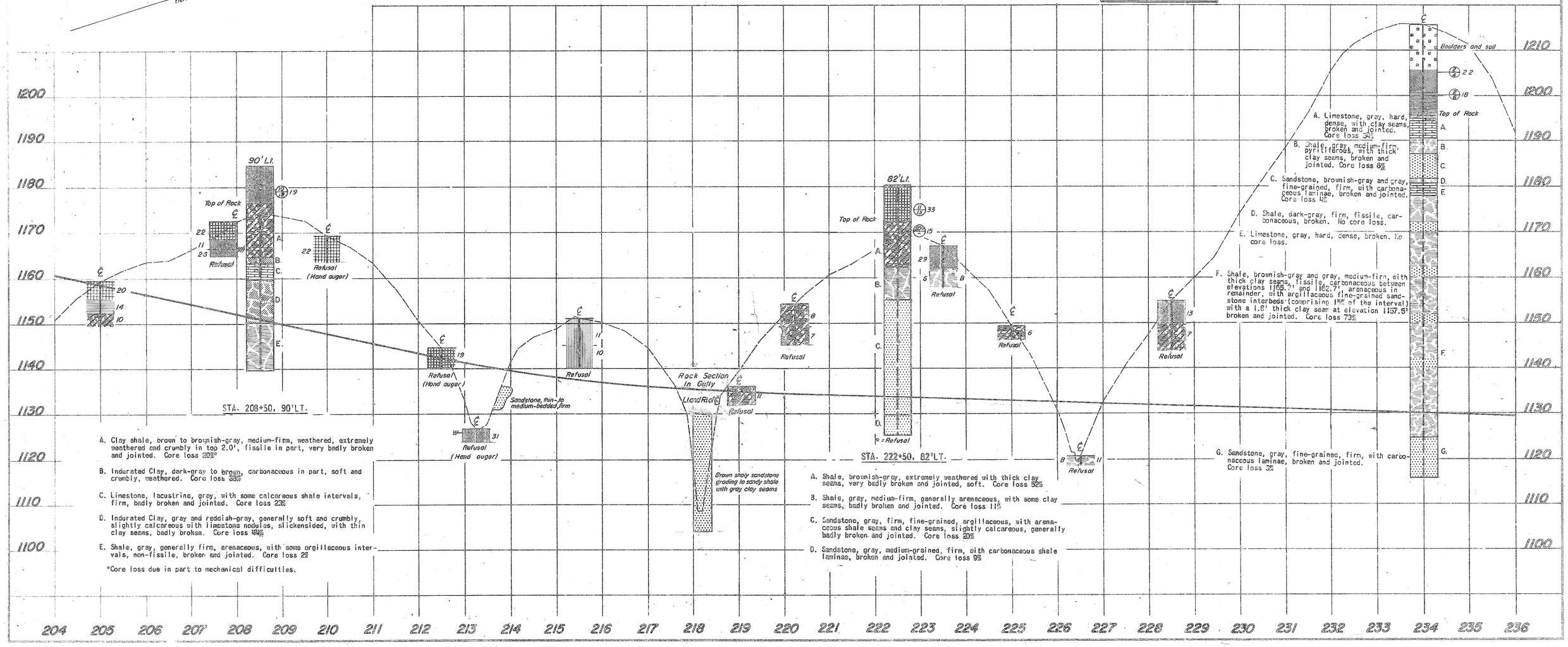
3/33

3/18

REVISED 10/2/68



CROSS SECTION INDEX	
STATION	SHEET
208+50	13
222+50	13
234+00	14



A. Clay shale, brown to brownish-gray, medium-firm, weathered, extremely weathered and crumbly in top 2.0', fissile in part, very badly broken and jointed. Core loss 20%*

B. Indurated Clay, dark-gray to brown, carbonaceous in part, soft and crumbly, weathered. Core loss 33%

C. Limestone, lacustrine, gray, with some calcareous shale intervals, firm, badly broken and jointed. Core loss 23%

D. Indurated Clay, gray and reddish-gray, generally soft and crumbly, slightly calcareous with limestone nodules, slickensided, with thin clay seams, badly broken. Core loss 44%

E. Shale, gray, generally firm, arenaceous, with some argillaceous intervals, non-fissile, broken and jointed. Core loss 2%

*Core loss due in part to mechanical difficulties.

A. Shale, brownish-gray, extremely weathered with thick clay seams, very badly broken and jointed, soft. Core loss 52%

B. Shale, gray, medium-firm, generally arenaceous, with some clay seams, badly broken and jointed. Core loss 11%

C. Sandstone, gray, firm, fine-grained, argillaceous, with arenaceous shale seams and clay seams, slightly calcareous, generally badly broken and jointed. Core loss 20%

D. Sandstone, gray, medium-grained, firm, with carbonaceous shale laminae, broken and jointed. Core loss 9%

A. Limestone, gray, hard, dense, with clay seams, broken and jointed. Core loss 34%

B. Shale, gray, medium-firm, pyritiferous, with thick clay seams, broken and jointed. Core loss 6%

C. Sandstone, brownish-gray and gray, fine-grained, firm, with carbonaceous laminae, broken and jointed. Core loss 4%

D. Shale, dark-gray, firm, fissile, carbonaceous, broken. No core loss.

E. Limestone, gray, hard, dense, broken. No core loss.

F. Shale, brownish-gray and gray, medium-firm, with thick clay seams, fissile, carbonaceous between elevations 1165.7' and 1162.7' arenaceous in remainder, with argillaceous fine-grained sandstone interbeds (comprising 15% of the interval) with a 1.8' thick clay seam at elevation 1157.5' broken and jointed. Core loss 73%

G. Sandstone, gray, fine-grained, firm, with carbonaceous laminae, broken and jointed. Core loss 3%

SOIL PROFILE

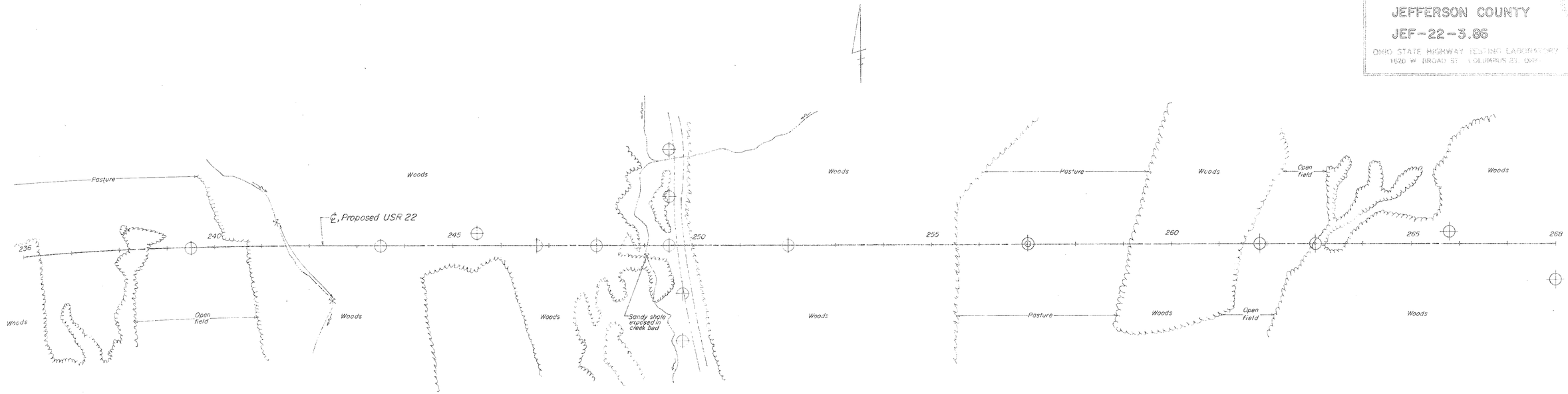
JEFFERSON COUNTY

JEF-22-3.86

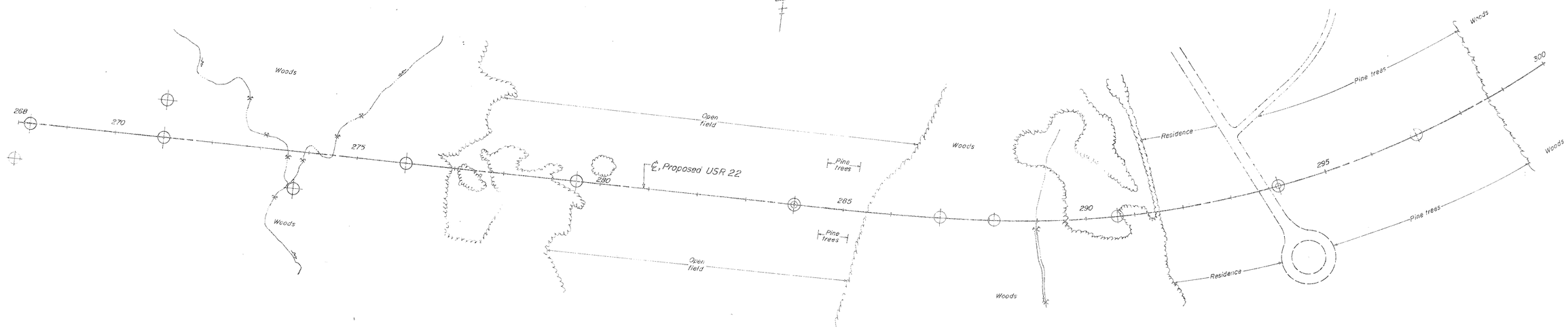
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

4
33

4
18



Note: For cross section of station 250+00, see sheet 15.



SOIL PROFILE

JEFFERSON COUNTY

JEF-22-3.86

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

5/33

5/18

REVISED 10/2/68

1190 1180 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050 1040 1030 1020

236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268

17
10
Refusal

19
7
Refusal

25' Lt.
22
8
Refusal

11
Refusal

Rock Section in Gully 50 Lt. to 150 Rt.

Sandstone, thin-bedded

Sandstone, medium-bedded, partially covered

Shale, siliceous, weak

Shale, bluish-gray to black

9
Refusal
(Hand auger)

16
Refusal
(Hand auger)

35
15
Refusal

15
10
Top of Rock

A.
B.
C.
D.
E.

20
21
17
17
19
20
17
15
Refusal

16
Refusal

25' Lt.
18
13
10
7
Refusal

75' Rt.
Refusal

A. Sandstone, gray, fine-grained, firm, broken. No core loss.

B. Shale, brownish-gray, soft and crumbly, extremely weathered, fissile, with clay seams, badly broken and jointed. Core loss 24%

C. Shale, brownish-gray, medium-firm, slightly weathered, generally fissile, with arenaceous intervals and clay seams, badly broken and jointed. Core loss 10%

D. Limestone, gray, hard, dense, with thick clay seams, broken and jointed. Core loss 38%

E. Indurated Clay, mottled red and gray; soft and crumbly, very badly broken, and with thick clay seams in top 10.0'; firm and broken in remainder. Core loss 33%

JEFFERSON COUNTY

JEF-22-3.86

6
33

6
16

STA 294+00 CL.

A. Shale, brownish-gray, soft and crumbly, fissile, with thick clay seams, with some arenaceous intervals, extremely weathered very badly broken and jointed. Core loss 0"

B. Limestone, gray, hard, dense, with some clay seams, broken and jointed. No core loss.

C. Indurated Clay, gray, soft and crumbly, slightly calcareous, with limestone nodules and clay seams, very badly broken. Core loss 0"*

D. Shale, brownish-gray, and gray, generally arenaceous, with some argillaceous intervals, firm, fissile, broken and jointed. Core loss 8"*

E. Coal, black, broken, blocky, pyritiferous, bituminous. No core loss.

F. Shale, gray, firm, fissile, carbonaceous, broken and jointed. Core loss 12"*

*High core loss due in part to mechanical difficulties.

STA 294+50 CL.

A. Shale; brownish-gray, weathered, fissile, soft and crumbly in top 4.0'; gray, medium-firm, slightly calcareous and arenaceous, and fissile in remainder; with thin clay seams and broken and jointed throughout. Core loss NR

B. Limestone, gray, hard, dense, badly broken and jointed. No core loss.

C. Indurated Clay, reddish-brown and gray, generally firm, slickensided, slightly calcareous, with thin clay seams, broken. Core loss 8"

D. Shale, gray, firm, slightly arenaceous, non-fissile, with argillaceous fine-grained sandstone intervals, broken and jointed. Core loss 4%

E. Indurated Clay, reddish brown and gray, generally soft and crumbly, with thick clay seams, with limestone nodules, slickensided and calcareous, generally badly broken. Core loss 8"

Rock Section in Gully Rt. of ℄

- Sandstone, thin-bedded, firm
- Covered interval
- Shale, black, carbonaceous to micaceous to siliceous
- Clay shale, variegated yellow and gray, (partially covered)

Composite Rock Section in Gullies Lt. and Rt. of ℄

- Sandstone, thin-bedded
- Sandstone, thick-bedded
- Covered Interval
- Sandy shale
- Black to gray sandy shale
- Shaly sandstone

Brown clay

Top of Rock

75' Rt.

75' Lt.

75' Rt.

Refusal

21 with coal blossom

JEFFERSON COUNTY
JEF-22-3.86

7
33

7
18

Orchard
Fallow
Pasture
Orchard
Orchard
Existing USR 22
Junk yard
Woods
Woods
℄ Proposed USR 22
NOTE: For cross section of station 301+00, see sheet 16.

Brown clay
Top of Rock
Shaly sandstone
Brown weathered clay shale material with soil
Refusal
Rock Section 40' Rt. to 15' Rt.
Shaly sandstone
Sandy shale grading to shaly sandstone
Refusal
Rock Section in Gully 60' Lt. to 75' Lt.
Sandstone, medium- to thick-bedded, firm
Sandstone, thin-bedded
Coal
Refusal (Hand auger) Rock Section in Gully 85' Rt. to 340' Rt.
Clay shale

A. Shale, brown to gray, soft and crumbly, with limestone, calcareous, very badly broken and jointed. Core loss 18'.

B. Limestone, gray, hard, dense, with shale inter-beds, generally very badly broken and jointed. No core loss.

C. Indurated clay, gray, crumbly, with limestone, calcareous, very badly broken and jointed. Core loss 10'.

D. Limestone, gray, hard, dense, with clay seams, badly broken and jointed. No core loss.

E. Indurated clay, mottled gray and red, soft and crumbly, calcareous with limestone nodules, slickensided, very badly broken and jointed. Core loss 6'.

F. Shale, gray and brownish-gray, firm, generally argillaceous, with some arenaceous intervals, broken and jointed. Core loss 3'.

G. Coal, black, blocky, anthracitic. No core loss.

H. Shale, dark-gray, firm, carbonaceous, flaky, broken and jointed. No core loss.

300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319

SOIL PROFILE

JEFFERSON COUNTY

JEF-22-3.86

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

8
33

8
18

NOTE: For cross section of station 342+00, see sheet 17.

JEFFERSON COUNTY
JEF-22-3.86

9
33

9
18

1100
1090
1080
1070
1060
1050
1040
1030
1020
1010
1000
990
980
970
960
950
940
930
920
910

319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351

℄
14
11
50'Rt.
W
B 11
Refusal
20
18
9
Refusal

℄
20
11
Refusal

℄
14
11
Refusal

Rock Section
100'Lt. to 60'Lt.
TS-0.6'
Rock Section
℄ to 25'Rt.
Sandstone
10
8
Refusal
Sandstone, medium- to thick-bedded, firm.
Bluish-gray clay shale

℄
16
12
Refusal

Rock Section
in Gully
200'Lt. to 250'Rt.
Marine limestone, thin-bedded in upper half
Covered interval
Sandstone, medium-bedded, firm
Shale, clayey to siliceous

℄
17
6
Refusal

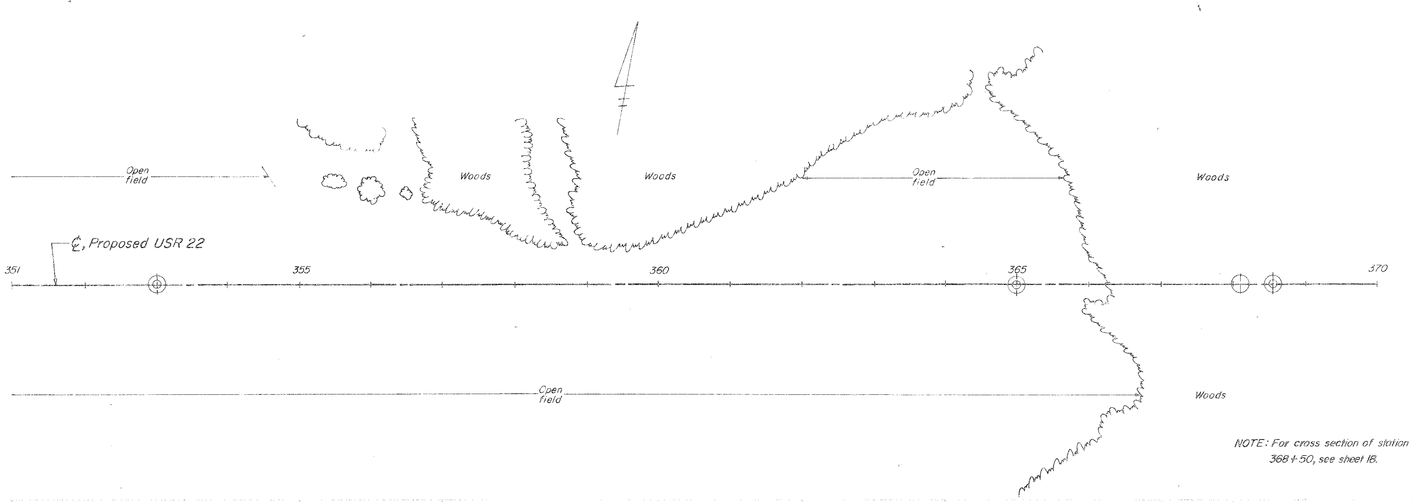
℄
12
Refusal

℄
210
Refusal
(Hand auger)

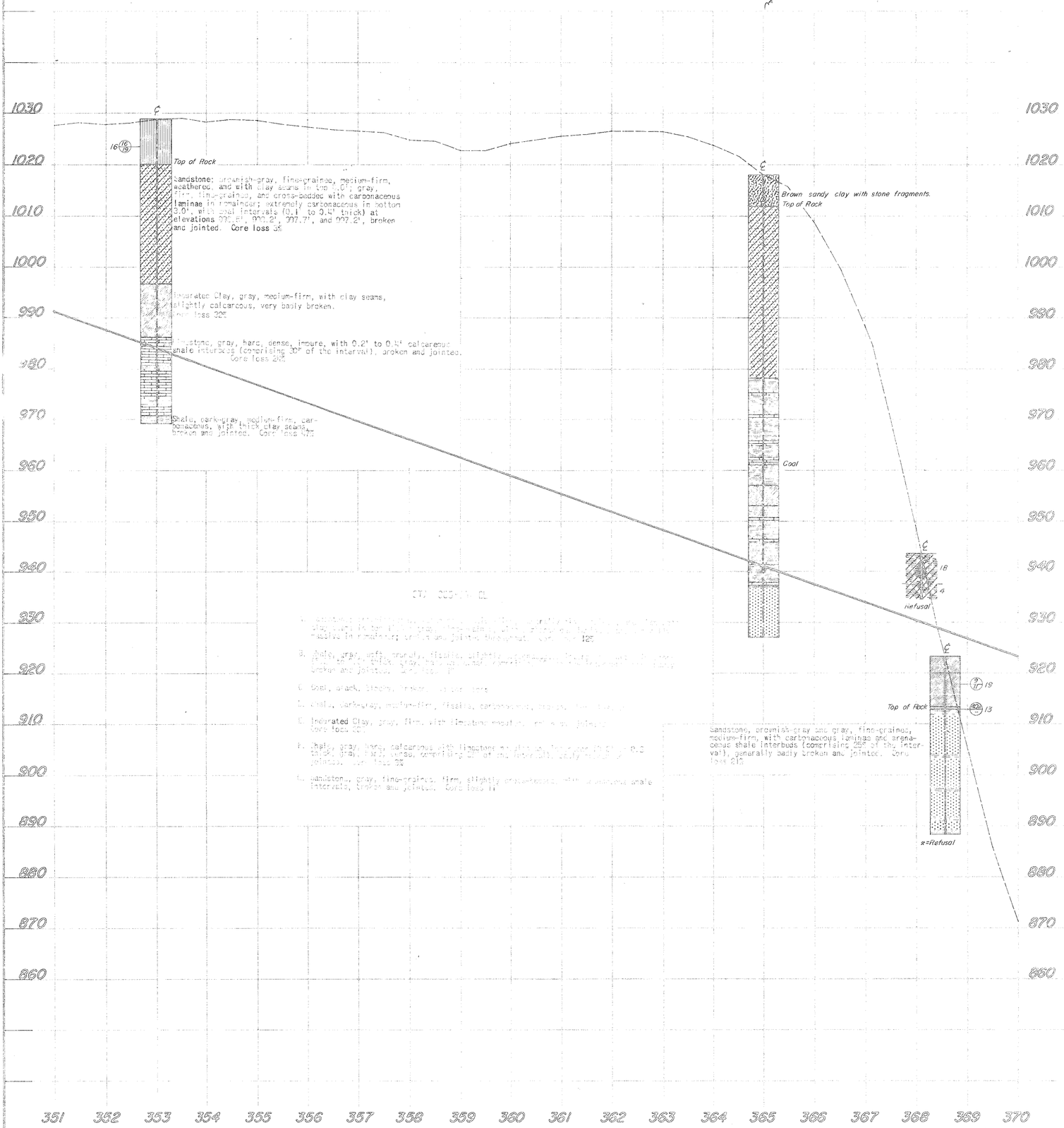
℄
19
13
Trace of coal blossom
12
W
16
B
3
Refusal

℄
19
13
10
Refusal

℄
8
14
9

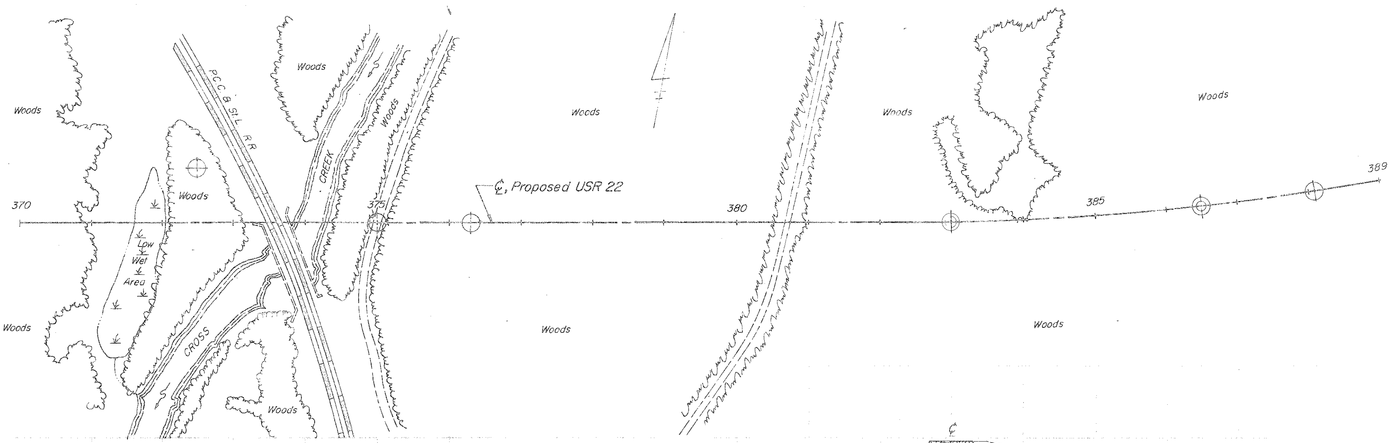


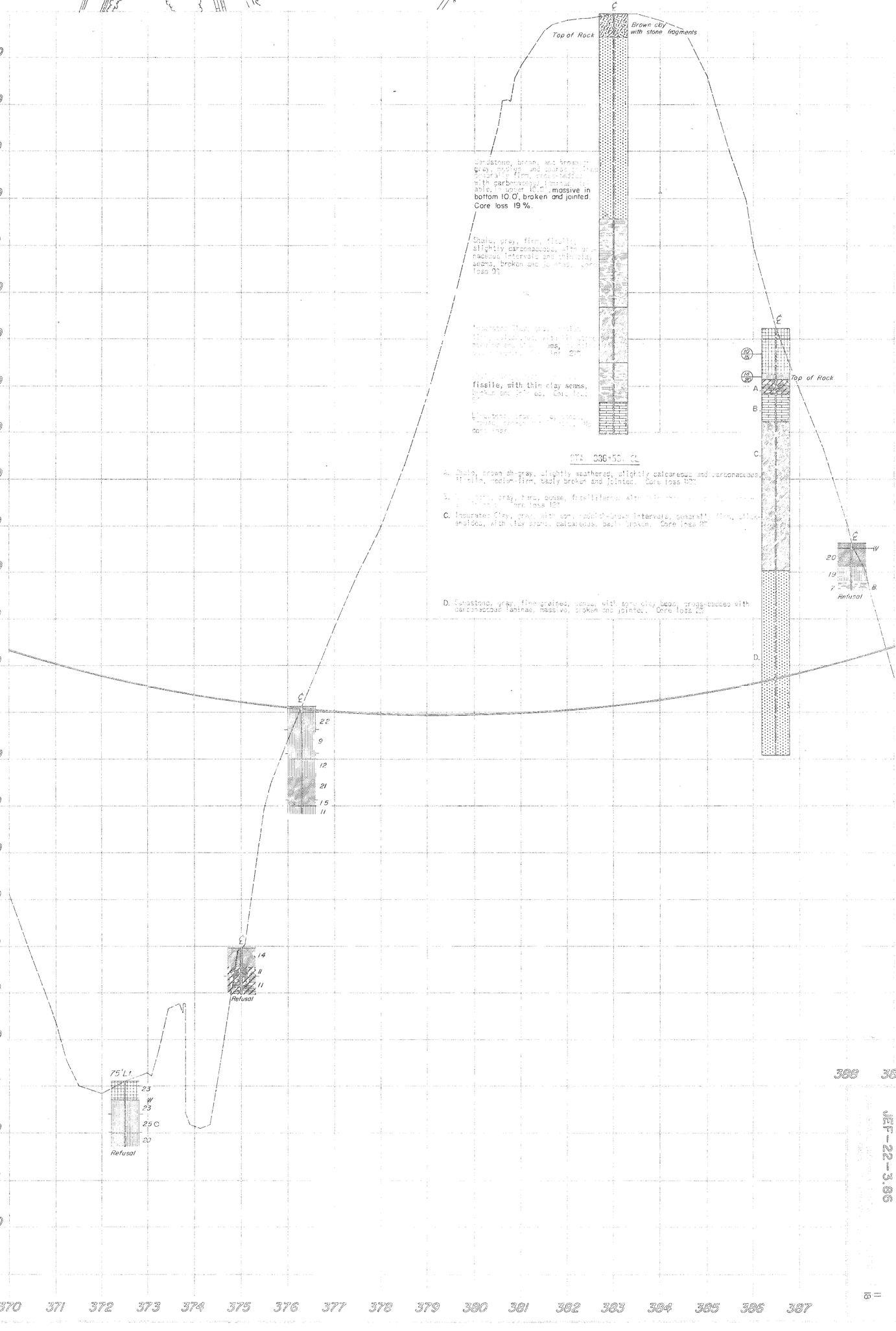
NOTE: For cross section of station 368+50, see sheet 18.



JEFFERSON COUNTY
JEF-22-3.86

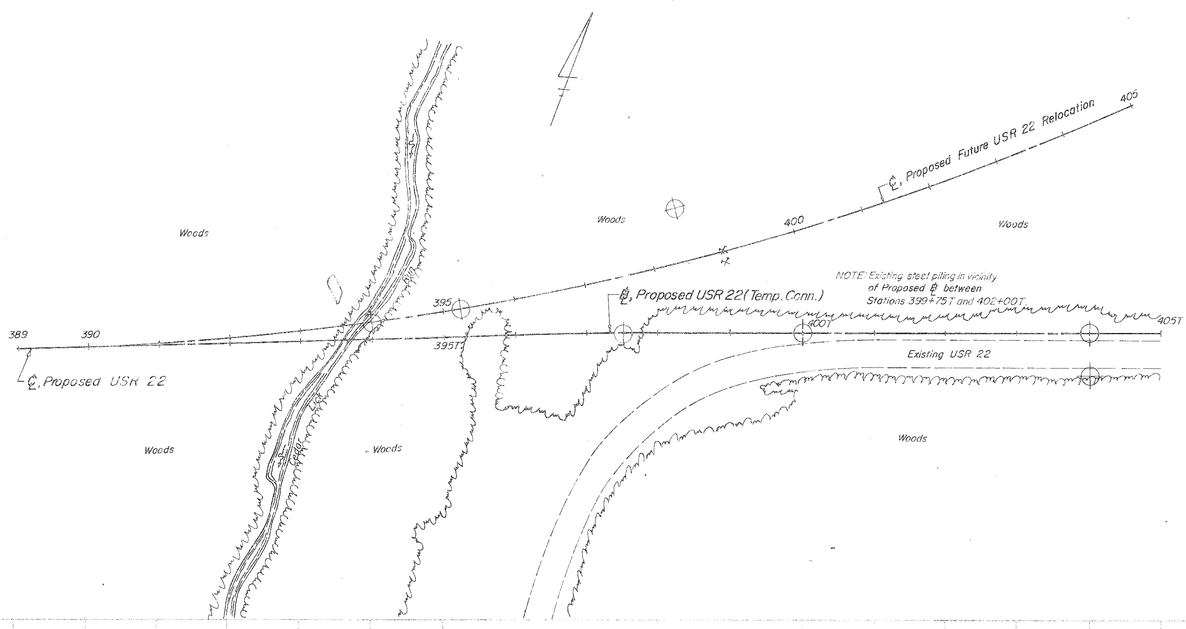
10
33





JEFFERSON COUNTY
JEF-22-3.86

11
33



990 980 970 960 950 940 930 920 910 900 890 880 870 860 850 840 830 820

Proposed grade, Future USR 22 Relocation

Approximate groundline of Temporary Connector

℄ 50'Rt.
12
W
16
Refusal
12
Refusal

℄
19
25
23
16
Refusal

℄
16
12
7
8
Refusal

"Rock Section" 110'Lt.
Clay shale

Groundline of Proposed future USR 22 Relocation

(Future USR 22 Relocation) 75'Lt.
W
30©
20
Refusal

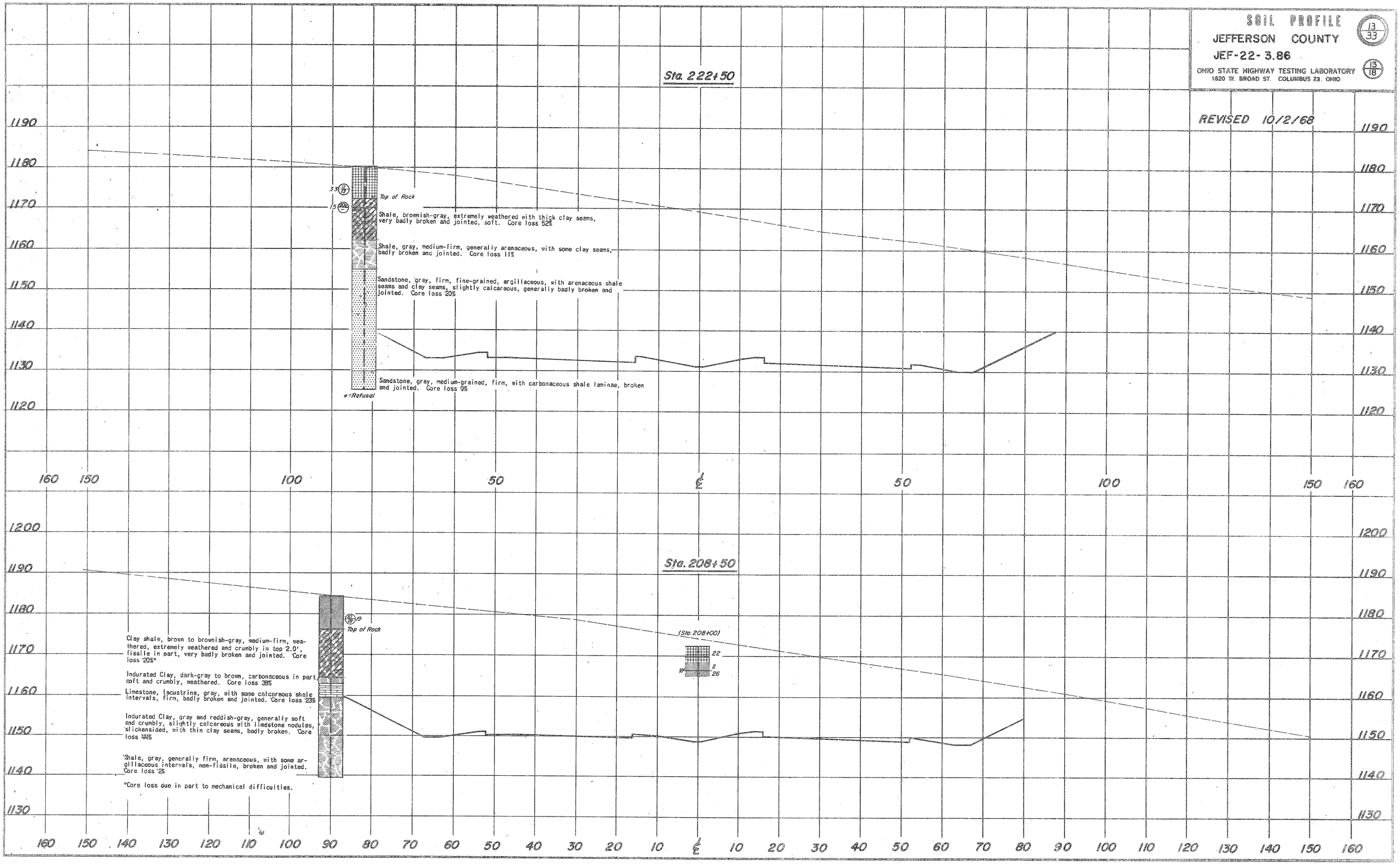
(Future USR 22 Relocation)
℄
20
Refusal

(Future USR 22 Relocation)
℄
W
16
21
15
Refusal

389 390 391 392 393 394 395 396 397 398 399 400T 401T 402T 403T 404T 405T

JEFFERSON COUNTY
JEF-22-3.86

12
33


SOIL PROFILE
JEFFERSON COUNTY
JEF-22-3.86
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO
13/33
13/18
REVISED 10/2/68
Sta. 222+50
Top of Rock
Shale, brownish-gray, extremely weathered with thick clay seams, very badly broken and jointed, soft. Core loss 52%
Shale, gray, medium-firm, generally arenaceous, with some clay seams, badly broken and jointed. Core loss 11%
Sandstone, gray, firm, fine-grained, argillaceous, with arenaceous shale seams and clay seams, slightly calcareous, generally badly broken and jointed. Core loss 20%
Sandstone, gray, medium-grained, firm, with carbonaceous shale laminae, broken and jointed. Core loss 9%
*=Refusal
Sta. 208+50
Top of Rock
(Sta. 208+00)
Clay shale, brown to brownish-gray, medium-firm, weathered, extremely weathered and crumbly in top 2.0', fissile in part, very badly broken and jointed. Core loss 20%*
Indurated Clay, dark-gray to brown, carbonaceous in part, soft and crumbly, weathered. Core loss 38%
Limestone, lacustrine, gray, with some calcareous shale intervals, firm, badly broken and jointed. Core loss 23%
Indurated Clay, gray and reddish-gray, generally soft and crumbly, slightly calcareous with limestone nodules, slickensided, with thin clay seams, badly broken. Core loss 44%
Shale, gray, generally firm, arenaceous, with some argillaceous intervals, non-fissile, broken and jointed. Core loss 2%
*Core loss due in part to mechanical difficulties.

SOIL PROFILE

JEFFERSON COUNTY

JEF-22-3.86

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

14/33

14/18

REVISED 10/2/68

Sta. 234+00

Boulders and soil

25

18

Top of Rock

Limestone, gray, hard, dense, with clay seams, broken and jointed. Core loss 34%

Shale, gray, medium-firm, pyritiferous, with thick clay seams, broken and jointed. Core loss 6%

Sandstone, brownish-gray and gray, fine-grained, firm, with carbonaceous laminae, broken and jointed. Core loss 4%

Shale, dark-gray, firm, fissile, carbonaceous, broken. No core loss.

Limestone, gray, hard, dense, broken. No core loss.

Shale, brownish-gray and gray, medium-firm, with thick clay seams, fissile, carbonaceous between elevations 1165.7' and 1162.7', arenaceous in remainder, with argillaceous fine-grained sandstone interbeds (comprising 15% of the interval), with a 1.0' thick clay seam at elevation 1157.5', broken and jointed. Core loss 73%

Sandstone, gray, fine-grained, firm, with carbonaceous laminae, broken and jointed. Core loss 3%

1220 1210 1200 1190 1180 1170 1160 1150 1140 1130 1120 1110

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

JEFFERSON COUNTY

JEF-22-3.86

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

15/33

15/18

REVISED 10/2/68

Sta. 250+00

1130
1120
1110
1100
1090
1080
1070
1060
1050
1040
1030
1020

(Sta. 249+50)
W 25 15 17
Refusal

(Sta. 249+50)
W 29 20
Refusal

(Sta. 249+50)
W 35 15
Refusal

(Sta. 249+80)
17 9
Refusal

(Sta. 249+80)
21 10
Refusal

210 200 190 180 170 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 170 180 190 200 210

JEFFERSON COUNTY
JEF-22-3.86

16
33

16
18

Sta. 301+00

1140
1130
1120
1110
1100
1090
1080
1070
1060
1050
1040
1030
1020
1010
1000
990
980

(Sta 300+80)
10
Refusal
(Hand auger)

12
Refusal
(Hand auger)

12
Refusal
(Hand auger)

(Sta 301+70)
12
Refusal
(Hand auger)

160 150 140 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 270 280 290 300

JEFFERSON COUNTY
JEF-22-3.66

17
33

17
18

Sta. 342+00

1030
1020
1010
1000
990
980
970
960
950
940
930

23
Refusal
(Hand auger)

210
Refusal
(Hand auger)

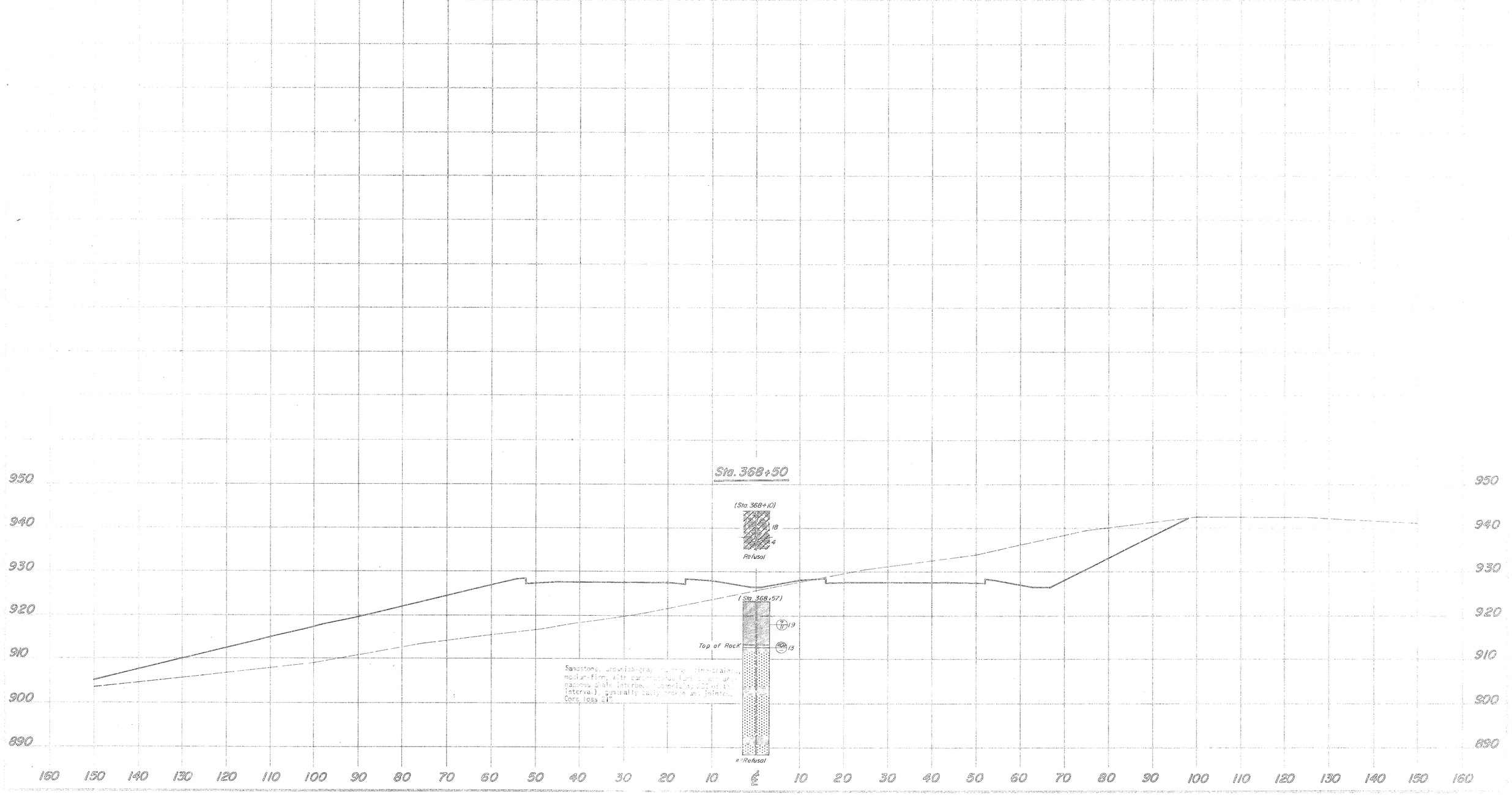
20
Refusal

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

JEFFERSON COUNTY
JEF-22-3.86

18
33

18
18



GENERAL INFORMATION

INTRODUCTION

THE PROJECT CONSISTS OF THE CONSTRUCTION OF THE EXISTING USR 22 RELOCATED INTERCHANGE, LOCATED APPROXIMATELY 1.4 MILES EAST OF THE SR 152-USR 22 INTERSECTION.

PROPOSED GRADE INDICATES THE FOLLOWING, MAXIMUM CUTS AND FILL EMBANKMENTS:

	CUTS (MAX.)	FILL EMBANKMENTS (MAX.)
EXISTING USR 22 RELOCATED	50'	2'
RAMP A	57'	115'
RAMP B	33'	36'
RAMP C	42'	140'
RAMP D	47'	33'

GEOLOGY AND OBSERVATIONS OF THE PROJECT

THE PROJECT IS LOCATED ON A FAIRLY HIGH RIDGE IN A DEEPLY DISSECTED PORTION OF THE ALLEGHENY PLATEAU, HAVING MODERATELY STEEP TO SHALLOW RESIDUAL SOILS OVERLIE SHALE, INDURATED CLAY, LIMESTONE, SANDSTONE, AND COAL OF PENNSYLVANIAN AGE. SEVERAL ROCK EXPOSURES WERE OBSERVED AND MEASURED IN THE OUTLETS IN THE VICINITIES OF RAMP A STATION 2+00 AND RAMP C STATIONS 1+00 AND 7+80.

EXPLORATION

EXPLORATORY BORINGS WERE MADE BY MEANS OF TRUCK-MOUNTED MECHANICAL SOIL AUGER AND HAND AUGER (IN AREAS OF DIFFICULT ACCESS), ON APRIL 20 AND 21, 1967. INCLUDED IN THIS REPORT ARE LOGS OF BORINGS MADE FOR THE MAINLINE INVESTIGATION.

INVESTIGATIONAL FINDINGS

MATERIALS ENCOUNTERED IMMEDIATELY BELOW PROPOSED GRADE ARE PREDOMINANTLY COMPRISED OF SHALE, LIMESTONE, AND INDURATED CLAY BEDROCK, WITH SOME SILT CLAYS (A-6a), GENERALLY HAVING MOISTURE CONTENTS BELOW THE PLASTIC RANGE.

BEDROCK IS ANTICIPATED IN THE EXCAVATION AREAS BETWEEN EXISTING USR 22 RELOCATED STATIONS 4+00 AND 12+50, RAMP A STATIONS 0+00 AND 16+95, RAMP B STATIONS 11+40 TO 15+00, RAMP C STATIONS 3+50 AND 12+04, AND RAMP D STATIONS 11+75 AND 16+00.

IN THE EMBANKMENT FOUNDATION AREAS, THE MATERIALS ENCOUNTERED WERE PREDOMINANTLY SILT CLAYS (A-6a AND A-6b) AND CLAYS (A-7-6), GENERALLY HAVING MOISTURE CONTENTS BELOW THE PLASTIC RANGE.

LEGEND FOR PROJECT AVERAGE RESULTS OF TESTS--- 25 SAMPLES TESTED

DESCRIPTION	H.R.B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
STONE FRAGMENTS WITH SAND, SILT, AND CLAY	A-2-6(1)	A-2-6	54	2	9	12	17	40	16	15	1
SANDY SILT	A-4(1)	A-4a	88	4	13	21	10	31	9	15	2
SILT AND CLAY	A-6(10)	A-6a	16	4	9	33	39	35	12	16	19
SILTY CLAY	A-6(11)	A-6b	0	2	0	34	47	30	17	10	3
CLAY	A-7-6(14)	A-7-6	11	1	3	26	53	47	22	13	7
COAL BLOSSOM				VISUAL CLASSIFICATION							-
COAL				VISUAL CLASSIFICATION							-
WEATHERED SHALE				VISUAL CLASSIFICATION							-
WEATHERED SANDSTONE				VISUAL CLASSIFICATION							1
INDURATED CLAY				VISUAL CLASSIFICATION							-
SHALE				VISUAL CLASSIFICATION							14
SANDSTONE				VISUAL CLASSIFICATION							-
LIMESTONE				VISUAL CLASSIFICATION							-
VARIOUS OTHER MATERIALS				VISUAL CLASSIFICATION							-

TOPSOIL=X'=APPROXIMATE DEPTH.

AUGER BORING-PLAN VIEW.

CORE BORING-PLAN VIEW.

AUGER BORING PLOTTED TO VERTICAL SCALE ONLY.

CORE BORING PLOTTED TO VERTICAL SCALE ONLY.

W — FREE WATER.

B — INDICATES BROKEN ROCK INTERVAL.

NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT. E. 15

SOIL PROFILE

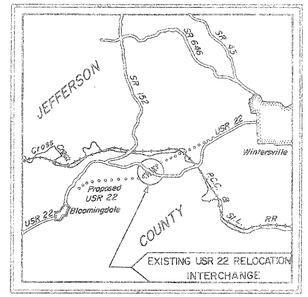
JEFFERSON COUNTY
JEF-22-3.86
SUPPLEMENT

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

12/33

1/5

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 CONSTRUED AS A PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT.



LOCATION MAP

Recon - J.S.M. - 4/14/67

Drilling - T.R.S. - 4/20/67 and 4/21/67

Drafting - D.E.M., R.A.W. - 5/23/67

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.
PROPOSED USR 22												
301+00	CL	0.0	-3.0	45	7	10	18	23	36	12	12	A-6a
301+00	150'Rt	0.0	-4.5	65	6	6	12	11	29	11	12	A-2-6
302+30	CL	0.0	-5.0	(73	3	6	11	7	26	8	5)	VISUAL
				BROWN WEATHERED SHALE								
		5.0	-10.0	(73	2	5	6	8	26	8	4)	VISUAL
				BROWN WEATHERED SHALE								
		10.0	-15.0	(10	9	9	22	15	25	5	5)	VISUAL
				BROWN WEATHERED CLAY SHALE								
307+00	60'Lt	0.0	-6.0	55	2	6	19	19	35	11	11	A-6a
		6.0	-9.0	12	8	12	37	31	38	11	16	A-6a
		9.0	-14.0	30	1	5	45	19	34	14	10	A-6a
		14.0	-16.0	(54	1	5	26	14	31	11	6)	VISUAL
				BROWN WEATHERED SHALE								
313+00	CL	0.0	-6.0	22	5	9	22	35	36	12	16	A-6a
		6.0	-12.0	(55	7	15	24	10	22	6	6)	VISUAL
				BROWN WEATHERED CLAY SHALE FRAGMENTS W/SOIL								
		12.0	-16.0	22	6	13	33	26	30	9	15	A-4a
320+00	50'Rt	0.0	-5.0	0	2	10	25	60	51	25	20	A-7-6
		5.0	-6.0	0	4	21	28	46	34	15	16	A-6a
		6.0	-9.0	(9	11	15	48	18	29	7	9)	VISUAL
				GRAY WEATHERED SHALE								
325+00	CL	0.0	-5.0	0	2	3	51	44	38	15	20	A-6b
		5.0	-8.0	(30	1	3	24	33	33	10	11)	VISUAL
				BROWN WEATHERED SHALE								
EXISTING USR 22 RELOCATED												
-1+50	12'Lt	0.0	-6.0	17	5	7	34	37	40	15	14	A-6a*
		6.0	-8.5	8	2	6	17	67	46	18	17	A-7-6

STATION & OFFSET		DEPTH FROM	TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
3+00	12'Lt	0.0	-5.0	37	5	18	21	10	23	8	11	A-4a
		5.0	-11.0	20	3	9	29	34	37	11	14	A-6a*
8+50	12'Lt	0.0	-5.0	6	4	12	35	45	37	16	21	A-6a
		5.0	-8.0	5	3	18	28	41	32	11	16	A-6a
15+00	CL	0.0	-5.0	(13	4	39	10	25	NP	NP	8)	VISUAL
				BROWN WEATHERED SANDSTONE								
19+00	CL	0.0	-6.0	64	2	4	10	17	40	16	15	A-2-6
		6.0	-12.0	NO	NO	NO	16	33	45	14	12	A-6a
		12.0	-15.5	12	4	5	29	35	38	11	15	A-7-6
		15.5	-18.5	0	1	5	29	35	38	11	15	A-6a
20+50	CL	0.0	-3.0	14	5	9	34	30	32	15	31	A-6a
		3.0	-5.0	15	3	9	30	43	32	NP	15	A-6a
		5.0	-10.0	(23	3	21	15	13	NP	NP	21)	VISUAL*
				BLACK COAL BLOSSOM								
		10.0	-11.0	50	4	8	20	18	34	10	13	A-4a*
		11.0	-12.0	12	5	7	38	38	34	14	13	A-6a*
		12.0	-20.0	(12	3	7	22	42	25	7	9)	VISUAL
				GRAY BROKEN SHALE								
22+50	15'Lt	1.0	-3.5	14	4	13	26	30	32	11	10	A-6a
25+40	25'Lt	0.0	-5.0	44	2	10	25	19	29	11	8	A-6a*
		5.0	-6.5	24	4	9	27	36	35	12	15	A-6a
RAMP A												
5+00	BL	0.0	-4.0	0	2	3	35	60	48	21	23	A-7-6
		4.0	-6.0	19	1	2	35	43	37	15	11	A-6a
9+80	BL	0.0	-3.0	(54	2	11	17	16	27	9	26)	VISUAL
				GRAY BROKEN SHALE								
RAMP B												
11+70	BL	0.0	-5.0	16	4	7	32	41	54	12	12	A-6a
		5.0	-11.5	0	1	10	51	38	30	11	20	A-6a
		11.5	-13.0	6	1	12	33	45	32	11	12	A-6a

STATION & OFFSET		DEPTH FROM	TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
16+50	BL	0.0	-4.0	14	3	3	34	41	24	11	13	A-6a*
		4.0	-6.0	(0	5	23	36	36	NP	NP	12)	VISUAL
				BLACK COAL BLOSSOM								
		6.0	-10.0	0	3	15	42	39	31	12	11	A-6a
21+00	BL	0.0	-4.0	0	1	3	26	71	58	25	20	A-7-6
		4.0	-9.0	(42	4	8	19	29	31	10	8)	VISUAL
				GRAY BROKEN SHALE								
		9.0	-12.0	(31	2	13	20	21	26	6	8)	VISUAL
				BROWN BROKEN SHALE								
RAMP C												
0+80	BL	0.0	-4.0	0	1	1	26	73	58	30	20	A-7-6
		4.0	-5.0	0	1	5	30	66	42	13	17	A-7-6
3+50	BL	0.0	-3.5	21	4	8	34	33	40	17	23	A-6b
11+00	BL	0.0	-6.0	0	1	10	32	57	40	17	15	A-6b
		6.0	-8.0	22	5	11	21	33	33	15	12	A-6a
RAMP D												
16+50	BL	0.0	-6.0	7	2	5	35	50	32	17	12	A-6b*
		6.0	-10.0	27	1	2	17	53	43	21	12	A-7-6

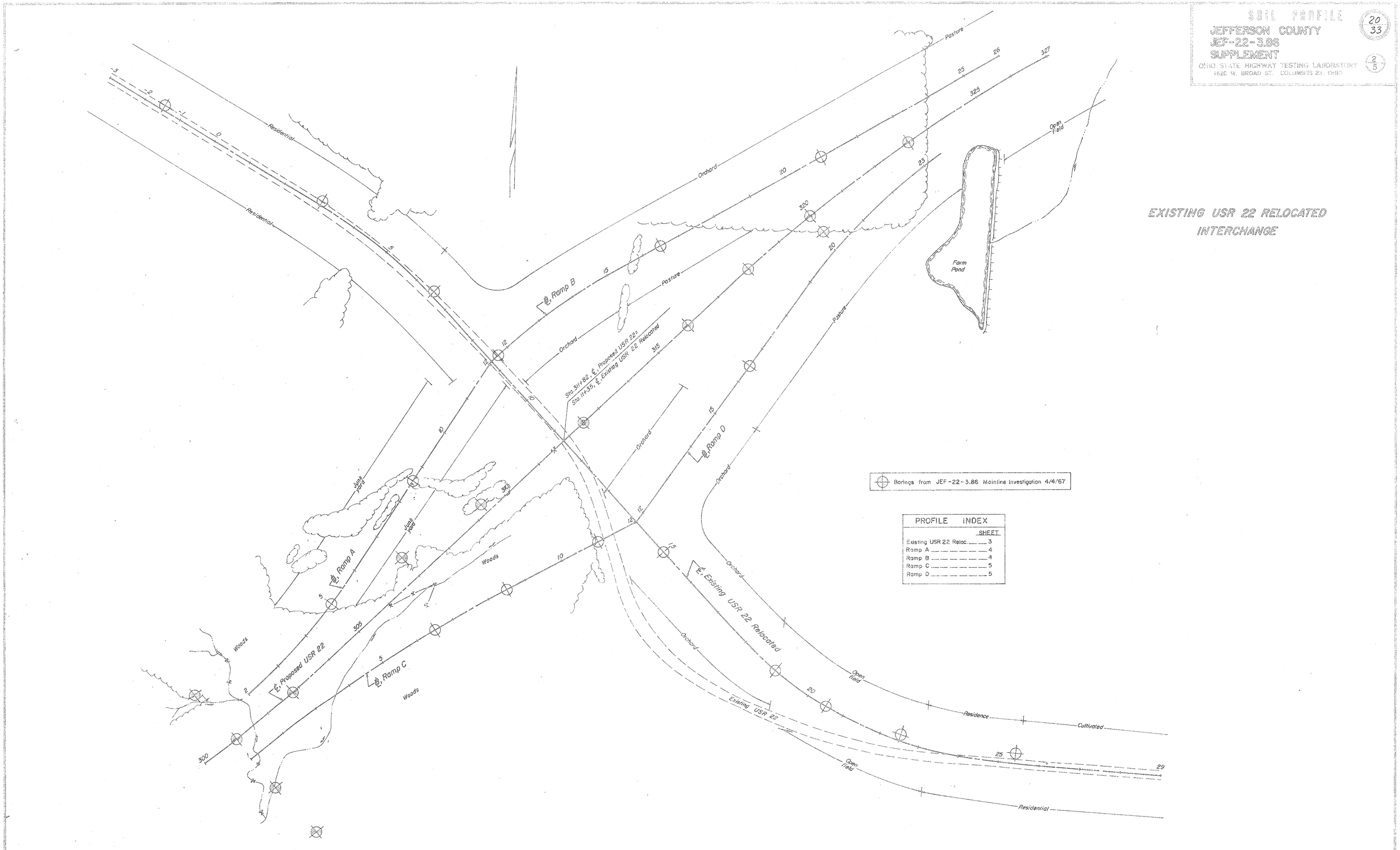
SOIL PROFILE

JEFFERSON COUNTY
JEF-22-3.86
SUPPLEMENT

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

20/33

2/5



SOIL PROFILE

JEFFERSON COUNTY
JEF-22-3.86
SUPPLEMENT

OHIO STATE HIGHWAY TESTING LABORATORY
1600 W. BROAD ST. COLUMBUS 23, OHIO

21
33

1190 1180 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060

12'Lt. 14 17 Refusal

12'Lt. 11 14 Refusal

12'Lt. 21 16 Refusal

(Sta. 312+50.5 Proposed USR 22)
68'Lt.
Brown clay
Top of Rock

℄ Ramps A and B

℄ Ramps C and D

℄ 8 Refusal

℄ 15 11 16 13 Refusal

℄ 31 19 19 13 B 9

15'Lt. TS-1.0' W 19 Refusal (Hand auger)

25'Lt. 8 W 19 Refusal

A. Shale, brownish-gray, soft and crumbly, slightly arenaceous, fissile, with thick clay seams, with some fine-grained sandstone beds, generally very badly broken and jointed. Core loss 18%.

B. Limestone, gray, hard, with shale intervals, generally very badly broken and jointed. No core loss.

C. Indurated Clay, gray, crumbly, with limestone nodules, calcareous, very badly broken and jointed. Core loss 10%.

D. Limestone, gray, hard, dense, with clay seams, badly broken and jointed. No core loss.

E. Indurated Clay, mottled gray and red, soft and crumbly, calcareous, with limestone nodules, slickensided, very badly broken and jointed. Core loss 40%

F. Shale, gray and brownish-gray, firm, generally arenaceous, with some argillaceous intervals, broken and jointed. Core loss 3%.

G. Coal, black, blocky, broken, bituminous. No core loss.

H. Shale, dark-gray, firm, carbonaceous, fissile, broken and jointed. No core loss.

EXISTING USR 22 RELOCATED

-3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

SOIL PROFILE

JEFFERSON COUNTY
JEF-22-3.86
SUPPLEMENT

OHIO STATE HIGHWAY TESTING LABORATORY
1600 W. BROAD ST. COLUMBUS 23, OHIO

22/33

4/5

1180 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050 1040 1030 1020 1010

℄, Existing USR 22 Relocation

℄ 12 20 16 Refusal

(Sta. 312+50, ℄, Proposed USR 22, 262' Rt.

Brown clay
Top of Rock

A. B. C. D. E. F. G. H.

NOTE: For complete log of boring, see sheet 3.

℄ 8 Refusal

(Sta. 307+00, 60 Lt., Proposed USR 22) 82' Rt. 11 16 10 6 Refusal

℄ 23 11 Refusal

(Sta. 302+80, ℄, Proposed USR 22) 70' Rt. 5 4 5 Refusal

Rock Section 3' Lt. to 93' Lt.

Sandstone, medium - to thick-bedded, firm

RAMP A

℄ 19 28 17

℄ 20 8 8 8 8 Refusal

(Sta. 323+00, ℄, Proposed USR 22) 74' Rt. 20 11 Refusal

RAMP B

2 3 4 5 6 7 8 9 10 11 12 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

SOIL PROFILE

JEFFERSON COUNTY
JEF-22-3.86
SUPPLEMENT

OHIO STATE HIGHWAY TESTING LABORATORY
1600 W. BROAD ST. COLUMBUS 23, OHIO

23
33

5
5

1130 1190
1120 1180
1110 1170
1100 1160
1090 1150
1080 1140
1070 1130
1060 1120
1050 1110
1040 1100
1030 1090
1020 1080
1010 1070
1000 1060
990 1050
980

℄, Existing USR 22 Relocated

(Sta. 312+50, ℄, Proposed USR 22)
249' Lt.
Brown clay
Top of Rock
A.
B.
C.
D.
E.
F.
G.
H.
NOTE: For complete log of boring, see sheet 3.

℄
15
12
Refusal

℄
23
Refusal (Hand auger)

(Sta. 302+80, ℄, Proposed USR 22)
65' Lt.
5
4
5
Refusal

℄
20
17
Refusal (Hand auger)

Rock Section
60' Lt. to 105' Lt.
Shaly sandstone
Sandy shale grading to shaly sandstone

(Sta. 301+00, ℄, Proposed USR 22)
58' Lt.
12
Refusal (Hand auger)

(Sta. 301+00, 150' Rt. Proposed USR 22)
92' Rt.
12
Refusal (Hand auger)

Rock Section in gully
27' Rt. to 282' Rt.
Clay shale

℄
19
12

(Sta. 316+00, ℄, Proposed USR 22)
141' Lt.
16
15
Refusal
Brown weathered shale fragments with soil

(Sta. 320+00, 50' Rt., Proposed USR 22)
52' Lt.
20
18
9
Refusal

(Sta. 323+00, ℄, Proposed USR 22)
69' Lt.
20
11
Refusal
End

RAMP C

RAMP D

1 2 3 4 5 6 7 8 9 10 11 12 12 13 14 15 16 17 18 19 20 21 22 23 24

TE - 118
600 - 4 - 66

JEF-22-3.86

24
33
1
2

GEOLOGY OF THE SITE
THE CULVERT SITE IS LOCATED ON AN UNGLACIATED PORTION OF THE DISSECTED ALLEGHENY PLATEAU, IN AN AREA WHERE THIN RESIDUAL SOILS OVERLIE SANDSTONE AND SHALE BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION
THE EXPLORATION CONSISTED OF THREE DRIVE SAMPLE-CORE BORINGS, MADE ON OCTOBER 11 AND 12, 1967.

INVESTIGATIONAL FINDINGS
THE BORINGS DISCLOSED MEDIUM-DENSE SILTS, SANDS, AND GRAVELS TO BEDROCK SURFACE, ENCOUNTERED AT 3 TO 13-FOOT DEPTHS, ELEVATIONS 840 TO 833 FEET. THE BORINGS WERE TERMINATED AT 20 AND 25-FOOT DEPTHS, ELEVATIONS 824 AND 821 FEET, AFTER PENETRATING 12 TO 15 FEET OF BEDROCK.

IF IT IS THE INTENTION TO FOUND THE CULVERT ON BEDROCK, IT IS CONSIDERED ADVISABLE TO INSPECT THE EXCAVATION IN THE FIELD IN ORDER TO INSURE THAT BEDROCK OCCURS OVER THE ENTIRE LENGTH OF THE EXCAVATION.

UNCONFINED COMPRESSION TESTS ON SIMILAR SHALE AND SANDSTONE BEDROCK INDICATE CRUSHING STRENGTHS OF THE ORDER OF 50 AND 100 TONS PER SQUARE FOOT, RESPECTIVELY.

LEGEND

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- O — 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 10-12-67 | Sampler Type SS | Dia. 1 3/8" | Water Elev. —
Date Completed 10-12-67 | Casing: Length 8.5' | Dia. 3 1/2"
Boring No. B-2 | Station & Offset 394+56, 223' Lt. | Surface Elev. 848.5'

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.
848.5	0														
	2														
	4														
843.5	5	11/11			Brown Silty Gravelly Sand	1	32	9	36	9	14	NP	NP	15	A-2-4
840.1	8		3.6	3.4											
	10				TOP OF ROCK										
	12				Shale, brownish-gray, medium-firm, weathered, with clay seams and badly broken in upper 4.0'; firm, dark-gray, carbonaceous, fissile, broken and jointed in remainder. Core Loss 1%.										
832.7	14		4.6	0.4											
	16														
	18				Sandstone, gray, firm, fine and medium-grained, slightly micaceous, generally massive, broken and jointed. No Core Loss.										
828.5	20		5.0	0.0	BOTTOM OF BORING										

LOG OF BORING

Date Started 10-11-67 | Sampler Type SS | Dia. 1 3/8" | Water Elev. —
Date Completed 10-11-67 | Casing: Length 10' | Dia. 3 1/2"
Boring No. B-5 | Station & Offset 394+27, 251' Lt. | Surface Elev. 845.2'

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.
845.2	0														
	2														
841.2	4	7/9			Brown Silty Sandy Gravel	1	47	4	23	11	16	NP	NP	11	A-2-4
	6														
836.2	8				TOP OF WEATHERED ROCK										
	10														
834.2	12	26/20			Gray weathered shale (Driller's Description) TOP OF FIRM ROCK										
832.7	14		3.7	0.3	*Shale, mottled gray and brown, medium-firm, carbonaceous in part, fissile, very badly broken										
	16				Sandstone, gray, firm, fine-grained, slightly micaceous, generally massive, broken. Core Loss 8%.										
827.7	18		4.8	0.2											
	20														
	22				Shale, gray, firm, slightly carbonaceous, broken and jointed. No Core Loss.										
	24		5.0	0.0											
821.2	26				BOTTOM OF BORING										

*and jointed. Core Loss 20%.

LOG OF BORING

Date Started 10-12-67 | Sampler Type SS | Dia. 1 3/8" | Water Elev. —
Date Completed 10-12-67 | Casing: Length 13' | Dia. 3 1/2"
Boring No. B-8 | Station & Offset 394+03, 223' Rt. | Surface Elev. 845.5'

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.
845.5	0														
	2														
	4														
840.5	6	8/6			Brown Silty Sandy Gravel	1	50	4	22	11	13	NP	NP	9	A-2-4
	8														
835.5	10														
	12				Brown Clayey Sand and Stone Fragments	2	35	7	22	13	23	29	12	10	A-6a
832.5					TOP OF ROCK										
	14		2.0	0.0	Sandstone, brown, firm, medium-grained, slightly micaceous, broken and jointed. No Core Loss.										
	16														
828.5	18		3.3	1.7											
	20				Shale, dark-gray, firm, carbonaceous, fissile, with clay seams, broken and jointed. Core Loss 25%.										
	22														
	24		4.7	0.3											
820.5	26				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

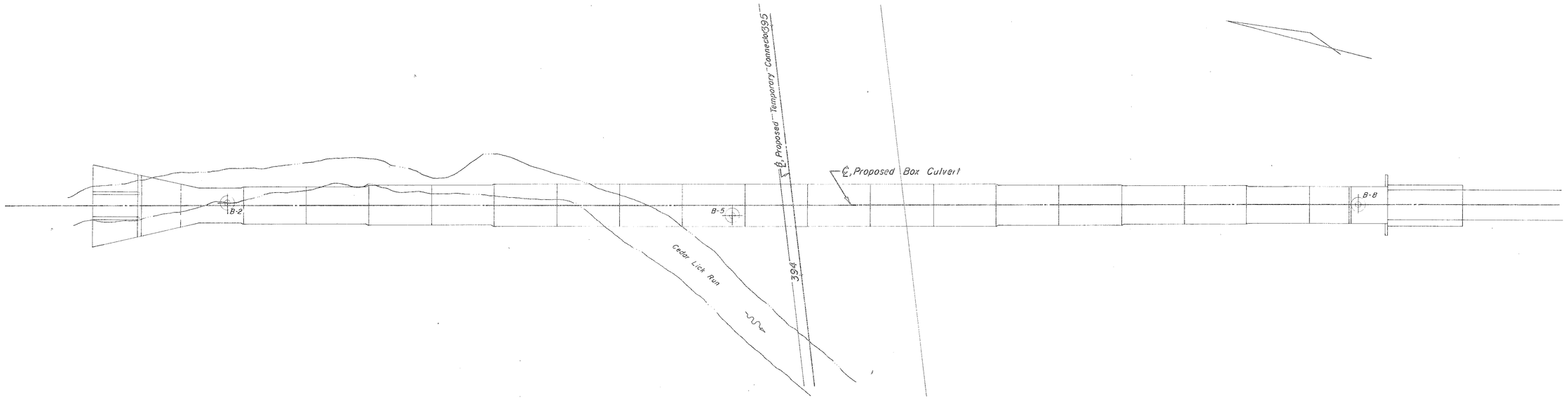
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. JEF-22-
BOX CULVERT
SEC. JEF-22-3.86

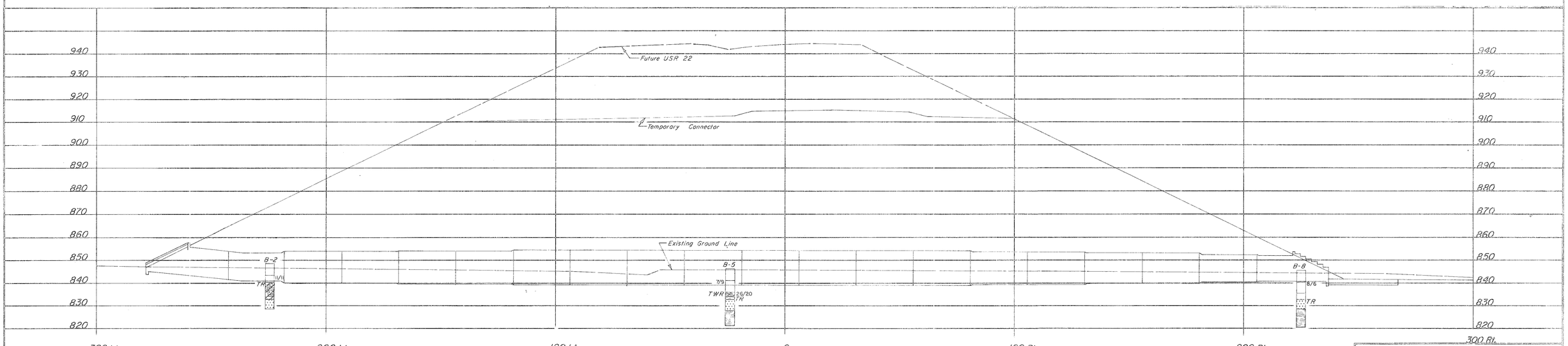
CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	11/7/67

TE - 119
1000 - 4 - 65

25
33

JEF-22-3.86





SCALE: 1" = 20'

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. JEF - 22 -
BOX CULVERT
SEC. JEF - 22 - 3.86

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
J.E.C.	L.N.L.	R.D.R.	11/7/67

TE - 118
600 - 4 - 66

JEFFERSON COUNTY
JEF - 22 - 3.86

GEOLOGY OF THE SITE
THE STRUCTURE SITE IS LOCATED ON AN UPLAND PORTION OF THE DISSECTED ALLEGHENY PLATEAU, IN AN AREA WHERE THIN TO MODERATELY DEEP RESIDUAL SOILS OVERLIE SHALE, SANDSTONE, LIMESTONE, AND ASSOCIATED COAL BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION
THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS, MADE ON AUGUST 24 AND 25 AND BETWEEN SEPTEMBER 6 AND 8, 1967. INCLUDED IN THIS REPORT IS THE LOG OF A BORING MADE FOR THE ROADWAY INVESTIGATION OF THE PROJECT.

INVESTIGATIONAL FINDINGS
BORINGS DISCLOSE THAT ALL SUBSTRUCTURE UNITS WILL BE FOUNDED ON BEDROCK. COAL WAS ENCOUNTERED IN BORING B-5 AT ELEVATION 1118 FEET AND IN BORING B-8 AT ELEVATION 1117 FEET. THE BORINGS WERE TERMINATED AT 30 TO 70-FOOT DEPTHS, ELEVATIONS 1152 TO 1112 FEET.

UNCONFINED COMPRESSION TESTS FOR 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.
- ▽Z — 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

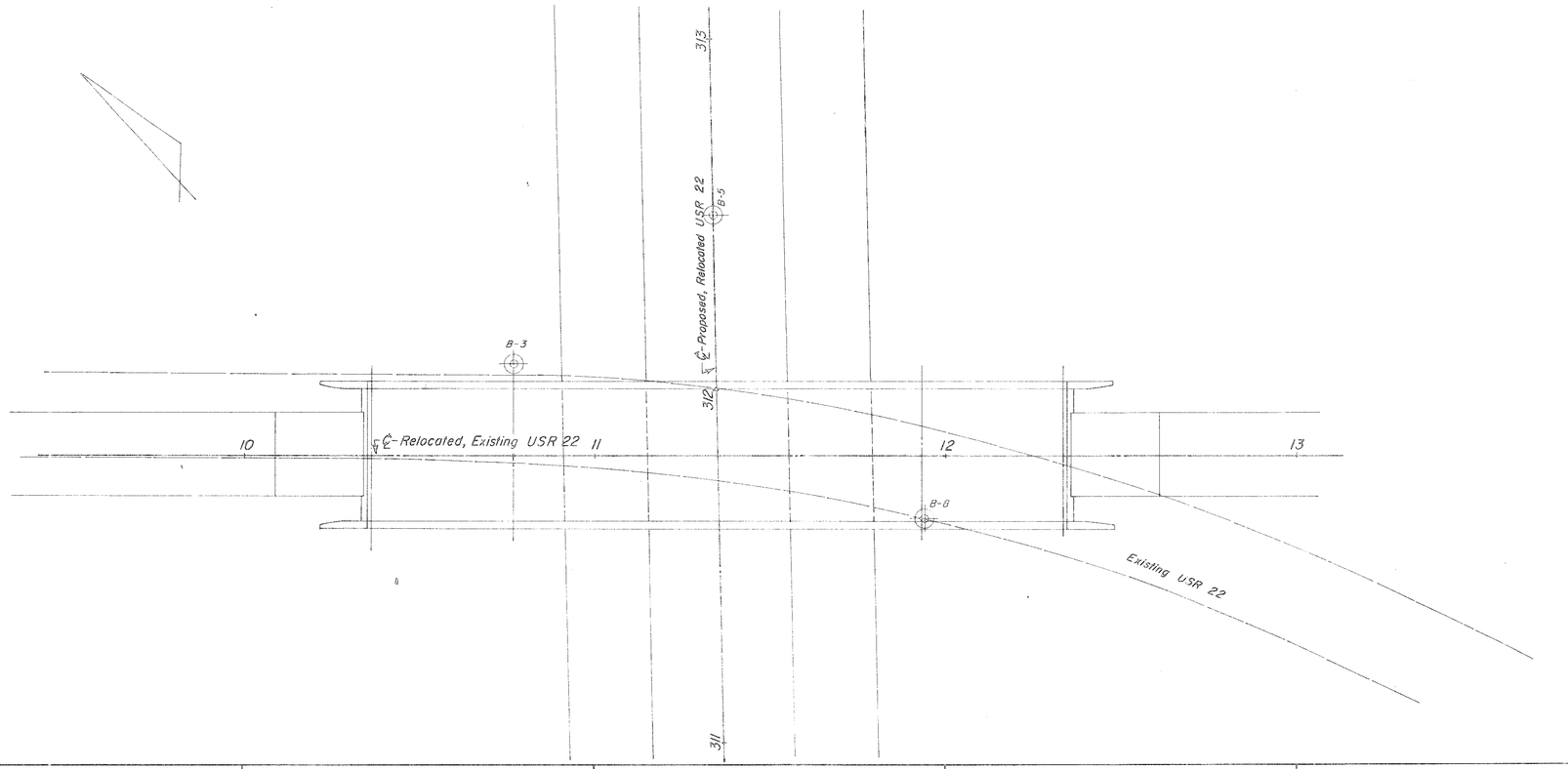
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
8"	3"	2.0mm (No. 10 sieve)	0.42mm (No. 40 sieve)	0.074mm (No. 200 sieve)	0.005mm	

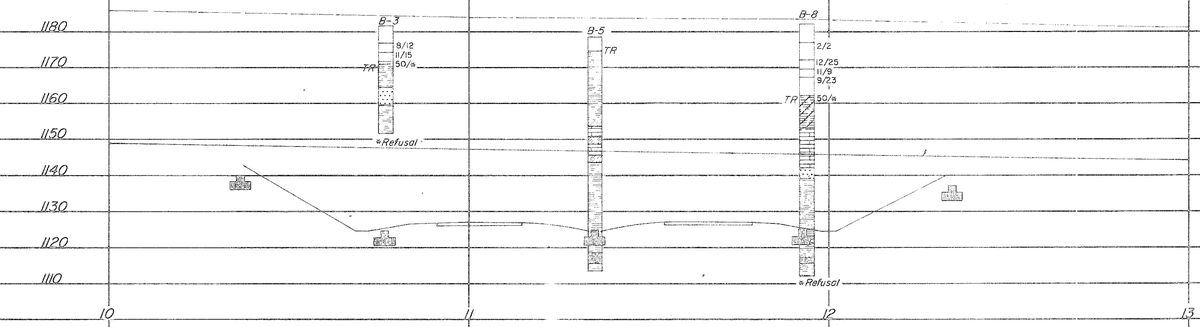
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. JEF-22-0590
UNDER EXISTING USR 22
SEC. JEF-22-3.86

CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	10/11/67





SCALE: 1" = 20'

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. JEF-22-0590
UNDER EXISTING USR 22
SEC. JEF-22-3.86

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
J.E.C.	L.N.L.	R.D.R.	10/11/67

LOG OF BORING

Date Started 8-24-67 | Sampler Type SS | Dia 1 3/8" | Water Elev. —
Date Completed 8-25-67 | Casing: Length 10' | Dia 3 1/2"
Boring No. B-3 | Station & Offset 10+77.0, 26' Lt. (Rear Pier) | Surface Elev. 1181.5'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1181.5	0														
	2														
	4														
1176.5	6	8/12			Brown Clayey Silt	1	9	1	7	35	48	36	9	23	A-4a
1176.0	8														
1173.5	10	11/15			Brown Gravelly Clay	2	26	1	4	22	47	38	13	18	A-6a
1171.0	12	50/0			Brown Gravelly Sandy Silt	3	23	9	14	31	23	NP	NP	15	A-4a
	14				TOP OF ROCK										
	16		4.2	0.3	Shale, gray, medium-firm, with clay seams, fissile in part, broken and jointed. Core Loss 4%.										
1166.3	18		5.0	0.0	Sandstone, gray, firm, fine-grained, cross-bedded, broken. No Core Loss.										
1159.6	22		4.3	0.7	Shale, gray, medium-firm, with clay seams, badly broken in part, broken and jointed in remainder. Core Loss 6%.										
	26														
	28		4.8	0.2											
1151.5	30				BOTTOM OF BORING										

*Refusal

LOG OF BORING

Date Started 2-15-67 | Sampler Type SS | Dia 1 3/8" | Water Elev. —
Date Completed 2-16-67 | Casing: Length 5' | Dia 3 1/2"
Boring No. B-5 | Station & Offset 11+34, 68' Lt. (Center Pier) | Surface Elev. 1178.5'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1178.5	0														
	2				Brown Clay										
1174.5	4				TOP OF ROCK										
	6														
	8														
	10		3.9	1.1											
	12														
	14		3.0	2.0	Shale, brownish-gray, soft and crumbly, slightly arenaceous, fissile, with thick clay seams, with some fine-grained sandstone beds, generally very badly broken and jointed. Core Loss 18%.										
	16														
	18		5.0	0.0											
	20														
	22														
	24		4.6	0.4											
1153.6	26														
1150.5	28		4.8	0.2	Limestone, gray, hard, with shale intervals, generally very badly broken and jointed. No Core Loss.										
1148.5	30				Indurated Clay, gray, crumbly, with limestone nodules, calcareous, very badly broken and jointed. Core Loss 10%.										
1145.5	32		4.2	0.8	Limestone, gray, hard, dense, with clay seams, badly broken and jointed. No Core Loss.										
1143.5	34				Indurated Clay, mottled gray and red, soft and crumbly, calcareous with limestone nodules, slickensided, very badly broken and jointed. Core Loss 40%.										
	36														
	38		4.2	0.8											
	40														
	42														
	44		5.0	0.0											
	46														
	48														
	50		9.6	0.4	Shale, gray and brownish-gray, firm, generally arenaceous, with some argillaceous intervals, broken and jointed. Core Loss 3%.										
	52														
	54														
	56														
	58														
1118.5	60		9.6	0.4											
	62				Coal, black, blocky, broken, bituminous. No Core Loss.										
1115.5	64				Shale, dark-gray, firm, carbonaceous, fissile, broken and jointed. No Core Loss.										
1113.5					BOTTOM OF BORING										

LOG OF BORING

Date Started 9-6-67 | Sampler Type SS | Dia 1 3/8" | Water Elev. —
Date Completed 9-8-67 | Casing: Length 15' | Dia 3 1/2"
Boring No. B-8 | Station & Offset 11+96, 18' Rt. (Forward Pier) | Surface Elev. 1182.1'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
1182.1	0														
	2														
	4														
1177.1	6	2/2			Brown Gravelly Sandy Silt	1	24	10	22	22	22	26	8	17	A-4a
	8														
1172.1	10	12/25			Brown Sandy Gravelly Silt	2	25	4	11	35	25	28	8	16	A-4a
1169.6	12														
1167.1	14	11/9			Brown Sandy Gravelly Silt	3	36	9	11	28	16	29	9	6	A-4a
	16	9/23			Brownish-Gray Sandy Silt with Stone Fragments	4	30	12	14	27	17	28	10	11	A-4a
1162.1	18														
	20	50/4			TOP OF ROCK										
	22		3.0	1.4	Shale, brownish-gray, medium-firm, weathered, carbonaceous and fissile in part. Core Loss 38%.										
	24														
1153.1	26		3.2	1.8											
	28														
	30														
	32		3.6	1.4	Limestone, gray, hard, dense, with shale intervals. Core Loss 21%.										
	34														
	36														
	38		4.1	0.9											
1142.1	40														
	42				Sandstone, gray, firm, very fine-grained, broken. Core Loss 3%.										
1139.1	44		4.9	0.3											
	46														
	48		5.0	0.0											
	50														
	52		5.0	0.0	Shale, gray, firm, arenaceous, broken. No Core Loss.										
	54														
	56														
	58		5.0	0.0											
	60														
1121.1	62														
	64		5.0	0.0	Shale, dark-gray, firm, carbonaceous, fissile, broken. No Core Loss.										
1117.1	66														
1115.6	68				Coal, black, blocky, broken. No Core Loss.										
	68		4.5	0.5	Shale, dark-gray, firm, carbonaceous, fissile, arenaceous in bottom 1.0', broken and jointed. Core Loss 11%.										
1112.1	70				BOTTOM OF BORING										

*Refusal

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. JEF-22-0590
UNDER EXISTING USR 22
SEC. JEF-22-3.86

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
S.A.J.	R.C.	R.D.R.	10/11/67

TE - 118
600 - 4 - 66

29
33

JEFFERSON COUNTY
JEF-22-3.86
1
5

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON A PORTION OF THE DISSECTED ALLEGHENY PLATEAU, IN AN AREA BEING INCISED BY CROSS CREEK. THIN RESIDUAL SOILS (ON THE VALLEY WALLS) AND MODERATELY DEEP ALLUVIUM (IN THE VALLEY) OVERLIE SHALE AND SANDSTONE BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF THREE DRIVE SAMPLE-CORE BORINGS AND ONE CORE BORING, MADE ON SEPTEMBER 12 AND 13, AND BETWEEN OCTOBER 17 AND 24, 1967, AND EIGHT MACHINE-DRIVEN DRIVE ROD PENETRATION TESTS AND THREE HAND PROBES, MADE ON AUGUST 2 AND BETWEEN OCTOBER 19 AND 24, 1967. INCLUDED IN THIS REPORT IS THE LOG OF A BORING MADE FOR THE SOIL PROFILE INVESTIGATION.

INVESTIGATIONAL FINDINGS

BORINGS B-2, B-20, AND B-21 (ON THE VALLEY WALLS) DISCLOSED DENSE SILTS AND STONE FRAGMENTS TO BEDROCK SURFACE, ENCOUNTERED AT 7 TO 11-FOOT DEPTHS, ELEVATIONS 913 TO 834 FEET. THE BORINGS WERE TERMINATED AT 30 TO 40-FOOT DEPTHS, ELEVATIONS 888 TO 804 FEET AFTER PENETRATING 25 TO 30 FEET OF BEDROCK. BORINGS B-12 AND B-13 (IN THE VALLEY) DISCLOSED MEDIUM-DENSE TO VERY DENSE SILTS, SANDS, GRAVELS, AND BOULDERS TO BEDROCK SURFACE, ENCOUNTERED AT 19 AND 22-FOOT DEPTHS, ELEVATIONS 813 AND 809 FEET. THE BORINGS WERE TERMINATED AT 30 AND 35-FOOT DEPTHS, ELEVATIONS 802 AND 797 FEET AFTER PENETRATING 11 AND 13 FEET OF BEDROCK.

THE ROD SOUNDINGS AND PROBES ENCOUNTERED INCREASING RESISTANCE TO PENETRATION WITH INCREASING DEPTH, AND WERE TERMINATED DUE TO REFUSAL OR NEAR REFUSAL TO PENETRATION AT 2 TO 27-FOOT DEPTHS, ELEVATIONS 906 TO 807 FEET, CONSIDERED TO BE ON BEDROCK SURFACE OR IN BOULDERS IMMEDIATELY ABOVE BEDROCK SURFACE.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

FOLLOWING IS A TABLE SHOWING THE STRUCTURE ELEMENTS AND PROPOSED FOOTING ELEVATIONS-AS SHOWN ON THE SITE PLANS, AND THE ELEVATION OF BEDROCK SURFACE AT EACH OF THE ELEMENTS-AS DETERMINED BY THE TESTS:

SUBSTRUCTURE UNIT	FOOTING ELEV. LEFT	FOOTING ELEV. RIGHT	APPROXIMATE ELEVATION OF BEDROCK SURFACE LEFT STRUCTURE LEFT END	LEFT STRUCTURE RIGHT END	RIGHT STRUCTURE LEFT END	RIGHT STRUCTURE RIGHT END
REAR ABUTMENT	913'	912'	903'	918'	906'	914'
FIRST PIER	870'	867'	852'	854'	848'	848'
SECOND PIER	825'	824'	826'	822'	818'	812'
THIRD PIER	840'	825'	810'	809'	807'	807'
FOURTH PIER	814'	815'	830'	841'	828'	832'
FORWARD ABUTMENT	895'	895'	898'	901'	898'	898'

IF IT IS THE INTENTION TO FOUND SUBSTRUCTURE UNITS ON BEDROCK, IT IS CONSIDERED ADVISABLE TO INSPECT THE EXCAVATIONS IN THE FIELD IN ORDER TO DETERMINE WHETHER THE EXCAVATION HAS BEEN EXTENDED TO ROCK THROUGHOUT THE ENTIRE FOUNDING AREA.

UNCONFINED COMPRESSION TESTS ON SIMILAR BEDROCK INDICATES A CRUSHING STRENGTH OF 100 TONS PER SQUARE FOOT FOR THE SANDSTONE AND 50 TONS PER SQUARE FOOT FOR THE SHALE BEDROCK.

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
- Right Structure Footing
- Left Structure Footing
- 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
- Boulders
- 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

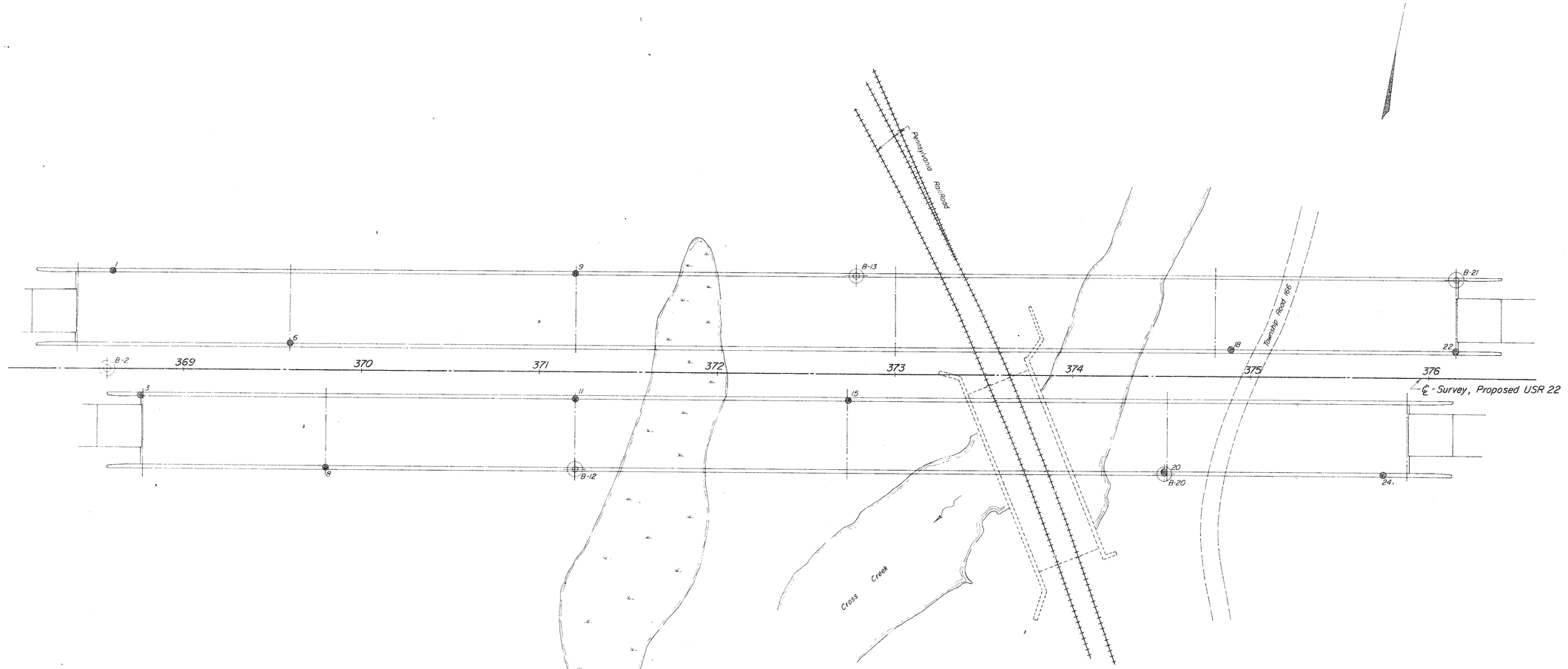
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
8"	3"	2.0mm (No. 10 sieve)	0.42mm (No. 40 sieve)	0.074mm (No. 200 sieve)	0.005mm	

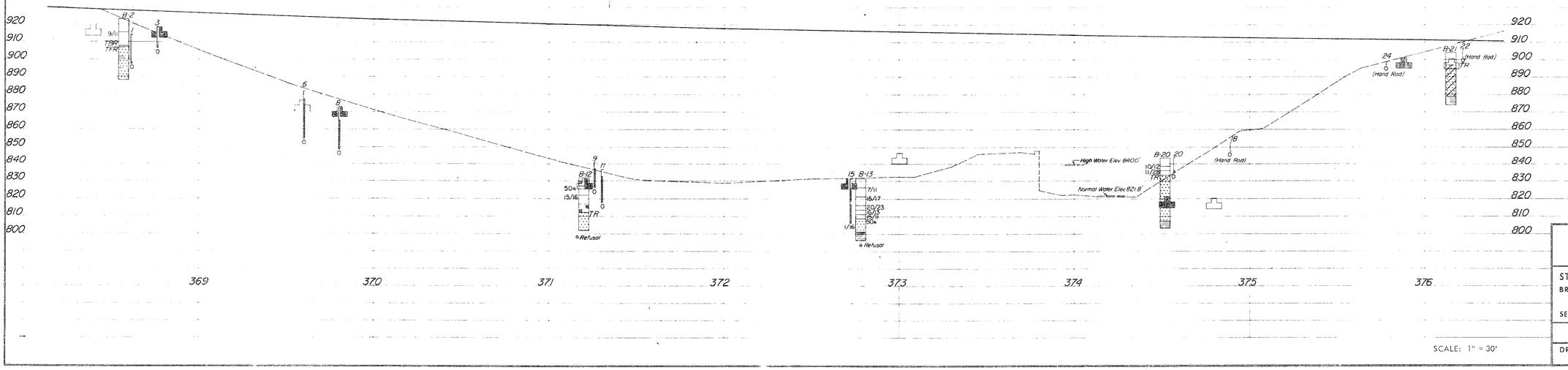
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. JEF-22-0707 L/R
OVER CROSS CREEK
SEC. JEF-22-3.86

CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	11/20/67





SCALE: 1" = 30'

OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. JEF-22-0707 L/R
OVER CROSS CREEK
SEC. JEF-22-3.86

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
L.N.L.	L.N.L.	R.D.R.	11/20/67

LOG OF BORING

Date Started 3-22-67 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 3-24-67 — Casing: Length — Dia. —
Boring No. B-2 — Station & Offset 368+57, 0' Rt. (Rear Abutment) — Surface Elev. 923.2'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SMTL Class.
923.2	0														
	2														
	4														
918.2	5	9/11			Brown Clay and Shale Fragments	1	50	2	8	17	23	33	12	19	A-6a
913.2	10	50/6			Gray Broken Shale (TOP OF BROKEN ROCK)	2	13	4	13	42	28	28	8	13	Weath.
					TOP OF FIRM ROCK										
	12														
	14		2.3	2.2											
	16														
	18		4.2	0.8											
	20				Sandstone, brownish-gray and gray, fine-grained, medium-firm, with carbonaceous laminae and arenaceous shale interbeds (comprising 25% of the interval), generally badly broken and jointed. Core Loss 21%.											
	22		4.6	0.4											
	24														
	26														
	28		4.0	1.0											
	30														
	32														
	34		4.3	0.7											
838.2					BOTTOM OF BORING										

*Manual

LOG OF BORING

Date Started 10-19-67 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 10-19-67 — Casing: Length — Dia. —
Boring No. B-12 — Station & Offset 371+20, 55' Rt. (2nd Pier) — Surface Elev. 832.1'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SMTL Class.
832.1	0														
	2														
827.1	4														
	6	50* (0.3')			Brown Sandy Silt and Boulders	1	--	--	--	--	--	--	--	13	
	8														
822.1	10	15/16			Brown Sandy Silt	2	3	6	43	17	31	24	9	19	A-4a
	12														
817.1	16				Brown and Gray Silty Sand	3	0	5	58	13	24	NP	NP	17	A-4a
816.6	18				No Sample Recovered- Boulders(Driller's Dem.)		V	I		S	U	A	L		
812.5	20				TOP OF ROCK										
	22														
	24		4.2	0.3	Sandstone, gray, firm, fine and medium-grained, generally massive, micaceous in part, broken. Core Loss 3%.										
	26														
	28		5.0	0.0											
802.1	30				BOTTOM OF BORING										

*Manual

LOG OF BORING

Date Started 10-19-67 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 10-24-67 — Casing: Length 22.5' — Dia. 3 1/2"
Boring No. B-13 — Station & Offset 372+78, 52' Lt. (Third Pier) — Surface Elev. 831.6'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SMTL Class.
831.6	0														
	2														
	4														
826.6	6	7/11			Brown and Gray Sandy Clay	1	0	3	19	38	40	31	12	21	A-6a
	8														
821.6	10	15/17			Gray Silty Gravelly Sand	2	36	11	32	8	13	NP	NP	14	A-2-4
	12														
816.6	14														
	16	20/23			Gray Silty Sandy Gravel	3	43	16	19	9	13	NP	NP	11	A-1-b
814.1	18	16/13			Brown Silty Gravelly Sand	4	21	12	39	12	16	NP	NP	8	A-2a
811.6	20	15/11			Brown Silty Sand with Stone Fragments	5	30	10	35	12	13	NP	NP	11	A-2-4
809.1	22														
	24	50* (0.2)			TOP OF ROCK										
	26		2.0	0.5	Sandstone, gray, medium-firm, medium-grained, micaceous, cross-bedded, with carbonaceous laminae, broken and jointed. Core Loss 1%.										
	28		4.7	0.3											
801.4	30														
	32				Shale, gray, firm, carbonaceous, fissile, with clay seams, broken and jointed. Core Loss 1%.										
	34		4.7	0.3											
796.6					BOTTOM OF BORING										

*Manual

LOG OF BORING

Date Started 9-13-67 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 9-13-67 — Casing: Length 20' — Dia. 2 1/2"
Boring No. B-20 — Station & Offset 376+52, 55' Rt. (Forward Abutment) — Surface Elev. 843.6'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SMTL Class.
843.6	0														
	2														
	4														
838.6	5	30/12			Brown and Gray Gravelly Sandy Silt	1	23	11	24	25	17	NP	NP	14	A-4a
836.1	8	21/28			Brown and Gray Sandy Silt with Stone Fragments	2	25	12	12	25	26	34	9	15	A-4a
833.6	10														
	12				TOP OF ROCK										
	14		4.9	0.1											
	16														
	18		4.8	0.2											
	20														
	22		4.6	0.4	Sandstone, gray and brownish-gray, fine, fine-grained, cross-bedded, with carbonaceous shale laminae in beds 4.0', broken and jointed. Core Loss 8%.										
	24														
	26														
	28		5.0	0.0											
	30														
	32														
	34		5.0	0.0											
807.6	36														
	38		5.3	0.7	Shale, dark-gray, firm, carbonaceous, fissile, broken and jointed. Core Loss 14%.										
802.6	40				BOTTOM OF BORING										

LOG OF BORING

Date Started 10-17-67 — Sampler Type SS — Dia. 1 3/8" — Water Elev. —
Date Completed 10-17-67 — Casing: Length — Dia. —
Boring No. B-23 — Station & Offset 374+15, 55' Lt. (Forward Abutment) — Surface Elev. 904.1'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SMTL Class.
904.1	0														
	2				Brown Sandstone Fragments										
	4														
897.1	8														
	10		2.9	2.1	TOP OF ROCK										
	12														
	14		4.0	1.0											
	16				Sandstone, brownish-gray, medium-firm, weathered, fine and medium-grained with clay seams, generally badly broken and jointed. Core Loss 17%.											
	18		4.0	1.0											
	20														
	22		4.0	1.0											
	24														
879.1	26														
	28		4.0	1.0	Shale, dark-gray, medium-firm, carbonaceous, with clay seams, badly broken and jointed. Core Loss 20%.										
874.3	30				BOTTOM OF BORING										

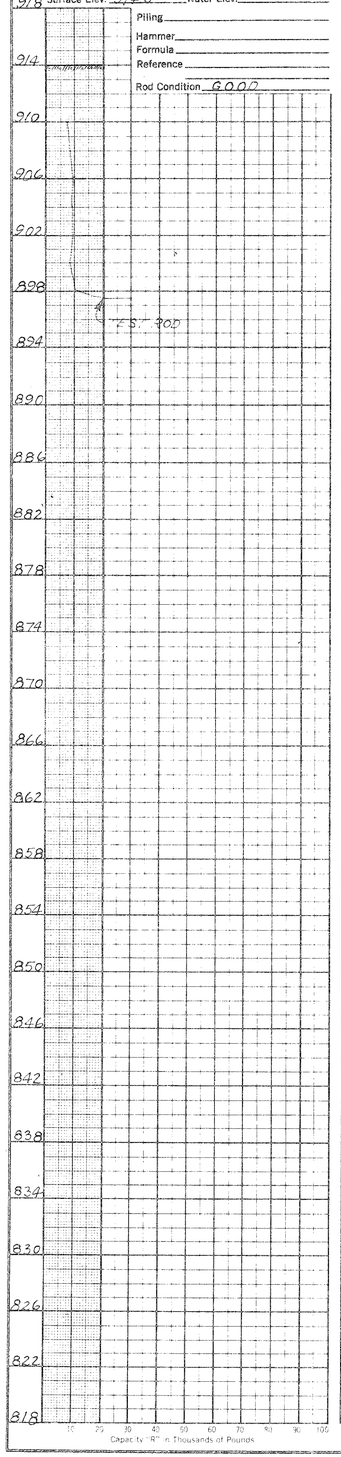
OHIO DEPARTMENT OF HIGHWAYS
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. JEF-22-0707 L/R
OVER CROSS CREEK
SEC. JEF-22-3.86

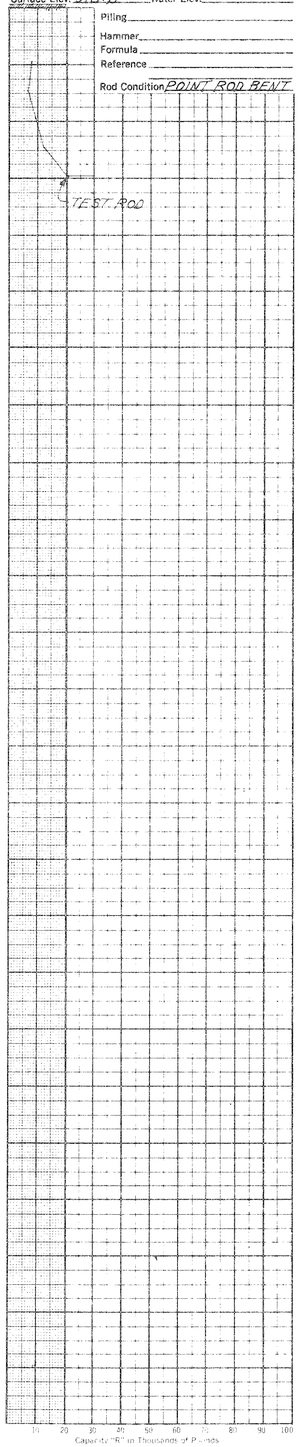
BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
S.A.J.	R.C.	R.D.R.	11/20/67

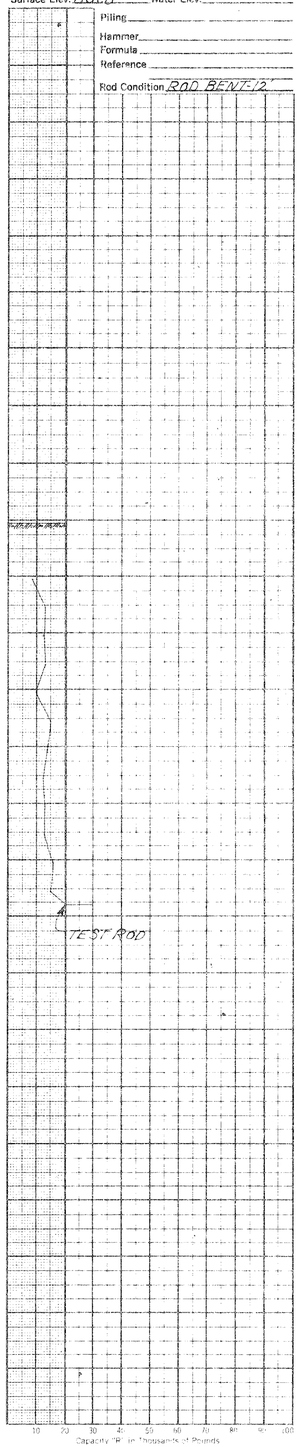
Test Location No. 1
Station & Offset 368+60, 55' LT
REAR ABUTMENT
Surface Elev. 912.0 Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition GOOD



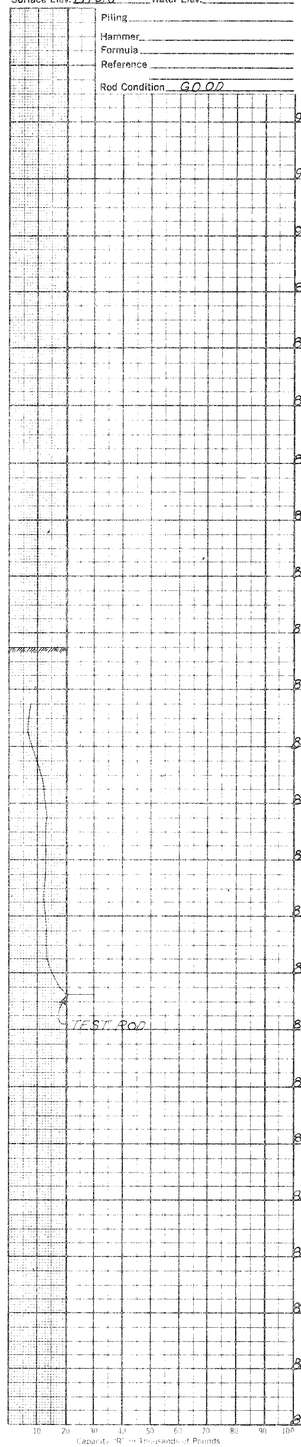
Test Location No. 3
Station & Offset 368+76, 15' RT
REAR ABUTMENT
Surface Elev. 918.2 Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition POINT ROD BENT



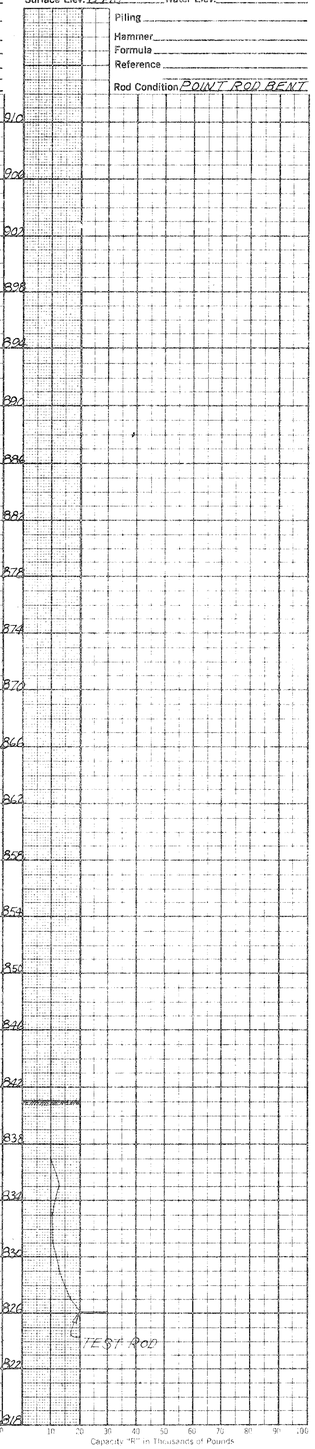
Test Location No. 6
Station & Offset 369+60, 15' LT
FIRST PIER
Surface Elev. 881.8 Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition ROD BENT-12"



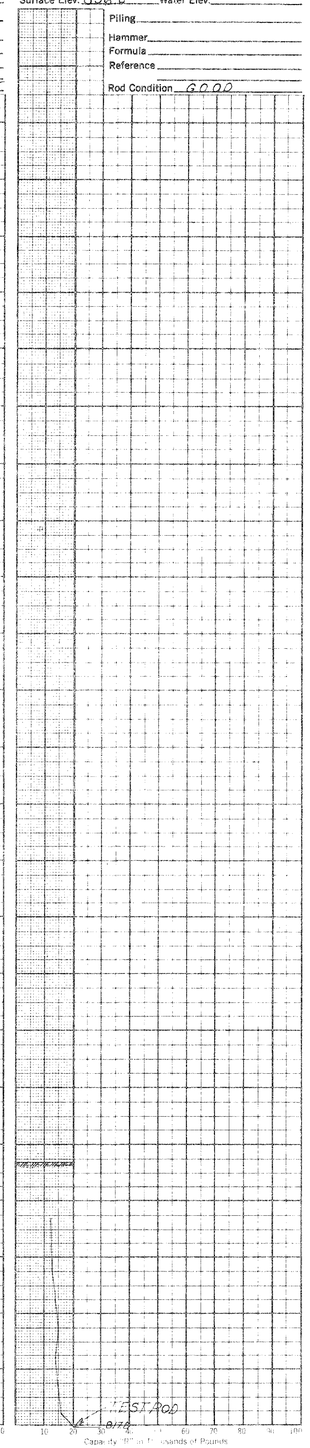
Test Location No. 8
Station & Offset 369+80, 55' RT
FIRST PIER
Surface Elev. 873.0 Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition GOOD



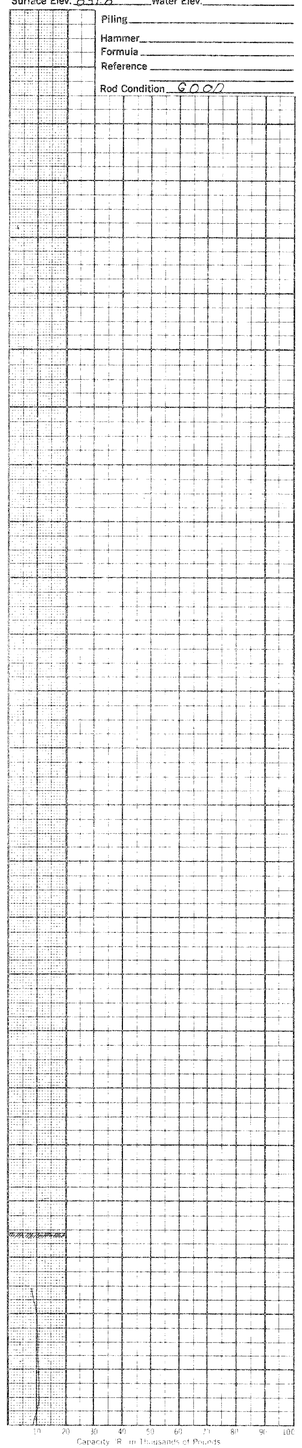
Test Location No. 9
Station & Offset 371+20, 55' LT
SECOND PIER
Surface Elev. 841.7 Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition POINT ROD BENT



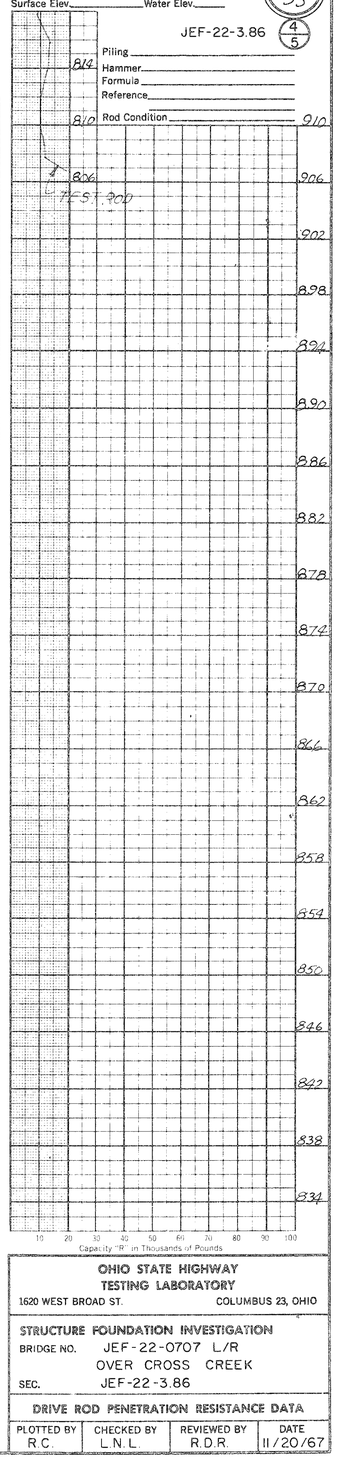
Test Location No. 11
Station & Offset 371+20, 15' RT
SECOND PIER
Surface Elev. 836.8 Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition GOOD



Test Location No. 15
Station & Offset 372+74, 15' RT
THIRD PIER
Surface Elev. 831.8 Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition GOOD



Test Location No. 15 (Cont'd.)
Station & Offset
Surface Elev. Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition



32/33
4/5
JEF-22-3.86

Capacity "R" in Thousands of Pounds

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. JEF-22-0707 L/R
OVER CROSS CREEK
SEC. JEF-22-3.86

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	L.N.L.	R.D.R.	11/20/67

Test Location No. 18
Station & Offset 374+89 15' LT
FOURTH PIER
Surface Elev. 852.8' Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition
HAND ROD

Test Location No. 20
Station & Offset 374+52 55' RT
FOURTH PIER
Surface Elev. 843.9' Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition
846
842
838
834
TEST ROD

Capacity "R" in Thousands of Pounds

Test Location No. 22
Station & Offset 375+15 15' LT
FORWARD ABUTMENT
Surface Elev. 905.9' Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition
HAND ROD

Test Location No. 24
Station & Offset 375+78 55' RT
FORWARD ABUTMENT
Surface Elev. 898.8' Water Elev.
Piling
Hammer
Formula
Reference
Rod Condition
890
895
HAND ROD

Capacity "R" in Thousands of Pounds

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. JEF-22-0707 L/R
OVER CROSS CREEK
SEC. JEF-22-3.86

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R C.	L.N.L.	R.D.R	11/[illegible]/57