MICROFILMED

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-77-2(2)43	

1/262

I-77-2(2)43

Project Designation GUE-77-4.77 appearing throughout this plan shall be considered to read GUE-77-4.56

GUERNSEY COUNTY
GUE-77-4.~~56~~ 4.77

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
GUE-77-4.~~56~~ 4.77
GUERNSEY COUNTY
JACKSON AND CAMBRIDGE TOWNSHIPS AND VILLAGE OF BYESVILLE

"LIMITED ACCESS"

1963 SPECIFICATIONS

This improvement is especially designed for thru traffic and has been declared a Limited Access Highway or Freeway by action of the Director of Highways, in accordance with the provisions of Sec. 5511.02 of The Revised Code of Ohio.

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 maintenance and safety of traffic will be as set forth on the plans and estimates.

Approved _____ Division Deputy Director
Date 1-28-65

Approved _____ Engineer of Bridges
Date 3-2-65

Approved _____ Engineer of Location & Design
Date 3-3-65

Approved _____ Deputy Director of Design & Construction
Date 3-3-65

Approved _____ Deputy Director of Right of Way
Date 2-9-65

Approved _____ Deputy Director of Planning & Programming
Date 3-10-65

Approved _____ First Assistant Director
Date

Approved _____ Director of Highways
Date 3/10/65

CONVENTIONAL SIGNS

Center Line
Corporation Line
Existing R/W
Proposed Limited Access Line
Proposed L.A. & R/W Line
Proposed R/W
Slope Easement
Property Line
Fence Line
Water Line
Gas Line
Existing Sewer
Proposed Sewer
Water Valves
Existing Manholes
Proposed Manholes
Manholes Adjusted to Grade
Manholes Abandoned
Manholes Removed
Power Pole
Light Pole
Trees & Stumps to be Removed
Railroads
Existing Retaining Wall
Existing Guard Rail
Proposed Guard Rail

Gas Valves
Existing Catch Basins
Proposed Catch Basins
Catch Basins Adjusted to Grade
Catch Basins Abandoned
Catch Basins Removed
Telephone Pole
Water Hydrant
Traffic Light

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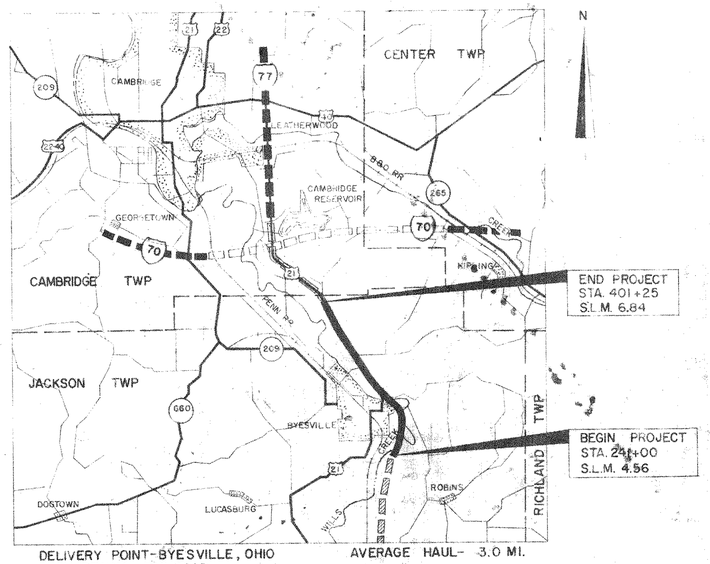
Sheets No. 55, 66, 131, 142, 222, 222A, 222B
Revised 3-30-66
Sheet No. 222A, 222B added 3-30-66

2-3-68 JVI.
Pg 222



DELIVERY POINT-BYESVILLE, OHIO
PENNA. RAILROAD

AVERAGE HAUL- 3.0 MI.

LOCATION PLAN

SCALE OF MILES 0 1 2 3

PORTION TO BE IMPROVED
STATE HIGHWAYS
OTHER HIGHWAYS
I-70 & I-77 UNDER CONSTRUCTION
I-70 & I-77 CONSTRUCTION COMPLETE
I-77 FUTURE CONSTRUCTION

LINE DATA

Begin Project	Sta. 241+00.00
Station Equation	Sta. 299+75.79 Back=
	Sta. 339+36.95 Ahead
Station Equation	Sta. 384+86.46 Back=
	Sta. 384+89.08 Ahead
End Project	Sta. 401+25.00
Net Length of Project	12,061.22 L.F. or 2.284 Mi.
Begin Work	Sta. 239+50.00
End Work	Sta. 415+79.00
Deduct for Equations (same as above)	3,963.78 L.F.
Net Length of Work	13,665.22 L.F. or 2.588 Mi.
Work Additions	
C.R. 52 Reloc. Nº1	Sta. 27+75 to 53+75 — 2,600.00 L.F.
C.R. 102 Reloc.	Sta. 40+03 to 61+21 — 2,118.00 L.F.
Service Road "A"	Sta. 4+10.70 to 11+69 — 758.30 L.F.
C.R. 52 Reloc. Nº3	Sta. 34+93.42 to 44+42 — 948.58 L.F.
Length of Work Additions	6,424.88 L.F. or 1.216 Mi.
Total Length of Work	13,665.22 + 6,424.88 = 20,090.10 L.F. or 3.804 Mi.

L.F. NUMBER GUERNSEY COUNTY GUE-77-4.56
DATE OF LETTING
CONTRACT NUMBER

STANDARD DRAWINGS

NUMBER	DATE	NUMBER	DATE
B-T-70-71	11-15-60	I-15 Nº1	11-15-60
B-T-71-R	3-2-53	I-15 Nº2	11-15-60
DR-1	1-3-55	I-15 Nº2-A	8-17-60
F-1	2-1-63	I-15 Nº5-A	2-1-63
F-2	2-1-63	I-15 Nº6	2-1-63
F-3	2-1-63	I-21-23	3-10-64
G-7.07	4-1-64	L.J. Nº1	7-1-55
HW-Nº1	8-1-63	L-3	4-1-50
HW-Nº2	8-1-63	L-3A	4-1-50
HW-Nº3	8-1-63	L-1	4-1-50
HW-E	2-1-63	T-35	1-2-56
		T.J.	9-12-60
I-1	11-15-60		
I-8 C.B. Nº2-2-A18	2-1-63	S.P.-53	6-30-61
I-8 C.B. Nº4	2-1-63	FA.C.I-1	2-25-64
I-8 C.B. Nº5	2-1-63	FA.C.I-2	2-25-64
I-8 C.B. Nº6	2-1-63	RI-1	9-1-64
I-8 C.B. Nº8	2-1-63	A.S-1-54	7-5-62
I-8 I. Nº2	2-1-63		
I-8 M.H. Nº1	2-1-63	AR-1-57	4-2-62
I-8 M.H. Nº1-A	2-1-63	RB-1-55	2-2-59
I-12	2-1-63	CSB-1-63	12-16-63
I-14G	1-22-52	SD-1-63	11-12-63

SCALE

PLAN AND PROFILE	0 — 50	1" = 50'
PAVEMENT DETAILS	0 — 20	1" = 20'
CROSS SECTIONS	0 — 10	1" = 10'

SUPPLEMENTAL SPECIFICATIONS

NUMBER		DATE	NUMBER		DATE
CE-101.04		5-22-56	I-124	Rev.	3-20-61
I-125	Rev.	6-26-61	T-335		10-28-63
I-127	Rev.	1-15-62	M-106.11		1-26-61
L-120	Rev.	1-2-62			
M-107.18	Rev.	4-3-61			
I-212	Rev.	6-23-61			
S-101		7-12-62			
S-307	Rev.	10-1-64			

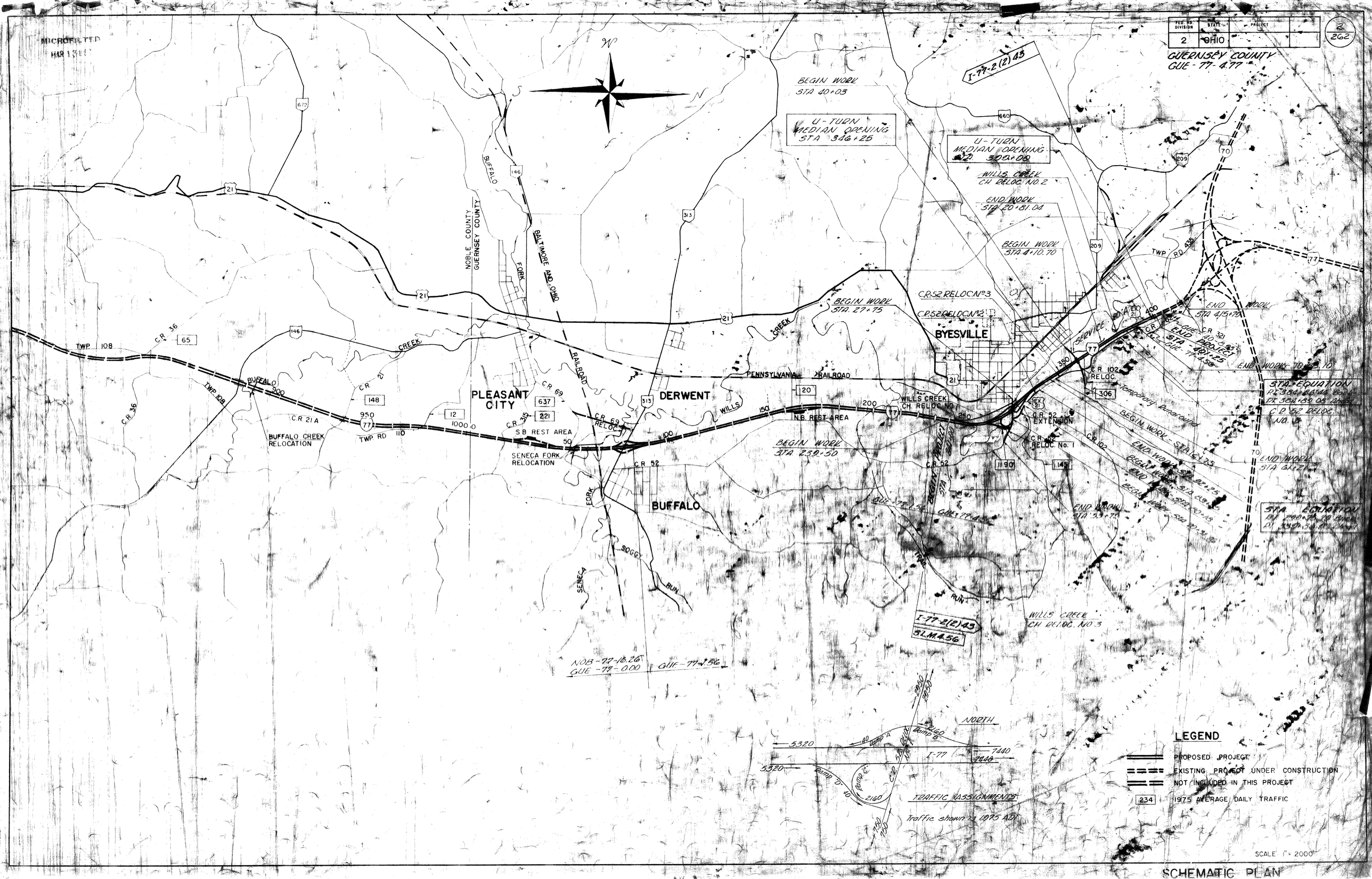
MICROFILMED

PLANS PREPARED BY
ALDEN E. STILSON & ASSOCIATES, Limited
CONSULTING ENGINEERS
245 NORTH HIGH STREET
COLUMBUS, OHIO
FOR
STATE OF OHIO

J-11

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED

DIVISION ENGINEER DATE



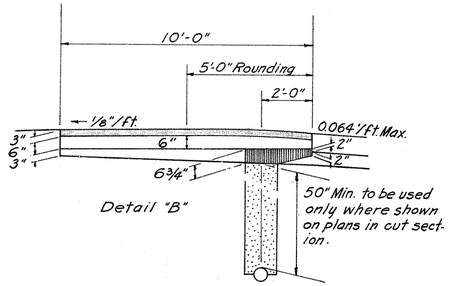
SCHEMATIC PLAN

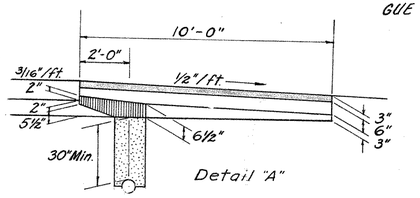
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

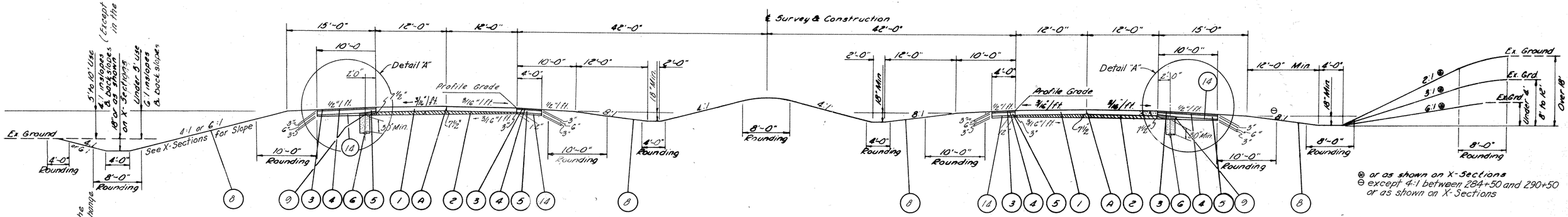
3 / 262

GUERNSEY COUNTY
GUE - 77 - 4.77

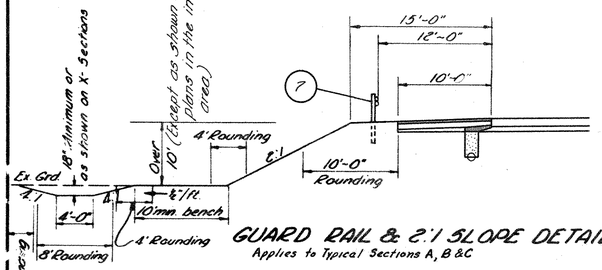
TYPICAL SECTIONS
TYPE T-71







⊗ or as shown on X-Sections
⊖ except 4:1 between 284+50 and 290+50 or as shown on X-Sections



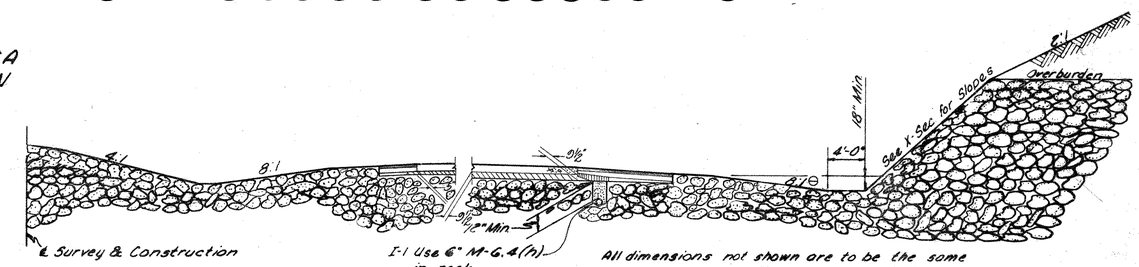
GUARD RAIL & 2:1 SLOPE DETAIL
Applies to Typical Sections A, B & C

SEQUENCE OF OPERATIONS FOR PLACING PIPE UNDERDRAINS

(1) Install pipe underdrain on outside shoulder. Installation of shallow underdrain in median may be deferred until T-71 is placed.
(2) Place subbase out to outside edge of underdrain or to one foot beyond edge of pavement where no underdrain is present.
(3) Construct T-71
(4) Remove subbase and any contaminated backfill over drain and replace with No. 6 aggregate as shown by (9).
(5) Complete shoulder construction.

TYPICAL SECTION "A" NORMAL SECTION

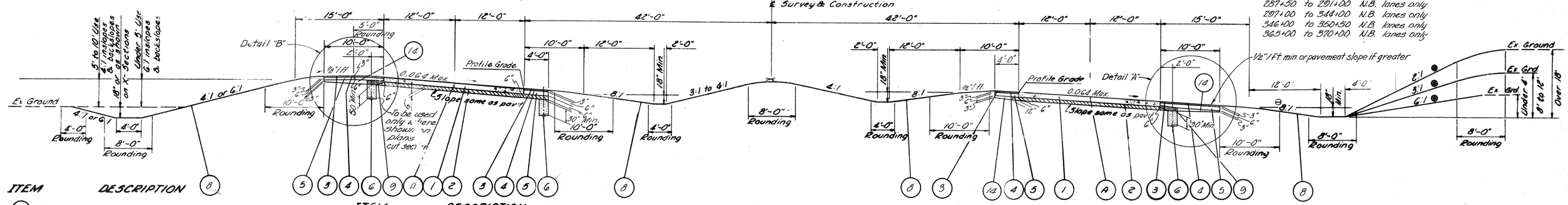
241+00.00	to	248+07.61
279+27.05	to	286+87.65
339+36.95	to	359+50.00
374+50.00	to	376+88.96
384+89.08	to	401+25.00
401+25.00	to	402+87.51*



All dimensions not shown are to be the same as those shown on Typical Section "A."

ROCK SECTION

287+50	to	291+00 N.B. lanes only
297+00	to	344+00 N.B. lanes only
346+00	to	350+50 N.B. lanes only
365+00	to	370+00 N.B. lanes only



ITEM	DESCRIPTION
(1)	T-71 9" Reinforced Portland Cement Concrete Pavement
(2)	I-22 Subbase, Grading "A" or "B," as per plan (See General Note.)
(3)	T-31 Bituminous Surface Treatment Using 0.008 Cu. Yd. of No. 6 Aggregate and 0.25 Gal. Bituminous Material Per Sq. Yd. (See Note in Proposal)
(4)	B-21 3" Waterproofed Aggregate Base Course (Type "A" T-35 or T-335 Mat. may be used in construction of this course - See Note in Proposal)
(5)	B-19 Aggregate Base Course
(6)	I-1 6" Pipe, Class I-3
(7)	I-15 Guard Rail, Steel Beam Standard Type (Deep)
(8)	L-9 Seeding and Protecting
(A)	Standard Longitudinal Joint
(9)	Item special drainage connection, using No. 6 Aggregate (See Note in Proposal)
(14)	I-22 Subbase, Regular Grading

TYPICAL SECTION "B" SUPERELEVATED SECTION

248+07.61	to	273+30.68
275+31.19	to	279+27.05
286+87.65	to	299+75.79
376+88.96	to	384+86.46
402+87.51	to	403+50.00*

* — North Bound pavt. & subdrains have been constructed with project GUE-40-8.93

NOTES
1* Thickness shown is designed thickness as described in Section B-210.
2 See General Notes for Subgrade, Subbase
3 For details not shown on this sheet see Standard Drawing No. QI-1

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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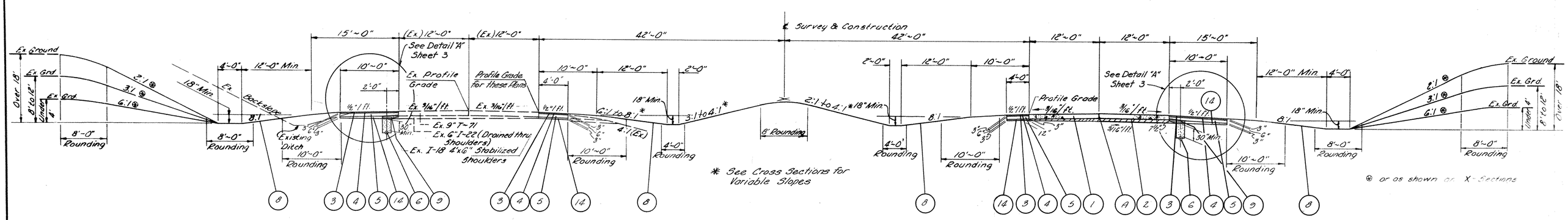
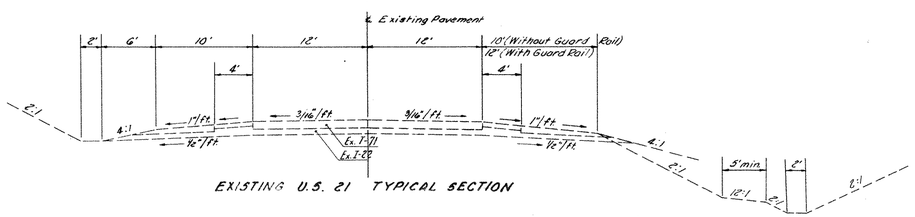
GUERNSEY COUNTY
GUE-77-4.77

TYPICAL SECTIONS

TYPE T-71



TYPICAL SECTION 'C'
Sta 359+50 to Sta 374+50



EXISTING U.S. 21 TYPICAL SECTION

1	T-71	9" Reinforced Portland Cement Concrete Pavement.
2	T-22	Subbase, Grading "A" or "B", as per plan (See General Note.)
3	T-31	Bituminous Surface Treatment using 0.008 Cu. Yd. of No. 6 Aggregate and 0.25 Gal. Bituminous Material Per Sq. Yd. (See Note in Proposal.)
4	*B-21	3" Waterproofed Aggregate Base Course (Type "A" T-35 or T-335 Material may be used in construction of this course - See note in Proposal)
5	B-10	Aggregate Base Course
6	T-1	6" Pipe, Class T-3
7	T-15	Guard Rail, Steel Beam Standard Type (Deep)
8	L-9	Seeding and Protecting
A		Standard Longitudinal Joint
9		Item special drainage connection, using No. 6 Aggregate (See Note in Proposal)
14	T-22	Subbase, Regular Grading

NOTES

1. * Thickness shown is designed thickness as described in Section B-21.01.
2. See General Notes for Subgrade, Subbase
3. For details not shown on this sheet see Standard Drawing No. RI-1
4. See Sheet No. 3 for Guard Rail and 2:1 Slope Detail
5. See Sheet No. 3 for pipe underdrain construction sequence.

I-77

TYPICAL SECTION

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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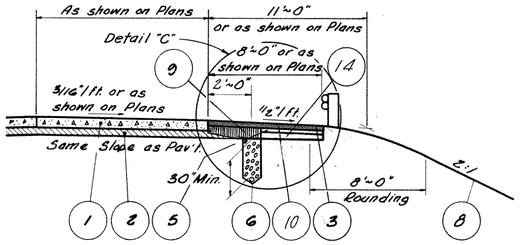
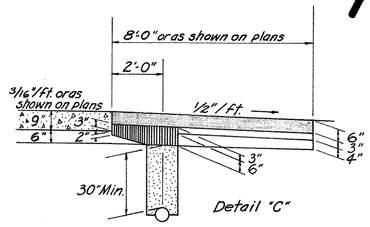
GUERNSEY COUNTY
GUE-77-4.77

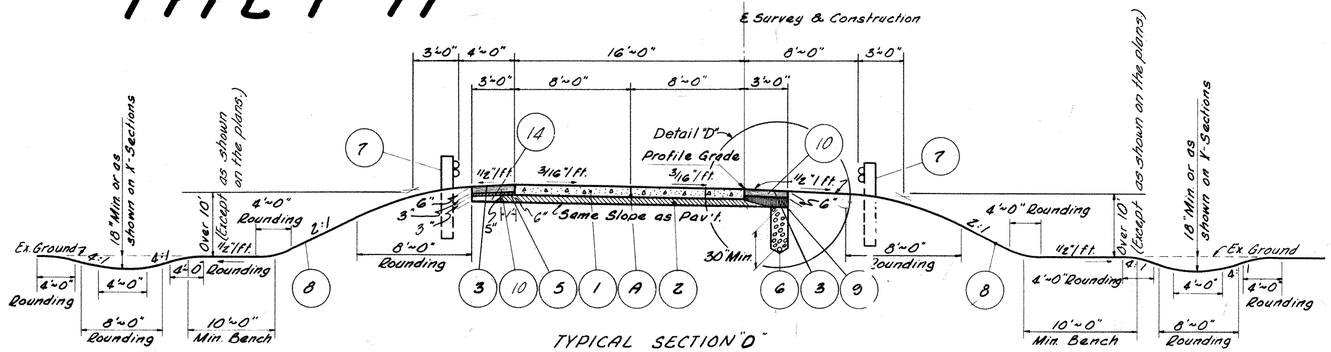
TYPICAL SECTIONS
TYPE T-71





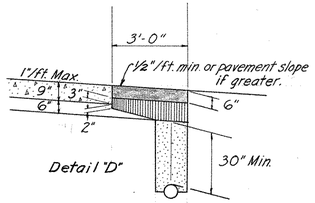
ACCELERATION & DECELERATION LANE DETAIL

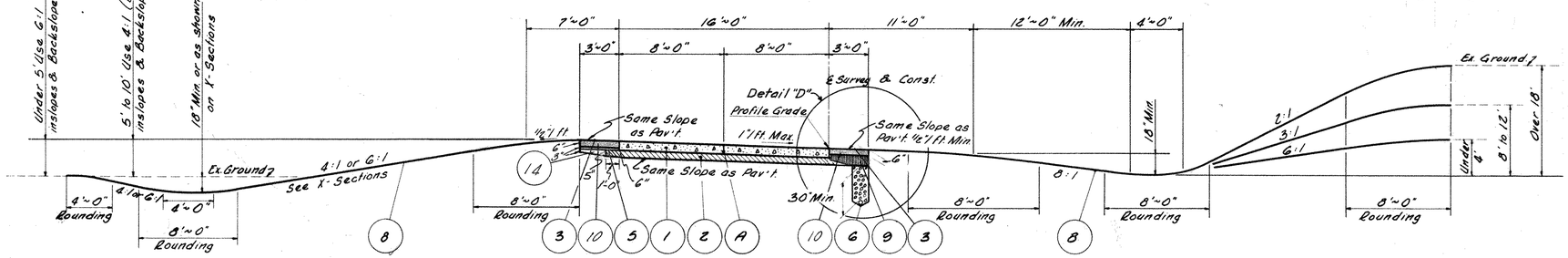
Sta. 250+50 to Sta. 262+50 S.B.
Sta. 251+00 to Sta. 258+91 N.B. (no underdrain)
Sta. 272+50 to Sta. 277+67 N.B. (no underdrain)
Sta. 274+63 to Sta. 279+20 N.B. (no underdrain)
Sta. 279+20 to Sta. 284+50 N.B.
Sta. 285+23 to Sta. 286+00 S.B.
Sta. 286+00 to Sta. 293+00 S.B. (no underdrain)



TYPICAL SECTION "D"
NORMAL SECTION

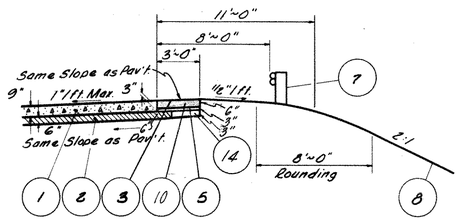
8+91.98 to 9+96.34 Ramp "A"
11+62.48 to 12+75.00 Ramp "A"
14+82.50 to 19+84.47 Ramp "B"
23+27.42 to 23+61.95 Ramp "B"
19+34.53 to 19+50.00 Ramp "C"
9+00.00 to 10+47.79 Ramp "D"
17+40.13 to 21+13.67 Ramp "D"
Ramp C-C



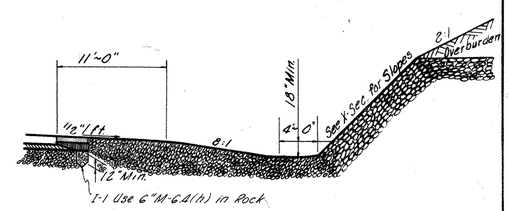


TYPICAL SECTION "E"
SUPERELEVATED SECTION

9+96.34 to 11+62.48 Ramp "A"
12+75.00 to 22+50.00 Ramp "A"
19+84.47 to 23+27.42 Ramp "B"
9+16.50 to 19+34.53 Ramp "C"
19+50.00 to 22+50.00 Ramp "C"
10+47.79 to 17+40.13 Ramp "D"



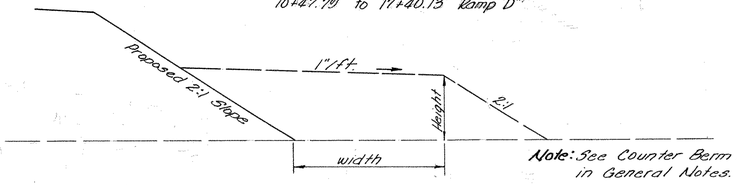
SHOULDER DETAIL
SUPERELEVATED SECTION SLOPED LEFT



ROCK CUT DETAIL

ITEM		DESCRIPTION
1	T-71	9" Reinforced Portland Cement Concrete Pavement
2	I-22	Subbase, Grading "A" or "B", as per plan (See General Note)
3	T-31	Bituminous Surface Treatment Using 0.008 Cu. Yd. of Nº 6 Aggregate, and 0.25 Gal. Bituminous Material Per Sq. Yd. (See Note in Proposal)
5	B-19	Aggregate Base Course
6	I-1	6" Pipe, Class I-3
7	I-15	Guard Rail, Steel Beam Standard Type (Deep)
8	L-9	Seeding and Protecting

ITEM		DESCRIPTION
9		Item special drainage connection, using Nº 6 Aggregate (See Note in Proposal)
10	# B-21	6" Waterproofed Aggregate Base Course (2-5" Courses). Type A" T-35 or T-335 Mat. may be used in the construction of this course. (See Note in Proposal)
14	I-22	Subbase, Regular Grading
A		Standard Longitudinal Joint.



Note: See Counter Berm note in General Notes.

Location	Width	Height
13+50 to 20+00 Ramp "A"	30'	10'
14+00 to 21+00 Ramp "C"	40'	15'
13+00 to 17+00 Ramp "D"	30'	10'

COUNTER BERM DETAIL

1. Thickness shown is designed thickness as shown in Section B-E.01
2. See General Notes for Subgrade, Subbase
3. For Details not shown on this sheet, see Standard Drawing Nº RI-1
4. See Sheet Nº 3 for pipe underdrain construction sequence.

Bicentennial/PDM 1-8-49

COUNTER BERM & RAMP TYPICAL SECTIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

GUERNSEY COUNTY
GUE-77-4.77

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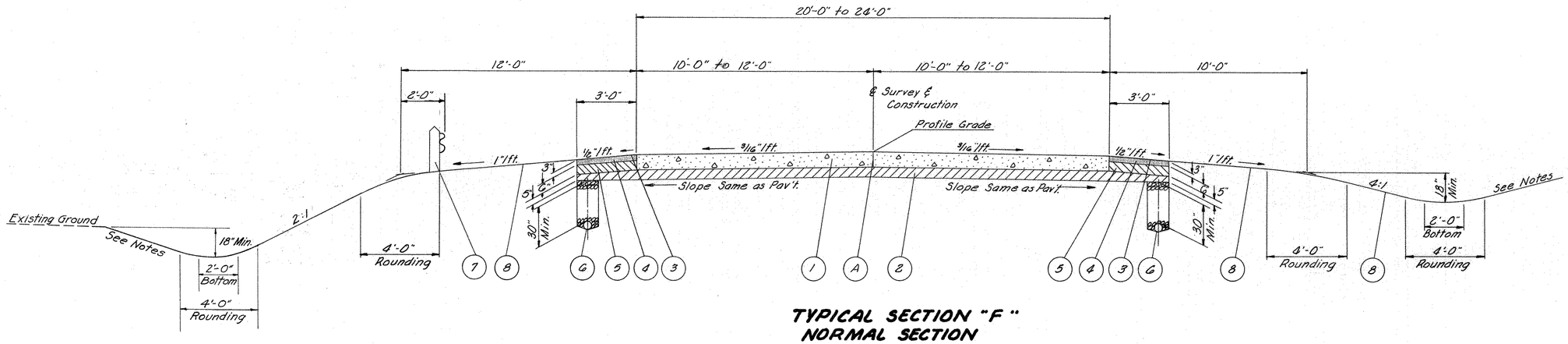
TYPICAL SECTIONS

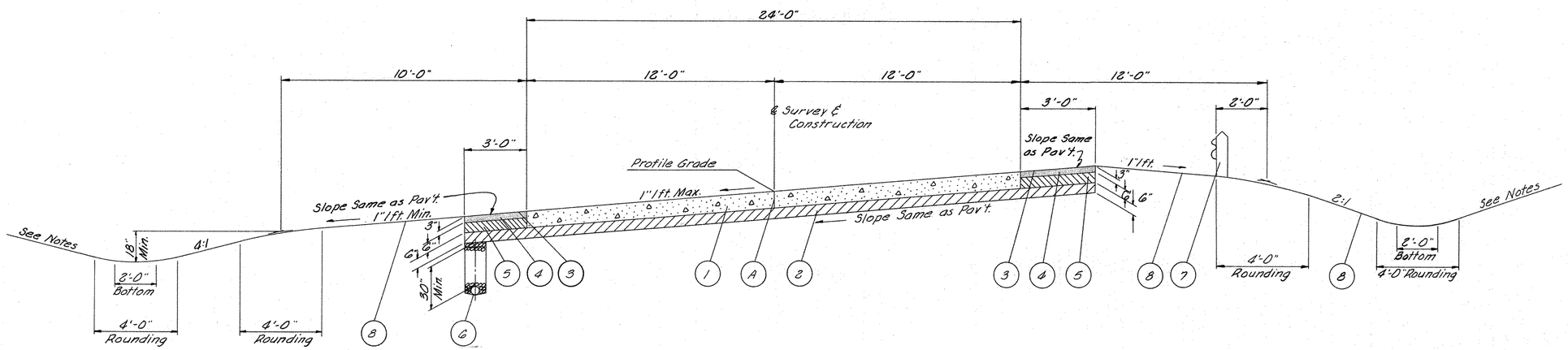
TYPE T-71



TYPICAL SECTION "F"
NORMAL SECTION

Sta. 31+37.05 to Sta. 39+09.07
Sta. 43+70.32 to Sta. 48+00.00

*Sta. 47+00 to Sta. 48+00
Width Varies 24' to 20'
End paved Sh.Idr. 47+38 L.t.& Rt.



TYPICAL SECTION "G"
SUPERELEVATED SECTION

Sta. 39+09.07 to Sta. 43+70.32

ITEM		DESCRIPTION
1	T-71	9" Reinforced Portland Cement Concrete Pav't.
2	I-22	6" Subbase, Grading "A" or "B" as per plan (See General Note).
3	T-31	Bituminous Surface Treatment using 0.008 Cu. Yds. of No. 6 Aggregate and 0.25 Gal. Bituminous Material per Sq. Yd. (See Note in Proposal.)
4	*B-21	3" Waterproofed Aggregate Base Course (Type "A" T-35 or T-335 Material may be used in construction of this course – See Note in Proposal.)
5	B-19	Aggregate Base Course
6	I-1	6" Pipe, Class I-3

ITEM		DESCRIPTION
7	I-15	Guard Rail, Steel Beam Standard Type (Deep)
8	L-9	Seeding and Protecting
A		Standard Longitudinal Joint

NOTES

1. For fills over 10' use 2:1 slopes
2. For fills 10' and under use 4:1 slopes
3. For cuts 5' and under use 3:1 backslopes
4. For cuts over 5' use 2:1 backslopes
5. Fills are measured from edge of shoulder to existing ground. Cuts are measured from bottom of ditch to existing ground.
6. For details not shown on this drawing see Standard Construction Drawing Numbers DR-1, RI-1 and T-35.

*7. Thickness shown is designed thickness as described in Section B-21.01.

C.R. 52 RELOCATION NO. 1

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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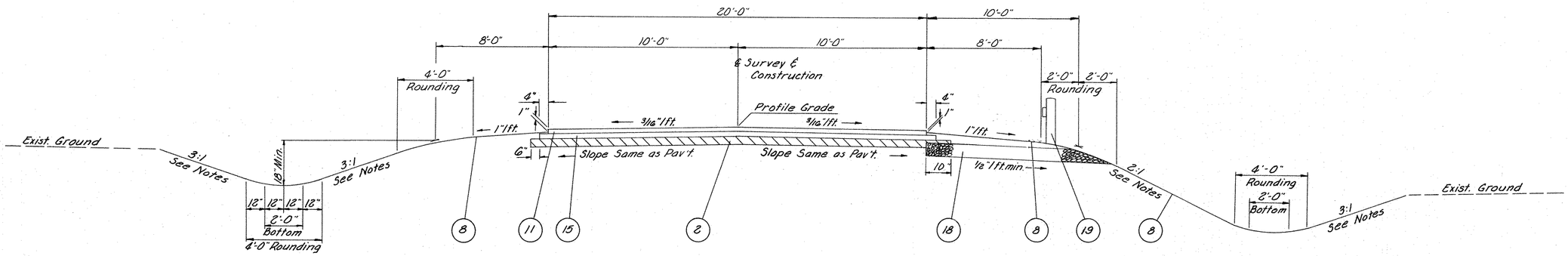
GUERNSEY COUNTY
GUE-77- 4.77

TYPICAL SECTIONS

TYPE T-35 ON B-21



TYPICAL SECTION "H"
NORMAL SECTION

* Sta. 48+00.00 to Sta. 53+75.00

* Sta. 53+00 to Sta. 53+75
Width Varies - 20.0' to 17.0'

	ITEM	DESCRIPTION
11	*T-35	1¼" Asphaltic Concrete Surface Course (70-85), Type "C"
15	*B-21	4" Waterpooted Aggregate Base Course
2	I-22	6" Subbase, Grading "A" or "B" as per plan (See General Note).
8	L-9	Seeding and Protecting
18	I-9	Stone Underdrains, No. 2
19	I-15	Guard Rail, 3 Wire Cable Type

NOTE: For details not show on this drawing see Standard Construction Drawing numbers DR-1, RT-1 & T-35.

NOTES

1. For fills 10' and over use 2:1 slopes.
2. For fills under 10" use 3:1 slopes.
3. For cuts 5' and under use 3:1 backslopes.
4. For cuts over 5' use 2:1 backslopes.
5. Fills are measured from edge of shoulder to existing ground. Cuts are measured from bottom of ditch to existing ground.

* 6. Thickness is designed thickness as described in Sec. B-21.01 and T-35.01.

C.R. 52 RELOCATION NO. 1

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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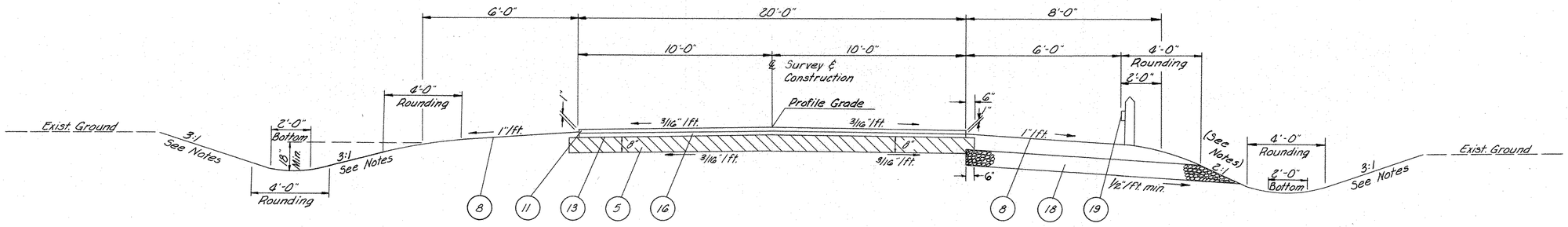
TYPICAL SECTIONS

TYPE T-35 ON B-19

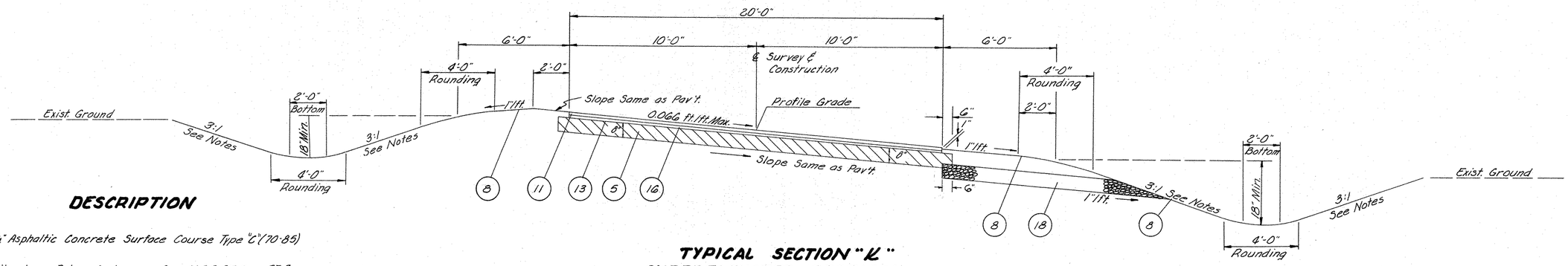


TYPICAL SECTION "J"
NORMAL SECTION

* Sta. 40+32.60 to Sta. 40+55.94 C.R. 102 Reloc.
Sta. 42+97.69 to Sta. 48+17.89 C.R. 102 Reloc.
Sta. 59+68.11 to Sta. 60+00.00 C.R. 102 Reloc.

EXISTING PAVEMENT

Co. Rd. 102 (West of U.S. 21) Bituminous
Co. Rd. 102 (East of U.S. 21) Gravel



TYPICAL SECTION "K"
SUPERELEVATED SECTION

* Sta. 40+55.94 to Sta. 42+97.69 C.R. 102 Reloc.
Sta. 48+17.89 to Sta. 48+30.11 C.R. 102 Reloc.
Sta. 51+65.16 to Sta. 59+68.11 C.R. 102 Reloc.

ITEM		DESCRIPTION
11	* T-35	1¼" Asphaltic Concrete Surface Course Type "C" (70-85)
13	T-30	Bituminous Prime Coat Sec. M 5.7, RT-2 or RT-3 applied at the rate of 0.4 gal./S.Y.
16	* B-35	1¼" Asphaltic Concrete Leveling Course (70-85)
5	B-19	Aggregate Base Course
8	L-9	Seeding & Protecting
18	I-9	Stone Underdrains No. 2
19	I-15	Guard Rail, 3 Wire Cable Type

* Sta. 40+32.60 to Sta. 41+00
Width Varies - 15.0' to 22.0'

NOTE: For details not shown on this drawing see Standard Construction Drawing numbers DR-1, RT-1 & T-35

NOTES

1. For fills 10' & over use 2:1 slopes
2. For fills under 10' use 3:1 slopes
3. For cuts over 5' use 2:1 backslopes
4. For cuts 5' & under use 3:1 backslopes
5. Fills are measured from edge of shoulder to existing ground. Cuts are measured from bottom of ditch to existing ground.

*G Thickness shown is designed thickness as described in Sec. T-35.01 and Sec. B-35.01.

C.R. 102 RELOCATION

TYPICAL SECTIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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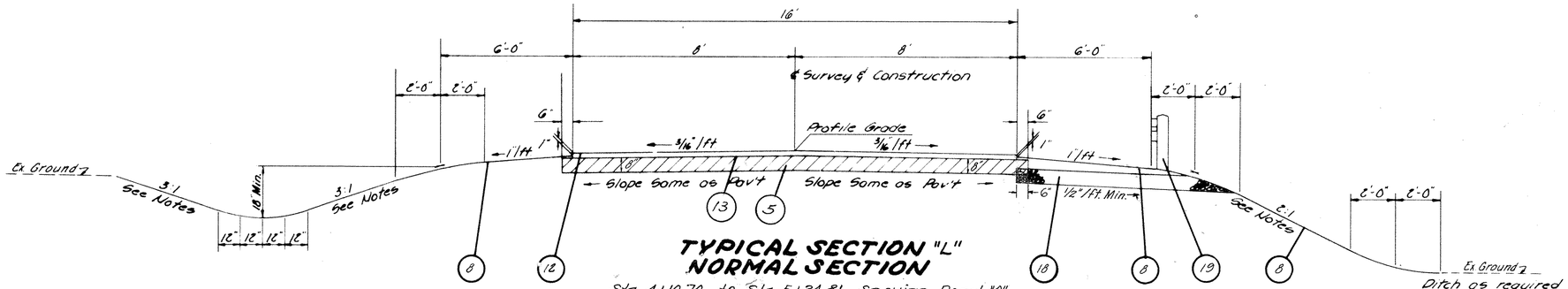
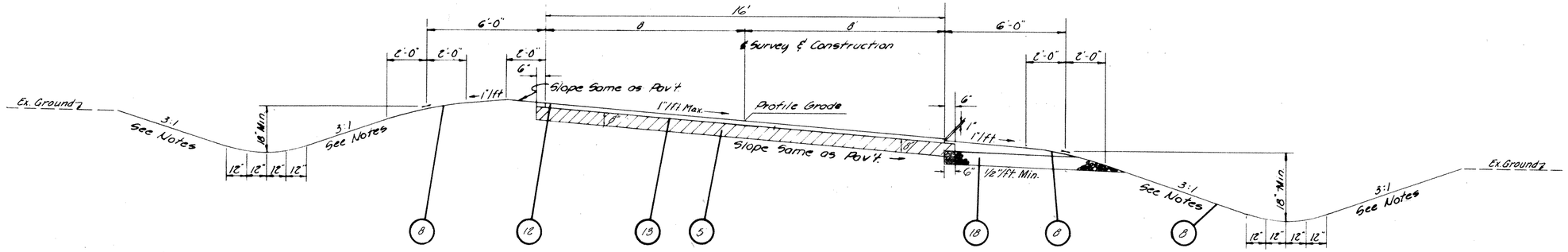
TYPICAL SECTIONS

TYPE T-35 ON B-19



TYPICAL SECTION "L"
NORMAL SECTION

Sta. 4+10.70 to Sta. 5+24.81 Service Road "A"
Sta. 14+58.97 to Sta. 20+81.04 Service Road "A"
Sta. 73+74.62 to Sta. 75+29.87 C.R. 52 Extension (Lt. Lane varies - 12' to 8'
Sta. 87+52.73 to Sta. 89+91.68 C.R. 52 Relocation Nº 2
* Sta. 91+19.45 to Sta. 92+25.00 C.R. 52 Relocation Nº 2
Sta. 12+75.00 to Sta. 18+26.70 C.R. 52 Relocation Nº 3
Sta. 21+80.15 to Sta. 26+20.67 C.R. 52 Relocation Nº 3
Sta. 34+83.42 to Sta. 37+33.32 C.R. 52 Relocation Nº 3
Sta. 44+76.39 to Sta. 57+38.23 C.R. 52 Relocation Nº 3
** Sta. 63+19.69 to Sta. 70+88.10 C.R. 52 . Relocation Nº 3



TYPICAL SECTION "M"
SUPERELEVATED SECTION

Sta. 5+24.81 to Sta. 14+58.97 Service Road 'A'
Sta. 70+51.76 to Sta. 73+74.62 C.R. 52 Extension (Pav't width - 12' Lt. lane - 8' Rt. lane)
Sta. 75+29.87 to Sta. 80+18.00 C.R. 52 Extension
* Sta. 83+25.00 to Sta. 87+52.73 C.R. 52 Relocation Nº 2
Sta. 89+91.68 to Sta. 91+19.45 C.R. 52 Relocation Nº 2
Sta. 18+26.70 to Sta. 21+80.15 C.R. 52 Relocation Nº 3
Sta. 37+33.32 to Sta. 44+76.39 C.R. 52 Relocation Nº 3
Sta. 57+38.23 to Sta. 63+19.69 C.R. 52 Relocation Nº 3

ITEM		DESCRIPTION
12	‡ T-35	1½" Asphaltic Concrete Surface Course (85-100), Type "A"
13	T-30	Bituminous Prime Coat using , Sec. M 5.7, RT 2 or RT-3 applied at the rate of 0.2 Gal/S.Y.
5	B-19	Aggregate Base Course
8	L-9	Seeding and Protecting
18	I-9	Stone Underdrains, No 2
19	I-15	Guard Rail, 3 Wire Cable Type

* VARIABLE PAV'T. WIDTH - C.R. 52 Reloc. #2
83+25 to 83+75 ~ 14.0' to 16.0'
91+75 to 92+25 ~ 16.0' to 13.0'

** VARIABLE PAV'T. WIDTH - C.R. 52 Reloc. #3
70+50.00 to 70+88.10 ~ 16' to 20'

NOTE: For details not shown on this drawing see Standard Construction Drawing numbers DR-1, RI-1, & T-35

NOTES

1. For Fills 10' and Over use 2:1 Slopes
2. For Fills under 10' use 3:1 Slopes
3. For Cuts 5' and under use 3:1 backslopes
4. For Cuts over 5' use 2:1 backslopes
5. Fills are measured from edge of shoulder to existing ground. Cuts are measured from bottom of ditch to existing ground.

‡ 6. Thickness shown is "Designed" thickness as described in Sec. T-35.01.

SERVICE ROAD 'A'
C.R. 52 EXTENSION
C.R. 52 RELOC. Nº 2
C.R. 52 RELOC. Nº 3

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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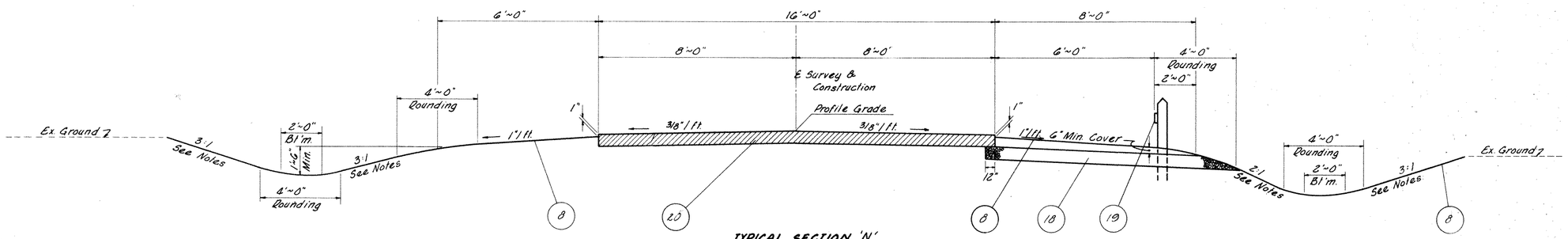
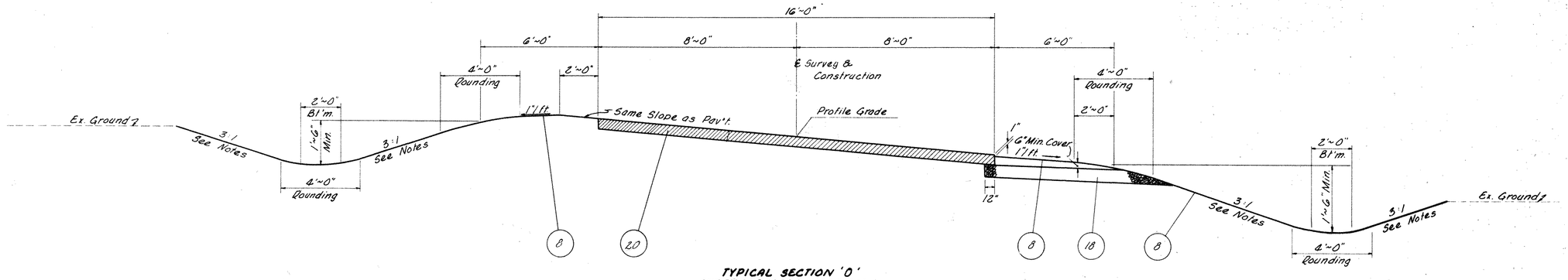
TYPICAL SECTIONS
TYPE B-19



TYPICAL SECTION 'N'
NORMAL SECTION
Sta. 20+81.04 to Sta. 24+50.00 Private Dr. @ end of Svc. Rd. "A"



TYPICAL SECTION 'O'
SUPERELEVATED SECTION
NOT REQUIRED

ITEM		DESCRIPTION
8	L-9	Seeding & Protecting
19	I-15	Guard Rail, 3 Wire Cable Type
18	I-9	Stone Underdrains, No. 2
20	B-19	8" Aggregate Base Course

NOTES
1. For Fills 10' and over use 2:1 Slopes.
2. For Fills under 10' use 3:1 Slopes.
3. For Cuts 5' and under use 3:1 Backslopes.
4. For Cuts over 5' use 2:1 Backslopes.
5. Fills are measured from edge of shoulder to existing ground. Cuts are measured from bottom of ditch to existing ground.

For details not shown on this drawing see Standard Construction Drawing numbers DR-1, RI-1 and I-35.

SERVICE ROAD 'A' (PRIVATE DRIVE)
TYPICAL SECTIONS

Used RDM 1-20-69

GENERAL NOTES

FIELD OFFICE
The Contractor shall, in accordance with Sec. S-0.01 (b), provide for the exclusive use of the State's employees, a suitable field office having a minimum of 500 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 install wiring and outlets suitable for connecting electric lights and office equipment in the field office and provide 110-volt alternating current to the office during the entire period of construction of this project.

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

SECTION CORNER MARKERS
Section Corner Markers and Property Corner Markers which will be removed by construction, shall be protected by the Contractor as per Section G-7.09 until they can be witnessed, referenced and reset by the Engineer.

ESTIMATED QUANTITIES
Specific locations and usage of estimated quantities set up on this plan to be used "as directed by the Engineer" shall be made a matter of record by incorporation into the final change order governing completion of this project and shall not be ordered without prior approval of the Engineer.

UTILITIES
The Contractor shall notify at least 5 days, unless otherwise noted on these plans, before breaking ground all Public Service Corporations having wire, poles, pipe, conduits, manholes or other structures that may be affected by this operation, including all structures which are affected and not shown on these plans.

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

UTILITY OWNERSHIP & ADJUSTMENT
Ohio Power Co., Canton 2, Ohio
General Telephone Co., Cambridge, Ohio
Columbia Gas of Ohio, Inc., Columbus, Ohio
Village of Byesville, Byesville, Ohio
Black's T.V. Service, Byesville, Ohio

Any and all work required for removing, relocation and construction of new facilities for private or public utilities will be done by and at the expense of the respective Owners unless otherwise noted on the plans.

REPLACEMENT
The Contractor shall replace, at his own expense, any item not specifically listed for removal that is damaged or destroyed by his operations.

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

COOPERATION NOTE
The Contractor shall cooperate to the fullest extent with Contractors on adjacent projects in a manner which will result in a minimum amount of interference with other Contractors.

DESIGN SPEED
The geometrics for this project have been planned for a design speed of 70 miles per hour.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS
The rounded corners shown on Standard Drawing RI-1, as modified by the typical sections, apply to all cross sections, even though otherwise shown on these plans.

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

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

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

GUARD RAIL FLARES
Where proposed guard rail flares are constructed of rail elements which have not been fabricated exactly to fit the curvature shown on the plans, the two end posts of each flared section shall be encased in a minimum 4-inch thickness of Class "E" concrete for the full depth of the post below the ground line. Payment for encasement, if required, shall be included in the unit price bid for the guard rail.

GUARD RAIL ADJACENT TO BRIDGE
One (1) additional guard rail post shall be provided in the center of each panel of guard rail adjacent to the bridge, payment for which shall be included in the unit price bid for Item I-15 Guard Rail.

FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS
The Contractor shall furnish, erect, maintain and subsequently remove Federal Aid construction identification signs at each of the following locations:

1. Left of Sta. 416+00 S.B. I-77
2. S.E. Corner of First St. and Existing U.S. 21

Sign details shall be as specified on Standard Drawing FACI-1, Code N-55(1)-120(2), and the signs shall be erected in accordance with Standard Drawing FACI-2. Additional requirements shall be in accordance with notes in the proposal.

REMOVAL OF TREES AND STUMPS
All trees and stumps, 12" in diameter or more, lying within the construction limits of this project shall be removed under the lump sum price bid for Item E-9, Removal of Trees and Stumps, 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
12" - 18"	698	0
18" - 24"	14	0
24" - 30"	4	0
30" - 36"	1	0
36" - 42"	0	0
42" - 48"	0	0
Over 48"	0	0

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 E-9, Removal of Trees and Stumps.

AGRICULTURAL LIMING MATERIALS
The location and need for agricultural liming materials will be determined by laboratory tests after rough grading operations have been performed. Quantities of agricultural liming materials, as shown on the plans, are sufficient for the entire project but will be non-performed for the areas where tests show that the liming material is not needed.

L-9 COMMERCIAL FERTILIZER
All areas to be seeded under Item L-9, or sodded under Item L-10, shall have commercial fertilizer, (12-12-12) applied at the rate of twenty (20) pounds per 1,000 square feet.

SEEDING FORMULA
The following seed mixture shall, in lieu of the mixtures listed in Section L-9.11, be used throughout the limits of this project:

65% Kentucky 31 Fescue
20% Kentucky Bluegrass
10% Creeping Red Fescue
5% Alsike Clover

SEEDING
Quantities for seeding are calculated for the soil areas between the right-of-way fence lines, between the right-of-way lines in unfenced areas, and within the work limits for areas outside the right-of-way lines covered by channel change agreements throughout the Limited Access Sections of this project.

Quantities for seeding are calculated for the soil areas between the work limits, as shown on the cross sections throughout the non-Limited Access sections including the side roads, drives, and service roads.

SEEDING NEW CHANNEL WORK
New channel banks shall be seeded where riprap or dumped rock is not provided.

Channel flow lines shall not be seeded.

GENERAL NOTES

SPECIAL DITCHES
For special ditch grades, see Cross Sections.

CATCH BASIN LOCATION
The location of a C.B. as shown on the plans is the center of grate.

INLET LOCATION
The location of an inlet as shown on the plans is the center of the manhole cover.

NO. 2-2B, 4, 5, 6 & 8 CATCH BASINS
The grade elevation is the top of grate on the upstream end of the catch basin.

SWALES AND/OR SPRINGS IN ROCK CUT
At the direction of the Engineer, a depression to concentrate the flow of water shall be cut into the face of the rock at all swales and/or springs encountered during construction. The width and depth of the depression for each location shall be as determined by the Engineer (See Detail Sht. 25) and shall extend to the ditch line. Payment for cutting these depressions shall be at the unit price bid for Item E-1 Roadway Excavation, as per plan.

SPRING DRAINS
The Class I-3 pipe for spring drainage shall be covered with Type 3 porous backfill material to a height of one (1) foot above the top of the pipe. The remainder of the backfill for this item shall meet the specification requirements for Type 2 Backfill. Estimated Quantities: I-1 500 LF - 6" Class I-3 Sec. M-6.4(h), as per plan and I-9 30 LF Stone Underdrains No. 1. See Detail Sheet No. 25

EROSION CONTROL
Items I-10, L-120, I-14 and L-10 are provided in these plans for erosion control. Rock or 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.

DUMPED ROCK CHANNEL PROTECTION
Broken masonry or broken pavement resulting from the removal of existing structures or pavement and meeting the size requirements as provided in Section I-10.07 may be used in this item. *Any projecting reinforcing steel shall be removed before material is placed and costs incurred shall be included in the price bid for Item I-10 D.R.C.P.*

NO. 6 CATCH BASIN (MODIFIED)
The pavement block out and dowels are not required.

8" DROP PIPE FOR EXISTING MANHOLE, AS PER PLAN
Drop pipe shall be constructed as shown on Standard Drawing I-8 M.H. No. 2. Payment for all labor and materials to construct drop pipe shall be included in the price bid for Item I-8, 8" Drop Pipe for Existing Manhole, as per plan.

SANITARY SEWER JOINTS
The joints for the 8" sanitary sewer shall be compression joints in accordance with I-1.06 of the Specifications.

SEALING OF PIPE JOINTS
Where connections are made between rigid and flexible pipe sections or between pipe sections of different kind or type of end fabrication, whether required by the plans, arising from permissible use of optional materials, or encountered in connection to existing facilities, the joint shall be sealed, if sealing is required by the specifications, by means of a Class "E" concrete collar having a minimum thickness of 6 inches and a minimum length of 12 inches. Payment for sealing as described above shall be included in the unit price bid for the pertinent pipe item.

REINFORCED ENDS ON CORRUGATED METAL PIPE
Reinforced ends shall be required on all corrugated metal Class F-4 *Pipe (except helical)* for driveways and underdrain outlets if the pipe ends are unprotected by headwalls, catch basins or manholes. *Payment for reinforced ends shall be included in the unit price bid for the pertinent pipe item.*

REMOVAL OF EXISTING PIPE
The removal of all existing pipe drains within the limits of proposed excavation items shall be included for payment in the unit prices bid for the respective excavation items, unless otherwise itemized in the plans.

PRIVATE SEWER TAPS ON L.A. R/W
This plan makes no provision for connecting, nor shall the Engineer or Contractor connect, any existing or new private drainage into the new highway drainage system when such private drains carry effluent or drainage from leaching bed outlets, cellar drains, or sink drains, or polluted water of any kind. Connections may be made to the existing or new highway drainage system when the water carried to the project drainage system does not come within the category outlined above. Acceptable water includes flow from roof drains, field drains, and enclosed natural drainage sources which would reach the road through natural channels if such water was not conducted artificially. Existing sewer taps which do not carry acceptable water as defined above shall be plugged at the right-of-way line. Plugging specified shall be by means of Class "E" Concrete and payment therefor shall be included in the unit price bid for Item E-1, Roadway Excavation.

LOCATION AND SIZE OF PIPES
The location, type, depth, and size of all existing pipes are shown as near exact as the available information will permit. The State will not be responsible for any variations found during construction.

SECTIONAL CORRUGATED PLATE PIPE END FINISH
Sectional plate pipes shall not be cut off on a plane parallel to the slope as shown in the SP-53 Standard Drawing unless otherwise shown on the plans.

PLUGGING PIPE
The upstream ends of all pipe or tile lines intercepted by earthwork operations and, where indicated, the ends of pipe lines to be abandoned in place shall be effectively blocked and covered. Broken pieces and portions of pipe or tile shall be removed until a whole length is encountered which shall be blocked with concrete, flat stone or brick laid in mortar, or a precast clay or concrete stopper. Payment for the above work shall be included in the unit price bid for Item E-1, Roadway Excavation.

ITEM I-9 STONE UNDERDRAINS NO. 2
Stone Underdrains shall be placed at fifty (50) foot intervals on each side of normal crowned sections and at twenty-five (25) foot intervals on low side only of super-elevated sections, *except where Item I-1 Pipe Underdrains have been provided. A stone underdrain shall be placed at the low point of each sag vertical curve.*

ROCK FILL - EXISTING WILLS CREEK CHANNEL
In the existing Wills Creek channel where standing water is encountered, rock fill shall be placed up to two feet above the water level by the method of end dumping. Where end dumping of rock is permitted, normal clearing shall be performed but the requirements of Sec. E-1.04 for scalping and compaction shall be waived. The rock shall be placed so that the larger rocks are well distributed and the void spaces filled with smaller rocks. Where embankment material other than rock is superimposed upon the rock fill, the top of the rock fill shall be sealed with spalls and granular material and rolled as per Sec. E-1.08(d) of the Specification. Rock fill shall consist of rock as defined in Sec. E-1.02 of the Specification. *See computations on Sheet No 14 for Limits of Rock Fill.*

RELAYING EXISTING 12'-6" x 7'-11" SECTIONAL PLATE ARCH

The existing arch at Station 354+33 is to be removed and relaid at Station 23+39 County Road 52 Relocation No. 3. The cost of new material required to complete the construction of the arch at Station 23+39 shall be included in the price bid per lineal foot for "Item I-6 Relaying 12'-6" x 7'-11" Sectional Corrugated Metal Pipe - arch Structure".

CUT-OFF WALLS
The contractor shall provide Class "E" concrete cut-off walls for Item I-10, Riprap using 6" Reinforced Concrete Slab, as per plan, as shown on these plans or as directed by the Engineer. Payment for cut-off walls shall be included in the unit price bid for Item I-10, Riprap using 6" Reinforced Concrete Slab, as per plan.

APPROACH SLAB LONGITUDINAL JOINTS
Longitudinal impressed or sawed joints shall be provided between lane elements, on all approach slabs, in accordance with "Standard Construction Drawing L.J. No 1. Payment for the joints shall be included in the unit price bid for Item I-7 Approach Slabs.

ITEM I-5 PIPE SPECIALS
Pipe without perforations will be permitted for use on this project for all Item I-5 Pipe Specials.

GENERAL NOTES

SPECIAL - R/W FENCE REMOVED AND STORED
This item shall consist of the removal and storage of existing R/W fence and posts not encased in concrete.

The fence shall be rolled in neat rolls and both fence and posts shall be stored on the R/W for removal by others.

The price bid per Lin.Ft. for Item Special, R/W Fence Removed and Stored, shall include payment for all labor, materials and incidentals necessary to complete this item.

DRIVE LOCATIONS
The locations of the drives as shown on the plans may be relocated as directed by the Engineer outside the Limited Access right-of-way and providing that there is no additional cost to the State.

DRAINAGE OF BASE MATERIAL
Where the base material is drained by I-9 Stone Underdrains, the Contractor shall finish, seed, and mulch the slopes so as not to impede drainage of the base material.

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 feet below the proposed finished grade outside proposed pavement areas or at least two feet below the proposed subgrade elevation inside proposed pavement areas and capped with Class "E" Concrete or a standard threaded pipe cap.

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

ITEM S.S. CE-101.04 COMPACTION USING HEAVY PNEUMATIC TIRED ROLLER
An estimated quantity for this item has been provided in the General Summary for use in proof rolling of subgrade on the mainline and ramp pavements as directed by the Engineer. Proof rolling will not be required where rock or shale occurs in subgrade and in areas where subbase will be thickened to replace frost susceptible silts. In lieu of the requirements of CE-101.04, a minimum of one coverage will be required to check the subgrade. Moisture content of the top 12" of subgrade shall not exceed optimum at the time of proof rolling. Tire pressure and total load shall be varied as directed by the Engineer within the limits provided in Supplemental Specification No. CE-101.04.

COUNTER BERMS
The estimated quantities for the earthwork includes a quantity of embankment for counter berms, as shown on the cross sections and listed below.

If during embankment construction there is indication of embankment distress or impending failure, the counter berms shall be constructed as directed by the Engineer.

If it is determined by the Engineer that the counter berms are not required, the quantity E-4 Borrow shall be reduced by the amount required to construct the counter berms.

Limiting Stations

13+50	to	20+00	Ramp "A"
14+00	to	21+00	Ramp "C"
13+00	to	17+00	Ramp "D"

GRANULAR LAYER UNDER EMBANKMENT
Between the limiting stations shown below the specification requirements relating to scalping and foundation compaction may be waived and an 18 inch granular blanket shall be placed by end dumping methods. Materials to be used in this initial 18 inch layer shall be rock or granular material and shall be measured and paid for as Item E-4 Borrow Using Granular Material, as per plan.

Granular material for this item shall be as defined in Sec. E-1.02. 85 percent by weight of the grains or particles shall be retained on a No. 200 sieve.

Above the initial 18 inch layer, the embankment shall be constructed in accordance with Sec. E-1.08 of the Specifications.

Limiting Stations

263+30	to	271+00	I-77
275+60	to	280+00	I-77
388+50	to	395+00	I-77
14+00	to	22+00	Ramp "A"
10+30	to	20+00	Ramp "C"
13+50	to	21+00	Ramp "D"
44+60	to	48+60	C.R. 102 Relocation

SPECIAL SEEDING PREPARATION AREAS

The references in the first paragraph of Sec. L-9.11 to preparation of the seed bed in front of residences, etc., shall, on this project, be considered to be particularly applicable in the following areas:

Station 128+00 to Station 129+00 Right and Left
Temporary Road No. 1
Station 57+00 to Station 58+50 Right
Co. Rd. 52 Relocation No. 3
Station 84+00 to Station 85+00 Right
Co. Rd. 52 Relocation No. 2
Station 71+50 to Station 73+00 Left
Wills Creek Channel Relocation No. 1

EXISTING DUMP MATERIAL CO. RD. 52 RELOCATION NO. 3

The existing dump material shall be removed and replaced with suitable material as shown on the plans and rolled as described in the Proposal Note for "ITEM SPECIAL, EMBANKMENT FOUNDATION COMPACTION USING HEAVY PNEUMATIC-TIRED ROLLERS. 2 hours of rolling and 60 cubic yards of "Item E-4 Borrow Using Granular Material as Per Plan" for leveling have been included in The General Summary to perform this item of work. *For additional information see note in proposal.*

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 Sec. E-1.04. No additional payment will be made for benching required by the provisions of Sec. E-1.04.

PAVEMENT JOINTS
Although specific locations of certain contraction and expansion joints have been detailed on this plan, no waiver of the specifications and standard drawing requirements is intended and the maximum distance between contraction joints and locations for expansion joints at structures and ramps shall in all cases fulfill the minimum requirements of the specifications and standard construction drawings.

PAVEMENT DIMENSIONS
Pavement dimensions are to the face of curb unless otherwise shown.

PAVEMENT ELEVATIONS
Pavement edge elevations are at the face of the curb unless otherwise shown.

ROCK SUBGRADE

The Contractor shall be paid for the thickness of I-22 material shown on the typical sections in rock excavation areas. Any pockets in the rock below the plan subgrade elevation shall drain either longitudinally or laterally and all irregularities in the rock below this elevation shall be filled with I-22 material at no additional cost to the State.

ITEM I-22 SUBBASE, GRADING "A" OR "B", AS PER PLAN
The material furnished for this item shall meet the requirements of Grading "A" or "B" of Sec. I-22.02 except that, for either grading, no more than 10 percent of the material shall pass a No. 200 sieve after all operations of placement and compaction have been completed.

NON-RIGID PAVEMENT REMOVAL
Removal and disposal of existing non-rigid pavement, unless otherwise indicated on these plans, shall be measured and paid for as Item E-1, Roadway Excavation.

PAVEMENT REMOVAL OUTSIDE NORMAL CONSTRUCTION LIMITS
After the existing pavement has been removed, the old roadway shall be plowed, harrowed, and dragged to a smooth grade, the old ditches filled, and the entire area sloped to drain and left in a neat condition ready for seeding. Payment for this work shall be included in the unit price bid for pavement removal, Item E-8. Seeding shall be measured and paid for in accordance with Item L-9.

T-10 MODIFIED
This item shall consist of furnishing No. 3 or No. 34 Aggregate, when directed by the Engineer, in lieu of the grading specified under Item T-10. All other provisions of Item T-10 shall apply. The weights to be used in calculating the yardage to be paid for under this item shall be the same as those indicated in the Construction and Materials Specifications for crusher run or bank run materials. Existing bituminous pavement removed may be used in lieu of T-10 or T-10 Modified for Traffic Maintenance.

GENERAL NOTES

MAINTENANCE OF TRAFFIC

U.S. 21

1. Two way traffic shall be maintained at all times.

2. Traffic shall be maintained on Existing U.S. 21 until Temporary Road No. 1 is completed, then U.S. 21 traffic shall be maintained on Existing U. S. 21, Temporary Road No. 1 and First Street.

3. When Co. Rd. 52 Relocation No. 1 from Sta. 28+62 to Sta. 33+00 is open to traffic, remove Temporary Road No. 1 except the section between First Street and a point 176' east of the east edge of First Street, which shall remain in place, and construct Wills Creek Channel Relocation No. 1. Traffic shall be maintained on Co. Rd. 52 Relocation No. 1 from Sta. 28+62 to Sta. 33+00, Temporary Connection No. 3 and Existing U.S. 21.

4. Construct North Bound lanes from Sta. 284+50 to Sta. 401+25. Construct Temporary Connection No. 1.

5. Construct South Bound lanes from Sta. 280+00 to Sta. 403+50. Construct Ramp "B". Traffic shall be maintained on Co. Rd. 52 Relocation No. 1 from Sta. 28+62 to Sta. 33+00, Temporary Connection No. 3, Existing U.S. 21, Temporary Connection No. 1, North Bound I-77 and Existing Road "B".

6. Construct North Bound lanes Sta. 241+00 to Sta. 284+50, South Bound lanes Sta. 241+00 to Sta. 280+00, Ramps "A", "C", and "D". Traffic shall be maintained over Co. Rd. 52 Relocation No. 1, Ramp "B", South Bound I-77, and Existing Temporary Road "A".

Co. Rd. 52 Relocation No. 1

1. Two way traffic shall be maintained at all times.

2. Construct Co. Rd. 52 Relocation No. 1 between Sta. 28+62 and Sta. 33+00 and bridge over Wills Creek Relocation No. 1 after U.S. 21 traffic has been placed on Temporary Road No. 1.

3. Construct the section between Sta. 35+00 and Sta. 44+50, Temporary Road No. 3 and Temporary Connection No. 2.

   Traffic shall be maintained on Existing County Road 52 and Temporary Road No. 1.

4. Complete Co. Rd. 52 Relocation No. 1 between Sta.44+50 and Sta. 53+75, maintaining traffic on the existing pavement, the proposed pavement and shoulders. T-10 Aggregate and I-4 Calcium Chloride shall be provided on the shoulders as required to maintain a minimum pavement width of 20 feet for traffic maintenance.

   Traffic shall be maintained over Temporary Road No. 3 after the Wills Creek Channel Relocation No. 1 is in service.

5. After U. S. 21 traffic has been transferred to Ramp "B", Temporary Road No. 4 shall be constructed of T-10 Aggregate and I-4 Calcium Chloride with a minimum surface width of 20 feet and Co. Rd. 52 Relocation No. 1 may be completed between Stations 33+00 and 35+00.

Co. Rd. 52 Relocation No. 2

The north intersection with Existing U.S. 21 shall remain open to traffic until the traffic can be maintained on the proposed roadway. The south intersection with Existing U.S. 21 shall remain open until County Road 52 Extension is open to traffic.

Co. Rd. 52 Relocation No. 3

Existing County Road 321 from the intersection of U.S. 21 to the north end of Co. Rd. 52 Relocation No.3 may be closed to traffic after Co. Rd. 52 Relocation No. 3 is opened to two-way traffic.

Co. Rd. 102 Relocation

Construct Temporary Road No. 2. Two-way traffic shall be maintained on Temporary Road No. 2 and Existing Co. Rd. 102 to Existing U.S. 21, until such time that Co. Rd. 102 can be opened to two-way traffic. The section of Co. Rd. 102 west of U.S. 21 shall be closed to traffic when deemed necessary by the Engineer.

Temporary Traffic Lanes

Temporary concrete pavement shall be constructed in accordance with the requirements of the last three paragraphs of Section S-15.06 and paid for under Item T-70 Portland Cement Concrete Pavement.

Removal of the temporary pavement constructed with this project and existing temporary roads "A" and "B" when no longer needed for traffic maintenance will be removed in accordance with Sec. S-15.09 and paid for under Item E-8. Cost of all temporary drainage, necessary grading required for placing the temporary pavement, and maintenance of same shall be included in the lump sum bid for Item I-3, Maintaining Traffic. Seeding the disturbed area shall be measured and paid for in accordance with Item L-9.

Protection of Traffic

The Contractor shall safeguard the traveling public on Co. Rd. 52 Relocation No. 1, and U.S. 21, by providing platforms, nets, or other suitable protection above the traveled lanes. Payment for this protection shall be included in the lump sum price bid for Item I-3, Maintaining Traffic. Two lanes of traffic with a minimum horizontal width of 26'-0" shall be maintained. A minimum vertical clearance of 12'-9" shall be provided at all times.

ALTERNATE METHODS

If the Contractor so elects, he may submit alternate methods for the maintenance of traffic provided the intent of the above provisions is followed and no additional inconvenience to the traveling public results therefrom. No alternate plan shall be placed into effect until approval has been granted, in writing, by the Director.

TEMPORARY ROADWAYS

Temporary roadways not separately itemized shall be surfaced with Item T-10 Aggregate and Item T-10 Aggregate Modified and stabilized with Item I-4 Calcium Chloride for dust control. Items I-4, T-10 and T-10 Modified shall be applied where directed and in amounts requested by the Engineer. Estimated quantities have been provided in the General Summary to be used at the direction of the Engineer.

TEMPORARY CONNECTIONS AND MAINTENANCE OF LOCAL TRAFFIC

250 C.Y. of T-10 Aggregate, 250 C.Y. of T-10 Aggregate Modified and 10 tons of I-4 Calcium Chloride for Dust Control are to be used at the direction of the Engineer for maintenance of traffic.

Payment for construction, maintenance and subsequent removal and restoration to original lines of temporary connections, except for furnishing and placing Items T-10, T-10 Modified, and I-4 for maintaining traffic, shall be included for payment in the lump sum bid for Item I-3 "Maintaining Traffic," unless otherwise shown.

USE OF TEMPORARY PAVEMENT

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.

DUST CONTROL

10 tons of I-4 Calcium Chloride for Dust Control and 100 M gallons of I-4 Water for Dust Control are to be used at the direction of the Engineer for control of dust within the limits of the project.

PART WIDTH CONSTRUCTION

Because of the necessity of building parts of this project under traffic and constructing the pavement part at a time, extreme care shall be taken to prevent the construction of a butt joint on centerline in the I-22 or B-19 Courses.

This shall be accomplished by building the I-22 or B-19 Course, 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 course. When the second portion of the pavement is built, at least twelve (12) inches of the projecting course shall be broken down and thoroughly keyed in with the newly placed corresponding course 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.

The above shall apply at the following locations:

1. Sta. 51+00 to 53+75 Co. Rd. 52 Relocation No. 1.
2. Co. Rd. 52 Relocation No. 3 Connection to Existing Co. Rd. 321.

COMPUTATIONS FOR FILLING EXISTING WILLS CREEK CHANNEL

1. Roadway earthwork is computed to the surface of the water as shown on the cross sections between the limits shown below.
2. Channel Fill Computations (Ex. Rl. Elev. = 774.5±)

Station to Station	Length	Fill to Elev.	Volume
244+00 to 249+00	1100 L.F.	790.0	33 C.Y./L.F. x 1100 = 36,300 C.Y.
249+00 to 255+00 Rt.	850 L.F.	784.5	16 C.Y./L.F. x 850 = 13,600 C.Y.
13+00 Rt. Ramp "D" to 17+00 Rt. Ramp "C"	925 L.F.	784.5	16 C.Y./L.F. x 925 = 14,800 C.Y.
17+00 Rt. Ramp "C" to 10+50 Rt. Ramp "C"	355 L.F.	787.5	23 C.Y./L.F. x 355 = 8,150 C.Y.
10+50 Rt. Ramp "C" to 47+25 C.R. 52 No. 1	350 L.F.	784.5	16 C.Y./L.F. x 350 = 5,600 C.Y.
278+25 Lt. & Rt.	550 L.F.	784.0	15 C.Y./L.F. x 550 = 8,300 C.Y.

Ex. Wills Creek Channel Fill = 86,750 C.Y.
(Quant. carried to Sht. No. 21)

WATER LINE NOTES

EXISTING UTILITIES
All existing surface, subsurface, or overhead structures are not necessarily shown on the water line drawings. The State of Ohio makes no guarantees as to their accuracy or completeness.

The Contractor shall make such investigations as are necessary to determine the extent to which existing surface, subsurface or overhead structures may interfere with the prosecution of the works.

LINES TO BE ABANDONED
Water lines to be abandoned need only be removed to the limits necessary for the Contractor to complete his work.

PIPE REMOVAL
Payment for the removal of any existing water line necessary to make new connections shall be included in the price bid per lin. ft. for "New Water Main" unless otherwise noted on the plans.

WATER SERVICE
Work shall be scheduled and coordinated so as to minimize inconvenience to the Village of Byesville due to loss in water service. The Contractor shall not disrupt any water service without permission of the Engineer.

The Contractor shall limit the down time for the one inch and six inch lines to four (4) continuous hours. He shall limit the down time for the eight inch line to eight (8) continuous hours.

NEW WATER MAINS
All new water mains shall be Cast Iron Mechanical Joint Pipe with A.S.A. thickness class as designated on the plans. Pipe shall be "tar dipped" for coating inside and out.

WATER MAIN PIPE COVER
Pipe cover for new water mains shall be a minimum of 3-1/2 feet between top of pipe and existing ground or finished grade.

VALVES
Valves, unless otherwise noted, shall be iron bodied, bronze mounted, AWWA double disc, parallel seat type, M & H Figure No. 67M or Mueller, Cat. No. A2480, or an approved equal, shall have non-rising bronze stem, shall open by turning to the left, shall be operated by a 2 inch square operating nut and shall have mechanical joint ends.

The valves shall be designed for a working pressure of 150 p.s.i. and a hydrostatic pressure of 300 p.s.i.

VALVE BOXES
Valve boxes shall be Clow F-2450 or M & H E-3002 with bases to fit valve sizes furnished, or approved equal.

MISCELLANEOUS CONNECTIONS
The Contractor shall furnish all test plugs and caps and chlorination connections that will be required for the job. Payment shall be included in the price bid per lin. ft. for "New Water Mains"

BLOCKING & BACKING
No separate payments will be made for concrete backing or timber blocking, as called for in details. Cost shall be included with the unit price bid for Item I-124, "New Water Mains". Concrete backing shall consist of Class "E" concrete.

GRANULAR BACKFILL
All new water mains and fittings under pavement shall be backfilled with granular material meeting the grading requirements of Sec. I-22.02. Payment for all costs including labor and materials shall be included in the price bid per lin. ft. for "New Water Mains" or in the price bid per each for "Fittings".

WORK SCHEDULE
The Contractor must submit a Work Schedule to the Engineer, who will in turn submit it to the Superintendent of the Water Department for his approval. Water lines will be laid in accordance with the approved Work Schedules.

NIGHT WORK
Night work and/or week-end work may be ordered when such work must be done at these times to protect the water supply.

TESTING
For the "Hydrostatic Test", the normal operating pressures will be furnished by the Engineer who shall obtain them from the Village of Byesville Water Department.

ONE INCH WATER LINE
The new one inch water line shall be polyethylene pipe of a quality suitable for potable water systems. Pipe shall be capable of a maximum working pressure of 100 lbs. per sq. in. at 73.4°F. Pipe shall be Plastex, 100 lb. pressure rated as manufactured by the Plastex Co., Columbus, Ohio, Carlon H1-MOL 100 lb., as manufactured by Carlon Products Corp., Cleveland, Ohio, or approved equal. Plastic couplings and adapter fittings, as recommended by the pipe manufacturer, shall be used for the polyethylene pipe. Clamps for securing pipe to plastic fittings shall be all stainless steel, including saddles. The pipe shall be placed in a trench loose or "snaked" and filled with cold water just prior to backfilling. The pipe installation is to be in accordance with manufacturer's recommendations. All changes in grade and alignment shall be accomplished by bending the pipe in an arc having a minimum radius of 3 feet. The pipe shall have a minimum cover of 3-1/2 feet below finished grade. The existing pipe at proposed connection points shall be cut and fitted with proper fittings to connect new pipe. The polyethylene pipe shall be connected to the existing pipe using plastic adapter fittings at these locations. The Unit Price Bid for I-124 One Inch Water Line shall constitute full compensation for all material, labor and equipment required for excavation, installation of pipe in open trench and backfilling as called for above and as shown on the drawings.

Excavation and backfilling shall be done in accordance with applicable portions of Sec. I-124.03 of Supplemental Specification I-124.

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GENERAL SUMMARY

ITEM	GEN. NOTES	21	22-24	30	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	57	58	59	60	61	62	63	64	65	184	100	101	244	250	Guard Rail Removed & Rebuilt			ITEM	PROJECT TOTAL	UNIT	DESCRIPTION
																																										TYPE CODE - 7221
																																										ROADWAY
E-1		587,163																																					E-1	587,163	C.Y.	Roadway Excavation, Method "B", as per plan
E-1			97,472	1,000																																			E-1	98,472	S.Y.	Compacted Subgrade
E-4		630,979																																					E-4	630,979	C.Y.	Borrow
E-4	60	47,514																																					E-4	47,514	C.Y.	Borrow, using Granular Material, as per plan
E-8								1,406	501	2,107	2,813	2,526	31	641	375	117	1,825	1,347		1,580		783	435	167															E-8	16,804	S.Y.	Removal and Disposal of Existing Pavement
E-8																				172																			E-8	172	L.F.	Removal and Disposal of Existing Curb & Gutter
E-8																				72										140									E-8	212	S.F.	Removal and Disposal of Existing Sidewalk
E-9	Lump																																						E-9	Lump	Lump	Removal of Trees and Stumps
E-11		7,618																																					E-11	7,618	M-Gal.	Water
E-12										38			36	70		76					66				34														E-12	320	L.F.	Pipe Removed, 15" and Under
E-12									38	110		376			190		2			114		34																	E-12	864	L.F.	Pipe Removed, over 15"
E-12												86																											E-12	86	L.F.	Pipe Removed for Re-use, 12'-6" x 7'-11" Sec. Plate Arch
E-12														100																									E-12	100	L.F.	Pipe Removed for Storage, 84" Sec. Plate
I-4	20							6											3		3			5.5															I-4	37.5	Tons	Calcium Chloride for Dust Control
I-4	100																																						I-4	100	M-Gal.	Water for Dust Control
I-8																																		17					I-8	17	Ea.	Centerline Reference Monuments, as per plan
I-13																				45										148									I-13	193	S.F.	4" Concrete Sidewalk
I-15					1,800	1,703	1,133	2,834.5	1,236	150	125	1,275	300	1,050	350				2,031	188	325															3,287.5			I-15	11,213	L.F.	Guard Rail, Steel Beam Standard Type (Deep)
I-15									601	327											102	704	1,693	488	800	1,358	102	640	2,187										I-15	9,182	L.F.	Guard Rail, Wire Cable Type (3 Cable)
I-15								458	92	312.5	400	725	250	362.5	200					487.5																			I-15	3,287.5	L.F.	Guard Rail, Removed and Rebuilt
I-15								925																															I-15	925	L.F.	Guard Rail, Removed and Disposed of
I-25																																			22,406				I-25	22,406	L.F.	Woven Wire Fence, Type 47
I-26																																			663				I-26	663	L.F.	Chain Link Fence
I-127		97																																					I-127	97	Ea.	Delineators, Post Mounted, Type A-1
I-127		146																																					I-127	146	Ea.	Delineators, Post Mounted, Type C-2
I-127		2																																					I-127	2	Ea.	Delineators, Post Mounted, Type C-3
L-9		508,874																																					L-9	508,874	S.Y.	Seeding and Protecting, as per plan
L-9		46.48																																					L-9	46.48	Tons	Commercial Fertilizer (12-12-12)
L-9		232.38																																					L-9	232.38	Tons	Agricultural Liming Material, as per plan
L-10						134		822	97		172	502	373	355	133	164	108		1,377		80	947	98	157	165	652	386	300	160										L-10	7,272	S.Y.	Sodding
L-10								96												20			136																L-10	261	S.Y.	Sodding for Special Berm & Slope Protection, as per plan
L-120					500	250	250		250	250	250	405	95		500		250																						L-120	3,000	S.Y.	Jute Matting
T-10	250							150											60		75			138						1									T-10	674	C.Y.	Traffic Compacted Surface Course for Maintaining Traffic
T-10	250							150											60		75			138						1									T-10	674	C.Y.	Traffic Compacted Surface Course for Maintaining Traffic, as per plan
Special																																			16,374				Special	16,374	L.F.	R/W Fence Removed & Stored, as per plan
Special								4											1	2									1										Special	8	Ea.	Drilled Wells Abandoned
Special	2																																						Special	2	Hours	Embankment Foundation Compaction using Heavy Pneumatic-Tired Roller
S.S.C.E. 701.84		50																																					S.S.C.E. 701.84	50	Hours	Compaction using Heavy Pneumatic Tired Roller

ROADWAY QUANTITIES CONT'D. ON SHT. 20

BUILDING REMOVAL

ITEM	PROJECT TOTAL	UNIT	DESCRIPTION
E-10	Lump	Lump	Removal of one 2-story frame house, 2-frame barns, 2 sheds, one frame garage. Parcel - 1-WL
E-10	Lump	Lump	Removal of two Mink Pens. Parcel - 3-WL
E-10	Lump	Lump	Removal of one 1-Story Frame House, one frame garage Parcel 5-WL
E-10	Lump	Lump	Removal of one Frame Garage. Parcel - 9-WL

GENERAL SUMMARY

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ITEM	GEN. NOTES	21	22-24	30	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	57	58	59	60	61	62	63	64	65	184	190	191	244	250	ITEM	PROJECT TOTAL	UNIT	DESCRIPTION
																																							TYPE CODE - 7221
																																							BUILDING REMOVAL (CONT.)
E-10																																				E-10	Lump	Lump	Removal of two 2-Story Frame Residences & one Frame Shed. Parcel-10-WL
E-10																																				E-10	Lump	Lump	Removal of one 1-Story Frame Residence & two Frame Sheds, Parcel-11-WL
E-10																																				E-10	Lump	Lump	Removal of one 1-Story Frame Residence, one frame shed. Parcel-13-WL
[illegible]																																				[illegible]	[illegible]	[illegible]	[illegible]
E-10																																				E-10	Lump	Lump	Removal of one 2-Story Frame Residence, one frame garage & one Frame Shed. Parcel-14-WL
E-10																																				E-10	Lump	Lump	Removal of one 2-Story Frame Residence & one Frame Garage. Parcel-15-WL
E-10																																				E-10	Lump	Lump	Removal of one 2-Story Frame Residence, one frame toilet. Parcel-16-WL
E-10																																				E-10	Lump	Lump	Removal of one 1½ Story Frame Residence, frame barn with attached shed. Parcel-17-WL
E-10																																				E-10	Lump	Lump	Removal of one 2-Story Conc. Blk. Welding Shop & one Frame Shed. Parcel-18-WL
E-10																																				E-10	Lump	Lump	Removal of one Frame Shed, one outhouse. Parcel-20-WD
E-10																																				E-10	Lump	Lump	Removal of one 2-Story Frame Residence. Parcel-21-AWD
[illegible]																																				[illegible]	[illegible]	[illegible]	[illegible]
E-10																																				E-10	Lump	Lump	Removal of one Frame Garage. Parcel-24-WD
[illegible]																																				[illegible]	[illegible]	[illegible]	[illegible]
[illegible]																																				[illegible]	[illegible]	[illegible]	[illegible]
E-10																																				E-10	Lump	Lump	Removal of one Frame Shed. Parcel-26-WL
E-10																																				E-10	Lump	Lump	Removal of one 1½ Story Frame Residence. Parcel-27-WD
E-10																																				E-10	Lump	Lump	Removal of one, 2-Story Frame Residence, one Frame Barn, one Frame garage, four Frame Sheds. Parcel-30-WL
E-10																																				E-10	Lump	Lump	Removal of one Frame Coal House. Parcel-31-WL
E-10																																				E-10	Lump	Lump	Removal of one frame barn. Parcel-37-WL
																																							DRAINAGE
E-2																														60						E-2	60	C.Y.	Excavation for Structures
E-2						Lump		Lump													Lump															E-2	Lump	Lump	Cofferdams, Cribs & Sheeting
E-3		267,088				1,472		14	443			411		3,868					117	74					584		91									E-3	274,122	C.Y.	Channel Excavation
I-1									36																											I-1	36	L.F.	4" Class B-1 Pipe, M-6.8(b)
I-1	500																																			I-1	500	L.F.	6" Class I-3 Pipe, M-6.4(h), as per plan
I-1					1,817	2,105	2,950	4,144	2,283	2,150	1,140	1,834	1,450	2,047	2,040	2,000	470		3,071																	I-1	29,501	L.F.	6" Class I-3 Pipe
I-1									250	426	1,063	150	550	100																						I-1	2,530	L.F.	6" Class I-3 Pipe, M-6.4(h)
I-1					30	20	60		40	20		20			30				20																	I-1	240	L.F.	6" Class F-4 Pipe
I-1								48		136	40																									I-1	224	L.F.	6" Class J-1 Pipe, M-6.6(b) or M-6.8(b)
I-1					30	10		80			10	50		20	20				40																	I-1	260	L.F.	8" Class F-4 Pipe, M-6.4(c)

GENERAL SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
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GUERNSEY COUNTY
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ITEM	GEN. NOTES	21	22-24	30	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	57	58	59	60	61	62	63	64	65	184	190	191	244	250	ITEM	PROJECT TOTAL	UNIT	DESCRIPTION
																																							TYPE CODE - 7221
																																							DRAINAGE (CONT.)
I-1					114	38	38		38	38		114			114		34		48	16																I-1	592	L.F.	12" Class E-1 Pipe
I-1						28													106		46	36			38					18						I-1	272	L.F.	12" Class F-4 Pipe, M-6.4(c)
I-1						32	48	124											118											34						I-1	356	L.F.	12" Class J-1 Pipe
I-1																								16												I-1	16	L.F.	12" Class A-1 Pipe, M-6.4(d)
I-1					63		97		27			91			111				102									68								I-1	510	L.F.	15" Class F-4 Pipe, M-6.4(c)
I-1					194	88	123		100	104	88	196			207				80																	I-1	1,180	L.F.	15" Class J-1 Pipe
I-1																					66															I-1	66	L.F.	18" Class A-1 Pipe
I-1																						86														I-1	86	L.F.	18" Class A-1 Pipe, M-6.6(b) or M-6.8(b)
I-1																													138							I-1	138	L.F.	18" Class A-1 Pipe, M-6.6(d)
I-1																			110																	I-1	110	L.F.	18" Class A-1 Pipe, M-6.6(c)
I-1																			38																	I-1	38	L.F.	18" Class F-4 Pipe, M-6.4(d)
I-1									62																											I-1	62	L.F.	24" Class A-1 Pipe
I-1								72																												I-1	72	L.F.	24" Class A-1 Pipe, M-6.6(a) or M-6.8(b)
I-1									224																											I-1	224	L.F.	24" Class A-1 Pipe, M-6.6(b) or M-6.8(b)
I-1																						46														I-1	46	L.F.	24" Class A-1 Pipe, M-6.6(a)
I-1																			142																	I-1	142	L.F.	24" Class A-1 Pipe, M-6.6(d)
I-1																										38										I-1	38	L.F.	24" Class F-4 Pipe, M-6.4(c)
I-1								82																												I-1	82	L.F.	30" Class A-1 Pipe, M-6.6(b) or M-6.8(b)
I-1																												62								I-1	62	L.F.	30" Class A-1 Pipe, M-6.6(a) or M-6.8(b)
I-1																	102																			I-1	102	L.F.	30" Class E-1 Pipe, M-6.6(a) or M-6.8(a)
I-1																										88										I-1	88	L.F.	30" Class A-1 Pipe, M-6.4(d), M-6.6(b) or M-6.8(b)
I-1																							134													I-1	134	L.F.	36" Class A-1 Pipe, M-6.6(c) or M-6.4(d)
I-1						304																														I-1	304	L.F.	72" Class A-1 Pipe, M-6.4(g), 10-8 Gage
I-1																					164															I-1	164	L.F.	72" Class A-1 Pipe, M-6.4(g), 10-10 Gage or Sec. M-6.6(d)
I-1								550																												I-1	550	L.F.	84" Class A-1 Pipe, M-6.4(g), 8-7 Gage
I-1														228														102								I-1	330	L.F.	96" Class A-1 Pipe, M-6.6 (b)
I-1												202																								I-1	202	L.F.	14'-0" Class A-1 Pipe, M-6.4(g) 5-3 Gage
I-2					0.78	0.40	0.52	16.23	3.07	0.26	0.26	40.28		11.22	0.78		0.50		11.75	0.23	0.60	1.01	10.8	0.23		17.82		12.24	0.60	0.23						I-2	130.8	C.Y.	Masonry
I-5								1		2	2																									I-5	5	Ea.	6" Pipe Specials, Class J-1 Pipe, M-6.6(b) or M-6.8(b)
I-5					4	2	3	7	5	1	1	5		2	4				9																	I-5	43	Ea.	6" Pipe Specials, Class I-3 Pipe
I-5						2													4																	I-5	6	Ea.	12" Pipe Specials, Class F-4 Pipe, M-6.4(c)
I-5					6		4		2			4			6				2																	I-5	24	Ea.	15" Pipe Specials, Class F-4 Pipe, M-6.4(c)
I-5																			2																	I-5	2	Ea.	18" Pipe Specials, Class F-4 Pipe, M-6.4(c)
I-5																						1														I-5	1	Ea.	24" Pipe Special, Class A-1 Pipe, M-6.6(a)
I-6																										82										I-6	82	L.F.	Relaying 12'-6" x 7'-11" Sectional Corrugated Metal Pipe Arch Structure using Type 1 backfill
I-8																			1																	I-8	1	Ea.	Standard Nº 2-28 Catch Basin
I-8											1																									I-8	1	Ea.	Standard Nº 4 Catch Basin
I-8									1																											I-8	1	Ea.	Standard Nº 5 Catch Basin
I-8									1										3																	I-8	4	Ea.	Standard Nº 6 Catch Basins
I-8						1	2																													I-8	3	Ea.	Standard Nº 6 Catch Basins Modified as per plan
I-8					6	1	2	1	2	2	6				6		1																			I-8	27	Ea.	Standard Nº 8 Catch Basins

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ITEM	GEN. NOTES	21	22-24	30	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	57	58	59	60	61	62	63	64	65	184	190	191	244	250	ITEM	PROJECT TOTAL	UNIT	DESCRIPTION
																																							TYPE CODE - 7221
																																							DRAINAGE (CONT.)
I-8																	1																			I-8	1	Ea.	Standard No. 1 Manhole
I-8																			1	1										2						I-8	4	Ea.	Standard No. 2-6 Median Inlets
I-9	30																																			I-9	30	L.F.	Stone Underdrains No. 1
I-9									270	80											250	300	360	360	370	590	460	550	960							I-9	4,640	L.F.	Stone Underdrains No. 2
I-10								16				236		35					22			9						28								I-10	346	S.Y.	Riprap, Using 6" Reinforced Concrete Slab, as per plan.
I-10					886	62	2	18	15	93	39	490	14	534	97	14			151	68	59	117	63		68	399	0	0		23						I-10	3,230	C.Y.	Dumped Rock Channel Protection
I-14									41												52	131				278										I-14	505	L.F.	Standard Type 1 Paved Gutter
I-14								117			150																									I-14	267	L.F.	Standard Type 1 Paved Gutter, Modified as per plan.
I-14									93	150																										I-14	243	L.F.	Standard Type 5 Paved Gutter
I-14									63																	26										I-14	89	L.F.	Type C Paved Gutter, as per plan
I-16																				1										1						I-16	2	Ea.	Catch Basins, Abandoned
S-1																															15					S-1	15	C.Y.	Class "C" concrete, superstructure (top slab)
S-1																															96					S-1	96	C.Y.	Class "C" concrete, walls & bottom slab
S-4																															11,085					S-4	11,085	Lbs.	Reinforcing Steel
S-14																															75					S-14	75	L.F.	Railing (Type I-15.11 with Galvanized Steel Posts and Bolts)
S-20																															75					S-20	75	C.Y.	Porous Backfill
S-101																															15					S-101	15	Each	Water-reducing set-retarding admixture
																																							PAVEMENT
T-30			7,715																																	T-30	7,715	Gal.	Bituminous Prime Coat: Sec. M-5.7, RT-2 or RT-3
T-31			326	8													1	1																		T-31	336	C.Y.	Bituminous Surface Treatment, No. 6 Aggregate
T-31			10,190	250													55	31																		T-31	10,526	Gal.	Bituminous Surface Treatment, Bituminous Material, as per plan
T-35			653																																	T-35	653	C.Y.	Asphaltic Concrete Surface Course, Type "A" (85 to 100)
T-35			169						7												4					14		15								T-35	209	C.Y.	Asphaltic Concrete Surface Course, Type "2" (70 to 85)
T-70																														522						T-70	522	S.Y.	9" Portland Cement Concrete Pavement
T-70								147	591											1,079																T-70	1,817	S.Y.	9" Portland Cement Concrete Pavement, As Per Plan
T-71			81,302																																	T-71	81,302	S.Y.	9" Reinforced Portland Cement Concrete Pavement
B-10			10,565	140					16								36	21			37	21	34	18	10	50		65	46							B-10	11,059	C.Y.	Aggregate Base Course
B-21			4,117	84													18	10																		B-21	4,229	C.Y.	Waterproofed Aggregate Base Course, as per plan
I-7			738																																	I-7	738	S.Y.	Reinforced Concrete Approach Slabs, as per plan (I-13)
B-35			125																																	B-35	125	C.Y.	Asphaltic Concrete Leveling Course (70-85)
I-12																			157	141										343						I-12	641	L.F.	Standard Type 2-A Concrete Curb
I-12						146			108										302																	I-12	646	L.F.	Standard Type 6 Concrete Curb
I-12							211																													I-12	211	L.F.	Standard Type 7 Concrete Curb
I-12							622	257																												I-12	879	L.F.	Standard Type 8 Concrete Curb
I-21						23			38										152																	I-21	213	S.Y.	Std. Portland Cement Concrete Median Pavement
I-22			15,665	166																																I-22	15,831	C.Y.	Subbase Grading "A" or "B" as per plan
I-22			3,373														18	10																		I-22	3,401	C.Y.	Subbase
Special			1,446																																	Special	1,446	C.Y.	Drainage Connection, using No. 6 Aggregate

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																																									WATER LINES – TYPE CODE Y060
I-124									270																											270		I-124	270	L.F.	8" CI MJ Pipe - ASA Class 23 - "New Water Main" as per plan
I-124																				10																10		I-124	10	L.F.	6" CI MJ Pipe - ASA Class 22 - "New Water Main" as per plan
I-124									680	230																										910		I-124	910	L.F.	1" Plastic - "New Water Main" as per plan
I-124									2																											2		I-124	2	Ea.	8" - 22 1/2° MJ-PE Bends, as per plan
I-124									1																											1		I-124	1	Ea.	8" - 22 1/2° MJ-MJ Bend, as per plan
I-124																				2																2		I-124	2	Ea.	6" - 90° MJ-PE Bends, as per plan
I-124									2																											2		I-124	2	Ea.	8" - Solid Leaded Sleeves
I-124																				2																2		I-124	2	Ea.	6" - Solid Leaded Sleeves
I-124																				2																2		I-124	2	Ea.	6" - Gate Valve and Box
I-124																				2																2		I-124	2	Ea.	Fire Hydrants Removed and Reset
																																									SANITARY SEWERS - TYPE CODE Y060
I-1																				214																214		I-1	214	L.F.	8" Class B-1 Pipe, M-6.8 (b) with Compression Joints
I-8																				2																2		I-8	2	Ea.	Standard Nº 1 Manholes
I-8																				1																1		I-8	1	Ea.	8" Drop Pipe for Existing Manhole, as per plan
																																									LIGHTING – TYPE CODE 7221
S-25																																	2				2	S-25	21 ✓	Ea.	Luminaire - 400 Watt - Type II with Integral 400 Watt Ballast
S-25																																10	9			11	8	S-25	19 ✓	Ea.	Luminaire - 400 Watt - Type III with Integral 400 Watt Ballast
S-25																																10	11			11	10	S-25	21 ✓	Ea.	Mercury Vapor Lamp 400 Watt (H-33-1 CD)
S-25																																4	2			2	4	S-25	6 ✓	Ea.	Standard - Anchor Base - 10 ft. Bracket Arm (Round Cross Section)
S-25																																4	0			9	4	S-25	13 ✓	Ea.	Standard - Anchor Base - 15 ft. Bracket Arm (Round Cross Section)
S-25																																1					1	S-25	1 ✓	Ea.	Standard - Anchor Base - 10 ft. Double Bracket Arm (Round Cross Section)
S-25																																0	11			11	9	S-25	20 ✓	Ea.	Standard Foundations
S-25																																0	11			11	9	S-25	20 ✓	Ea.	Ground Rods
S-25																																0	3			10	2	S-25	12 ✓	Ea.	Pull Boxes
S-25																																3,365	2,370			4880	855	S-25	5,735 ✓	L.F.	Trench
S-25																																265				265		S-25	265	L.F.	Conduit - 2" Wrought Iron or Alloy Steel
S-25																																280	280			520	40	S-25	560 ✓	L.F.	Conduit - 3" Wrought Iron or Alloy Steel
S-25																																6,090	4,840			11,740	90	S-25	11,830 ✓	L.F.	Circuit Cable - Nº 6 Direct Burial - 600 Volt
S-25																																2,855	2,150			4115	890	S-25	5,005 ✓	L.F.	Cable Duct
S-25																																900	1,080		1113 → ~~1173~~	~~867~~		S-25	1,980	L.F.	Pole & Bracket Cable - Nº 12 - 600 Volt
S-25																																0	11		867	11	9	S-25	20 ✓	Ea.	ESNA Kit Nº 82
S-25																																0	11			11	9	S-25	20 ✓	Ea.	ESNA Kit Nº 83
S-25																																1				1		S-25	1 ✓	Ea.	Service & Control Pole
																																									ALTERNATE BID ITEMS
S-25																																4	2			6		S-25	6 ✓	Ea.	Standard - Anchor Base - 10 ft. Bracket Arm (Other than Round Cross Section)
S-25																																4	9			13		S-25	13 ✓	Ea.	Standard - Anchor Base - 15 ft. Bracket Arm (Other than Round Cross Section)
S-25																																1				1		S-25	1 ✓	Ea.	Standard - Anchor Base - 10 ft. Double Bracket Arm (Other than Round Cross Section)
																																									ROADWAY - CONT'D. FROM SH. 16 TYPE CODE 7221
I-125		11.25																																		11.25		I-125	11.25	Miles	4" Edge Lines
I-125		0.07																																		0.07		I-125	0.07	Mile	4" Lane Lines
I-125		1.73																																		1.73		I-125	1.73	Miles	6" Lane Lines
I-125		0.34																																		0.34		I-125	0.34	Mile	8" Channelization Lines
I-125		Lump																																		Lump		I-125	Lump	Lump	Diagonal Striping
I-125		Lump																																		Lump		I-125	Lump	Lump	Curb & Island Marking
																																									MISCELLANEOUS - TYPE CODE 7221
I-3	Lump																																			Lump		I-3	Lump ✓	Lump	Maintaining Traffic
	Lump																																			Lump			Lump ✓	Lump	Construction Layout Stakes
																																									STRUCTURES OVER 20' SPAN - TYPE CODE 7221
																																									Structure Nº - GUE-77-0517 See Sheet Nº 210 for Quantities
																																									Structure Nº - GUE-77-0599 See Sheet Nº 241 for Quantities
																																									Structure - County Road Nº 52
																																									Relocation Nº 1 over Wills Creek See Sheet Nº 230 for Quantities

Rev. 10-20-65 C.E.H. Rev. 10-5-65 C.E.H.

SUMMARY OF QUANTITIES

FED. RD. DIVISION	STATE	PROJECT	
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GUERNSEY COUNTY
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PAVEMENT MARKING

Station	Side	N/S Lines	Edge Lines 4" L.F.	Lane Lines 4" L.F.	Lane Lines 6" L.F.	Channelization Lines 8" L.F.	Diagonal Striping Lump	Curb & Island Lump
241+00 to 403+50	Lt.&Rt.	2&1	24347		9130			
241+00 to 403+50	Lt.	1	10737					
241+00 to 401+25	Rt.	1	10498					
Ramp "A"								
31+45 to 250+50	Rt.	1	2600					
32+67 to 18+50	Lt.	1	952					
16+75 to 22+50	Lt.							Lump
262+50 to 260+00						250		
260+00 to 251+22				104				
Ramp "B"								
293+00 to 31+28	Rt.	1	1700					
32+62 to 15+82.5	Lt.	1	792					
288+50 to 290+25				65				
284+23 to 288+50						754	Lump	Lump
Ramp "C"								
37+00 to 284+50	Rt.	1	3229					
9+16.5 to 11+66.5	Lt.	1	250					
12+53.61 to 18+50	Lt.	1	596					
17+50 to 22+50								Lump
272+50 to 275+00						250		
275+00 to 277+78				104				
Ramp "C-C"								
45+86 to 19+30.5	Rt.	1	187					
12+53 to 20+89	Lt.	1	251					
Ramp "D"								
251+00 to 47+38	Rt.	1	2086					
9+00 to 20+89	Lt.	1	1189					
254+44 to 6+88				92				
256+88 to 253+71						515	Lump	Lump
Total L.F.			59414	365	9130	1769		
Totals to Gen. Summary			11.25 Mi.	0.07 Mi.	1.73 Mi.	0.34 Mi.	Lump	Lump

EARTHWORK & SEEDING

LOCATION	Excavation C.Y.	Embankment C.Y.	Emb + 16% C.Y.	E-4 Granular C.Y.	E-4 +20% C.Y.	E-1 Unsuitable Material C.Y.	E-3 C.Y.	Seeding S.Y.
Station to Station								
I-77 239+50 to 240+00	210	2,055	2,384					0
240+00 to 250+00	5,937	83,137	96,439					30,349
250+00 to 260+00	4,513	112,057	130,682					29,491
260+00 to 270+00	1,007	223,396	259,139					31,106
270+00 to 280+00	34,229	163,492	189,651					28,302
280+00 to 290+00 (inc. C.R.52 Reloc. No 2)	49,572	60,817	70,548					26,295
290+00 to 299+75.79 (inc. C.R.52 Reloc. No 2)	57,736	3,390	6,252					24,720
339+36.95 to 350+00	78,438	5,445	6,316					22,748
350+00 to 360+00	2,530	35,010	40,612					23,706
360+00 to 370+00 (inc. Svc. Rd. "A" 13+00 Ahead)	111,822	12,176	14,124					20,518
370+00 to 380+00 (inc. Svc. Rd. "A")	100,631	12,902	14,966					26,850
380+00 to 390+00	5,707	34,918	40,505					27,323
390+00 to 400+00	1,239	36,569	42,420					23,970
400+00 to 410+00	480	7,836	9,090					7,226
410+00 to 415+79	~~38~~	~~478~~	~~554~~					2,605
Ramp "A"	21,222	21,385	24,807					10,555
Ramp "B" (included w/I-77)								
Ramp "C"	47	39,645	45,988					10,698
Ramp "D"	591	74,531	86,456					23,650
Wills Creek Channel Reloc. No 1		170	197				240,562	22,296
Wills Creek Channel Reloc. No 2							3,689	
Wills Creek Channel Reloc. No 3							13,311	
Co. Rd. 52 Reloc. No 1	33,654	33,122	38,422					35,193
Co. Rd. 52 Reloc. No 2 (included w/I-77)								
Co. Rd. 52 Reloc. No 3 12+75 to 22+00	27,421	26,03	30,19					7,159
Co. Rd. 52 Reloc. No 3 22+00 to 45+50	16,804	25,635	29,737					14,567
Co. Rd. 52 Reloc. No 3 45+50 to 57+00	28,014	26,526	30,770					11,712
Co. Rd. 52 Reloc. No 3 57+00 to 70+88.10	2,758	15,021	17,424					8,627
Co. Rd. 52 Extn.	349	17,116	19,855					7,421
Service Rd. "A" 4+10.70 to 13+00	320	30,482	35,359					7,470
CO. Rd. 102 40+32.6 to 52+00	1,219	57,112	66,250				7,526	18,300
CO. Rd. 102 52+00 to 60+00	415	19,132	22,193					6,017
Fill Existing Wills Creek Channel *		86,750	100,630					
Unsuitable Material (from Sht. No 157)						1,001		
Granular Material under Rdwy. Emb.				35,767	42,920			
Emb. for Counter Berm		41,759	48,440					
Granular Material under Counter Berm				3,828	4,594			
Totals	587,163	1,287,267	1,493,229	39,595	47,514	1,001	267,088	508,874
Totals to General Summary	587,163				47,514		267,088	508,874

* quantity from Sht. No 14

COUNTER BERM

Station	Area S.F.	Volume C.Y.	Station	Area S.F.	Volume C.Y.
13+50 Ramp "A"	0		17+00	1286	
		337			3942
14+00	364		17+91 Ramp "C"		
		815	268+00 Rt. I-77	1153	
14+50	516				4258
		1011	269+00	1146	
15+00	577				4537
		1074	270+00	1304	
15+50	583				1569
		1059	270+50	389	
16+00	561				361
		639	271+00 Rt. I-77	0	
16+31 Ramp "A"	552		—	—	—
269+00 Lt. I-77		2037	13+00 Ramp "D"	0	
					1315
268+00 Lt.	548		14+00	710	
		2030			2104
267+00 Lt.	548		15+00	426	
		2023			1826
266+00 Lt.	544		16+00	560	
		1007			1037
265+00 Lt. =	0		17+00 Ramp "D"	0	
20+00 Ramp "A"					
—	—	—			
14+00 Ramp "C"	0				
		1004			
15+00	542				
		3198			
16+00	1185				
		4576			
17+00	1286				
Total to table at 1+14					41,759

DELINEATORS

Station to station	Lane	Side	Spacing L.F.	Type A-1 Each	Type C-2 Each	Type C-3 Each
241+00 to 249+00 I-77	S.B.	Lt.	200	5		
250+50 I-77	S.B.	Lt.				1
251+50 to 262+50 I-77	S.B.	Lt.	100		12	
268+00 to 284+00 I-77	S.B.	Lt.	200	9		
292+00 to 293+00 I-77	S.B.	Lt.	200		2	
295+00 to 299+00 I-77	S.B.	Lt.	200	3		
341+00 to 403+00 I-77	S.B.	Lt.	200	32		
241+00 to 249+00 I-77	N.B.	Rt.	200	5		
251+00 to 255+00 I-77	N.B.	Rt.	100		5	
260+00 to 268+00 I-77	N.B.	Rt.	200	5		
275+00 to 284+00 I-77	N.B.	Rt.	100		10	
284+50 I-77	N.B.	Rt.				1
286+50 to 298+50 I-77	N.B.	Rt.	200	7		
340+00 to 400+00 I-77	N.B.	Rt.	200	31		
31+50 C.R.52 #1 to 12+90 Ramp "A"		Rt.	30		15	
12+90 to 17+70 Ramp "A"		Lt.	60		9	
17+70 to 19+50 Ramp "A"		Rt.	60		4	
19+50 to 22+50 Ramp "A"		Rt.	100		2	
9+00 to 20+00 Ramp "B"		Rt.	100		12	
20+00 to 23+00 Ramp "B"		Lt.	50		7	
23+00 Ramp "B" to 31+20 C.R.52 #1		Rt.	30		4	
37+00 to 39+00 C.R.52 #1		Rt.	100		3	
39+00 to 42+00 C.R.52 #1		Rt.	60		5	
7+60 to 9+20 Ramp "C"		Rt.	40		5	
9+40 to 11+50 Ramp "C"		Lt.	30		8	
13+20 to 18+00 Ramp "C"		Lt.	30		17	
18+00 to 22+00 Ramp "C"		Rt.	100		5	
Ramp "C-C"		Rt.	100		2	
5+00 to 11+00 Ramp "D"		Rt.	100		6	
11+00 to 17+40 Ramp "D"		Lt.	80		9	
17+40 to 20+40 Ramp "D"		Rt.	100		4	
Totals to General Summary				97	146	2

E-4 GRANULAR MATERIAL

Station	Area S.F.	Volume C.Y.	Station	Area S.F.	Volume C.Y.	Station	Area S.F.	Volume C.Y.	Station	Area S.F.	Volume C.Y.
263+30 I-77	605		277+00 I-77	378		14+00 Ramp "A"	171		15+00 Ramp "D"	230	
		1569			930			331			796
264+00	605		277+50	626		14+50	167		16+00	200	
		2257			1131			303			613
265+00	614		278+00	596		15+00	161		17+00 Back	131	
		1974			1095			285	17+00 Ahead	263	
266+00	452		278+50	587		15+50	147				865
		1585			905			271	18+00	204	
267+00	404		279+00	390		16+00	146				744
		1485			680			166	19+00	198	
268+00 Back	398		279+50	345		16+31 Ramp "A"	144				928
268+00 Ahead	546				624	—	—	—	20+00	303	
		2048	280+00 I-77	329		13+90 Ramp "C"	132				572
269+00 Back	560		—	—	—				20+50	315	
269+00 Ahead	416		388+50 I-77	189		14+00	147				583
		1565			350			757	21+00 Ramp "D"	315	—
270+00	429		389+00	189		15+00	262				
		763			700			902	44+60 C.R.102	184	
270+50	395		390+00	189		16+00	225				272
		605			707			731	45+00	184	
271+00 I-77	258		391+00	193		17+00	170				724
—	—	—			741			540	46+00	207	
275+60 I-77	360		392+00	207		17+91 Ramp "C"	150				809
		533			772	—	—	—	47+00	230	
276+00	360		393+00	210		13+50 Ramp "D"	230				898
		692			772			426	48+00	255	
276+50	387		394+00	207		14+00 Ramp "D"	230				566
		709			767			852	48+60	255	
277+00 I-77	378		395+00 I-77	207		15+00 Ramp "D"	230		Gross Total		39,945
									Deduct Channel Area		-4,178
									Net Total (to table above)		35,767

E-4 GRANULAR MATERIAL UNDER COUNTER BERM

Station	Area S.F.	Volume C.Y.	Station	Area S.F.	Volume C.Y.
14+00 Ramp "A"	54		267+30 Rt. I-77	113	
		119			293
14+50	77		268+00	113	
		141			402
15+00	75		269+00	104	
		139			381
15+50	75		270+00	102	
		139			94
16+00	75		270+50 Rt. I-77	0	
		86	—	—	—
16+31 Ramp "A" =			15+00 Ramp "D"	78	
269+00 I-77	75				289
		278	16+00 Ramp "D"	78	
268+00	75				144
		278	17+00 Ramp "D"	0	
267+00	75				
		278			
266+00	75				
		139			
265+00 I-77	0				
—	—	—			
14+00 Ramp "C"	0				
		139			
15+00	75				
		333			
16+00	105				
		156			
16+40	105	Total to Center Table Above			3,828

FERTILIZER

L-10 Special Sod = 261 S.Y.
L-9 Seeding = 508,874 S.Y.
L-10 Sod = 7,272 S.Y.
Total = 516,407 S.Y.

$516{,}407 \times \frac{20\#}{1000 S.F.} \times \frac{9 S.F.}{1 S.Y.} \times \frac{1 Ton}{2000\#} = 46.48$ Tons

Total to General Summary

WATER

Emb. + 16% 1,493,229 C.Y.
I-22 19,233 C.Y.
B-19 11,059 C.Y.
Total 1,523,521 C.Y.

$1{,}523{,}521 C.Y. \times \frac{5 gal}{1 C.Y.} \times \frac{1 M Gal}{1000 Gal} = 7.618$ M.Gal

Total to General Summary

ROLLING

C.E.-101.04 = E-1 Comp. Subgrade $\times \frac{1 hr}{2000 S.Y.}$
$= 98{,}472 \times \frac{1}{2000} = 50$ Hrs.

To General Summary

LIMING MATERIAL

$516{,}407 S.Y. \times \frac{100\#}{1000 S.F.} \times \frac{9 S.F.}{1 S.Y.} \times \frac{1 Ton}{2000\#} = 232.38$ Tons

To General Summary

EARTHWORK

E-1 Excavation = 587,163 C.Y.
E-3 Channel Exc. = 267,088 C.Y.
E-1 Unsuitable Material = -1,001 C.Y.
Available for Emb. = 853,250 C.Y.
Embankment + 16% = 1,493,229 C.Y.
E-4 Borrow = 639,979 C.Y. To General Summary

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

22
262

GUERNSEY COUNTY
GUE-77-4.77

T-71 REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT

TYPICAL SECTION "A"

Sta. 241+00.00 to Sta. 248+07.61 I-77 = 707.61 L.F.
Sta. 279+27.05 to Sta. 286+87.65 I-77 = 760.60 L.F.
Sta. 339+36.95 to Sta. 359+50.00 I-77 = 2,013.05 L.F.
Sta. 374+50.00 to Sta. 376+88.96 I-77 = 238.96 L.F.
Sta. 384+89.08 to Sta. 401+25.00 I-77 = 1,635.92 L.F.
5,356.14 L.F.
24 × (2 Lanes) × 5,356.14 ÷ 9 = 28,566.08 S.Y.
Sta. 401+25.00 to Sta. 402+87.51 (S.B.) I-77 = 162.51 L.F.
24 × (1 Lane) × 162.51 ÷ 9 = 433.36 S.Y.

TYPICAL SECTION "B"

Sta. 248+07.61 to Sta. 273+30.68 I-77 = 2,523.07 L.F.
Sta. 275+31.19 to Sta. 279+27.05 I-77 = 395.86 L.F.
Sta. 286+87.65 to Sta. 299+75.79 I-77 = 1,288.14 L.F.
Sta. 376+88.96 to Sta. 384+86.46 I-77 = 797.50 L.F.
5,004.57 L.F.
24 × (2 Lanes) × 5,004.57 ÷ 9 = 26,691.04 S.Y.
Sta. 402+87.51 to Sta. 403+50.00 (S.B.) I-77 = 62.49 L.F.
24 × (1 Lane) × 62.49 ÷ 9 = 166.64 S.Y.

TYPICAL SECTION "C"

Sta. 359+50.00 to Sta 374+50.00 (N.B.) I-77 = 1,500.00 L.F.
24 × (1 Lane) × 1,500.00 ÷ 9 = 4,000.00 S.Y.

TYPICAL SECTION "D"

Sta. 8+91.98 to Sta. 9+96.34 Ramp "A" = 104.34 L.F.
Sta. 11+62.48 to Sta. 12+75.00 Ramp "A" = 112.52 L.F.
Sta. 15+82.50 to Sta. 19+84.47 Ramp "B" = 401.97 L.F.
Sta. 23+27.42 to Sta. 23+61.35 Ramp "B" = 33.93 L.F.
Sta. 10+00.00 to Sta. 10+47.79 Ramp "D" = 47.79 L.F.
Sta. 17+40.13 to Sta. 21+13.67 Ramp "D" = 373.54 L.F.
1074.09 L.F.
16 × 1,074.09 ÷ 9 = 1,909.49 S.Y.

TYPICAL SECTION "E"

Sta. 9+96.34 to Sta. 11+62.48 Ramp "A" = 166.14 L.F.
Sta. 12+75.00 to Sta. 18+50.00 Ramp "A" = 575.00 L.F.
Sta. 19+84.47 to Sta. 23+27.42 Ramp "B" = 342.95 L.F.
Sta. 10+16.50 to Sta. 10+66.50 Ramp "C" = 50.00 L.F.
Sta. 11+66.50 to Sta. 18+50.00 Ramp "C" = 683.50 L.F.
Sta. 10+47.79 to Sta. 17+40.13 Ramp "D" = 692.34 L.F.
2,509.93 L.F.
16 × 2,509.93 ÷ 9 = 4,462.10 S.Y.

TYPICAL SECTION "F"

Sta. 31+37.05 to Sta. 39+09.07 Ca.Rd.52 Reloc. #1 = 772.02 L.F.
Sta. 43+70.32 to Sta. 47+00.00 Ca.Rd.52 Reloc. #1 = 329.68 L.F.
1,101.70 L.F.
24 × 1,101.70 ÷ 9 = 2,937.87 S.Y.

TYPICAL SECTION "G"

Sta. 39+09.07 to Sta. 43+70.32 Ca.Rd.52 Reloc. #1 = 461.25 L.F.
24 × 461.25 ÷ 9 = 1,230.00 S.Y.

ACCELERATION & DECELERATION LANES & PAVT TRANSITIONS

Sta. 18+50.00 to Sta. 19+50.00 Ramp A = 100.00 L.F.
(18.00 + 16.00) ÷ 2 × 100 ÷ 9 = 188.88 S.Y.
Sta. 19+50.00 to Sta. 22+50.00 Ramp "A" = 300.00 L.F.
(16.00 + 14.00) ÷ 2 × 300 ÷ 9 = 500.00 S.Y.
Sta. 251+46.00 to Sta. 262+50.00 (S.B.) I-77 = 1104.00 L.F.
(25.00 + 20.0) ÷ 2 × 1104 ÷ 9 = 1,656.00 S.Y.
Sta. 250+50.00 to Sta. 251+46.00 (S.B.) I-77 = 96.00 L.F.
2 × 96 ÷ 9 = 21.33 S.Y.
Sta. 251+00.00 to Sta. 252+00.00 (N.B.) I-77 = 100.00 L.F.
{[(10.00 + 12.00) ÷ 2] 100} + 16.67 ÷ 9 = 68.52 S.Y.
Sta. 252+00.00 to Sta. 255+00.00 (N.B.) I-77 = 300.00 L.F.
12.00 × 300 ÷ 9 = 400.00 S.Y.
Sta. 255+00.00 to Sta. 256+15.00 (N.B.) I-77 = 115.00 L.F.
(12.00 + 14.00) ÷ 2 × 115 ÷ 9 = 166.11 S.Y.
Sta. 256+15.00 to Sta. 285+91.00 (N.B.) I-77 =
Planimeter Area 17.42 □" × 400 ÷ 9 = 774.22 S.Y.
Sta. 258+91.00 to Sta. 259+91.00 (N.B.) I-77 = 100.00 L.F.
(14.50 + 10.50) ÷ 2 × 100 ÷ 9 = 138.89 S.Y.
Sta. 9+00.00 to Sta. 10+00.00 Ramp "D" = 100.00 L.F.
(18.00 + 16.00) ÷ 2 × 100 ÷ 9 = 188.89 S.Y.

CONT'D

Sta. 31+45.50 Ca.Rd. 52 Reloc. #1 to Sta. 9+70.00 Ramp "A"
Planimetered Area 2.0 □" × 400 ÷ 9 = 88.89 S.Y.
Sta. 32+67.00 Ca.Rd. 52 Reloc. #1 to Sta. 10+08.00 Ramp "A"
Planimetered Area 3.46 □" × 400 ÷ 9 = 153.78 S.Y.
Sta. 20+51.50 Ramp "D" to Sta. 47+38.00 Ca.Rd.52 Reloc #1
Planimetered Area 3.01 □" × 400 ÷ 9 = 133.78 S.Y.
Sta. 20+73.70 to Sta. 21+13.67 Lt. Ramp "D"
Planimetered Area 0.76 □" × 400 ÷ 9 = 33.78 S.Y.
Sta. 18+50.00 to Sta. 19+50.00 Ramp "C" = 100.00 L.F.
(16.00 + 18.00) ÷ 2 × 100 ÷ 9 = 188.89 S.Y.
Sta. 19+50.00 to Sta. 22+50.00 Ramp "C" = 300.00 L.F.
(16.00 + 14.00) ÷ 2 × 300 ÷ 9 = 500.00 S.Y.
Sta. 272+50.00 to Sta. 272+83.50 (N.B.) I-77
Planimetered Area 1.53 □" × 400 ÷ 9 = 68.00 S.Y.
Sta. 274+60.00 to Sta. 275+00.00 (N.B.) I-77
Planimetered Area 1.61 □" × 400 ÷ 9 = 71.56 S.Y.
Sta. 275+00.00 to Sta. 284+50.00 (N.B.) I-77 = 950.00 L.F.
(19.79 + 0.00) ÷ 2 × 950 ÷ 9 = 1044.47 S.Y.
Sta. 283+54.00 to Sta. 284+50.00 (N.B.) I-77 = 96.00 L.F.
(2.00 + 0.00) ÷ 2 × 96 ÷ 9 = 10.67 S.Y.
Sta. 7+22.84 to Sta. 9+16.50 Ramp "C"
Planimetered Area 3.15 □" × 400 ÷ 9 = 466.67 S.Y.
Sta. 9+16.50 to Sta. 10+16.50 Ramp "C" = 100.00 L.F.
(18.00 + 16.00) ÷ 2 × 100 ÷ 9 = 188.89 S.Y.
Sta. 10+66.50 to Sta. 11+66.50 Ramp "C" = 100.00 L.F.
(18.50 + 16.50) ÷ 2 × 100 ÷ 9 = 194.44 S.Y.
Sta. 19+30.50 to Sta. 20+30.50 Ramp "C-C" = 100.00 L.F.
(14.50 + 18.50) ÷ 2 × 100 ÷ 9 = 183.33 S.Y.
Sta. 20+30.50 to Sta. 21+13.67 Ramp "C-C" = 83.17 L.F.
16 × 83.17 ÷ 9 = 147.86 S.Y.
Sta. 20+98.67 to Sta. 21+13.67 Ramp "C-C"
Planimetered Area 0.10 □" × 400 ÷ 9 = 4.44 S.Y.
Sta. 18+38.90 to Sta. 19+30.50 Ramp "C-C"
Planimetered Area 1.24 □" × 400 ÷ 9 = 55.11 S.Y.
Sta. 284+23.00 to Sta. 285+23.00 (S.B.) I-77 = 100.00 L.F.
(10.50 + 14.50) ÷ 2 × 100 ÷ 9 = 138.89 S.Y.
Sta. 285+23.00 to Sta. 289+50.00 (S.B.) I-77 = 427.00 L.F.
(39.00 + 14.00) ÷ 2 × 427 ÷ 9 = 1,257.28 S.Y.
Sta. 289+50.00 to Sta. 291+00.00 (S.B.) I-77 = 150.00 L.F.
(14.00 + 12.00) ÷ 2 × 150 ÷ 9 = 216.67 S.Y.
Sta. 291+00.00 to Sta. 292+00.00 (S.B.) I-77 = 100.00 L.F.
12 × 100 ÷ 9 = 133.33 S.Y.
Sta. 292+00.00 to Sta. 293+00.00 (S.B.) I-77 = 100.00 L.F.
{[(2.00 + 0.00) ÷ 2] 100} + 16.67 ÷ 9 = 68.52 S.Y.
Sta. 14+82.50 to Sta. 15+82.50 Ramp "B" = 100.00 L.F.
(18.00 + 16.00) ÷ 2 × 100 ÷ 9 = 188.88 S.Y.
Sta 22+70.00 Ramp "B" to Sta. 31+27.00 Ca.Rd. 52 Reloc. #1
Planimetered Area 5.50 □" × 400 ÷ 9 = 244.44 S.Y.
Sta. 23+38.00 to Sta. 23+72.00 Ramp "B"
Planimetered Area 0.34 □" × 400 ÷ 9 = 15.11 S.Y.
Sta. 37+00.00 to Sta. 38+00.00 Ca.Rd. #1 Reloc #1 = 100.00 L.F.
{[(12.00 + 0.00) ÷ 2] 100} + 16.67 ÷ 9 = 68.52 S.Y.
Sta. 38+00.00 to Sta. 42+02.38 Ca.Rd. #1 Reloc #1 = 402.38 L.F.
12 × 402.38 ÷ 9 = 536.51 S.Y.
Sta. 44+05.00 to Sta. 45+05.00 Ca.Rd. #1 Reloc #1 = 100.00 L.F.
(7.50 + 3.50) ÷ 2 × 100 ÷ 9 = 61.11 S.Y.
Sta. 47+00.00 to Sta. 48+00.00 Ca.Rd #1 Reloc. #1 = 100.00 L.F.
(24.00 + 20.00) ÷ 2 × 100 ÷ 9 = 244.44 S.Y.
Sta. 27+75.00 to Sta. 29+81.55 Ca.Rd. #52 Reloc. #1
Quantity From Sheet № 66 = 154.00 S.Y.

T-71 TOTAL to GENERAL SUMMARY = 8,301.70 S.Y.

B-19 AGGREGATE BASE COURSE

10' SHOULDER WIDTH & VARIABLE THICKNESS

Sta. 241+00.00 to Sta. 248+00.00 (NB & SB) I-77 = 1400.00 L.F.
Sta. 248+00.00 to Sta. 250+50.00 (S.B.) I-77 = 250.00 L.F.
Sta. 267+08.00 to Sta. 274+10.00 (S.B.) I-77 = 702.00 L.F.
Sta. 275+71.00 to Sta. 284+23.00 (S.B.) I-77 = 852.00 L.F.
Sta. 284+50.00 to Sta. 299+75.79 (N.B.) I-77 = 1,525.79 L.F.
Sta. 339+36.95 to Sta. 378+00.00 (NB & SB) I-77 = 7,726.10 L.F.
Sta. 378+00.00 to Sta. 384+86.46 (N.B.) I-77 = 686.46 L.F.
Sta. 384+89.08 to Sta. 401+25.00 (N.B.) I-77 = 1,635.92 L.F.
Sta. 386+00.00 to Sta. 403+50.00 (S.B.) I-77 = 1,750.00 L.F.
Sta. 293+50.00 to Sta. 299+75.79 (S.B.) I-77 = 625.79 L.F.
17,154.06 L.F.

CONT'D

{[(4" + 6") ÷ 2 × 2' - 7½"] - (6" + 7' - 4½")} × 17,154.06 × 1/12 × 1/27 = 3,037.70 C.Y.

10' SHOULDER WIDTH 6" UNIFORM THICKNESS

Sta. 248+00.00 to Sta. 251+00.00 (N.B.) I-77 = 300.00 L.F.
Sta. 259+91.00 to Sta. 268+30.00 (N.B.) I-77 = 839.00 L.F.
Sta. 293+00.00 to Sta. 293+50.00 (S.B.) I-77 = 50.00 L.F.
Sta. 378+00.00 to Sta. 386+00.00 (S.B.) I-77 = 797.38 L.F.
1,986.38 L.F.
6" × 10'-0" × 1,986.38 × 1/12 × 1/27 = 367.84 C.Y.

4' SHOULDER WIDTH 6" UNIFORM THICKNESS

Sta. 241+00.00 to Sta. 273+85.00 (S.B.) I-77 = 3,285.00 L.F.
Sta. 275+42.00 to Sta. 299+75.79 (S.B.) I-77 = 2,433.79 L.F.
Sta. 339+36.95 to Sta. 384+86.46 (N.B. & S.B.) I-77 = 9,099.02 L.F.
Sta. 384+89.08 to Sta. 403+50.00 (S.B.) I-77 = 1,860.92 L.F.
Sta. 241+00.00 to Sta. 273+25.00 (N.B.) I-77 = 3,225.00 L.F.
Sta. 274+75.00 to Sta. 299+75.79 (N.B.) I-77 = 2,500.79 L.F.
Sta. 384+89.08 to Sta. 401+25.00 (N.B.) I-77 = 1,635.92 L.F.
24,040.44 L.F.
6" × 4'-0" × 24,040.44 × 1/12 × 1/27 = 1,780.77 C.Y.

3' SHOULDER WIDTH 3" UNIFORM THICKNESS

Sta. 31+23.00 Ca.Rd. 52 Reloc. #1 to Sta. 12+75.00 Ramp "A" Rt. = 447.00 L.F.
Sta. 12+75.00 to Sta. 18+00.00 Lt. Ramp "A" = 525.00 L.F.
Sta. 14+82.50 to Sta. 23+20.00 Lt. Ramp "B" = 837.50 L.F.
Sta. 9+16.50 to Sta. 10+16.50 Lt. Ramp "C" = 100.00 L.F.
Sta. 12+53.61 to Sta. 18+00.00 Lt. Ramp "C" = 546.39 L.F.
Sta. 9+64.00 to Sta. 20+73.70 Lt. Ramp "D" = 1,109.70 L.F.
Sta. 18+38.90 to Sta. 20+73.70 Rt. Ramp "C-C" = 234.80 L.F.
3,800.39 L.F.
3" × 3'-0" × 3,800.39 × 1/12 × 1/27 = 105.57 C.Y.

3' SHOULDER WIDTH 6" UNIFORM THICKNESS (CO. RD. #52)

* Sta. 32+66.00 to Sta. 47+38.00 Lt. Ca.Rd. #52 Reloc #1 = 1,402.50 L.F.
Sta. 32+69.50 to Sta. 37+00.00 Rt. Ca.Rd. #52 Reloc #1 = 430.50 L.F.
Sta. 45+05.00 ' to Sta. 45+80.04 Rt. Ca.Rd. #52 Reloc #1 = 75.04 L.F.
1,908.04 L.F.
* minus 69.50' @ Ca.Rd. 52 Ext.
6" × 3'-0" × 1,908.04 × 1/12 × 1/27 = 106.00 C.Y.

8' SHOULDER WIDTH 3" UNIFORM THICKNESS - W/ UNDERDRAIN

Sta. 250+50.00 to Sta. 262+50.00 (S.B.) I-77 = 1,200.00 L.F.
Sta. 19+50.00 to Sta. 22+50.00 Ramp "A" Rt. = 300.00 L.F.
Sta. 19+34.53 to Sta. 19+70.00 Ramp "C" Rt. = 35.47 L.F.
Sta. 279+25.00 to Sta. 284+50.00 (N.B.) I-77 = 525.00 L.F.
2,060.47 L.F.
3" (8'-0" - 2'-7½") × 2,060.47 × 1/12 × 1/27 = 102.55 C.Y.

8' SHOULDER WIDTH 3" UNIFORM THICKNESS - NO UNDERDRAIN

Sta. 291+00.00 to Sta. 292+00.00 (S.B.) I-77 = 100.00 L.F.
Sta. 19+70.00 to Sta. 22+50.00 Ramp "C" = 280.00 L.F.
Sta. 272+50.00 to Sta. 272+85.00 (N.B.) I-77 = 35.00 L.F.
Sta. 274+34.00 to Sta. 279+25.00 (N.B.) I-77 = 491.00 L.F.
Sta. 252+00.00 to Sta. 255+00.00 (N.B.) I-77 = 300.00 L.F.
1,206.00 L.F.
3" × 8'-0" × 1206.00 × 1/12 × 1/27 = 89.33 C.Y.

VARIABLE WIDTH SHOULDER 3" UNIFORM THICKNESS W/ UNDERDRAIN

Sta. 17+75.00 to Sta. 19+50.00 Rt. Ramp "A" = 175.00 L.F.
(2.37 □" × 400) - [(3'-0" + 2'-7½") ÷ 2 × 175.00] = 455.81 S.F.
Sta. 10+34.33 to Sta. 19+34.53 Rt. Ramp "C" = 300.00 L.F.
(5.375 ÷ 2) 300.00 = 806.25 S.F.
Sta. 9+64.00 to Sta. 10+00.00 Rt. Ramp "D" = 36.00 L.F.
(0.73 ÷ 2) 36 = 13.14 S.F.
Sta. 14+00.00 to Sta. 14+82.50 Rt. Ramp "B" = 82.50 L.F.
(1.08 ÷ 2) 82.5 = 44.55 S.F.
1,319.75 S.F.
3" × 1319.75 □" × 1/12 × 1/27 = 12.22 C.Y.

VARIABLE WIDTH SHOULDER 3" UNIFORM THICKNESS - NO UNDERDRAIN

Sta. 292+00.00 to Sta. 293+00.00 (S.B.) I-77 = 100.00 L.F.
[(8.00 + 10.00) ÷ 2] 100 - 16.67 = 883.33 S.F.
Sta. 9+00.00 to Sta. 14+00.00 Rt. Ramp "B" = 500.00 L.F.
[(8.00 + 3.71) ÷ 2] 500.00 = 2,927.50 S.F.
Sta. 18+00.00 to Sta. 18+50.00 Lt. Ramp "C" = 50.00 L.F.
(3.00 + 2.00) ÷ 2 × 50.00 = 125.00 S.F.

CONT'D

Sta. 10+16.50 to Sta. 10+66.50 Lt. Ramp "C" = 50.00 L.F.
(3.00 + 2.00) ÷ 2 × 50.00 = 125.00 S.F.
Sta. 251+00.00 to Sta. 252+00.00 (N.B.) I-77 100.00 L.F.
(8.00 + 10.00) ÷ 2 × 100 - 16.67 = 883.33 S.F.
Sta. 5+00.00 to Sta. 9+64.00 Rt. Ramp "D" = 464.00 L.F.
(8.00 + 3.36) ÷ 2 × 464.00 = 2635.52 S.F.
Sta. 18+00.00 to Sta. 18+50.00 Lt. Ramp "A" = 50.00 L.F.
(3.00 + 2.00) ÷ 2 × 50.00 = 125.00 S.F.
7,704.68 S.F.
3" × 7,704.68 × 1/12 × 1/27 71.34 C.Y.

VARIABLE WIDTH SHOULDER 6" UNIFORM THICKNESS NO UNDERDRAIN

Sta. 268+30.00 to Sta. 269+79.00 (N.B.) I-77 = 149.00 L.F.
(3.82 □" × 400) 6" × 1/12 × 1/27 = 43.11 C.Y.

VARIABLE WIDTH SHOULDER VARIABLE THICKNESS W/ UNDERDRAIN

Sta. 269+79.00 to Sta. 272+50.00 (N.B.) I-77 = 271.00 L.F.
[(18.40 □" × 400) 6" × 1/12 × 1/27] - (2625 × 271.00 × 1/2 × 1/27) = 60.02 C.Y.
Sta. 262+50.00 to Sta. 267+08.00 (S.B.) I-77 = 458.00 L.F.
[(14.49 □" × 400) 6" × 1/12 × 1/27] - (2625 × 458.00 × 1/2 × 1/27) = 103.62 C.Y.
163.64 C.Y.

21' WIDTH, 8" UNIFORM THICKNESS

Sta. 41+00.00 to Sta. 48+30.11 Ca.Rd.102 Reloc = 730.11 L.F.
Sta. 51+65.16 to Sta. 60+00.00 Ca.Rd.102 Reloc = 834.84 L.F.
1,564.95 L.F.
21' × 1564.95 × 8" × 1/12 × 1/27 = 811.46 C.Y.

17' WIDTH 8" UNIFORM THICKNESS

Sta. 4+10.70 to Sta. 20+81.04 Ser. Rd. "A" = 1670.34 L.F.
Sta. 75+29.87 to Sta. 80+18.00 Ca.Rd. 52 Ext. = 488.13 L.F.
Sta. 83+75.00 to Sta. 91+75.00 Ca.Rd. 52 Reloc #2 = 800.00 L.F.
2,958.47 L.F.
8" × 17' × 2,958.47 × 1/12 × 1/27 = 1,241.83 C.Y.

16' WIDTH 8" UNIFORM THICKNESS

Sta. 20+81.04 to Sta. 24+50.00 Pvt. Dr. Ser. Rd. "A" = 362.46 L.F.
362.46 L.F.
8" × 16' × 362.46 × 1/12 × 1/27 143.19 C.Y.

VARIABLE WIDTH 8" UNIFORM THICKNESS

Sta. 73+74.62 to Sta. 75+29.87 Ca.Rd. 52 Ext. = 155.25 L.F.
(17.00 + 21.00) ÷ 2 × 155.25 × 8" × 1/12 × 1/27 = 72.83 C.Y.
Sta. 70+31.76 to Sta. 73+74.62 Ca.Rd. 52 Ext. = 342.86 L.F.
21.00 × 8" × 342.86 × 1/12 × 1/27 = 177.78 C.Y.
Sta. 40+32.60 to Sta. 41+00.00 Ca.Rd. 102 Reloc = 67.40 L.F.
(16.00 + 21.00) ÷ 2 × 67.40 × 8 × 1/12 × 1/27 = 30.79 C.Y.

Sta. 83+25.00 to Sta. 83+75.00 Ca.Rd. 52 Reloc #2 = 50.00 L.F.
(15.00 + 17.00) ÷ 2 × 50 × 8" × 1/12 × 1/27 = 19.75 C.Y.
Sta. 91+75.00 to Sta. 92+25.00 Ca.Rd. 52 Reloc #2 = 50.00 L.F.
(14.00 + 17.00) ÷ 2 × 50.00 × 8" × 1/12 × 1/27 = 19.14 C.Y.

Planimetered Areas

Sta. 70+31.76 to Sta. 70+66.00 Ca.Rd. 52 Ext. (Returns)
1.21 □" × 400 × 8" × 1/12 × 1/27 = 11.95 C.Y.
Sta. 79+56.50 to Sta. 80+18.00 Ca.Rd. 52 Ext. (Returns)
0.27 □" × 2500 × 8 × 1/12 × 1/27 = 16.67 C.Y.

Sta. 4+10.70 to Sta. 4+63.00 Ser. Rd. "A" (Returns)
0.27 □" × 2500 × 8 × 1/12 × 1/27 = 16.67 C.Y.
From C.R. 52 Reloc. № 3 Calc. = 2123.14 C.Y.
B-19 TOTAL TO GENERAL SUMMARY = 10,565.27 C.Y.

T-31 BITUMINOUS SURFACE TREATMENT

Bituminous Material 0.25 Gal./Sq. Yd.

10' SHOULDER WIDTH (3"B-21)

Sta. 241+00.00 to Sta. 251+00.00 (N.B.) I-77 = 1,000.00 L.F.
Sta. 259+91.00 to Sta. 268+30.00 (N.B.) I-77 = 839.00 L.F.
Sta. 284+50.00 to Sta. 299+75.79 (N.B.) I-77 = 1,525.79 L.F.
Sta. 339+36.95 to Sta. 384+86.46 (N.B.) I-77 = 4,549.51 L.F.
Sta. 384+89.08 to Sta. 401+25.00 (N.B.) I-77 = 1,635.92 L.F.

Sta. 241+00.00 to Sta. 250+50.00 (S.B.) I-77 = 950.00 L.F.
Sta. 267+08.00 to Sta. 274+10.00 (S.B.) I-77 = 702.00 L.F.
Sta. 275+71.00 to Sta. 284+23.00 (S.B.) I-77 = 852.00 L.F.
Sta. 293+00.00 to Sta. 299+75.79 (S.B.) I-77 = 675.79 L.F.
Sta. 339+36.95 to Sta. 384+86.46 (S.B.) I-77 = 4,549.51 L.F.
Sta. 384+89.08 to Sta. 403+50.00 (S.B.) I-77 = 1,860.92 L.F.
19,140.44 L.F.

10' × 19,140.44 ÷ 9 = 21,267.16 S.Y.

10" VARIABLE WIDTH SHOULDER (3"B-21)

Sta. 262+50.00 to Sta. 267+08.00 (S.B.) I-77
Planimetered Area 1449.7" × 400 ÷ 9 = 644.00 S.Y.
Sta. 268+30.00 to Sta. 272+50.00 (N.B.) I-77
Planimetered Area 14.22" × 400 ÷ 9 = 632.00 S.Y.

4' SHOULDER WIDTH (3"B-21)

Sta. 241+00.00 to Sta. 273+25.00 (N.B.) I-77 = 3,225.00 L.F.
Sta. 274+75.00 to Sta. 299+75.79 (N.B.) I-77 = 2,500.79 L.F.
Sta. 339+36.95 to Sta. 384+86.46 (N.B.) I-77 = 4,549.51 L.F.
Sta. 384+89.08 to Sta. 401+25.00 (N.B.) I-77 = 1,635.92 L.F.

Sta. 241+00.00 to Sta. 273+85.00 (S.B.) I-77 = 3,285.00 L.F.
Sta. 275+42.00 to Sta. 299+75.79 (S.B.) I-77 = 2,433.79 L.F.
Sta. 339+36.95 to Sta. 384+86.46 (S.B.) I-77 = 4,549.51 L.F.
Sta. 384+89.08 to Sta. 403+50.00 (S.B.) I-77 = 1,860.92 L.F.
24,040.44 L.F.

4 × 24,040.44 ÷ 9 = 10,684.64 S.Y.

3' SHOULDER WIDTH (3"B-21)

Sta. 32+69.50 to Sta. 37+00.00 Rt. Co.Rd.52 Reloc.*) = 430.50 L.F.
* Sta. 32+66.00 to Sta. 47+38.00 Lt. Co.Rd.52 Reloc.*) = 1,472.00 L.F.
Sta. 45+05.00 to Sta. 45+80.04 Rt. Co.Rd.52 Reloc.*) = 75.04 L.F.
1,977.54 L.F.
* minus 69.5' @ Co.Rd. 52 Extn. − 69.50 L.F.
1,908.04 L.F.

3 × 1,908.04 ÷ 9 = 636.01 S.Y.

8' SHOULDER WIDTH (6"B-21)

Sta. 250+50.00 to Sta. 262+50.00 (S.B.) I-77 = 1,200.00 L.F.
Sta. 19+50.00 to Sta. 22+50.00 Ramp "A" = 300.00 L.F.
Sta. 252+00.00 to Sta. 255+00.00 (N.B.) I-77 = 300.00 L.F.
Sta. 19+34.53 to Sta. 22+50.00 Ramp "C" = 315.47 L.F.
Sta. 272+50.00 to Sta. 272+85.00 (N.B.) I-77 = 35.00 L.F.
Sta. 274+34.00 to Sta. 284+50.00 (N.B.) I-77 = 1,016.00 L.F.
Sta. 291+00.00 to Sta. 292+00.00 (S.B.) I-77 = 100.00 L.F.
3,266.47 L.F.

8 × 3266.47 ÷ 9 = 2903.53 S.Y.

3' SHOULDER WIDTH (6"B-21)

Sta. 9+00.00 to Sta. 20+73.70 Lt. Ramp "D" = 1173.70 L.F.
Sta. 10+00.00 to Sta. 20+51.50 Rt. Ramp "D" = 1051.50 L.F.
Sta. 9+30.00 to Sta. 17+75.00 Rt. Ramp "A" = 845.00 L.F.
Sta. 9+58.00 to Sta. 18+00.00 Lt. Ramp "A" = 842.00 L.F.
Sta. 38+00.00 to Sta. 42+02.38 Rt. Co.Rd.52 Reloc.*) = 402.38 L.F.
Sta. 7+22.84 to Sta. 16+34.53 Rt. Ramp "C" = 911.69 L.F.
Sta. 9+16.50 to Sta. 10+16.50 Lt. Ramp "C" = 100.00 L.F.
Sta. 12+53.61 to Sta. 18+00.00 Lt. Ramp "C" = 546.39 L.F.
Sta. 14+82.50 to Sta. 22+70.00 Rt. Ramp "B" = 787.50 L.F.
Sta. 14+82.50 to Sta. 23+36.00 Lt. Ramp "B" = 853.50 L.F.
7,513.66 L.F.
Sta. 18+38.90 to Sta. 20+73.70 Rt. Ramp "C-C" = 234.80 L.F.
7,748.46 L.F.

3 × 7,748.46 ÷ 9 = 2582.82 S.Y.

CONT'D

10'-VARIABLE SHOULDER WIDTH (6"B-21)

Sta. 20+30.50 to Sta. 20+80.50 Lt. Ramp "C-C"
25 × 50 ÷ 9 = 13.89 S.Y.
Sta. 17+75.00 to Sta. 19+50.00 Rt. Ramp "A"
Planimetered Area 2.37" × 400 ÷ 9 = 105.33 S.Y.
Sta. 18+00.00 to Sta. 18+50.00 Lt. Ramp "A" = 50.00 L.F.
(2.00+3.00) ÷ 2 × 50 ÷ 9 = 13.89 S.Y.
Sta. 292+00.00 to Sta. 293+00.00 (S.B.) I-77 = 100.00 L.F.
[(8.00+10.00) ÷ 2] × 100.00 − 16.67 ÷ 9 = 98.15 S.Y.
Sta. 9+00.00 Sta. 14+82.50 Rt. Ramp "B" = 582.50 L.F.
[(8.00+3.00) ÷ 2] × 582.50 ÷ 9 = 355.97 S.Y.
Sta. 16+34.53 to Sta. 19+34.53 Rt. Ramp "C" = 300.00 L.F.
[(3.00+8.00) ÷ 2] × 300.00 ÷ 9 = 183.33 S.Y.
Sta. 18+00.00 to Sta. 18+50.50 Lt. Ramp "C" = 50.00 L.F.
[(3.00+20.0) ÷ 2] × 50 ÷ 9 = 13.89 S.Y.
Sta. 5+00.00 to Sta. 10+00.00 Rt. Ramp "D" = 500.00 L.F.
[(8.00+3.00) ÷ 2] × 500.00 ÷ 9 = 305.56 S.Y.
Sta. 251+00.00 to Sta. 252+00.00 (N.B.) I-77 = 100.00 L.F.
[(8.00+10.00) ÷ 2] × 100.00 − 16.67 ÷ 9 = 98.15 S.Y.
Sta. 31+23.00 Rt. C.R.52 Reloc.*) to Sta. 9+30.00 Ramp "A" = 102.00 L.F.
Sta. 32+69.50 Rt. C.R.52 Reloc.*) to Sta. 9+58.00 Lt. Ramp "A" = 61.00 L.F.
Sta. 22+70.00 Rt. Ramp "B" to Sta. 31+01.00 Lt. Co.Rd.52 Reloc.*) = 158.00 L.F.
Sta. 23+36.00 Lt. Ramp "B" to Sta. 32+66.00 Co.Rd.52 Reloc.*) = 41.00 L.F.
Sta. 20+51.50 Rt. Ramp "D" to Sta. 47+38.00 Co.Rd.52 Reloc.*) = 129.00 L.F.
Sta. 20+80.50 Ramp "C-C" to Sta. 45+80.04 Co.Rd.52 Reloc.*) = 39.00 L.F.
528.00 L.F.

3' × 528.00 ÷ 9 = 176.00 S.Y.

Sta. 37+00.00 to Sta. 38+00.00 Co.Rd.52 Reloc.*) = 100.00 L.F.
(3' × 100.00) − 16.67 ÷ 9 = 31.48 S.Y.
Sta. 10+16.50 to Sta. 10+66.50 Lt. Ramp "C" = 50.00 L.F.
[(3.00+20.0) ÷ 2] × 50 ÷ 9 = 13.89 S.Y.
TOTAL AREA - T-31 Bituminous Surface Treatment = 40,759.69 S.Y.

40,759.69 S.Y. × 0.25 Gal./S.Y. = 10,189.92 Gal.

T-31 TOTAL to GENERAL SUMMARY = 10,190 Gal.

T-31 BITUMINOUS SURFACE TREATMENT

Nº 6 Aggregate

T-31 Total = 40,759.69 S.Y. × 0.008 C.Y./S.Y. = 326.07 C.Y.
TOTAL to GENERAL SUMMARY = 326 C.Y.

WATERPROOFED AGGREGATE BASE COURSE

B-21 6" WATERPROOFED AGGREGATE BASE COURSE

Variable Shoulder Width = 1409.53 S.Y.
3' Shoulder Width = 2582.82 S.Y.
8' Shoulder Width = 2903.53 S.Y.
6,895.88 S.Y.
6,895.88 S.Y. ÷ 6 = 1,149.31 C.Y.

B-21 3" WATERPROOFED AGGREGATE BASE COURSE

Total Area T-31 = 40,759.69 S.Y.
Deduct Total Area 6" B-21 = 6,895.88 S.Y.
Total Area 3" B-21 = 33,863.81 S.Y.
33,863.81 S.Y. ÷ 12 = 2821.98 C.Y.

B-21 4" WATERPROOFED AGGREGATE BASE COURSE ~ 20'-8" WIDTH

Sta. 48+00.00 to Sta. 53+00.00 Co.Rd.52 Reloc.*) = 500.00 L.F.
20'-8" × 4" × 500.00 × 1/12 × 1/27 = 127.59 C.Y.
Sta. 53+00.00 to Sta. 53+75.00 Co.Rd. 52 Reloc.*) = 75.00 L.F.
[(17'-8" + 20-8") ÷ 2] × 4" × 75 × 1/12 × 1/27 = 17.75 C.Y.
B-21 TOTAL to GENERAL SUMMARY = 4,116.03 C.Y.

I-22 SUBBASE, GRADING "A" or "B", AS PER PLAN

TYPICAL SECTION "A"

Sta. 241+00.00 to Sta. 248+07.61 (N.B. & S.B.) = 1,415.22 L.F.
Sta. 279+27.05 to Sta. 284+23.00 (S.B.) = 495.95 L.F.
Sta. 284+50.00 to Sta. 286+87.65 (N.B.) = 237.65 L.F.
Sta. 339+36.95 to Sta. 359+50.00 (S.B.) = 2,013.05 L.F.
Sta. 339+36.95 to Sta. 376+88.96 (N.B.) = 3,752.01 L.F.
Sta. 374+50.00 to Sta. 376+88.96 (S.B.) = 238.96 L.F.
Sta. 384+89.08 to Sta. 403+50.00 (S.B.) = 1,860.92 L.F.
Sta. 384+89.08 to Sta. 401+25.00 (N.B.) = 1,635.92 L.F.
11,649.68 L.F.

{[(5½" × 1.375') ÷ 2] + (7½" × 12') + [(7½" + 3') ÷ 2 × 12']} × 11,649.68 × 1/12 × 1/27 = 5,745.02 C.Y.

CONT'D

TYPICAL SECTION "B" 10' SHOULDER HIGH SIDE NO UNDERDRAIN

Sta. 248+07.61 to Sta. 251+00.00 (N.B.) = 292.39 L.F.
Sta. 259+91.00 to Sta. 272+50.00 (N.B.) = 1,259.00 L.F.
Sta. 293+00.00 to Sta. 293+50.00 (S.B.) = 50.00 L.F.
Sta. 378+00.00 to Sta. 384+86.46 (S.B.) = 686.46 L.F.
2287.85 L.F.

6" × 29' × 2287.85 × 1/12 × 1/27 = 1,228.66 C.Y.

TYPICAL SECTION "B" 10' SHOULDER, LOW SIDE w/UNDERDRAIN

Sta. 248+07.61 to Sta. 250+50.00 (S.B.) = 242.39 L.F.
Sta. 262+50.00 to Sta. 273+98.00 (S.B.) = 1,148.00 L.F.
Sta. 275+55.00 to Sta. 279+27.05 (S.B.) = 372.05 L.F.
Sta. 286+87.65 to Sta. 299+75.79 (N.B.) = 1,288.14 L.F.
Sta. 376+88.96 to Sta. 384+86.46 (N.B.) = 797.50 L.F.
3848.08 L.F.

{(5 7/8" × 1') + (6" × 24') + [(4" × 1.375') ÷ 2]} × 3848.08 × 1/12 × 1/27 = 1,809.74 C.Y.

TYPICAL SECTION "B" 10'-SHOULDER, HIGH SIDE w/UNDERDRAIN

Sta. 293+50.00 to Sta. 299+75.79 (S.B.) = 625.79 L.F.
Sta. 376+88.96 to Sta. 378+00.00 (S.B.) = 111.04 L.F.
736.83 L.F.

{(6" × 28') + [(4" × 1.375') ÷ 2]} × 736.83 × 1/12 × 1/27 = 388.31 C.Y.

RAMP SECTIONS

Sta. 10+08.00 to Sta. 17+75.00 Ramp "A" = 767.00 L.F.
Sta. 15+82.50 to Sta. 22+70.00 Ramp "B" = 687.50 L.F.
Sta. 10+16.50 to Sta. 10+66.50 Ramp "C" = 50.00 L.F.
Sta. 12+53.61 to Sta. 16+34.53 Ramp "C" = 380.92 L.F.
Sta. 10+00.00 to Sta. 20+51.50 Ramp "D" = 1051.50 L.F.
2936.92 L.F.

{[(6'-5") ÷ 2 × 1] + (6" × 16') + [(4" × 1.75') ÷ 2]} × 2936.92 × 1/12 × 1/27 = 951.78 C.Y.

VARIABLE PAVEMENT WIDTHS

Sta. 250+50.00 to Sta. 251+46.00 (S.B.) = 96.00 L.F.
[(6' × 2.6') + (5 3/8" × 1') + (2" × 1.375')] × 96 × 1/12 × 1/27 = 48.70 C.Y.
Sta. 251+46.00 to Sta. 262+50.00 (S.B.) = 1104.00 L.F.
[(6" × 3.75) + (5 3/8" × 1') + (2" × 1.375')] × 1104 × 1/12 × 1/27 = 795.21 C.Y.
Sta. 284+23.00 to Sta. 285+23.00 (S.B.) = 100.00 L.F.
[(3" × 1') + (5¼" × 12') + (7½" × 24.5') + (2¾" × 1.375')] × 100 × 1/12 × 1/27 = 78.25 C.Y.
Sta. 285+23.00 to Sta. 286+00.00 (S.B.) = 77.00 L.F.
[(3" × 1') + (5¼" × 12') + (7½" × 48.5') + (2¾" × 1.563')] × 77 × 1/12 × 1/27 = 103.15 C.Y.
Sta. 286+00.00 to Sta. 291+00.00 (S.B.) = 500.00 L.F.
(6" × 32') × 500' × 1/12 × 1/27 = 481.48 C.Y.
Sta. 291+00.00 to Sta. 292+00.00 (S.B.) = 100.00 L.F.
(6" × 41') × 100 × 1/12 × 1/27 = 75.93 C.Y.
Sta. 292+00.00 to Sta. 292+83.33 (S.B.) = 83.33 L.F.
(6" × 36') × 83.33 × 1/12 × 1/27 = 55.55 C.Y.
Sta. 292+83.33 to Sta. 293+00.00 (S.B.) = 16.67 L.F.
(6" × 31') × 16.67 × 1/12 × 1/27 = 9.57 C.Y.
Sta. 251+00.00 to Sta. 251+16.67 (N.B.) = 16.67 L.F.
(6' × 31') × 16.67 × 1/12 × 1/27 = 9.57 C.Y.
Sta. 251+16.67 to Sta. 252+00.00 (N.B.) = 83.33 L.F.
(6" × 36') × 83.33 × 1/12 × 1/27 = 55.55 C.Y.
Sta. 252+00.00 to Sta. 255+00.00 (N.B.) = 300.00 L.F.
(6" × 41') × 300 × 1/12 × 1/27 = 227.79 C.Y.
Sta. 255+00.00 to Sta. 258+91.00 (N.B.) = 391.00 L.F.
(6" × 54.5') × 391 × 1/12 × 1/27 = 394.62 C.Y.
Sta. 258+91.00 to Sta. 259+91.00 (N.B.) = 100.00 L.F.
(6" × 40.5') × 100 × 1/12 × 1/27 = 75.00 C.Y.
Sta. 272+50.00 to Sta. 273+07.00 (N.B.) = 57.00 L.F.
(6' × 53.4') × 57 × 1/12 × 1/27 = 56.37 C.Y.
Sta. 274+54.00 to Sta. 279+25.00 (N.B.) = 471.00 L.F.
(6" × 44.85') × 471 × 1/12 × 1/27 = 391.19 C.Y.
Sta. 279+25.00 to Sta. 283+54.00 (N.B.) = 429.00 L.F.
[(3" × 1') + (5¼" × 12') + (7½" × 18.47') + (2¾" × 1.375')] × 429 × 1/12 × 1/27 = 275.82 C.Y.
Sta. 283+54.00 to Sta. 284+50.00 (N.B.) = 96.00 L.F.
[(3" × 1') + (5¼" × 12') + (7½" × 14') + (2¾" × 1.375')] × 96 × 1/12 × 1/27 = 51.79 C.Y.

RAMPS

Sta. 17+75.00 to Sta. 18+50.00 Ramp "A" = 75.00 L.F.
[(6" × 16') + (5½" × 1') + (2" × 1.67')] × 75 × 1/12 × 1/27 = 24.27 C.Y.
Sta. 18+50.00 to Sta. 19+50.00 Ramp "A" = 100.00 L.F.
[(6" × 17') + (5½" × 1') + (2" × 1.48')] × 100 × 1/12 × 1/27 = 34.09 C.Y.
Sta. 19+50.00 to Sta. 22+50.00 Ramp "A" = 300.00 L.F.
[(6" × 15') + (5½" × 1') + (2" × 1.375')] × 300 × 1/12 × 1/27 = 90.97 C.Y.

CONT'D

Sta. 14+82.50 to Sta. 15+82.50 Ramp "B" = 100.00 L.F.
[(6" × 17') + (5½" × 1') + (2" × 1.75')] 100 × 1/12 × 1/27 = 34.26 C.Y.
Sta. 16+34.53 to Sta. 18+50.00 Ramp "C" = 215.47 L.F.
[(6" × 16") + (5½ × 1') + (2" × 1.62')] 215.47 × 1/12 × 1/27 = 69.66 C.Y.
Sta. 18+50.00 to Sta. 19+50.00 Ramp "C" = 100.00 L.F.
[(6" × 17') + (5½" × 1') + (2" × 1.43')] 100 × 1/12 × 1/27 = 34.16 C.Y.
Sta. 19+50.00 to Sta. 19+70.00 Ramp "C" = 20.00 L.F.
[(6" × 16') + (5½" × 1') + (2" × 1.375')] 20 × 1/12 × 1/27 = 6.44 C.Y.
Sta. 19+70.00 to Sta. 22+50.00 Ramp "C" = 280.00 L.F.
[(6" × 17') + (2" × 1.375')] 280 × 1/12 × 1/27 = 90.53 C.Y.
Sta. 9+16.50 to Sta. 10+16.50 Ramp "C" = 100.00 L.F.
[(6" × 17') + (5½" × 1') + (2" × 1.75')] 100 × 1/12 × 1/27 = 34.26 C.Y.
Sta. 10+66.50 to Sta. 11+66.50 Ramp "C" = 100.00 L.F.
[(6" × 18.5') + (2" × 1.75')] 100 × 1/12 × 1/27 = 35.34 C.Y.
Sta. 11+66.50 to Sta. 12+53.61 Ramp "C" = 87.11 L.F.
[(6" × 16') + (2" × 1.75')] 87.11 × 1/12 × 1/27 = 26.75 C.Y.
Sta. 18+38.90 to Sta. 19+30.50 Ramp "C-C" = 91.60 L.F.
Planimetered Area [(1.24" × 400 × 6") + (5½" × 1' × 91.6')] 1/12 × 1/27 = 10.74 C.Y.
Sta. 19+30.50 to Sta. 20+30.50 Ramp "C-C" = 100.00 L.F.
[(6" × 16.5') + (5½" × 1') + (2" × 1.375')] 100 × 1/12 × 1/27 = 34.21 C.Y.
Sta. 20+30.50 to Sta. 20+73.70 Ramp "C-C" = 43.20 L.F.
[(6" × 16') + (5½" × 1') + (2" × 1.25')] 43.2 × 1/12 × 1/27 = 13.87 C.Y.
Sta. 9+00.00 to Sta. 10+00.00 Ramp "D" = 100.00 L.F.
[(6" × 17') + (5½" × 1') + (2" × 1.75')] 100 × 1/12 × 1/27 = 34.26 C.Y.
Sta. 8+95.00 to Sta. 10+08.00 Ramp "A" = 113.00 L.F.
Sta. 22+70.00 to Sta. 23+64.50 Ramp "B" = 94.50 L.F.
Sta. 20+73.70 to Sta. 21+13.70 Ramp "C-C" = 40.00 L.F.
Sta. 20+51.50 to Sta. 21+13.70 Ramp "D" = 62.20 L.F.
309.70 L.F.

6" × 16' × 309.70 × 1/12 × 1/27 = 91.76 C.Y.

RETURNS & FLARES

Sta. 31+45.50 C.R. #52 Reloc.*) to Sta. 9+70.00 Ramp "A"
From T-71 (88.89 S.Y. ÷ 6) + (5½" × 1' × 180 × 1/12 × 1/27) = 17.87 C.Y.
Sta. 32+67.00 C.R. #52 Reloc.*) to Sta. 10+08.00 Ramp "A"
From T-71 (153.78 S.Y. ÷ 6) + (2" × 1.75 × 110' × 1/12 × 1/27) = 26.82 C.Y.
Sta. 31+27.00 C.R. #52 Reloc.*) to Sta. 22+70.00 Ramp "B"
From T-71 (244.44 S.Y. ÷ 6) + (2" × 1.75 × 156 × 1/12 × 1/27) = 42.43 C.Y.
Sta. 32+66.00 C.R. #52 Reloc.*) to Sta. 23+34.00 Ramp "B"
From T-71 (15.11 S.Y. ÷ 6) + [(5½" × 1' × 50) + (2" × 1.75 × 36)] × 1/12 × 1/27 = 3.98 C.Y.
Sta. 20+98.67 to Sta. 21+13.67 Ramp "C-C"
From T-71 (4.44 S.Y. ÷ 6) + (2" × 1.75' × 22' × 1/12 × 1/27) = 0.98 C.Y.
Sta. 47+38.00 C.R. #52 Reloc.*) to Sta. 20+51.50 Ramp "D"
From T-71 (167.56 S.Y. ÷ 6) + [(5½" × 1" × 222) + (2" × 1.75 × 133)] 1/12 × 1/27 = 29.75 C.Y.
Sta. 37+00.00 to Sta. 38+00.00 Ramp "C" (Decel. Taper)
From T-71 (68.52 S.Y. ÷ 6) + (2" × 1.75 × 100 × 1/12 × 1/27) = 12.50 C.Y.
Sta. 38+00.00 to Sta. 42+02.38 Ramp "C" (Decel. Taper)
[(6" × 12') + (2" × 1.75')] 402.38 × 1/12 × 1/27 = 93.76 C.Y.
Sta. 7+22.84 to Sta. 9+16.50 Ramp "C"
From T-71 (406.67 S.Y. ÷ 6) + (2" × 1.75' × 193.66 × 1/12 × 1/27) = 69.87 C.Y.
Sta. 44+08.00 to Sta. 45+05.00 Ramp "C" (Recovery Taper)
[(6" × 5.5') + (2" × 1.375')] 100 × 1/12 × 1/27 = 11.03 C.Y.

Co Rd 52 Reloc. Nº 1

Sta. 31+37.05 to Sta. 47+00.00
6" × 24' × 1562.95' × 1/12 × 1/27 = 694.64 C.Y.
5½" × 3' × 1478.29 × 1/12 × 1/27 = 75.28 C.Y.
6" × 3' × 391.75' × 1/12 × 1/27 = 21.76 C.Y.
Sta. 47+00.00 to Sta. 48+00.00
6" × 22' × 100 × 1/12 × 1/27 = 40.74 C.Y.
5½" × 3' × 38' × 1/12 × 1/27 = 1.94 C.Y.
5¾" × 192 × 1/24 × 1/12 × 1/27 = 4.23 C.Y.
Sta. 48+00.00 to Sta. 53+00.00
6" × 21.67' × 500 × 1/12 × 1/27 = 200.65 C.Y.
Sta. 53+00.00 to Sta. 53+75.00
6" × 20.17 × 75 × 1/12 × 1/27 = 28.01 C.Y.
Sta. 28+62.50 to Sta. 28+81.55
Quantity from Sheet Nº 6G = 26.00 C.Y.

ADDITIONAL 2" SUBBASE IN ROCK CUT

Sta. 339+37.00 to Sta. 344+00.00 (N.B.) = 463.00 L.F.
Sta. 346+00.00 to Sta. 350+50.00 (N.B.) = 450.00 L.F.
Sta. 365+00.00 to Sta. 370+00.00 (N.B.) = 500.00 L.F.
1,413.00 L.F.

2" × 26.375 × 1413.00 × 1/12 × 1/27 = 230.09 C.Y.

I-22 SUBBASE, GRADING "A" or "B", AS PER PLAN (CONT'D)

APPROACH SLABS (Cross Roads)

Co. Rd. 52 Reloc. Nº1 over Wills Creek

38' × 25' × 6" × 1/12 × 1/27 = 17.59 C.Y.
29 × 25' × 6" × 1/12 × 1/27 = 13.43 C.Y.

Co. Rd. 102 over I-77

29' × 25' × 6" × 1/12 × 1/27 × 2 = 26.85 C.Y.
I-22 TOTAL to GENERAL SUMMARY 15,664.82 C.Y.

I-22 SUBBASE

10' SHOULDER w/UNDERDRAINS (Normal)

Sta.	241+00.00 to Sta.	248+00.00	(N.B. & S.B.)	= 1400.00 L.F.
Sta.	279+27.05 to Sta.	284+23.00	(S.B.)	= 495.95 L.F.
Sta.	284+50.00 to Sta.	286+87.25	(N.B.)	= 237.25 L.F.
Sta.	339+36.95 to Sta.	376+88.96	(N.B. & S.B.)	= 7504.02 L.F.
Sta.	386+05.00 to Sta.	402+87.51	(S.B.)	= 1682.51 L.F.
Sta.	384+89.08 to Sta.	401+25.00	(N.B.)	= 1635.92 L.F.
				12956.05 L.F.

(6 1/2" + 3") ÷ 2 × 7'-4 1/2" × 12,956.05 × 1/12 × 1/27 = 1400.70 C.Y.

10' SHOULDER w/UNDERDRAIN (Superelevated - High Side)

Sta.	293+50.00 to Sta.	299+75.79	(S.B.)	= 625.79 L.F.
Sta.	376+88.96 to Sta.	378+00.00	(S.B.)	= 111.04 L.F.
				736.83 L.F.

(6 3/4" + 3") ÷ 2 × 7'-4 1/2" × 736.83 × 1/12 × 1/27 = 81.75 C.Y.

10' SHOULDER w/UNDERDRAIN (Superelevated - Low Side)

Sta.	248+00.00 to Sta.	250+50.00	(S.B.)	= 250.00 L.F.
Sta.	267+08.00 to Sta.	267+10.00	(S.B.)	= 702.00 L.F.
Sta.	275+71.00 to Sta.	279+27.05	(S.B.)	= 356.05 L.F.
Sta.	286+87.25 to Sta.	299+75.79	(N.B.)	= 1288.14 L.F.
Sta.	376+88.96 to Sta.	384+86.46	(N.B.)	= 797.50 L.F.
Sta.	402+87.51 to Sta.	403+50.00	(S.B.)	= 62.49 L.F.
				3456.18 L.F.

(5 3/4" + 3") ÷ 2 × 7'-4 1/2" × 3,456.18 × 1/12 × 1/27 = 344.20 C.Y.

10' SHOULDER NO UNDERDRAIN (Superelevated - High Side)

Sta.	248+00.00 to Sta.	251+00.00	(N.B.)	= 300.00 L.F.
Sta.	259+91.00 to Sta.	268+30.00	(N.B.)	= 839.00 L.F.
Sta.	293+00.00 to Sta.	293+50.00	(S.B.)	= 50.00 L.F.
Sta.	378+00.00 to Sta.	384+86.46	(S.B.)	= 686.46 L.F.
Sta.	384+89.08 to Sta.	386+05.00	(S.B.)	= 115.92 L.F.
				1991.38 L.F.

[(6 3/4" + 3") ÷ 2 × 7'-6"] + [(6 3/4" + 6") ÷ 2 × 1'-6"] } 1991.38 × 1/12 × 1/27 = 283.46 C.Y.

4' SHOULDER NO UNDERDRAIN (Normal)

Sta.	241+00.00 to Sta.	248+00.00	(N.B. & S.B.)	= 1400.00 L.F.
Sta.	279+27.05 to Sta.	286+00.00	(N.B. & S.B.)	= 1345.90 L.F.
Sta.	340+00.00 to Sta.	376+88.96	(N.B. & S.B.)	= 7377.92 L.F.
Sta.	386+00.00 to Sta.	401+25.00	(N.B. & S.B.)	= 3050.00 L.F.
Sta.	401+25.00 to Sta.	402+87.51	(S.B.)	= 162.51 L.F.
				13336.33 L.F.

3" × 3' × 13,336.33 × 1/12 × 1/27 = 370.45 C.Y.

4' SHOULDER NO UNDERDRAIN (Superelevated - High Side)

Sta.	248+00.00 to Sta.	273+85.00	(S.B.)	= 2585.00 L.F.
Sta.	275+42.00 to Sta.	279+27.05	(S.B.)	= 385.05 L.F.
Sta.	286+00.00 to Sta.	299+75.79	(N.B.)	= 1375.79 L.F.
Sta.	339+36.95 to Sta.	340+00.00	(N.B.)	= 63.05 L.F.
Sta.	376+88.96 to Sta.	384+86.46	(N.B.)	= 797.50 L.F.
Sta.	384+89.08 to Sta.	386+00.00	(N.B.)	= 110.92 L.F.
Sta.	402+87.51 to Sta.	403+50.00	(S.B.)	= 62.49 L.F.
				5379.80 L.F.

[(5 1/4" + 3") ÷ 2] 3' × 5,379.80 × 1/12 × 1/27 = 205.45 C.Y.

8' SHOULDER w/UNDERDRAIN

From B-19 = 2060.47 L.F.
(6" + 4") ÷ 2 × 5'-4 1/2" × 2060.47 × 1/12 × 1/27 = 170.92 C.Y.

8' SHOULDER NO UNDERDRAIN

From B-19 = 1206.00 L.F.
(4" + 3 3/4") ÷ 2 × 7' × 1206.00 × 1/12 × 1/27 = 127.01 C.Y.

3' SHOULDER NO UNDERDRAIN

From B-19 = 3800.39 L.F.
[(3" + 5") ÷ 2] 2 × 3800.39 × 1/12 × 1/27 = 99.84 C.Y.

CONT'D

VARIABLE SHOULDER WIDTH w/UNDERDRAINS

From B-19 = 1319.75 S.F.
[(6" + 4") ÷ 2] × 1319.75 × 1/12 × 1/27 = 20.37 C.Y.

Sta. 269+79.00 to Sta. 272+50.00 (N.B.) = 271.00 L.F.
{[(34.0" × 400) - (271 × 3'-7 1/2")] × 3" × 1/12 × 1/27} + (9" × 1/12" × 271' × 1/12 × 1/27) = 40.26 C.Y.
Sta. 262+50.00 to Sta. 267+08.00 (S.B.) = 458.00 L.F.
{[(14.49" × 400) - (262.25 × 458)] × 3" × 1/12 × 1/27} + (7.375 × 1/24" × 458 × 1/12 × 1/27) = 60.77 C.Y.

2' to 3' SHOULDER WIDTH NO UNDERDRAINS

From B-19 : 3 × 125.00 S.F. = 375.00 S.F.
Length 150'
(375.00 - 150.00) × [(5 + 3") ÷ 2] × 1/12 × 1/27 = 2.78 C.Y.

VARIABLE SHOULDER WIDTH NO UNDERDRAINS

From B-19 7704.68 S.F. - 375.00 S.F. = 7329.68 S.F.
Length 1164'
(7329.68 - 1164.00) × [(6" × 4") ÷ 2] × 1/12 × 1/27 = 95.16 C.Y.
Sta. 268+30.00 to Sta. 269+79.00 (N.B.) = 149.00 L.F.
{[(5.82" × 400) - 149.00] × 3" × 1/12 × 1/27} + (9" × 1/12" × 149 × 1/12 × 1/27) = 26.39 C.Y.

APPROACH NOSES & MEDIAN ISLAND

Ramp "B" Nose	: 4.5' × 2.4' × 1' × 1/27	=	4.00 C.Y.
Ramp "C" Nose	: 6.0' × 2.1' × 1' × 1/27	=	4.67 C.Y.
Ramp "D" Nose	: 5.5' × 2.05 × 1' × 1/27	=	4.18 C.Y.
Median "C-C'-D"	: [(5' × 4.7') + (3' × 249.8)] × 1' × 1/27	=	36.46 C.Y.
	TOTAL to GENERAL SUMMARY	=	3,372.82 C.Y.

ITEM SPECIAL DRAINAGE CONNECTION

NORMAL SECTION - 10' UNDERDRAINED SHOULDER

From I-22 Subbase = 12956.05 L.F.
[(6 1/2" + 9 1/2") / 2 · 2'-7 1/2") - (5 1/2" × 1'-4 1/2")] 12956.05 × 1/12 × 1/27 = 686.19 C.Y.

SUPERELEVATED SECTION 10' UNDERDRAINED SHOULDER (High Side)

From I-22 Subbase = 736.83 L.F.
[(8" / 2 × 9 3/4") × 2'-7 1/2") - (4" × 1'-4 1/2")] ÷ 2] 736.83 × 1/12 × 1/27 = 37.77 C.Y.

SUPERELEVATED SECTION 10' UNDERDRAINED SHOULDER (Low Side)

From I-22 Subbase 3456.18 } = 3914.18 L.F.
Sta. 262+50.00 to Sta. 267+08.00 (S.B.) 458.00 }
[(8" / 2 × 3 3/4") × 2'-7 1/2") - (4" × 1'-4 1/2")] ÷ 2] 3,914.18 × 1/12 × 1/27 = 184.79 C.Y.

RAMP SECTION - 3' UNDERDRAINED SHOULDERS

Sta. 32+69.50 C.R. 52 Reloc. Nº1 to Sta. 17+75.00	Ramp "A"	=	878.00 L.F.
Sta. 31+01.00 C.R. 52 Reloc. Nº1 to Sta. 14+82.50	Ramp "B"	=	943.50 L.F.
Sta. 32+68.00 C.R. 52 Reloc. Nº1 to Sta. 23+20.00	Ramp "B"	=	57.50 L.F.
Sta. 37+00.00 C.R. 52 Reloc. Nº1 to Sta. 16+34.53	Ramp "C"	=	414.06 L.F.
Sta. 45+80.04 C.R. 52 Reloc. Nº1 to Sta. 20+50.50	Ramp "C-C"	=	29.00 L.F.
Sta. 47+38.00 C.R. 52 Reloc. Nº1 to Sta. 10+00.00	Ramp "D"	=	184.50 L.F.
Sta. 9+00.00 to Sta. 9+64.00	Ramp "D"	=	64.00 L.F.
			4570.56 L.F.

[(9" × 3.0') - (4" × 1'-9" ÷ 2)] × 4570.56 × 1/12 × 1/27 = 331.50 C.Y.

8' UNDERDRAINED SHOULDERS

From B-19 = 2060.47 L.F.
[(3" × 2'-7 1/2") - (4" × 1'-4 1/2" ÷ 2)] × 2060.47 × 1/12 × 1/27 = 132.70 C.Y.

2' to 3' UNDERDRAINED SHOULDERS

Sta. 20+30.50 to Sta. 20+80.50 Ramp "CC" = 50.00 L.F.
[(9" × 2.5') - (4" × 1'-3" ÷ 2)] × 50 × 1/12 × 1/27 = 3.09 C.Y.

VARIABLE WIDTH UNDERDRAINED SHOULDERS

Sta. 17+75.00 to Sta. 19+50.00	Ramp "A"	=	175.00 L.F.
Sta. 16+34.53 to Sta. 19+34.53	Ramp "C"	=	300.00 L.F.
Sta. 14+00.00 to Sta. 14+82.50	Ramp "B"	=	82.50 L.F.
Sta. 9+64.00 to Sta. 10+00.00	Ramp "D"	=	36.00 L.F.
			593.50 L.F.

[(9" × 2'-9 3/4") - (4" × 1'-6 3/4" ÷ 2)] × 593.50 × 1/12 × 1/27 = 40.64 C.Y.

UNDERDRAIN BEHIND CURBS

Sta. 269+79.00 to Sta. 272+50.00	(N.B.)	=	271.00 L.F.
Sta. 284+23.00 to Sta. 285+20.00	(S.B.)	=	97.00 L.F.
Sta. 19+30.50 to Sta. 20+30.50	Ramp "CC"	=	100.00 L.F.
Sta. 44+05.00 to Sta. 45+05.00	C.R. 52 Reloc. Nº1	=	100.00 L.F.
			568.00 L.F.

[(7/2" - 8") × 2'-7 1/2") - (4" × 1'-4 1/2" ÷ 2)] × 568.00 × 1/12 × 1/27 = 29.69 C.Y.
TOTAL to GENERAL SUMMARY = 1446.43 C.Y.

T-35 ASPHALTIC CONCRETE SURFACE COURSE (70-85), Type "C"

20' PAVEMENT - 1 1/4" COURSE

Sta. 48+00.00 to Sta. 53+00.00	C.R. 52 Reloc. Nº1	=	500.00 L.F.
Sta. 41+00.00 to Sta. 48+30.11	C.R. 102 Reloc.		730.11 L.F.
Sta. 51+65.16 to Sta. 60+00.00	C.R. 102 Reloc.		834.84 L.F.
			2064.95 L.F.

20' × 2064.95 × 1 1/4" × 1/12 × 1/27 = 159.38 C.Y.

VARIABLE WIDTH PAVEMENT - 1 1/4" COURSE

Sta. 53+00.00 to Sta. 53+75.00	C.R. 52 Reloc. Nº1	=	75.00 L.F.
[(20 + 17) ÷ 2] × 75 × 1 1/4" × 1/12 × 1/27		=	5.35 C.Y.
Sta. 40+32.60 to Sta. 41+00.00	C.R. 102 Reloc.	=	67.40 L.F.
[(20 + 15) ÷ 2] × 67.40 × 1 1/4" × 1/12 × 1/27		=	4.55 C.Y.
TOTAL to GENERAL SUMMARY		=	169.28 C.Y.

T-35 ASPHALTIC CONCRETE SURFACE COURSE (85-100) Type "A"

16' PAVEMENT - 1 1/2" COURSE

Sta. 4+10.70 to Sta. 20+81.04	Ser. Rd. "A"	=	1670.34 L.F.
Sta. 75+29.87 to Sta. 80+18.00	C.R. 52 Ext.	=	488.13 L.F.
Sta. 83+75.00 to Sta. 91+75.00	C.R. 52 Reloc. Nº2	=	800.00 L.F.
			2958.47 L.F.

16' × 2958.47 × 1 1/2" × 1/12 × 1/27 = 219.15 C.Y.

VARIABLE WIDTH PAVEMENT - 1 1/2" COURSE

Sta. 4+10.70 to Sta. 4+63.00	Ser. Rd. "A" Returns		
0.27" × 2500 × 1 1/2" × 1/12 × 1/27		=	3.13 C.Y.
Sta. 70+31.76 to Sta. 73+74.62	C.R. 52 Ext.	=	342.86 L.F.
20' × 342.86 × 1 1/2" × 1/12 × 1/27		=	31.75 C.Y.
Sta. 73+74.62 to Sta. 75+29.87	C.R. 52 Ext.	=	155.25 L.F.
[(20 + 16) ÷ 2] × 155.25 × 1 1/2" × 1/12 × 1/27		=	12.94 C.Y.
Sta. 70+13.76 to Sta. 70+66.00	C.R. 52 Ext. Returns		
1.21" × 400 × 1 1/2" × 1/12 × 1/27		=	2.24 C.Y.
Sta. 79+56.50 to Sta. 80+18.00	C.R. 52 Ext. Returns		
0.27" × 2500 × 1 1/2" × 1/12 × 1/27		=	3.13 C.Y.
Sta. 83+25.00 to Sta. 83+75.00	C.R. 52 Reloc. Nº2	=	50.00 L.F.
[(14 + 12) ÷ 2] 50 × 1 1/2" × 1/12 × 1/27		=	3.47 C.Y.
Sta. 91+75.00 to Sta. 92+25.00	C.R. 52 Reloc. Nº2	=	50.00 L.F.
[(16 + 13) ÷ 2] 50 × 1 1/2" × 1/12 × 1/27		=	2.20 C.Y.
From C.R. 52 Reloc. Nº3 Calc.		=	375.22 C.Y.
TOTAL TO GENERAL SUMMARY			653.23 C.Y.

B-35 1 1/4" ASPHALTIC CONCRETE LEVELING COURSE (70-85)

20' PAVEMENT

Sta. 41+00.00 to Sta. 48+30.11	C.R. 102 Reloc.	=	730.11 L.F.
Sta. 51+65.16 to Sta. 60+00.00	C.R. 102 Reloc.	=	834.84 L.F.
			1564.95 L.F.

1,564.95 × 20 ÷ 9 = 3,477.67 S.Y.

VARIABLE PAVEMENT

Sta. 40+32.60 to Sta. 41+00.00	C.R. 102 Reloc.	=	67.40 L.F.
[(20 + 15) ÷ 2] 67.40 ÷ 9 = 131.06 S.Y.			
(3477.67 + 131.06) × 1 1/4" × 1/12 × 1/3)		=	125.34 C.Y.
TOTAL TO GENERAL SUMMARY		=	125.34 C.Y.

T-30 BITUMINOUS PRIME COAT---USING SEC. M5.7, RT 2 or 3

Applied At The Rate of 0.4 Gal./S.Y.

From B-35			3608.73 S.Y.
From T-35 Type "A" 278.01 C.Y. × 3 ÷ (1 1/2" × 1/12)		=	6672.24 S.Y.
			10,280.97 S.Y.
10,280.97 × 0.4		=	4112.4 Gal.
From C.R. 52 Reloc. Nº3 Calc.		=	3602.1 Gal.
TOTAL TO GENERAL SUMMARY		=	7714.5 Gal.

E-1 COMPACTED SUBGRADE

From T-71	=	81,307.70 S.Y.
From T-31	=	40,759.69 S.Y.
From Approach Slabs	=	737.52 S.Y.
Sub Total		122,804.91 S.Y.

Deduct For Rock Area

Sta. 287+50.00 to Sta. 291+00.00 (N.B.)	=	350.00 L.F.
Sta. 297+00.00 to Sta. 344+00.00 (N.B.)	=	4700.00 L.F.
Sta. 346+00.00 to Sta. 350+50.00 (N.B.)	=	450.00 L.F.
Sta. 365+00.00 to Sta. 370+00.00 (N.B.)		500.00 L.F.
		6000.00 L.F.

6000.00 × 38 ÷ 9 = -25,333.33 S.Y.

TOTAL TO GENERAL SUMMARY 97,471.58 S.Y.

I-7 REINFORCED CONCRETE APPROACH SLAB

BRIDGE - C.R. 52 Over Wills Creek

Sta. 28+81.55 to Sta. 29+06.55	=	25.00 L.F.	
25 × 38 ÷ 9		=	105.56 S.Y.
Sta. 31+12.05 to Sta. 31+37.05	=	25.00 L.F.	
25 × 29 ÷ 9		=	80.56 S.Y.

BRIDGE - Nº GUE-77-0537 I-77 Over C.R. 52

Sta. 273+30.68 to Sta. 273+55.68	=	25.00 L.F.	
S.B. I-77 25 × 24 ÷ 9		=	66.67 S.Y.
N.B. I-77 25 × 48 ÷ 9		=	133.33 S.Y.
Sta. 275+06.19 to Sta. 275+31.19	=	25.00 L.F.	
S.B. I-77 25 × 24 ÷ 9		=	66.67 S.Y.
N.B. I-77 25 × 44.5 ÷ 9		=	123.61 S.Y.

BRIDGE - Nº GUE-77-0694, I-77 Under C.R. 102

Sta. 48+30.11 to Sta. 48+55.11	=	25.00 L.F.	
25 × 29 ÷ 9		=	80.56 S.Y.
Sta. 51+40.10 to Sta. 51+65.10	=	25.00 L.F.	
25 × 29 ÷ 9		=	80.56 S.Y.
TOTAL to GENERAL SUMMARY			737.52 S.Y.

PAVEMENT CALCULATIONS - C.R. 52 RELOC. Nº3

T-35 ASPHALTIC CONCRETE SURFACE COURSE (85-100 Type "A")

16' PAVEMENT - 1 1/2" COURSE

Sta. 12+75.00 to Sta. 25+50.00	C.R. 52 Reloc. #3	=	1275.00 L.F.
Sta. 35+54.00 to Sta. 70+50.00	C.R. 52 Reloc. #3	=	3496.00 L.F.
			4771.00 L.F.

16' × 4771.00 × 1 1/2" × 1/12 × 1/27 = 353.41 C.Y.

VARIABLE WIDTH PAVEMENT - 1 1/2" COURSE

Sta. 25+50.00 to Sta. 26+21.02	C.R. 52 Reloc. #3 (Inc. Returns)		
0.89" × 2500 × 1 1/2" × 1/12 × 1/27		=	10.30 C.Y.
Sta. 34+93.42 to Sta. 35+54.00	C.R. 52 Reloc. #3 (Inc. Returns)		
0.72" × 2500 × 1 1/2" × 1/12 × 1/27		=	8.33 C.Y.
Sta. 70+50.00 to Sta. 70+88.10	C.R. 52 Reloc. #3	=	38.10 L.F.
18' × 38.10 × 1 1/2" × 1/12 × 1/27		=	3.18 C.Y.
* T-35 TOTAL TO T-35 ITEM THIS SHT.		=	375.22 C.Y.

T-30 BITUMINOUS PRIME COAT---USING SEC. M5.7, RT 2 or 3

Applied At The Rate of 0.4 Gal / S.Y.

From T-35 Type "A" 375.22 C.Y. × 3 ÷ (1 1/2" × 1/12)		=	9,005.28 S.Y.
9,005.28 × 0.4		=	3,602.11 Gal.
* T-30 TOTAL TO T-30 ITEM THIS SHT.		=	3,602.11 Gal.

B-19 AGGREGATE BASE COURSE

17' WIDTH - 8" UNIFORM THICKNESS

(Same length as T-35) 4771.00 × 17 × 8" × 1/12 × 1/27 = 2,002.64 C.Y.

VARIABLE WIDTH - 8" UNIFORM THICKNESS

Sta. 25+50.00 to Sta. 26+21.02	C.R. 52 Reloc. #3 (Inc. Returns)		
0.89" × 2500 × 8" × 1/12 × 1/27		=	54.94 C.Y.
Sta. 34+93.42 to Sta. 35+54.00	C.R. 52 Reloc. #3 (Inc. Returns)		
0.72" × 2500 × 8" × 1/12 × 1/27		=	44.44 C.Y.
Sta. 70+50.00 to Sta. 70+88.10	C.R. 52 Reloc. #3	=	38.10 L.F.
8" × 19 × 38.10 × 1/12 × 1/27		=	17.87 C.Y.
Sta. 25+50.00 to Sta. 26+21.02	C.R. 52 Reloc. #3	=	71.02 L.F.
Sta. 34+93.42 to Sta. 35+54.00	C.R. 52 Reloc. #3	=	60.58 L.F.
(1/2' Outside Returns)			131.60 L.F.
8" × 2 × 1/2 × 131.60 × 1/16 × 1/27		=	3.25 C.Y.
* B-19 TOTAL TO B-19 ITEM SHT. 22			2123.14 C.Y.

* C.R. 52 Reloc. Nº3 Quantities taken to pertinent totals on Sheet Nos 22 & 24.

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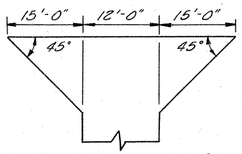
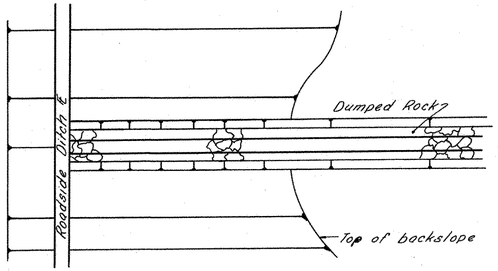
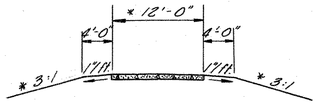


FIELD DRIVE DETAIL

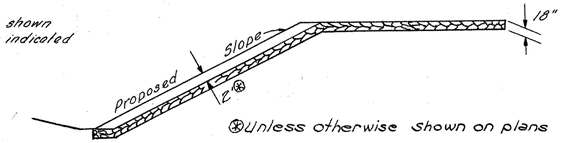


Typical Section for Dumped Rock shall be the same as shown for the Roadside Ditch Dumped Rock Detail with 2:1 slopes. Ditch Flow Line shall be 2 feet below backslope plane.



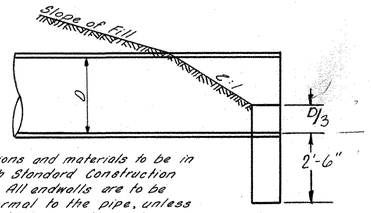
TYPICAL SECTION-FIELD & RESIDENTIAL DRIVES

*Unless otherwise shown Type pavement as indicated on plans.



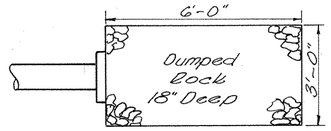
⊛Unless otherwise shown on plans

DUMPED ROCK CHANNEL PROTECTION FOR DITCHES OVER SLOPES



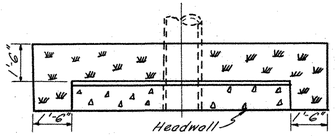
All other dimensions and materials to be in accordance with Standard Construction Drawing HW-E. All endwalls are to be constructed normal to the pipe, unless otherwise noted on the plans. Dimensions shown on the plans are to the outside face of endwalls.

HW-E ENDWALL

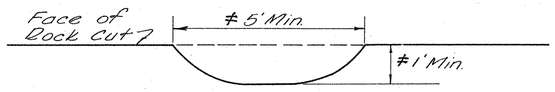


MEDIAN OUTLET PROTECTION

To be used as noted in areas where no ditches are to be constructed.



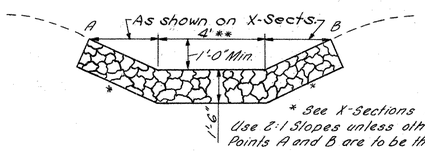
HEADWALL SOD DETAIL



DETAIL OF DEPRESSION IN ROCK CUT

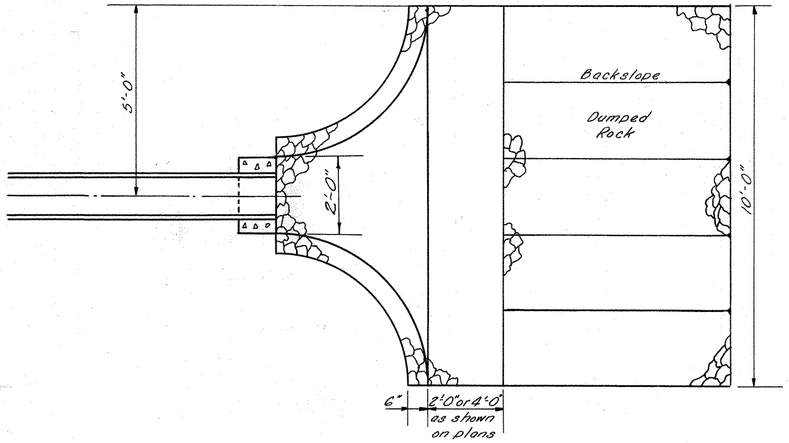
≠ See General Note "Swales and/or Springs in Rock Cut"

** Unless otherwise shown on plans

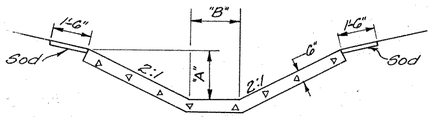


* See X-Sections for Slopes
Use 2:1 Slopes unless otherwise noted
Points A and B are to be the same elevation.

ROADSIDE DITCH DUMPED ROCK CHANNEL PROTECTION



Payment for aggregates, tarred paper or tarred burlap & excavation for Spring Drains shall be included in the Unit Price bid for Item I-9 Stone Underdrains No. 1, as per plan.
Spring Drains, shall be placed at locations designated by the Engineer.
Estimated quantities of 30 lin. ft. of I-9 Stone Underdrains No. 1 & 500 lin. ft. of I-1, 6" Pipe, Sec. M-6.4(h) Class I-3 as per plan are carried in the General Summary for draining Springs.
Pay quantities shall be determined by final measurement.

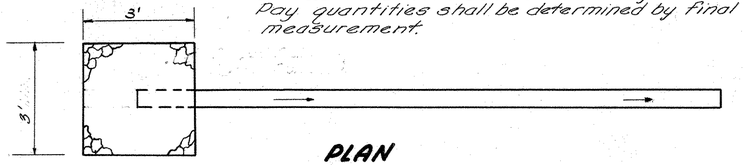


Note: Sod is to be paid for under Item, L-10 Sodding

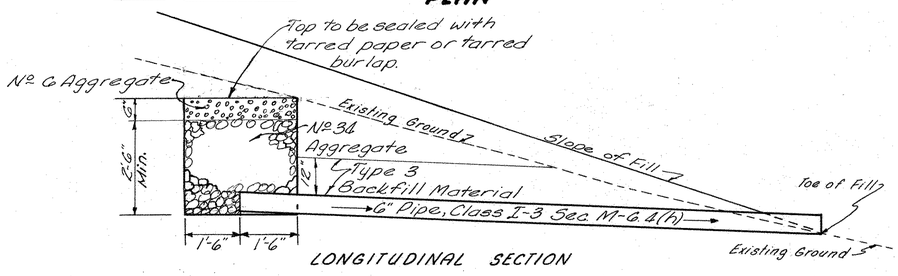
TYPE	"A"	"B"
1 Modified	1½'	4'
A	1'	4'
B	1½'	4'
C	2'	2'
D	2½'	4'

All other dimensions and materials to be in accordance with Standard Construction Drawing I-14-G

TYPES, 1 MODIFIED, A, B, C, & D PAVED GUTTER DETAILS



PLAN



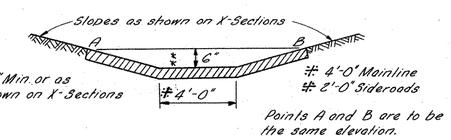
LONGITUDINAL SECTION

DETAIL OF SPRING DRAINS

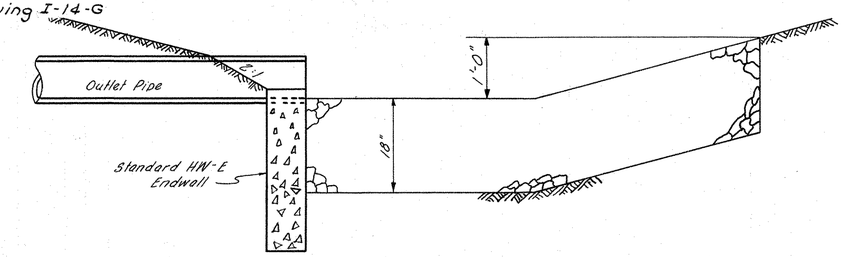
ESTIMATED QUANTITIES

I-1	6" Pipe Class I-3 Sec M-6.4(h), as per plan	500 L.F.
I-9	Stone Underdrains No. 1	30 L.F.

NOTES: See General Notes
One Spring Drain shall consist of 3 L.F. of I-9 Stone Underdrains, No. 1



ROADWAY DITCH SOD DETAIL



DUMPED ROCK DETAIL FOR MEDIAN OUTLETS INTO SIDE DITCH

TYPICAL DETAILS I-1

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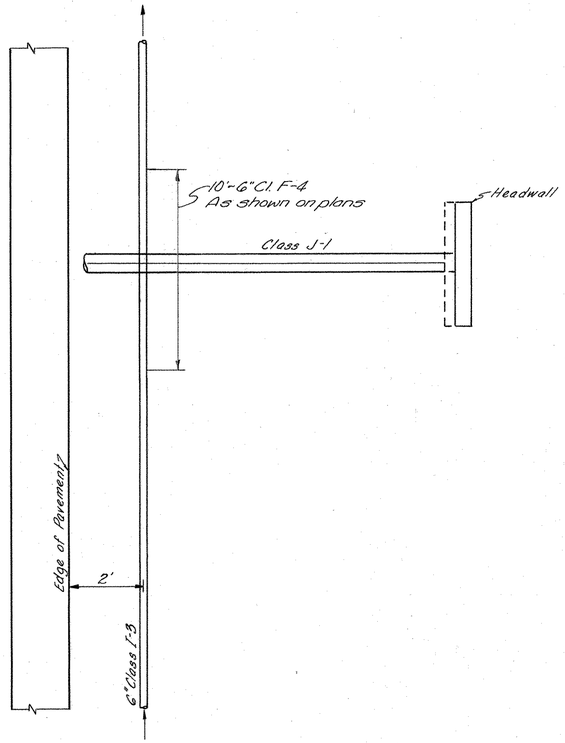
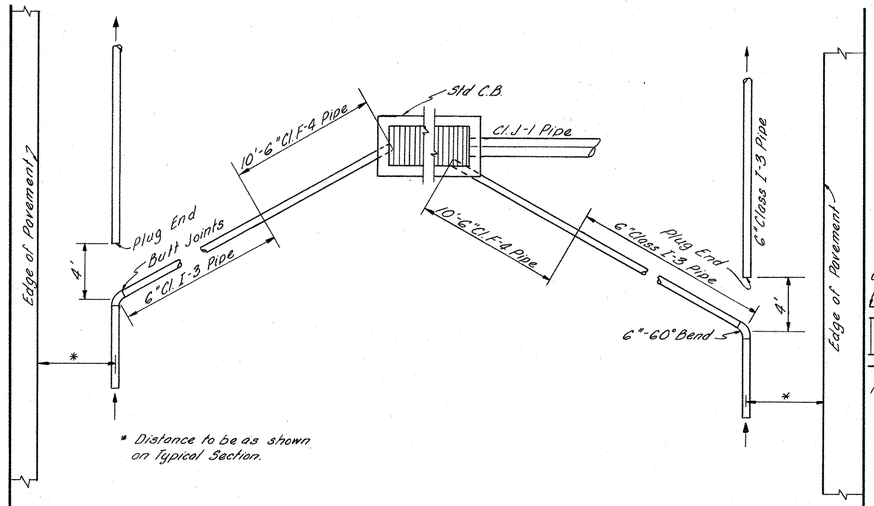
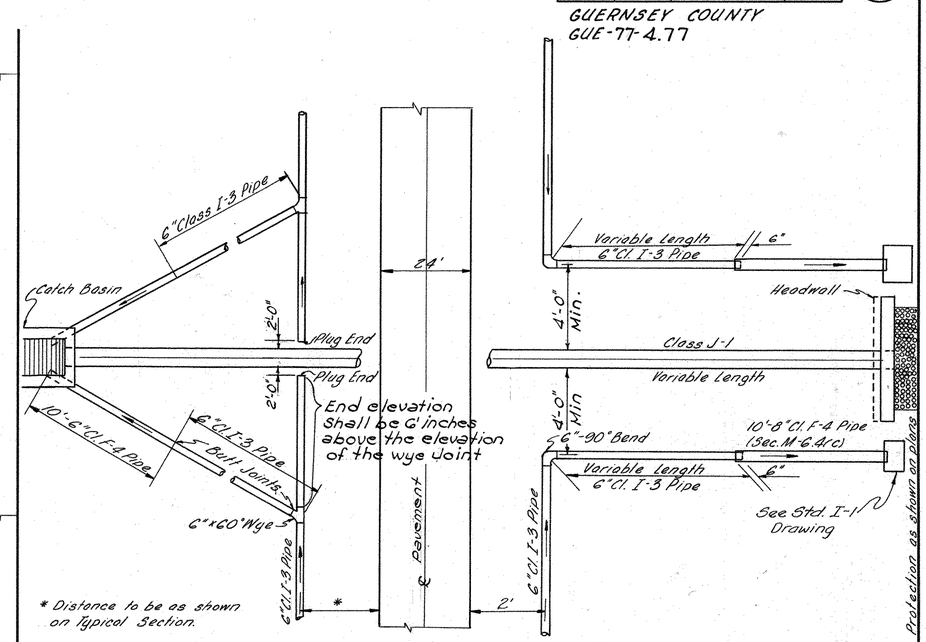


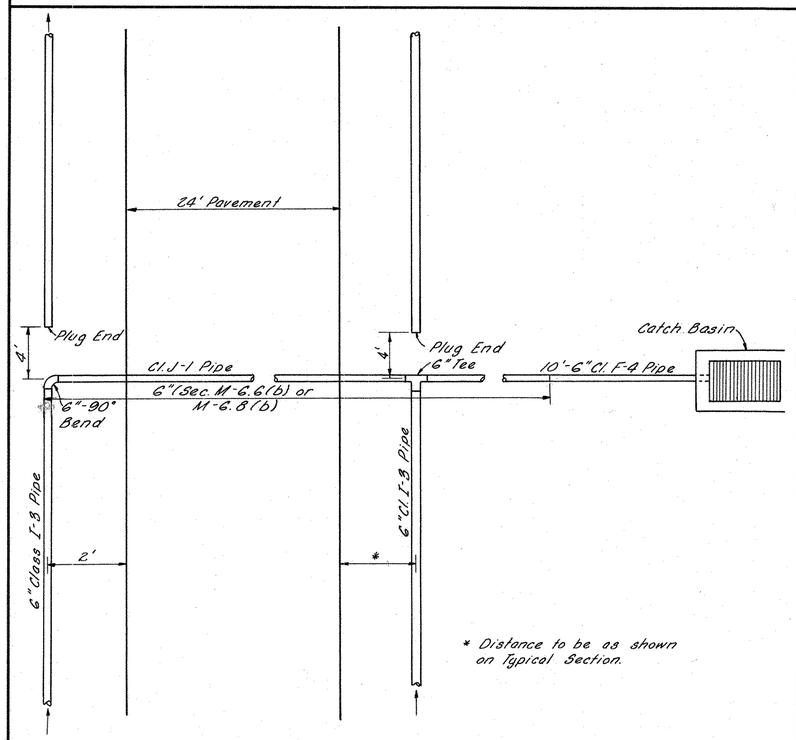
UNDERDRAIN OUTLET DETAIL 'A'



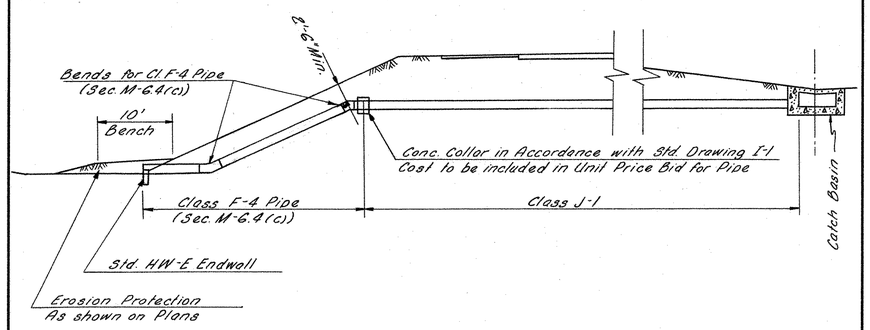
UNDERDRAIN OUTLET DETAIL 'B'



UNDERDRAIN OUTLET DETAIL 'C'



UNDERDRAIN OUTLET DETAIL 'D'



MEDIAN OUTLET DETAIL IN HIGH FILL

NOTES:

1. 6" Class F-4 Pipe (Sec. M-6.4(c) shall be furnished with one rolled end. The rolled end shall be placed at the outlet end.
2. When underdrains cross a transverse line, a 10' length of 6" class F-4 pipe shall be used to span the trench of the transverse line except at those locations where the vertical distance between pipes exceeds 3'-0". See Detail 'A'.

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SPECIAL BERM & SLOPE PROTECTION

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

Stakes shall be 1"x1"x8" wood stakes and shall be perpendicular to the ground and flush with the top of the sod.

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

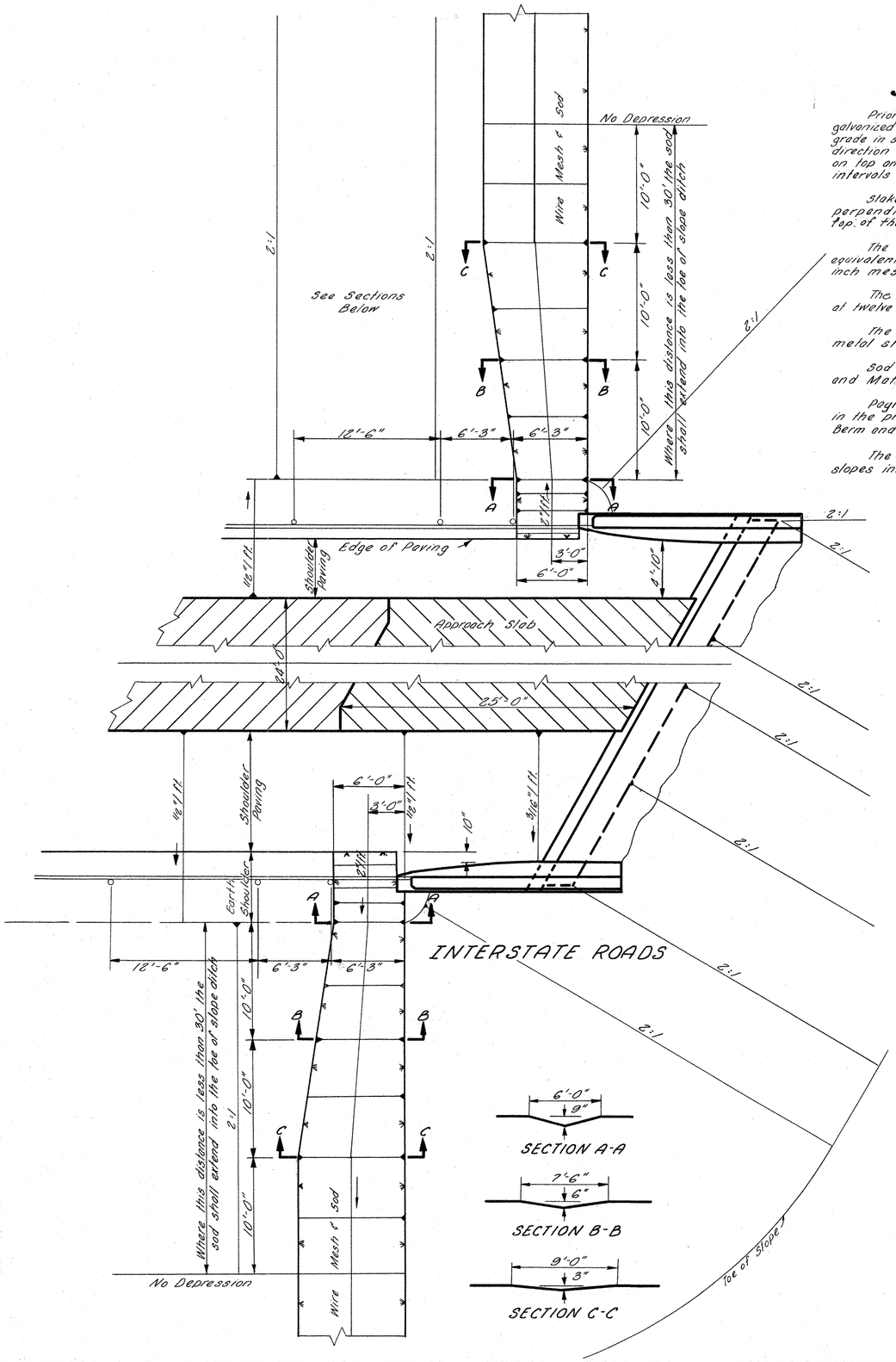
The strands of fencing shall be fastened together at twelve inch intervals by means of hog rings.

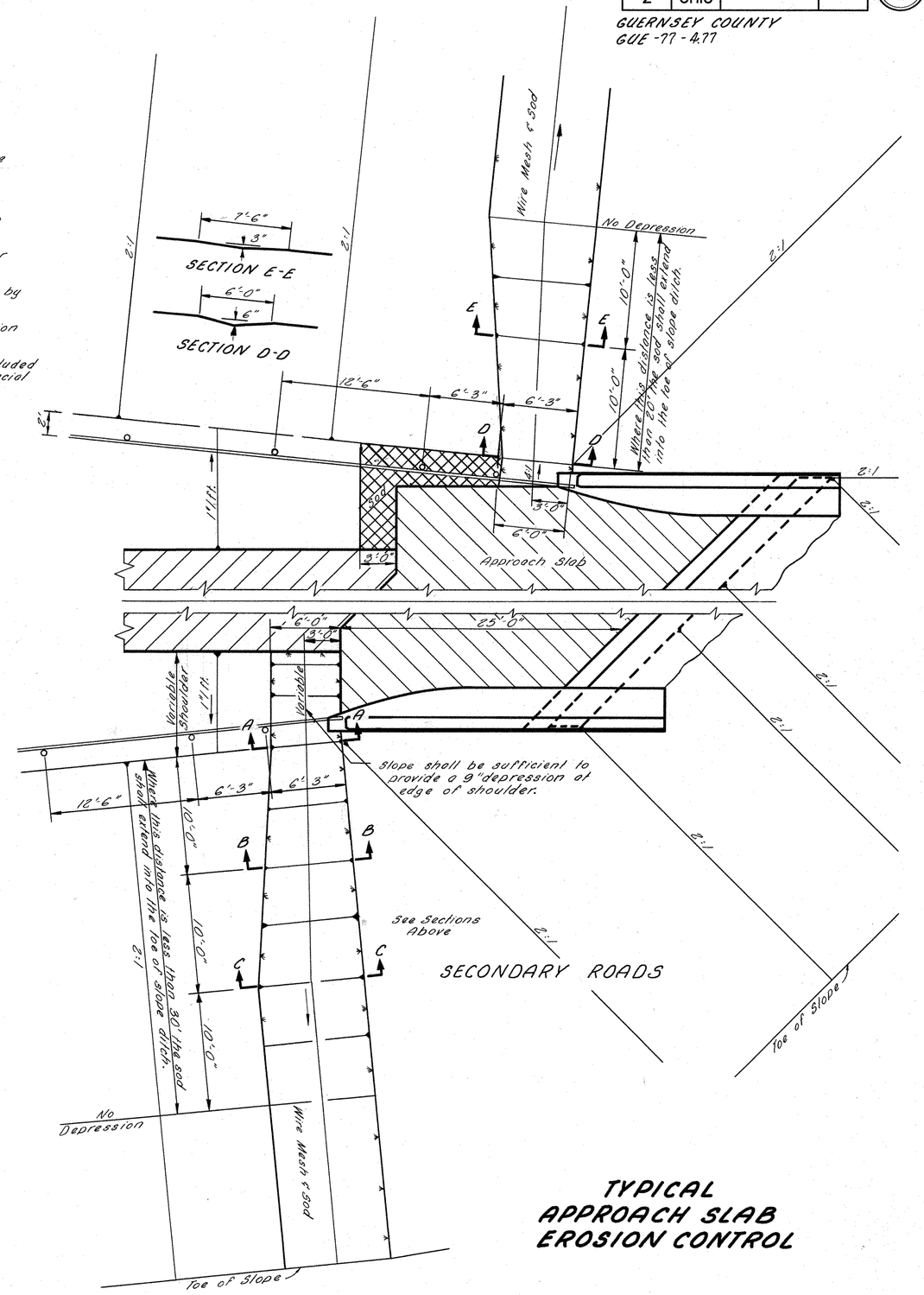
The fence shall be secured to the wood stakes by metal staples.

Sod shall be laid in accordance with Construction and Materials Specifications Section L-10.07.

Payment for all materials and labor shall be included in the price bid per sq. yd. for L-10 Sodding for Special Berm and Slope Protection.

The protection is not to be used where the slopes into the ditches are 6:1 or less.





TYPICAL APPROACH SLAB EROSION CONTROL

SPECIAL DETAILS

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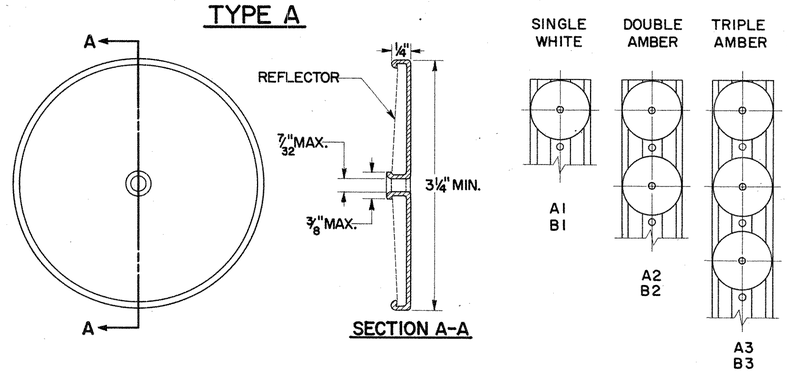
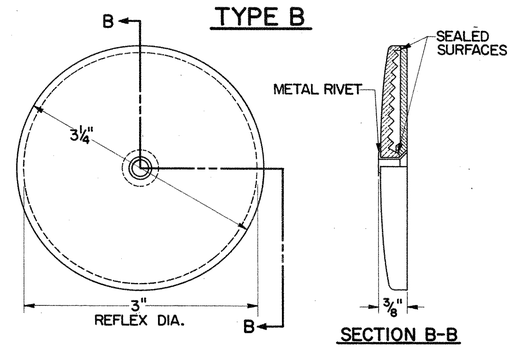
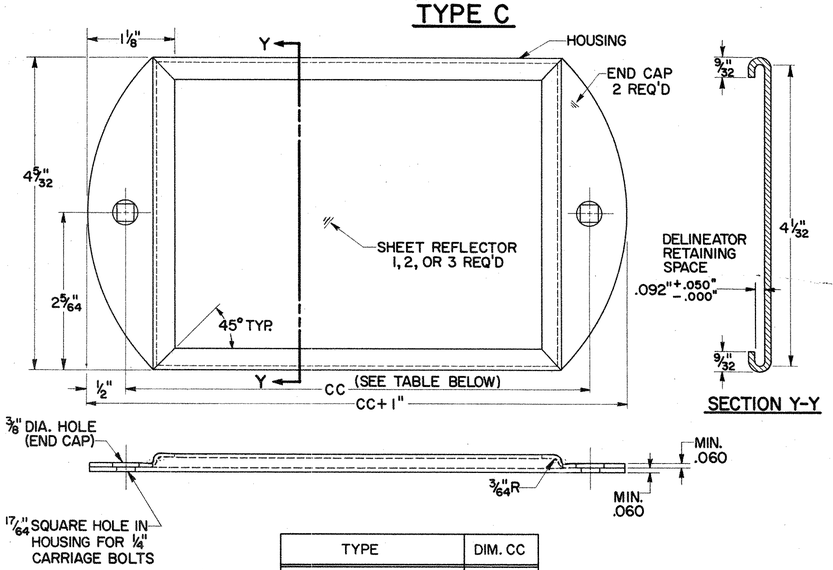
TYPE A



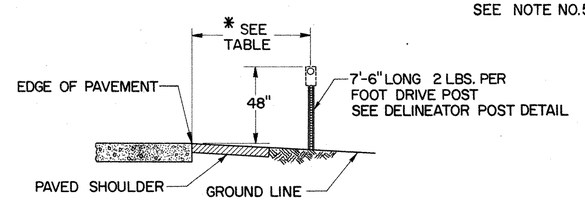
TYPE B



TYPE C



TYPE	DIM. CC
C1- SINGLE WHITE	6"
C2- DOUBLE AMBER	11"
C3- TRIPLE AMBER	16"

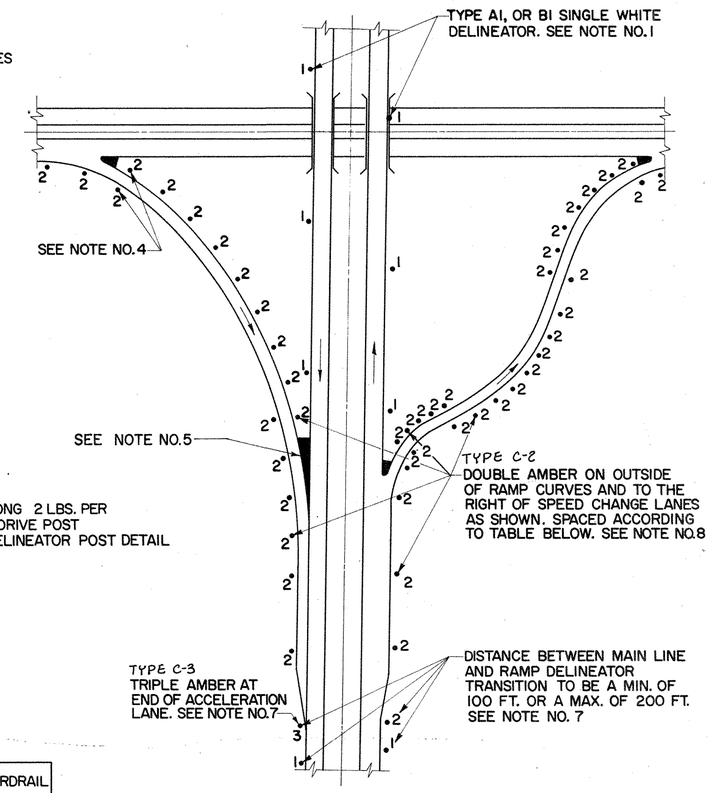


LATERAL PLACEMENT OF DELINEATORS

* TABLE

TYPE DELINEATOR	NO GUARDRAIL	GUARDRAIL
SINGLE WHITE	12'-6"	6" OUTSIDE
DOUBLE AMBER RIGHT SIDE	** 8'-6"	6" OUTSIDE
DOUBLE AMBER LEFT SIDE	4'-6"	6" OUTSIDE
TRIPLE AMBER	12'-6"	6" OUTSIDE

** THIS DIMENSION SHALL VARY ON SPEED CHANGE LANES TO MAINTAIN MINIMUM DISTANCE OF 2'-6" FROM EDGE OF PAVED SHOULDER.



TYPICAL DELINEATOR PLACEMENT

NOTES

1. TYPE A1 OR B1 DELINEATORS ON THE RIGHT OF THE THROUGH ROADWAY ARE TO BE SPACED AT 200 FT. INTERVALS THROUGHOUT, REGARDLESS OF CURVES, BEGINNING AT STA. +00, +25, +50, OR +75.
2. DELINEATORS SHALL BE FURNISHED AND ERECTED IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION NO. I-127, (1-15-62).
3. PAYMENT FOR SUPPORTS (DRIVEPOST OR BRACKET) SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH FOR "ITEM I-127 DELINEATORS".
4. WHEN CROSSING FROM LEFT TO RIGHT OR FROM RIGHT TO LEFT ON THE RAMPS THE DELINEATORS AT THE POINT OF CROSSOVER ARE TO BE AT THE SAME STATION ON EACH SIDE.
5. NO DELINEATORS ARE TO BE PLACED IN PAVED BERM.
6. WHEN RADII OF CURVE ON RAMPS REQUIRE 100' SPACING THE DELINEATORS SHALL BE PLACED ON THE RIGHT IN RELATION TO THE FLOW OF TRAFFIC.
7. RAMP DELINEATOR AT END OF ACCELERATION & BEGINNING OF DECELERATION LANES TO BE A MAXIMUM OF 5' FROM POINT OF TANGENCY AT MAIN LINE.
8. ALL RAMP DELINEATORS SHALL BE PLACED TO THE NEAREST 5' INCREMENTS, SUCH AS +05, +10, +15, +20 AND SO ON.

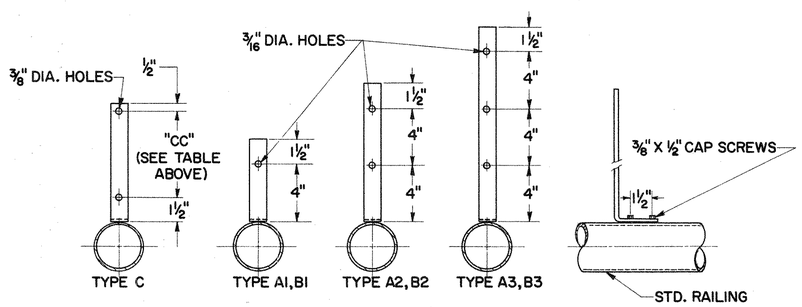
Note: See Sheet No 21 for Delineator Quantities.

DELINEATOR SPACING ON RAMP HORIZONTAL CURVES

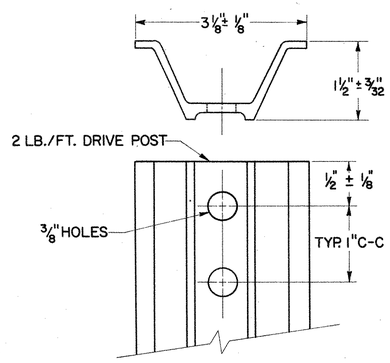
RADII, FT. FROM	RADII, FT. TO	SPACING ON CURVE	* TRANSITION SPACING	
TANGENT	1,801	100'	100'	100'
1,800	1,401	80'	100'	100'
1,400	1,001	70'	100'	100'
1,000	751	60'	100'	100'
750	551	50'	80'	100'
550	326	40'	70'	100'
325	———	30'	60'	100'

* SUCH AS 40' TO 70' TO 100' OR 100' TO 80' TO 50' OR ANY OTHER COMBINATION SHOWN ABOVE.

ALL BRACKETS 1/4" X 1 1/4" STAINLESS STEEL



BRIDGE RAIL BRACKET



DELINEATOR POST

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

DELINEATOR DETAILS	I-127	DATE 9-25-62 10-2-63

APPROVED Robert A. Lomer
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
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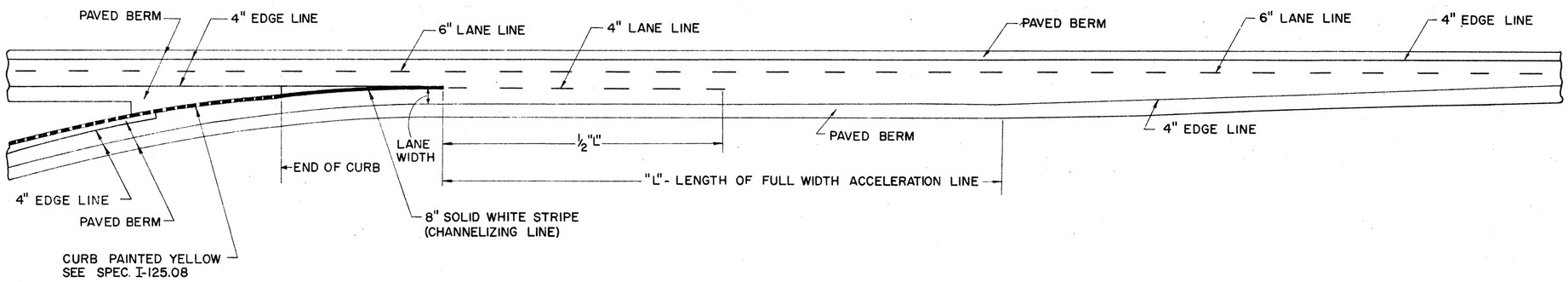
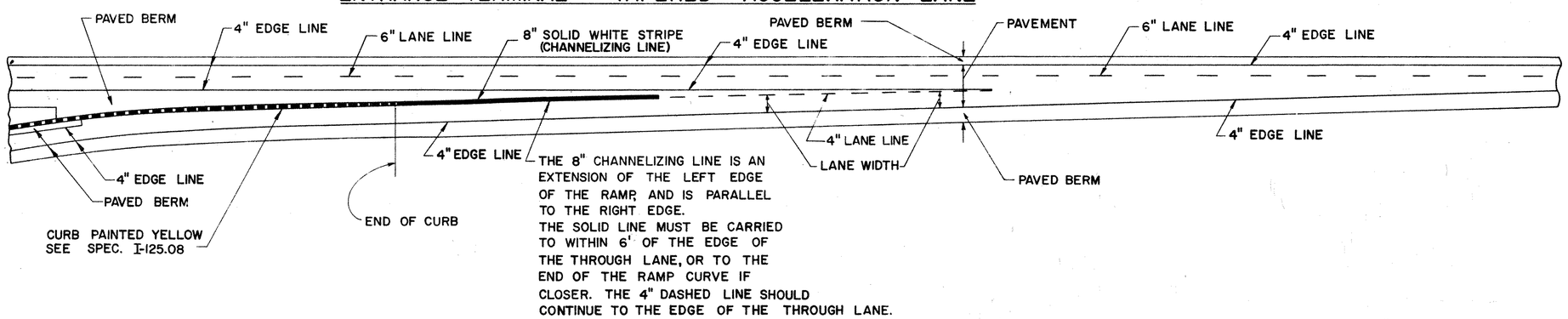
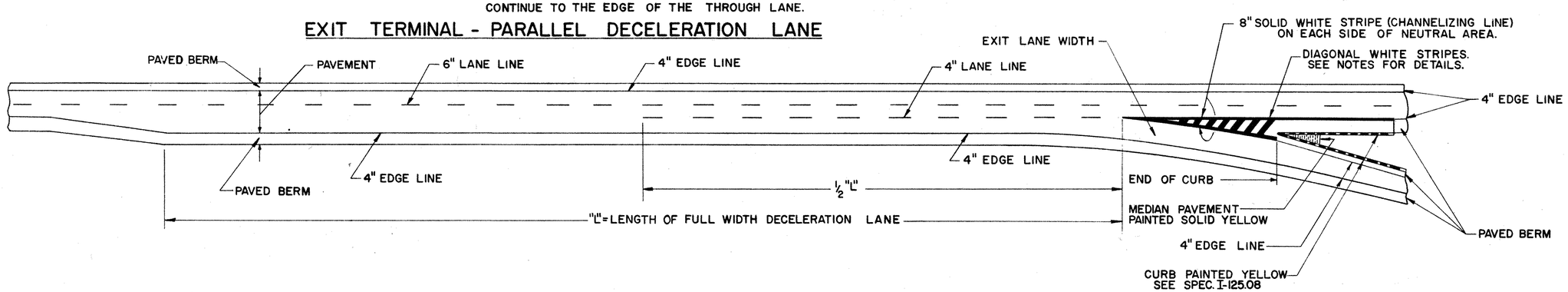
ENTRANCE TERMINAL - PARALLEL ACCELERATION LANE (NOT APPLICABLE)



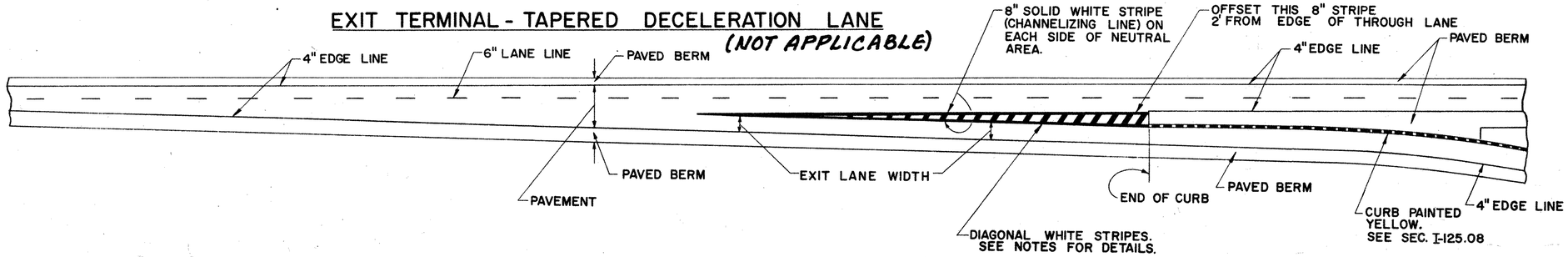
ENTRANCE TERMINAL - TAPERED ACCELERATION LANE



EXIT TERMINAL - PARALLEL DECELERATION LANE



EXIT TERMINAL - TAPERED DECELERATION LANE (NOT APPLICABLE)



NOTES

EDGE LINES SHALL BE PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO SUPPLEMENTAL SPECIFICATION No. I-125 AND DEFINED IN SECTION I-125.06.

LANE LINES SHALL BE PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO SUPPLEMENTAL SPECIFICATION No. I-125 AND DEFINED IN SECTION I-125.07.

CHANNELIZING LINES SHALL BE CONTINUOUS WHITE BEADED STRIPES 8" IN WIDTH PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO SUPPLEMENTAL SPECIFICATION No. I-125 AND DEFINED IN SECTION I-125.07b.

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 SUPPLEMENTAL SPECIFICATION No. I-125 AND DEFINED IN SECTION I-125.07c.

Note: See Sheet No 21 for Pavement Marking Quantities

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

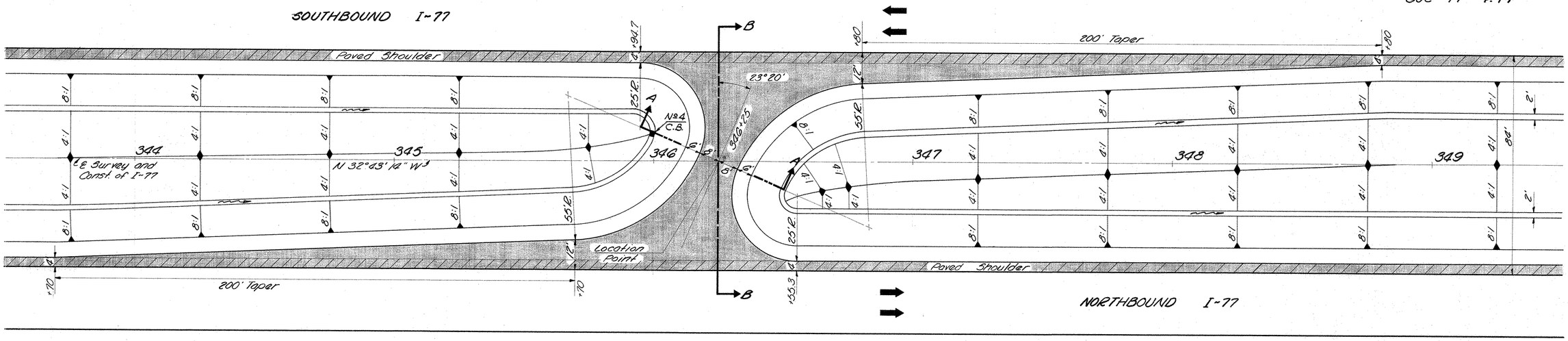
PAVEMENT MARKING	PM-1	DATE 7-17-61 4-6-62

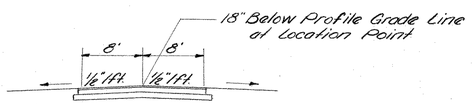
APPROVED Robert E. Lower
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

30
262

GUERNSEY COUNTY
GUE-77-4.77

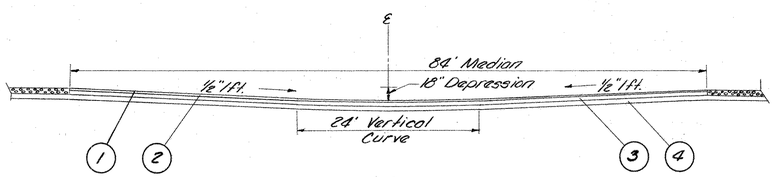




SECTION A-A

Pavement Quantities are not included in quantities on this sheet.

NOTE: Detail shown above is for median opening at Sta. 346+25. The detail for median opening at Sta. 399+00 is the same as shown above except that drainage breaks at the opening and flows in both directions away from the opening.



SECTION B-B

	ITEM	DESCRIPTION
1	T-31	Bituminous Surface Treatment using 0.008 C.Y. of No. 6 Aggregate & 0.25 Gal. Bituminous Material per S.Y.
2	*B-21	3" Waterproof Aggregate Base Course
3	B-19	5" Aggregate Base Course
4	I-22	6" Subbase Grading A or B

ESTIMATED QUANTITIES (For One Opening)

B-21	3"	42 C.Y.
B-19	5"	70 C.Y.
T-31	No. 6 Agg.	4 C.Y.
T-31	Bit. Mat.	125 Gal.
I-22	6"	83 C.Y.
E-1	Comp. Subgrade	300 S.Y.

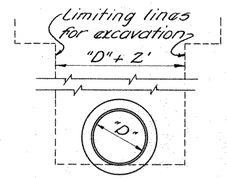
Quantities to General Summary

*Thickness shown is "designed" thickness as in Sec. B-21.01. Type "A" T-35 or T-335 material may be used in the construction of B-21 Course. See Note in Proposal.

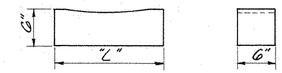
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

31
262

GUERNSEY COUNTY
GUE-77-4.77

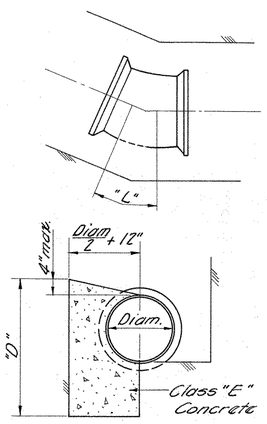


Typical Trench



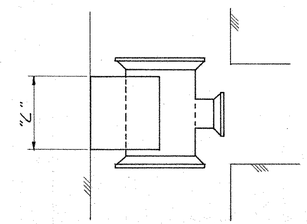
Size of Valve	"L"
4"	15"
6"	17"
8"	20"

Concrete Valve Supports

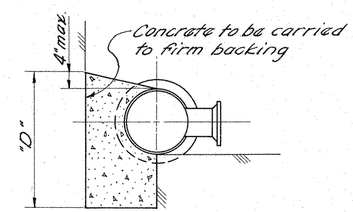


SIZE OF PIPE	DEGREE OF BEND 11¼°		22½°		45°		90°	
	"L"	"D"	"L"	"D"	"L"	"D"	"L"	"D"
4"	6"	4"	6"	4"	6"	12"	24"	6"
6"	8"	6"	10"	6"	20"	6"	30"	6"
8"	9"	8"	14"	8"	24"	9"	27"	12"

Standard Backing for Horizontal Bends



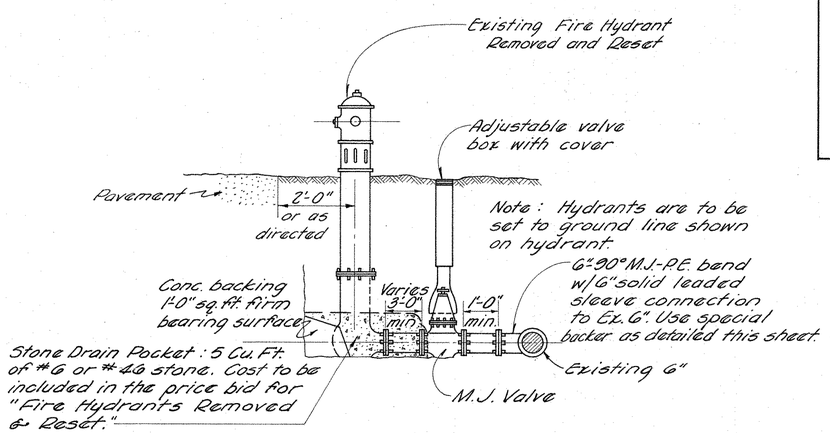
TYPICAL PLAN



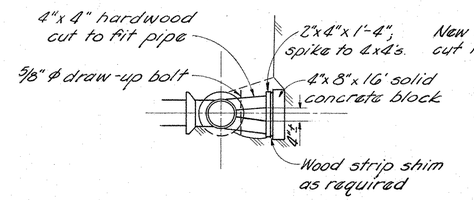
TYPICAL SECTION

RUN	BRANCH 4"		6"		8"	
	"L"	"D"	"L"	"D"	"L"	"D"
4"	10"	10"				
6"	10"	10"	16"	7"		
8"	10"	10"	14"	8"	18"	12"

Standard Backing for Tees

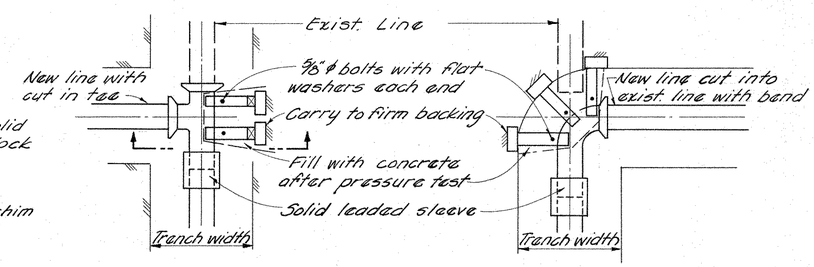


Typical Fire Hydrant Installation for C.I. Mech. Pipe



SECTION A-A

Note: Details for 11¼°, 22½° & 45° bend are similar to the 90° bend details except omit the center timber brace unit.



PLAN OF TEE CONNECTION

PLAN OF 90° BEND CONNECTION

Special Backers

Showing details for 4", 6" & 8" tee & bend fittings that connect to existing lines.

Water Line Details

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

32/262

GUERNSEY COUNTY
GUE-77-4.77

SUPERELEVATION TABLES

2°00' Curve S=.064'/'

STA. 247+00 To STA. 280+25

STA.	SOUTHBOUND			NORTHBOUND		
	Lt. Edge	℄	Rt. Edge	Lt. Edge	℄	Rt. Edge
247+00	802.35	802.54	802.35		802.54	802.35
25	802.35	802.54	802.37		802.56	802.39
50	802.33	802.52	802.40		802.59	802.47
75	802.32	802.51	802.45		802.64	802.58
248+00	802.31	802.50	802.50		802.69	802.69
25	802.31	802.50	802.56		802.75	802.81
50	802.31	802.51	802.63		802.82	802.94
75	802.30	802.53	802.71		802.92	803.11
249+00	802.28	802.55	802.80		803.05	803.30
25	802.26	802.58	802.90		803.22	803.54
50	802.25	802.63	803.01		803.39	803.77
75	802.23	802.68	803.13		803.58	804.03
250+00	802.24	802.75	803.28		803.77	804.28
25	802.26	802.83	803.40		803.97	804.54
50	802.26	802.90	803.54		804.18	804.82
75	802.30	803.00	803.70		804.40	805.08
251+00	802.37	803.12	803.87		804.62	805.33
25	802.51	803.28	804.05		804.82	805.55
50	802.69	803.46	804.23		805.00	805.77
75	802.89	803.66	804.43		805.20	805.97
252+00	803.10	803.87	804.64		805.41	806.18
25	803.31	804.08	804.85		805.62	806.39
50	803.54	804.31	805.08		805.85	806.62
75	803.77	804.54	805.31		806.08	806.85
253+00	804.02	804.79	805.56		806.33	807.10
25	804.27	805.04	805.81		806.58	807.35
50	804.52	805.29	806.06		806.83	807.60
75	804.77	805.54	806.31		807.08	807.85
254+00	805.02	805.79	806.56		807.33	808.10
25	805.27	806.04	806.81		807.58	808.35
50	805.52	806.29	807.06		807.83	808.60
75	805.77	806.54	807.31		808.08	808.85
255+00	806.02	806.79	807.56		808.33	809.10
25	806.27	807.04	807.81		808.58	809.35
50	806.52	807.29	808.06		808.83	809.60
75	806.77	807.54	808.31		809.08	809.85
256+00	807.02	807.79	808.56		809.33	810.10
25	807.27	808.04	808.81		809.58	810.35
50	807.52	808.29	809.06		809.83	810.60
75	807.77	808.54	809.31		810.08	810.85
257+00	808.02	808.79	809.56		810.33	811.10
25	808.27	809.04	809.81		810.58	811.35
50	808.52	809.29	810.06		810.83	811.60
75	808.77	809.54	810.31		811.08	811.85
258+00	809.02	809.79	810.56		811.33	812.10
25	809.27	810.04	810.81		811.58	812.35
50	809.52	810.29	811.06		811.83	812.60
75	809.77	810.54	811.31		812.08	812.85
259+00	810.02	810.79	811.56		812.33	813.10
25	810.27	811.04	811.81		812.58	813.35
50	810.52	811.29	812.06		812.83	813.60
75	810.77	811.54	812.31		813.08	813.85
260+00	811.02	811.79	812.56		813.33	814.10
25	811.27	812.04	812.81		813.58	814.35
50	811.52	812.29	813.06		813.83	814.60
75	811.77	812.54	813.31		814.08	814.85
261+00	812.02	812.79	813.56		814.33	815.10
25	812.27	813.04	813.81		814.58	815.35
50	812.52	813.29	814.06		814.83	815.60
75	812.77	813.54	814.31		815.08	815.85
262+00	813.02	813.79	814.56		815.33	816.10
25	813.27	814.04	814.81		815.58	816.35
50	813.52	814.29	815.06		815.83	816.60
75	813.77	814.54	815.31		816.08	816.85
263+00	814.02	814.79	815.56		816.33	817.10
25	814.27	815.04	815.81		816.58	817.35
50	814.52	815.29	816.06		816.83	817.60

Elevations Same as Southbound Right Edge.

2°00' Curve (Cont.) S=.064'/'

STA. 247+00 To STA. 280+25

STA.	SOUTHBOUND			NORTHBOUND		
	Lt. Edge	℄	Rt. Edge	Lt. Edge	℄	Rt. Edge
75	814.77	815.54	816.31		817.08	817.85
264+00	815.02	815.79	816.56		817.33	818.10
25	815.27	816.04	816.81		817.58	818.35
50	815.52	816.29	817.06		817.83	818.60
75	815.77	816.54	817.31		818.08	818.85
265+00	816.02	816.79	817.56		818.33	819.10
25	816.27	817.04	817.81		818.58	819.35
50	816.52	817.29	818.06		818.83	819.60
75	816.77	817.54	818.31		819.08	819.85
266+00	817.02	817.79	818.56		819.33	820.10
25	817.27	818.04	818.81		819.58	820.35
50	817.52	818.29	819.06		819.83	820.60
75	817.77	818.54	819.31		820.08	820.85
267+00	818.02	818.79	819.56		820.33	821.10
25	818.27	819.04	819.81		820.58	821.35
50	818.52	819.29	820.06		820.83	821.60
75	818.77	819.54	820.31		821.08	821.85
268+00	819.02	819.79	820.56		821.33	822.10
25	819.26	820.03	820.80		821.57	822.34
50	819.49	820.26	821.03		821.80	822.57
75	819.71	820.48	821.25		822.02	822.79
269+00	819.91	820.68	821.45		822.22	822.99
25	820.09	820.86	821.63		822.40	823.17
50	820.26	821.03	821.80		822.57	823.34
75	820.42	821.19	821.96		822.73	823.50
270+00	820.57	821.34	822.11		822.88	823.65
25	820.69	821.46	822.23		823.00	823.77
50	820.81	821.58	822.35		823.12	823.89
75	820.91	821.68	822.45		823.22	823.99
271+00	821.00	821.77	822.54		823.31	824.08
25	821.07	821.84	822.61		823.38	824.15
50	821.13	821.90	822.67		823.44	824.21
75	821.17	821.94	822.71		823.48	824.25
272+00	821.20	821.97	822.74		823.51	824.28
25	821.22	821.99	822.76		823.53	824.30
50	821.22	821.99	822.76		823.53	824.30
75	821.21	821.98	822.75		823.52	824.29
273+00	821.18	821.95	822.72		823.49	824.26
25	821.14	821.91	822.68		823.45	824.22
50	821.08	821.85	822.62		823.39	824.16
75	821.01	821.78	822.55		823.32	824.09
274+00	820.93	821.70	822.47		823.24	824.01
25	820.83	821.60	822.37		823.14	823.91
50	820.72	821.49	822.26		823.03	823.80
75	820.59	821.36	822.13		822.90	823.67
275+00	820.45	821.22	821.99		822.76	823.53
25	820.30	821.07	821.84		822.61	823.38
50	820.13	820.90	821.67		822.44	823.21
75	819.95	820.72	821.49		822.26	823.03
276+00	819.77	820.52	821.29		822.06	822.83
25	819.61	820.33	821.08		821.82	822.58
50	819.46	820.15	820.85		821.55	822.25
75	819.33	819.97	820.61		821.25	821.89
277+00	819.22	819.79	820.36		820.93	821.50
25	819.07	819.58	820.09		820.60	821.11
50	818.91	819.36	819.81		820.26	820.71
75	818.75	819.13	819.51		819.89	820.27
278+00	818.56	818.88	819.20		819.52	819.84
25	818.37	818.62	818.87		819.12	819.37
50	818.13	818.34	818.53		818.73	818.92
75	817.87	818.06	818.18		818.37	818.49
279+00	817.56	817.75	817.81		818.00	818.06
25	817.24	817.43	817.43		817.62	817.62
50	816.91	817.10	817.04		817.23	817.17
75	816.56	816.75	816.63		816.82	816.70
280+00	816.18	816.37	816.20		816.39	816.22
25	815.77	815.96	815.77		815.96	815.77

Elevations Same as Southbound Right Edge.

1°00' Curve S=.032'/'

STA. 284+75 To STA. 341+00

STA.	SOUTHBOUND			NORTHBOUND		
	Lt. Edge	℄	Rt. Edge	Lt. Edge	℄	Rt. Edge
284+75	808.94	809.13	808.94		809.13	808.94
285+00	808.73	808.92	808.73		808.90	808.72
25	808.56	808.73	808.54		808.70	808.50
50	808.45	808.57	808.38		808.49	808.30
75	808.36	808.42	808.23		808.29	808.10
286+00	808.31	808.31	808.12		808.12	807.93
25	808.27	808.21	808.02		807.96	807.77
50	808.26	808.14	807.95		807.83	807.64
75	808.27	808.10	807.89		807.70	807.49
287+00	808.32	808.07	807.83		807.58	807.33
25	808.35	808.06	807.77		807.46	807.16
50	808.38	808.04	807.71		807.35	807.02
75	808.38	808.01	807.65		807.27	806.90
288+00	808.35	807.97	807.59		807.21	806.83
25	808.29	807.91	807.53		807.15	806.77
50	808.23	807.85	807.47		807.09	806.71
75	808.17	807.79	807.41		807.03	806.65
289+00	808.11	807.73	807.35		806.97	806.59
25	808.05	807.67	807.29		806.91	806.53
50	807.99	807.61	807.23		806.85	806.47
75	807.93	807.55	807.17		806.79	806.41
290+00	807.87	807.49	807.11		806.73	806.35
25	807.81	807.43	807.05		806.67	806.29
50	807.75	807.37	806.99		806.61	806.23
75	807.69	807.31	806.93		806.55	806.17
291+00	807.63	807.25	806.87		806.49	806.11
25	807.57	807.19	806.81		806.43	806.05
50	807.51	807.13	806.75		806.37	805.99
75	807.45	807.07	806.69		806.31	805.93
292+00	807.39	807.01	806.63		806.25	805.87
25	807.33	806.95	806.57		806.19	805.81
50	807.27	806.89	806.51		806.13	805.75
75	807.21	806.83	806.45		806.07	805.69
293+00	807.15	806.77	806.39		806.01	805.63
25	807.09	806.71	806.33		805.95	805.57
50	807.03	806.65	806.27		805.89	805.51
75	806.97	806.59	806.21		805.83	805.45
294+00	806.91	806.53	806.15		805.77	805.39
25	806.85	806.47	806.09		805.71	805.33
50	806.79	806.41	806.03		805.65	805.27
75	806.73	806.35	805.97		805.59	805.21
295+00	806.67	806.29	805.91		805.53	805.15
25	806.61	806.23	805.85		805.47	805.09
50	806.55	806.17	805.79		805.41	805.03
75	806.49	806.11	805.73		805.35	804.97
296+00	806.43	806.05	805.67		805.29	804.91
25	806.37	805.99	805.61		805.23	804.85
50	806.31	805.93	805.55		805.17	804.79
75	806.25	805.87	805.49		805.11	804.73
297+00	806.19	805.81	805.43		805.05	804.67
25	806.13	805.75	805.37		804.99	804.61
50	806.07	805.69	805.31		804.93	804.55
75	806.01	805.63	805.25		804.87	804.49
298+00	805.95	805.57	805.19		804.81	804.43
25	805.89	805.51	805.13		804.75	804.37
50	805.83	805.45	805.07		804.69	804.31
75	805.77	805.39	805.01		804.63	804.25
299+00	805.68	805.32	804.95		804.58	804.23
25	805.53	805.21	804.89		804.57	804.25
50	805.33	805.08	804.83		804.58	804.33
299+75	805.17	804.98	804.77		804.58	804.38
Station Equation 299+75.79 Back = 339+36.95 Ahead						
339+50	805.08	804.93	804.74		804.59	804.39
75	804.95	804.87	804.68		804.60	804.41
340+00	804.83	804.81	804.62		804.60	804.41
25	804.70	804.75	804.56		804.61	804.42
50	804.57	804.69	804.50		804.62	804.43
75	804.45	804.63	804.44		804.62	804.43
341+00	804.38	804.57	804.38		804.57	804.38

Elevations Same as Southbound Right Edge.

1°00' Curve S=.032'/'

STA. 375+75 To STA. 386+00

STA.	SOUTHBOUND			NORTHBOUND		
	Lt. Edge	℄	Rt. Edge	Lt. Edge	℄	Rt. Edge
375+75	804.12	804.31	804.12	802.76	802.95	802.76
376+00	803.86	804.02	803.83	802.70	802.86	802.67
25	803.66	803.74	803.55	802.64	802.72	802.53
50	803.52	803.49	803.30	802.58	802.55	802.36
75	803.40	803.27	803.07	802.52	802.39	802.19
377+00	803.31	803.09	802.87	802.46	802.24	802.02
25	803.23	802.96	802.68	802.40	802.12	801.85
50	803.16	802.85	802.52	802.34	802.01	801.68
75	803.09	802.76	802.38	802.28	801.91	801.53
378+00	803.02	802.66	802.27	802.22	801.83	801.44
25	802.95	802.56	802.17	802.16	801.77	801.38
50	802.88	802.49	802.10	802.10	801.71	801.32
75	802.82	802.43	802.04		801.65	801.26
379+00	802.76	802.37	801.98		801.59	801.20
25	802.70	802.31	801.92		801.53	801.14
50	802.64	802.25	801.86		801.47	801.08
75	802.58	802.19	801.80		801.41	801.02
380+00	802.52	802.13	801.74		801.35	800.96
25	802.46	802.07	801.68		801.29	800.90
50	802.40	802.01	801.62		801.23	800.84
75	802.34	801.95	801.56		801.17	800.78
381+00	802.28	801.89	801.50		801.11	800.72
25	802.22	801.83	801.44		801.05	800.66
50	802.16	801.77	801.38		800.99	800.60
75	802.10	801.71	801.32		800.93	800.54
382+00	802.04	801.65	801.26		800.87	800.48
25	801.98	801.59	801.20		800.81	800.42
50	801.92	801.53	801.14		800.75	800.36
75	801.86	801.47	801.08		800.69	800.30
383+00	801.80	801.41	801.02		800.63	800.24
25	801.74	801.35	800.96		800.57	800.18
50	801.68	801.29	800.90		800.51	800.12
75	801.62	801.23	800.84		800.45	800.06
384+00	801.53	801.16	800.78		800.41	800.03
25	801.39	801.06	800.73		800.40	800.07
50	801.23	800.96	800.68		800.40	800.13
75	801.08	800.86	800.64		800.42	800.20
Station Equation 384+86.46 Back = 384+89.08 Ahead						
385+00	800.94	800.80	800.61		800.48	800.28
25	800.80	800.77	800.58		800.55	800.36
50	800.67	800.75	800.56		800.64	800.45
75	800.58	800.74	800.55		800.71	800.52
386+00	800.55	800.74	800.55		800.74	800.55

Elevations Same as Southbound Right Edge.

1°28' Curve S=.048'/'

Sta. 401+00 To Sta. 403+50

STA.	SOUTHBOUND					
	LT. EDGE	℄	RT. EDGE			
401+00	802.76	802.95	802.76			
25	802.89	803.08	802.91			
50	802.83	803.02	802.90			
75	802.77	802.96	802.90			
402+00	802.71	802.90	802.90			
25	802.65	802.84	802.90			
50	802.59	802.78	802.90			
75	802.51	802.72	802.91			
403+00	802.41	802.66	802.91			
25	802.28	802.60	802.92			
50	802.16	802.54	802.92			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

GUERNSEY COUNTY
GUE - 77 - 4.77

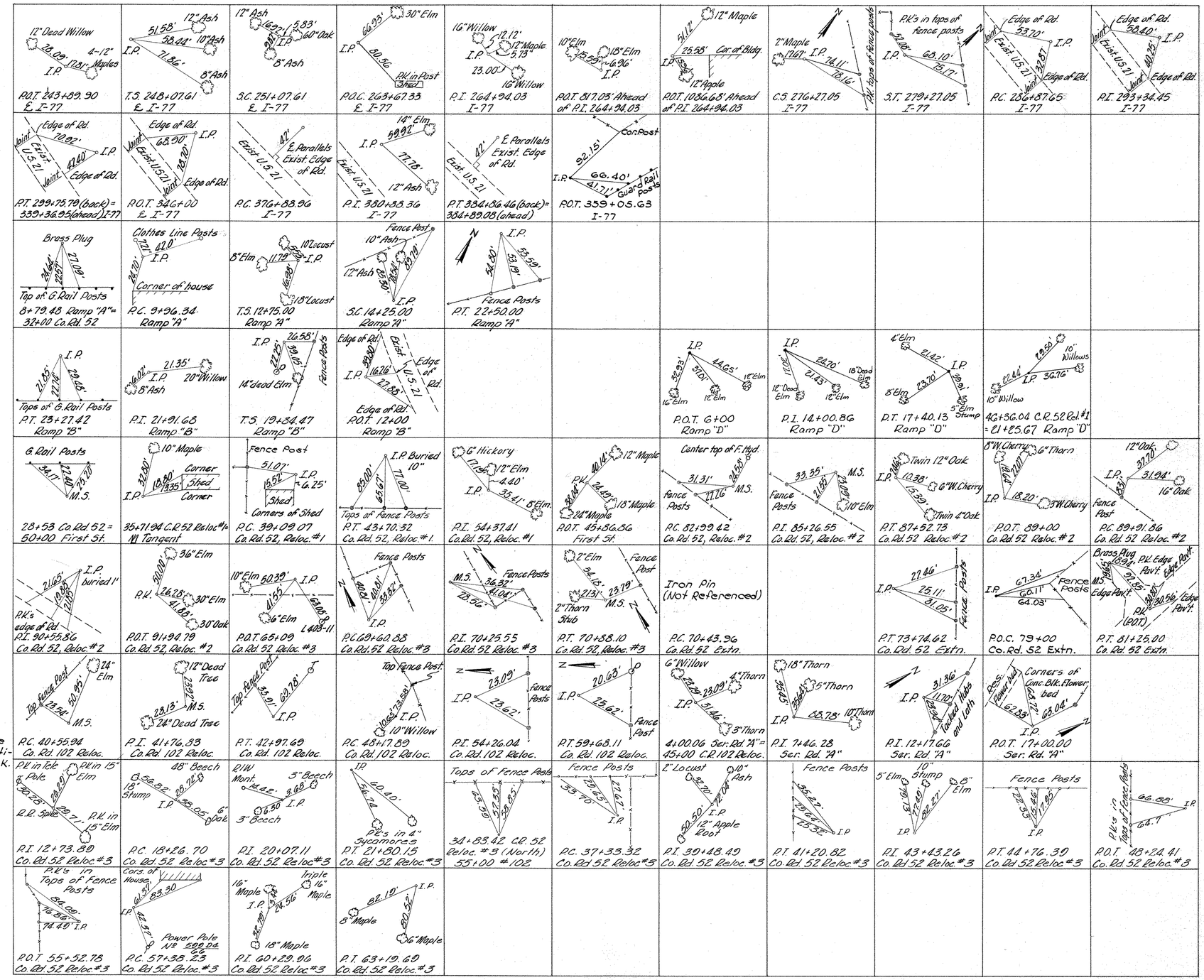
N

BENCH MARKS

B.M. №	ELEVATION	DESCRIPTION
183	790.04	Mine Spike in 10" Ash, 84' Rt. 237+76 I-77
184	788.36	Mine Spike in 14" Maple, 70' Lt. 243+85 I-77
185	790.11	Mine Spike in 12" Ash, 175' Lt. 246+00 I-77
186	795.59	R.R. Spike in 20" Walnut near field gate 300' Lt. 254+50 I-77
187	793.36	Mine Spike in root of 18" Hickory in fence line, 300' West of Barn 275' Lt. 262+00 I-77
188	799.96	Mine Spike in 18" tree, 85' Rt. 270+88 I-77
189	823.23	Mine Spike in first P. Pole 624/2 60' Rt. 272+18 I-77
190	801.90	Mine Spike in brace pole, 69' Lt. 274+91 I-77
191	806.94	Nail in N.W. corner of Conc. Wingwall of Ex. U.S. 21 bridge over Wills Creek
192	790.46	Mine Spike in P. Pole 624A2/T-42, 350' Lt. 284+00 I-77
193	789.57	Mine Spike in 24" Ash 250' Lt. 290+50 I-77
194	814.39	Mine Spike in 18" Walnut, 45' Rt. 297+85 I-77
195	808.54	Mine Spike in R/W fence post 102' Lt 345+00 I-77
196	796.55	Mine Spike in 10" Wild Cherry 215' Lt. 353+05 I-77
197	806.47	Mine Spike in 10" Wild Cherry 30' Rt. 362+90 I-77
198	810.57	Mine Spike in edge of Pavement 369+98 I-77
199	791.76	Mine Spike in 20" Elm 100' Lt. 379+30 I-77
200	795.37	Mine Spike in 30" dead Elm 20' Rt. 386+36 I-77
201	798.94	Mine Spike in P. Pole 32' Lt. 52+75 C.R. 52, Reloc. #1
202	835.01	Mine Spike in Root of 30" Elm 20' Rt. 91+75 Co. Rd. 52 Reloc. #2
196-A	792.58	Mine Spike in 16" Ash 93' Rt. 22+60 Co. Rd. 52 Reloc. #3
197-A	837.44	Mine Spike in Root of 12" Elm 30' Rt. 44+15 Co. Rd. 52 Reloc. #3

Note: Points in trees, fence posts, poles, etc. not identified on this sheet, are P.K. nails.

REFERENCES



FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

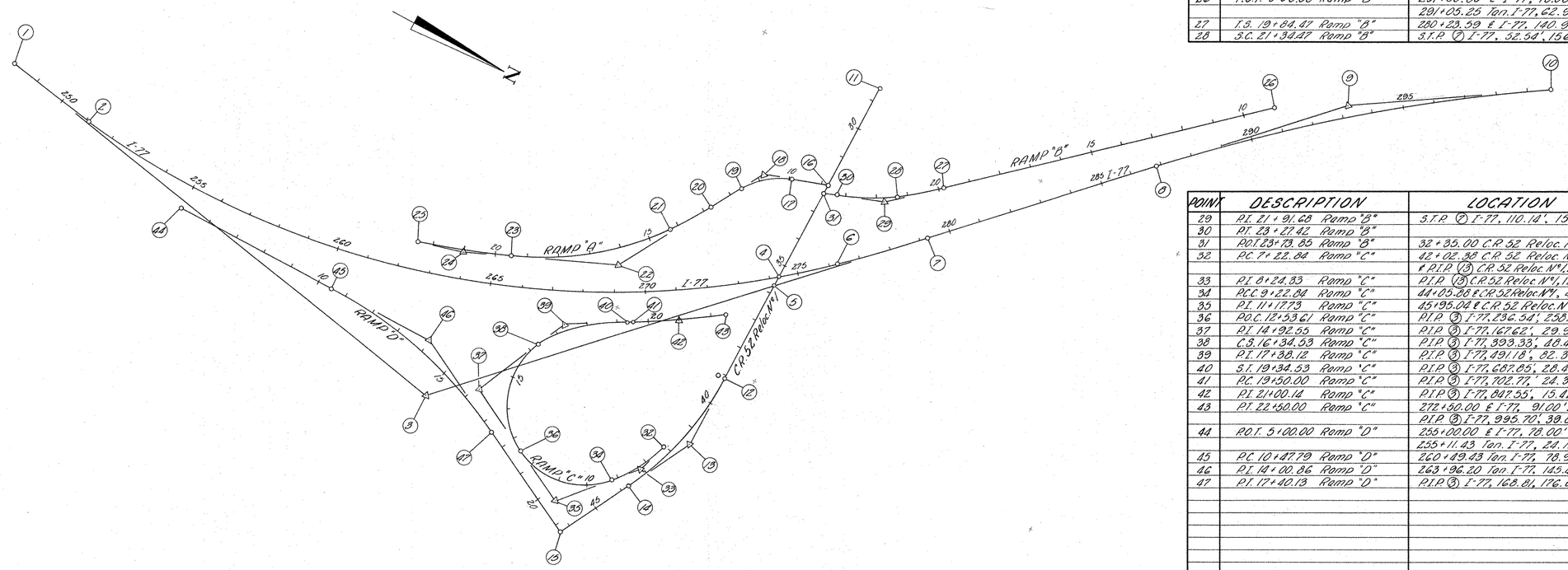
34
2G2

GUERNSEY COUNTY
GUE-77-4.77

CURVE DATA

I-77	I-77	C.R.52 Reloc.N°1	RAMP "A"	RAMP "A"	RAMP "A"	RAMP "B"	RAMP "C"	RAMP "C"	RAMP "C"	RAMP "C"	RAMP "C"	RAMP "D"
P.I. 264+94.03	P.I. 293+34.45	P.I. 41+44.29	P.I. 10+82.63	P.I. 16+58.91	P.I. 21+00.14	P.I. 21+91.68'	P.I. 8+24.33	P.I. 11+17.73	P.I. 14+92.55	P.I. 17+38.12	P.I. 21+00.14	P.I. 14+00.86
Δ = 56°23'20"	Δ = 12°52'53"	Δ = 27°40'30"	Δ = 38°12'05"	Δ = 36°00'00"	Δ = 6°00'00"	Δ = 21°26'10"	Δ = 24°00'00"	Δ = 76°04'34"	Δ = 87°36'42"	Δ = 34°30'00"	Δ = 6°00'00"	Δ = 27°41'37"
D = 2°00'00"	D = 1°00'00"	D = 6°00'00"	D = 23°00'00"	D = 6°00'00"	D = 2°00'00"	D = 8°00'00"	D = 12°00'00"	D = 23°00'00"	D = 23°00'00"	D = 23°00'00"	D = 2°00'00"	D = 4°00'00"
R = 2864.79'	R = 5729.58'	R = 954.93'	R = 249.11'	R = 954.93'	R = 2864.79'	R = 716.20'	R = 477.46'	R = 249.11'	R = 249.11'	R = 249.11'	R = 2864.79'	R = 1432.39'
Lc = 2519.44'	L = 1200.14'	L = 461.25'	L = 166.14'	Lc = 525.00'	L = 300.00'	Lc = 192.95'	L = 200.00'	L = 330.77'	L = 380.92'	Ls = 300.00'	L = 300.00'	L = 692.34'
Rs = 1686.42'	T = 646.80'	T = 235.22'	T = 82.29'	T = 311.95'	T = 150.14'	T = 139.14'	T = 101.49	T = 194.89'	T = 238.94'	Θs = 34°30'00"	T = 150.14'	T = 353.07'
Ls = 387.14'	E = 36.39'	E = 28.54'		Rs = 383.91'		Rs = 207.21'				L.T. = 203.94'		
Ls = 300.00'				Ls = 150.00'		Ls = 150.00'				S.T. = 103.58'		
Θs = 3°00'00"				Θs = 4°30'00"		Θs = 6°00'00"						
3	9	13	18	22	24	29	33	36	37	39	42	46

POINT	DESCRIPTION	LOCATION	COORDINATES	
1	T.S. 248+07.61 ℄ I-77		89,434.61	49,321.10
2	S.C. 251+07.61 ℄ I-77		89,730.21	49,772.09
3	P.I. 264+94.03 ℄ I-77		91,091.23	50,036.73
4	274+30.75 ℄ I-77	35+40.21 C.R.52 Reloc. N°1	91,908.60	49,170.24
5	P.I.P. 3 I-77, 1168.31'	35+71.94 C.R.52 Reloc. N°1	91,908.62	49,201.98
6	C.S. 276+27.05 ℄ I-77		92,057.53	49,042.42
7	S.I. 279+27.05 ℄ I-77		92,271.11	48,831.79
8	P.C. 286+87.65 ℄ I-77		92,803.25	48,288.35
9	P.I. 293+34.45 ℄ I-77		93,255.79	47,826.21
10	P.I. 299+75.79 ℄ I-77 Back =	339+36.95 ℄ I-77 Ahead	93,799.93	47,476.59
11	28+53.00 ℄ C.R.52 Reloc.#1		91,908.10	48,883.04
12	P.C. 39+09.07 ℄ C.R.52 Reloc.#1		91,900.07	49,539.10
13	P.I. 41+44.29 ℄ C.R.52 Reloc.#1		91,909.05	49,771.33
14	P.I. 43+70.32 ℄ C.R.52 Reloc.#1		91,799.75	49,982.71
15	P.O.T. 21+25.67 Ramp "D"	46+36.04 C.R.52 Reloc. N°1	91,676.71	50,218.12
16	P.O.T. 8+79.88 Ramp "A"	32+00.00 C.R.52 Reloc. N°1	91,908.35	48,830.04
17	P.C. 9+96.34 Ramp "A"	32+39.96 C.R.52 Reloc. N°1, 109.00' Rt.	91,908.58	48,870.08
18	P.I. 10+82.63 Ramp "A"	32+69.48 C.R.52 Reloc. N°1, 190.89' Rt.	91,717.51	48,899.66
19	P.T. 11+62.48 Ramp "A"	33+42.83 C.R.52 Reloc. N°1, 236.35' Rt.	91,672.10	48,973.04
20	T.S. 12+75.00 Ramp "A"	34+38.48 C.R.52 Reloc. N°1, 295.63' Rt.	91,612.90	49,068.73
21	S.C. 14+25.00 Ramp "A"	P.I.P. 3 I-77, 909.49', 275.51' Lt.	91,530.69	49,194.15
22	P.I. 16+58.91 Ramp "A"	P.I.P. 3 I-77, 682.03', 220.42' Lt.	91,410.91	49,395.21
23	P.C. 19+50.00 Ramp "A"	P.I.P. 3 I-77, 395.62', 344.05' Lt.	91,122.20	49,513.35
24	P.I. 21+00.14 Ramp "A"	263+00.64 Tan. I-77 438.07' Lt.	90,983.25	49,570.21
25	P.I. 22+50.00 Ramp "A"	262+50.00 ℄ I-77, 91.00' Lt. #	90,839.11	49,612.23
		261+66.92 Tan. I-77, 369.81' Lt.		
26	P.O.T. 9+00.00 Ramp "B"	291+00.00 ℄ I-77, 78.00' Lt. #	93,050.43	47,945.92
		291+05.25 Tan. I-77, 62.97' Lt.		
27	T.S. 19+84.47 Ramp "B"	280+23.59 ℄ I-77, 140.95' Lt.	92,237.94	48,664.20
28	S.C. 21+34.47 Ramp "B"	S.T.P. 7 I-77, 52.54', 156.94' Lt.	92,122.22	48,759.52



POINT	DESCRIPTION	LOCATION	COORDINATES	
29	P.I. 21+91.68 Ramp "B"	S.T.P. 7 I-77, 110.14', 155.85' Lt.	92,082.70	48,801.44
30	P.T. 23+27.42 Ramp "B"		91,951.99	48,849.13
31	P.O.T. 23+73.85 Ramp "B"	32+35.00 C.R.52 Reloc. N°1	91,908.38	48,865.04
32	P.C. 7+22.84 Ramp "C"	42+02.38 C.R.52 Reloc. N°1, 24' Rt.	91,841.51	49,820.62
		# P.I.P. 13 C.R.52 Reloc. N°1, 72.34, 30.36' Rt.		
33	P.I. 8+24.33 Ramp "C"	P.I.P. 13 C.R.52 Reloc. N°1, 172.27, 20.00' Rt.	91,810.90	49,917.38
34	P.C.C. 9+22.84 Ramp "C"	44+05.88 ℄ C.R.52 Reloc. N°1, 45.02' Rt.	91,743.57	49,999.33
35	P.I. 11+17.73 Ramp "C"	45+95.04 ℄ C.R.52 Reloc. N°1, 91.92' Rt.	91,614.29	50,139.16
36	P.O.C. 12+53.61 Ramp "C"	P.I.P. 3 I-77, 236.54', 258.78' Rt.	91,441.62	50,048.77
37	P.I. 14+92.55 Ramp "C"	P.I.P. 3 I-77, 167.62', 29.99' Rt.	91,229.93	49,937.95
38	C.S. 16+34.53 Ramp "C"	P.I.P. 3 I-77, 393.33', 40.40' Lt.	91,331.84	49,721.83
39	P.I. 17+38.12 Ramp "C"	P.I.P. 3 I-77, 491.18', 82.39' Lt.	91,376.02	49,628.14
40	S.I. 19+34.53 Ramp "C"	P.I.P. 3 I-77, 687.85', 28.41' Lt.	91,552.18	49,525.39
41	P.C. 19+50.00 Ramp "C"	P.I.P. 3 I-77, 702.77', 24.32' Lt.	91,565.54	49,517.59
42	P.I. 21+00.14 Ramp "C"	P.I.P. 3 I-77, 847.55', 15.42' Rt.	91,695.23	49,441.95
43	P.T. 22+50.00 Ramp "C"	272+50.00 ℄ I-77, 91.00' Rt. #	91,816.30	49,353.16
		P.I.P. 3 I-77, 995.70', 39.81' Rt.		
44	P.O.T. 5+00.00 Ramp "D"	255+00.00 ℄ I-77, 78.00' Rt. #	90,121.48	49,876.51
		255+11.43 Tan. I-77, 24.11' Rt.		
45	P.C. 10+47.79 Ramp "D"	260+49.43 Tan. I-77, 78.99' Lt.	90,669.27	49,875.93
46	P.I. 14+00.86 Ramp "D"	263+96.20 Tan. I-77, 145.44' Lt.	91,022.34	49,875.55
47	P.I. 17+40.13 Ramp "D"	P.I.P. 3 I-77, 168.81, 176.08' Lt.	91,335.14	50,039.31

LINE	BEARING	LINE	BEARING	LINE	BEARING
1-3	N 10°47'13" E	24-25	S 16°15'17" E	42-43	N 36°15'17" W
3-9	N 45°36'07" W	26-29	S 41°28'42" E	44-46	N 00°08'39" W
9-10	N 32°43'14" W	29-31	S 20°02'32" E	46-15	N 27°37'58" E
11-13	N 89°57'28" E	32-33	S 72°26'36" E		
13-15	S 62°22'02" E	33-35	S 48°26'36" E		
16-18	S 20°02'32" E	35-37	S 27°37'58" W		
18-22	S 38°15'17" E	37-39	N 64°45'17" W		
22-24	S 22°15'17" E	39-42	N 30°15'17" W		

LEGEND

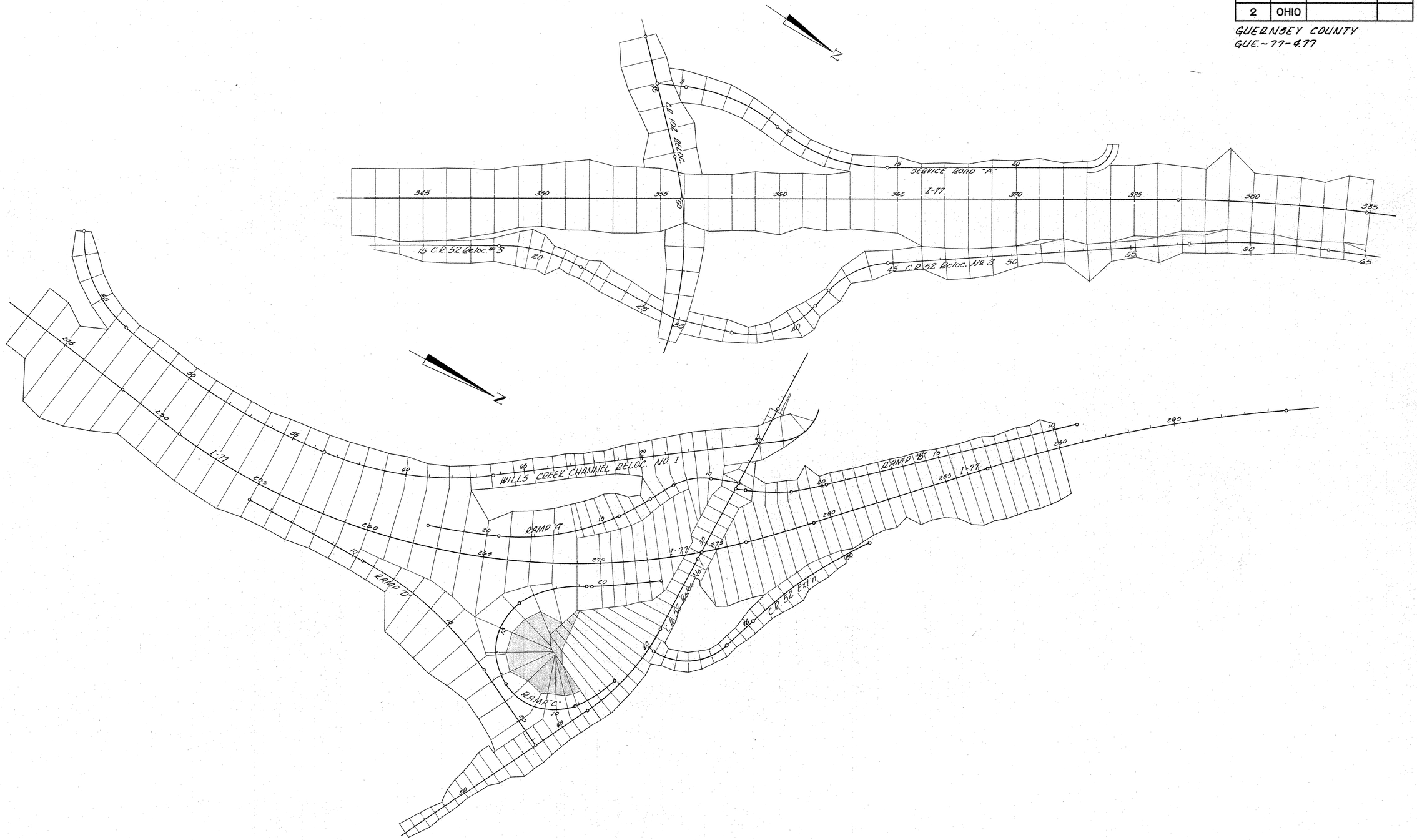
P.I.P. ◯ Distance from P.I. N° ◯ to a point of offset along forward tangent.
S.T.P. ◯ Distance from S.T. N° ◯ to a point of offset along forward tangent.

HORIZONTAL CONTROL DATA

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

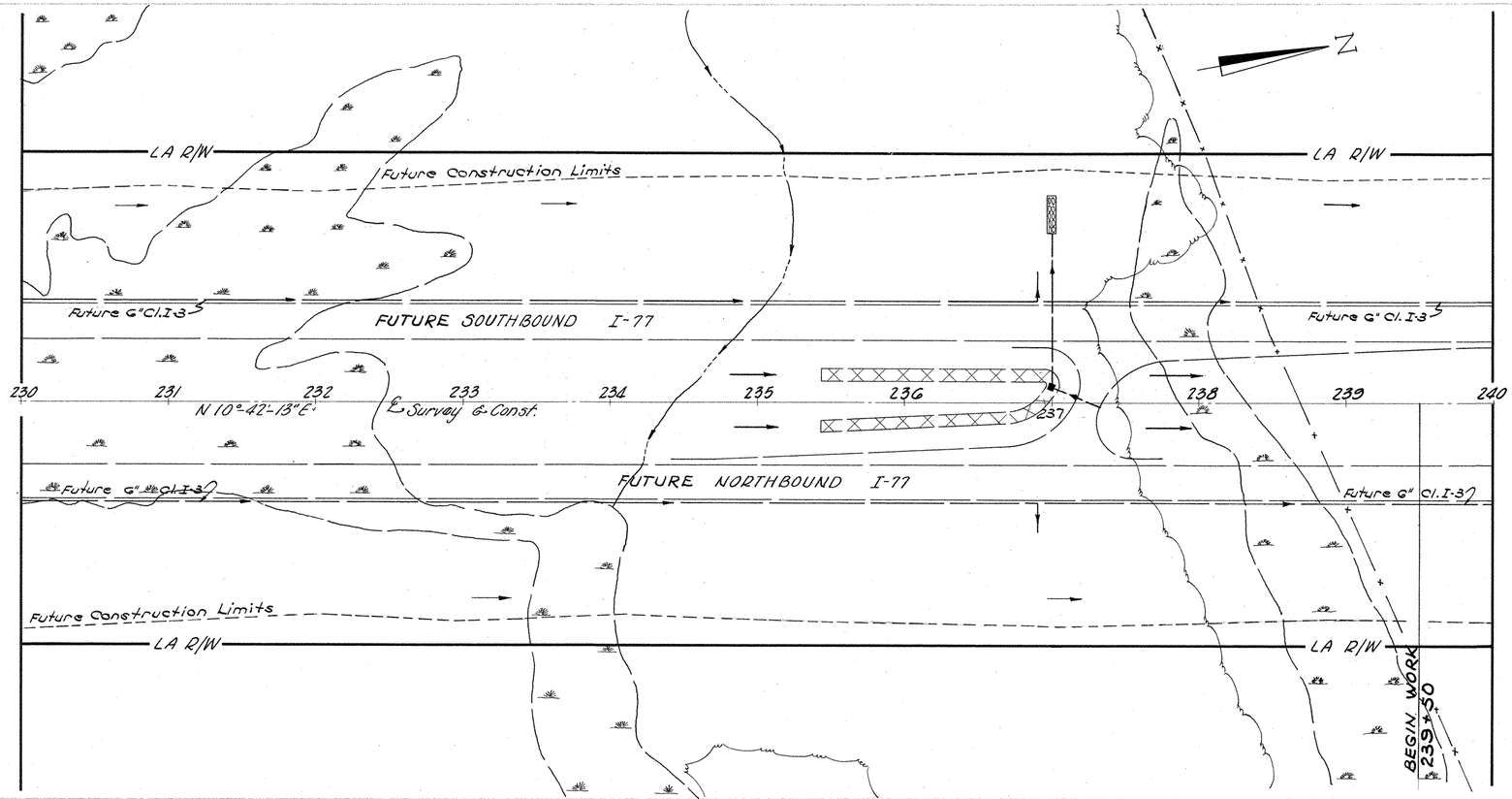
35
262

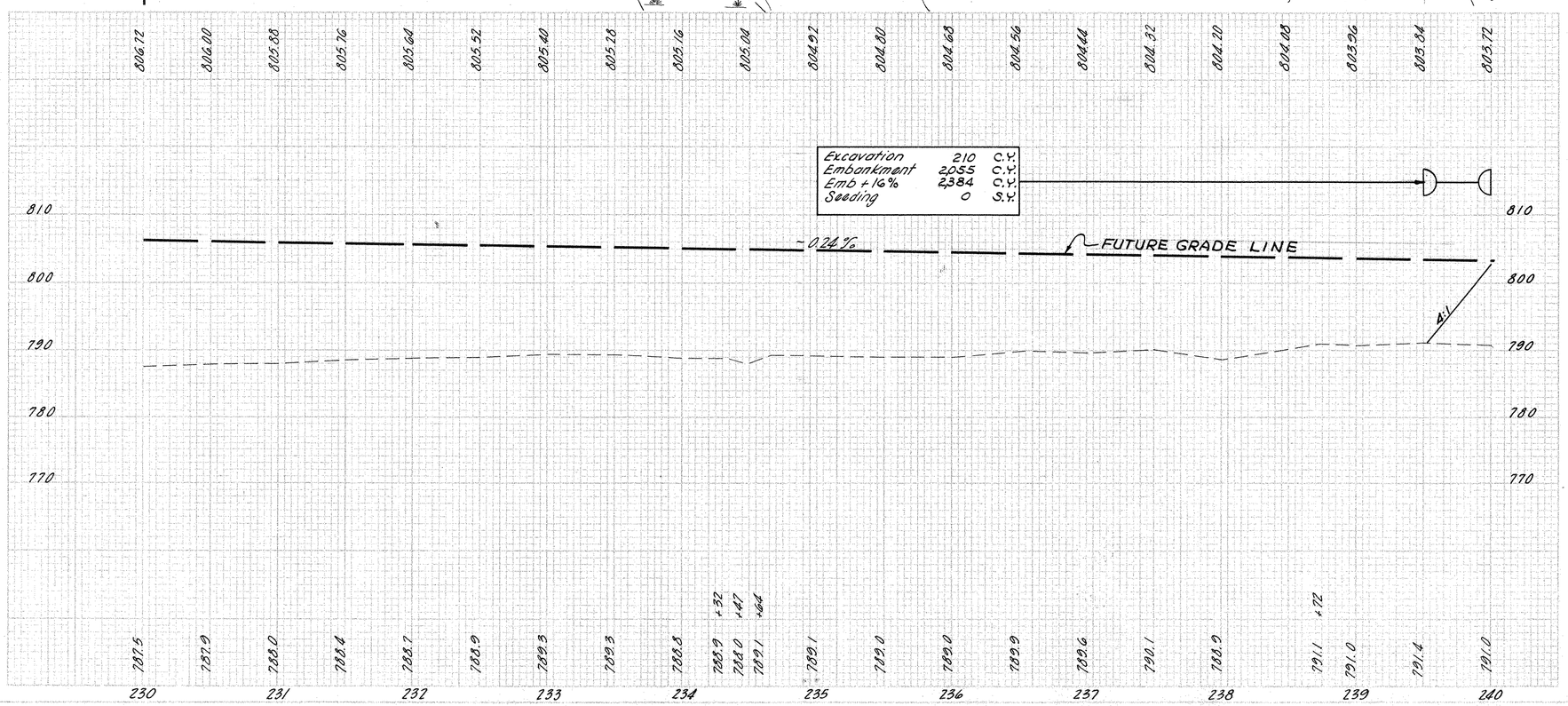
GUERNSEY COUNTY
GUE.-77-4.77



Earthwork Volumes & Seeding area by computation

CROSS SECTION LAYOUT



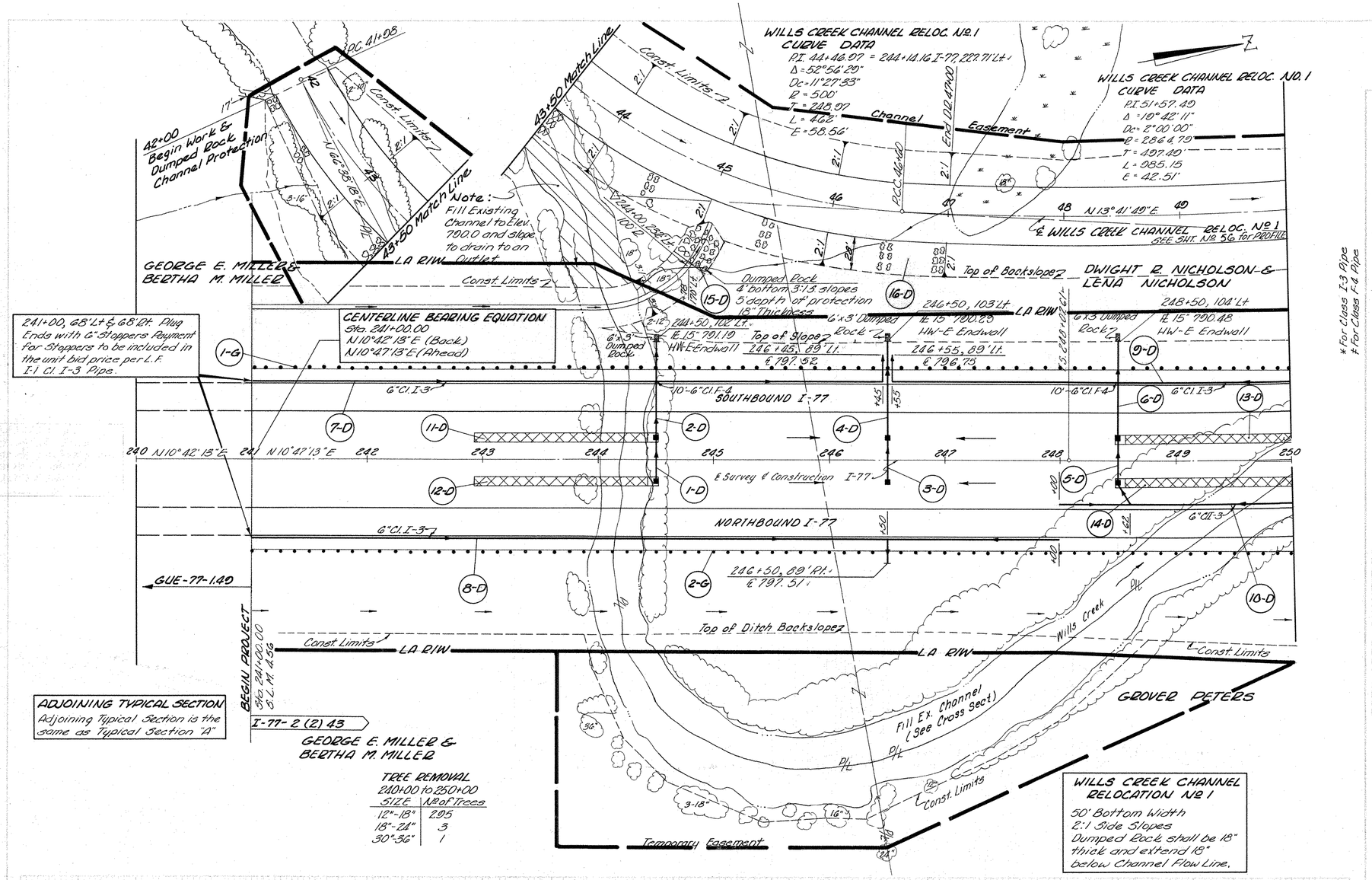


ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE

STA. 230+00 to STA. 240+00

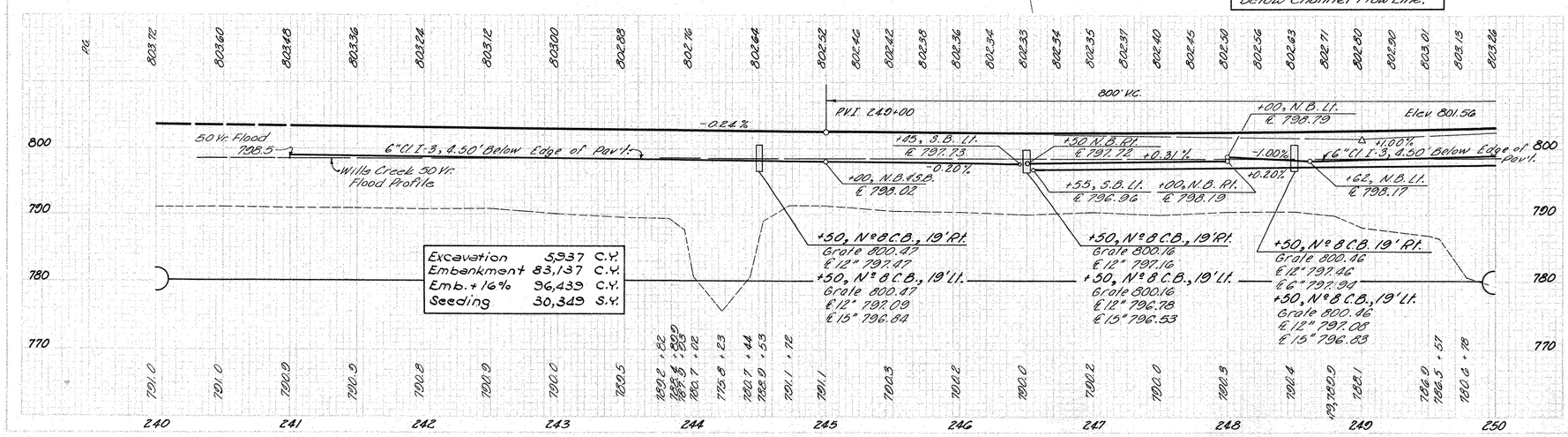
GUERNSEY COUNTY GUE-77-4.77



ADJOINING TYPICAL SECTION
Adjoining Typical Section is the same as Typical Section "A"

TREE REMOVAL
240+00 to 250+00

SIZE	No. of Trees
12"-18"	205
18"-24"	3
30"-36"	1



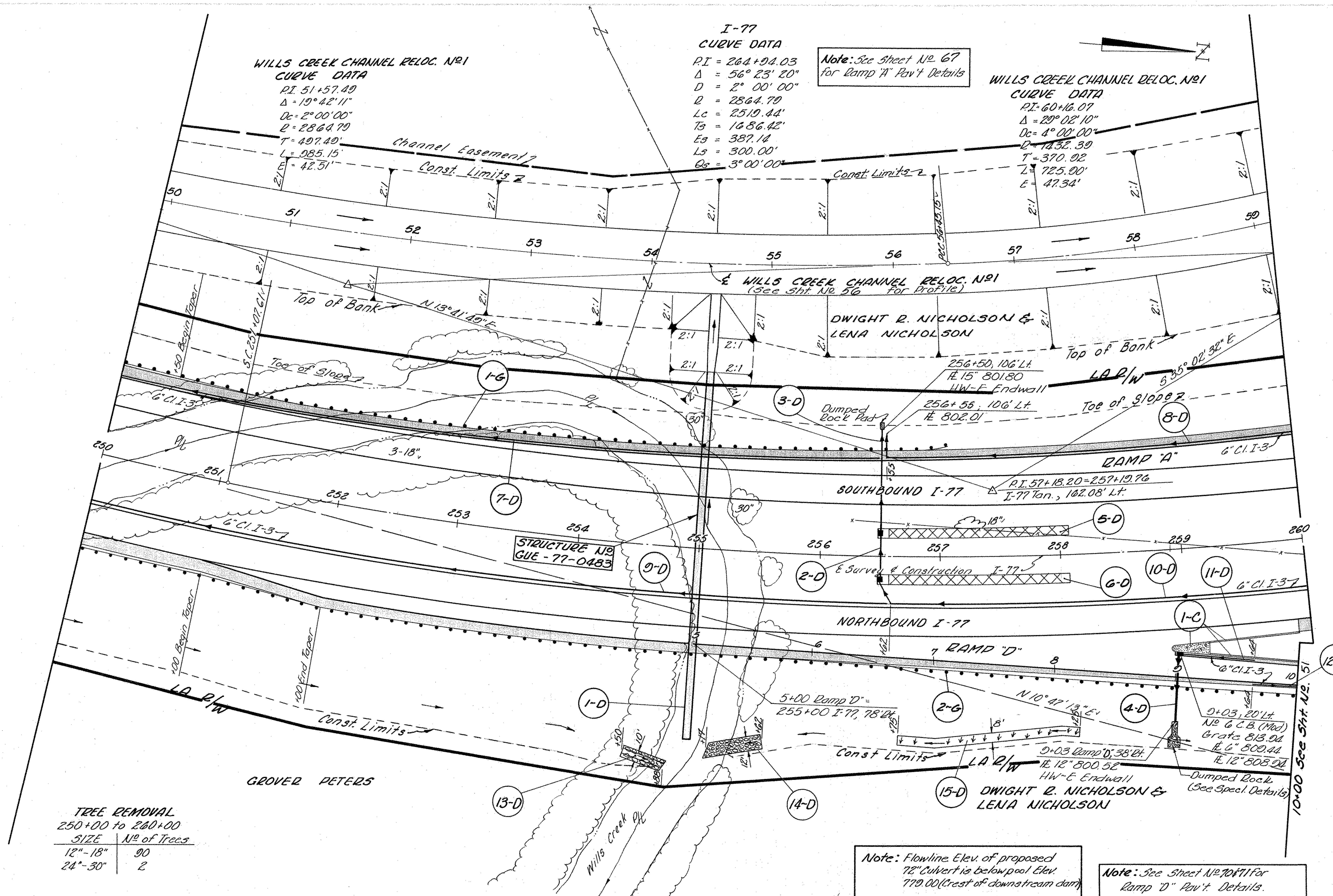
Excavation	5,937 C.Y.
Embankment	83,137 C.Y.
Emb. + 16%	96,439 C.Y.
Seeding	30,349 S.Y.

* For Class I-3 Pipe
‡ For Class F-4 Pipe

ESTIMATED QUANTITIES

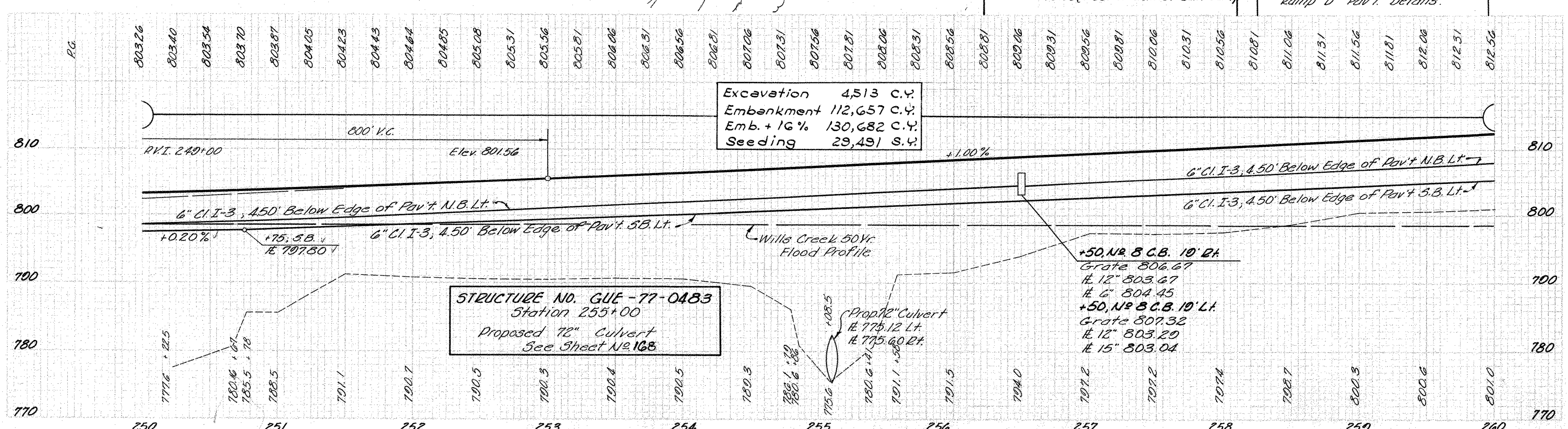
SHEET NO.	STATION TO STATION	SIDE	I-15 Steel Beam L.F.	I-8 C.B. No. 8 Each	L-120 Jute Matting S.Y.	I-2 Masonry Class "C" C.Y.	I-10 Dumped Rock Channel C.Y.	I-5 6" x 60° d' x 90° d' x d' Wye* Bend* Tee* Each	15" x 30° Bend* M-84(c) Each	I-1 Class F-3 12" L.F.	Class F-3 15" L.F.	Class F-3 6" L.F.	Class F-4 Mat'l (c) 8" L.F.	Class F-4 Mat'l (c) 15" L.F.	Class E-1 12" L.F.	Class J-1 15" L.F.	Class J-1 6" L.F.	SEE SHEET NO.
	UNITS																	
1-D	244+50	Lt. & Rt.		1														73
2-D	244+50	Lt.		1		0.26	1		2					21				73
3-D	246+50	Lt. & Rt.		1														73
4-D	246+50	Lt.		1		0.26	1		2					20				73
5-D	248+50	Lt. & Rt.		1														73
6-D	248+50	Lt.		1		0.26	1		2					22				73
7-D	241+00 to 246+45	Lt.								10	10				546			
8-D	241+00 to 248+00	Rt.								10	10				711			
9-D	246+55 to 250+00	Lt.								10	10				346			
10-D	248+00 to 250+00	Rt.								10	10				214			
11-D	242+93 to 244+43	Lt.						125										
12-D	242+93 to 244+43	Rt.						125										
13-D	248+57 to 250+07	Lt.						125										
14-D	248+57 to 250+07	Rt.						125										
15-D	244+24 to 244+95	Lt.							55									
16-D	42+00 to 47+00 Channel Lake	Rt.							828									
1-G	241+00 to 250+00	Lt.	900															
2-G	241+00 to 250+00	Rt.	900															
To General Summary			1800	6	500	0.78	882	114		30	30	63	30	194	1817	1	2	1	6

240+00 to 250+00



TREE REMOVAL
250+00 to 260+00

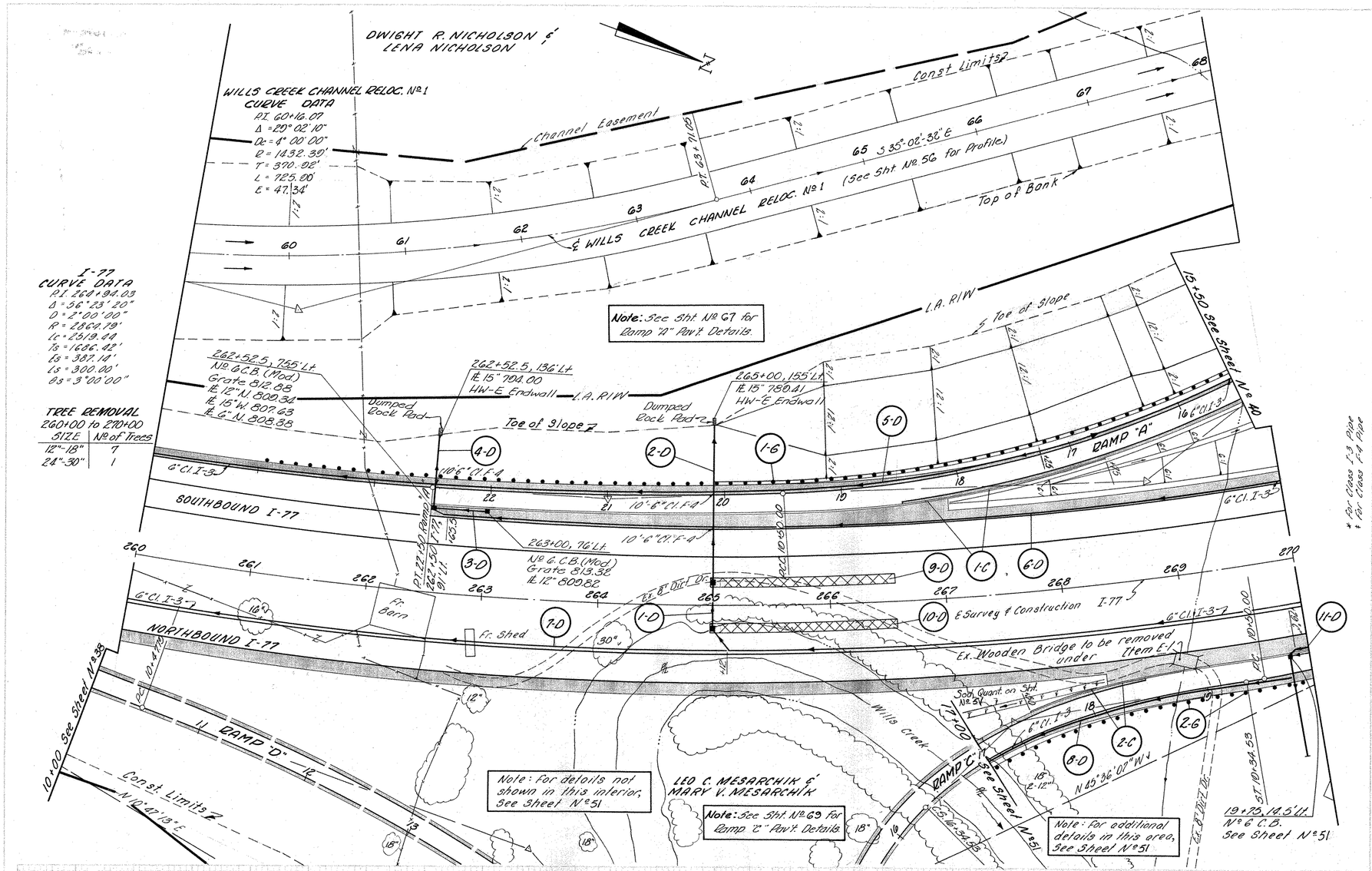
SIZE	№ of Trees
12"-18"	90
24"-30"	2

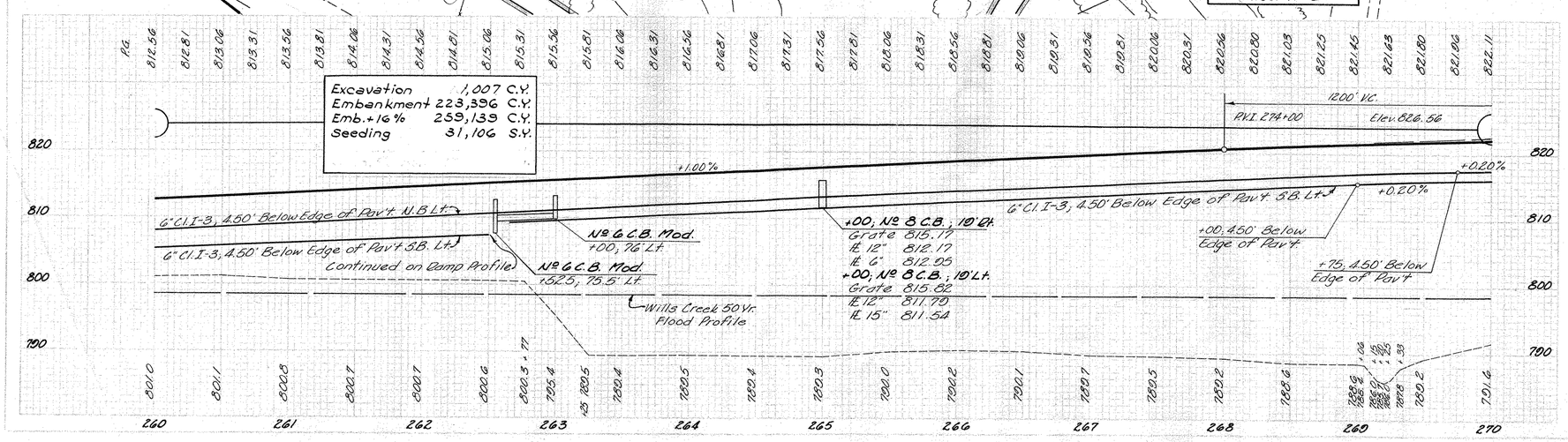


* For Class I-3 Pipe
‡ For Class F-4 Pipe

ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	I-15 Steel Beam L.F.	I-8 № 6 Mod. Each	C.B. № 8 Each	L-120 Jute Matting S.Y.	I-2 Masonry Class "C" C.Y.	I-10 Dumped Rock Channel C.Y.	L-10 Sod S.Y.	I-1 Class E-1 12" L.F.	I-1 Class J-1 12" L.F.	I-1 Class J-1 15" L.F.	I-1 Class I-3 6" L.F.	I-1 Class F-4 M-6.4(c) 6" L.F.	I-1 Class F-4 M-6.4(c) 8" L.F.	I-1 Class F-4 M-6.4(c) 12" L.F.	I-1 Class A-1 M-6.4(g) 10-8 gage 72" L.F.	I-5 6" x 60° Bend* Each	I-5 6" x 90° Bend* Each	I-5 12" x 30° Bend‡ M-6.4(c) Each	E-2 Cofferdams Cribs & Sheeting Lump	I-12 Type 6 L.F.	E-3 Channel Exc. C.Y.	I-21 Conc. Median Pavement 9" S.Y.	See Sheet No.
	UNITS																								
1-D	255+00	Lt.&Rt.															304				Lump		1472		168
2-D	256+50	Lt.&Rt.			1					38															79
3-D	256+50	Lt.					0.26	1				88													79
4-D	9+03 Ramp "D"	Lt.&Rt.		1			0.23	8			32					28				2					79
5-D	256+57 to 258+07	Lt.				125																			
6-D	256+57 to 258+07	Rt.				125																			
7-D	250+00 to 256+48	Lt.											648												
8-D	256+55 to 260+00	Lt.											360		10				1						
9-D	250+00 to 256+58	Rt.											658												
10-D	256+62 to 260+00	Rt.											352	10				1							
11-D	9+03 to 9+64 Ramp "D"	Lt.											51	10											
12-D	9+64 to 10+00 Ramp "D"	Rt.											36												
13-D	254+50 to 254+88	Rt.						22																	
14-D	5+17 to 5+62 Ramp "D"	Rt.						31																	
15-D	6+75 to 8+25 Ramp "D"	Rt.							134																
1-G			687.5																						
2-G			1015.5																						
1-C																						146		23	
	to General Summary		1703	1	1	250	0.49	62	134	38	32	88	2105	20	10	28	304	1	1	2	Lump	146	1472	23	





ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	I-15 Steel Beam L.F.	I-8 C.B. Nº 6 Mod. Each	I-8 C.B. Nº 8 Each	I-20 Inlet Walling S.Y.	I-2 Masonry Class "C" C.Y.	I-10 Dumped Rock Channel C.Y.	Class E-1 12" L.F.	Class F-1 12" L.F.	Class F-1 15" L.F.	Class F-1 6" L.F.	Class F-1 Class F-3 6" L.F.	I-5 6" 90° Bend Each	I-5 6" 45° Bend Each	I-5 12" 90° Bend (Mod. Nº 270) Each	I-12 Type 7 L.F.	I-12 Type 8 L.F.	SEE SHEET NO.
1-0				1							45					2			83
2-0				1															83
3-0											32					2			83
4-0																			81
5-0																			81
6-0																			
7-0												20							
8-0												20							
9-0												10							
10-0												225							
11-0													330						
													730						
													1010						
													270						
1-6			465.5														139	446	
2-6			287.5														72	172	
1-6																			
2-6																			
	GN/13																		
TOTALS	TO GENERAL SUMMARY 11/13		753	2	2	250	0.52	2	38	48	123	60	2050	1	4	2	211	622	

260+00 to 270+00

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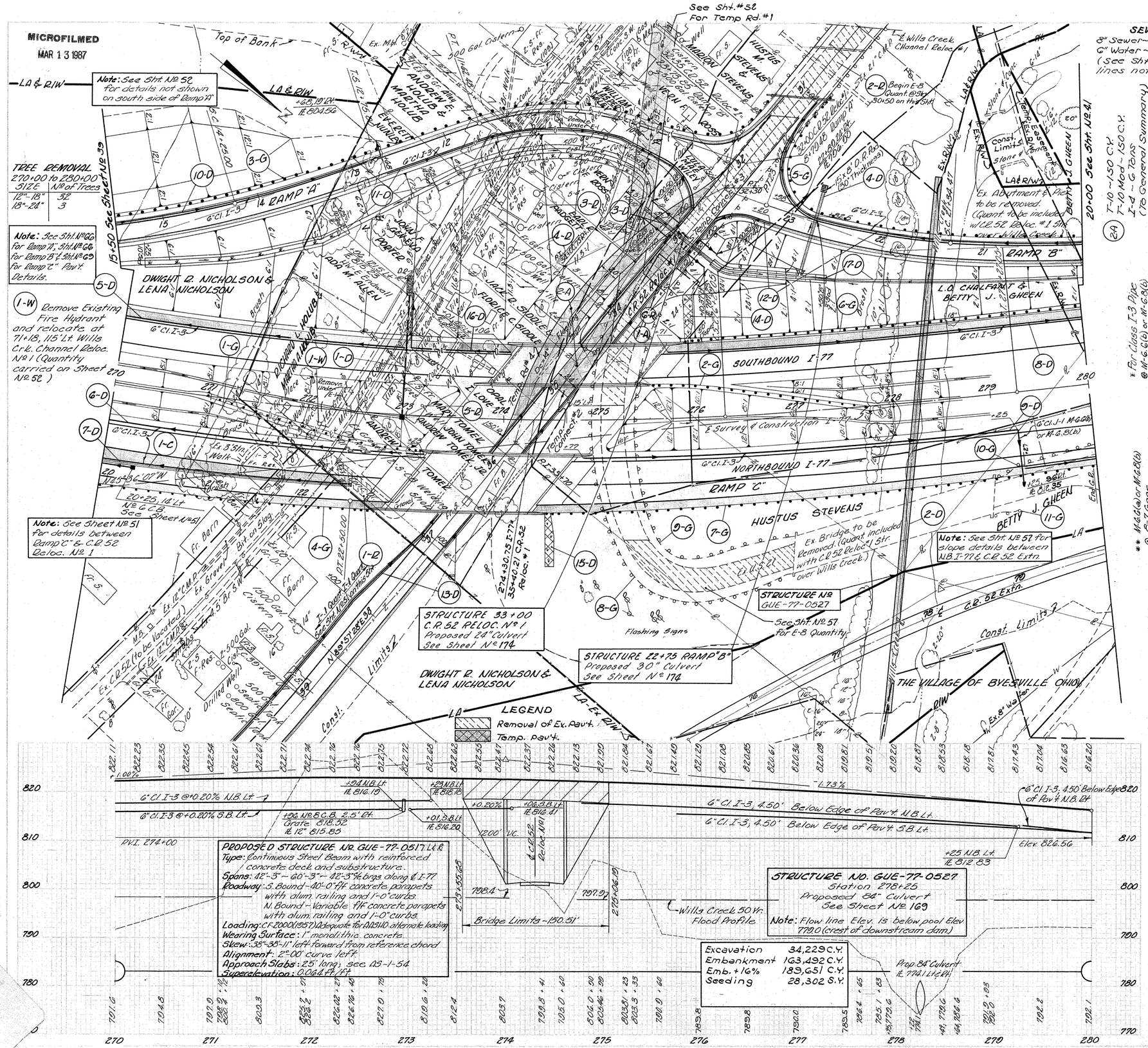
MAR 13 1987

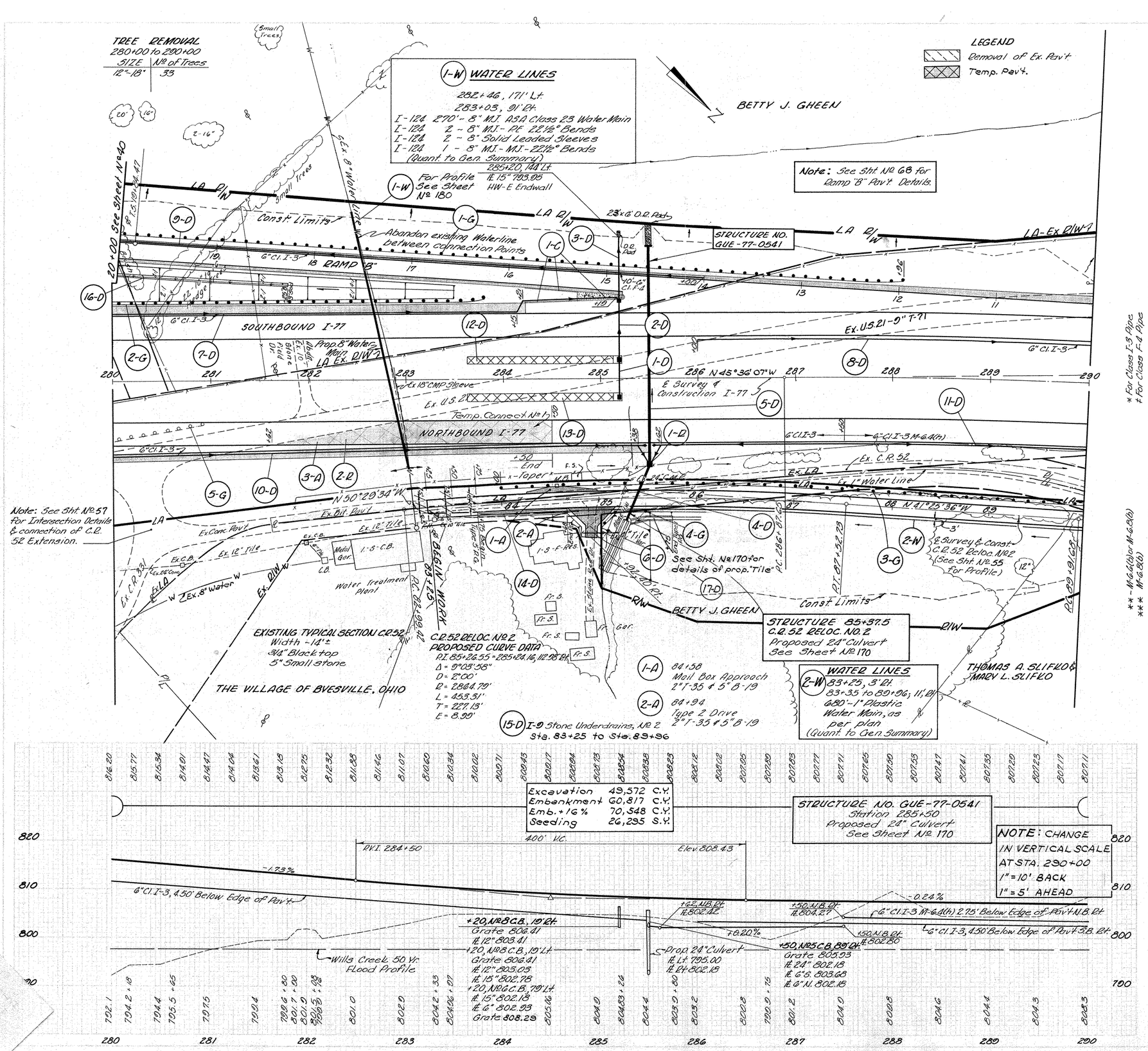
SEWER & WATER LINE REMOVAL LIMITS
8" Sewer ~ 272+40, 3' Lt. to 274+55, 345' Lt. I-77 under E-1
6" Water ~ 272+20, 18' Rt. to 274+45, 345' Lt. I-77 under E-1
(See Sht. № 52 for disposition of ex. water & sewer lines not shown on this sht.)

40
262

GUERNSEY COUNTY GUE-77-4.77


See Sht. #52 For Temp Rd. #1
Top of Bank
Note: See Sht. № 52 for details not shown on south side of Ramp "A"
LA & R/W
TREE REMOVAL
270+00 to 280+00
SIZE | № of Trees
12"-18" | 32
18"-24" | 3
Note: See Sht. № 66 for Ramp "A", Sht. № 66 for Ramp "B" & Sht. № 69 for Ramp "C" Pav't. Details.
(1-W) Remove Existing Fire Hydrant and relocate at 71+18, 115' Lt. Wills Crk. Channel Reloc. № 1 (Quantity carried on Sheet № 52)
15+50 See Sheet № 39
20+00 See Sht. № 41
RAMP "A"
RAMP "B"
RAMP "C"
SOUTHBOUND I-77
NORTHBOUND I-77
DWIGHT R. NICHOLSON & LENA NICHOLSON
L.O. CHALFANT & BETTY J. GREEN
HUSTUS STEVENS
THE VILLAGE OF BYESVILLE OHIO
Note: See Sheet № 51 for details between Ramp "C" & C.R. 52 Reloc. № 1
Note: See Sht. № 57 for slope details between N.B. I-77 & C.R. 52 Extn.
STRUCTURE 33+00 C.R. 52 RELOC. № 1 Proposed 24" Culvert See Sheet № 174
STRUCTURE № GUE-77-0527
See Sht. № 57 for E-8 Quantity
STRUCTURE 22+75 RAMP "B" Proposed 30" Culvert See Sheet № 174
LEGEND
Removal of Ex. Pav't.
Temp. Pav't.
PROPOSED STRUCTURE № GUE-77-0517 L&R
Type: Continuous Steel Beam with reinforced concrete deck and substructure.
Spans: 42'-3" ~ 60'-3" ~ 42'-3" ℄ brgs. along ℄ I-77
Roadway: S. Bound - 40'-0" f/f concrete parapets with alum. railing and 1'-0" curbs.
N. Bound - Variable f/f concrete parapets with alum. railing and 1'-0" curbs.
Loading: CF 2000 (1957) Adequate for AASHO alternate loading
Wearing Surface: 1" monolithic concrete.
Skew: 38°-38'-11" left forward from reference chord
Alignment: 2°00' curve left.
Approach Slabs: 25' long; see AS-1-54
Superelevation: 0.064 ft./ft.
Bridge Limits ~ 150.51'
Excavation 34,229 C.Y.
Embankment 163,492 C.Y.
Emb. +16% 189,651 C.Y.
Seeding 28,302 S.Y.
STRUCTURE NO. GUE-77-0527
Station 278+25
Proposed 84" Culvert
See Sheet № 169
Note: Flow line Elev. is below pool Elev 779.0 (crest of downstream dam)
Wills Creek 50 Yr. Flood Profile
Prop. 84" Culvert
Flashing Signs
Const. Limits
Temp. Easement
Ex. Abutment & Pier to be removed. (Quant. to be included w/C.R. 52 Reloc. #1 Str.)
Ex. Bridge to be Removed. (Quant. included with C.R. 52 Reloc. #1 Str.)
Begin E-8 Quant. @ Sta. 30+50 on this Sht.
Remove Existing Fire Hydrant
Remove under E-1
Survey & Construction E-1
Ex. 8" Water
Ex. 12" CMP
Ex. Gravel
Ex. C.R. 52 (to be Vacated)
Drilled Well
Barn
Ff. Barn
Ff. Res.
Ff. Dr.
Ff. Gar.
Cistern
Stone & Tone
Eagle Br.
Wills Creek
Elev. 826.56
Elev. 812.83
Elev. 816.19
Elev. 816.20
Elev. 815.85
Elev. 816.41
Elev. 779.1
Elev. 778.6
Elev. 779.0
Elev. 786.6
Elev. 785.1
Elev. 785.8
Elev. 789.8
Elev. 790.0
Elev. 789.5
Elev. 702.1
Elev. 702.2
Elev. 702.0
Elev. 701.6
Elev. 704.8
Elev. 707.0
Elev. 708.4
Elev. 707.0
Elev. 708.0
Elev. 708.5
Elev. 709.0
Elev. 709.5
Elev. 710.0
Elev. 710.5
Elev. 711.0
Elev. 711.5
Elev. 712.0
Elev. 712.5
Elev. 713.0
Elev. 713.5
Elev. 714.0
Elev. 714.5
Elev. 715.0
Elev. 715.5
Elev. 716.0
Elev. 716.5
Elev. 717.0
Elev. 717.5
Elev.

GUERNSEY COUNTY GUE-77-0.77



* For Class I-3 Pipe
‡ For Class F-4 Pipe

** - M-6.4(b) or M-6.8(b)
*** M-6.8(b)

ESTIMATED QUANTITIES

ITEM	UNITS	1-0	2-0	3-0	4-0	5-0	6-0	7-0	8-0	9-0	10-0	11-0	12-0	13-0	14-0	15-0	16-0	17-0	1-G	2-G	3-G	4-G	5-G	1-C	1-A	2-A	3-A	1-2	2-2	TOTAL	SEE SHEET NO.
Over 15"	L.F.																													93	
Pav't Removal	S.Y.																													93	
Channel Exc.	C.Y.																													93	
Masonry Class "C"	C.Y.																													170	
5"	C.Y.																													170	
2" Type C	C.Y.																													170	
Type G	L.F.																														
9" Conc. Med. Pav't	S.Y.																														
15" x 30" Bend*	EA.																														
15" x 30" Wye*	EA.																														
15" x 30" Bend‡ M-6.4(e)	EA.																														
6" x 30" Bend*	EA.																														
6" x 30" Wye*	EA.																														
6" x 30" Bend‡ M-6.4(e)	EA.																														
6" Class I-3 M-6.4(h)	L.F.																														
6" Class F-4 M-6.4(h)***	L.F.																														
12" Class I-3 M-6.4(h)	L.F.																														
12" Class F-4 M-6.4(h)***	L.F.																														
12" Class I-3 M-6.4(h)	L.F.																														
12" Class F-4 M-6.4(h)***	L.F.																														
15" Class I-3 M-6.4(h)	L.F.																														
15" Class F-4 M-6.4(h)***	L.F.																														
24" Class I-3 M-6.4(h)	L.F.																														
24" Class F-4 M-6.4(h)***	L.F.																														
Jute Matting	S.Y.																														
Sodding	S.Y.																														
Paved Gutter Type 1 Type 5	L.F.																														
Paved Gutter Type 1 Type 5	L.F.																														
Nº 8 S.B.	EA.																														
Nº 8 S.B.	EA.																														
3-Wire Cable Nº 2	L.F.																														
Steel Removed Beam & Rebuilt	L.F.																														
Dumped Rock	C.Y.																														

STATION TO STATION

UNITS

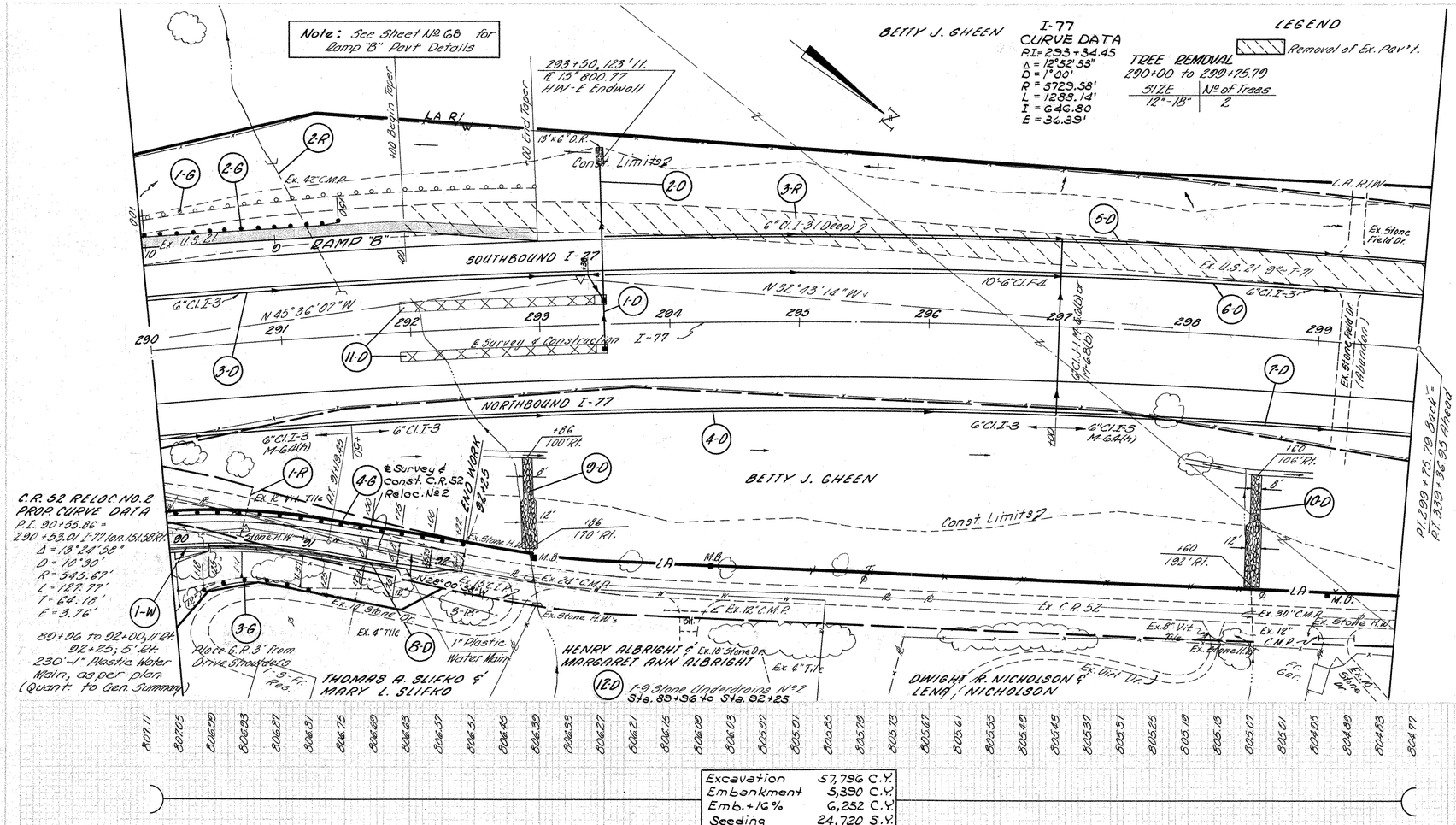
84+82, 35' Lt. to 85+19, 36' Lt.

83+10, 22' Lt. to 85+57, 12' Rt.

to General Summary

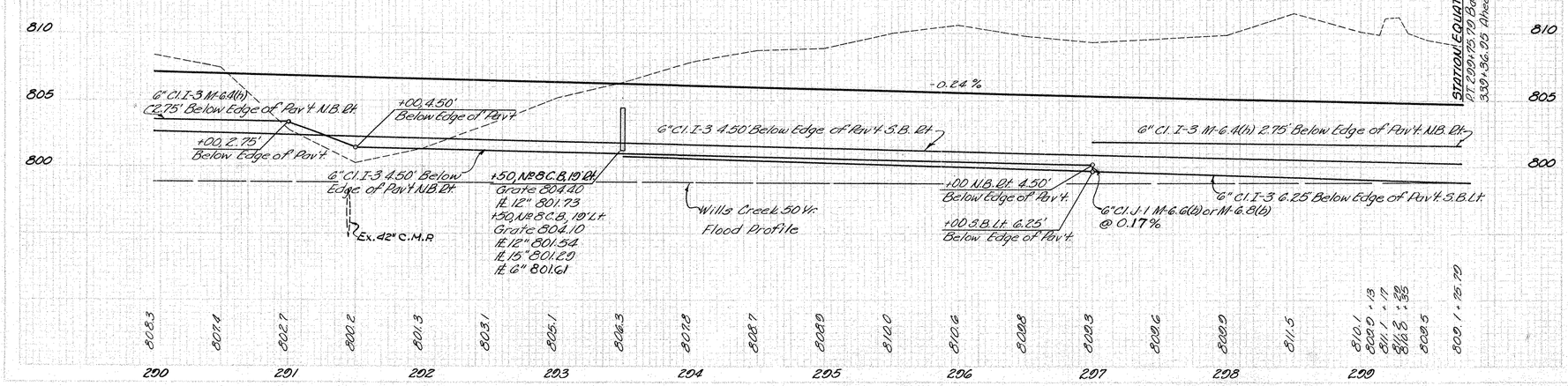
280+00 to 290+00

GUERNSEY COUNTY GUE-77-4.77



Excavation	57,796 C.Y.
Embankment	3,390 C.Y.
Emb. + 16%	6,252 C.Y.
Seeding	24,720 S.Y.

NOTE: CHANGE IN VERTICAL SCALE AT STATION 290+00
1" = 10' Back 1" = 5' Ahead

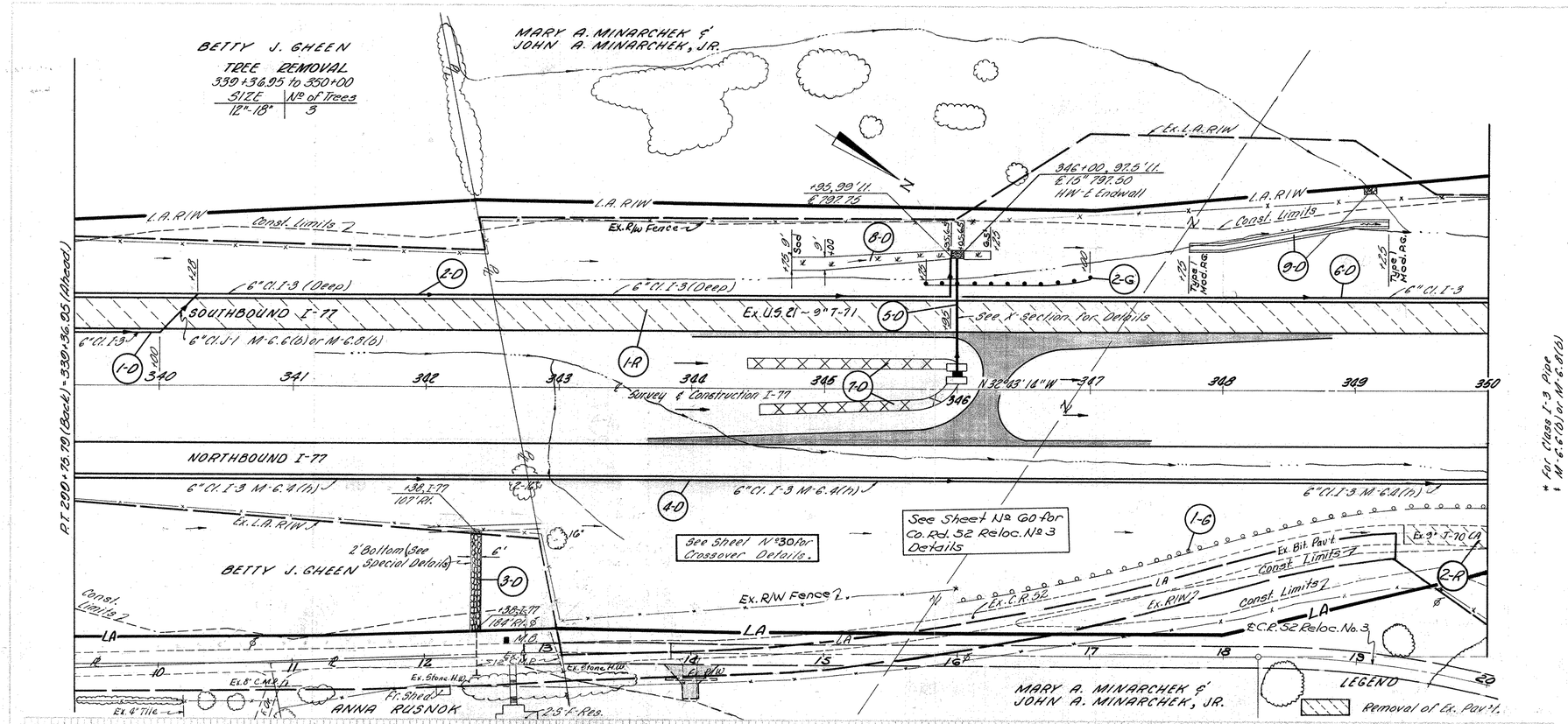


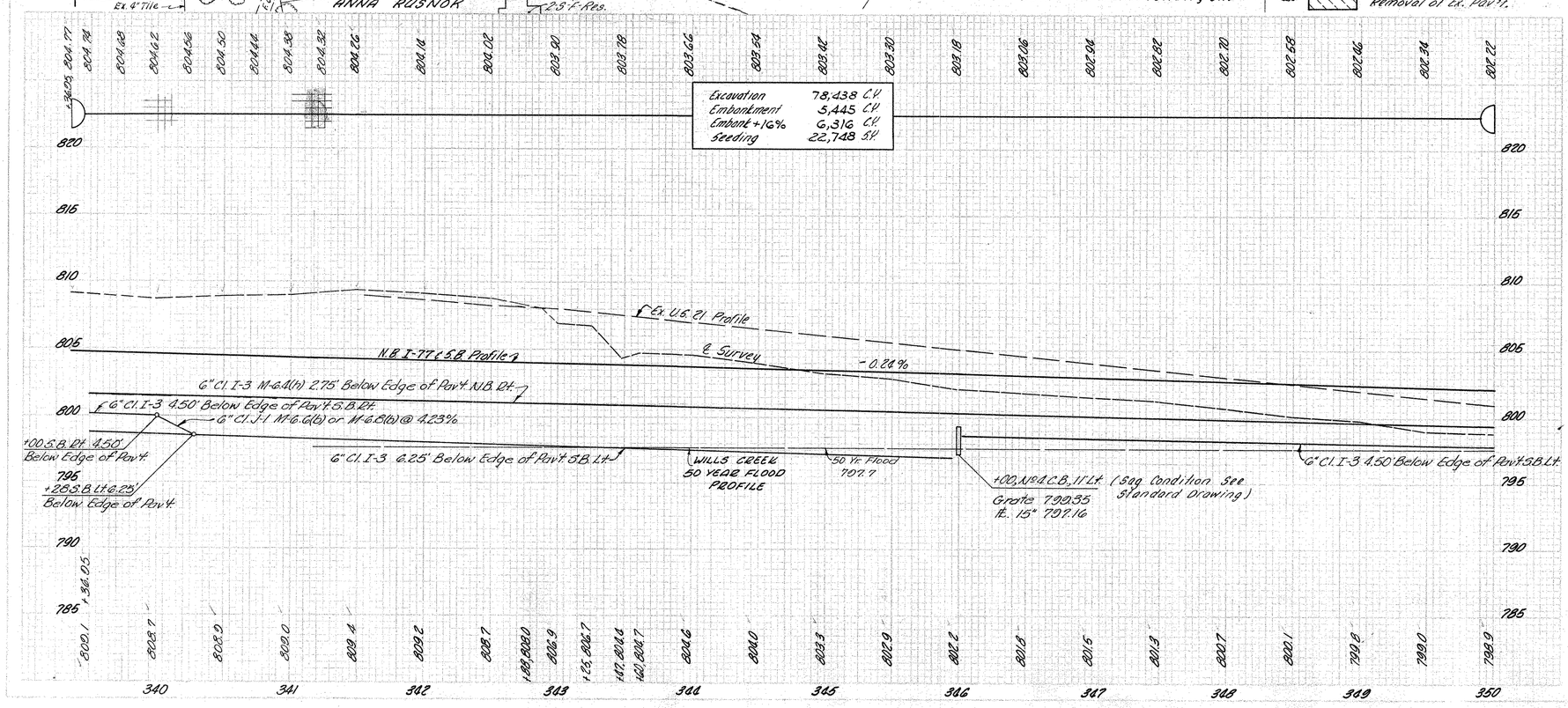
ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	F-15 Steel Removed Beam & Rail	F-15 3 Wire Cable	F-15 Nº 8 C.B.	F-10 Sodding Ditch	F-14 Paved Gutter Type	V-20 Mulching 4/10"	C-1 Class I/I 12"	C-1 Class I/I 15"	C-1 Class I/I 6"	C-1 Class I/I 6" Stainless Drain	C-14 6"	T-3 6" x 6" Wye x 8" Branch	T-3 6" x 6" Tee	T-3 6" x 6" Tee	T-4 Mowing	T-9 S.U. Nº 2	T-8 Pavt'l. Removal	T-8 Pavt'l. pub. gr.	T-8 Pavt'l. pub. gr.	T-8 Sod	SEE SHEET NO.
			L.F.	L.F.	Ea.	C.Y.	L.F.	S.Y.	L.F.	L.F.	L.F.	L.F.	L.F.	Ea.	Ea.	Ea.	C.Y.	L.F.	S.Y.	S.Y.	S.Y.	S.Y.	
	UNITS																						
1-D										104												99	
2-D																						99	
3-D											362	136											
4-D											330												
5-D											624												
6-D											614												
7-D													10										
8-D	90+25 to 91+25 CR 52 PI.					32	130						276										100
9-D						49																	100
10-D																							
11-D								290															
1-G																							
2-G																							
1-R																							
2-R																							
3-R																							
1-W																							
3-G																							
8-D																							
12-D																							
TOTALS TO GENERAL SUMMARY			150	312.5	327	2	93	150	150	104	1526	624	286	10	1	1	5	0.26	2107	58	110	198	

290+00 to 299+75.79

GUERNSEY COUNTY GUE-77-4.77





ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	F-1 Steel Beam Guardrail L.F.	F-3 Class I-3 Pipe Culvert 24" L.F.	F-3 Class I-3 Pipe Culvert 18" L.F.	F-3 Class I-3 Pipe Culvert 15" L.F.	F-3 Class I-3 Pipe Culvert 12" L.F.	F-3 Class I-3 Pipe Culvert 6" L.F.	F-3 Class I-3 Pipe Culvert 6" Depr. L.F.	F-3 Class I-3 Pipe Culvert 6" Shallow L.F.	F-3 Class J-1 Pipe Culvert 15" L.F.	F-3 Class J-1 Pipe Culvert 6" L.F.	F-2 Masonry Class "A" C.Y.	F-3 Nº 4 C.B. Each	F-10 Jute Matting S.Y.	F-10 Dumped Rock C.Y.	F-8 Pav't Removal S.Y.	F-18 Paved Gutter Type 1 (Rehab) L.F.	SEE SHEET NO.
UNITS			L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	C.Y.	Each	S.Y.	C.Y.	S.Y.	L.F.	
1-0												40							
2-0																			
3-0																			
4-0																			
5-0																			
6-0																			
7-0																			
8-0																			
9-0																			
1-6																			
2-6																			
1-R																			
2-R																			
TOTALS to GENERAL SUMMARY			125	400	1063	10	1	1	1	1	1	10	80	1	0.26	80	679	161	1

339+36.95 to 350+00

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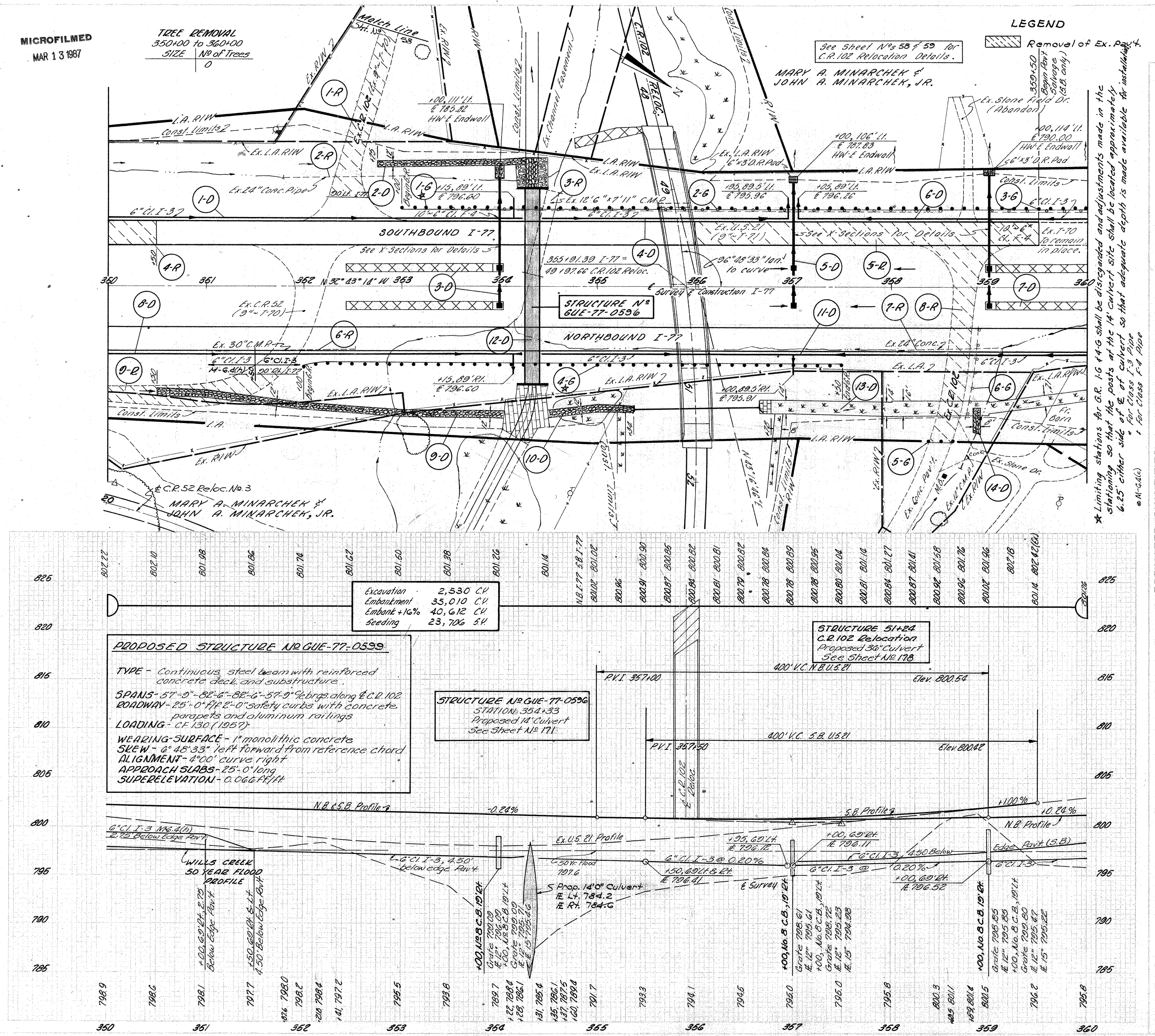
MAR 1 3 1987



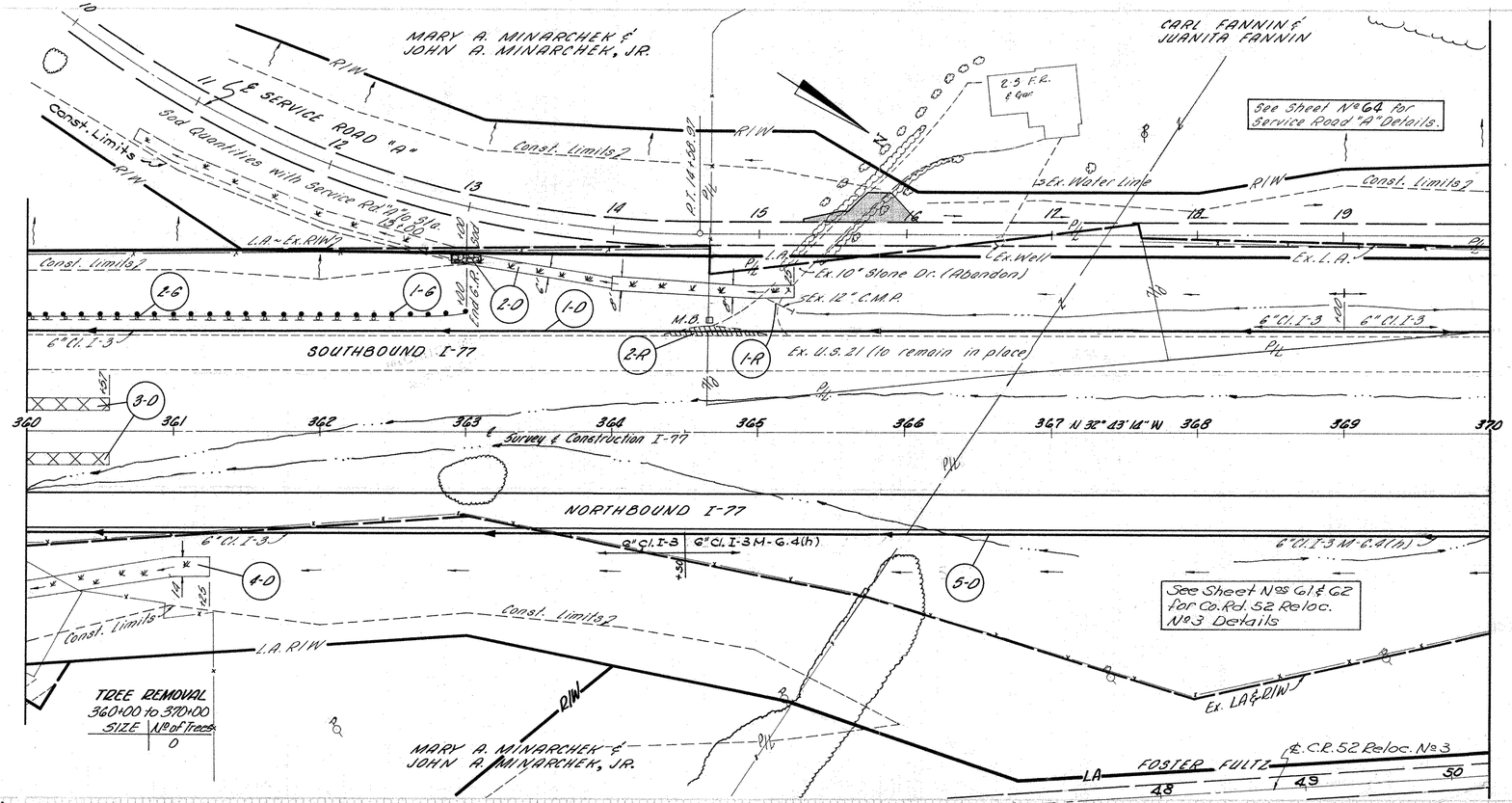
★ Limiting stations for G.R. 1-G & 4-G shall be disregarded and adjustments made in the stationing so that the posts at the 14' culvert site shall be located approximately 6.25' either side of CL of culvert so that adequate depth is made available for installation.
* For Class I-3 Pipe
† For Class F-4 Pipe
⊕ M-6.4(c)

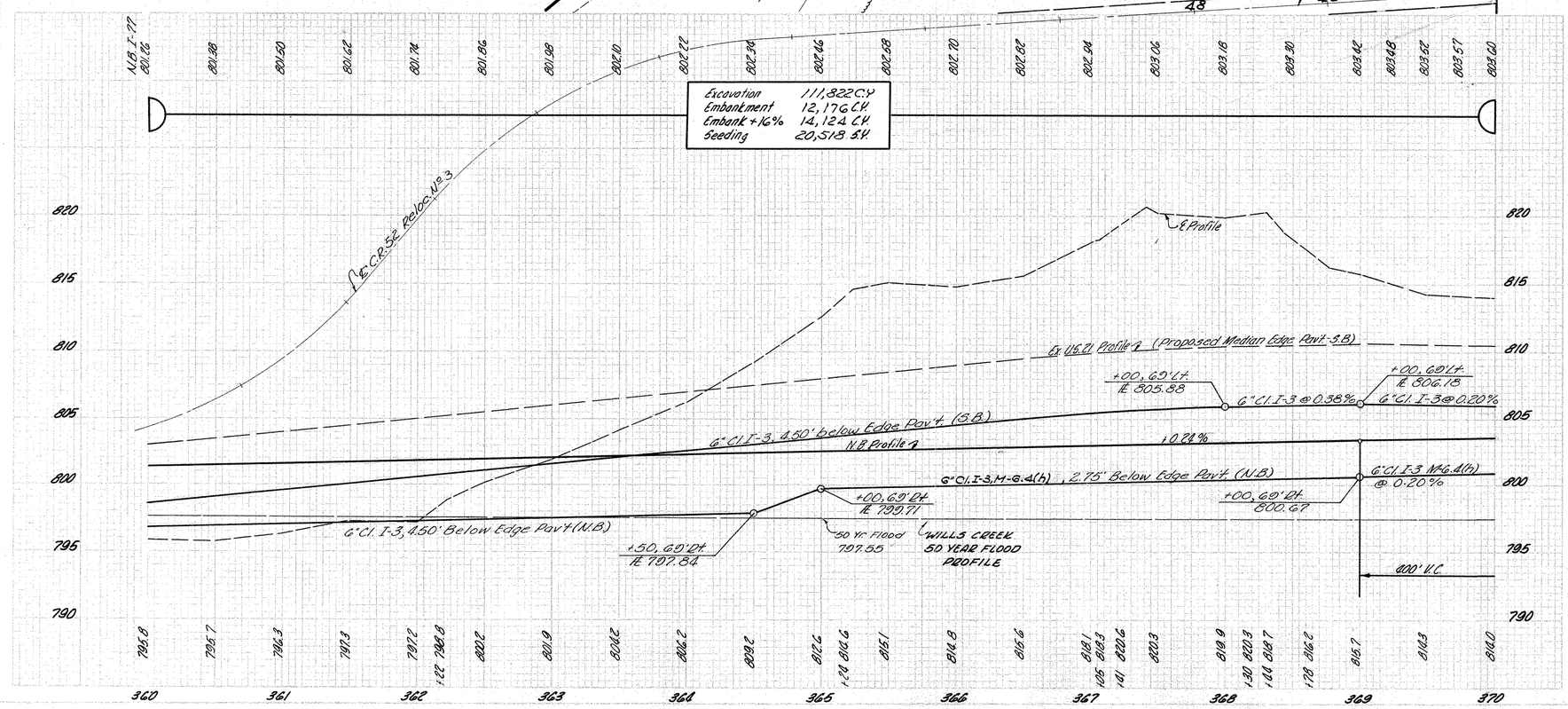
ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	E-8 Pav't. Removal	E-3 Channel Excav.	E-12 Removed over 15"	E-12 12'6"x7'11" Rem. for Re-use	I-15 Steel Beam	I-15 Rem. & Rebuilt	I-8 No 8 C.B.	Class E-1 12"	I-1 Class J-1 15"	Class F-4 6"	Class F-4 ⊕8"	Class F-4 ⊕15"	Class I-3 6"	Class I-3 M-6.4(h) 6"	Cl.A/M6.4(g) 5-3 gage 14'0"	I-2 Masonry	I-10 Sodding	I-20 Jute Matting	I-10 D.R. Chan. Prot.	I-10 Rip Rap 6" Rein.	I-5 6"x6" Tee*	I-5 15"x30° Bend & M-6.4(c)	I-5 6"x90° Bend*	See Sheet No.
	UNITS		S.Y.	C.Y.	L.F.	L.F.	L.F.	L.F.	Ea.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	C.Y.	S.Y.	S.Y.	C.Y.	S.Y.	Ea.	Ea.	Ea.	
1-O	350+00 to 354+24	Lt.										10	10		424								1			
2-O	352+75 to 354+33	Lt.																			100					
3-O	354+00								2	38	64			29				0.26		250	2			2		108
4-O	354+42 to 356+95	Lt.											10		263										1	
5-O	357+00	Lt.							2	38	66			22				0.26			1			2		109
6-O	357+05 to 360+00	Lt.										10	10		295										1	
7-O	359+00	Lt.							2	38	66			20				0.26		155	1					110
8-O	350+00 to 354+24	Rt.											10		284	150							1			
9-O	350+50 to 354+33	Rt.																			240					
10-O	354+33 to 355+34	Rt.																			51					
11-O	354+42 to 360+00	Rt.											10		568								1			
12-O	354+33			411													202	39.50			84	236				171
13-O	356+78 to 360+00	Rt.																	502							
14-O	358+90	Rt.																			11					
★ 1-G	353+00 to 360+00	Lt.					700																			
2-G	353+25 to 358+50	Lt.						525																		
3-G	359+00 to 360+00	Lt.						100																		
★ 4-G	352+00 to 357+50	Rt.					550																			
5-G	358+52	Rt.					25																			
6-G	358+90	Rt.						100																		
1-R	352+50	Lt.	447																							
2-R	351+80 to 353+04	Lt.			124																					
3-R	354+30	Lt.				86																				
4-R	350+00 to 350+50	Lt.	133																							
5-R	356+00 to 359+50	Lt.	932		150																					
6-R	351+02 to 352+52	Rt.			102																					
7-R	358+08 to 359+10	Rt.																								
8-R	358+75		628																							
9-R	350+00 to 352+00	Rt.	386																							
	to GENERAL SUMMARY		2520	411	376	86	1275	725	6	114	196	20	50	71	1834	150	202	40.28	502	405	490	236	3	4	2	

350+00 to 360+00

GUERNSEY COUNTY GUE-77-4.77



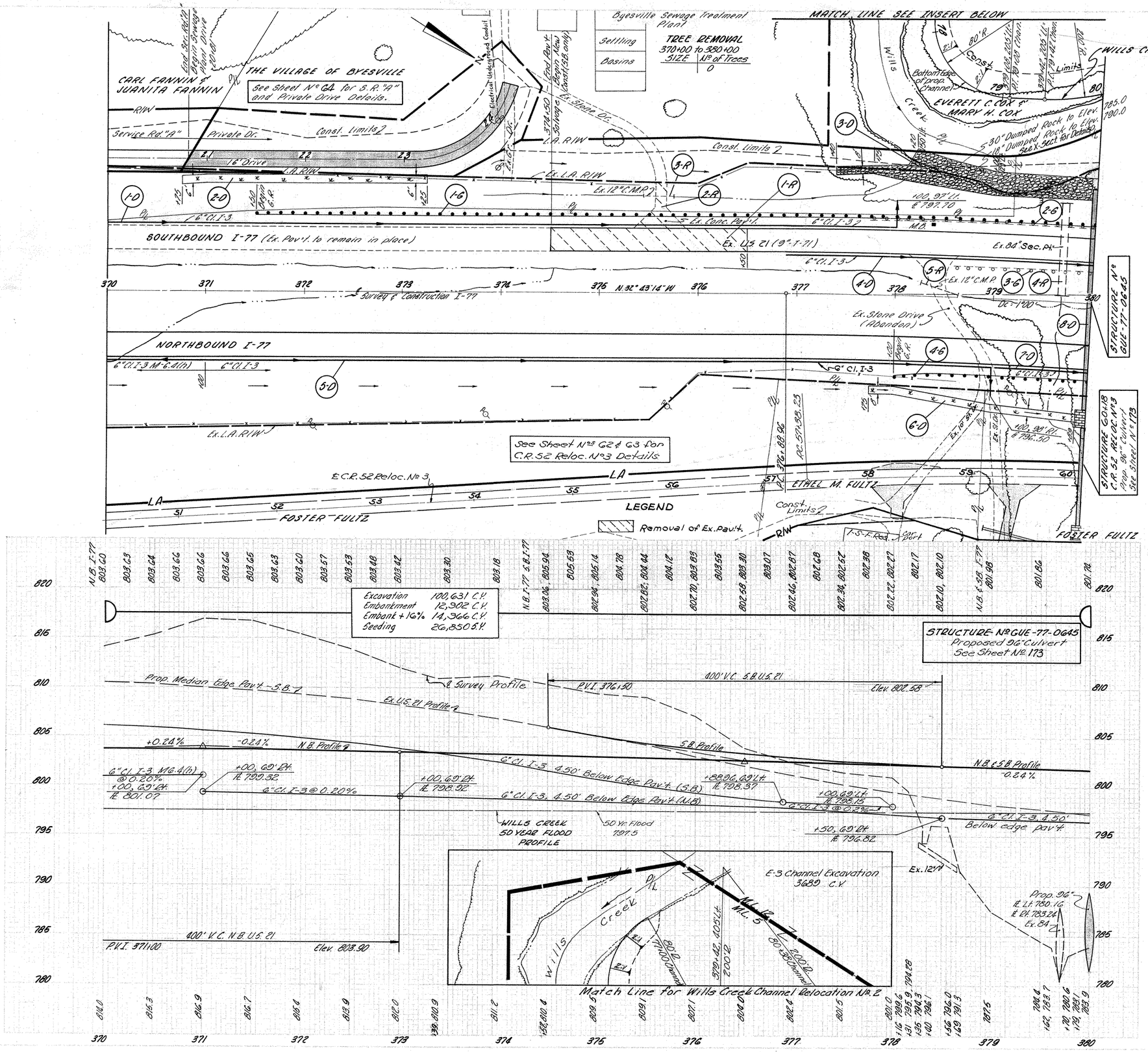


ESTIMATED QUANTITIES

Sheet No.	Station to Station	Side	E-8 Pav't. Removal under	E-12 15" End Section	I-15 Steel Beam	I-15 Removed and Reset	L-10 Seeding	L-120 Jute Mulching	I-10 Dumped Rock	I-9 Class I-3 Mat'l. 6"	I-9 Class I-3 Mat'l. 6"	I-9 Class I-3 Mat'l. 6"
			S.Y.	L.F.	L.F.	L.F.	S.Y.	S.Y.	C.Y.	L.F.	L.F.	L.F.
	UNITS											
1-D	360+00 to 370+00	Lt.										
2-D	363+00 to 365+25	Lt.										
3-D	360+00 to 360+57	Lt. & Rt.					118			1000		
4-D	360+00 to 361+25	Rt.						95	14			
5-D	360+00 to 370+00	Rt.					193					
1-6	360+00 to 363+00	Lt.			300	250						
2-6	360+00 to 362+50	Lt.										
1-R	363+00	Lt.		36								
2-R	364+65	Lt.	31									
TOTALS to GENERAL SUMMARY			31	36	300	250	311	95	14	1000	450	550

360+00 to 370+00

GUERNSEY COUNTY GUE-77-4.77



ESTIMATED QUANTITIES

Station	Item	Quantity
1'-0	370+00 to 370+00	L.S.
2'-0	370+75 to 373+25	L.S.
3'-0	377+40 to 379+96	L.S.
4'-0	376+00 to 380+00	L.S.
5'-0	370+00 to 379+00	R.R.
6'-0	377+75 to 379+00	R.R.
7'-0	379+02 to 380+00	R.R.
8'-0	380+00	L.S.-R.R.
1'-6	371+50 to 376+50	L.S.
2'-6	377+75 to 380+00	L.S.
3'-6	375+25 to 380+00	L.S.
4'-6	378+00 to 380+00	R.R.
1'-R	371+50 to 376+50	L.S.
2'-R	379+62	L.S.
3'-R	375+25 to 375+77	L.S.
4'-R	379+70	L.S.
5'-R	378+25 to 378+64	L.S.

Item	Quantity
E-3 Channel Excavation	3689 C.Y.
Dumped Rip-Rap Rock	534 C.Y.
6" Rein. Nosing Conc.	35 C.Y.
Channel Excav.	173 C.Y.
Pipe .064 x .9	1 Ea.
Class F-3 Wells Nº 2 (C) 6"	10 L.F.
Class F-3 Wells Nº 2 (C) 6"	100 L.F.
Class F-3 Wells Nº 2 (C) 6"	98 L.F.
Removal Class A-1 Wells Nº 2 (C) 96"	218 L.F.
Steel Beam Guard Rebuilt	188 L.F.
Seeding	167 S.Y.
84" Sec. & Pen. for Storage	1 L.F.
15" End Pen. under	1 L.F.
Pav't. Removal	5 S.Y.

Station	Quantity
1'-6	650
2'-6	225
3'-6	137.5
4'-6	200
3'-R	30
4'-R	100
5'-R	40
1'-R	535
2'-R	108
1'-0 to General Summary	641
2'-0	70
3'-0	120
4'-0	355
5'-0	1050
6'-0	362.5
7'-0	228
8'-0	2047

370+00 to 380+00

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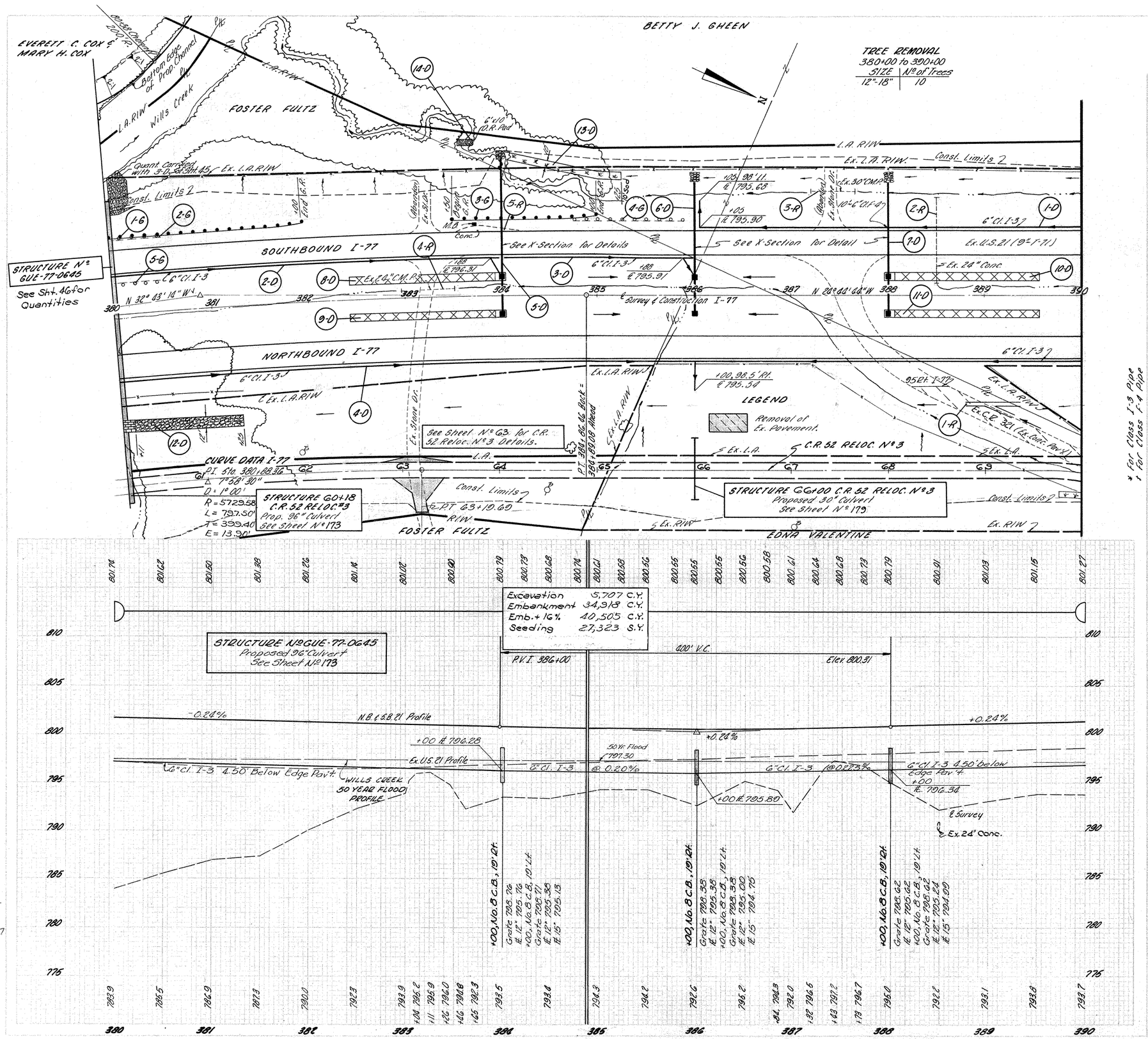
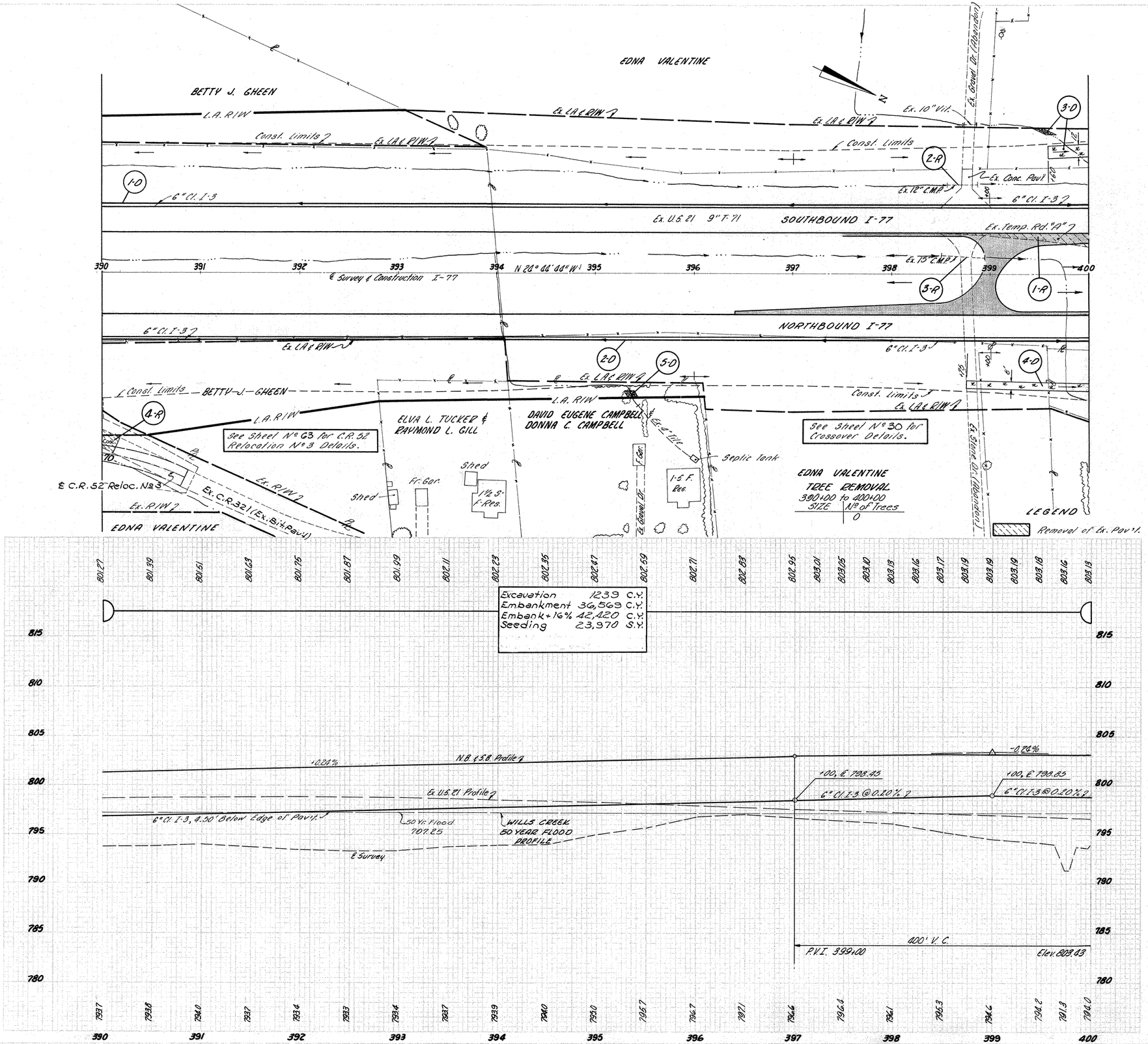


* For Class F-3 Pipe
† For Class F-4 Pipe

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	E-8 C.B. No. 8	E-12 over 15"	F-2 Masonry	L-120 Jute Mulching	F-10 Q. Pack Chipped Seeding Prot.	E-8 Pav't. Removal	I-15 Steel Beam Rebuilt	I-15 Removal of Rebuilt	Class I-1 15"	Class I-1 12"	Class F-3 6"	Class F-4 (M-2.01) 6"	Class F-4 8"	Class F-4 15"	F-5 * 18" & 24"	F-5 * 21" & 27"	F-5 * 30" & 36"	F-5 * 15"x15" Bend & M-2.01(c)	F-5 * 21" & 27"	F-5 * 30" & 36"	Steel Beam Rebuilt	Removal of Rebuilt	TOTALS to GENERAL SUMMARY 8
	UNITS		Ea.	L.F.	C.Y.	S.Y.	C.Y.	S.Y.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	L.F.	L.F.	
1-0	386+05 to 390+00	Lt.																							
2-0	380+00 to 384+00	Lt.																							
3-0	384+02 to 386+00	Lt.																							
4-0	380+00 to 390+00	Rt.																							
5-0	384+00	Lt. & Rt.																							
6-0	386+00	Lt. & Rt.																							
7-0	380+00	Lt. & Rt.																							
8-0	382+45 to 383+38	Lt.	1		0.26						71	38	102	10	10	10									2017
9-0	382+45 to 383+38	Rt.	1		0.26						68	38	112	10	10	10									1114
10-0	380+01 to 380+57	Lt.	2		0.26	125	5				68	38	207	10	10	10									1040
11-0	380+01 to 380+57	Rt.				125	5						1017												30
12-0	380+11 to 381+25	Rt.				125																			20
13-0	384+05 to 385+25	Lt.				125																			111
14-0	As shown	Lt.					76	133																	30
							6																		20
																									1
																									1
1-6	380+00 to 382+00	Lt.							344														200	125	200
2-6	380+00 to 380+50	Lt.																					50	125	350
3-6	383+50 to 385+00	Lt.																					100	125	
4-6	384+75 to 385+25	Lt.																					50	125	
5-6	380+00 to 380+50	Lt.																							
1-R	388+24 to 390+00	Rt.																							
2-R	388+50	Lt.																							
3-R	387+46	Rt.	88																						
4-R	383+27	Lt.	46																						
5-R	383+75	Lt.	56																						
TOTALS to GENERAL SUMMARY 8			190	0.78	320	97	133	375	2017		1	1	1	1	1	1	2	1	1	6	2	1	200	350	

380+00 to 390+00



ESTIMATED QUANTITIES

SHEET NO.	STATION TO STATION	SIDE	E-8 Pav't. Removal S.Y.	E-12 Adjust Pvt. Sl. L.F.	E-10 Seeding S.Y.	E-10 Dumped Rock C.Y.	I-1 Class F-3 6" L.F.
	UNITS						
1-D	390+00 to 400+00	Lt.					1000
2-D	390+00 to 400+00	Rt.					1000
3-D	399+42 to 400+00	Lt.					
4-D	398+75 to 400+00	Rt.					
5-D	As shown	Rt.					
1-R	398+50 to 400+00	Lt.	89	32			
2-R	398+75	Lt.		44			
3-R	398+75	Lt.			53	8	
4-R	390+00	Rt.		28	111	6	
TOTALS	10 GENERAL SUMMARY		117	76	164	14	2000

390+00 to 400+00

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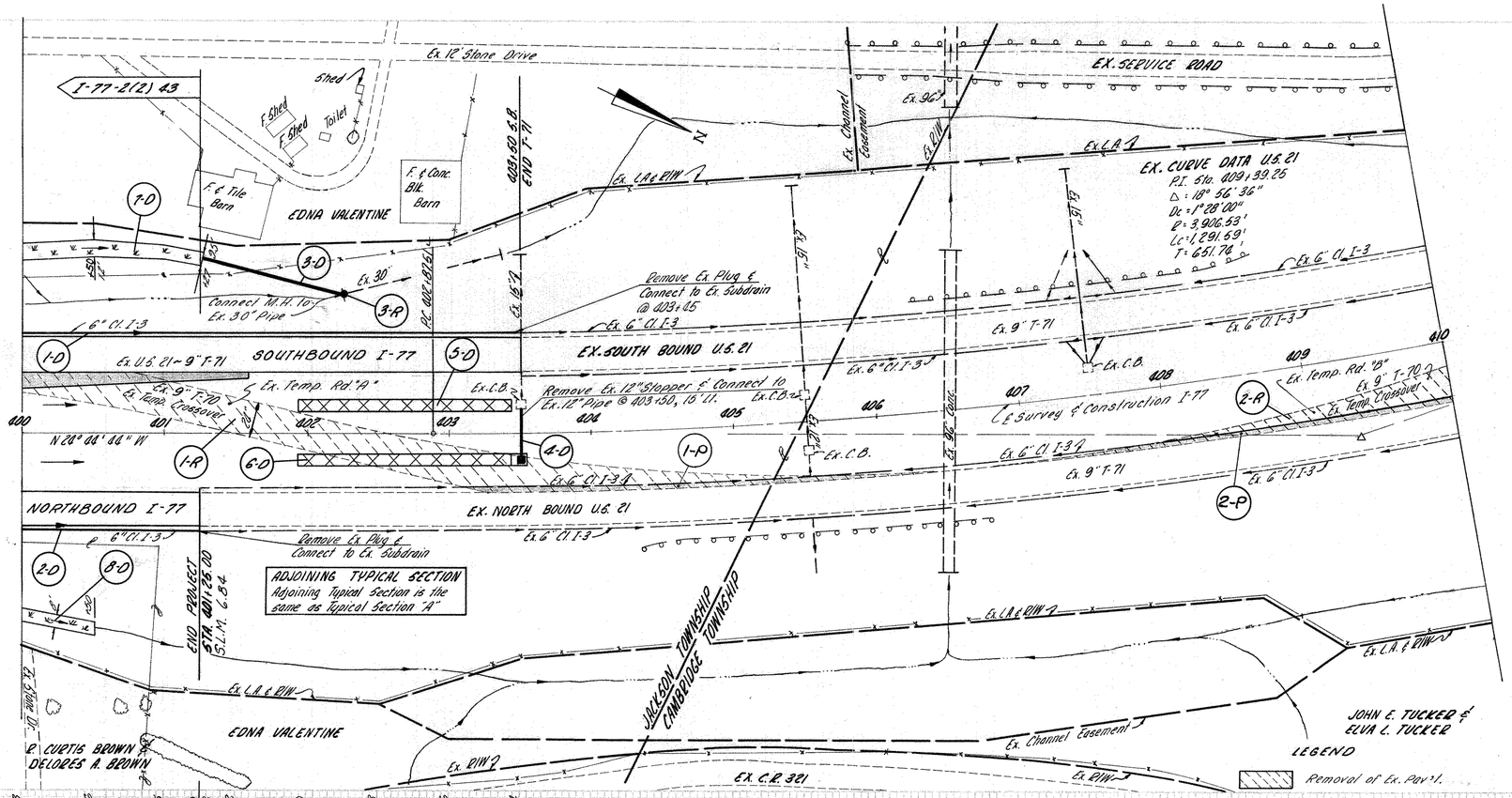
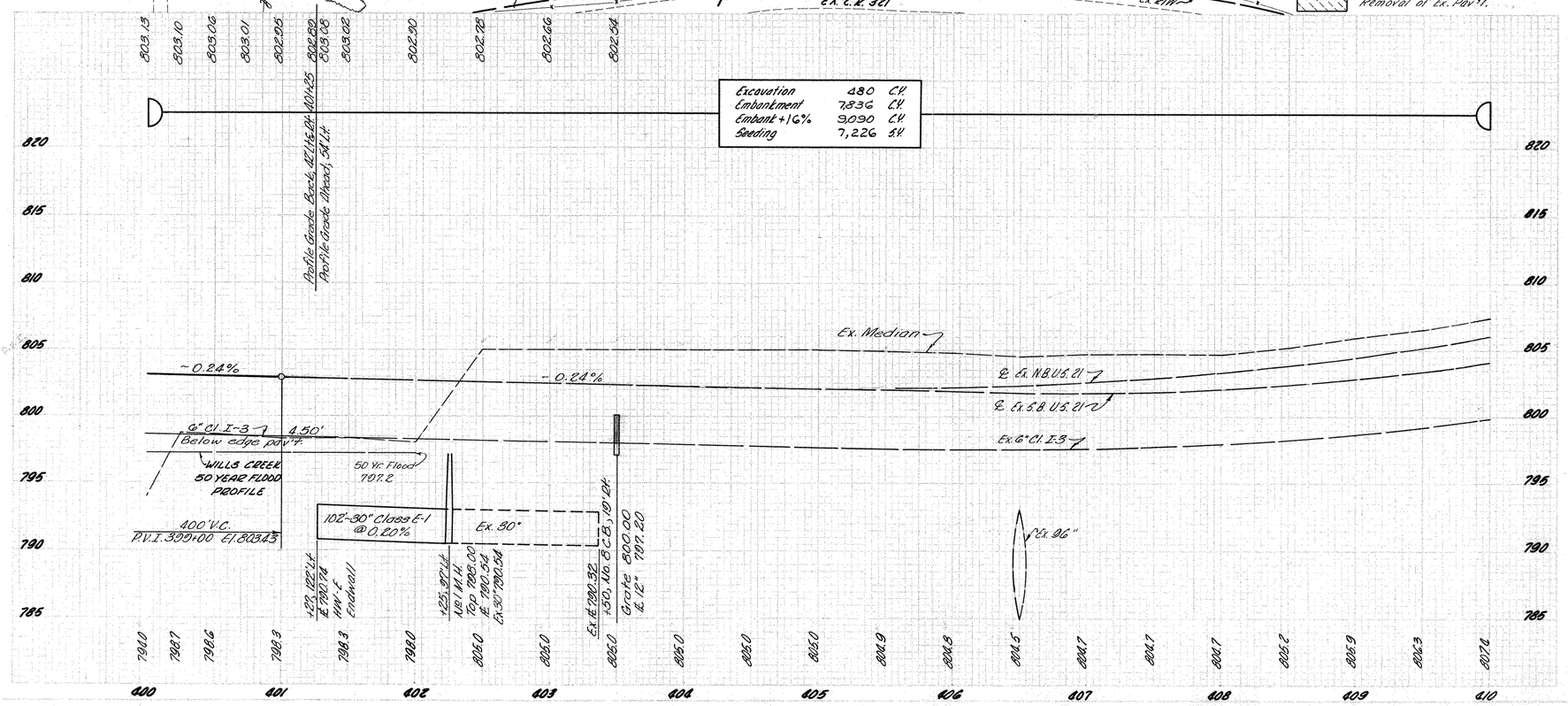




	T-31	8-21	8-19	T-22
	B.H. Reg Mat. Agg	3"	6"	3"
	Gal. C.Y.	C.Y.	C.Y.	C.Y.
	313.0.1	10.4	20.8	10.4
	232.0.1	7.7	15.5	7.7
	545.02	18.1	36.3	18.1

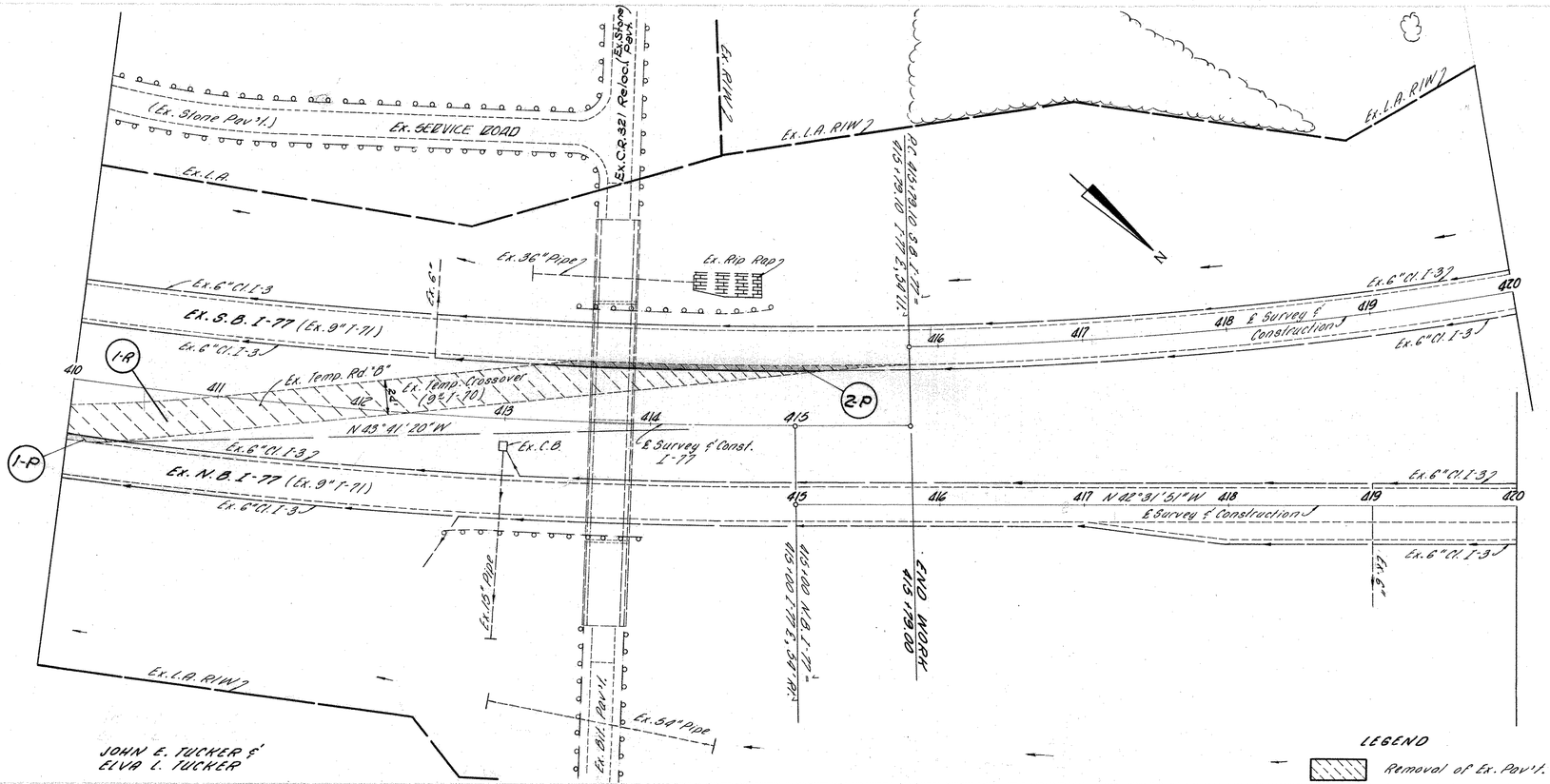
ESTIMATED QUANTITIES

DET. NO.	SIDE	STATION TO STATION	E-8 Pav't. Removal	E-12 over 15"	L-10 Seeding	L-120 Mulching	F-8 Catch Basin No. 8	F-2 Masonry	F-8 Manhole No. 1	F-1 Class F-1	F-1 Class F-1 *	F-1 Class F-3
		UNITS	S.Y.	L.F.	S.Y.	S.Y.	Ea.	C.Y.	Ea.	12" L.F.	30" L.F.	6" L.F.
1-D		400+00 to 403+25	1L.									325
2-D		400+00 to 401+25										
3-D	RT.	401+21.72 to 402+33.72										
4-D	LT.	402+33.72 to 403+50										
5-D		403+50 to 403+85					1					
6-D	LT.	401+85 to 403+85				125						
1-R	RT.	401+00 to 403+85				125						
2-R	LT.	400+00 to 401+27			193							
3-R	RT.	400+00 to 400+50			45							
1-P		Ex. Temp. Crossover						0.50	1	34	102	
2-P		Ex. Temp. Crossover										125
3-P		403+25	1L.									
1-D												
2-D												
TOTALS		400+00 to 410+00	1239	2	198	250	1	0.50	1	34	102	470

1435
370
2

400+00 to 410+00

GUERNSEY COUNTY GUE-77-4.77

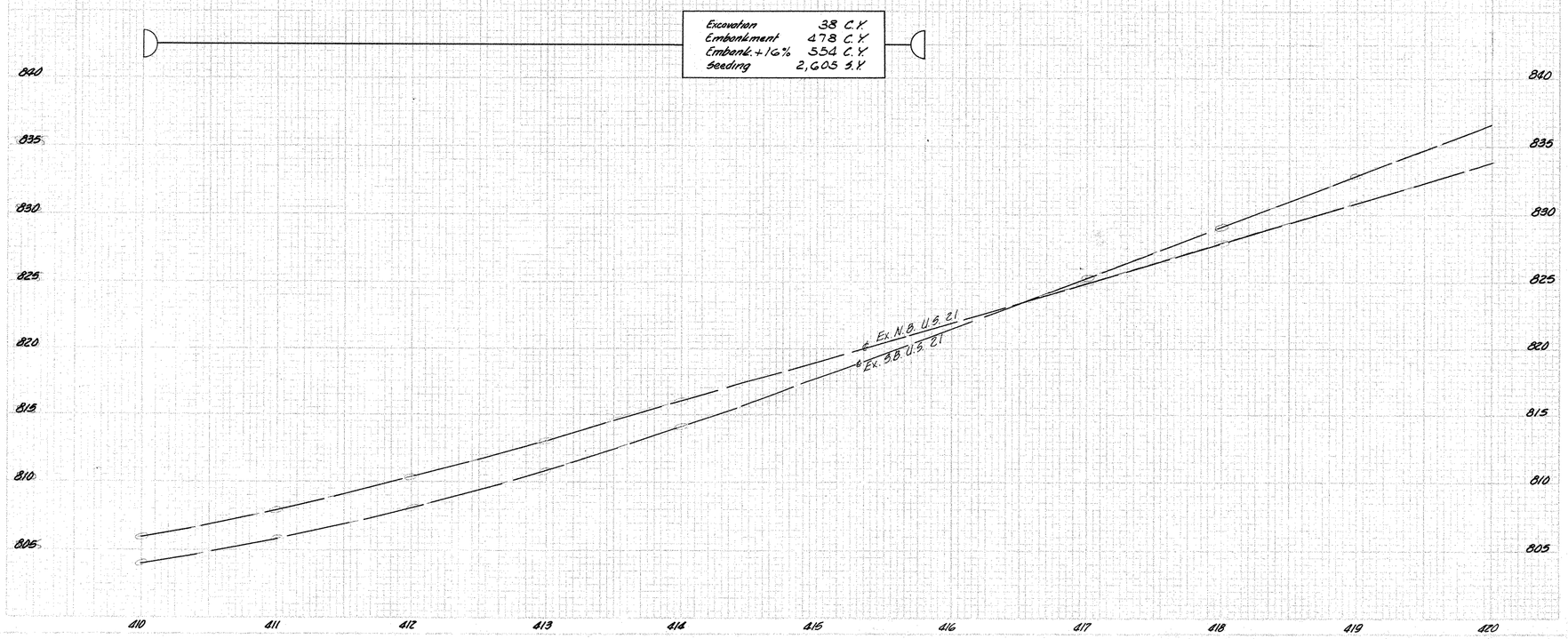


JOHN E. TUCKER &
ELVA L. TUCKER

LEGEND

Removal of Ex. Pav't.

Excavation	38 C.Y.
Embankment	478 C.Y.
Embank. + 16%	554 C.Y.
Seeding	2,605 S.Y.



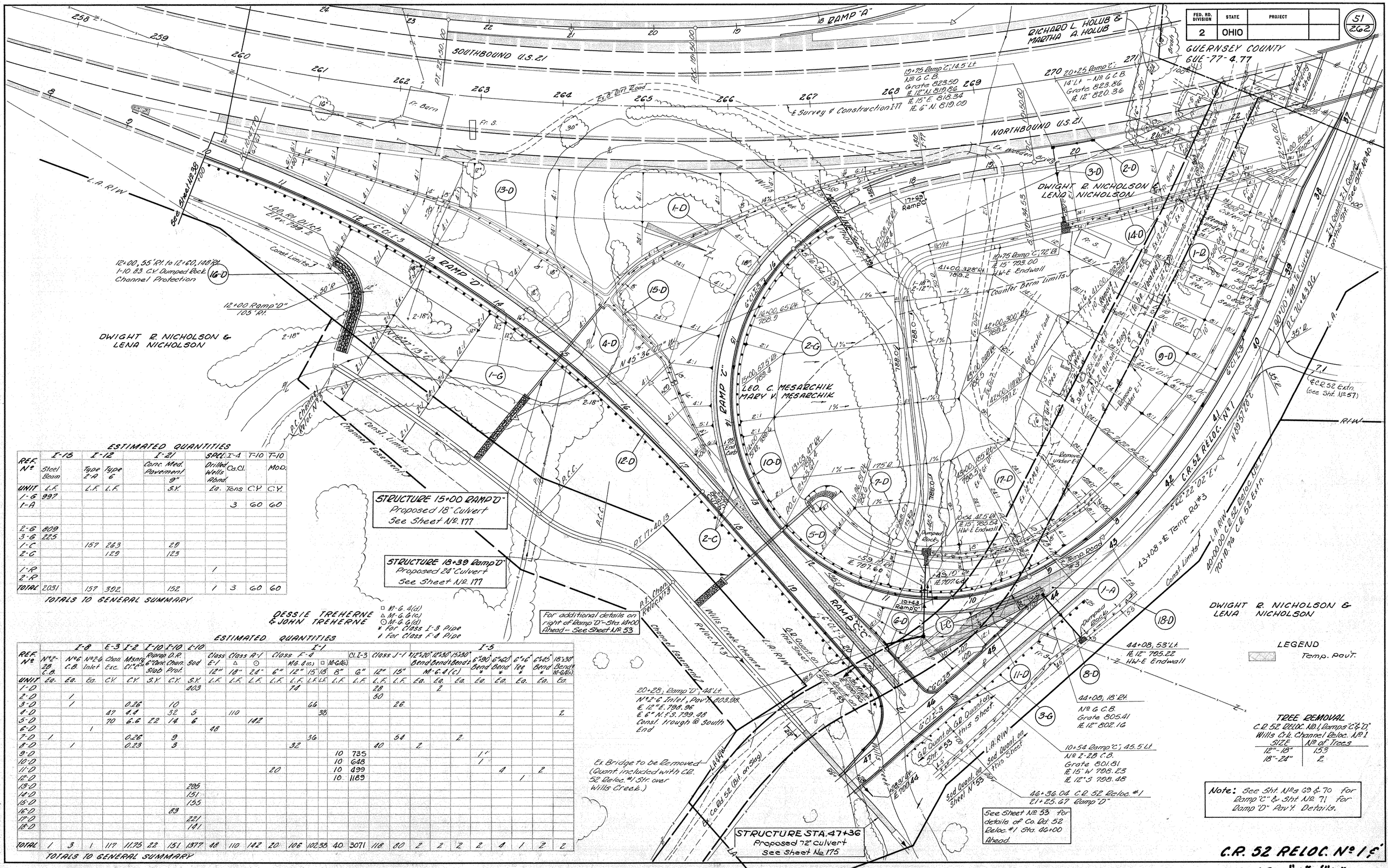
ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	E-8	T-31	B-21	B-19	T-22
			Pav't. Removal S.Y.	B.X. Wing Posts	3" C.Y.	6" C.Y.	3" C.Y.
1-R	UNITS 410+00 to 416+00		Gal. 1947	C.Y.			
1-P			7.0	0.1	2.3	4.6	2.3
2-P			24.3	0.1	8.1	16.2	8.1
TO GENERAL SUMMARY			1947	31.3	0.2	10.4	20.8	10.4

410+00 to 420+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

GUERNSEY COUNTY
GUE-77-4.77



ESTIMATED QUANTITIES

REF. No.	I-15 Steel Beam		I-12 Type 2-A	I-12 Type 6		I-21 Conc. Med. Pavement 9"		SPEC. I-4 Drilled Wells Abnd.	Ca. Cl.	T-10	T-10 MOD.
UNIT	L.F.		L.F.	L.F.		S.Y.		Ea.	Tons	C.Y.	C.Y.
1-G	997										
1-A									3	60	60
2-G	809										
3-G	225										
1-C			157	263		29					
2-C				129		123					
1-R								1			
2-R											
TOTAL	2031		157	392		152		1	3	60	60

TOTALS TO GENERAL SUMMARY

ESTIMATED QUANTITIES

REF. No.	No. 2-2B C.B.	No. 6 C.B.	No. 2-6 Inlet	I-8 Chan. Exc.	I-8 Msnry. Cl. "C"	I-2 Riprap 6" Conc. Slab	I-10 D.R. Chan. Prot.	I-10 Sod	I-10 Class E-1 12"	Class A-1 △ 18"	Class A-1 ⊙ 24"	Class F-4 6"	Class F-4 12"	Class F-4 15"	Class F-4 18"	I-1 M-6.4(c) 8"	I-1 M-6.4(c) 6"	Cl. I-3	Class J-1 12"	Class J-1 15"	I-5 12"×20° Bend M-6.4(c)	I-5 12"×30° Bend M-6.4(c)	I-5 15"×30° Bend M-6.4(c)	I-5 6"×90° Bend *	I-5 6"×45° Bend *	I-5 6"×6" Tee *	I-5 6"×45° Bend *	I-5 18"×30° Bend M-6.4(c)
UNIT	Ea.	Ea.	Ea.	C.Y.	C.Y.	S.Y.	C.Y.	S.Y.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.
1-D								403					74						28			2						
2-D		1																	50									
3-D		1			0.26		10							66						26								
4-D				17	4.4		32	5		110					38													2
5-D				70	6.6	22	14	6			142																	
6-D			1						48																			
7-D	1				0.26		9							36						54			2					
8-D		1			0.23		3						32						40		2							
9-D																10	735							1				
10-D																10	648							1				
11-D												20				10	499								4		2	
12-D																10	1189									1		
13-D								205																				
14-D								151																				
15-D								155																				
16-D							83																					
17-D								221																				
18-D								141																				
TOTAL	1	3	1	117	11.75	22	151	1377	48	110	142	20	106	102.33	38	40	3071	118	80	2	2	2	2	4	1	2	2	

TOTALS TO GENERAL SUMMARY

□ M-6.4(c)
△ M-6.6(c)
⊙ M-6.6(c)
* For Class I-3 Pipe
+ For Class F-4 Pipe

TREE REMOVAL

C.R. 52 Reloc. No. 1, Ramps "C" & "D"
Wills Crk. Channel Reloc. No. 1

SIZE	No. of Trees
12"-18"	13.5
18"-24"	2

Note: See Sht. Nos. 69 & 70 for Ramp "C" & Sht. No. 71 for Ramp "D" Pav't. Details.

C.R. 52 RELOC. No. 1 & RAMPS "C" & "D"

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

52
262

GUERNSEY COUNTY
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SEWER & WATER LINE REMOVAL LIMITS

8" Sewer ~ 274+55, 345' Lt. I-77 to 73+33, 105' Lt. Wills Ck. Channel Reloc. № 1 under E-3 & 71+88, 80' Lt. to 72+65, 5' Lt. Wills ck. Channel Reloc. № 1 under E-3.
6" Water ~ 274+45, 345' Lt. I-77 to 73+10, 80' Lt. Wills Ck. Channel Reloc. № 1 under E-3, 71+00, 80' Lt. to 70+80, 80' Rt. Wills Ck. Reloc. № 1 under E-3 & 70+80, 80' Rt. to 71+60 135' Rt. Wills Ck. Reloc. № 1 under E-1.

(See Sht. № 40 for disposition of ex. Water & Sewer lines not shown on this Sheet)

LEGEND

- Bituminous Shoulder
- Removal of Ex. Pav't, Sidewalk & Curb & Gutter
- Temp. Pav't.
- Temp. Pav't to remain in place.
- (1-W) Remove Existing Fire Hydrant and relocate at 73+45, 140' Lt. Wills Creek Channel Reloc. № 1
- (2-W) Relocate Fire Hydrant from 272+10, 15' Rt. I-77 to 71+18, 115' Lt. Wills Creek Channel Reloc. № 1 (See Sheet 40 for Existing Location)

Temp Rd. № 1 Curve Data
P.I. = 130+18.50
Δ = 32°56'42"
D = 28°00'
R = 204.63'
L = 117.66'
T = 60.51'
E = 8.76'
S = Reversed Crown

ESTIMATED QUANTITIES

REF. №	I-15 Steel Beam Removed & Rebuilt	I-15 Removed & Rebuilt	I-8 № 2-G Inlet	I-8 (Y-060) № 1 M.H.	L-10 8" Drop Inlet to Ex. Sewer Manhole	L-10 Spec. Berm & Slope Protection	I-10 Dumped Rock Chan. Prot.	I-2 Masonry Class "C"	I-1 Class "C" 12"	I-1 Class B-1 Bituminous Mixture Y-060 8"
UNITS	L.F.	L.F.	Ea.	Ea.	Ea.	S.Y.	C.Y.	C.Y.	L.F.	L.F.
1-D*			1				26	0.23	16	
2-D*							19			
3-D				2	1					21d
4-D							23			
5-D*						22				
6-D*						7				
1-G*	69.12									
2-G*	69.13									
3-G*		125								
4-G		362.5								
5-G	25									
6-G	25									
1-C*										
1-S*										
1-R*										
2-R*										
3-R*										
4-R*										
5-R										
6-R										
7-R										
1-A										
TOTAL	188	487.5	1	2	1	29	68	0.23	16	21d

REF. №	I-12 Type 2-A	I-13 d Conc. Sidewalk	I-16 Catch Basins Abandoned	T-70 9"	E-8 Pave. Removal	E-8 Sidewalk Removal	E-8 Curb & Gutter Removal	E-12 Over 15"	SPEC. Drilled Wells Abend.
UNITS	L.F.	S.F.	Ea.	S.Y.	S.Y.	S.F.	L.F.	L.F.	Ea.
1-D*									
2-D*									
3-D									
4-D									
5-D*									
6-D*									
1-G*									
2-G*									
3-G*									
4-G									
5-G									
6-G									
1-C*	141								
1-S*		45							
1-R*							172		
2-R*					501				
3-R*			1						
4-R*						72			
5-R								11d	
6-R									2
7-R					107d				
1-A				107d					
TOTAL	141	45	1	107d	1580	72	172	11d	2

Totals carried to General Summary
* Quantities from Sheet No. 66

I-124 WATER LINES

REF.	6" CI. M.J. Pipe A30 Class-32 Water Main 6"-90° M.J. Fit. Bend	6" Solid Sleeve	6" Gate Valve and Box	Fire Hydrants Removed & Reset
	L.F.	Ea.	Ea.	Ea.
1-W	5	1	1	1
2-W	5	1	1	1
Total	10	2	2	2

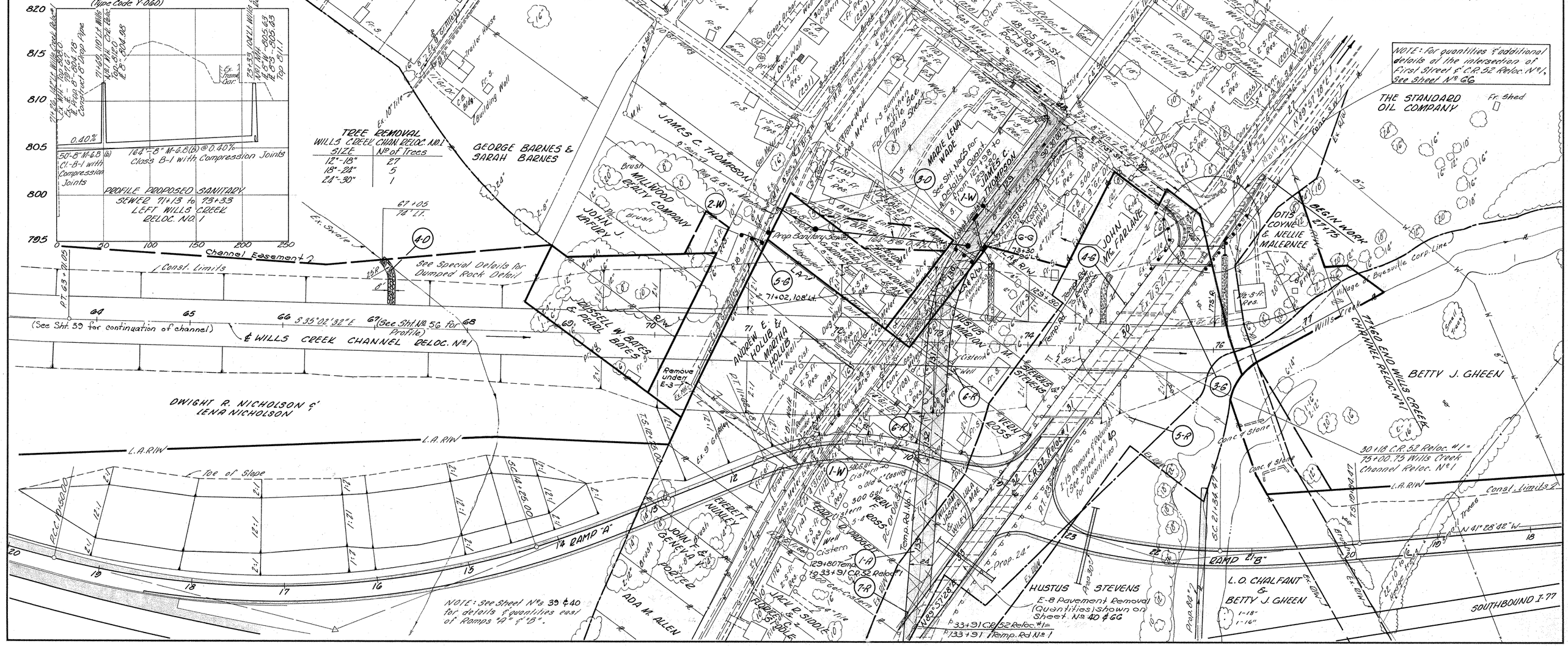
Totals carried to General Summary (Type Code Y-060)

TREE REMOVAL
WILLS CREEK CHAN. RELOC. NO. 1

SIZE	№ of Trees
12"-18"	27
18"-24"	5
24"-30"	1

NOTE: for quantities & additional details at the intersection of First Street & C.R. 52 Reloc. № 1, See Sheet № 66

NOTE: See Sheet № 39 & 40 for details & quantities east of Ramps "A" & "B".

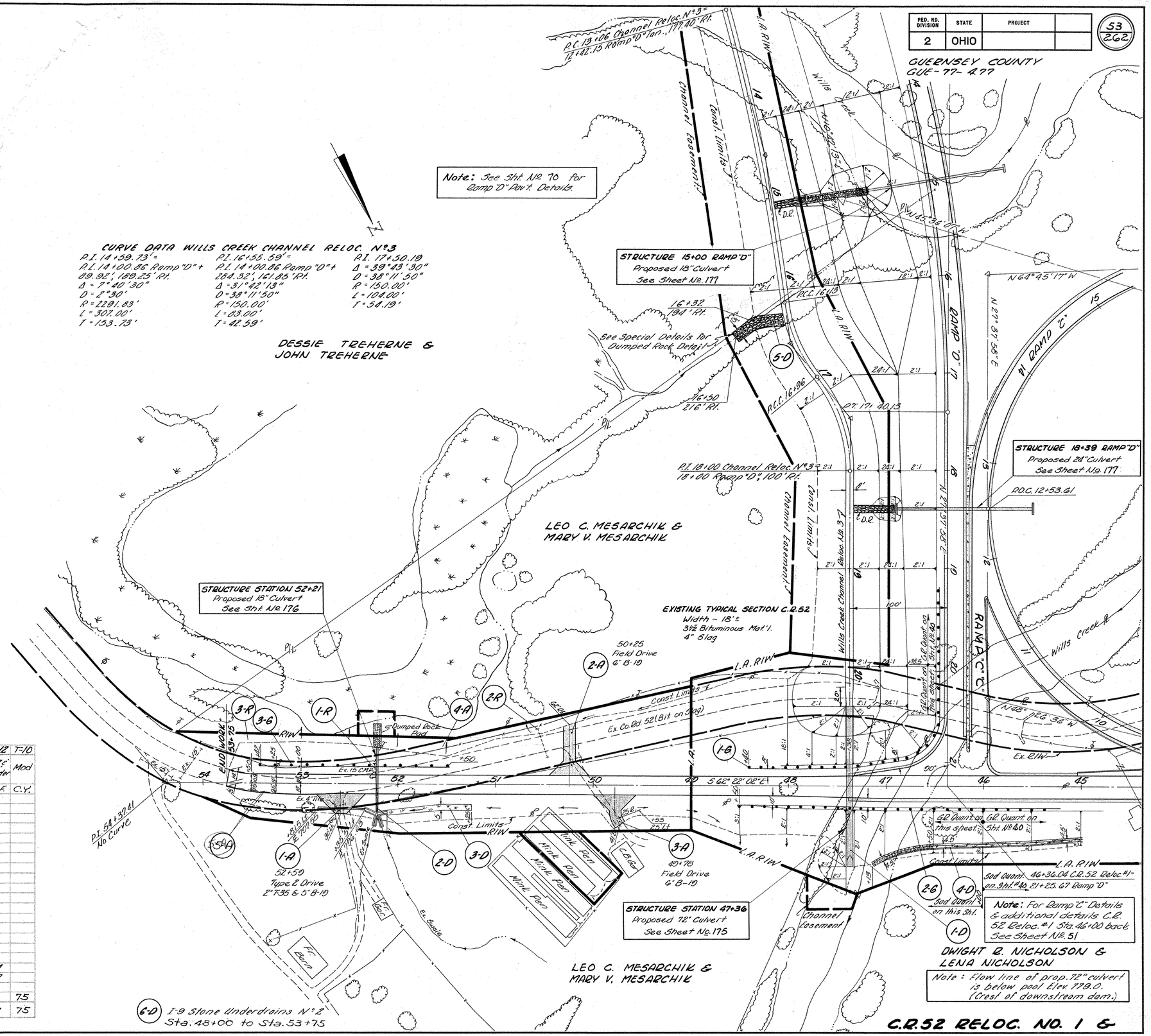


WILLS CREEK CHANNEL RELOCATION № 1

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

53
262

GUERNSEY COUNTY
GUE-77-4.77



CURVE DATA WILLS CREEK CHANNEL RELOC. N°3

P.I. 14+59.73' =	P.I. 16+55.59' =	P.I. 17+50.19
P.I. 14+00.86 Ramp "D" +	P.I. 14+00.86 Ramp "D" +	Δ = 39°43'30"
89.92', 189.25' Rt.	284.32', 161.85' Rt.	D = 38°11'50"
Δ = 7°40'30"	Δ = 31°42'13"	R = 150.00'
D = 2°30'	D = 38°11'50"	L = 104.00'
R = 2291.83'	R = 150.00'	T = 54.19'
L = 307.00'	L = 83.00	
T = 153.73'	T = 42.59'	

ESTIMATED QUANTITIES

* M-6.4(g) 10-10 Gage or M-6.6(d)

REF. Nº	I-15 Steel Beam	I-15 3 wire cable	E-2 Office of C.L.&D. Sheeting	I-2 Masn. Cl. "C"	I-10 D.R. Chan. Prot.	I-14 Type I Paved Gutter	L-10 Sod	I-9 S.U. Nº2		I-1 Class A-1 18"	I-1 * 72"	I-1 Cl. F-4 M 6.4(c) 12"	I-4 Ca Cl.	B-19 5" f'c 6"	I-35 2" Type "E"	T-10	E-3 Chan. Exc.	E-12 15" f'c under	T-10 Mod
UNIT	L.F.	L.F.	Lump	C.Y.	C.Y.	L.F.	S.Y.	L.F.		L.F.	L.F.	L.F.	Tons	C.Y.	C.Y.	C.Y.	C.Y.	L.F.	C.Y.
1-D			Lump								164						74		
2-D				0.60	18.5	52	12			66									
3-D							43												
4-D					16		25												
5-D					24														
6-D								250											
1-G	75																		
2-G	250																		
3-G		192																	
1-A												46		10	4				
2-A														16					
3-A														11					
4-A																			
1-R																		34	
2-R																		32	
3-R																			
													3			75			75
TOTAL	325	192	Lump	0.60	59	52	80	250		66	164	46	3	37	4	75	74	66	75

TOTALS to GENERAL SUMMARY

C.R. 52 RELOC. NO. 1 &
WILLS CREEK CHANNEL RELOC. NO. 3

GUERNSEY COUNTY
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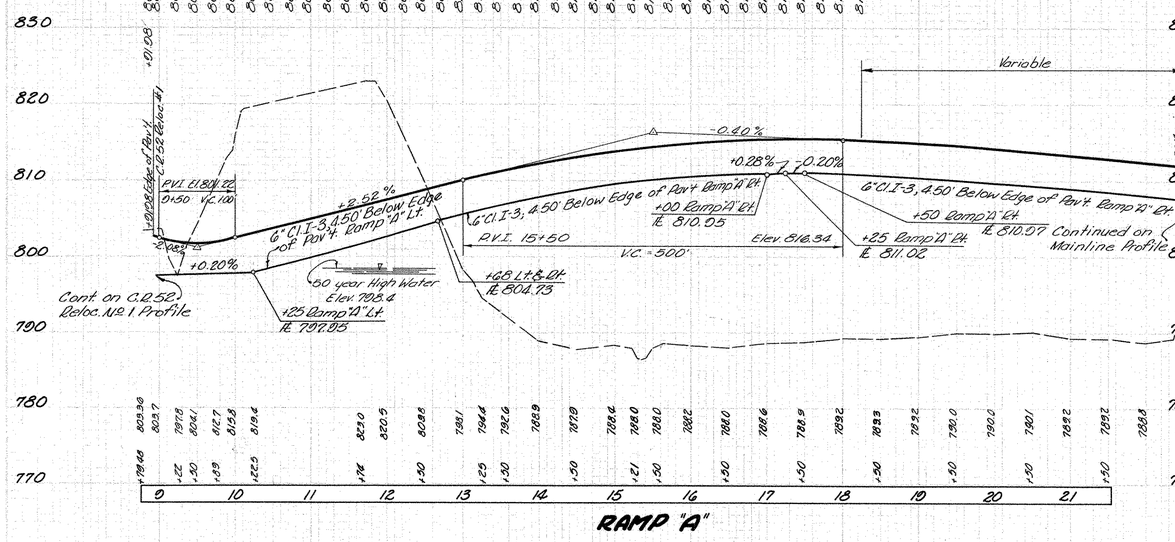
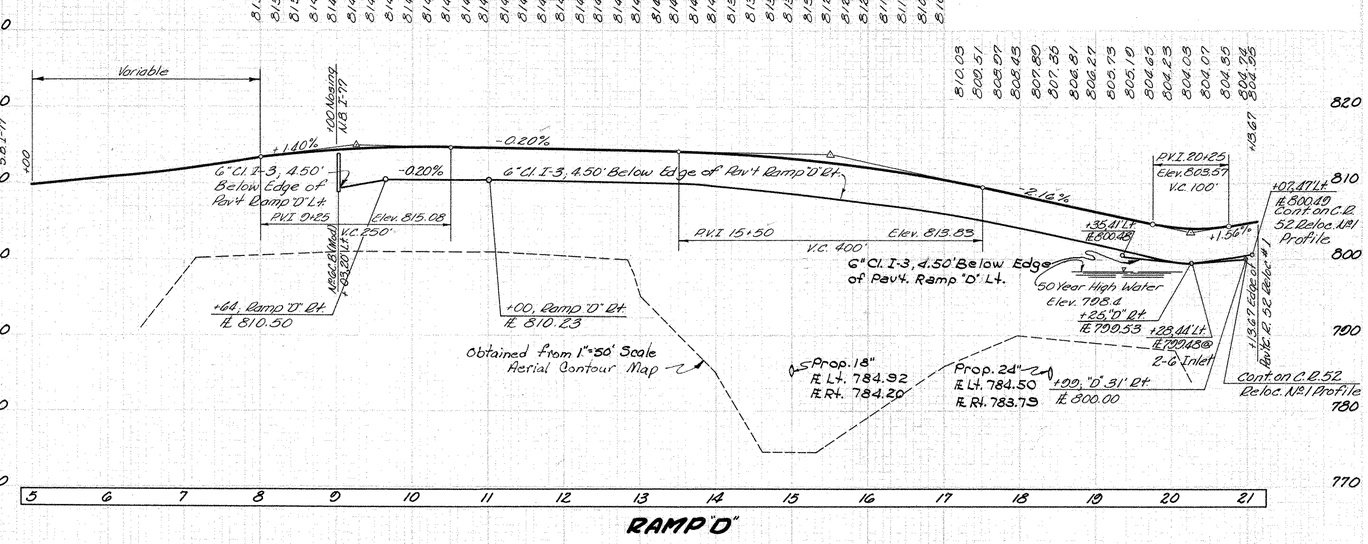
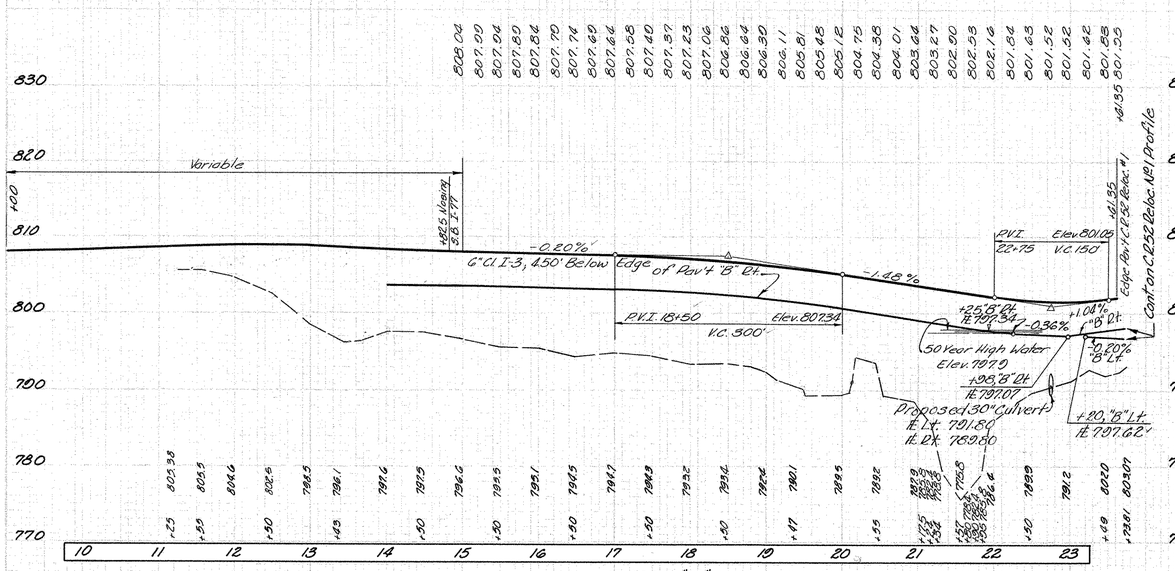
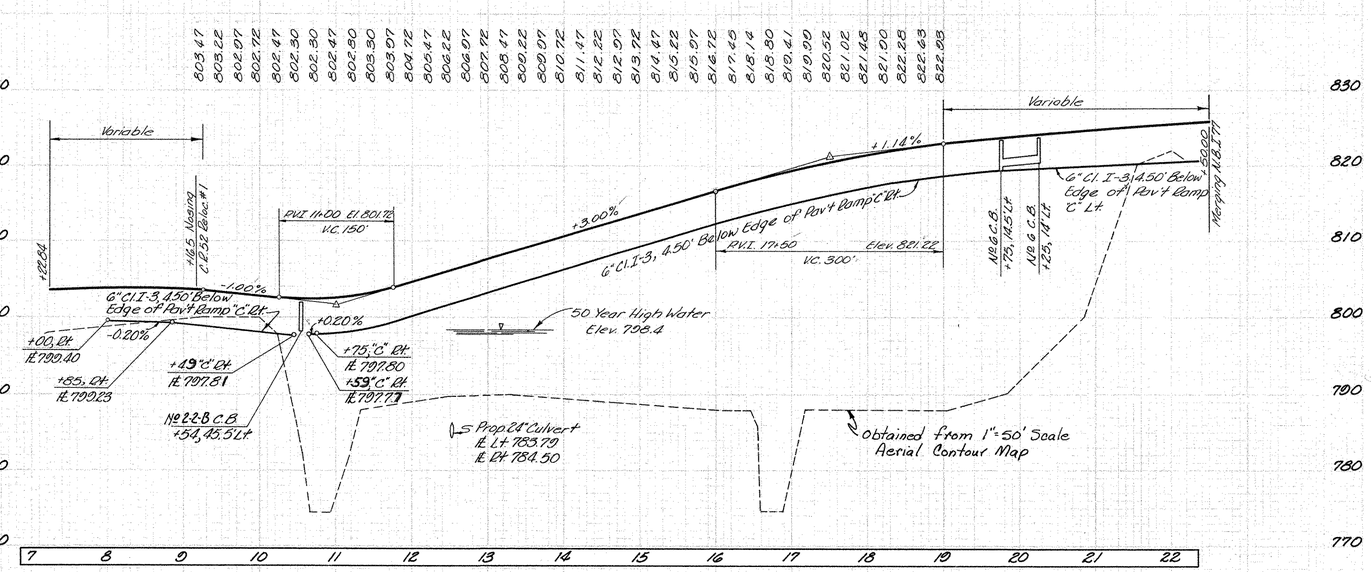


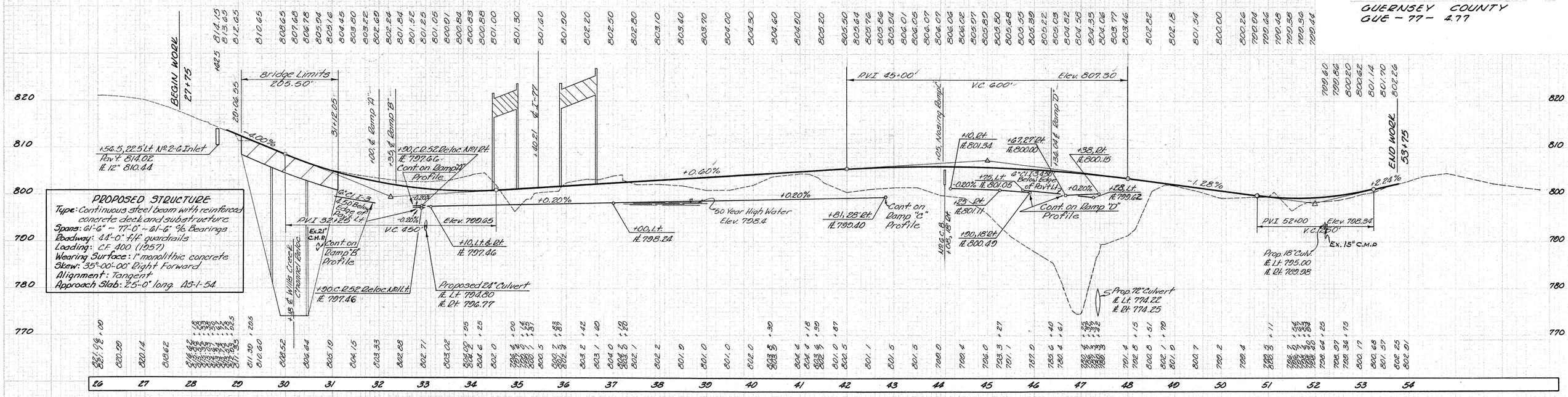




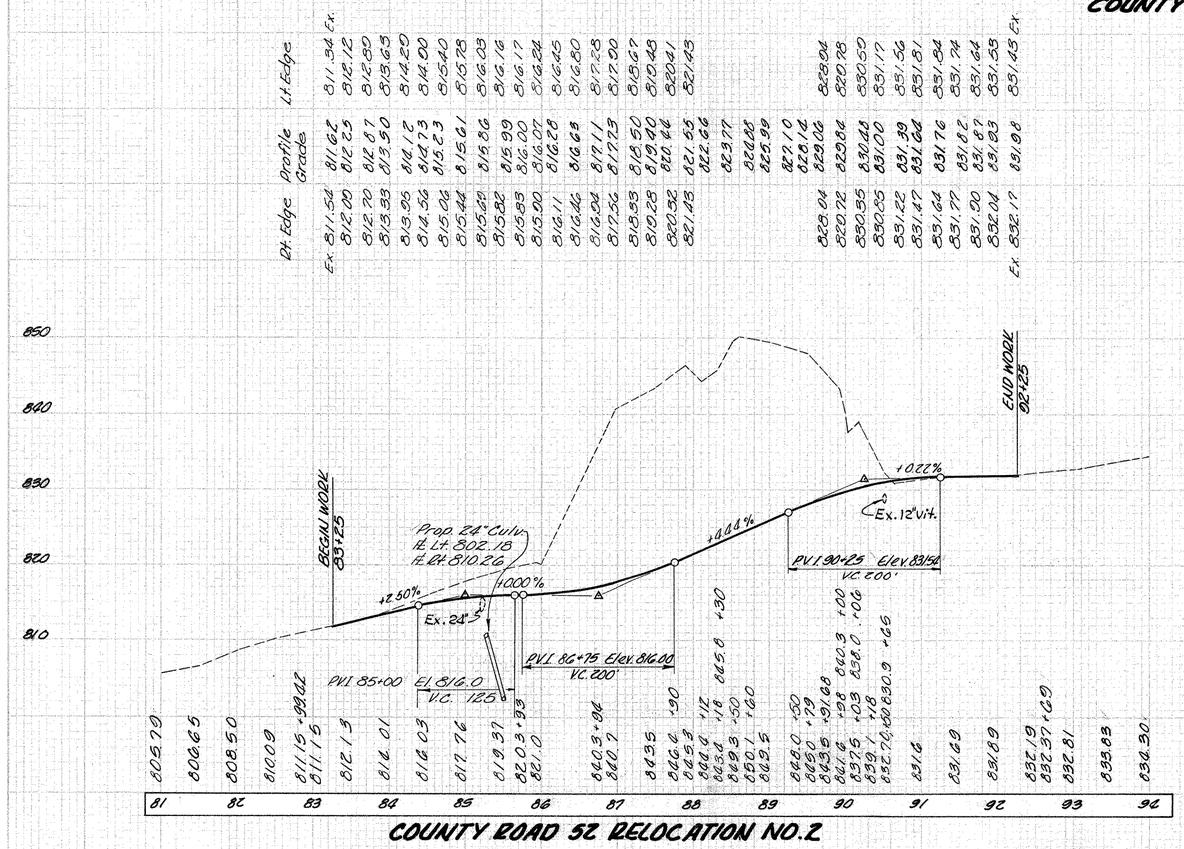


RAMPS A, B, C & D

GUERNSEY COUNTY
GUE – 77 – 4.77



COUNTY ROAD 52 RELOCATION NO. 1



COUNTY ROAD 52 RELOCATION NO. 2

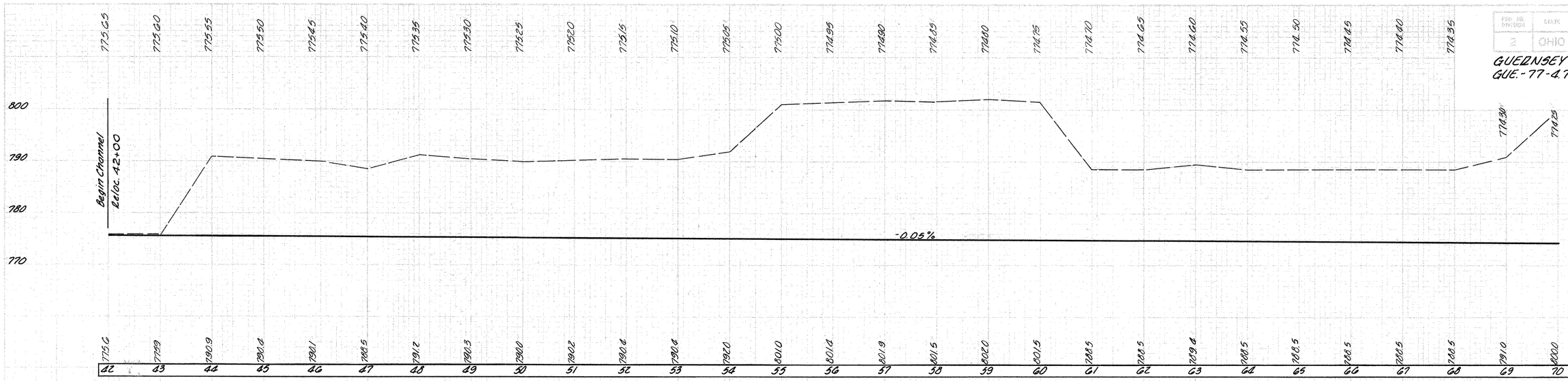
See Sheet No. 2G2A for revisions
3-30-66

C.R. 52 RELOC. NO. 1 & 2

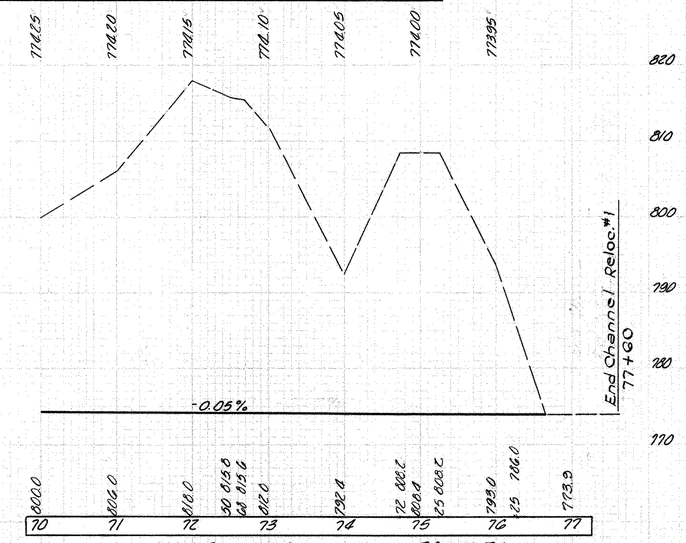
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

56
262

GUERNSEY COUNTY
GUE.-77-4.77

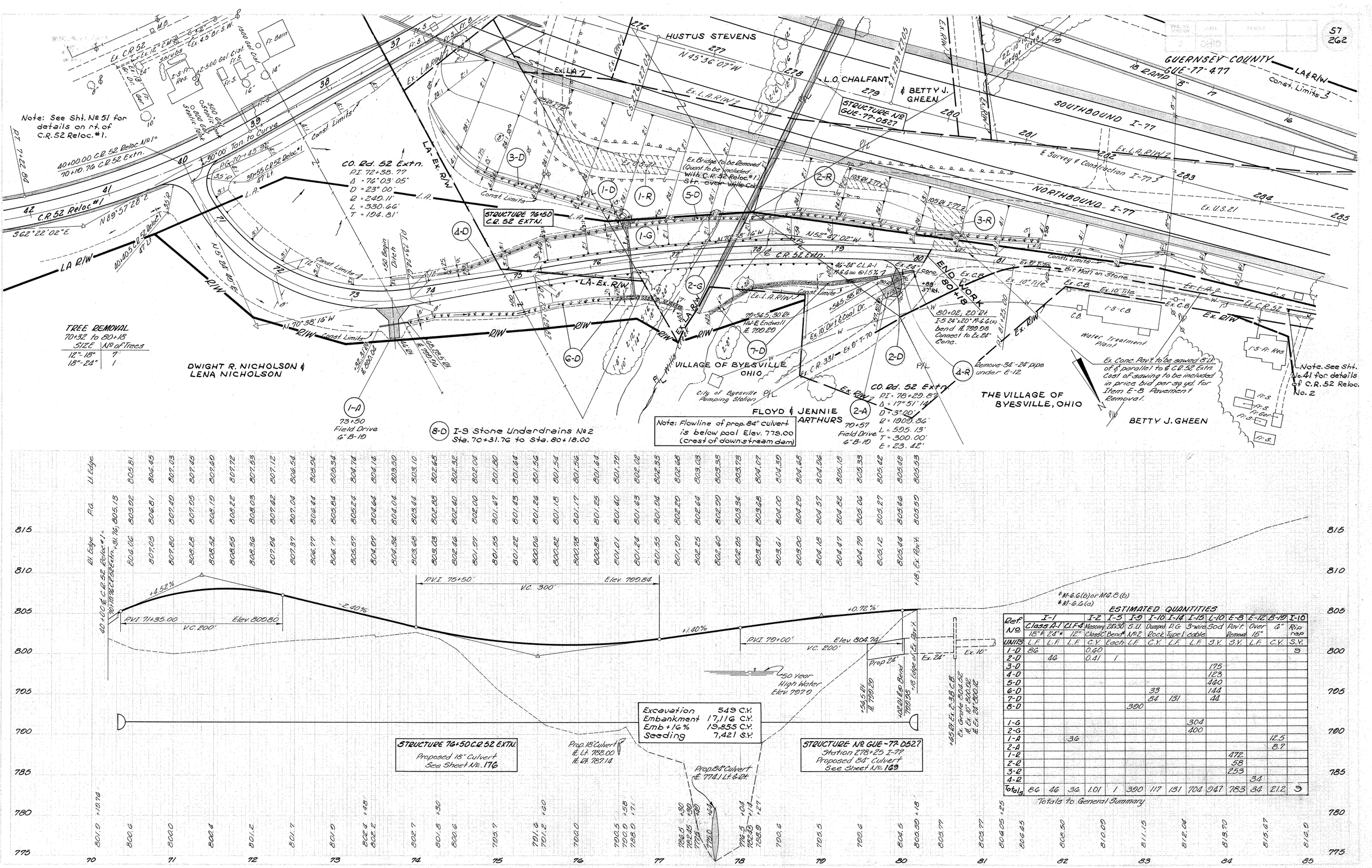


WILLS CREEK CHANNEL RELOC. Nº 1



WILLS CREEK CHANNEL RELOC. Nº 1

WILLS CREEK CHANNEL RELOC. Nº 1 PROFILE



ESTIMATED QUANTITIES

Ref. No.	I-1 Class A-1 18" ±	I-1 Class A-1 24" *	I-1 Cl. F-4 12"	I-2 Masonry Class "C"	I-5 24"x36" Bend*	I-9 S.U. No 2	I-10 Dumped Rock	I-14 P.G. Type 1	I-15 3-wire cable	L-10 Sod	E-8 Pav't. Removal	E-12 Over 15"	B-19 6"	I-10 Rip rap
UNITS	L.F.	L.F.	L.F.	C.Y.	Each	L.F.	C.Y.	L.F.	L.F.	S.Y.	S.Y.	L.F.	C.Y.	S.Y.
1-D	86			0.60										9
2-D		46		0.41	1									
3-D										175				
4-D										123				
5-D										460				
6-D							33			144				
7-D							84	131		44				
8-D						390								
1-G									304					
2-G									400					
1-A			36										12.5	
2-A													8.7	
1-R											472			
2-R											58			
3-R											253			
4-R												34		
Totals	86	46	36	1.01	1	390	117	131	704	947	783	34	21.2	9

Totals to General Summary

CO. RD. 52 EXTENSION

MICROFILMED
MAR 13 1997

GUERNSEY COUNTY
GUE-77-4.77

MARY A. MINARCHEK &
JOHN A. MINARCHEK JR.

C.R. 102 RELOCATION CURVE DATA
P.I. 41+76.83
Δ = 2°25'03"
D = 1°00'00"
R = 5729.58'
L = 241.75'
T = 120.89'
E = 1.28'

Note: See Sheet No. 64 for details of Service Road "A".

C.R. 102 RELOCATION CURVE DATA
P.I. 54+26.04
Δ = 46°00'32"
D = 4°00'00"
R = 1432.38'
L = 1150.22'
T = 608.15'
E = 123.75'

TREE REMOVAL
40+03 to 52+00

SIZE	No. of Trees
	0

STRUCTURE 4+74
SERVICE ROAD "A"
Prop. 18" Culvert
See Sheet No. 179

BEGIN WORK
40+03

WILLS CREEK

Ex. 12" V.S.P. (Abandon)

Field Drive
6"-B-19
34.2 C.Y.

+35 C.R. 102
145' Rt.

STRUCTURE RIGHT OF C.R. 102
STA. 43+35
16'-0" x 12'-0" Rein. Conc. Box Culv.
See Sheet Nos. 180-184.

STRUCTURE No. GUE-77-0599
STA. 354+53
Prop. 18" Culvert
See Sheet No. 171

Note: See Sheet No. 44 for I-77 details.

NOTE:
Special Steel Guard Rail posts as detailed on Sht. No. 182 to be used on box culvert. G.R. quantities Sta. 0+71.25 to 1+08.75 of Field Drive are carried with Box Culvert.

(1-D) I-S Stone Underdrains
No. 2 Sta. 40+32.60 to Sta. 48+30.11 & Sta. 51+65.16 to Sta. 52+00

MARY A. MINARCHEK &
JOHN A. MINARCHEK

LEGEND
Removal of Ex. Pav't.

ESTIMATED QUANTITIES

* MG.6 (c) or MG.4 (d)

REF. No.	I-1 C.I.A-1 36" *	I-10 Dumped Rock	I-15 3 Wire Cable	L-10 Sod	E-8 Pav't. Rem.	I-9 No. 2 S.U.	B-19 6"	L-10 Spec. Berm & Slope	I-2 Masonry	
UNIT	L.F.	C.Y.	L.F.	S.Y.	S.Y.	L.F.	C.Y.	S.Y.	C.Y.	
1-A							34.2			
1-D						360				
2-D								69		
3-D	134								10.8	
4-D				48				67		
5-D				50						
1-G			437							
2-G			343							
3-G			641							
4-G			280							
5-G			46							
6-G			46							
1-R					435					
6-D		6.3								
TOTAL	134	6.3	1693	98	435	360	34.2	136	10.8	

Totals to General Summary

PROPOSED STRUCTURE NO. GUE-77-0599

TYPE - Continuous steel beam with reinforced concrete deck and substructure
SPANS - 57'-9"-82'-6"-82'-6"-57'-9" ℄ brgs. along ℄ C.R. 102
ROADWAY - 25'-0" f/f 2'-0" safety curbs with concrete parapets and aluminum railings
LOADING - C.F. 130 (1957)
WEARING SURFACE - 1" monolithic concrete
SKEW - 6°48'33" left forward from reference chord
ALIGNMENT - 4°00' curve right
APPROACH SLABS - 25'-0" long
SUPERELEVATION - 0.066 ft/ft

PROPOSED STRUCTURE ~ Rt. of C.R. 102 Sta. 43+35
TYPE ~ Reinforced Concrete Box Culvert
SIZE ~ 16'-0" x 12'-0"
ALIGNMENT ~ Tangent
SKEW ~ None
LOADING ~ CF-130

Excavation	1,219	C.Y.
Embankment	57,112	C.Y.
Embank + 16%	66,250	C.Y.
Seeding	18,300	S.Y.

STRUCTURE 51+24
C.R. 102 Relocation
Proposed 36" Culvert
See Sheet No. 178

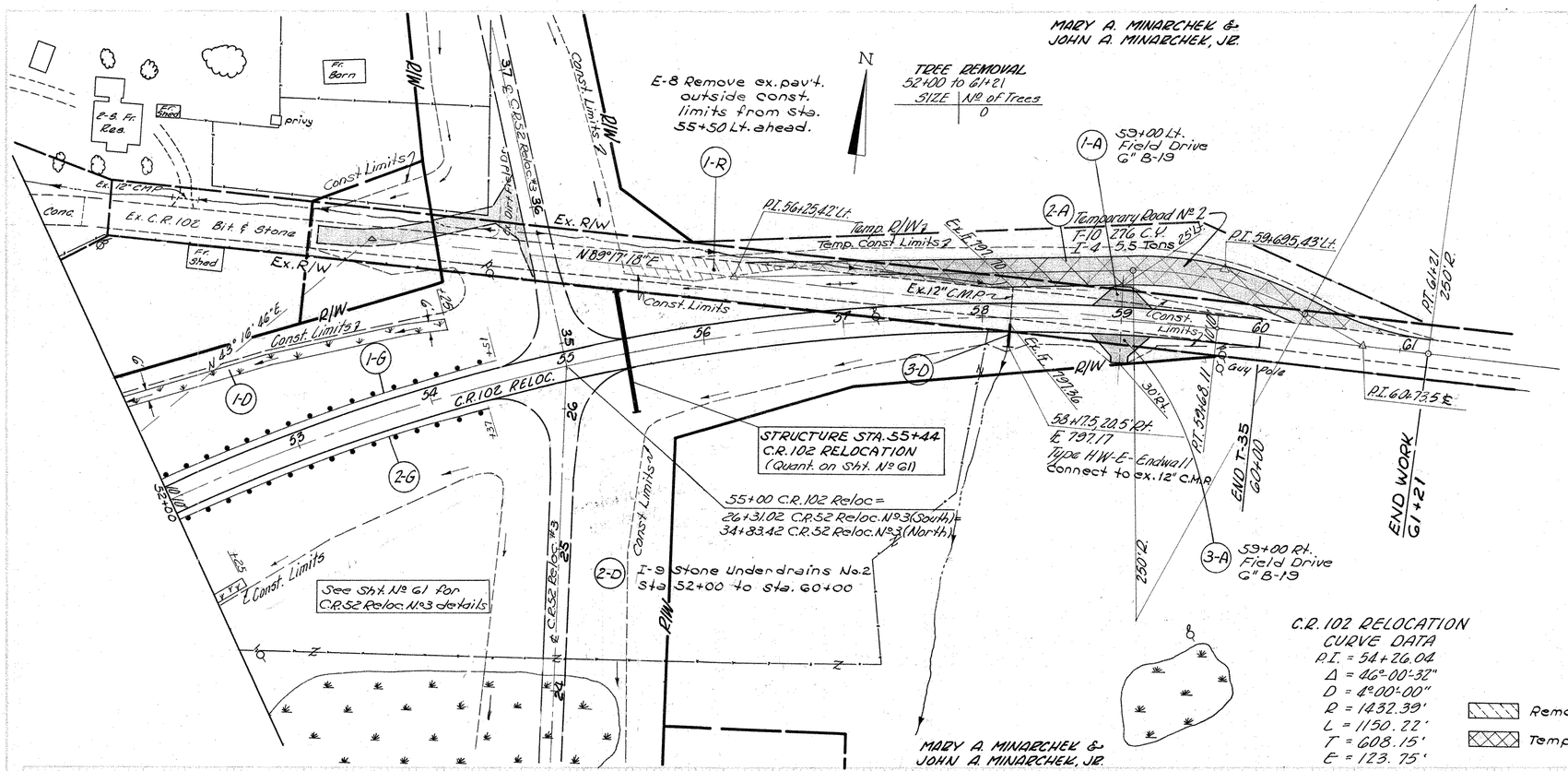
Prop. 36"
℄ Lt. 787.93
℄ Rt. 787.66

Ex. 12" Tile

P.V.I. 42+75
Elev. 700.82
300' V.C.
+0.28%
+4.00%
-4.00%
P.V.I. 50+00.00
650' V.C.
Elev. 828.82
Bridge Limits = 285.05'
48+55.11
51+40.16

C.R. 102 REL'C'N

GUERNSEY COUNTY
GUE-77-4.77



C.R. 102 RELOCATION
CURVE DATA
P.I. = 54+26.04
Δ = 46°-00'-32"
D = 4°00'-00"
R = 1432.39'
L = 1150.22'
T = 608.15'
E = 123.75'

LEGEND

Removal of Existing Pav't.

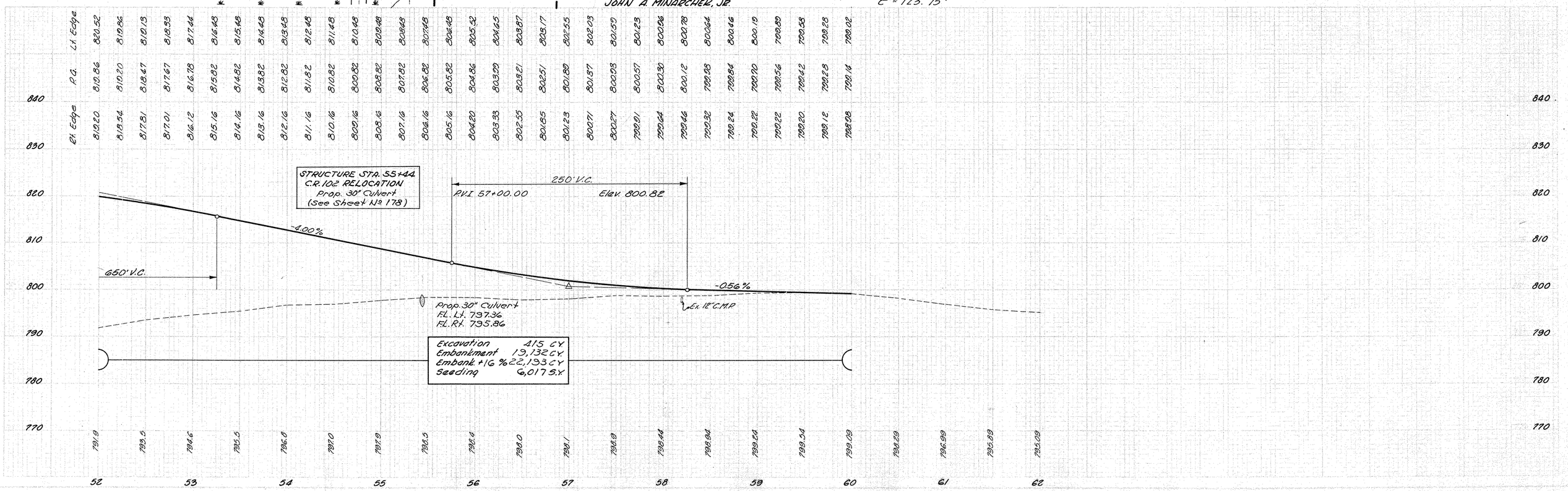
Temporary Pavement

ESTIMATED QUANTITIES

*M-6.4(d) #modified, as per plan

REF. No	I-1	I-2	I-15	L-10	I-9	B-19		T-10	I-4	E-8	T-10
	C.I.A-1 12"*	Masonry	3-Wire Cable	Sod	No. 2 S.U.	6"		Traffic Comp. Surchge.	Calcium Chlor.	Rem. of Ex. Pav't.	Traffic Comp. Surchge.
UNITS	L.F.	C.Y.	L.F.	S.Y.	L.F.	C.Y.		C.Y.	Tons	S.Y.	C.Y.
1-D				157							
2-D					360						
3-D	16	.23									
1-A						7.5					
2-A								138	5.5		138#
1-G			251								
2-G			237							167	
1-R											
3-A						10					
TOTAL	16	.23	488	157	360	17.5		138	5.5	167	138#

Totals to General Summary

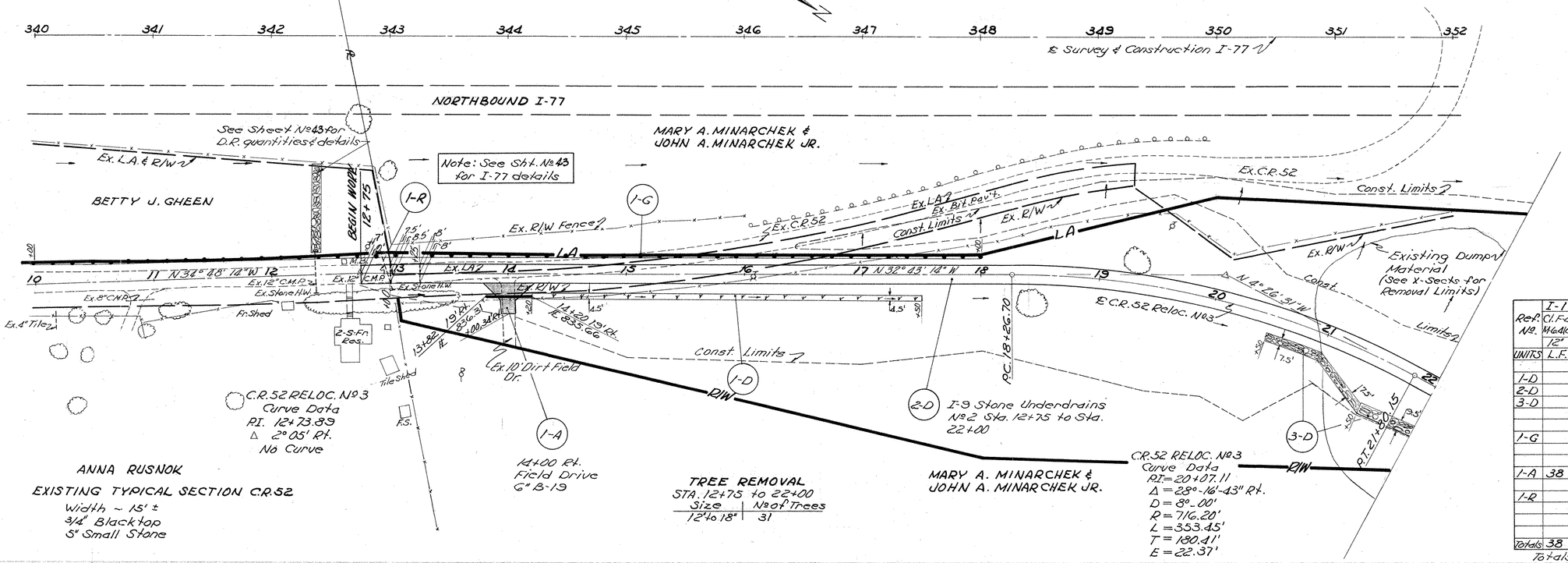


C.R. 102 REL'C'N

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

60
2G2

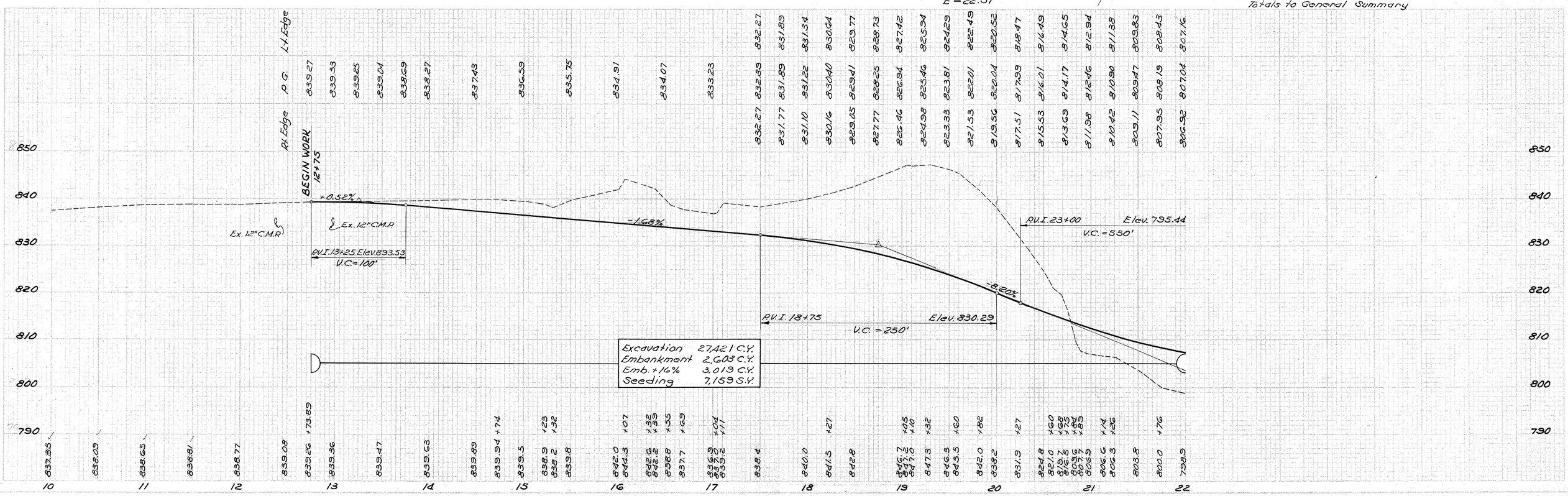
GUERNSEY COUNTY
GUE-77-4.77



ESTIMATED QUANTITIES

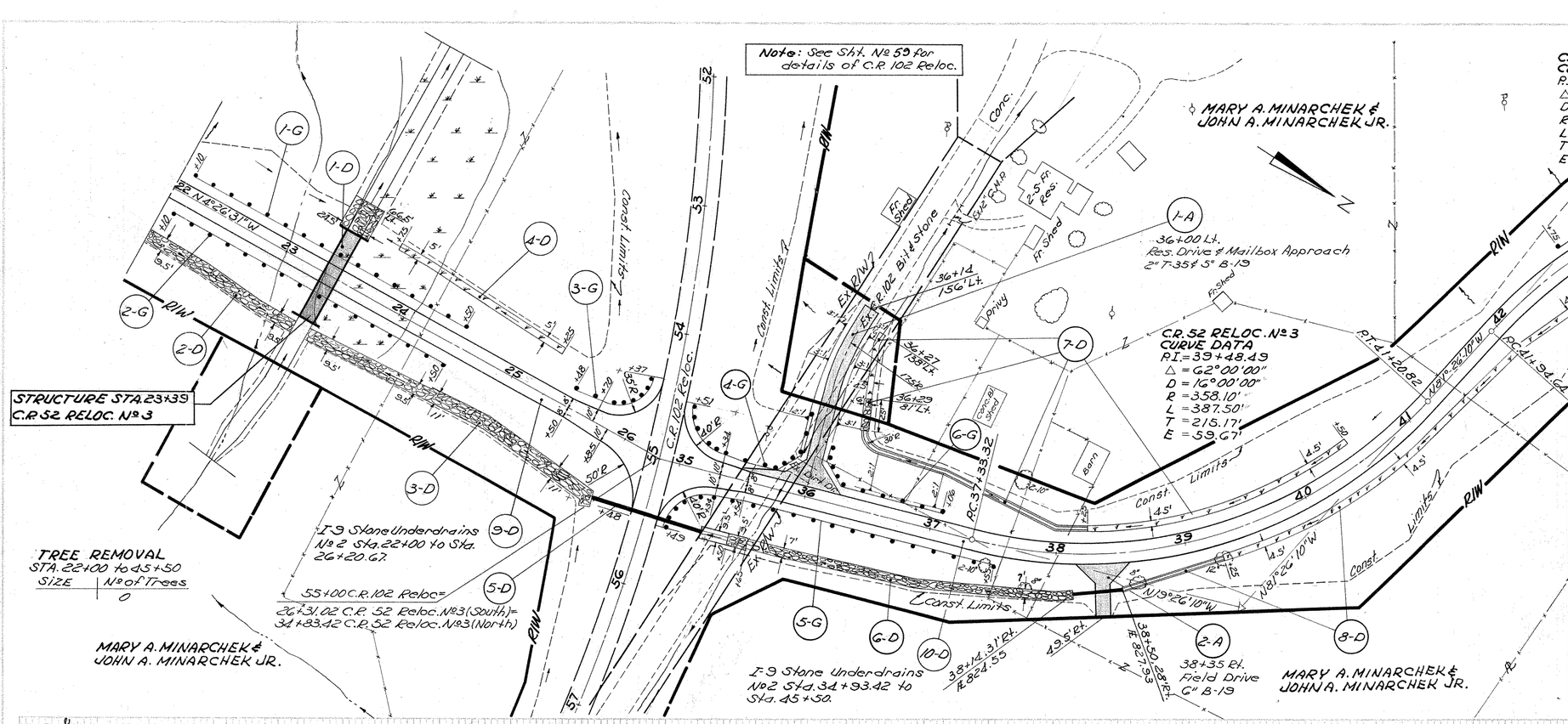
Ref. No.	I-1 Cl. F.A. Mat'ls 12"		I-15 3 Wire Cable		L-10 Sod	I-10 Dumped Rock		B-19 6"	I-9 No 2 S.U.		E-12 15" & Under		
UNITS	L.F.		L.F.		S.Y.	C.Y.		C.Y.	L.F.		L.F.		
1-D					165								
2-D									370				
3-D						68							
1-G			800										
1-A	38							10					
1-R											34		
Totals	38		800		165	68		10	370		34		

Totals to General Summary



10+00 to 22+00 CO. RD. 52 RELOC. No 3

GUERNSEY COUNTY
GUE-77-4.77

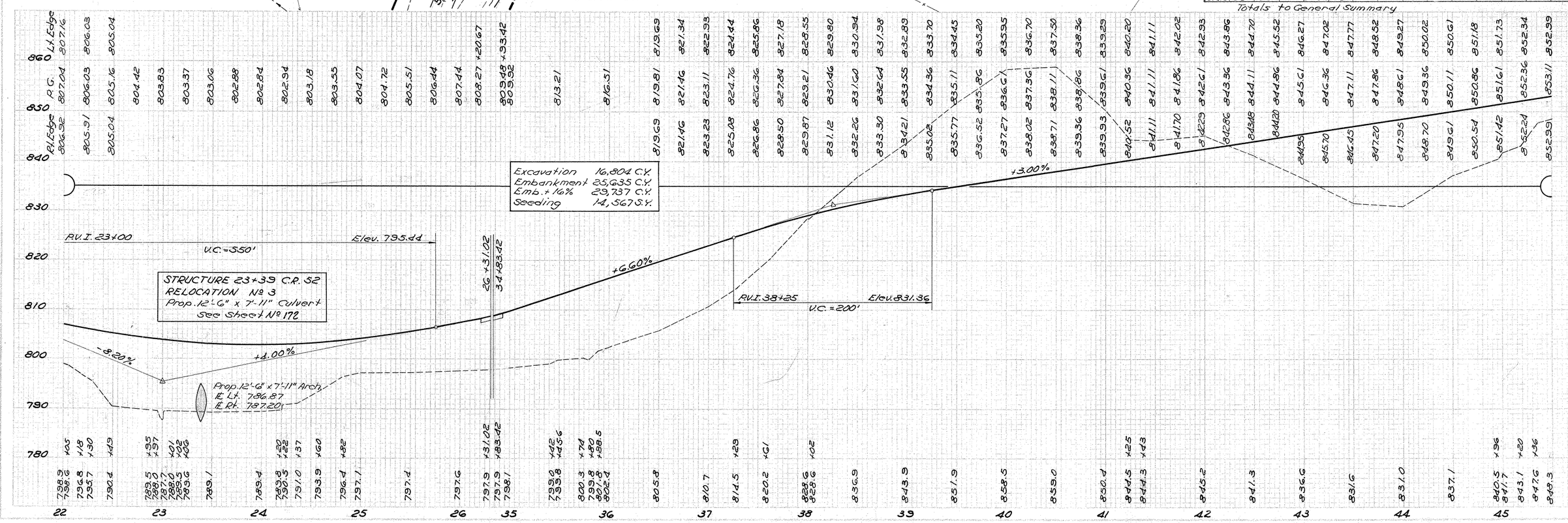


ESTIMATED QUANTITIES

* M-6.4(d), M-6.6(b) or M-6.8(b)

Ref. No.	I-1 Cl. F-4 M-6.4(c) 24"	I-1 Cl. A-1 * 30"	I-6 Relaying 12'-6" x 7'-11" Sec. 12 Arch	I-2 Masonry	I-15 3 wire cable		I-9 No 2 S.U.	I-10 Dumped Rock	I-14 Paved Gutter Type I	I-14 Paved Gutter Type C	I-10 Sod		T-35 2" Type 6	B-19 5/8" & 6"		E-3 Chan. Exc.
UNITS	L.F.	L.F.	L.F.	C.Y.	L.F.		L.F.	C.Y.	L.F.	L.F.	S.Y.		C.Y.	C.Y.		C.Y.
1-D			82	16.8				68								544
2-D								71								
3-D								147								
4-D											83					
5-D		88		1.02						26	9					
6-D								105								
7-D								8	195		204					
8-D									83		356					
9-D							160									
10-D							430									
1-G					240											
2-G					240											
3-G					74											
4-G					148											
5-G					272											
6-G					112											
7-G					272											
1-A													14	35		
2-A	38													15		
Totals	38	88	82	17.82	1358		590	399	278	26	652		14	50		544

Totals to General Summary

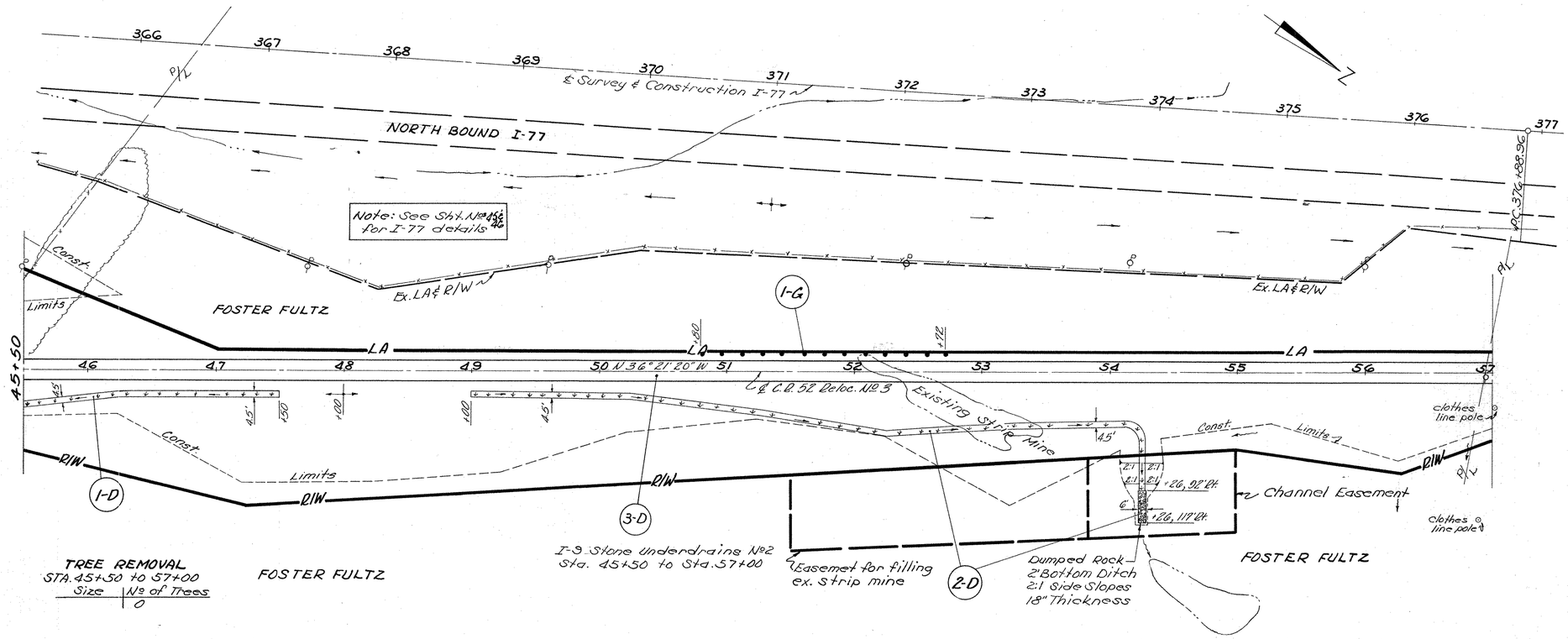


22+00 to 45+50 CO. RD. 52 RELOC. No 3

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

62
262

GUERNSEY COUNTY
GUE-77-4.77



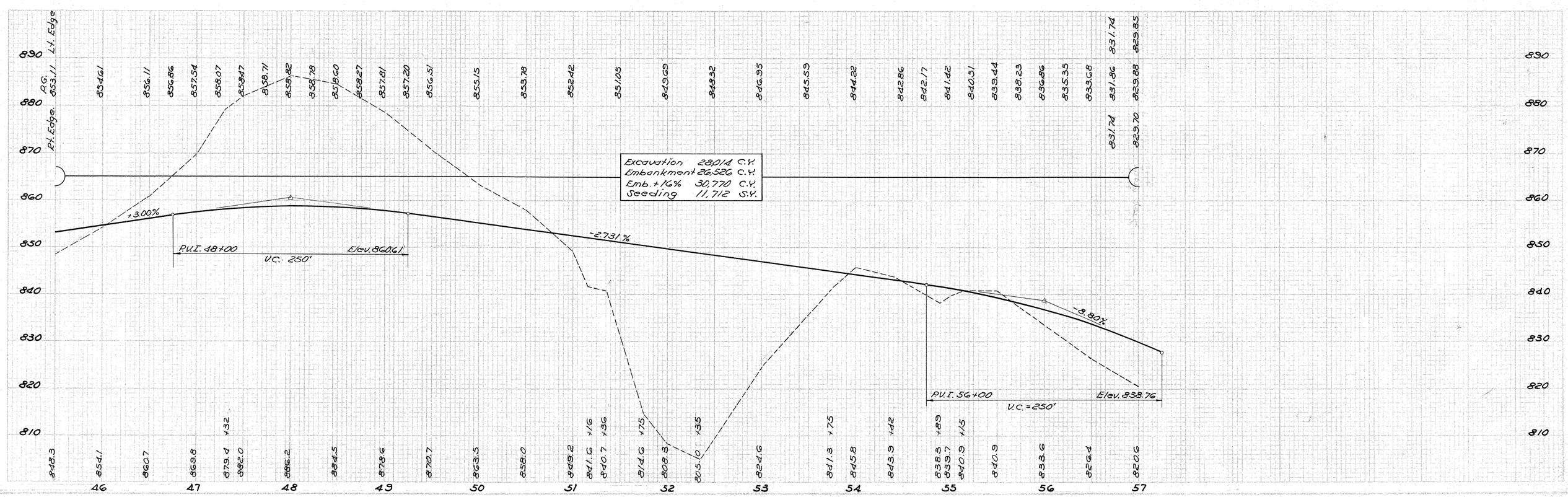
TREE REMOVAL
STA. 45+50 to 57+00

Size	No of Trees
	0

ESTIMATED QUANTITIES

Ref. No	I-15 3-wire cable		L-10 Sod		I-9 No 2 S.U.	I-10 Dumped Rock			
UNITS	L.F.		S.Y.		L.F.	C.Y.			
1-D			100						
2-D			286			9			
3-D					460				
1-G	192								
Totals	192		386		460	9			

Totals to General Summary

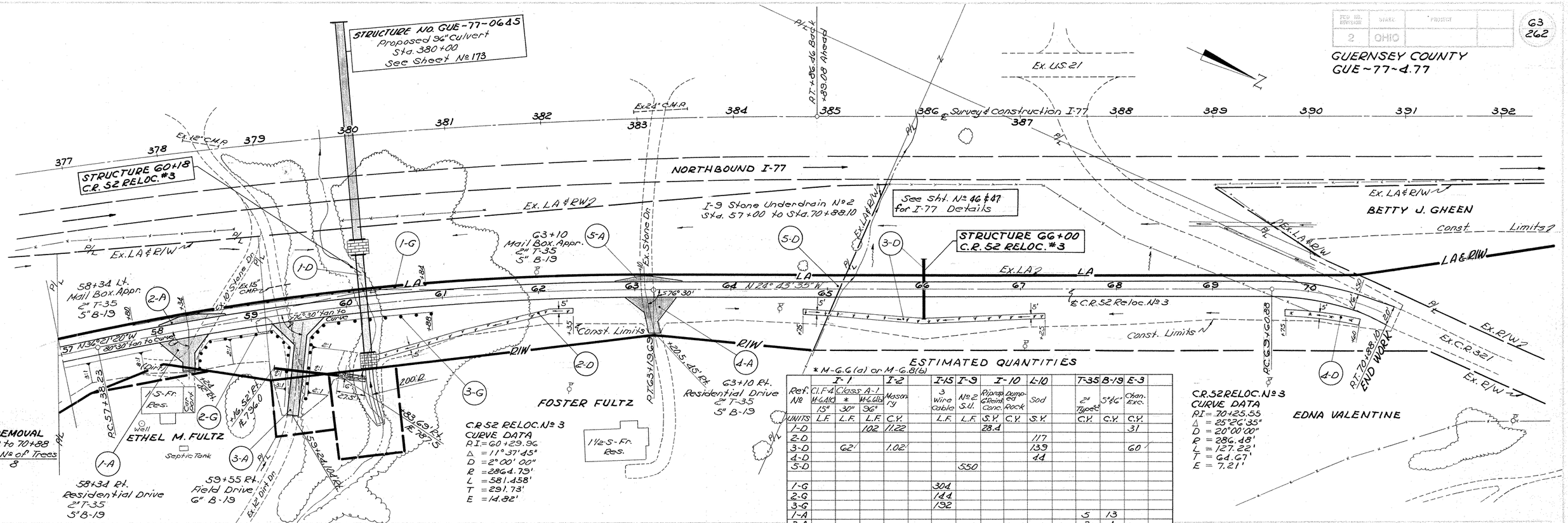


45+50 to 57+00 CO. RD. 52 RELOC. No 3

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

G3
262

GUERNSEY COUNTY
GUE-77-4.77



ESTIMATED QUANTITIES

* M-6.6(a) or M-6.8(b)

Ref. No	I-1 C.I.F-4 M-6.4(b) 15"	I-1 Class A-1 * 30"	I-1 Class A-1 * M-6.4(b) 36"	I-2 Masonry	I-15 3 Wire Cable	I-9 No 2 S.U.	I-10 Riprap Grout Conc.	I-10 Dumped Rock	L-10 Sod	T-35 2" Type 6	B-19 5" & 6"	E-3 Chan. Exc.
UNITS	L.F.	L.F.	L.F.	C.Y.	L.F.	L.F.	S.Y.	C.Y.	S.Y.	C.Y.	C.Y.	C.Y.
1-D			102	11.22			28.4					31
2-D									117			
3-D		62		1.02					139			60
4-D									44			
5-D						550						
1-G					304							
2-G					144							
3-G					192							
1-A										5	13	
2-A										2	4	
3-A	68							9			30	
4-A										5.5	14	
5-A										2	4	
Total	68	62	102	12.24	640	550	28	9	300	15	65	91

Totals to General Summary

57+00 to 70+88.10 CO. RD. 52 RELOC. No 3

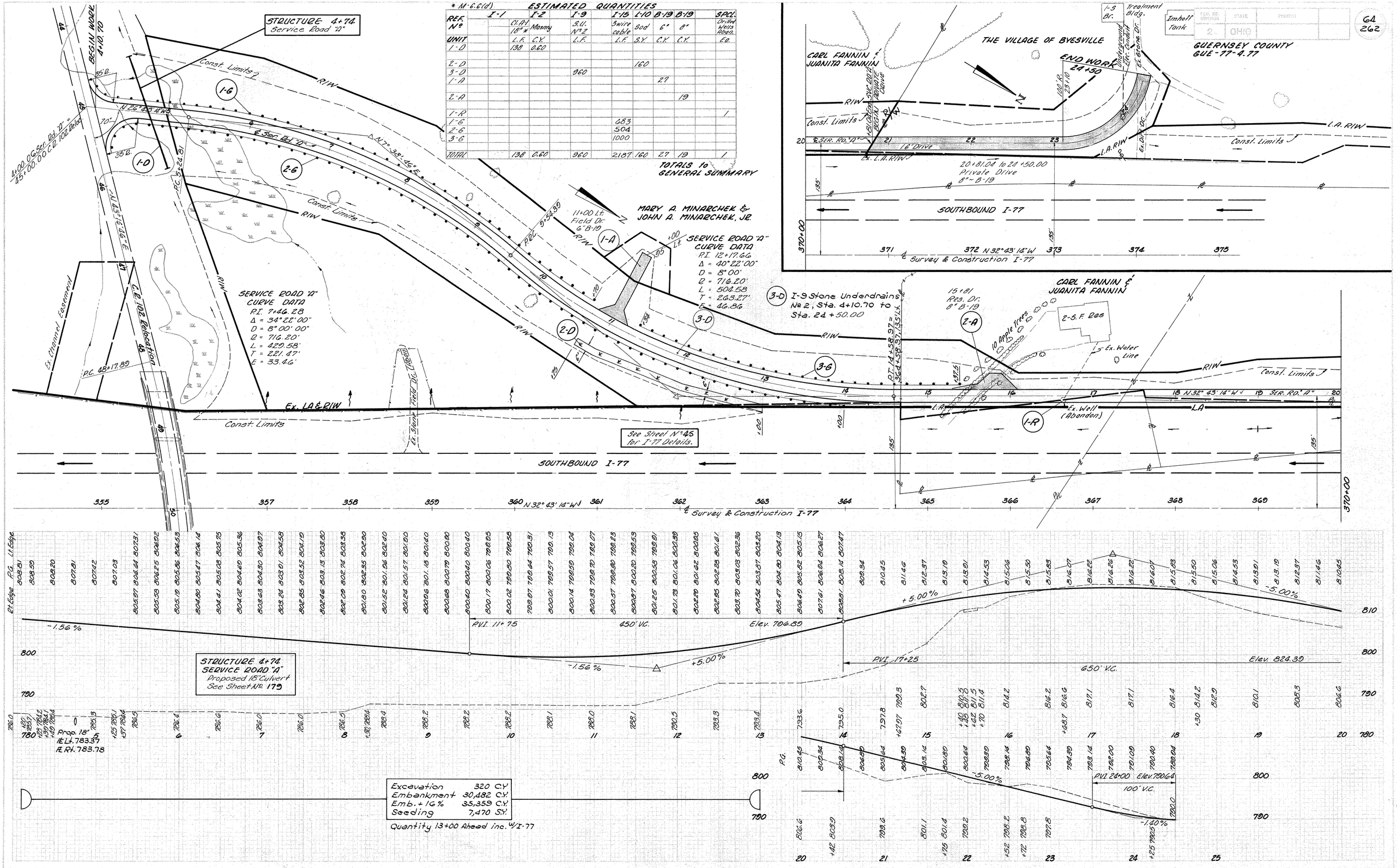
Imhoff Tank	FED. RD. DIVISION	STATE	PROJECT
	2	OHIO	

GUERNSEY COUNTY
GUE-77-4.77

* M-6.6(d) ESTIMATED QUANTITIES

REF. Nº	I-1		I-2		I-9		I-15	L-10	B-19	B-19		SPCL.
			Cl. A-1 18" *	Masonry	S.U. Nº 2		Swire cable	Sod	6"	8"		Drilled Wells Aban.
UNIT			L.F.	C.Y.	L.F.		L.F.	S.Y.	C.Y.	C.Y.		Ea.
1-D			138	0.60								
2-D								160				
3-D					960							
1-A									27			
2-A										19		
1-R												1
1-G							683					
2-G							504					
3-G							1000					
TOTAL			138	0.60	960		2187	160	27	19		1

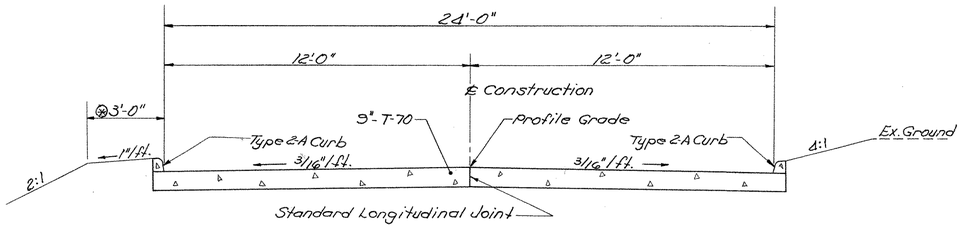
TOTALS to GENERAL SUMMARY



SERVICE ROAD "A"

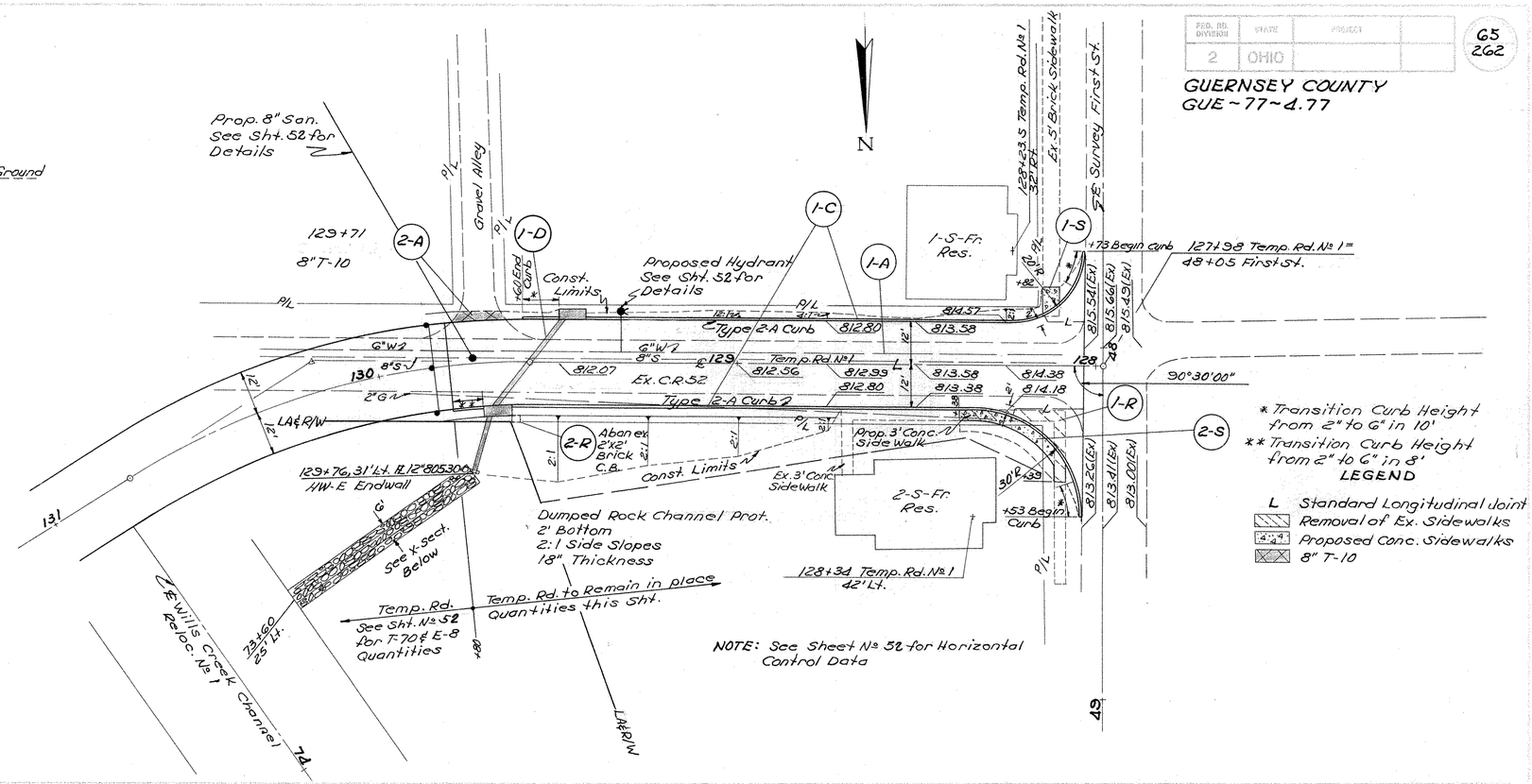
FED. RD. DIVISION 2 | STATE OHIO | PROJECT
65
262

GUERNSEY COUNTY
GUE-77-4.77



TYPICAL SECTION TEMP. RD. No 1 TO REMAIN IN PLACE
STA. 128+03.5 to STA. 129+80

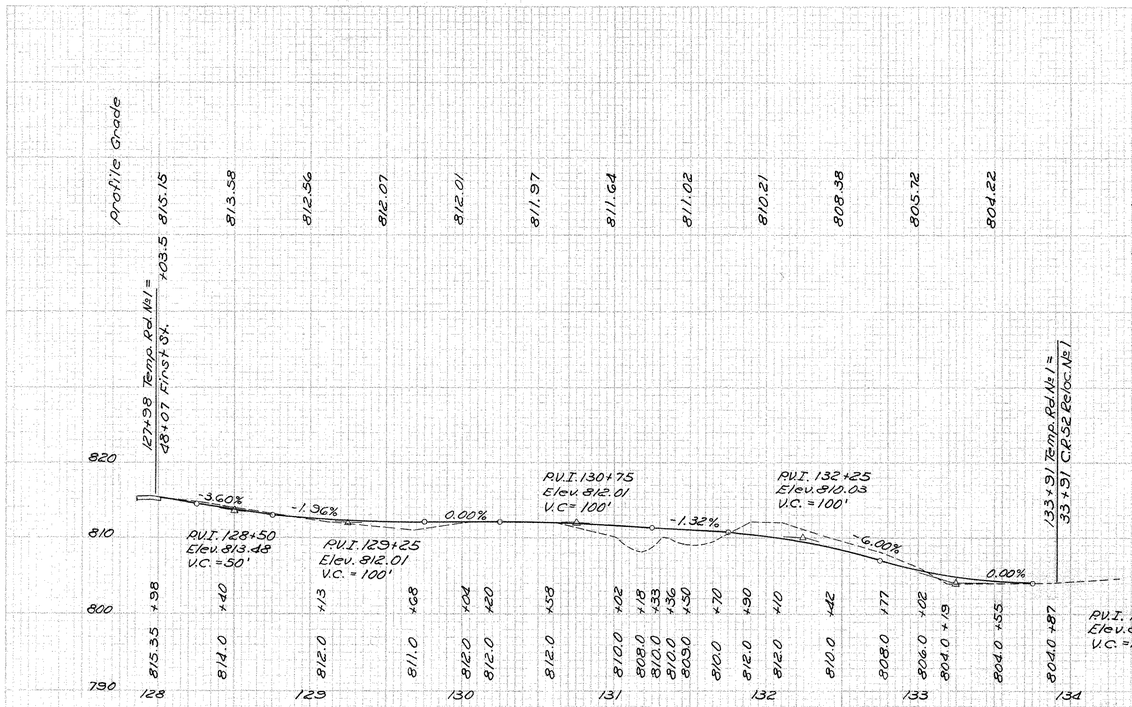
⊛ 5' Where Sidewalk is called for on plans



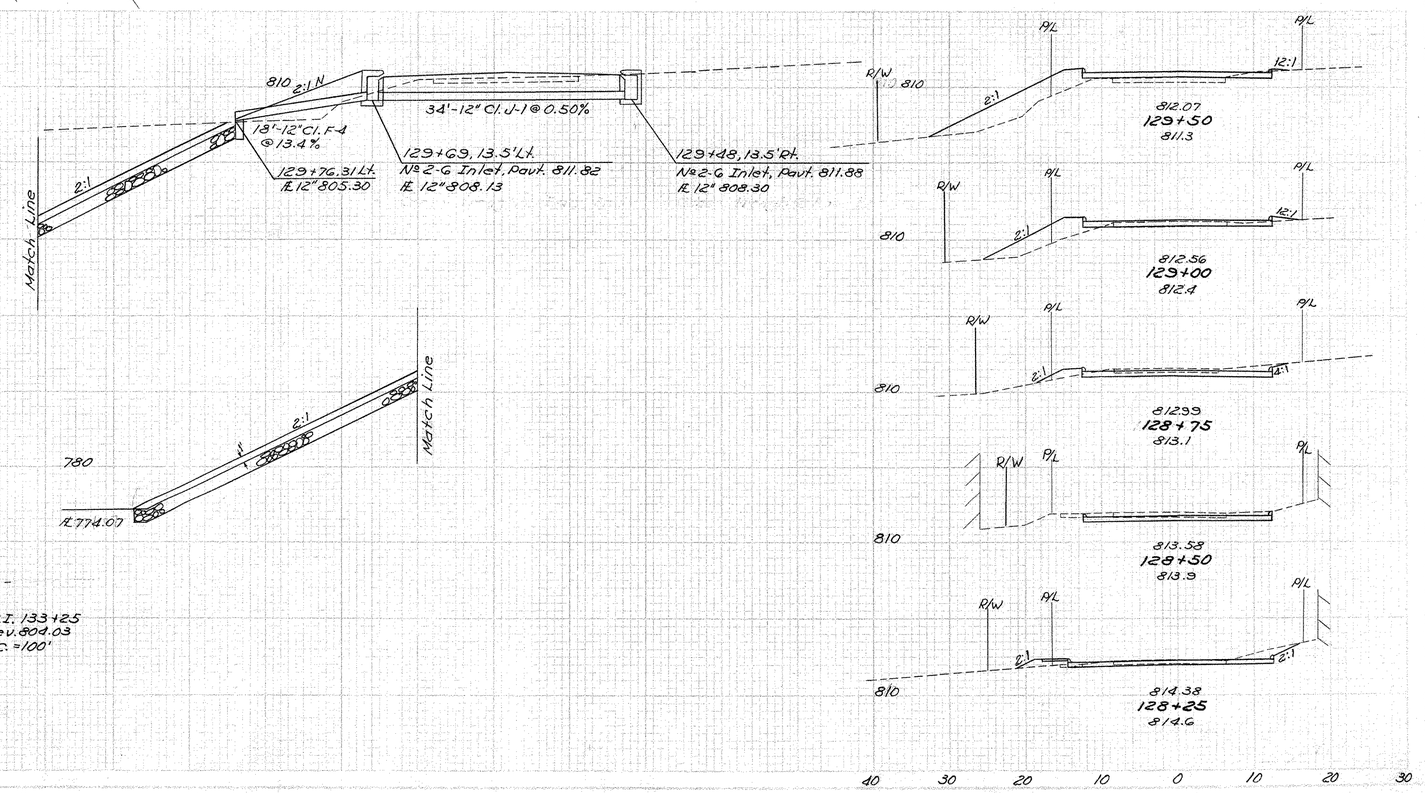
ESTIMATED QUANTITIES ‡ Modified, as per plan

REF. No	I-1 Cl. J-1 12"	I-1 Cl. F-4 M-6.4(C) 12"	I-2 Masonry Cl. "C"	I-8 No 2-6 Inlet	I-10 D.R. Chan. Prot.	I-12 Type 2-A	I-13 Conc. Side-walk 4"	E-8 Rem. & Disp. of Ex. S. Walk	T-10 Traffic Comp. Surf. Course	T-70 9"	I-16 Catch Basin Aban.	T-10‡ Traffic Comp. Surf. course
UNIT	L.F.	L.F.	C.Y.	Ea.	C.Y.	L.F.	S.F.	S.F.	C.Y.	S.Y.	Ea.	C.Y.
1-A										522		
2-A									1			‡1
1-C						343						
1-D	34	18	0.23	2	23							
1-R								140				
2-R											1	
1-S							32					
2-S							116					
TOTAL	34	18	0.23	2	23	343	148	140	1	522	1	1‡

Totals to General Summary



TEMPORARY ROAD No 1 PROFILE



TEMP. RD. No 1 AT FIRST ST.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

GUERNSEY COUNTY
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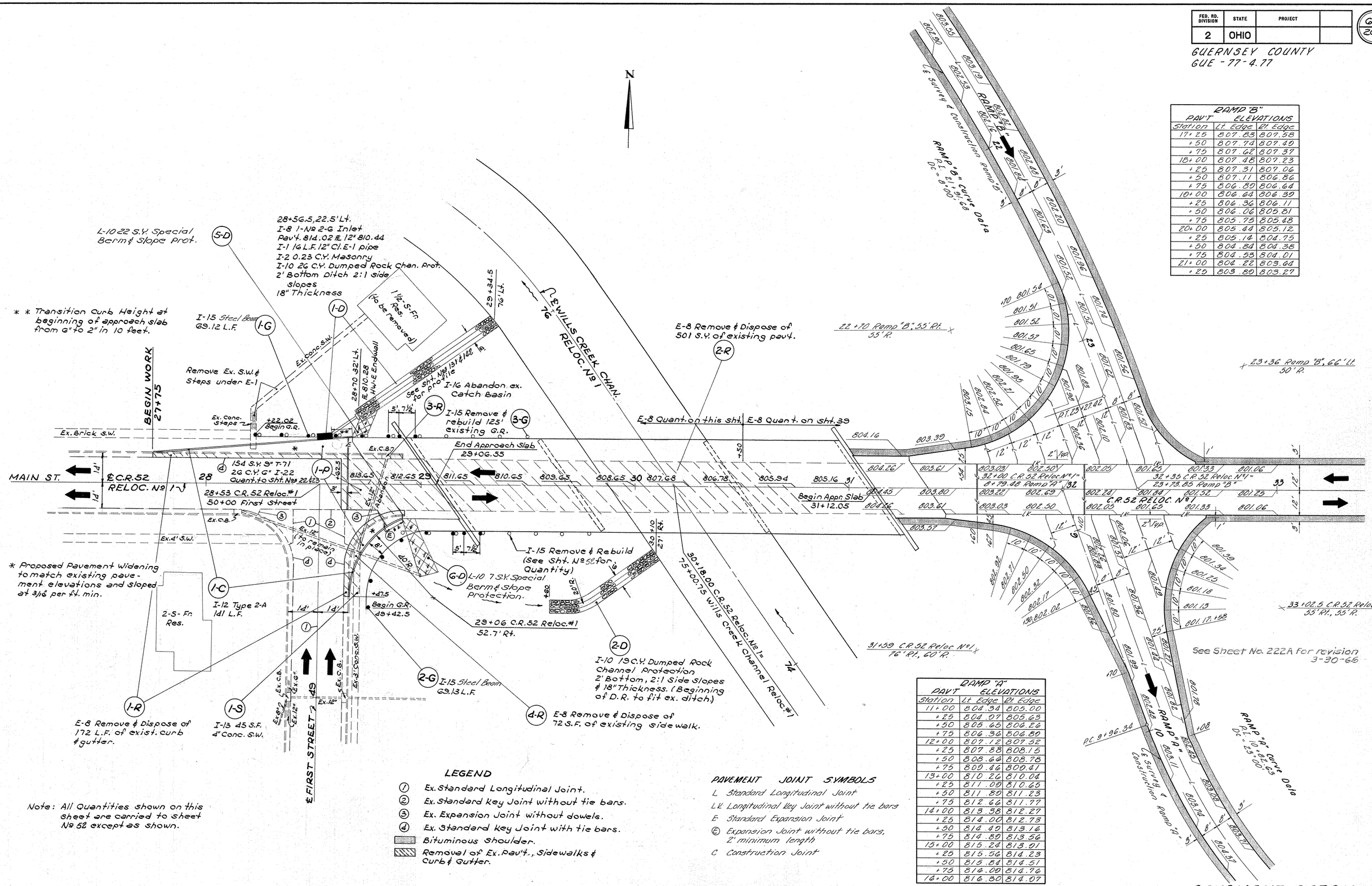

RAMP "B" PAV'T ELEVATIONS		
Station	Lt. Edge	Rt. Edge
17+25	807.83	807.58
+50	807.74	807.40
+75	807.62	807.37
18+00	807.48	807.23
+25	807.31	807.06
+50	807.11	806.86
+75	806.89	806.64
19+00	806.64	806.39
+25	806.36	806.11
+50	806.06	805.81
+75	805.75	805.48
20+00	805.44	805.12
+25	805.14	804.75
+50	804.84	804.38
+75	804.55	804.01
21+00	804.22	803.68
+25	803.80	803.27

RAMP "A" PAV'T ELEVATIONS		
Station	Lt. Edge	Rt. Edge
11+00	804.34	805.00
+25	804.07	805.63
+50	805.65	806.26
+75	806.36	806.89
12+00	807.12	807.52
+25	807.88	808.15
+50	808.66	808.78
+75	809.46	809.41
13+00	810.26	810.04
+25	811.09	810.65
+50	811.89	811.23
+75	812.66	811.77
14+00	813.38	812.27
+25	814.00	812.73
+50	814.49	813.16
+75	814.89	813.56
15+00	815.24	813.91
+25	815.56	814.23
+50	815.84	814.51
+75	814.00	814.76
16+00	816.30	814.07

Note: All Quantities shown on this sheet are carried to sheet No 52 except as shown.

LEGEND

1. Ex. Standard Longitudinal Joint.
2. Ex. Standard Key Joint without tie bars.
3. Ex. Expansion Joint without dowels.
4. Ex. Standard key Joint with tie bars.

Bituminous shoulder.

Removal of Ex. Pav't., Sidewalks & Curb & Gutter.

PAVEMENT JOINT SYMBOLS

L Standard Longitudinal Joint
L.K. Longitudinal Key Joint without tie bars
E Standard Expansion Joint
Ⓔ Expansion Joint without tie bars, 2' minimum length
C Construction Joint

PAVEMENT DETAILS

MAIN & FIRST STREET INTERSECTION — RAMP "A", RAMP "B"

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

GUERNSEY COUNTY
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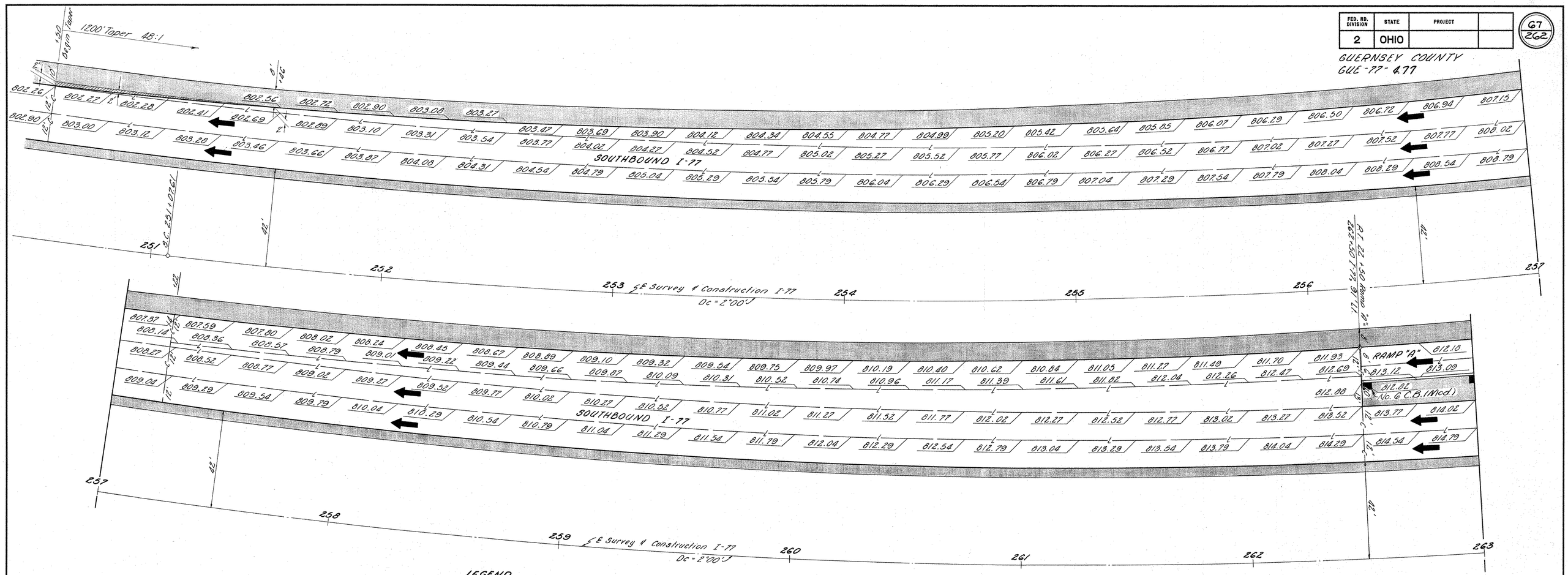


LEGEND

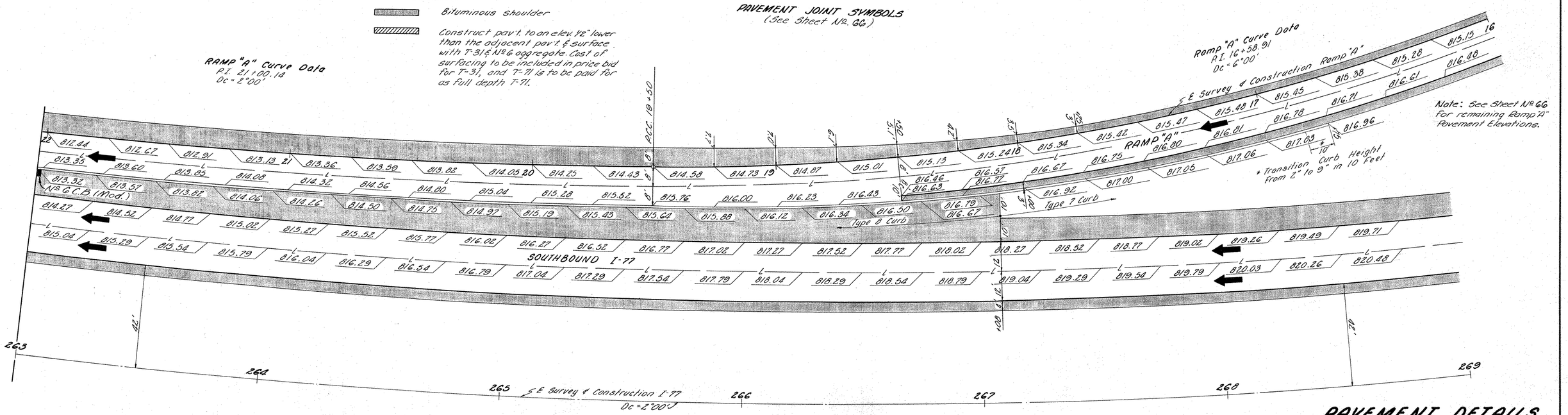
Bituminous Shoulder

Construct pav't. to an elev. ½" lower than the adjacent pav't. & surface with T-31 & No. 6 aggregate. Cost of surfacing to be included in price bid for T-31, and T-71 is to be paid for as full depth T-71.

PAVEMENT JOINT SYMBOLS
(See Sheet No. 66)

RAMP "A" Curve Data
P.I. 21+00.14
Dc = 2°00'

Ramp "A" Curve Data
P.I. 16+58.91
Dc = 6°00'



Note: See Sheet No. 66 for remaining Ramp "A" Pavement Elevations.

PAVEMENT DETAILS

RAMP "A"

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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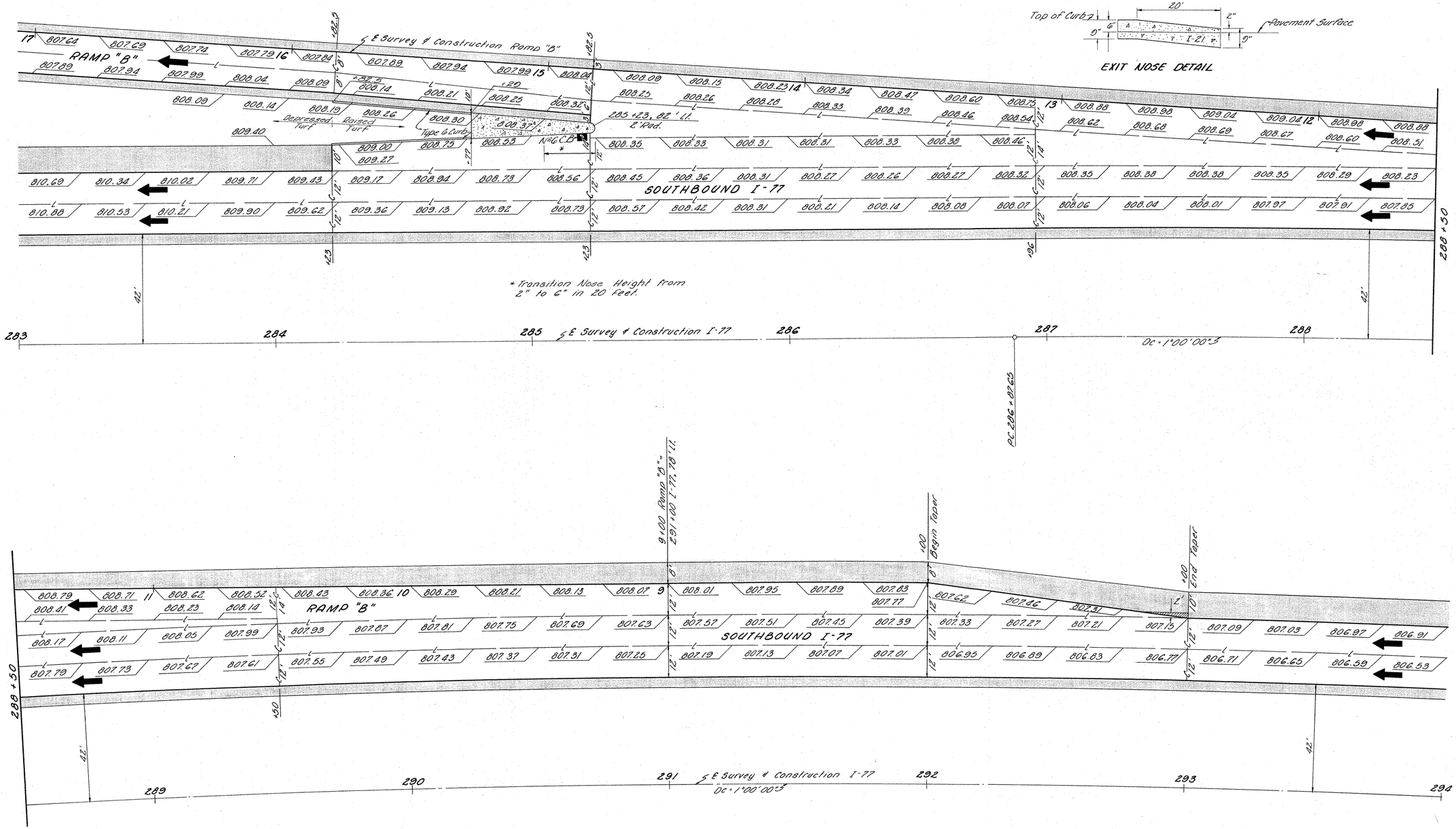
Note: See Sheet № 6G For remaining Ramp "B" Pavement Elevations.



LEGEND

- Bituminous Shoulder
- 9" Conc. Median Pavement
- (See Sheet № 6J for Description)

PAVEMENT JOINT SYMBOLS
(See Sheet № 6G)

PAVEMENT DETAILS

RAMP "B"

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

G9
2G2

GUERNSEY COUNTY
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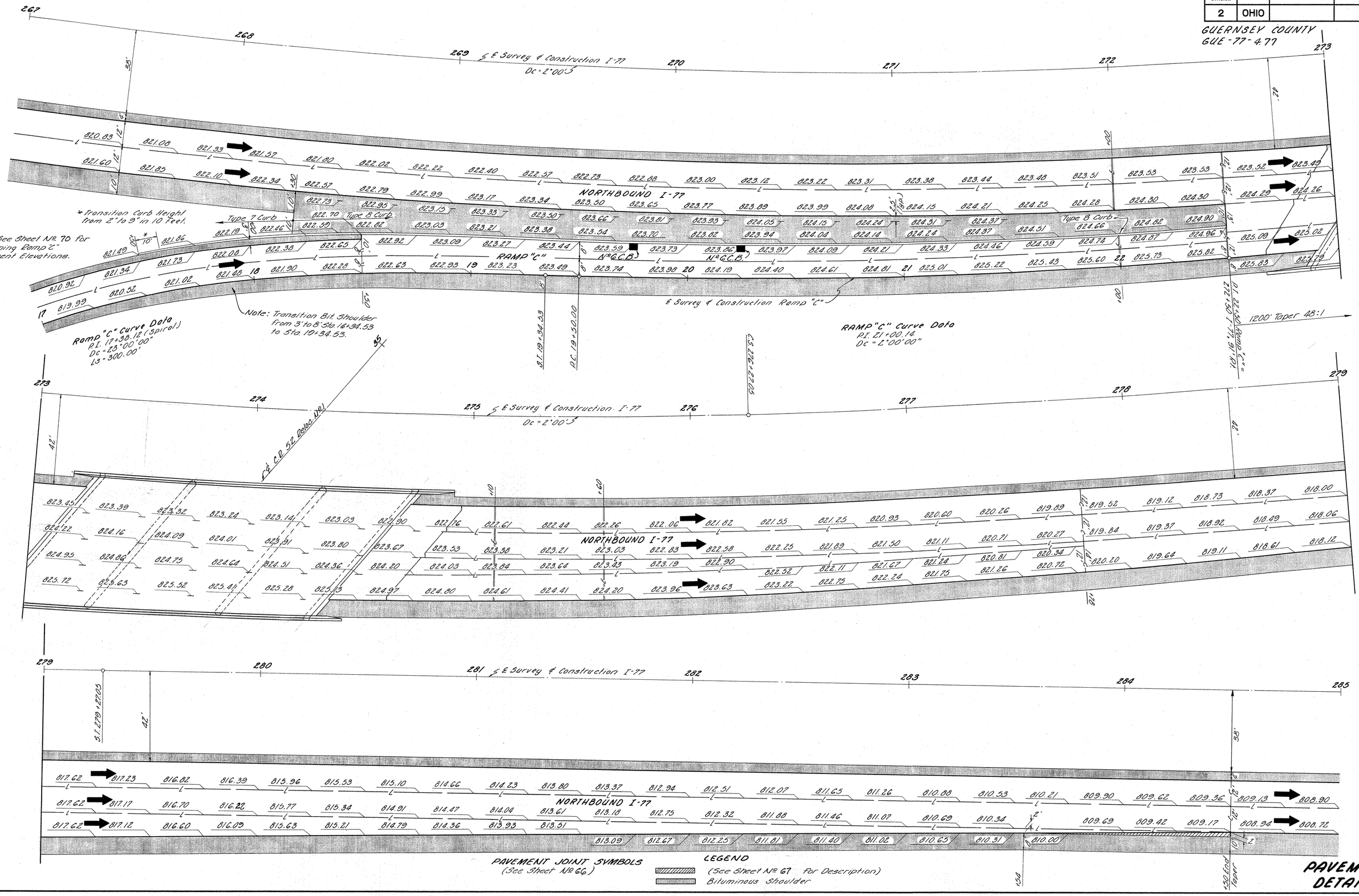

PAVEMENT DETAILS
RAMP "C"

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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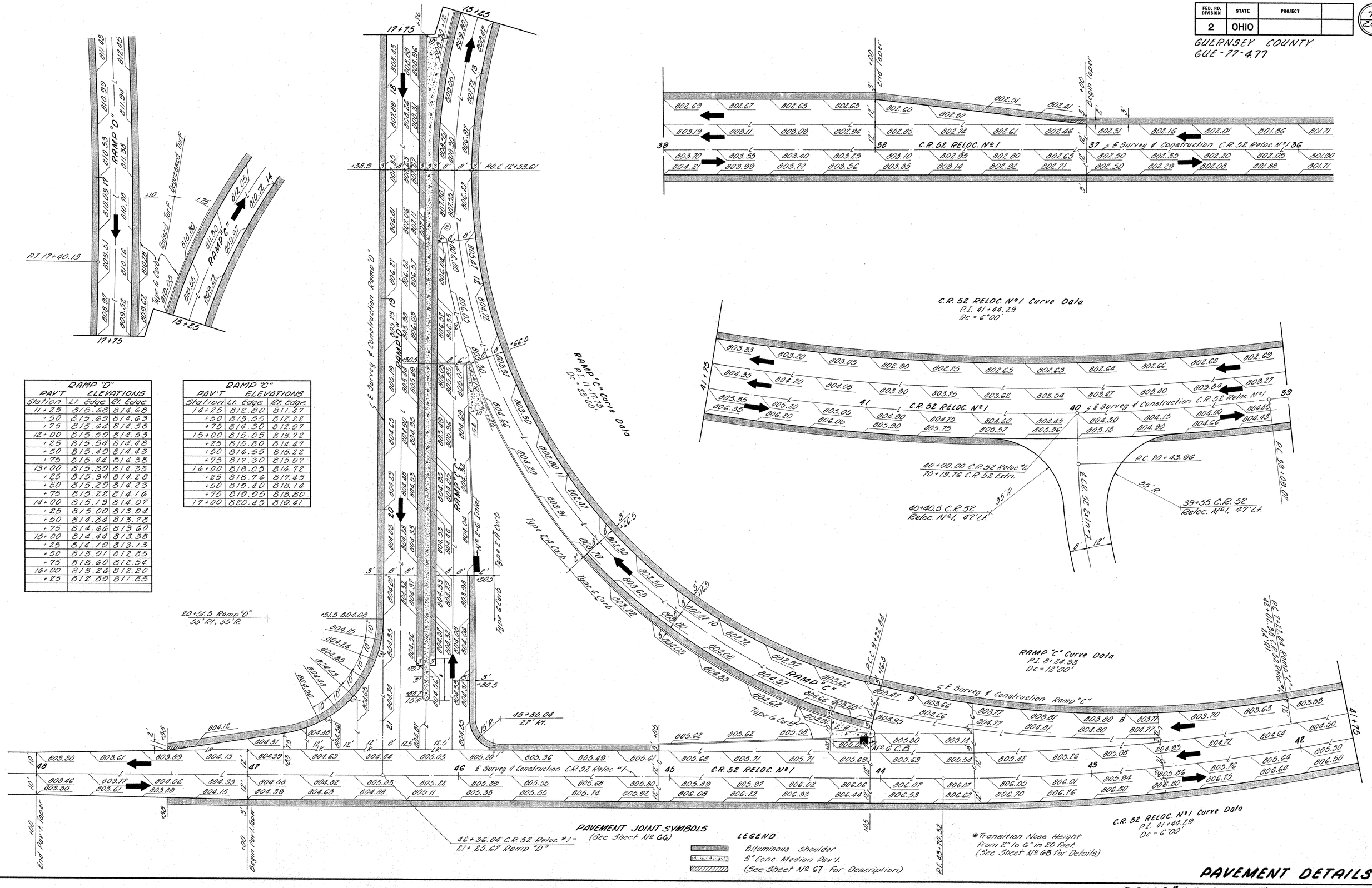
GUERNSEY COUNTY
GUE-77-4.77



RAMP "D" PAV'T ELEVATIONS		
Station	Lt. Edge	Rt. Edge
11+25	815.68	814.68
+50	815.69	814.63
+75	815.64	814.58
12+00	815.50	814.53
+25	815.54	814.48
+50	815.40	814.43
+75	815.44	814.38
13+00	815.30	814.33
+25	815.34	814.28
+50	815.20	814.23
+75	815.22	814.16
14+00	815.13	814.07
+25	815.00	813.94
+50	814.84	813.78
+75	814.66	813.60
15+00	814.44	813.38
+25	814.10	813.13
+50	813.91	812.85
+75	813.60	812.54
16+00	813.26	812.20
+25	812.80	811.83

RAMP "C" PAV'T ELEVATIONS		
Station	Lt. Edge	Rt. Edge
14+25	812.80	811.47
+50	813.55	812.22
+75	814.30	812.97
15+00	815.05	813.72
+25	815.80	814.47
+50	816.55	815.22
+75	817.30	815.97
16+00	818.05	816.72
+25	818.76	817.45
+50	819.40	818.14
+75	819.05	818.80
17+00	820.45	819.41

PAVEMENT DETAILS

RAMP "C", RAMP "C-C", RAMP "D"

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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GUERNSEY COUNTY
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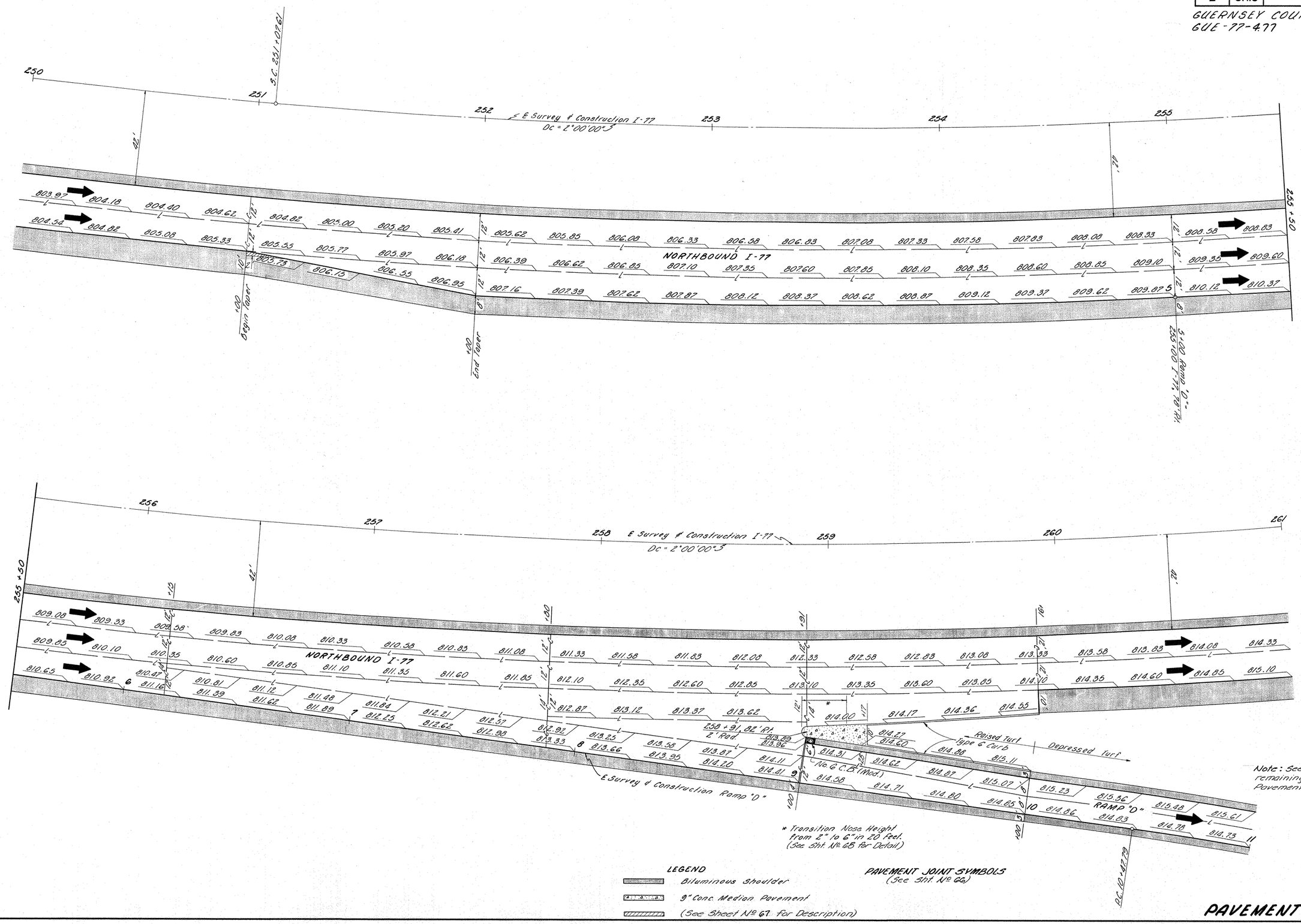

PAVEMENT DETAILS
RAMP "D"

GUERNSEY COUNTY
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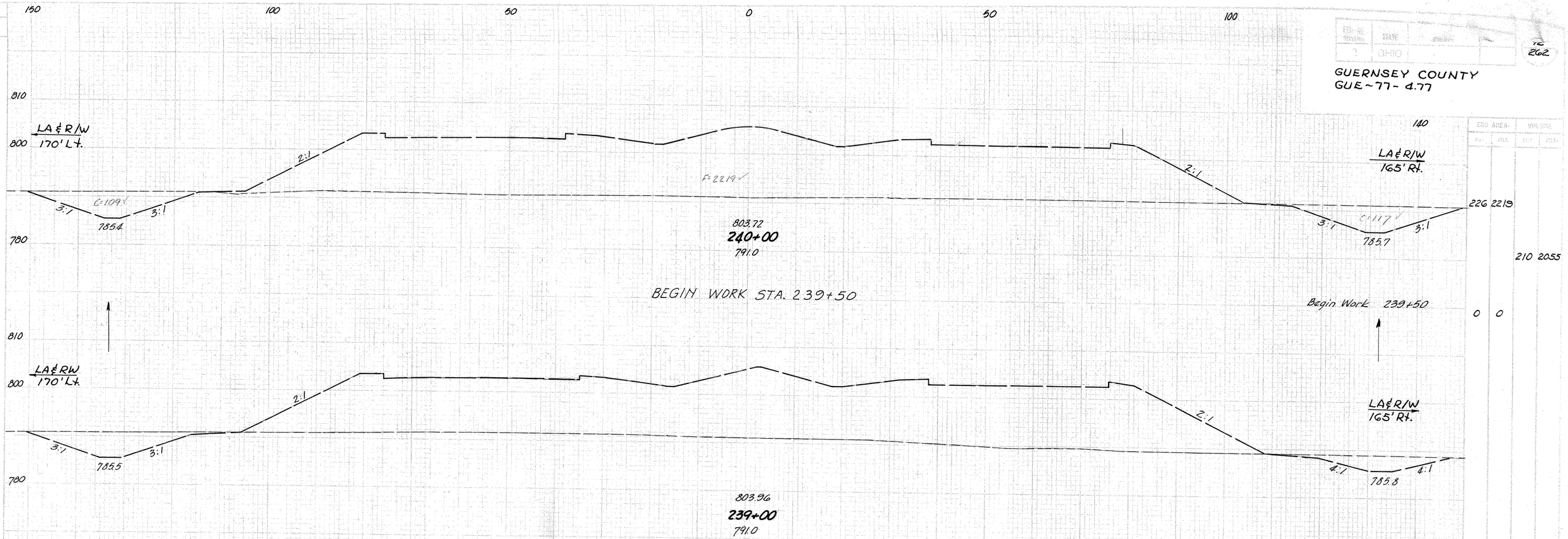
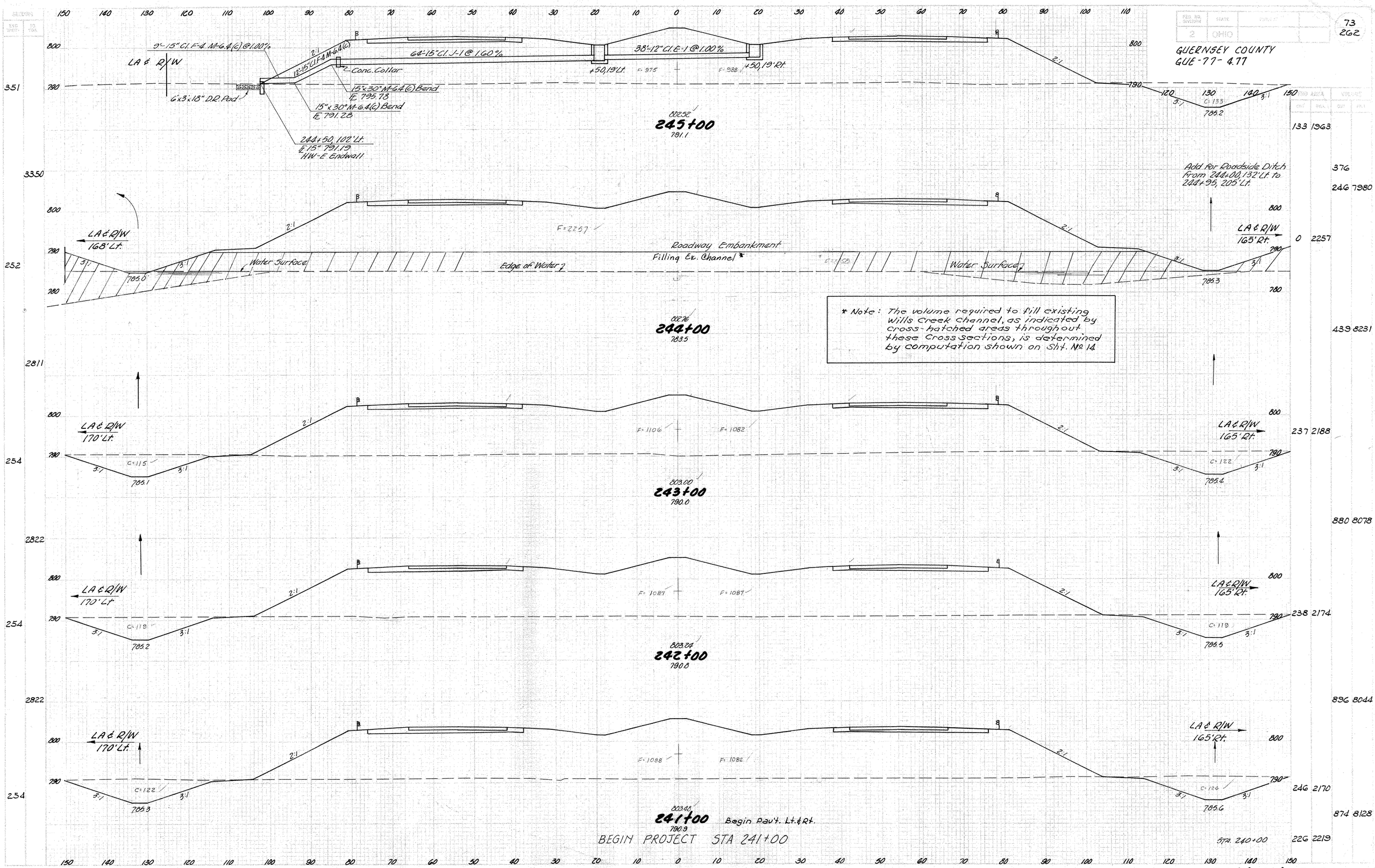


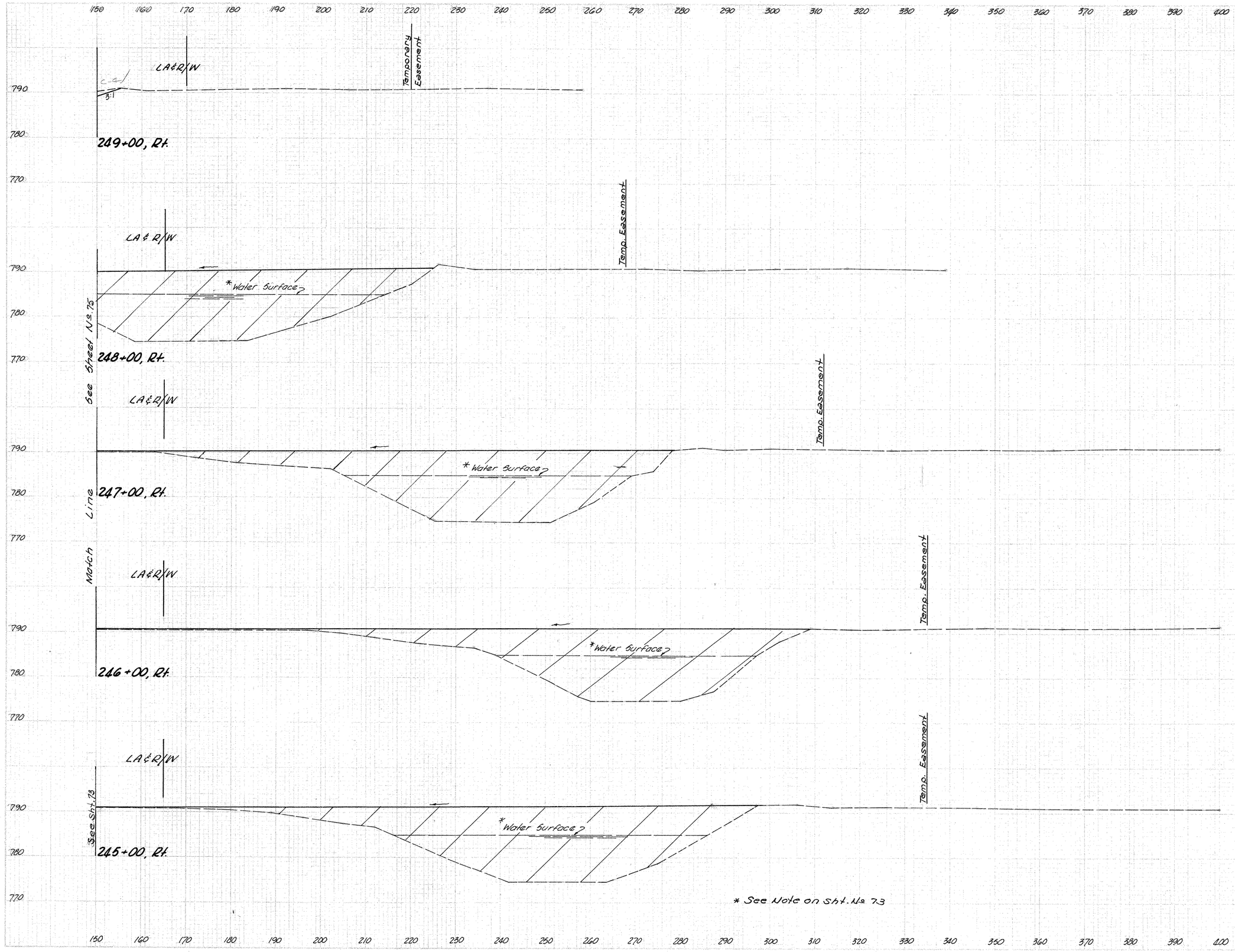
GUERNSEY COUNTY
GUE-77-4.77



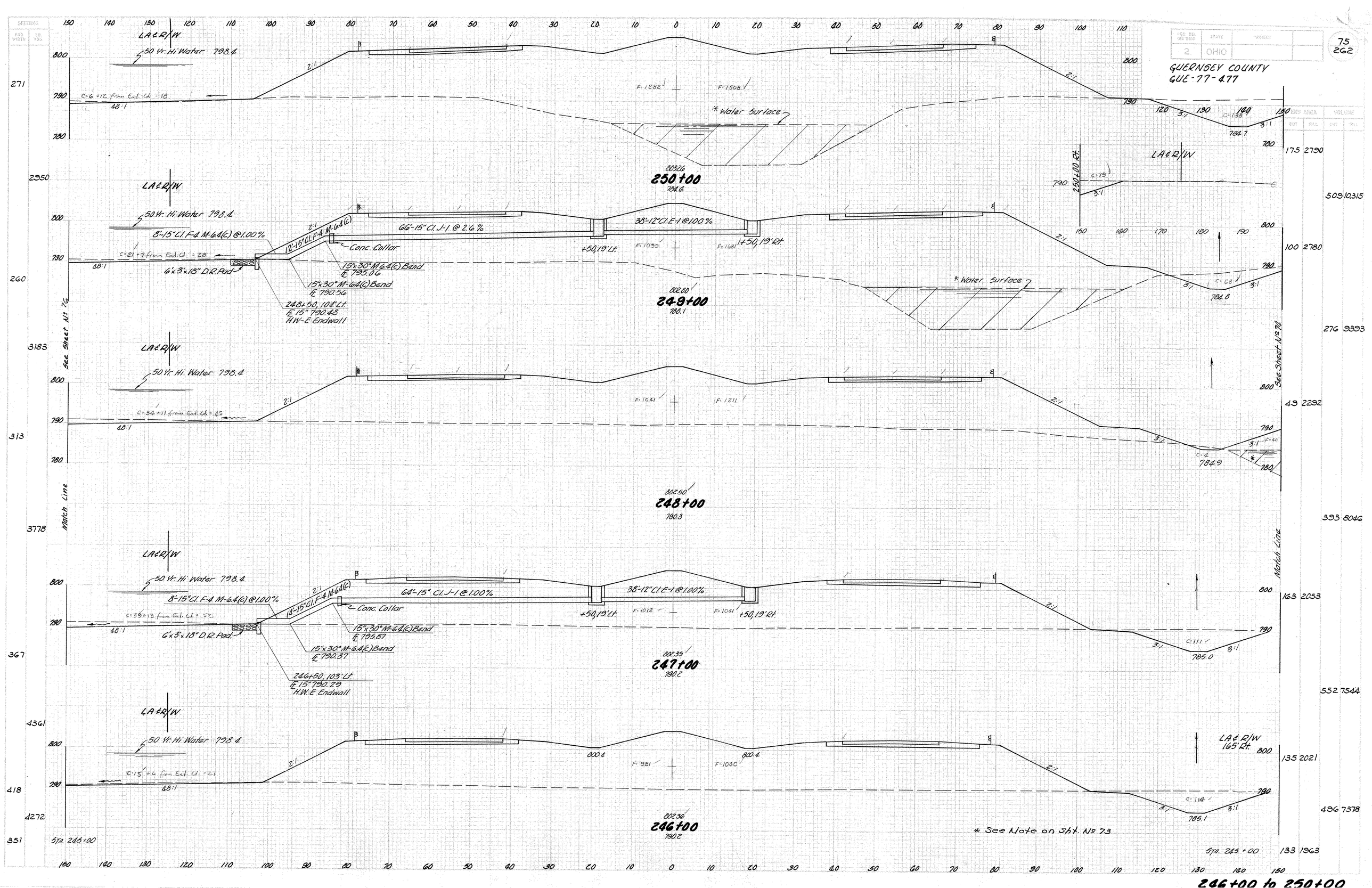
241+00 to 245+00

FED. AID PROJECT	STATE	PROJECT	
2	OHIO		

GUERNSEY COUNTY
GUE-77-4.77



245+00 – 249+00 Extn. Rt.


SEEDING
END WIDTH
SQ. YDS.
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110
REG. NO. DIV. SHW
STATE
PROJECT
2
OHIO
75
262
GUERNSEY COUNTY
GUE-77-4.77
END AREA
VOLUME
CUT
FILL
CUT
FILL
LA&R/W
50 Yr. Hi Water 798.4
C=6+12 from End Ch. = 18
48:1
2:1
F-1282
F-1508
* Water Surface
80.26
250+00
78.6
C=138
784.7
3:1
175 2790
250+00 Rt.
C=19
509 10315
8-15" Cl. F-4 M-64(c) @1.00%
C=21+7 from End Ch. = 20
6'x3'x18" D.R. Pad
12-15" Cl. F-4 M-64(c)
Conc. Collar
66'-15" Cl. J-1 @ 2.6%
38'-12" Cl. E-1 @1.00%
+50, 19' Lt.
F-1099
F-1681
+50, 19' Rt.
15"x30" M-64(c) Band
E 795.06
15"x30" M-64(c) Band
E 790.56
248+50, 104' Lt.
E 15" 790.43
HW-E Endwall
80.80
249+00
78.1
C=68
784.8
100 2780
276 9393
See Sheet No. 74
C=34+11 from End Ch. = 45
F-1061
F-1211
C=4
784.9
F=40
49 2292
80.50
248+00
78.3
393 8046
Match Line
C=38+13 from End Ch. = 52
64'-15" Cl. J-1 @ 1.00%
+50, 19' Lt.
F-1012
F-1041
+50, 19' Rt.
C=111
785.0
163 2053
246+50, 103' Lt.
E 15" 790.29
H.W.E. Endwall
80.35
247+00
78.2
552 7544
C=15+6 from End Ch. = 21
80.4
F-981
F-1040
80.4
C=114
786.1
135 2021
80.36
246+00
78.2
496 7378
* See Note on Sht. No 73
Sta. 245+00
133 1963
246+00 to 250+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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GUERNSEY COUNTY
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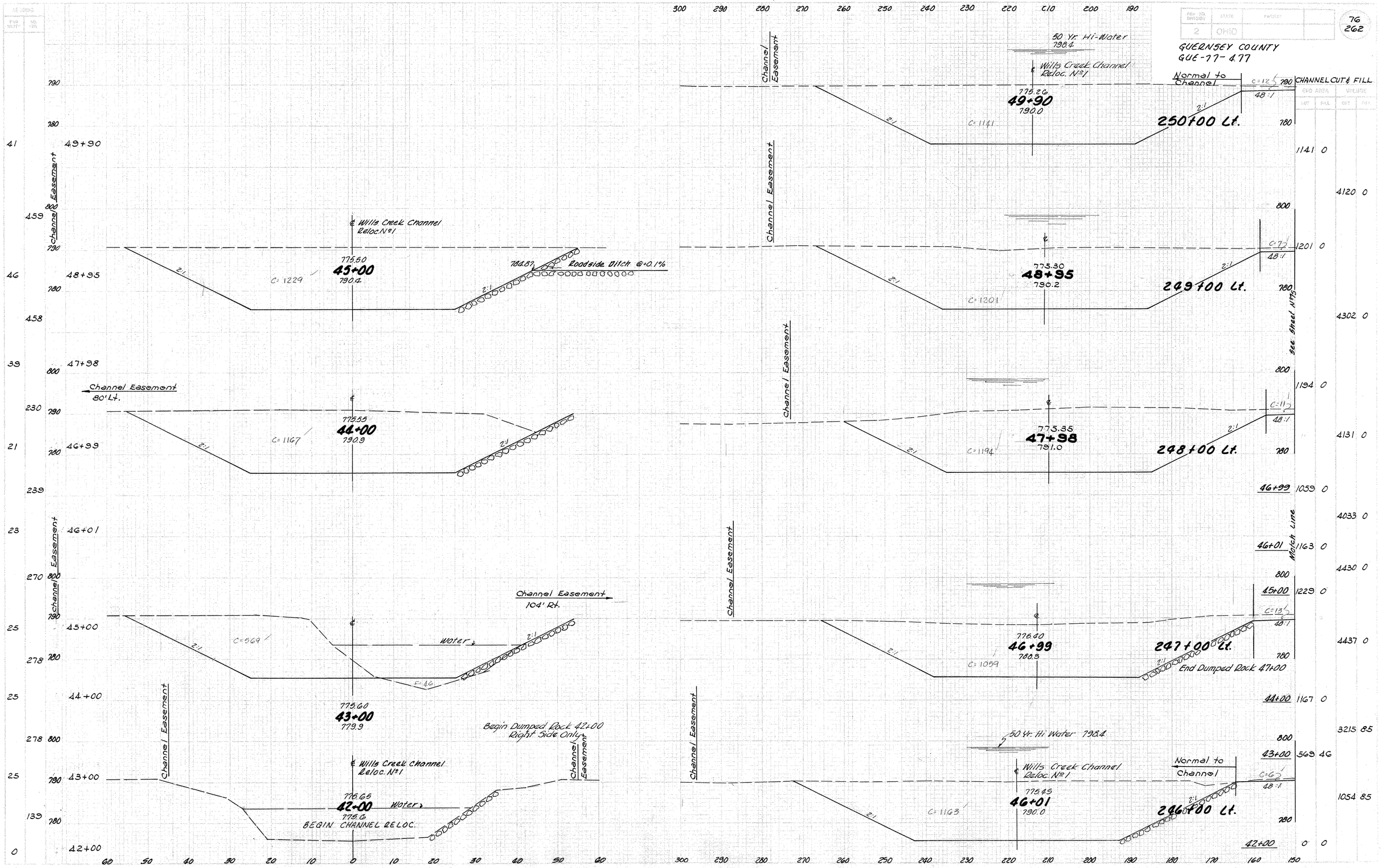
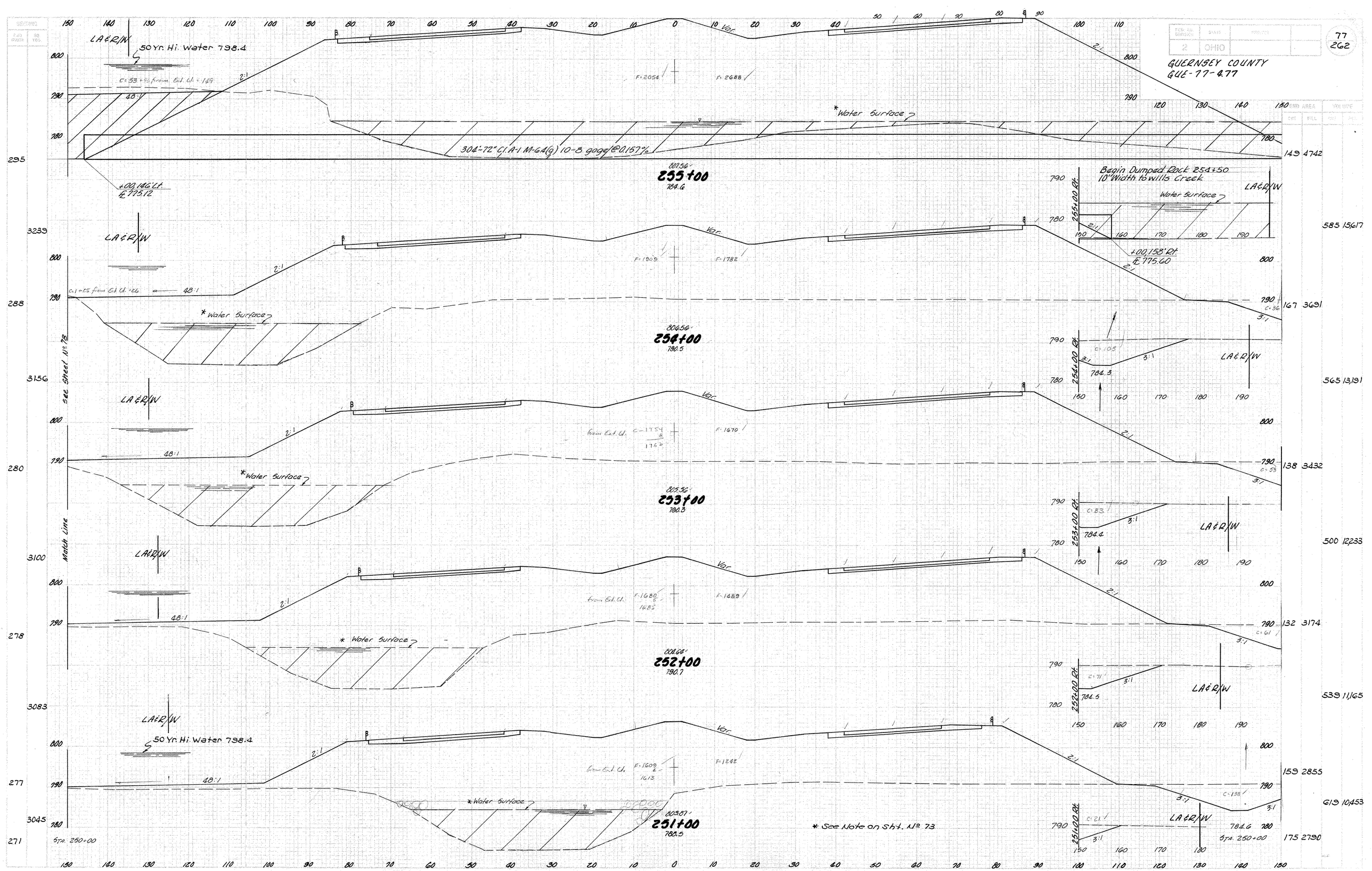
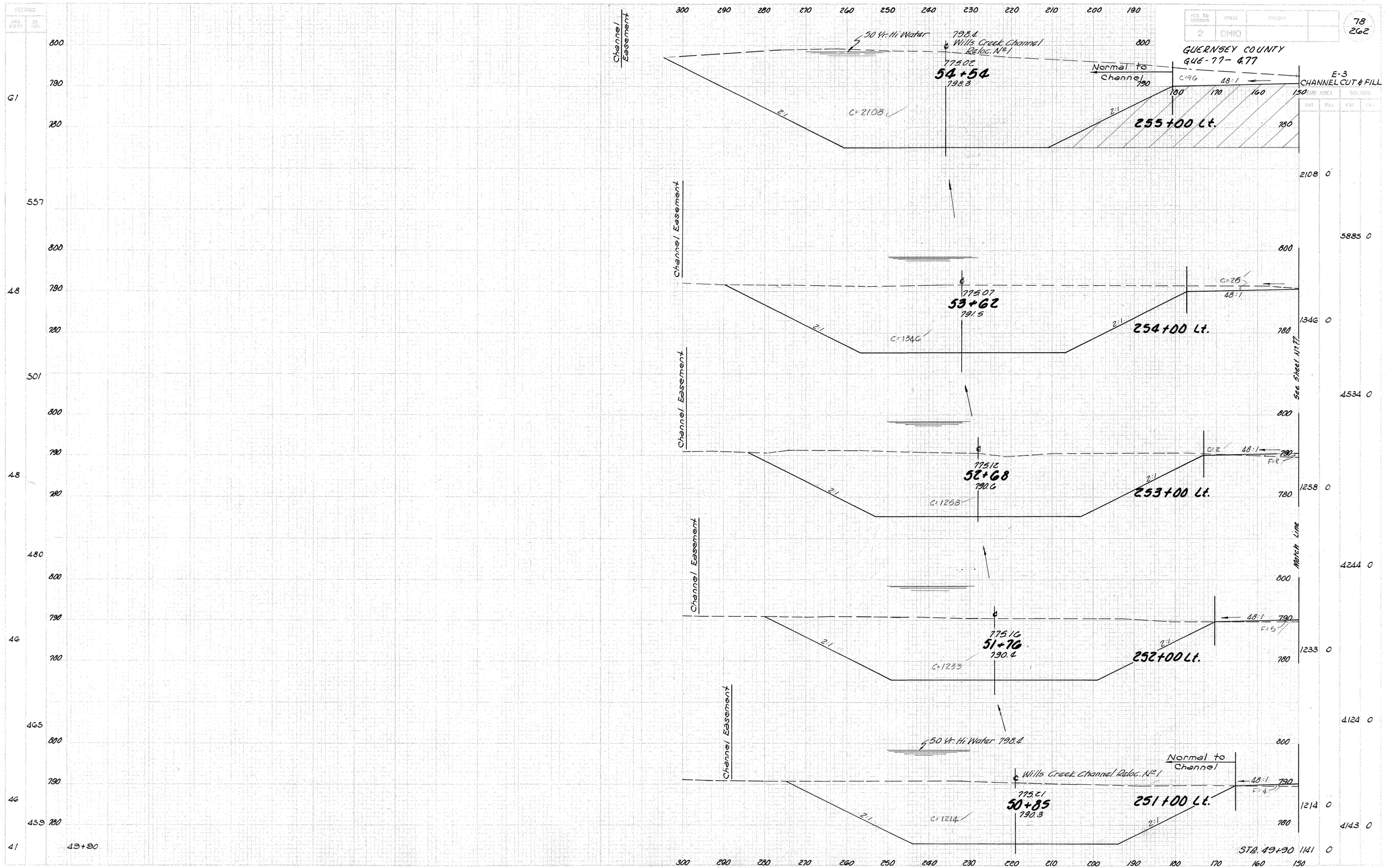


246+00 to 250+00 EXTN. LT.


FED. RD. DIVISION 2
STATE OHIO
PROJECT
77
262
GUERNSEY COUNTY
GUE-77-4.77
50 Yr. Hi. Water 798.4
C=53+00 from Ent. Cl. = 149
48:1
2:1
F=2054
F=2688
*Water Surface ?
304'-72" Cl. A-1 M-64(G) 10-8 gage @ 0.157%
+00.146' Lt.
℄ 775.12
80.56'
255+00
784.6
Begin Dumped Rock 254+50
10" Width to Wills Creek
255+00 Rt.
+00.158' Rt.
℄ 775.60
LA&R/W
Var.
F=1909
F=1782
C=1+25 from Ent. Cl. = 26
3:1
C=36
80.65'
254+00
790.5
254+00 Rt.
C=105
784.3
F=1754
F=1670
C=58
80.56'
253+00
790.3
253+00 Rt.
C=83
784.4
F=1680
F=1689
C=61
80.60'
252+00
790.7
252+00 Rt.
C=71
784.5
F=1609
F=1242
C=138
80.87'
251+00
790.5
251+00 Rt.
C=21
784.6
* See Note on Sht. No. 73
Sta. 250+00
See Sheet No. 73
Watch Line
50 Yr. Hi. Water 798.4
END AREA
CUT FILL CUT FILL
YOU WRITE
585 15617
567 13191
565 13191
138 3432
500 12233
132 3174
539 11165
159 2855
619 10453
175 2790
251+00 to 255+00


FED. RD. DIVISION 2
STATE OHIO
PROJECT
78
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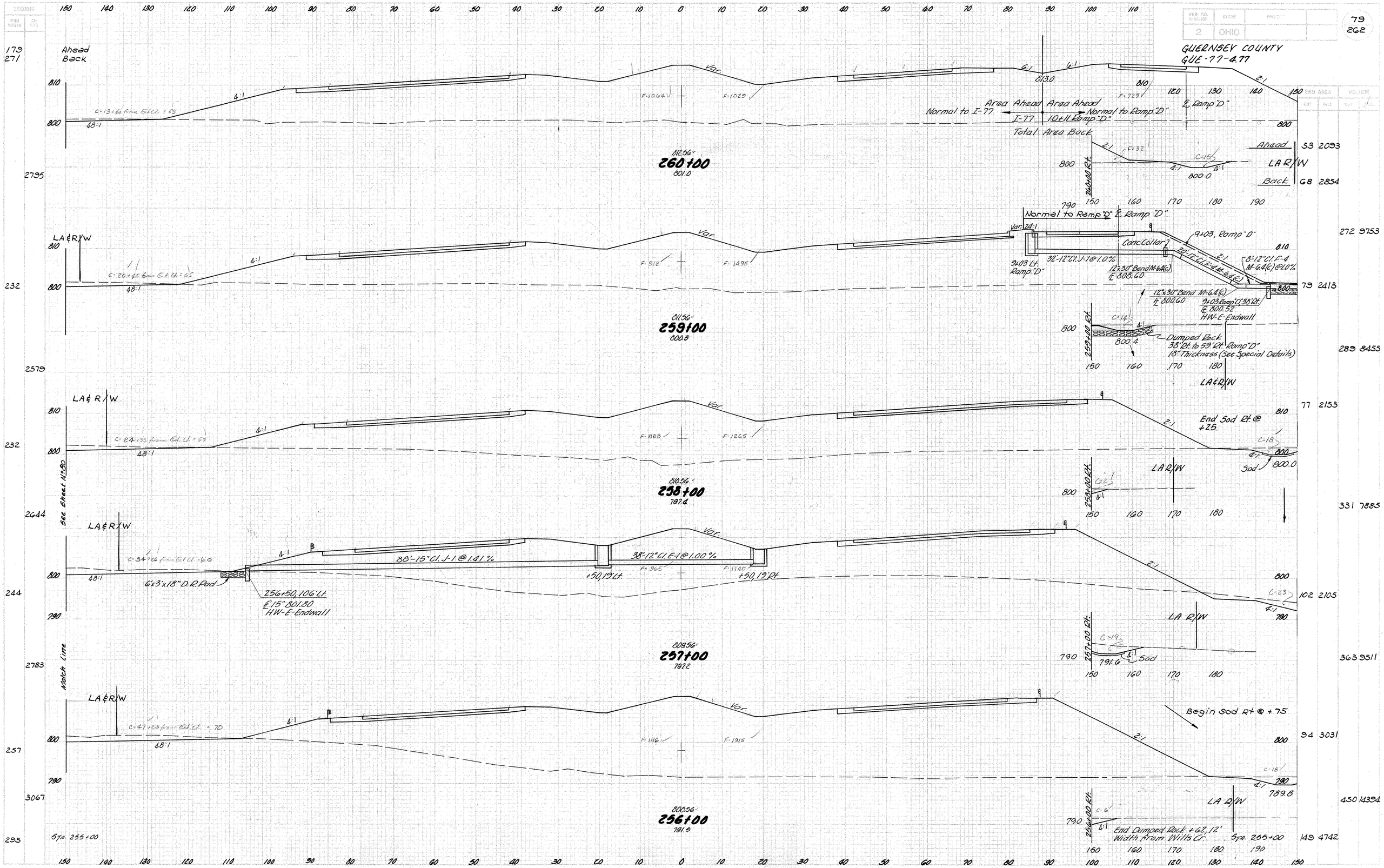
GUERNSEY COUNTY
GUE-77-4.77
E-3
CHANNEL CUT & FILL
END AREA
VOLUME
CUT FILL CUT FILL
50 Yr. Hi Water 798.4
Wills Creek Channel Reloc. No. 1
Normal to Channel
Channel Easement
54+54
775.02
798.8
C=2108
255+00 Lt.
2108 0
53+62
775.07
791.5
C=1346
254+00 Lt.
5885 0
1346 0
See Sheet No. 17
52+68
775.12
790.6
C=1258
253+00 Lt.
4534 0
1258 0
Match Line
51+76
775.16
790.6
C=1233
252+00 Lt.
4244 0
1233 0
50 Yr. Hi Water 798.4
Wills Creek Channel Reloc. No. 1
50+85
775.21
790.3
C=1214
251+00 Lt.
4124 0
1214 0
STA. 49+90
4143 0
1141 0
251+00 to 255+00 EXTN. LT.



256+00 to 260+00

FED. RD. DIVISION	STATE	COUNTY	
2	OHIO		

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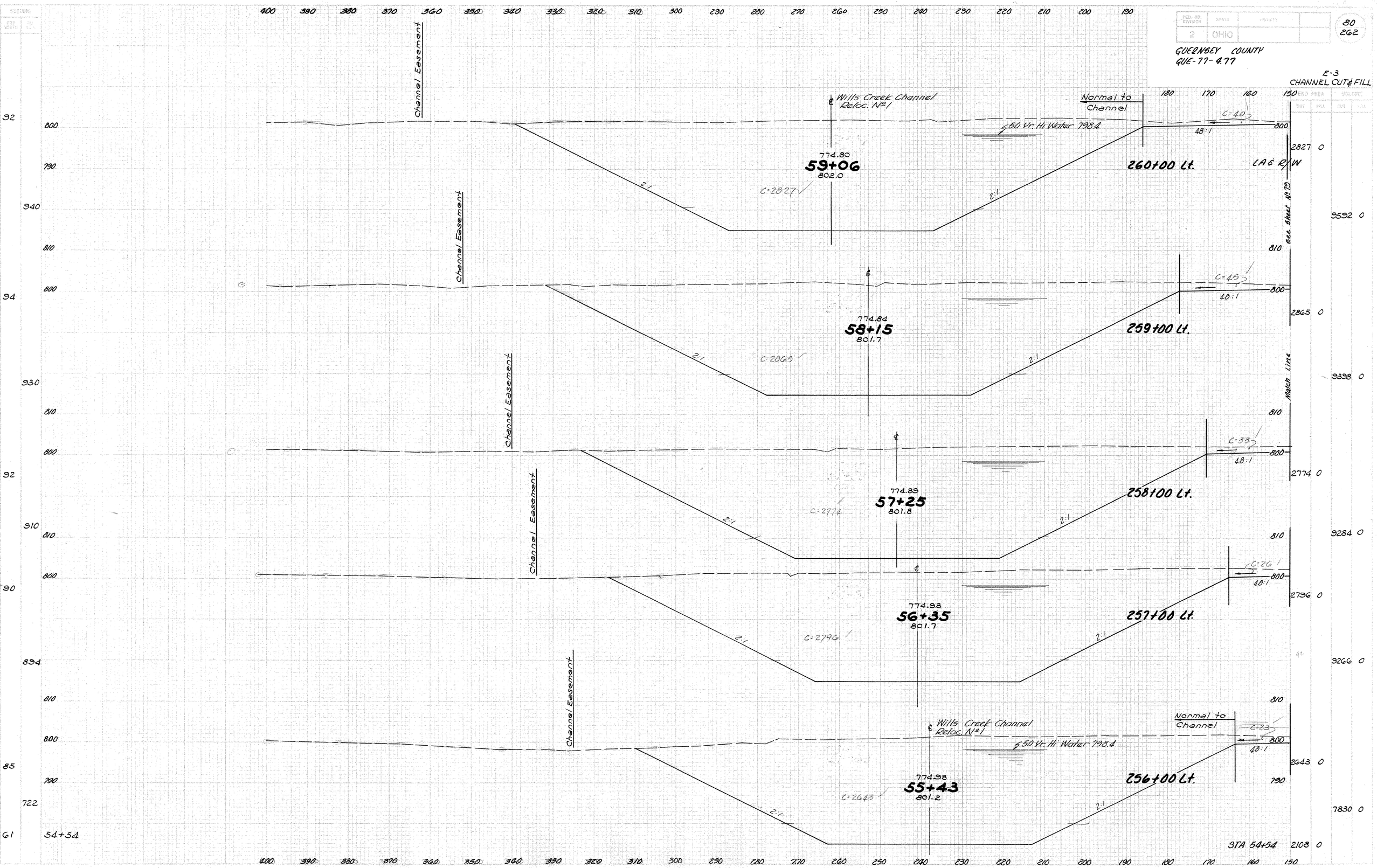
E-3
CHANNEL CUT & FILL



256+00 to 260+00 EXTN. LT.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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GUERNSEY COUNTY
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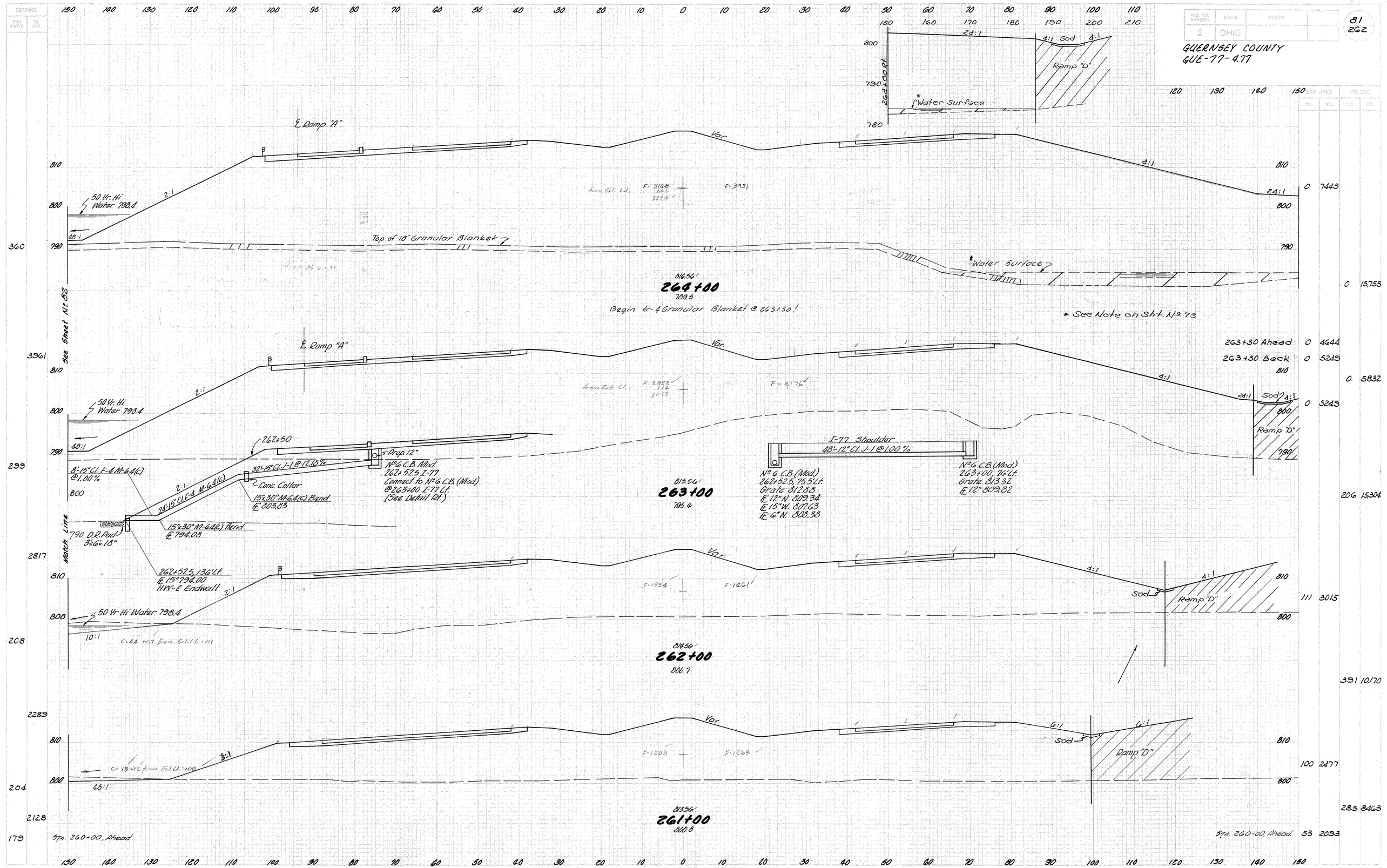

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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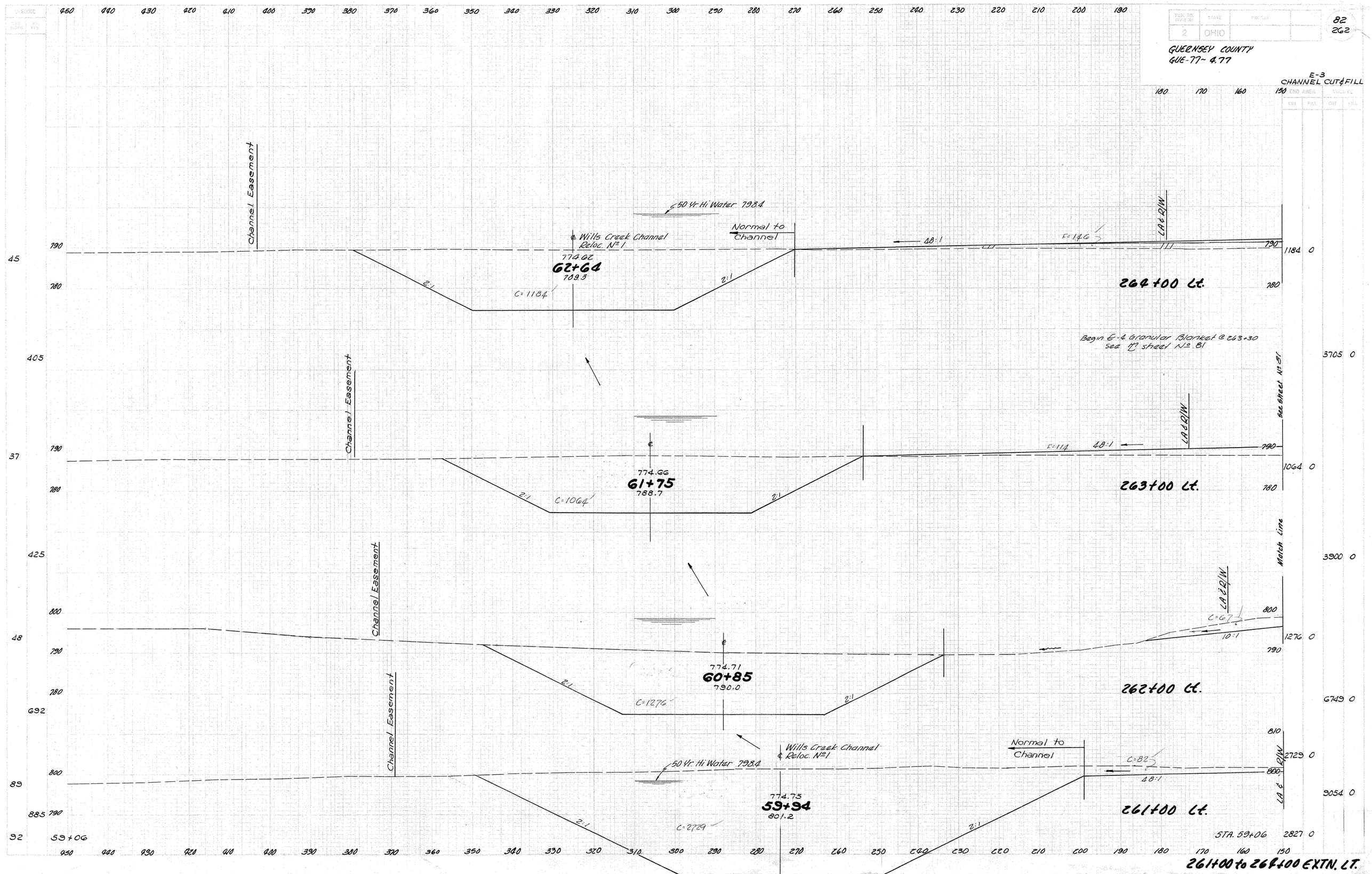
GUERNSEY COUNTY
GUE-77~ 4.77

E-3
CHANNEL CUT & FILL

END AREA		VOLUME	
CUT	FILL	CUT	FILL



GUERNSEY COUNTY
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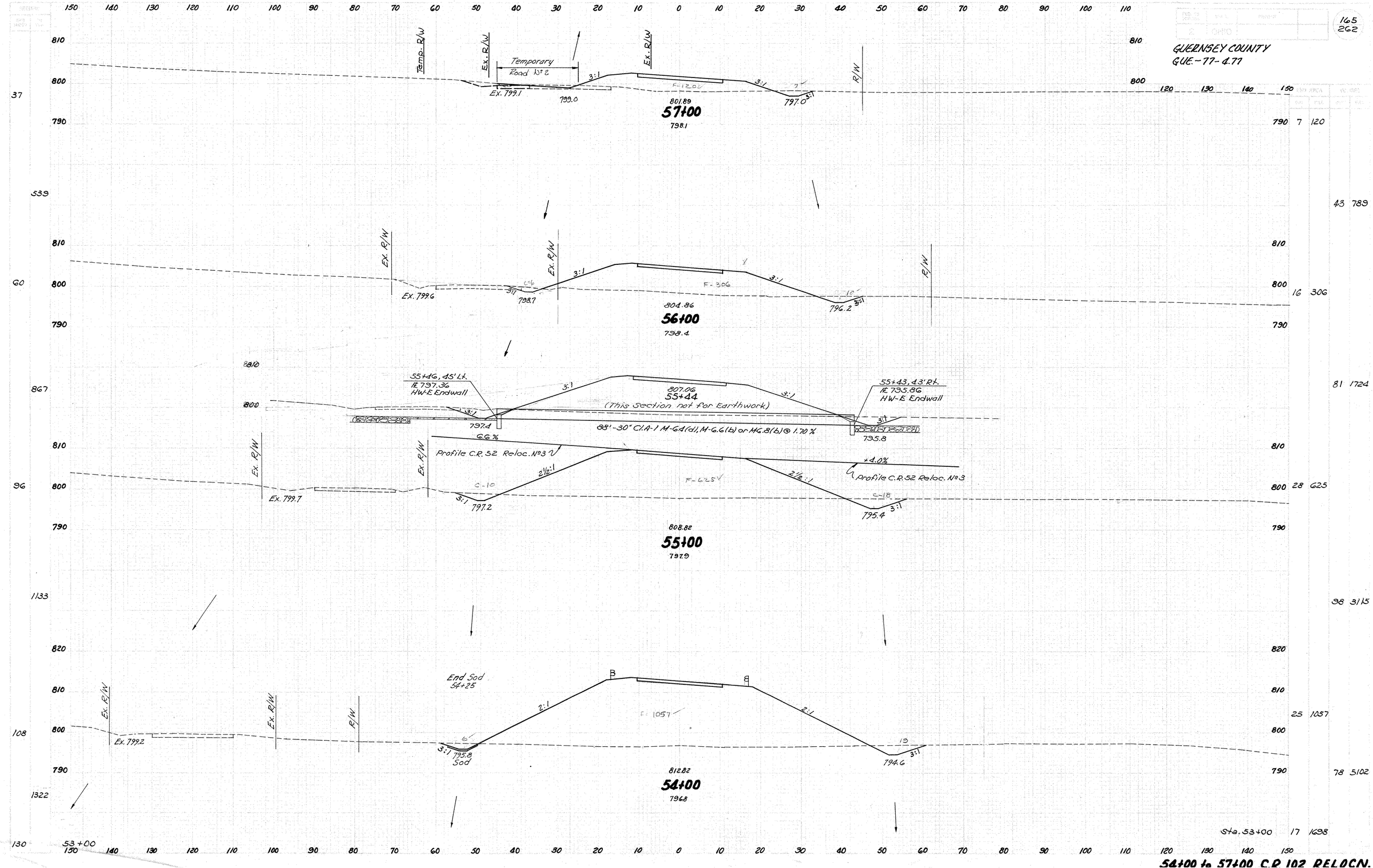
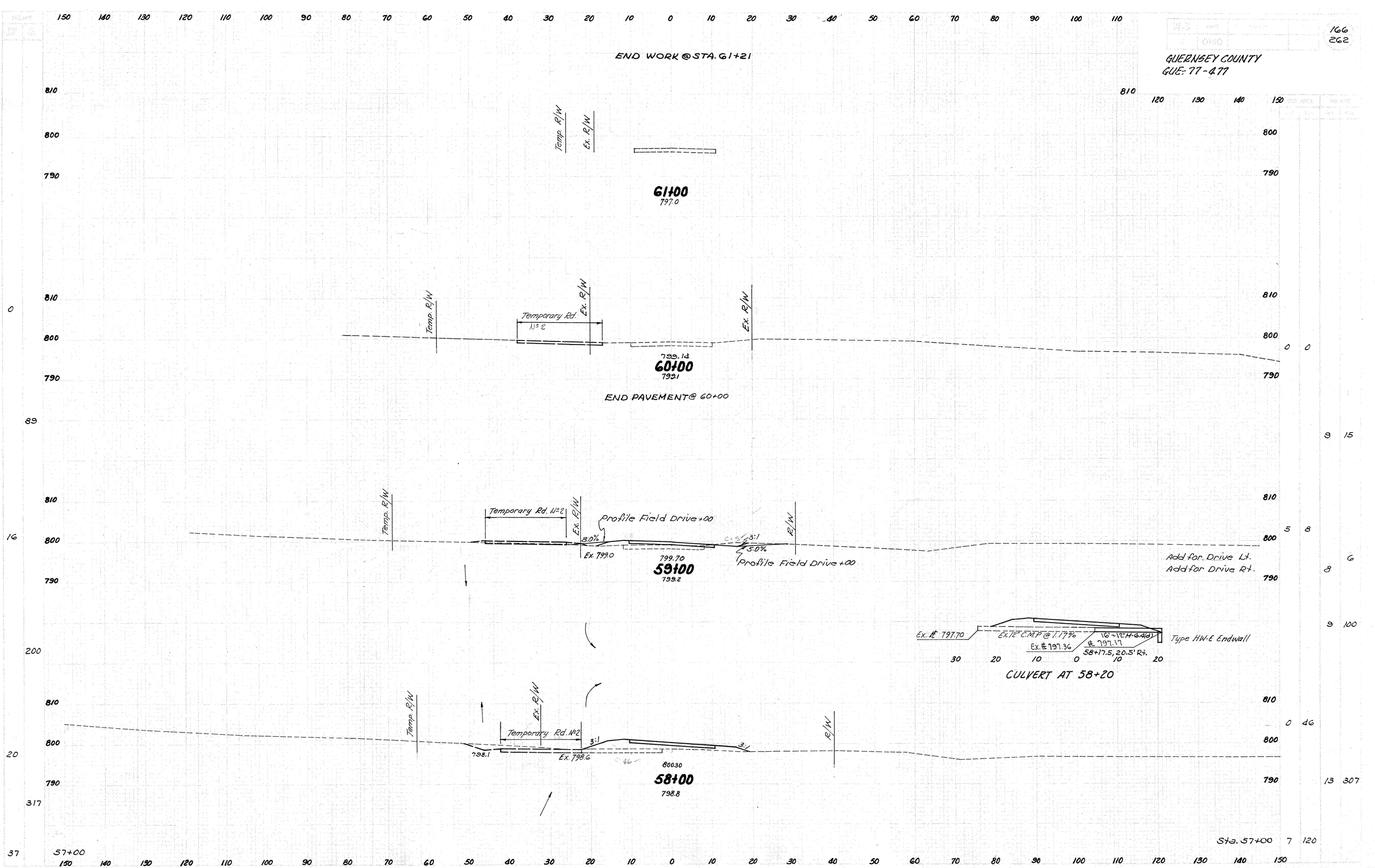


54+00 to 57+00 C.R. 102 RELOCN.



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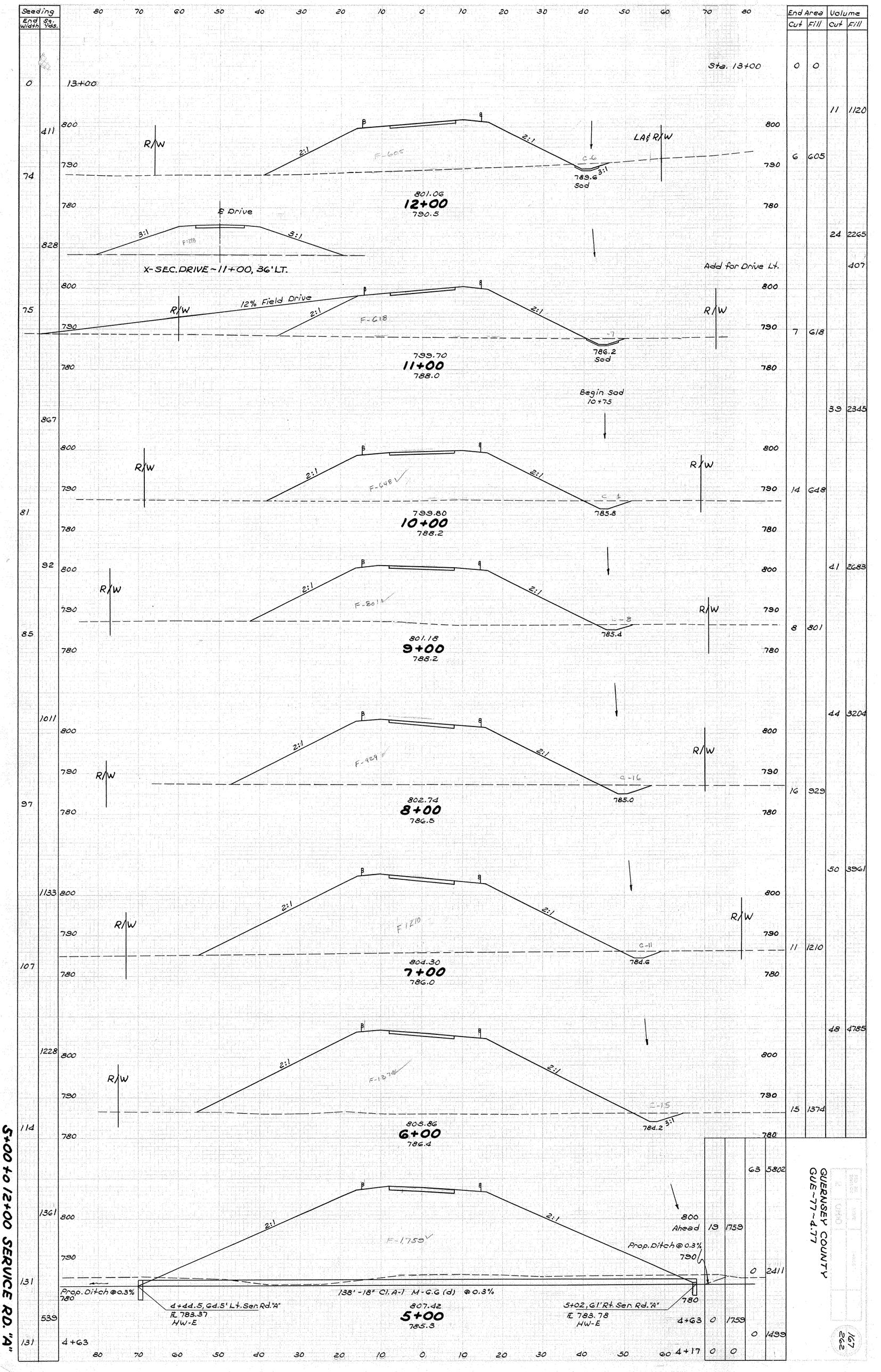
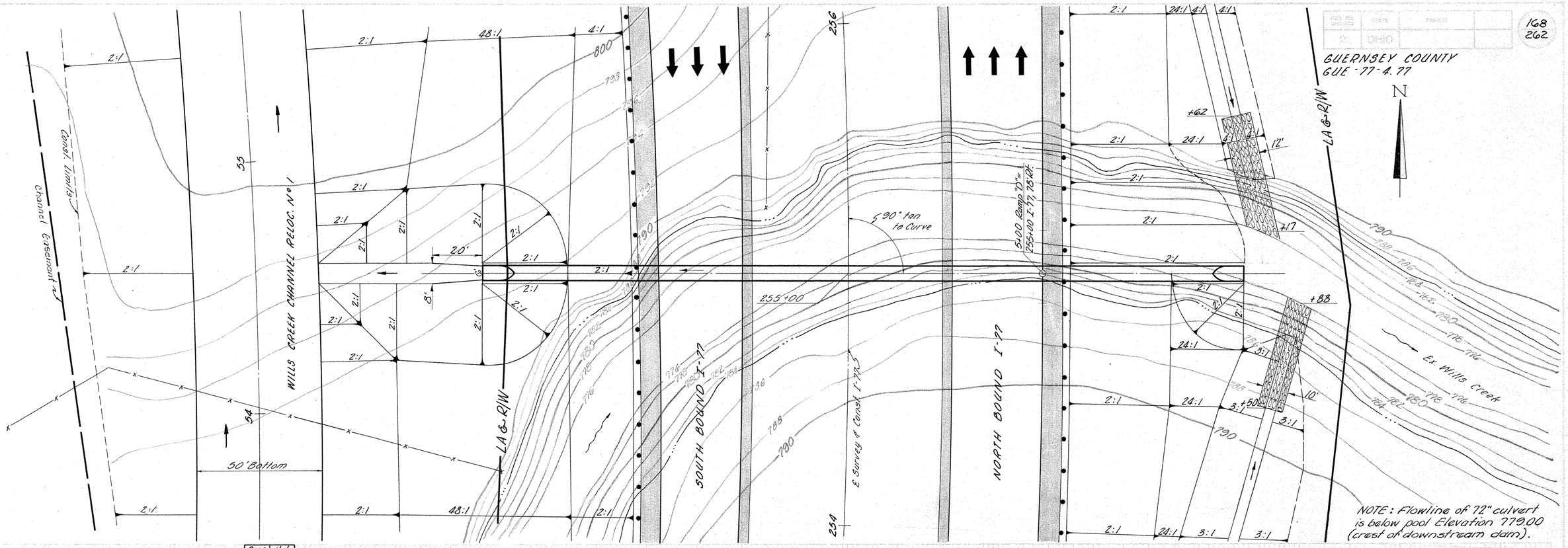
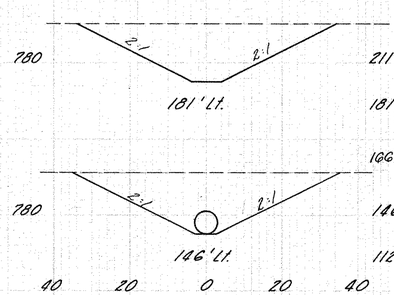
GUERNSEY COUNTY
GUE-77-4.77
END WORK @ STA. 61+21
Temp. R/W
Ex. R/W
61+00
797.0
Temporary Rd. No 2
799.14
60+00
799.1
END PAVEMENT @ 60+00
Profile Field Drive +00
8.0%
Ex. 799.0
799.70
59+00
799.2
3:1
5.0%
Profile Field Drive +00
Add for Drive Lt.
Add for Drive Rt.
Ex. ℄ 797.70
Ex. 12" C.M.P. @ 1.17%
16'-12" H-6.4(d)
Ex. ℄ 797.36
℄ 797.17
58+17.5, 20.5' Rt.
Type HW-E Endwall
CULVERT AT 58+20
798.1
Ex. 798.6
800.30
58+00
798.8
Sta. 57+00
57+00
58+00 to 61+00 C.R. 102 RELOCN.



Seeding
End Width
Sq. Yds.
End Area
Cut
Fill
Volume
Cut
Fill
Sta. 13+00
13+00
R/W
2:1
F-605
C-6
789.6
Sod
3:1
LA & R/W
801.06
12+00
790.5
℄ Drive
3:1
F-828
X-SEC. DRIVE ~ 11+00, 36' LT.
Add for Drive Lt.
12% Field Drive
F-618
786.2
Sod
799.70
11+00
788.0
Begin Sod
10+75
F-648
785.8
799.80
10+00
788.2
F-801
785.4
801.18
9+00
788.2
F-929
C-16
785.0
802.74
8+00
786.5
F-1210
C-11
784.6
804.30
7+00
786.0
F-1374
C-15
784.2
805.86
6+00
786.4
F-1759
Prop. Ditch @ 0.3%
138' - 18" Cl. A-1 M-6.6 (d) @ 0.3%
4+44.5, 64.5' Lt. Ser. Rd. "A"
℄ 783.37
HW-E
5+02, 61' Rt. Ser. Rd. "A"
℄ 783.78
HW-E
807.42
5+00
785.3
800
Ahead
Prop. Ditch @ 0.3%
4+63
4+17
0
0
11
1120
6
605
24
2265
407
7
618
39
2345
14
648
41
2683
8
801
44
3204
16
929
50
3961
11
1210
48
4785
15
1374
63
5802
19
1759
0
2411
0
1759
0
1499
0
0
411
74
828
75
867
81
92
85
1011
97
1133
107
1228
114
1361
131
539
131
4+63
5+00 to 12+00 SERVICE RD. "A"
GUERNSEY COUNTY
GUE-77-4.77
167
262

GUERNSEY COUNTY
GUE-77-4.77





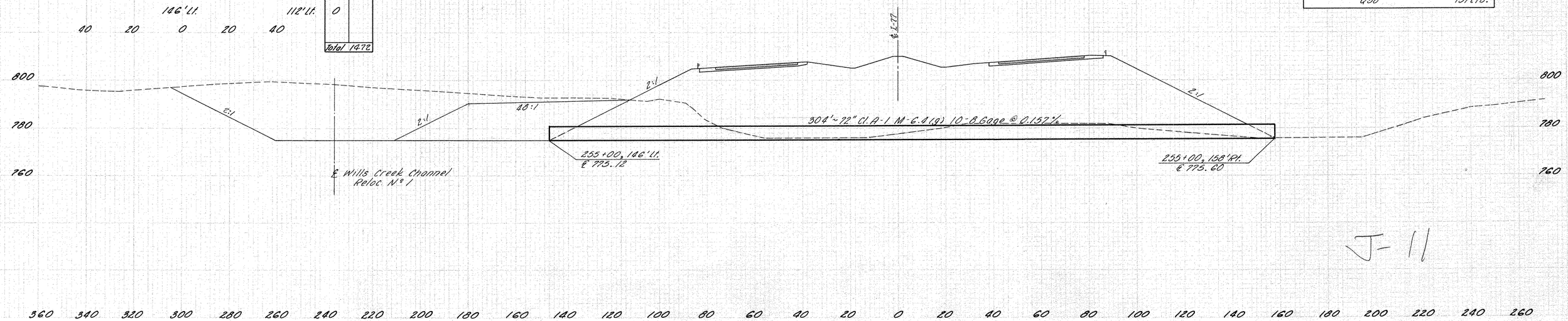
	Area Cut S.F.	Vol. E-3 C.Y.
211' Lt.	0	
		321
181' Lt.	578	
		321
166' Lt.	578	
		442
146' Lt.	616	
		388
112' Lt.	0	
Total		1472

Scale 1"=20'

STRUCTURE Nº GUE-77-0483
ESTIMATED QUANTITIES TO
SHEET Nº 38

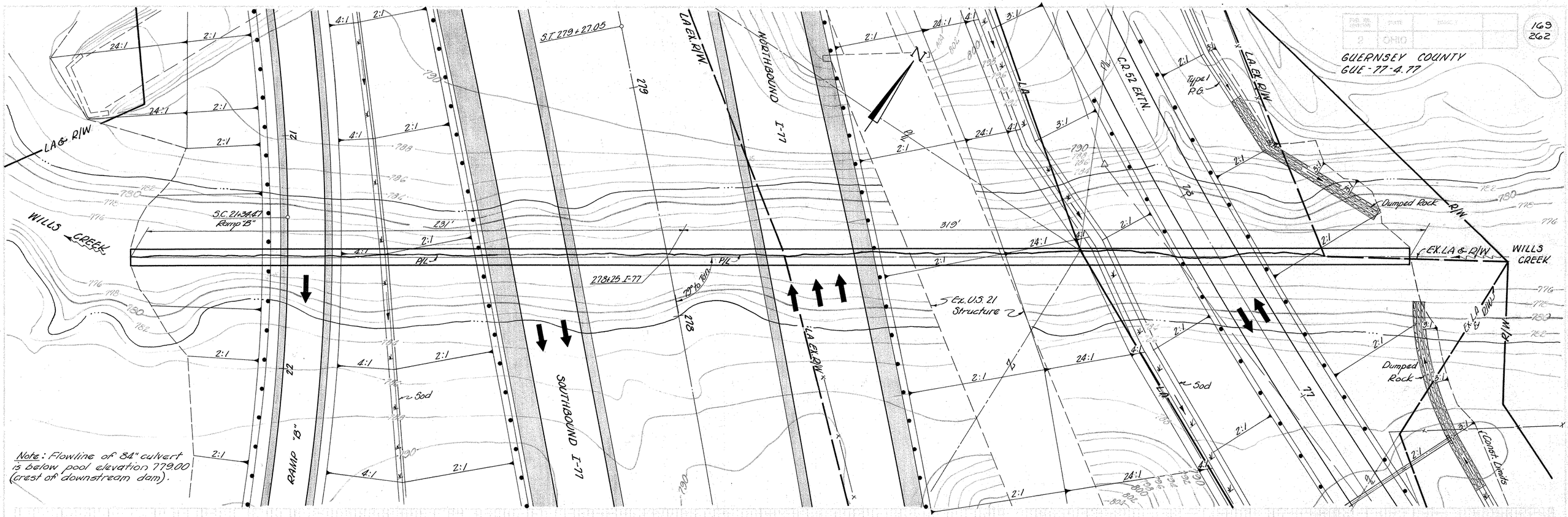
I-1 304'-72" Cl. A-1 M-6.4(g) 10-8 gage
E-2 Cofferdams, Cribbing, & Sheeting Lump
E-3 Channel Excavation 1472 C.Y.

Drainage Area - 217 Ac.
Q50 157 cfs.



J-11

CULVERT DETAILS - 255+00 I-77

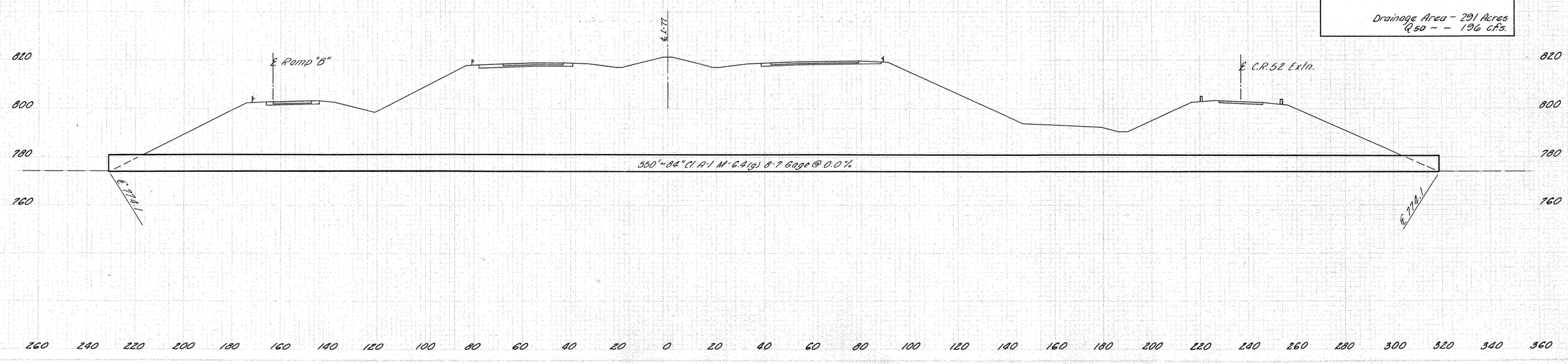


Scale: 1"=20'

STRUCTURE No GUE-77-0527
Estimated Quantities to
Sheet No 40

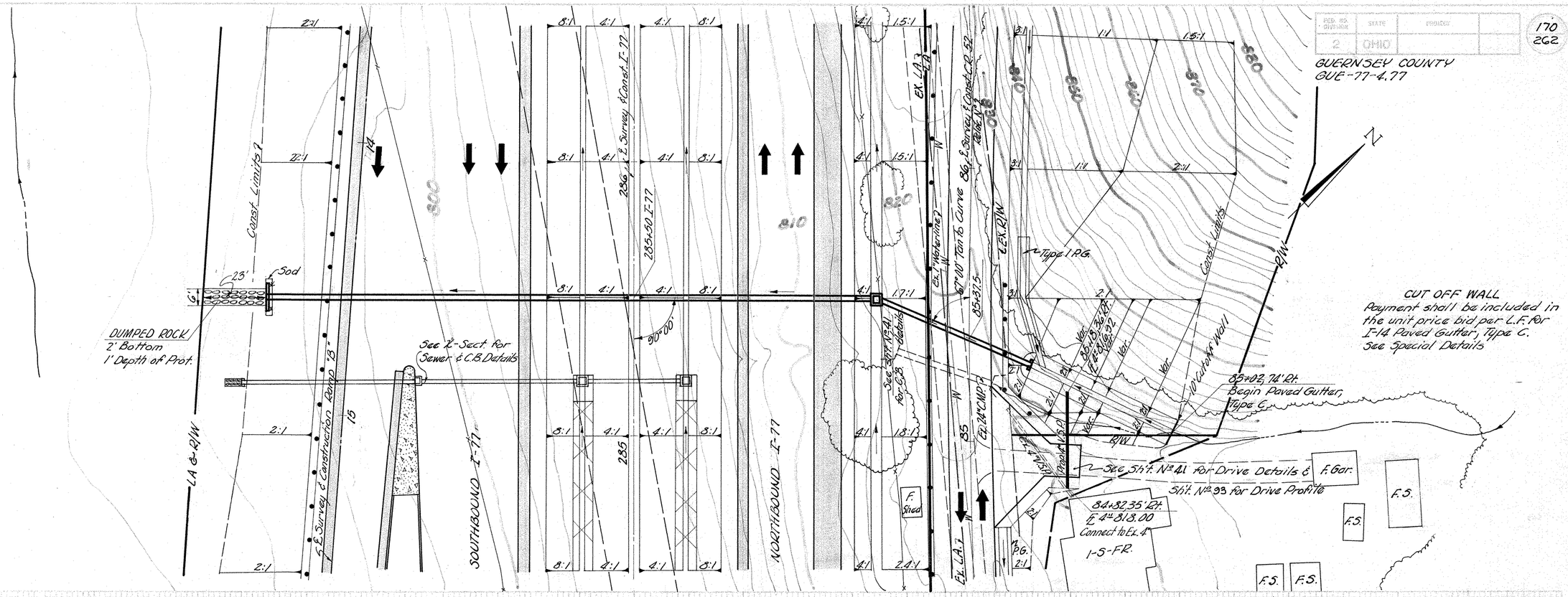
I-1 550'-84" Cl. A-1 M-6.4(g) 8-7 gage
E-2 Cofferdams, Cribbing, & Sheeting Lump

Drainage Area ~ 291 Acres
Q50 ~ ~ 196 c.f.s.



CULVERT DETAILS 278+25 I-77

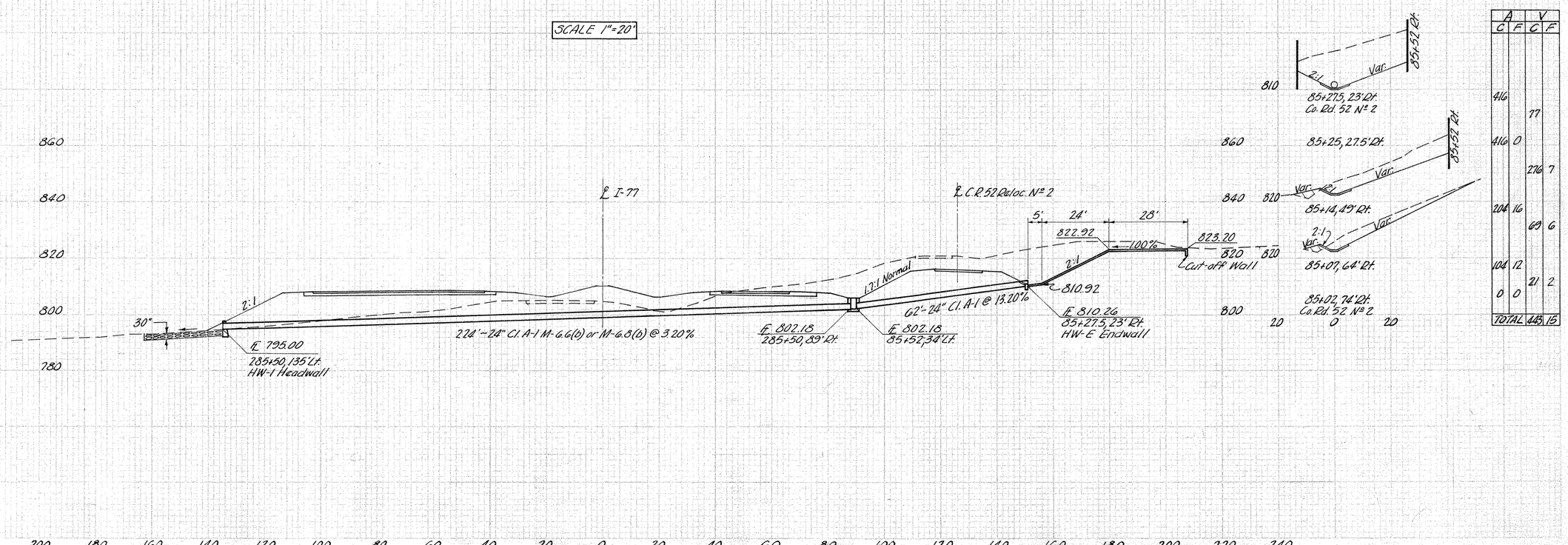
GUERNSEY COUNTY
GUE-77-4.77



STRUCTURE No GUE-77-0541 ESTIMATED QUANTITIES TO SHEET No 41		
I-1	224'-24" Cl. A-1 M-6.6(b) or M-6.8(b)	
I-2	Masonry	3.3 C.Y.
L-10	Sodding	3. S.Y.
I-10	Dumped Rock Channel Prot.	14 C.Y.
I-8	No 5 C. Basin	1 Ea.
	Drainage Area	7.8 Ac.
	Q10	21 cfs.
	Q50	29.6 cfs.

STRUCTURE 85+37.5 C.R. 52 RELOC. No 2 ESTIMATED QUANTITIES TO SHEET No 41		
I-1	62'-24" Cl. A-1	
I-2	Masonry	0.41 C.Y.
I-14	Paved Gutter, Type C	63 L.F.
E-3	Channel Excavation	443 C.Y.
*	Embankment	15 C.Y.
L-10	Sodding	21 S.Y.
	Drainage Area	7.8 Ac.
	Q10	21 cfs.
	Q50	29.6 cfs.

* Estimated Quantity to sheet No 93

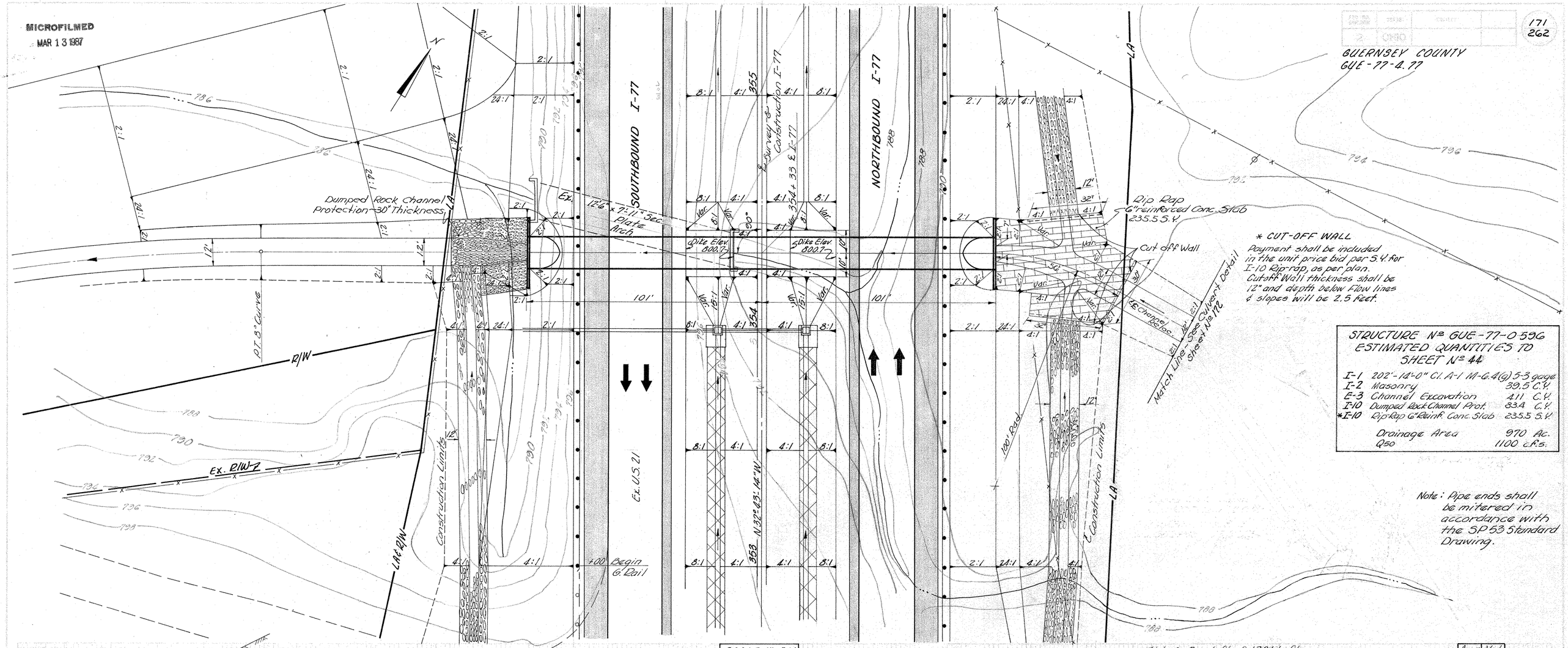


A C	A F	V C	V F
416			
		77	
416	0		
		276	7
204	16		
		69	6
104	12		
		21	2
0	0		
TOTAL		443	15

CULVERT DETAILS STA. 285+50 & 85+37.5 C.R. 52 RELOC. No 2

MICROFILMED
MAR 13 1987

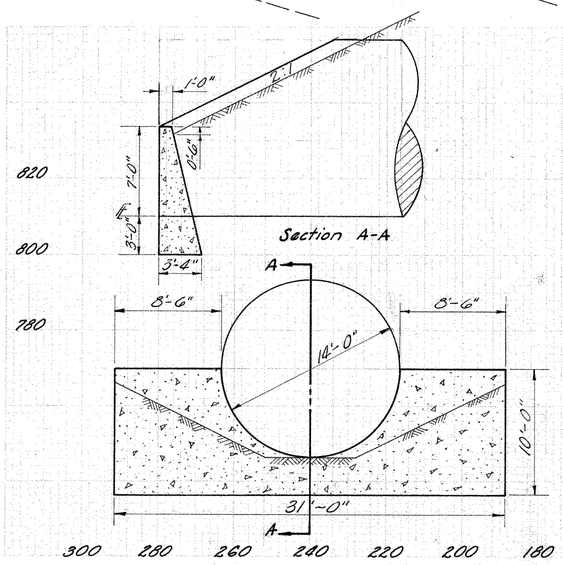
GUERNSEY COUNTY
GUE-77-4.77

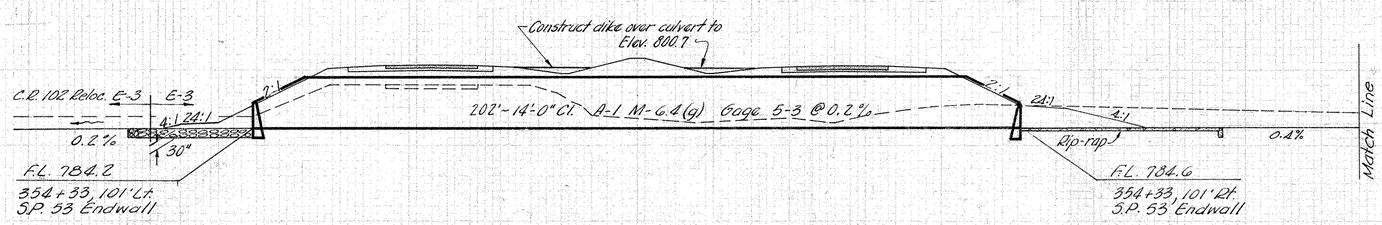


* CUT-OFF WALL
Payment shall be included in the unit price bid per S.Y. for I-10 Rip-rap, as per plan. Cutoff Wall thickness shall be 12" and depth below flow lines & slopes will be 2.5 feet.

STRUCTURE No GUE-77-0596 ESTIMATED QUANTITIES TO SHEET No 44		
I-1	202'-14'-0" Cl. A-1 M-6.4(g) 5-3 gage	
I-2	Masonry	39.5 C.Y.
E-3	Channel Excavation	411 C.Y.
I-10	Dumped Rock Channel Prot.	834 C.Y.
*I-10	Rip-Rap 6" Reinf. Conc. Slab	235.5 S.Y.
	Drainage Area	970 Ac.
	Q50	1100 c.f.s.

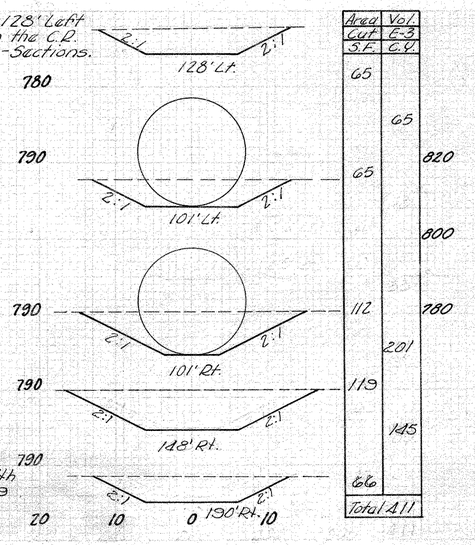
Note: Pipe ends shall be mitered in accordance with the SP 53 Standard Drawing.





SECTIONAL PLATE PIPE CULVERT
ENDWALL DETAIL
Scale 1" = 6'

Note: Exc. Left of 128' Left carried with the C.R. 102 Reloc. X-Sections.



Area Cut S.F.	Vol. E-3 C.Y.
65	
	65
65	
	201
112	
	145
119	
66	
Total	411

Note: Exc. Right of 190' Rt. carried with Culvert @ Sta. 23+39 C.R. 52 Reloc. No 3. (See Sht. No 172)

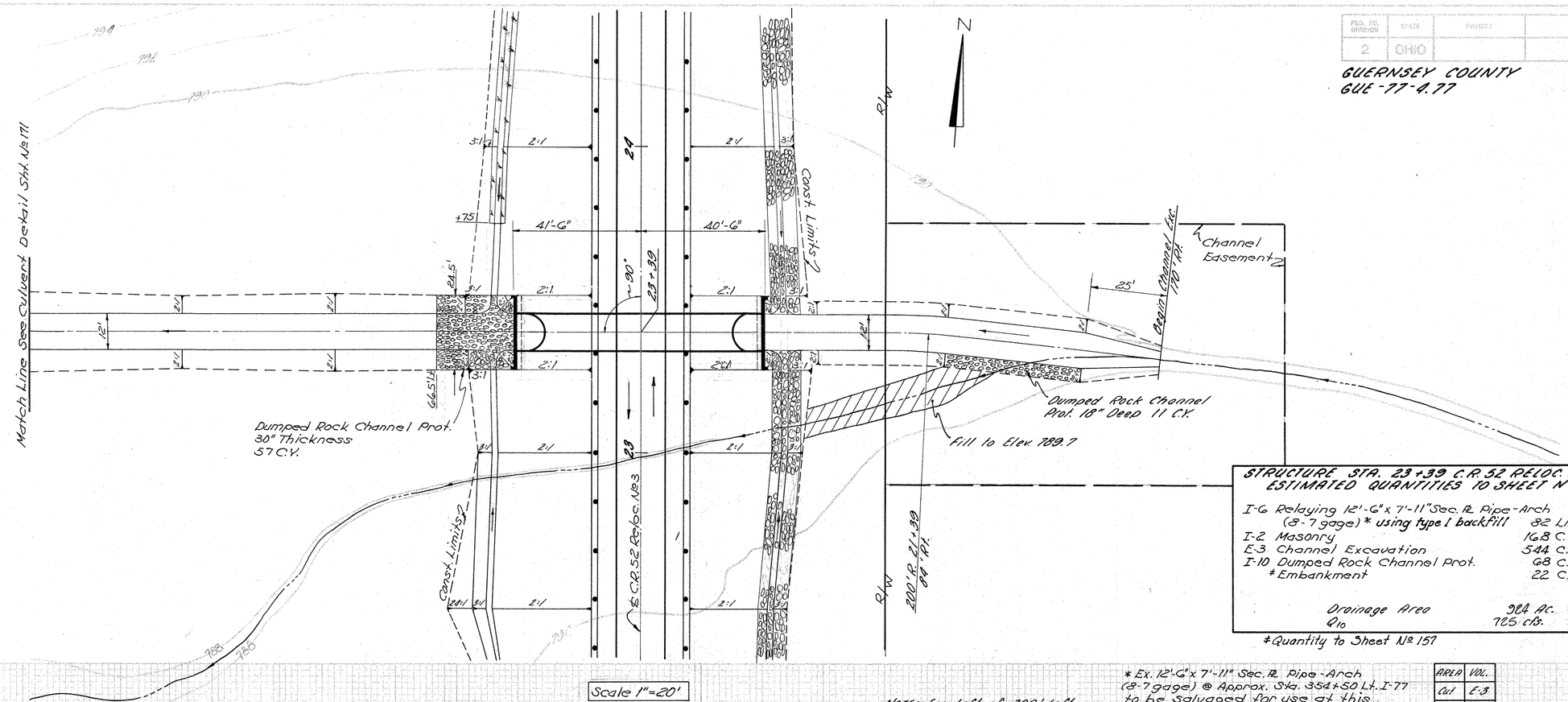
300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200

CULVERT DETAILS 354+33 I-77

PROJ. NO. DIVISION	STATE	PROJECT	
2	OHIO		

172
262

GUERNSEY COUNTY
GUE-77-4.77



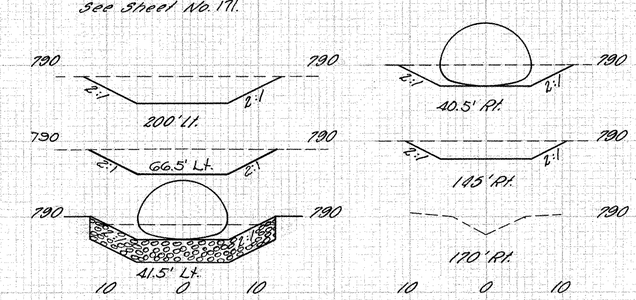
STRUCTURE STA. 23+39 C.R. 52 RELOC. Nº 3
ESTIMATED QUANTITIES TO SHEET Nº 61

I-6 Relaying 12'-6" x 7'-11" Sec. R. Pipe-Arch (8-7 gage) * using type I backfill	82 Lin. Ft.
I-2 Masonry	16.8 C.Y.
E-3 Channel Excavation	544 C.Y.
I-10 Dumped Rock Channel Prot.	68 C.Y.
* Embankment	22 C.Y.
Drainage Area	984 Ac.
Q10	725 cfs.

*Quantity to Sheet Nº 157

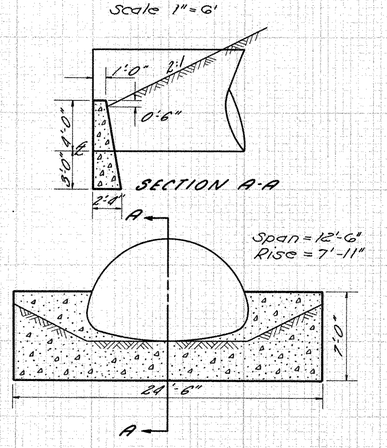
Note: Exc. left of 200' left carried with culvert @ Sta. 354+33 I-77. See Sheet No. 171.

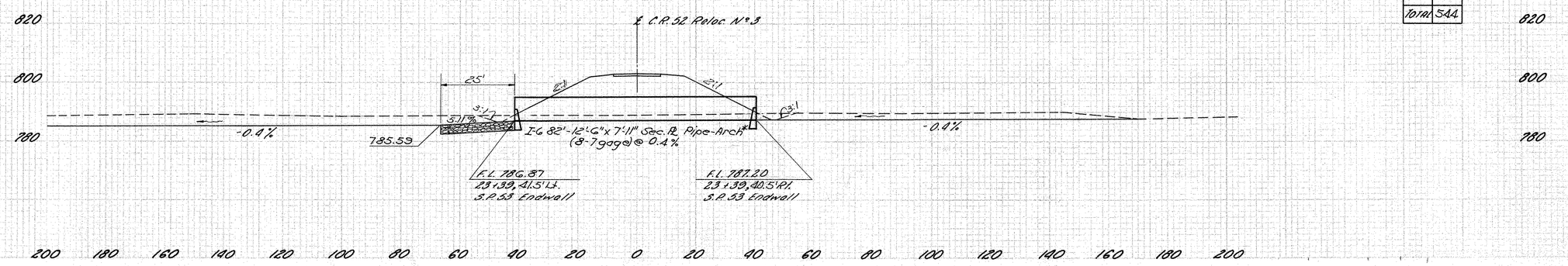
* Ex. 12'-6" x 7'-11" Sec. R. Pipe-Arch (8-7 gage) @ Approx. Sta. 354+50 Lt. I-77 to be salvaged for use at this location.



	AREA Cut S.F.	VOL. E-3 C.Y.
200' Lt.	66	
		310
66.5' Lt.	60	
		43
41.5' Lt.	32	
40.5' Rt.	49	
		172
145' Rt.	40	
		19
170' Rt.	0	
TOTAL		544

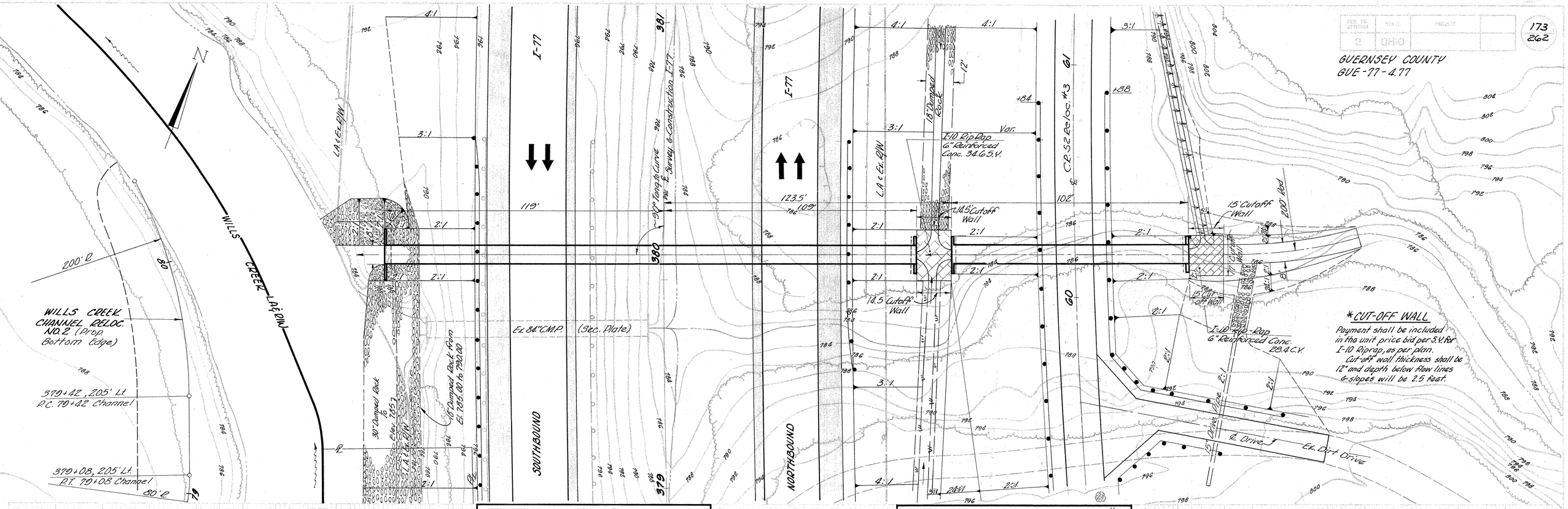
SECTIONAL PLATE PIPE-ARCH CULVERT
ENDWALL DETAILS
Scale 1"=6'





CULVERT DETAIL 23+39 C.R. 52 RELOC. Nº 3

GUERNSEY COUNTY
GUE-77-4.77



*CUT-OFF WALL

Payment shall be included in the unit price bid per S.Y. for I-10 Riprap, as per plan.
Cut-off wall thickness shall be 12" and depth below flow lines & slopes will be 2.5 feet.

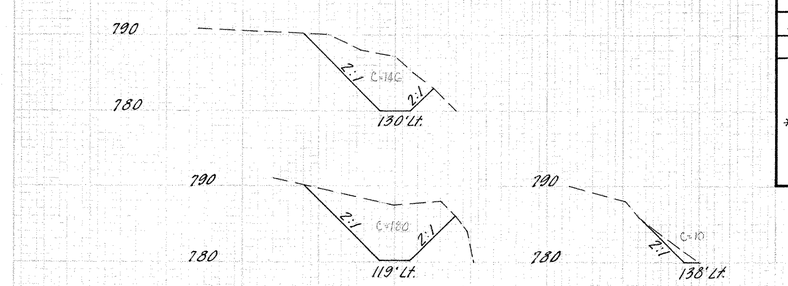
DRAINAGE STRUCTURE GUE-77-0645	
STA. 380+00	
TYPE SP-53 HEADWALL	DRAINAGE AREA 435 Ac.
Q10 301 c.f.s.	Q50 424 c.f.s.
I-1 96" Class A-1, M.G.6(b)	228 L.F.
I-2 Masonry	11.22 C.Y.
*I-10 Rip-Rap (6" reinf. conc.)	34.6 S.Y.
E-3 Channel Excavation	179 C.Y.

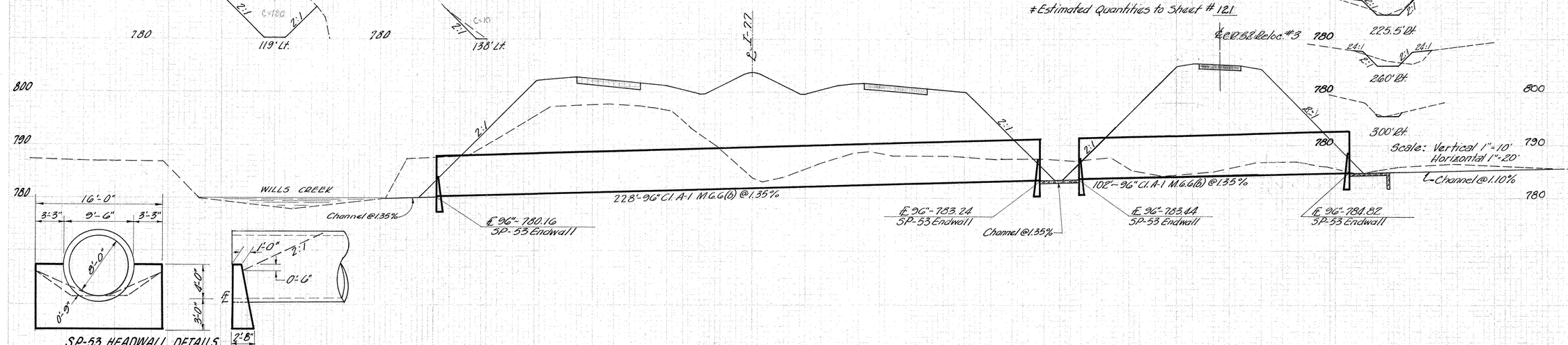
Estimated Quantities to Sheet # 46

PLAN
SCALE 1" = 20'

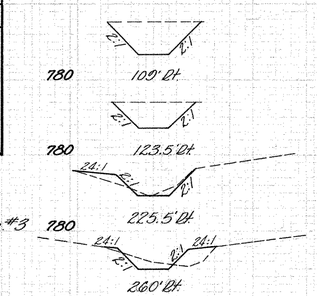
DRAINAGE STRUCTURE C.R. 52 RELOC. #3	
STA. 60+18	
TYPE SP-53 HEADWALL	DRAINAGE AREA 400 Acres
Q10 289 c.f.s.	Q50 407 c.f.s.
I-1 96" Class A-1 M.G.6(b)	102 L.F.
I-2 Masonry	11.22 C.Y.
*I-10 Rip-Rap (6" reinf. conc.)	28.4 S.Y.
E-3 Channel Excavation	31 C.Y.
# Embankment	30 C.Y.

Estimated Quantities to Sheet # 63
Estimated Quantities to Sheet # 121



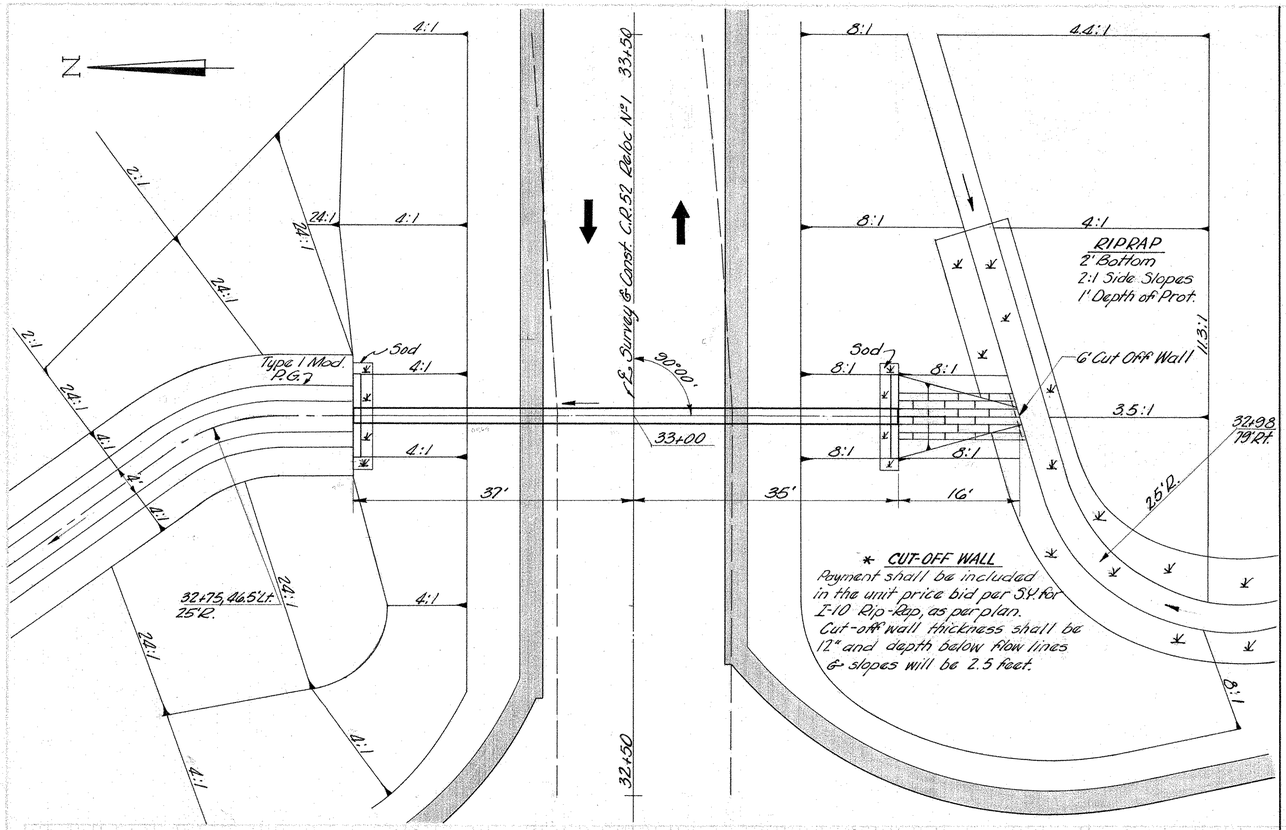


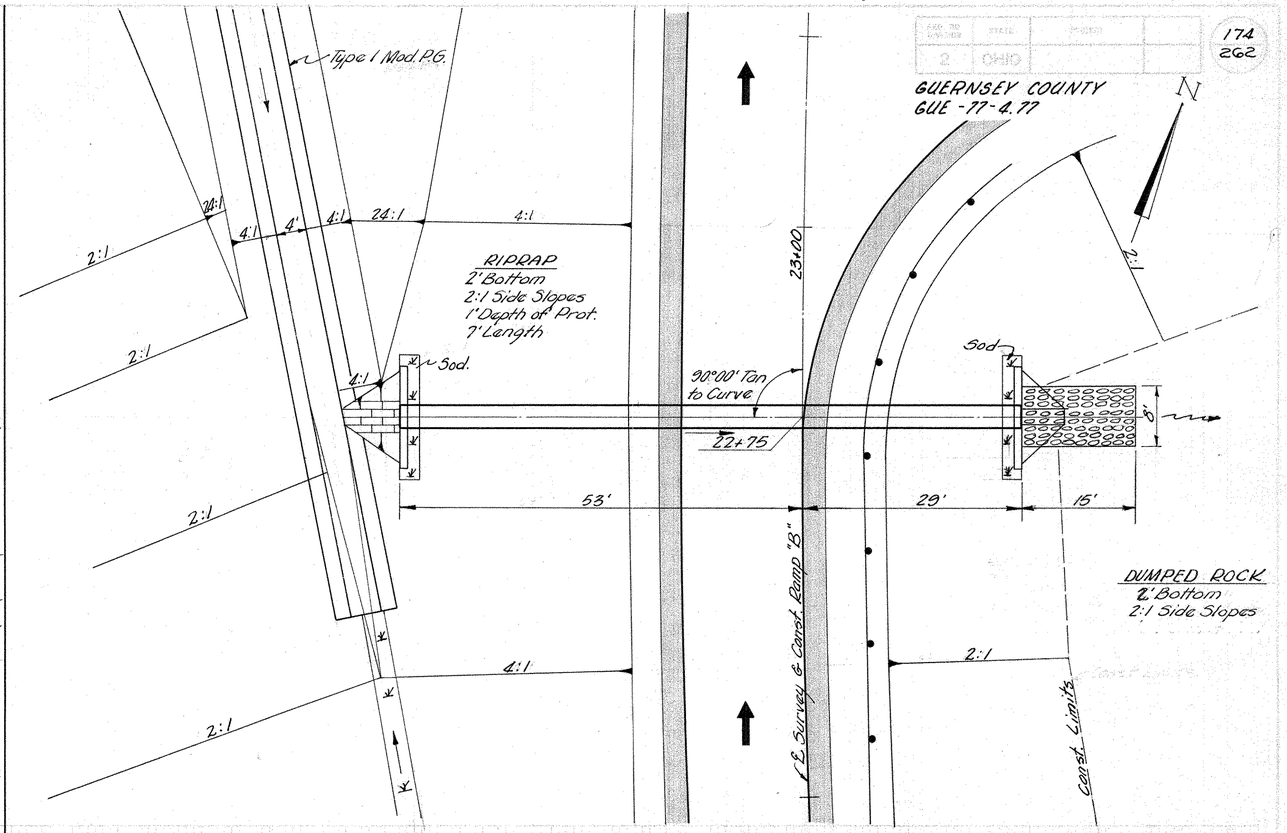
SP-53 HEADWALL DETAILS



	AREA CUT	AREA FILL	VOLUME CUT	VOLUME FILL
300' Rt.	4	0		
			12	13
260' Rt.	12	18		
			13	17
225.5' Rt.	8	8		
123.5' Rt.	50	0		
			6	0
117' Rt.	0	0		
Totals			31	30
114' Rt.	0			
			6	
109' Rt.	68			
138' Lt.	10	0		
			23	0
130' Lt.	146	0		
119' Lt.	180	0		
			30	0
110' Lt.	0	0		
Totals			179	0

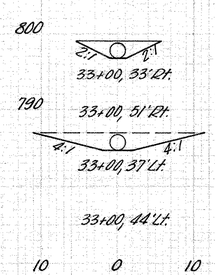
CULVERT DETAILS 380+00 U.S. 21 / 60+18 C.R. 52 RELOC. #3



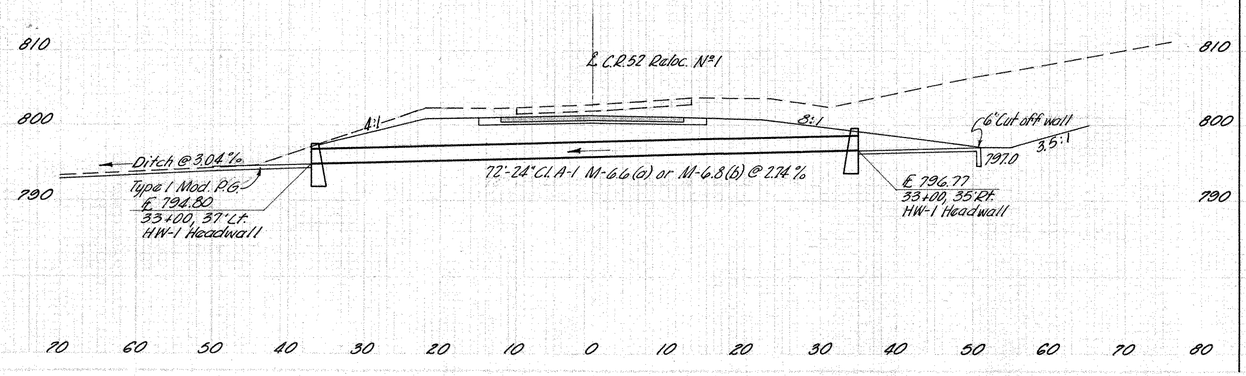


STRUCTURE 33+00 CR 52 RELOC Nº1 ESTIMATED QUANTITIES TO SHEET Nº 40		
I-1	72"-24" Cl. A-1 M-6.6(a) or M-6.8(b)	
I-2	Masonry	6.6 C.Y.
L-10	Sodding	6 S.Y.
E-3	Channel Excavation	14 C.Y.
* I-10	Riprap, using 6" Reinforced Conc. Slab as per plan.	11 S.Y.
	Drainage Area	3.2 Ac.
	Q50	15.3 cfs.

SCALE 1" = 10'

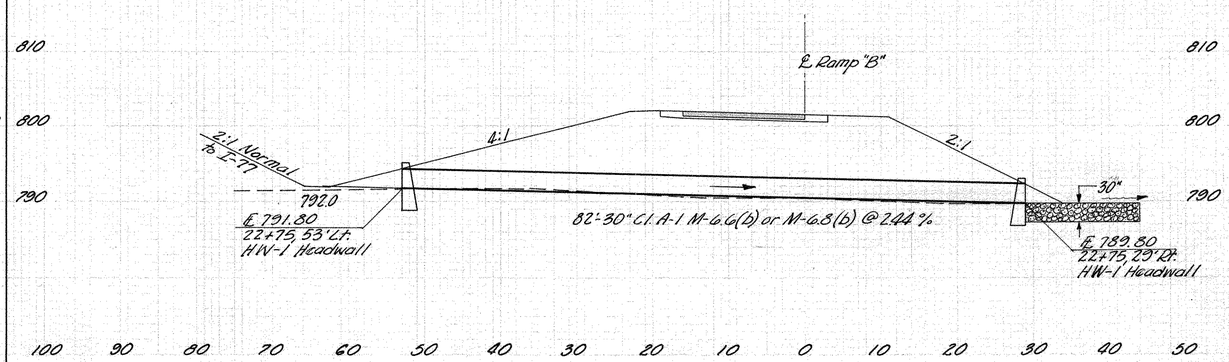


Area Cut S.F.	Vol. E-3 C.Y.
15	
	10
0	
32	
	4
0	
Total	14



SCALE 1" = 10'

STRUCTURE 22+75 RAMP "B" ESTIMATED QUANTITIES TO SHEET Nº 40		
I-1	82"-30" Cl. A-1 M-6.6(b) or M-6.8(b)	
I-2	Masonry	9.4 C.Y.
L-10	Sodding	6 S.Y.
I-10	Dumped Rock Channel Prot.	11 C.Y.
I-10	Riprap, using 6" reinforced Conc. slab, as per plan	5 S.Y.
	Drainage Area	5.1 Ac.
	Q50	22 cfs.



CULVERT DETAILS 33+00 C.R. 52 RELOC. Nº 1

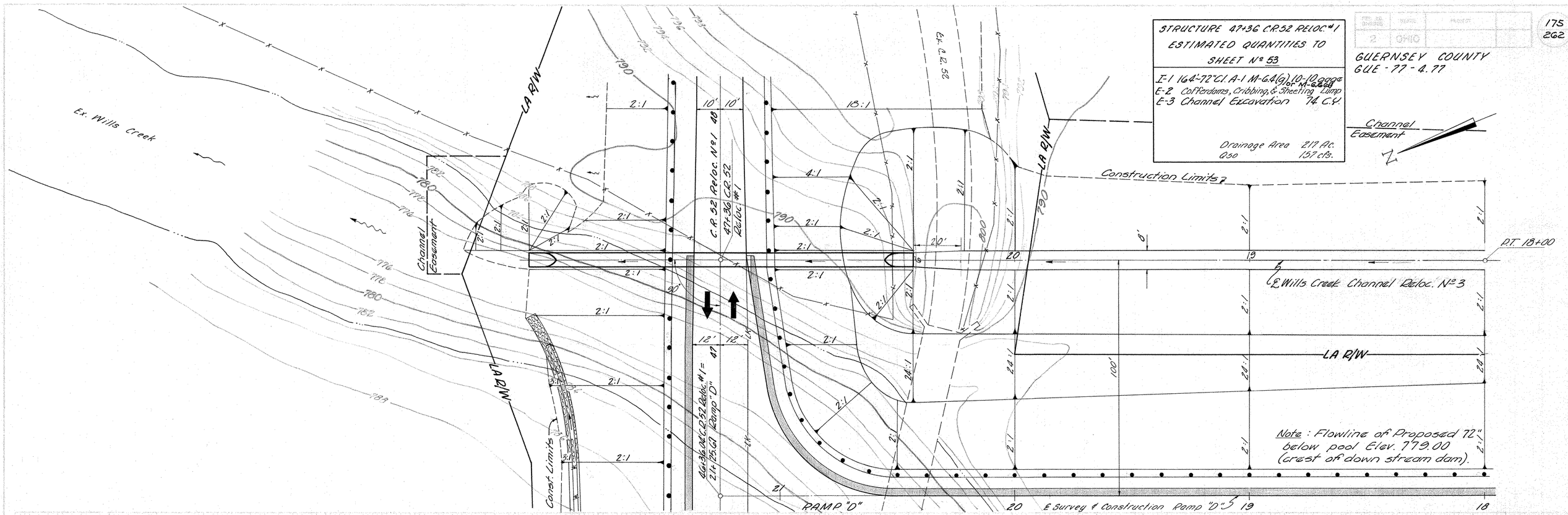
CULVERT DETAILS 22+75 RAMP "B"

GUERNSEY COUNTY
GUE - 77 - 4.77

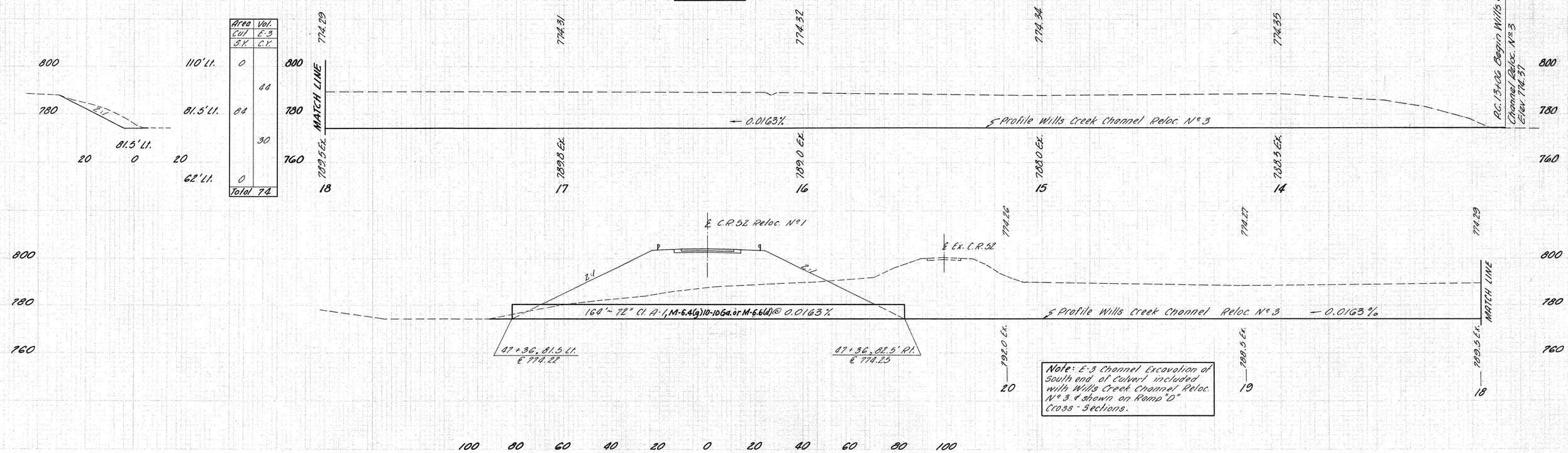
STRUCTURE 47+36 CR.52 RELOC. #1
ESTIMATED QUANTITIES TO
SHEET Nº 53

E-1 164'-72" Cl. A-1 M-6.4(g)10-10Ga. or M-6.6(d)
E-2 Cofferdams, Cribbing, & Sheeting Lump
E-3 Channel Excavation 74 C.Y.

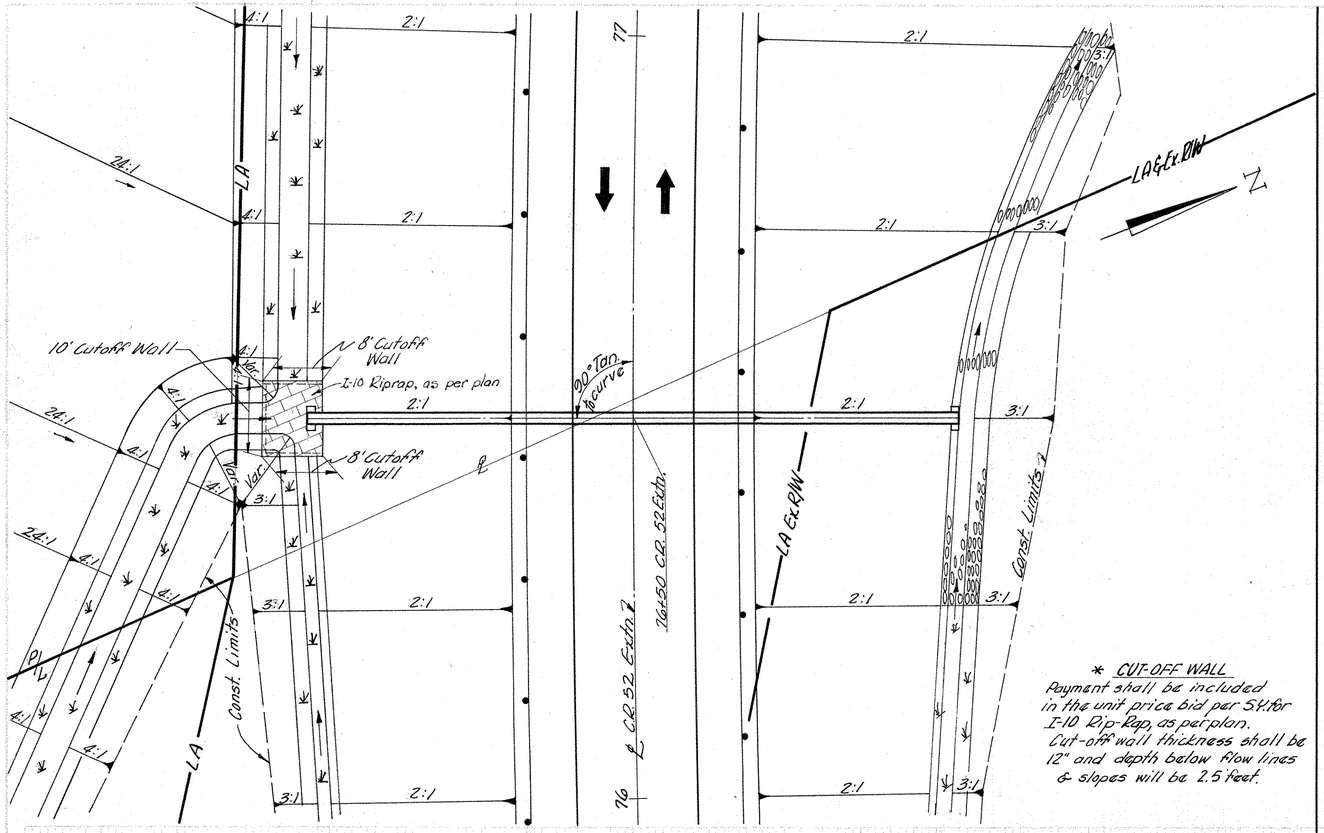
Drainage Area 217 Ac.
Q50 157 cfs.



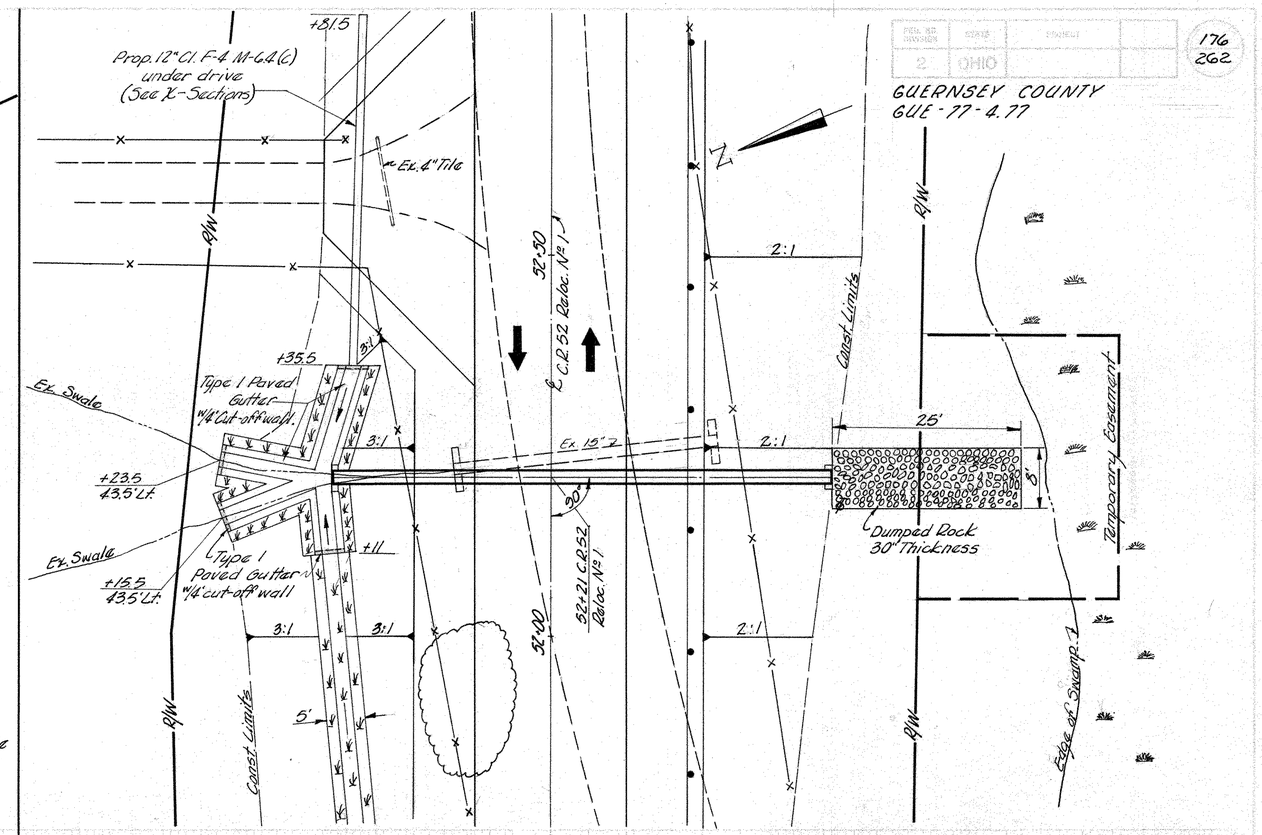
Area Cut S.Y.	Vol. E-3 C.Y.
110' Lt. 0	
	44
81.5' Lt. 84	
	30
62' Lt. 0	
Total	74



PROFILE WILLS CREEK CHANNEL RELOC. #3 & CULVERT DETAILS - 47+36 C.R. 52 REL. #1



* CUT-OFF WALL
Payment shall be included in the unit price bid per S.Y. for I-10 Rip-Rap, as per plan. Cut-off wall thickness shall be 12" and depth below flow lines & slopes will be 2.5 feet.



Scale: 1"=10'

STRUCTURE 76+50 C.R. 52 EXTN.
Estimated Quantities to Sheet Nº 51

I-1	86'-18" Cl. A-1 M-6.6(b) or M-6.8(b)	
I-2	Masonry	0.60 C.Y.
* I-10	Riprap using 6" Reinforced Conc. Slab as per plan.	9 S.Y.

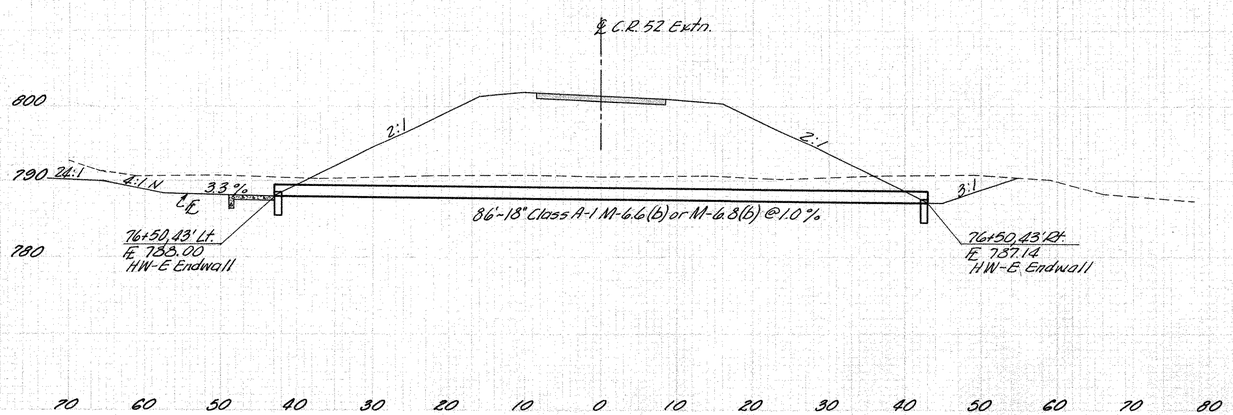
Drainage Area: ~ 5 Acres
Q10 ~ 12.5 cfs.
Q50 ~ 17.6 cfs.

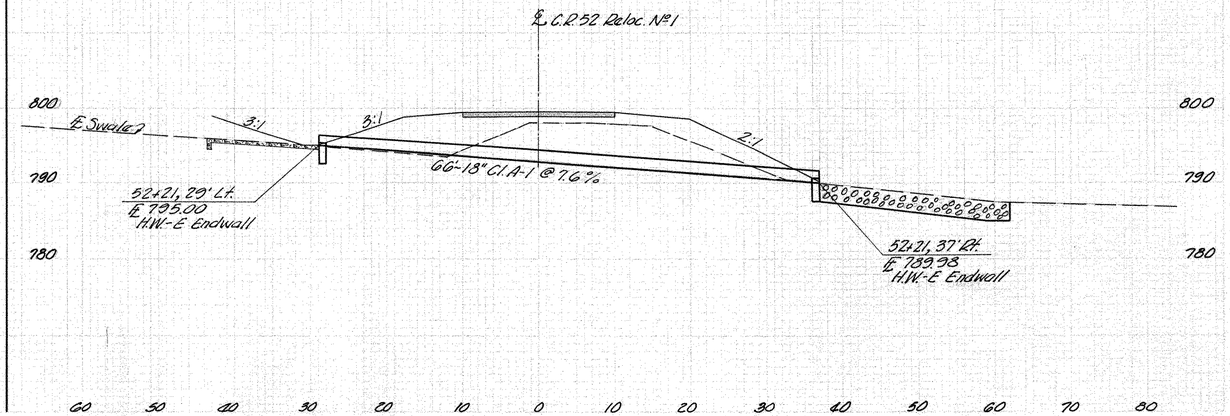
Scale: 1"=10'

STRUCTURE 52+21 C.R. 52 RELOC. #1
Estimated Quantities to Sheet Nº 53

I-1	66'-18" Cl. A-1	
I-2	Masonry	0.60 C.Y.
I-10	Dumped Rock	18.5 C.Y.
I-14	Std. Type 1 Paved Gutter	52 L.F.
L-10	Sodding	12 S.Y.

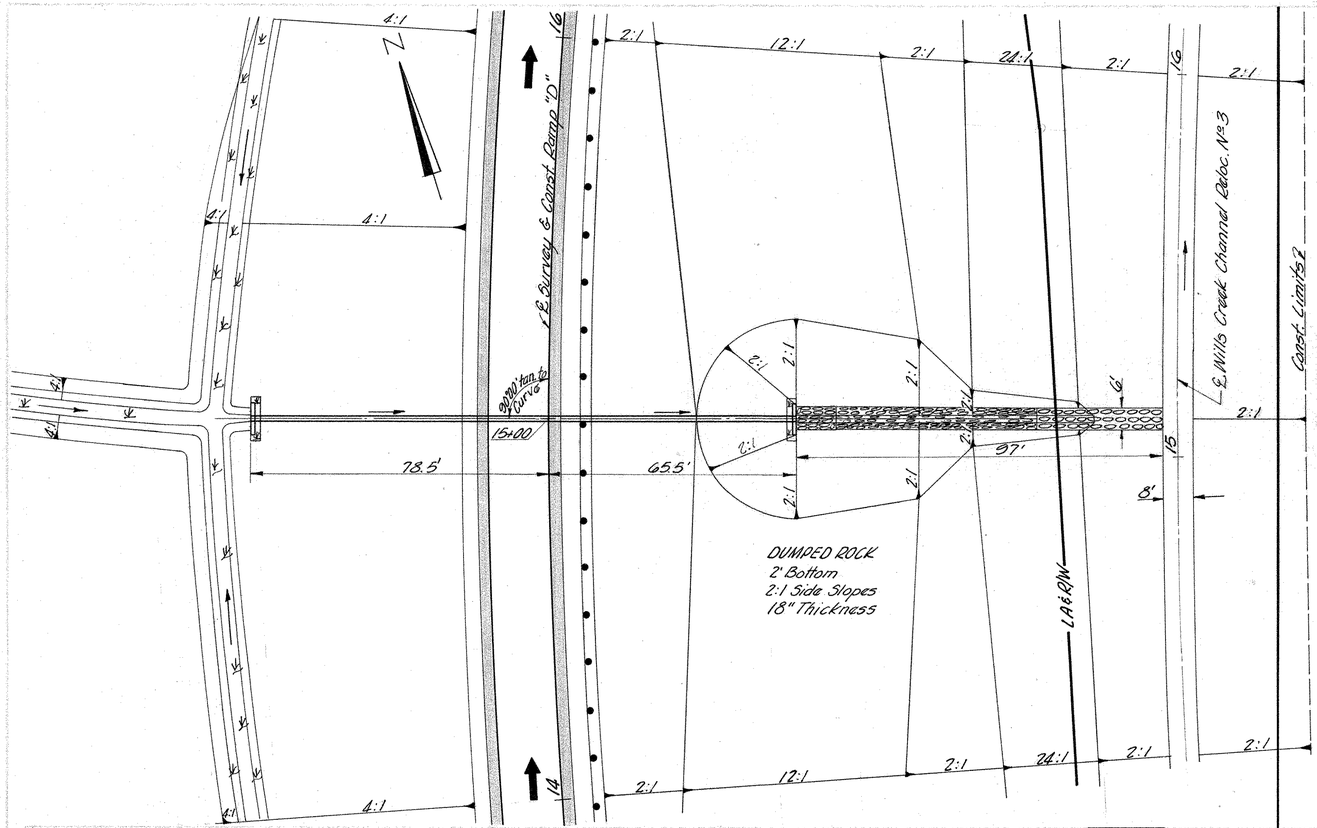
Drainage Area ~ 1.46 Acres
Q25 ~ 4.9 cfs.

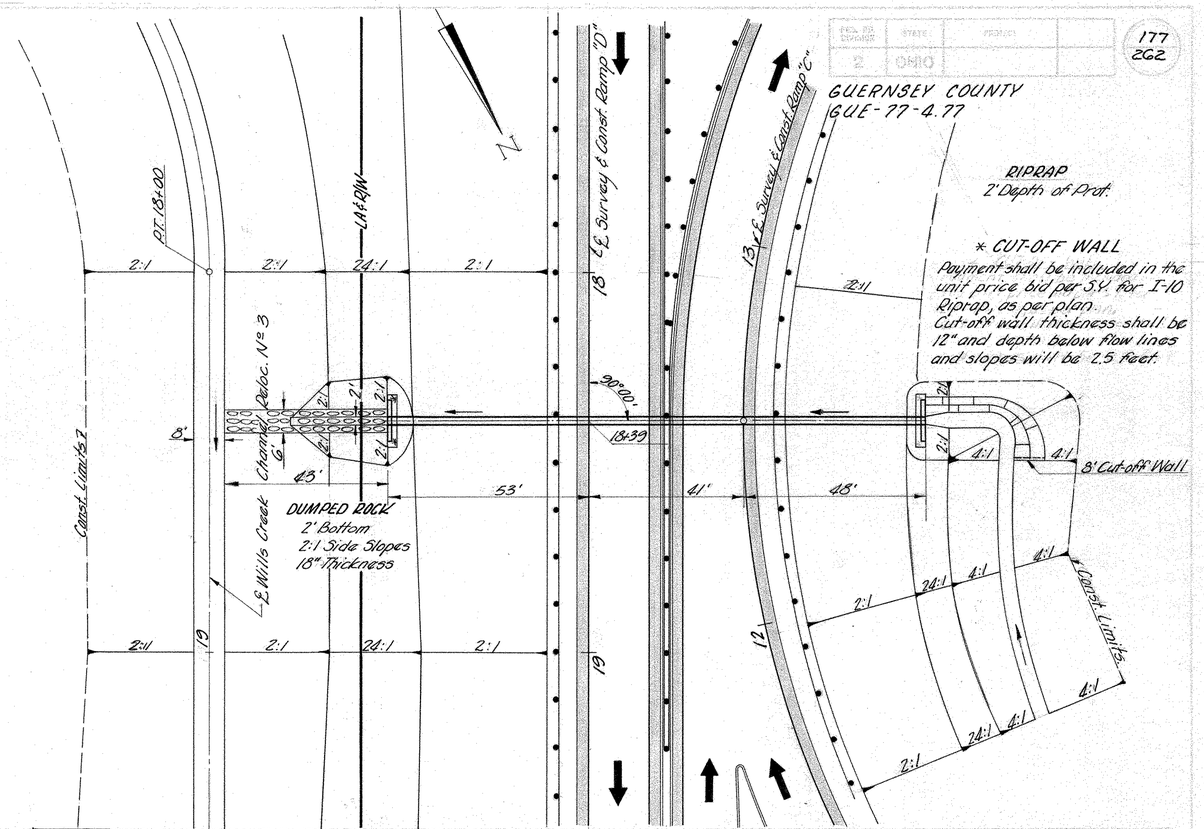




CULVERT DETAILS - 76+50 C.R. 52 EXTN. & 52+21 C.R. 52 RELOC. Nº 1

GUERNSEY COUNTY
GUE-77-4.77

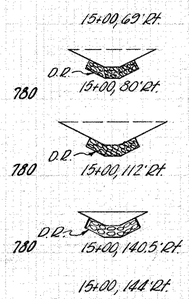




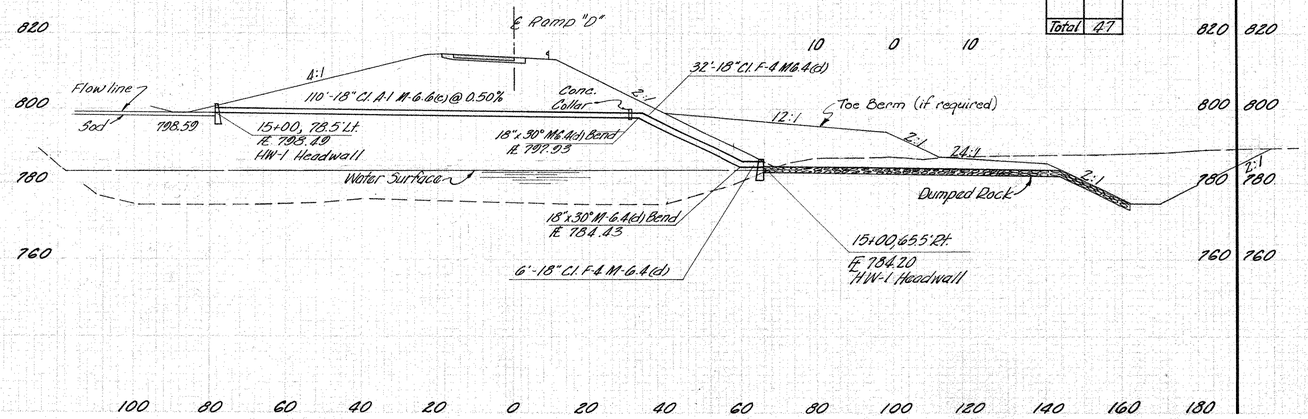
STRUCTURE 15+00 RAMP "D"
ESTIMATED QUANTITIES
TO SHEET Nº 51

I-1 110'-18" Cl. A-1 M-6.6(c) @ 0.50%	
I-2 Masonry	4.4 C.Y.
L-10 Sodding	5 S.Y.
E-3 Channel Excavation	47 C.Y.
I-10 Dumped Rock	32 C.Y.
I-1 38'-18" Cl. F-4 M-6.4(d)	
I-5 2-18"x30° M-6.4(d) Bends	
Drainage Area	3 Ac.
Q50	14.4 cfs.

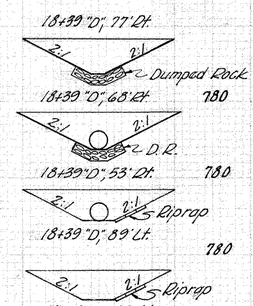
SCALE 1"=20'



Area Cut S.F.	Vol. E-3 C.Y.
0	
	3
16	
	24
24	
	19
11	
	1
0	
Total	47



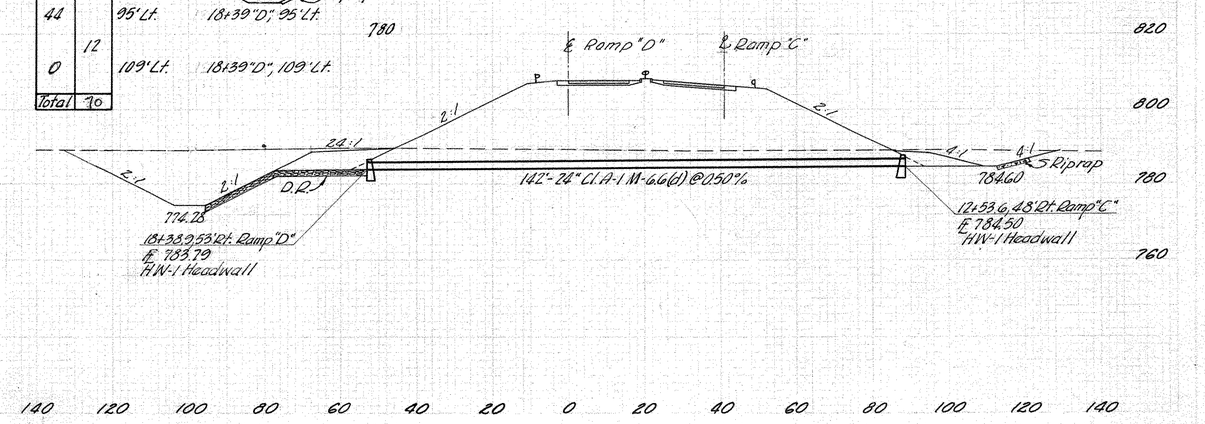
Area Cut S.F.	Vol. E-3 C.Y.
0	
	9
51	
	31
58	
	8
0	
47	
	10
44	
	12
0	
Total	70



SCALE 1"=20'

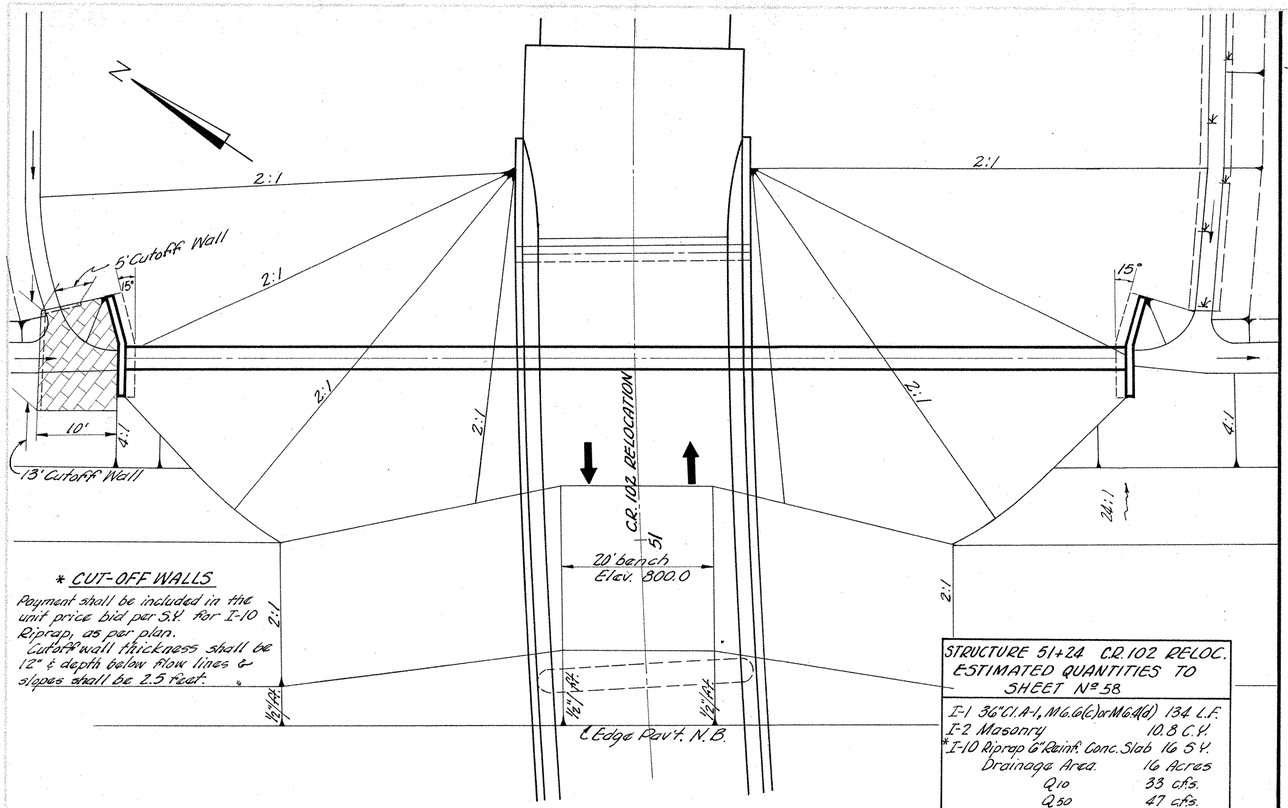
STRUCTURE 18+39 RAMP "D"
ESTIMATED QUANTITIES
TO SHEET Nº 51

I-1 142'-24" Cl. A-1 M-6.6(d) @ 0.50%	
I-2 Masonry	6.6 C.Y.
L-10 Sodding	6 S.Y.
* I-10 Riprap, using 6" Reinforced conc. slab, as per plan.	22 S.Y.
E-3 Channel Excavation	70 C.Y.
I-10 Dumped Rock	14.3 C.Y.
Drainage Area	7 Ac.
Q50	21.7 cfs



CULVERT DETAILS 15+00 & 18+39 RAMP "D"

GUERNSEY COUNTY
GUE-77-4.77

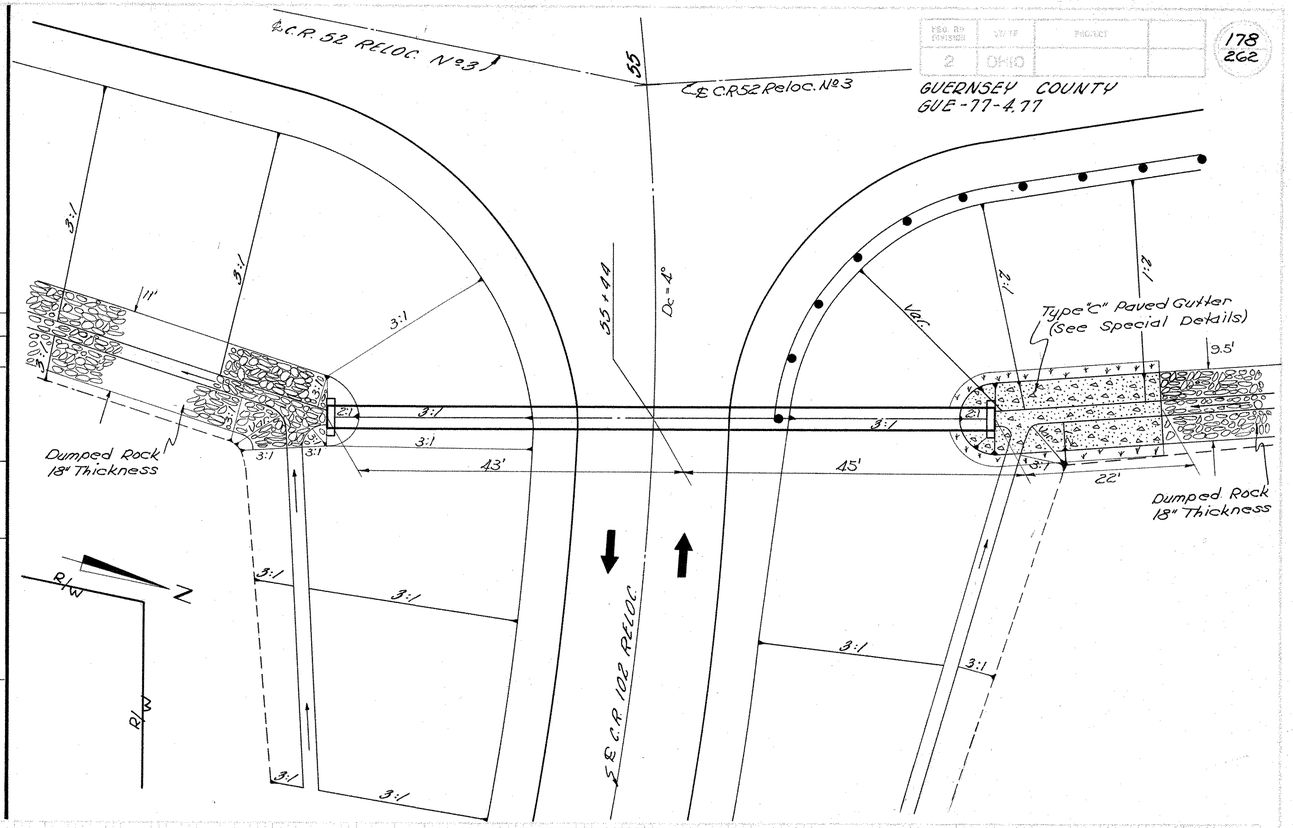


* CUT-OFF WALLS

Payment shall be included in the unit price bid per S.Y. for I-10 Riprap, as per plan.
Cutoff wall thickness shall be 12" & depth below flow lines & slopes shall be 2.5 feet.

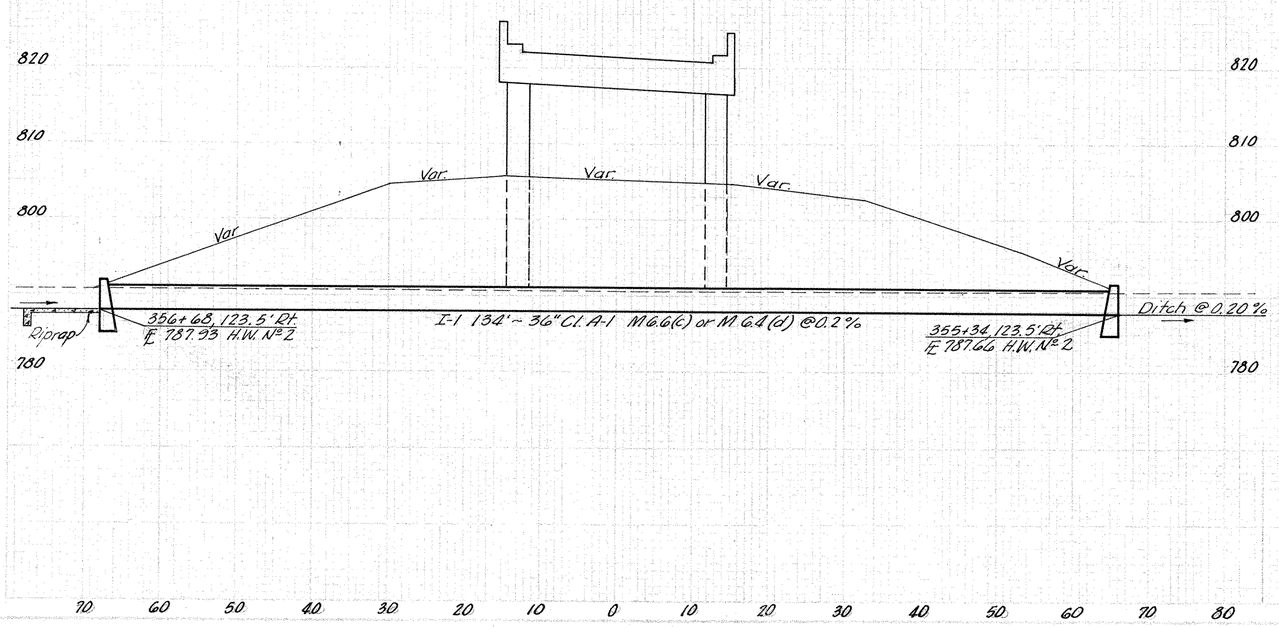
STRUCTURE 51+24 C.R.102 RELOC. ESTIMATED QUANTITIES TO SHEET Nº 58	
I-1 36" Cl. A-1, M6.6(c) or M6.4(d)	134 L.F.
I-2 Masonry	10.8 C.Y.
*I-10 Riprap 6" Reinf. Conc. Slab	16 S.Y.
Drainage Area	16 Acres
Q10	33 c.f.s.
Q50	47 c.f.s.

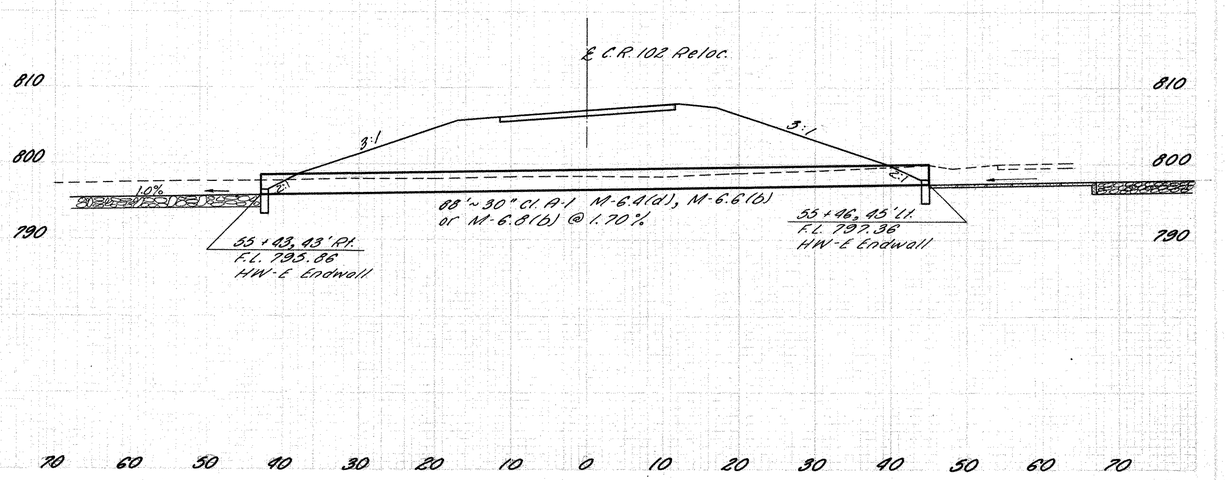
PLAN
SCALE 1"=10'



PLAN
SCALE 1"=10'

STRUCTURE 55+44 C.R.102 RELOC. ESTIMATED QUANTITIES TO SHEET Nº 61	
I-1 88'-30" Cl. A-1 M-6.4(d), M-6.6(b) or M-6.8(b)	
I-2 Masonry	1.02 C.Y.
I-14 Paved Gutter Type "C"	26 L.F.
L-10 Sod	9 S.Y.
Drainage Area	6.2 Acres
Q25	21 c.f.s.





CULVERT DETAILS 51+24 & 55+44 C.R. 102 RELOCATION

GUERNSEY COUNTY
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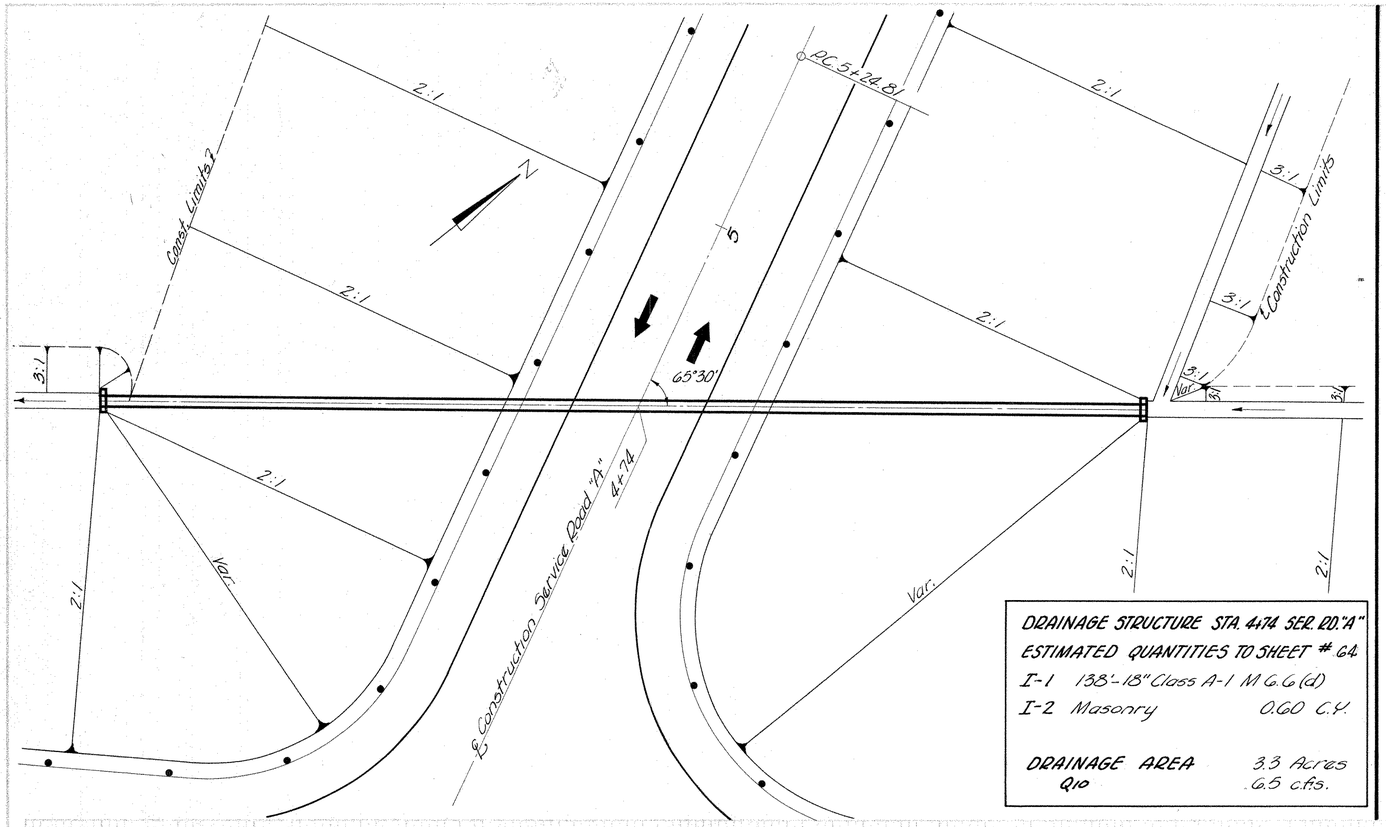
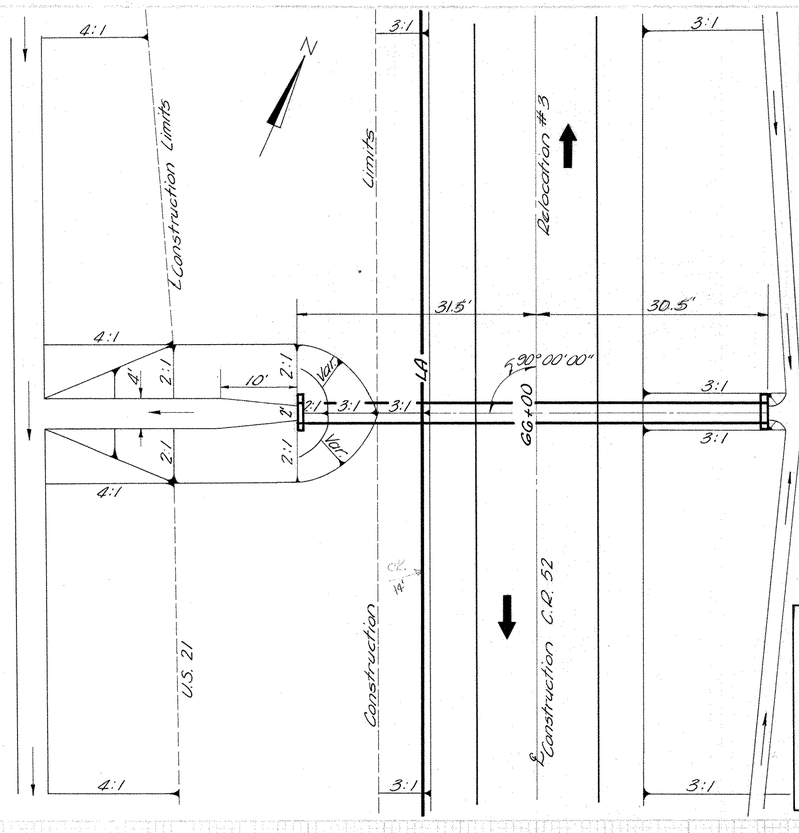


DRAINAGE STRUCTURE STA. 4+74 SER. RD. "A"
ESTIMATED QUANTITIES TO SHEET # 64

I-1	138'-18" Class A-1 M 6.6 (d)	
I-2	Masonry	0.60 C.Y.

DRAINAGE AREA 3.3 Acres
Q10 6.5 c.f.s.



DRAINAGE STRUCTURE STA. 66+00
COUNTY ROAD 52 RELOCATION #3
ESTIMATED QUANTITIES TO SHEET # 63

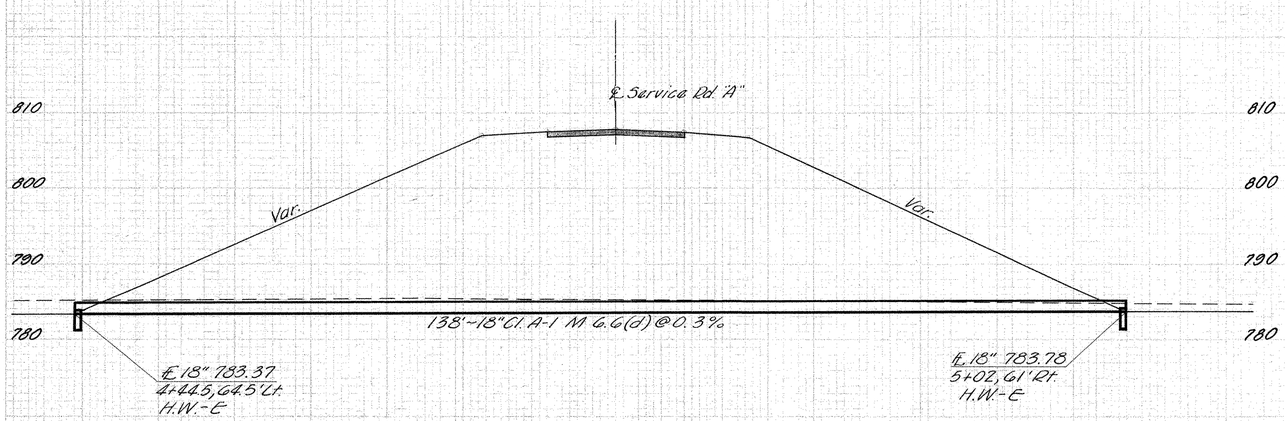
I-1	62"-30" Class A-1 M 6.6(a) or M 6.8(b)	
I-2	Masonry	1.02 C.Y.
E-3	Channel Excav.	60 C.Y.

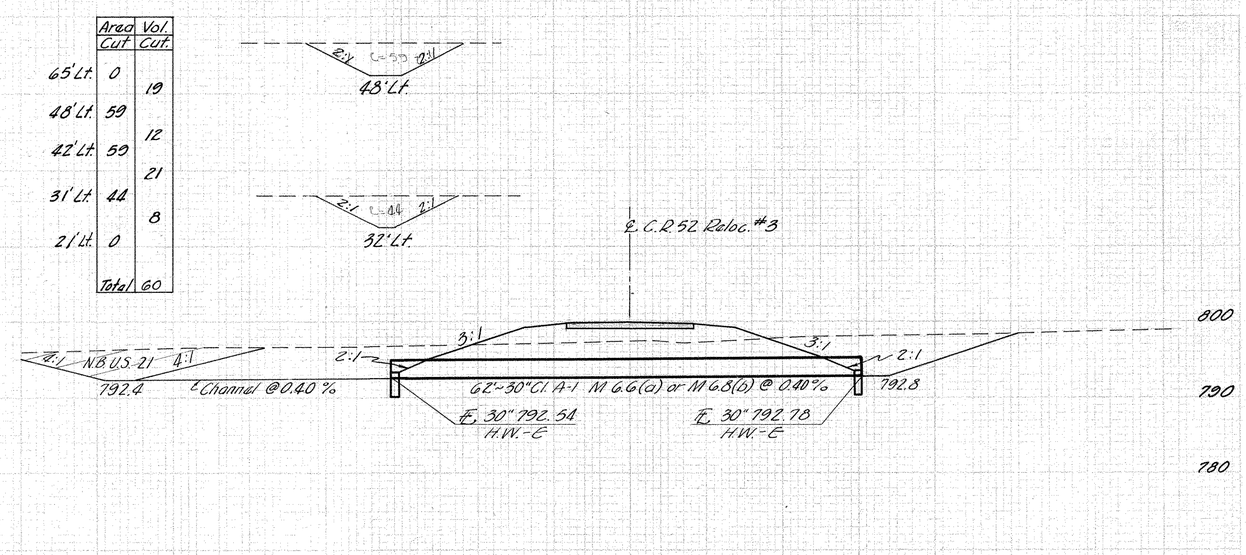
DRAINAGE AREA 25 Acres
Q10 27 c.f.s.

SCALE 1"=10'

SCALE 1"=10'

	Area Cut	Vol. Cut
65' Lt.	0	
		19
48' Lt.	59	
		12
42' Lt.	59	
		21
31' Lt.	44	
		8
21' Lt.	0	
Total		60





70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

CULVERT DETAILS 4+74 SERVICE ROAD "A"
66+00 C.R. 52 RELOC. #

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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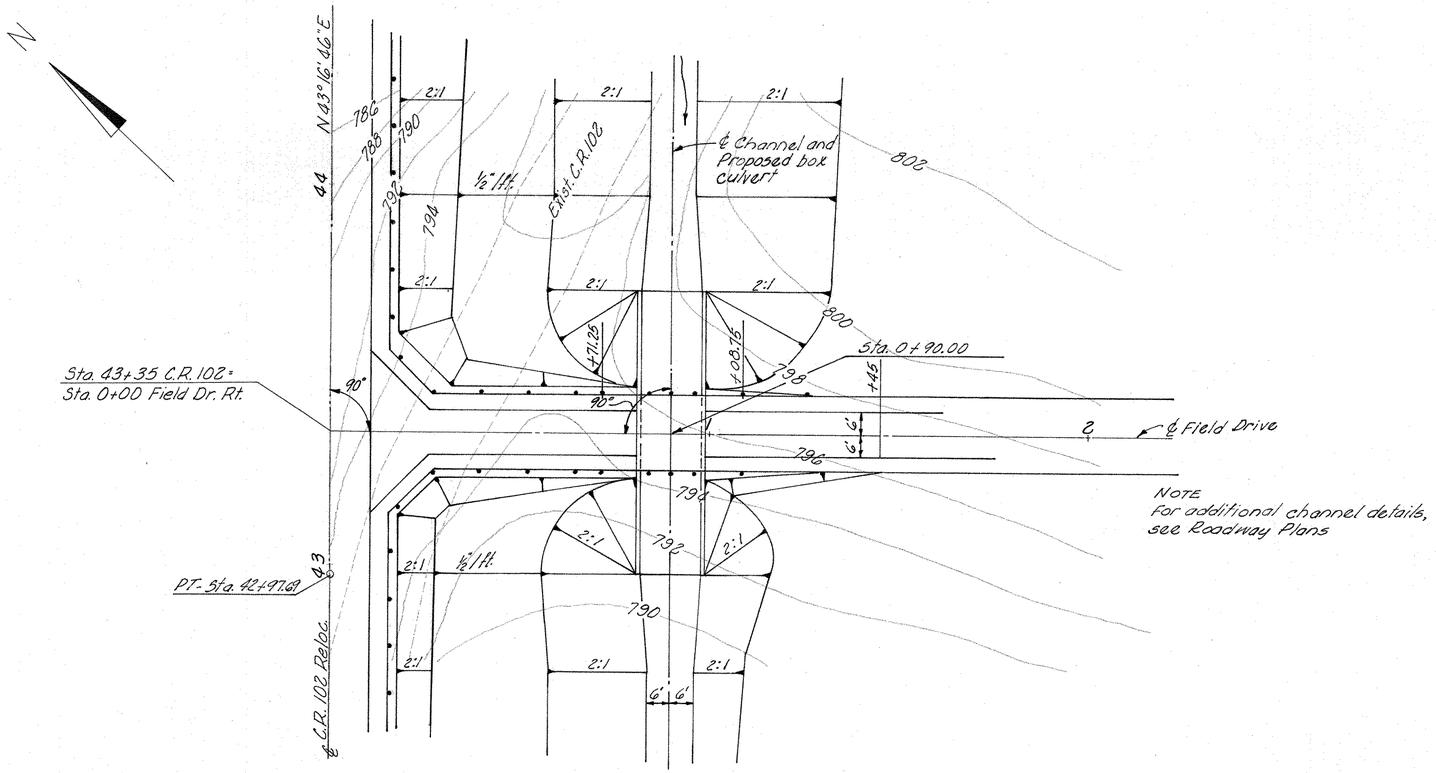
GUERNSEY COUNTY
GUE-77-4.77



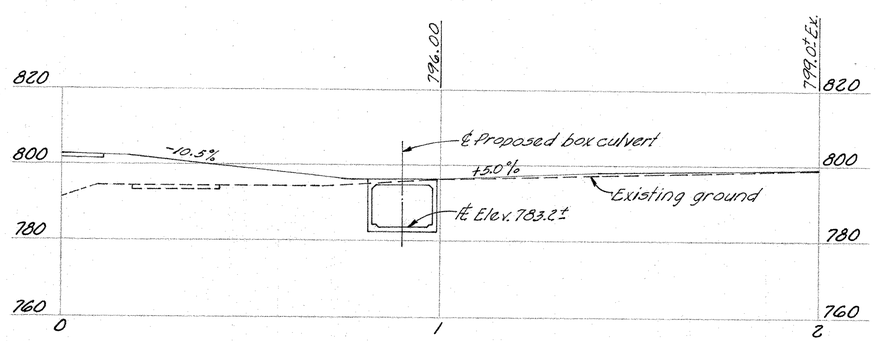
PLAN

PROPOSED STRUCTURE
Type ~ Reinforced concrete box culvert
Size ~ 16'-0" x 12'-0"
Alignment ~ Tangent
Skew ~ None
Loading ~ CF-130

VERTICAL CURVE DATA

FIELD DRIVE

PVI ~ 0+75.00
V.C. = 10'
Elev. = 796.00
Corr. = 0.19
P.G. = 796.19
g_1 = -10.5%
g_2 = 0%



PROFILE
(along ℄ Field Drive)

Drainage Information

Drainage area = 970 acres
Q_{10} = 780 cfs
Q_{50} = 1100 cfs
Wills Creek 10 yr. high water = 796.0
Wills Creek 50 yr. high water = 797.60

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SITE PLAN

BOX CULVERT ~ FIELD DRIVE
RIGHT OF STA. 43+35.00 (C.R. 102)

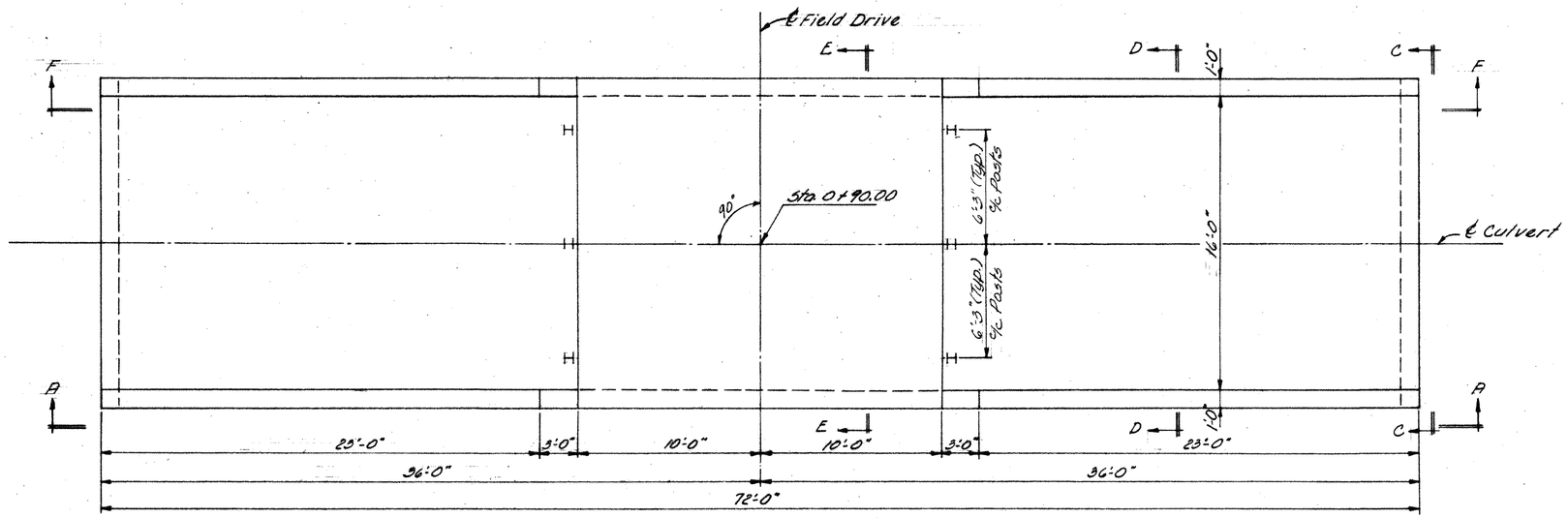
GUERNSEY COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HT	HT	BMB	TLU	TLU	12-22-64	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

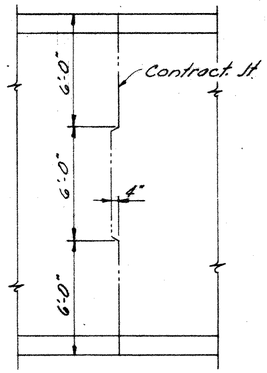
181
262

GUERNSEY COUNTY
GUE-77-4.77

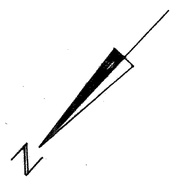


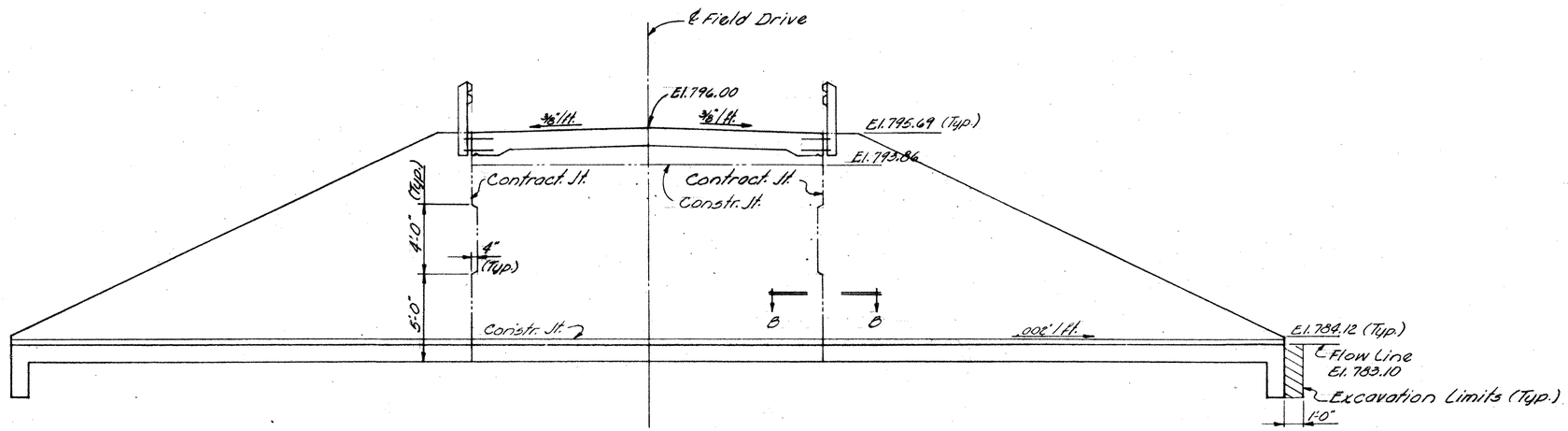
GENERAL PLAN

NOTES:
For Sections see sheets 182 & 183
For General Notes see sheet 184



VIEW B-B
(Contraction Joint at both ends of culvert barrel)





ELEVATION (SECTION F-F)

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COLUMBUS, OHIO

GENERAL PLAN & ELEVATION
BOX CULVERT - FIELD DRIVE
RIGHT OF STA. 43+35.00 (C.R. 102)

GUERNSEY COUNTY

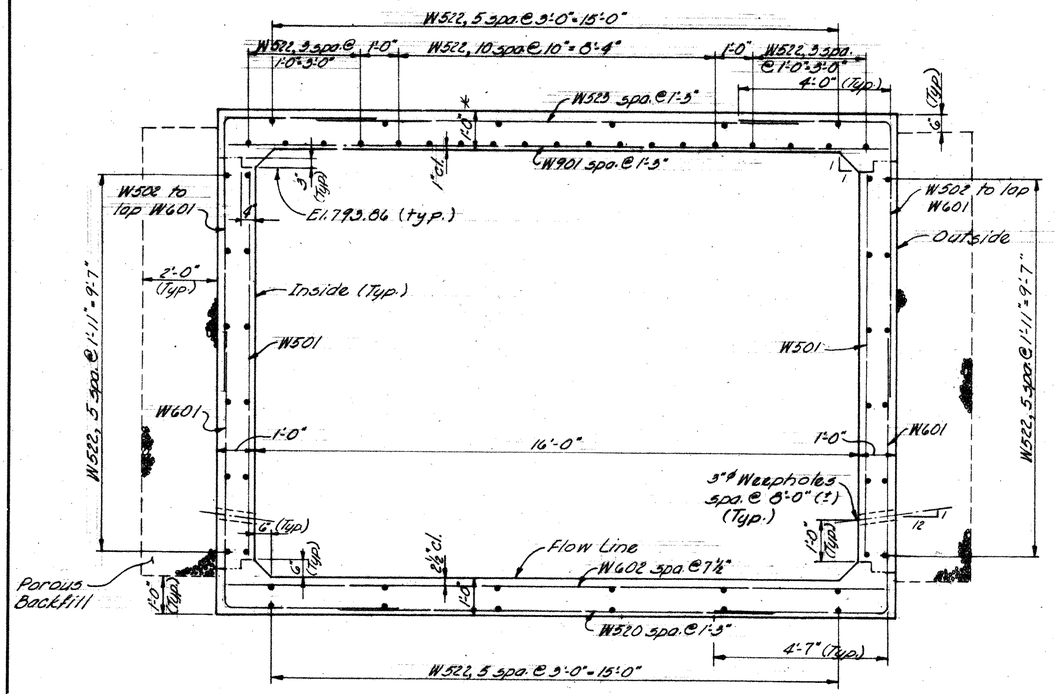
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	BRB		TLU	TW	12-22-64	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

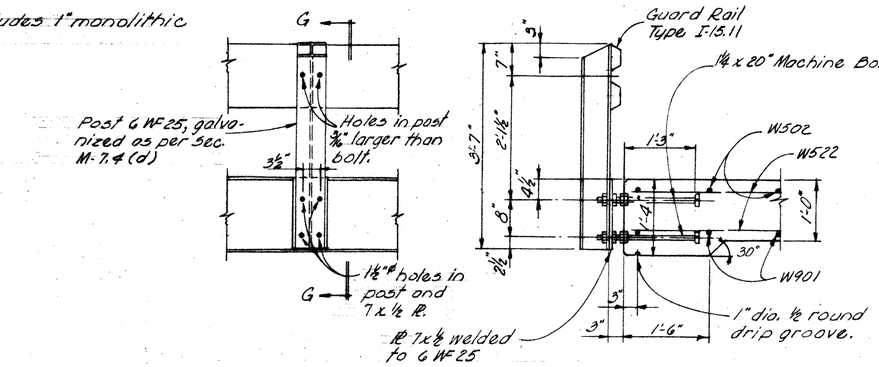
182
262

GUERNSEY COUNTY
GUE-77-4.77

* Slab thickness includes 1" monolithic wearing surface.

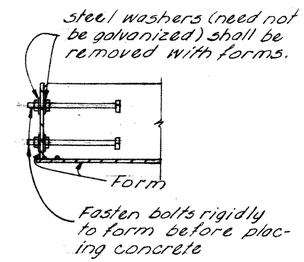


SECTION E-E

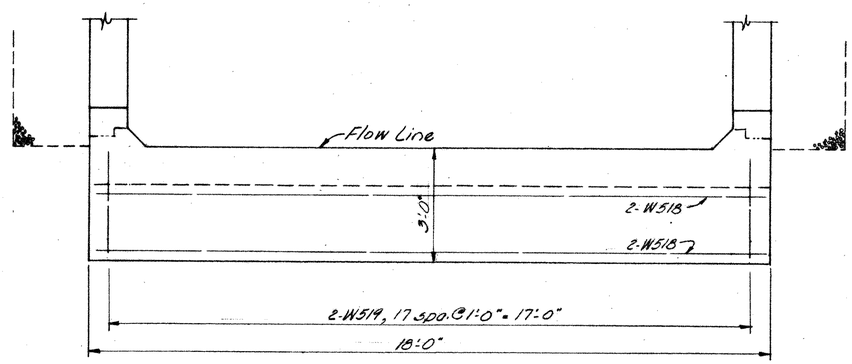


RAILING ELEVATION

SECTION G-G

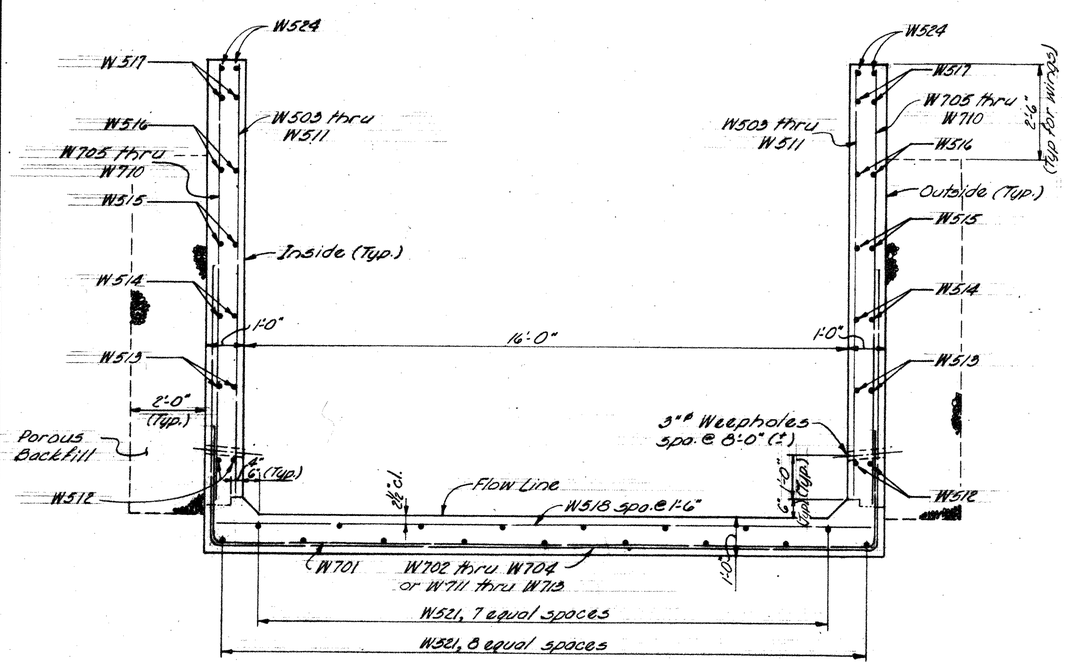


DETAIL A

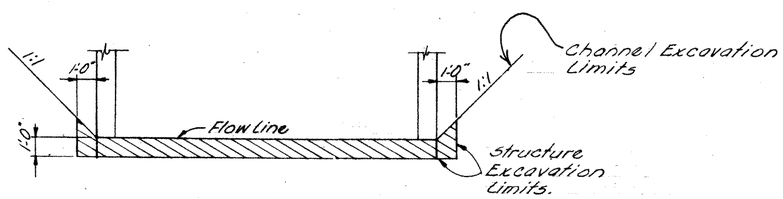


VIEW C-C

Machine bolts shall be galvanized with square heads. Thread 8" length and provide three galvanized hexagonal nuts per bolt (Material according to ASTM A325) Galvanizing of bolts shall be as provided in Sec. M-7.4(d) See Detail A.



SECTION D-D



EXCAVATION DETAILS

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

DETAILS
BOX CULVERT - FIELD DRIVE
RIGHT. OF STA. 43+35.00 (C.R. 102)

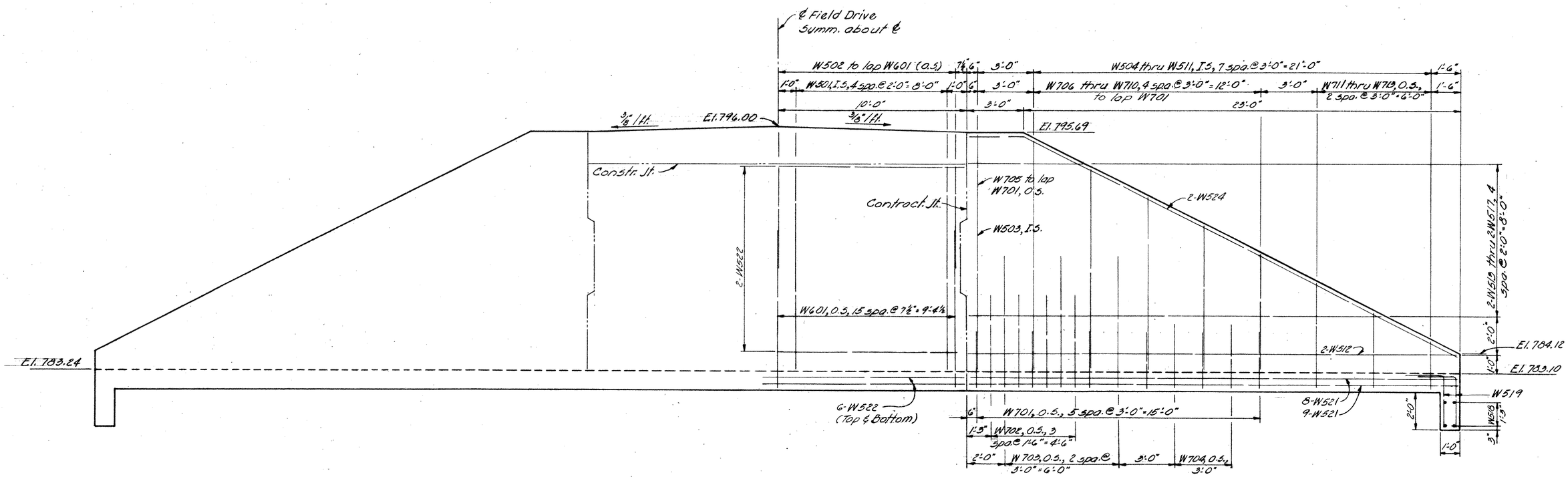
GUERNSEY COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	BAB		TLU	TLU	12-22-64	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

183
262

GUERNSEY COUNTY
GUE-77-4.77



VIEW A-A
(railing not shown)

NOTES:
O.S indicates outside
I.S indicates inside

Transverse slab bars are field bent to fit crown. Cost is included in Item S-4.

ALDEN E. STILSON & ASSOCIATES, LIMITED
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COLUMBUS, OHIO

DETAILS

BOX CULVERT ~ FIELD DRIVE

RIGHT OF STA. 43+35.00 (C.R.102)

GUERNSEY COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	JBB		TLU	TLU	12-22-64	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

184/262

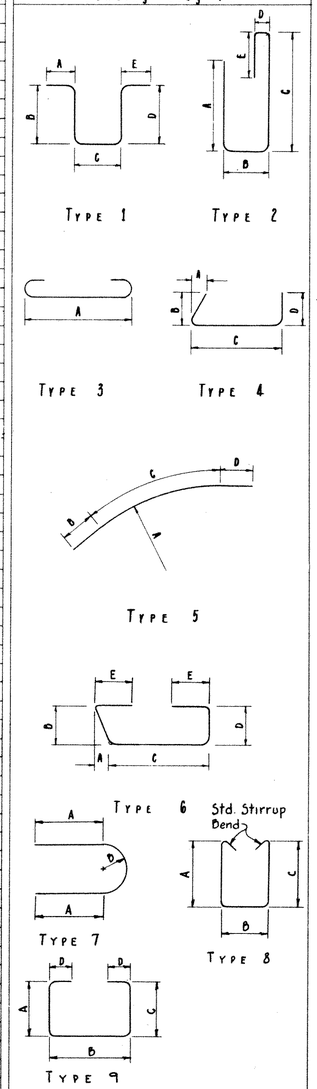
GUERNSEY COUNTY
GUE-77-4.77

REINFORCING STEEL LIST

Mark	Nº	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shape
W501	20	10-0	209							st.
W502	62	12-1	781	1	4-0	8-3				bf.
W503	4	11-8	49							st.
W504	4	11-5								st.
thru		Vary by 1-6	206							
W511	4	0-11								st.
W512	8	25-8	214							st.
W513	8	21-8								st.
thru		Vary by 4-0	570							
W517	8	5-8								st.
W518	42	17-8	774							st.
W519	72	4-1	307	1	1-7	2-8				bf.
W520	16	11-8	195							st.
W521	34	25-8	910							st.
W522	61	19-0	1209							st.
W523	16	12-10	214							st.
W524	8	28-5	237	6	2-6	1-3	25-7			bf.
W601	62	11-1	1032	1	6-8	4-7				bf.
W602	31	17-8	823							st.
W701	12	24-2	593	1		3-5	17-8	3-5		bf.
W702	8	27-8	452	1		5-2	17-8	5-2		bf.
W703	6	31-8	388	1		7-2	17-8	7-2		bf.
W704	4	24-6	200	1		3-7	17-8	3-7		bf.
W705	4	12-0	98							st.
W706	4	11-8								st.
thru		Vary by 1-6	354							
W710	4	5-8								st.
W711	2	28-2		1		5-5	17-8	5-5		bf.
thru		Vary by 3-0	309		Δ= 1-6		Δ=1-6			
W713	2	22-2		1		2-5	17-8	2-5		bf.
W901	16	17-8	961							st.
			REPLACEMENT STEEL							
RE501	1	5-7								st.
RE601	1	5-11								st.
RE701	1	6-2								st.
RE901	1	6-10								st.

Mark	Nº	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shape

Bending Diagram



NOTE:
In the reinforcing steel bar marks, the first digit where three digits are used and the first two where four are used is the bar number which indicates the size of the bar.

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	BOX CULVERT			GENERAL		
E-2	60	Cu.Yd.	Unclassified Excavation	60					
S-1	15	Cu.Yd.	Class "C" concrete, superstructure (top slab)	15					
S-1	96	Cu.Yd.	Class "C" concrete, walls & bottom slab	96					
S-4	11085	Lbs.	Reinforcing Steel	11085					
* S-14	75	Lin.Ft.	Railing Type I-15.11	75					
S-29	75	Cu.Yd.	Porous Backfill	75					
S101	15	Each	Water-reducing set-retarding admixture	15					

NOTE
Quantities carried to General Summary.

GENERAL NOTES

REFERENCES
Supplemental Specifications - S101, dated 7-12-62.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions there of.

DESIGN DATA: Design Loading: CF-130 (57)
Concrete, Class "C" Basic unit stress = 1,333 p.s.i
Reinforcing Steel, ASTMA 15, A16, A160, deformed, intermediate or hard grade: basic unit stress = 20,000 psi

POROUS BACKFILL: Excavation in excess of that required for construction of the culvert due to porous backfill, shall be considered as paid for in the price per cubic yard for porous backfill.

* RAILING: Item S-14 includes guardrail from station 0+71.25 to 1+08.75. Construction off the culvert shall conform to Item I-15

All reinforcing steel shall have 2" cover except as noted

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

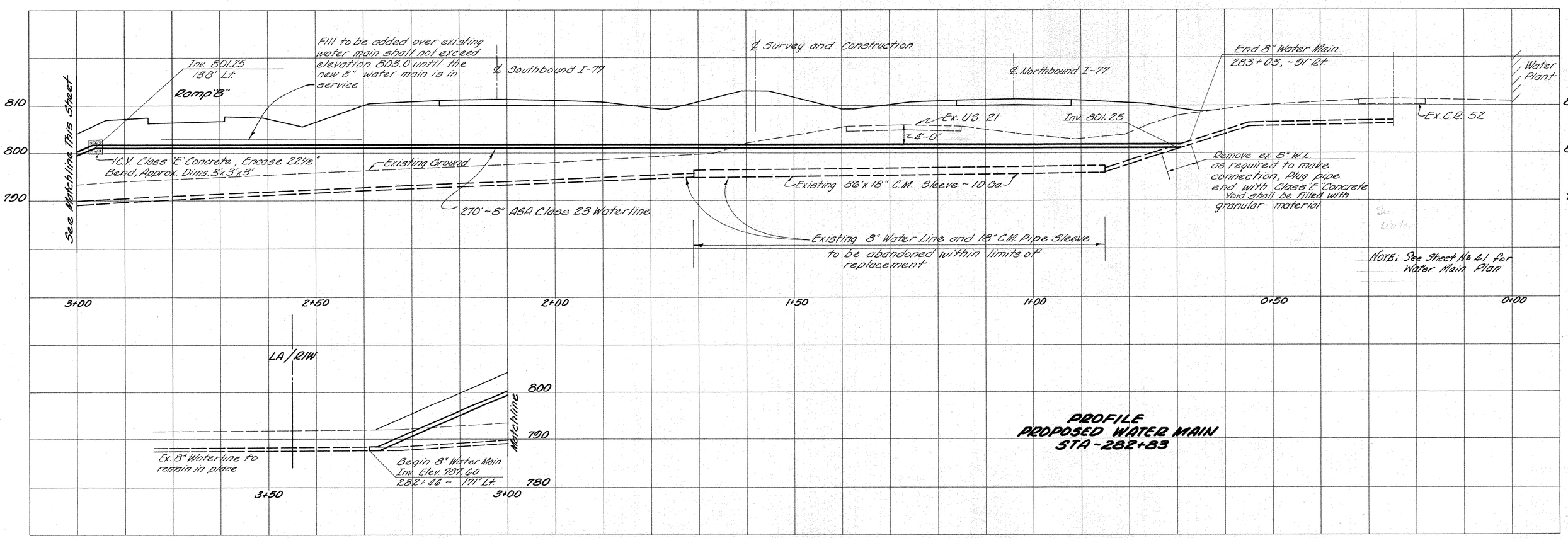
REINFORCING STEEL LIST, ESTIMATED QUANTITIES and GENERAL NOTES
BOX CULVERT - FIELD DRIVE
RIGHT OF STA. 43+35.00 (C.R. 102)
GUERNSEY COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	BBB		TLU	TLU	12-23-68	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

135
262

GUERNSEY COUNTY
GUE-77-4.77



PROFILE
PROPOSED WATER MAIN
STA-282+83

PROFILE - PROPOSED WATER MAIN - STA-282+83

LIGHTING NOTES

GENERAL LIGHTING SUMMARY on sheet 20.

WORKING PLANS

The Contractor shall comply with all the requirements of Sec. 25.05 of the Construction and Material Specifications of the State of Ohio before ordering any electrical or mechanical material for lighting.

TRADE NAMES

Throughout these plans, the use of trade names for electrical lighting equipment is meant to be descriptive only. Comparable products of other electrical firms are acceptable if accessories and main members are compatible with one another and serve the intended purpose.

LIGHTING FOR STRUCTURE

Quantities for the standards, luminaires, wiring, and conduit up to the nearest pull box off the structure shall be included with the structure quantities.

BRIDGE LIGHTING DETAILS on sheet 217

MERCURY VAPOR LAMPS

Lamps shall be 400 watt clear mercury vapor Type H33-ICD.

MERCURY VAPOR BALLASTS

Ballasts for street lighting luminaires shall be built-in 240/480 volt, 60 cycle, -20°F, Regulator type, high power factor for 400 watt lamps.

CABLE - 600 VOLT

(a) Service entrance cable shall be 1/c No. 2 G.E. No. SI-58006, or approved equal by Okonite, General Cable or Anaconda.

(b) Below ground cable shall be No. 6, 7 strand copper wire, single conductor, 600 volt, insulated. Shall comply to FAA-L-824-Type A.

PULL BOXES

Pull boxes shall be fiber as shown on the details. Finish grade around pull boxes shall be at least one inch (1") below the top of the pull box.

CABLE DUCT

Duct for cable shall conform to ASTM-D-2104; Schedule 40, Type II; Grade 3 or Type III Grades 1, 2 or 3. The duct shall be flexible enough for easy coiling and uncoiling at 14°F and shall have the following properties as tested by ASTM specifications:

Content

Minimum size shall be 1-1/4". Wall thickness for duct shall be as follows:

1-1/4" - .140 Min.

Min. Bending Radius 1¼" = 18"

Cable in Cable-Duct shall conform with cable in crossovers and in structure conduit.

SPLICES

No splices will be allowed except in manholes, lamp standard bases, or junction boxes. No separate payment will be allowed for splicing. Include with circuit cable for pay.

SPLICING MATERIALS

(a) Insulating tape & sheathing tape, cable manufacturer's recommendations.

(b) Compression Connector in Standards, Burndy Type YC-C, Thomas & Betts or approved equal.

(c) Esna Connector kits style 82 fused (Type KTK, 2 amp. fuse) & style 83 unfused shall be used for cable connections in all standards.

(d) Esna Connector kits style 51 or 84 shall be used for all Pull Box cable connections.

LAMP WIRING

Lamp and standard wire shall be 600 volt #12 AWG conforming to FAA Spec. L-824 Type A, by General Electric or approved equal by General Cable or Anaconda. Connections and fusing shall be as shown on the details.

CIRCUITS

Circuits shall be 480 volt single phase two wire multiple grounded. All circuits shall be tested to the satisfaction of the engineer to demonstrate that they are free from short circuits and grounds.

STREET LIGHTING LUMINAIRES

Luminaires shall be General Electric type M400, Westinghouse type OV-25 or Line Material Unistyle with ASA light distribution types as indicated on Plans.

CABLE MARKERS

The contractor shall furnish and install concrete markers (see detail) as shown on the plans and at each deviation from the normal trench parallel to the roadway and as may be required to indicate deviation from normal straight runs to avoid obstacles. Cost of the markers shall be included in the unit price bid for cable.

LIGHT STANDARD FOUNDATIONS

Foundation for light standards shall be poured-in-place concrete. The lower portion may be poured in a 2'-0" diameter or 2'-0" square hole with forms, unless, at the discretion of the Engineer soil stability precludes the need for forms. The top portion shall be formed 2'-0" square for at least 1'-0" deep or a minimum six (6) inches below the finished grade line. Foundation must be to a minimum depth of six (6) feet below lowest point of finished grade, additional depth required depending upon soil conditions. Conform with Class "C" Concrete.

SERVICE POLE

The Contractor shall furnish and install power service pole as detailed, complete as shown on Sheet No. 180

The Contractor shall furnish and install all equipment and appurtenances shown on service pole.

The Contractor shall contact the Utility Company serving the area and verify requirements and pole location.

Payment shall be made on the basis of unit price bid and shall include all materials, labor, and use of equipment necessary to complete this item.

TRENCHING

Trench shall be provided for all underground cable at the locations and in conformity to the design, details and dimensions shown on the plans.

Trench for cable may be excavated manually or with mechanical trenching equipment. Trench walls shall be essentially vertical so that a minimum of shoulder surface is disturbed. Any deviation from the plan line of trench must be approved by the Project Engineer.

Trench bottom shall be smooth and free of coarse aggregate. Minimum width of trench bottom shall be eight inches for two cables. Minimum depth shall be 24 inches.

The trench shall be backfilled in accordance with Sec. I-1.07 Type 4, except that the first 4" above the Cable-Duct shall have no pieces larger than 1".

Cable trench shall be located as shown on the plans.

Trenches shall not be excessively wet or contain pools of water during backfilling operations. Trenches in the shoulder area, between the paved berm and the guard rail, shall be backfilled in layers specified and shall be compacted with mechanical tampers to density specified under Item E-1, Roadway Excavation and Embankment, Table II Condition I.

Payment for trenches shall be per lineal Foot, and shall include excavation, backfill, restoration, guardrail removal and replacement, disposal of surplus material, removal of rock, sand and graded backfill, and for all preparation, labor, equipment, tools and incidentals necessary to complete this work.

RESTORATION (If Applicable)

All areas disturbed by excavation required for installation of cable trench, pull boxes, ducts, lighting standard foundations, control center foundations, service poles, storing of excavated earth and other materials, cable laying and other work shall be restored to its original condition.

Where sod is established, it shall be carefully stripped and replaced as soon as backfilling is completed. Backfilling of area where sod is removed shall be stopped at a depth equal to the thickness of the sod to be used with proper allowance for settlement.

Paved areas shall be placed in a manner equivalent to original surface or as detailed on the plans. The contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance.

No separate payment shall be made for restoration. The cost of restoration shall be included in the unit price bid for installation of roadway lighting system items which require excavation or otherwise cause existing ground surface to be disturbed.

GROUNDING

All service equipment, lighting standards or sign structures shall be properly grounded in accordance with N.E.C. requirements. 1" x 10' solid wrought iron ground rods with approved exothermal type connections and #4 solid bare wire shall be used unless otherwise noted. Rod connections shall be painted with two coats of Glyptal insulating enamel after installation. Resistance to ground shall not exceed 25 OHMS.

LIGHTING NOTES

CONDUIT

All Conduit in Concrete Structures or Retaining Walls shall be standard Rigid Hot Dipped Galvanized inside and out and Provided with an Approved Enamel or Plastic inside Coating to provide a smooth wire Raceway and shall conform to applicable sections of A.S.A.-Specifications for Rigid steel conduit, Designation C80.1, -Conduit Buried directly in Earth including all Conduit Extending off Bridges to the nearest Light Standard and/or Pull Box, shall Further Comply with Either of the Following:
(a) State Supplemental Specification M-106.11 for Alloy steel.
(b) Federal General Services Specification № WWP-441B For Wrought Iron. Ends of steel conduit Exposed in Pole Bases and Pull Boxes are to be Provided with insulating Bushings. Where Bends are necessary, Factory Ells or Appropriate Fittings will be Used when ever possible. Field Bends will be made with Hickeys or Hydraulic Benders only.

LIGHT STANDARD SPECIFICATIONS

General

This standard is established to provide acceptable steel light standards for use on Ohio Department of Highway Projects. If standards manufactured of other metals are presented for approval, they must meet these specifications in all applicable requirements and will only be considered after complete testing (destructive testing initially) and evaluation of these tests has been completed. These specifications shall not abridge municipal standard specifications but be supplemented by them so long as such modifications do not make the standard specification proprietary.

Manufacture

Shafts shall be tapered steel poles fabricated from not less than #11 Manufacturers Standard Gauge, hot rolled, basic open hearth, carbon steel. It shall have only one longitudinal, automatically, electrically welded joint and shall have no intermediate transverse joints or welds. Only one length of steel sheet shall be used, which shall be formed into a continuously true tapered shaft, having a taper of approximately .14" per foot.

Shaft shall be cold worked after welding with sufficient pressure to develop a minimum yield strength of 48,000 psi, and to flatten the weld to a true tapered tube of uniform thickness throughout (including the weld area), without flat spots and without finish grinding.

Shafts manufactured by means other than that specified above shall be made of not less than 11 Manufacturers Standard Gauge steel with a minimum yield strength of 48,000 pounds per square inch, meet the permanent set and deflection values tabulated herein and otherwise meet the requirements of these specifications.

Deflection

Light poles shall be capable of withstanding loadings (applied 18" from top of pole) without exceeding the permanent set and deflection (measured in inches 18" from top of pole) as tabulated for the respective pole sizes.

Pole Size (11 GA.)	8"x3.87"x29'-6"	9"x4.87"x29'-6"
Elast.Def'l. In/100 Lb.	3.32	2.16
At 2/3 Yield Stress:		
Load 18" from top	517	659
Total Deflection	17.66	14.73
Permanent Set	.50	.50
At Yield Stress:		
Load 18" from top	776	989
Total Deflection	28.84	24.00
Permanent Set	3.08	2.64
Anchor Bolt Circle Dia.	11"	12.5"
Anchor Bolt Proj'n. above Found'n.	2-5/8"	3"
Max. Arm Length (Single or Double)	10'	15'
Mounting Height	32'-6"	32'-6"

Shaft Fittings

Each pole shall be fitted with a "J" hook, pole top interchangeable with those now in use by the system maintenance agency and ornamental anchor bolt covers.

Anchor base poles shall be fitted with 4" x 6½" reinforced hand hole, locking steel cover *with captive stainless steel chain and 1/2"-13 grounding nut welded to inside of pole opposite hand hole.*

Anchor Type Bases

Anchor bases shall be one-piece cast steel conforming to ASTM Designation A27, Grade 65-35, having a minimum yield of 35,000 psi and top flange shall be secured to the lower end of the shaft by two continuous electric arc welds. The base shall telescope the shaft and the one weld shall be on the inside of the base at the end of the shaft, while the other weld shall be on the outside at the top of the base. The two welds shall be not less than 1½" apart. The welded connection shall develop the full strength of the adjacent shaft section to resist bending action.

The base shall be provided with four (4) holes to receive the anchor bolts, four (4) holes for ventilation located in the body of the base directly behind each anchor bolt hole, and four (4) tapped holes for attaching the ornamental covers.

Anchor Bolts

Four (4) high grade steel anchor bolts, each fitted with a hex nut shall be furnished. Each anchor bolt shall have an "L" bend at the bottom end and be threaded at the top end. Threaded ends and all nuts shall be galvanized with galvanizing extending *one to four inches* beyond thread. Anchor bolts shall be fabricated from Steel, AISI C1035, hot rolled special quality, minimum yield strength 46,000 psi. This specification is identical to ASTM A107, Grade 1035 Special Quality. Bolt stock shall conform with ASTM Spec. A-29 and nominal bar size shall equal nominal bolt size.

Luminaire Support Arms

The bracket arm assembly shall consist of an upper and lower member securely joined by means of vertical strut or struts. The upper and lower members shall be standard steel pipe of 2" N.P.S. ASTM-120 Schedule 40 or larger as required. The shaft end of the arm of both members shall have a steel fitting welded to it, which will permit the positioning of the arm on the pole plate and shall be held only by gravity while the arm is secured to the pole by two cap screws per fitting. All arms shall be arranged to accommodate a 2" slip fitter. Fitting and pole plate shall be similar to those now in use by the agency maintaining the system to provide for interchangeability of arms.

Bracket arms and their related shaft attachment devices shall sustain a vertical load of 250 lbs. applied within 3" of the luminaire end of the support without collapse or rupture of any portion of the pole assembly.

The bracket arms and their related shaft attachment devices shall sustain a vertical load of 100 lbs. applied within 3" of the luminaire end of the support and with the support attached to a rigid structure. The vertical deflection shall not exceed 5½% of the support length. This includes a maximum allowance of 1/2 of 1% of the support length for testing methods and permanent set.

The bracket arms and their related shaft attachment devices shall sustain a transverse horizontal load of 50 lbs. applied within 3" of the luminaire end of the support with the support attached to a rigid structure. The horizontal deflection shall not exceed 5% of the support length and the pole attachment devices shall not develop any looseness within the specified loading range. This test shall be conducted with a vertical load of 30 lbs. on the support.

Deflection shall be defined as the total transverse displacement of the longitudinal centerline of the shaft or luminaire support at the point of test load application between its initially unloaded and fully loaded positions.

The top elevation of ground mounted pole foundations shall be set to provide the specified mounting height of luminaires above the top of pavement.

GALVANIZING

All steel standards shall be hot dipped galvanized after fabrication in accordance with the requirements of Section M-7.4(d). After erection, standard shall be inspected for scratches in the galvanized surfaces. Such scratches shall be given two coats of a zinc-rich base paint. Second coat shall be applied after first coat has completely dried.

WELDING

Welders and welding operators shall be prequalified for Class A welding according to the instructions given in "Instructions from the Laboratory, Pre-Qualification of Electric Arc Welders and Welding Operators." Welding equipment shall be of sufficient capacity of such design and in such condition as to make possible the production of first class welds. All surfaces to be welded shall be smooth, uniform and free from fins, tears, and other defects which might adversely affect the quality of the welds. Surfaces to be welded shall be free from loose scale, slag, rust, moisture, grease, paint and other foreign material. Mill scale shall be removed by power brushing, blasting or grinding.

SHAFT TRANSVERSE SECTION CONFIGURATION

1. Bid items, as shown and detailed, are for standards with shafts of circular transverse section.

2. Alternate bid items are for standards with shafts of transverse section other than circular. Specify configuration bid.

3. All shafts throughout the project shall have the same transverse sectional configuration.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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GUERNSEY COUNTY
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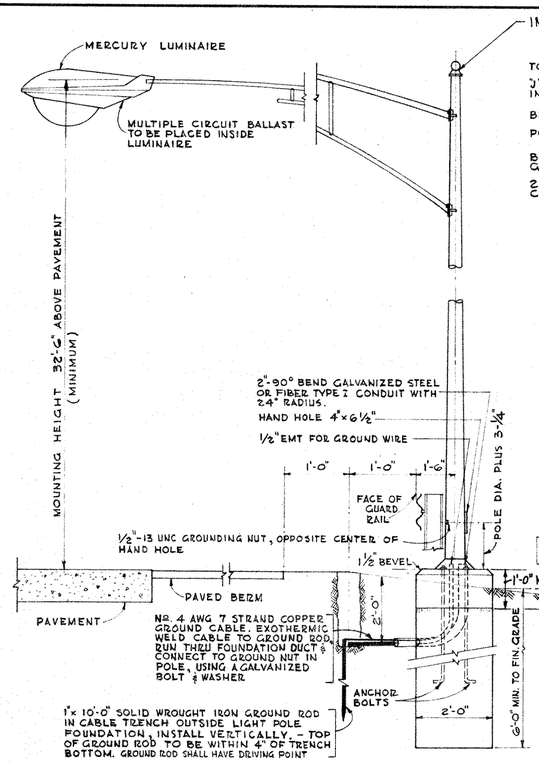
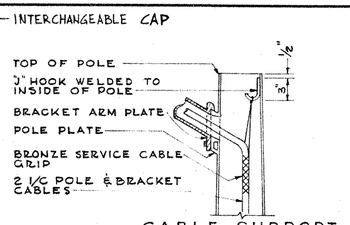
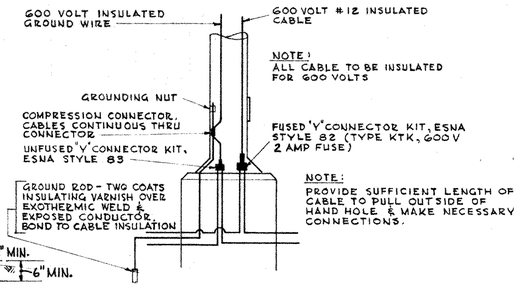


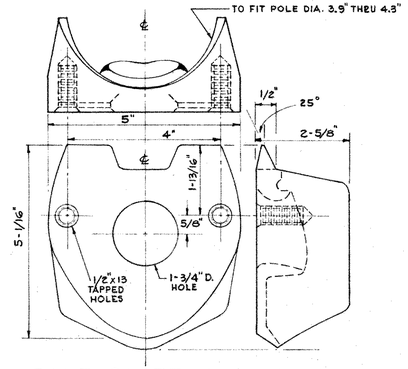


CABLE SUPPORT

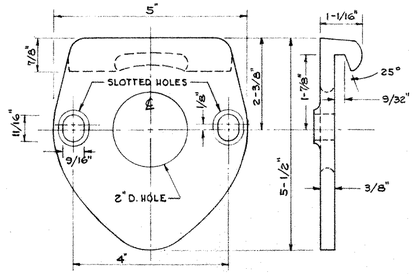


SCHEMATIC DIAGRAM FOR 480 VOLT MULTIPLE CIRCUIT

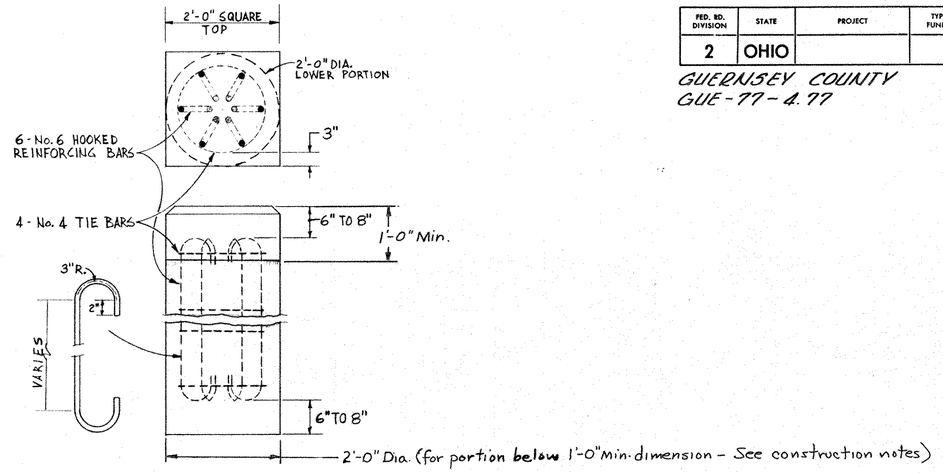
ELECTRICAL WIRING AT STANDARD BASE



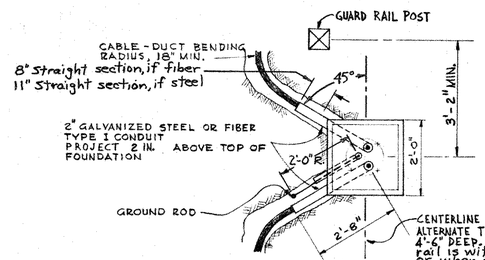
POLE PLATE - (CAST STEEL)



BRACKET ARM PLATE - (CAST STEEL)

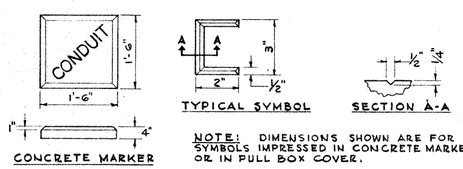


FOUNDATION REINFORCING



ANCHOR BASE TYPE
FOR MULTIPLE CIRCUITS

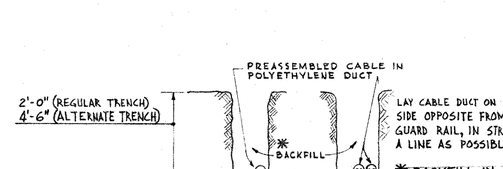
LIGHT STANDARD & FOUNDATION DETAIL



NOTE: DIMENSIONS SHOWN ARE FOR SYMBOLS IMPRESSED IN CONCRETE MARKER OR IN PULL BOX COVER.

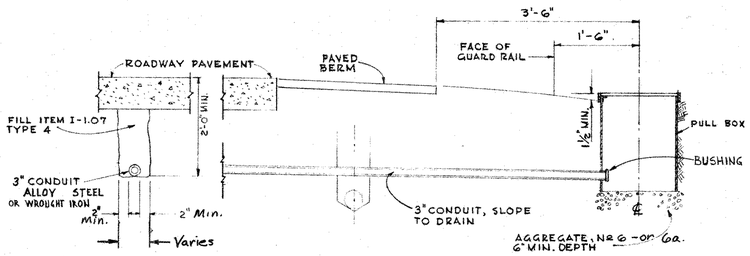
"CONDUIT" - TO INDICATE CONDUIT. (INITIAL & FUTURE LIGHTING)
"CABLE" - TO INDICATE ABRUPT CHANGE IN DIRECTION OF CABLE OR CABLE-DUCT.
"LIGHT" - TO LOCATE CABLE-DUCT COIL FOR FUTURE LIGHTING

MARKER DETAILS

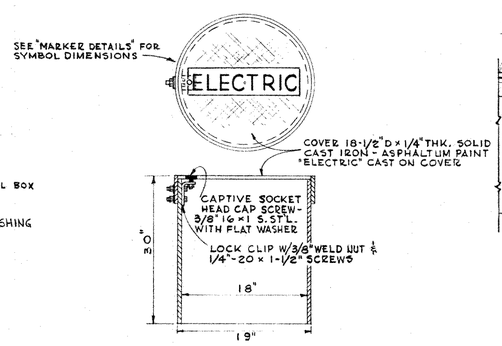


* BACKFILL IN ACCORDANCE WITH SECTION I-1.07, TYPE 4, EXCEPT THAT MATERIAL IN FIRST FOUR INCHES (4") ABOVE CABLE-DUCT SHALL CONTAIN PIECES NO LARGER THAN ONE INCH (1").

TYPICAL CABLE-DUCT TRENCH

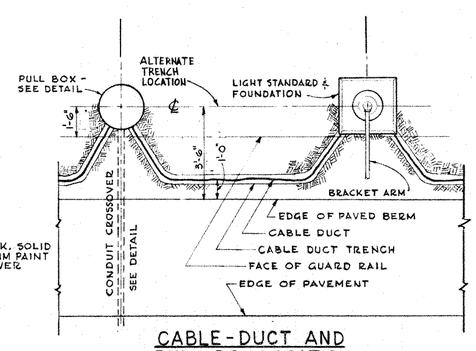


TYPICAL CONDUIT CROSSOVER DETAIL



BITUMINOUS FIBER REINFORCED
FEDERAL GENERAL SERVICES SPEC-WC-581
TYPE I

PULL BOX DETAIL



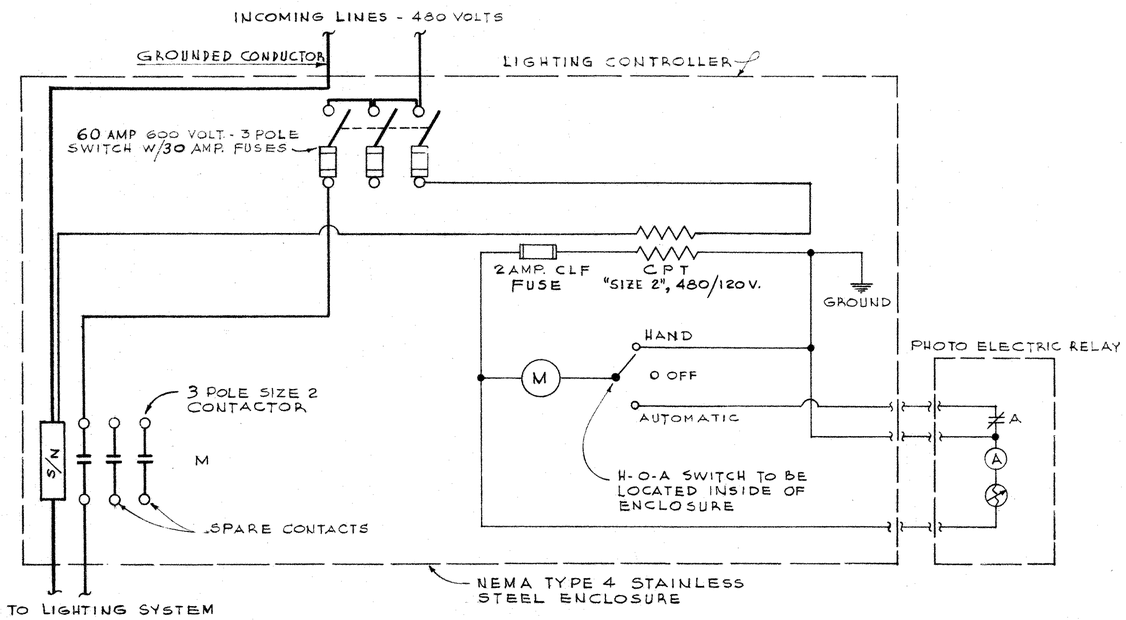
CABLE-DUCT AND PULL BOX LOCATION

LIGHTING DETAILS

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

189
262

GUERNSEY COUNTY
GUE - 77 - 4.77

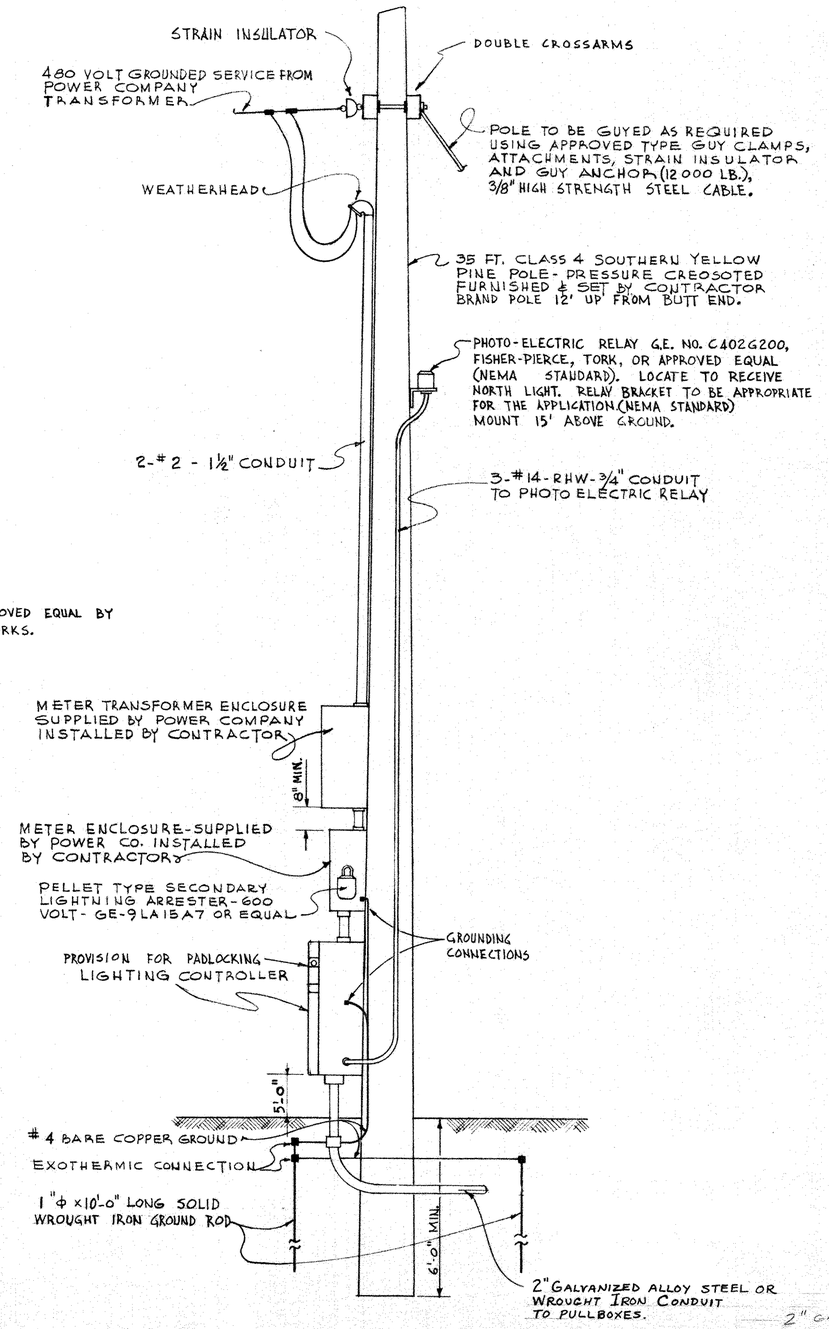


• WIRING DIAGRAM •

• NOTES •

1- LIGHTING CONTROL TO BE A COMBINATION FUSED DISCONNECT AND LIGHTING CONTACTOR MANUFACTURED BY SQUARE-D, CAT. Nº W999FA231, OR APPROVED EQUAL BY GENERAL ELECTRIC OR COLUMBUS ELECTRICAL WORKS. (CAP. 60 AMPERES)

2- CONTROL STRUCTURE TO BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC SAFETY CODE FOR CLASS "B" CONSTRUCTION.



• CONTROL STRUCTURE DETAIL •

LIGHTING DETAILS

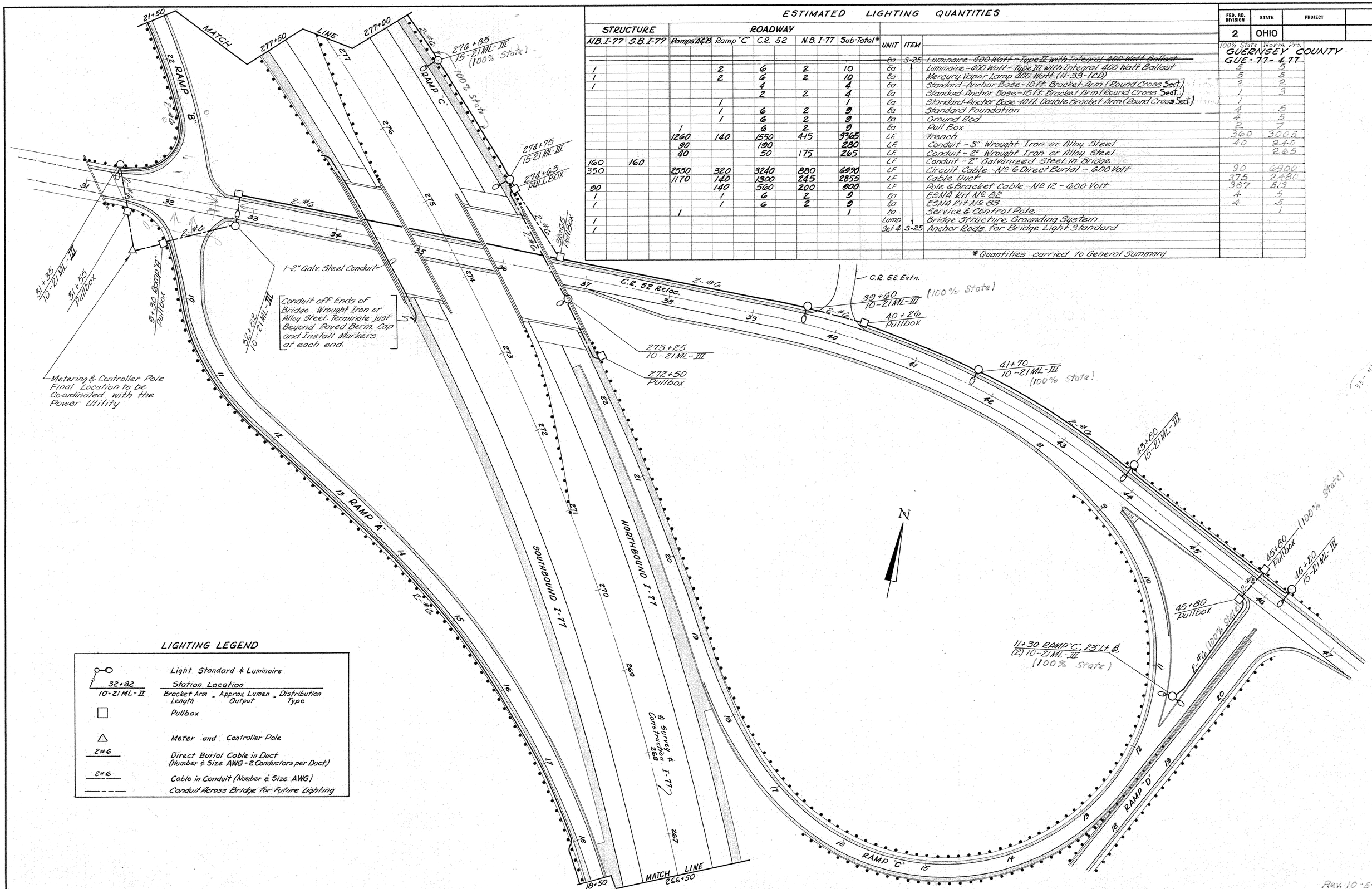
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

GUERNSEY COUNTY
GUE-77-4.77

ESTIMATED LIGHTING QUANTITIES

STRUCTURE N.B. I-77	STRUCTURE S.B. I-77	ROADWAY Ramps A&B	ROADWAY Ramp "C"	ROADWAY C.R. 52	ROADWAY N.B. I-77	ROADWAY Sub-Total*	UNIT	ITEM		100% State	Norm. Prc.
							~~Ea~~	~~S-25~~	~~Luminaire-400 Watt-Type II with Integral 400 Watt Ballast~~		
1			2	6	2	10	Ea		Luminaire-400 Watt-Type III with Integral 400 Watt Ballast	5	5
1			2	6	2	10	Ea		Mercury Vapor Lamp 400 Watt (H-33-1CD)	5	5
1				4		4	Ea		Standard-Anchor Base-10 ft. Bracket Arm (Round Cross Sect.)	2	2
				2	2	4	Ea		Standard-Anchor Base-15 ft. Bracket Arm (Round Cross Sect.)	1	3
			1			1	Ea		Standard-Anchor Base-10 ft. Double Bracket Arm (Round Cross Sect.)	1	
			1	6	2	9	Ea		Standard Foundation	4	5
			1	6	2	9	Ea		Ground Rod	4	5
		1		6	2	9	Ea		Pull Box	2	7
		1260	140	1550	415	3365	L.F.		Trench	360	3005
		90		190		280	L.F.		Conduit-3" Wrought Iron or Alloy Steel	40	240
		40		50	175	265	L.F.		Conduit-2" Wrought Iron or Alloy Steel		265
160	160						L.F.		Conduit-2" Galvanized Steel in Bridge		
350		2550	320	3240	880	6990	L.F.		Circuit Cable-№ 6 Direct Burial-600 Volt	90	6900
		1170	140	1300	245	2855	L.F.		Cable Duct	375	2480
90			140	500	200	900	L.F.		Pole & Bracket Cable-№ 12-600 Volt	387	513
1			1	6	2	9	Ea		ESNA Kit № 82	4	5
1			1	6	2	9	Ea		ESNA Kit № 83	4	5
		1				1	Ea		Service & Control Pole		1
1							Lump		Bridge Structure Grounding System		
1							Set 4	S-25	Anchor Rods for Bridge Light Standard		

* Quantities carried to General Summary



LIGHTING LEGEND

	Light Standard & Luminaire
32+82 / 10-21ML-II	Station Location / Bracket Arm Length - Approx. Lumen Output - Distribution Type
□	Pullbox
△	Meter and Controller Pole
2#6	Direct Burial Cable in Duct (Number & Size AWG-2 Conductors per Duct)
2#6	Cable in Conduit (Number & Size AWG)
— — —	Conduit Across Bridge for Future Lighting

Rev. 10-5-65 C.E.H.

LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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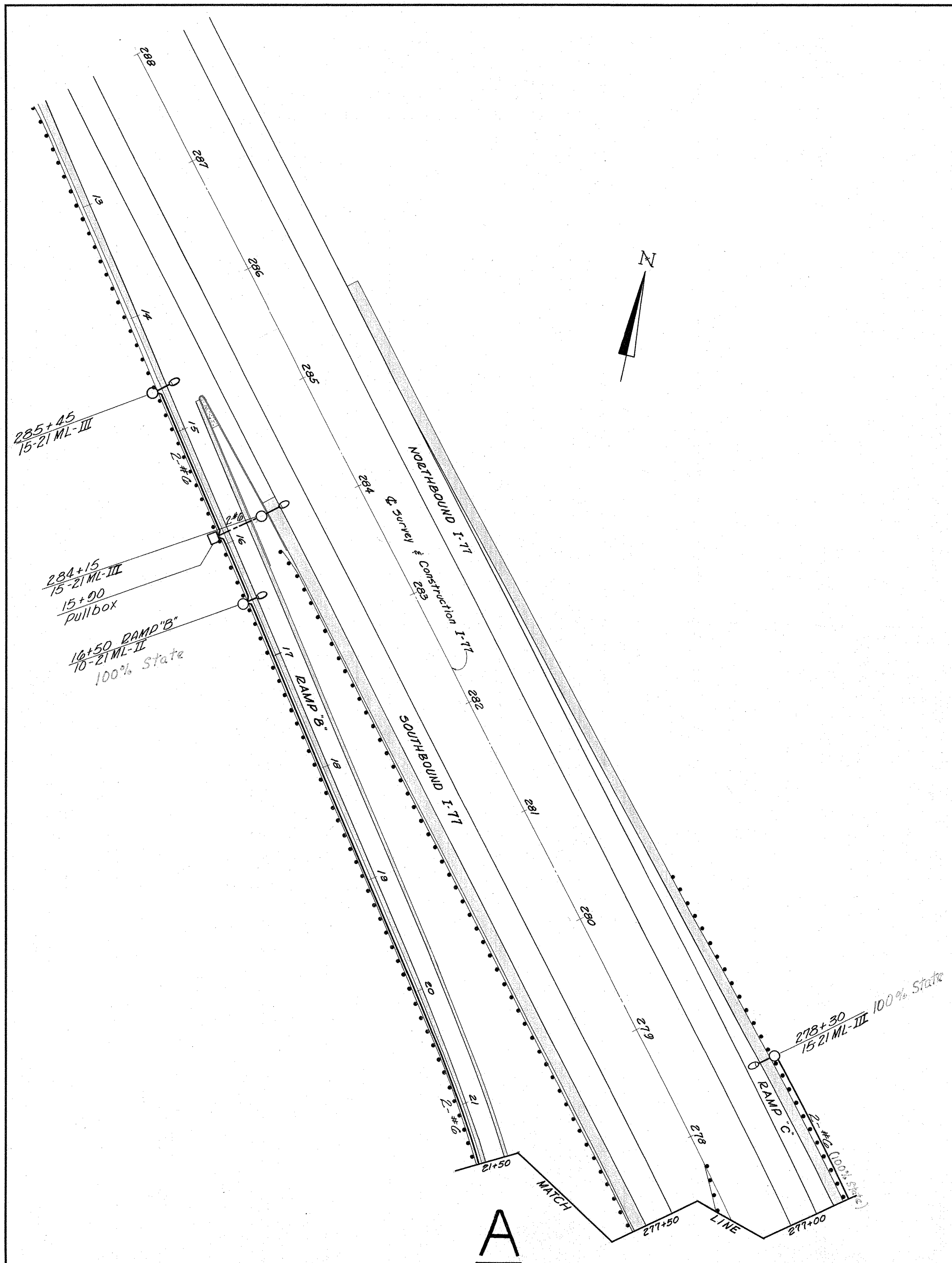
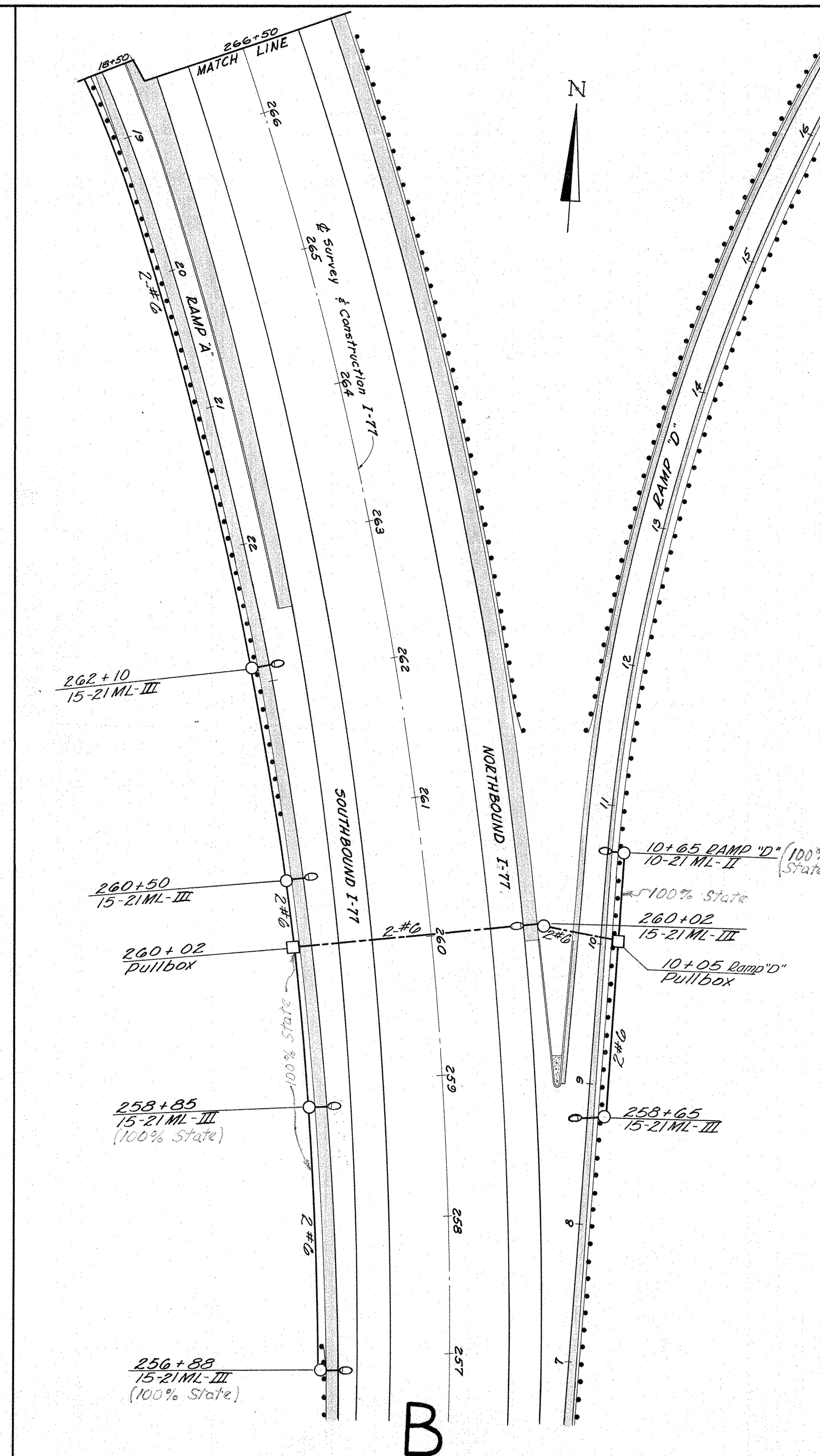
GUERNSEY COUNTY
GUE-77-4.77





ESTIMATED LIGHTING QUANTITIES

			ROADWAY						
	UNIT	ITEM	S.B.I-77(A)	S.B.I-77(B)	N.B.I-77(A)	N.B.I-77(B)	Sub-Total*	100% State	Normal Project Partic.
Luminaire - 400 Watt - Type II with Integral 400 Watt Ballast	Ea.	S-25	1			1	2	2	
Luminaire - 400 Watt - Type III with Integral 400 Watt Ballast	Ea.		2	4	1	2	9	3	6
Mercury Vapor Lamp 400 Watt (H-33-1CD)	Ea.		3	4	1	3	11	5	6
Standard Anchor Base - 10 ft. Bracket Arm (Round Cross Section)	Ea.		1			1	2	2	—
Standard Anchor Base - 15 ft Bracket Arm (Round Cross Section)	Ea.		2	4	1	2	9	3	6
Standard Foundation	Ea.		3	4	1	3	11	5	6
Ground Rod	Ea.		3	4	1	3	11	5	6
Pull Box	Ea.		1	1		1	3	—	3
Trench	L.F.		750	1150	140	330	2370	495	1875
Conduit - 3" Wrought Iron or Alloy Steel	L.F.		40	100		140	280		280
Circuit Cable - No 6 Direct Burial - 600 Volt	L.F.		1580	2220	300	740	4840		4840
Pole & Bracket Cable - No 12 - 600 Volt	L.F.		200	400	100	290	1080	480	600
Cable Duct	L.F.		700	1100	140	210	2150	515	1635
ESNA Kit No 82	Ea.		3	4	1	3	11	5	6
ESNA Kit No 83	Ea.	S-25	3	4	1	3	11	5	6

* Quantities Carried to General Summary Sh. No. 20

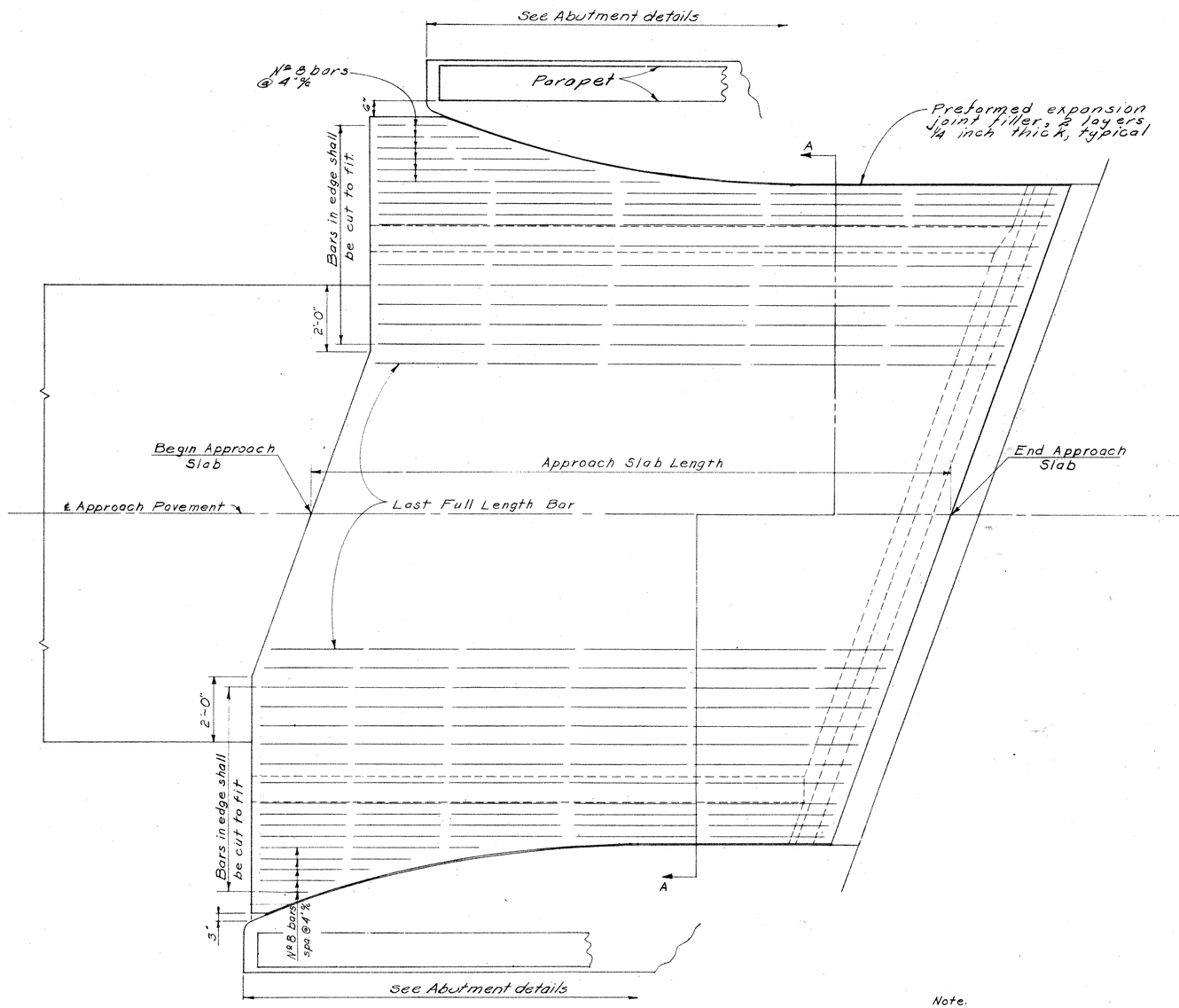
Rev. 10-5-65 C.E.H.

LIGHTING PLAN

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

192
262

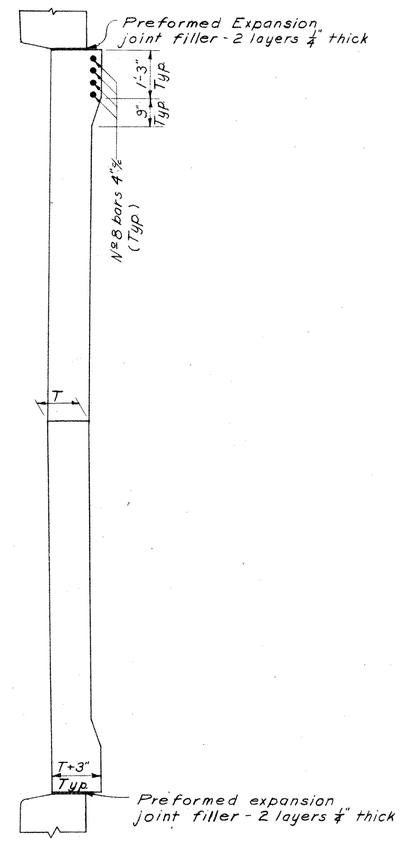
GUERNSEY COUNTY
GUE-77-4.77



PLAN

Details for Approach Slab extending beyond Wingwall

Details for Wingwall extending beyond Approach Slab



SECTION A-A

Note.
Transverse Steel shall be placed parallel to the skew and cut to fit.
Reference shall be made to Standard Drawing AS 1-54 revised 7-5-62 for details not shown.
Preformed Expansion Joint Filler shall be included with the approach slab for payment.
I-22, the same thickness as on the approach roadway, shall be used under the entire area of the approach slab.

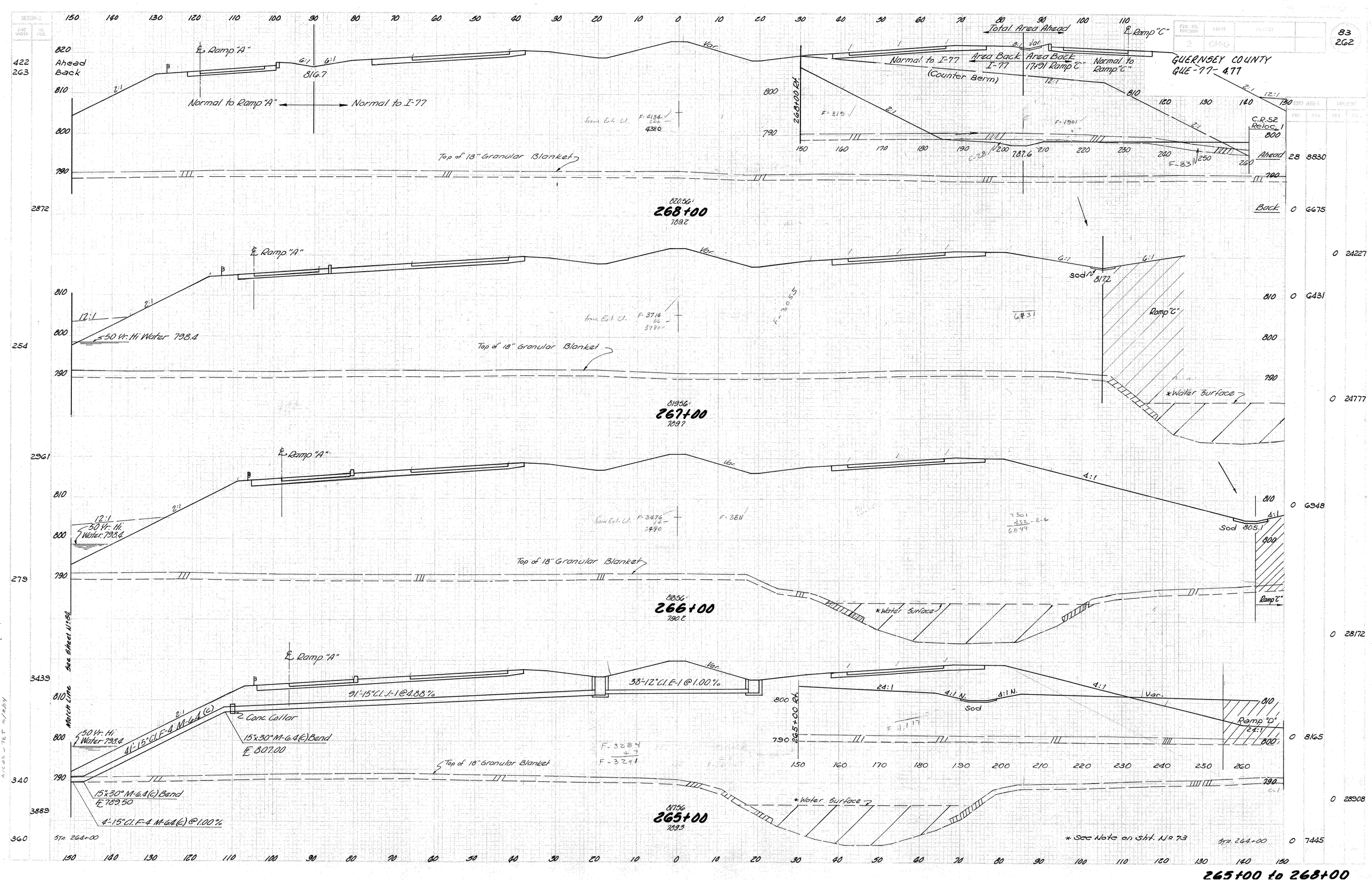
ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

APPROACH SLAB DETAILS

BRIDGE No. GUE-77-0599
I-77 UNDER C.R. 102 RELOC.

GUERNSEY COUNTY STA. 355+91.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HT			fwd	TLU	12-24-64	


GUERNSEY COUNTY
GUE-77-4.77
83
262
℄ Ramp "A"
℄ Ramp "C"
Total Area Ahead
Normal to Ramp "A"
Normal to I-77
Normal to I-77
Area Back I-77
Area Back 17+91 Ramp "C"
Normal to Ramp "C"
(Counter Berm)
Top of 18" Granular Blanket
C.R.52 Reloc. 1
Ahead
Back
268+00
267+00
266+00
265+00
50 Yr. Hi Water 798.4
Ramp "C"
*Water Surface
Sod
Ramp "D"
91'-15"Cl. J-1 @ 4.88%
38'-12"Cl. E-1 @ 1.00%
41'-15"Cl. F-4 M-6.4(c)
2 Conc. Collar
15"x30" M-6.4(c) Band
℄ 807.00
15"x30" M-6.4(c) Band
℄ 789.50
4'-15"Cl. F-4 M-6.4(c) @ 1.00%
See Sheet No. 82
North Line
STA. 264+00
* See Note on Sht. No. 73
265+00 to 268+00

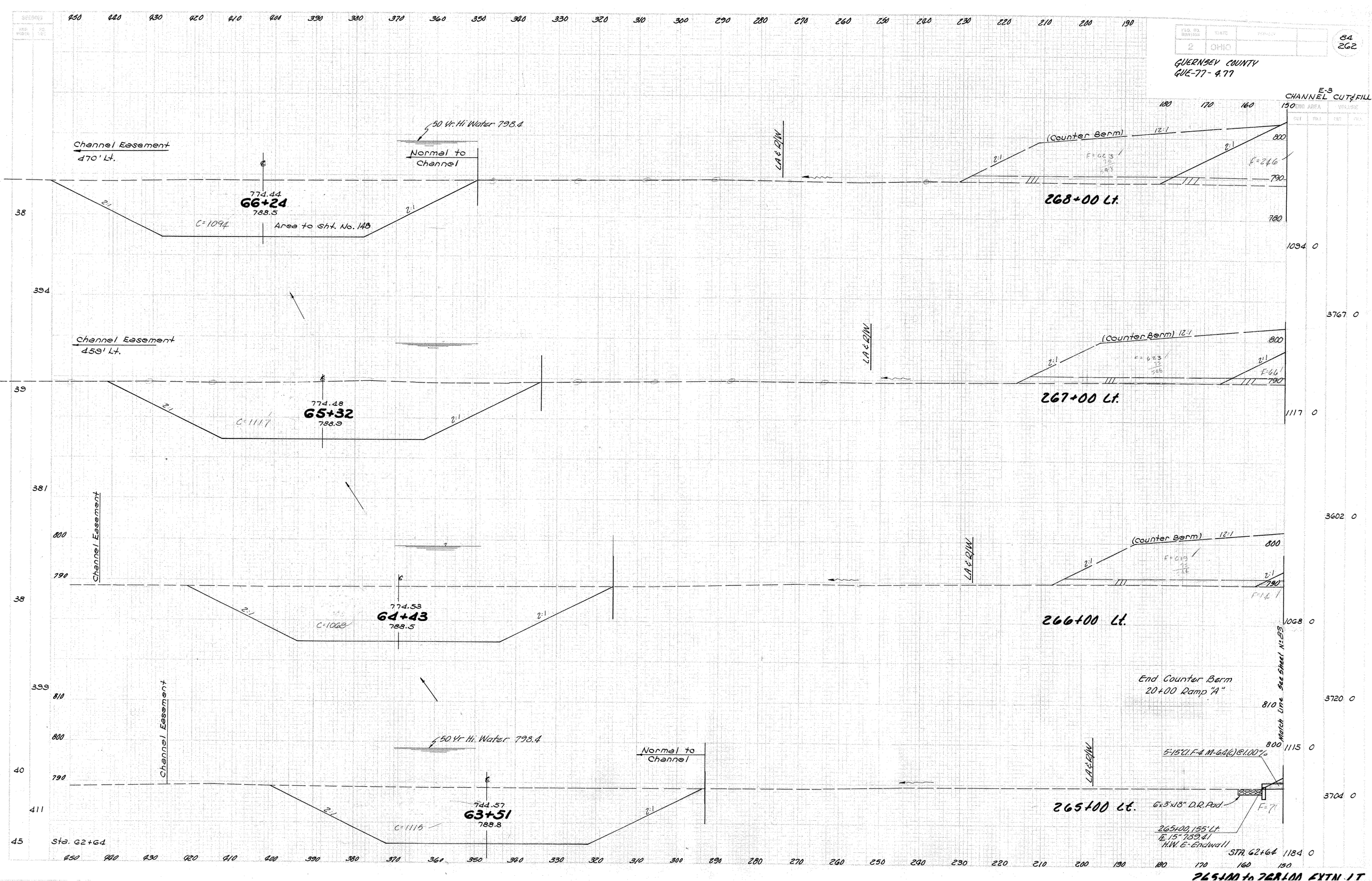
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

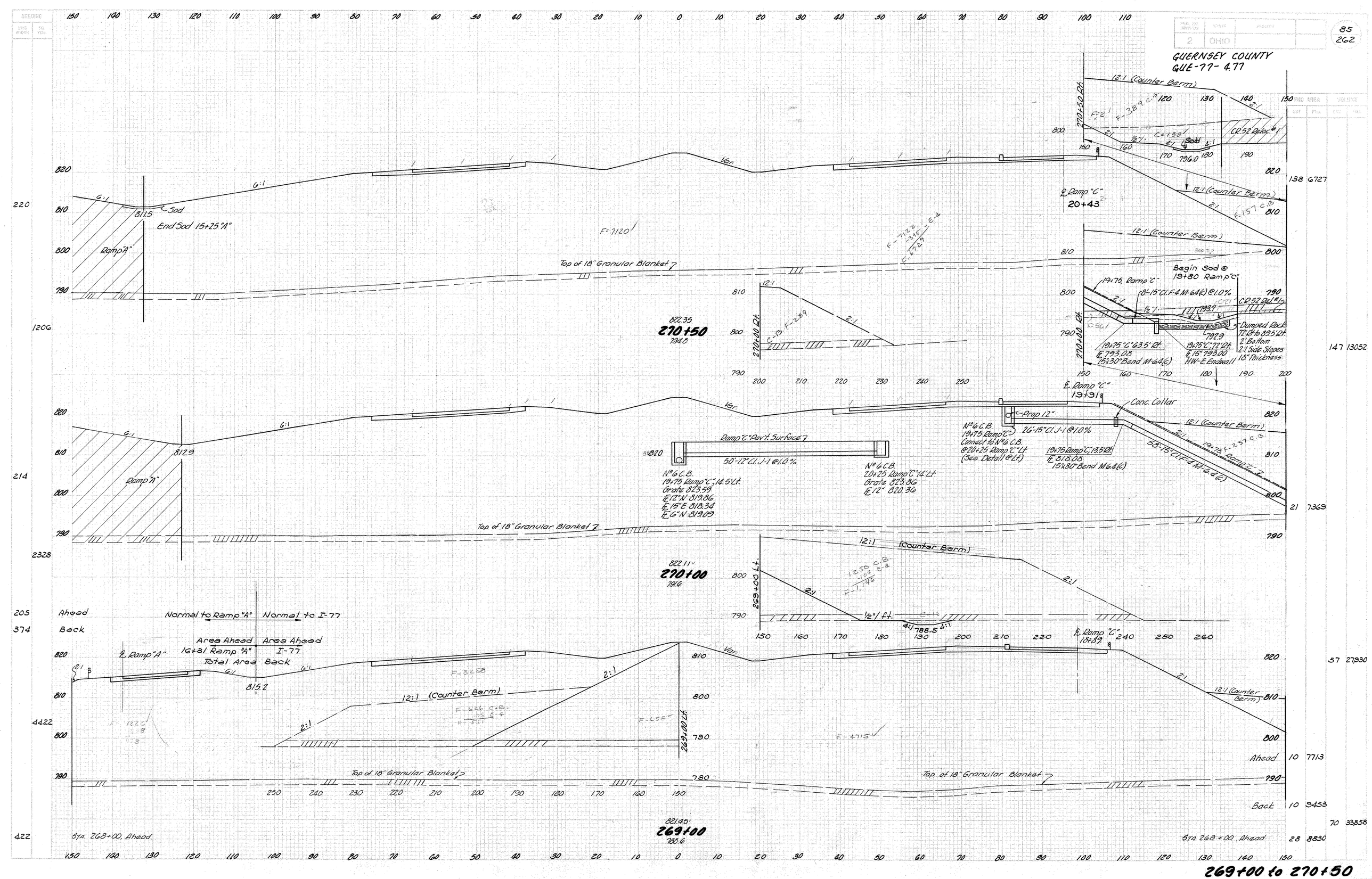
84
262

GUERNSEY COUNTY
GUE-77-4.77

E-3
CHANNEL CUT & FILL

END AREA		VOLUME	
CUT	FILL	CUT	FILL

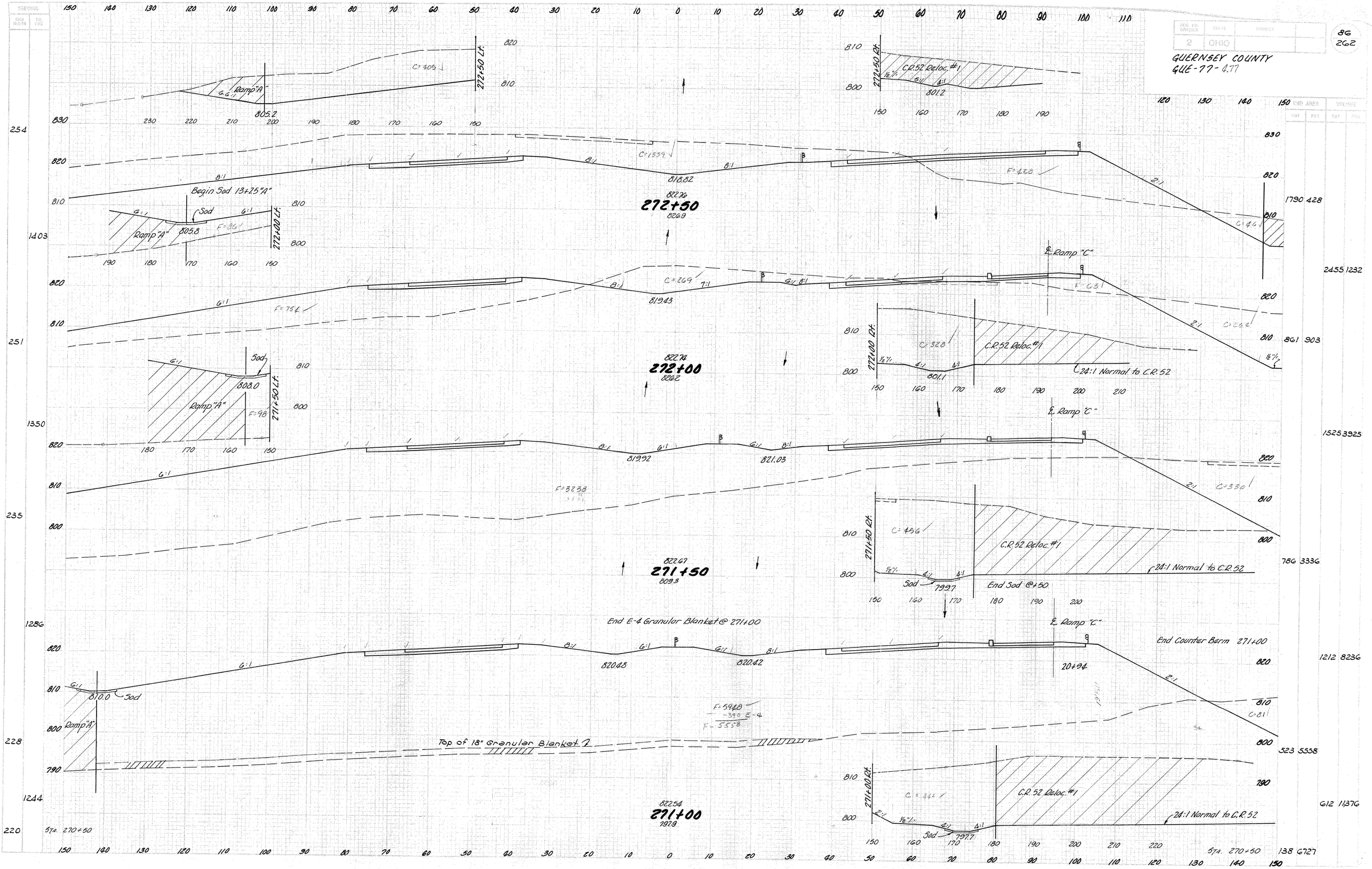



FED. RD. DIVISION 2
STATE OHIO
PROJECT
85
262
GUERNSEY COUNTY
GUE-77-4.77
12:1 (Counter Berm)
CR 52 Reloc. #1
Sod
℄ Ramp "C"
20+43
End Sod 15+25 "A"
Ramp "A"
Top of 18" Granular Blanket
Begin Sod @
19+80 Ramp "C"
19+75, Ramp "C"
8"-15" Cl. F-4 M-64 (c) @ 1.0%
Dumped Rock
72' Rt. to 89.5' Rt.
2' Bottom
2:1 Side Slopes
18" Thickness
19+75 "C" 63.5' Rt.
E 793.08
15"x30° Bend M-64 (c)
19+75 "C" 72' Rt.
E 15" 793.00
HW-E Endwall
270+50
270+00 Rt.
℄ Ramp "C"
19+91
Conc. Collar
Prop 12"
Ramp "C" Pav't. Surface
50'-12" Cl. J-1 @ 1.0%
No 6 C.B.
19+75 Ramp "C" 14.5' Lt.
Grate 823.59
E 12" N 819.86
E 15" E 818.34
E 6" N 819.09
No 6 C.B.
20+25 Ramp "C" 14' Lt.
Grate 823.86
E 12" 820.36
No 6 C.B.
19+75 Ramp "C"
Connect to No 6 C.B.
@ 20+25 Ramp "C" Lt.
(See Detail @ Lt.)
26'-15" Cl. J-1 @ 1.0%
19+75 Ramp "C" 13.5' Rt.
E 818.08
15"x30° Bend M-64 (c)
53'-15" Cl. F-4 M-64 (c)
19+75 Ramp "C"
270+00
269+00 Lt.
1/2"/ft.
4:1-188.5
Normal to Ramp "A"
Normal to I-77
Ahead
Back
Area Ahead
16+31 Ramp "A"
Area Ahead
I-77
Total Area Back
℄ Ramp "A"
℄ Ramp "C"
18+89
269+00
Top of 18" Granular Blanket
Sta. 268+00, Ahead
Ahead
Back
269+00 to 270+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

86
262

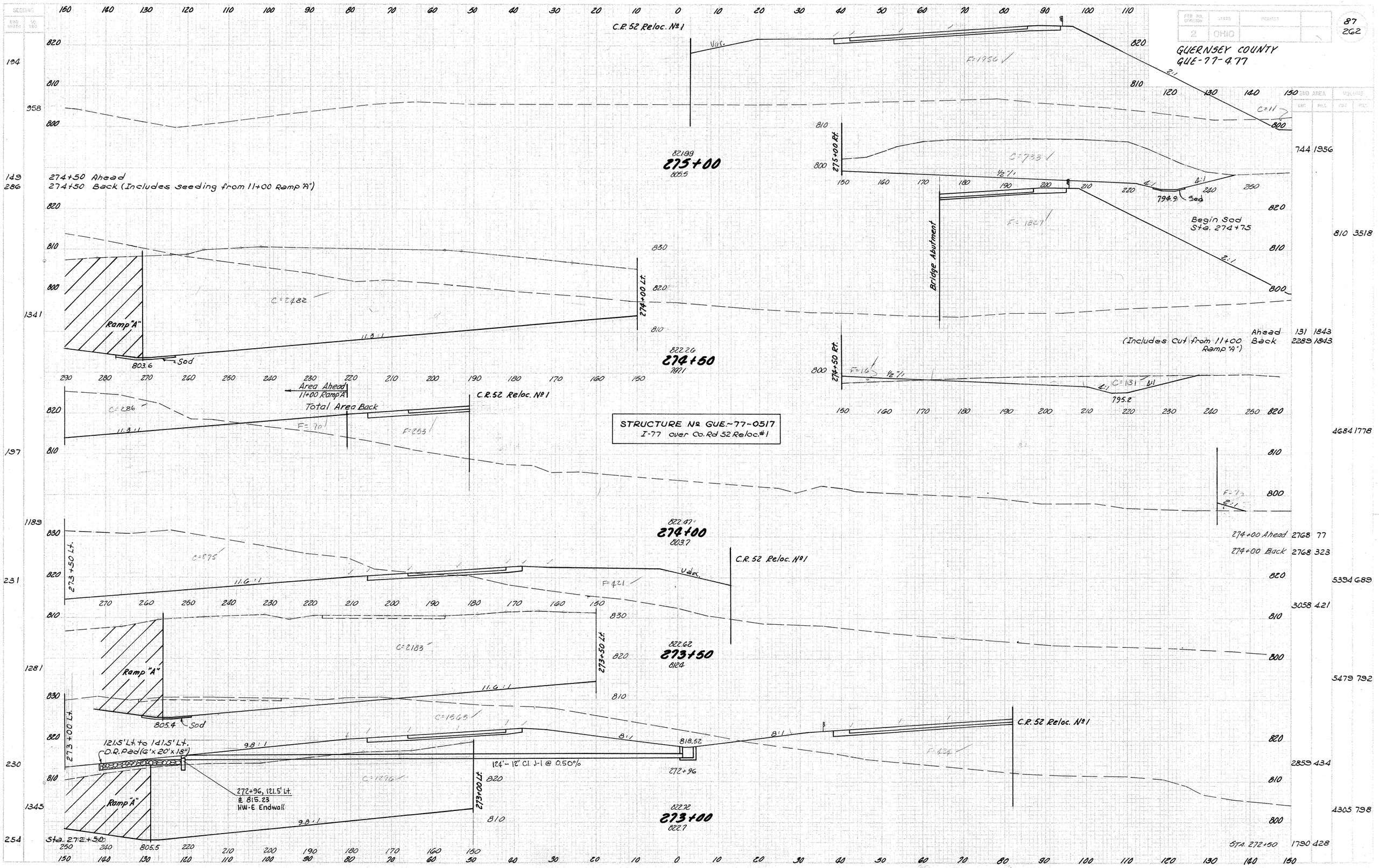
GUERNSEY COUNTY
GUE-77-4.77



FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

87
262

GUERNSEY COUNTY
GUE-77-4.77

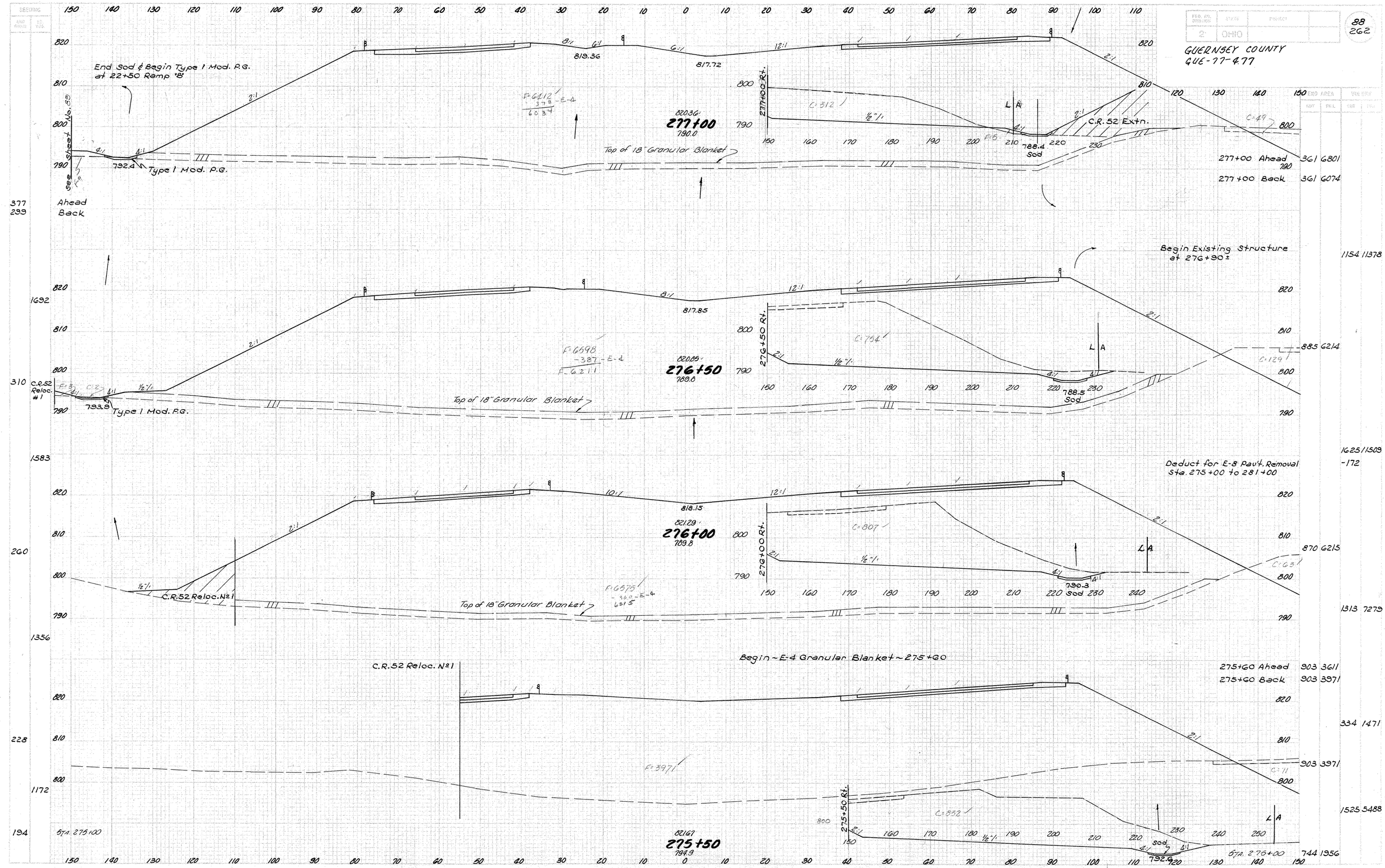


273+00 to 275+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

88
262

GUERNSEY COUNTY
GUE-77-4.77



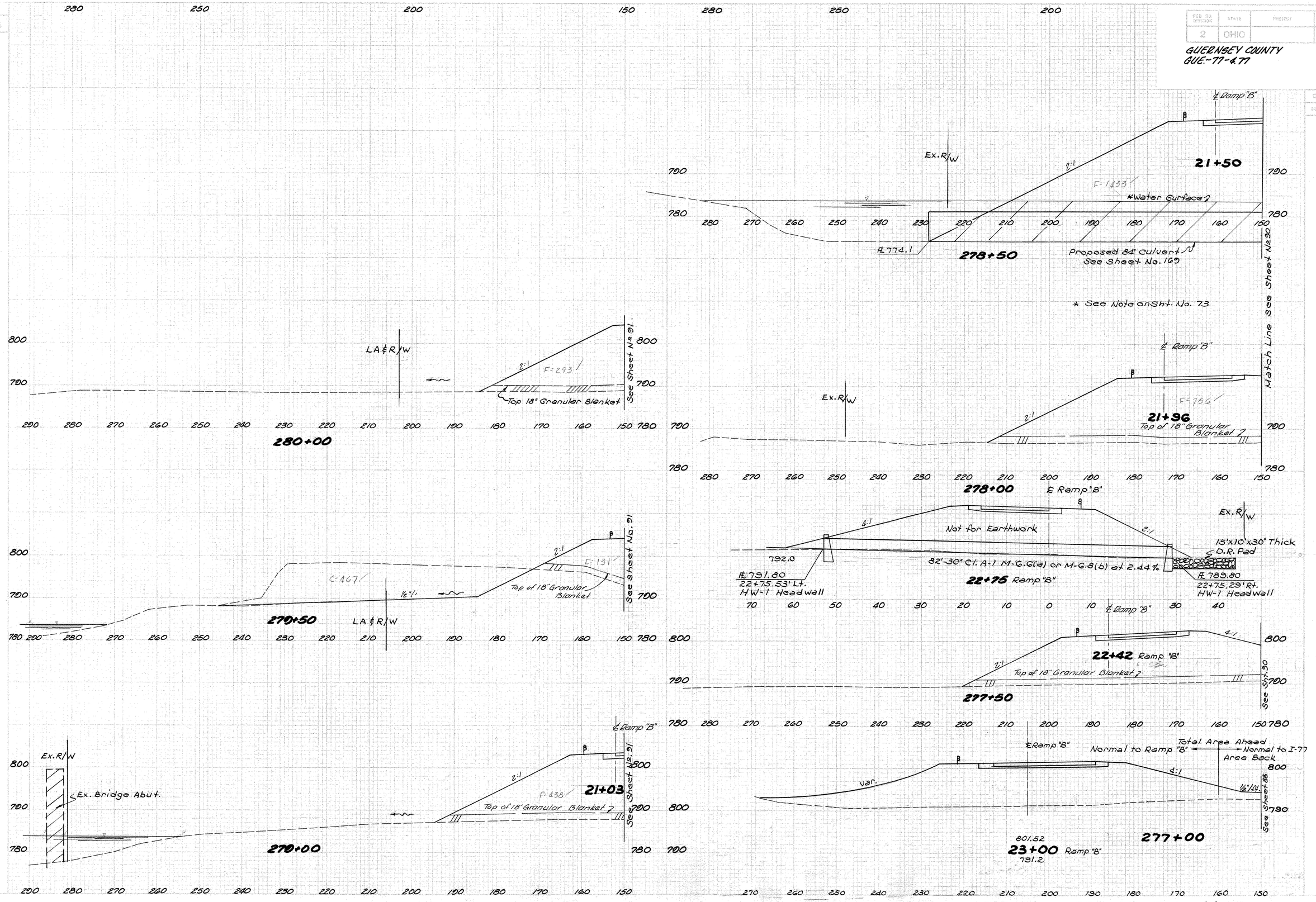
275+50 to 277+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

89
262

GUERNSEY COUNTY
GUE-77-4.77

CUT	FILL	CUT	FILL

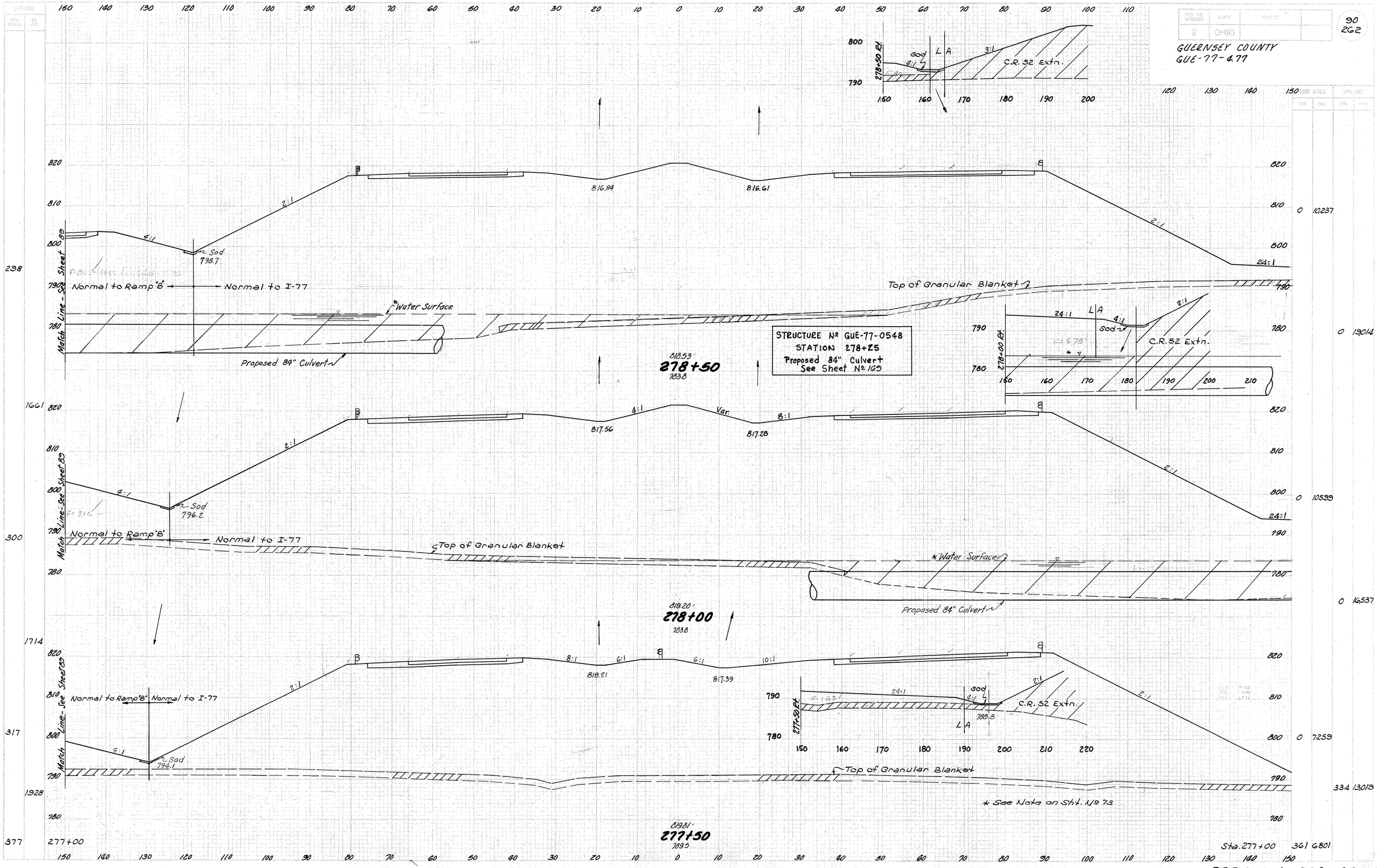


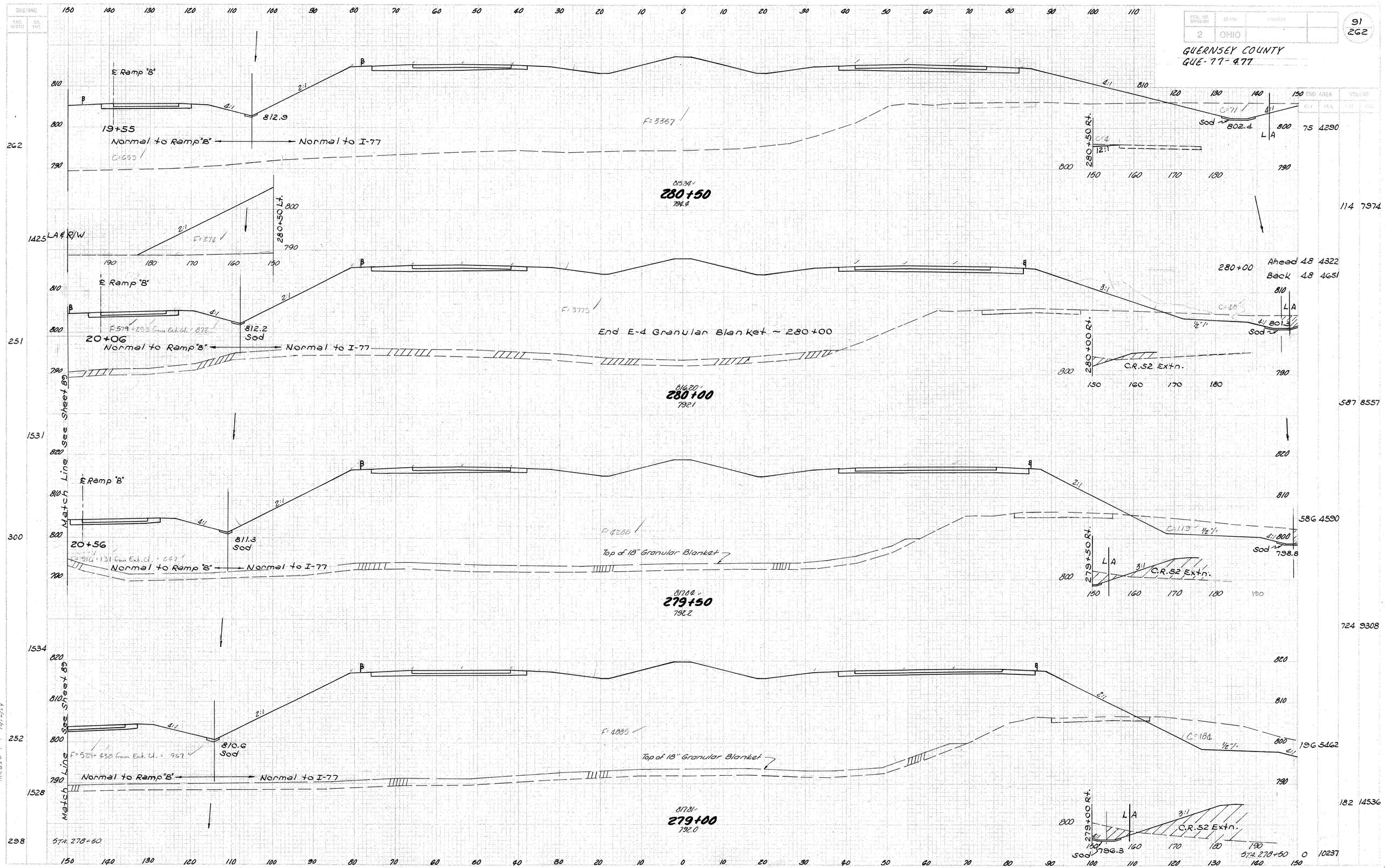
277+00 – 280+00 Extn. Lt.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

90
262

GUERNSEY COUNTY
GUE-77-4.77

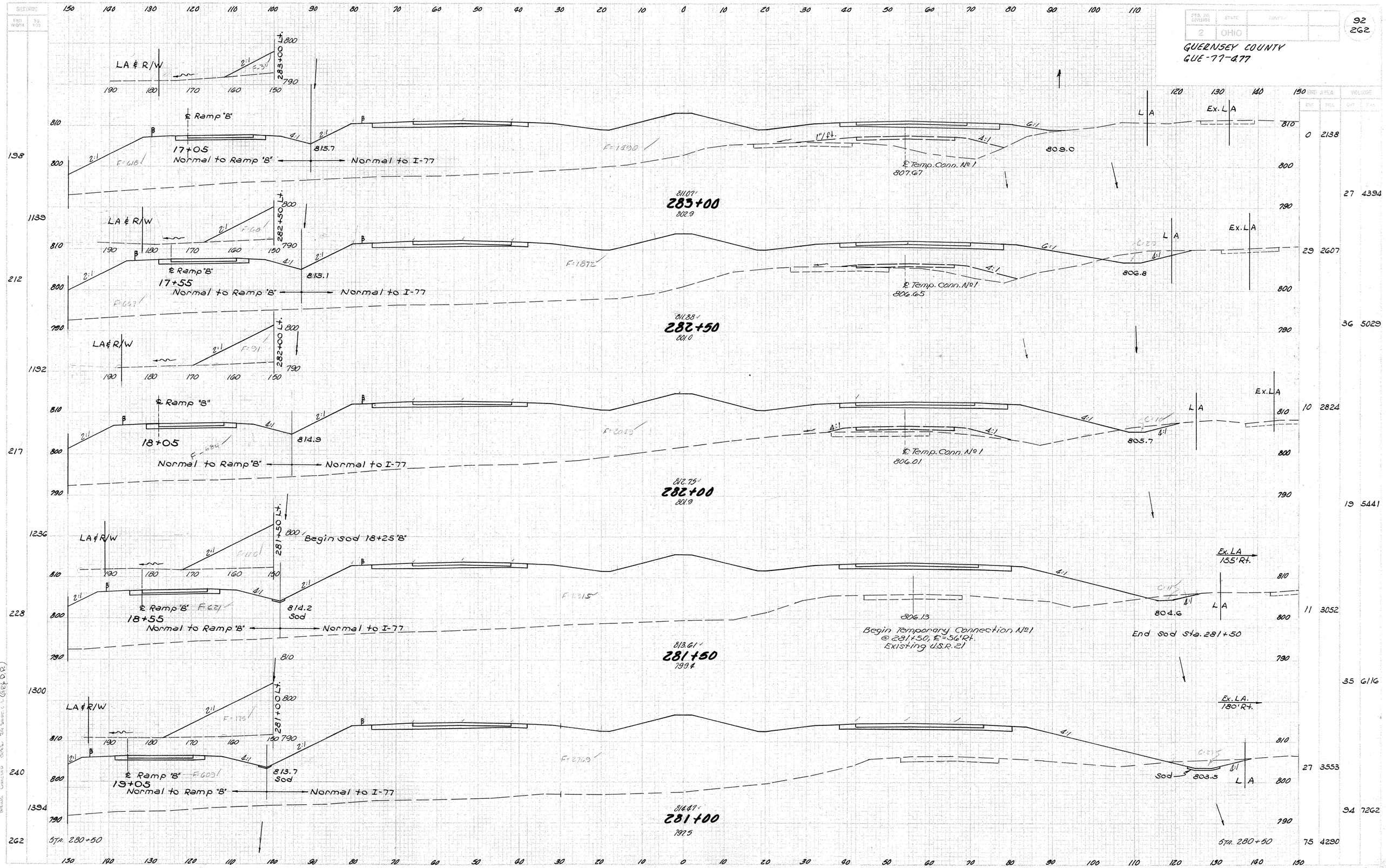



FED. RD. DIVISION 2
STATE OHIO
PROJECT
91
262
GUERNSEY COUNTY
GUE-77-4.77
SHEETING
END AREA
VOLUME
℄ Ramp "B"
19+55
Normal to Ramp "B"
Normal to I-77
812.9
802.4
Sod
280+50 Rt.
280+50 Lt.
280+50
LA & R/W
20+06
812.2
Sod
End E-4 Granular Blanket ~ 280+00
280+00
280+00 Rt.
C.R. 52 Extn.
Ahead 48 4322
Back 48 4651
Match Line See Sheet 89
20+56
811.3
Sod
Top of 18" Granular Blanket
279+50
279+50 Rt.
798.8
810.6
Sod
279+00
279+00 Rt.
796.3
Sta. 278+50
279+00 to 280+50

FED. RD. DIVISION	STATE	COUNTY	
2	OHIO		

92
262

GUERNSEY COUNTY
GUE-77-4.77

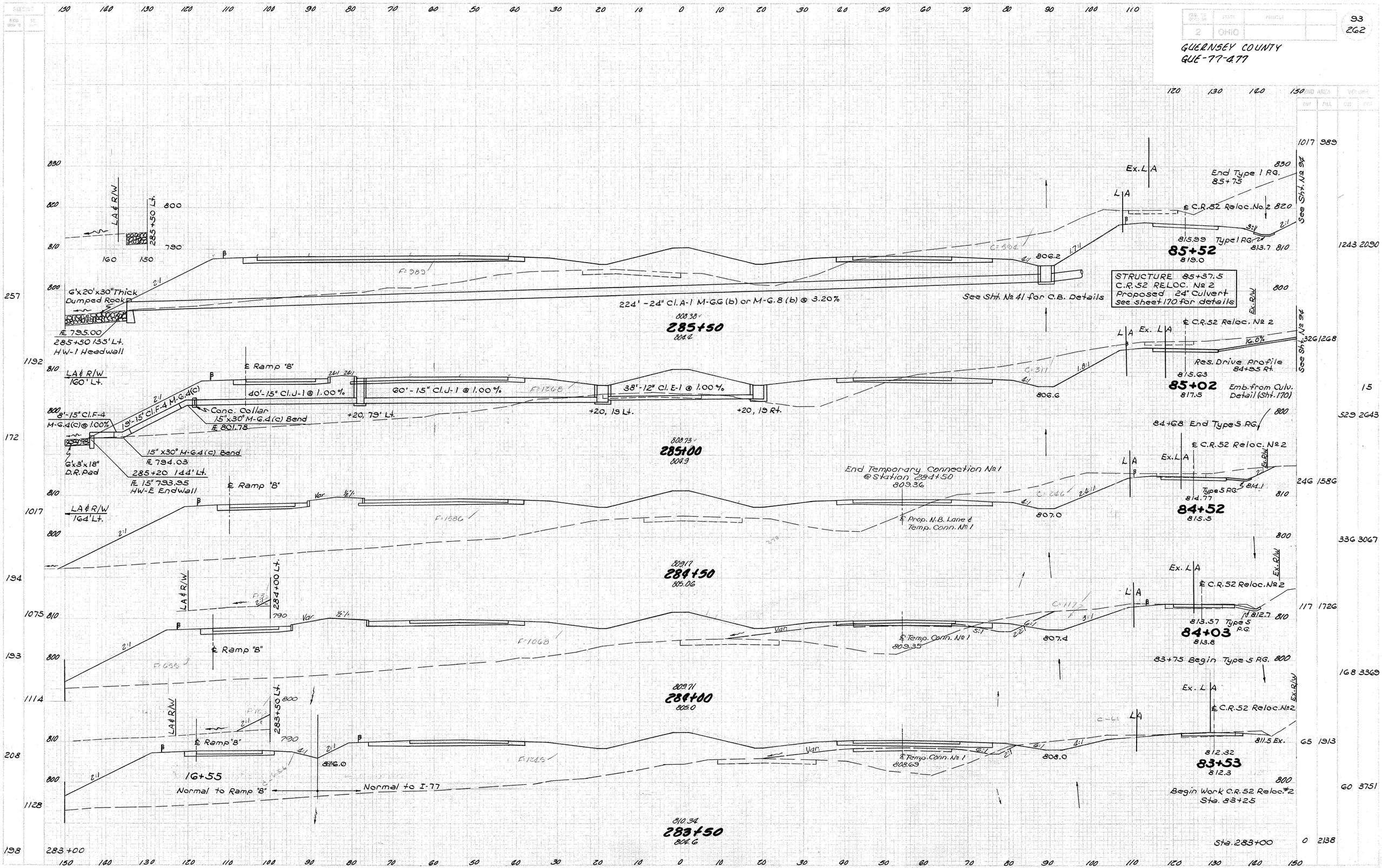


281+00 to 283+00

FED. ROAD DIST.	STATE	PROJECT	
2	OHIO		

93
262

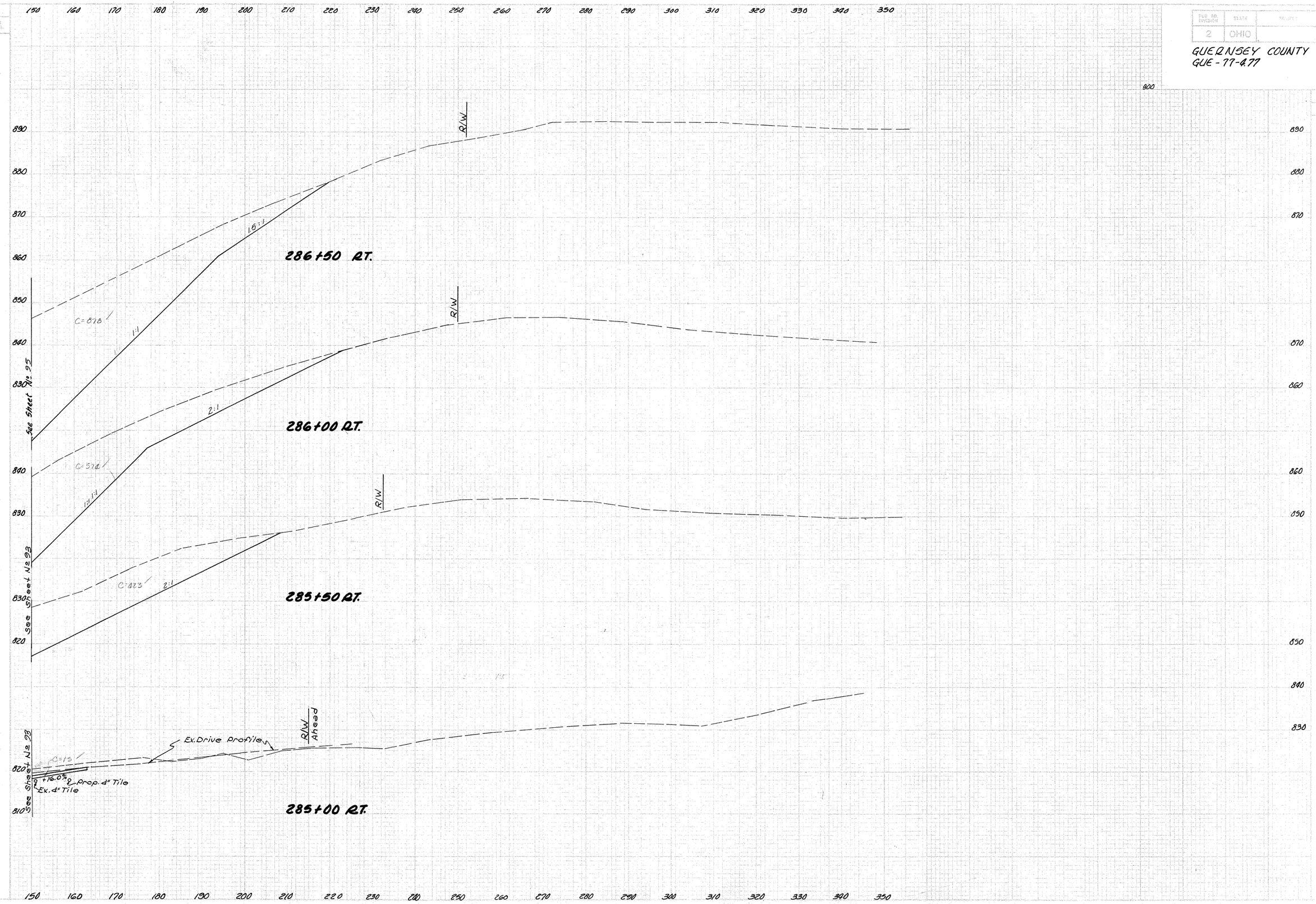
GUERNSEY COUNTY
GUE-77-4.77



FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

94
262

GUERNSEY COUNTY
GUE-77-4.77

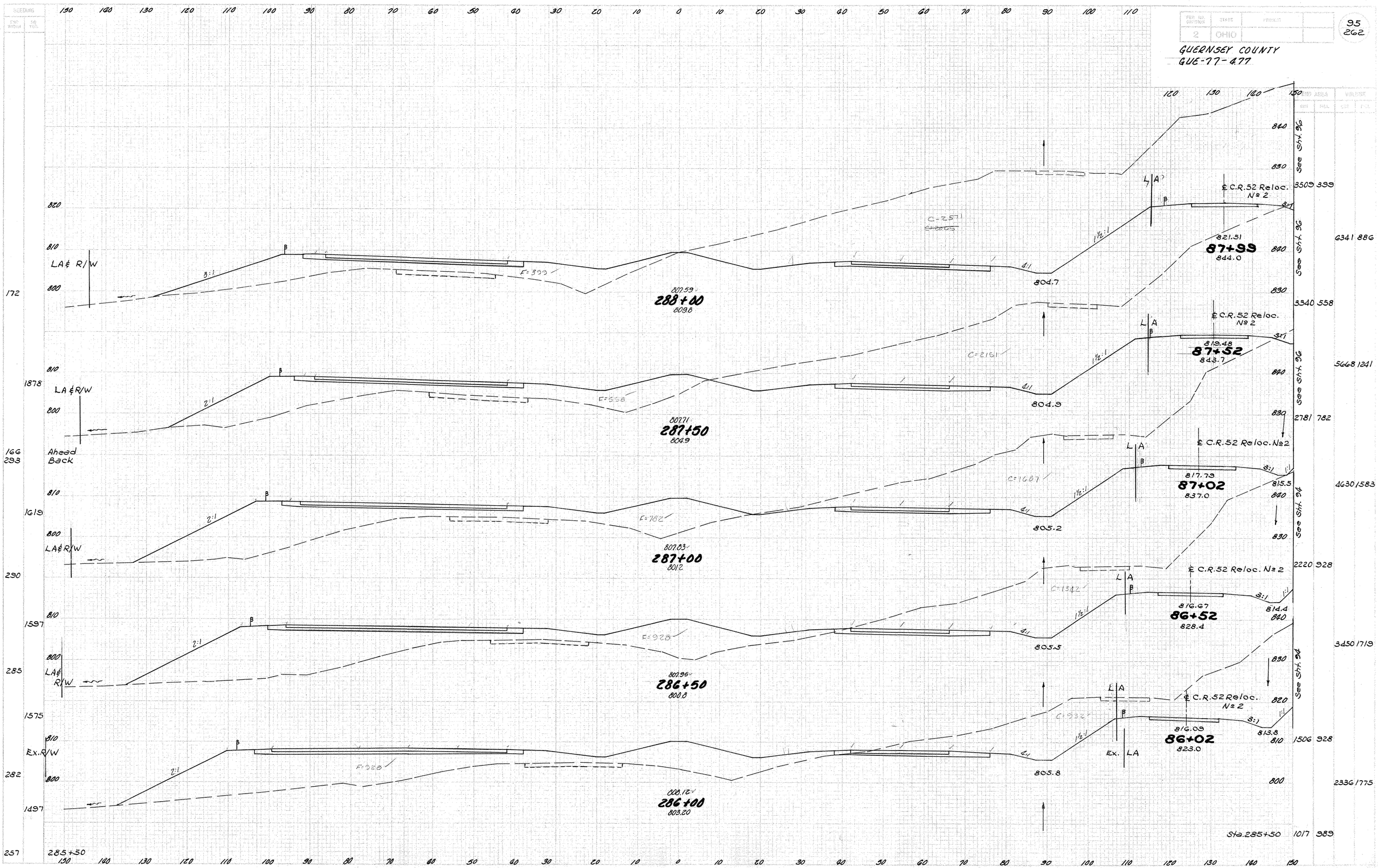


285+00 to 286+50 EXTN. RT.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

95
262

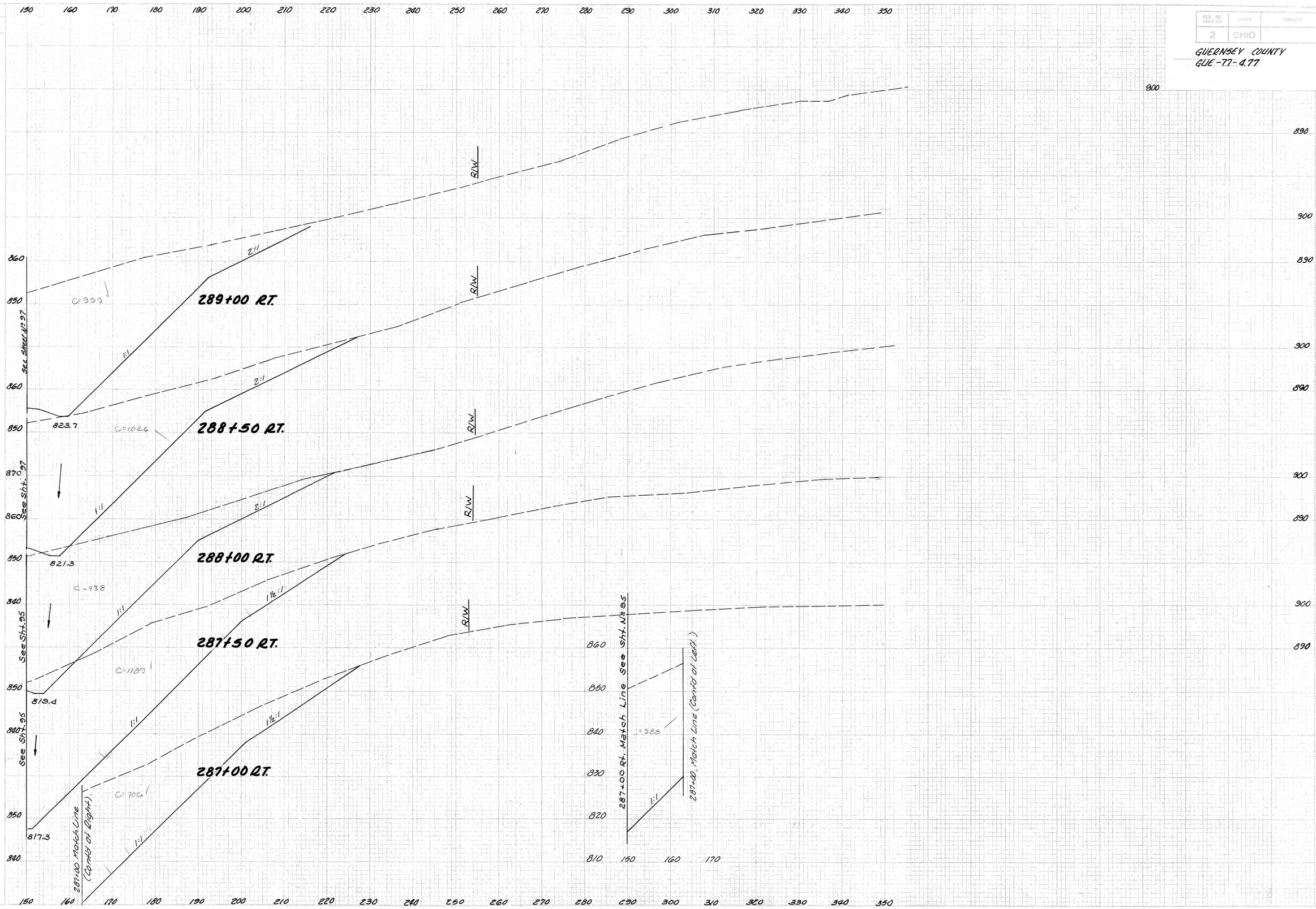
GUERNSEY COUNTY
GUE-77-4.77



FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

96
2G2

GUERNSEY COUNTY
GUE-77-4.77

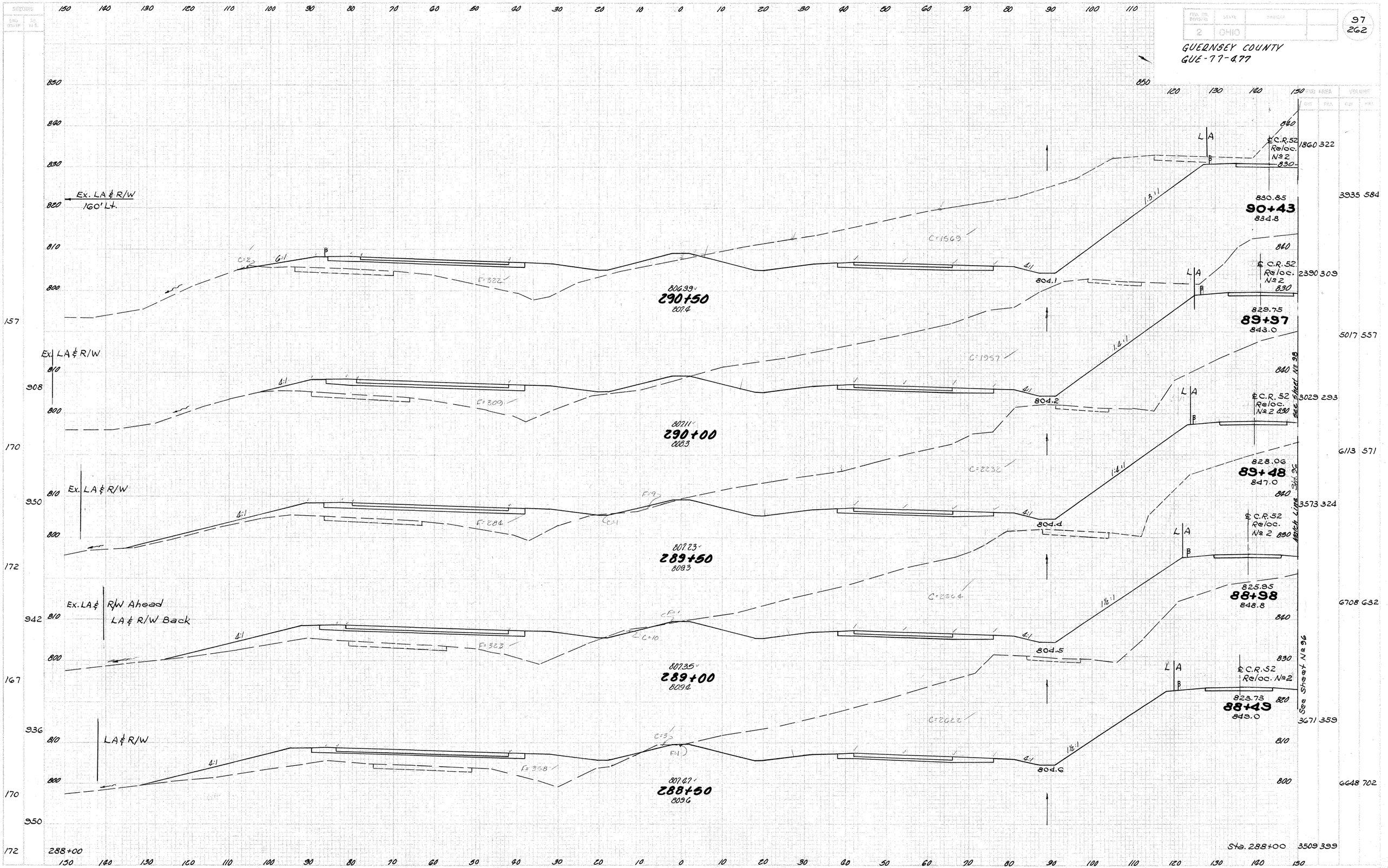


287+00 to 289+00 EKTN. RT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

97
262

GUERNSEY COUNTY
GUE-77-4.77

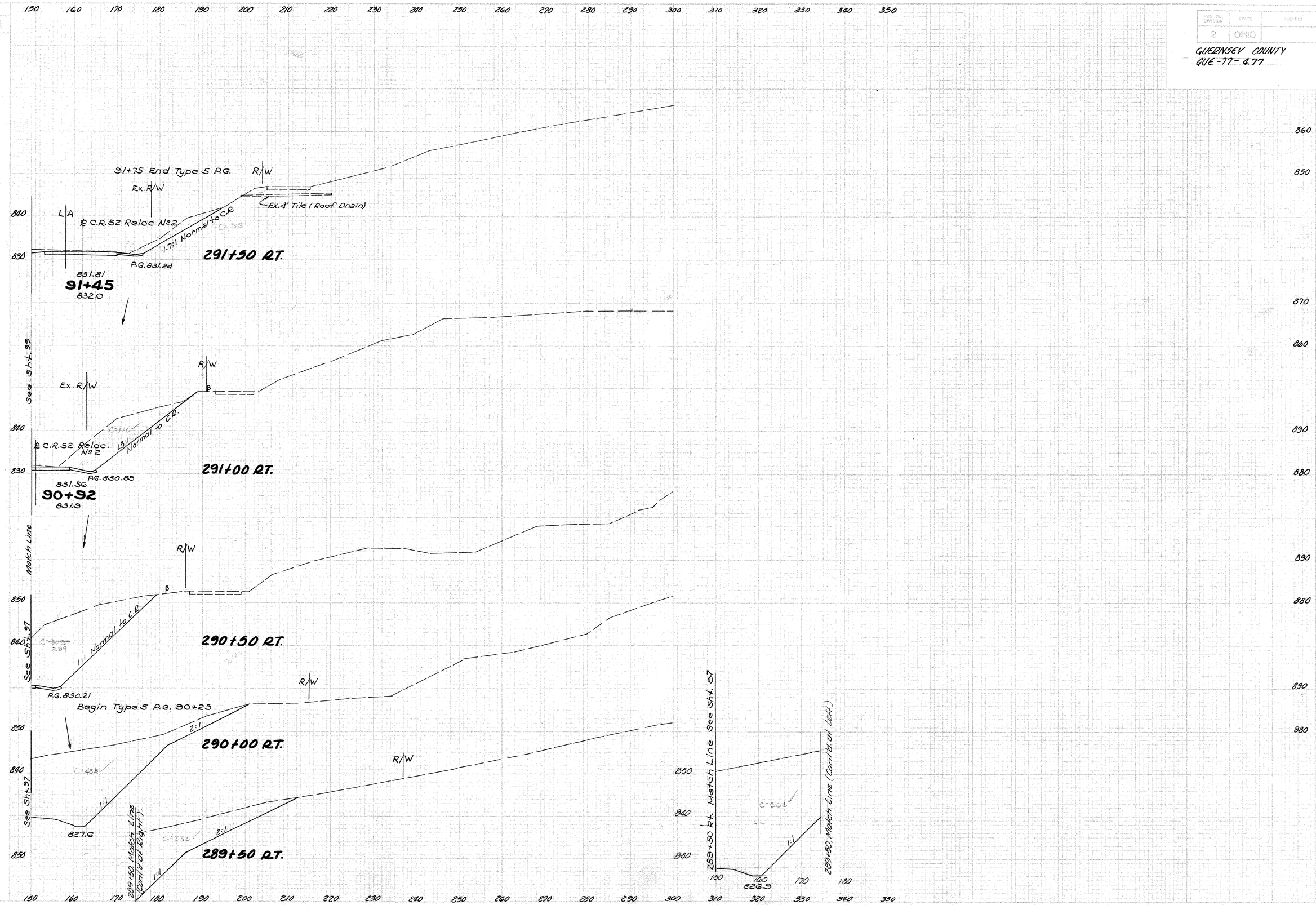


288+50 to 290+50

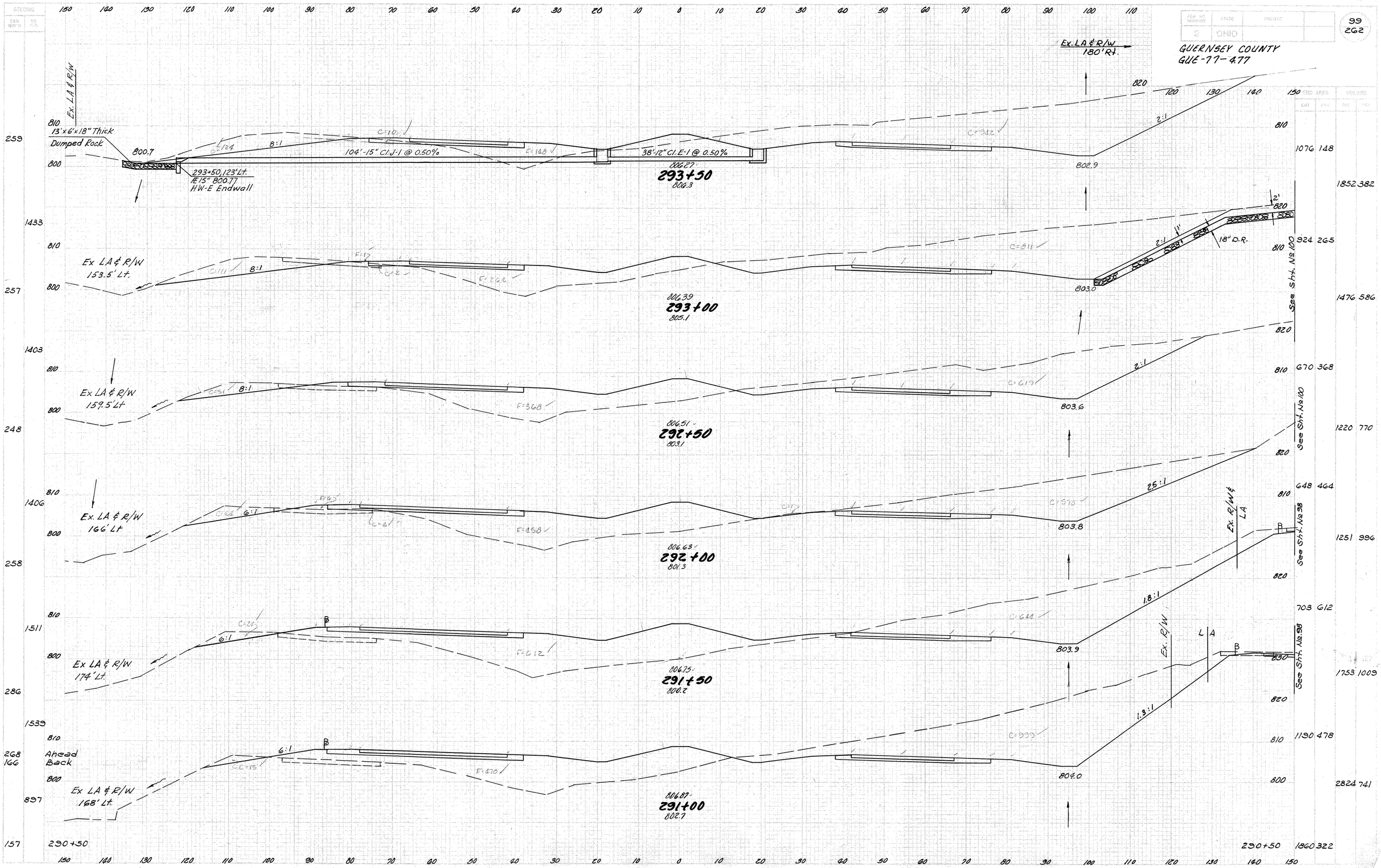
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

98
262

GUERNSEY COUNTY
GUE-77-4.77



289+50 to 291+50 EXTN. RT.

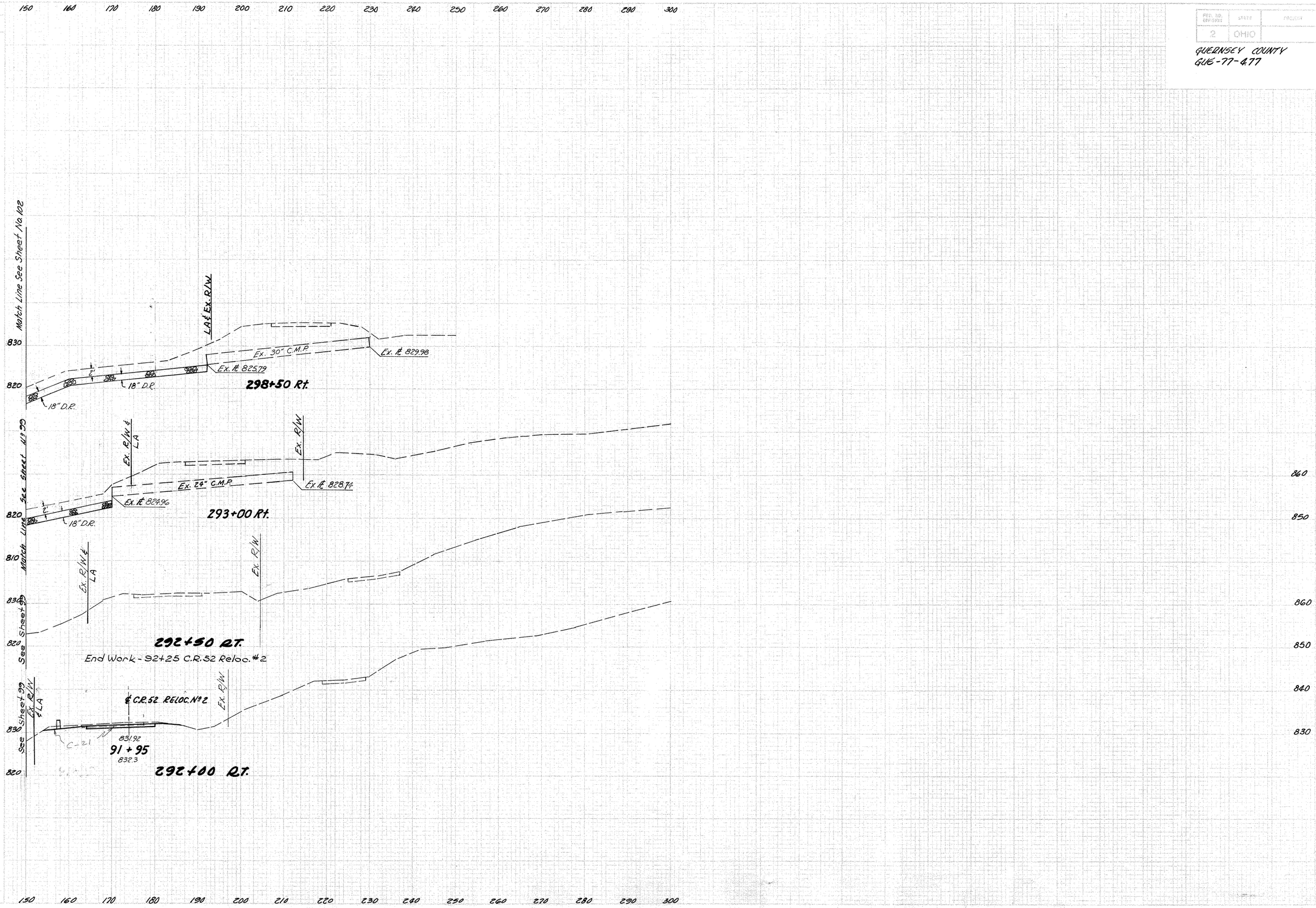

99
262
STATE
OHIO
GUERNSEY COUNTY
GUE-77-4.77
Ex. LA & R/W
180' Rt.
13'x6'x18" Thick
Dumped Rock
293+50, 123' Lt.
E 15" 800.77
HW-E Endwall
104'-15" Cl. J-1 @ 0.50%
38'-12" Cl. E-1 @ 0.50%
293+50
293+00
292+50
292+00
291+50
291+00
Ex LA & R/W
153.5' Lt.
Ex LA & R/W
159.5' Lt
Ex. LA & R/W
166' Lt
Ex LA & R/W
174' Lt.
Ex LA & R/W
168' Lt.
Ahead
Back
18" D.R.
See Sht. No. 100
See Sht. No. 98
Ex. R/W & LA
290+50
1860 322
1753 1009
2824 741
291+00 to 293+50

FED. RD. DIV-SYMB	STATE	PROJECT	
2	OHIO		

100
262

GUERNSEY COUNTY
GUE-77-4.77

END AREA		VOLUME	
CUT	FILL	CUT	FILL



292+00 to 293+00 & 298+50 EXTN.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

101
262

GUERNSEY COUNTY
GUE-77-477

	CUBIC AREA CUT	CUBIC AREA FILL	VOLUMES CUT	VOLUMES FILL
250	1988	0		
			3780	0
252	2094	0		
			3868	1
254	2084	1		
			3551	9
255	1756	9		
			3135	30
257	1630	23		
			2793	83
263	1386	67		
			2280	199
259	1076	148		

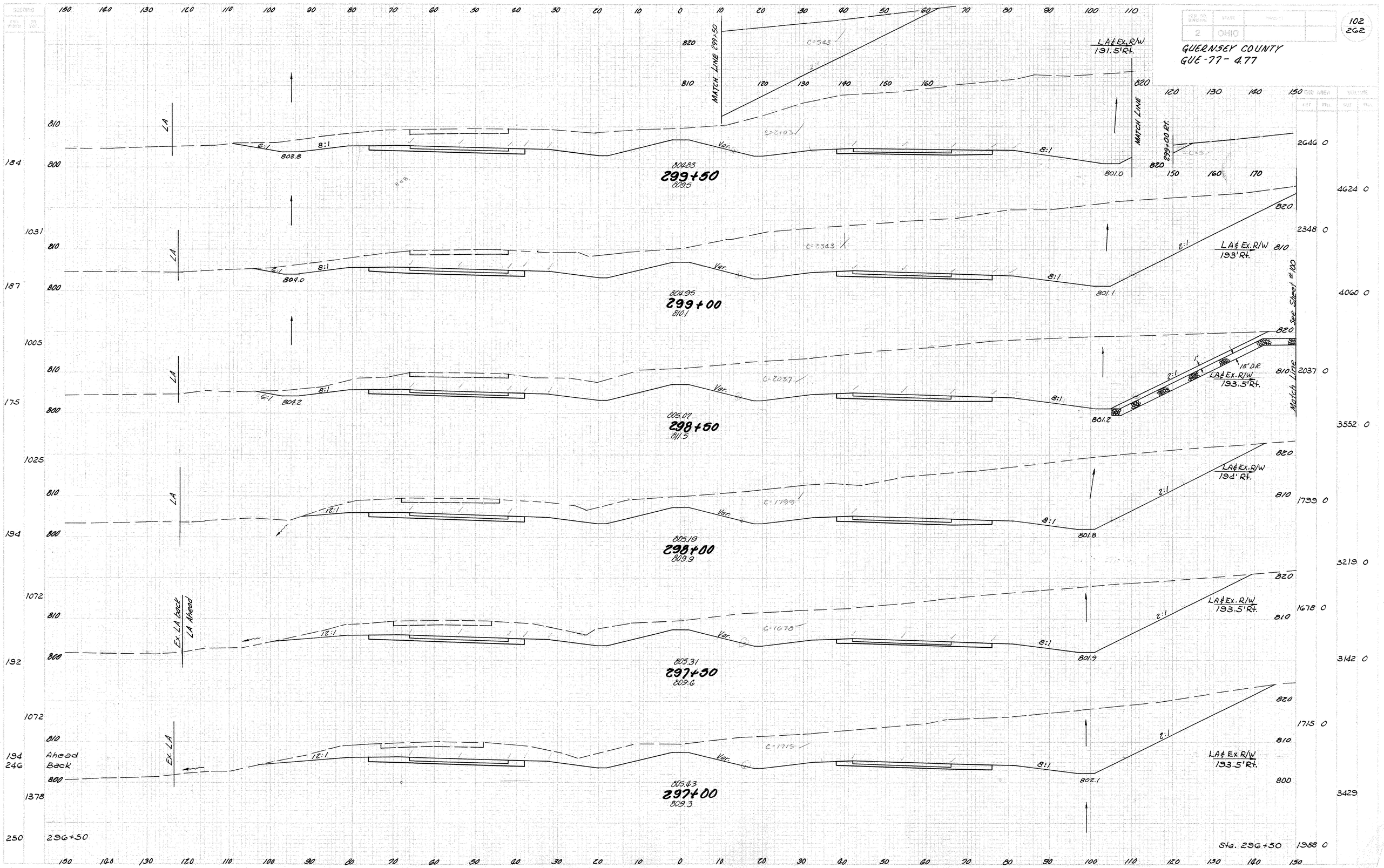
-527

294+00 to 296+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

102
2G2

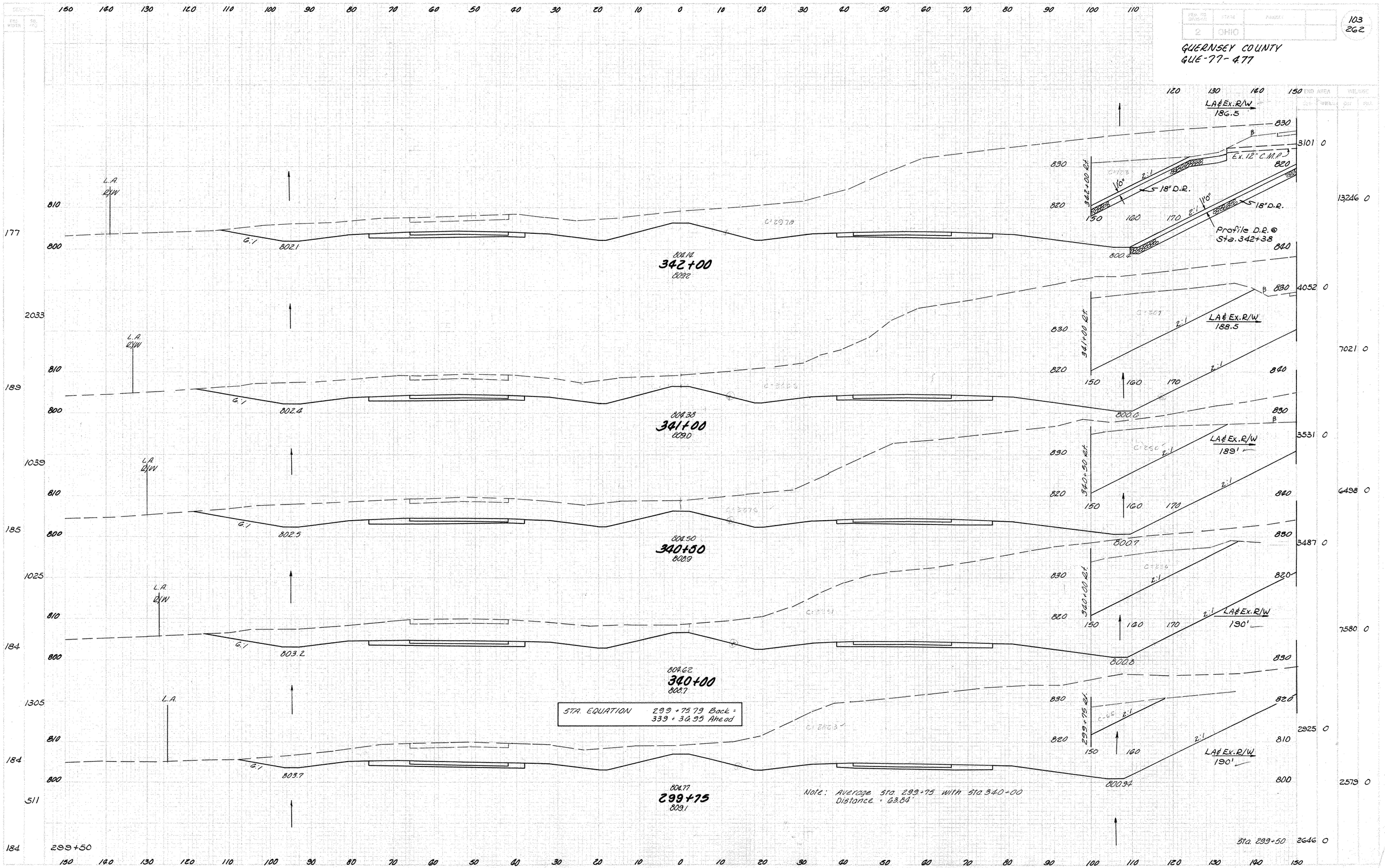
GUERNSEY COUNTY
GUE-77-4.77



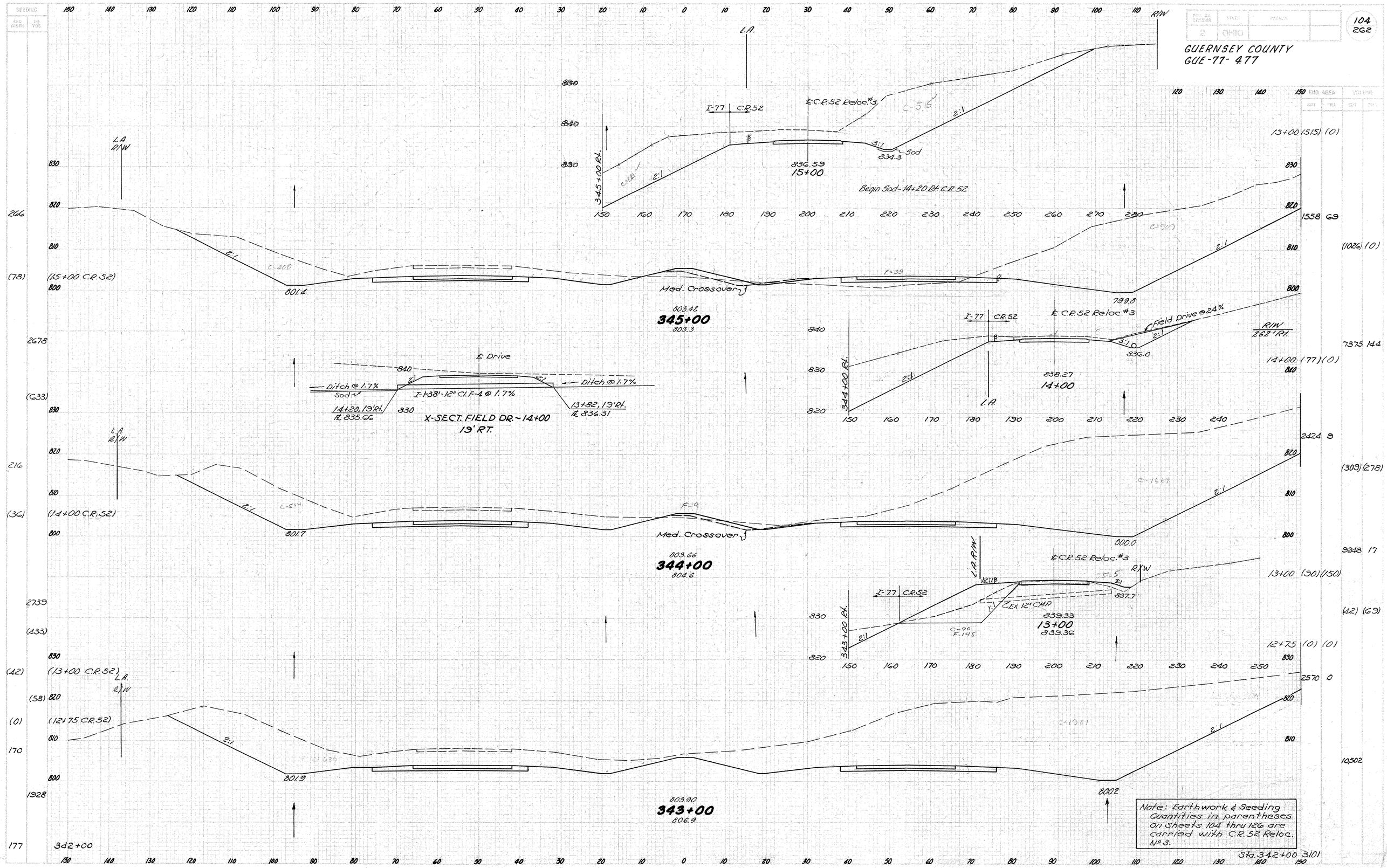
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

103
262

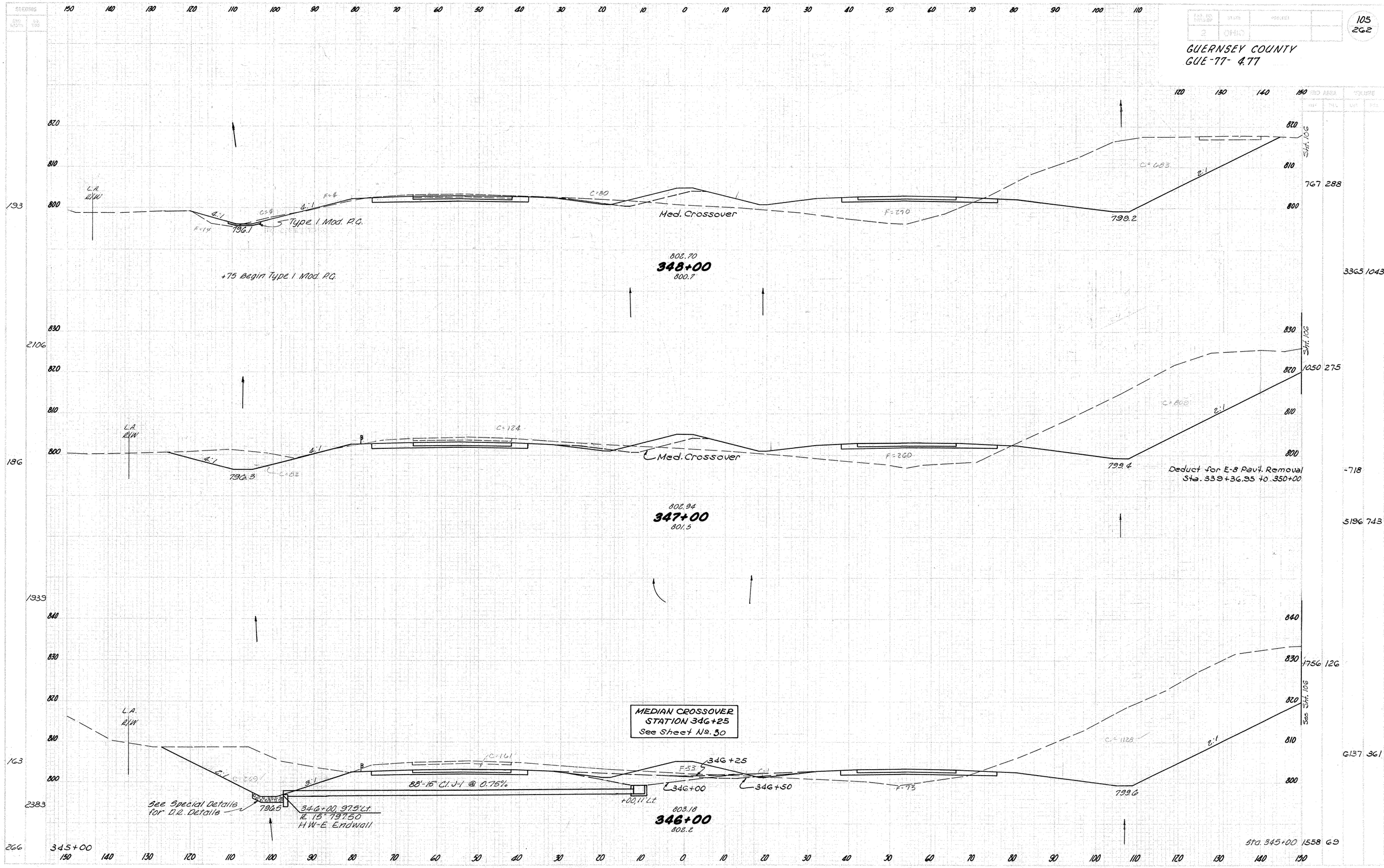
GUERNSEY COUNTY
GUE-77-4.77



299+75 to 342+00



343+00 to 345+00

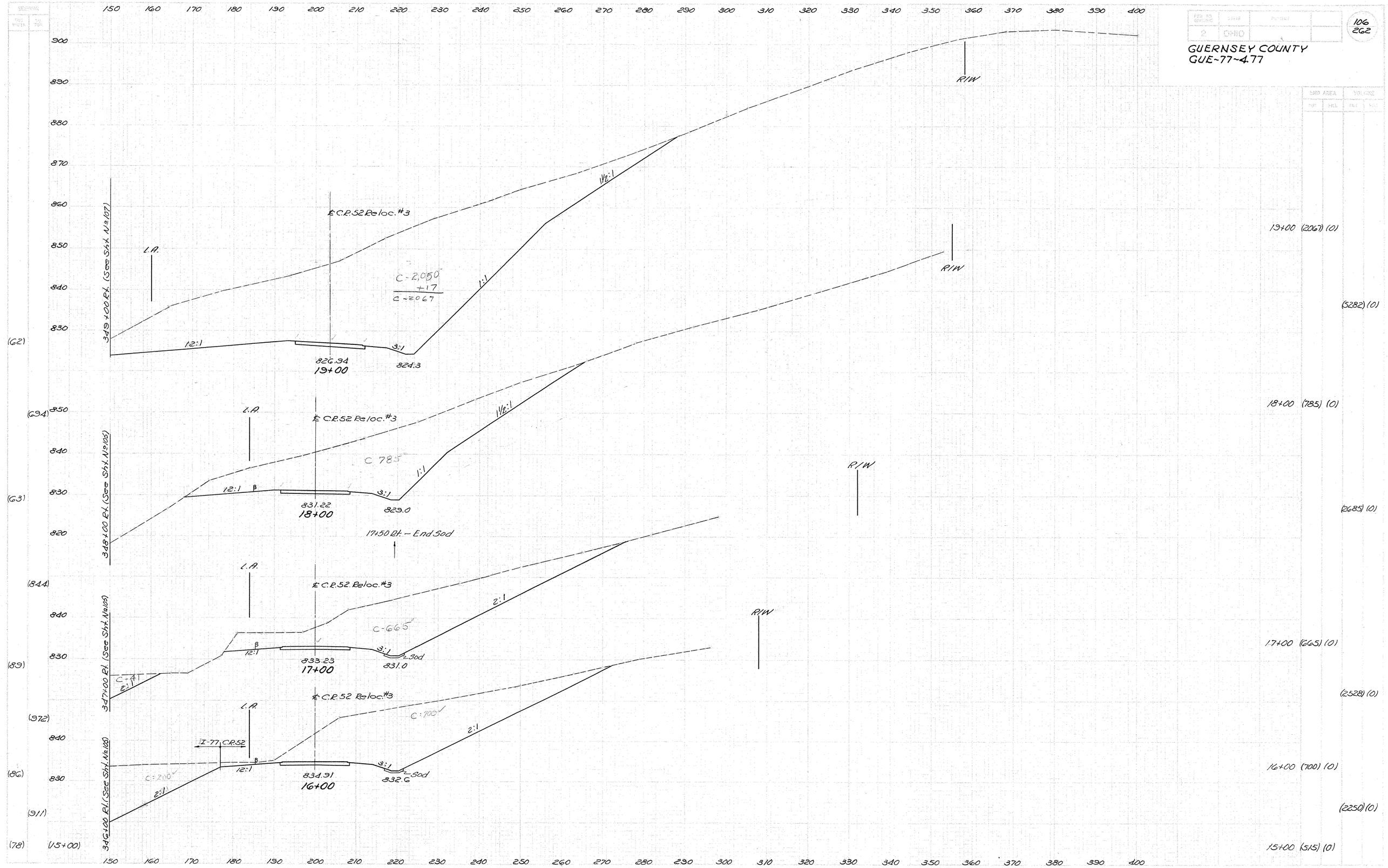

SEEDING
FAP NO. 31-01-00
STATE
PROJECT
2
OHIO
105
262
GUERNSEY COUNTY
GUE-77- 4.77
L.A.
R/W
4:1
F=14
C=4
F=4
796.1
Type 1 Mod. P.C.
+75 Begin Type 1 Mod. P.C.
C=80
Med. Crossover
F=270
808.70
348+00
800.7
C=683
2:1
799.2
Sht. 106
767 288
3365 1043
C=124
796.3
C=82
F=260
808.94
347+00
801.5
C=808
799.4
Deduct for E-8 Pavt. Removal
Sta. 339+36.35 to 350+00
1050 275
-718
5196 743
C=161
F=53
346+25
346+00
346+50
88'-15" Cl. J-1 @ 0.75%
+00.11 Lt.
F=75
See Special Details
for D.E. Details
796.6
346+00, 97.5' Lt.
R 15' 797.50
HW-E Endwall
808.18
346+00
802.2
MEDIAN CROSSOVER
STATION 346+25
See Sheet No. 30
C=1128
799.6
See Sht. 106
1756 126
6137 361
Sta. 345+00 1558 69
345+00
346+00 to 348+00

FED. RD. DIVISION	STATE	FOLDER	
2	OHIO		

106
262

GUERNSEY COUNTY
GUE-77-4.77

SHD AREA		VOLUME	
CUT	FILL	CUT	FILL

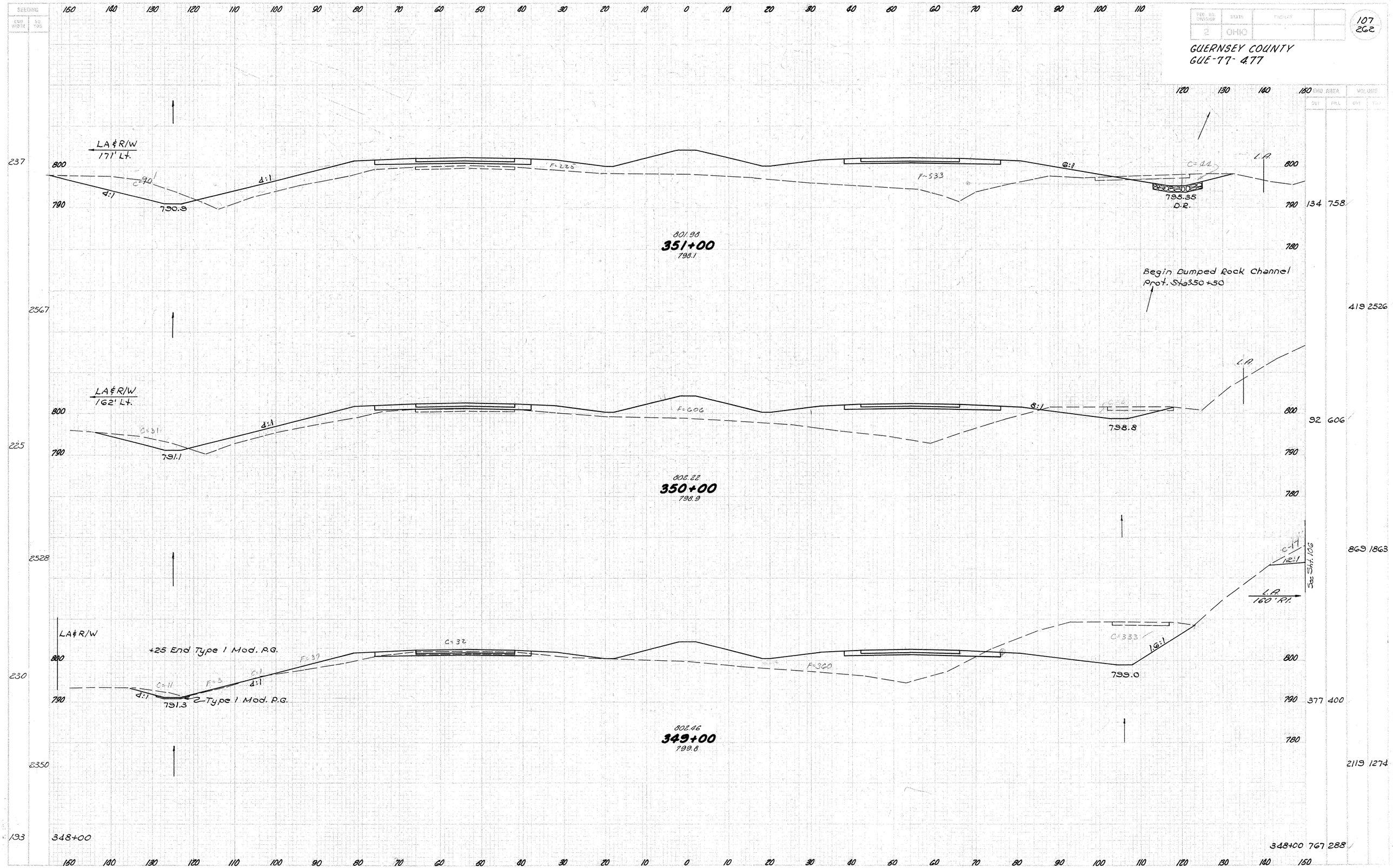


346+00 to 349+00 EXTN. RT.

FED. RD. DIVISION	STATE	FACILITY	
2	OHIO		

107
262

GUERNSEY COUNTY
GUE-77-4.77

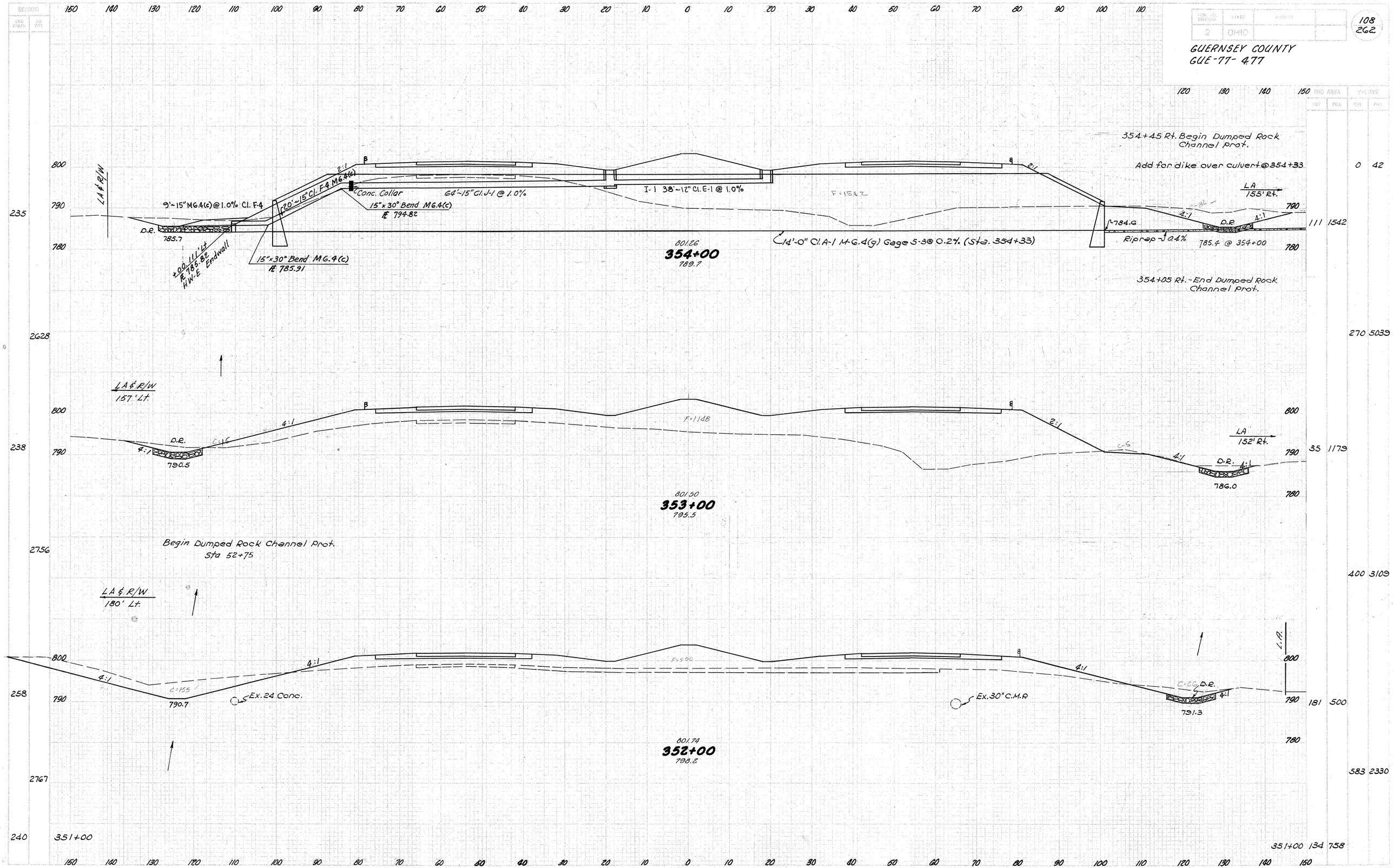


349+00 to 351+00

DIST.	STATE	ROUTE	
2	OHIO		

108
262

GUERNSEY COUNTY
GUE-77-4.77

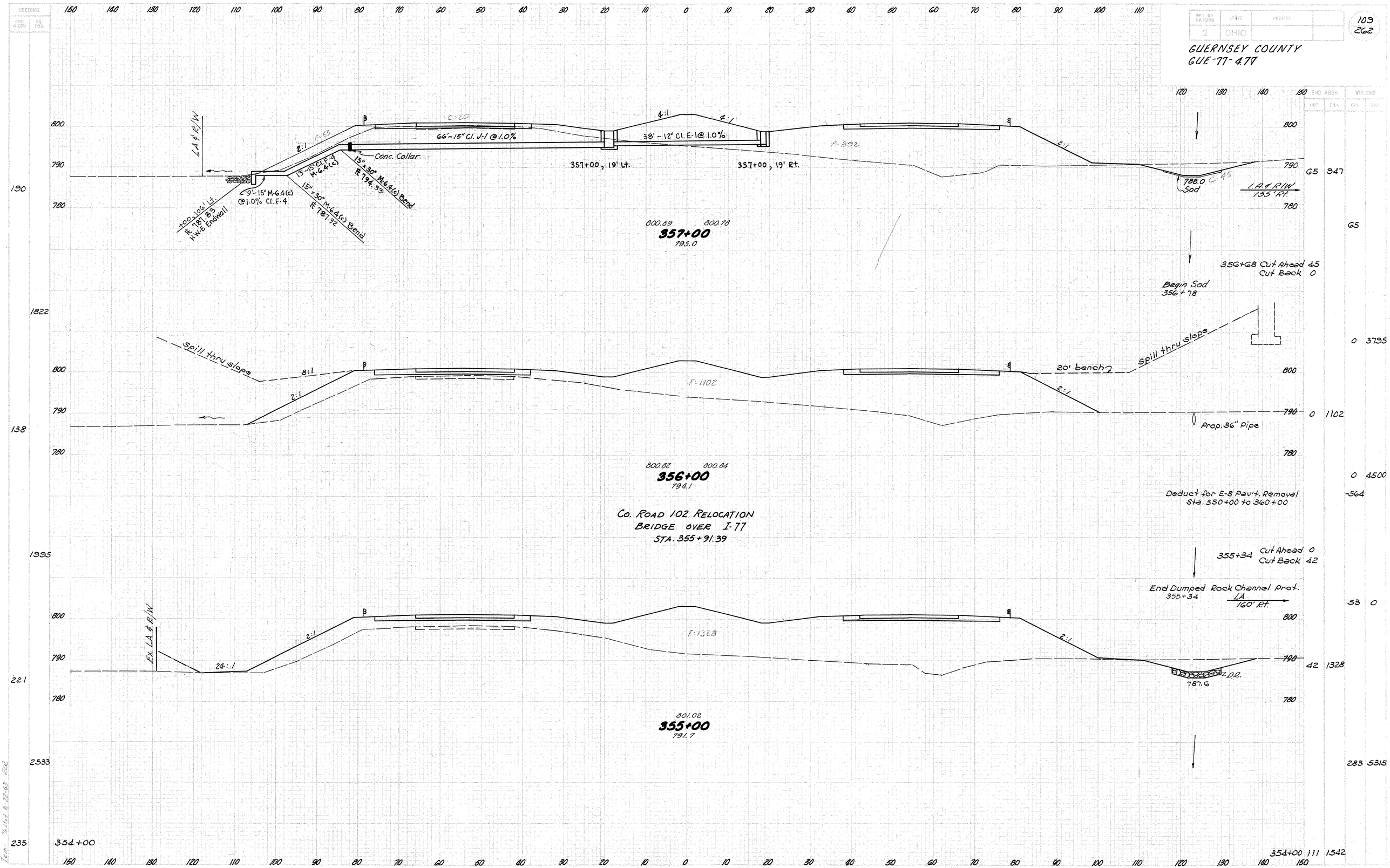


352+00 to 354+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

109
262

GUERNSEY COUNTY
GUE-77-4.77



355+00 to 357+00

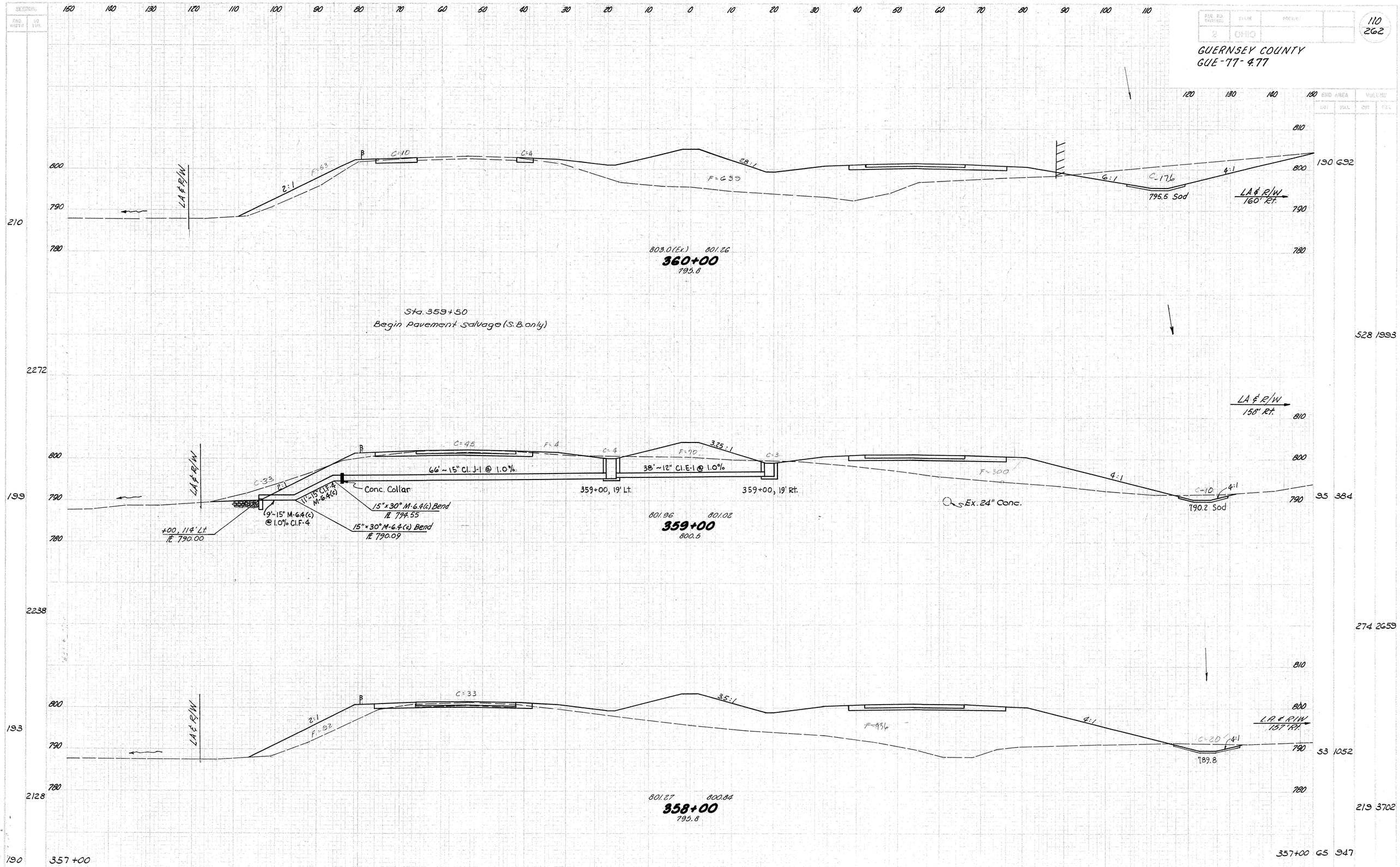
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

110
262

GUERNSEY COUNTY
GUE-77-4.77

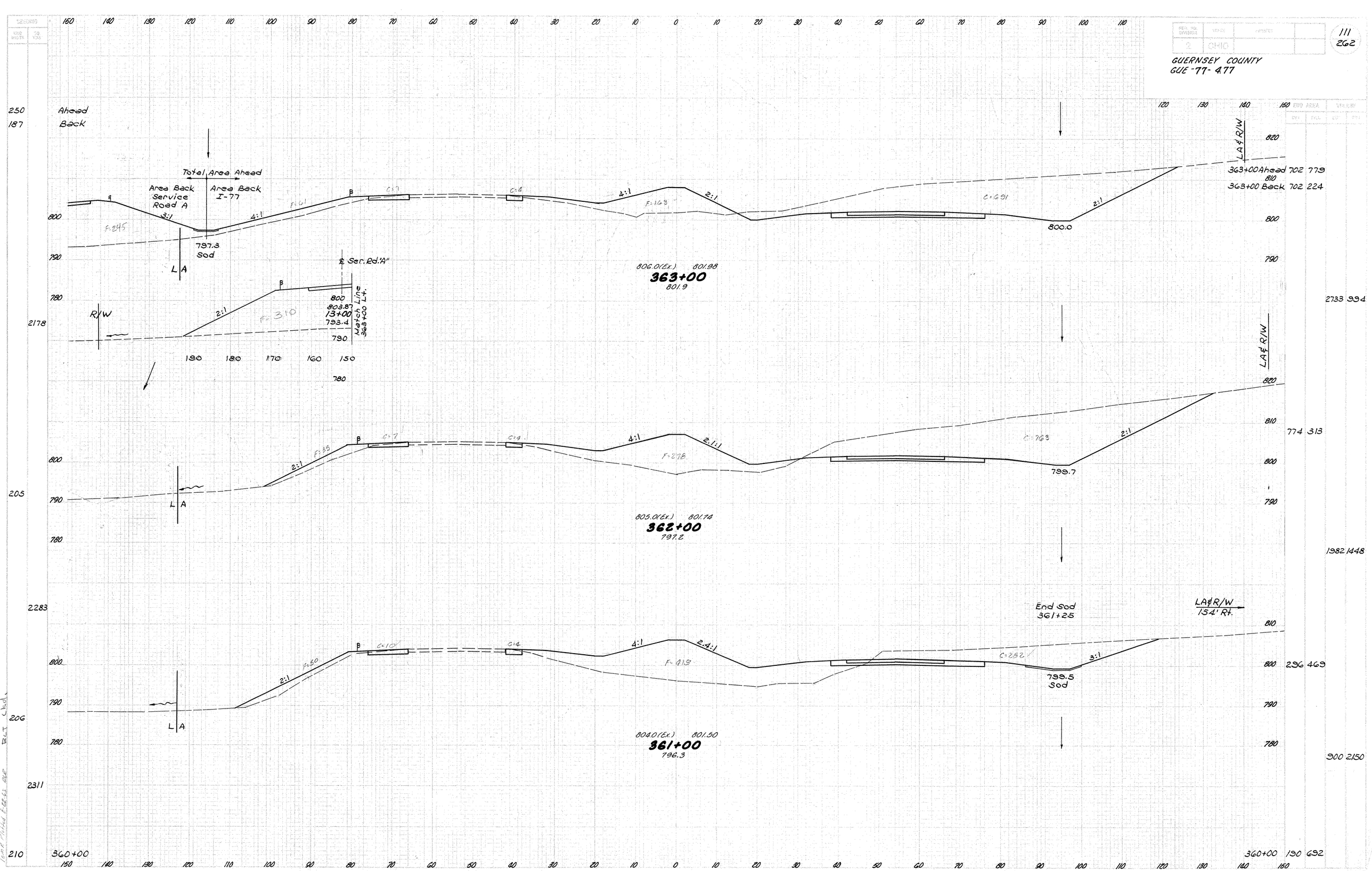
SEEDING	
ENG. UNITS	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

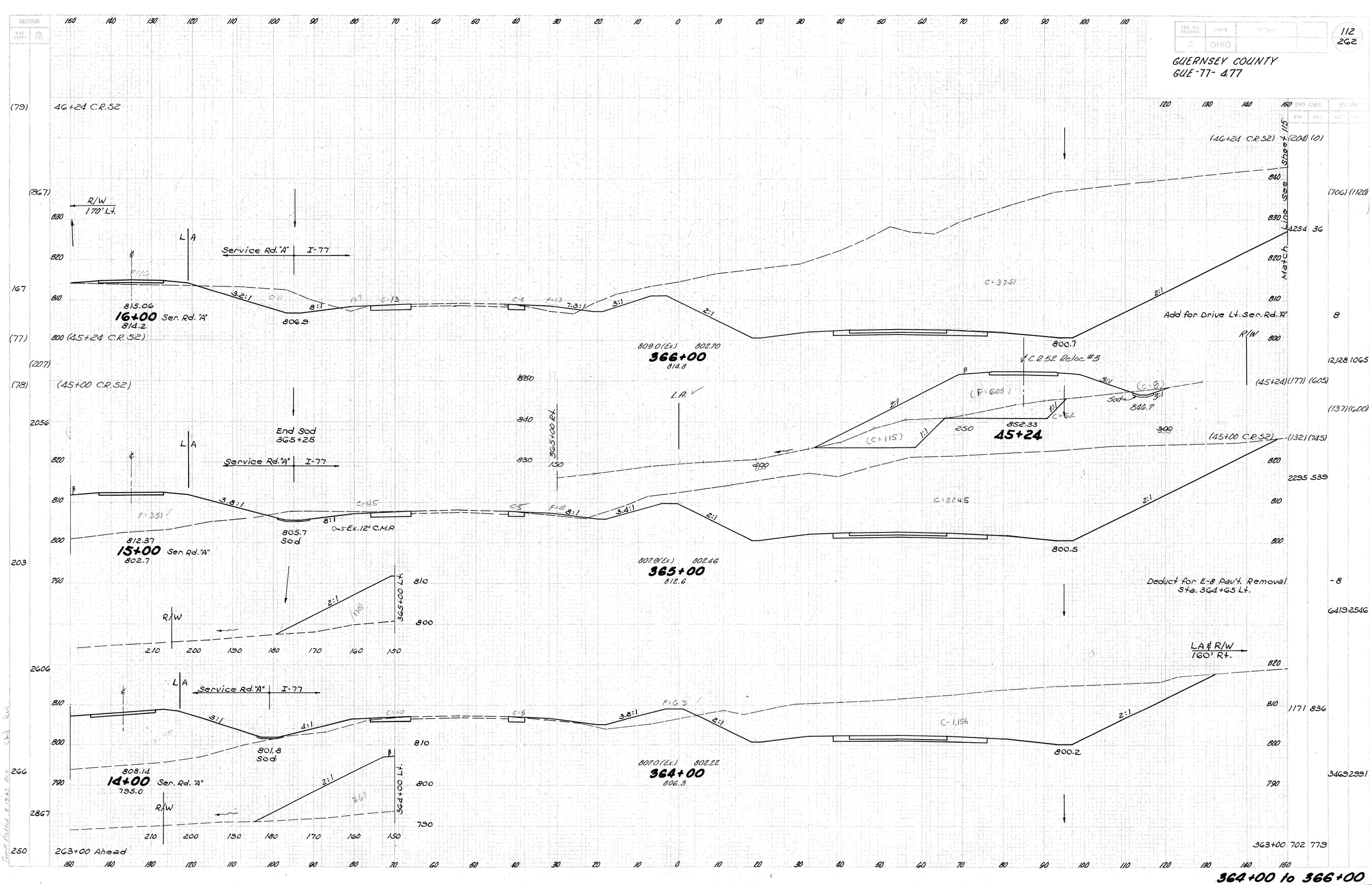


358+00 to 360+00

GUERNSEY COUNTY
GUE-77-4.77



361+00 to 363+0

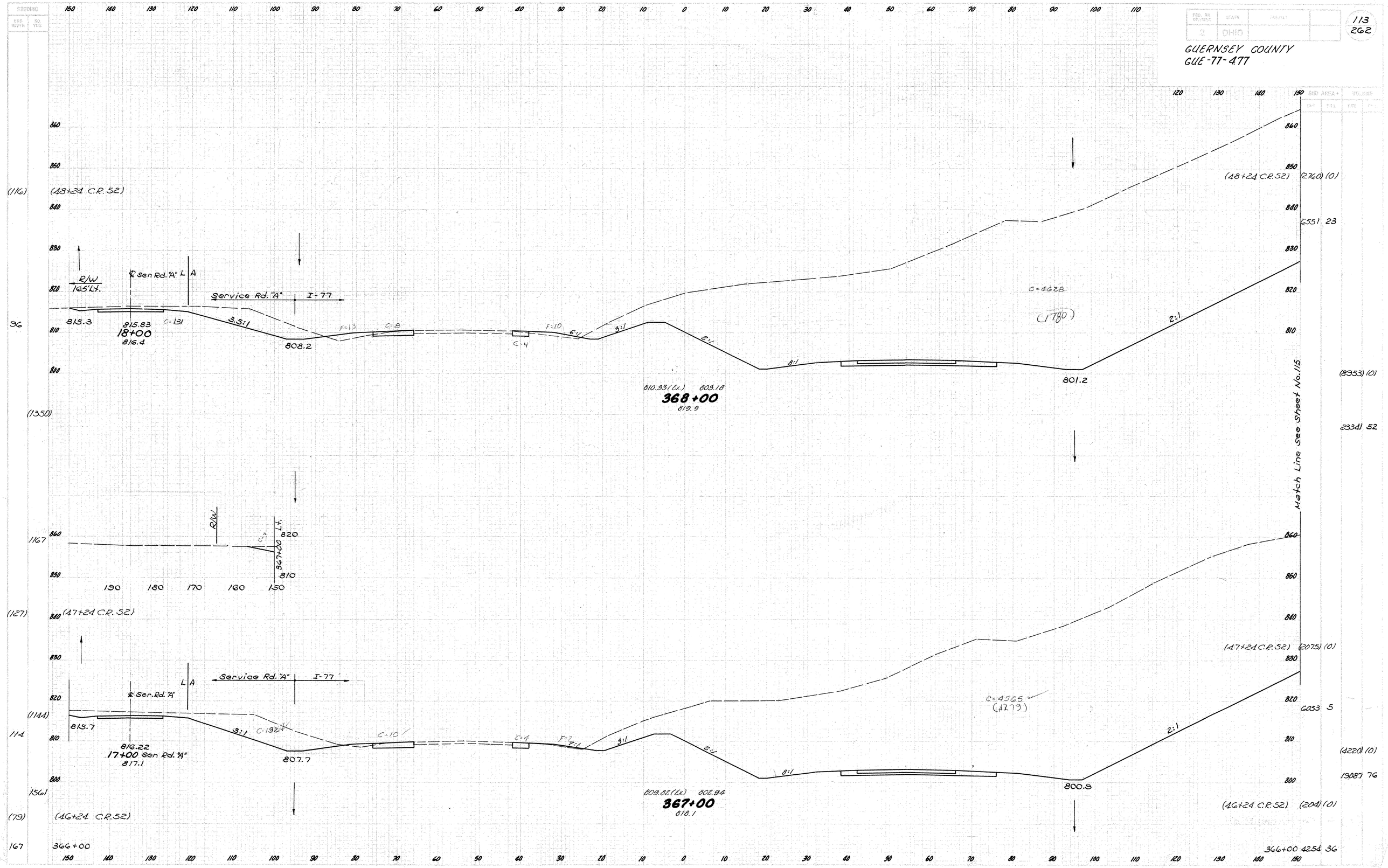


364+00 to 366+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

113
262

GUERNSEY COUNTY
GUE-77-4.77



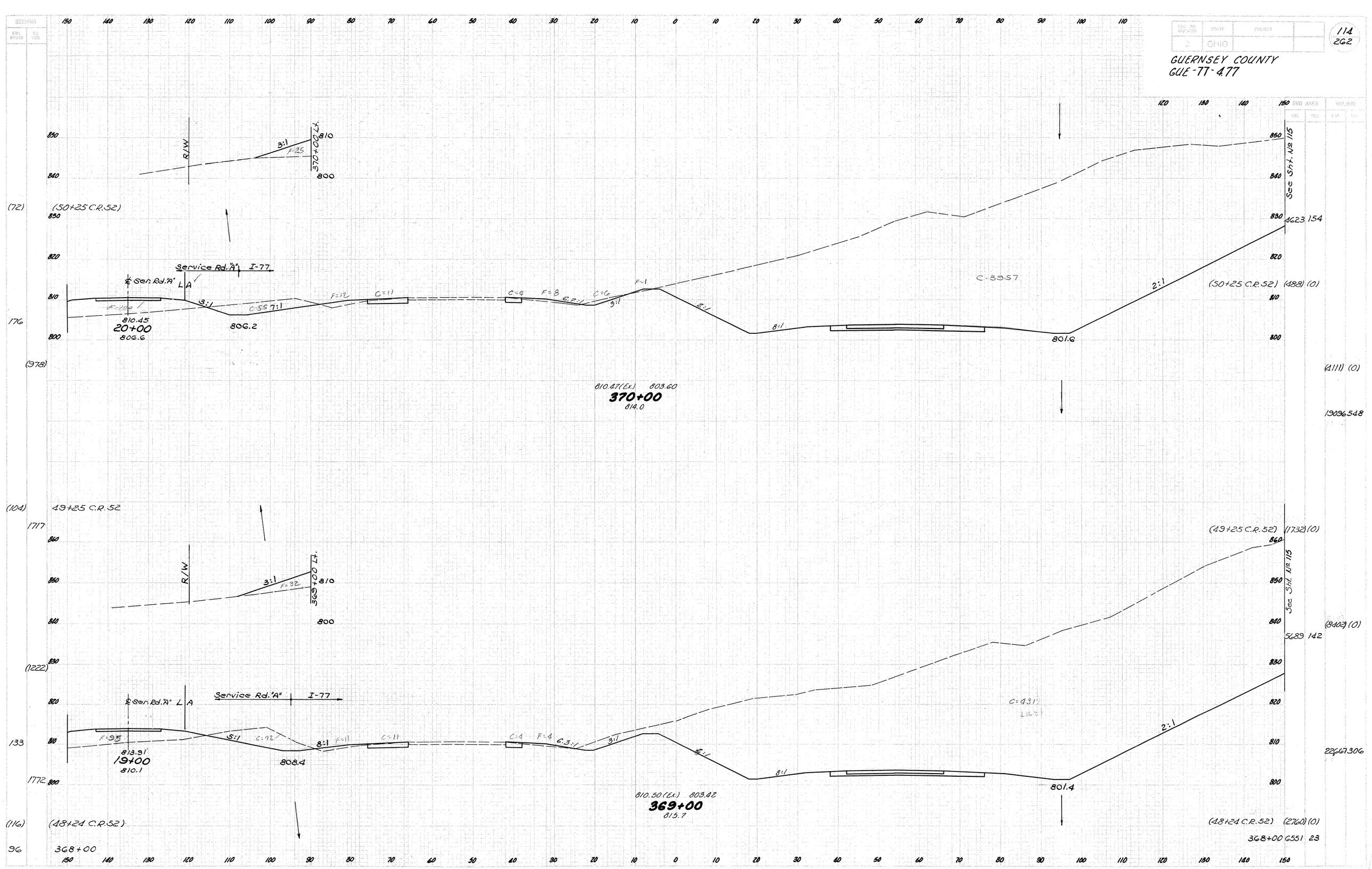
367+00 to 368+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

114
2G2

GUERNSEY COUNTY
GUE-77-4.77

BRIDGE AREA		VOLUME	
CUT	FILL	CUT	FILL

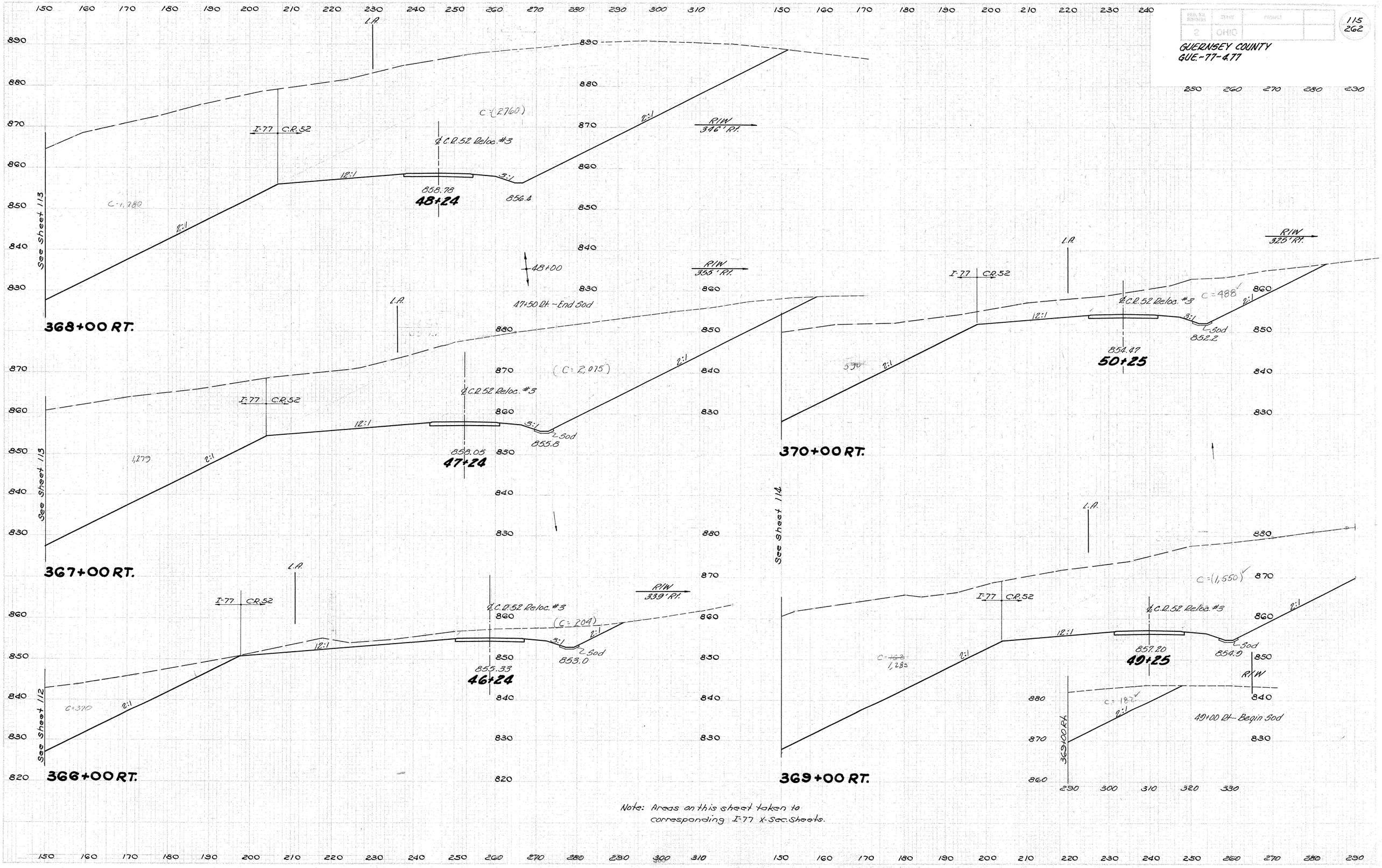


369+00 to 370+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

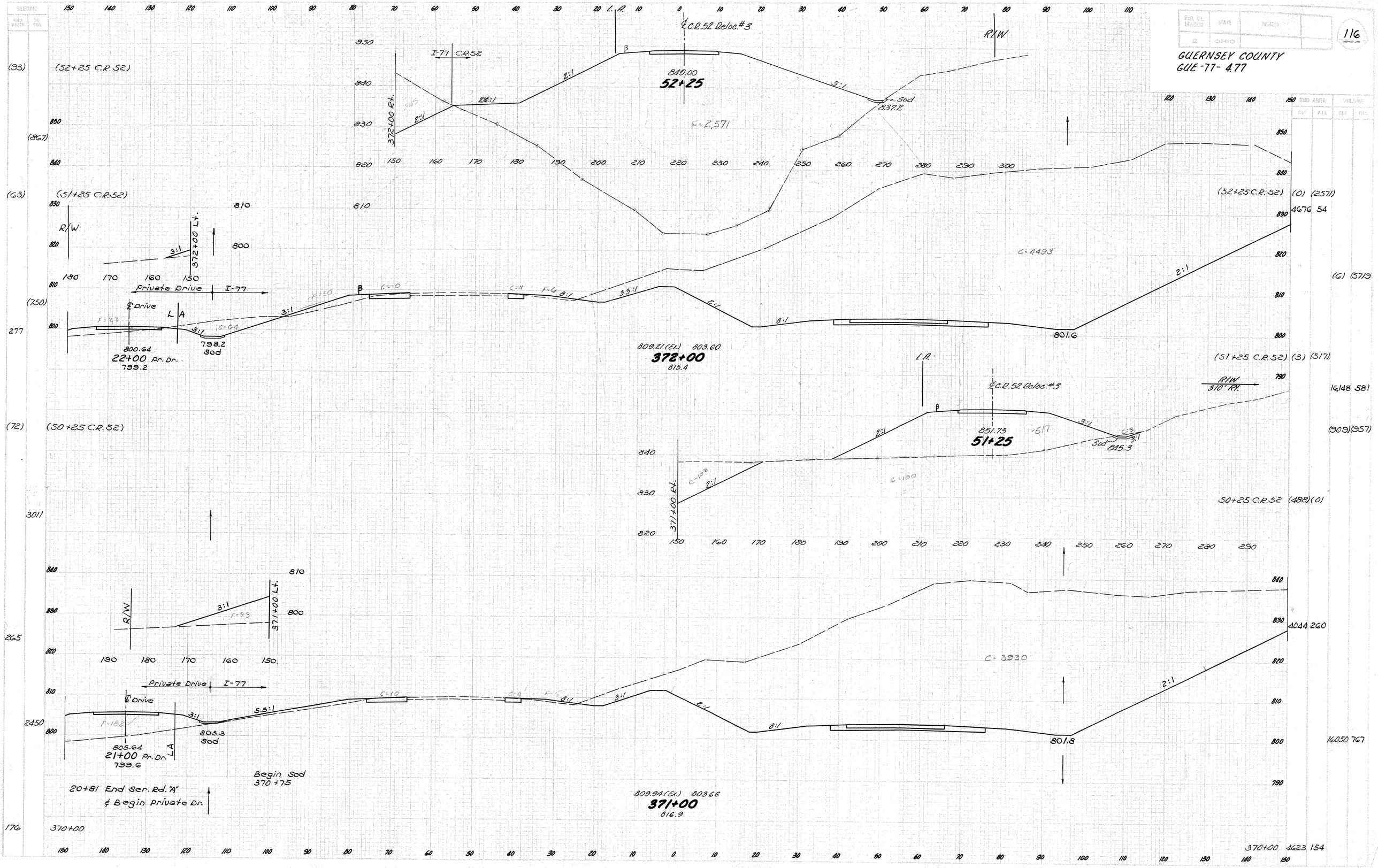
115
262

GUERNSEY COUNTY
GUE.-77-4.77

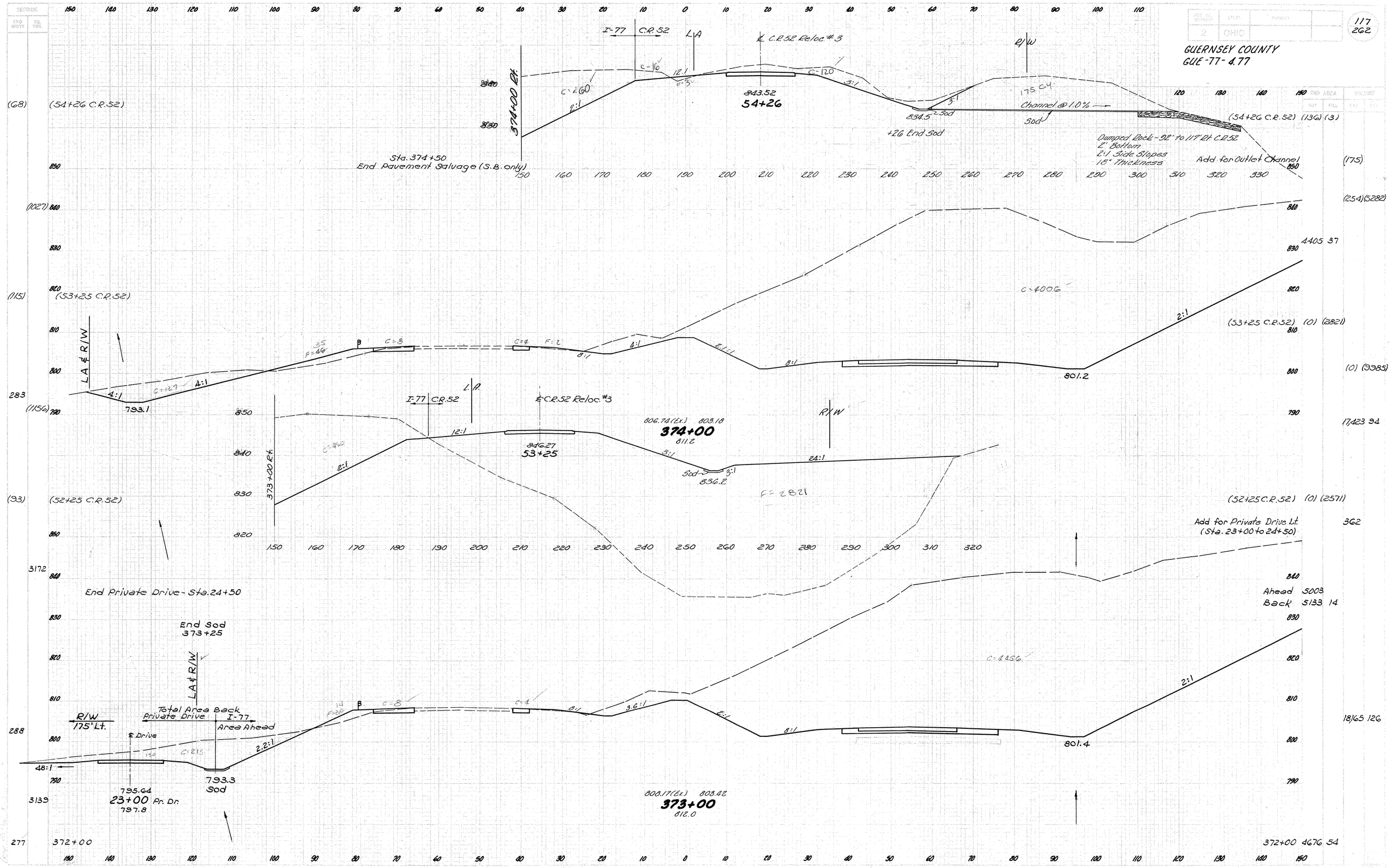


Note: Areas on this sheet taken to corresponding I-77 X-Sec. Sheets.

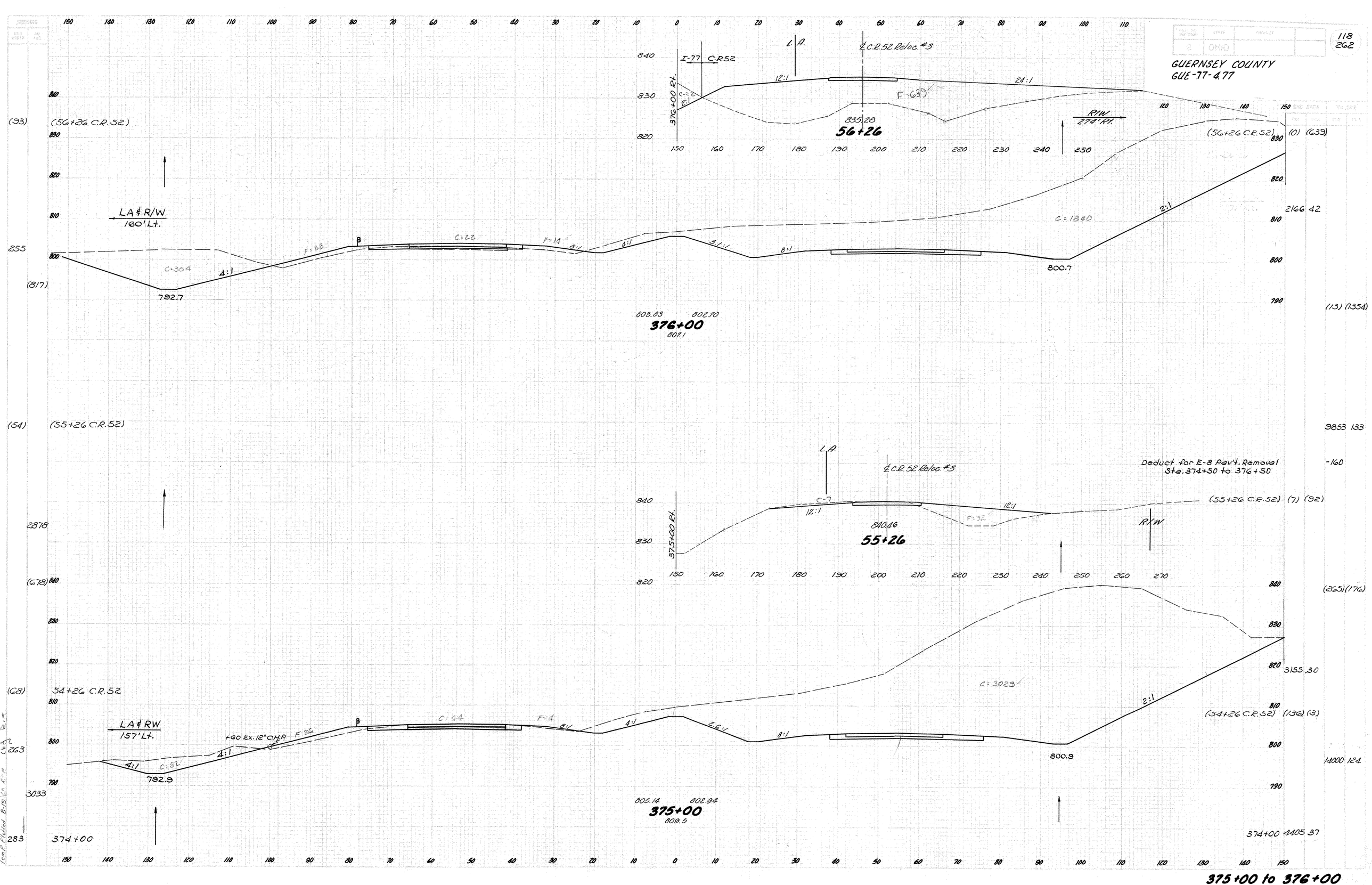
366+00 to 370+00 EXTN. RT.



116
GUERNSEY COUNTY
GUE-77-4.77
℄ C.R.52 Reloc. #3
R/W
I-77 C.R.52
849.00
52+25
F=2,571
372+00 Rt.
(52+25 C.R.52)
(51+25 C.R.52)
(50+25 C.R.52)
(52+25 C.R.52) (0) (2571)
4676 54
(6) (5719)
(51+25 C.R.52) (3) (517)
16,148 581
(909)(957)
50+25 C.R.52 (488)(0)
4044 260
16050 767
370+00 4623 154
C=4493
C=3930
Private Drive
I-77
℄ Drive
800.64
22+00 Pr. Dr.
799.2
798.2
Sod
809.21 (Ex.) 803.60
372+00
815.4
801.6
851.73
51+25
845.3
371+00 Rt.
R/W
3:1
371+00 Lt.
805.64
21+00 Pr. Dr.
799.6
803.3
Sod
Begin Sod
370+75
20+81 End Ser. Rd. "A"
& Begin Private Dr.
809.94 (Ex.) 803.66
371+00
816.9
801.8
370+00



373+00 to 374+00

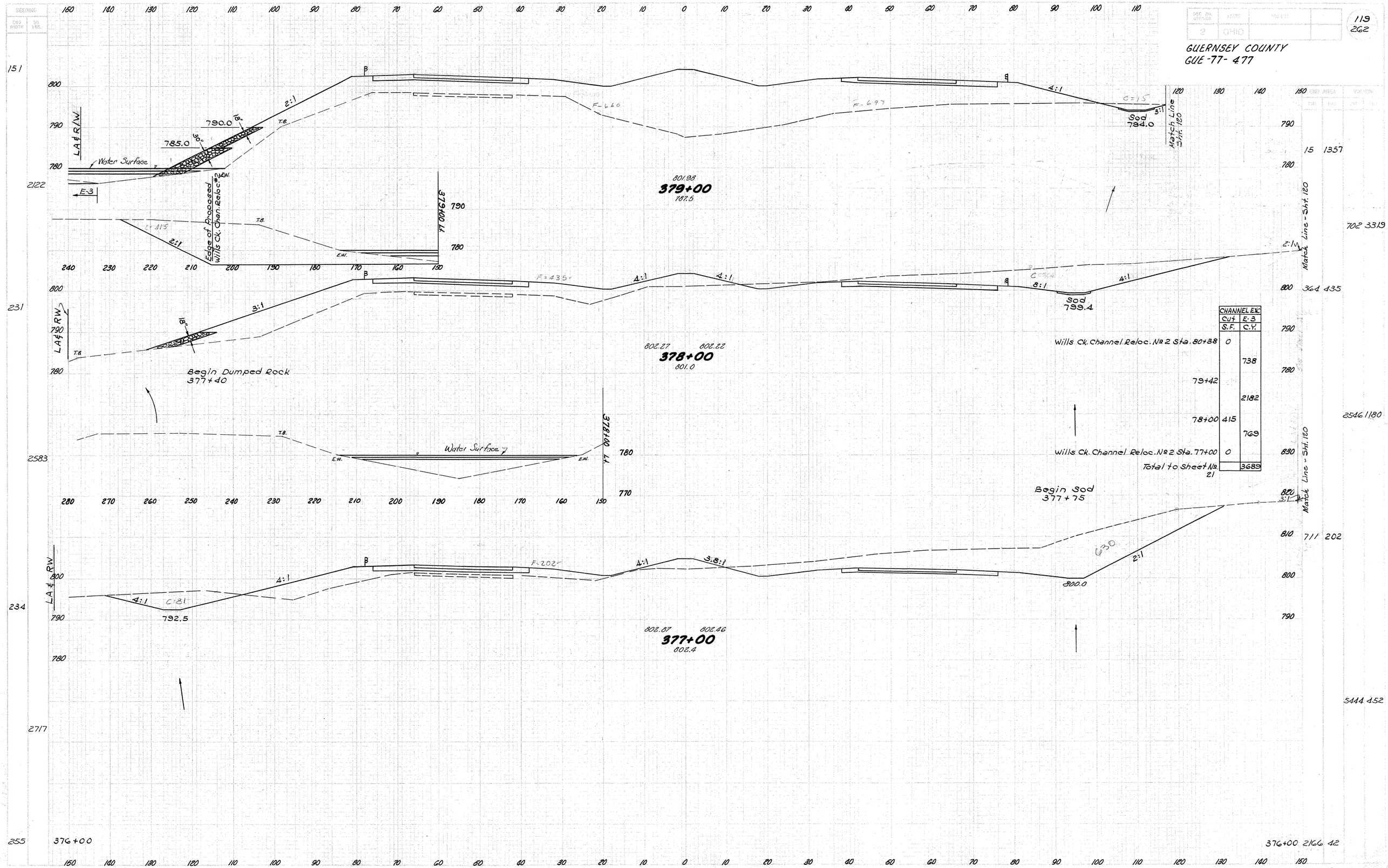

118
262
GUERNSEY COUNTY
GUE-77-4.77
I-77 C.R.52
L.A.
℄ C.R.52 Reloc. #3
376+00 Rt.
835.28
56+26
R/W
274' Rt.
(56+26 C.R.52)
(93)
LA & R/W
160' Lt.
C=304
4:1
792.7
C=22
F=14
C=1340
2:1
800.7
2166.42
(01) (639)
(13) (1354)
803.83 802.70
376+00
807.1
(54)
(55+26 C.R.52)
9853.133
Deduct for E-8 Pav't. Removal
Sta. 374+50 to 376+50
-160
(55+26 C.R.52) (7) (92)
375+00 Rt.
840.46
55+26
R/W
2878
(678)
54+26 C.R.52
(68)
LA & RW
157' Lt.
+60 Ex. 12" C.M.P.
C=82
4:1
792.9
C=44
F=4
C=3023
2:1
800.9
3155.30
(54+26 C.R.52) (136) (3)
(265) (176)
14000.124
3033
805.14 802.94
375+00
809.5
374+00
374+00 4405.37
375+00 to 376+00

SEEDING	
ERO WIDTH	SQ. YDS.

DIST. NO.	STATE	PROJECT	
2	OHIO		

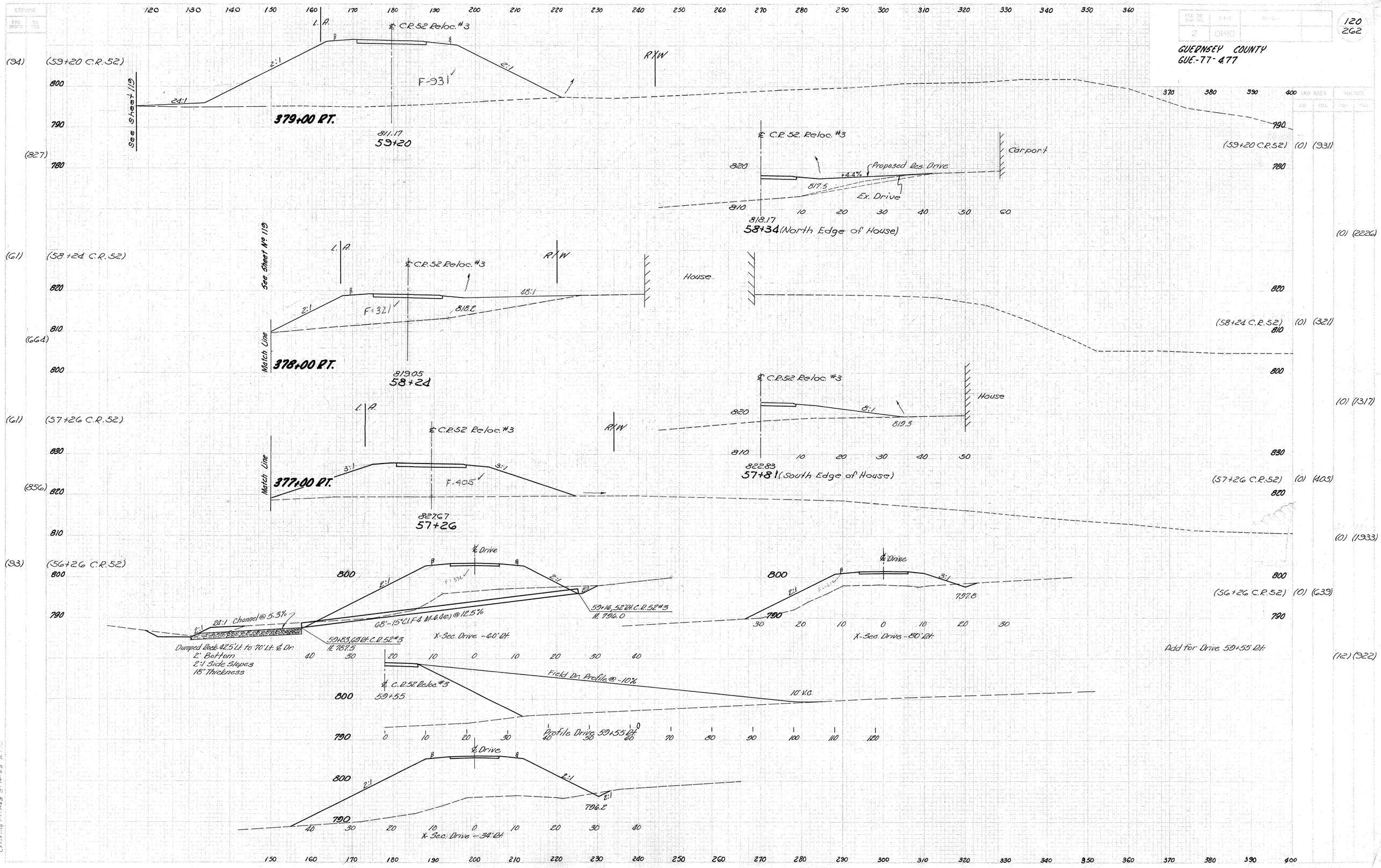
119
262

GUERNSEY COUNTY
GUE-77-477

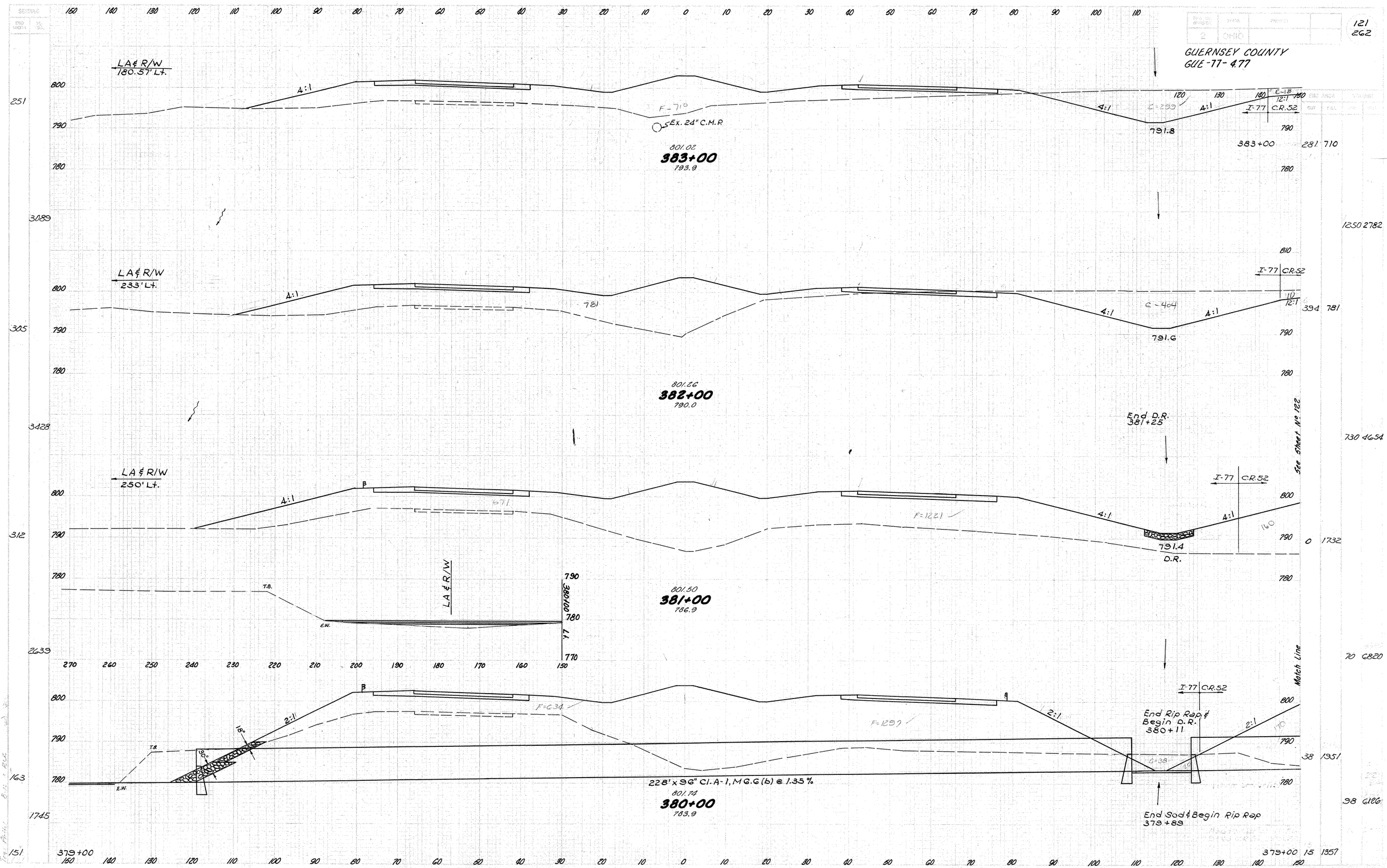


GUERNSEY COUNTY
GUE-77-477

120
262



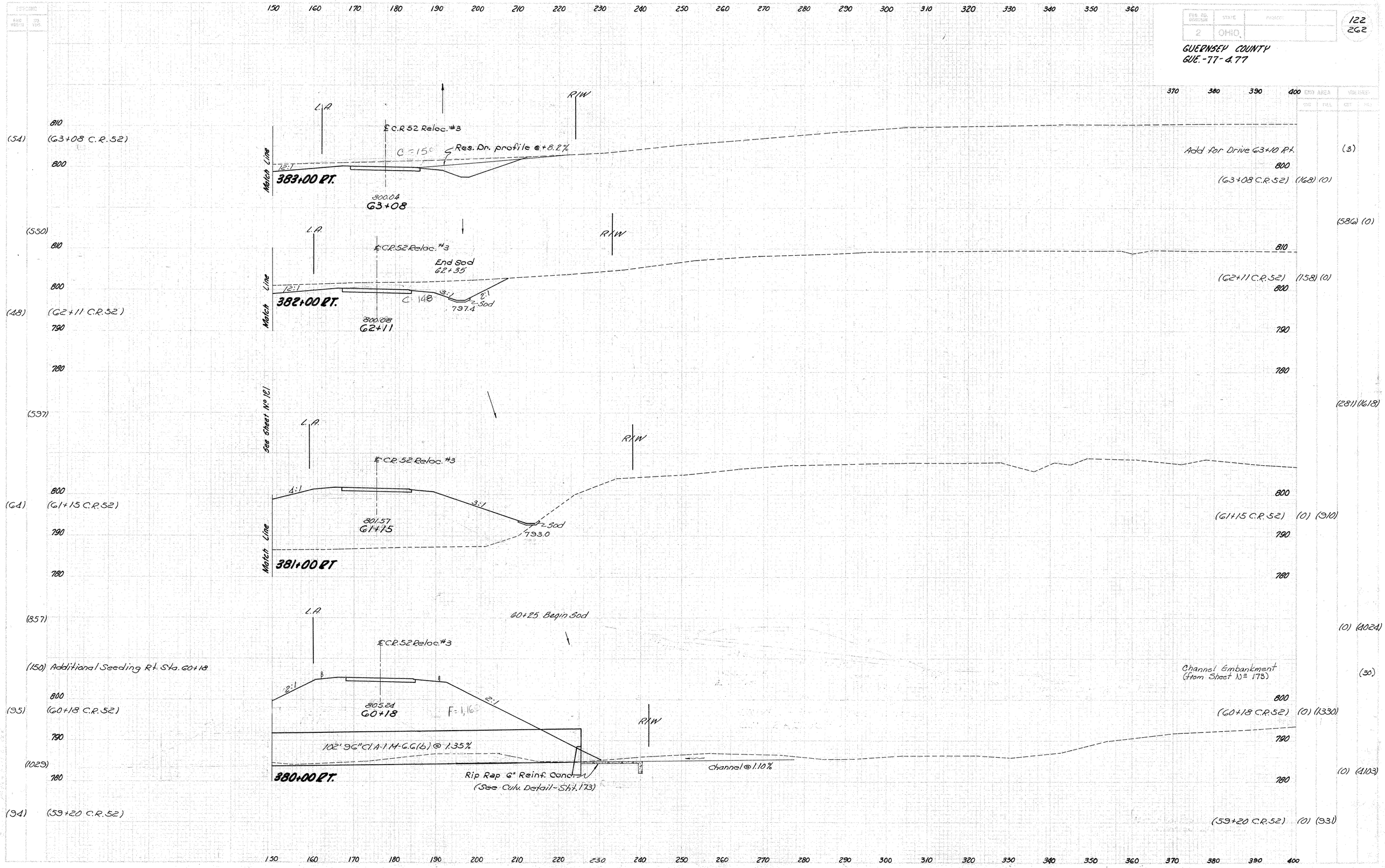
377+00 to 379+00 EXTN. P.T.


121
262
GUERNSEY COUNTY
GUE-77-4.77
LA & R/W
180.57' Lt.
A:1
F-710
EX. 24" C.M.P.
801.02
383+00
793.9
4:1
C=299
791.8
C-18
12:1
I-77 C.R.52
383+00
281 710
1250 2782
LA & R/W
233' Lt.
781
C-404
791.6
394 781
801.26
382+00
790.0
End D.R.
381+25
See Sheet No. 122
730 4654
LA & R/W
250' Lt.
671
F=1221
791.4
D.R.
160
0 1732
801.50
381+00
786.9
T.B.
E.W.
LA & R/W
380+00
77'
70 6820
Match Line
2:1
18"
36"
F=634
F=1297
End Rip Rap &
Begin D.R.
380+11
38 1951
228' x 36" Cl. A-1, M.G.G. (b) @ 1.35%
801.74
380+00
783.9
End Sod & Begin Rip Rap
379+89
98 6186
379+00 15 1357
380+00 to 383+00

REG. NO. DIVISION	STATE	PROJECT	
2	OHIO		

122
262

GUERNSEY COUNTY
GUE.-77-4.77

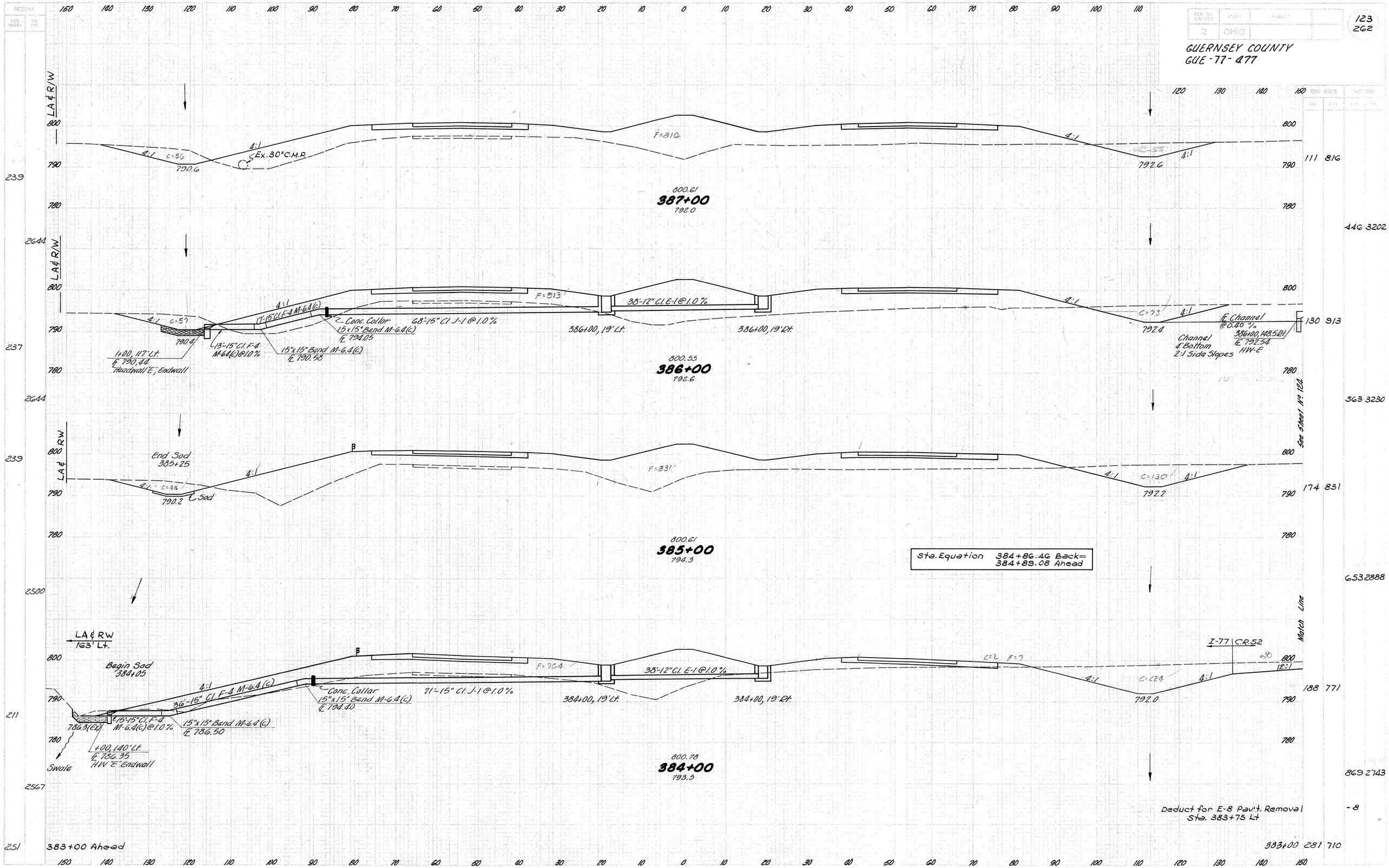


380+00 to 383+00 EXTN. RT.

FED. RD. DIV. NUMBER	STATE	PROJECT	
2	OHIO		

123
262

GUERNSEY COUNTY
GUE-77-477

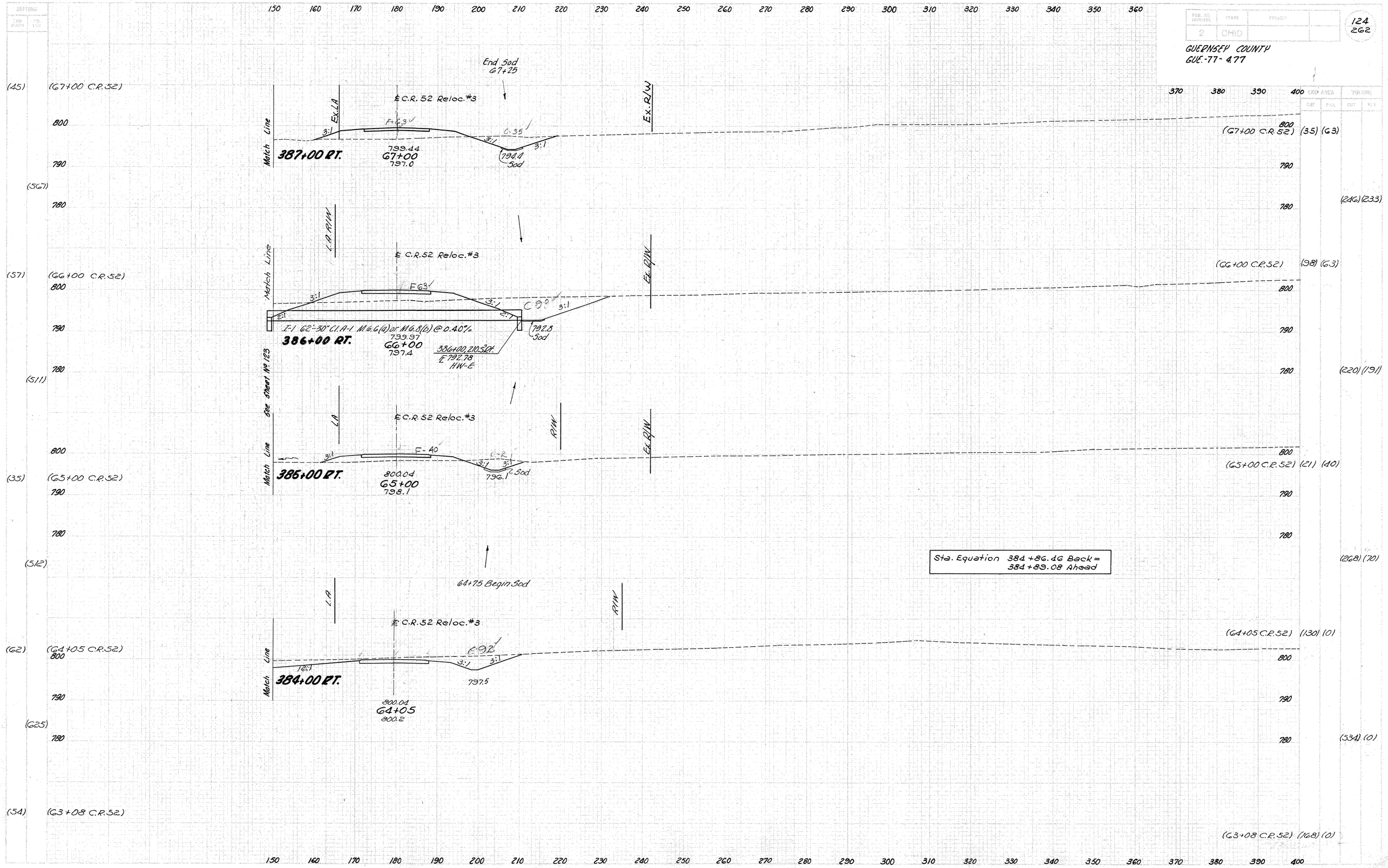


384+00 to 387+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

124
262

GUERNSEY COUNTY
GUE-77-4.77

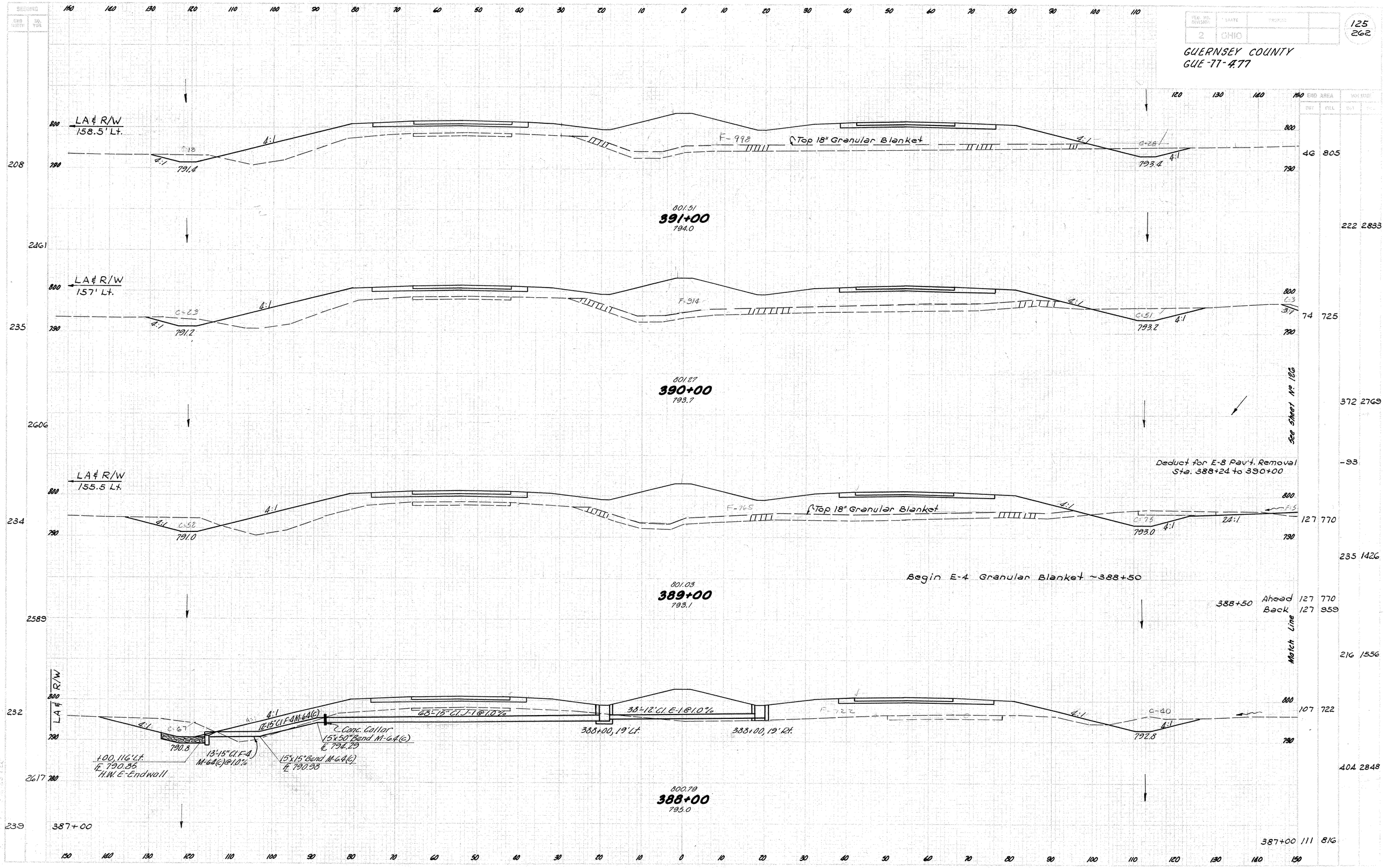


384+00 to 387+00 EXTN. RT.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

125
262

GUERNSEY COUNTY
GUE-77-4.77

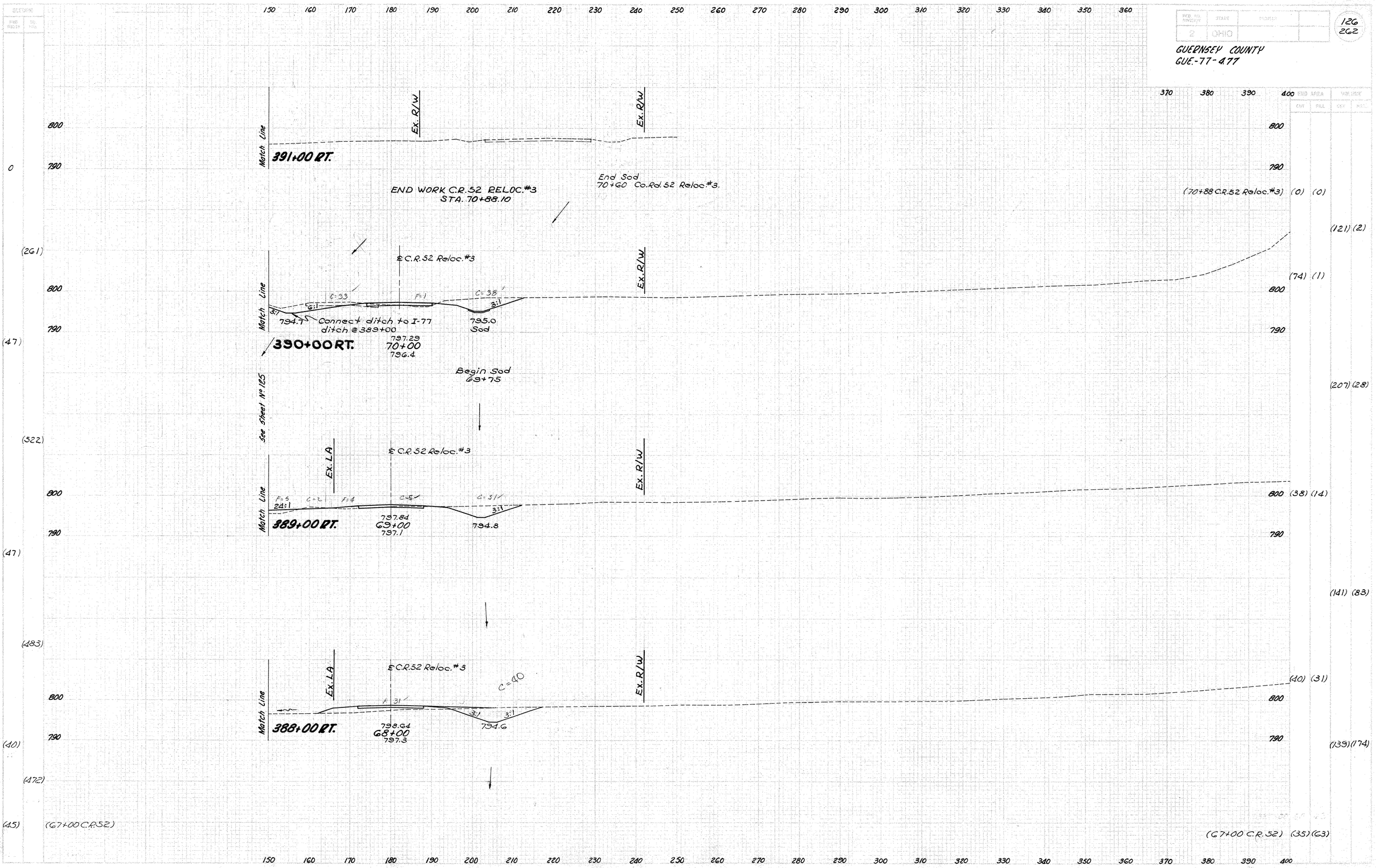


388+00 to 391+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

126
262

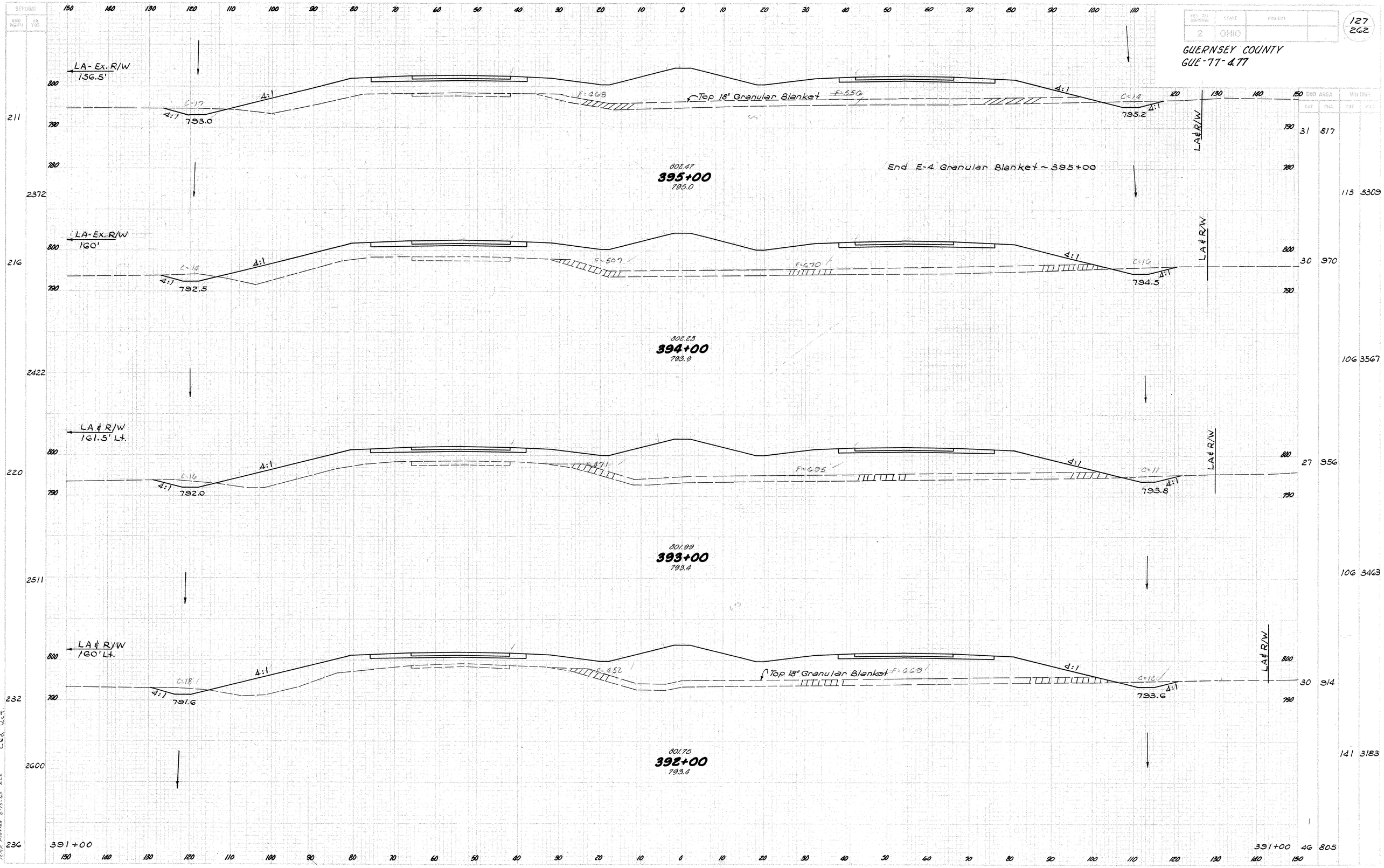
GUERNSEY COUNTY
GUE.-77-4.77



FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

127
262

GUERNSEY COUNTY
GUE-77-4.77

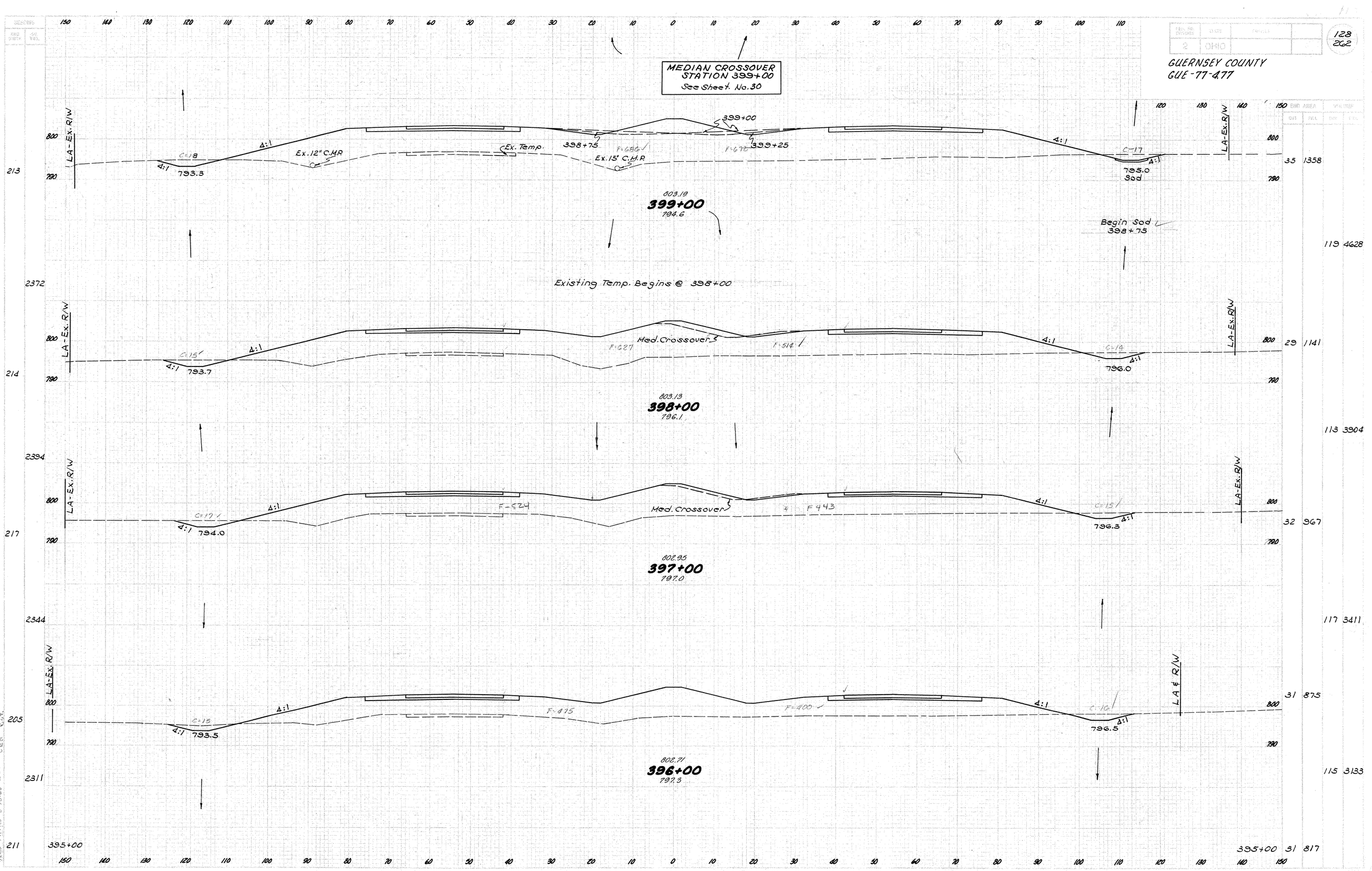


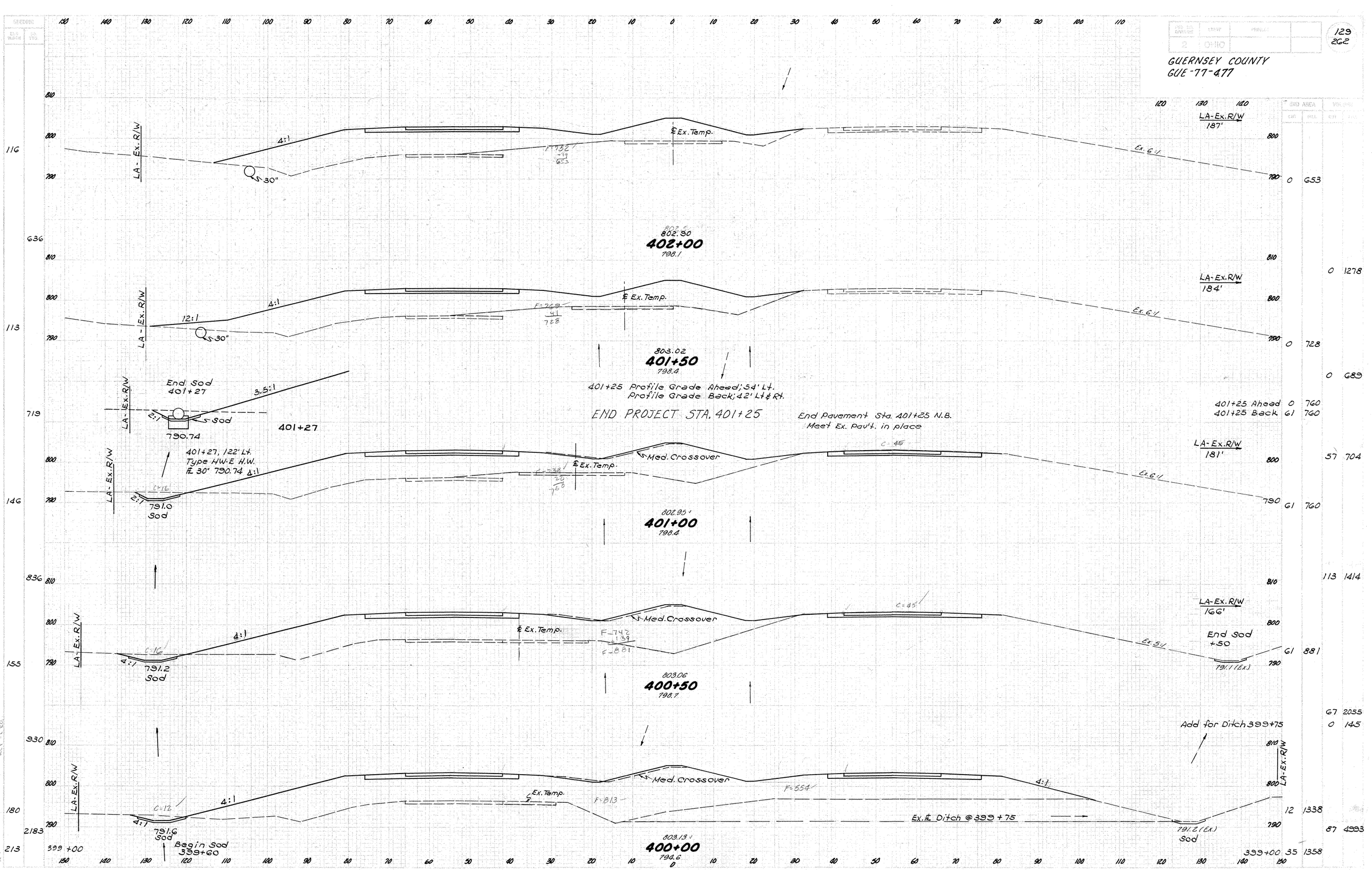
392+00 to 395+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

128
262

GUERNSEY COUNTY
GUE-77-4.77

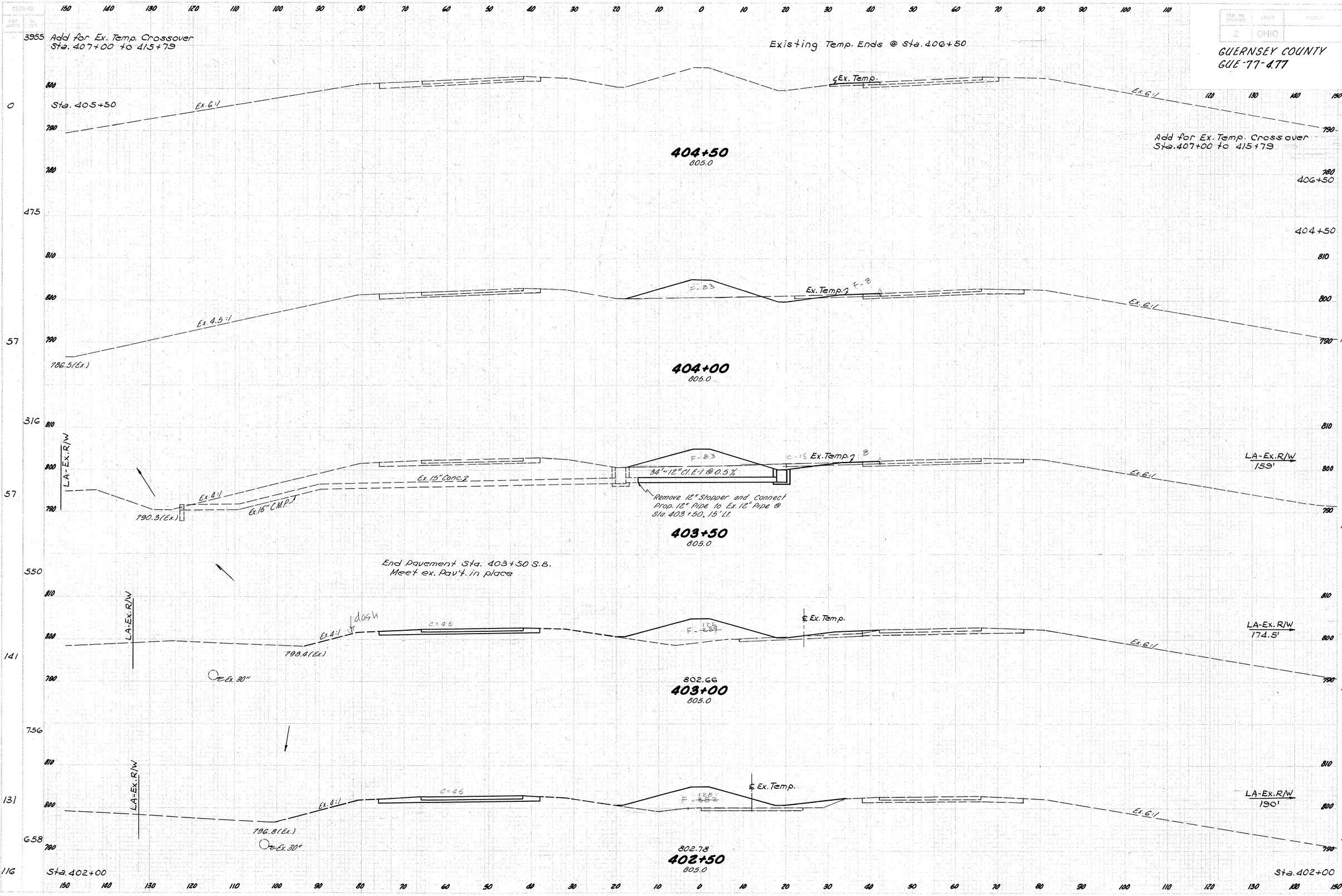



129
2G2
GUERNSEY COUNTY
GUE-77-4.77
END AREA
VOLUME
LA-Ex.R/W
187'
184'
181'
166'
Ex. 6:1
℄ Ex. Temp.
802.80
402+00
798.1
803.02
401+50
798.4
401+25 Profile Grade Ahead; 54' Lt.
Profile Grade Back; 42' Lt & Rt.
END PROJECT STA. 401+25
End Pavement Sta. 401+25 N.B.
Meet Ex. Pav't. in place
End Sod
401+27
3.5:1
2:1
Sod
790.74
401+27
401+27, 122' Lt.
Type HW-E H.W.
℄ 30" 790.74 4:1
791.0
Sod
Med. Crossover
802.95
401+00
798.4
791.2
Sod
End Sod
+50
791.1 (Ex.)
803.06
400+50
798.7
Add for Ditch 399+75
Ex. ℄ Ditch @ 399+75
791.6
Sod
Begin Sod
399+60
791.2 (Ex.)
Sod
803.13
400+00
798.6
399+00
400+00 to 402+00

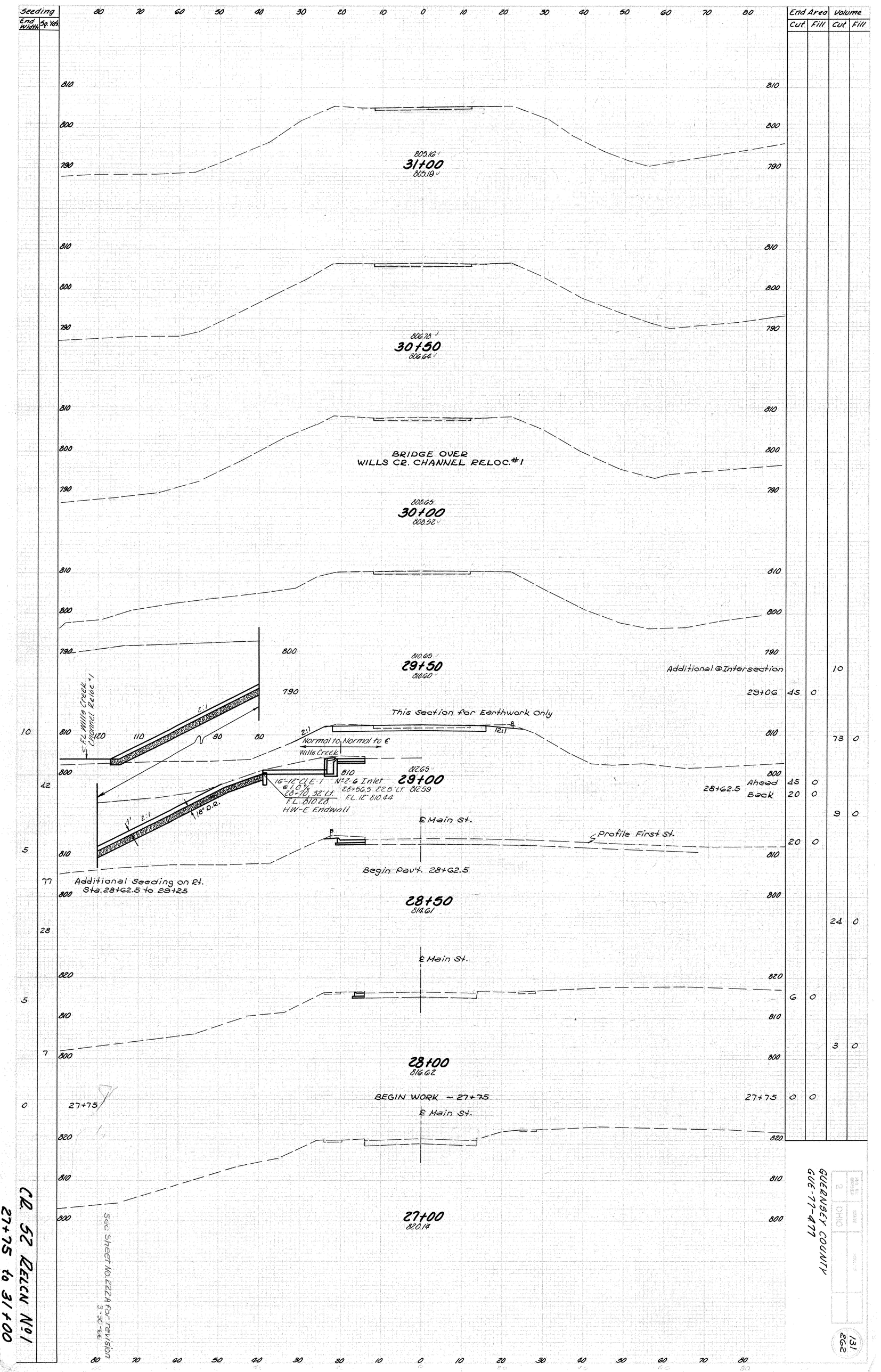
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

130
262

GUERNSEY COUNTY
GUE-77-4.77



402+50 to 404+50

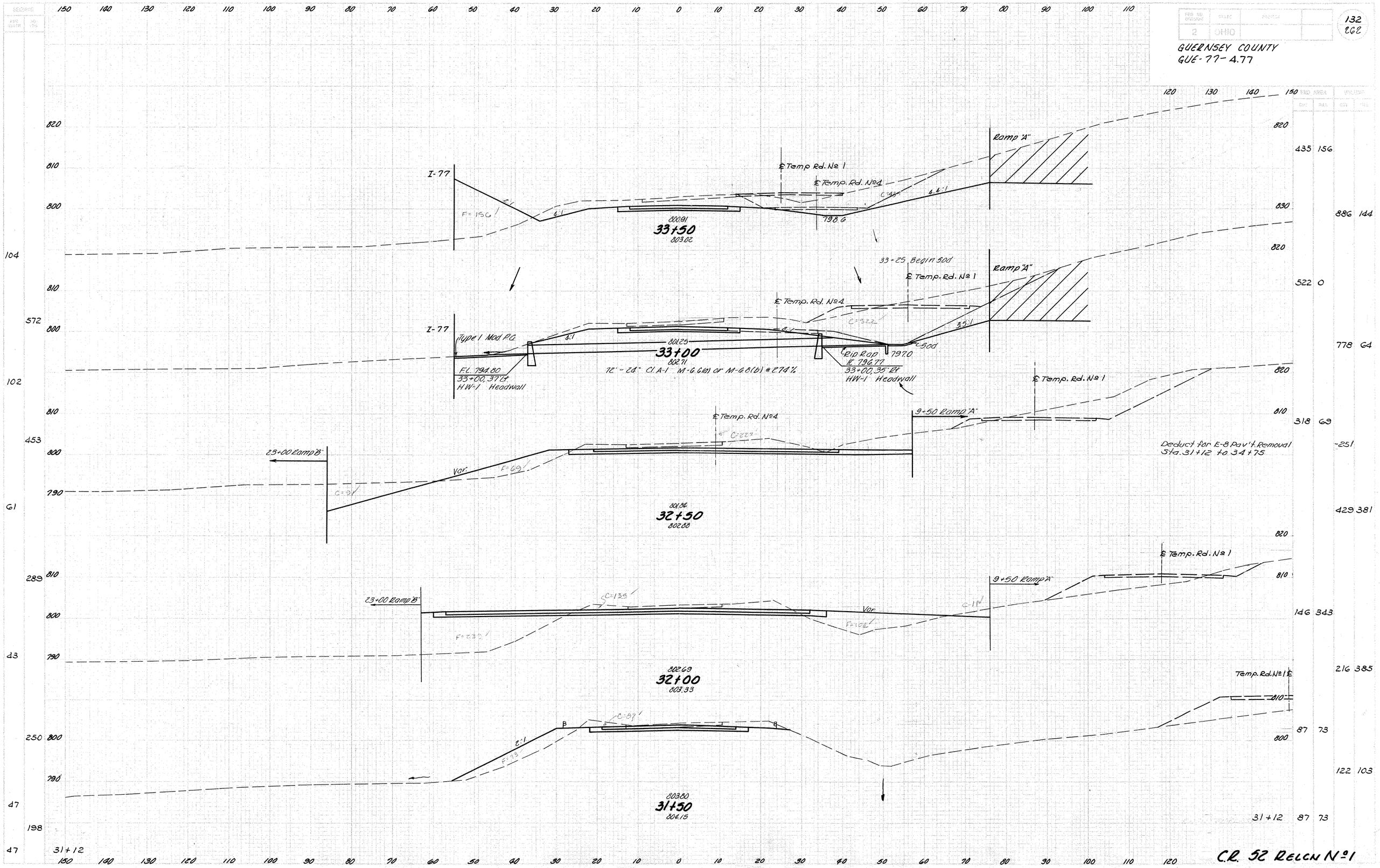


Seeding
End Width
Sq. Yds.
End Area
Cut
Fill
Volume
Cut
Fill
805.16
31+00
805.19
806.78
30+50
806.64
BRIDGE OVER
WILLS CR. CHANNEL RELOC. #1
808.65
30+00
808.52
810.65
29+50
810.60
Additional @ Intersection
29+06
This Section for Earthwork Only
Normal to Normal to ℄
Wills Creek
F.L. Wills Creek Channel Reloc. #1
2:1
12:1
16'-12" Cl. E-1 @ 1.0%
28+70, 32' Lt.
F.L. 810.28
HW-E Endwall
No. 2-6 Inlet
28+56.5 22.5' Lt.
F.L. 12" 810.44
812.65
29+00
812.59
28+62.5
Ahead
Back
℄ Main St.
Profile First St.
Begin Pav't. 28+62.5
Additional Seeding on Rt.
Sta. 28+62.5 to 29+25
28+50
814.61
℄ Main St.
28+00
816.62
BEGIN WORK ~ 27+75
27+75
℄ Main St.
27+00
820.14
See Sheet No. 222A for revision 3-30-66
CR. 52 RELCN No. 1
27+75 to 31+00
GUERNSEY COUNTY
GUE-77-4.77
2
OHIO
131
262

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

132
262

GUERNSEY COUNTY
GUE-77-4.77

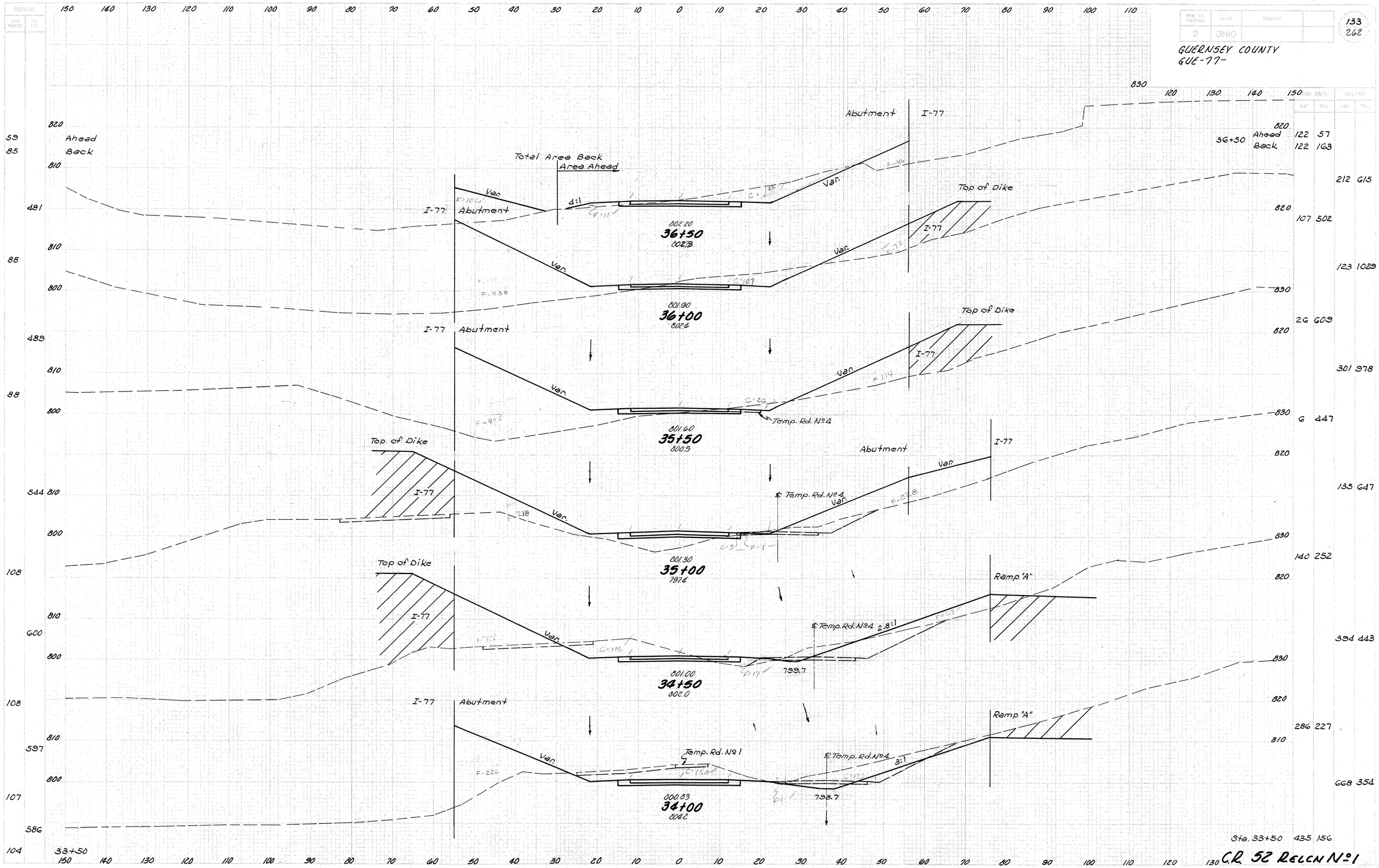


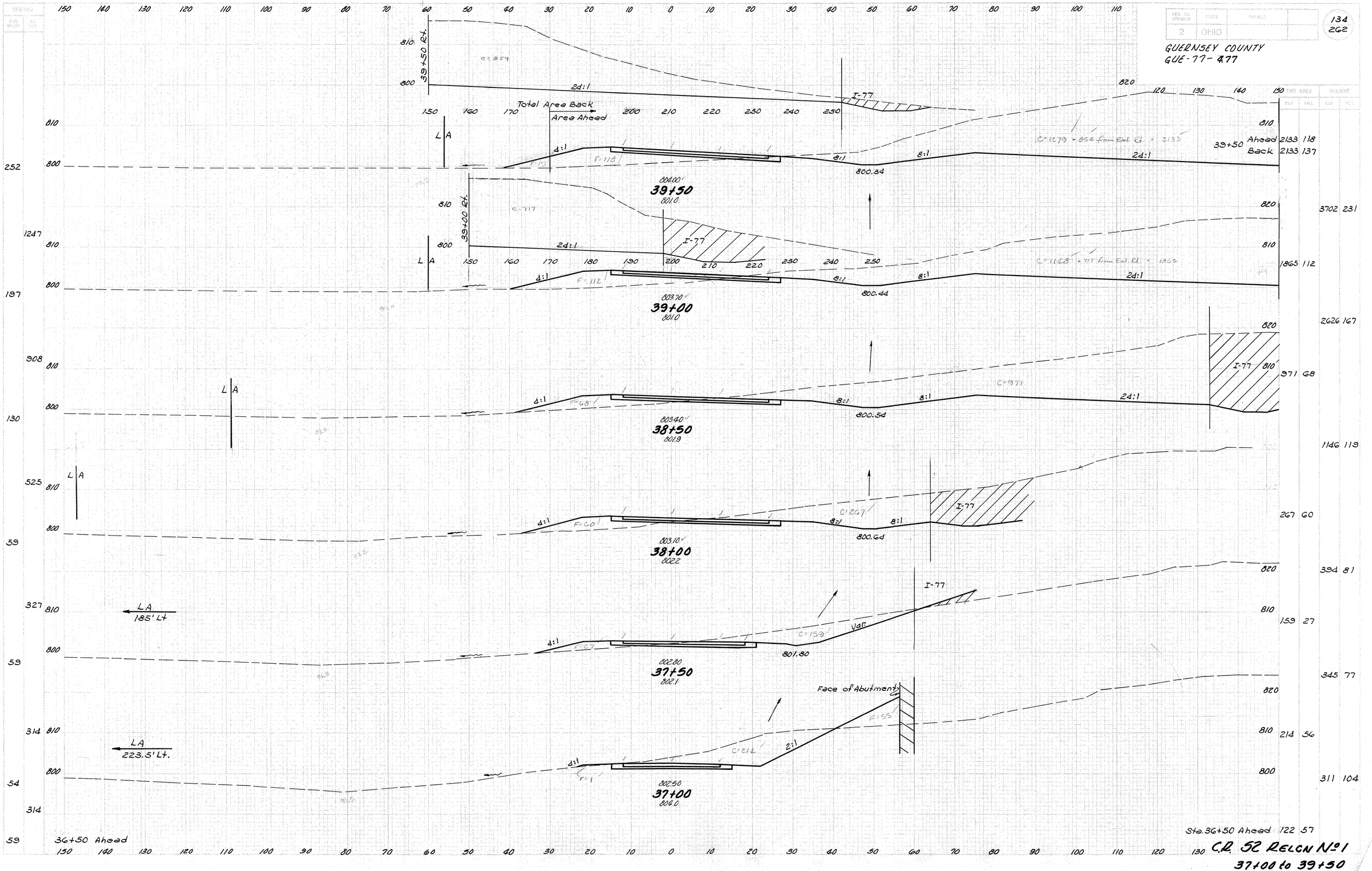
C.R. 52 RELOC № 1
31+50 to 33+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

133
262

GUERNSEY COUNTY
GUE-77-

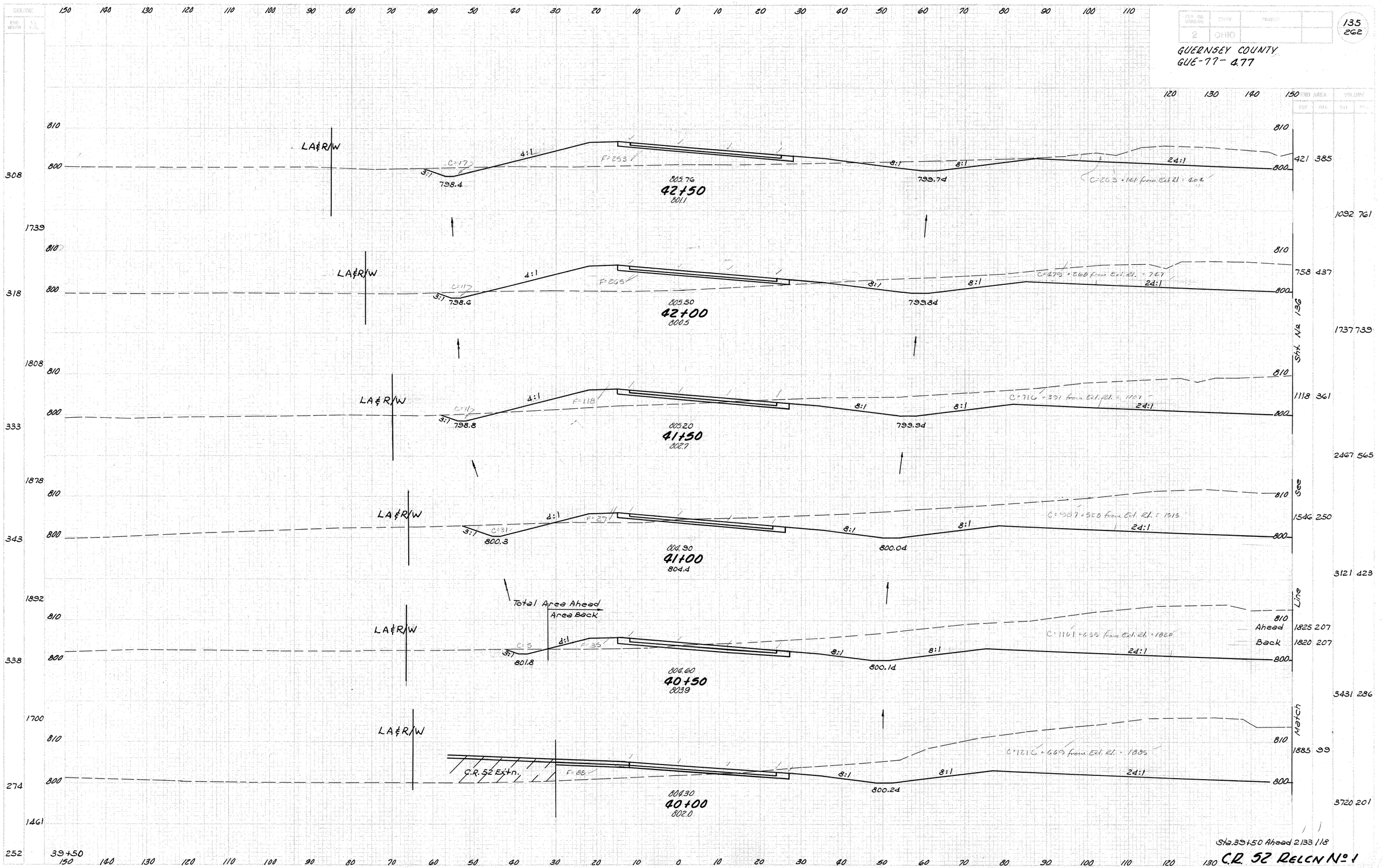



REG. TO OPERATION 2
STATE OHIO
PROJECT
134
262
GUERNSEY COUNTY
GUE-77-4.77
END AREA
VOLUME
DEPTH WIDTH
DIST. FROM ℄
CUT FILL CUT FILL
Total Area Back
Area Ahead
I-77
39+50 Ahead 2133 118
Back 2133 137
3702 231
1865 112
2626 167
971 68
1146 119
267 60
394 81
159 27
345 77
214 56
311 104
Sta. 36+50 Ahead 122 57
36+50 Ahead
C.R. 52 RELOCN No. 1
37+00 to 39+50

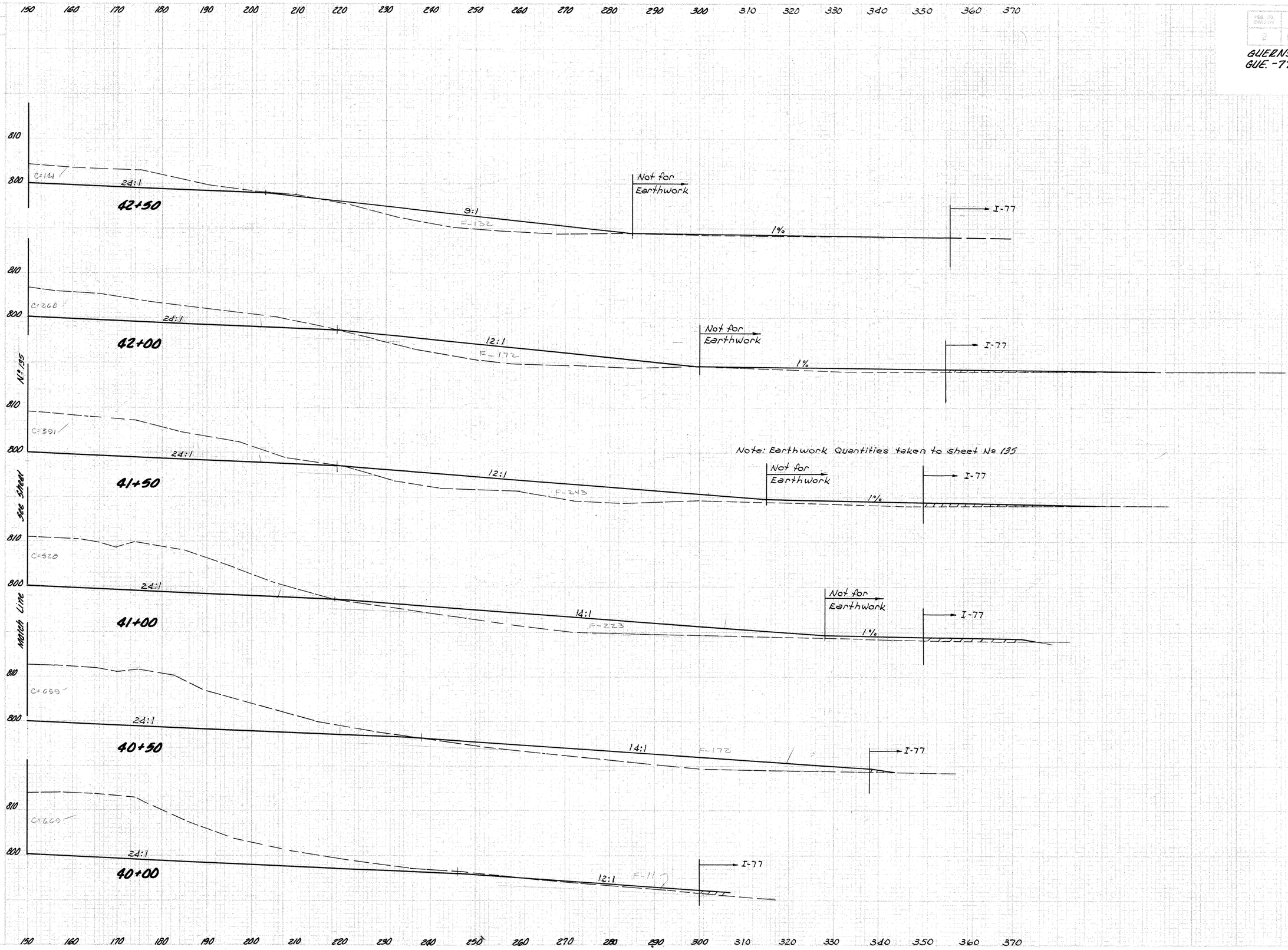
SECT. NO. DIVISION	STATE	PROJECT	
2	OHIO		

135
262

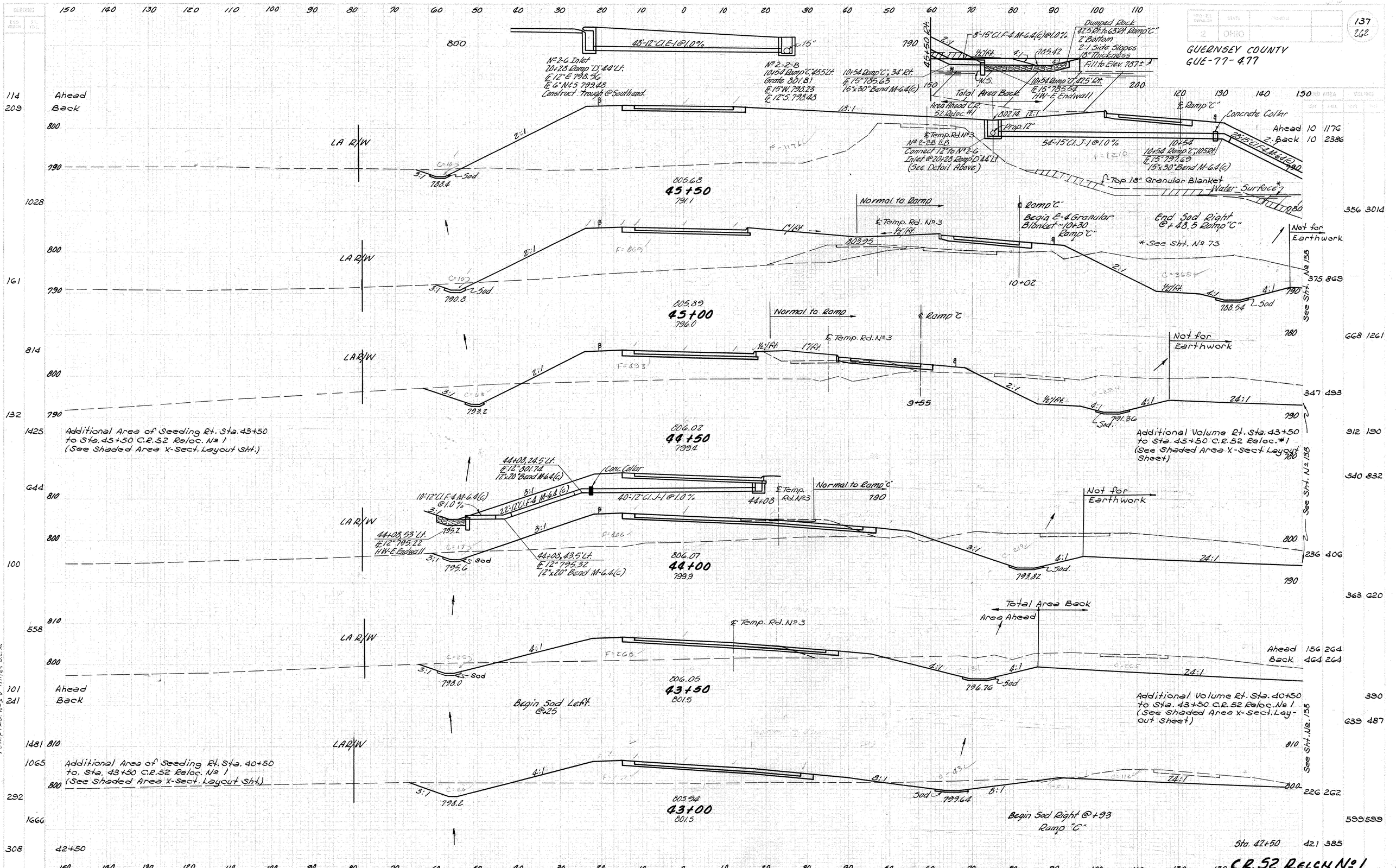
GUERNSEY COUNTY
GUE-77-4.77



GUERNSEY COUNTY
GUE.-77-4.77



40+00 to 42+50 C.L. 52 RELOC. Nº 1 EXTN. RT.


GUERNSEY COUNTY
GUE-77-4.77
137
262
48-12" Cl.E-1 @ 1.0%
Nº 2-6 Inlet
20+28 Ramp "D" 44' Lt.
E 12" E 798.96
E 6" N&S 799.48
Construct Trough @ Southend.
Nº 2-2-B
10+54 Ramp "C" 45.5' Lt.
Grate 801.81
E 15" W. 798.73
E 12" S. 798.48
10+54 Ramp "C" 34' Rt.
E 15" 785.63
15"x30" Bend M-6.4(c)
Dumped Rock
42.5' Rt. to 63' Rt. Ramp "C"
2' Bottom
2:1 Side Slopes
18" Thickness
Fill to Elev. 787.±
8"-15" Cl.F-4 M-6.4(c) @ 1.0%
10+54 Ramp "C" 42.5' Rt.
E 15" 785.54
HW-E Endwall
Total Area Back
Area Ahead C.R. 52 Reloc. #1
Prop. 12"
54-15" Cl.J-1 @ 1.0%
℄ Ramp "C"
Concrete Collar
Ahead 10 1176
Back 10 2386
20-15" Cl.F-4 M-6.4(c)
10+54 Ramp "C" 105.2 Rt.
E 15" 797.69
15"x30" Bend M-6.4(c)
℄ Temp. Rd. Nº 3
Nº 2-2B O.B.
Connect 12" to Nº 2-6 Inlet @ 20+28 Ramp D 44' Lt.
(See Detail Above)
Top 18" Granular Blanket
Water Surface
Ahead
Back
LA R/W
45+50
805.68
791.1
Normal to Ramp
℄ Temp. Rd. Nº 3
℄ Ramp "C"
Begin E-4 Granular Blanket ~10+30 Ramp "C"
End Sod Right @ +48.5 Ramp "C"
Not for Earthwork
* See Sht. Nº 73
See Sht. Nº 138
45+00
805.89
796.0
44+50
806.02
799.0
Additional Area of Seeding Rt. Sta. 43+50 to Sta. 45+50 C.R. 52 Reloc. Nº 1 (See Shaded Area X-Sect. Layout Sht.)
Additional Volume Rt. Sta. 43+50 to Sta. 45+50 C.R. 52 Reloc. #1 (See Shaded Area X-Sect. Layout Sheet)
44+08.24.5' Lt.
E 12" 801.74
12"x20" Bend M-6.4(c)
Conc. Collar
10-12" Cl.F-4 M-6.4(c) @ 1.0%
22-12" Cl.F-4 M-6.4(c)
40-12" Cl.J-1 @ 1.0%
44+08
44+08.53' Lt.
E 12" 795.22
HW-E Endwall
44+08.43.5' Lt.
E 12" 795.32
12"x20" Bend M-6.4(c)
44+00
806.07
799.9
Total Area Back
Area Ahead
43+50
806.05
801.5
Begin Sod Left @ +25
Additional Volume Rt. Sta. 40+50 to Sta. 43+50 C.R. 52 Reloc. Nº 1 (See Shaded Area X-Sect. Layout Sheet)
Additional Area of Seeding Rt. Sta. 40+50 to Sta. 43+50 C.R. 52 Reloc. Nº 1 (See Shaded Area X-Sect. Layout Sht.)
43+00
805.94
801.5
Begin Sod Right @ +93 Ramp "C"
Sta. 42+50
C.R. 52 RELOC Nº 1
43+00 to 45+50

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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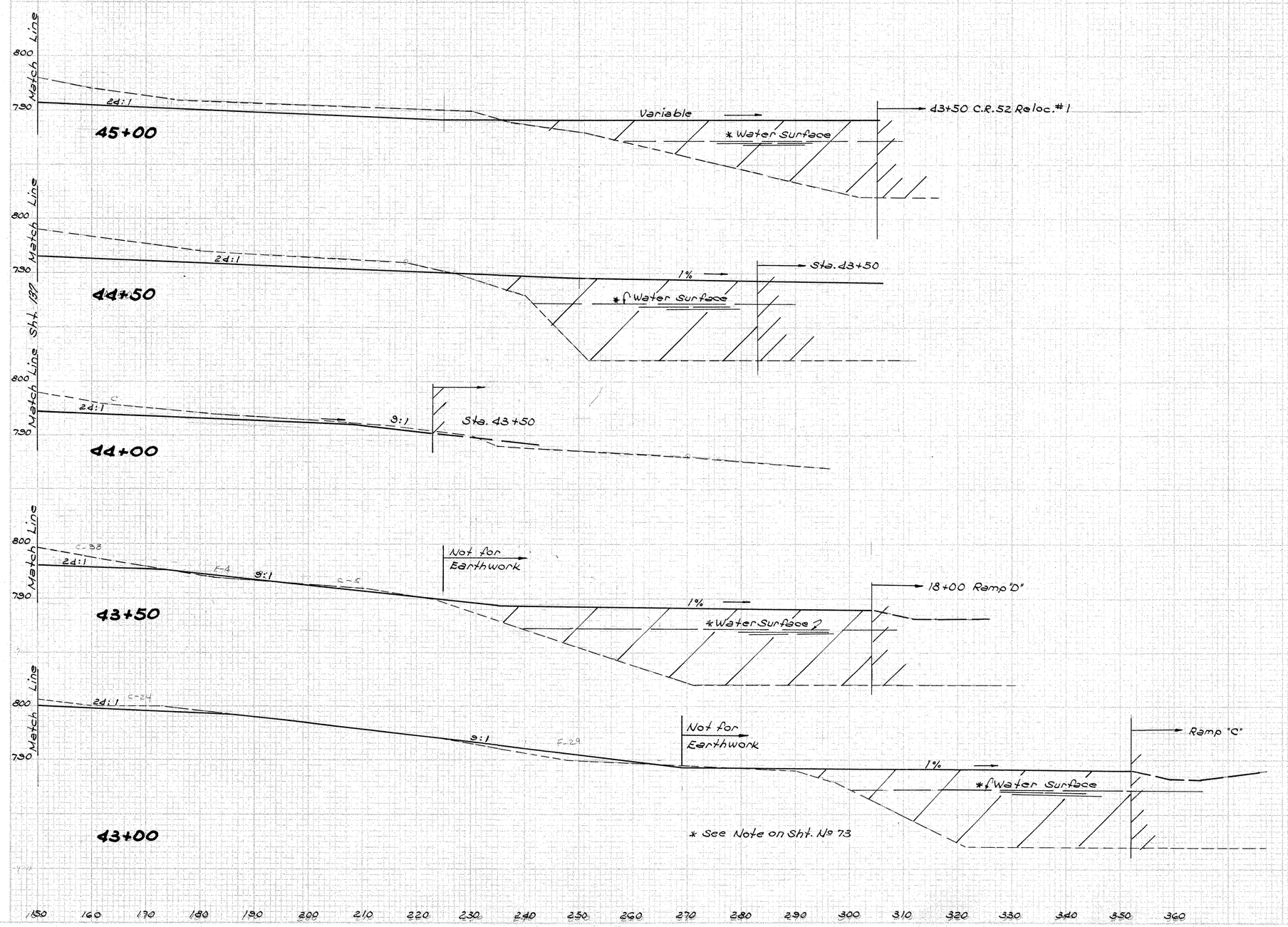
GUERNSEY COUNTY
GUE ~ 77 ~ 4.77

SEEDING	
END PROJ.	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL



43+00 to 45+00 C.R.52 RELOC.#1 EXT'N. RT.

FED. RD. DIVISION	STATE	FEDERAL AID PROJECT	
2	OHIO		

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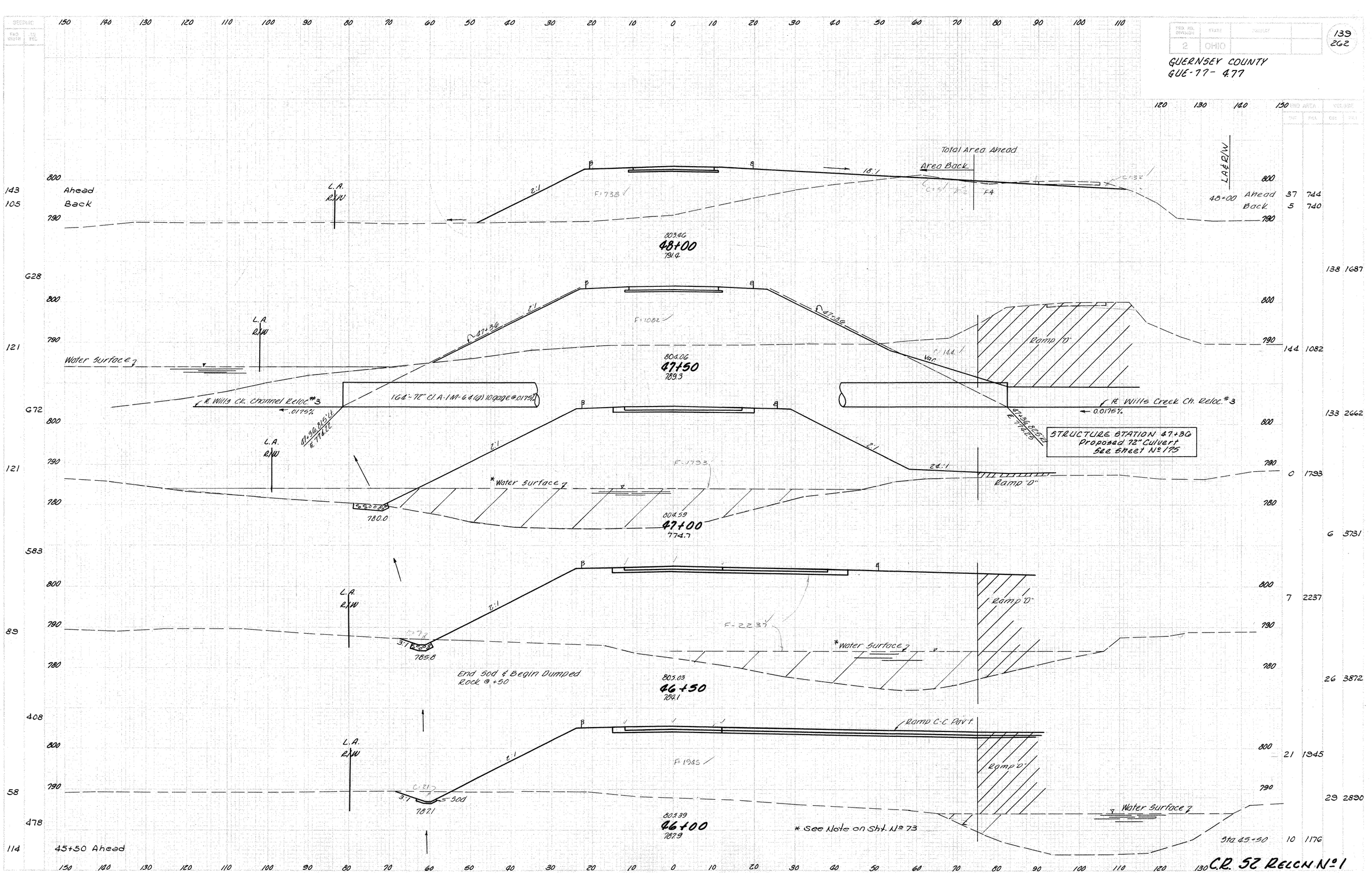
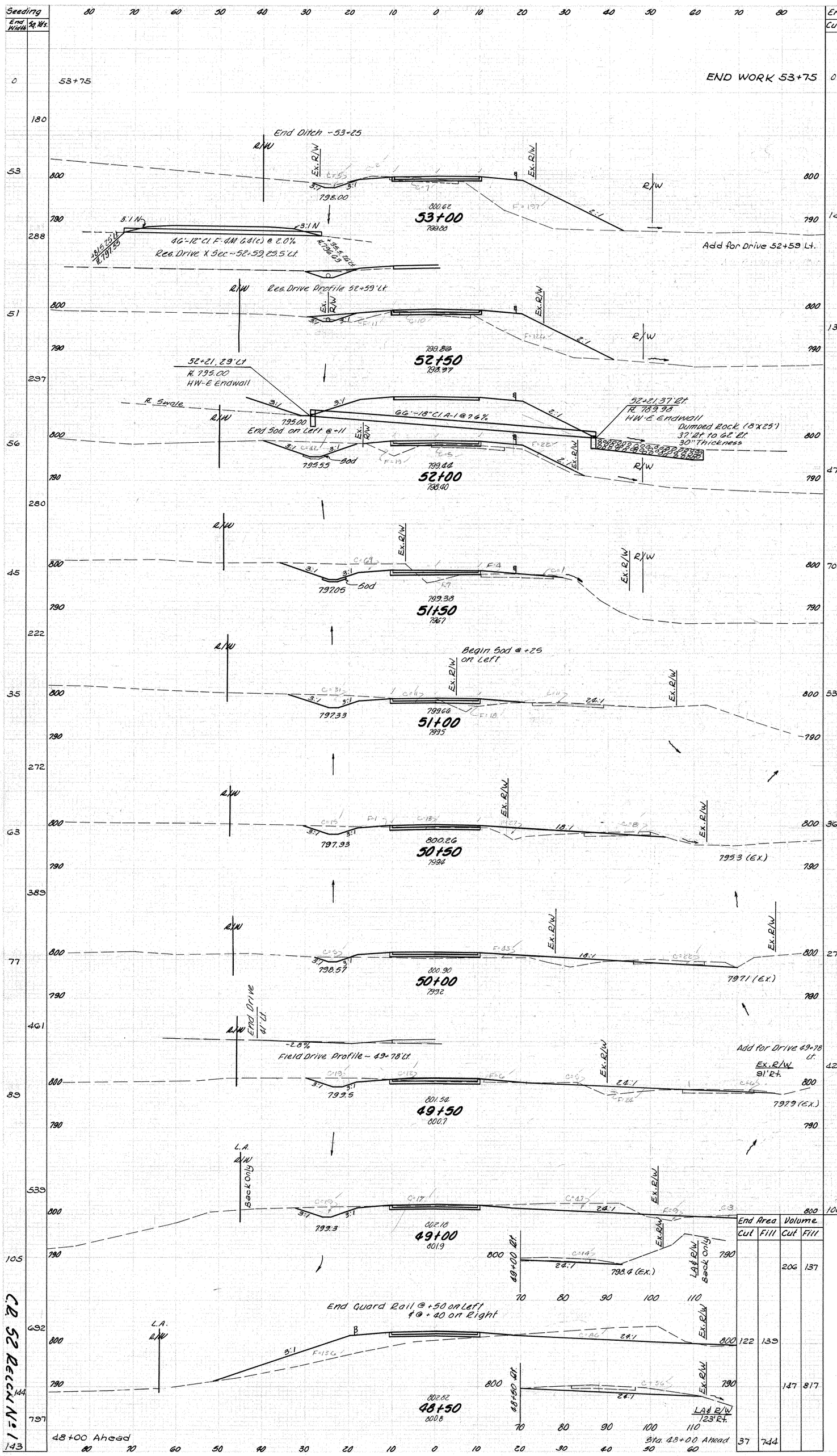
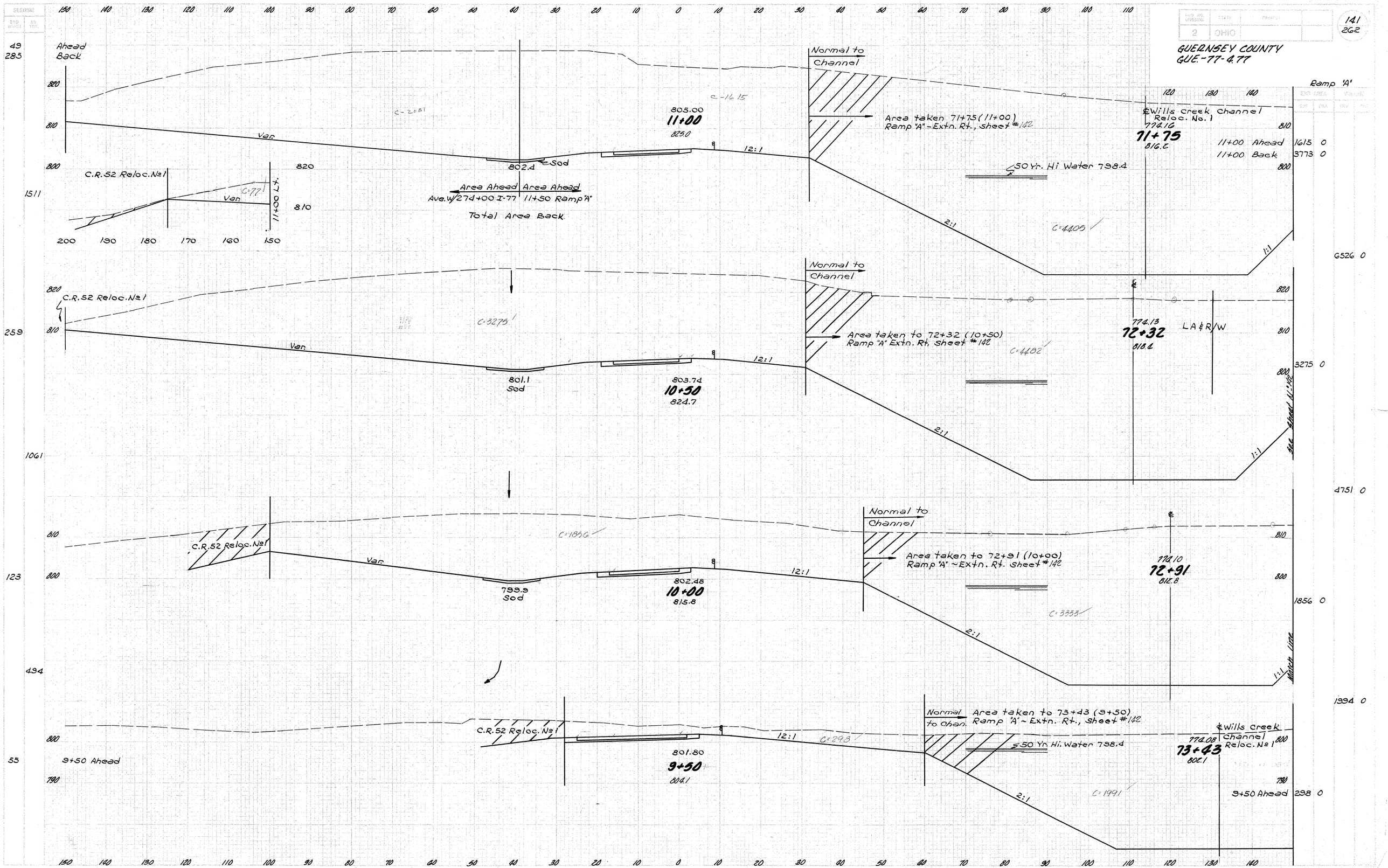
GUERNSEY COUNTY
GUE-77-4.77



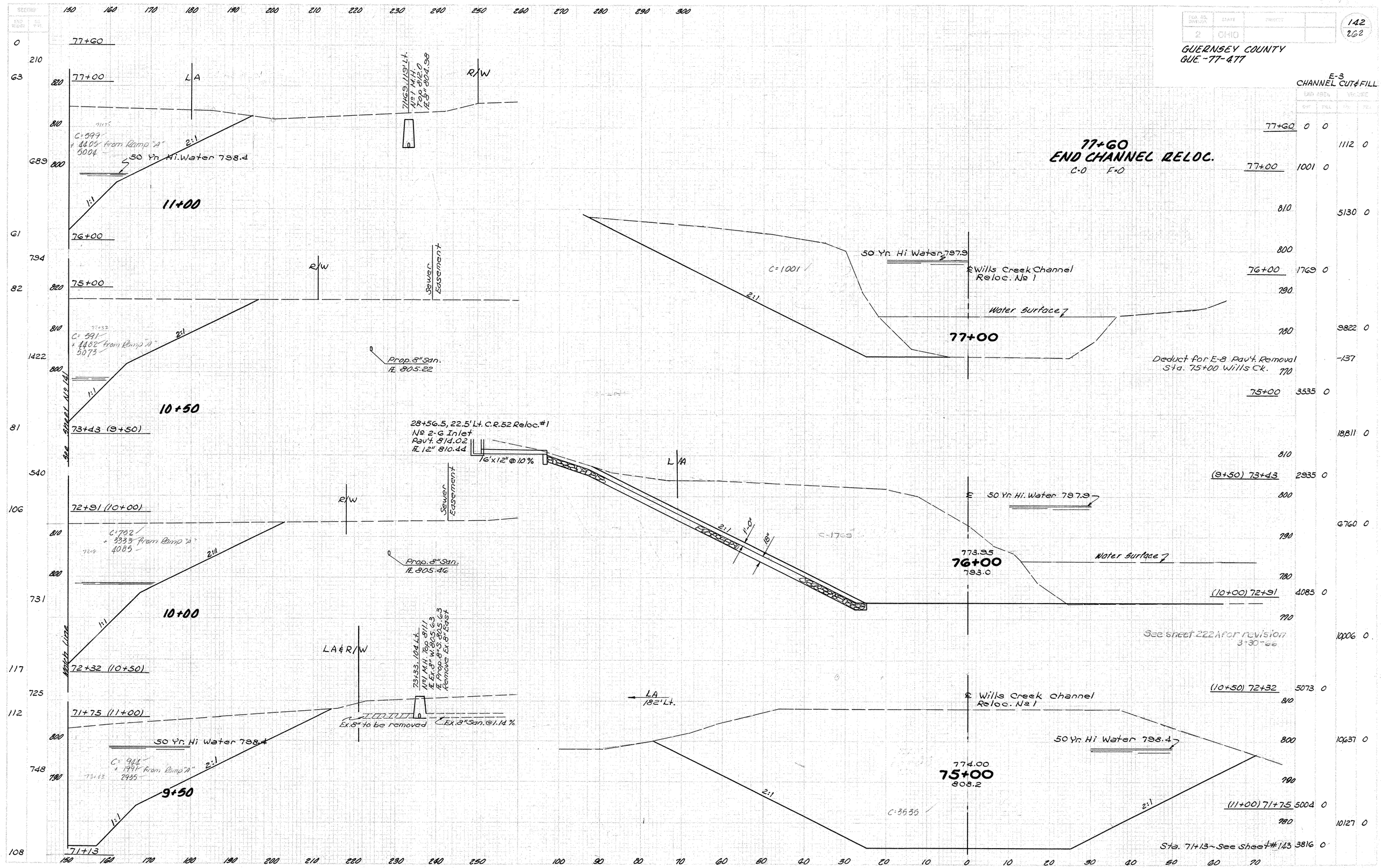

Seeding
End Width
Sq. Yds.
End Area
Volume
Cut
Fill
END WORK 53+75
53+75
End Ditch ~53+25
R/W
Ex. R/W
53+00
Add for Drive 52+59 Lt.
46'-12" CI F-dM GA(c) @ 2.0%
Res. Drive X Sec ~ 52+59, 25.5' Lt.
Res. Drive Profile 52+59' Lt.
52+50
52+21, 29' Lt
R. 795.00
HW-E Endwall
R. Swale
66'-18" CI A-1 @ 2.6%
52+21, 37' Rt
R. 789.98
HW-E Endwall
Dumped Rock (8'x25')
37' Rt to 62' Rt
30" Thickness
End Sod on Left @ +11
Sod
52+00
51+50
Begin Sod @ +25
on Left
51+00
50+50
795.3 (Ex.)
50+00
797.1 (Ex.)
End Drive
41' Lt.
Field Drive Profile ~ 49+78' Lt.
Add for Drive 49+78 Lt.
Ex. R/W
91' Rt.
49+50
797.9 (Ex.)
L.A.
Back Only
49+00
49+00 Lt.
798.4 (Ex.)
LA & R/W
End Guard Rail @ +50 on Left
& @ +40 on Right
48+50
48+50 Lt.
LA & R/W
123' Rt.
48+00 Ahead
Sta. 48+00 Ahead
CR 52 Beech No. 1
48+50 to 53+00
GUERNSEY COUNTY
GUE-77-4.77
140
262

GUERNSEY COUNTY
GUE.-77-4.77



9+50 to 11+00 RAMP "A"

GUERNSEY COUNTY
GUE.-77-477



77+60 END CHANNEL RELOC.

C-0 F-0

Deduct for E-8 Pav't. Removal Sta. 75+00 Wills Ck.

E-3
CHANNEL CUT & FILL

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
77+60	0	0		
			1112	0
77+00	1001	0		
			5130	0
76+00	1769	0		
			9822	0
			-137	
75+00	3535	0		
			18811	0
(9+50) 73+43	2935	0		
			6760	0
(10+00) 72+91	4085	0		
			10006	0
(10+50) 72+32	5073	0		
			10637	0
(11+00) 71+75	5004	0		
			10127	0
Sta. 71+13 ~ See Sheet #143	3816	0		

9+50 to 11+00 RAMP "A" – EXTN. RT.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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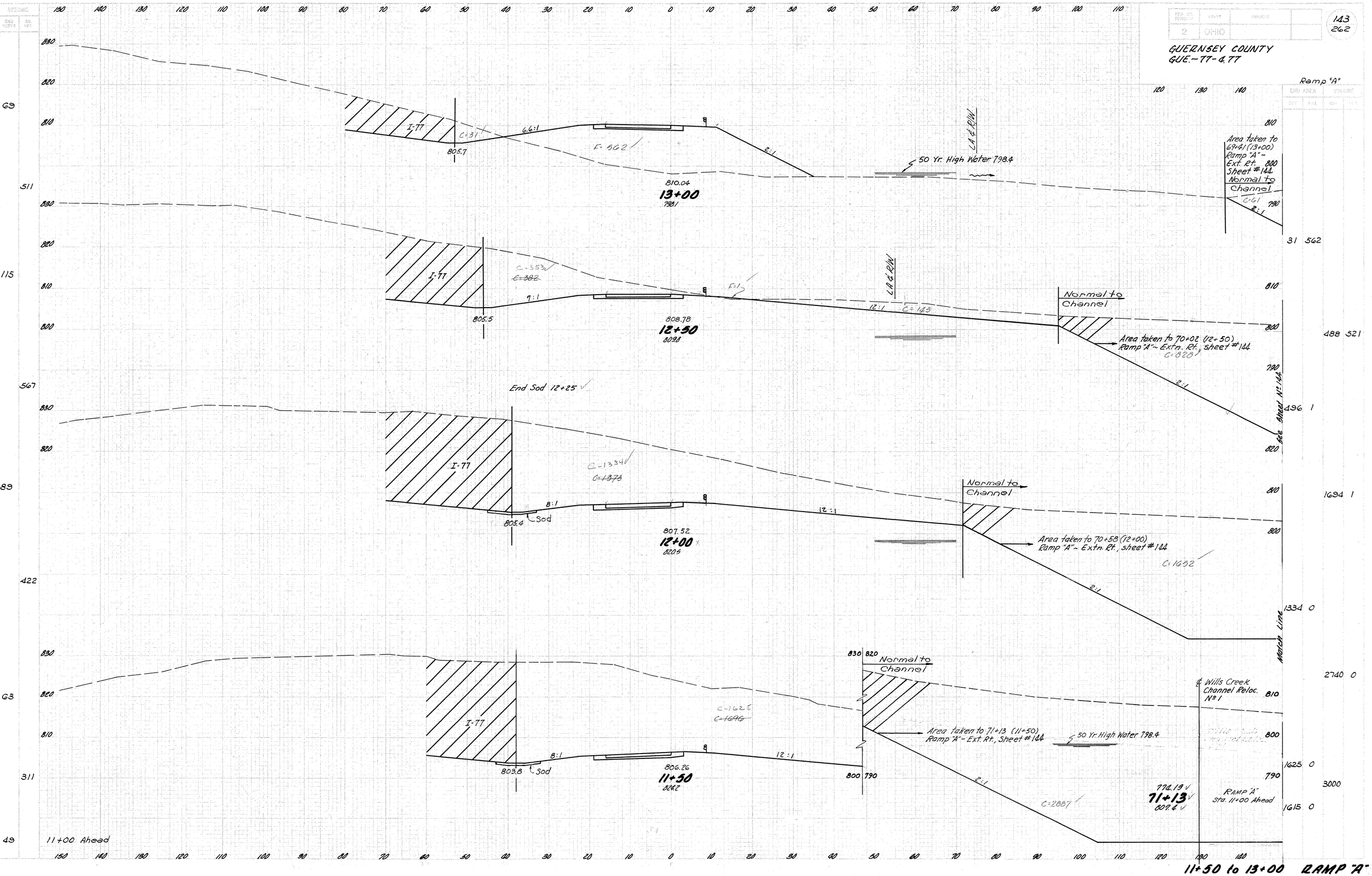
GUERNSEY COUNTY
GUE.-77-4.77



11+50 to 13+00 RAMP "A"

FED. RD. DIVISION	STATE	COUNTY	
2	OHIO		

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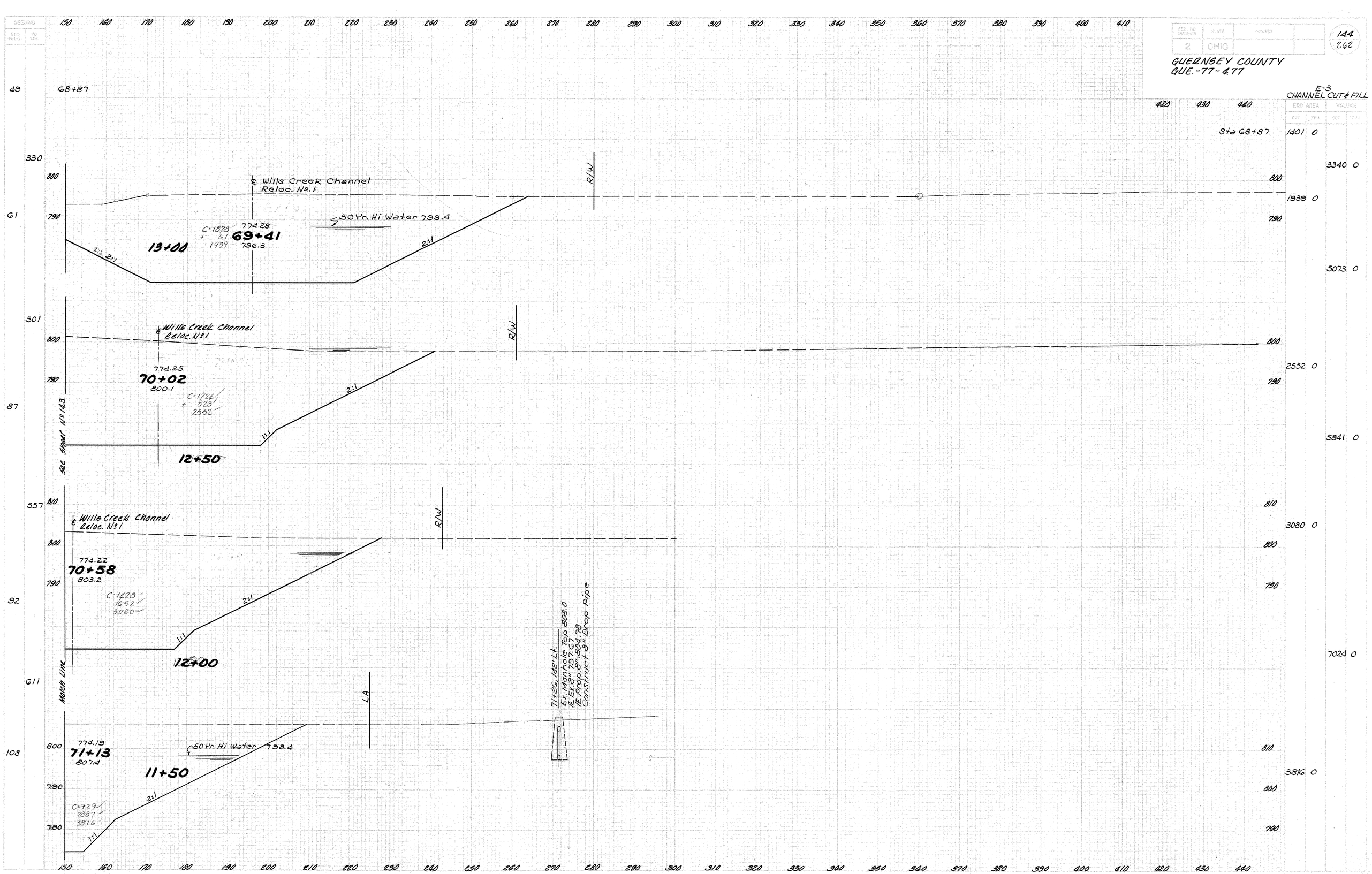
262

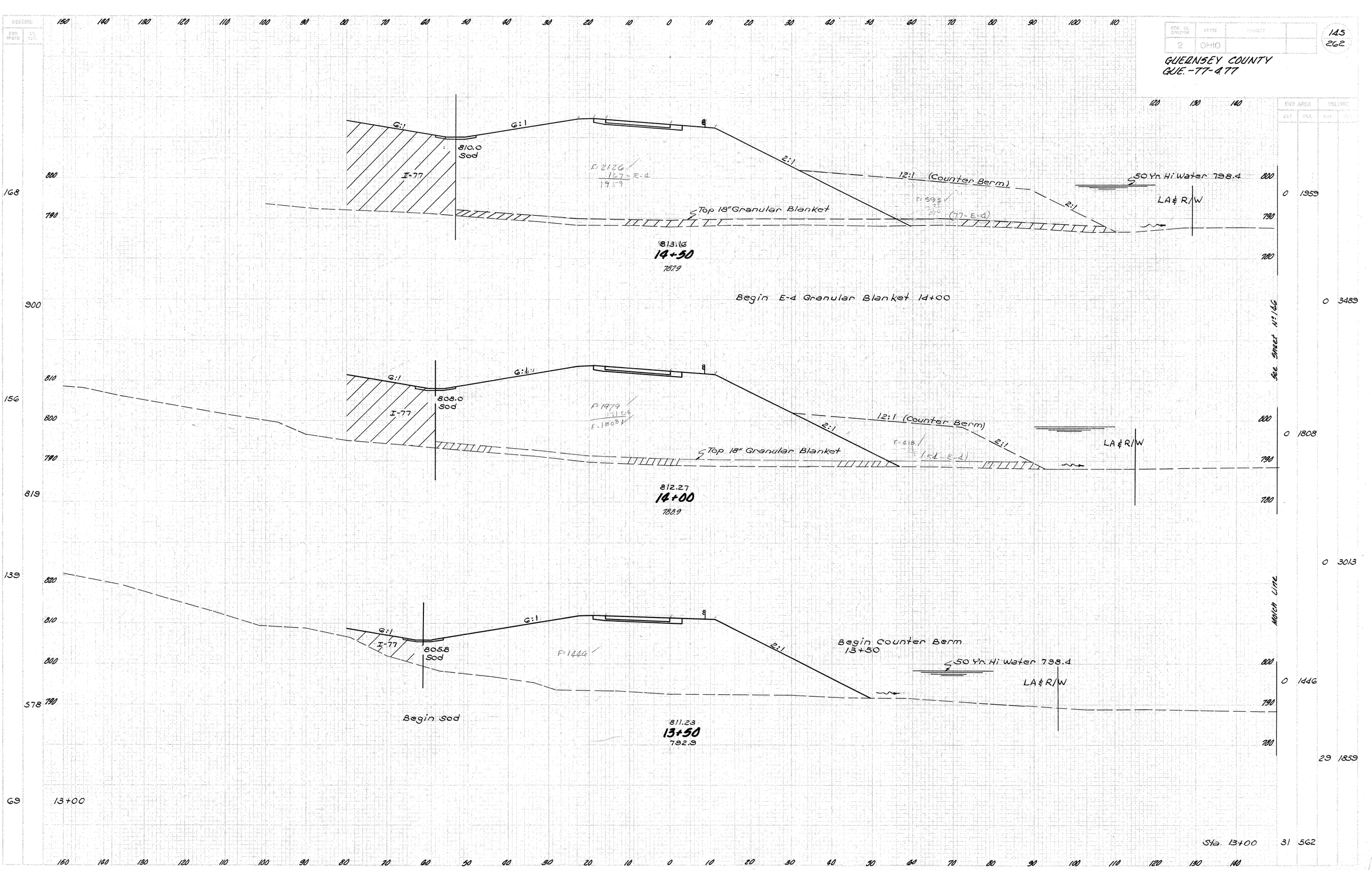
GUERNSEY COUNTY
GUE.-77-4.77



11+50 to 13+00 RAMP "A" - EXTN. RT.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

GUERNSEY COUNTY
GUE.-77-4.77



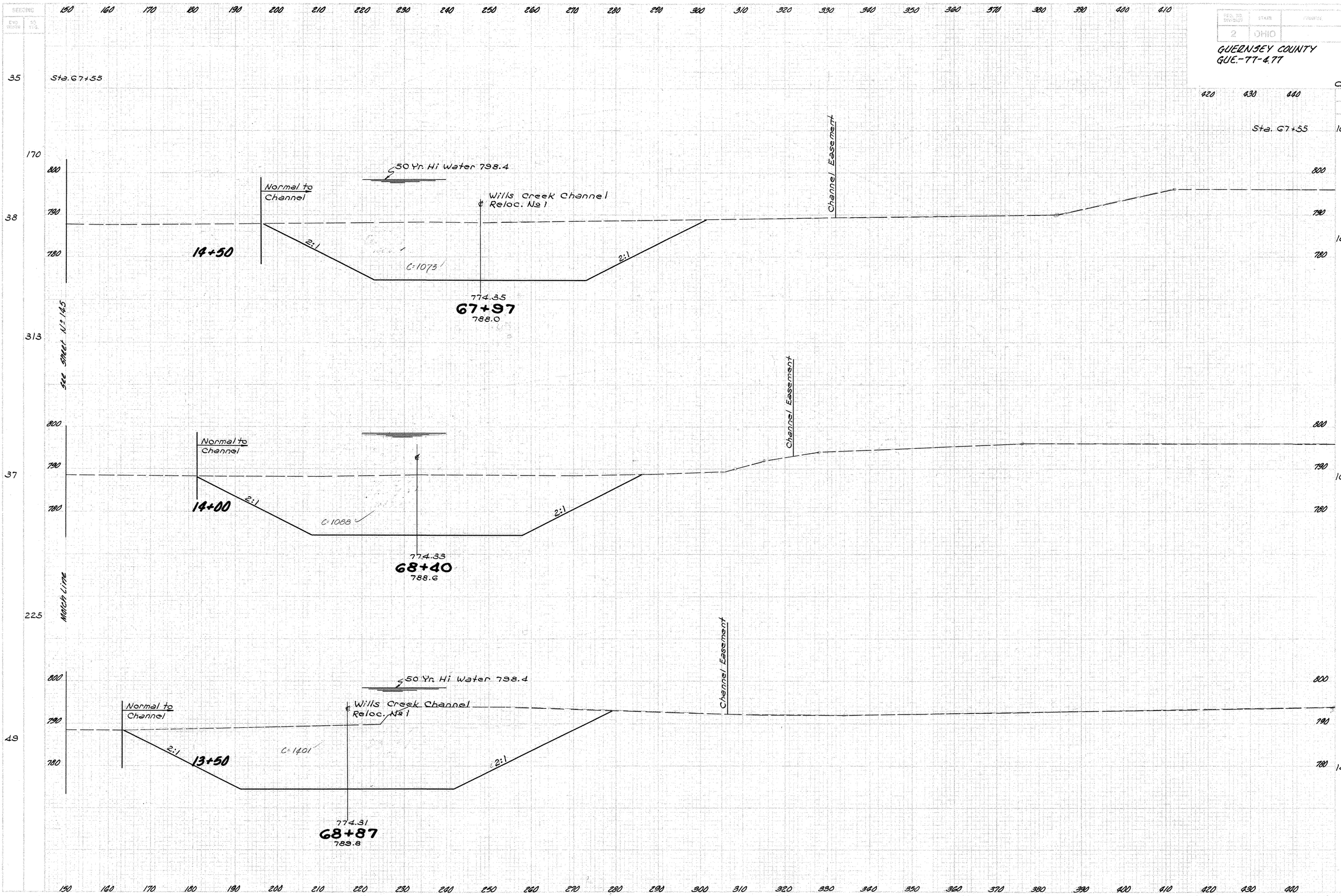
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	1959		
		0	3489
0	1808		
		0	3013
0	1446		
		29	1859
31	562		

13+50 to 14+50 RAMP "A"

FED. RD. DIVISION	STATE	FUNCTION	
2	OHIO		

14G
2G2

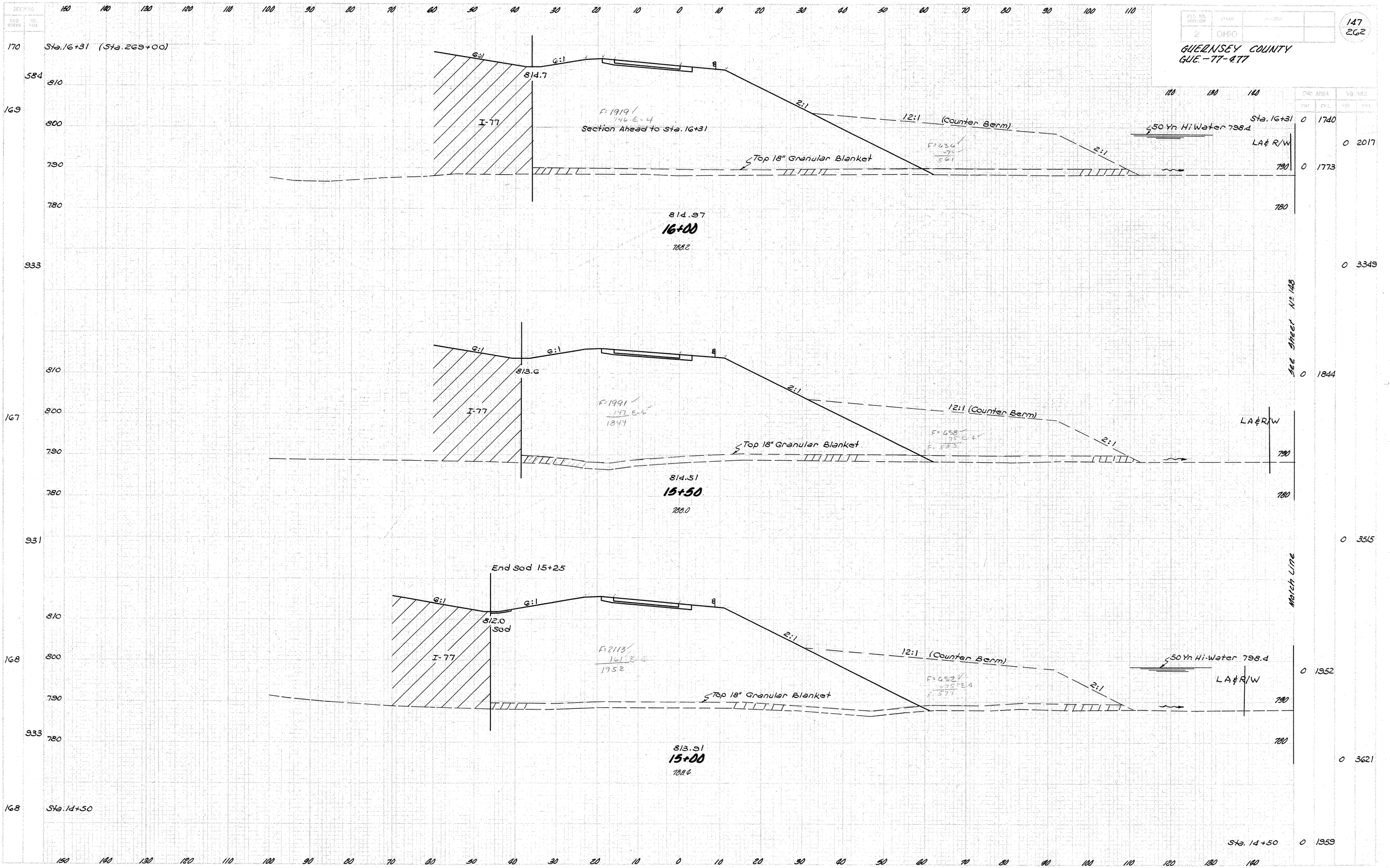
GUERNSEY COUNTY
GUE.-77-4.77

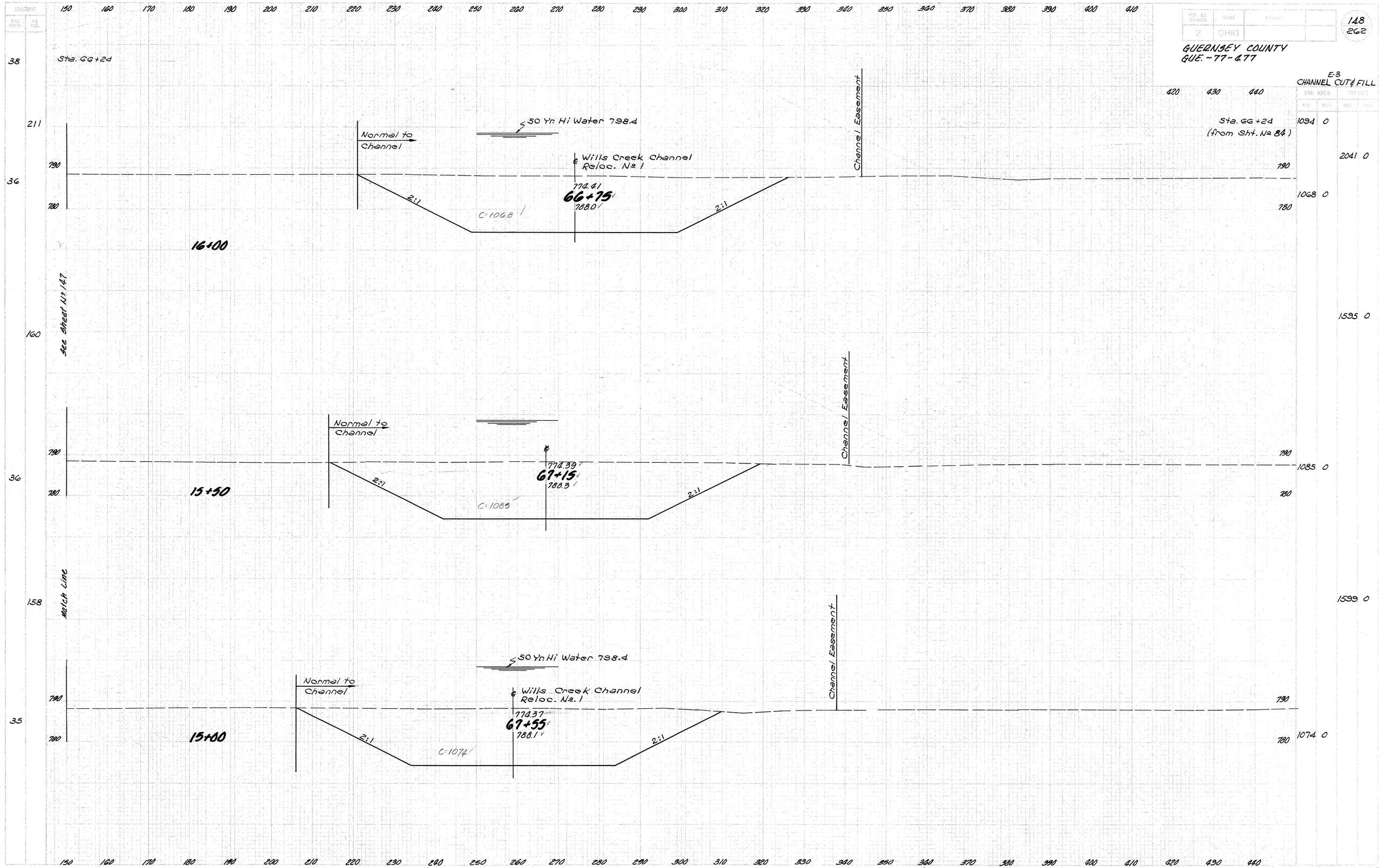


E-3
CHANNEL CUT & FILL

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
1074	0		
		1670	0
1073	0		
		1721	0
1088	0		
		2167	0
1401	0		

13+50 to 14+50 RAMP "A"-EXTN. RT.


FED. RD. DIVISION 2
STATE OHIO
147
262
GUERNSEY COUNTY
GUE.-77-4.77
Sta. 16+31 (Sta. 269+00)
814.7
I-77
F=1919
146 E-4
Section Ahead to Sta. 16+31
12:1 (Counter Berm)
50 Yr Hi Water 798.4
Top 18" Granular Blanket
814.97
16+00
788.2
813.6
F=1991
147 E-4
1844
814.51
15+50
788.0
End Sod 15+25
812.0
Sod
F=2113
161 E-4
1952
813.91
15+00
788.4
Sta. 14+50
CUB. AREA
CUT FILL
Sta. 16+31 0 1740
LA & R/W 0 2017
0 1773
0 3349
See Sheet No. 148
0 1844
0 3515
March Line
0 1952
0 3621
0 1959
15+00 to 16+00 RAMP "A"



15+00 to 16+00 RAMP "A" - EXTN. RT.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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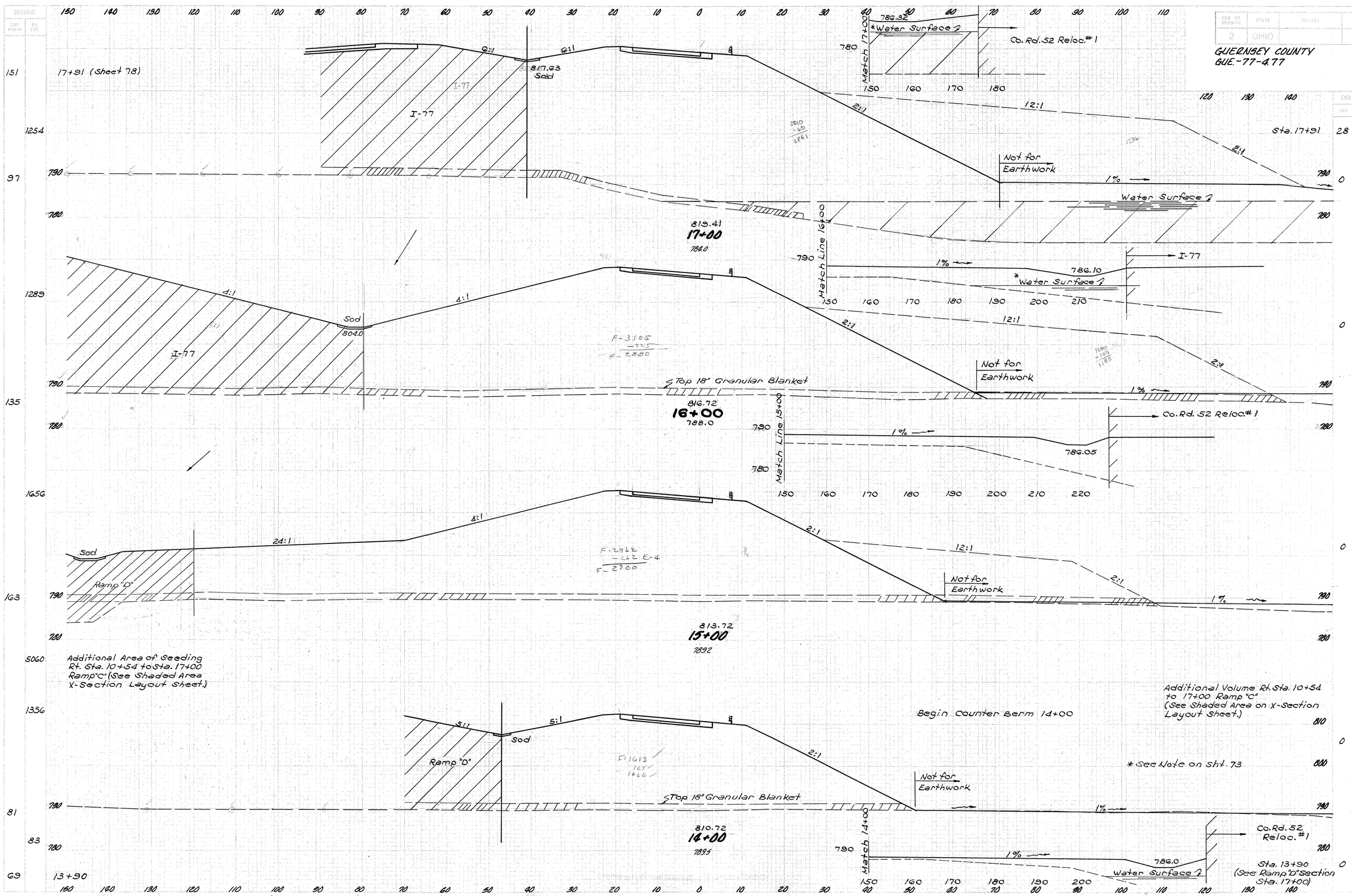
262

GUERNSEY COUNTY
GUE.-77-4.77



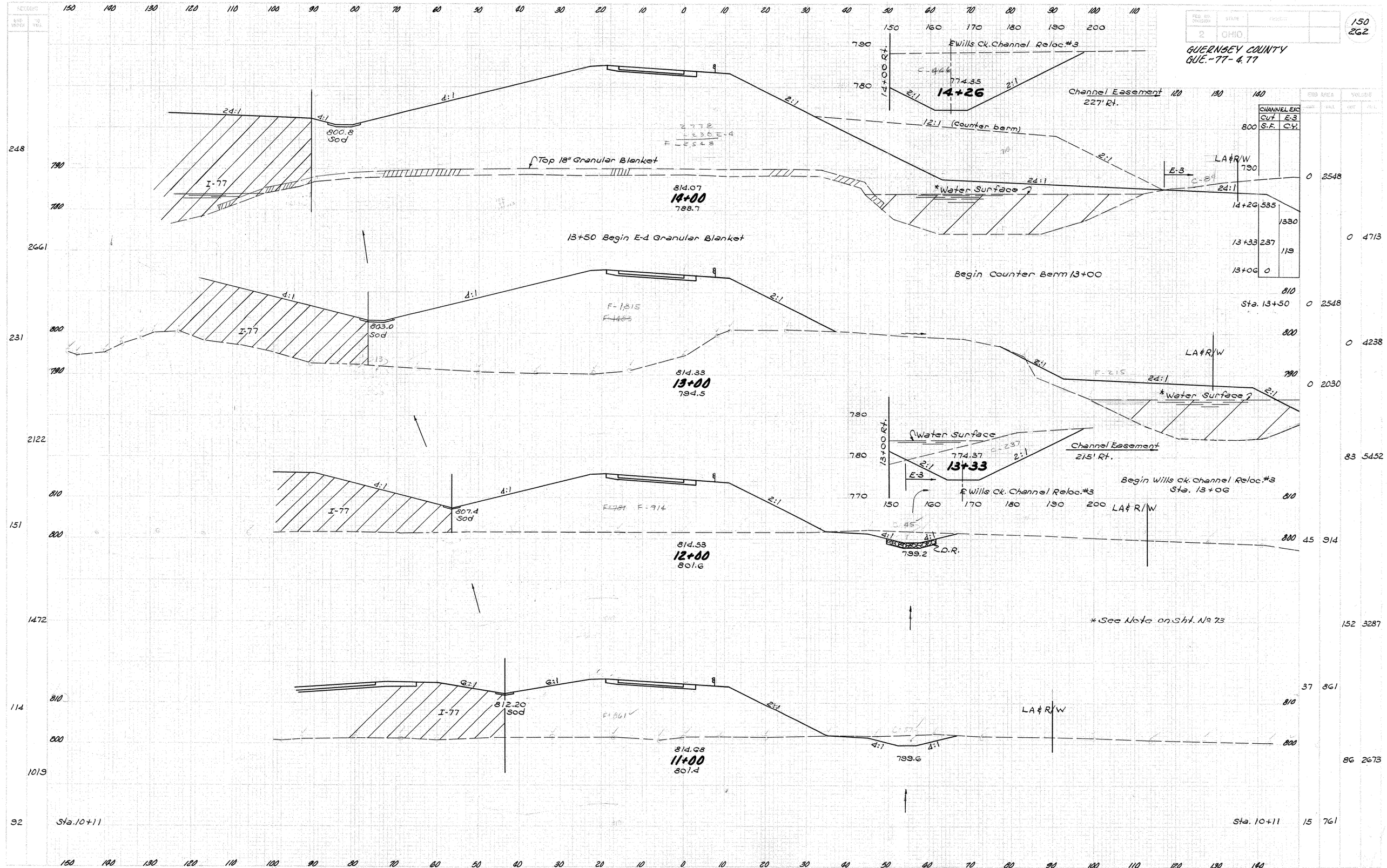
	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
Sta. 17+91	28	2158		
			47	8424
	0	2841		
			0	10,592
	0	2880		
			0	10,333
	0	2700		
			0	7714
			0	2080
	0	1466		
			0	502
	0	1247		

14+00 to 17+00 RAMP "C"

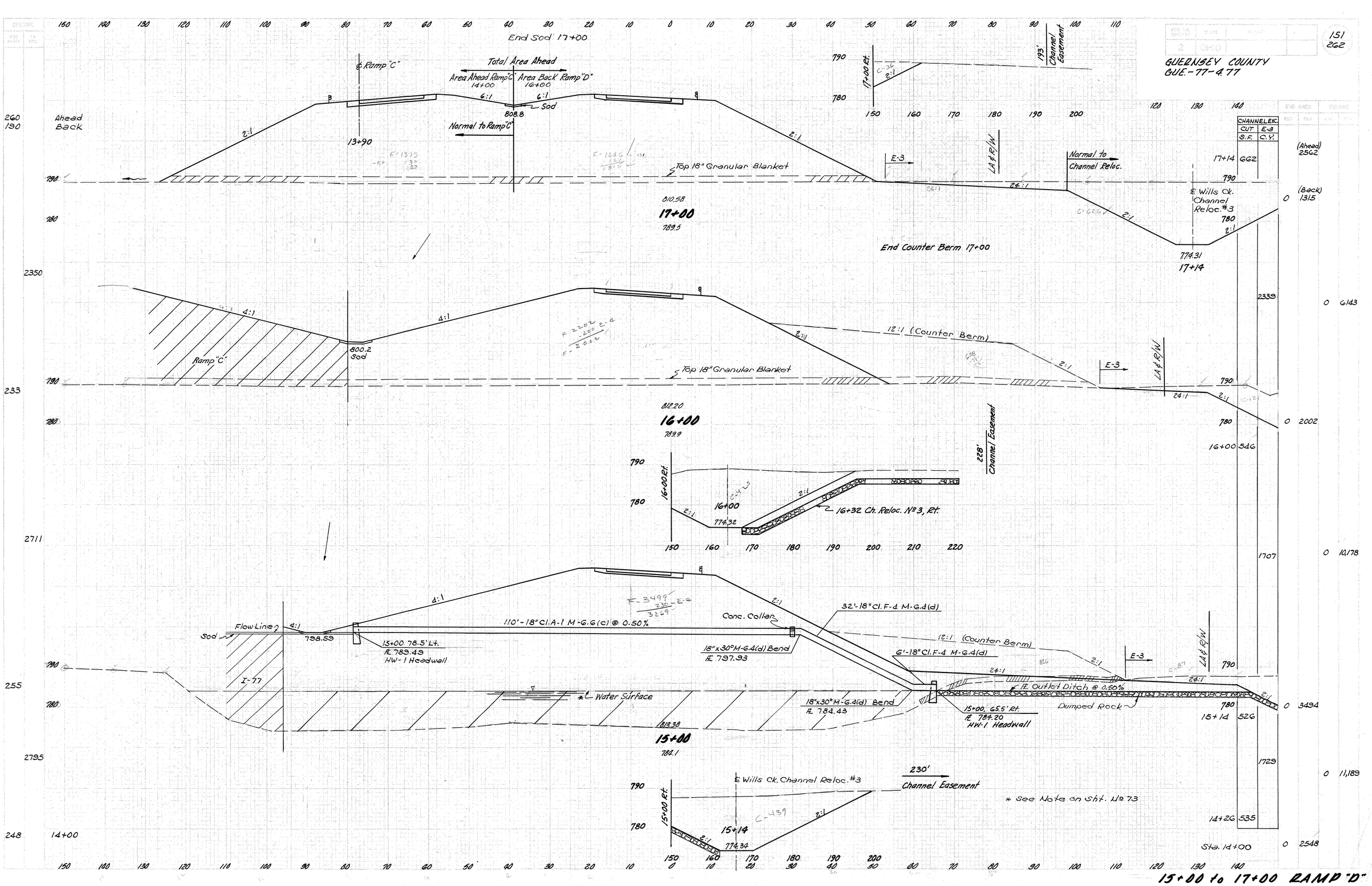
FED. RD. DIVISION	STATE	FEDERAL AID PROJECT	
2	OHIO		

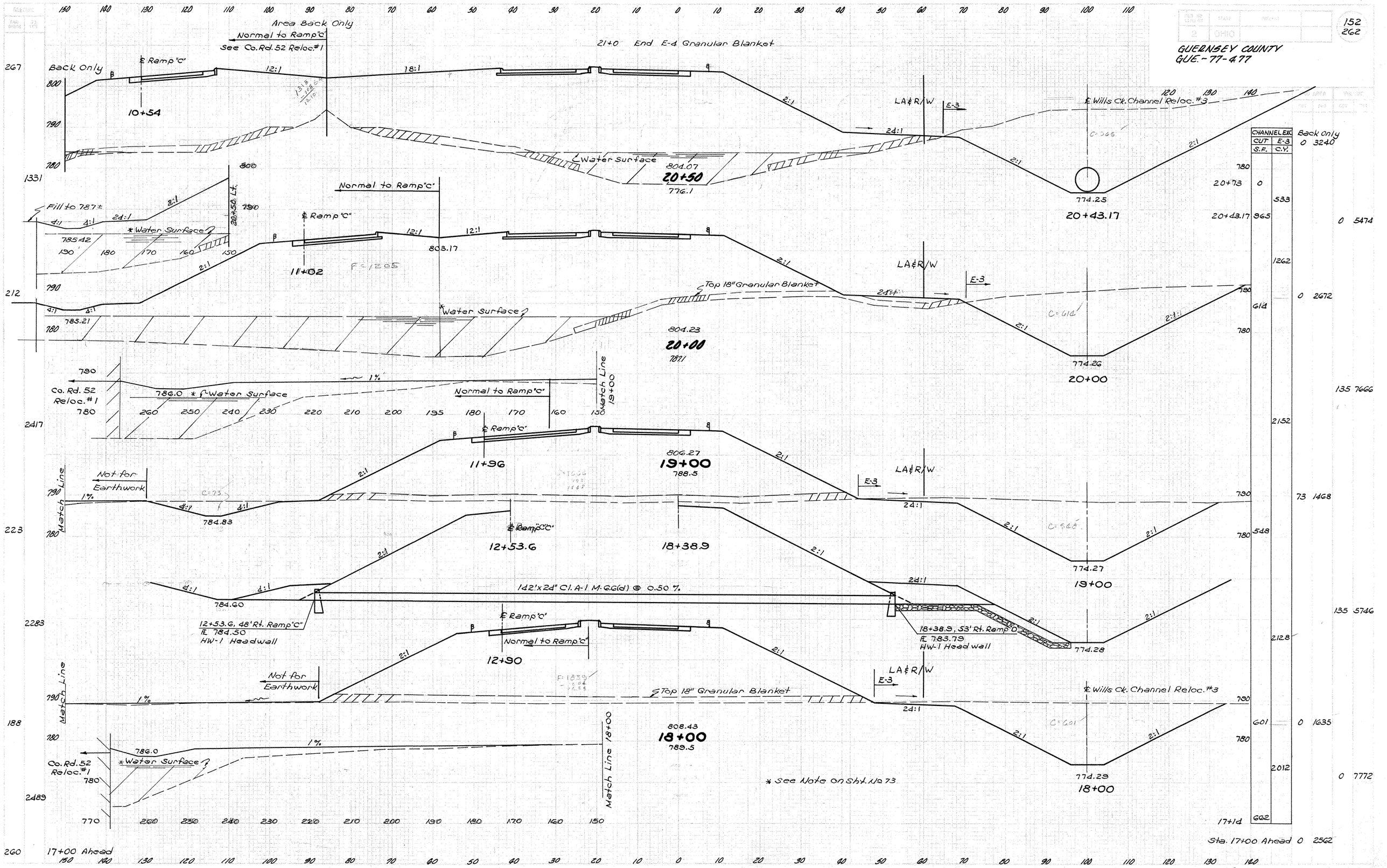
150
2G2

GUERNSEY COUNTY
GUE.-77-4.77



11+00 to 14+00 RAMP "D"


GUERNSEY COUNTY
GUE.-77-4.77
151
262
End Sod 17+00
Total Area Ahead
Area Ahead Ramp "C" 14+00
Area Back Ramp "D" 16+00
℄ Ramp "C"
Normal to Ramp "C"
Ahead
Back
13+90
Top 18" Granular Blanket
810.58
17+00
789.5
End Counter Berm 17+00
Normal to Channel Reloc.
℄ Wills Ck. Channel Reloc. #3
17+14
774.31
Ramp "C"
800.2 Sod
812.20
16+00
789.9
12:1 (Counter Berm)
16+32 Ch. Reloc. Nº 3, Rt.
228' Channel Easement
32'-18" Cl. F-4 M-G.4(d)
110'-18" Cl. A-1 M-G.6(c) @ 0.50%
Conc. Collar
Flow Line
Sod
15+00 78.5' Lt.
℄ 789.49
HW-1 Headwall
18"x30° M-G.4(d) Bend
℄ 797.93
6'-18" Cl. F-4 M-G.4(d)
℄ Outlet Ditch @ 0.50%
Water Surface
18"x30° M-G.4(d) Bend
℄ 784.43
15+00 65.5' Rt.
℄ 784.20
HW-1 Headwall
Dumped Rock
I-77
15+00
784.1
℄ Wills Ck. Channel Reloc. #3
230' Channel Easement
* See Note on Sht. Nº 73
15+14
774.34
Sta. 14+00
CHANNEL E-K
CUT E-3
S.F. C.Y.
15+00 Rt.
16+00 Rt.
17+00 Rt.
193' Channel Easement
15+00 to 17+00 RAMP "D"


GUERNSEY COUNTY
GUE.-77-4.77
152
262
Area Back Only
Normal to Ramp "C"
See Co.Rd.52 Reloc.#1
21+0 End E-4 Granular Blanket
Back Only
℄ Ramp "C"
10+54
12:1
18:1
2:1
24:1
LA℄R/W
E-3
℄ Wills Ck. Channel Reloc.#3
C=565
℄ Water Surface
804.07
20+50
776.1
774.25
20+43.17
Fill to 787±
4:1
24:1
* Water Surface
785.42
204.50 Lt.
11+02
F=1205
803.17
Top 18" Granular Blanket
804.23
20+00
789.1
774.26
20+00
C=614
Co. Rd. 52
Reloc.#1
786.0
1%
Match Line 19+00
11+96
806.27
19+00
788.5
Not for Earthwork
784.83
12+53.6
18+38.9
774.27
19+00
142'x24" Cl. A-1 M.G.C.(d) @ 0.50 %
784.60
12+53.6, 48' Rt. Ramp "C"
℄ 784.50
HW-1 Headwall
18+38.9, 53' Rt. Ramp "D"
℄ 783.79
HW-1 Head wall
774.28
12+90
Top 18" Granular Blanket
808.43
18+00
789.5
774.29
18+00
* See Note on Sht. No 73
17+00 Ahead
Sta. 17+00 Ahead
CHANNEL EXC.
CUT
S.F.
C.Y.
Back Only 0 3240
20+73 0 533
20+43.17 965 0 5474
1262
0 2672
612
2152
73 1468
548
135 5746
2128
601 0 1635
2012
0 7772
662
18+00 to 20+50 RAMP D

END AREA		VOLUME	
CUT	FILL	CUT	FILL
			14
22	19	33	93
14	81	24	207
12	143	19	352
9	237	18	523
10	328	19	651
10	375	13	656
4	333		

2	OHIO		

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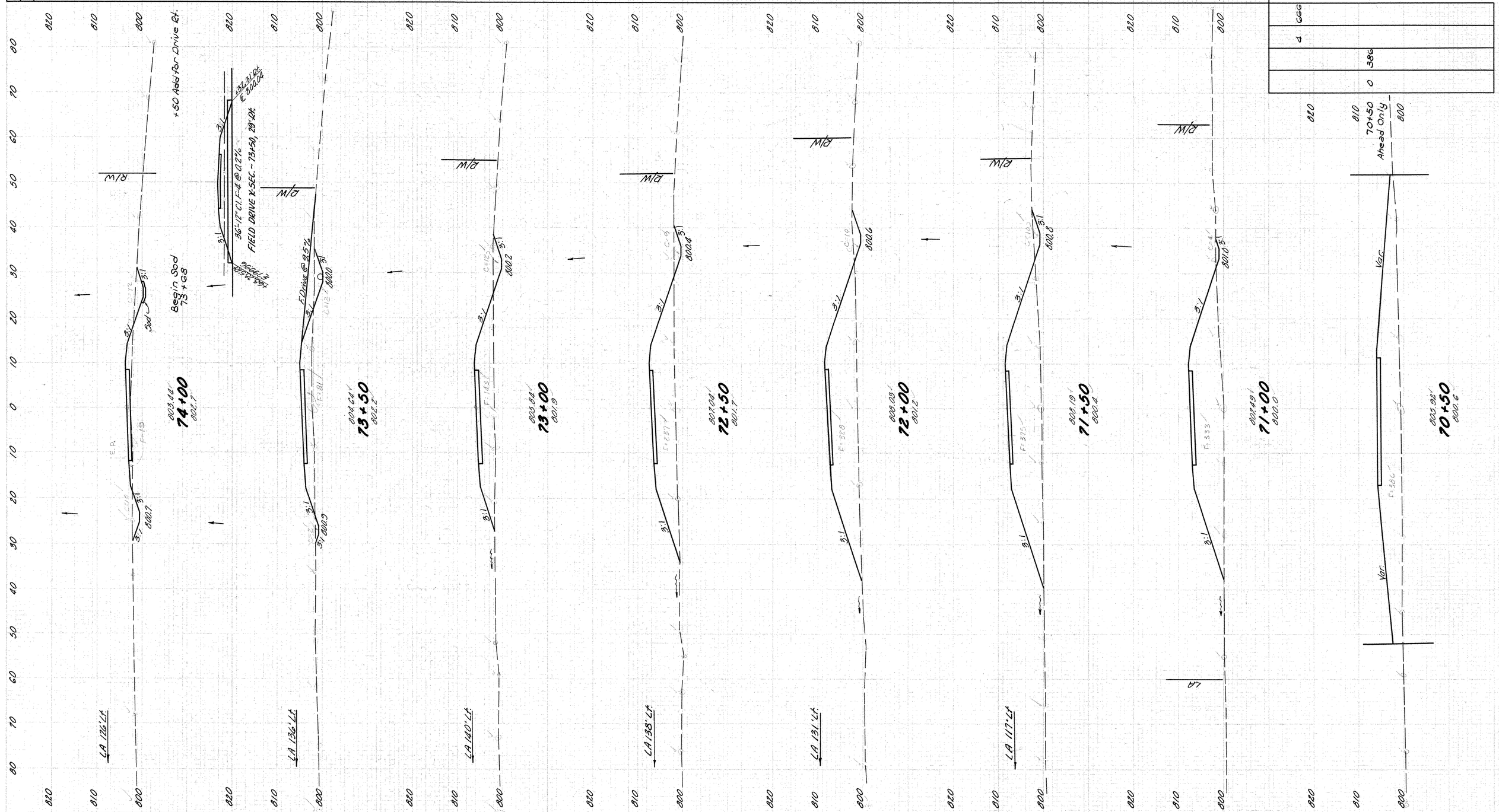
262

GUERNSEY COUNTY
GUE-77-4.77

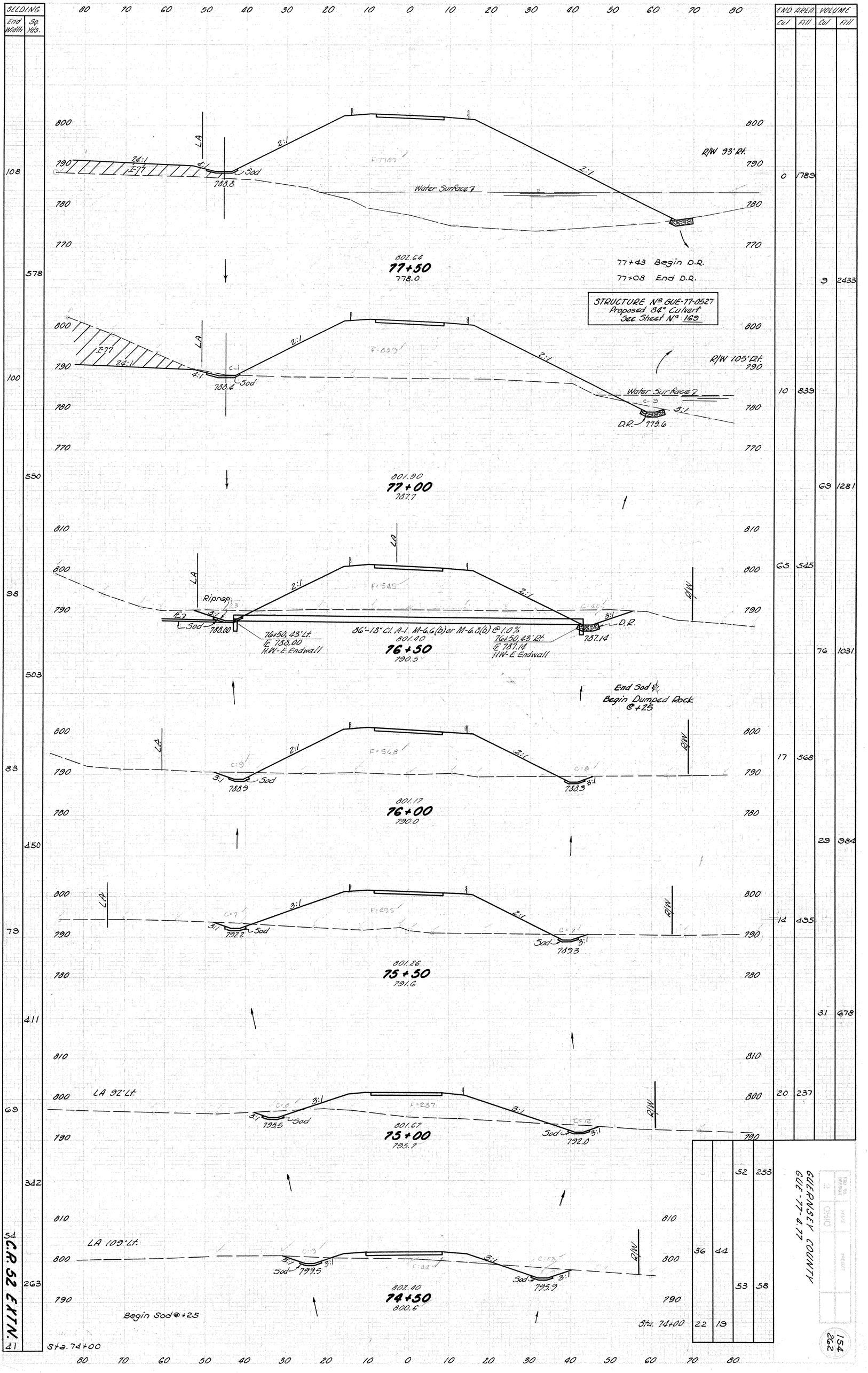
0	386	4	666



SEEDING	
End Width	Sq. Yds.
41	
	242
46	
	258
47	
	283
55	
	328
63	
	358
66	
	339
56	
	367
76	

C.R. 52 EXTN.

70+50 to 74+00


SEEDING
End Width
Sq. Yds.
END AREA
Cut
Fill
VOLUME
Cut
Fill
R/W 93' Rt.
Water Surface
802.64
77+50
778.0
77+43 Begin D.R.
77+08 End D.R.
STRUCTURE Nº GUE-77-0527
Proposed 84" Culvert
See Sheet Nº 169
R/W 105' Rt.
801.90
77+00
787.7
Riprap
86"-18" Cl. A-1, M-6.6.(b) or M-6.8.(b) @ 1.0%
76+50, 43' Lt.
E 788.00
H.W.-E Endwall
801.40
76+50
790.3
76+50, 43' Rt.
E 787.14
H.W.-E Endwall
End Sod &
Begin Dumped Rock
@+25
801.17
76+00
790.0
801.26
75+50
791.6
LA 92' Lt.
801.67
75+00
795.7
LA 109' Lt.
802.40
74+50
800.6
Begin Sod @+25
Sta. 74+00
74+50 to 77+50
S.C.R. 52 EXTN.
GUERNSEY COUNTY
GUE-77-0.77
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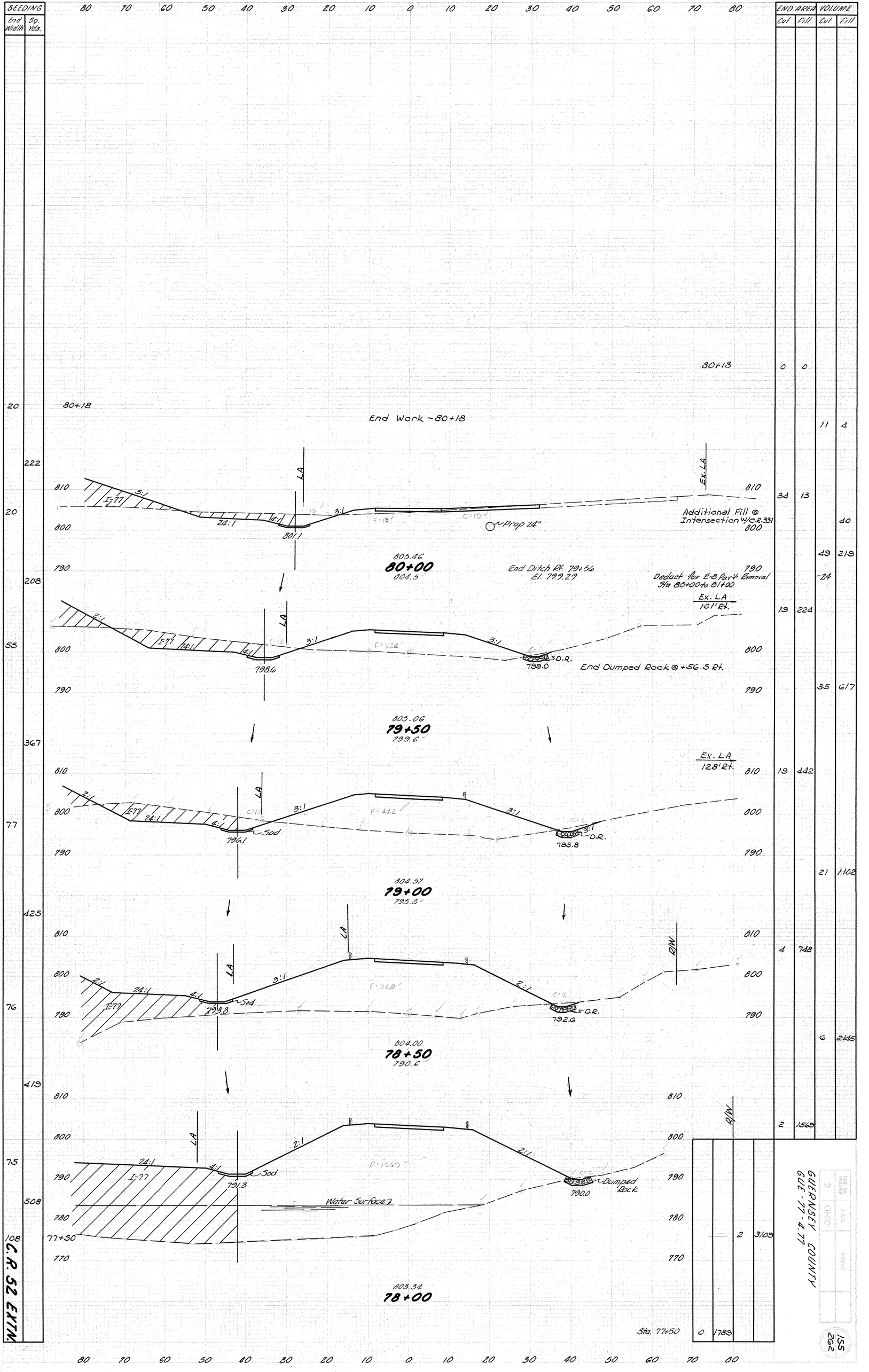
262


SEEDING
End Width
Sq. Yds.
END AREA
Cut
Fill
VOLUME
Cut
Fill
80+18
End Work ~80+18
LA
Ex. LA
Additional Fill @ Intersection W/C.R.331
Prop 24"
805.46
80+00
804.5
End Ditch Rt. 79+56
El. 799.29
Deduct for E-8 Pav't Removal Sta 80+00 to 81+00
Ex. LA 101' Rt.
End Dumped Rock @ +56.5 Rt.
805.06
79+50
799.6
Ex. LA 128' Rt.
Sod
804.57
79+00
795.5
R/W
804.00
78+50
790.6
Water Surface
Dumped Rock
77+50
803.34
78+00
Sta. 77+50
C.R. 52 EXTN.
78+00 to 80+00
GUERNSEY COUNTY
GUE-77-4.77
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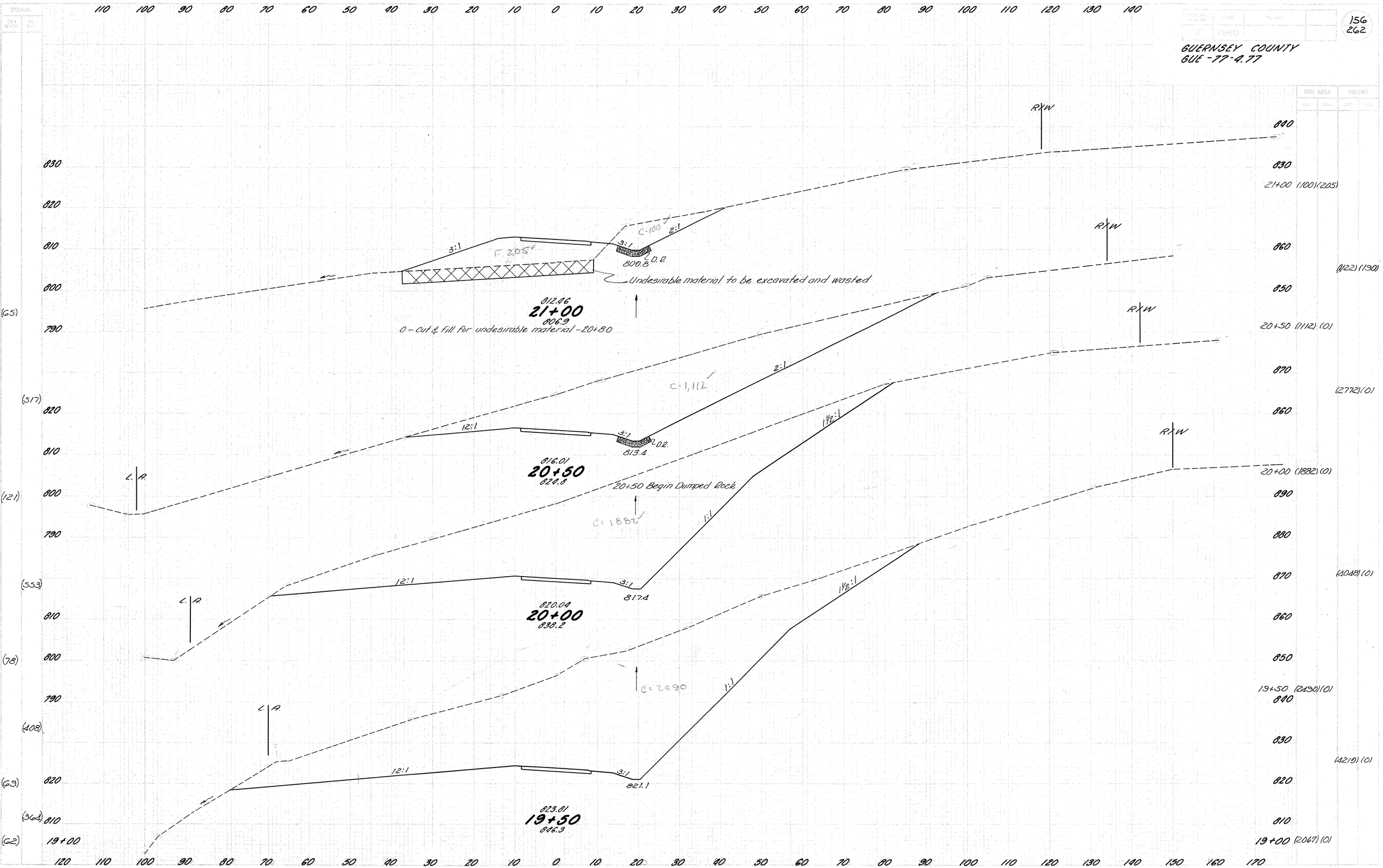
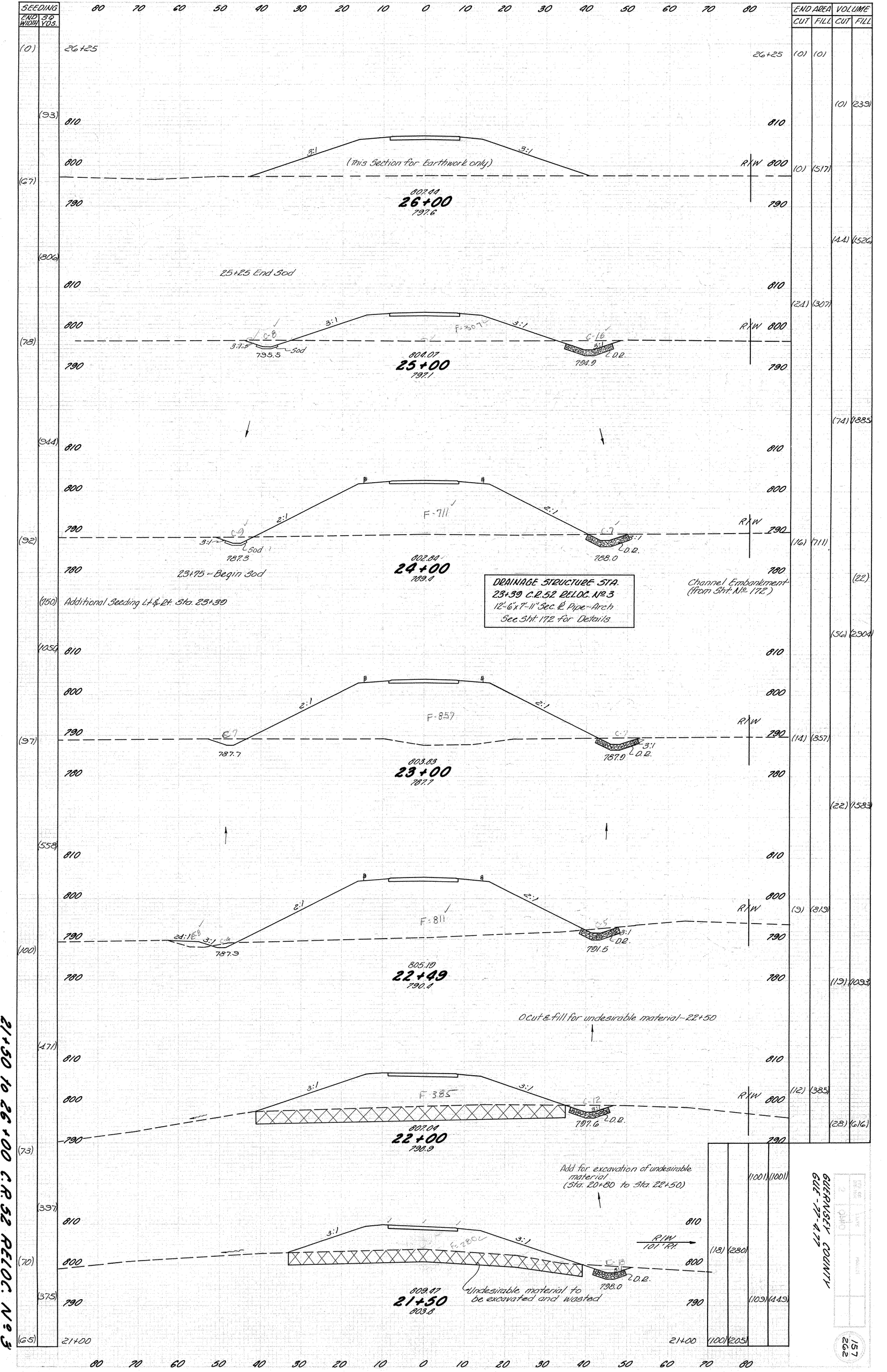
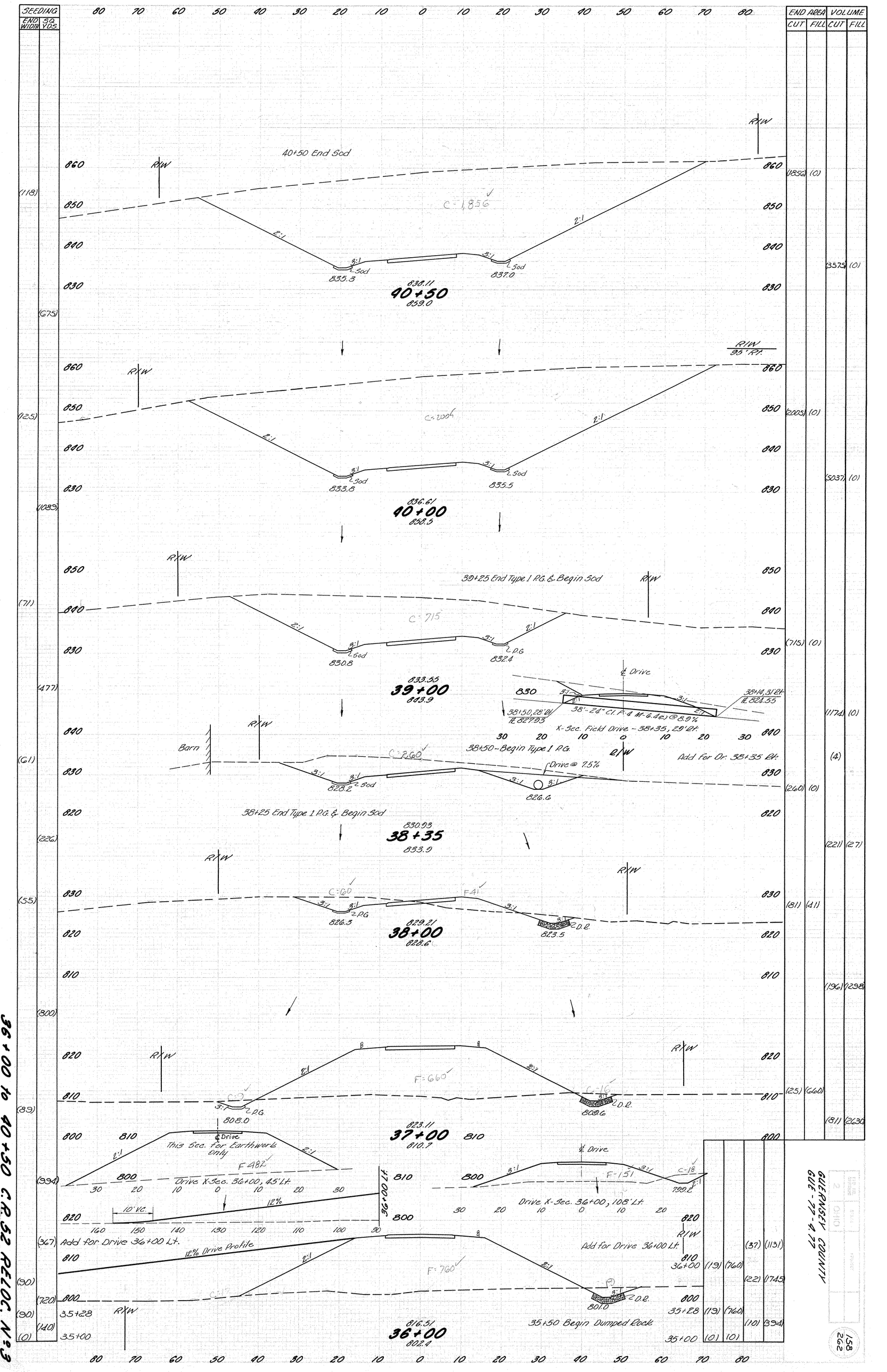
262

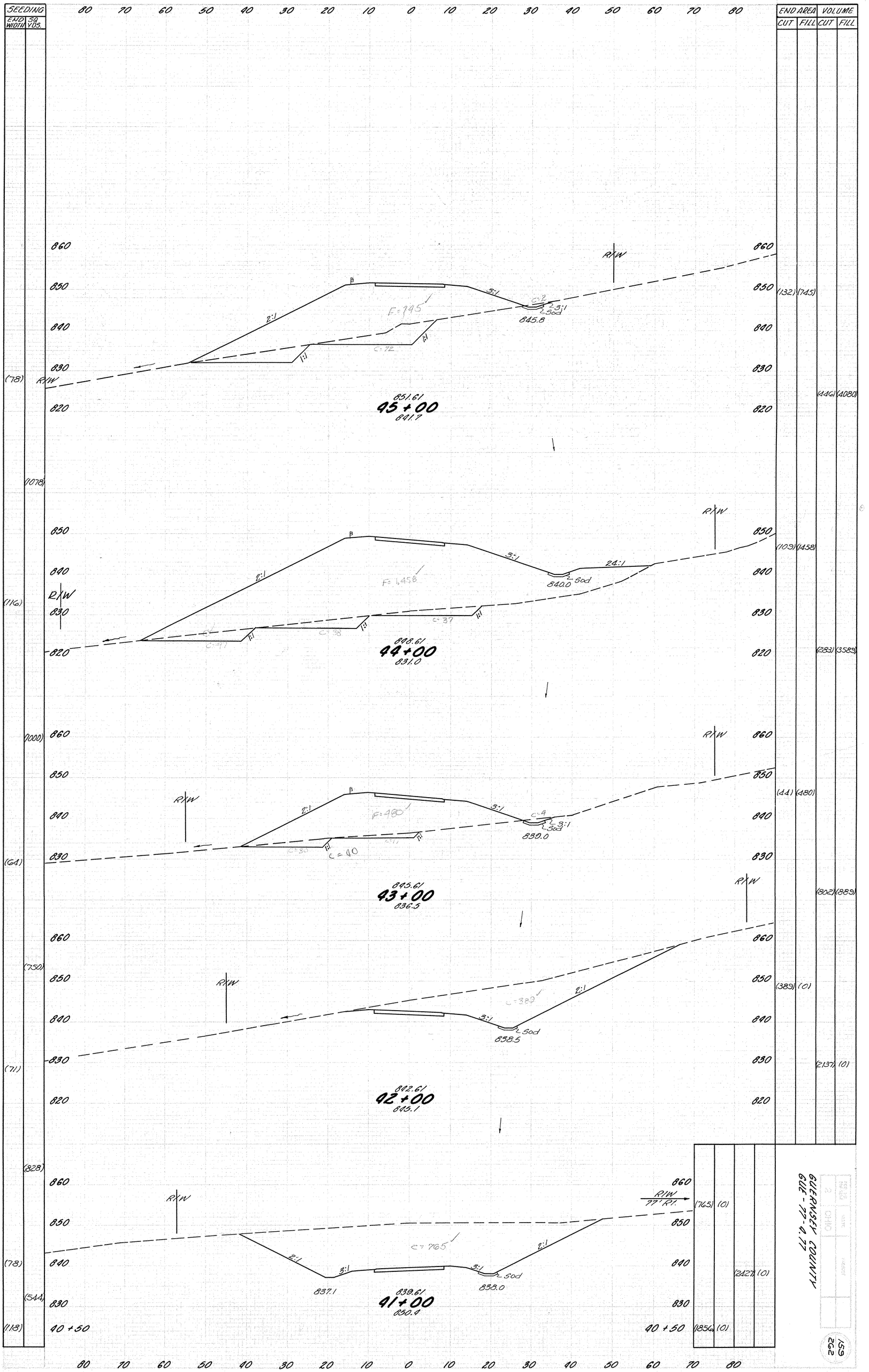
GUERNSEY COUNTY
GUE-77-4.77

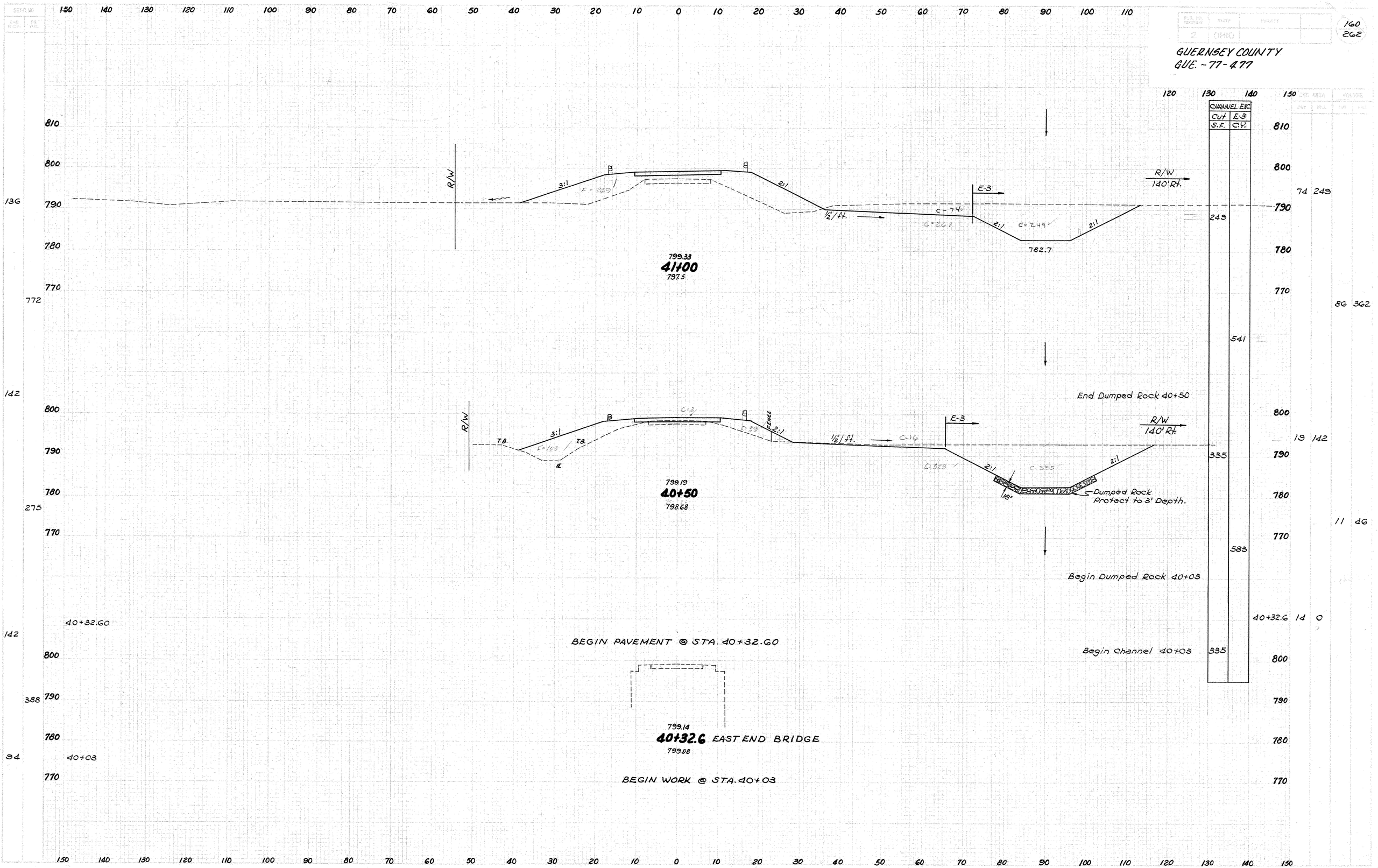


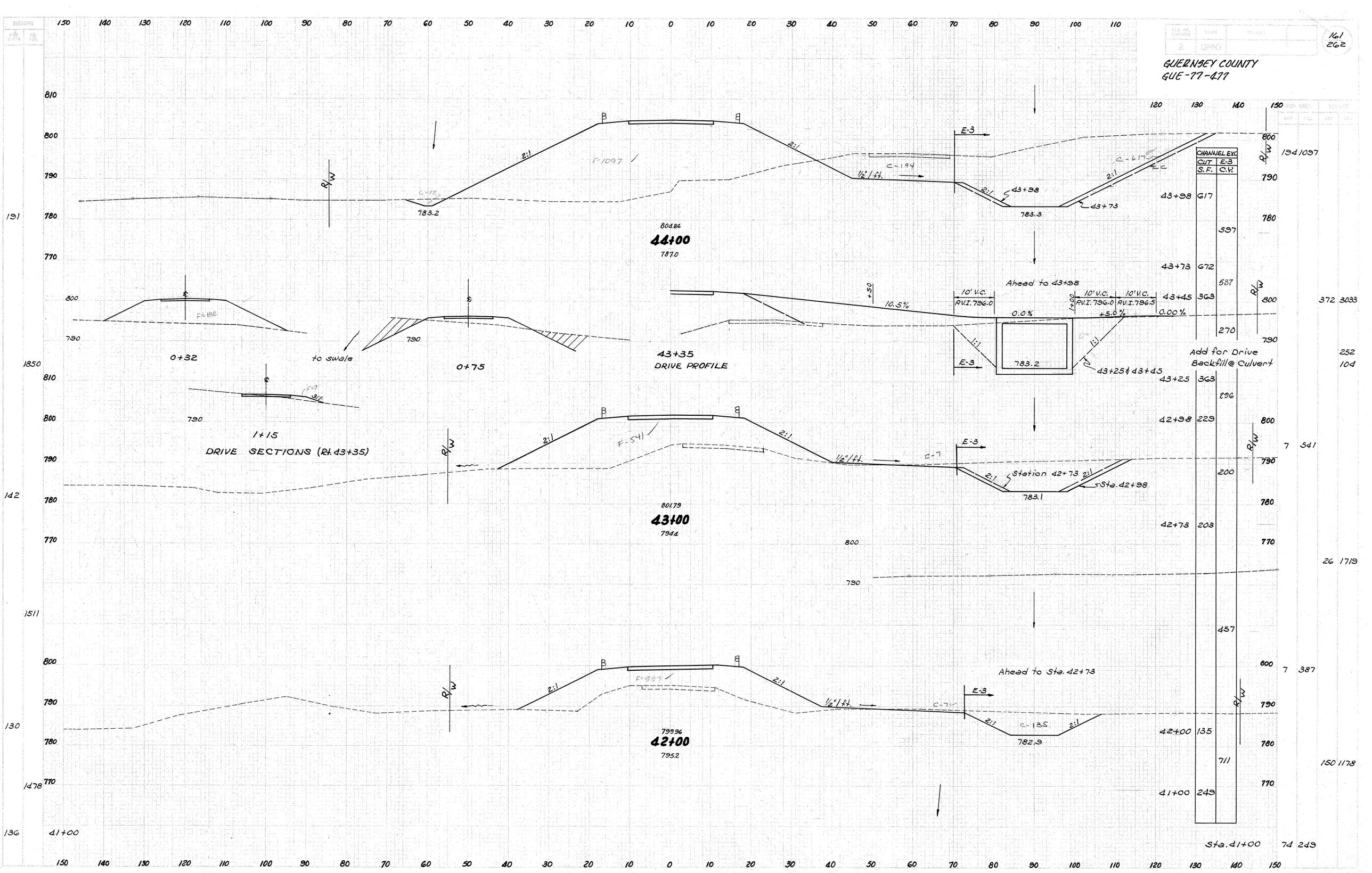
19+50 to 21+00 C.R. 52 RELOC. Nº 3


SEEDING
END WIDTH
SQ YDS.
END AREA
CUT
FILL
VOLUME
CUT
FILL
26+25
(This Section for Earthwork only)
807.44
26+00
797.6
25+25 End Sod
804.07
25+00
797.1
F-307
795.5
794.9
D.R.
F-711
802.84
24+00
789.4
23+75 - Begin Sod
787.3
788.0
Additional Seeding Lt & Rt. Sta. 23+39
DRAINAGE STRUCTURE STA.
23+39 C.R.52 RELOC. No 3
12'-6"x7'-11" Sec. ℞ Pipe-Arch
See Sht. 172 for Details
Channel Embankment
(from Sht. No 172)
F-857
803.83
23+00
787.7
787.9
F-811
805.19
22+49
790.4
787.9
791.5
0 Cut & fill for undesirable material - 22+50
F-385
807.04
22+00
798.9
797.6
Add for excavation of undesirable material
(Sta. 20+80 to Sta. 22+50)
F-280
809.47
21+50
803.8
798.0
Undesirable material to be excavated and wasted
R/W
101' Rt.
21+00
GUERNSEY COUNTY
GUE-77-4.77
157
262
21+50 to 26+00 C.R.52 RELOC. No 3


SEEDING
END WIDTH
SQ YDS
END AREA
CUT
FILL
VOLUME
CUT
FILL
40+50 End Sod
C=1,856
838.11
40+50
859.0
836.61
40+00
858.5
39+25 End Type 1 P.G. & Begin Sod
C=715
833.55
39+00
843.9
38+50-Begin Type 1 P.G.
Drive @ 7.5%
38+25 End Type 1 P.G. & Begin Sod
830.93
38+35
833.9
829.21
38+00
828.6
823.11
37+00
810.7
This Sec. for Earthwork Only
Drive X-Sec. 36+00, 45' Lt.
Drive X-Sec. 36+00, 108' Lt.
Add for Drive 36+00 Lt.
12% Drive Profile
35+50 Begin Dumped Rock
816.51
36+00
802.4
Barn
Add for Dr. 38+35 Lt.
X-Sec. Field Drive - 38+35, 29' Lt.
36+00 to 40+50 C.R. 52 RELOC. No. 3
GUERNSEY COUNTY
GUE-77-4.77
158
262


SEEDING
END WIDTH
SQ YDS.
END AREA
VOLUME
CUT
FILL
CUT
FILL
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80
860
850
840
830
820
R/W
β
2:1
3:1
1:1
F=745
C=72
C=2
3:1
Sod
845.8
851.61
45+00
841.7
(78)
(1078)
(132) (745)
(446) (4080)
F=1,458
C=37
C=38
C=41
24:1
840.0
848.61
44+00
831.0
(116)
(109) (1458)
(283) (3589)
F=480
C=4
C=30
C=40
839.0
845.61
43+00
836.5
(1000)
(64)
(44) (480)
(802) (889)
C=389
838.5
842.61
42+00
845.1
(750)
(71)
(389) (0)
(2137) (0)
C=765
837.1
838.0
839.61
41+00
850.4
(828)
(78)
(544)
(118)
40+50
R/W
77' Rt.
(765) (0)
(2427) (0)
(1856) (0)
GUERNSEY COUNTY
GUE-77-4.77
159
262
41+00 to 45+00 C.R. 52 RELOC. No 3


GUERNSEY COUNTY
GUE.-77-4.77
160
262
CHANNEL EXC.
CUT E-3
S.F. C.Y.
R/W
R/W 140' Rt.
E-3
3:1
2:1
1/2"/ft.
799.33
41+00
797.5
782.7
End Dumped Rock 40+50
T.B.
799.19
40+50
798.68
Dumped Rock Protect to 3' Depth.
18"
Begin Dumped Rock 40+03
40+32.60
BEGIN PAVEMENT @ STA. 40+32.60
Begin Channel 40+03
799.14
40+32.6 EAST END BRIDGE
799.08
40+03
BEGIN WORK @ STA. 40+03
40+32.6 to 41+00 C.R. 102 RELOCN.


GUERNSEY COUNTY
GUE-77-4.77
161
262
44+00
804.86
787.0
43+35
DRIVE PROFILE
43+00
801.79
794.1
42+00
799.96
795.2
0+32
to swale
0+75
1+15
DRIVE SECTIONS (Rt. 43+35)
Ahead to 43+98
Ahead to Sta. 42+73
Station 42+73
Sta. 42+98
Add for Drive
Backfill @ Culvert
43+25 & 43+45
783.2
783.3
783.1
782.9
10.5%
0.0%
+5.0%
0.00%
10' V.C.
P.V.I. 796.0
P.V.I. 796.5
CHANNEL EXC
CUT S.F.
E-3 C.Y.
43+98 617
597
43+73 672
537
43+45 363
270
43+25 363
296
42+98 229
200
42+73 203
457
42+00 135
711
41+00 249
Sta. 41+00
42+00 to 44+00 C.R. 102 RELOCN.

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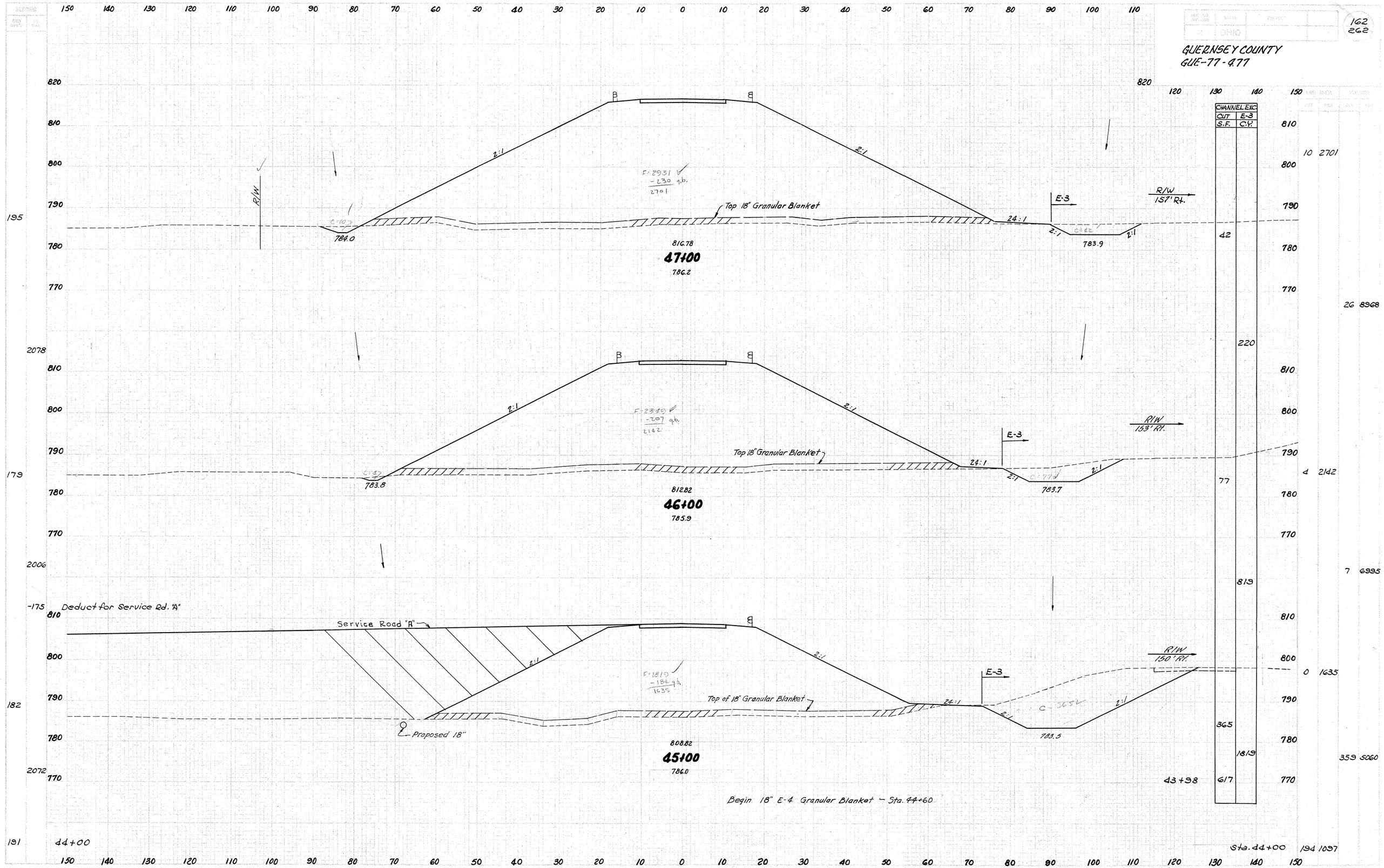
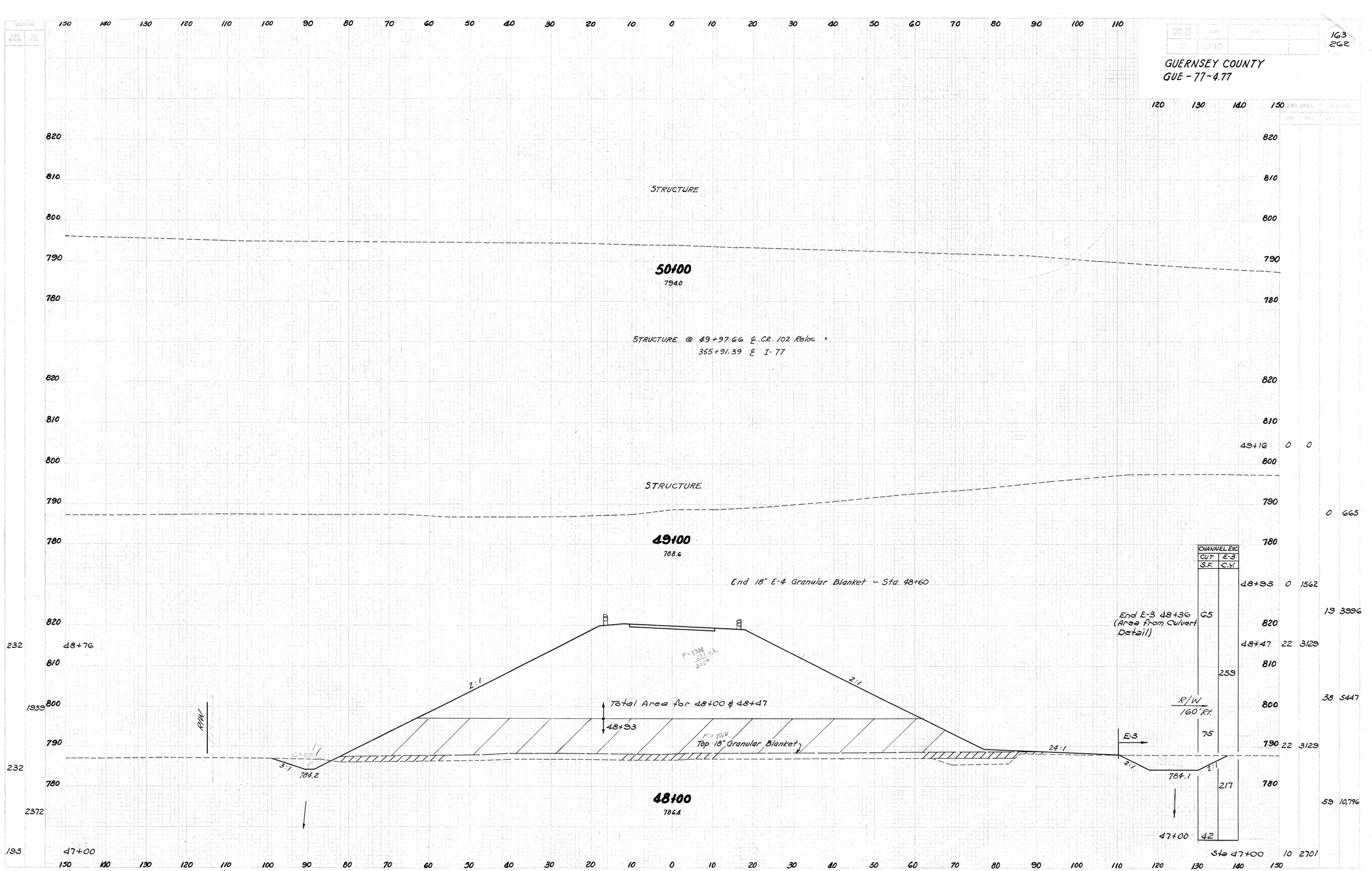
262

GUERNSEY COUNTY
GUE-77-4.77



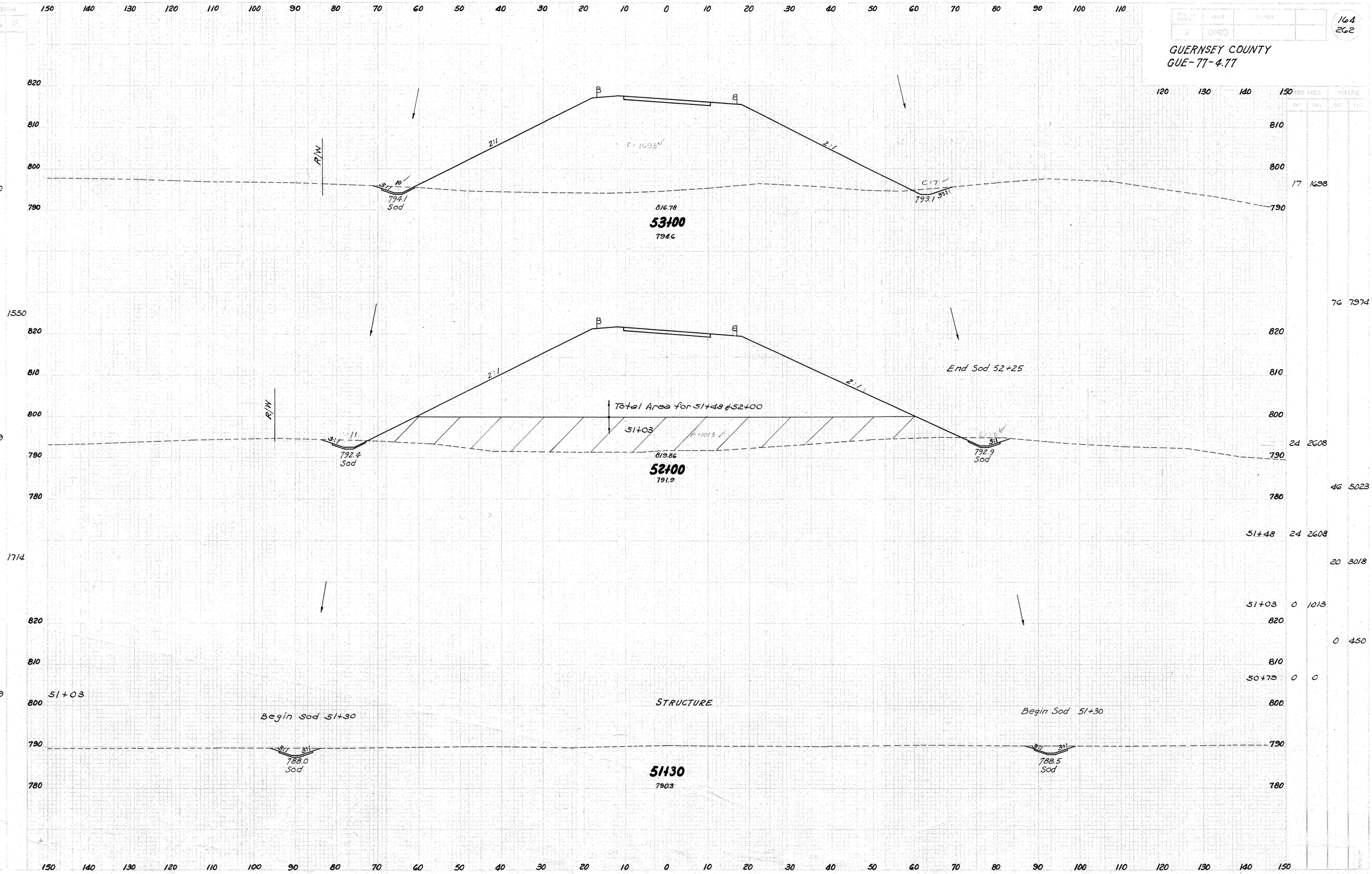
45+00 to 47+00 C.R.102 RELOCN.



48+00 to 50+00 C.R.102 RELOCN.

164
262

GUERNSEY COUNTY
GUE-77-4.77



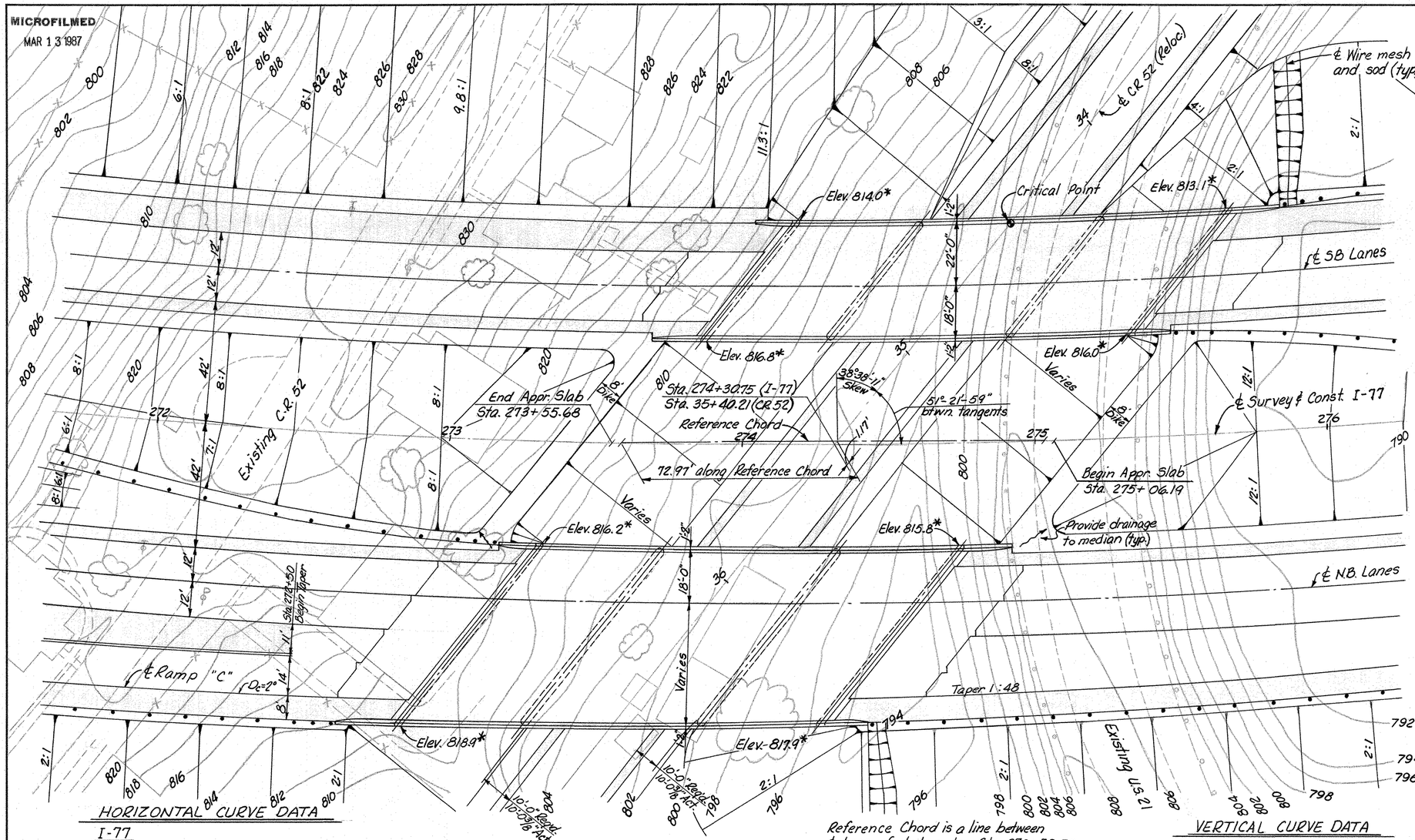
51+00 to 53+00 C.R.102 RELOCN.

MICROFILMED
MAR 1 3 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

193/268

GUERNSEY COUNTY
GUE-77-4.77



PLAN

Elevations marked with an asterisk are at top of spill-thru slope at face of abutment.

Reference Chord is a line between ℄ brgs. of abutments, Sta. 273+58.50 to Sta. 275+03.25

PROPOSED STRUCTURES - 2

TYPE: Continuous steel beam with reinforced concrete deck and substructure.
SPANS: 42'-3" ~ 60'-3 ~ 42'-3" c/c brgs. along ℄ I-77
ROADWAY: S. Bound - 40'-0" f/f concrete parapets with alum. railing and 1'-0" curbs
N. Bound - Variable f/f concrete parapets with alum. railing and 1'-0" curbs
LOADING: CF-2000 (1957) Adequate for AASHO alternate loading
WEARING SURFACE: 1" monolithic concrete
SKEW: 38°-38'-11" left forward from reference chord
ALIGNMENT: 2° 00' curve left.
APPROACH SLABS: 25' long; see AS-1-54
SUPERELEVATION: 0.064 ft/ft.

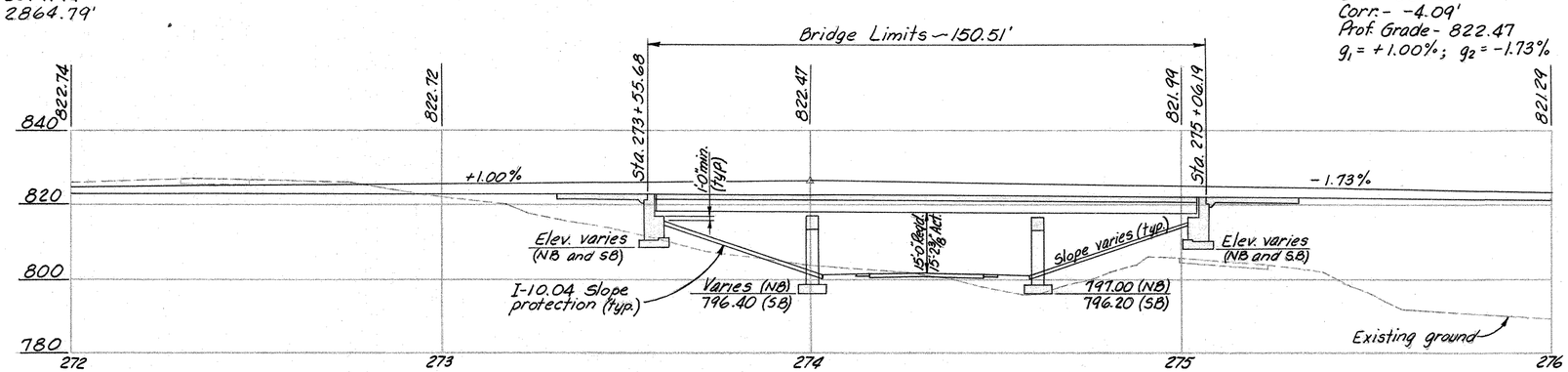
HORIZONTAL CURVE DATA

I-77
P.I. - 264 + 94.03
Δ - 56°-23'-20"
D_c - 2°-00'-00"
L_c - 2519.44'
R - 2864.79'

VERTICAL CURVE DATA

I-77
PVI - 274+00.00
VC - 1200'
Elev. - 826.56
Corr. - -4.09'
Prof. Grade - 822.47
g_1 = +1.00%; g_2 = -1.73%

C.R. 52
PVI - 32+25
VC - 450'
Elev. - 799.65
Corr. - 2.59'
Prof. Grade - 802.24
g_1 = -4.00%; g_2 = +0.60%



PROFILE (along ℄ I-77)

(Piling not shown)

1975 ADT Traffic
Ramp "C" - 2160
NB Lanes - 5280
SB Lanes - 5280

All piles shall be 10BP42 steel piles.
Estimated average pay lengths are:

	SB Lanes	NB Lanes
South Abut.	11-15'	14'
Pier #1	12-24'	none
Pier #2	46'	46'
North Abut.	59-62'	55-70'

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

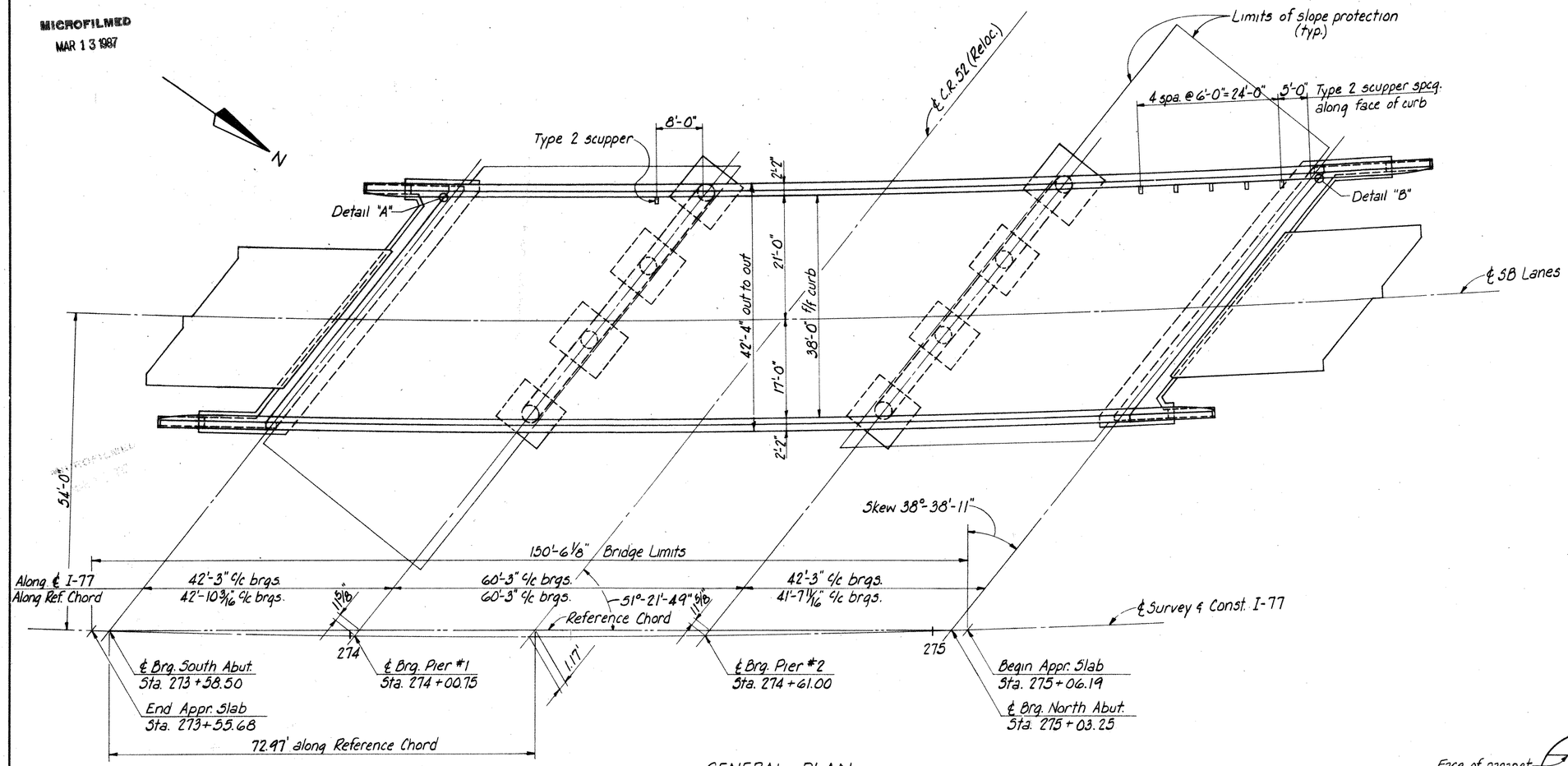
SITE PLAN
BRIDGE Nº GUE-77-0517 L&R
I-77 OVER C.R. 52 (RELOC.)
GUERNSEY COUNTY
STA. 273+55.68
STA. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HT	HT	Hennigan	A.N.A.	TLU	12-23-64	

MICROFILMED
MAR 13 1987

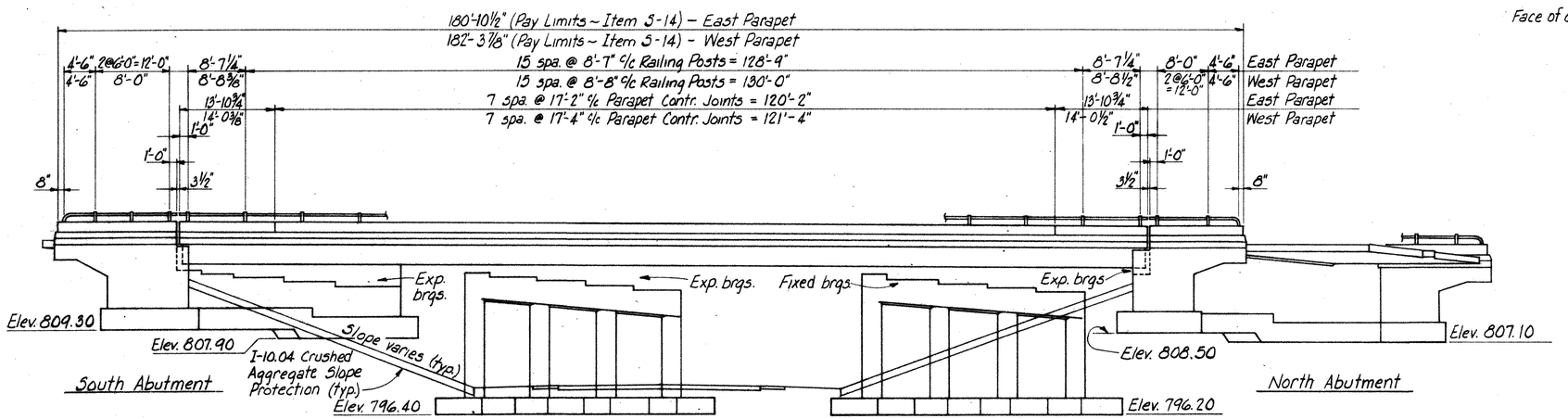
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

GUERNSEY COUNTY
GUE-77-4.77

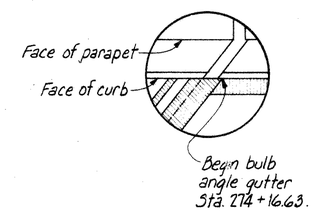


GENERAL PLAN

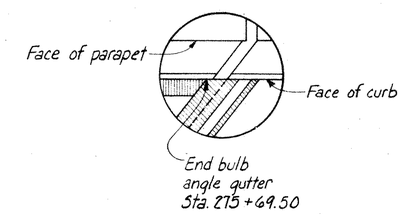
For pavement elevations see Sheet Nº 32 of Roadway Plans.



GENERAL ELEVATION
(Piling not shown)



DETAIL "A"



DETAIL "B"

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

GENERAL PLAN & ELEVATION

BRIDGE Nº GUE-77-0517 L
I-77 OVER C.R. 52 (RELOC.)
STA. 273+55.68
STA. 275+06.19

GUERNSEY COUNTY

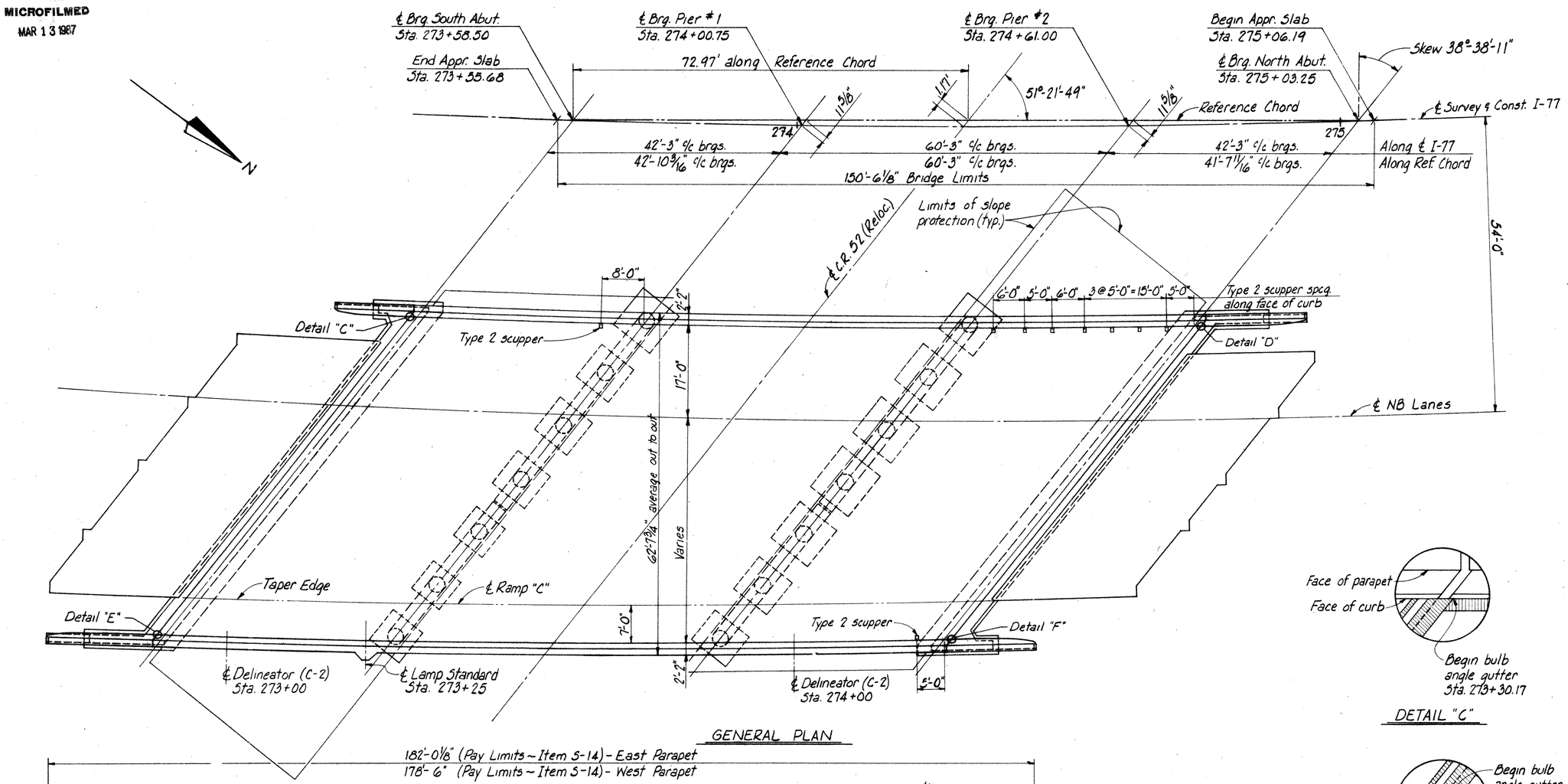
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	HT		HT	TZU	12-23-69	

MICROFILMED
MAR 1 3 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

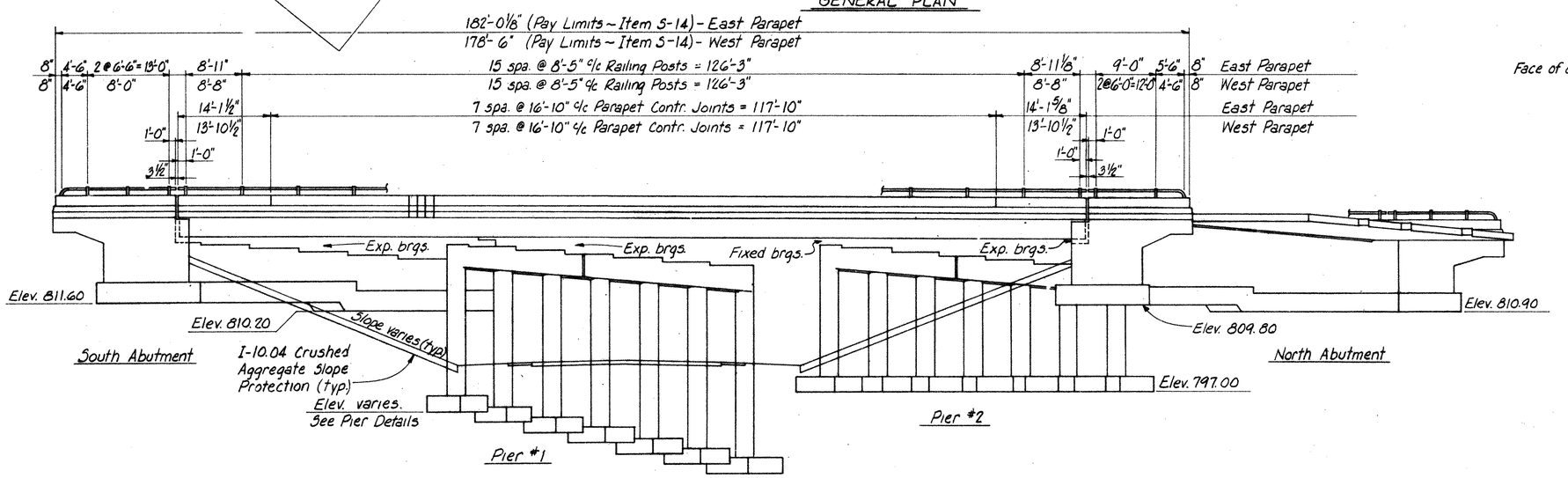
195/262

GUERNSEY COUNTY
GUE-77-4.77



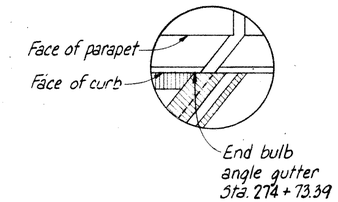
GENERAL PLAN

For pavement offsets and elevations see Sheet Nº 32 of Roadway Plans.

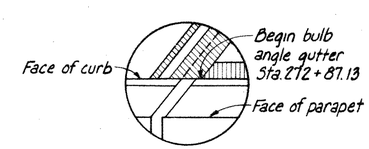


GENERAL ELEVATION
(Piling not shown)

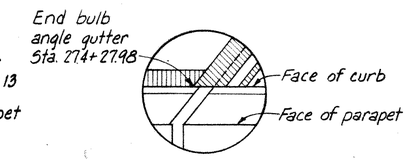
DETAIL "C"



DETAIL "D"



DETAIL "E"



DETAIL "F"

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

GENERAL PLAN & ELEVATION

BRIDGE Nº GUE-77-0517 R
I-77 OVER C.R. 52 (RELOC.)
STA. 273+55.68
STA. 275+06.19

GUERNSEY COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	HT		HT	TZU	12-23-64	

MICROFILMED
MAR 13 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

196
262

GUERNSEY COUNTY
GUE-77-4.77

Porous backfill as shown shall be placed between the inside faces of the wingwalls and shall extend vertically to the bottom of the approach slab or the stabilized shoulder. Excavation therefor, in excess of that required for the construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.

* Elevations marked with an asterisk are at the top of 2" edge bar at the face of curb.

Reinforcing Steel Location:

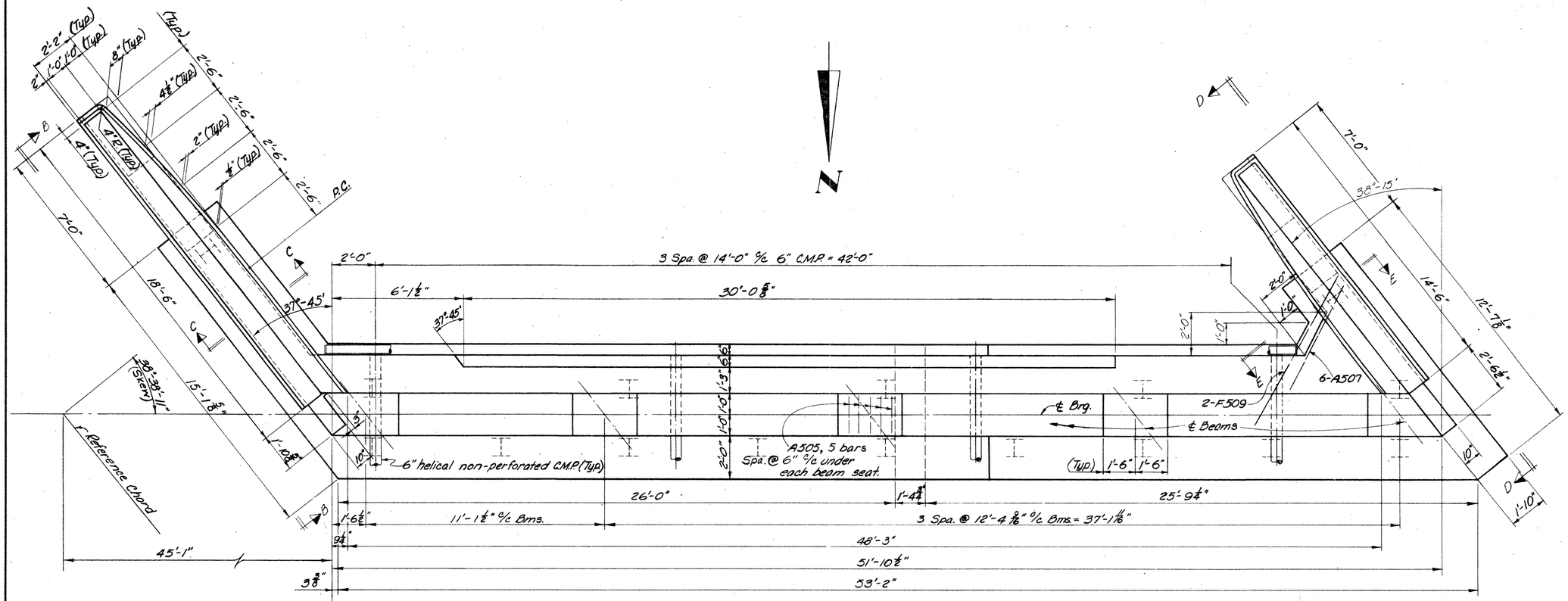
N.S. indicates near side
F.S. indicates far side

Drainage Pipes:
All 6" ϕ helical CMP shall conform with Spec. Sec. M-6.4(h).

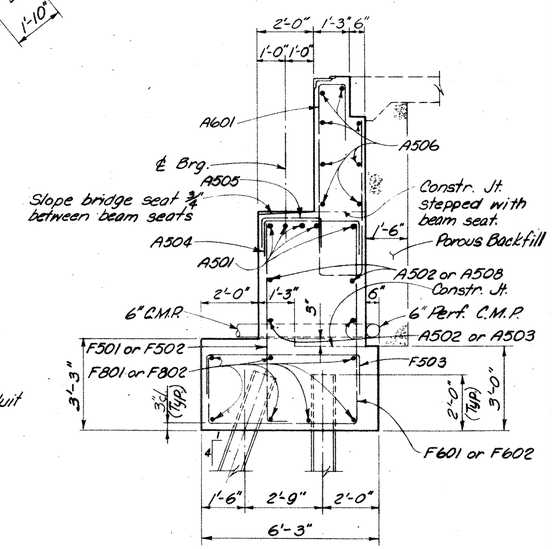
6" ϕ helical non-perforated CMP shown through the abutment shall extend into the crushed aggregate slope protection.

Concrete parapets are included with Item S-14 for payment.

For additional details, see sheet 197



All piles shall be 10 BP 42 steel piles
Entire front row and rear wingwall piles shall be battered.



ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SOUTH ABUTMENT-SOUTH BOUND
BRIDGE Nº GUE-77-0517 L
I-77 OVER C.R. 52 (Reloc)
GUERNSEY COUNTY — Sta. 273+55.68 Sta. 275+06.19

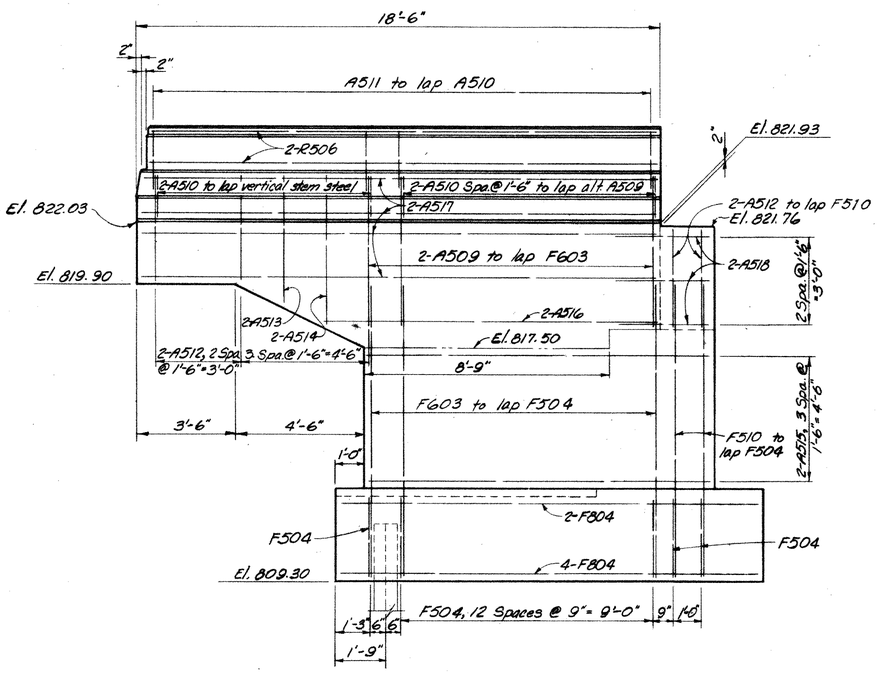
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
PWE	Hennigan		HT	TLU	12-23-64	

MICROFILMED
MAR 13 1987

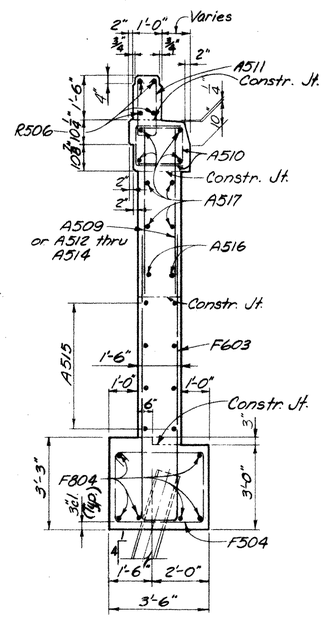
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

197
262

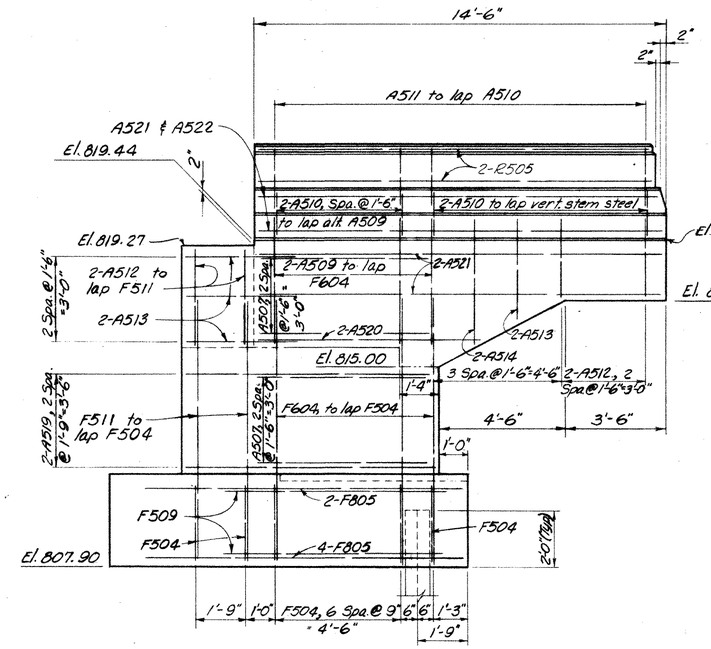
GUERNSEY COUNTY
GUE-77-4.77



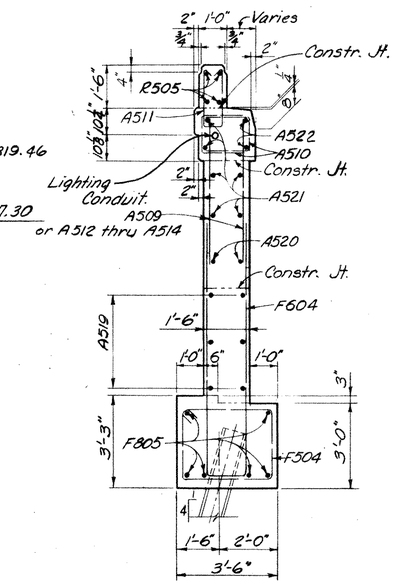
VIEW B-B



SECTION C-C



VIEW D-D



SECTION E-E

For notes and location of sections, see sheet 196

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SOUTH ABUTMENT - SOUTH BOUND
BRIDGE No. GUE-77-0517 L
I-77 OVER C.R. 52 (Reloc.)

GUERNSEY COUNTY Sta. 273+58.68 Sta. 275+06.19

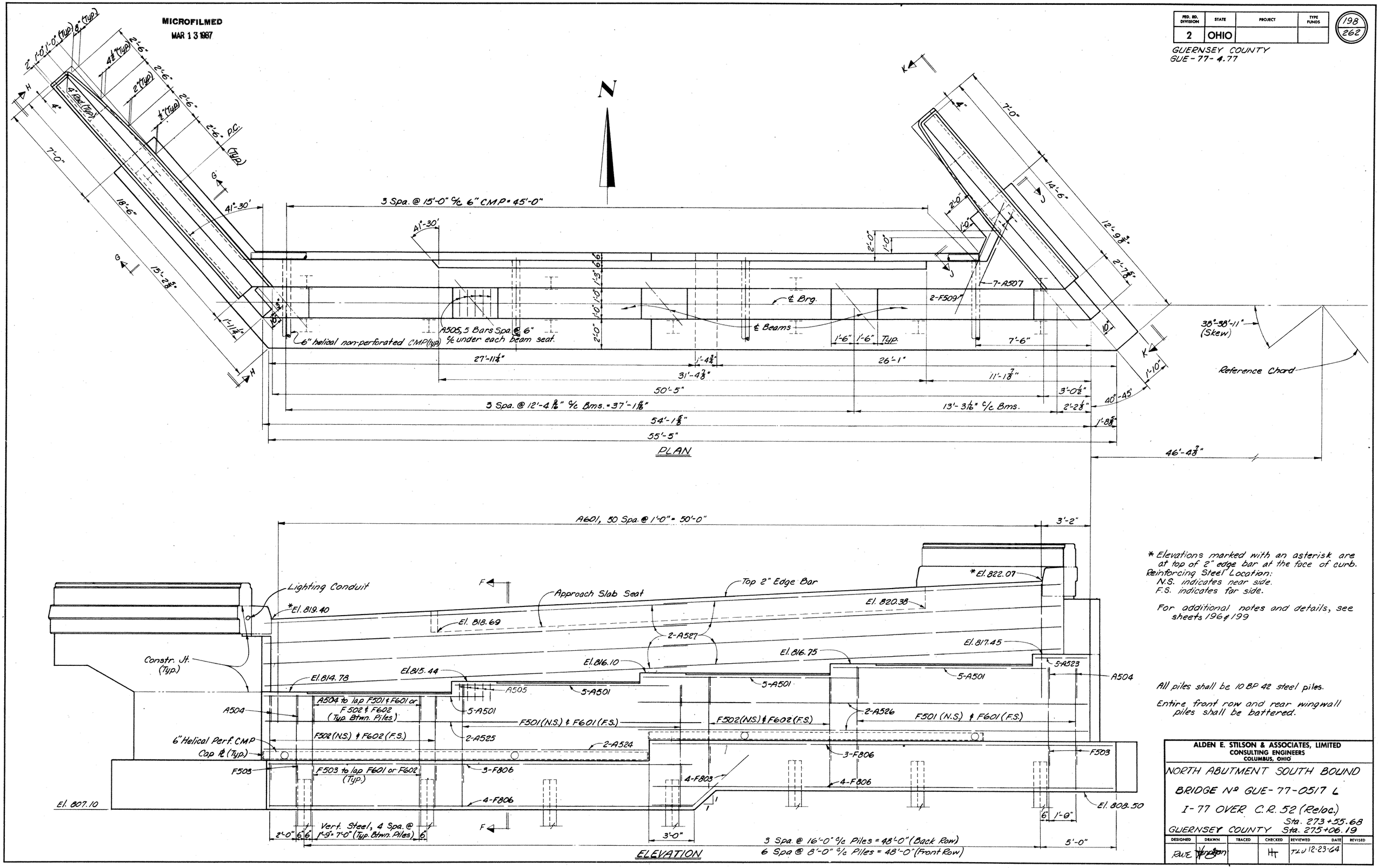
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	[illegible]		HT	TLD	12-23-64	

MICROFILMED
MAR 13 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

198
262

GUERNSEY COUNTY
GUE-77-4.77



* Elevations marked with an asterisk are at top of 2" edge bar at the face of curb.
Reinforcing Steel Location:
N.S. indicates near side.
F.S. indicates far side.

For additional notes and details, see sheets 196 & 199

All piles shall be 10 BP 42 steel piles.

Entire front row and rear wingwall piles shall be battered.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

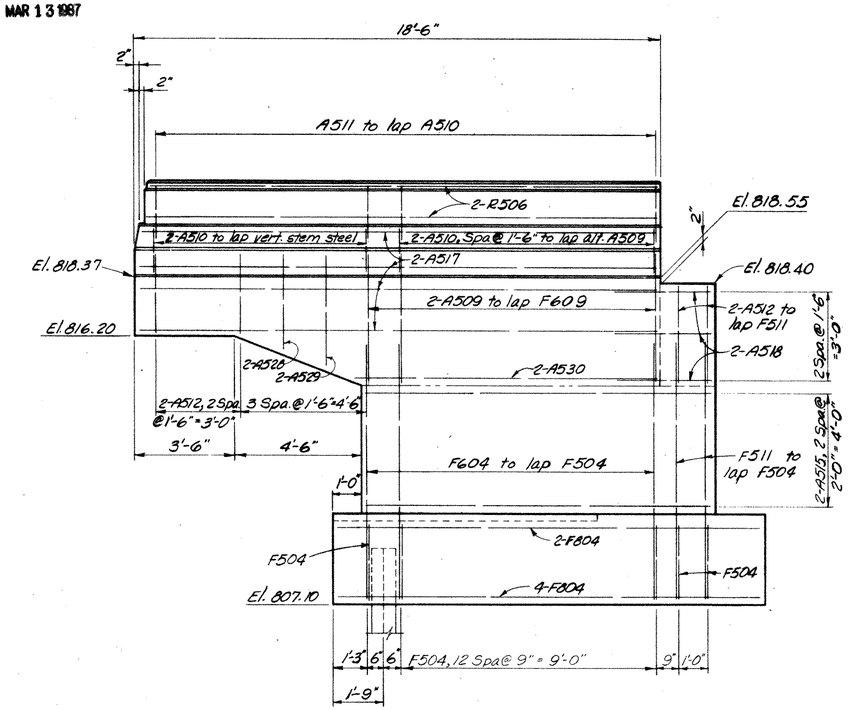
NORTH ABUTMENT SOUTH BOUND
BRIDGE Nº GUE-77-0517 L
I-77 OVER C.R. 52 (Reloc.)
Sta. 273+55.68
GUERNSEY COUNTY Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	Henson		HT	TLU	12-23-64	

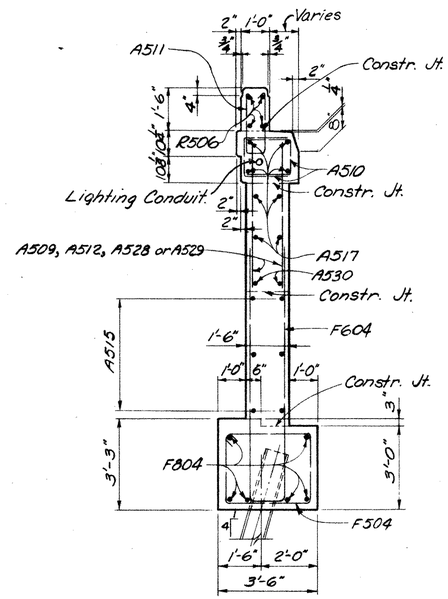
MICROFILMED
MAR 13 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

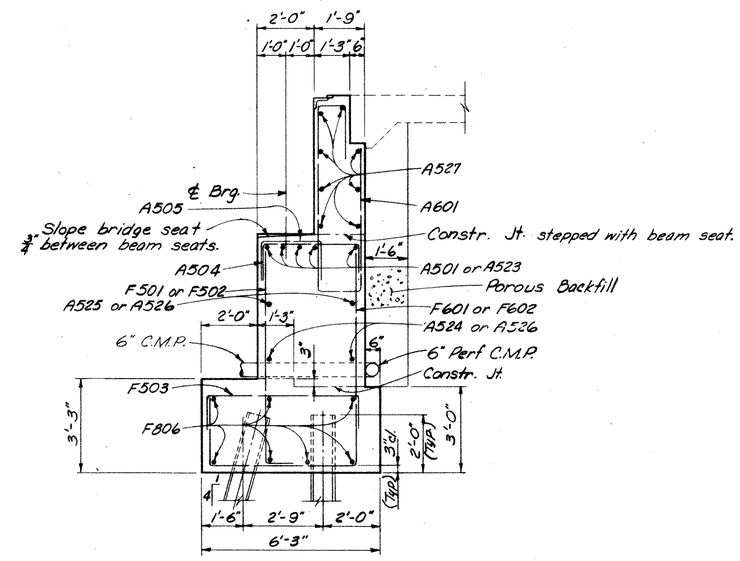
GUERNSEY COUNTY
GUE-77-4.77



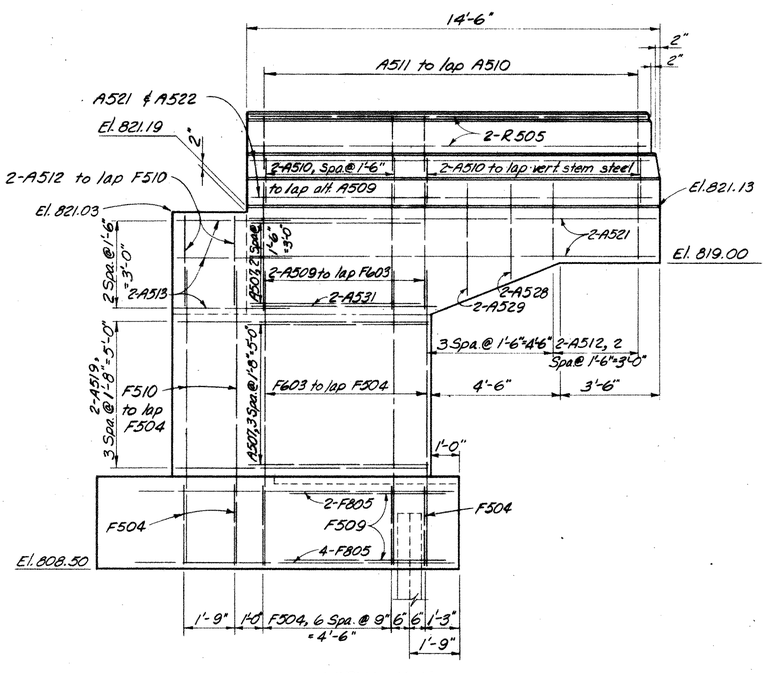
VIEW H-H



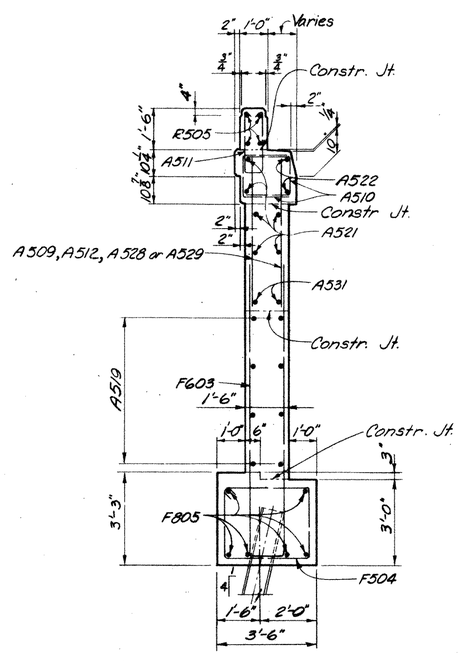
SECTION G-G



SECTION F-F



VIEW K-K



SECTION J-J

For additional notes, see sheet 196
For locations of sections, see sheet 198

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

NORTH ABUTMENT - SOUTH BOUND
BRIDGE Nº GUE-77-0517 L
I-77 OVER C.R. 52 (Reloc.)
Sta. 273+55.68
Sta. 275+06.19
GUERNSEY COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	Hernigan		HT	TLW	12-23-64	

MICROFILMED
MAR 13 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

200
262

GUERNSEY COUNTY
GUE-77-4.77

NOTES:

* Elevations marked with an asterisk are at top of the 2" edge bar at the face of curb.

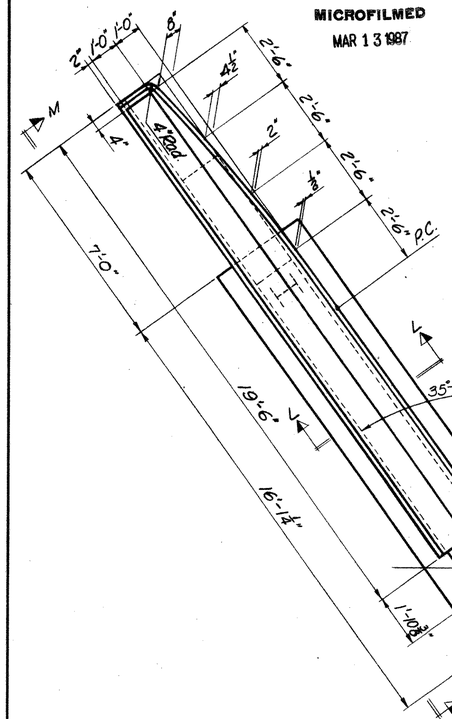
The top of the backwall shall conform to the crown of the superstructure deck.

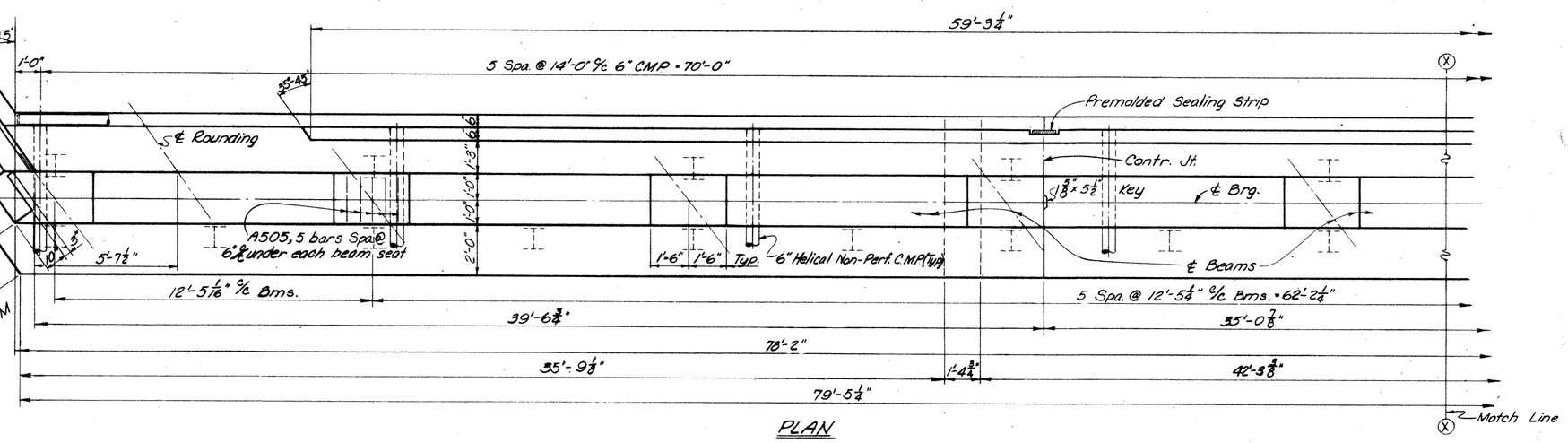
Reinforcing Steel Location:
N.S. indicates near side
F.S. indicates far side

Premolded sealing strip shall be placed in a 13" x 3/4" recess as per Item S-3. Sealing strip shall extend from top of footing to approach slab seat.

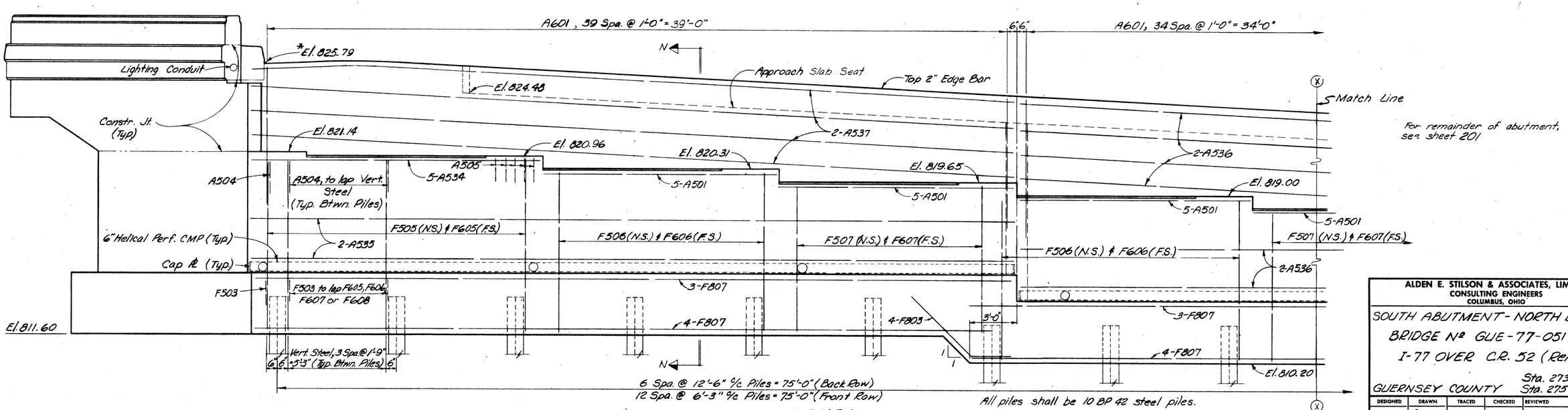
Reinforcing steel shall not extend through contraction joint.

For additional notes and details, see sheets 196 & 201





PLAN



ELEVATION

All piles shall be 10 BP 42 steel piles.
Entire front row and rear wingwall piles shall be battered.

For remainder of abutment, see sheet 201

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SOUTH ABUTMENT - NORTH BOUND
BRIDGE Nº GUE-77-0517 R
I-77 OVER C.R. 52 (Reloc.)

GUERNSEY COUNTY
Sta. 273+55.68
Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	Hennigan		HT	TLU	12-23-64	

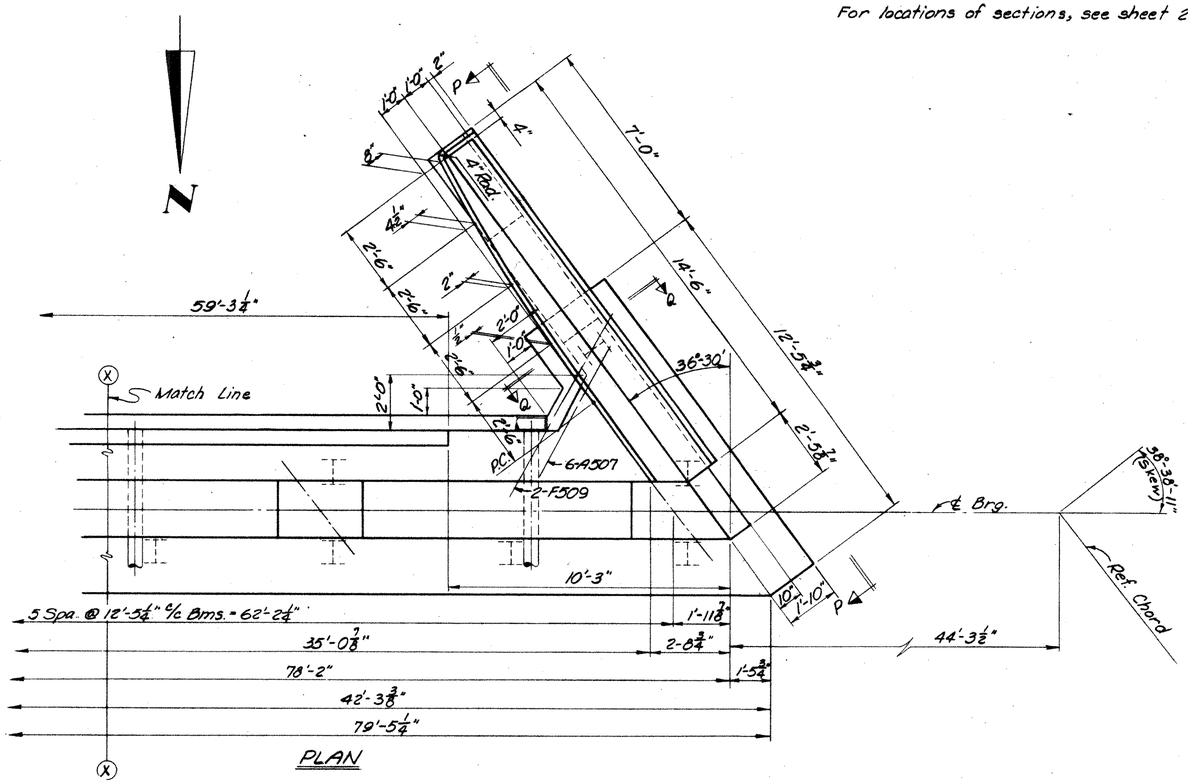
MICROFILMED
MAR 1 3 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

GUERNSEY COUNTY
GUE-77-4.77

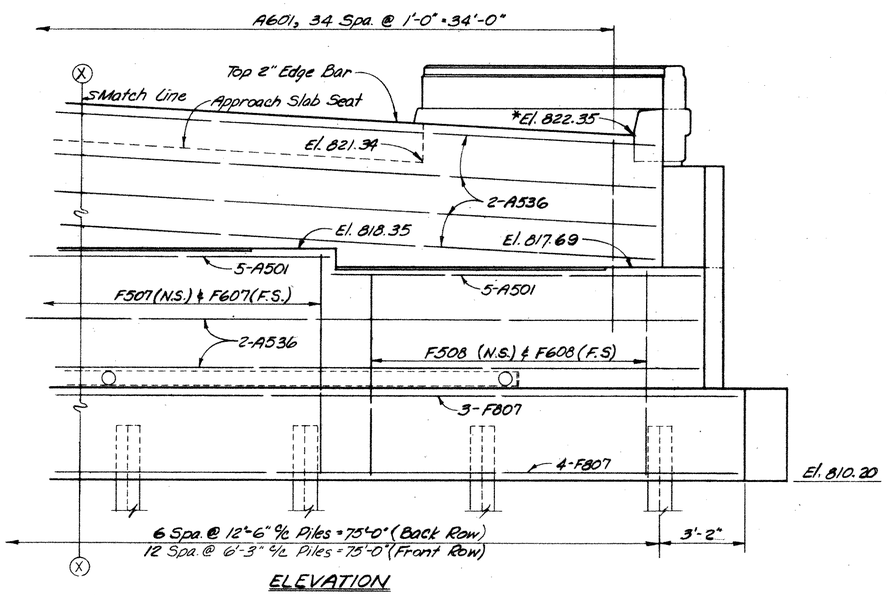
201/262

Notes:
For notes, see sheets 196 & 200
For locations of sections, see sheet 200

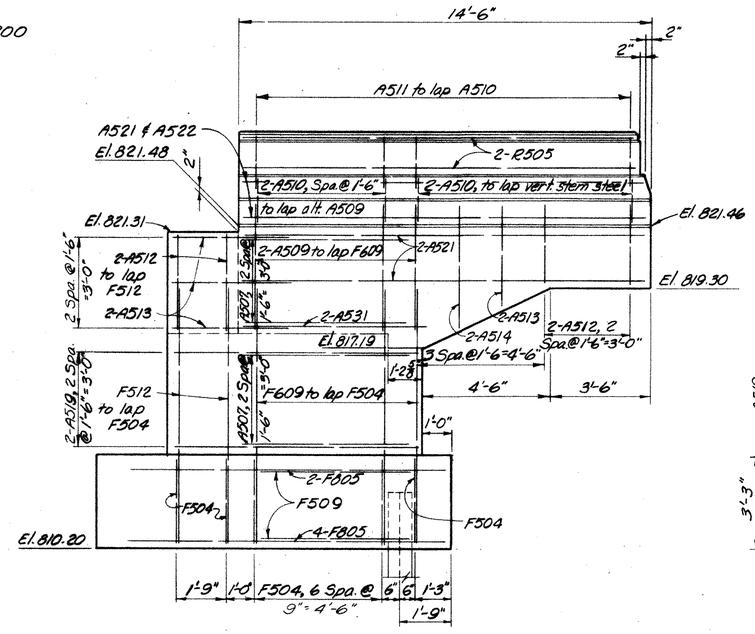


PLAN

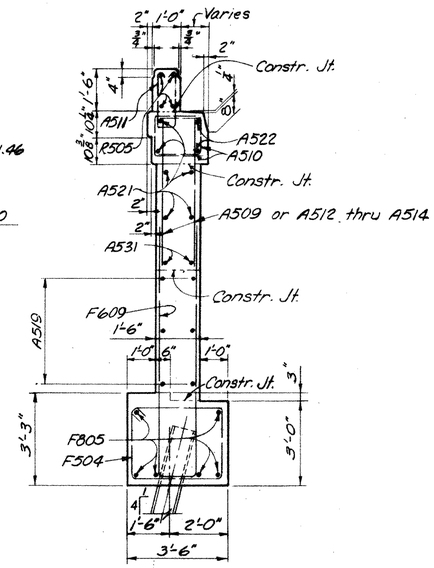
For remainder of abutment, see sheet 200



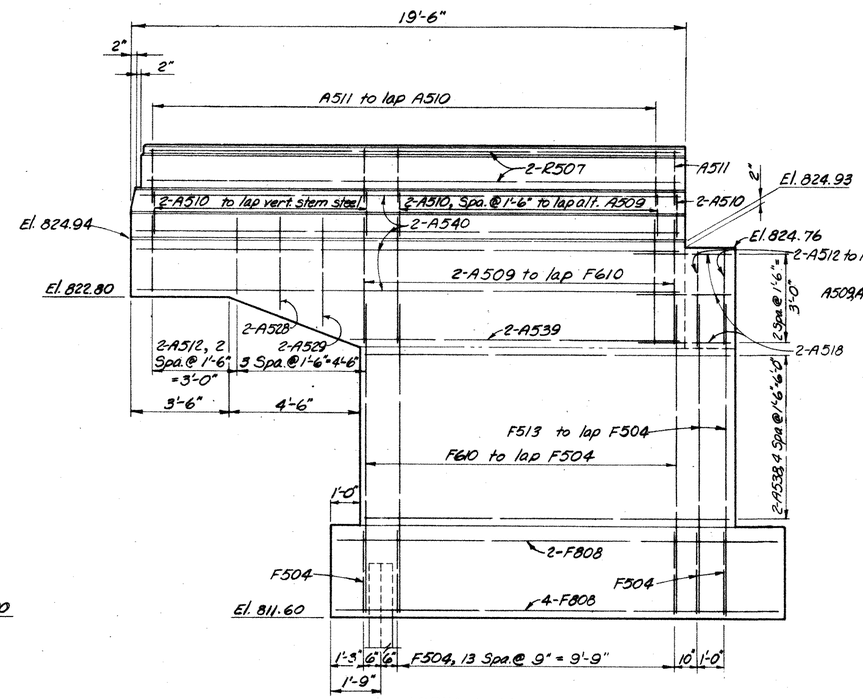
ELEVATION



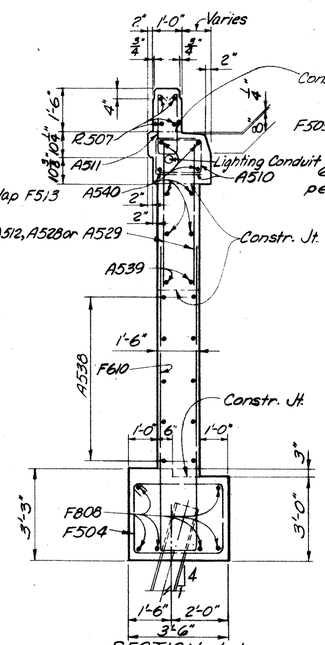
VIEW P-P



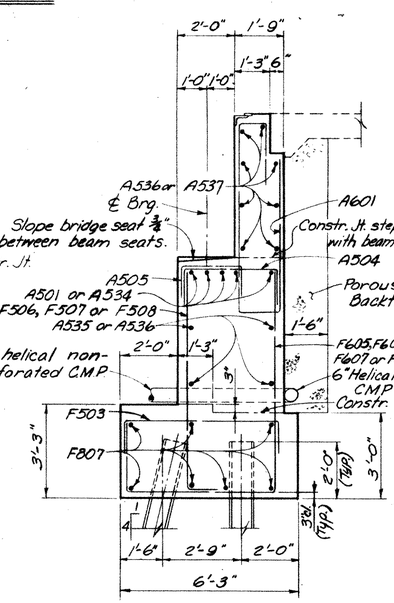
SECTION Q-Q



VIEW M-M



SECTION L-L



SECTION N-N

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SOUTH ABUTMENT - NORTH BOUND
BRIDGE No GUE-77-0517 R
I-77 OVER C.R. 52 (Reloc.)
GUERNSEY COUNTY Sta. 273+55.68 Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	[illegible]		HT	TLU	12-23-94	

MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

GUERNSEY COUNTY
GUE-77-4.77

NOTES:

Premolded sealing strip shall be placed in a 13" x ¾" recess as per Item S-3. Sealing strip shall extend from top of footing to approach slab seat.

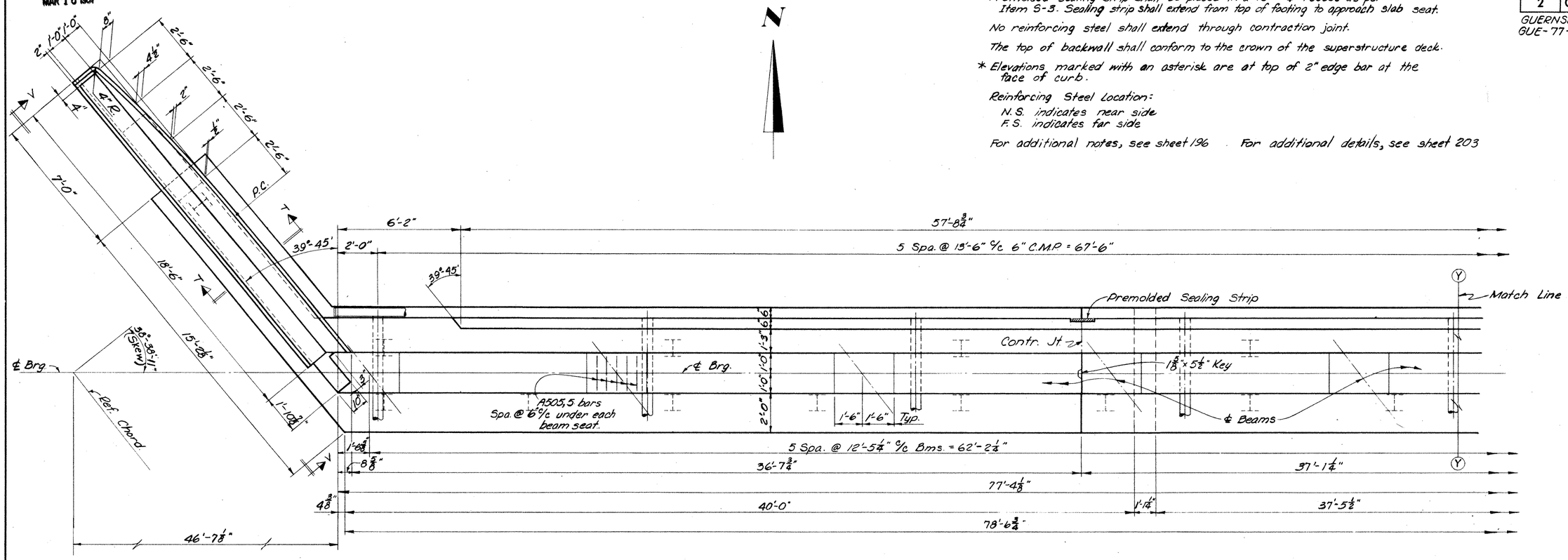
No reinforcing steel shall extend through contraction joint.

The top of backwall shall conform to the crown of the superstructure deck.

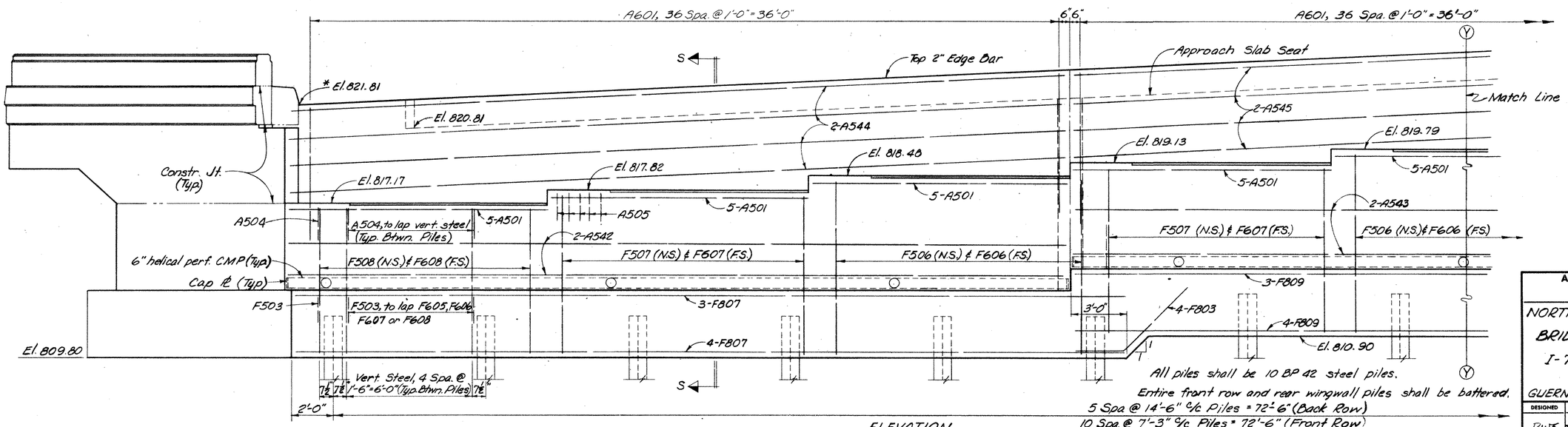
* Elevations marked with an asterisk are at top of 2" edge bar at the face of curb.

Reinforcing Steel Location:
N.S. indicates near side
F.S. indicates far side

For additional notes, see sheet 196. For additional details, see sheet 203



PLAN



ELEVATION

All piles shall be 10 BP 42 steel piles.
Entire front row and rear wingwall piles shall be battered.
5 Spa @ 14'-6" c/c Piles = 72'-6" (Back Row)
10 Spa. @ 7'-3" c/c Piles = 72'-6" (Front Row)

For remainder of abutment, see sheet 203

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

NORTH ABUTMENT-NORTH BOUND
BRIDGE Nº GUE-77-0517 R
I-77 OVER C.R. 52 (Reloc.)

GUERNSEY COUNTY — Sta. 273 + 55.68 — Sta. 275 + 06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	Henderson		HT	TLU	12-23-69	

MICROFILMED
MAR 16 1987

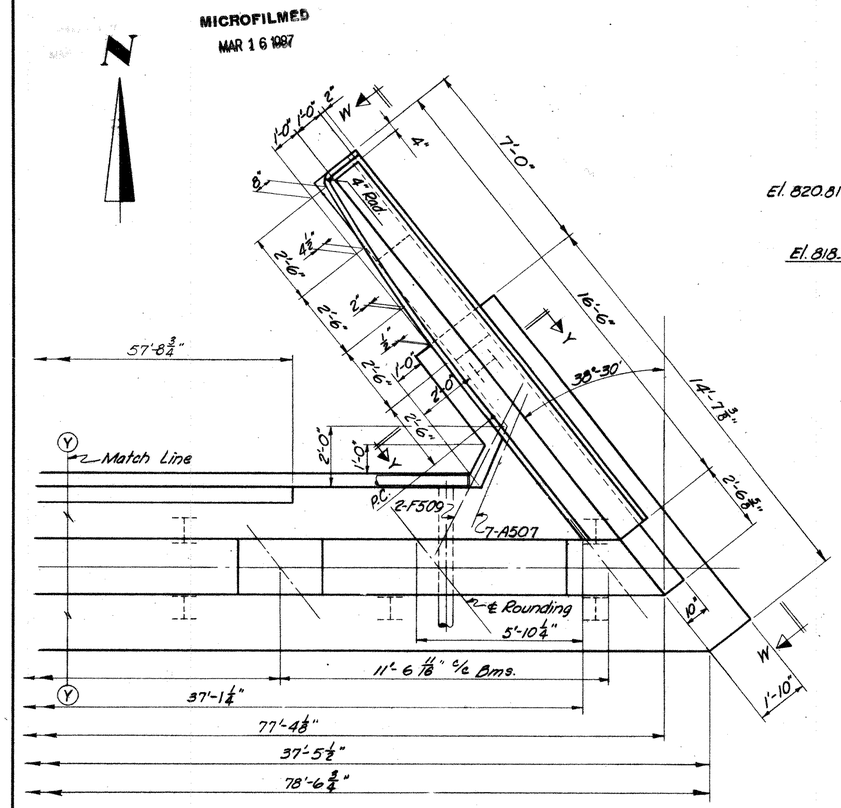
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

203/262

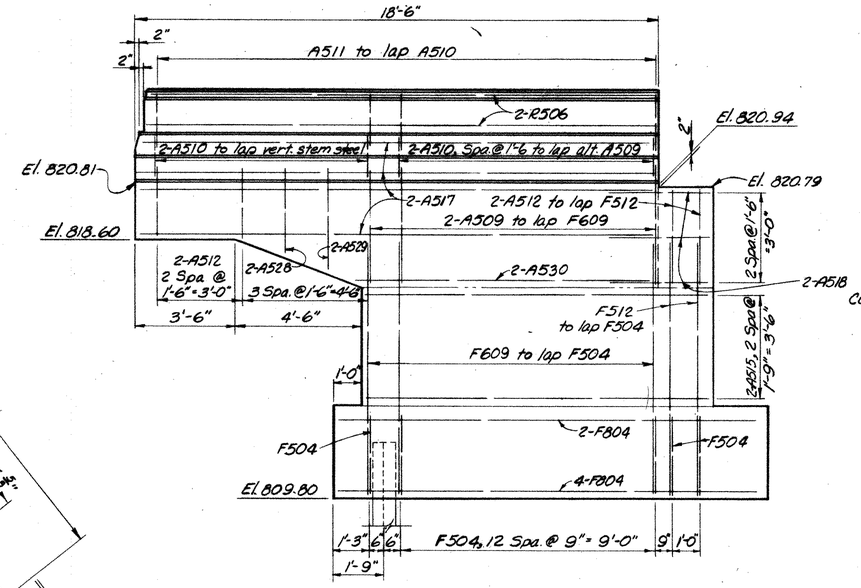
GUERNSEY COUNTY
GUE-77-4.77

For notes, see sheets 196 & 202

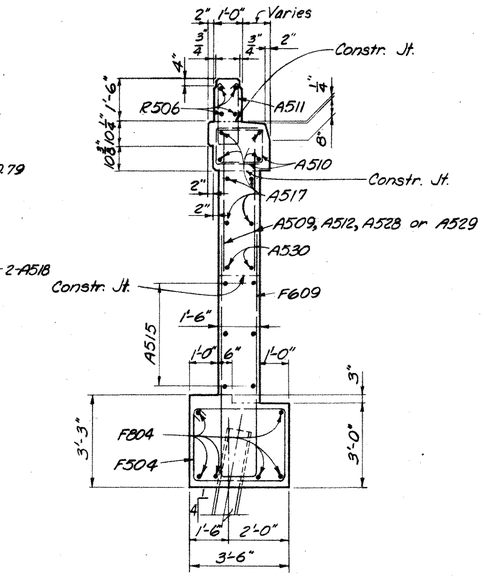
For locations of sections, see sheet 202



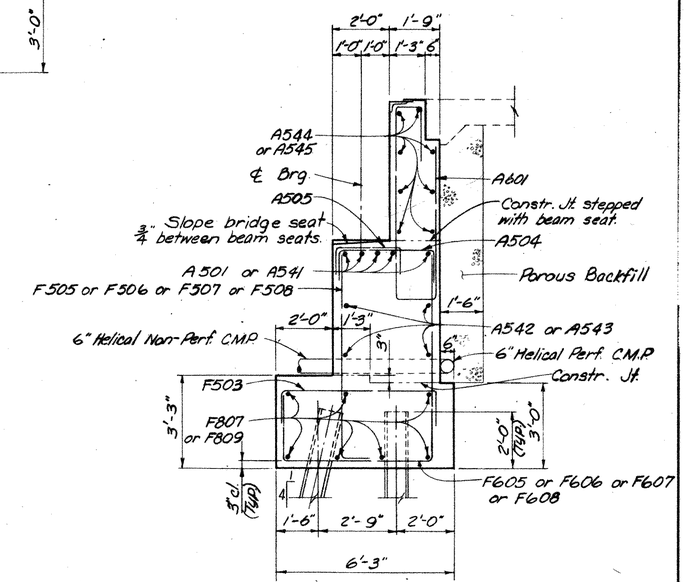
PLAN



VIEW V-V

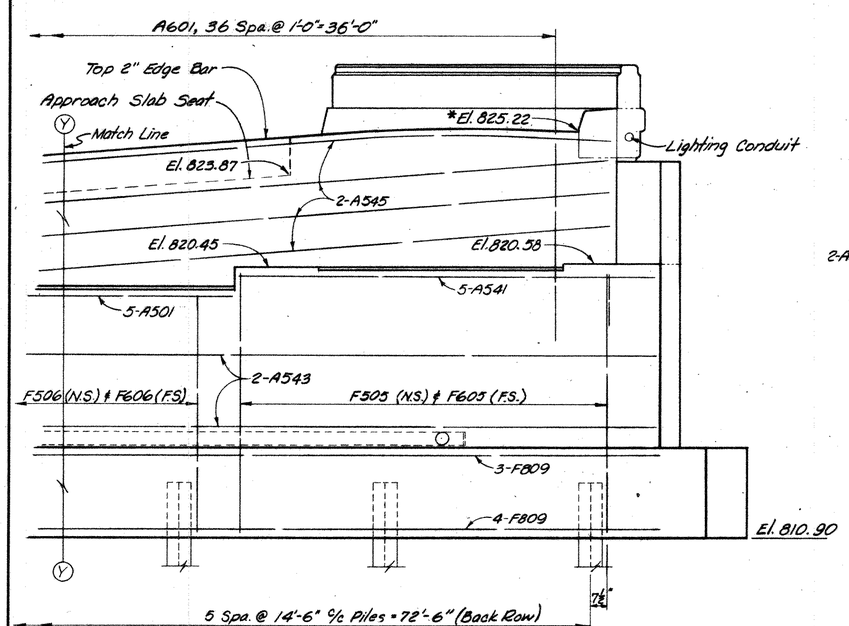


SECTION T-T

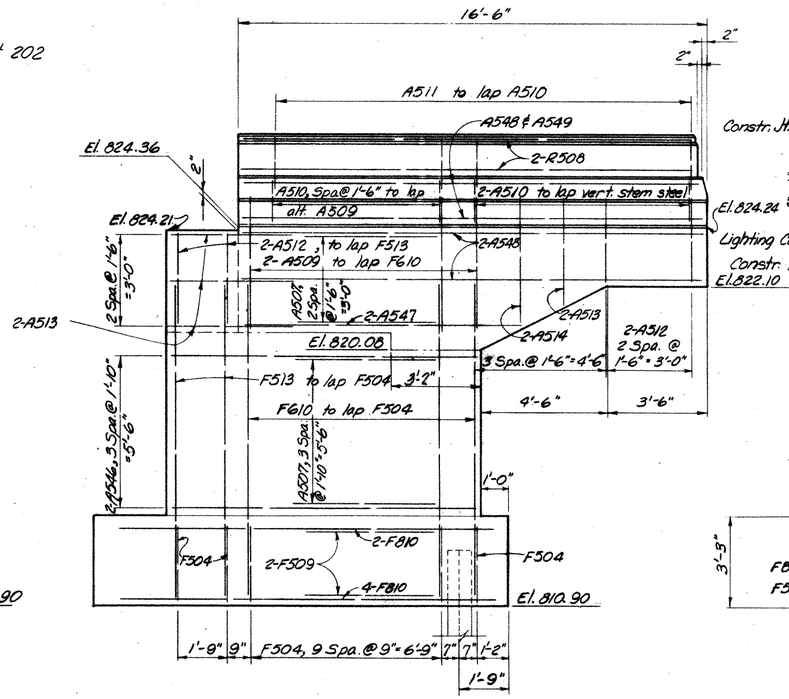


SECTION S-S

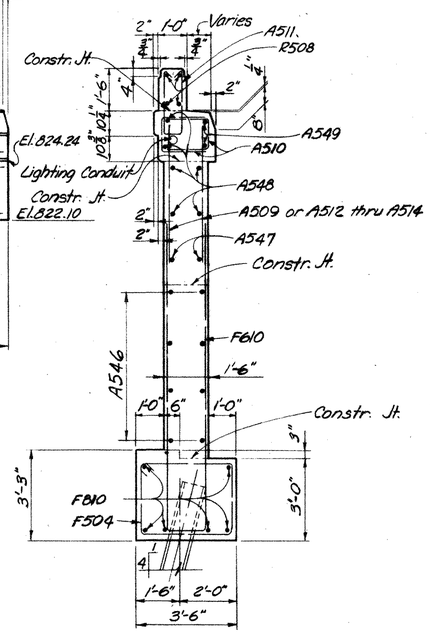
For remainder of abutment, see sheet 202



ELEVATION



VIEW W-W



SECTION Y-Y

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

NORTH ABUTMENT - NORTH BOUND
BRIDGE No. GUE-77-0517 R
I-77 OVER C.R. 52 (Reloc.)
GUERNSEY COUNTY Sta. 273+55.68 Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	Hennigan		HT	TLD	12-23-64	

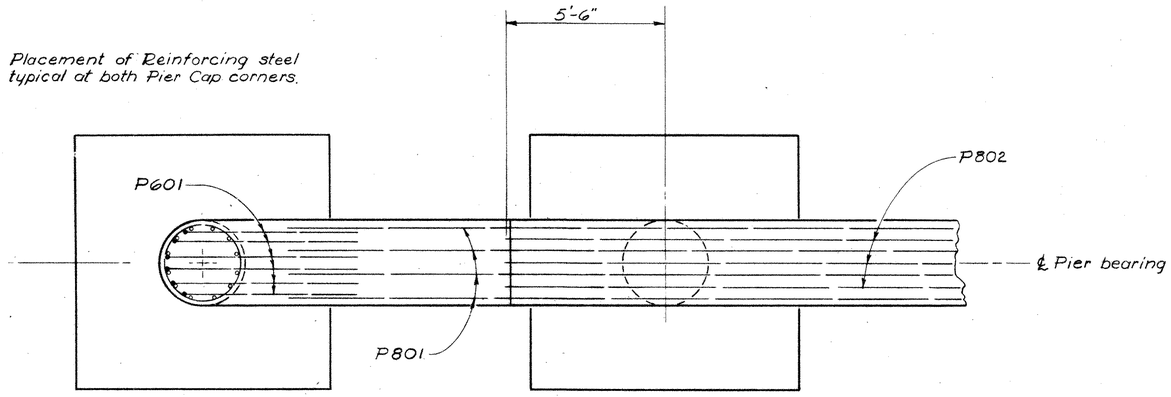
MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

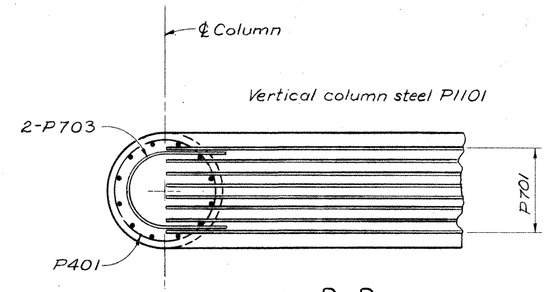
205/262

GUERNSEY COUNTY
GUE-77-4.77

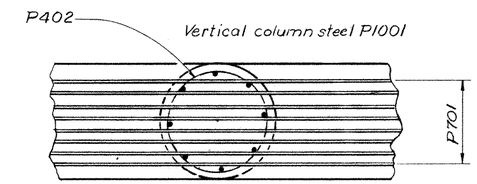
NOTE: Placement of Reinforcing steel typical at both Pier Cap corners.



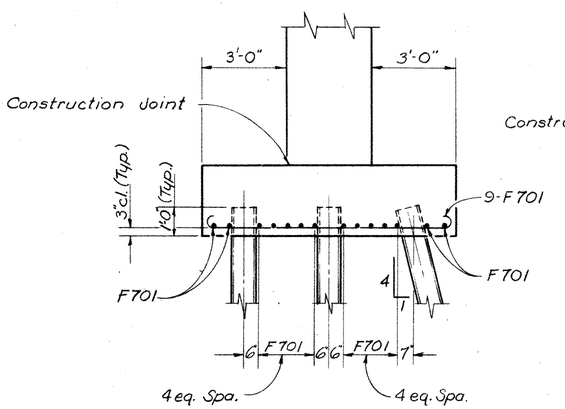
VIEW A-A



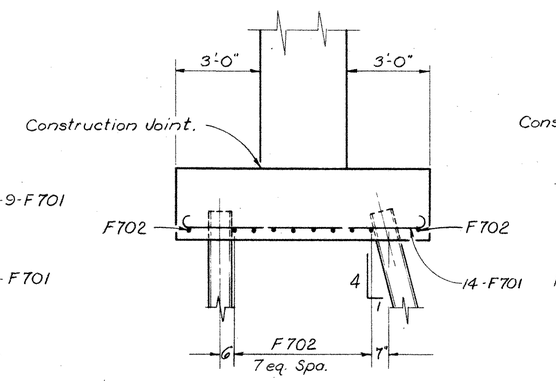
SECTION D-D



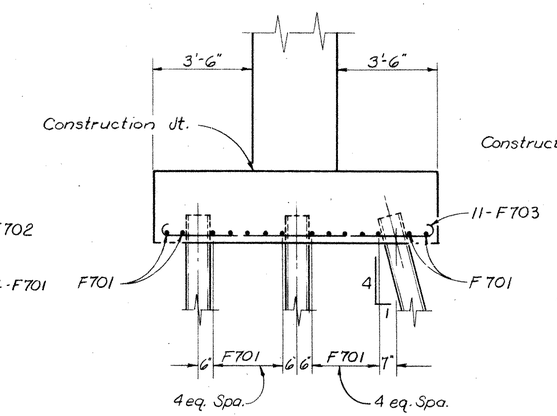
SECTION B-B



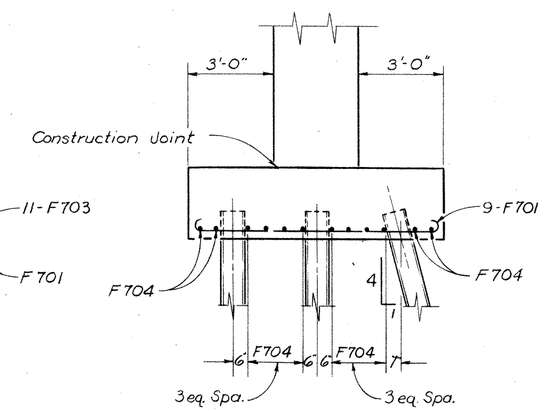
VIEW F-F



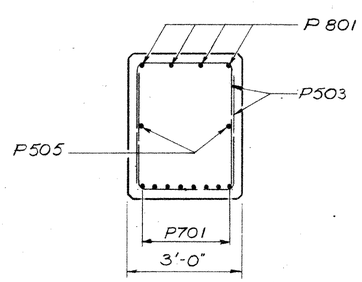
VIEW G-G



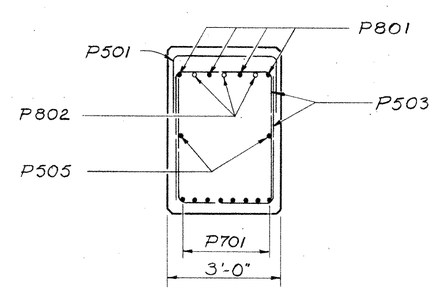
VIEW H-H



VIEW K-K



SECTION C-C



SECTION E-E

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER #1 SOUTHBOUND
BRIDGE Nº GUE-77-0517L
I-77 OVER C.R. 52 (RELOC.)

GUERNSEY COUNTY Sta. 273+55.68 Sta. 275+06.19

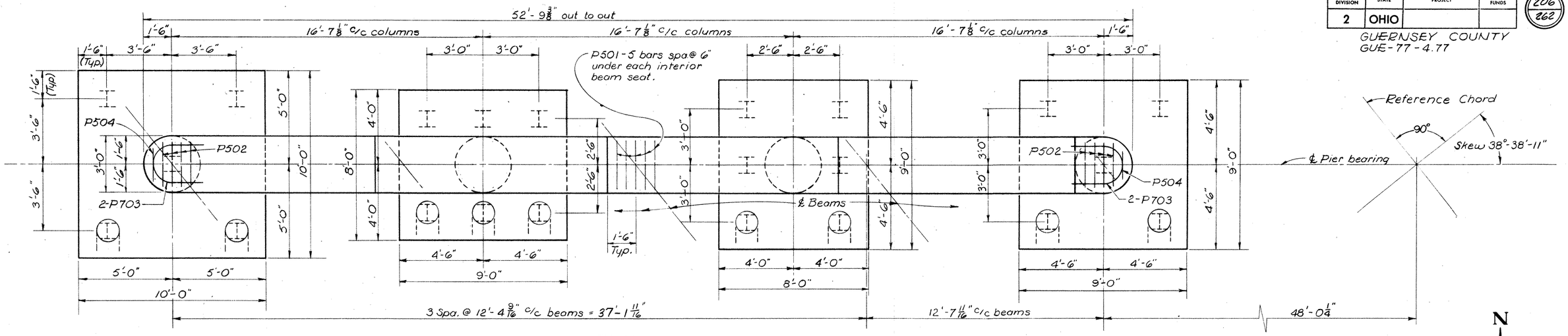
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	C.S.		HT	TLU	12-23-64	

MICROFILMED
MAR 16 1987

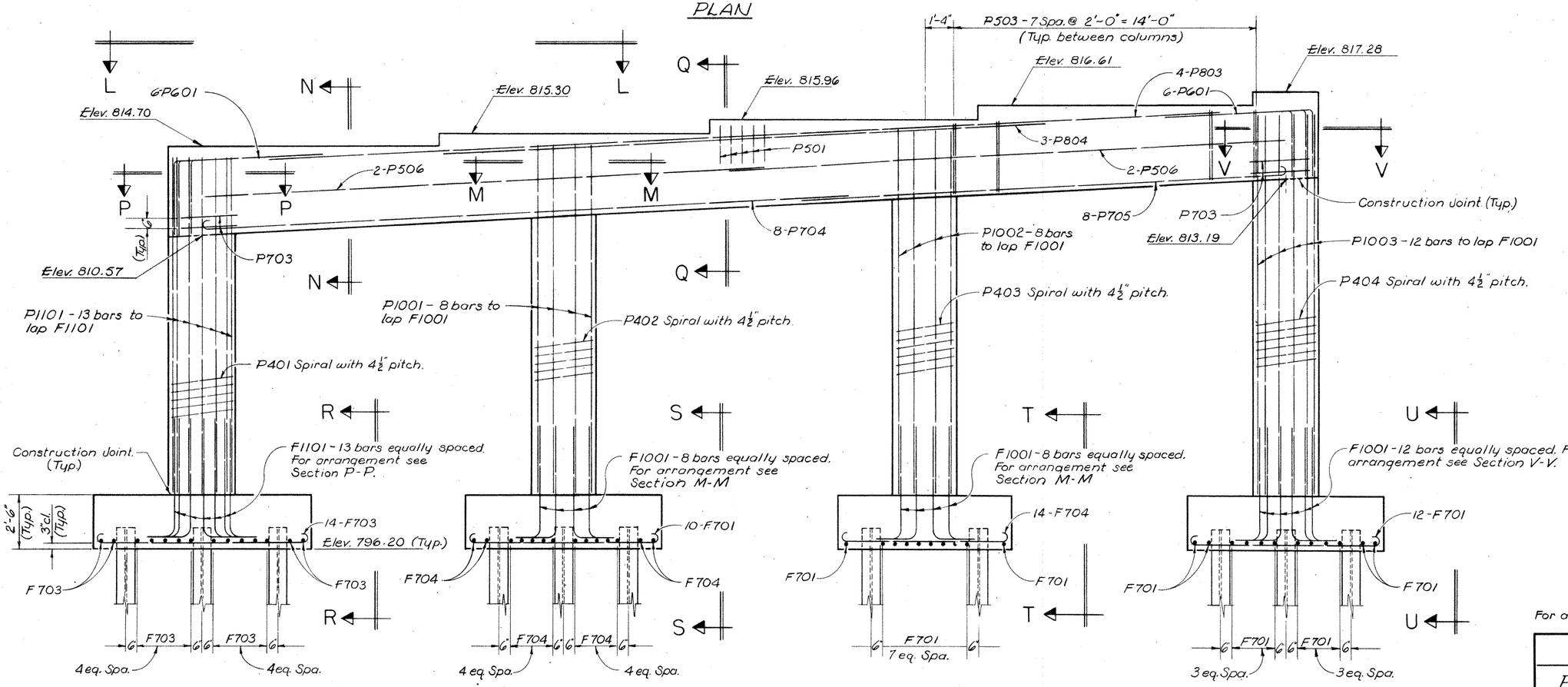
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

206/262

GUERNSEY COUNTY
GUE-77-4.77



PLAN



ELEVATION

PILING

Vertical

Batter 1:4

For additional details see sheet 207

All piles shall be 10BP42 steel piles

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER #2 SOUTHBOUND
BRIDGE No. GUE-77-0517 L
I-77 OVER C.R. 52 (RELOC.)

GUERNSEY COUNTY

Sta. 273+55.68
Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	C.S.		HT	TZW	12-23-64	

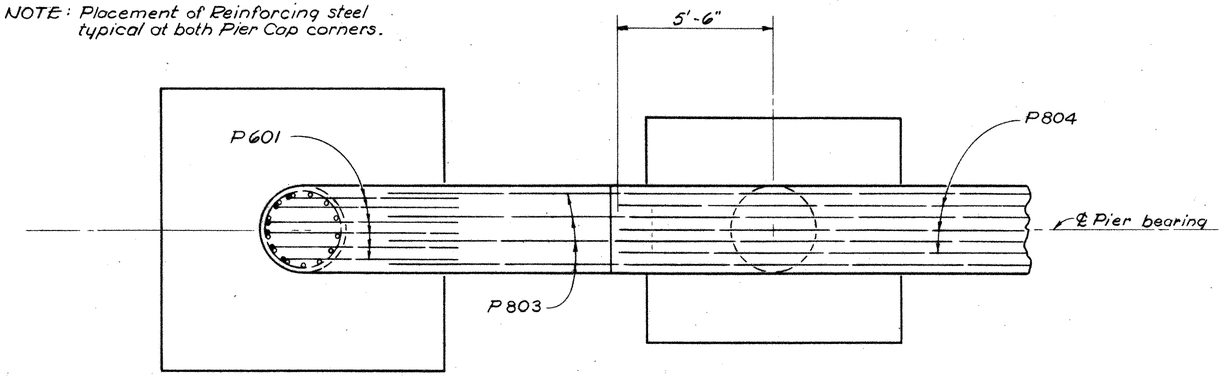
MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

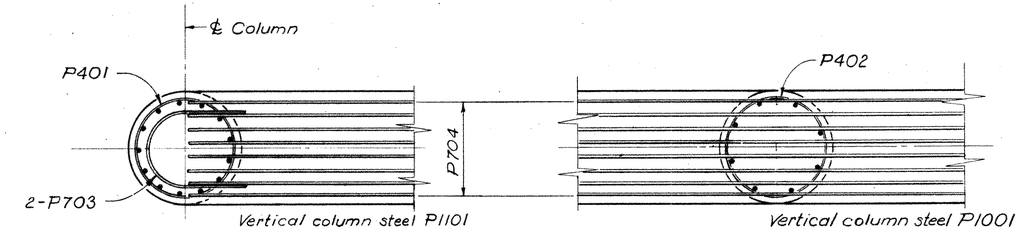
207
262

GUERNSEY COUNTY
GUE-77-4.77

NOTE: Placement of Reinforcing steel typical at both Pier Cap corners.

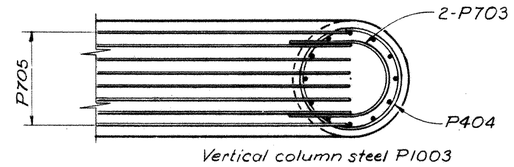


VIEW L-L

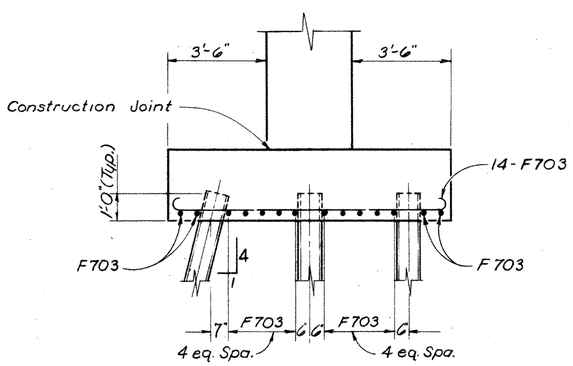


SECTION P-P

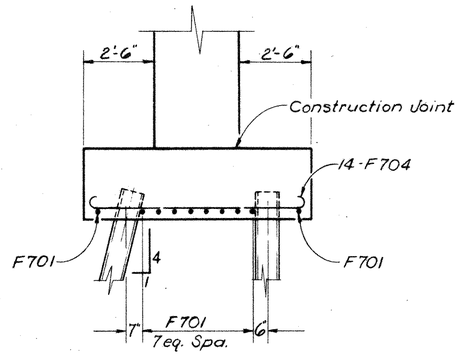
SECTION M-M



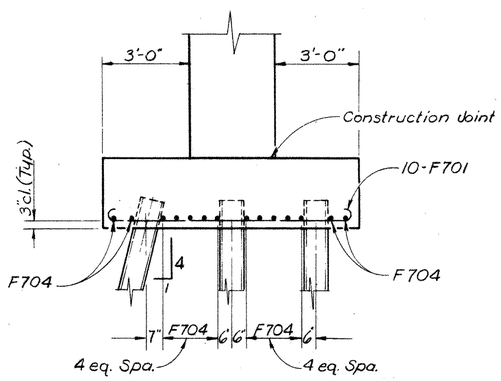
SECTION V-V



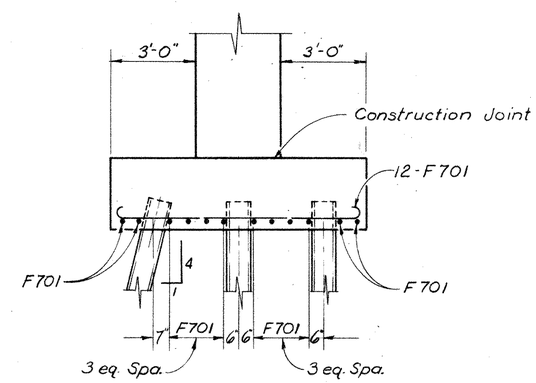
VIEW R-R



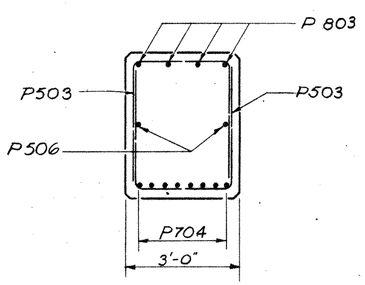
VIEW S-S



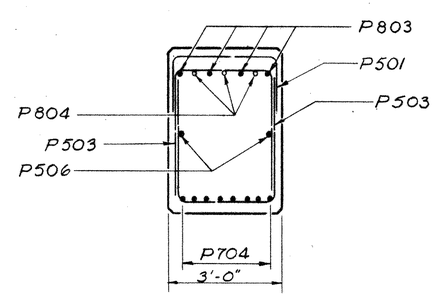
VIEW T-T



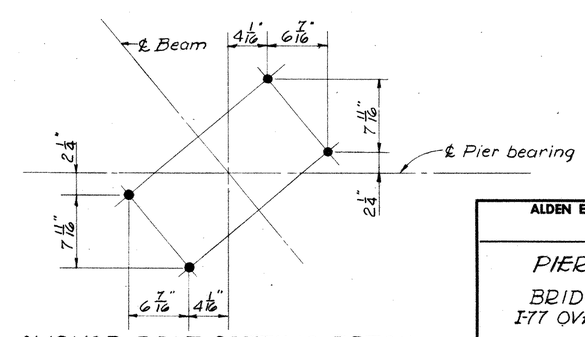
VIEW U-U



SECTION N-N



SECTION Q-Q



ANCHOR BOLT SETTING DETAIL

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.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER #2 SOUTHBOUND

BRIDGE Nº GUE-77-0517 L
I-77 OVER C.R. 52 (RELOC.)

GUERNSEY COUNTY

Sta. 273 + 55.68
Sta. 275 + 06.19

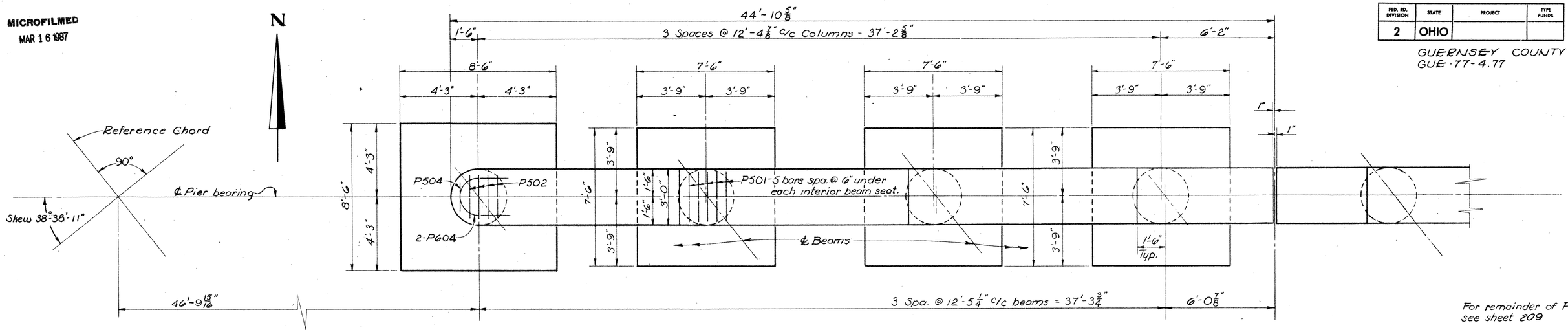
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	C.S.		HT	TZW	12-23-64	

MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

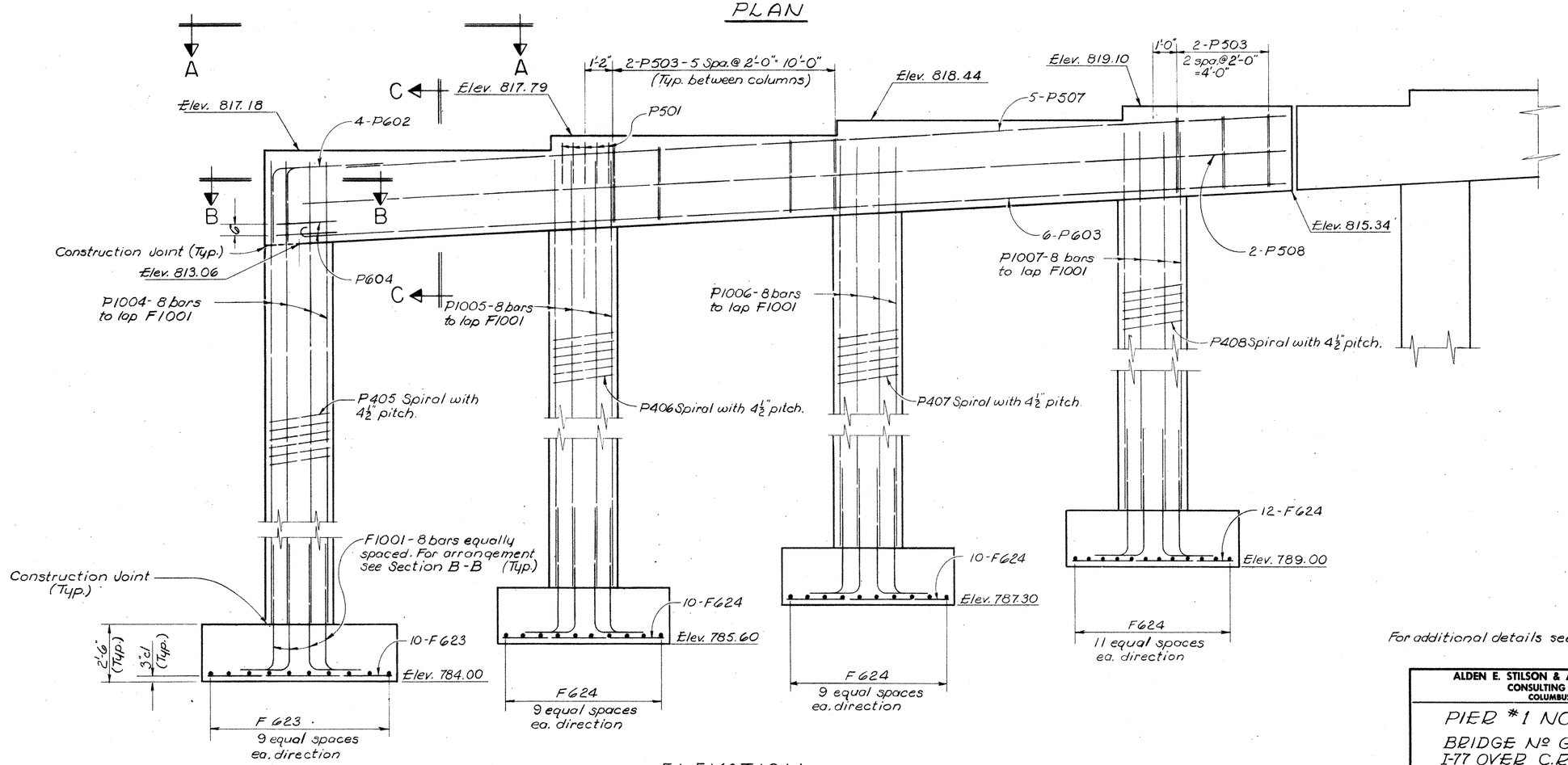
208/262

GUERNSEY COUNTY
GUE-77-4.77



PLAN

For remainder of Pier see sheet 209



ELEVATION

For additional details see sheet 210

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER #1 NORTHBOUND
BRIDGE No GUE-77-0517 R
I-77 OVER C.R. 52 (RELOC.)

GUERNSEY COUNTY Sta. 273+55.68 Sta. 275+06.19

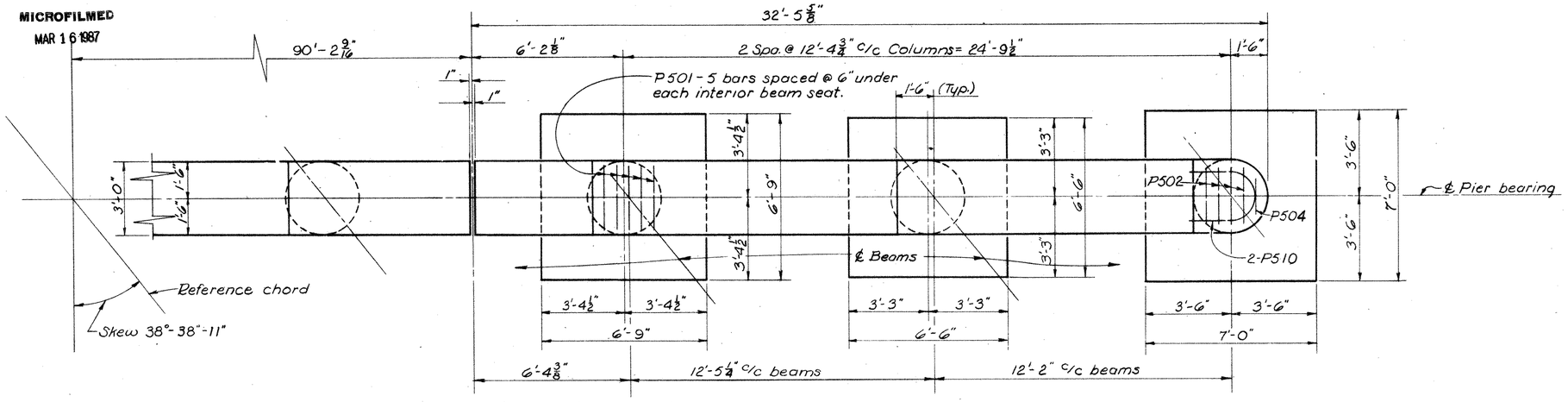
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	C.S.		HT	TLU	12-23-84	

MICROFILMED
MAR 16 1987

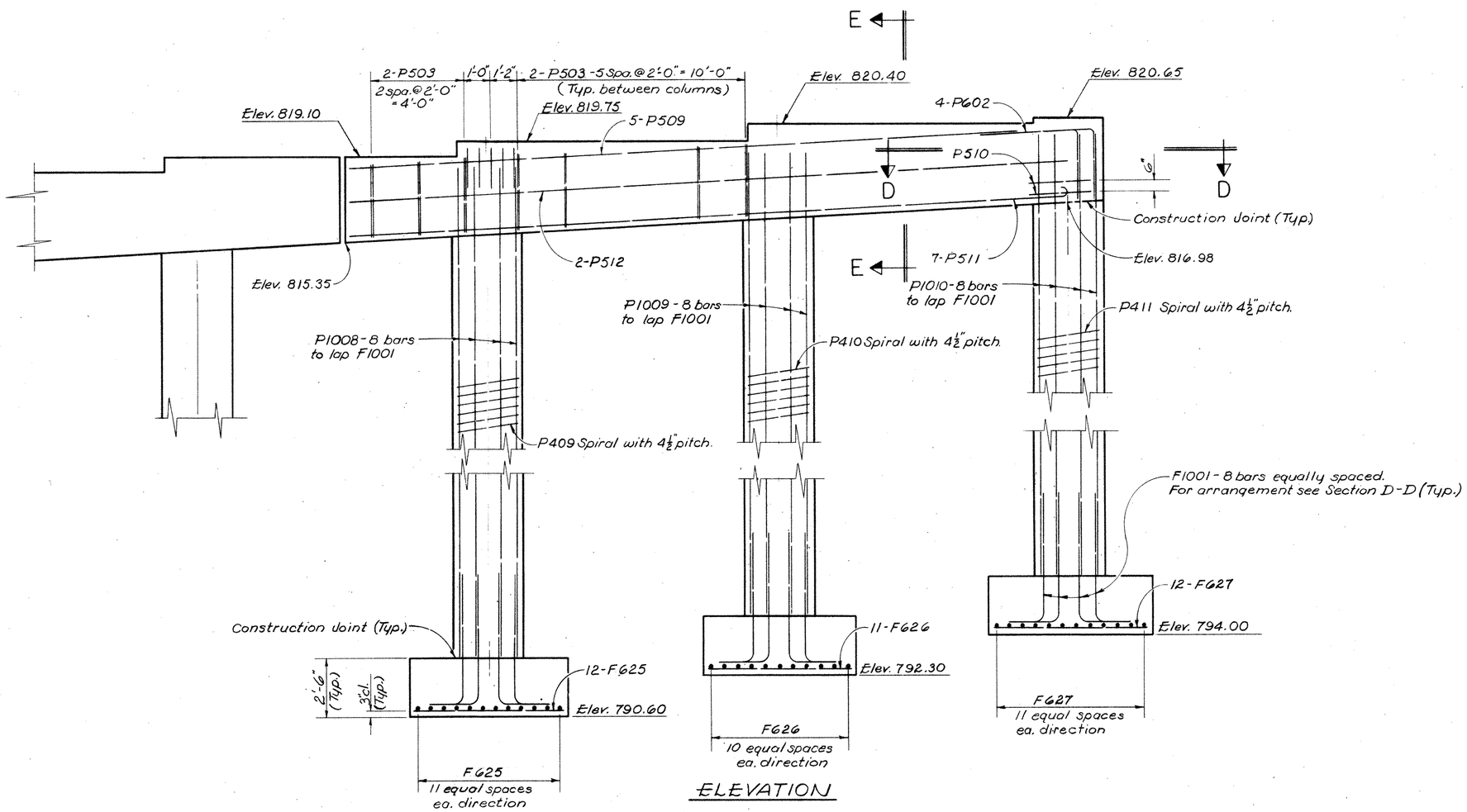
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

209
262

GUERNSEY COUNTY
GUE-77-4.77



PLAN



ELEVATION

For additional details see sheet 210

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER #1 NORTHBOUND

BRIDGE Nº GUE-77-0517 R,
I-77 OVER C.R. 52 (RELOC)

GUERNSEY COUNTY — Sta. 273+55.68 — Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	C.S.		HT	TLW	12-23-84	

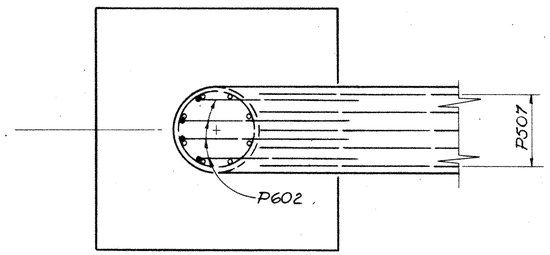
MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

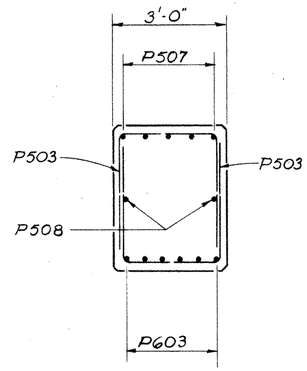
210
262

GUERNSEY COUNTY
GUE-77-4.77

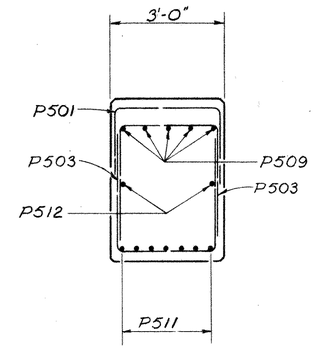
NOTE: Placement of Reinforcing steel typical at both Pier Cap corners.



VIEW A-A



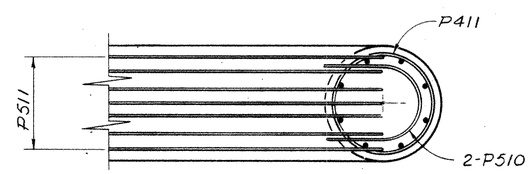
SECTION C-C



SECTION E-E

Vertical column steel - P1004

SECTION B-B



Vertical column steel - P1010

SECTION D-D

For locations of sections see sheets 208 & 209

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER #1 NORTHBOUND

BRIDGE Nº GUE-77-0517 R.
I-77 OVER C.R. 52 (RELOC.)

GUERNSEY COUNTY

Sta. 273+55.68
Sta. 275+06.19

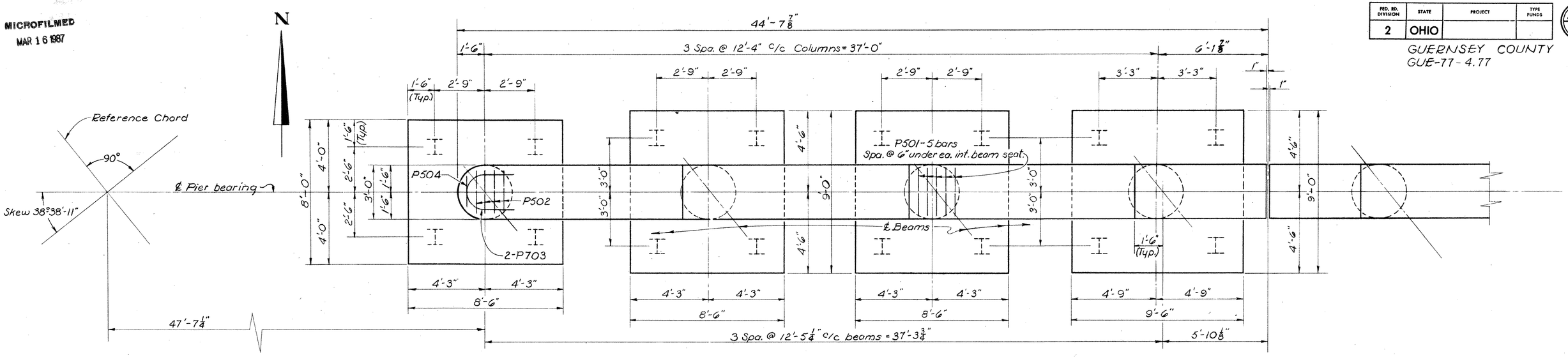
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	C.S.		HT	TZU	12-23-64	

MICROFILMED
MAR 16 1987

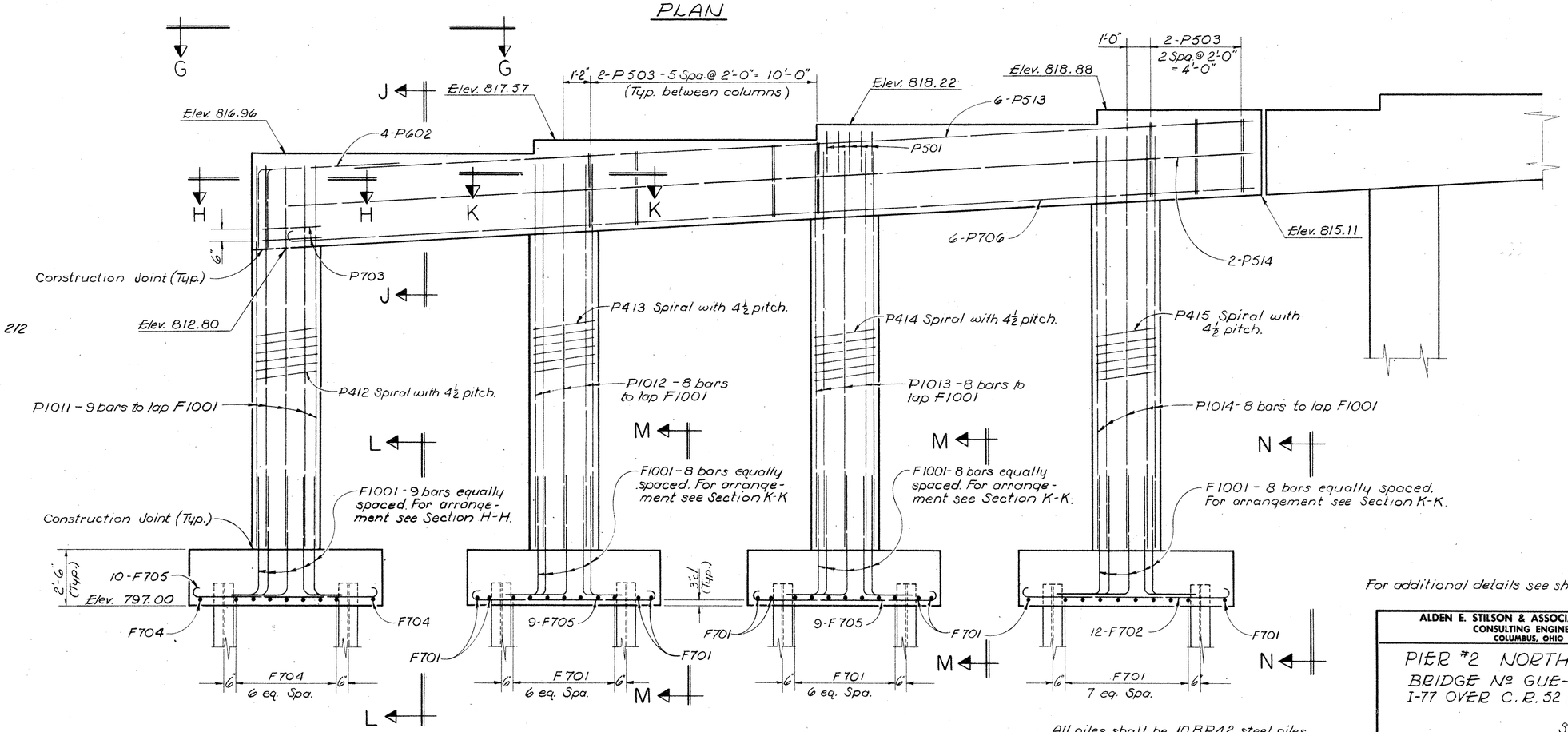
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

GUERNSEY COUNTY
GUE-77-4.77

211/262



PLAN



For Anchor Bolt Setting Detail see sheet 2/2

For remainder of Pier see sheet 2/2

ELEVATION

For additional details see sheet 2/3

All piles shall be 10BP42 steel piles.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER #2 NORTHBOUND
BRIDGE No. GUE-77-0517 R
I-77 OVER C.R. 52 (RELOC.)

GUERNSEY COUNTY Sta. 273+55.68 Sta. 275+06.19

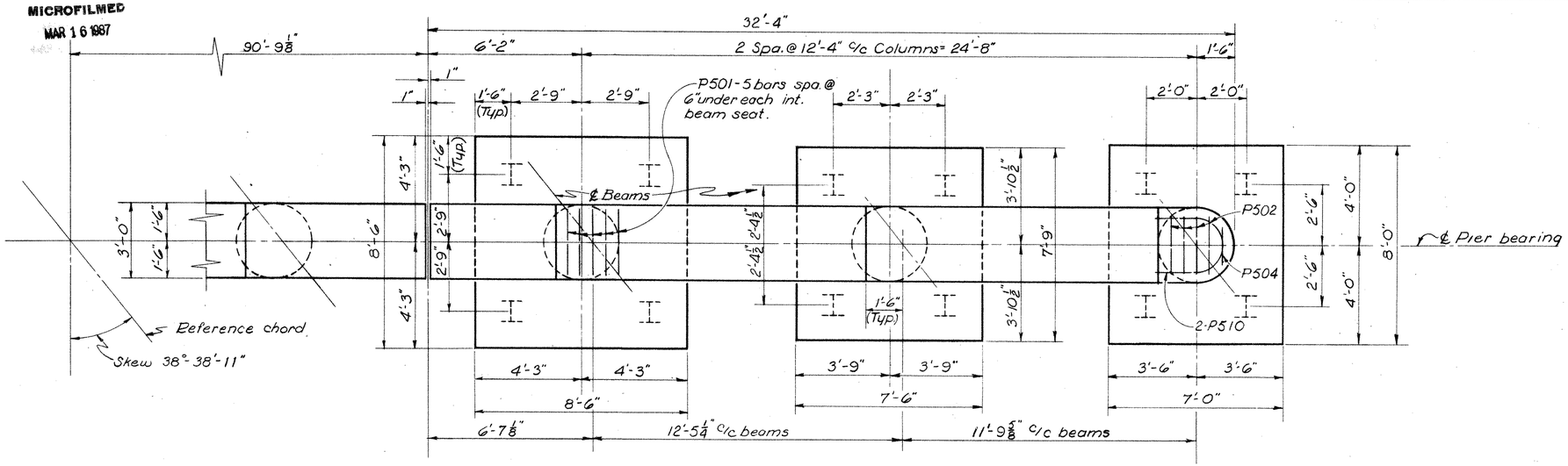
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	C.S.		HT	TLW	12-23-69	

MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

GUERNSEY COUNTY
GUE-77-4.77

212
262



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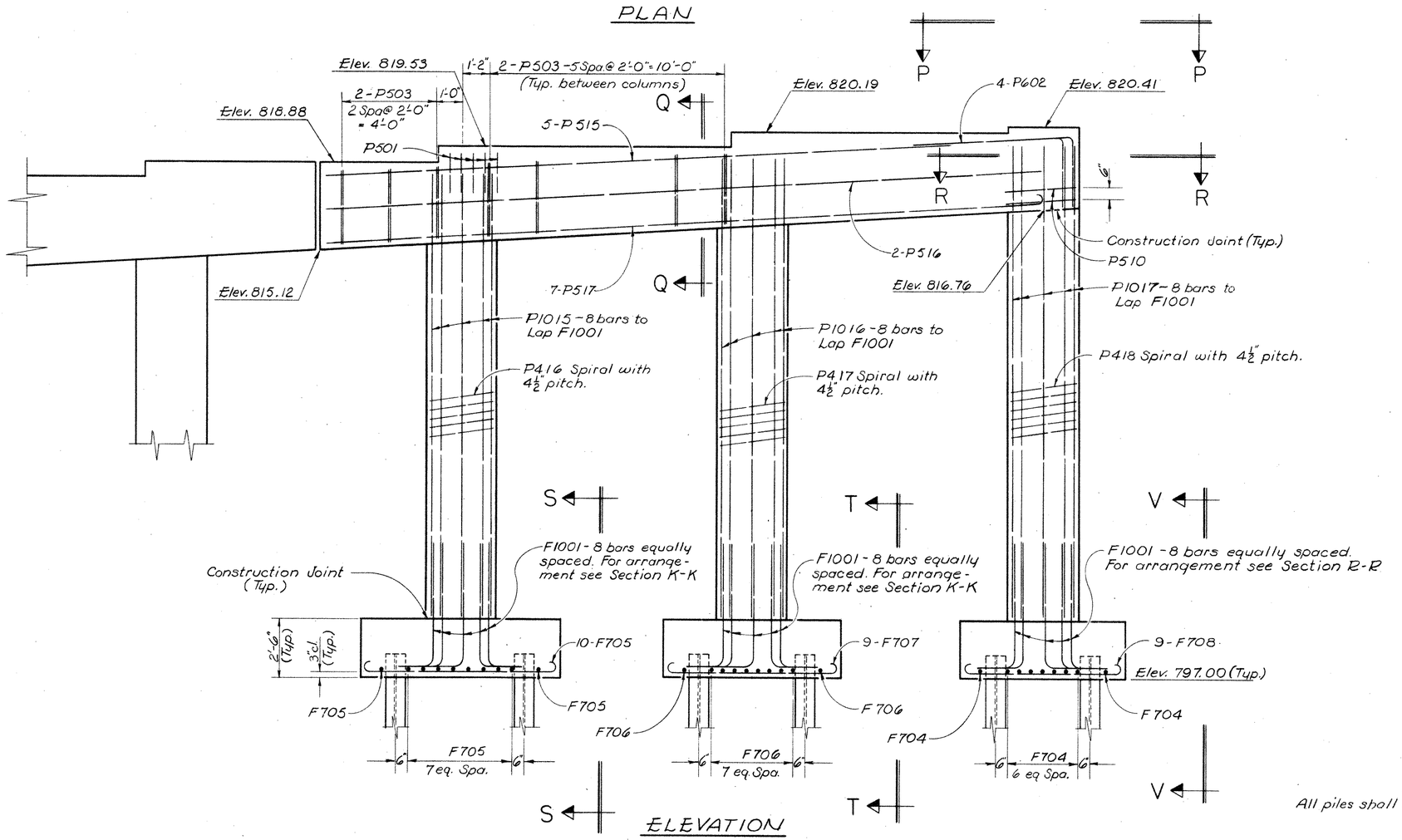
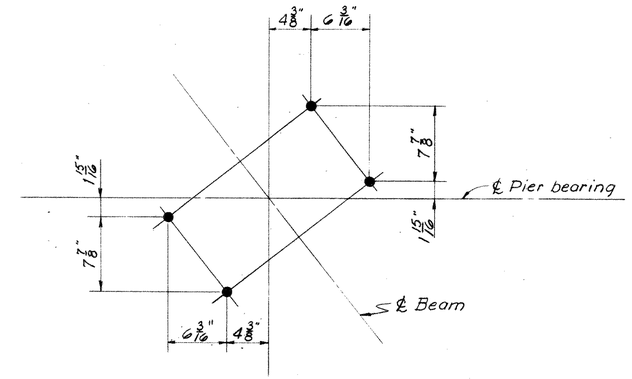


ELEVATION



ANCHOR BOLT SETTING DETAIL

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 bar holes.

For remainder of Pier, see sheet 211

For additional details see sheet 213

All piles shall be 10BP42 steel piles.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER # 2 NORTHBOUND

BRIDGE No. GUE-77-0517 R.
I-77 OVER C.R. 52 (RELOC.)

GUERNSEY COUNTY

Sta. 273+55.68
Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
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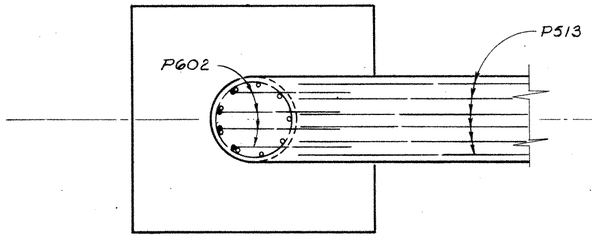
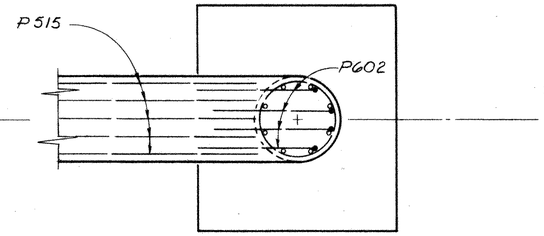
MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

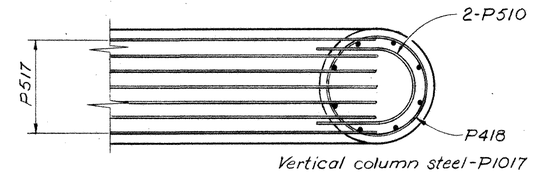
GUERNSEY COUNTY
GUE-77-4.77



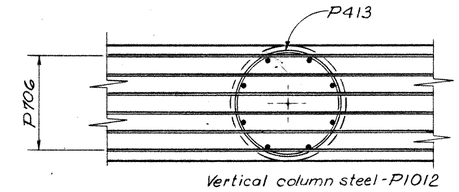
VIEW G-G



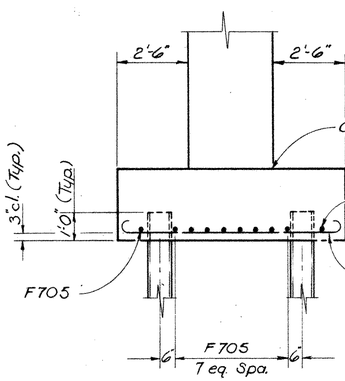
VIEW P-P



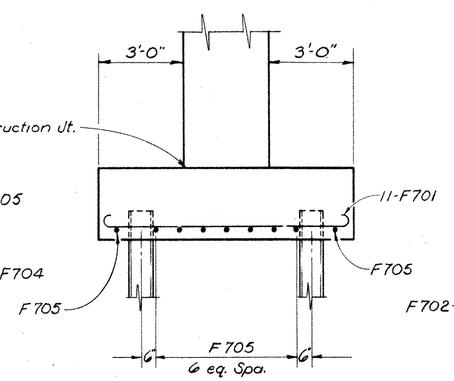
SECTION R-R



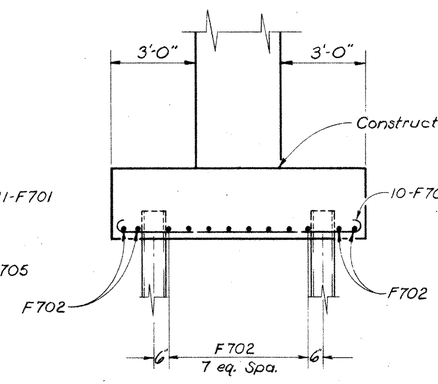
SECTION K-K



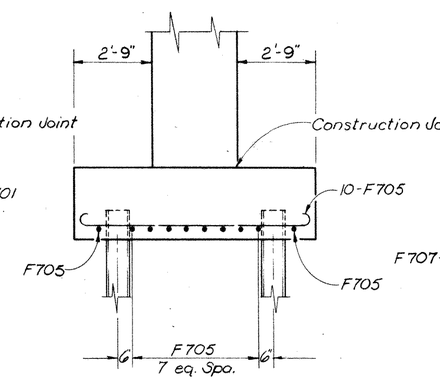
VIEW L-L



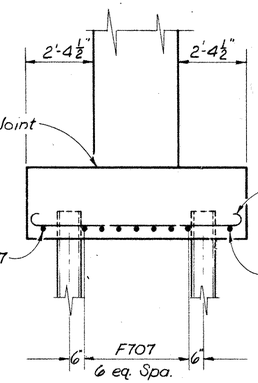
VIEW M-M



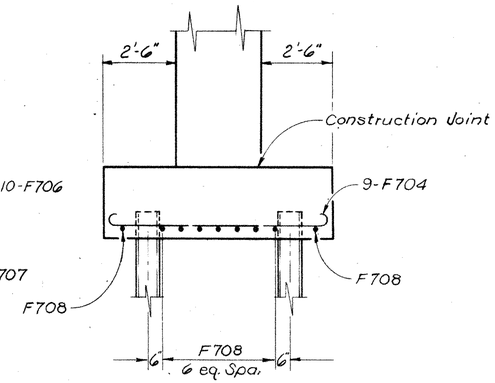
VIEW N-N



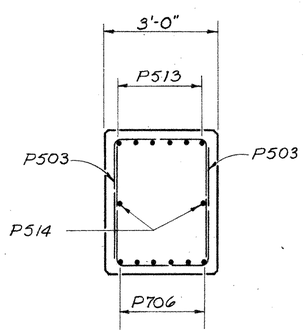
VIEW S-S



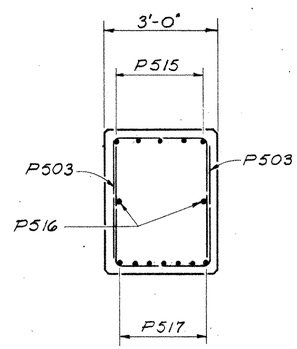
VIEW T-T



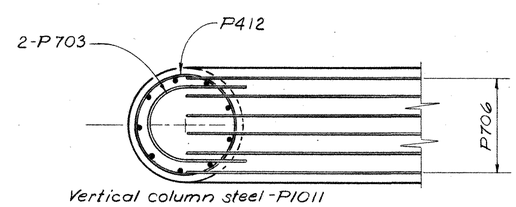
VIEW V-V



SECTION J-J



SECTION Q-Q



SECTION H-H

For locations of Sections see sheets 211 & 212

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER #2 NORTHBOUND

BRIDGE No GUE-77-0517 R.
I-77 OVER C.R. 52 (RELOC)

GUERNSEY COUNTY

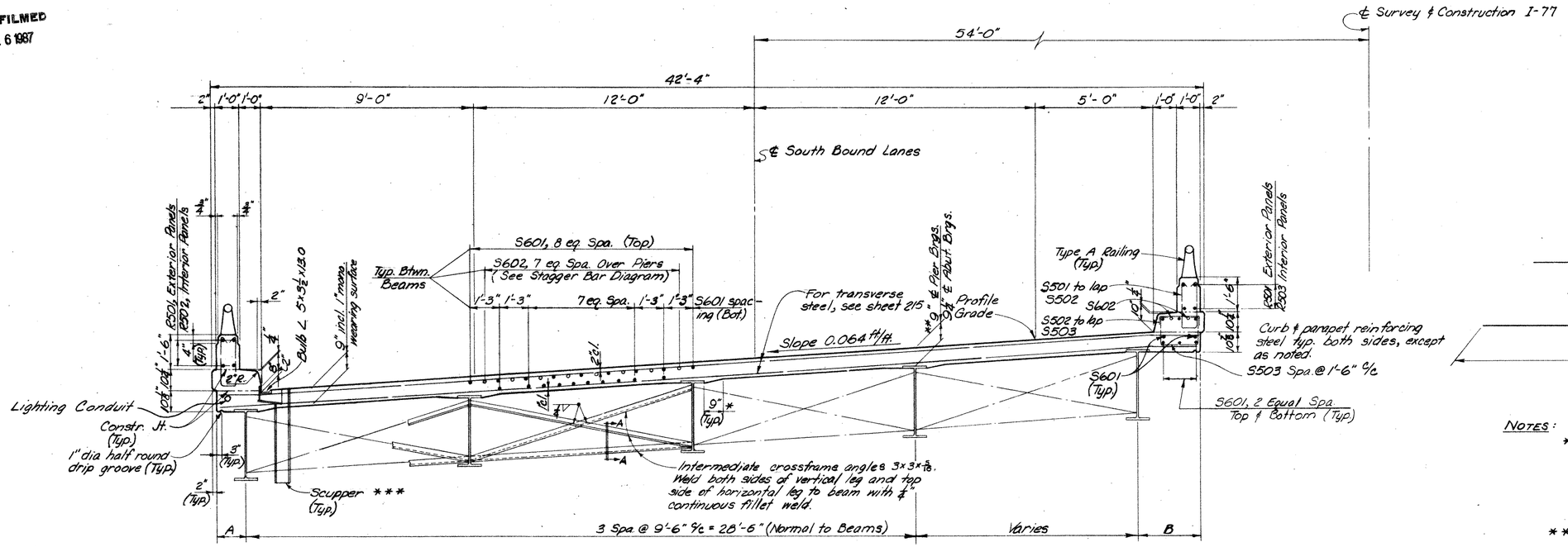
Sta. 273+55.68
Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	C.S.		HT	TLW	12-23-64	

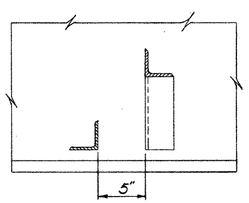
MICROFILMED
MAR 1 6 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

GUERNSEY COUNTY
GUE-77-4.77



TRANSVERSE SECTION (SOUTH BOUND)



SECTION A-A

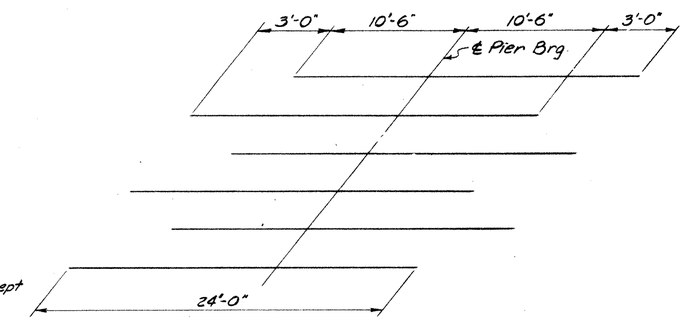


DIAGRAM SHOWING STAGGER OF S602 BARS OVER PIERS

NOTES:

* A typical haunch width of 9" shall be used for computing quantity of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.

** The distance shown from top of deck slab to top of steel beam is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

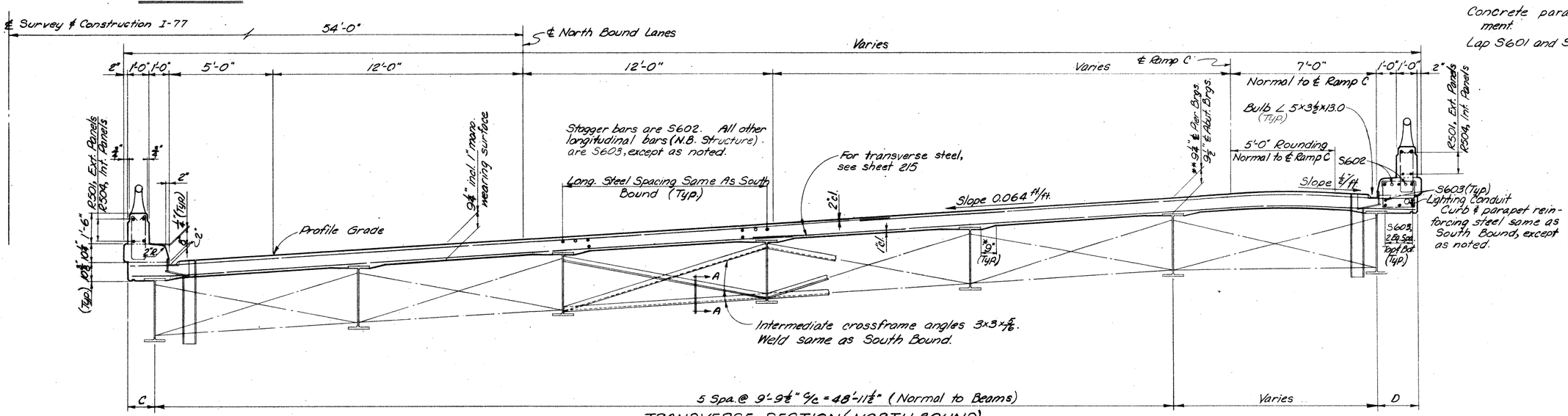
*** Use Type 2 scupper shown on SD-1-63

Transverse slab bars shall be field bent. Cost is included with Item S-4.

Dimensions and transverse slab slopes indicated are normal to ℄ Survey and Construction I-77 except as noted.

Concrete parapets are included with Item S-14 for payment.

Lap S601 and S603 bars 1'-11" minimum.



TRANSVERSE SECTION (NORTH BOUND)

SLAB CANTILEVER				
LOCATION	A	B	C	D
℄ Brg. S. Abutment	2'-0"	2'-0"	2'-0"	2'-0"
Mid-point, Span-1	1'-6⅛"	2'-5¾"	1'-6⅝"	2'-5⅛"
℄ Brg., Pier-1	1'-2¼"	2'-9⅛"	1'-3⅛"	2'-9"
Mid-point, Span-2	1'-0⅜"	2'-11¼"	1'-1⅜"	2'-10¾"
℄ Brg., Pier-2	1'-2⅜"	2'-9¼"	1'-3¼"	2'-8¾"
Mid-point, Span-3	1'-6¼"	2'-5½"	1'-6¾"	2'-5½"
℄ Brg. N. Abutment	2'-0"	2'-0"	2'-0"	2'-0"

ALDEN E. STILSON & ASSOCIATES, LIMITED
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COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE No GUE-77-0517 L & R
I-77 OVER C.R. 52 (Reloc.)

GUERNSEY COUNTY — Sta. 273+55.68 — Sta. 275+06.19

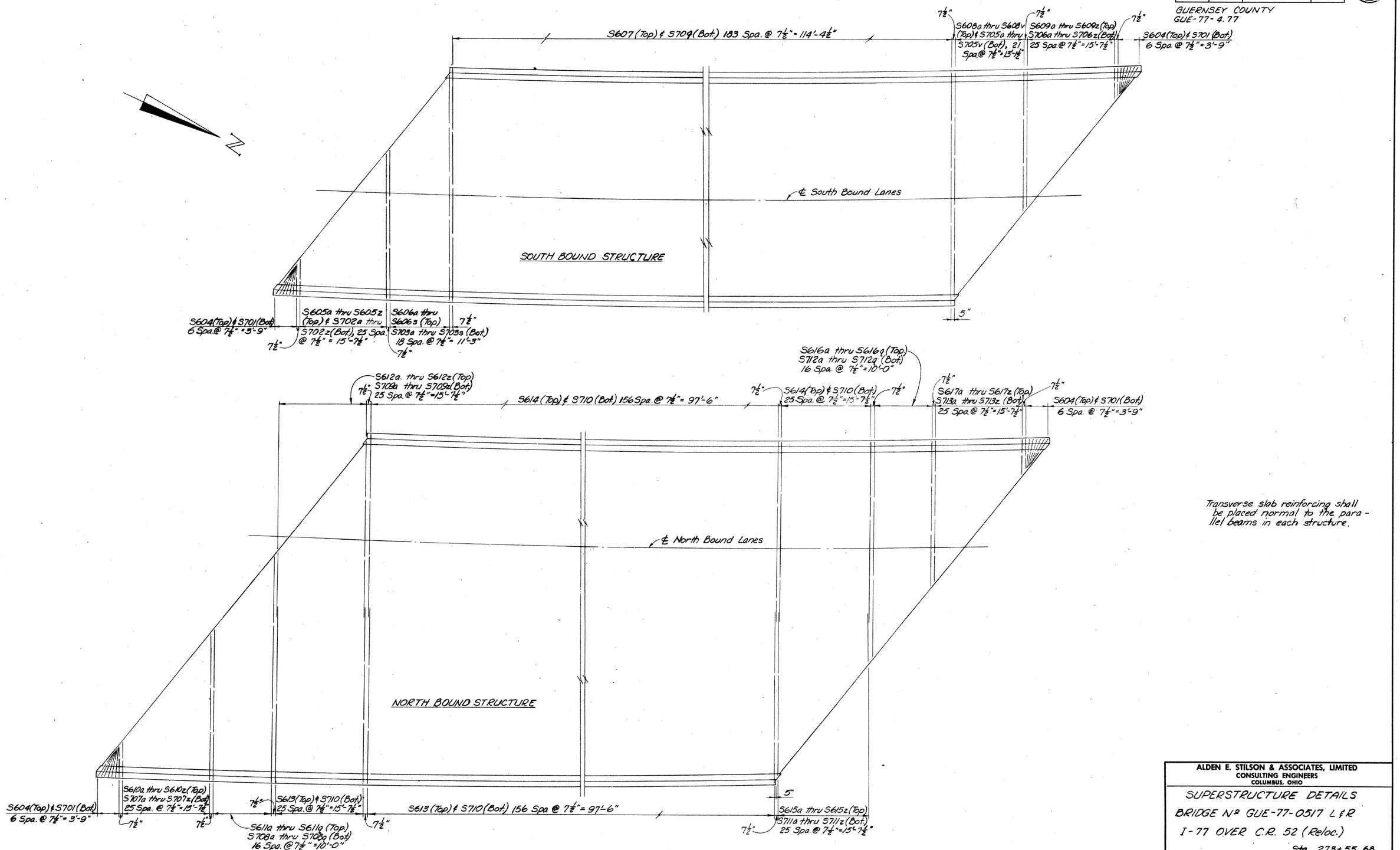
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	Henderson		HT	TLU	12-23-64	

MICROFILMED
MAR 1 6 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

215
262

GUERNSEY COUNTY
GUE-77-4.77



Transverse slab reinforcing shall be placed normal to the parallel beams in each structure.

TRANSVERSE SLAB REINFORCING

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE Nº GUE-77-0517 L & R
I-77 OVER C.R. 52 (Reloc.)
Sta. 273+55.68
GUERNSEY COUNTY Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
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MICROFILMED
MAR 1 6 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

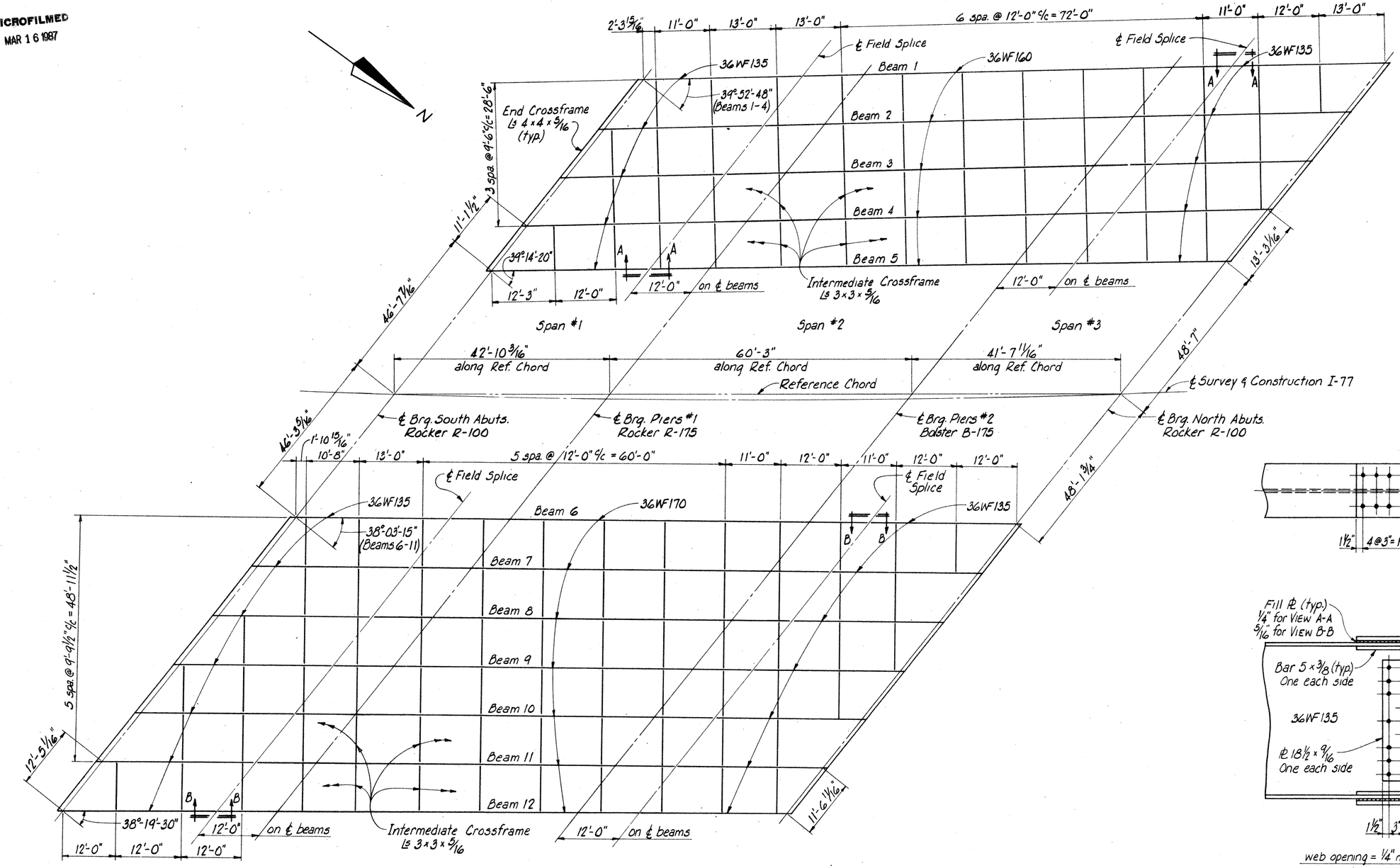
216/262

GUERNSEY COUNTY
GUE-77-4.77

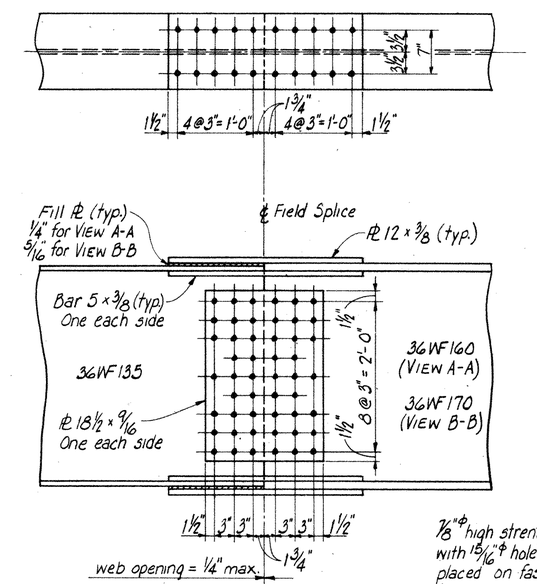
NOTES

Place transverse ℄ of bearing devices normal to parallel beams in each structure.

Place intermediate crossframes normal to parallel beams in each structure.



FRAMING PLAN



VIEW A-A
VIEW B-B
FIELD SPLICE DETAILS

7/8"ϕ high strength bolts shall be used with 15/16"ϕ holes. Bolt heads shall be placed on fascia side of exterior beams and on bottom of bottom flanges.

DEFLECTION and CAMBER	℄ Span #1						℄ Span #2						℄ Span #3					
	Bm. 1	Bms. 2 thru 4	Bm. 5	Bm. 6	Bms. 7 thru 11	Bm. 12	Bm. 1	Bms. 2 thru 4	Bm. 5	Bm. 6	Bms. 7 thru 11	Bm. 12	Bm. 1	Bms. 2 thru 4	Bm. 5	Bm. 6	Bms. 7 thru 11	Bm. 12
Defl. due to weight of steel	0	0	0	0	0	0	1/16	1/16	1/16	1/16	1/16	1/16	0	0	0	0	0	0
Defl. due to remaining DL.	1/16	1/16	1/16	1/16	1/16	1/16	1/4	5/16	5/16	1/4	5/16	5/16	1/16	1/16	1/16	1/16	1/16	1/16
Convexity reqd. for horiz. ℄ vert. curve	1/16	0	0	1/16	0	1/16	1/8	0	0	1/8	0.	3/16	1/16	0	0	1/16	0	1/16
Sum of Defl. and Convexity	1/8	1/16	1/16	1/8	1/16	1/8	7/16	3/8	3/8	7/16	3/8	9/16	1/8	1/16	1/16	1/8	1/16	1/8
Required Camber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

HORIZONTAL BEAM LENGTHS c/c BRGS.	Span #1	Span #2	Span #3
Beams 1 thru 4	43'-7 3/8	61'-3 15/16	42'-4 5/8
Beam 5	43'-2 9/16	60'-9 1/8	41'-11 15/16
Beams 6 thru 11	42'-6 1/16	59'-9 3/16	41'-3 11/16
Beam 12	42'-7 15/16	59'-11 7/8	41'-5 1/2

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

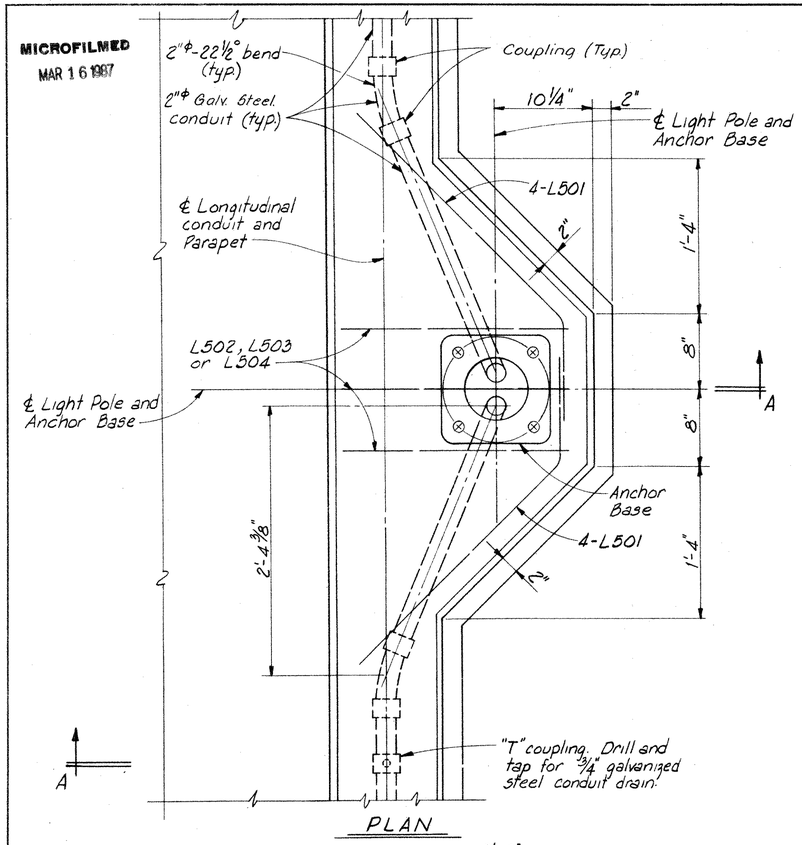
FRAMING PLAN AND SUPERSTRUCTURE DETAILS
BRIDGE Nº GUE-77-0517 L & R
I-77 OVER C.R. 52 (RELOC.)
STA. 273+55.68
GUERNSEY COUNTY STA. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	HT		HT	TZW	12-23-64	

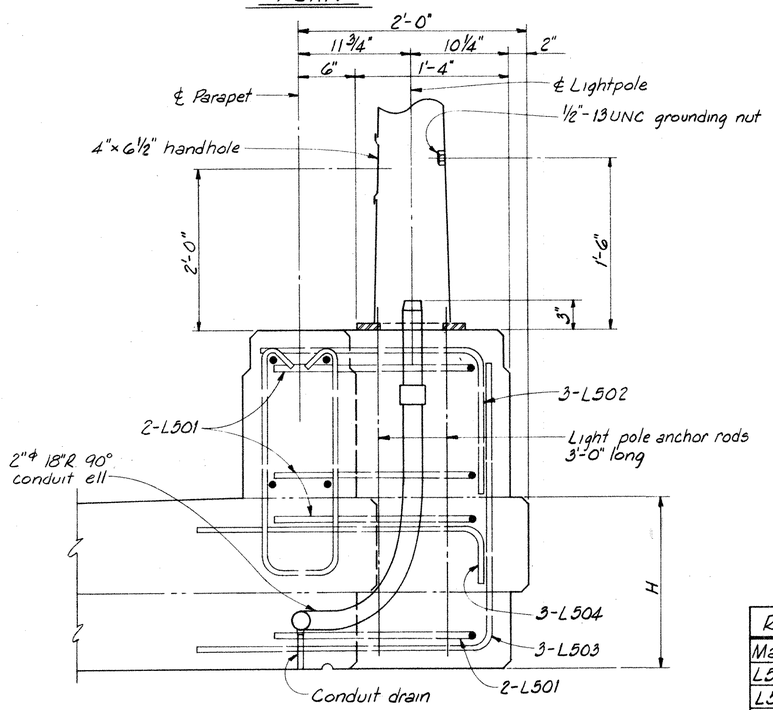
MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

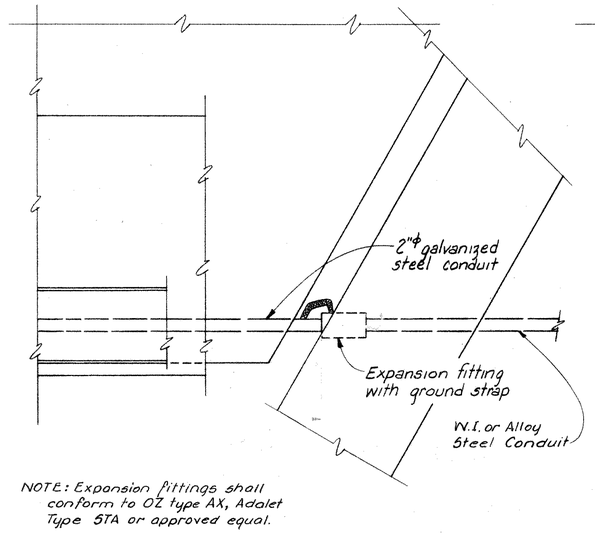
GUERNSEY COUNTY
GUE-77-4.77



PLAN

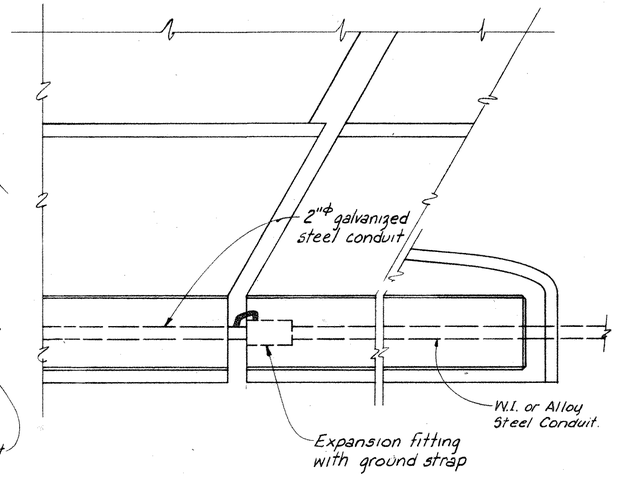


SECTION A-A

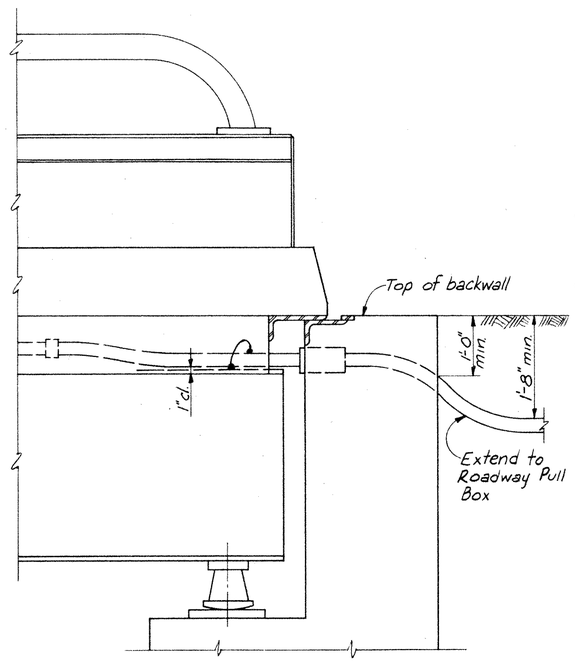


NOTE: Expansion fittings shall conform to OZ type AX, Adalet Type STA or approved equal.

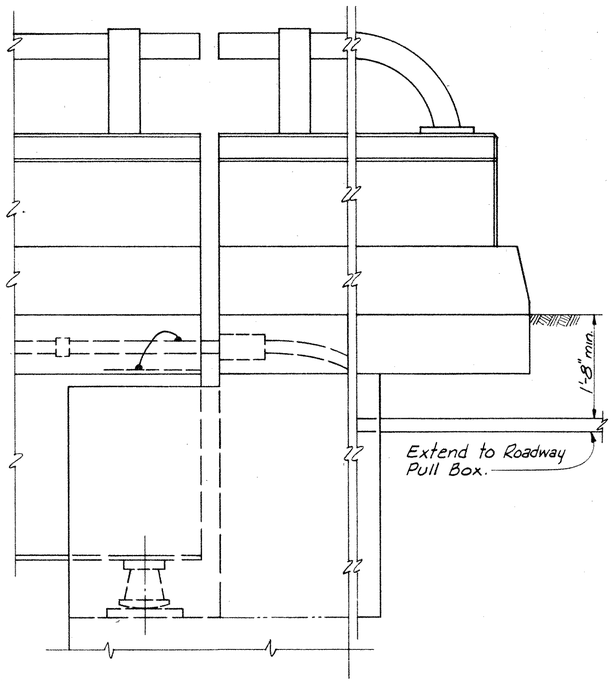
PLAN WITH STRAIGHT-OUT WINGS
(End finish not shown)



PLAN WITH TURN-BACK WINGS
(End finish not shown)



ELEVATION WITH STRAIGHT-OUT WINGS



ELEVATION WITH TURN-BACK WINGS

CONDUIT DETAIL AT ABUTMENT FOR BEAM OR GIRDER BRIDGE

Reinforcing Steel List (1 Lamp Standard)

Mark	Nº	Length	Wgt.	Type	A	B	C	D	E	Shp.
L501	8	3'-3	27	6	7	7	2'-6			bt.
L502	3	3'-0	9	1	1'-10	1'-4				bt.
L503	3	H+3'-8"	——	1	2'-9	H+1'-1"				bt.
L504	3	3'-1	10	1	2'-9	6				bt.

BRIDGE LIGHTING NOTES

Bridge Lighting - Item S-25 includes the installation of all electrical equipment on the bridge to the adjacent Roadway Pull Box. For additional details and notes see Highway Lighting Details and Notes.

Quantities - The reinforcing steel for each lamp standard support is included with the bar list for the pertinent structure and is included with the structure quantities for payment. For detail listing of lighting quantities, see General Lighting Summary, Sheet Nº 190.

Conduit Drain - The drain shall be located at each low point in the conduit run between lamp standards or between the lamp standards and the ends of the bridge. Included with conduit for payment.

Expansion Fitting: Fittings shall be located so as to permit equal expansion or contraction from 60°F. Included with conduit for payment.

Anchor Rods - Anchor rod diameter, location, and projection above top of parapet shall be according to the manufacturers specifications. Anchor rods shall be galvanized in accordance with Sec. M-7.4 (d) from exposed end to 2" beyond threads. Furnish a galvanized hex nut and washer with each rod.

Ground System - A Nº ⅙ AWG 7 strand soft annealed bare copper cable shall be embedded in Pier 2-N.B. Structure at the E. side of the superstructure. The lower end of the ground cable shall be connected by an exothermic weld to one of the steel H piles. The upper end of the cable shall be connected by an exothermic weld to a steel beam. The cable shall be continuous from its lower end to this upper connection. The same size cable shall also connect the beam flange and a steel anchor rod, using exothermic welds.

The steel conduit at the abutments shall also be grounded with the same size cable connected by exothermic welds to the steel conduit and the top flange.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

BRIDGE LIGHTING DETAILS
BRIDGE Nº GUE-77-0517 L.&R.
I-77 OVER C.R. 52 (Reloc)

GUERNSEY COUNTY — Sta. 273+55.68 Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
				TLU	12-23-64	

MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

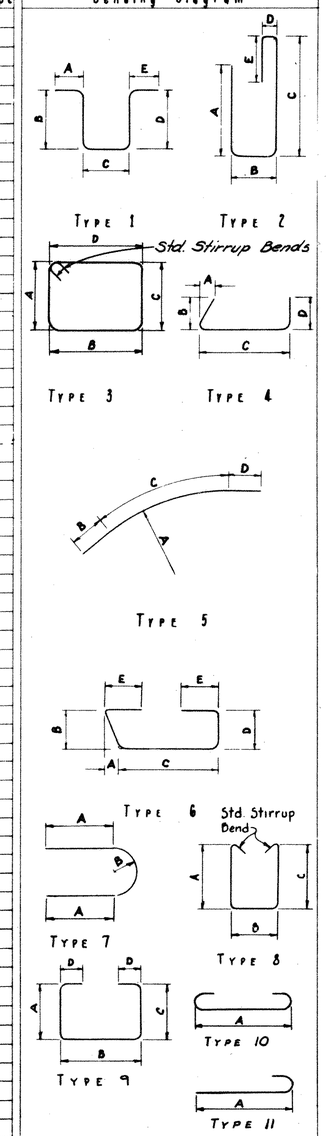
GUERNSEY COUNTY
GUE-77-4.77

REINFORCING STEEL LIST

Mark	Nº	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shape
			ABUTMENTS							
F501	37	8-1	312	1	0-6	7-9				bt.
F502	31	7-5	240	1	0-6	7-1				bt.
F503	169	8-4	1469	1		1-7	5-5	1-7		bt.
F504	108	11-11	1342	3	2-7	3-2	2-7	3-2		bt.
F505	20	9-2	191	1	0-6	8-10				bt.
F506	34	8-6	301	1	0-6	8-2				bt.
F507	32	7-10	261	1	0-6	7-6				bt.
F508	15	7-2	112	1	0-6	6-10				bt.
F509	8	8-0	67							st.
F510	4	20-9	87	1		10-3	0-6	10-3		bt.
F511	4	18-5	77	1		9-1	0-6	9-1		bt.
F512	4	17-11	75	1		8-10	0-6	8-10		bt.
F513	4	22-3	93	1		11-0	0-6	11-0		bt.
F601	37	15-5	857	1		7-9	5-5	2-7		bt.
F602	31	14-9	687	1		7-1	5-5	2-7		bt.
F603	22	21-4	705	1		10-3	1-2	10-3		bt.
F604	22	19-0	628	1		9-1	1-2	9-1		bt.
F605	20	16-6	496	1		8-10	5-5	2-7		bt.
F606	34	15-10	809	1		8-2	5-5	2-7		bt.
F607	32	15-2	729	1		7-6	5-5	2-7		bt.
F608	15	14-6	327	1		6-10	5-5	2-7		bt.
F609	22	18-6	611	1		8-10	1-2	8-10		bt.
F610	26	22-10	892	1		11-0	1-2	11-0		bt.
F801	7	30-0	561							st.
F802	7	23-3	435							st.
F803	16	6-4	271	6	2-10	2-10	2-6			bt.
F804	18	14-8	705							st.
F805	18	11-0	529							st.
F806	14	27-7	1031							st.
F807	21	39-9	2229							st.
F808	6	15-9	252							st.
F809	7	36-0	673							st.
F810	6	13-0	208							st.
A501	90	12-0	1126							st.
A502	4	30-6	127							st.
A503	2	19-0	40							st.
A504	169	6-8	1175	1		1-9	3-5	1-9		bt.
A505	120	4-11	615	1		1-6	2-2	1-6		bt.
A506	16	26-3	438							st.
A507	26	5-0	136							st.
A508	2	22-6	47							st.
A509	184	5-1	976							st.
A510	188	3-1	605	1		1-0	1-4	1-0		bt.
A511	94	5-7	547	8	2-2	0-8	2-2			bt.
A512	80	3-4	278							st.
A513	32	4-2	139							st.
A514	8	4-11	41							st.
A515	20	12-0	250							st.
A516	2	11-10	25							st.
A517	24	18-0	451							st.
A518	24	3-6	88							st.
A519	20	8-2	170							st.
A520	2	8-1	17							st.
A521	18	14-0	263							st.
A522	6	13-5	84							st.
A523	5	1-6	8							st.
A524	2	24-10	52							st.
A525	2	26-9	56							st.
A526	4	28-9	120							st.
A527	16	27-2	453							st.
A528	8	3-10	32							st.
A529	8	4-4	36							st.
A530	4	10-2	42							st.
A531	4	6-2	26							st.
A532	5	2-8	14							st.

Mark	Nº	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shape
A534	5	15-2	79							st.
A535	4	39-8	165							st.
A536	12	35-9	447							st.
A537	8	41-0	342							st.
A538	10	13-0	136							st.
A539	2	11-2	23							st.
A540	8	19-0	159							st.
A541	5	12-10	67							st.
A542	4	37-0	154							st.
A543	4	37-10	158							st.
A544	8	38-5	321							st.
A545	8	37-6	313							st.
A546	8	10-0	83							st.
A547	2	8-2	17							st.
A548	6	16-0	100							st.
A549	2	15-5	32							st.
A601	249	16-7	6202	2	5-4	1-5	6-8	0-11	2-10	bt.
					PIERS					
F623	20	8-2	245							st.
F624	64	7-2	689							st.
F625	24	6-5	231							st.
F626	22	6-2	204							st.
F627	24	6-8	240							st.
F701	136	10-4	2872	10	8-8					bt.
F702	22	10-10	487	10	9-2					bt.
F703	39	11-4	903	10	9-8					bt.
F704	58	9-4	1106	10	7-8					bt.
F705	48	9-10	965	10	8-2					bt.
F706	10	9-1	186	10	7-5					bt.
F707	9	8-10	162	10	7-2					bt.
F708	9	8-4	153	10	6-8					bt.
F1001	169	6-7	4787	1	1-5	5-6				bt.
F1101	25	7-2	952	1	1-8	5-10				bt.
P501	80	5-5	452	1		1-6	2-8	1-6		bt.
P502	32	5-1	170	1		1-6	2-4	1-6		bt.
P503	240	8-9	2190	1		3-2	2-8	3-2		bt.
P504	8	4-5	37	1		1-6	1-8	1-6		bt.
P505	4	25-3	105							st.
P506	4	25-9	107							st.
P507	5	40-7	212							st.
P508	2	43-2	90							st.
P509	5	28-2	147							st.
P510	4	6-4	26	7	1-7	1-0				bt.
P511	7	31-3	228	11	30-8					bt.
P512	2	30-8	64							st.
P513	6	40-4	252							st.
P514	2	42-10	89							st.
P515	5	28-0	146							st.
P516	2	30-7	64							st.
P517	7	31-2	228	11	30-7					bt.
P601	24	9-9	351	1	3-2	6-9				bt.
P602	16	8-5	202	1	3-2	5-5				bt.
P603	6	43-9	394	11	43-1					bt.
P604	2	7-0	21	7	1-11	1-0				bt.
P701	8	31-10	521	11	31-0					bt.
P702	8	20-11	342	11	20-1					bt.
P703	10	7-6	153	7	2-2	1-0				bt.
P704	8	32-6	531	11	31-8					bt.
P705	8	21-2	346	11	20-4					bt.

Bending Diagram



NOTE:
In the reinforcing steel bar marks, the first digit, where three digits are used, and the first two, where four are used, is the bar number which, indicates the size of the bar

SPIRALS - HOT ROLLED							
Mark	No.	Length	Core	Pitch	Turns	Spacers	Weight
P401	2	11-11	32	4½	35	4	451
P402	2	12-10	32	4½	37	4	478
P403	2	13-8	32	4½	39	4	505
P404	2	14-7	32	4½	42	4	543
P405	1	26-7	32	4½	74	4	480
P406	1	25-7	32	4½	71	4	461
P407	1	24-6	32	4½	68	4	442
P408	1	23-6	32	4½	66	4	428
P409	1	22-6	32	4½	63	4	409
P410	1	21-6	32	4½	60	4	389
P411	1	20-5	32	4½	57	4	370
P412	1	13-4	32	4½	39	4	251
P413	1	14-0	32	4½	40	4	259
P414	1	14-8	32	4½	42	4	272
P415	1	15-3	32	4½	44	4	284
P416	1	15-11	32	4½	45	4	292
P417	1	16-7	32	4½	47	4	304
P418	1	17-3	32	4½	49	4	317

SPIRALS

THE "LENGTH" SHOWN IN THE STEEL LIST FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE BOTTOM OF THE PIER CAP.

THE NO. OF TURNS SHOWN IN THE STEEL LIST FOR THE SPIRAL BARS IS THE "LENGTH" DIVIDED BY THE PITCH, PLUS 3 TURNS (TOTAL NUMBER OF CLOSED COILS), EXPRESSED AS THE NEAREST WHOLE NUMBER.

SPIRAL REINFORCING BARS SHALL NOT HAVE DEFORMATIONS BUT SHALL IN OTHER RESPECTS CONFORM TO ITEM S-4, 1½ CLOSED COILS SHALL BE PROVIDED AT THE ENDS OF EACH SPIRAL UNIT. FOUR STEEL CHANNEL, TEE OR ANGLE SPACERS, WEIGHING APPROXIMATELY 0.68 LB. PER LIN. FT. OF SPACER, SHALL BE 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 LB. PER LIN. FT., WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED QUANTITY OF SPIRAL BARS.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

REINFORCING STEEL LIST

BRIDGE Nº GUE-77-0517 L&R
I-77 OVER C.R. 52 (Reloc.)
Sta. 273+55.68
GUERNSEY COUNTY Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	Dave Hennigan		HT	TLU	12-23-64	

MICROFILMED
MAR 1 6 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

219/262

GUERNSEY COUNTY
GUE-77-4.77

REINFORCING STEEL LIST

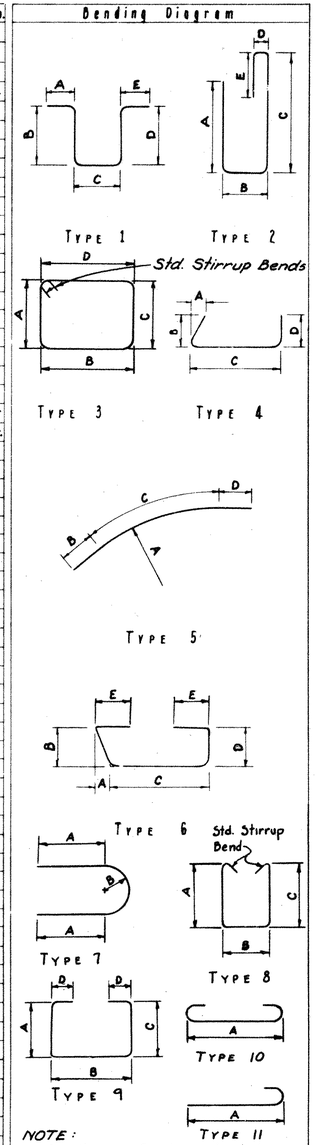
Mark	No	Length	Weight	Shp.
PARAPETS				
R501	32	13-6	*	st.
R502	28	17-0	*	st.
R503	28	16-10	*	st.
R504	56	16-6	*	st.
R505	12	13-10	*	st.
R506	12	17-10	*	st.
R507	4	18-10	*	st.
R508	4	15-10	*	st.
REPLACEMENT STEEL				
RE501	2	5-7		st.
RE601	6	5-11		st.
RE701	4	6-2		st.
RE801	1	6-6		st.
RE1001	1	7-2		st.
RE1101	1	7-6		st.

Mark	No	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shp.
PIERS CONT'D.										
P706	6	43-8	536	11	42-10					bt.
P801	4	41-9	446							st.
P802	3	27-4	219							st.
P803	4	42-8	456							st.
P804	3	27-7	221							st.
P1001	16	16-1	1107							st.
P1002	16	16-9	1153							st.
P1003	24	17-7	1816							st.
P1004	8	29-7	1018							st.
P1005	8	28-7	984							st.
P1006	8	27-6	947							st.
P1007	8	26-6	912							st.
P1008	8	25-6	878							st.
P1009	8	24-6	843							st.
P1010	8	23-7	812							st.
P1011	9	16-4	633							st.
P1012	8	17-0	585							st.
P1013	8	17-8	608							st.
P1014	8	18-3	628							st.
P1015	8	18-11	651							st.
P1016	8	19-7	674							st.
P1017	8	20-4	700							st.
P1101	25	14-11	1981							st.
REPLACEMENT STEEL FOR SPIRALS										
RE401	1	5-3		5	1-3½		5-3			bt.
SUPERSTRUCTURE										
S501	394	5-7	2294	8	2-2	0-8	2-2			bt.
S502	394	2-3	925	1		0-6	1-6	0-6		bt.
S503	394	4-8	1918	9	1-4	1-6	1-4	0-6		bt.
S601	356	38-8	20,676							st.
S602	176	24-0	6344							st.
S603	500	37-9	28,351							st.
S604	28	4-9	200							st.
S605a	1	6-4								st.
thru		Δ=9"	613							
S605z	1	25-1								st.
S606a	1	26-6								st.
thru		Δ=9"	949							
S606s	1	40-0								st.
S607	184	41-6	11,469							st.
S608a	1	40-3								st.
thru		Δ=9"	1070							
S608v	1	24-6								st.
S609a	1	24-1								st.
thru		Δ=9"	574							
S609z	1	5-4								st.
S610a	1	6-11½								st.
thru		Δ=9½"	658							
S610z	1	26-9								st.
S611a	1	27-10								st.
thru		Δ=9½"	872							
S611q	1	40-6								st.
S612a	1	15-10½								st.
thru		Δ=9½"	1006							
S612z	1	35-8								st.
S613	183	27-7	7582							st.

Mark	No	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shp.
SUPERSTRUCTURE CONT'D.										
S614	183	37-3	10,239							st.
S615a	1	24-2								st.
thru		Δ=9½"	557							
S615z	1	4-4½								st.
S616a	1	39-0								st.
thru		Δ=9½"	834							
S616q	1	26-4								st.
S617a	1	25-7								st.
thru		Δ=9½"	613							
S617z	1	5-9½								st.
S701	28	4-9	272							st.
S702a	1	6-4								st.
thru		Δ=9"	835							
S702z	1	25-1								st.
S703a	1	26-6								st.
thru		Δ=9"	1291							
S703s	1	40-0								st.
S704	184	41-6	15,608							st.
S705a	1	40-3								st.
thru		Δ=9"	1456							
S705v	1	24-6								st.
S706a	1	24-1								st.
thru		Δ=9"	782							
S706z	1	5-4								st.
S707a	1	6-11½								st.
thru		Δ=9½"	896							
S707z	1	26-9								st.
S708a	1	27-10								st.
thru		Δ=9½"	1187							
S708q	1	40-6								st.
S709a	1	11-2½								st.
thru		Δ=9½"	1122							
S709z	1	31-0								st.
S710	366	32-6	24,313							st.
S711a	1	29-2								st.
thru		Δ=9½"	1024							
S711z	1	9-4½								st.
S712a	1	39-0								st.
thru		Δ=9½"	1135							
S712q	1	26-4								st.
S713a	1	25-7								st.
thru		Δ=9½"	834							
S713z	1	5-9½								st.
LAMP STANDARD STEEL										
L501	8	3-3	27	6	0-7	0-7	2-6			bt.
L502	3	3-0	9	1	1-10	1-4				bt.
L503	3	5-5	17	1	2-9	2-10				bt.
L504	3	3-1	10	1	2-9	0-6				bt.

(Δ=) indicates length varies by tabulated amount.

Bending Diagram



NOTE:
In the reinforcing steel bar marks, the first digit, where three digits are used, and the first two, where four are used, is the bar number, which indicates the size of the bar.

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Abut.	Pier	Supers.	General
E-2	Lump	Sum	Cofferdams, Cribs & Sheeting		Lump		
E-2	1398	C.Y.	Unclassified Excavation including rock (or shale)	760	638		
S-1	477	C.Y	Class "C" Concrete, Superstructure			477	
S-1	208	C.Y	Class "C" Concrete, Pier Caps & Columns		208		
S-1	367	C.Y.	Class "E" Concrete, Footings.	226	141		
S-1	323	C.Y.	Class "E" Concrete, Abutments above Footings	323			
S-3	20	Lin. Ft.	Waterproofing, Premolded Sealing Strip.	20			
S-4	231,492	Lbs.	Reinforcing Steel	35,537	47,393	148,562	
S-7	354,900	Lbs.	Structural Steel			354,900	
S-8	354,900	Lbs.	Field Painting of Structural Steel			354,900	
S-14	721.37	Lin. Ft.	Railing, Type "A" (Alum. Rail & Supports & Conc. Parapets)	132.33		589.04	
S-16	Lump	Sum	First Test Pile				Lump
S-18	5220	Lin. Ft.	Steel Piles, 10 BP 42	2490	2730		
S-25	**		Bridge Lighting				
S-29	124	C.Y.	Porous Backfill	124			
S-29	15	Each	Scuppers, including supports			15	
S-29	183	Lin. Ft.	6" ϕ Helical Non-Perforated CMP, M-64 (h)	183			
S-29	238	Lin. Ft.	6" ϕ Helical Perforated CMP, M-64 (h) Including special.	238			
I-10	1450	Sq. Yds.	Crushed Aggregate Slope Protection				1450
I-127	2	Each	Delineators (Type C-2) Bracket Mounted			2	
S-101	477	Each	Water-reducing, Set-retarding Admixture			477	

** Lighting quantities for this bridge will be found listed item by item on the Lighting General Summary, Sheet No 190, and shall be bid by items as shown thereon and considered as part of the quantities for this bridge.
Reinforcing steel for lamp standards are included with Item S-4 for payment.

* HORIZONTAL PARAPET REINFORCING THESE BARS ARE INCLUDED WITH THE RAILING FOR PAYMENT.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

REINFORCING STEEL LIST and
ESTIMATED QUANTITIES
BRIDGE No GUE-77-05/7 L&R
I-77 OVER C.R. 52 (Reloc.)
Sta. 273+55.68
GUERNSEY COUNTY Sta. 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWE	Henrikson		HT	TLU	12-28-64	

MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

220/262

GUERNSEY COUNTY
GUE-77-4.77

REFERENCES:

Standard Drawings:

End Dam and End Crossframe Details	SD-1-63, Sheets 2 & 4 Dated 11-12-63
Curb Plate Details	SD-1-63, Sheet 4 Dated 11-12-63
Gutter and Scupper Details	SD-1-63, Sheet 3 Dated 11-12-63
Railing Details, Type A	AR-1-57, Revised 4-2-62
Rocker and Bolster Details	RB-1-55, Revised 2-2-59
Approach Slab Details	AS-1-54, Revised 7-5-62

Supplemental Specifications

S-101	Dated 7-12-62
I-127	Revised 1-15-62
S-307	Dated 10-1-64

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

DESIGN DATA:

Design Loading: CF-2000 (57)

Concrete, Class "C": Basic unit stress = 1,333 p.s.i.

Concrete, Class "E": Basic unit stress = 1,133 p.s.i.

Structural Steel (except piling), ASTM, A-36: Basic unit stress = 20,000 p.s.i.
(ASTM A-7 and A-373 steel not permitted)

Reinforcing Steel, ASTM A-15, A-16, A-160, deformed intermediate or hard grade: Basic unit stress = 20,000 p.s.i. Spiral Reinforcement may be plain, structural grade with basic unit stress = 18,000 p.s.i.

WELDING of structural steel shall be Class "A" except as otherwise shown. Any welds shown as field welds may be, at the option of the Contractor, made in the shop. Class "B" welding shown thus:

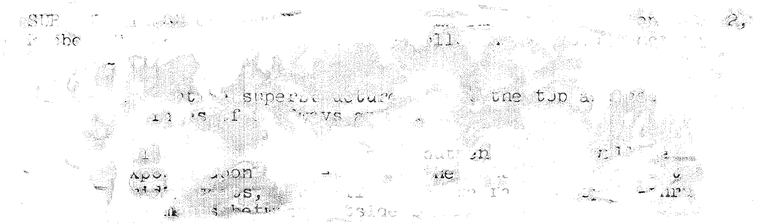
B

HIGH STRENGTH STEEL BOLTS: Reference shall be made to Paragraph 2, Section S-7.10 of the Construction and Material Specifications. This paragraph shall be replaced with the following:

In the final assembly of the parts to be bolted, drift pins shall be placed in a sufficient number of holes (not less than 25 per cent for field erection) to provide and maintain accurate alignment of holes and parts, and sufficient bolts shall be installed and brought to a snug tight condition to bring the parts into complete contact. Bolts shall then be installed in any remaining open holes and tightened to a snug tight fit, after which all bolts shall be tightened completely by calibrated wrenches, or by the turn-of-nut method. Drift pins shall then be replaced with bolts, tightened in the same manner. Bolt lengths determined by the use of Table 1 shall be adjusted to the next 1/4 inch length increment.

EMBANKMENT: The embankment for the north abutments shall be placed and compacted up to the finished spill-thru slope and to the level of the sub-grade for a distance of 200 feet back of the abutment prior to any work on Pier 2 and the north abutment. Work shall not be initiated on these units for a minimum period of 60 days after the completion of the embankment. The embankment for the south abutments shall be placed and compacted up to the finished spill-thru slope and to the level of the earth at the face of the abutments after which excavation shall be made for the abutments and piling driven.

EXCAVATION QUANTITY includes the removal of fill material required for the construction of the piers and abutments.



CONCRETE DECK PLACING: In order to facilitate water curing of the concrete in the deck slab, the placing of concrete shall progress up grade. The slab may be placed in sections between transverse construction joints which are parallel to the transverse slab bars and are located near the center of any span.

MACHINE FINISH: At the option of the Contractor, the concrete bridge deck may be finished by the use of a finishing machine.

CRUSHED AGGREGATE SLOPE PROTECTION shall be provided under the structure as indicated on the General Plan.

TRAFFIC MAINTENANCE: For details of traffic maintenance, see Roadway Plans.

FOUNDATION BEARING PRESSURE: Pier 1 (northbound) footings are designed for a maximum bearing pressure of 5 tons per square foot.

PIER 1 (Northbound) FOOTINGS shall extend a minimum of 3 inches into undisturbed rock or to the elevation shown, whichever is lower.

PILES shall be driven to firm contact with rock. If the length of penetration is approximately equal to the depth of rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Section S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

55 tons per pile using an 11000 ft. lb. hammer.
50 tons per pile using an 15000 ft. lb. hammer.

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 30 tons per pile for the south abutment piles, 35 tons per pile for the north abutment piles, 30 tons per pile for Pier 1 (southbound) piles, and 35 tons per pile for the Pier 2 piles.

DELINEATORS: For delineator details, see Roadway Plans.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

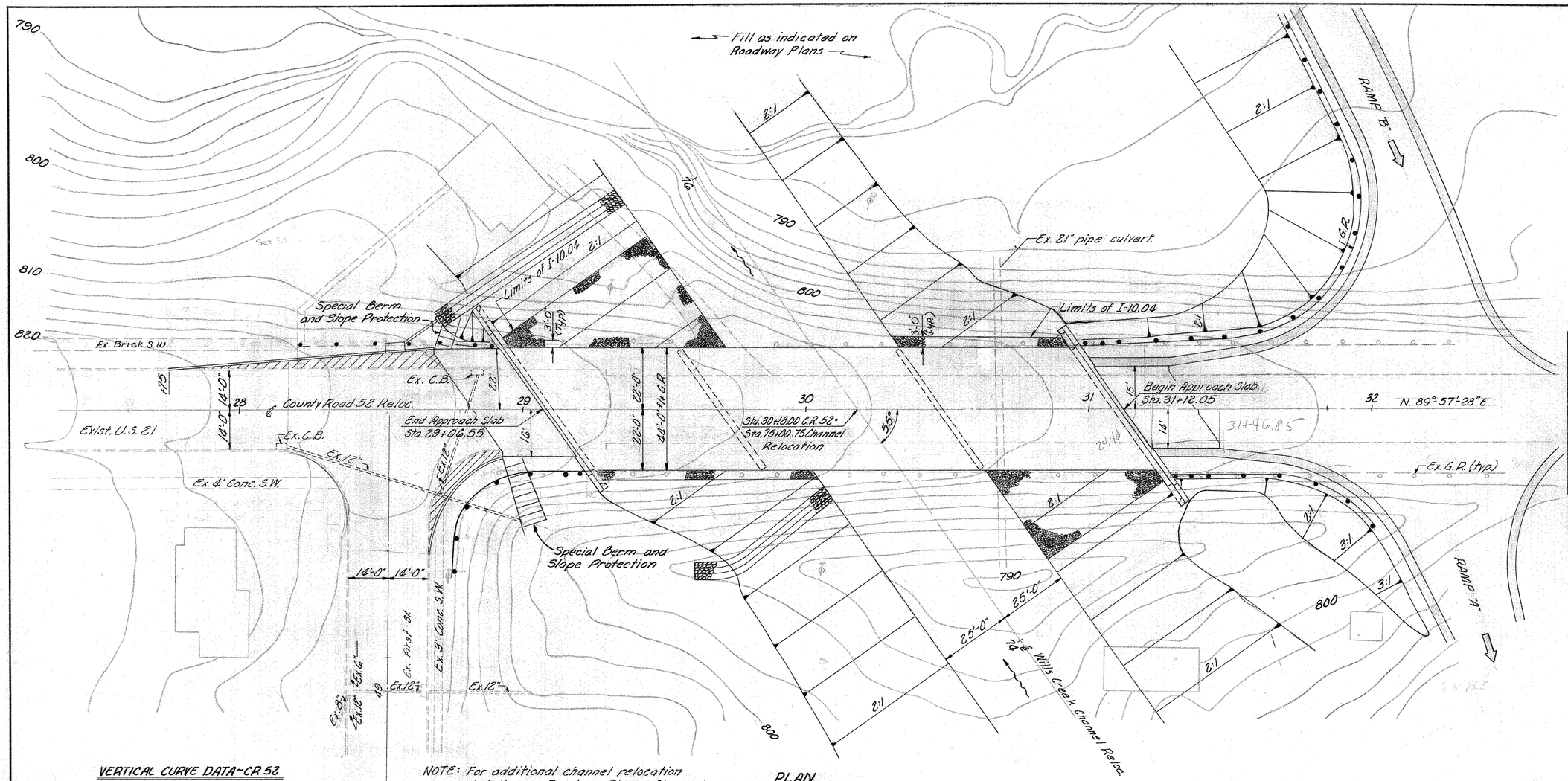
GENERAL NOTES
BRIDGE No. GUE-77-0517 L&R
I-77 OVER C.R. 52 (Re/oc.)
STA 273+55.68
GUERNSEY COUNTY STA 275+06.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
				TLU	12-23-68	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

221/262

GUERNSEY COUNTY
GUE-77-4.77



PROPOSED STRUCTURE

TYPE: Continuous steel beam with reinforced concrete deck and substructure
SPANS: 61'-6" ~ 77'-0" ~ 61'-6" ℄ bearings
ROADWAY: 44'-0" f/f guardrails
LOADING: C F 400 (1957)
WEARING SURFACE: 1" monolithic concrete
SKEW: 35°00'00" Right Forward
ALIGNMENT: Tangent
APPROACH SLAB: 25' long ~ AS-1-54

VERTICAL CURVE DATA - CR 52

P.V.I. Sta. 32+25.00
V.C. = 450'
Elev. = 799.65
Corr. = 2.59'
P.G. = 802.24
g_1 = -4.00%, g_2 = +0.60%

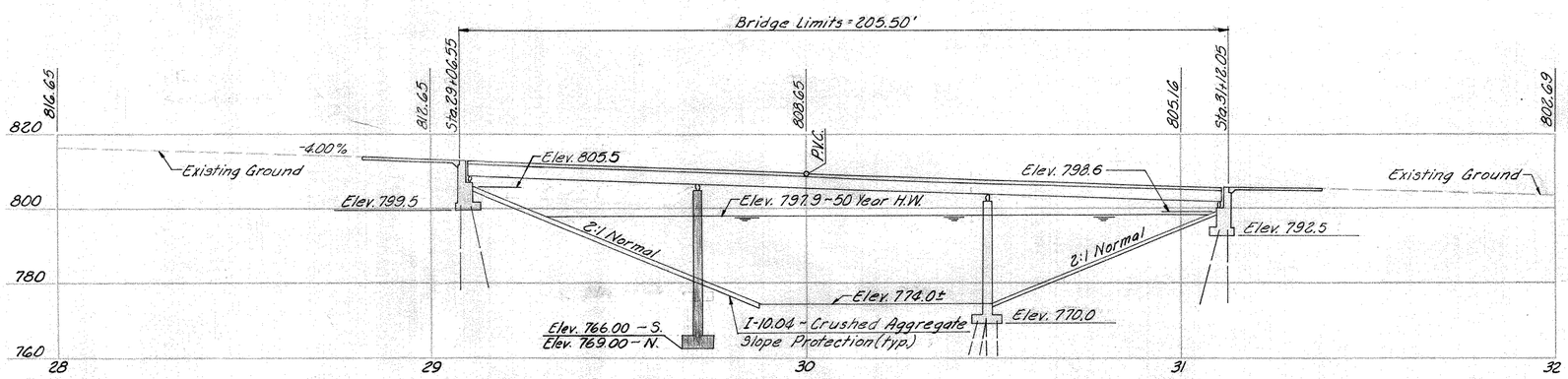
NOTE: For additional channel relocation details see Roadway Plans. Channel excavation shall be included with Roadway quantities.

PLAN

DRAINAGE INFORMATION

1. Drainage Area: 287 square miles, of which 121 square miles are controlled by Senecaville Dam.
2. Flood Discharge: 11,000 cfs, 50 year frequency
   7,200 cfs, 10 year frequency
3. Predicted High Water Elevation: 797.9±, 50 year frequency
   796.6±, 10 year frequency
4. Proposed Gross Waterway: 2340 square feet below 797.9
   2150 square feet below 796.6

See sheet No. 222A for revisions 3-30-66



PROFILE (ALONG ℄ C.R. 52)

Estimated Average Pay Lengths - 10 BP 42 Piles
West Abut. - Varies from 7'(N) to 22'(S.)
Pier # 2 - Varies from 14'(N.) to 21'(S.)
East Abut. - Varies from 28'(N.) to 44'(S.).

J-11

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SITE PLAN

BRIDGE - COUNTY ROAD 52
RELOC. OVER WILLS CREEK

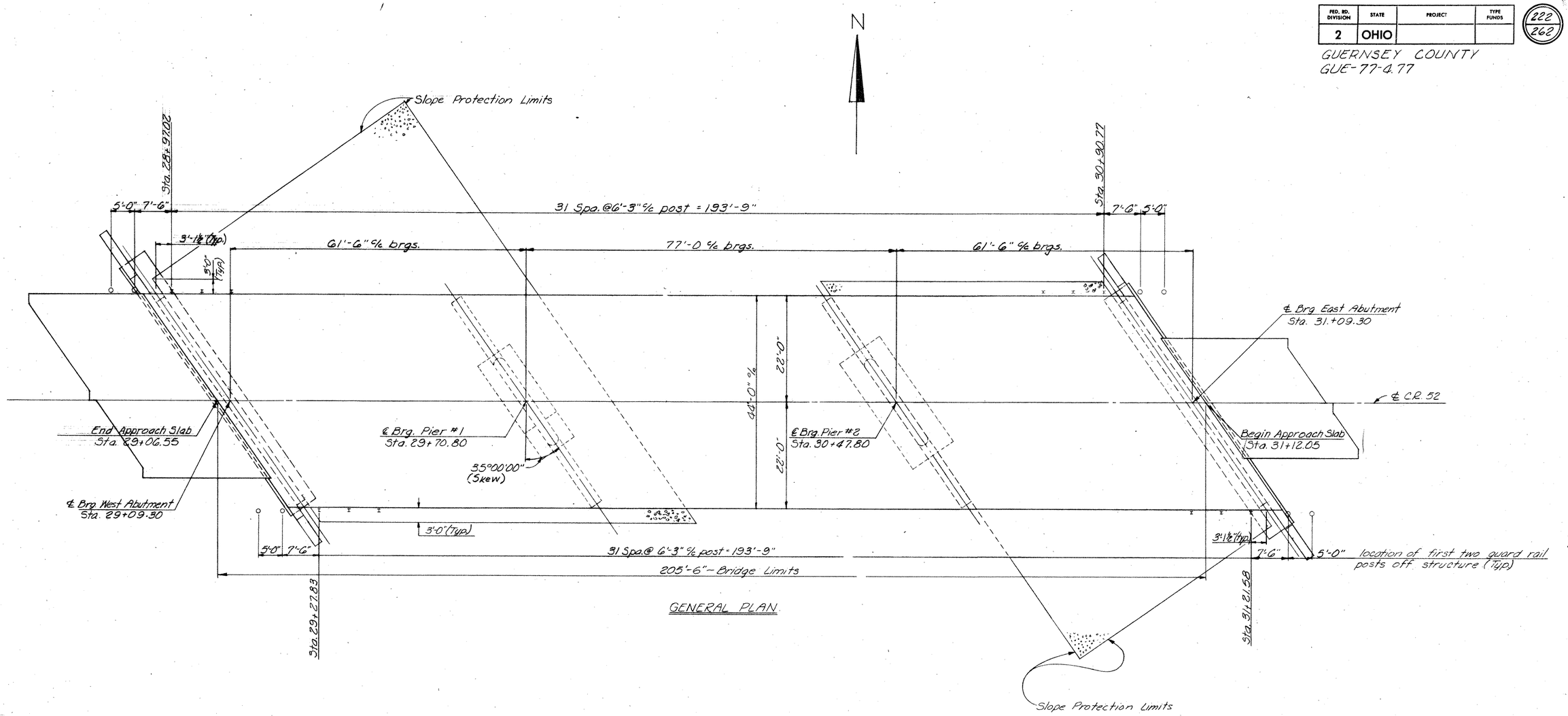
GUERNSEY COUNTY STA. 29+06.55 STA. 31+12.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
ANA	ANA	ESB	HT	TLU	12-22-64	

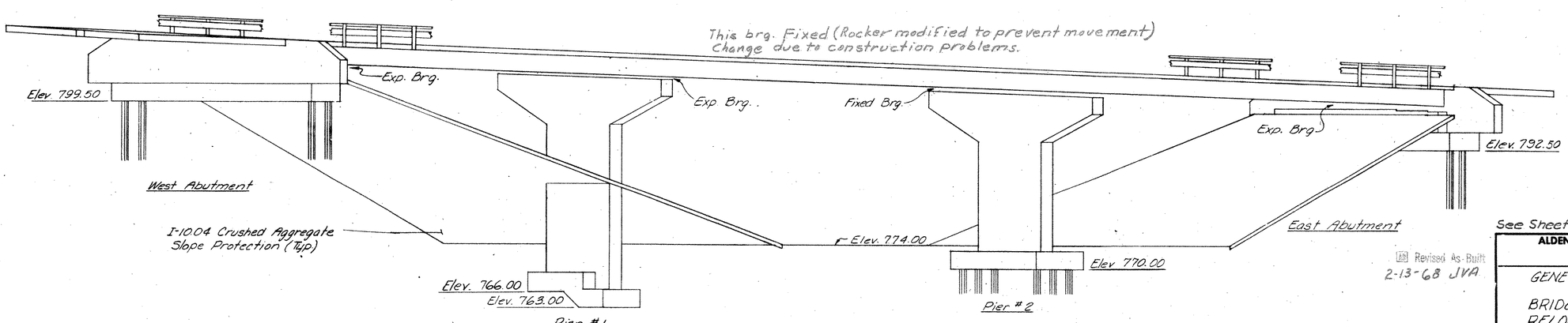
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

222
262

GUERNSEY COUNTY
GUE-77-4.77



GENERAL PLAN



GENERAL ELEVATION

Revised As-Built
2-13-68 JVA

See Sheet No. 222A for revision 3-30-66

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

GENERAL PLAN AND ELEVATION

BRIDGE ~ COUNTY ROAD 52
RELOC. OVER WILLS CREEK

GUERNSEY COUNTY STA. 29+06.55 STA. 31+12.05

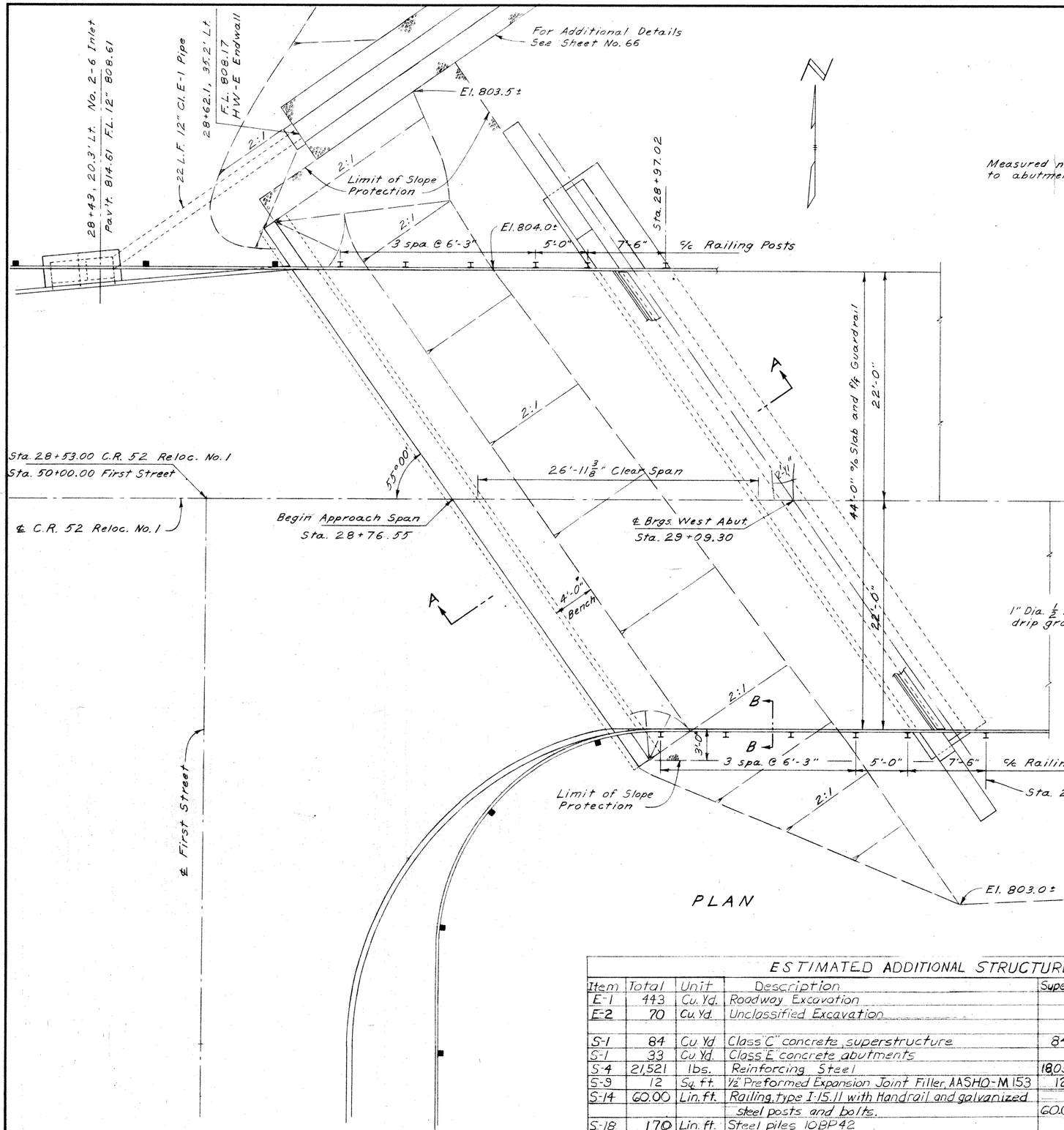
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	ESB DWH		RWE	TLU	12-22-64	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

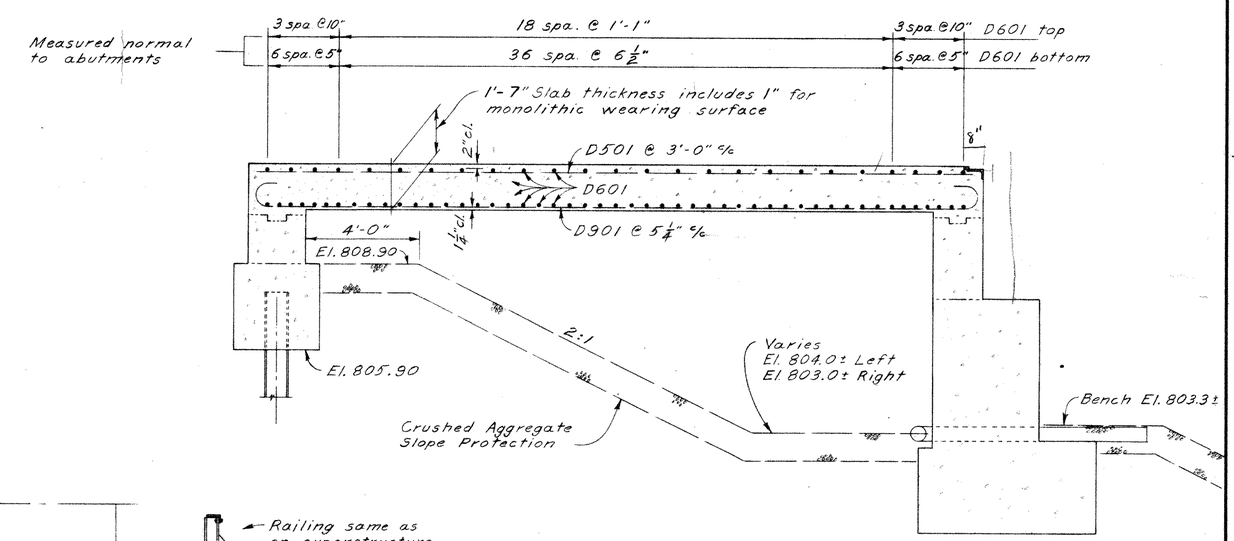
222A
262

GUERNSEY COUNTY
GUE-77-4.77

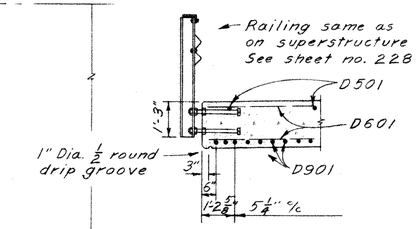
D901 and D501 bars shall be placed parallel to centerline of roadway. D601 bars shall be placed parallel to abutments. Lap D601 1'-11" minimum.



PLAN



SECTION A-A



SECTION B-B

NOTES

PILES shall be driven to firm contact with rock. (See note sheet no. 231). The design load is 23 tons per pile. Estimated average pay length varies from 4 ft. at the north to 34 ft. at the South.

Sheets 222A and 222B are supplemental to sheets 52, 55, 66, 131, 142, 221, 222, and 223

Sheets 222A and 222B show details of approach span which was added because of soil problems.

ESTIMATED ADDITIONAL STRUCTURE QUANTITIES

Item	Total	Unit	Description	Superst.	Abuts.	Gen'l	Piers	As	Built
E-1	443	Cu. Yd.	Roadway Excavation			443			
E-2	70	Cu. Yd.	Unclassified Excavation		70				
S-1	84	Cu. Yd.	Class "C" concrete, superstructure	84					
S-1	33	Cu. Yd.	Class "E" concrete abutments		33				
S-4	21,521	lbs.	Reinforcing Steel	18,036	3,485				
S-9	12	Sq. ft.	1/2" Preformed Expansion Joint Filler, AASHO-M 153	12					
S-14	60.00	Lin. ft.	Railing, type I-15.11 with Handrail and galvanized						
			steel posts and bolts.	60.00					
S-18	170	Lin. ft.	Steel piles 10BP42		170				
S-101	84	Each	Water-reducing, set-retarding admixture	84					
I-10	190	Sq. Yd.	Crushed Aggregate slope protection.			190			

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

APPROACH SPAN DETAILS

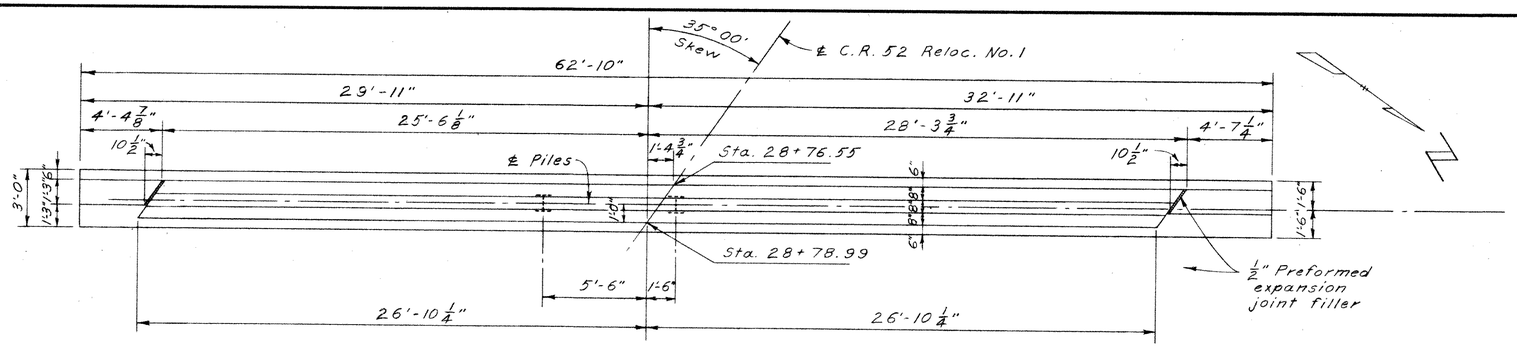
BRIDGE - COUNTY ROAD 52
RELOC. OVER WILLS CREEK
GUERNSEY COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FFE	FFE		Kug		3/30/66	

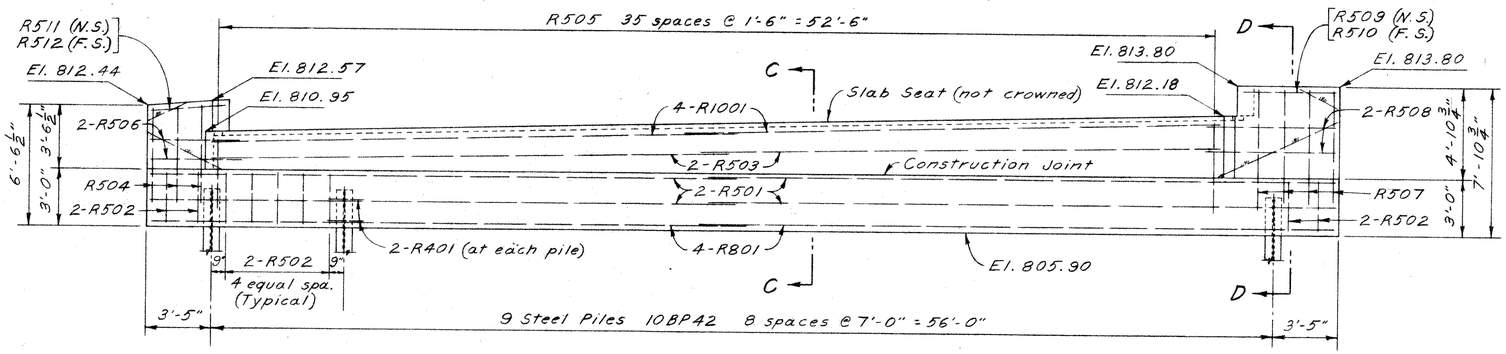
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

222B
262

GUERNSEY COUNTY
GUE-77-4.77



APPROACH SPAN ABUTMENT PLAN

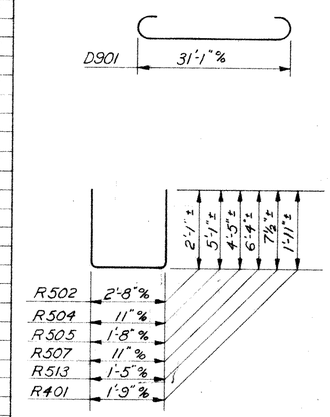


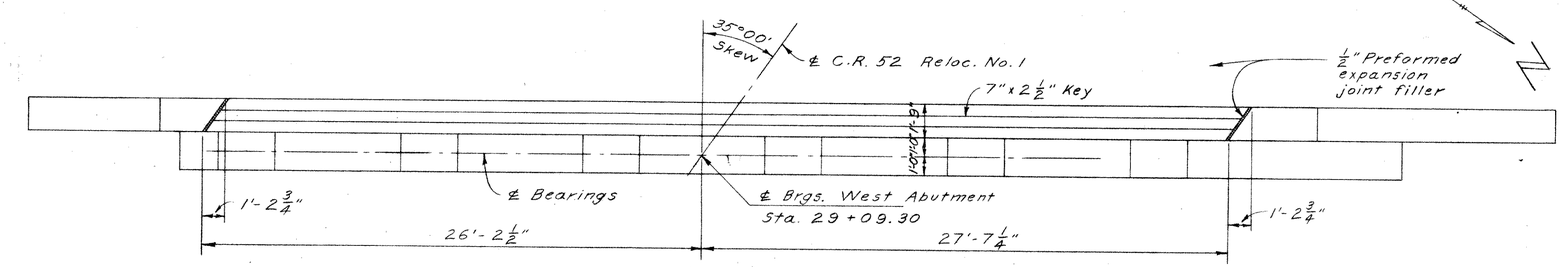
ELEVATION
APPR. SPAN ABUT.

REINFORCING STEEL LIST

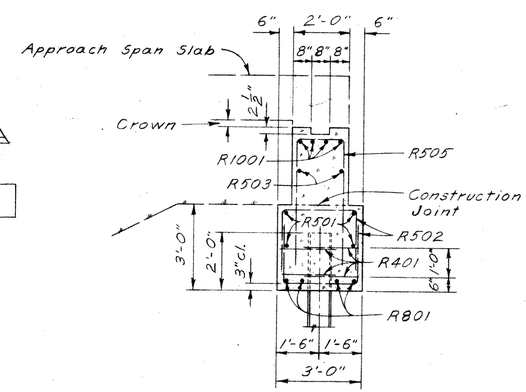
Mark	No	Length	Weight	Shp
Superstructure				
D901	100	33'-7"	11,418	B
D601	148	27'-7"	6,132	S
D501	15	31'-1"	486	S
Abutments				
R1001	8	28'-4"	975	S
R801	8	32'-6"	694	S
R501	8	32'-1"	268	S
R502	88	6'-7"	604	B
R503	4	27'-6"	115	S
R504	3	10'-10"	34	B
R505	36	10'-3"	385	B
R506	4	6'-0"	25	S
R507	4	13'-4"	56	B
R508	4	7'-2"	30	S
R509	1	5'-0"	5	S
R510	2	4'-4"	9	S
R511	2	3'-4"	7	S
R512	1	3'-11"	4	S
R513	55	2'-5"	139	B
R514	2	2'-2"	5	S
R401	36	5'-5"	130	B

Bending Diagrams

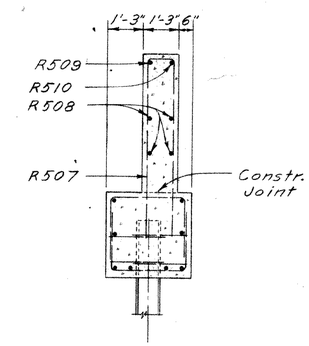




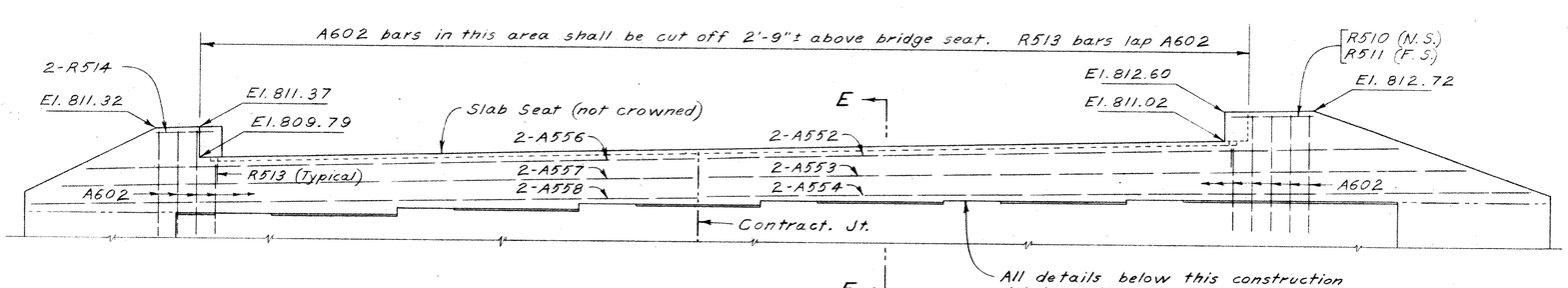
WEST ABUTMENT PLAN
Showing Backwall and Bridge Seat. For additional details, see sheet no. 223



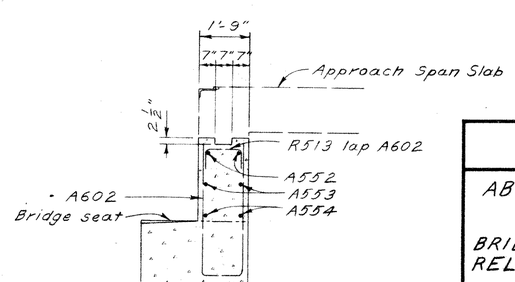
SECTION C-C



SECTION D-D



PART ELEVATION
WEST ABUT.



SECTION E-E

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

ABUTMENT DETAILS

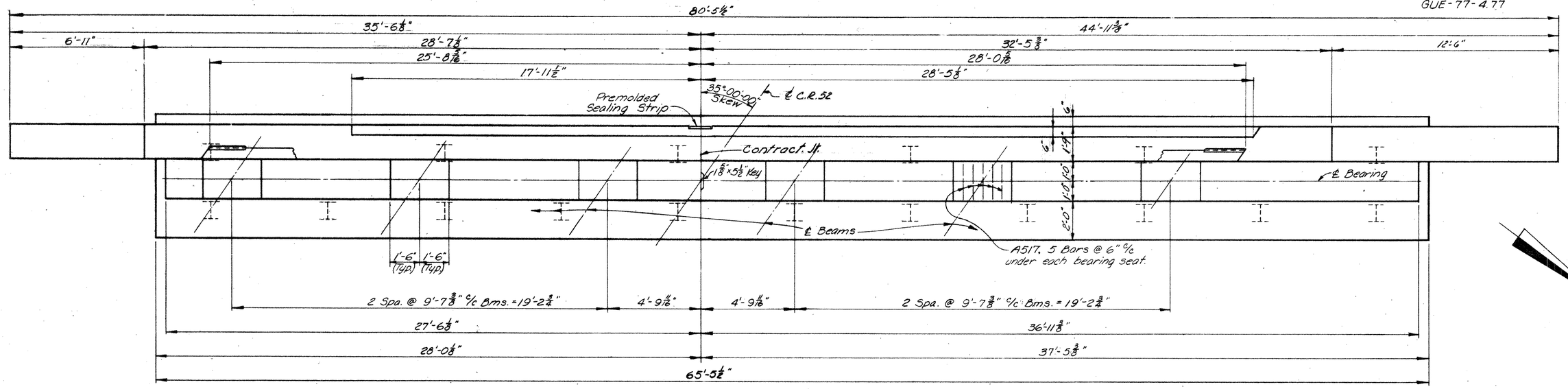
BRIDGE - COUNTY ROAD 52
RELOC. OVER WILLS CREEK
GUERNSEY COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FFE	FFE		Ray		3/30/66	

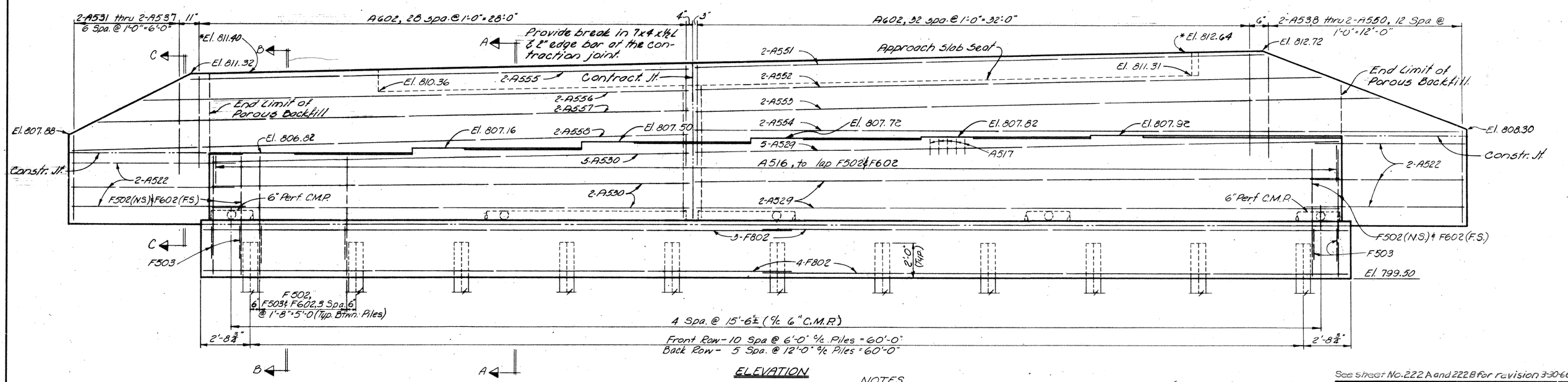
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

223
262

GUERNSEY COUNTY
GUE-77-4.77



PLAN



ELEVATION

6" Perf. C.M.P. shall have all ends capped.

Break pipe at contraction joint.

Premolded sealing strip shall be placed in a 1⅝"x¾" recess as per S-3. Sealing strip shall extend from top of footing to approach slab seat.

NOTES

All piles shall be 10 BP 42 steel piles.

The top of the backwall shall conform to the crown of the superstructure deck

The entire front row of piles shall be battered

For additional notes and details see Sheet No. 225

Reinforcing Steel Location:
N.S. denotes near side.
F.S. denotes far side.

* Elevations marked with an asterisk are top of edge bar at the end of the end dam.

No reinforcing steel shall extend through Contraction Joint

See sheet No. 222 A and 222 B for revision 3-30-66

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

WEST ABUTMENT

BRIDGE - COUNTY ROAD 52
RELOC. OVER WILLS CREEK

GUERNSEY COUNTY

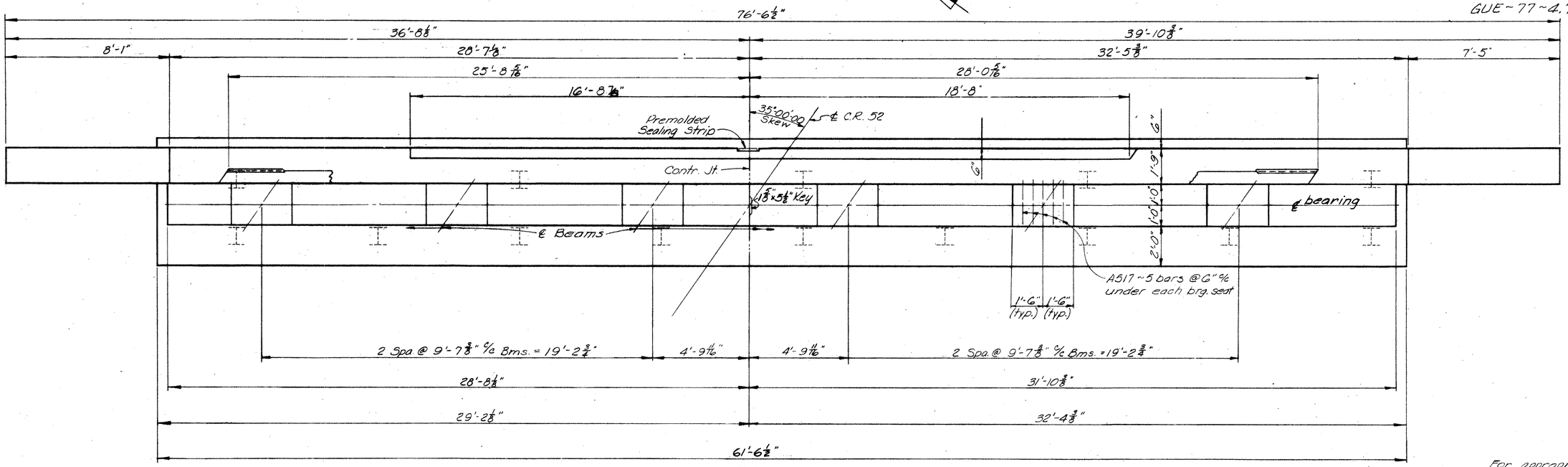
Sta. 29+06.55
Sta. 31+12.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Withem	Kennedy		RWE	TLU	12-22-64	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

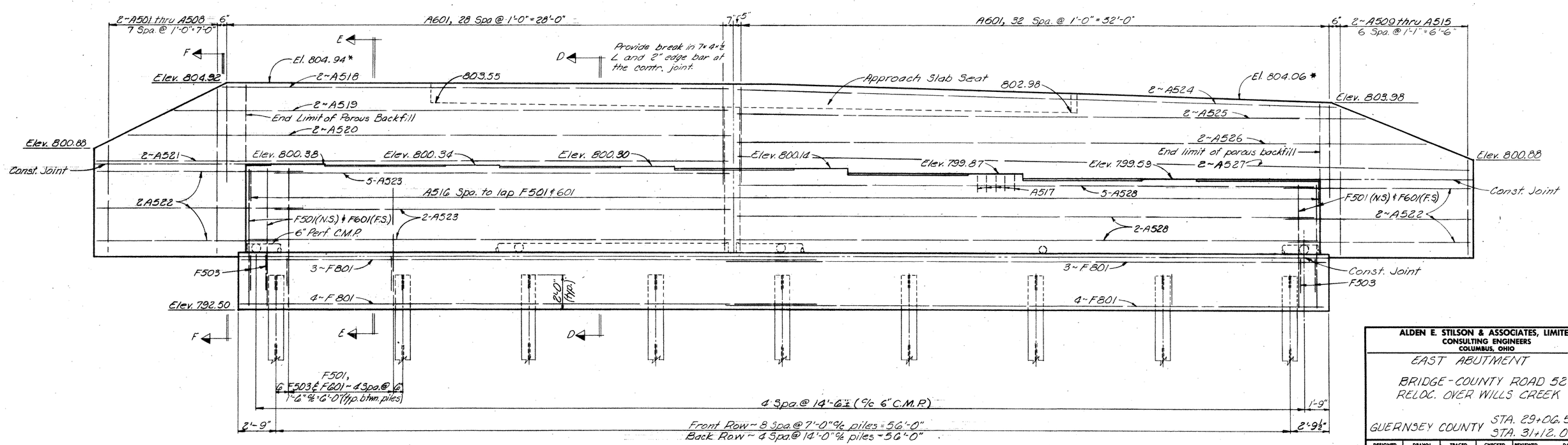
224
262

GUERNSEY COUNTY
GUE-77-4.77



PLAN

For appropriate notes and details, see sheets 223 & 225



ELEVATION

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

EAST ABUTMENT

BRIDGE-COUNTY ROAD 52
RELOC. OVER WILLS CREEK

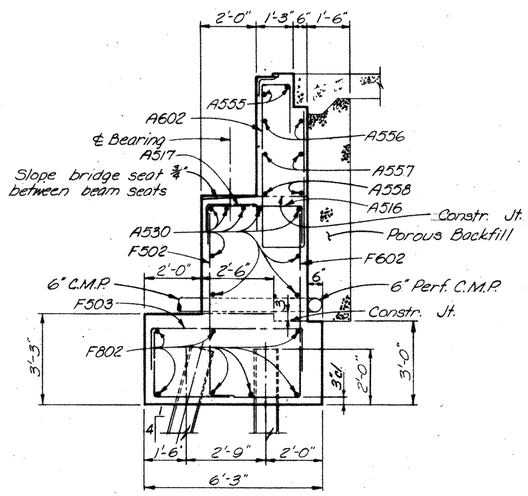
GUERNSEY COUNTY STA. 29+06.55 STA. 31+12.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	ESB		RWE	TLU	12-22-64	

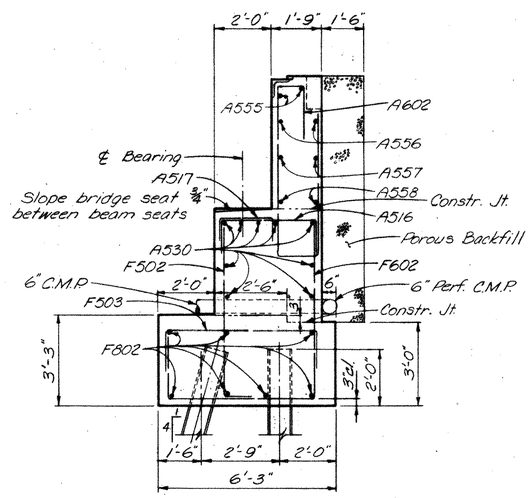
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

225
262

GUERNSEY COUNTY
GUE - 77 - 4.77



SECTION A-A



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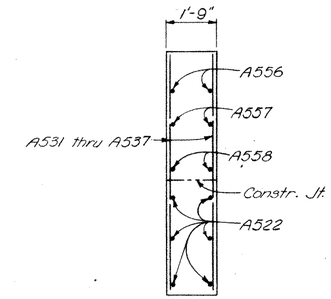
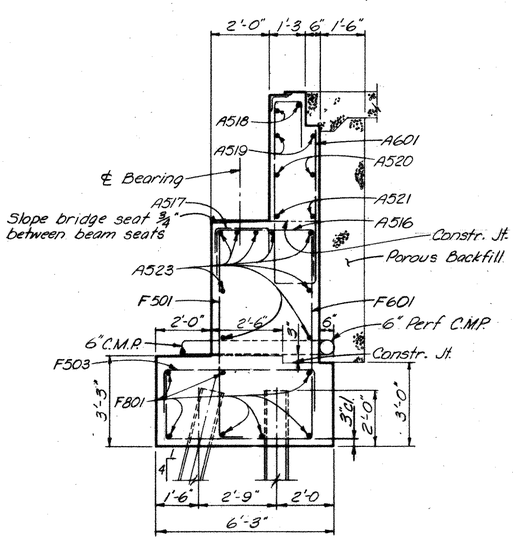
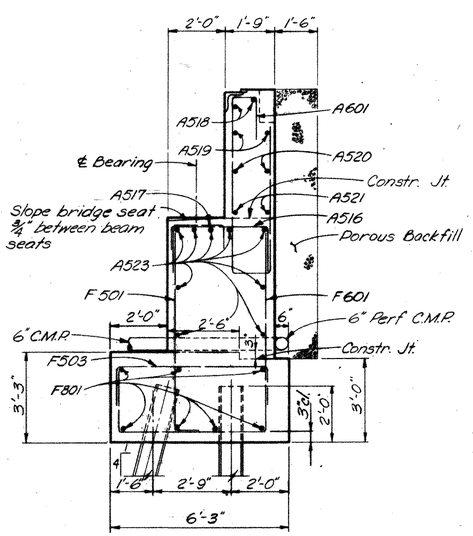


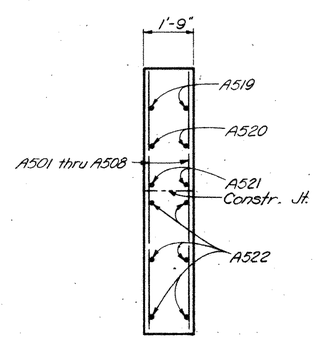
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

For location of sections A-A, B-B & C-C, see sheet 223
For location of sections D-D, E-E & F-F, see sheet 224

Porous backfill shall be placed between the limits shown (Sheets 239 & 240) and shall extend upward to the approach slab or to the bottom of the stabilized shoulders or to the surface of the earth shoulders. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.

The 6" C.M.P. shown through the abutment shall extend outward to the crushed aggregate slope protection.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

ABUTMENT DETAILS
BRIDGE - COUNTY ROAD 52
RELOC. OVER WILLS CREEK

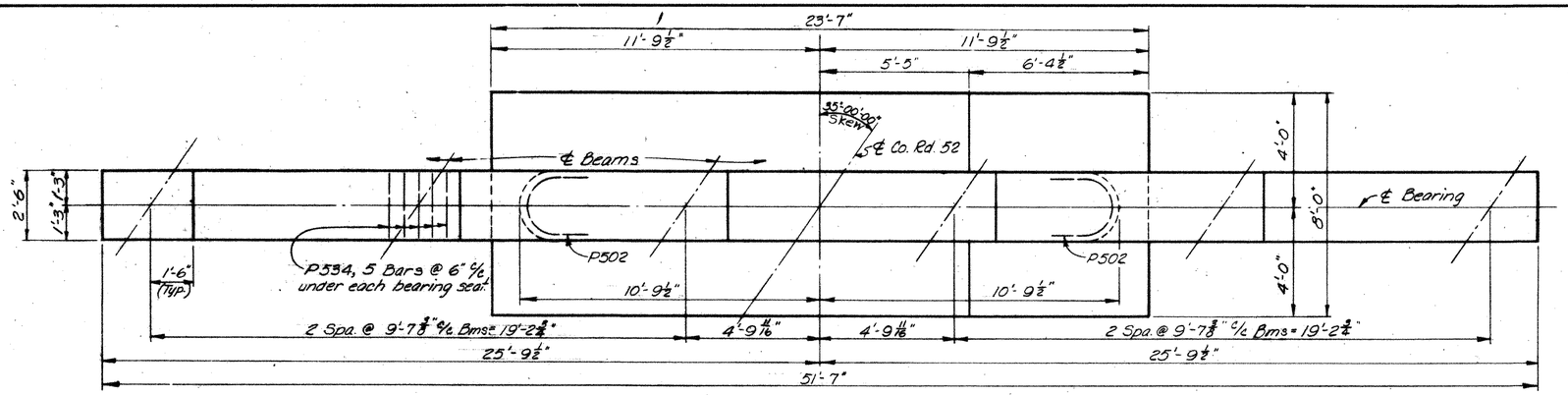
GUERNSEY COUNTY — Sta. 29+06.55 Sta. 31+12.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	[illegible]		RWE	TLU	12-22-64	

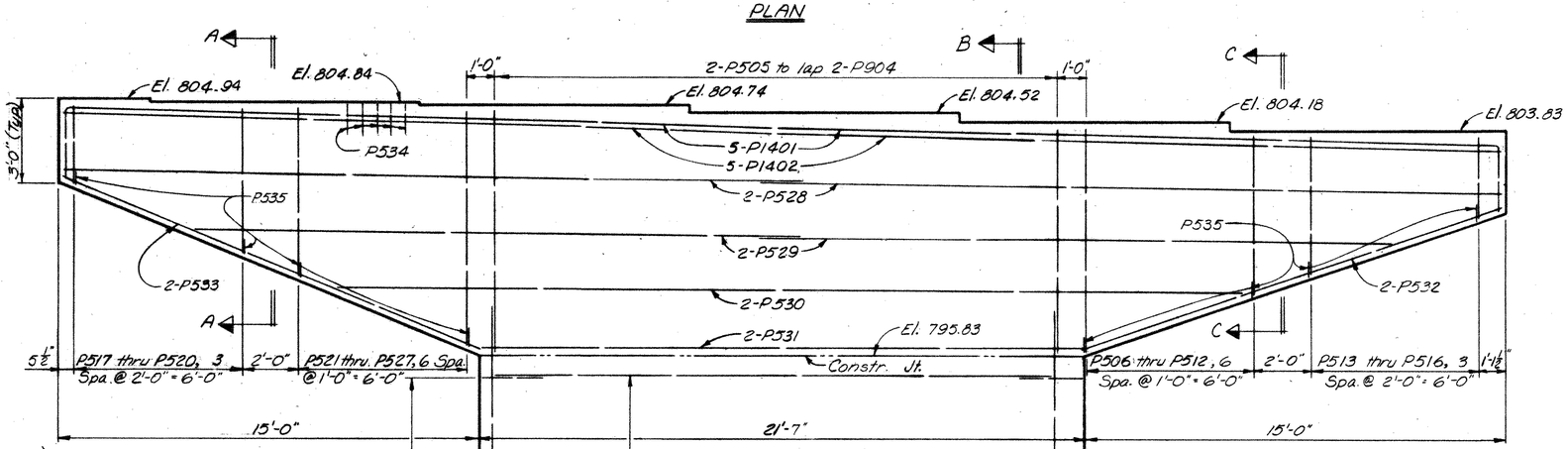
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

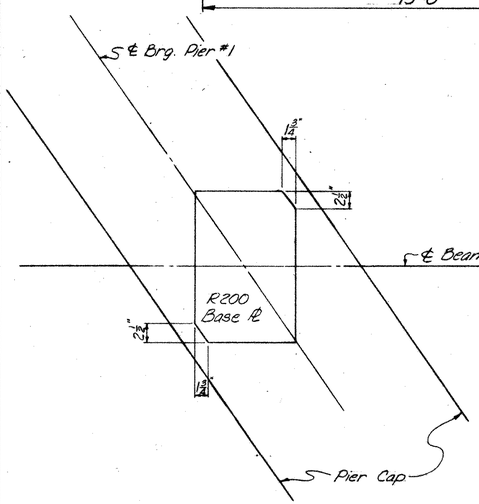
226/262

GUERNSEY COUNTY
GUE-77-4.77

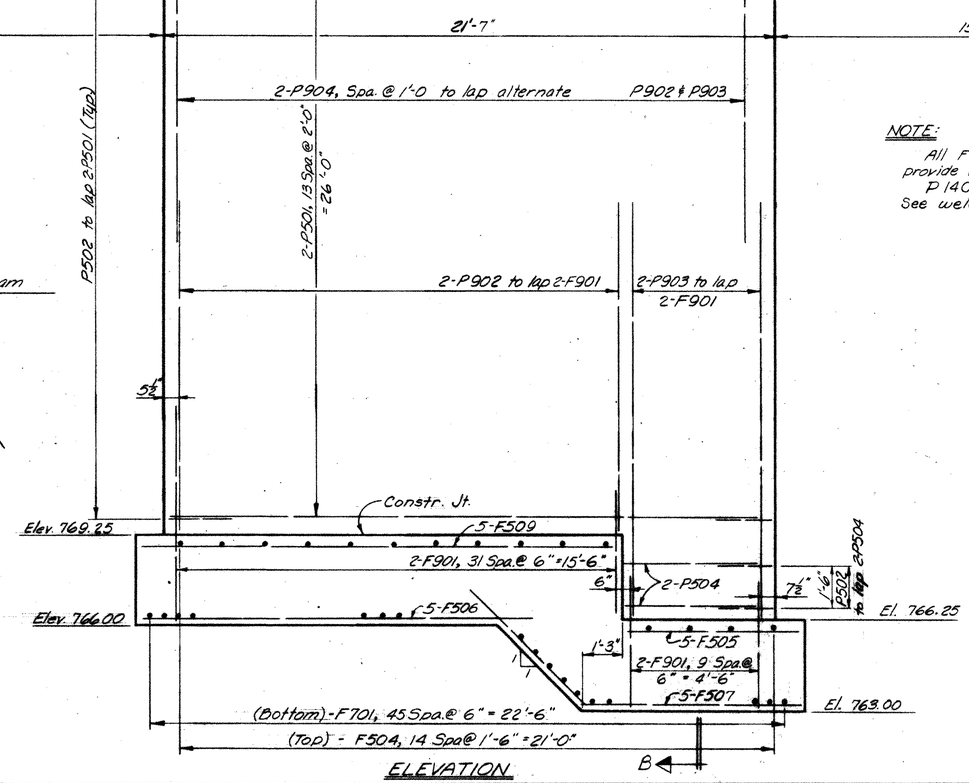


PLAN



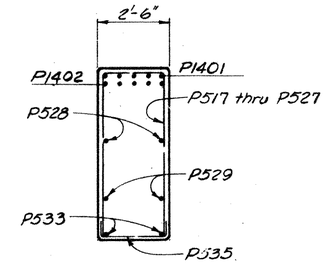


BASE PLATE DETAIL
Clip Corners As Shown (All Beams)

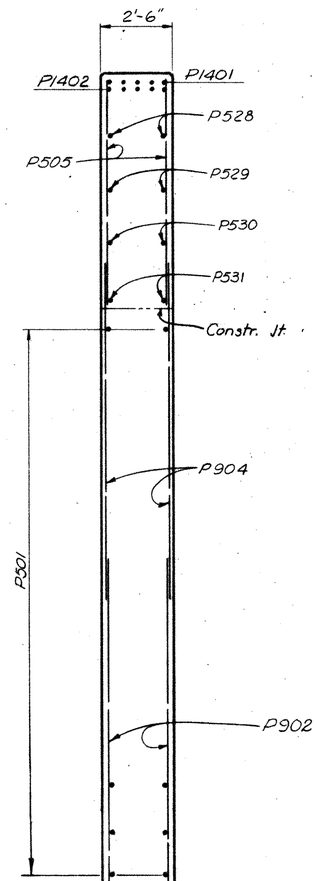


ELEVATION

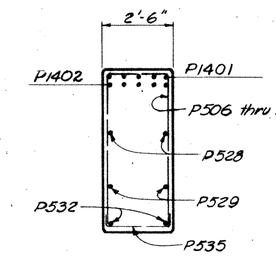
NOTE:
All F901 bars shall be placed so as to provide a 2'-10" lap with vertical wall steel. P1401 and P1402 bars to be welded. See weld detail on sheet No. 227



SECTION A-A



SECTION B-B



SECTION C-C

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

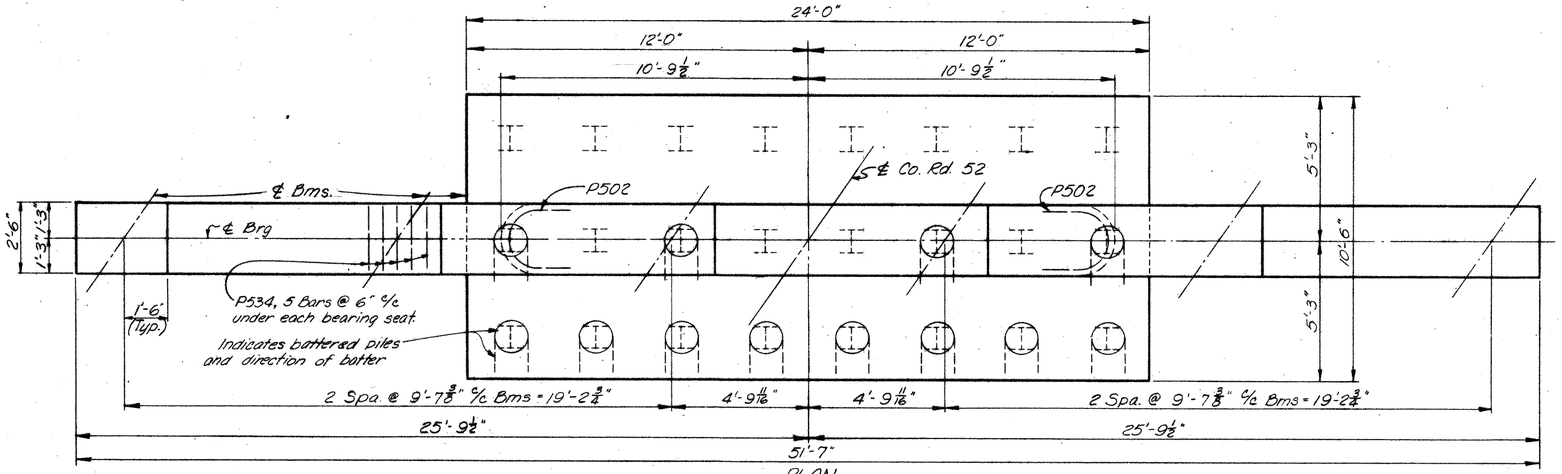
PIER # 1
BRIDGE ~ COUNTY ROAD 52
RELOC. OVER WILLS CREEK
GUERNSEY COUNTY
Sta. 29+06.55
Sta. 31+12.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	Henrikson		RWE	TLU	12-22-64	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

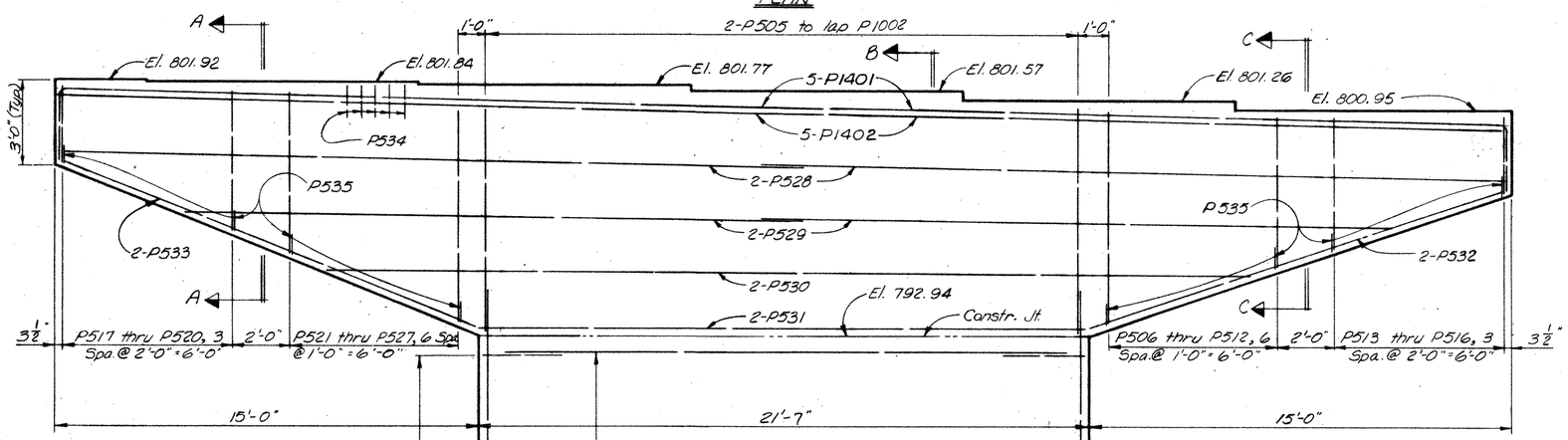
227/262

GUERNSEY COUNTY
GUE-77-4.77

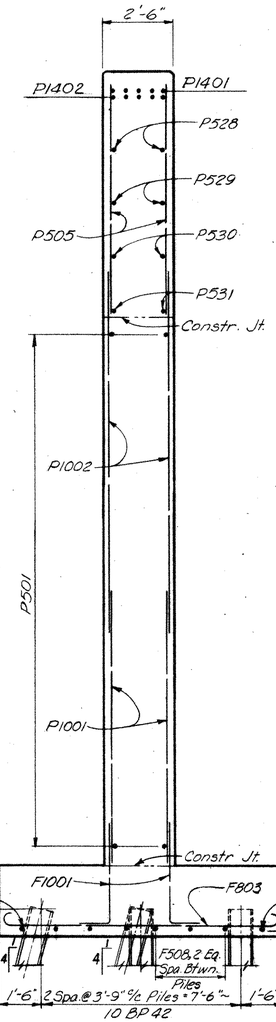


PLAN

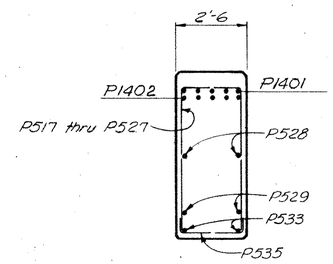
NOTE:
Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.



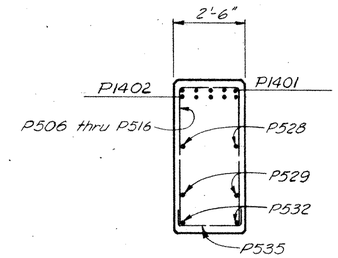
ELEVATION



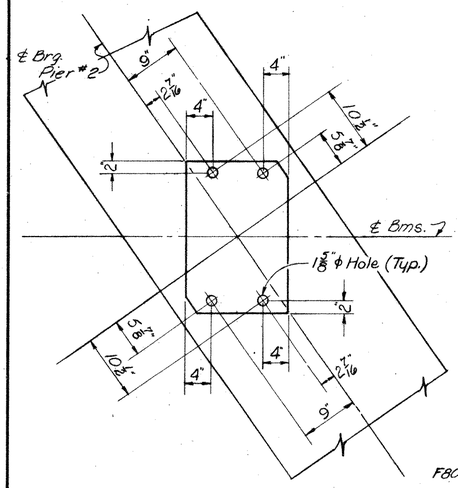
SECTION B-B



SECTION A-A

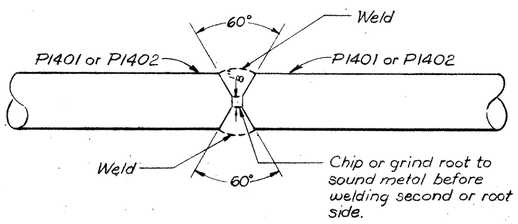


SECTION C-C



ANCHOR BOLT LOCATION DETAIL

Clip base plate corners as per Pier #1 see sheet 226 (Typ. all beams)



FIELD WELDING DETAIL

For P1401 and P1402 Bars

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER # 2

BRIDGE ~ COUNTY ROAD 52

RELOC. OVER WILLS CREEK

GUERNSEY COUNTY

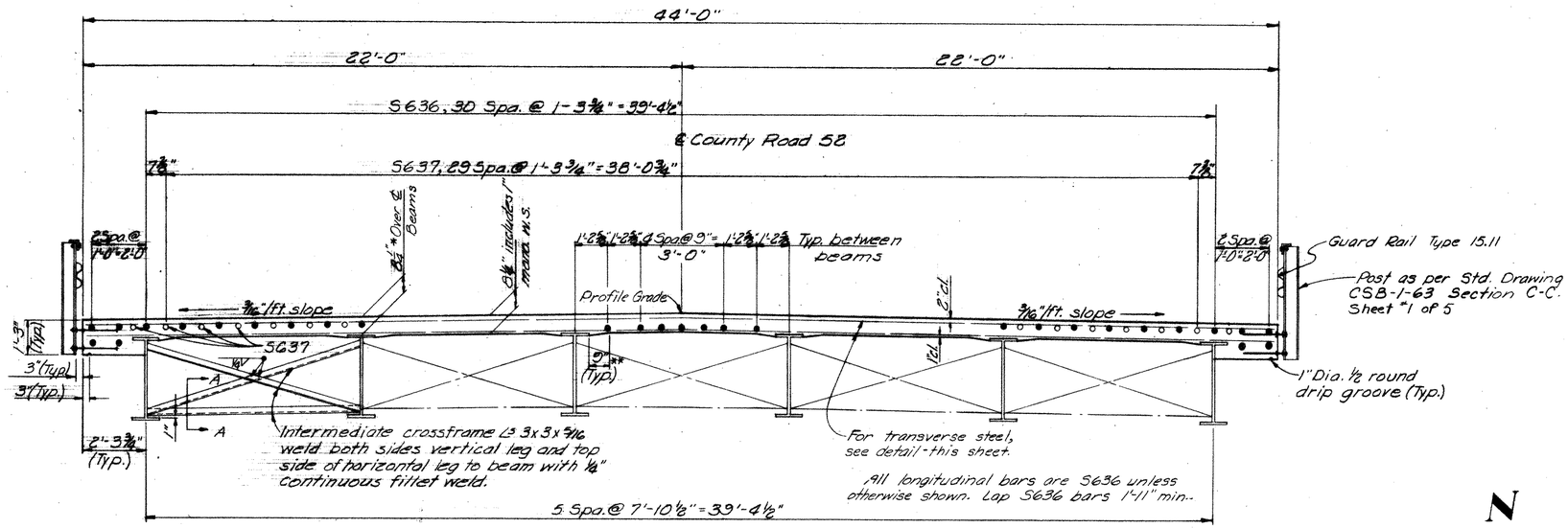
Sta. 29+06.55
Sta. 31+12.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	Hennigan		RWE	TLU	12-22-64	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

228/262

GUERNSEY COUNTY
GUE-77-4.77



TRANSVERSE SECTION

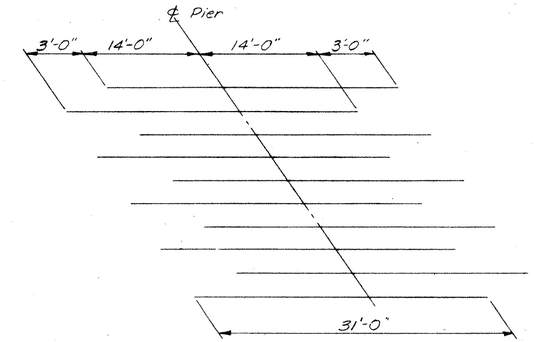
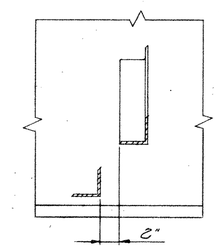
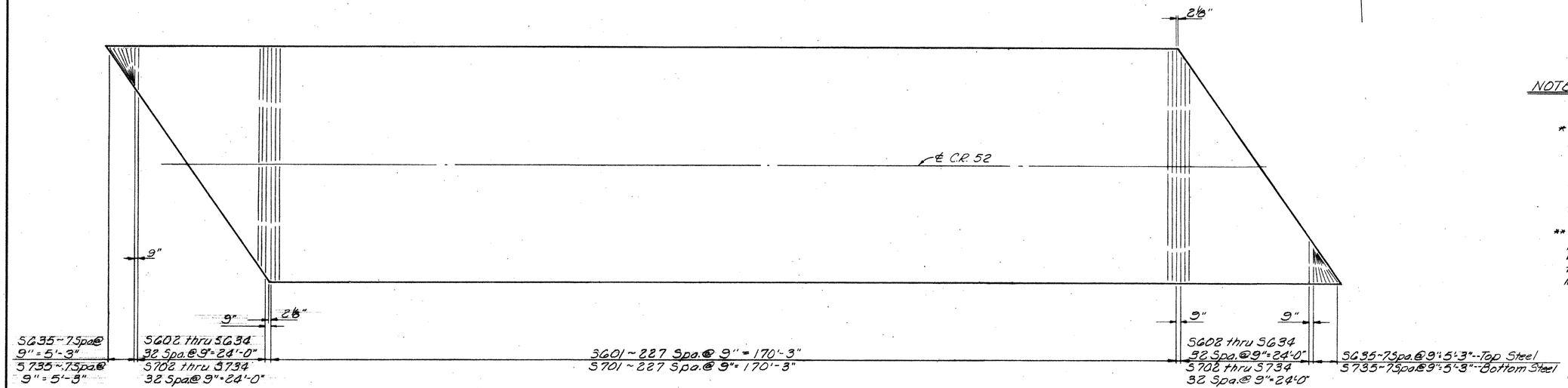


DIAGRAM SHOWING STAGGER OF S637 BARS OVER PIERS



SECTION A-A



TRANSVERSE STEEL

N

NOTES

For details not shown see Std. Dwg. No. CSB-1-63.

*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 beam may not have the exact camber or conformation required to place it parallel to the finished grade.

** A typical haunch width of 9" shall be used for computing quantity of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.

Transverse slab bars are field bent to fit crown. Cost is included with Item S-4.

Beams shall be fabricated to maintain 3" min. clearance from face of backwall.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE - COUNTY ROAD 52
RELOC. OVER WILLS CREEK

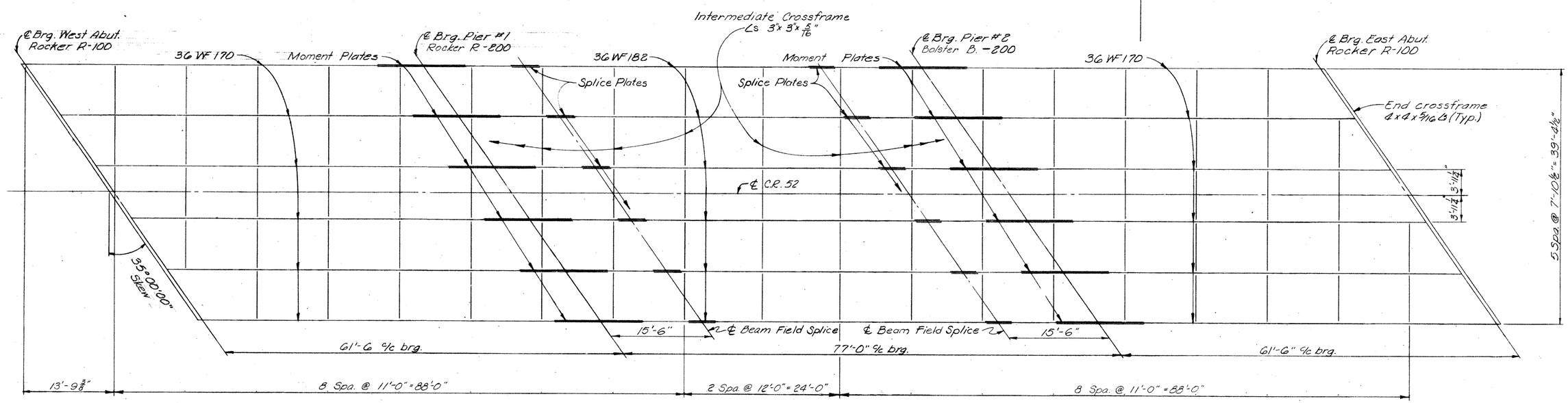
GUERNSEY COUNTY STA. 29+06.55 STA. 31+12.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	ESB		RWE	TLU	12-22-64	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

229
262

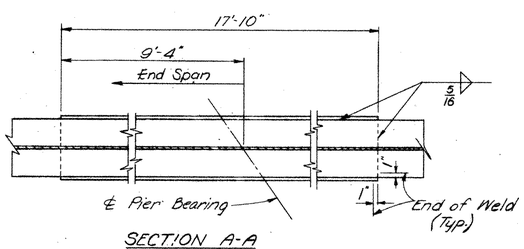
GUERNSEY COUNTY
GUE-77-4.77



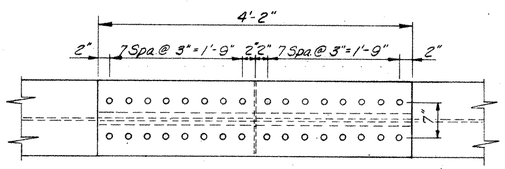
FRAMING PLAN

NOTE: Clip base plates on rockers and bolsters as indicated on sheet 226

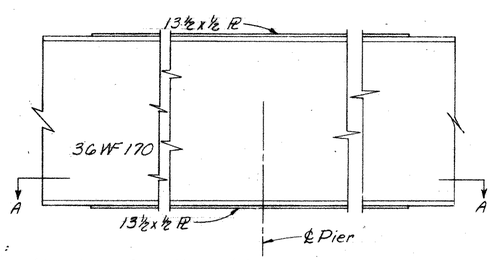
DEFLECTION AND CAMBER (inches)																		
LOCATION	SPAN #1						SPAN #2						SPAN #3					
	.25 pt.		.50 pt.		.75 pt.		.20 pt.		.50 pt.		.80 pt.		.25 pt.		.50 pt.		.75 pt.	
	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.
Defl. due to wt. of steel	1/16	1/16	1/16	1/16	0	0	1/16	1/16	1/8	1/8	1/16	1/16	0	0	1/16	1/16	1/16	1/16
Defl. due to remaining D.L.	3/8	5/16	3/8	5/16	1/8	1/8	3/16	3/16	7/16	7/16	3/16	3/16	1/8	1/8	3/8	5/16	3/8	5/16
Camber due to vert. curve	0	0	0	0	0	0	-3/8	-3/8	-5/8	-5/8	-3/8	-3/8	-7/16	-7/16	-9/16	-9/16	-7/16	-7/16
Total	7/16	3/8	7/16	3/8	1/8	1/8	-1/8	-1/8	-1/16	-1/16	-1/8	-1/8	-5/16	-5/16	-1/8	-3/16	0	-1/16
Camber required	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



SECTION A-A

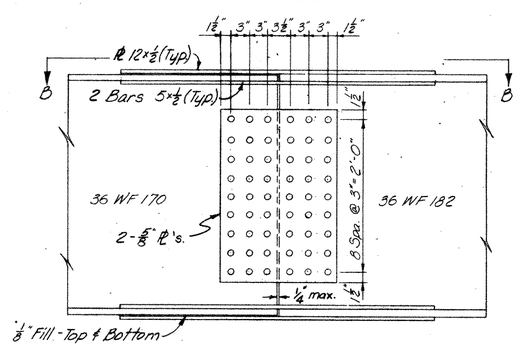


VIEW B-B



NOTE:
Welds shown for bottom plate are typical for top plate.

MOMENT PLATE DETAIL



FIELD SPLICE DETAIL

NOTE: 7/8" ϕ High strength bolts shall be used
Place heads on fascia side of exterior beams, and down on the bottom flange.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE - COUNTY ROAD 52
RELOC. OVER WILLS CREEK

GUERNSEY COUNTY STA. 29+06.55 STA. 31+12.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	ESB		RWE	TLU	12-22-64	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

230
262

GUERNSEY COUNTY
GUE-77-4.77

REINFORCING STEEL LIST

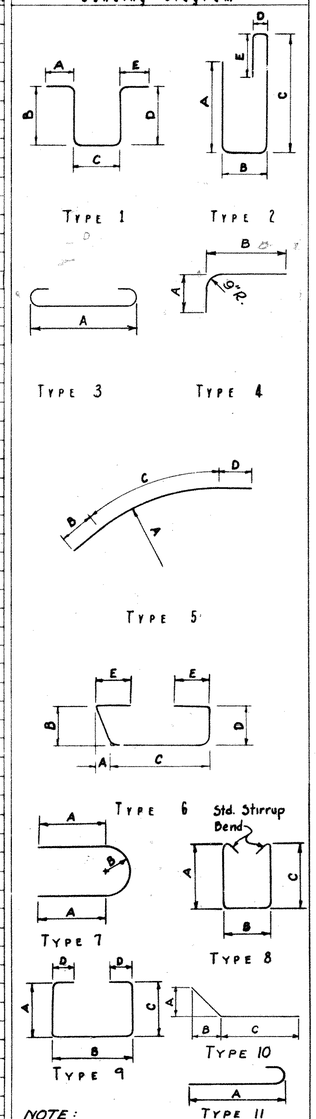
Mark	Nº	Length	Weight		Shp.
SUPERSTRUCTURE					
S601	228	43-8	14,954		st.
S602	2	42-10			st.
thru	Varies By	1'-0 7/8"	2,544		
S634	2	8-6			st.
S635	16	7-5	178		st.
S636	444	35-2	23,453		st.
S637	64	31-0	2,980		st.
S701	228	43-8	20,350		st.
S702	2	42-10			st.
thru	Varies By	1'-0 7/8"	3,463		
S734	2	8-6			st.
S735	16	7-5	243		st.
ABUTMENTS					
A501	2	5-4			st.
thru	Varies By	0'-6"	118		
A508	2	8-10			st.
A509	2	5-2			st.
thru	Varies By	0'-5 1/2"	96		
A515	2	7-11			st.
A518	2	28-3	59		st.
A519	2	30-11	64		st.
A520	2	33-7	70		st.
A521	2	36-4	76		st.
A522	24	9-7	240		st.
A523	9	28-4	266		st.
A524	2	32-1	67		st.
A525	2	34-6	72		st.
A526	2	36-11	77		st.
A527	2	39-6	82		st.
A528	9	31-6	296		st.
A529	9	36-7	343		st.
A530	9	27-2	255		st.
A531	2	5-0			st.
thru	Varies By	0'-6"	95		
A537	2	8-0			st.
A538	2	5-0			st.
thru	Varies By	0'-4 1/2"	197		
A550	2	9-6			st.
A551	2	32-1	67		st.
A552	2	35-11	75		st.
A553	2	39-4	82		st.
A554	2	43-4	90		st.
A555	2	28-3	59		st.
A556	2	30-11	64		st.
A557	2	33-7	70		st.
A558	2	35-2	73		st.
F801	14	31-10	1,190		st.
F802	14	33-10	1,265		st.
PIERS					
P902	64	14-7	3174		st.
P903	20	17-7	1196		st.
P904	42	16-8	2380		st.
P1001	58	13-0	3244		st.
P1002	30	12-3	1581		st.
F505	5	6-1	32		st.

Mark	Nº	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shp.
ABUTMENTS										
A516	88	8-6	780	1		2-8	3-5	2-8		bt.
A517	60	4-11	308	1		1-6	2-2	1-6		bt.
A601	62	15-4	1428	2	4-6	1-5	6-1	0-11	3-1	bt.
A602	62	15-7	1451	2	4-7	1-5	6-3	0-11	3-1	bt.
F501	44	6-11	317	1	0-6	6-7				bt.
F502	44	7-2	329	1	0-6	6-10				bt.
F503	88	8-4	765	1		1-7	5-5	1-7		bt.
F601	44	14-3	942	1		2-7	5-5	6-7		bt.
F602	44	14-6	958	1		2-7	5-5	6-10		bt.
PIERS										
P501	48	19-0	951							st.
P502	50	6-5	335	7	1-7	1-0 1/2"				bt.
P504	4	4-0	17							st.
P505	72	8-0	601							st.
P506	2	17-3		1		7-8	2-2	7-8		bt.
thru	Varies By	0'-9"	219		Δ=	0-4 1/2"	Δ=	0-4 1/2"		
P512	2	12-9		1		5-5	2-2	5-5		bt.
P513	2	11-3		1		4-8	2-2	4-8		bt.
thru	Varies By	1'-4"	77		Δ=	0-8	Δ=	0-8		
P516	2	7-3		1		2-8	2-2	2-8		bt.
P517	2	7-5		1		2-9	2-2	2-9		bt.
thru	Varies By	1'-6"	81		Δ=	0-9	Δ=	0-9		
P520	2	11-11		1		5-0	2-2	5-0		bt.
P521	2	13-7		1		5-10	2-2	5-10		bt.
thru	Varies By	0"-9"	231		Δ=	0-4 1/2"	Δ=	0-4 1/2"		
P527	2	18-1		1		8-1	2-2	8-1		bt.
P528	8	26-4	220							st.
P529	8	22-8	189							st.
P530	4	33-2	138							st.
P531	4	21-2	88							st.
P532	4	15-6	65							st.
P533	4	15-10	66							st.
P534	60	4-11	308	1		1-6	2-2	1-6		bt.
P535	44	5-1	233	1		1-7	2-2	1-7		bt.
P1401	20	27-6	4208	4	2-5	25-7			*	bt.
P1402	20	25-7	3914						*	st.
F504	15	7-8	120							st.
F506	5	14-0	73							st.
F507	5	12-7	66	10	3-10	3-10	7-3			bt.
F508	8	24-10	207	3	23-8					bt.
F509	5	16-10	88							st.
F701	46	7-8	721							st.
F803	39	12-4	1284	3	10-2					bt.
F901	84	6-10	1951	1	1-3	5-10				bt.
F1001	58	6-7	1643	1	1-5	5-6				bt.

Mark	Nº	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shp.
REPLACEMENT STEEL										
RE501	1	5-7								st.
RE601	3	5-11								st.
RE701	2	6-2								st.
RE801	1	6-6								st.
RE901	1	6-10								st.
RE1001	1	7-2								st.
RE1401S	1	8-3								st.

Ends to be prepared in shop for field weld.
See sheet 227

Bending Diagram



NOTE:
In the reinforcing steel bar marks, the first digit, where three digits are used, and the first two, where four are used, is the bar number, which indicates the size of the bar.

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Abut.	Pier	Supers.	General
E-2	Lump	Sum	Cofferdams, Cribs, Sheeting.		Lump		
E-2	458	C.Y.	Unclassified Excavation	283	175		
E-2	22	C.Y.	Rock Excavation		22		
S-1	245	C.Y.	Class "C" Concrete, Superstructure			245	
S-1	158	C.Y.	Class "C" Concrete, Piers Above Footings		158		
S-1	142	C.Y.	Class "E" Concrete, Footings	94	48		
S-1	130	C.Y.	Class "E" Concrete, Abutments Above Footings	150			
S-3	16	L.F.	Waterproofing, Premolded Sealing Strip	16			
S-4	110,652	Lbs.	Reinforcing Steel	12,786	29,701	68,165	
S-7	261,700	Lbs.	Structural Steel			261,700	
S-8	261,700	Lbs.	Field Painting of Structural Steel			261,700	
S-14	411.00	L.F.	Railing, Type I 15.11, with Handrail and Galvanized Steel Posts & Bolts			411.00	
S-16	Lump	Sum	First Test Pile	Lump			
S-18	1170	L.F.	Steel Piles 10 BP 42	750	420		
S-24	Lump	Sum	Removal of Existing Structures				Lump
S-29	59	C.Y.	Porous Backfill	59			
S-29	100	L.F.	6" ϕ helical C.M.P., M-6.4(h), non-perforated	100			
S-29	125	L.F.	6" ϕ perf. helical C.M.P., M-6.4(h) including specials	125			
S-101	245	Each	Water-reducing, Set-retarding Admixture			245	
I-10	1171	S.Y.	Crushed Aggregate Slope Protection				1171

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

REINFORCING STEEL LIST & ESTIMATED QUANTITIES
BRIDGE - COUNTY ROAD 52
RELOC. OVER WILLS CREEK
STA. 29+06.55
GUERNSEY COUNTY STA. 31+12.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WTHem	HEnnigan		RWE	TLU	12-22-64	

REFERENCES:

Standard Drawings:

Superstructure Details	CSB-1-63,	Sheet 1 Dated 12-16-63
End Dam and End Crossframe Details	SD-1-63,	Sheets 2 & 4 Dated 11-12-63
Rocker and Bolster Details	RB-1-55,	Revised 2-2-59
Approach Slab Details	AS-1-54,	Revised 7-5-62
Supplemental Specifications	S-101	Dated 7-12-62
	S-307	Revised 10-1-64

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

DESIGN DATA:

Design Loading: CF-400(57)

Concrete, Class "C": Basic unit stress = 1,333 psi
Concrete, Class "E": Basic unit stress = 1,133 psi

Structural Steel (except piling),
ASTM, A-36: Basic unit stress = 20,000 psi
(ASTM A-7 and A-373 steel not permitted)

Reinforcing Steel, ASTM A-15, A-16, A-160, deformed, intermediate or hard grade:
Basic unit stress = 20,000 psi

WELDING of structural steel shall be Class "A" except as otherwise shown. Any welds shown as field welds may be, at the option of the Contractor, made in the shop. Class "B" welding shown thus:

HIGH STRENGTH STEEL BOLTS: Reference shall be made to Paragraph Two, Section S-7.10 of the Construction and Material Specifications. This paragraph shall be replaced with the following:

In the final assembly of the parts to be bolted, drift pins shall be placed in a sufficient number of holes (not less than 25 per cent for field erection) to provide and maintain accurate alignment of holes and parts, and sufficient bolts shall be installed and brought to a snug tight condition to bring the parts into complete contact. Bolts shall then be installed in any remaining open holes and tightened to a snug tight fit, after which all bolts shall be tightened completely by calibrated wrenches or by the turn-of-nut method. Drift pins shall then be replaced with bolts, tightened in the same manner. Bolt lengths determined by the use of Table I shall be adjusted to the next 1/4 inch length increment.

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic, the existing structures as indicated below shall be removed as required under Section S-24:

1. Existing County Road 52 Bridge over Wills Creek located approximately 70 feet right of Station 46+00(±) on County Road 52 Relocation Number 1.

2. Existing concrete and stone substructure units located approximately 180 feet left of Station 30+00(±) on County Road 52 Relocation Number 1.

3. Existing U.S. 21 Bridge over Wills Creek located approximately 120 feet right of Station 278+00(±) on Interstate 77.

Suitable waste masonry shall be used as bank protection as directed by the Engineer. Additional material shall become the property of the Contractor and shall be removed from the work area.

CONCRETE DECK PLACING: In order to facilitate water curing of the concrete in the deck slab, the placing of concrete shall progress up grade. The slab may be placed in sections between transverse construction joints which are parallel to the transverse slab bars and are located near the center of any span.

MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.

CRUSHED AGGREGATE SLOPE PROTECTION shall be provided under the structure as indicated on the General Plan.

TRAFFIC MAINTENANCE: Traffic shall be maintained as indicated on the Roadway Plans.

FOUNDATION BEARING PRESSURE: Pier 1 footings are designed for a maximum bearing pressure of 10 tons per square foot.

PIER 1 FOOTINGS shall extend a minimum of 3 inches into undisturbed rock or to the elevation shown, whichever is lower.

PILES shall be driven to firm contact with rock. If the length of penetration is approximately equal to the depth of rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Section S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

55 tons per pile using a 7000 ft. lb. hammer.
50 tons per pile using an 11000 ft. lb. hammer.
45 tons per pile using a 15000 ft. lb. hammer.

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 30 tons per pile for the west abutment piles, and 35 tons per pile for the pier and east abutment piles.

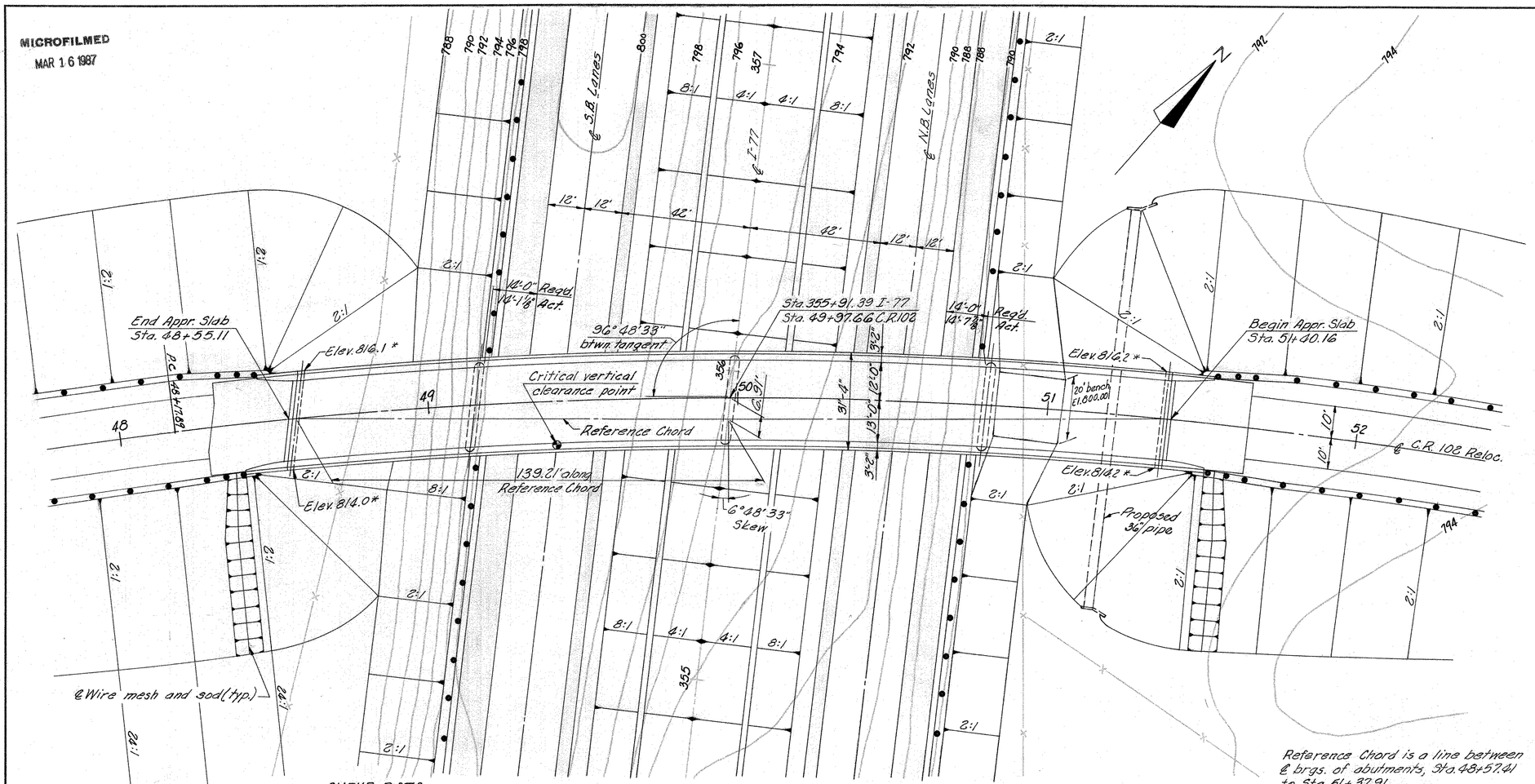
UTILITY LINES: All labor and expenses involved in relocating the affected utility lines shall be borne by the Owners. The Contractor and the Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

232/262

GUERNSEY COUNTY
GUE-77-4.77



PROPOSED STRUCTURE

TYPE - Continuous steel beam with reinforced concrete deck and substructure
SPANS - 57'-9" - 88'-6" - 88'-6" - 57'-9" ℄ brgs. along ℄ C.R. 102
ROADWAY - 25'-0" ft 2'-0" safety curbs with concrete parapets and aluminum railings
LOADING - C.F. 130 (1957)
WEARING SURFACE - 1" monolithic concrete
SKEW - 6° 48' 33" left forward from reference chord
ALIGNMENT - 4° 00' curve right
APPROACH SLABS - 25'-0" long; see sheet No. 192
SUPERELEVATION - 0.066 ft/ft.

Reference Chord is a line between ℄ brgs. of abutments, Sta. 48+57.41 to Sta. 51+37.91

*Elevations marked with an asterisk are at top of spill-thru slope at face of abutment.

1975 ADT ~ 290

CURVE DATA

I-77 NB

P.V.I. Sta. 357+00.00
V.C. - 400'
Elev. - 800.58
Corr. - 0.24'
P.G. - 800.78
g_1 = -0.24% ; g_2 = +0.24%

I-77 SB

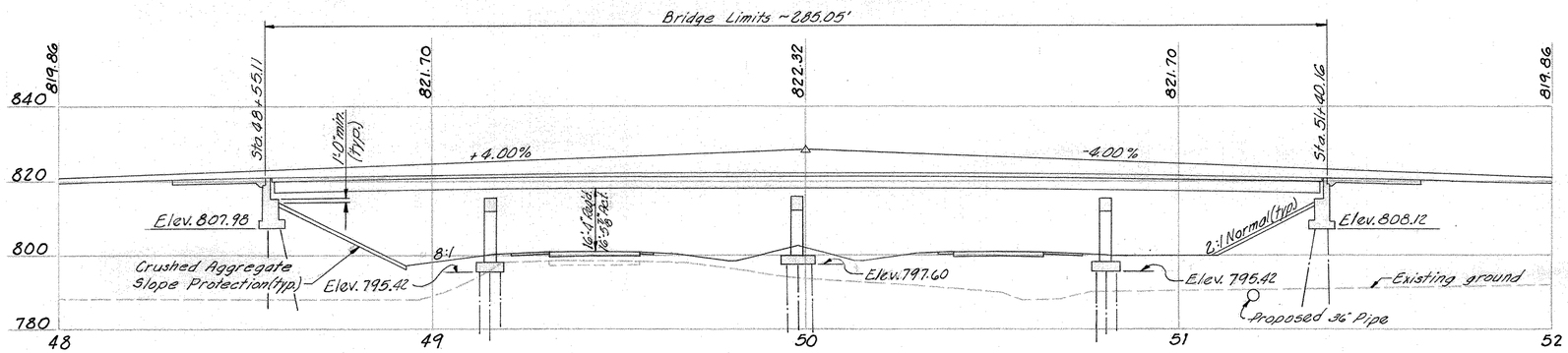
P.V.I. Sta. 357+50
V.C. - 400'
Elev. - 800.42
Corr. - 0.62
P.G. - 801.04
g_1 = -0.24% ; g_2 = +1.00%

PLAN

CURVE DATA ~ C.R. 102

P.I. Sta. 54+26.04
Δ = 46° 00' 32"
D = 4° 00'
T = 608.15'
L = 1150.22
R = 1432.39

P.V.I. Sta. 50+00.00
V.C. - 650'
Elev. - 828.82
Corr. - -6.50'
P.G. - 822.32
g_1 = +4.00% ; g_2 = -4.00%



PROFILE
(along ℄ C.R. 102 Reloc.)

All piles shall be 10BP42 steel piles. Estimated average pay lengths are:

West Abut.	41'
Pier-1	36'
Pier-2	26'
Pier-3	55'
East Abut.	64'

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SITE PLAN

BRIDGE NO. GUE-77-0599
I-77 UNDER CR102 RELOC.

GUERNSEY COUNTY STA. 355+91.39

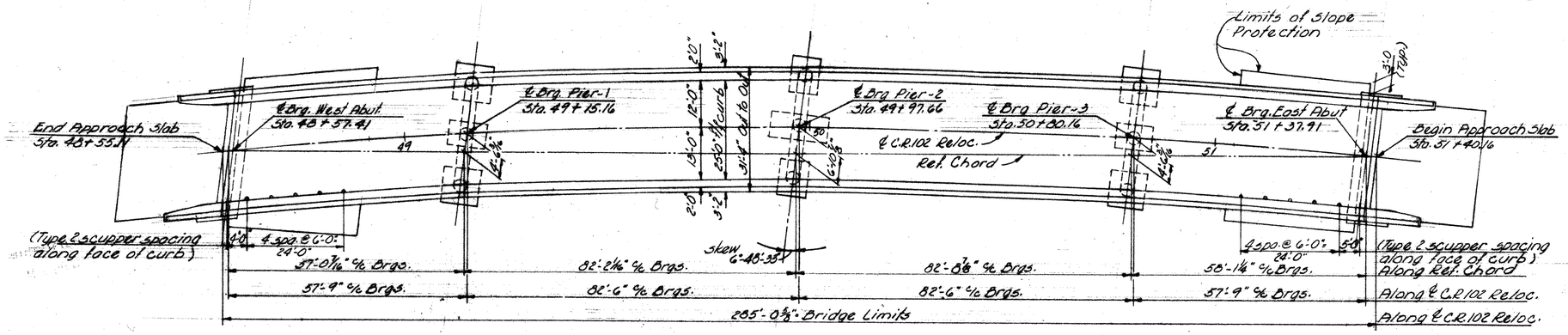
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HT	HT	ESB	pwd	TLW	12-24-84	

MICROFILMED
MAR 16 1987

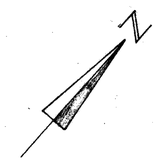
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

233
262

GUERNSEY COUNTY
GUE-77-4.77



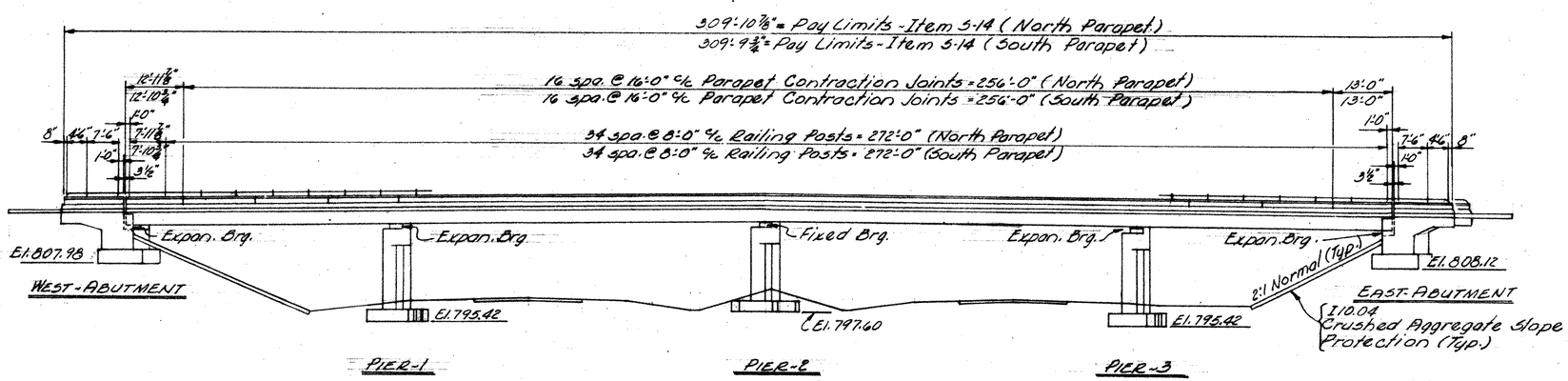
GENERAL PLAN



NOTES

For pavement elevations see sheet no. 50 of Roadway Plans.

Bulb angle gutter shall be placed at South curb only, beginning at Sta. 48+53.91 and ending at Sta. 51+38.22. Stations given are of edge of end dam and face of curb.



GENERAL ELEVATION
(Piles not shown)

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

GENERAL PLAN & ELEVATION
BRIDGE No. GUE-77-0599
I-77 UNDER C.R.102 RELOC.

GUERNSEY COUNTY STA. 355+91.39

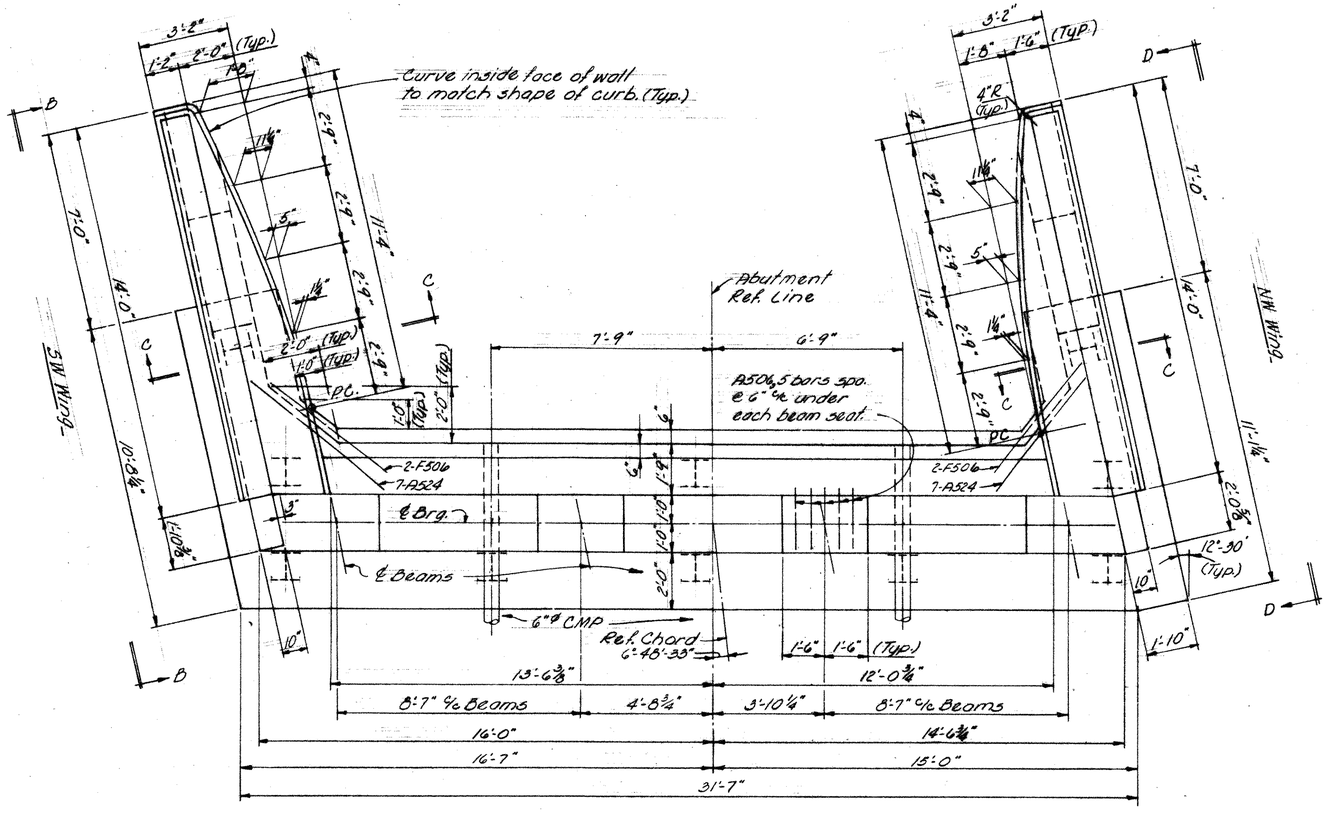
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
fwd	BAB		HT	TLU	12-24-64	

MICROFILMED
MAR 1 6 1987

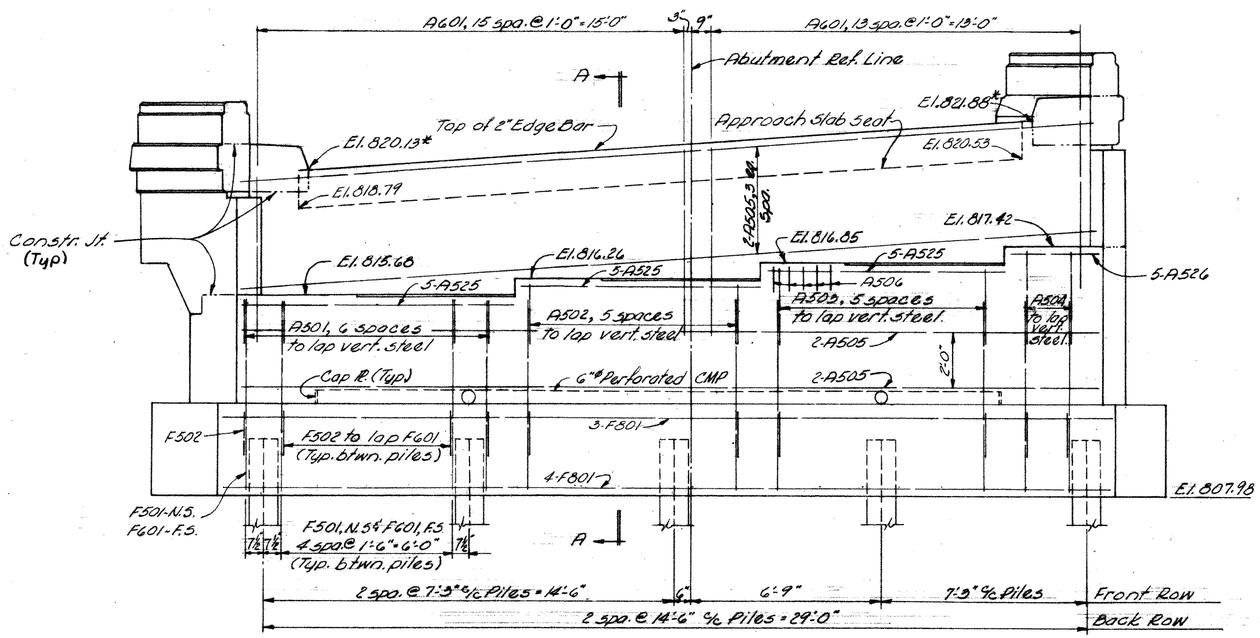
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

234/262

GUERNSEY COUNTY
GUE-77-4.77



PLAN



ELEVATION

NOTES

All piles shall be 10BP42 steel piles. Batter entire front row and rear wingwall piles.

* Elevations marked with an asterisk are to top of 2" edge bar at face of curb.

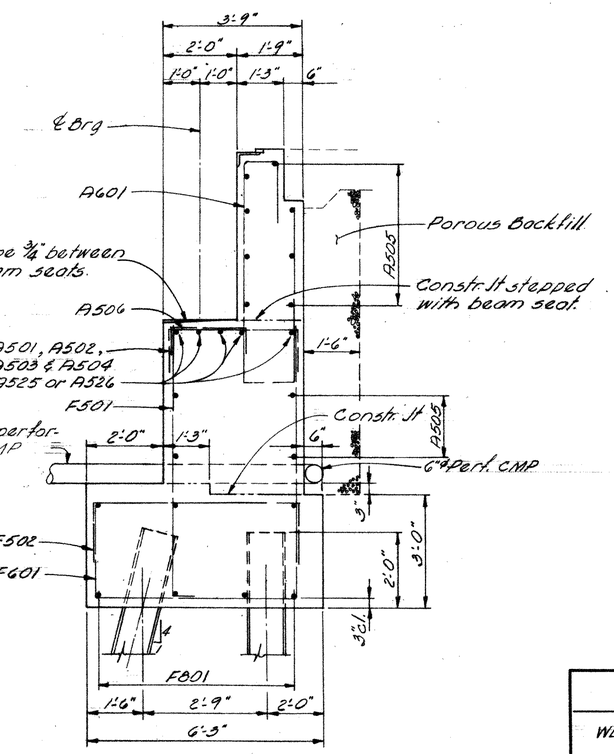
Reinforcing Steel Location: N.S. indicates near side. F.S. indicates far side.

6"ϕ Non-perforated CMP shall extend into crushed aggregate slope protection.

Porous backfill shall be placed between the inside faces of the wingwalls and shall extend upward to the approach slab or curb. Excavation therefor, in excess of that required for construction of the abutment shall be considered as paid for in the bid price per cu. yd paid for porous backfill.

Drain Pipes: 6"ϕ Non-perforated CMP shall conform with Spec. Sec. M-6.4(b)
6"ϕ Perforated CMP shall conform with Spec. Sec. M-6.4(h)

For additional details, see sheet 2



SECTION A-A

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

WEST ABUTMENT DETAILS
BRIDGE No. GUE-77-0599
I-77 UNDER CR102 RELOC.

GUERNSEY COUNTY STA-355+91.99

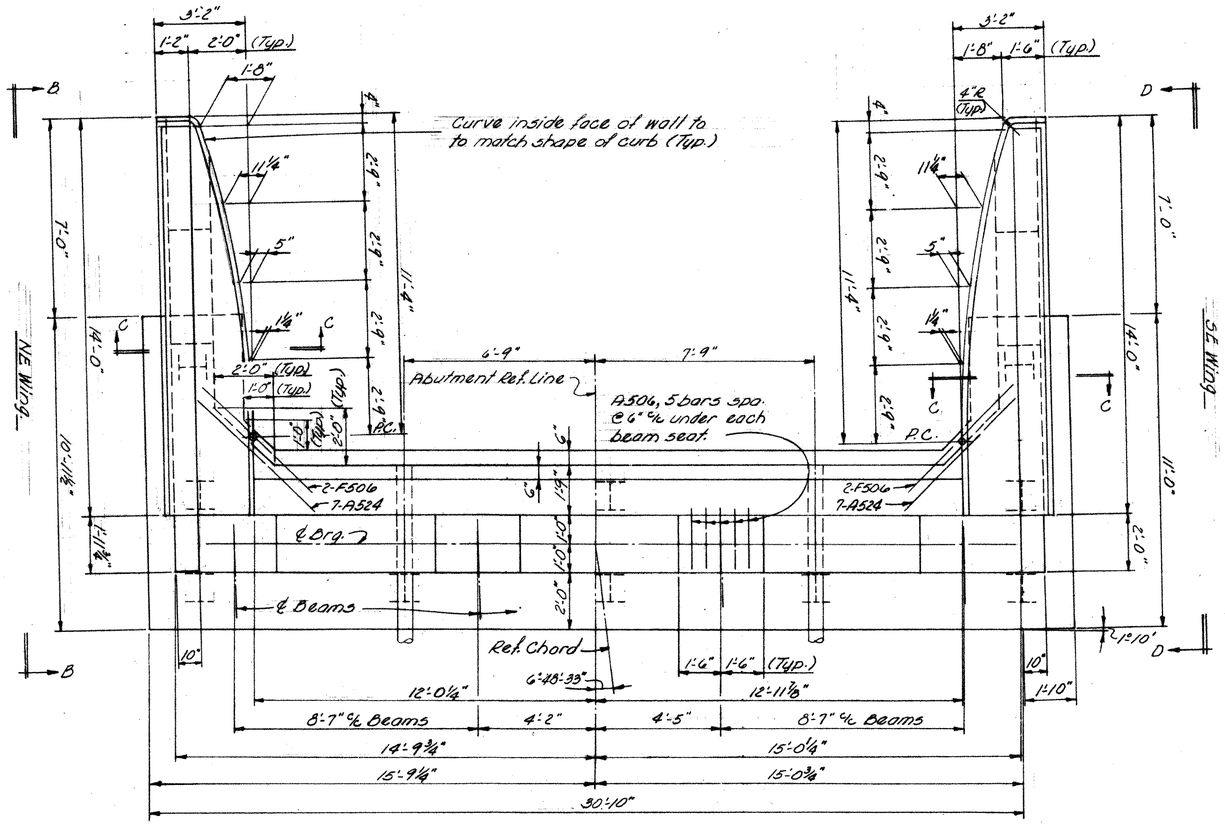
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
PWD	BAB		HT	TLO	12-24-79	

MICROFILMED
MAR 16 1987

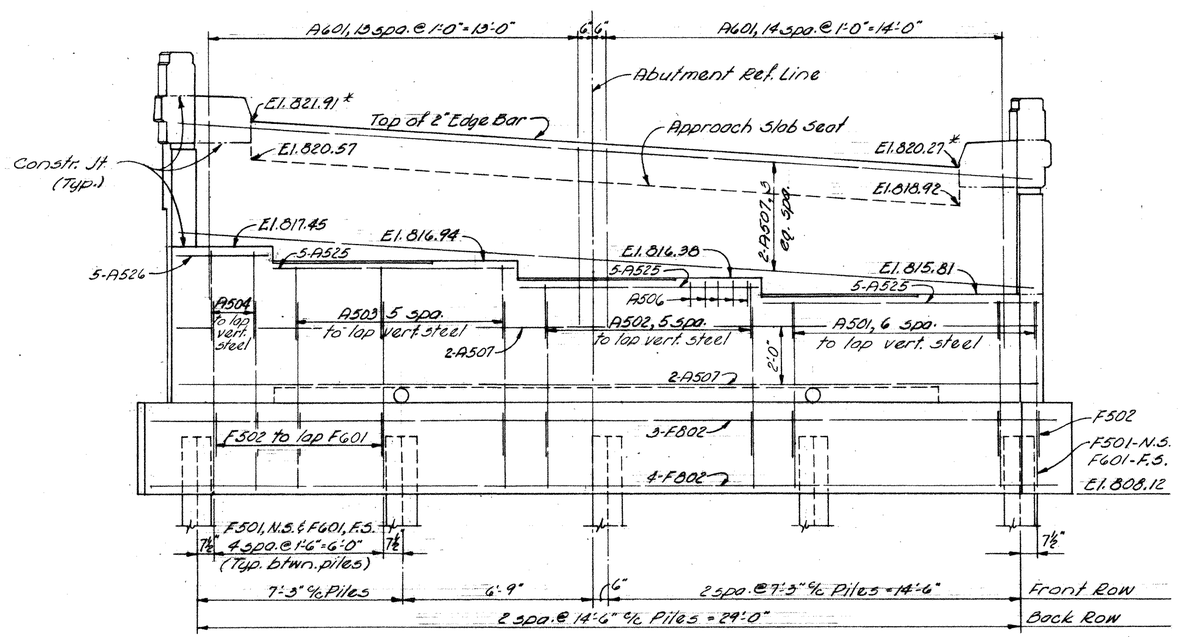
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

235/262

GUERNSEY COUNTY
GUE-77-4.77



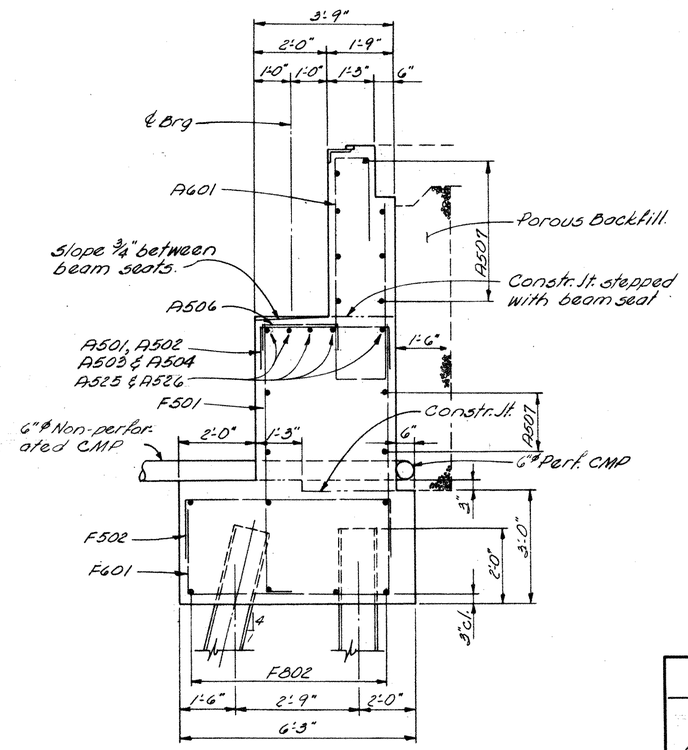
PLAN



ELEVATION

NOTE

For additional details and notes see sheets 234 & 236



SECTION A-A

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

EAST ABUTMENT DETAILS
BRIDGE No. GUE-77-0599
I-77 UNDER C.R. 102 RELOC.

GUERNSEY COUNTY STA. 355+91.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FWD	BDB		HT	TLU	12-24-84	

MICROFILMED
MAR 1 6 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

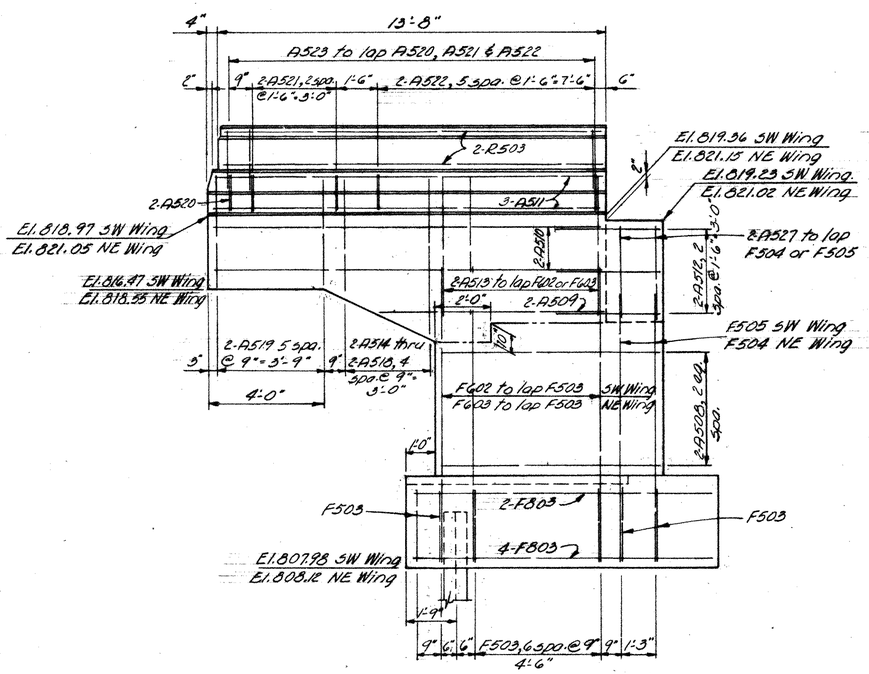
236
262

GUERNSEY COUNTY
GUE-77-4.77

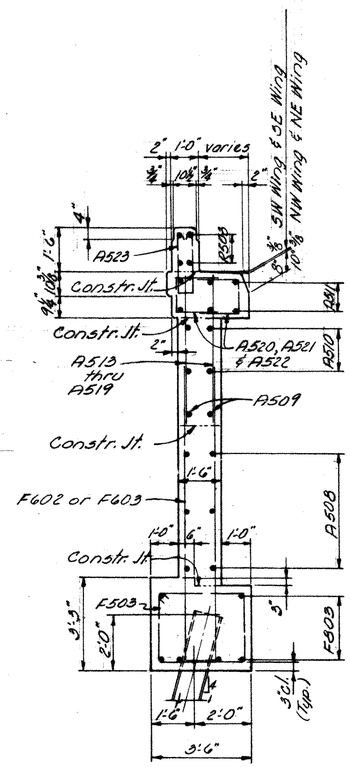
NOTES

Concrete parapets are included in Item 514 for payment

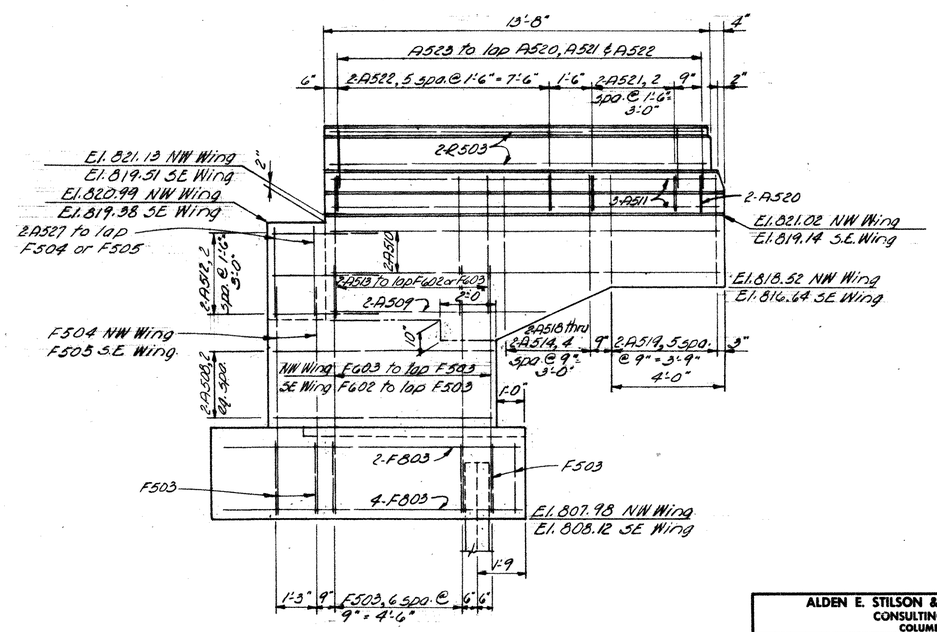
For additional notes and details see sheets 234 & 235



VIEW B-B



SECTION C-C



VIEW D-D

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

ABUTMENT DETAILS

BRIDGE No. GUE-77-0599

I-77 UNDER C.R. 102 RELOC.

GUERNSEY COUNTY STA-355+91.39

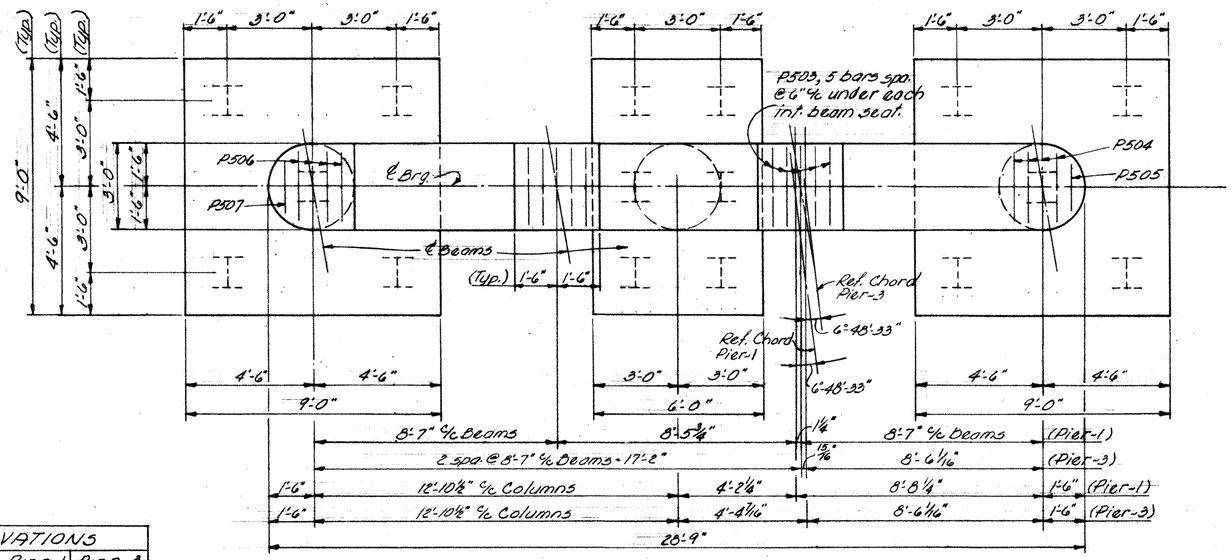
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FWO	BAB		HT	TLO	12-24-84	

MICROFILMED
MAR 1 6 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

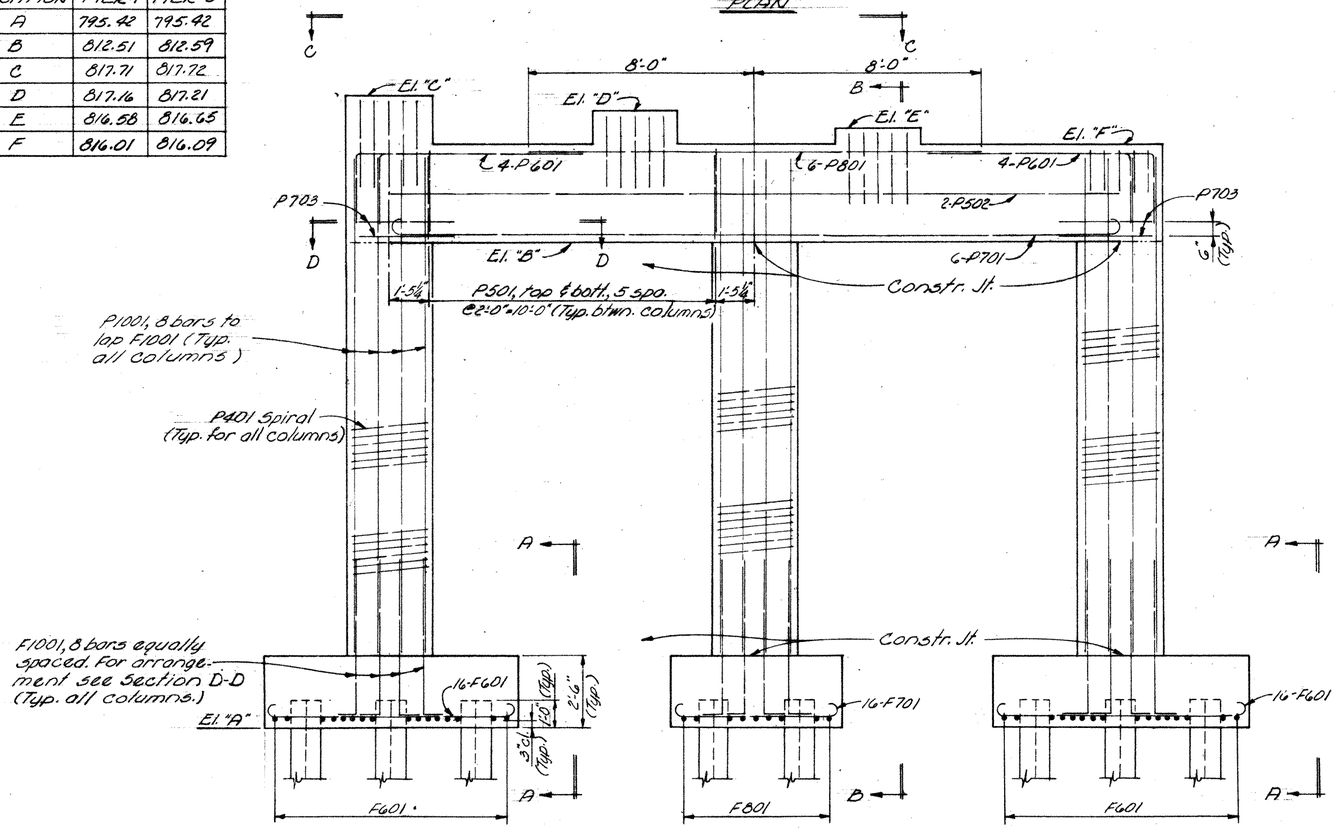
237/262

GUERNSEY COUNTY
GUE-77-4.77



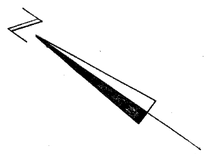
PLAN

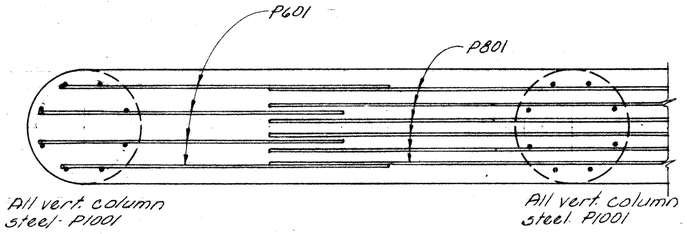
ELEVATIONS		
LOCATION	PIER-1	PIER-3
A	795.42	795.42
B	812.51	812.59
C	817.71	817.72
D	817.16	817.21
E	816.58	816.65
F	816.01	816.09



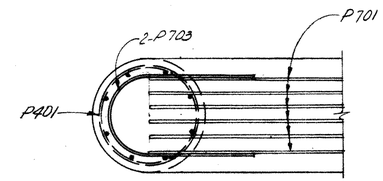
ELEVATION

All piles shall be 10BP42 steel piles.





VIEW C-C



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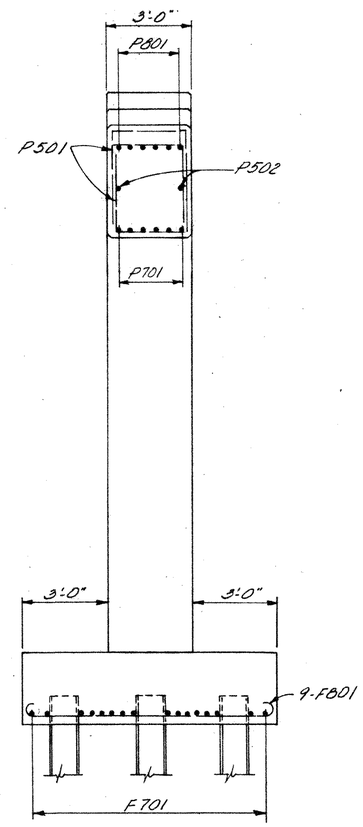
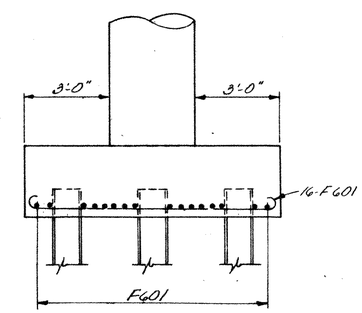


SECTION B-B



VIEW A-A

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIERS 1 & 3 DETAILS
BRIDGE No. GUE-77-0599
I-77 UNDER C.R.102 RELOC.

GUERNSEY COUNTY STA. 355+91.39

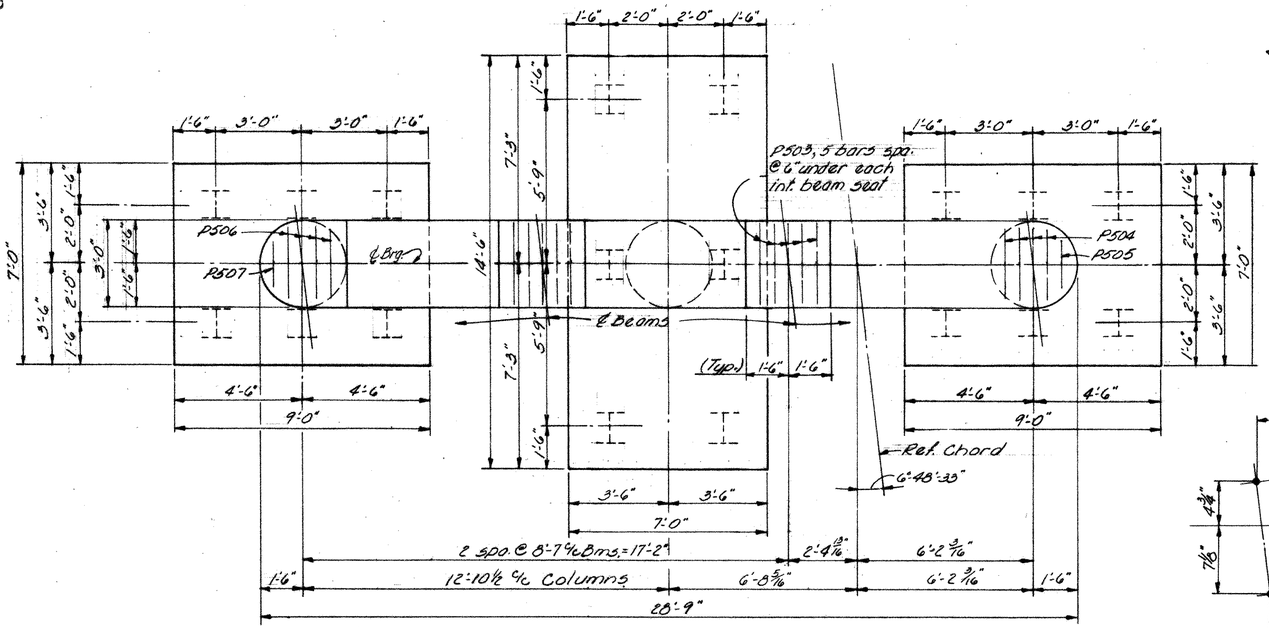
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
fwd	BAB		H	TLU	12-24-84	

MICROFILMED
MAR 16 1987

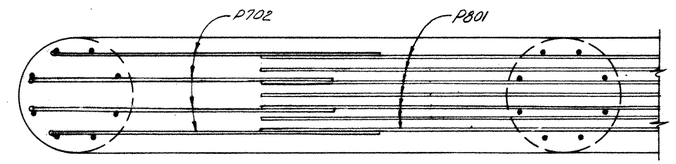
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

238/262

GUERNSEY COUNTY
GUE-77-477



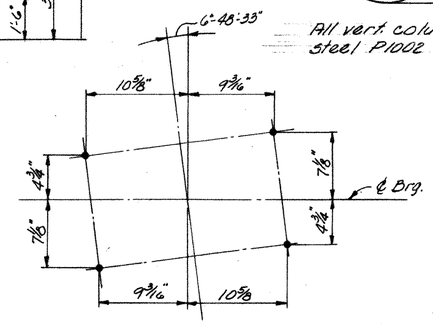
PLAN



All vert. column steel P1002

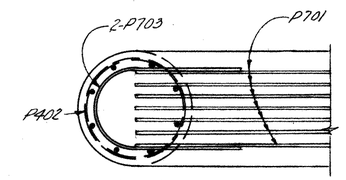
All vert. column steel P1002

VIEW G-G



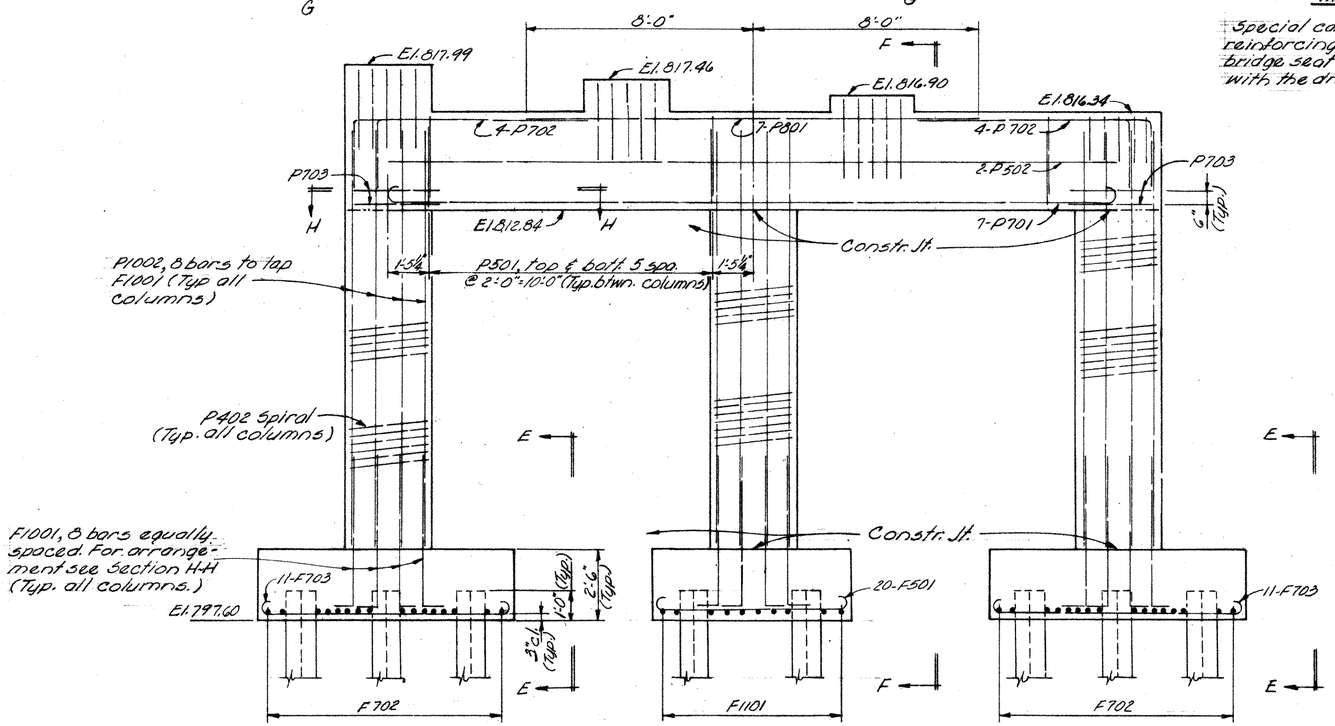
ANCHOR BOLT LOCATION

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.



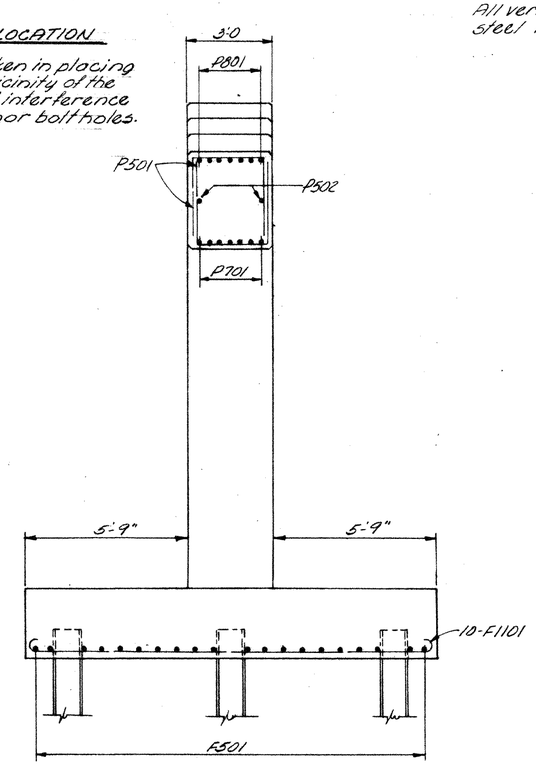
All vert. column steel P1002

SECTION H-H

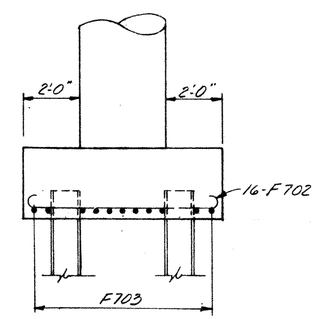


ELEVATION

All piles shall be 10BP42 steel piles



SECTION F-F



VIEW E-E

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER-2 DETAILS
BRIDGE No. GUE-77-0599
I-77 UNDER C.R.102 RELOC.

GUERNSEY COUNTY STA 355 + 91.39

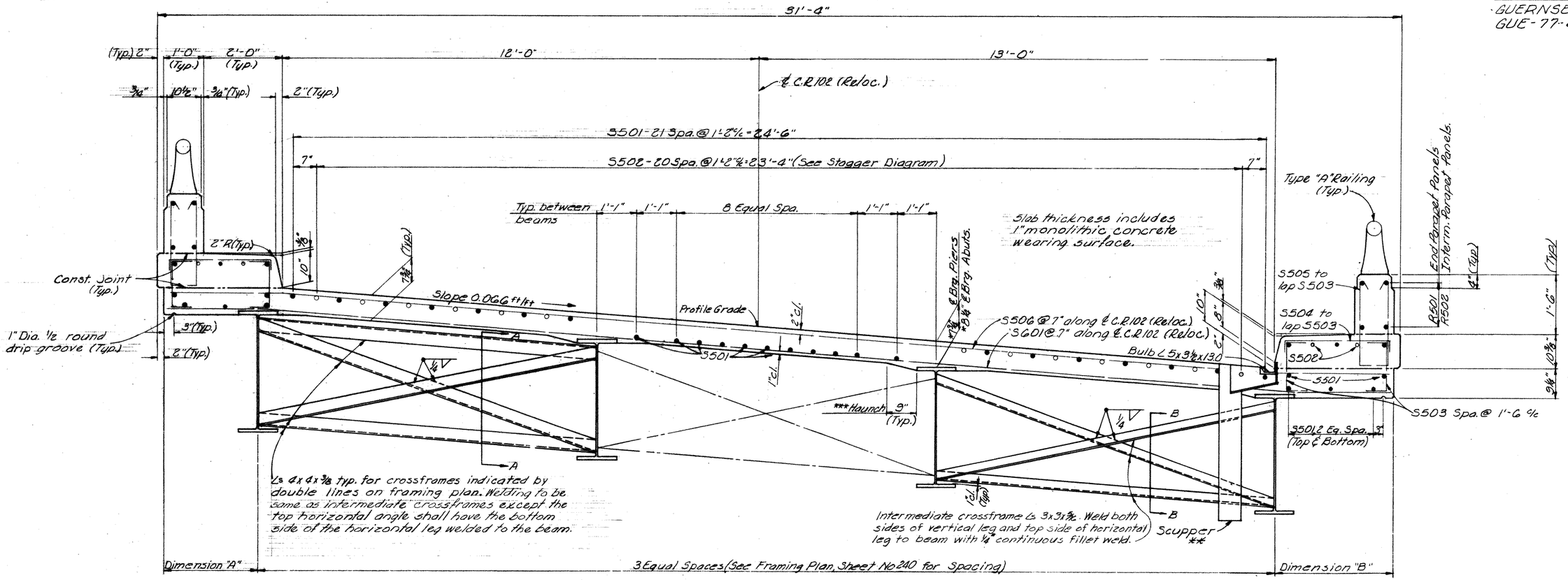
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
PWO	BAP		HT	TLU	12-24-64	

MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

239
262

GUERNSEY COUNTY
GUE-77-4.77



TRANSVERSE SECTION
(Safety curb and parapet reinforcing typical for both sides)

SLAB CANTILEVERS		
Location	Dimen. "A"	Dimen. "B"
℄ Brg. W. Abut.	2'-10 1/4"	3'-0"
Mid Span-1	3'-0 3/8"	2'-8 1/2"
℄ Brg. Pier #1	2'-7 5/8"	3'-0"
Mid Span-2	3'-1 1/2"	2'-4 3/4"
℄ Brg. Pier #2	2'-5 1/8"	3'-0"
Mid Span-3	2'-11 3/8"	2'-4 3/4"
℄ Brg. Pier #3	2'-3 1/2"	3'-0"
Mid Span-4	2'-6 3/4"	2'-8 1/2"
℄ Brg. E. Abut.	2'-3"	3'-0"

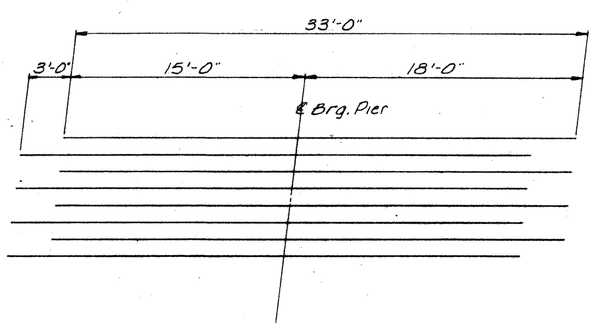
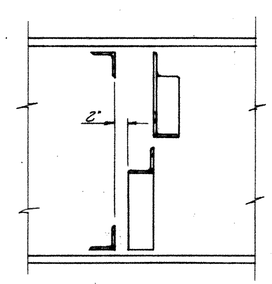
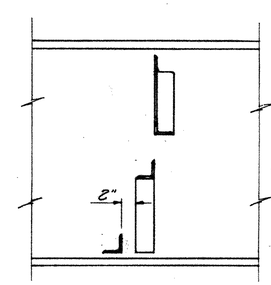


DIAGRAM SHOWING STAGGER OF S502 BARS OVER PIERS



SECTION A-A



SECTION B-B

NOTES

Concrete parapets are included with Item S-14 for payment.

** Use Type 2 scupper shown on SD-1-63

*** A typical haunch width of 9" shall be used for computing quantity of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.

Transverse bars shall be field bent to fit crown. Cost is included in Item S-4.

Lap S501 bars 1'-7" minimum.

Transverse reinforcing shall be placed parallel to piers.

*DECK SLAB DEPTH: The distance shown from top of deck slab to top of steel beam, or to the top of the deeper beam for beams of different depths, is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. GUE-77-0599
I-77 UNDER CR 102 RELOC.
GUERNSEY COUNTY STA. 355+91.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
PWD	ESB		HT	TLU	12-24-64	

MICROFILMED
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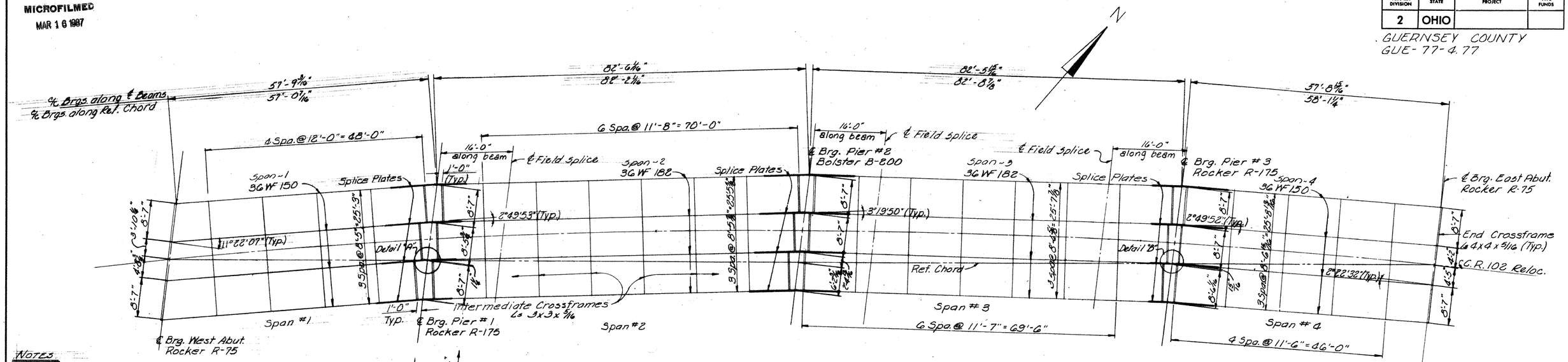
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

240
262

GUERNSEY COUNTY
GUE-77-4.77

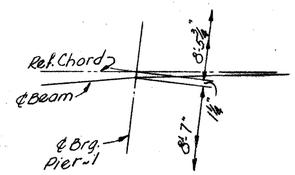


NOTES

Intermediate crossframes shall be placed normal to the beams in each span.

Rockers and bolsters shall be placed normal to the reference chord on all substructures.

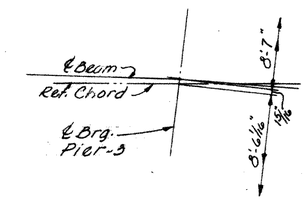
For additional shop splice details see Std. Dwg. SD-1-63 substituting shop welds for all field welds shown thereon.



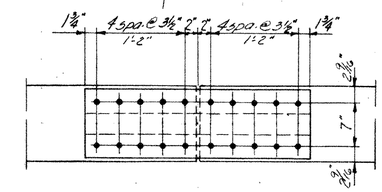
DETAIL "A"

FRAMING PLAN

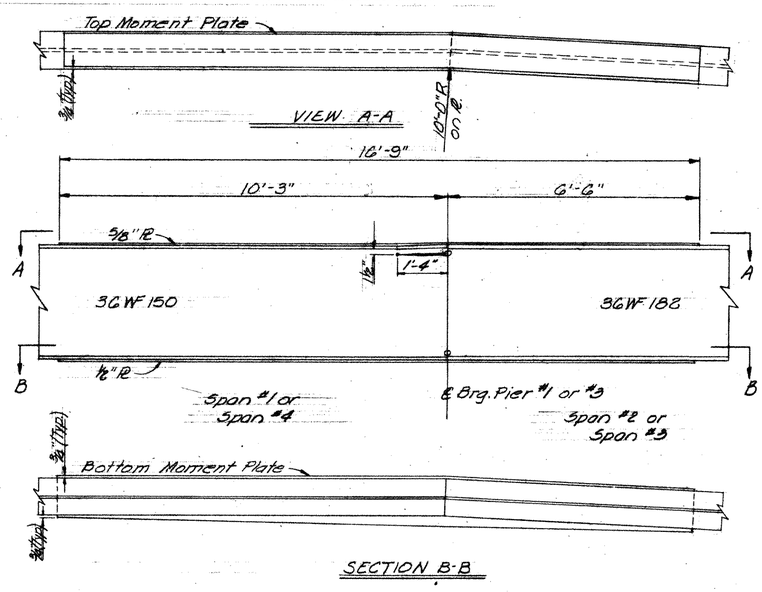
(Crossframes indicated by double line are 4Ls 4x4x3/8. See Transverse Section, Sheet No. 239 for details.)

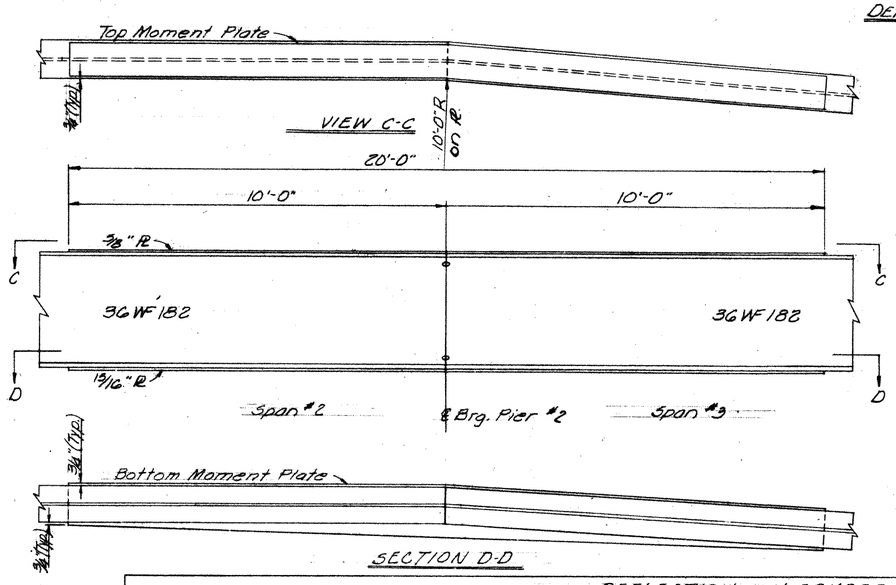


DETAIL "B"



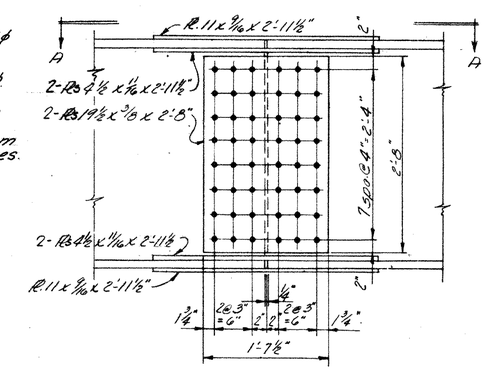
VIEW A-A





SHOP SPLICE DETAILS
(Moment PL lengths shown are along ℄ of beams.)

NOTE:
1. All bolts shall be 1" ϕ high strength.
2. Holes shall be 1 1/16" ϕ
3. Place bolt heads on facia side of exterior girders and on bottom side of bottom flanges.



BEAM SPLICE DETAIL

DEFLECTION and CAMBER

	SPAN-1						SPAN-2						SPAN-3						SPAN-4					
	1/4 Pt.		1/2 Pt.		3/4 Pt.		Splice		1/2 Pt.		3/4 Pt.		Splice		1/2 Pt.		Splice		1/4 Pt.		1/2 Pt.		3/4 Pt.	
	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.
Defl. due to wt. of steel	1/16	1/16	1/16	1/16	0	0	1/16	1/16	1/8	1/8	3/16	1/16	1/16	1/16	1/8	1/8	1/16	1/16	0	0	1/16	1/16	1/16	1/16
Defl. due to remain. D.L.	1/4	1/4	1/4	1/4	1/16	1/16	1/4	1/4	5/8	11/16	5/16	3/8	1/4	1/4	5/8	11/16	1/4	1/4	1/16	1/16	1/4	1/4	1/4	1/4
Convexity due to curv.	1/4	7/16	3/8	5/8	3/16	1/2	1/2	13/16	3/4	1 1/4	5/8	1	1/2	13/16	3/4	1 1/4	1/2	7/8	5/16	5/8	3/8	5/8	5/16	5/8
Sum of Defl. & Convexity	9/16	3/4	11/16	15/16	1/4	9/16	13/16	1 1/16	1 1/2	2 1/16	1	1 7/16	13/16	1 1/8	1 1/2	2 1/16	13/16	1 3/16	3/8	11/16	11/16	15/16	5/8	15/16
Reqd. Shop Camber	3/4	3/4	1	1	0	0	3/4	1 1/8	1 1/2	2	1	1 3/8	3/4	1 1/8	1 1/2	2	3/4	1 1/8	0	0	1	1	1	1

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

FRAMING PLAN AND SUPERSTRUCTURE DETAILS

BRIDGE NO. GUE-77-0599
I-77 UNDER CR 102 RELOC.

GUERNSEY COUNTY STA. 355+91.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FWD	ESB		HT	TLU	12-24-69	

MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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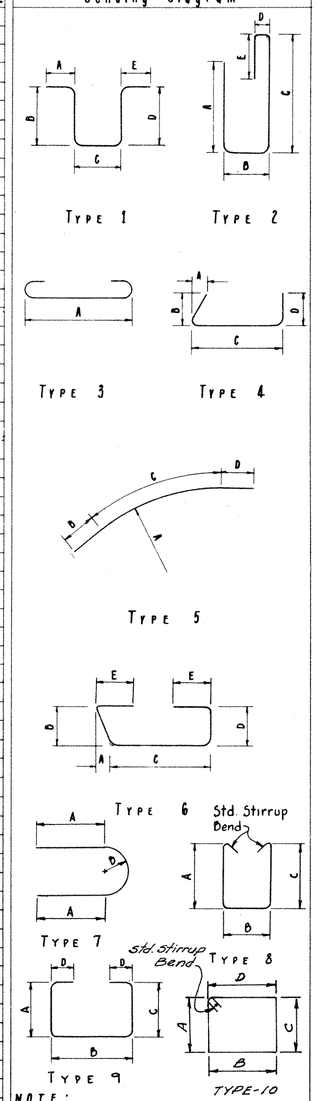
GUERNSEY COUNTY
GUE-77-4.77

REINFORCING STEEL LIST

Mark	No	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shape
			SUPERSTRUCTURE							
S501	568	36-7	21,673							st.
S502	75	33-0	2581							st.
S503	752	2-0	1569	1		0-6	1-3	0-6		bf.
S504	376	3-3	1275	1		0-6	2-6	0-6		bf.
S505	376	5-7	2189	8	2-2	0-8	2-2			bf.
S506	483	30-8	15,449							st.
S601	483	30-8	22,248							st.
		HORIZONTAL PARAPET REINFORCING								
R501	16	12-7	*							st.
R502	128	15-8	*							st.
R503	16	13-4	*							st.
			ABUTMENTS							
F501	42	7-6	329	1	0-6	7-2				bf.
F502	42	8-4	365	1		1-7	5-5	1-7		bf.
F503	44	11-11	547	10	2-7	3-2	2-7	3-2		bf.
F504	4	22-3	93	1		11-0	0-6	11-0		bf.
F505	4	18-5	77	1		9-1	0-6	9-1		bf.
F506	8	6-0	50							st.
F601	42	14-10	936	1		7-2	5-5	2-7		bf.
F602	16	19-0	457	1		9-1	1-2	9-1		bf.
F603	16	22-10	549	1		11-0	1-2	11-0		bf.
F801	7	33-0	617							st.
F802	7	32-4	604							st.
F803	24	10-4	662							st.
A501	14	6-4	92	1		1-7	3-5	1-7		bf.
A502	12	7-6	94	1		2-2	3-5	2-2		bf.
A503	12	8-8	108	1		2-9	3-5	2-9		bf.
A504	4	9-10	41	1		3-4	3-5	3-4		bf.
A505	12	30-6	382							st.
A506	40	4-11	205	1		1-6	2-2	1-6		bf.
A507	12	30-0	375							st.
A508	24	7-6	188							st.
A509	8	7-9	65							st.
A510	16	13-8	228							st.
A511	24	13-2	330							st.
A512	24	3-7	90							st.
A513	32	4-9	159							st.
A514	8	3-10								st.
thru		Vary by								
		0-4	188							
A518	8	5-2								st.
A519	48	3-9	188							st.
A520	8	2-8	22	1		0-10	1-3	0-10		bf.
A521	24	3-0	75	1		1-0	1-3	1-0		bf.
A522	48	4-0	200	1		1-6	1-3	1-6		bf.
A523	40	5-7	233	8	2-2	0-8	2-2			bf.
A524	28	6-0	175							st.
A525	30	10-0	313							st.
A526	10	3-0	31							st.
A527	16	3-4	56							st.
A601	59	16-2	1433	2	5-2	1-5	6-6	0-11	2-10	bf.
				PIERS						
F501	20	7-10	163	3	6-8					bf.
F601	128	10-0	1923	3	8-8					bf.
F701	32	7-4	480	3	5-8					bf.
F702	32	8-4	545	3	6-8					bf.

Mark	No	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shape
			PIERS (Continued)							
F703	22	10-4	465	3	8-8					bf.
F801	18	10-10	521	3	8-8					bf.
F1001	72	6-7	2040	1	1-5	5-6				bf.
F1101	10	17-4	921	3	14-2					bf.
P501	72	8-9	657	1		3-2	2-8	3-2		bf.
P502	6	25-9	161							st.
P503	30	7-9	242	1		2-8	2-8	2-8		bf.
P504	12	5-1	64	1		1-6	2-4	1-6		bf.
P505	3	4-5	14	1		1-6	1-8	1-6		bf.
P506	12	8-5	105	1		3-2	2-4	3-2		bf.
P507	3	7-9	24	1		3-2	1-8	3-2		bf.
P601	16	11-2	268	1	3-2	8-2				bf.
P701	19	27-5	1065		25-9					st.
P702	8	11-6	188	1	3-2	8-6				bf.
P703	12	7-6	184	7	2-2	1-0				bf.
P801	19	16-0	812							st.
P1001	48	17-8	3649							st.
P1002	24	15-9	1627							st.
		REPLACEMENT STEEL FOR SPIRALS								
RE401	1	5-3		5	1-3½		5-3			bf.
		REPLACEMENT STEEL								
RE501	3	5-7								st.
RE601	2	5-11								st.
RE701	1	6-2								st.
RE801	1	6-6								st.
RE1001	1	7-2								st.
RE1101	1	7-6								st.

Bending Diagram



NOTE:
In the reinforcing steel bar marks, the first digit where three digits are used and the first two where four are used is the bar number which indicates the size of the bar.

SPIRALS - HOT ROLLED

Mark	No	Length	Core	Pitch	Turns	Spacers	Weight
P401	6	14-7	32	4½	42	24	1628
P402	3	12-9	32	4½	37	12	716

SPIRALS

THE "LENGTH" SHOWN IN THE STEEL LIST FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE BOTTOM OF THE PIER CAP.

THE NO. OF TURNS SHOWN IN THE STEEL LIST FOR THE SPIRAL BARS IS THE "LENGTH" DIVIDED BY THE PITCH, PLUS 3 TURNS (TOTAL NUMBER OF CLOSED COILS), EXPRESSED AS THE NEAREST WHOLE NUMBER.

SPIRAL REINFORCING BARS SHALL NOT HAVE DEFORMATIONS BUT SHALL IN OTHER RESPECTS CONFORM TO ITEM S-4, 1½ CLOSED COILS SHALL BE PROVIDED AT THE ENDS OF EACH SPIRAL UNIT. FOUR STEEL CHANNEL, TEE OR ANGLE SPACERS, WEIGHING APPROXIMATELY 0.68 LB. PER LIN. FT. OF SPACER, SHALL BE 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 LB. PER LIN. FT., WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED QUANTITY OF SPIRAL BARS.

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPERS.	GENERAL
E-2	246	Cu.Yd.	Unclassified Excavation	215	31		
S-1	270	Cu.Yd.	Class "C" concrete, Superstructure			270	
S-1	69	Cu.Yd.	Class "C" concrete, Pier Caps and Columns		69		
S-1	117	Cu.Yd.	Class "E" concrete, Footings	56	61		
S-1	87	Cu.Yd.	Class "E" concrete, Abutments above footings	87			
S-4	96,003	Lbs.	Reinforcing Steel	14,557	18,462	66,984	
S-7	241,500	Lbs.	Structural Steel			241,500	
S-8	241,500	Lbs.	Field painting of structural steel			241,500	
S-14	618.55	Lin.Ft.	Railing, Type A, (Aluminum railing and supports and concrete parapets.)	54.67		563.88	
S-16	Lump	Sum	First test pile				Lump
S-18	2970	Lin.Ft.	Steel Piles, 10BP42	1050	1920		
S-29	24	Cu.Yd.	Porous Backfill	24			
S-29	10	Each	Scuppers, including supports			10	
S-29	39	Lin.Ft.	6" Helical CMP, M-6.4(A), non-perforated	39			
S-29	48	Lin.Ft.	6" Perforated Helical CMP, M-6.4(A) incl. specials	48			
I-10	320	Sq.Yd.	Crushed aggregate slope protection				320
S-101	270	Each	Water-reducing, set-retarding admixture			270	

* HORIZONTAL PARAPET REINFORCING
THESE BARS ARE INCLUDED WITH THE RAILING FOR PAYMENT.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

REINFORCING STEEL LIST and ESTIMATED QUANTITIES

BRIDGE No. GUE-77-0599

I-77 UNDER C.R. 102 RELOC.

GUERNSEY COUNTY STA 355+91.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
pwd	BMB		HT	TLW	12-24-84	

MICROFILMED
MAR 16 1987

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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GUERNSEY COUNTY
GUE-77-4.77

REFERENCES:

Standard Drawings:

End Dam and End Crossframe Details	SD-1-63, Sheets 2 & 4 Dated 11-12-63
Curb Plate Details	SD-1-63, Sheet 4 Dated 11-12-63
Gutter and Scupper Details	SD-1-63, Sheet 3 Dated 11-12-63
Railing Details, Type A	AR-1-57, Revised 4-2-62
Rocker and Bolster Details	RB-1-55, Revised 2-2-59
Approach Slab Details	AS-1-54, Revised 7-5-62
Beam Splice Details	SD-1-63, Sheet 1 Dated 11-12-63

Supplemental Specifications:

S-101	Dated 7-12-62
S-307	Revised 10-1-64

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

DESIGN DATA:

Design Loading: CF-130(57)

Concrete, Class "C": Basic unit stress = 1,333 p.s.i.

Concrete, Class "E": Basic unit stress = 1,133 p.s.i.

Structural Steel (except piling),
ASTM, A-36: Basic unit stress = 20,000 p.s.i.
(ASTM A-7 and A-373 steel not permitted)

Reinforcing Steel, ASTM A-15, A-16, A-160, deformed intermediate or hard grade: Basic unit stress = 20,000 p.s.i. Spiral reinforcement may be plain, structural grade with basic unit stress = 18,000 p.s.i.

WELDING of structural steel shall be Class "A" except as otherwise shown. Any welds shown as field welds may be, at the option of the Contractor, made in the shop. Class "B" welding shown thus:

B

HIGH STRENGTH STEEL BOLTS: Reference shall be made to Paragraph Two, Section S-7.10 of the Construction and Material Specifications. This paragraph shall be replaced with the following:

In the final assembly of the parts to be bolted, drift pins shall be placed in a sufficient number of holes (not less than 25 per cent for field erection) to provide and maintain accurate alignment of holes and parts, and sufficient bolts shall be installed and brought to a snug tight condition to bring the parts into complete contact. Bolts shall then be installed in any remaining open holes and tightened to a snug tight fit, after which all bolts shall be tightened completely by calibrated wrenches or by the turn-of-nut method. Drift pins shall then be replaced with bolts, tightened in the same manner. Bolt lengths determined by the use of Table I shall be adjusted to the next 1/4 inch length increment.

EMBANKMENT: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 feet back of the abutments prior to any work on the abutments or piers 1 and 3. Work shall not be initiated on the abutments for a minimum period of 60 days after the completion of the embankment. The embankment around the piers shall be completed to a minimum of 6 inches above the bottom of the footing before the excavation may be made for the footing.

EXCAVATION QUANTITY includes the removal of fill material required for the construction of the piers and abutments.

CONCRETE DECK PLACING: In order to facilitate water curing of the concrete in the deck slab, the placing of concrete shall progress up grade. The slab may be placed in sections between transverse construction joints which are parallel to the transverse slab bars and are located near the center of any span.

MACHINE FINISH: At the option of the Contractor, the concrete bridge deck may be finished by use of a finishing machine.

CRUSHED AGGREGATE SLOPE PROTECTION shall be provided under the structure as indicated on the General Plan.

TRAFFIC MAINTENANCE: For details of traffic maintenance, see Roadway Plans.

PILES shall be driven to firm contact with rock. If the length of penetration is approximately equal to the depth of rock according to bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Section S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

For abutment piles:

45 tons per pile using an 11000 ft. lb. hammer.
35 tons per pile using a 15000 ft. lb. hammer.

For pier piles:

55 tons per pile using an 11000 ft. lb. hammer.
50 tons per pile using a 15000 ft. lb. hammer.

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 35 tons per pile.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

GENERAL NOTES
BRIDGE No. GUE-77-0599
I-77 UNDER C.R. 102 RELOC.

GUERNSEY COUNTY STA 355+91.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
				TLU	12-24-L4	

MICROFILMED
MAR 1 3 1997

GENERAL INFORMATION

INTRODUCTION

The project consists of the proposed construction of a 2.3 mile section of IR 77 (USR 21), southeast of Byesville, extending northwestward, crossing Wills Creek, and extending along existing USR 21 (parts of which will be used as the southbound lane), and terminating about 0.8 mile southeast of proposed IR 70. Included in the report are the profiles for the connecting roads and ramps of the Co. Rd. 52 Interchange, and a profile of the Wills Creek Channel Relocation.

Proposed grades indicate the following maximum cuts and fill embankments:

	CUTS (MAX.)	FILL EMBANKMENTS (MAX.)
IR 77	40'	33'
Channel Relocation - Excavation, maximum 43 feet in depth		
Co. Rd. 52 Reloc. No. 1	5'	30'
Ramp A	17'	27'
Ramp B	-	16'
Ramp C	-	35'
Ramp D	-	39'
Co. Rd. 52 Extension	-	20'
Co. Rd. 52 Reloc. No. 2	32'	7'

GEOLOGY AND OBSERVATIONS OF THE PROJECT

The alignment traverses the floodplain of Wills Creek, adjacent to the base of the east valley wall to the north of approximate station 280+00. Moderately deep to thin alluvium, shallow to thin residual soils, and strip mine waste, overlie clay, shale, and sandstone bedrock of the Conemaugh series, Pennsylvanian age. Several rock outcrops were noted along the project, and measured sections of these exposures were made. Also noted was a collapse feature to the right of station 348+00, roughly 20 feet across, which readily accepts surface drainage from the ditch. This underground drainage may be associated with, or caused by past strip mining in this area.

EXPLORATION

Exploratory borings were made by means of truck-mounted mechanical soil auger in September, 1963, and during February and March, 1964. Included in the profile are logs of borings made in 1958 for a soil profile in this vicinity.

INVESTIGATIONAL FINDINGS

Materials occurring immediately below proposed grade consist predominantly of silts (A-4b), silt clays (A-6a and A-6b), and clays (A-7-6), having moisture contents generally in the lower portions of, or below the plastic range, as well as indurated clay, shale, and sandstone.

Bedrock is anticipated in the excavations at the following locations:

IR 77

Stations 286+00 to 287+50 - shale and/or indurated clay in the right ditch and backslope.

Stations 287+50 to 291+00 - shale and/or indurated clay at right grade and in the right ditch and backslope.

Stations 291+00 to 291+50 - shale and/or indurated clay in the right ditch and lower portion of the right backslope.

Stations 297+00 to 344+00 - possible shale at right grade and in the right ditch and lower portion of the right backslope.

Stations 346+00 to 350+50 - sandstone in the right ditch and lower portions of the right backslope; shale in the mid - and upper portions of the right backslope.

Stations 364+00 to 365+00 - sandstone and shale in the right ditch and lower portions of the right backslope.

Stations 365+00 to 369+00 - sandstone and shale at right grade, and in the left and right ditches and right backslope.

Stations 369+00 to 370+00 - shale and sandstone at right grade and in the right ditch and lower portion of the right backslope.

Stations 370+00 to 374+00 - possible rock in the right ditch, but believed to be spoils material.

Ramp A - possible rock in the vicinity of station 11+00.

Co. Rd. 52 Reloc. No. 2

Stations 113+50 to 119+50 - indurated clay and clay shale at grade, and in the right ditch, with few thin sandstone intervals in the right backslope.

Frost susceptible silts were encountered within three feet below proposed grade at stations 340+10 and 364+00, and Co. Rd. 52 Relocation No. 1 station 49+00.

Wet materials were encountered at stations 294+48, 296+98, 340+10, and 364+00.

Materials encountered in the channel excavation are comprised predominantly of silt clays (A-6a) with some clays, sandy silts, and silty clays, as well as sandstone or shale, anticipated forward of station 273+00 to the existing channel.

In the embankment foundation areas, soils consist predominantly of silt clays (A-6a) and clays (A-7-6), with silts and silty clays, having a wide range of moisture contents.

Wet and/or organic materials were encountered in the following areas:

IR 77

241+00 to 254+00	276+00	385+00
263+00	291+48	387+40
269+00	356+50	389+00

Co. Rd. 52 Interchange - Co. Rd. 52 Reloc. No. 1, stations 40+00 and 46+00, and in the majority of the ramp embankment foundations.

LEGEND FOR PROJECT AVERAGE RESULTS OF TESTS -- 303 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	A-1-a(0)	A-1-a	69	2	14	7	8	NP	NP	21	1
Coarse and fine sand	-------	A-3a	7	30	40	14	9	NP	NP	21	1
Stone fragments with sand and silt	A-2-4(0)	A-2-4	50	6	13	15	16	28	8	15	4
Stone fragments with sand, silt, and clay	A-2-6(1)	A-2-6	54	4	11	14	17	35	19	17	3
Sandy silt	A-4(6)	A-4a	1	2	31	37	29	26	7	28	20
Silt	A-4(8)	A-4b	0	1	10	56	33	28	7	25	32
Silt and clay	A-6(9)	A-6a	7	2	9	45	37	33	13	25	118
Silty clay	A-6(11)	A-6b	9	1	6	44	40	38	17	25	39
Elastic clay	A-7-5(20)	A-7-5	0	1	1	30	68	72	39	43	4
Clay	A-7-6(14)	A-7-6	2	1	2	40	55	46	22	30	73
Weathered indurated clay			VISUAL CLASSIFICATION								3
Weathered shale			VISUAL CLASSIFICATION								3
Weathered sandstone			VISUAL CLASSIFICATION								2
Shale			VISUAL CLASSIFICATION								
Sandstone			VISUAL CLASSIFICATION								

Sod and/or Topsoil =X'= Approximate depth.

Berm material.

Auger boring - plan view.

Auger boring plotted to vertical scale only.

Water content nearly equal to or greater than liquid limit.

Indicates a non-plastic material with a high water content.

—W Free water.

NOTE: Figures beside borings indicate water content in percent. e.g. 25

SOIL PROFILE

GUERNSEY COUNTY

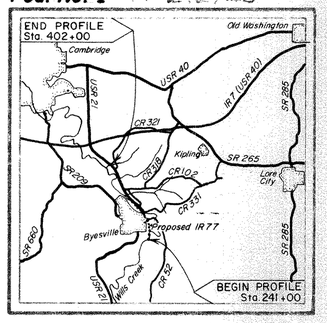
GUE- 77-4.77

1/27

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

NOTE. INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS OBTAINED SOLELY FOR USE IN ESTABLISHING DESIGN CONTROLS FOR THE PROJECT. THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THIS DATA AND IT IS NOT TO BE CONSTRUED AS A PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT.

Fed. No. I-77-2(2)43



LOCATION MAP

Recon. - J.S.M. - 8-9-63

C.A.S. - 2-15-55 & 3-13-to-27-58
Drilling - B.D.L. - 9-18-to-20-63
L.M.D. - 2-19-to-27-64

Drafting - L.N.L. - 5-12-64

MICROFILMED

SOIL PROFILE
GUERNSEY COUNTY
GUE - 77 -4.77

2
27

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W BROAD ST COLUMBUS 23, OHIO

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.

IR 77

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
243+46	180'Lt	0.0-5.0	0	0	2	54	44	39	17	15	A-6b
		5.0-10.0	0	0	7	52	41	34	12	16	A-6a
		10.0-13.0	0	0	33	36	31	28	9	27	A-4a
		13.0-18.0	0	0	26	43	31	27	11	25	A-6a
		18.0-23.0	0	2	32	38	28	22	5	26	A-4a
		23.0-26.0	0	2	37	35	26	23	7	26	A-4a
		26.0-30.0	0	1	19	50	30	23	6	28	A-4b
247+00	CL	0.3-5.0	0	0	1	57	42	48	26	27	A-7-6
		5.0-11.0	0	0	1	61	38	39	17	31	A-6b
		11.0-15.0	0	0	18	49	33	33	14	29	A-6a
		15.0-20.0	0	1	40	31	28	30	10	31	A-4a
		20.0-24.0	0	6	31	34	29	29	10	39	A-4a
		24.0-27.0	0	2	19	44	35	28	11	25	A-6a
254+00	CL	0.3-5.0	0	0	2	57	41	42	19	26	A-7-6
		5.0-9.0	0	0	17	45	38	30	11	26	A-6a
		9.0-14.0	0	0	17	50	33	32	12	32	A-6a
		14.0-19.0	C	1	24	44	31	35	14	30	A-6a
		19.0-24.0	0	0	23	46	31	34	14	27	A-6a
		24.0-27.0	0	1	30	40	29	37	18	24	A-6b
260+00	CL	0.3-5.0	0	0	1	54	45	42	19	23	A-7-6
		5.0-10.0	0	0	1	56	43	41	21	29	A-7-6
		10.0-15.0	0	0	1	56	43	36	14	26	A-6a
263+82	100'Rt	0.0-2.0	0	0	4	48	48	41	17	33	A-7-6
		2.0-7.0	0	0	2	45	53	44	20	42	A-7-6
		7.0-12.0	0	0	1	41	58	49	26	44	A-7-6
		12.0-17.0	0	0	2	44	54	45	19	47	A-7-6
		17.0-22.0	0	C	7	45	48	43	21	43	A-7-6
		22.0-26.0	0	1	7	54	38	32	13	27	A-6a
264+00	CL	0.0-6.0	0	0	1	48	51	43	18	25	A-7-6
		6.0-11.0	0	0	1	26	73	62	37	37	A-7-6
		11.0-16.0	0	0	12	50	38	34	15	31	A-6a
		16.0-21.0	0	1	15	47	37	34	11	43	A-6a
		21.0-26.0	0	0	18	43	39	34	12	31	A-6a
		26.0-30.0	0	1	11	43	45	35	16	33	A-6b
269+00	CL	0.0-5.0	0	0	1	40	59	50	23	29	A-7-6
		5.0-11.0	0	0	1	27	72	62	34	42	A-7-6
		11.0-16.0	0	0	1	44	55	49	20	51	A-7-6
		16.0-21.0	C	0	1	45	54	46	23	32	A-7-6
		21.0-26.0	0	0	3	48	49	36	17	26	A-6b
272+00	CL	0.0-5.0	0	1	7	46	46	42	18	24	A-7-6 *
		5.0-9.0	59	2	2	13	24	41	20	20	A-7-6 *
		9.0-12.0	55	2	6	19	18	38	15	14	A-6a
		**12.0-19.5									
276+00	CL	0.0-5.0	0	1	7	30	62	45	17	29	A-7-6
		5.0-10.0	0	1	6	49	44	42	20	27	A-7-6
		10.0-14.0	23	2	3	37	35	41	20	28	A-7-6
		14.0-19.0	0	0	10	57	33	26	6	26	A-4b
		19.0-24.5	0	0	15	55	30	25	6	30	A-4b
		24.5-27.0	0	1	17	50	32	26	6	12	A-4b
282+00	CL	0.0-4.0	35	5	5	29	26	38	14	20	A-6a
		4.0-9.0	0	0	6	57	37	38	18	26	A-6b
		9.0-14.0	12	0	7	52	29	35	15	27	A-6a
		14.0-18.0	19	1	2	53	25	40	19	26	A-6b
		18.0-20.0	28	0	1	35	36	39	18	27	A-6b
286+50	16'Lt	0.0-4.0	16	3	8	41	32	32	12	15	A-6a
		4.0-9.0	13	0	2	56	29	38	18	24	A-6b
		9.0-14.0	0	1	4	45	50	44	25	26	A-7-6
287+72	40'Lt	0.4-5.0	0	0	1	56	43	33	12	22	A-6a
		5.0-10.0	0	0	2	59	39	32	11	22	A-6a
291+48	15'Lt	0.5-5.0	0	1	1	51	47	33	13	21	A-6a *
		5.0-9.0	0	1	1	53	45	34	15	22	A-6a *
		9.0-12.0	0	1	2	60	37	27	7	24	A-4b
		12.0-15.0	0	6	13	38	43	-	-	19	A-6a
293+98	112'Lt	0.6-3.0	43	7	19	18	13	24	8	11	A-2-4 *
		3.0-6.0	5	4	11	44	36	33	13	20	A-6a
		6.0-10.0	22	6	12	33	27	30	11	15	A-6a
		10.0-20.0	7	3	4	47	39	37	18	21	A-6b
294+48	2'Lt	0.5-5.0	0	1	1	57	41	39	19	36	A-6b *
		5.0-10.0	0	1	1	52	46	32	12	22	A-6a *
		10.0-15.0	0	1	1	49	49	31	11	23	A-6a
296+98	96'Lt	0.6-3.0	26	9	12	26	27	31	12	12	A-6a
		3.0-8.0	0	1	2	51	46	47	26	27	A-7-6 *
		8.0-15.0	10	1	3	55	31	32	12	26	A-6a *
		15.0-20.0	0	1	2	61	36	34	13	34	A-6a
297+48	4'Rt	0.5-5.0	0	7	6	54	33	29	9	24	A-4b
		5.0-10.0	41	3	2	31	23	36	16	24	A-6b *
		10.0-15.0	0	0	0	56	44	36	15	25	A-6a
340+10	CL	0.5-5.0	0	0	0	68	32	30	9	26	A-4b *
		5.0-10.0	0	2	16	50	32	28	9	25	A-4b *
		10.0-13.0	0	2	26	36	36	27	11	19	A-6a

** 12.0-16.0 Reddish-Brown Weathered Indurated Clay 13 Visual
16.0-19.5 Brown Weathered Indurated Clay 12 Visual

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
344+00	CL	0.4-5.0	0	3	4	37	56	35	13	13	A-6a *
		5.0-10.0	0	4	3	29	64	44	18	20	A-7-6
344+00	50'Rt	0.4-5.0	0	2	18	34	46	34	15	22	A-6a *
		5.0-10.0	Gray Weathered Shale							7	Visual*
344+00	120'Rt	0.3-2.0	21	4	5	34	36	36	12	18	A-6a
		2.0-7.0	0	2	2	57	39	35	14	24	A-6a
		7.0-10.0	49	4	7	18	22	33	13	15	A-6a
		10.0-17.0	0	1	34	31	34	25	7	19	A-4a
		17.0-19.0	45	5	3	19	28	41	16	17	A-7-6
		19.0-21.0	58	7	5	15	15	30	8	11	A-2-4
344+00	190'Rt	0.4-6.0	18	5	5	34	38	33	11	19	A-6a
		6.0-12.0	35	10	5	23	27	32	11	15	A-6a
		12.0-18.0	37	2	4	21	36	38	18	16	A-6b
		18.0-24.0	34	1	3	26	36	39	16	17	A-6b
351+00	CL	0.4-6.0	52	3	3	21	21	31	11	12	A-6a
		6.0-11.0	0	0	1	60	39	34	8	27	A-4b
		11.0-15.0	0	1	2	43	54	44	19	28	A-7-6
356+50	CL	0.4-4.0	53	2	4	18	23	34	14	16	A-6a
		4.0-8.0	0	1	1	29	69	76	40	48	A-7-5
		8.0-12.0	0	2	2	20	76	58	34	29	A-7-6
		12.0-16.0	40	4	21	16	19	26	6	24	A-2-4
		16.0-20.0	0	1	5	31	63	40	19	23	A-6b
364+00	CL	0.3-5.0	0	2	17	50	31	26	8	18	A-4b *
		5.0-10.0	0	1	27	44	28	25	7	24	A-4a *
378+00	CL	0.4-6.0	0	1	3	52	44	39	18	24	A-6b *
		6.0-10.0	0	0	1	17	82	56	30	28	A-7-6
		10.0-12.0	0	0	0	9	91	-	-	29	A-7-6
380+00	CL	0.3-2.0	0	18	19	29	34	35	15	23	A-6a
		2.0-10.0	0	1	0	15	84	54	26	31	A-7-6
		10.0-17.0	0	C	0	17	83	54	28	34	A-7-6
		17.0-20.0	0	1	41	27	31	NP	NP	23	A-4a
		20.0-25.0	0	0	1	40	59	38	18	28	A-6b
		25.0-30.0	0	0	1	40	59	39	17	27	A-6b
385+00	CL	0.3-5.0	0	1	1	59	39	31	10	27	A-4b
		5.0-8.0	0	0	0	45	55	36	15	29	A-6a
		8.0-11.0	0	1	9	59	31	28	8	24	A-4b
		11.0-15.0	0	0	0	60	40	30	11	26	A-6a
		15.0-20.0	0	0	2	56	42	30	9	28	A-4b
387+40	CL	0.3-6.0	0	0	1	32	67	61	37	28	A-7-6
		6.0-10.0	0	1	2	32	65	42	15	24	A-7-6
		10.0-13.0	0	0	0	57	43	30	8	29	A-4b
		13.0-20.0	0	3	6	52	39	31	10	24	A-4b
389+00	CL	0.3-5.0	0	0	1	47	52	51	26	27	A-7-6
		5.0-8.0	0	6	15	46	33	35	12	26	A-6a
		8.0-13.0	28	5	8	37	22	32	15	20	A-6a
		13.0-17.0	0	0	2	53	45	53	29	29	A-7-6
		17.0-20.0	12	1	1	50	36	30	4	23	A-4b
392+00	CL	0.8-3.0	0	0	0	34	66	103	68	58	A-7-5
		3.0-7.0	0	1	9	50	40	39	18	27	A-6b
		7.0-12.0	2	4	7	58	29	27	7	22	A-4b
395+00	CL	0.4-2.0	0	3	3	62	32	35	9	30	A-4b
		2.0-8.0	0	1	2	59	38	39	19	23	A-6b
398+00	CL	0.3-1.0	1	4	2	66	27	37	9	29	A-4b
		1.0-5.0	0	0	0	60	40	42	23	26	A-7-6
		5.0-8.0	0	1	3	50	46	44	25	23	A-7-6

CHANNEL RELOCATION

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
243+25	280'Lt	0.8-6.0	0	0	1	56	43	43	17	29	A-7-6
		6.0-9.0	0	2	3	37	58	49	25	26	A-7-6
		9.0-12.0	0	0	5	61	34	37	17	26	A-6b
		12.0-15.0	0	0	16	51	33	30	12	27	A-6a
		15.0-17.0	0	1	37	42	20	25	5	30	A-4a
244+96	194'Lt	0.4-4.0	0	0	3	58	39	36	15	23	A-6a
		4.0-9.0	0	C	3	57	40	37	14	30	A-6a
		9.0-13.0	0	0	1	55	44	38	11	32	A-6a
		13.0-19.0	0	3	18	43	36	40	16	31	A-6b
		19.0-25.0	0	6	30	36	28	32	10	27	A-4a
		25.0-30.0	0	2	26	40	32	28	8	29	A-4a
246+97	210'Lt	0.5-6.0	0	1	1	35	63	48	22	32	A-7-6
		6.0-11.0	0	C	2	55	43	37	14	44	A-6a
		11.0-17.0	0	1	21	38	40	31	11	32	A-6a
		17.0-20.0	0	2	30	40	28	40	11	39	A-6a
		20.0-25.0	7	30	40	14	9	NP	NP	21	A-3a
247+96	219'Lt	0.5-4.0	0	0	1	48	51	41	14	25	A-7-6
		4.0-9.0	0	0	2	51	47	39	14	24	A-6a
		9.0-12.0	0	0	15	45	40	37	12	28	A-6a
		12.0-16.0	0	2	15	36	47	40	17	31	A-6b
		16.0-20.0	0	1	25	46	28	26	6	23	A-4a

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
250+00	240'Lt	0.5-6.0	0	0	2	38	60	47	16	28	A-7-5
		6.0-12.0	0	1	6	47	46	36	13	21	A-6a
		12.0-15.0	0	0	28	39	33	27	8	25	A-4a
253+30	275'Lt	0.5-6.0	0	1	5	51	43	38	15	22	A-6a
		6.0-12.0	0	0	2	56	42	36	12	25	A-6a
		12.0-17.0	0	1	6	49	44	35	14	27	A-6a
		17.0-20.0	0	0	15	55	30	34	12	27	A-6a
256+60	295'Lt	0.5-6.0	0	1	1	56	42	35	13	21	A-6a
		6.0-12.0	0	3	1	38	58	43	20	25	A-7-6
259+97	283'Lt	0.5-5.0	0	1	1	51	47	34	12	22	A-6a
		5.0-12.0	0	0	3	67	30	30	8	24	A-4b
263+33	312'Lt	0.3-6.0	0	1	1	20	78	63	31	36	A-7-5
		6.0-10.0	0	1	8	50	41	37	17	25	A-6b
		10.0-13.0	0	1	23	42	34	29	11	24	A-6a
		13.0-18.0	0	4	26	40	30	30	9	42	A-4a
		18.0-22.0	0	2	31	33	34	27	9	38	A-4a
		22.0-30.0	0	0	5	55	40	33	15	28	A-6a
269+00	395'Lt	0.6-6.0	0	1	2	36	61	50	22	36	A-7-6
		6.0-9.0	0	1	5	60	34	35	13	28	A-6a
		9.0-12.0	0	0	16	51	33	33	15	27	A-6a
		12.0-14.0	0	0	25	39	36	29	11	28	A-6a
		14.0-15.0	0	7	12	45	36	35	15	28	A-6a
273+25	440'Lt	0.0-5.0	19	3	3	44	31	32	20	21	A-6a
		5.0-10.0	0	0	1	34	65	52	29	29	A-7-6
		10.0-16.0	0	0	0	40	60	48	23	29	A-7-6
		16.0-19.0	0	0	1	69	30	26	7	30	A-4b
		19.0-24.5	0	0	6	26	68	41	20	14	A-7-6
275+05	440'Lt	0.0-4.0	0	0	1	66	33	34	12	18	A-6a
		4.0-7.0	0	1	1	27	71	67	43	27	A-7-6
		7.0-12.0	0	0	1	20	79	58	32	28	A-7-6
		12.0-15.0	Brown Weathered Shaly Sandstone							12	Visual
277+90	392'Lt	0.0-5.0	60	5	7	13	15	30	9	14	A-2-4
		5.0-10.0	24	2	6	36	32	33	13	27	A-6a
		10.0-15.0	15	3	8	39	35	32	12	20	A-6a
		15.0-21.0	17	5	5	38	35	36	15	21	A-6a
		21.0-25.0	12	1	27	31	29	31	12	27	A-6a
		25.0-27.0	0	3	22	37	38	32	13	30	A-6a

CO. RD. 52 RELOCATION NO. 1

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
32+00	15'Rt	0.0-5.0	15	4	3	42	36	35	16	21	A-6b *
		5.0-10.0	40	2	3	27	28	39	18	22	A-6b
		10.0-15.0	0	1	1	45	53	41	20	29	A-7-6
40+00	CL	0.0-4.0	0	1	26	40	33	25	6	21	A-4a *
		4.0-9.0	0	1	24	38	37	32	14	23	A-6a
		9.0-12.0	0	0	4	59	37	32	13	29	A-6a
44+00	CL	0.7-5.0	0	0	11	50	39	32	12	24	A-6a
		5.0-8.0	Brown Weathered Sandstone							8	Visual
46+40	CL	0.5-4.0	0	0	1	53	46	43	17	30	A-7-6
		4.0-8.0	0	0	2	43	55	48	24	34	A-7-6
		8.0-11.0	0	0	9	51	40	34	12	20	A-6a
		11.0-16.0	4	2	16	45	33	32	12	32	A-6a
		16.0-21.0	0	3	16	44	37	35	13	19	A-6a
		21.0-23.0	9	4	14	39	34	31	11	39	A-6a
49+00	CL	0.4-5.0	0	3	4	51	42	32	10	18	A-4b *
		5.0-10.0	0	0	0	49	51	37	17	23	A-6b
		10.0-15.0	0	0	1	51	48	37	16	26	A-6b
53+10	10'Lt	0.0-5.0	0	1	1	48	50	44	24	24	A-7-6 *
		5.0-10.0	0	1	1	56	42	36	14	28	A-6a
		10.0-15.0	0	1	1	41	57	42	20	36	A-7-6

RAMP A

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
9+40	20'Lt	0.5-5.0	0	4	6	49	41	46	22	20	A-7-6 *
		5.0-9.0	0	4	20	48	28	33	11	26	A-6a
		9.0-14.0	69	2	14	7	8	NP	NP	21	A-1-a
		14.0-18.0	36	4	28	15	17	33	15	18	A-2-6
12+30	35'Lt	0.3-5.0	0	2	4	49	45	36	13	17	A-6a
		5.0-10.0	22	4	7	32	35	37	14	13	A-6a
14+00	BL	0.0-5.0	0	1	2	34	63	52	24	45	A-7-6
		5.0-10.0	33	2	6	28	31	47	23	24	A-7-6
		10.0-16.0	15	9	23	27	26	28	9	22	A-4a
		16.0-18.0	0	2	7	43	48	39	16	36	A-6b
		18.0-22.0	0	0	16	52	32	26	8	29	A-4b
		22.0-26.0	0	C	4	53	43	31	11	29	A-6a

RAMP B

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
12+45	53'Rt	0.6-4.0	0	0	1	52	47	44	24	26	A-7-6
		4.0-13.0	0	0	15	54	31	28	8	22	A-4b
		13.0-18.0	0	0	23	50	27	25	7	27	A-4b
		18.0-24.0	0	0	14	57	29	25	7	26	A-4b
		24.0-30.0	C	1	12	41	46	40	16	26	A-6b

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
16+55	20'Lt	0.3-6.0	0	1	4	48	47	35	15	21	A-6a
		6.0-11.0	0	2	1	46	51	36	16	23	A-6b
		11.0-16.0	0	2	3	42	53	34	11	25	A-6a
		16.0-21.0	0	0	14	60	26	24	5	26	A-4b
		21.0-26.0	0	0	18	56	26	24	4	25	A-4b
		26.0-30.0	0	1	17	56	26	25	8	20	A-4b
18+00	BL	0.8-6.0	4	1	7	53	35	32	11	18	A-6a
		6.0-9.0	0	0	13	56	31	30	10	27	A-4b
		9.0-13.0	20	C	1	32	47	44	23	31	A-7-6
		13.0-18.0	0	0	2	42	56	41	20	32	A-7-6
		18.0-23.0	0	1	2	49	48	36	14	29	A-6a
		23.0-25.0	0	1	16	56	27	26	4	26	A-4b
		25.0-27.0	0	1	3	44	52	39	19	27	A-6b
22+00	BL	0.3-6.0	0	0	7	58	35	35	15	21	A-6a
		6.0-11.0	0	0	5	63	32	33	14	28	A-6a
		11.0-16.0	0	0	8	58	34	31	13	28	A-6a
		16.0-21.0	0	0	8	59	33	36	16	28	A-6b
		21.0-26.0	0	0	8	56	36	36	15	29	A-6a
22+63	67'Lt	0.4-5.0	0	1	3	46	50	41	13	16	A-7-6
		5.0-10.0	0	1	11	49	39	35	12	25	A-6a
		10.0-14.0	0	0	15	42	43	37	15	26	A-6a
		14.0-18.0	0	1	30	44	25	21	5	29	A-4a
		18.0-20.0	0	0	34	42	24	NP	NP	24	A-4a
		20.0-25.0	0	1	22	45	32	26	7	25	A-4a
		25.0-30.0	0	0	21	50	29	25	5	27	A-4b

RAMP C

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
16+00	BL	0.3-4.0	0	0	0	47	53	42	18	27	A-7-6
		4.0-8.0	0	C	4	48	48	43	19	25	A-7-6
		8.0-13.0	0	0	6	58	36	37	14	33	A-6a
		13.0-17.0	0	0	15	51	34	37	15	34	A-6a
		17.0-21.0	0	2	14	42	42	33	12	34	A-6a
		21.0-27.0	0	0	2	51	47	34	13	25	A-6a

RAMP D

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
12+00	BL	0.6-5.0	25	1	1	43	30	34	12	25	A-6a
		5.0-10.0	0	C	0	52	48	48	25	29	A-7-6
		10.0-15.0	0	1	1	58	40	38	16	28	A-6b
		15.0-20.0	0	C	1	60	39	33	14	28	A-6a
15+40	BL	0.0-5.0	0	0	1	51	48	44	18	28	A-7-6
		5.0-9.0	0	0	3	47	50	44	19	34	A-7-6
		9.0-14.0	0	0	1	53	46	40	14	39	A-6a
		14.0-19.0	0	0	1	57	42	42	15	42	A-7-6
		19.0-24.0	0	1	2	55	42	45	19	42	A-7-6
		24.0-28.0	0	0	3	48	49	41	17	35	A-7-6
18+00	BL	0.3-5.0	0	0	1	52	47	46	19	24	A-7-6
		5.0-10.0	0	C	4	52	44	38	15	25	A-6a
		10.0-14.0	0	6	18	38	38	36	16	24	A-6b
		14.0-18.0	30	1	14	36	19	36	16	27	A-6b
		18.0-23.0	0	2	23	42	33	28	11	34	A-6a
		23.0-26.5	0	1	4	29	66	46	24	35	A-7-6

CO. RD. 52 EXTENSION

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
74+34	13'Lt	0.0-5.0	0	C	5	49	46	37	15	19	A-6a *
		5.0-10.0	0	0	9	51	40	32	13	20	A-6a
		10.0-15.0	0	0	3	56	41	34	13	29	A-6a
77+32	4'Lt	0.0-5.0	0	0	4	52	44	41	16	29	A-7-6
		5.0-10.0	0	0	4	50	46	41	18	31	A-7-6
		10.0-13.0	0	0	2	43	55	42	19	34	A-7-6
		13.0-17.0	17	2	12	35	34	35	12	36	A-6a
		17.0-22.0	C	3	10	52	35	31	11	27	A-6a
		22.0-26.0	24	3	8	35	30	30	11	26	A-6a
80+34	20'Rt	0.0-5.0	25	5	7	28	35	39	17	20	A-6b *
		5.0-10.0	0	1	7	51	41	39	18	22	A-6b

CO. RD. 52 RELOCATION NO. 2

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
111+20	10'Rt	0.0-5.0	0	4	3	53	40	33	12	26	A-6a *
		5.0-10.0	26	5	4	30	35	39	18	18	A-6b
113+50	CL	0.0-3.0	0	1	1	41	57	51	30	24	A-7-6
		3.0-6.0	58	5	3	15	19	34	13	8	A-2-6 *
		6.0-10.0	Reddish-Brown Weathered Indurated Clay							16	Visual*
116+00	55'Lt	0.0-5.0	45	3	4	24	24	35	14	14	A-6a
		5.0-9.0	27	7	5	29	32	32	11	14	A-6a *
		9.0-14.0	69	2	2	11	16	38	18	15	A-2-6
		14.0-19.0	Brownish-Gray Weathered Indurated Clay								Visual
118+00	50'Lt	0.0-4.0	49	7	6	19	19	33	11	18	A-6a *
		4.0-9.0	28	3	4	27	38	39	12	17	A-6a
		9.0-14.0	Brown Weathered Siliceous Shale							8	Visual
		14.0-20.0	Brownish-Gray Weathered Clay Shale							15	Visual
120+00	10'Rt	0.0-5.0	26	8	8	30	28	32	11	19	A-6a *
		5.0-10.0	26	10	7	31	26	30	11	20	A-6a

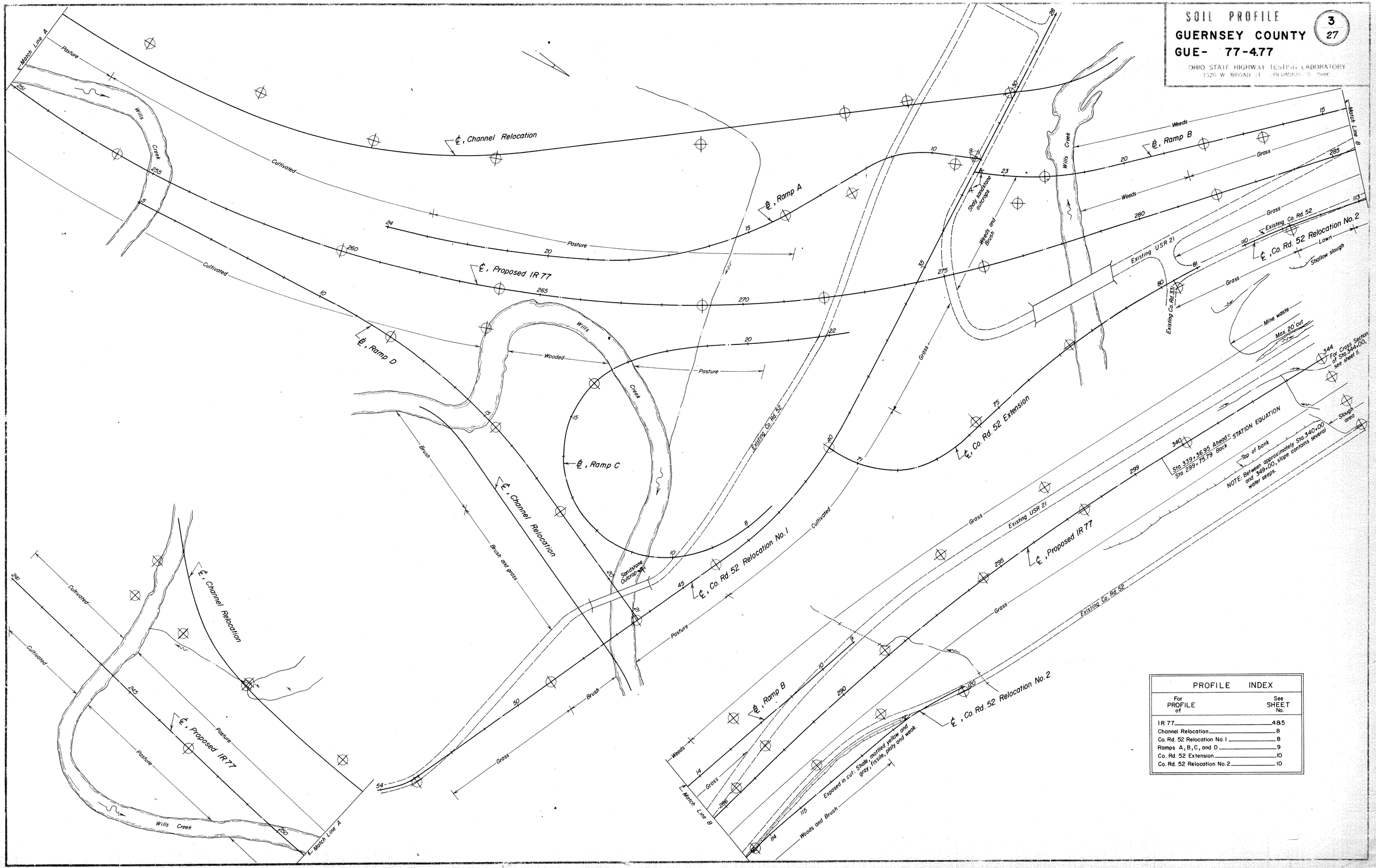
SOIL PROFILE

GUERNSEY COUNTY

GUE- 77-4.77

3/27

OHIO STATE HIGHWAY TESTING LABORATORY
1520 W. BROAD ST. COLUMBUS 15, OHIO



PROFILE INDEX

For PROFILE of	See SHEET No.
IR 77	4&5
Channel Relocation	8
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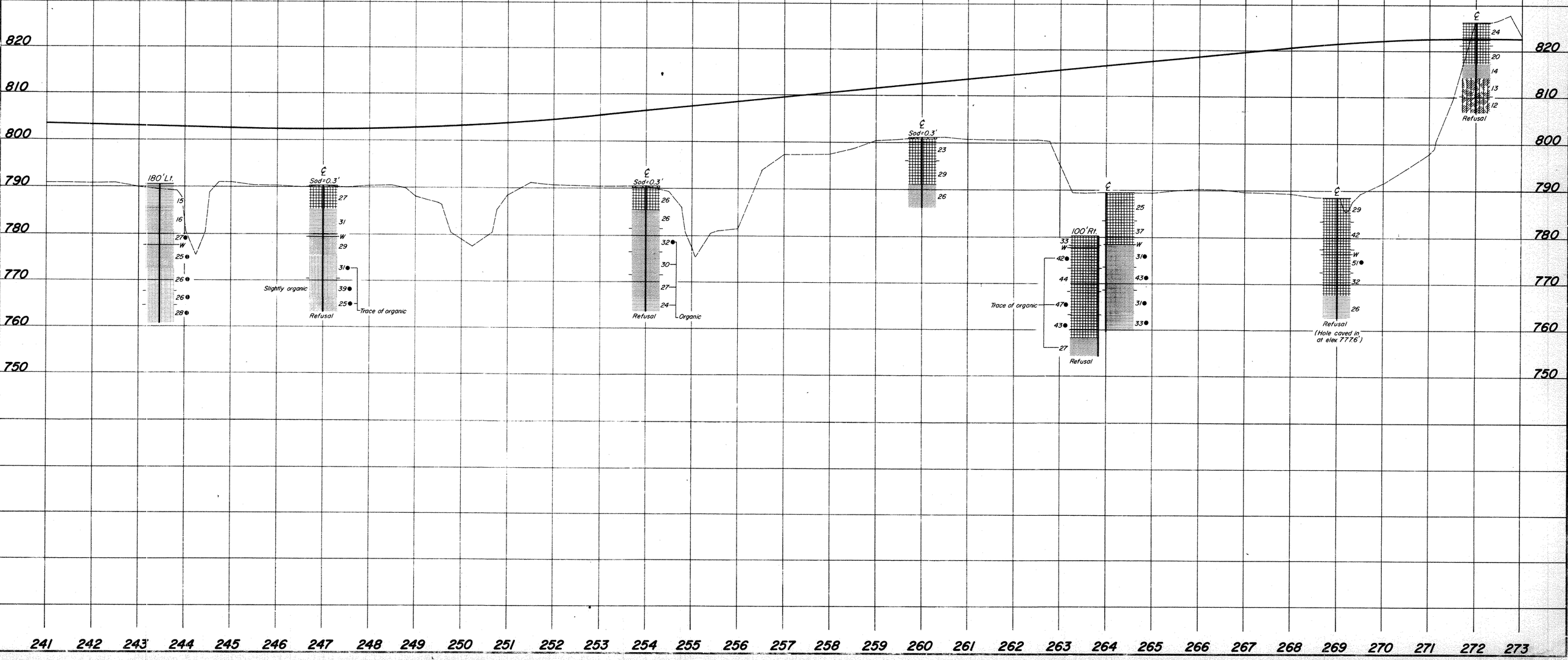
SOIL PROFILE

GUERNSEY COUNTY

GUE- 77-4.77

4/27

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO



MICROFILMED
MAR 16 1987

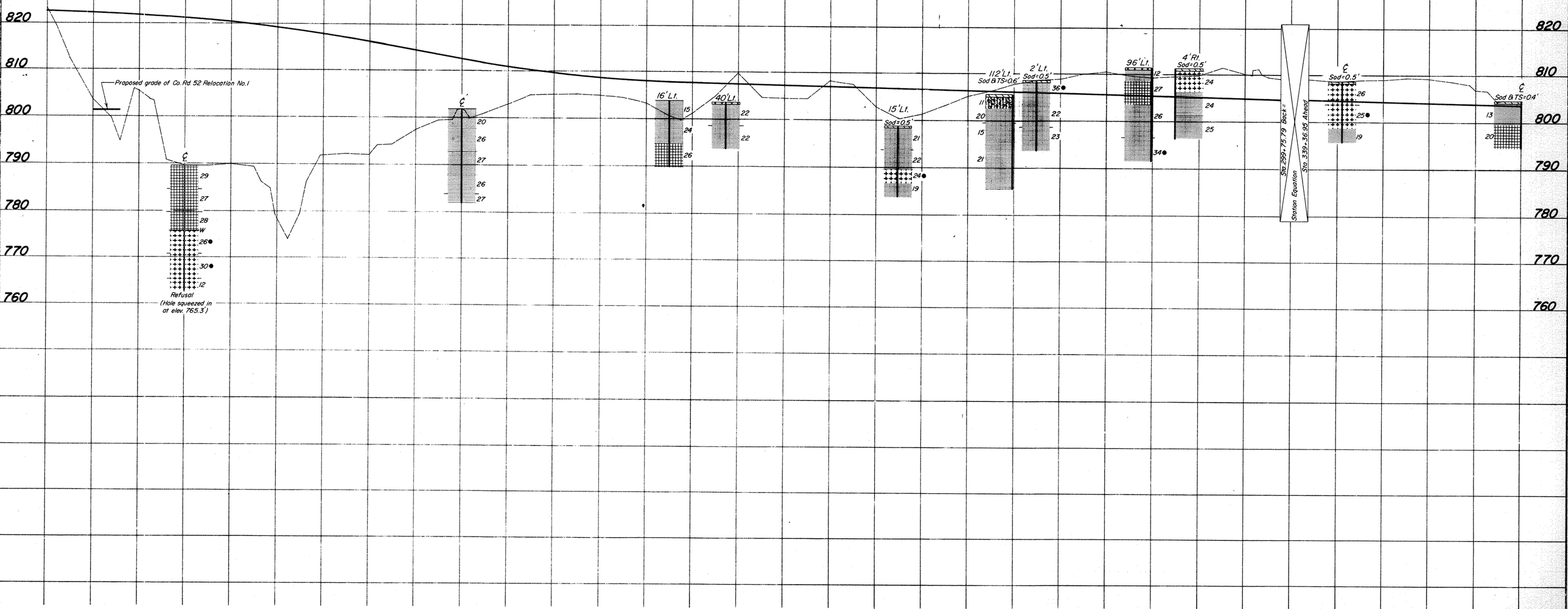
SOIL PROFILE

GUERNSEY COUNTY

GUE - 77-4.77

5/27

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO

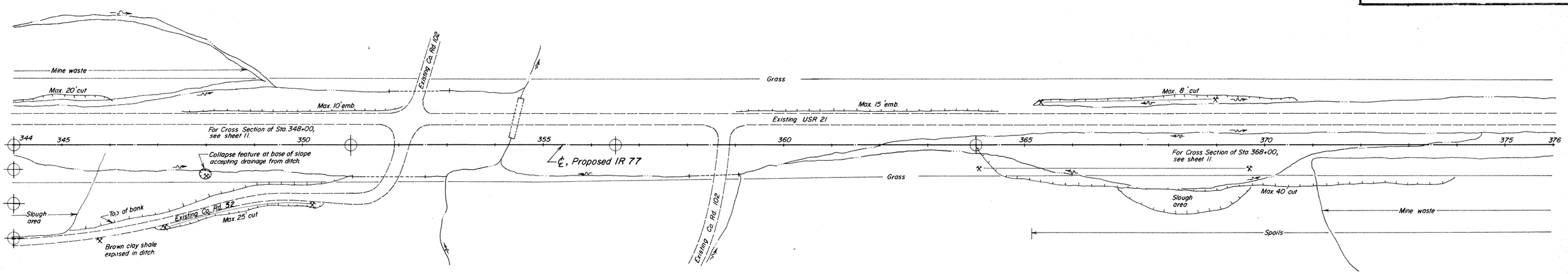


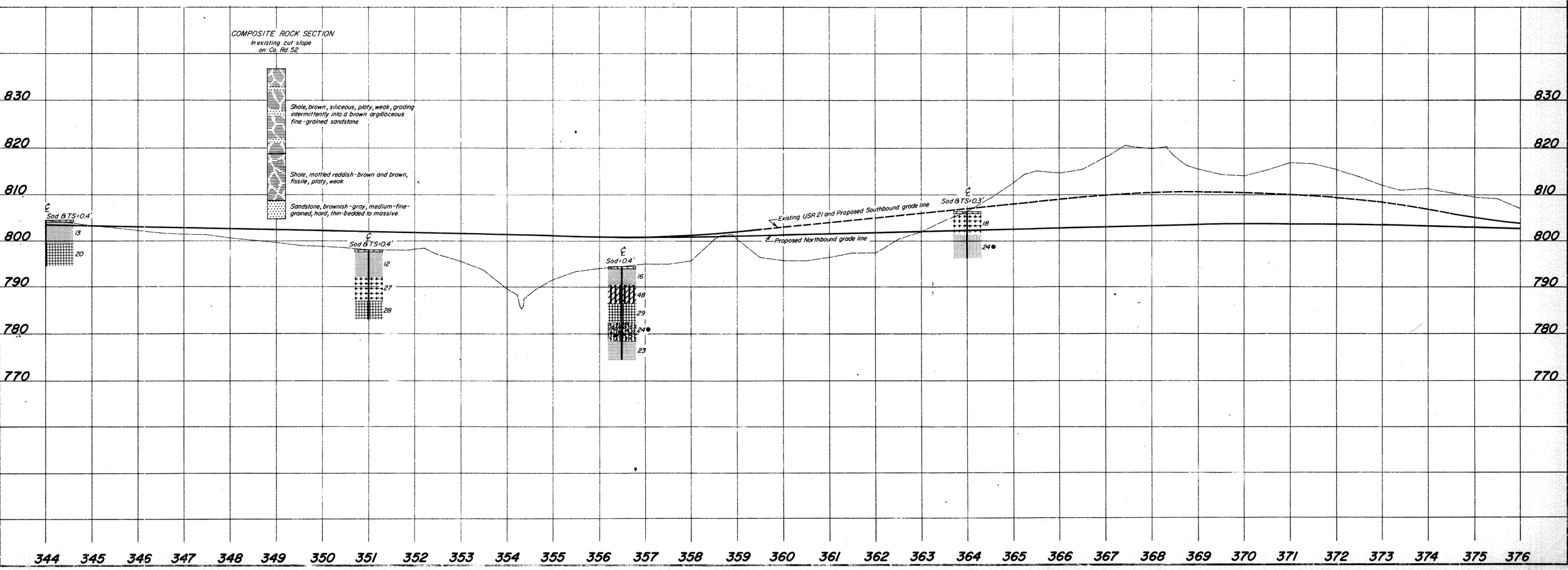
MICROFILMED
MAR 15 1977

SOIL PROFILE
GUERNSEY COUNTY
GUE- 77-4.77

6/27

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO





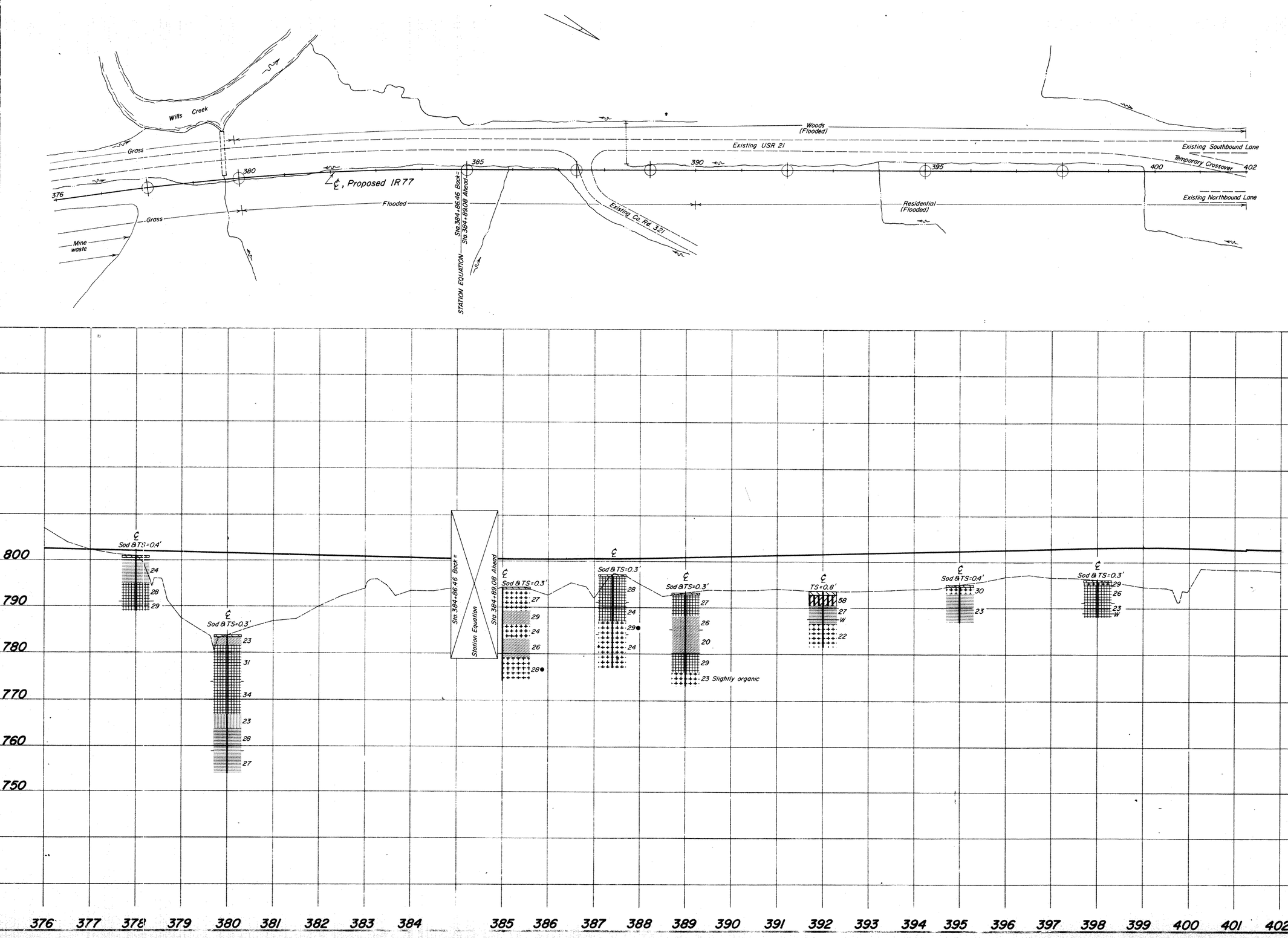
SOIL PROFILE

GUERNSEY COUNTY

GUE - 77-4.77

7/27

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W BROAD ST. COLUMBUS 23, OHIO



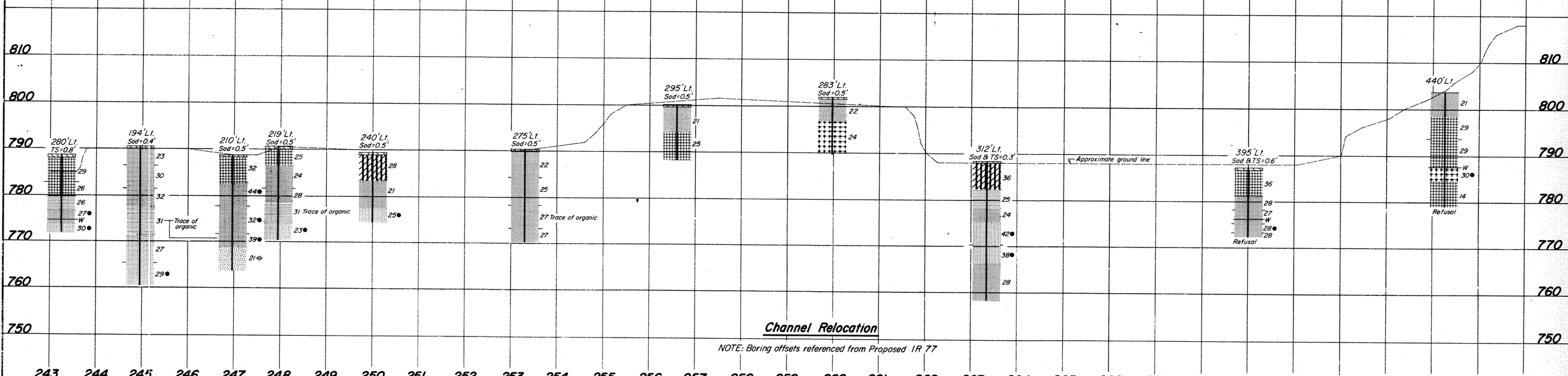
SOIL PROFILE

GUERNSEY COUNTY

GUE- 77-4.77

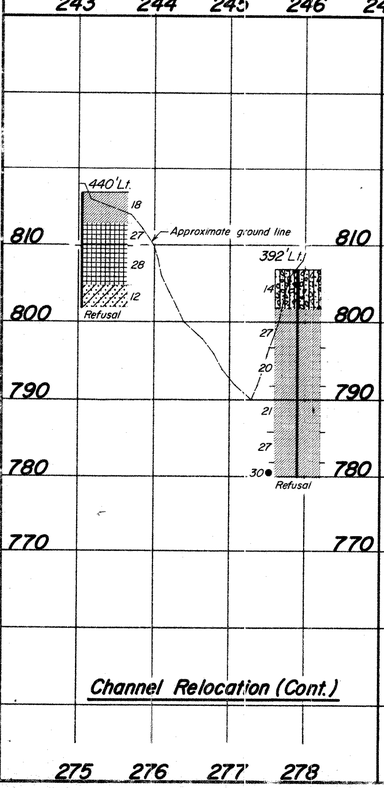
8/27

OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO



Channel Relocation

NOTE: Boring offsets referenced from Proposed 1R 77



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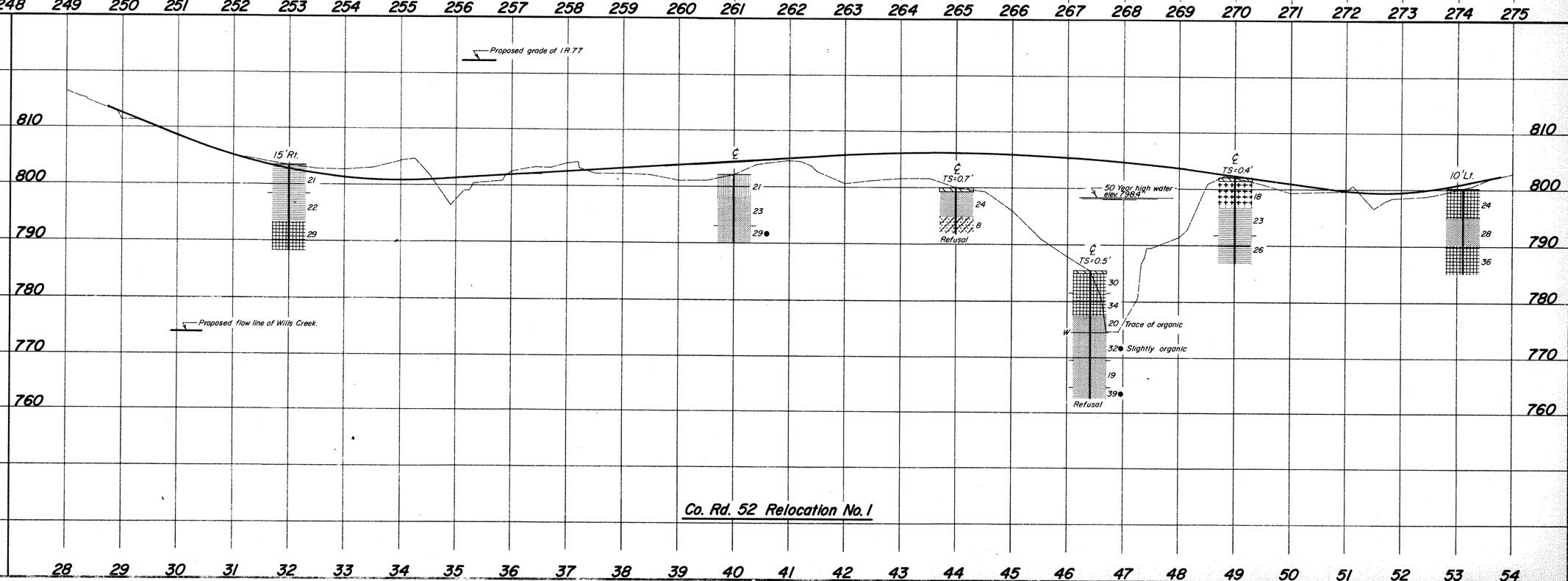

Co. Rd. 52 Relocation No. 1

SOIL PROFILE
GUERNSEY COUNTY
GUE - 77-4.77

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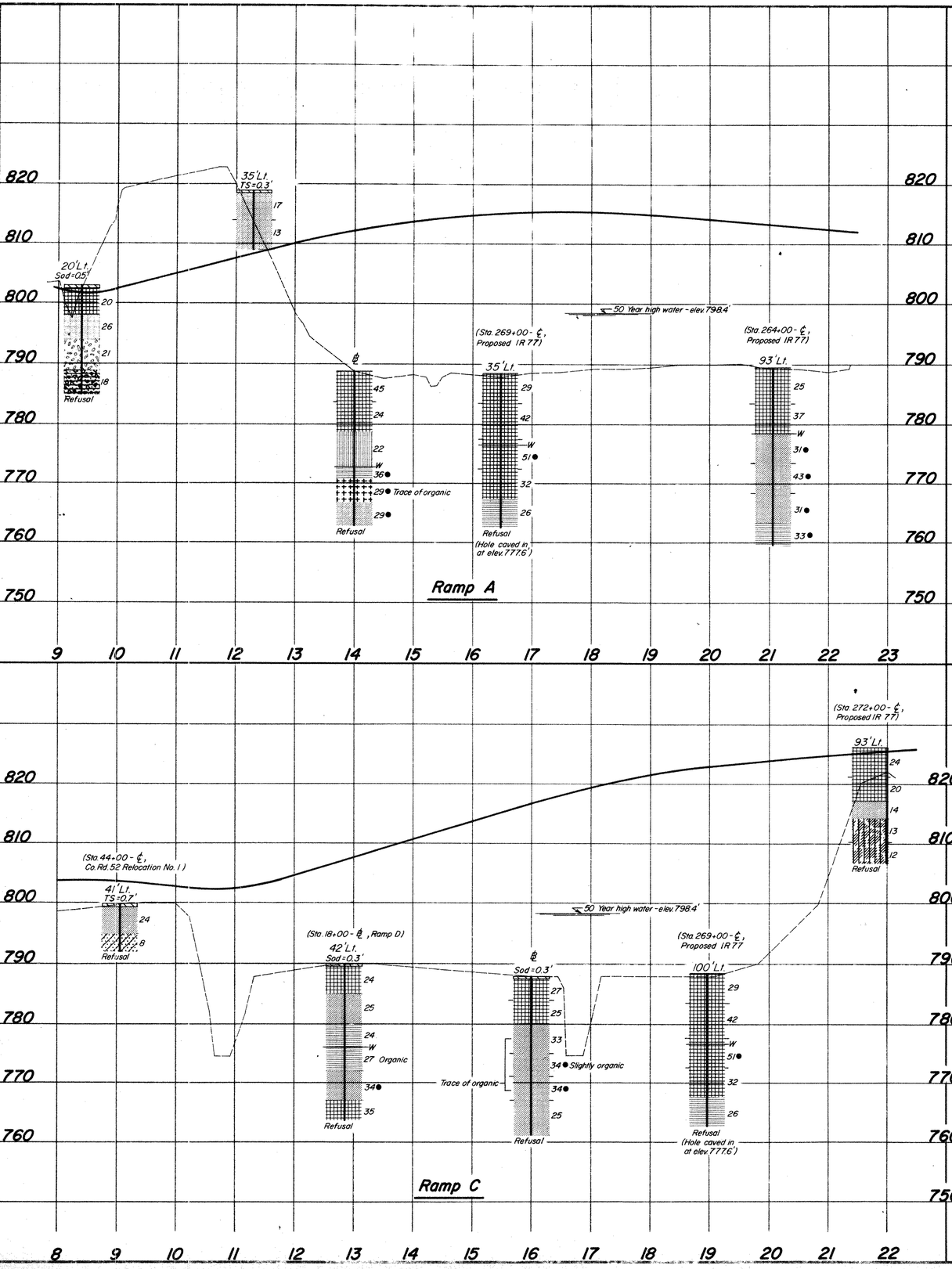
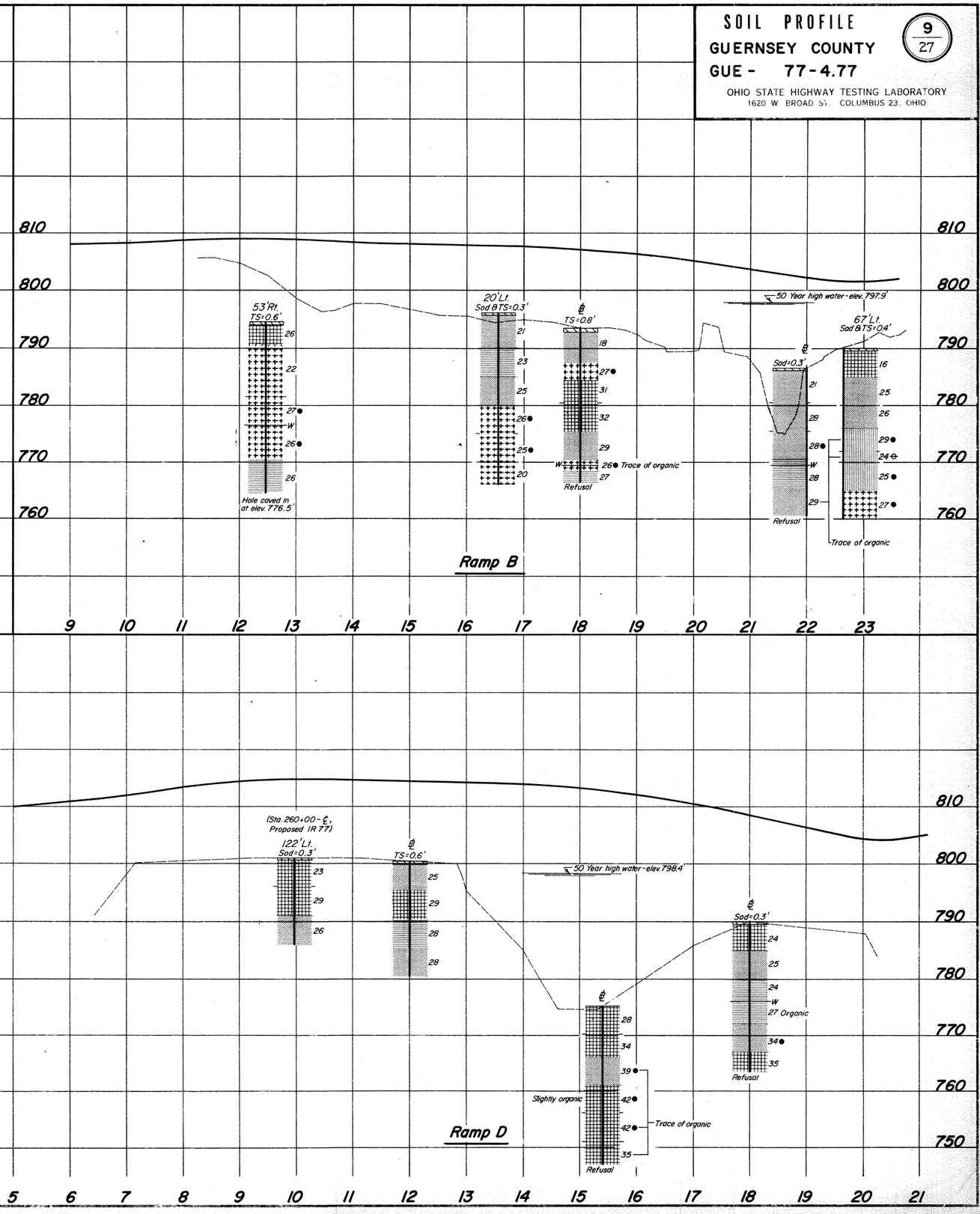
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO





SOIL PROFILE

GUERNSEY COUNTY

GUE- 77-4.77

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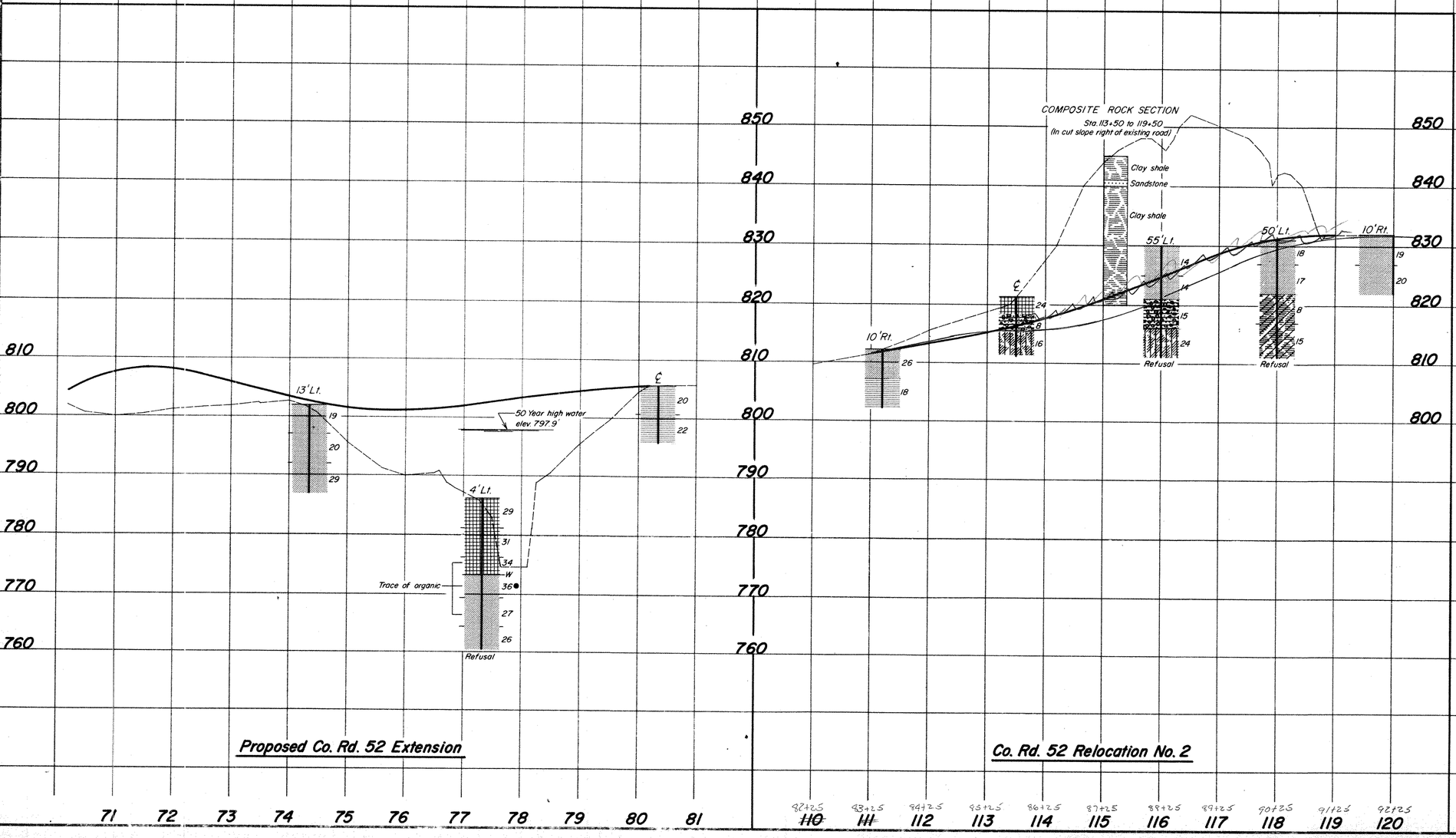
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO



SOIL PROFILE

GUERNSEY COUNTY

GUE- 77-4.77

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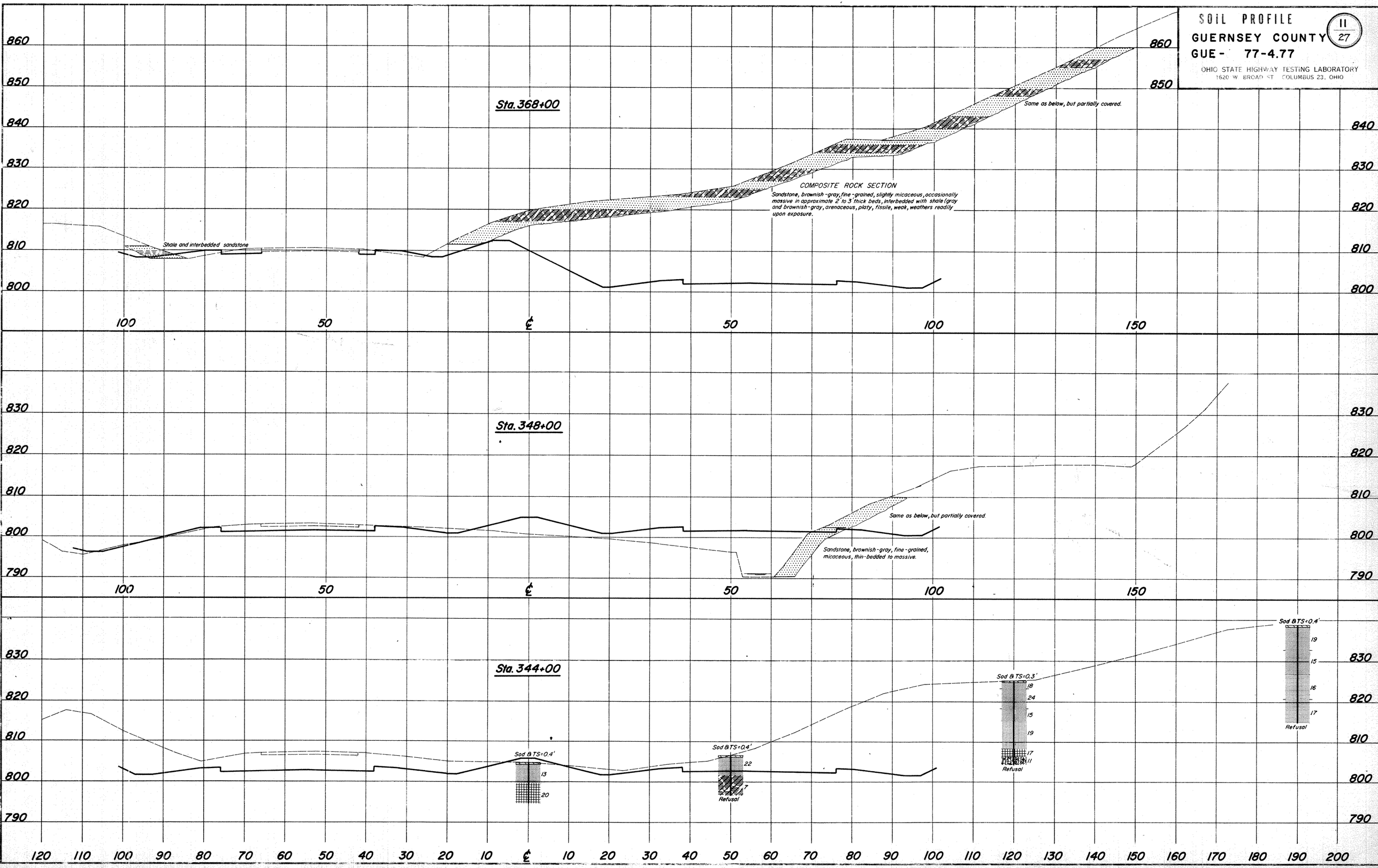
OHIO STATE HIGHWAY TESTING LABORATORY
1620 W. BROAD ST. COLUMBUS 23, OHIO



MICROFILMED
MAR 1 6 1967

GUERNSEY COUNTY
GUE-IR 77-4.77

GEOLOGY OF THE SITE

The structure site is located on the edge of the floodplain of Wills Creek. Shallow residual soils, in the rear portion of the site, and moderately deep alluvium, in the forward portion, overlie sandstone, shale, and indurated clay bedrock, of Pennsylvanian age.

EXPLORATION

The exploration consisted of three drive sample core borings and twelve drive rod penetration tests, made between April 15 and May 28, 1964.

INVESTIGATIONAL FINDINGS

Boring B-3, in the rear portion of the site, disclosed medium-dense silt clay overlying bedrock, encountered at 6-foot depth, elevation 804 feet. The boring was terminated at 25-foot depth, elevation 785 feet, after penetrating 19 feet of bedrock.

Borings B-13 and B-15, in the forward portion of the site, encountered medium-stiff to stiff silts and clays, loose to medium-dense silts, with organic material, to bedrock surface, encountered at 35 and 51-foot depths, elevations 759 and 752 feet. The borings were terminated at 59 and 70-foot depths, elevations 736 and 733 feet, after penetrating 23 and 19 feet of bedrock, respectively.

Rod soundings numbers 1-8, inclusive, encountered rapid increase in penetration resistance with increase in depth and were terminated due to refusal to penetration at 8 to 24-foot depths, elevations 801 to 774 feet, on the basis of boring B-3, considered to be on or below bedrock surface. Rod soundings numbers 9, 11, 14, and 16 encountered gradual increase in penetration resistance with increase in depth and were terminated due to refusal or near refusal to penetration at 48 to 54-foot depths, elevations 752 to 742 feet, considered to be on or near bedrock surface; as revealed by borings B-13 and B-15.

If it is the intention to found the rear abutment and rear pier substructure units on bedrock, it is considered advisable that the open excavation be inspected in the field in order to insure that the excavations have been extended to rock throughout the entire founding area. It is further suggested that the area of the footing contact not be subjected to prolonged atmospheric exposure, and that the excavation be well drained at all times.

Free water was encountered in the rod sounding holes at test locations numbers 6 and 9 at elevations 799 and 797 feet.

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
- R — Electrical Resistivity Probe Location - Plan View
- Footing — Capped Pile
- Footing on Pile
- R — Electrical Resistivity Probe - Profile
- TR — Top of Rock
- Interval of Relatively High Moisture
- TD — Total Depth

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

- 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

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive - Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer, with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	8" Cobbles	3" Gravel	2.0mm Coarse Sand	0.42mm Fine Sand	0.074mm Silt	0.005mm Clay
		No. 10 sieve		No. 40 sieve	No. 200 sieve	

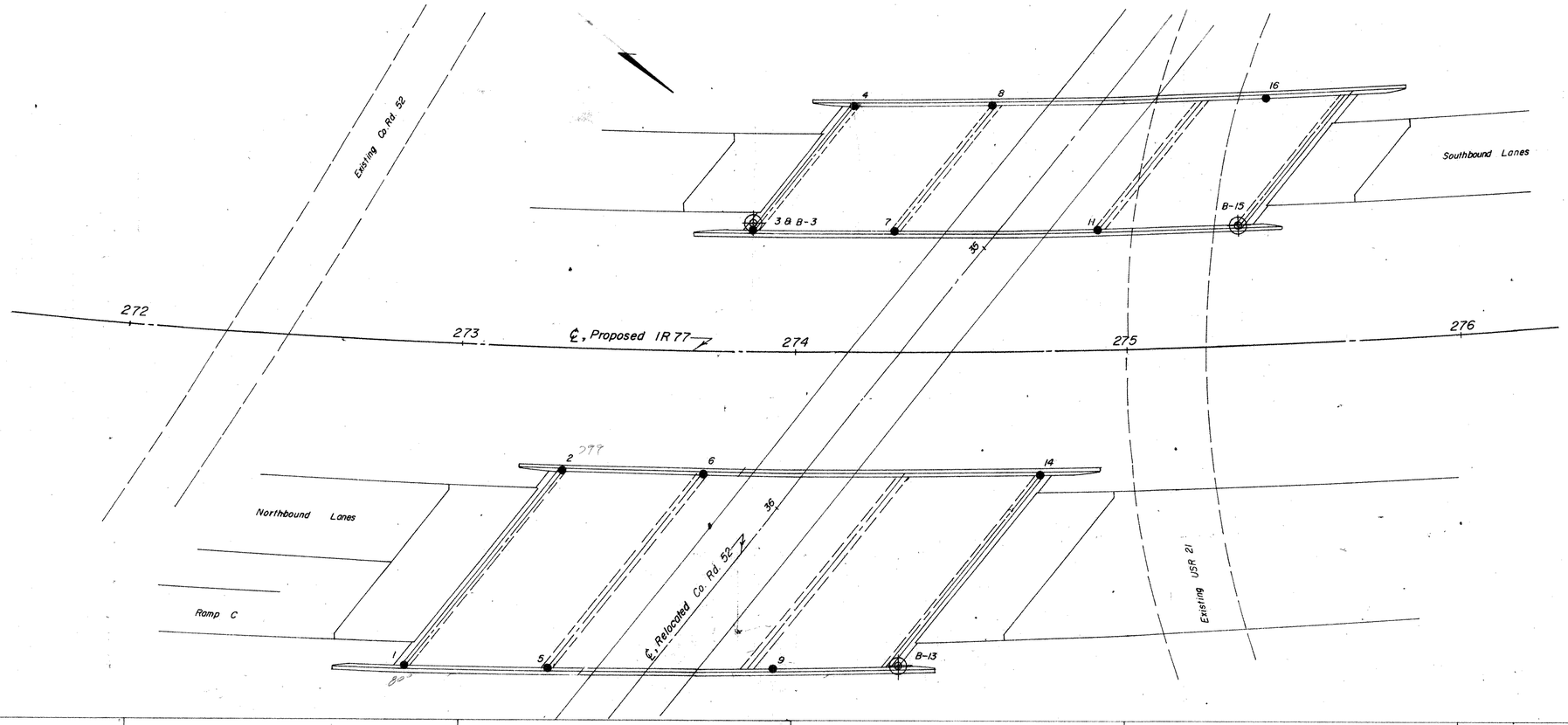
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

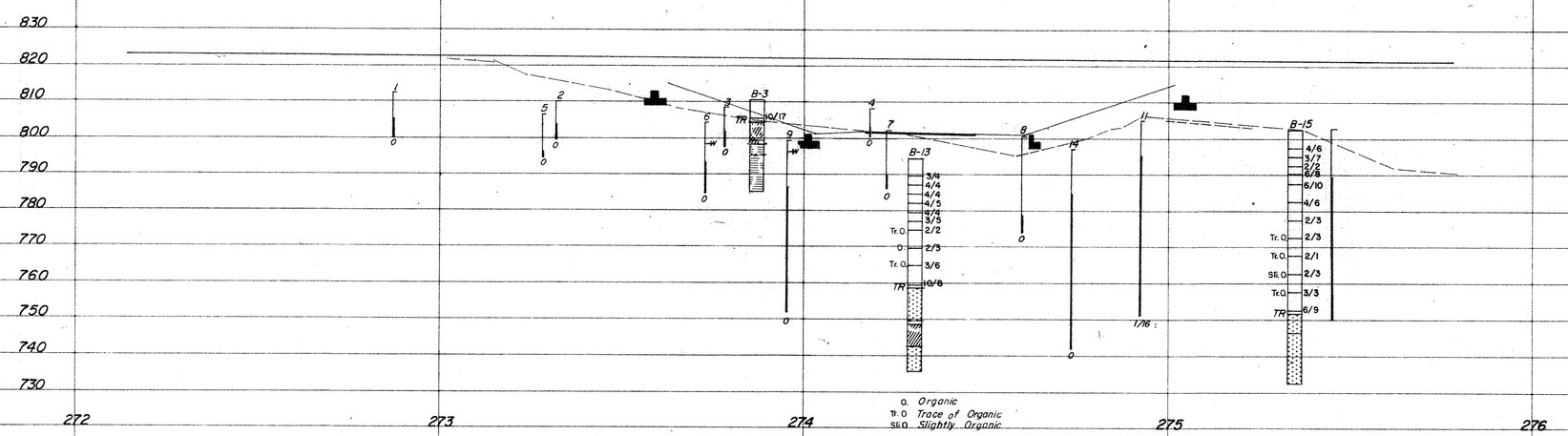
OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-IR 77-0517 L & R
IR 77 OVER CO. RD. 52 (RELOC.)
SEC. GUE-IR 77-4.77

CHECKED BY	REVIEWED BY	DATE
R.D.R.	G.P.H.	6/25/64

MICROFILMED
MAR 1-6 1987





SCALE: 1" = 20'

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST., COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-IR 77-0517 L & R
IR 77 OVER CO. RD. 52 (RELOC.)
SEC. GUE-IR 77-4.77

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
R. L. F.	R. P. W.	R.D.R.	6/25/64

MICROFILMED
MAR 16 1981

LOG OF BORING

Date Started 5-28-64
Date Completed 5-28-64
Boring No. B-3
Sampler Type SS Dia. 1 3/8"
Casing: Length ____ Dia. ____
Station & Offset 273+87, 39' Lt (REAR ABUTMENT)
Water Elev. ____
Surface Elev. 810.3'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	Pl.	W.C.	SHTL Class.
810.3	0														
	2														
805.3	4														
804.3	6	10/17			Reddish-Brownish-Gray Silt and Clay	1	0	8	3	43	46	34	13	20	
					TOP OF ROCK										
	8														
	10		2.0	2.0	Indurated clay, gray and brown mottled, soft, crumbly with a limestone and shale seam. Core loss 50%.										
799.3															
798.3	12				Indurated clay, gray and brown mottled, soft, crumbly. Core loss 40%.										
	14		2.6	1.4	Shale, gray, argillaceous, fissile, medium-firm, broken. Core loss 33%.										
795.3															
	16														
	18		4.4	0.6	Shale, gray, very siliceous, micaceous, firm. Core loss 6%.										
	20														
	22														
	24		5.0	0.0											
785.3					BOTTOM OF BORING										

LOG OF BORING

Date Started 5-27-64
Date Completed 5-27-64
Boring No. B-13
Sampler Type SS Dia. 1 3/8"
Casing: Length ____ Dia. ____
Station & Offset 274+31, 94' Rt (FORWARD ABUTMENT)
Water Elev. ____
Surface Elev. 794.8'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	Pl.	W.C.	SHTL Class.
794.8	0														
	2														
789.8	4														
	6	3/4			Reddish-Brown Clay	1	0	1	3	58	38	40	22	26	
787.3	8	4/4			Reddish-Brown Silt and Clay	2	0	1	3	53	43	35	14	26	
784.8	10	4/4			Brown Silt and Clay	3	0	0	2	57	41	35	14	28	
782.3	12	4/5			Reddish-Brown Silty Clay	4	0	1	2	48	49	37	16	24	
779.8	14	4/4			Gray Silt and Clay	5	0	0	1	67	32	34	12	24	
777.3	16	3/5			Gray Clayey Silt	6	0	0	1	61	38	32	10	28	
774.8	18	2/2			Grayish-Brown Clayey Silt, Trace of Organic	7	0	1	2	65	32	31	9	29	
	20														
769.8	22	2/3			Grayish-Brown Organic Sandy Silt	8	0	0	21	50	29	29	9	27	
	24	3/6			Reddish-Brownish-Gray Silt and Clay, Trace of Organic	9	0	1	6	55	38	29	11	24	
764.8	26	10/8			Grayish-Brown Sandstone Fragments	10	V	I	S	U	A	L		16	
	28				TOP OF ROCK										
759.8	30		1.7	2.3	Sandstone, gray, fine-grained, micaceous, firm, badly broken, with clay shale seams throughout. Core loss 71%.										
758.8	32														
	34		0.9	4.1	No Sample Recovered -										
	36	11/16													
749.8	38		2.8	0.2	Indurated clay, gray, soft, crumbly; becomes shale (gray, argillaceous, firm, fissile) at elevation 745.8 to base. Core loss 5%.										
748.8	40														
	42		5.0	0.0											
	44														
	46														
	48														
	50														
742.8	52		4.9	0.1	Sandstone, gray, fine-grained, firm. Core loss 1%.										
	54														
	56														
	58														
735.8					BOTTOM OF BORING										

LOG OF BORING

Date Started 5-26-64
Date Completed 5-26-64
Boring No. B-15
Sampler Type SS Dia. 1 3/8"
Casing: Length ____ Dia. ____
Station & Offset 275+35, 37' Lt (FORWARD ABUTMENT)
Water Elev. ____
Surface Elev. 802.7'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	Pl.	W.C.	SHTL Class.
802.7	0														
	2														
797.7	4														
	6	4/6			Brown Silt and Clay	1	0	10	7	41	42	34	13	23	
795.2	8	3/7			Brown Silty Clay	2	0	6	5	46	43	37	17	18	
792.7	10	2/2			Brownish-Gray Sandy Clay	3	0	12	11	38	39	33	13	22	
790.2	12	6/8			Brown Clay	4	0	1	4	47	48	43	22	23	
787.7	14	6/10			Brown Silty Clay	5	0	1	2	51	46	39	19	24	
	16														
782.7	18	4/6			Brown Silt and Clay	6	0	1	7	47	45	35	13	27	
	20														
777.7	22	2/3			Gray Clayey Silt	7	0	0	8	63	29	30	10	27	
	24														
772.7	26	2/3			Gray Clayey Silt, Trace of Organic	8	0	1	10	57	32	30	10	26	
	28														
767.7	30	2/1			Gray Sandy Silt, Trace of Organic	9	0	1	19	55	25	25	7	27	
	32														
762.7	34	2/3			Gray Clayey Silt, Slightly Organic	10	0	1	6	60	33	27	8	25	
	36														
757.7	38	3/3			Reddish-Gray Clayey Silt, Trace of Organic	11	0	1	6	57	36	31	10	28	
	40														
752.7	42	6/9			Brown Sandstone Fragments	12	V	I	S	U	A	L		17	
751.7	44				TOP OF ROCK										
	46		0.9	3.1	Sandstone, gray, fine-grained, micaceous, medium-firm, badly broken. Core loss 88%.										
	48														
746.7	50		1.2	2.8	Sandstone, gray, fine-grained, micaceous intervals, firm, first 10.0' broken. Core loss 38%.										
	52														
	54														
	56														
	58		2.5	2.5											
	60														
	62														
	64														
	66														
	68		5.0	0.0											
732.7	70				BOTTOM OF BORING										

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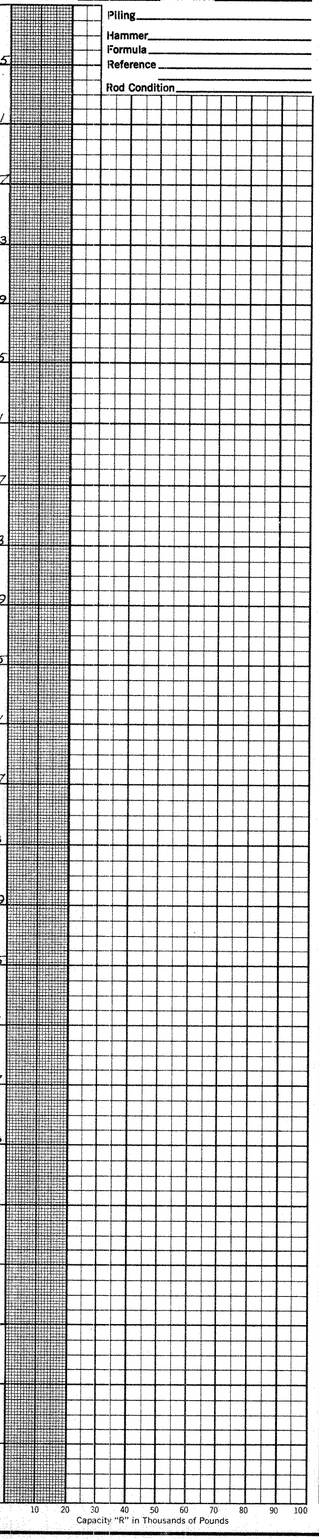
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-IR 77-0517 L & R
IR 77 OVER CO. RD. 52 (RELOC)
SEC. GUE-IR 77-4.77

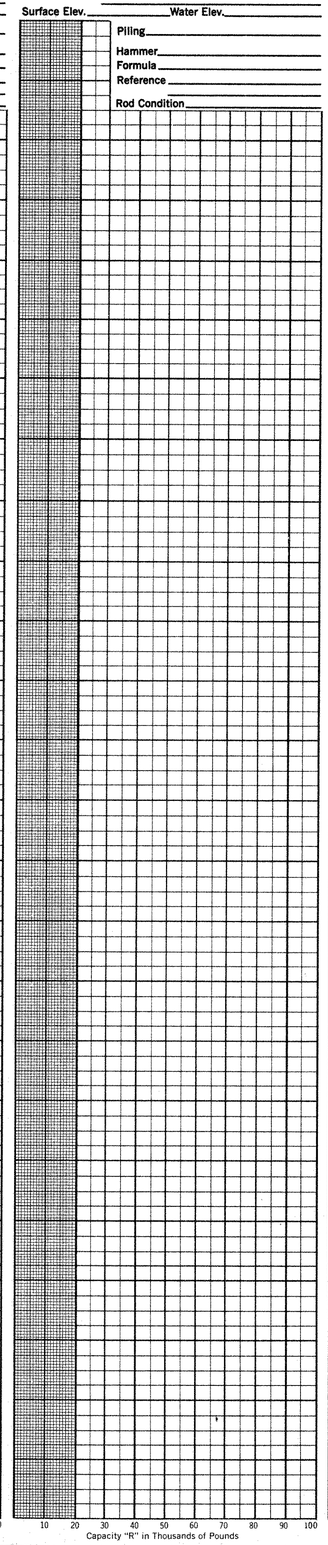
BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
J.A.G.	R.D.R.	G.P.H.	6/25/64

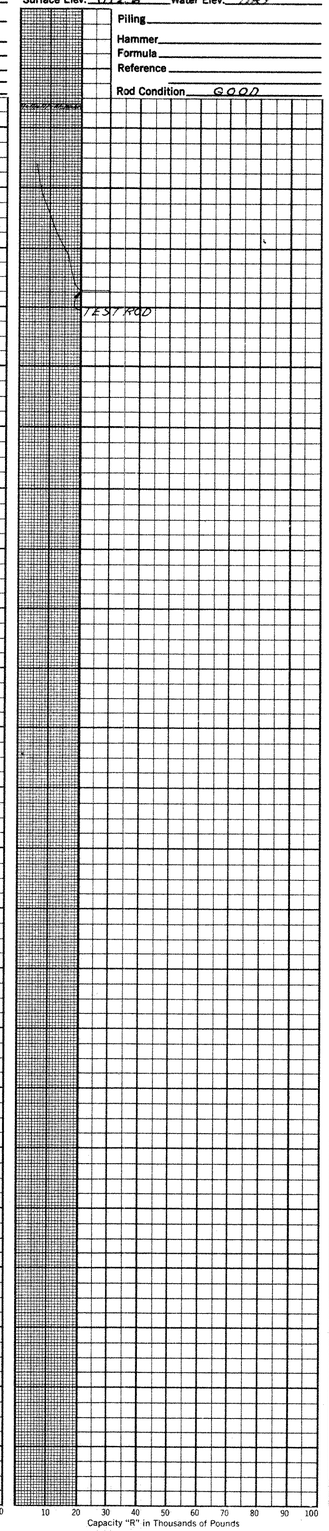
Test Location No. _____
Station & Offset _____
Surface Elev. _____ Water Elev. _____
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____



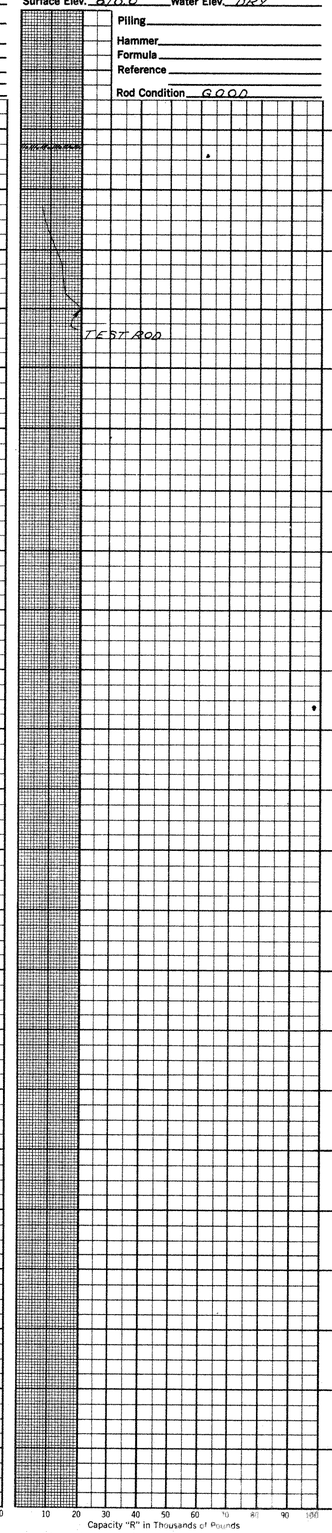
Test Location No. _____
Station & Offset _____
Surface Elev. _____ Water Elev. _____
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____



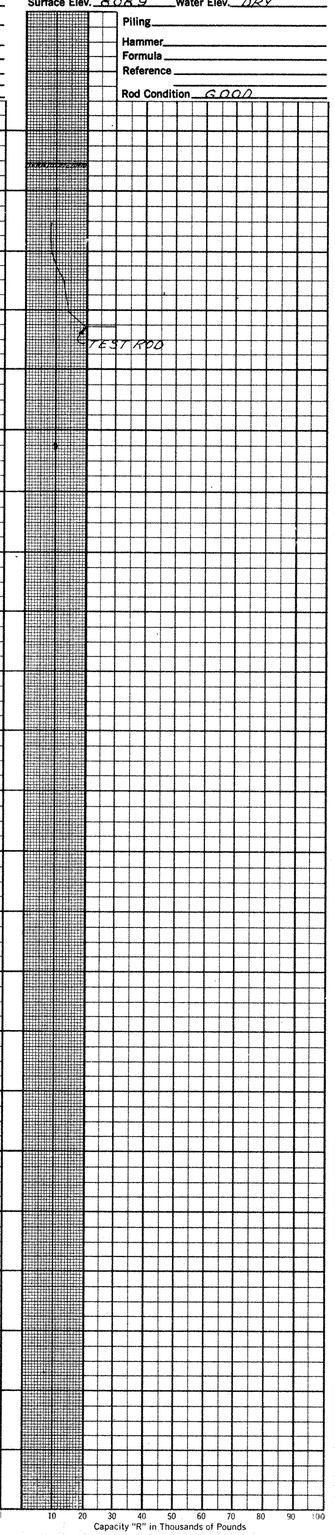
Test Location No. 1
Station & Offset 272+87.97' RT
REAR ABUTMENT
Surface Elev. 812.6' Water Elev. DRY
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



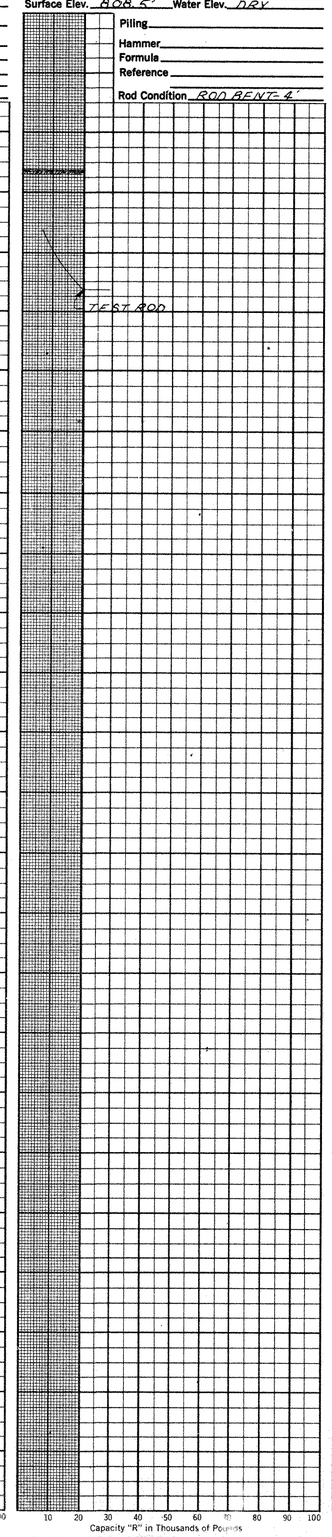
Test Location No. 2
Station & Offset 273+31.37' RT
REAR ABUTMENT
Surface Elev. 810.0' Water Elev. DRY
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



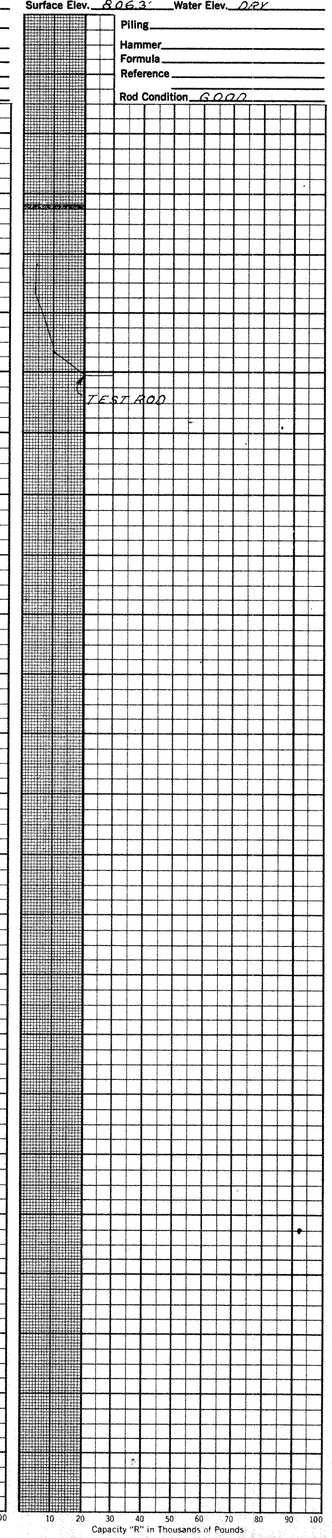
Test Location No. 3
Station & Offset 273+87.37' LT
REAR ABUTMENT
Surface Elev. 808.9' Water Elev. DRY
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



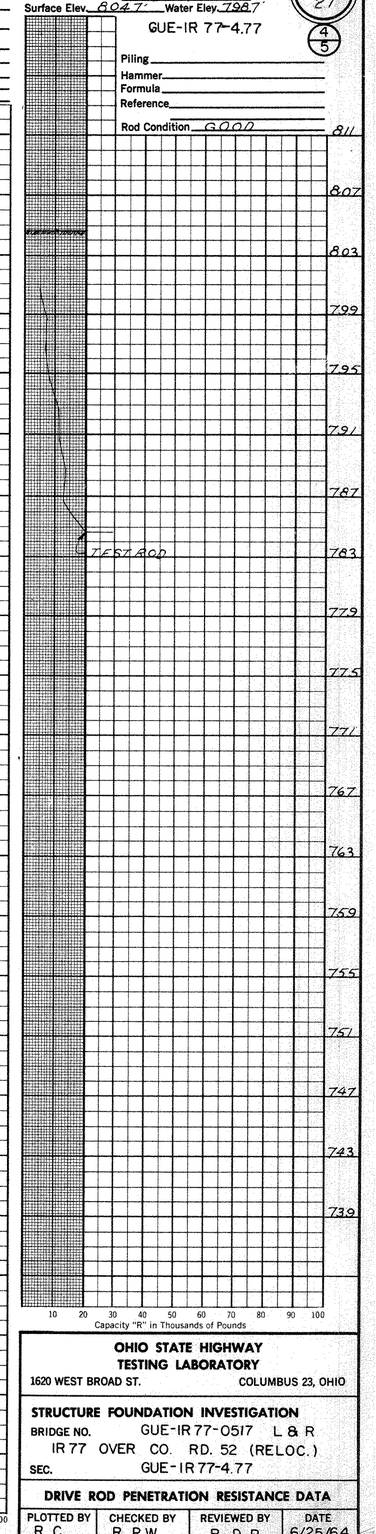
Test Location No. 4
Station & Offset 274+18.75' LT
REAR ABUTMENT
Surface Elev. 808.5' Water Elev. DRY
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition ROD BENT-4'



Test Location No. 5
Station & Offset 273+29.96' RT
REAR PIER
Surface Elev. 806.3' Water Elev. DRY
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



Test Location No. 6
Station & Offset 273+73.37' RT
REAR PIER
Surface Elev. 804.7' Water Elev. 798.7'
GUE-IR 77-4.77
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



15
27
4
5

OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-IR 77-0517 L & R
IR 77 OVER CO. RD. 52 (RELOC.)
SEC. GUE-IR 77-4.77

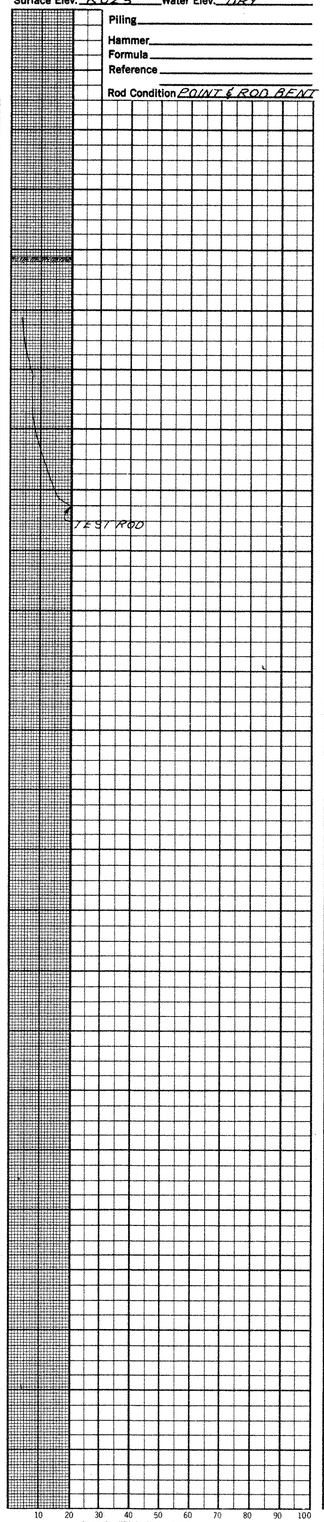
DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R C	R P W	R D R	6/25/64

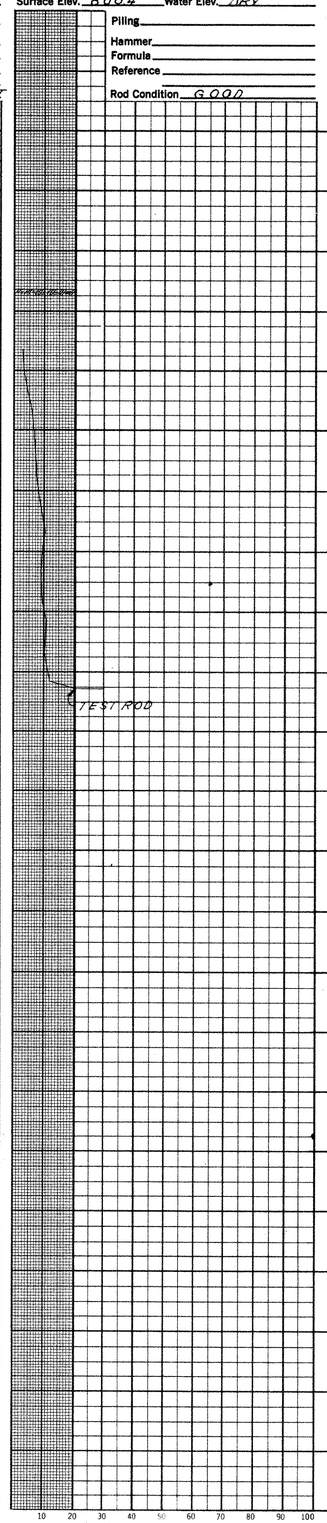
Test Location No. _____
Station & Offset _____
Surface Elev. _____ Water Elev. _____
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____

Test Location No. _____
Station & Offset _____
Surface Elev. _____ Water Elev. _____
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____

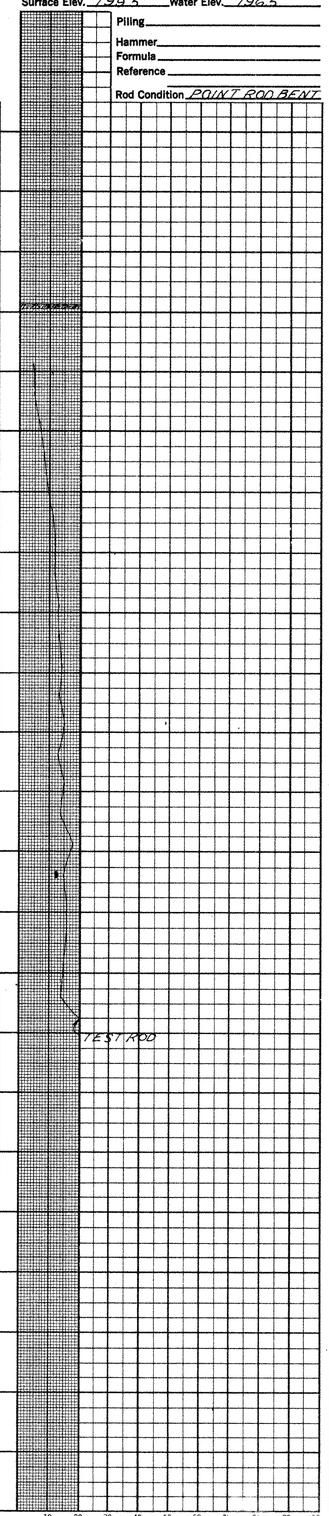
Test Location No. 7
Station & Offset 274+30.37' LT
REAR PIER
Surface Elev. 802.5' Water Elev. DRY
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition POINT & ROD BENT



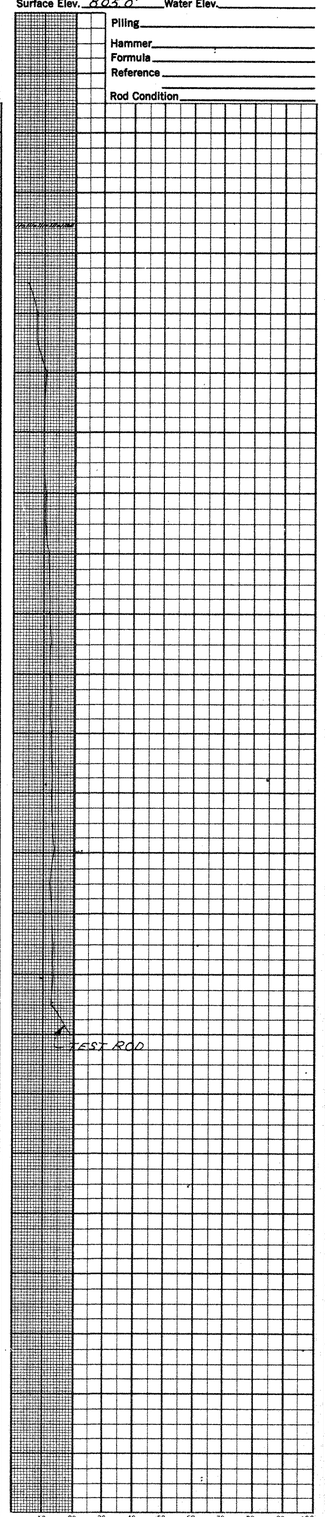
Test Location No. 8
Station & Offset 274+60.75' LT
REAR PIER
Surface Elev. 800.4' Water Elev. DRY
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



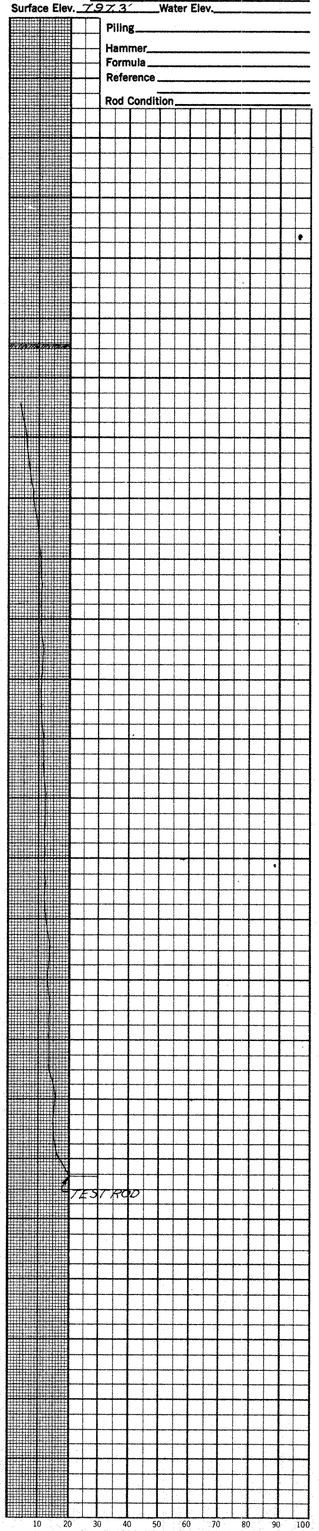
Test Location No. 9
Station & Offset 273+94.95' RT
FORWARD PIER
Surface Elev. 799.5' Water Elev. 796.5'
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition POINT ROD BENT



Test Location No. 11
Station & Offset 274+92.37' LT
FORWARD PIER
Surface Elev. 805.0' Water Elev. _____
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____



Test Location No. 14
Station & Offset 274+73.37' RT
FORWARD ABUTMENT
Surface Elev. 797.3' Water Elev. _____
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____

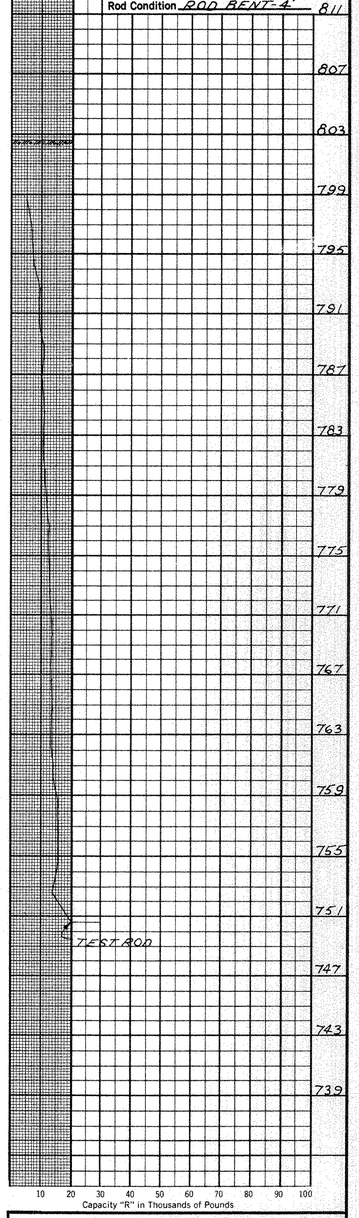


Test Location No. 16
Station & Offset 274+45.75' LT
FORWARD ABUTMENT
Surface Elev. 802.6' Water Elev. 786.6'
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition ROD BENT-4'

16/27

5/5

GUE-IR 77-4.77



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1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-IR 77-0517 L&R
IR77 OVER CO. RD. 52 (RELOC.)
SEC. GUE-IR 77-4.77

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R C	R P W	R D R	6/25/64

GEOLOGY OF THE SITE

The structure site is located on a buried valley wall of Wills Creek, in an unglaciated region, in an area where moderately deep to deep valley fill overlies sandstone bedrock, of Pennsylvanian age.

EXPLORATION

The exploration consisted of two drive sample-core borings and six drive rod penetration tests, made between April 8 and 28, 1964.

INVESTIGATIONAL FINDINGS

The borings disclose that loose to dense medium-stiff silts and clays, containing various amounts of organic material in the forward portion of the structure site, overlies sloping bedrock surface, encountered at 20-foot depth, elevation 793 feet in the rear portion of the structure site, and at 56-foot depth, elevation 749 feet in the forward portion. The borings were terminated 10 feet below bedrock surface, elevations 783 and 739 feet.

Rod soundings, cased to proposed footing elevations, as noted on the site plan, met rapid increase in penetration resistance with increase in depth and were terminated upon encounter with near-refusal and refusal to penetration, considered to be on or slightly above bedrock surface, as revealed by the borings.

On the basis of the tests, bedrock surface is considered to slope downward from the rear portion of the structure site to the forward portion and from the left side to the right side between elevations 793 feet and 750 feet.

If it is the intention to found the rear abutment and rear pier on bedrock, it is considered advisable that the open excavations be inspected in the field in order to insure that the excavations have been extended to rock throughout the entire founding area.

Unconfined compression tests on similar sandstone bedrock indicates a crushing strength on the order of 250 tons per square foot.

Free water was encounter in the rod sounding holes numbers 3, 4, 5, 6, and 8 between elevations 785 and 779 feet.

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
- Electrical Resistivity Probe Location - Plan View
- Footing
- Capped Pile
- Footing on Pile
- Electrical Resistivity Probe - Profile
- TR Top of Rock
- Interval of Relatively High Moisture
- TD Total Depth

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

- 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.

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive - Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer, with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

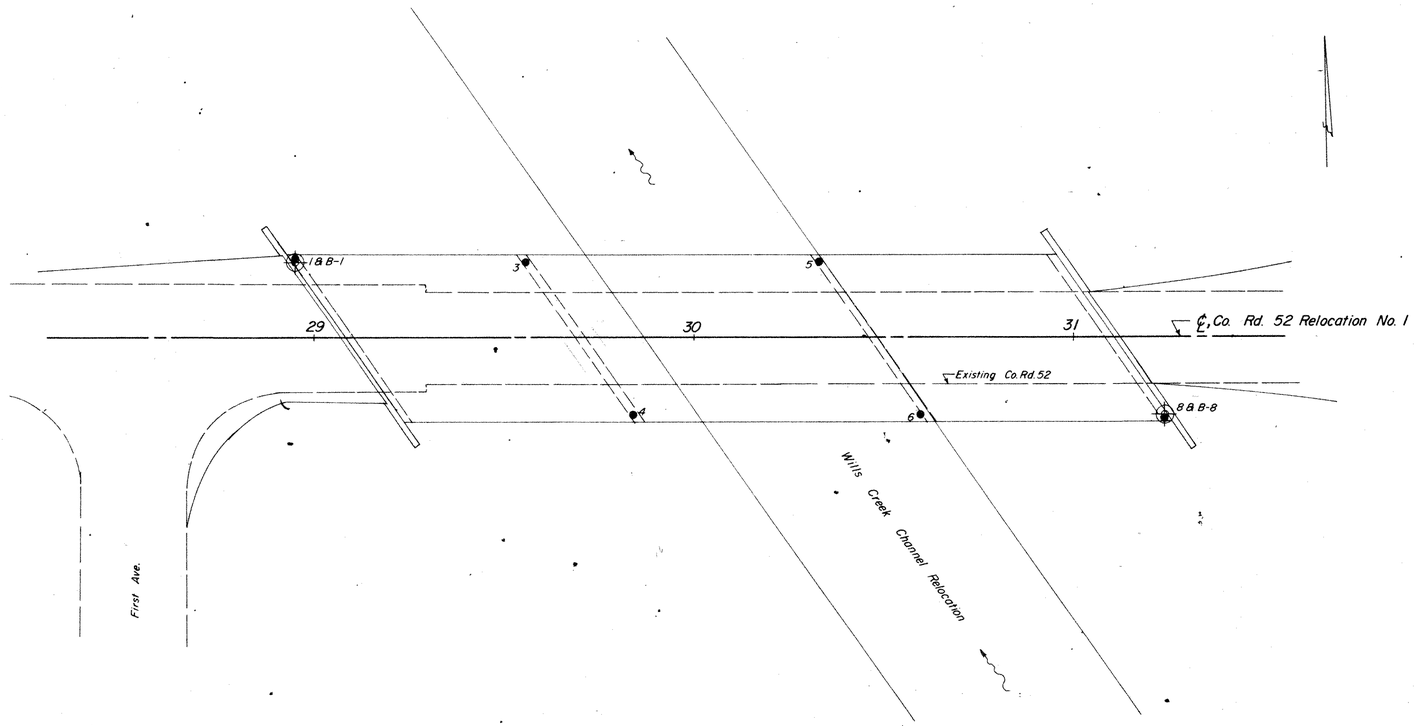
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
	8" – 3"	3" – 2.0mm	2.0mm – 0.42mm	0.42mm – 0.074mm	0.074mm – 0.005mm	0.005mm
			No. 10 sieve	No. 40 sieve	No. 200 sieve	

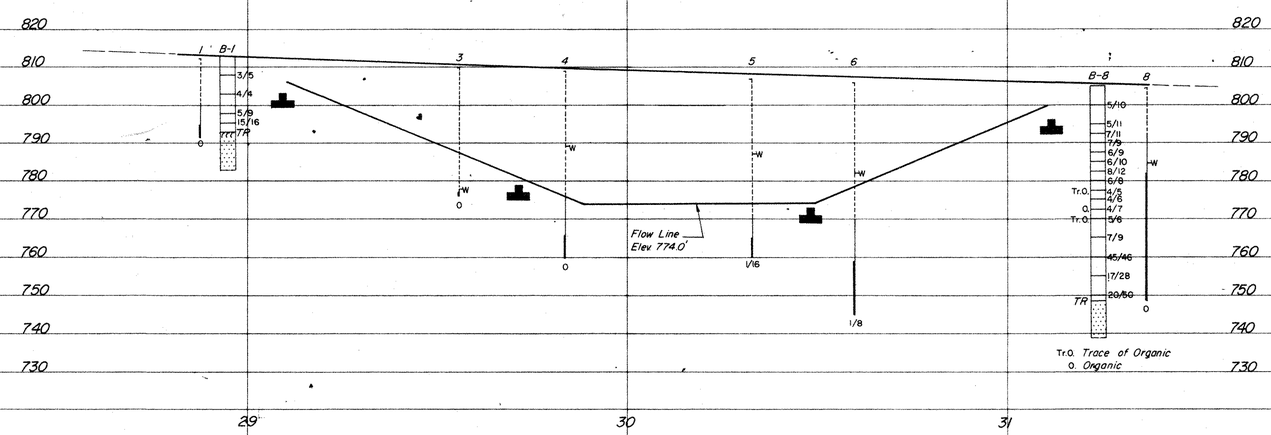
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-IR77-
CO. RD. 52 OVER RELOC. WILLS CR.
SEC. GUE - IR 77 - 4.77

CHECKED BY	REVIEWED BY	DATE
R.D.R.	G.P.H.	5/29/64





SCALE: 1" = 20'

OHIO STATE HIGHWAY TESTING LABORATORY 1620 WEST BROAD ST., COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. GUE-IR 77- CO. RD. 52 OVER RELOC. WILLS CR. SEC. GUE-IR 77-4.77			
PLAN AND PROFILE			
DRAWN BY R.P.W.	CHECKED BY R.D.R.	REVIEWED BY G.P.H.	DATE 5/29/64

LOG OF BORING

Date Started 4-23-64
Date Completed 4-23-64
Boring No. B-1
Sampler Type SS Dia. 1 3/8"
Casing Length 10' Dia. 3 1/2"
Station & Offset 28+95, 20' Lt (REAR ABUTMENT)
Water Elev.
Surface Elev. 812.8'

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.
812.8	0														
	2														
	4														
807.8	6	3/5			Reddish-Brown Sandy Silt	1	0	33	9	32	26	32	9	12	
	8														
802.8	10	4/4			Red Silty Clay with Stone Fragments	2	V	I	S	U	A	L	32	10	19
	12														
	14														
797.8	16	5/9			Red Silty Clay	3	0	7	1	32	60	48	19	26	
795.3	18	15/16			Brown Clayey Silt	4	0	5	7	53	35	29	7	29	
792.8	20				TOP OF ROCK										
	22														
	24		4.7	0.0	Sandstone, brown, medium-to coarse-grained, with iron-stained joints and few thin clay seams, broken and friable in part, firm, soft and weathered in top 1.0'. No core loss.										
	26														
	28														
			5.0	0.0											
782.8	30				BOTTOM OF BORING										

LOG OF BORING

Date Started 4-23-64
Date Completed 4-28-64
Boring No. B-8
Sampler Type SS Dia. 1 3/8"
Casing Length Dia.
Station & Offset 31+24, 20' Rt (FORWARD ABUTMENT)
Water Elev.
Surface Elev. 805.0'

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.
805.0	0														
	2														
	4														
800.0	6	5/10			Brownish-Gray Silt and Clay	1	0	2	9	48	41	34	14	25	
	8														
795.0	10	5/11			Reddish-Brown Silty Clay	2	0	4	3	49	44	37	17	19	
792.5	12	7/11			Reddish-Brown Silt and Clay	3	0	5	8	46	41	37	14	19	
790.0	14	7/9			Brown Silt and Clay	4	10	3	3	41	43	38	13	26	
787.5	16	6/9			Brown Silty Clay	5	0	1	1	46	52	44	18	29	
785.0	18	6/10			Brown Silty Clay	6	0	1	4	45	50	42	20	26	
782.5	20	8/12			Brown Silty Clay	7	0	0	9	43	48	42	20	22	
780.0	22	6/8			Brown Clay	8	0	1	3	47	49	45	24	24	
777.5	24	4/5			Brown and Gray Silty Clay, Trace of Organic	9	0	1	2	53	44	37	16	28	
775.0	26	4/6			Brown and Gray Clayey Silt	10	0	1	4	62	33	30	8	24	
772.5	28	4/7			Gray to Brown Organic Silt and Clay	11	0	0	3	60	37	36	15	25	
770.0	30	5/6			Brown and Gray Clayey Silt, Trace of Organic	12	0	1	6	60	33	29	9	25	
	32														
	34														
	36														
	38														
765.0	40	7/9			Grayish-Brown Clayey Silt	13	0	1	13	51	35	29	9	21	
	42														
	44														
760.0	46	45/46			Reddish-Brown Silty Clay	14	0	0	0	43	57	38	18	22	
	48														
755.0	50	17/28			Gray Sandy Clay	15	0	5	19	33	43	27	12	24	
	52														
	54														
750.0	56	20/50			Gray Clay with Stone Fragments	16	V	I	S	U	A	L	30	9	15
748.5					TOP OF ROCK										
	58		3.5	0.5											
	60				Sandstone, gray, medium-grained, firm. Core loss 4%.										
	62														
	64		5.6	0.4											
739.0	66				BOTTOM OF BORING										

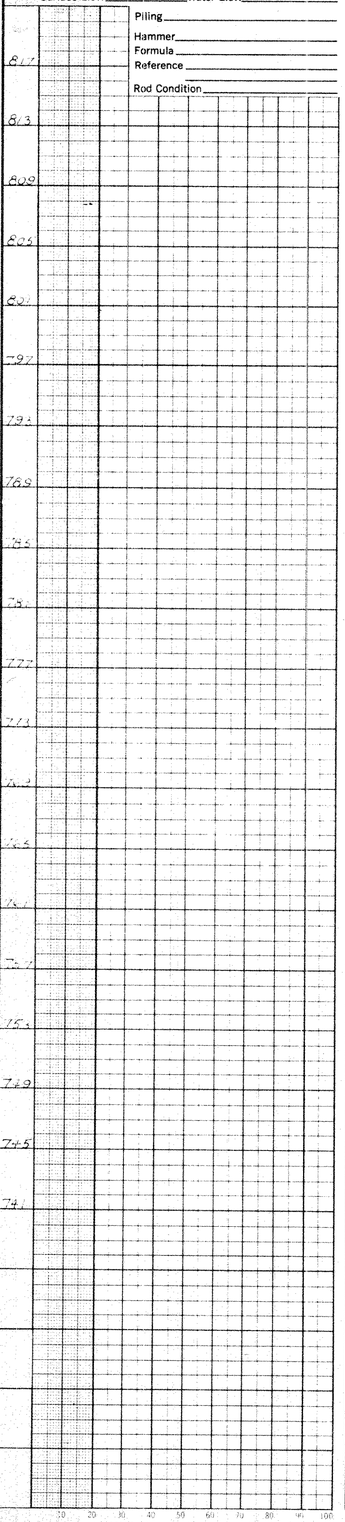
OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE - IR 77 -
CO. RD. 52 OVER RELOC. WILLS CR.
SEC. GUE - IR 77 - 4.77

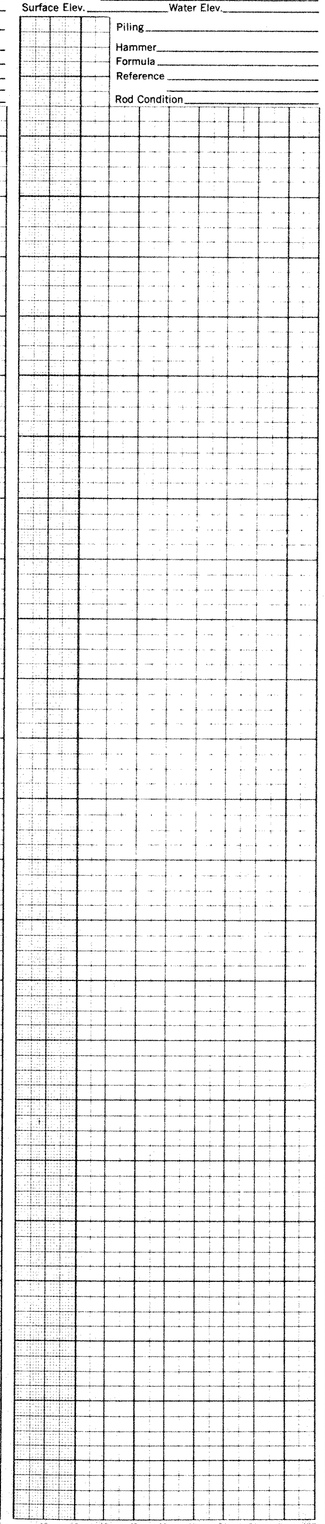
BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
J.A.G.	R.D.R.	G.P.H.	5/29/64

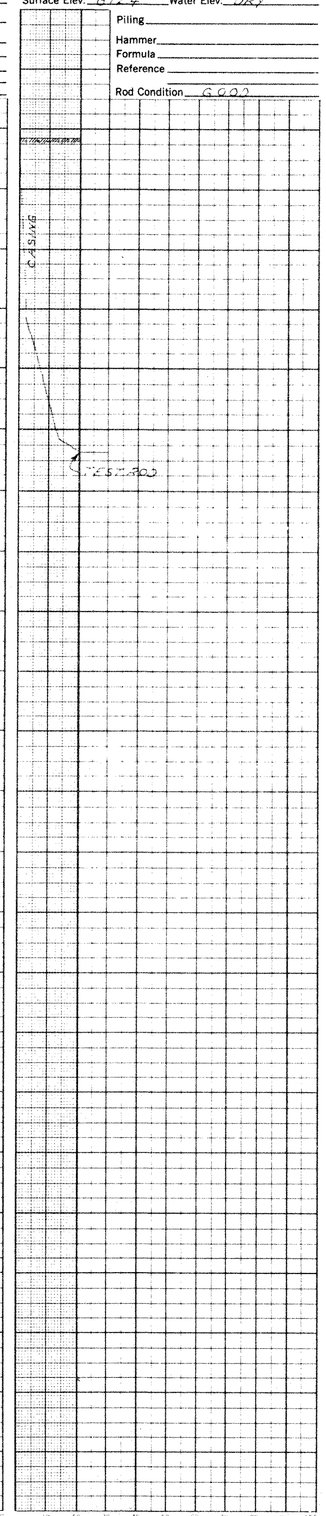
Test Location No. _____
Station & Offset _____
Surface Elev. _____ Water Elev. _____
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____



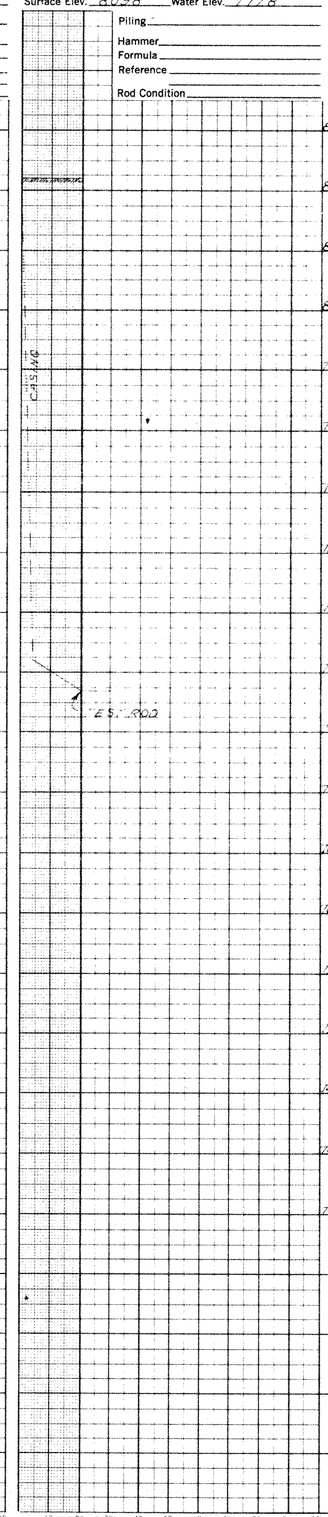
Test Location No. _____
Station & Offset _____
Surface Elev. _____ Water Elev. _____
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____



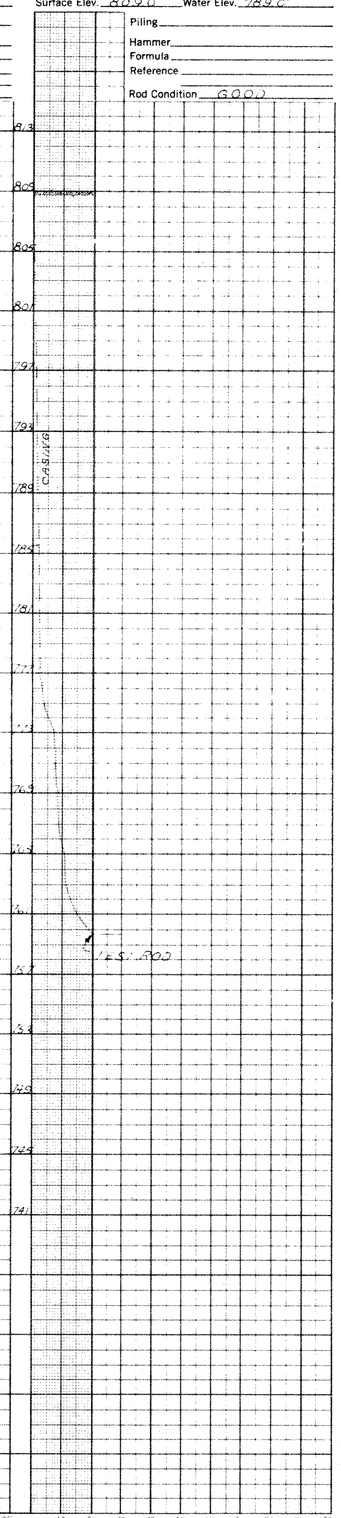
Test Location No. 1
Station & Offset 28+95.21' LT
REAR ABUTMENT
Surface Elev. 812.4 Water Elev. DRY
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



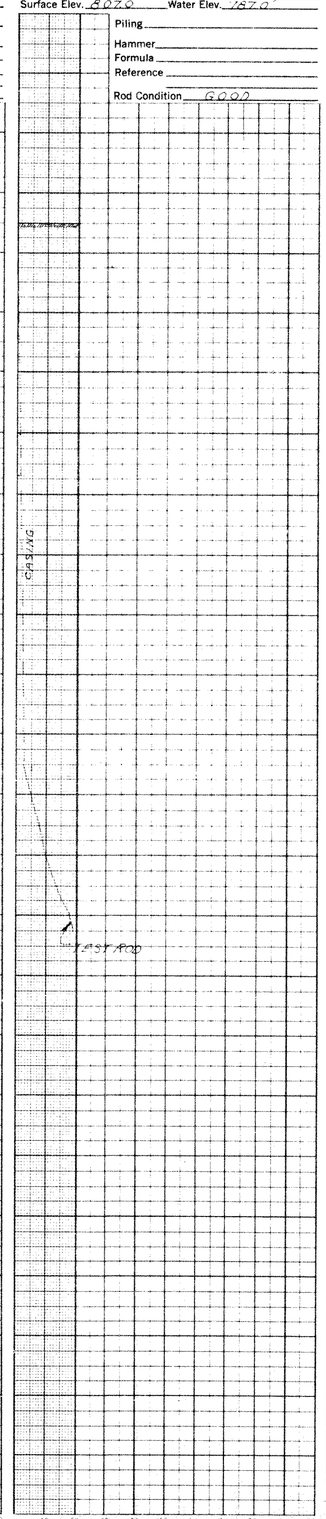
Test Location No. 3
Station & Offset 29+56.20' LT
REAR PIER
Surface Elev. 809.8 Water Elev. 777.8
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____



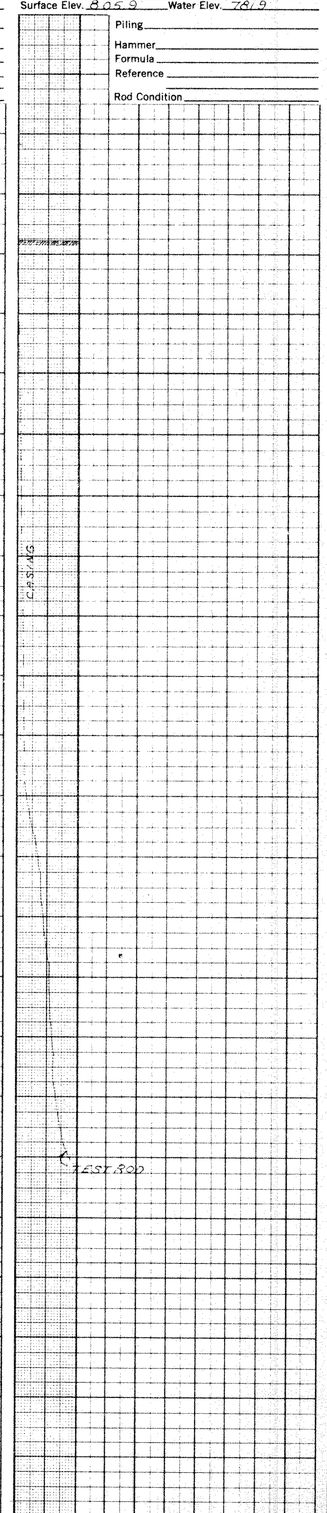
Test Location No. 4
Station & Offset 29+84.20' RT
REAR PIER
Surface Elev. 809.0 Water Elev. 789.0
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



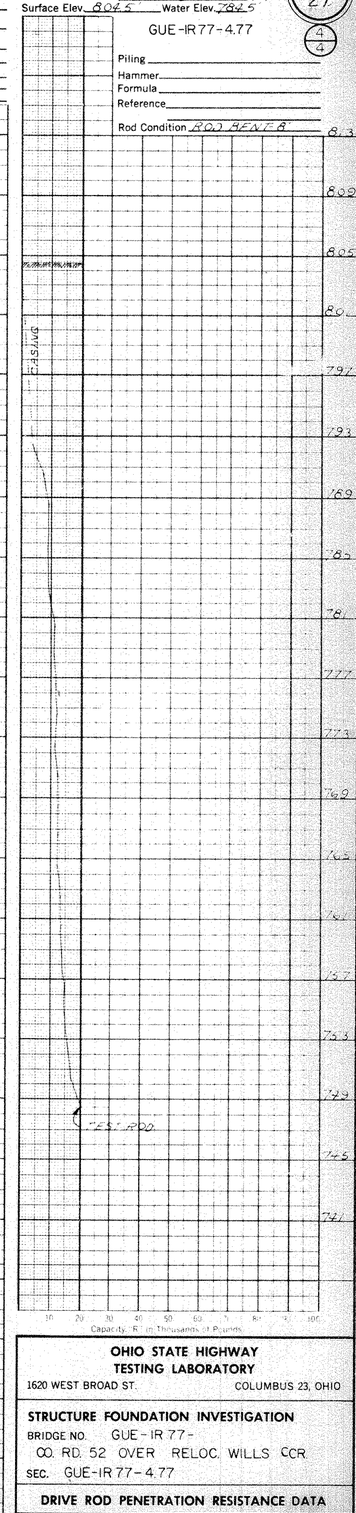
Test Location No. 5
Station & Offset 30+33.20' LT
FORWARD PIER
Surface Elev. 807.0 Water Elev. 787.0
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



Test Location No. 6
Station & Offset 30+60.20' RT
FORWARD PIER
Surface Elev. 805.9 Water Elev. 781.9
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____



Test Location No. 8
Station & Offset 31+24.21' RT
FORWARD ABUTMENT
Surface Elev. 804.5 Water Elev. 784.5
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition ROD BENT 8



20/27

4/4

GUE-IR77-4.77

OHIO STATE HIGHWAY TESTING LABORATORY

1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. GUE-IR 77-
CO. RD. 52 OVER RELOC. WILLS CCR
SEC. GUE-IR 77-4.77

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
RC	RDR	GPH	5/29/64

MICROFILMED
MAR 1 7 1987

GUERNSEY COUNTY
GUE-IR 77-4.77

GEOLOGY OF THE SITE

The structure site is located on a buried valley wall of Wills Creek, in an unglaciated region, in an area where moderately deep to deep valley fill overlies sandstone, shale, and indurated clay bedrock, of Pennsylvanian age.

EXPLORATION

The exploration consisted of two drive sample-core borings and seven drive rod penetration tests, made between April 10 and14 and May 1 and 6, 1964.

INVESTIGATIONAL FINDINGS

The borings disclose that loose to dense medium-stiff silts and clays, containing various amounts of organic material in the rear portion of the structure site, overlies sloping bedrock surface, encountered at 20-foot depth, elevation 768 feet, in the rear portion of the structure site, and at 46-foot depth, elevation 743 feet, in the forward portion. The borings were terminated 10 and 14 feet below bedrock surface, elevations 758 and 729 feet.

Rod soundings met rapid increase in penetration resistance with increase in depth in the rear portion of the structure site and gradual increase in penetration resistance with increase in depth in the forward portion and were terminated upon encounter with near-refusal and refusal to penetration between 19 and 51-foot depth, elevation 769 and 739 feet, considered to be on or slightly above or below bedrock surface, as revealed by the borings.

On the basis of the tests bedrock surface is considered to slope downward from the rear portion of the structure site to the forward portion and from the right side to the left, between elevations 768 and 743 feet.

Free water was encountered in the rod sounding holes between elevations 788 and 779 feet.

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.
- (R) Electrical Resistivity Probe Location - Plan View.
- Footing — Capped Pile
- Footing on Pile
- (R) Electrical Resistivity Probe - Profile.
- TR Top of Rock
- Interval of Relatively High Moisture.
- TD Total Depth

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
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  X = Number of Blows for First 6 Inches.
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- 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

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Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive - Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer, with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description – based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	8" Cobbles	3" Gravel	2.0mm Coarse Sand	0.42mm Fine Sand	0.074mm Silt	0.005mm Clay
			No. 10 sieve	No. 40 sieve	No. 200 sieve	

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

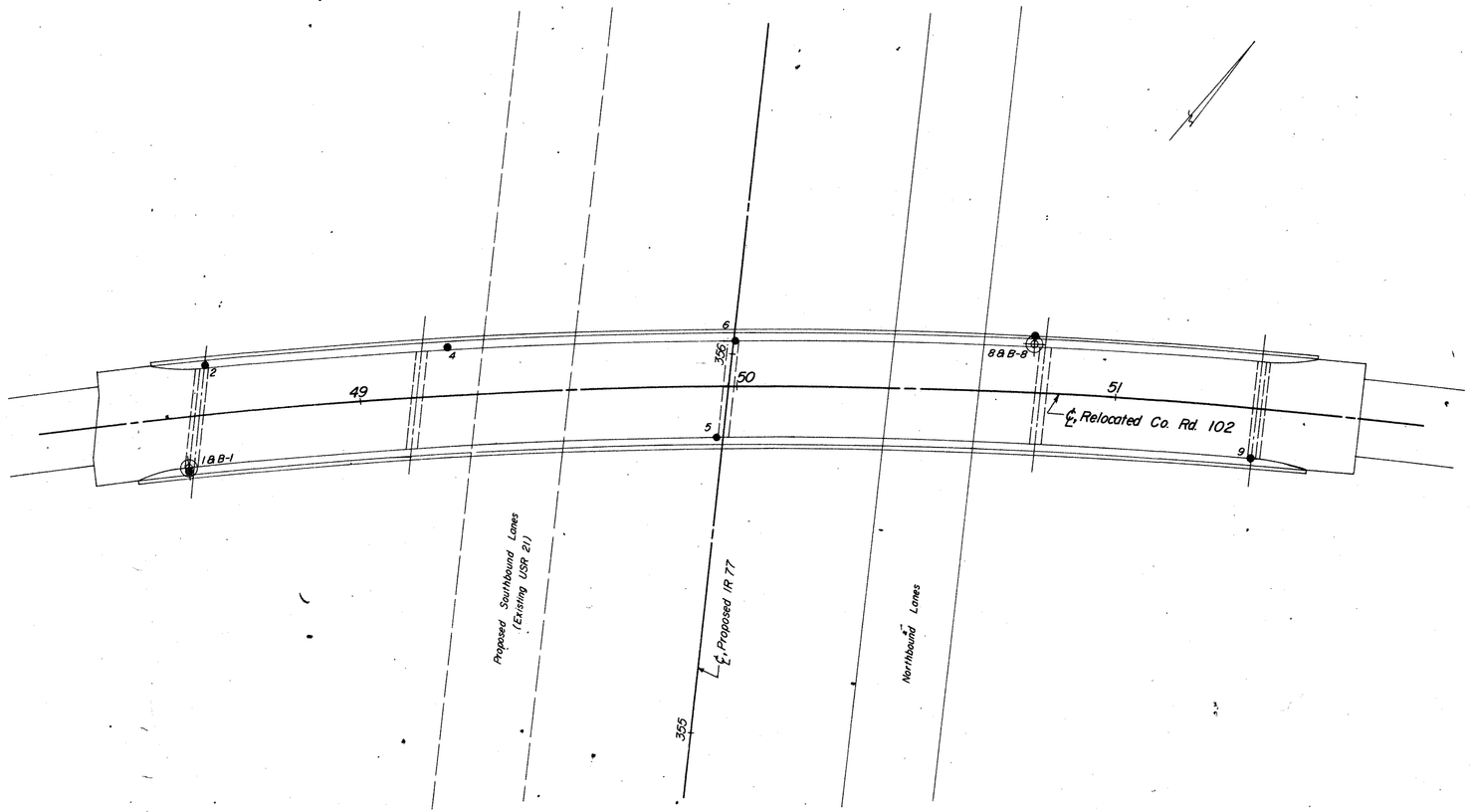
OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

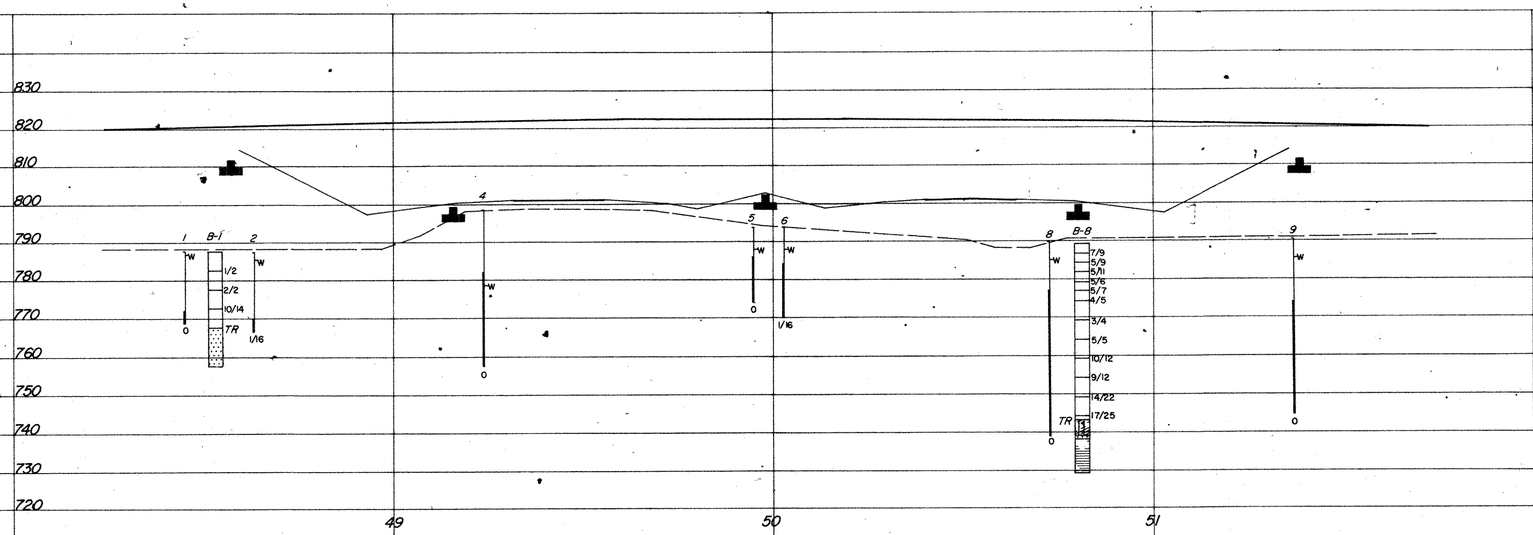
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-IR 77-0599
UNDER CO. RD. 102
SEC. GUE-IR 77-4.77

CHECKED BY	REVIEWED BY	DATE
R.D.R.	G.P.H.	5/29/64

MICROFILMED
MAR 17 1967

GUE - IR 77-4.77





SCALE: 1" = 20'

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST., COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-IR 77-0599
UNDER RELOC. CO. RD. 102
SEC. GUE-IR 77-4.77

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
R.P.W.	R.D.R.	G.P.H.	5/27/64

MICROFILMED
MAR 17 1987

LOG OF BORING

Date Started 5-5-64 | Sampler Type SS | Dia 1 3/8"
Date Completed 5-6-64 | Casing Length | Dia
Boring No B-1 | Station & Offset 48+53, 13' Rt (REAR ABUTMENT)

Water Elev
Surface Elev 787.7'

Elev	Depth	Blows Per 1' (N)	Rec ft	Loss ft	Description	Sample No	Aggr %	Clay %	Fine Sand %	Silt %	Clay %	LL	PL	PI
787.7	0													
	2													
	4													
782.7	6	1/2			Brownish-Gray Silt and Clay, Trace of Organic	1	0	1	16	51	32	32	12	25
	8													
777.7	10	2/2			Gray Clayey Silt, Trace of Organic	2	7	0	11	52	30	26	9	25
	12													
	14													
772.7	16	10/14			Brownish-Gray Silty Clay	3	0	1	8	43	48	36	16	23
	18													
767.7	20				BOTTOM OF BORING									
	22													
	24		4.5	0.5	Sandstone, bluish-gray to gray, medium-grained, firm, broken in part in top 3.0'. Core loss 3%.									
	26													
	28		4.9	0.1										
757.7	30				BOTTOM OF BORING									

LOG OF BORING

Date Started 5-1-64 | Sampler Type SS | Dia 1 3/8"
Date Completed 5-5-64 | Casing Length 45' | Dia 3 1/2"
Boring No B-8 | Station & Offset 50+81, 13' Lt (FORWARD PIER)

Water Elev
Surface Elev 789.3'

Elev	Depth	Blows Per 1' (N)	Rec ft	Loss ft	Description	Sample No	Aggr %	Clay %	Fine Sand %	Silt %	Clay %	LL	PL	PI
789.3	0													
786.8	2													
	4	7/9			Grayish-Brown Gravelly Clay, Trace of Iron Stains	1	19	1	3	29	48	49	21	28
784.3	6	5/9			Mottled Brownish-Gray Clay	2	0	1	3	46	50	51	31	25
781.8	8	5/11			Mottled Brownish-Gray Silty Clay	3	0	2	17	45	36	37	16	23
779.3	10	5/6			Brownish-Gray Gravelly Sandy Silt	4	24	1	31	28	16	NP	NP	21
776.8	12	5/7			Reddish-Gray Silt	5	0	0	24	43	33	21	5	23
774.3	14	4/5			Brownish-Gray Silt and Clay	6	0	1	6	47	46	32	13	24
	16													
769.3	18	3/4			Brown Silt and Clay	7	0	0	5	57	38	32	11	28
	20													
764.3	22	5/5			Reddish-Brown Sandy Silt	8	0	2	18	35	45	25	8	32
	24													
759.3	26	10/12			Gray Sandy Clay	9	0	1	25	28	46	31	13	29
	28													
754.3	30	9/12			Gray Clay	10	0	1	3	43	53	44	21	29
	32													
749.3	34	14/22			Grayish-Brown Sandy Silt	11	11	1	37	26	25	NP	NP	23
	36													
744.3	38	17/25			Brownish-Gray Silt and Clay	12	0	1	4	38	57	38	14	17
743.3	40				TOP OF ROCK									
	42		1.8	2.2	Indurated clay, brownish- to greenish-gray, soft and crumbly, weathered. Core loss 55%.									
739.3	44				Sandstone, light-gray, medium-fine-grained, hard. No core loss.									
738.3	46		4.0	1.0										
	48				Shale, gray, slightly fissile in part, broken to badly broken above 57', firm. Core loss 9%.									
	50													
	52		5.0	0.0										
	54													
729.3	56				BOTTOM OF BORING									
	58													
	60													

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

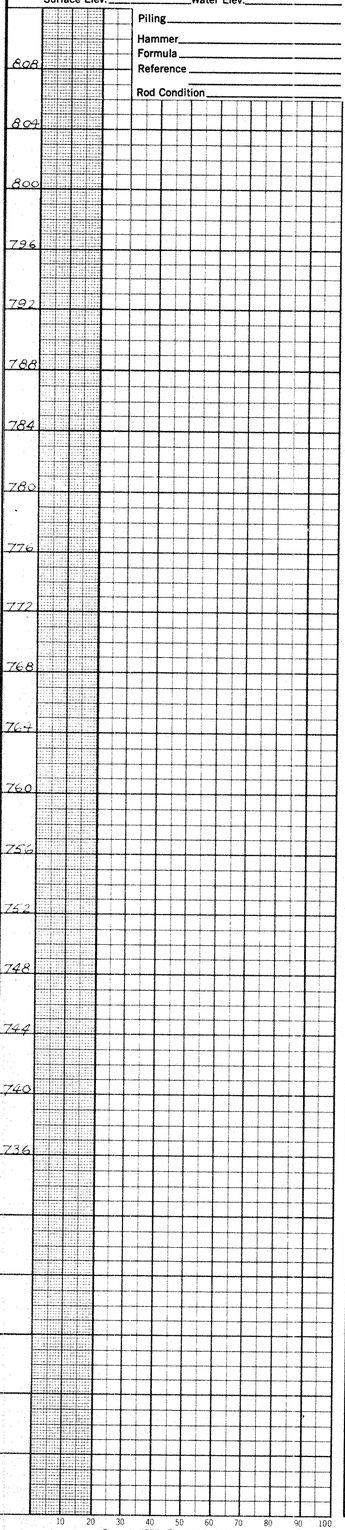
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-IR 77-0599
UNDER CO. RD. 102
SEC. GUE-IR 77-4.77

BORING DATA

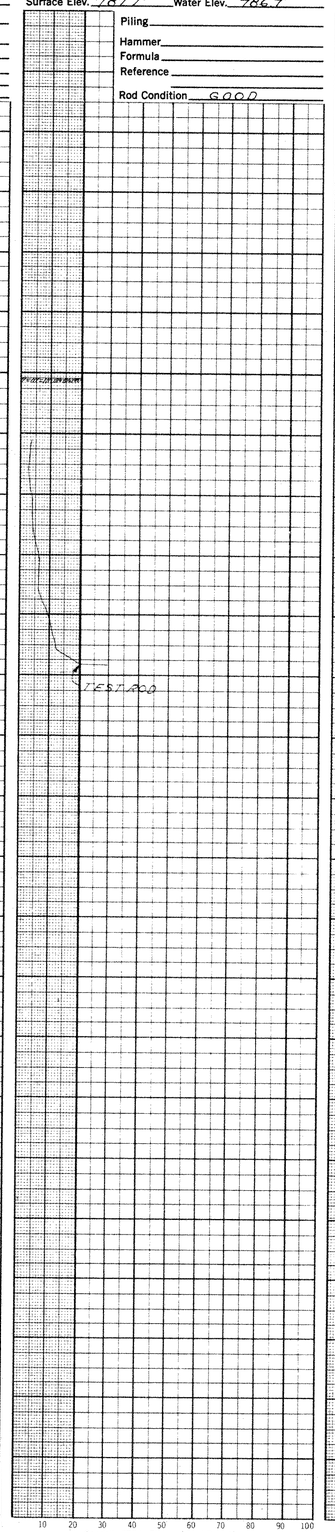
TYPED BY	CHECKED BY	REVIEWED BY	DATE
J.A.G.	R.D.R.	G.P.H.	5/29/64

GUE-IR 77-4.77

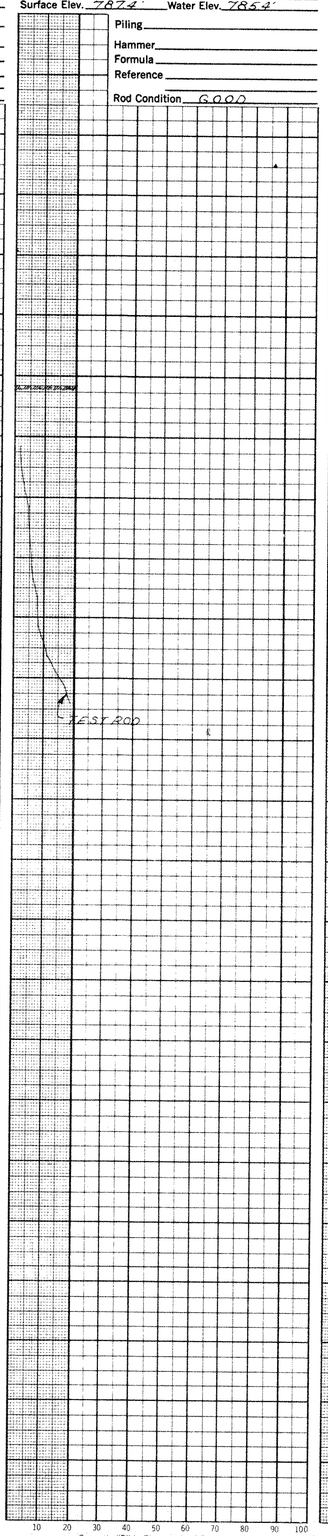
Test Location No. _____
Station & Offset _____
Surface Elev. _____ Water Elev. _____
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition _____



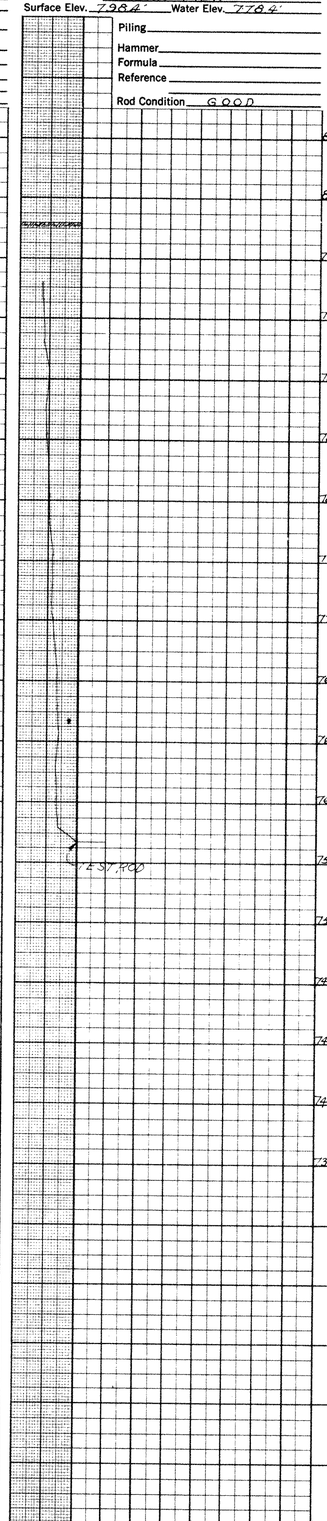
Test Location No. 1
Station & Offset 48+53 14' RT
REAR ABUTMENT
Surface Elev. 787.7' Water Elev. 786.7'
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



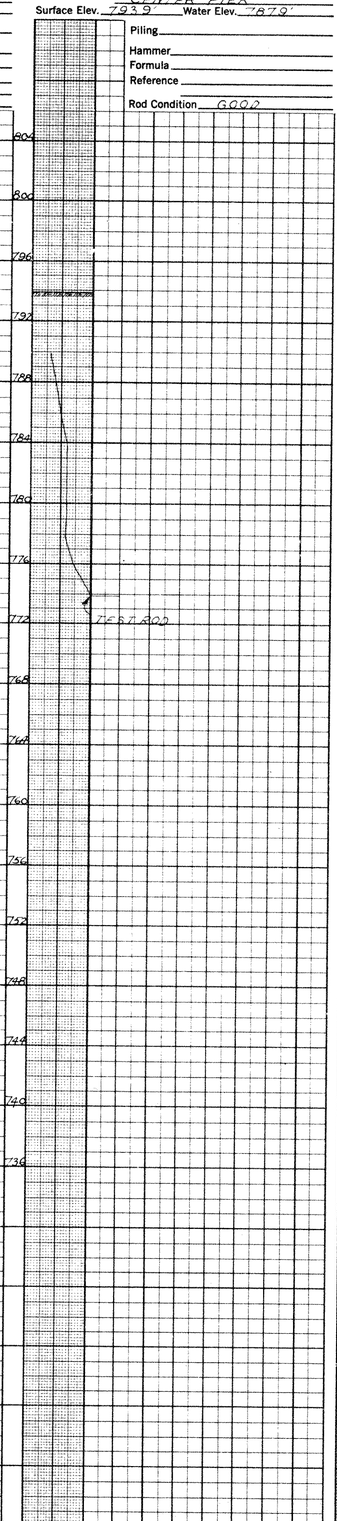
Test Location No. 2
Station & Offset 48+60 13' LT
REAR ABUTMENT
Surface Elev. 787.4' Water Elev. 786.4'
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



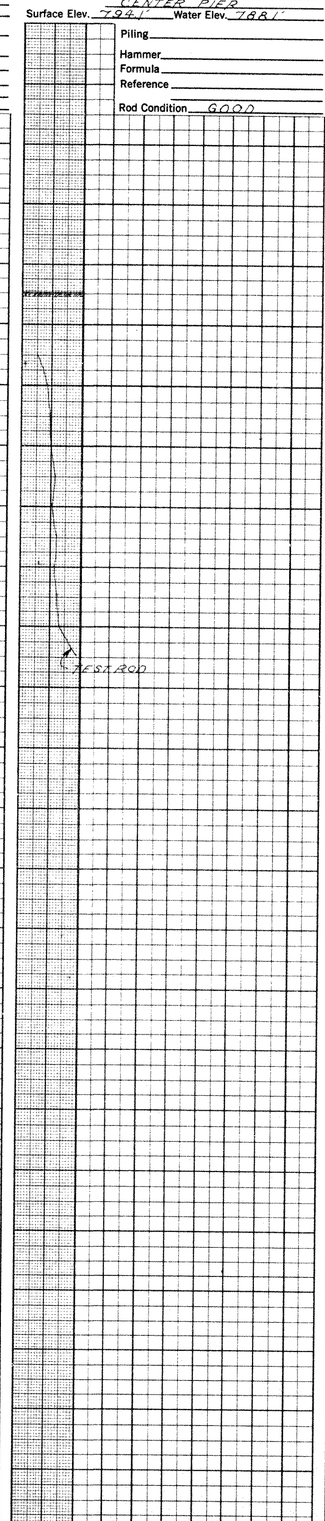
Test Location No. 4
Station & Offset 49+22 13' LT
REAR PIER
Surface Elev. 798.4' Water Elev. 778.4'
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



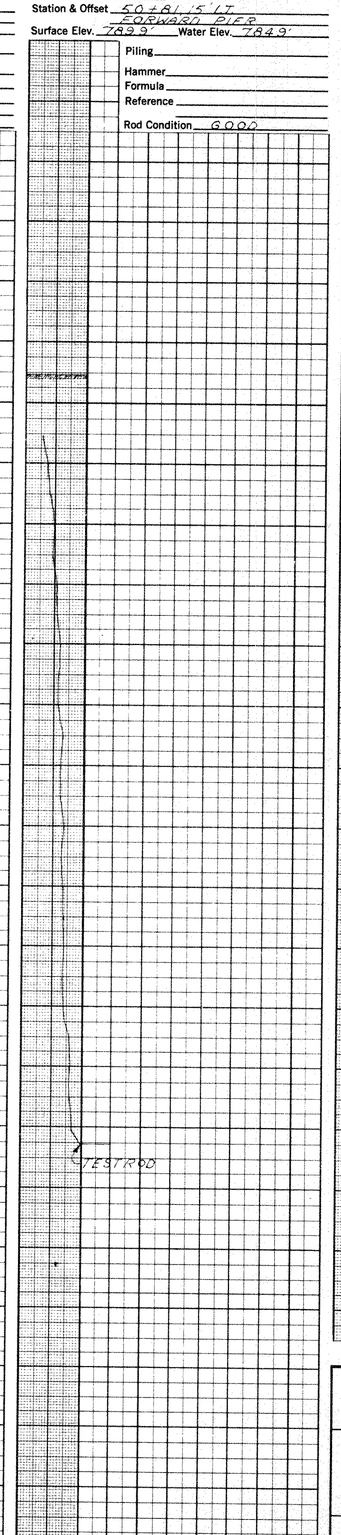
Test Location No. 5
Station & Offset 49+95 13' RT
CENTER PIER
Surface Elev. 793.9' Water Elev. 787.9'
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



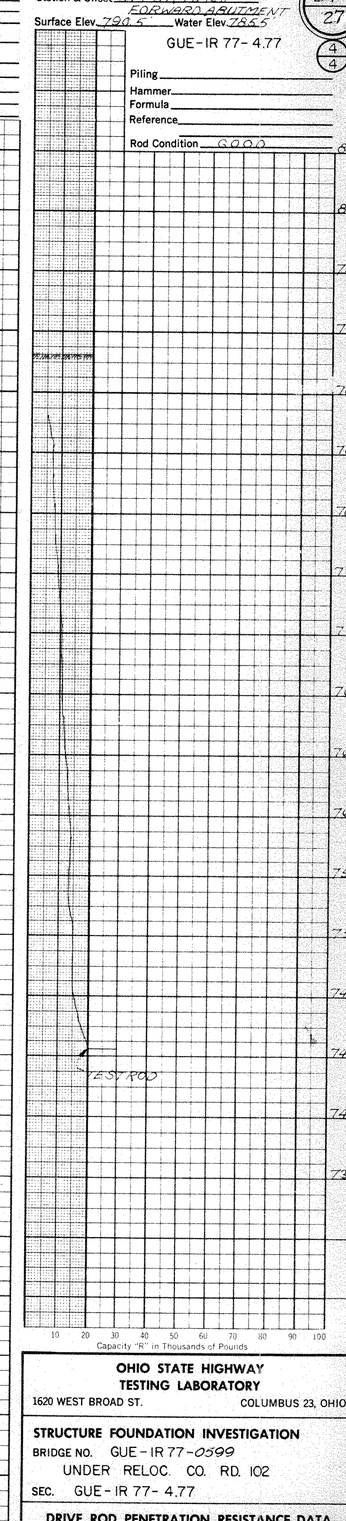
Test Location No. 6
Station & Offset 50+00 13' LT
CENTER PIER
Surface Elev. 794.1' Water Elev. 788.1'
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



Test Location No. 8
Station & Offset 50+81 15' LT
FORWARD PIER
Surface Elev. 789.9' Water Elev. 784.9'
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



Test Location No. 9
Station & Offset 51+37 13' RT
FORWARD ABUTMENT
Surface Elev. 790.5' Water Elev. 785.5'
Piling _____
Hammer _____
Formula _____
Reference _____
Rod Condition GOOD



OHIO STATE HIGHWAY TESTING LABORATORY
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-IR 77-0599
UNDER RELOC. CO. RD. 102
SEC. GUE-IR 77-4.77

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY	CHECKED BY	REVIEWED BY	DATE
R.C.	R.D.R.	G.P.H.	5/29/64

GEOLOGY OF THE SITE

The structure is located on the flood plain of Wills Creek, in an area where moderately deep alluvium overlies shale bedrock of the Conemaugh series, Pennsylvanian age.

EXPLORATION

The exploration consisted of one drive sample boring and one drive sample-core boring, made on July 27 and 28, 1964.

INVESTIGATIONAL FINDINGS

The borings encountered generally loose and soft, wet silts and clays, occassionally containing organic material from ground surface to elevation 765 feet; below this, dense and very dense gravels and sands with some silt, to bedrock surface, encountered in boring B-1 at 50-foot depth, elevation 740 feet. Boring B-1 was terminated 5 feet below bedrock surface, elevation 735 feet; boring B-2, was terminated after penetrating 15 feet of material requiring in excess of 30 blows per foot in the standard penetration test.

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.
- (R) Electrical Resistivity Probe Location - Plan View.
- Footing / Capped Pile
- Footing on Pile
- (R) Electrical Resistivity Probe - Profile
- TR Top of Rock
- Interval of Relatively High Moisture
- TD Total Depth
- 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 post performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive - Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer, with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

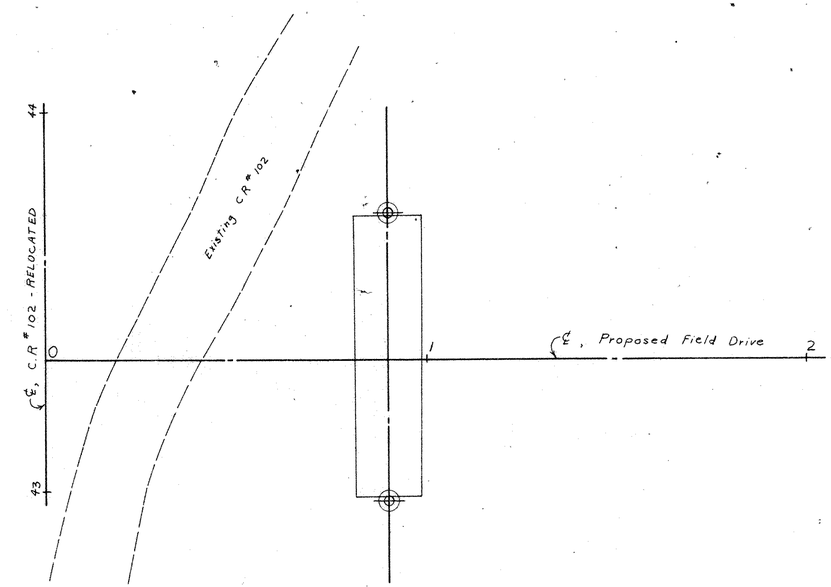
Boulders	8" Cobbles	3" Gravel	2.0mm Course Sand	0.42mm Fine Sand	0.074mm Silt	0.005mm Clay
			No. 10 sieve	No. 40 sieve	No. 200 sieve	

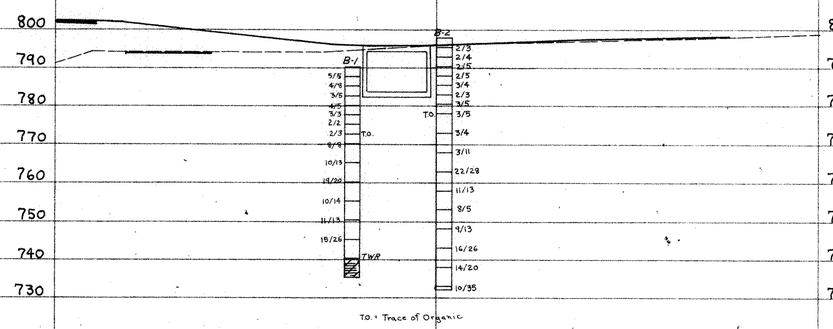
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-77-
BOX CULVERT UNDER FIELD DRIVE
SEC. GUE-77-4.77

CHECKED BY	REVIEWED BY	DATE
R.D.R.	G.P.H.	8/21/64





SCALE: 1" = 20'

OHIO STATE HIGHWAY
TESTING LABORATORY
1620 WEST BROAD ST., COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-77
BOX CULVERT UNDER FIELD DRIVE
SEC. GUE-77-4.77

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
L.N.L.	R.D.R.	G.P.H.	8/21/64

LOG OF BORING

Date Started 7-28-64
Date Completed 7-28-64
Boring No. B-1

Sampler Type SS Dia. 1 3/8"
Casing: Length _____ Dia. _____
Station & Offset 42+97, 90' Rt (OUTLET)

Water Elev. _____
Surface Elev. 790.2'

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.
790.2	0														
787.7	2	5/5			Brown Clay	1	0	1	1	47	51	44	23	23	
785.2	4	4/8			Brown Silt and Clay	2	0	1	1	58	40	32	11	23	
782.7	6	3/5			Brown Clayey Silt	3	0	0	2	54	44	33	10	25	
780.2	8	4/5			Brown Silt and Clay	4	0	1	1	52	46	37	14	25	
777.7	10	3/3			Brown Clayey Silt	5	0	0	1	58	41	32	10	33	
775.2	12	2/2			No Sample Recovered - Brown Clayey Silt		V	I	S	U	A	L			
772.7	14	2/3			Gray Silt, Trace of Organic	6	0	1	14	52	33	25	5	27	
770.2	16	8/8			Brown and Gray Sandy Silt	7	0	3	42	32	23	NP	NP	22	
765.2	18	10/13			Brown and Gray Sandy Silt	8	0	8	45	24	23	NP	NP	19	
760.2	20	19/20			Brown Silty Sandy Gravel	9	45	14	17	13	11	NP	NP	23	
755.2	22	10/14			Brown Silty Sandy Gravel	10	40	10	21	16	13	NP	NP	32	
750.2	24	11/13			Brown Silty Gravelly Sand	11	29	15	27	17	12	NP	NP	18	
745.2	26	15/26			Brown Silty Sandy Gravel and Stone Fragments	12	48	18	20	-1	4-	NP	NP	7	
740.2	28				TOP OF ROCK										
735.2	30		2.0	3.0	Shale, gray, siliceous, non-fissile to fissile, jointed and broken, moderately weathered, medium-firm. Core loss 60%.										

BOTTOM OF BORING

LOG OF BORING

Date Started 7-29-64
Date Completed 7-29-64
Boring No. B-2

Sampler Type SS Dia. 1 3/8"
Casing: Length _____ Dia. _____
Station & Offset 43+73, 90' Rt (INLET)

Water Elev. _____
Surface Elev. 798.0'

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.
798.0	0														
795.5	2	2/3			Brown Silt and Clay	1	0	1	1	64	34	33	12	24	
793.0	4	2/4			Brown Silt and Clay	2	0	1	2	64	33	33	13	26	
790.5	6	2/5			Brown Silt and Clay	3	0	1	0	61	38	34	12	26	
788.0	8	2/5			Brown Clayey Silt	4	0	1	1	81	17	31	10	28	
785.5	10	3/4			Brown Clayey Silt	5	0	0	1	63	36	32	10	26	
783.0	12	2/3			Gray and Brown Silt and Clay	6	0	0	2	60	38	32	11	29	
780.5	14	3/5			Gray Silt and Clay	7	0	0	1	60	39	33	13	26	
778.0	16	3/5			Gray Silt, Trace of Organic	8	0	0	7	63	30	28	6	29	
773.0	18	3/4			Gray Sandy Silt	9	0	1	23	49	27	31	10	21	
768.0	20	3/11			Gray Sandy Silt	10	0	5	34	38	23	NP	NP	23	
763.0	22	22/28			Brown and Gray Silty Gravelly Sand	11	30	12	30	19	9	NP	NP	14	
758.0	24	11/13			Brown and Gray Sandy Silt	12	0	10	35	35	20	NP	NP	17	
753.0	26	8/5			Brown Silty Gravelly Sand	13	22	11	33	20	14	NP	NP	21	
748.0	28	9/13			Brown Silty Gravelly Sand	14	32	16	18	23	11	NP	NP	19	
743.0	30	16/26			Brown Silty Gravelly Sand	15	30	19	25	17	9	NP	NP	6	
738.0	32	14/20			Brown Silty Sandy Gravel	16	50	11	18	12	9	NP	NP	17	
733.0	34	10/35			Brown Silty Sandy Gravel	17	46	11	15	20	8	NP	NP	13	
732.0	36														

BOTTOM OF BORING

OHIO STATE HIGHWAY
TESTING LABORATORY
850 WEST BROAD ST. COLUMBUS 13, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. GUE-77-
BOX CULVERT UNDER FIELD DRIVE
SEC. GUE-77-4.77

BORING NO. N/A

PREPARED BY	CHECKED BY	REVIEWED BY	DATE
A.G.	R.C.	G.P.H.	8/2/69