

50(82)

DESIGN DESIGNATION
CURRENT ADT (1978) = 87,241
DESIGN YEAR ADT (1978) = 87,241
ORV = 14% = 12,214
D = 60%
T = 11%
V = 50 MPH.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

IR 7-76-2(15) 20
F-54(5)

SUM-76-11.57; SUM-8-0.46

SUMMIT COUNTY
CITY OF AKRON
SPRINGFIELD TOWNSHIP

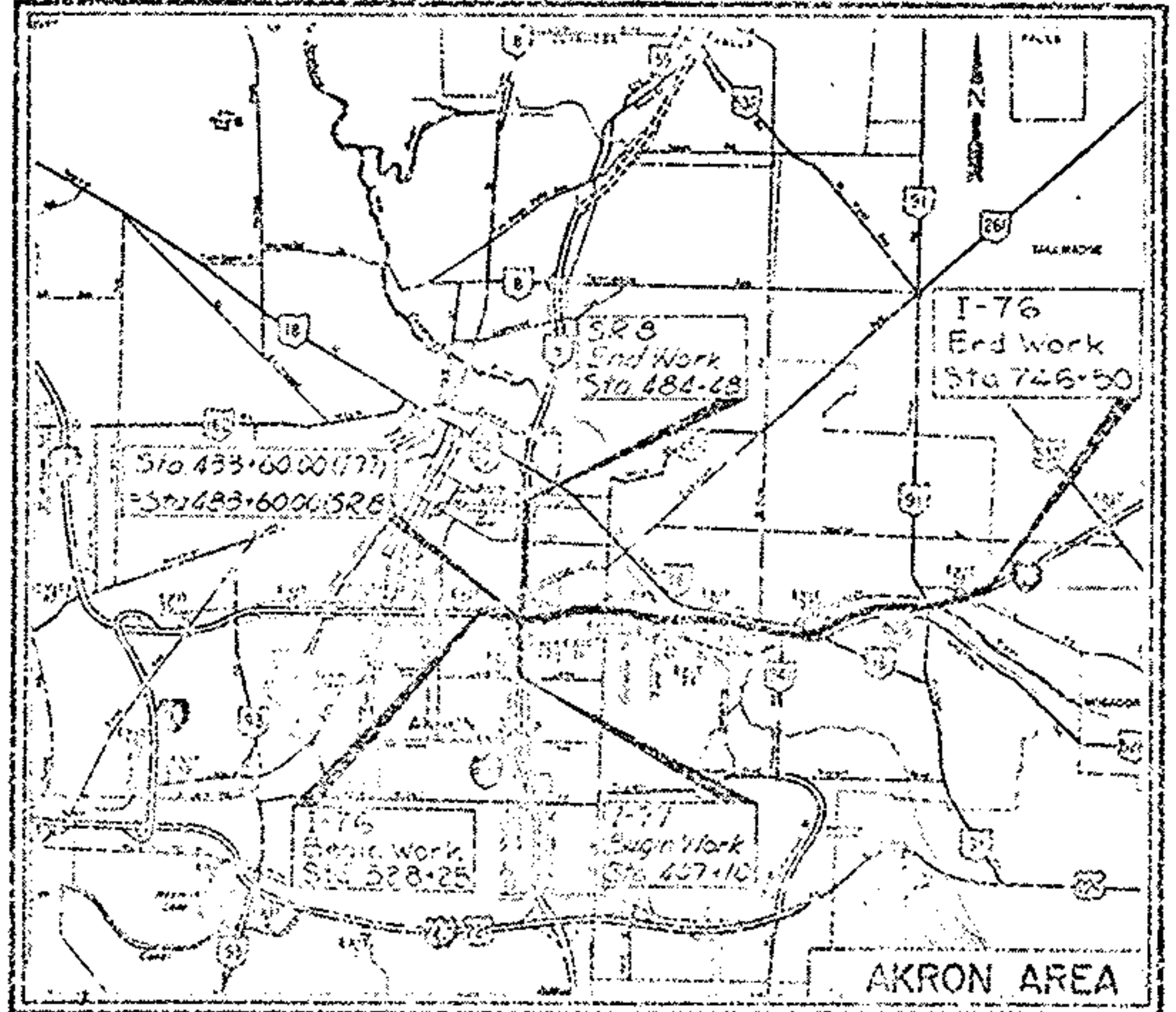
CONVENTIONAL SIGNS

County Line	-----	Limited Access (only)	-----LA-----
Township Line	-----	Right of Way (only)	-----RW-----
Section Line	-----	Limited Access & Right of Way	-----LA & RW-----
Corporation Line	----- or -----	Existing Right of Way	-----
Fence Line (existing)	---x--- (proposed)	Property Line	---R--- (in existing fence) ---x---
Center Line	---352--- (proposed) 353---	Railroad	---x--- or ---x---
Trees, Stumps, (to be removed)	---x--- x---	Guardrail (existing)	---x--- (proposed) ---x---
Utility Poles: Telephone, Power, Light	---p---, ---p---, ---p---		

INDEX OF SHEETS

Title Sheet	1
Schematic Plan	2
Typical Sections	3-10
General Notes & Calculations	11-13
Maintenance Of Traffic	14-15
General Summary	16-17, 16A
Concrete Barrier, Guard Rail & Median Drainage	18-34
Plan Sheets	35-83
Grading Plan	84-85
Roadway Details	86
Drainage Details	87, 87A-89
Existing Pavement Details	90
Traffic Control	91, 93-125
Lighting	126-179 & 127A
Structures Over 20'	184-248
Sheet Nos. 92, 180-183 not used	

Revised sheets 1, 12, 16,
16A, 17, 93, 94, 98, 129,
130, 206, 225, 246, & 248
2-18-82 SMK



LOCATION MAP

SCALE IN MILES

Portion to be improved
State & Federal Routes
Other Roads

SCALES

Plan
Profile: Horizontal Vertical
Cross Section: Horizontal Vertical

SUPPLEMENTAL SPECIFICATIONS		
836	3-12-75	933 8-21-80
921	12-4-72	939 11-25-70
814	1-1-62	845 3-2-81
1001	1-3-77	956 6-24-78

I-76-2(15) 20

Begin Work - I-76 Sta. 746+25 (E.B.)
Station Equation - Sta. 675+62.00 (Bk.) = Sta. 675+61.21 (A.P.)
End Work - I-76 Sta. 746+50.00 (E.B.)
Length of Work (E.B.) = 21,825.79 Lin. Ft. = 4.133 Miles

Additional Work

I-77 Sta. 407+10.00 to 453+60.00 = 2650.00 Lin. Ft.
S.R. 8 Sta. 433+60.00 to 453+62.00 = 2960.00 Lin. Ft.

Total Length of Work = 24,475.79 Lin. Ft. or 5.156 Mi.
Total Length of Project = 6.00 Lin. Ft. or 0.00 Mi.

F-54(5)

Begin Work S.R. 8 Sta. 453+20
End Work S.R. 8 Sta. 453+43
Total Length of Work = 21+00 Lin. Ft. or 0.423 Mi.
Total Length of Project = 6.42 Lin. Ft. or 0.00 Mi.
Total Net Length of Work = 23,375.79 Lin. Ft. or 5.399 Mi.
Total Net Length of Project = 6.42 Lin. Ft. or 0.00 Mi.

TC-19.24	4-25-79
TC-41.40	5-18-79
1-35.55	4-1-80
TC-21.20	3-1-79
BP-4	7-18-81
BP-5	7-18-81
BP-7	12-6-76
BP-9	12-6-76
BP-11	1-3-75
HL-4	1-21-76
GR-4A	7-17-76
PS-10	5-1-76
MC-11	6-1-78
MC-1	6-12-75
MC-3	6-12-75
MC-5	6-12-75
MC-8	6-12-75
MC-10	6-12-75
MC-12	6-12-75
MC-14	6-12-75
MC-16	6-12-75
MC-18	6-12-75
MC-20	6-12-75
MC-22	6-12-75
MC-24	6-12-75
MC-26	6-12-75
MC-28	6-12-75
MC-30	6-12-75
MC-32	6-12-75
MC-34	6-12-75
MC-36	6-12-75
MC-38	6-12-75
MC-40	6-12-75
MC-42	6-12-75
MC-44	6-12-75
MC-46	6-12-75
MC-48	6-12-75
MC-50	6-12-75
MC-52	6-12-75
MC-54	6-12-75
MC-56	6-12-75
MC-58	6-12-75
MC-60	6-12-75
MC-62	6-12-75
MC-64	6-12-75
MC-66	6-12-75
MC-68	6-12-75
MC-70	6-12-75
MC-72	6-12-75
MC-74	6-12-75
MC-76	6-12-75
MC-78	6-12-75
MC-80	6-12-75
MC-82	6-12-75
MC-84	6-12-75
MC-86	6-12-75
MC-88	6-12-75
MC-90	6-12-75
MC-92	6-12-75
MC-94	6-12-75
MC-96	6-12-75
MC-98	6-12-75
MC-100	6-12-75

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS			
TC-19.24	4-25-79	TC-21.20	3-1-79
BP-4	7-18-81	BP-5	7-18-81
BP-7	12-6-76	BP-9	12-6-76
BP-11	1-3-75	BP-13	1-3-75
BP-15	1-3-75	BP-17	1-3-75
BP-21	1-3-75	BP-25	1-3-75
BP-29	1-3-75	BP-33	1-3-75
BP-37	1-3-75	BP-41	1-3-75
BP-45	1-3-75	BP-49	1-3-75
BP-53	1-3-75	BP-57	1-3-75
BP-61	1-3-75	BP-65	1-3-75
BP-69	1-3-75	BP-73	1-3-75
BP-77	1-3-75	BP-81	1-3-75
BP-85	1-3-75	BP-89	1-3-75
BP-93	1-3-75	BP-97	1-3-75
BP-101	1-3-75	BP-105	1-3-75
BP-109	1-3-75	BP-113	1-3-75
BP-117	1-3-75	BP-121	1-3-75
BP-125	1-3-75	BP-129	1-3-75
BP-133	1-3-75	BP-137	1-3-75
BP-141	1-3-75	BP-145	1-3-75
BP-149	1-3-75	BP-153	1-3-75
BP-157	1-3-75	BP-161	1-3-75
BP-165	1-3-75	BP-169	1-3-75
BP-173	1-3-75	BP-177	1-3-75
BP-181	1-3-75	BP-185	1-3-75
BP-189	1-3-75	BP-193	1-3-75
BP-197	1-3-75	BP-201	1-3-75
BP-205	1-3-75	BP-209	1-3-75
BP-213	1-3-75	BP-217	1-3-75
BP-221	1-3-75	BP-225	1-3-75
BP-229	1-3-75	BP-233	1-3-75
BP-237	1-3-75	BP-241	1-3-75
BP-245	1-3-75	BP-249	1-3-75
BP-253	1-3-75	BP-257	1-3-75
BP-261	1-3-75	BP-265	1-3-75
BP-269	1-3-75	BP-273	1-3-75
BP-277	1-3-75	BP-281	1-3-75
BP-285	1-3-75	BP-289	1-3-75
BP-293	1-3-75	BP-297	1-3-75
BP-301	1-3-75	BP-305	1-3-75
BP-309	1-3-75	BP-313	1-3-75
BP-317	1-3-75	BP-321	1-3-75
BP-325	1-3-75	BP-329	1-3-75
BP-333	1-3-75	BP-337	1-3-75
BP-341	1-3-75	BP-345	1-3-75
BP-349	1-3-75	BP-353	1-3-75
BP-357	1-3-75	BP-361	1-3-75
BP-365	1-3-75	BP-369	1-3-75
BP-373	1-3-75	BP-377	1-3-75
BP-381	1-3-75	BP-385	1-3-75
BP-389	1-3-75	BP-393	1-3-75
BP-397	1-3-75	BP-401	1-3-75
BP-405	1-3-75	BP-409	1-3-75
BP-413	1-3-75	BP-417	1-3-75
BP-421	1-3-75	BP-425	1-3-75
BP-429	1-3-75	BP-433	1-3-75
BP-437	1-3-75	BP-441	1-3-75
BP-445	1-3-75	BP-449	1-3-75
BP-453	1-3-75	BP-457	1-3-75
BP-461	1-3-75	BP-465	1-3-75
BP-469	1-3-75	BP-473	1-3-75
BP-477	1-3-75	BP-481	1-3-75
BP-485	1-3-75	BP-489	1-3-75
BP-493	1-3-75	BP-497	1-3-75
BP-501	1-3-75	BP-505	1-3-75
BP-509	1-3-75	BP-513	1-3-75
BP-517	1-3-75	BP-521	1-3-75
BP-525	1-3-75	BP-529	1-3-75
BP-533	1-3-75	BP-537	1-3-75
BP-541	1-3-75	BP-545	1-3-75
BP-549	1-3-75	BP-553	1-3-75
BP-557	1-3-75	BP-561	1-3-75
BP-565	1-3-75	BP-569	1-3-75
BP-573	1-3-75	BP-577	1-3-75
BP-581	1-3-75	BP-585	1-3-75
BP-589	1-3-75	BP-593	1-3-75
BP-597	1-3-75	BP-601	1-3-75
BP-605	1-3-75	BP-609	1-3-75
BP-613	1-3-75	BP-617	1-3-75
BP-621	1-3-75	BP-625	1-3-75
BP-629	1-3-75	BP-633	1-3-75
BP-637	1-3-75	BP-641	1-3-75
BP-645	1-3-75	BP-649	1-3-75
BP-653	1-3-75	BP-657	1-3-75
BP-661	1-3-75	BP-665	1-3-75
BP-669	1-3-75	BP-673	1-3-75
BP-677	1-3-75	BP-681	1-3-75
BP-685	1-3-75	BP-689	1-3-75
BP-693	1-3-75	BP-697	1-3-75
BP-701	1-3-75	BP-705	1-3-75
BP-709	1-3-75	BP-713	1-3-75
BP-717	1-3-75	BP-721	1-3-75
BP-725	1-3-75	BP-729	1-3-75
BP-733	1-3-75	BP-737	1-3-75
BP-741	1-3-75	BP-745	1-3-75
BP-749	1-3-75	BP-753	1-3-75
BP-757	1-3-75	BP-761	1-3-75
BP-765	1-3-75	BP-769	1-3-75
BP-773	1-3-75	BP-777	1-3-75
BP-781	1-3-75	BP-785	1-3-75
BP-789	1-3-75	BP-793	1-3-75
BP-797	1-3-75	BP-801	1-3-75
BP-805	1-3-75	BP-809	1-3-75
BP-813	1-3-75	BP-817	1-3-75
BP-821	1-3-75	BP-825	1-3-75
BP-829	1-3-75	BP-833	1-3-75
BP-837	1-3-75	BP-841	1-3-75
BP-845	1-3-75	BP-849	1-3-75
BP-853	1-3-75	BP-857	1-3-75
BP-861	1-3-75	BP-865	1-3-75
BP-869	1-3-75	BP-873	1-3-75
BP-877	1-3-75	BP-881	1-3-75
BP-885	1-3-75	BP-889	1-3-75
BP-893	1-3-75	BP-897	1-3-75
BP-901	1-3-75	BP-905	1-3-75
BP-909	1-3-75	BP-913	1-3-75
BP-917	1-3-75	BP-921	1-3-75
BP-925	1-3-75	BP-929	1-3-75
BP-933	1-3-75	BP-937	1-3-75
BP-941	1-3-75	BP-945	1-3-75
BP-949	1-3-75	BP-953	1-3-75
BP-957	1-3-75	BP-961	1-3-75
BP-965	1-3-75	BP-969	1-3-75
BP-973	1-3-75	BP-977	1-3-75
BP-981	1-3-75	BP-985	1-3-75
BP-989	1-3-75	BP-993	1-3-75
BP-997	1-3-75	BP-1001	1-3-75

CRAIG BOYCE

SUM-76-11.57
SUM-8-0.46
PROJECT DESIGNATION SUM 76-11.57 OR
SUM 8-0.46 THAT APPEAR THROUGHOUT
THIS PLAN SHALL BE CONSIDERED TO
READ SUM 76-11.57; SUM-8-0.46
Also, all references to federal no.
1-76-2(15)120 shall be considered
to read 12-76-2(15)120.

1981 SPECIFICATIONS

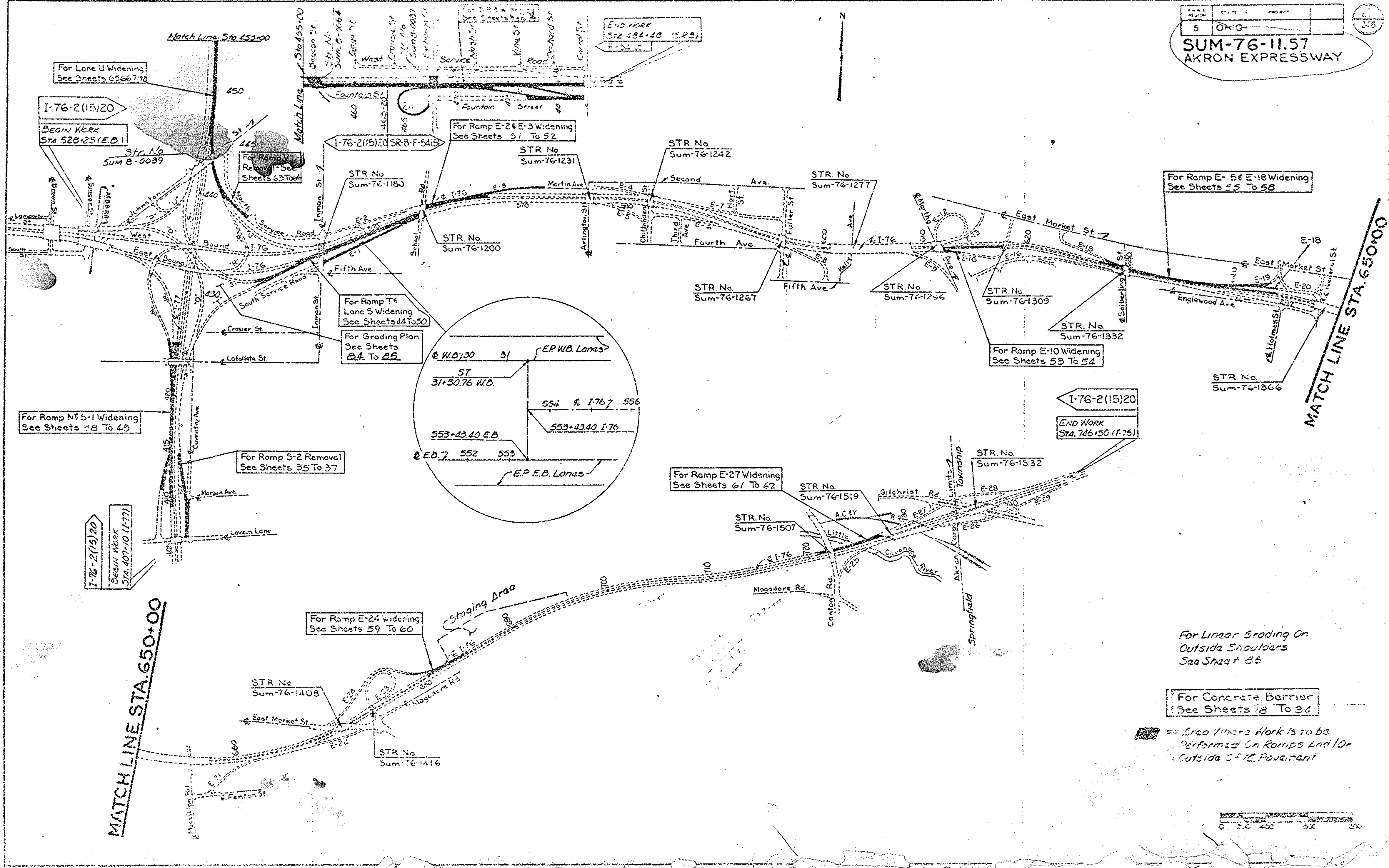
The standard specifications of the State of Ohio,
Department of Transportation, including changes and
supplemental specifications listed in the proposal shall
govern this improvement.

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

Approved: *William P. Callahan*
Date: 5-27-82 District Deputy Director of Transportation
Approved: *Robert B. Plisk*
Date: 2-22-81 Engineer, Bureau of Bridges and
Structural Design
Approved: *Edward E. Nelson*
Date: 12-21-81 Civil Engineer, Planning and Design

Approved: *David A. Miller*
Date: 12-21-81 Director, Department of Transportation

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR



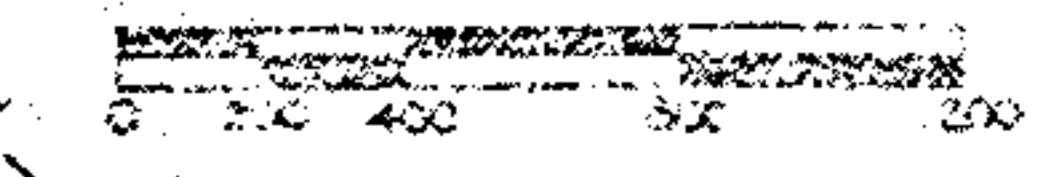
MATCH LINE STA. 650+00

MATCH LINE STA. 450+00

For Linear Grading On Outside Shoulders See Sheet 86

For Concrete Barrier See Sheets 18 To 34

Area Where Work Is to be Performed On Ramps And/or Outside of 12 Pavement



(5)
248

CONCRETE BARRIER TYPICAL SECTION

TYPICAL SECTIONS

5	CHIO		
---	------	--	--

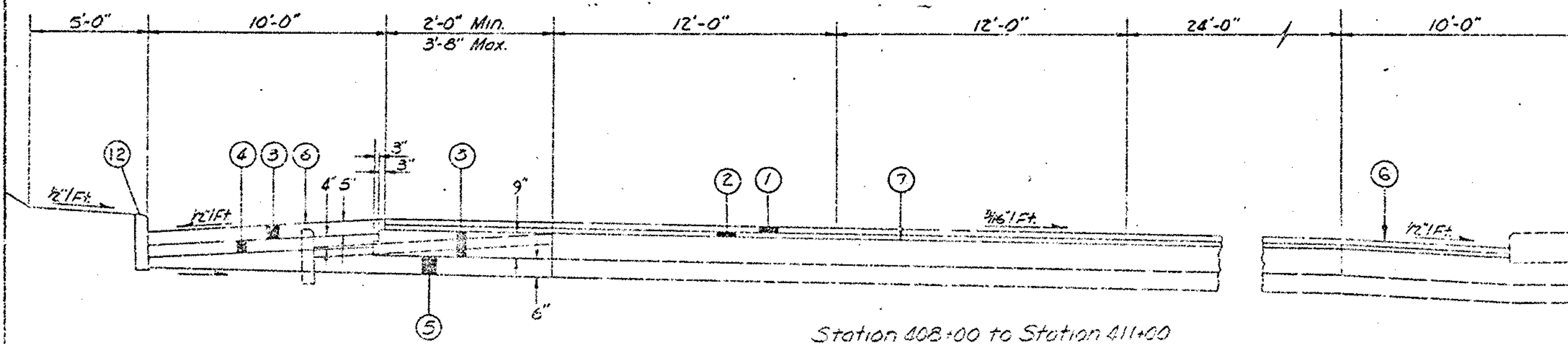
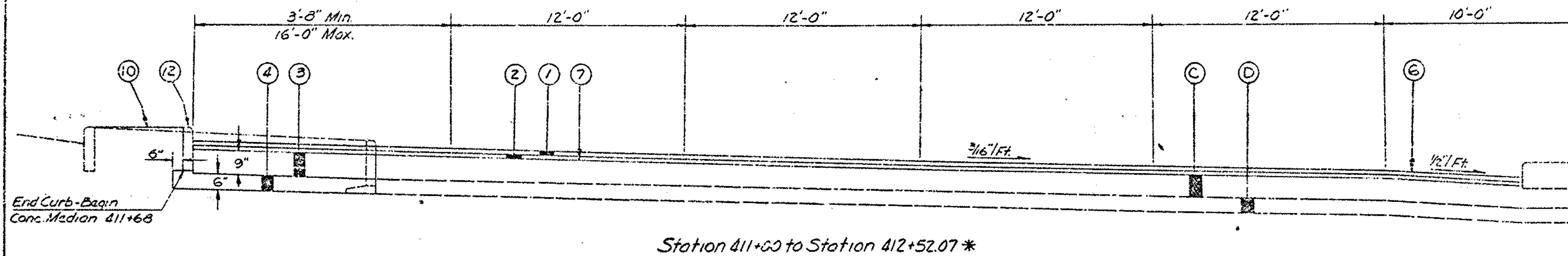
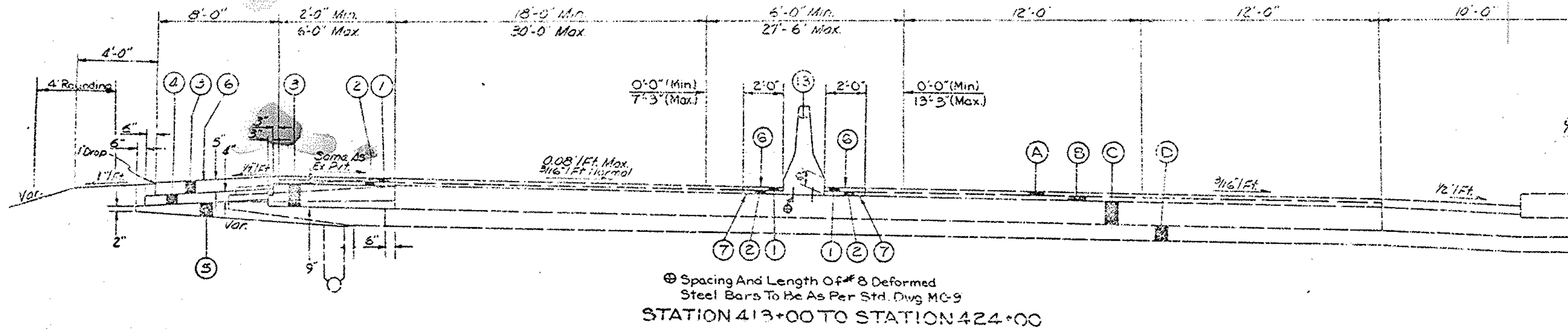
SUM 76-11.57

FOR LINEAR GRADING
SEE SHEET 86

* Typical Section From Sta. 412+00
To Sta. 412+52.07 The Same As Sta.
557+63 To Sta. 558+92 On Ramp E-2
& E-3 (See Sheet 6)

LEGEND (EXIST. PAVEMENT)

- (A) 1 1/4" Asphalt Concrete
- (B) 3" Asphalt Concrete
- (C) Reinforced Portland Cement Concrete Pavement
- (D) 6" Subbase



LEGEND

- (1) ITEM 404 - 1 1/4" ASPHALT CONCRETE, AC-20
- (2) ITEM 402 - 1 3/4" ASPHALT CONCRETE, AC-20
- (3) ITEM 301 - BITUMINOUS AGGREGATE BASE: AC-20, RT-11 OR RT-12
- (4) ITEM 304 - 6" AGGREGATE BASE, AS PER PLAN
- (5) ITEM 310 - SUBBASE, TYPE II, AS PER PLAN
- (6) ITEM 409 - SEAL COAT USING 0.008 C.Y. NO. 8 COVER AGGREGATE/S.Y. AND .30 GAL. BIT. MATERIAL
- (7) ITEM 407 - TACK COAT, APPLIED AT 0.10 GAL./SQ.YD.
- (7) ITEM 407 - COVER AGGREGATE, 703.06
- (12) ITEM 609 - CURB, TYPE 6
- (10) ITEM 689 - SEEDING & MULCHING
- (13) ITEM 622 - CONCRETE BARRIER, TYPE A, AS PER PLAN

1-77

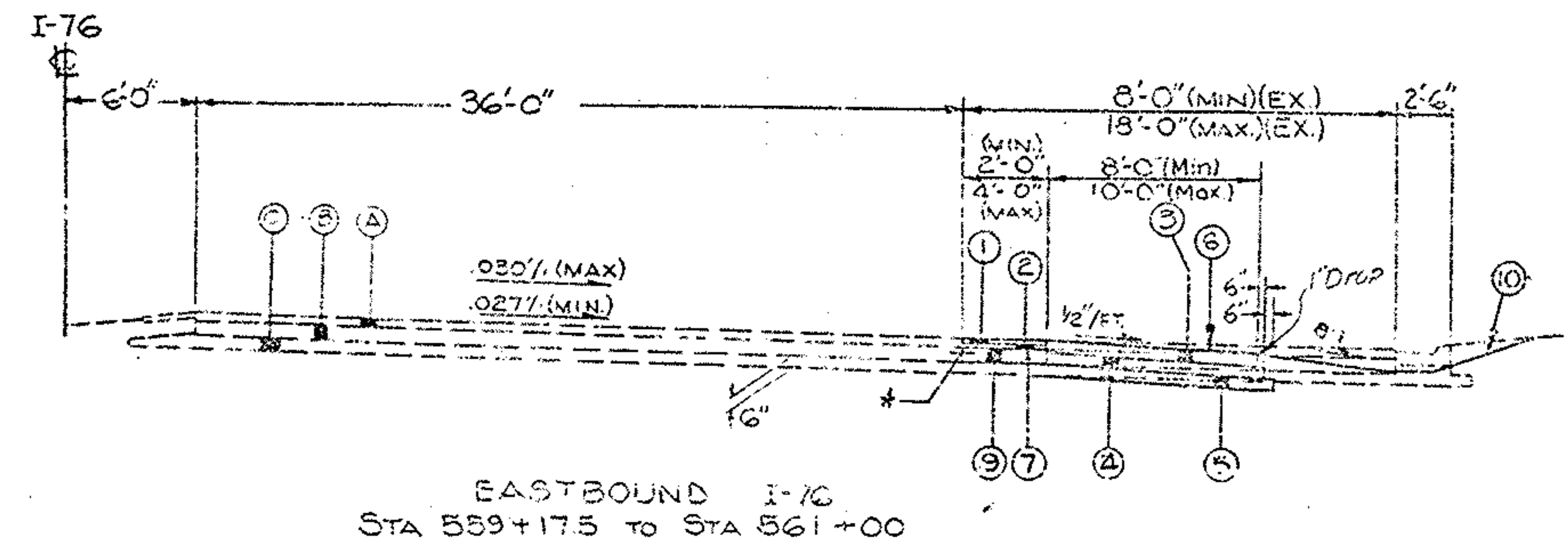
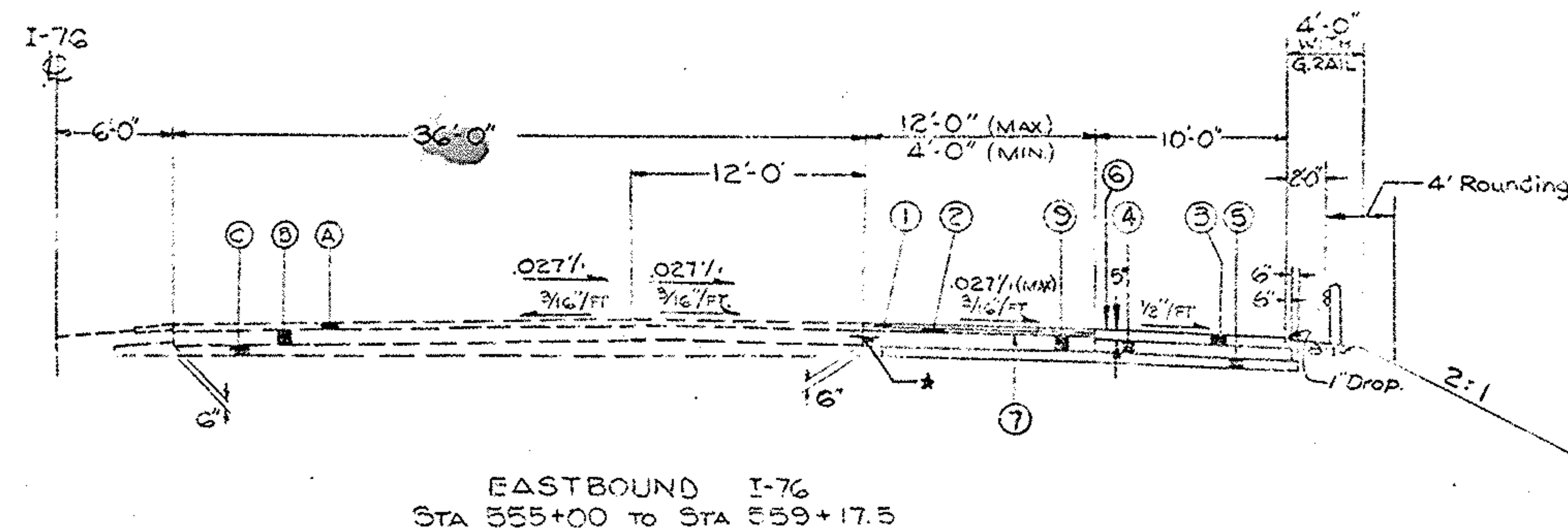
RAMP N
RAMP S-1

TYPICAL SECTIONS

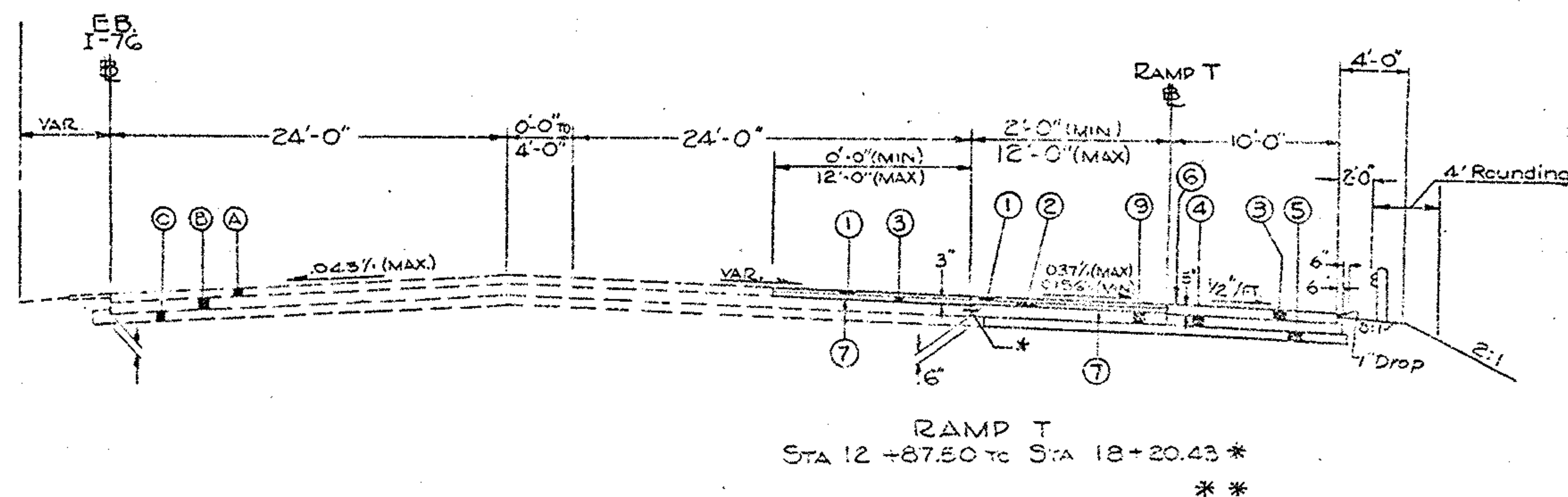
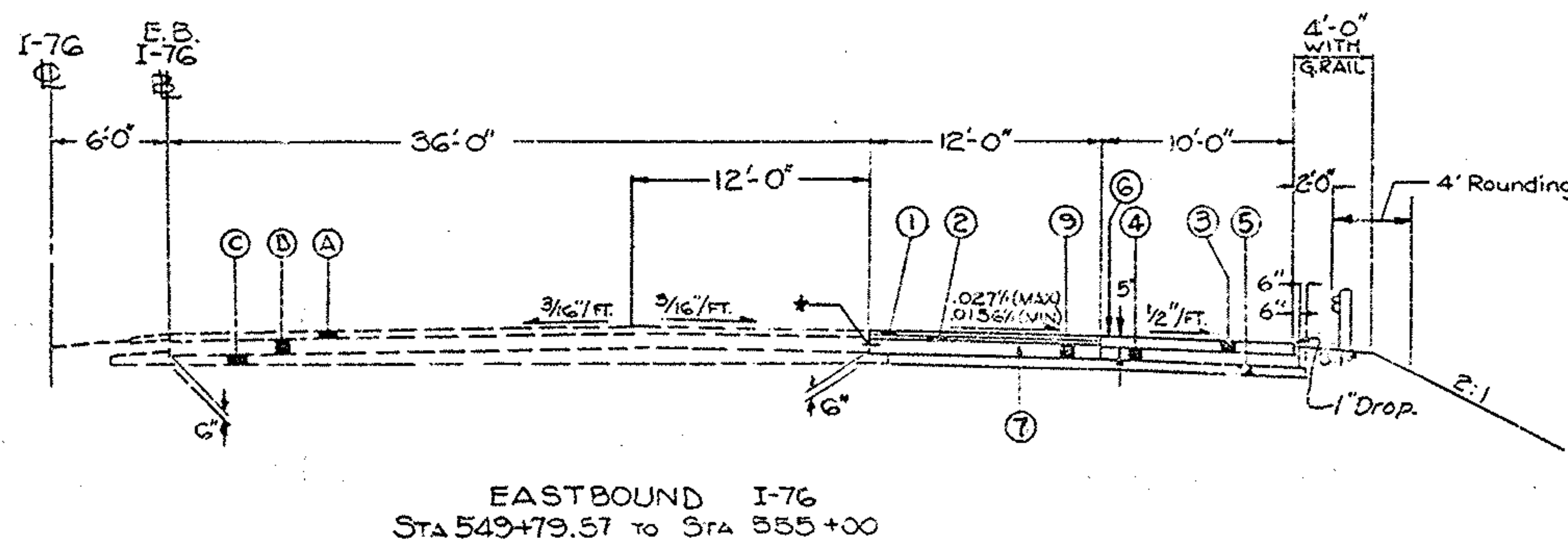
TYPICAL SECTIONS

FED. RD. DIST.	STATE	PROJECT	SHEET NO.
S	OHIO		120

BUM 78-11.57



For Linear Grading
See Sheet 86



LEGEND

- ① 404 — 1 1/4\" ASPHALT CONCRETE (AC-20)
- ② 402 — 1 3/4\" ASPHALT CONCRETE (AC-20)
- ⑦ 407 — TACK COAT
APPLIED AT THE RATE OF 0.1 GAL./S.Y.
- ⑦ 407 — COVER AGGREGATE, 703.06
- ⑨ 305 — PORTLAND CEMENT CONCRETE BASE (T=10\")
- ④ 304 — AGGREGATE BASE, AS PER PLAN
- ⑤ 310 — 6\" SUBBASE, TYPE II, AS PER PLAN
- ⑥ 409 — SEAL COAT USING 0.008 GAL. NO. 8 COVER AGGREGATE /S.Y. & 0.30 GAL. BITUMINOUS MATERIAL/S.Y.
- ③ 301 — BITUMINOUS AGGREGATE BASE; AC-20, RT-11 or RT-12
- ⑩ 659 — SEEDING & MULCHING
- ④ ASPHALT CONCRETE (4 1/4\")
- ⑤ PORTLAND CEMENT CONCRETE BASE (9\")
- ⑥ SUBBASE

- * Typical Section From Sta 12+53.50 To Sta 12+87.50 The Same As Sta. 566+69 To Sta 567+53 On Ramp E-2 & E-3 On Sheet 6
- ** Typical Section From Sta. 12+87.50 To Sta 14+78.00 Has No Pavement Widening. Removal And Replacement Of Existing Surface Course And Paved Shoulder Only
- * Expansion Bolt Joint (See Std. Dwg. BP-3)

RAMP T
PLAN
S.D. 1-78

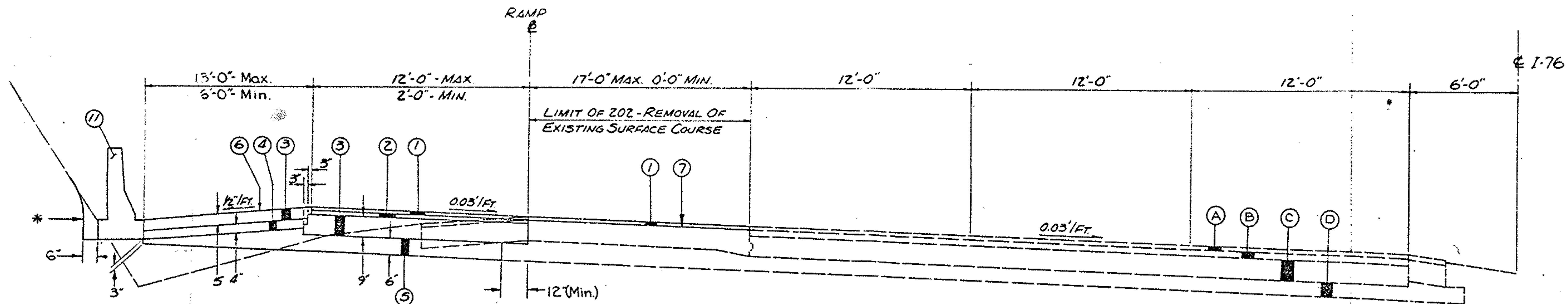
TYPICAL SECTIONS

TYPICAL SECTIONS

FEDERAL REGION	STATE	PROJECT
5	OHIO	

5
248

SUM-76-11.57
AKRON EXPRESSWAY
EAST LEG



LIMITING STATIONS
560+30 to 566+71 - W.B. I-76
3+79.17 to 4+95.13 - RAMP E-3

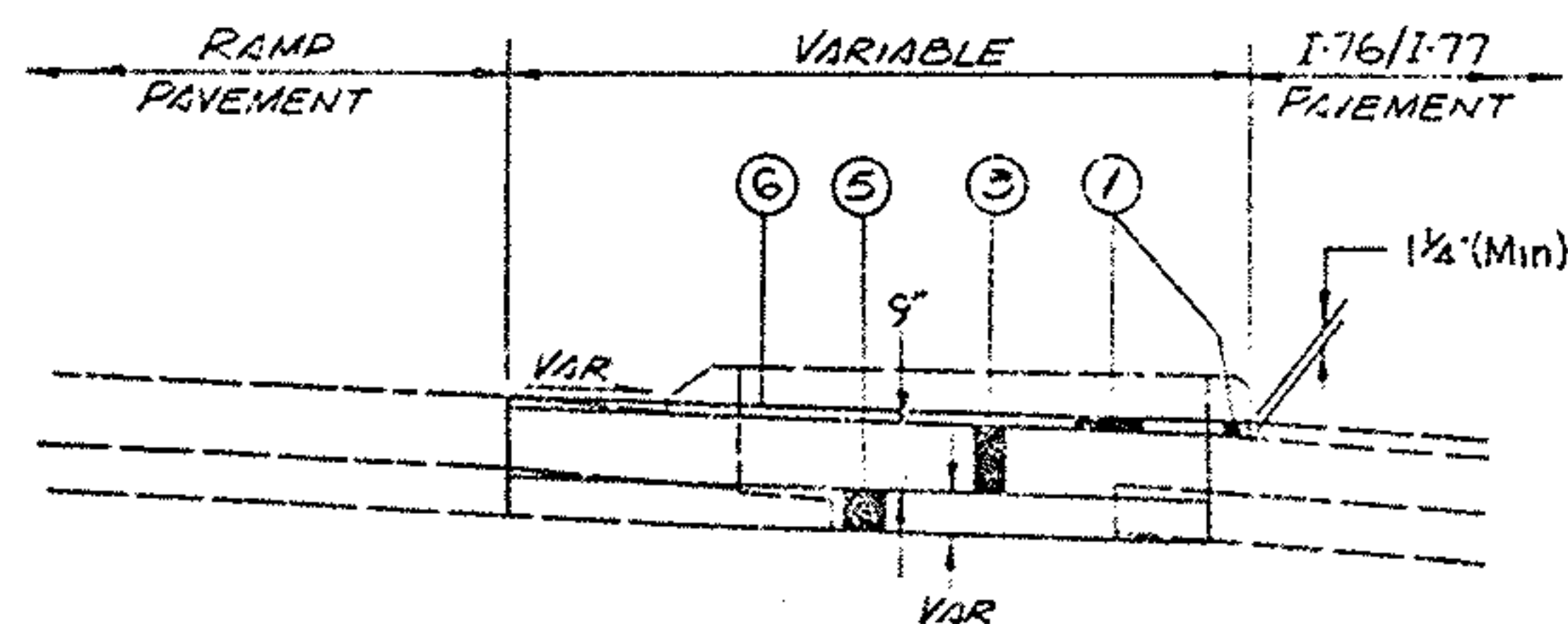
LEGEND-EXISTING PAVEMENT

- (A) = 1 1/4" ASPHALT CONCRETE
- (B) = 3" ASPHALT CONCRETE
- (C) = 9" PORTLAND CEMENT CONCRETE BASE
- (D) = 6" SUBBASE

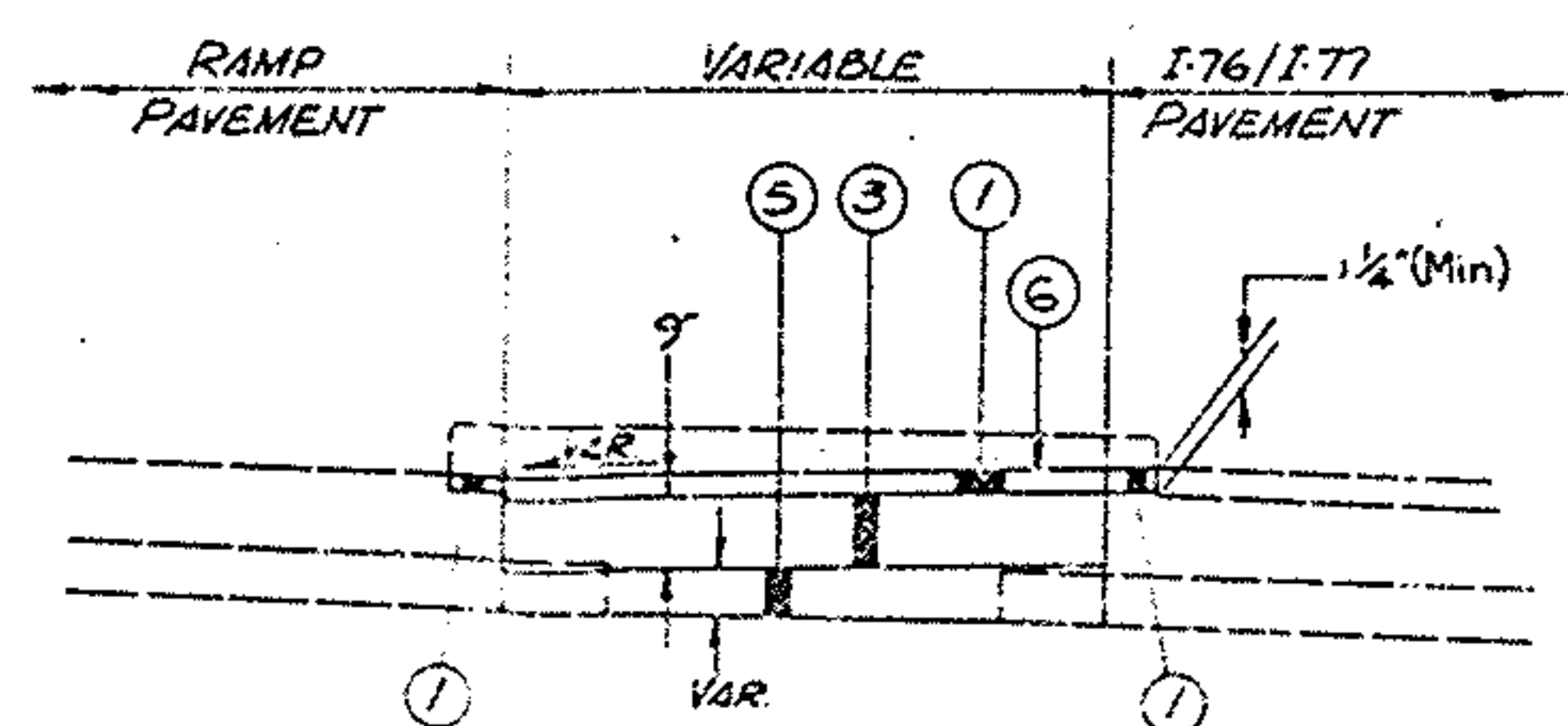
* Approximate Excavation Line In Rock Cut. No Backfill Required

LEGEND

- (1) ITEM 404 - 1 1/4" ASPHALT CONCRETE, AC-20
- (2) ITEM 402 - 1 3/4" ASPHALT CONCRETE, AC-20
- (3) ITEM 301 - BITUMINOUS-AGGREGATE BASE: AC-20, RT-11 or RT-12
- (4) ITEM 304 - 4" AGGREGATE BASE, AS PER PLAN
- (5) ITEM 310 - SUBBASE, TYPE II AS PER PLAN
- (6) ITEM 409 - SEAL COAT USING 0.003 C.Y. NO. 8 COVER AGGREGATE/S.Y. AND .30 GAL. BIT. MATERIAL
- (7) ITEM 407 - TACK COAT APPLIED AT 0.10 GAL./SQ.YD.
- (7) ITEM 407 - COVER AGGREGATE, 70:30:06
- (10) ITEM 559 - SEEDING AND MULCHING
- (11) ITEM 622 - CONCRETE BARRIER, TYPE D



LIMITING STATIONS
557+63 to 558+92 - W.B. I-76



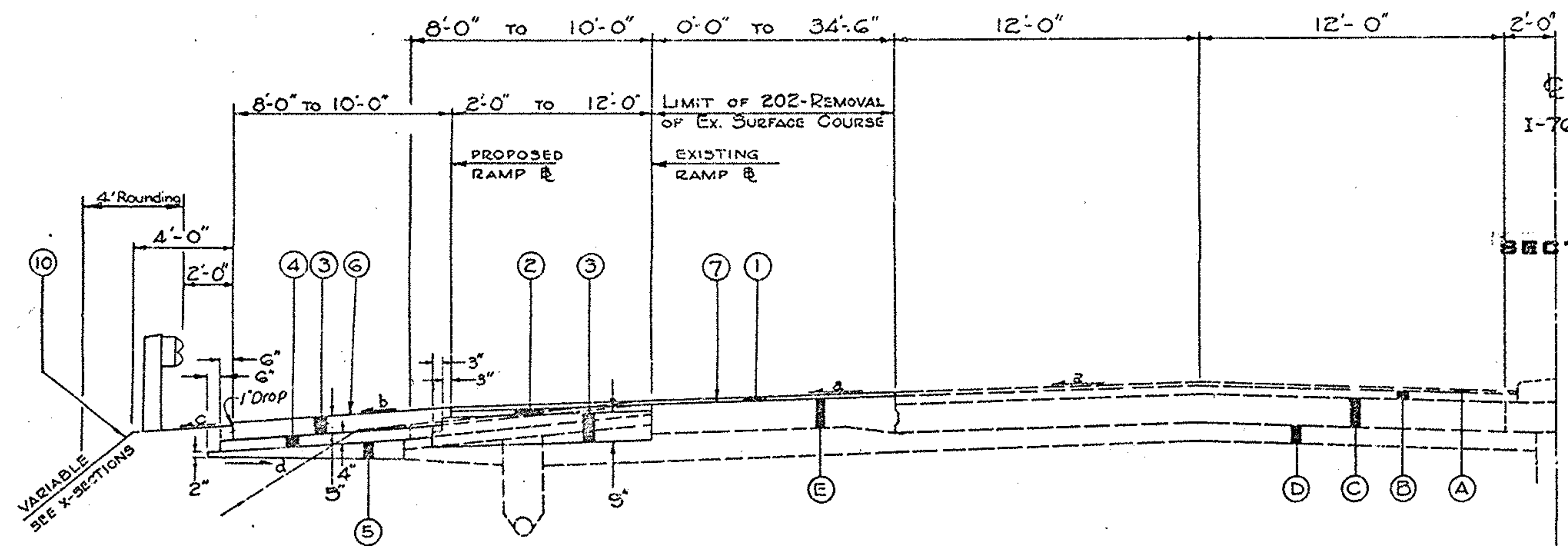
LIMITING STATIONS
566+69 to 567+53

TYPICAL SECTIONS

CD NO.	STATE	PROJECT
5	OHIO	

248

SUM 78-11.57



LIMITING STATIONS

SECTION A

STA 680+36.50 TO STA 688+36.50 (W.B. I-76)
STA 726+90.81(I-76) TO STA 9+02.27 (RAMP E-27)

SECTION A

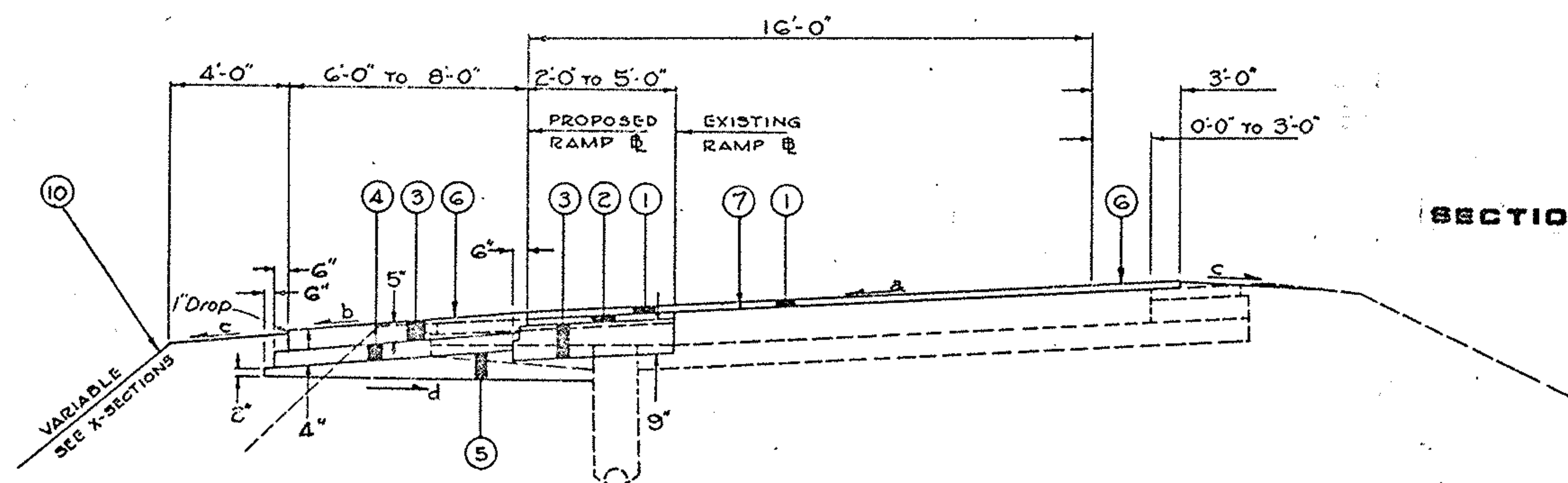
SECTION B

STA 7+97.5 TO STA 10+02.57 (RAMP E-24)

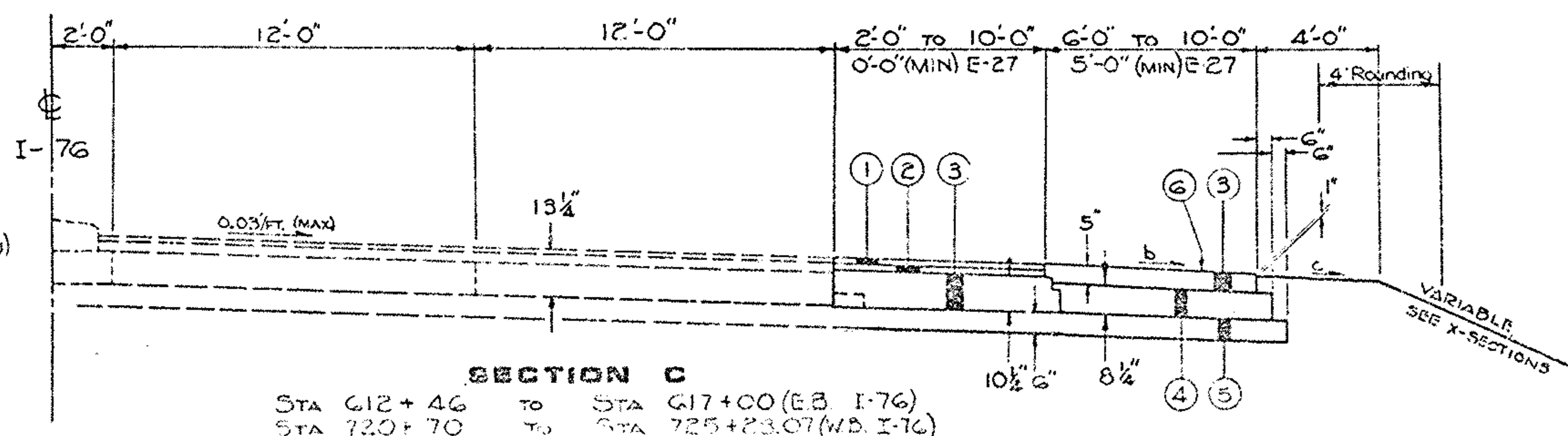
LEGEND-EXISTING PAVEMENT

- (A) = 1 1/4" ASPHALT CONCRETE
- (B) = 3" ASPHALT CONCRETE
- (C) = 9" PORTLAND CEMENT CONCRETE BASE
- (D) = 6" SUBBASE

For Linear Grading, See Sheet 86



SECTION B



SECTION C

STA 612+46 TO STA 617+00 (EB I-76)
STA 720+70 TO STA 725+23.07 (WB I-76)

a = 0.06' /' (MAX.) - 3/16' /' (MIN)
b = 1/2' /'
c = 1' /'
d = 1/4' /'

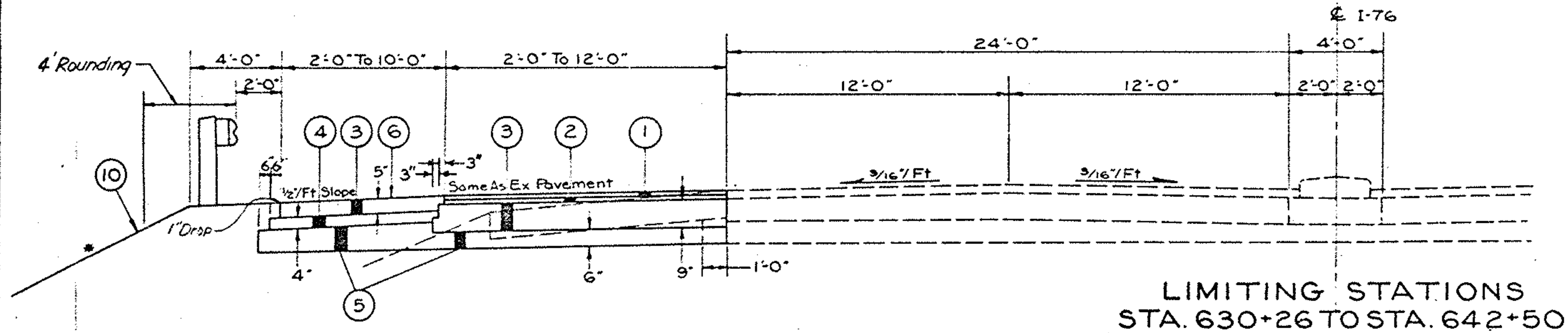
LEGEND

- (1) ITEM 401 - 1 1/4" ASPHALT CONCRETE, AC-20
- (2) ITEM 402 - 1 3/4" ASPHALT CONCRETE, AC-20
- (3) ITEM 301 - BITUMINOUS AGGREGATE BASE: AC-20, RT-11 or RT-12
- (4) ITEM 304 - AGGREGATE BASE, AS PER PLAN
- (5) ITEM 310 - SUBBASE, TYPE II, AS PER PLAN
- (6) ITEM 409 - SEAL COAT USING 0.008 C.Y. NO. 8 COVER AGGREGATE AND .30 GAL. BIT. MATERIAL
- (7) ITEM 407 - TACK COAT APPLIED AT 0.10 GAL./SQ.YD.
- (7) ITEM 407 - COVER AGGREGATE, 703.06

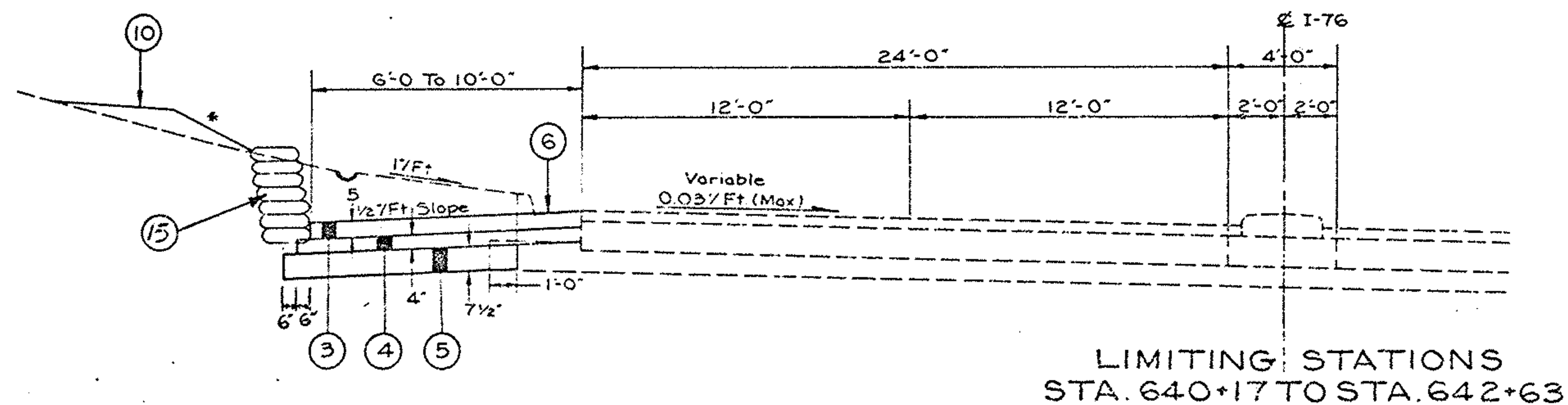
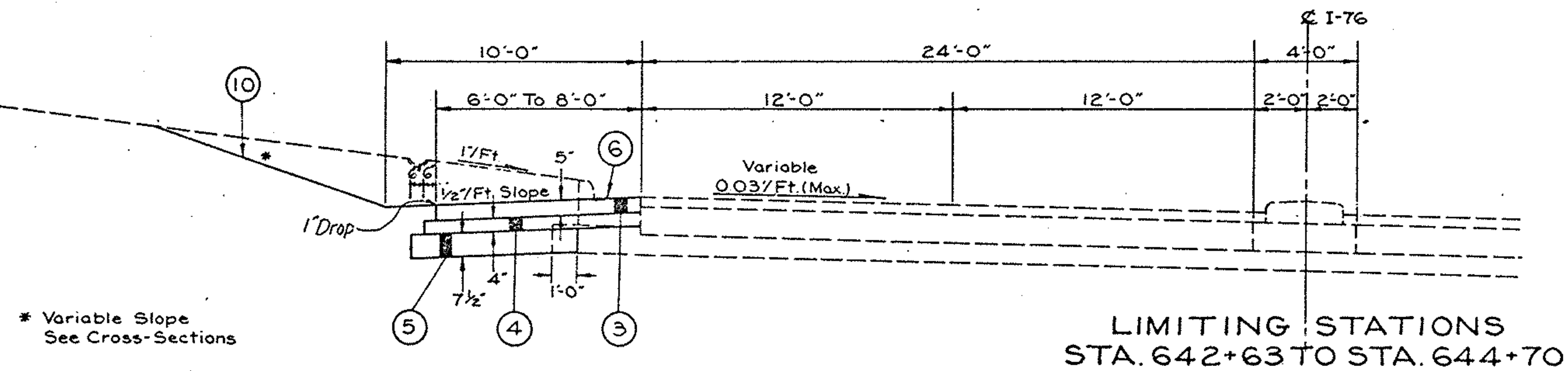
(10) ITEM 401 - WEARING AND MILLING

TYPICAL SECTIONS

SUM-76-11.57



For Linear Grading
See Sheet E-2



LEGEND

- ① ITEM 404 - 1 1/4" ASPHALT CONCRETE, AC-20
- ② ITEM 402 - 1 3/4" ASPHALT CONCRETE, AC-20
- ③ ITEM 301 - BITUMINOUS AGGREGATE BASE: AC-20; RT-12 OR RT-12
- ④ ITEM 304 - 4" AGGREGATE BASE, AS PER PLAN
- ⑤ ITEM 310 - SURBASE, TYPE II, AS PER PLAN
- ⑥ ITEM 409 - SEAL COAT USING 0.038 C.Y. NO. 8 COVER AGGREGATE/S.Y. AND .30 GAL. BIT. MATERIAL
- ⑩ ITEM 659 - SEEDING AND MULCHING
- ⑮ ITEM 657 - RIPRAP FOR TREE PROTECTION

REC NO DIVISION	STATE	PROJECT	
5	OHIO		

9
 24

* Approximate Excavation Line In
Rock. No Backfill Necessary

TYPICAL SECTIONS

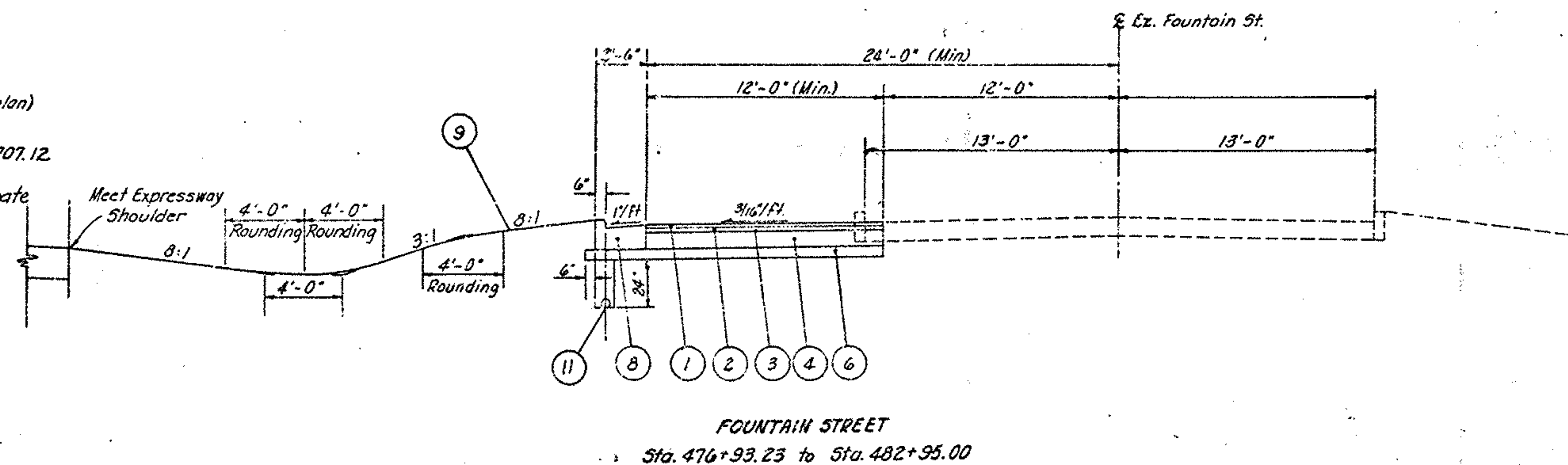
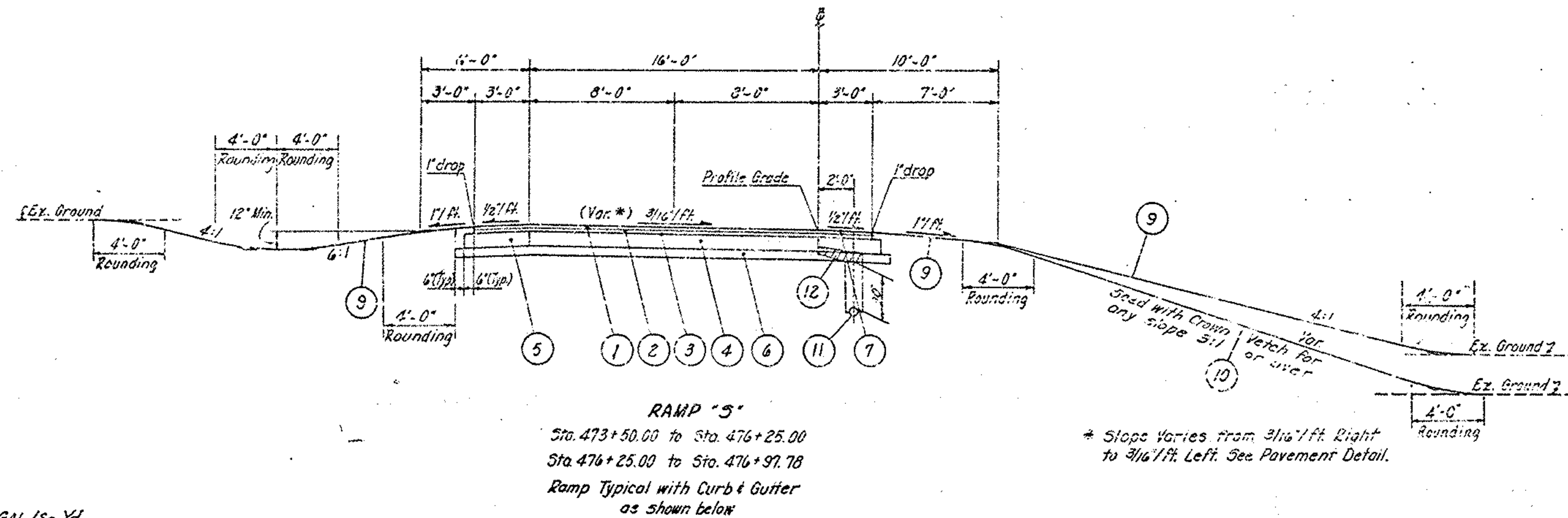
DATE	STATE	PROJECT
5	OHIO	

SUMMIT COUNTY
SUM-8-0.46

LEGEND

- 1 Item 404 1 1/2" Asphalt Concrete (AC-20)
- 2 Item 402 1 1/2" Asphalt Concrete (AC-20)
- 3 Item 407 Tack Coat
applied at
a rate of 0.10 gal per 5q. Yd.
- 3 Item 407 Cover Aggregate, 703.06
- 4 Item 305 Portland Cement Concrete Base (T-10")
- 5 Item 304 Aggregate Base (T-10"), as per plan
- 6 Item 310 6" Subbase, Type II, As Per Plan
- 7 Item 409 Seal Coat Bituminous Material, Applied At 0.30 GAL./Sq. Yd.

- 7 Item 409 Seal Coat Cover Aggregate applied at a rate of
0.000 Cu. Yd. per 5q. Yd.
- 8 Item 609 Combination Curb and Gutter, Type 2
- 9 Item 659 Seeding & Mulching
- 10 Item 659 Seeding & Mulching (Crown Vetch, as per plan)
- 11 Item 605 6" Pipe Underdrain 707.01 Type III or 707.12
- 12 Special Drainage Connection Using No. 8 Aggregate



GENERAL NOTES

AREA REGION	STATE	PROJECT	
5	OHIO		



SUM 76-11.57

ORIGINAL CONSTRUCTION PLANS

ORIGINAL CONSTRUCTION PLANS ARE ON FILE IN THE DISTRICT 4 OFFICE AT 705 OAKWOOD STREET, RAVENNA, OHIO 44266

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

THE ROUNDED CORNERS SHOWN ON THE TYPICAL SECTIONS, APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE 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 DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

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. ESTIMATED QUANTITIES OF MATERIALS SHALL NOT BE ORDERED FOR DELIVERY TO THE PROJECT UNLESS AUTHORIZED BY THE ENGINEER.

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE PERFORMED ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS, OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND THE EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER. PUBLIC SAFETY NO HAZARD SHALL BE LEFT UNPROTECTED EXCEPT FOR THE ACTUAL TIME NECESSARY TO REMOVE, GRADE AND REINSTALL GUARD RAIL IN A CONTINUOUS OPERATION. THE REMOVAL OF ALL GUARD RAIL SHALL AT ALL TIMES BE AS DIRECTED BY THE ENGINEER. NO GUARD RAIL SHALL BE REMOVED UNTIL THE REPLACEMENT MATERIAL IS ON THE SITE, READY FOR INSTALLATION. DURING THE TIME EXISTING GUARD RAIL IS REMOVED AND BEFORE NEW RAIL IS ERECTED, THE CONTRACTOR SHALL PROTECT THE SHOULDER AREA BY USE OF DRUMS OR BARRICADE AS PER OMUTC. DRUMS SHALL BE SPACED AT INTERVALS NOT TO EXCEED 25 FT. COST TO BE INCLUDED WITH ITEM 614, MAINTAINANCE OF TRAFFIC. FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE DEEMED SUFFICIENT CAUSE TO ORDER WORK SUSPENDED ON THIS PROJECT UNTIL SUCH TIME THAT THE ENGINEER IS ASSURED OF SAID COMPLIANCE.

LOCATIONS OF GUARDRAIL

THE LOCATIONS OF GUARDRAIL RUNS AS SHOWN IN THESE PLANS ARE SUBJECT TO ADJUSTMENT TO ASSURE THAT THE PLANNED INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

GUARD RAIL OVER CULVERTS

WHEN SUFFICIENT POST DEPTH IS NOT AVAILABLE DUE TO A CULVERT, THE GUARD RAIL POSTS DIRECTLY OVER THE CULVERT SHALL NOT BE DRIVEN BUT SET IN HOLES. IF THE DISTANCE BETWEEN THE GROUND LINE AND THE TOP OF THE CULVERT IS LESS THAN 3 FT., THE POST SHALL BE ENCASED IN A MINIMUM OF 4" THICKNESS OF CLASS C CONCRETE FOR THE FULL DEPTH OF THE POST. PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 606, GUARD RAIL TYPE 5.

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 WORK AGREEMENT OR SLOPE EASEMENT

EROSION CONTROL

ITEM 660 IS PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OR TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ANY OF THESE ITEMS. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

CONNECTIONS TO EXISTING PIPE

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT. PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEMS.

REMOVAL OF EXISTING PIPE

THE REMOVAL OF ALL EXISTING PIPE DRAINS WHICH WOULD NORMALLY BE REMOVED IN VARIOUS EXCAVATION ITEMS SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICES BID FOR THE RESPECTIVE EXCAVATION ITEMS, UNLESS OTHERWISE ITEMIZED IN THE PLANS.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT, AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR ALONG WITH LOCAL REPRESENTATIVES SHALL MAKE AN INSPECTION OF THE EXISTING SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE. ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE-MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER. PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PERTINENT 603 CONDUIT ITEMS OF THE CONTRACT.

ITEM 659 - CROWN VETCH

CROWN VETCH SHALL BE APPLIED AS PER 659.09 OF THE SPECIFICATIONS. CROWN VETCH TO BE USED AT THE FOLLOWING LIMITING STATIONS: STA. 457+77.6 TO STA. 474+00 RT. & S.R. 8.

PROTECTION OF EXISTING 30" WATER MAIN

SEE SHEET NO. 59 FOR LOCATION AND THE NOTE COVERING PRECAUTIONS REQUIRED TO PROTECT THE EXISTING 30" PRESTRESSED WATER MAIN DURING CONSTRUCTION OPERATIONS.

CURB REMOVED

FOR EXISTING TYPES 2, 2A & 6 CURB TO BE REMOVED, SEE STANDARD DRAWING BP-7. ANY INTEGRAL CURB SHALL BE REMOVED 1 1/4" (MIN) BELOW THE SURFACE OF THE EXISTING PAVEMENT.

ITEM 310 SUBBASE, TYPE II AS PER PLAN

IN ADDITION TO THE PROVISIONS OF ITEM 310 THE FOLLOWING SHALL APPLY: THE REMOVAL OF UNSTABLE MATERIAL AS ENCOUNTERED IN AREAS OF PAVEMENT REPLACEMENT. ALL UNDERCUT AREAS ARE TO BE DRAINED INTO EXISTING UNDERDRAINS. THIS WORK SHALL BE PERFORMED ONLY WHEN DEEMED NECESSARY AND IN AREAS SPECIFIED BY THE ENGINEER. GRANULATED SLAG WILL NOT BE PERMITTED.

THE ABOVE WORK SHALL BE INCLUDED IN THE COST OF ITEM 310 SUBBASE TYPE II AS PER PLAN. AN ESTIMATED QUANTITY OF 700 C.Y. IS PROVIDED IN THE GENERAL SUMMARY FOR THIS PURPOSE TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM 202 PAVEMENT REMOVED, AS PER PLAN

ALL CONCRETE REMOVAL MUST BE SAWED THE FULL DEPTH OF THE EXISTING CONCRETE, TO PROVIDE A VERTICAL FACE, AVOID FRACTURING THE ADJOINING PAVEMENT, MINIMIZE SPALLING ON THE BOTTOM OF THE PAVEMENT AND TO FACILITATE REMOVAL. ADDITIONAL SAW CUTS MAY BE REQUIRED TO FACILITATE REMOVAL. ALL LOOSE AND BROKEN MATERIAL MUST BE REMOVED. THE BARS OR HOOK BOLTS, WHEN REMOVING ADJACENT TO A LONGITUDINAL JOINT, SHALL BE CUT OFF FLUSH WITH THE VERTICAL FACE OF THE REMAINING SLAB. ADEQUATE PROTECTION AGAINST DAMAGING THE ABUTTING PAVEMENT SHALL BE TAKEN. THE CONTRACTORS ATTENTION IS DIRECTED TO 107.12 OF THE SPECIFICATIONS.

ALL MATERIAL REMOVED SHALL BE DISPOSED BY THE CONTRACTOR OUTSIDE THE LIMITS OF THE RIGHT-OF-WAY UNLESS DIRECTED BY THE ENGINEER TO BE PLACED IN AREAS WITHIN THE RIGHT-OF-WAY DESIGNATED BY THE ENGINEER. COST TO BE INCLUDED IN ITEM 202 SQ. YDS. PAVEMENT REMOVED, AS PER PLAN.

PIPE UNDERDRAINS

THE FOLLOWING UNDERDRAIN QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY TO BE USED WHERE AND AS DIRECTED BY THE ENGINEER:

	I	F	TOTAL
605, 6" SHALLOW PIPE UNDERDRAINS	500 LF	100 LF	600 LF
603, 6" CONDUIT, TYPE F (OUTLETS)	80 LF	20 LF	100 LF

GENERAL NOTES

5	OHIO	PROJECT	12
			248

SUM 78-11.57

WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER FOR EROSION AND SILTATION CONTROL MEASURES:

207 TEMPORARY SEEDING AND MULCHING	S.Y.	QUANTITIES SHOWN ON SHEET 13
207 TEMPORARY SLOPE DRAINS	L.F.	
207 TEMPORARY BENCHES, DIKES DAMS & SEDIMENT BASINS	C.Y.	
659 MOWING	M-S.F.	
659 COMMERCIAL FERTILIZER	TON	
659 REPAIR SEEDING AND MULCHING	S.Y.	
659 WATER	M-GAL	
207 STRAW OR HAY BALES	EACH	

ITEM 310 SUBBASE, TYPE II, AS PER PLAN

GRANULATED SLAG AS DEFINED BY 310.02 AND MEETING THE REQUIREMENTS OF 703.08 SHALL NOT BE PERMITTED FOR USE IN THE 310 AGGREGATE BASE MATERIAL ON THIS PROJECT.

DELINEATORS, TYPE A-1 POST MOUNTED

AN ESTIMATED QUANTITY OF 50 DELINEATORS HAS BEEN CARRIED TO THE GENERAL SUMMARY. DELINEATORS ARE TO BE PLACED AT LOCATIONS WHERE EXISTING DELINEATORS HAVE BEEN DAMAGED OR BROKEN. LOCATION AND QUANTITY SHALL BE DETERMINED BY THE PROJECT ENGINEER. ~~NO FEDERAL PARTICIPATION~~

GUARD RAIL REMOVED FOR STORAGE

AT LOCATIONS WHERE EXISTING GUARD RAIL IS TO BE REMOVED, GUARD RAIL ELEMENTS AND HARDWARE SHALL BE STORED IN STAGING AREA FOR REMOVAL BY STATE FORCES.

IMPACT ATTENUATORS REMOVED FOR STORAGE, AS PER PLAN

IMPACT ATTENUATORS TO BE CAREFULLY DISMANTLED AND ALL PARTS REMOVED FOR STORAGE. PARTS TO BE STORED WITHIN STAGING AREA FOR REMOVAL BY CITY OF AKRON. ALL COSTS OF THE ABOVE TO BE INCLUDED WITH THE UNIT PRICE BID, IMPACT ATTENUATORS REMOVED FOR STORAGE, AS PER PLAN.

THE LOCATIONS FOR REMOVAL ARE AS FOLLOWS:

- RAMP E-10 (E.B. I-76)
- RAMP E-15 (W.B. I-76)
- RAMP E-24 (W.B. I-76)
- RAMP S (W.B. I-76)

MOBILIZATION, AS PER PLAN

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 800 SQ.FT. OF FLOOR SPACE, WHICH SHALL BE IN ACCORDANCE WITH 619.01 OR 619.02. PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 624 MOBILIZATION, AS PER PLAN.

CATCH BASIN RECONSTRUCTED TO GRADE, AS PER PLAN

WORK CONSISTS OF REMOVING EXISTING NO. 6 CATCH BASIN FRAME AND GRATE, SIDE WALLS AS REQUIRED AND REBUILDING CATCH BASIN TO ELEVATION AS DIRECTED BY THE ENGINEER. EXISTING FRAME AND GRATE SHALL BE USED TO RECONSTRUCT CATCH BASIN, COST OF ALL WORK TO BE INCLUDED WITH CATCH BASIN RECONSTRUCTED TO GRADE, AS PER PLAN.

MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED

THE CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT-OF-WAY FOR SALVAGE BY (CITY) FORCES.

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

ITEM 603 JACKING PIPE

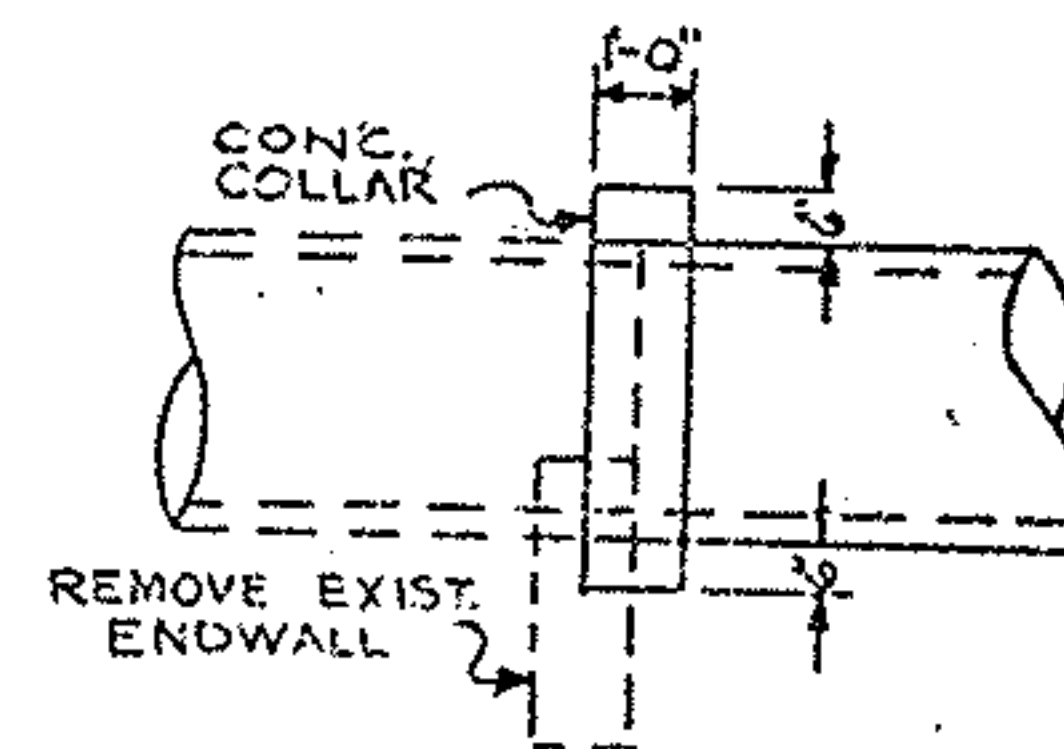
AS PART OF THIS CONTRACT, IT WILL BE NECESSARY TO INSTALL A 12" CONDUIT UNDER THE EXISTING PAVEMENT AS SHOWN ON SHEETS 25, 26, 28 & 29, BY THE METHOD OF BORING AND JACKING.

NO TRENCH EXCAVATION OR EQUIPMENT SHALL BE CLOSER THAN 10 FEET TO THE EDGE OF PAVEMENT. TRENCHES SHALL BE ADEQUATELY SUPPORTED AND THE SPECIFICATION REQUIREMENT FOR CLASS B BEDDING SHALL BE DISREGARDED.

THE PAY ITEM IN THE GENERAL SUMMARY SHALL READ: ITEM 603 LIN. FT. 12" CONDUIT TYPE B AS PER PLAN.

CONDUIT CONNECTION TO HEADWALL

PORTIONS OF STRUCTURE REMOVED SHALL BE IN ACCORDANCE WITH 202.03 PAYMENT FOR THIS CONNECTION AS SHOWN HEREON SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT CONDUIT ITEM.



TYP. CONNECTIONS FOR CONDUIT

ITEM 611 - REINFORCED CONCRETE APPROACH SLAB, AS PER PLAN

THE WORK SHALL INCLUDE THE FOLLOWING:

1. REMOVE PORTIONS OF THE EXISTING APPROACH SLAB AS SHOWN ON SHEET 55. TO PROVIDE A NEAT REMOVAL LINE A SAW CUT SHALL BE USED. CARE SHALL BE USED IN REMOVING EXISTING CONCRETE SO EXISTING REINFORCING STEEL IS NOT DESTROYED OR DAMAGED. THIS STEEL SHALL BE USED FOR WIDENING THE EXISTING APPROACH SLAB.
 2. REPLACE ANY CONTAMINATED SUBBASE WITH APPROVED SUBBASE AND GRADE TO CROSS-SLOPE (3/16"/FT) OF EXISTING PAVEMENT.
 3. CUT BACKWALL IN A NEAT LINE TO PROVIDE SEAT FOR WIDENING OF EXISTING APPROACH SLAB. SEE STANDARD DRAWING 45-1-72 FOR DIMENSIONS.
 4. EXCAVATE EXISTING PAVED SHOULDER TO PLAN LINE AND PLACE SUBBASE MATERIAL.
 5. PLACE REINFORCING STEEL AND POUR NEW APPROACH SLAB.
- A QUANTITY OF 5 C.Y. OF 310 SUBBASE HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE WITH 611 REINFORCED CONCRETE APPROACH SLAB, AS PER PLAN.
- THE COST OF THE ABOVE, EXCEPT ITEM 310, TO BE INCLUDED WITH ITEM 611, REINFORCED CONCRETE APPROACH SLAB, AS PER PLAN 136 S.Y.

ITEM 622 - CONCRETE BARRIER, TYPE A, AS PER PLAN

THIS WORK SHALL CONSIST OF PLACING CONCRETE BARRIER, TYPE A, WITHOUT BASE ON EXISTING CONCRETE PAVEMENT. COST OF EXISTING FLEXIBLE PAVEMENT REMOVAL, DOWEL HOLES AND NO. 8 STEEL BARS (DOWELS) TO BE INCLUDED WITH ITEM 622 CONCRETE BARRIER, TYPE A, AS PER PLAN. ALL OTHER PAYMENT TO BE AS PER ITEM 622.

ITEM 304 AGGREGATE BASE, AS PER PLAN

GRANULATED SLAG AS DEFINED BY 304.02 AND MEETING THE REQUIREMENTS OF 703.08 SHALL NOT BE PERMITTED FOR USE IN THE 304 AGGREGATE BASE MATERIAL ON THIS PROJECT.

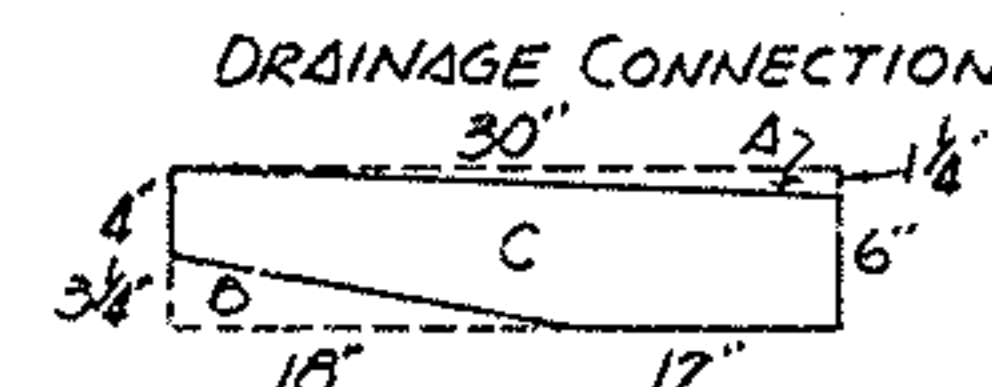
PROFILE

THE PROFILE OF THE PROPOSED ASPHALT CONCRETE COURSES SHALL BE APPROXIMATELY THE SAME ELEVATION AS THE EXISTING PAVEMENT, AS INDICATED ON THE TYPICAL SECTIONS.

MEDIAN CROSSING

CONTRACTOR SHALL NOT CROSS THE MEDIAN AT ANY TIME WITH ANY EQUIPMENT ON THIS PROJECT.

SUM 78-11.57



$$\begin{aligned} \text{Total Area} &= 30" \times 7\frac{1}{2}" \div 144 = 1.51 \text{ Sq.Ft.} \\ (-) \text{ Area A} &= \frac{1}{2}(30" \times 1\frac{1}{4}") \div 144 = 0.13 \text{ Sq.Ft.} \\ (-) \text{ Area B} &= \frac{1}{2}(18" \times 3\frac{1}{4}") \div 144 = 0.20 \text{ Sq.Ft.} \\ \text{Area C} &= 1.18 \text{ Sq.Ft.} \\ 1.18 \text{ Sq.Ft.} \div 9 \times 1' &= 0.13 \text{ Cu.Ft./Lin.Ft.} \end{aligned}$$

$$\begin{aligned} \text{Sta. 16+75 to Sta. 21+58.66} &+ \text{Sta. 450+00 to Sta. 455+86} = 1069.66 \text{ Lin.Ft.} \\ \text{ITEM SPECIAL - Drainage Connection} &1069.66 \times 0.13 \div 27 = 5.15 \text{ Cu.Yd.} \end{aligned}$$

ITEM 202-CONCRETE MEDIAN REMOVED

$$\begin{aligned} 7' \text{ to } 3' - \text{Sta. 590+15 to Sta. 593+27.3} &= 312.3 \text{ Lin.Ft.} \\ \text{Deduct 1-2-10 Inlet @ 11.3'} &= 11.3 \text{ Lin.Ft.} \\ \text{Total} &= 301.0 \text{ Lin.Ft.} \\ 301.0 \times \frac{2+3}{2} \div 9 &= 167.2 \text{ Sq.Yd.} \\ 3' - \text{Sta. 593+27.3 to Sta. 688+25} &= 9497.7 \text{ Lin.Ft.} \\ \text{Deduct Bridge Lengths} &= 2250.9 \text{ Lin.Ft.} \\ \text{Deduct 1-2-6 Inlet @ 7.3'} &= 7.3 \text{ Lin.Ft.} \\ \text{Deduct 6-2-10 Inlets @ 11.3'} &= 67.8 \text{ Lin.Ft.} \\ \text{Deduct 3-2-14 Inlets @ 15.3'} &= 45.9 \text{ Lin.Ft.} \\ \text{Deduct 2-2-20 Inlets @ 21.3'} &= 42.6 \text{ Lin.Ft.} \\ \text{Deduct 5-A Median Inlets @ 5.6'} &= 28.0 \text{ Lin.Ft.} \\ \text{Total} &= 7055.2 \text{ Lin.Ft.} \\ 7055.2 \times 3 \div 9 &= 2351.7 \text{ Sq.Yd.} \\ 3' \text{ to } 6' - \text{Sta. 688+25 to Sta. 693+80} &= 555.0 \text{ Lin.Ft.} \\ \text{Deduct 1-2-10 Inlet @ 11.3'} &= 11.3 \text{ Lin.Ft.} \\ \text{Deduct 1-A Median Inlet @ 5.6'} &= 5.6 \text{ Lin.Ft.} \\ \text{Total} &= 538.1 \text{ Lin.Ft.} \\ 538.1 \times \frac{3+6}{2} \div 9 &= 269.1 \text{ Sq.Yd.} \\ \text{ITEM 202 - Concrete Median Removed (Total)} &= 2788.0 \text{ Sq.Yd.} \end{aligned}$$

SEEDING Sq Yd	EXC. Cu. Yd.	EMB. Cu. Yd.	SHEET No.
4800	1238	1174	37
4886	1941	222	43
5430	1197	5159	50
209	475	157	52
1393	259	1136	54
2932	297	2010	57
528	387	21	58
2578	748	1272	60
2917	445	2153	62
1391	178	209	64
5051	7426	1638	72
7634	12814	99	85
39749	27405	15250	Total

$$\begin{aligned} \text{ITEM 203 - Excavation Not Including Embankment Construction} &= 27405 \text{ Cu.Yd.} \\ \text{ITEM 203 - Embankment} &= 15250 \text{ Cu.Yd.} \\ \text{ITEM 659 - Seeding And Mulching} &= 39749 \text{ Sq.Yd.} \\ \text{ITEM 659 - Commercial Fertilizer} &39749 \times 9 \div 1000 \times 20 \div 2000 = 3.6 \text{ Tons} \\ \text{ITEM 659 - Agricultural Liming} &39749 \times 9 \div 1000 \times 100 \div 2000 = 17.9 \text{ Tons} \\ \text{ITEM 207 - Temporary Seeding And Mulching} &= 8855 \text{ Sq.Yd.} \\ &(4526 \text{ Sq.Yd. from Sht. 83} + 39749 \text{ Sq.Yd.}) \times 20\% \\ \text{ITEM 659 - Water} &8855 \times 9 \div 1000 \times 240 \div 1000 = 19.1 \text{ M.Gal.} \\ \text{ITEM 207 - Temporary Slope Drains} &= 380 \text{ Lin.Ft.} \\ &95 \text{ Stations @ 4 Lin.Ft./Station} \\ \text{ITEM 207 - Temporary Barchas, Dikes, Dams And Sediment Basins} &= 35 \text{ Cu.Yd.} \\ &(6419 \text{ Cu.Yd. from Sht. 83} + 15250 \text{ Cu.Yd.}) \times 0.1\% = 21.7 \text{ C.Y.} \\ \text{ITEM 659 - Mowing} &= 99.6 \text{ M.Sq.Ft.} \\ &(44275 \text{ Sq.Yd.} \times 9 \div 1000) \times 25\% \\ \text{ITEM 659 - Commercial Fertilizer} &= 0.4 \text{ Ton} \\ &8855 \times 9 \div 1000 \times 10 \div 2000 \\ \text{ITEM 659 - Repair Seeding And Mulching} &= 2213.8 \text{ Sq.Yd.} \\ &44275 \text{ Sq.Yd.} \times 5\% \\ \text{ITEM 207 - Straw Or Hay Bales} &= 60 \text{ Each} \\ &\text{FUNDING FOR ABOVE QUANTITIES - I FUNDS} \\ \text{ITEM 207 - Temporary Seeding And Mulching} &= 3299 \text{ Sq.Yd.} \\ &16495 \text{ Sq.Yd. from Sht. 83} \times 20\% \\ \text{ITEM 659 - Water} &= 7.1 \text{ M.Gal.} \\ &3299 \times 9 \div 1000 \times 240 \div 1000 \\ \text{ITEM 207 - Temporary Slope Drains} &= 68 \text{ Lin.Ft.} \\ &17 \text{ Stations @ 4 Lin.Ft./Station} \\ \text{ITEM 207 - Temporary Barchas, Dikes, Dams And Sediment Basins} &= 15 \text{ Cu.Yd.} \\ &6773 \text{ Cu.Yd. from Sht. 83} \times 0.1\% = 6.8 \text{ C.Y.} \\ \text{ITEM 659 - Mowing} &= 37.1 \text{ M.Sq.Ft.} \\ &16495 \text{ Sq.Yd.} \times 9 \div 1000 \times 25\% \\ \text{ITEM 659 - Commercial Fertilizer} &= 0.2 \text{ Ton} \\ &3299 \times 9 \div 1000 \times 10 \div 2000 \\ \text{ITEM 659 - Repair Seeding And Mulching} &= 824.8 \text{ Sq.Yd.} \\ &16495 \text{ Sq.Yd.} \times 5\% \\ \text{ITEM 207 - Straw Or Hay Bales} &= 20 \text{ Each} \\ &\text{FUNDING FOR ABOVE QUANTITIES - F FUNDS} \end{aligned}$$

* Quantity increased to meet minimum requirement.

MAINTENANCE OF TRAFFIC

SUM 78-11.57

MAINTENANCE OF TRAFFIC

THE SAFETY OF THE TRAVELING PUBLIC AND MINIMIZING THE INCONVENIENCE TO THE HIGHWAY USERS SHALL BE OF THE HIGHEST CONCERN TO THE CONTRACTOR WHILE PERFORMING THE NECESSARY WORK. WITH THIS IN MIND, THE FOLLOWING CONDITIONS AND RESTRICTIONS SHALL BE ENFORCED AND WILL BE ADHERED TO DURING THE SCOPE OF THIS PROJECT. NO DEVIATION WILL BE PERMITTED WITHOUT THE WRITTEN CONSENT OF THE DIRECTOR.

TRAFFIC SAFETY COORDINATOR

THE CONTRACTOR SHALL HAVE A QUALIFIED FULLTIME TRAFFIC SAFETY COORDINATOR ON DUTY WHENEVER ACTIVE CONSTRUCTION WORK IS BEING PERFORMED WITHIN THE LIMITS OF THIS PROJECT. THE TRAFFIC SAFETY COORDINATOR SHALL BE RESPONSIBLE FOR THE CONTRACTOR'S MAINTENANCE OF TRAFFIC OPERATIONS.

THE CONTRACTOR SHALL DESIGNATE A QUALIFIED INDIVIDUAL TO THE POSITION, IN WRITING TO THE DISTRICT ENGINEER, PRIOR TO THE PRECONSTRUCTION CONFERENCE. THE APPOINTED TRAFFIC SAFETY COORDINATOR SHALL BE PRESENT AT THE PRECONSTRUCTION CONFERENCE. *The Coordinator shall not be the Contractor's construction superintendent.* THE RESPONSIBILITIES OF THE TRAFFIC SAFETY COORDINATOR IS OUTLINED IN THE MAINTENANCE PLAN AND INCLUDES THE FOLLOWING:

1. UNDERSTAND AND BE FAMILIAR WITH THE REQUIREMENTS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION, THE TRAFFIC MAINTENANCE PLAN AND THE TRAFFIC MAINTENANCE AND SAFETY PROVISIONS OF CONSTRUCTION PLANS AND CONTRACT PROPOSAL.
2. REVIEW AND ANTICIPATE APPROPRIATE TRAFFIC CONTROL DEVICES AND ASSURE THAT SUCH DEVICES AS ARE DETERMINED TO BE NECESSARY FOR SAFE AND EFFICIENT TRAFFIC MOVEMENT ARE OBTAINED AND ERECTED.
3. COORDINATE MAINTENANCE OF TRAFFIC OPERATIONS WITH THE PROJECT ENGINEER AND WITH A REPRESENTATIVE FROM THE CITY OF AKRON, TRAFFIC ENGINEERING DIVISION.
4. ATTEND PERIODIC MEETINGS WITH THE PROJECT ENGINEER AND CITY OF AKRON TO REVIEW AND RECOMMEND PROCEDURES FOR REVISIONS IN THE MAINTENANCE OF TRAFFIC OPERATIONS.
5. HOLD TRAFFIC SAFETY MEETINGS WITH THE CONTRACTOR AND SUBCONTRACTOR'S SUPERINTENDENTS AND FOREMEN PRIOR TO AND DURING CONSTRUCTION. (THE PROJECT ENGINEER AND CITY REPRESENTATIVES SHALL BE INVITED TO ATTEND THESE MEETINGS.)
6. PAYMENT FOR THIS INDIVIDUAL TO BE LUMP SUM BID FOR ITEM SPECIAL - TRAFFIC SAFETY COORDINATOR LUMP SUM. (CARRIED TO SH.15).

TRAFFIC CONTROL - LANE RESTRICTION

- A. THE CONTRACTOR SHALL PROVIDE THE SERVICE OF ONE (1) SPECIAL DUTY CITY PATROLMAN WITH A PATROL CAR, FOR THE EXCLUSIVE PURPOSE OF CONTROLLING THROUGH TRAFFIC. THE PATROLMAN WITH A PATROL CAR SHALL BE UTILIZED DURING INSTALLATION AND REMOVAL OF TRAFFIC CONTROL DEVICES, FOR LANE RESTRICTIONS AND DURING HOURS OF PEAK TRAFFIC AS AUTHORIZED BY THE ENGINEER. THE PATROLMAN SHALL CONSTANTLY MOVE WITH THE BACKUP OF TRAFFIC SO THAT HE IS ALWAYS IN A POSITION ON THE SHOULDER NEAR THE END OF THE LINE OF STOPPED TRAFFIC TO ASSIST IN CONTROLLING TRAFFIC AND INFORMING DRIVERS AS TO THE NATURE OF THE DELAY. THE CONTRACTOR'S TRAFFIC SAFETY COORDINATOR, WITH THE PROJECT ENGINEER'S APPROVAL, SHALL DETERMINE WHEN AND HOW MANY OFFICERS SHALL BE REQUIRED.

TO OBTAIN THE SERVICES OF CITY OFFICERS, THE CONTRACTOR SHALL CONTACT:

CITY-COUNTY SAFETY BUILDING, POLICE DIVISION

217 S. HIGH STREET

AKRON, OHIO 44308 PHONE: 375-2503

PAYMENT FOR THE OFFICER AND THE VEHICLE SHALL BE INCLUDED IN THE ITEM SPECIAL - PATROLMAN WITH PATROL CAR.

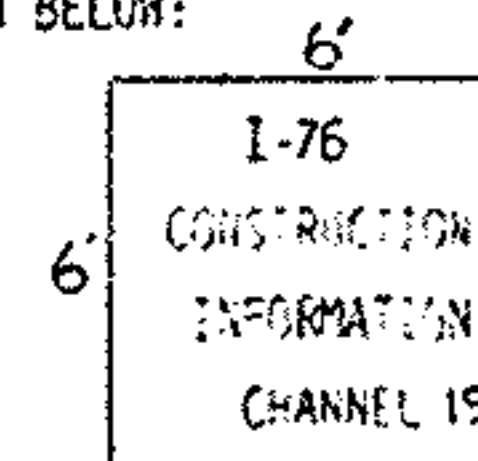
ITEM SPECIAL - PATROLMAN/PAT. CAR 1850 (1) + 150 (F) + 2000 Hrs. (CARRIED TO SH.15)

ITEM SPECIAL - PATROLMAN 450 (1) + 50 (F) + 500 Hrs. (CARRIED TO SH.15)

- B. A REPRESENTATIVE OF THE CITY OF AKRON POLICE DEPARTMENT AND FIRE DEPARTMENT WILL BE INVITED TO ATTEND SUCH MEETINGS PERTAINING TO TRAFFIC MAINTENANCE, TO RECOMMEND AND TO HELP COORDINATE THE SAFE AND EFFICIENT MOVEMENT OF TRAFFIC DURING CONSTRUCTION PERIODS OR DURING LANE RESTRICTION.
- C. PROVISIONS SHALL BE MADE TO PROVIDE THE PROJECT ENGINEER AND TRAFFIC SAFETY COORDINATOR WITH DIRECT RADIO CONTACT WITH THE OFFICER ON DUTY WHEREBY ASSISTANCE CAN BE FURNISHED IMMEDIATELY IN CASE OF AN ACCIDENT OR UNUSUAL CONDITIONS THAT WOULD TEND TO BE CONJUNCTIVE TO POTENTIAL ACCIDENTS.

PUBLIC MEDIA

PRIOR TO CONSTRUCTION, THE CITY, IN COOPERATION WITH THE PROJECT ENGINEER, WILL NOTIFY ALL MAJOR LOCAL MEDIA, POLICE AND FIRE PROTECTION AGENCIES OF THE PROJECT, INCLUDING THE TYPE OF WORK TO BE PERFORMED, THE HOURS THAT THE HIGHWAY WILL BE FULLY OPENED, TYPE OF TRAFFIC DELAYS THAT CAN BE EXPECTED, ALTERNATE ROUTES THAT CAN BE USED, THE RAMP CLOSURES IN EFFECT AND WHOM THE PUBLIC CAN CONTACT FOR FURTHER INFORMATION. DURING CONSTRUCTION, THE TRAFFIC SAFETY COORDINATOR, IN COOPERATION WITH THE CITY, WILL ADVISE LOCAL RADIO STATIONS RELATIVE TO LOCATIONS, TIME AND TYPE OF CONSTRUCTION OPERATIONS AS WELL AS TO LANE CLOSURES AND RECOMMENDED ROUTES. A SEPARATE PHONE WILL BE INSTALLED SPECIFICALLY TO HANDLE INQUIRIES FROM THE PUBLIC AND THE MEDIA. PRETAPED MESSAGES ON THE LATEST HIGHWAY CONDITION MAY BE USED. THE USE OF CB RADIO TO ADVISE ON CURRENT CONDITIONS SHALL BE EMPLOYED EVERY 15 MINUTES FROM 7 A.M. TO 9 A.M. AND 4 P.M. TO 6 P.M. AND EVERY HOUR DURING THE REMAINING WORKING HOURS. SIX SPECIAL SIGNS TO NOTIFY MOTORISTS OF CB ADVISORY SHALL BE PROVIDED, ERECTED AND MAINTAINED BY THE CONTRACTOR AT LOCATIONS DETERMINED BY THE PROJECT ENGINEER AND TRAFFIC SAFETY COORDINATOR. SIGNS AS SHOWN BELOW:



CONTRACTOR'S EQUIPMENT - OPERATION AND STORAGE

THE CONTRACTOR'S EQUIPMENT SHALL BE OPERATED IN THE DIRECTION OF TRAFFIC, WHERE PRACTICAL. A UNIFORMED OFFICER SHALL BE EMPLOYED WHERE THE CONTRACTOR'S EQUIPMENT MUST MERGE WITH THE TRAFFIC STREAM. THE CONTRACTOR'S EQUIPMENT SHALL BE EQUIPPED WITH AT LEAST ONE AMBER FLASHING LIGHT, FLOOD LIGHTS FOR NIGHT OPERATIONS SHALL BE POSITIONED SO AS NOT TO INTERFERE WITH THE TRAVELING PUBLIC. PAVERS, ROLLERS AND OTHER EQUIPMENT MAY BE PARKED IN AREAS ALONG THE HIGHWAY WHEN PAVING OR EXCAVATING OPERATIONS ARE SCHEDULED TO CONTINUE WITHIN THE NEXT WORKDAY; OTHERWISE, THE EQUIPMENT SHALL BE STORED AT A STORAGE AREA, THE LOCATION OF WHICH SHALL HAVE PRIOR APPROVAL BY THE PROJECT ENGINEER AND THE CITY OF AKRON. WHEN PARKING ALONG THE HIGHWAY, THE EQUIPMENT SHALL BE PARKED BEHIND GUARDRAIL OR AT

LEAST 30 FEET FROM THE EDGE OF PAVEMENT. TWO (2) ADEQUATE BARRICADES AND FLASHING LIGHTS SHALL BE PLACED ON THE PAVEMENT SIDE OF THE EQUIPMENT TO IDENTIFY THE LIMITS OF EQUIPMENT. ALL OTHER EQUIPMENT SHALL BE STORED AT THE APPROVED CONTRACTOR'S STAGING AREA.

NIGHTTIME OPERATIONS SHALL BE ILLUMINATED BY A MOVABLE LIGHTING SYSTEM. THE LIGHTING SYSTEM SHALL BE POSITIONED AND OPERATED TO PRECLUDE GLARE TO THE APPROACHING TRAVELING PUBLIC. THE LIGHTING SYSTEM SHALL CONSIST OF MERCURY VAPOR OR SODIUM VAPOR LIGHTS.

A DESIGNATED AREA RESERVED FOR STORAGE BY THE CONTRACTOR IS LOCATED AT STATION 687+00-176.

SEE STORAGE AREA NOTE FOR ADDITIONAL INFORMATION.

LANE CLOSURE

1. NO MORE THAN ONE LANE IN EACH DIRECTION SHALL BE CLOSED AT ANY ONE TIME. AT LEAST TWO THROUGH LANES SHALL BE OPEN TO TRAFFIC IN EACH DIRECTION BETWEEN THE HOURS OF 7 A.M. TO 6 P.M. WORK ON THE OUTSIDE SHOULDER AND THE MEDIAN WILL NOT BE PERMITTED TO OCCUR SIMULTANEOUSLY IN THE SAME AREA.
2. ONCE WORK IS BEGUN IN THE MEDIAN, THE CONTRACTOR SHALL VIGOROUSLY PURSUE THIS PORTION OF THE IMPROVEMENT IN AN EFFORT TO MINIMIZE INCONVENIENCE TO THE TRAVELING PUBLIC. DURING THIS PHASE OF WORK, A MAXIMUM OF 1000 FEET OF MEDIAN CAN REMAIN OPEN WITHOUT THE PROTECTION OF THE EXISTING GUARDRAIL OR THE INSTALLATION OF NEW CONCRETE BARRIER MEDIAN.

THE PORTION OF MEDIAN EXPOSED SHALL BE PROTECTED, BEFORE OPENING THE LANES TO TRAFFIC BY STEEL DRUMS CLOSELY SPACED AND PHYSICALLY RESTRAINED BY A SUITABLE DEVICE APPROVED BY THE ENGINEER TO PREVENT SCATTERING WHEN STRUCK BY A VEHICLE.

3. WHEN LANE CLOSURE IS IN EFFECT (OUTSIDE THE HOURS OF 7 A.M. - 6 P.M.), THE CONTRACTOR WILL TEMPORARILY CLOSE ON-RAMPS WITHIN THE LIMITS OF ACTIVE CONSTRUCTION IN AN EFFORT TO MINIMIZE TRAFFIC CONGESTION. THE CITY WILL BE RESPONSIBLE FOR THE ERECTION OF TEMPORARY SIGNS ON SURFACE STREETS ADVISING MOTORISTS OF ALTERNATE ROUTES DURING THE TIME RAMP CLOSURES ARE IN EFFECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE ERECTION AND REMOVAL OF BARRICADES ON THE ON-RAMPS WHICH ARE TEMPORARILY CLOSED. THE TRAFFIC SAFETY COORDINATOR SHALL NOTIFY THE CITY 48 HOURS PRIOR TO THE TIME THE TEMPORARY RAMP CLOSURE IS TO TAKE PLACE.

4. THE CONTRACTOR SHALL SO ARRANGE HIS SCHEDULE, THAT NO LANE RESTRICTIONS BETWEEN THE STRUCTURE OVER INDIAN STREET AND THE EAST TERMINAL OF THE PROJECT WILL OCCUR BETWEEN NOVEMBER 15 AND APRIL 15 OF THE CALENDAR YEAR. DURING THIS PERIOD, ALL LANES ON I-76 ARE TO REMAIN OPEN AT ALL TIMES. (WORK MAY CONTINUE ON SR-8 AND I-77 DURING THIS PERIOD.) ANY PORTION OF THE MEDIAN NOT COMPLETED SHALL BE PROTECTED BY TEMPORARY BARRIER GUARDRAIL ERECTED ON BARRELS AT 12-FOOT CENTERS WEIGHED WITH SAID BARRIER AS DIRECTED BY THE ENGINEER. ATTACHMENT TO EXISTING GUARDRAIL OR CONCRETE MEDIAN SHALL BE MADE IN A SUITABLE FASHION APPROVED BY THE ENGINEER.
5. DURING THE LENGTH OF THE PROJECT, THE CONTRACTOR SHALL HAVE A QUALIFIED REPRESENTATIVE ON THE PROJECT CONTINUOUSLY TO MAINTAIN SIGNS AND WARNING DEVICES.
6. PERMANENT LANE RESTRICTION WILL BE PERMITTED ON THE NORTH LEG OF THE EXPRESSWAY IN ORDER TO ACCOMPLISH THE NECESSARY WIDENING AND STRUCTURE REPAVING AND IN THE VICINITY OF THE INDIAN STREET STRUCTURE WIDENING. THE CONTRACTOR SHALL REOPEN THE NORMAL LANE WIDTH AT THE EARLIEST OPPORTUNITY UPON COMPLETION OF THE STRUCTURE WIDENING.

STAGING AND STORAGE AREA

1. NO PRIVATE VEHICLES (BELONGING TO THE CONTRACTOR'S EMPLOYEES AND TO ODOT PERSONNEL PERMANENTLY ASSIGNED TO THE PROJECT) SHALL BE PARKED WITHIN THE L/A AND THE LIMITS OF THE HIGHWAY PROJECT. ALL PARKING WILL BE DONE AT THE APPROVED CONTRACTOR'S STAGING AREA. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING SHUTTLE VEHICLES TO TRANSPORT PERSONNEL FROM THE STAGING AREA TO THE WORK SITE.
2. AN APPROVED STAGING AREA IS LOCATED AT STATION 683 TO STATION 697+00. ADDITIONAL STAGING AREAS FOR THE STORAGE OF EQUIPMENT AND MATERIAL MUST HAVE PRIOR APPROVAL BY THE PROJECT ENGINEER AND THE CITY. A UNIFORMED OFFICER SHALL BE AVAILABLE TO ASSIST IN INGRESS AND EGRESS INTO THE STAGING AREA BY AUTHORIZED PERSONNEL.

PROTECTION OF WORK AREAS

1. OPEN TRENCHES SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS AND BARRICADES AT ALL TIMES. PLACEMENT OF BASE AND PAVEMENT SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND THE EXCAVATION OPERATION. THE LENGTH OF OPEN TRENCH SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.
2. A FLASHING ARROW BARRICADE, TC-35.10, SHALL BE USED FOR TRAFFIC CONTROL WHENEVER THERE IS A LANE RESTRICTION.
3. ALL TRAFFIC CONTROL DEVICES, WARNING AND INFORMATIONAL SIGNS REQUIRED INSIDE THE WORK LIMITS, EXCEPT REGULATORY SIGNS, SHALL BE FURNISHED, ERECTED AND MAINTAINED BY THE CONTRACTOR. ANY TEMPORARY SIGN COVERS REQUIRED DURING PERIODS OF THE PROJECT CONSTRUCTION SHALL BE FURNISHED AND PLACED BY THE CONTRACTOR. COST OF THIS TO BE INCLUDED IN PRICE BID OF ITEM 614, MAINTAINING TRAFFIC.
4. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL FLAGS, WATCHMEN, BARRICADES, TEMPORARY SIGN SUPPORTS AND INCIDENTALS RELATED THERETO AND SHALL BE UTILIZED IN CONFORMANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION.
5. THE TRAFFIC SAFETY COORDINATOR SHALL BE PROVIDED BY THE CONTRACTOR WITH THE NECESSARY EQUIPMENT TO CARRY OUT HIS ASSIGNED DUTIES.

MAINTENANCE OF TRAFFIC

SUM 76-11.57

PERMANENT RAMP CLOSURES

THE RAMP LISTS BELOW WILL BE PERMANENTLY CLOSED AS PART OF THIS PROJECT. THE CONTRACTOR SHALL ADVISE THE CITY AT LEAST SEVEN (7) DAYS PRIOR TO THE TIME THE RAMP IS TO BE CLOSED. THE CITY SHALL INFORM THE PROPER MEDIA AND SHALL PROVIDE SUGGESTED ALTERNATE ROUTES THAT MAY BE USED IN LIEU OF THE CLOSED RAMP. THE FOLLOWING RAMP IS TO BE CLOSED PERMANENTLY:

INMAN STREET	E-1	- ON-RAMP (EASTBOUND)
LUMIERE STREET	✓	- ON-RAMP (NORTHBOUND)
EXCHANGE STREET	U	- ON-RAMP (NORTHBOUND)
LOVERS LANE	S-2	- ON-RAMP (NORTHBOUND)

RAMP MODIFICATION

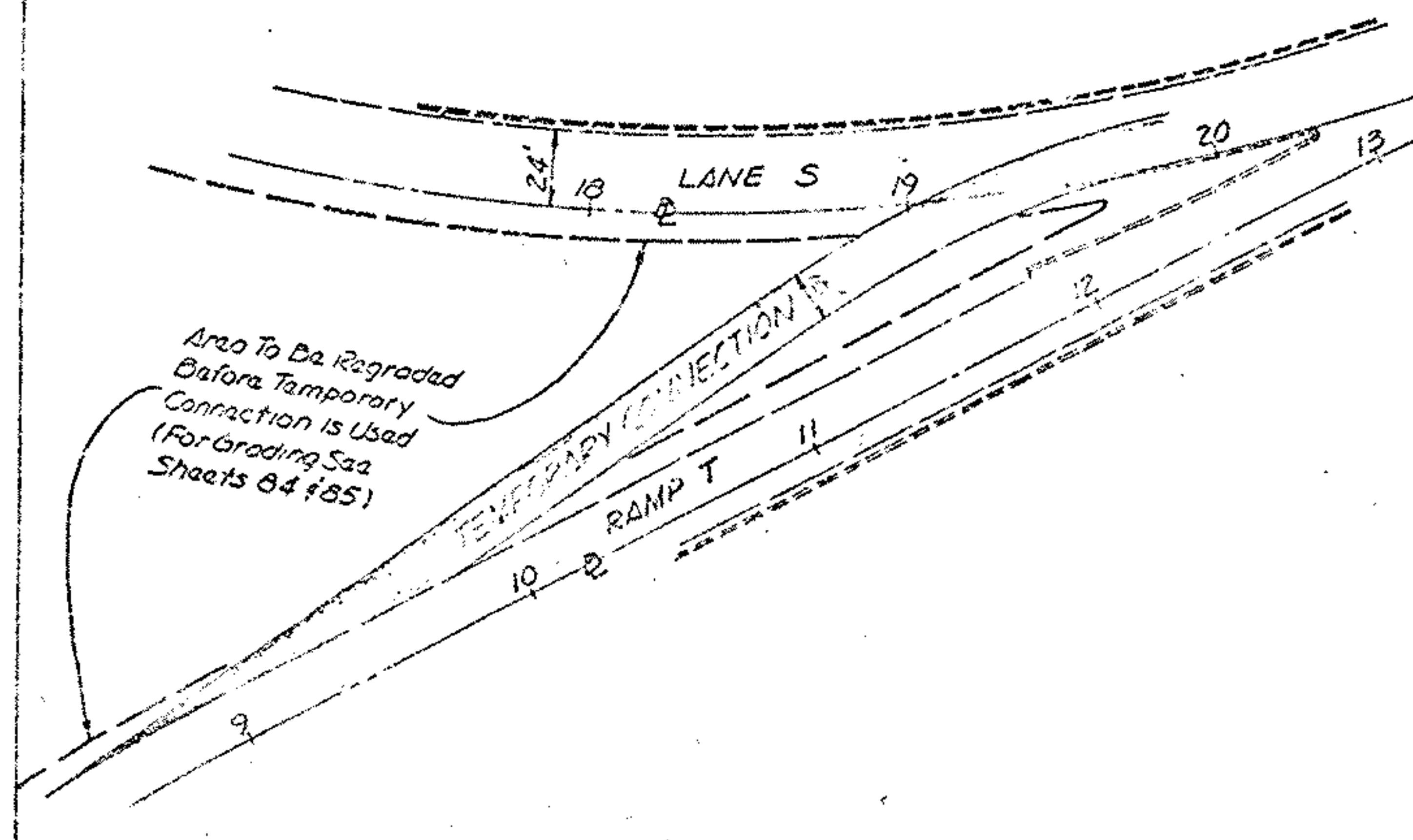
A NUMBER OF RAMP ARE TO BE MODIFIED EITHER BY WIDENING, EXTENSION OF ACCELERATION/DECELERATION LANES OR BY INSTALLATION OF MEDIAN. ALL OFF-RAMP, WHERE WORK OF THIS NATURE IS PROPOSED, SHALL REMAIN OPEN TO TRAFFIC AT ALL TIMES. AT LEAST ONE LANE WIDTH (16 FEET WIDE) SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION. USE OF THE EXISTING PAVED SHOULDER TO OBTAIN THE 16-FOOT LANE WIDTH WILL BE PERMITTED. TEMPORARY LANE LINES ARE TO BE PROVIDED AND MAINTAINED BY THE CONTRACTOR AS OUTLINED ELSEWHERE IN THESE NOTES.

A QUANTITY OF 404,350 C.Y. FOR MAINT. TRAFFIC IS PROVIDED TO MAINTAIN AND REPAIR THE EXISTING SHOULDERS IN AREAS OUTLINED ABOVE.

RAMP T - LANE S (FROM NORTHBOUND I-77 TO EASTBOUND I-76)

CONSTRUCTION OF THIS PHASE WILL REQUIRE THE MERGING OF EASTBOUND I-76 TRAFFIC, SOUTHBOUND TO EAST BOUND TRAFFIC AND NORTHBOUND TO EASTBOUND TRAFFIC INTO RESTRICTED LANE WIDTHS. TOTAL LANE WIDTHS AT THE INMAN STREET STRUCTURE WILL BE REDUCED TO 26 FEET FACE/FACE OF ANY OBSTRUCTION. TWO LANES ARE TO BE MAINTAINED OVER THE EXISTING STRUCTURE. THE FOLLOWING LANE TAPERS WILL BE DONE TO ACCOMPLISH THIS REDUCTION:

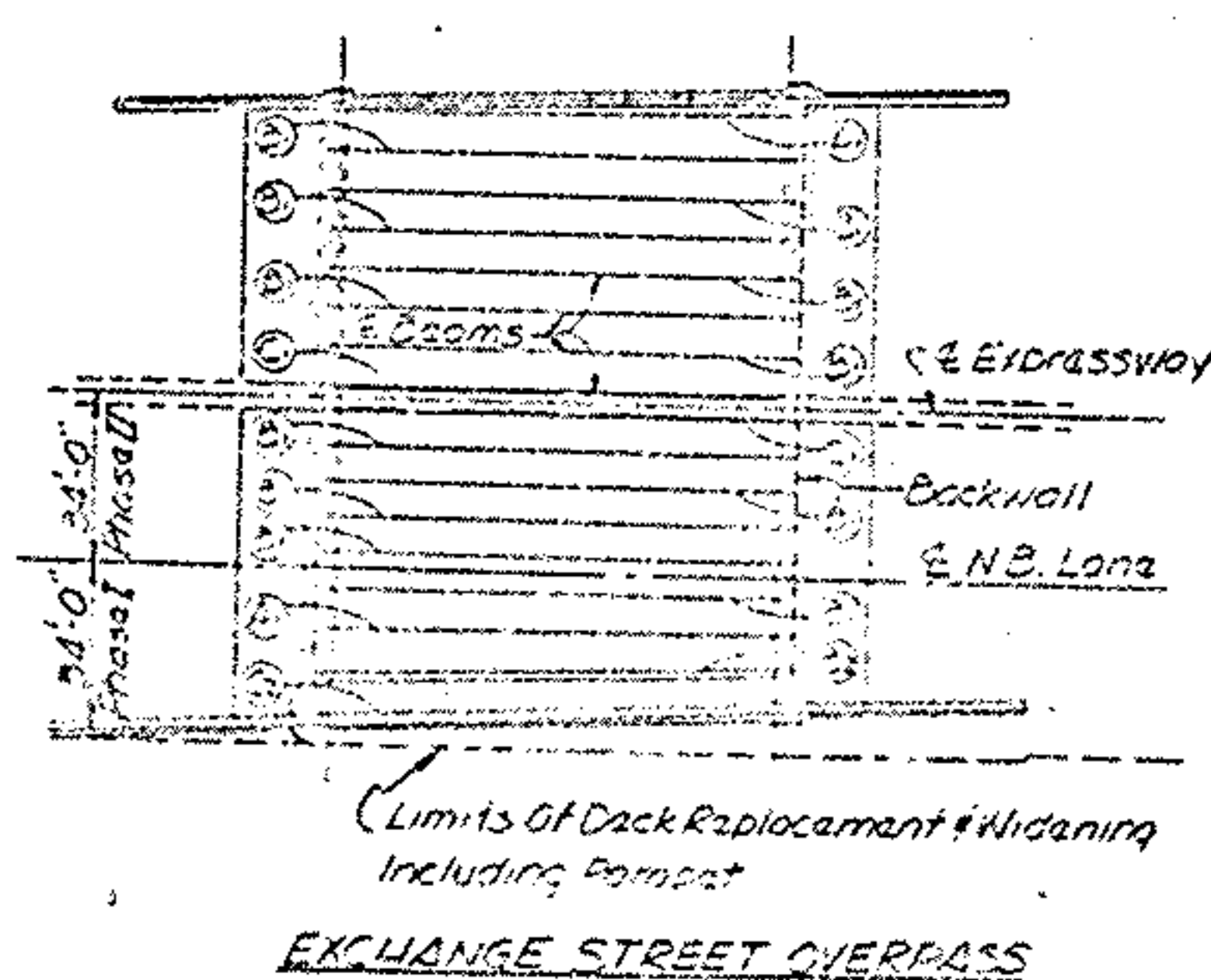
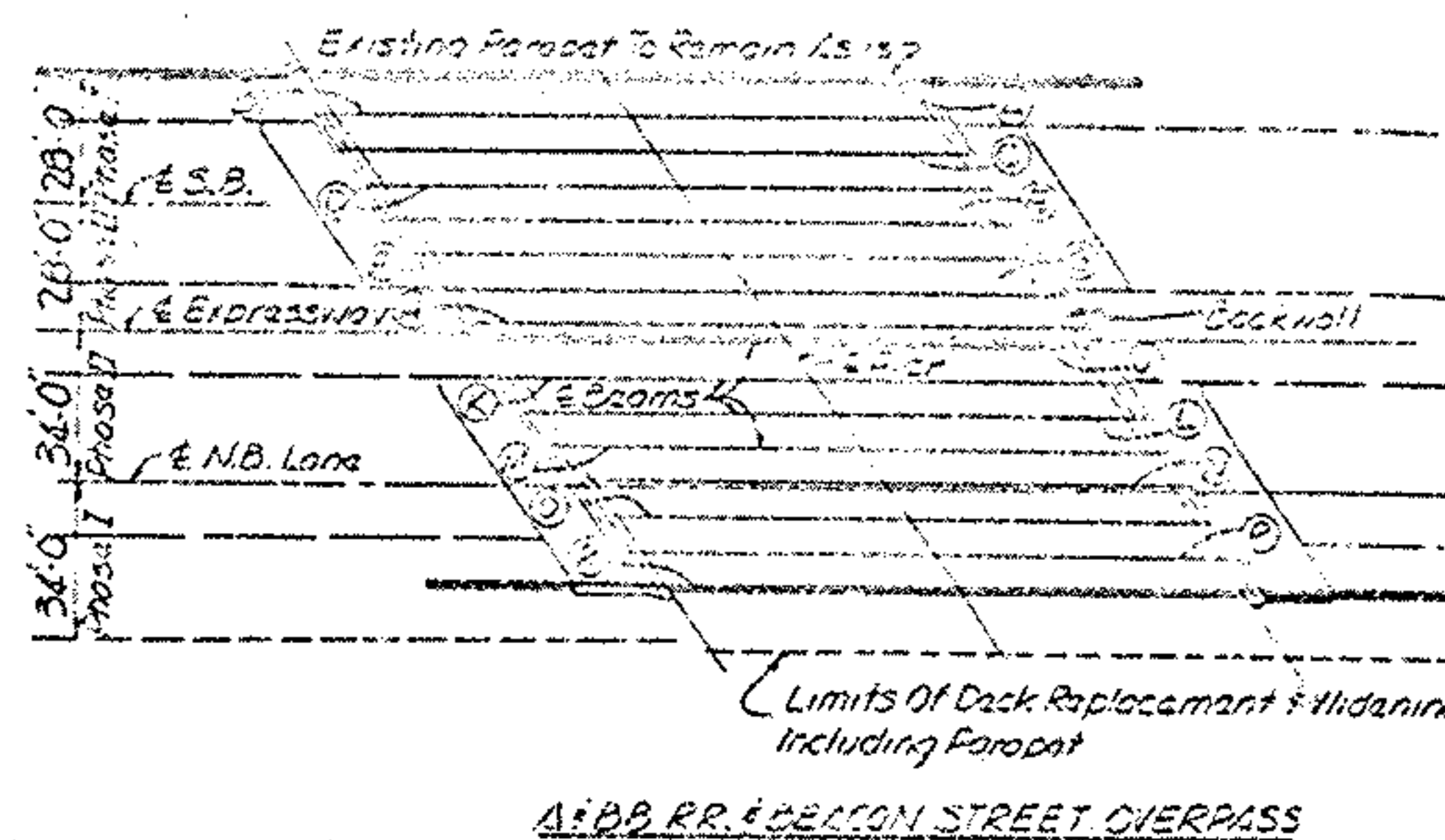
1. EASTBOUND I-76 WILL BE REDUCED TO ONE LANE (14 FEET) BEGINNING AT STATION 540+00 TO STATION 547+00
2. LANE S WILL BE REDUCED TO ONE LANE (14 FEET) BEGINNING AT STATION 7+00 TO STATION 18+00. THROUGH TRAFFIC WILL BE SHIFTED TOWARDS THE NORTH SIDE OF THE EXISTING PAVEMENT OF LANE S.
3. LANE S AND RAMP T WILL MERGE FROM TWO LANES TO ONE LANE FROM STATION 19+00 TO STATION 24+00 (LANE S STATIONING). IN ORDER TO ACCOMMODATE A MINIMUM TAPER, TEMPORARY PAVEMENT WILL FIRST BE CONSTRUCTED WHICH WILL REALIGN RAMP T INTERSECTION WITH LANE S PRIOR TO STATION 19+00 (LANE S STATIONING) AS INDICATED ELSEWHERE ON THE PLANS. ONCE TRAFFIC RESTRICTION IS STARTED IN THIS AREA, THE CONTRACTOR SHALL VIGOROUSLY PURSUE THE NECESSARY STRUCTURE AND LANE WIDENING TO COMPLETION AS QUICKLY AS POSSIBLE IN ORDER TO MINIMIZE THE INCONVENIENCE TO THE TRAVELING PUBLIC.



LANE U - S.R. 8 - EXCHANGE STREET TO INMAN STREET

ALL MAINTENANCE OF TRAFFIC NOTES SHOWN ABOVE SHALL APPLY TO LANE U - S.R. 8 WITH THE EXCEPTIONS AS SHOWN BELOW:

1. WIDENING OF LANE U AND WIDENING OF N.B. BEACON ST. AND N. Z. EXCHANGE ST. STRUCTURES TO BE CONSTRUCTED AT THE SAME TIME. TWO LANES OF TRAFFIC TO BE MAINTAINED AT ALL TIMES. SEE DRAWING SHOWING DETAILS FOR PAVEMENT LANES DURING STRUCTURE WIDENING.
2. WORK ON OUTSIDE LANES OF S.B. BEACON ST. STRUCTURE TO BE PERFORMED AT THE SAME TIME AS WORK ON OUTSIDE LANES (OR WIDENING) OF N.B. BEACON STREET STRUCTURE.
3. PERFORM WORK ON INSIDE LANES OF BEACON STREET (N.B. & S.B.) AND EXCHANGE ST. (N.B.) STRUCTURES.
4. DURING WORK ON BEACON STREET STRUCTURE, BEACON STREET MAY BE CLOSED TO THROUGH TRAFFIC. CONTRACTOR TO PROVIDE AND MAINTAIN ROAD CLOSED SIGNS AT THE INTERSECTIONS OF EXCHANGE & BEACON AND SPIDER & BEACON STREETS DURING ROAD CLOSURE.
5. DURING WORK ON EXCHANGE STREET STRUCTURE, TWO LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED ON EXCHANGE STREET. CONTRACTOR TO PROVIDE AND MAINTAIN TRAFFIC CONTROL ZONES AND ANY ASSOCIATED TEMPORARY PAVEMENT MARKING.
6. LOCAL VEHICLE AND PEDESTRIAN TRAFFIC TO BE MAINTAINED AT ALL TIMES.



MODIFICATION TO OVERHEAD SIGNING

DURING CONSTRUCTION OF THIS PROJECT, SOME MODIFICATIONS OF OVERHEAD SIGNS WILL BE REQUIRED (FOR EXAMPLE, DURING LANE REDUCTION OF E.B. I-76). IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE THE NECESSARY MODIFICATIONS AND WHEN NO LONGER NECESSARY, RETURN SIGNS TO ORIGINAL LEGACIES. COST OF ALL THE ABOVE TO BE INCLUDED WITH ITEM 614 MAINTAINING TRAFFIC.

CONTRACTOR WORK PLAN

THE TRAFFIC SAFETY COORDINATOR, PRIOR TO COMMENCING WORK ON THE PROJECT, SHALL REVIEW WITH PERSONNEL REPRESENTING ORDT, CONSTRUCTION, CITY AND ORDT DESIGN, HIS PROPOSAL ON MAINTAINING TRAFFIC, TAPER LOCATION AND LENGTH AND OTHER GENERAL MEASURES INCLUDING SAFETY OF WORKMEN AND THE TRAVELING PUBLIC.

BASIS OF PAYMENT

PAYMENT FOR ALL THE WORK SHOWN IN THE MAINTENANCE OF TRAFFIC SHALL BE AS PER ITEM 614, MAINTAINING TRAFFIC EXCEPT THOSE ITEMS AS INDICATED IN THE NOTES.

PROTECTION OF TRAFFIC UNDER OVERHEAD STRUCTURES

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ANY NECESSARY SAFETY EQUIPMENT TO PROTECT PEDESTRIAN OR VEHICULAR TRAFFIC FROM ANY WORK BEING DONE ON OVERHEAD STRUCTURES. COST OF THIS WORK TO BE INCLUDED WITH ITEM 614 MAINTAINING TRAFFIC.

PAYMENT

THE FOLLOWING ITEMS HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

	1	2	TOTAL
ITEM 614 - MAINTAINING TRAFFIC	LUMP	LUMP	LUMP SUM
ITEM SPEC. - PATROLMAN WITH PATROL CAR	1850 HRS	150 HRS	2000 HRS
ITEM SPEC. - PATROLMAN	450 HRS	50 HRS	500 HRS
ITEM 404 - BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	330 C.Y.	20 C.Y.	350 C.Y.
ITEM SPEC. TRAFFIC SAFETY COORDINATOR	LUMP	LUMP	LUMP

GENERAL SUMMARY

SUM-76-11.57
SUM-8-0.46

GENERAL SUMMARY

Rev. 2-18-92 SMK

GENERAL SUMMARY

DRAINAGE

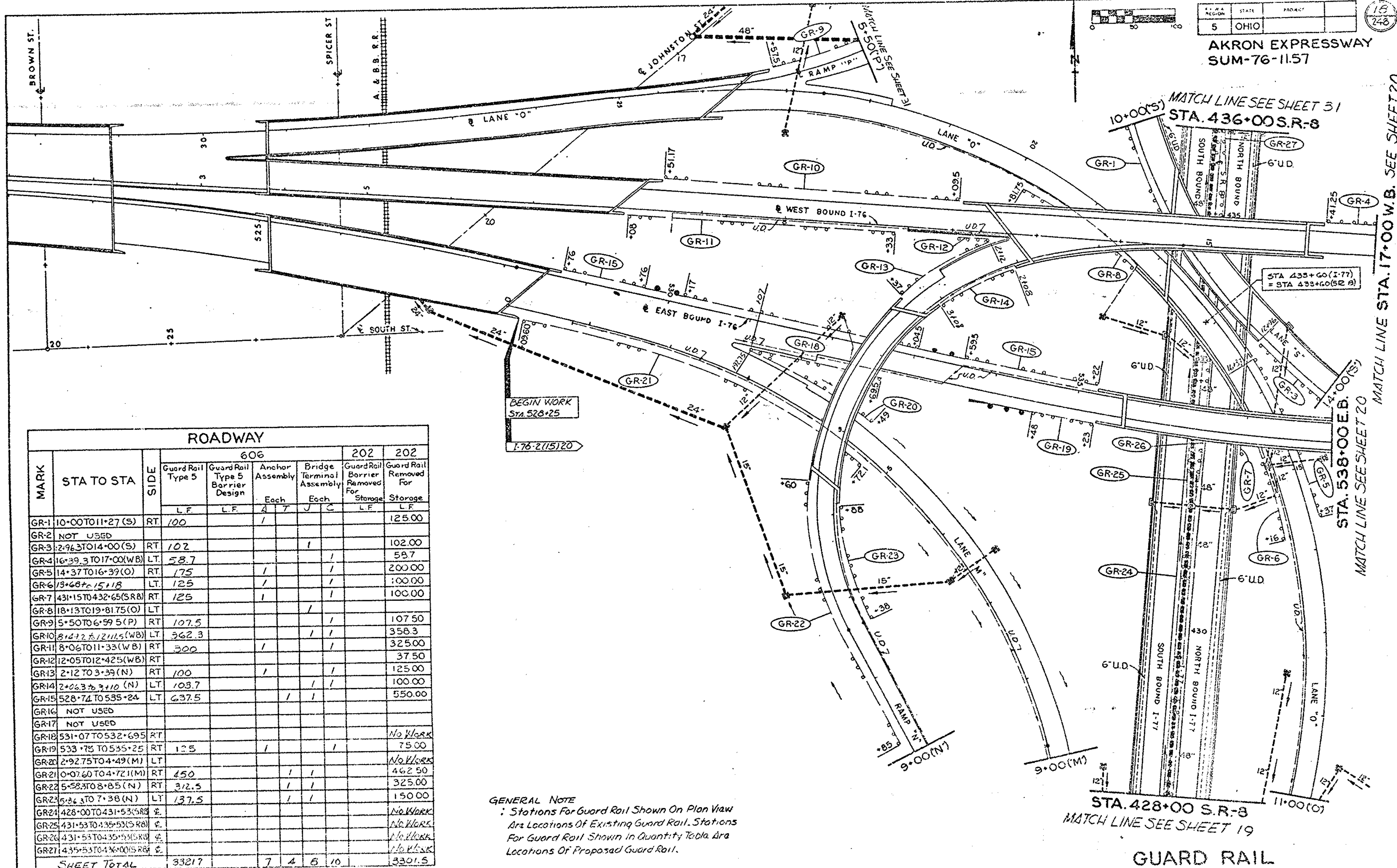
GENERAL SUMMARY

Rev. 2-18-82 SMK.

GENERAL SUMMARY

[illegible]

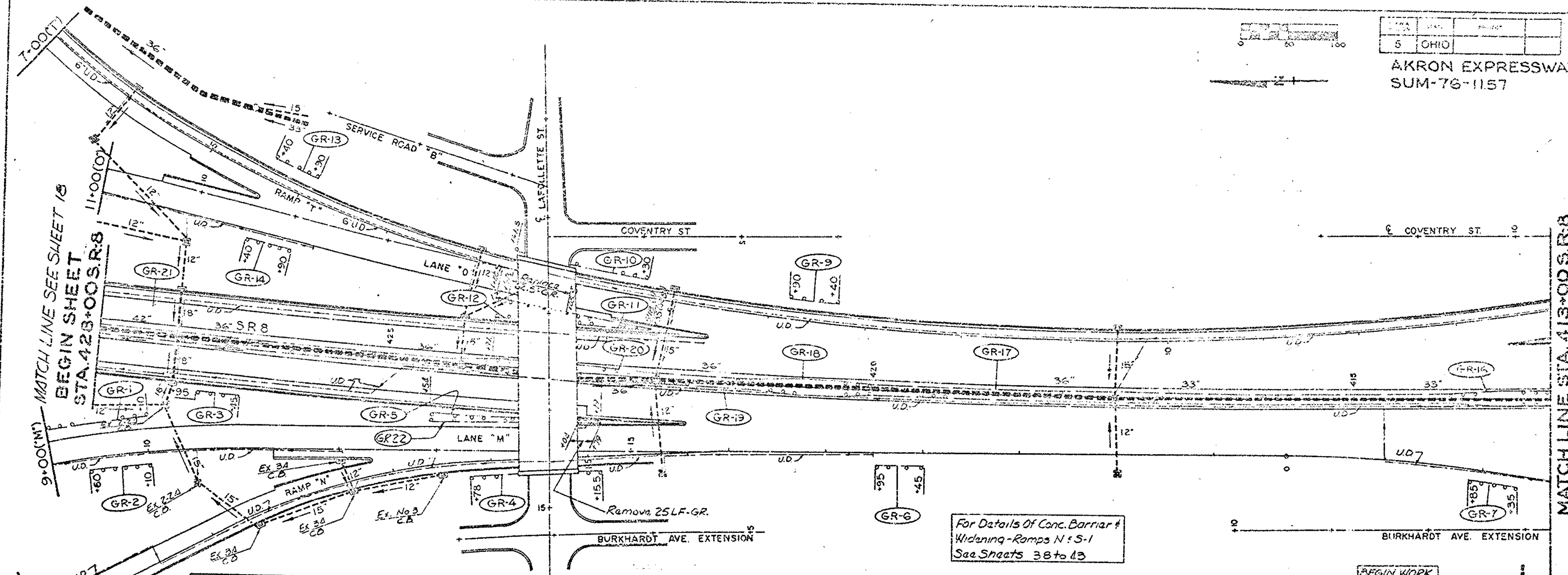
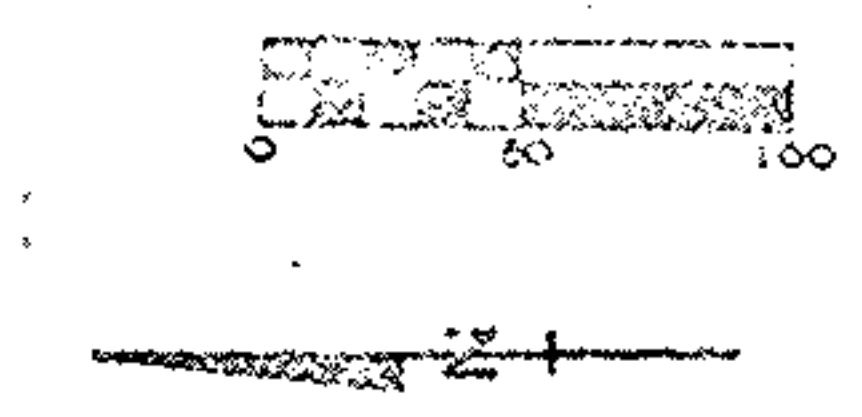
GENERAL SUMMARY



ROADWAY									
MARK	STA TO STA	SIDE	606				202		202
			Guard Rail Type 5	Guard Rail Type 5 Barrier Design	Anchor Assembly	Bridge Terminal Assembly	Guard Rail Barrier Removed For Storage	Guard Rail Removed For	
			LF	LF	Each	Each	LF	LF	
GR-1	10+00 TO 11+27 (S)	RT	100		/			125.00	
GR-2	NOT USED								
GR-3	2+96 TO 14+00 (S)	RT	102			/		102.00	
GR-4	16+39.3 TO 17+00 (WB)	LT	58.7			/		58.7	
GR-5	14+37 TO 16+39 (O)	RT	175		/	/		200.00	
GR-6	13+68 TO 15+18	LT	125		/	/		100.00	
GR-7	43+15 TO 43+65 (SRB)	RT	125		/	/		100.00	
GR-8	18+13 TO 19+81.75 (O)	LT				/			
GR-9	5+50 TO 6+59.5 (P)	RT	107.5			/		107.50	
GR-10	8+42 TO 12+11.5 (WB)	LT	362.3			/	/	358.3	
GR-11	8+06 TO 11+33 (WB)	RT	300		/	/		325.00	
GR-12	12+05 TO 12+42.5 (WB)	RT				/		37.50	
GR-13	2+12 TO 3+39 (N)	RT	100		/	/		125.00	
GR-14	2+06.3 TO 3+10 (N)	LT	103.7			/	/	100.00	
GR-15	528+74 TO 535+24	LT	637.5		/	/		550.00	
GR-16	NOT USED								
GR-17	NOT USED								
GR-18	531+07 TO 532+69.5	RT						No Work	
GR-19	533+73 TO 535+25	RT	125		/	/		75.00	
GR-20	2+92.75 TO 4+49 (M)	LT						No Work	
GR-21	0+07.60 TO 4+72.1 (M)	RT	450		/	/		462.50	
GR-22	5+58 TO 8+85 (N)	RT	312.5		/	/		325.00	
GR-23	5+86.3 TO 7+38 (N)	LT	137.5		/	/		150.00	
GR-24	428+00 TO 431+53 (SRB)	E						No Work	
GR-25	431+53 TO 435+53 (SRB)	E						No Work	
GR-26	431+53 TO 435+53 (SRB)	E						No Work	
GR-27	435+53 TO 436+00 (SRB)	E						No Work	
SHEET TOTAL			3321.7		7	4	6	10	3301.5

GENERAL NOTE
 : Stations For Guard Rail Shown On Plan View
 Are Locations Of Existing Guard Rail. Stations
 For Guard Rail Shown In Quantity Table Are
 Locations Of Proposed Guard Rail.

522+00 E.B. TO STA. 538+00 E.B.



MATCH LINE SEE SHEET 18
BEGIN SHEET
STA. 423+00 S.R. 8

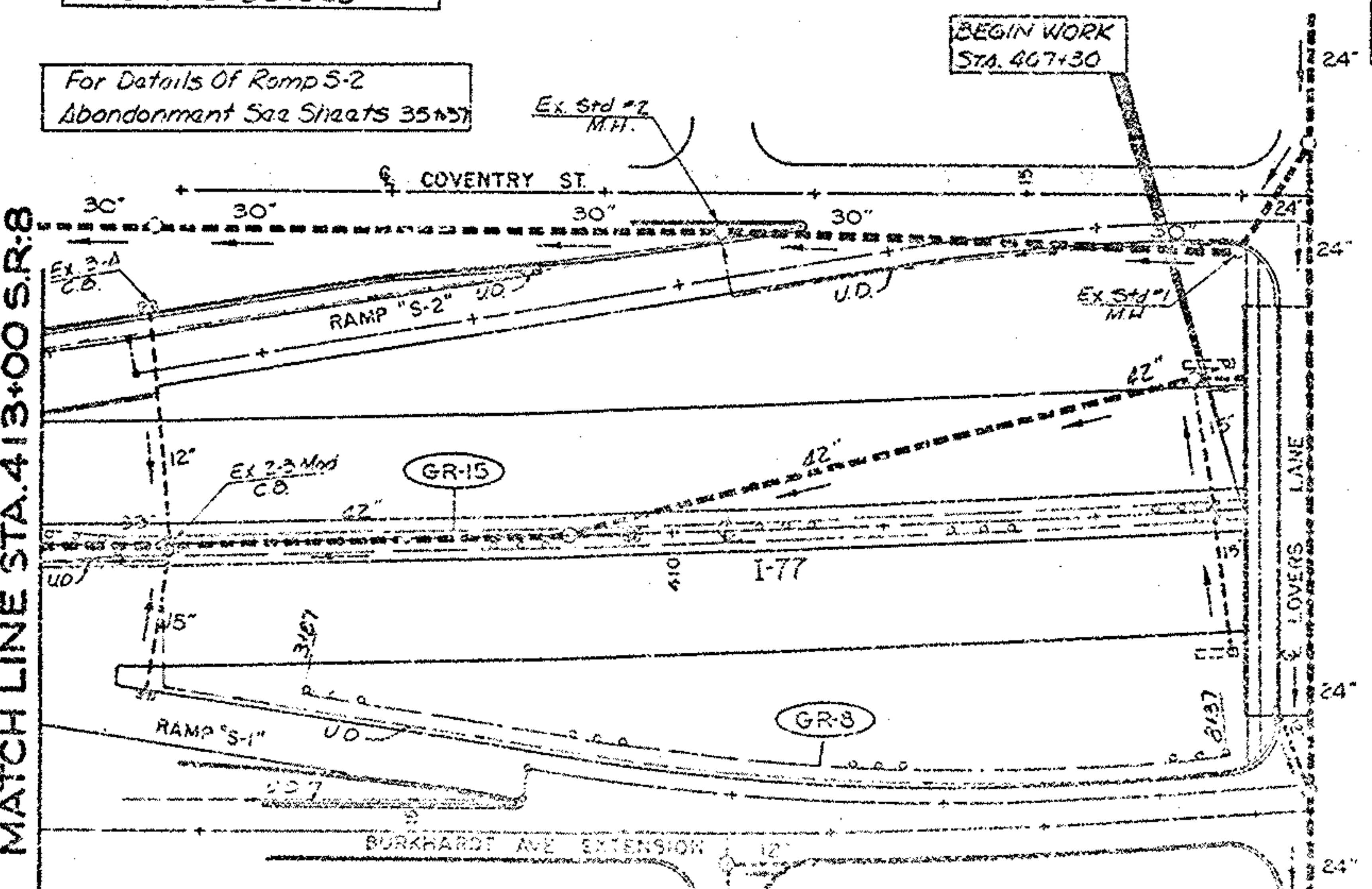
MATCH LINE STA. 413+00 S.R. 8

For Details Of Conc. Barrier &
Widening-Ramps N 5-1
See Sheets 38 to 43

For Details Of Ramp S-2
Abandonment See Sheets 35 to 37

BEGIN WORK
STA. 467+30

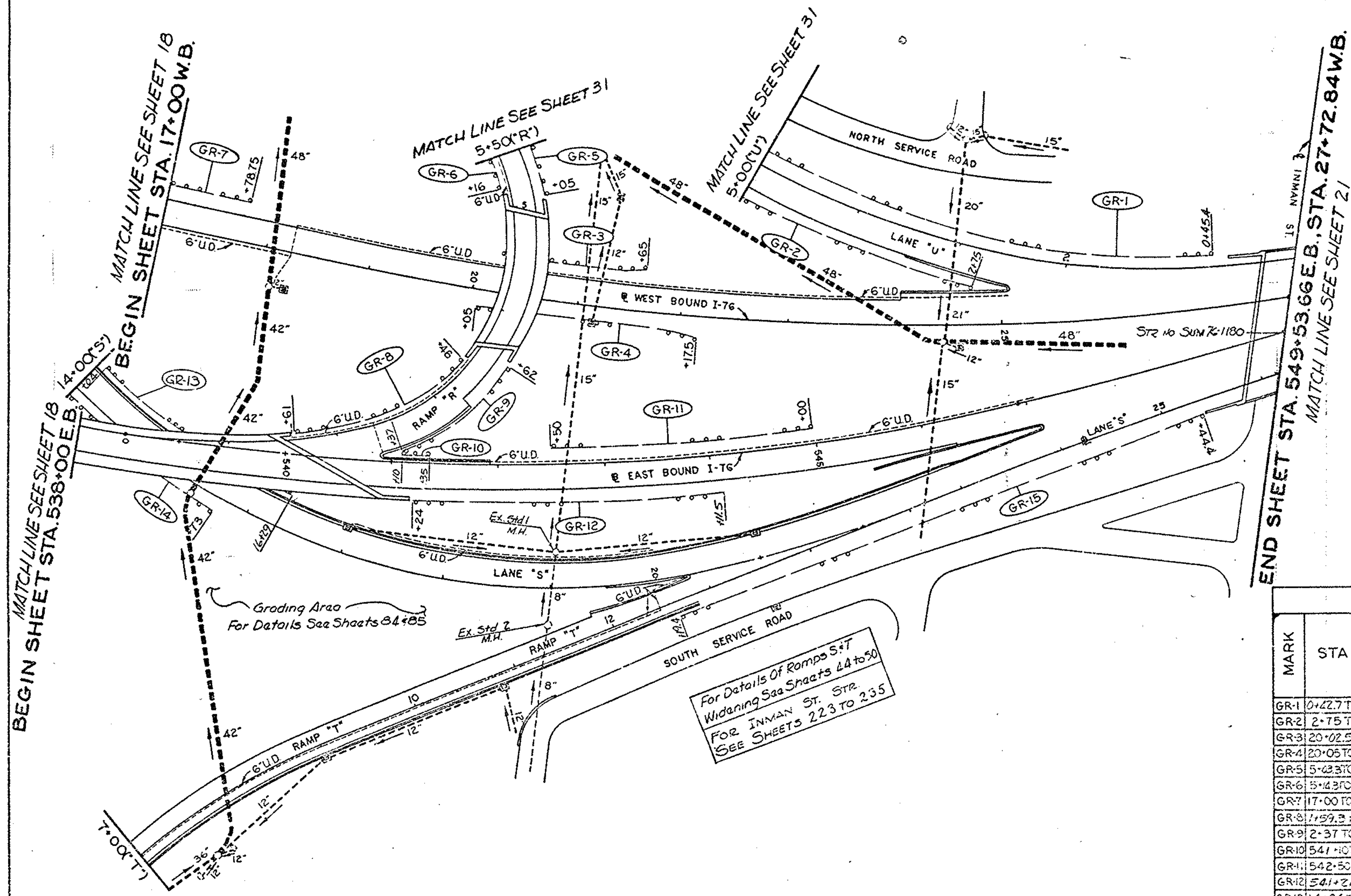
MATCH LINE STA. 413+00 S.R. 8



GUARD RAIL

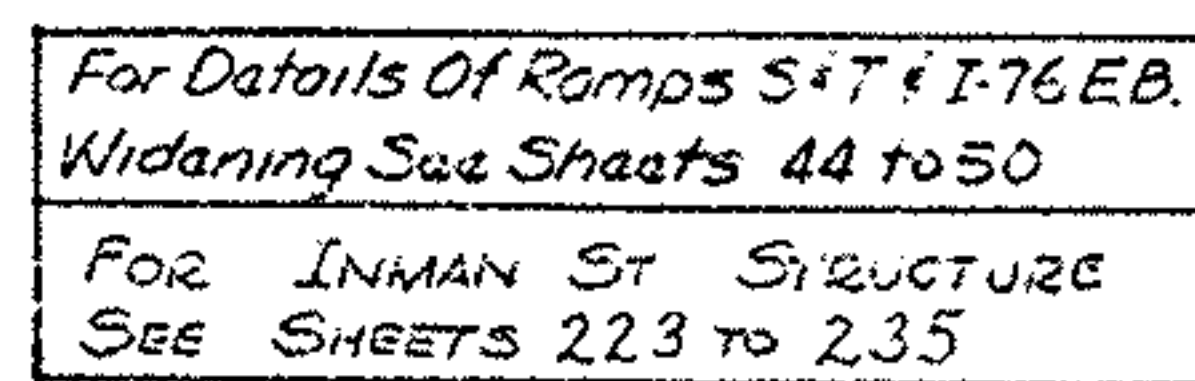
STA. 428+00 S.R. 8 TO STA. 407+00 S.R. 8

ROADWAY									
MARK	STA TO STA	SIDE	606				202		202
			Guard Rail Type 5	Guard Rail Type 5 Barrier Design	Anchor Assembly	Bridge Terminal Assembly	Guard Rail Barrier Removed For	Guard Rail Removed For	
			LF	LF	Each	Each	Storage	Storage	
GR-1	8+75 to 10+37.5	LT	125		1	1		125	
GR-2	8+75 to 10+37.5	RT	125		1	1		50.00	
GR-3	426+45 to 426+95	LT						50.00	
GR-4	13+78 to 15+155(N)	RT	100		1	1		137.50	
GR-5	422+79 to 424+54(SR)	LT						No Work	
GR-6	49+12.5 to 420+175	LT	125		1	1		50.00	
GR-7	413+22.5 to 414+165	LT	125		1	1		50.00	
GR-8	3+87 to 6+37(S-1)	LT	412.5		1	1		450.00	
GR-9	419+60 to 421+72.5	RT	125		1	1		50.00	
GR-10	5+30 to 6+67.5(O)	RT	100		1	1		137.50	
GR-11	5+130 to 6+172.5(O)	LT	62.5					62.5	
GR-12	422+35 to 423+97(S-1)	RT						No Work	
GR-13	8+10 to 9+72.5(O)	RT	125		1	1		50.00	
GR-14	9+10 to 9+72.5(O)	LT	125		1	1		50.00	
GR-15	409+87 to 412+625(I-77)						275.00		
GR-16	412+625 to 414+00(I-77)							275.00	
GR-17	414+00 to 419+92(I-77)						592.00		
GR-18	419+92 to 421+21(S-1)							259.00	
GR-19	421+21 to 422+36(I-77)						114.50		
GR-20	422+36 to 424+36(I-77)							40.00	
GR-21	424+36 to 426+00(I-77)						364.00		
GR-22	426+00 to 428+00(I-77)							25	
SHEET TOTAL			1550		2	2	1025.5	2724.5	



For Details Of Ramps S+T
Widening See Sheets 44 to 50
FOR INMAN ST. STR.
SEE SHEETS 223 TO 235

ROADWAY								
MARK	STA TO STA	SIDE	606				202	202
			Guard Rail	Guard Rail	Anchor	Bridge	Guard Rail	Guard Rail
			Type 5	Type 5	Assembly	Terminal	Barrier	Barrier
			L.F.	L.F.	Each	Assembly	Removed	Removed
GR-1	0+22.7 TO 5+00(U)	RT	455.6					254.6
GR-2	2+75 TO 5+00(U)	LT	200					225.00
GR-3	20+02.5 TO 21+65(WB)	LT	12.5					162.5
GR-4	20+05 TO 22+17.5(WB)	RT	17.5					212.50
GR-5	5+03.7 TO 5+50(R)	RT	4.5					45.00
GR-6	5+43 TO 5+50(R)	LT	3.4					34.00
GR-7	17+00 TO 17+73.8(WB)	LT	53.8					78.8
GR-8	1+59.3 TO 3+48(R)	LT	18.5					185.00
GR-9	2+37 TO 3+64(R)	RT	100					125.00
GR-10	541+10 TO 541+35(EB)	LT						23.00
GR-11	542+50 TO 545+00(EB)	LT	212.5					250.00
GR-12	541+21 TO 544+10.5	RT	27.5					287.5
GR-13	14+04 TO 16+23(S)	LT	187.5					225.00
GR-14	14+00 TO 15+73(S)	RT	160.5					173.00
GR-15	20+20.4 TO 25+17.1(S)	RT	500					525.00
SHEET TOTAL			2708.9		2	13	4	3007.9



STA. 549+53 66E.B. TO STA. 574+00

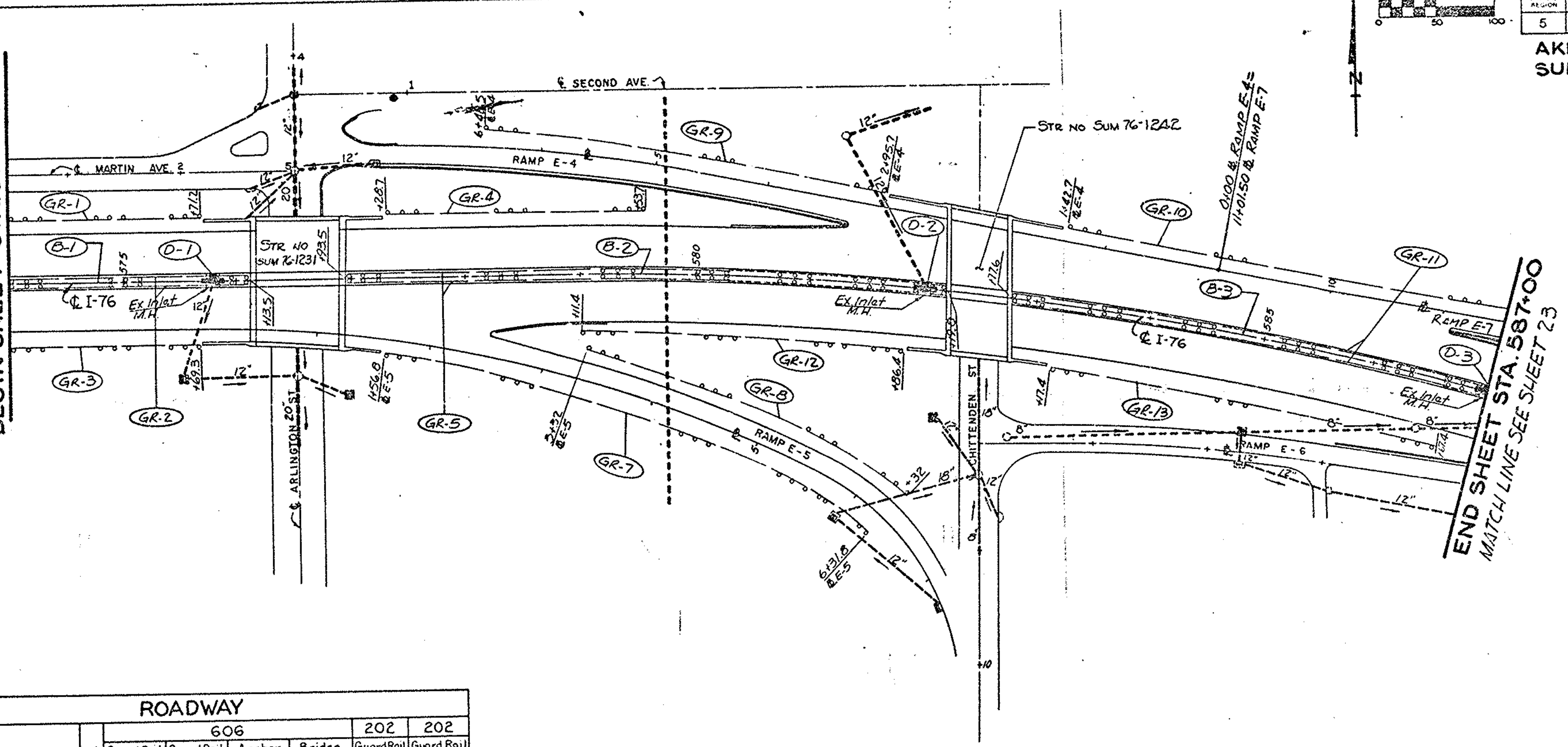


AREA	STATE	PROJECT
5	OHIO	

22
245

AKRON EXPRESSWAY
SUM-76-11.57

MATCH LINE SEE SHEET 21
BEGIN SHEET STA. 574+00

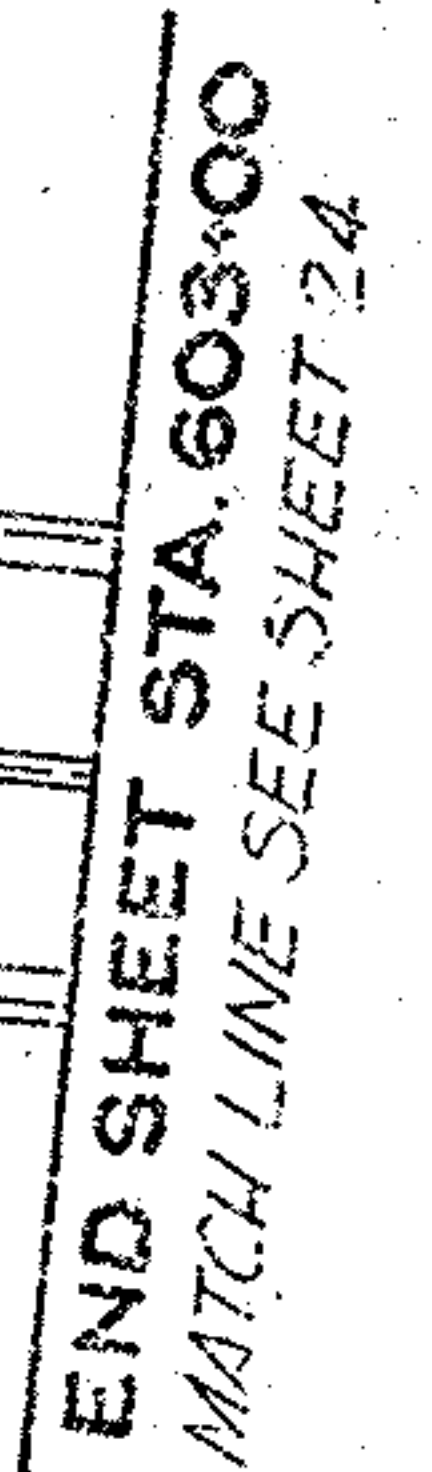


END SHEET STA. 587+00
MATCH LINE SEE SHEET 23

ROADWAY									
MARK	STA TO STA	SIDE	606				202		202
			Guard Rail Type 5	Guard Rail Type 5 Barrier Design	Anchor Assembly	Bridge Terminal Assembly	Guard Rail Barrier Removed	Guard Rail Removed For	
			LF	LF	Each	Each	Storage	Storage	
GR-1	574+00 to 575+73.9	Lt.	172.2			1			171.2
GR-2	574+00 to 576+13.5	Med					213.5		
GR-3	574+00 to 575+72	Rt.	170.3		1				169.3
GR-4	577+26 to 579+52.7	Lt.	200		1	1			225
GR-5	576+33.5 to 582+19.8	Med					526.3		
GR-7	454+1 to 6+30.8 (S)	Rt.	462.5			1			475
GR-8	4+95 to 6+32 (S)	Lt.	175		1	1			300
GR-9	2+73 to 6+44.7 (E)	Rt.	337.5			1			350
GR-10	1+45.4 (S) to 8+45.2 (S)	Rt.	400			1			399
GR-11	582+77.6 to 587+00	Med					422.4		
GR-12	577+62.4 to 581+32.1	Rt.	200		1	1			275
GR-13	585+14.7 to 586+46.4	Rt.	337.5		1	1			350
SHEET TOTAL			2455		4	4	3	4	1162.2
									2714.5

PAVEMENT				
MARK	STATION TO STATION	ITEM 622 CONC. BARRIER		
		TYPE	TYPE	TYPE
		LF	LF	LF
B-1	574+00 to 576+13.5	213.5		
B-2	576+33.5 to 582+19.8	526.3		
B-3	582+77.6 to 587+00	422.4		
DEDUCTIONS		90		
SHEET TOTAL		1072.2		

DRAINAGE			
MARK	STATION TO STATION	604	
		1-38 Median Inlet Each	
D-1	575+80	1	
D-2	582+00	1	
D-3	587+00	1	
SHEET TOTAL		3	



STA. 587+00 TO STA. 603+00



5	0-10	PROJECT
---	------	---------

24
248

AKRON EXPRESSWAY
SUM-76-11.57

ROADWAY									
MARK	STA TO STA	SIDE	606				202		202
			Guard Rail Type 5	Guard Rail Type 5 Barrier Design	Anchor Assembly	Bridge Terminal Assembly	Guard Rail Barrier Removed	Guard Rail Barrier Removed For	
			L.F.	L.F.	Each	Each	Storage	Storage	
GR-1	600+79.6 to 610+12.9	Lt	107.9						104.7
GR-2	603+68.8 to 610+21.9	Med						213.1	
GR-3	609+21.5 to 610+16.2	Rt	50		1	1			75
GR-5	2180 to 4+61.2 (5)	Rt	175						187.5
GR-6	3113 to 4+13.8 (5)	Lt	87.5		1	1			125
GR-7	2+44.5 to 5+46.2 (3)	Rt	175		1	1			200
GR-8	614+54.2 to 617+2.4	Lt	250			1			162.5
GR-9	611+55.5 to 617+50.3	Med						394.8	
GR-10	615+13.8 to 617+55.5	Rt	175		1	1			300
GR-11	1+70.8 to 2+140 (5)	Rt	75						87.5
GR-12	6100 to 8+30 (12)	Rt	212.5		1	1			250
SHEET TOTAL			1307.9		5	5	1	3	4
							807.9		1492.2

DRAINAGE			
MARK	STATION TO STATION	604 I-30 Median Inlet Each	
D-1	610+35	1	
D-2	612+75	1	
D-3	617+75	1	
SHEET TOTAL		3	

PAVEMENT					
M A R K	STATION TO STATION	ITEM 622 CONC. BARRIER			
		TYPE	TYPE	TYPE	TYPE
		L.F.	L.F.	L.F.	L.F.
B-1	603+68.8 to 610+81.9	212.1			
B-2	611+55.5 to 617+50.3	592.8			
DEDUCTIONS		92.5			
SHEET TOTAL		712.4			

* As Per Plan

MATCH LINE SEE SHEET 23
BEGIN SHEET STA. 603+00

END SHEET 618+00
MATCH LINE SEE SHEET 25

CONCRETE BARRIER : GUARD RAIL

STA 603+00 TO STA. 618+00

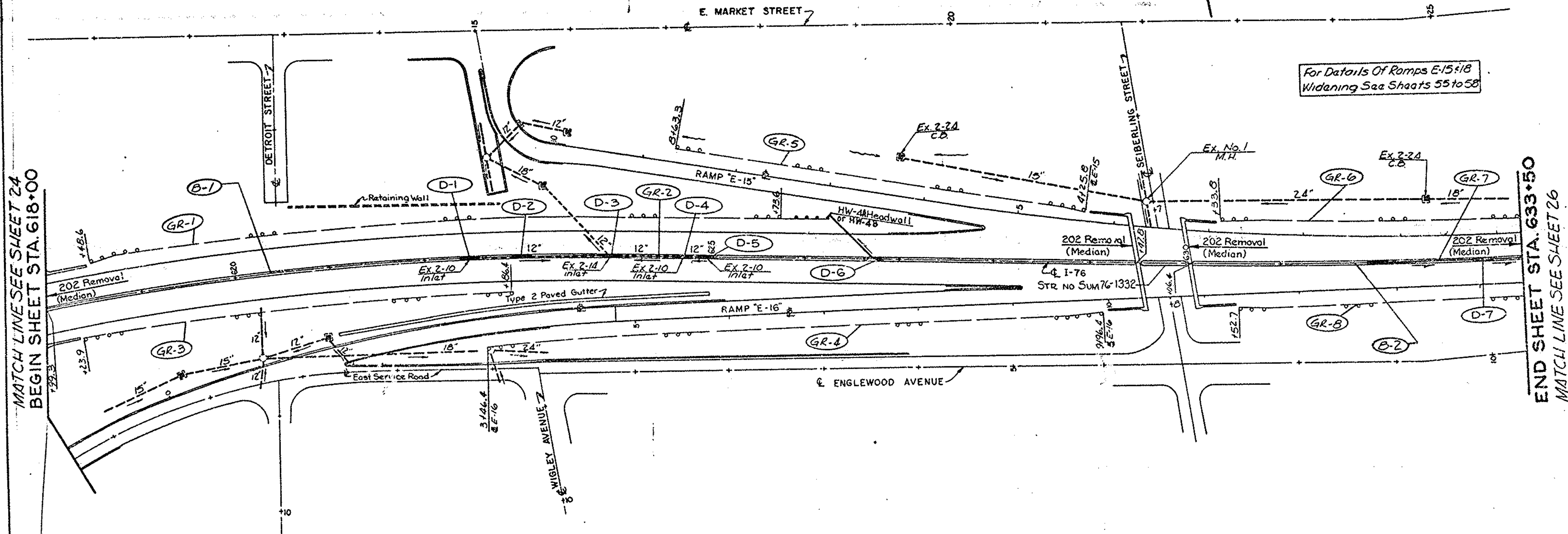


FED. AID REGION	STATE	PROJECT
5	OHIO	

25
248

AKRON EXPRESSWAY
SUM-76-11.57

For Details Of Ramps E-15+18
Widening See Sheets 55 to 58



ROADWAY

MARK	STA TO STA	SIDE	606				202	202
			Guard Rail Type 5	Guard Rail Type 5 Barrier Design	Anchor Assembly	Bridge Terminal Assembly	Guard Rail Barrier Removed For Storage	Guard Rail Removed For Storage
			LF	LF	Each	Each	LF	LF
GR-1	618+45.7 to 626+22.6	LT	75.0		1	1		72.5
GR-2	617+77.3 to 624+18.3	Med					1148.5	
GR-3	618+12.3 to 622+185.4	RT	45.0		1	1		442.5
GR-4	6147.4 to 6177.1 (1/2)	RT	62.5		1	1		65.0
GR-5	6123.1 to 6142.3 (1/2)	RT	42.5					437.5
GR-6	630+31.1 to 633+15.0	LT	317.2			1		316.2
GR-7	630+16.4 to 633+15.0	Med					343.6	
GR-8	630+51.1 to 633+15.0	RT	297.3					217.3
SHEET TOTAL			2864.5		2	2	3	1492.1
								2688.5

PAVEMENT

MARK	STATION TO STATION	ITEM 622 CONC. BARRIER			
		TYPE	TYPE	TYPE	TYPE
		LF	TYPE D-50 MPA LF	LF	LF
D-1	617+99.3 to 629+47.8		1148.5		
D-2	630+06.4 to 633+10.0		292.6		
DEDUCTIONS			187.5		
SHEET TOTAL			1254.6		

* As Per Plan

DRAINAGE

MARK	STATION TO STATION	603	604	603	602
		12" Conduit Type B LF	1-30 Median Inlet Each	12" Conduit Type B As Per Plan	Conc. Masonry C.Y.
D-1	622+50		1		
D-2	623+00		1		
D-3	624+00		1		
D-4	624+75		1		
D-5	625+00		1		
D-6	626+25 to 626+75		1	68	0.20
D-7	632+00 to 633+50	150	2		
SHEET TOTAL		150	8	68	0.20

For Drainage Profiles
See Sheet 27.4

CONCRETE BARRIER & GUARD RAIL

STA. 618+00 TO STA. 633+50

MATCH LINE SEE SHEET 25 STA. 633+50

For Details Of Ramps E-15 & E-18
Widening See Sheets 55 to 58

For T-Connection
And Storm Sewer
See Sheet 58-874

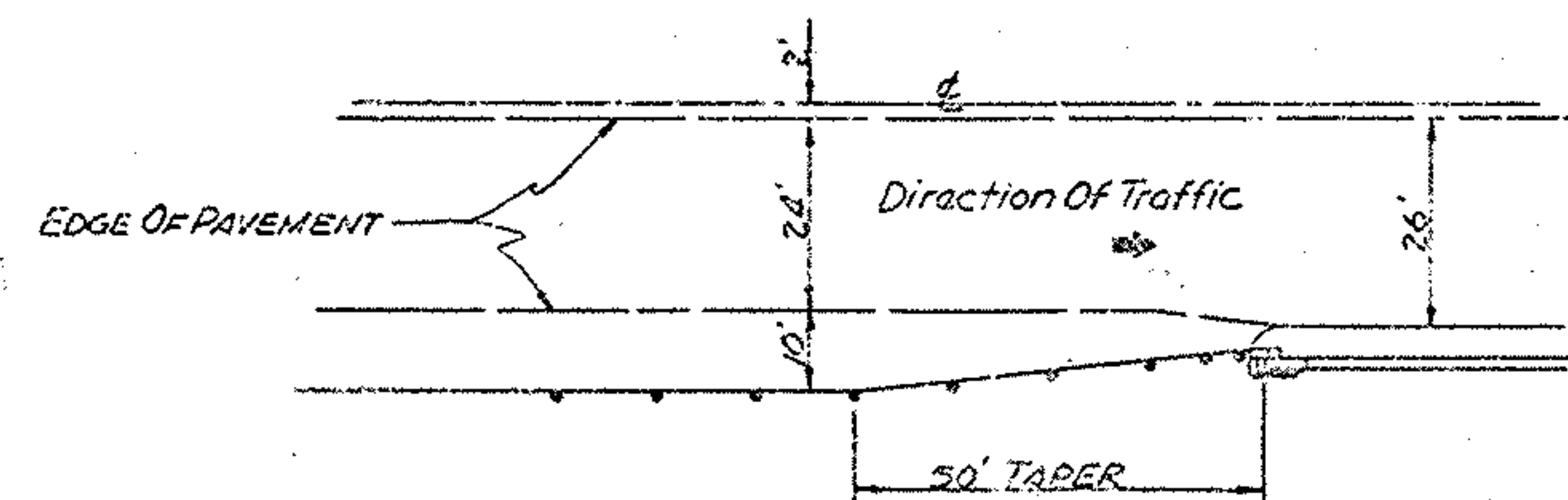
END SHEET STA. 649+00
MATCH LINE SEE SHEET 27

DRAINAGE				
MARK	STATION TO STATION	603	604	603
		12" Conduit Type B LF	1-30" Median Inlet Each	12" Conduit Type B As Per Plan LF
D-1	633+50 To 634+20	70	1	
D-2	634+20 To 635+30	110	2	
D-3	636+50 To 637+25	75	1	
D-4	637+25 To 638+00	75	2	
D-5	638+50		1	
D-6	639+50		1	
D-7	641+50		1	36
D-8	643+00 To 643+75	75	3	
SHEET TOTAL		405	12	36

ROADWAY									
MARK	STA TO STA	SIDE	606				202		202
			Guard Rail Type 5	Guard Rail Type 5 Barrier Design	Anchor Assembly	Bridge Terminal Assembly	Guard Rail Barrier Removed For Storage	Guard Rail Barrier Removed For	
			LF	LF	Each	Each	LF	LF	
GR-1	633+50 To 635+07.8	LT	132.8		1				246.3
GR-2	633+50 To 647+60	LT					1410		
GR-3	647+60 To 648+5 (5)	RT	27.5		1	1			312.5
GR-4	649+0 To 649+190 (19)	LT	62.5		1	1			100
GR-5	646+5 To 646+5 (12)	LT	162.5		1	1			200
GR-6	644+175.1 To 647+219	LT	212.5				1		225
GR-7	640+185 To 647+49.2	RT	612.5		1	1			637.5
GR-8	633+50 To 642+40.2	RT	477.7		1				252.7
SHEET TOTAL			1935.5		5	5	1	1	1410
									1974

PAVEMENT					
MARK	STATION TO STATION	ITEM 622 CONC. BARRIER			
		TYPE	TYPE	TYPE	TYPE
B-1	633+50 To 647+60	1410	LF	LF	LF
DEDUCTIONS		267.5			
SHEET TOTAL		1142.5			

For Drainage Profiles,
See Sheet 874

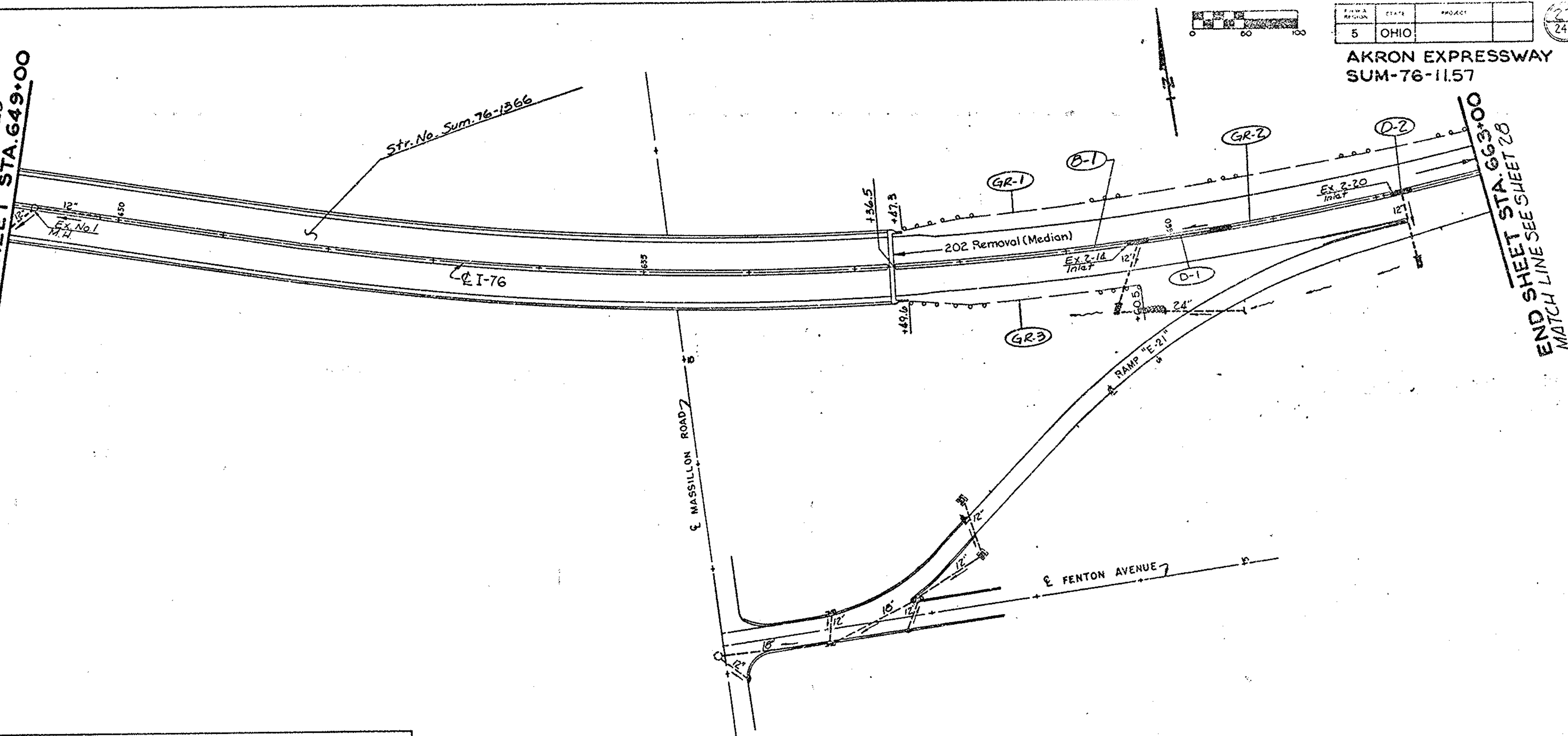


TYPICAL GUARD RAIL TAPER AT
STRUCTURE NOS. SUM 76-1277 & SUM 76-1366

CONCRETE BARRIER & GUARD RAIL

STA. 633+50 TO STA. 649+00

MATCH LINE SEE SHEET 26
BEGIN SHEET STA. 649+00



ROADWAY									
MARK	STA TO STA	SIDE	606				202		202
			Guard Rail Type 5	Guard Rail Type 5 Barrier Design	Anchor Assembly	Bridge Terminal Assembly	Guard Rail Barrier Removed For Storage	Guard Rail Removed For Storage	
			L.F.	L.F.	Each	Each	L.F.	L.F.	
GR-1	657+10.4 to 663+00	LT	554.9			1		552.7	
GR-2	657+26.5 to 663+00	MD					563.5		
GR-3	657+48.6 to 659+41.1		200		1	1		212.5	
SHEET TOTAL			754.9		1	1	563.5	765.2	

PAVEMENT					
MARK	STATION TO STATION	ITEM 622 CONC. BARRIER			
		TYPE	TYPE	TYPE	TYPE
		L.F.	L.F.	L.F.	L.F.
B-1	657+12.5 to 663+00	263.5			
REDUCTIONS		65			
SHEET TOTAL		498.5			

* As Per Plan

DRAINAGE			
MARK	STATION TO STATION	603	604
		12" Conduit Type B L.F.	1-30" Median Inlet Each
D-1	659+69 to 660+50	81	2
D-2	662+25		1
SHEET TOTAL		81	3

For Drainage Profiles See Sheet 87-A

CONCRETE BARRIER & GUARD RAIL
STA. 649+00 TO STA. 663+00



DATE	PROJECT
5 C-0	

25
242

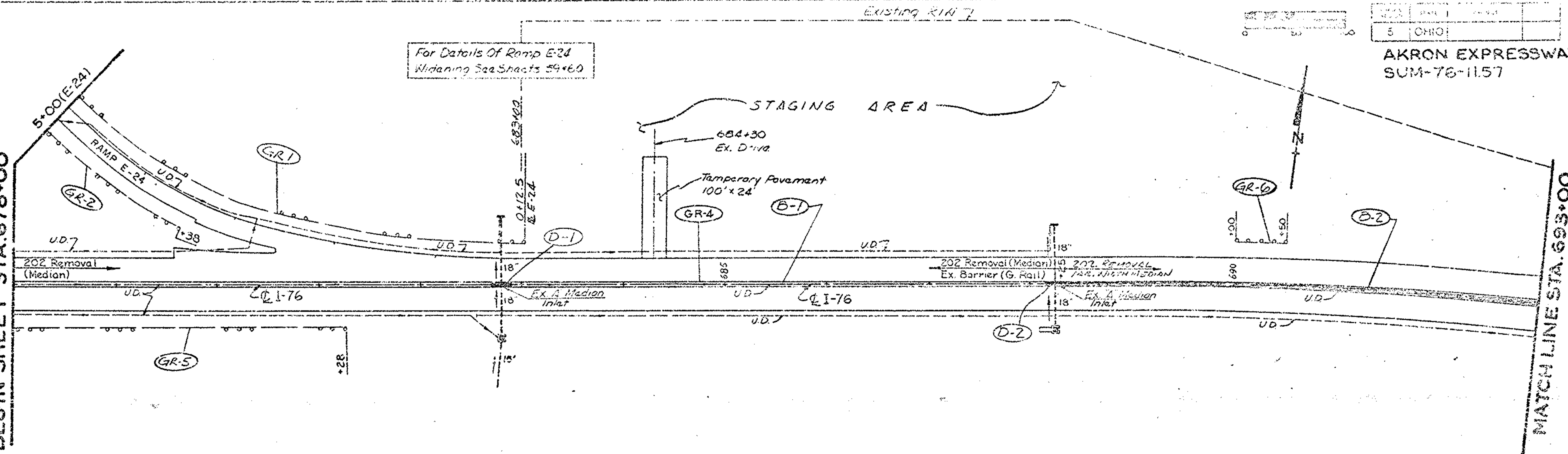
AKRON EXPRESSWAY SUM-76-11.57

MATCH LINE SEE SHEET 27
BEGIN SHEET STA. 663+00

END SHEET STA. 678+00
MATCH LINE SEE SHEET 29

ROADWAY												
MARK	STA TO STA	SIDE	606						202	202		
			Guard Rail Type 5	Guard Rail Type 5 Barrier Design	Anchor Assembly		Fridge Terminal Assembly	Guard Rail Barrier Removed For	Guard Rail Barrier Removed For			
			L.F.	L.F.	Each	Each	Storage	Storage				
					4	7	Barr.	4	J	L.F.	L.F.	
GR-1	663+00 to 668+08.4	LT	506.7						1			505.7
GR-2	663+00 to 669+85.6	LT									685.6	
GR-3	668+67.5 to 670+31.7	RT	137.5		1			1				137.5
GR-4	663+41.5 to 671+59.1	RT	575		1	1						612.5
GR-5	5+00 to 14+00	RT	887.5		1							900
GR-6	7+85 to 12+85	LT	262.5		1	1						300
GR-7	2+05 to 3+30	LT	37.5		1	1						125
GR-8	671+54 to 673+60.7	LT	238.5					1	1			236.5
GR-9	671+54 to 673+96.3	LT									242.3	
GR-10	673+40.3 to 673+16.1	RT	47					1	1			45
GR-11	8+03.7 to 10+45.1	RT	175		1			1				737.5
GR-12	5+02 to 6+63	LT										163
GR-13	674+27.8 to 678+00	LT									360.2	
GR-14	674+27.8 to 675+00	RT	323					1				322
SHEET TOTAL			3240.2		5	6		6	4	1288.1	4024.7	

MATCH LINE SEE SHEET 28
BEGIN SHEET STA. 678+00



AKRON EXPRESSWAY
SUM-76-1157

MATCH LINE STA. 693+00

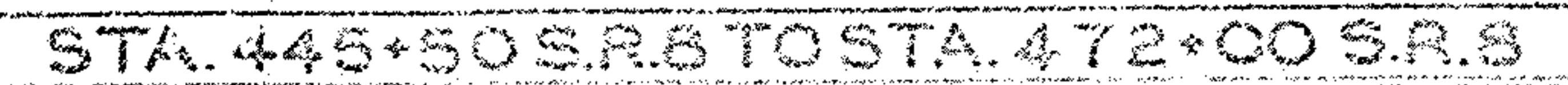
END SHEET STA. 708+00
MATCH LINE SEE SHEET 30

PAVEMENT					
MARK	STATION TO STATION	ITEM 622 CONC. BARRIER			
		TYPE	TYPE	TYPE	TYPE
		B-50	B-50	L.F.	L.F.
		Mod.	L.F.	L.F.	L.F.
B-1	678+00 to 688+25	1025			
B-2	688+25 to 708+00		1975		
	REDUCTIONS	575	975		
	SHEET TOTAL	9875	1975		

ROADWAY									
MARK	STA TO STA	SIDE	606				202		202
			Guard Rail Type S	Guard Rail Type S Barrier Design	Anchor Assembly	Bridge Terminal Assembly	Guard Rail Barrier Removed For Storage	Guard Rail Barrier Removed For Storage	
			L.F.	L.F.	Each	Each	L.F.	L.F.	
GR-1	678+00 to 688+25	Rt.	462.5		1			462.5	
GR-2	688+25 to 693+00	Lt.						162	
GR-4	678+00 to 708+00	Med.					3000		
GR-5	678+00 to 688+25	Rt.	237.5		1			32.5	
GR-6	688+25 to 693+00	Lt.	125		1			50	
GR-7	693+00 to 708+00	Lt.	1007.1		1			1020.6	
	SHEET TOTAL		1854.1		3		3000	2048.1	

DRAINAGE					
MARK	STATION TO STATION	606	606	606	606
		Each	Each	Each	Each
D-1	682+30	1			
D-2	688+25	1			
D-3	688+25	1			
D-4	697+75		1	1	4
D-5	701+50		1	1	4
D-6	706+50		1	1	2
	SHEET TOTAL	3	3	3	16

CONCRETE BARRIER & GUARD RAIL
STA. 678+00 TO STA. 708+00





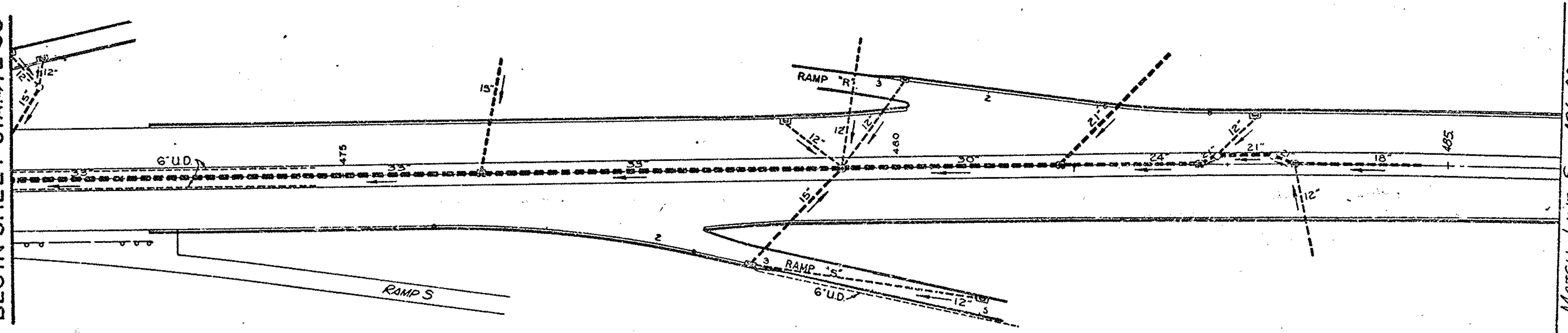
FEDERAL REGION	STATE	PROJECT
5	OHIO	

23
248

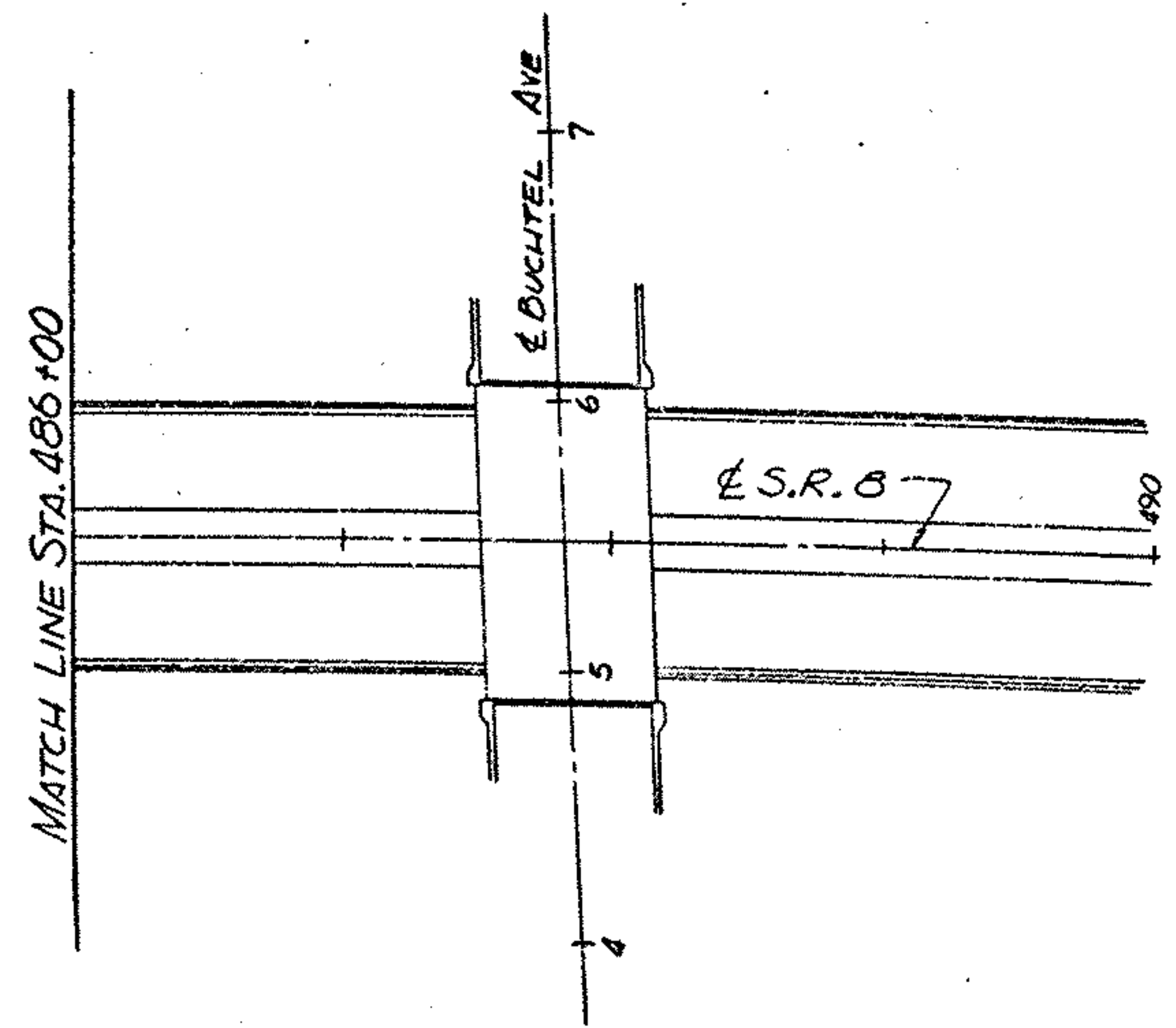


AKRON EXPRESSWAY
SUM-76-1157

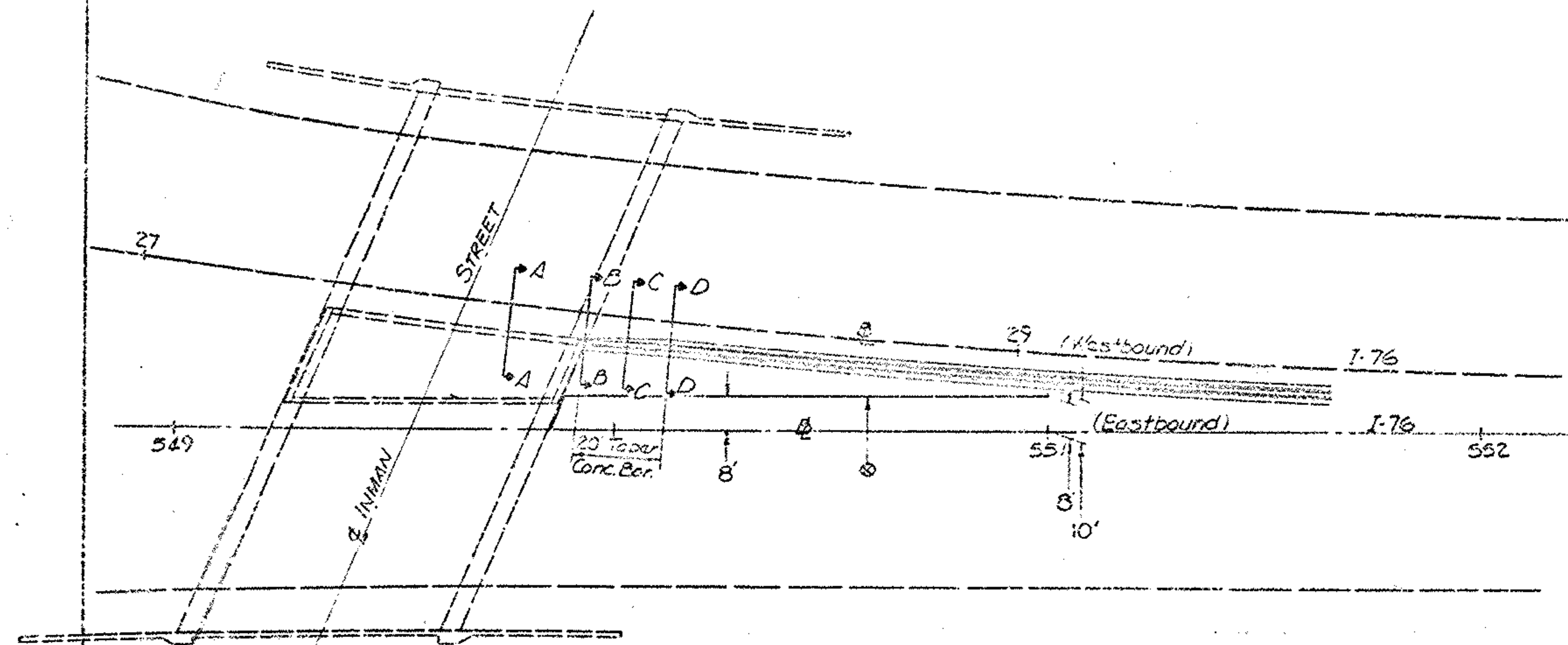
MATCH LINE SEE SHEET 17
BEGIN SHEET STA. 472+00



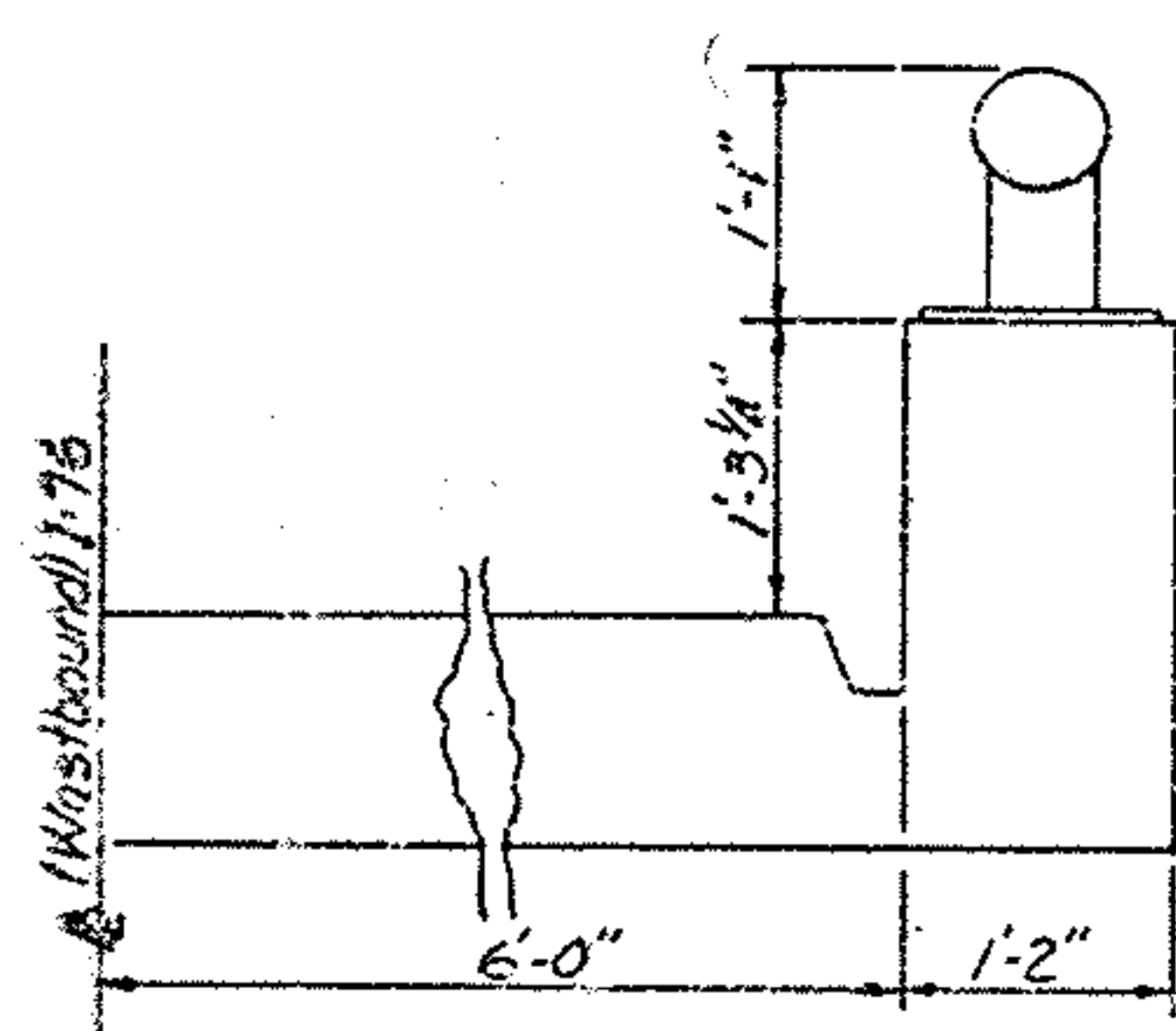
For Details Of Ramp S
See Sheets 67 to 70, 73 & 79



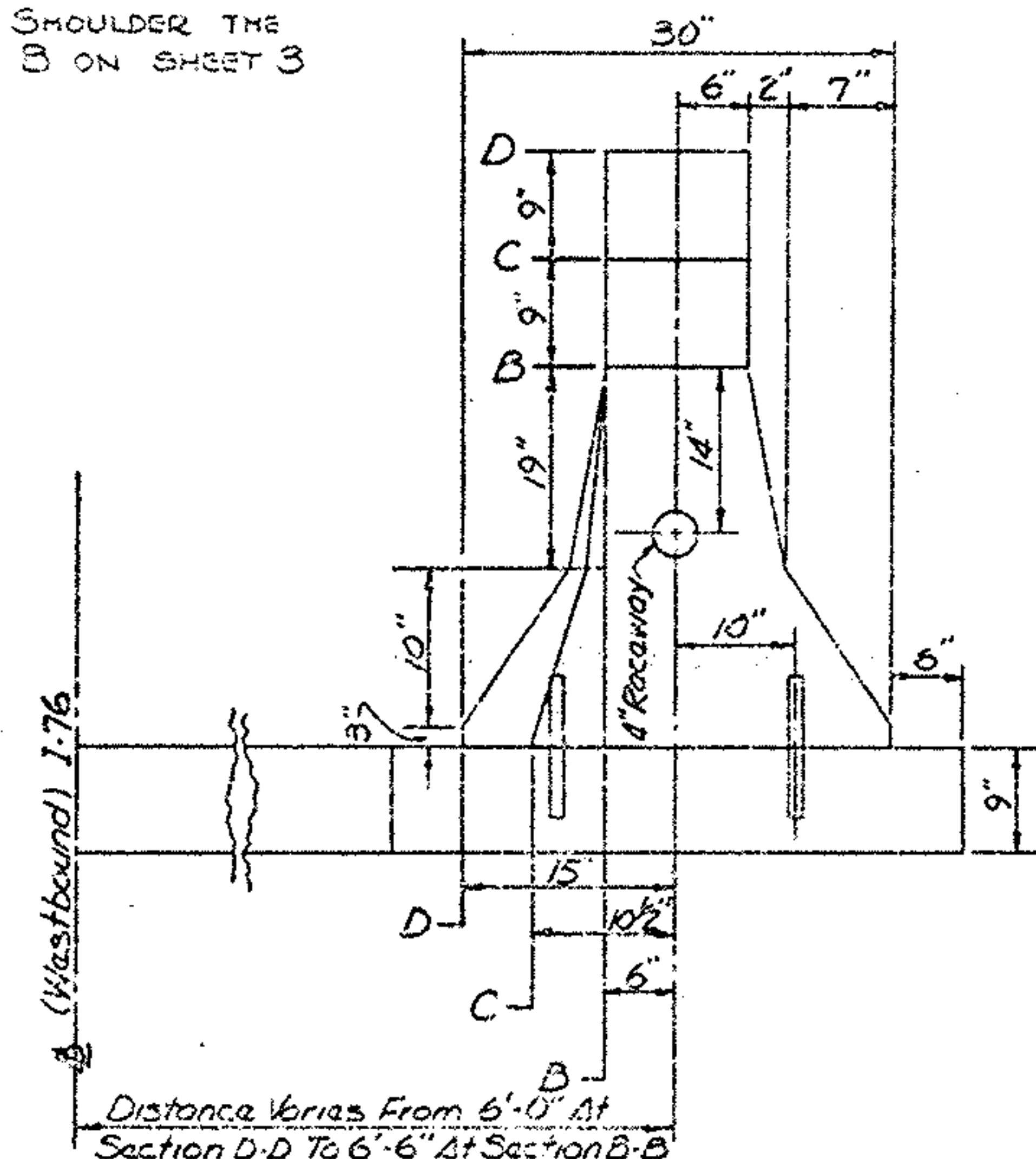
STA. 472+00 S.R. 8 TO STA. 484+00 S.R. 8



⊙ = EDGE OF PROPOSED PAVED SHOULDER.
TYPICAL SECTION FOR PAVED SHOULDER THE
SAME AS TYPICAL SECTION B ON SHEET 3

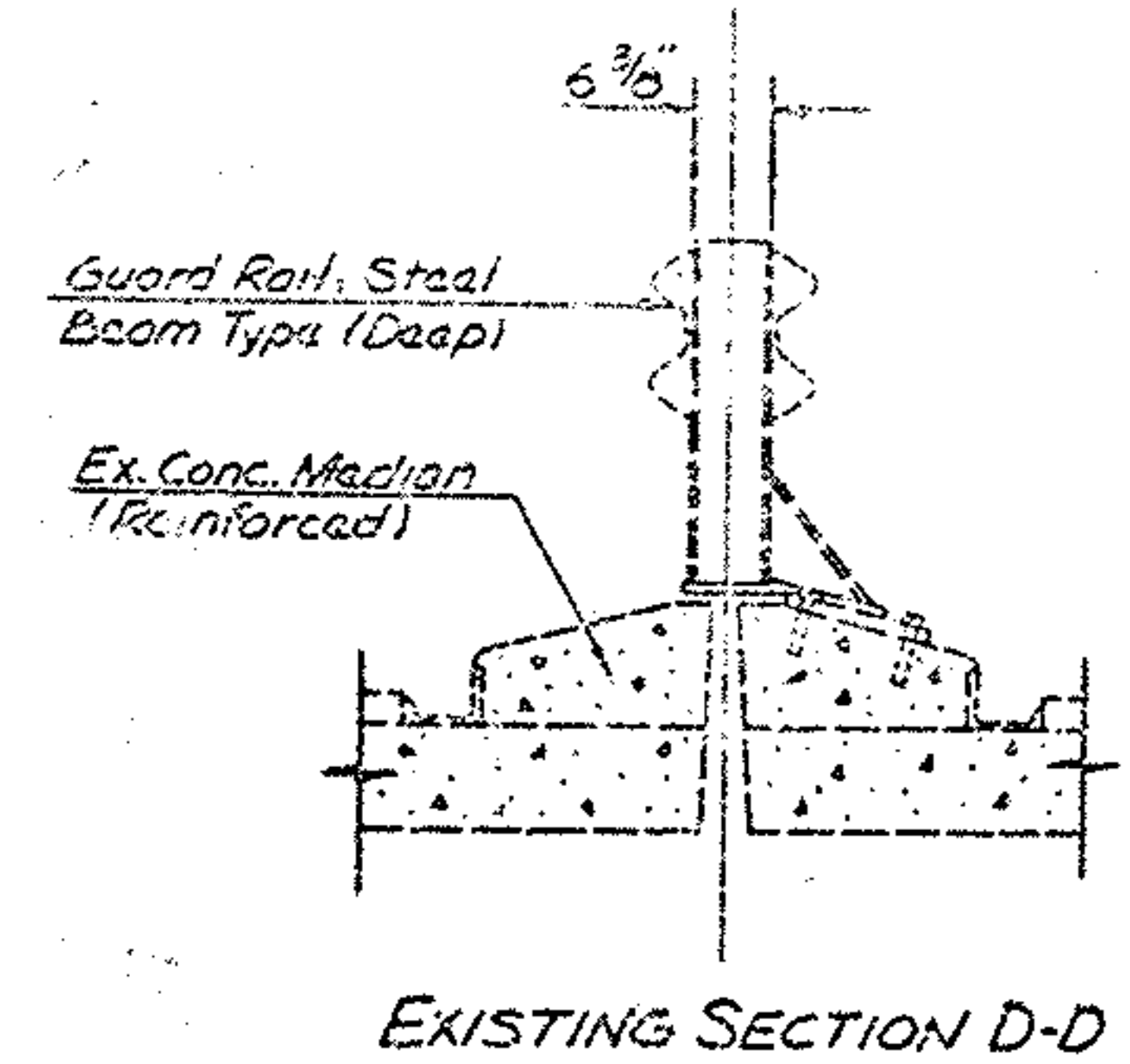
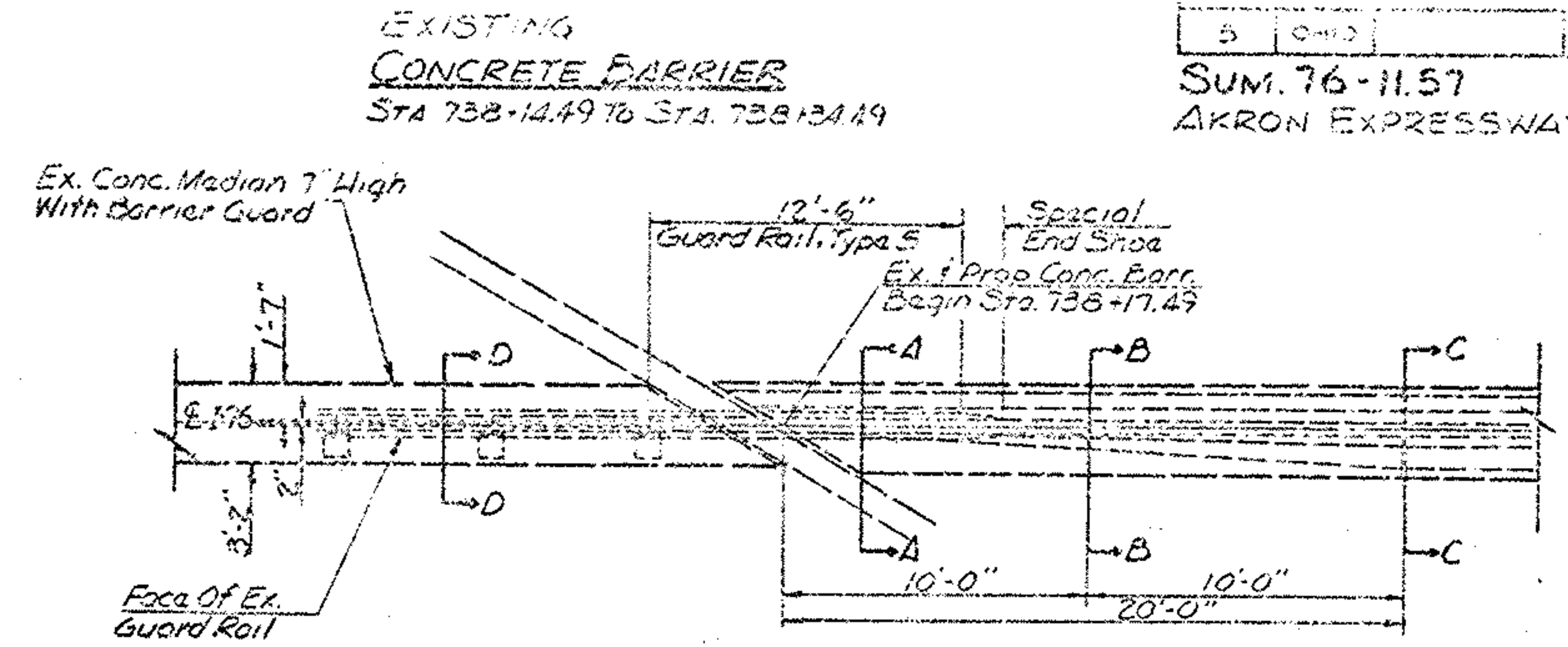


SECTION A-A
Bridge Parapet

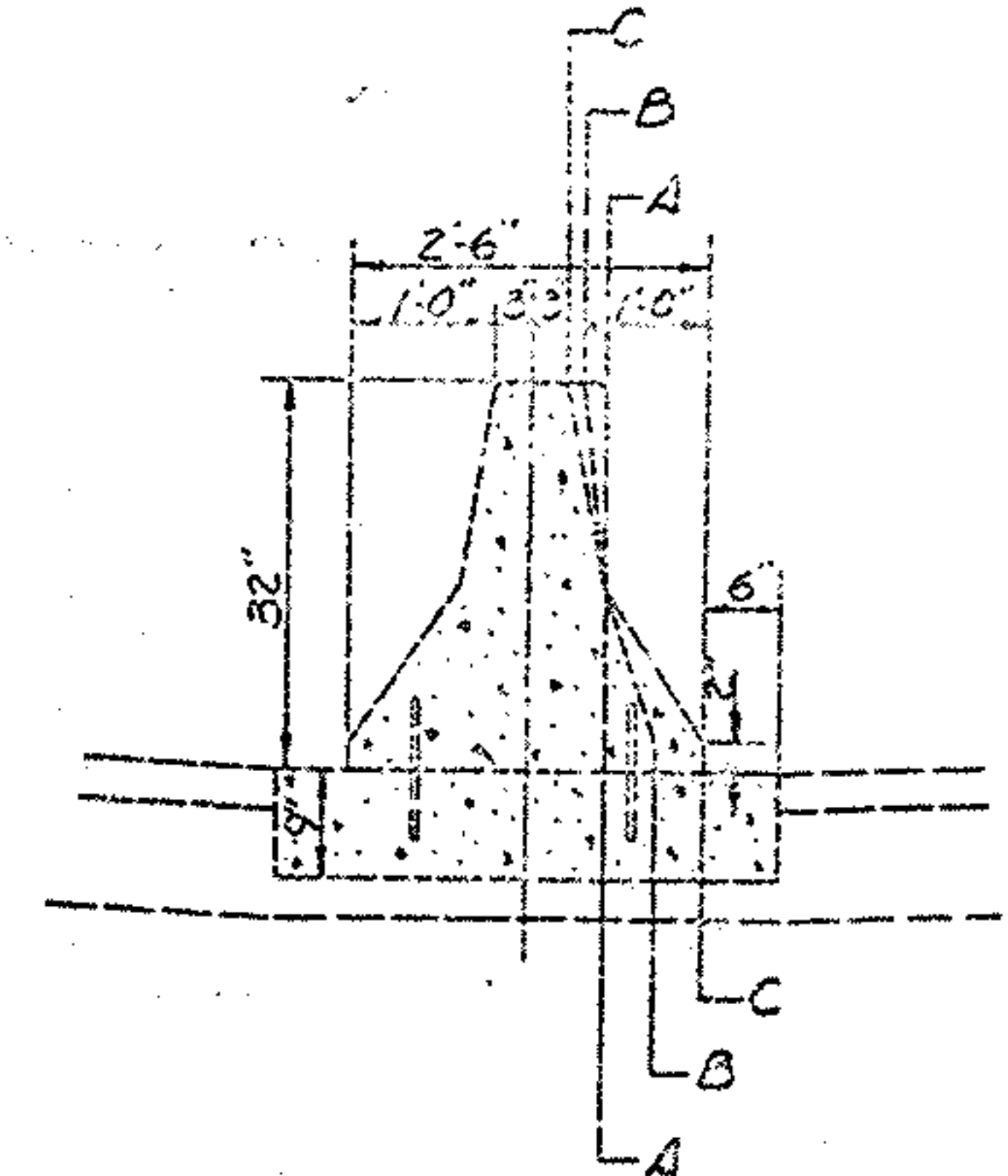


SECTIONS B-B, C-C, D-D
Concrete Barrier

MEDIAN DETAIL AT INMAN STREET



EXISTING SECTION D-D

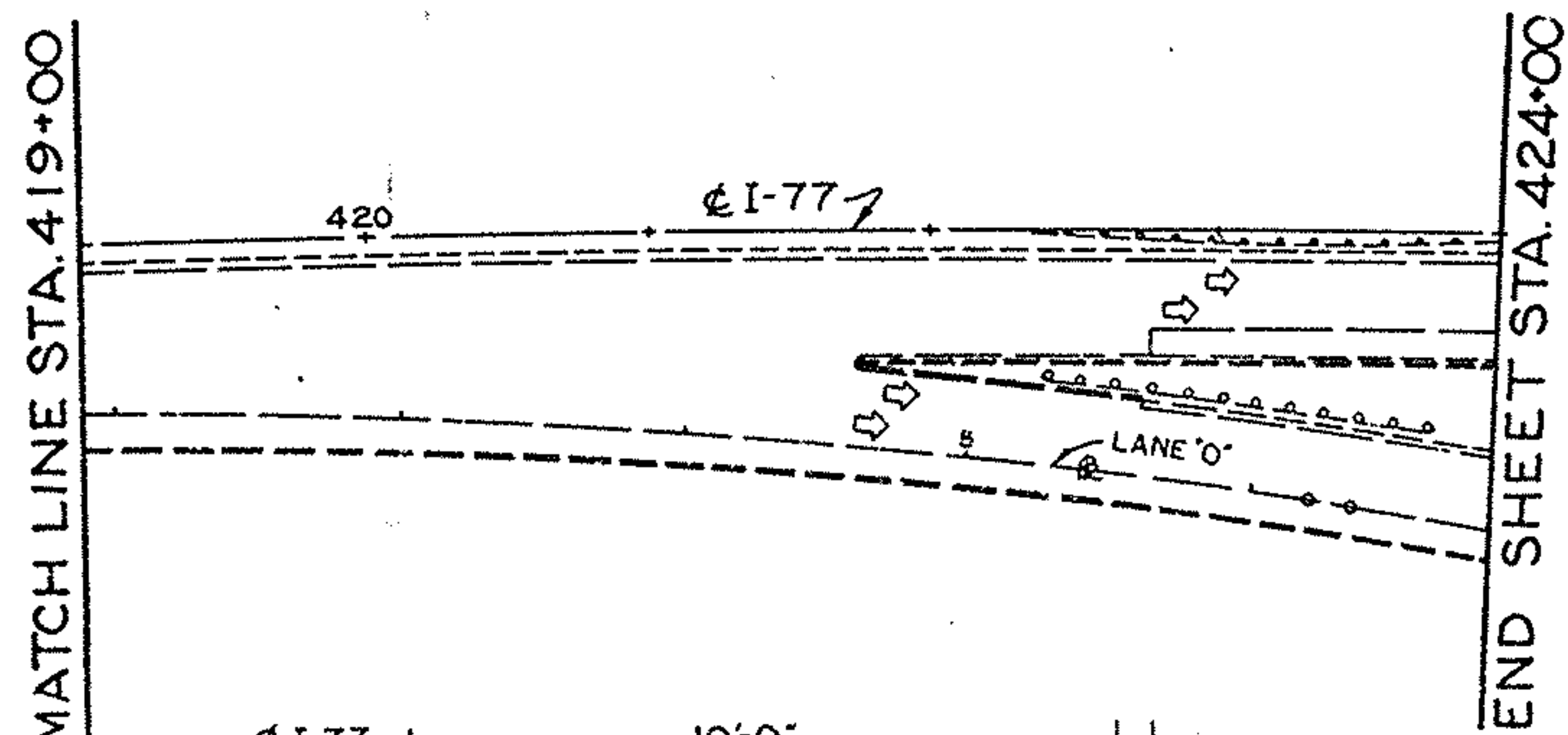
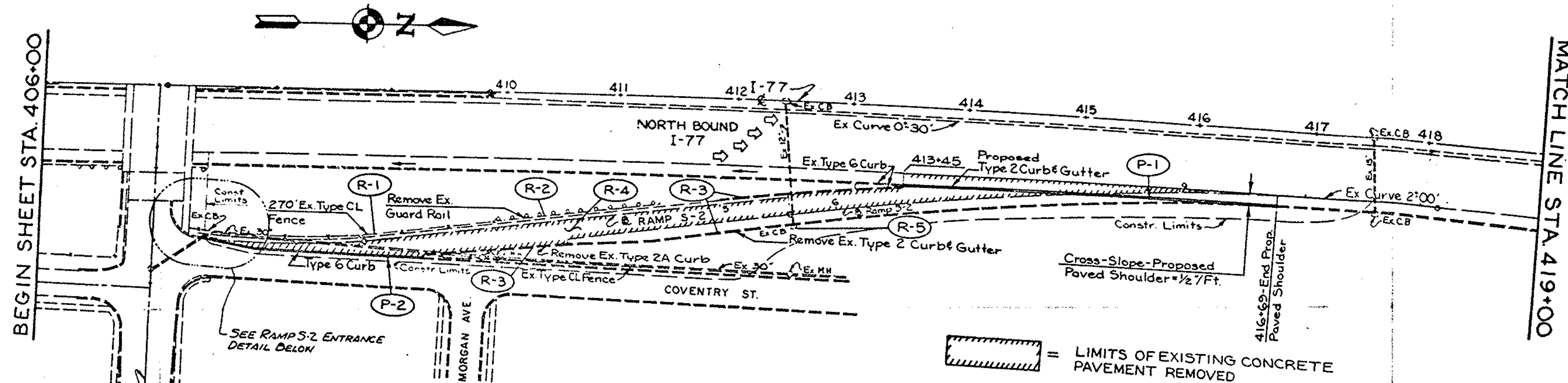


EXISTING SECTIONS
A-A, B-B, C-C

MEDIAN DETAIL AT GILCHRIST ROAD

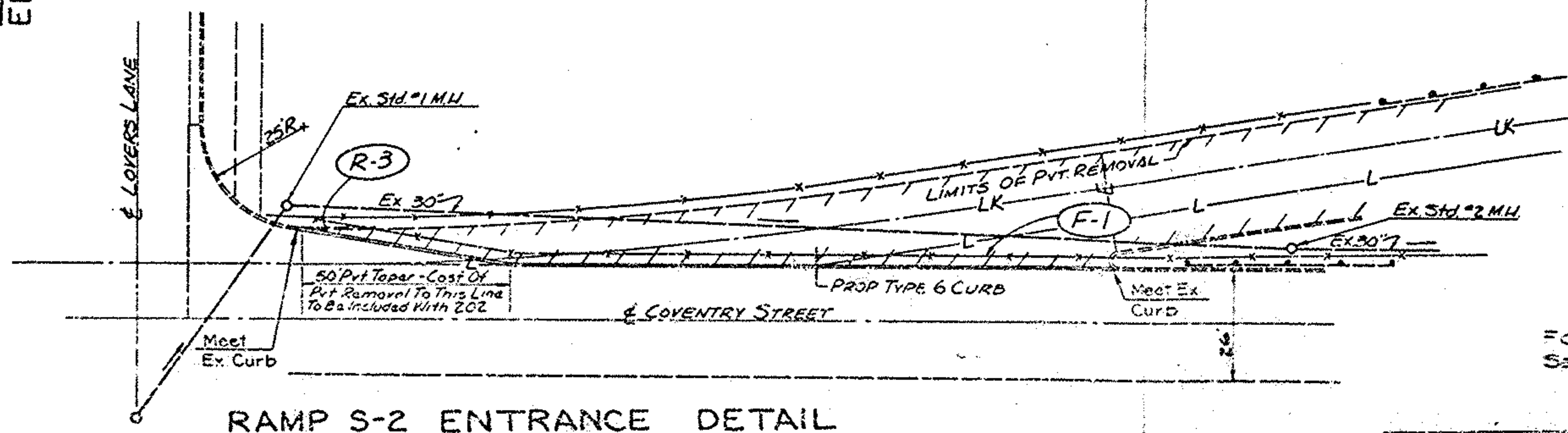
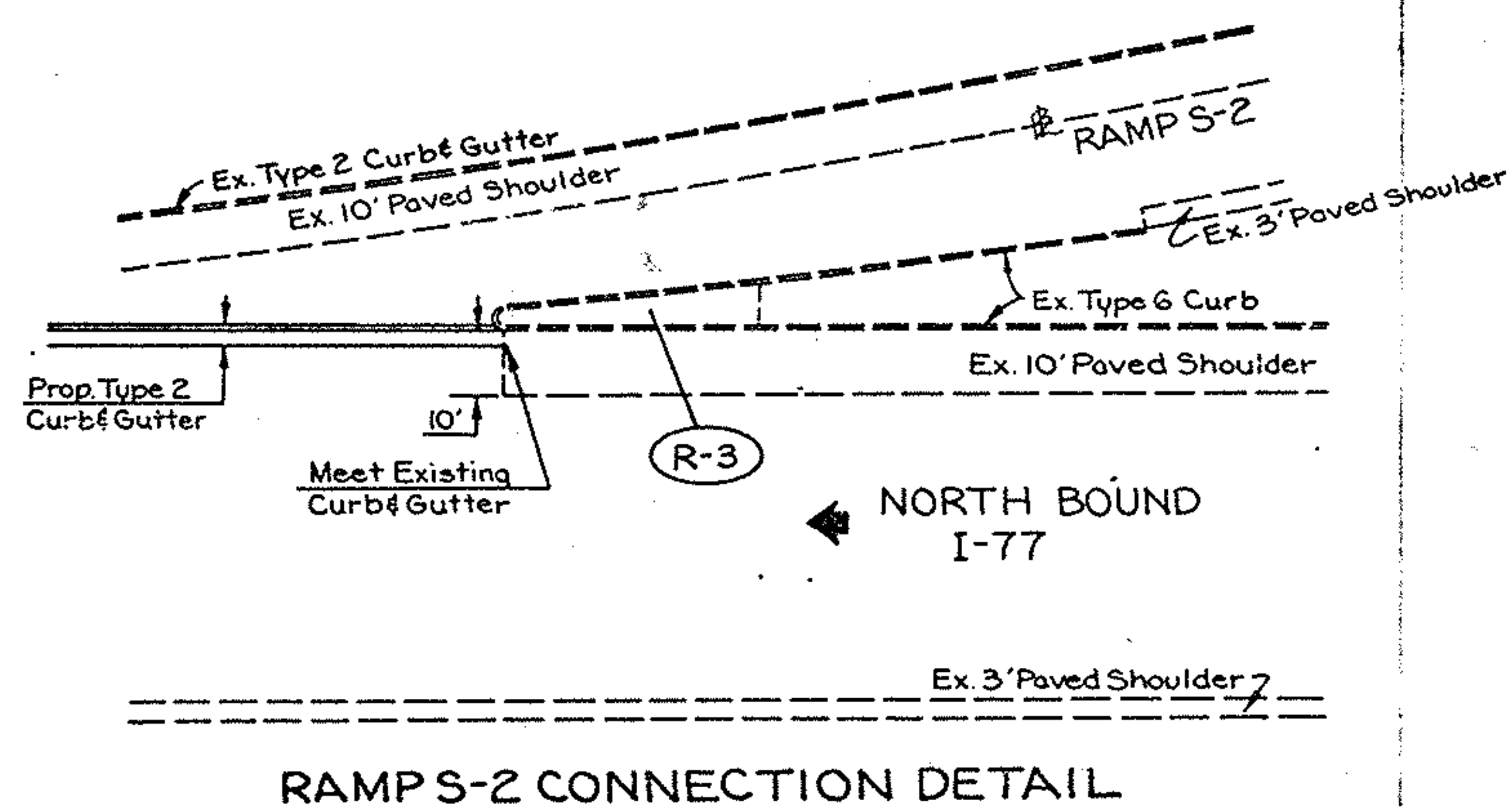
For Typical Section
Of Concrete Barrier
See Sheet 3

SUM-76-11.57
AKRON EXPRESSWAY
EAST LEG



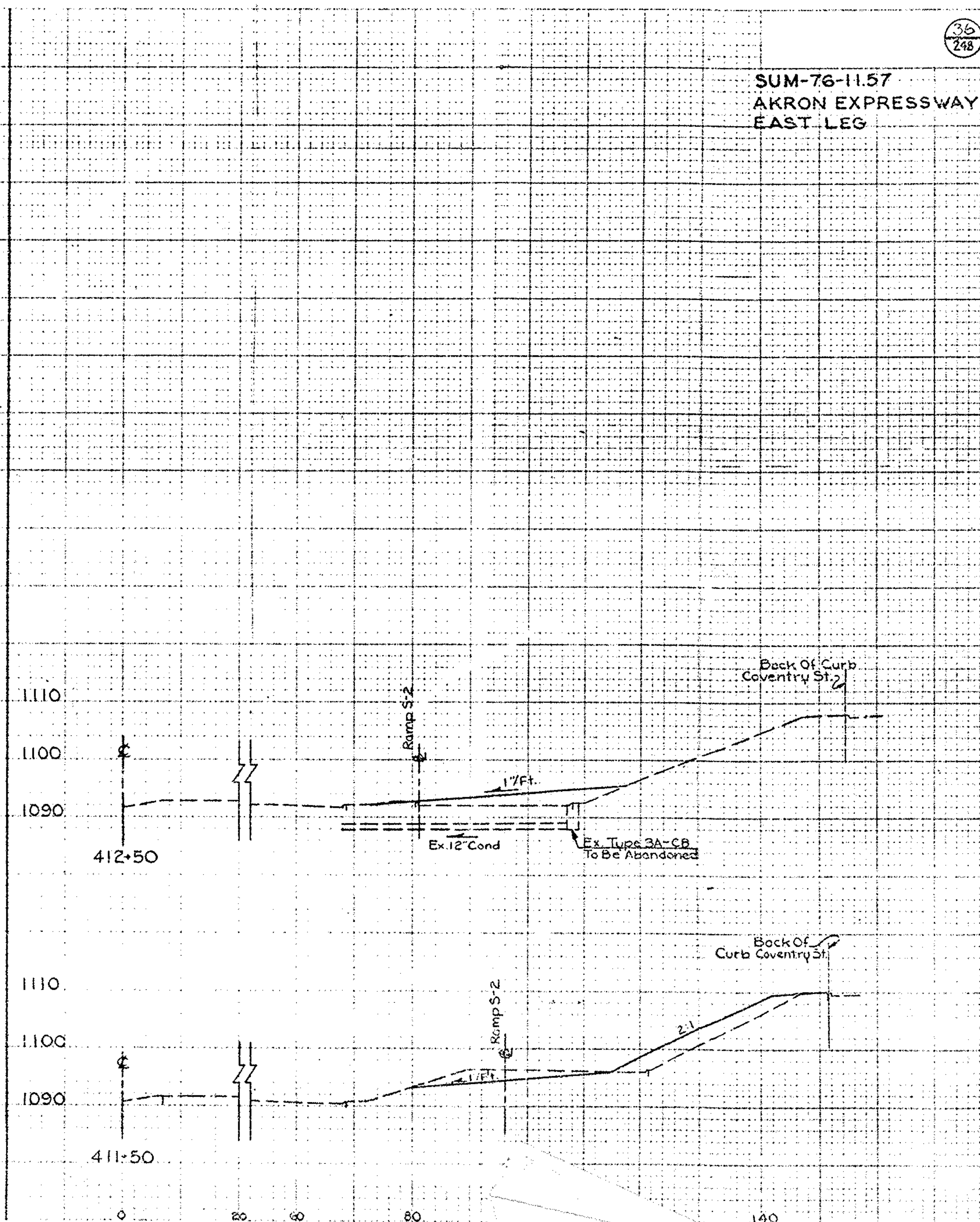
PROPOSED PAVED SHOULDER (RT)
STA. 413+45 TO STA. 416+69

- ③ - ITEM 301 - Bituminous Aggregate Base
- ⑤ - ITEM 310 - Subbase, Type II, As Per Plan
- ⑥ - ITEM 409 - Seal Coat & Cover Aggregate



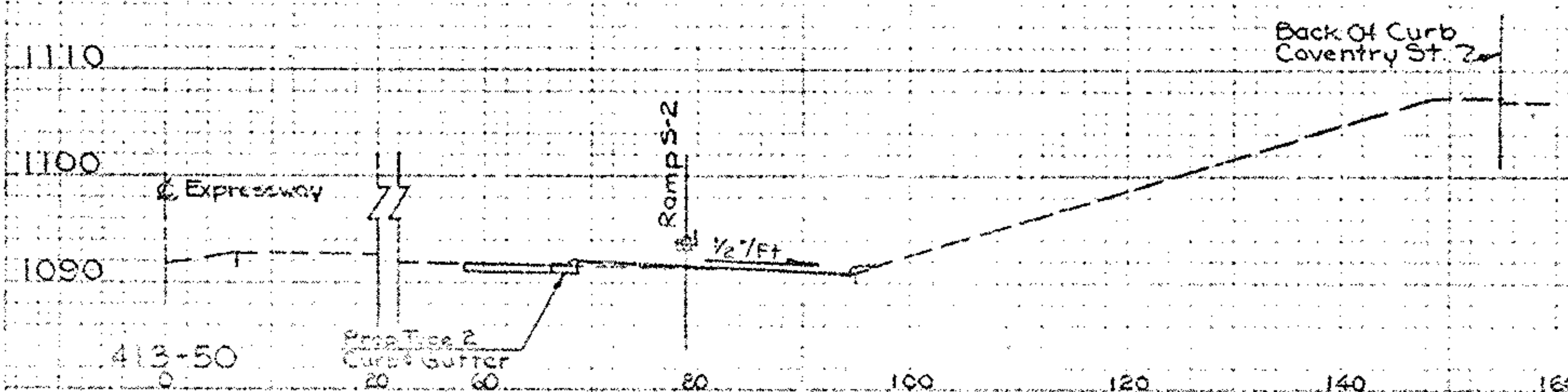
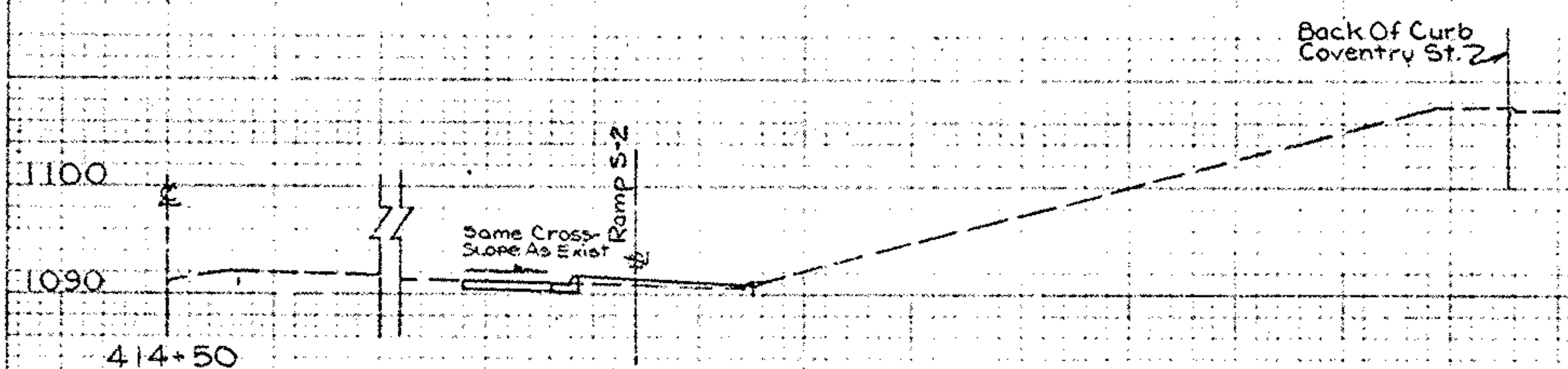
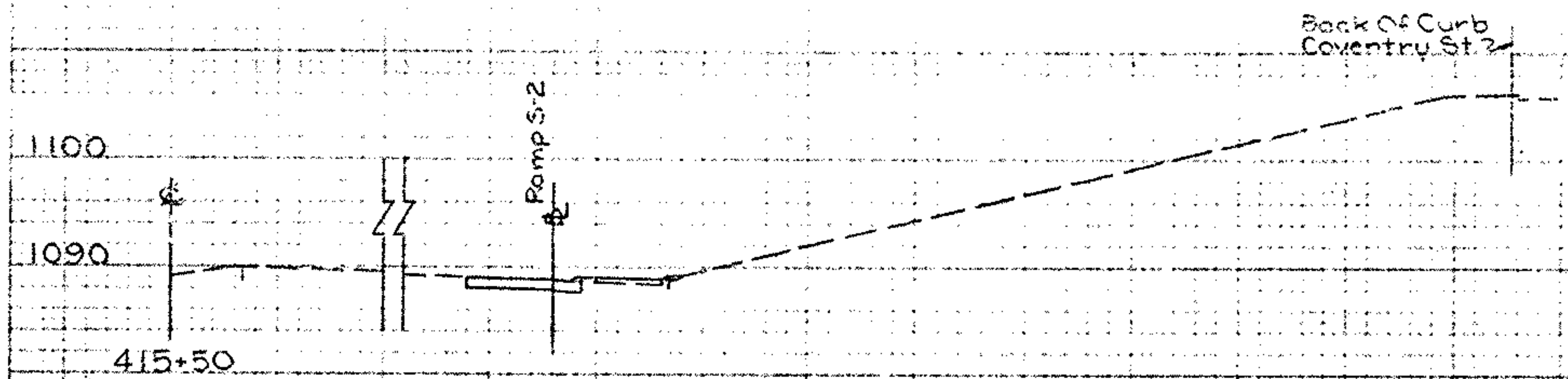
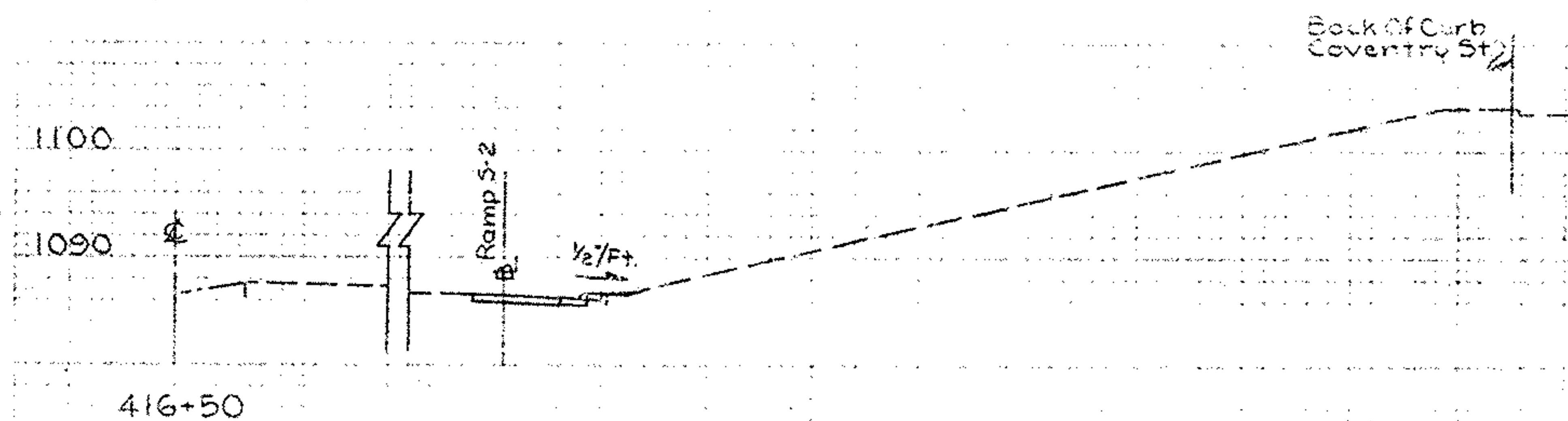
FOR QUANTITIES
SEE SHEET 37+00

RAMP S-2

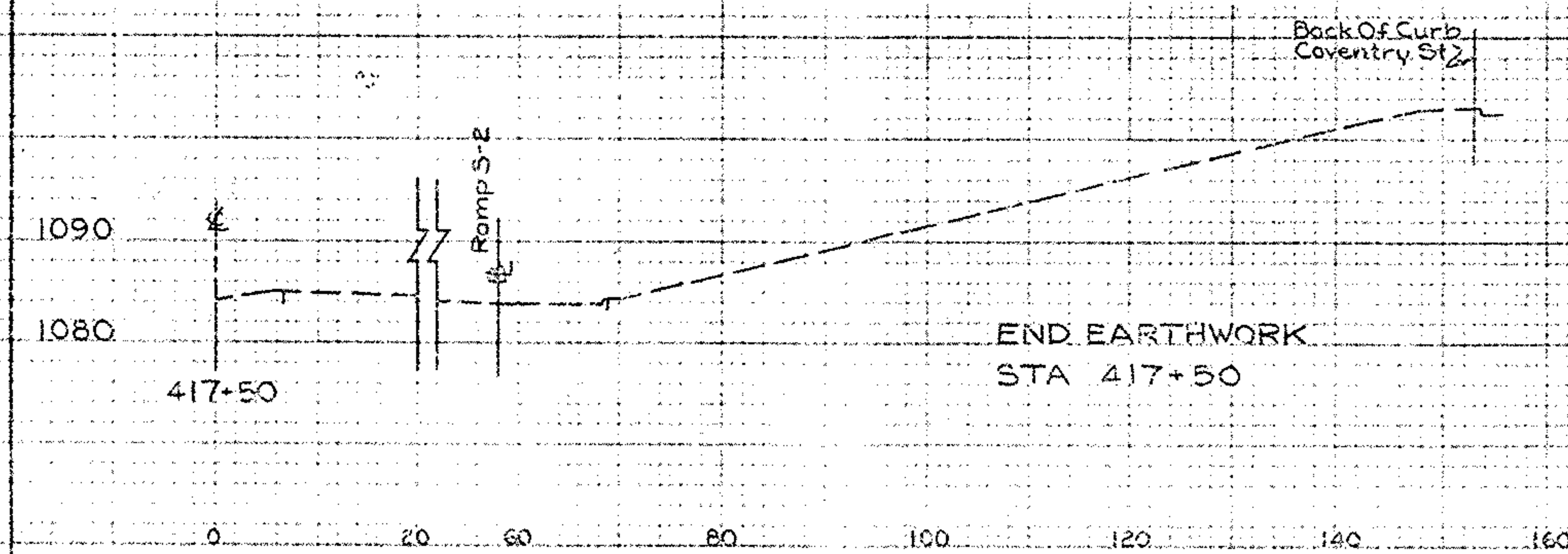


SUM-76-11.57
AKRON EXPRESSWAY
EAST LEG

DATE: 9-1-78
BY: [Signature]
CHECKED: [Signature]
APPROVED: [Signature]



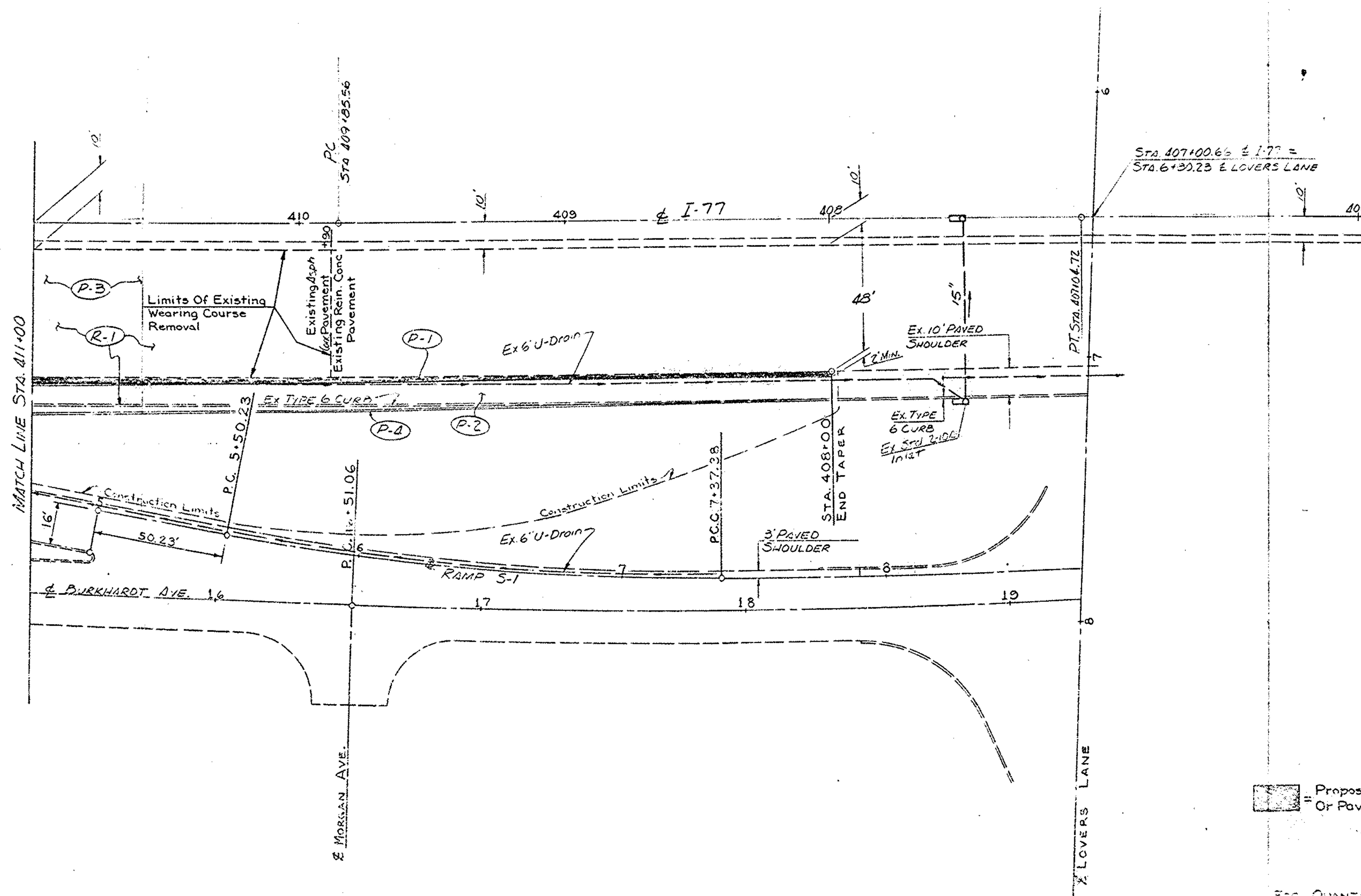
STA	Seeding		End Area		Cu. Yds.	
	L.F.	S.Y.	Cut	Fill	Exc.	Emb.
417+50	0	33	0	0	13	6
416+50	6	100	1	3	26	24
415+50	12	172	7	10	26	50
414+50	19	233	7	22	28	20
413+50	32	450	8	51	17	172
412+50	49	711	1	62	27	270
411+50	79	889	35	84	208	235
410+50	81	859	75	69	402	176
409+50	79	856	142	26	358	67
408+50	75	417	52	10	96	19
407+50	0		0	0		
TOTAL		4800			1238	1174



END EARTHWORK
STA 417+50

RAMP S-2

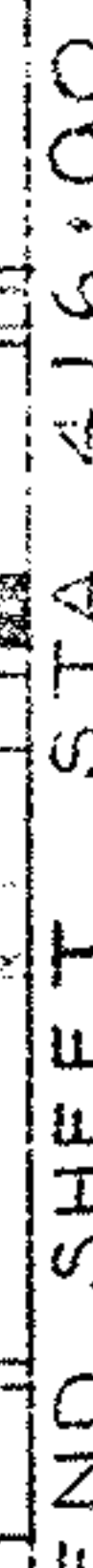
SUM 76-11.57
AKRON EXPRESSWAY
EAST LEG



Proposed Extension
Or Pavement Widening

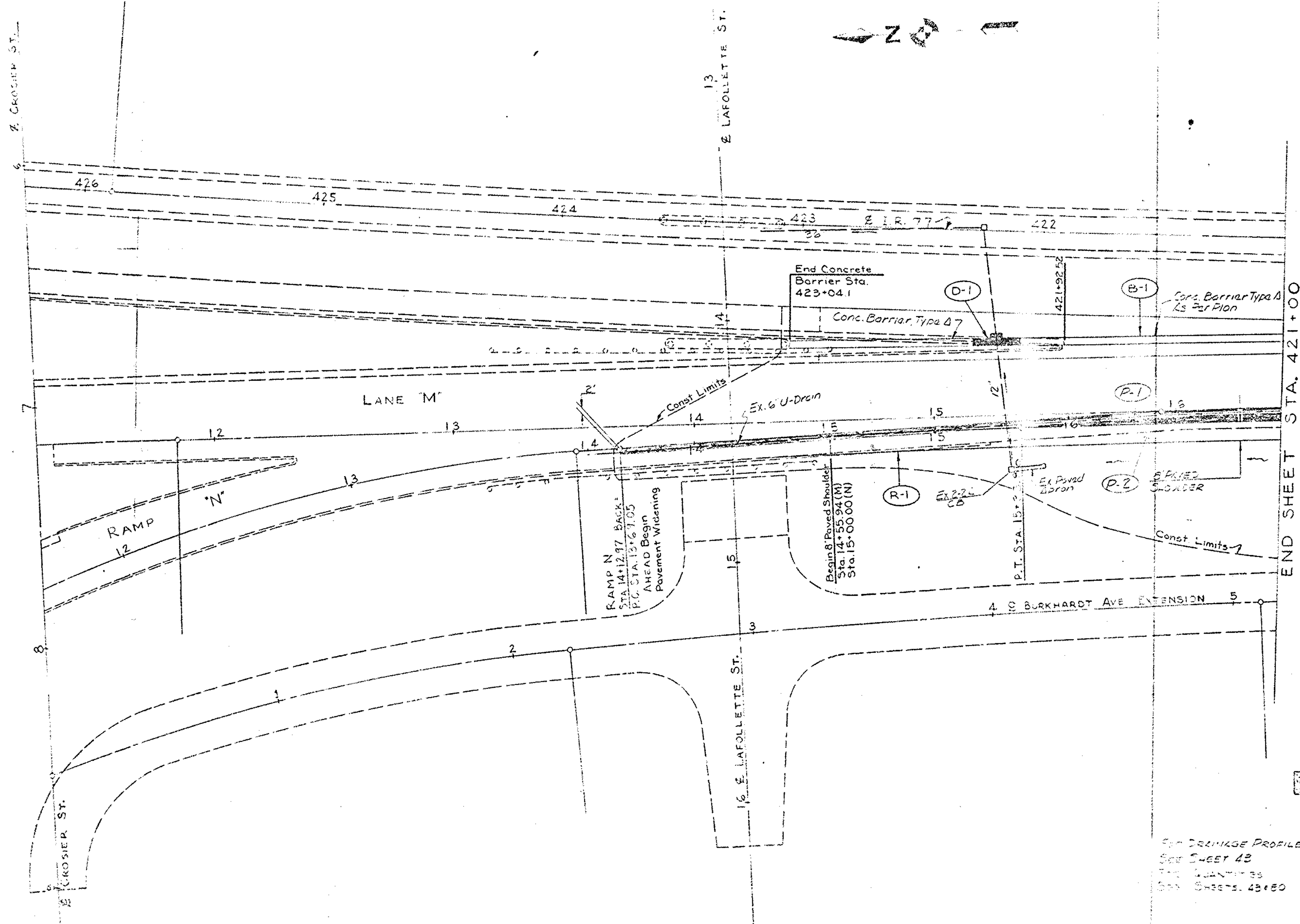
922 QUANTITIES
032 SHEETS 42/60

1-77
RAMP 5-1
RAMP 5-1



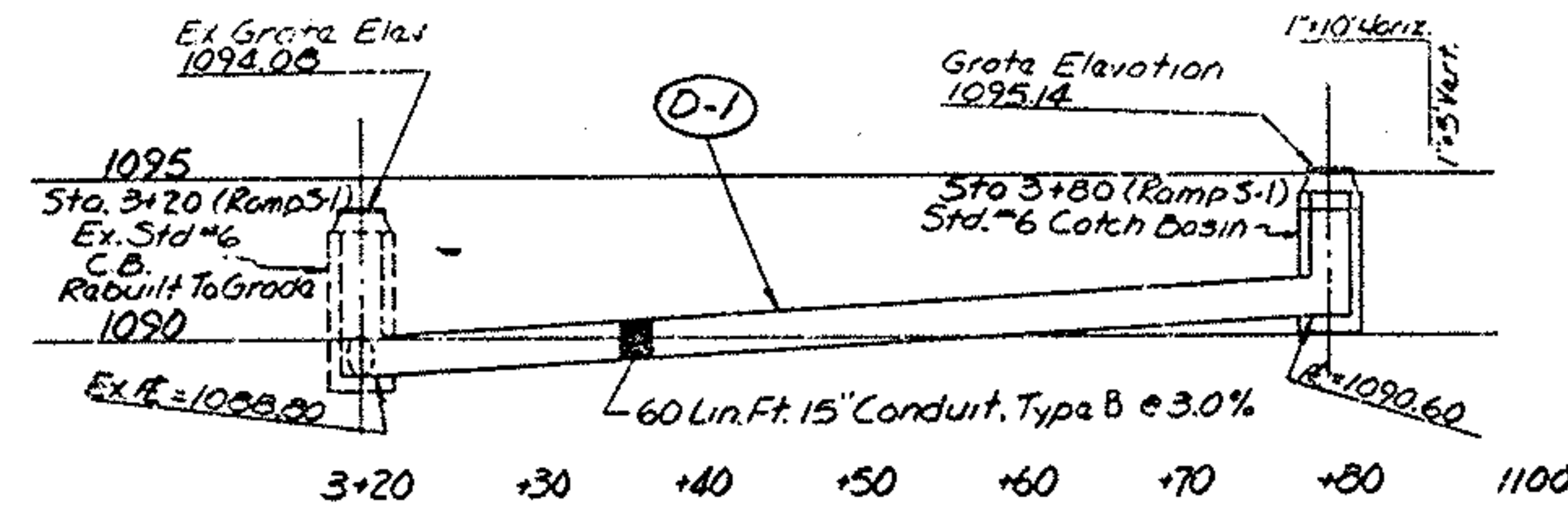
FOR DRAINAGE PROFILE
SEE SHEET 43
FOR QUANTITIES
SEE SHEETS 43 & 80

1-77
RAMP 12
RAMP 14



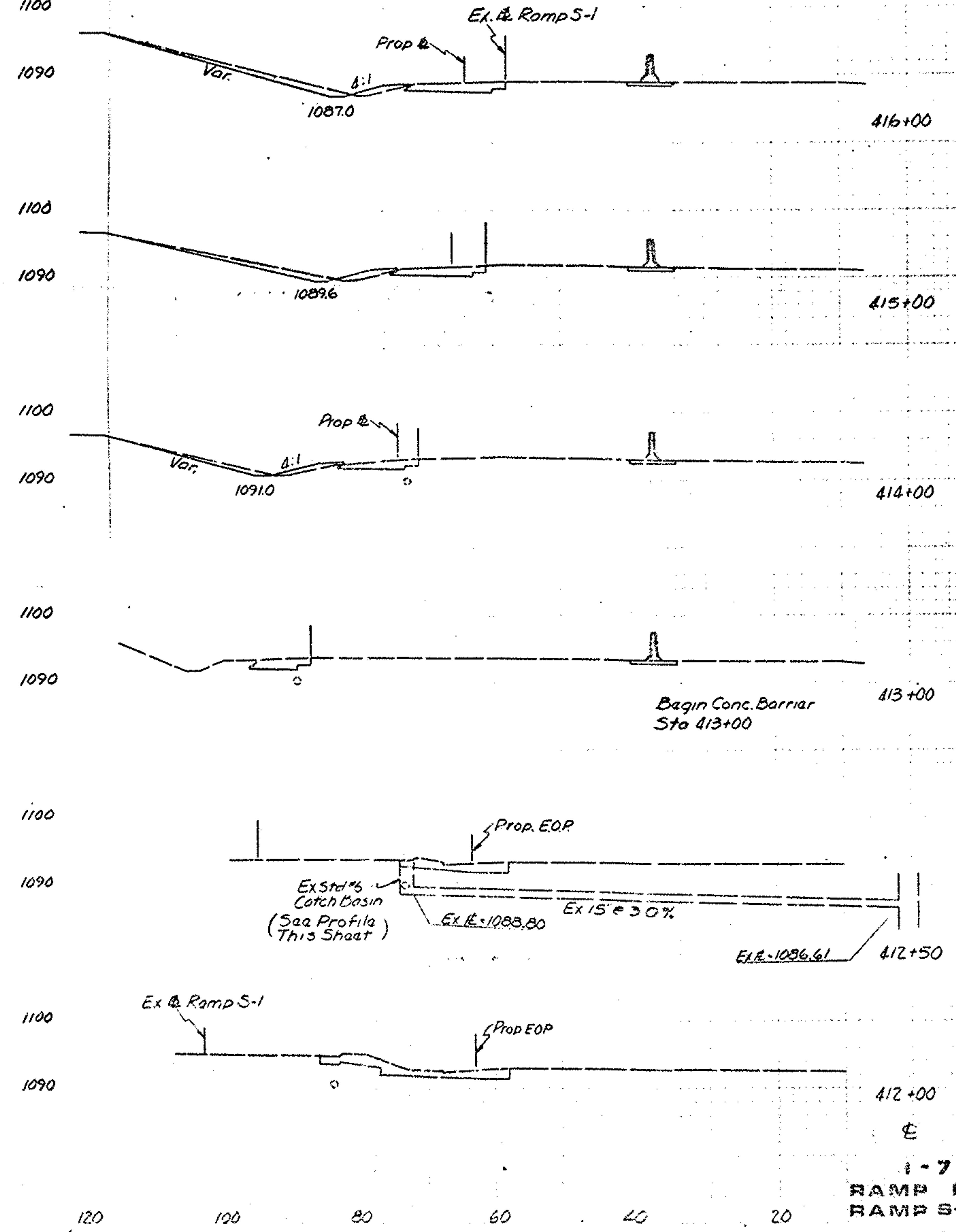
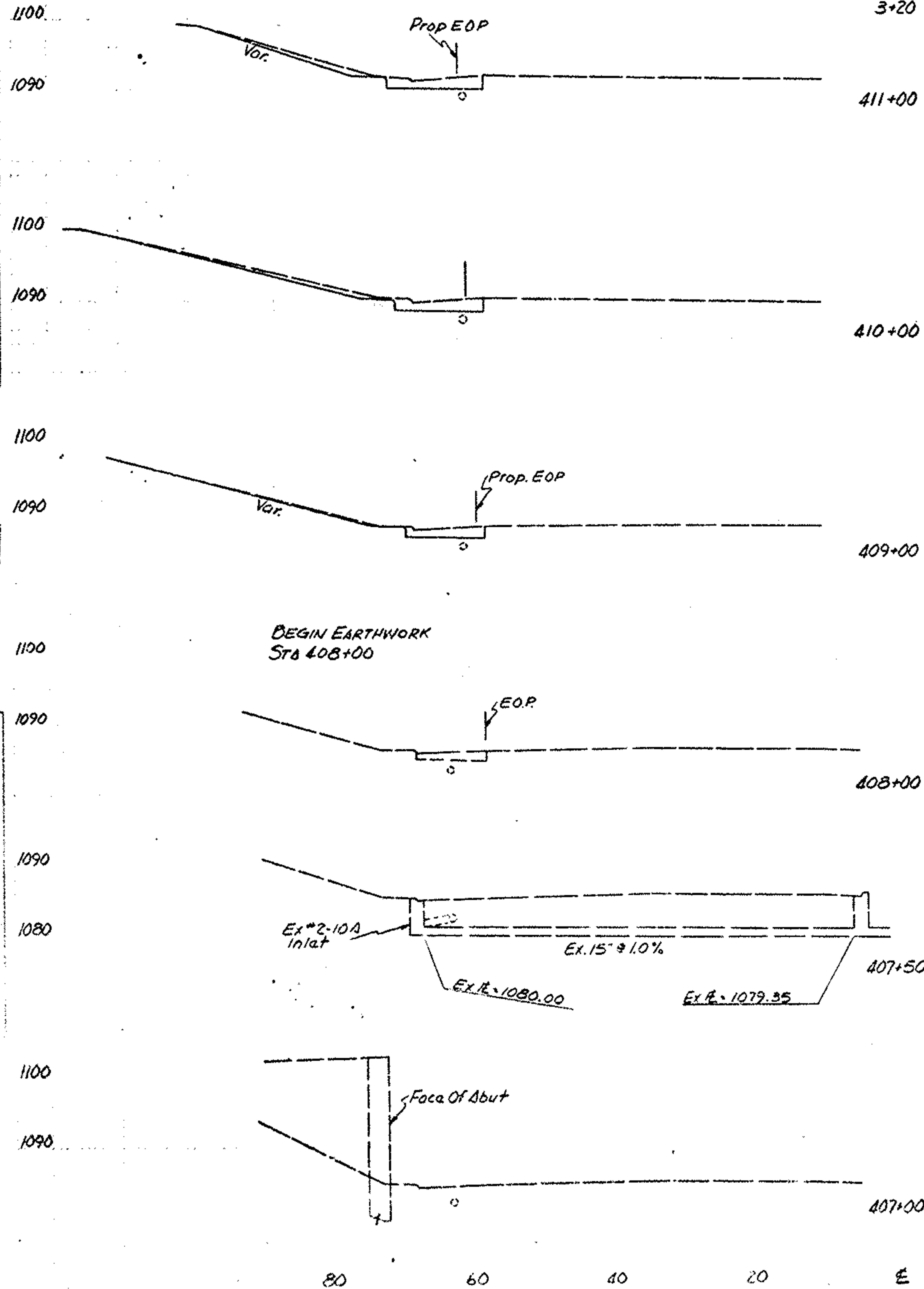
Proposed Extension
Or Pavement Widening

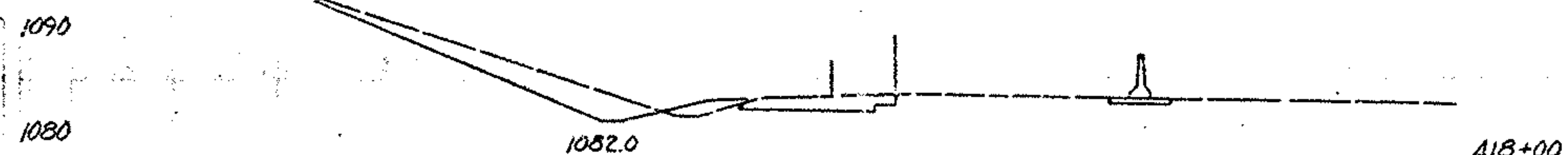
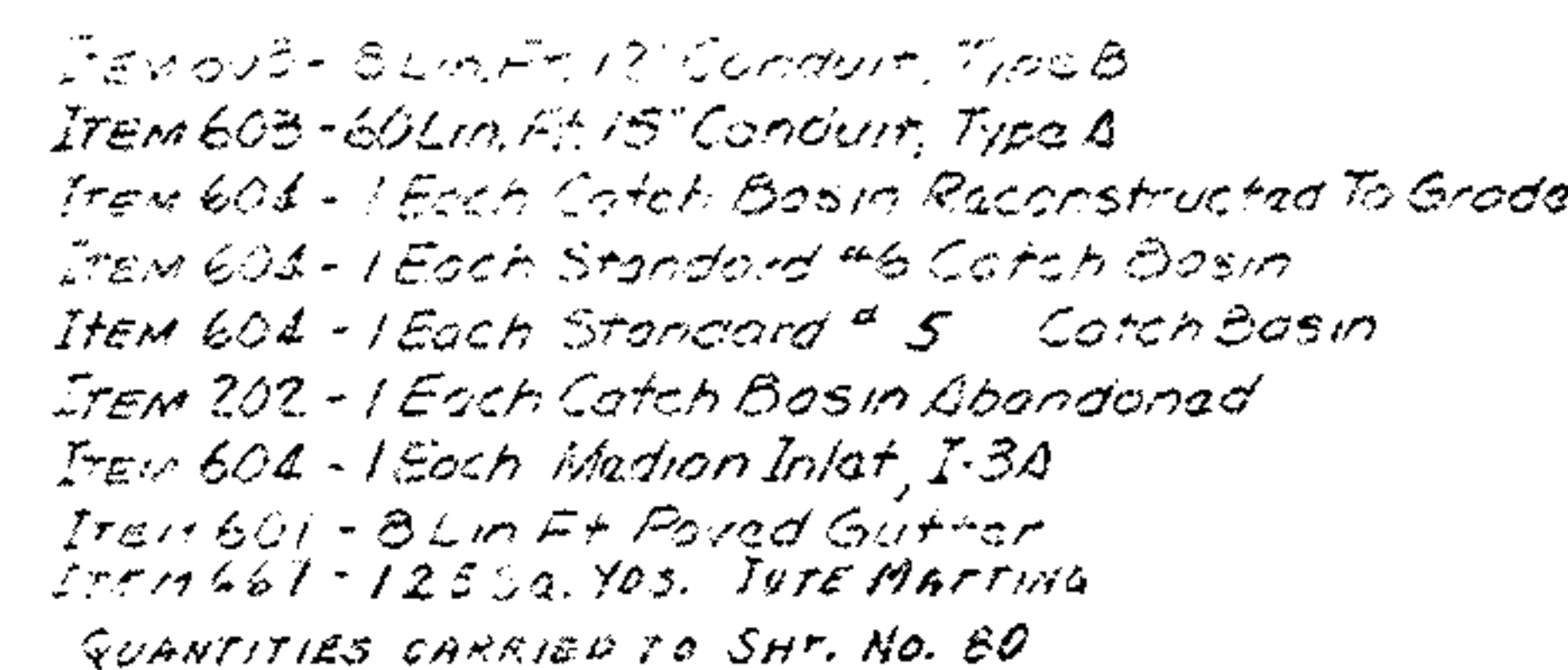
SEE DRAINAGE PROFILE
SEE SHEET 43
SEE QUANTITIES
SEE SHEETS 43 & 44



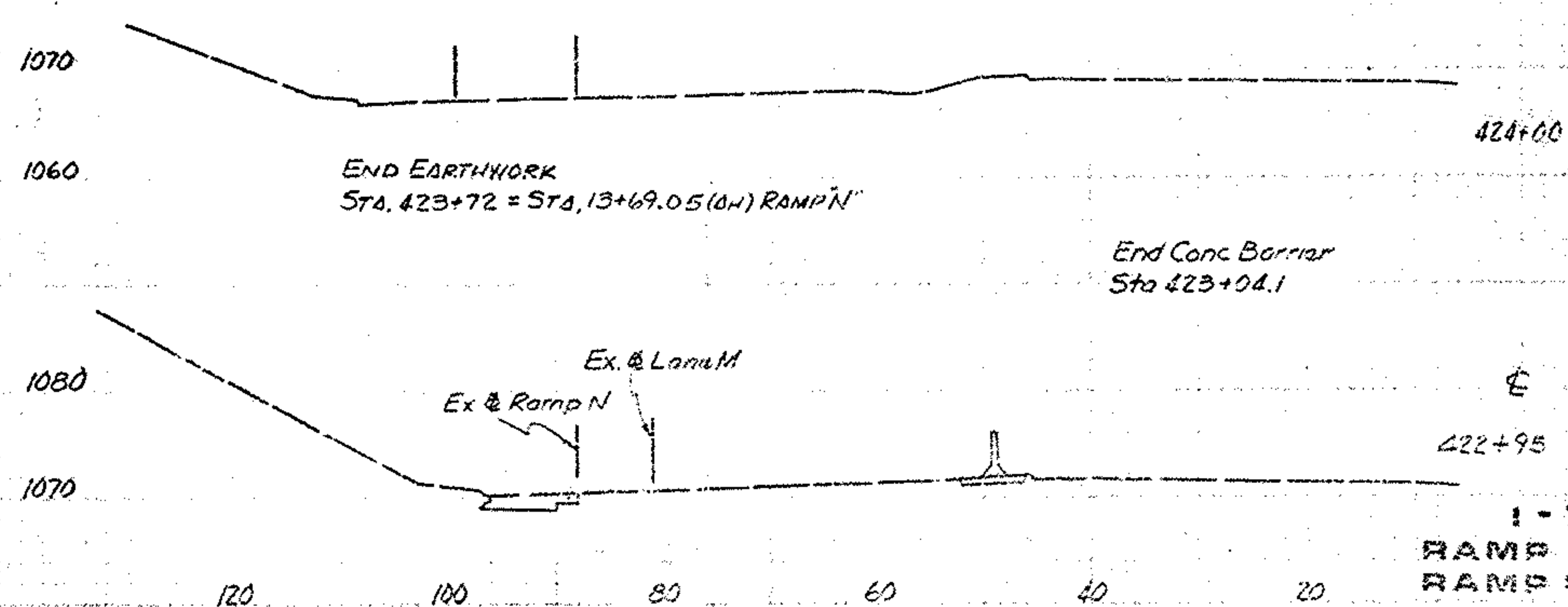
FINAL
DESIGN
SUBMITTAL

Calculated By L.S.
Date May 78
Checked By G.H.R.
Date Aug 78



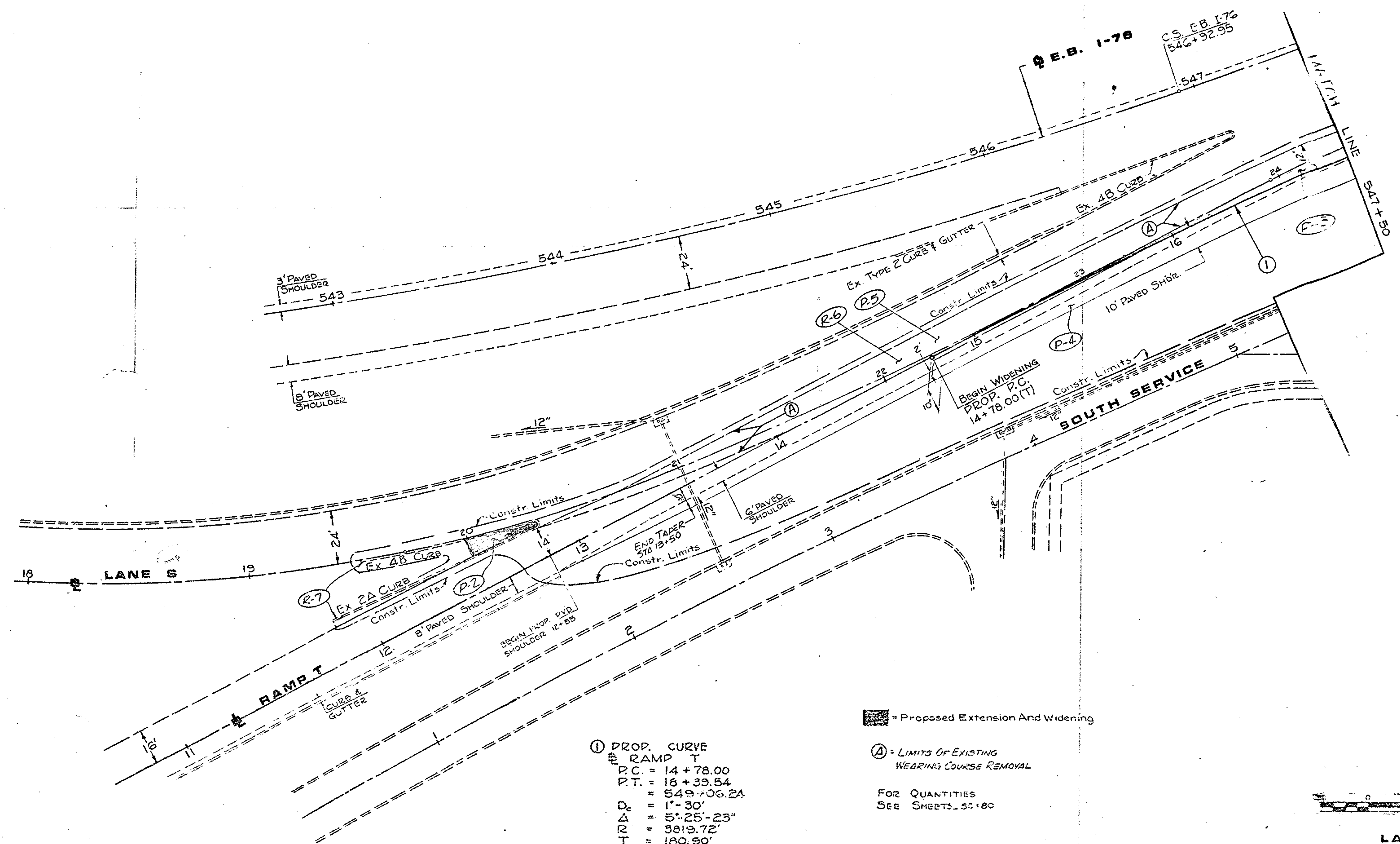


Sta.	Seeding		End Area		Cu. Yd.	
	L.F.	S.Y.	Cut	Fill	Exc.	Emb.
423+72	0		0	0	0	
422+95	0	0	11	0	15	0
422+25	4	15	13	3	31	4
421+00	52	389	34	9	109	28
420+00	50	567	47	7	150	30
419+00	48	544	67	5	211	22
418+00	48	533	73	7	259	22
417+50	45	259	79	8	141	14
417+00	44	247	46	10	116	17
416+00	44	489	40	6	159	30
415+00	38	456	32	7	133	24
414+00	31	383	20	5	96	22
413+00	0	172	12	0	59	9
412+50	0	0	21	0	31	0
412+00	0	0	36	0	53	
411+00	24	133	33	0	128	
410+00	34	322	36	0	128	
409+00	17	283	15	0	94	
408+00	0	94	0	0	28	
		2886			1941	227



1-77
RAMP N
RAMP S-I

SUM 76-11.57

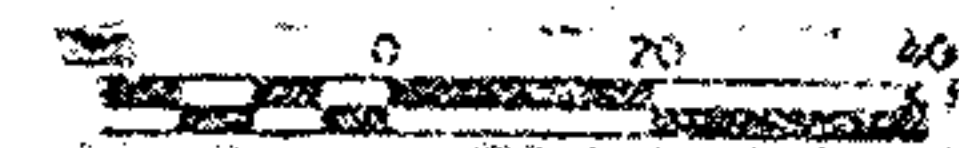


① PROP. CURVE
 RAMP T
 P.C. = 14+78.00
 P.T. = 16+39.54
 = 549+06.24
 D_c = 1'-30"
 Δ = 5'-25'-23"
 R = 3819.72'
 T = 180.90'
 L = 361.54'

■ = Proposed Extension And Widening

Ⓐ = LIMITS OF EXISTING
 WEARING COURSE REMOVAL

FOR QUANTITIES
 SEE SHEETS 50+80



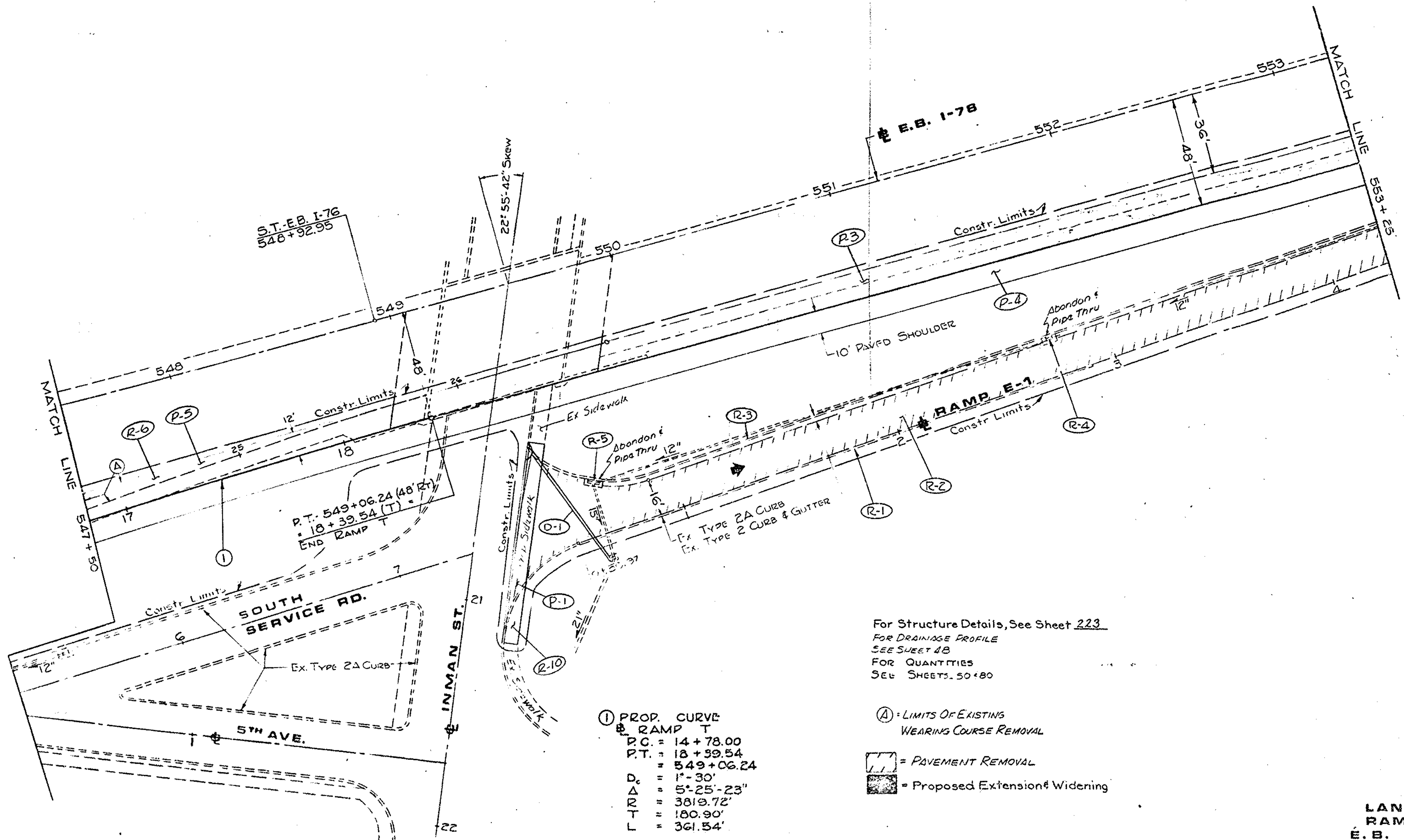
LANE S
 RAMP T
 E.B. 1-76

B.M. # 986 Elev. 1101.65
 Iron Rivet N.E. Corner 5th Ave. & Inman St.
 B.M. "R" In "Corey" On Hydrant At S.W. Corner
 Inman And South St. Elev. 1102.38

5	OHIO		
---	------	--	--

45
 248

SUM 76-11.57



For Structure Details, See Sheet 223
 For DRAINAGE PROFILE
 SEE SHEET 48
 FOR QUANTITIES
 SEE SHEETS 50 & 80

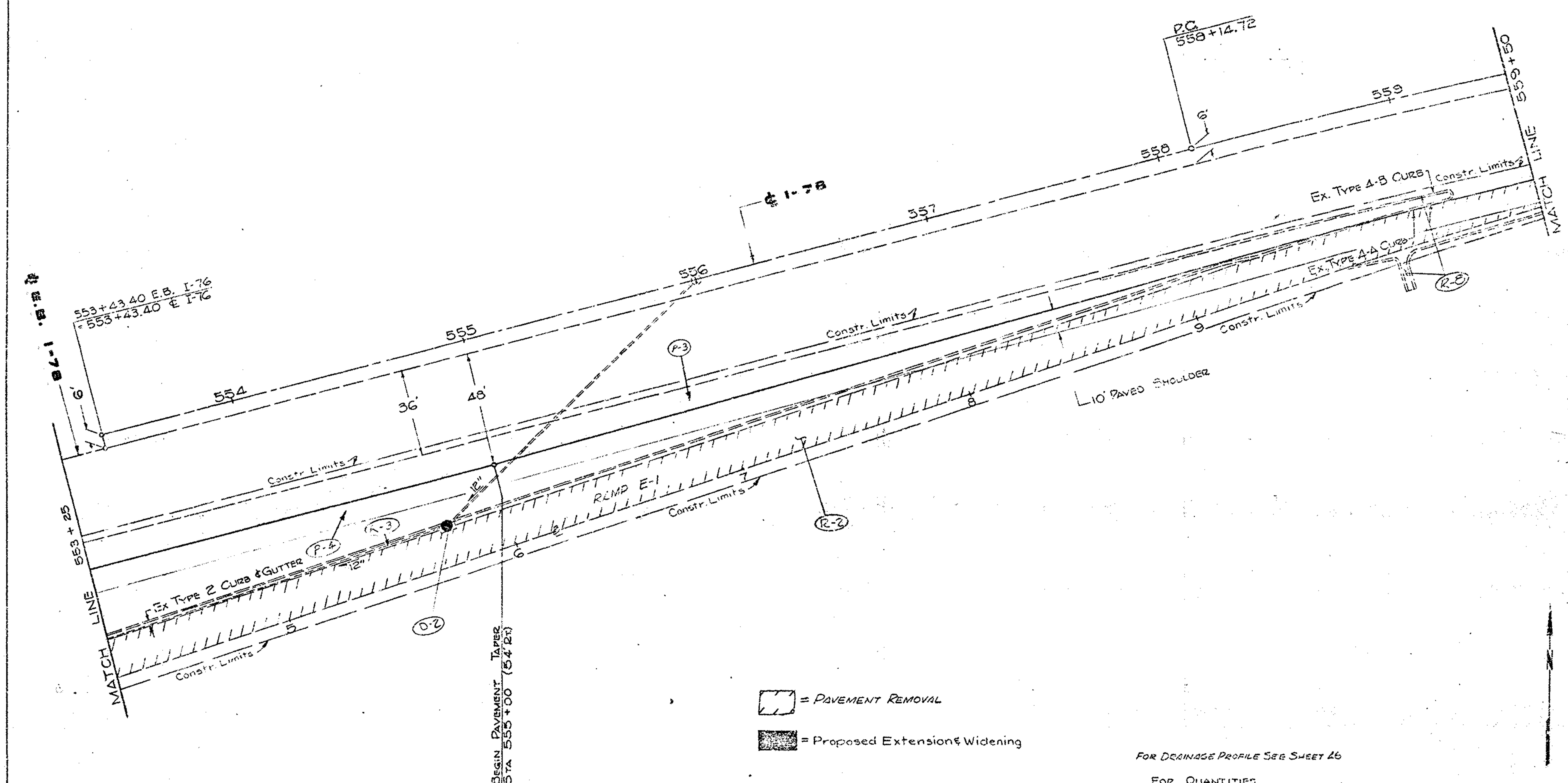
(A) = LIMITS OF EXISTING
 WEARING COURSE REMOVAL

[Pattern] = PAVEMENT REMOVAL

[Pattern] = Proposed Extension & Widening

① PROP. CURVE
 RAMP T
 P.C. = 14+78.00
 P.T. = 18+39.54
 = 549+06.24
 D_c = 1'-30'
 Δ = 5'-25'-23"
 R = 3819.72'
 T = 180.90'
 L = 361.54'

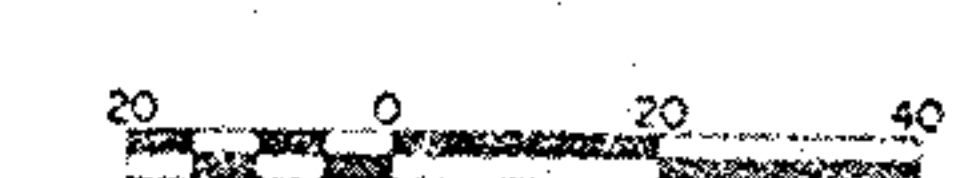
LANE S
 RAMP T
 E.B. 1-78



= PAVEMENT REMOVAL
 = Proposed Extension & Widening

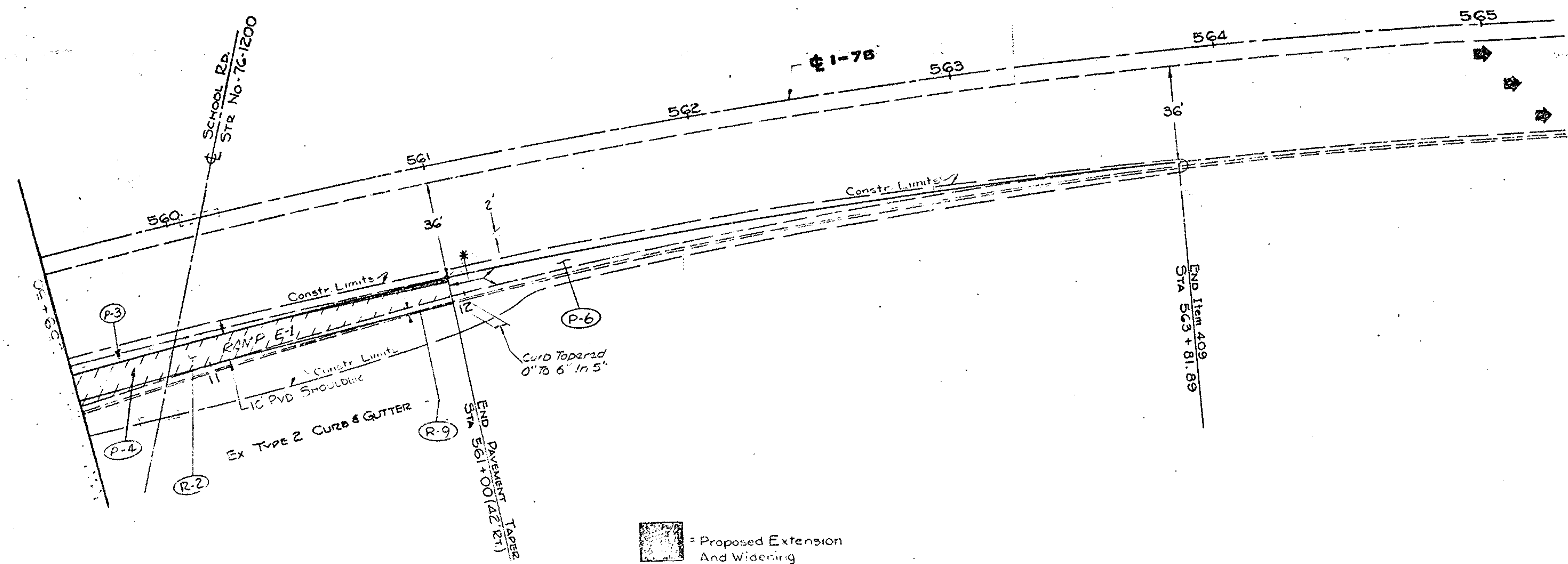
FOR DRAINAGE PROFILE SEE SHEET 26

FOR QUANTITIES
SEE SHEETS 50 & 50.



LANE S
 RAMP T
 E.B. I-76

SUM 78-11.57



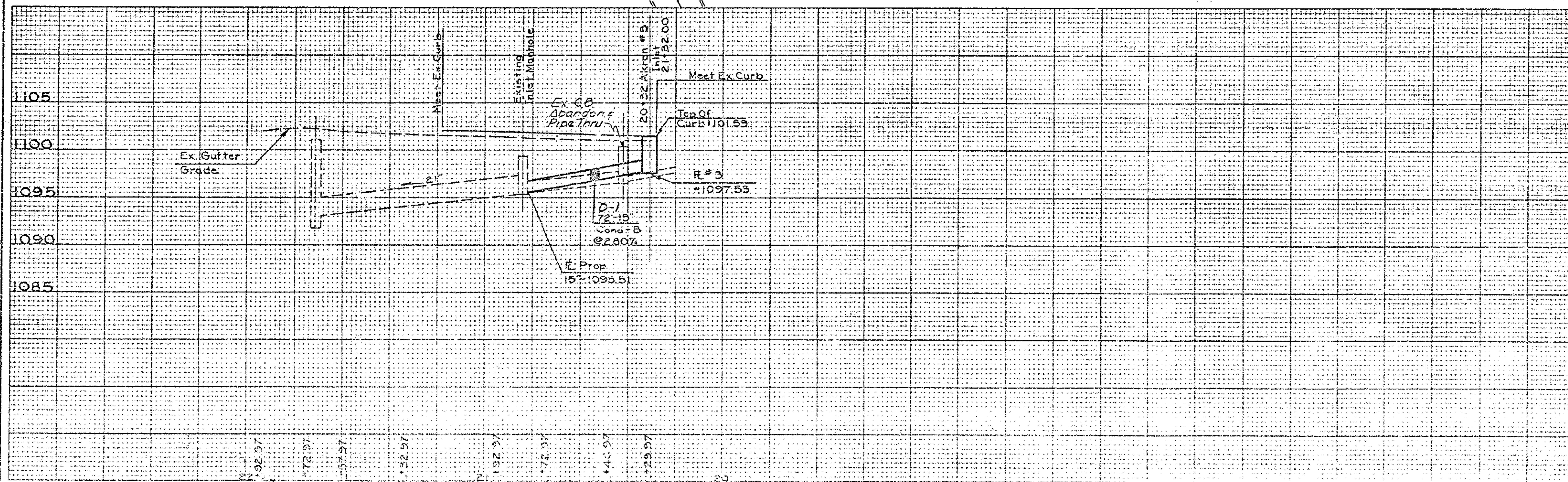
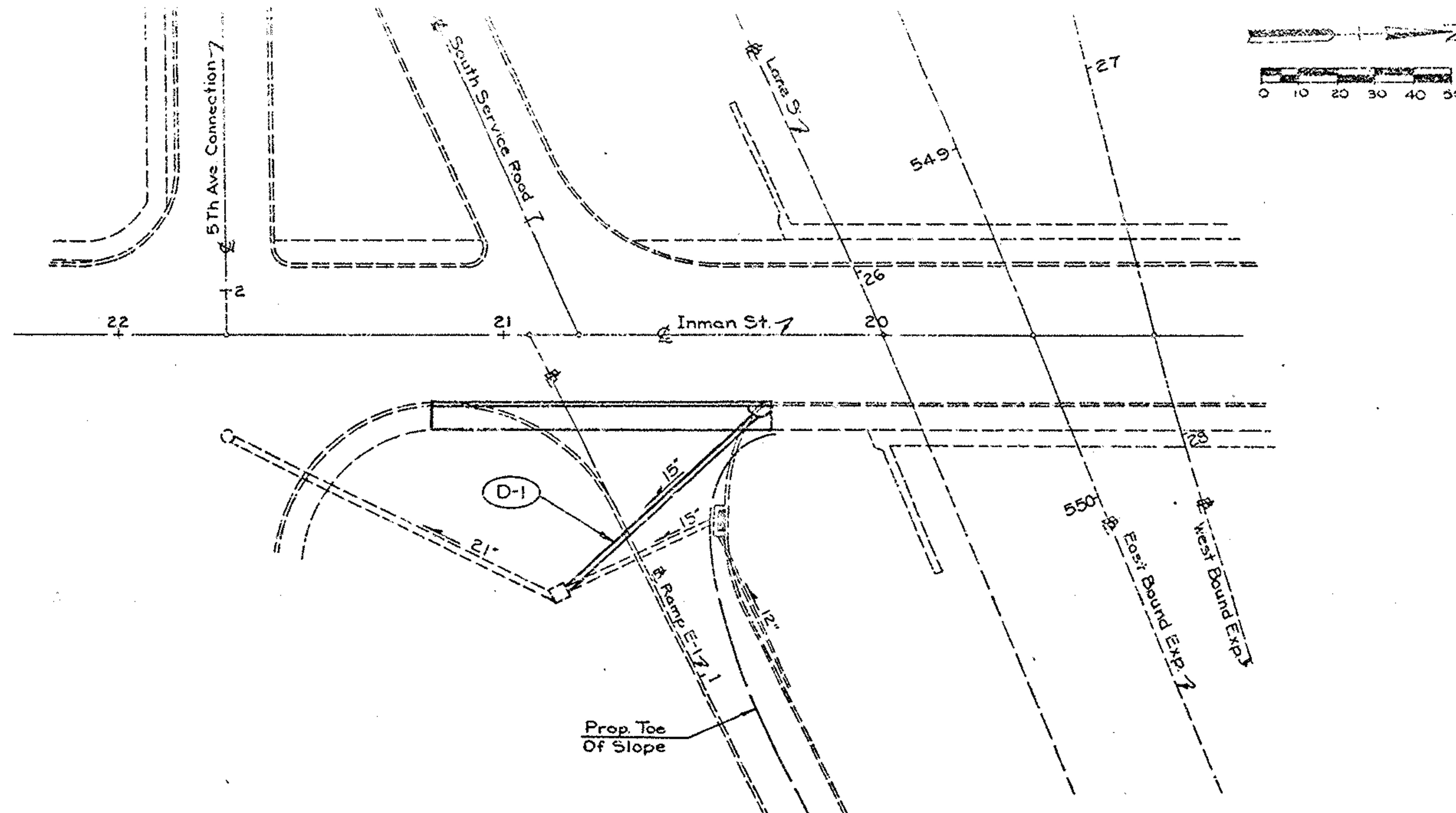
- = Proposed Extension And Widening
- = PAVEMENT REMOVAL
- * Limits Of Item 409 Over Existing Pavement

FOR QUANTITIES
SEE SHEETS 50180



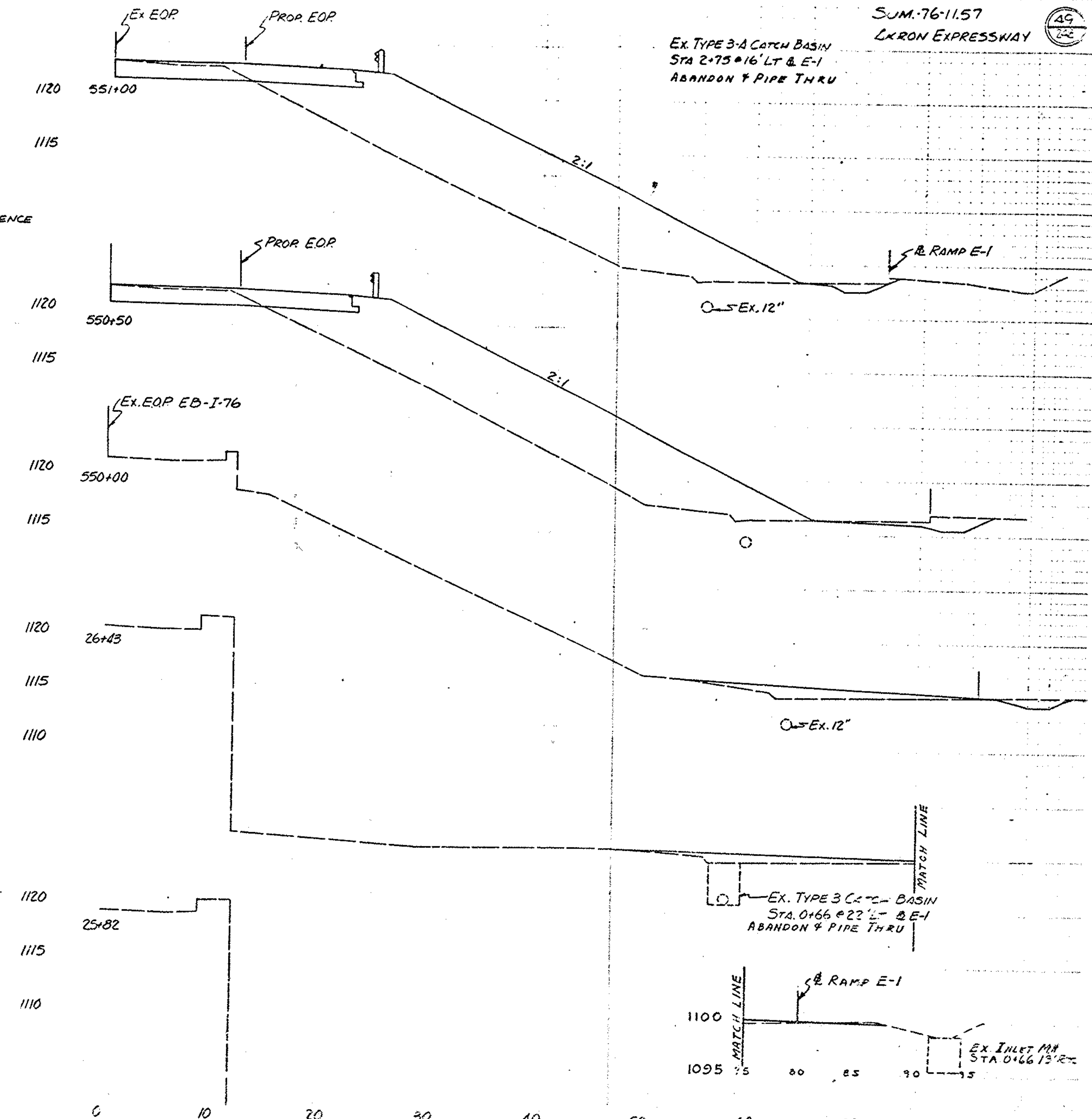
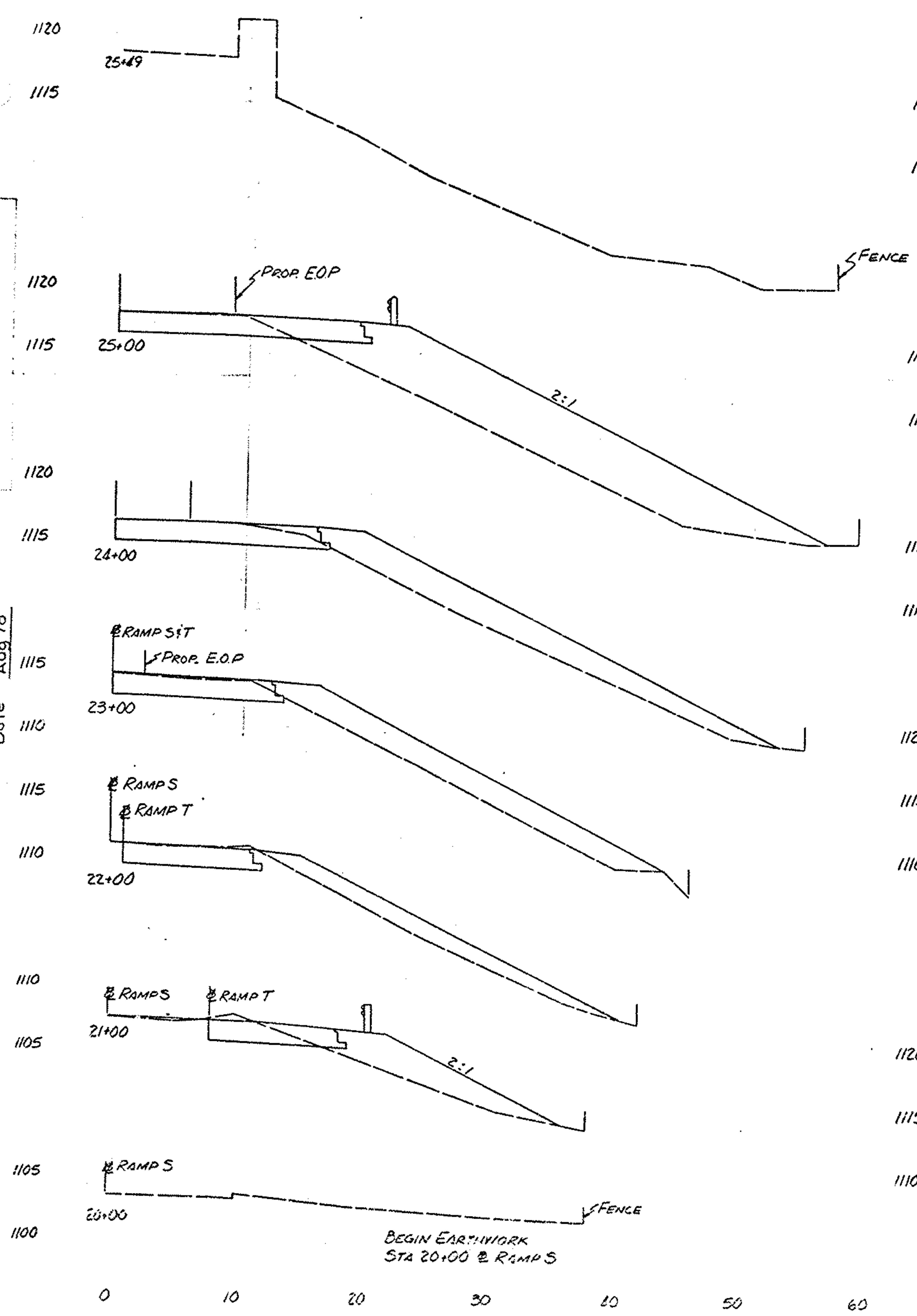
LANE 9
RAMP T
E.B. 1-76

SUM-76-11.57



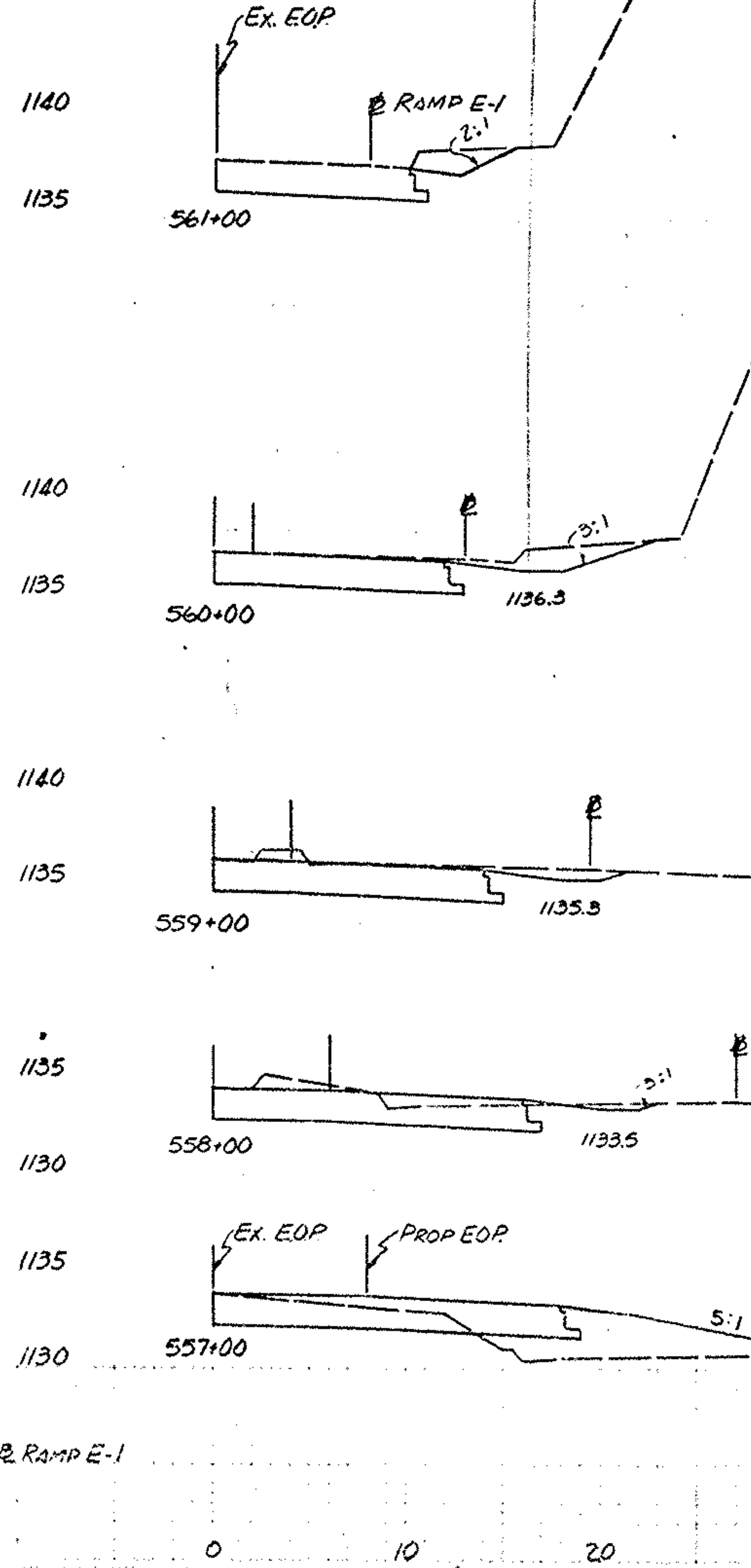
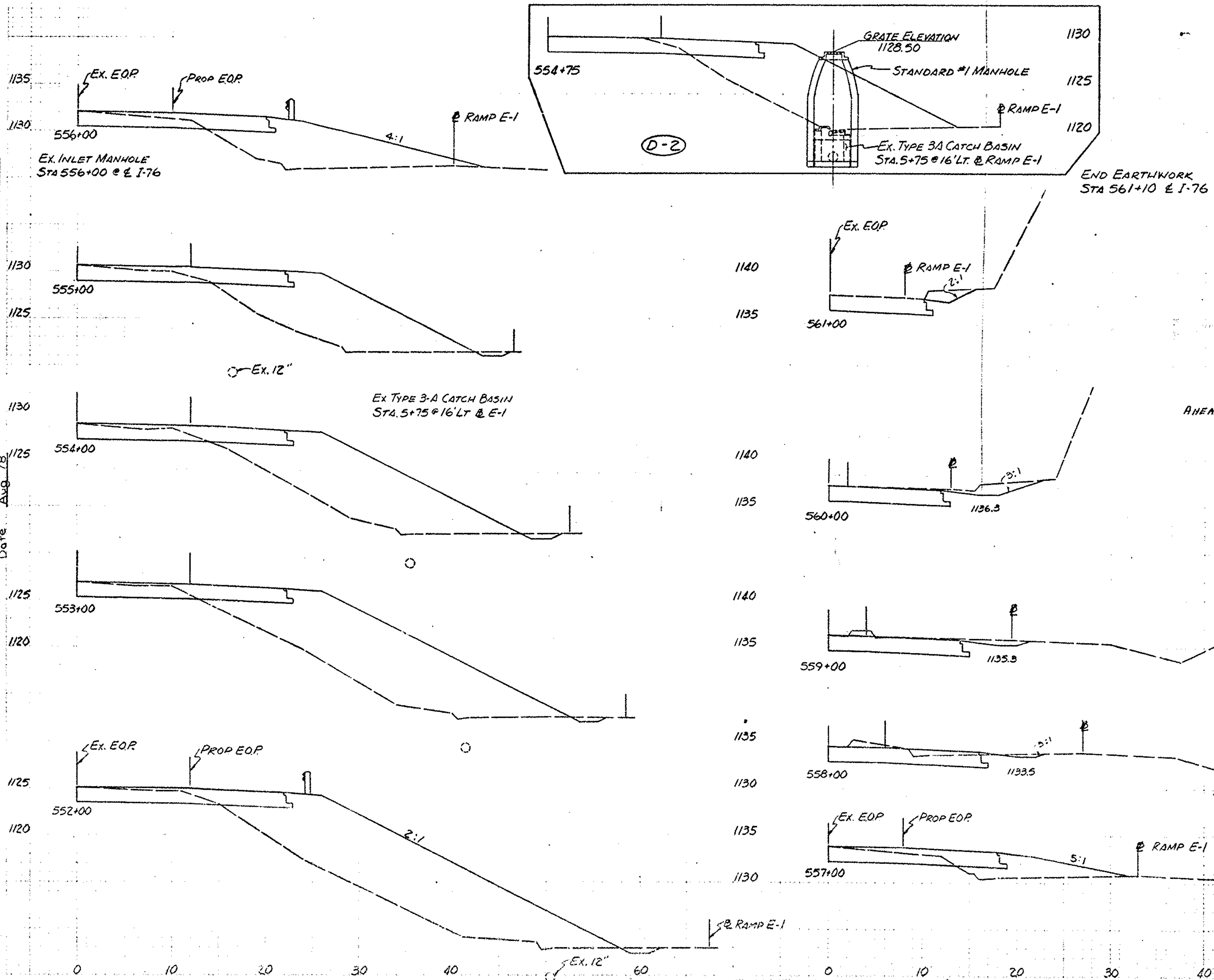
INMAN ST. & RAMP E-1 DETAIL

Calculated By L.S.
 Date July 78
 Checked By G.H.R.
 Date Aug 78



Calculated By L.S.
Date July 78
Checked By G.H.R.
Date Aug 78

50
248



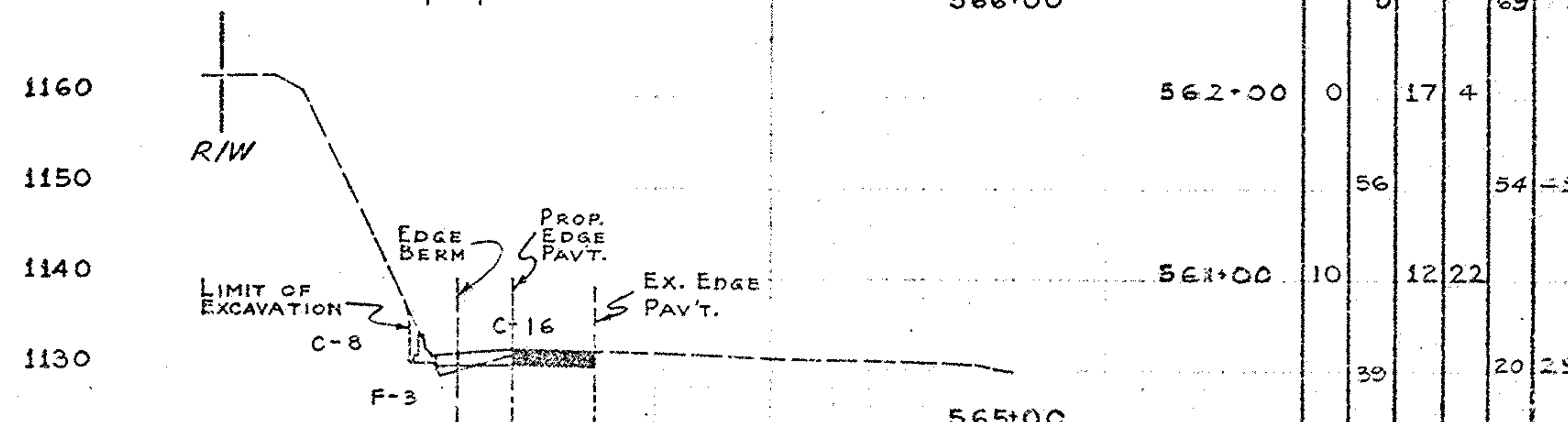
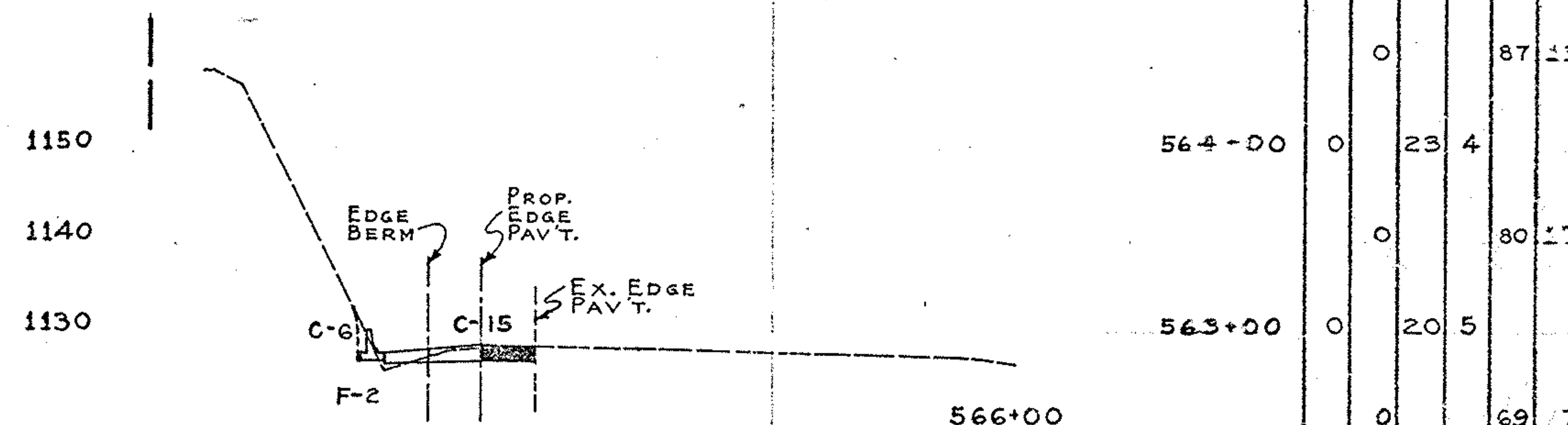
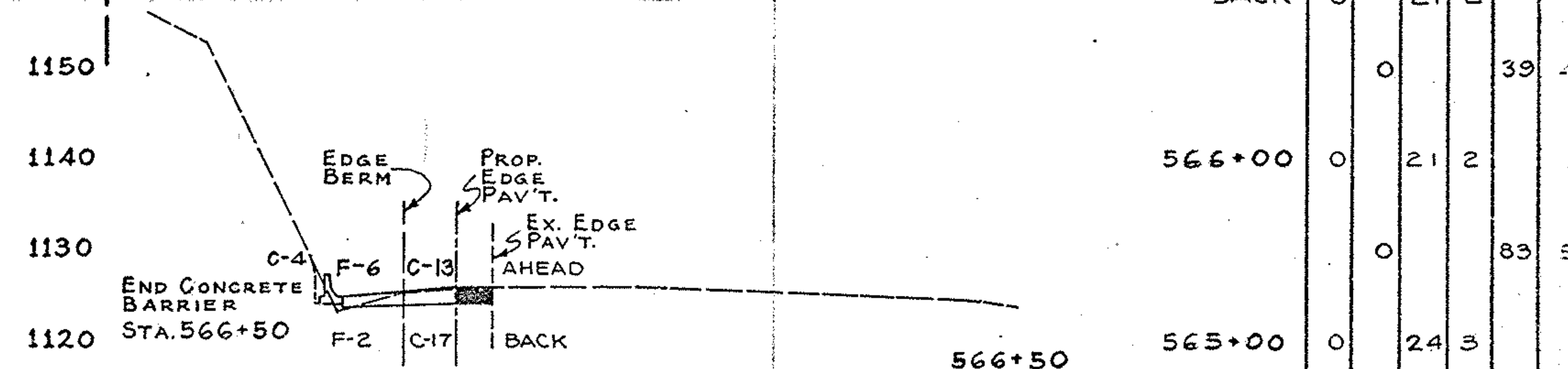
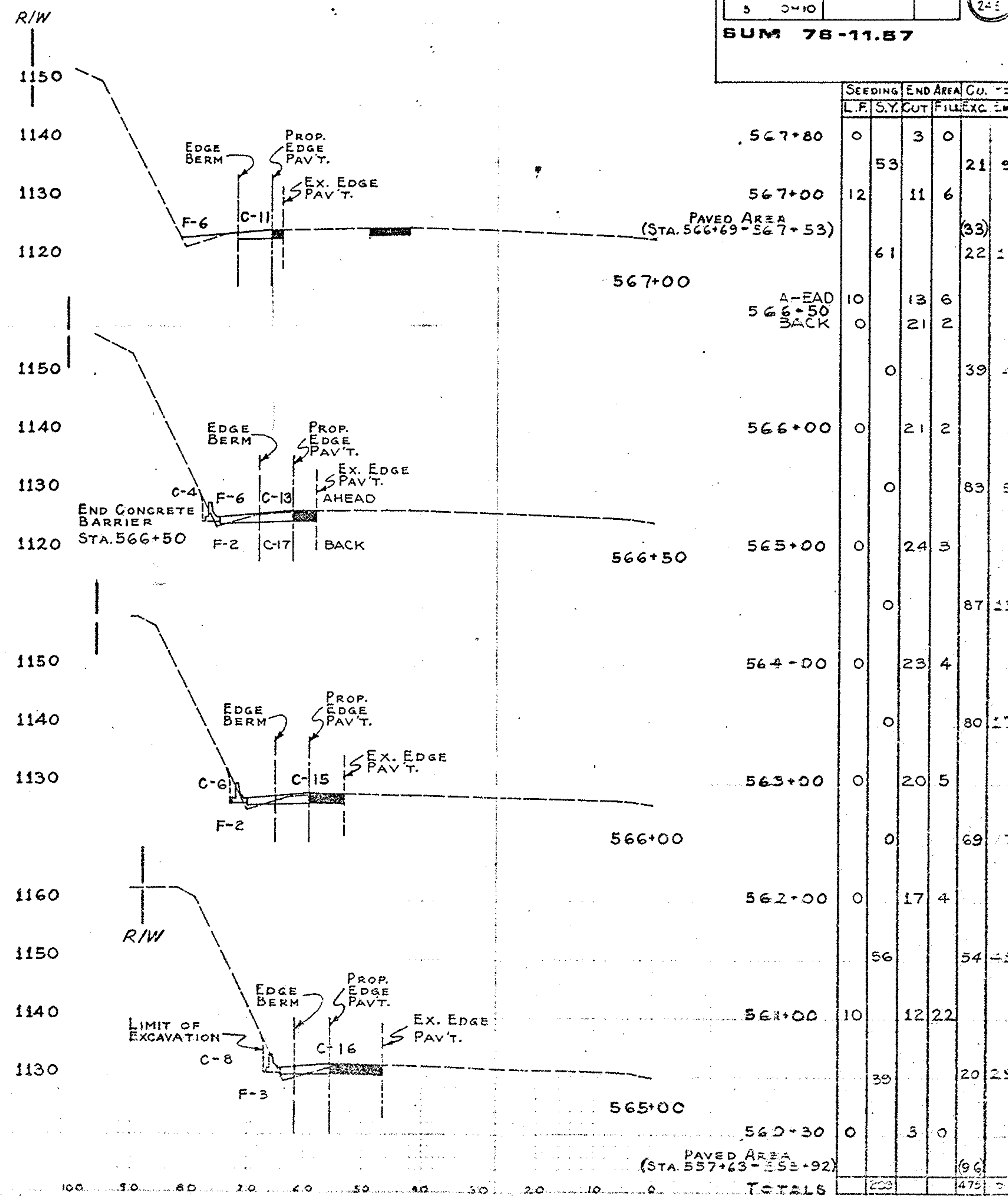
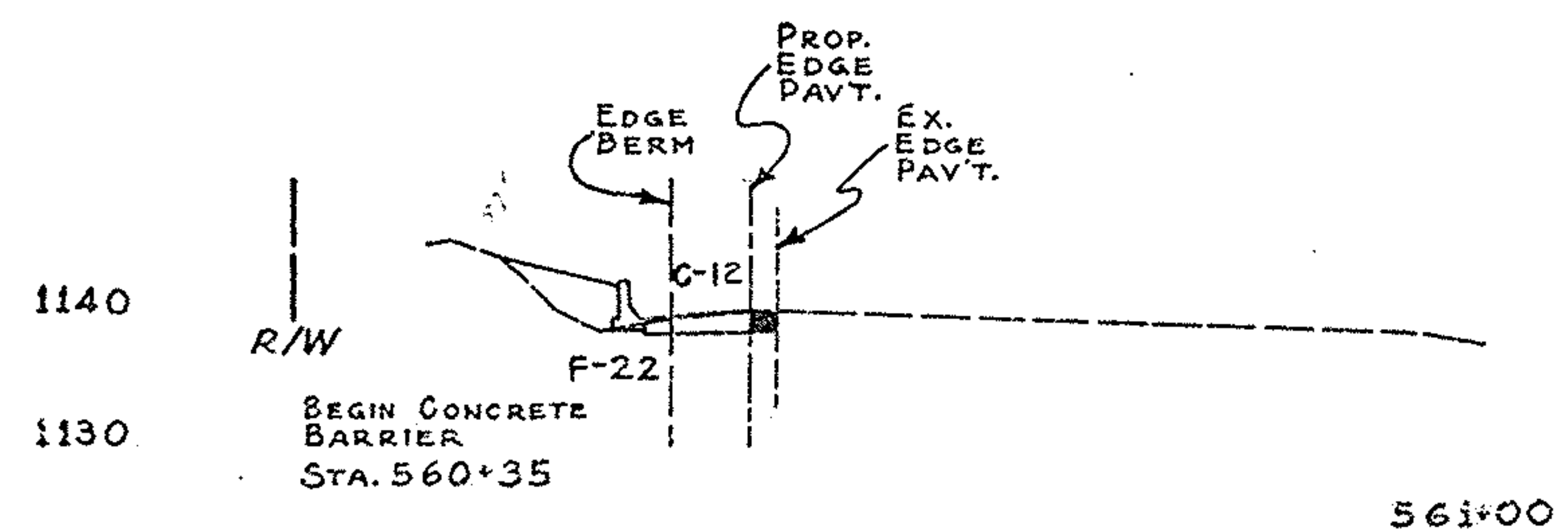
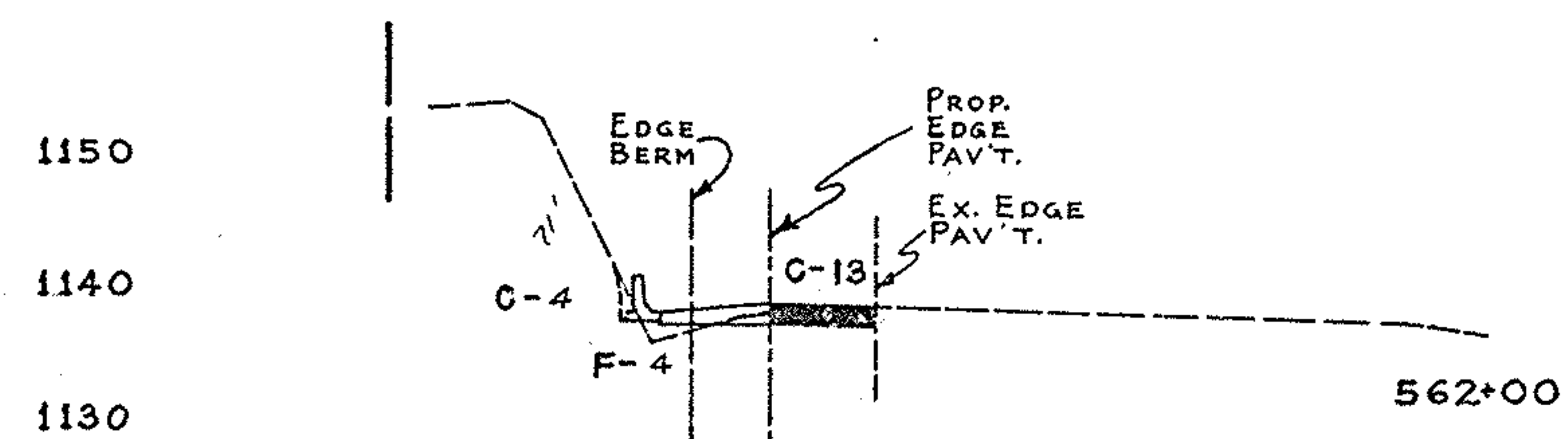
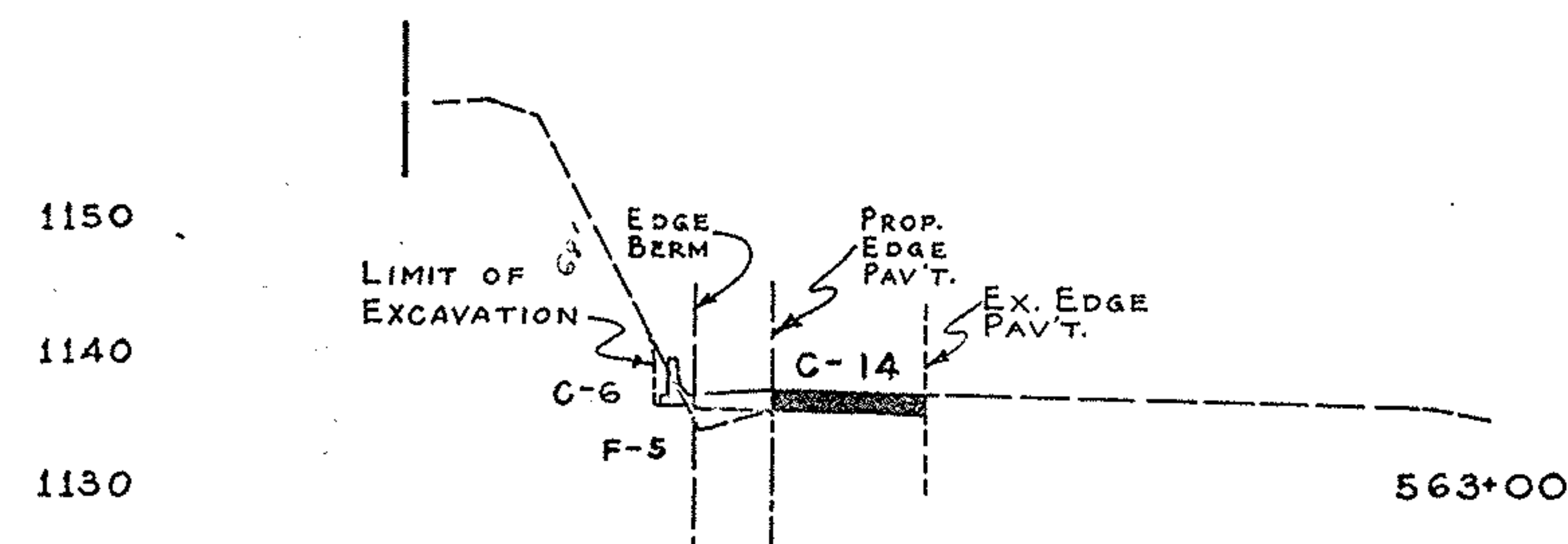
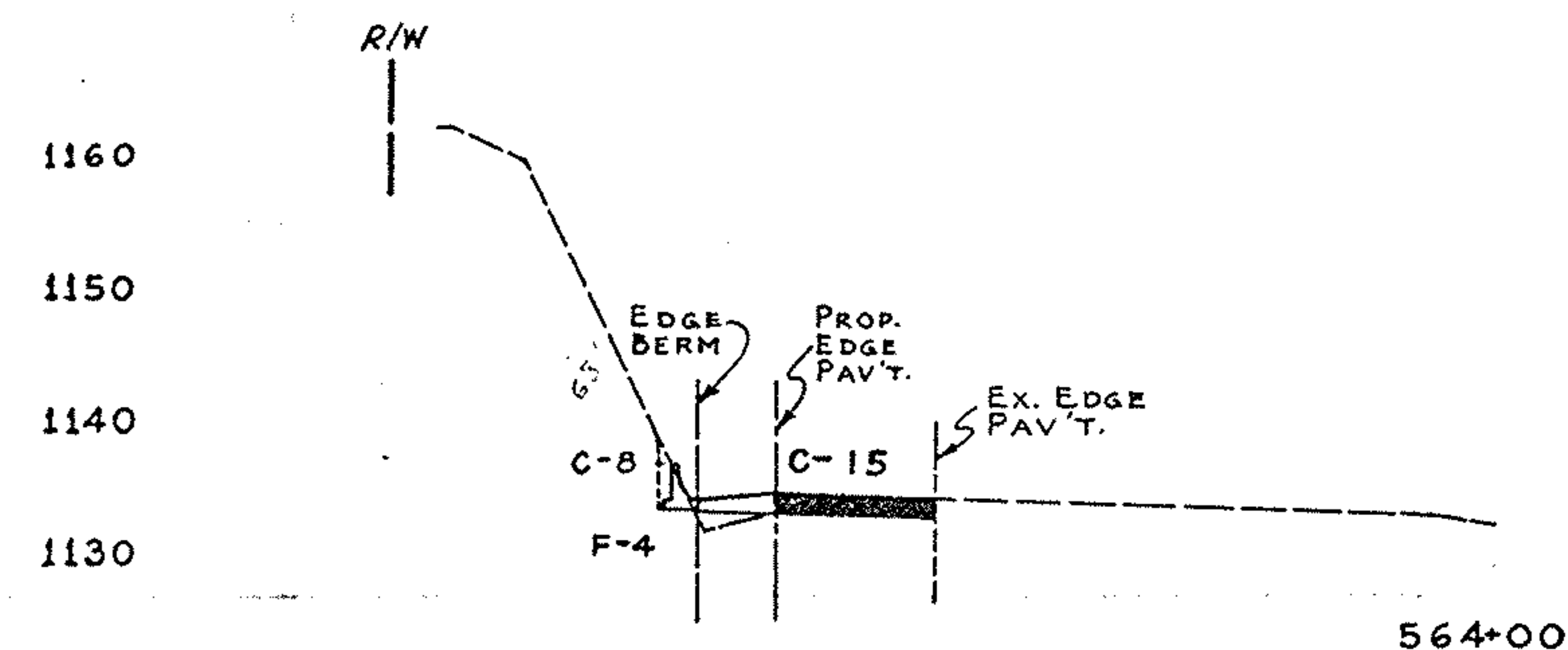
Station	Seeding		End Area		Cubic Yards	
	Lin. Ft.	Sq. Yds.	Cut	Fill	Exc.	Emb.
561+00	8	4	22	0	4	
560+00	13	117	27	0	91	
559+00	9	122	29	0	104	0
558+00	9	100	26	1	102	2
557+00	15	133	15	24	76	46
556+00	26	228	16	77	57	187
555+00	28	300	18	109	63	344
554+00	35	350	18	141	67	463
553+00	40	417	19	186	69	606
552+00	46	478	22	218	76	748
551+00	58	578	22	265	81	894
550+50	67	347	29	244	47	472
550+00	38	292	4	20	31	245
26+43	45	161	1	15	3	23
25+45	0	0	0	0	0	0
25+00	43	108	19	152	16	126
24+00	42	472	23	70	78	411
23+00	35	428	20	59	80	239
22+00	33	378	17	33	69	170
21+00	21	300	11	33	52	122
20+00	0	117	0	0	20	61
		5430			1186	5159
NOSE FOR RAMP S * RAMP T					11	0
					1197	5159

AHEAD ONLY

Calculated By W.H.
Date June 78
Checked By G.H.R.
Date Aug. 78

STATE	SECTION	PROJECT
5	0-10	

SUM 78-11.87



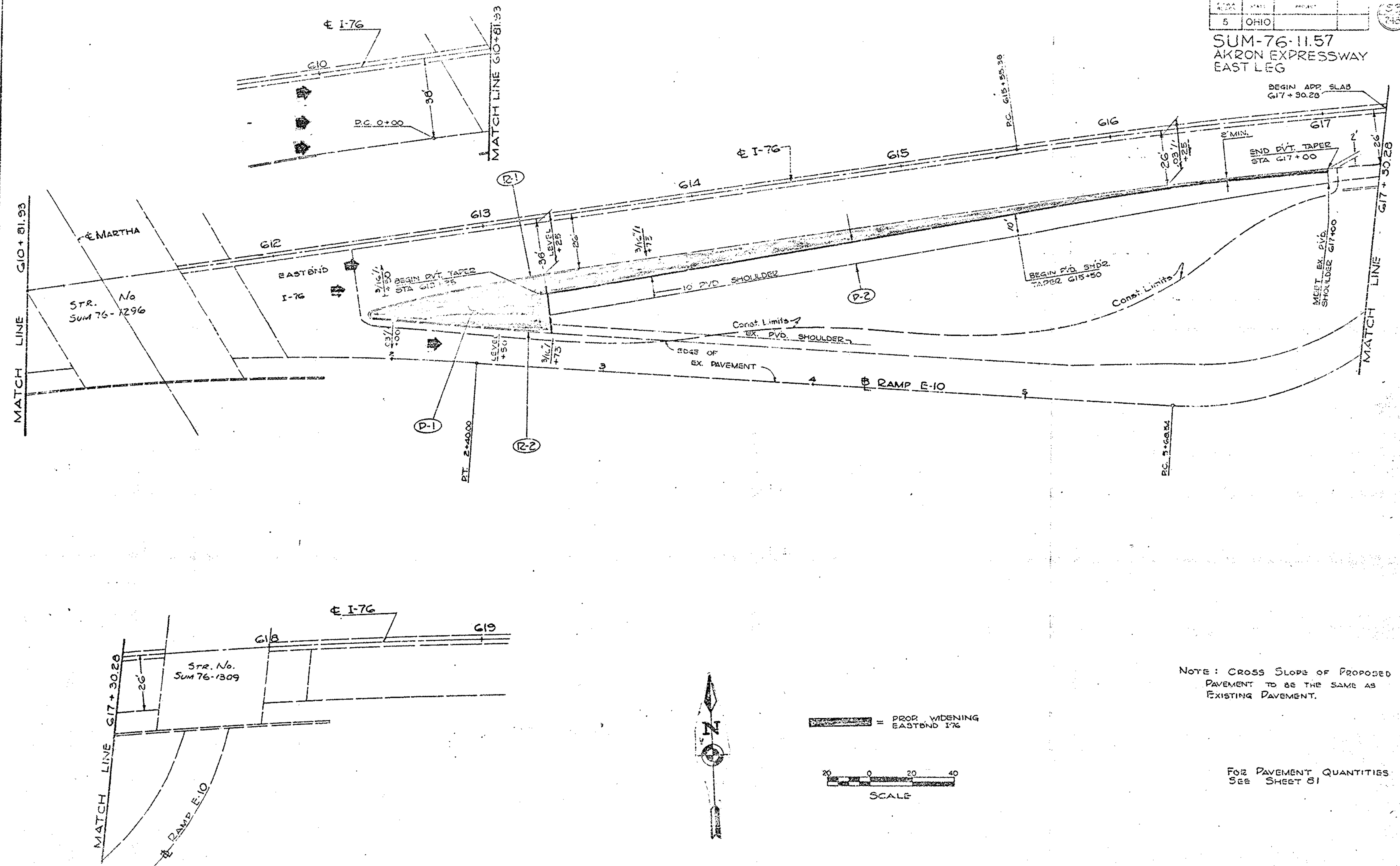
SEEDING	END AREA	CU.
L.F.	S.Y.	CUT
0	3	0
12	11	6
61	22	11
10	13	6
0	21	2
0	0	39
0	21	2
0	0	83
0	24	3
0	0	87
0	23	4
0	0	80
0	20	5
0	0	69
0	17	4
56	54	12
10	12	22
39	20	25
0	3	0
203	475	5

RAMP E-253

ALTA	STATE	PROJECT
5	OHIO	

33
245

SUM-76-11.57
AKRON EXPRESSWAY
EAST LEG



NOTE: CROSS SLOPE OF PROPOSED PAVEMENT TO BE THE SAME AS EXISTING PAVEMENT.

FOR PAVEMENT QUANTITIES SEE SHEET 81

EAST END I-76 RAMP E-10

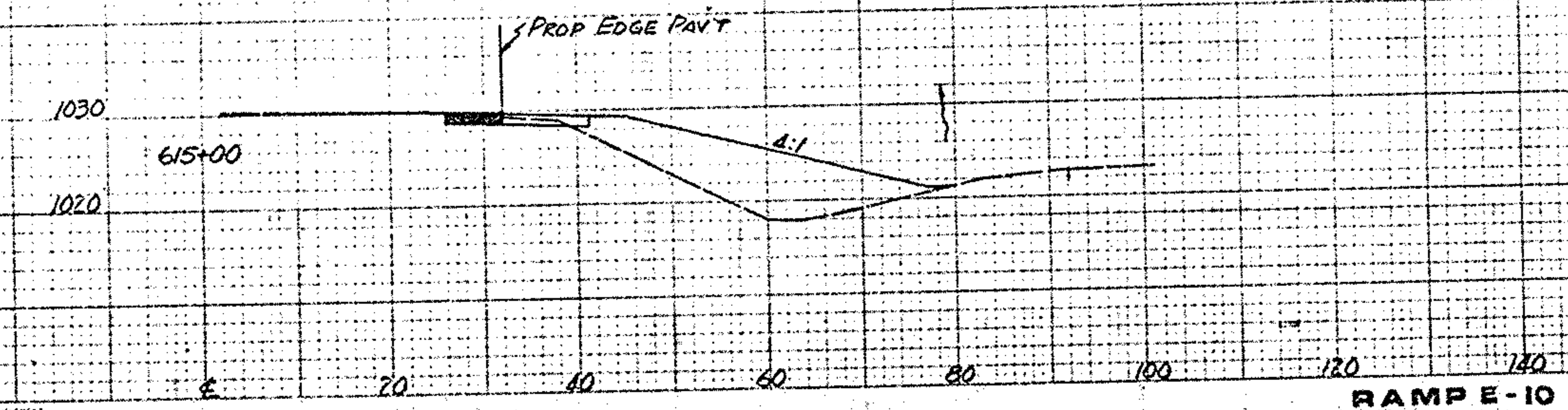
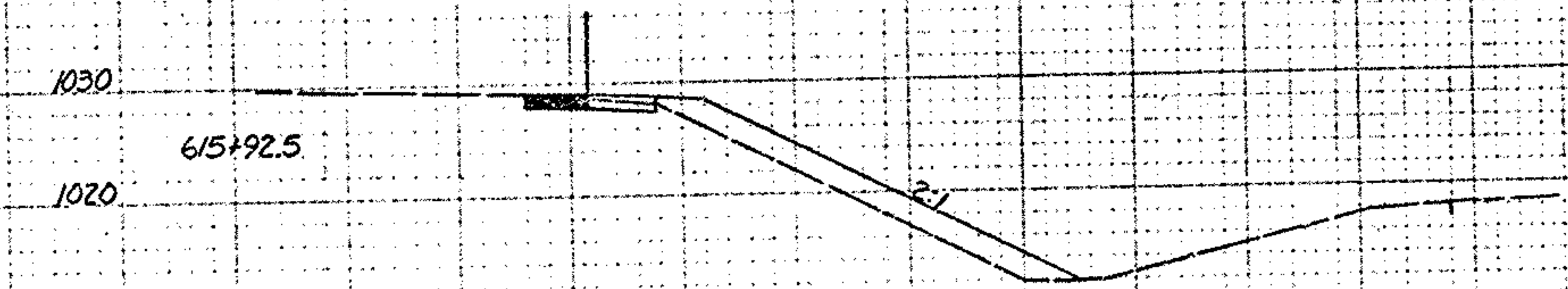
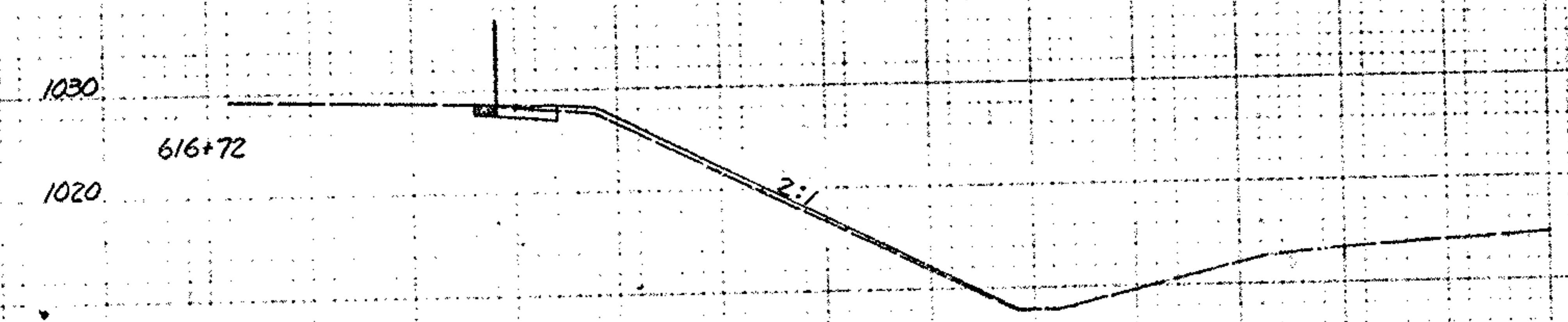
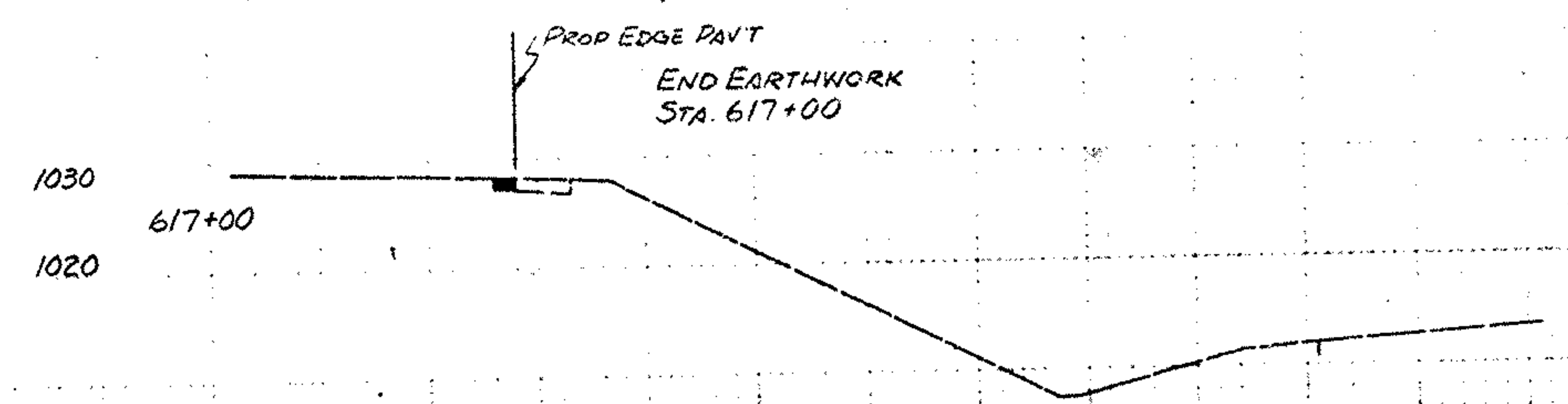
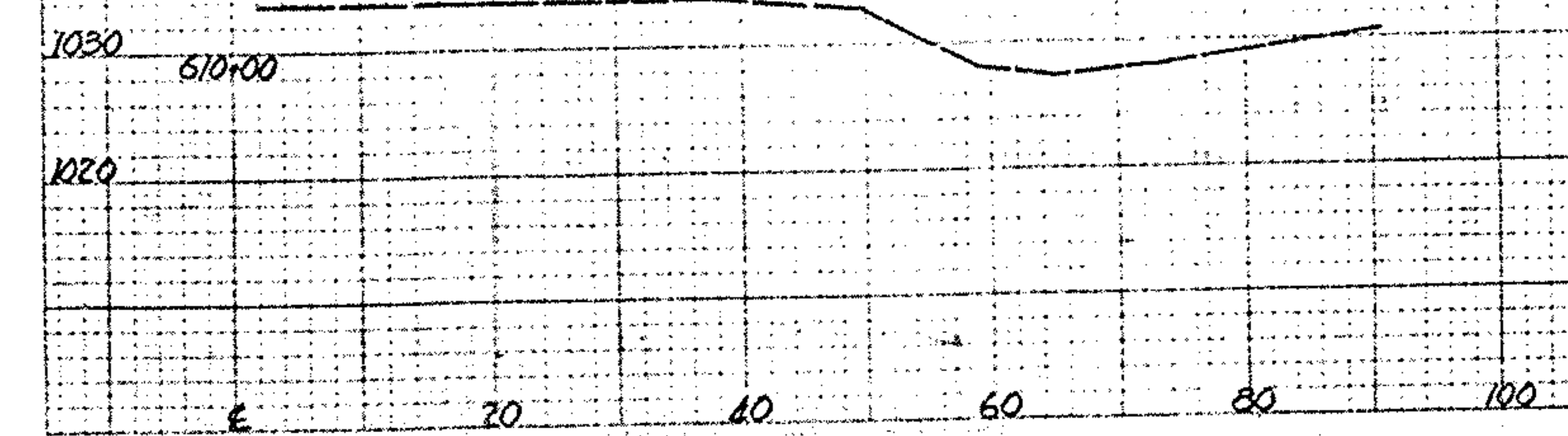
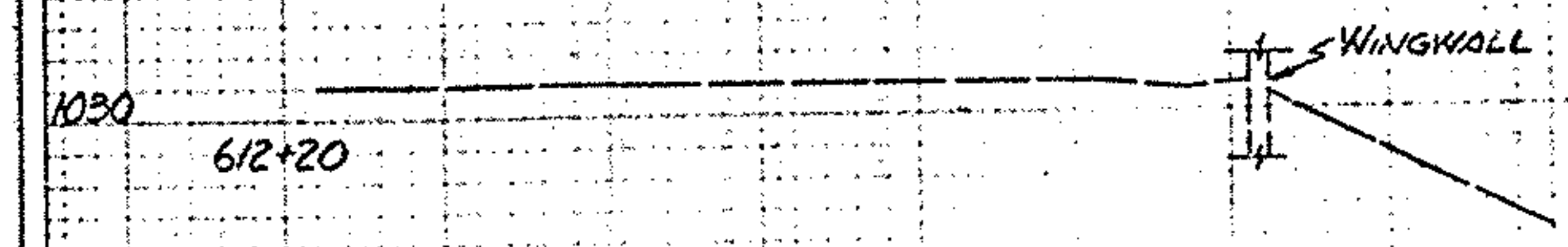
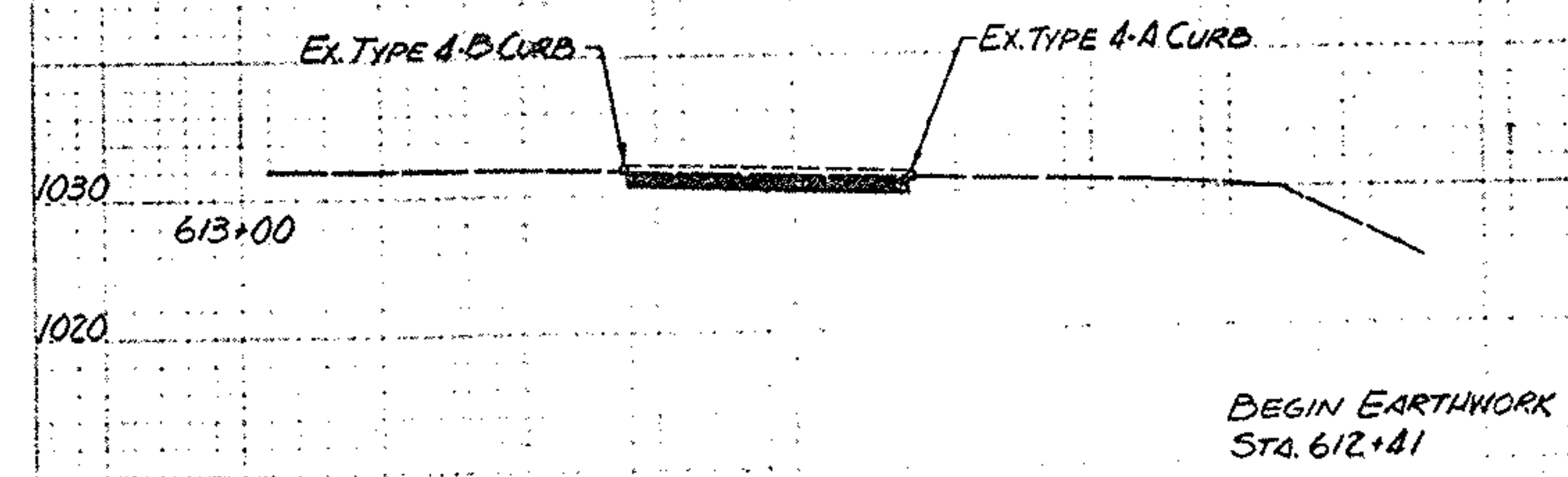
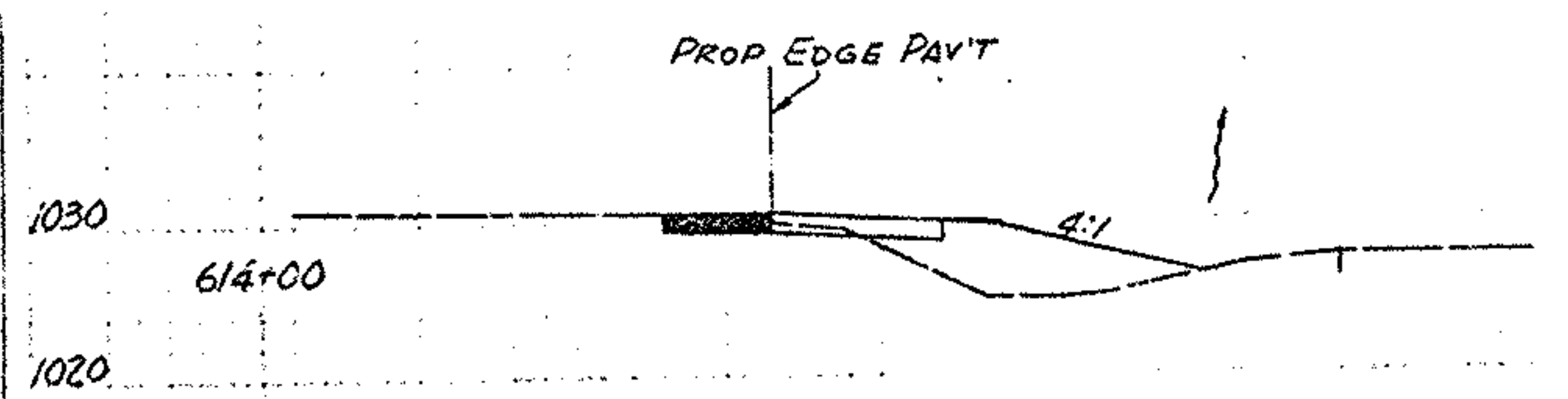
Sta.	Sanding		End Area		Cu. Yd.	
	L.F.	S.Y.	Cut	Fill	Exc.	Emb.
617+00	0	81	0	0	(58)	4
616+72	52	420	7	22	25	153
615+92.5	43	437	10	82	32	435
615+00	42	344	9	172	31	428
614+00	20	111	8	59	74	109
613+00	0		32	0	35	
612+41	0		0	0		
		1393			259	136

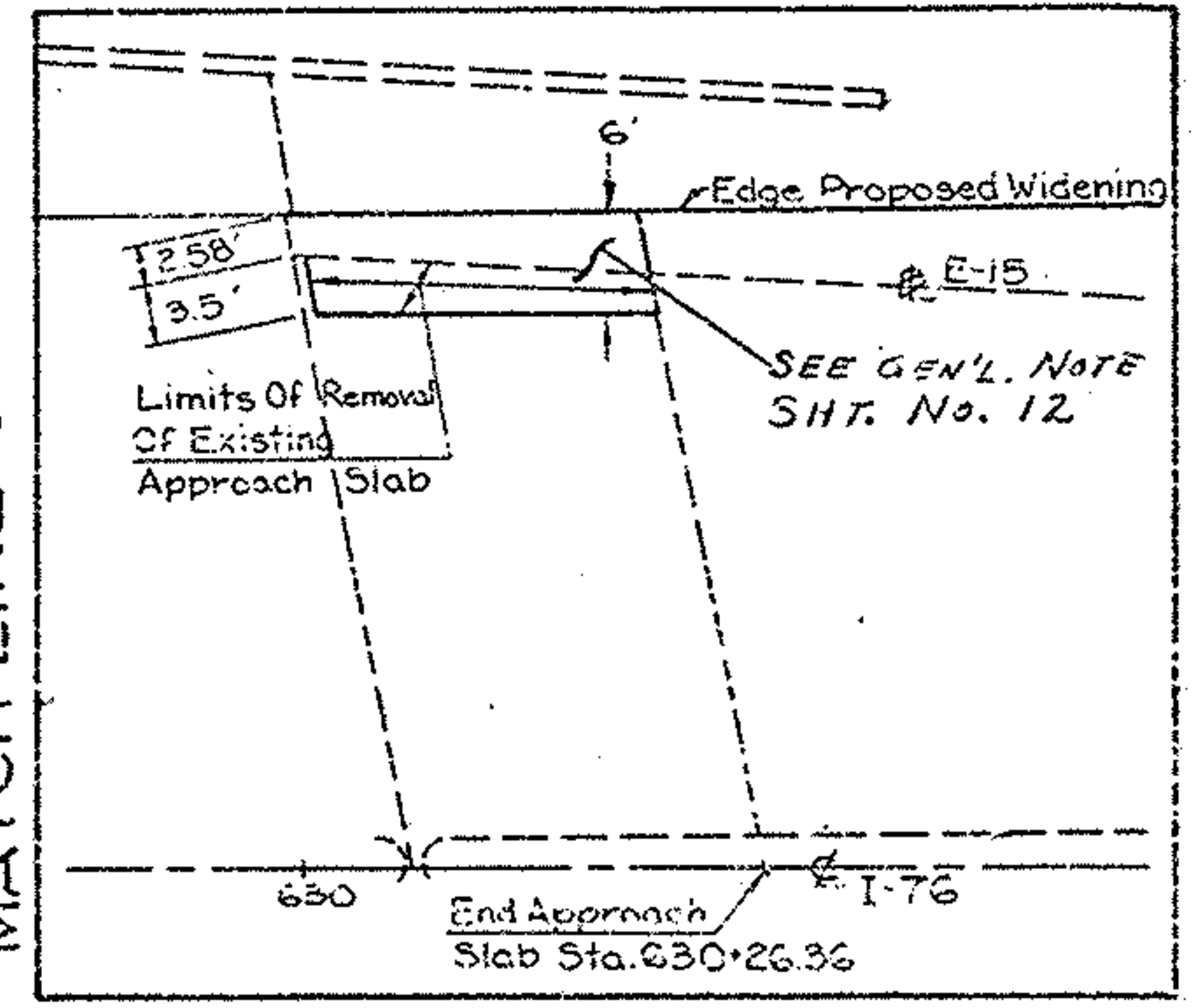
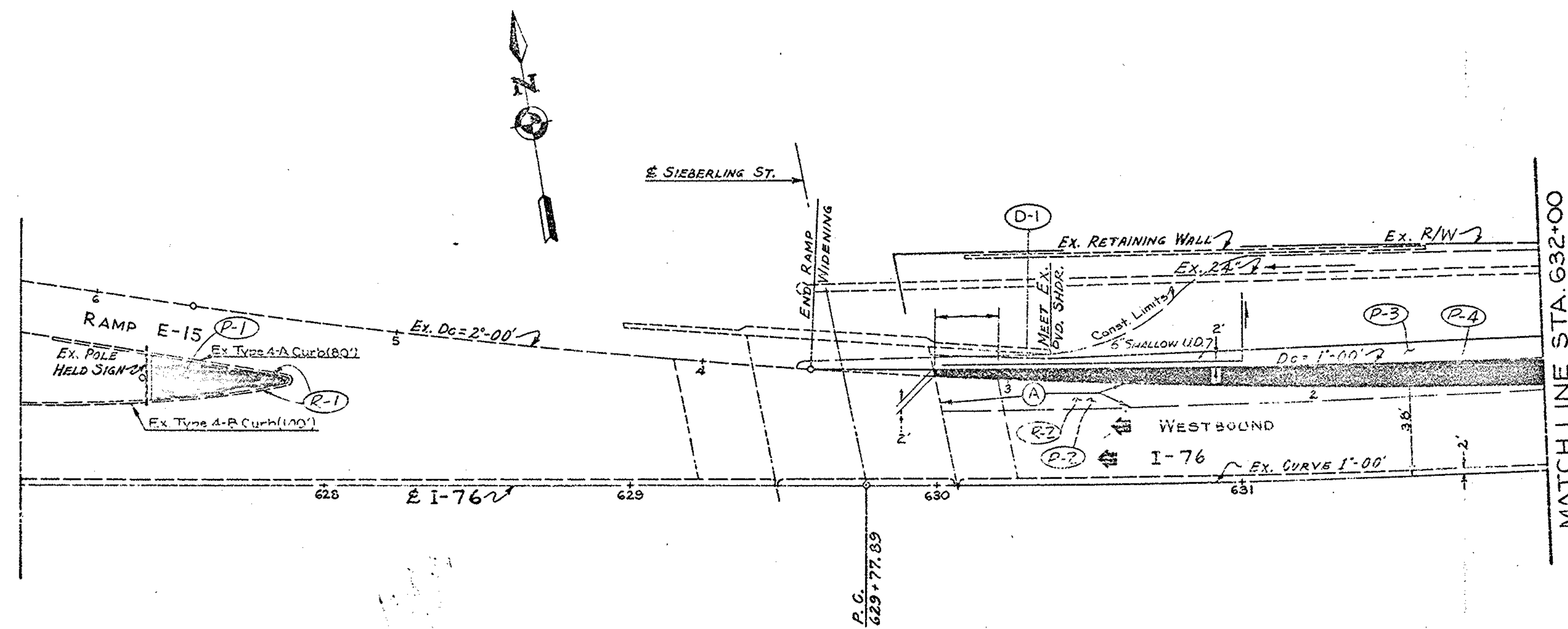
(ISLAND)

FINAL
SURVEY
DATE
BY

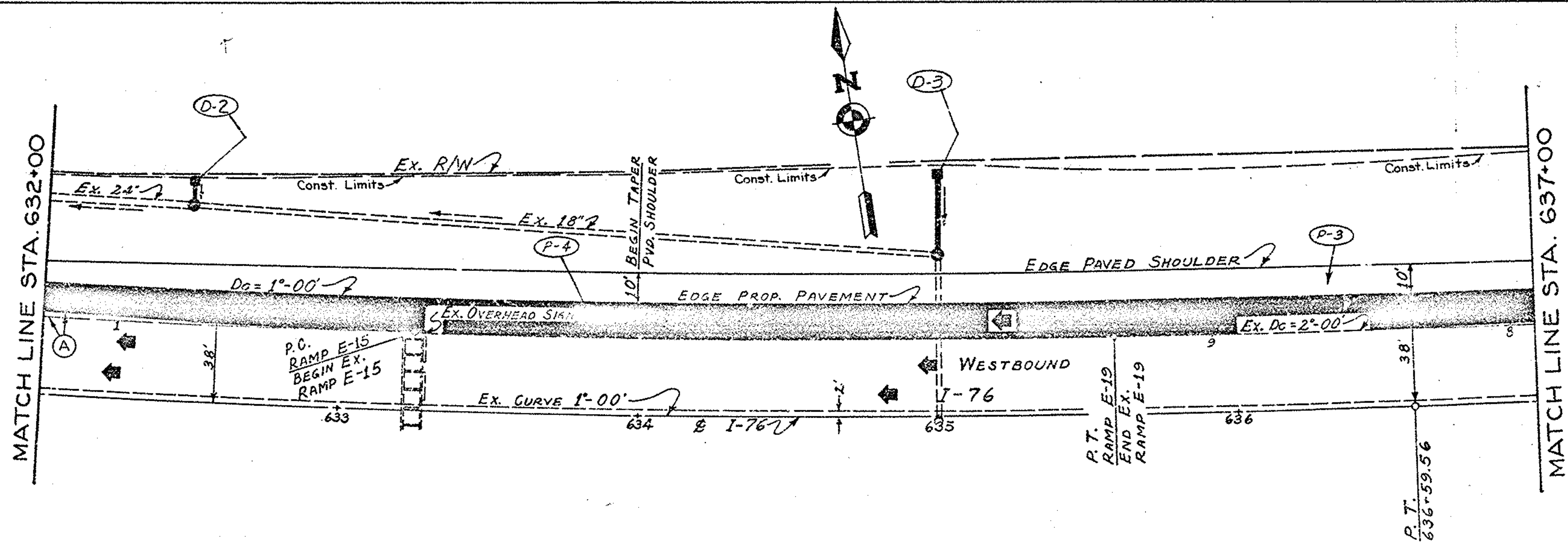
Calculated By, L.S.
Date May 78
Checked By G.H.R.
Date Aug 78

ORIGINAL
SURVEY
DATE
BY





(S-1) = Widening Of Existing Approach Slab

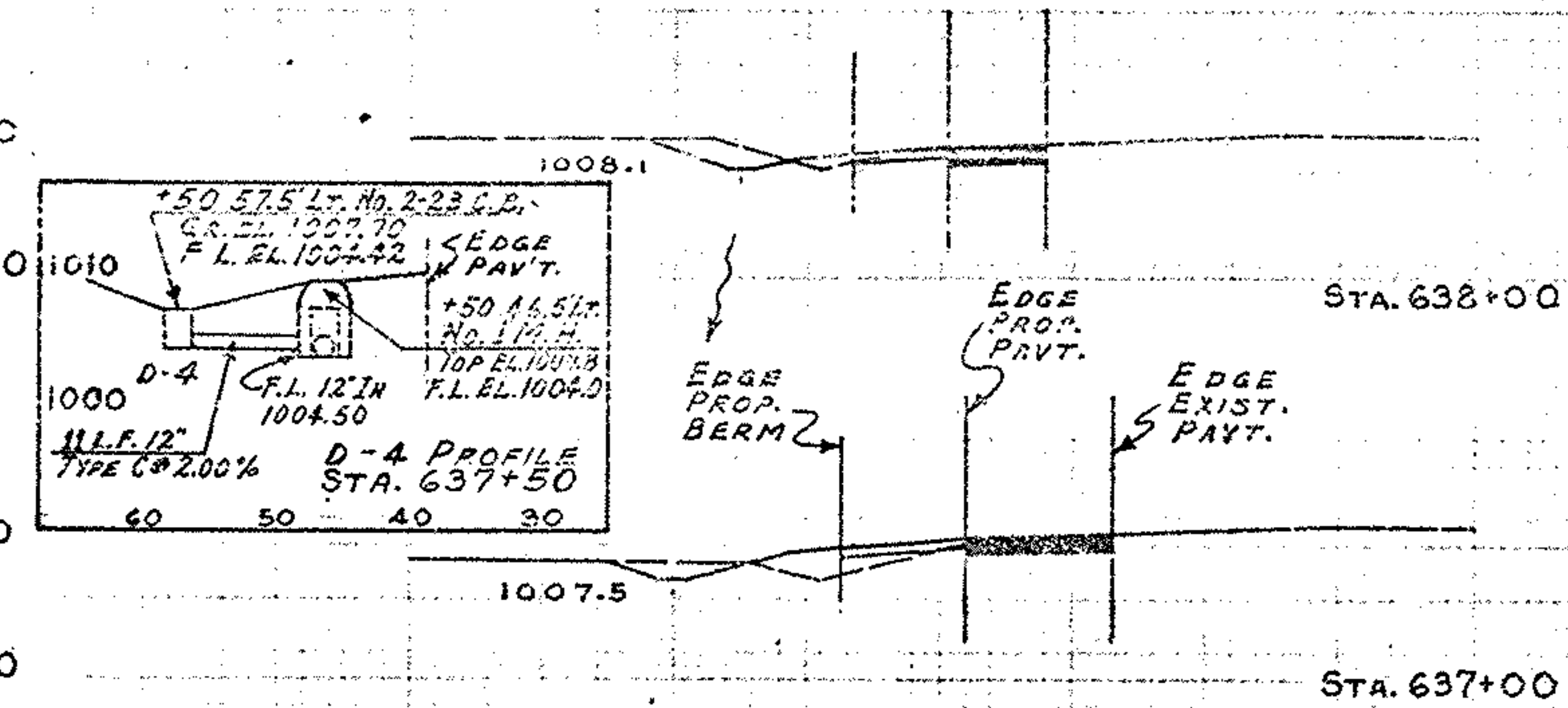
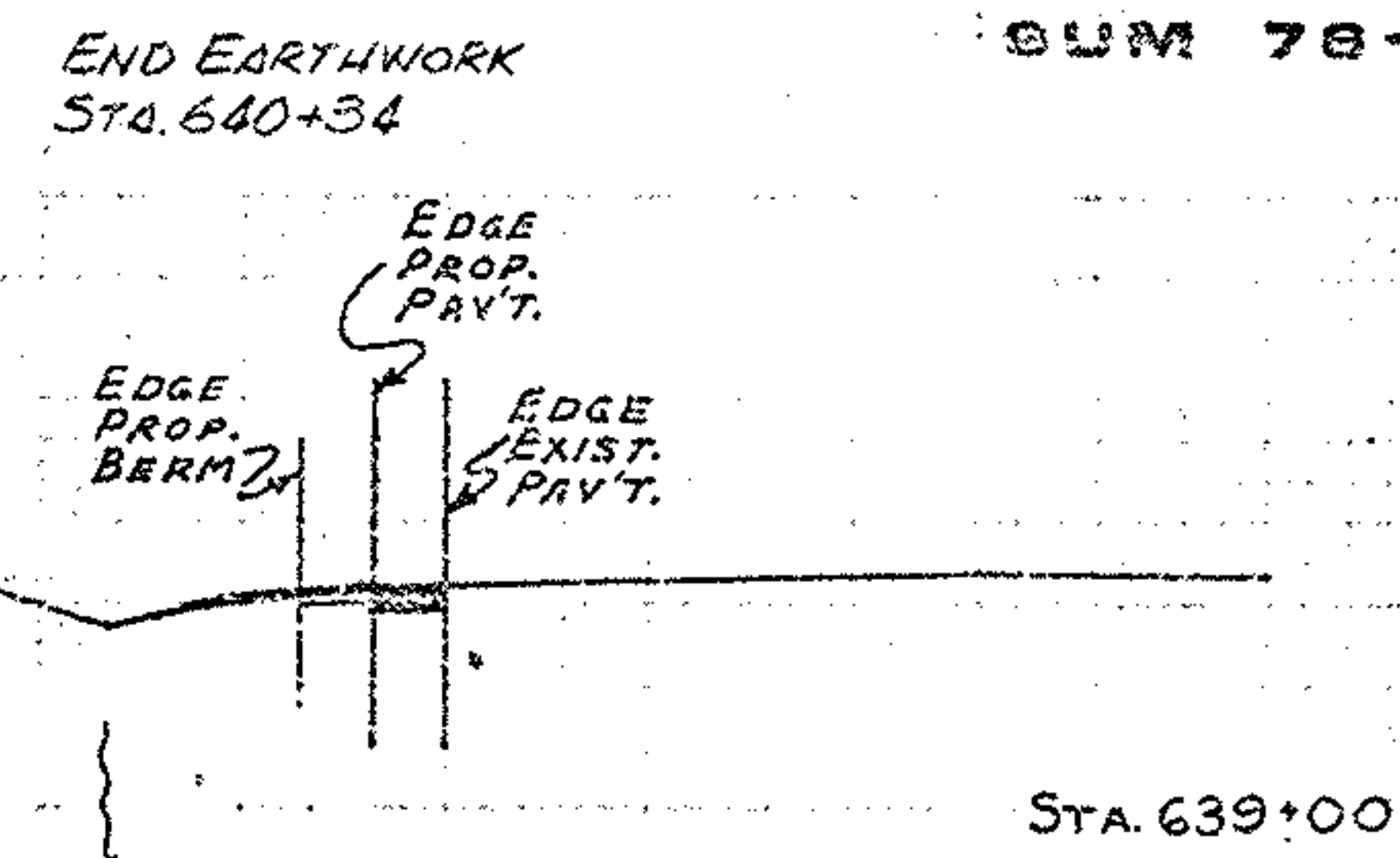


(A) Limits Of Wearing Course Removal

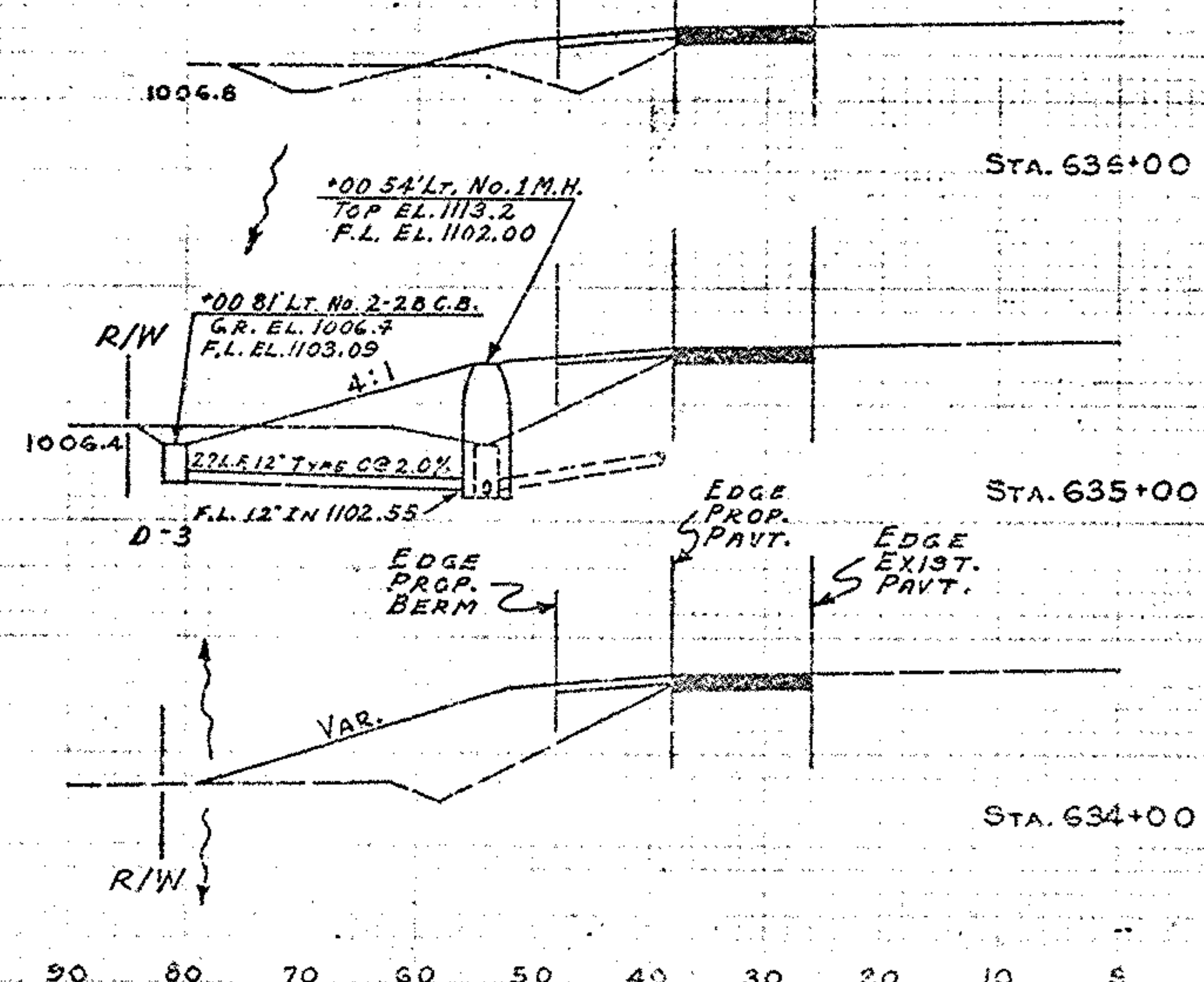
■ = Proposed Widening Or Extension

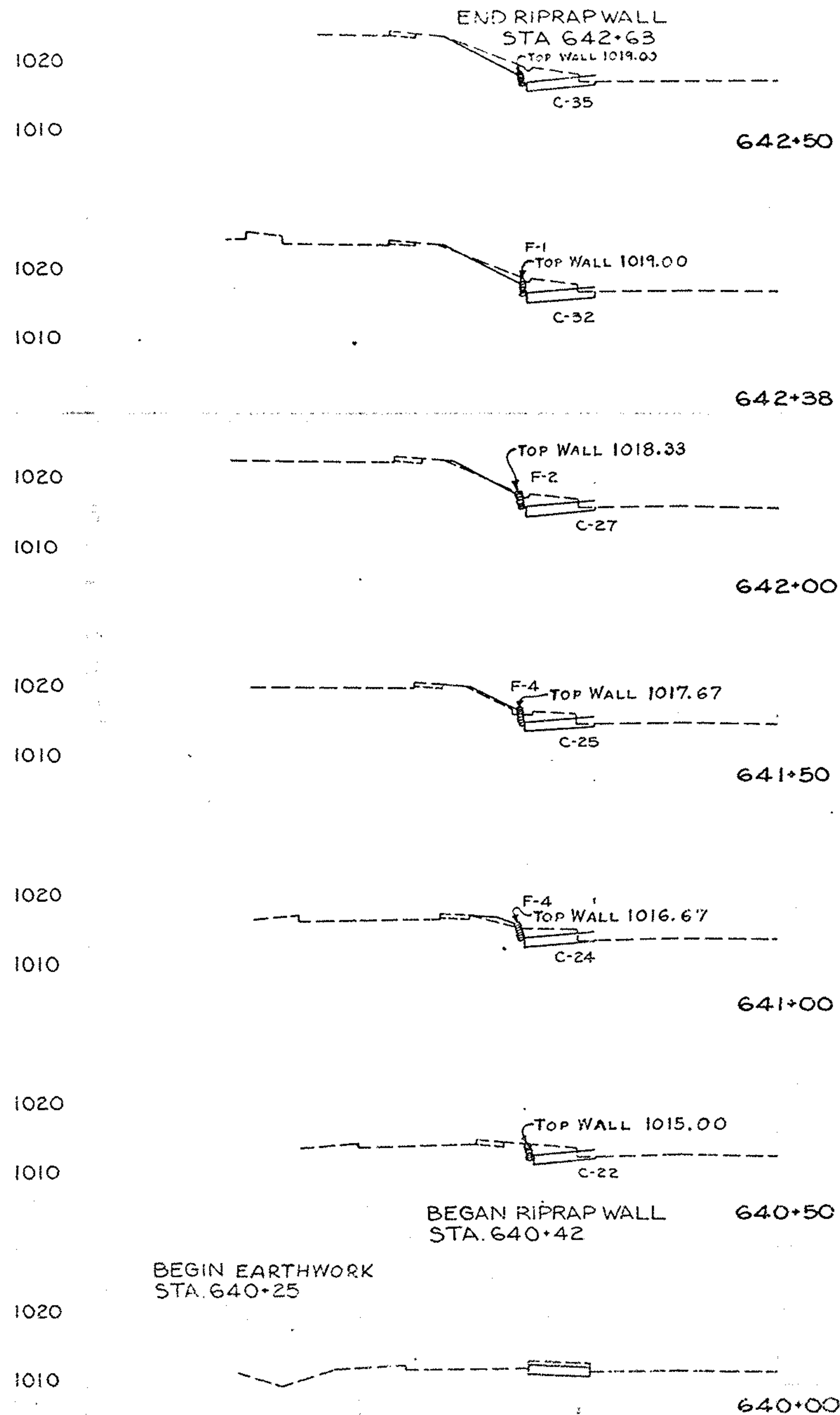
FOR QUANTITIES
SEE SHEETS 57, 58, 61

FOR DRAINAGE PROFILES
SEE SHEET 57

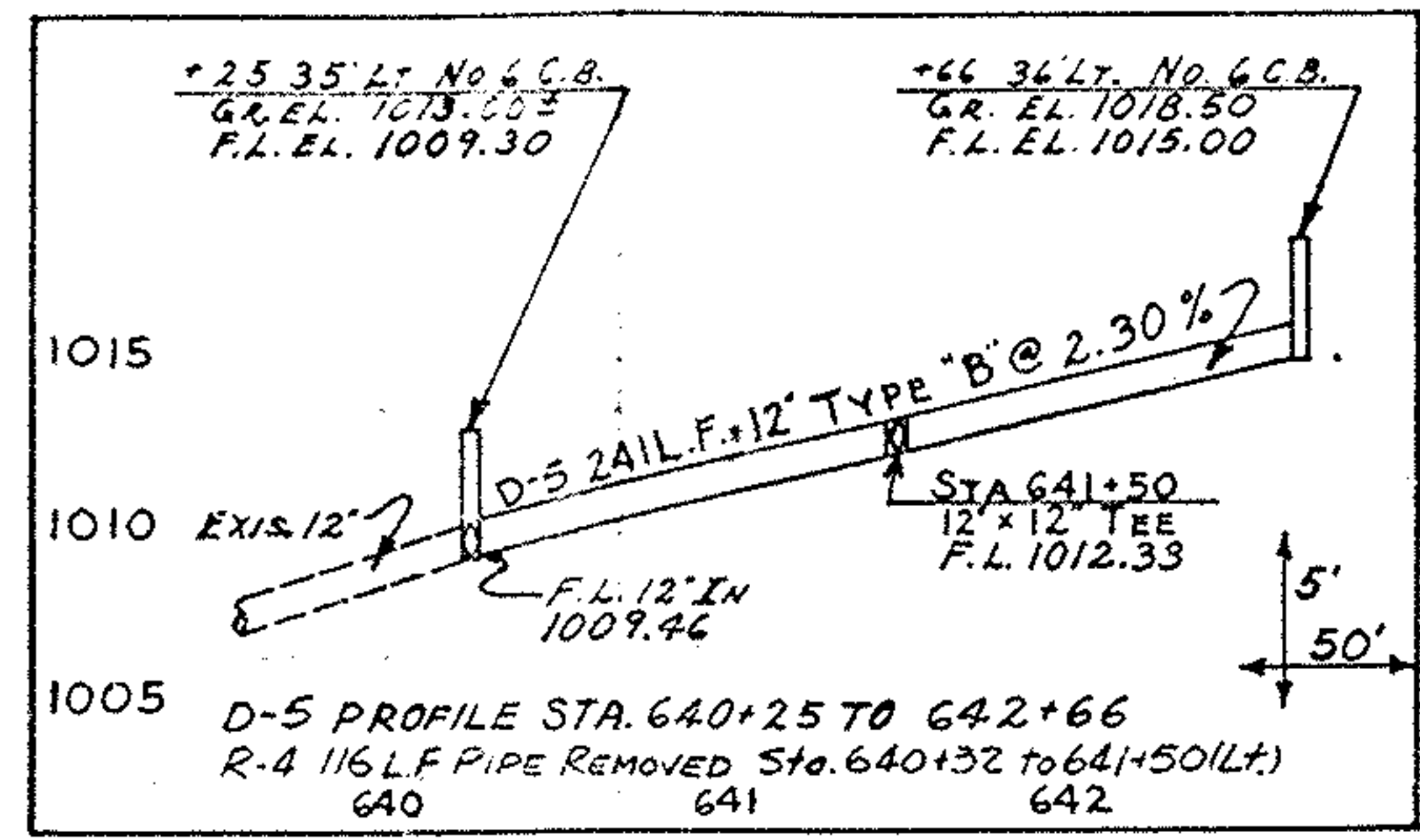


ESTIMATED QUANTITIES
D-2, D-3, D-4 ITEM 603-46LF 12" CONDUIT, TYPE C
D-2, D-3, D-4 ITEM 604 - 3 EA. 2-2B CATCH BASIN
D-2, D-3, D-4 ITEM 604-3 EA. No. 1 MAN HOLE

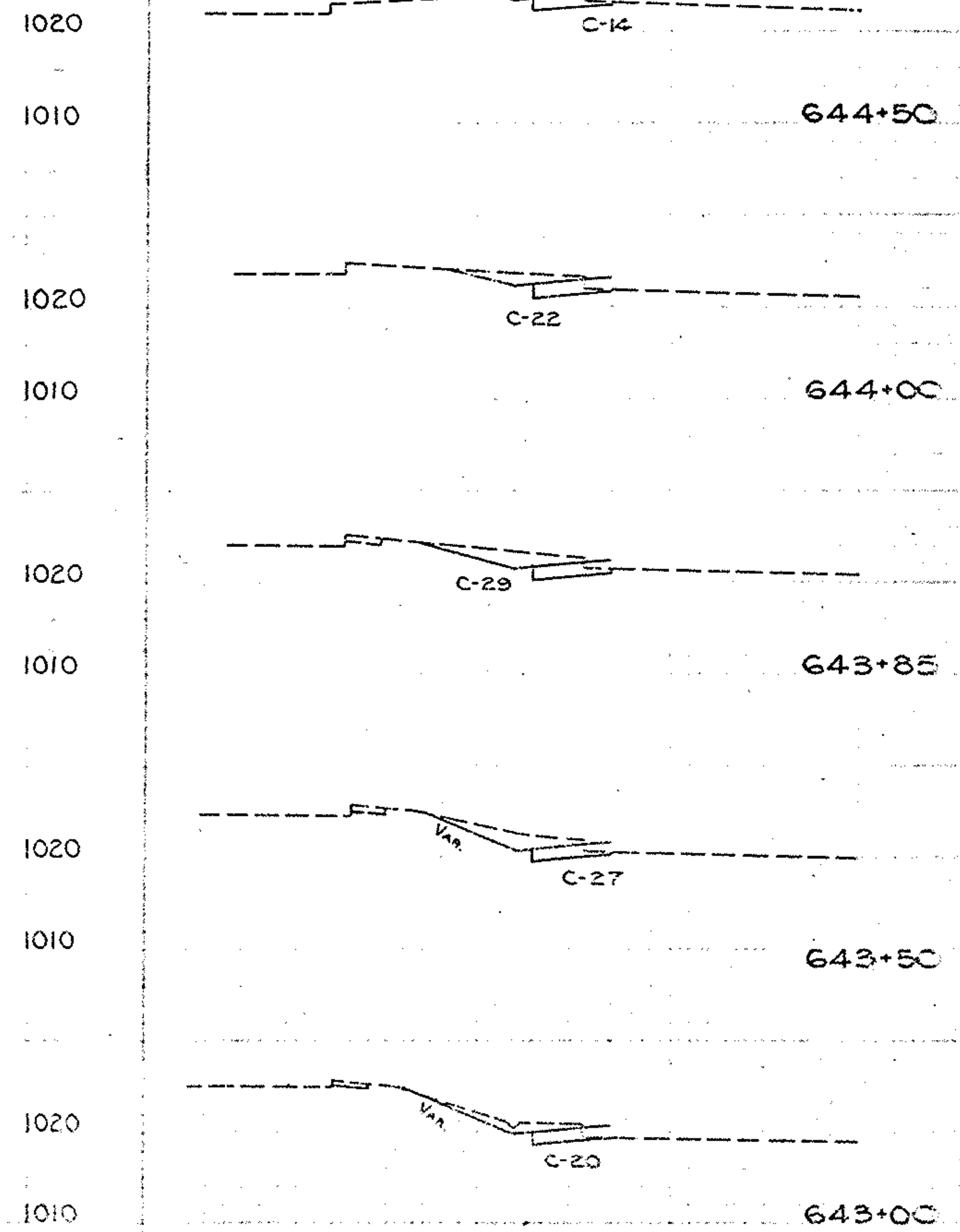




STA	Seeding		End Area		Cu Yds	
	LF	SY	Cut	Fill	Exc	Emp
644+70	0	7	0	0	5	0
644+50	6	50	14	0	34	0
644+00	12	21	22	0	14	0
643+85	13	55	29	0	36	0
643+50	15	89	27	0	44	0
643+00	17	86	20	0	51	0
642+50	14	19	35	0	15	1
642+38	14	59	32	1	41	2
642+00	14	67	27	2	48	6
641+50	10	47	25	4	46	8
641+00	7	25	24	4	43	4
640+50	2	3	22	0	10	0
640+25	0	0	0	0	0	0
	528				387	21



END EARTHWORK
STA. 644+70



RAMP E-24 CURVE DATA

EXISTING

CURVE # 4
 $\Delta = 30^\circ-13'-17"$
 $R = 400.00'$
 $D_s = 14'-19"-26.2"$
 $L = 210.98'$

CURVE # 5
 $\Delta = 12^\circ-45'$
 $R = 1145.92'$
 $D_s = 5'-00"$
 $L = 255.00'$

PROP. CURVE

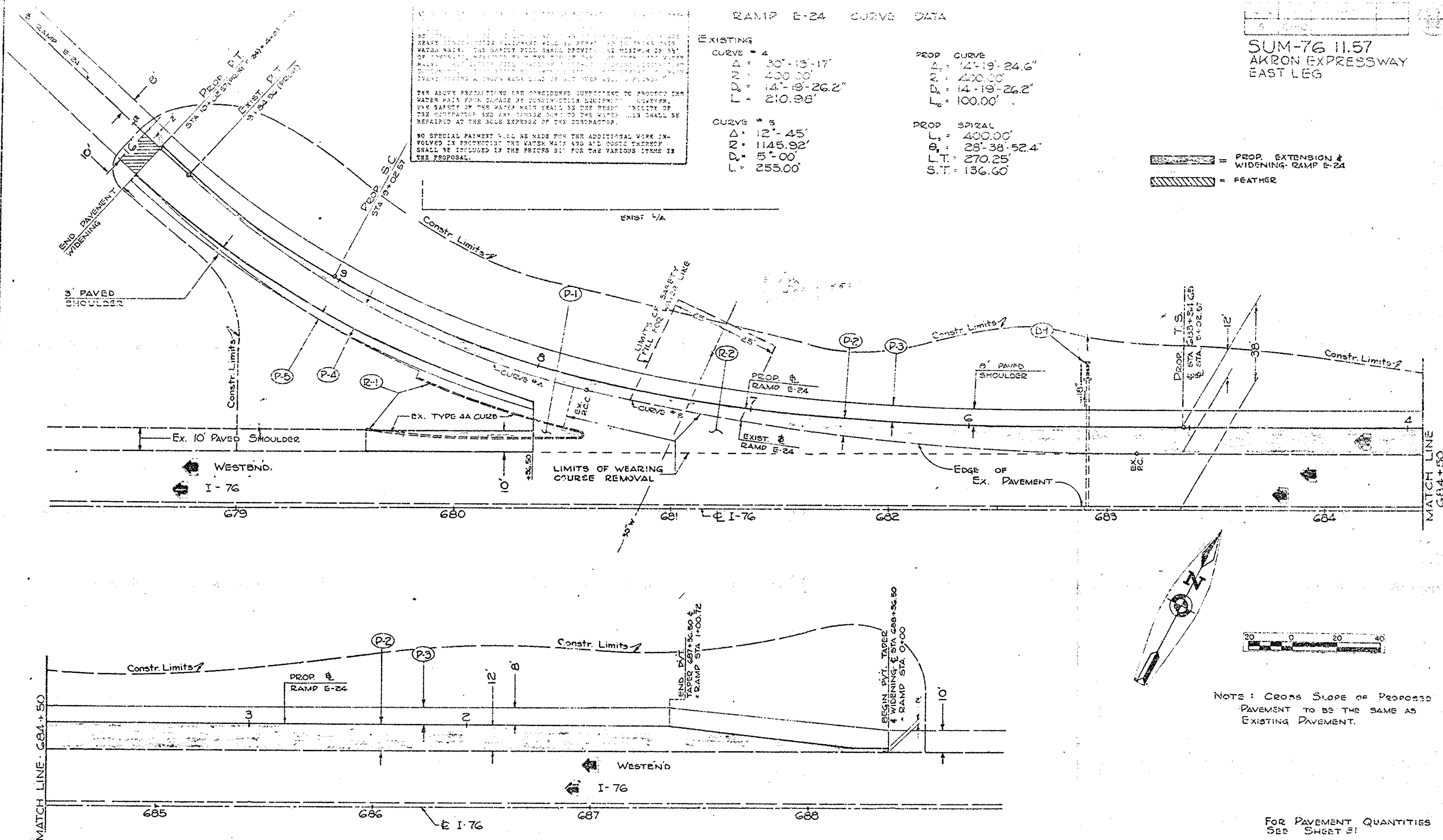
$\Delta = 14^\circ-19'-24.6"$
 $R = 400.00'$
 $D_s = 14'-19"-26.2"$
 $L = 100.00'$

PROP. SPIRAL

$L_s = 400.00'$
 $\theta_s = 28^\circ-38'-52.4"$
 $L.T. = 270.25'$
 $S.T. = 136.60'$

SUM-76 11.57
 AKRON EXPRESSWAY
 EAST LEG

 = PROP. EXTENSION & WIDENING RAMP E-24
 = FEATHER



NOTE: CROSS SLOPE OF PROPOSED PAVEMENT TO BE THE SAME AS EXISTING PAVEMENT.

FOR PAVEMENT QUANTITIES SEE SHEET 51

FOR DRAINAGE PROFILE SEE SHEET 60

RAMP E-24

ESTIMATED QUANTITIES

D-1 = ITEM 603 - 10 Lin Ft. 6" Conduit, Type F
 D-1 = ITEM 603 - 8 Lin Ft. 18" Conduit, Type B
 D-1 = ITEM 602 - 0.31 Cu. Yd. Concrete Masonry

S. A. 76-1157
 L-20N EXPRESSWAY

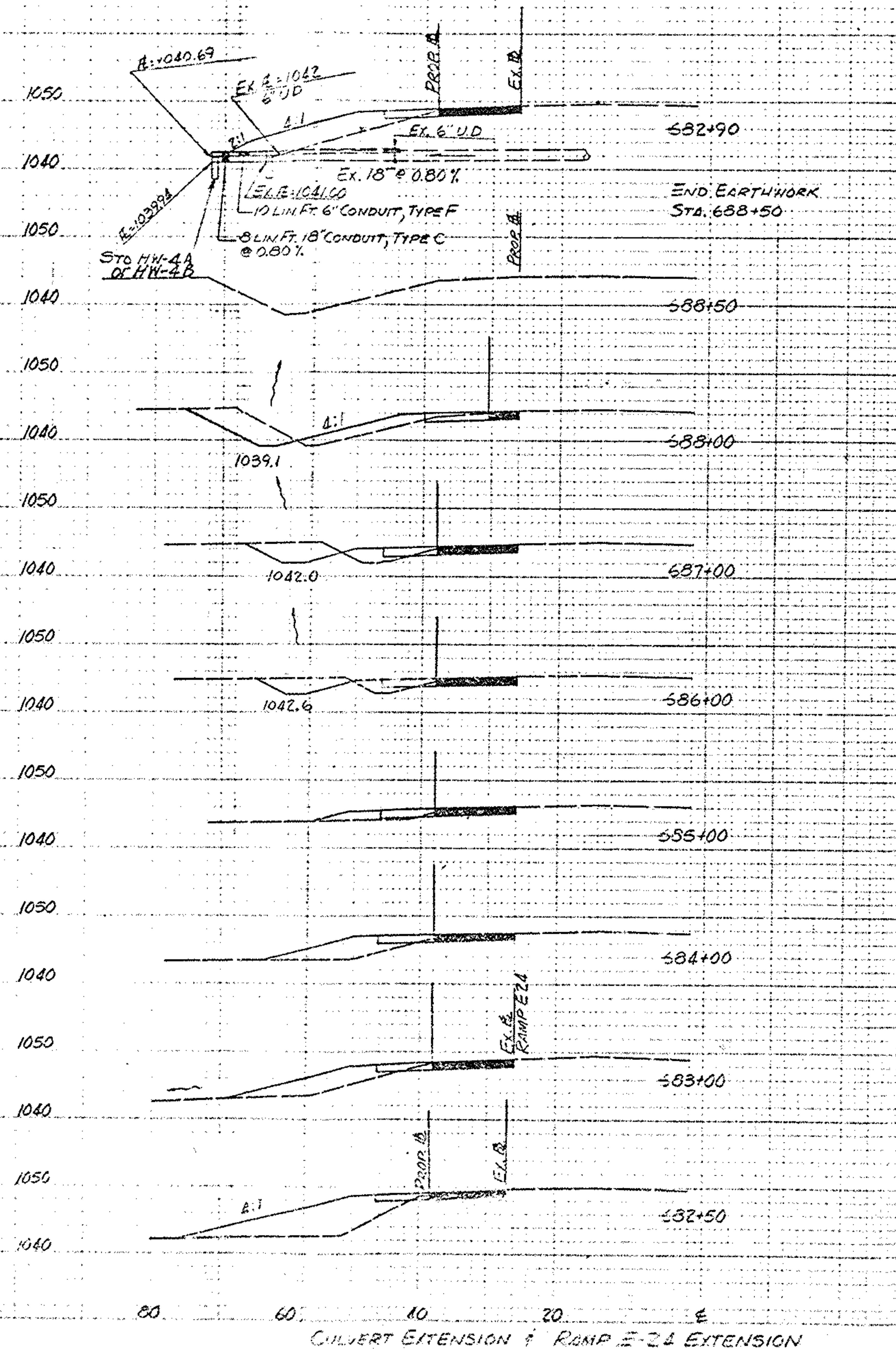
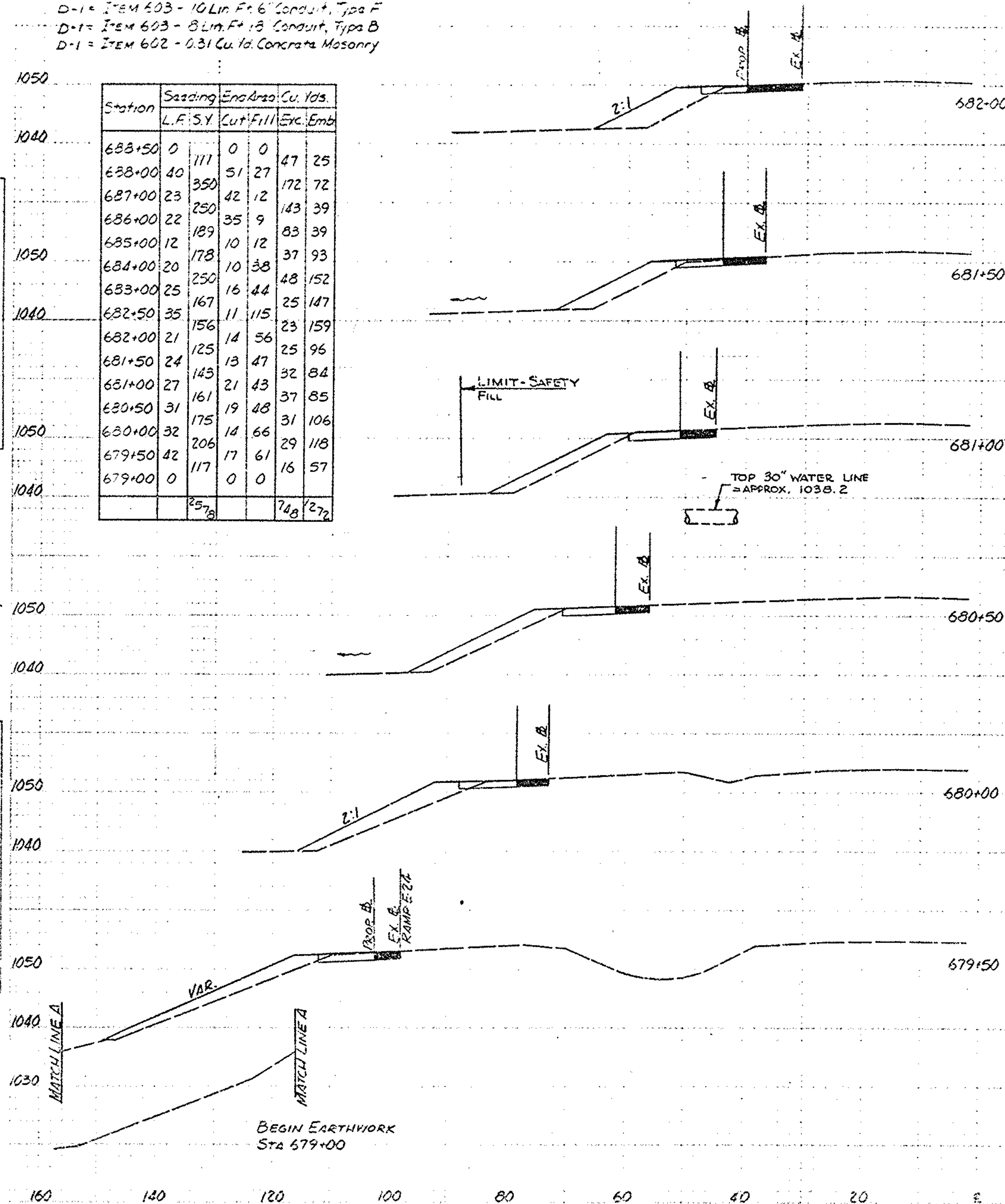
63
 246

Station	Sanding		Exc. Area		Cu. Yds.	
	L.F.	SY	Cut	Fill	Exc.	Emb.
688+50	0	111	0	0	47	25
688+00	40	350	51	27	172	72
687+00	23	250	42	12	143	39
686+00	22	189	35	9	83	39
685+00	12	178	10	12	37	93
684+00	20	250	16	44	48	152
683+00	25	167	11	115	23	147
682+50	35	156	14	56	25	96
682+00	21	125	13	47	32	84
681+50	24	143	21	43	37	85
681+00	27	161	19	48	31	106
680+50	31	175	14	66	29	118
680+00	32	206	17	61	16	57
679+50	42	117	0	0		
679+00	0					
		2578			748	272

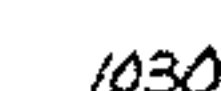
FINAL SURVEY
 DATE: 10/10/78
 BY: G.H.R.

Calculated By: L.S.
 Date: Dec. 77
 Checked By: G.H.R.
 Date: Aug. 78

FINAL SURVEY
 DATE: 10/10/78
 BY: G.H.R.

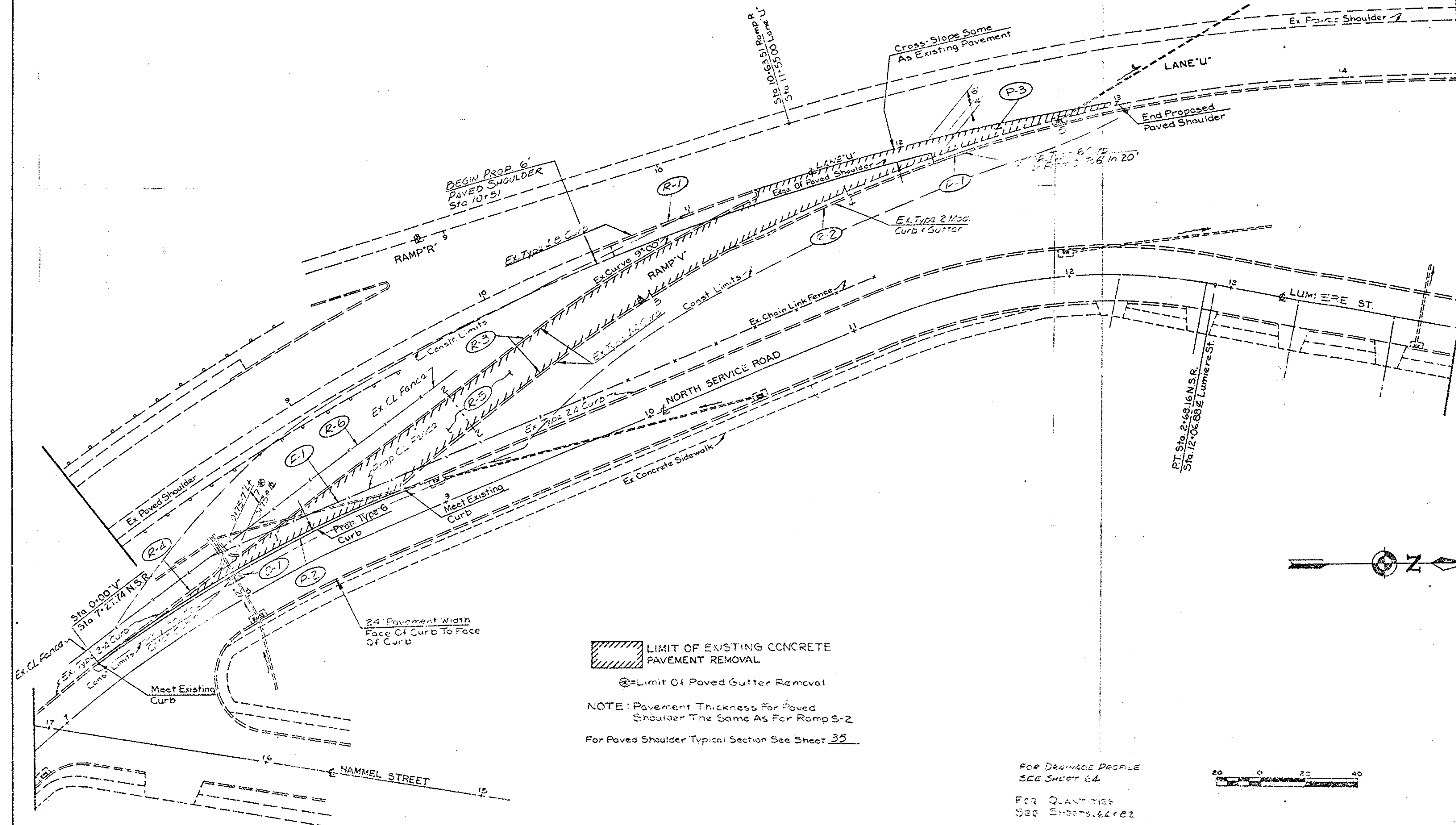


SEEDING	END AREA	CU. YDS.
L.F.	S.Y.	CUT FILL EXC. EMB.



TOTALS
£
RAMP

SUM-76-11.57
AKRC EXPRESSWAY
EAST LEG



LIMIT OF EXISTING CONCRETE PAVEMENT REMOVAL

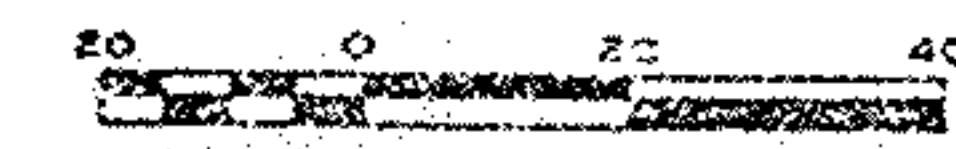
LIMIT OF PAVED GUTTER REMOVAL

NOTE: Pavement Thickness For Paved Shoulder The Same As For Ramp S-2

For Paved Shoulder Typical Section See Sheet 35

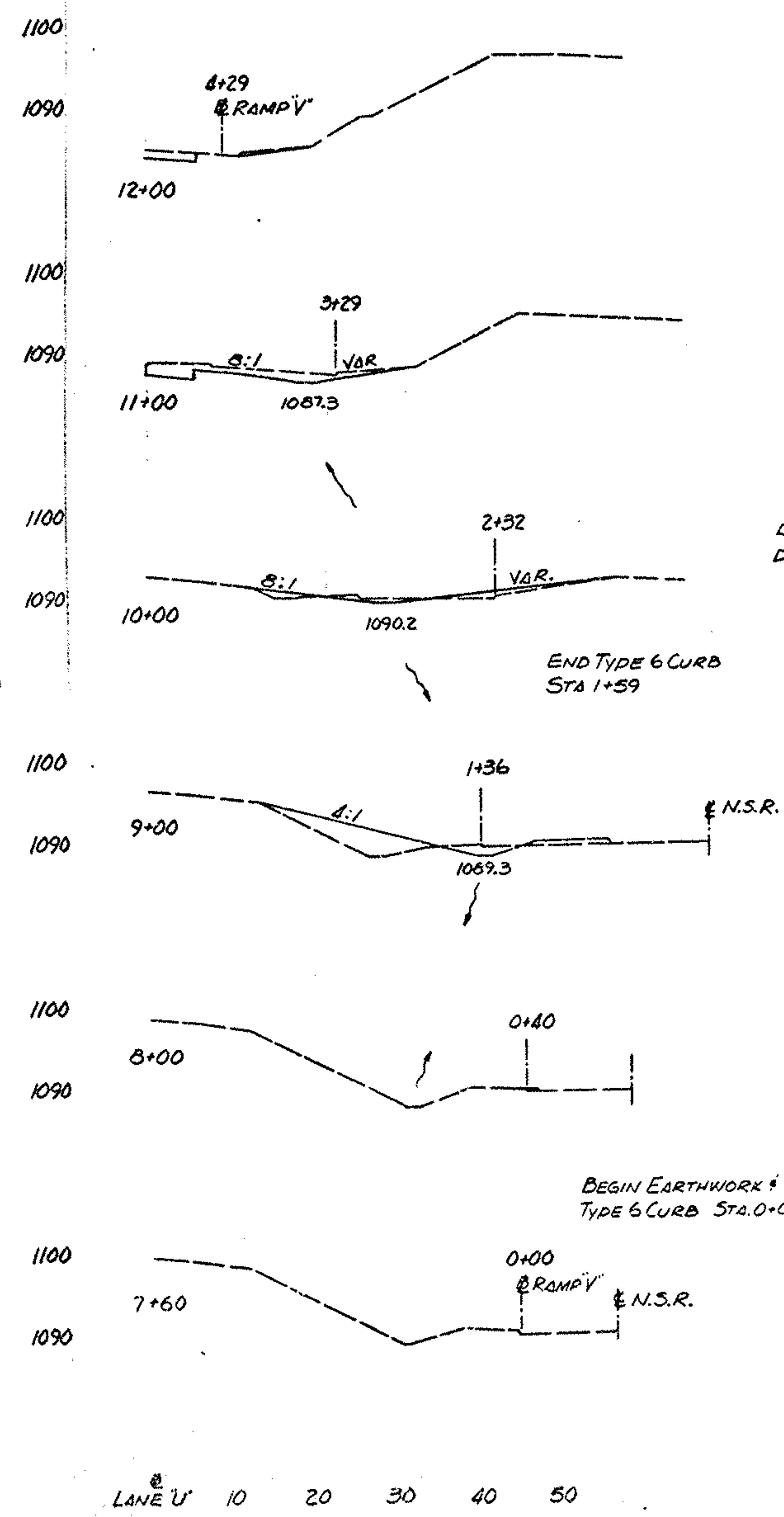
FOR DRAINAGE PROFILE
SEE SHEET 64

FOR QUANTITIES
SEE SHEETS 64 & 62



RAMP 'V'

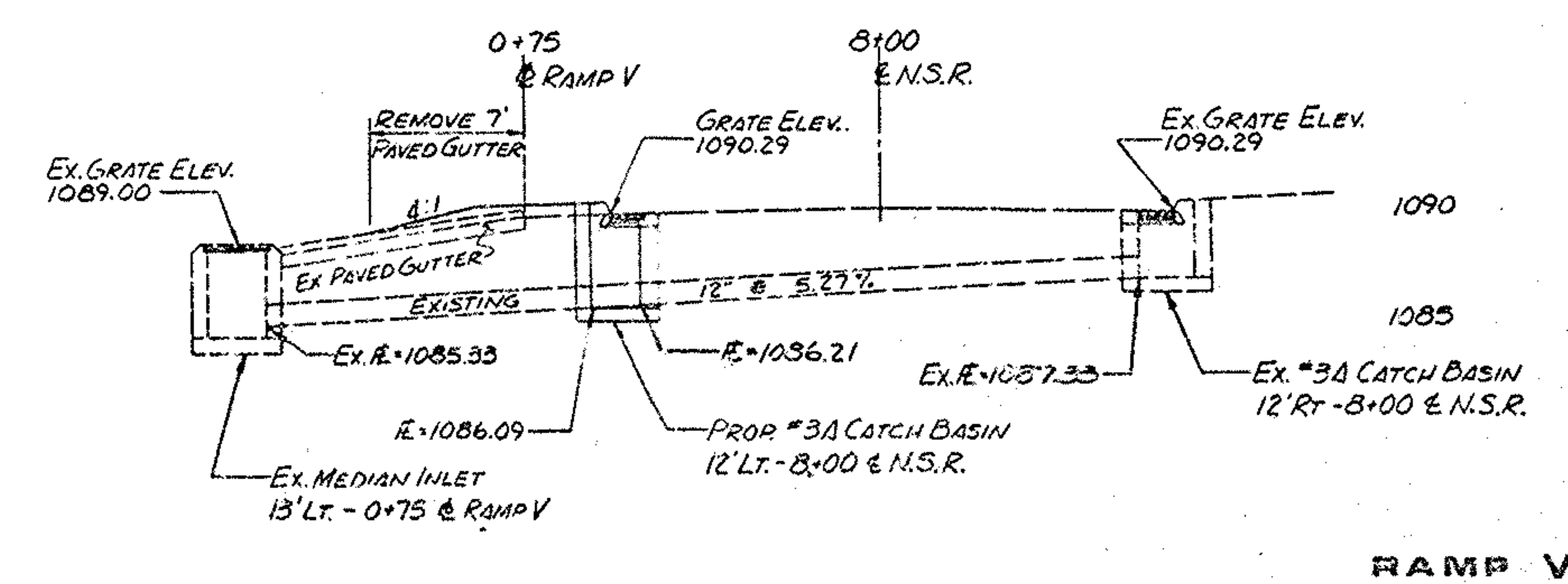
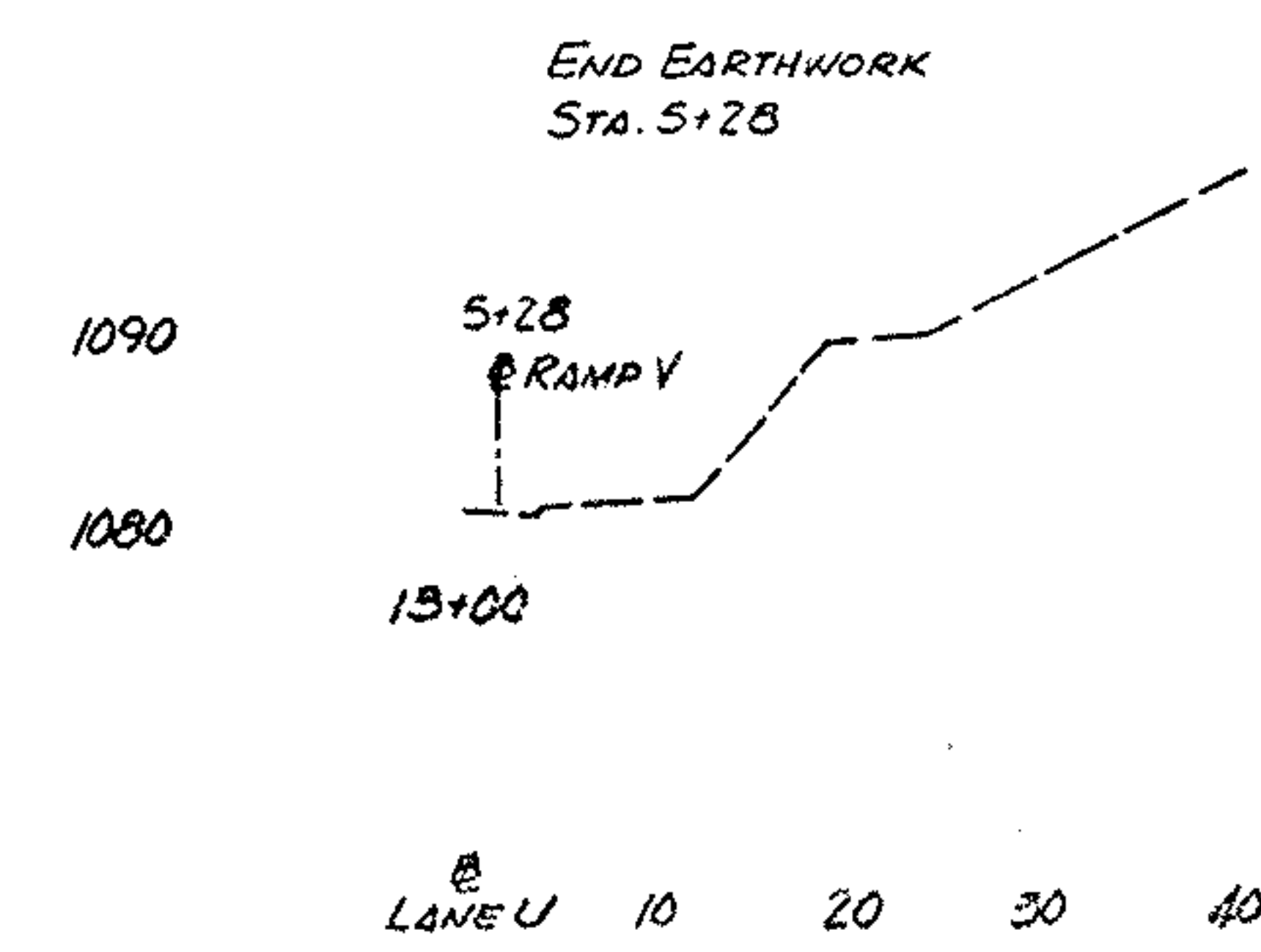
Calculated By L.S.
Date May 78
Checked By G.H.R.
Date Aug 78



ESTIMATED QUANTITIES

- D-1 ITEM 202 7 Lin. Ft. Paved Gutter Removed
- D-1 ITEM 604 1-Each Standard #3A Catch Basin

Sta.	Seeding		End Area		Cu. Yd.	
	L.F.	S.Y.	Cut	Fill	Exc.	Emb.
5+28	0	60	0		17	
4+29	11	200	9		67	
3+29	25	382	27	0	57	23
2+32	46	486	5	13	23	103
1+36	45	256	8	45	14	82
0+40	3	7	0	1		1
0+00	0			0		
		1391			178	209



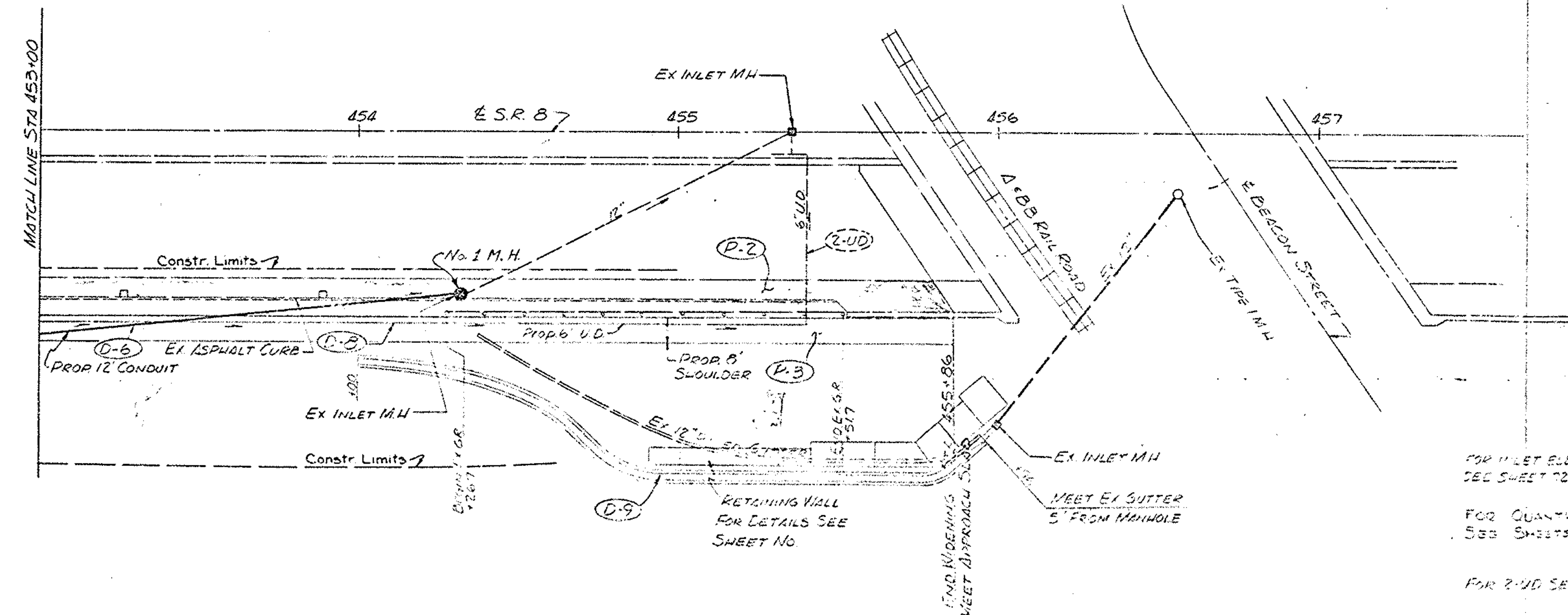
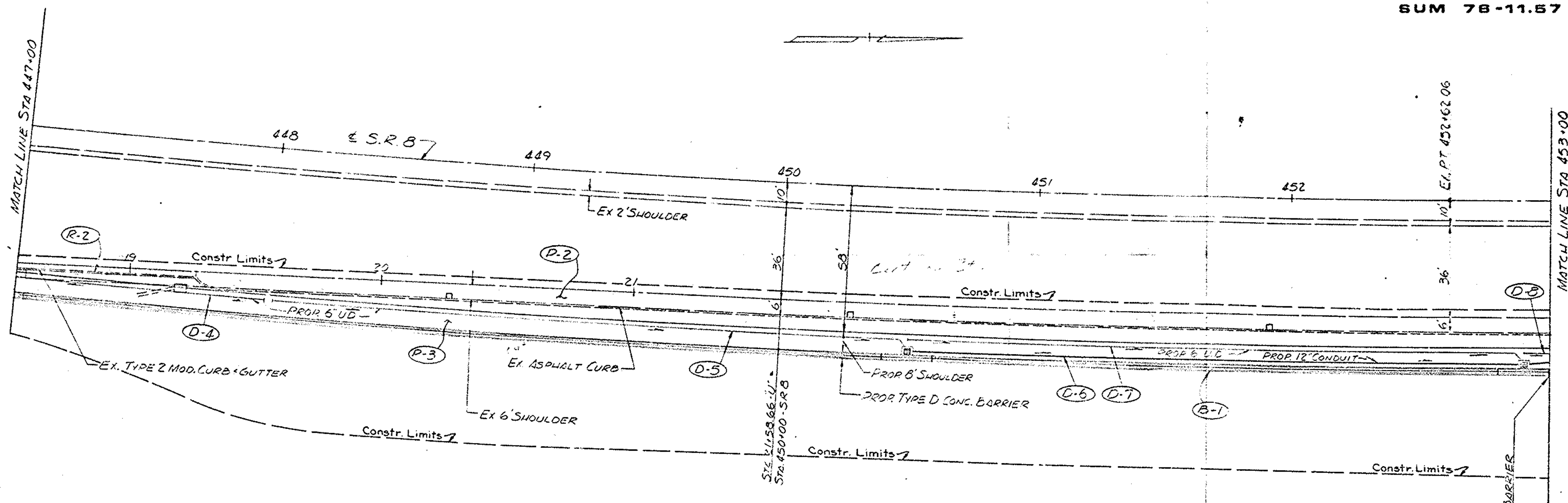
SUM 78-1157



FOR DRAINAGE PROFILES
SEE SHEET 72
FOR QUANTITIES
SEE SHEETS 72 & 82

LANE U - E.F.B

SUM 78-11.57



PROPOSED
PAVEMENT
WIDENING



FOR INLET ELEVATIONS
SEE SHEET 72

FOR QUANTITIES
SEE SHEETS 72 & 82

FOR 2' U.D. SEE SHEET 67

LANE U - S.R. 8

LEGEND

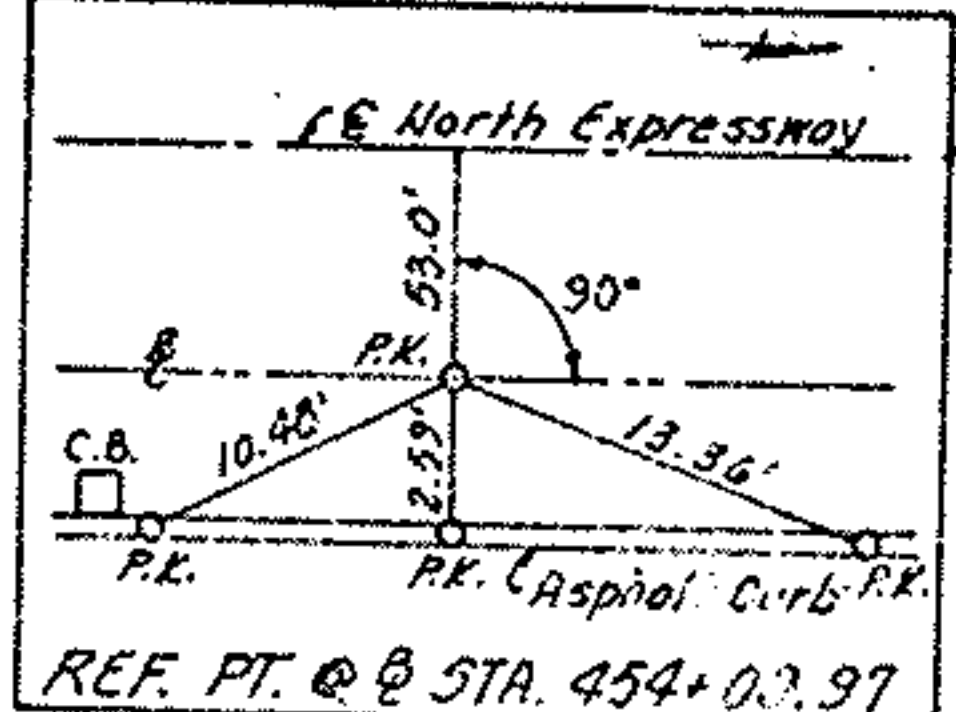
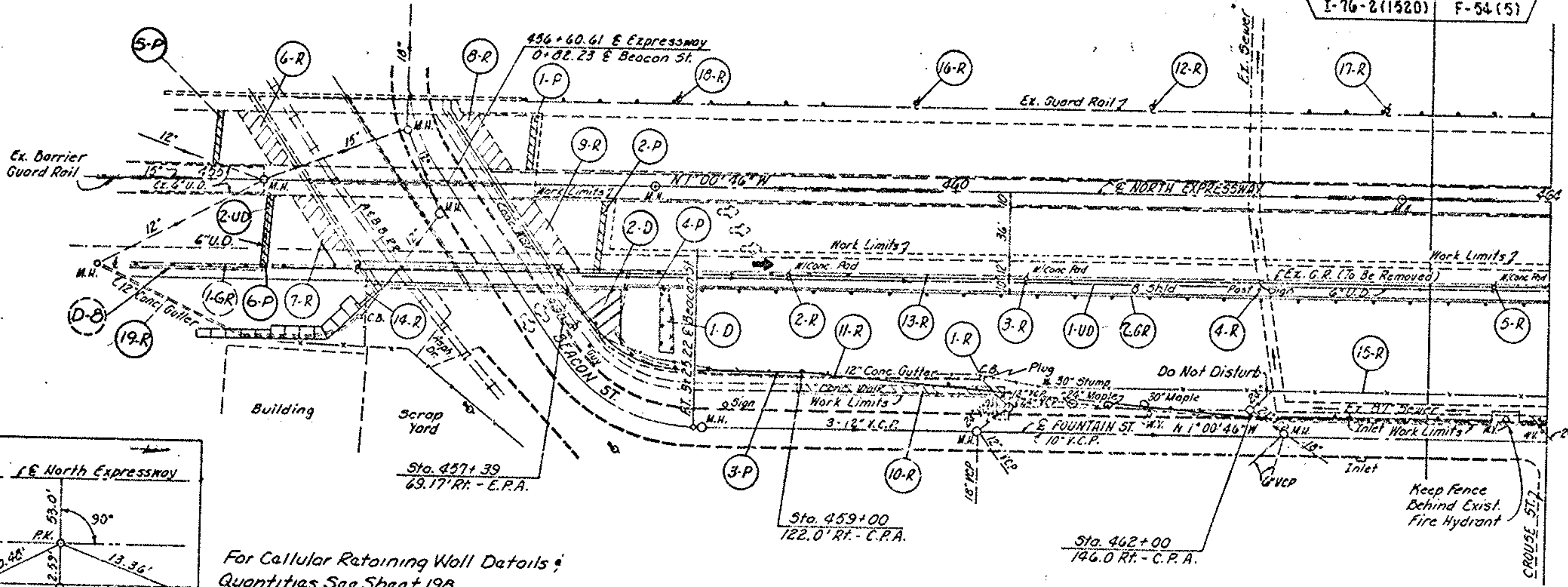
- Item 200 Pavement Removed
- Item 202 Sidewalk Removed
- Item 600 Jute Matting
- Item Special Pressure Relief Joint
- Item Carried on Another Sheet

NOTES

- For Beacon St. Bridge See Sheets 184 to 203
- For Pressure Relief Joint Details See Std. Det. SP-11
- Items 1-P & 2-D and 6-R through 9-R are to be coordinated with the maintenance of traffic.

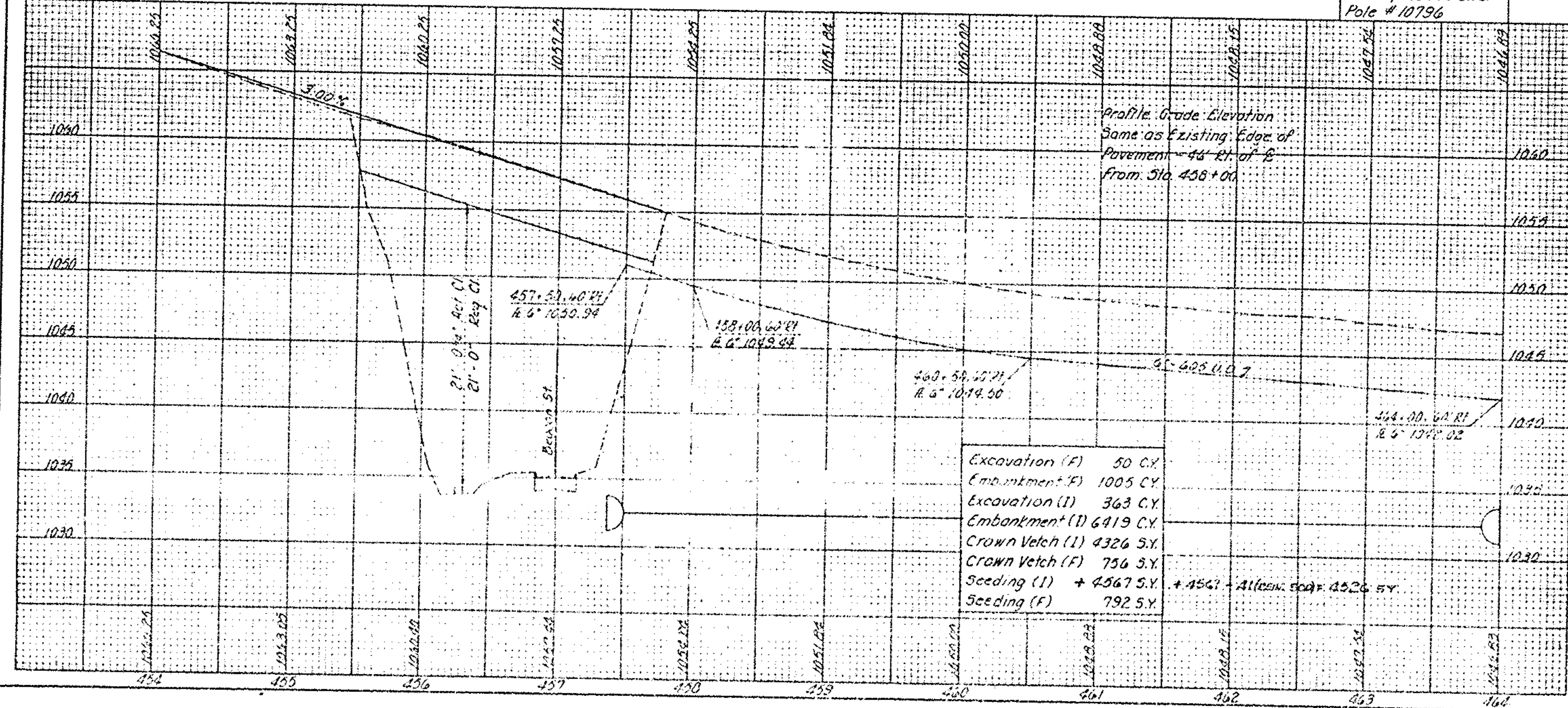
CALC PCB 10-77
CHK RAB 10-77

STA 463+20
I FUND I-76-2(1520)
F FUND F-54(5)



For Cellular Retaining Wall Details:
Quantities See Sheet 198
For G-R-1 See Sheet 32
For D-B See Sheet 66

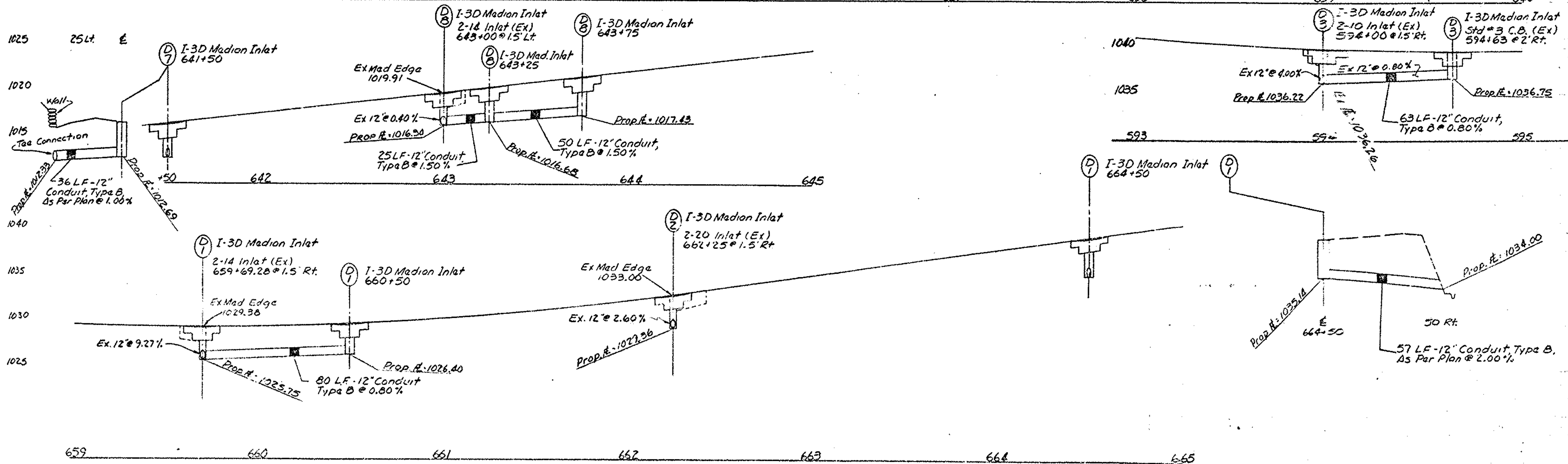
B.M. #2-A El. 1008.74
463+87 256' RT
Mine Spike in Power
Pole #10796



Excavation (F)	50 CY
Embankment (F)	1005 CY
Excavation (I)	363 CY
Embankment (I)	6419 CY
Crown Vetch (I)	4326 S.Y.
Crown Vetch (F)	756 S.Y.
Seeding (I)	+ 4567 S.Y.
Seeding (F)	792 S.Y.

Ref.	Station to Station	Side	* F Funds		* As per plan						
			605	606	607	609	660	667	Spec.		
			Shallow	Guards	Bridge	Fence	Curb	Rein.	Seeding	Pressure	
			Pipe	Rail	Terminal	Type	Type	Forced	Jute	Relief	
			U.D.	Type	Type	CL	G	Sodding	Matting	Joint	
										Type	
			L.F.	L.F.	S.O.	L.F.	L.F.	S.Y.	S.Y.	L.F.	
1-D	458+07.60	RT						41			
2-D	457+37.60 to 457+77.60	RT							99		
2-GR	457+79.60 to 464+00.00	RT		336.4							
5-P	455+01.10 to 55+04	LT								36	
1-P	457+15.00 to 457+10.00	LT								36	
2-P	457+61.00 to 457+65.00	RT								40	
3-P	457+39.00 to 464+00.00	RT				60/80					
4-P	457+79.60 to 458+05.60	RT					26				
6-P	455+35.00 to 55+40	RT								42	
1-UD	457+50.00 to 464+00.00	RT	570/60								
2-UD	455+35.00 to 455+40	RT	57								
Totals			627/80	340.4/85	1	60/80	26	41	99	168	

Ref.	Station to Station	Side	202	202	202	202	202	202	202	
			Catch	Struc-	Fence	Side	Gutter	Guard	Fence	
			Basin	tures	ment	Walk	Rem.	Rail	Rem.	
			Rem.	Rem.	Rem.	Rem.				
			Co.	Lump	S.Y.	S.F.	L.F.	L.F.	L.F.	
1-R	460+21.00	RT								
2-R	458+30.00	RT		Lump						
3-R	460+49.00	RT		Lump						
4-R	462+07.40	RT		Lump						
5-R	463+64.00	RT		Lump						
6-R	455+17.00	LT								
7-R	455+54.9	RT			33					
8-R	456+64.51	LT			30					
9-R	457+02.00	RT			30					
10-R	459+00.00	RT			30					
11-R	457+74.00	RT				749				
12-R	461+30.00	LT					290			
13-R	457+79.60	RT		Lump				540.4/80		
14-R	456+07.00	RT							50	
15-R	457+32.00	RT							510.4/80	
16-R	459+72.00	LT		Lump						
17-R	452+88.00	LT		Lump						
18-R	458+11.00	LT		Lump						
19-R	454+27.00 to 55+78	RT					163			
Totals			1	Lump	240	749	473	540.4/80	660/80	



SUMMIT COUNTY
S.W-8-0.46

NOTE:

1. For Pavement Detail See Sheet 70
2. Pipe 3-D to be jacked under pavement - See Gen'l. Notes
3. Item 1-W shall be reset at Sta 476+25.00 & Fountain St. left.

LEGEND

Item 202 Pavement Removed

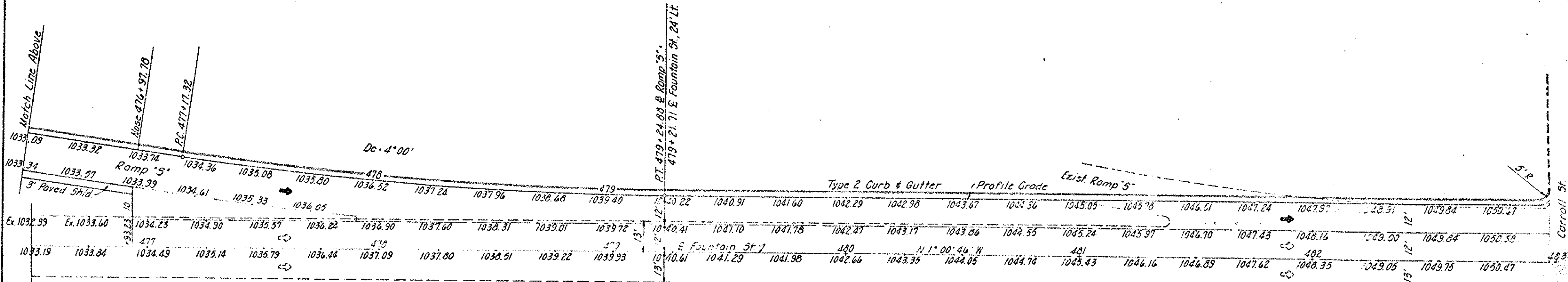
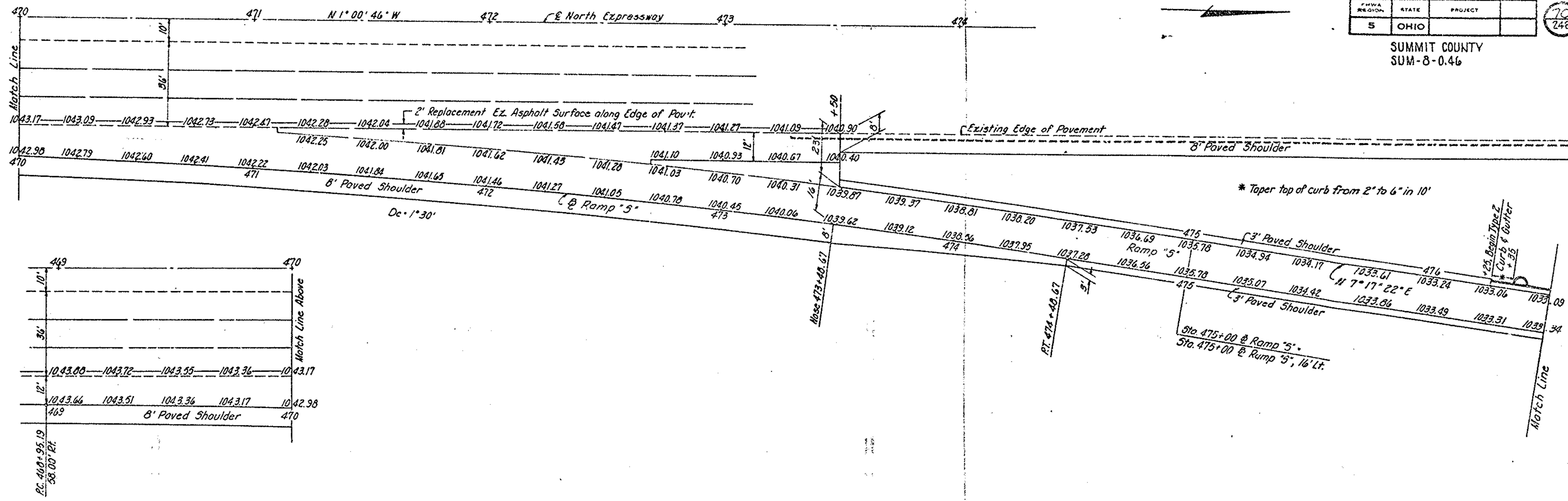
END WORK
STA. 464+46.00

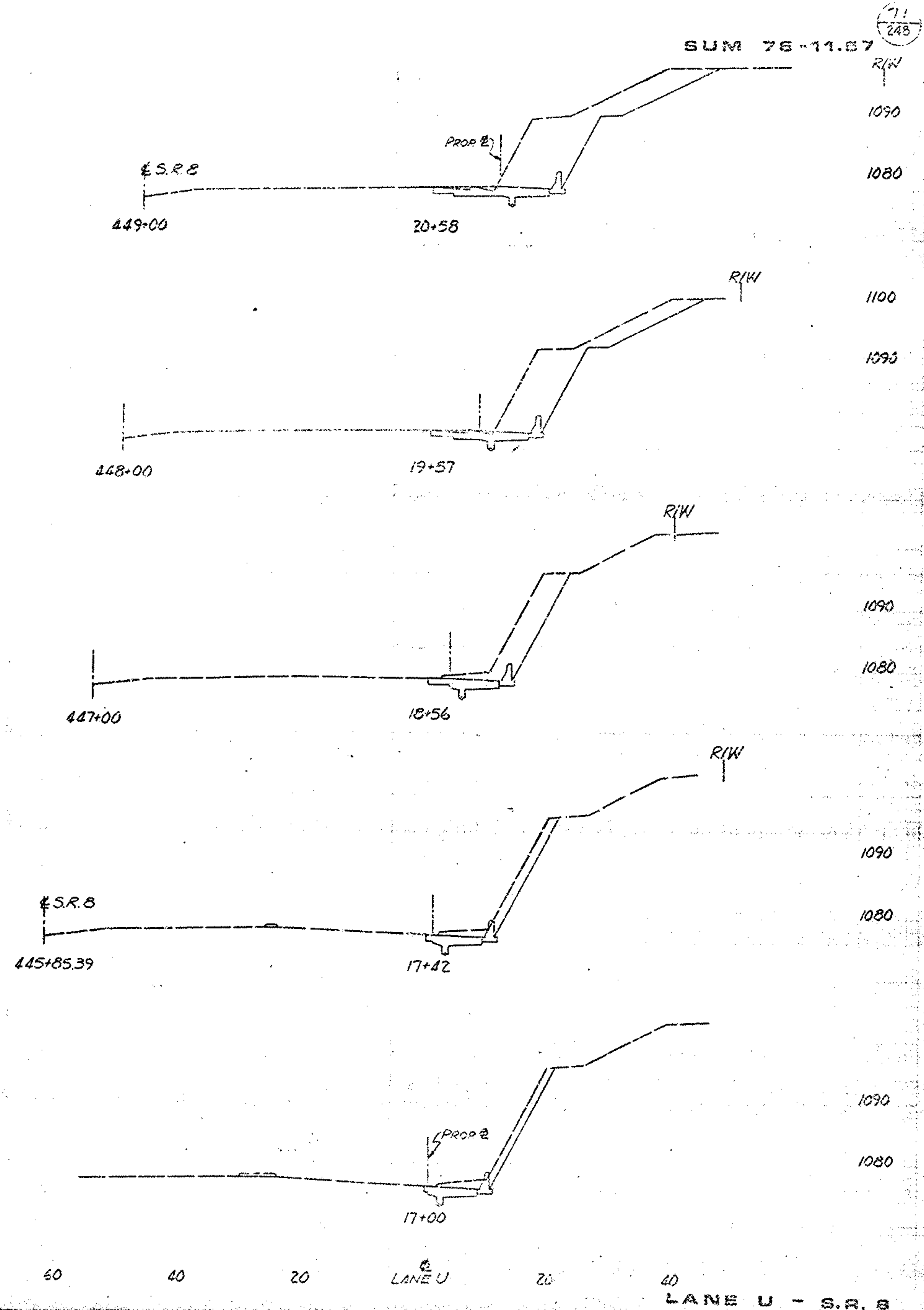
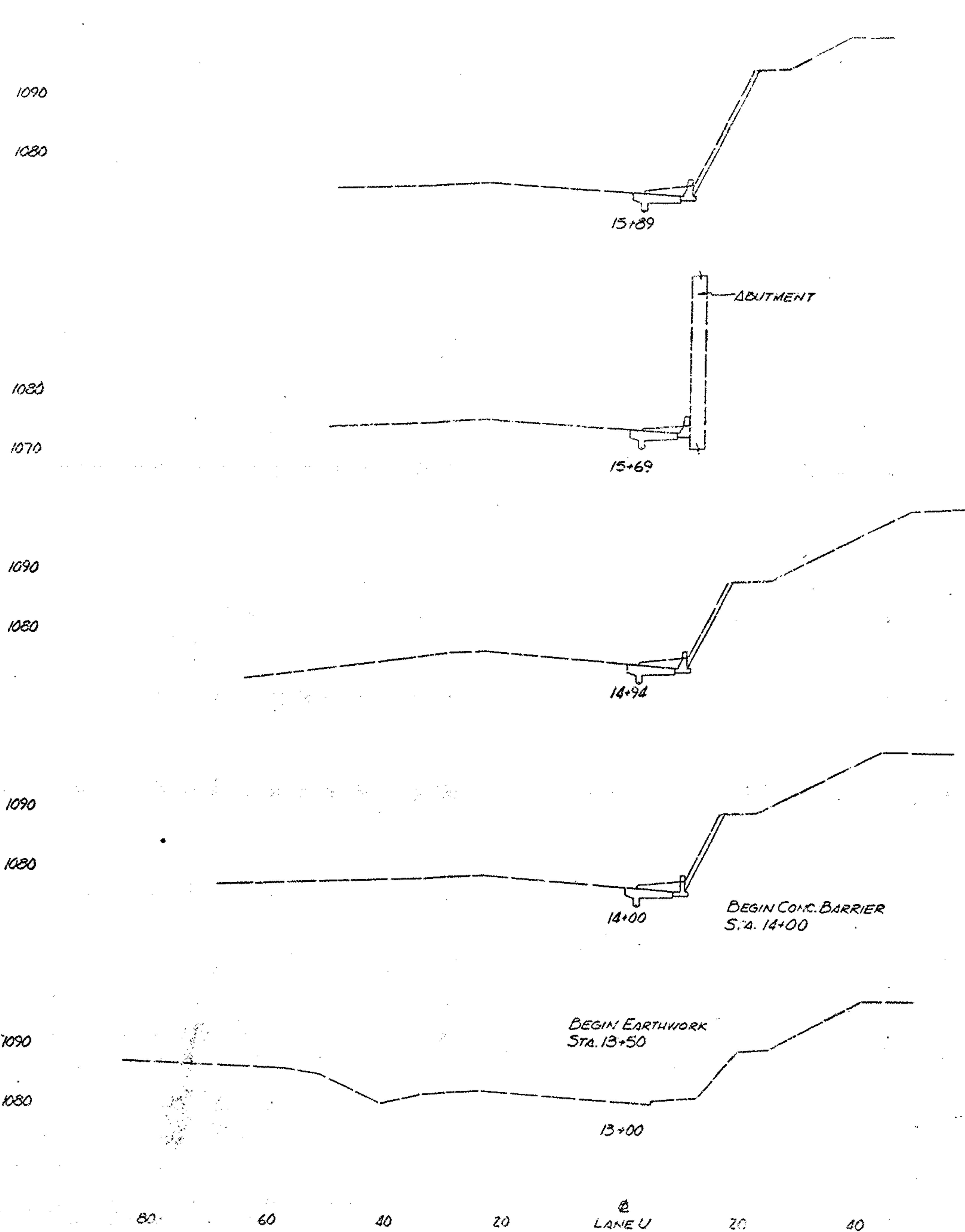
* 706.01, 706.02
* Omit Dike ** A5 per plan (See City of Akron Eng. A-542B)

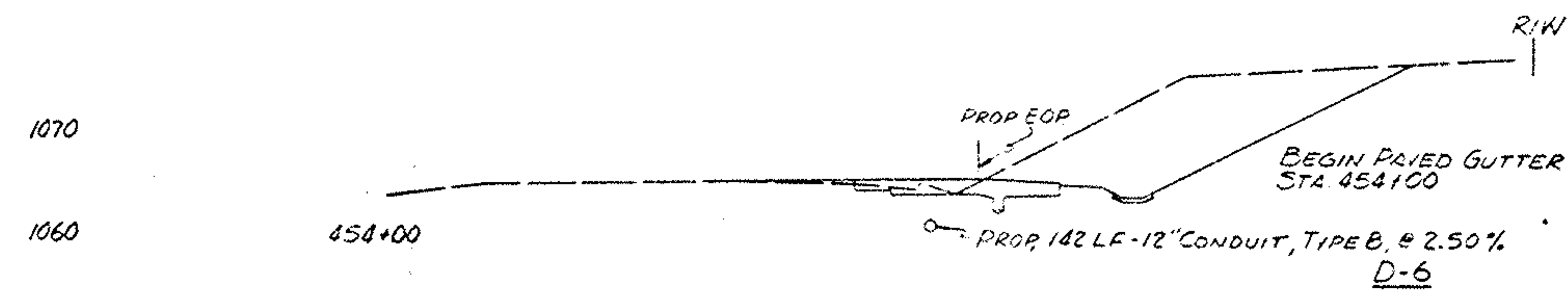
Ref.	Station to Station	Side	603	604	605	606	607	608	609	610	611	612	613	614
1-D	476+37.00 to 476+50.00 Ramp S	Lt.												
2-D	476+50.00 to 476+57.50 Ramp S	Lt.												
3-D	476+57.50 to 476+62.00 Ramp S	Lt.												
4-D	476+62.00 to 476+63.00 Ramp S	Lt.												
5-D	476+63.00 to 476+65.00 Ramp S	Lt.												
1-P	476+75.00 Ramp S 482+25.00 Fount.	Lt.												
2-P	476+65.00 to 476+67.50 Ramp S	Lt.												
3-P	476+67.50 to 476+69.00 Ramp S	Lt.												
1-UD	476+30.00 to 476+50.00 Ramp S	Lt.												
2-UD	476+50.00 to 476+57.50 Ramp S	Lt.												
3-UD	476+57.50 to 476+62.00 Ramp S	Lt.												
1-W	476+25.00 to 476+27.50 Fount.	Lt.												
Totals			32	36	56	20	2	1	1	1	1	1	1	1

Ref.	Station to Station	Side	202	202	202	202	202	202	202	202	202	202	202	202
1-R	476+17.80	Rt.												
2-R	476+50.00	Lt.												
3-R	476+67.50	Lt.												
4-R	476+67.50	Lt.												
5-R	476+67.50	Lt.												
6-R	476+67.50	Lt.												
7-R	476+67.50	Lt.												
8-R	476+67.50	Lt.												
9-R	476+67.50	Lt.												
10-R	476+67.50	Lt.												
11-R	476+67.50	Lt.												
12-R	476+67.50	Lt.												
13-R	476+67.50	Lt.												
14-R	476+67.50	Lt.												
15-R	476+67.50	Lt.												
16-R	476+67.50	Lt.												
17-R	476+67.50	Lt.												
18-R	476+67.50	Lt.												
19-R	476+67.50	Lt.												
20-R	476+67.50	Lt.												
21-R	476+67.50	Lt.												
22-R	476+67.50	Lt.												
23-R	476+67.50	Lt.												
24-R	476+67.50	Lt.												
25-R	476+67.50	Lt.												
26-R	476+67.50	Lt.												
27-R	476+67.50	Lt.												
28-R	476+67.50	Lt.												
29-R	476+67.50	Lt.												
30-R	476+67.50	Lt.												
31-R	476+67.50	Lt.												
32-R	476+67.50	Lt.												
33-R	476+67.50	Lt.												
34-R	476+67.50	Lt.												
35-R	476+67.50	Lt.												
36-R	476+67.50	Lt.												
37-R	476+67.50	Lt.												
38-R	476+67.50	Lt.												
39-R	476+67.50	Lt.												
40-R	476+67.50	Lt.												
41-R	476+67.50	Lt.												
42-R	476+67.50	Lt.												
43-R	476+67.50	Lt.												
44-R	476+67.50	Lt.												
45-R	476+67.50	Lt.												
46-R	476+67.50	Lt.												
47-R	476+67.50	Lt.												
48-R	476+67.50	Lt.												
49-R	476+67.50	Lt.												
50-R	476+67.50	Lt.												
51-R	476+67.50	Lt.												
52-R	476+67.50	Lt.												
53-R	476+67.50	Lt.												
54-R	476+67.50	Lt.												
55-R	476+67.50	Lt.												
56-R	476+67.50	Lt.												
57-R	476+67.50	Lt.												
58-R	476+67.50	Lt.												
59-R	476+67.50	Lt.												
60-R	476+67.50	Lt.												
61-R	476+67.50	Lt.												
62-R	476+67.50	Lt.												
63-R	476+67.50	Lt.												
64-R	476+67.50	Lt.												
65-R	476+67.50	Lt.												
66-R	476+67.50	Lt.												
67-R	476+67.50	Lt.												
68-R	476+67.50	Lt.												
69-R	476+67.50	Lt.												
70-R	476+67.50	Lt.												
71-R	476+67.50	Lt.												
72-R	476+67.50	Lt.												
73-R	476+67.50	Lt.												
74-R	476+67.50	Lt.												
75-R	476+67.50	Lt.												
76-R	476+67.50	Lt.												
77-R	476+67.50	Lt.												
78-R	476+67.50	Lt.												
79-R	476+67.50	Lt.												
80-R	476+67.50	Lt.												
81-R	476+67.50	Lt.												
82-R	476+67.50	Lt.												
83-R	476+67.50	Lt.												
84-R	476+67.50	Lt.												
85-R	476+67.50	Lt.												
86-R	476+67.50	Lt.												
87-R	476+67.50	Lt.												
88-R	476+67.50	Lt.												
89-R	476+67.50	Lt.												
90-R	476+67.50	Lt.												
91-R	476+67.50	Lt.												
92-R	476+67.50	Lt.												
93-R	476+67.50	Lt.												
94-R	476+67.50	Lt.												
95-R	476+67.50	Lt.												
96-R	476+67.50	Lt.												
97-R	476+67.50	Lt.												
98-R	476+67.50	Lt.												
99-R	476+67.50	Lt.												
100-R	476+67.50	Lt.												

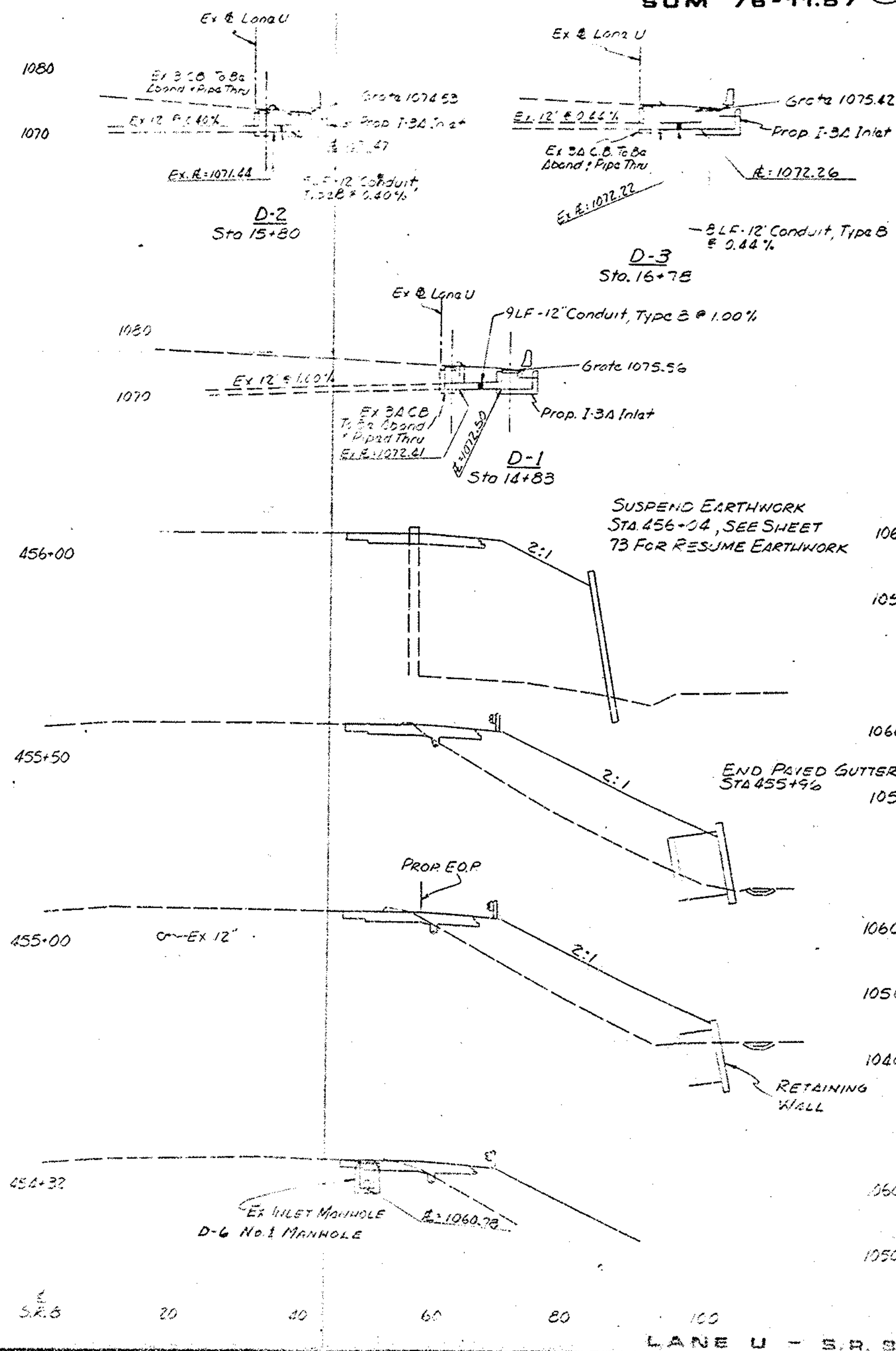
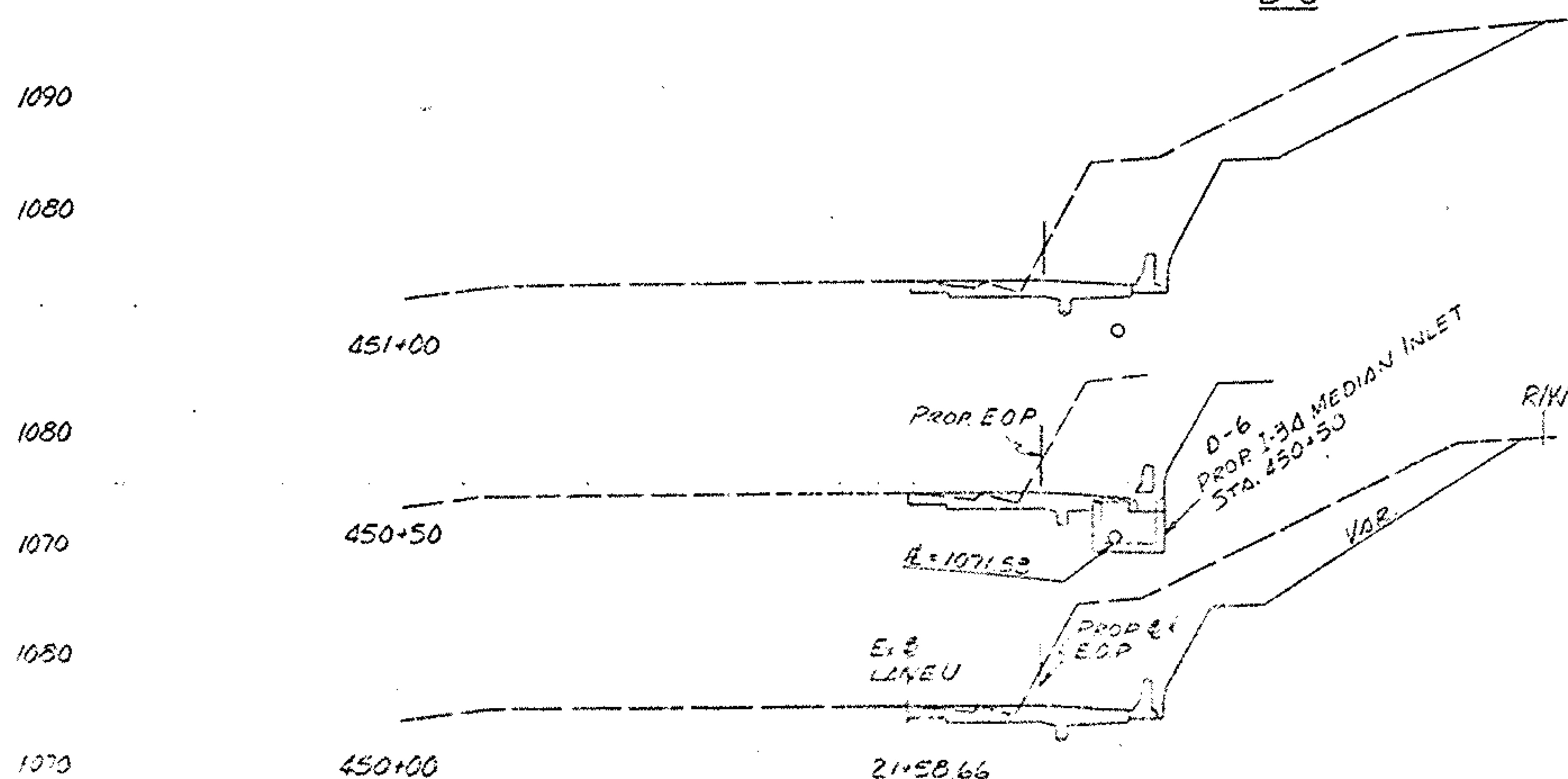
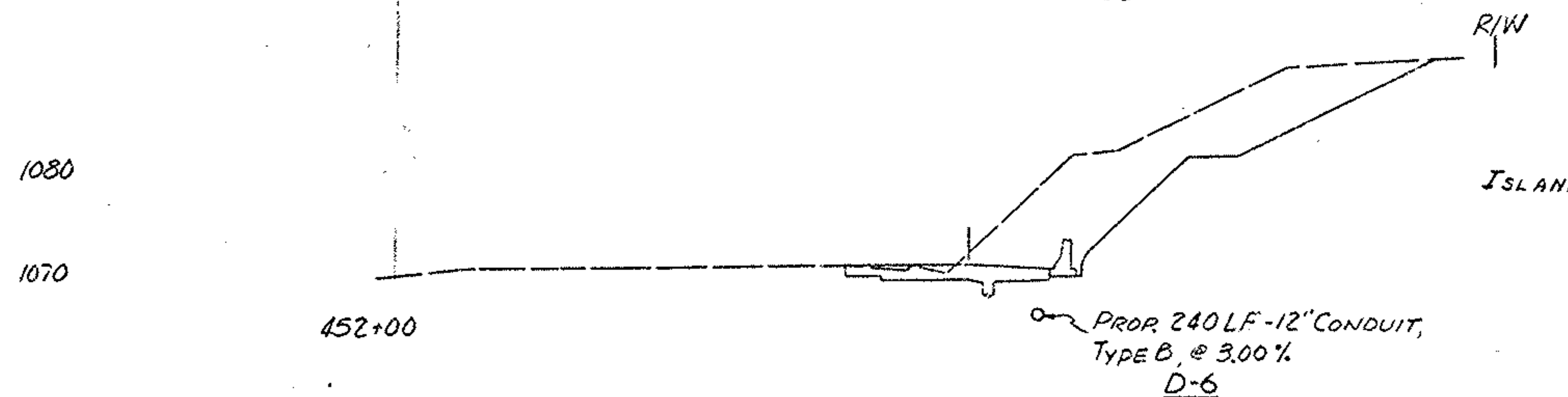
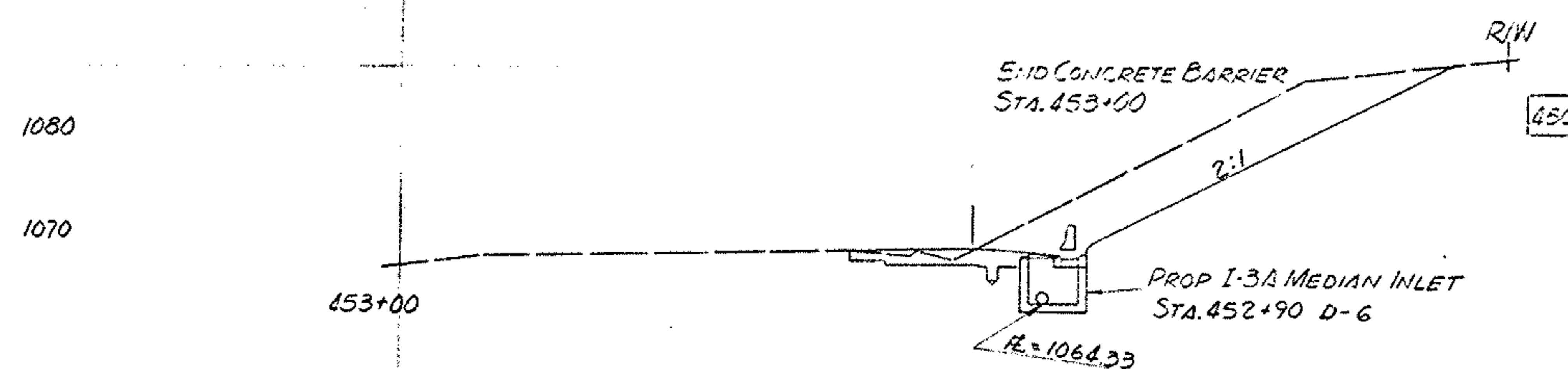
NORTH EXPRESSWAY 476+00 TO 483+17.10

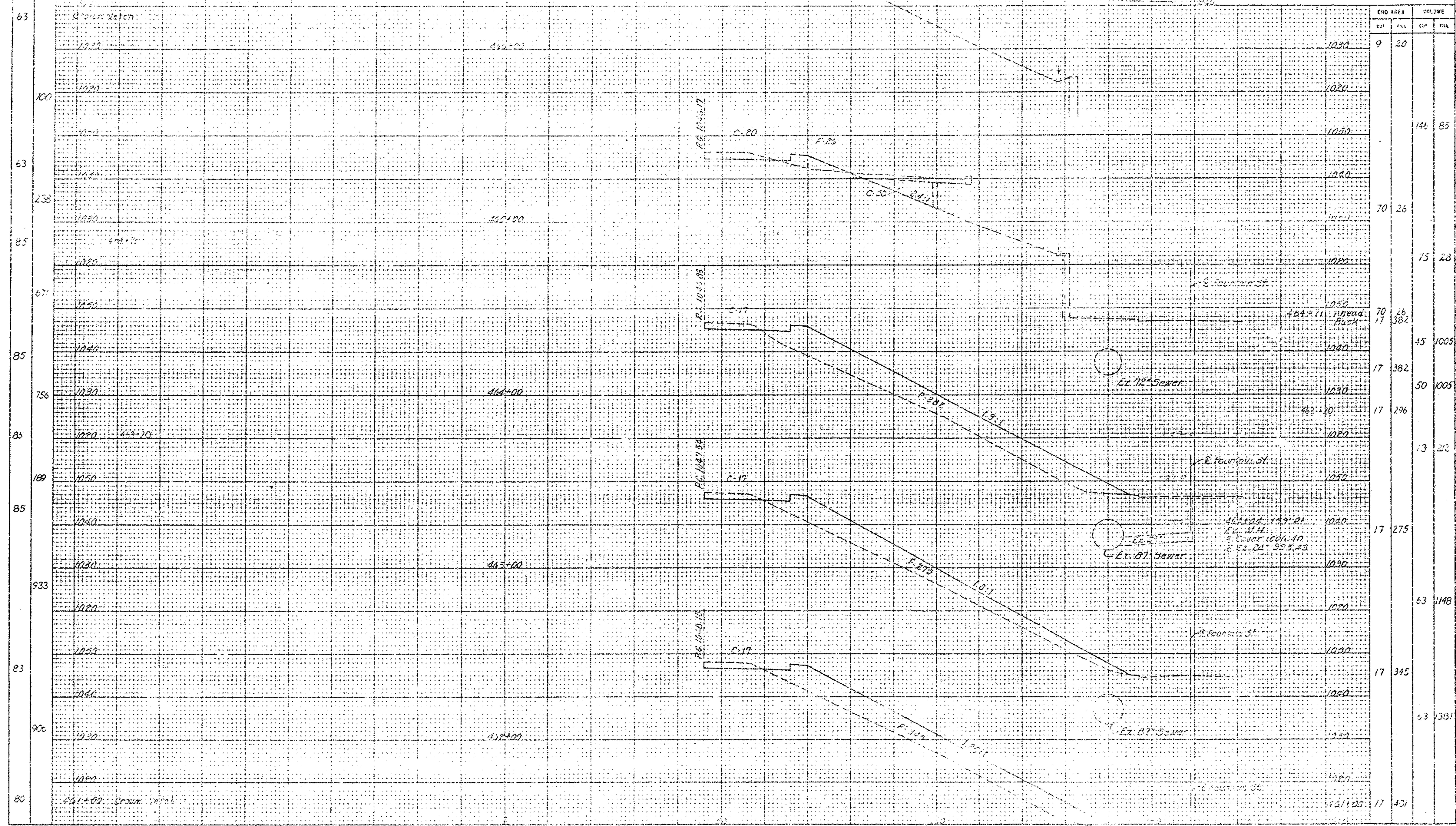




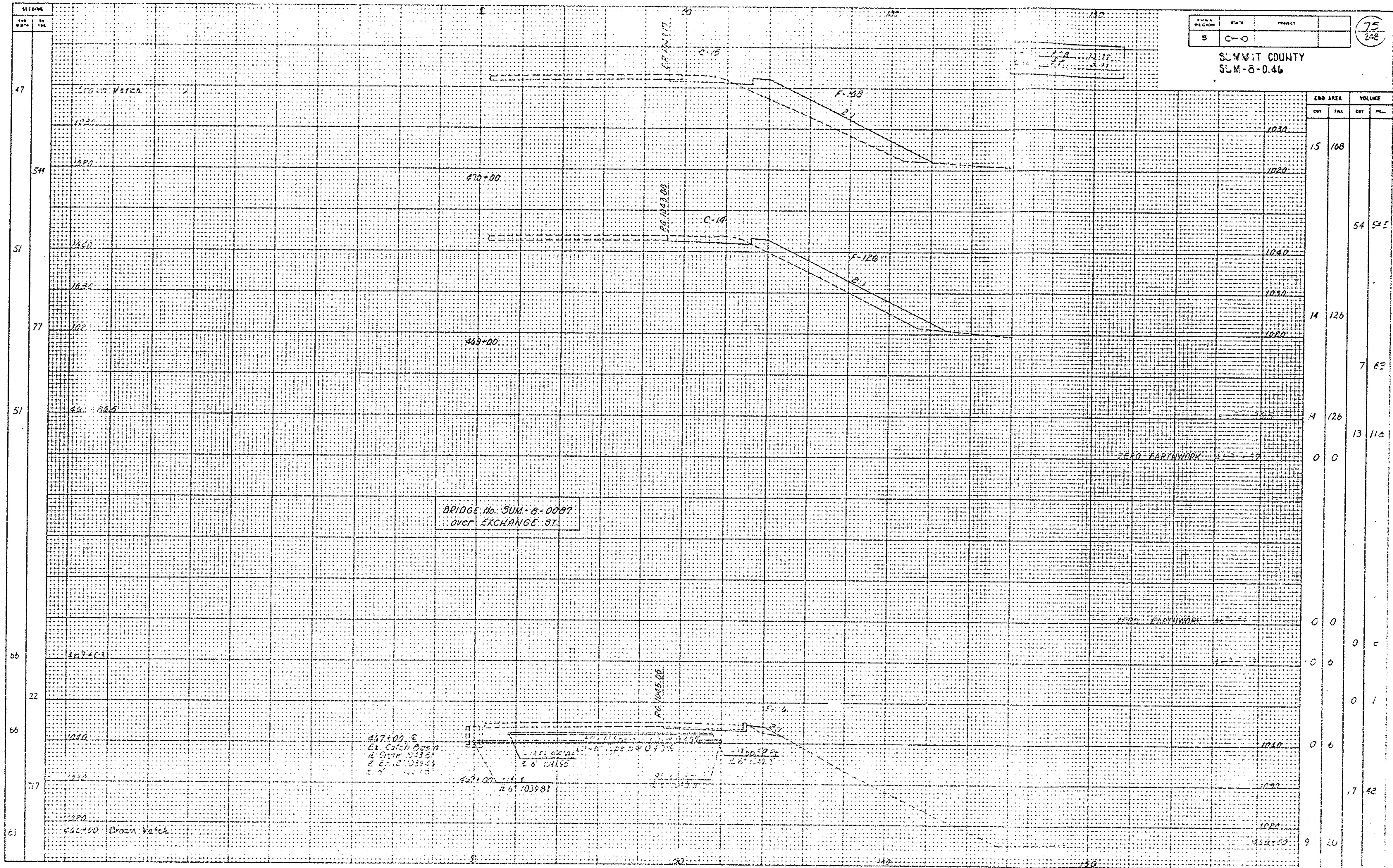


Sto	Sanding Endless Cu Id.					
	L.F	Sand	Cu	Fill	Evc	Em
456+04	0		0	0		
456+00	19	4	16	527	1	3
455+50	38	59	31	255	14	72
455+00	39	214	51	22	76	44
454+00	40	436	235	0	530	42
453+00	43	461	211		826	
452+00	44	483	263		818	
451+00	47	506	280		1006	
450+21+58	45	511	266		1011	
20+58	37	456	218		896	
19+57	39	426	172		729	
18+56	22	342	103		514	
17+42	24	292	58		340	
17+00	25	114	50		84	
15+89	26	314	44		193	
15+69	0	29	20		24	
14+94	18	75	37		80	
14+00	17	182	37		129	
13+50	0	47	0		35	
				(30)		
		505		126	163	



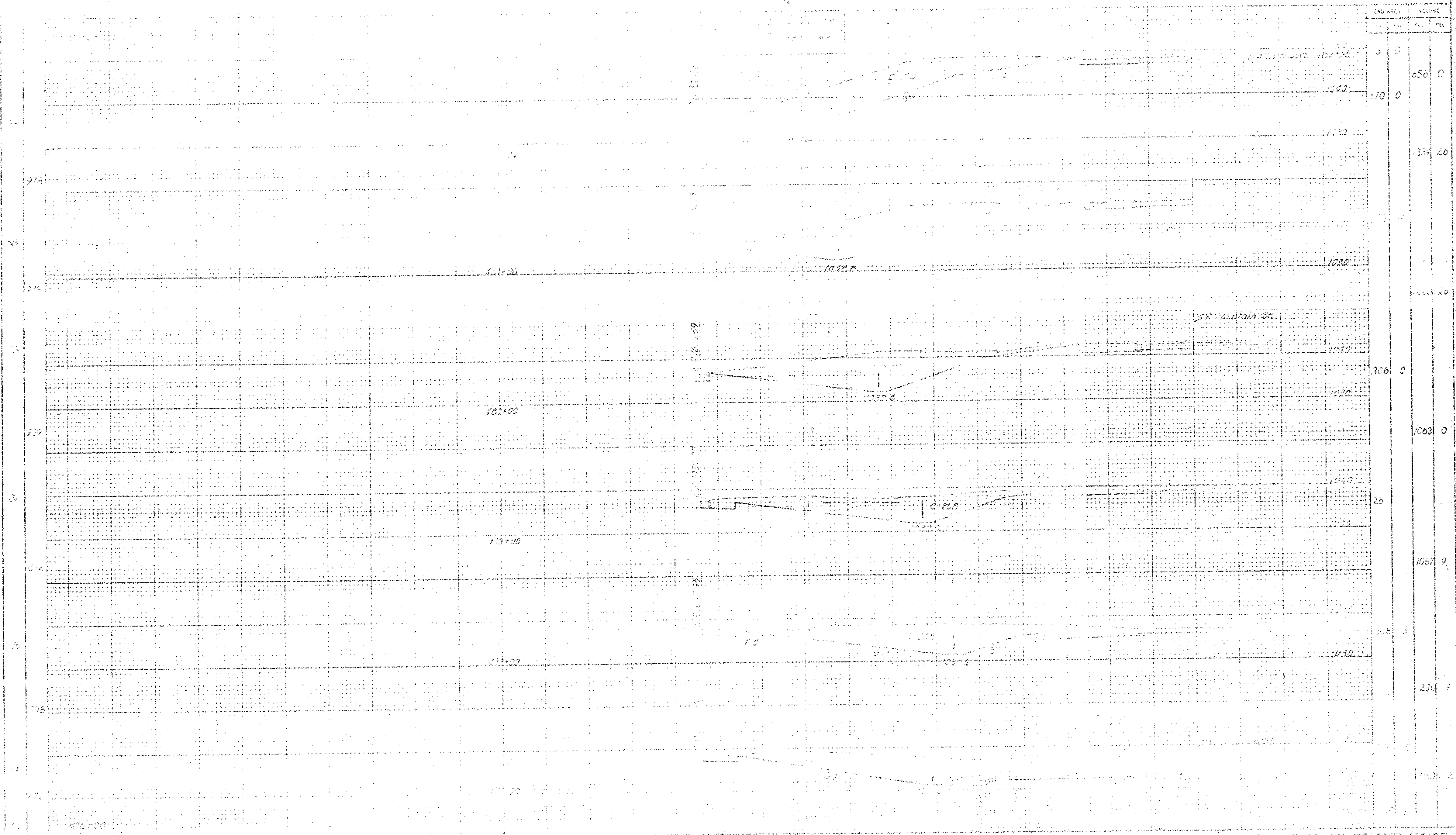


END AREA		VOLUME	
CUT	FILL	CUT	FILL
9	20		
		144	85
70	26		
		75	28
70	46		
17	382	45	1005
17	382	50	1005
17	296		
		13	212
17	275		
		63	1148
17	345		
		63	1381
17	401		



END AREA		VOLUME	
CUT	FILL	CUT	FILL
15	108		
		54	52.5
14	126		
		7	62
4	126		
		13	112
0	0		
0	0		
0	0		
0	0		
0	6		
		17	42
9	20		

SUMMIT COUNTY
10-3-54



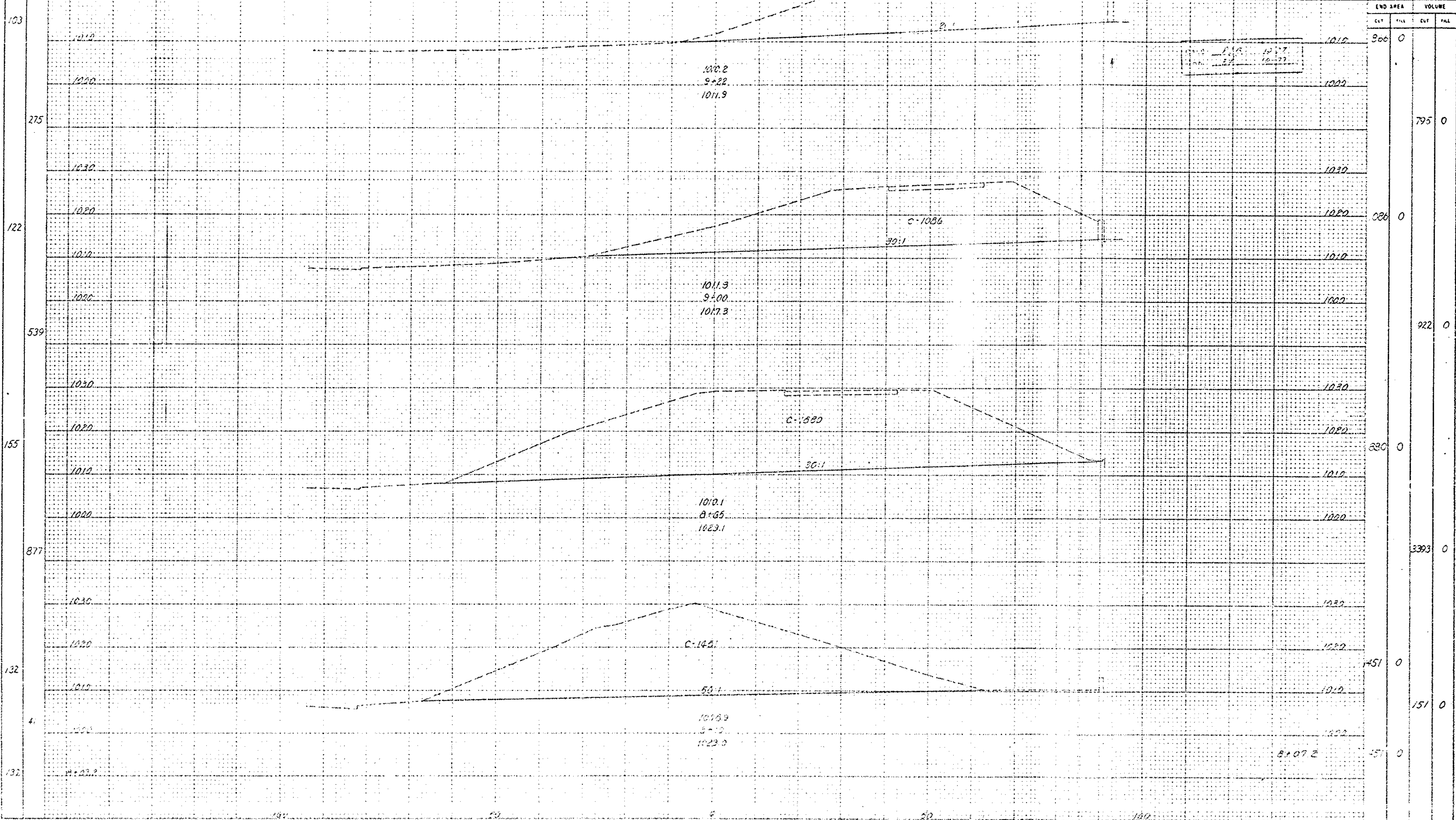
SECTION 2, STA 10+00 TO 12+00

111046

5 OHIO

78
246

SUMMIT COUNTY
SUM-8-0.46



EXISTING RAMP U STA. 8+10 to STA. 8+22

SECTION 01100 - EXISTING UTILITIES

SUM. 76-11.57
AKRON EXPRESSWAY

SHEET NUMBER	REFERENCE NUMBER	DRAINAGE																				PAVEMENT																				SHEET NUMBER	REFERENCE NUMBER	RAMP												
		202					202					202					202					202					202					202																								
		44	48	6	2	24	44	48	6	2	24	44	48	6	2	24	44	48	6	2	24	44	48	6	2	24	44	48	6	2	24	44	48	6	2	24																				
		CURB REMOVED					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN									
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN					CATCH BASIN				
		CATCH BASIN																																																						

SUB-SUMMARY OF QUANTITIES

5	CHIO	
---	------	--

81
248

248

SUB-SUMMARY OF QUANTITIES

DATE	STATE	PARCEL #	
5	OHIO		

SUM - 76 - 11.57
SUM - 8 - 0.46

82
248

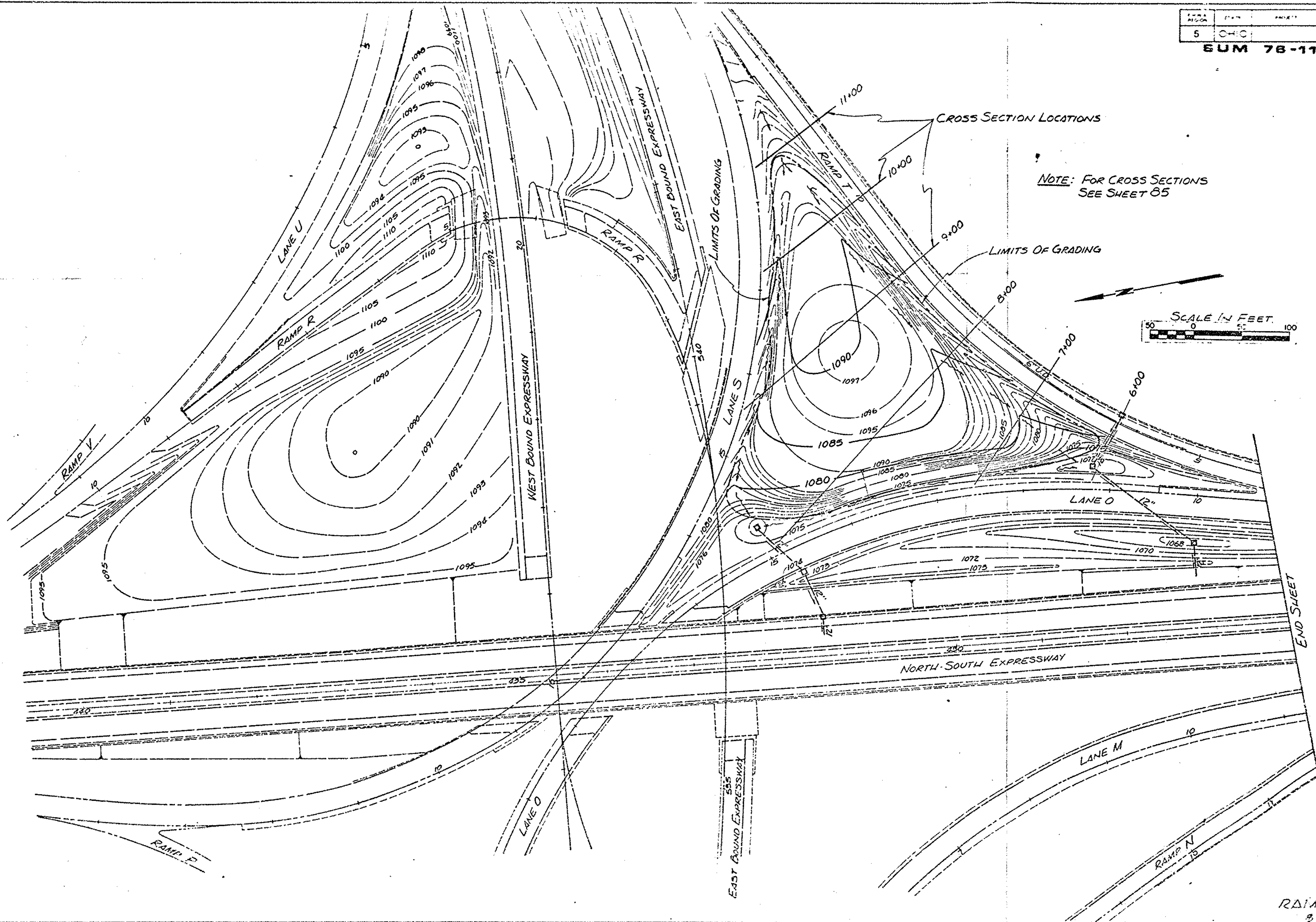
SUB-SUMMARY OF QUA

246

[illegible]

FORMA REGION	CHINA	PROVINTA	
5	CHIC		

EUM 78-11,87



NOTE: FOR CROSS SECTIONS
SEE SHEET 85

CROSS SECTION LOCATIONS

LIMITS OF GRADING

SCALE IN FEET

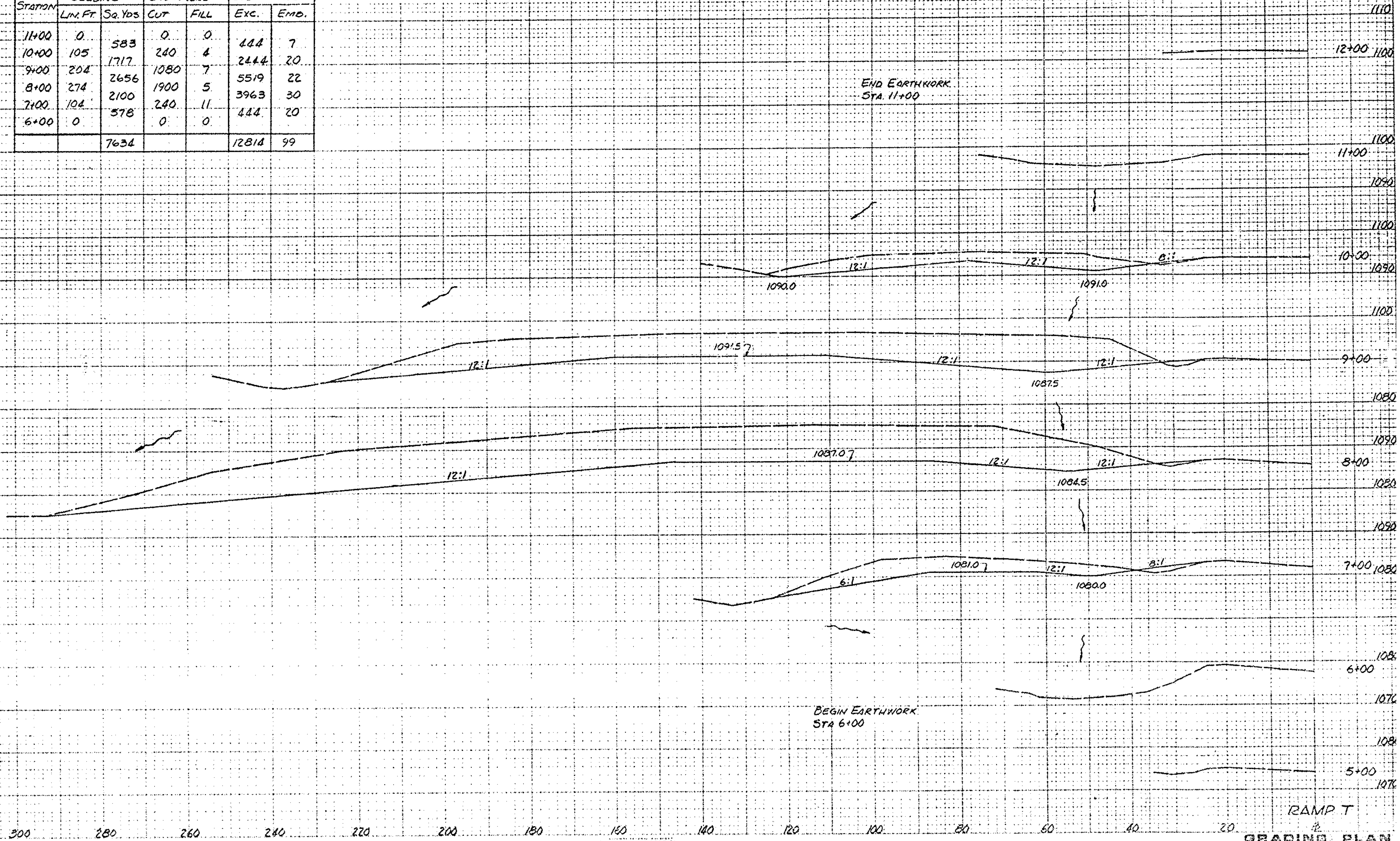
SECRET

STATION	SEEDING		END AREAS		CUBIC YARDS	
	Lin. Ft.	Sq. Yds.	Cut	Fill	Exc.	Emd.
11+00	0	583	0	0	444	7
10+00	105	1717	240	4	2444	20
9+00	204	2656	1080	7	5519	22
8+00	274	2100	1900	5	3963	30
7+00	104	578	240	11	444	20
6+00	0		0	0		
		7634			12814	99

FINAL
SURVEY
NOTED
NOTES
NO

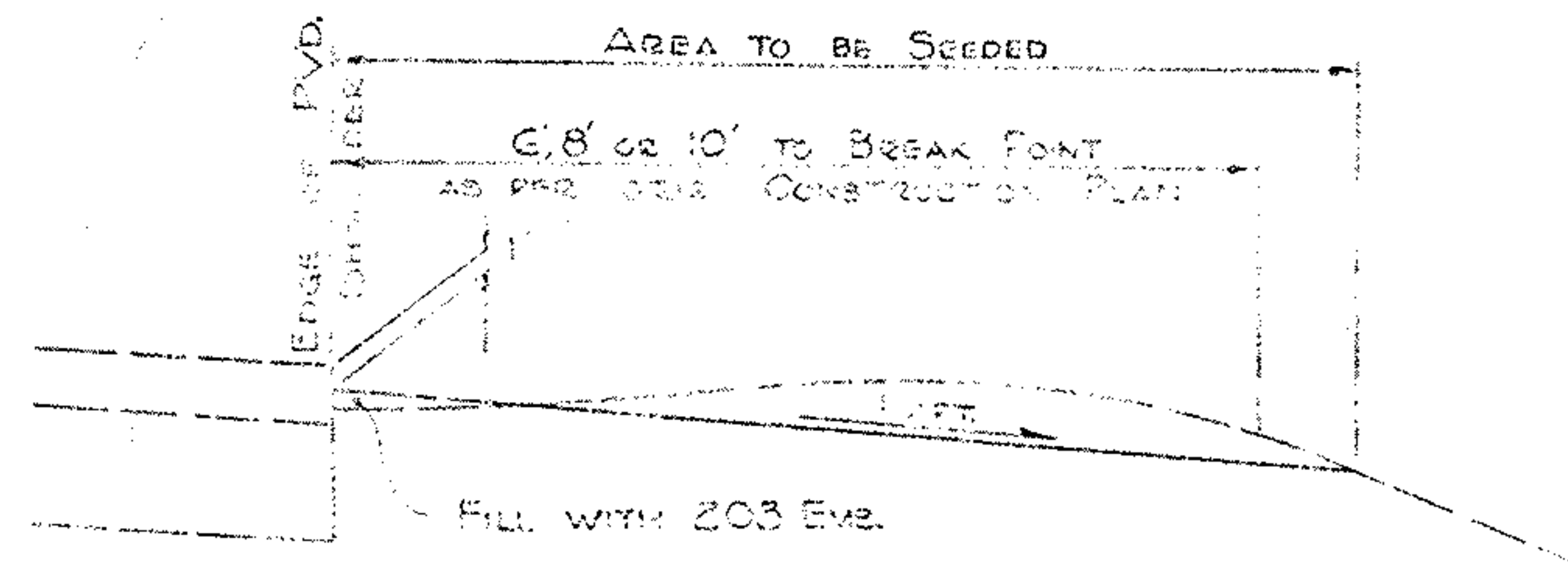
Calc. By L.L.S.
Date 7-23-78
Ckd. By
Date

ORIGINAL
SURVEY
NOTED
NOTES
NO



LINEAR GRADING

METHOD 1, AS PER PLAN



LINEAR GRADING - METHOD 1

THIS WORK SHALL CONSIST OF REGRADING THE EXISTING OUTSIDE SHOULDER IN NON-GUARD RAIL AREAS AS INDICATED IN THE SKETCH. REGRADING WILL BE ACCOMPLISHED BY REMOVING EXCESS THIN BETWEEN THE EDGE OF THE PAVED SHOULDER AND THE BREAK OVER POINT USING A SLOPE OF APPROXIMATELY 1" / FT.

EXCESS MATERIAL SHALL BE WINDROWED ON THE SHOULDER AND REMOVED BY THE CONTRACTOR. ANY VOIDS OR IRREGULARITIES BETWEEN THE EDGE OF THE PAVED SHOULDER AND BREAK POINT SHALL BE FILLED AND ADEQUATELY COMPACTED USING THE EXCESS MATERIAL. EXISTING RUTTED AREAS CAUSED BY SURFACE EROSION SHALL BE SCARIFIED PRIOR TO FILLING. A DROP OF 1" SHALL BE MAINTAINED BETWEEN THE EDGE OF THE RESURFACED PAVED SHOULDER AND THE REGRADED SHOULDER. AFTER GRADING OPERATION IS COMPLETED THE DISTURBED AREA SHALL BE SEEDED AS PER ITEM 659 EXCEPT MULCHING WILL NOT BE REQUIRED. COMPACTION REQUIREMENT AS PER 203 IS WAIVED FOR THIS OPERATION.

THE METHOD OF MEASUREMENT SHALL BE CONSIDERED AS ONE STATION EQUAL TO 100 LIN. FT. MEASURED SEPARATELY FOR THE EAST BOUND AND WEST BOUND LANES AND SHALL INCLUDE ALL WORK REQUIRED AS DESCRIBED ABOVE INCLUDING THE NECESSARY SEEDING.

THERE MAY BE AREAS WHERE THIS TREATMENT MAY NOT BE REQUIRED IN THE FIELD. THE ENGINEER SHALL DETERMINE THESE LOCATIONS AND APPROPRIATE DEDUCTIONS MADE AS A RESULT OF THIS FIELD INVESTIGATION.

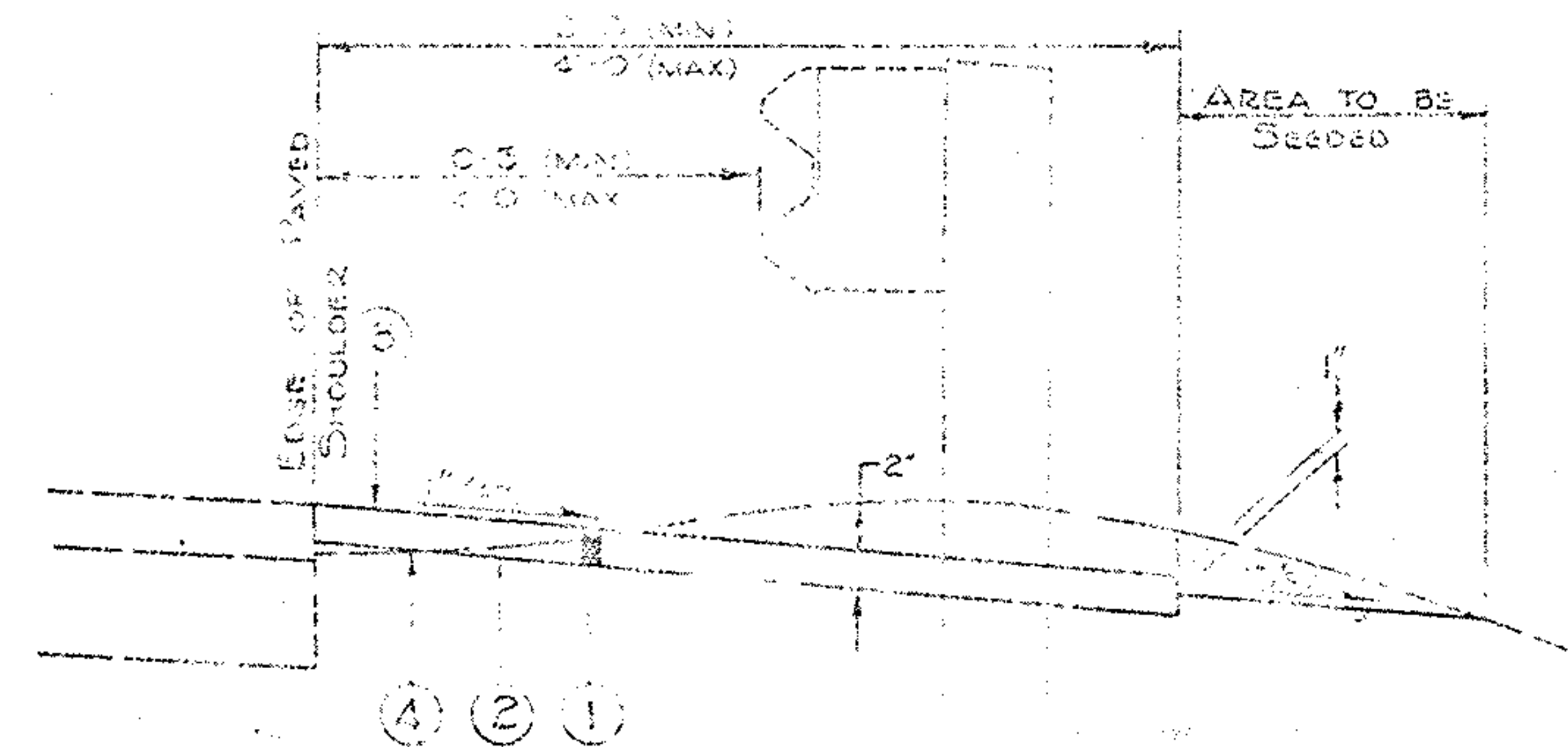
THE COST OF THE ABOVE OPERATION SHALL BE INCLUDED IN THE PRICE BID FOR FOR ITEM 203 LINEAR GRADING METHOD 1, AS PER PLAN.

NOTE: LINEAR GRADING METHOD 1 AND METHOD 2 QUANTITIES END AT THE PAVEMENT EXPANSION JOINT ON ALL EXIT OR ENTRANCE RAVES. NO QUANTITIES ARE INCLUDED FOR LINEAR GRADING ON COWPS.

ESTIMATED QUANTITIES

* 203 LINEAR GRADING, METHOD 1, AS PER PLAN = 172 STATIONS

METHOD 2 AS PER PLAN



LEGEND

- ① 404 ASPHALT CONCRETE (AC-20)
- ② 408 PRIME COAT (See THIS SHEET)
- ③ 409 SEAL COAT & COVER AGGREGATE
- ④ SOIL STERILIZER (See THIS SHEET)

LINEAR GRADING - METHOD 2

THIS WORK SHALL CONSIST OF GRADING THE EXISTING OUTSIDE SHOULDER BETWEEN THE EDGE OF THE PAVED SHOULDER AND BREAK POINT OF THE SHOULDER IN AREAS WHERE GUARD RAIL EXISTS. IT SHALL CONSIST OF REMOVING THE EXCESS THIN IN THE VICINITY OF THE GUARD RAIL TO PROVIDE A POSITIVE SLOPE AWAY FROM THE PAVED SHOULDER. A SLOPE OF APPROXIMATELY 1" / FT. SHALL BE PROVIDED IN THESE AREAS.

THE AREA BETWEEN THE PAVED SHOULDER AND 1 FT. BEYOND THE REAR OF THE EXISTING GUARD RAIL POSTS SHALL BE EXCAVATED SUFFICIENTLY IN DEPTH TO PROVIDE A 2" COMPACTED COURSE OF #4. THE SURFACE OF THE #4 THUS APPLIED SHALL BE AT THE SAME ELEVATION AS THE PAVED SHOULDER. A DROP OF APPROXIMATELY 1" BETWEEN THIS NON TREATMENT AND THE THIN SHALL BE MAINTAINED AS INDICATED IN THE SKETCH. EXCESS MATERIAL BEYOND THE EXISTING GUARD RAIL MAY BE WASTED OVER THE SLOPE AT THE DIRECTION OF THE ENGINEER. PRIOR TO PLACING THIS MATERIAL A SOIL STERILIZER USING EITHER OF THE FOLLOWING BRANDS SHALL BE APPLIED BETWEEN THE PAVED SHOULDER AND 1' BEYOND THE POST AT THE RATE RECOMMENDED BY THE MANUFACTURER:

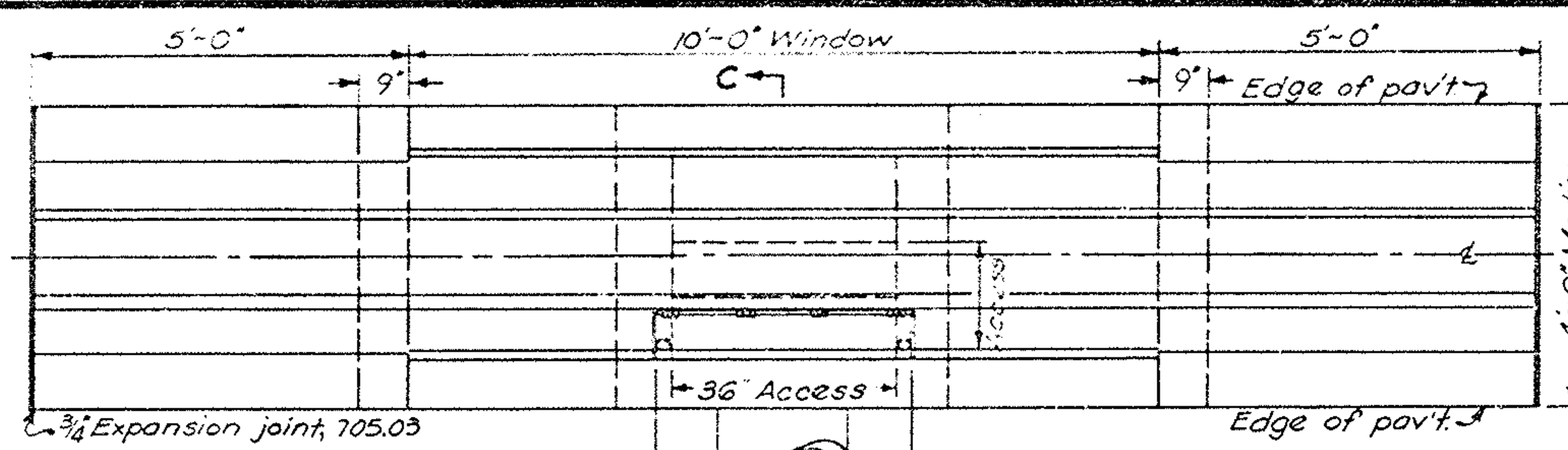
PRANTOL 256 BY CIMA-GEISY, KOVAR BY DIAMOND SHAROCK, OR ANY APPROVED EQUAL. A PRIME COAT SHALL BE APPLIED

AT THE RATE OF 0.5 GAL/S.Y. BEFORE APPLYING THE ASPHALT CONCRETE. THE SURFACE OF THIS AREA SHALL BE SURFACE TREATED AS PER THE MAINLINE SHOULDER TREATMENT. AREAS DISTURBED BEYOND THE 1' LIMIT SHALL BE SEEDED AS PER 659 EXCEPT MULCHING WILL NOT BE REQUIRED.

THE METHOD OF MEASUREMENT SHALL BE CONSIDERED AS ONE STATION EQUAL TO 100 LIN. FT. AND SHALL INCLUDE ALL WORK REQUIRED AS DESCRIBED ABOVE EXCEPT FOR ITEM 404, ASPHALT CONCRETE, AS PER PLAN, 408 PRIME COAT AND 409 SEAL COAT AND COVER AGGREGATE. THE COST FOR THE ABOVE OPERATION SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 203 LINEAR GRADING METHOD 2, AS PER PLAN.

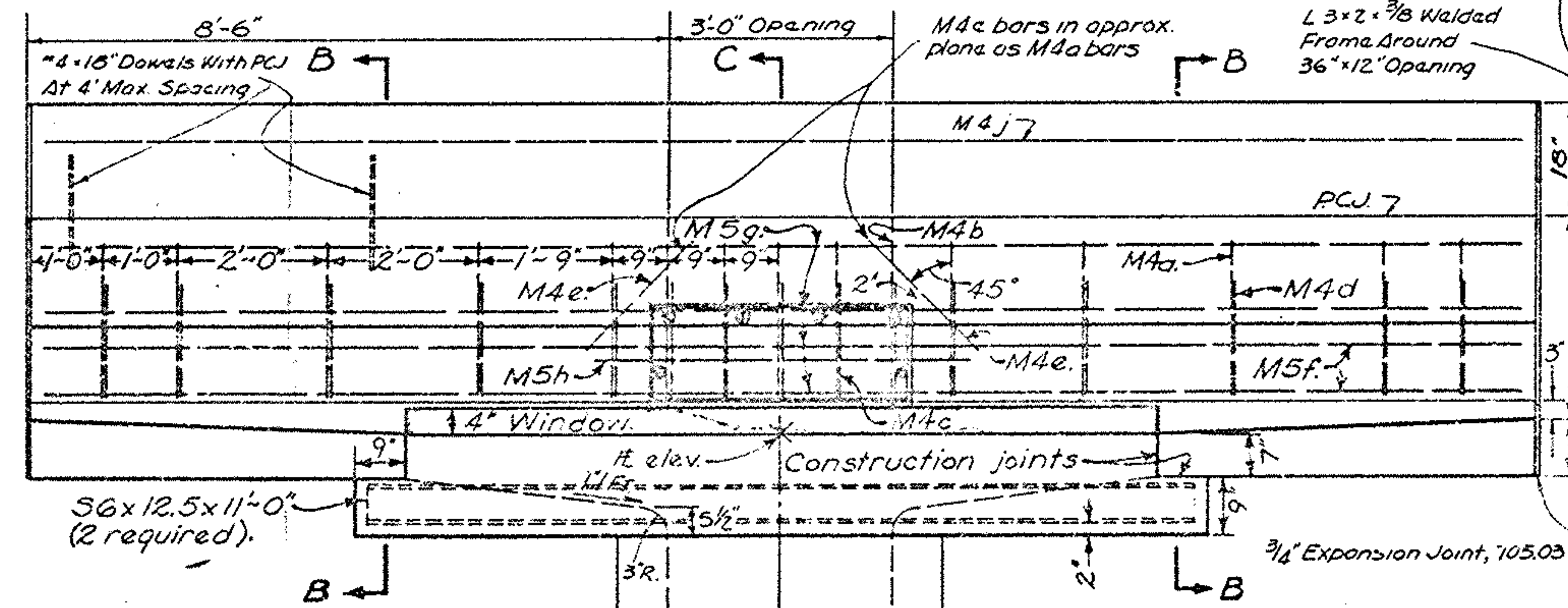
ESTIMATED QUANTITIES

* 203 LIN. GRADING, METHOD 2, AS PER PLAN = 240 STATIONS
 * 404 - ASPHALT CONCRETE (AC-20) = 616 CU. Yd.
 * 408 - BITUMINOUS PRIME COAT = 5541 GAL.
 * 409 - SEAL COAT & COVER AGGREGATE MATERIAL = 3925 GAL.
 * 409 - SEAL COAT & COVER AGGREGATE = 88 CU. Yd.

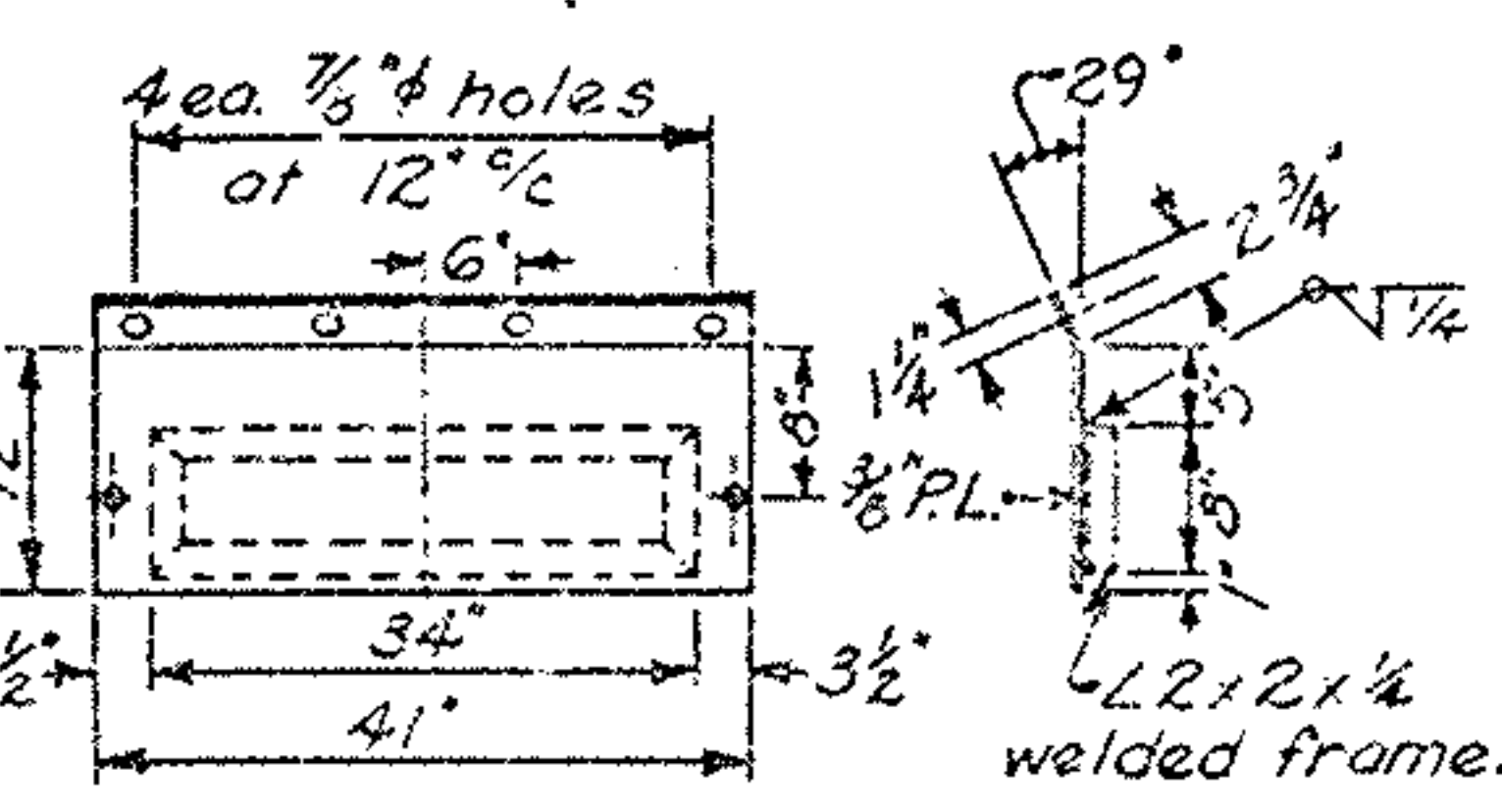


Reinforcing steel is not shown in plan view.

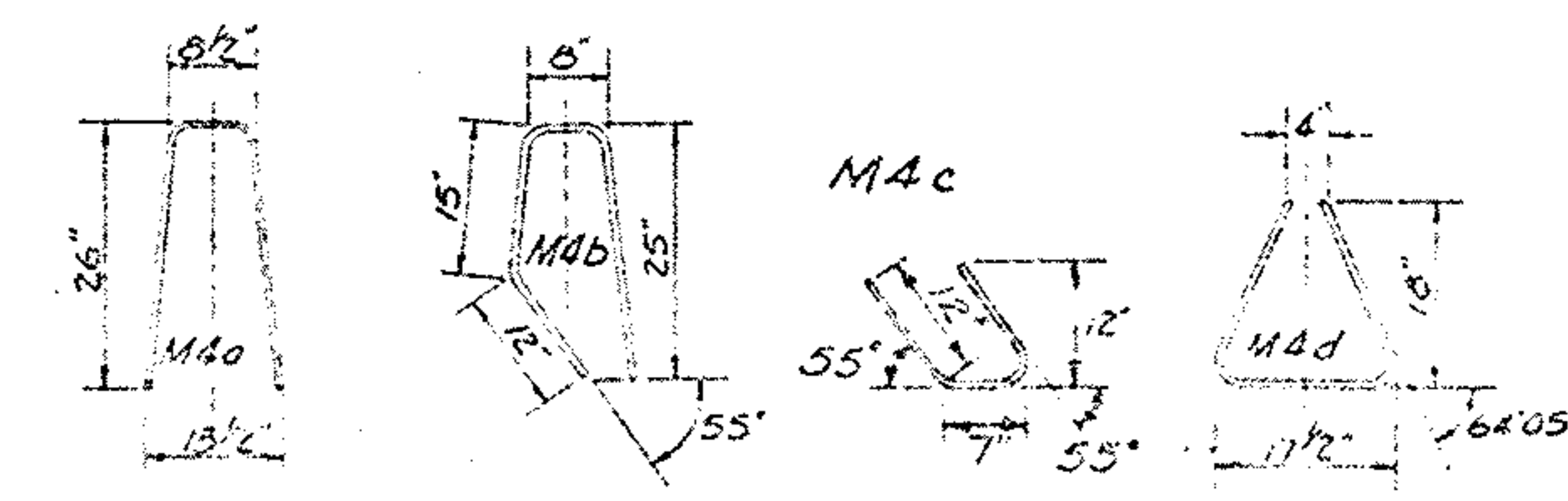
PLAN VIEW



ELEVATION A-A

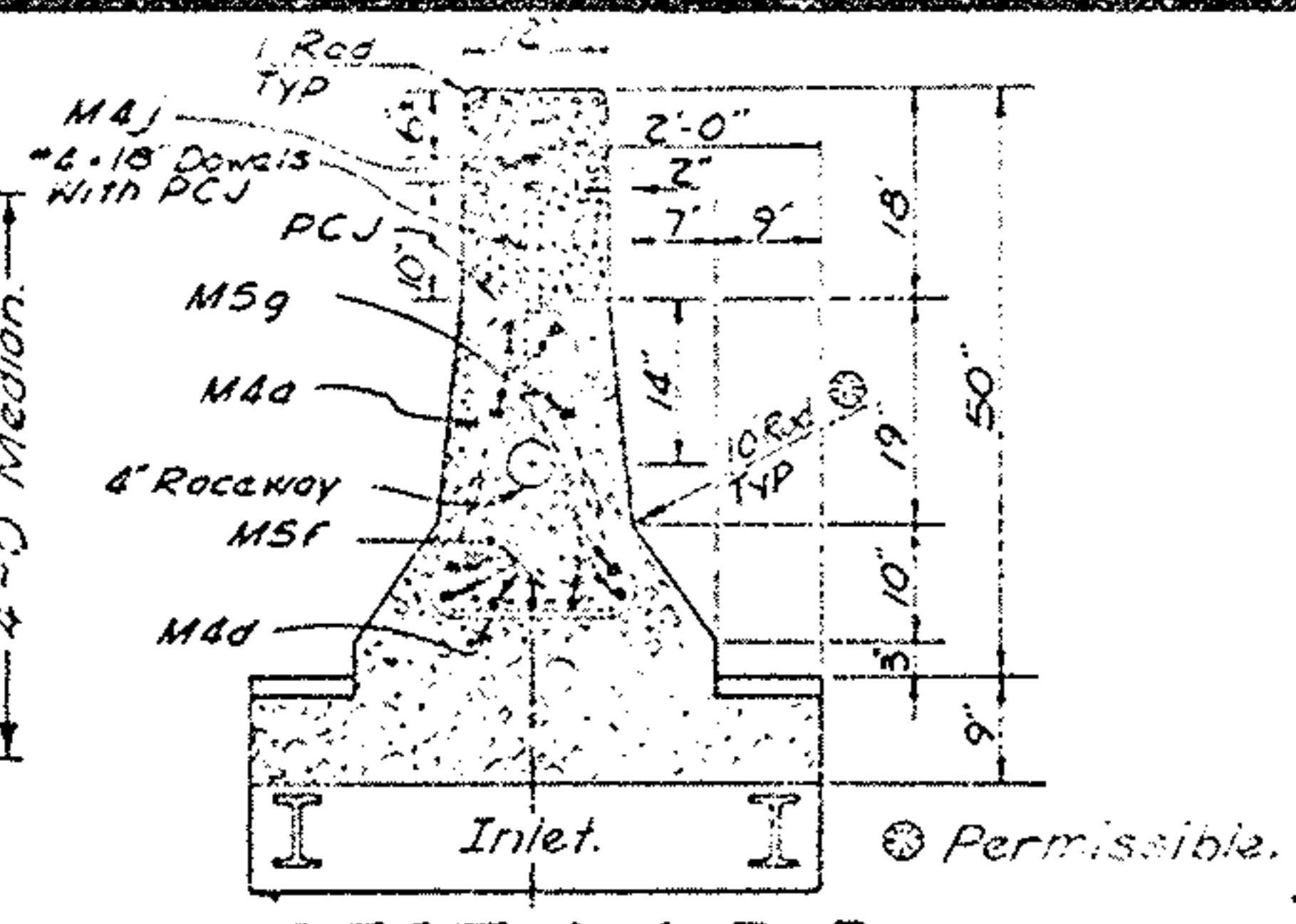


ACCESS DOOR DETAIL

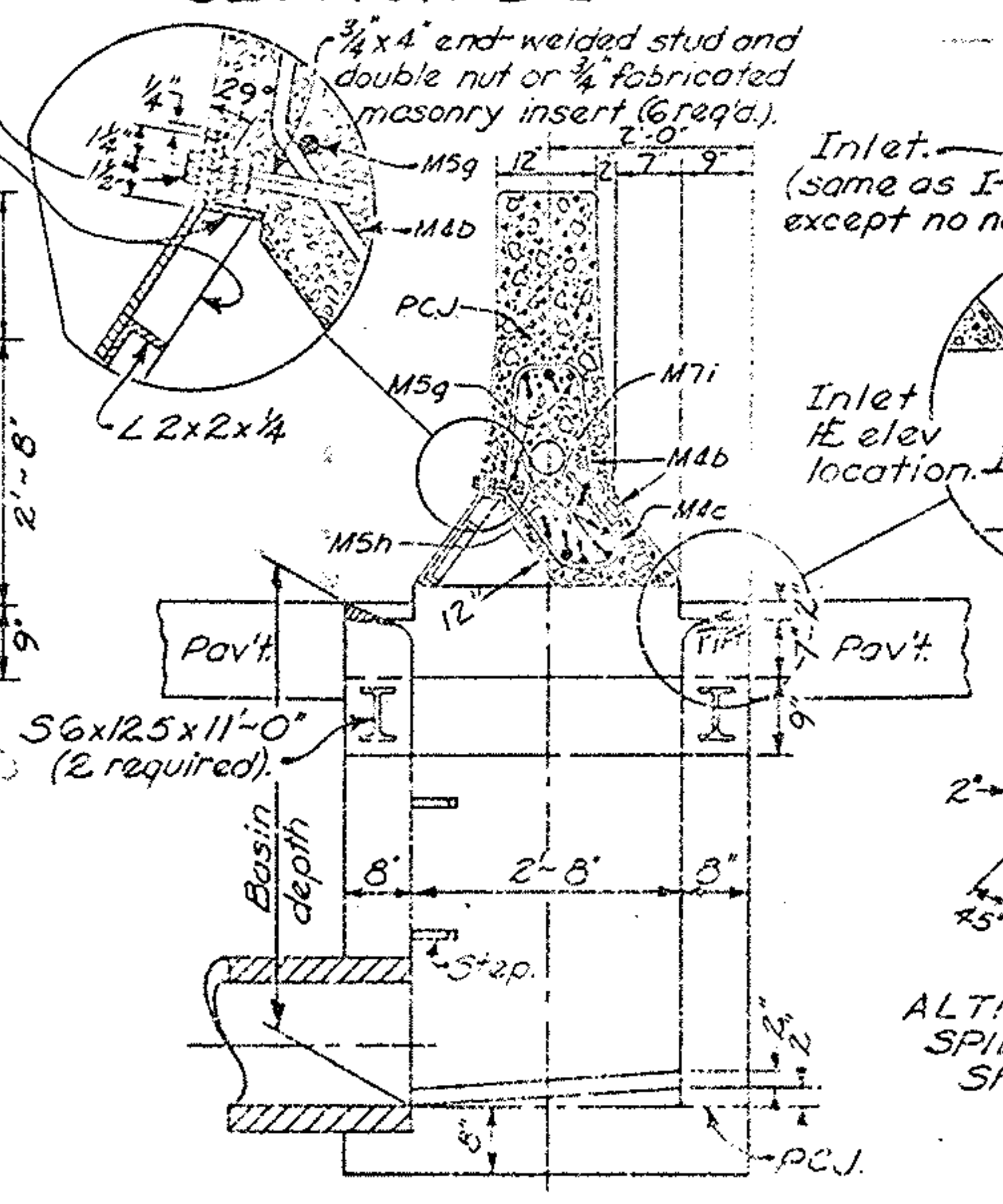


BENDING DIAGRAMS - No. 4 Bars.

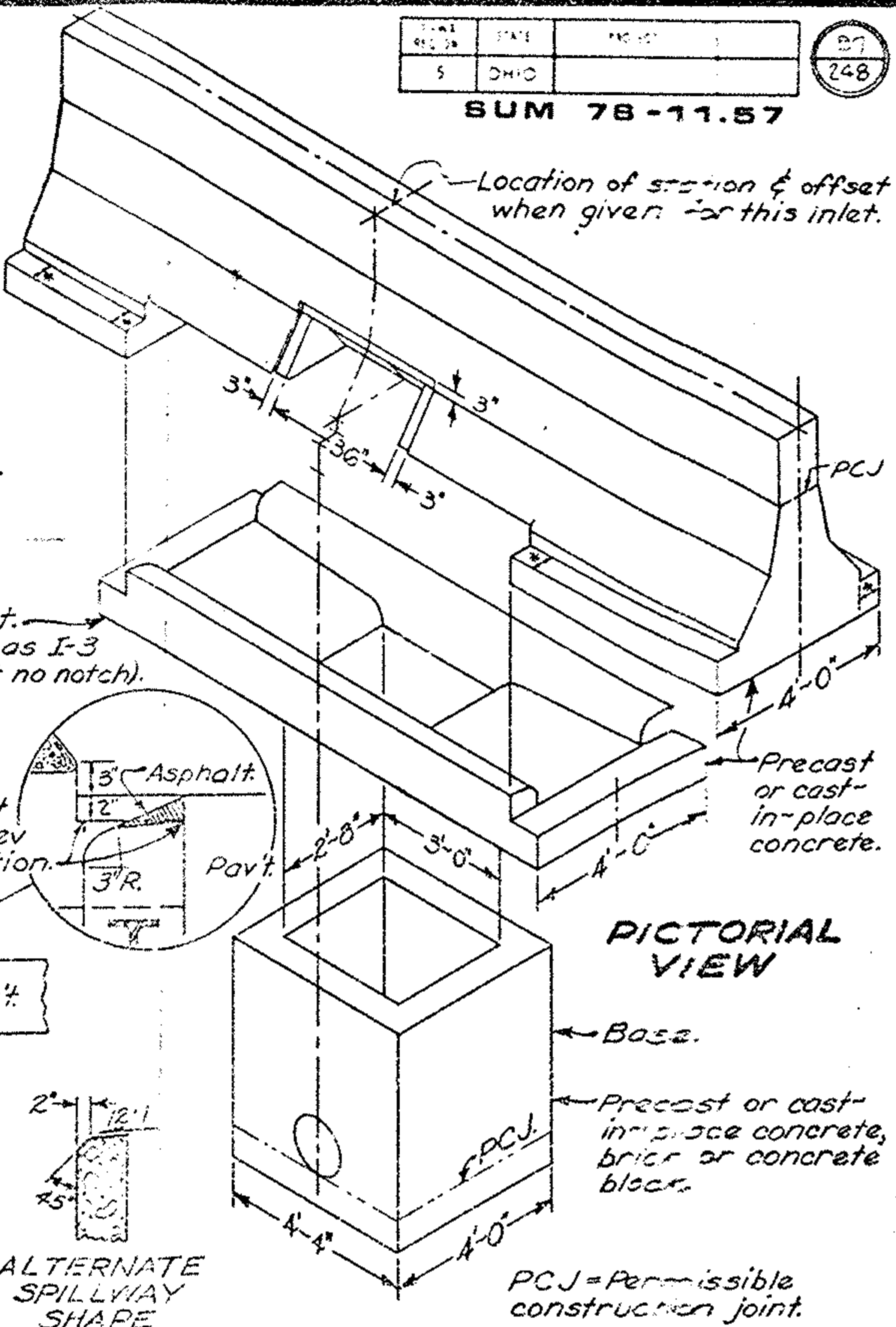
STEEL LIST			
Bar	Eq. Lin. Ft.	Shape	
M4a	10	5'-0"	Bent
M4b	5	5'-0"	
M4c	5	2'-8"	
M4d	10	4'-6"	
M4e	2	2'-0"	Straight
M4f	1	19'-8"	
M4g	3	8'-2"	
M4h	1	5'-0"	
M4i	2	8'-6"	



SECTION B-B



SECTION C-C



PICTORIAL VIEW

CUTLET pipe to be located to meet project requirements. The window should be located on the opposite side from the outlet where feasible.

PAYMENT: Deduct 20 linear feet from 622 Concrete barrier. All costs for barrier and inlet are included in 604.

GALVANIZING: The steel door, frame and all bolts, nuts and inserts shall be galvanized.

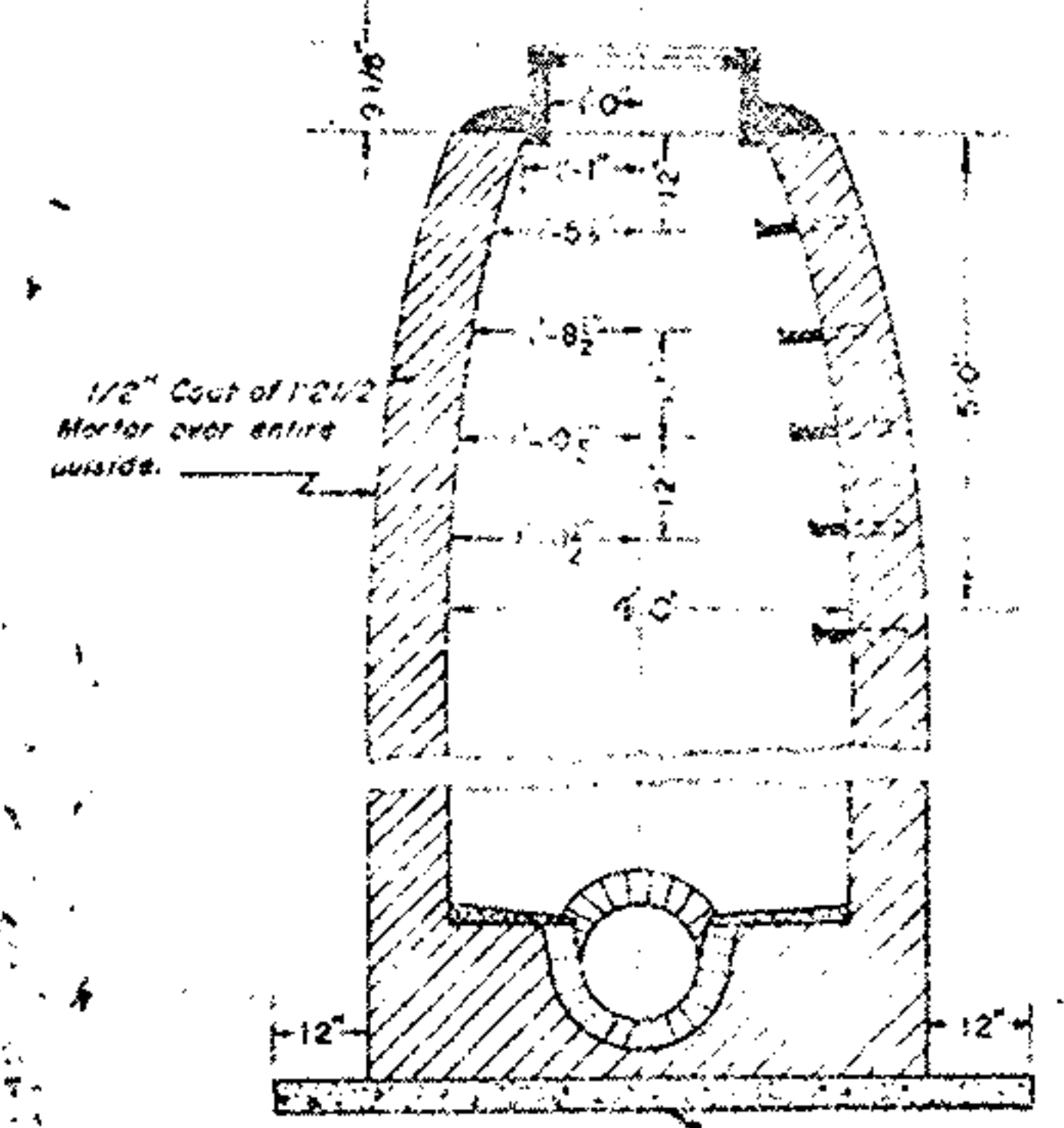
STEPS, as detailed on MH-1, shall be provided when basin depth exceeds 48".

FLOWLINE elevation is at the center of the 10' window, 2' below the pavement edge. The inlet top shall be set in the same length and grade as the highway.

*9" Base May Be 6" If 3" Width In Each Side Of Barrier Is Filled With Class C Concrete.

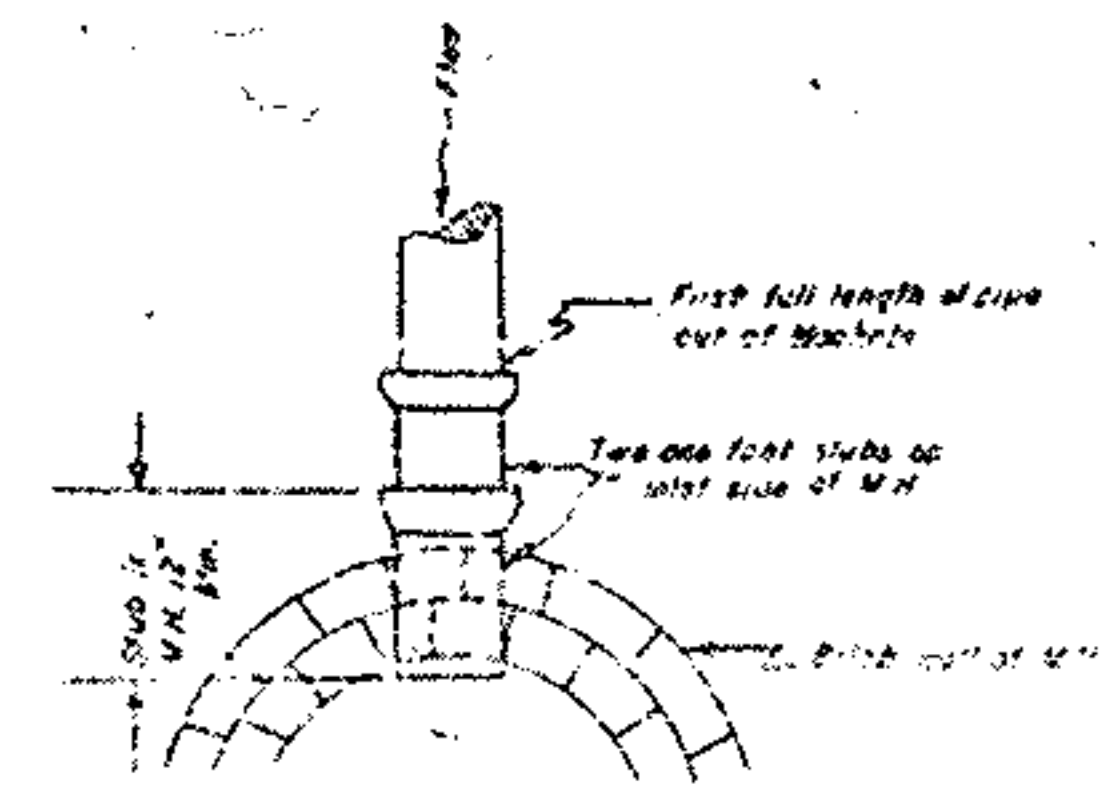
I-3D

MEDIAN INLET

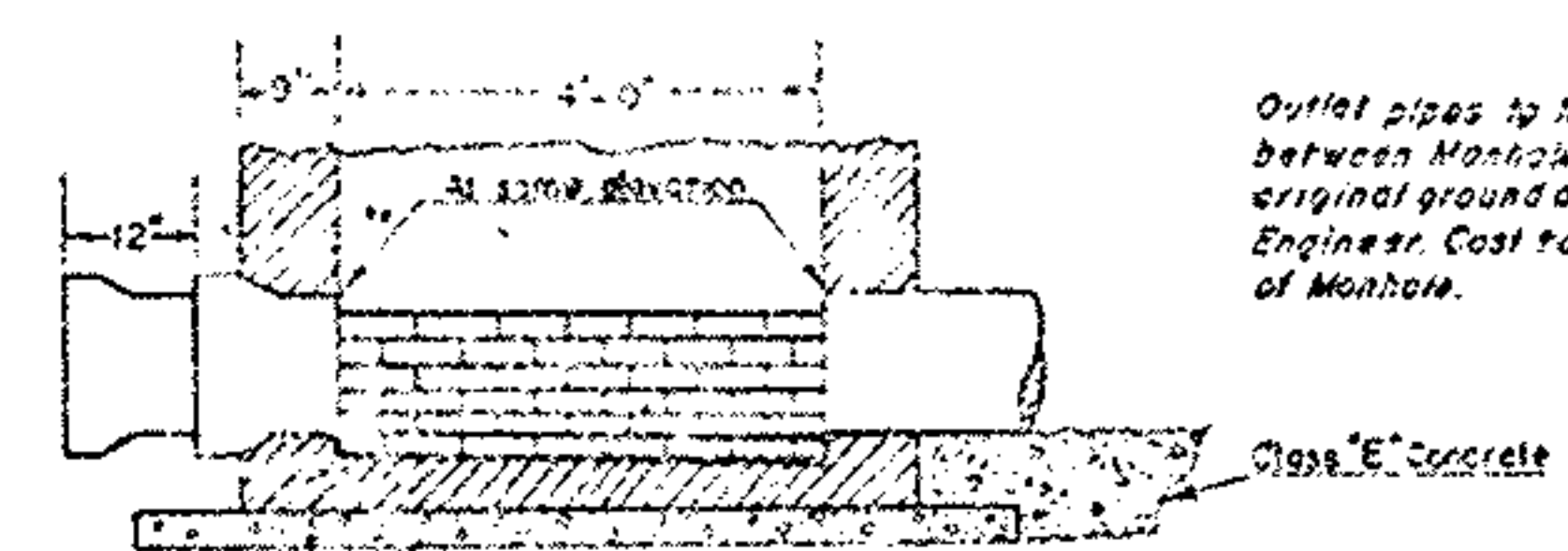


STANDARD MANHOLE

First length of pipe out of manhole and stub in manhole to be 10' section of vitrified pipe with premium joint and installed as shown with direction to the Engineer. Pipe appurtenances to be included in price bid for linear foot of appropriate pipe size.

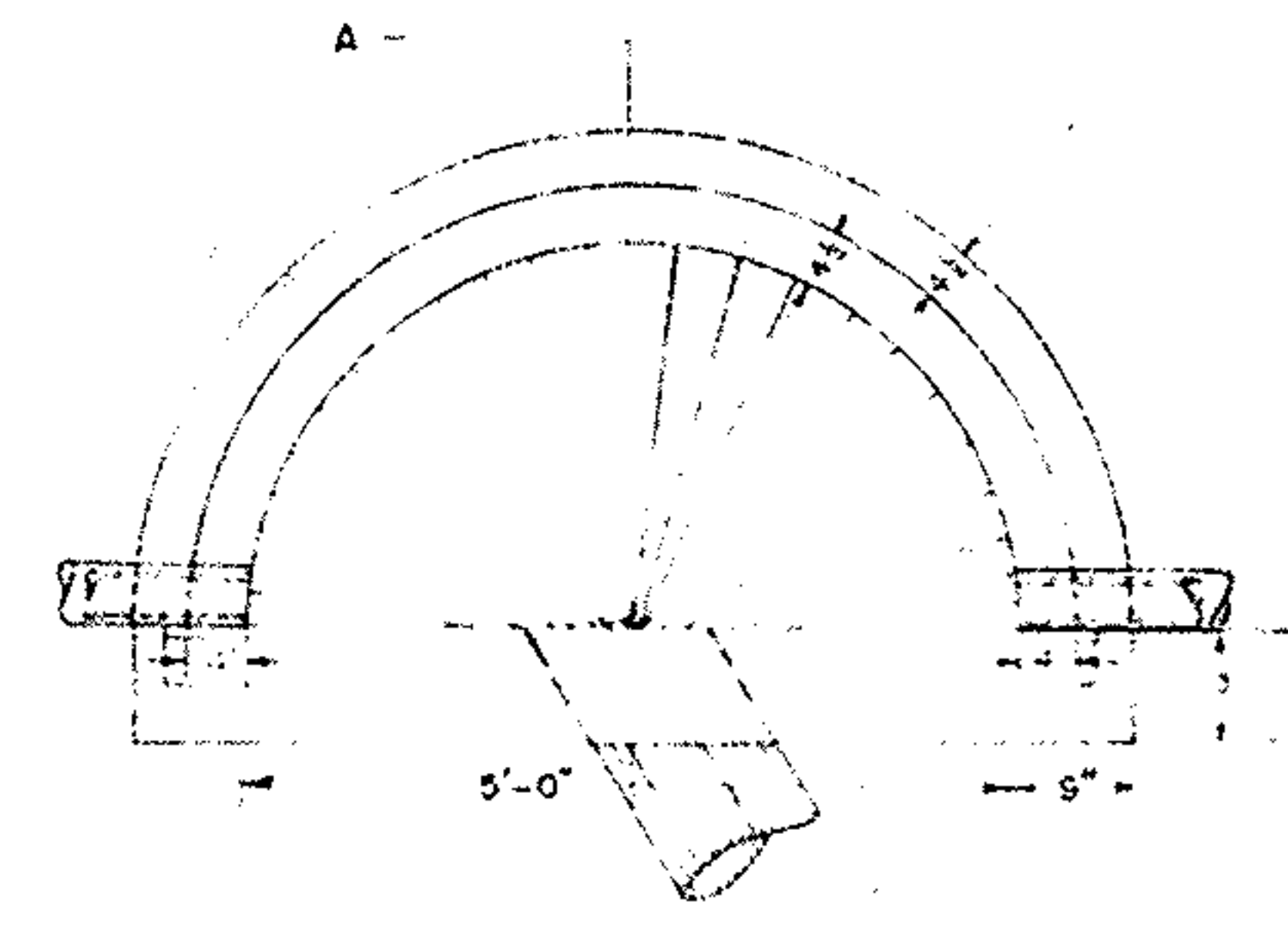
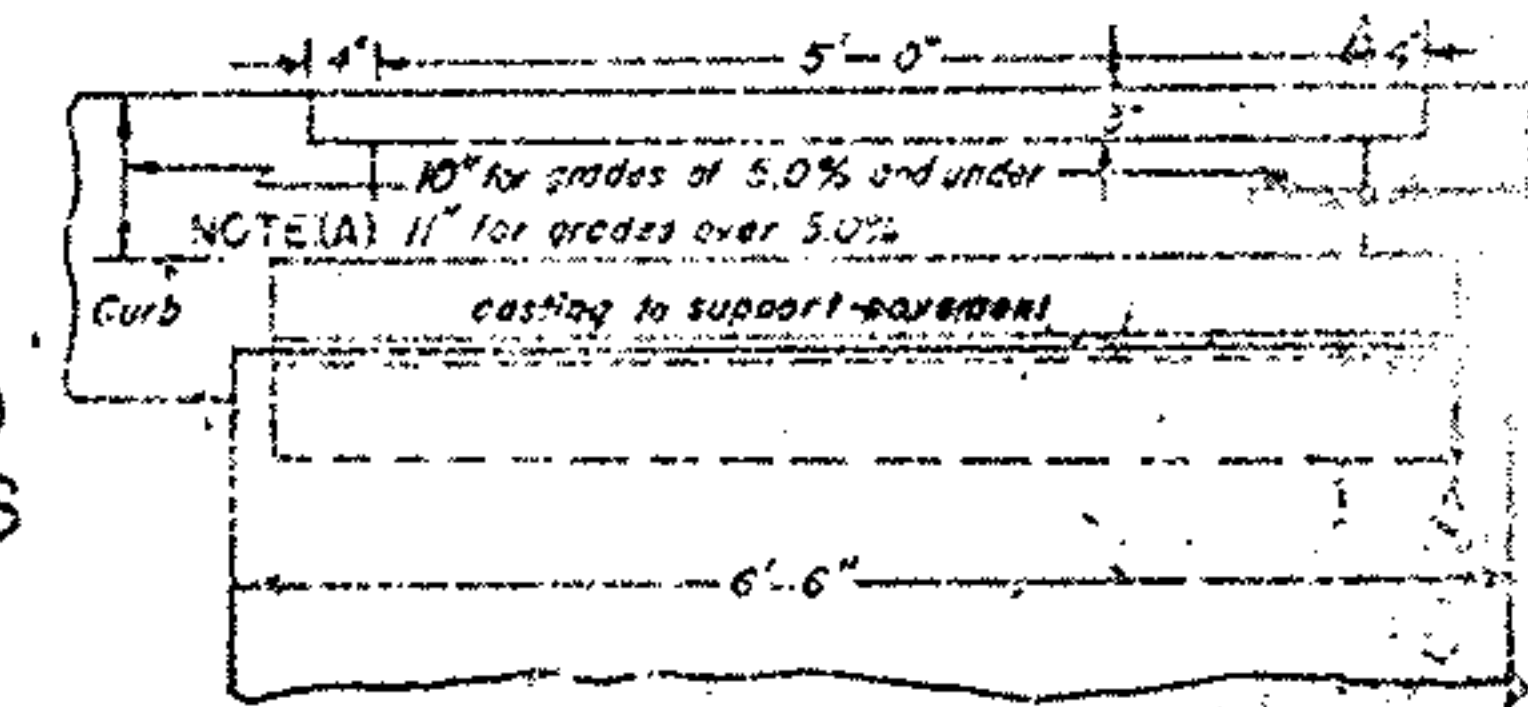


Outlet pipes to have concrete base between Manhole Foundation and original ground as directed by the Engineer. Cost to be included in cost of Manhole.



DETAIL OF MAIN LINES AND INLET LEADS OUT OF M.H.'S

FRONT VIEW
STANDARD NO. 3 INLET



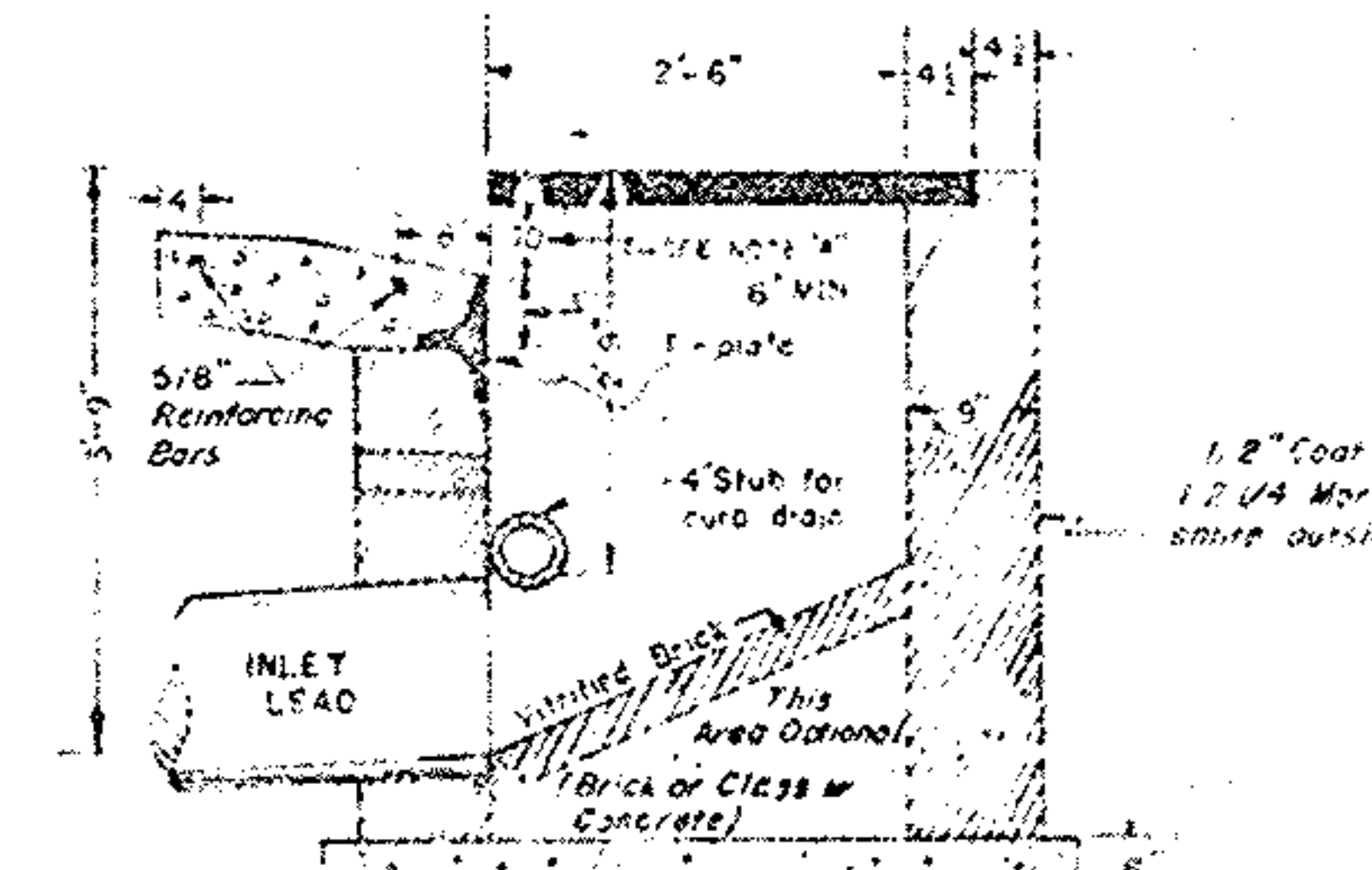
PLAN VIEW

STANDARD NO. 3 INLET

Eliminate underdrain pipe on downhill side of inlet and in back wall of inlet, also plug pipe in front wall of inlet before paving.



NOTE (B) 2-No. 5 Reinforcing bars placed the full length of the inlet approach slab as shown or as directed by the Engineer.



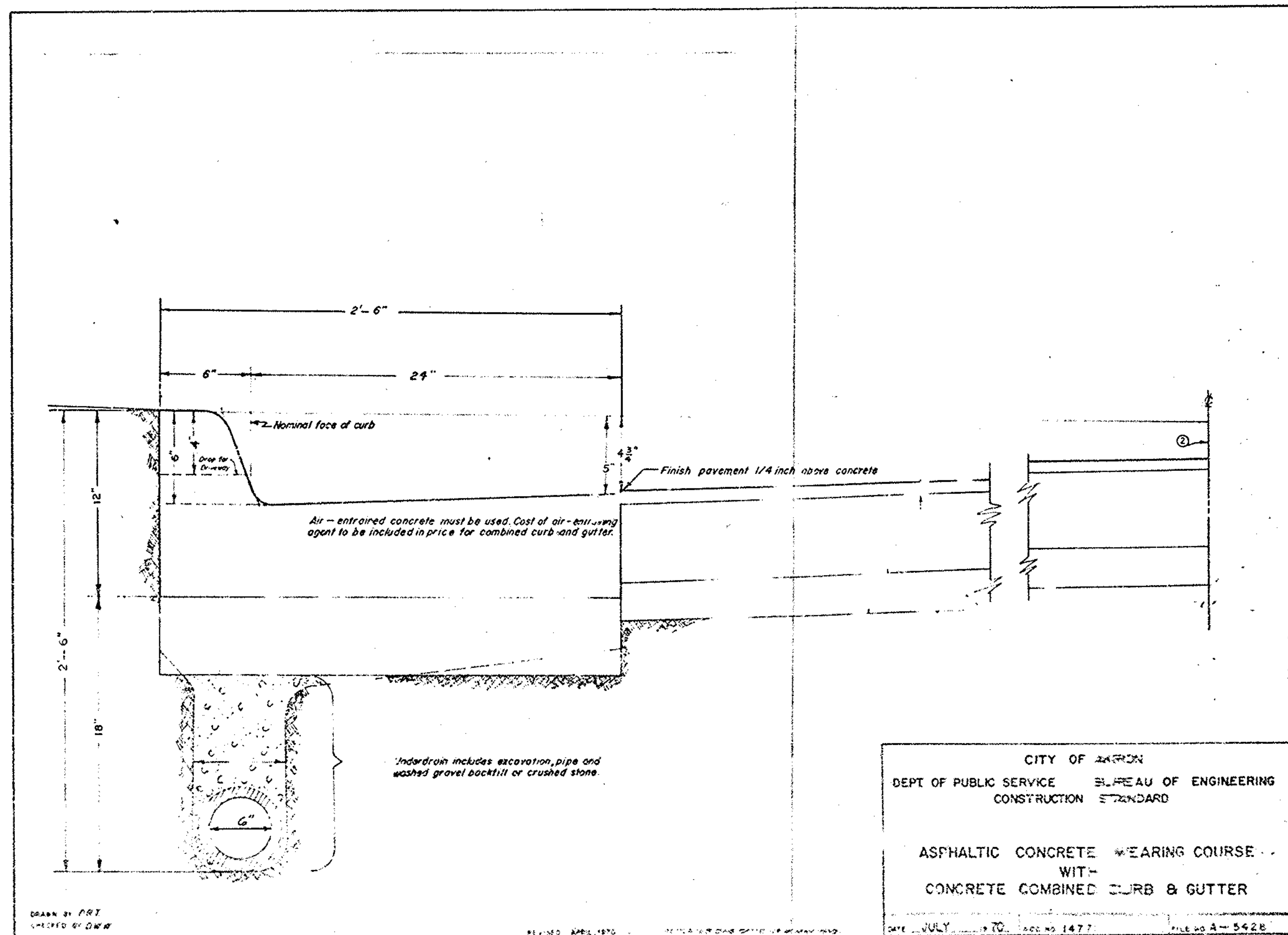
SECTION A-A

THIS DRAWING SUPERSEDES DRAWING NO. 148-100

CITY OF AKRON
DEPT. OF PUBLIC SERVICE BUREAU OF ENGINEERING
CONSTRUCTION STANDARD

STANDARD MANHOLE
AND
DETAILS OF NO. 3 INLET

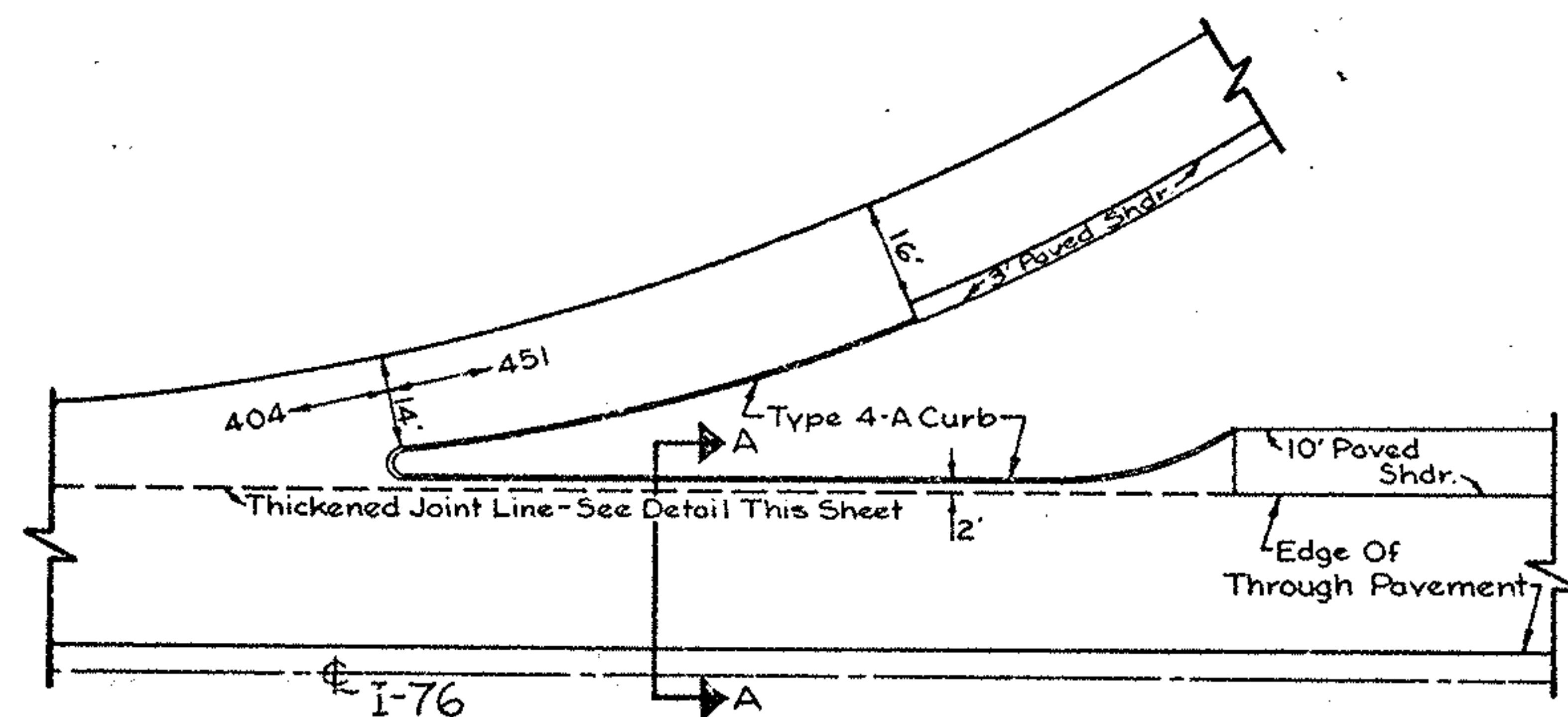
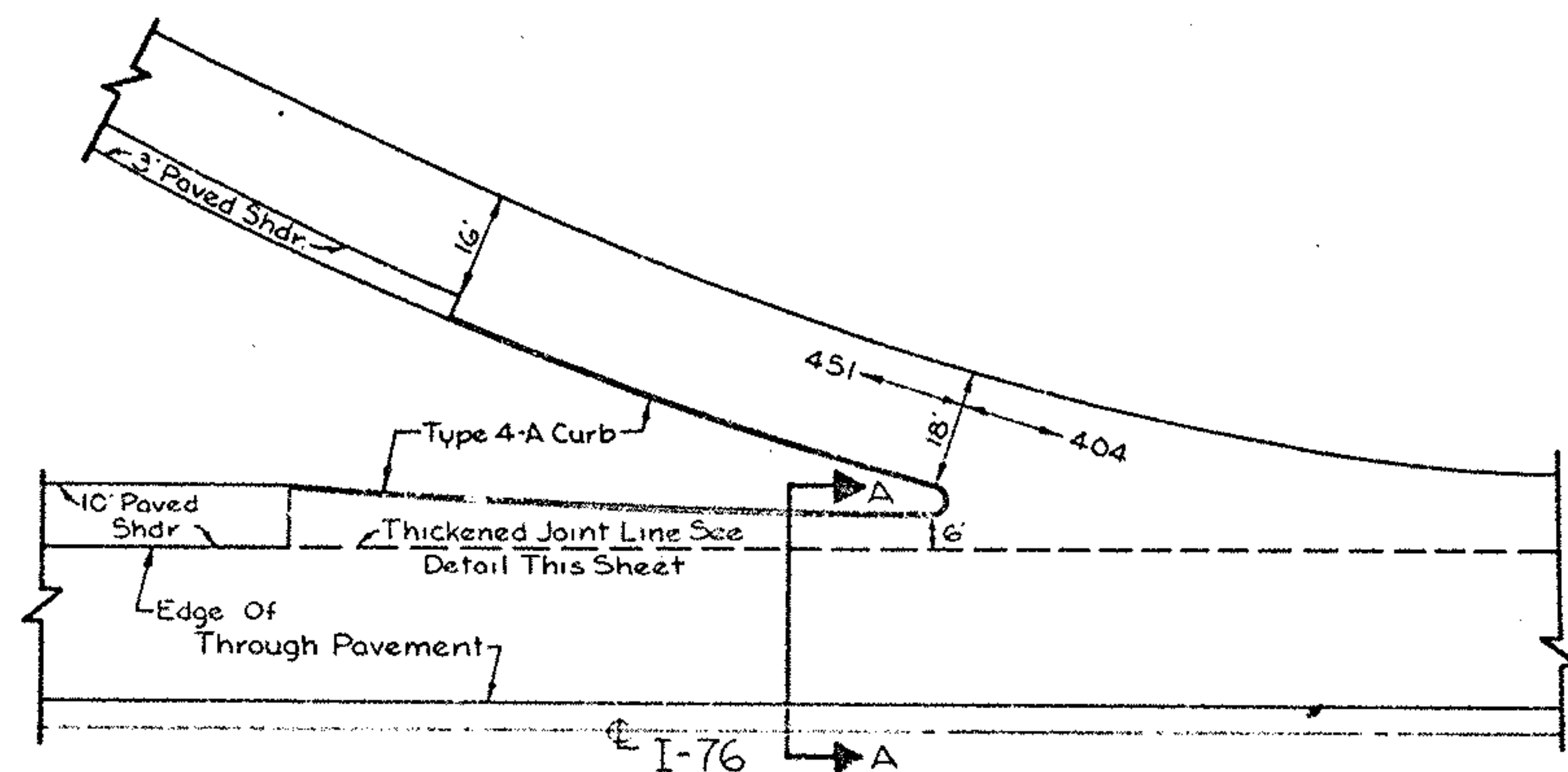
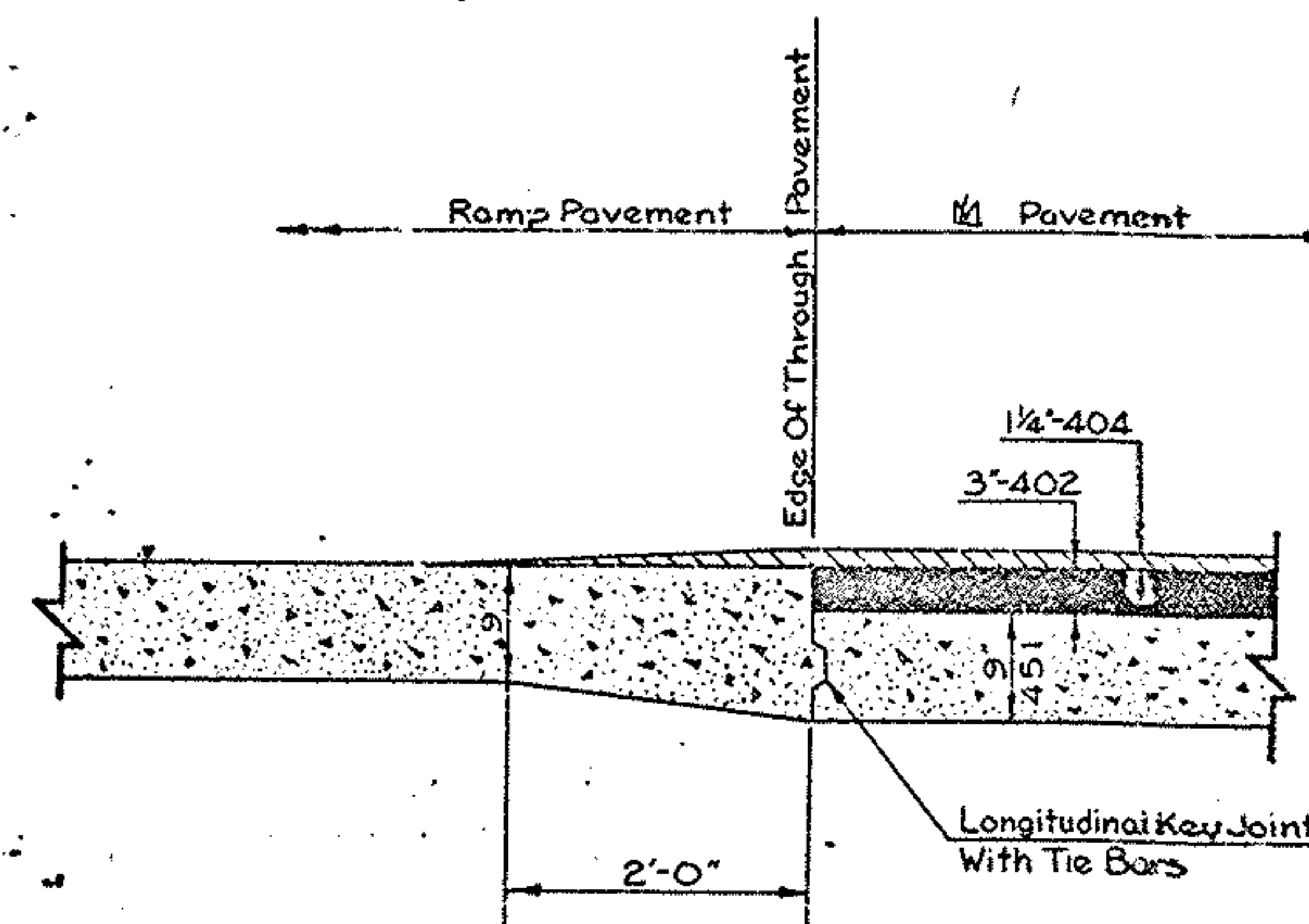
DATE JULY 70 ACC. NO. 16959 AS430-S



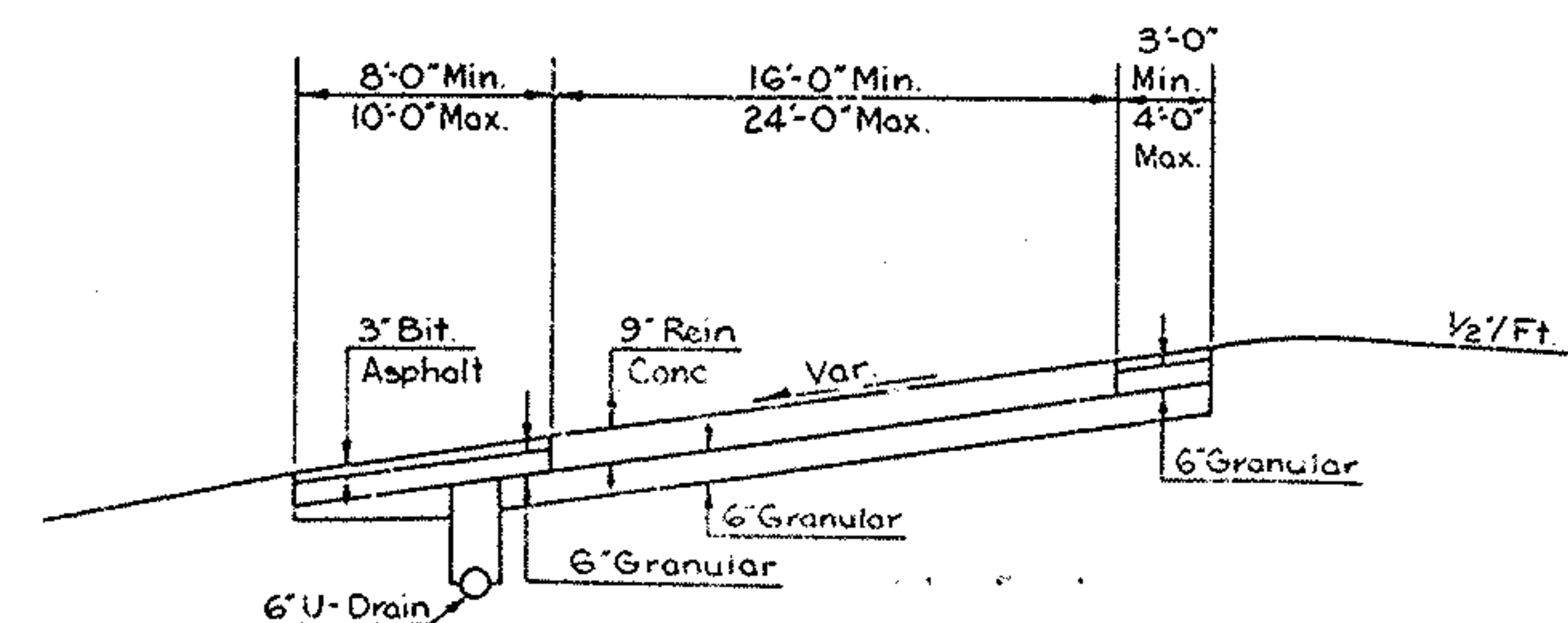
CITY OF AKRON
DEPT OF PUBLIC SERVICE BUREAU OF ENGINEERING
CONSTRUCTION STANDARD

ASPHALTIC CONCRETE WEARING COURSE
WITH
CONCRETE COMBINED CURB & GUTTER

DATE JULY 1970. APP. NO. 1477. FILE NO. A-5428


EXISTING NOSE DETAIL
ENTRANCE RAMPS

EXISTING NOSE DETAIL
EXIT RAMPS


= 1973 Resurfacing Project 1/4" 404 On I-76 Pavement With Feather At Ramps. No Resurfacing Provided On Ramps.

EXISTING THICKENED JOINT DETAIL
SECTION A-A

TYPICAL SECTION
EXISTING RAMPS

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS
REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 859, 957, 958, 959 ON THE TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 632, 730, 731, AND 732.

625 POWER SUPPLY FOR SIGN LIGHTING
ELECTRIC POWER SHALL BE OBTAINED FROM THE OHIO EDISON CO. AT THE LOCATION INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE AT THE VOLTAGE INDICATED ON THE PLANS.

630 OVERHEAD SIGN SUPPORT MODIFICATION, BY TYPE
OVERHEAD SIGN SUPPORTS SHALL BE MODIFIED AS SHOWN IN THE PLANS. THE MODIFICATION SHALL CONSIST OF THE FOLLOWING ITEMS OF WORK:
1. INSERTING A NEW BOX TRUSS SECTION, LENGTH AS SHOWN ON THE PLANS.
2. THE RELOCATING OF AN EXISTING END FRAME.
3. FURNISHING AND INSTALLING ANCHOR BOLTS AND CONDUIT ELLS.
PAYMENT WILL BE AT THE CONTRACT UNIT PRICE FOR THE MODIFICATION OF THE OVERHEAD SIGN SUPPORT, INCLUDING ALL NECESSARY MATERIAL, PARTS, EQUIPMENT AND LABOR.

630 EACH OVERHEAD SIGN SUPPORT MODIFICATION, BY TYPE

630 OVERHEAD SIGN SUPPORT BY TYPE, AS PER PLAN
IN ADDITION TO THE PROVISIONS OF 630, OVERHEAD SIGN SUPPORTS MOUNTED ON SPECIAL OVERHEAD SIGN SUPPORT FOUNDATIONS SHALL BE MODIFIED AS INDICATED ON SHEETS 115 TO 119.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE BID PER EACH FURNISHED AND ERECTED INCLUDING ALL NECESSARY MATERIAL, PARTS, EQUIPMENT AND LABOR.

630 EACH OVERHEAD SIGN SUPPORT, BY TYPE, AS PER PLAN

630 SPECIAL OVERHEAD SIGN SUPPORT FOUNDATION, BY TYPE
IN LIEU OF THE PROVISIONS OF 630, SPECIAL OVERHEAD SIGN SUPPORT FOUNDATIONS SHALL BE AS DETAILED ON SHEETS 115 TO 119.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE BID PER EACH FURNISHED AND ERECTED INCLUDING ALL NECESSARY MATERIAL, PARTS, EQUIPMENT AND LABOR.

630 EACH SPECIAL OVERHEAD SIGN SUPPORT FOUNDATION, BY TYPE

630 AND 631 REMOVAL OF TRAFFIC CONTROL ITEMS AND STORAGE
TRAFFIC CONTROL ITEMS BEING REMOVED AND STORED UNDER 630 AND 631 SHALL BE STORED ON THE PROJECT FOR SALVAGE BY THE CITY OF AKRON.

631 SIGN SERVICE
IN LIEU OF THE REQUIREMENTS OF 631.06, CABLE FOR SIGN SERVICE SHALL BE RATED THE SAME AS THE HIGHWAY LIGHTING DISTRIBUTION AND CIRCUIT CABLE USED ON THIS PROJECT.

631 ENCLOSURE PADLOCKS
DISCONNECT SWITCH ENCLOSURES FURNISHED IN ACCORDANCE WITH 631.08 SHALL INCLUDE A PADLOCK EQUAL TO MASTER NO. 43KA OR WILSON BOHRANNON 660, WITH LOCK BODY OF BRONZE OR BRASS, AND KEYING IN ACCORDANCE WITH THE FOREGOING SPECIFICATION.

631 REMOVAL OF SWITCH ENCLOSURE AND REERECTION
THIS WORK SHALL CONSIST OF THE REMOVAL OF A DISCONNECT SWITCH WITH ENCLOSURE FROM AN EXISTING OVERHEAD SIGN SUPPORT AND ITS REERECTION ON A NEW OVERHEAD SIGN SUPPORT AS SHOWN ON THE PLANS. WORK SHALL ALSO INCLUDE THE DISCONNECTION OF ANY UNNECESSARY WIRING AND ANY NECESSARY FIELD DRILLING AND MOUNTING HARDWARE.

BASIS OF PAYMENT WILL BE AT THE CONTRACT UNIT PRICE PER EACH DISCONNECT SWITCH WITH ENCLOSURE.

631 EACH REMOVAL OF SWITCH ENCLOSURE AND REERECTION

631 BALLAST WIRING ENCLOSURE MOUNTING BRACKET ASSEMBLY
BALLAST ENCLOSURE MOUNTING BRACKET ASSEMBLIES SHALL BE FURNISHED FOR INSTALLATION ON EXISTING OVERHEAD SIGN SUPPORTS BY BOLTS IN TAPPED HOLES AND ON CONCRETE STRUCTURES BY EXPANSION BOLTS. BRACKETS SHALL BE IN ACCORDANCE WITH PLAN DETAILS AND GALVANIZED IN ACCORDANCE WITH 711.02. BRACKETS SHALL BE OF TWO SIZES: TYPE A FOR SPAN TYPE SUPPORTS AND SHOWN ON TC-32.10 AND TYPE B FOR SINGLE POLE AND OVERPASS STRUCTURES AS DETAILED IN THE PLANS AND ON TC-32.11.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE FOR EACH ASSEMBLY WHICH SHALL INCLUDE ALL NECESSARY BRACKETS, FIELD DRILLING AND HARDWARE, FURNISHED AND IN PLACE.

631 BALLAST ENCLOSURE MOUNTING BRACKET ASSEMBLY, BY TYPE

631 BALLAST WIRING ENCLOSURE
BALLAST ENCLOSURES SHALL BE FURNISHED AND INSTALLED ON OVERHEAD SIGN SUPPORTS AS SHOWN ON TC-32.10 OR DETAILED IN THE PLANS. THE ENCLOSURE SHALL BE MOUNTED ON BRACKETS WHICH ARE A PART OF NEW OVERHEAD SUPPORTS OR SEPARATELY FURNISHED FOR EXISTING SUPPORTS OR OVERPASS STRUCTURES.

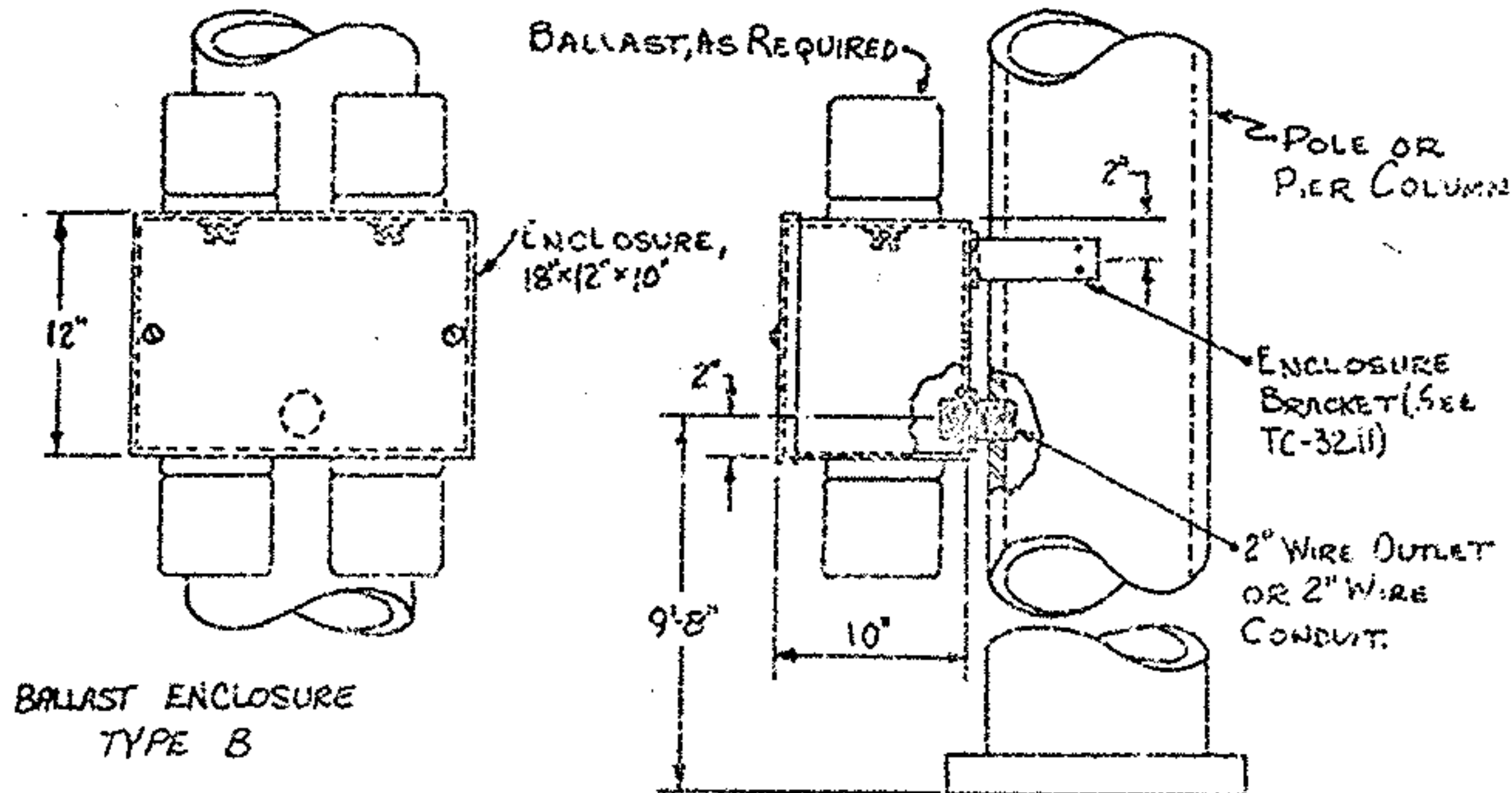
ENCLOSURES SHALL BE WEATHERPROOF NEMA TYPE 4 IN ACCORDANCE WITH PLAN DETAILS, FABRICATED OF 0.06 INCH STEEL GALVANIZED IN ACCORDANCE WITH 711.02. THE FRONT COVER SHALL BE REMOVABLE AND BEAR A WARNING SIGN CONFORMING TO 713.20, PARAGRAPH 8d. CONDUIT FITTINGS AND ATTACHMENT HARDWARE SHALL BE FURNISHED WITH THE ENCLOSURE. ENCLOSURES SHALL CONTAIN A STEEL PANEL COMPLYING WITH 713.20, PARAGRAPH 8c FOR INSTALLING TERMINAL BLOCKS AND BUSBARS, RATED AT 600 VOLTS AND PROVIDED WITH MARKER STRIPS AND CAPABLE OF TERMINATING THE WIRE GAGE USED. BALLASTS SHALL BE ARRANGED IN THE ENCLOSURE IN THE SAME RELATIVE POSITION AS THEIR ASSOCIATED LUMINAIRE ON THE SIGN SUPPORT STRUCTURE.

ENCLOSURES SHALL BE OF TWO SIZES: TYPE A FOR SPAN TYPE SUPPORTS AS SHOWN ON TC-32.10 AND TYPE B FOR SINGLE POLE AND OVERPASS STRUCTURES AS DETAILED IN THE PLANS AND IN ACCORDANCE WITH THE FOLLOWING TABLE:

	TYPE A	TYPE B
SIZE (NOMINAL), INCHES	42 x 12 x 10	18 x 12 x 10
BARRIER TERMINAL BLOCK; NO. UNITS, NO. TERMINALS (MIN)	2, 10	2, 4
SOLID INSULATED BUSBAR; NO. UNITS, NO. TERMINALS (MIN)	2, 11	2, 5
SOLID UNINSULATED BUSBAR; NO. UNITS, NO. TERMINALS (MIN)	1, 11	1, 5

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE FOR EACH ENCLOSURE, FURNISHED, IN PLACE, COMPLETE AND READY FOR SERVICE.

631 BALLAST ENCLOSURE, BY TYPE



CAC BY _____ DATE _____	CHIO 93
CHAD <u>DE</u> BY _____ DATE <u>9-2-8</u>	

SOM-76/8-11.57/p.46

LD0303 Rev. 11-21-73 GENERAL SUMMARY Rev. 2-18-82 SMK

A-C BY DATE	OHIO FHWA REGION 5	94 24
-------------------	--------------------------	----------

OHIO	94
FHWA REGION 5	248

LD 0303 Rev. 11-23-73 GENERAL SUMMARY

CALC. BY JPK DATE 10-5-78
CHK BY JPK DATE 10-5-78
REV. BY HEA 8-24-79
REV. BY HEA 9-2-81

⊗ QUANTITY CARRIED TO LIGHTING GENERAL SUMMARY

* City-State

[illegible]

SIGNING SUB-SUMMARY

1. CHARTERED BY THE BOARD OF DIRECTORS
 2. OF THE CITY OF NEW YORK
 3. ON THE 10th DAY OF 1901

(23)

‡ F-FUNDS

425 6 6 6 LUMP
SIGNING SUB-SUMMARY

NO.	DATE	PROJECT	
5	OHIO		

CITY OF AKRON
SUMMIT COUNTY
SUM-8-0.46
SUM-24-4.57

(97)
(248)

SIGN AND SUPPORT QUANTITIES

ELECTRICAL QUANTITIES

SIGNING SUB-SUMMARY

PAVEMENT MARKING & SIGNS

248

Rev. 8-21-79
J.K.P. 10-79
SUMMIT COUNTY
SUM-76-1157

IR
Funds

STATION	SECTION	10	SECTION	Edge Line (White)	Edge Line (Yellow)	4"	Lane Line	Channelizing Line	24" Road	24" Road	5" Strip Line	Channelizing Line	Lane	Arrows	Word ONLY	on Pavement
1507	455+78	470+85	765	725												
255	470+85	473+50														
575	473+50	479+25	575													
555	475+00	470+85														
254	547+25	5473+49	264													
276	5472+49	5476+25	276	276												
73	5472+25	5476+98	73													
Fountain St																
300	18+21	21+21														
254	21+21	22+75														
323	23+75	27+08														
	26+43															
	26+78															
	27+08															
	26+13															
	26+19															
TOTALS (FT)																
TOTALS (MI)																
SHEET TOTALS																
I Funds																
Left Column L.F. 734 — 742 — — — — —																
Center Column L.F. 10172 992 5036 2605 668 — — — — —																
Total L.F. — — — 2605 668 — — — — —																
Total Miles 2.253 1.094 — — — — —																
F Funds																
Left Column 1953 276 746 2023 812 39 91 3 3																
Total L.F. — — — 2023 812 39 91 — — —																
Total Miles 0.422 0.141 — — — — —																
Total Each — — — — — 3 3																

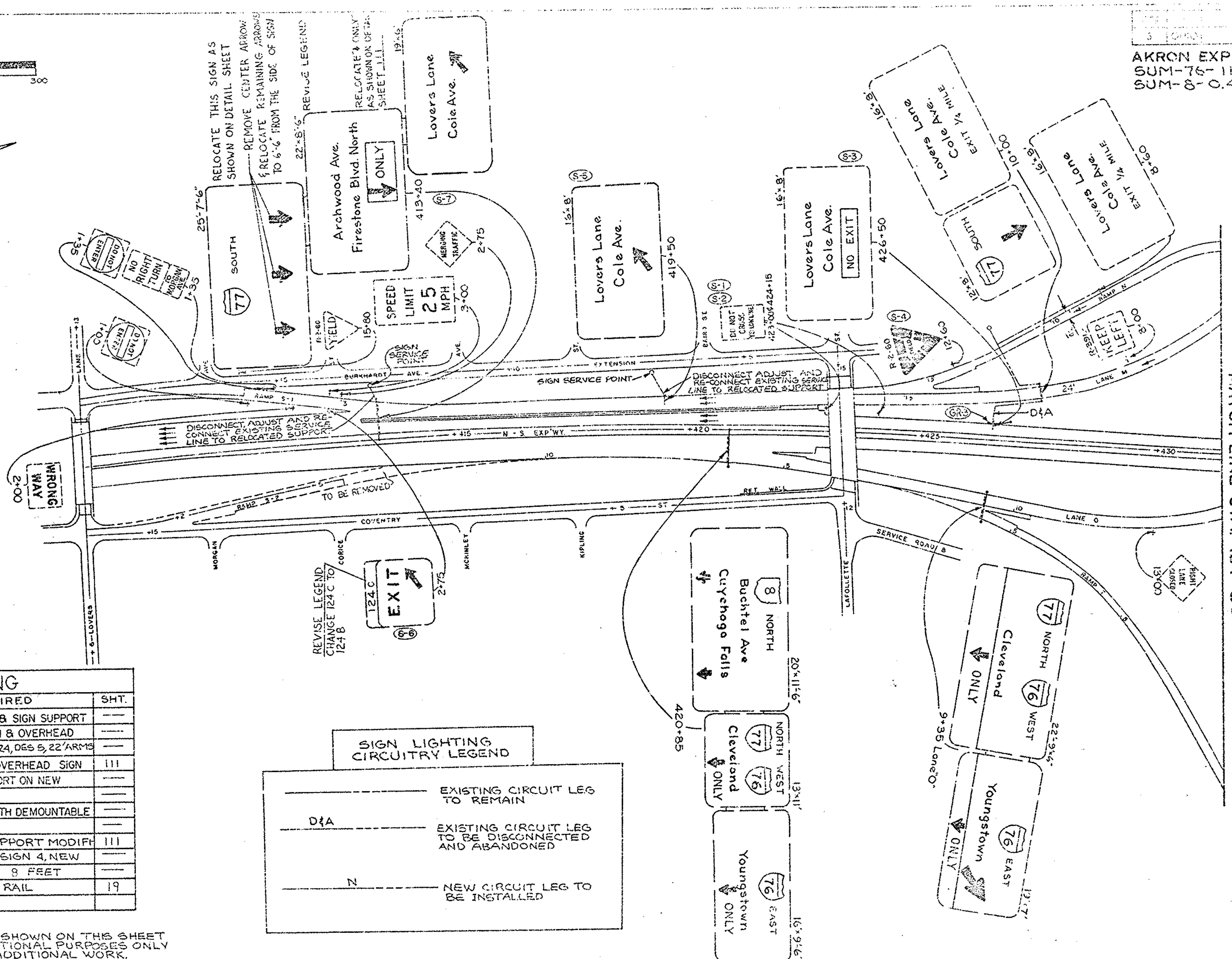
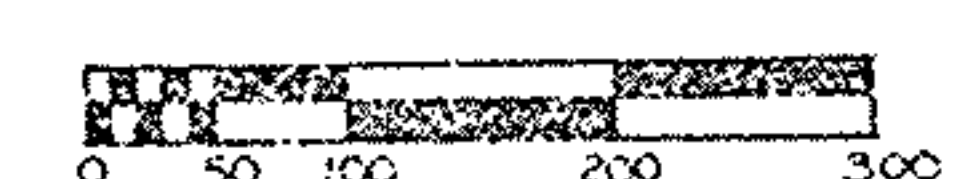
STATION	SECTION	EDGE LINE (WHITE)	EDGE LINE (YELLOW)	4"	LANE LINE	CHANNELIZING LINE	24" ROAD TRANSVERSE LINE
RAMP N, RAMP S-I I-77 SB							
408+00 410+50 250			500				
410+50 411+00 150			50				
411+00 413+00 400			200	200			
413+00 413+40 40 40 40 40							
413+40 422+92 1904 952 952							
422+92 423+35 43							
2+23 S-I 2+68 S-I 45				45			
2+68 S-I 3+63 S-I 1				95	185		
LANE S RAMP I-76 E.B.							
14+78 18+40 362							
547+04 555+00 594			594				
555+00 561+00 600							
11+85 T 13+28 T				143			
19+50 S 20+75 S				125			
LANE U SR 8							
16+50 21+59 509			509				
450+00 455+78 578			578				
445+05 447+00				195			
16+60 447+00				195			
447+00 450+00			300				
RAMP E-2, E-3							
557+63 560+30				534	83		
5+00 E-2 0+00 E-2 500							
8+16 E-3 3+79 E-3 437							
560+30 561+50			120				
564+20 565+40			120				
565+40 567+53 213				213			
RAMP E-19							
629+60 640+30 11070							
630+30 638+20			790				
638+20 640+20 200				200			
RAMP E-24							
679+60 680+36 76							
680+36 681+70				134			
681+70 684+53			283				
0+00 10+03 1003							
8+00 681+70				140	110		
8+00 10+03 203							
RAMP E-27							
720+70 726+90 620							
Ramp E-10							
611+52 613+25				346	290		
613+25 617+00 375							
SUB TOTALS (FT) 10172*992*5036*2605*668*							
SUB TOTALS (MI) 1926*188*95*							

630 REMOVE & RE-ERECT POLE MOUNTED SIGNS ONTO GROUND MOUNTED SUPPORTS				
GROUND MOUNTED SUPPORT				
STATION	LOCATION	CODE	SIZE NO.3	NO.4
12+30 RT.	*T	R-2-60	60x40x40	30.0
598+50 RT.	I-76	R-10-48	48x60	33.0
609+90 RT.	I-76	R-SPEC	48x60	33.0
5+30 RT.	E-13	R-10-24	24x30	13.0
629+00 RT.	I-76	R-10-48	48x60	33.0
630+30 RT.	I-76	R-7A-48	48x60	33.0
667+90 LT.	I-76	R-7A-48	48x60	33.0
671+00 LT.	I-76	R-10-48	48x60	33.0
8 SIGNS REMOVED & RE-ERECTED				
TOTAL			130	228
- SIGN LEGENDS -				
R-7A-48	MINIMUM 35			
R-10-48	SPEED LIMIT 50			
R-2-60	YIELD			
R-SPEC	RIGHT LANE MUST EXIT			

REV. 2-18-82 SMK

Rev. 2-18-82 SMK

AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46

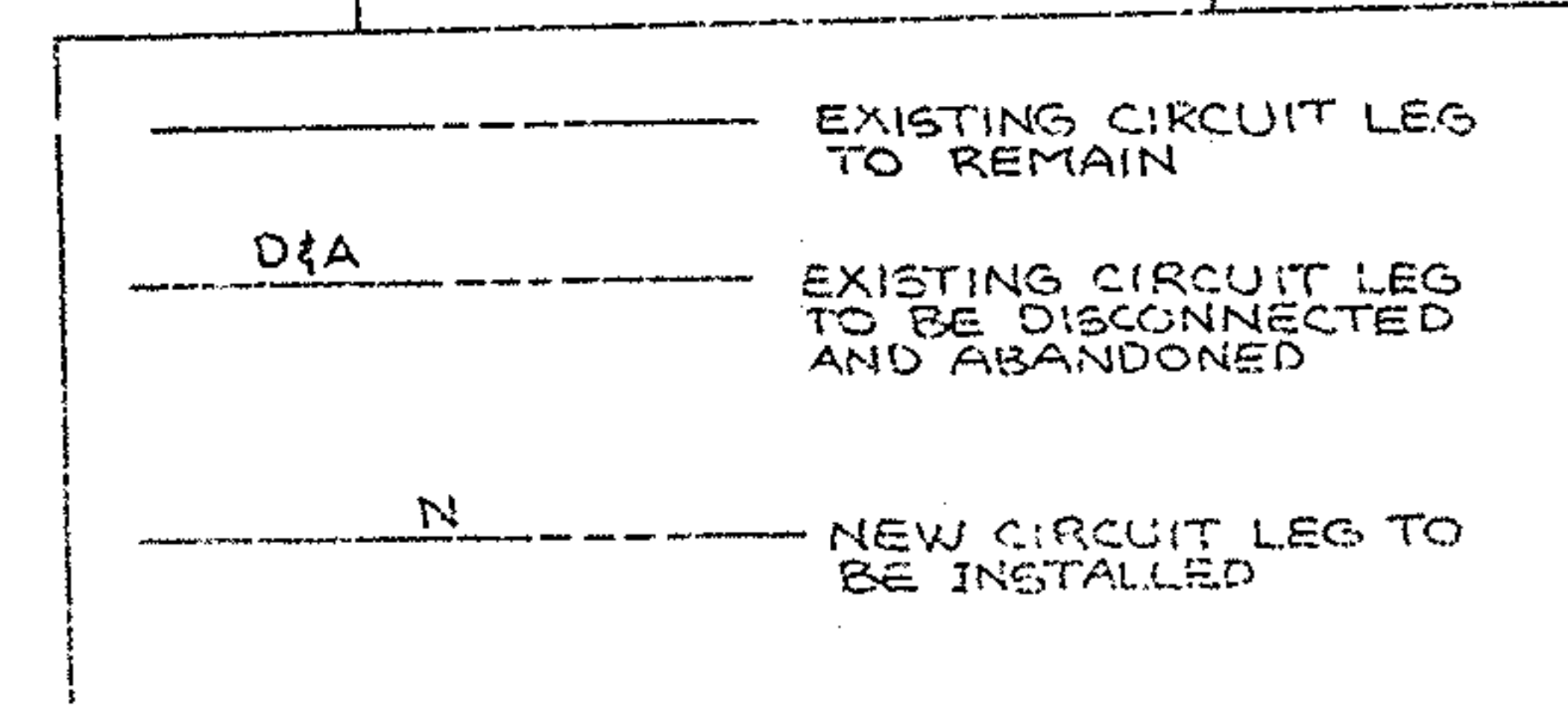


SIGNING

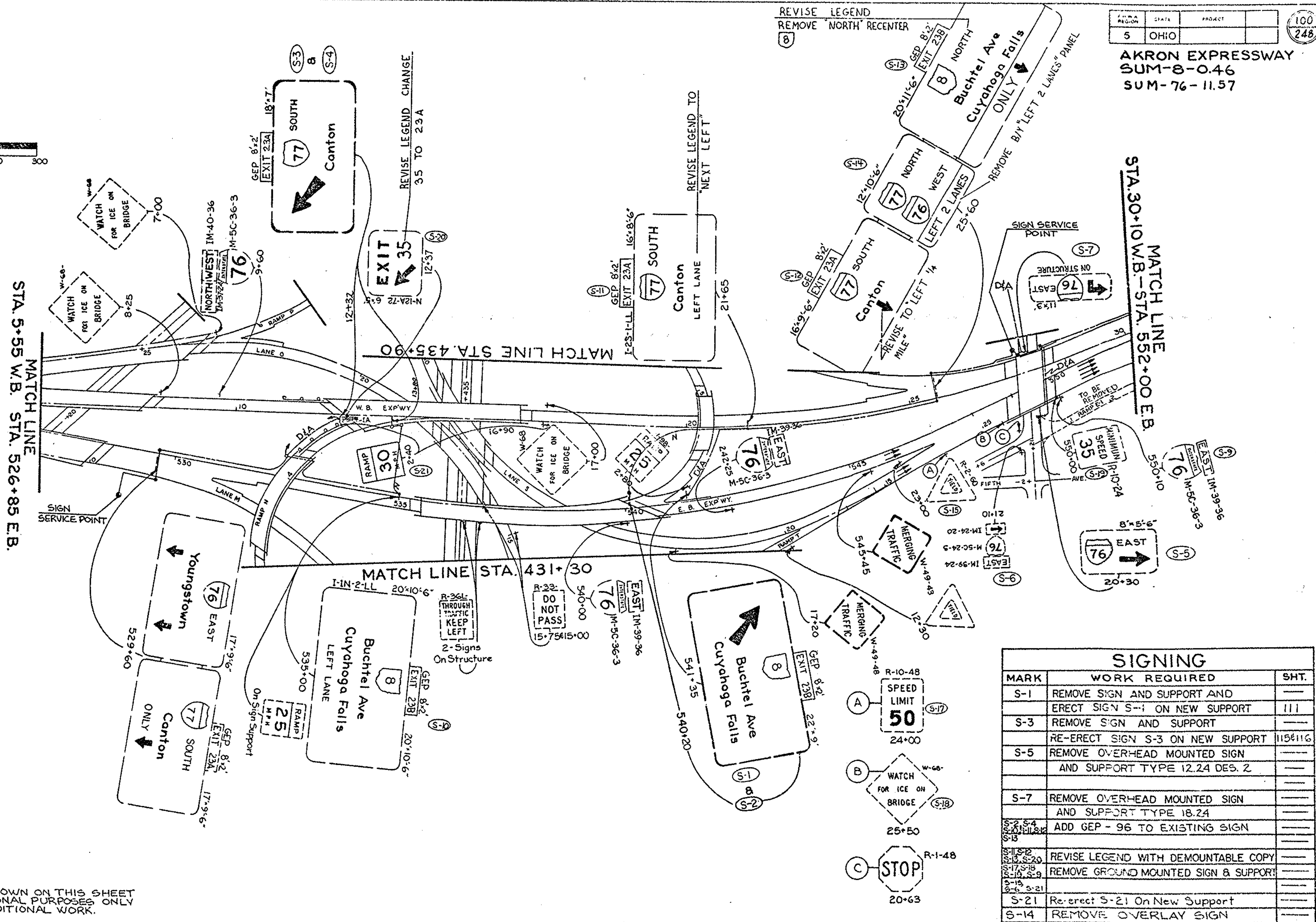
MARK	WORK REQUIRED	SHT.
S-1, S-2, S-3	REMOVE EXISTING SIGN & SIGN SUPPORT	---
S-4	REMOVE OVERHEAD SIGN & OVERHEAD SIGN SUPPORT TYPE 12.24, DES 5, 22' ARM	---
S-5	REMOVE & RE-ERECT OVERHEAD SIGN & OVERHEAD SIGN SUPPORT ON NEW FOUNDATION	111
S-6, S-7	REVISE SIGN LEGEND WITH DEMOUNTABLE COPY	---
S-7	OVERHEAD SIGN SUPPORT MODIFICATION TYPE 7.6 DESIGN 4, NEW BOX TRUSS SECTION 8 FEET	111
GR-3	REMOVE 50' GUARD RAIL	19

NOTE: ALL OTHER SIGNS SHOWN ON THIS SHEET ARE FOR INFORMATIONAL PURPOSES ONLY AND REQUIRE NO ADDITIONAL WORK.

SIGN LIGHTING CIRCUITRY LEGEND



AKRON EXPRESSWAY
SUM-8-0.46
SUM-76-11.57

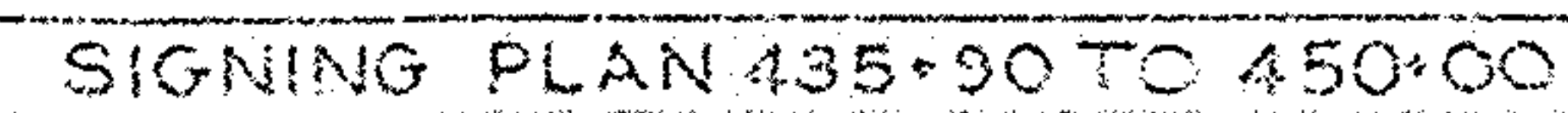


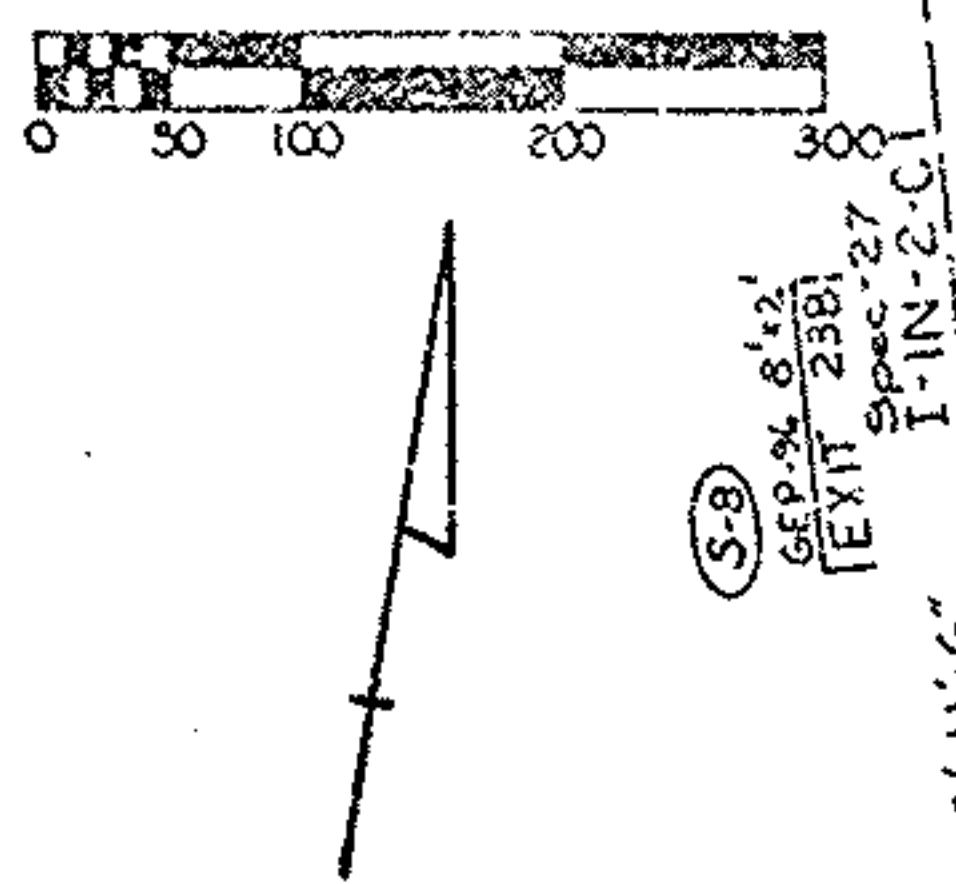
NOTE:
ALL OTHER SIGNS SHOWN ON THIS SHEET
ARE FOR INFORMATIONAL PURPOSES ONLY
AND REQUIRE NO ADDITIONAL WORK.

SIGNING PLAN 526+85 TO 552+00

[illegible]

SEE SHEET 109
MATCH LINE STA. 450+00





REVISE LEGEND
REMOVE NORTH
RECENTER (8)

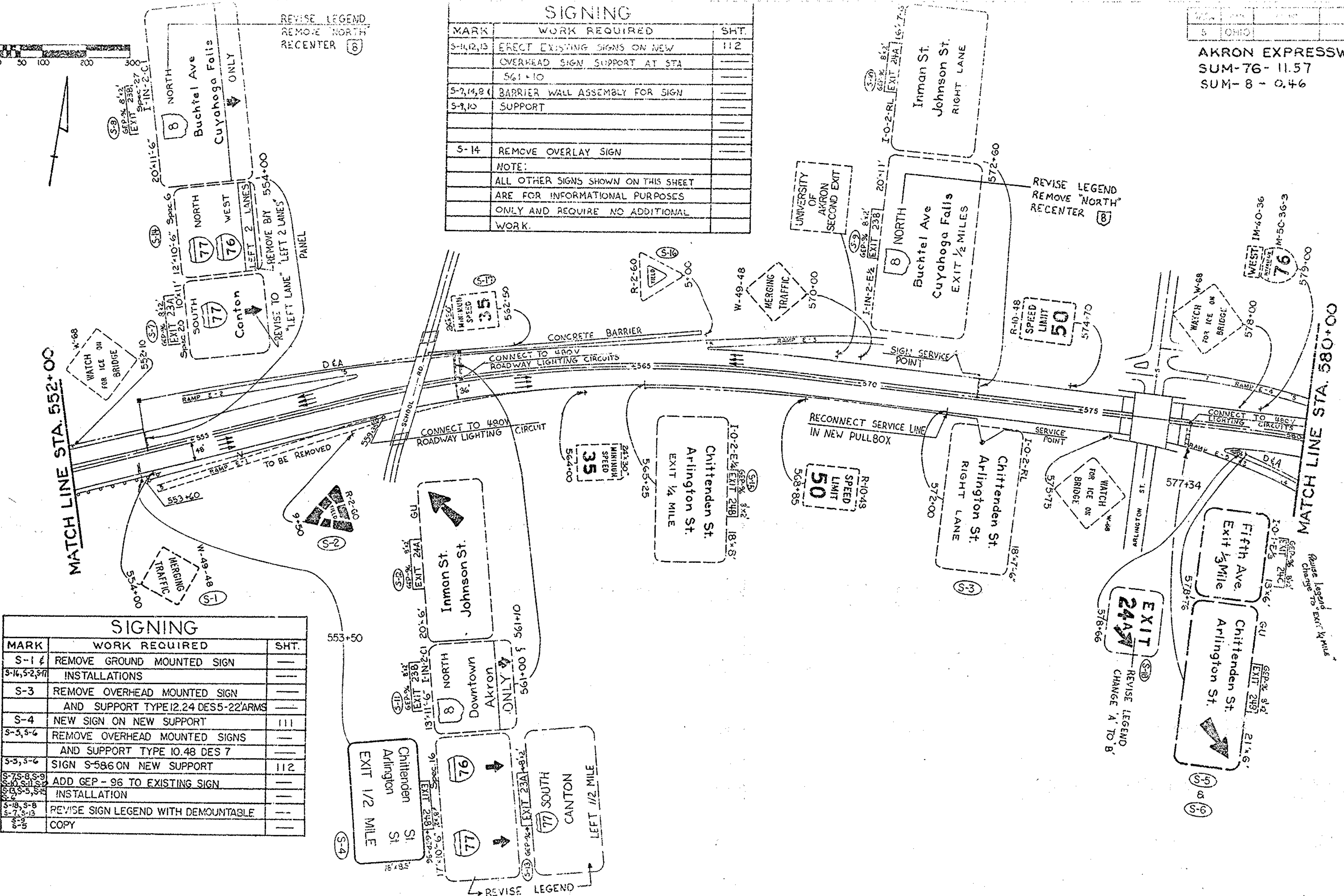
AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46

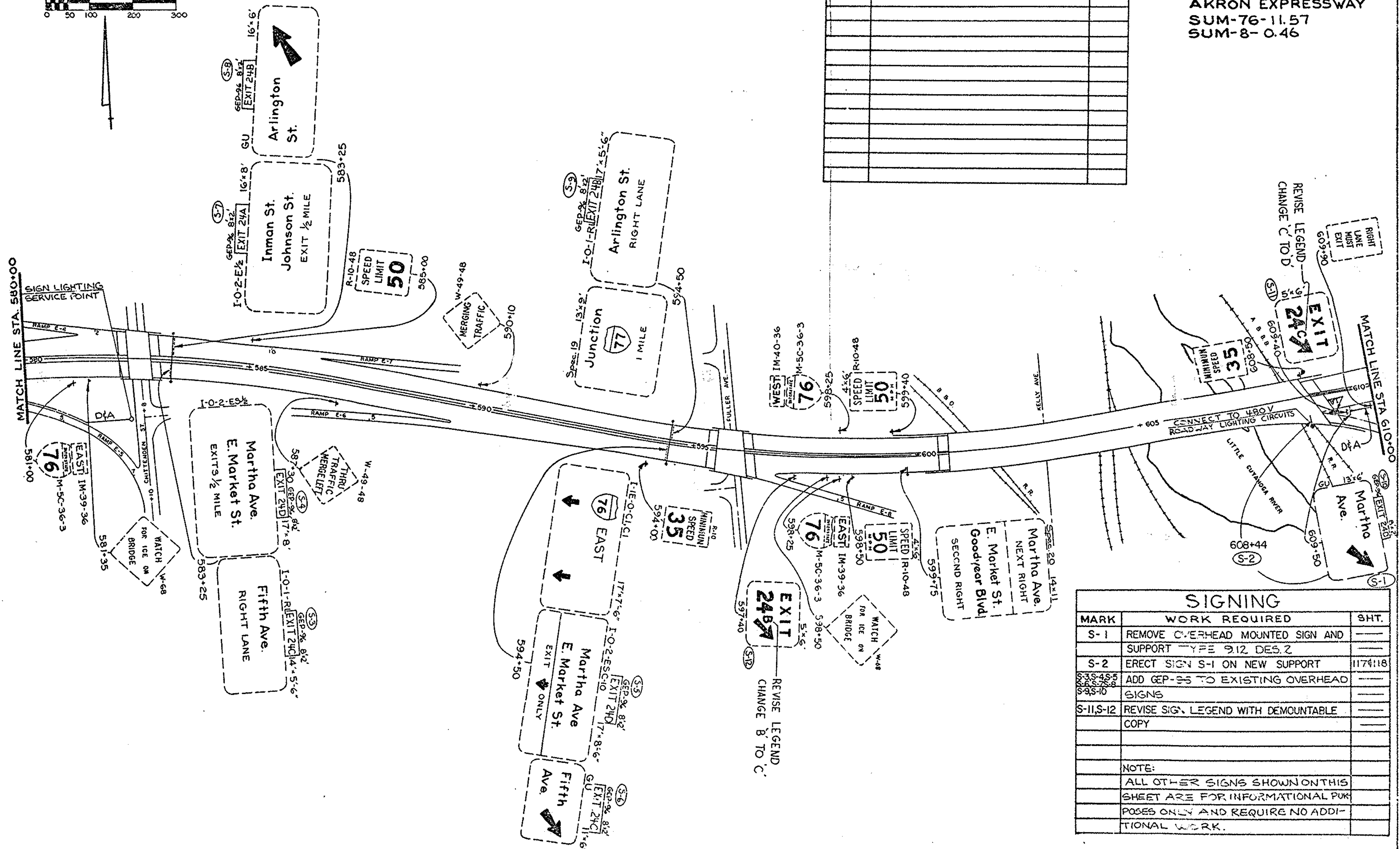
MARK	WORK REQUIRED	SHT.
S-11,12,13	ERECT EXISTING SIGNS ON NEW OVERHEAD SIGN SUPPORT AT STA 561+10	112
S-7,14,15	BARRIER WALL ASSEMBLY FOR SIGN SUPPORT	
S-14	REMOVE OVERLAY SIGN	
NOTE: ALL OTHER SIGNS SHOWN ON THIS SHEET ARE FOR INFORMATIONAL PURPOSES ONLY AND REQUIRE NO ADDITIONAL WORK.		

MARK	WORK REQUIRED	SHT.
S-14	REMOVE GROUND MOUNTED SIGN INSTALLATIONS	
S-3	REMOVE OVERHEAD MOUNTED SIGN AND SUPPORT TYPE 12.24 DES 5-22 ARMS	
S-4	NEW SIGN ON NEW SUPPORT	111
S-5,5-6	REMOVE OVERHEAD MOUNTED SIGNS AND SUPPORT TYPE 10.48 DES 7	
S-3,5-6	SIGN S-586 ON NEW SUPPORT	112
S-7,5-8,5-9	ADD GEP - 96 TO EXISTING SIGN INSTALLATION	
S-18,5-8	REVISE SIGN LEGEND WITH DEMOUNTABLE COPY	

MATCH LINE STA. 552+00

MATCH LINE STA. 580+00

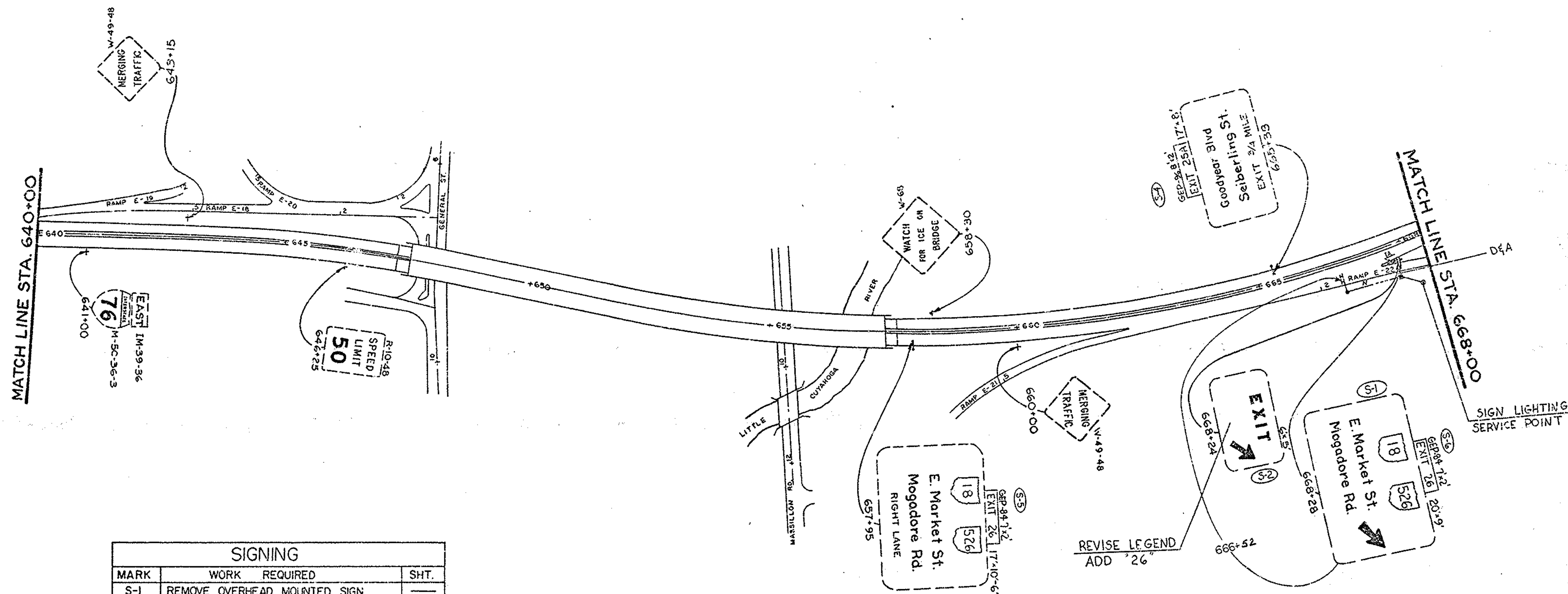






AKRON	STATE	105
5	OHIO	248

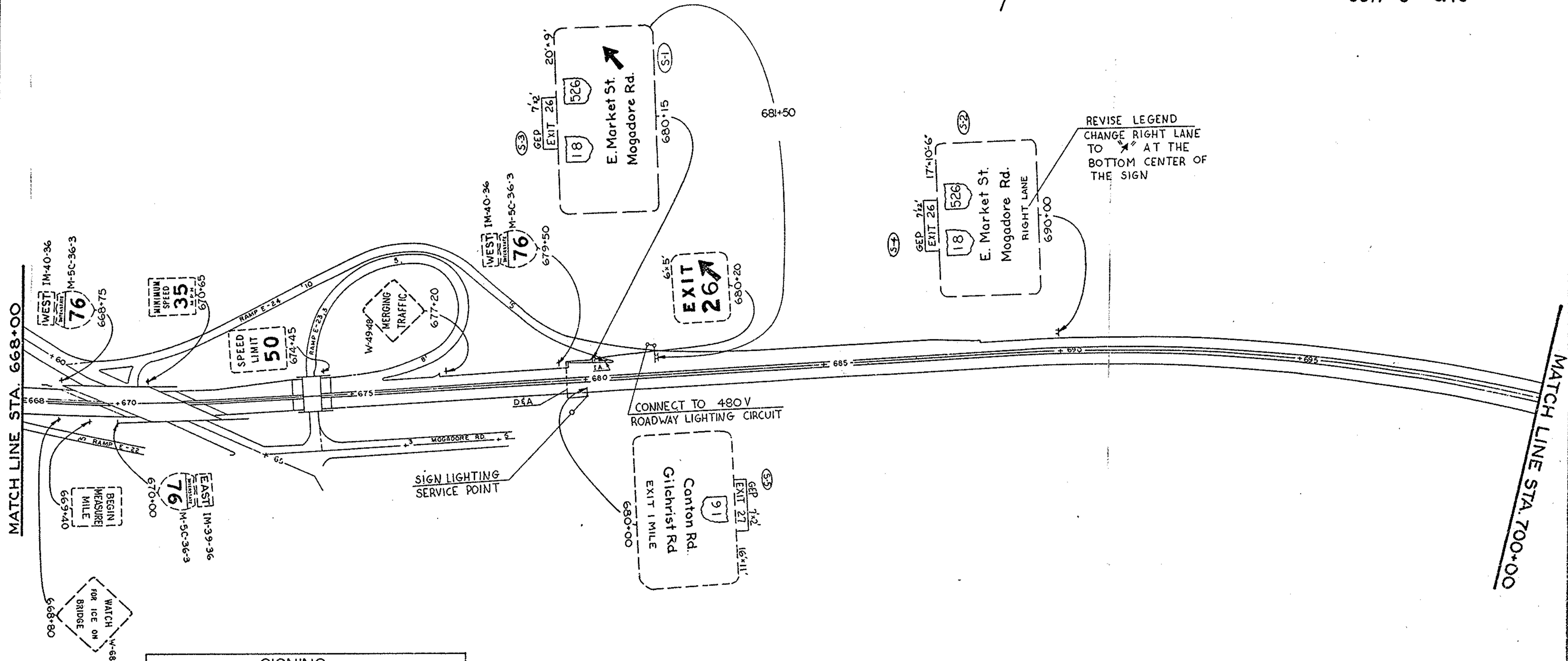
AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46



SIGNING		
MARK	WORK REQUIRED	SHT.
S-1	REMOVE OVERHEAD MOUNTED SIGN AND SUPPORT TYPE 9.24 DES. 4 AND ERECT SIGN S-1 ON NEW SUPPORT	113
S-2	ADD GEP-84, OR GEP-96 TO EXISTING SIGN	
S-2	REVISE EXISTING SIGN WITH DEMOUNTABLE COPY	
NOTE: ALL OTHER SIGNS SHOWN ON THIS SHEET ARE FOR INFORMATIONAL PURPOSES ONLY AND REQUIRE NO ADDITIONAL WORK.		

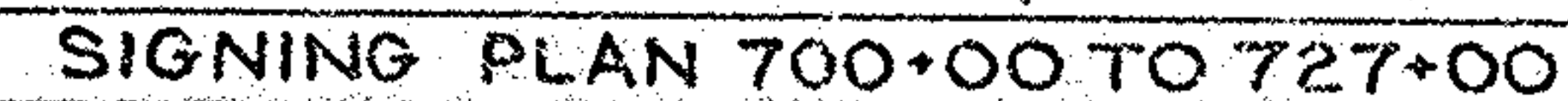
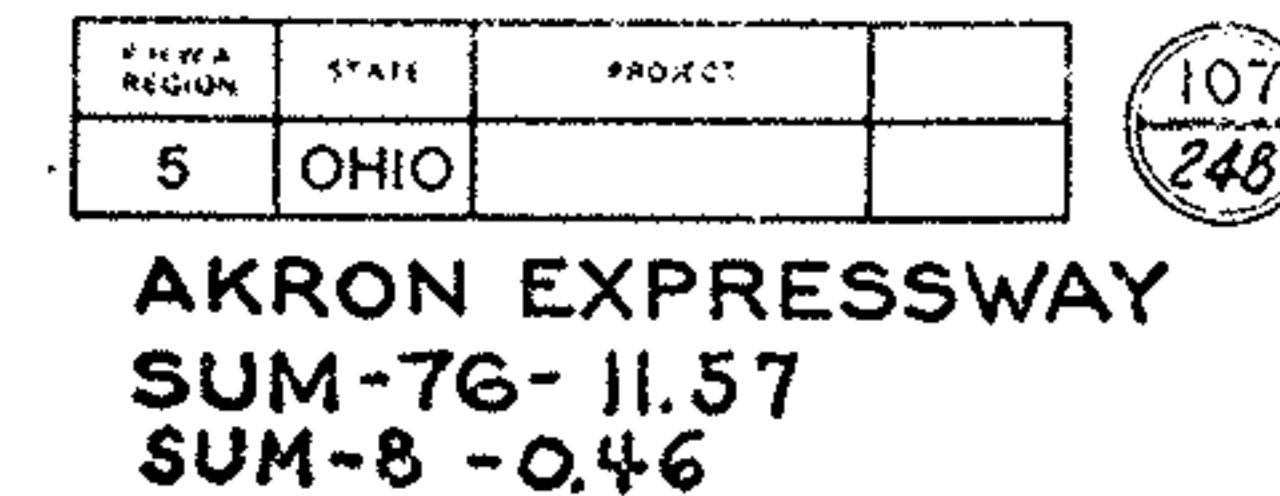


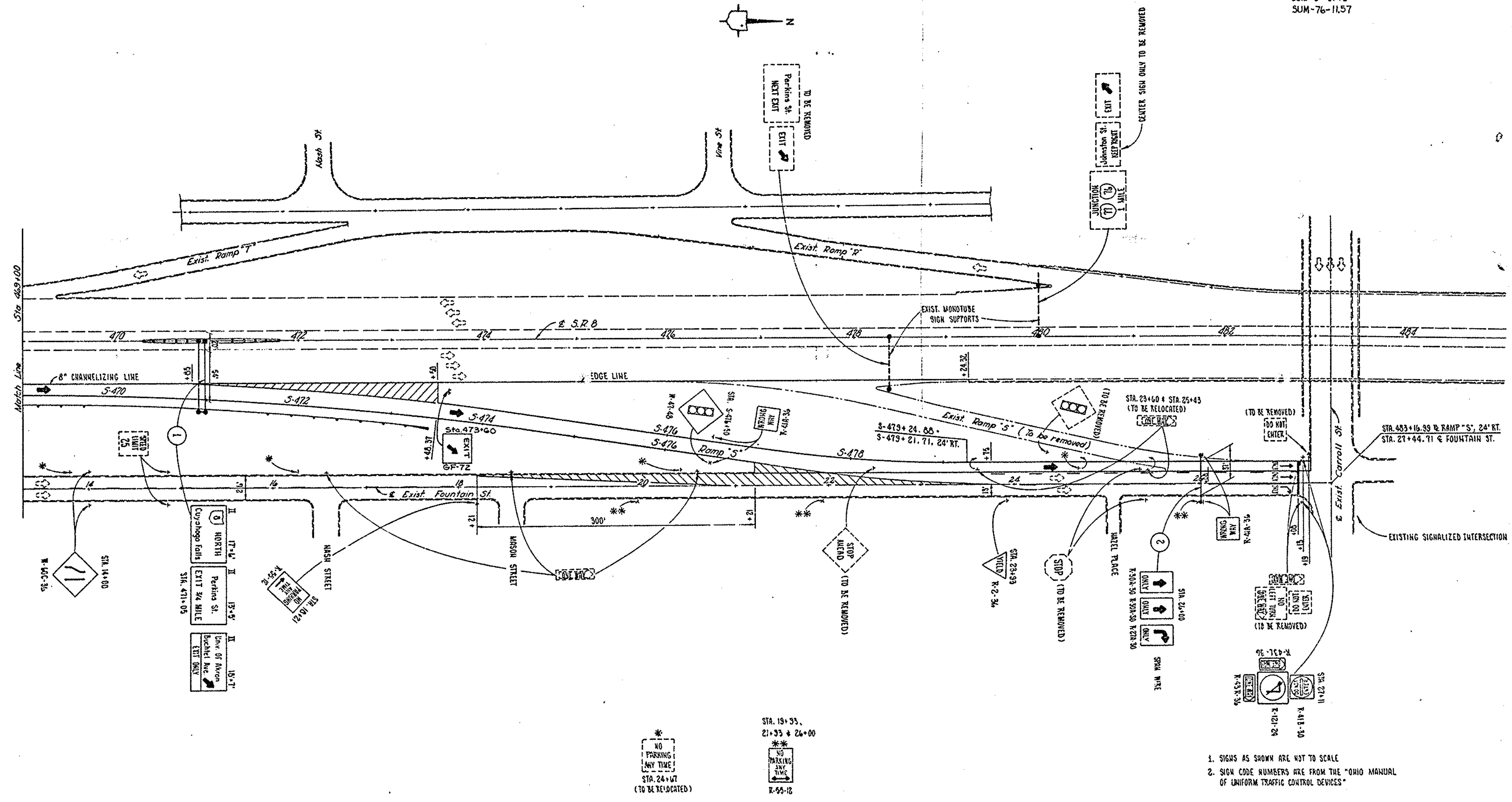
AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46



REVISE LEGEND
CHANGE RIGHT LANE
TO "R" AT THE
BOTTOM CENTER OF
THE SIGN

SIGNING		
MARK	WORK REQUIRED	SHT.
S-1	REMOVE OVERHEAD MOUNTED SIGN AND SUPPORT TYPE 924 DES. 4 AND	---
	ERECT SIGN S-1 ON NEW SUPPORT	113
S-2	ADD GEP-96 TO EXISTING SIGNS	---
S-2	REVISE LEGEND WITH DEMOUNTABLE COPY	---
NOTE: ALL OTHER SIGNS SHOWN ON THIS SHEET ARE FOR INFORMATIONAL PURPOSES ONLY AND REQUIRE NO ADDITIONAL WORK		





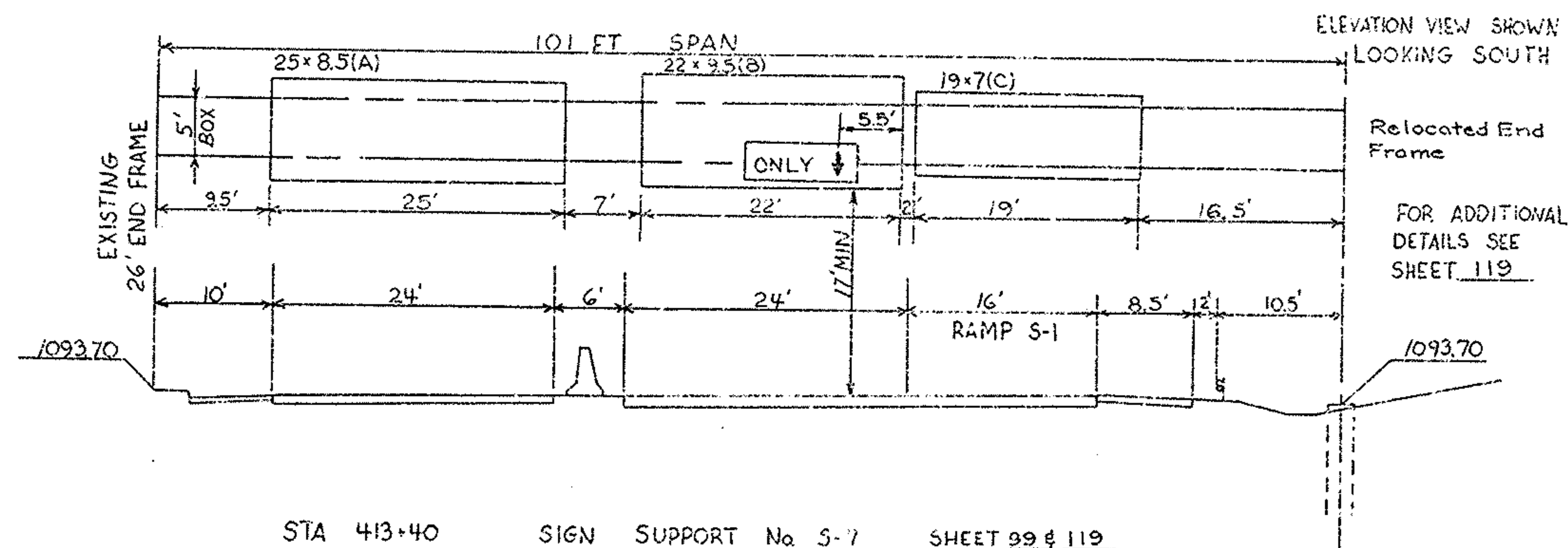
SIGNING PLAN 469+00 TO 484+50

New 3' Box Truss Section Shall
Be Installed As The First Internal
Bay On The Right Side Facing South.

AREA	STATE	PROJECT	SHEET
5	OHIO		245

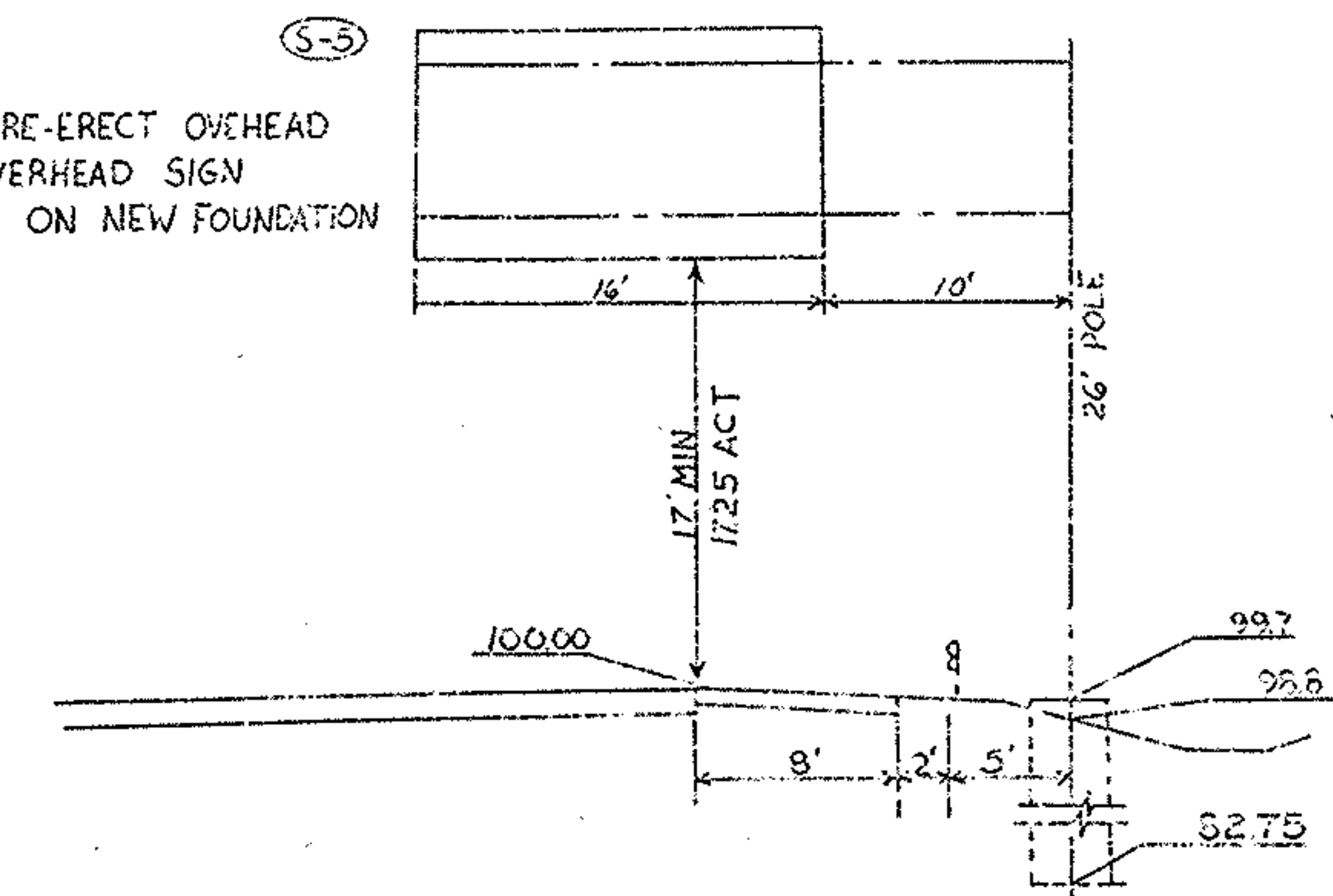
AKRON EXPRESSWAY
SUM - 76 - 11.57
SUM - 8 - 0.46

Q-I-77

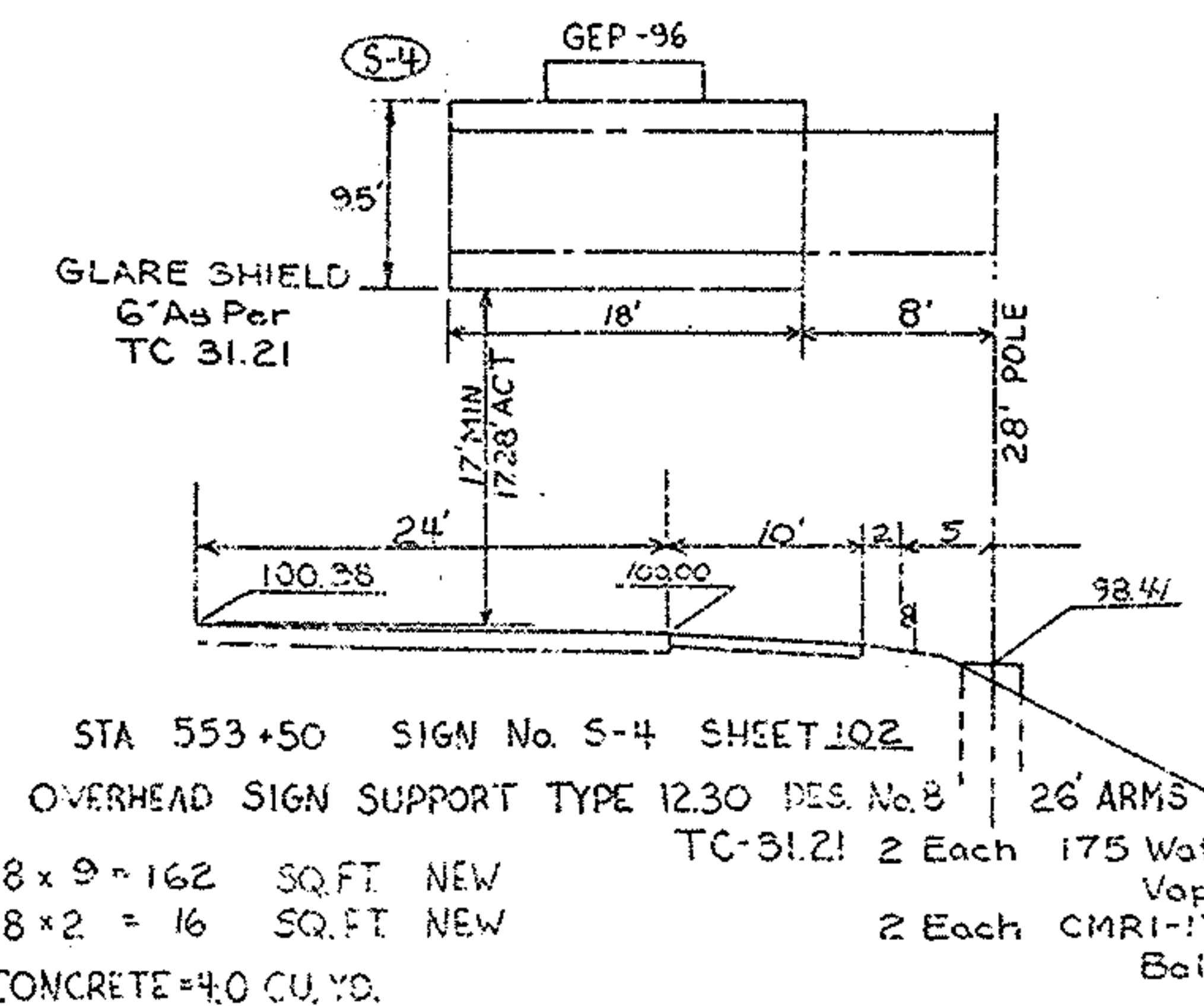
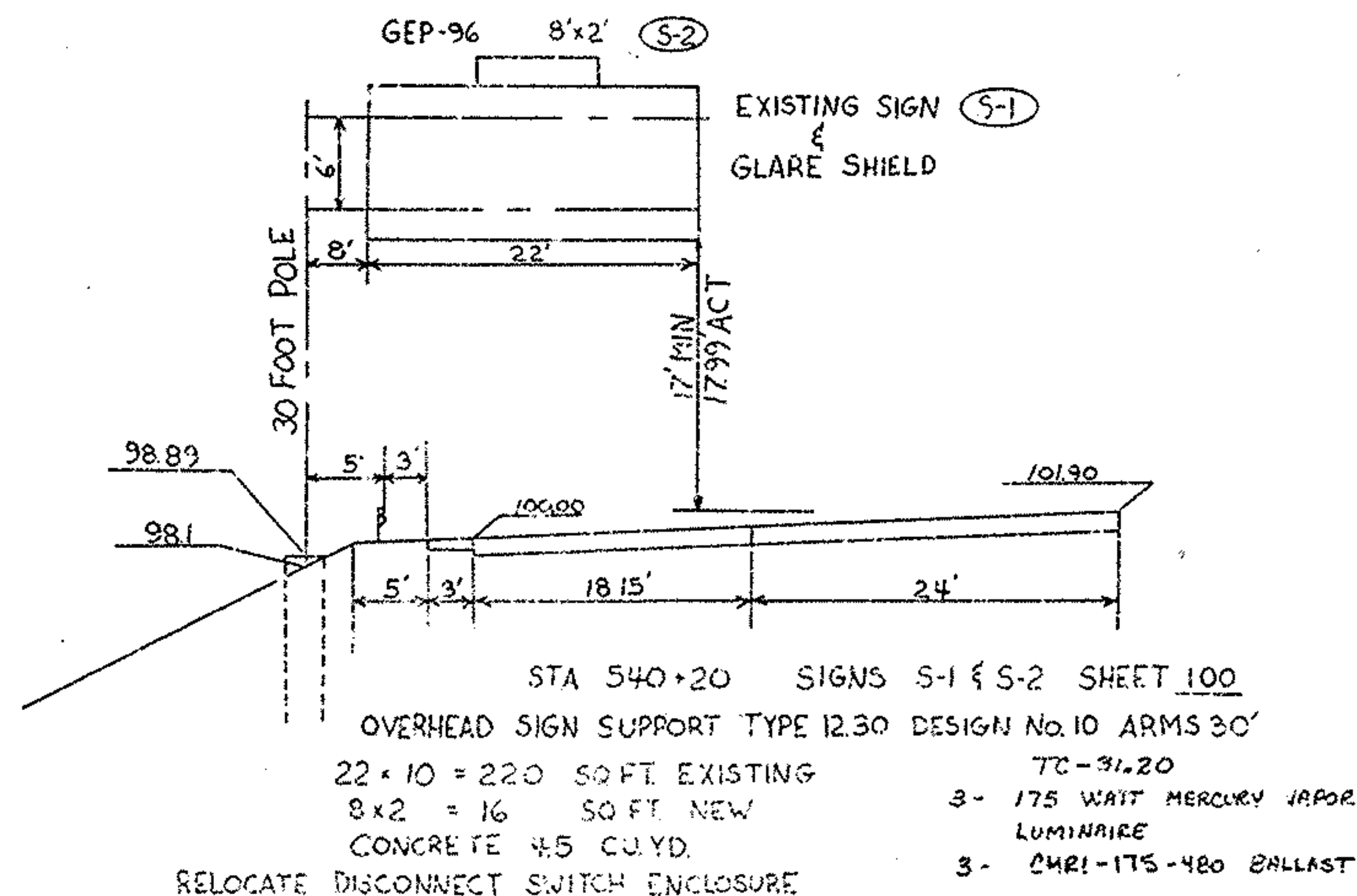


STA 413+40 SIGN SUPPORT No. 5-7 SHEET 99 & 119
OVERHEAD SIGN SUPPORT MODIFICATION TYPE I-129 No. 76 DESIGN 4
NEW BOX TRUSS SECTION 8 FEET
25x8.5=212.5 SQ. FT. EXISTING 22x9.5=209 SQ. FT. EXISTING 19x7=133 SQ. FT. EXISTING TOTAL SIGN AREA = 554.5 SQ. FT.
CONCRETE AS PER STANDARD CONSTRUCTION DRAWING TC. 21.10 = 5.2 CU. YD.
TC-31.20 TC-31.20 TC-31.20
3-175 WATT MERCURY VAPOR LUMINAIRE 3-175 WATT MERCURY VAPOR LUMINAIRE 2-175 WATT MERCURY VAPOR LUMINAIRE
3-CMR1-175-480 BALLAST 3-CMR1-175-480 BALLAST 2-CMR1-175-480 BALLAST

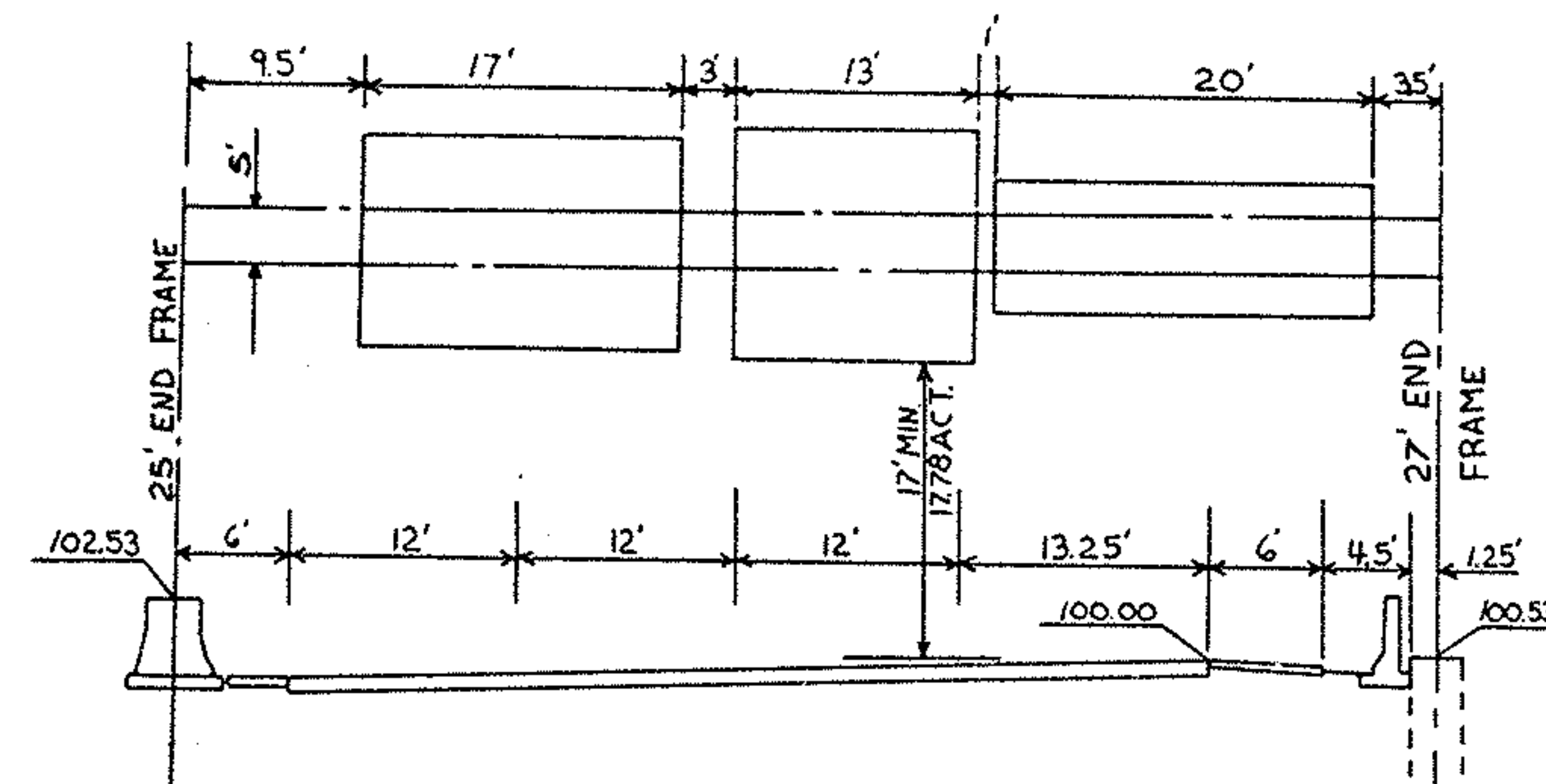
REMOVE & RE-ERECT OVERHEAD
SIGN & OVERHEAD SIGN
SUPPORT ON NEW FOUNDATION



STA 419+50 SIGN S-5 SHEET 99
OVERHEAD SIGN SUPPORT TYPE I-129 No. 12.24 DESIGN 6 - 26 FT. ARMS
16x9 = 144 SQ. FT. EXISTING
CONCRETE = 4.5 CU. YD.
AS PER TC 21.10
FOUNDATION TYPE TC-21.10 (TC-12.30 DES 10411)
Bolt Circle As Per I-129 No. 12.24 Des. 6.
See Sheet 123



AKRON E: PRESSWAY
SUM - 76 - 11.57
SUM - 8 - 0.46

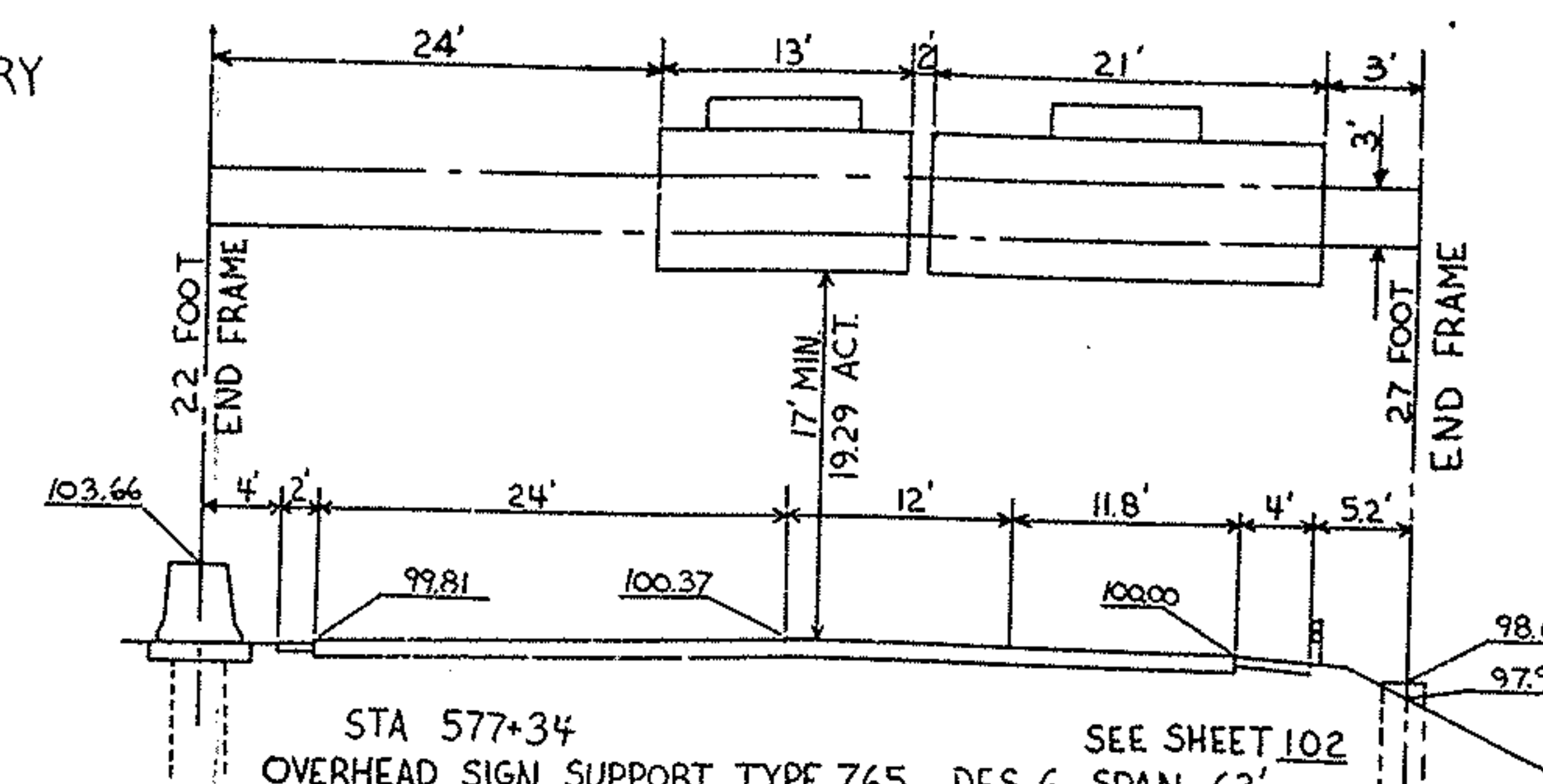


STA 561+10 SIGNS No. S-13, S-11, S-12, SEE SHEET 102
OVERHEAD SIGN SUPPORT TYPE 7.65 DESIGN No. 8 67 FOOT SPAN

17x11.5 = 195.5 SQ. FT. EXISTING 13x12.5 = 162.5 SQ. FT. EXISTING 20x7 = 140 SQ. FT. EXISTING TOTAL SIGN
8x2 = 16.0 SQ. FT. NEW 8x2 = 16 SQ. FT. NEW 8x2 = 16 SQ. FT. NEW AREA = 546 SQ. FT.
CONCRETE = 14.4 CU. YDS
2-Mercury Vapor Luminaire With 250 Watt Lamp TC-31.20 2-Mercury Vapor Luminaire With 250 Watt Lamp TC-31.20 3-Mercury Vapor Luminaire With 175 Watt Lamp TC-31.20
2-Ballast CMRI-250-480 2-Ballast CMRI-250-480 3-Ballast CMRI-175-480

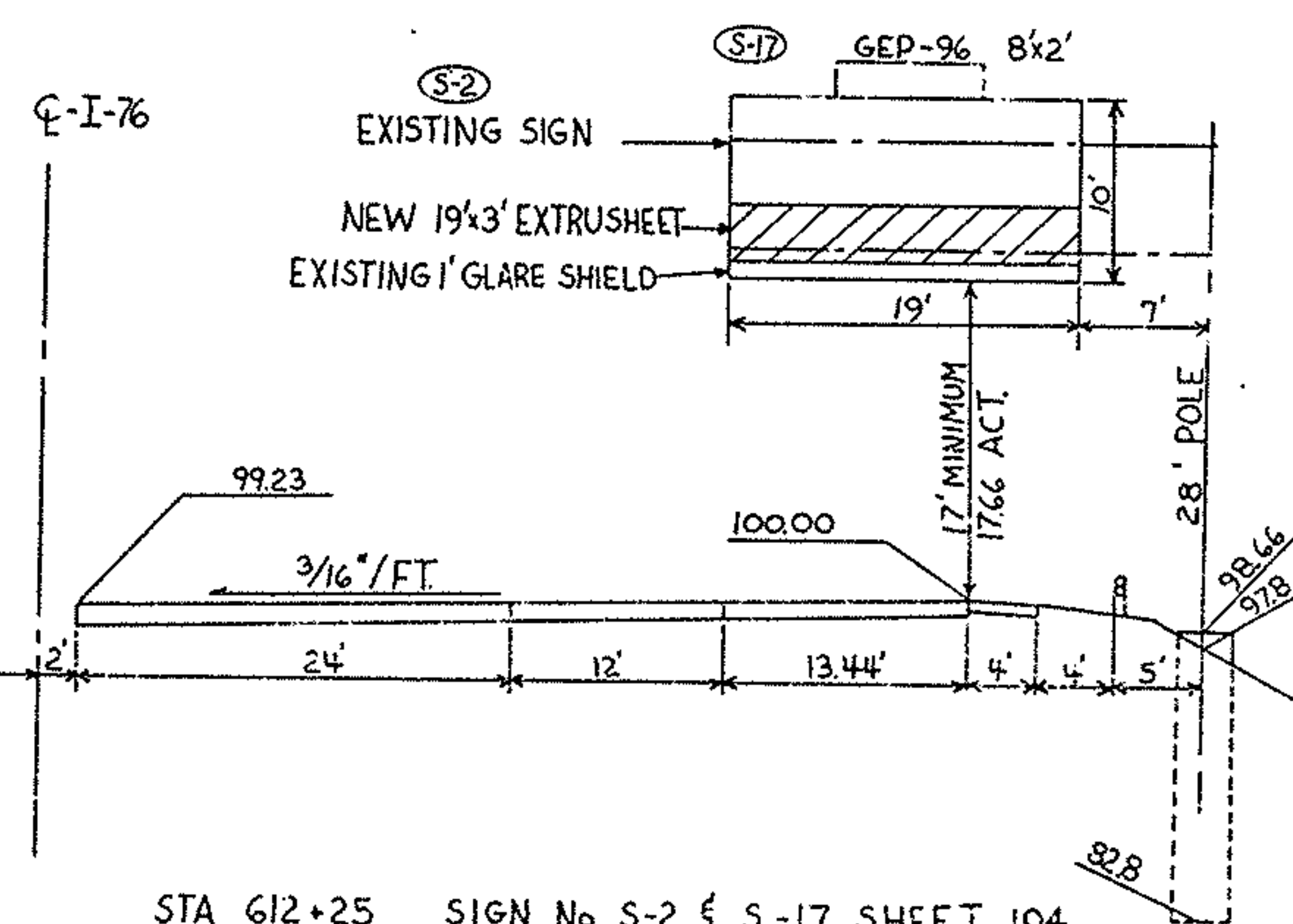
BRACKET ARMS
LUMINAIRES & LAMPS
INCLUDED IN
LIGHTING
SUB-SUMMARY

SIGNS S-5 & S-6



STA 577+34
OVERHEAD SIGN SUPPORT TYPE 7.65 DES. 6 SPAN 63' SEE SHEET 102

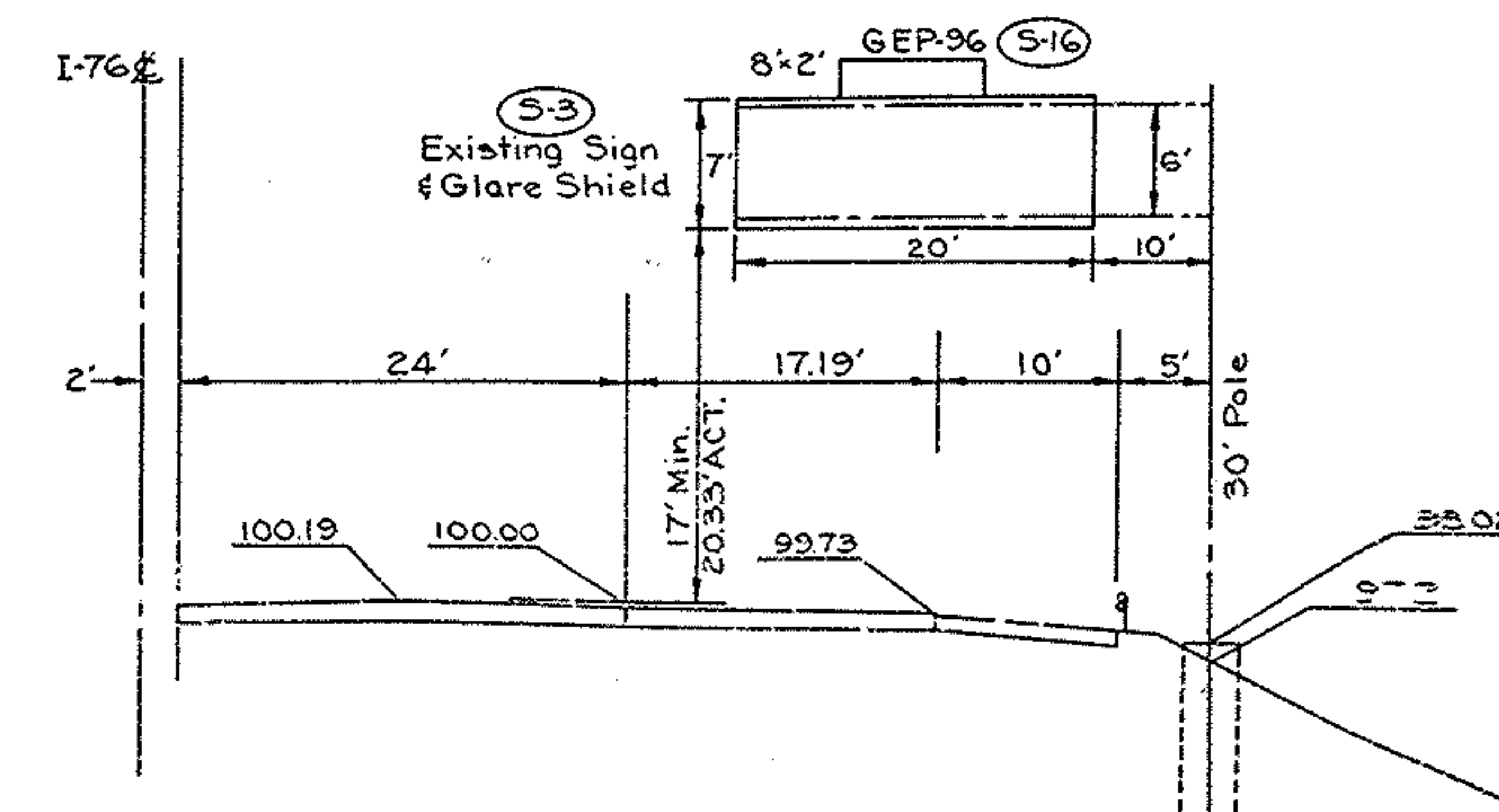
13x7 = 91 SQ. FT. EXISTING 21x7 = 147 SQ. FT. EXISTING
8x2 = 16 SQ. FT. NEW 8x2 = 16 SQ. FT. NEW
CONCRETE = 13.9 CU. YD.
2-Mercury Vapor Luminaire W/175 Watt Lamp TC-31.20 3-Mercury Vapor Luminaire W/175 Watt Lamp TC-31.20
2-Ballast CMRI-175-480 3-Ballast CMRI-175-480



STA 612+25 SIGN No. S-2 & S-17 SHEET 104
OVERHEAD SIGN SUPPORT TYPE 12.30 DESIGN No. 9 ARMS 26 FEET

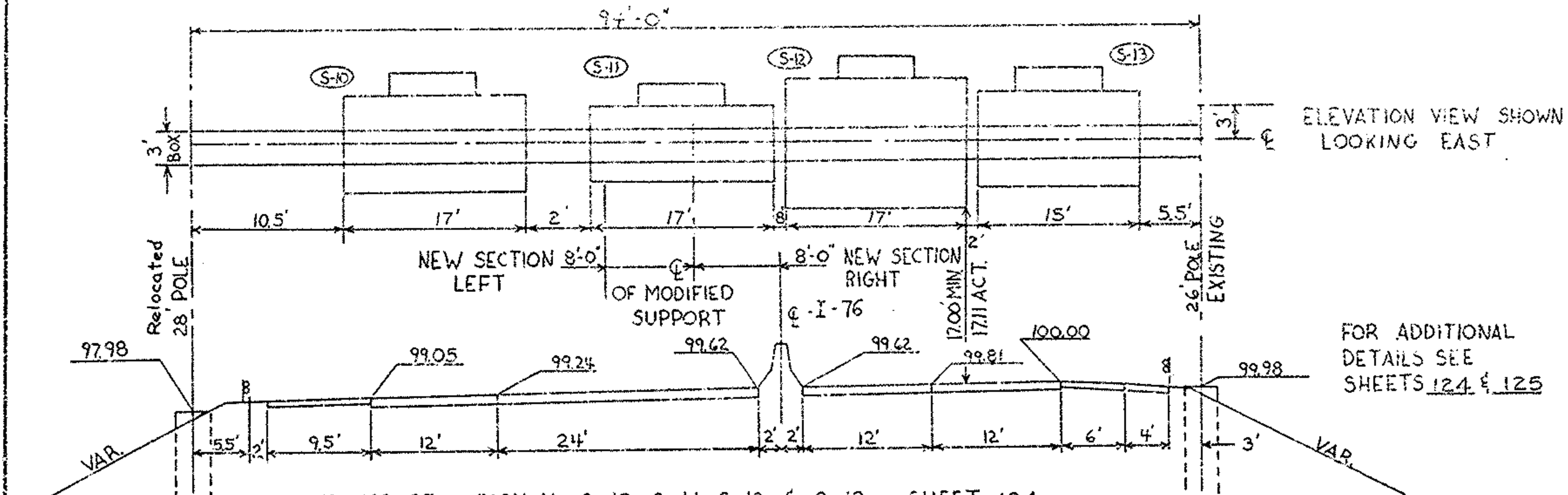
19x7 = 133 SQ. FT. EXISTING TC-31.20
19x3 = 57 SQ. FT. NEW 2- 175 WATT MERCURY VAPOR
8x2 = 16 SQ. FT. NEW LUMINAIRE
CONCRETE = 4.2 CU. YD. 2- CMRI-175-480 BALLAST

RELOCATE DISCONNECT SWITCH ENCLOSURE

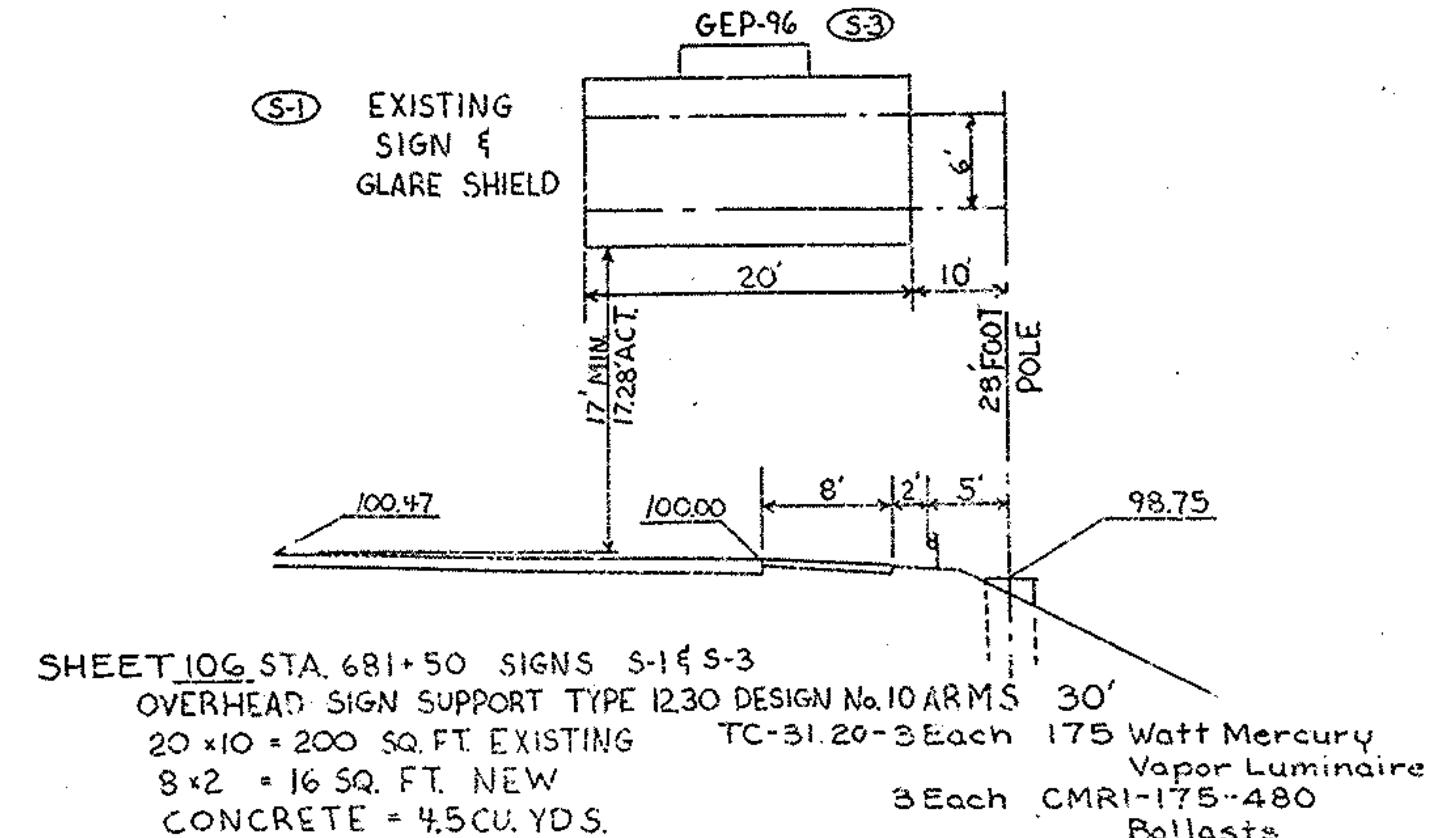
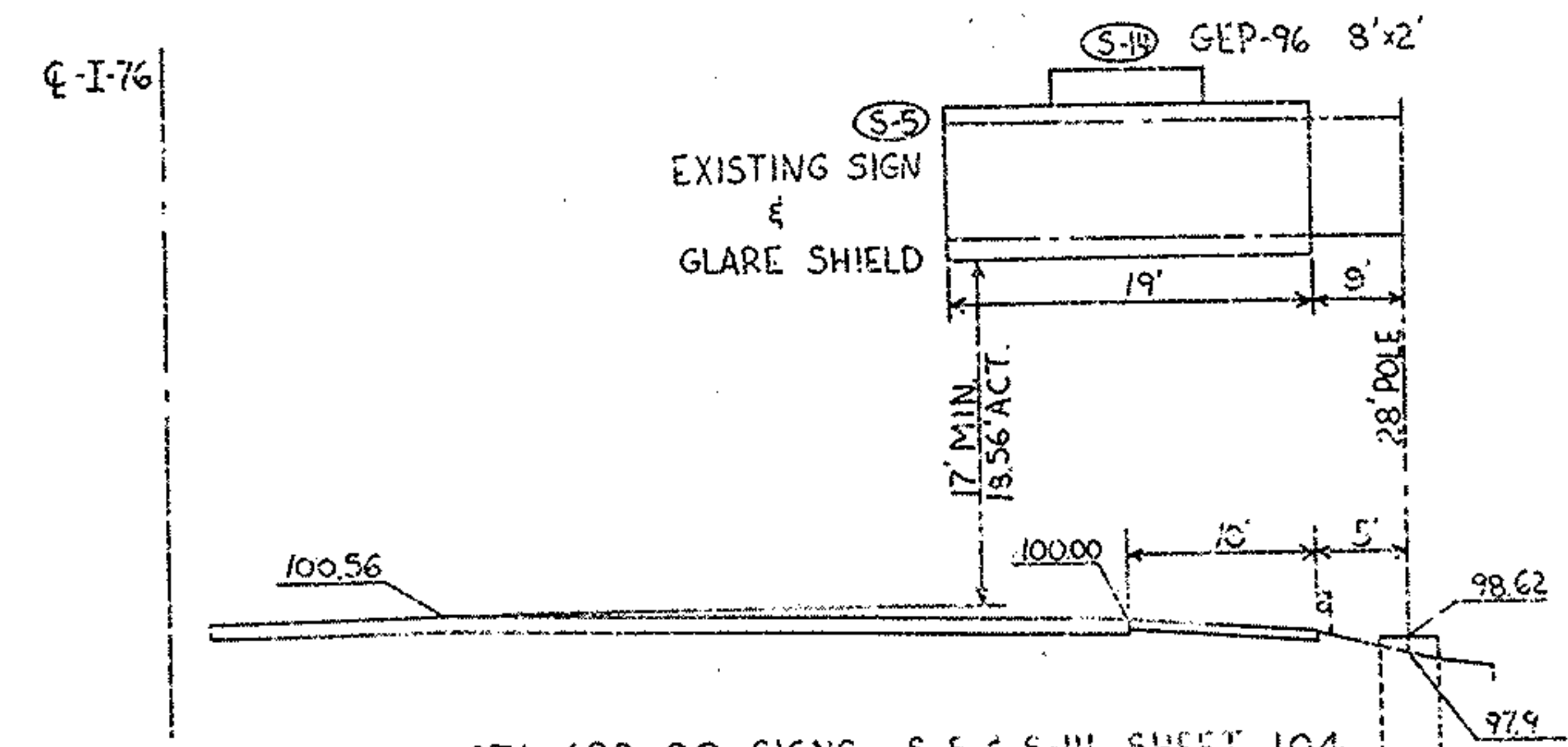
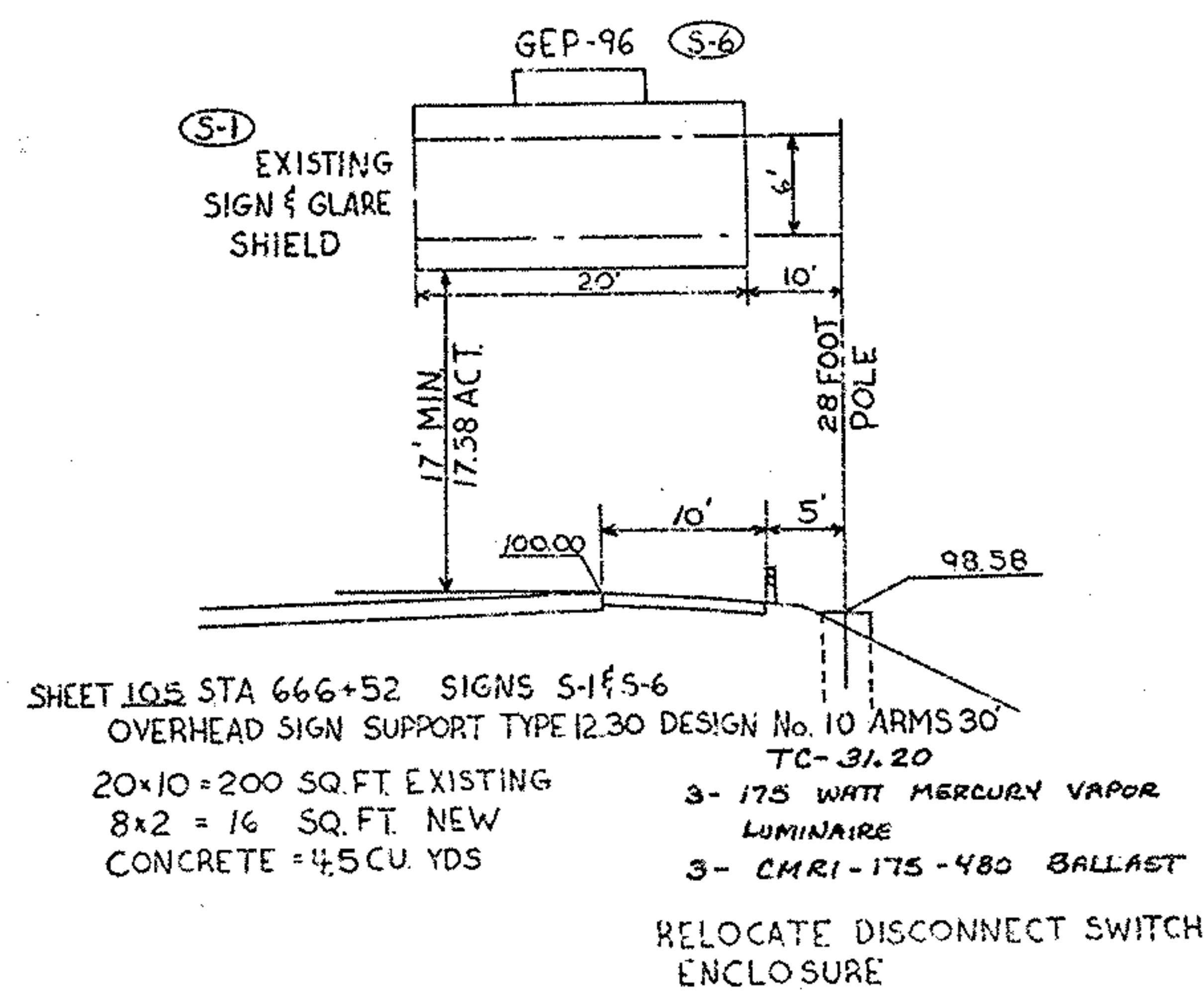


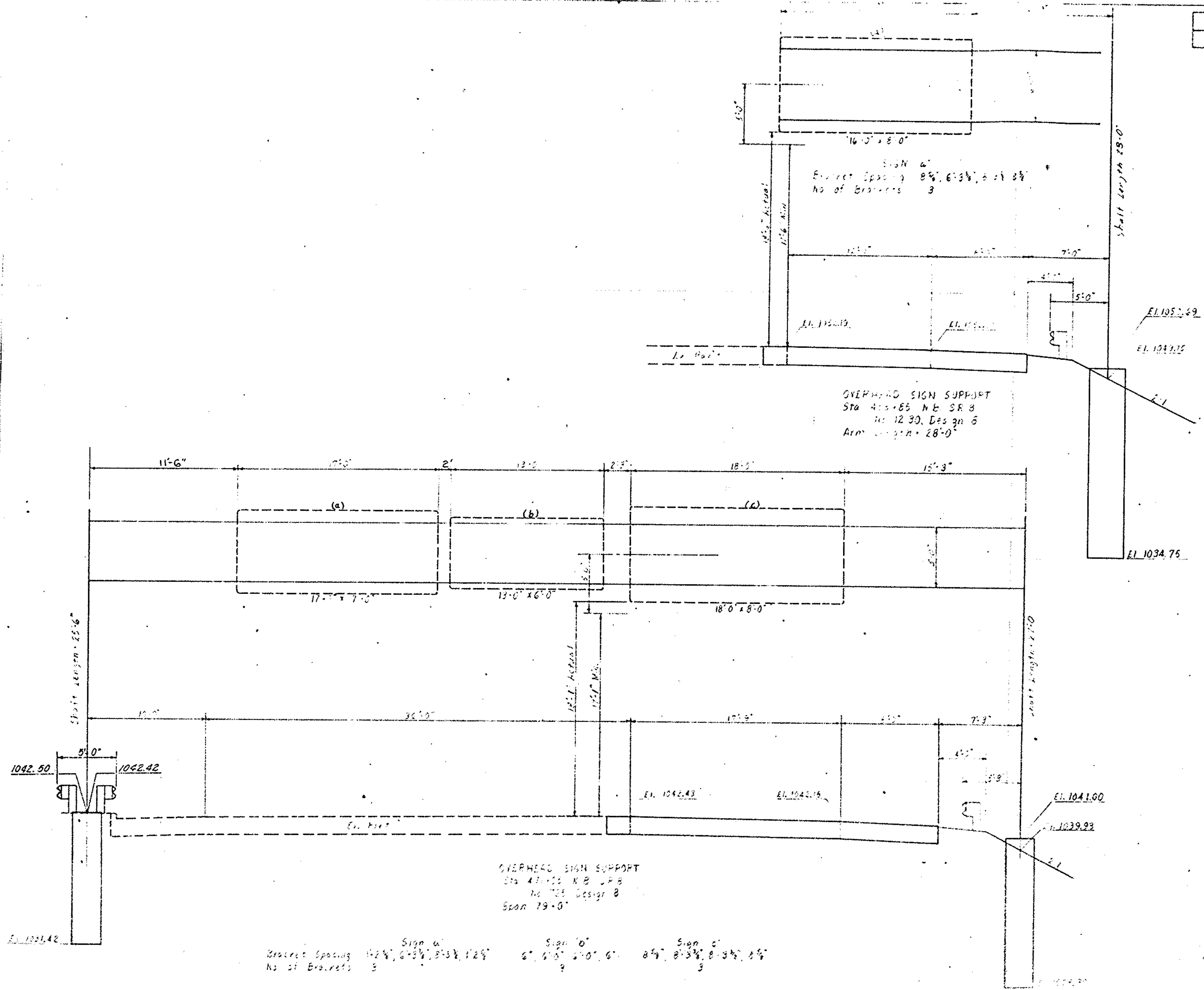
STA. 628+88 SIGN No. S-3 & S-16 SHEET 104
OVERHEAD SIGN SUPPORT TYPE 12.30 DESIGN No. 8 ARMS 30 FEET
20x7 = 140 SQ. FT. EXISTING 3-Mercury Vapor Luminaire W/175 watt
8x2 = 16 SQ. FT. NEW Lamp TC-31.20
CONCRETE = 4.0 CU. YD. 3-Ballast CMRI-175-480

RELOCATE DISCONNECT SWITCH ENCLOSURE



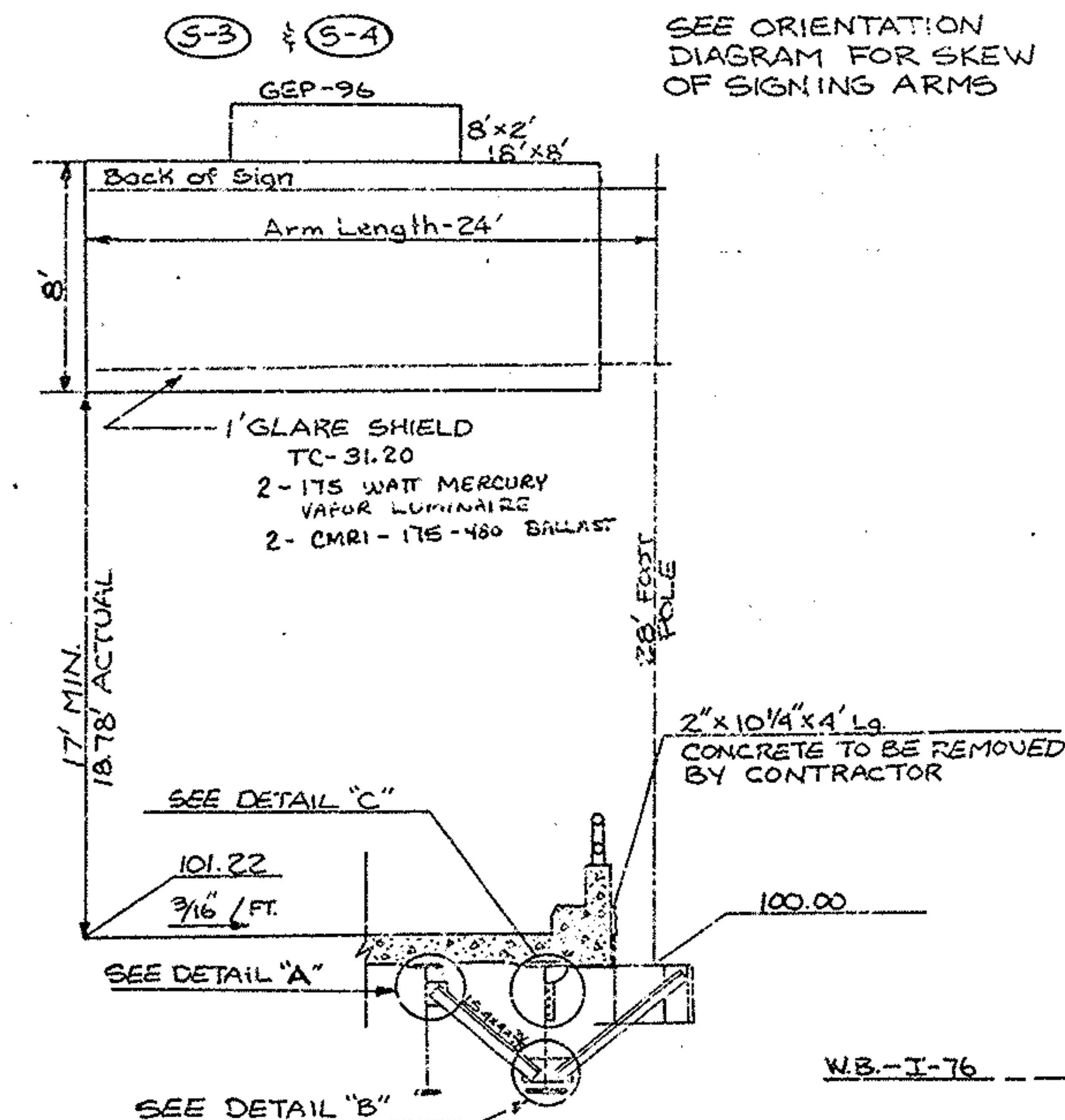
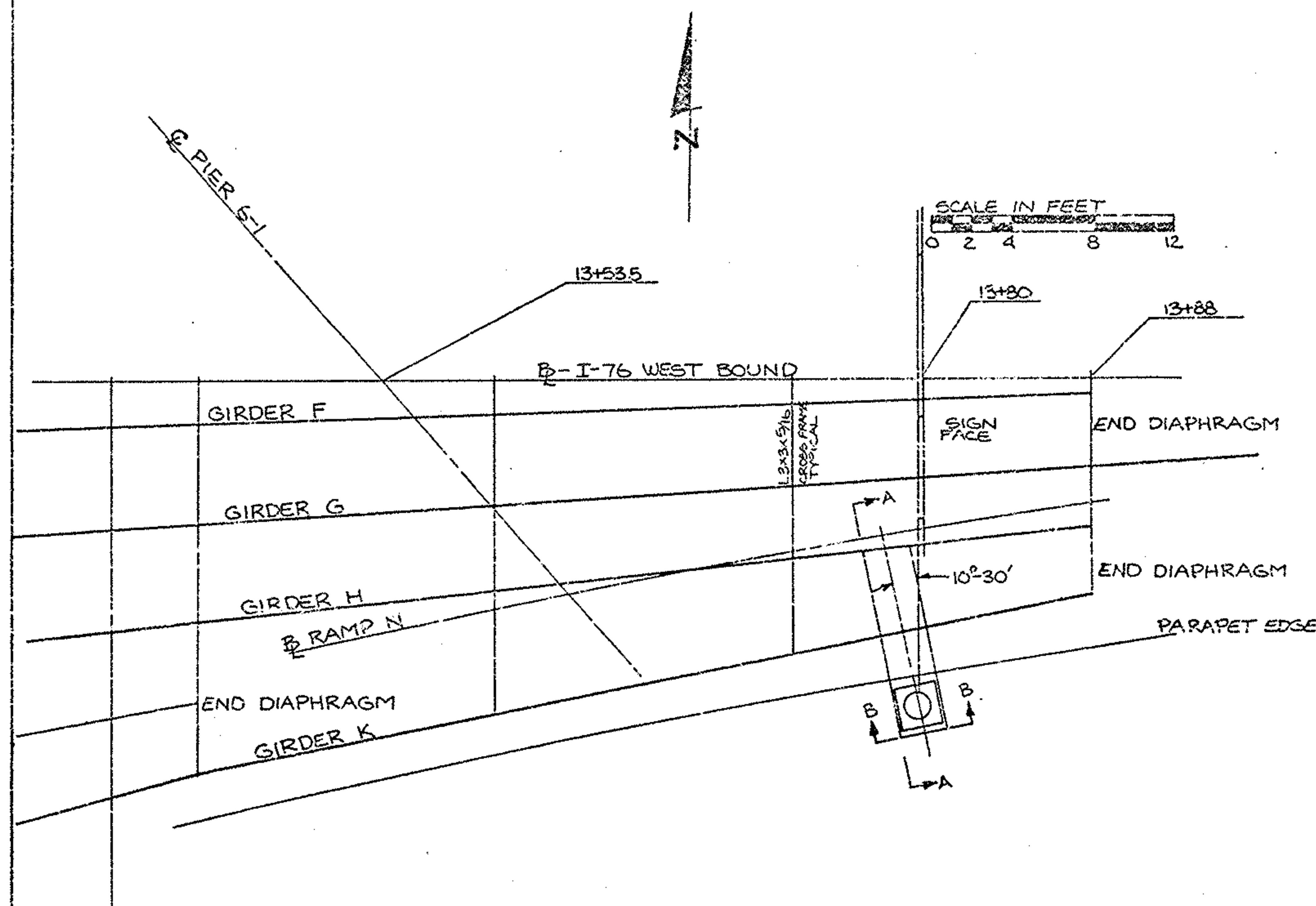
SUPPORT SECTIONS				
LEFT END FRAME EXISTING	LEFT & RIGHT END SECTIONS EXISTING	LEFT & RIGHT INTERNAL SECTIONS EXISTING	LEFT & RIGHT CENTER SECTIONS NEW	RIGHT END FRAME EXISTING
3GA-885"x6.89"-28'-0"	3GA-538"x4.18"-17'-2" Lg.	3GA-6.9"x5.38"-22'-6" Lg.	3GA-7.52"x6.96"-8'-0" Lg.	3GA-8.85"x7.03"-26'-0"



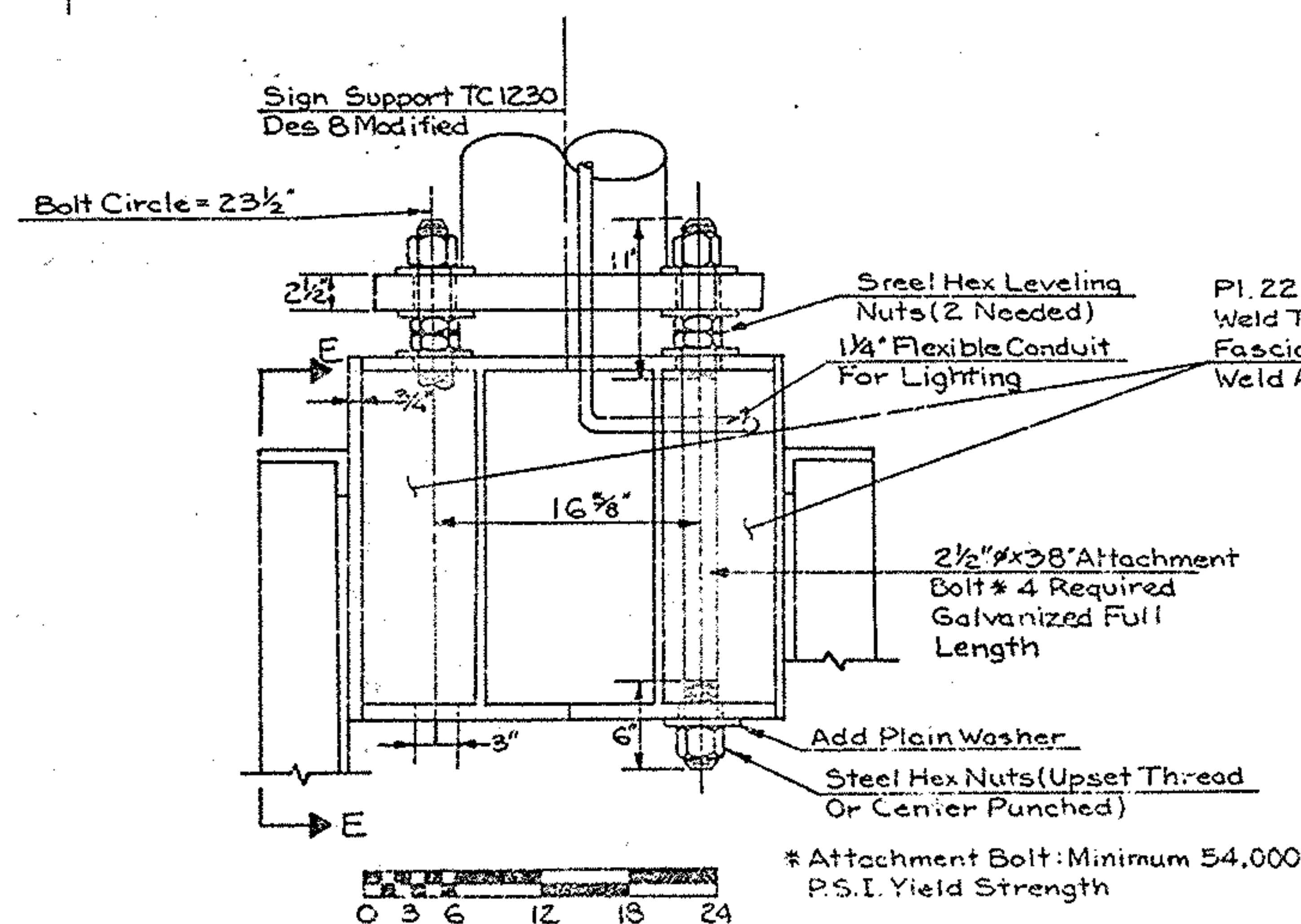


OVERHEAD SIGN DETAILS

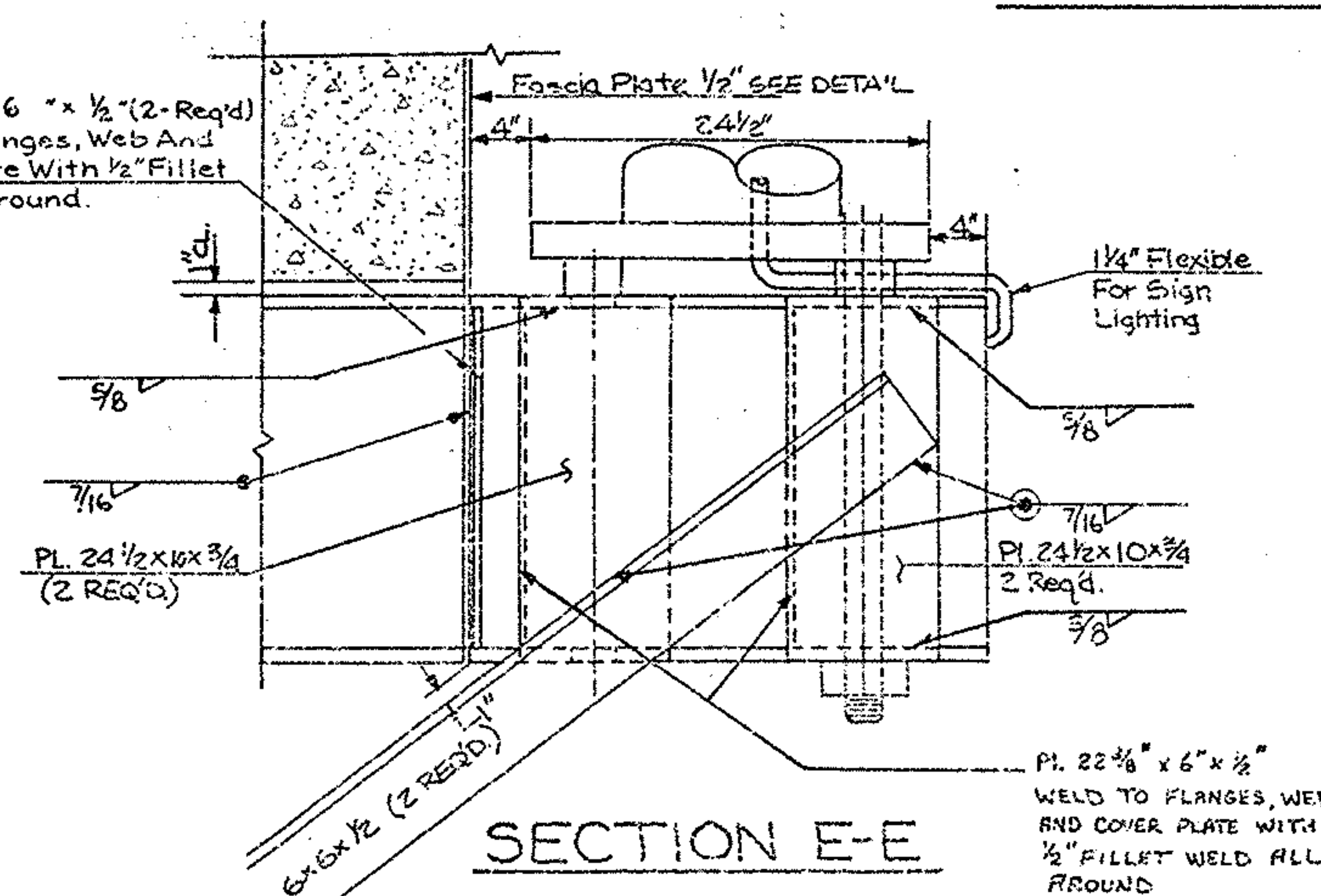
SUM-8-0.46
SUM-76-11.57



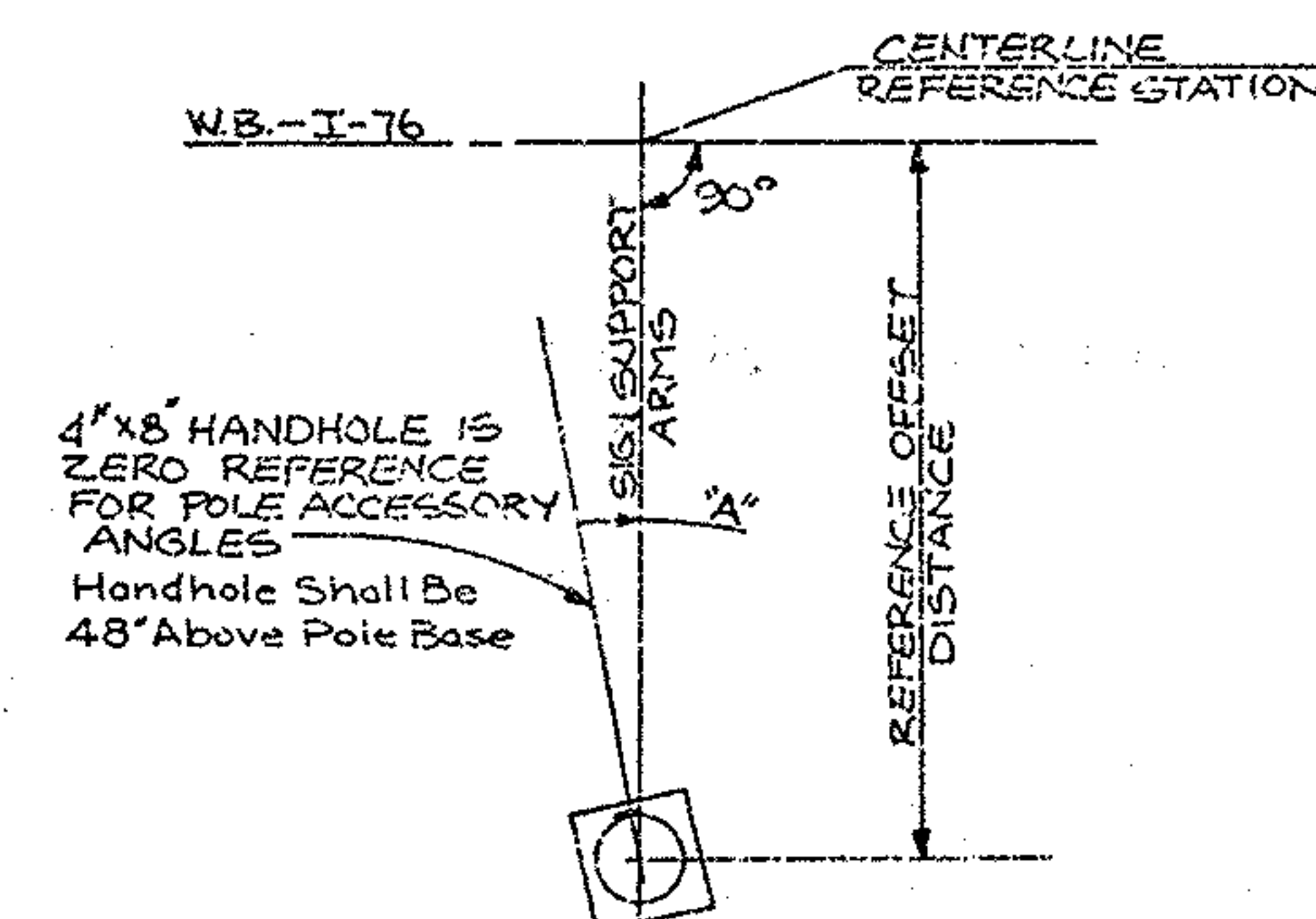
SECTION A-A



SECTION B-B



SECTION E-E



STATION	OFFSET	SUPPORT SIZE	ACCESSORY ANGLE
13+80±	16.0 ±	TC 12.30 DES. 8 MOD	A = 10°-30'

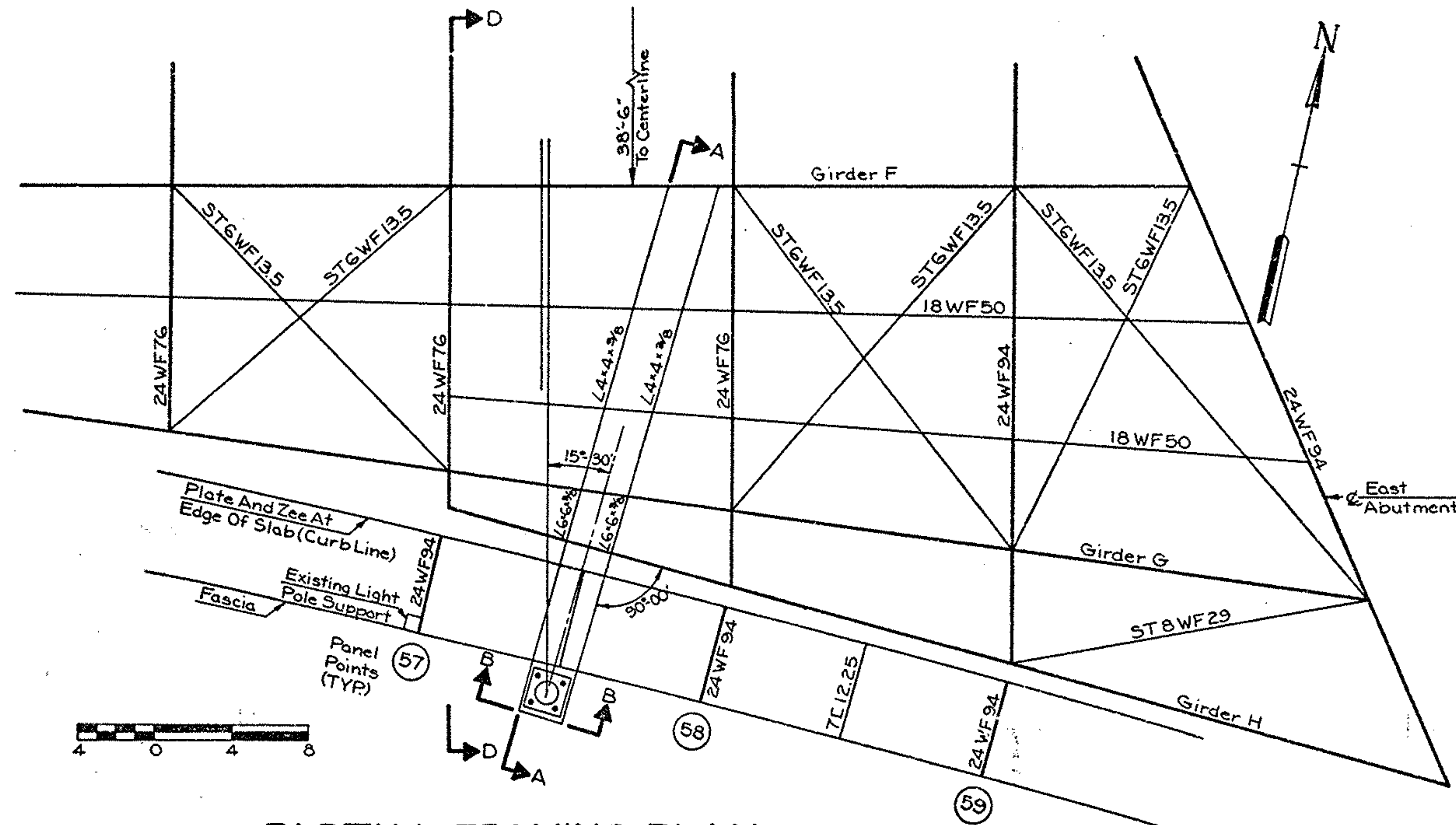
NOTE:

ALL STRUCTURAL MEMBERS FURNISHED BY THE CONTRACTOR SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 711. GALVANIZING SHALL BE REMOVED IN THE AREAS OF WELDS PRIOR TO WELDING. ALL FIELD WELDS SHALL BE PAINTED WITH AN APPROVED ZINC RICH PAINT AFTER ERECTION.

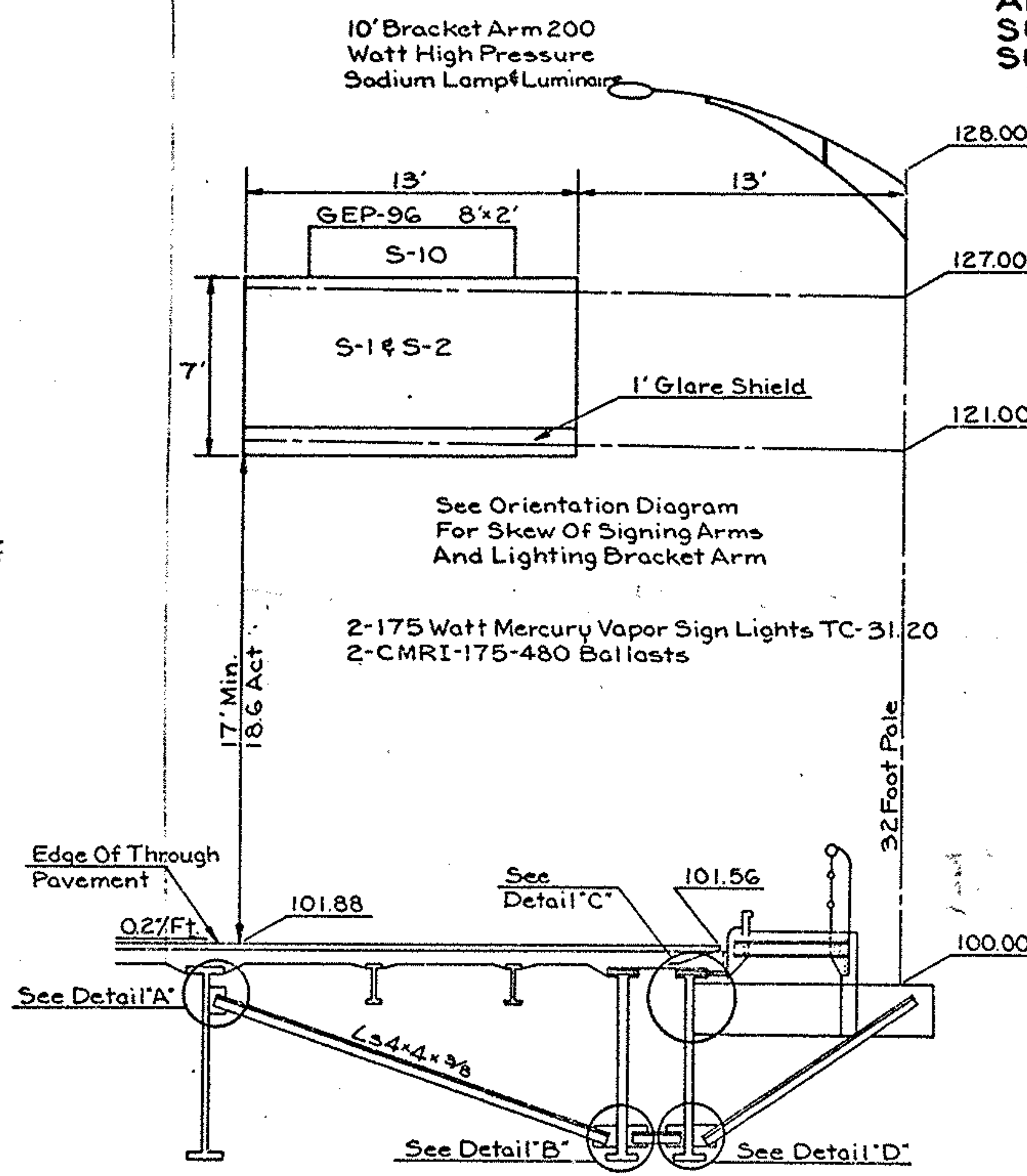
NOTE:

THE EXACT STATION AND OFFSET WILL BE AS DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE SUPPORT SHALL BE LOCATED ON THE STRUCTURE TO MISS BULKHEADS, BRIDGING, SPLICES, BRACING, ETC.

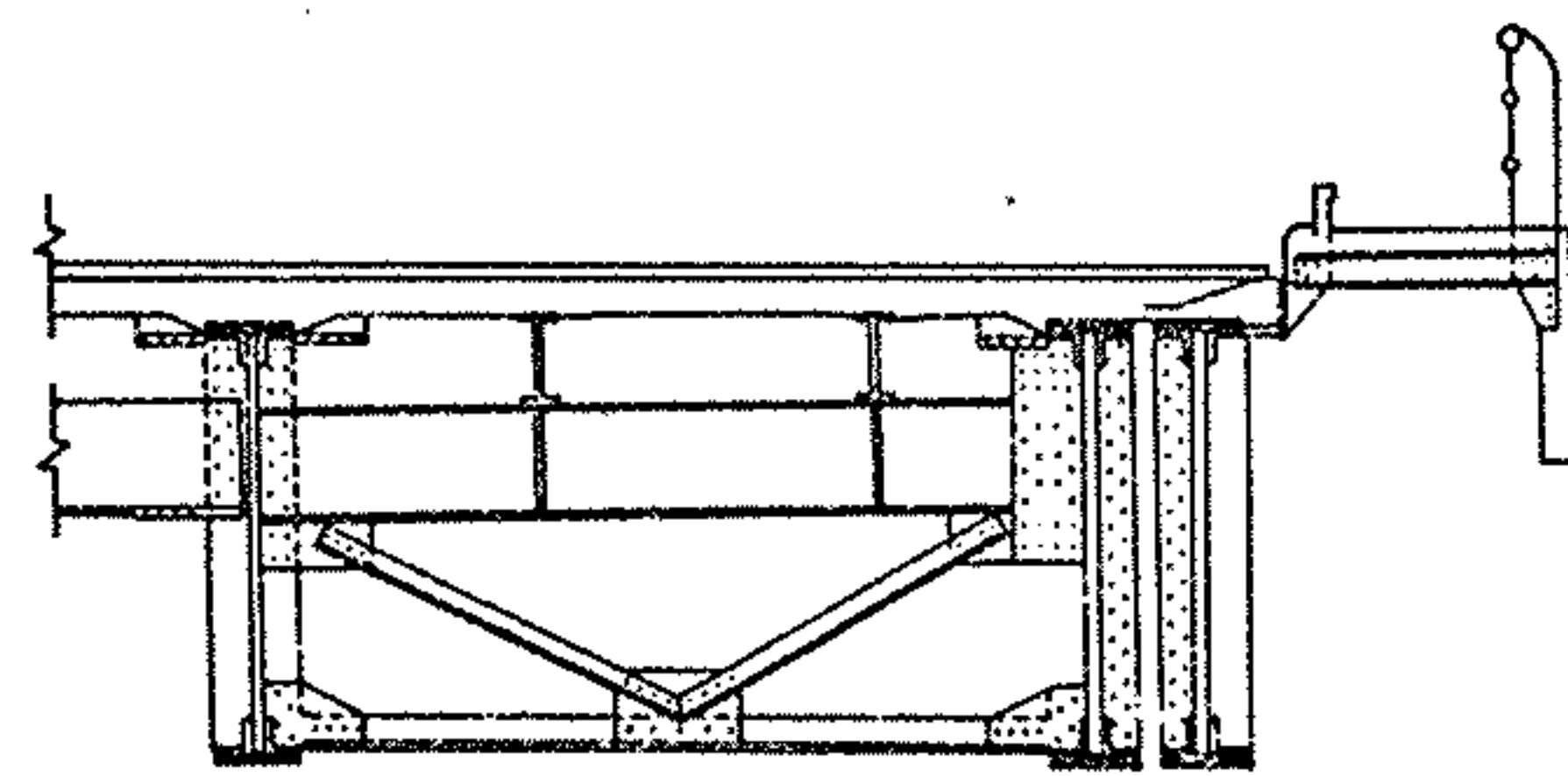
AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46



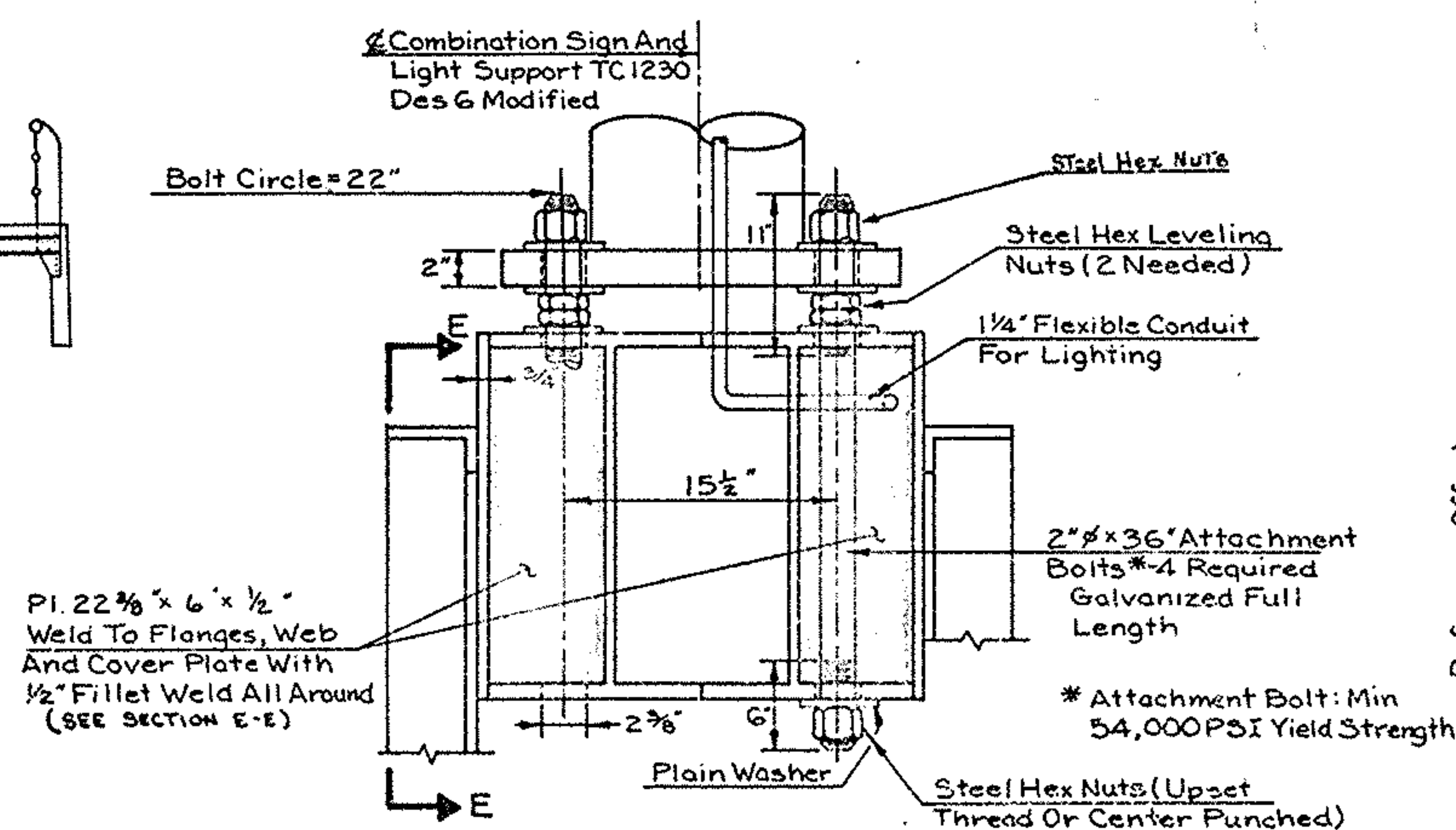
PARTIAL FRAMING PLAN



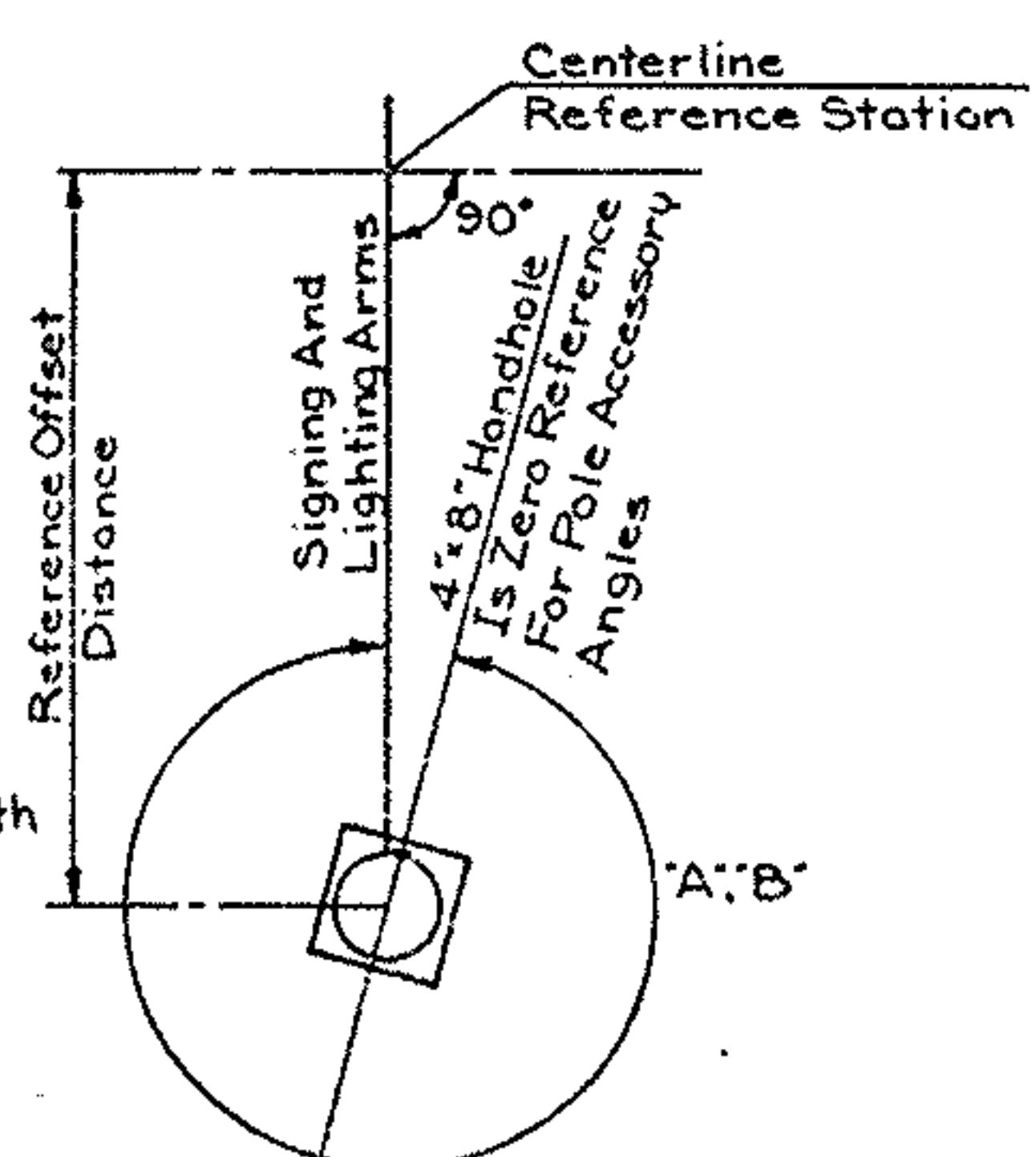
SECTION A-A



SECTION D-D



SECTION B-B



STATION	OFFSET	SUPPORT SIZE	ACCESSORY ANGLES	
			A°-SIGNING	B°-LIGHTING
608+49.2	65.0'	TC-12.30 DES G MOD	344°-30'	344°-30'

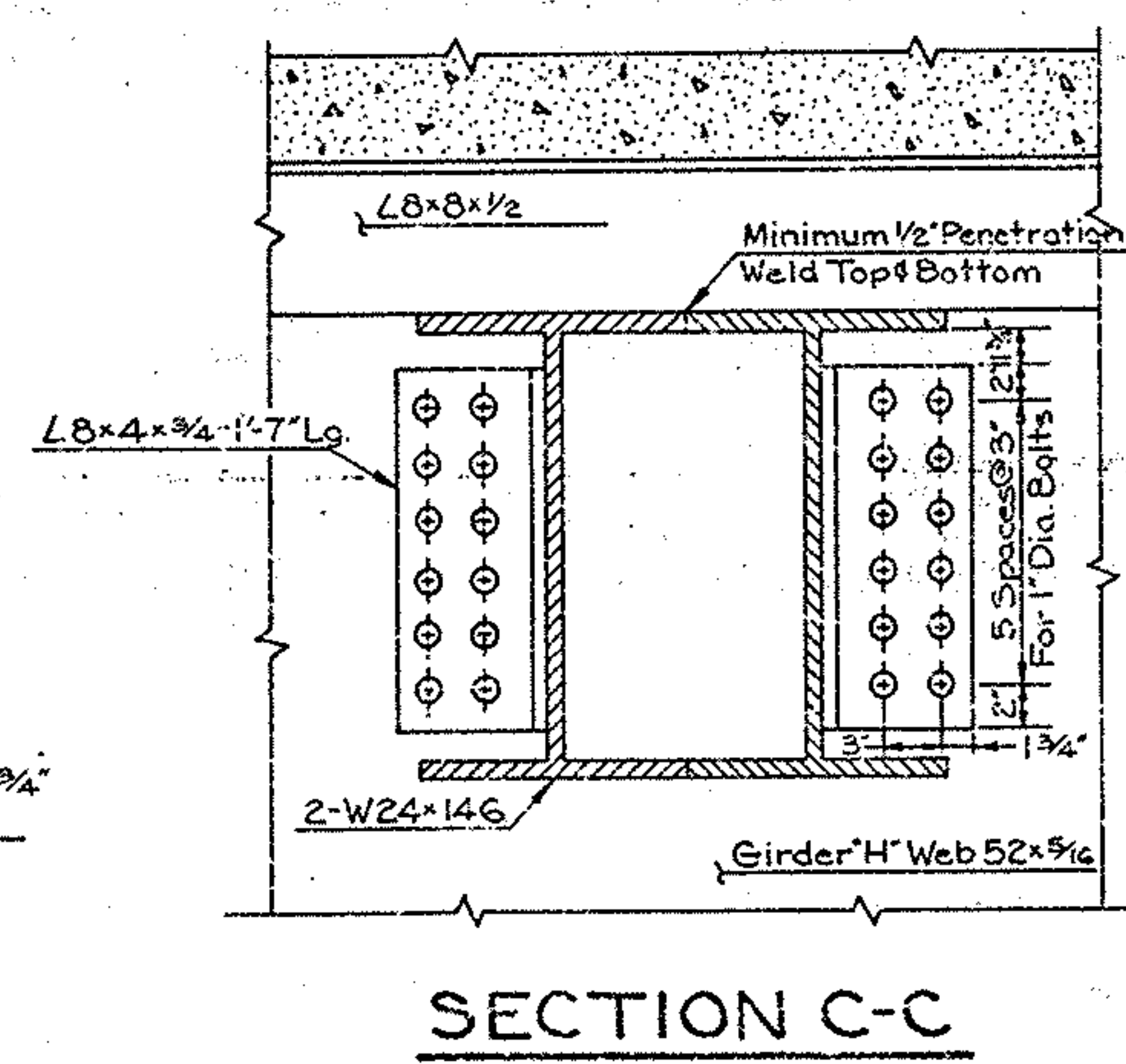
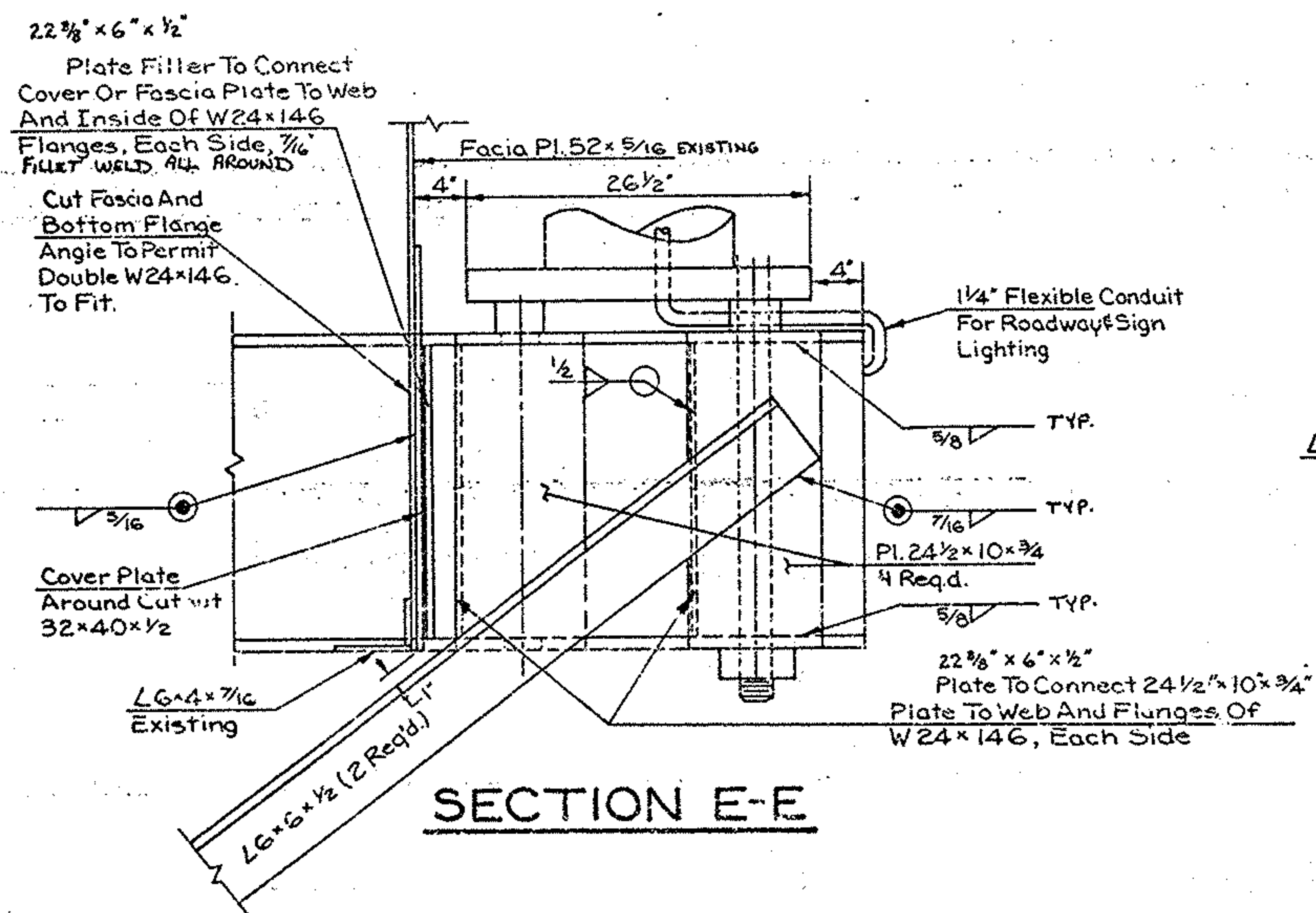
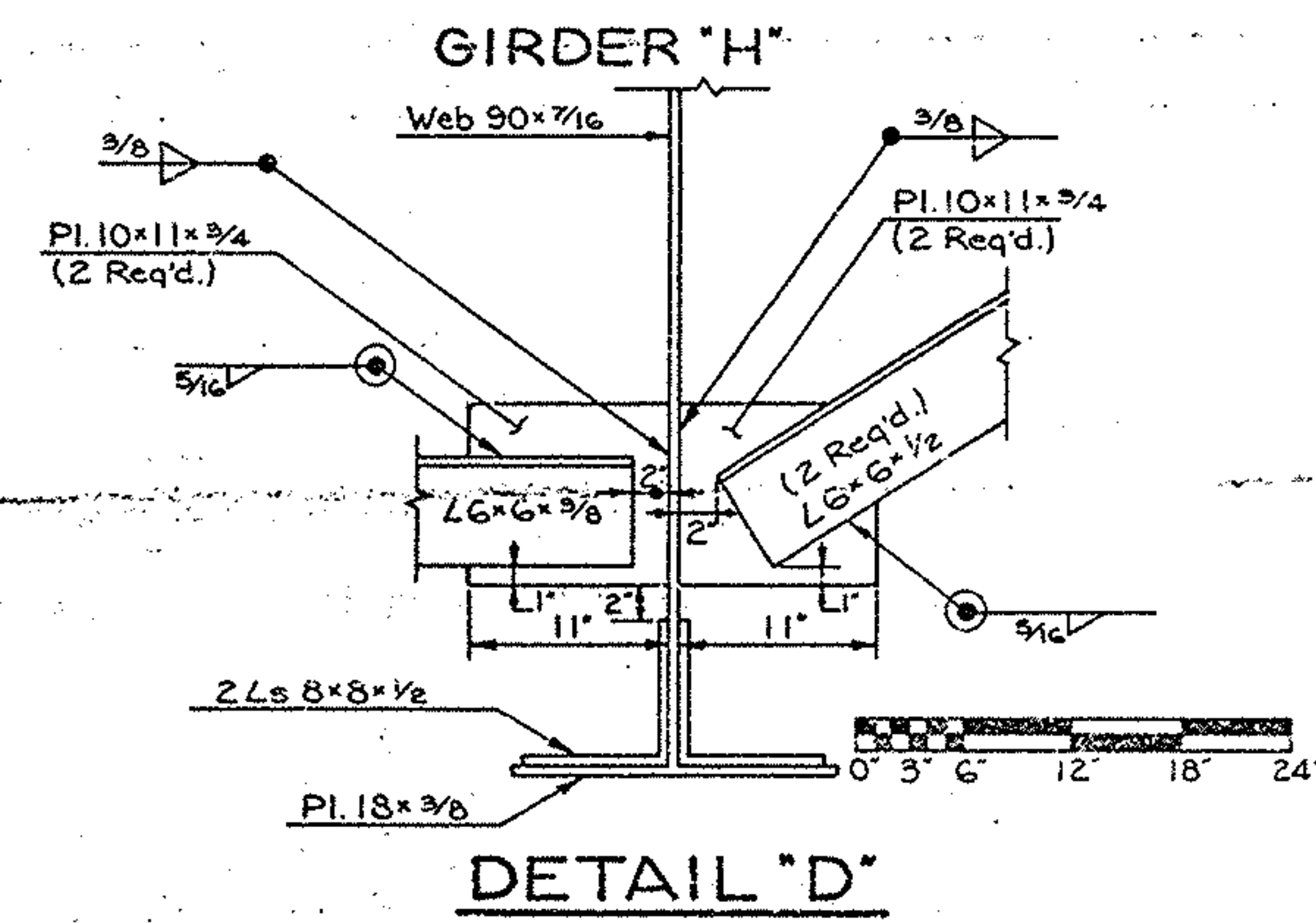
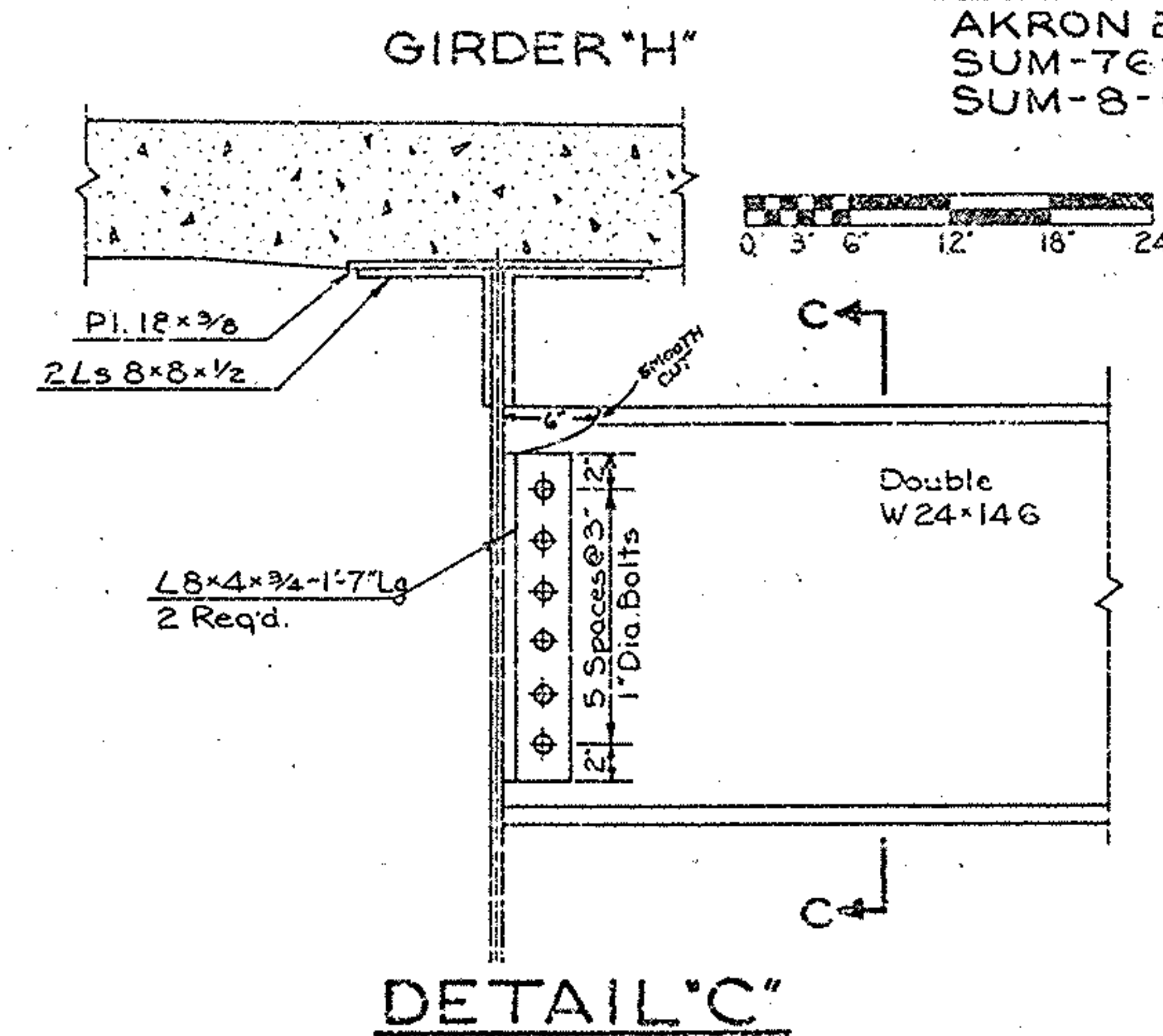
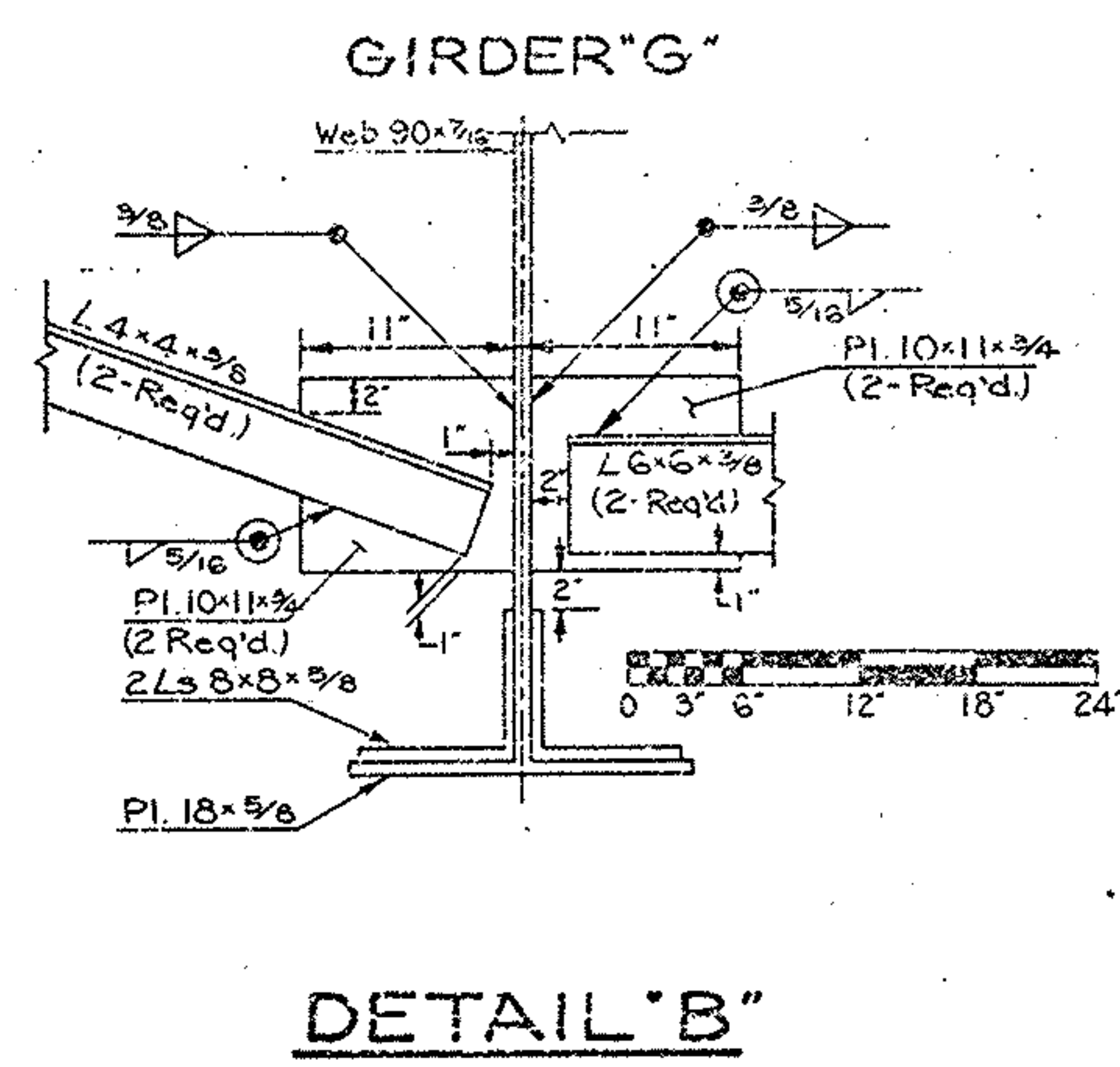
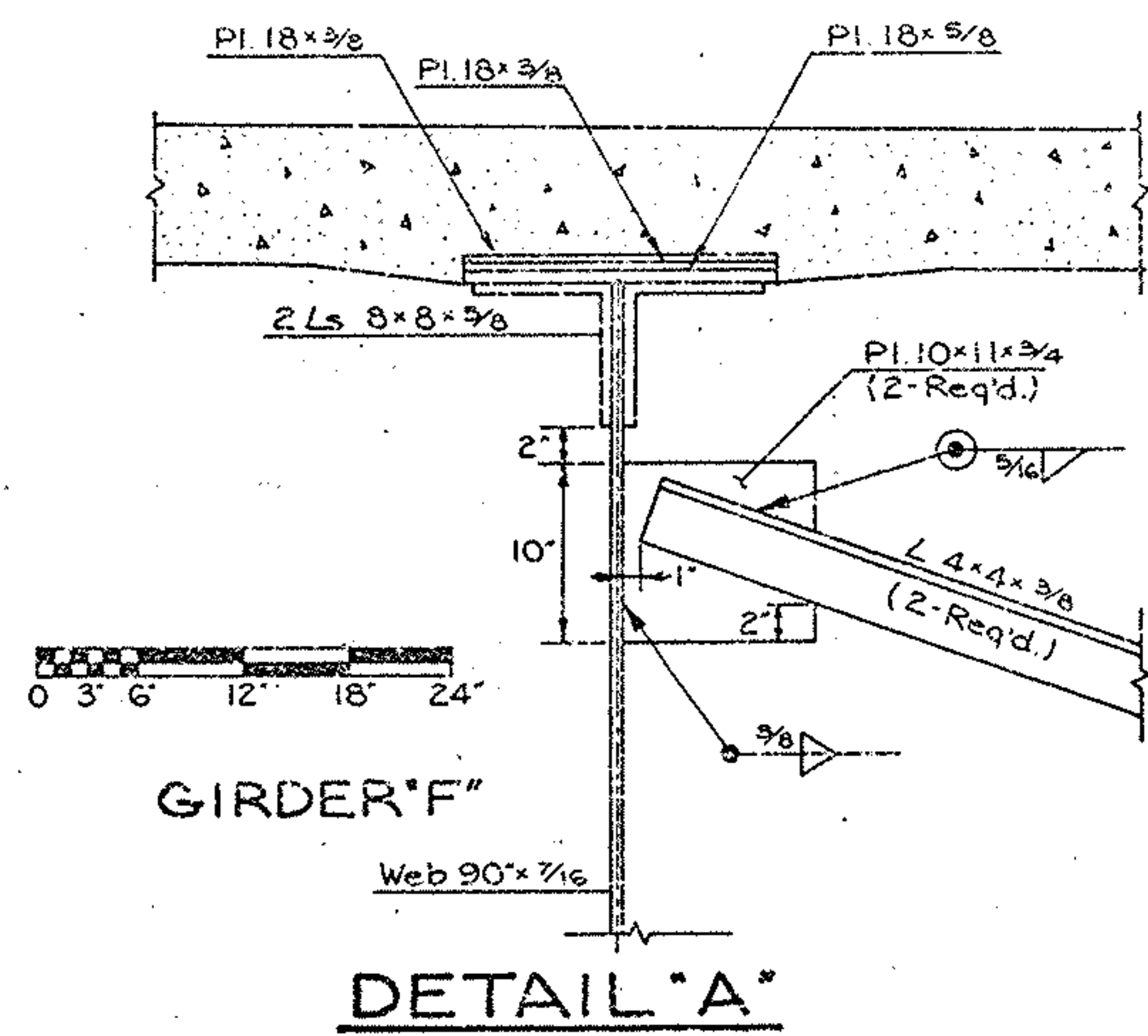
ORIENTATION ANGLES

NOTE:
All Structural Members Furnished By The Contractor Shall Be Galvanized In Accordance With Item 711. Galvanized Shall Be Removed In The Areas Of Welds Prior To Welding.
All Field Welds Shall Be Painted With An Approved Zinc Rich Paint After Erection.

NOTE:
The Exact Station And Offset Will Be As Determined By The Contractor And Approved By The Engineer. The Support Shall Be Located On The Structure To Miss Bulkheads, Bridging, Splices, Bracing, Etc.
Note: Locate 4" x 8" Handhole 36" Above Pole Base

For Details A Thru D See Sheet 118
For Sections E-E See Sheet 118

AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46



SUM-76-11.57
SUM-8-0.46

NOTES

MATERIALS

THE OVERHEAD SPAN TRUSS SHALL BE ALUMINUM AND THE END FRAMES SHALL BE STEEL. SPAN TRUSS AND END FRAMES, INCLUDING HARDWARE, SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION I-129 UNLESS OTHERWISE NOTED.

STEEL POLE BASES AND GUSSETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A-373.

AFTER FABRICATION THE TAPERED POLES SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

FABRICATION

THE ENTIRE STEEL END FRAME SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SEC. M-74.2. MAXIMUM LENGTH OF SPAN SECTIONS IS 30 FT.

ERECTION

USE A MINIMUM OF 1" CAMBER IN SPAN TRUSS MEMBER FOR A 50' SPAN; ADD 1/4" OF CAMBER FOR EACH 5' OF INCREASE IN SPAN OVER 50'.

PAYMENT

PAYMENT FOR THE GALVANIZED CONDUIT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.

SOILS

THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

REINFORCING STEEL

COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM I-129 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR DIGITS ARE USED, INDICATE THE BAR SIZE NUMBER.

FOUNDATION ELEVATION

ELEVATION OF TOPS OF FOUNDATIONS SHALL BE BUILT UP SO THAT 17' CLEARANCE IS MAINTAINED OVER THE ENTIRE WIDTH OF THE PAVEMENT AND SHOULDERS.

FOR INFORMATION ONLY

DESIGN

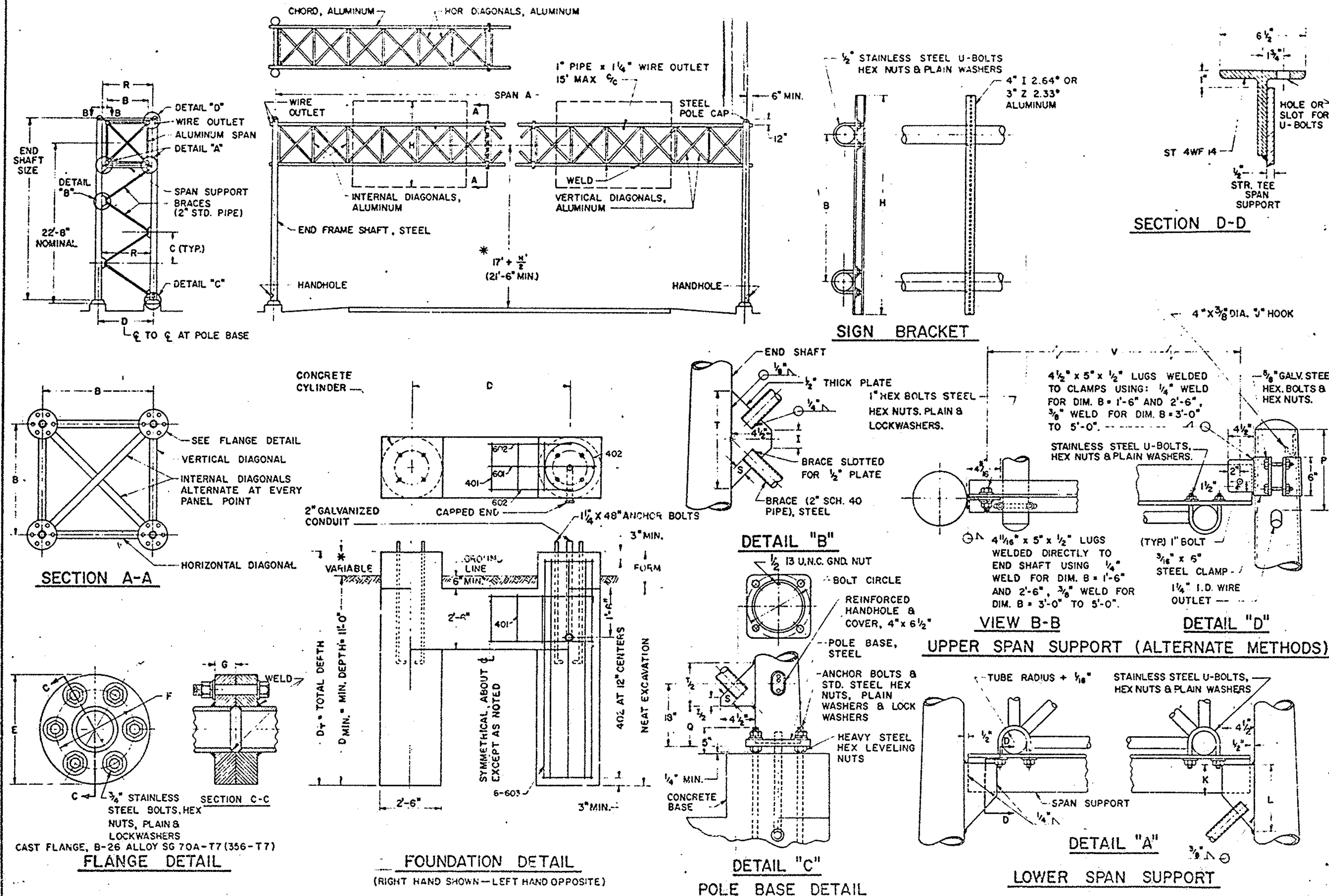
THE DESIGN OF OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

OVERHEAD
SIGN SUPPORTS No.7.6

APPROVED _____ ENGINEER OF TRAFFIC

DATE
5-5-64
5-5-64



DESIGN NO.	SPAN A	B	C	D	E	END SHAFT	BRACE LENGTH	F	G	I	K	L	P	Q	R	S	T	U BOLTS	V	W	SOLT CIRCLE	SPAN SUPPORT SECTION D-D	CHORDS	HORIZONTAL AND INTERNAL DIAGONAL	VERTICAL DIAGONAL
1	50' thru 65'	3'-0"	4'-11 ³ / ₄ "	4'-5"	9 ¹ / ₄ "	8" X 4.5 X 25'-0", 3GA	5'-10 ³ / ₁₆ "	7 ⁷ / ₁₆ "	1 ³ / ₈ "	3 ¹ / ₂ "	4 ³ / ₄ "	2"	12"	5 ⁵ / ₈ "	3'-9"	1 ¹ / ₂ "	10"	5 ⁵ / ₈ "	3'-5 ⁵ / ₈ "	11"	Split Tee 3'-8"	4 ³ / ₄ " X .188"	2" X .188"	1.660" X .140"	
2	70' thru 75'	4'-0"	4'-10 ¹ / ₄ "	5'-7"	9 ¹ / ₄ "	8" X 6.22 X 25'-6", 3GA	6'-7 ¹ / ₁₆ "	7 ⁷ / ₁₆ "	1 ³ / ₈ "	5 ⁵ / ₈ "	4 ³ / ₄ "	7 ¹ / ₂ "	12"	6 ¹ / ₄ "	4'-11"	1 ¹ / ₂ "	9 ¹ / ₂ "	5 ⁵ / ₈ "	4'-5 ⁵ / ₈ "	11"	Split Tee 4'-10"	4 ³ / ₄ " X .188"	2" X .188"	1.900" X .145"	
3	76' thru 80'	4'-0"	4'-10 ¹ / ₄ "	5'-7"	11"	8" X 6.22 X 25'-6", 3GA	6'-7 ¹ / ₁₆ "	8 ¹ / ₂ "	1 ¹ / ₂ "	5 ⁵ / ₈ "	4 ³ / ₄ "	7 ¹ / ₂ "	12"	6 ¹ / ₄ "	4'-11"	1 ¹ / ₂ "	9 ¹ / ₂ "	5 ⁵ / ₈ "	4'-5 ⁵ / ₈ "	11"	Split Tee 4'-10"	5 ¹ / ₂ " X .250	2 ¹ / ₂ " X .188"	1.900" X .145"	
4	81' thru 110'	5'-0"	4'-8 ¹ / ₂ "	8'-7"	11"	8" X 6.18 X 26'-0", 3GA	7'-4 ¹ / ₄ "	8 ¹ / ₂ "	1 ¹ / ₂ "	—	3 ¹ / ₂ "	7 ¹ / ₂ "	12"	7 ¹ / ₄ "	5'-11"	1 ³ / ₄ "	11 ¹ / ₄ "	3 ³ / ₄ "	5'-5 ⁵ / ₈ "	11"	Split Tee 5'-10"	5 ¹ / ₂ " X .250	2 ¹ / ₂ " X .188	2 ¹ / ₂ " X .188	

REINFORCEMENT SCHEDULE				101	75'
MARK	NO.	LENGTH	TYPE	2'-0"	2'-0"
401	12"C/C	8'-6"	102	2'-0"	2'-0"
402	12"C/C	7'-5"	103	102	
501	4	3'-4'-0"	101	2'-0"	
602	8	3'-2'-0"	101		
603	32	3'-6"	STR		103

600 SQ. FT. SIGN AREA OVERHEAD SIGN SUPPORT, I-129 NO.7.6

NOTES

* FOUNDATION - THE TOP ELEVATION OF FOUNDATIONS SHALL BE VARIED SO AS TO MAINTAIN A MINIMUM CLEARANCE OF 17' BETWEEN THE BOTTOM OF THE SIGN AND THE HIGHWAY CROWN.

MATERIAL - STEEL POLE BASES, FLANGES, AND END CAPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A-30 GRADE B. HIGH STRENGTH STEEL BOLTS SHALL CONFORM TO ASTM SPECIFICATION A193 GRADE B7. AFTER FABRICATION TAPERED POLES SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

SOILS - THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

REINFORCING STEEL - REINFORCING STEEL AS SHOWN IN TABLE SHALL BE INSTALLED WHEN "D" EXCEEDS THE ANCHOR BOLT LENGTH BY MORE THAN 3 FT. THE COST AND PLACEMENT OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR I-129 CONCRETE FOR SIGN SUPPORT FOUNDATION.

THE DESIGN OF OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961.

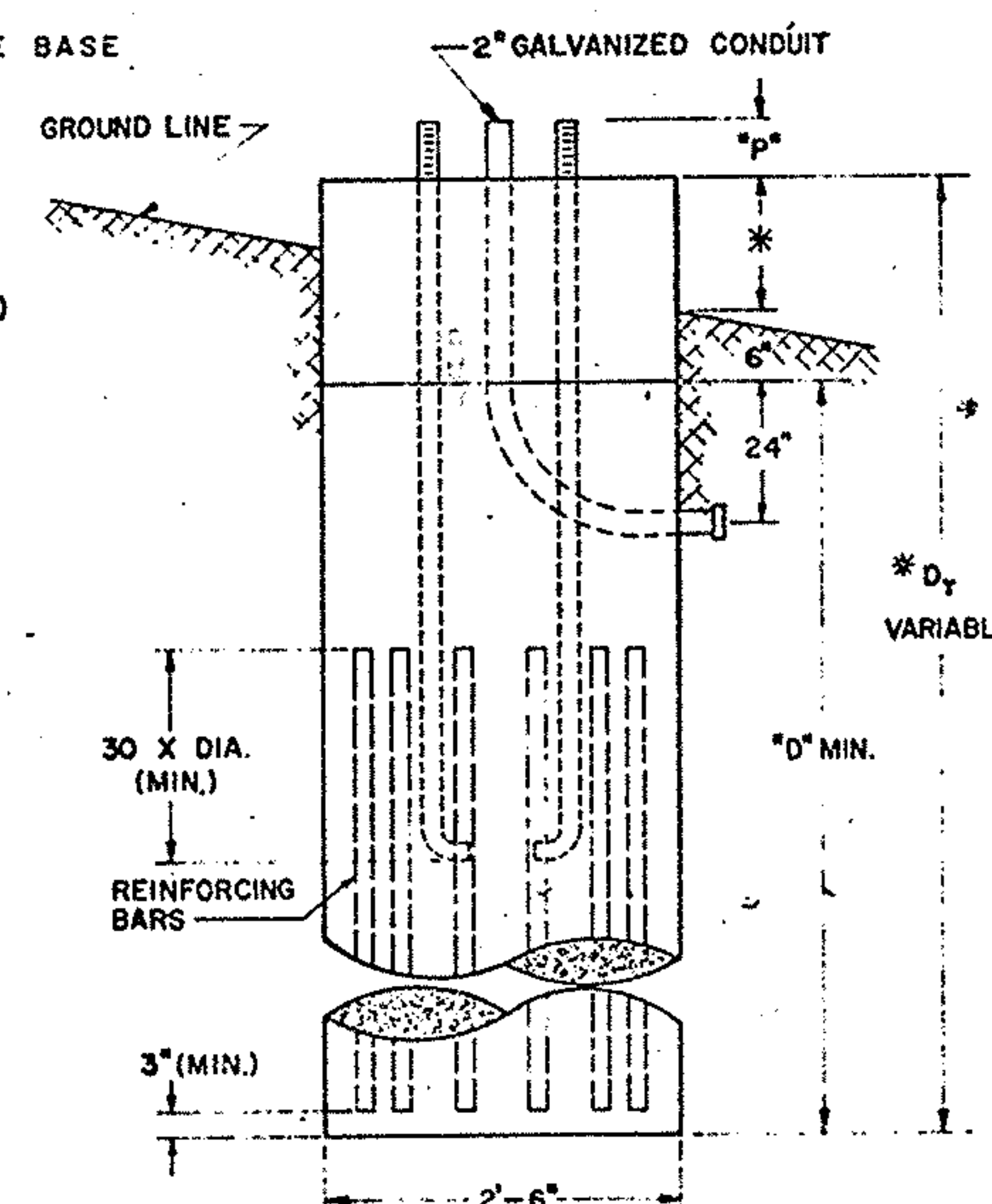
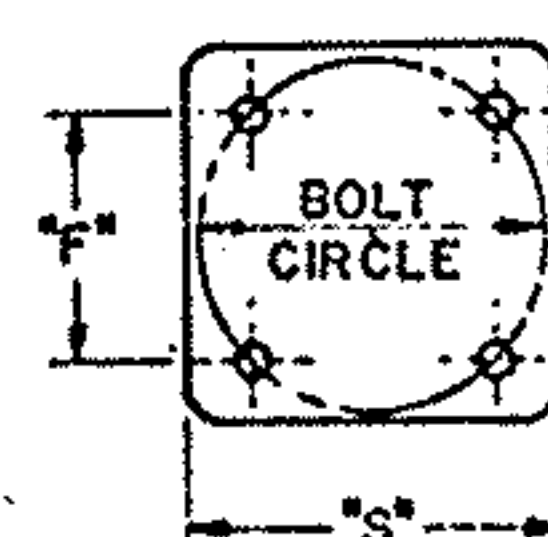
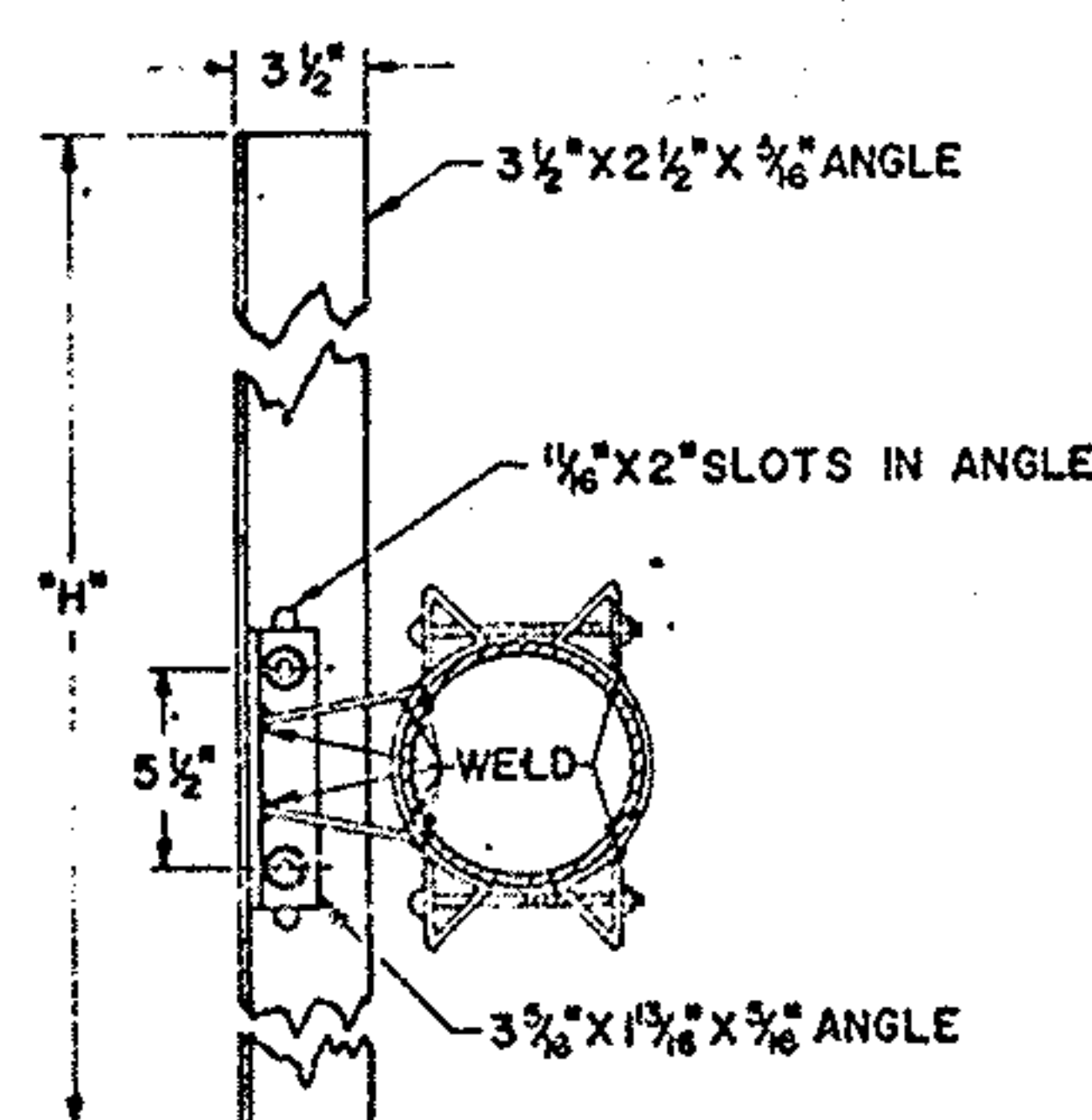
OVERHEAD.	I-129
SIGN SUPPORT	No.912

APPROVED Robert E. Lowe
ENGINEER OF TRAFFIC

DATE
1-19-62
3-30-62

FOR INFORMATION ONLY

OVERHEAD SIGN SUPPORT, I-129 No.9.12



DESIGN NO.	POLE SIZE	PIPE SIZE	DIM C	DIM F	DIM P	DIM S	DIM T	BOLT CIRCLE	ANCHOR BOLT SIZE	MAX SIGN AREA	MAX "L" WITH MAX SIGN AREA	"O" MIN.	REINF. BARS	
													TYPE	NO.
1	7ga, 11" X 7.99 X 21' - 6"	4" SCH. 40 GRADE A	18'	10 3/8"	6 1/2"	15 3/8"	1 1/2"	15"	1/2" X 60"	60	24' - 9"	7' - 0"	*6	8
2	3ga, 13" X 9.99 X 21' - 6"	4" SCH. 80 GRADE A	14'	12 3/4"	7 3/4"	18 1/2"	2"	18"	3/4" X 90"	120	16' - 9"	8' - 6"	*7	12
3	3ga, 13" X 9.99 X 21' - 6"	6" SCH. 40 GRADE A	20'	12 3/4"	7 3/4"	18 1/2"	2"	18"	3/4" X 90"	120	24' - 0"	9' - 0"	*7	12

SUM-76-11.57
SUM-8-0.46

NOTES

GENERAL

MAXIMUM SIGN AREAS AND ARM LENGTHS SHOWN IN TABLE, ARE FOR BALANCED DESIGN ($C_1 = C_2$).
FOR UNBALANCED DESIGN ($C_1 \neq C_2$), THE PRODUCT OF THE ACTUAL SIGN AREA (C_1 H or C_2 H) TIMES 1/2 OF ACTUAL ARM (1/2 C_1 or 1/2 C_2) SHALL BE LESS THAN THE PRODUCT OF 45% OF MAXIMUM SIGN AREA TIMES 1/2 MAX ARM FOR BALANCED DESIGN. (0.45 H $2C_1$ 1/2 C_1 or 0.45 H $2C_2$ 1/2 C_2)

DESIGN

THE DESIGN OF OVERHEAD SUPPORTS SHALL BE IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961.

* FOUNDATION

THE TOP ELEVATION OF FOUNDATIONS SHALL BE VARIED SO AS TO MAINTAIN A MINIMUM CLEARANCE OF 17' BETWEEN THE BOTTOM OF THE SIGN AND THE HIGHWAY CROWN.

SOILS

THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

FINISH

ALL STRUCTURAL PORTIONS OF THE SIGN SUPPORTS, SIGN BRACKETS, HARDWARE AND CONDUIT SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH S.S. I-129.02 (EXCEPT AS OTHERWISE SHOWN).

MATERIALS

ALL MATERIALS TO BE FURNISHED SHALL BE IN ACCORDANCE WITH S.S. I-129.02 WITH THE FOLLOWING ADDITIONS:
TAPERED TUBES SHALL BE STEEL, SAE 1015 AND COLD ROLLED TO OBTAIN A MINIMUM YIELD STRENGTH OF 48,000PSI.
STEEL PIPE: 4" DIAMETER AND UNDER SHALL BE STEEL-ASTM-A120 OVER 4" DIAMETER SHALL BE ASTM-A53, GRADE B.
ANCHOR BOLTS SHALL BE HIGH STRENGTH STEEL ASTM-A107, GRADE C-1035
HIGH STRENGTH CLAMPS SHALL BE STEEL-ASTM-A242

PAYMENT FOR CONDUIT

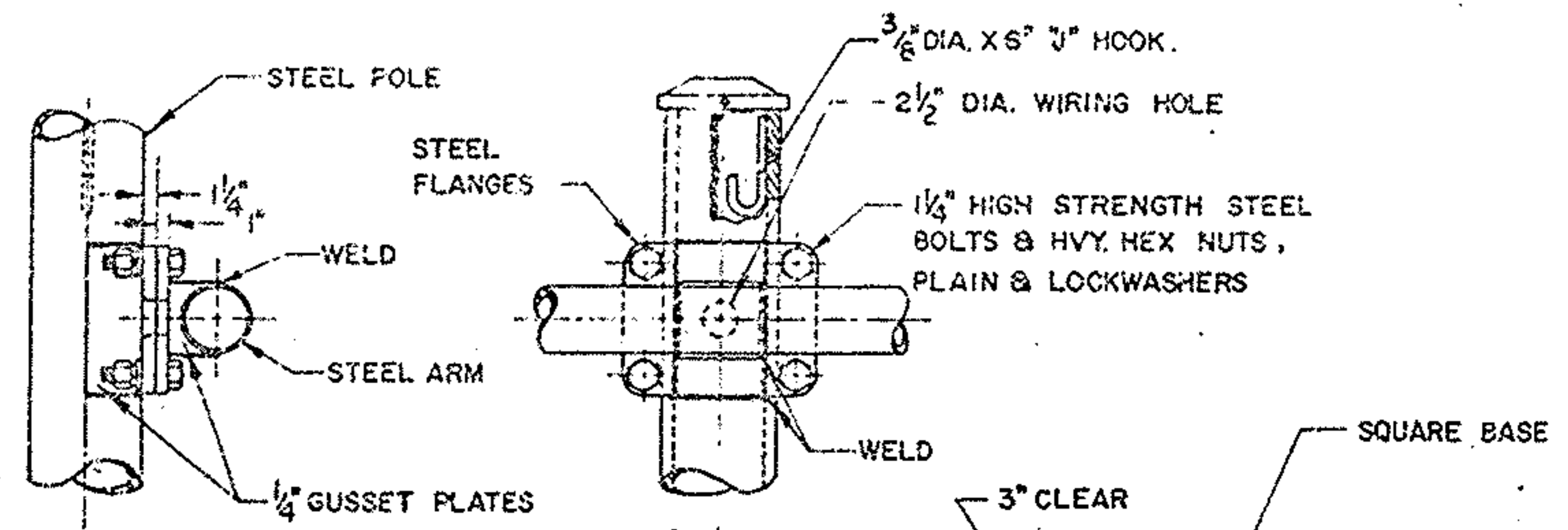
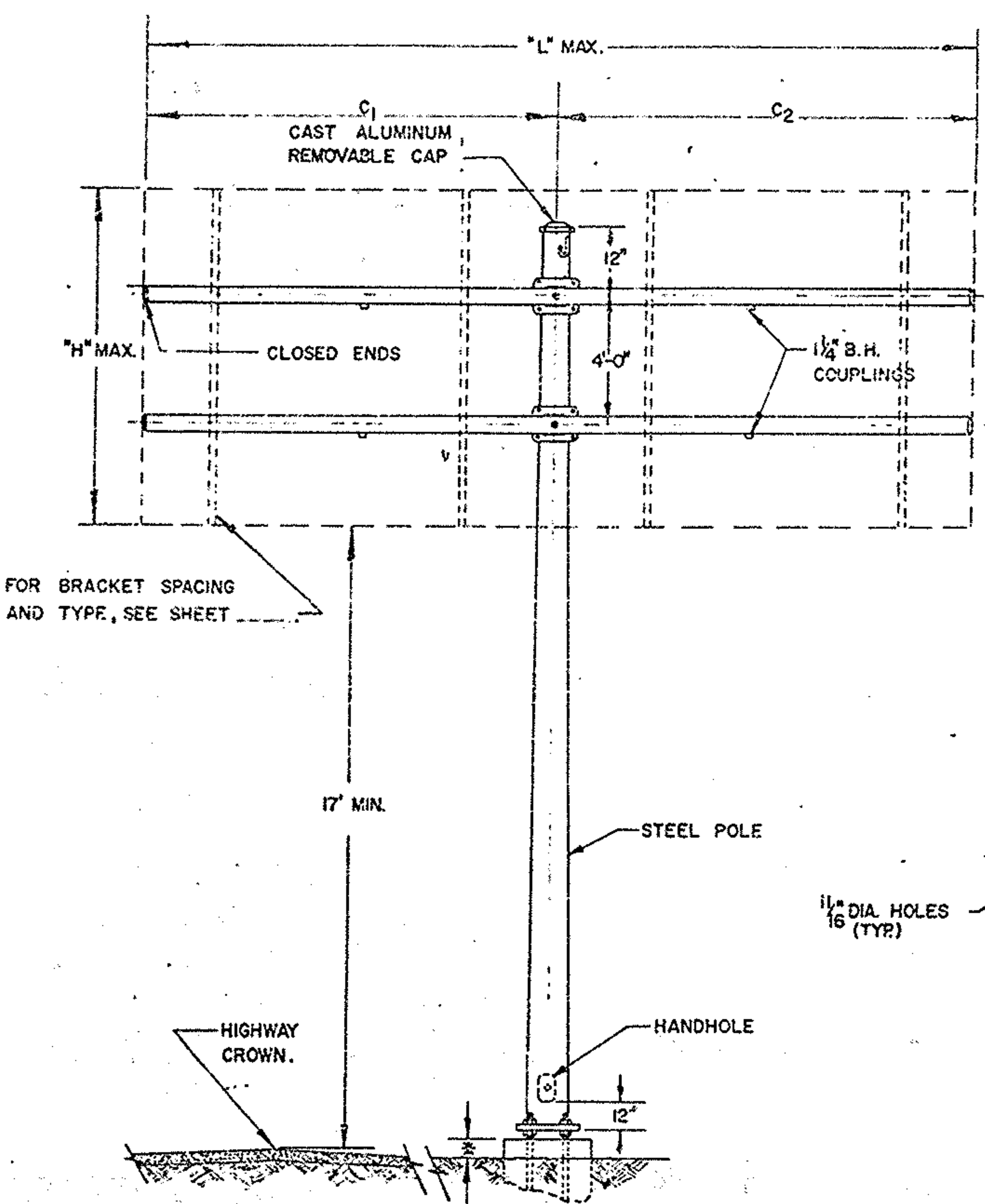
PAYMENT FOR THE GALVANIZED CONDUIT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.

REINFORCING STEEL

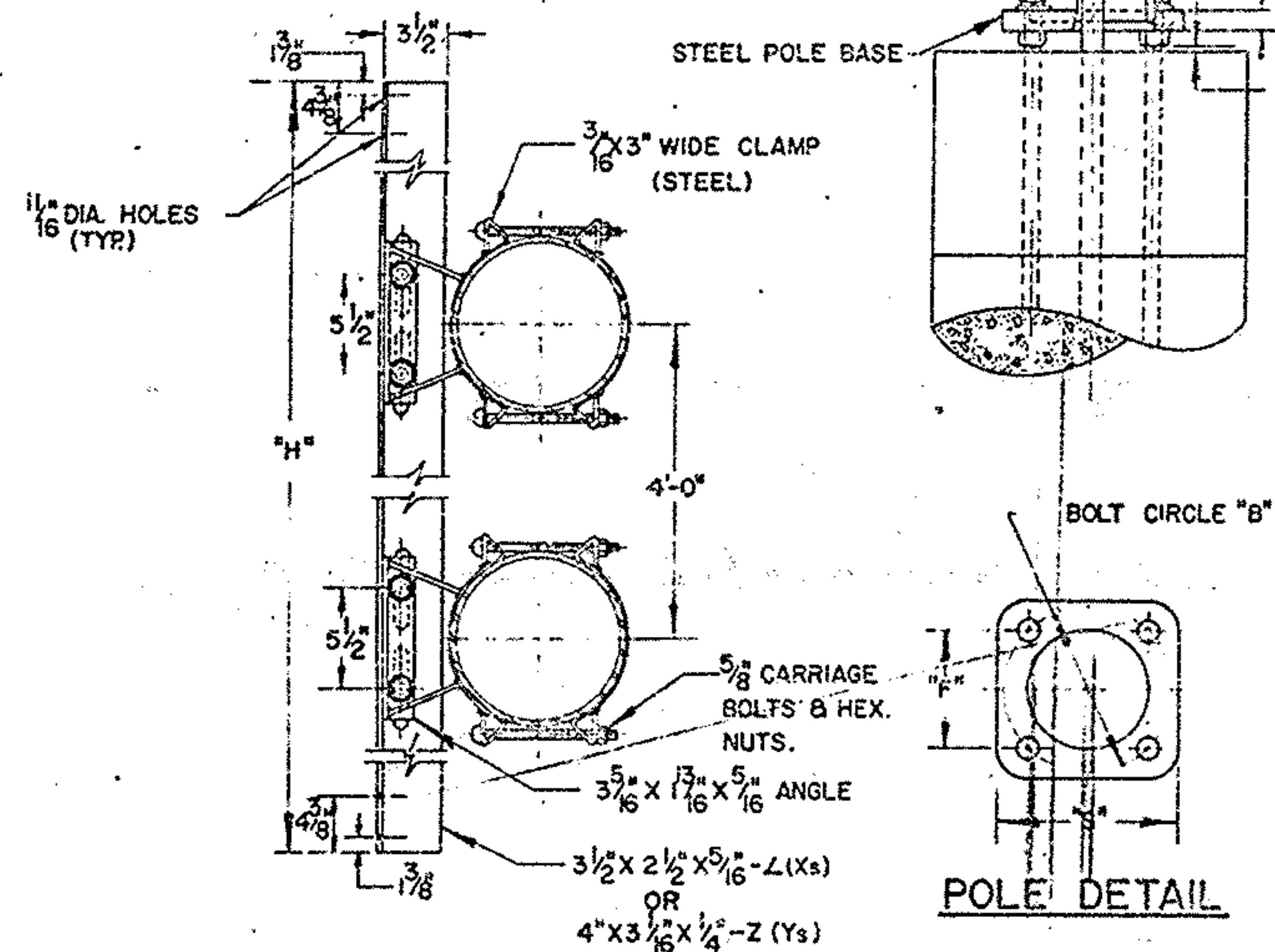
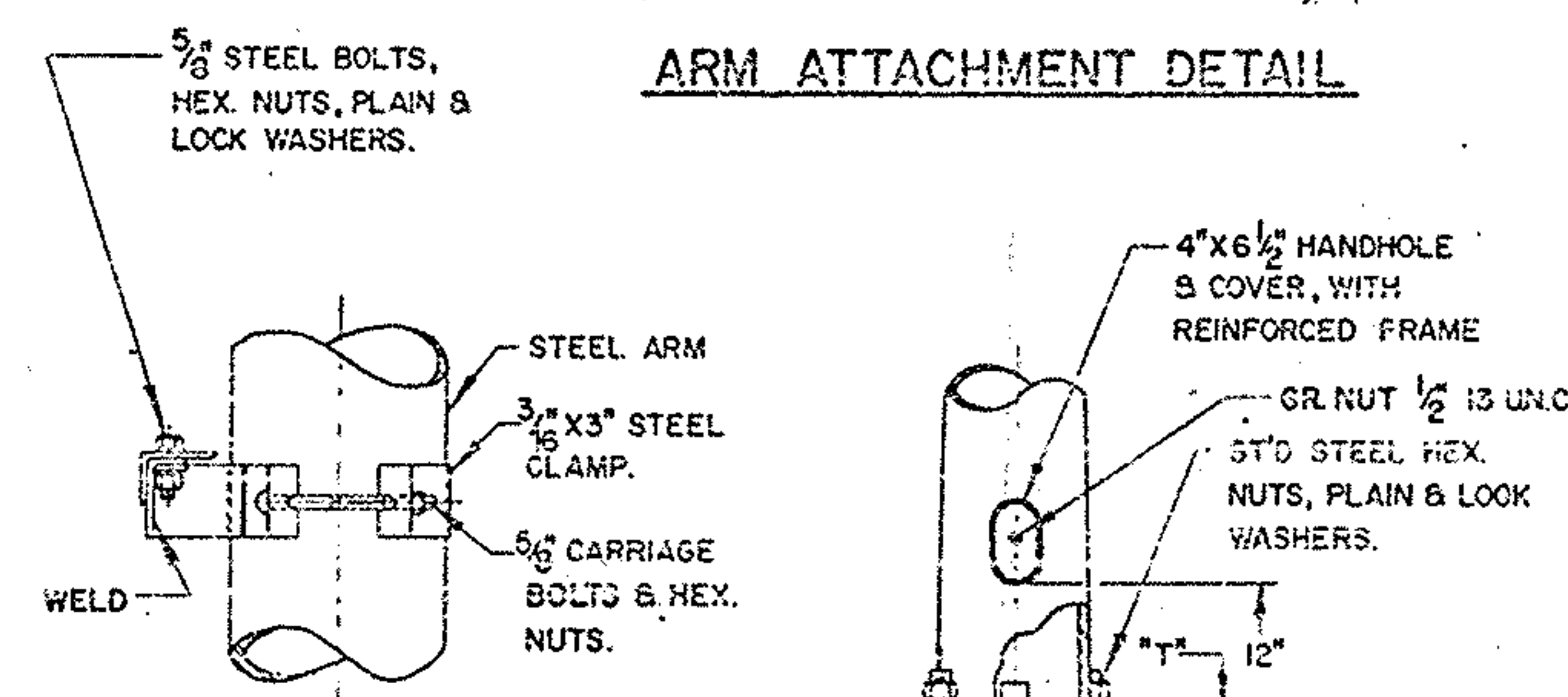
COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM I-129 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.
BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER.

FOR INFORMATION ONLY

BUREAU OF TRAFFIC OHIO DEPARTMENT OF HIGHWAYS	
OVERHEAD SIGN SUPPORT	I-129 No.924
APPROVED _____ ENGINEER OF TRAFFIC	
DATE 6-17-64	



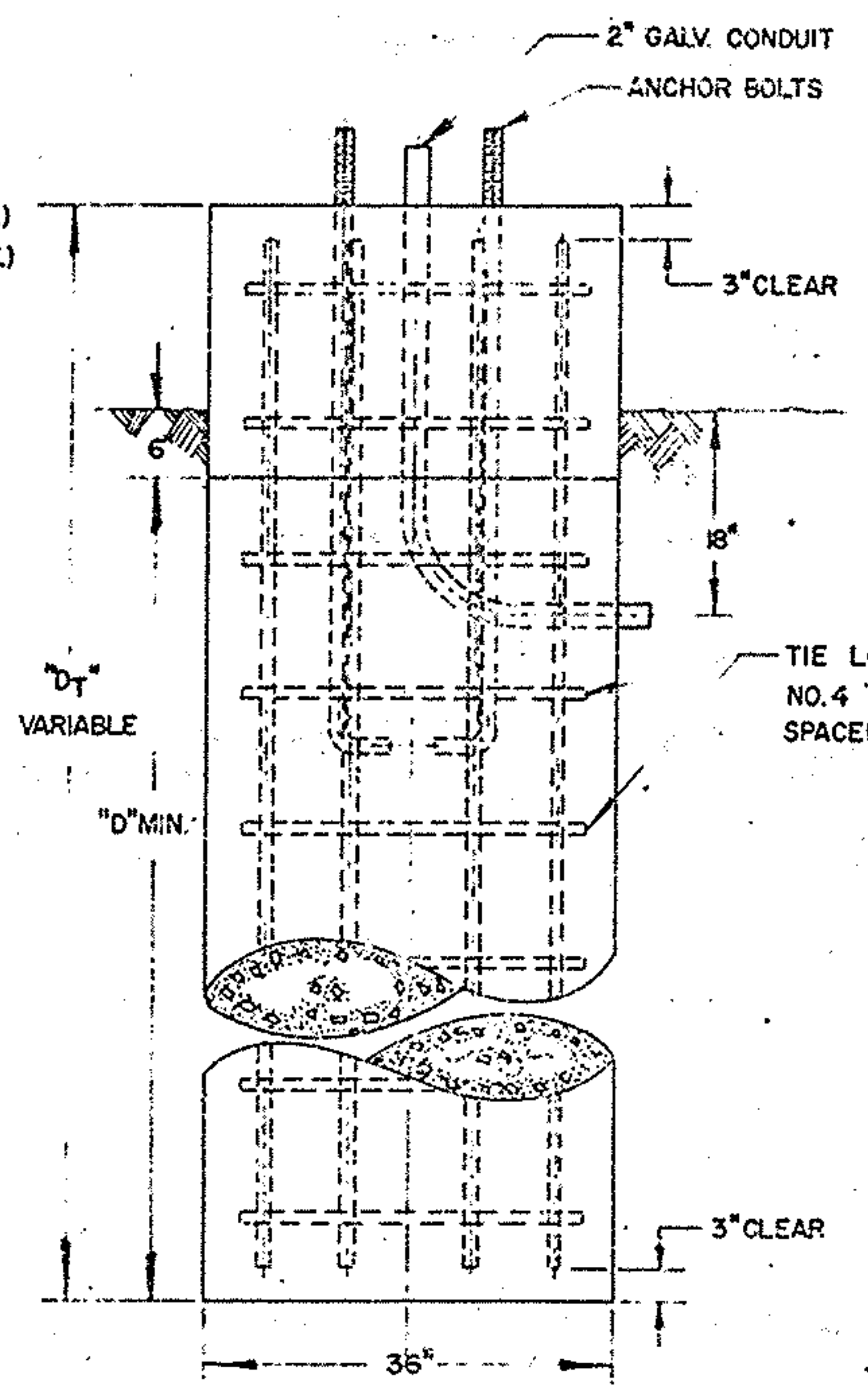
ARM ATTACHMENT DETAIL



SIGN ATTACHMENT DETAIL

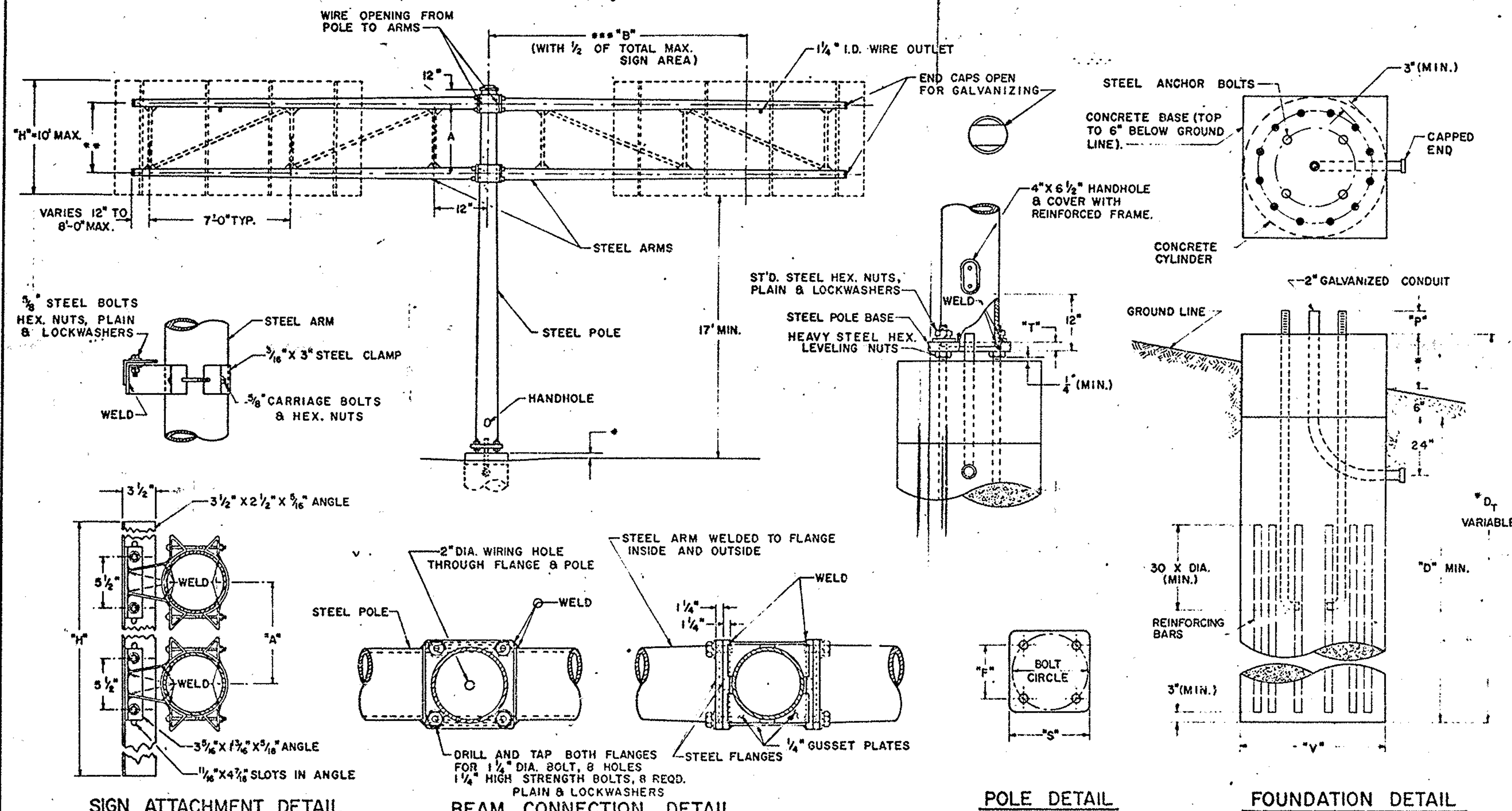
DESIGN	POLE SIZE (STD.)	MAX. ARM SIZE	MAX. SIGN LENGTH "L"	MAX. SIGN AREA	B	F	P	S	T	ANCHOR BOLTS	"D" MIN.
1.	3GA 14"X10.76"X23'	4" SCH.40 12'-0"	24'-0"	120 SQ. FT.	20"	14 1/8"	7"	20 1/2"	2"	3/4" X 90"	9'
2.	3GA 16.5"X13"X25'	4" SCH.40 9'-0"	18'-0"	180 SQ. FT.	23 1/2"	16 5/8"	8"	24 1/2"	2"	2" X 96"	11'
3.	3GA 16.5"X13.28"X25'	6" SCH.40 12'-0"	24'-0"	180 SQ. FT.	23 1/2"	16 5/8"	8"	24 1/2"	2"	2" X 96"	11'
4.	OGA 18"X14.5"X25'	6" SCH.40 12'-0"	24'-0"	240 SQ. FT.	25 1/2"	18"	9"	26 1/2"	2 1/2"	2 1/4" X 96"	13'

MARK	NO.	LEN.	TYPE
402	12	8'-6"	103
801	8	0'-6"	STR.



FOUNDATION DETAIL

SUM-76-11.57
SUM-8-0.46



NOTES

FABRICATION - ALL PORTIONS OF THE SIGN SUPPORT INCLUDING SIGN ATTACHMENTS, SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF A.S.T.M. DESIGNATIONS A-123 AND A-153. THE CONDUIT SHALL BE GALVANIZED IN ACCORDANCE WITH SEC. S-25.08 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS FOR PAYMENT.

FOUNDATION - THE TOP ELEVATION OF ALL FOUNDATIONS SHALL BE BUILT UP 1'-0" ABOVE THE HIGHWAY CROWN.

ERECTION - ARMS OVER 20' IN LENGTH SHALL BE TRUSS TYPE USING 3" X 3" X 1/2" ANGLES WELDED TO GUSSET PLATES WITH THE INSIDE EDGES OF THE ARMS PARALLEL.

VALUES OF "B" MAY BE EXCEEDED PROVIDED THE PRODUCT OF ACTUAL SIGN AREA TIMES THE DISTANCE FROM C OF POLE TO C OF SIGN DOES NOT EXCEED THE PRODUCT OF "B" TIMES 1/2 THE MAX. SIGN AREA.

GENERAL - THE MAX. SIGN AREA ON EACH SIDE OF THE POLE EQUALS 1/2 THE MAX. TOTAL AREA IN THE CHART.

MATERIAL - STEEL POLE BASES, AND FLANGES SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A30 GRADE B. HIGH STRENGTH STEEL BOLTS SHALL CONFORM TO ASTM SPECIFICATION A193 GRADE B7. AFTER FABRICATION TAPERED POLES AND ARMS SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

SOILS - THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

REINFORCING STEEL - REINFORCING STEEL AS SHOWN IN TABLE SHALL BE INSTALLED WHEN "D" EXCEEDS THE ANCHOR BOLT LENGTH BY MORE THAN 3 FT. THE COST AND PLACEMENT OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR I-129 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.

DESIGN
THE DESIGN OF OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961.

DESIGN NO.	POLE SIZE	* * ARM SIZE	DIM. A	DIM. ***B	DIM. "D" MIN.	DIM. F	DIM. P	DIM. S	DIM. T	BOLT CIRCLE	ANCHOR BOLT SIZE	DIM. V	MAX SIGN AREA	REINF. BARS	
														SIZE	NO.
1	3ga. 18"x14.64"x 24'-0"	7ga., 5.7"x4.02"x 12'-0"	4'	8'	9'	18"	8 3/8"	26 1/2"	2"	25 1/2"	2"x 96"	3'-0"	160	3/4"	12
2	3ga. 18"x14.64"x 24'-0"	7ga., 6.9"x4.66"x 16'-0"	4'	12'	9'	18"	8 3/8"	26 1/2"	2"	25 1/2"	2"x 96"	3'-0"	160	3/4"	12
3	0ga., 18"x14.64"x 24'-0"	7ga., 7.5"x 5.82"x 12'-0"	4'	8'	11'	18"	9 3/8"	26 1/2"	2 1/2"	25 1/2"	2 1/4"x108"	3'-0"	240	1"	12
4	0ga., 18"x14.64"x 24'-0"	7ga., 8.3"x 6.06"x 16'-0"	4'	12'	11'	18"	9 3/8"	26 1/2"	2 1/2"	25 1/2"	2 1/4"x108"	3'-0"	240	1"	12
5	0ga., 18"x14.64"x 24'-0"	7ga., 10"x 7.2 "x 20'-0"	4'	16'	11'	18"	9 3/8"	26 1/2"	2 1/2"	25 1/2"	2 1/4"x108"	3'-0"	220	1"	12
6	2ply 3ga., 18"x14.5"x 25'-0"	7ga., 10"x 7.48"x 18'-0"	6'	10'	14'	18"	11 1/4"	26 1/2"	3"	25 1/2"	3"x 144"	3'-0"	360	1 1/8"	12
7	2ply 3ga., 18"x14.5"x 25'-0"	7ga., 11"x 7.92"x 22'-0"	6'	14'	14'	18"	11 1/4"	26 1/2"	3"	25 1/2"	3"x 144"	3'-0"	360	1 1/8"	12
8	2ply 0ga., 18"x14.5"x 25'-0"	7ga., 12.5"x9.14"x 24'-0"	6'	14'	17'	18"	11 1/2"	26 1/2"	3"	25 1/2"	3"x 168"	3'-0"	480	1 1/2"	12
9	2ply 0ga., 18"x14.5"x 25'-0"	3ga., 12.5"x8.58"x 28'-0"	6'	18'	17'	18"	11 1/2"	26 1/2"	3"	25 1/2"	3"x 168"	3'-0"	480	1 1/2"	12

FOR INFORMATION ONLY

BUREAU OF TRAFFIC OHIO DEPARTMENT OF HIGHWAYS		DATE 11-2-61 1-18-62 3-30-62 4-18-62
OVERHEAD SIGN SUPPORT		I-129 No. 10.48
APPROVED <i>[Signature]</i> ENGINEER OF TRAFFIC		

SUM-76-11.57
SUM-8-0.46

NOTES

FABRICATION-ALL PORTIONS OF THE SIGN SUPPORT, INCLUDING SIGN ATTACHMENTS, SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF A.S.T.M. DESIGNATIONS A-123 AND A-153. THE CONDUIT SHALL BE GALVANIZED IN ACCORDANCE WITH SEC. S-25.08 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS FOR PAYMENT.

* **FOUNDATION**-THE TOP ELEVATION OF FOUNDATIONS SHALL BE VARIED SO AS TO MAINTAIN A MINIMUM CLEARANCE OF 17' BETWEEN THE BOTTOM OF THE SIGN AND THE HIGHWAY CROWN.

* **ERECTION**-VALUES OF "B" MAY BE EXCEEDED PROVIDED THE PRODUCT OF ACTUAL SIGN AREA TIMES THE DISTANCE FROM C. OF POLE TO C. OF SIGN DOES NOT EXCEED THE MAX. SIGN AREA TIMES "B".

*** ARMS 20' LONG OR LONGER ARE TO BE TRUSS TYPE WITH 3"x3"x $\frac{5}{8}$ " ANGLES WELDED TO GUSSET PLATES.

MATERIAL-STEEL POLE BASES, FLANGES, AND END CAPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 30, GRADE B. HIGH STRENGTH STEEL BOLTS SHALL CONFORM TO ASTM SPECIFICATION A 193, GRADE B7. AFTER FABRICATION TAPERED POLES AND ARMS SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

SOILS-THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" AND RATIO 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

REINFORCING STEEL-REINFORCING STEEL AS SHOWN IN TABLE SHALL BE INSTALLED WHEN "D" EXCEEDS THE ANCHOR BOLT LENGTH BY MORE THAN 3 FT. THE COST AND PLACEMENT OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM I-129 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.

DESIGN

THE DESIGN OF OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1981.

FOR INFORMATION ONLY

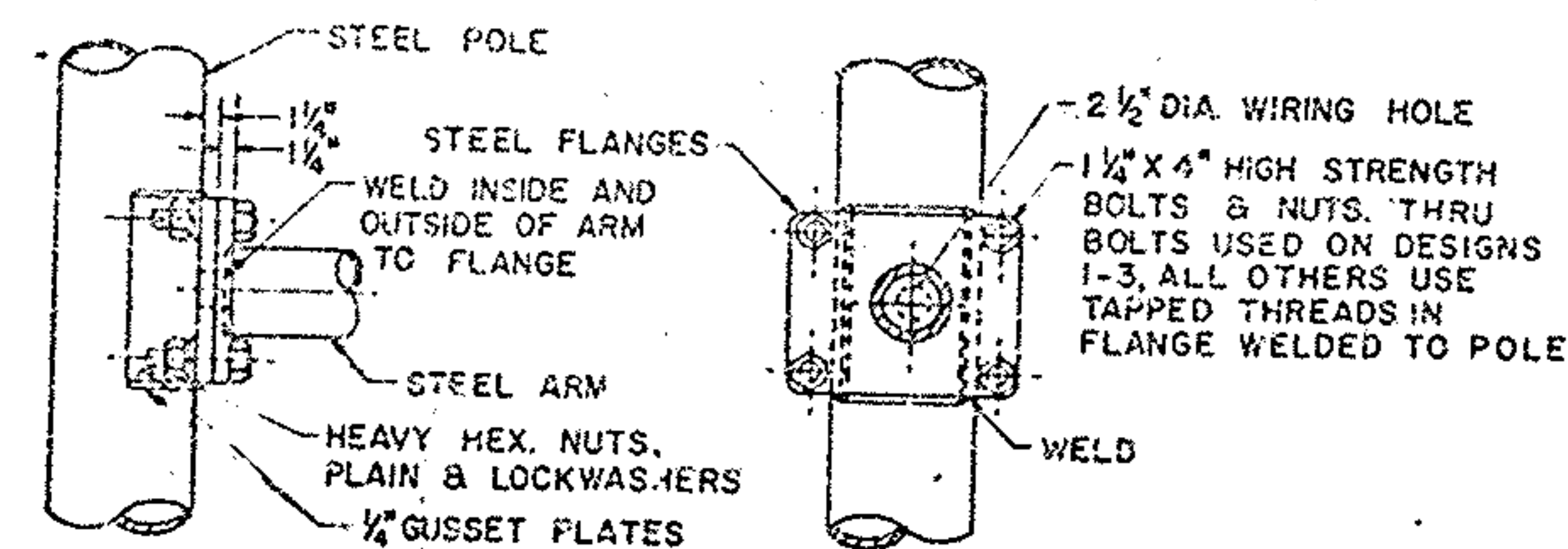
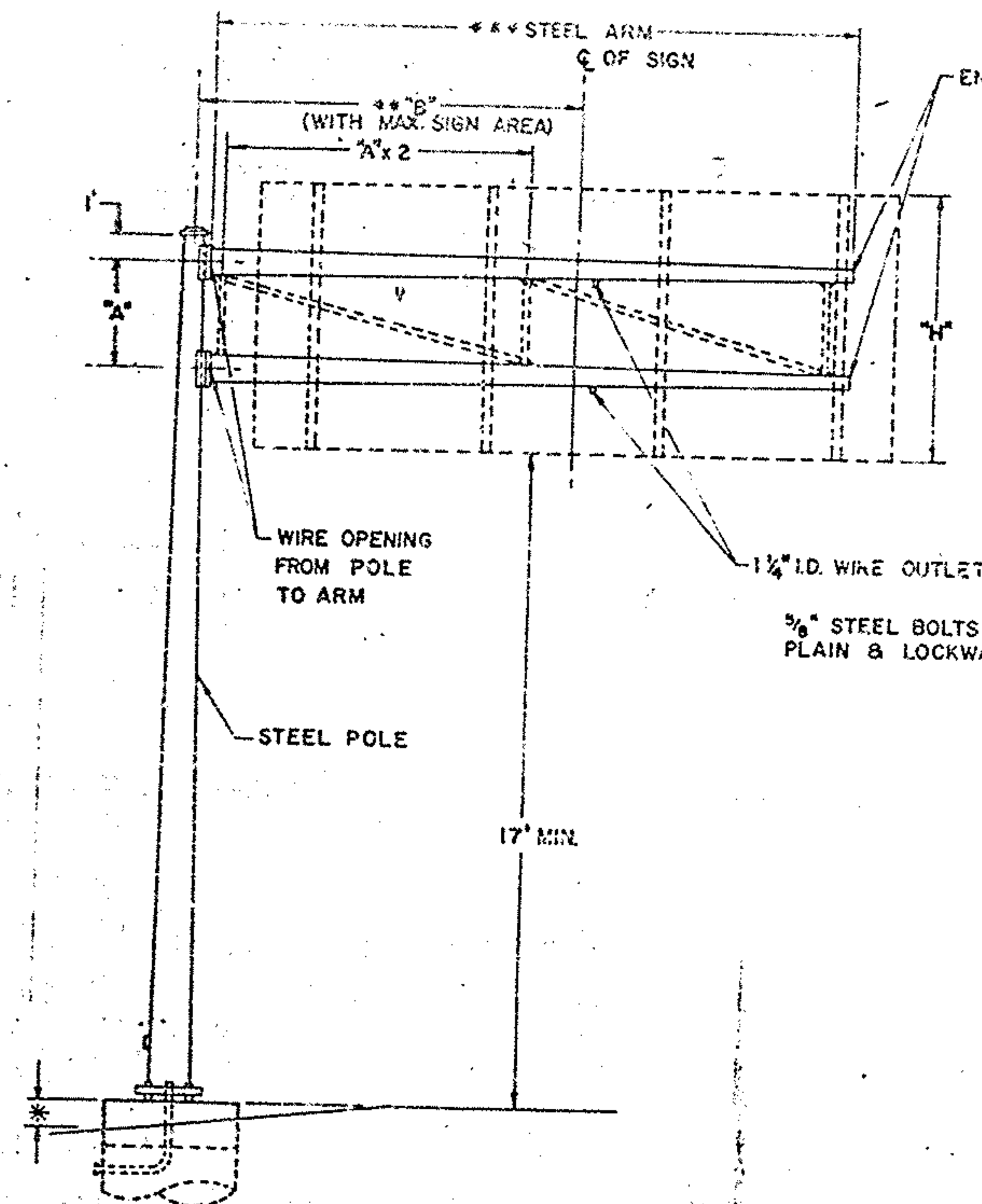
BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

OVERHEAD
SIGN SUPPORT

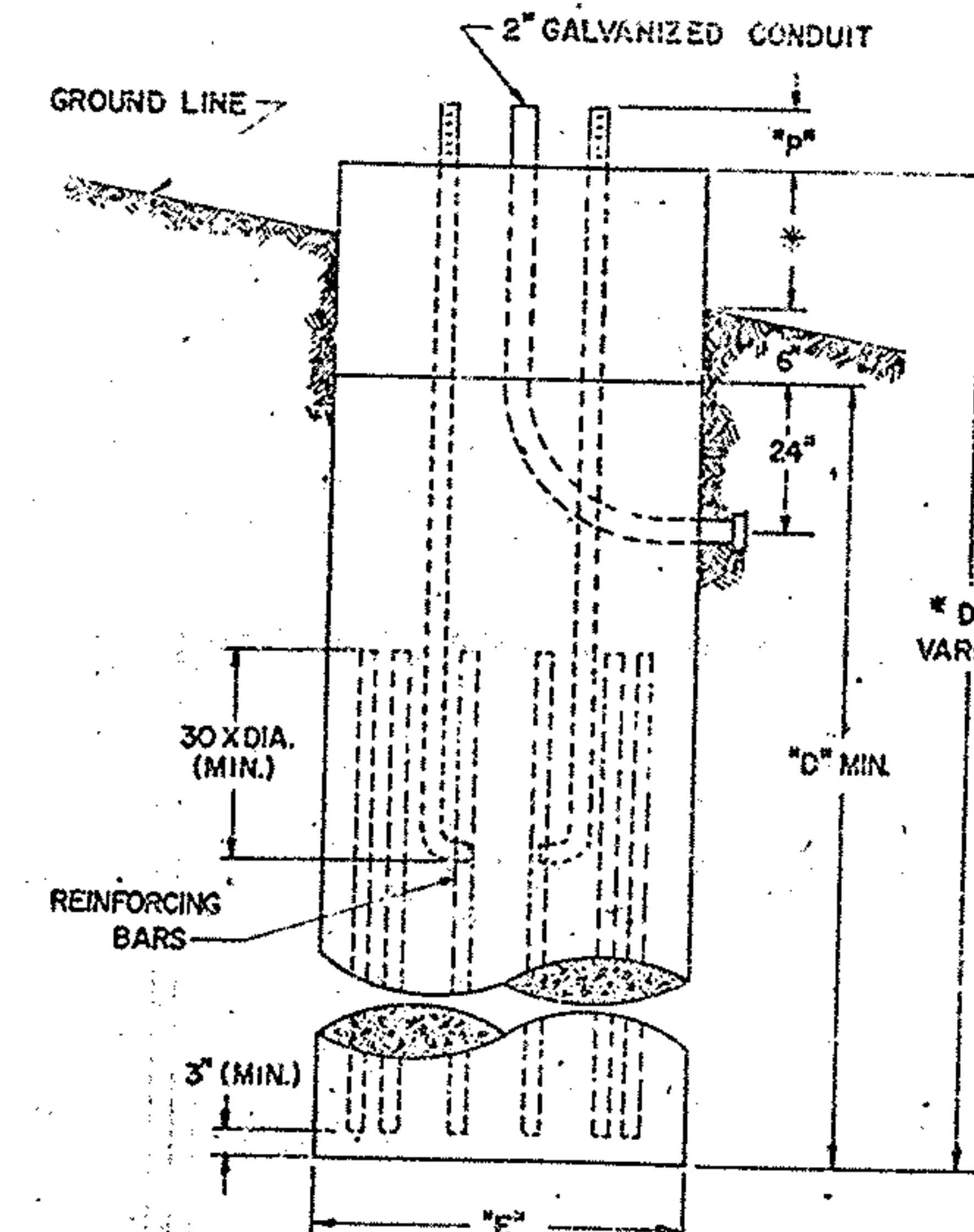
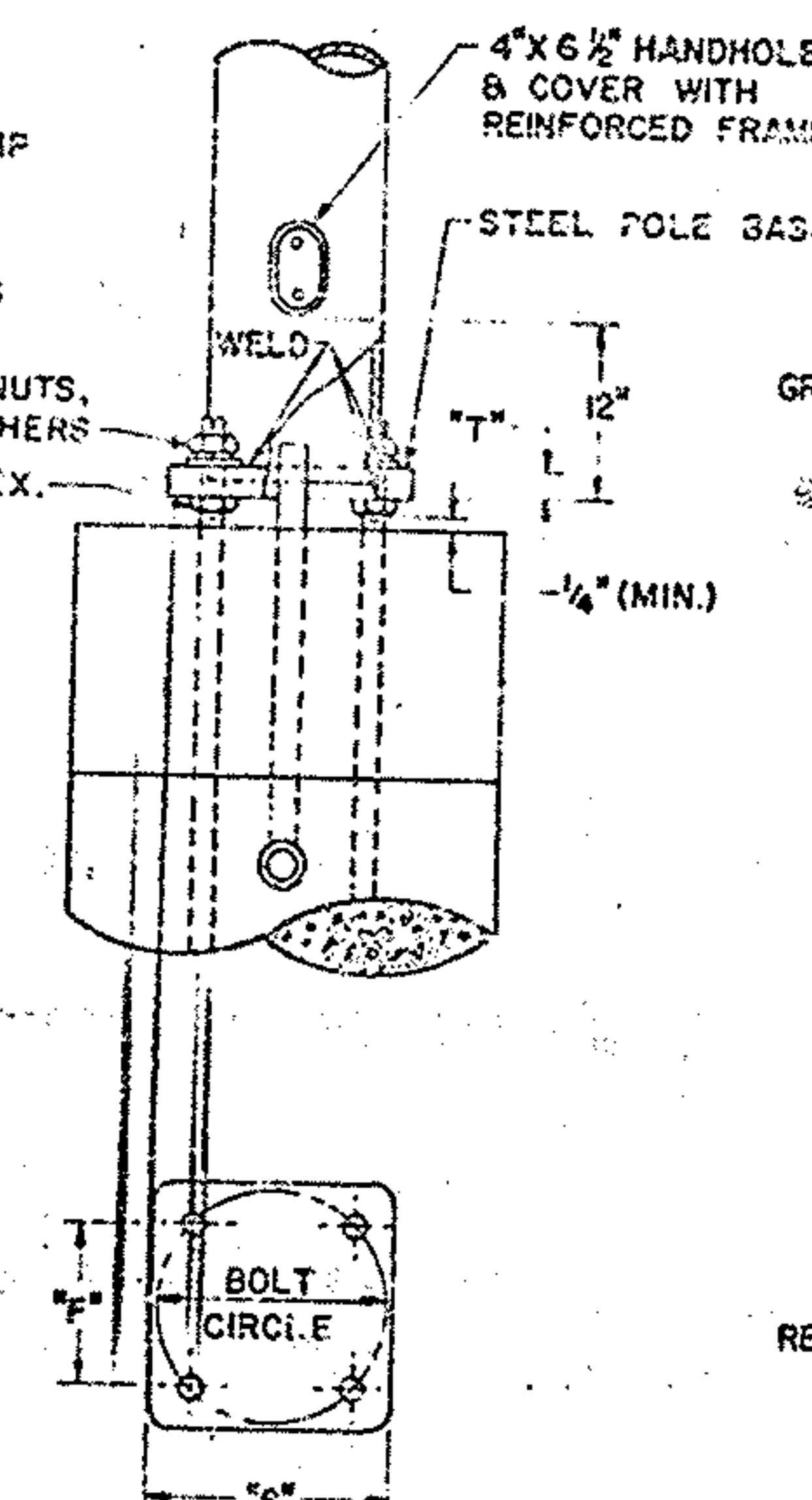
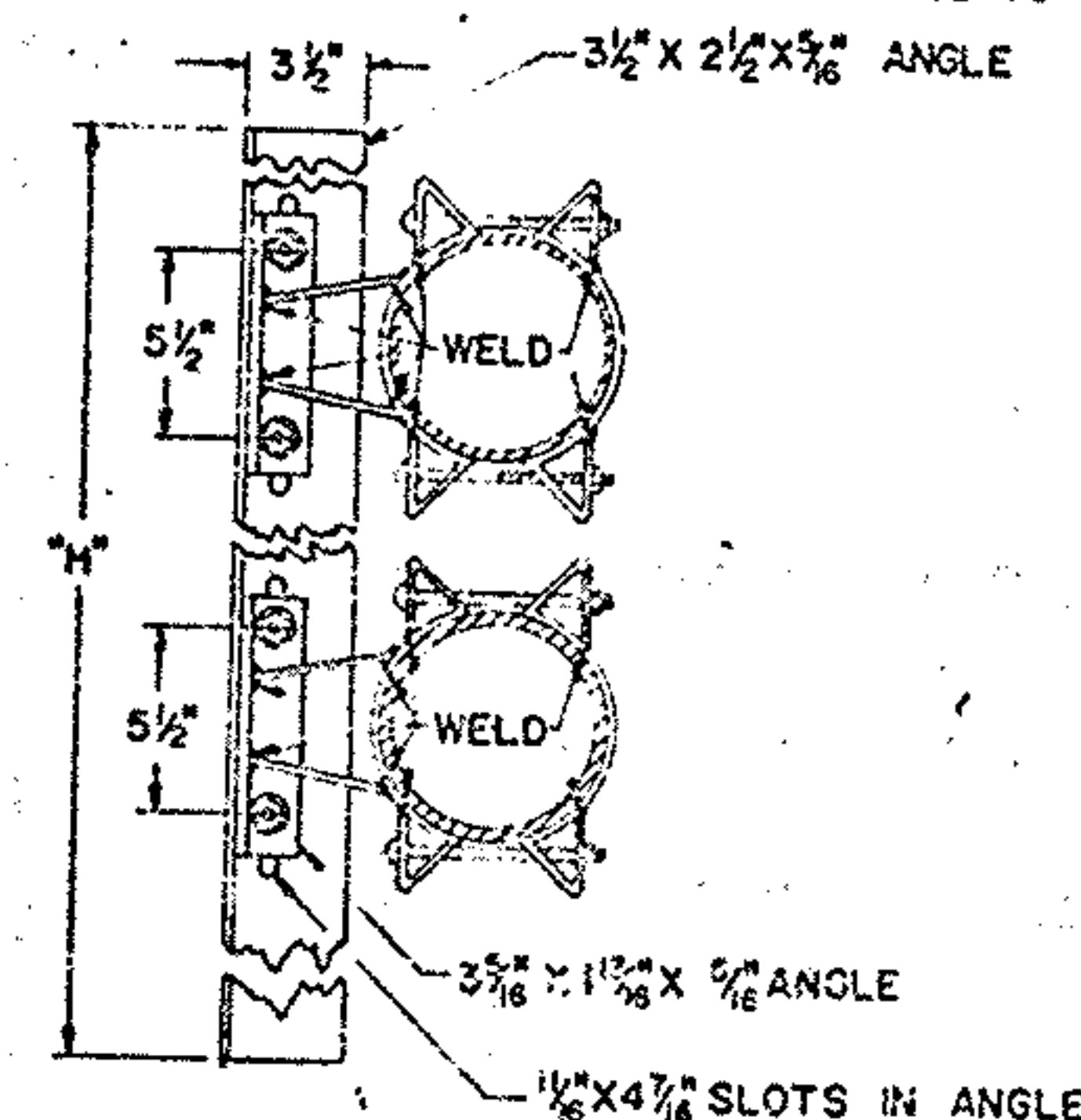
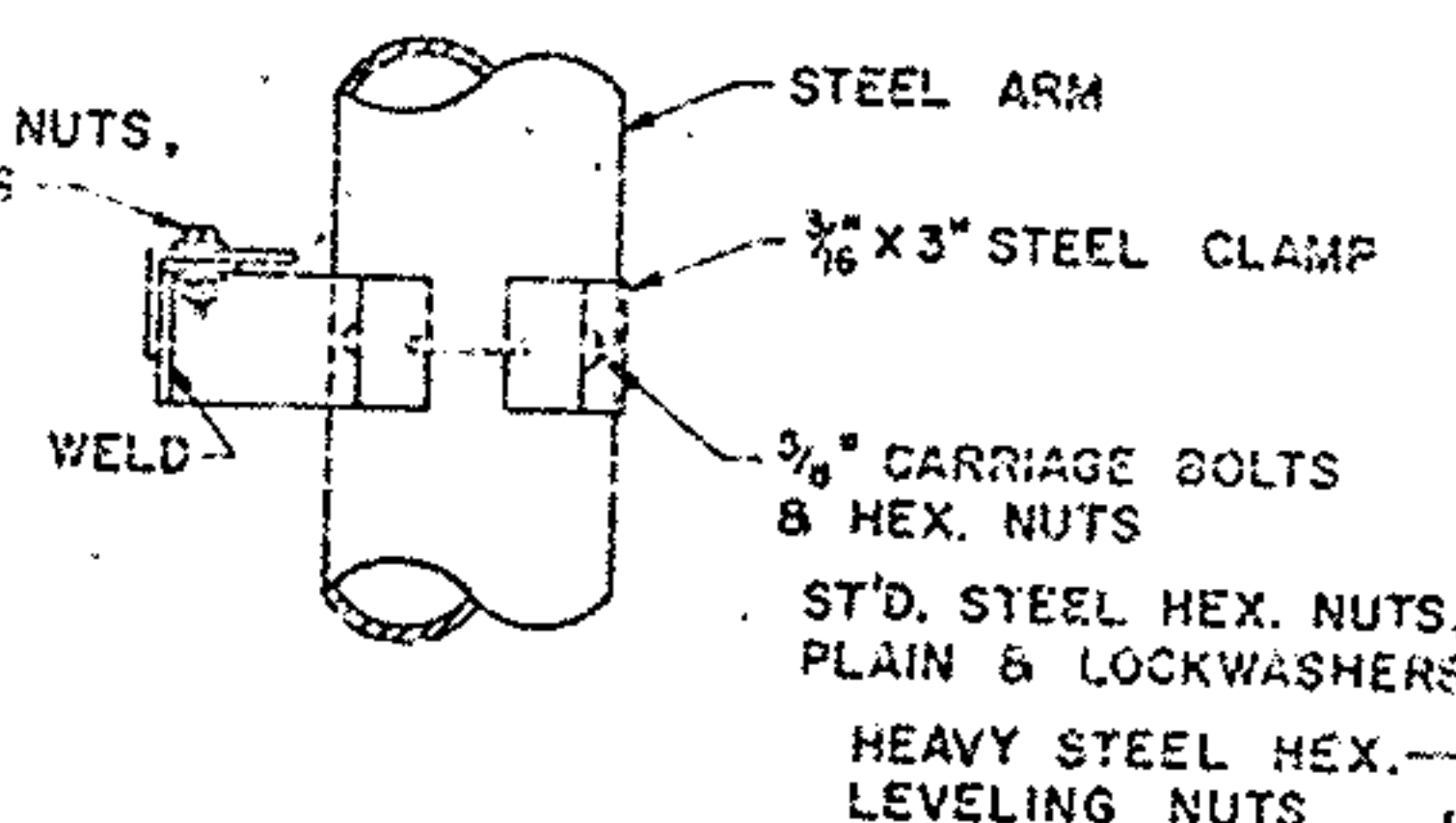
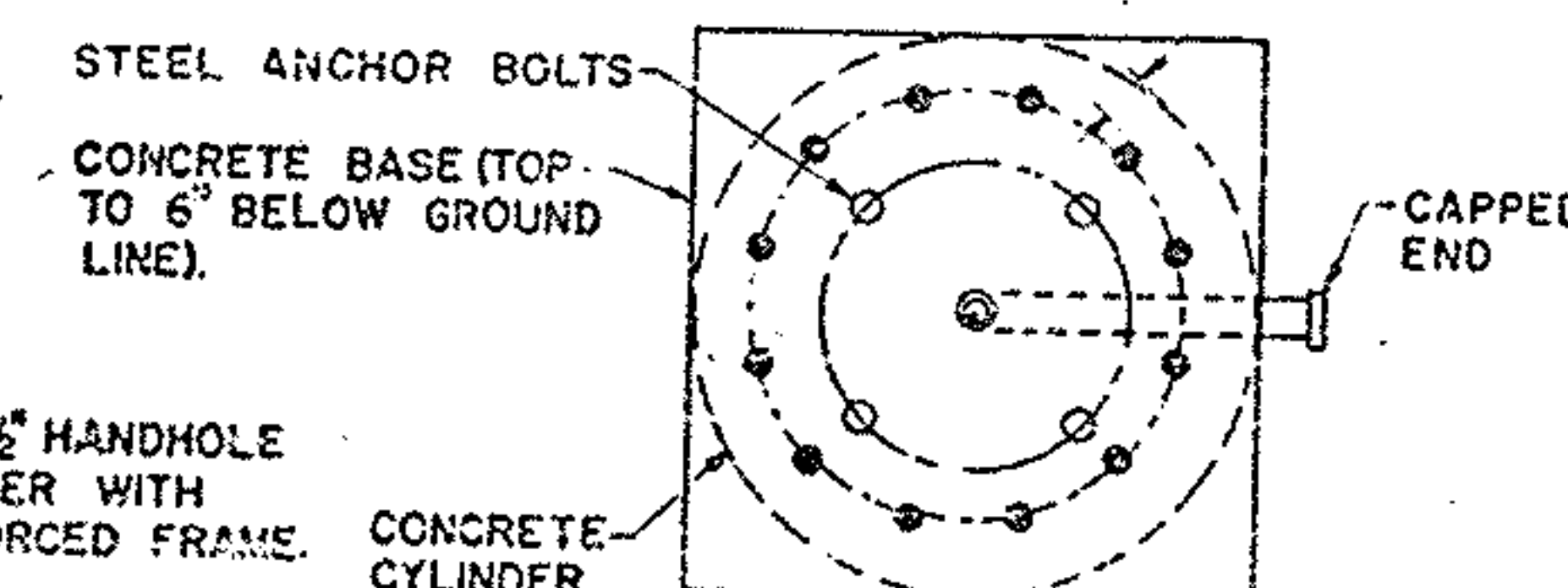
I-129
No. 12.24

APPROVED *Robert E. Linder*
ENGINEER OF TRAFFIC

OVERHEAD SIGN SUPPORT I-129



ARM ATTACHMENT

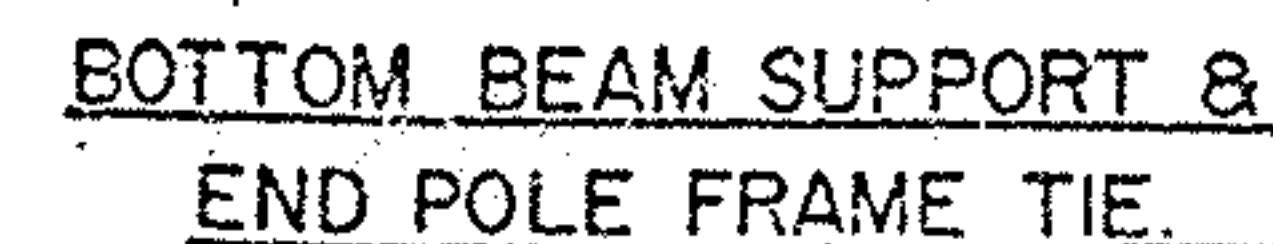
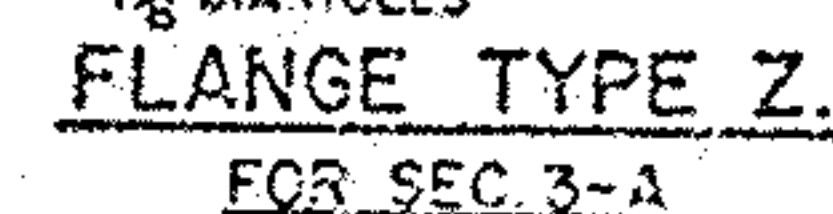
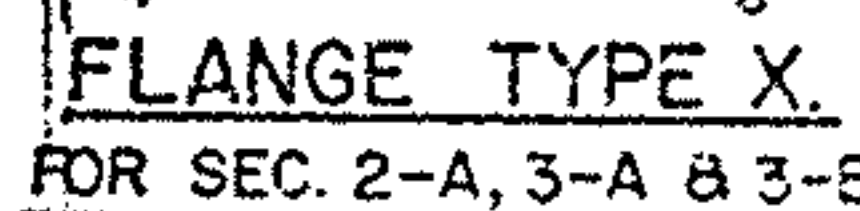
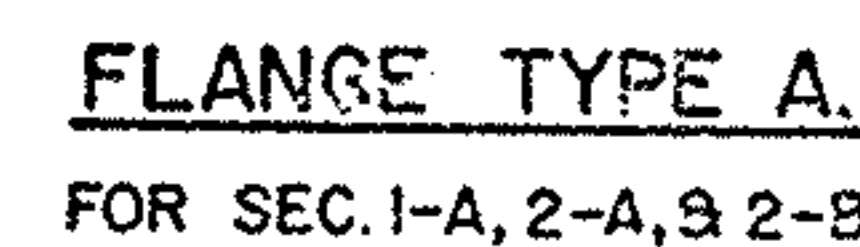


SIGN ATTACHMENT DETAIL

POLE DETAIL

DESIGN NO.	POLE SIZE	*** ARM SIZE	DIM A	DIM **B	DIM "D" MIN.	DIM E	DIM F	DIM P	DIM -S	DIM T	BOLT CIRCLE	ANCHOR BOLT SIZE	MAX SIGN AREA	REIN. BARS SIZE	NO.
1	3 Ga, 12" X 8.78" X 23'-0"	7 Ga, 6.9" X 4.66" X 16'-0"	4'	12'	9'	3'-0"	11 1/8"	7 3/4"	17"	2"	16"	1 3/4" X 90"	80	3/4"	12
2	3 Ga, 12" X 8.78" X 23'-0"	7 Ga, 8" X 5.2" X 20'-0"	4'	16'	9'	3'-0"	11 5/8"	7 3/4"	17"	2"	16"	1 3/4" X 90"	80	3/4"	12
3	3 Ga, 15" X 11.5" X 25'-0"	7 Ga, 8.3" X 6.06" X 16'-0"	4'	12'	11'	3'-0"	15 1/2"	8 3/8"	23"	2"	22"	2" X 96"	120	1"	12
4	3 Ga, 16" X 12.5" X 25'-0"	3 Ga, 9.2" X 6.40" X 20'-0"	4'	16'	11'	3'-0"	16 5/8"	8 3/8"	24 1/2"	2"	23 1/2"	2" X 96"	120	1"	12
5	0 Ga, 18" X 14.36" X 26'-0"	7 Ga, 11" X 7.92" X 22'-0"	6'	14'	13'	3'-0"	13"	9 3/8"	26 1/2"	2 1/2"	25 1/2"	2 1/4" X 120"	180	1 1/8"	12
6	0 Ga, 18" X 14.36" X 26'-0"	7 Ga, 12.5" X 8.66" X 26'-0"	6'	18'	13'	3'-0"	18"	9 3/8"	26 1/2"	2 1/2"	25 1/2"	2 1/4" X 120"	180	1 1/8"	12
7	2 PLY 7 Ga, 18" X 14.36" X 26'-0"	7 Ga, 12.3" X 9.14" X 24'-0"	6'	14'	15'	3'-0"	18"	9 3/4"	26 1/2"	2 1/2"	25 1/2"	2 1/4" X 144"	240	1 1/2"	12
8	2 PLY 1/2, 18" X 14.36" X 26'-0"	3 Ga, 12.5" X 8.53" X 25'-0"	6'	18'	15'	3'-0"	18"	11 1/4"	26 1/2"	3"	25 1/2"	3" X 144"	240	1 1/2"	12

SUM-76-11.57
SUM-8-0.46



BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

OVERHEAD	I-129
SIGN SUPPORT	15.8

APPROVED _____
ENGINEER OF TRAFFIC

OVERHEAD SIGN SUPPORT I-129 NO. 158

SUM-76-11.57
SUM-8-0.46

SUPPORT						ACTUAL SIGN AREA	SIGN AREA SPREAD	ALLOWABLE DESIGN SIGN AREA	ACTUAL MAX. SIGN HEIGHT	END SECTION				INTERNAL SECTION				CENTER SECTION				END OVER- HANG	LEFT END FRAME				RIGHT END FRAME			
NO.	STATION	LOCATION	TYPE	DESIGN	SPAN					NO.	GA.	SIZE	LENGTH	NO.	GA.	SIZE	LENGTH	NO.	GA.	SIZE	LENGTH		NO.	GA.	SIZE	LENGTH	NO.	GA.	SIZE	LENGTH
53	632+50 N.B.	I.R. 805	15.8	3	78'	611 SQ. FT.	±69'	800 SQ. FT.	12.0'	2	3	5.38" X 4.18"	17'-2"	2	3	6.96" X 5.38"	22'-6"	-	-	-	-	8"	1	3	8.85" X 6.89"	28'-0"	1	3	8.85" X 7.03"	26'-0"
50	420+85	I.R. 805	15.8	3	81'	574 SQ. FT.	±60'	800 SQ. FT.	12.5'	2	3	5.38" X 4.08"	18'-8"	2	3	6.96" X 5.38"	22'-6"	-	-	-	-	8"	1	3	8.85" X 7.03"	26'-0"	1	3	8.85" X 7.03"	26'-0"
44	534+50	I.R. 805	15.8	4	103'	643 SQ. FT.	±94.5'	800 SQ. FT.	10'	2	3	5.38" X 3.98"	20'-0"	2	3	6.96" X 5.38"	22'-6"	2	3	7.66" X 6.96"	10'-0"	1'-0"	1	3	8.85" X 6.89"	26'-0"	1	3	8.85" X 7.03"	26'-0"
42	585+25	I.R. 77	15.8	5	123'	500 SQ. FT.	±107'	800 SQ. FT.	9'	2	3	5.38" X 4.18"	17'-2"	2	3	6.96" X 5.38"	22'-6"	2	3	8.53" X 6.96"	22'-0"	8"	1	3	8.85" X 7.03"	26'-0"	1	3	8.85" X 6.89"	28'-0"

NOTES

DESIGN

THE DESIGN OF OVERHEAD SUPPORTS SHALL BE IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 13, 1961.

FOUNDATION

THE TOP ELEVATION OF FOUNDATIONS SHALL BE VARIED SO AS TO MAINTAIN A MINIMUM CLEARANCE OF 17' BETWEEN THE BOTTOM OF THE SIGN AND THE HIGHWAY CROWN.

SOILS

THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

FINISH

ALL STRUCTURAL PORTIONS OF THE SIGN SUPPORTS, SIGN BRACKETS, HARDWARE AND CONDUIT SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH S.S. I-129.02 (EXCEPT AS OTHERWISE SHOWN).

MATERIALS

ALL MATERIALS TO BE FURNISHED SHALL BE IN ACCORDANCE WITH S.S. I-129.02 WITH THE FOLLOWING ADDITIONS:
TAPERED TUBES SHALL BE STEEL, SAE 1015 AND COLD ROLLED TO OBTAIN A MINIMUM YIELD STRENGTH OF 48,000 PSI.
STEEL PIPE: 4" DIAMETER AND UNDER SHALL BE STEEL-ASTM-A100. OVER 4" DIAMETER SHALL BE ASTM-A53, GRADE B.
ANCHOR BOLTS SHALL BE HIGH STRENGTH STEEL-ASTM-A107, GRADE C-1035.
HIGH STRENGTH CLAMPS SHALL BE STEEL ASTM-A242.

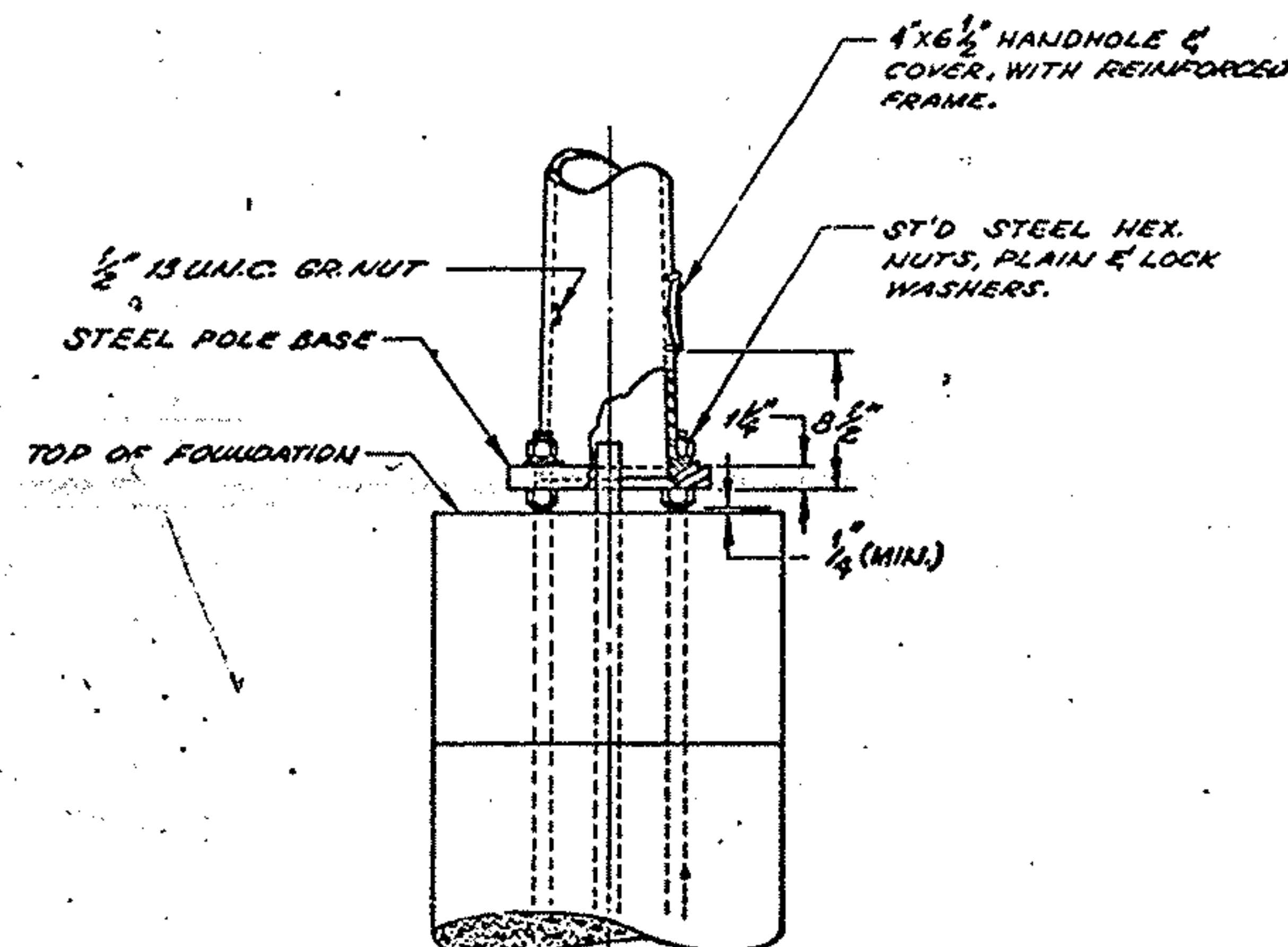
REINFORCING STEEL

COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM I-129 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER.

PAYMENT FOR CONDUIT

PAYMENT FOR THE GALVANIZED CONDUIT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.



REINFORCEMENT SCHEDULE			
MARK	NO.	LENGTH	TYPE
401	12" 9/16"	8'-6"	102
402	12" 5/8"	7'-6"	103
601	4	D+4'-0"	101
602	8	D+8'-0"	101
603	32	D+6"	STR.

FOR INFORMATION ONLY

GENERAL NOTES - LIGHTING

AKRON EXPRESSWAY
SUM-76-1157
SUM-8-046

SPECIFICATIONS

THESE NOTES ARE SUPPLEMENTAL TO ITEMS 625 AND 713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

REFERENCE SHALL BE MADE TO STANDARD CONSTRUCTION DRAWINGS LISTED ON THE TITLE SHEET OF THESE PLANS.

PLAN SPECIFICATION REFERENCES

REFERENCES TO ITEM 625 AND 713 IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 625 AND 713.

625.03 GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:
OHIO EDISON CO.
47 N. MAIN ST.
AKRON, OHIO 44308

THE PROJECT HAS BEEN DESIGNED ON THE BASIS OF 5% VOLTAGE DROP PERMISSIBLE ON BRANCH CIRCUITS, THE PROJECT WILL RECEIVE 480 VOLT TWO-WIRE SECONDARY SERVICE ONE SIDE GROUNDING FROM OHIO EDISON CO.

THE PROJECT HAS BEEN DESIGNED ON THE BASIS OF FULL LIGHTING WITH 1.2 FOOTCANDLES AVERAGE INITIAL, WITH A MAXIMUM UNIFORMITY RATIO OF 4.0 TO 1 FOR CONVENTIONAL UNITS AND 3.0 TO 1 FOR TOWERS.

625.07-713.11 LUMINAIRES

STYLE B LUMINAIRES, FOR USE WITH 200 WATT HIGH PRESSURE SODIUM LAMPS, SHALL HAVE SINGLE RATED 480 VOLT, 200 WATT INTEGRAL REGULATOR TYPE BALLAST. STYLE B LUMINAIRE SHALL BE GENERAL ELECTRIC M-400, WESTINGHOUSE OV-25-TUDOR, I.T.T. AMERICAN-400, OR EQUAL APPROVED BY ENGINEER.

STYLE C LUMINAIRES, FOR USE WITH 310 WATT HIGH PRESSURE SODIUM LAMPS, SHALL HAVE SINGLE RATED 480 VOLT, 310 WATT INTEGRAL REGULATOR TYPE BALLASTS. STYLE C LUMINAIRES SHALL BE GENERAL ELECTRIC M-1000, WESTINGHOUSE OV-50, I.T.T. AMERICAN 1000, OR EQUAL APPROVED BY ENGINEER.

STYLE C LUMINAIRES, FOR USE WITH 400 WATT HIGH PRESSURE SODIUM LAMPS, SHALL HAVE SINGLE RATED 480 VOLT, 400 WATT INTEGRAL REGULATOR TYPE BALLASTS. STYLE C LUMINAIRES SHALL BE GENERAL ELECTRIC M-1000, WESTINGHOUSE OV-50, I.T.T. AMERICAN 1000, OR EQUAL APPROVED BY ENGINEER.

STYLE B LUMINAIRES, FOR USE WITH 150 WATT HIGH PRESSURE SODIUM LAMPS, SHALL HAVE SINGLE RATED 480 VOLT, 150 WATT INTEGRAL REGULATOR TYPE BALLASTS. STYLE B LUMINAIRES SHALL BE GENERAL ELECTRIC M-400, WESTINGHOUSE OV-25-TUDOR, I.T.T. AMERICAN 400, OR EQUAL APPROVED BY THE ENGINEER.

HIGH PRESSURE SODIUM LAMPS

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX", SYLVANIA "LUMALUX", WESTINGHOUSE "CERAMALUX", OR EQUAL APPROVED BY THE ENGINEER. THE 150 WATT LAMPS SHALL HAVE AN OPERATING VOLTAGE OF 100 VOLTS, ANSI 556.

TRANSITION JUNCTION BOX

The Unit Price Bid For Each "ITEM 625" TRANSITION JUNCTION BOX" Shall Be Full Compensation For Furnishing And Placing The Junction Box As Shown In The Detail On Sheet 171, And All Labor, Material, Equipment, And Incidentals Necessary To Complete The Work As Specified.

625 PULLBOX

IN ADDITION TO THE REQUIREMENTS OF 625.11 AND 713.09, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING CONDUIT UNDER PAVEMENT AND EXTEND THE CONDUIT TO THE PROPOSED PULL BOX. PAYMENT FOR THIS ITEM OF WORK INCLUDING ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED SHALL BE INCLUDED IN THE PRICE BID PER EACH ITEM 625 PULLBOX, 18 INCH CIRCULAR, 713.09

HIGH VOLTAGE DIRECT CURRENT TEST

A HIGH VOLTAGE DIRECT CURRENT TEST, AS DESCRIBED IN SUPPLEMENTAL SPECIFICATION 839, SHALL BE PERFORMED ON ALL DISTRIBUTION CABLE AND DUCT CABLE SYSTEMS TO BE INSTALLED ON THIS PROJECT. THE TEST SHALL NOT BE PERFORMED UNTIL AFTER ALL NEW CONSTRUCTION, SUCH AS GUARD RAIL, FENCE, DELINEATOR POSTS, SIGN SUPPORTS, ETC., IN THE IMMEDIATE VICINITY OF THE LOCATION OF THE CABLE RUN BEING TESTED, HAS BEEN COMPLETED.

ITEM 625 CONDUIT JACKED UNDER PAVEMENT AS PER PLAN

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING CONDUIT OF THE SIZE OR SIZES INDICATED UNDER EXISTING PAVEMENT AND CONTIGUOUS SHOULDERS BY AN APPROVED METHOD SUCH AS "DRILLING" OR "JACKING."

THE CONTRACTOR SHALL PLACE THE CONDUIT WITH THE LEAST AMOUNT OF DISTURBANCE TO THE EXISTING PAVEMENT, SUBBASE, BERM PAVEMENT, OR SHOULDERS OF THE ROADWAY. ALL PUSH PITS OR ANY NECESSARY EXCAVATIONS SHALL BE BACKFILLED AND RESTORED IN ACCORDANCE WITH 625.01.

MEASUREMENT OF THE CONDUIT SHALL BE THE ACTUAL AMOUNT OF LINEAL FEET INSTALLED UNDER PAVEMENT AND SHOULDERS, MEASURED IN PLACE, AS ACCEPTED BY THE ENGINEER. THE UNIT PRICE BID FOR ITEM 625 "CONDUIT JACKED UNDER PAVEMENT AS PER PLAN" SHALL BE FULL COMPENSATION FOR EXCAVATION, DRILLING OR JACKING, BACKFILLING, COMPACTION, RESTORATION, AND ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

625 CONNECTOR KITS

TYPE IX CABLE CONNECTIONS MAY NOT BE SUBSTITUTED WHERE TYPE II OR III CABLE CONNECTIONS ARE SPECIFIED IN HAND HOLES OR TRANSFORMER BASES OF LIGHT POLES.

625.07-713.11 LUMINAIRES (continued)

THE HIGH PRESSURE SODIUM BALLAST, INCLUDING STARTING AIDS, MUST PROTECT ITSELF AGAINST NORMAL LAMP FAILURE MODES. THE BALLAST SHALL BE CAPABLE OF OPERATION WITH THE LAMP IN AN OPEN OR SHORT CIRCUIT CONDITION FOR SIX MONTHS WITHOUT SIGNIFICANT LOSS OF BALLAST LIFE.

THE LUMINAIRE MANUFACTURER SHALL SUPPLY BALLAST ELECTRICAL DATA AND LAMP OPERATING VOLT-WATT TRACES FOR NOMINAL AND PLUS OR MINUS TEN PERCENT (+10%) RATED LINE VOLTAGE TO VERIFY BALLAST PERFORMANCE AND COMPLIANCE WITH LAMP SPECIFICATIONS, FOR THE RATED LIFE OF THE LAMP.

DUCT CABLE 5000 VOLT

PARAGRAPH 2 OF 713.03 IS HEREBY AMENDED TO READ AS FOLLOWS: THE CABLES USED AS CONDUCTORS AND NEUTRALS SHALL CONFORM TO 713.02, 3.

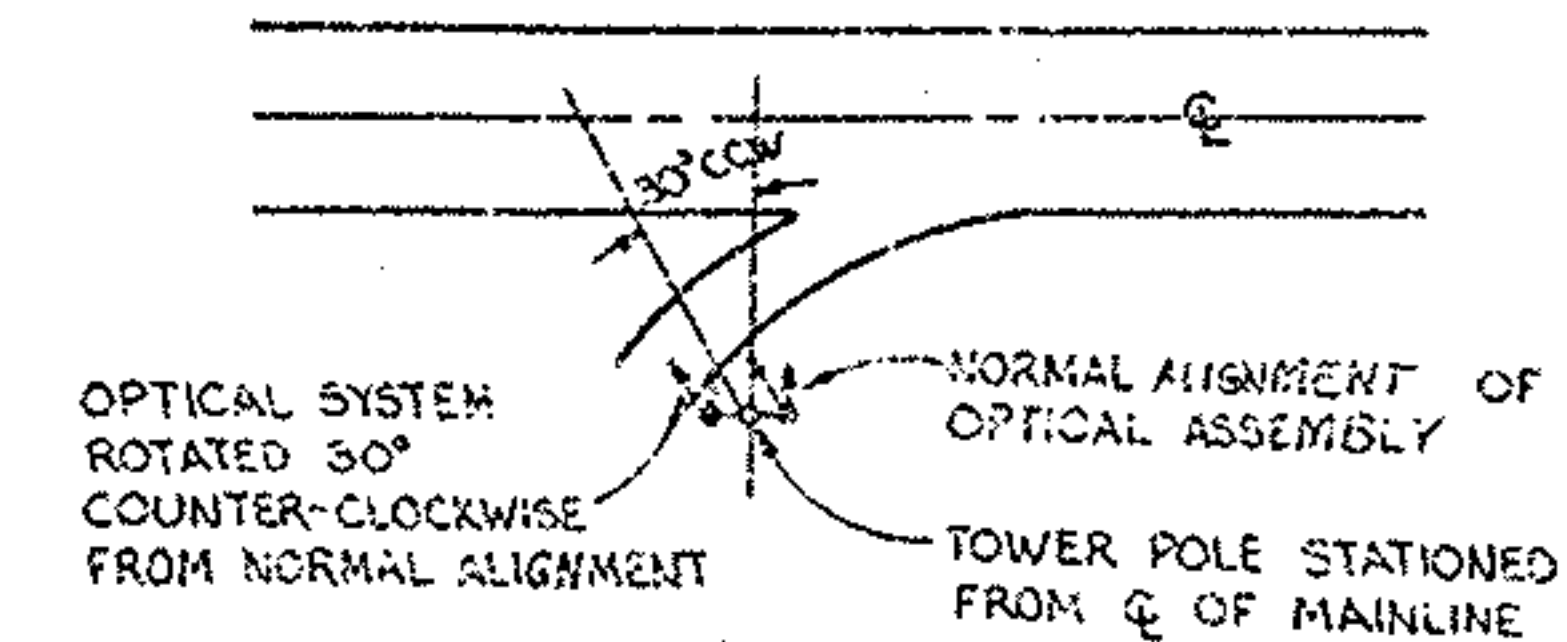
ESTIMATED QUANTITIES

AN ESTIMATED QUANTITY OF 500 LIN. FT. OF 605, 1/2 INCH SHALLOW PIPE UNDERDRAIN IS PROVIDED IN THE LIGHTING GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER IN PROVIDING POSITIVE DRAINAGE FOR PULL BOXES IN FILL AREAS. IT IS INTENDED THAT ALL PULL BOXES IN THESE AREAS BE PROVIDED WITH SUCH DRAINAGE, PROVIDED THE LENGTH OF UNDERDRAIN NECESSARY TO OBTAIN A SATISFACTORY OUTFALL DOES NOT EXCEED 20 FEET APPROXIMATELY. A PERFORATED PVC PIPE OR CONDUIT MATERIAL APPROVED BY THE ENGINEER MAY BE USED IN THE CONSTRUCTION OF THIS ITEM.

LIGHT POLE ANCHOR BOLTS FOR BRIDGES AND RETAINING WALLS

Anchor Bolts For Mounting Light Poles On Bridges And Retaining Walls Shall Conform To The Requirements Of 713.01 And Details Shown On The Plans And Standard Drawings, Or The Approved Shop Drawings, For The Respective Poles To Be Placed Thereon. Payment Shall Be Made At The Unit Price Bid For Each Set Of The Size Required And Necessary To Install One Pole, And This Payment Shall Constitute Full Compensation For Furnishing And Placing The Bolts.

STANDARD ASYMMETRIC HIGH MAST LUMINAIRE MOUNTING ARRANGEMENT



TWO LUMINAIRE MOUNTING ARMS SHALL BE INSTALLED ON THE LUMINAIRE MOUNTING RING ASSEMBLY AT 180 DEGREES AND POSITIONED SO THAT THE ARMS ARE PARALLEL TO THE CENTER LINE OR BASE LINE OF THE PAVEMENT FROM WHICH THE POLE IS STATIONED. NORMALLY THE LUMINAIRES SHALL BE INSTALLED SO THAT THE "ARROW" OR "STREET SIDE" DESIGNATION ON THE REFLECTOR IS POSITIONED PERPENDICULAR TO THE CENTERLINE OR BASE LINE FROM WHICH THE POLE IS STATIONED.

IF A THIRD ASYMMETRIC LUMINAIRE IS REQUIRED, IT SHALL BE ALIGNED AS ABOVE, MOUNTED MIDWAY BETWEEN THE OTHER TWO LUMINAIRES ON THE ROADWAY SIDE OF THE POLE AND ON AN ARM PERPENDICULAR TO THE CENTERLINE OR BASE LINE FROM WHICH THE POLE IS STATIONED. THE ARMS WILL BE SPACED 120°.

ANY DEVIATION FROM THE STANDARD LUMINAIRE ALIGNMENT SHALL BE SPECIFIED IN 5 DEGREE INCREMENTS OF ROTATION OF THE LUMINAIRE OPTICAL ASSEMBLY IN A CLOCKWISE OR COUNTERCLOCKWISE DIRECTION AFTER THE ABOVE ALIGNMENT HAS BEEN MADE.

713.07 POLYVINYL CHLORIDE PLASTIC CONDUIT

THIS SPECIFICATION COVERS POLYVINYL CHLORIDE CONDUIT FOR EITHER DIRECT BURIAL IN EARTH OR FOR ENCASMENT IN CONCRETE AND SHALL BE OF THE SIZE AND TYPE SPECIFIED.

1. DETAIL REQUIREMENTS: CONDUIT FURNISHED UNDER THIS SPECIFICATION SHALL COMPLY WITH THE FOLLOWING:

CONDUIT CONFORMING TO NEMA STANDARDS PUBLICATION NO. TC-6 WITH THE EXCEPTION THAT CONDUIT AND CONDUIT FITTINGS COMPOSED OF ACRYLONITRILE-BUTADIENE-STYRENE (ABS) SHALL NOT BE ACCEPTABLE.

AS AN ALTERNATE TO POLYVINYL CHLORIDE CORRUGATED POLYPROPYLENE CONFORMING TO NEMA STANDARDS PUBLICATION NO. TC-5 MAY BE USED.

STANDARD CONSTRUCTION DRAWING HL-3

POLE BASE DETAILS SHOWN ON THIS DRAWING ARE ESSENTIALLY FOR GALVANIZED STEEL POLES. FOR ALUMINUM DESIGNS, OR OTHER PERMITTED STEEL MATERIAL DESIGNS, VARIATIONS FROM THESE DETAILS WILL BE ACCEPTABLE, AS APPROVED BY THE ENGINEER.

CONDUIT ON STRUCTURES

Expansion Fittings For Conduit On Structures Shall Be OZ Type AX, Crouse-Hinds Type XJ-4, Appleton Type XJ-4, Or Equal Approved By The Engineer, For Bridge Nos. SUM-8-0064 And SUM-8-0087.

Each Expansion Fitting Shall Have A Copper External Bonding Jumper.

GENERAL NOTES LIGHTING

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

127
248

SUM-76-11.57
SUM-8- 0.46

ITEM SPEC-SERVICE TO UNDERPASS LIGHTING AS PER PLAN

THIS ITEM SHALL CONSIST OF PROVIDING COMPLETE ELECTRICAL SERVICE, EXCEPT FOR LUMINAIRES, LAMPS, AND STRUCTURE GROUNDING, FOR AN UNDERPASS LIGHTING SYSTEM ON THE FOLLOWING BRIDGES.

BRIDGE NO.

SUM-77-1182	UNDER	LA FOLLETTE ST
SUM-8-0025	OVER	I-77 UNDER I-76 W.B.
SUM-77-1202R	OVER	I-77 UNDER I-76 W.B.
SUM-76-1154R	OVER	LANE "S"
SUM-76-1180L&R	OVER	INMAN ST.
SUM-8-0039	UNDER	JOHNSTOWN ST.
SUM-76-1231	OVER	ARLINGTON ST.
SUM-76-1242	OVER	CHITTENDEN ST.
SUM-76-1267	OVER	FULLER ST.
SUM-76-1296	OVER	MARTHA AVE.
SUM-76-1309	OVER	RAMP E-10
SUM-76-1332	OVER	SEIBERLING ST.
SUM-76-1366	OVER	GENERAL ST.
SUM-76-1408	OVER	MARKET ST.
SUM-76-1416	OVER	RAMP E-23
SUM-76-1532	OVER	GILCHRIST RD.
SUM-8-0064	OVER	BEACON ST.
SUM-8-0087	OVER	BEACON ST.

THE INSTALLATION WORK SHALL INCLUDE CONDUITS, CONDUIT GROUNDING, MOUNTINGS, FITTINGS, JUNCTION BOXES, CABLES AND ALL INCIDENTALS NECESSARY TO COMPLETE READY FOR USE THE SERVICE AS DETAILED ON SHEETS 122-126. THE LUMP SUM PRICE BID FOR ITEM SPECIAL-SERVICE TO UNDERPASS LIGHTING, AS PER PLAN, SHALL INCLUDE PAYMENT FOR ALL EQUIPMENT, LABOR, AND MATERIALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED. COMPONENT PARTS NOT SPECIFICALLY MENTIONED BUT REQUIRED FOR SATISFACTORY OPERATION OF THIS ITEM SHALL BE FURNISHED AND CONSIDERED PAID FOR AS PART OF THE ITEM.

625.07-713-2 UNDERPASS LUMINAIRES-HIGH PRESSURE SODIUM

UNDERPASS LUMINAIRES SHALL BE HOLOPHANE "UNDERPASS WALL-PACK", WESTINGHOUSE, OR GENERAL ELECTRIC WL-250 UNDERPASS UNIT OR EQUAL APPROVED BY THE ENGINEER, AND SHALL BE FURNISHED WITH AN INTEGRAL FUSE HOLDER AND 10-AMPERE FUSE. THE INTEGRAL HIGH PRESSURE SODIUM BALLAST SHALL BE OF A REGULATOR TYPE RATED FOR 480 VOLTS, 100 WATTS.

625.07-713.13-UNDERPASS LUMINAIRES-LOW PRESSURE SODIUM

UNDERPASS LUMINAIRES SHALL BE QUALITY OUTDOOR LIGHTING "LPS 2001 WALL-PACK", NORTH AMERICAN PHILIPS LIGHTING CORP. "NORELCO LOW PRESSURE SODIUM WALL-PACK" OR EQUAL APPROVED BY THE ENGINEER, AND SHALL BE FURNISHED WITH AN INTEGRAL FUSE HOLDER AND 10-AMPERE FUSE. THE INTEGRAL BALLAST SHALL BE OF A REGULATOR TYPE, RATED 120/240 VOLTS AND DESIGNED FOR USE WITH A 55 WATT LOW PRESSURE SODIUM LAMP.

ELECTRICAL SERVICE FOR ILLUMINATED SIGNS

THE PAY ITEMS IN THE LIGHTING GENERAL SUMMARY INCLUDE THE PULL BOX OR JUNCTION BOX ADJACENT TO EACH LIGHTED SIGN AND THE ELECTRICAL SERVICE CONNECTIONS LEADING INTO THE BOX, INCLUDING SPLICES OR CONNECTOR KITS IN THE PULL BOX OR JUNCTION BOX. QUANTITIES FOR ELECTRICAL SERVICE FROM THE CONNECTION IN THE PULL BOX OR JUNCTION BOX TO THE SIGN ARE INCLUDED IN THE TRAFFIC CONTROL GENERAL SUMMARY.

QUANTITIES FOR ELECTRICAL SERVICE FROM THE CONNECTOR KITS TO LUMINAIRES MOUNTED ON COMBINATION-TYPE SIGN SUPPORTS, INCLUDING DISTRIBUTION CABLE, POLE AND BRACKET CABLE, LUMINAIRE SUPPORT ARM, LUMINAIRE, LAMP, ETC., EXCLUSIVELY REQUIRED TO SERVICE THE ROADWAY LIGHTING UNIT, ARE INCLUDED IN THE LIGHTING GENERAL SUMMARY.

TOWER LIGHTNING PROTECTION SYSTEM

THIS ITEM SHALL CONSIST OF PROVIDING AND INSTALLING AN APPROVED TOWER LIGHTNING PROTECTION SYSTEM AS DETAILED ON SHEET 122. THE COST OF ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY FOR THIS ITEM SHALL BE INCLUDED IN THE UNIT PRICE BID FOR EACH "ITEM SPECIAL-TOWER LIGHTNING PROTECTION SYSTEM."

713.21 LIGHT TOWER LUMINAIRE BALLASTS

THE LIGHT TOWER LUMINAIRE 480 VOLT BALLAST SHALL BE DESIGNED FOR USE WITH 1000 WATT HIGH PRESSURE SODIUM LAMP AND SHALL CONFORM TO 713.11, PARAGRAPH 9 (3), AS MODIFIED BY THE LIGHTING GENERAL NOTE HEADED "625.07-713.11 LUMINAIRES (CONTINUED)"

MEDIAN LIGHT POLE FOUNDATION, STRUCTURE MOUNTED

THE PAY ITEM "MEDIAN LIGHT POLE FOUNDATION, STRUCTURE MOUNTED" SHALL BE FULL COMPENSATION FOR FURNISHING AND PLACING THE JUNCTION BOX AND ONE SET OF ANCHOR BOLTS, AND FORMING THE CONCRETE, ALL AS DETAILED ON SHEET 170.

LOW PRESSURE SODIUM LAMPS

LOW PRESSURE SODIUM LAMPS SHALL BE QUALITY OUTDOOR LIGHTING "SUPER SOX", NORTH AMERICAN PHILIPS LIGHTING CORP. "NORELCO SOX" OR EQUAL APPROVED BY THE ENGINEER.

SPECIAL MAINTAINING EXISTING LIGHTING

Before Any Work Is Started In The Immediate Vicinity Of Any Existing Lighting Circuits, Representatives Of The State, City, And The Contractor Shall Make A Visual Inspection Of The Existing Roadway And Sign Lighting Systems On The Circuits Affected. Records Of This Inspection As To Pole, Sign, And Circuit Outage And Pole Knock-downs Shall Be Kept In Writing By The State. This Procedure Shall Apply At Each Location Where There Is Existing Circuitry.

It Shall Be The Contractor's Responsibility To Continuously Maintain The Existing Roadway And Sign Lighting Systems Which Have Been Inspected And Determined Operational By The Above Parties. All Outages And Knockdowns Shall Be Repaired Within 24 Hours After Notification By The Engineer, Except Those Circuits That Are Being Converted From An Ungrounded System To A Grounded System Which Shall Be Out Of Service No Longer Than 48 Hours. And Circuits From Only One Control Center Location May Be Out Of Service At Any One Time. Existing Grounded Circuits Shall Not Be Out Of Service During Night Hours.

The Median Lighting System Shall Be Installed, Tested In Accordance With Supplemental Specification 859, And Approved Prior To Removing Existing Light Poles Which It Replaces. Payment For This Item Shall Be Made At The Lump Sum Bid Price For Item Special "Maintaining Existing Lighting" And Shall Include All Labor, Material, Equipment And Incidentals Necessary To Complete The Work As Specified.

ITEM SPECIAL-- 625 SPLICING KIT.

This item shall consist of providing and installing an approved cable splicing kit as described in paragraph 5 of Section 713.15 of the ODOT Construction and Material Specifications. The cost of all materials, labor, and equipment necessary for this item shall be included in the unit price bid for each "Item 625" - Cable Splicing Kit."

MEDIAN LIGHT POLE FOUNDATIONS

At Various Locations Indicated On The Plans, The Foundations For The Median Light Poles Extend Through Existing 6 Inch Under-drains. At The Indicated Locations, And At Any Other Location Where This Situation Occurs, It Shall Be The Responsibility Of The Contractor To Provide An Uninterrupted Passageway For The Flow.

The Passageway Shall Not Significantly Weaken The Proposed Median Light Pole Foundation And Shall Not Expose The Various Reinforcing Steel Members Included In The Foundation.

The Method Of Establishing The Passageway Shall Be Submitted To The Engineer For Approval Before The Initial Installation Is Made.

Payment For This Item Of Work Shall Be Included In The Price Bid For Each Item 625 Median Light Pole Foundation And Shall Include All Labor, Material, Equipment And Incidentals Necessary To Complete The Work As Specified.

625 REMOVE AND RE-ERECT EXISTING LIGHTING INSTALLATION

AT THE LOCATION INDICATED ON THE PLANS THE CONTRACTOR SHALL CAREFULLY REMOVE THE EXISTING LIGHT POLE, BRACKET ARM, LUMINAIRE AND LAMP FROM THE EXISTING FOUNDATION. THE LAMP AND LUMINAIRE SHALL BE STORED ON THE PROJECT FOR REMOVAL BY CITY OF AKRON FORCES. THE LIGHT POLE AND BRACKET ARM WILL BE RE-ERECTED ON A NEW FOUNDATION AND ORIENTED AS DIRECTED ON THE PLANS. THE EXISTING FOUNDATION SHALL BE REMOVED TO ONE (1) FOOT BELOW GROUND LEVEL AND BACKFILLED IN ACCORDANCE WITH ITEM 203. PAYMENT FOR THIS ITEM OF WORK SHALL BE AT THE CONTRACT BID PRICE PER EACH ITEM 625 REMOVE AND RE-ERECT EXISTING LIGHTING INSTALLATION AND SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

GENERAL NOTES-LIGHTING

GENERAL NOTES-LIGHTING

127-A
248
5 OHIO
SUM-76-11.57
SUM-8-0.46

"SPECIAL" REMOVING EXISTING MERCURY LUMINAIRE 40' MAXIMUM MOUNTING HEIGHT SIDE MOUNTED

AT THE LOCATIONS INDICATED IN THE PLANS THE CONTRACTOR SHALL CAREFULLY REMOVE THE EXISTING MERCURY VAPOR LUMINAIRE AND LAMP AND STORE THEM FOR REMOVAL BY CITY OF AKRON FORCES. PAYMENT FOR THIS ITEM OF WORK SHALL BE AT THE CONTRACT UNIT BID PRICE PER EACH FOR ITEM SPECIAL-REMOVING EXISTING MERCURY LUMINAIRE 40' MAXIMUM MOUNTING HEIGHT SIDE MOUNTED AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

"SPECIAL" UPGRADE EXISTING LIGHTING INSTALLATION, AS PER PLAN

AT THE LOCATIONS INDICATED IN THE PLANS THE CONTRACTOR SHALL CAREFULLY REMOVE THE EXISTING LUMINAIRE, LAMP AND POLE AND BRACKET CABLE AND STORE THE SALVAGEABLE MATERIALS FOR REMOVAL BY CITY OF AKRON FORCES. THE CONTRACTOR SHALL THEN INSTALL A NEW HIGH PRESSURE SODIUM LUMINAIRE, LAMP AND POLE AND BRACKET CABLE PROVIDED FOR UNDER SEPARATE BID ITEMS. PAYMENT FOR THIS ITEM OF WORK SHALL BE AT THE CONTRACT UNIT PRICE BID PER EACH FOR ITEM SPECIAL-UPGRADE EXISTING LIGHTING INSTALLATION, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

202 REMOVE EXISTING LIGHTING INSTALLATION

THIS WORK SHALL CONSIST OF CAREFULLY REMOVING AND STORING THE EXISTING LIGHT POLES AS DESIGNATED ON THE PLANS, INCLUDING THE MAST ARM, LUMINAIRE, LAMP AND FOUNDATION. THE FOUNDATION SHALL BE REMOVED TO ONE (1) FOOT BELOW EXISTING GROUND AND BACKFILLED IN ACCORDANCE WITH ITEM 203. PAYMENT FOR THIS ITEM OF WORK WILL BE AT THE CONTRACT UNIT BID PRICE PER EACH FOR ITEM 202 REMOVE EXISTING LIGHTING INSTALLATION WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

202 REMOVE EXISTING STRUCTURE MOUNTED INSTALLATION, BY TYPE

THIS WORK SHALL CONSIST OF CAREFULLY REMOVING AND STORING THE EXISTING STRUCTURE MOUNTED LIGHT POLES AS DESIGNATED ON THE PLANS, INCLUDING THE MAST ARM, LUMINAIRE AND LAMP. DEPENDING UPON THE METHOD OF ATTACHMENT TO THE STRUCTURE, THE POLES SHALL BE CLASSIFIED AS EITHER BOLTED OR WELDED. BOLTED INSTALLATIONS SHALL BE TREATED AS DETAILED ON STANDARD CONSTRUCTION DRAWING HL-3 WITH ANCHOR BOLT COVERS BEING PLACED OVER EXPOSED ANCHOR BOLTS. WELDED INSTALLATIONS, DETAILED ON THIS SHEET, SHALL BE REMOVED BY EXTRACTING THE $\frac{3}{4}$ " ϕ MACHINE SCREWS AND LIFTING THE LIGHT STANDARD WITH

CAST STEEL ADAPTER AWAY FROM THE $8\frac{1}{2}$ " L_S. THE $\frac{3}{4}$ " ϕ COUNTERSUNK HEAD MACHINE SCREWS WILL BE REPLACED WITH NEW SCREWS AND NUTS. A $9 \times 9 \times \frac{1}{4}$ " PLATE WILL BE WELDED TO THE SUPPORT AND PAINTED WITH TWO COATS OF ZINC RICH BASE PAINT. A FINAL COAT OF PAINT WILL BE APPLIED TO MATCH THE COLOR OF THE SUPPORT. PAYMENT FOR THIS ITEM OF WORK WILL BE AT THE CONTRACT UNIT BID PRICE PER EACH FOR ITEM 202-REMOVE EXISTING STRUCTURE MOUNTED INSTALLATION, BY TYPE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

202 REMOVE EXISTING UNDERPASS INSTALLATION

THIS WORK SHALL CONSIST OF CAREFULLY REMOVING AND DISPOSING THE EXISTING UNDERPASS LIGHTING AS DESIGNATED ON THE PLANS, AND GROUTING CLOSED ANY HOLES LEFT FROM THE REMOVAL. PAYMENT FOR THIS ITEM WILL BE PAID AT THE CONTRACT UNIT BID PRICE PER EACH FOR ITEM 202 REMOVE EXISTING UNDERPASS INSTALLATION, WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

"SPECIAL" LIGHT TOWER MAINTENANCE PLATFORM, BY TYPE

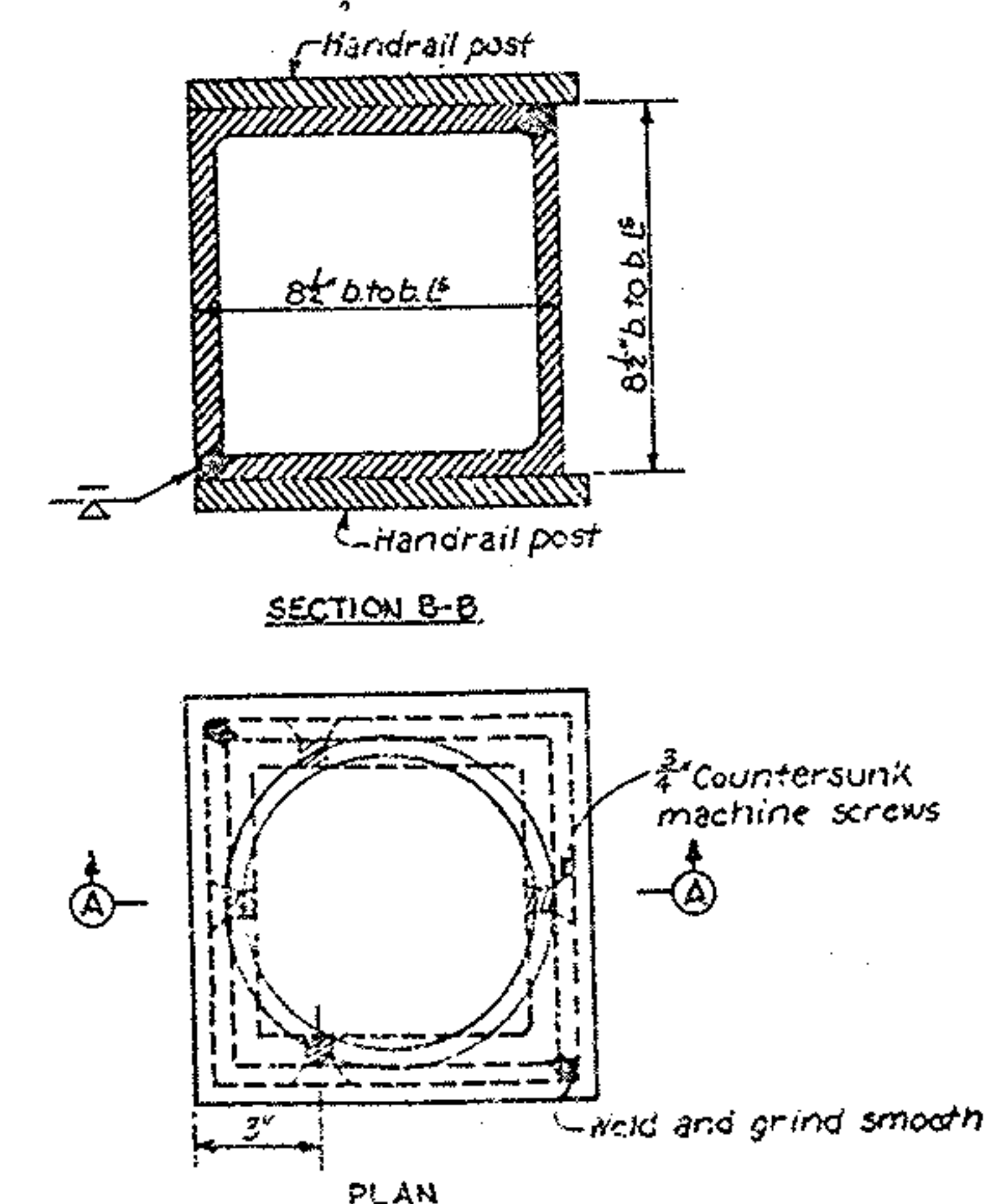
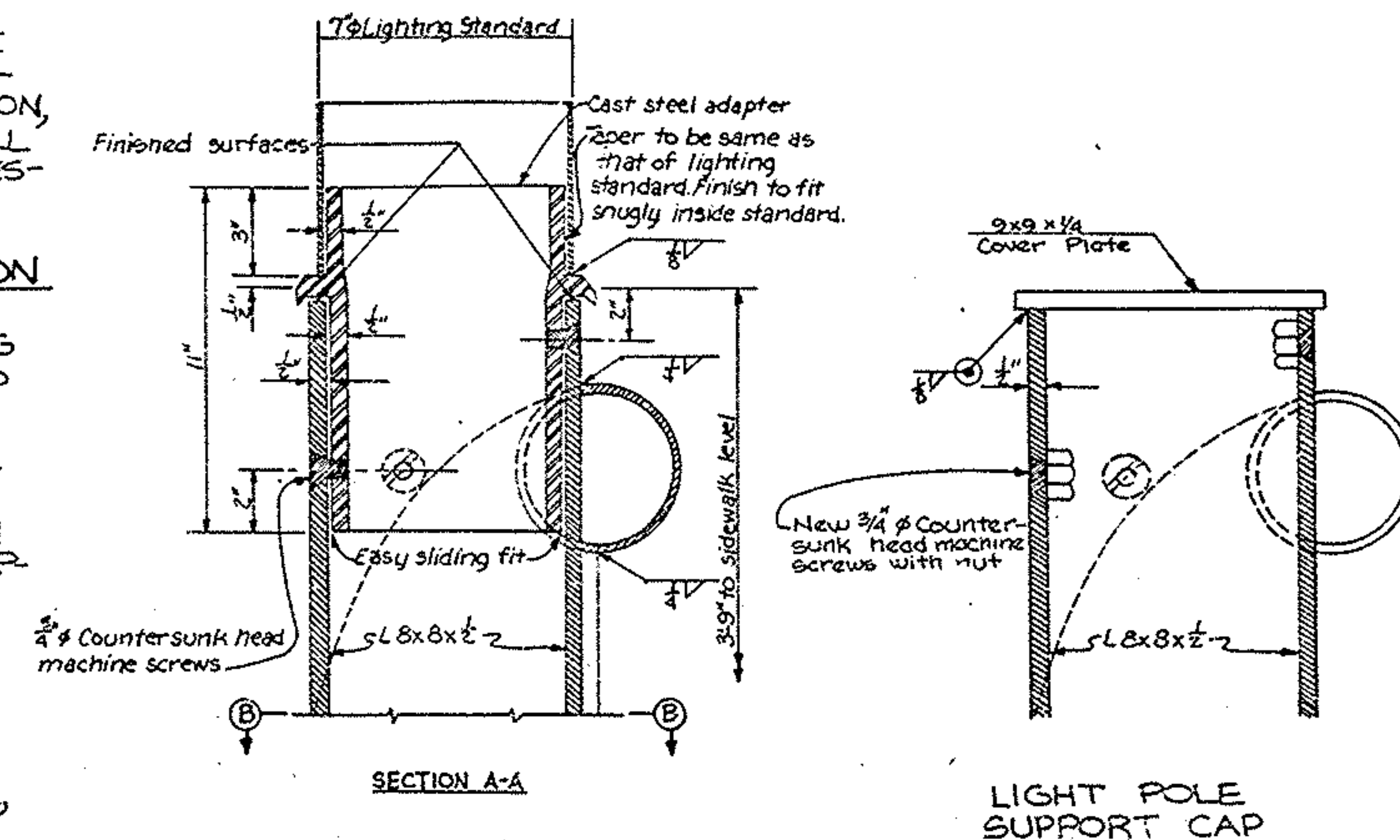
THIS ITEM OF WORK SHALL CONSIST OF EXCAVATING AND CONSTRUCTING A LIGHT TOWER MAINTENANCE PLATFORM AS DETAILED ON SHEETS 172-178. PAYMENT FOR THIS ITEM OF WORK SHALL BE AT THE CONTRACT UNIT BID PRICE PER EACH FOR ITEM SPECIAL-LIGHT TOWER MAINTENANCE PLATFORM, BY TYPE AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK, INCLUDING EXCAVATING AND BACKFILLING.

ITEM 625 REMOVE AND RELOCATE EXISTING CONTROL CENTER

THIS ITEM OF WORK SHALL CONSIST OF THE CAREFUL REMOVAL, CLEANING AND REINSTALLATION OF THE EXISTING SERIES CONTROLLER AND RELATED EQUIPMENT TO THE LOCATION SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THIS WORK WITH THE POWER COMPANY. PAYMENT FOR THIS ITEM WILL BE PAID ON A CONTRACT LUMP SUM BASIS WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY TO COMPLETE THIS ITEM WITH ALL CONNECTIONS MADE, AND WIRING COMPLETED, TESTED AND ACCEPTED.

PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE PADLOCKS EQUAL TO MASTER NO. 4 BKA OR WILSON BOHANNAN 660A AND SHALL BE KEYED IN ACCORDANCE WITH SPECIFICATION 631.08. PARAGRAPH 3, PAYMENT WILL BE INCLUDED IN THE BID FOR THE ITEM(S) BEING LOCKED.



EXISTING LIGHT POLE ADAPTER

CONTROL CENTER DATA						
Control Center	Connected Load, KVA		Enclosure Rating, Amps.	Circuit Number	Circuit Load, Amps.	Circuit Fuse Size, Amps.
LAF	30.3		60	LAF-1	39.7	50
				LAF-2	23.5	30
FTH	32.3		60	FTH-3	45.4	60
				FTH-5	21.9	30
MAR	26.9		60	MAR-6	32.0	40
				MAR-7	24.1	30
MAS	24.6		30	MAS-8	21.3	30
				MAS-9	30.0	40
GIL	22.3		30	GIL-10	26.0	40
				GIL-11	20.0	30
				GIL-12	1.5	10
INM*	.18		30	INM-4	1.5	10
ARL*	.24		30	ARL-4	2.0	10
CHI*	.12		30	CHI-13	1.0	10
FUL*	.12		30	FUL-14	1.0	10
MTH*	.24		30	MTH-15	2.0	10
SEI*	.18		30	SEI-16	1.5	10
GEN*	.24		30	GEN-17	2.0	10
MKT*	.24		30	MKT-18	2.0	10

* For Underpass Lighting With Low Pressure Sodium Luminaires

DESIGN CRITERIA

- TYPE OF LIGHTING MEDIAN MOUNTED, HIGH MAST, UPGRADED CONVENTIONAL UNITS ON RAMPS, UNDERPASS AND CONVENTIONAL UNITS
- OVERHANG VARIABLE 3'-0" TO 8'-0"
- ILLUMINATION 1.2 F.C. AVERAGE INITIAL
- LAMP 1000 WATT HIGH PRESSURE SODIUM
400 WATT HIGH PRESSURE SODIUM
310 WATT HIGH PRESSURE SODIUM
200 WATT HIGH PRESSURE SODIUM
150 WATT HIGH PRESSURE SODIUM
- UNIFORMITY 4:1 MAXIMUM FOR MEDIAN MOUNTED AND CONVENTIONAL UNITS
3:1 MAXIMUM FOR TOWERS
- DISTRIBUTION 1000 WATT HPS ANSI IES M-SC TYPE III OR IV
400 WATT HPS ANSI IES M-SC TYPE III
310 WATT HPS ANSI IES M-SC TYPE II
200 WATT HPS ANSI IES M-SC TYPE II AND III
1000 WATT HPS ANSI IES S-SC TYPE V
150 WATT HPS ANSI IES M-SC TYPE II
- SYSTEM VOLTAGE 480 VOLT - 2 WIRE - ONE SIDE GROUND
* 120 VOLT - 2 WIRE - ONE SIDE GROUND
- ROADWAY WIDTH VARIABLE

Under Pass Lamps
100 WATT HIGH PRESSURE SODIUM
* 35 WATT LOW PRESSURE SODIUM

LIGHTING KEY

- MEDIAN MOUNTED LIGHT POLE WITH TWIN ARMS AND 2-310 WATT HIGH PRESSURE SODIUM LAMPS WITH MATCHING INTEGRAL BALLASTS 50' MOUNTING HEIGHT.
- NEW LIGHT POLE AND BRACKET ARM WITH 1-400 WATT HIGH PRESSURE SODIUM LAMP WITH MATCHING INTEGRAL BALLAST 50' MOUNTING HEIGHT.
- NEW LIGHT POLE AND BRACKET ARM WITH 1-200 WATT HIGH PRESSURE SODIUM LAMP WITH MATCHING INTEGRAL BALLAST 41.7' MOUNTING HEIGHT. DARK FOUNDATION INDICATES BARRIER WALL MOUNTED FOUNDATION.
- NEW LIGHT POLE AND BRACKET ARM WITH 1-200 WATT HIGH PRESSURE SODIUM LAMP WITH MATCHING INTEGRAL BALLAST MOUNTING HEIGHT AS INDICATED ON PLAN. DARK FOUNDATION INDICATES BARRIER WALL MOUNTED FOUNDATION.
- EXISTING LIGHT POLE AND BRACKET ARM TO BE UPGRADED WITH 1-200 WATT HIGH PRESSURE SODIUM LAMP, LUMINAIRE (TYPE II DISTRIBUTION), POLE AND BRACKET CABLE AND CONNECTOR KITS.
- EXISTING INCANDESCENT LUMINAIRE TO BE REMOVED OR UPGRADED AS NOTED ON THE PLAN SHEETS SHOWING EXISTING CONDITIONS.
- EXISTING INSTALLATION WITH MERCURY VAPOR LUMINAIRE TO BE UPGRADED WITH BREAKAWAY BASES EXTENSION KITS AND HIGH PRESSURE SODIUM LAMPS AND LUMINAIRES.
- (PLAN SHEETS) ● NEW UNDERPASS LUMINAIRE WITH 1-100 WATT HIGH PRESSURE SODIUM LAMP WITH MATCHING INTEGRAL BALLAST OR WITH 1-55 WATT LOW PRESSURE SODIUM LAMP WITH MATCHING INTEGRAL BALLAST.
- (DETAIL SHEETS) ● 30° CW HIGH MAST LIGHT POLE WITH 2-1000 WATT HIGH PRESSURE SODIUM LAMPS WITH ASYMMETRICAL DISTRIBUTION AND MATCHING INTEGRAL BALLAST. THE "30° CW" INDICATES THE MAGNITUDE AND DIRECTION OF ROTATION OF THE OPTICAL ASSEMBLY IN RELATION TO THE PERPENDICULAR TO THE REFERENCED BASE LINE OR CENTER LINE. THE NORMAL ORIENTATION IS PERPENDICULAR TO THE REFERENCED CENTER LINE OR BASE LINE.
- HIGH MAST LIGHT POLE WITH 3-1000 WATT HIGH PRESSURE SODIUM LAMPS WITH SYMMETRICAL DISTRIBUTION AND MATCHING INTEGRAL BALLAST.
- PULL BOX 713.09, 18" IN DIAMETER UNLESS NOTED OTHERWISE ON PLAN SHEETS.
- ===== CONCRETE MEDIAN BARRIER WITH MEDIAN PULL BOX
- SERVICE POLE AND CONTROL CENTER AS PER HL-15
- 1/2" DUCT CABLE 5000 VOLT - 2" INSULATED SINGLE CONDUCTORS IN 24" DEEP TRENCH. No. 4 AWG UNLESS NOTED OTHERWISE
- EXISTING CIRCUIT NO WORK REQUIRED BUT MAY BE NECESSARY TO DE-ENERGIZE TO WORK ON EXISTING UNITS
- DISTRIBUTION CIRCUIT CABLE 5000 VOLT INSTALLED IN CONDUITS AND MEDIAN RACEWAY. No. 4 AWG UNLESS NOTED OTHERWISE.
- ===== RIGID METAL CONDUIT 713.04, SIZE AND METHOD OF INSTALLATION (JACKED CONCRETE ENCASED OR EXISTING) AS SHOWN ON THE PLANS. SEE GENERAL NOTES - LIGHTING FOR FURTHER INFORMATION REGARDING EXISTING CONDUIT.
- 200W HPS III LUMINAIRE DESIGNATION - THE FIRST DESIGNATION (200W) IS THE LAMP WATTAGE. THE SECOND DESIGNATION (HPS) IS LAMP TYPE HIGH PRESSURE SODIUM AND THE THIRD DESIGNATION (III) IS THE ANSI-IES DISTRIBUTION PATTERN.
- EXISTING LUMINAIRE NO WORK REQUIRED
- ===== Concrete Median Barrier With Transition Junction Box

POLE DATA CHART

FOUNDATION ANCHOR BOLTS				
REFERENCE LETTER	POLE DESIGN NUMBER	SIZE Ø x LENGTH	BOLT CIRCLE DIAMETER	TRANSFORMER BASE STYLE
A	AT15B41.7	1" x 40"	15"	AT-A
B	AT12B41.7	1" x 40"	15"	AT-A
C	AT8B41.7	1" x 40"	15"	AT-A
D	ST12B39	1" x 40"	15"	STEEL
E	A8B15B47.5D	1 1/4" x 70"	± 18" x 8"	---
F	A10B847.5D	1 1/4" x 70"	± 18" x 8"	---
G	AT10B34.2	1" x 40"	15"	AT-A
H	AT12B34.2	1" x 40"	15"	AT-A
I	A12B39D	1 1/4" x 52"	± 18" x 8"	---
J	A15B31.5D	1 1/4" x 52"	± 18" x 8"	---
L	AT15B51.7	1" x 40"	17 1/2"	AT-C
M	A10B84900	* * *	± 18" x 8"	---

D & ‡ The Median Pole Base Plate Shall Be Steel 12" x 22", 1 1/4" Thick, With 1 1/2" Diameter Holes Spaced To Match The Anchor Bolts As Shown In The Detail On HL-22

* * Anchor Bolts Shall Be As Shown On Sheet 170

LIGHTING GENERAL SUMMARY

Calc By JKP Date 2-1-79
Checked By SAG Date 2-2-79

OHIO 129
FHA REGON 5 248

SUM-76-11.57
SUM-8-0.46

IR FUNDS														F-FUNDS				F			IR			PARTICIPATION			ITEM			QUANT.			UNIT			DESCRIPTION			REF. LETTER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
CITY		STATE		FEDERAL		SHEET		NUMBER		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY		STATE		FEDERAL		CITY	

SUM-76-11.57
SUM-8-0.46

REV. 2-82 SMK

AKSON EXPRESSWAY
SUMMIT 8-046

607098-607100

⑥ SERVICE POLE & CONTROL CENTER "FTH"
⑦ SERVICE POLE & CONTROL CENTER "INM"

CALCULATED BY DATE 2-2-78
CHECKED JPK DATE 2-3-78

132
248

[illegible]

REF NO	STATION	DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL	REMARKS
1	MAINLINE	I-76	1	EA	10000	10000	
2	552+00	553+55	1	EA	10000	10000	
3	553+55	556+50	1	EA	10000	10000	
4	556+50	559+45	1	EA	10000	10000	
5	559+45	562+45	1	EA	10000	10000	
6	562+45	565+40	1	EA	10000	10000	
7	565+40	568+00	1	EA	10000	10000	
8	568+00	568+40	1	EA	10000	10000	
9	568+40	571+40	1	EA	10000	10000	
10	571+40	574+40	1	EA	10000	10000	
11	576+13	576+13	1	EA	10000	10000	
12	553+60	559+35	1	EA	10000	10000	
13	577+27.75	578+67	1	EA	10000	10000	
14	578+67	580+00	1	EA	10000	10000	
15	576+94	576+94	1	EA	10000	10000	
16	RAMP	"E-1"	1	EA	10000	10000	
17	552+00	9+60	1	EA	10000	10000	
18	9+60	559+35	1	EA	10000	10000	
19	RAMP	"E-3"	1	EA	10000	10000	
20	568+00 ML	3+75	1	EA	10000	10000	
21	3+75	566+23 ML	1	EA	10000	10000	
22	3+75	3+65	1	EA	10000	10000	
23	3+65	2+15	1	EA	10000	10000	
24	2+15	0+65	1	EA	10000	10000	
25							
26	ARLINGTON ST.	ST.	1	EA	10000	10000	
27							
28	E+27	5+37	1	EA	10000	10000	
29	5+37	5+37	1	EA	10000	10000	
30							
31	RAMP "E-4"		1	EA	10000	10000	
32	7+25		1	EA	10000	10000	
33	7+25	5+25	1	EA	10000	10000	
34	5+25	4+65	1	EA	10000	10000	
35							
36	RAMP	"E-5"	1	EA	10000	10000	
37	578+67 ML	2+90	1	EA	10000	10000	
38	2+90	3+00	1	EA	10000	10000	
39	2+90	4+27	1	EA	10000	10000	
40	4+27	4+30	1	EA	10000	10000	
41	RAMP	"E-2"	1	EA	10000	10000	
42	11+30	9+60 "E-1"	1	EA	10000	10000	
43	MAINLINE	I-76	1	EA	10000	10000	
44	580+00	580+30	1	EA	10000	10000	
45	580+30	580+53	1	EA	10000	10000	
46	580+53	583+55	1	EA	10000	10000	
47	583+55	586+80	1	EA	10000	10000	
48	586+80	587+16	1	EA	10000	10000	
49	587+16	589+11	1	EA	10000	10000	
50	589+11	590+03.75	1	EA	10000	10000	
51	590+03.75	593+30	1	EA	10000	10000	
52	593+30	596+69	1	EA	10000	10000	
53	596+69	597+73	1	EA	10000	10000	
54	597+73	599+70	1	EA	10000	10000	
55	599+70	602+90	1	EA	10000	10000	
56	602+90	606+10	1	EA	10000	10000	
57	606+10	609+30	1	EA	10000	10000	
58	609+30	609+40	1	EA	10000	10000	
59	609+40	610+00	1	EA	10000	10000	
60							
61							
62							
63							

STRUCTURE NO. SUM-76-1267
STRUCTURE NO. SUM-76-1296
STRUCTURE NO. SUM-76-1309

2-2-78
2-3-78

AXRON EXPRESSWAY
SUMMIT 76-1157
SUMMIT 8-046

248

REF NO	STATION	DESCRIPTION	UPGRADE EXISTING LIGHTING INSTALLATION AS PER PLAN	BRACKET ARM 10 FEET EACH	LUMINAIRE UNDERPASS 100 WATT HIGH PRESSURE SODIUM BALLAST	STYLE "B" LUMINAIRE TYPE II W/200 WATT 425 BALLAST AS PER PLAN	LUMINAIRE UNDERPASS 55 WATT LOW PRESS SODIUM BALLAST AS PER PLAN	Service Pole And Control Center "CHI" Lump	Service Pole And Control Center "FUL" Lump	Service Pole And Control Center "MTH" Lump	24" PULL BOX CIRCULAR EACH	18" PULL BOX CIRCULAR EACH	TRENCH 24" DEEP	CONDUIT 2" 713.04	CONDUIT 2" 713.04 CONCRETE ENCASED	CONDUIT 3" 713.04	3" CONDUIT JACKED UNDER PAVEMENT	DISTRIBUTION 5000V CABLE NO. 4 AWG	POLE AND BRACKET CABLE NO. 10 AWG	DUCT CABLE 5000V 1/2" TWO NO. 4 AWG	DISTRIBUTION 5000V CABLE NO. 2 AWG	CABLE SPLICING KIT EACH	CONNECTOR KIT TYPE	SERVICE POLE AND CONTROL CENTER "MAR" DUCT CABLE 5000V 1/2" TWO NO. 2 AWG LUMP	SERVICE TO UNDERPASS LIGHTING STRUCTURE GROUNDING SYSTEM LUMP	CIRCUIT NO.	
2	RAMP	"E-4"																									
3	4+65	4+25 RT																									
4	4+25	3+95 RT																									
5	3+95	3+95 RT/LT																									
6	3+95	580+63 "ML" LT/E																									
7	3+95	581+60 "ML" RT																									
8	RAMP	"E-5"																									
9	4+30	5+54 LT																									
10	5+54	6+71 LT																									
11	6+71	6+71 LT/RT																									
12	6+71	6+81 RT																									
13																											
14	RAMP	"E-6"																									
15	7+44 "CHIT"	7+54 "CHIT" AT LT																									
16																											
17	3+94	4+20 LT																									
18	4+20	587+16 "ML" LT/E																									
19	4+20	6+00 LT																									
20	6+00	6+00 LT/RT																									
21	6+00	5+17 RT																									
22	6+00	589+10 "ML" RT																									
23																											
24	RAMP	"E-7"																									
25	586+56 "ML"	7+59 LT/RT																									
26	7+59	6+35 RT																									
27	6+35	6+27 RT																									
28	6+35	6+35 RT/LT																									
29	6+35	589+11 LT																									
30	6+35	4+95 LT																									
31																											
32	RAMP	"E-8"																									
33	10+92 "FULL"	11+02 "FULL" LT/RT																									
34																											
35																											
36		6+10 LT																									
37	6+10	7+60 LT																									
38	6+10	4+60 LT																									
39	4+60	597+73 "ML" LT/RT																									
40	597+73 "ML"	597+73 "ML" RT/E																									
41	RAMP	"E-9"																									
42	609+40 "ML"	2+30 LT																									
43	2+30	3+00 LT																									
44	2+30	2+55 LT/RT																									
45	2+55	608+49 "ML" RT																									
46	RAMP	"E-9"																									
47	3+00	3+20 LT																									
48	3+20	4+70 LT																									
49	4+70	5+30 LT																									
50	5+30	5+30 LT/RT																									
51	5+30	6+20 RT																									
52	5+30	12+50 "MAR" LT/RT																									
53																											
54	11+70 "MAR"	11+80 "MAR" RT/LT																									
55																											
56	RAMP	"E-10"																									
57	10+30	8+80 RT																									
58	8+80	7+70 RT																									
59	7+70	RT																									
60	7+70	7+30 RT																									
61	7+30	2+80 RT																									
62	2+80	2+33 RT																									
63																											
64	2+33	612+80 "ML" LT/E																									
23																											
24																											
8																											
18			</																								

CLIPPING SUB SUMMARY

CALCULATED BY	DATE	NO.	SECTION	SHEET	PROJECT
CHECKED	DATE				

135
248

LIGHTING SUB-SUMMARY

UNCLASSIFIED JPK DATE 7/25/78
DECLASS JPK DATE 8/3/78

AKRON EXPRESSWAY
SUM-76-157
SUM-8-046

REF NO	STATION	STATION	S - M - D	LIGHT POLE DESIGN NO AIOBB4750	LIGHT POLE DESIGN NO AIOBB4900	UPGRADE EXISTING LIGHTING INSTALLATION, AS PER PLAN	MEDIAN LIGHT POLE FOUNDATION	LIGHT POLE FOUNDATION STRUCTURE MOUNTED	LIGHT POLE FOUNDATION 24" DEEP	STYLE "B" LUMINAIRE TYPE II W/200WATT HPS BALLAST, AS PER PLAN	STYLE "C" LUMINAIRE TYPE II W/300WATT HPS BALLAST, AS PER PLAN	LUMINAIRE UNDERPASS W/55WATT LOW PRESS SODIUM BALLAST, A.P.		GROUND ROD	PULL BOX CIRCULAR	PULL BOX MEDIAN	TRENCH 24" DEEP	CONDUIT 2" 71304	CONDUIT 3" 71304 JACKED UNDER PAVEMENT	DISTRIBUTION 5000V Cable No. 2 AWG	DISTRIBUTION 5000V Cable No. 4 AWG	POLE AND BRACKET CABLE NO.10 AWG	DUCT CABLE 5000V IN TWO NO.4 AWG	CABLE SPLICING KIT	CONNECTOR KIT TYPE I	CONNECTOR KIT TYPE	CONNECTOR KIT TYPE	SERVICE POLE AND CONTROL CENTER "M.S."	SERVICE POLE AND CONTROL CENTER GEN	TRANSITION JUNCTION	TRANSITION JUNCTION	CIRCUIT NO.	SEE SHEET NO.	
				EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH		EACH	EACH	EACH	LN.FT.	LN.FT.	LN.FT.	LN.FT.	LN.FT.	LN.FT.	LN.FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH		
1	MAINLINE I-76																																	
2	640+00	640+95	R																			200												155
3	640+95	642+25	R																			280												
4	642+25	642+88.75	R																			148	155											
5	642+88.75	646+22	R																			148	155											
6	646+22	647+59.5	R																			148	155											
7	647+59.5	649+55	R																			148	155											
8	649+55	652+88	R																			148	155											
9	652+88	656+22	R																			148	155											
10	656+22	659+55	R																			148	155											
11	659+55	660+35	R																			148	155											
12	660+35	662+88	R																			148	155											
13	662+88	666+22	R																			148	155											
14	666+22	668+00	R																			148	155											
15																					488	366												
16	RAMP	E-17	LT																															
17	7+00	8+00	LT																															
18	8+00	8+15	LT																															
19	8+00	640+95 ML	LT/E																															
20																																		
21	RAMP	E-19	RT																															
22	4+60	3+20	RT																															
23	4+60	3+20	RT																															
24	3+20	1+80	RT																															
25	1+80	0+90	RT																															
26	0+90	0+37	RT																															
27	1+80	1+80	RT/LT																															
28	3+20	642+25 ML	RT/LT																															
29	642+25 ML	642+25 ML	LT/E																															
30																																		
31	RAMP	E-18	LT																															
32	642+25 ML	4+80	LT/RT																															
33	4+80	4+80	LT/RT																															
34	4+80	3+15 E-20	RT/LT																															
35	4+80	3+15	LT																															
36	3+15	1+65	LT																															
37																																		
38	7+57 GEN	7+47 GEN	RT																															
39	1+65	1+70 E-20	LT/LT																															
40	1+70 E-20	0+25	LT/RT																															
41																																		
42	RAMP	E-20	RT																															
43	1+00	1+50	RT																															
44	1+50	1+70	RT/LT																															
45	5+15	5+70	LT																															
46	5+70	7+47	LT/RT																															
47																																		
48	RAMP	E-21	RT																															
49	0+40	0+50	RT																															
50	0+50	0+50	RT/LT																															
51	0+50	1+85	LT																															
52	1+85	2+50	LT																															
53	2+50	3+33	LT																															
54	3+33	4+80	LT																															
55	4+80	660+35 ML	LT/RT																															
56	660+35 ML	660+35 ML	RT/LT																															
57	660+35 ML	6+37	RT																															
58	2+50	2+50	LT/RT																															
59	2+50	2+50	RT																															
TOTAL				5	3	2	5	3	1	5	3	4		5	3	3	1760	878		176	1054	2850	2460	1397	13	5	26	26	2	LUMP	LUMP	2		155
LIGHTING S.S. SUMMARY																																		

CALCULATED BY: DATE 9/7/78
CHECKED BY: DATE 9/13/78

138
248

WITNESS

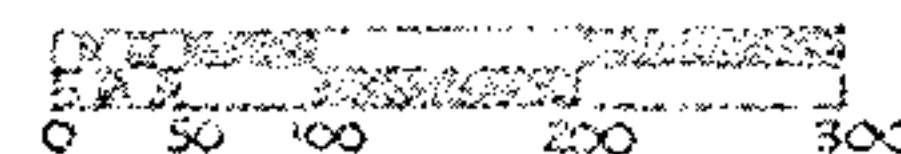
LIGHTING SUB-SUMMARY

CALC	PCB	9-78
CNR	PCG	9-78

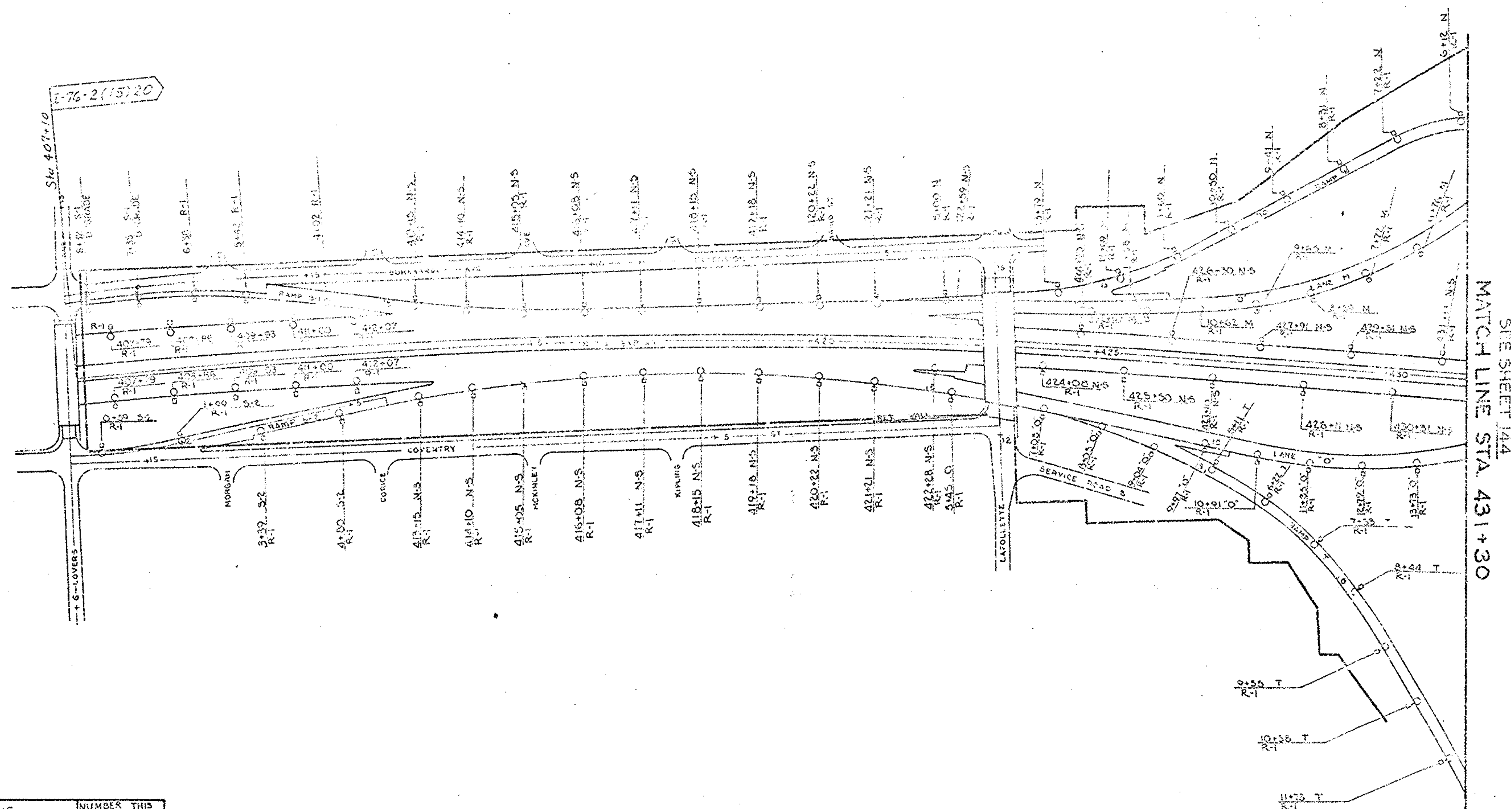
CITY OF AKRON
SUMMIT COUNTY
SUM-8-0.45

[illegible]

FROM SHEET 160



AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46

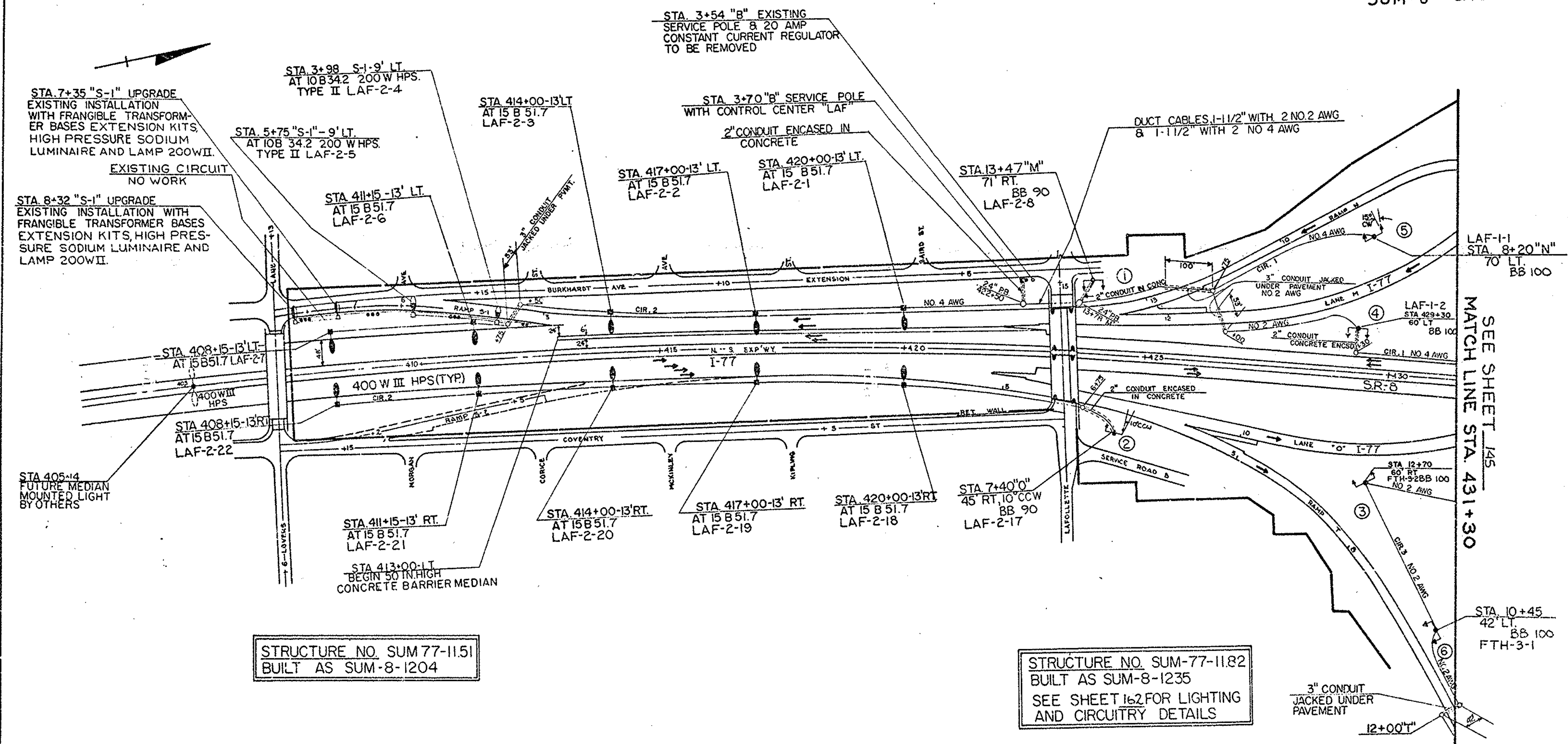


REMOVAL TYPE	WORK TO BE DONE	NUMBER THIS SHEET
R-1	Remove Entire Installation	79
R-3	Remove Structure Mnt'd Installation	0
R-4	Remove Underpass Installation	0
S-1	Upgrade Existing Installation	2

For Lighting Legend See Sheet 123

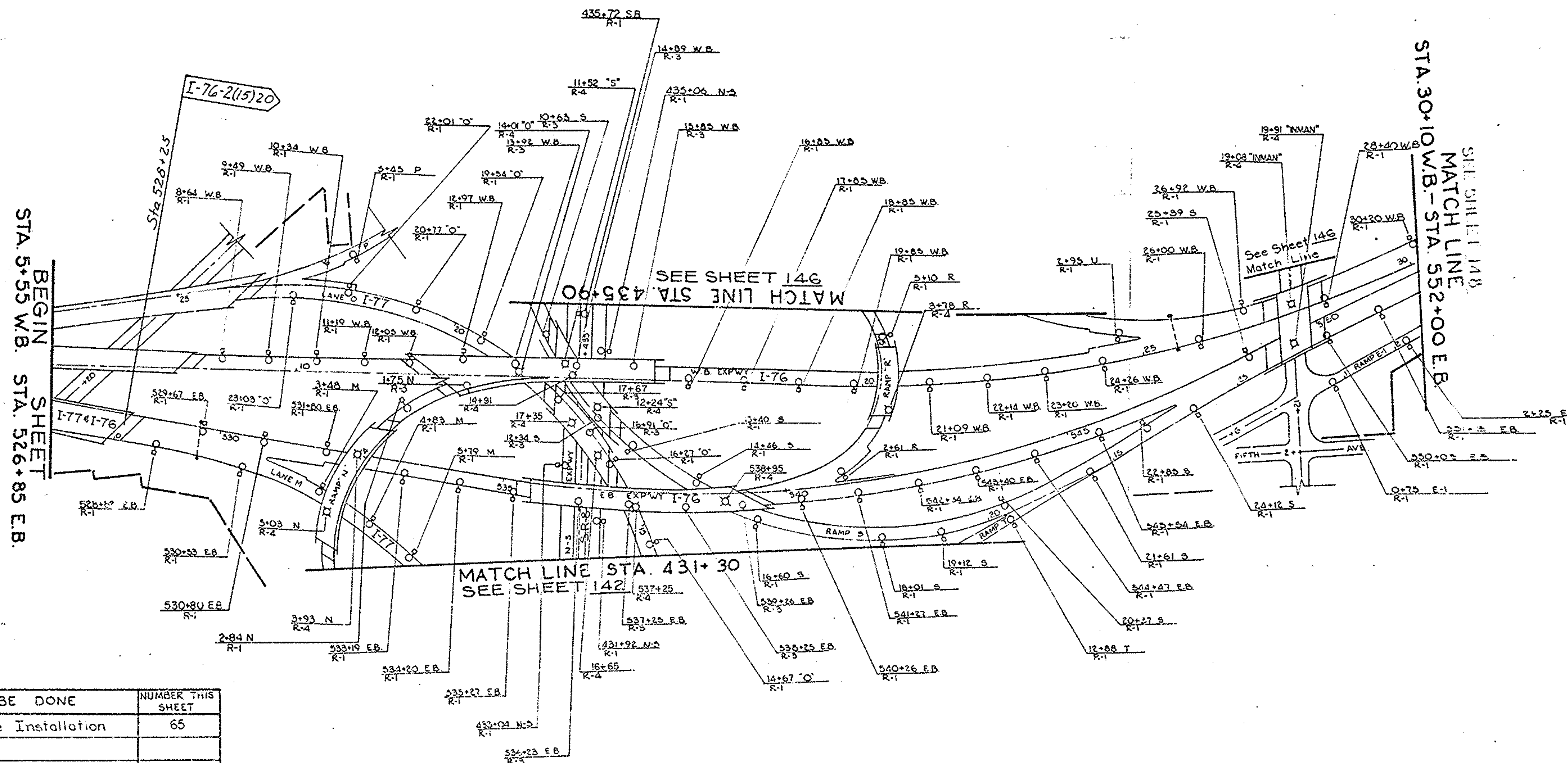
For Lighting Quantities See Sheet 156

* These 2 poles are covered per sheet 179 and notes on sheet 143.



For Lighting Legend See Sheet 128
For Lighting Quantities See Sheet 131

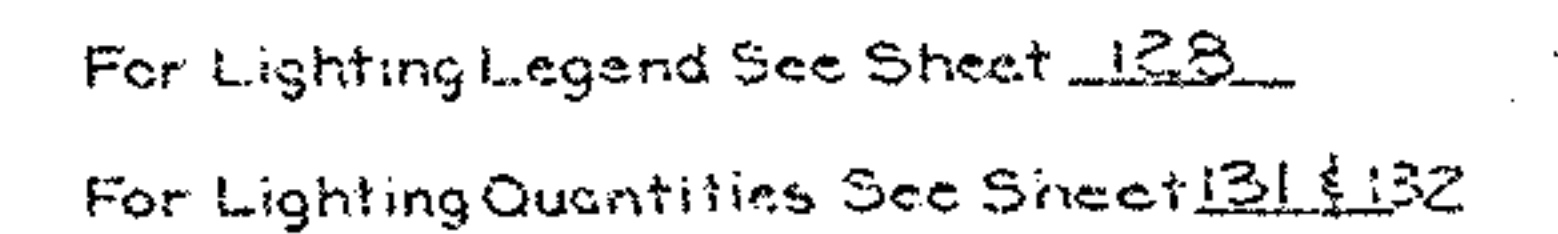
AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46



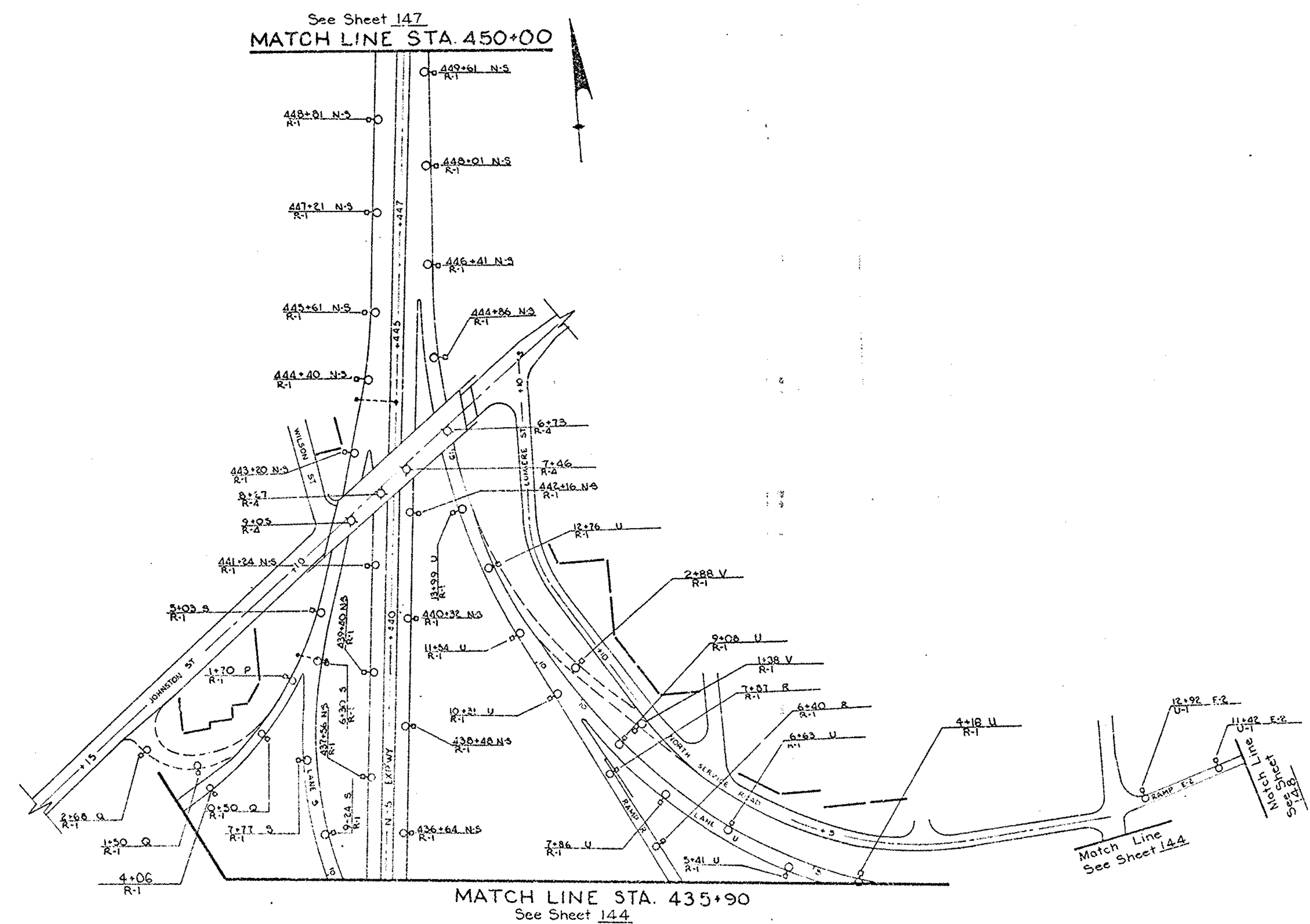
REMOVAL TYPE	WORK TO BE DONE	NUMBER THIS SHEET
R-1	Remove Entire Installation	65
R-3	Remove Structure Mntd Installation	12
R-4	Remove Underpass Installation	13

For Lighting Legend See Sheet 122

For Lighting Quantities See Sheet 122



LIGHTING PLAN STA. 526+85 to 532+00

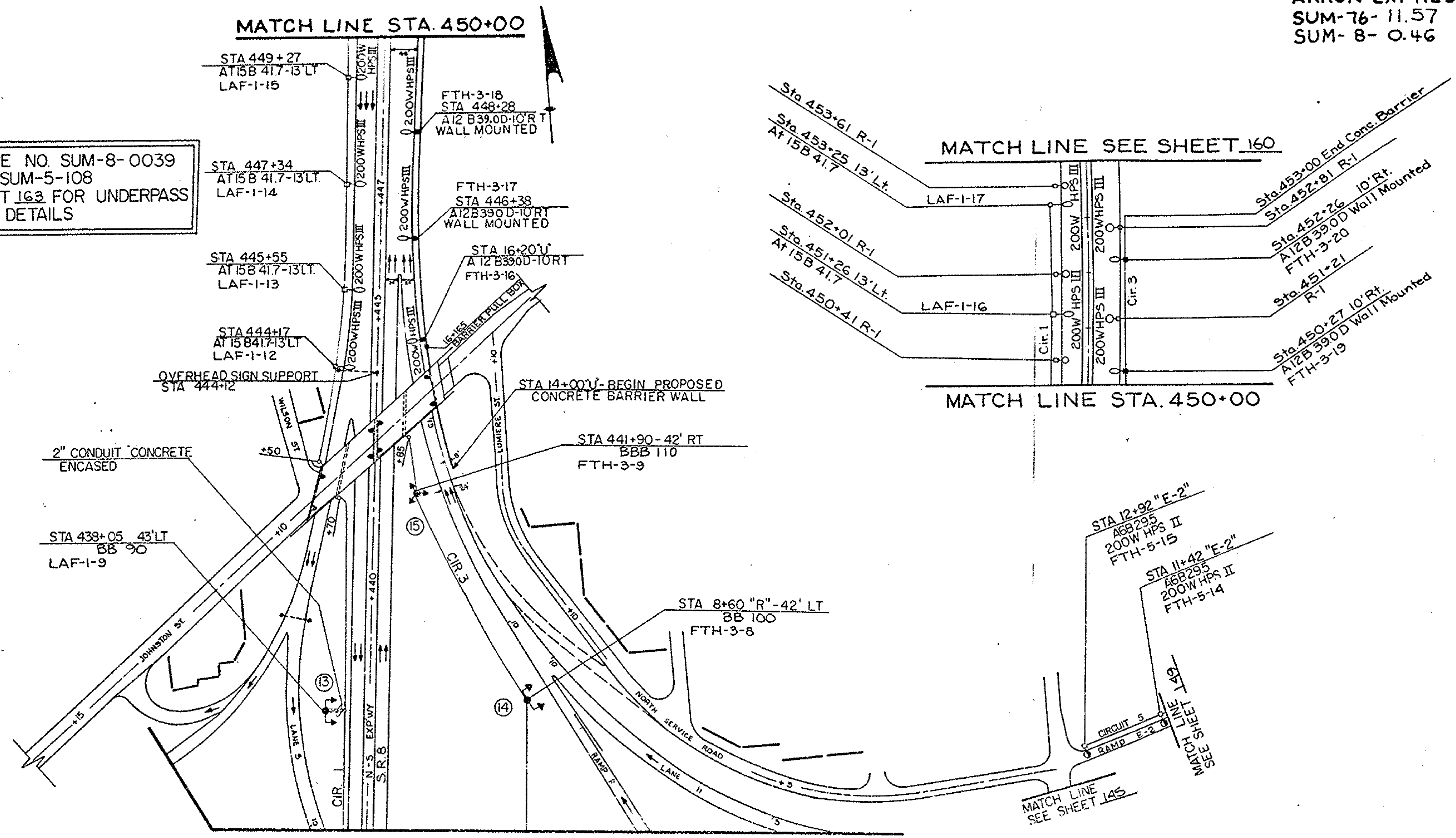


REMOVAL TYPE	WORK TO BE DONE	NUMBER THIS SHEET
R-1	Remove Entire Installation	38
U-1	Upgrade Existing Installation	2
R-3	Remove Structure Mnt'd Installation	0
R-4	Remove Underpass Installation	4

For Lighting Legend See Sheet 128
For Lighting Quantities See Sheet 156

AKRON EXPRESSWAY
SUM-76- 11.57
SUM- 8- 0.46

STRUCTURE NO. SUM-8- 0039
BUILT AS SUM-5-108
SEE SHEET 163 FOR UNDERPASS
LIGHTING DETAILS



REMOVAL TYPE	WORK TO BE DONE	NUMBER THIS SHEET
R-1	REMOVE ENTIRE INSTALLATION	5

For Lighting Legend See Sheet 128
For Lighting Quantities See Sheet 132

AKRON EXPRESSWAY
 SUM-76-1157
 SUM-8-046

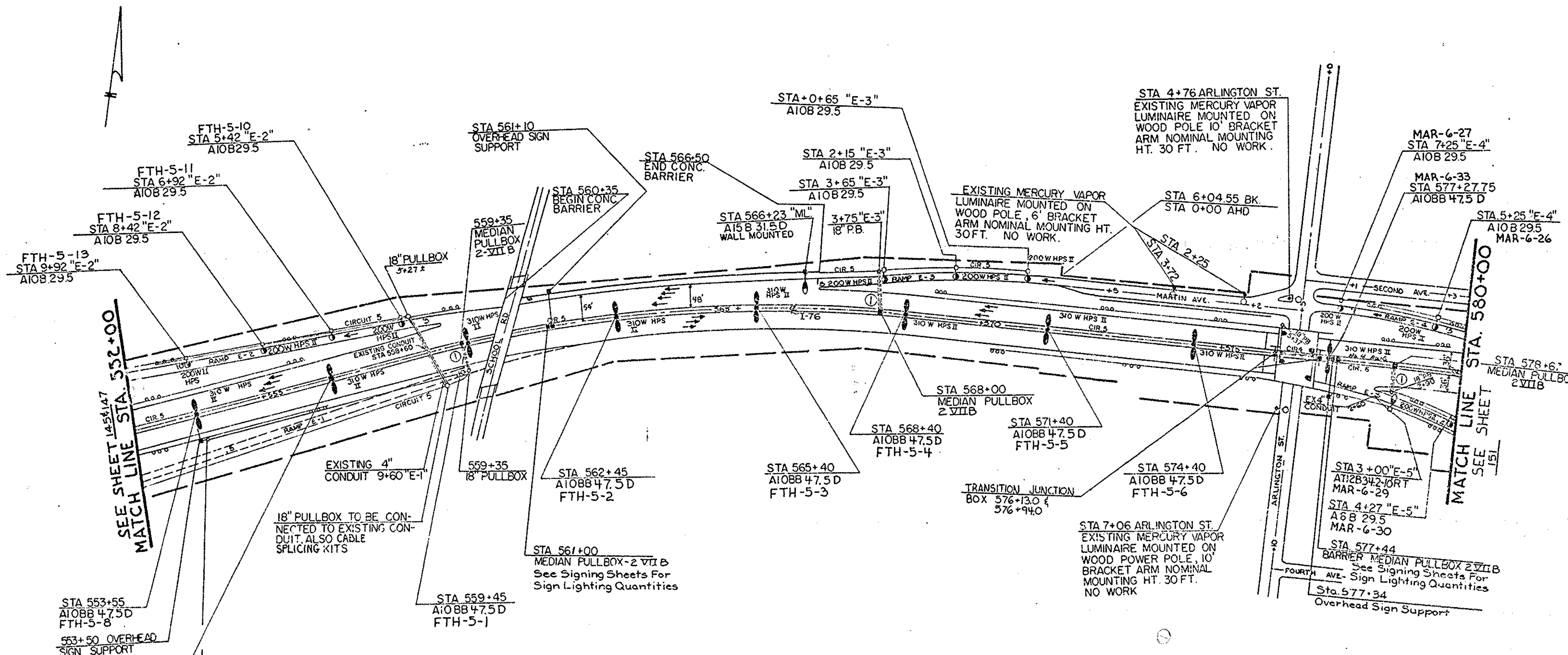
SEE SHEET 144614G
 MATCH LINE STA. 552+00

MATCH LINE STA. 580+00
 SEE SHEET 150

REMOVAL TYPE	WORK TO BE DONE	NUMBER THIS SHEET
R-1	Remove Entire Installation	36
R-3	Remove Structure Mntd. Installation	1
R-4	Remove Underpass Installation	1
U-1	Upgrade Existing Installation	10

For Lighting Legend See Sheet 128
 For Lighting Quantities See Sheet 152

AKRON EXPRESSWAY
SUM-76- 11.57
SUM-8- 0.46



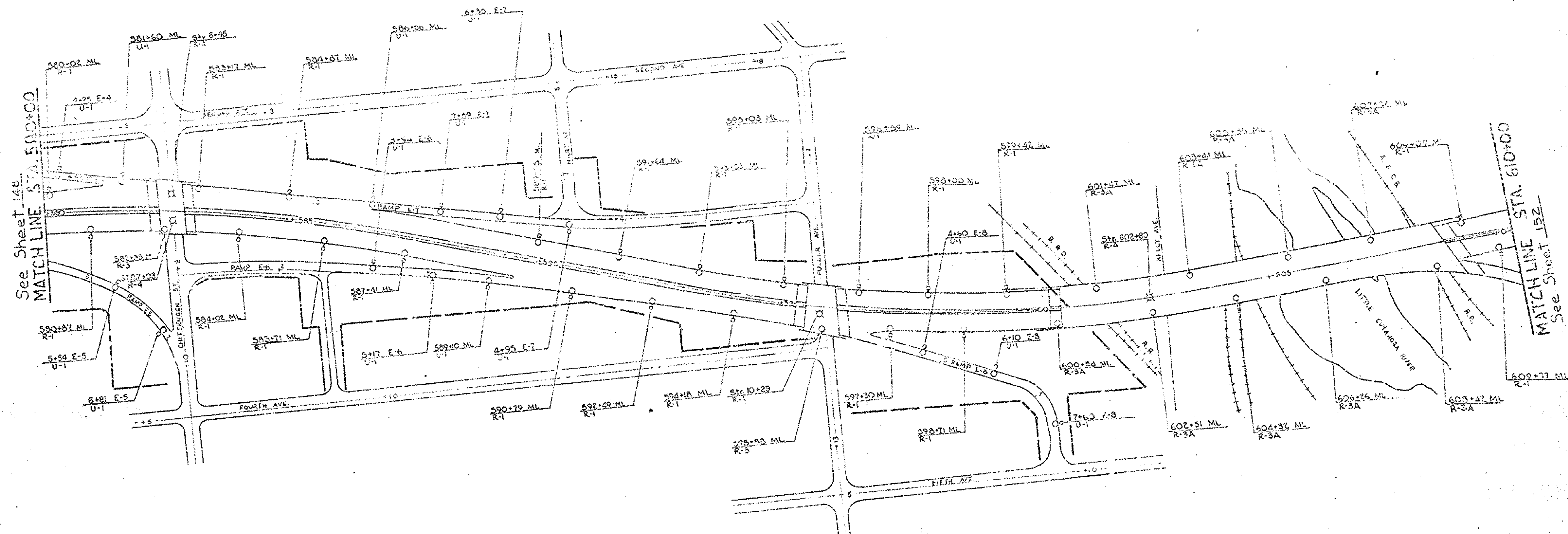
- ① 3" CONDUIT JACKED UNDER PAVEMENT
- ② 2" CONDUIT ENCASED IN CONCRETE

STRUCTURE NO. SUM 76-12.00
 BUILT AS SUM-18R-127

FOR LIGHTING LEGEND SEE SHEET 128

FOR LIGHTING QUANTITIES SEE SHEET 133

STRUCTURE NO. SUM-76-12.31
 BUILT AS SUM-18R-130
 SEE SHEET 163 FOR UNDER-PASS LIGHTING DETAILS



REMOVAL TYPE	WORK TO BE DONE	NUMBER THIS SHEET
R-1	Remove Entire Installation	21
R-3A *	Remove Structure Mtd Instal	9
R-3 **	Remove Structure Mtd Instal	2
R-4	Remove Underpass Installation	4
		1

* Welded Installation, See Sheet 127A For Details.

** Bolted Installation, See Sheet 127A For Note.

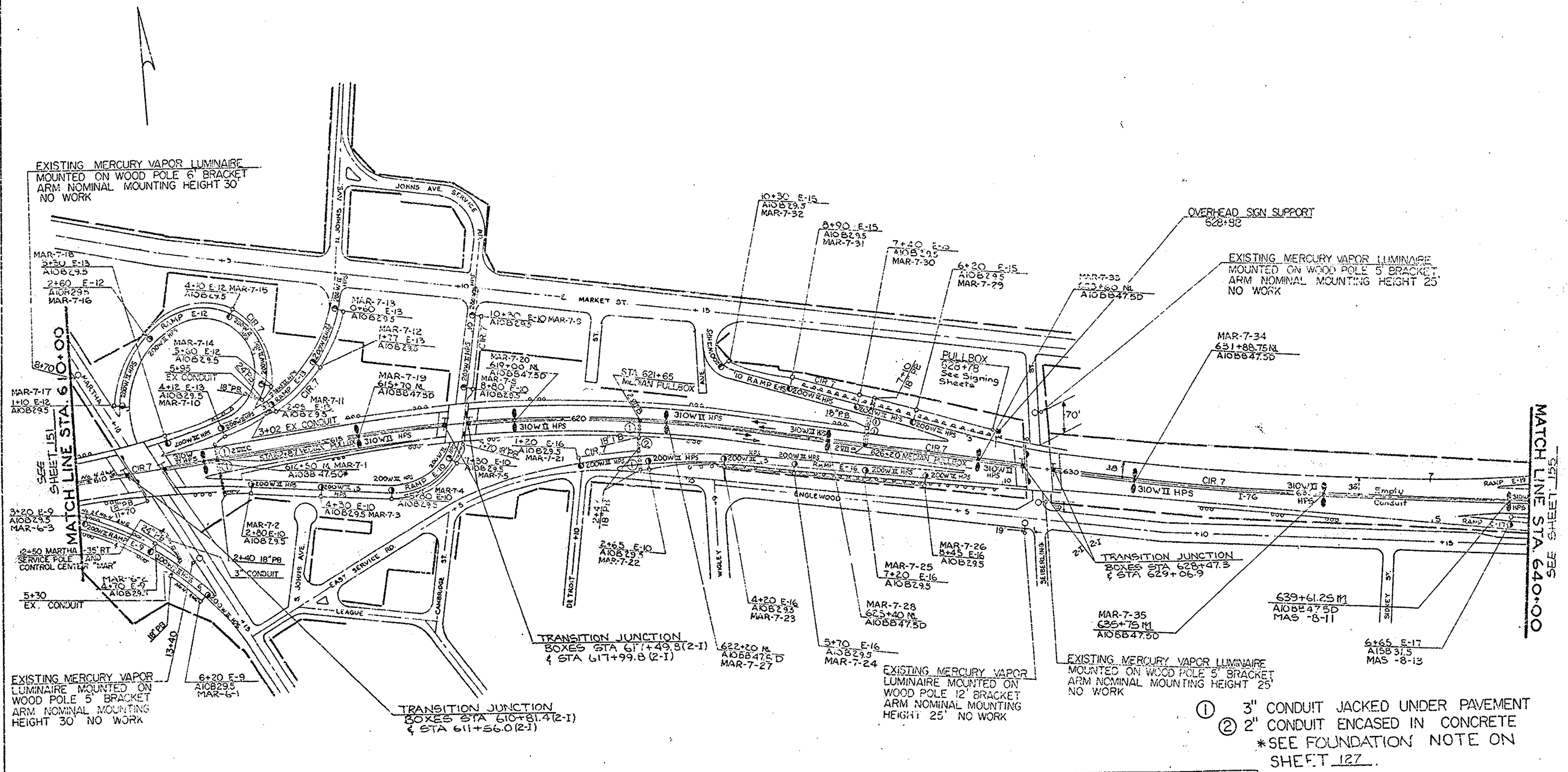
FOR LIGHTING LEGEND SEE SHEET 128

FOR LIGHTING QUANTITIES SEE SHEET 126

CHITTENDEN ST, FULLER ST, & FIFTH AVE.

LIGHTING PLAN RAMPS 580+00 TO 610+00

AKRON EXPRESSWAY
 SUM-76-11.57
 SUM-8-0.46



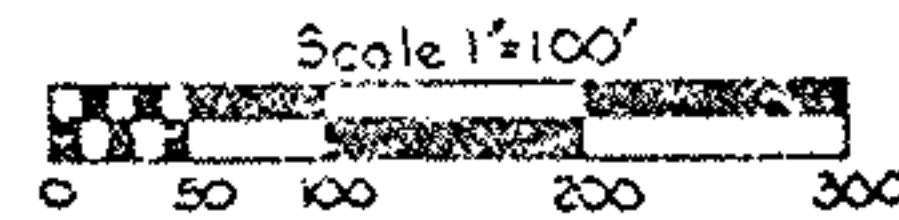
STRUCTURE NO. SUM-76-12.96
 BUILT AS SUM-18R-137
 SEE SHEET 164 FOR UNDERPASS
 LIGHTING DETAILS

STRUCTURE NO. SUM-76-13.09
 BUILT AS SUM-18R-138
 SEE SHEET 164 FOR UNDERPASS
 LIGHTING DETAILS

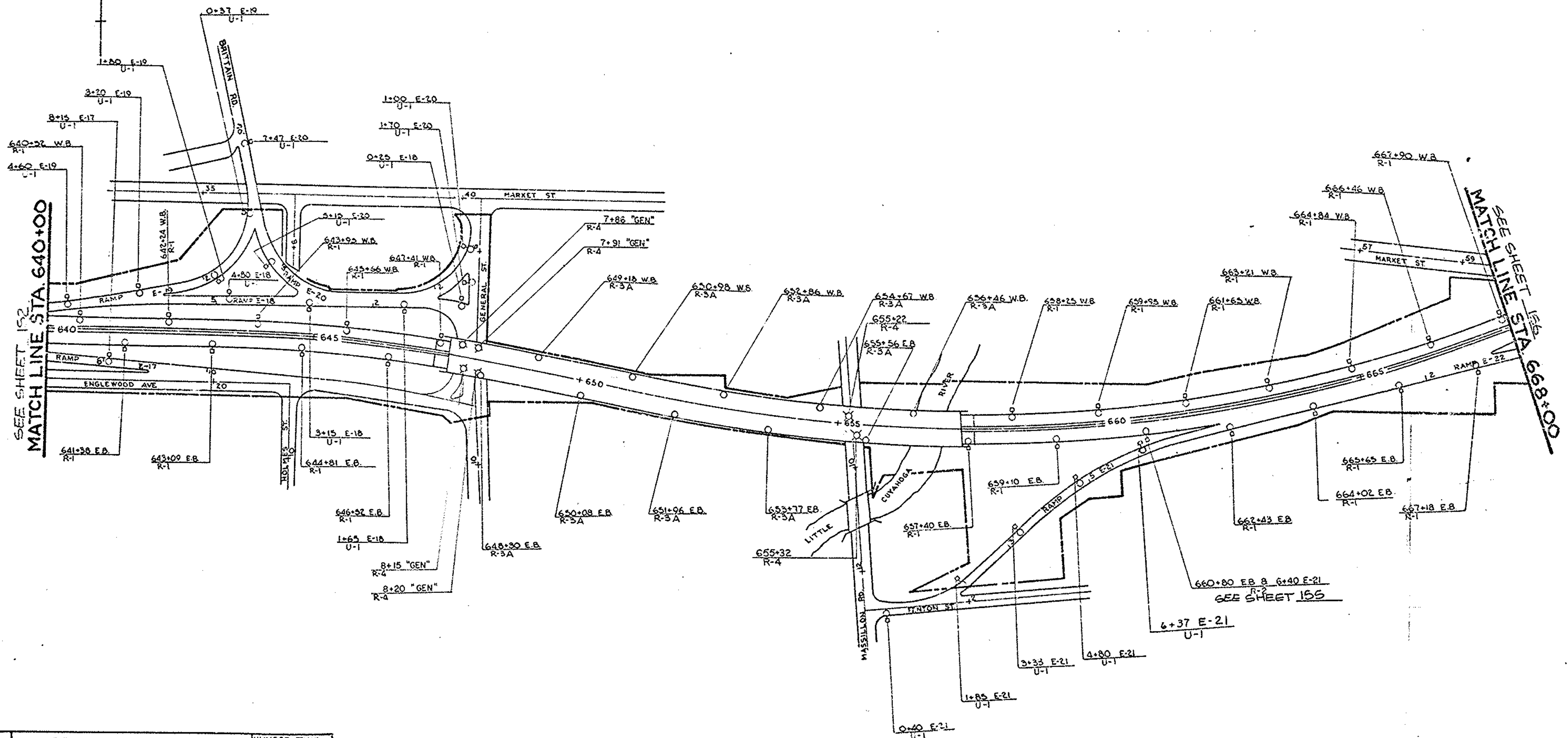
STRUCTURE NO. SUM-76-13.32
 BUILT AS SUM-18-13.87
 SEE SHEET 164 FOR UNDERPASS
 LIGHTING DETAILS

- ① 3" CONDUIT JACKED UNDER PAVEMENT
- ② 2" CONDUIT ENCASED IN CONCRETE
- *SEE FOUNDATION NOTE ON SHEET 127.

FOR LIGHTING LEGEND SEE SHEET 128
 FOR LIGHTING QUANTITIES SEE SHEET 124/135



AKRON EXPRESSWAY
SUM-76- 1157
SUM- 8 - 046



REMOVAL TYPE	WORK TO BE DONE	NUMBER THIS SHEET
R-1	Remove Entire Installation	22
R-2	Remove & Re-Erect	1
R-3A	Remove Structure Mnt'd. Install AS PER PLAN	10
R-4	Remove Underpass Installation	6
U-1	Upgrade Existing Installation	18

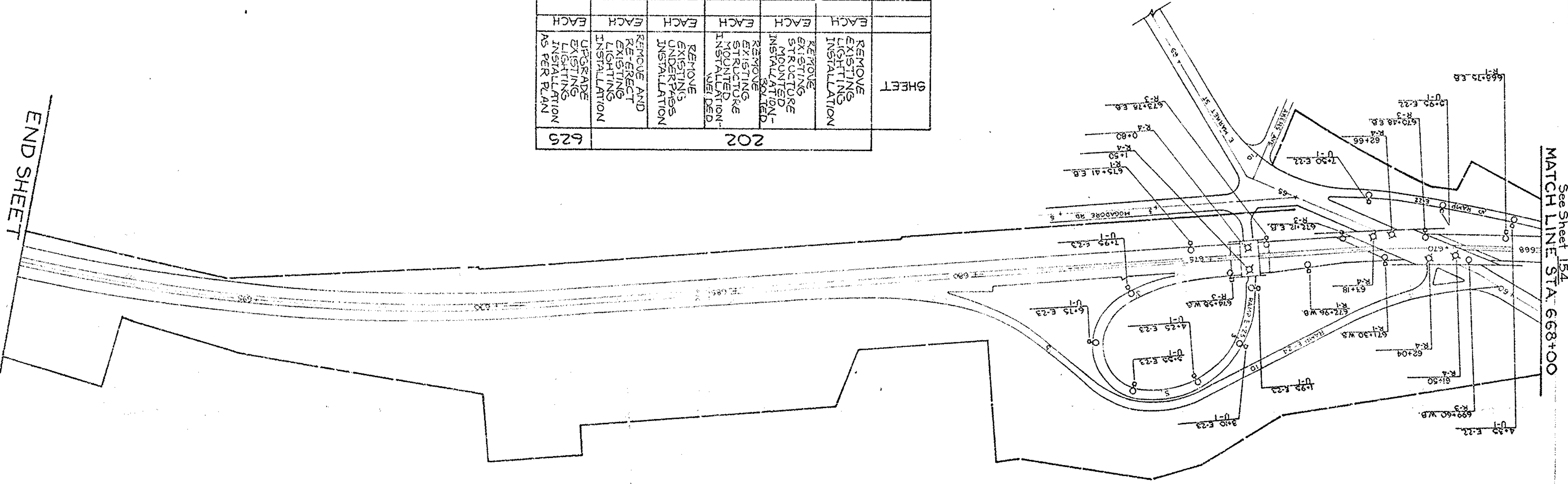
FOR LIGHTING LEGEND SEE SHEET 128
FOR LIGHTING QUANTITIES SEE SHEET 156

LIGHTING PLAN RAMP 640+00 TO 668+00



REMOVAL TYPE	WORK TO BE DONE	NUMBER THIS SHEET
R-1	Remove Entire Installation	5
R-3	Remove Structure Main Installation	4
R-4	Remove Underpass Installation	6
U-1	REMOVE EXISTING INSTALLATION	9

SHEET	202	625
REMOVE EXISTING LIGHTING INSTALLATION	EACH	142
REMOVE EXISTING STRUCTURE MOUNTED INSTALLATION - SOLID	EACH	79
REMOVE EXISTING STRUCTURE MOUNTED INSTALLATION - WEIDED	EACH	144
REMOVE EXISTING UNDERPASS INSTALLATION	EACH	146
REMOVE AND RE-RECT EXISTING LIGHTING INSTALLATION	EACH	147
UPGRADE EXISTING LIGHTING INSTALLATION AS PER PLAN	EACH	148
TOTAL		156
304	4	154
23	5	152
19	10	150
39	6	148
1	1	147
82		146



END SHEET

156

245

AKRON EXPRESSWAY

SUM-76-11.57

SUM-8-0.46

5

OHIO

0

50

100

200

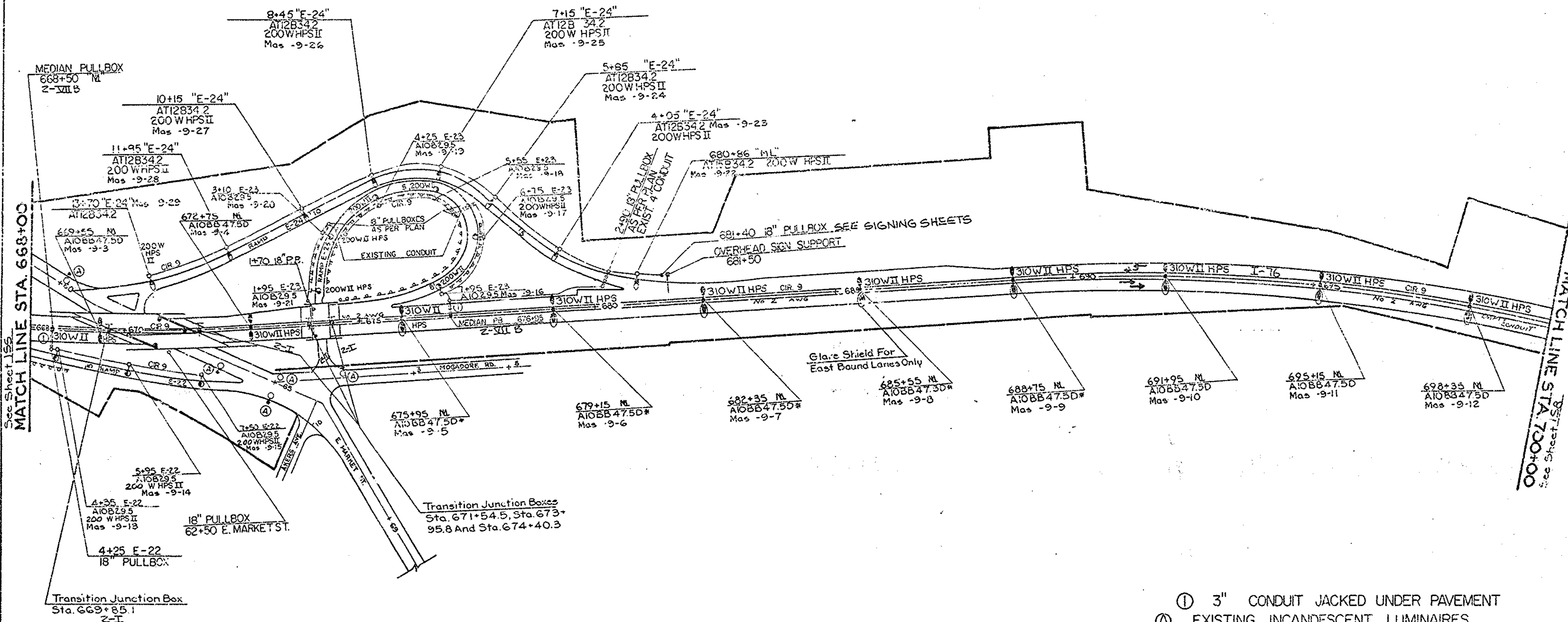
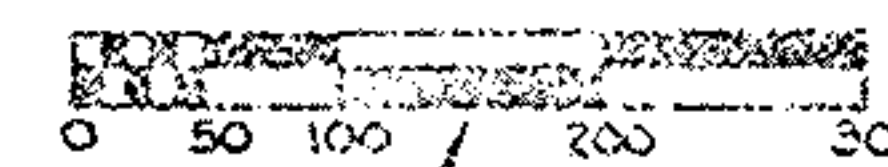
300

AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46

For Lighting Legend See Sheet 128.

MARKET ST INTERCHANGE

AKRON EXPRESSWAY
SUM-76-1157
SUM-8-0.46



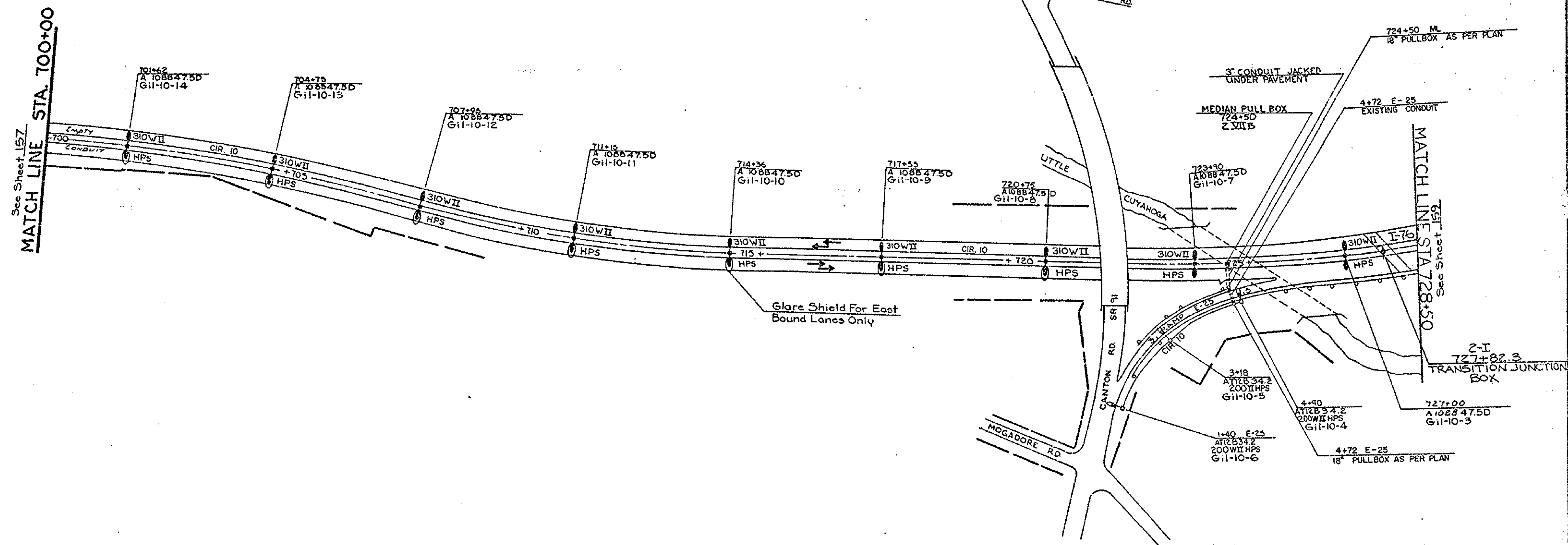
STRUCTURE NO. SUM-76-1408
BUILT AS SUM-18-1464
FOR UNDERPASS LIGHTING DETAILS
SEE SHEET 165

STRUCTURE NO. SUM-76-1416
BUILT AS SUM-18-1471
FOR UNDERPASS LIGHTING DETAILS
SEE SHEET 165

- ① 3" CONDUIT JACKED UNDER PAVEMENT
- Ⓐ EXISTING INCANDESCENT LUMINAIRES
MOUNTED ON WOOD POLE 6 FOOT BRACKET
ARM NOMINAL MOUNTING HEIGHT 30 FOOT.
NO WORK
- *SEE FOUNDATIONS NOTE ON SHEET NO. 127
- For Lighting Legend See Sheet 128
- For Lighting Quantities See Sheet 137

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

158
248

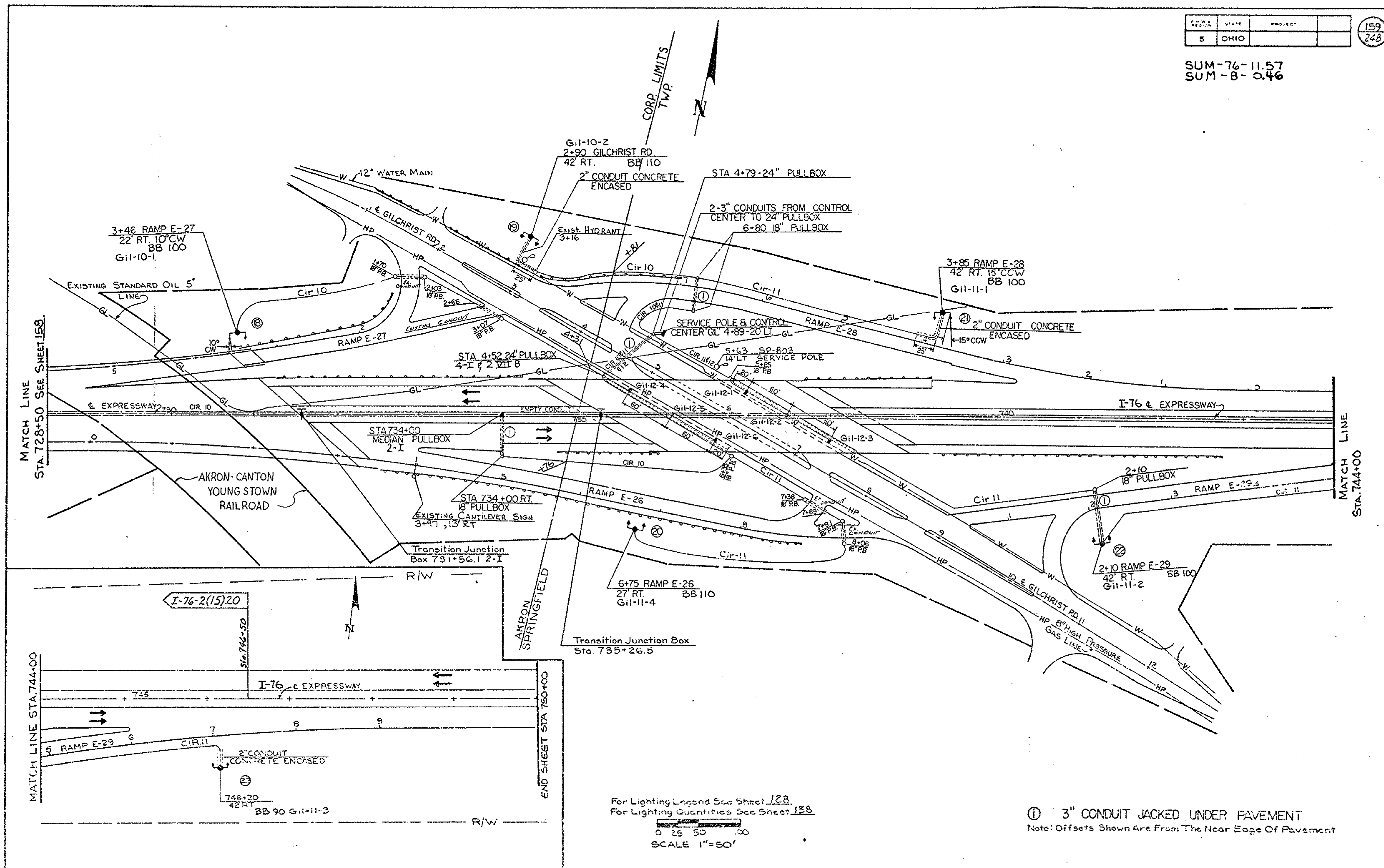


For Lighting Legend See Sheet 128
For Lighting Quantities See Sheet 137

COUNTY	STATE	PROJECT
5	OHIO	

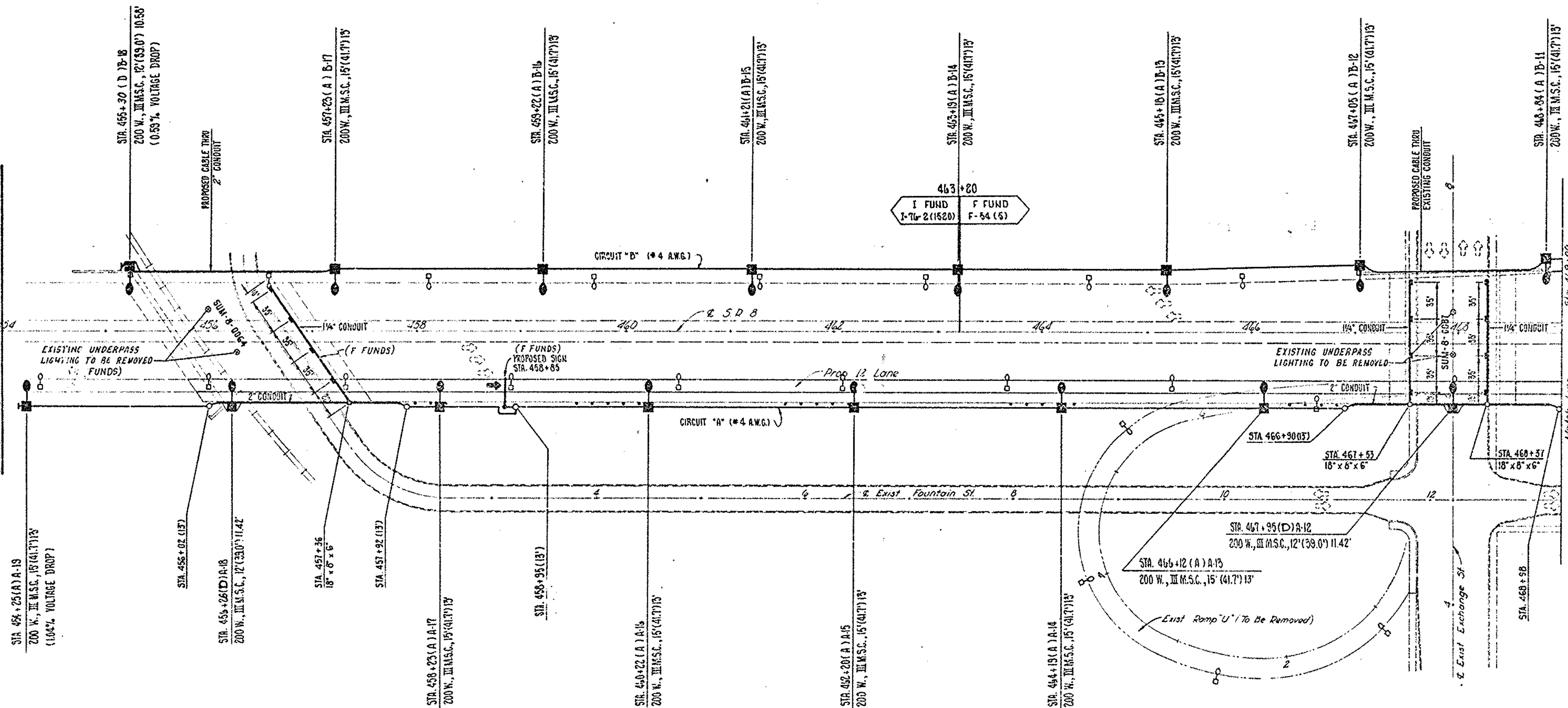
159
248

SUM-76-11.57
SUM-8-0.46





SEE SHEET 147
MATCH LINE STA 454+00



LEGEND

- CONDUIT, SIZE AS SHOWN
- STUB-OUT CONDUIT
- PROPOSED 1-1/2" DUCT CABLE
- EXISTING
- JUNCTION BOX — STATION LOCATION SIZE

- PROPOSED LIGHT POLE & LUMINAIRE
- STATION LOCATION (POLE TYPE) CIRCUIT AND POLE NUMBER
- LAMP WATTAGE, I.E.S. DISTRIBUTION, ARM LENGTH (MOUNTING HEIGHT) OFFSET-EDGE OF PYMT. TO & POLE
- PROPOSED UNDERPASS LUMINAIRE (55 WATT LOW PRESSURE SODIUM)
- PROPOSED PULL BOX — STATION LOCATION (OFFSET-EDGE PAINT TO & FOUNDATION) (NUMBER & TYPE OF CONNECTOR W/TS)
- PROPOSED LIGHT POLE WITH GLARE SHIELD
- EXISTING LIGHT POLE TO REMAIN
- EXISTING LIGHT POLE TO BE REMOVED
- STRUCTURE MOUNTED POLE

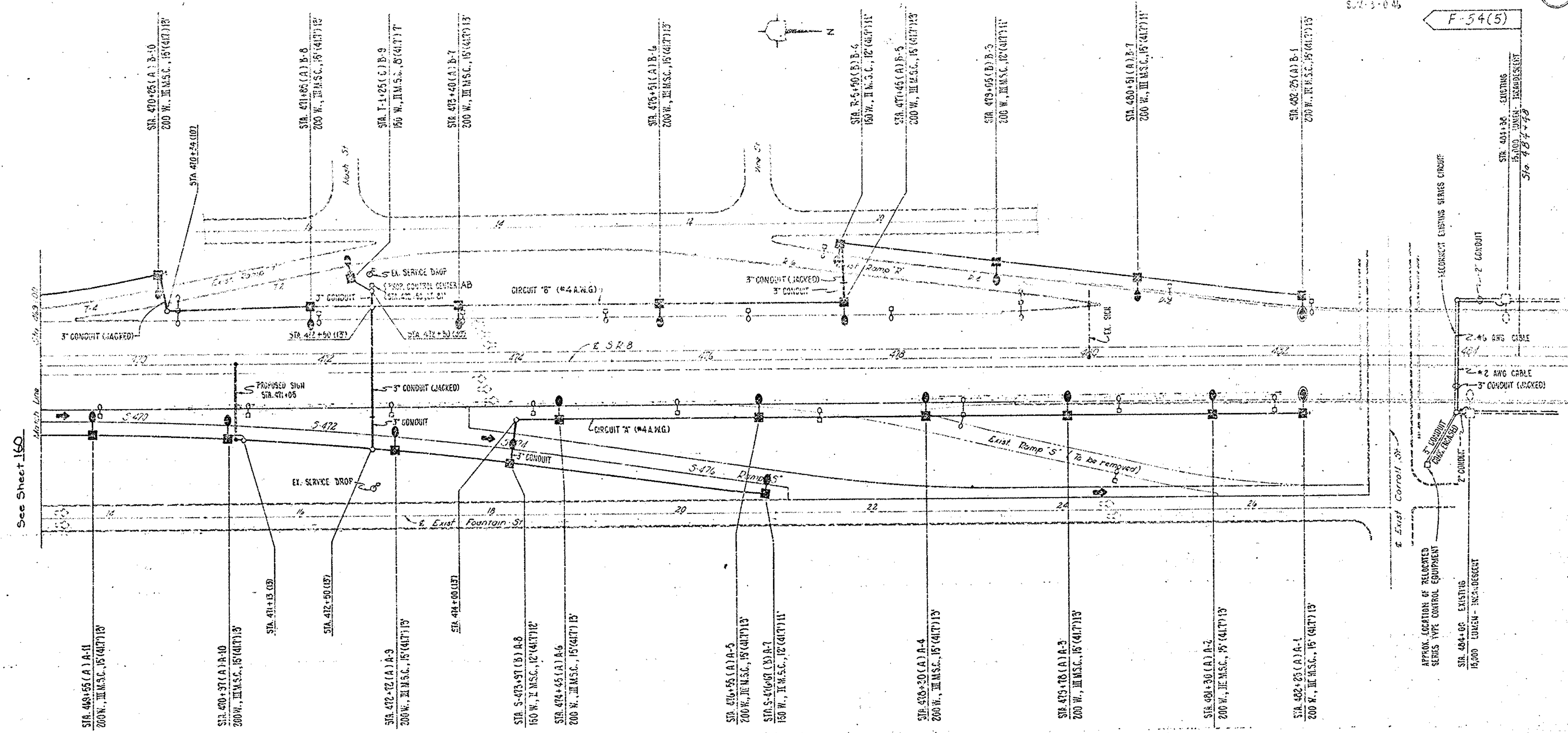
FOR LIGHTING QUANTITIES SEE SHEET 139 & 140

DATE	BY	CHKD	APP'D
5	ORNO		

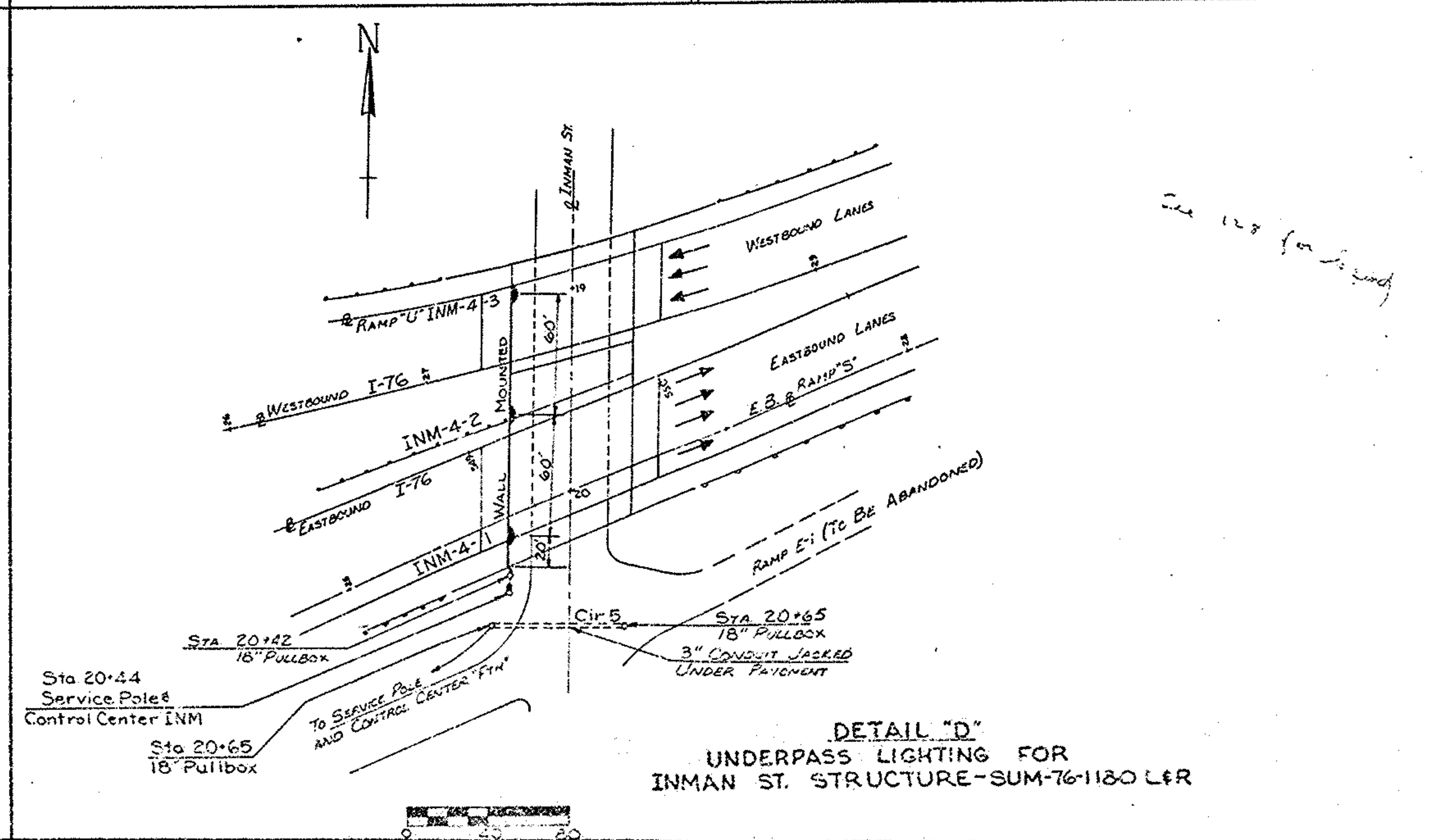
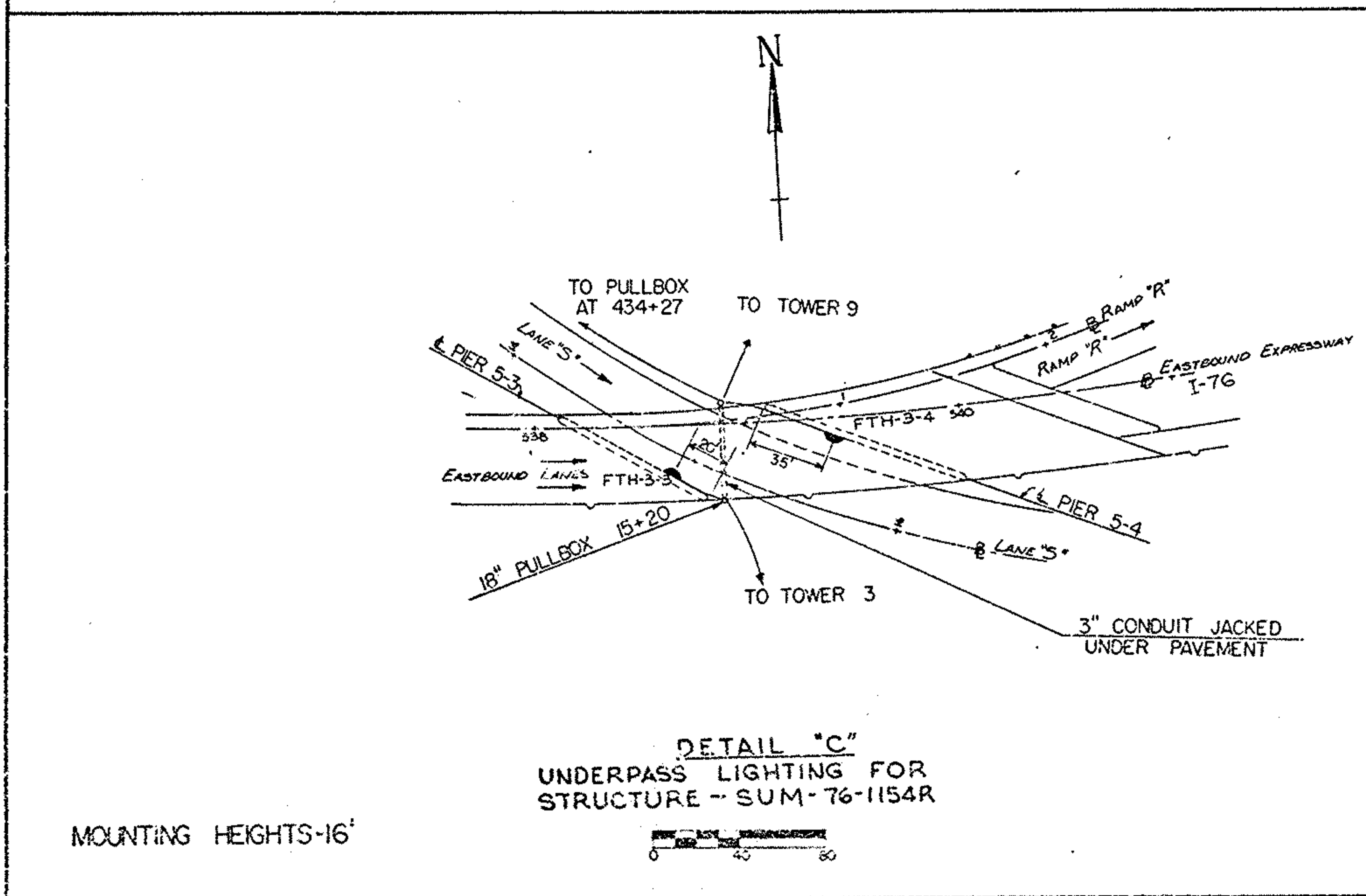
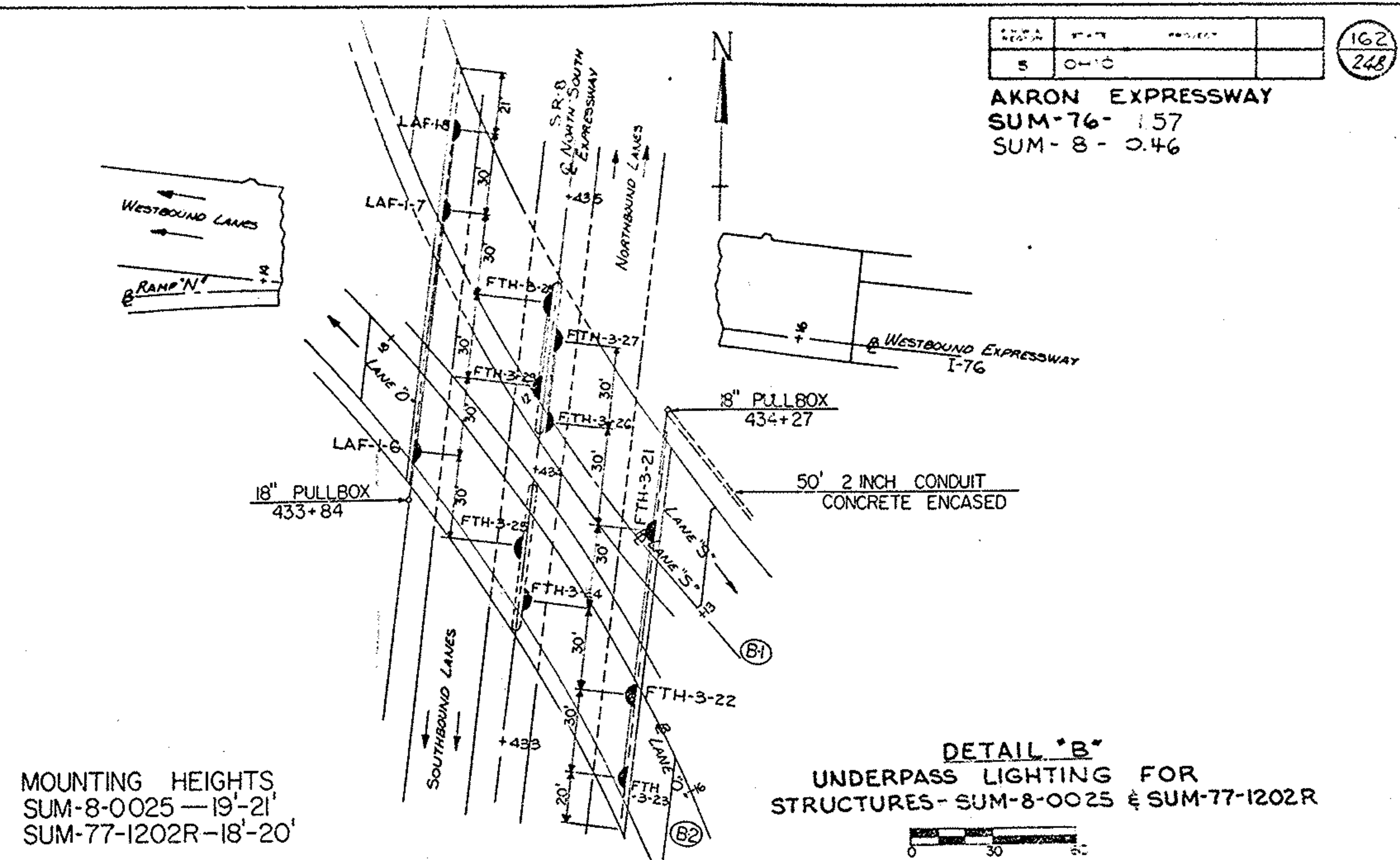
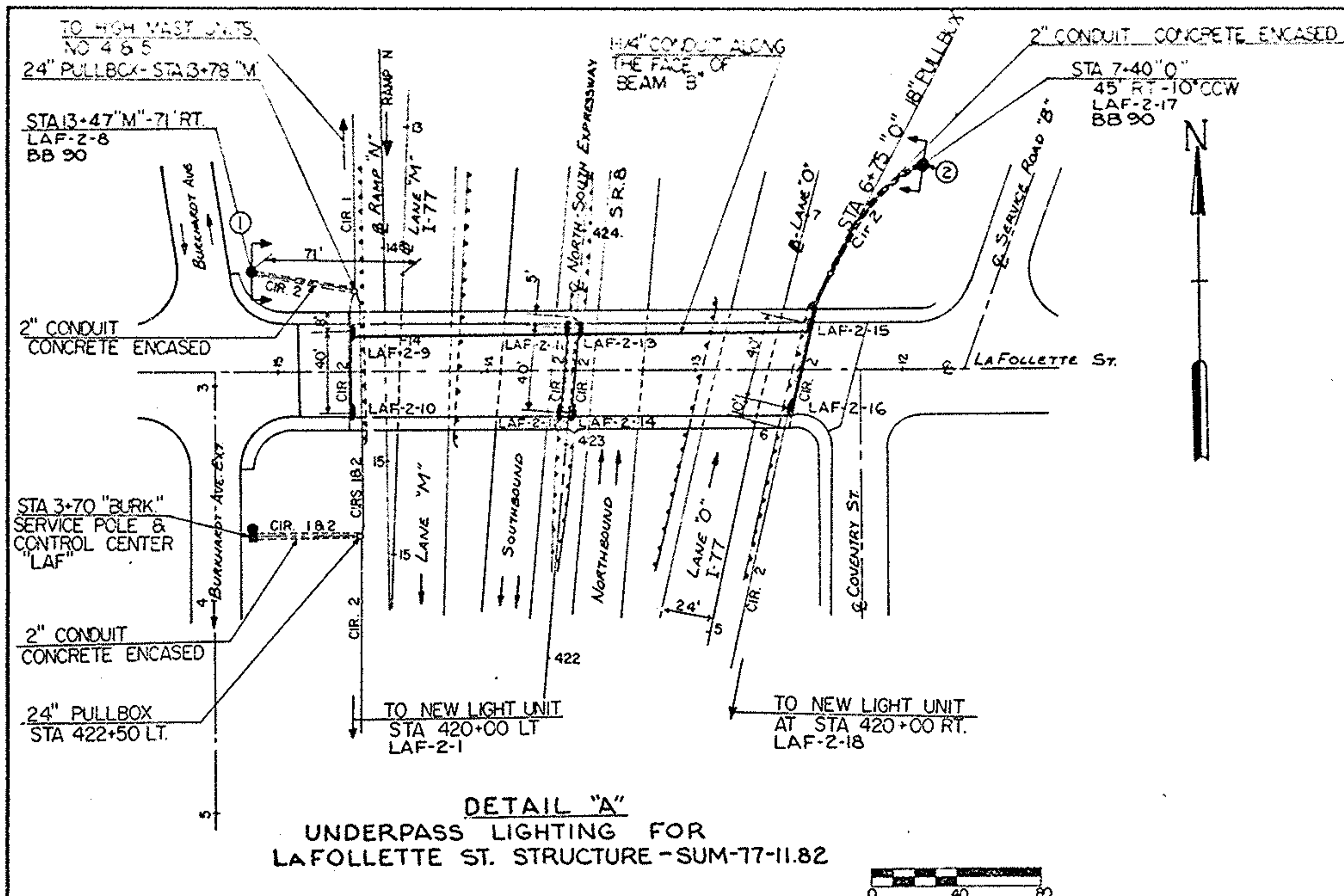
CITY OF KRON
SUNNY COUNTY
S-17-3-0-45



F-54(5)

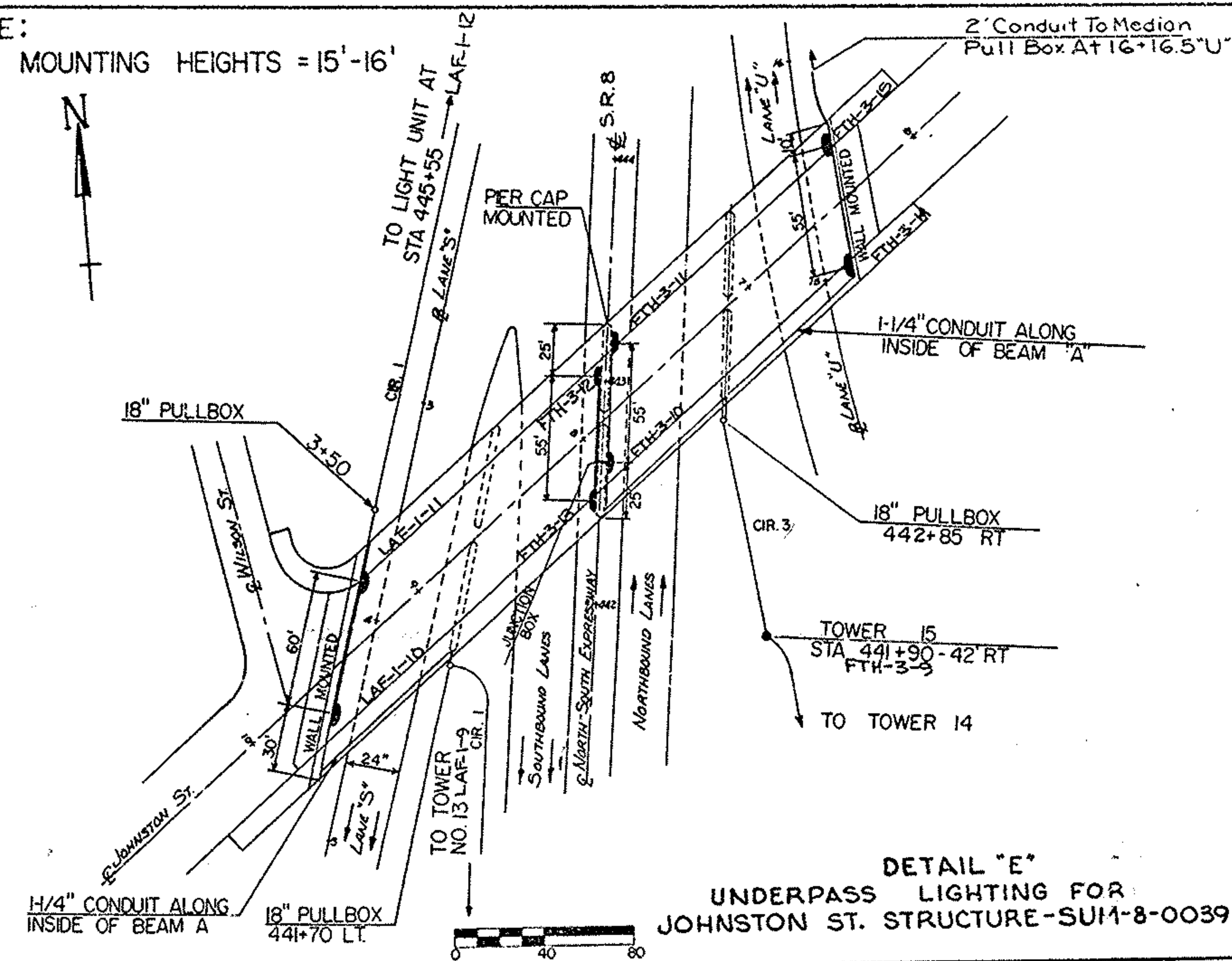


For Lighting Legend See Sheet 160
For Lighting Quantities See Sheet 140 & 141



NOTE:

MOUNTING HEIGHTS = 15'-16'

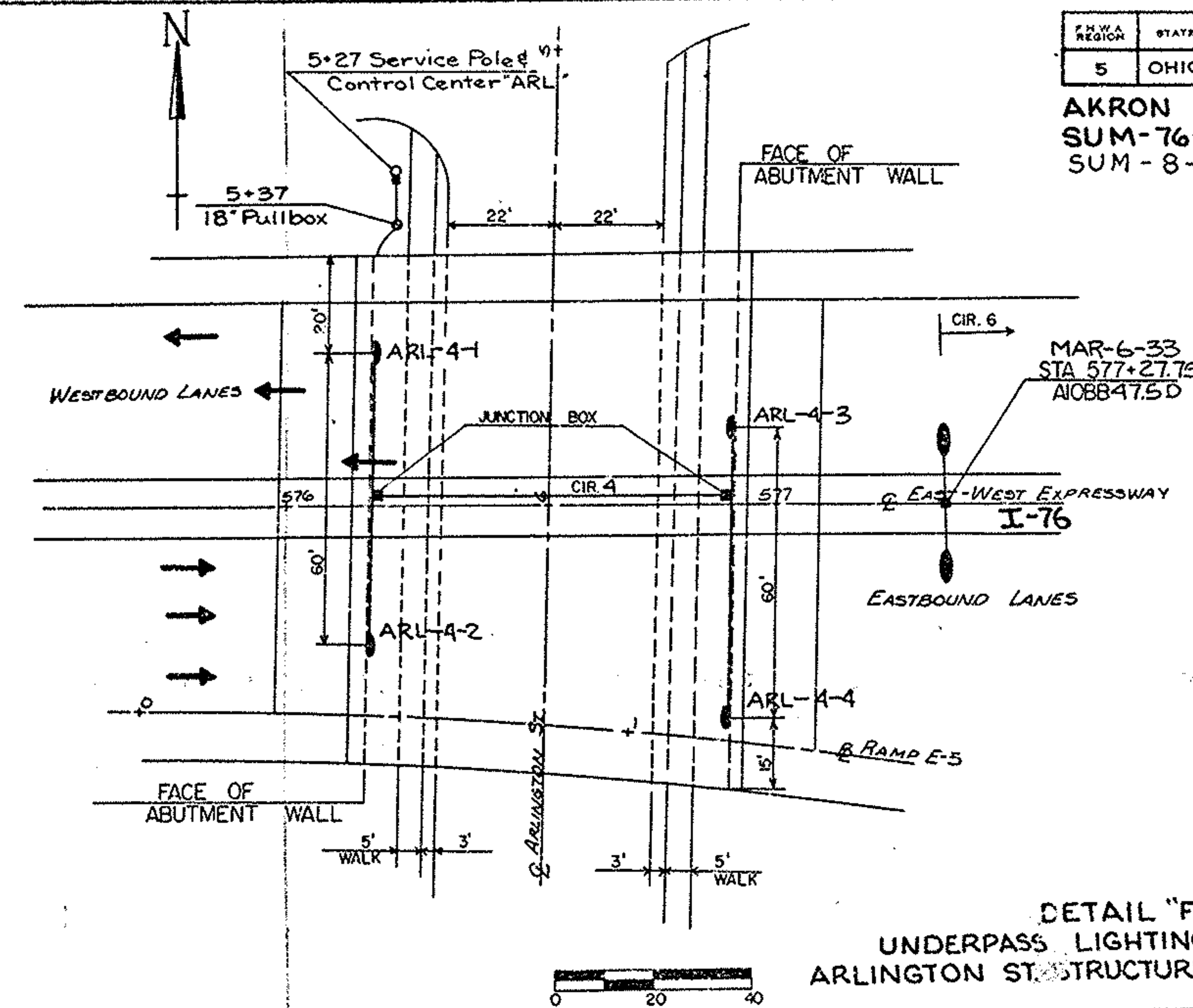


DETAIL "E"
UNDERPASS LIGHTING FOR
JOHNSTON ST. STRUCTURE-SUM-8-0039

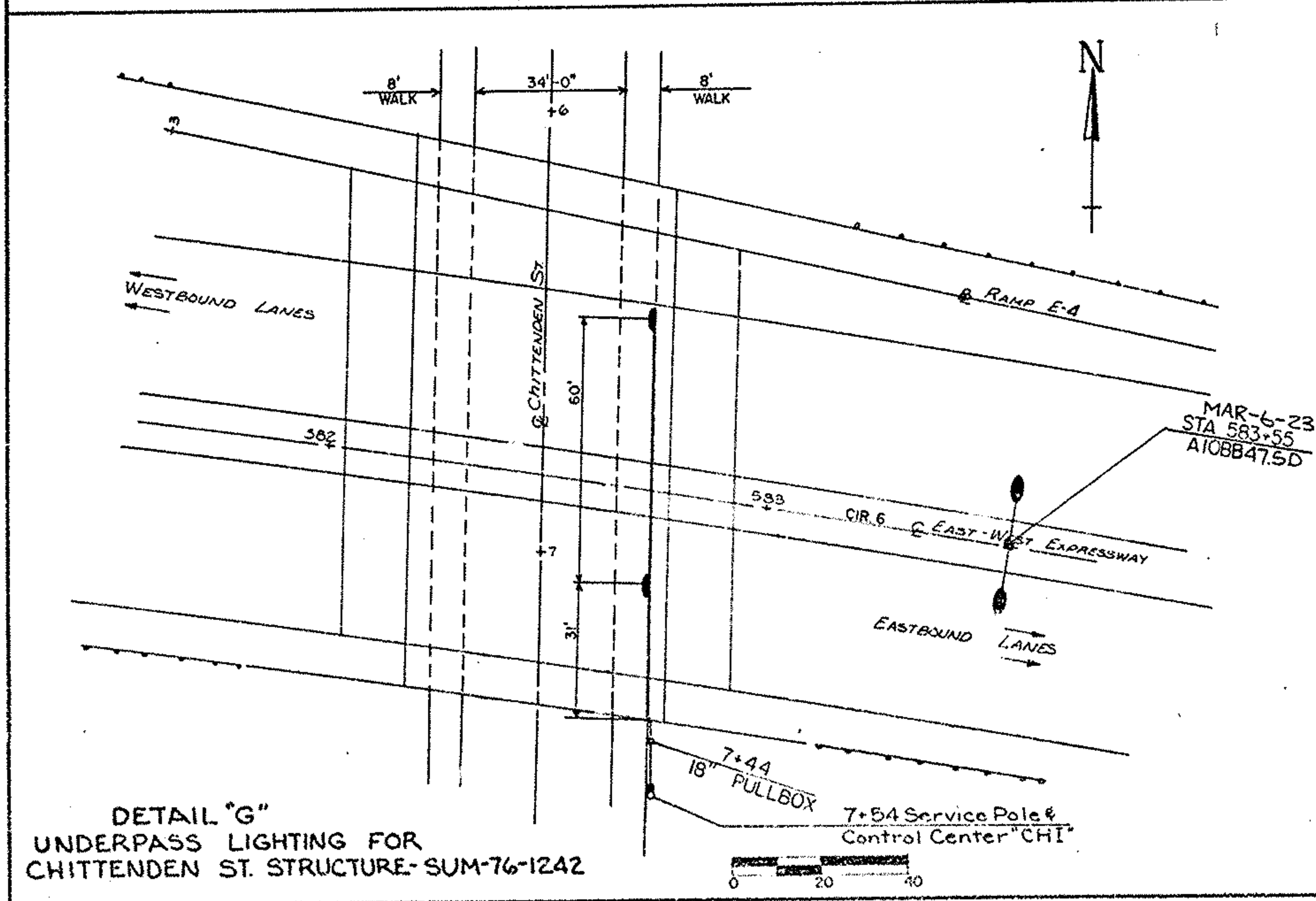
F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

163
248

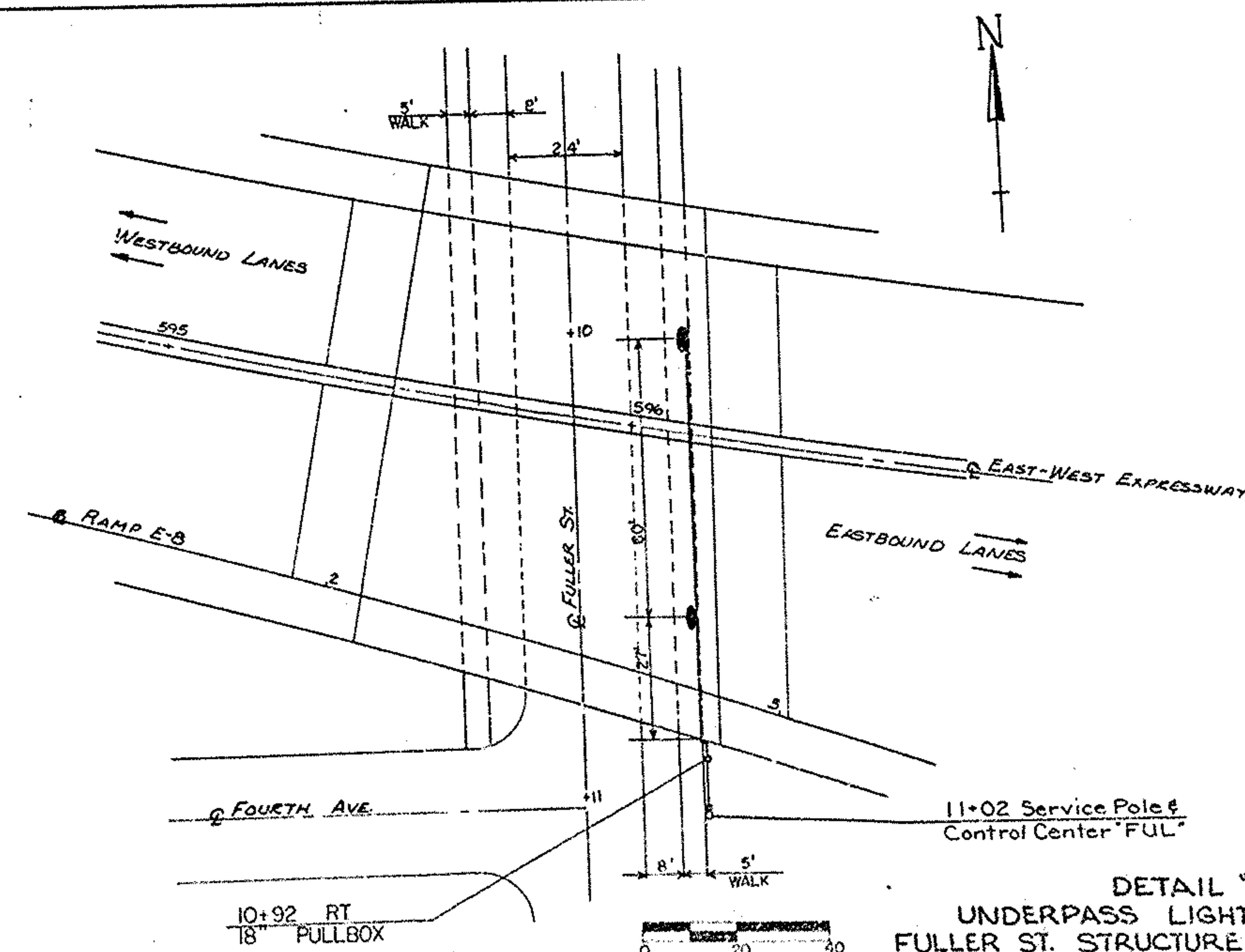
AKRON EXPRESSWAY
SUM-76- 11.57
SUM-8- 0.46



DETAIL "F"
UNDERPASS LIGHTING FOR
ARLINGTON ST. STRUCTURE-SUM-76-1231

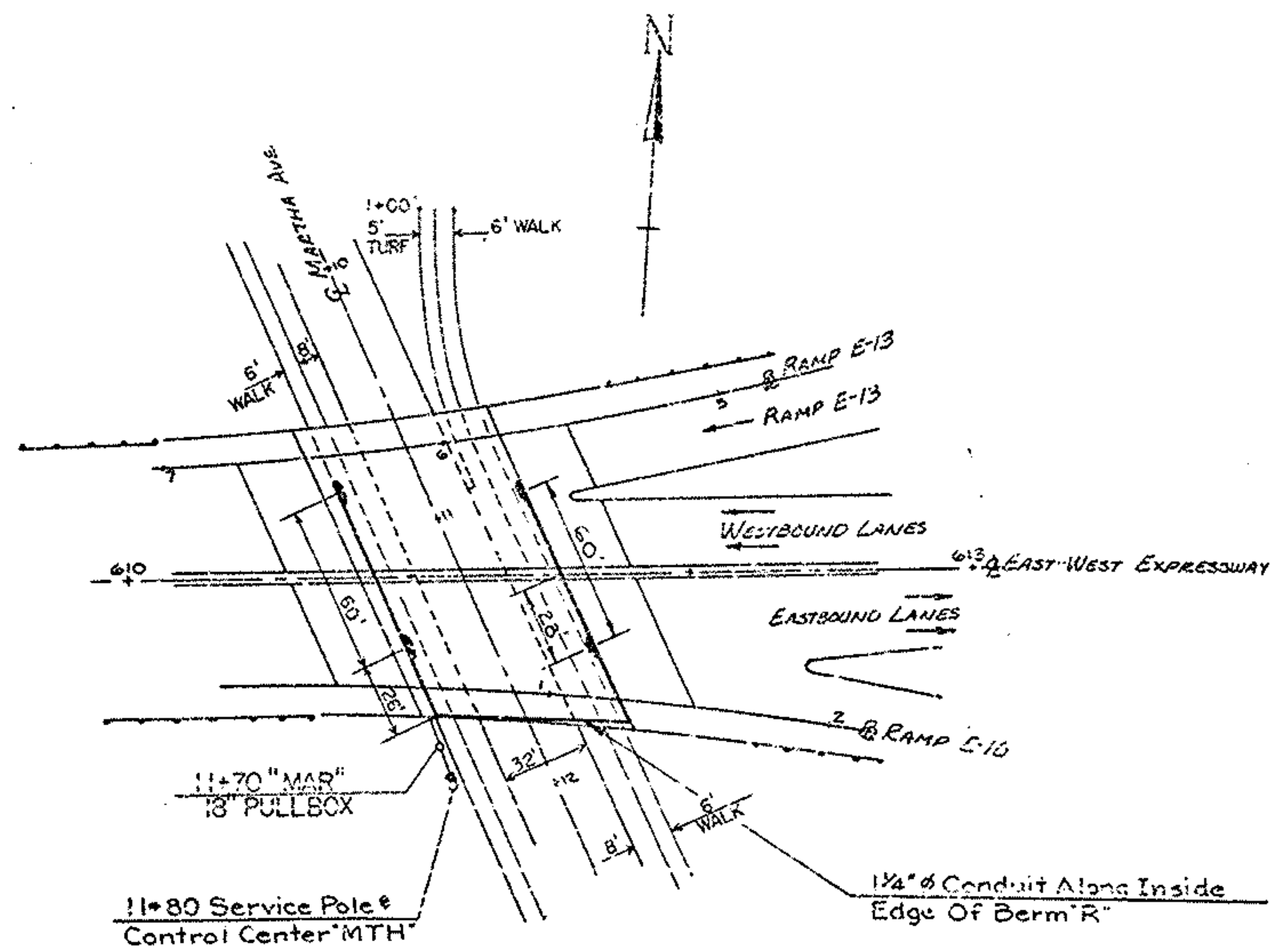


DETAIL "G"
UNDERPASS LIGHTING FOR
CHITTENDEN ST. STRUCTURE-SUM-76-1242

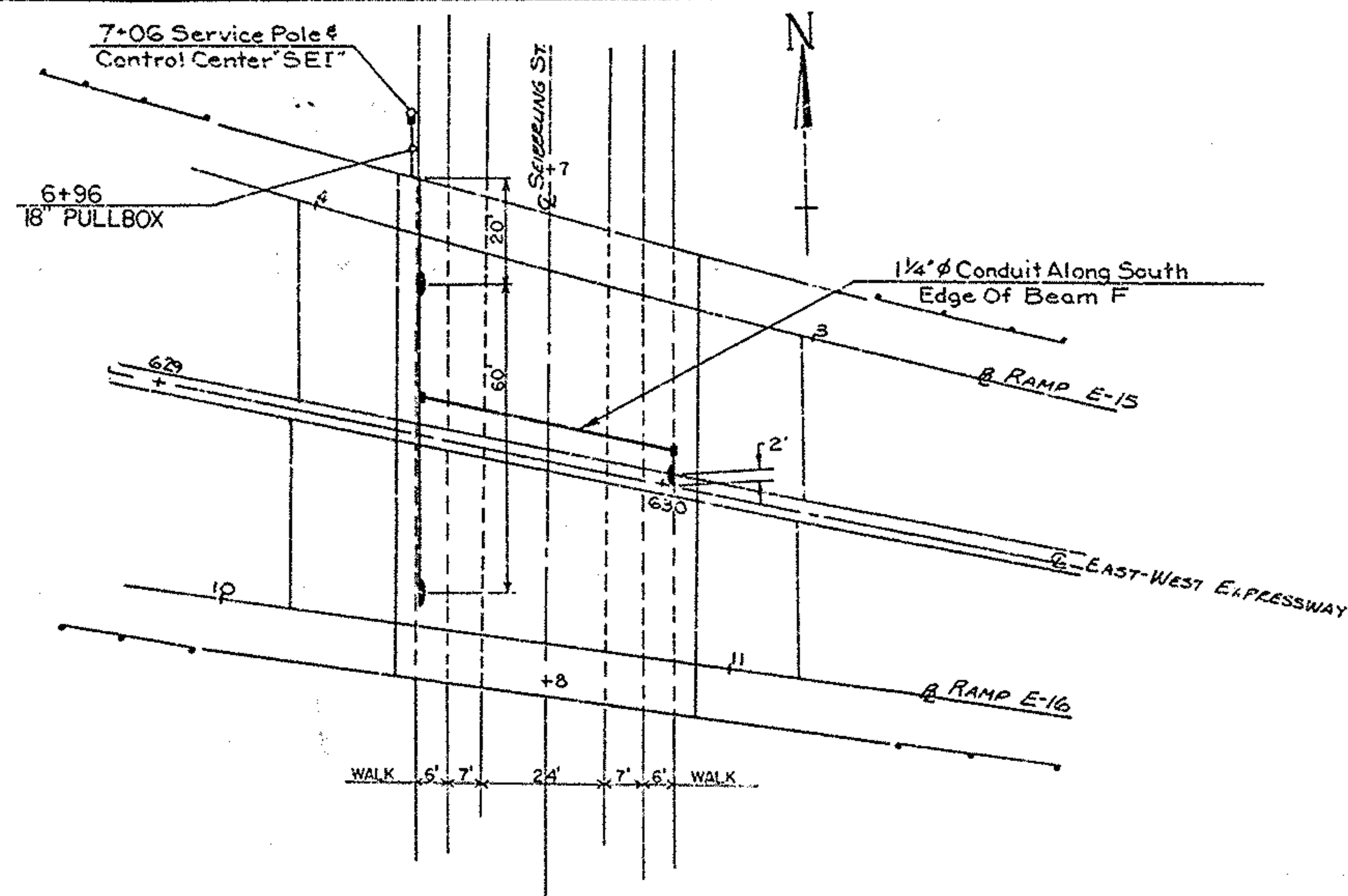


DETAIL "H"
UNDERPASS LIGHTING FOR
FULLER ST. STRUCTURE-SUM-76-1267

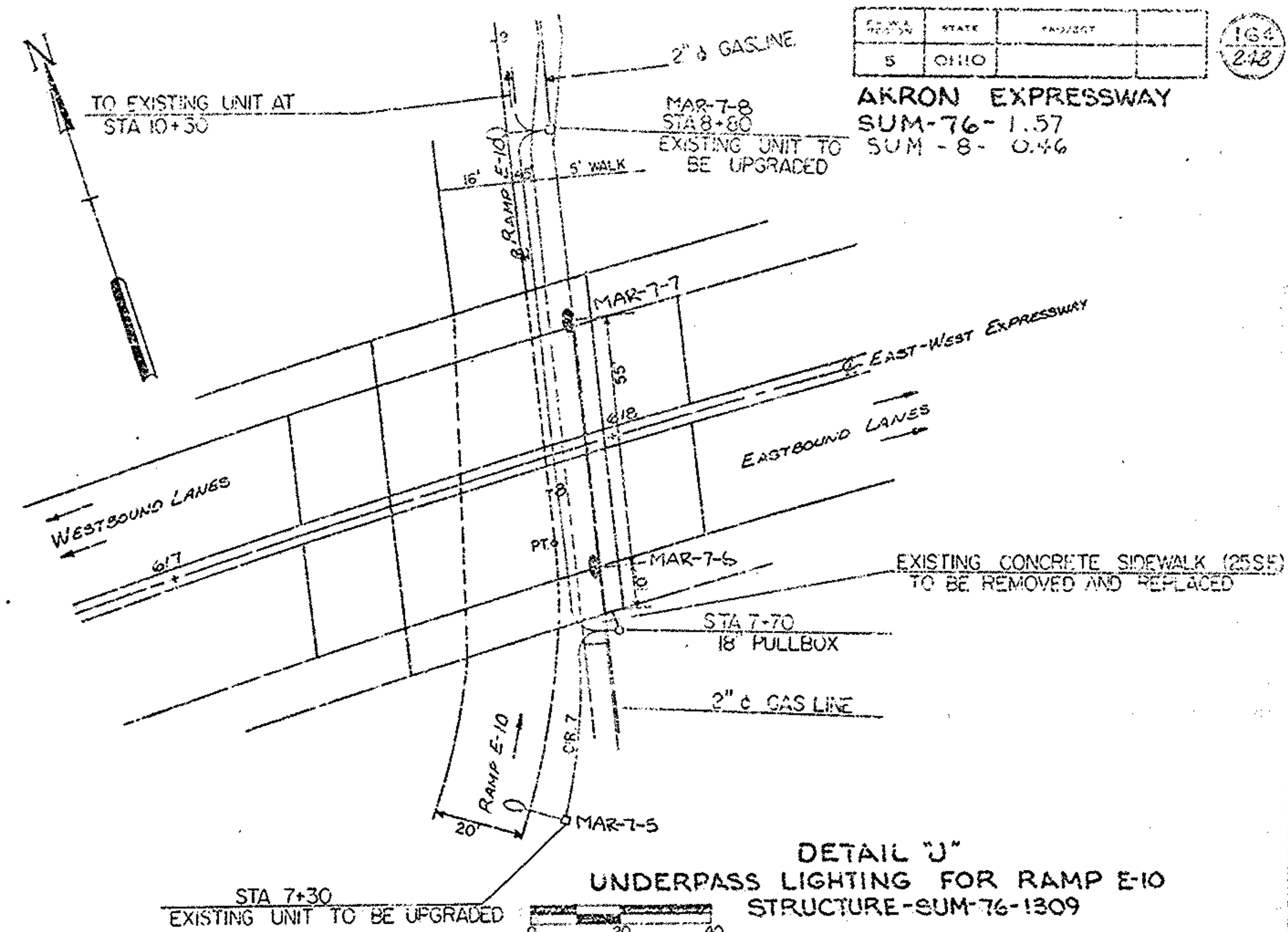
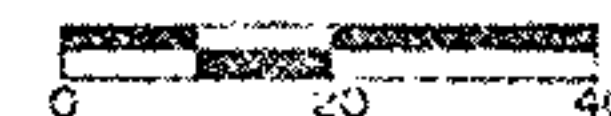
UNDERPASS LIGHTING DETAILS



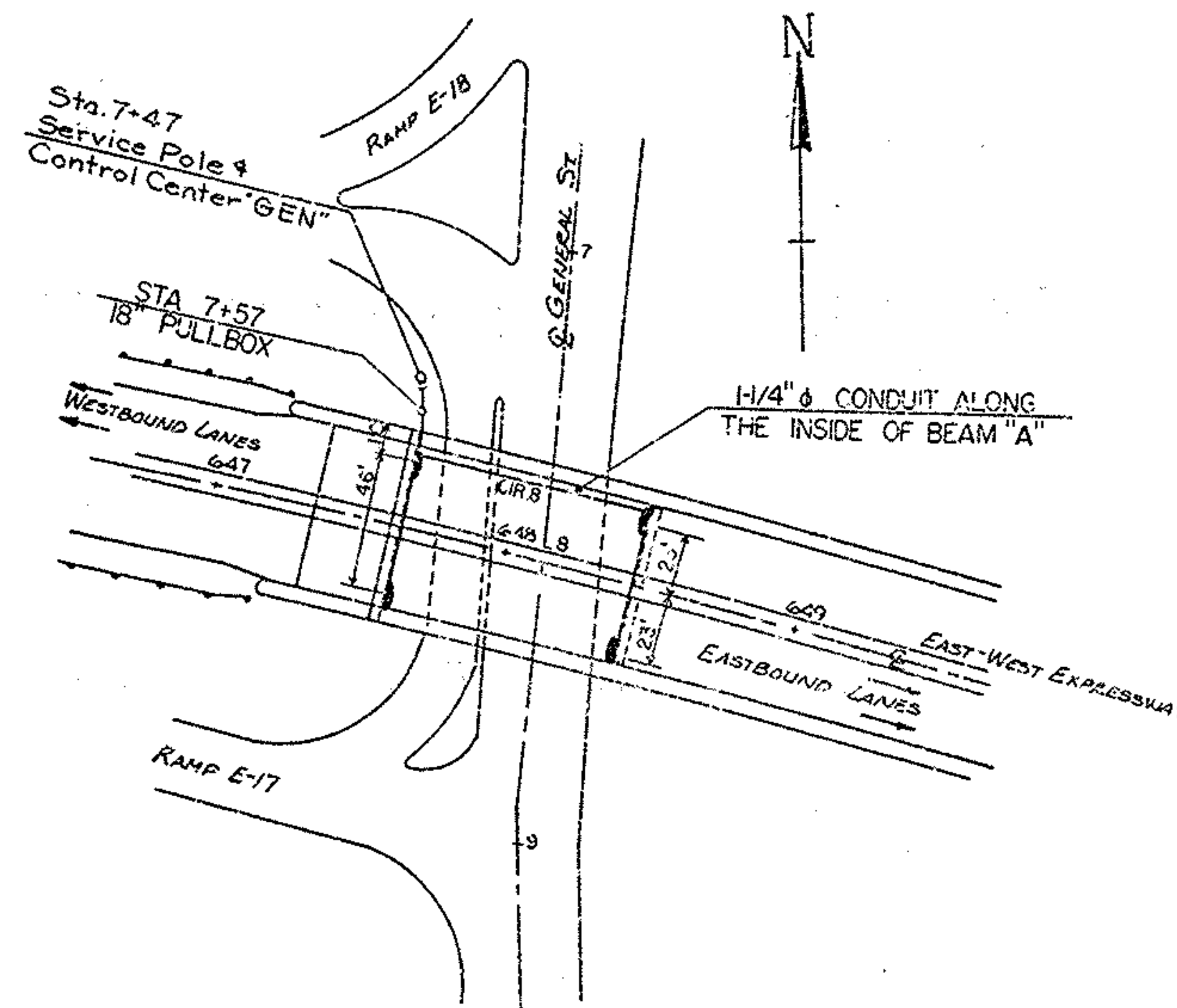
DETAIL "I"
UNDERPASS LIGHTING FOR
MARTHA AVE. STRUCTURE-SUM-76-1296



DETAIL "K"
UNDERPASS LIGHTING FOR
SEIBERLING ST. STRUCTURE-SUM-76-1332

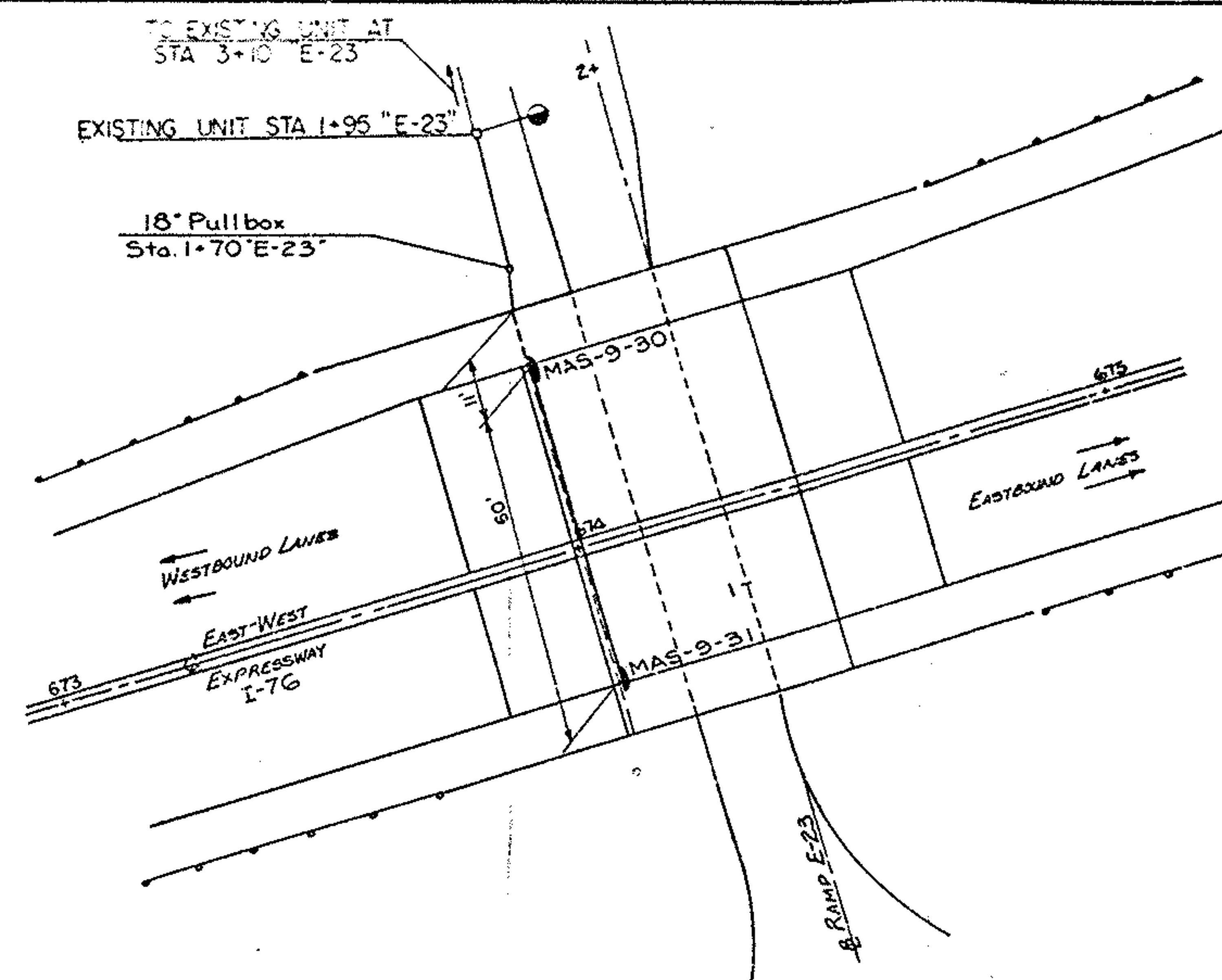
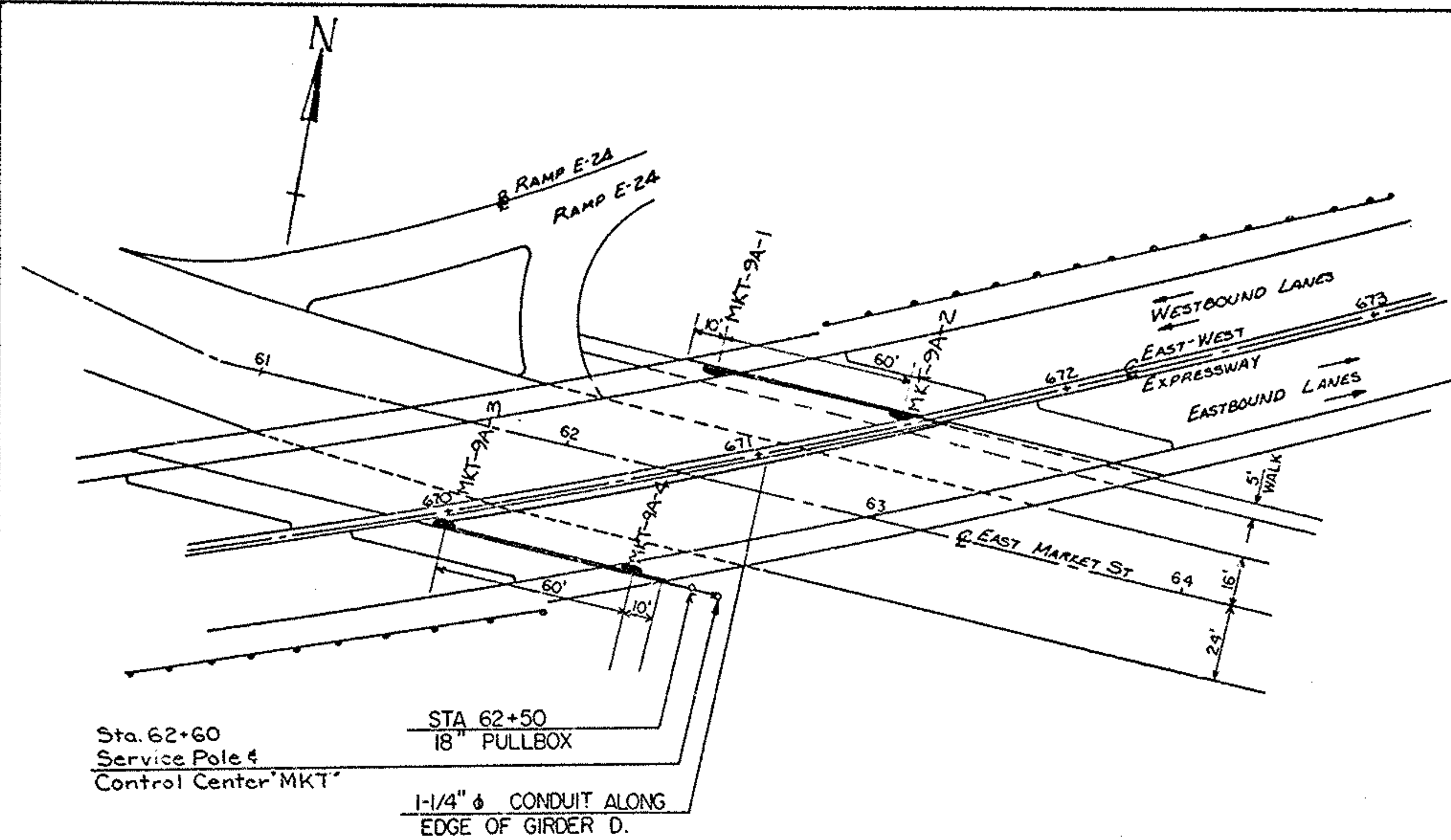


DETAIL "J"
UNDERPASS LIGHTING FOR RAMP E-10
STRUCTURE-SUM-76-1309



DETAIL "L"
UNDERPASS LIGHTING FOR
GENERAL ST. STRUCTURE-SUM-76-1366



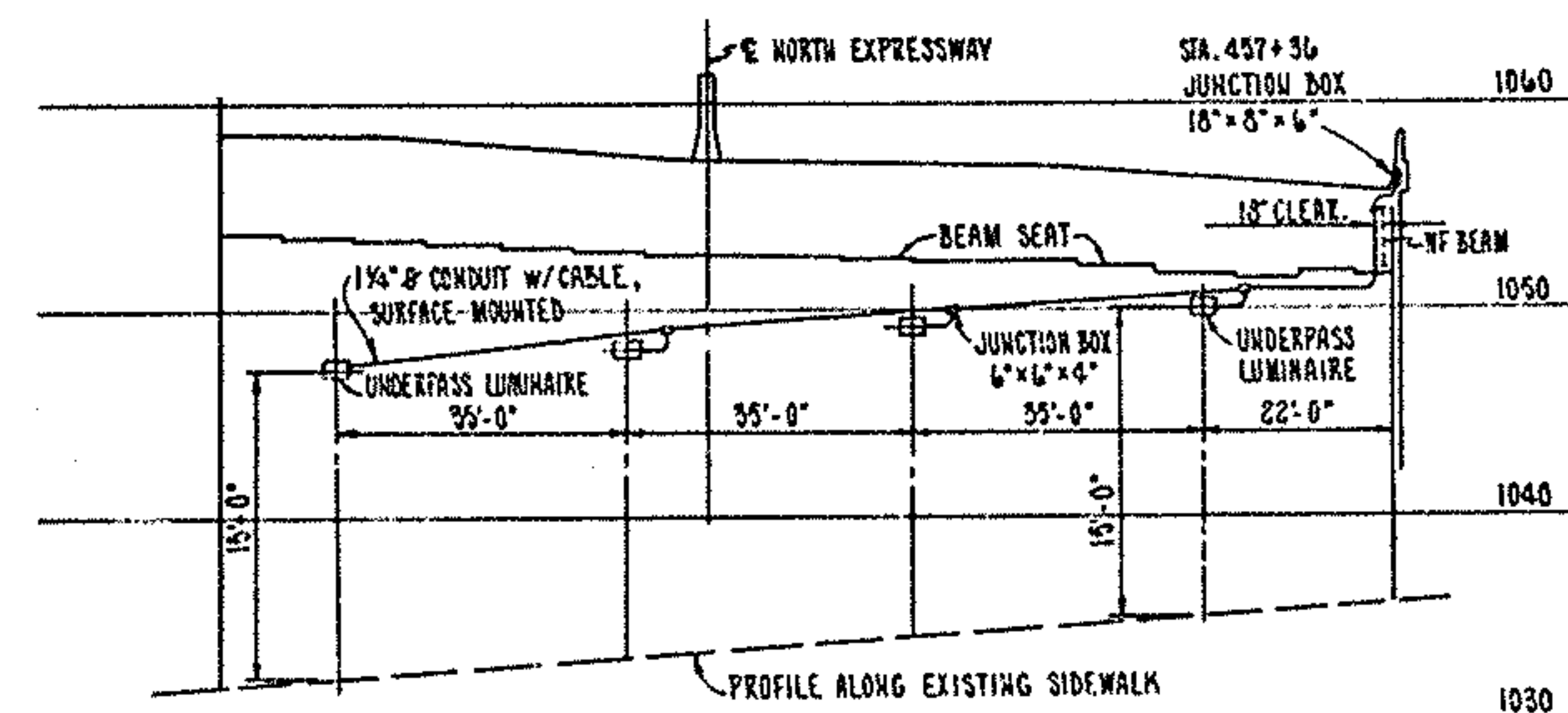


FYWA REGION	STATE	PROJECT	
5	OHIO		

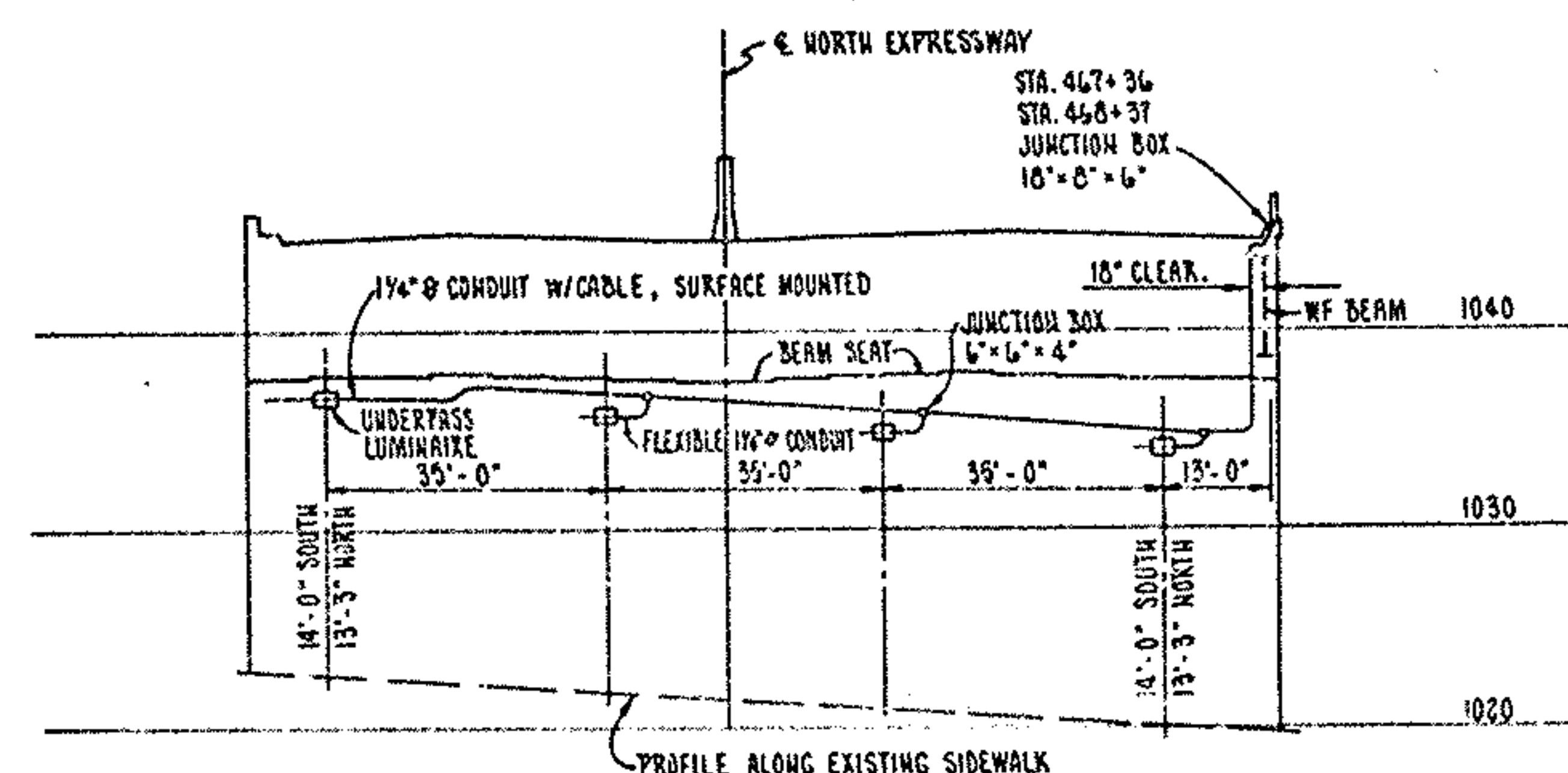
FHWA REGION	STATE	PROJECT
5	OHIO	

CITY OF AKRON
SUMMIT COUNTY
SUM-8-0.46

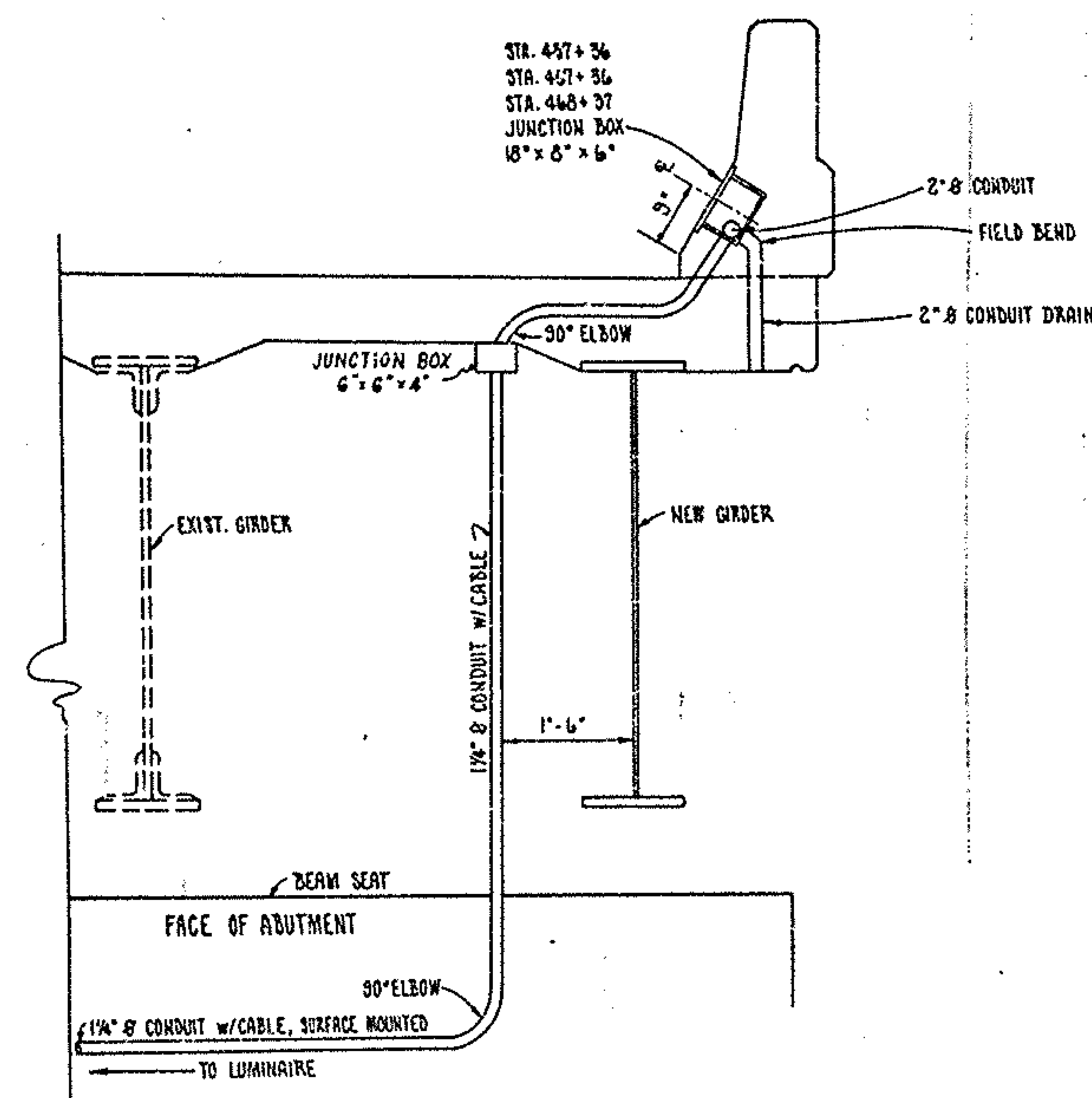
166
248



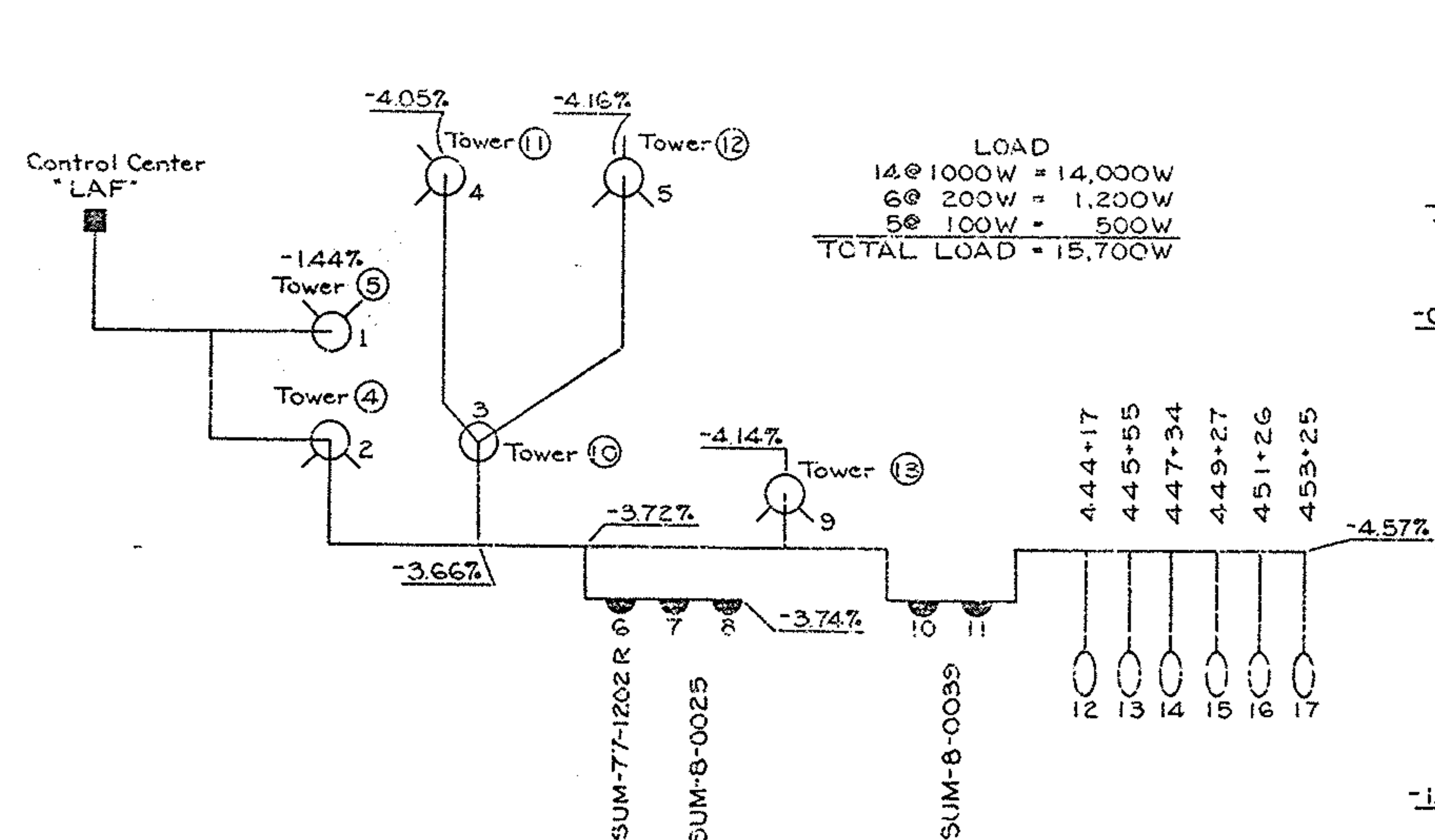
BEACON STREET-NORTH ABUTMENT
BRIDGE NO. SUM-8-0044



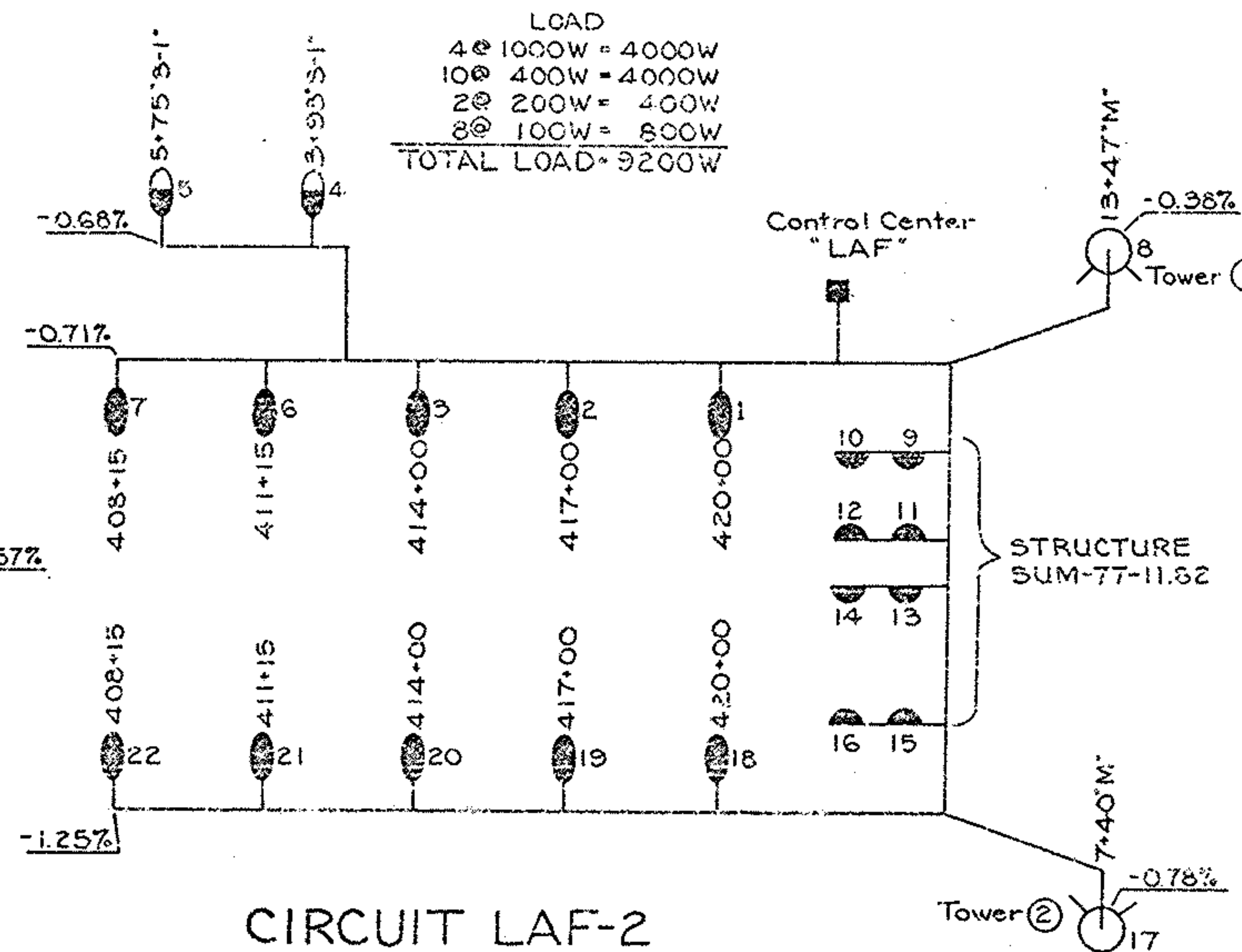
EXCHANGE STREET-NORTH & SOUTH ABUTMENTS
BRIDGE NO. SUM-8-0087



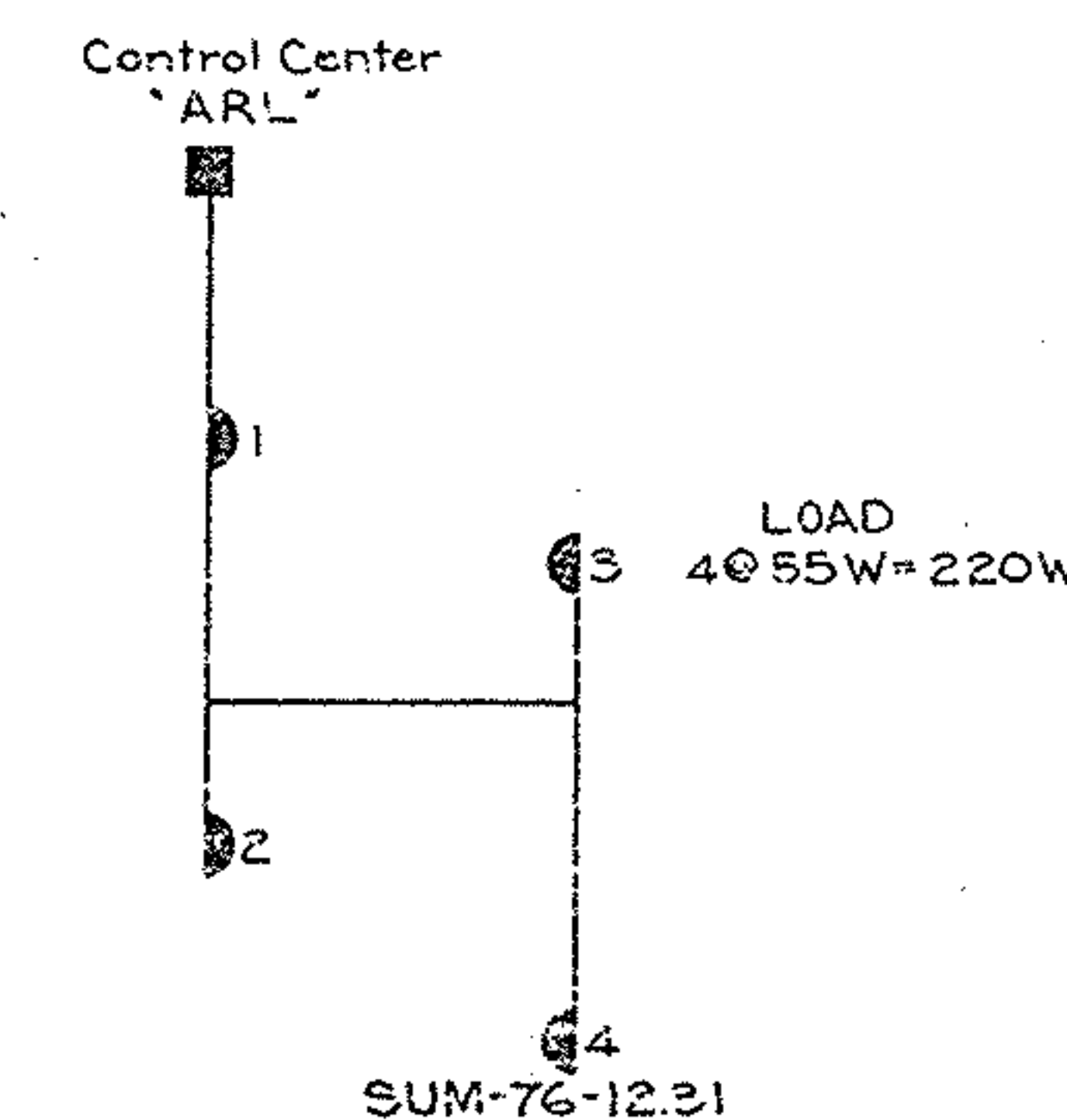
All rigid conduit shall conform to 713.04



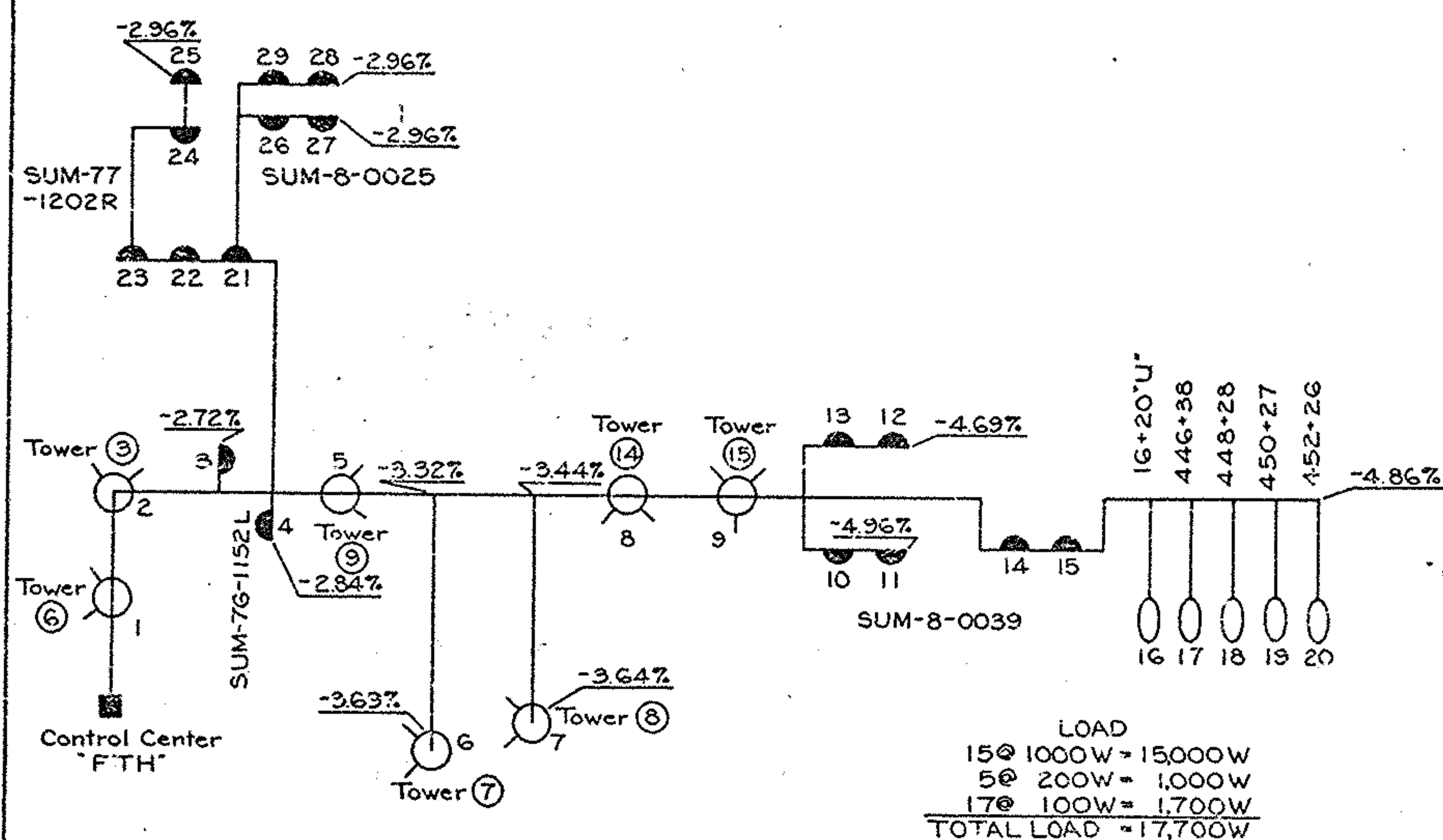
CIRCUIT LAF-1



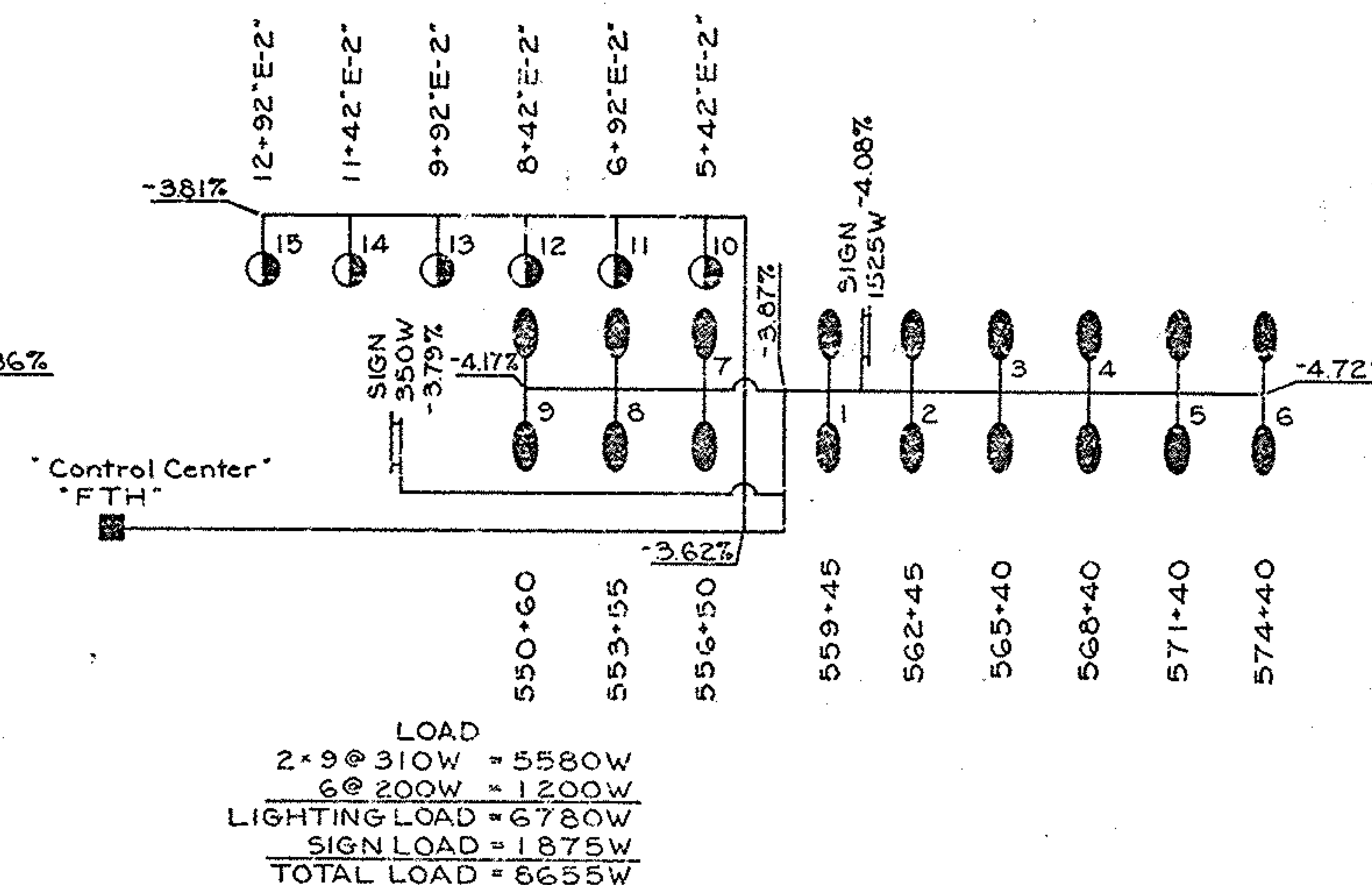
CIRCUIT LAF-2



CIRCUIT ARL-4



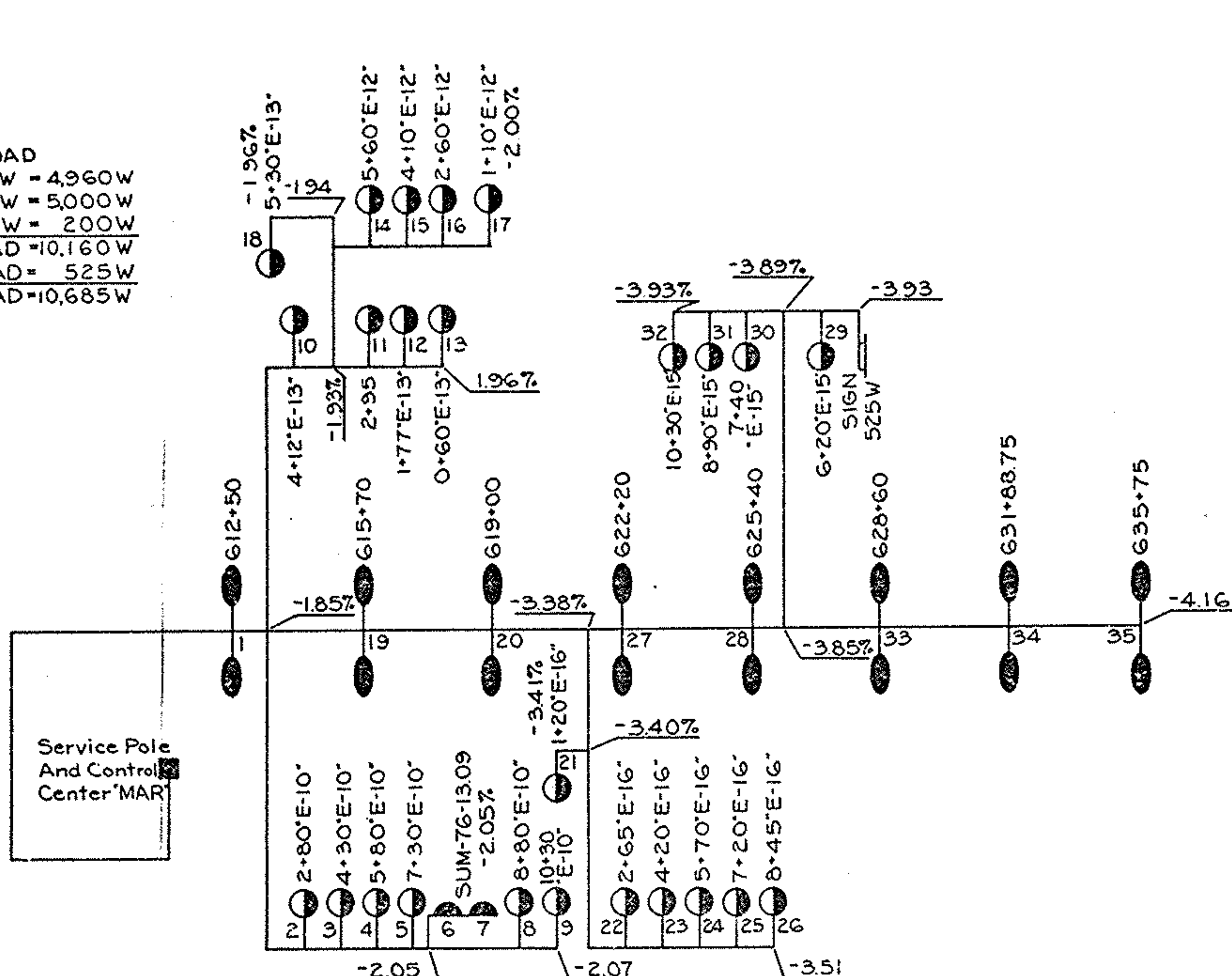
CIRCUIT FTH-3



CIRCUIT FTH-5

168
248

LOAD
2x7@3.0W = 4340W
19@200W = 3800W
TOTAL LOAD = 8140W



LOAD

2*11*310W = 6820W

22*200W = 4400W

LIGHTING LOAD = 11,220W

SIGNING LOAD = 1075W

TOTAL LOAD = 12,295W

Service Pole And Control Co.

"MAR"

Diagram illustrating a power distribution system with multiple feeders and loads.

Feeder 1 (Left):

- Transformer: 13
- Load 13: $6 \times 6.5^\circ \text{E-}17^\circ$
- Load 12: $8 \times 15^\circ \text{E-}17^\circ$
- Load 11: $639 \times 61.25^\circ$

Feeder 2 (Middle):

- Transformer: 10
- Load 10: $642 \times 88.75^\circ$
- Load 9: $646 \times 22^\circ$
- Load 8: $649 \times 55^\circ$
- Load 7: $652 \times 88^\circ$
- Load 6: $656 \times 22^\circ$
- Load 5: $659 \times 55^\circ$

Feeder 3 (Right):

- Transformer: 1
- Load 1: $6 \times 6.5^\circ \text{E-}17^\circ$
- Load 2: $8 \times 15^\circ \text{E-}17^\circ$
- Load 3: $639 \times 61.25^\circ$
- Load 4: $642 \times 88.75^\circ$
- Load 5: $646 \times 22^\circ$
- Load 6: $649 \times 55^\circ$
- Load 7: $652 \times 88^\circ$
- Load 8: $656 \times 22^\circ$
- Load 9: $659 \times 55^\circ$

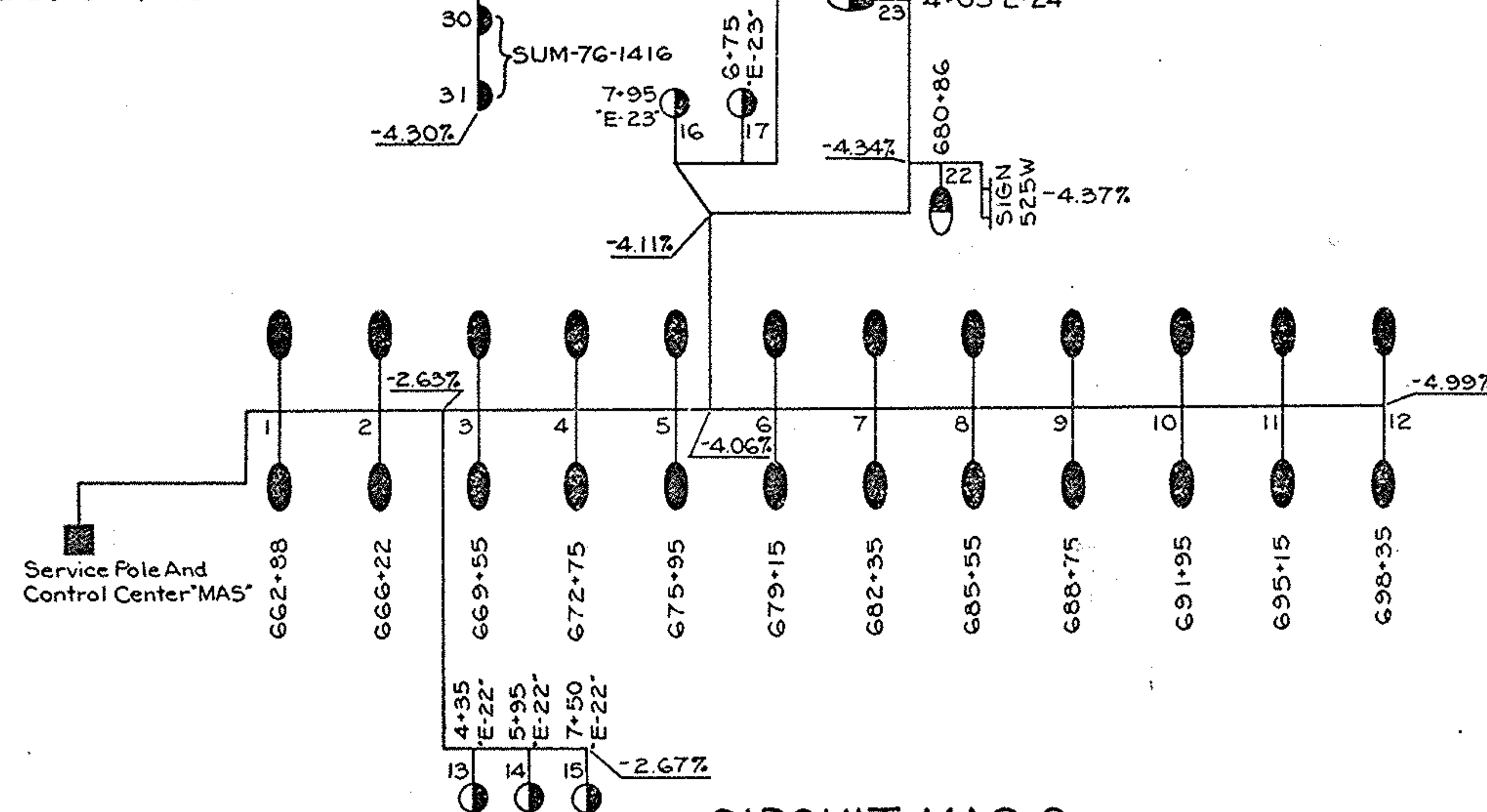
Table of Loads:

Feeder	Load	Power (kW)	Power (kVA)	Power (MVA)	Total Load
1	13	6.5	6.5	0.0065	19,200
1	12	8.0	8.0	0.0080	
1	11	639.0	639.0	0.6390	
2	10	642.0	642.0	0.6420	
2	9	646.0	646.0	0.6460	
2	8	649.0	649.0	0.6490	
2	7	652.0	652.0	0.6520	
2	6	656.0	656.0	0.6560	
2	5	659.0	659.0	0.6590	
3	1	6.5	6.5	0.0065	
3	2	8.0	8.0	0.0080	
3	3	639.0	639.0	0.6390	
3	4	642.0	642.0	0.6420	

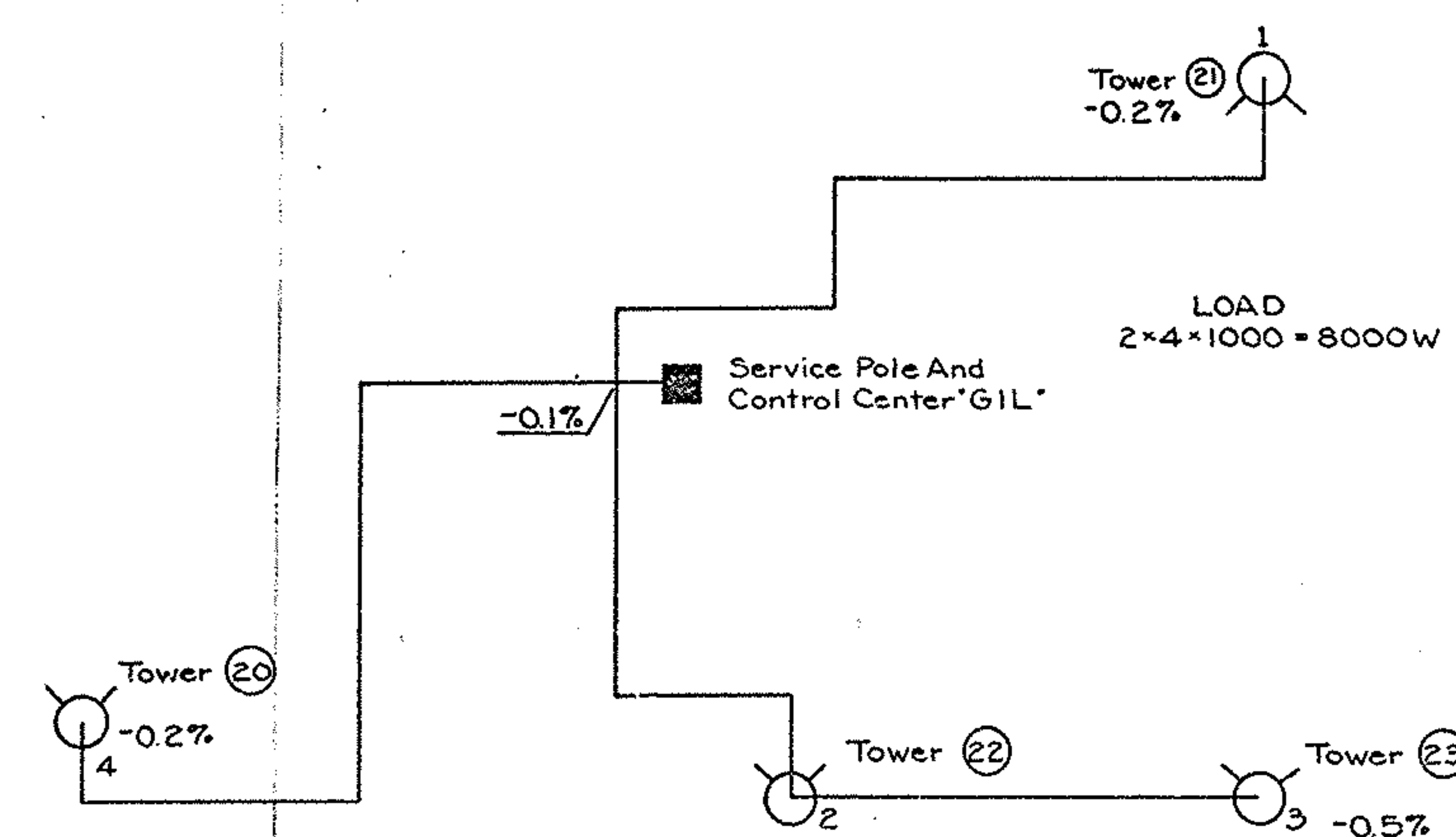
CIRCUIT SCHEMATICS

AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46

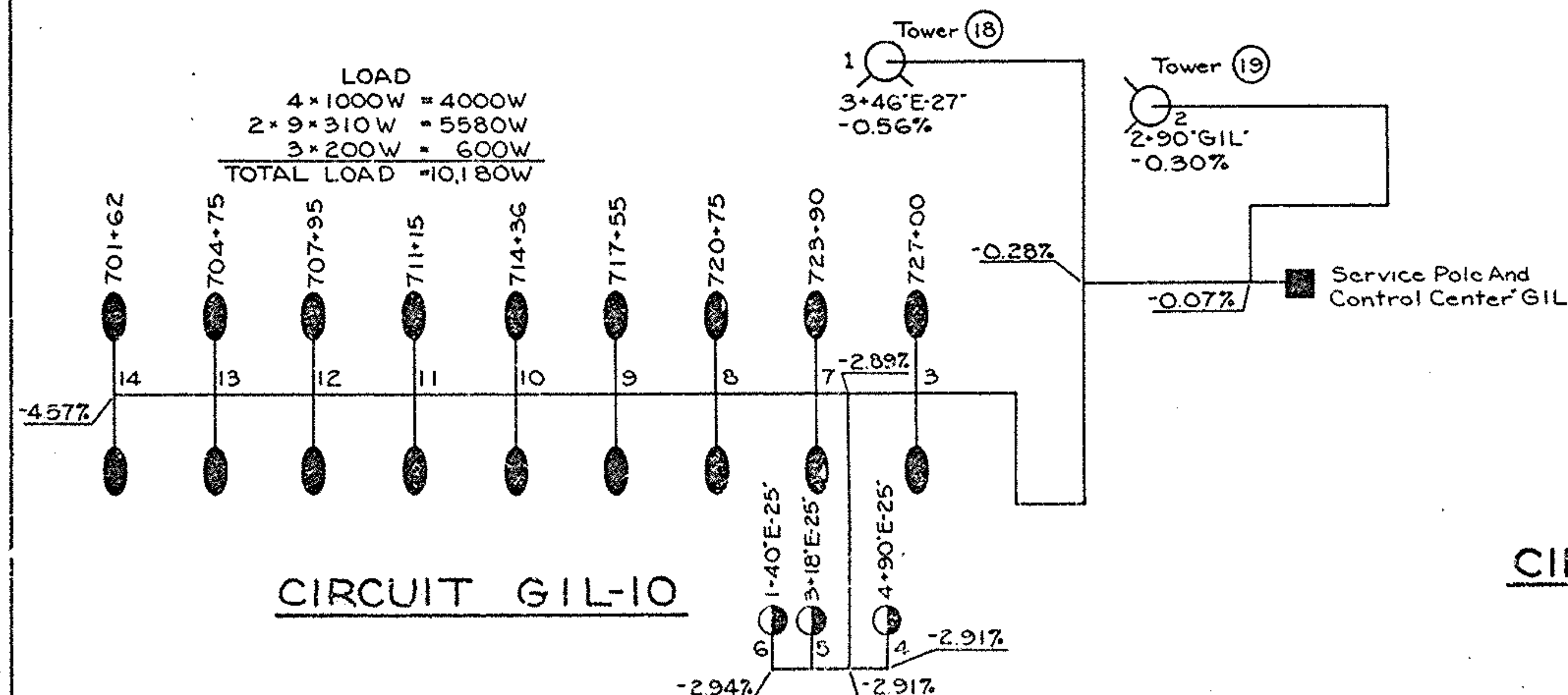
LOAD
2x12x310W = 7440W
17x200W = 3400W
2x100W = 200W
LIGHTING LOAD = 11,040W
SIGNING LOAD = 525W
TOTAL LOAD = 11,565W



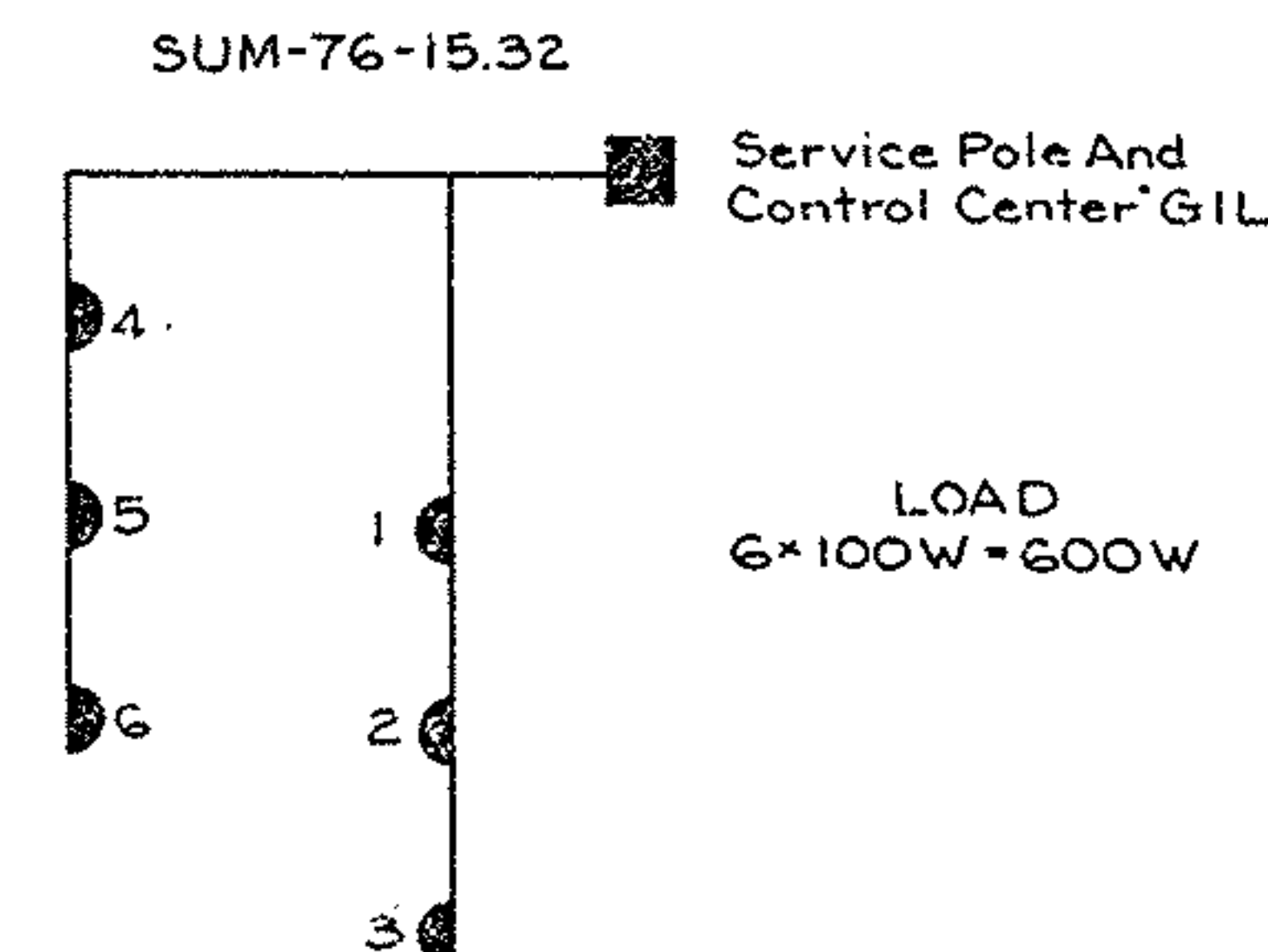
CIRCUIT MAS-9



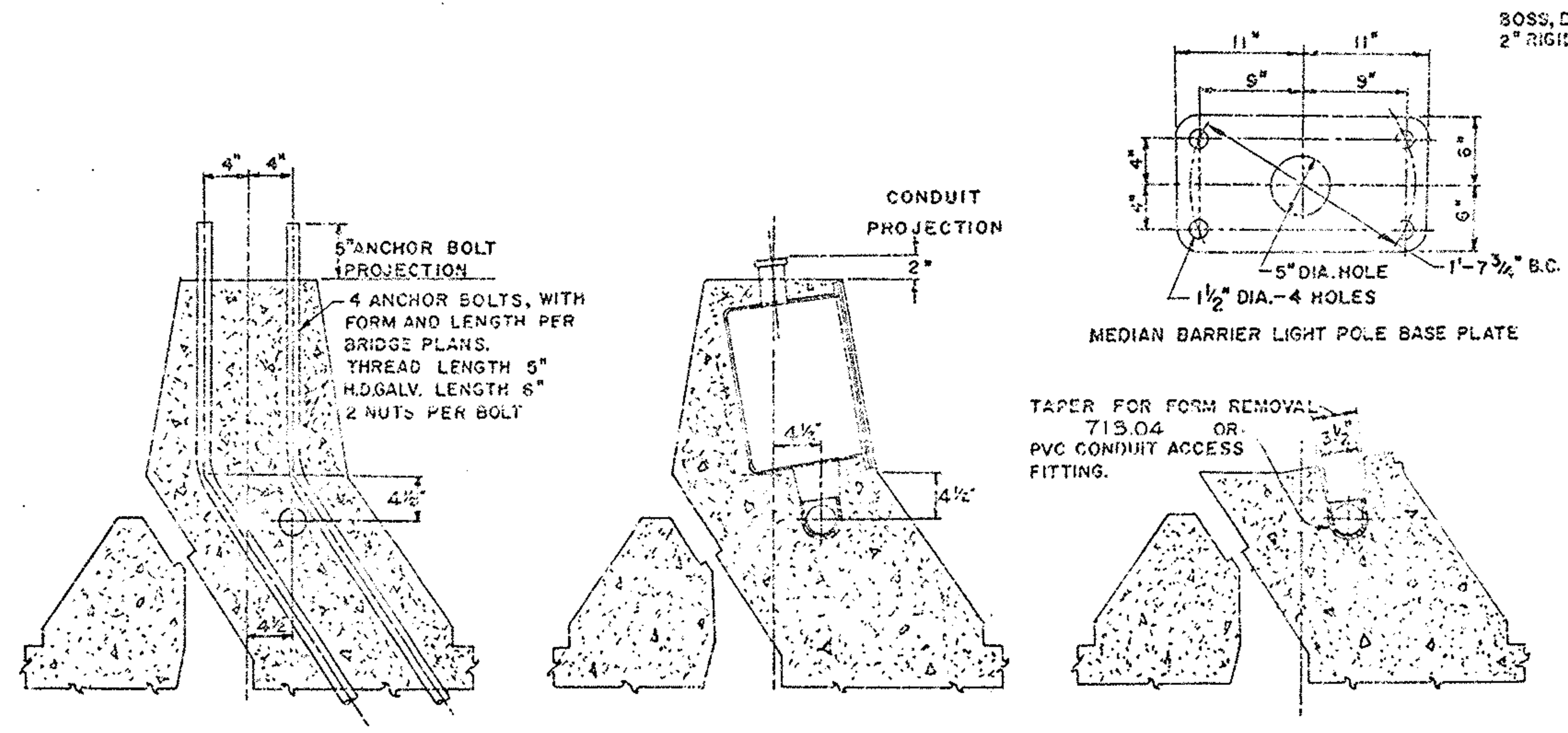
CIRCUIT GIL-II



CIRCUIT GIL-10



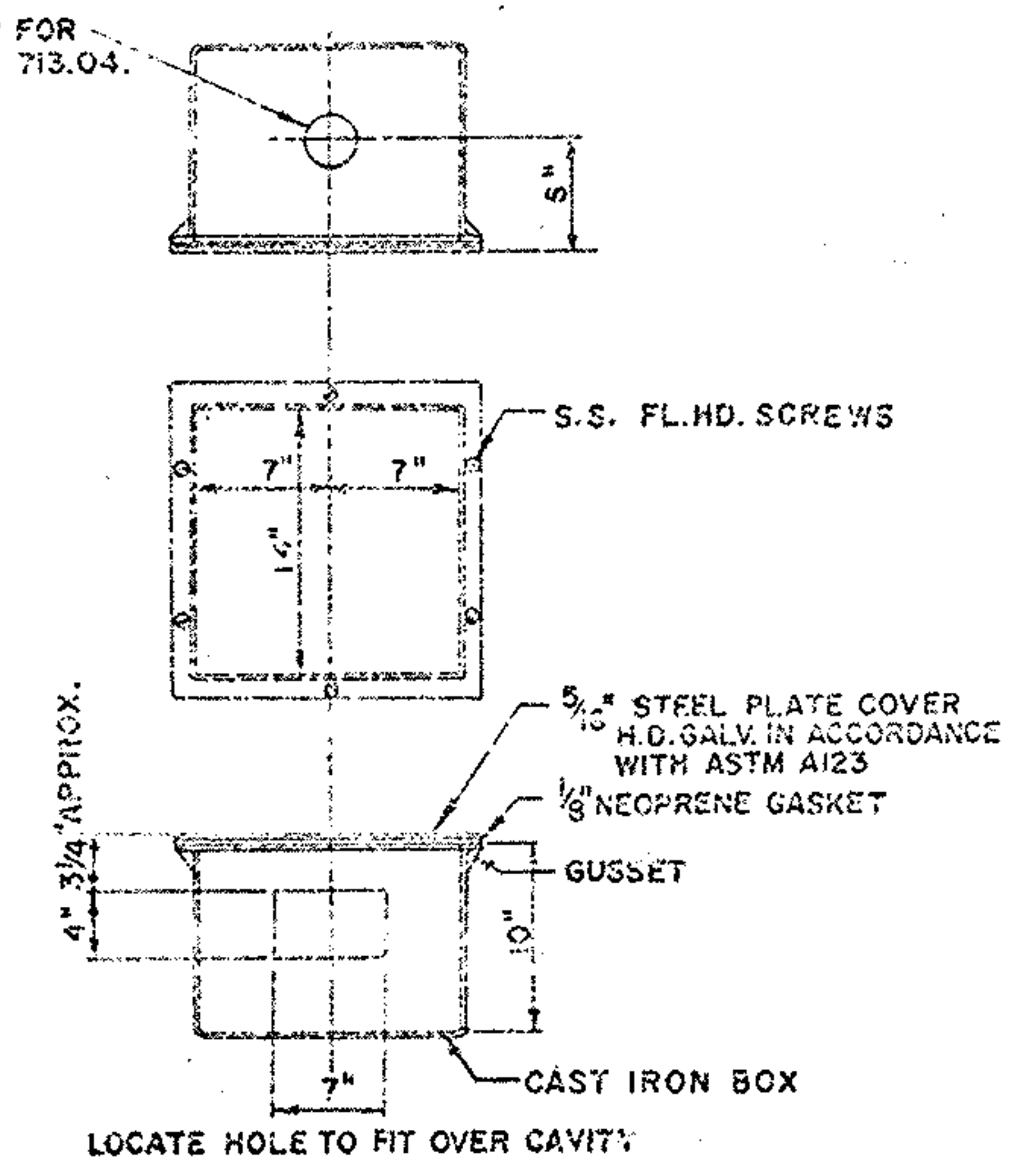
CIRCUIT GIL-12



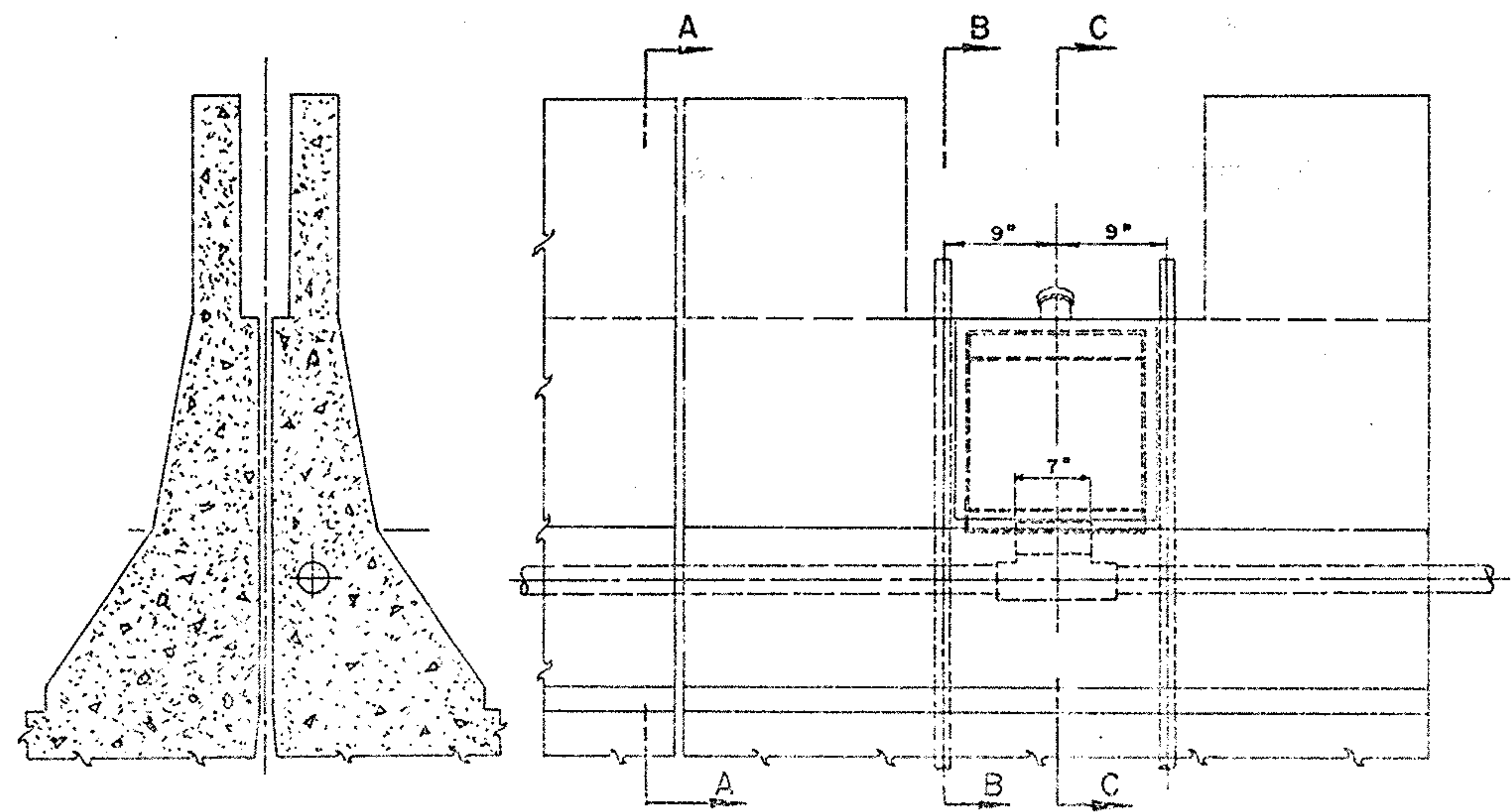
SECTION B-B

SECTION C-C

DETAIL OF CONCRETE POUR BELOW JUNCTION BOX, SECTION C-C.

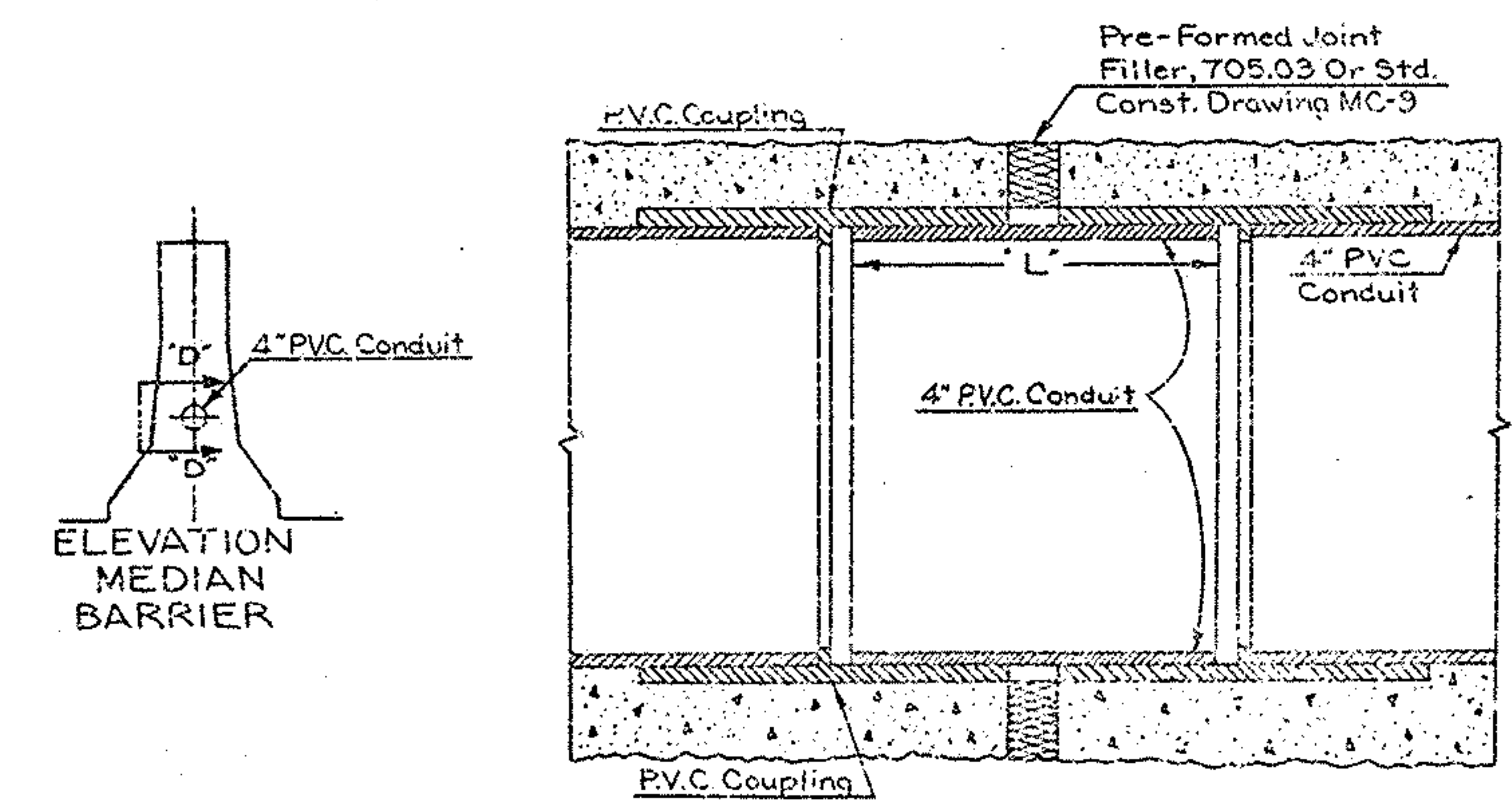


JUNCTION BOX



SECTION A-A

STRUCTURE BARRIER POLE MOUNTING DETAILS



SECTION D-D

3 3/4" Is Approx. 3 3/4" When Joint Is 1/2"

Note: Conduit Couplings As Detailed Herein Shall Be Provided At All Median Barrier Joints Where A Joint Filler Is Used, As Required Or Permitted By Item G22 Or Standard Construction Drawing MC-9

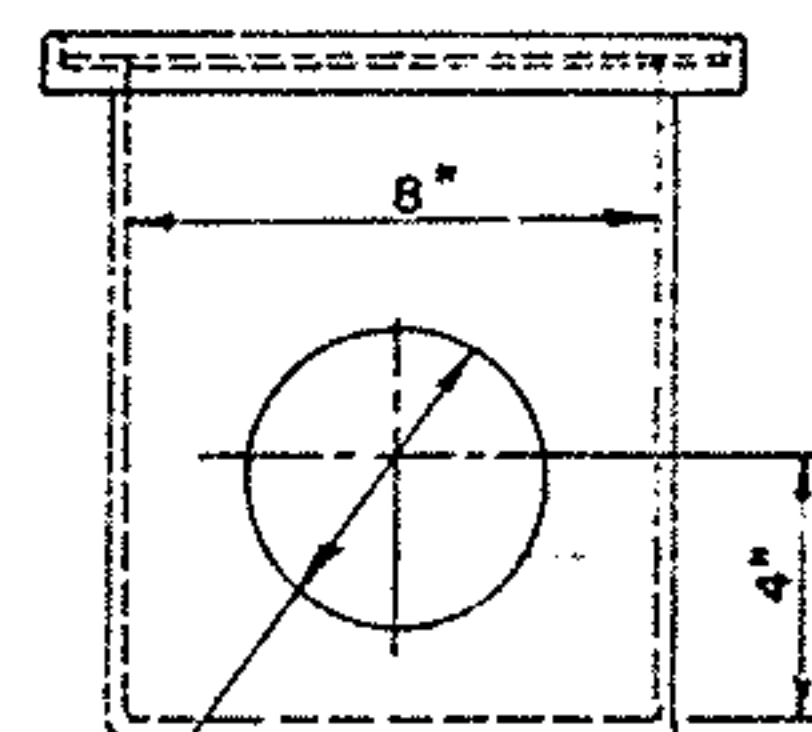
P.V.C. CONDUIT COUPLING DETAIL

SUM-76-11.57
SUM-8-0.46

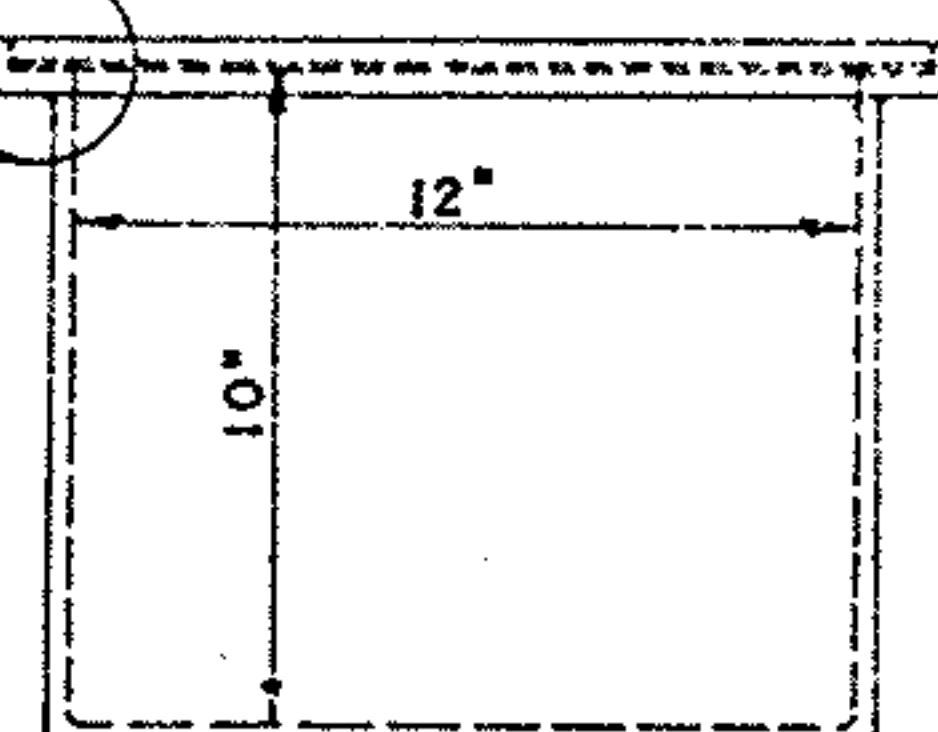
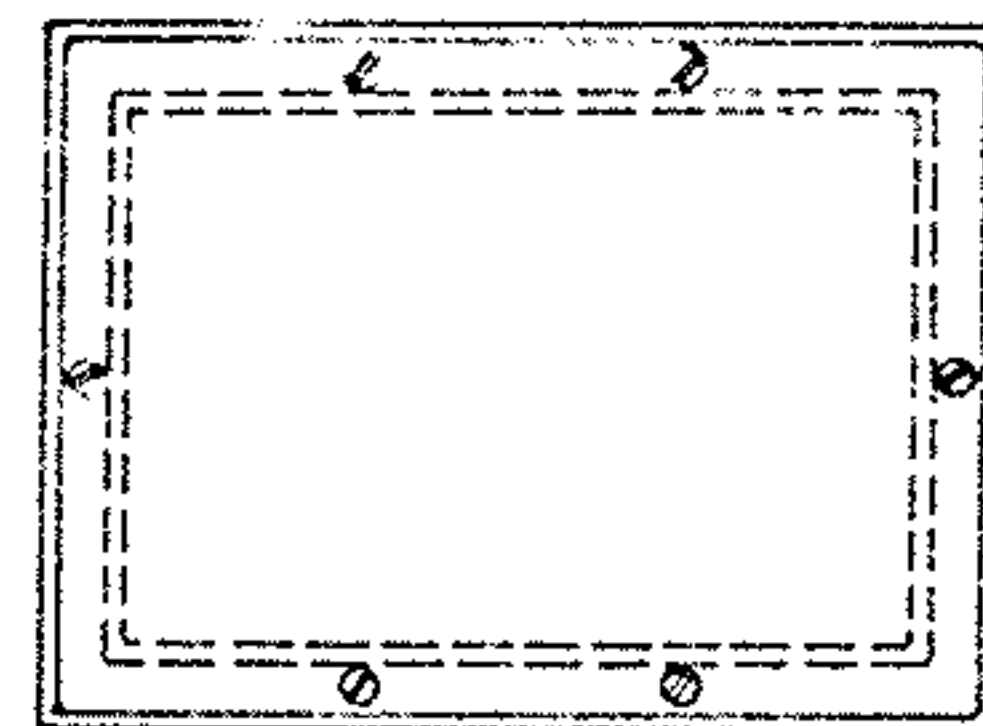
$\frac{5}{16}$ " GALVANIZED STEEL
PLATE COVER
FLUSH MOUNTED

S.S. FL. HD. SCREWS

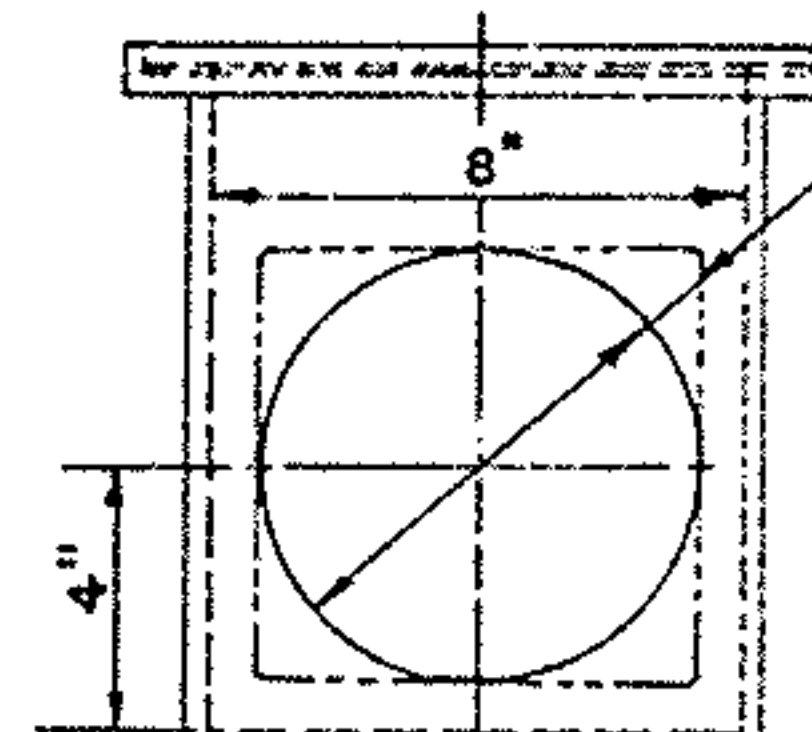
$\frac{1}{8}$ " NEOPRENE GASKET



SLIP HOLE FOR 4"
CONDUIT.



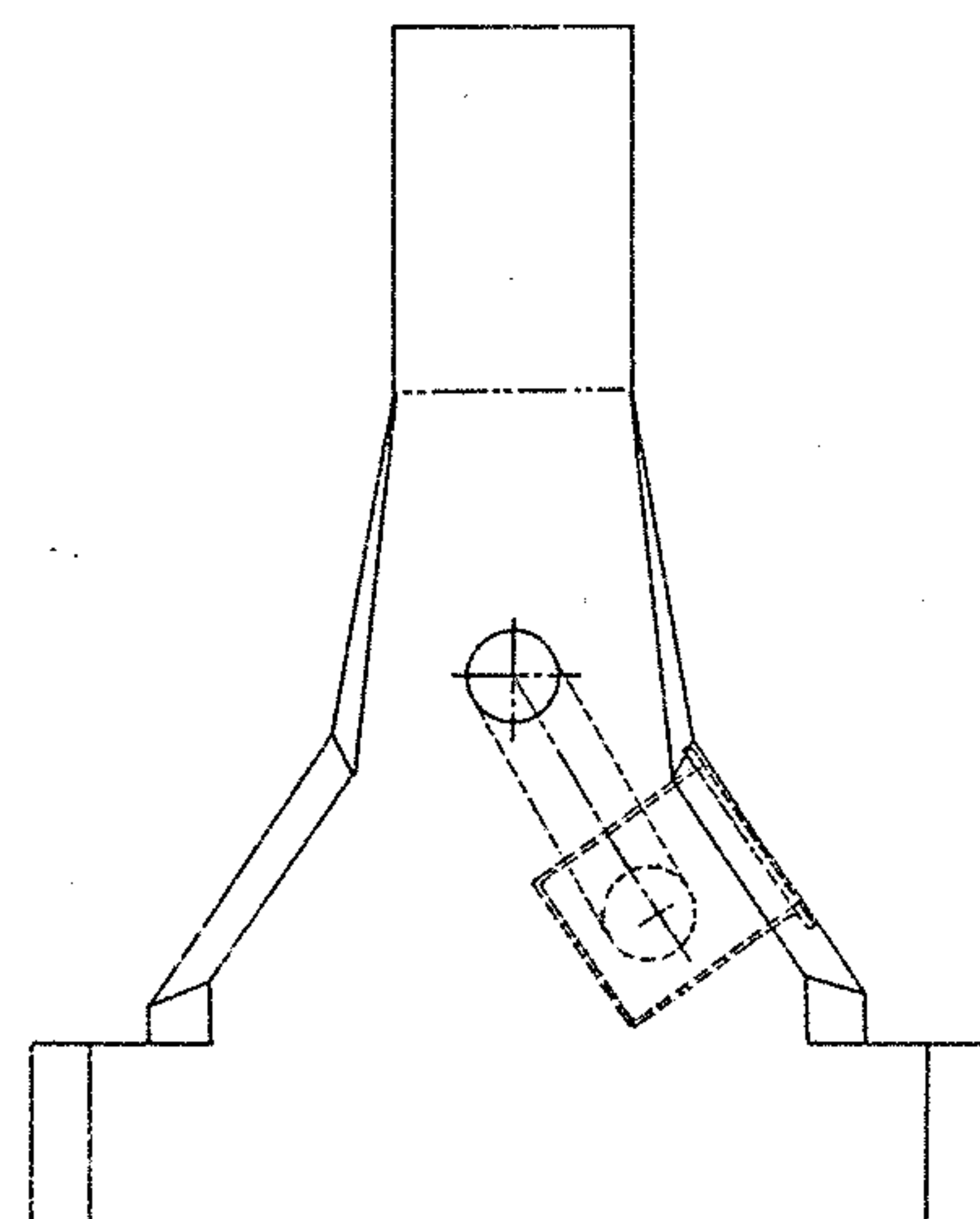
12" x 8" x 10" DP. CAST IRON BOX,
 $\frac{5}{16}$ " WALL, APPRX. WT. 70 LB.,
NEMA 4, FLANGED, RECESSED COVER.



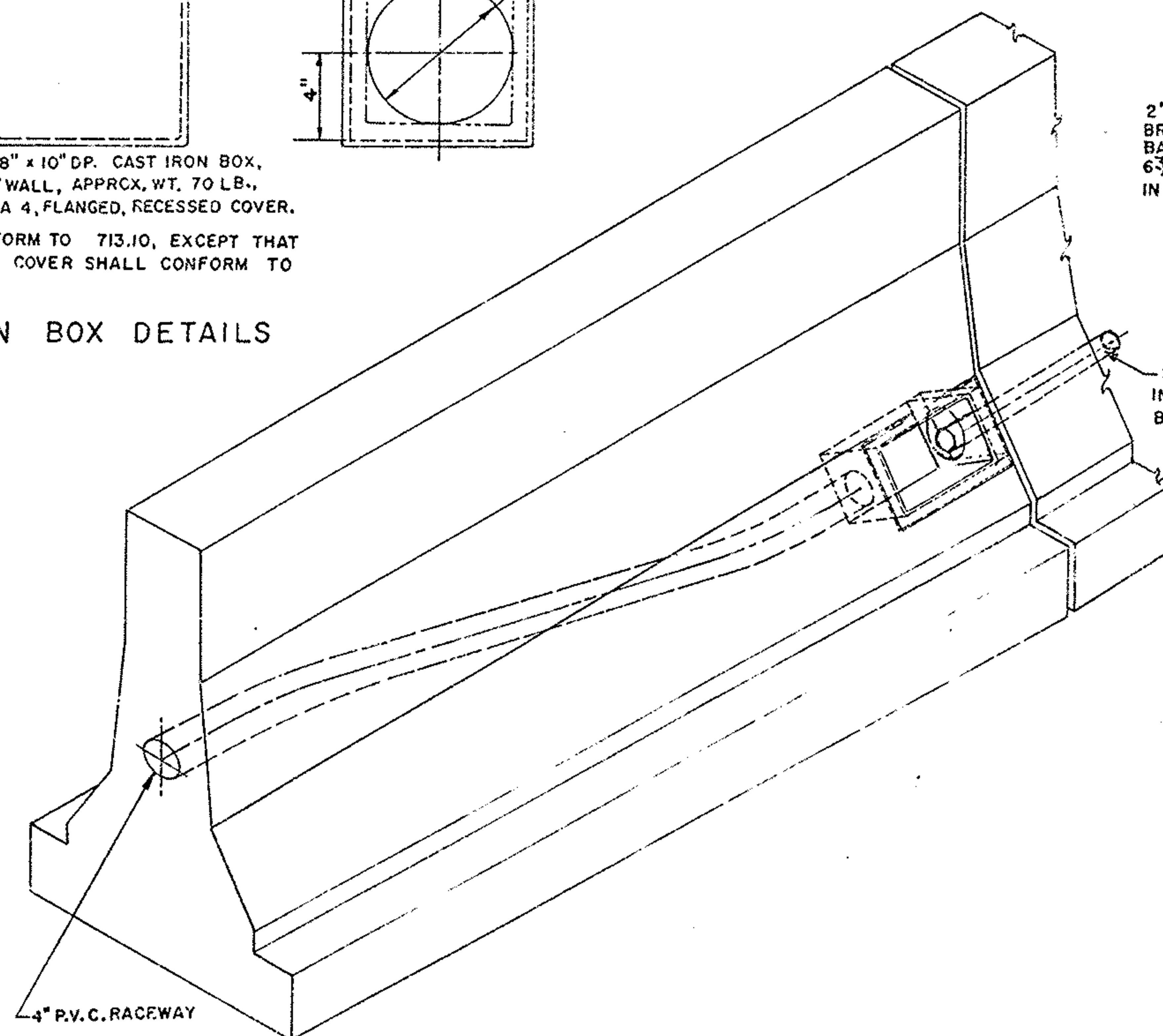
6 $\frac{3}{4}$ " SQUARE HOLE, OR
6 $\frac{3}{4}$ " DIA. RD. HOLE.

JUNCTION BOX SHALL CONFORM TO 713.10, EXCEPT THAT
THE GALVANIZED STEEL PLATE COVER SHALL CONFORM TO
ASTM A-242 OR A-36.

TRANSITION JUNCTION BOX DETAILS



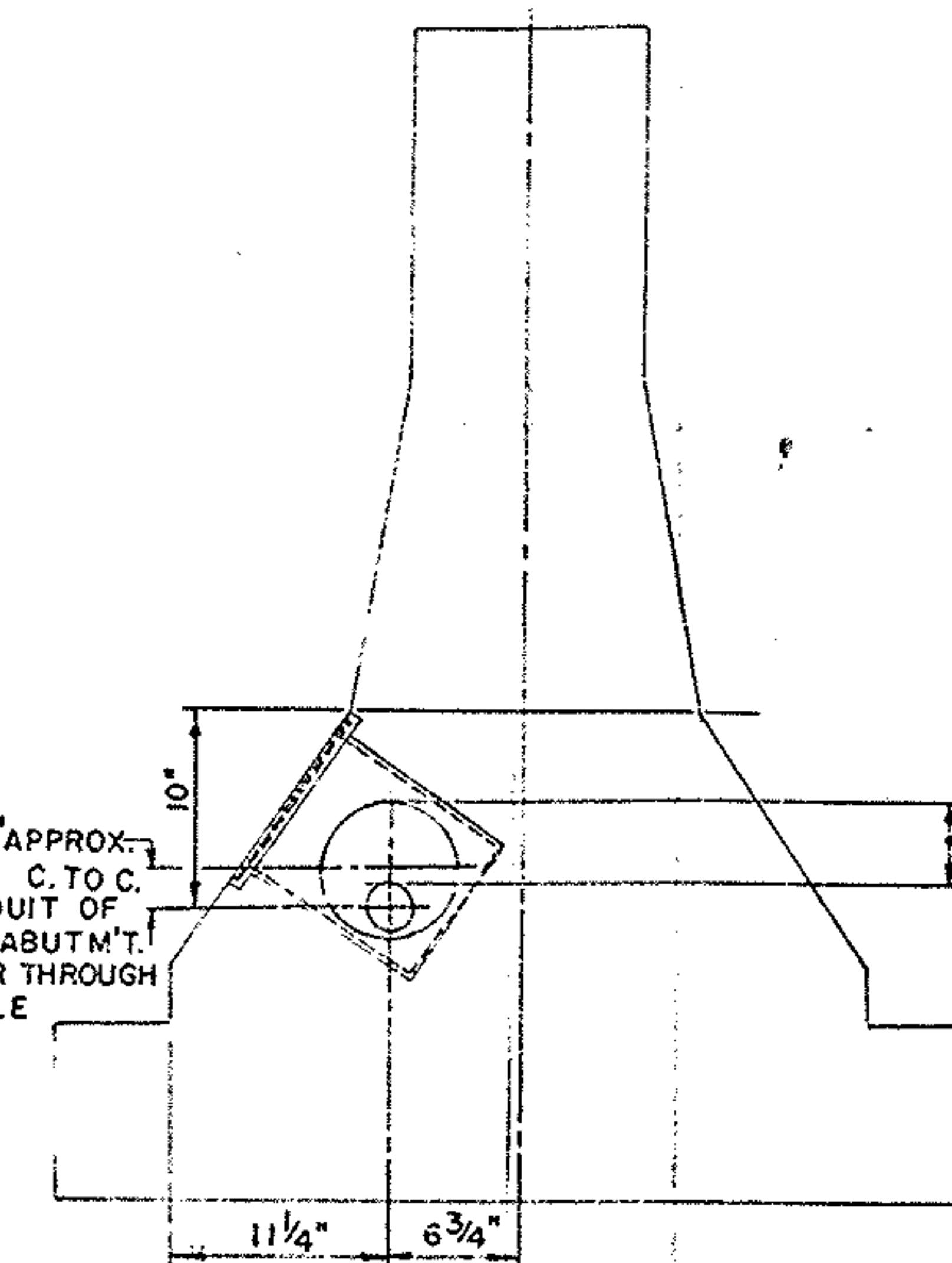
END ELEV. A-A



4" P.V.C. RACEWAY

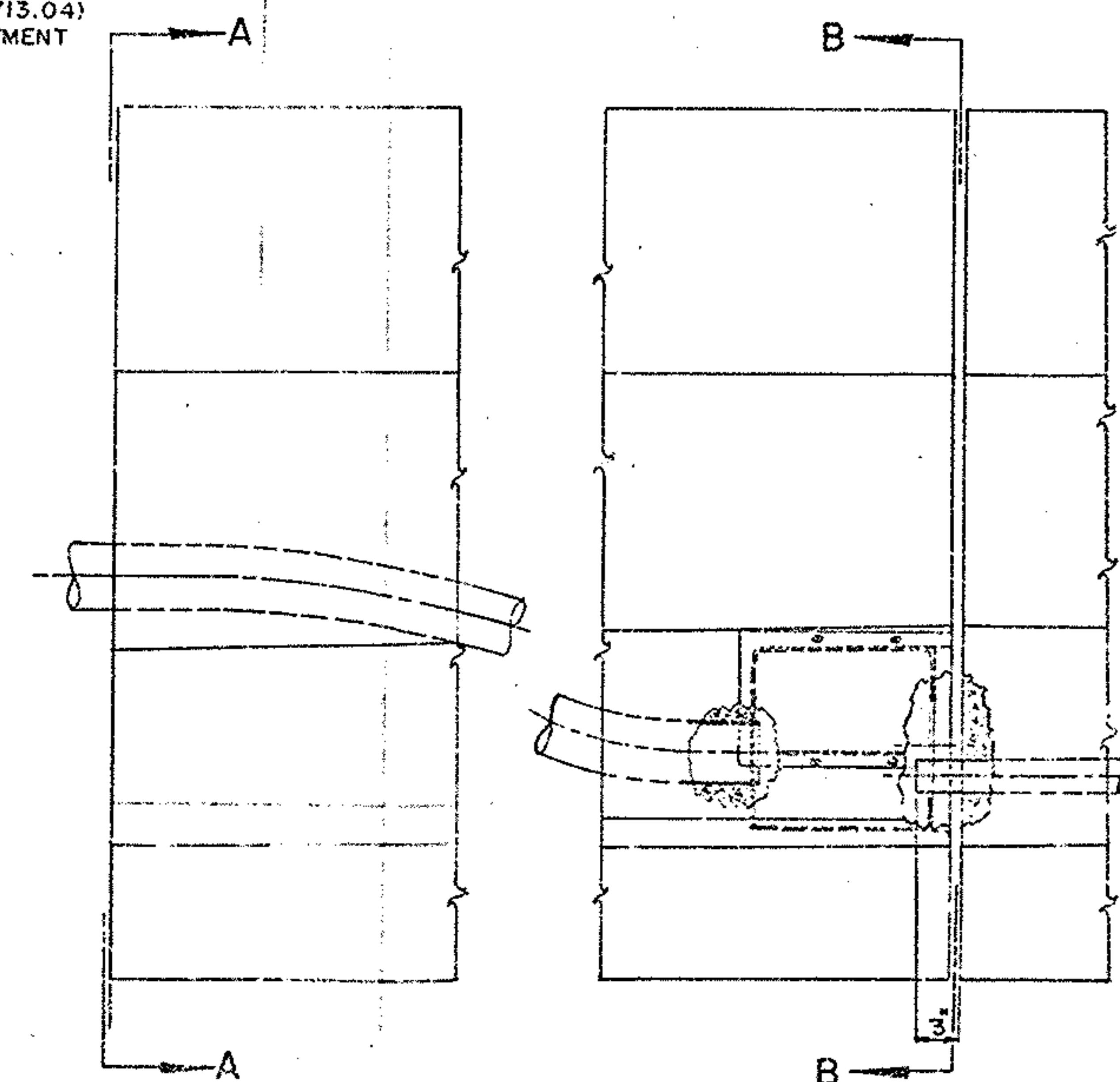
2" CONDUIT (713.04)
IN BRIDGE ABUTMENT
BARRIER

2" APPROX.
C. TO C.
2" CONDUIT OF
BRIDGE ABUTM'T.
BARRIER THROUGH
6 $\frac{3}{4}$ " HOLE
IN BOX.



END ELEV. B-B

ALLOW APPROXIMATELY 4"
FOR ROADWAY BARRIER
SETTLEMENT ADJACENT
TO ABUTMENT SECTION.



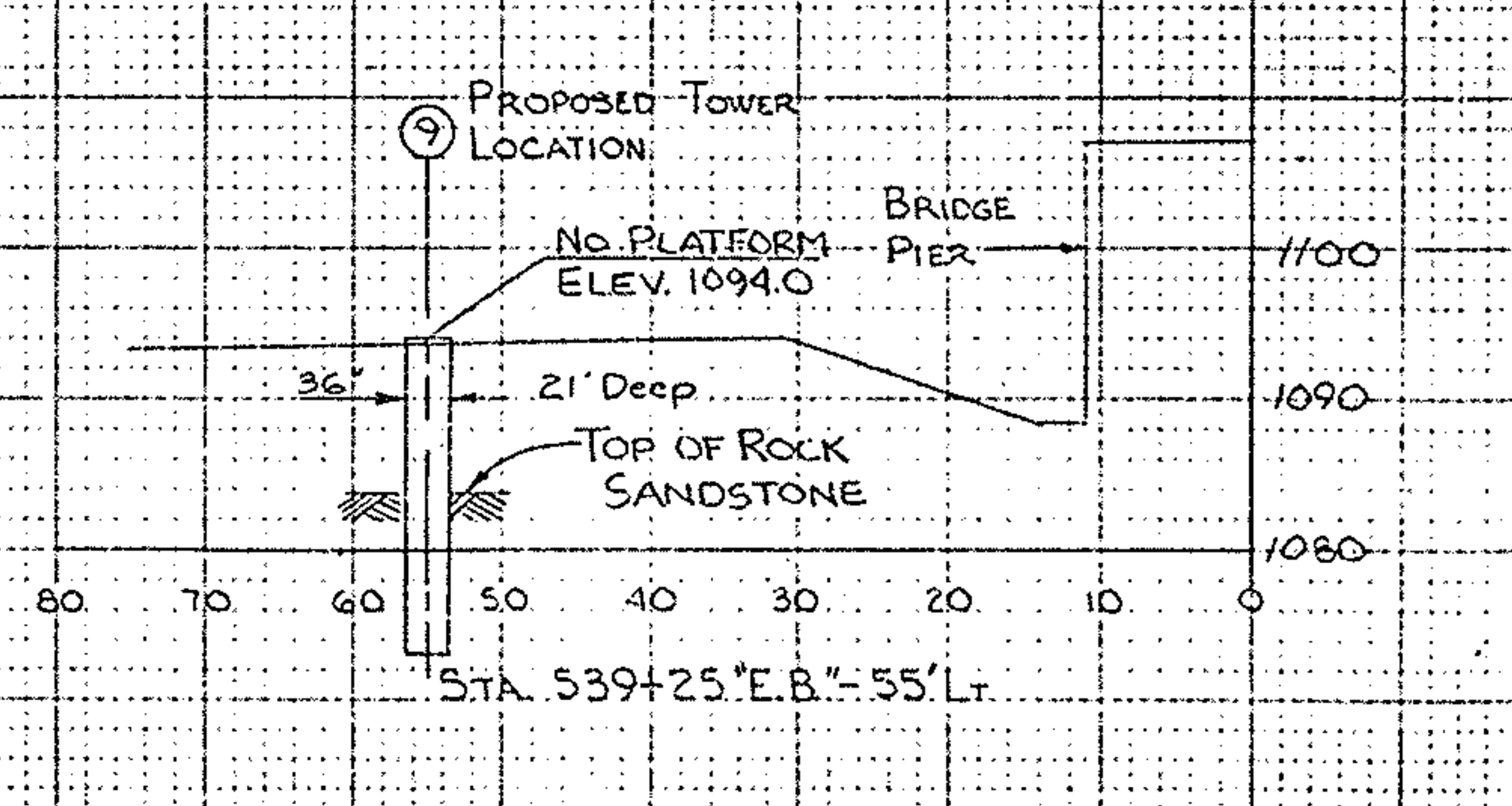
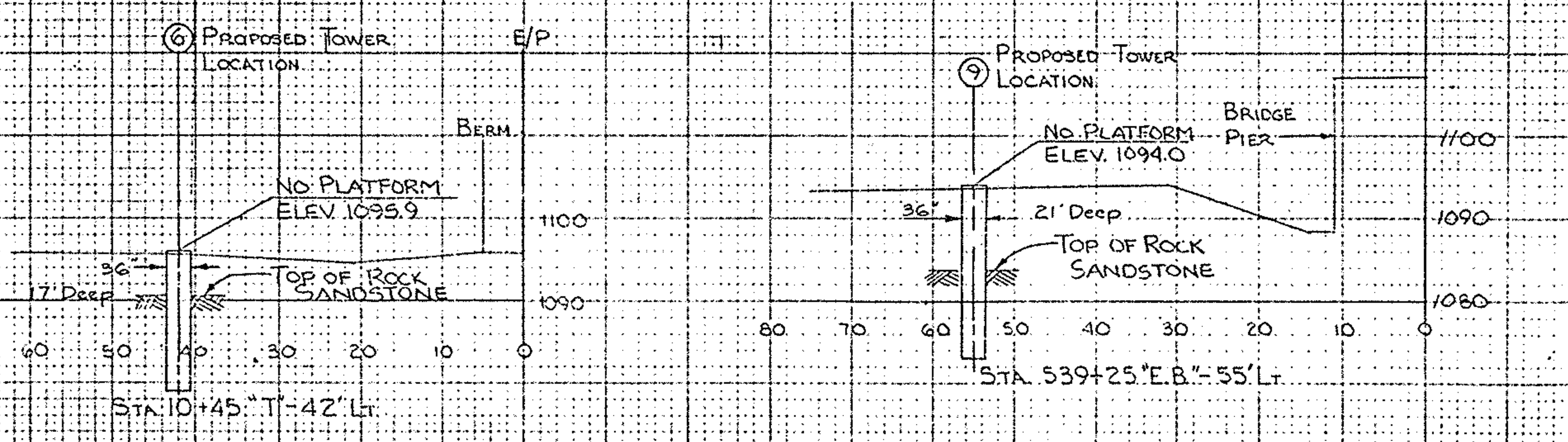
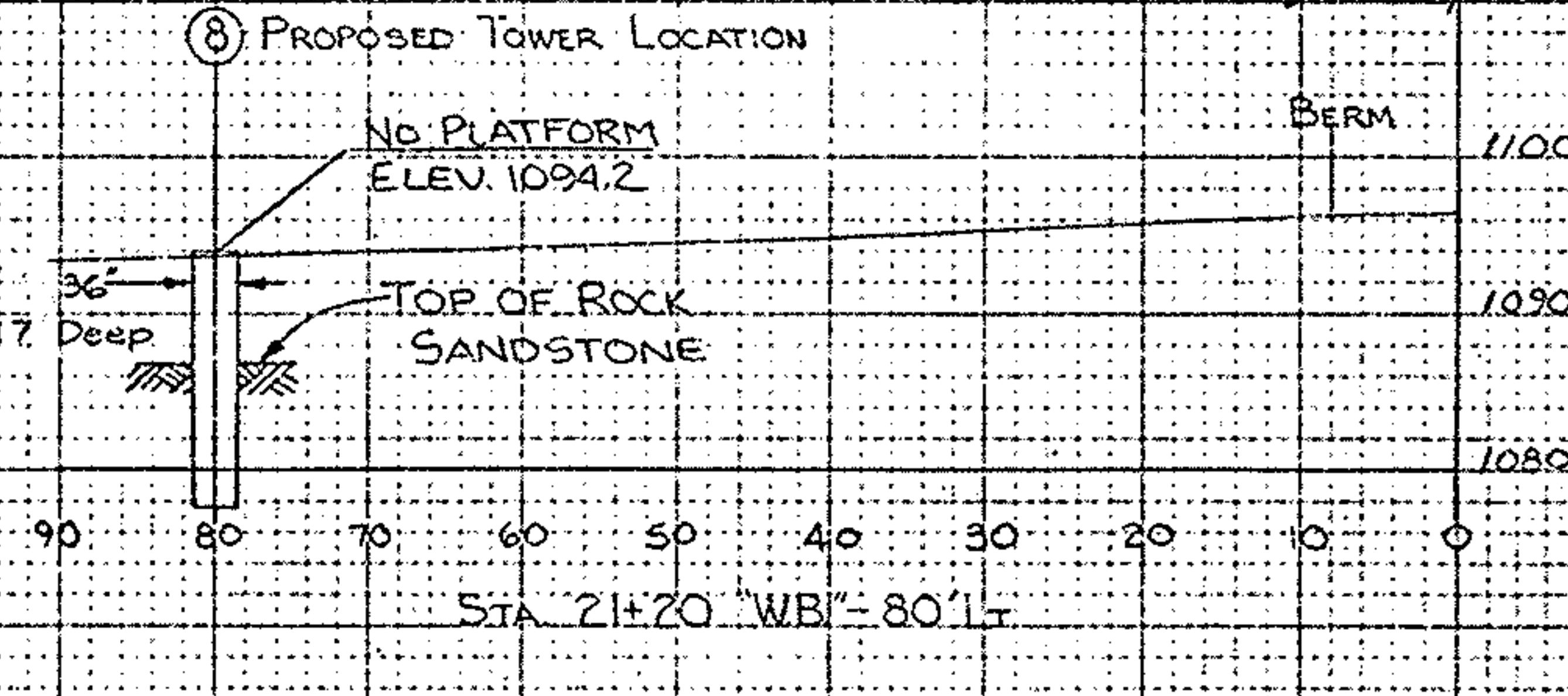
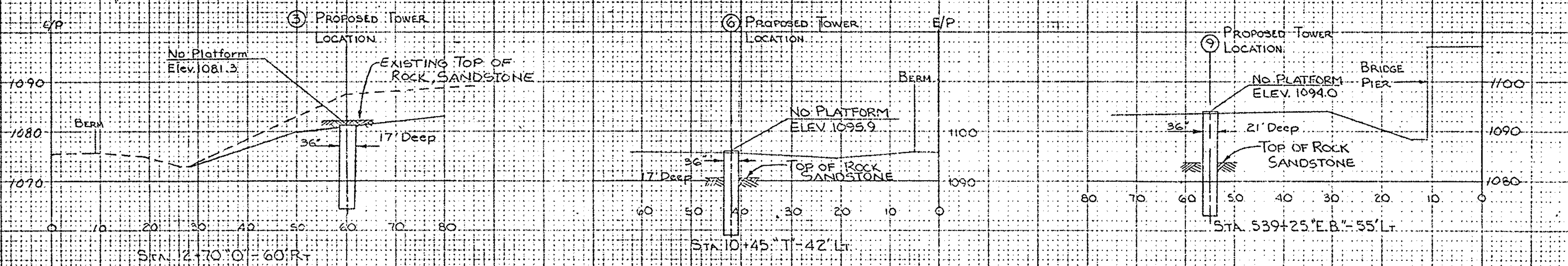
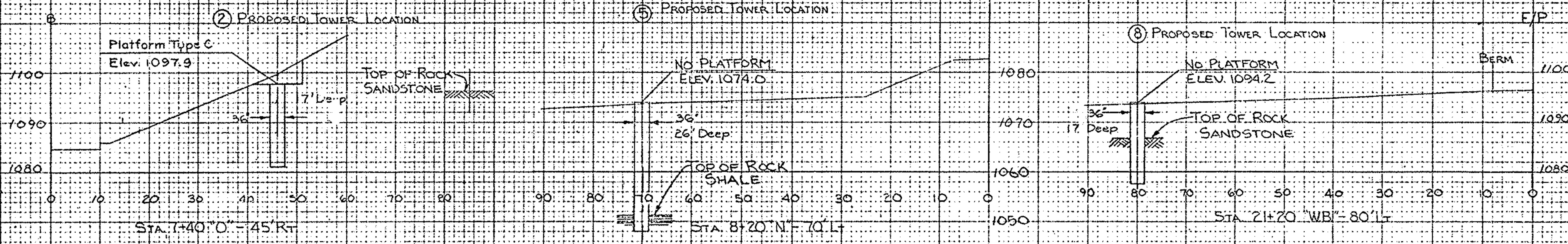
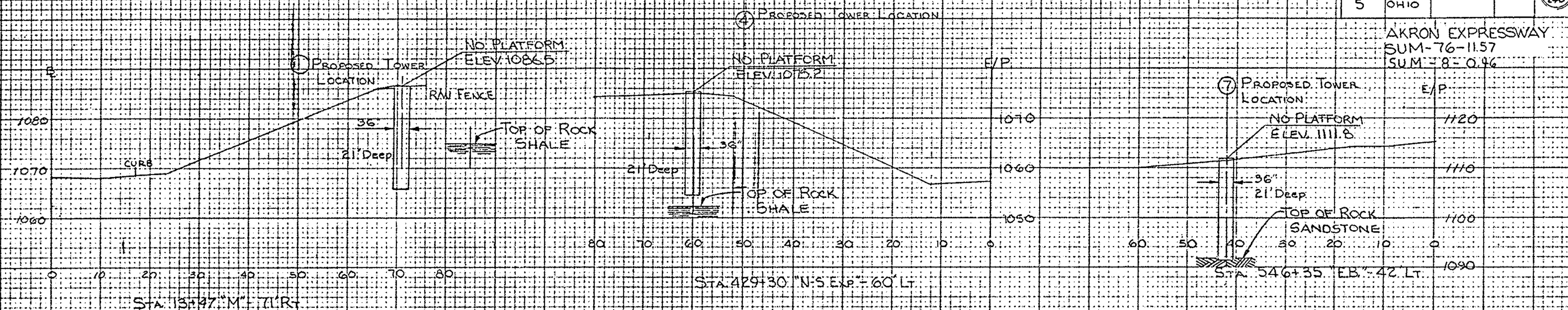
SIDE ELEVATION, TRANSITION BARRIER
FROM ROADWAY TO BRIDGE CONFIGURATIONS

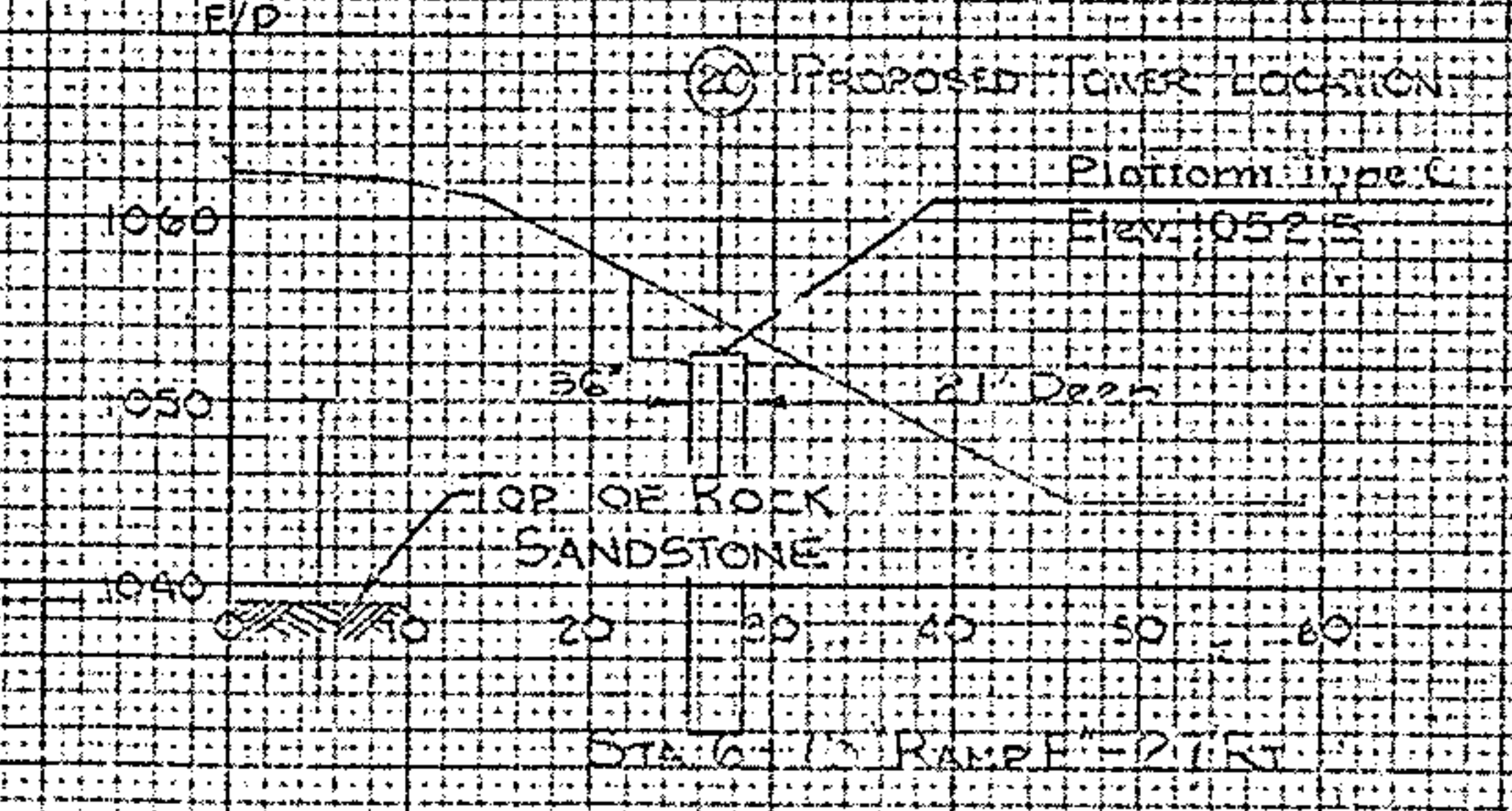
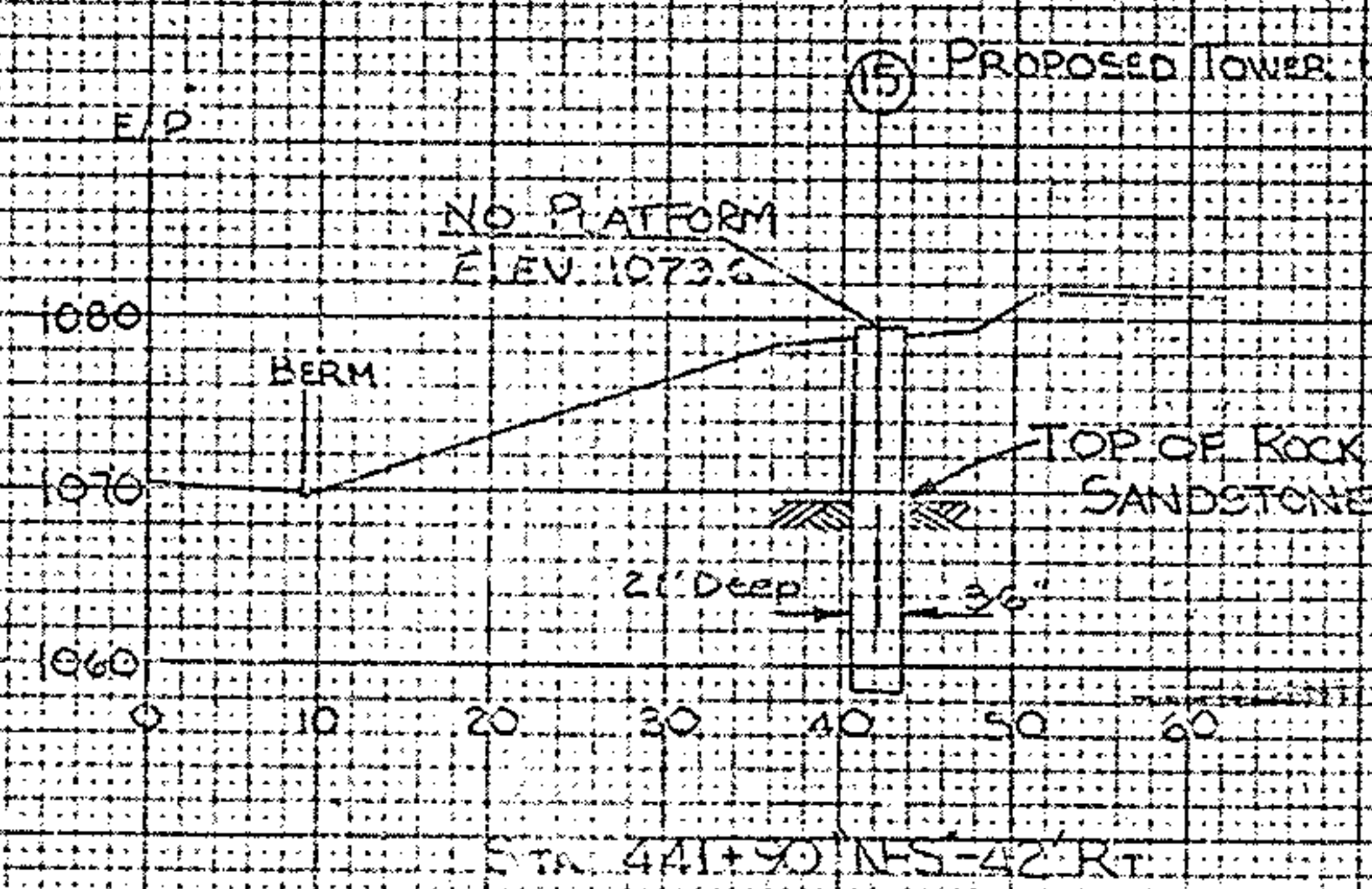
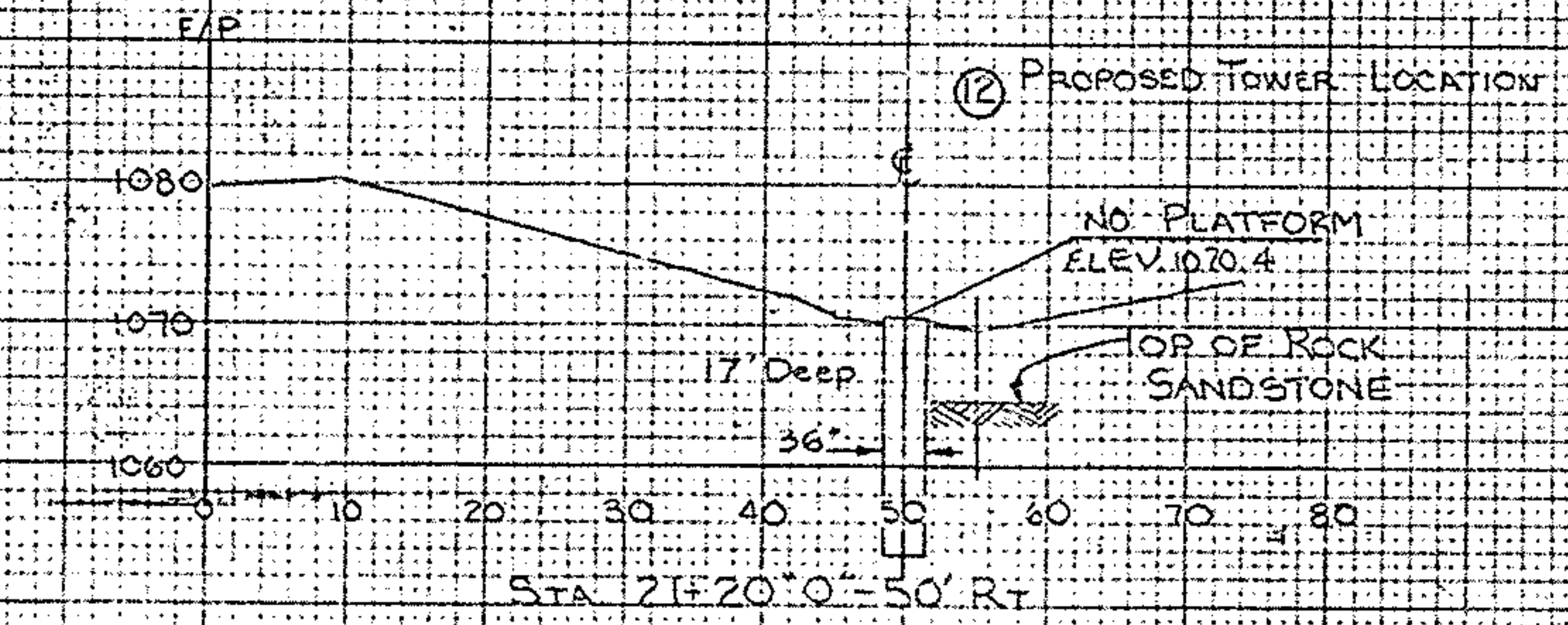
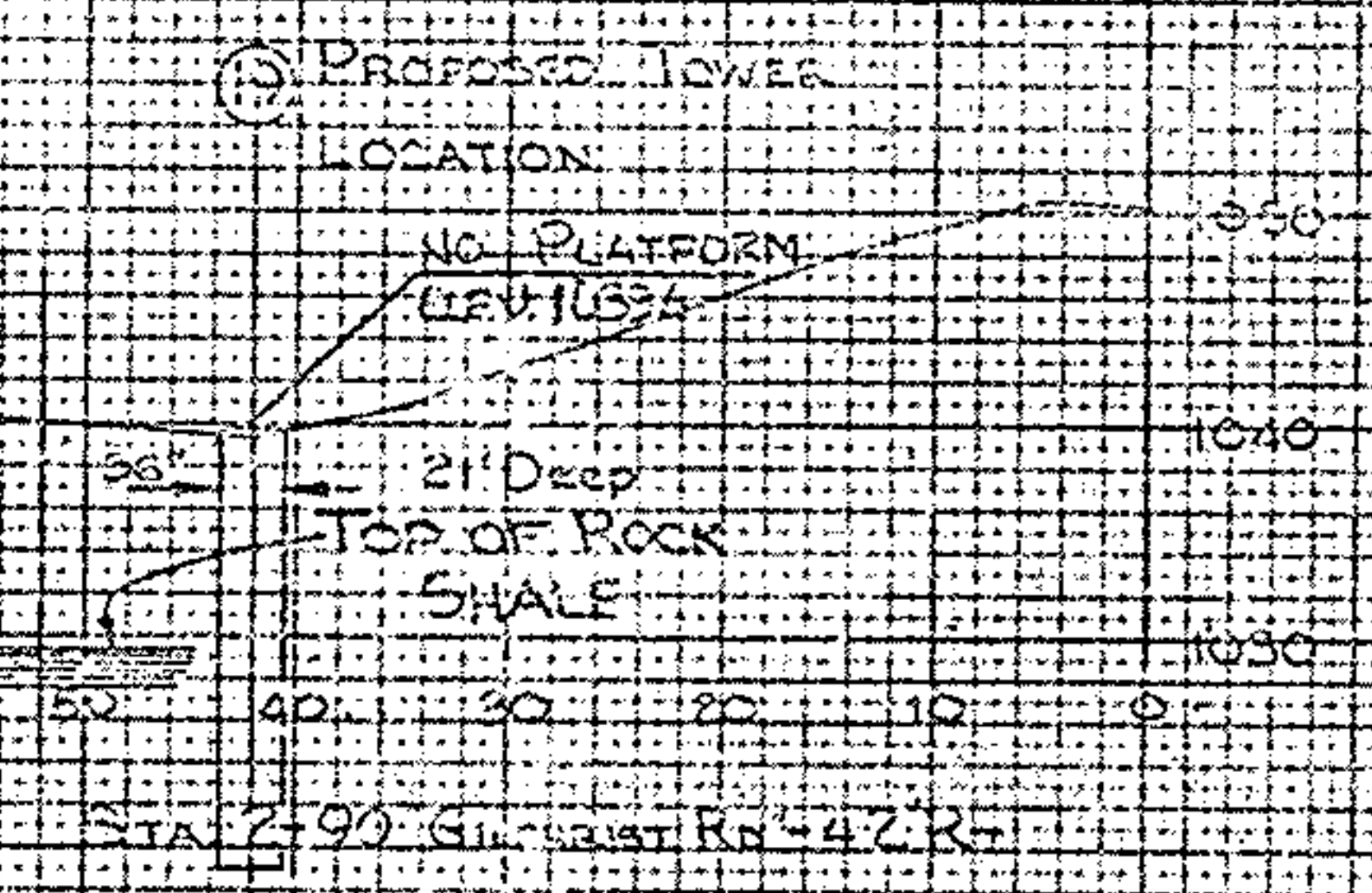
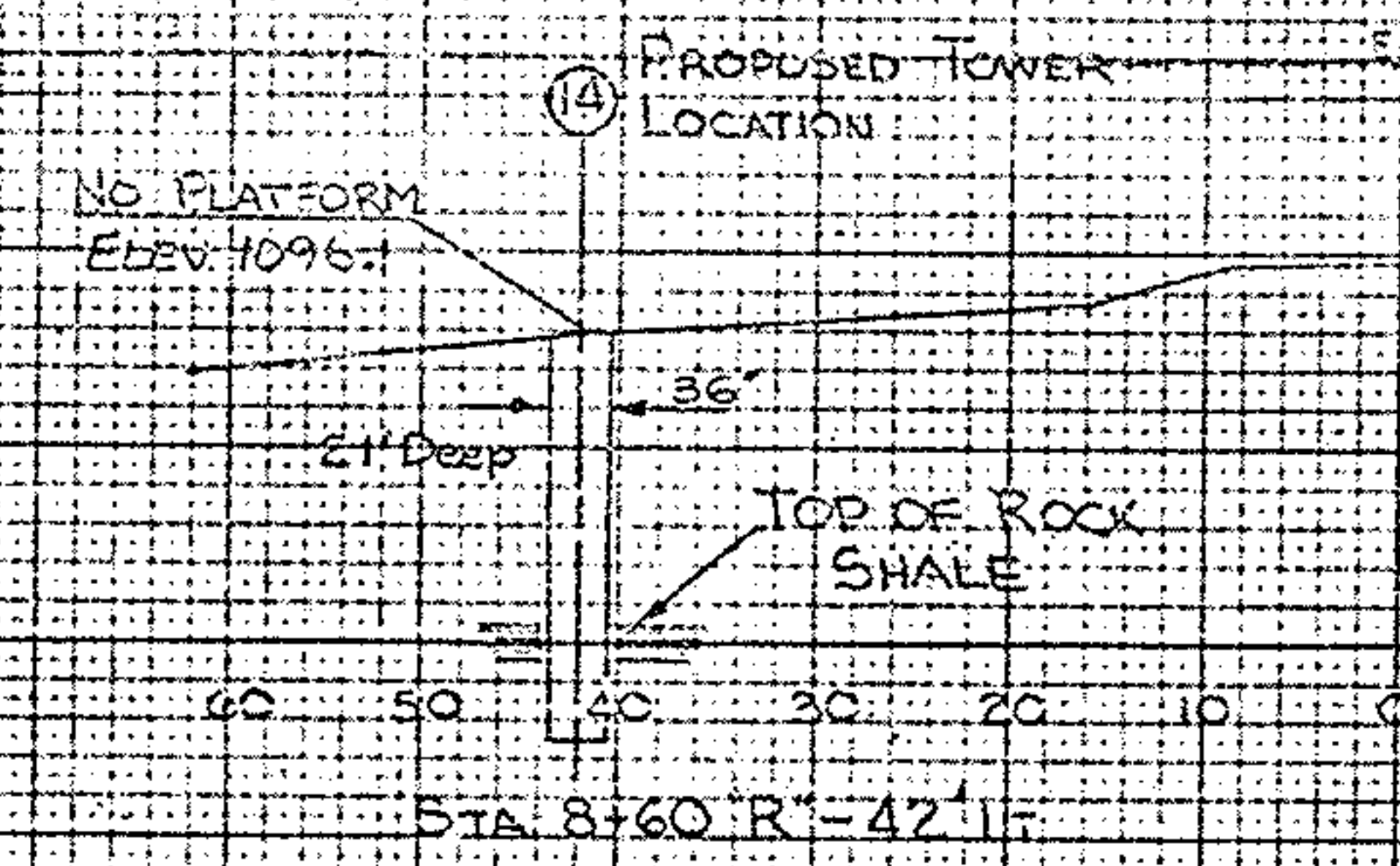
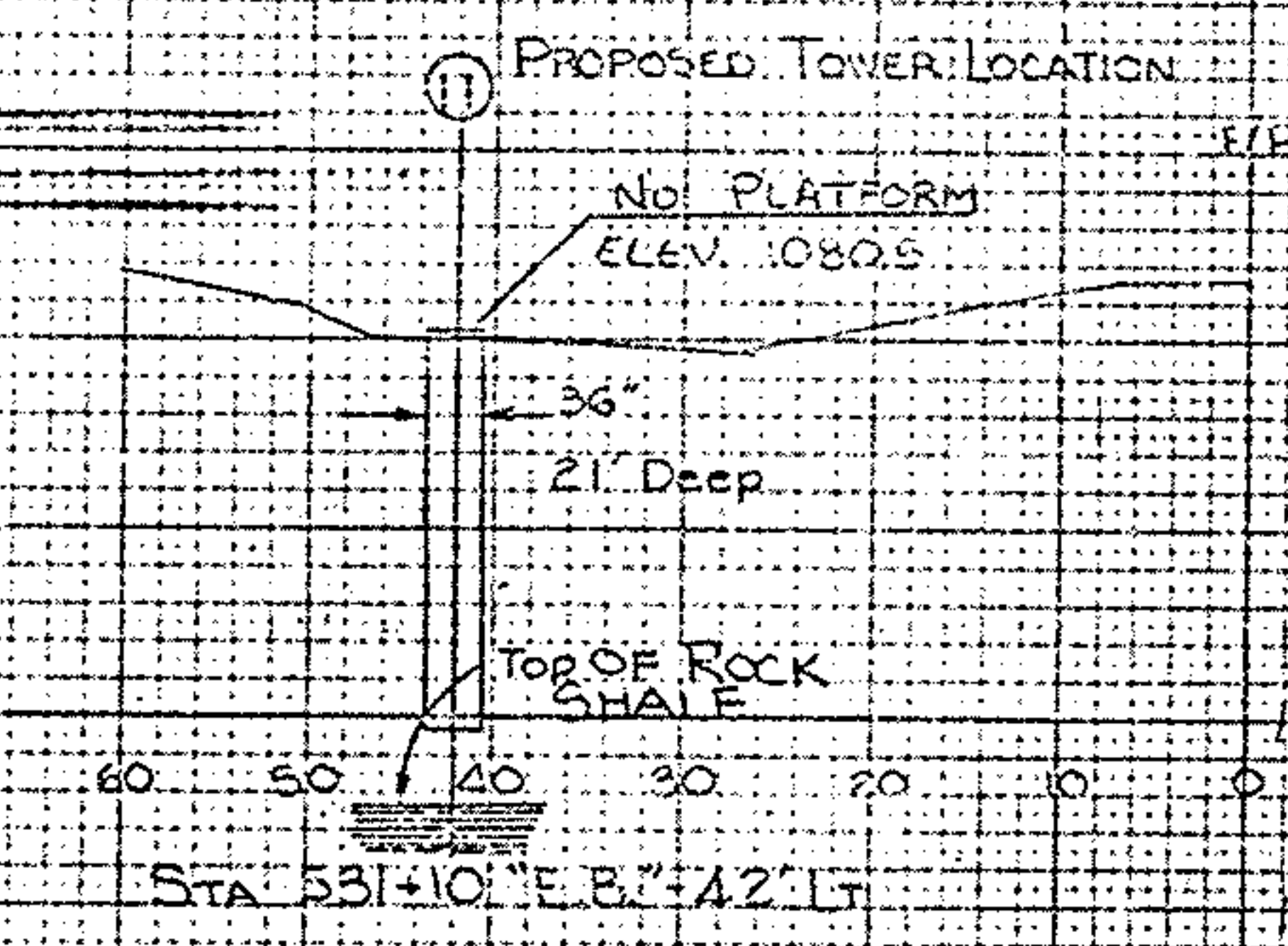
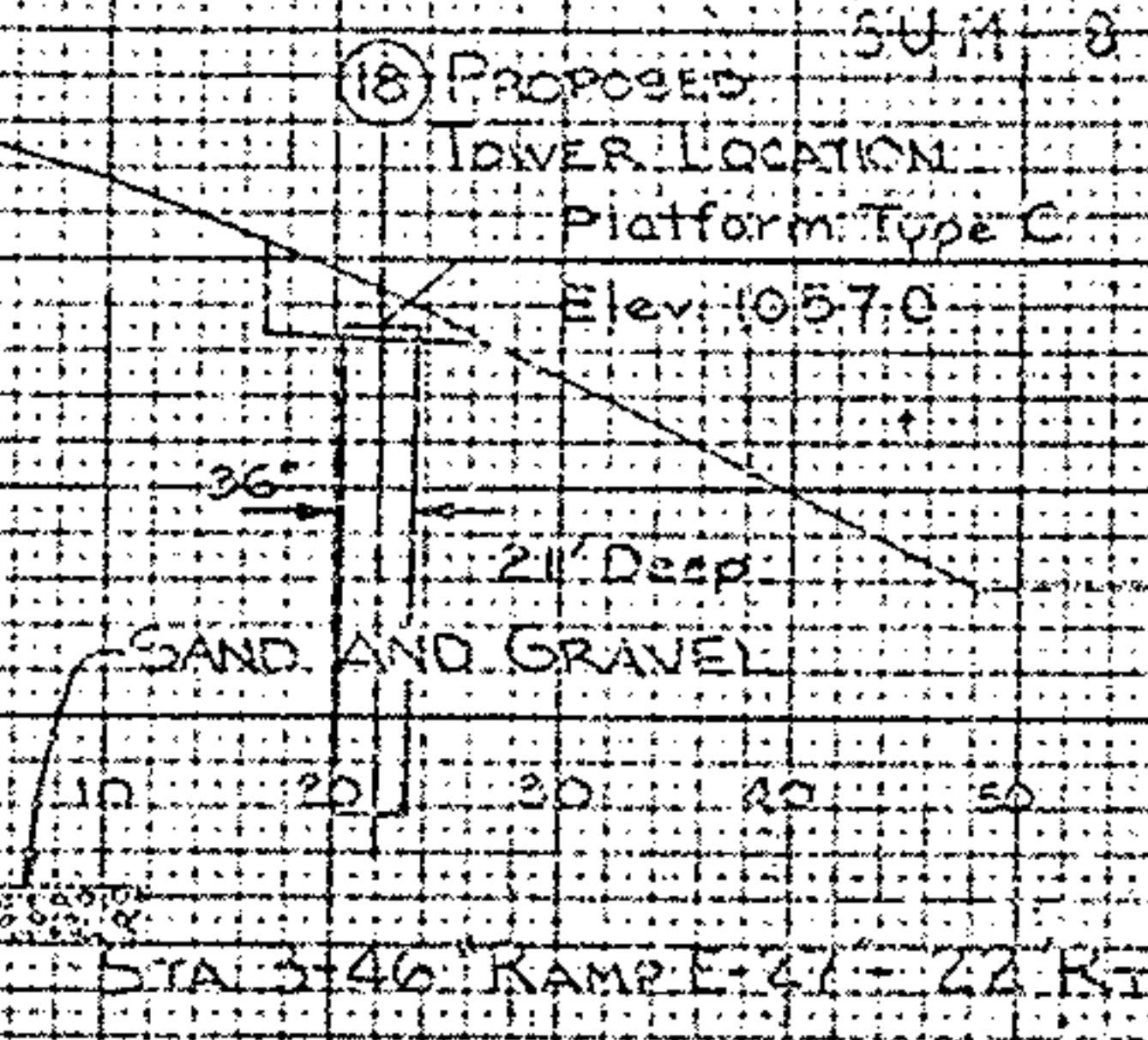
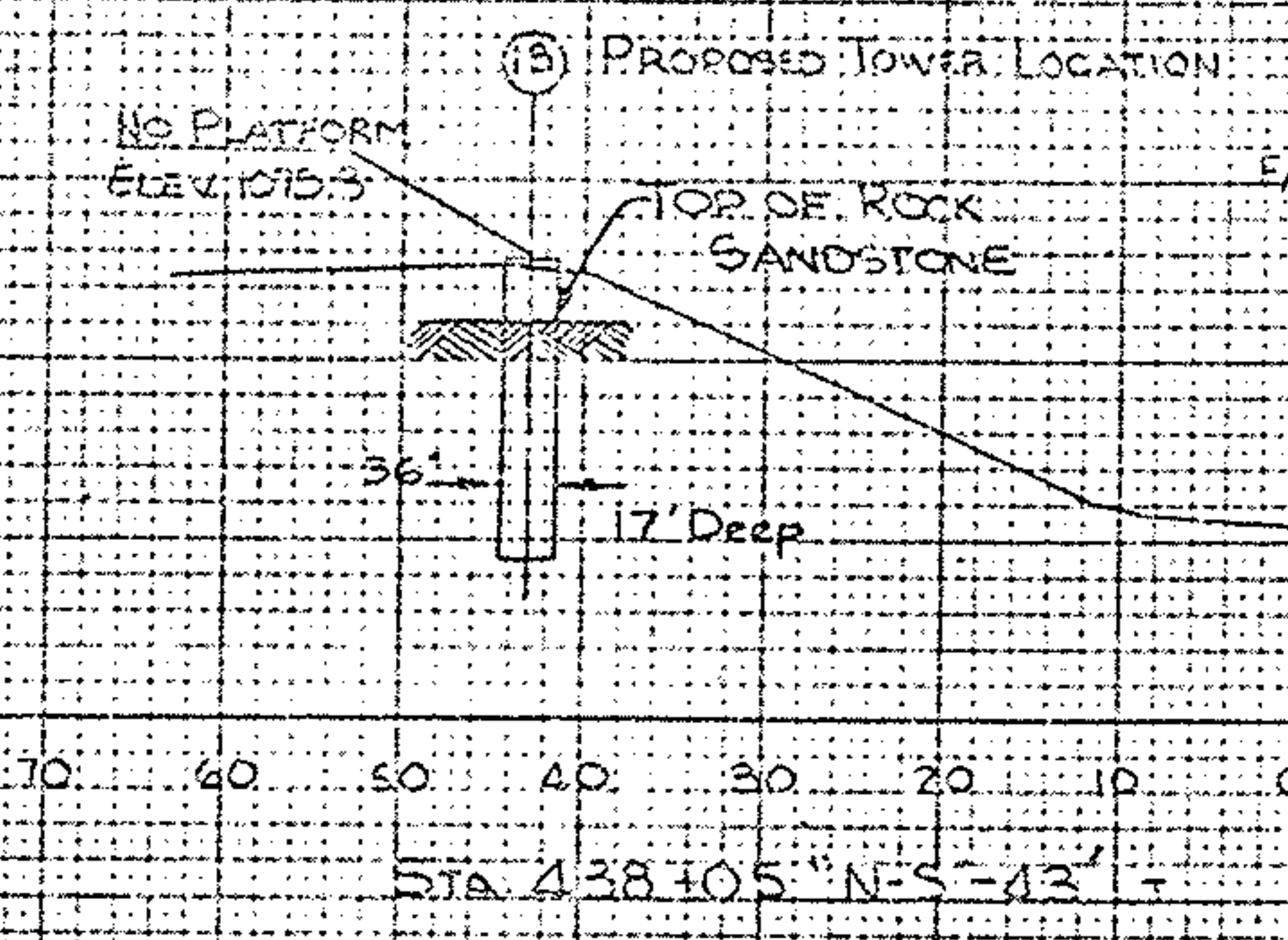
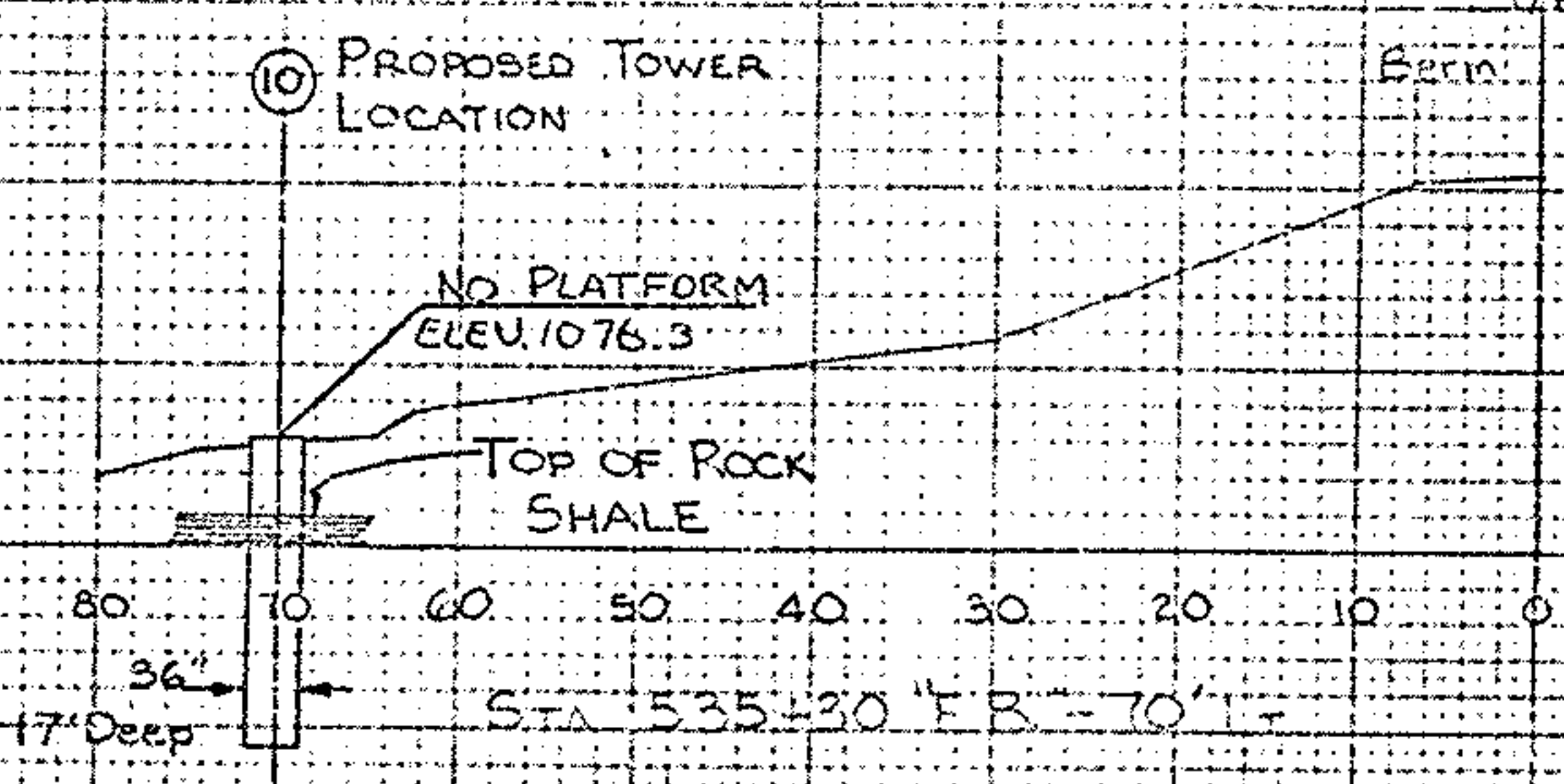
AKRON EXPRESSWAY
SUM-76-1157
SUM-8-0.46

172
248

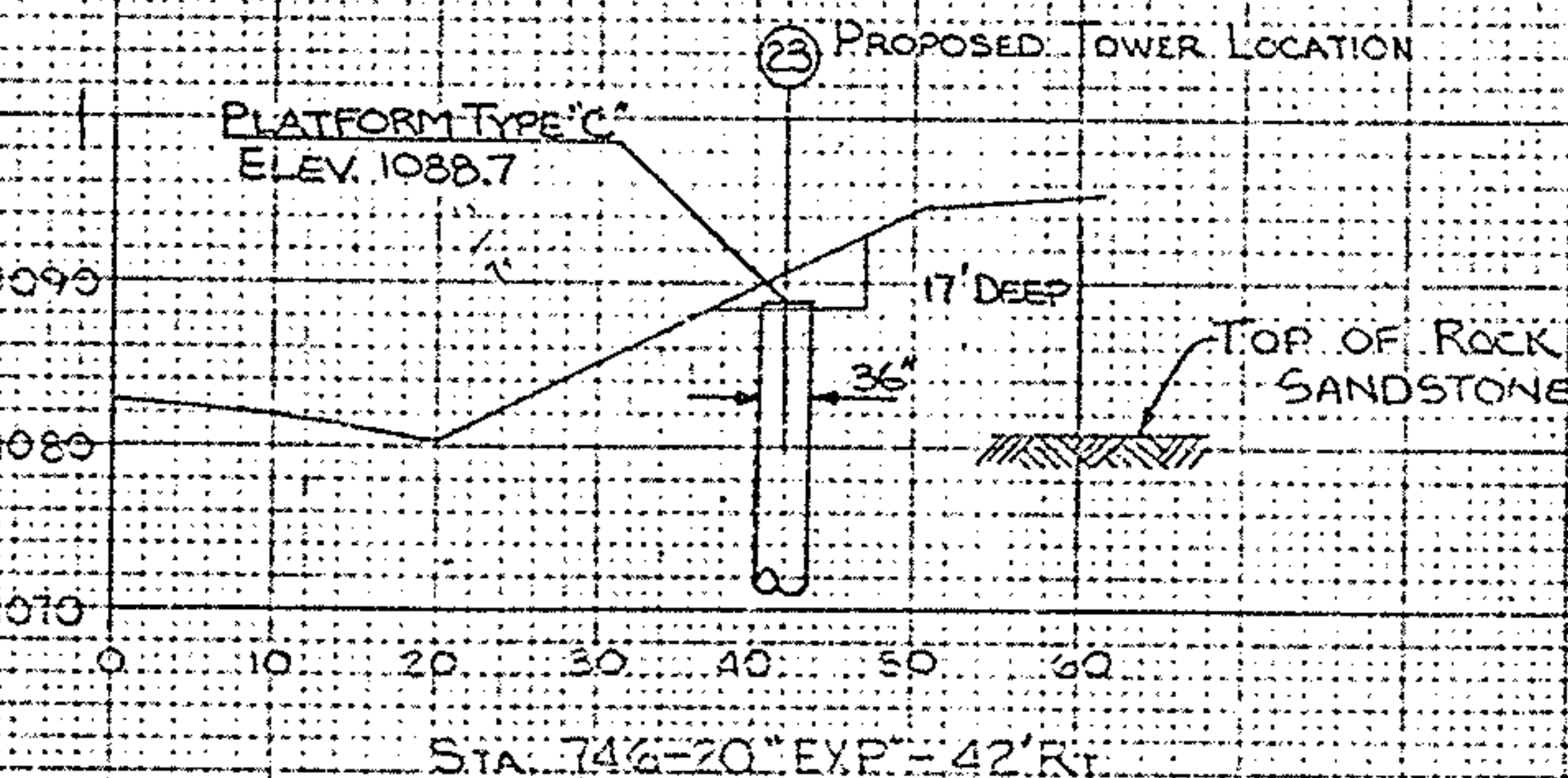
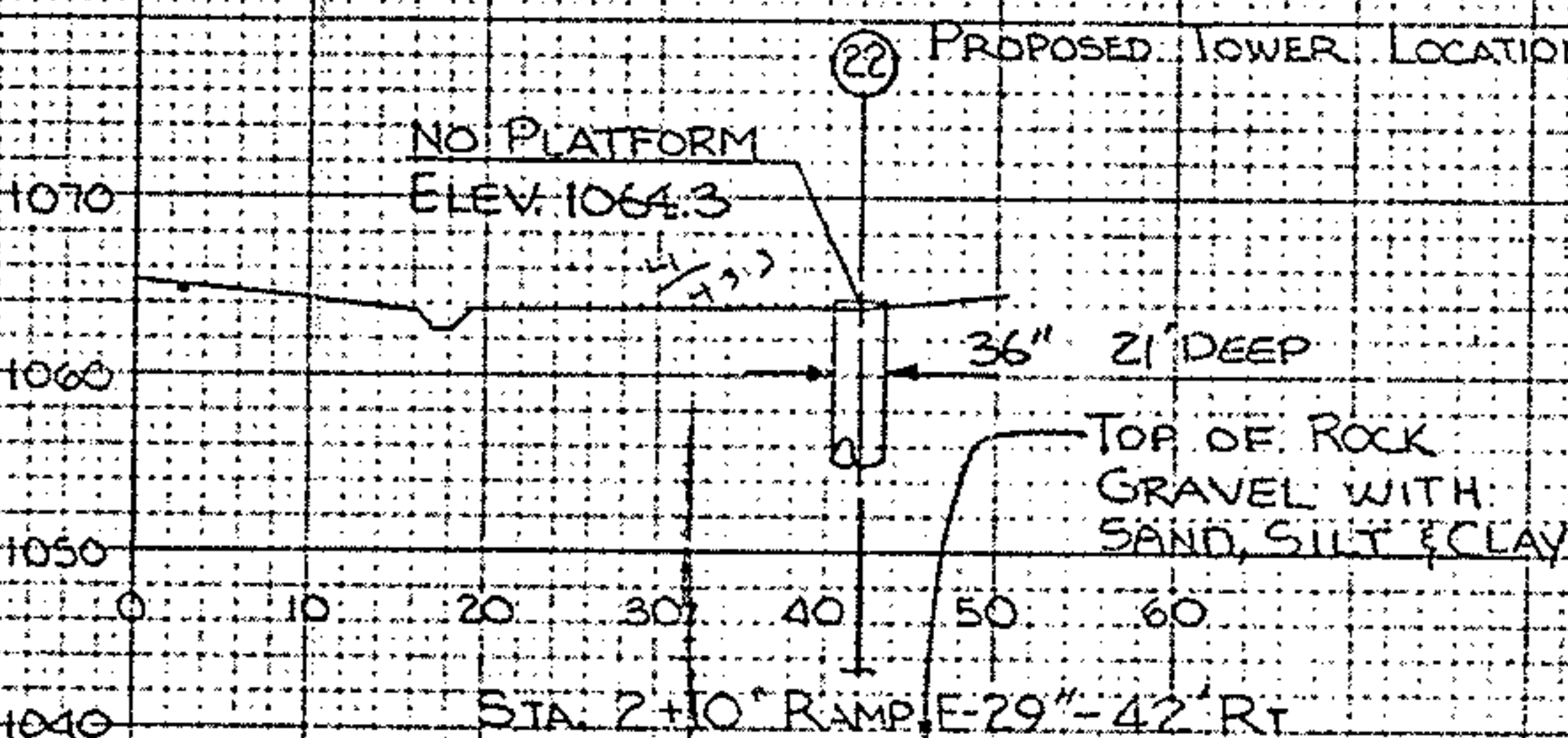
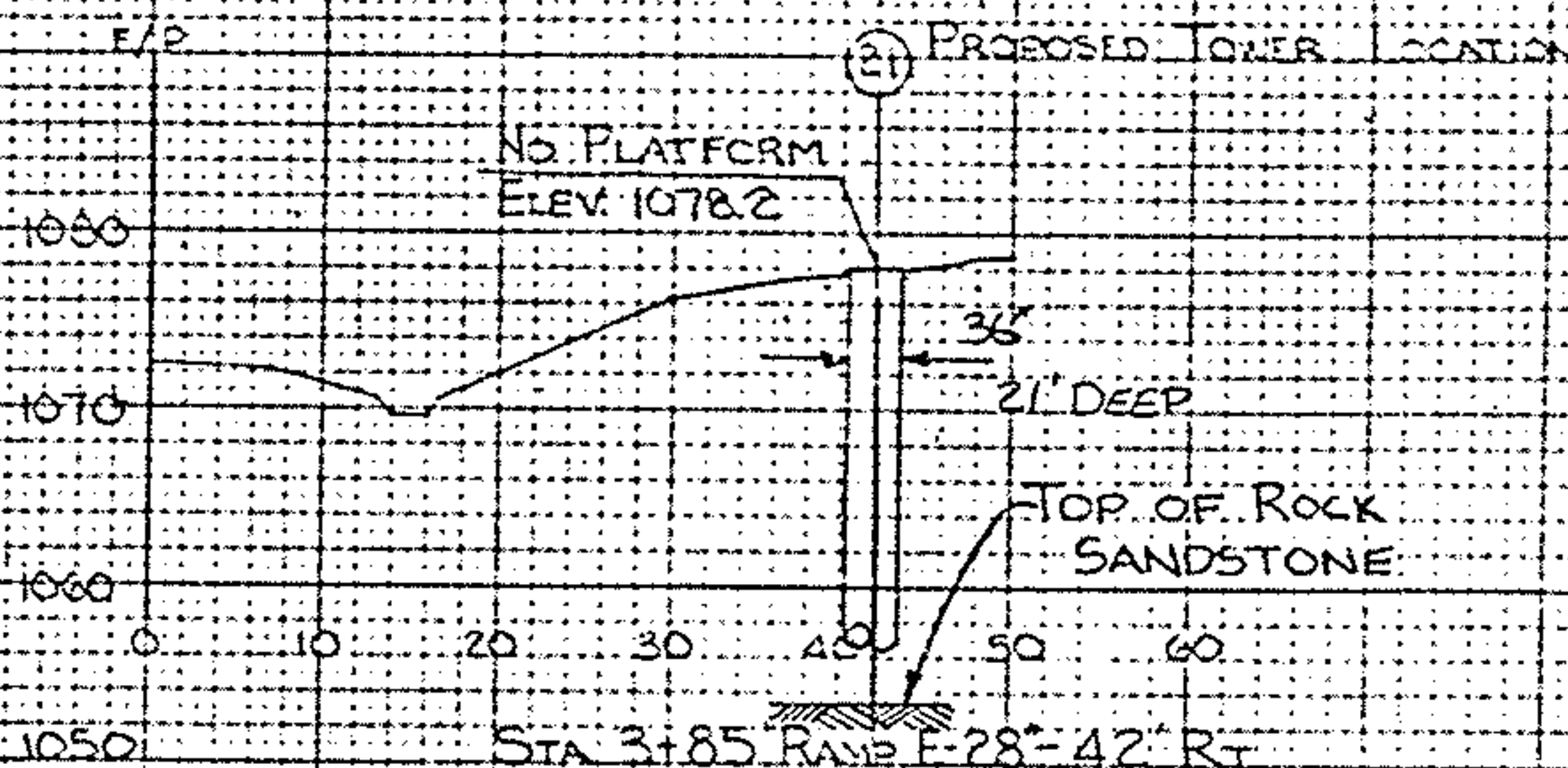
DATE
BY
CHECKED
FINAL SURVEY
NOTED BOOK
NO

DATE
BY
CHECKED
ORIGINAL SURVEY
NOTED BOOK
NO





AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46



TOWER NUMBER	DESIGN NUMBER	BOLT CIRCLE	BOLT SIZE	NO. OF BOLTS	DEPTH TO SHALE	DEPTH IN SHALE	EMBEDMENT DEPTH	SECTION TYPE	BAR LENGTH	MAINTENANCE PLATFORM TYPE	ELEVATION
1	BB 90	23.5"	1 3/4" x 9/16"	6	11.5'	9.5'	21'	III	20'-6"		1086.5
2	BB 90	23.5"			1'	16'	17'		16'-6"	C	1097.9
3	BB 100	25.5"			0'	17'	17'		16'-6"		1087.3
4	BB 100	25.5"			23'	0'	21'		20'-6"		1075.2
5	BB 100	25.5"			23'	3'	26'		25'-6"		1074.0
6	BB 100	25.5"			5'	12'	17'		16'-6"		1095.9
7	BB 100	25.5"			20'	1'	21'		20'-6"		1111.8
8	BB 100	25.5"			7'	10'	17'		16'-6"		1094.2
9	BB 100	25.5"			10'	11'	21'		20'-6"		1094.0
10	BBB 100	25.5"			45'	12.5'	17'		16'-6"		1076.3
11	BB 100	25.5"			25'	0'	21'		20'-6"		1080.5
12	BBB 100	26.0"			55'	11.5'	17'		16'-6"		1070.4
13	BB 90	23.5"			35'	13.5'	17'		16'-6"		1075.3
14	BB 100	25.5"			15'	6'	21'		20'-6"		1096.1
15	BBB 100	26.0"			10'	11'	21'		20'-6"		1079.6
18	BB 100	25.5"			25'	0'	21'		20'-6"	C	1057.0
19	BB 110	26.0"			10.5'	10.5'	21'		20'-6"		1039.6
20	BB 110	26.0"			13.5'	7.5'	21'		20'-6"	C	1052.5
21	BB 100	25.5"			24'	0'	21'		20'-6"		1078.2
22	BB 100	25.5"			25.5'	0'	21'		20'-6"		1064.3
23	BB 90	23.5"	V	V	8'	9'	17'	V	16'-6"	C	1088.7

* SANDSTONE

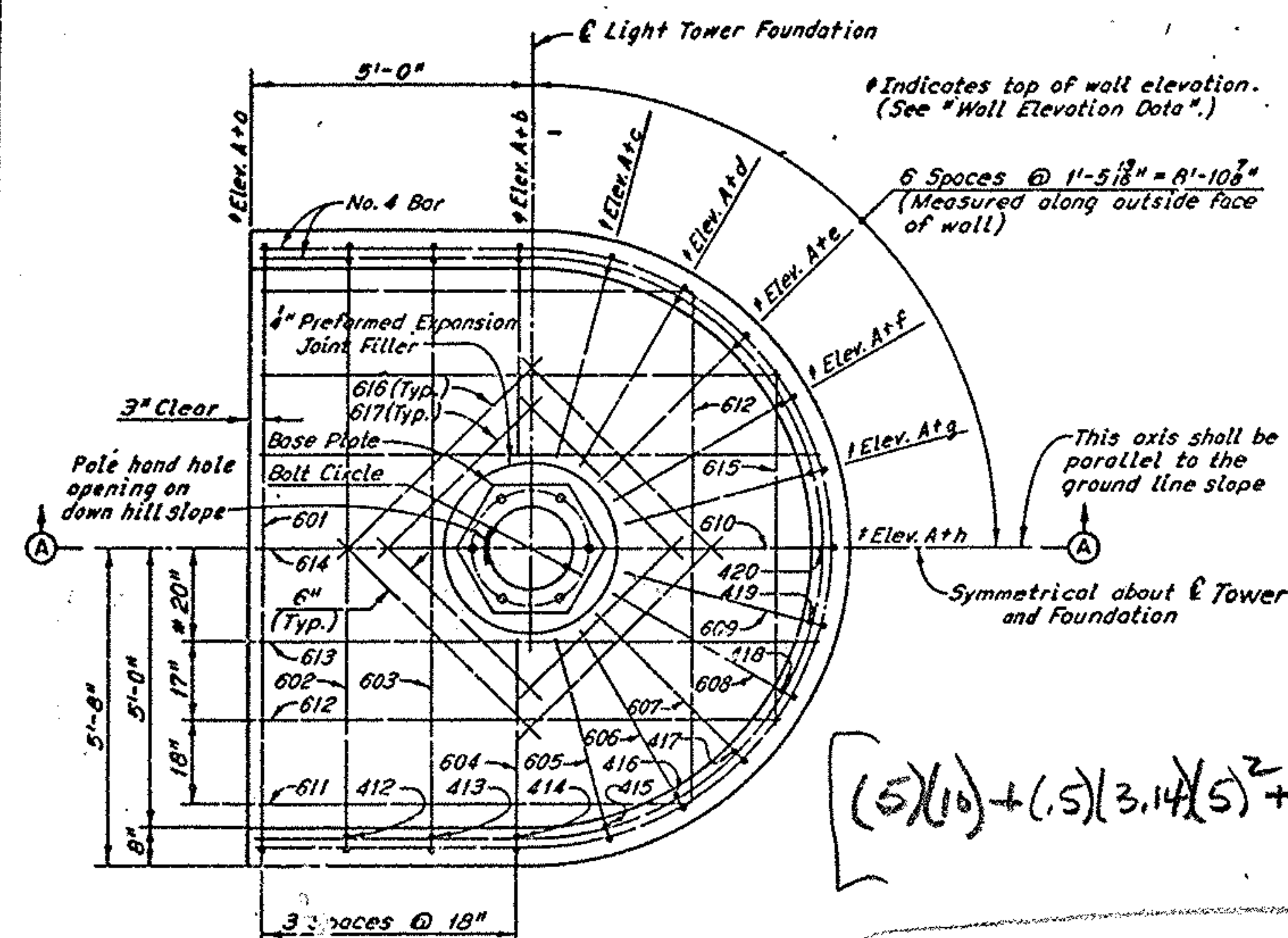
** SAND AND GRAVEL

LIGHT TOWER MAINTENANCE PLATFORM

FWA REGION	STATE	PROJECT
5	OHIO	

175
246

AKRON EXPRESSWAY
SUM-76-11.57
SUM-8-0.46



PLAN

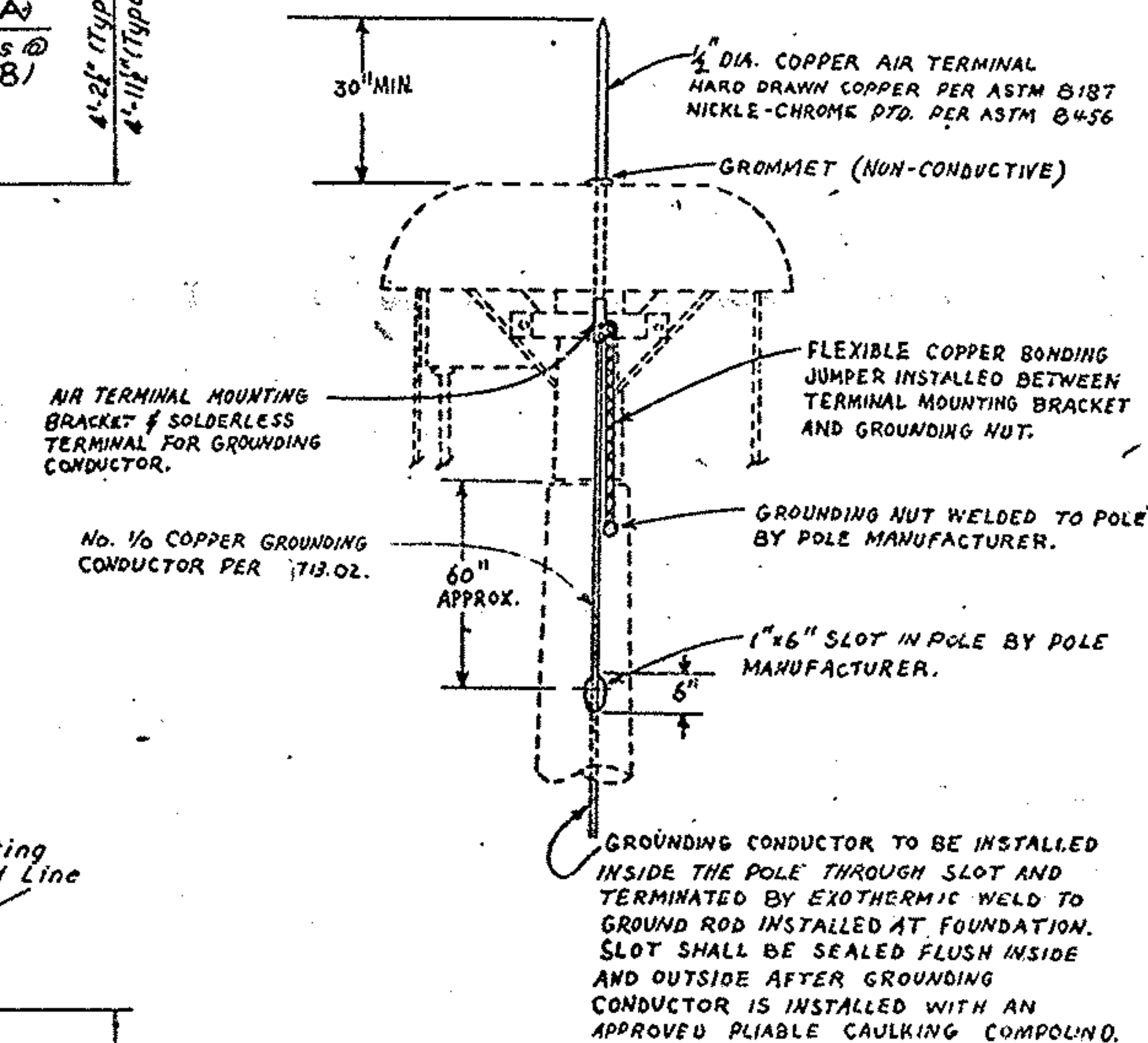
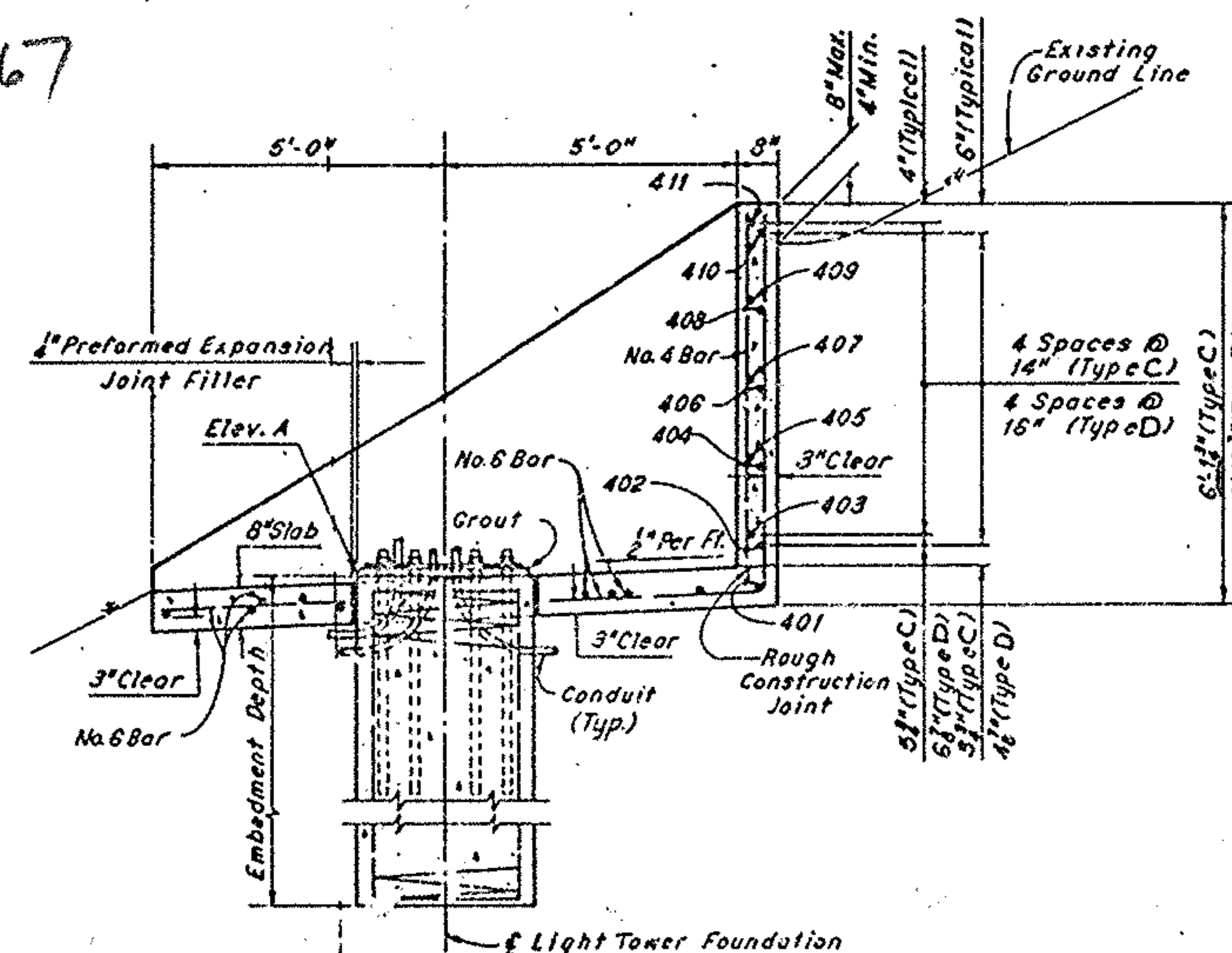
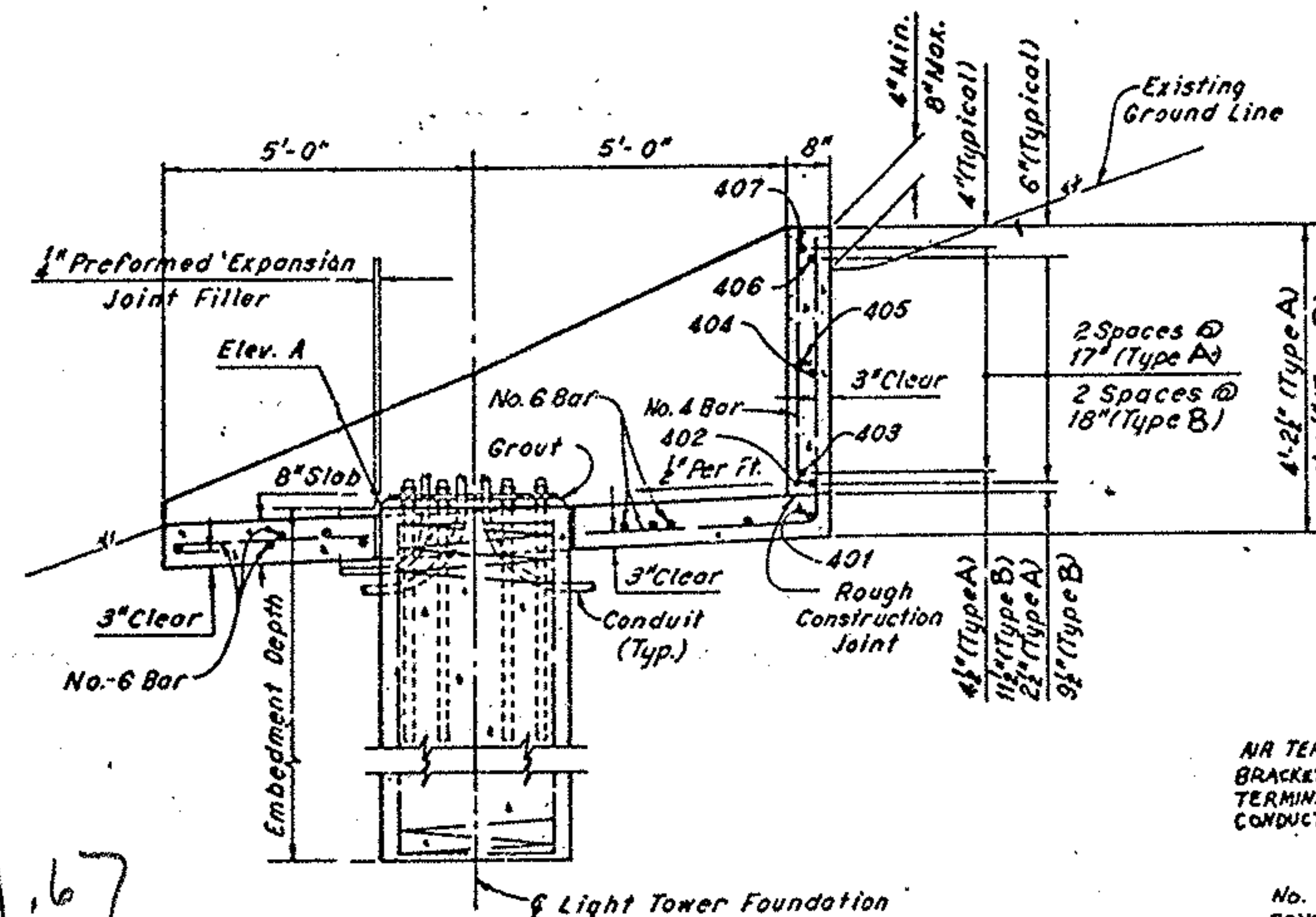
WALL ELEVATION DATA								
TYPE	a	b	c	d	e	f	g	h
A	.08	1.78	2.28	2.74	3.14	3.45	3.64	3.71
B	.09	2.14	2.74	3.30	3.78	4.15	4.39	4.46
C	.10	2.70	3.46	4.17	4.79	5.25	5.55	5.65
D	.11	3.05	3.92	4.73	5.43	5.96	6.29	6.41

Note: The values shown are in feet

PLATFORM GROUPING	
TYPE	SLOPE
A	3.01:1 to 3.75:1
B	2.5:1 to 3.0:1
C	2.0:1 to 2.49:1
D	1.75:1 to 1.99:1

$$[(5)(10) + (.5)(3.14)(5)^2 + (13.83)(6.15)] .67$$

$$[50 + 39.25 + 85.05] .67$$



TOWER LIGHTNING PROTECTION SYSTEM
(NEW INSTALLATION)

Notes:
Clearance for reinforcing bars is 2" typical, except as noted.
For Elevation A and embedment depth, see Light Tower Foundation Data Sheet 175L.
The following abbreviations are used:
No. = Number
Min. = Minimum
Max. = Maximum
Typ. = Typical
Elev. = Elevation

LIGHT TOWER MAINTENANCE PLATFORM

REINFORCEMENT SCHEDULE

FHWA REGION	STATE	PROJECT
5	OHIO	

176
248

AKRON EXPRESSWAY
SUM.-76-11.57
SUM.-8-0.46

WALL TYPE A						
MARK	NO.	LENGTH	TYPE	A	B	R
401	1	26'-3"	144	16'-10"	4'-9"	5'-3 1/2"
402	1	23'-7 1/2"	144	16'-10"	3'-7"	5'-3 1/2"
403	1	22'-7"	144	16'-6"	2'-1"	5'-2 1/2"
404	1	15'-9"	121	15'-9"	----	5'-3 1/2"
405	1	14'-6"	121	14'-6"	----	5'-2 1/2"
406	1	6'-2"	121	6'-2"	----	5'-3 1/2"
407	1	4'-3"	121	4'-3"	----	5'-2 1/2"
413	2	1'-0"	Str.			
414	2	1'-6"	Str.			
415	2	2'-0"	Str.			
416	2	2'-6"	Str.			
417	2	2'-9"	Str.			
418	2	3'-0"	Str.			
419	2	3'-3"	Str.			
420	1	3'-3"	Str.			
601	1	11'-10"	105	8"	10'-10"	----
602	1	12'-10"	105	1'-2"	10'-10"	----
603	1	13'-8"	105	1'-7"	10'-10"	----
604	2	5'-7"	104	2'-0"	3'-9"	----
605	2	6'-1"	103	2'-6"	1"	----
606	2	6'-6"	103	2'-11"	1"	----
607	2	6'-10"	103	3'-3"	1"	----
608	2	7'-2"	108	3'-7"	1"	----
609	2	7'-4"	103	3'-9"	1"	----
610	1	7'-4"	103	3'-9"	1"	----
611	2	7'-6"	Str.			
612	3	9'-3"	Str.			
613	2	10'-0"	Str.			
614	1	3'-0"	Str.			
615	1	6'-6"	Str.			
616	4	5'-6"	Str.			
617	4	4'-6"	Str.			

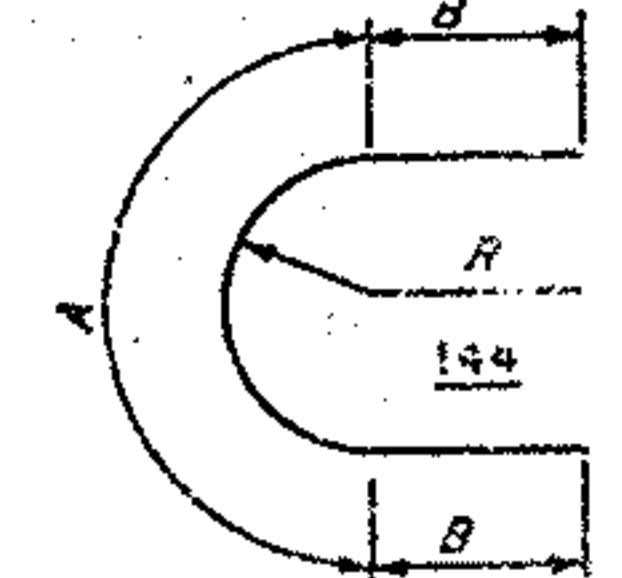
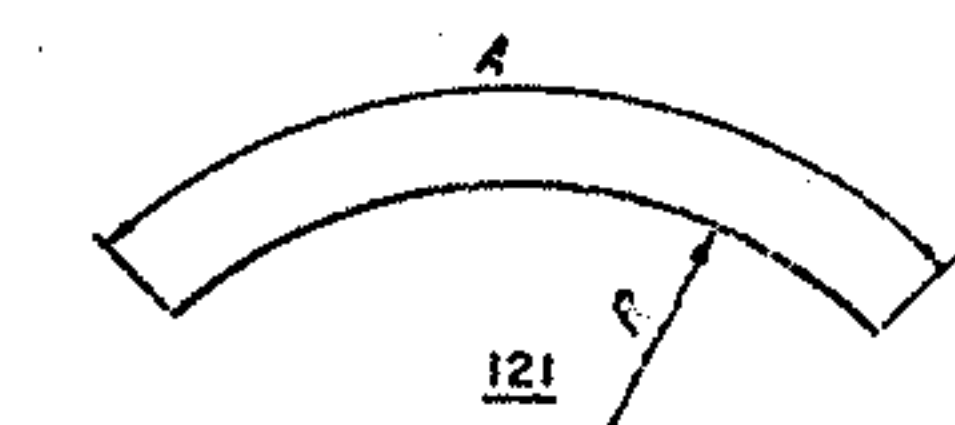
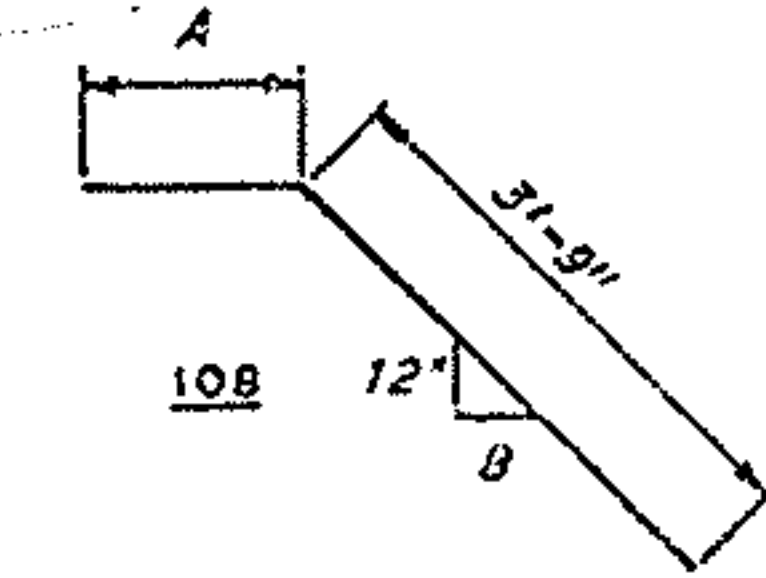
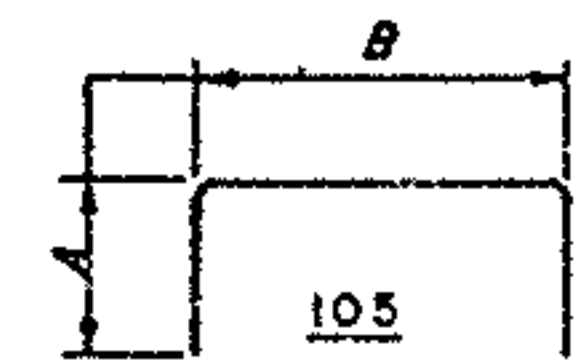
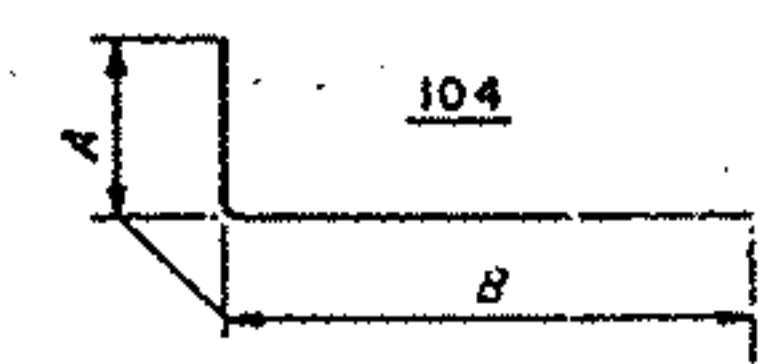
WALL TYPE B						
MARK	NO.	LENGTH	TYPE	A	B	R
401	1	26'-3"	144	16'-10"	4'-9"	5'-3 1/2"
402	1	21'-9"	144	16'-10"	2'-6"	5'-3 1/2"
403	1	20'-7"	144	16'-6"	2'-1"	5'-2 1/2"
404	1	14'-7"	121	14'-7"	----	5'-3 1/2"
405	1	13'-6"	121	13'-6"	----	5'-2 1/2"
406	1	5'-10"	121	5'-10"	----	5'-3 1/2"
407	1	4'-0"	121	4'-0"	----	5'-2 1/2"
412	2	9"	Str.			
413	2	1'-3"	Str.			
414	2	1'-9"	Str.			
415	2	2'-6"	Str.			
416	2	3'-0"	Str.			
417	2	3'-6"	Str.			
418	2	3'-9"	Str.			
419	2	4'-0"	Str.			
420	1	4'-0"	Str.			
601	1	12'-0"	105	9"	10'-10"	----
602	1	13'-0"	105	1'-3"	10'-10"	----
603	1	14'-2"	105	1'-10"	10'-10"	----
604	2	5'-11"	104	2'-4"	3'-9"	----
605	2	6'-7"	108	3'-0"	1"	----
606	2	7'-1"	108	3'-6"	1"	----
607	2	7'-6"	108	3'-11"	1"	----
608	2	7'-10"	108	4'-3"	1"	----
609	2	8'-1"	108	4'-8"	1"	----
610	1	8'-1"	108	4'-6"	1"	----
611	2	7'-6"	Str.			
612	3	9'-3"	Str.			
613	2	10'-0"	Str.			
614	1	3'-0"	Str.			
615	1	6'-6"	Str.			
616	4	5'-6"	Str.			
617	4	4'-6"	Str.			

WALL TYPE C						
MARK	NO.	LENGTH	TYPE	A	B	R
401	1	26'-3"	144	16'-10"	4'-9"	5'-3 1/2"
402	1	24'-7"	144	16'-10"	3'-11"	5'-3 1/2"
403	1	23'-7"	144	16'-6"	3'-7"	5'-2 1/2"
404	1	20'-1"	144	16'-10"	1'-8"	5'-3 1/2"
405	1	19'-3"	144	16'-6"	1'-5"	5'-2 1/2"
406	1	15'-9"	121	15'-10"	----	5'-3 1/2"
407	1	14'-11"	121	14'-11"	----	5'-2 1/2"
408	1	11'-4"	121	11'-4"	----	5'-3 1/2"
409	1	10'-4"	121	10'-4"	----	5'-2 1/2"
410	1	5'-0"	121	5'-0"	----	5'-3 1/2"
411	1	3'-4"	121	3'-4"	----	5'-2 1/2"
412	2	1'-0"	Str.	2.00		
413	2	1'-3"	Str.	3.50		
414	2	2'-6"	Str.	5.00		
415	2	3'-3"	Str.	6.50		
416	2	3'-9"	Str.	7.50		
417	2	4'-6"	Str.	9.00		
418	2	4'-9"	Str.	9.50		
419	2	5'-0"	Str.	10.00		
420	1	5'-3"	Str.	5.25		
601	1	12'-0"	105	9"	10'-10"	----
602	1	13'-6"	105	1'-6"	10'-10"	----
603	1	14'-10"	105	2'-2"	10'-10"	----
604	2	6'-6"	104	2'-11"	3'-9"	----
605	2	7'-3"	108	3'-8"	1"	----
606	2	7'-11"	108	4'-4"	1"	----
607	2	8'-6"	108	4'-11"	1"	----
608	2	8'-11"	108	5'-4"	1"	----
609	2	9'-2"	103	5'-7"	1"	----
610	1	9'-4"	103	5'-9"	1"	----
611	2	7'-6"	Str.			
612	3	9'-3"	Str.			
613	2	10'-0"	Str.			
614	1	3'-0"	Str.			
615	1	6'-6"	Str.			
616	4	5'-6"	Str.			
617	4	4'-6"	Str.			

WALL TYPE D						
MARK	NO.	LENGTH	TYPE	A	B	R
401	1	26'-3"	144	16'-10"	4'-9"	5'-3 1/2"
402	1	25'-3"	144	16'-10"	4'-3"	5'-3 1/2"
403	1	24'-5"	144	16'-6"	4'-0"	5'-2 1/2"
404	1	20'-7"	144	16'-10"	1'-11"	5'-3 1/2"
405	1	19'-9"	144	16'-6"	1'-8"	5'-2 1/2"
406	1	16'-1"	121	16'-1"	----	5'-3 1/2"
407	1	15'-3"	121	15'-3"	----	5'-2 1/2"
408	1	11'-1"	121	11'-1"	----	5'-3 1/2"
409	1	10'-2"	121	10'-2"	----	5'-2 1/2"
410	1	4'-8"	121	4'-8"	----	5'-3 1/2"
411	1	3'-2"	121	3'-2"	----	5'-2 1/2"
412	2	1'-0"	Str.			
413	2	2'-0"	Str.			
414	2	2'-9"	Str.			
415	2	3'-9"	Str.			
416	2	4'-6"	Str.			
417	2	5'-0"	Str.			
418	2	5'-6"	Str.			
419	2	5'-9"	Str.			
420	1	6'-0"	Str.			
601	1	12'-0"	105	9"	10'-10"	----
602	1	13'-3"	105	1'-7"	10'-10"	----
603	1	15'-4"	105	2'-5"	10'-10"	----
604	2	6'-10"	104	3'-3"	3'-9"	----
605	2	7'-9"	108	4'-2"	1"	----
606	2	8'-6"	108	4'-11"	1"	----
607	2	9'-2"	108	5'-7"	1"	----
608	2	9'-8"	108	6'-1"	1"	----
609	2	9'-11"	108	6'-4"	1"	----
610	1	10'-1"	108	6'-6"	1"	----
611	2	7'-6"	Str.			
612	3	9'-3"	Str.			
613	2	10'-0"	Str.			
614	1	3'-0"	Str.			
615	1	6'-6"	Str.			
616	4	5'-6"	Str.			
617	4	4'-6"	Str.			

258.4 x 1.502
388.1
543.5 ≈ 544

BENDING DIAGRAMS

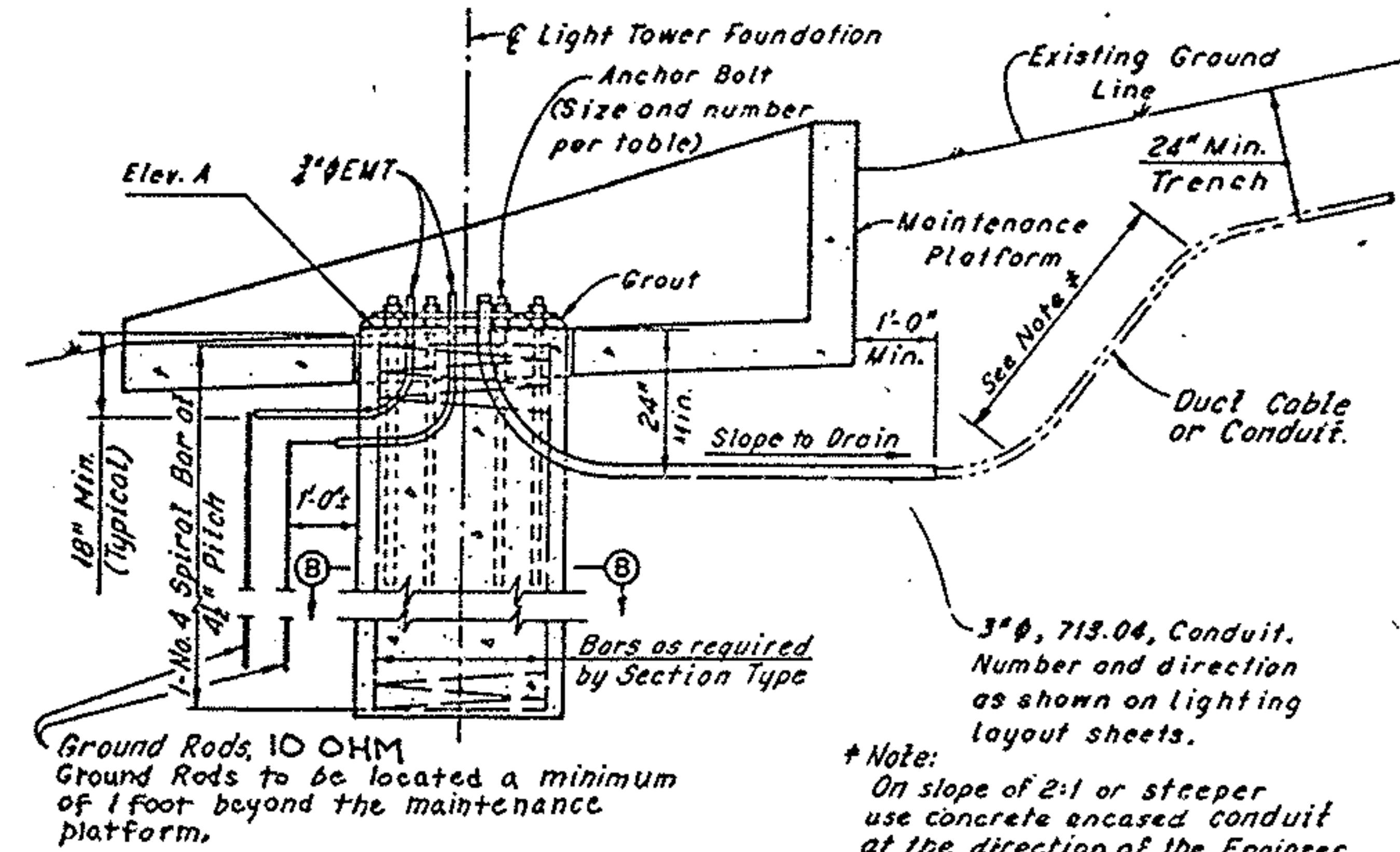


LIGHT TOWER FOUNDATION DETAILS

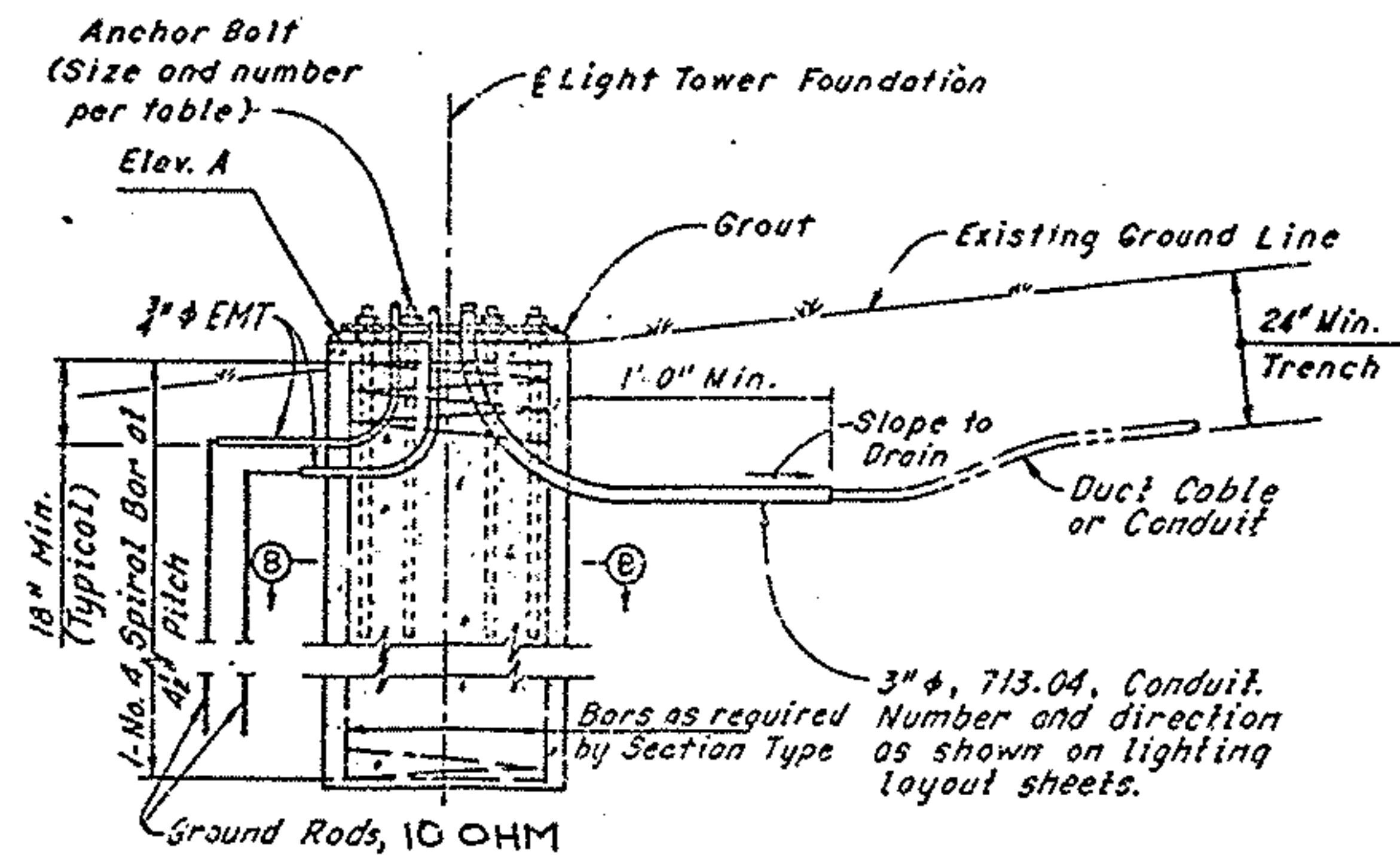
FHWA REGION	STATE	PROJECT
5	OHIO	

177
243

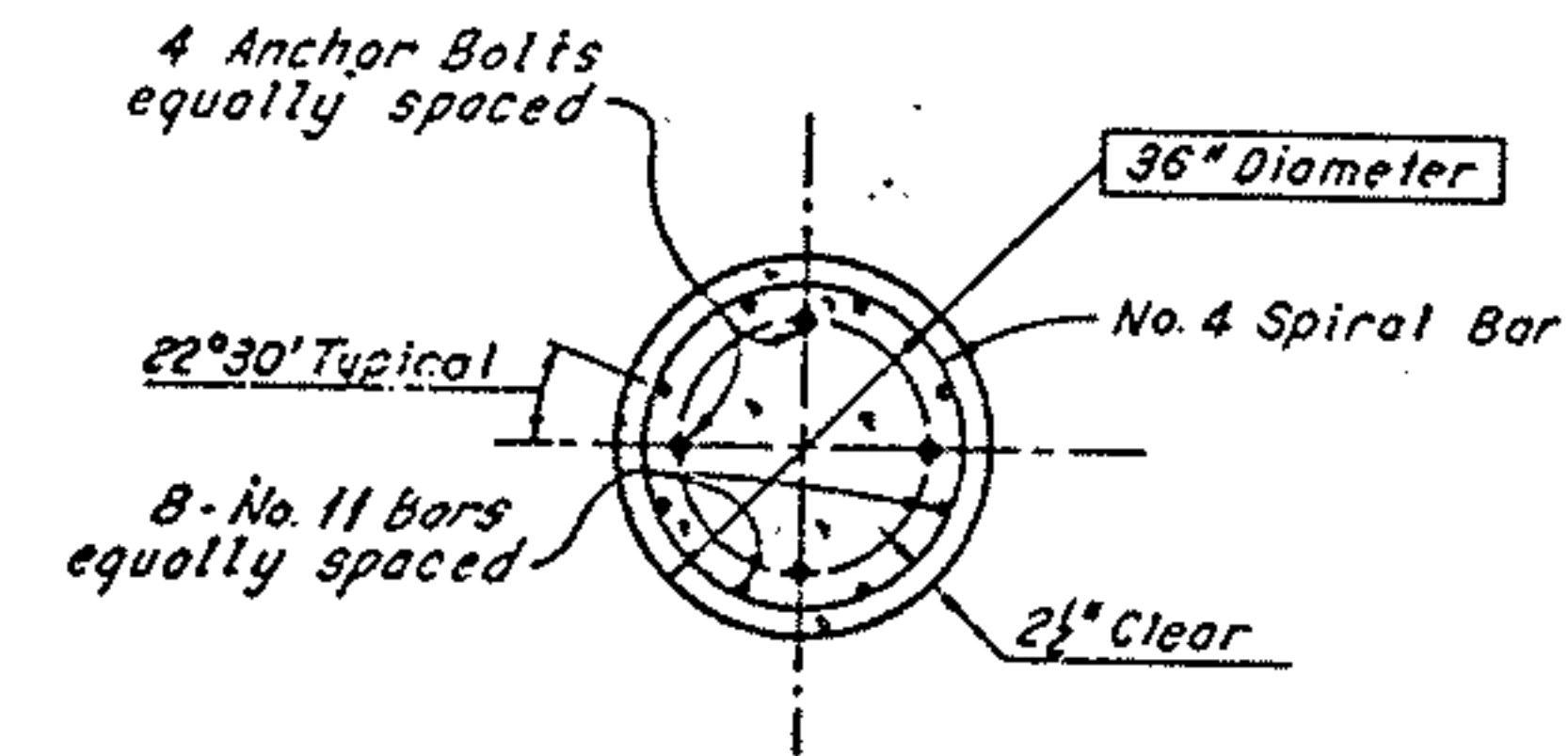
AKRON EXPRESSWAY
SUM.- 76-11.57
SUM.- 8- 0.46



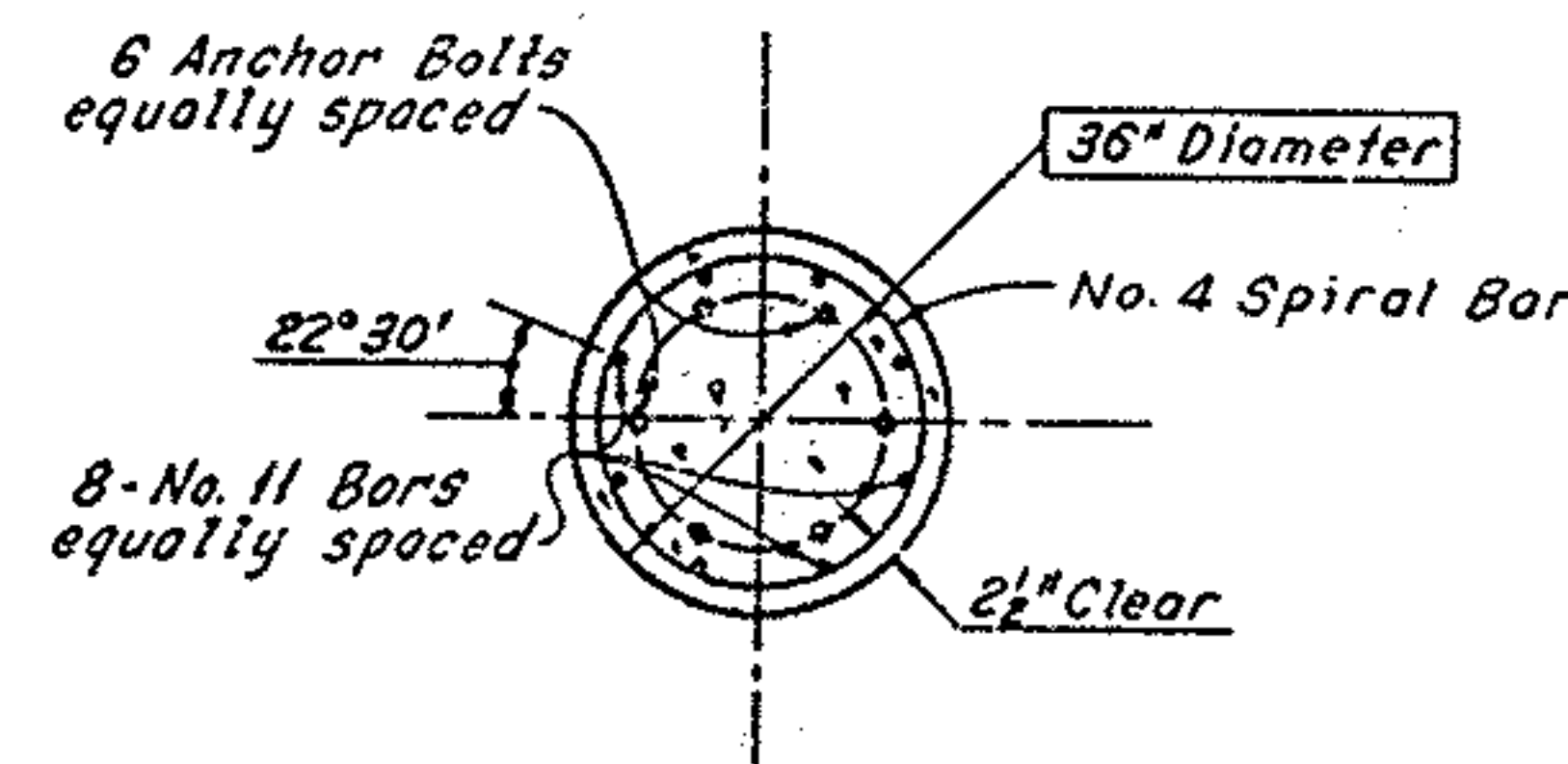
FOUNDATION WITH MAINTENANCE PLATFORM
(Slope 3.75:1 or steeper)
(Maintenance Platform reinforcement, See Sheet 176)



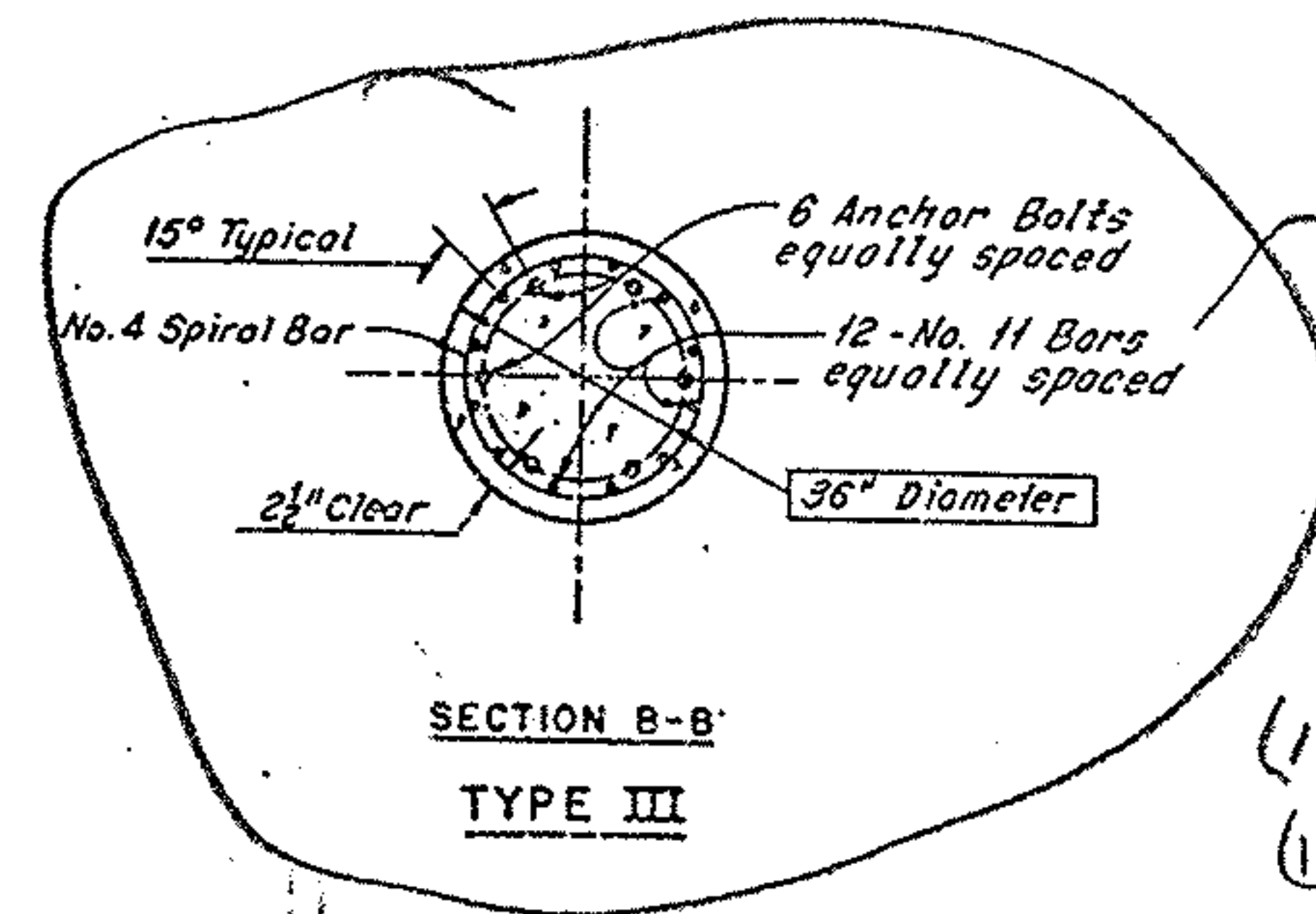
FOUNDATION WITHOUT MAINTENANCE PLATFORM
(Slope 12.0:1 or flatter)
12.0:1



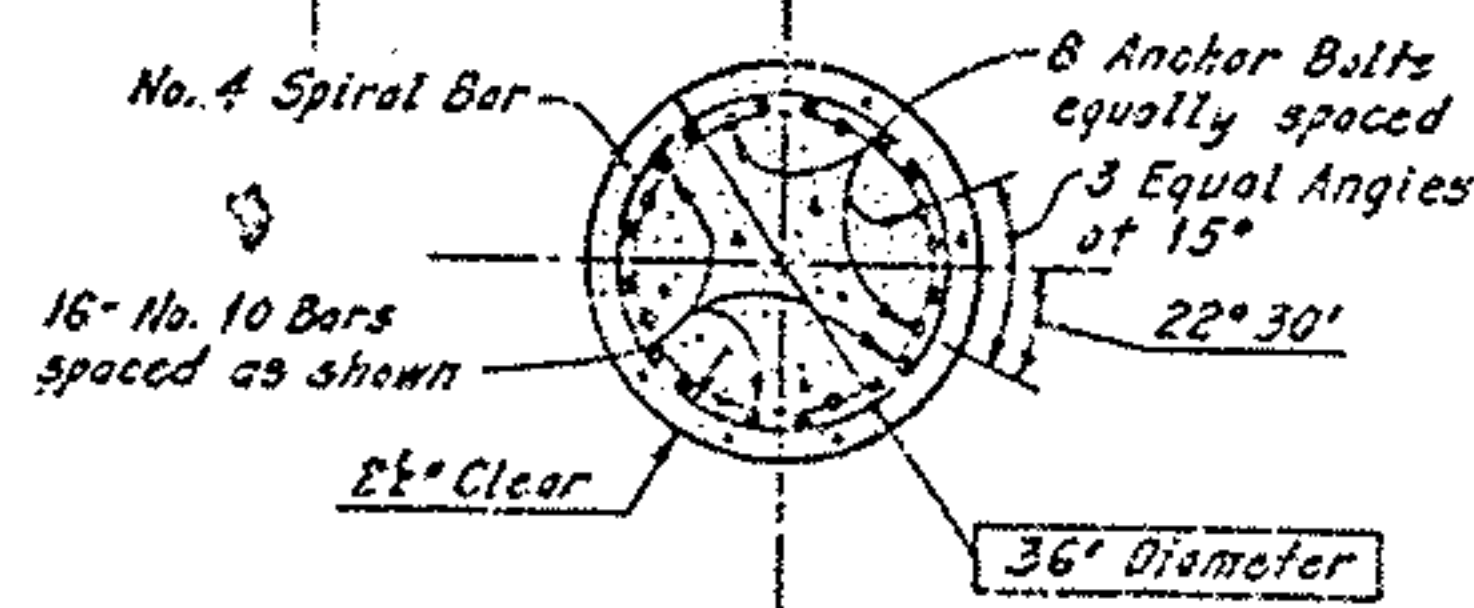
SECTION B-B
TYPE I



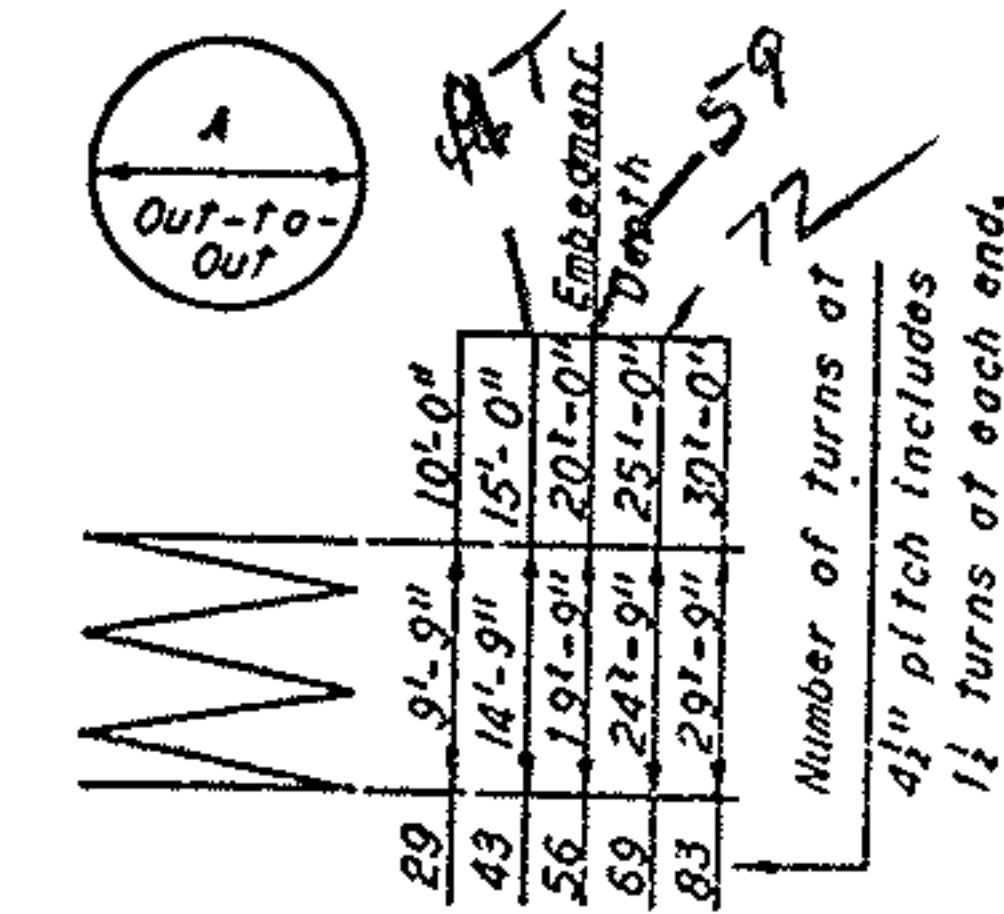
SECTION B-B
TYPE II



SECTION B-B
TYPE III



SECTION B-B
TYPE IV



A= 24" for a 36" foundation

NO. 4 SPIRAL BAR

SPIRAL REINFORCEMENT NOTE:

The Length shown on the No. 4 Spiral Bar Bending Diagram is the Foundation embedment depth with a 3" clearance.

Four steel channels, tee or angle spacers, weighing approximately 0.80 lbs. per foot of spacer shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil.

Notes:

Placement of reinforcement and anchor bolts is based on the anchor bolt data shown on Light Tower Foundation Data, Sheet . If a pole with a different anchorage pattern is proposed, the Contractor shall obtain approval from the Engineer prior to ordering reinforcing steel. The Contractor shall take special care in placing the anchor bolts to assure that the hand holes of the poles are placed in the proper location. The Contractor's plan for reinforcement and anchor bolt placement shall be approved by the Engineer.

All concrete shall be Class C - basic unit stress 1,333 psi.

All reinforcing steel shall be ASTM A615, A616 or A617 - basic unit stress 20,000 psi.

Spiral reinforcement may be plain bars, ASTM A62 or A615.

Comments shown are supplemental to O.D.O.T. Standard Construction Drawing M-1.

For "Elevation A" and foundation embedment depth, see Light Tower Foundation Data Sheet.

Maintenance platforms and ground rods are itemized individually and are not included in the bid price of the tower foundation. All other items: anchor rods and bolts, conduit, etc., are included in the bid price of the tower foundation.

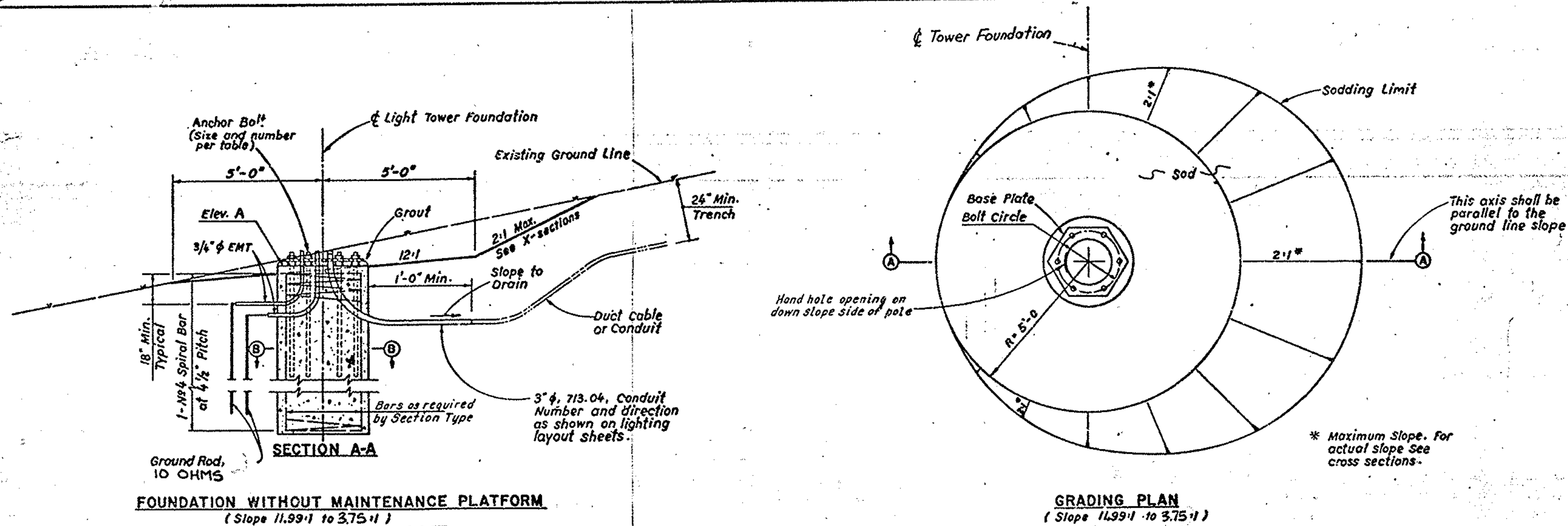
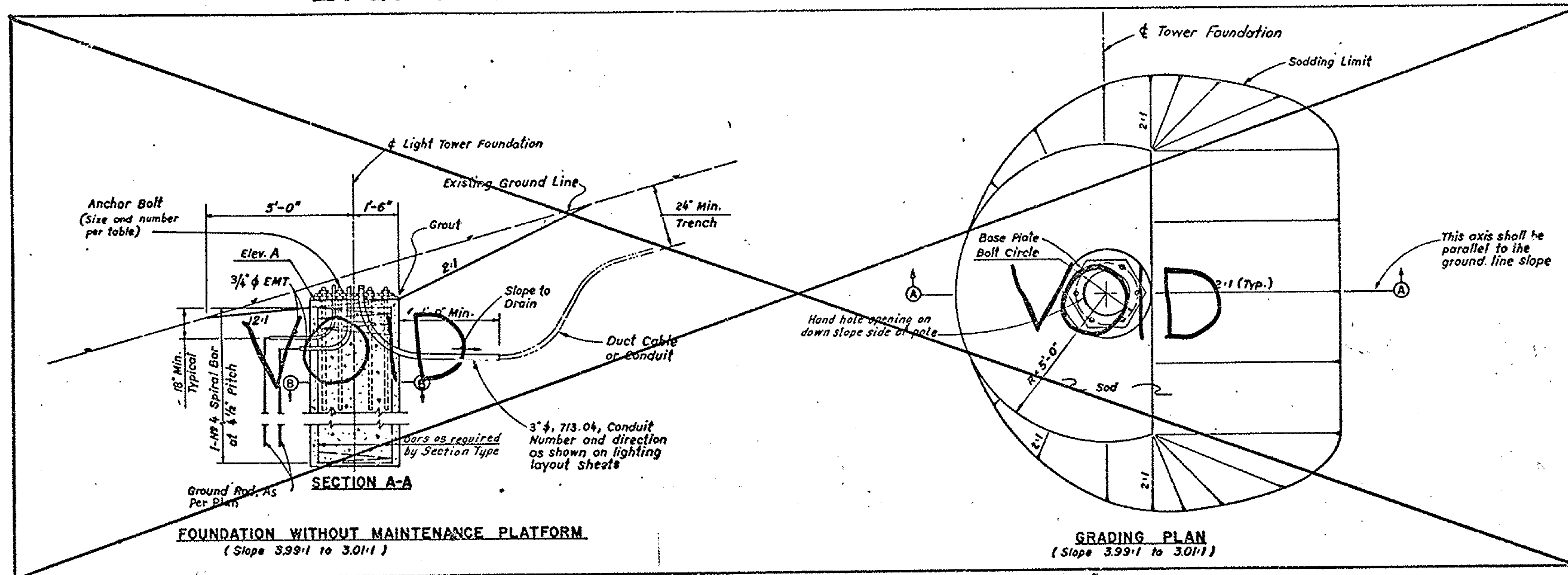
8@16-6
12@20-6
1@25-6

(12)(16.5) = 198
(12)(20.5) = 246

LIGHT TOWER FOUNDATION DETAILS

PROJECT	DATE	BY	CHKD
AKRON EXPRESSWAY	5	OHIO	178 248

AKRON EXPRESSWAY
SUM. - 76-11.57
SUM. - 8-0.46



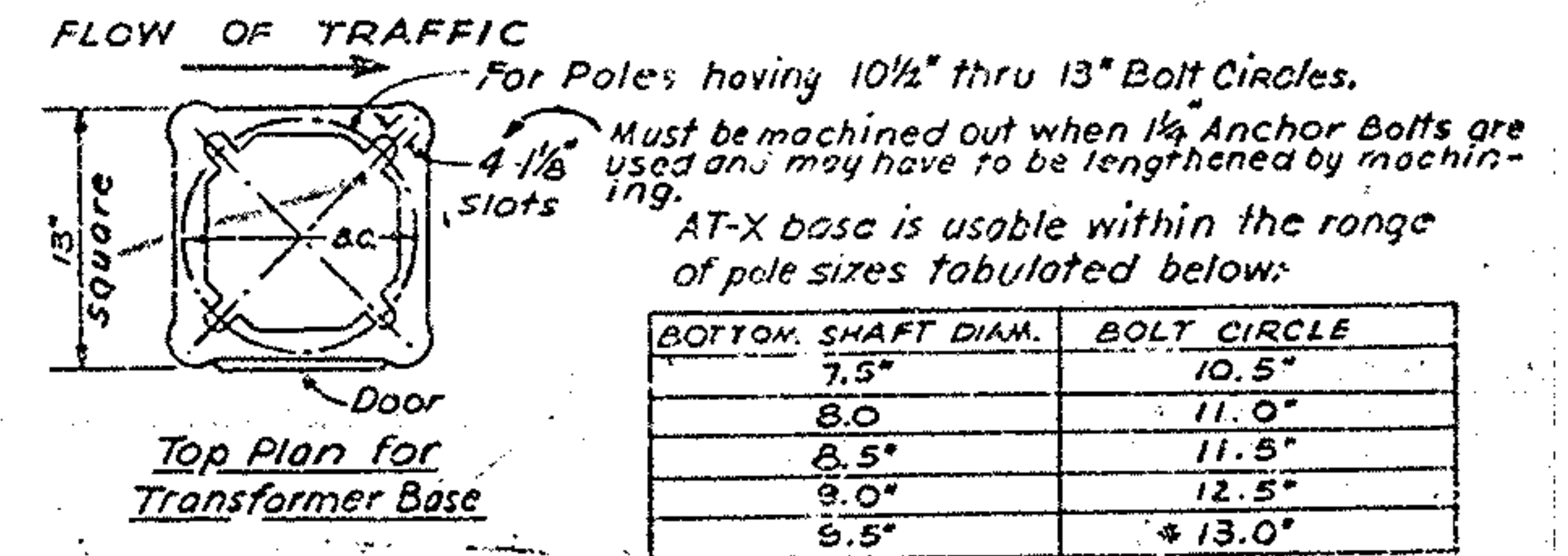
* Maximum Slope. For actual slope See cross sections.

Note: For Notes and Section B-B, see Sheet 177.

179
248

FRANGIBLE ALUMINUM TRANSFORMER BASE
TYPE "AT-X"

DATA NECESSARY FOR ORDERING FRANGIBLE BASES

[illegible]

* Where existing pole wiring does not include Type II and Type III connector kits install same as through they were existing as shown. Where the electrical system is 3-wire, 120/240 volts or 2-wire, 480 volts ungrounded, use only two, Type II kits.

C 120/240 volts or 2-wire, 480 volts ungrounded.

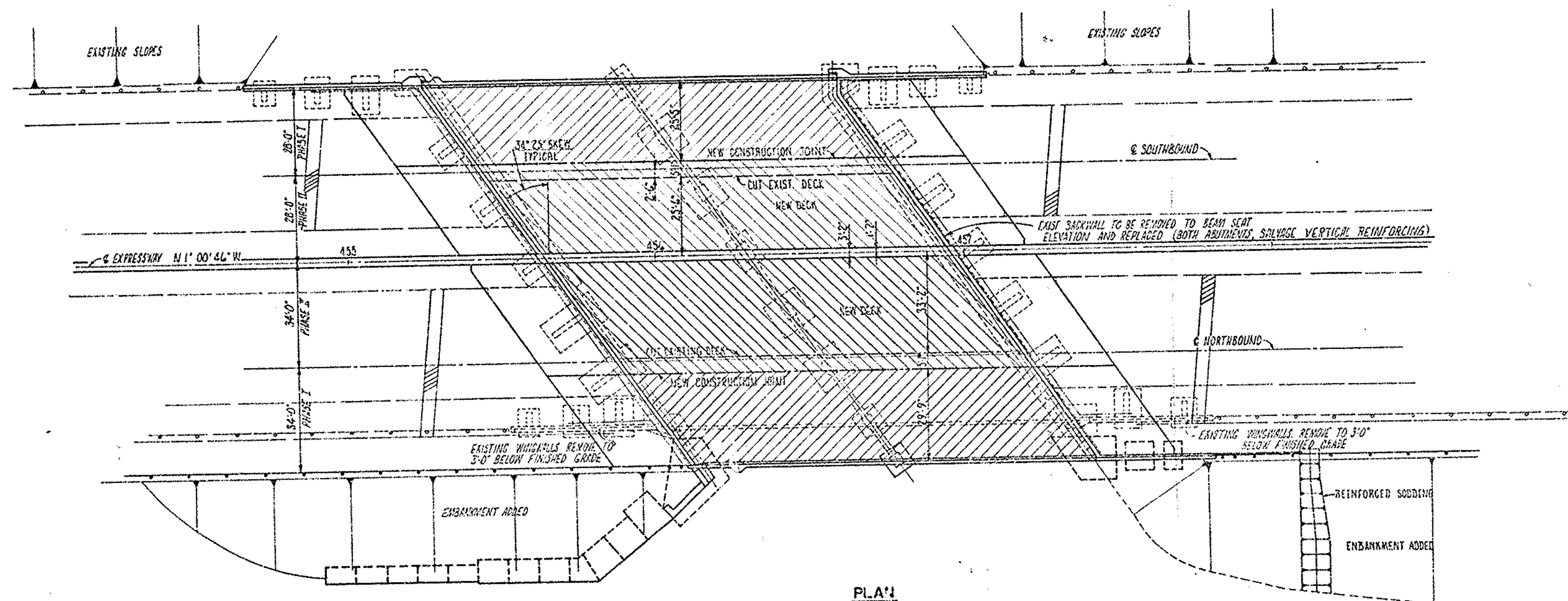
E Ground cable from ground rod

F 2 required if Kit C is used, otherwise only 1 required.

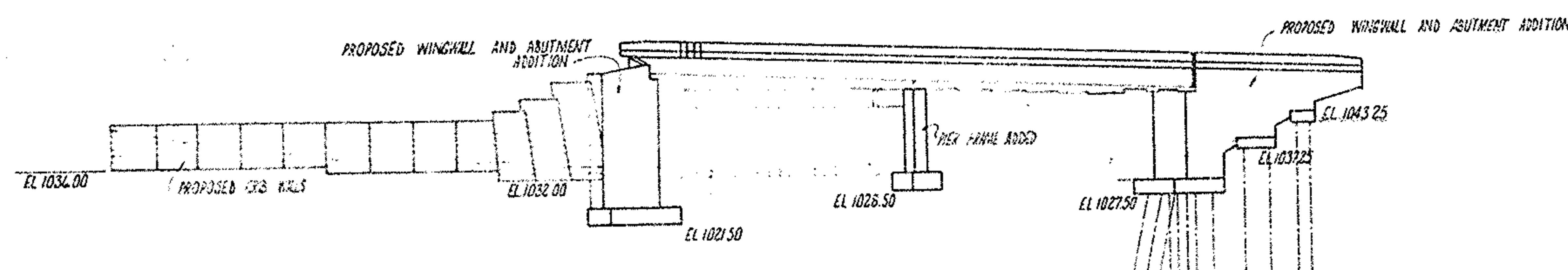
G Electrical Metallic Tubing and existing ground

NOTE: Poles having ball circles larger than 1" will require Type "AT-C" Transformer Base with adapter plates.

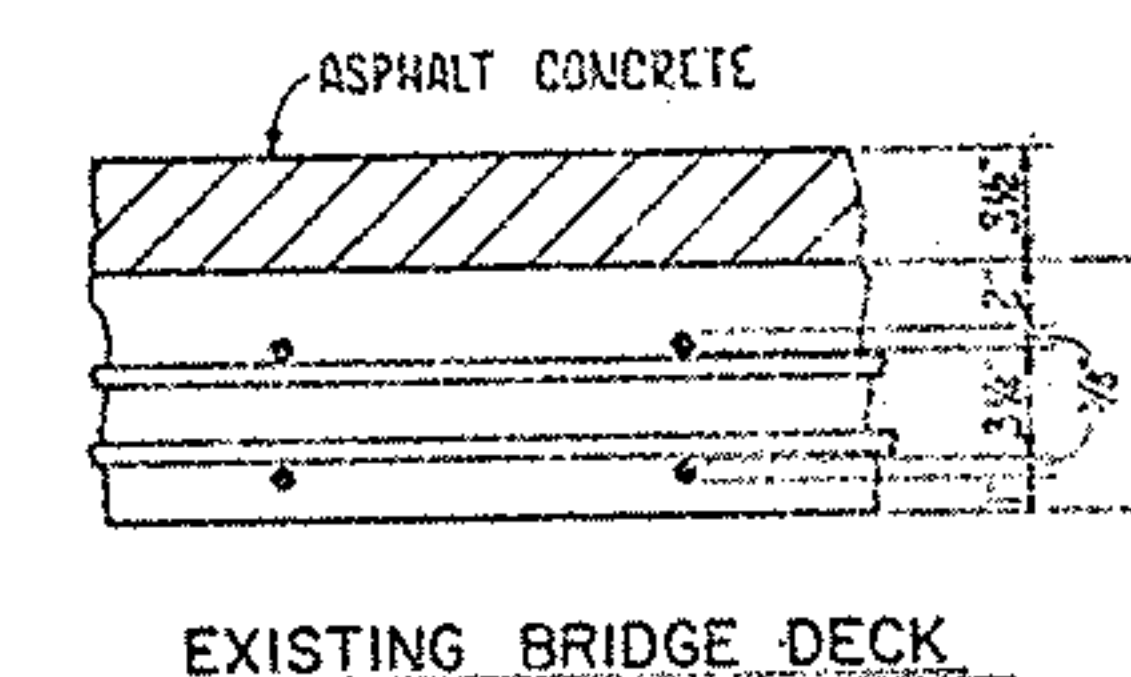
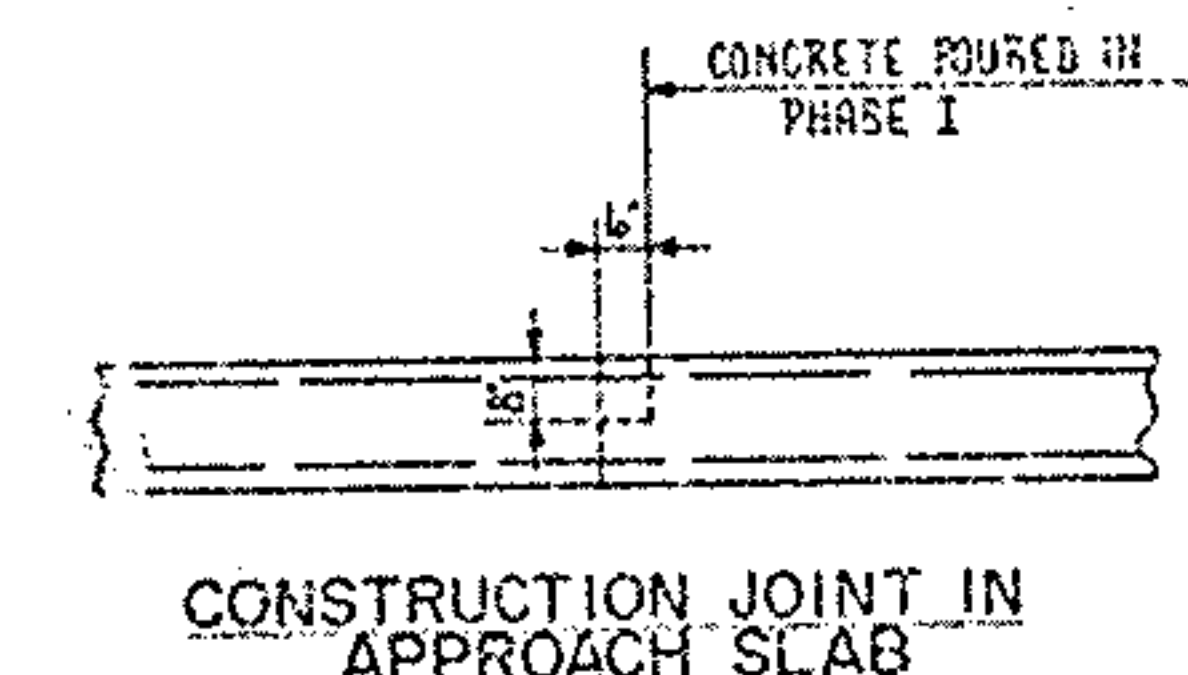
- ITEM 282, PORTIONS OF STRUCTURE REMOVED INCLUDES THE FOLLOWING ITEMS:
1. EXISTING APPROACH SLABS.
 2. BRIDGE DECKS, MEDIANS AND CONCRETE PARAPETS
 3. ABUTMENT BACKWALLS TO REAR SEAT, AND ABUTMENT WING WALLS FOR THE NORTHBOUND STRUCTURE TO 3'-0" BELOW FINISHED GRADE.
 4. PART OF PIER CAP. SEE SHEET 14 OF 21.
 5. PART OF STEEL END DAM. SEE SUPERSTRUCTURE DETAILS.



PLAN



ELEVATION



CITY OF AKRON		2/20
DEPARTMENT OF PUBLIC SERVICE		
BUREAU OF ENGINEERING		
FRANKLIN CONSULTANTS INC.		
GENERAL PLAN		
AKRON EXPRESSWAY SYSTEM		
A&B STREET AND BLAON STREET OVERPASS		
BRIDGE NO. SUM-8-0064		
DESIGNED BY	CHECKED BY	DATE
PCB	AB	1/20/72

IR Funds

ESTIMATED QUANTITIES							
ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	PIERS	ABUT.	GEN'L
202	100	LUMP	PORTIONS OF STRUCTURE REMOVED	LUMP	LUMP	LUMP	
203	350	CY	EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION, INCLUDING ROCK				350
503	100	LUMP	COFFERDAMS, CRIBS, AND SHEETING		29	428	LUMP
503	40	CY	UNCLASSIFIED EXCAVATION				LUMP
505	100	LUMP	TEST PILE				
507	570	L.F.	STEEL PILLS, HP 10 x 42		120	450	
509	114006	LBS.	REINFORCING STEEL	66514	3907	43585	
510	118	EACH	DOWEL HOLES			118	
511	10	CY	CLASS C CONCRETE PILE CAP AND COLUMN		16		
511	263	CY	CLASS C CONCRETE, ABUTMENT ABOVE FOOTINGS		9	96	
511	105	CY	CLASS C CONCRETE, FOOTINGS			31	
512	31	S.Y.	TYPE 'B' WATERPROOFING				
513	20800	LBS.	STRUCTURAL STEEL	L3075		7725	
SPECIAL	3075	LBS.	FIELD PAINTING OF STRUCTURAL STEEL	L3075		26	
516	26	S.F.	1" PREFORMED EXPANSION JOINT FILLER				
518	144	CY	POROUS BACKFILL			144	
518	10	L.F.	6" NON PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01				10
518	136	L.F.	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01				136
520	4231	S.F.	PNEUMATICALLY PLACED MORTAR		41	4190	
610	1602	S.F.	CELLULAR RETAINING WALL (AS PER PLAN)				1602
L25			SEE SHEET FOR LIGHTING SUMMARY.				
SPECIAL	76642	LBS.	EPOXY COATED REINFORCING STEEL (SEE Proposal Note)	76642			
SPECIAL	28	EACH	DRILLING OF WEEP HOLES			28	
SPECIAL	LUMP	LUMP	JACKING AND SUPPORTING STRUCTURE AND RESETTNG BEARINGS	LUMP			
511	481	CY	CLASS S CONCRETE SUPERSTRUCTURE	481			
845	1803	S.Y.	LATEX MODIFIED CONCRETE OVERLAY (1/4" THICK)	1803			
516	278.25	L.F.	ELASTOMERIC EXPANSION JOINTS	278.25			

GENERAL NOTES

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS: 50-1-69 DATED 6-12-69, 10-1-55 REVISED 2-7-59, AS-1-72 DATED 6-30-72 SHEET 1 OF 2 AND TO SUPPLEMENTAL SPECIFICATIONS 836 DATED 3-12-75, 845 DATED 3-2-81

DESIGN SPECIFICATIONS

THE WIDENING AND DECK REPLACEMENT ON THIS STRUCTURE CONFORMS TO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1977, INCLUDING THE 1978 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA

DESIGN LOADING - HS 20-44 CASE 1 AND THE ALTERNATE MILITARY LOADING.
CONCRETE CLASS S - UNIT STRESS 1200 P.S.I. FOR SUPERSTRUCTURE.
CONCRETE CLASS C - UNIT STRESS 1333 P.S.I. FOR SUBSTRUCTURE.
STRUCTURAL STEEL - ASTM A 36 - UNIT STRESS 20,000 P.S.I.
REINFORCING STEEL - ASTM A 615, A 616 OR A 617 - UNIT STRESS, 20,000 P.S.I.

BEAM SEAT ELEVATIONS

EXISTING BEAM SEAT ELEVATIONS HAVE BEEN COPIED FROM THE DESIGN DRAWINGS. THE CONTRACTOR SHALL VERIFY THESE ELEVATIONS, AS THE EXISTING BRIDGE DECK IS REMOVED. ANY SIGNIFICANT DISCREPANCY ($\pm 1/2"$ MAX) SHALL BE REPORTED TO THE ENGINEER BEFORE ANY WORK IS CONTINUED.

PILES SHALL BE DRIVEN TO BEDROCK. THE BEARING CAPACITY SHALL BE CONSIDERED OBTAINED BY REFUSAL ON HARD BEDROCK OR BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES WITH A MINIMUM RESISTANCE OF 20 BLUNS PER INCH. THE DESIGN LOAD IS 40 TONS PER PILE FOR THE PIER AND FORWARD ABUTMENT.

REAR ABUTMENT FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

FOUNDATIONS BEARING PRESSURE:

REAR ABUTMENT FOOTING IS DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 8 TONS PER SQ. FT.

CELLULAR RETAINING WALLS, BINS 1 THRU 9 ARE DESIGNED FOR MAX. TOE PRESSURE OF 1.5 TONS PER SQ. FT. BIDS 10, 11 AND 12 ARE DESIGNED FOR MAX. TOE PRESSURE OF 1.9 TONS PER SQ. FT.

CONSTRUCTION CLEARANCE OF 8'-0" HORIZONTALLY FROM THE CENTER OF THE TRACK AND 19'-2 1/2" VERTICALLY FROM A POINT LEVEL WITH THE TOP OF THE HIGHER RAIL AND 4'-0" FROM THE CENTER OF THE TRACK, SHALL BE MAINTAINED AT ALL TIMES.

SEQUENCE OF OPERATIONS

- INSTALL PRESSURE RELIEF JOINTS IN THE PAVEMENT, FOR NORTH AND SOUTH BOUND Lanes.
- DRILL 4" WEEPHOLES AT 8'-0" CENTERS IN THE EXISTING ABUTMENTS, 1'-0" ABOVE GROUND LINE.
- REMOVE DECK WEARING COURSE AND DECK CONCRETE.
- RESET RUCKER BEARINGS BY JACKING BEAMS JUST ENOUGH TO RELIEVE PRESSURE ON BEARING PLATES. THE ROCKERS SHALL BE IN A VERTICAL POSITION WITH THE ROLLERS CENTERED ON THEIR BASES FOR A TEMPERATURE OF 600 FAHRENHEIT. SOME BEARING PLATES HAVE A WELDED STEEL PIN IN FRONT OF THE ROCKER. THIS PIN MUST BE BURNED OFF AND GROUND SMOOTH WITH THE PLATE. THE JACKING OPERATION MUST ONLY TAKE PLACE AT ONE ABUTMENT AT A TIME.
- REMOVE EXISTING APPROACH SLAB IN THE PHASE I AREA AND PROVIDE SHEET PILING BETWEEN PHASE I AND PHASE II AREA AS NECESSARY.
- COMPLETE WORK IN PHASE I AREA INCLUDING NEW DECK, APPROACH SLABS AND INSTALLATION OF CELLULAR RETAINING WALLS AND NEW EMBANKMENT. WHEN THE WORK IS COMPLETED REOPEN THIS AREA FOR TRAFFIC.
- COMPLETE WORK IN PHASE II AREA AND REMOVE SHEET PILING BETWEEN AREA I AND II. REOPEN BRIDGE FOR TRAFFIC.
- PAINT ALL NEW STRUCTURAL STEEL AND PORTIONS OF EXISTING STRUCTURAL STEEL IN ACCORDANCE WITH ITEM SPECIAL - FIELD PAINTING OF STRUCTURAL STEEL. PAINTING OF EXISTING STRUCTURAL STEEL SHALL BE LIMITED TO THE PORTIONS AFFECTED BY THE PROPOSED WIDENING AND REPAIRS.

ASBESTOS - BONDED METAL WALLS

MATERIALS: MATERIALS USED IN THE FABRICATION OF ASBESTOS-BONDED METAL WALLS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF ASTM DESIGNATION A 569 WITH 0.20 PERCENT MINIMUM COPPER ADDED. IN ADDITION, THE METAL SHEETS USED TO FORM THE MEMBERS OF THE WALL (EXCEPT THE BASE PLATES AND THE CONNECTING CHANNELS) SHALL BE COATED ON BOTH SIDES WITH A LAYER OF ASBESTOS FIBERS, APPLIED IN A SHEET FORM BY PRESSING IT INTO A MOLTEN METALLIC BONDING MEDIUM. IMMEDIATELY AFTER THE METALLIC BOND HAS SOLIDIFIED, THE ASBESTOS FIBERS SHALL BE THOROUGHLY SATURATED WITH BITUMINOUS SATURANT. THE FINISHED SHEETS SHALL BE OF FIRST CLASS COMMERCIAL QUALITY, FREE FROM BLISTERS AND UNSATURATED SPOTS. ALL METAL SHEETS USED IN MAKING THE VARIOUS UNITS SHALL HAVE A MINIMUM THICKNESS 0.057 INCH, UNLESS OTHERWISE SHOWN ON THE PLANS. AFTER FABRICATION, ALL BOLT HOLES AND THE EDGES OF THE MEMBERS SHALL BE COATED WITH A RUST INHIBITATIVE MATERIAL APPROVED BY THE ENGINEER.

MANUFACTURE OF UNITS: ASBESTOS-BONDED METAL WALL UNITS SHALL BE SO FABRICATED THAT UNITS OF THE SAME NOMINAL SIZE SHALL BE FULLY INTERCHANGEABLE. NO DRILLING, PUNCHING, OR DRIFTING TO CORRECT DEFECT IN MANUFACTURE WILL BE PERMITTED. ANY UNITS HAVING HOLES IMPROPERLY PUNCHED SHALL BE PROMPTLY REPLACED BY THE MANUFACTURER, FREE OF CHARGE.

CELLULAR RETAINING WALLS (ITEM 610)

CELLULAR RETAINING WALLS SHALL CONFORM TO ITEM 610 EXCEPT THAT ASBESTOS-BONDED METAL WALL SHALL BE USED. IN ADDITION, THE GRADATION THE MATERIAL USED TO FILL THE BINS SHALL BE MODIFIED AS FOLLOWS:

TOTAL PASSING -	PERCENT
2 1/2 INCH	100
1 INCH	70-100
NO. 4	25-50
NO. 40	5-25
NO. 200	0-5

ALSO, NO OPENINGS LARGER THAN 1/4" SHALL BE PERMITTED IN THE EXPOSED FACES OF THE WALL.

PLANS OF THE EXISTING STRUCTURE MAY BE STUDIED IN THE OFFICE OF THE BUREAU OF ENGINEERING, 701 MUNICIPAL BUILDING, CITY OF AKRON, OHIO.

THE TOP REINFORCING STEEL IN THE APPROACH SLABS SHALL BE 5" CLEAR. TI JACKING HOLES SHOWN ON AS-1-72, ARE NOT REQUIRED.

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, TOP MAT ONLY AND LATEX OVERLAY.

ATTACHMENT OF GUARDRAIL TO CONCRETE PARAPETS: CONCRETE INSERT ANCHOR ASSEMBLIES PER STANDARD CONSTRUCTION DRAWINGS GR-3 AND GR-1 SHALL BE PLACED DURING PARAPET CONSTRUCTION.

* SCARFING OF THE NEW CLASS S CONCRETE SHALL BE NON-PERFORMED
THE BLAST CLEANING SHALL BE PERFORMED AS SPECIFIED

CITY OF AKRON DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING					
FRANKLIN CONSULTANTS INC.					
ESTIMATED QUANTITIES GENERAL NOTES					
AKRON EXPRESSWAY SYSTEM A.B.B.R.R. AND BEACON STREET OVERPASS BRIDGE NO. SUM-8-0064					
DESIGNED H.M.	DRAWN G.W.	CHECKED K.C.H.	REVIEWED J.F.	DATE 7/2/78	

Rev. 2-18-82 SMK

ELASTOMERIC EXPANSION DAM

THE ELASTOMERIC EXPANSION DAM SHALL BE OF THE TYPE THAT WILL SEAL THE JOINT SURFACE, BUTTERS, PILES, AND WELLS, TO PREVENT WATER AND OTHER CONTAMINANTS FROM DESCENDING INTO THE SUBSTRUCTURE.

THE ELASTOMERIC EXPANSION DAM SHALL BE OF AN INTEGRALLY MOLDED UNIT OF NEOPRENE AND INTERMEDIATE COMPONENTS, SO FABRICATED AS TO PROVIDE FOR THE EXPANSION AND CONTRACTION MOVEMENT OF THE BRIDGE DECK.

ONE OR MORE OF THE METAL COMPONENTS SHALL BRIDGE THE GAP IN THE DECK AND BE OF SUFFICIENT STRENGTH TO SUPPORT THE WHEEL LOADS WITH MINIMUM DEFLECTION.

THE ELASTOMERIC DAM SHALL BE OF THE TYPE THAT WILL SEAL THE JOINT SURFACE, BUTTERS, PILES, AND WELLS, TO PREVENT WATER AND OTHER CONTAMINANTS FROM DESCENDING INTO THE SUBSTRUCTURE.

THE EXPANSION DAM SHALL HAVE THE PROVISION FOR ANCHORING IT TO THE BRIDGE DECK BY BOLTS FORMING A MECHANICAL CONNECTION BETWEEN METAL COMPONENTS MOLDED IN THE EXPANSION DAM AND BRIDGE DECK. CAVITIES FOR ANCHOR BOLTS SHALL BE PROVIDED WITH TIGHT FIT REMOVABLE NEOPRENE PLEGS.

UNITS OF ELASTOMERIC EXPANSION DAM SHALL HAVE TONGUE AND GROOVE PROVISIONS AT THE ENDS OR OTHER EQUIVALENT TYPE TO PROVIDE FOR A POSITIVE LEAKPROOF CONNECTION BETWEEN THE ADJACENT UNITS. (SEE BONDING PROCEDURES NOTE)

THERE SHALL BE NO APPRECIABLE CHANGE IN THE DECK SURFACE DUE TO THE EXPANSION AND CONTRACTION MOVEMENT OF THE BRIDGE DECK.

EXPANSION AND CONTRACTION MOVEMENTS OF THE BRIDGE DECK SHALL BE TAKEN ENTIRELY BY DEFORMATION OF THE ELASTOMER.

ELASTOMERIC EXPANSION STEEL UNITS ON THE FACES OF CURBS MAY BE PARTIALLY UNREINFORCED TO FACILITATE CURBING.

PROVISION SHALL BE MADE FOR FASTENING THE SECTIONS OF ELASTOMERIC SEAL SECURELY TO THE FACES OF CURBS.

EXPOSED SURFACE OF ELASTOMERIC EXPANSION SEAL SHALL HAVE ANTI-SKID PROVISIONS.

MATERIALS: MATERIALS SHALL CONFORM TO THE FOLLOWING:

A. ELASTOMER	
THE ELASTOMER PORTION OF THE EXPANSION DAM SHALL BE OF THE COMPOUND KNOWN AS NEOPRENE WHICH SHALL HAVE THE FOLLOWING PHYSICAL PROPERTIES IN ACCORDANCE WITH ASTM METHOD D15-71, PART B:	
HARDNESS, DURETOMETER A, ASTM D2240	45-5
TENSILE STRENGTH, ASTM D 412-68	1,800 PSI. MIN.
ELONGATION AT BREAK	400 ± MIN.
COMPRESSION SET, 24 HOURS @ 158° F, ASTM D 395-69, METHOD B	20% MAX.
LOW TEMPERATURE, ASTM D 746-63	NOT BRITTLE AT -40° F
OZONE RESISTANCE	
EXPOSURE TO 100 PPM OZONE FOR 70 HOURS AT 100° F, SAMPLE UNDER 20% STRAIN. ASTM D 1149-64	NO CRACKS
OIL DEGRADATION	
VOLUME INCREASE AFTER IMMERSION IN ASTM OIL #3 FOR 70 HOURS AT 212° F, ASTM D 471-68	120% MAX.

GENERAL NOTES

THE ACTUAL DIMENSIONS (A) AND (B) OF THE ELASTOMERIC EXPANSION DAM SHALL BE CORRECT TO WITHIN 1/8" INCHES TOP AND BOTTOM AND 1/4" INCHES SIDE AND END. ALL DIMENSIONS SHALL BE MEASURED UNDER AND PLUS 1/8" INCHES TOP AND BOTTOM IN THE THICKNESS OF THE EXTERIOR NOMINAL DIMENSIONS.

D. STEEL REINFORCEMENT: EXISTING REINFORCEMENT SHALL BE OF THE TYPE KNOWN AS "STRUCTURAL" CONCRETE INSERTS - 1/2" OR 3/4" OR 1" OR 1 1/2" OR 2" OR 3" OR 4" OR 6" OR 8" OR 10" OR 12" OR 14" OR 16" OR 18" OR 20" OR 22" OR 24" OR 26" OR 28" OR 30" OR 32" OR 34" OR 36" OR 38" OR 40" OR 42" OR 44" OR 46" OR 48" OR 50" OR 52" OR 54" OR 56" OR 58" OR 60" OR 62" OR 64" OR 66" OR 68" OR 70" OR 72" OR 74" OR 76" OR 78" OR 80" OR 82" OR 84" OR 86" OR 88" OR 90" OR 92" OR 94" OR 96" OR 98" OR 100" OR 102" OR 104" OR 106" OR 108" OR 110" OR 112" OR 114" OR 116" OR 118" OR 120" OR 122" OR 124" OR 126" OR 128" OR 130" OR 132" OR 134" OR 136" OR 138" OR 140" OR 142" OR 144" OR 146" OR 148" OR 150" OR 152" OR 154" OR 156" OR 158" OR 160" OR 162" OR 164" OR 166" OR 168" OR 170" OR 172" OR 174" OR 176" OR 178" OR 180" OR 182" OR 184" OR 186" OR 188" OR 190" OR 192" OR 194" OR 196" OR 198" OR 200" OR 202" OR 204" OR 206" OR 208" OR 210" OR 212" OR 214" OR 216" OR 218" OR 220" OR 222" OR 224" OR 226" OR 228" OR 230" OR 232" OR 234" OR 236" OR 238" OR 240" OR 242" OR 244" OR 246" OR 248" OR 250" OR 252" OR 254" OR 256" OR 258" OR 260" OR 262" OR 264" OR 266" OR 268" OR 270" OR 272" OR 274" OR 276" OR 278" OR 280" OR 282" OR 284" OR 286" OR 288" OR 290" OR 292" OR 294" OR 296" OR 298" OR 300" OR 302" OR 304" OR 306" OR 308" OR 310" OR 312" OR 314" OR 316" OR 318" OR 320" OR 322" OR 324" OR 326" OR 328" OR 330" OR 332" OR 334" OR 336" OR 338" OR 340" OR 342" OR 344" OR 346" OR 348" OR 350" OR 352" OR 354" OR 356" OR 358" OR 360" OR 362" OR 364" OR 366" OR 368" OR 370" OR 372" OR 374" OR 376" OR 378" OR 380" OR 382" OR 384" OR 386" OR 388" OR 390" OR 392" OR 394" OR 396" OR 398" OR 400" OR 402" OR 404" OR 406" OR 408" OR 410" OR 412" OR 414" OR 416" OR 418" OR 420" OR 422" OR 424" OR 426" OR 428" OR 430" OR 432" OR 434" OR 436" OR 438" OR 440" OR 442" OR 444" OR 446" OR 448" OR 450" OR 452" OR 454" OR 456" OR 458" OR 460" OR 462" OR 464" OR 466" OR 468" OR 470" OR 472" OR 474" OR 476" OR 478" OR 480" OR 482" OR 484" OR 486" OR 488" OR 490" OR 492" OR 494" OR 496" OR 498" OR 500" OR 502" OR 504" OR 506" OR 508" OR 510" OR 512" OR 514" OR 516" OR 518" OR 520" OR 522" OR 524" OR 526" OR 528" OR 530" OR 532" OR 534" OR 536" OR 538" OR 540" OR 542" OR 544" OR 546" OR 548" OR 550" OR 552" OR 554" OR 556" OR 558" OR 560" OR 562" OR 564" OR 566" OR 568" OR 570" OR 572" OR 574" OR 576" OR 578" OR 580" OR 582" OR 584" OR 586" OR 588" OR 590" OR 592" OR 594" OR 596" OR 598" OR 600" OR 602" OR 604" OR 606" OR 608" OR 610" OR 612" OR 614" OR 616" OR 618" OR 620" OR 622" OR 624" OR 626" OR 628" OR 630" OR 632" OR 634" OR 636" OR 638" OR 640" OR 642" OR 644" OR 646" OR 648" OR 650" OR 652" OR 654" OR 656" OR 658" OR 660" OR 662" OR 664" OR 666" OR 668" OR 670" OR 672" OR 674" OR 676" OR 678" OR 680" OR 682" OR 684" OR 686" OR 688" OR 690" OR 692" OR 694" OR 696" OR 698" OR 700" OR 702" OR 704" OR 706" OR 708" OR 710" OR 712" OR 714" OR 716" OR 718" OR 720" OR 722" OR 724" OR 726" OR 728" OR 730" OR 732" OR 734" OR 736" OR 738" OR 740" OR 742" OR 744" OR 746" OR 748" OR 750" OR 752" OR 754" OR 756" OR 758" OR 760" OR 762" OR 764" OR 766" OR 768" OR 770" OR 772" OR 774" OR 776" OR 778" OR 780" OR 782" OR 784" OR 786" OR 788" OR 790" OR 792" OR 794" OR 796" OR 798" OR 800" OR 802" OR 804" OR 806" OR 808" OR 810" OR 812" OR 814" OR 816" OR 818" OR 820" OR 822" OR 824" OR 826" OR 828" OR 830" OR 832" OR 834" OR 836" OR 838" OR 840" OR 842" OR 844" OR 846" OR 848" OR 850" OR 852" OR 854" OR 856" OR 858" OR 860" OR 862" OR 864" OR 866" OR 868" OR 870" OR 872" OR 874" OR 876" OR 878" OR 880" OR 882" OR 884" OR 886" OR 888" OR 890" OR 892" OR 894" OR 896" OR 898" OR 900" OR 902" OR 904" OR 906" OR 908" OR 910" OR 912" OR 914" OR 916" OR 918" OR 920" OR 922" OR 924" OR 926" OR 928" OR 930" OR 932" OR 934" OR 936" OR 938" OR 940" OR 942" OR 944" OR 946" OR 948" OR 950" OR 952" OR 954" OR 956" OR 958" OR 960" OR 962" OR 964" OR 966" OR 968" OR 970" OR 972" OR 974" OR 976" OR 978" OR 980" OR 982" OR 984" OR 986" OR 988" OR 990" OR 992" OR 994" OR 996" OR 998" OR 1000" OR 1002" OR 1004" OR 1006" OR 1008" OR 1010" OR 1012" OR 1014" OR 1016" OR 1018" OR 1020" OR 1022" OR 1024" OR 1026" OR 1028" OR 1030" OR 1032" OR 1034" OR 1036" OR 1038" OR 1040" OR 1042" OR 1044" OR 1046" OR 1048" OR 1050" OR 1052" OR 1054" OR 1056" OR 1058" OR 1060" OR 1062" OR 1064" OR 1066" OR 1068" OR 1070" OR 1072" OR 1074" OR 1076" OR 1078" OR 1080" OR 1082" OR 1084" OR 1086" OR 1088" OR 1090" OR 1092" OR 1094" OR 1096" OR 1098" OR 1100" OR 1102" OR 1104" OR 1106" OR 1108" OR 1110" OR 1112" OR 1114" OR 1116" OR 1118" OR 1120" OR 1122" OR 1124" OR 1126" OR 1128" OR 1130" OR 1132" OR 1134" OR 1136" OR 1138" OR 1140" OR 1142" OR 1144" OR 1146" OR 1148" OR 1150" OR 1152" OR 1154" OR 1156" OR 1158" OR 1160" OR 1162" OR 1164" OR 1166" OR 1168" OR 1170" OR 1172" OR 1174" OR 1176" OR 1178" OR 1180" OR 1182" OR 1184" OR 1186" OR 1188" OR 1190" OR 1192" OR 1194" OR 1196" OR 1198" OR 1200" OR 1202" OR 1204" OR 1206" OR 1208" OR 1210" OR 1212" OR 1214" OR 1216" OR 1218" OR 1220" OR 1222" OR 1224" OR 1226" OR 1228" OR 1230" OR 1232" OR 1234" OR 1236" OR 1238" OR 1240" OR 1242" OR 1244" OR 1246" OR 1248" OR 1250" OR 1252" OR 1254" OR 1256" OR 1258" OR 1260" OR 1262" OR 1264" OR 1266" OR 1268" OR 1270" OR 1272" OR 1274" OR 1276" OR 1278" OR 1280" OR 1282" OR 1284" OR 1286" OR 1288" OR 1290" OR 1292" OR 1294" OR 1296" OR 1298" OR 1300" OR 1302" OR 1304" OR 1306" OR 1308" OR 1310" OR 1312" OR 1314" OR 1316" OR 1318" OR 1320" OR 1322" OR 1324" OR 1326" OR 1328" OR 1330" OR 1332" OR 1334" OR 1336" OR 1338" OR 1340" OR 1342" OR 1344" OR 1346" OR 1348" OR 1350" OR 1352" OR 1354" OR 1356" OR 1358" OR 1360" OR 1362" OR 1364" OR 1366" OR 1368" OR 1370" OR 1372" OR 1374" OR 1376" OR 1378" OR 1380" OR 1382" OR 1384" OR 1386" OR 1388" OR 1390" OR 1392" OR 1394" OR 1396" OR 1398" OR 1400" OR 1402" OR 1404" OR 1406" OR 1408" OR 1410" OR 1412" OR 1414" OR 1416" OR 1418" OR 1420" OR 1422" OR 1424" OR 1426" OR 1428" OR 1430" OR 1432" OR 1434" OR 1436" OR 1438" OR 1440" OR 1442" OR 1444" OR 1446" OR 1448" OR 1450" OR 1452" OR 1454" OR 1456" OR 1458" OR 1460" OR 1462" OR 1464" OR 1466" OR 1468" OR 1470" OR 1472" OR 1474" OR 1476" OR 1478" OR 1480" OR 1482" OR 1484" OR 1486" OR 1488" OR 1490" OR 1492" OR 1494" OR 1496" OR 1498" OR 1500" OR 1502" OR 1504" OR 1506" OR 1508" OR 1510" OR 1512" OR 1514" OR 1516" OR 1518" OR 1520" OR 1522" OR 1524" OR 1526" OR 1528" OR 1530" OR 1532" OR 1534" OR 1536" OR 1538" OR 1540" OR 1542" OR 1544" OR 1546" OR 1548" OR 1550" OR 1552" OR 1554" OR 1556" OR 1558" OR 1560" OR 1562" OR 1564" OR 1566" OR 1568" OR 1570" OR 1572" OR 1574" OR 1576" OR 1578" OR 1580" OR 1582" OR 1584" OR 1586" OR 1588" OR 1590" OR 1592" OR 1594" OR 1596" OR 1598" OR 1600" OR 1602" OR 1604" OR 1606" OR 1608" OR 1610" OR 1612" OR 1614" OR 1616" OR 1618" OR 1620" OR 1622" OR 1624" OR 1626" OR 1628" OR 1630" OR 1632" OR 1634" OR 1636" OR 1638" OR 1640" OR 1642" OR 1644" OR 1646" OR 1648" OR 1650" OR 1652" OR 1654" OR 1656" OR 1658" OR 1660" OR 1662" OR 1664" OR 1666" OR 1668" OR 1670" OR 1672" OR 1674" OR 1676" OR 1678" OR 1680" OR 1682" OR 1684" OR 1686" OR 1688" OR 1690" OR 1692" OR 1694" OR 1696" OR 1698" OR 1700" OR 1702" OR 1704" OR 1706" OR 1708" OR 1710" OR 1712" OR 1714" OR 1716" OR 1718" OR 1720" OR 1722" OR 1724" OR 1726" OR 1728" OR 1730" OR 1732" OR 1734" OR 1736" OR 1738" OR 1740" OR 1742" OR 1744" OR 1746" OR 1748" OR 1750" OR 1752" OR 1754" OR 1756" OR 1758" OR 1760" OR 1762" OR 1764" OR 1766" OR 1768" OR 1770" OR 1772" OR 1774" OR 1776" OR 1778" OR 1780" OR 1782" OR 1784" OR 1786" OR 1788" OR 1790" OR 1792" OR 1794" OR 1796" OR 1798" OR 1800" OR 1802" OR 1804" OR 1806" OR 1808" OR 1810" OR 1812" OR 1814" OR 1816" OR 1818" OR 1820" OR 1822" OR 1824" OR 1826" OR 1828" OR 1830" OR 1832" OR 1834" OR 1836" OR 1838" OR 1840" OR 1842" OR 1844" OR 1846" OR 1848" OR 1850" OR 1852" OR 1854" OR 1856" OR 1858" OR 1860" OR 1862" OR 1864" OR 1866" OR 1868" OR 1870" OR 1872" OR 1874" OR 1876" OR 1878" OR 1880" OR 1882" OR 1884" OR 1886" OR 1888" OR 1890" OR 1892" OR 1894" OR 1896" OR 1898" OR 1900" OR 1902" OR 1904" OR 1906" OR 1908" OR 1910" OR 1912" OR 1914" OR 1916" OR 1918" OR 1920" OR 1922" OR 1924" OR 1926" OR 1928" OR 1930" OR 1932" OR 1934" OR 1936" OR 1938" OR 1940" OR 1942" OR 1944" OR 1946" OR 1948" OR 1950" OR 1952" OR 1954" OR 1956" OR 1958" OR 1960" OR 1962" OR 1964" OR 1966" OR 1968" OR 1970" OR 1972" OR 1974" OR 1976" OR 1978" OR 1980" OR 1982" OR 1984" OR 1986" OR 1988" OR 1990" OR 1992" OR 1994" OR 1996" OR 1998" OR 2000" OR 2002" OR 2004" OR 2006" OR 2008" OR 2010" OR 2012" OR 2014" OR 2016" OR 2018" OR 2020" OR 2022" OR 2024" OR 2026" OR 2028" OR 2030" OR 2032" OR 2034" OR 2036" OR 2038" OR 2040" OR 2042" OR 2044" OR 2046" OR 2048" OR 2050" OR 2052" OR 2054" OR 2056" OR 2058" OR 2060" OR 2062" OR 2064" OR 2066" OR 2068" OR 2070" OR 2072" OR 2074" OR 2076" OR 2078" OR 2080" OR 2082" OR 2084" OR 2086" OR 2088" OR 2090" OR 2092" OR 2094" OR 2096" OR 2098" OR 2100" OR 2102" OR 2104" OR 2106" OR 2108" OR 2110" OR 2112" OR 2114" OR 2116" OR 2118" OR 2120" OR 2122" OR 2124" OR 2126" OR 2128" OR 2130" OR 2132" OR 2134" OR 2136" OR 2138" OR 2140" OR 2142" OR 2144" OR 2146" OR 2148" OR 2150" OR 2152" OR 2154" OR 2156" OR 2158" OR 2160" OR 2162" OR 2164" OR 2166" OR 2168" OR 2170" OR 2172" OR 2174" OR 2176" OR 2178" OR 2180" OR 2182" OR 2184" OR 2186" OR 2188" OR 2190" OR 2192" OR 2194" OR 2196" OR 2198" OR 2200" OR 2202" OR 2204" OR 2206" OR 2208" OR 2210" OR 2212" OR 2214" OR 2216" OR 2218" OR 2220" OR 2222" OR 2224" OR 2226" OR 2228" OR 2230" OR 2232" OR 2234" OR 2236" OR 2238" OR 2240" OR 2242" OR 2244" OR 2246" OR 2248" OR 2250" OR 2252" OR 2254" OR 2256" OR 2258" OR 2260" OR 2262" OR 2264" OR 2266" OR 2268" OR 2270" OR 2272" OR 2274" OR 2276" OR 2278" OR 2280" OR 2282" OR 2284" OR 2286" OR 2288" OR 2290" OR 2292" OR 2294" OR 2296" OR 2298" OR 2300" OR 2302" OR 2304" OR 2306" OR 2308" OR 2310" OR 2312" OR 2314" OR 2316" OR 2318" OR 2320" OR 2322" OR 2324" OR 2326" OR 2328" OR 2330" OR 2332" OR 2334" OR 2336" OR 2338" OR 2340" OR 2342" OR 2344" OR 2346" OR 2348" OR 2350" OR 2352" OR 2354" OR 2356" OR 2358" OR 2360" OR 2362" OR 2364" OR 2366" OR 2368" OR 2370" OR 2372" OR 2374" OR 2376" OR 2378" OR 2380" OR 2382" OR 2384" OR 2386" OR 2388" OR 2390" OR 2392" OR 2394" OR 2396" OR 2398" OR 2400" OR 2402" OR 2404" OR 2406" OR 2408" OR 2410" OR 2412" OR 2414" OR 2416" OR 2418" OR 2420" OR 2422" OR 2424" OR 2426" OR 2428" OR 2430" OR 2432" OR 2434" OR 2436" OR 2438" OR 2440" OR 2442" OR 2444" OR 2446" OR 2448" OR 2450" OR 2452" OR 2454" OR 2456" OR 2458" OR 2460" OR 2462" OR 2464" OR 2466" OR 2468" OR 2470" OR 2472" OR 2474" OR 2476" OR 2478" OR 2480" OR 2482" OR 2484" OR 2486" OR 2488" OR 2490" OR 2492" OR 2494" OR 2496" OR 2498" OR 2500" OR 2502" OR 2504" OR 2506" OR 2508" OR 2510" OR 2512" OR 2514" OR 2516" OR 2518" OR 2520" OR 2522" OR 2524" OR 2526" OR 2528" OR 2530" OR 2532" OR 2534" OR 2536" OR 2538" OR 2540" OR 2542" OR 2544" OR 2546" OR 2548" OR 2550" OR 2552" OR 2554" OR 2556" OR 2558" OR 2560" OR 2562" OR 2564" OR 2566" OR 2568" OR 2570" OR 2572" OR 2574" OR 2576" OR 2578" OR 2580" OR 2582" OR 2584" OR 2586" OR 2588" OR 2590" OR 2592" OR 2594" OR 2596" OR 2598" OR 2600" OR 2602" OR 2604" OR 2606" OR 2608" OR 2610" OR 2612" OR 2614" OR 2616" OR 2618" OR 2620" OR 2622" OR 2624" OR 2626" OR 2628" OR 2630" OR 2632" OR 2634" OR 2636" OR 2638" OR 2640" OR 2642" OR 2644" OR 2646" OR 2648" OR 2650" OR 2652" OR 2654" OR 2656" OR 2658" OR 2660" OR 2662" OR 2664" OR 2666" OR 2668" OR 2670" OR 2672" OR 2674" OR 2676" OR 2678" OR 2680" OR 2682" OR 2684" OR 2686" OR 2688" OR 2690" OR 2692" OR 2694" OR 2696" OR 2698" OR 2700" OR 2702" OR 2704" OR 2706" OR 2708" OR 2710" OR 2712" OR 2714" OR 2716" OR 2718" OR 2720" OR 2722" OR 2724" OR 2726" OR 2728" OR 2730" OR 2732" OR 2734" OR 2736" OR 2738" OR 2740" OR 2742" OR 2744" OR 2746" OR 2748" OR 2750" OR 2752" OR 2754" OR 2756" OR 2758" OR 2760" OR 2762" OR 2764" OR 2766" OR 2768" OR 2770" OR 2772" OR 2774" OR 2776" OR 2778" OR 2780" OR 2782" OR 2784" OR 2786" OR 2788" OR 2790" OR 2792" OR 2794" OR 2796" OR 2798" OR 2800" OR 2802" OR 2804" OR 2806" OR 2808" OR 2810" OR 2812" OR 2814" OR 2816" OR 2818" OR 2820" OR 2822" OR 2824" OR 2826" OR 2828" OR 2830" OR 2832" OR 2834" OR 2836" OR 2838" OR 2840" OR 2842" OR 2844" OR 2846" OR 2848" OR 2850" OR 2852" OR 2854" OR 2856" OR 2858" OR 2860" OR 2862" OR 2864" OR 2866" OR 2868" OR 2870" OR 2872" OR 2874" OR 2876" OR 2878" OR 2880" OR 2882" OR 2884" OR 2886" OR 2888" OR 2890" OR 2892" OR 2894" OR 2896" OR 2898" OR 2900" OR 2902" OR 2904" OR 2906" OR 2908" OR 2910" OR 2912" OR 2914" OR 2916" OR 2918" OR 2920" OR 2922" OR 2924" OR 2926" OR 2928" OR 2930" OR 2932" OR 2934" OR 2936" OR 2938" OR 2940" OR 2942" OR 2944" OR 2946" OR 2948" OR 2950" OR 2952" OR 2954" OR 2956" OR 2958" OR 2960" OR 2962" OR 2964" OR 2966" OR 2968" OR 2970" OR 2972" OR 2974" OR 2976" OR 2978" OR 2980" OR 2982" OR 2984" OR 2986" OR 2988" OR 2990" OR 2992" OR 2994" OR 2996" OR 2998" OR 3000" OR 3002" OR 3004" OR 3006" OR 3008" OR 3010" OR 3012" OR 3014" OR 3016" OR 3018" OR 3020" OR 3022" OR 3024" OR 3026" OR 3028" OR 3030" OR 3032" OR 3034" OR 3036" OR 3038" OR 3040" OR 3042" OR 3044" OR 3046" OR 3048" OR 3050" OR 3052" OR 3054" OR 3056" OR 3058" OR 3060" OR 3062" OR 3064" OR 3066" OR 3068" OR 3070" OR 3072" OR 3074" OR 3076" OR 3078" OR 3080" OR 3082" OR 3084" OR 3086" OR 3088" OR 3090" OR 3092" OR 3094" OR 3096" OR 3098" OR 3100" OR 3102" OR 3104" OR 3106" OR 3108" OR 3110" OR 3112" OR 3114" OR 3116" OR 3118" OR 3120" OR 3122" OR 3124" OR 3126" OR 3128" OR 3130" OR 3132" OR 3134" OR 3136" OR 3138" OR 3140" OR 3142" OR 3144" OR 3146" OR 3148" OR 3150" OR 3152" OR 3154" OR 3156" OR 3158" OR 3160" OR 3162" OR 3164" OR 3166" OR 3168" OR 3170" OR 3172" OR 3174" OR 3176" OR 3178" OR 3180" OR 3182" OR 3184" OR 3186" OR 3188" OR 3190" OR 3192" OR 3194" OR 3196" OR

PROPOSAL NOTE

FIELD PAINTING OF STRUCTURAL STEEL

DESCRIPTION: THIS ITEM SHALL CONSIST OF FURNISHING ALL LABOR, EQUIPMENT, AND PERTINENT MATERIALS INCLUDING PAINT, FOR CLEANING AND PAINTING ALL NEW STRUCTURAL STEEL AND PORTIONS OF EXISTING STRUCTURAL STEEL AFFECTED BY THE PROPOSED WIDENING AND REPAIRS. ALL STEEL SURFACES SHALL RECEIVE ONE FULL COAT OF PRIMER AND ONE FULL COAT OF FINISH, AS SPECIFIED.

MATERIALS:

- (1) BLAST CLEANING - MATERIALS USED FOR BLAST CLEANING SHALL BE SAE NO. S-330 SHOT OR SMALLER OR SAE NO. G-25 GRIT OR SMALLER.
- (2) DETERGENT - NEUTRALIZER - THIS MATERIAL SHALL BE "SURFA-PREP #500" AS MANUFACTURED BY BASF WYANDOTTE CHEMICALS CORP., SUBOX DIVISION, WYANDOTTE, MICHIGAN OR AN ACID TYPE DETERGENT-NEUTRALIZER MEETING FEDERAL SPECIFICATION TT-C-490, TYPE II, METHOD 6.
- (3) PRIME COAT - THIS MATERIAL SHALL BE "SUBOX PRIMER #511, MOUSE GRAY" AS MANUFACTURED BY BASF WYANDOTTE CHEMICALS CORP., SUBOX DIVISION, WYANDOTTE, MICHIGAN, OR AN APPROVED EQUAL.
- (4) FINISH COAT - THIS MATERIAL SHALL BE "SUBOX HEAVY DUTY FINISH COAT, STAINLESS STEEL BLUE NO. 1165" AS MANUFACTURED BY BASF WYANDOTTE CHEMICALS CORP., SUBOX DIVISION, WYANDOTTE, MICHIGAN, OR AN APPROVED EQUAL.

IF THE BIDDER PROPOSES TO USE AN ALTERNATE EQUAL MATERIAL, THE BID MUST ACCOMPANY FULL SPECIFICATIONS OF THE MATERIAL CONCERNED ALONG WITH TEST RESULTS, CASE HISTORIES, AND AN AFFIDAVIT FROM THE MANUFACTURER THAT THE PROPOSED SYSTEM IS EQUAL OR BETTER.

THE SUCCESSFUL BIDDER SHALL BE REQUIRED TO FURNISH THE ENGINEER A SUFFICIENT AMOUNT (ONE QUART MINIMUM) OF EACH KIND OF PAINT HE INTENDS TO USE ON THIS PROJECT. THE ENGINEER MAY HAVE THESE SAMPLES ANALYZED TO DETERMINE THEIR CONFORMANCE WITH THE SPECIFICATIONS. NO PAINT SHALL BE SHIPPED UNTIL THE ENGINEER NOTIFIED THE CONTRACTOR THAT THE SAMPLES MEET THE SPECIFICATIONS.

ALL PAINT SHALL BE BROUGHT TO THE JOB SITE IN FIVE (5) GALLON CONTAINERS, UNOPENED AND PROPERLY MARKED AS TO ITS CONTENTS, MANUFACTURER'S NAME, DATE OF MANUFACTURE, BATCH NUMBER, ETC., ALL LEGIBLE AT THE TIME OF USE. ALL CONTAINERS SHALL BE OPENED IN THE PRESENCE OF THE ENGINEER AND PAINT WHICH HAS LIVERED, JELLED, OR OTHERWISE DETERIORATED DURING STORAGE SHALL NOT BE USED.

ALL INGREDIENTS IN ANY CONTAINER OF PAINT SHALL BE THOROUGHLY MIXED BEFORE USE AND SHALL BE AGITATED OFTEN ENOUGH DURING APPLICATION TO KEEP PAINT IN A UNIFORM CONDITION. NO THINNER SHALL BE ADDED TO THE PAINT UNLESS SO DIRECTED BY THE ENGINEER IN WRITING. IF THINNING IS ALLOWED, THE TYPE AND AMOUNT OF THINNER SHALL COMPLY WITH THE PAINT MANUFACTURER'S INSTRUCTIONS.

SURFACE PREPARATION:

ALL STEEL SURFACES TO BE PAINTED SHALL BE CLEANED TO REMOVE ALL RUST, LOOSE, CRACKED, BLISTERED OR PEELING PAINT, DUST OR DIRT, LOOSE MILL SCALE, WELD SLAG, OIL, GREASE, AND ANY OTHER FOREIGN MATERIALS. ALL CLEANING SHALL BE IN ACCORDANCE WITH "STEEL STRUCTURES PAINTING COUNCIL" SURFACE PREPARATION SPECIFICATIONS NO. SSPC-SP 6-65, COMMERCIAL BLAST CLEANING. SOUND ADHERENT OLD PAINT NEED NOT BE REMOVED UNLESS IN THE OPINION OF THE ENGINEER, IT IS EXCESSIVELY THICK OR INFLEXIBLE. REMOVAL OF THE OLD PAINT MUST BE CARRIED BACK AROUND THE EDGES OF THE SPOT OR AREA UNTIL AN AREA OF COMPLETELY INTACT AND COMPLETELY INTACT AND ADHERING PAINT FILM, WITH NO RUST OR BLISTERS UNDERNEATH, IS ATTAINED. EDGES OF TIGHTLY ADHERENT PAINT REMAINING AROUND THE AREA TO BE RECOATED MUST BE FEATHERED, SO THAT THE REPAINTED SURFACE CAN HAVE A SMOOTH APPEARANCE. THE REMAINING OLD PAINT SHOULD HAVE SUFFICIENT ADHESION SO THAT IT CANNOT BE LIFTED AS A LAYER BY INSERTING A BLADE OF A DULL PUTTY KNIFE UNDER IT. THE REMAINING TIGHTLY ADHERENT OLD PAINT MUST BE EXPOSED TO SUFFICIENT ABRASION TO PROVIDE A SUITABLE ANCHOR PATTERN FOR GOOD ADHESION OF THE NEW PAINT.

GENERAL NOTES

PAINTING AND CLEANING OPERATIONS SHALL NOT BE CARRIED ON SIMULTANEOUSLY, EXCEPT WHEN THE TWO OPERATIONS ARE A SUFFICIENT DISTANCE APART, AND LOCATED IN SUCH A MANNER THAT NO DUST, DIRT OR SAND CAN BE BLOWN ON THE FRESH PAINT. APPROVAL OF THE ENGINEER SHALL BE OBTAINED BEFORE STARTING SUCH OPERATIONS.

IF ANY RUST FORMS AFTER BLAST CLEANING, THE SURFACE SHALL BE REBLAST. CLEANED BEFORE APPLICATION OF DETERGENT-NEUTRALIZER AND PAINTING.

IMMEDIATELY AFTER CLEANING AN AREA, ALL SURFACES TO BE PAINTED SHALL BE TREATED WITH A SOLUTION OF ONE (1) PART OF THE DETERGENT-NEUTRALIZER TO 20 PARTS OF CLEAN WATER. THIS SOLUTION MAY BE APPLIED BY BRUSH, SPRAYED OR ANY OTHER METHOD WHICH WILL INSURE THAT THE ENTIRE SURFACE IS TREATED. THE NEUTRALIZER SHALL BE ALLOWED TO DRY AND THEN THE SURFACE MAY BE PAINTED.

NO NEUTRALIZER OR PRIMER COAT OR FINISH COAT SHALL BE APPLIED ON ANY SURFACE UNTIL THE SAME HAS BEEN INSPECTED AND APPROVED BY THE ENGINEER.

PAINT APPLICATION:

ALL PAINT SHALL BE APPLIED IN A NEAT WORKMANLIKE MANNER USING BRUSHES OR AIRLESS SPRAY METHOD SUCH THAT IT DOES NOT RUN, SAG, CRAWL OR HAVE OTHER DEFECTS. PARTICULAR CARE SHALL BE GIVEN TO RIVET HEADS, BOLTS, EDGES AND CORNERS TO ENSURE ADEQUATE COVERAGE. BRUSHES SHALL BE USED TO WORK PAINT INTO CRACKS, CREVICES AND BLIND SPOTS WHICH ARE NOT ADEQUATELY PAINTED BY SPRAY. BRUSHES PREFERABLY SHALL BE ROUND OR OVAL IN SHAPE, BUT IF FLAT BRUSHES ARE USED THEY SHALL NOT EXCEED FIVE (5) INCHES IN WIDTH.

ALL SURFACES SHALL BE PROPERLY CLEANED AND PREPARED BETWEEN COATS. PAINT SHALL BE APPLIED TO ABSOLUTELY DRY SURFACES ONLY. THE PAINT SHALL BE APPLIED ONLY IN DRY WEATHER AND WHEN THE AIR TEMPERATURE IS ABOVE 50° F AND RELATIVE HUMIDITY UNDER 80%, AND INDICATIONS ARE THAT SUCH A CONDITION WILL BE MAINTAINED FOR A PERIOD OF AT LEAST TWELVE (12) HOURS. ANY PAINTING INJURIOUSLY AFFECTED BY COLD WEATHER, RAIN OR DAMPNESS SHALL BE CLEANED OFF AND REPAINTED TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.

ALL SURFACES TO RECEIVE PAINT MUST BE FREE OF DUST, DIRT OR OTHER FOREIGN MATERIALS.

A DRYING PERIOD OF NO LESS THAN 48 HOURS SHALL BE ALLOWED BETWEEN COATS OF PAINT. IN NO CASE SHALL A COAT OF PAINT BE APPLIED UNTIL THE PREVIOUS COAT HAS BEEN INSPECTED BY THE ENGINEER AND FOUND TO BE DRY AND HARD THROUGHOUT THE ENTIRE FILM THICKNESS.

THE CONTRACTOR SHALL PROVIDE FREE AND UNINTERRUPTED ACCESS TO ANY OF THE PLACES WHERE CLEANING AND/OR PAINTING IS IN PROGRESS, FOR INSPECTION BY THE ENGINEER. THE CONTRACTOR AND THE ENGINEER SHALL WORK IN CLOSE HARMONY SO THAT THE NEXT OPERATION MAY BEGIN WITHOUT UNDUE DELAY.

(A) PRIME COAT - THIS SHALL CONSIST OF THE APPLICATION OF A COAT OF PRIMER, AS SPECIFIED, OVER ALL STEEL SURFACES OF THE STRUCTURES.

THE DRIED FILM THICKNESS OF THE PRIME COAT SHALL BE NO LESS THAN 2.5 MILS AT ANY POINT.

(B) FINISH COAT - THIS SHALL BE APPLIED ONLY AFTER THE PRIME COAT HAS DRIED AND HARDENED THROUGHOUT THE ENTIRE FILM THICKNESS. FINISH COAT SHALL CONSIST OF APPLYING A COAT OF FINISH PAINT, AS SPECIFIED, OVER ALL STEEL SURFACES OF THE STRUCTURES.

THE DRIED FILM THICKNESS OF THE FINISH COAT SHALL BE NO LESS THAN 3.5 MILS AT ANY POINT.

THE TOTAL OF PRIME AND FINISH DRY FILM THICKNESS SHALL NOT BE LESS THAN 6.0 MILS AT ANY POINT.

GENERAL REQUIREMENTS:

THE CONTRACTOR SHALL PROTECT PEDESTRIAN, VEHICULAR AND OTHER TRAFFIC

REGION	STATE	PROJECT
5	OHIO	

SUM-8-0.46

186
248

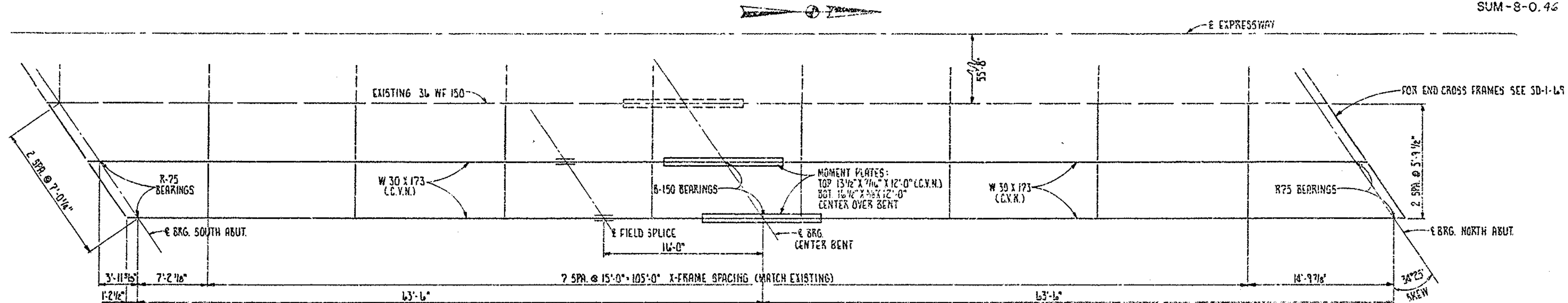
UPON OR UNDERNEATH THE BRIDGE, ALL ADJOINING PROPERTY ALONG THE RIGHT OF WAY, WATER, AND ALL PORTIONS OF THE BRIDGE SUPERSTRUCTURE AND SUB-STRUCTURE NOT INTENDED TO BE PAINTED AGAINST DAMAGE OR DISFIGUREMENT BY SPATTERS, SPLASHES, SMIRCHES, AND SPRAY OF PAINT MATERIALS, AND BY ANY OF THE CLEANING AND PAINTING OPERATIONS. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGE TO PRIVATE OR PUBLIC PROPERTY DUE TO THE CLEANING AND PAINTING OPERATIONS.

THE CONTRACTOR SHALL CLEAN UP AND REMOVE ANY WASTE SAND, RAGS, PAINT CONTAINERS, ETC., AT THE END OF EACH WORKING DAY. UPON THE COMPLETION OF THE WORK THE SITE SHALL BE LEFT CLEAN AND IN A NEAT AND SIGHTLY CONDITION.

PAYMENT WILL BE MADE AT THE CONTRACT BID PRICE, FOR ITEM SPECIAL, FIELD PAINTING OF STRUCTURAL STEEL.

THIS PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY TO COMPLETE THIS ITEM OF WORK INCLUDING THE COST OF MAINTAINING TRAFFIC AND PROVIDING INSURANCE, AS REQUIRED.

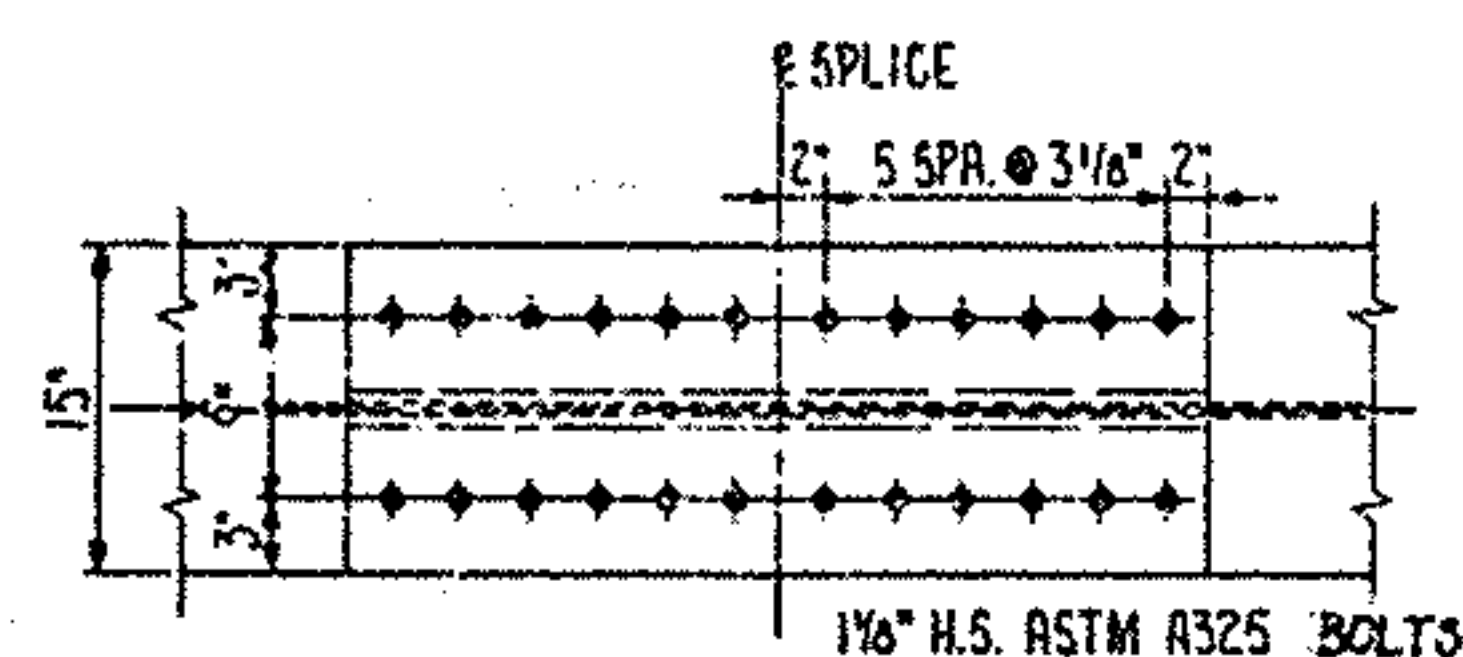
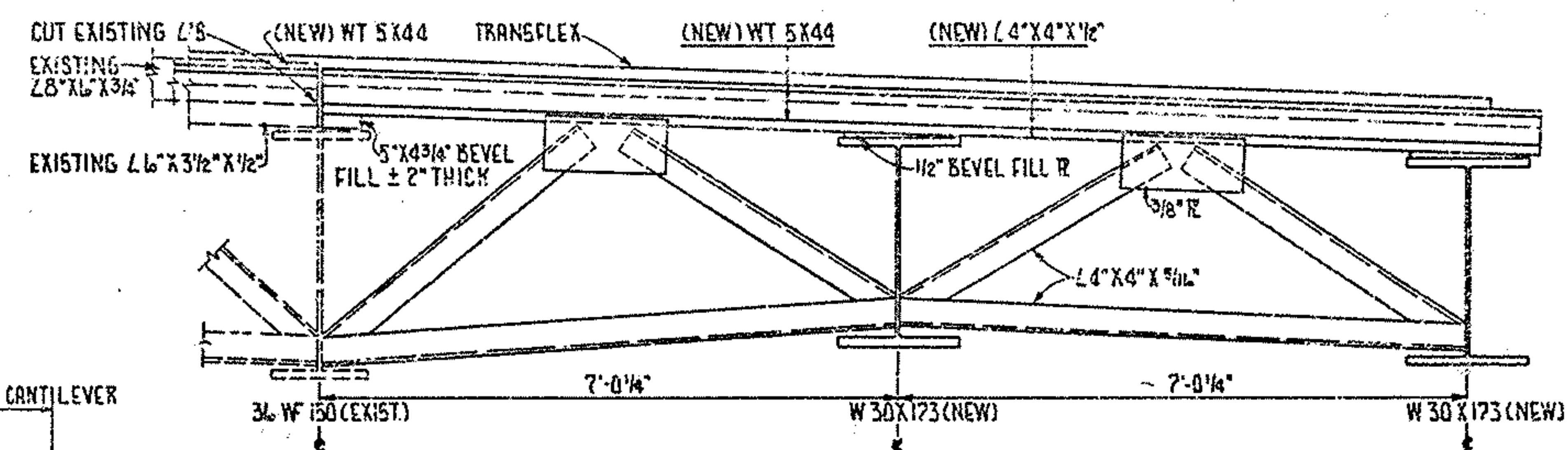
CITY OF AKRON		5/20
DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING		
FRANKLIN CONSULTANTS, INC.		
GENERAL NOTES		
AKRON EXPRESSWAY SYSTEM A.G.B.B.R.R. AND BEACON STREET OVERPASS BRIDGE NO. SUM-8-0064		
DESIGNED	DRAWN	INCHES
1/4"	1/4"	1/4"



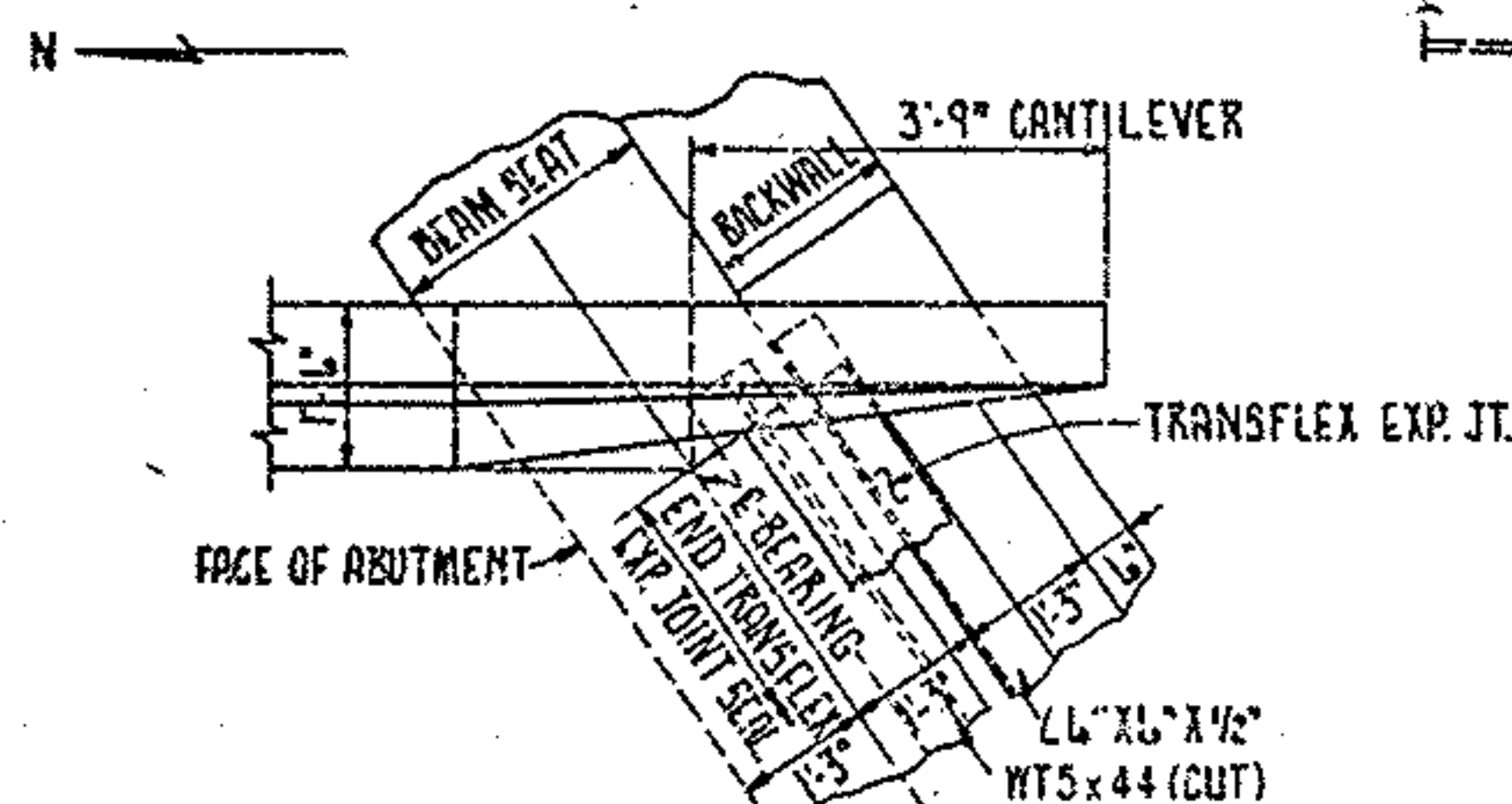
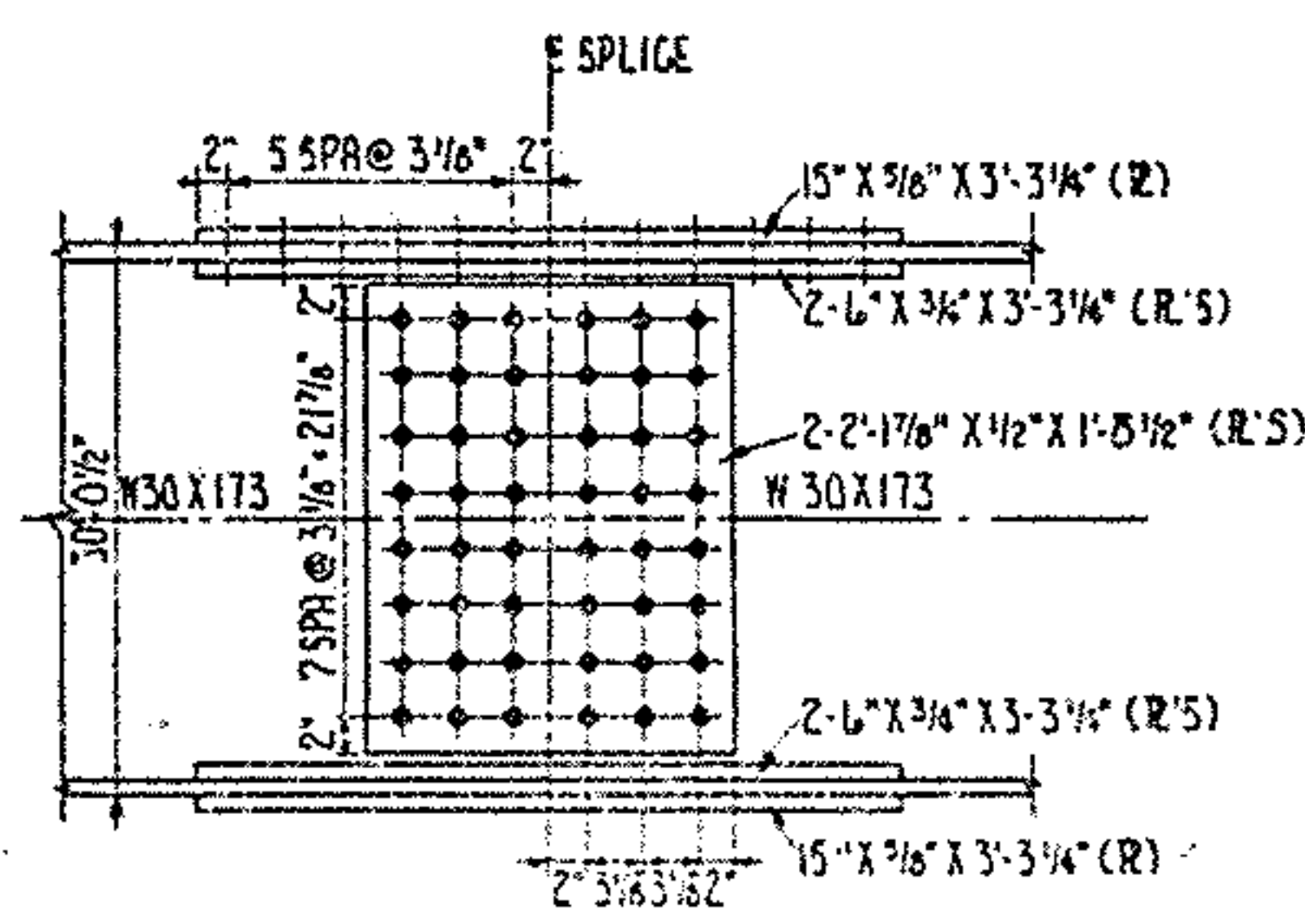
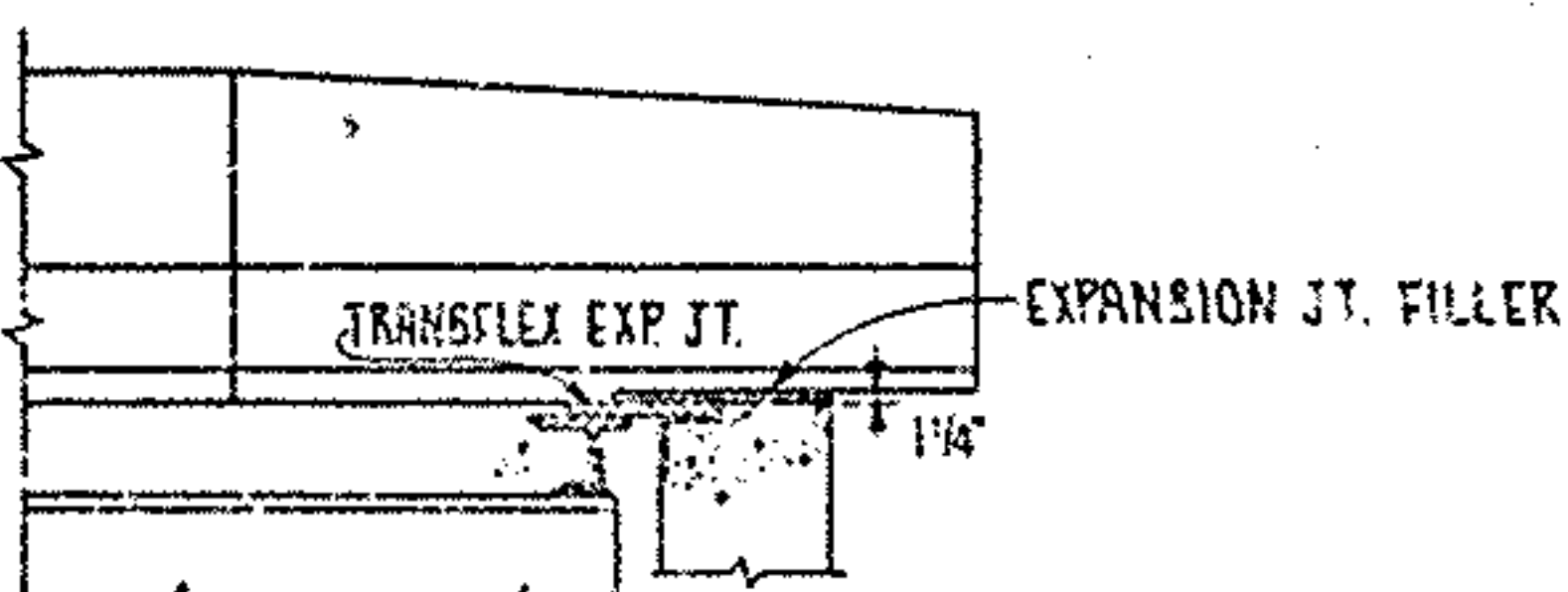
WHEN A SHAPE OR PLATE IS DESIGNATED (C.V.N.) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS.

FOR MOMENT PLATE CONNECTION SEE STD. DRWG. SD-1-L9 SHEET NO.5 OF 4.

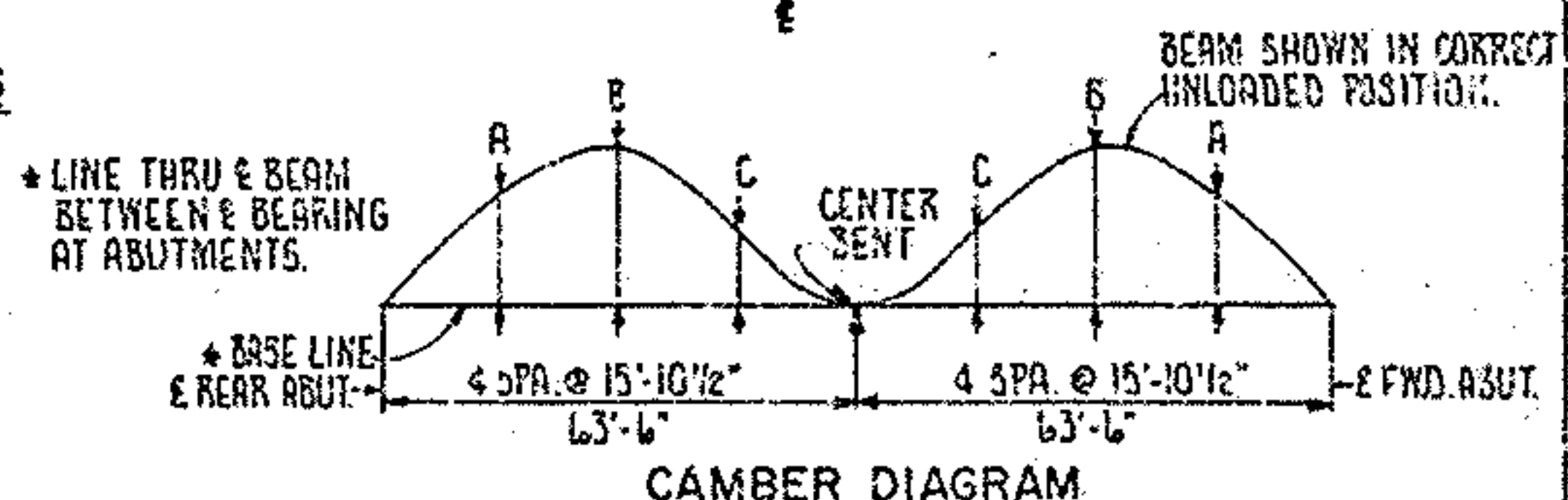
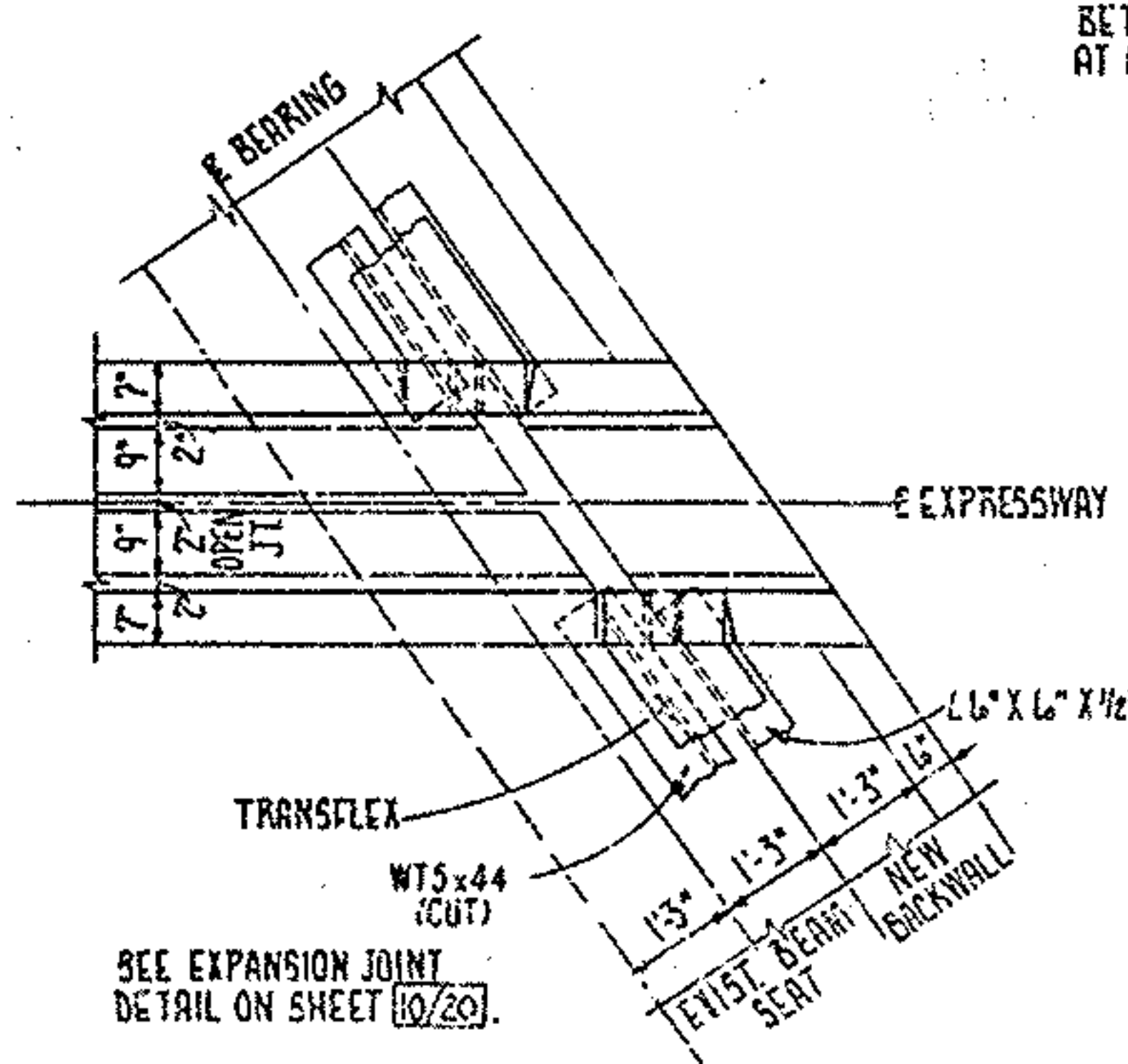
FRAMING PLAN



PLAN

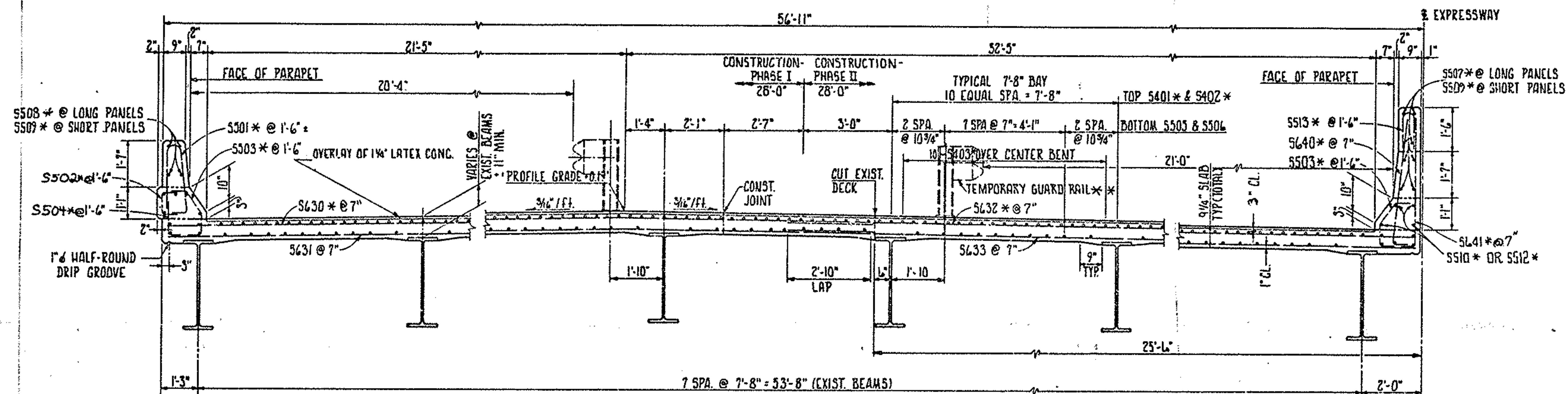

PLAN
RIGHT REAR ABUTMENT

ELEVATION FIELD SPICE
ALL PLATES C.V.N.


ELEVATION



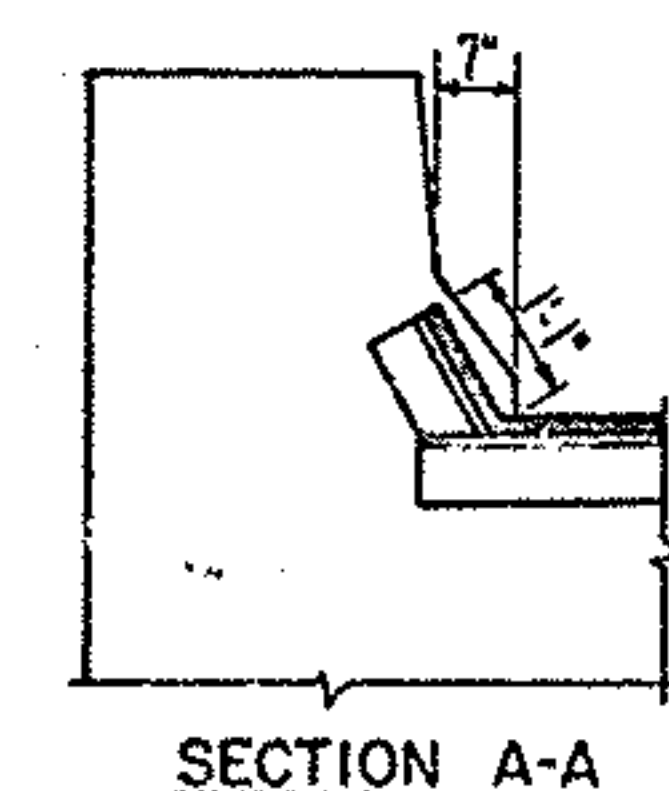
DEFLECTION AND CAMBER			
	A	B	C
	1/8 PT.	1/2 PT.	3/8 PT.
DEFLECTION DUE TO WEIGHT OF STEEL	1/16	3/16	1/16
DEFLECTION DUE TO REMAINING DEAD LOAD	1/2	5/8	5/16
REQUIRED SHOP CAMBER	9/16	13/16	5/8

CITY OF AKRON DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING		6/20
FRANKLIN CONSULTANTS INC.		
FRAMING PLAN & DETAILS		
AKRON EXPRESSWAY SYSTEM A.B.B.R.R. AND BEACON STREET OVERPASS BRIDGE NO. SUM-8-0064		
DESIGNED J.M.	DRAWN J.L.J.	CHECKED J.K.
REVIEWED J.F.	DATE 7/2/18	REVISION

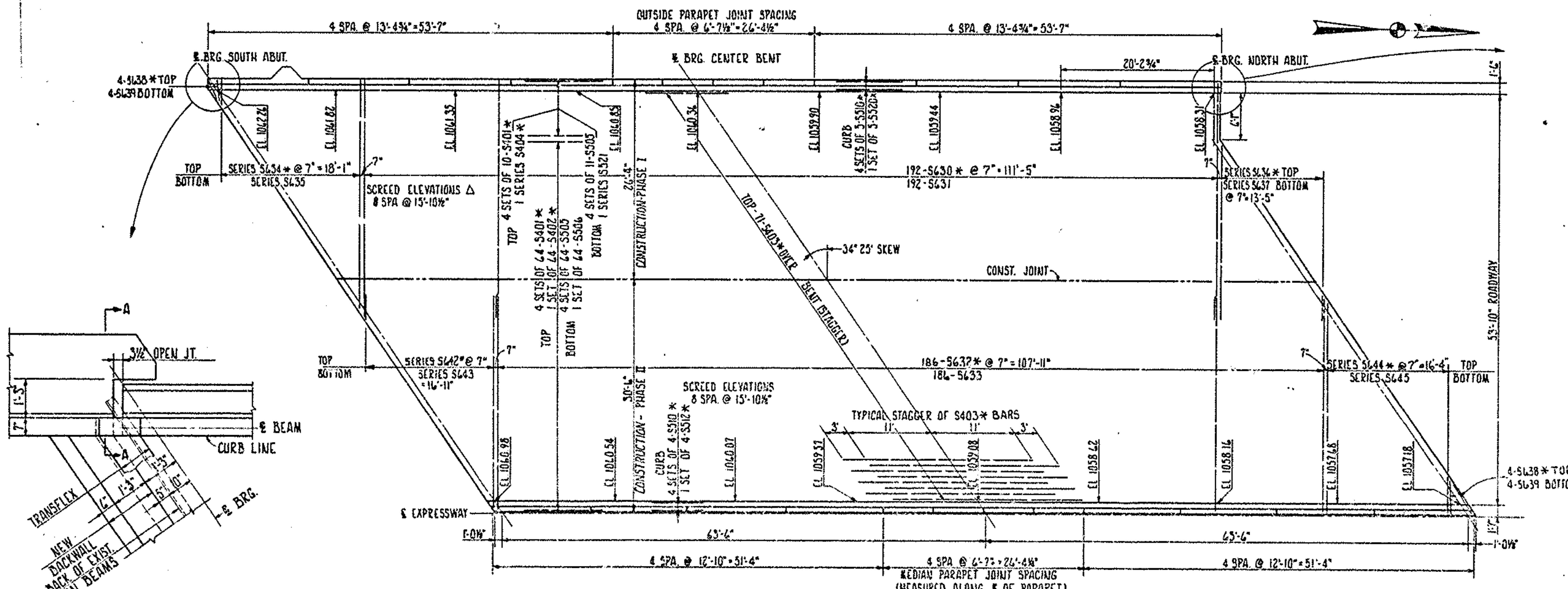


TRANSVERSE SECTION
SOUTH BOUND

* DENOTES EPOXY COATED BARS
* * SEE DETAIL - SHT. 7/14, EXCHANGE ST. BRIDGE PLANS.

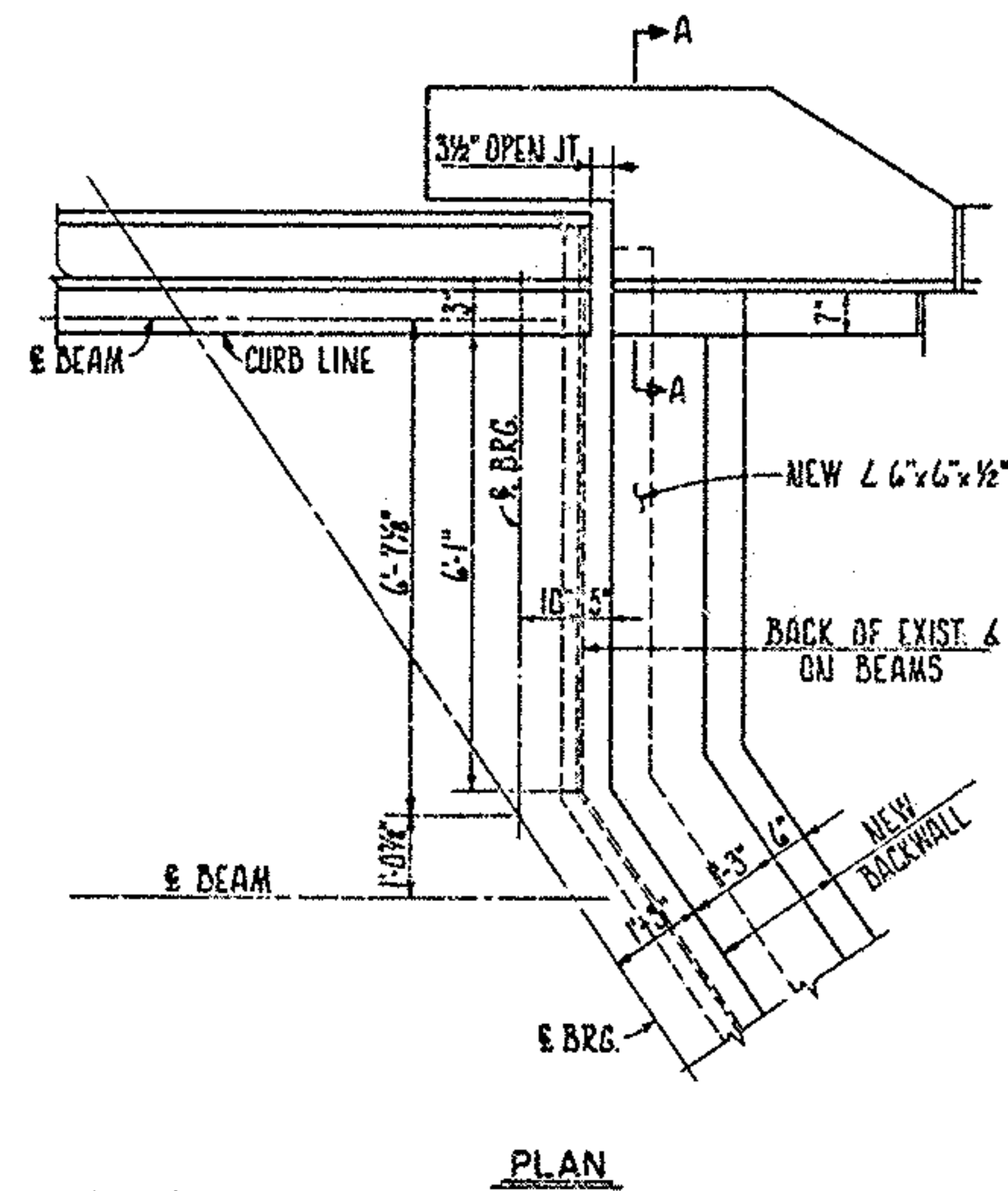


SECTION A-A



SLAB PLAN

△ SCREED ELEVATIONS ARE TO THE TOP OF THE CLASS 'C' CONCRETE.



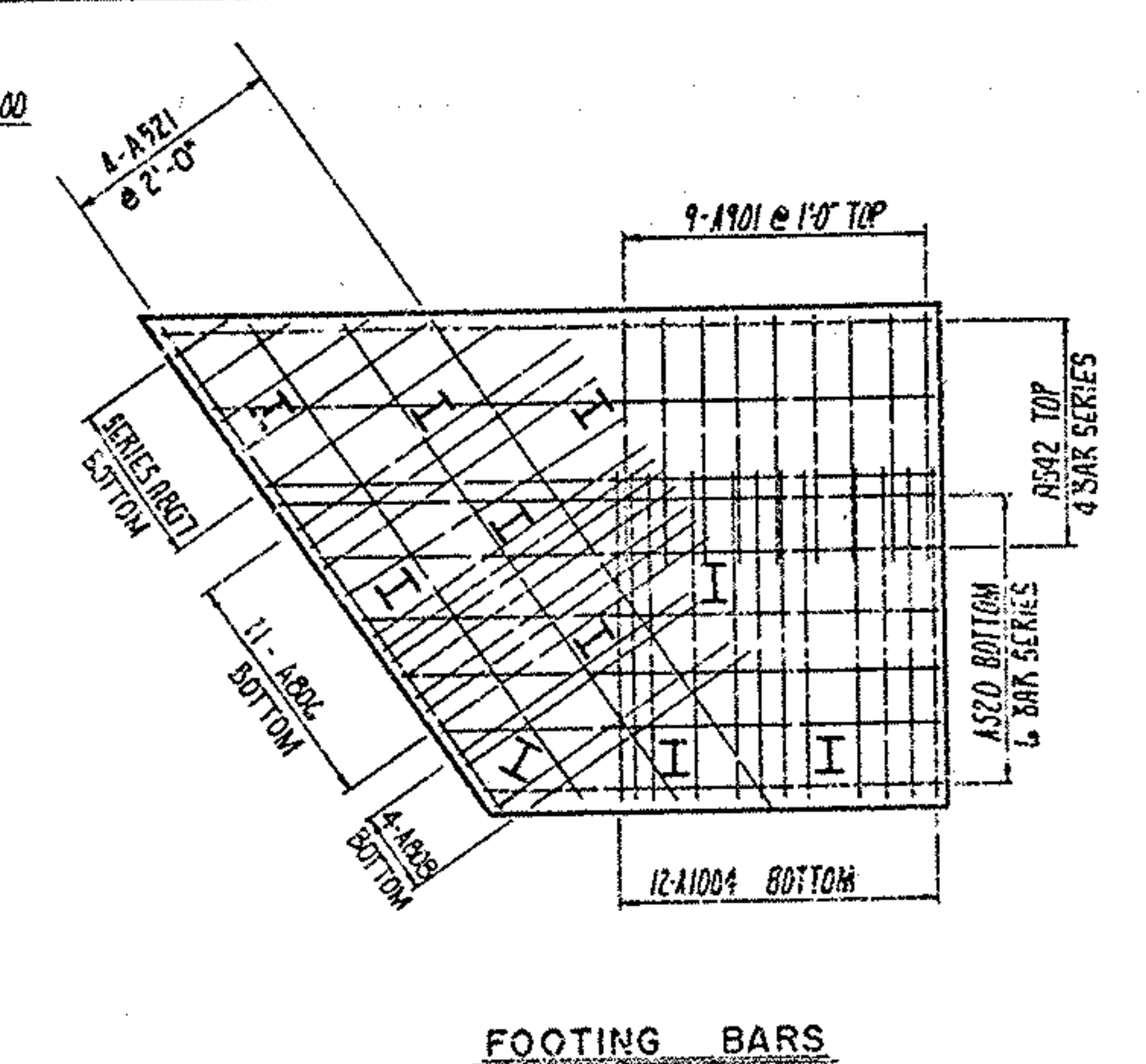
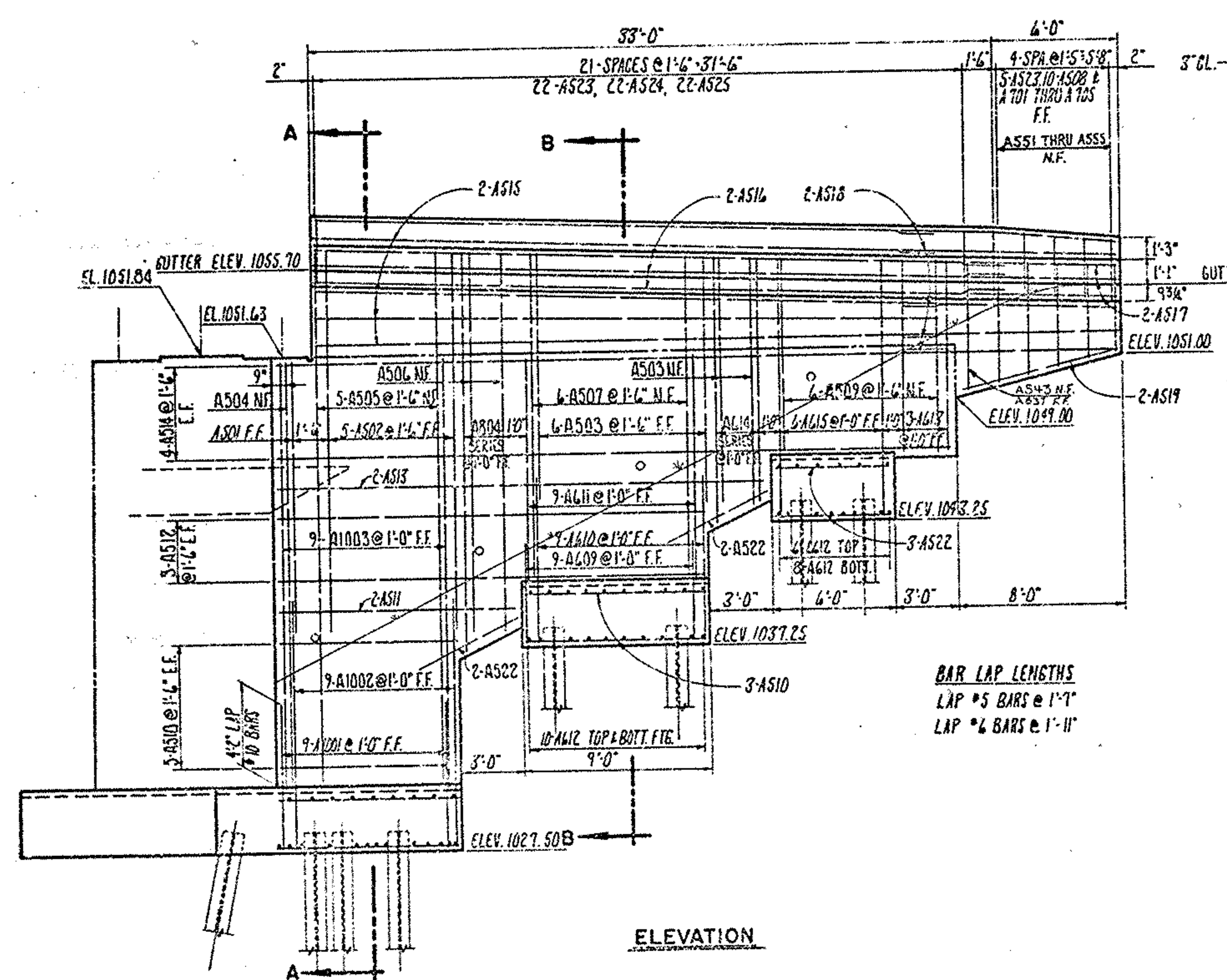
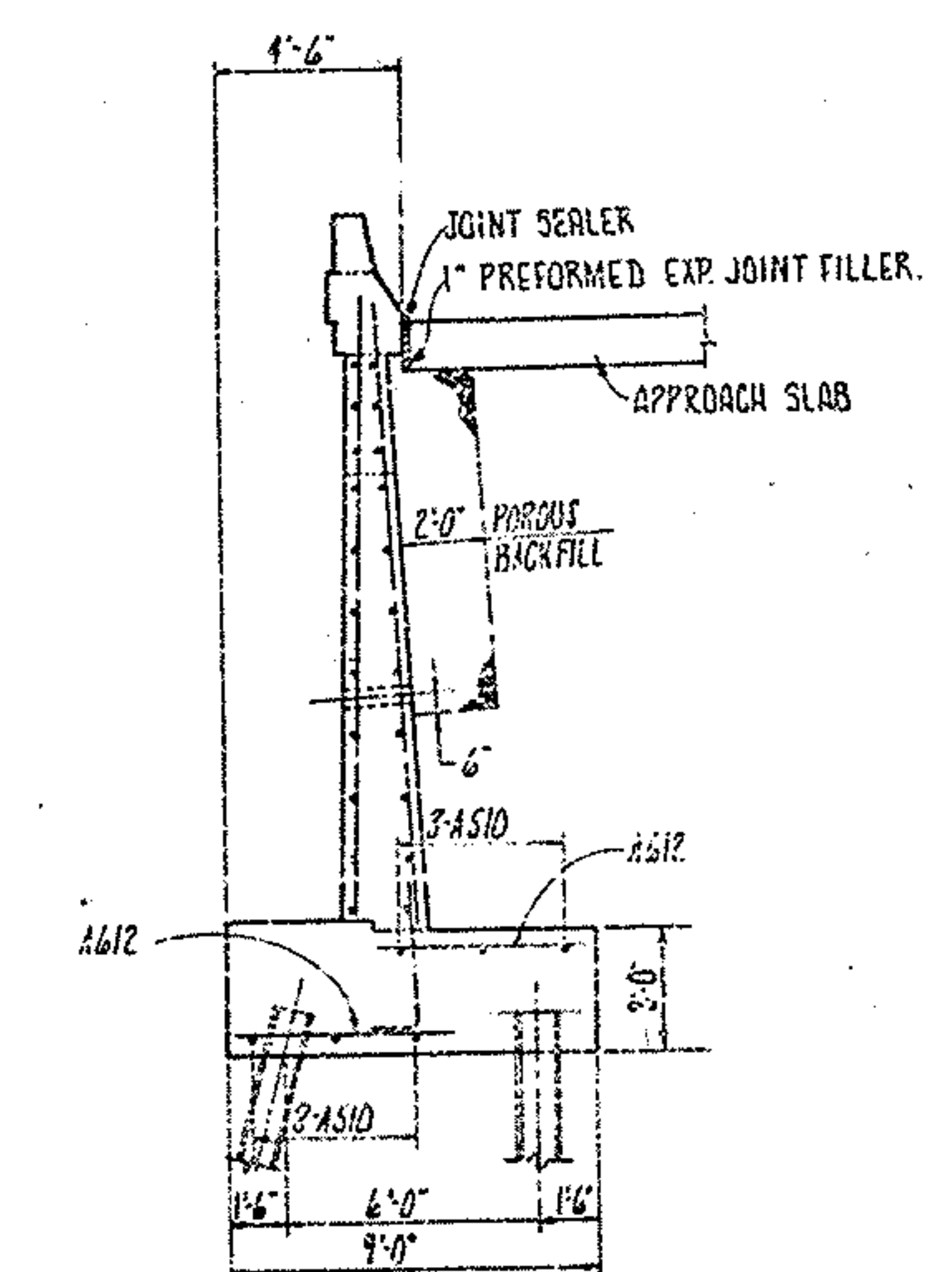
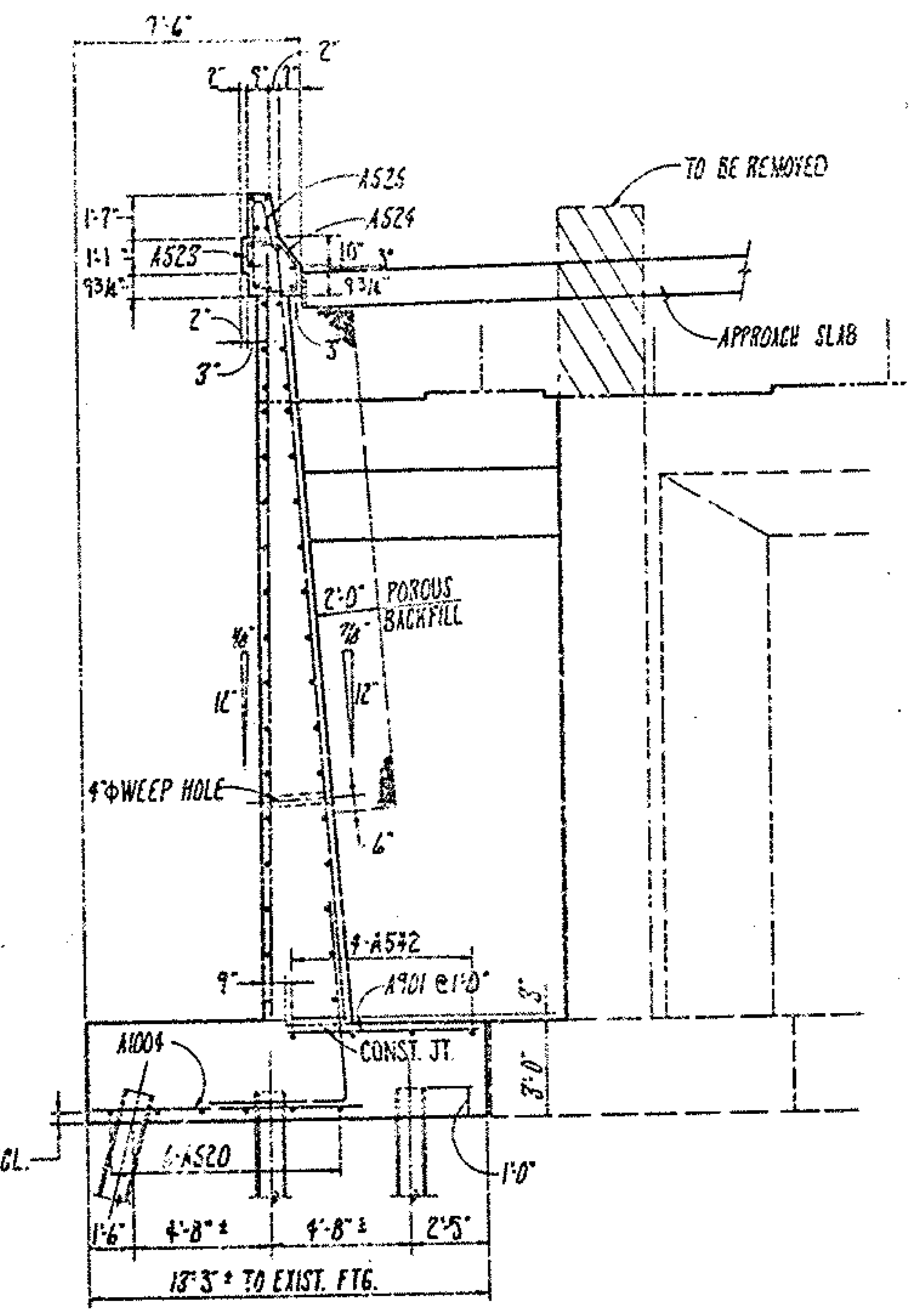
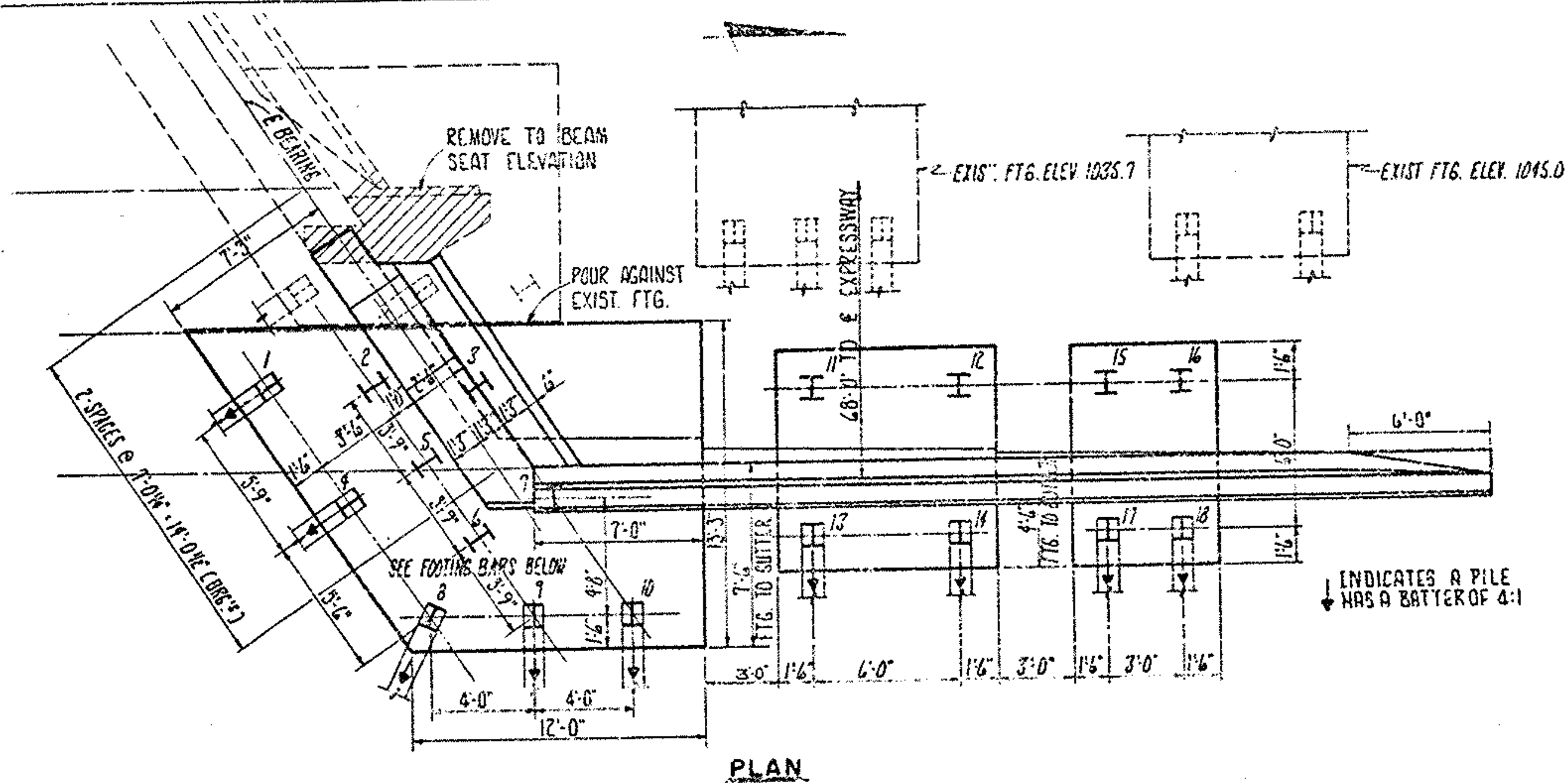
PLAN

CITY OF AKRON DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING						
FRANKLIN CONSULTANTS INC.						
TRANSVERSE SECTION and SLAB PLAN						
AKRON EXPRESSWAY SYSTEM A.B.B.R.R. AND BEACON STREET OVERPASS BRIDGE NO. SUM-8-0064						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FM	GH	GH	HK	JL	11/10/78	

TEMP.	"Q"
90°	113%
65°	112%
45°	111%



CITY OF AKRON						10 / 2	
DEPARTMENT OF PUBLIC SERVICE							
BUREAU OF ENGINEERING							
FRANKLIN CONSULTANTS INC.							
SOUTH ABUTMENT AND WING WALL							
AKRON EXPRESSWAY SYSTEM A.B.B.R.R. AND BEACON STREET OVERPASS BRIDGE NO. SUM-8-0064							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	APPROVED	
MM	BB	EE	PCE	MA	10-78		



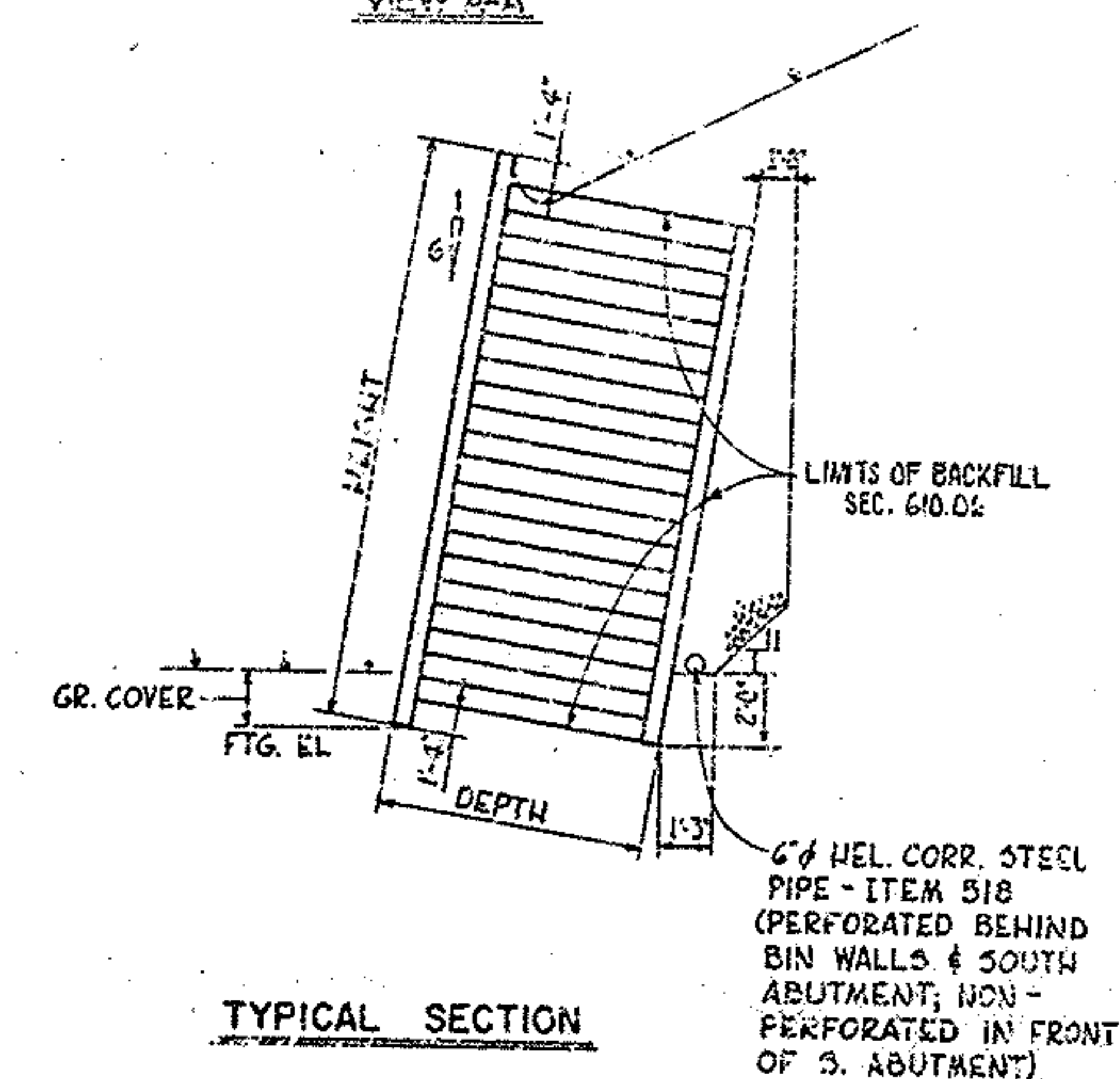
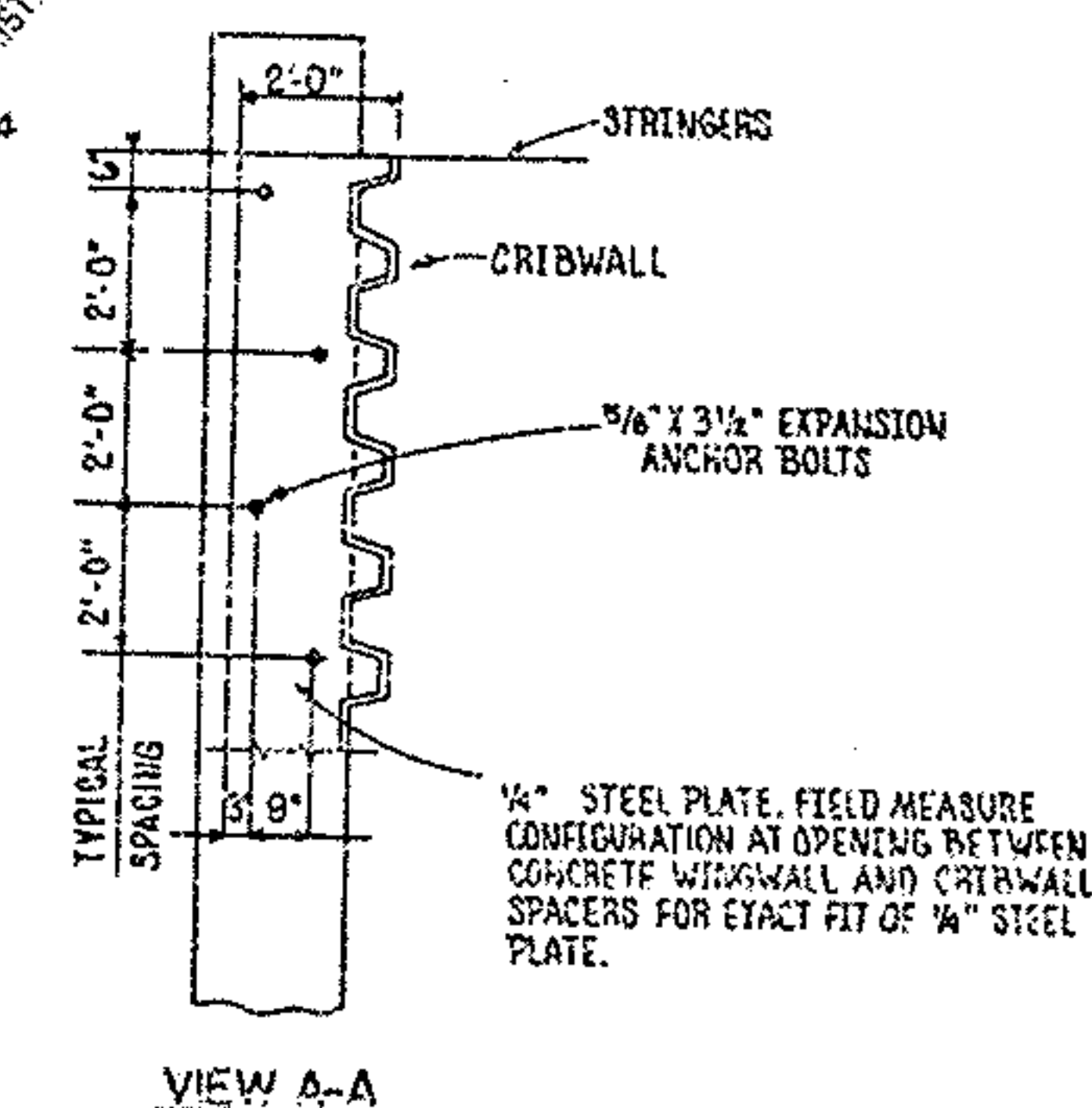
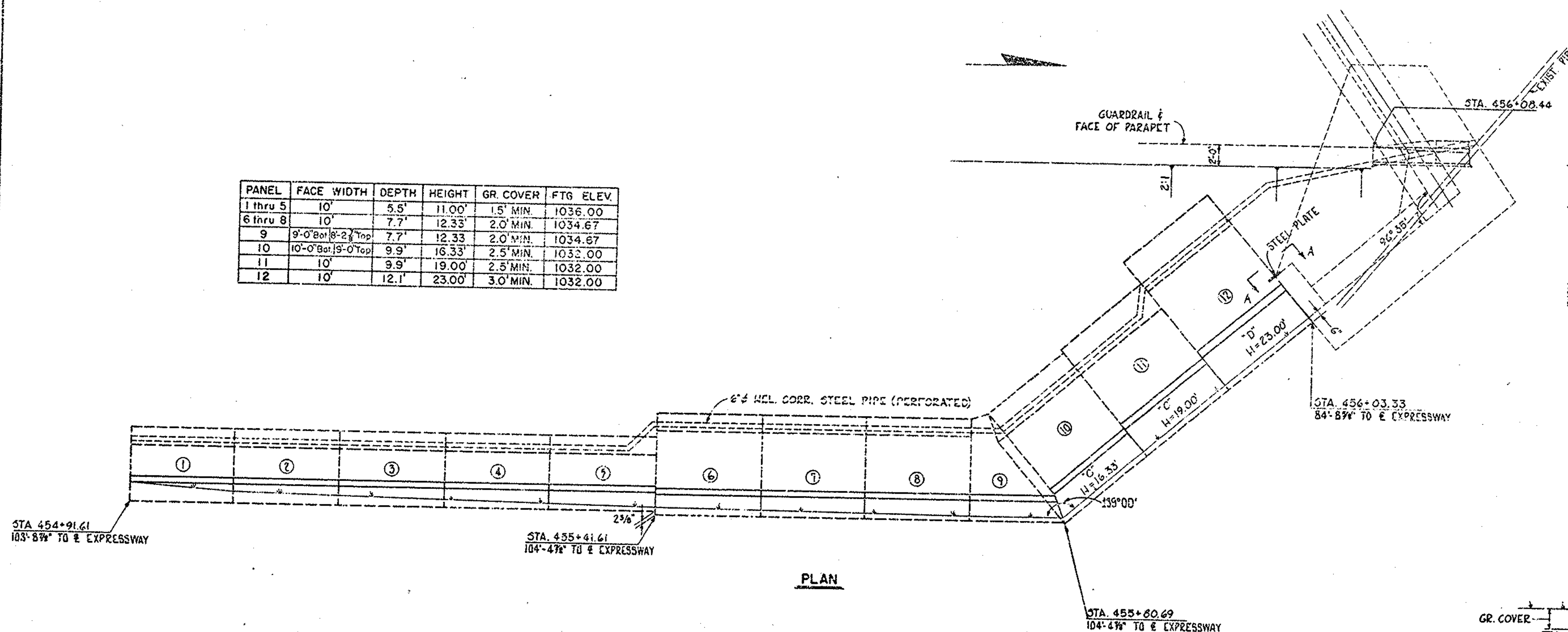
LEGEND
 N.F. - NEAR FACE
 F.F. - FAR FACE
 E.F. - EACH FACE

CITY OF AKRON		12/20	
DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING			
FRANKLIN CONSULTANTS INC.			
N.E. WING WALL			
AKRON EXPRESSWAY SYSTEM			
A.B.B.R. AND BEACON STREET OVERPASS			
BRIDGE NO. SUM-8-0064			
DESIGNED	DRAWN	TRACED	CHECKED
1/1	88	88	P.S.
REVIEWED	DATE	BY	SYMBOL
1/20/70			

FHWA REGION	STATE	PROJECT	
5	OHIO		

SUM-8-0.46

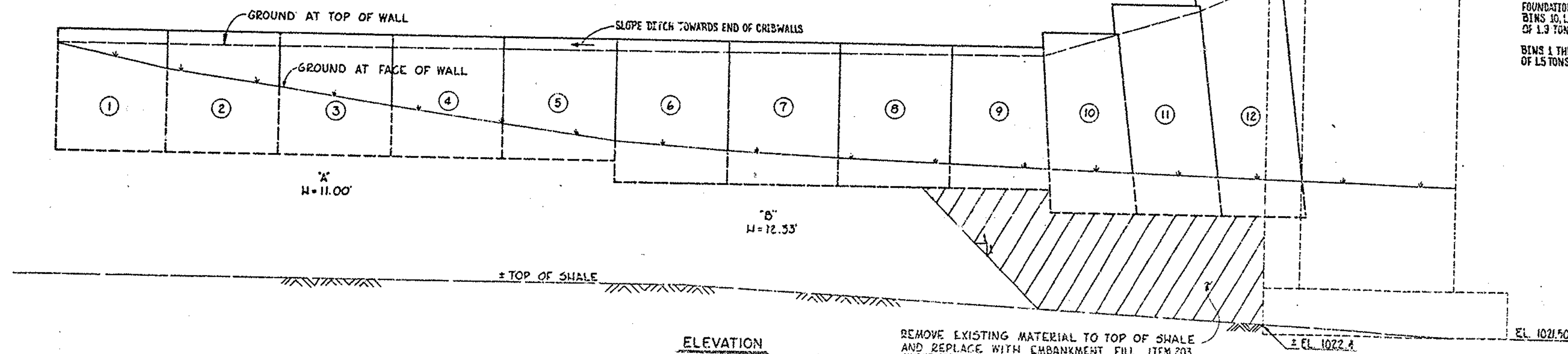
PANEL	FACE WIDTH	DEPTH	HEIGHT	GR COVER	FTG ELEV.
1 thru 5	10'	5.5'	11.00'	1.5' MIN.	1036.00
6 thru 8	10'	7.7'	12.33'	2.0' MIN.	1034.67
9	9'-0" Bot 8'-2" Top	7.7'	12.33'	2.0' MIN.	1034.67
10	10'-0" Bot 9'-0" Top	9.9'	16.33'	2.5' MIN.	1032.00
11	10'	9.9'	19.00'	2.5' MIN.	1032.00
12	10'	12.1'	23.00'	3.0' MIN.	1032.00



THE CONSTRUCTION OF THE CELLULAR RETAINING WALL, SHALL BE IN ACCORDANCE WITH SECT. 610, STATE OF OHIO, DEPT. OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS. DRAWINGS SHALL BE SUBMITTED FOR WRITTEN APPROVAL.

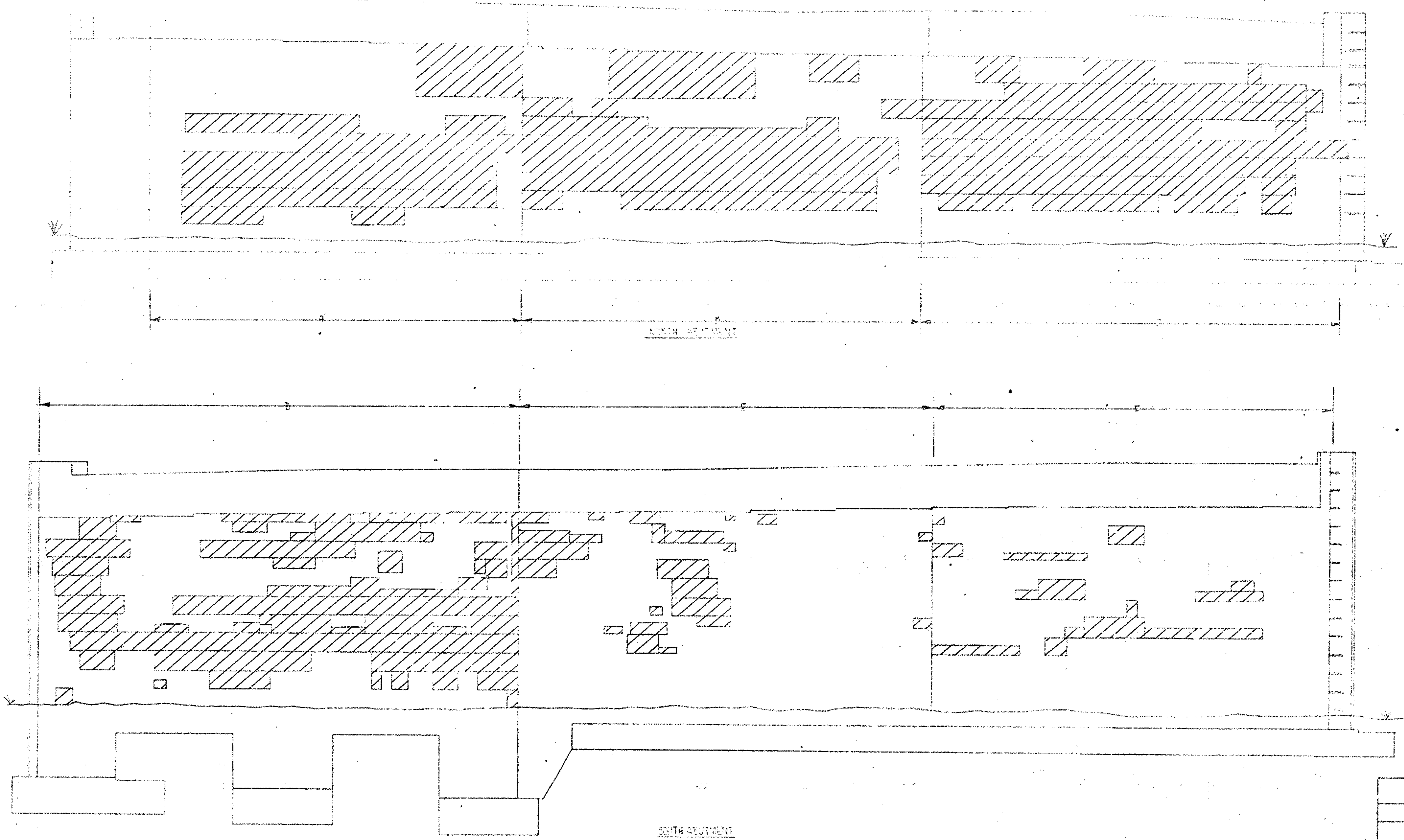
FOUNDATION BEARING PRESSURE:
BINS 10, 11, AND 12 ARE DESIGNED FOR MAX. TGE PRESSURE
OF 1.9 TONS PER SQ. FT.

BINS 1 THRU 9 ARE DESIGNED FOR MAX. TGE PRESSURE
OF 1.5 TONS PER SQ. FT.



REMOVE EXISTING MATERIAL TO TOP OF SHALE
AND REPLACE WITH EMBANKMENT FILL. ITEM 203
UNDER SUBBS 10, 11, AND 12.

CITY OF AKRON		15 / 20	
DEPARTMENT OF PUBLIC SERVICE			
BUREAU OF ENGINEERING			
FRANKLIN CONSULTANTS INC.			
CELLULAR RETAINING WALL			
AKRON EXPRESSWAY SYSTEM			
A.B.S.B.R.R. AND BEACON STREET OVERPASS			
BRIDGE NO. SUM-8-0064			
DESIGNED	DRAWN	TRACED	CHECKED
MM	GW	GW	PCB
			REVISED
			DATE
			FORWARDED



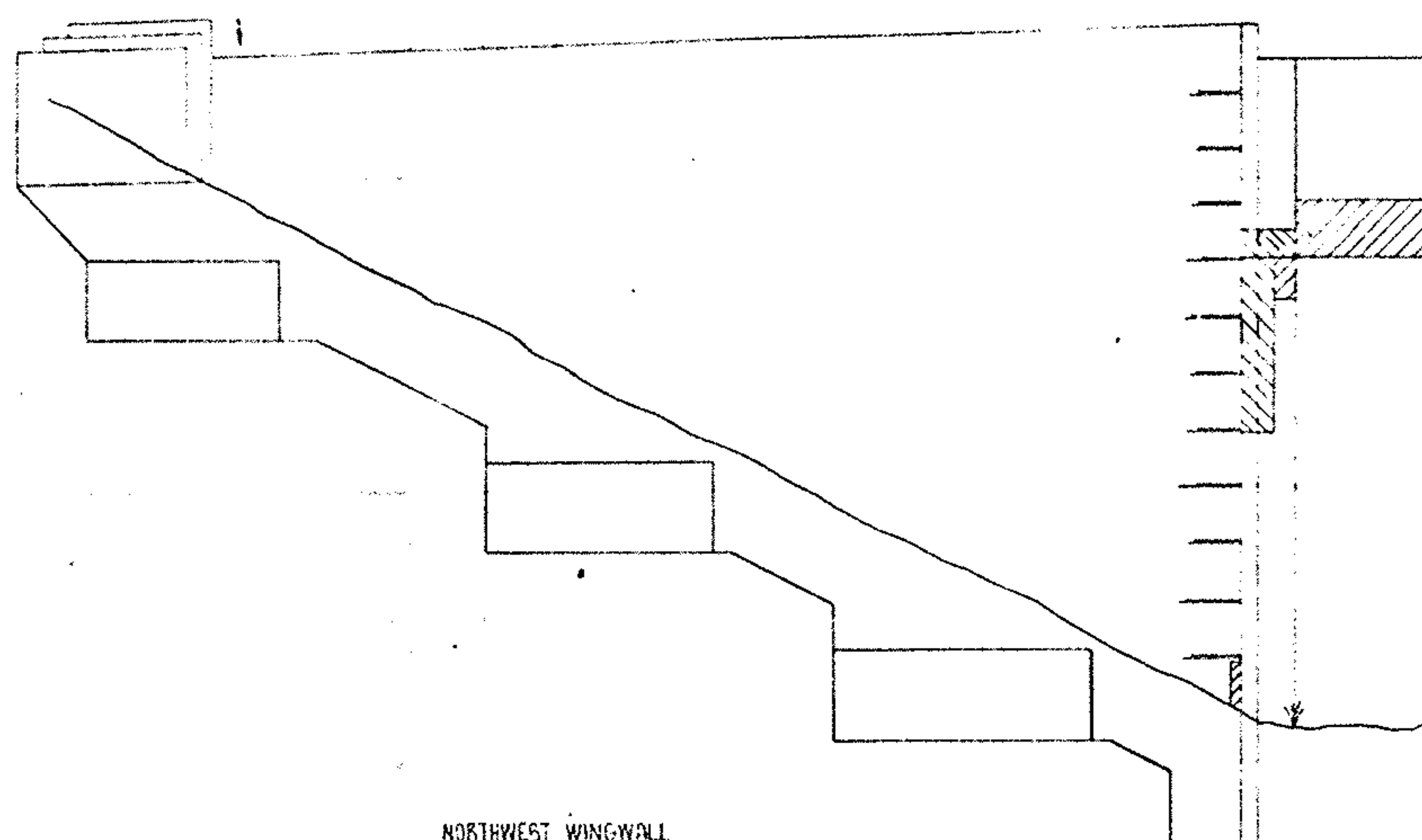
Note:
Cross Hatched Areas Indicate Approximate Location
of Areas to be Repaired by Pneumatically Placed
Mortar Method. Actual Locations, Size and Depth
To be Determined in the Field by the Engineer.

CITY OF AARON DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING						10/70
FRANKLIN CONSULTANTS INC.						
ABUTMENT REPAIR						
AARON EXPRESSWAY SYSTEM AARON BRAND BEACON STREET OVERPASS PROJECT NO. 201-8-0084						
DESIGNED	DRAWN	TRACED	CHECKED	APPROVED	DATE	BY
					7/2	7/6/70

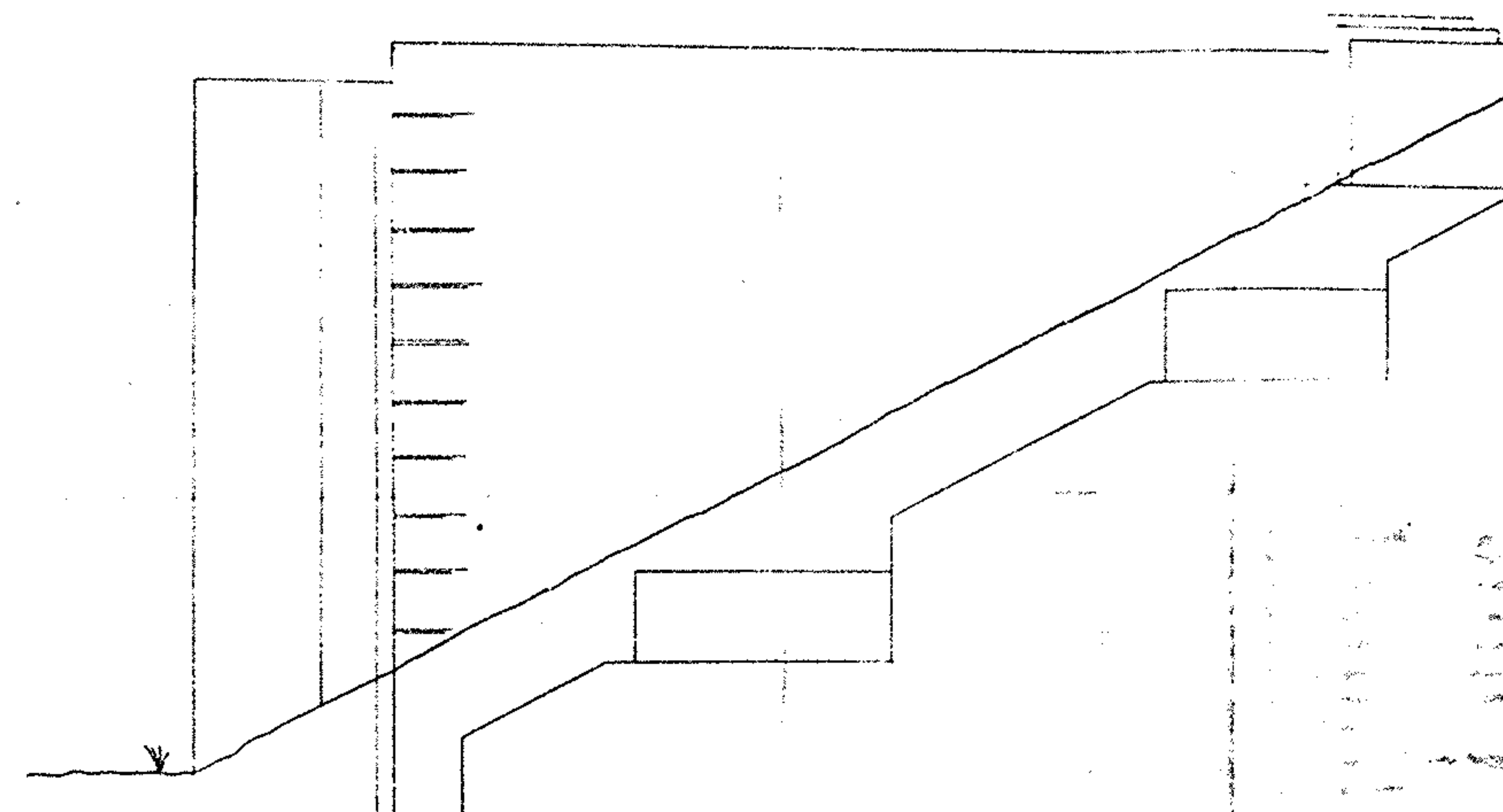
DATE	STATE	PROJECT
5	OHIO	

248

SUM-8-O.46

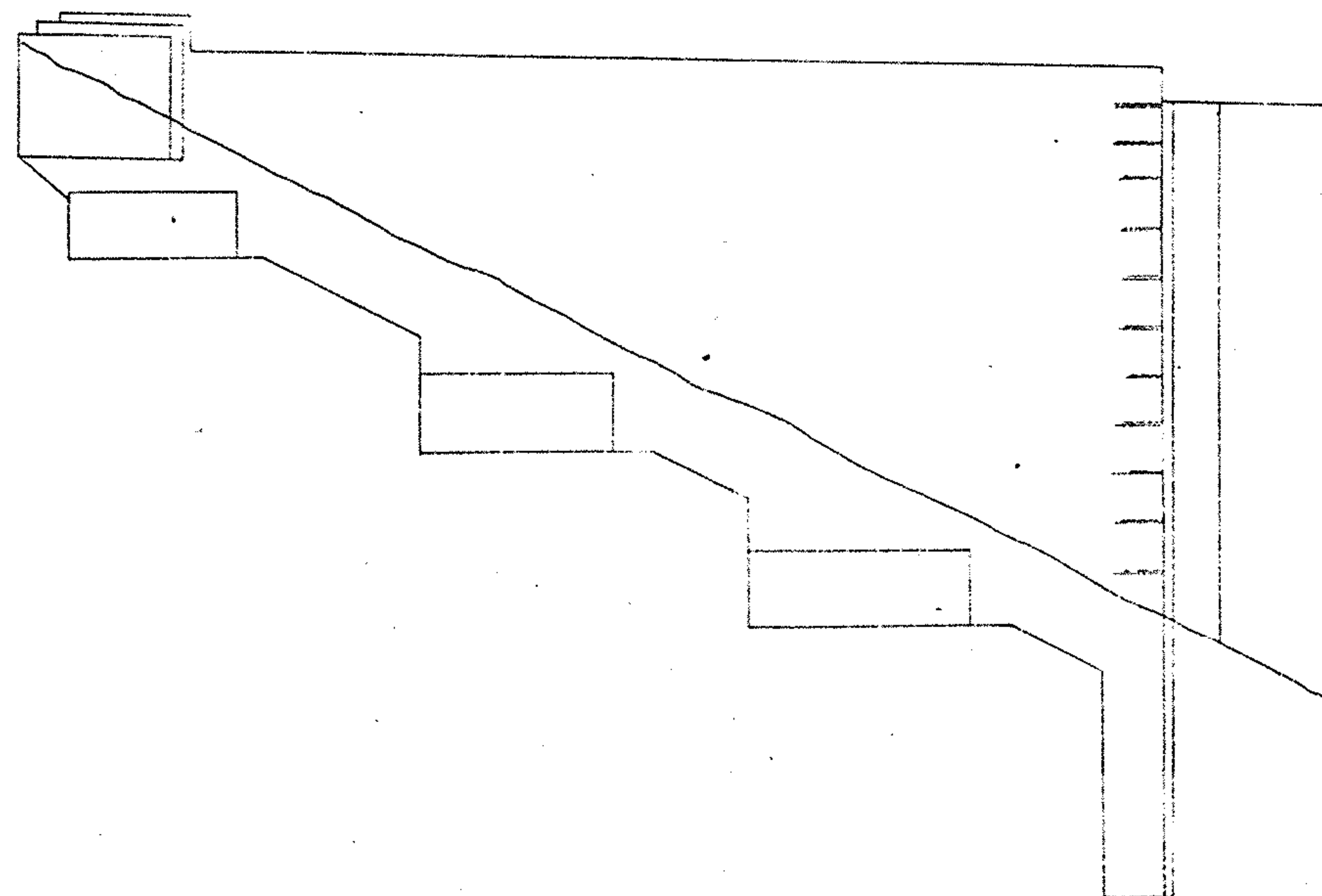


NORTHWEST WINGWALL

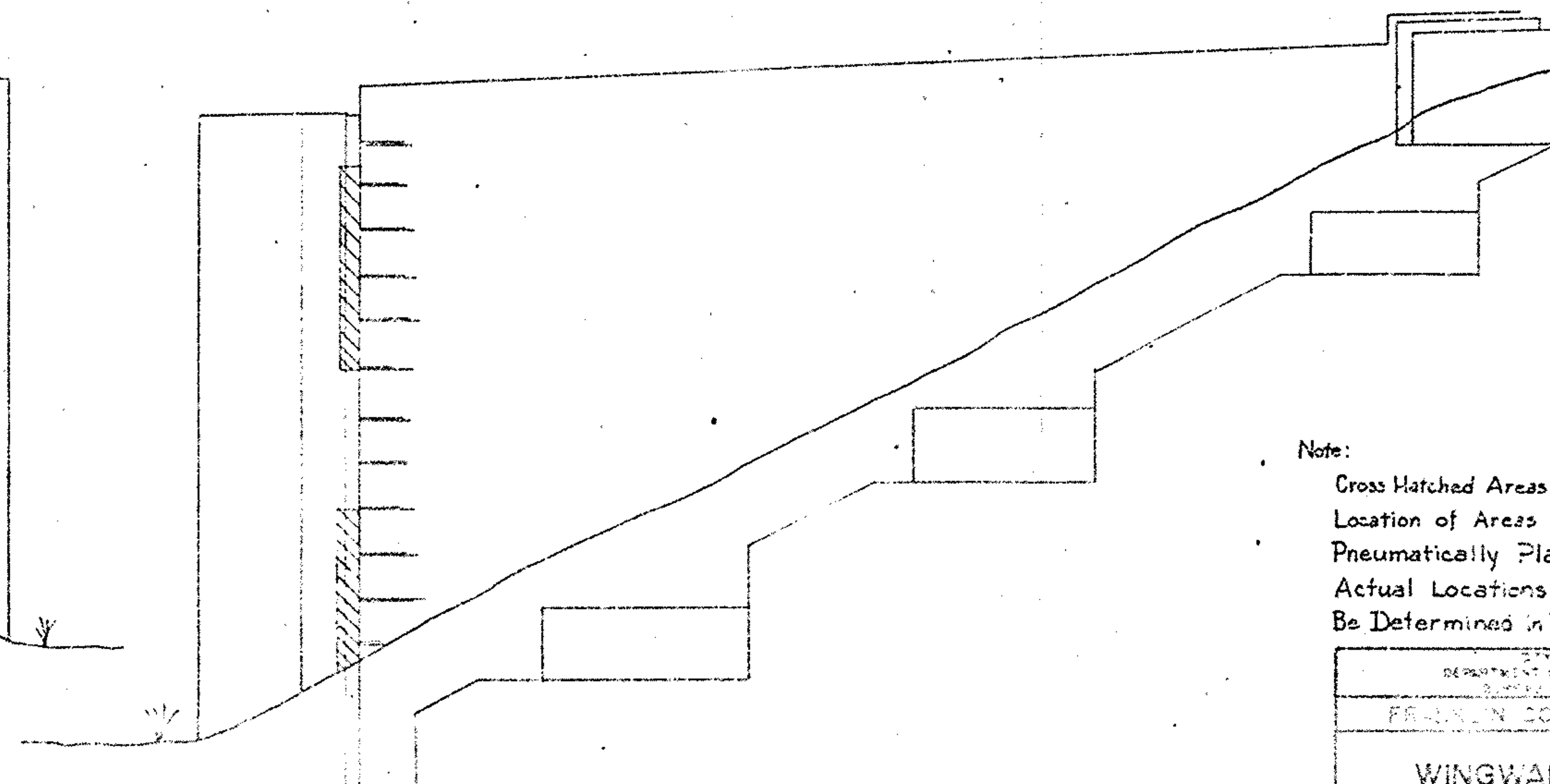


NORTHEAST WINGWALL

REPAIRS TO BE MADE
AS SHOWN ON THIS
DRAWING. THE
ENGINEER SHALL
BE RESPONSIBLE
FOR THE
DESIGN AND
CONSTRUCTION
OF THE
REPAIRS.



SOUTHEAST WINGWALL



SOUTHWEST WINGWALL

Note:

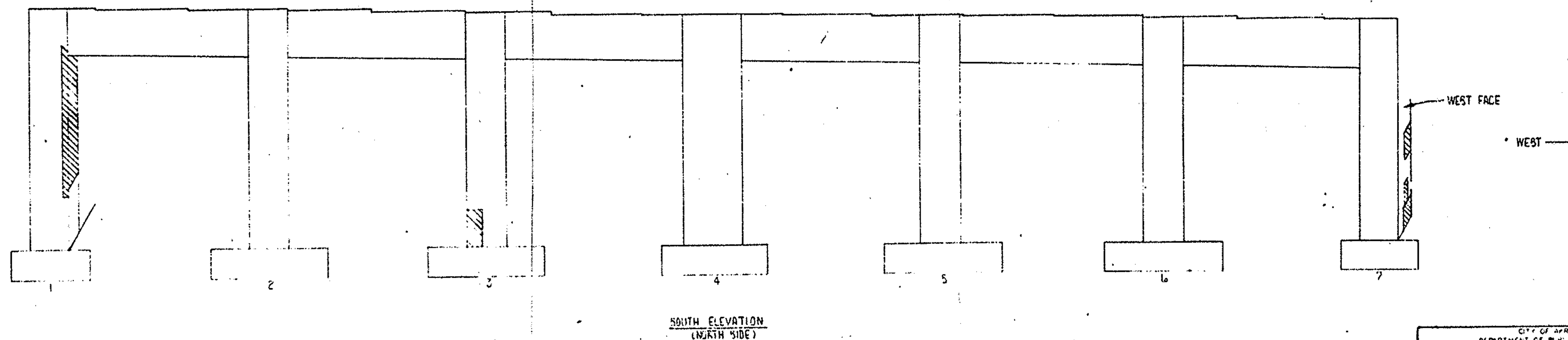
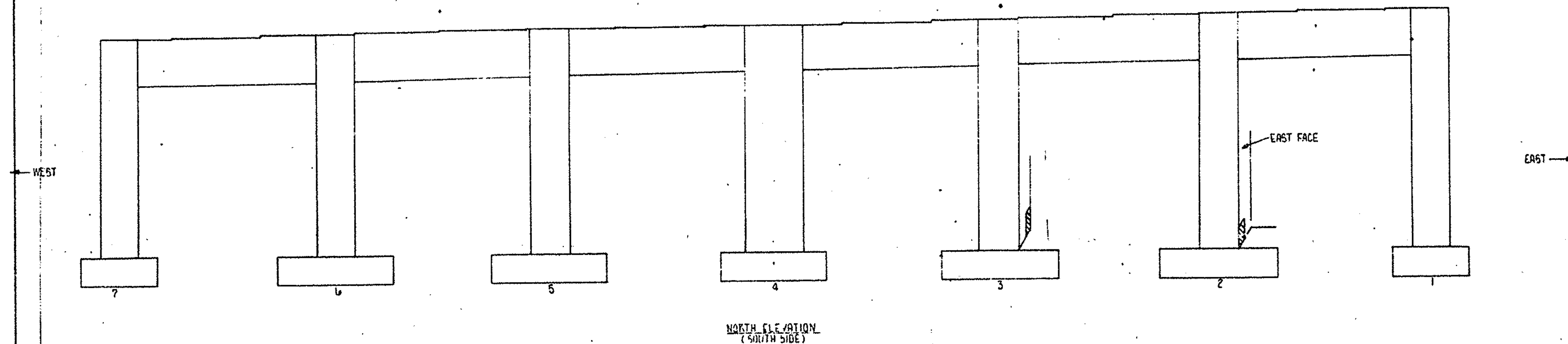
Cross Hatched Areas Indicate Approximate Location of Areas To Be Repaired By Pneumatically Placed Mortar Method. Actual Locations, Size and Depth To Be Determined In The Field By The Engineer.

CITY OF AKRON		19.20
DEPARTMENT OF PUBLIC SERVICE		
BUREAU OF ENGINEERING		
FRANKLIN CONSULTANTS INC.		
WINGWALL REPAIR		
AKRON EXPRESSWAY SYSTEM		
ADDENDUM FOR JONSON STREET OVERPASS		
PLATE NO. SUM-8-O.46		
DESIGNED	CHECKED	DATE
		19.20

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

203
248

SUM-8-O. 46



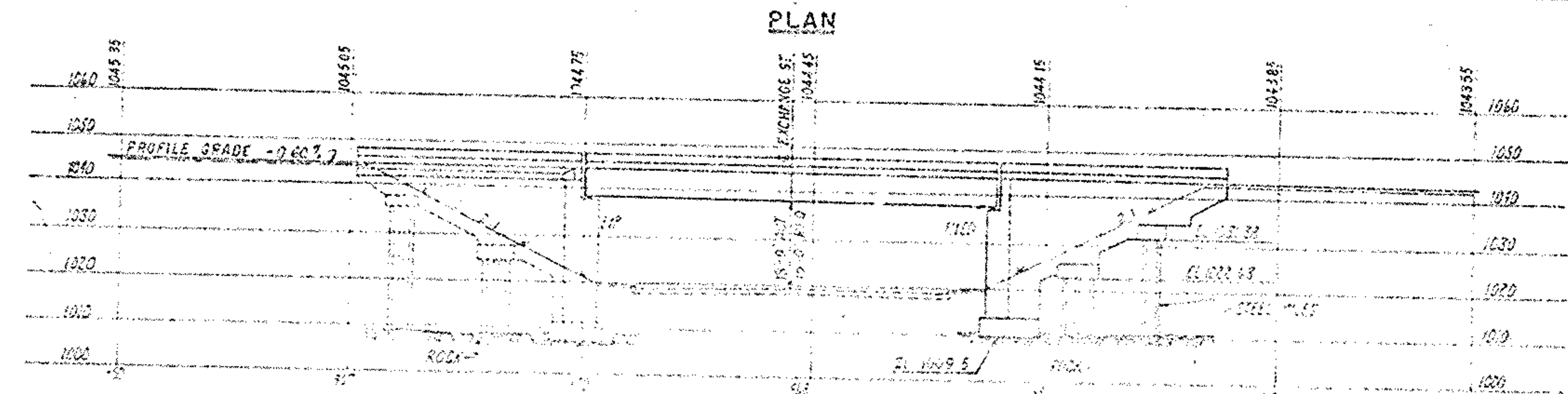
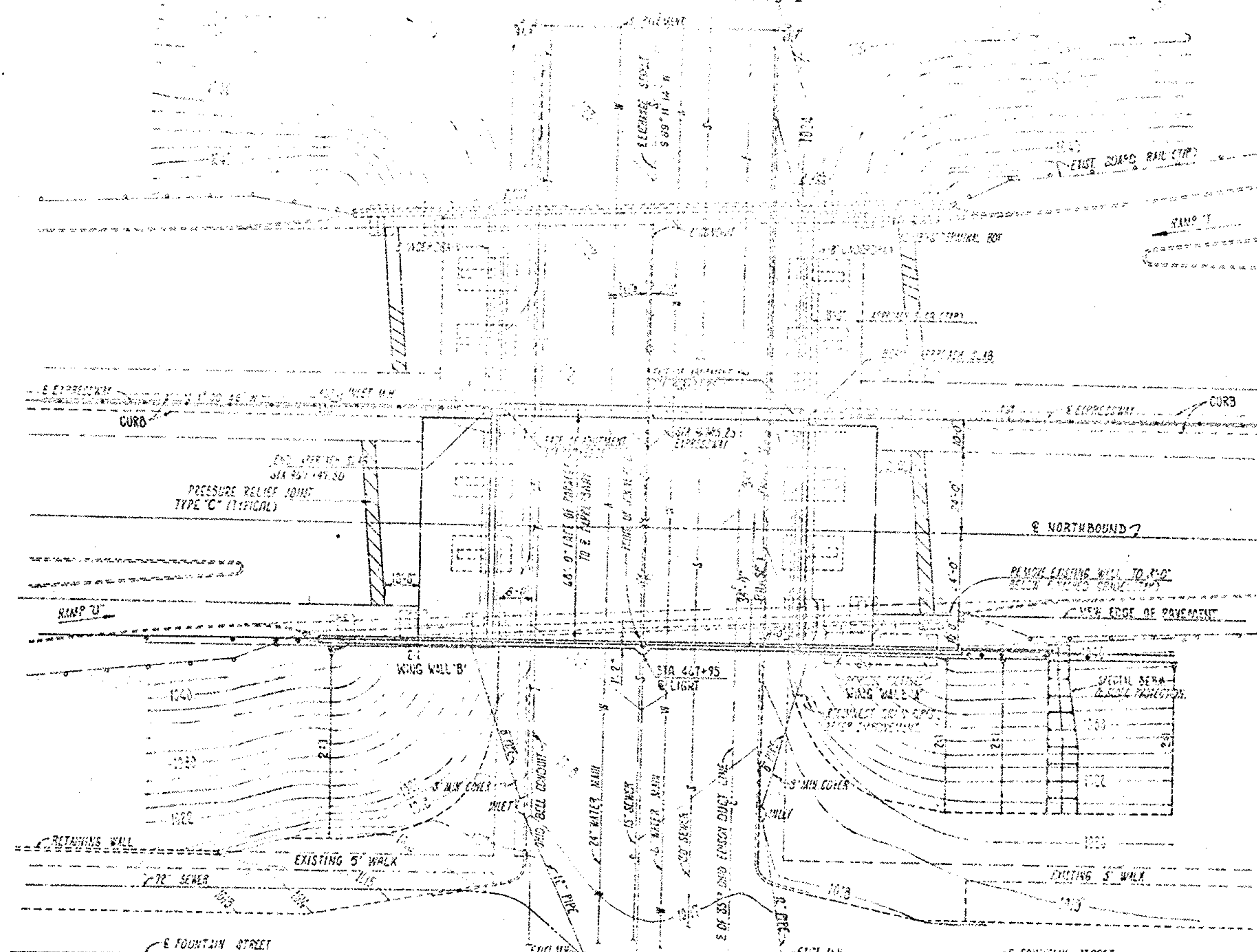
Note:

Cross Hatched Areas Indicate Approximate Location of Areas To Be Repaired By Pneumatically Placed Mortar Method. Actual Locations, Size and Depth To Be Determined In The Field By The Engineer.

CITY OF AKRON DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING						20/20
FRANKLIN CONSULTANTS INC.						
PIER REPAIR						
AKRON EXPRESSWAY SYSTEM A.A.B.B.R.R. AND BEACON STREET OVERPASS BRIDGE NO. SUM-8-006						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
					11/22/78	

DATE	SCALE	PROJECT
5	1"=40'	

SUM-8-0.46

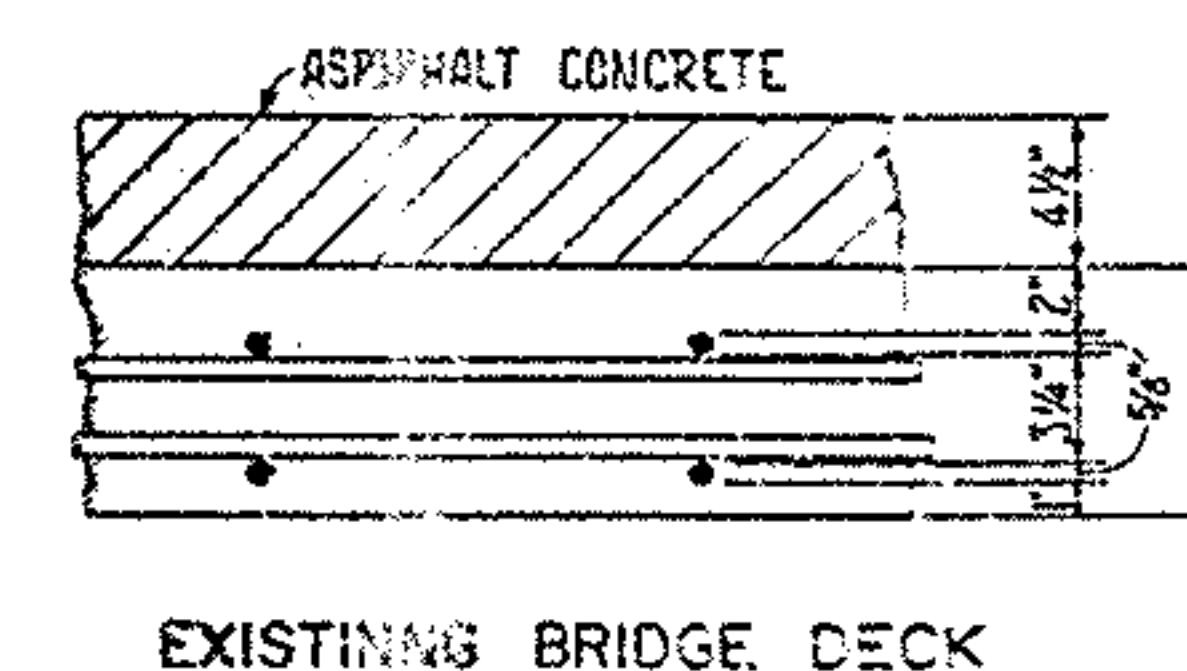
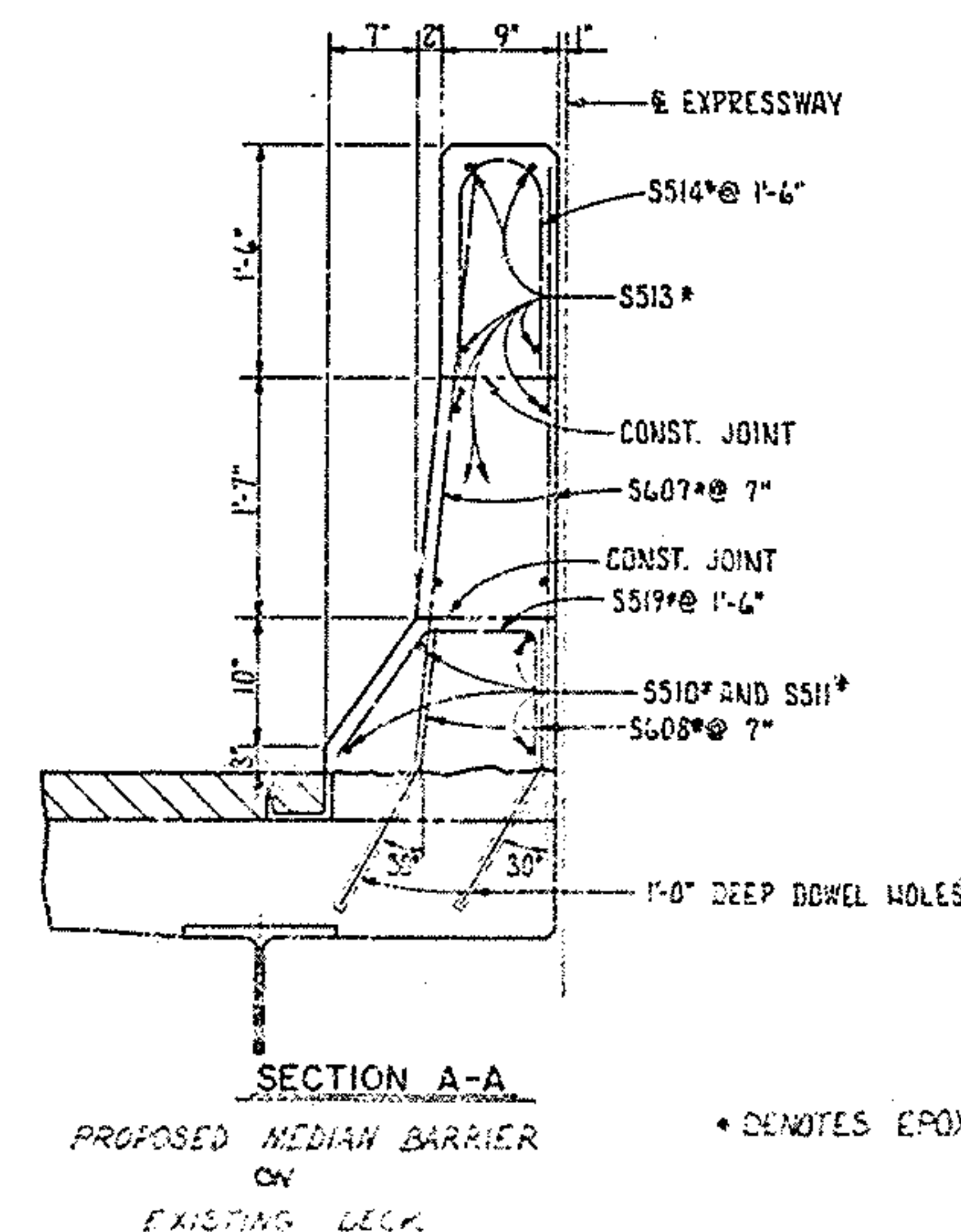
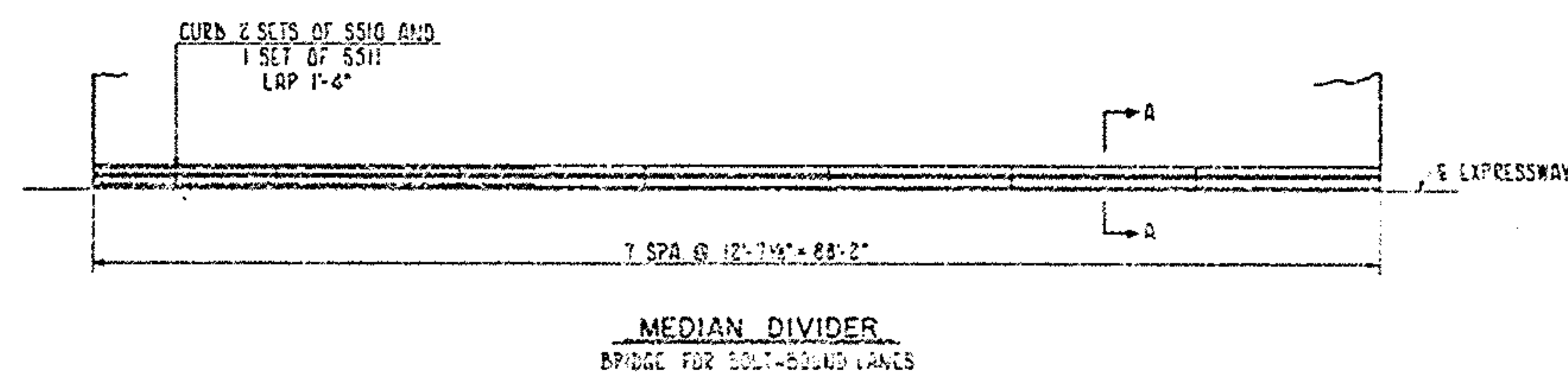
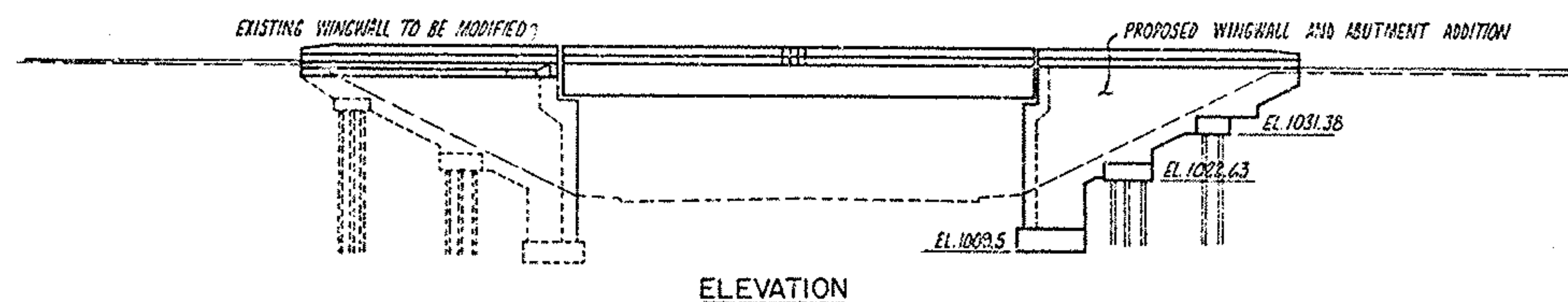
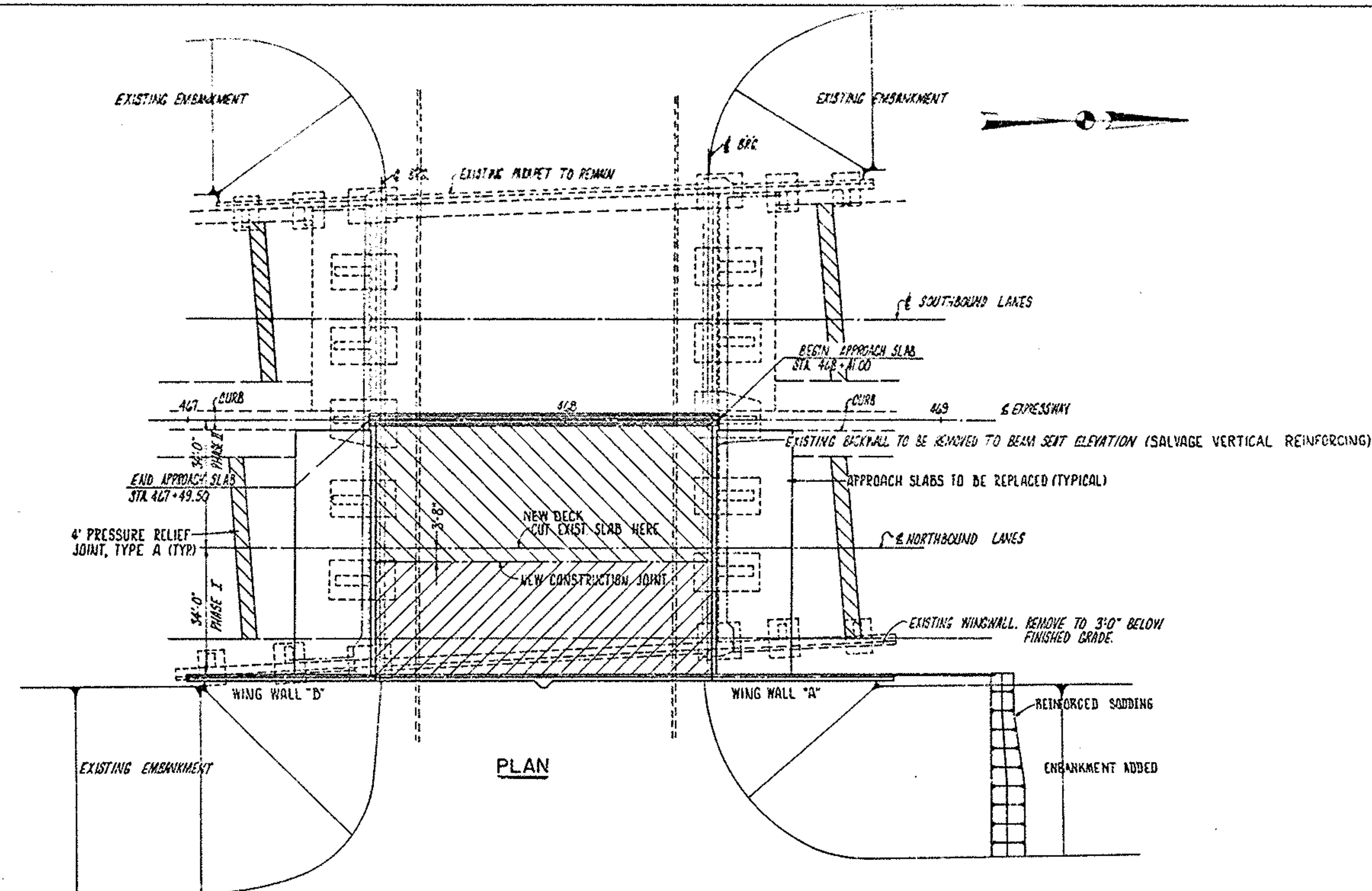


ABUTMENT PILES HP 10 x 42
EST. AVERAGE PILE LENGTH:
15' AND 21'

EXISTING STRUCTURE
TYPE: SIMPLE SPAN STEEL GIRDER WITH CONCRETE DECK AND SUBSTRUCTURE.
SPANS: 65'-6" x 1
ROADWAY: 16'-0" (16'-0" FROM FACE OF CURB TO FACE OF CURB)
LOADING: HS 20-44 (1992) AND 10' A.I. (1992)
WEARING SURFACE: 2" ASPHALTIC CONCRETE
SKEW: 0°-12' L.F.
APPROACH SLAB: 15'-0"
ALIGNMENT: TANGENT
SUPERELEVATION: NONE

PROPOSED STRUCTURE
TYPE: SIMPLE SPAN STEEL GIRDER WITH CONCRETE DECK AND SUBSTRUCTURE. S.S. TO REMAIN, N.S. ONLY.
SPANS: 65'-6" x 1
ROADWAY: 16'-0" (16'-0" FROM FACE OF CURB TO FACE OF CURB)
LOADING: HS 20-44 (1992) AND 10' A.I. (1992)
WEARING SURFACE: 2" ASPHALTIC CONCRETE
SKEW: 0°-12' L.F.
APPROACH SLAB: 15'-0"
ALIGNMENT: TANGENT
SUPERELEVATION: NONE
AVERAGE DAILY TRAFFIC: 7130 (1992)

SITE PLAN
AKRON EXPRESSWAY SYSTEM
BRIDGE NO. 500-8-0.46
FRANKLIN CONSULTANTS INC.
COLUMBUS, OHIO
DATE: 10/1/92
BY: J. L. F. (JLF)
CHECKED: J. L. F. (JLF)
APPROVED: J. L. F. (JLF)



- ITEM 202. PORTIONS OF STRUCTURE REMOVED INCLUDES THE FOLLOWING ITEMS:
1. APPROACH SLABS FOR BRIDGE CARRYING NORTHBOUND LANES.
 2. BRIDGE DECK, MEDIAN CURB AND PERPET FOR BRIDGE CARRYING NORTHBOUND LANES, AND MEDIAN CURB FOR BRIDGE CARRYING SOUTHBOUND LANES.
 3. FOR NORTHBOUND STRUCTURE ONLY, ABUTMENT BACKWALLS AND PART OF WING WALLS (SEE PLANS).
 4. FOR NORTHBOUND STRUCTURE ONLY, PART OF STEEL END DAM, SEE SUPERSTRUCTURE DETAILS.

CITY OF AKRON DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING					
FRANKLIN CONSULTANTS INC.					
GENERAL PLAN					
AKRON EXPRESSWAY SYSTEM					
EXCHANGE STREET OVERPASS					
BRIDGE NO. SUM-8-0.087					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
PCB	GA	BS	HY	JA	2-77

ESTIMATED QUANTITIES						
ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	PIERS	ABUT GEN'L
202	LUMP	LUMP	PORTIONS OF STRUCTURES REMOVED	LUMP		LUMP
503	58	C.Y.	UNCLASSIFIED EXCAVATION			188
503	LUMP	LUMP	COFFERDAMS, CRIBS, AND SHEETING			LUMP
505	LUMP	LUMP	TEST PILE			LUMP
507	150	L.F.	STEEL PILES, HP 10x42			150
509	27355	LBS.	REINFORCING STEEL	27355		17,440
510	116	EACH	DOWEL HOLES			116
511	48	C.Y.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTING			148
511	33	C.Y.	CLASS C CONCRETE, FOOTING			33
512	12	S.Y.	TYPE B WATERPROOFING			12
513	20340	LBS.	STRUCTURAL STEEL	20340		6,490
SPECIAL	LUMP	SUM	FIELD PAINTING OF STRUCTURAL STEEL	LUMP		
518	89	C.Y.	POROUS BACKFILL	177		89
520	46	S.F.	PNEUMATICALLY PLACED MORTAR			46
625			SEE SHEET FOR LIGHTING SUMMARY			
SPECIAL	3,501	LBS.	EPOXY COATED REINFORCING STEEL (see Proposal Note)	31501		
SPECIAL	LUMP	LUMP	JACKING STRUCTURE AND RESETTING BEARINGS	LUMP		
SPECIAL	24	EACH	DRILLING OF WEEPHOLES			24
511	177	C.Y.	CLASS S CONCRETE, SUPERSTRUCTURE	177		
845	641	S.Y.	LATEX MODIFIED CONCRETE OVERLAY (1 1/4" THICK)	641		
516	136.33	L.F.	ELASTOMERIC EXPANSION JOINTS	136.33		

*PAINT ALL NEW STRUCTURAL STEEL AND PORTIONS OF EXISTING STRUCTURAL STEEL IN ACCORDANCE WITH ITEM SPECIAL - FIELD PAINTING OF STRUCTURAL STEEL. PAINTING OF EXISTING STRUCTURAL STEEL SHALL BE LIMITED TO THE PORTIONS AFFECTED BY THE PROPOSED WIDENING AND REPAIRS.

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS: SD-1-69 DATED 6-12-69, SD-1-65 REVISED 2-2-80, AS-1-72 DATED 4-1-72, SHEET 1 OF 2 AND TO SUPPLEMENTAL SPECIFICATIONS: 896 DATED 3-12-77, 956 DATED 6-26-78, 845 DATED 3-2-81.

DESIGN SPECIFICATIONS

THE WIDENING AND DECK REPLACEMENT ON THIS STRUCTURE CONFORMS TO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES AS SET BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1977, INCLUDING THE 1978 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN LOADS

DESIGN LOADING - HS 20-44 CASE 1 AND THE ALTERNATE MILITARY LOADING.

CONCRETE CLASS 3 - UNIT STRESS 1200 P.S.I. FOR SUPERSTRUCTURE
CONC. CLASS C - UNIT STRESS 1333 P.S.I. FOR SUBSTRUCTURE

STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20,000 P.S.I.
REINFORCING STEEL - ASTM A615, A617 OR A617 - UNIT STRESS 20,000 P.S.I.

BEAM SEAT ELEVATIONS. EXISTING BEAM SEAT ELEVATIONS HAVE BEEN COPIED FROM THE DESIGN DRAWINGS. THE CONTRACTOR SHALL VERIFY THESE ELEVATIONS, AS THE EXISTING BRIDGE DECK IS REMOVED. ANY SIGNIFICANT DISCREPANCIES (+ 1/2" MAX) SHALL BE REPORTED TO THE ENGINEER BEFORE ANY WORK IS CONTINUED.

PILES SHALL BE DRIVEN TO BEDROCK. THE BEARING CAPACITY SHALL BE CONSIDERED OBTAINED BY REFUSAL ON HARD BEDROCK OR BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH. THE DESIGN LOAD IS 45 TONS PER PILE FOR THE FORWARD ABUTMENT.

FORWARD ABUTMENT FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

FOUNDATIONS BEARING PRESSURE: FORWARD ABUTMENT FOOTING IS DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 8 TONS PER SQ. FT.

MAINTENANCE OF TRAFFIC:

FOUR LANES OF TRAFFIC WITH A MINIMUM HORIZONTAL WIDTH OF 44'-0" AND A MINIMUM VERTICAL CLEARANCE OF 15'-0" SHALL BE MAINTAINED ON EXCHANGE STREET AT ALL TIMES.

ALL JOINTS BETWEEN EXISTING AND NEW ADDED CONCRETE SHALL BE SAW-CUT.

SEQUENCE OF OPERATIONS:

1. EXISTING WEEPHOLE JOINTS IN PARAPET.
2. EXISTING WEEPHOLE JOINTS AT BRIDGE CENTERS IN EXISTING PARAPET.
3. EXISTING WEEPHOLE JOINTS IN PHASE I AND PHASE II.
4. EXISTING WEEPHOLE JOINTS IN PHASE I AND PHASE II.
5. EXISTING WEEPHOLE JOINTS IN PHASE I AND PHASE II.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING STRUCTURE AND THE PROTECTION OF THE EXISTING TRAFFIC.

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING STRUCTURE AND THE PROTECTION OF THE EXISTING TRAFFIC.
- B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING STRUCTURE AND THE PROTECTION OF THE EXISTING TRAFFIC.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING STRUCTURE AND THE PROTECTION OF THE EXISTING TRAFFIC.

PLANS OF THE EXISTING STRUCTURE MAY BE STUDIED IN THE OFFICE OF THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING STRUCTURE AND THE PROTECTION OF THE EXISTING TRAFFIC.

ATTENTION IS DRAWN TO CONCRETE PARAPETS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING STRUCTURE AND THE PROTECTION OF THE EXISTING TRAFFIC.

CITY OF AKRON DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING					
FRANKLIN CONSULTANTS INC.					
ESTIMATED QUANTITIES & GENERAL NOTES					
AKRON EXPRESSWAY SYSTEM EXCHANGE STREET OVERPASS BRIDGE NO. SUM-8-0087					
DESIGNED	DRAWN	CHECKED	IN CHARGE	APPROVED	DATE
PCS	CH	GW	MM	JG	10/16

Rev 2-18-82

REINFORCED ELASTOMERIC EXPANSION JOINT

DESCRIPTION: THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING REINFORCED ELASTOMERIC EXPANSION DAM FOR BRIDGE JOINTS OF THE SIZE SPECIFIED, IN ACCORDANCE WITH THESE SPECIFICATIONS AND WITHIN REASONABLY CLOSE CONFORMITY TO THE LINES, ELEVATIONS, AND LOCATIONS SHOWN ON THE DRAWINGS.

REINFORCED ELASTOMERIC EXPANSION DAM SHALL CONSIST OF AN INTEGRALLY MOLDED UNIT OF NEOPRENE AND BONDED-METAL COMPONENTS, SO ARRANGED AS TO PROVIDE FOR THE EXPANSION AND CONTRACTION MOVEMENT OF THE BRIDGE DECK.

ONE OR MORE OF THE METAL COMPONENTS SHALL BRIDGE THE GAP IN THE DECK AND BE OF SUFFICIENT STRENGTH TO SUPPORT THE WHEEL LOADS WITH MINIMUM DEFLECTION.

THE EXPANSION DAM SHALL BE OF THE TYPE THAT WILL SEAL THE DECK SURFACE, GUTTERS, CURBS, AND SIDEWALK, TO PREVENT WATER AND OTHER CONTAMINANTS FROM DESCENDING ONTO THE SUBSTRUCTURE.

THE EXPANSION DAM SHALL HAVE THE PROVISIONS FOR ANCHORING IT TO THE BRIDGE DECK BY BOLTS FORMING A MECHANICAL CONNECTION BETWEEN METAL COMPONENTS MOLDED IN THE EXPANSION DAM AND BRIDGE DECK. CAVITIES FOR ANCHOR BOLTS SHALL BE PROVIDED WITH TIGHT FIT REMOVABLE NEOPRENE PLUGS.

UNITS OF ELASTOMERIC EXPANSION DAM SHALL HAVE TONGUE AND GROOVE PROVISIONS AT THE ENDS OR OTHER EQUIVALENT TYPE TO PROVIDE FOR A POSITIVE LEAKPROOF CONNECTION BETWEEN THE ADJACENT UNITS. (SEE BONDING PROCEDURE NOTE)

THERE SHALL BE NO APPRECIABLE CHANGE IN THE DECK SURFACE DUE TO THE EXPANSION AND CONTRACTION MOVEMENTS OF THE BRIDGE DECK.

EXPANSION AND CONTRACTION MOVEMENTS OF THE BRIDGE DECK SHALL BE TAKEN ENTIRELY BY DEFORMATION OF THE NEOPRENE.

ELASTOMERIC EXPANSION STEEL UNITS ON THE FACES OF CURBS MAY BE PARTIALLY UNREINFORCED TO FACILITATE CUTTING.

PROVISION SHALL BE MADE FOR FASTENING THE SECTIONS OF ELASTOMERIC SEAL SECURELY TO THE FACE OF CURBS.

EXPOSED SURFACE OF ELASTOMERIC EXPANSION SEAL SHALL HAVE ANTI-SKID PROVISIONS.

MATERIALS: MATERIALS SHALL CONFORM TO THE FOLLOWING:

A. ELASTOMER
THE ELASTOMER PORTION OF THE EXPANSION DAM SHALL BE OF THE COMPOUND KNOWN AS NEOPRENE WHICH SHALL HAVE THE FOLLOWING PHYSICAL PROPERTIES IN ACCORDANCE WITH ASTM METHOD D15-71, PART B:

HARDNESS, DUROMETER A, ASTM D2240 45+5

TENSILE STRENGTH, ASTM D412-68 1,800 PSI, MIN.
ELONGATION AT BREAK 400% MIN.

COMPRESSION SET, 72 HOURS @ 158°F, ASTM D395-69, METHOD B 20% MAX.

LOW TEMPERATURE, ASTM D746-63 NOT BRITTLE
AT -40° F

OZONE RESISTANCE
EXPOSURE TO 100 PPM OZONE FOR 70 HOURS AT 100° F, SAMPLE UNDER 20% STRAIN, ASTM D1149-64 NO CRACKS

OIL DETERIORATION
VOLUME INCREASE AFTER IMMERSION IN ASTM OIL #3 FOR 70 HOURS AT 212° F, ASTM D471-68 120% MAX.

GENERAL NOTES

THE ACTUAL DIMENSIONS OF UNITS OF THE ELASTOMERIC EXPANSION DAM SHALL BE CORRECT TO ZERO INCHES UNDER AND ONE-QUARTER INCH OVER IN WIDTH AND LENGTH AND FROM ZERO INCHES UNDER AND PLUS ONE-EIGHTH INCH OVER IN THE THICKNESS OF THE EXTERIOR NOMINAL DIMENSIONS.

D. STRUCTURAL STEEL EXTRUDED ALUMINUM SHAPES
ASTM A36 OR EQUAL ALLOY NO. GS 11A (ALUMINUM ASSOC. NO. 6061-76)

C. SEALANT
FEDERAL SPECIFICATIONS TT-S-97237
(TO BE FURNISHED BY THE EXPANSION DAM MANUFACTURER OR DISTRIBUTOR)

D. ANCHORAGE SYSTEM
ANCHORS SHALL BE OF THE TYPE KNOWN AS "STRUCTURAL" CONCRETE INSERTS - TYPE "L" OR TYPE "LF" AS MANUFACTURED BY THE RICHMOND SCREW ANCHOR COMPANY OR EQUAL APPROVED BY THE CITY. THE INSERT SHALL BE FURNISHED WITH COILS THREADED TO ENGAGE "NO" THREAD MACHINE BOLTS. THE ANCHORS AND BOLTS SHALL BE OF THE CORRECT SIZE AND SHALL BE FURNISHED BY THE EXPANSION DAM DISTRIBUTOR.

E. EPOXY GROUT
FEDERAL SPECIFICATIONS MCM-B-350A
(TO BE FURNISHED BY THE EXPANSION DAM MANUFACTURER OR DISTRIBUTOR)

JOINT CLASSIFICATIONS: THE MOVEMENT CLASSIFICATION OF THE EXPANSION DAM SHALL IN NO CASE BE LESS THAN THE MOVEMENT CLASSIFICATION SPECIFIED ON THE DESIGN DRAWINGS.

ELASTOMERIC SEAL, WHEN FULLY EXPANDED OR COMPRESSED, SHALL NOT EXERT A FORCE GREATER THAN 1650 LBS./LIN. FT. TOLERANCE +5% WILL BE PERMITTED.

THE ELASTOMERIC EXPANSION DAM AND THE CLASSIFICATION SHALL BE APPROVED BY THE CITY OF AKRON.

CONSTRUCTION REQUIREMENTS: SHOP DETAIL DRAWINGS SHOWING COMPLETE DETAILS, DIMENSIONS, SIZE AND MOVEMENT CLASSIFICATION OF THE SEAL, AND OTHER PERTINENT INFORMATION FOR INSTALLATION OF THE DAM, TO PROVIDE FOR A POSITIVE LEAKPROOF JOINT, SHALL BE PREPARED IN ACCORDANCE WITH THE DESIGN DRAWINGS AND THESE SPECIFICATIONS. APPROVAL OF SHOP DRAWINGS BY THE ENGINEER SHALL BE REQUIRED PRIOR TO INSTALLATION OF THE EXPANSION DAM.

NOTCH TO ACCOMMODATE ELASTOMERIC EXPANSION SEAL SHALL BE FORMED AS SHOWN ON THE CONTRACT DRAWING. THE SIDES OF NOTCH SHALL BE SMOOTH. ALLOWABLE VERTICAL MISALIGNMENT 1/4". THE ENTIRE NOTCH SHALL BE OF UNIFORM DEPTH AND WIDTH. ANY DEPRESSIONS OR HIGH AREAS ON THE NOTCH SHALL BE CORRECTED BY FILLING WITH EPOXY GROUT OR GRINDING.

THE ELASTOMERIC SEAL SHALL NOT BE INSTALLED UNTIL A MINIMUM OF 7 DAYS AFTER CONCRETE IS PLACED. ANCHOR BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CARE SHALL BE TAKEN NOT TO DAMAGE THE ELASTOMERIC SEAL BY OVER-TIGHTENING.

REMOVE ALL DUST, LOOSE MORTAR AND OTHER DEBRIS PRIOR TO PLACING SEALANT. APPLY SUFFICIENT SEALANT TO BOTH SIDES OF ANCHOR BOLT LINES AND UP EACH SIDE OF THE NOTCH, TO INSURE WATERTIGHTNESS. SPREAD SEALANT FOR ONLY ONE UNIT AT A TIME.

INSTALL FIRST UNIT OF ELASTOMERIC EXPANSION SEAL STARTING AT THE CURB LINE.

BONDING PROCEDURES FOR FIELD SPLICES

TO BOND TWO ELASTOMERIC SURFACES TOGETHER, THE FOLLOWING PROCEDURES SHALL BE USED:

1. SURFACE PREPARATION: REMOVE ALL DIRT, DEBRIS AND OILY MATERIAL WITH A CLEAN CLOTH. DRY THE SURFACES, NOT MORE THAN SEVEN (7) DAYS PRIOR TO ADHESIVE BONDING, APPLY A THIN (1/8" MINIMUM THICKNESS) COATING OF CYCLIZING PASTE. ALLOW PASTE TO REMAIN ON THE SURFACES FOR FROM TWENTY-FIVE (25) TO FORTY (40) MINUTES. WASH

FED. REGION	STATE	PROJECT	
5	OHIO		

SUM-8-0.46

201
248

PASTE FROM SURFACES WITH CLEAN WATER.

2. ADHESIVE APPLICATION: APPLY A FLEXIBLE EPOXY ADHESIVE (SILASTIX 360 OR AN APPROVED ALTERNATE) LIBERALLY AND UNIFORMLY TO BOTH PREPARED SURFACES, BUT ONLY TO SURFACES WHICH ARE DRY AND WARMER THAN 45° F AND WHICH ARE MAINTAINED ABOVE 45° F UNTIL ADHESIVE HAS CURED.

3. ASSEMBLY: FORCE BOTH SURFACES TOGETHER AND MAINTAIN PRESSURE UNTIL ADHESIVE HAS CURED. AFTER ASSEMBLY, REMOVE EXCESS ADHESIVE FROM EXTERIOR SURFACES ADJACENT TO BOND JOINT.

* CYCLIZING PASTE IS A MIXTURE OF ONE (1) POUND OF HISIL AND SIX (6) POUNDS OF CONCENTRATED SULFURIC ACID (18 NALAR). TO MIX THE PASTE, ADD HISIL TO ACID SLOWLY WHILE STIRRING MIXTURE TO ACHIEVE A SMOOTH VISCOUS PASTE. NOTE: SINCE CONCENTRATED SULFURIC ACID IS VERY CORROSIVE AND HISIL IS AN EXTREMELY FINE NON-TOXIC POWDER, RUBBER GLOVES AND GLASSES SHOULD BE USED BY THOSE USING THE PASTE. WHILE GLOVES, GLASSES AND A RESPIRATOR SHOULD BE USED BY THOSE MIXING THE PASTE.

ALL JOINTS WITHIN 6'-0" OF CURES SHALL BE SHOP VULCANIZED UNDER HEAT AND PRESSURE.

SECTIONS FOR CURBS AND SIDEWALKS SHALL BE CUT TO FIT AS SHOWN ON THE SHOP DRAWINGS, USING MITERED JOINTS. WHEN CUTTING SECTIONS, CARE SHALL BE TAKEN SO THAT STEEL COMPONENTS IN THE ELASTOMERIC SEAL WILL NOT BE EXPOSED WHEN THE EXPANSION DAM IS COMPLETE. ALL JOINTS BETWEEN THE SECTIONS SHALL BE SEALED PROPERLY FOR WATERTIGHTNESS.

FINAL SEALING OF THE FINISHED EXPANSION DAM SHALL BE COMPLETED AS SOON AS POSSIBLE AFTER INSTALLATION. ALL BOLT HOLES SHALL BE COVERED WITH PLUGS FURNISHED BY THE MANUFACTURER. ALL EXPOSED ENDS, JOINTS BETWEEN UNITS, AND OTHER AREAS OF POSSIBLE LEAKAGE SHALL BE FILLED WITH SEALANT. SEAL EDGES WITH SEALANT BY FILLING ALL VOIDS BETWEEN SIDES OF DAM AND DECK. SMOOTH AND SCRAPE OFF EXCESS SEALANT. WIRE BRUSH BOLT CAVITIES, FILL CAVITIES WITH SEALANT TO A DEPTH OF 1/2 INCH, AND PLACE PLUGS IN CAVITIES.

IN ALL CASES, SCRAPE OFF EXCESS SEALANT BEFORE INITIAL SET.

METHOD OF MEASUREMENT: THIS WORK WILL BE MEASURED CONTINUOUSLY BY THE LINEAR FOOT ON CENTERLINE OF THE DAM AND ALONG THE EXPOSED SURFACE (INCLUDING TOP, VERTICAL, AND SLOPED FACES OF WALKS AND DRIVES) OF DAM, ACCEPTABLY INSTALLED.

BASIS OF PAYMENT: PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAR FOOT OF ELASTOMERIC EXPANSION JOINT, WHICH SHALL CONSTITUTE FULL COMPENSATION FOR ALL MATERIAL, LABOR, TOOLS AND EQUIPMENT NECESSARY TO COMPLETE THIS ITEM ACCORDING TO THESE SPECIFICATIONS.

CITY OF AKRON DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING		13 / M	
FRANKLIN CONSULTANTS, INC.			
GENERAL NOTES			
AKRON EXPRESSWAY SYSTEM EXCHANGE STREET OVERPASS BRIDGE NO. SUM-8-0087			
DESIGNED	DRAWN	TRACED	CHECKED
			REVISED

PROPOSAL NOTE

FIELD PAINTING OF STRUCTURAL STEEL

DESCRIPTION: THIS ITEM SHALL CONSIST OF FURNISHING ALL LABOR, EQUIPMENT, AND PERTINENT MATERIALS INCLUDING PAINT, FOR CLEANING AND PAINTING ALL NEW STRUCTURAL STEEL SURFACES AND PORTIONS OF EXISTING STRUCTURAL STEEL AFFECTED BY THE PROPOSED WIDENING AND REPAIRS. ALL STEEL SURFACES SHALL RECEIVE ONE FULL COAT OF PRIMER AND ONE FULL COAT OF FINISH, AS SPECIFIED.

MATERIALS: (1) BLAST CLEANING - MATERIALS USED FOR BLAST CLEANING SHALL BE SAE NO. S-330 SHOT OR SMALLER OR SAE NO. G-25 GRIT OR SMALLER.

(2) DETERGENT - NEUTRALIZER - THIS MATERIAL SHALL BE "SURFA-PREP #500" AS MANUFACTURED BY BASF WYANDOTTE CHEMICALS CORP., SUBOX DIVISION, WYANDOTTE, MICHIGAN OR AN ACID TYPE DETERGENT-NEUTRALIZER MEETING FEDERAL SPECIFICATION IT-C-490, TYPE II, METHOD S.

(3) PRIME COAT - THIS MATERIAL SHALL BE "SUBOX PRIMER #511, HOUSE GRAY" AS MANUFACTURED BY BASF WYANDOTTE CHEMICALS CORP., SUBOX DIVISION, WYANDOTTE, MICHIGAN, OR AN APPROVED EQUAL.

(4) FINISH COAT - THIS MATERIAL SHALL BE "SUBOX HEAVY DUTY FINISH COAT, STAINLESS STEEL BLUE NO. 1165" AS MANUFACTURED BY BASF WYANDOTTE CHEMICALS CORP., SUBOX DIVISION, WYANDOTTE, MICHIGAN, OR AN APPROVED EQUAL.

IF THE BIDDER PROPOSES TO USE AN ALTERNATE EQUAL MATERIAL, THE BID MUST ACCOMPANY FULL SPECIFICATIONS OF THE MATERIAL CONCERNED ALONG WITH TEST RESULTS, CASE HISTORIES, AND AN AFFIDAVIT FROM THE MANUFACTURER THAT THE PROPOSED SYSTEM IS EQUAL OR BETTER.

THE SUCCESSFUL BIDDER SHALL BE REQUIRED TO FURNISH THE ENGINEER A SUFFICIENT AMOUNT (ONE QUART MINIMUM) OF EACH KIND OF PAINT HE INTENDS TO USE ON THIS PROJECT. THE ENGINEER MAY HAVE THESE SAMPLES ANALYZED TO DETERMINE THEIR CONFORMANCE WITH THE SPECIFICATIONS. NO PAINT SHALL BE SHIPPED UNTIL THE ENGINEER NOTIFIES THE CONTRACTOR THAT THE SAMPLES MEET THE SPECIFICATIONS.

ALL PAINT SHALL BE BROUGHT TO THE JOB SITE IN FIVE (5) GALLON CONTAINERS, UNOPENED AND PROPERLY MARKED AS TO ITS CONTENTS, MANUFACTURER'S NAME, DATE OF MANUFACTURE, BATCH NUMBER, ETC., ALL LEGIBLE AT THE TIME OF USE. ALL CONTAINERS SHALL BE OPENED IN THE PRESENCE OF THE ENGINEER AND PAINT WHICH HAS LIVERED, JELLED, OR OTHERWISE DETERIORATED DURING STORAGE SHALL NOT BE USED.

ALL INGREDIENTS IN ANY CONTAINER OF PAINT SHALL BE THOROUGHLY MIXED BEFORE USE AND SHALL BE AGITATED OFTEN ENOUGH DURING APPLICATION TO KEEP PAINT IN A UNIFORM CONDITION. NO THINNER SHALL BE ADDED TO THE PAINT UNLESS SO DIRECTED BY THE ENGINEER IN WRITING. IF THINNING IS ALLOWED, THE TYPE AND AMOUNT OF THINNER SHALL COMPLY WITH THE PAINT MANUFACTURER'S INSTRUCTIONS.

SURFACE PREPARATION:

ALL STEEL SURFACES TO BE PAINTED SHALL BE CLEANED TO REMOVE ALL RUST, LOOSE, CRACKED, BLISTERED OR PEELING PAINT, DUST OR DIRT, LOOSE MILL SCALE, WELD SLAG, OIL, GREASE, AND ANY OTHER FOREIGN MATERIALS. ALL CLEANING SHALL BE IN ACCORDANCE WITH "STEEL STRUCTURES PAINTING COUNCIL" SURFACE PREPARATION SPECIFICATIONS NO. SSPC-SP 6-65, COMMERCIAL BLAST CLEANING. SOUND ADHERENT OLD PAINT NEED NOT BE REMOVED UNLESS IN THE OPINION OF THE ENGINEER, IT IS EXCESSIVELY THICK OR INFLEXIBLE. REMOVAL OF THE OLD PAINT MUST BE CARRIED BACK AROUND THE EDGES OF THE SPOT OR AREA UNTIL AN AREA OF COMPLETELY INTACT AND COMPLETELY INTACT AND ADHERING PAINT FILM, WITH NO RUST OR BLISTERS UNDERNEATH, IS ATTAINED. EDGES OF TIGHTLY ADHERENT PAINT REMAINING AROUND THE AREA TO BE RECOATED MUST BE FEATHERED, SO THAT THE REPAINTED SURFACE CAN HAVE A SMOOTH APPEARANCE. THE REMAINING OLD PAINT SHOULD HAVE SUFFICIENT ADHESION SO THAT IT CANNOT BE LIFTED AS A LAYER BY INSERTING A BLADE OF A DULL PUTTY KNIFE UNDER IT. THE REMAINING TIGHTLY ADHERENT OLD PAINT MUST BE EXPOSED TO SUFFICIENT ABRASION TO PROVIDE A SUITABLE ANCHOR PATTERN FOR GOOD ADHESION OF THE NEW PAINT.

GENERAL NOTES

PAINTING AND CLEANING OPERATIONS SHALL NOT BE CARRIED ON SIMULTANEOUSLY, EXCEPT WHEN THE TWO OPERATIONS ARE A SUFFICIENT DISTANCE APART, AND LOCATED IN SUCH A MANNER THAT NO DUST, DIRT OR SAND CAN BE BLOWN ON THE FRESH PAINT. APPROVAL OF THE ENGINEER SHALL BE OBTAINED BEFORE STARTING SUCH OPERATIONS.

IF ANY RUST FORMS AFTER BLAST CLEANING, THE SURFACE SHALL BE REBLAST CLEANED BEFORE APPLICATION OF DETERGENT-NEUTRALIZER AND PAINTING.

IMMEDIATELY AFTER CLEANING AN AREA, ALL SURFACES TO BE PAINTED SHALL BE TREATED WITH A SOLUTION OF ONE (1) PART OF THE DETERGENT-NEUTRALIZER TO 20 PARTS OF CLEAN WATER. THIS SOLUTION MAY BE APPLIED BY BRUSH, SPRAYED OR ANY OTHER METHOD WHICH WILL INSURE THAT THE ENTIRE SURFACE IS TREATED. THE NEUTRALIZER SHALL BE ALLOWED TO DRY AND THEN THE SURFACE MAY BE PAINTED.

NO NEUTRALIZER OR PRIMER COAT OR FINISH COAT SHALL BE APPLIED ON ANY SURFACE UNTIL THE SAME HAS BEEN INSPECTED AND APPROVED BY THE ENGINEER.

PAINT APPLICATION:

ALL PAINT SHALL BE APPLIED IN A NEAT WORKMANLIKE MANNER USING BRUSHES OR AIRLESS SPRAY METHOD SUCH THAT IT DOES NOT RUN, SAG, CRAWL OR HAVE OTHER DEFECTS. PARTICULAR CARE SHALL BE GIVEN TO RIVET HEADS, BOLTS, EDGES AND CORNERS TO ENSURE ADEQUATE COVERAGE. BRUSHES SHALL BE USED TO WORK PAINT INTO CRACKS, CREVICES AND BLIND SPOTS WHICH ARE NOT ADEQUATELY PAINTED BY SPRAY. BRUSHES PREFERABLY SHALL BE ROUND OR OVAL IN SHAPE, BUT IF FLAT BRUSHES ARE USED THEY SHALL NOT EXCEED FIVE (5) INCHES IN WIDTH.

ALL SURFACES SHALL BE PROPERLY CLEANED AND PREPARED BETWEEN COATS.

PAINT SHALL BE APPLIED TO ABSOLUTELY DRY SURFACES ONLY. THE PAINT SHALL BE APPLIED ONLY IN DRY WEATHER AND WHEN THE AIR TEMPERATURE IS ABOVE 50° F AND RELATIVE HUMIDITY UNDER 80%, AND INDICATIONS ARE THAT SUCH A CONDITION WILL BE MAINTAINED FOR A PERIOD OF AT LEAST TWELVE (12) HOURS. ANY PAINTING INJURIOUSLY AFFECTED BY COLD WEATHER, RAIN OR DAMPNESS SHALL BE CLEANED OFF AND REPAINTED TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.

ALL SURFACES TO RECEIVE PAINT MUST BE FREE OF DUST, DIRT OR OTHER FOREIGN MATERIALS.

A DRYING PERIOD OF NO LESS THAN 48 HOURS SHALL BE ALLOWED BETWEEN COATS OF PAINT. IN NO CASE SHALL A COAT OF PAINT BE APPLIED UNTIL THE PREVIOUS COAT HAS BEEN INSPECTED BY THE ENGINEER AND FOUND TO BE SATISFACTORY, DRY AND HARD THROUGHOUT THE ENTIRE FILM THICKNESS.

THE CONTRACTOR SHALL PROVIDE FREE AND UNINTERRUPTED ACCESS TO ANY OF THE PLACES WHERE CLEANING AND/OR PAINTING IS IN PROGRESS, FOR INSPECTION BY THE ENGINEER. THE CONTRACTOR AND THE ENGINEER SHALL WORK IN CLOSE HARMONY SO THAT THE NEXT OPERATION MAY BEGIN WITHOUT UNDUE DELAY.

(A) PRIME COAT - THIS SHALL CONSIST OF THE APPLICATION OF A COAT OF PRIMER, AS SPECIFIED, OVER ALL STEEL SURFACES OF THE STRUCTURES.

THE DRIED FILM THICKNESS OF THE PRIME COAT SHALL BE NO LESS THAN 2.5 MILS AT ANY POINT.

(B) FINISH COAT - THIS SHALL BE APPLIED ONLY AFTER THE PRIME COAT HAS DRIED AND HARDENED THROUGHOUT THE ENTIRE FILM THICKNESS. FINISH COAT SHALL CONSIST OF APPLYING A COAT OF FINISH PAINT, AS SPECIFIED, OVER ALL STEEL SURFACES OF THE STRUCTURES.

THE DRIED FILM THICKNESS OF THE FINISH COAT SHALL BE NO LESS THAN 3.5 MILS AT ANY POINT.

THE TOTAL OF PRIME AND FINISH DRY FILM THICKNESS SHALL NOT BE LESS THAN 6.0 MILS AT ANY POINT.

GENERAL REQUIREMENTS:

THE CONTRACTOR SHALL PROTECT PEDESTRIAN, VEHICULAR AND OTHER TRAFFIC

DATE	TIME	BY
5	11:00	

SUM-8-0.45

248

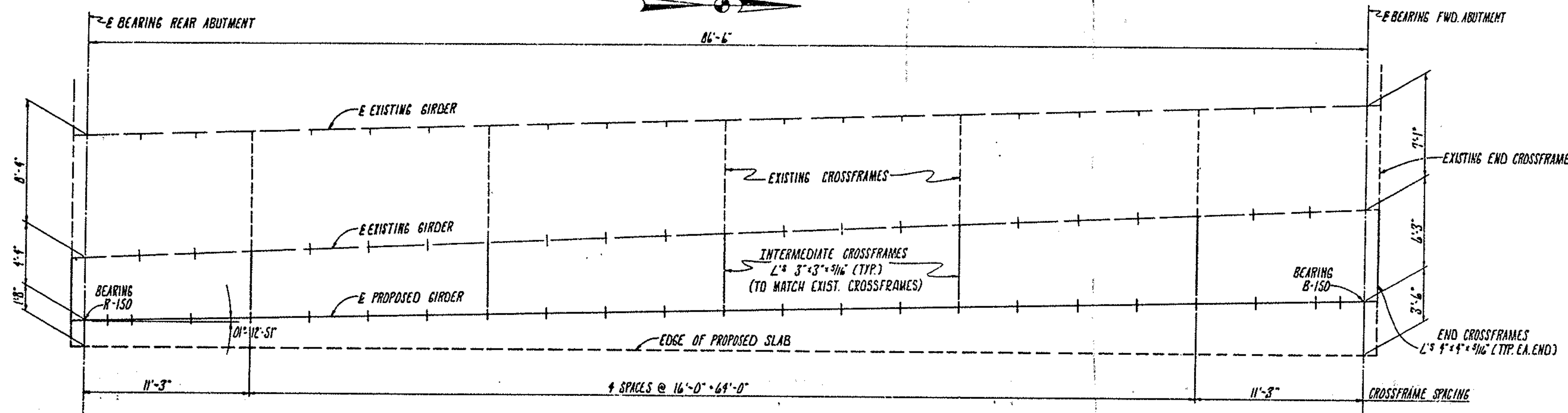
UPON OR UNDERNEATH THE BRIDGE, ALL ADJOINING PROPERTY ALONG THE RIGHT OF WAY, WATER, AND ALL PORTIONS OF THE BRIDGE SUPERSTRUCTURE AND SUB-STRUCTURE NOT INTENDED TO BE PAINTED AGAINST DAMAGE OR DISFIGUREMENT BY SPATTERS, SPLASHES, SMIRCHES, AND SPRAY OF PAINT MATERIALS, AND BY ANY OF THE CLEANING AND PAINTING OPERATIONS. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGE TO PRIVATE OR PUBLIC PROPERTY DUE TO THE CLEANING AND PAINTING OPERATIONS.

THE CONTRACTOR SHALL CLEAN UP AND REMOVE ANY WASTE SAND, RAGS, PAINT CONTAINERS, ETC., AT THE END OF EACH WORKING DAY. UPON THE COMPLETION OF THE WORK THE SITE SHALL BE LEFT CLEAN AND IN A NEAT AND SLIGHTLY CONDITION.

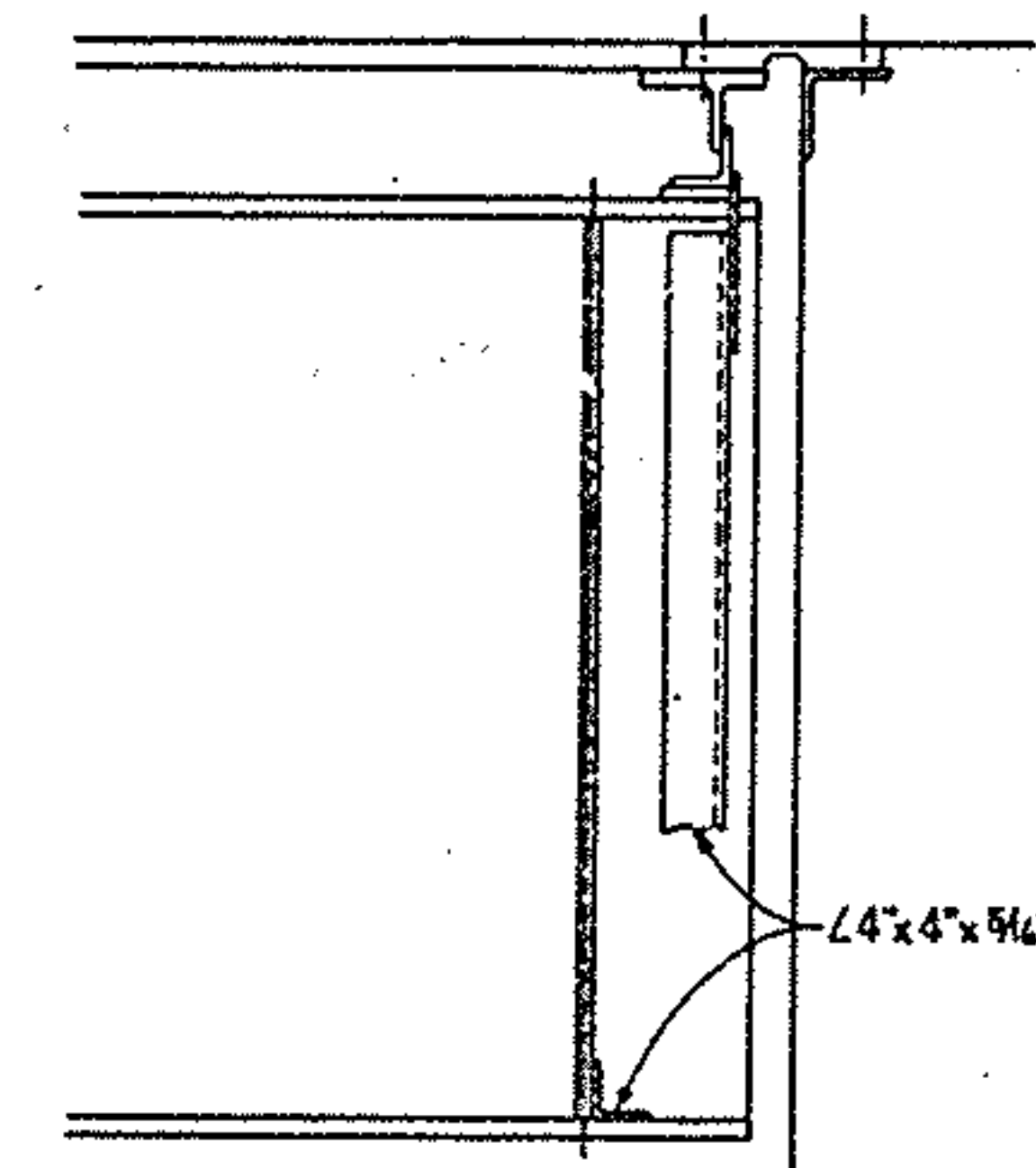
PAYMENT WILL BE MADE AT THE CONTRACT BID PRICE, FOR ITEM SPECIAL - FIELD PAINTING OF STRUCTURAL STEEL.

THIS PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY TO COMPLETE THIS ITEM OF WORK INCLUDING THE COST OF MAINTAINING TRAFFIC AND PROVIDING INSURANCE, AS REQUIRED.

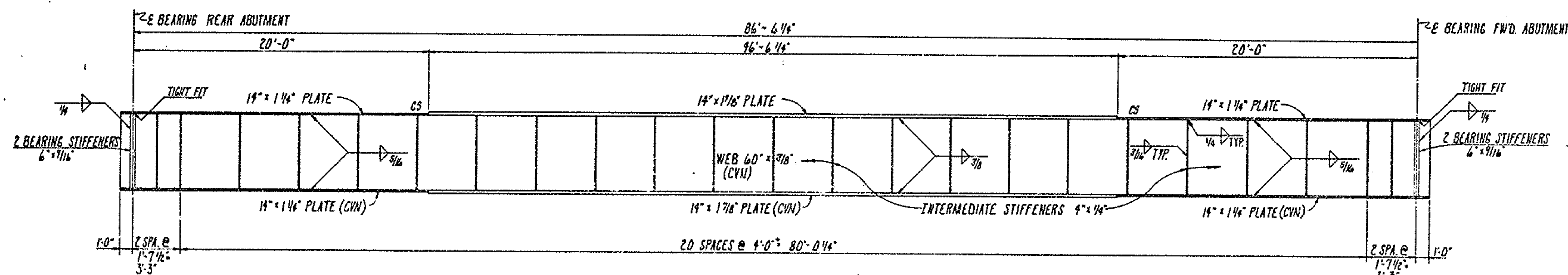
CITY OF AKRON		5/14
DEPARTMENT OF PUBLIC SERVICE		
FRANKLIN CONSULTANTS, INC.		
GENERAL NOTES		
AKRON EXPRESSWAY SYSTEM		
LICHENHART STREET OVERPASS		
BRIDGE NO. SUM-8-004		



FRAMING PLAN

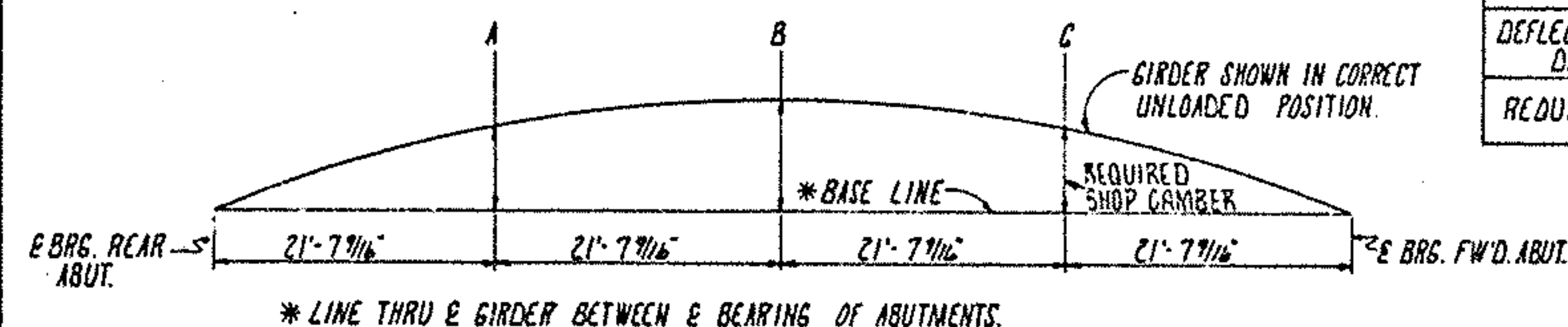


SECTION A-A



GIRDER ELEVATION

DEFLECTION AND CAMBER			
	A	B	C
DEFLECTION DUE TO WEIGHT OF STEEL	1/8	3/16	1/8
DEFLECTION DUE TO REMAINING DEAD LOAD	9/16	7/8	11/16
REQUIRED SHOP CAMBER	11/16	1 1/16	13/16

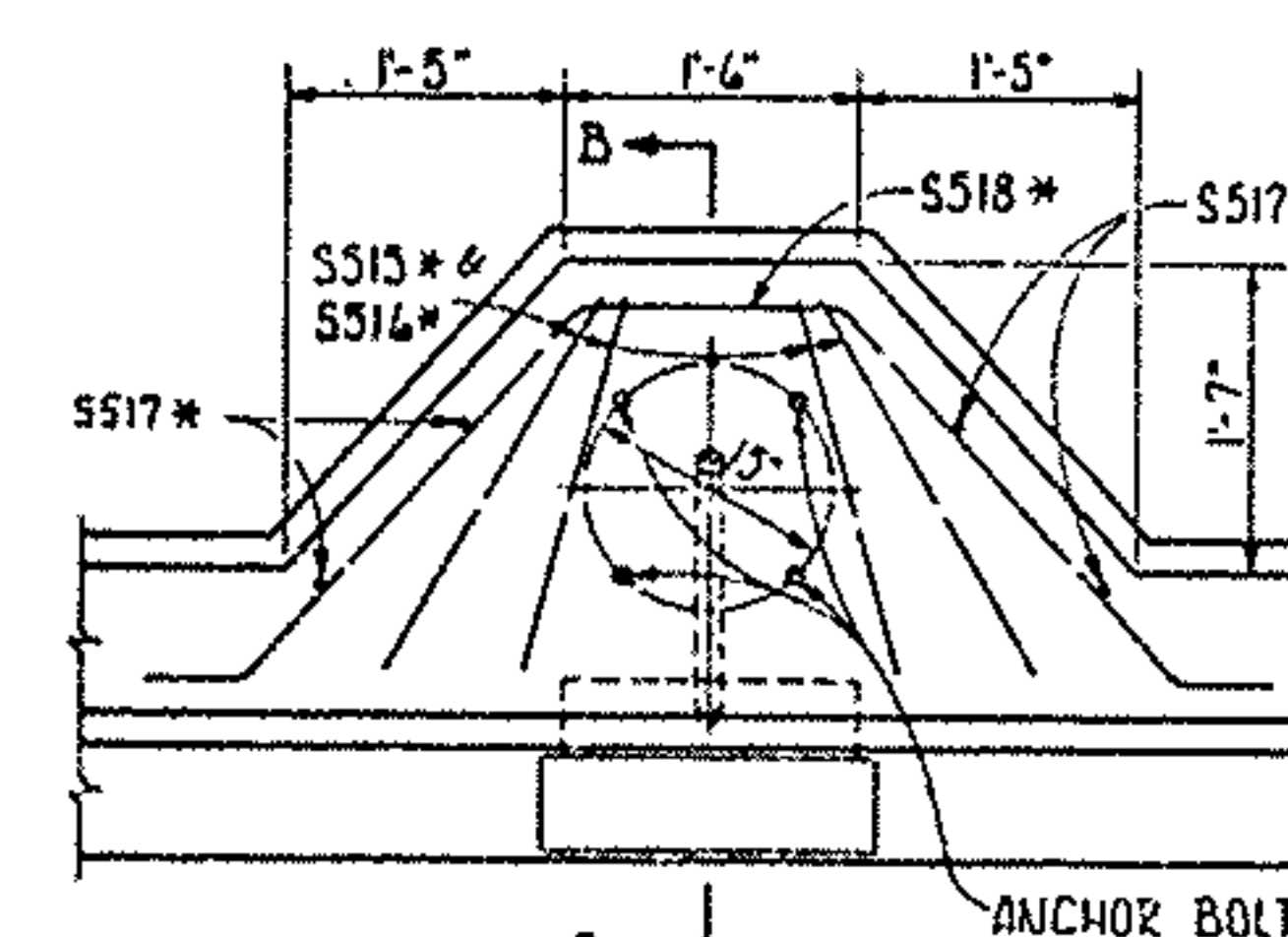


CAMBER DIAGRAM

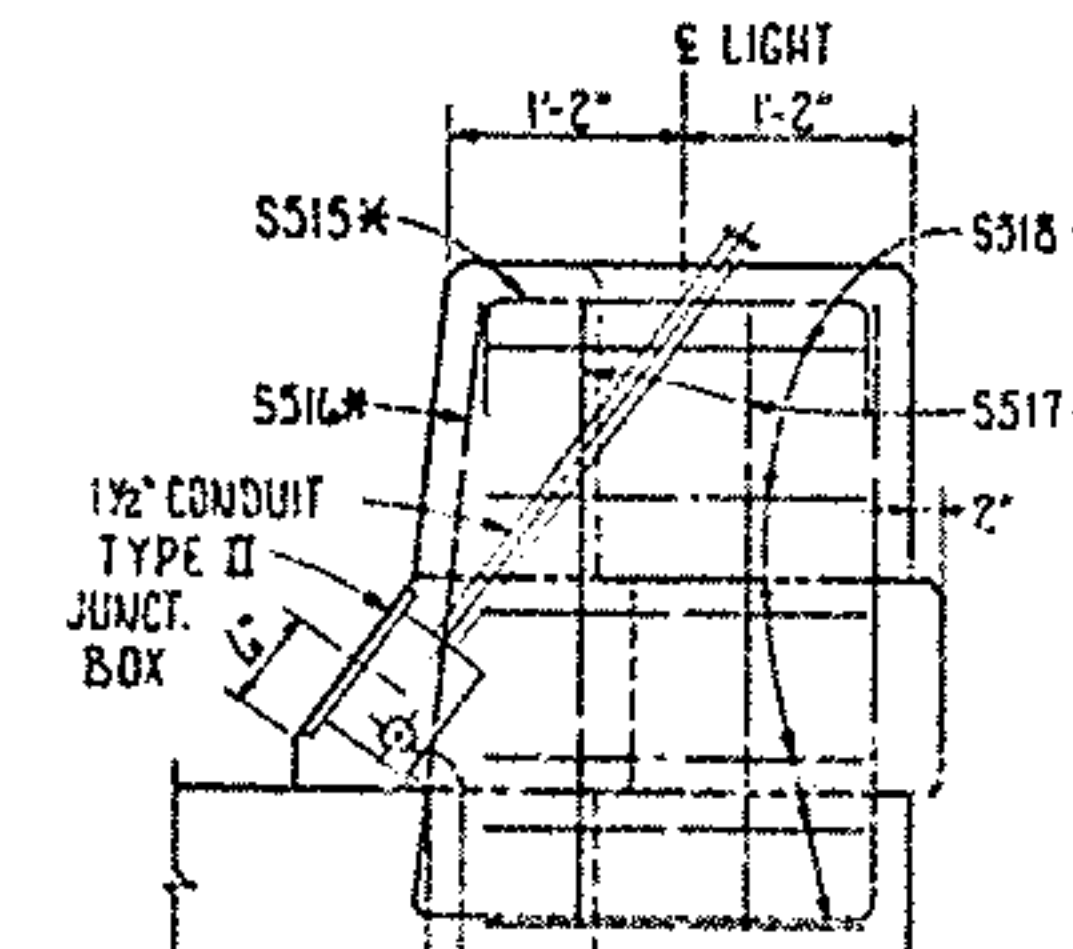
NOTE:

CS INDICATES BUTT WELD SUBJECT TO COMPRESSIVE STRESS ONLY
WHERE A SHAPE OR A PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS

* DENOTES EPOXY COATED BARS.



LIGHT POLE PILASTER DETAIL

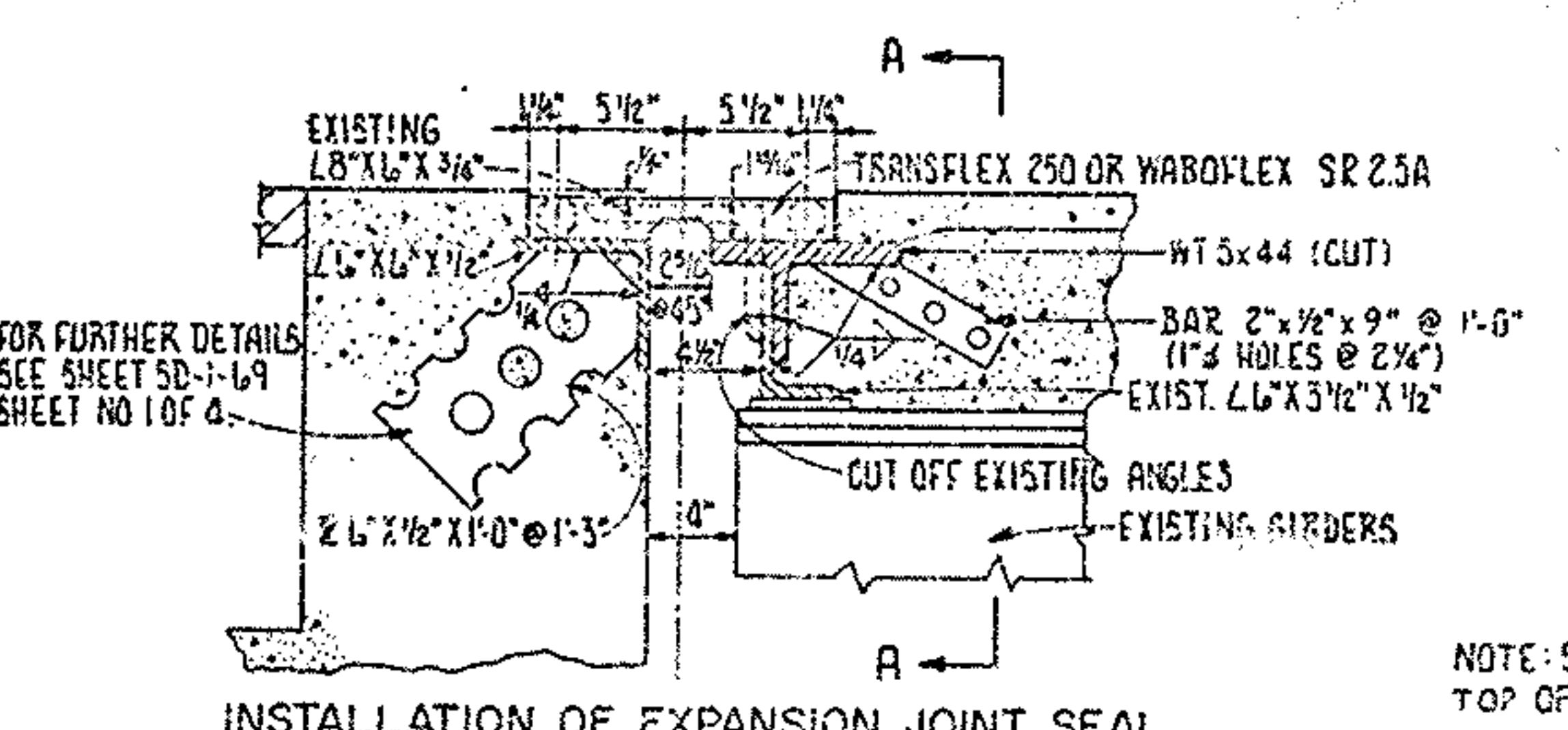
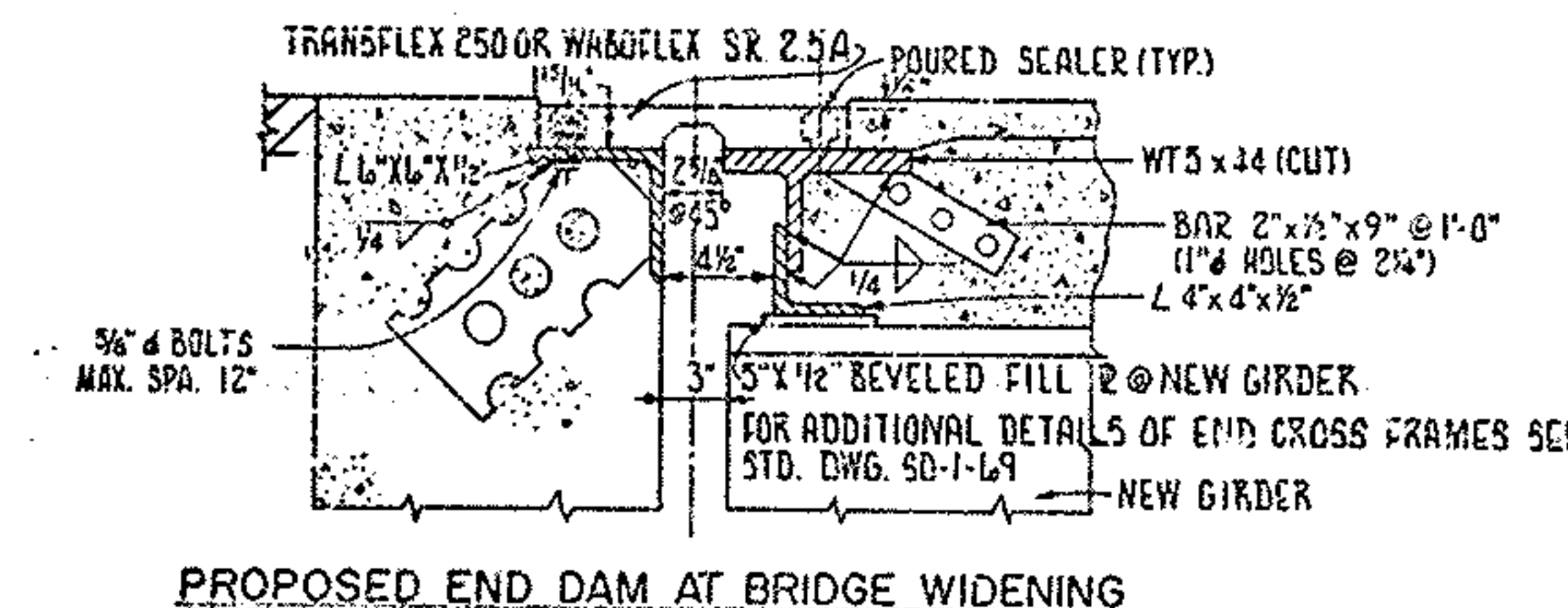
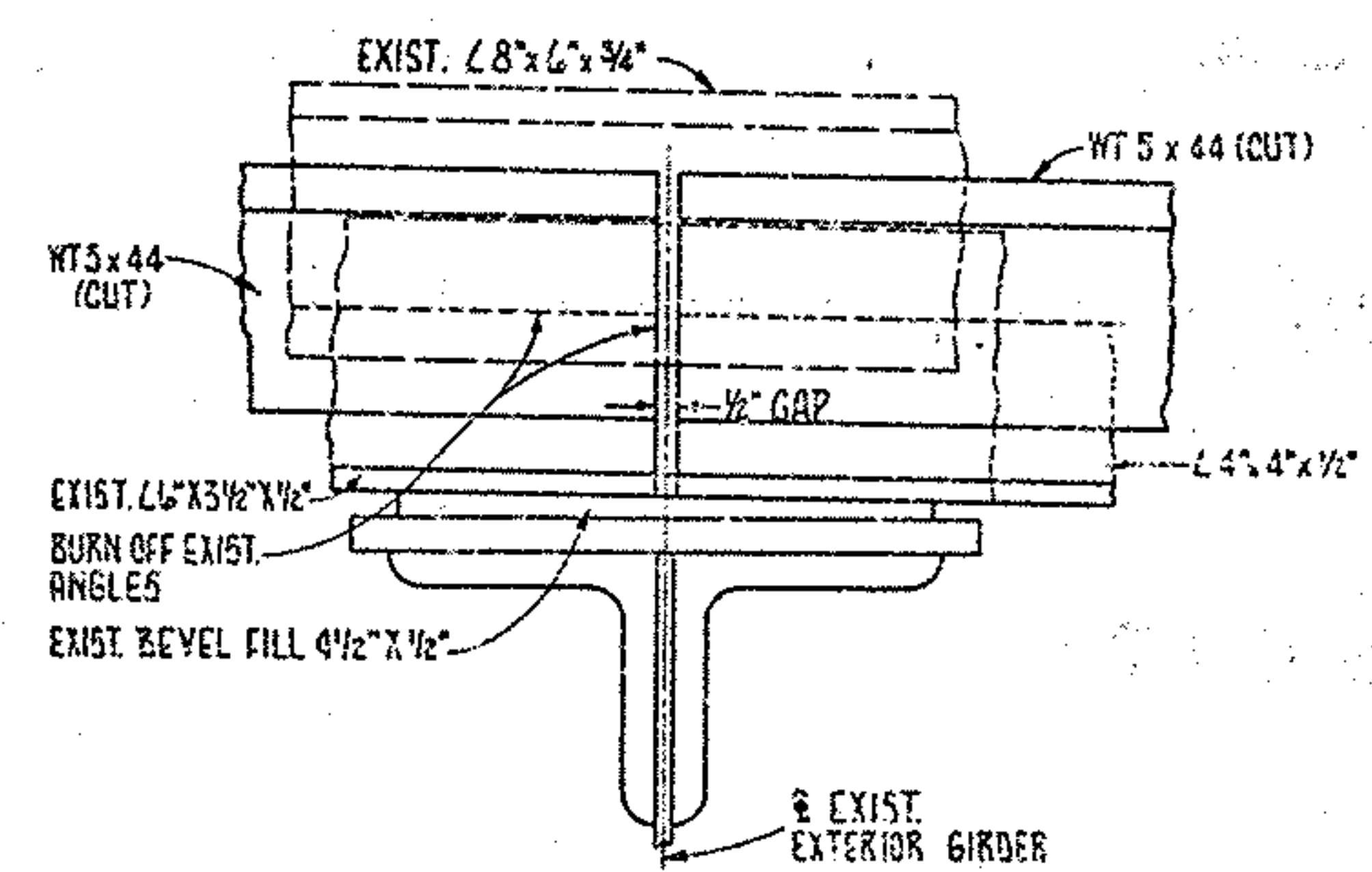
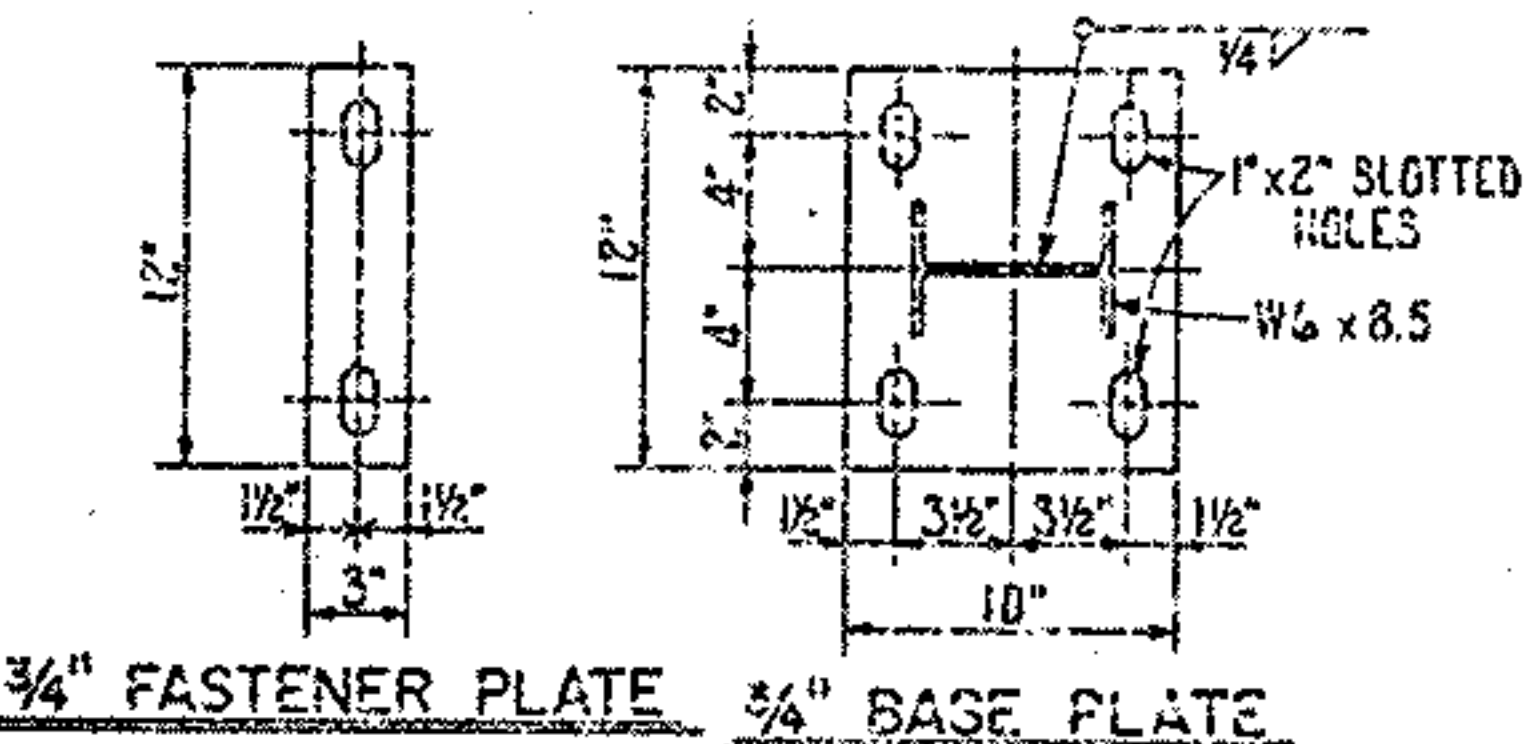
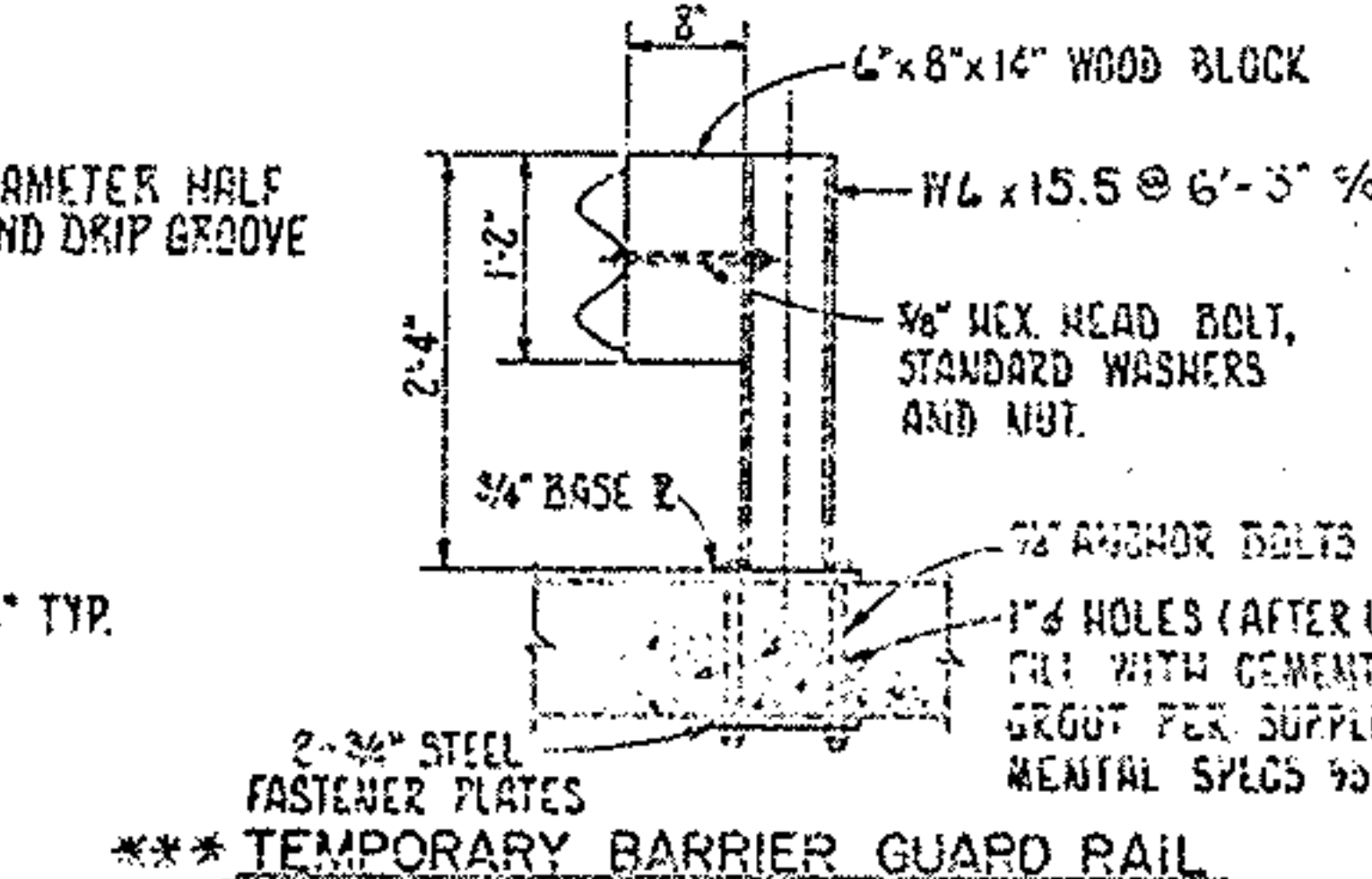
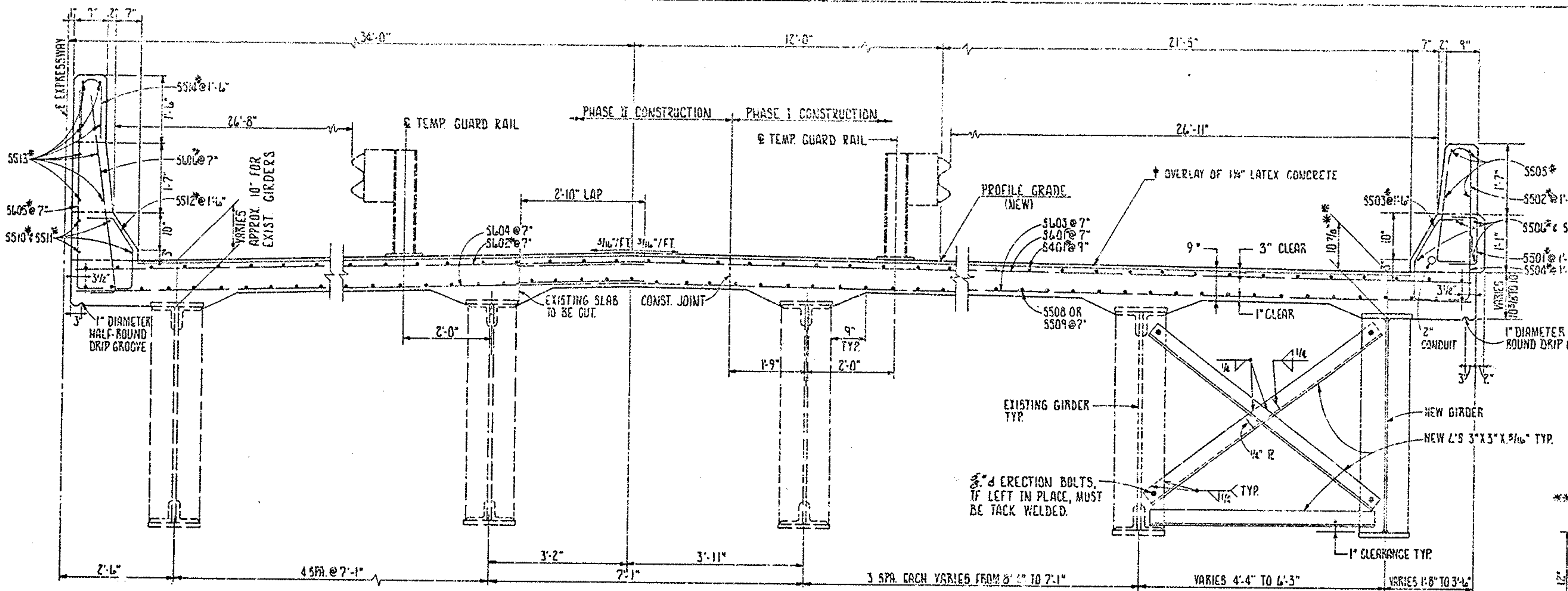


SECTION B-B

CITY OF AKRON		16 / 18	
DEPARTMENT OF PUBLIC SERVICE			
BUREAU OF ENGINEERING			
FRANKLIN CONSULTANTS INC.			
GIRDER DETAILS and FRAMING PLAN			
AKRON EXPRESSWAY SYSTEM			
EXCHANGE STREET OVERPASS			
BRIDGE NO. SUM-8-00ST			
DESIGNED	DRAWN	TRACED	CHECKED
PCB	PCB	BB	HY
DATE	DATE	DATE	DATE
11/18	11/18	11/18	11/18

SUM-8-C.46

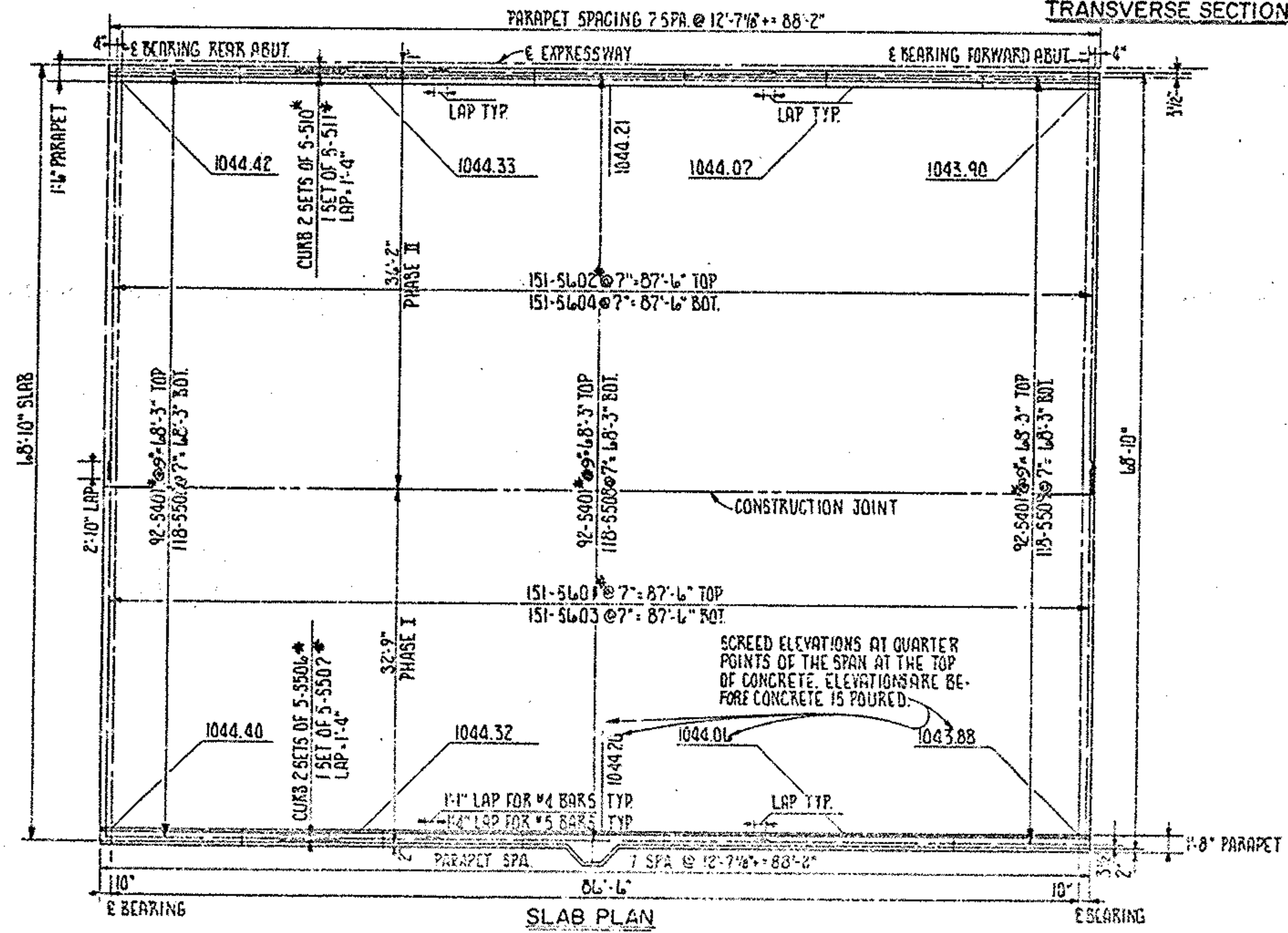
* DENOTES EPOXY COATING ON BARS
 ** THIS IS THE DESIGN DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO FLARE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER 511.12.



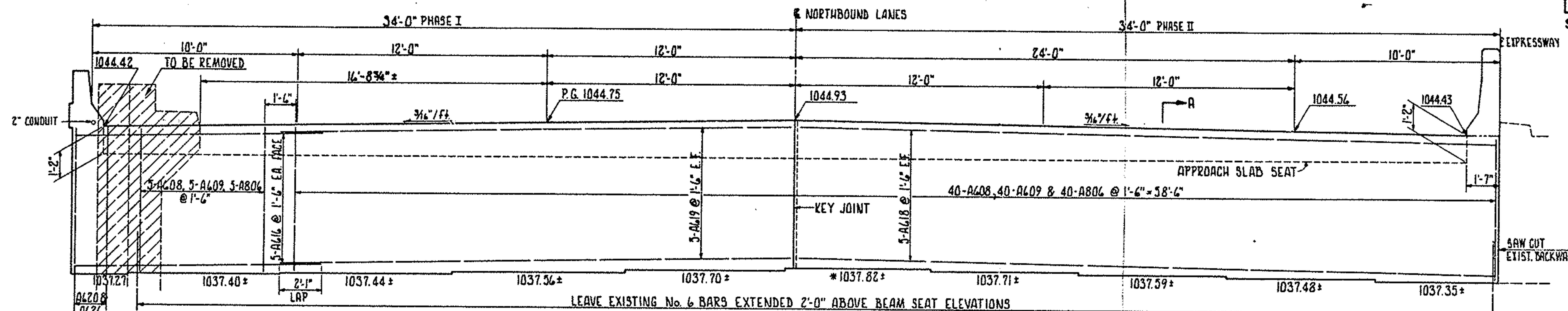
***COST INCLUDED IN L.S. PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

NOTE: SCREED ELEVATIONS ARE TO THE TOP OF THE CLASS 5 CONCRETE.

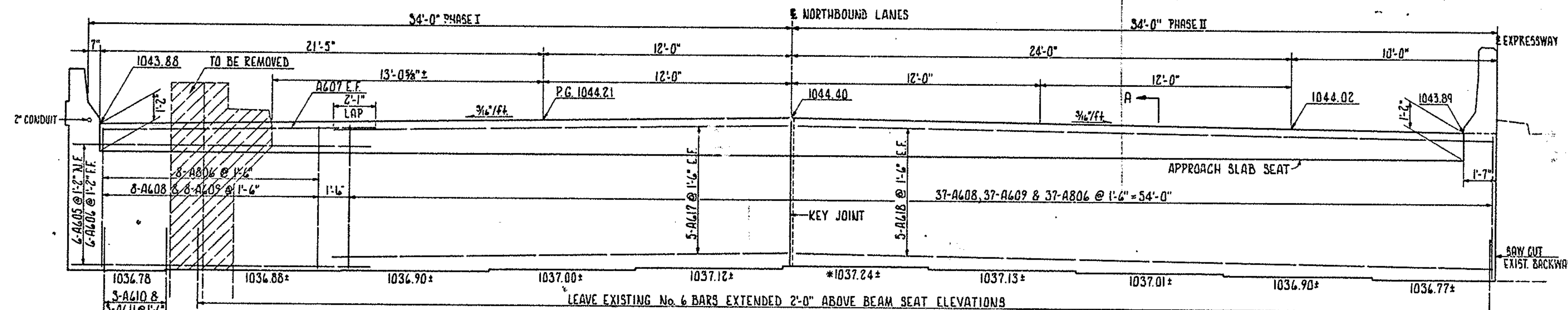
NOTE: ALL DETAILS SHOWN ARE FOR TRANSFLEX 250. MODIFY IF OTHERS ARE USED.



CITY OF AKRON DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING		7/14
FRANKLIN CONSULTANTS INC.		
TRANSVERSE SECTION, SLAB PLAN AND DETAILS		
AKRON EXPRESSWAY SYSTEM EXCHANGE STREET OVERPASS BRIDGE NO. SUM-8-0087		
DESIGNED MK	DRAWN J. L. J.	TRACED J. L. J.
CHECKED HM	REVIEWED J. L. J.	DATE 7/14/88
REVISED		

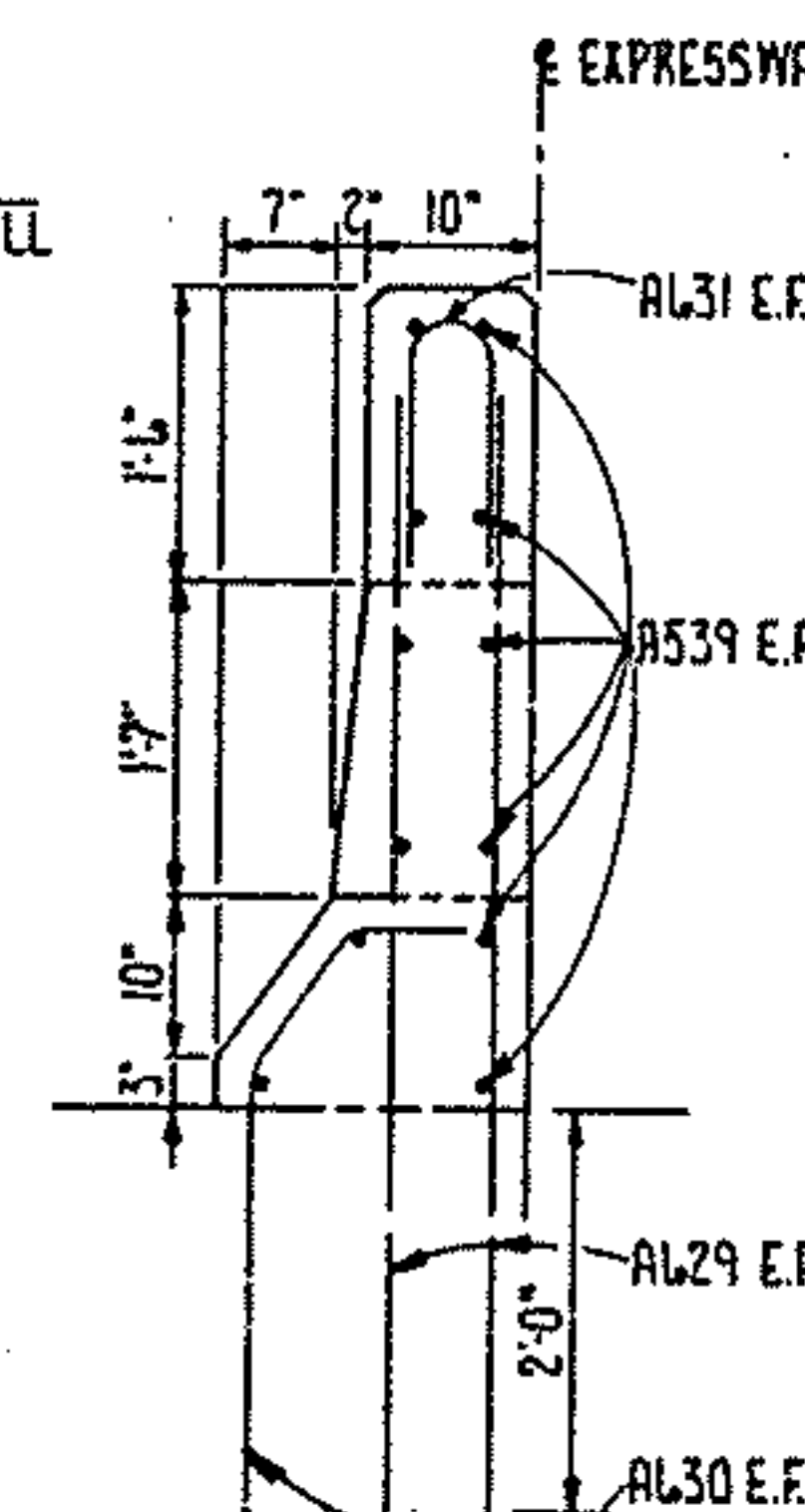


SOUTH BACKWALL
(LOOKING DOWN STATIONING)



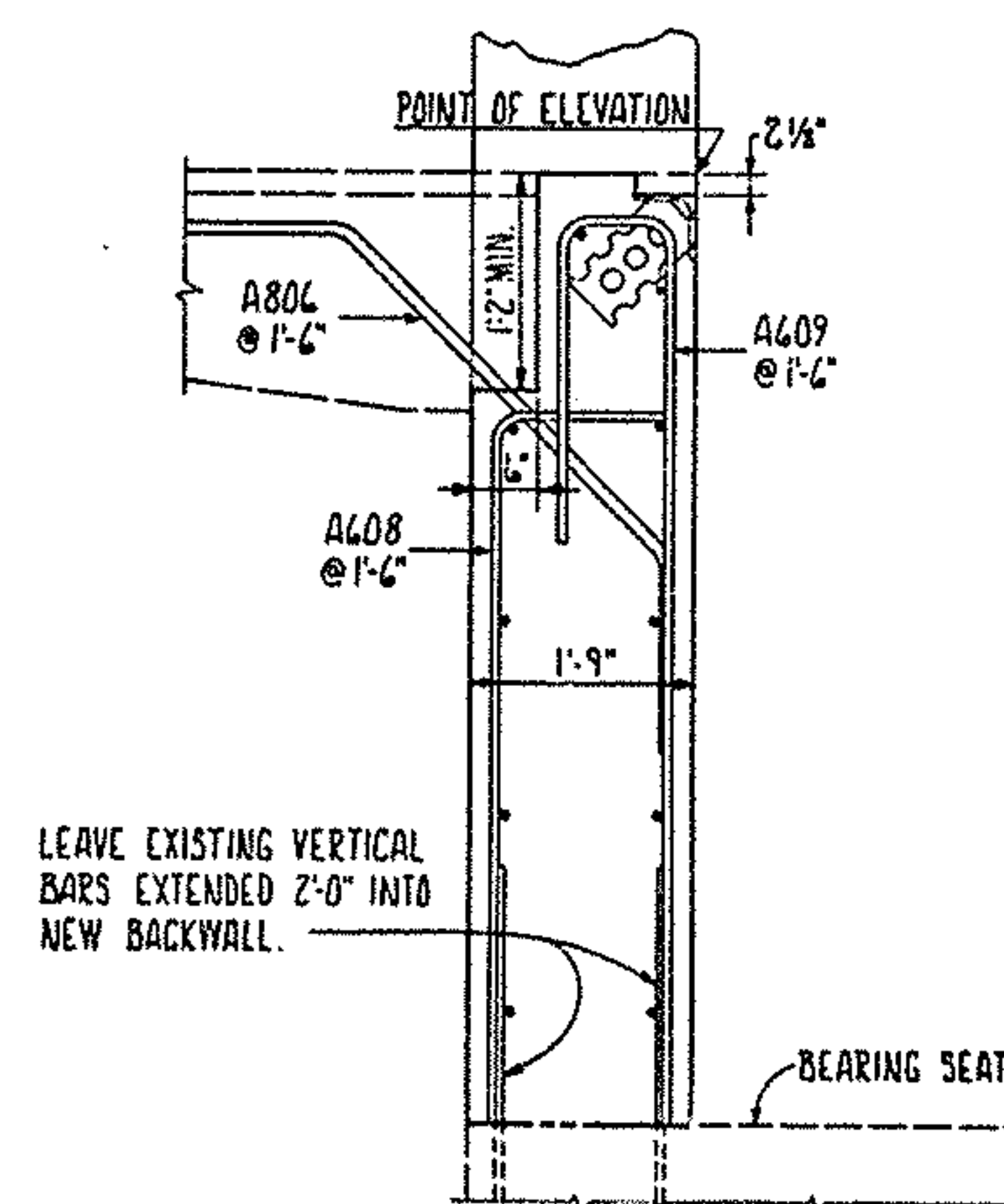
*ALL BEAM SEAT ELEVATIONS ARE AS SHOWN IN EXISTING PLANS

NORTH BACKWALL
(LOOKING DOWN STATIONING)

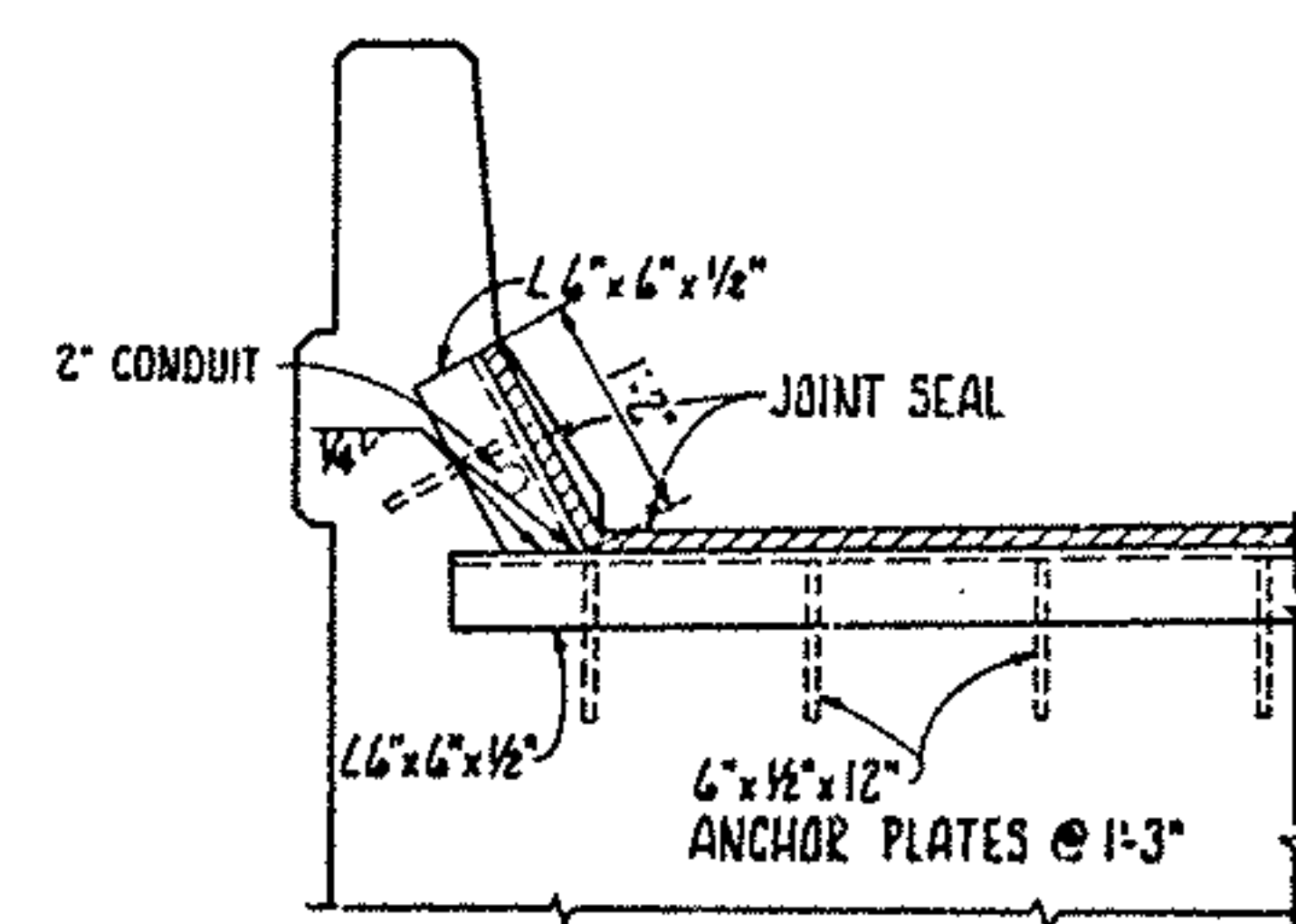


MEDIAN PARAPET DETAIL

BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.

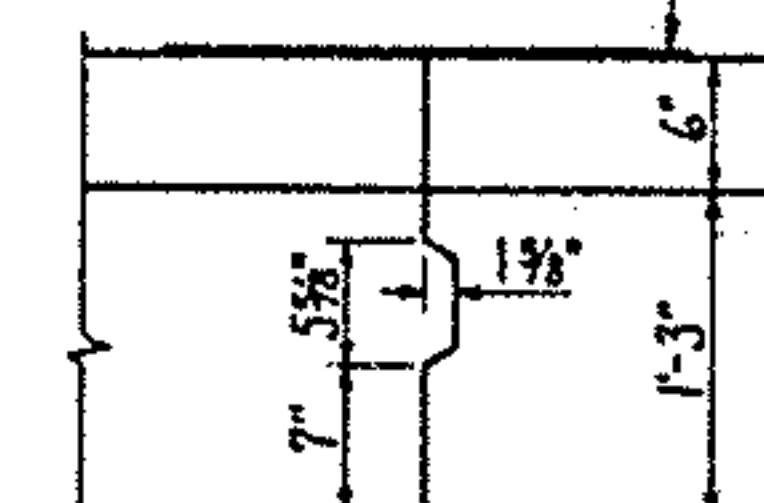


SECTION A-A



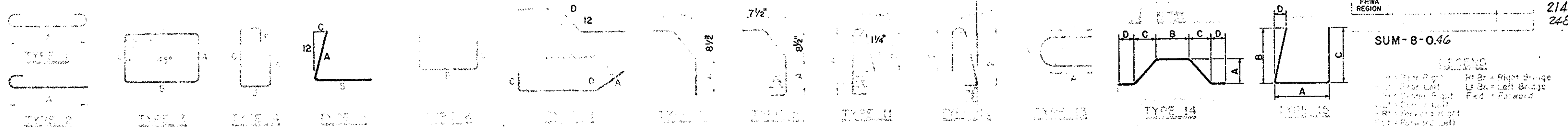
CURB DETAIL

WATERPROOFING, TYPE "B", 3'-0" WIDE TO APPROACH SLAB.



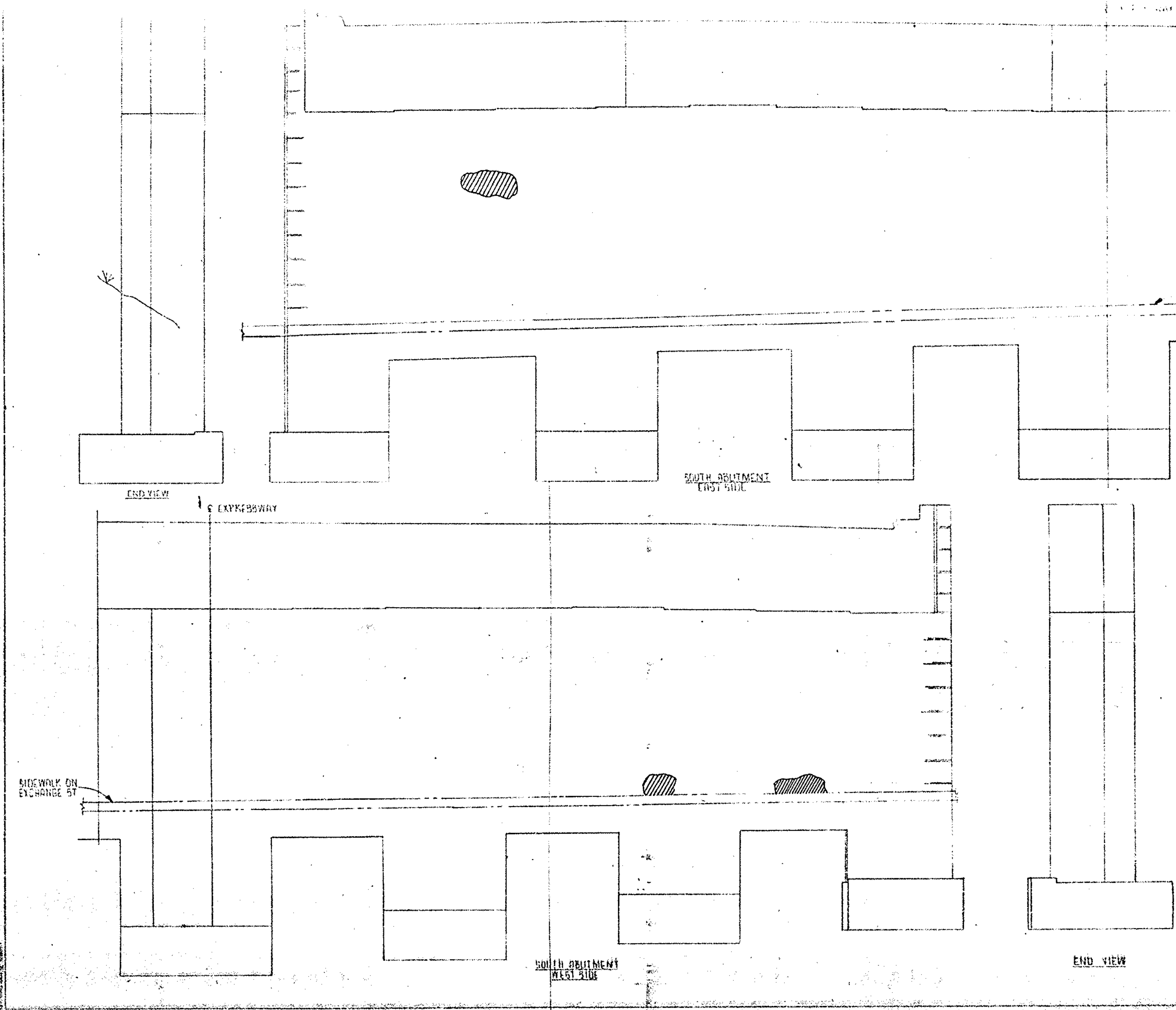
JOINT DETAIL

CITY OF AKRON						
DEPARTMENT OF PUBLIC SERVICE						
BUREAU OF ENGINEERING						
FRANKLIN CONSULTANTS INC.						
ABUTMENT BACKWALL DETAIL						
AKRON EXPRESSWAY SYSTEM						
EXCHANGE STREET OVERPASS						
BRIDGE NO. SUM-8-0087						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
PCB	GW	GW	HM	JL	10/20/11	



NORTH										SOUTH ABUTMENT										SUPERSTRUCTURE											
NORTH ABUTMENT (CONTINUED)										SOUTH ABUTMENT										SUPERSTRUCTURE											
A501	34	1'-10"	65	6	7 1/2"	10"	7 1/2"			A501	34	1'-10"	65	6	7 1/2"	10"	7 1/2"			S501 *	276	30'-0"	5531	STR.							
A502	29	2'-8"	81	10	10"	6"				A502	29	2'-8"	81	10	10"	6"					S501 *	59	1'-10"	113	6	7 1/2"	10"	7 1/2"			
A503	29	6'-4"	192	11	3'-2"					A503	29	6'-4"	192	11	3'-2"						S502 *	59	5'-4"	328	12						
A504	24	30'-0"	751	STR.						A504	13	30'-0"	407	STR.							S503 *	59	2'-8"	160	10	10"	6"				
A505	6	20'-3"	127	STR.						A505	18	26'-6"	1622	STR.							S504 *	59	2'-0"	123	6	7 1/2"	1'-L"				
A506	4	32'-2"	134	STR.						A506	18	8'-10"	541	5	7'-9"	1'-4"	7/8"				S505 *	28	12'-3"	358	STR.						
A507	4	25'-0"	104	STR.																S506 *	10	30'-0"	313	STR.							
A508	4	23'-8"	99	STR.																S507 *	5	30'-6"	159	STR.							
A509	8	14'-8"	122	STR.																S508	236	30'-0"	7384	STR.							
A510	12	11'-7"	140	STR.																S509	118	30'-6"	3754	STR.							
A511	5	12'-6"	65	STR.																S510 *	16	30'-0"	501	STR.							
A512	9	7'-9"	73	STR.																S511 *	8	30'-6"	254	STR.							
A513	15	18'-4"	287	STR.																S512 *	59	2'-9"	169	10	11"	6"					
A514	10	7'-10"	30	STR.																S513 *	112	12'-3"	1431	STR.							
A515	8	8'-6"	71	STR.																S514 *	126	3'-4"	438	13	1'-1"	1'-2"	5 1/4"	7"			
A516	4	15'-3"	24	STR.																S515 *	4	2'-10"	12	6	7"	1'-11"	3'-2"	3'-2"	4 1/8"		
A517	4	13'-10"	58	STR.																S516 *	4	8'-5"	35	15	2'-4"	3'-2"					
A518	4	12'-5"	52	STR.																S517 *	4	3'-2"	13	STR.							
A519	14	9'-8"	141	STR.																S518 *	6	7'-6"	47	14	1'-11"	1'-4"	1'-9"	6"			
A520	4	11'-6"	48	STR.																S519 *	63	2'-2"	142	8	1'-0"	7"	10"	17"			
A521	6	10'-0"	63	STR.																S601 *	151	37'-4"	8467	STR.							
A522	4	21'-3"	69	STR.																S602 *	151	36'-1"	7730	STR.							
A523	2	7'-2"	15	STR.																S603	151	37'-4"	8467	STR.							
A524	1	6'-5"	7	STR.																S604	151	36'-1"	7730	STR.							
A525	1	3'-9"	6	STR.																S605 *	132	5'-3"	1199	6	10"	6'-7"					
A526	5	5'-2"	27	STR.																S606 *	152	5'-3"	1199	5	10"	4'-7"	1 1/4"				
A527	1	4'-6"	3	STR.																S607 *	308	4'-0"	1850	STR.							
A528	1	3'-11"	4	STR.																S608 *	308	2'-0"	925	8	1'-0"	1'-0"			7"		
A529	6	6'-0"	30	STR.																											
A530	7	5'-6"	40	STR.																											
A531	7	5'-0"	37	STR.																											
A532	2	8'-9"	18	STR.																											
A537	9	22'-8"	213	STR.																											
A539	12	1'-5"	18	STR.																											
A601	3	5'-4"	24	5	4'-8"	10"	7/8"			A601	82	2'-6"	547	STR.																	
A602	2	13'-5"	40	5	12'-9"	10"	7/8"			A602	45	2'-7"	791	9	1'-6"	3'-7"	1'-4"														
A603	6	4'-6"	41	STR.																											
A604	6	4'-8"	60	5	6'-0"	10"	7/8"																								
A605	6	25'-4"	228	6	14'-6"	11'-0"																									
A606	6	23'-3"	210	6	13'-10"	9'-7"																									
A607	2	13'-3"	40	STR.																											
A608	45	6'-7"	445	6	1'-5"	5'-4"																									
A609	45	9'-7"	648	6	2'-6"	11"	6'-6"																								
A610	3	8'-6"	38	8	4'-0"	4'-6"																									
A611	3	6'-0"	27	STR.																											
A612	8	22'-10"	274	STR.																											
A617	10	22'-0"	330	STR.																											
A618	10	33'-6"	503	STR.																											
A621	2	3'-10"	12	STR.																											
A628	13	7'-6"	146	STR.																											
A629	4	5'-8"	34	STR.																											
A630	2	3'-6"	11	9	2'-2"	6"																									
A631	2	3'-6"	11	13	1'-1"	1'-4 1/2"	6"																								
A632	4	2'-7"	46	6	2'-0"	3'-11"	2'-0"																								
A701	1	4'-8"	10	2	3'-10"																										
A702	1	4'-11"	10	9	3'-8"	2"																									
A703	1	5'-6"	11	9	4'-3"	3"																									
A704	1	6'-3"	13	9	4'-11"	5"																									
A705	1	6'-11"	14																												

REINFORCING STEEL
AKRON EXPRESSWAY SYSTEM
EXCHANGE STREET OVERPASS
BRIDGE NO. SUM-8-0087



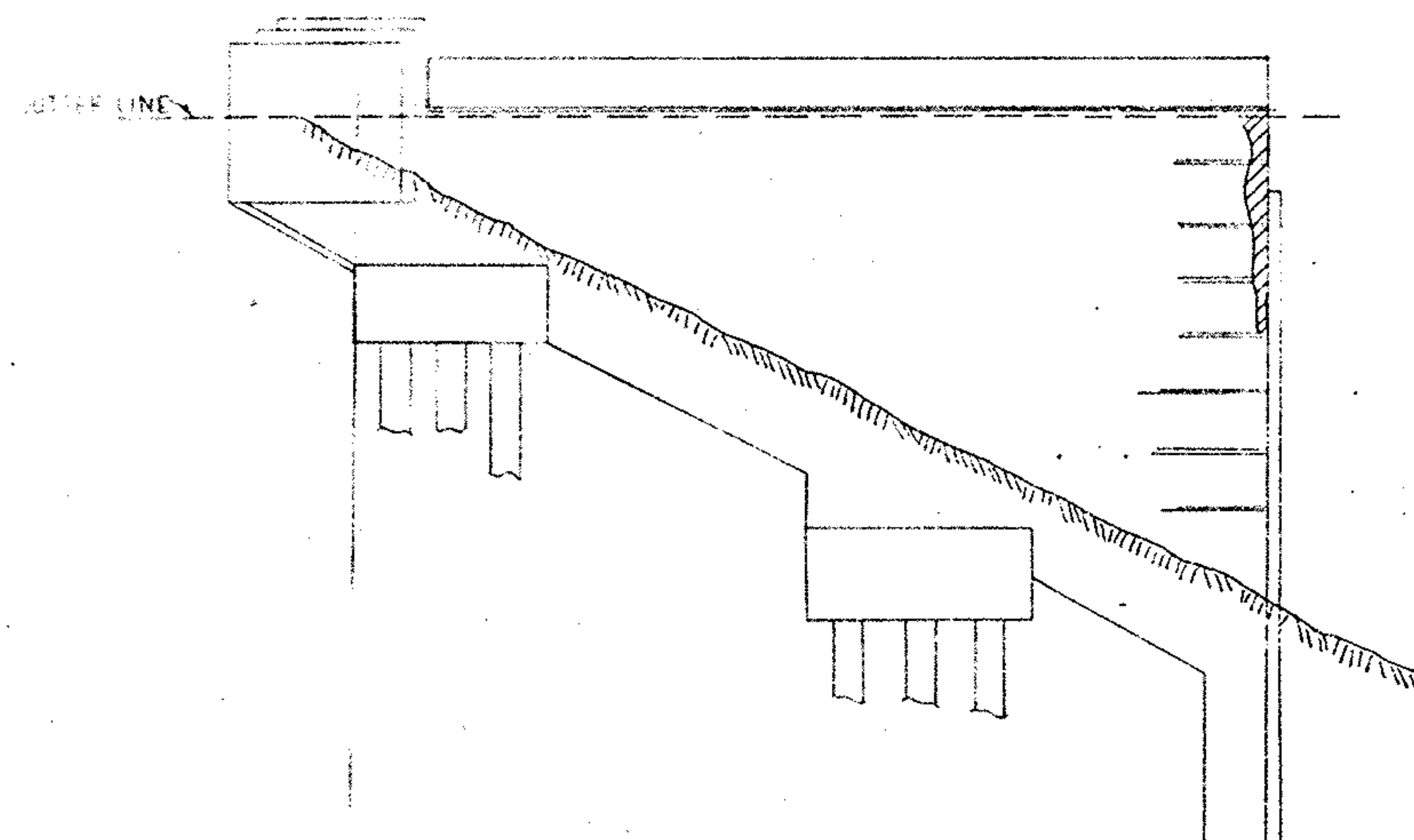
NOTE: CROSS HATCHED AREAS INDICATE THE APPROXIMATE LOCATION OF AREAS TO BE REPAIRED BY PNEUMATICALLY PLACED MORTAR. ACTUAL LOCATION, SIZE, AND DEPTH WILL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

CITY OF AKRON DEPARTMENT OF PUBLIC SERVICE BUREAU OF ENGINEERING						12/14
FRANKLIN CONSULTANTS INC.						
ABUTMENT REPAIR						
AKRON EXPRESSWAY SYSTEM EXCHANGE STREET OVERPASS BRIDGE NO. SUM-8-0087						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

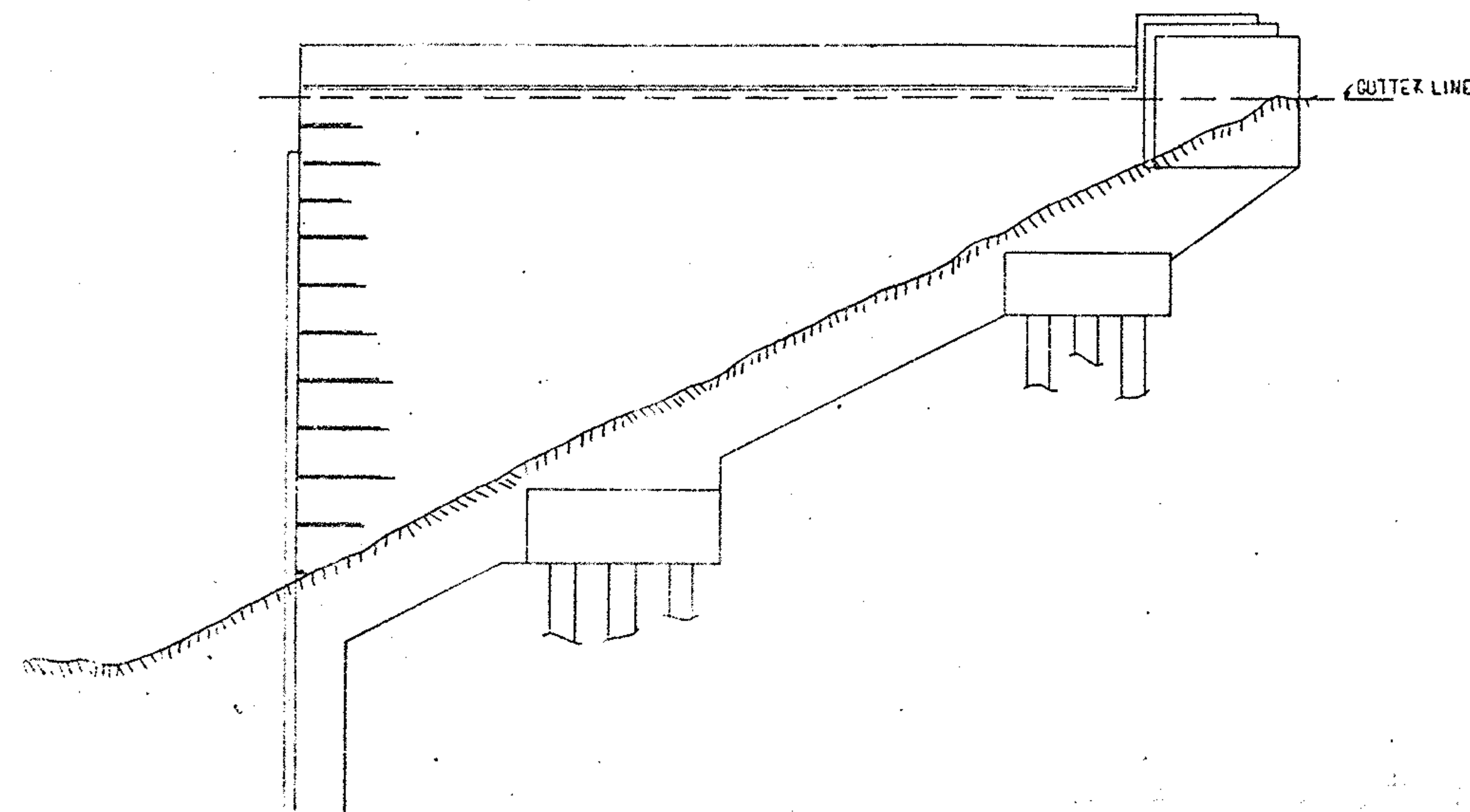
216
248

SUM-8-0.46



ELEVATION

NORTHWEST WINGWALL



ELEVATION

NORTHEAST WINGWALL

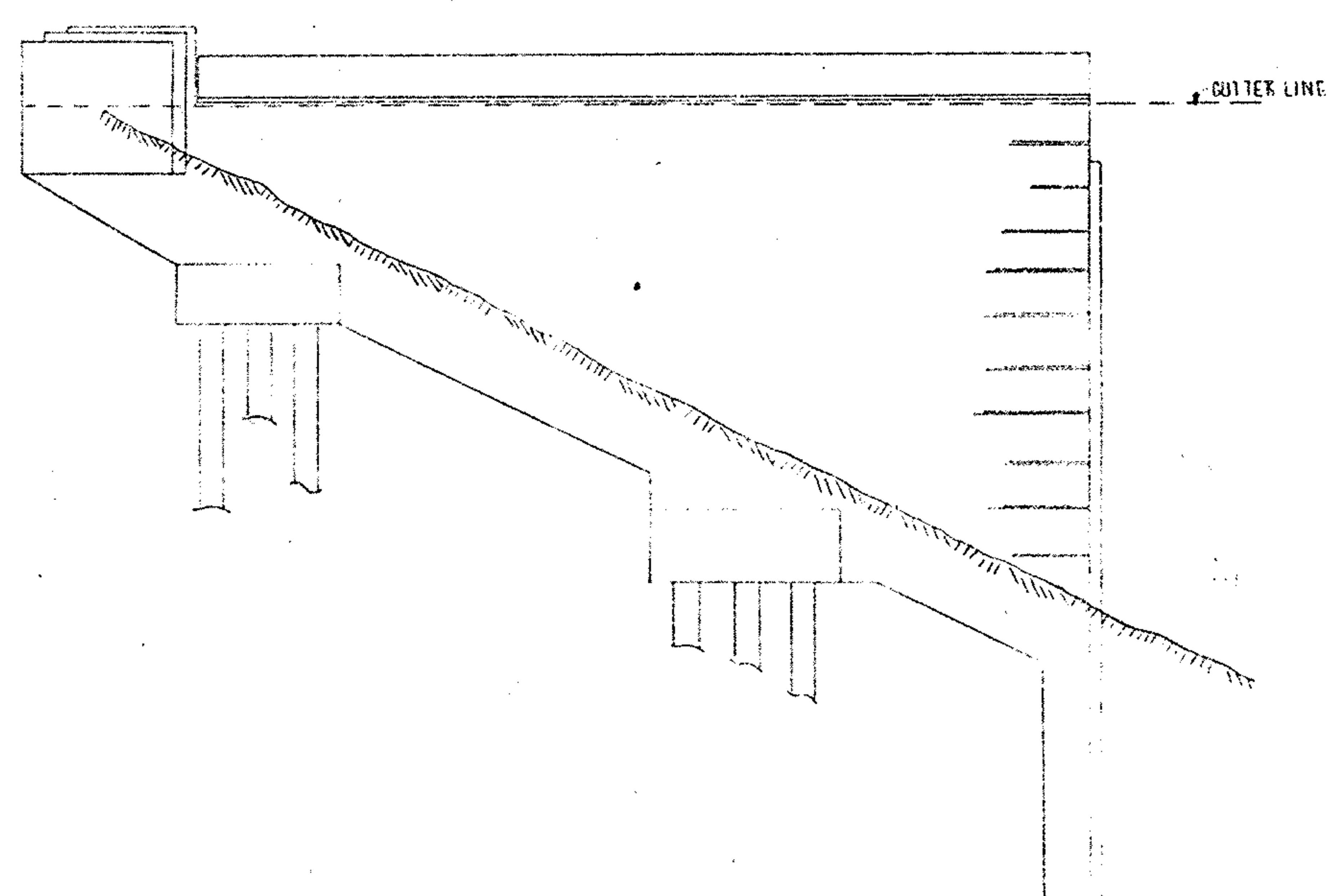
NOTE: CROSS HATCHED AREAS INDICATE THE APPROXIMATE LOCATION OF AREAS TO BE REPAIRED BY PNEUMATICALLY PLACED MORTAR. ACTUAL LOCATION, SIZE & DEPTH WILL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

CITY OF AKRON		13 / 14	
DEPARTMENT OF PUBLIC SERVICE		BUREAU OF ENGINEERING	
FRANKLIN CONSULTANTS, INC.			
WINGWALL REPAIR			
AKRON EXPRESSWAY SYSTEM			
EXCHANGE STREET OVERPASS			
BRIDGE NO. SUM-8-0087			
DESIGNED	CHECKED	APPROVED	DATE
			10/1/87

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

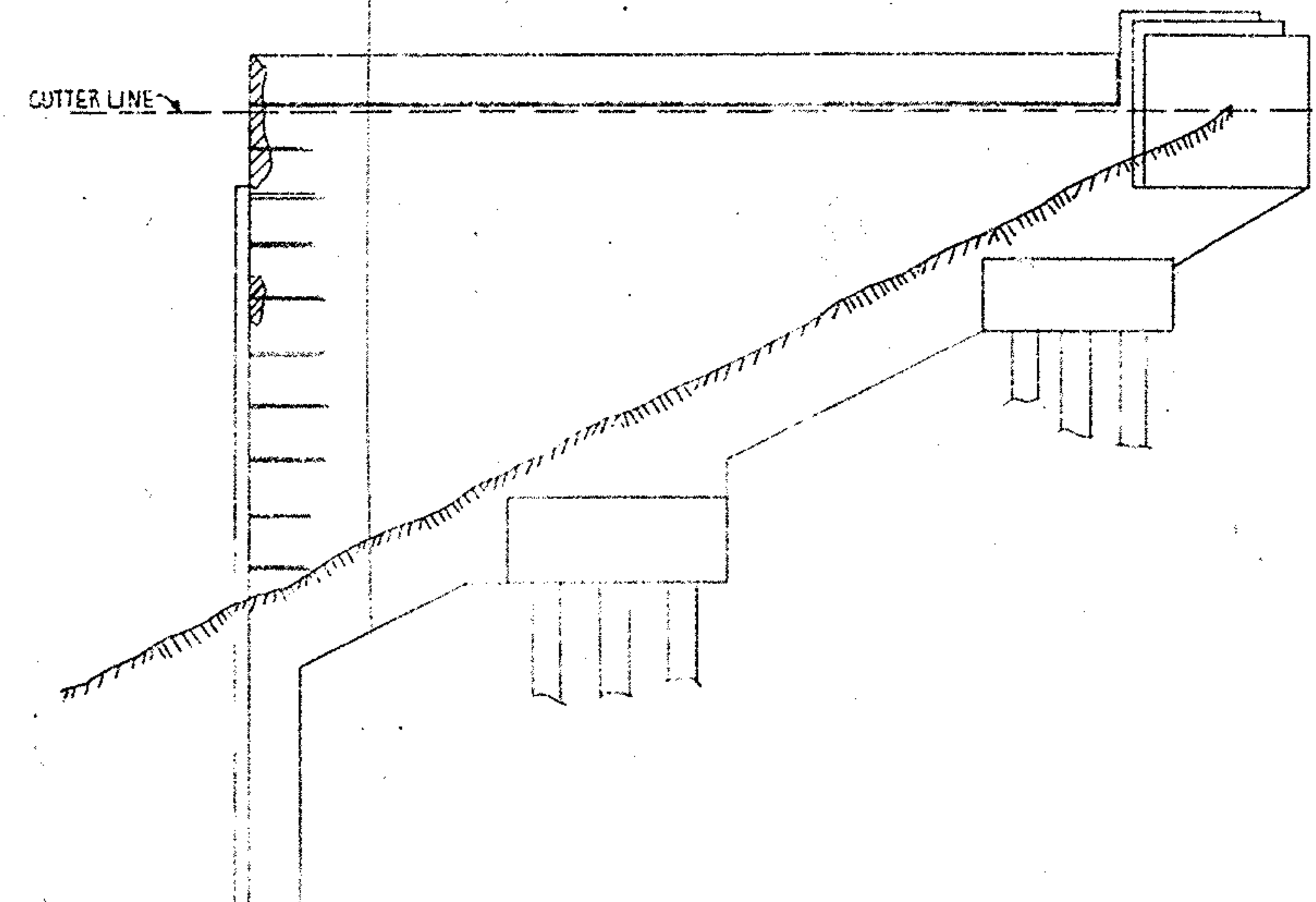
217
248

SUM-8-0.46



ELEVATION

LEFT SIDE WITH WALL



ELEVATION

RIGHT SIDE WITH WALL

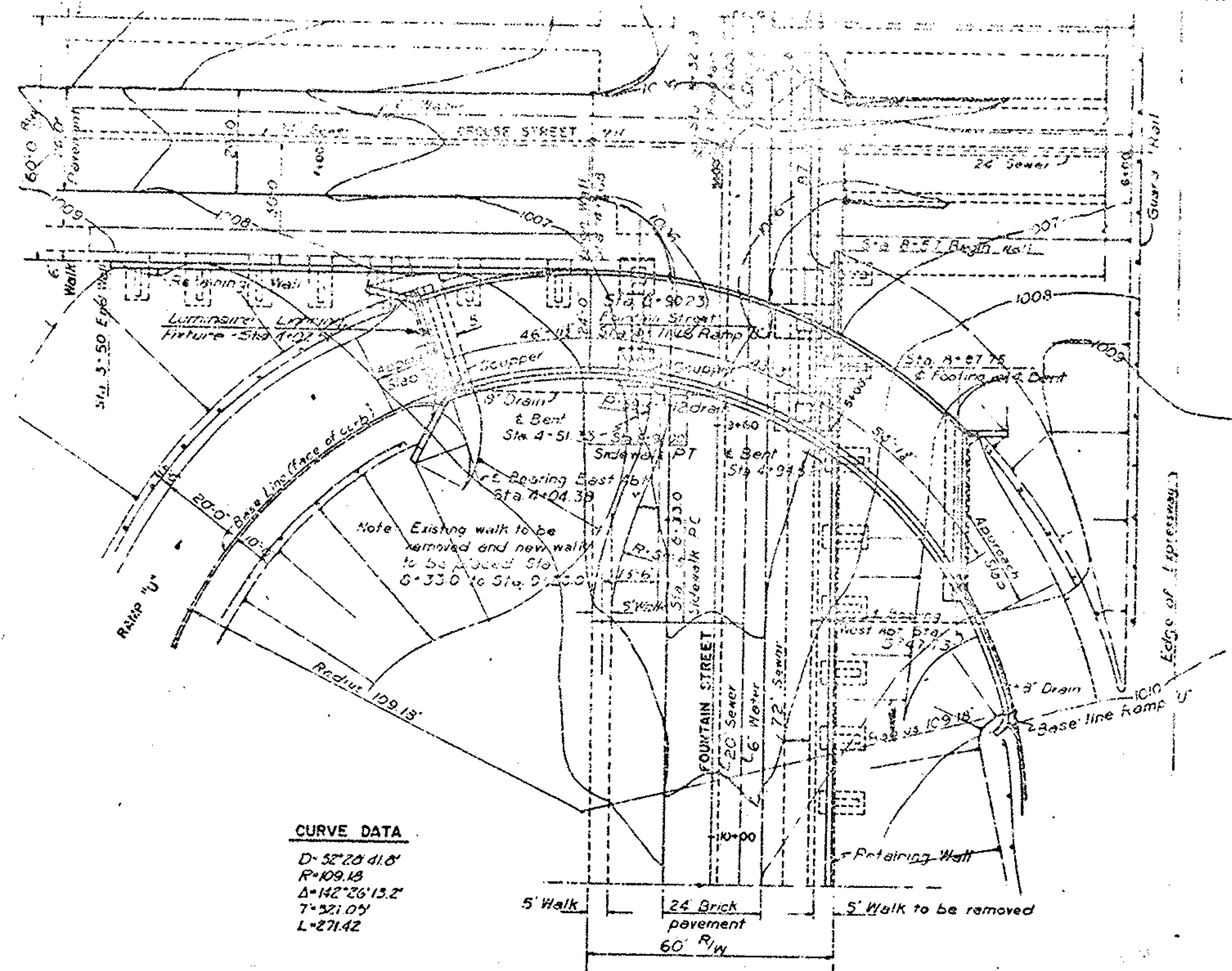
NOTE: CROSS HATCHED AREAS INDICATE THE APPROXIMATE LOCATION OF AREAS TO BE REPAIRED BY PNEUMATICALLY PLACED MORTAR. ACTUAL LOCATION, SIZE & DEPTH WILL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

CITY OF AKRON		14 / 18	
DEPARTMENT OF PUBLIC SERVICE		BUREAU OF ENGINEERING	
FRANKLIN CONSULTANTS INC.			
WINGWALL REPAIR			
AKRON EXPRESSWAY SYSTEM			
EXCHANGE STREET OVERPASS			
BRIDGE NO. SUM 8-0007			
DESIGN	DATE	BY	CHKD

SUM-8-0-92

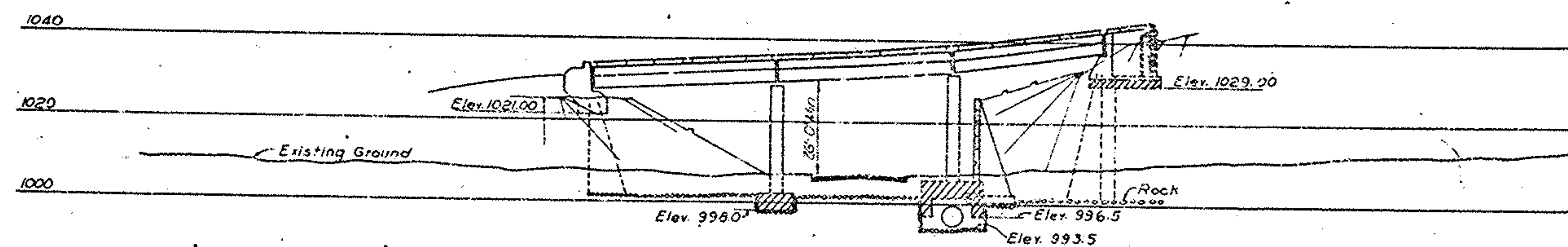
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART - 8
Was (SUM-8-10-88)

1/5



EXISTING STRUCTURE
Type: 3 simple spans: steel beam
with concrete deck and substructure.
Span: 48' 11", 45' 3", 53' 12" arc lengths
on baseline.
Roadway: 24'-0"
Loading: CF 400
Skew: Varies
Surface Course: 2" Asphaltic Concrete

LEGEND
Portions of Existing Structure to Remain in Place



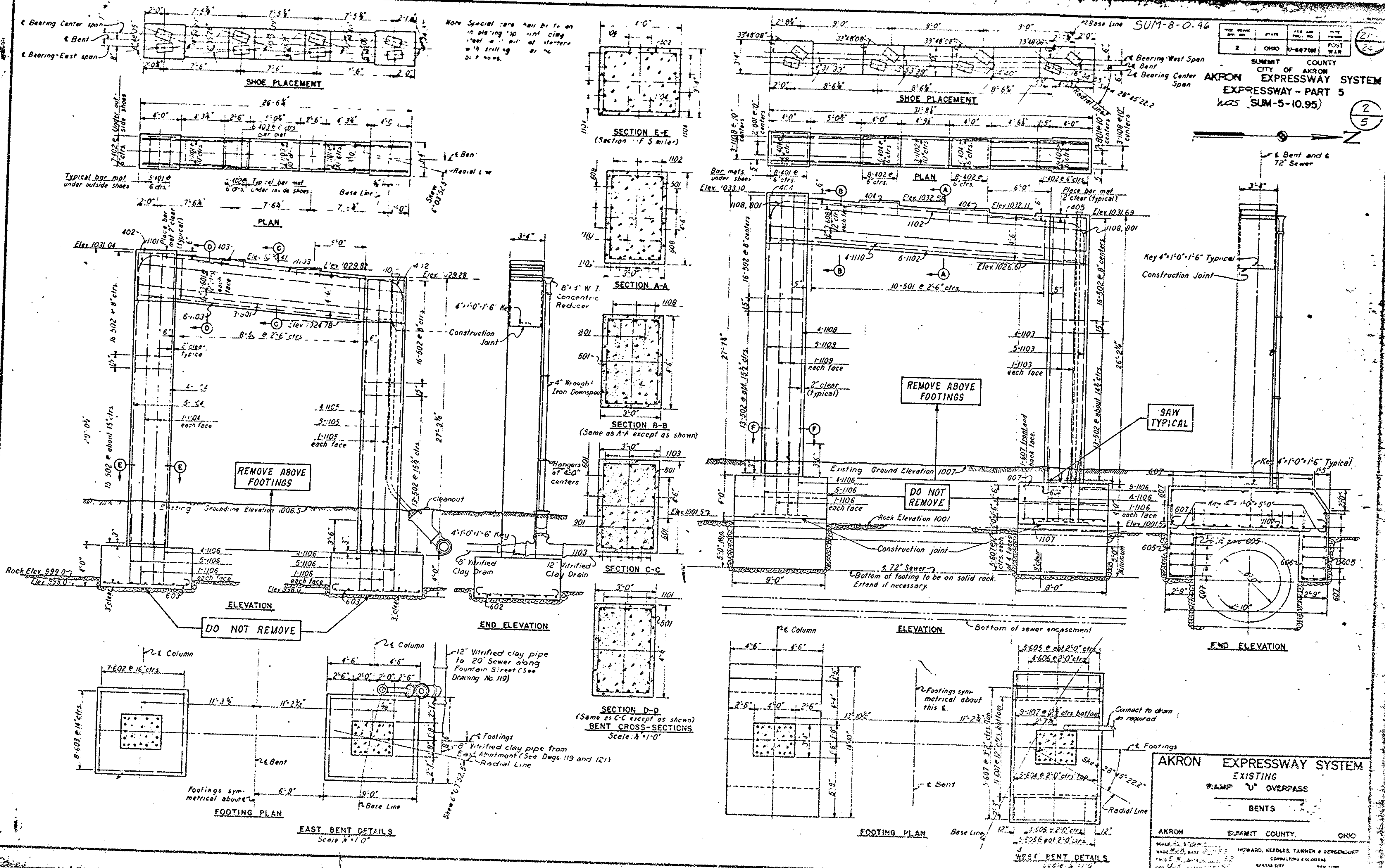
ELEVATION
Scale 1" = 20'

AKRON EXPRESSWAY SYSTEM
EXISTING
RAMP "U" OVERPASS
SITE PLAN
AKRON SUMMIT COUNTY

STATE	CITY	COUNTY	PROJECT NO.	DATE
OHIO	AKRON	SUMMIT	12-887101	12-88

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 5
WAS SUM-5-10.95

2
5

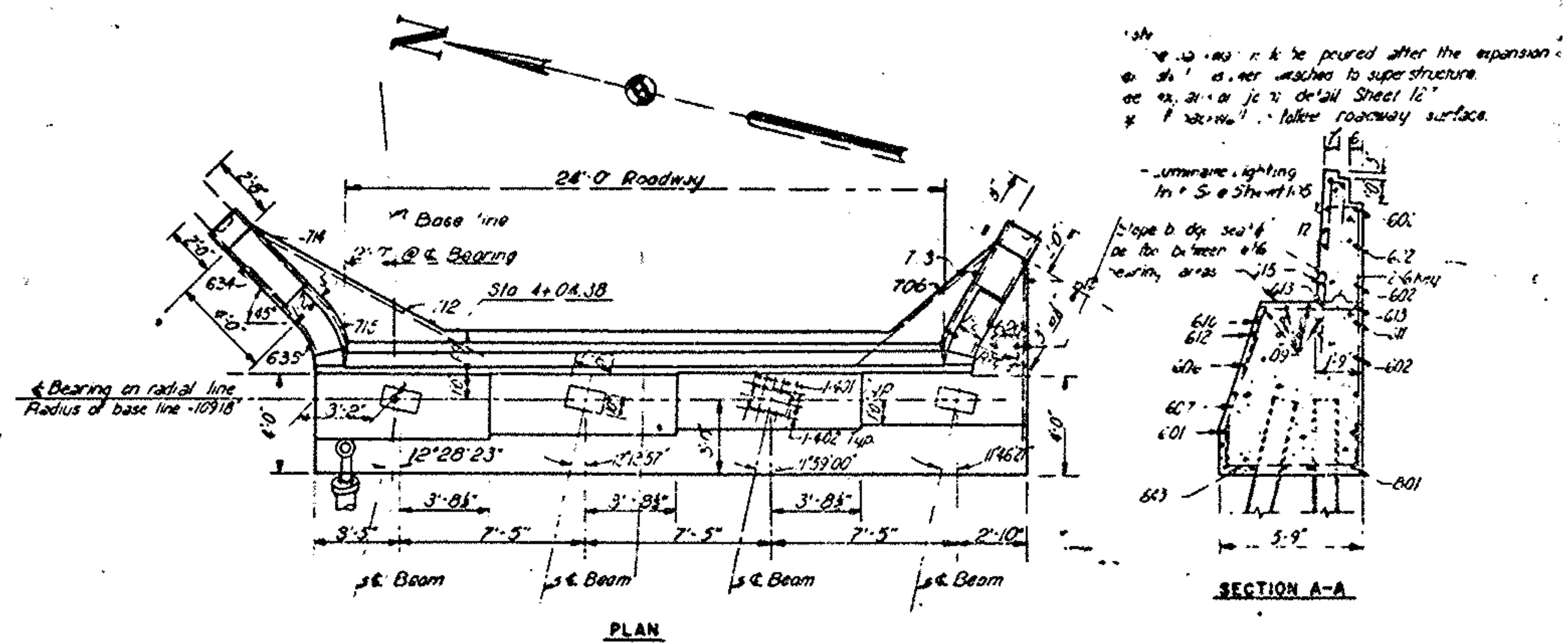


SUM-8-0.46

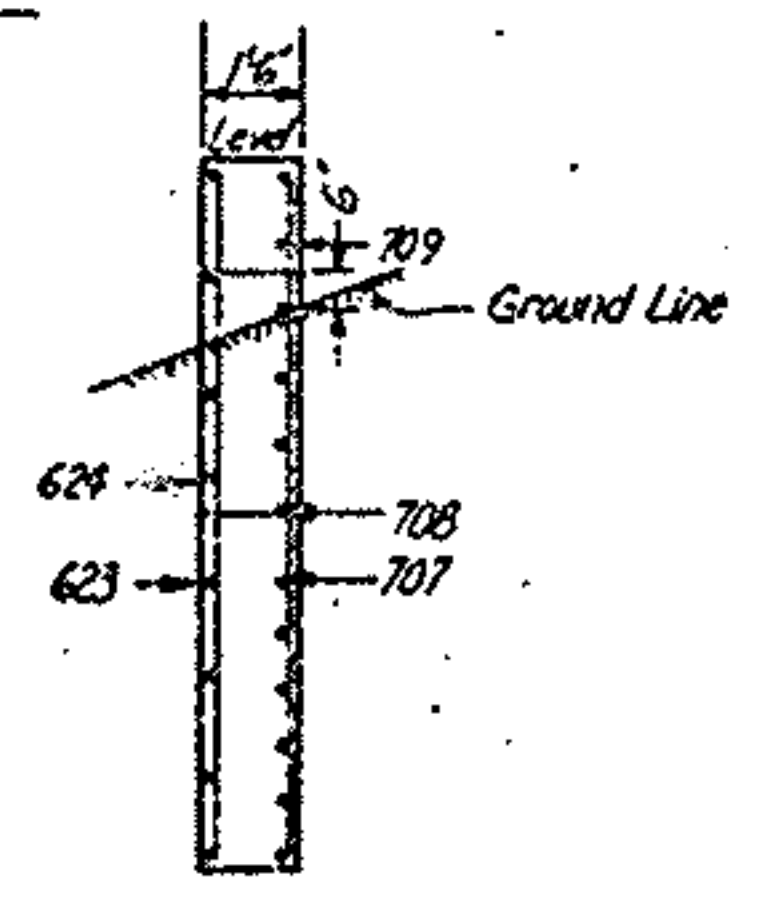
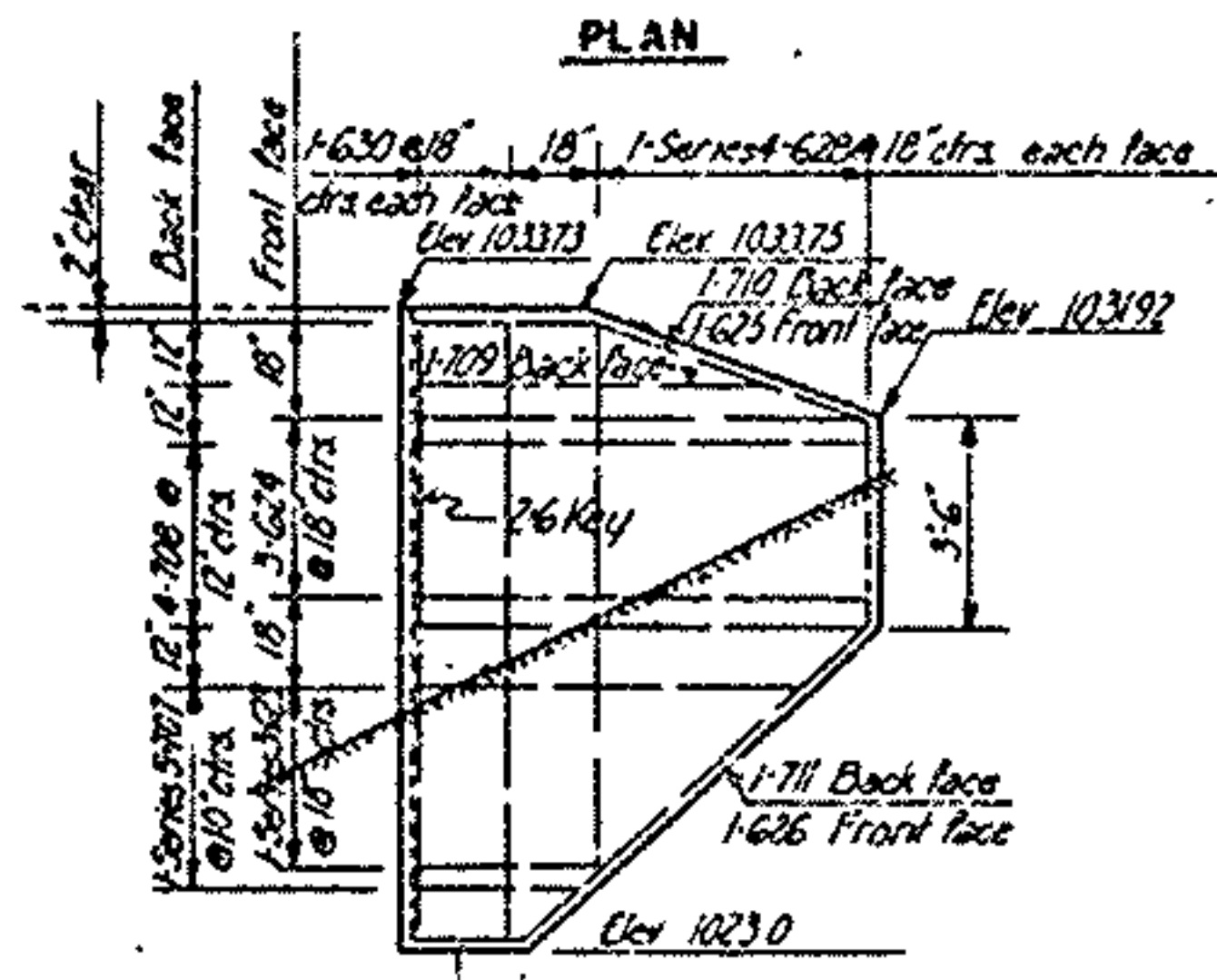
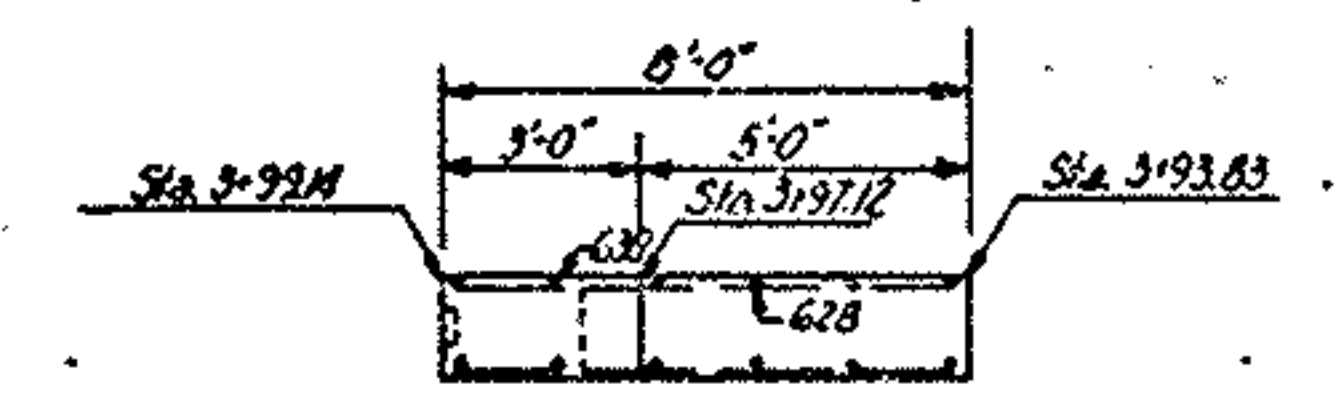
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	POST MILE
2	OHIO	U-687101	24.6

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-5
Was (SUM-5-10.95)

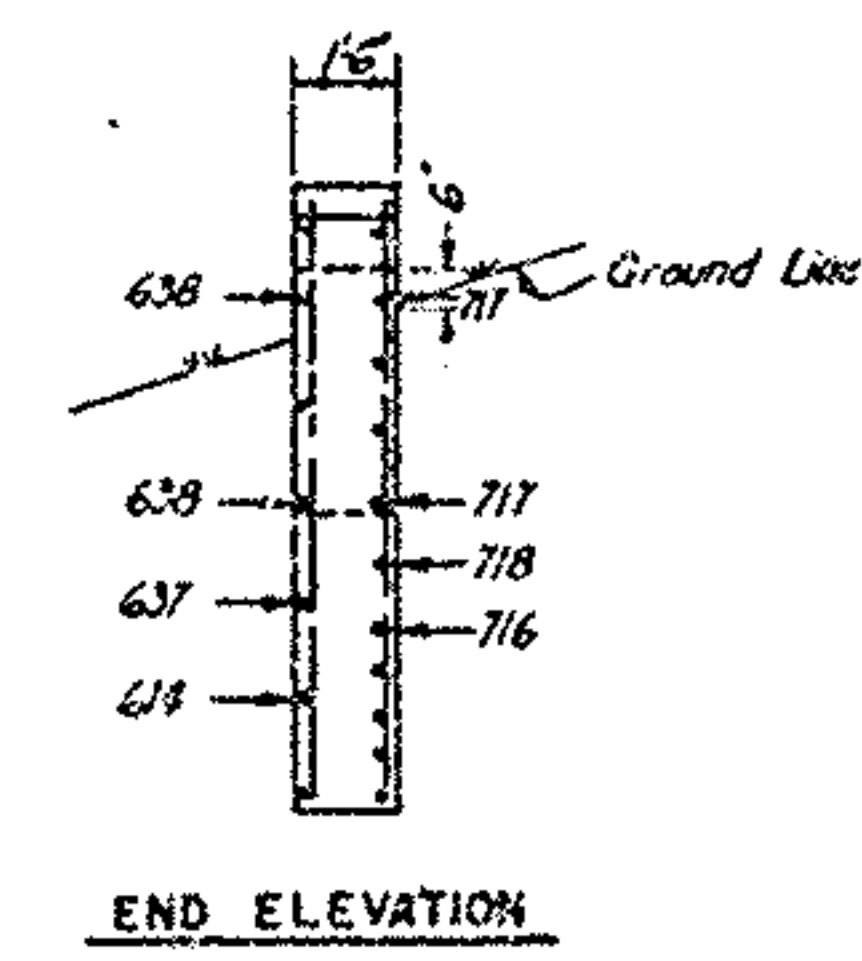
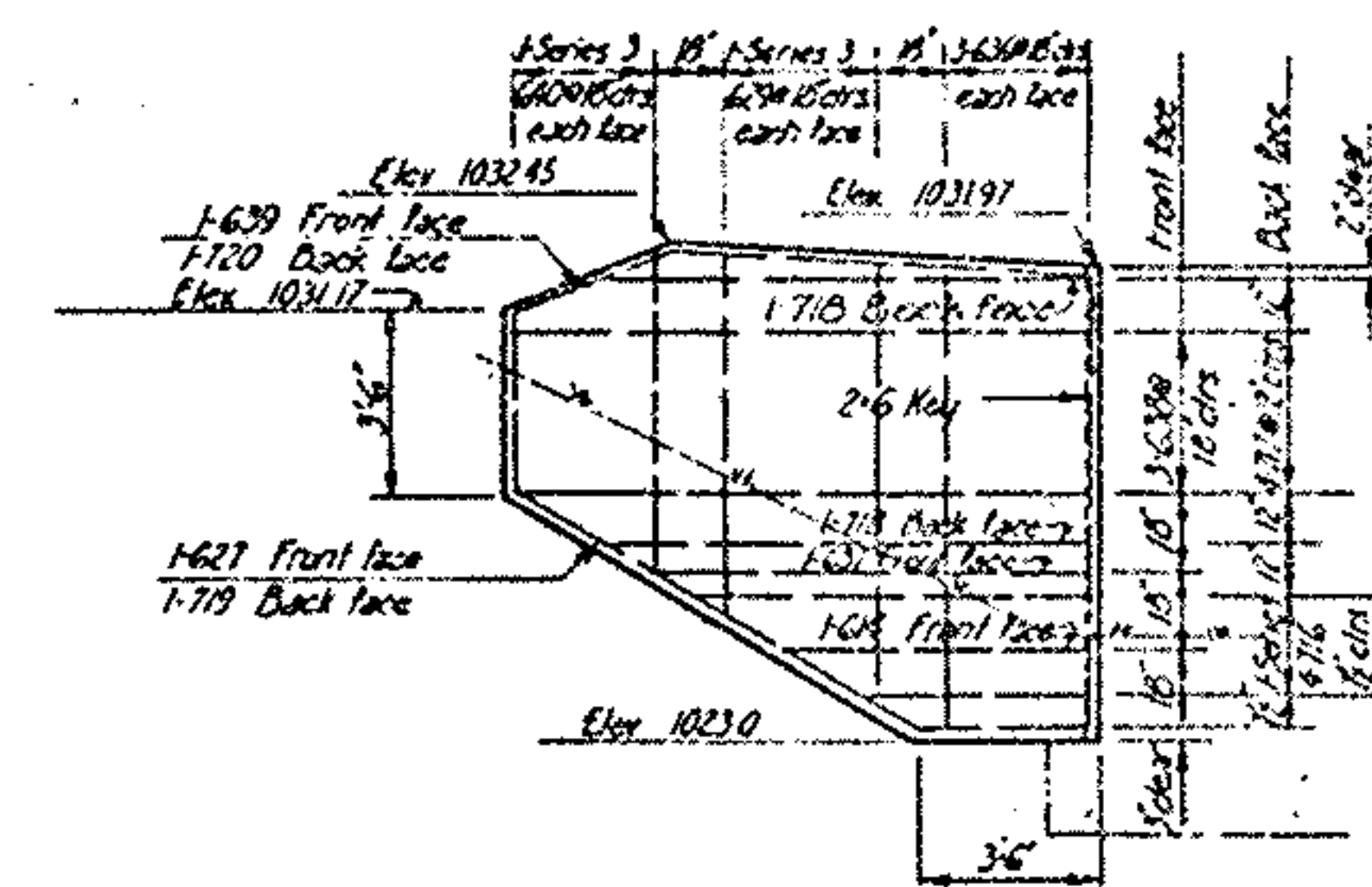
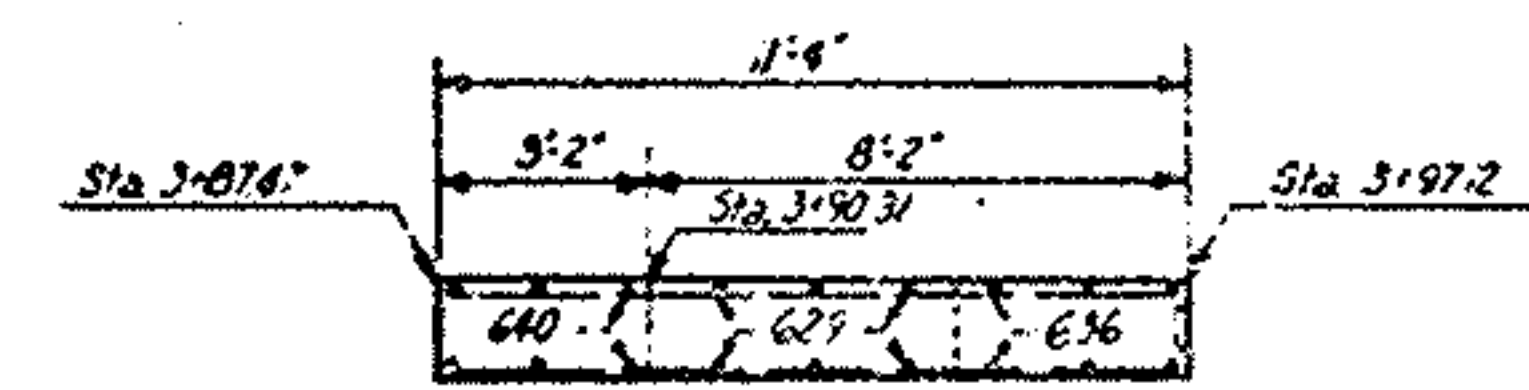
3
5



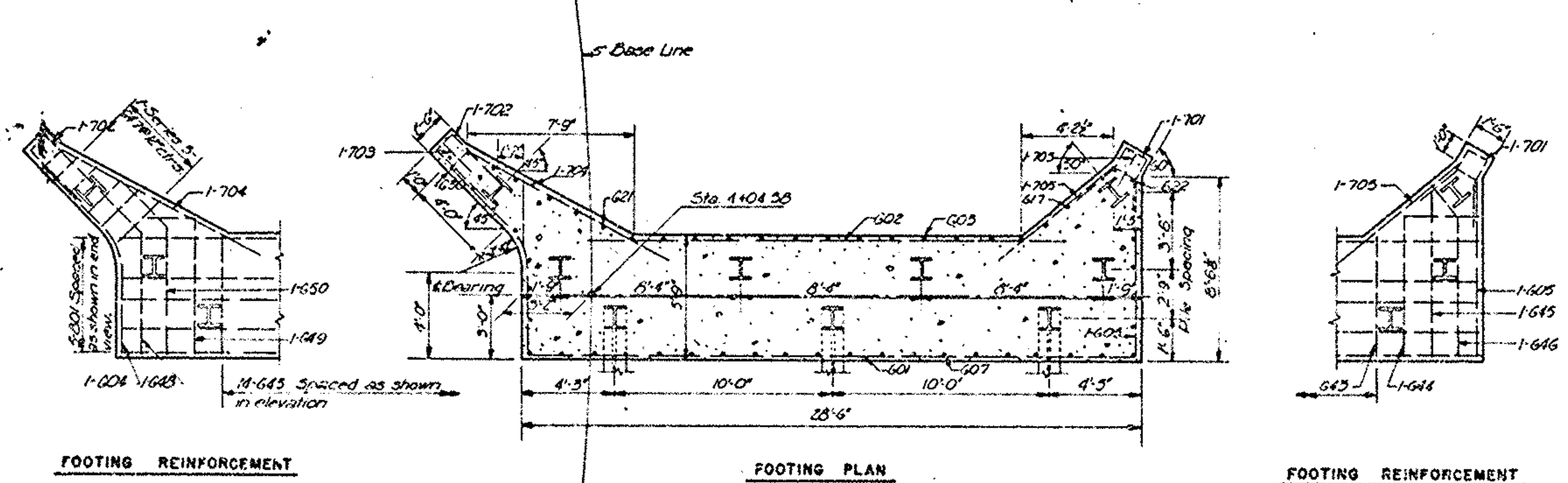
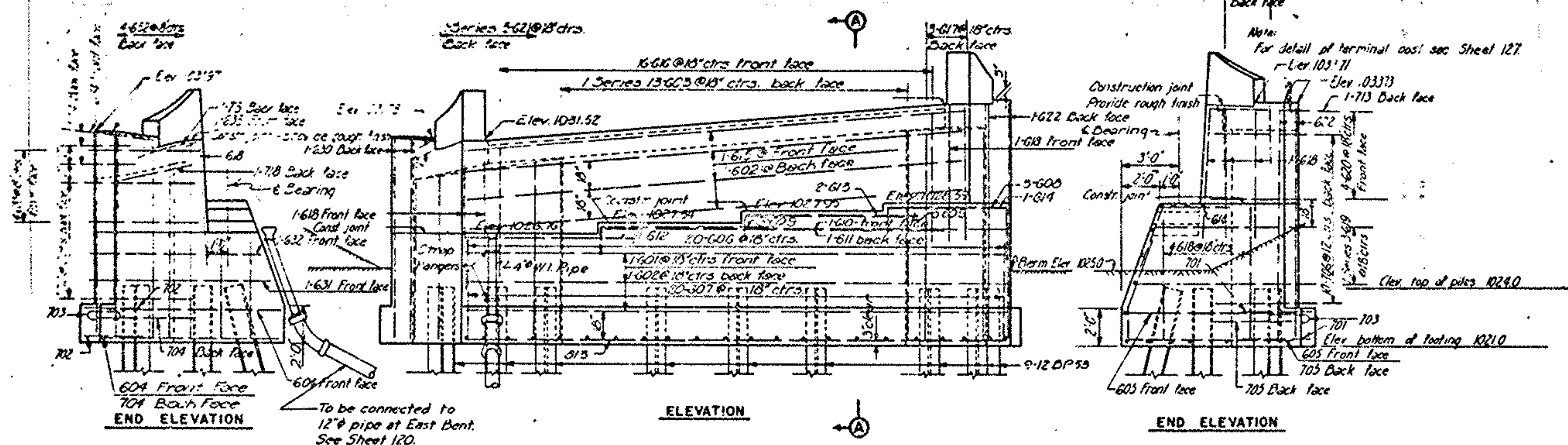
REMOVE ENTIRE ABUTMENT
INCLUDING PILES



SOUTHEAST WINGWALL



NORTHEAST WINGWALL



AKRON EXPRESSWAY SYSTEM
EXISTING
RAMP "U" OVERPASS
EAST ABUTMENT

AKRON SUMMIT COUNTY, OHIO

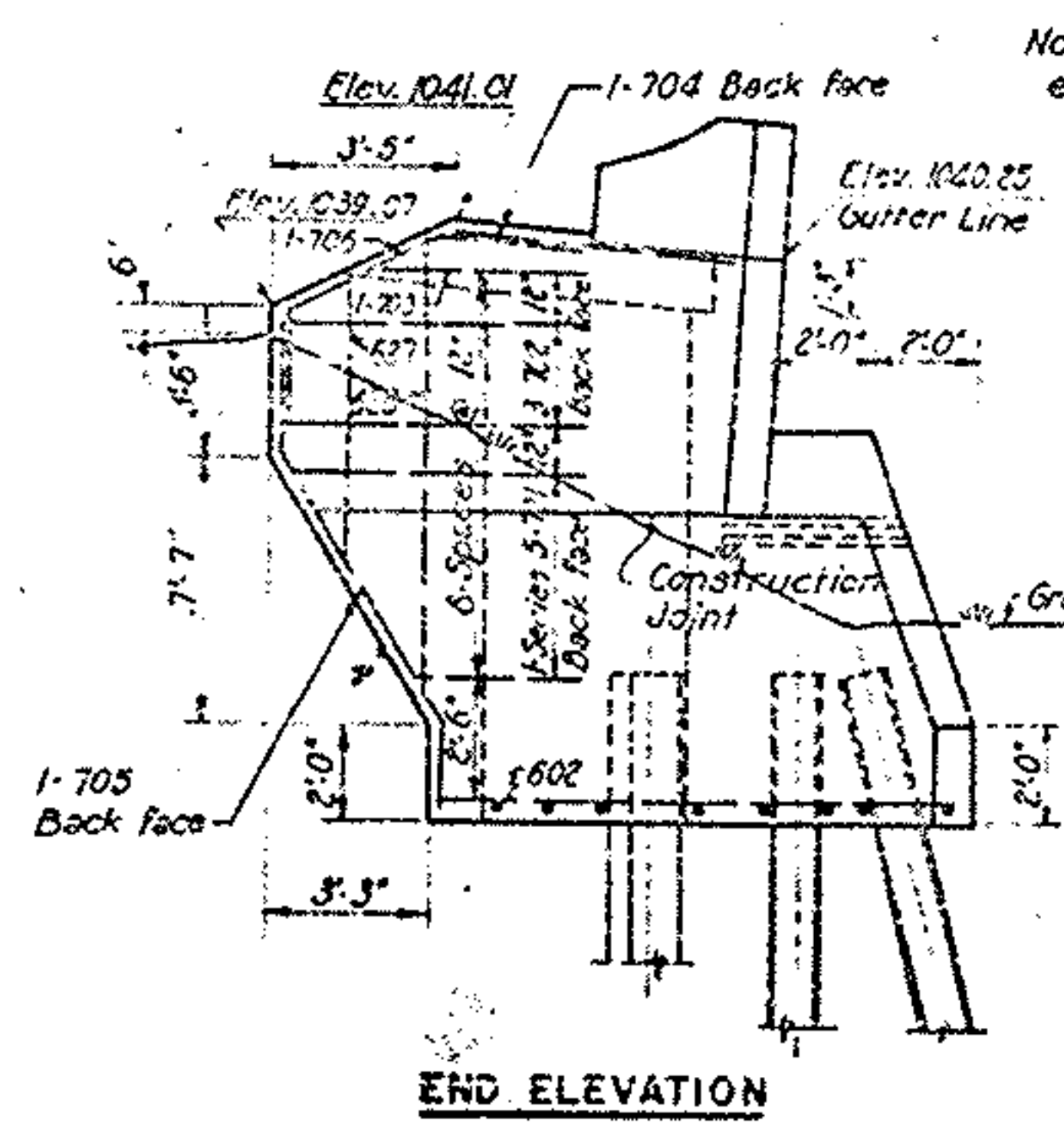
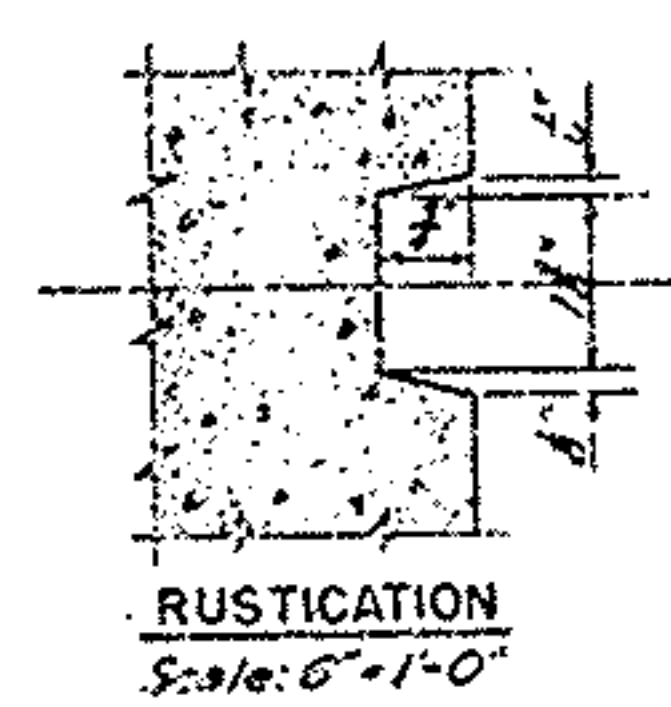
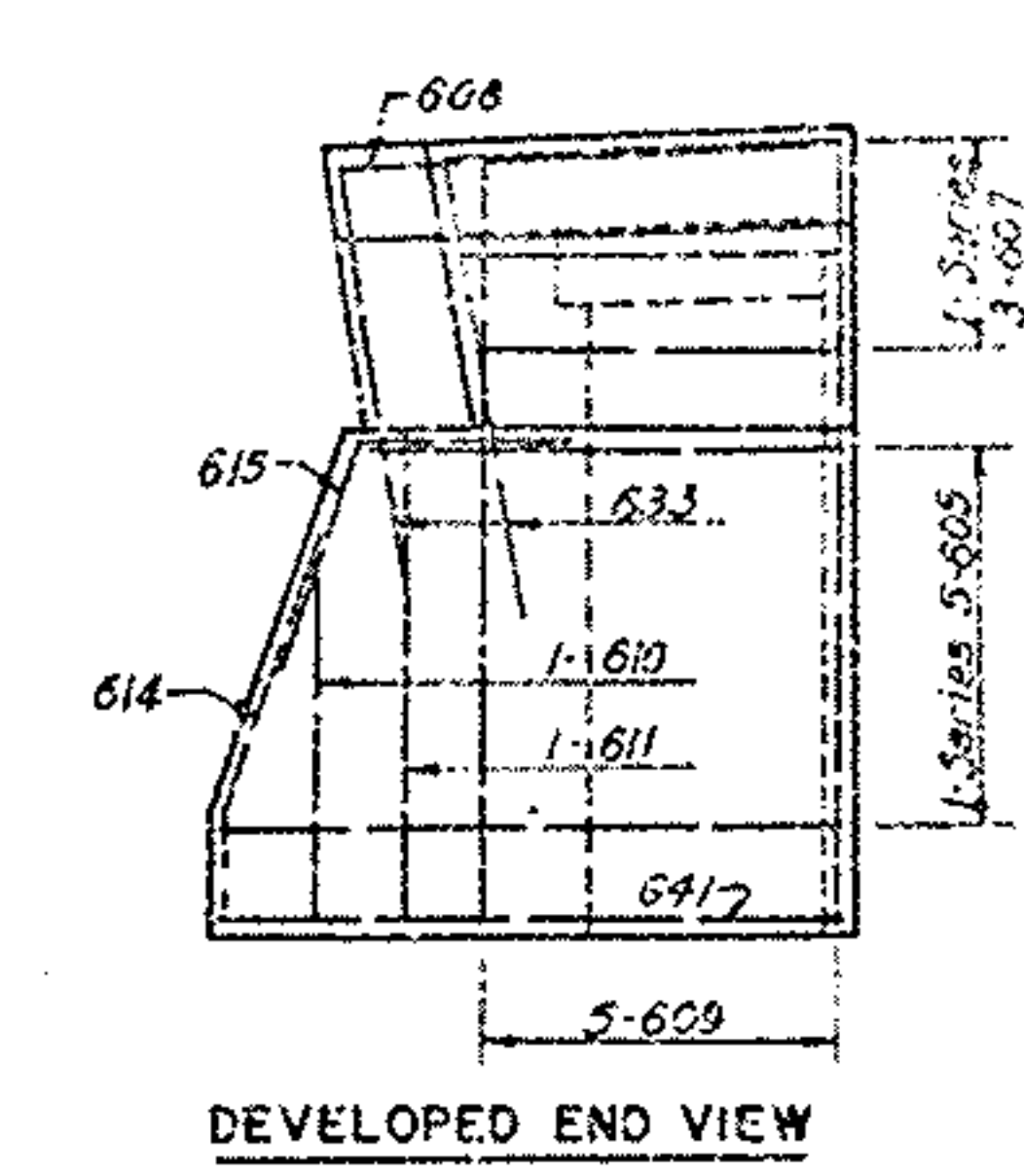
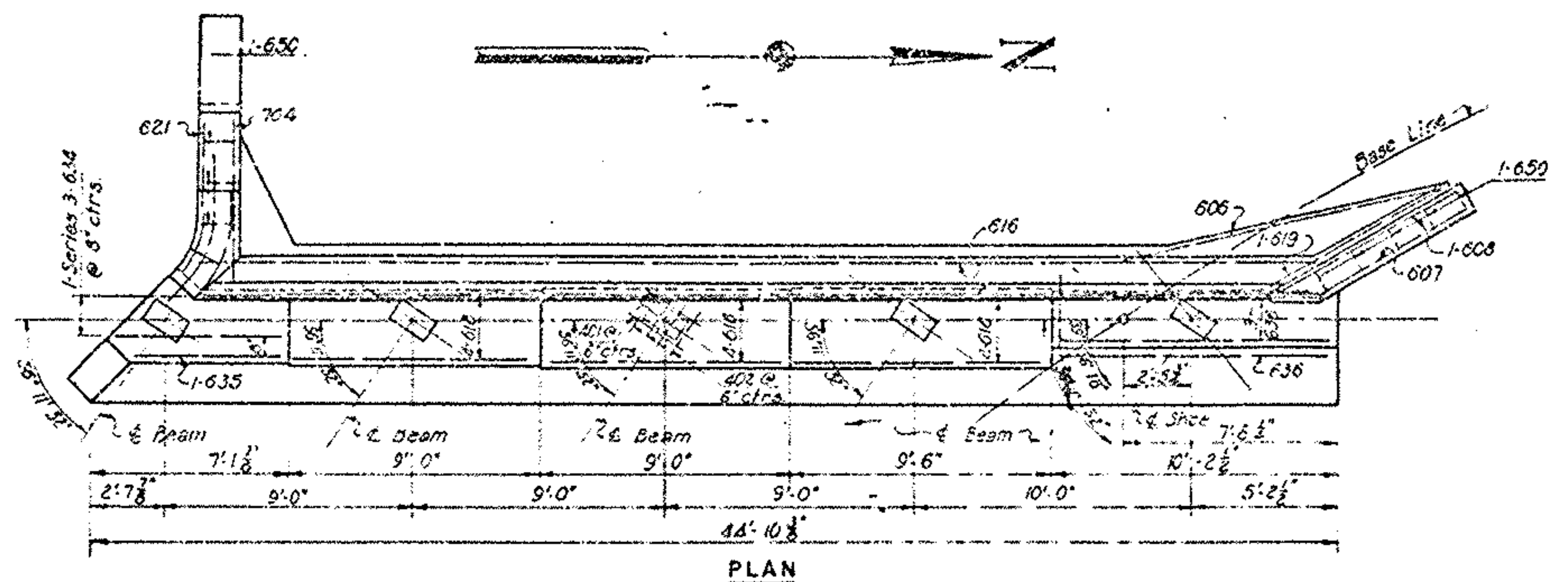
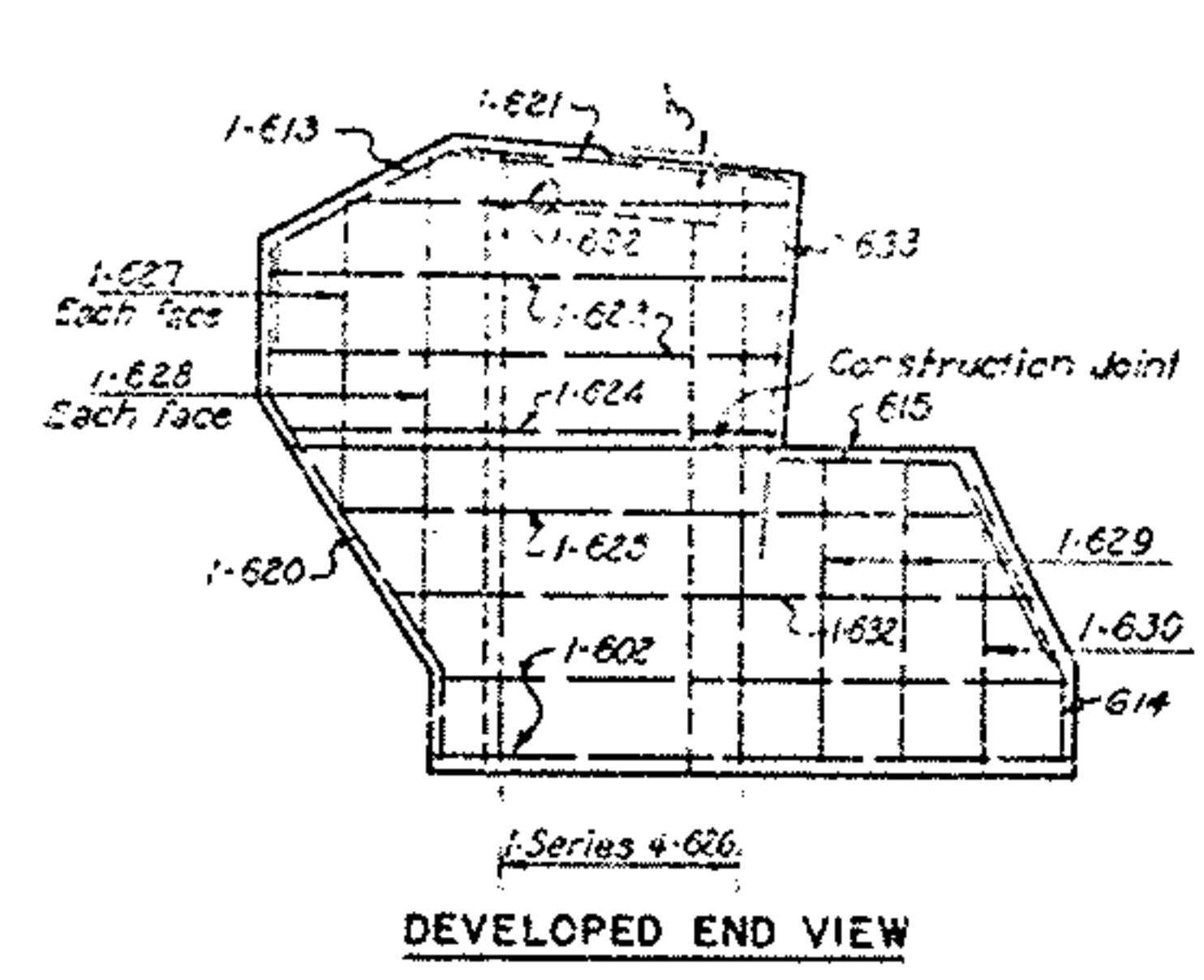
SCALE: 1"=1'-0"
DATE: 11/15/52
BY: H. W. B. / J. W. B.
CHECKED: H. W. B. / J. W. B.
DATE: 11/15/52

HOWARD, NEEDLER, TAMMEN & BERKELEY
ENGINEERS
BANKERS CITY

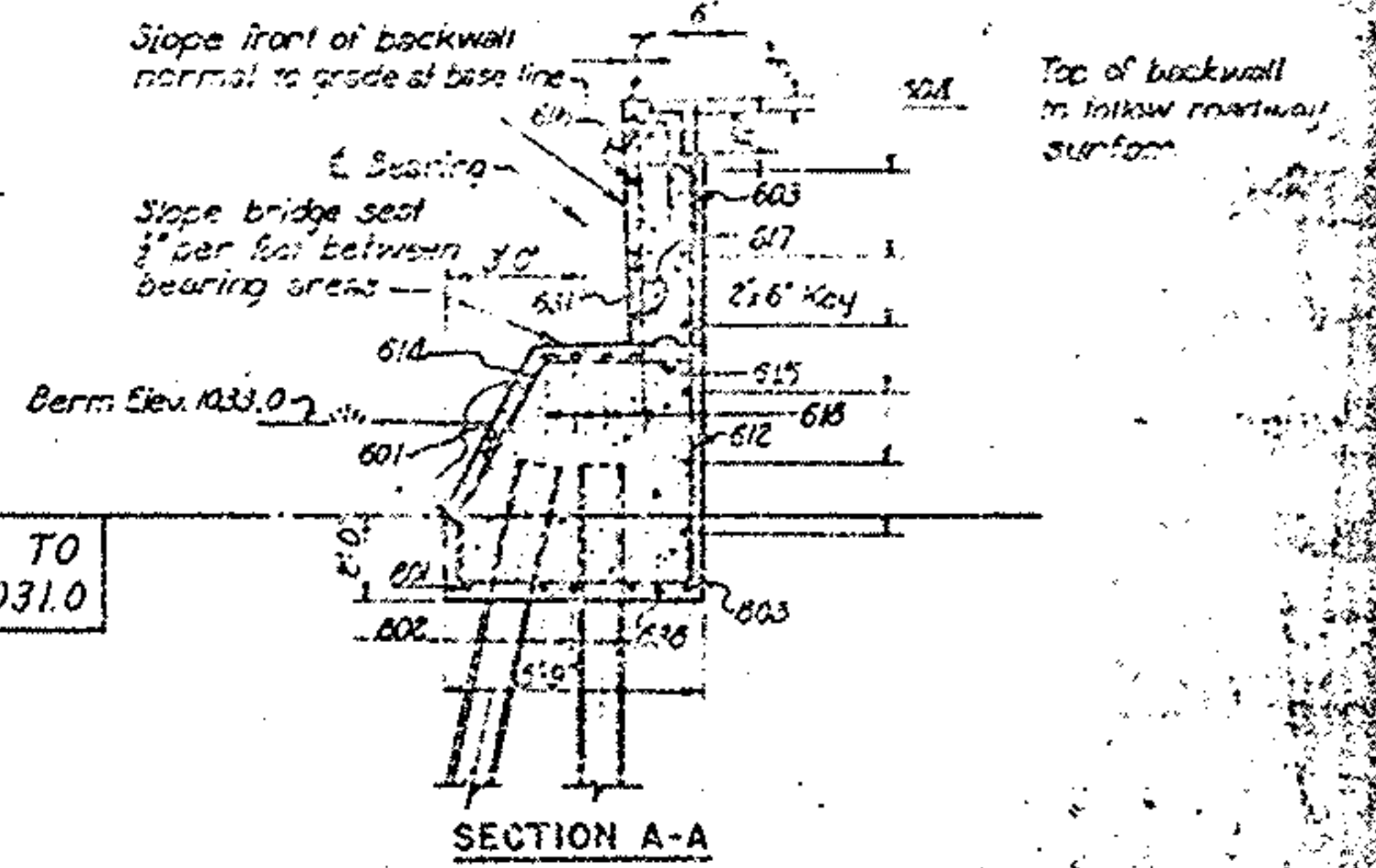
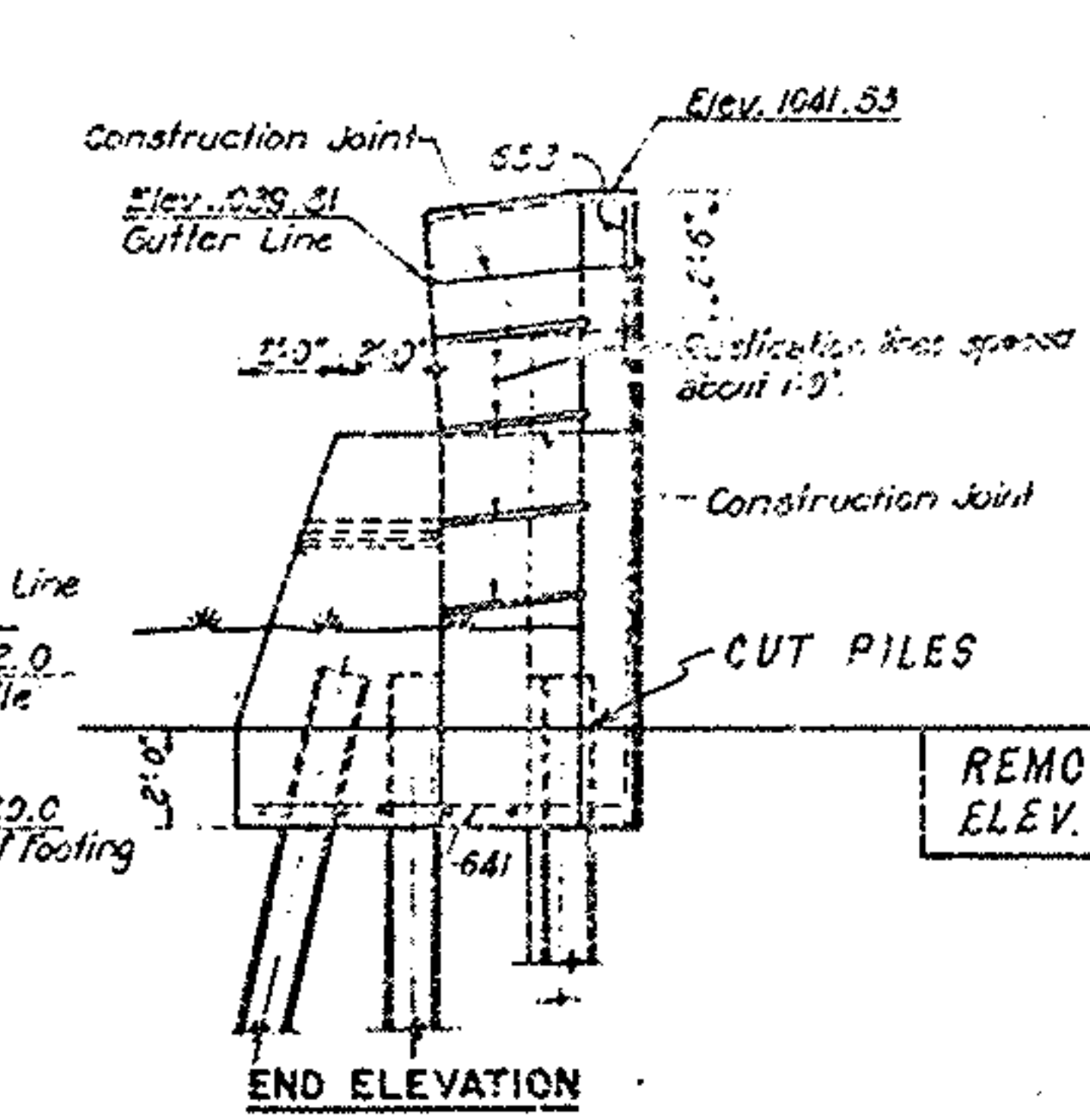
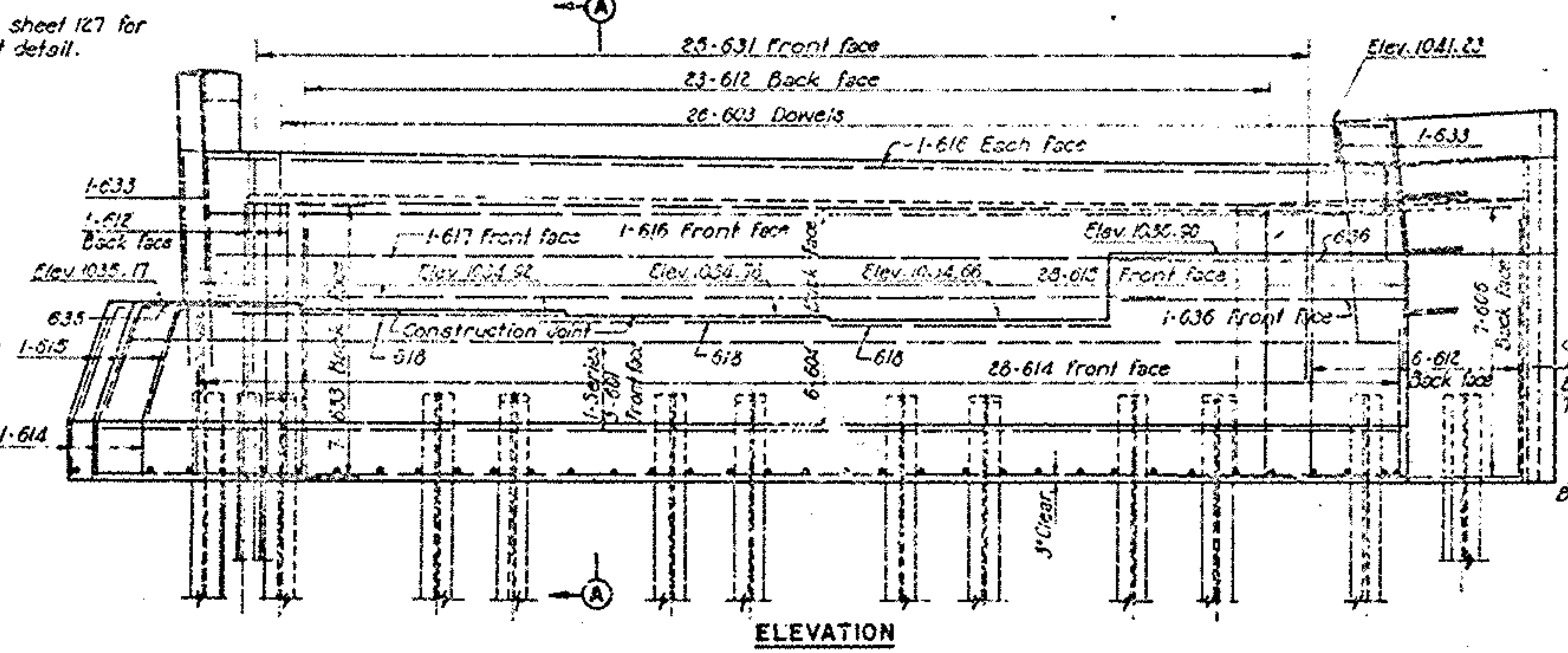
848-10

SUM-5-10.95

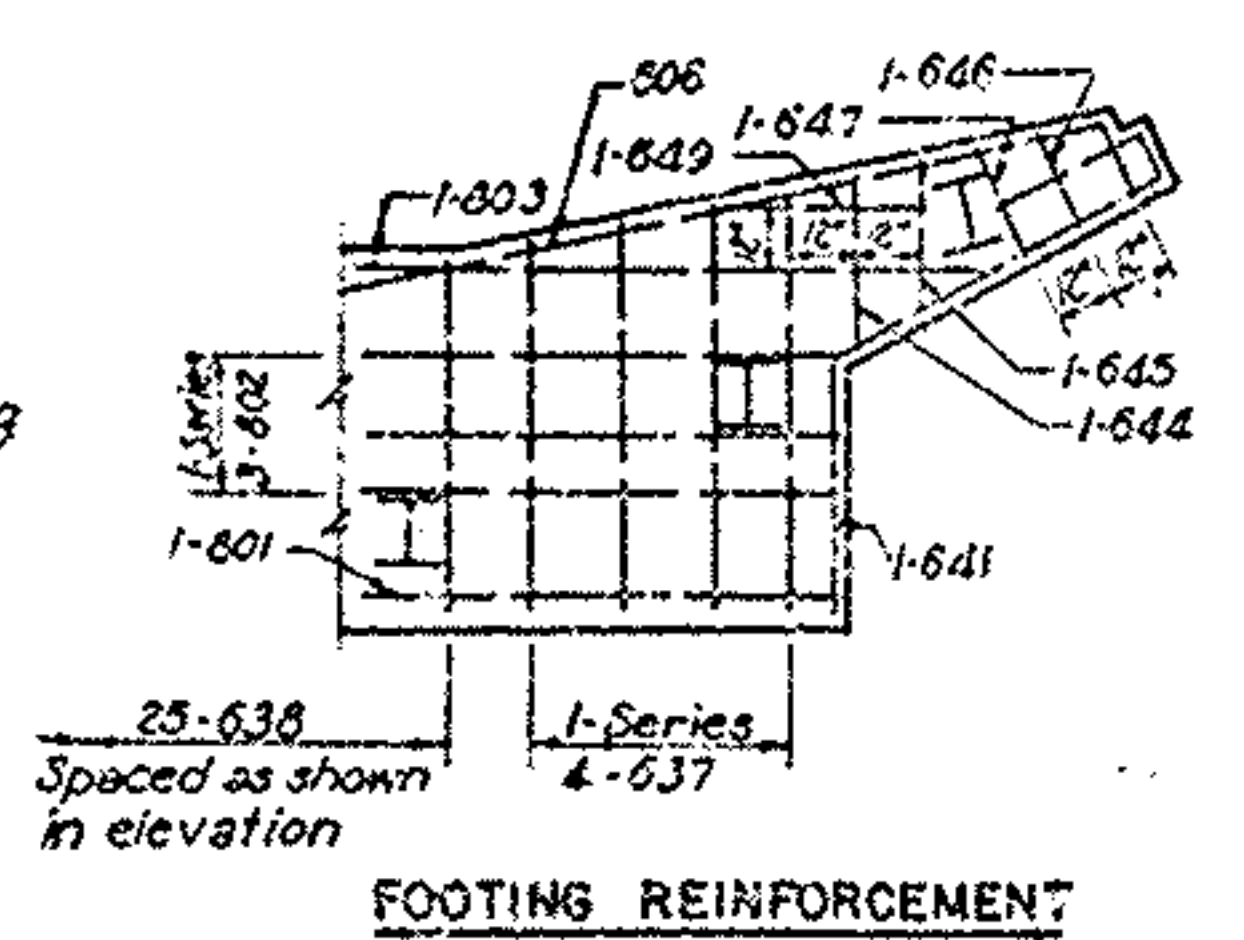
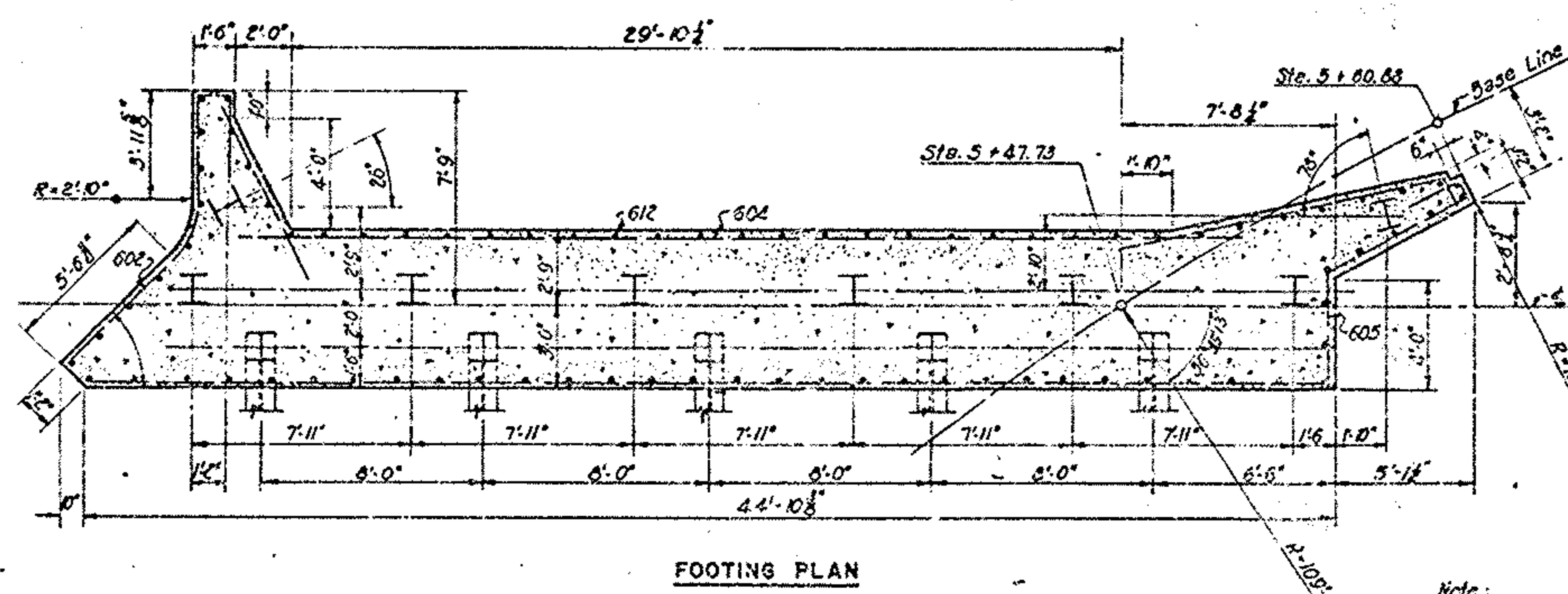
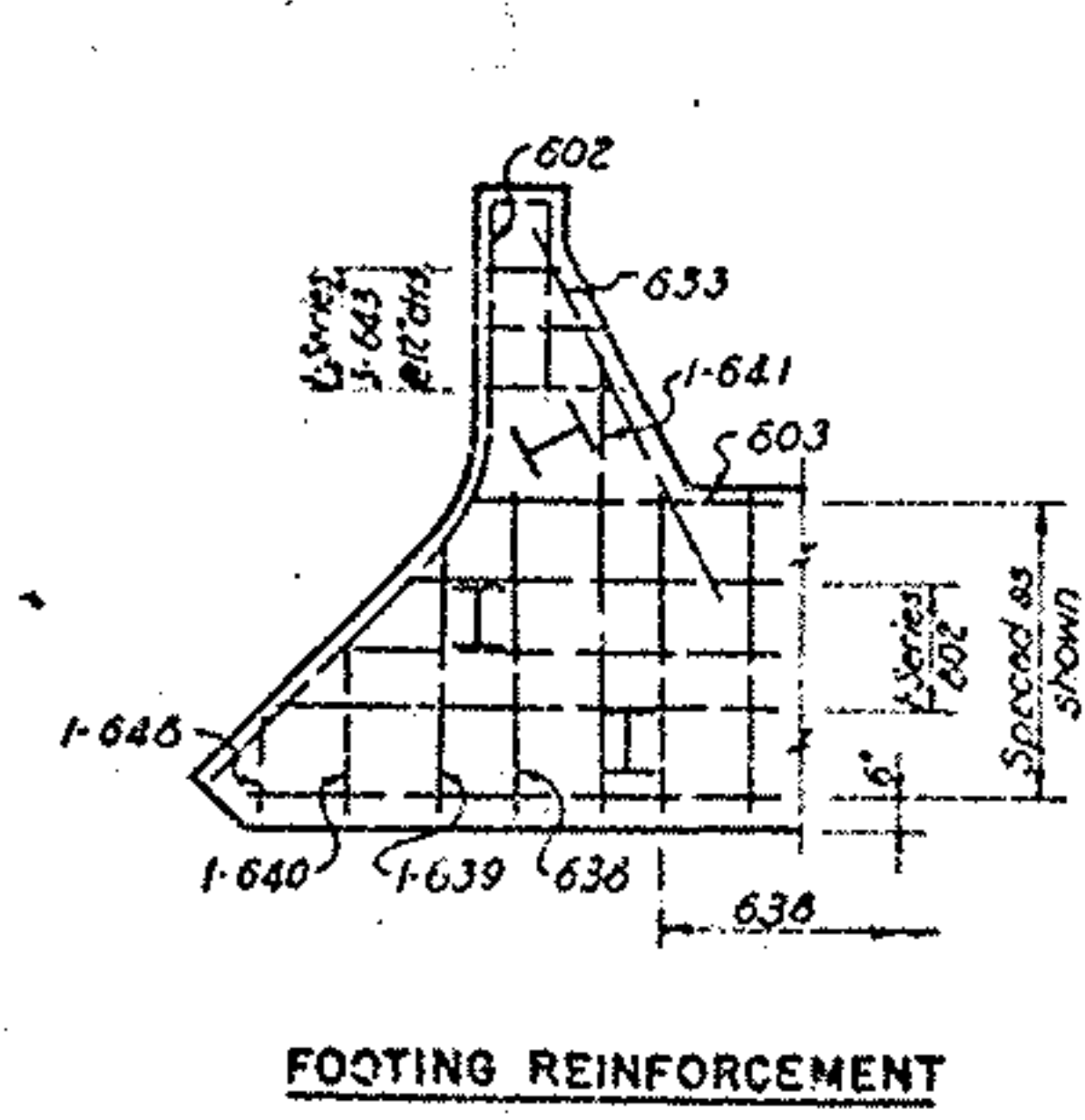
4
5



Note: See sheet 127 for end post detail.



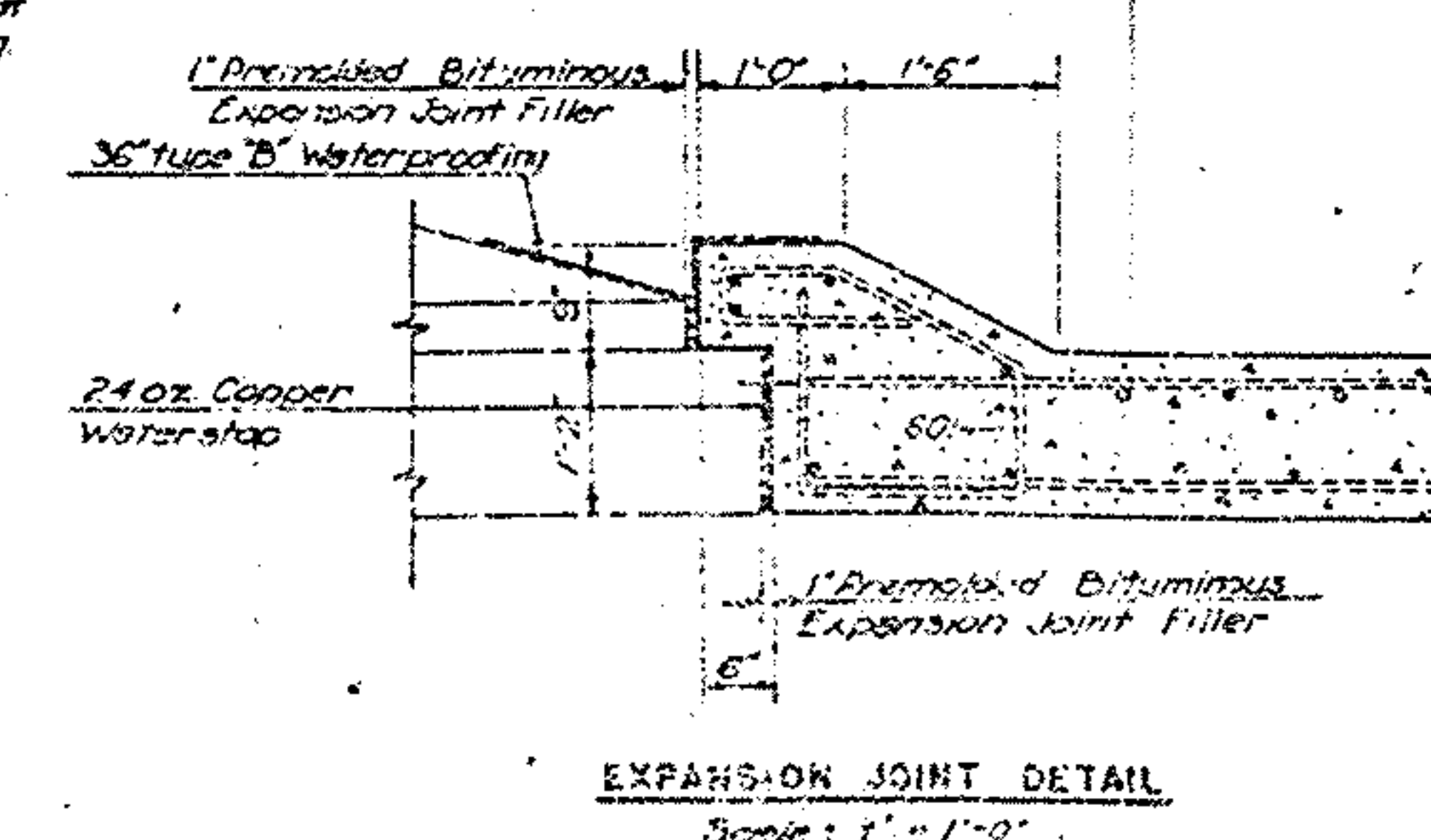
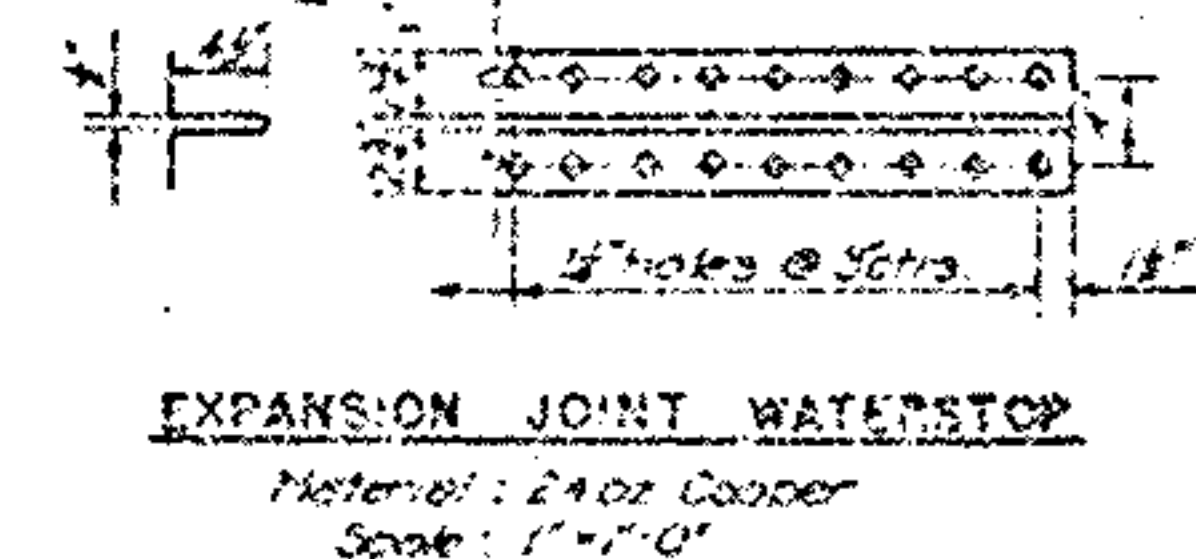
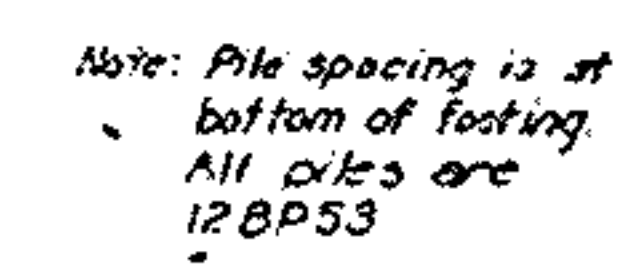
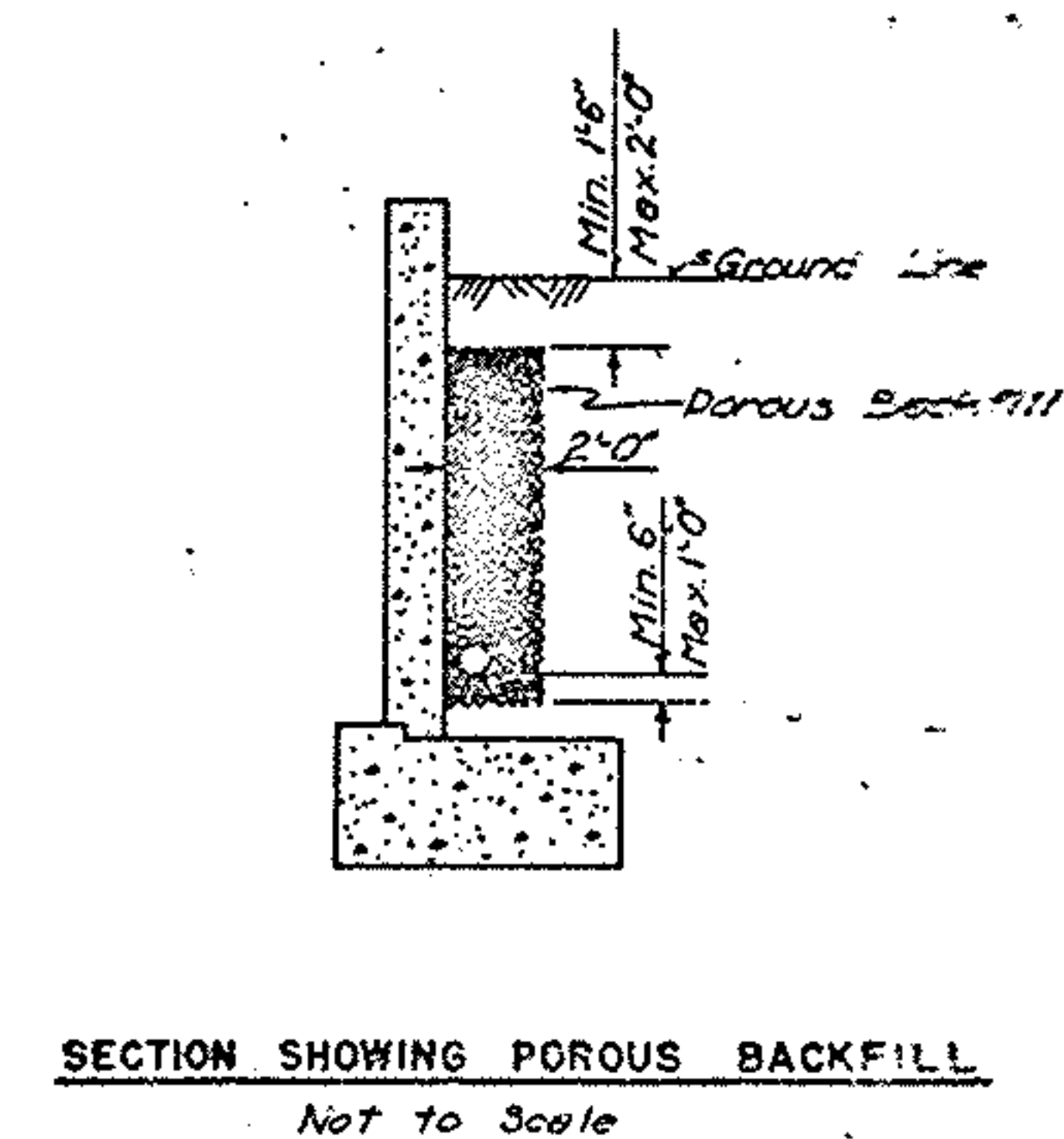
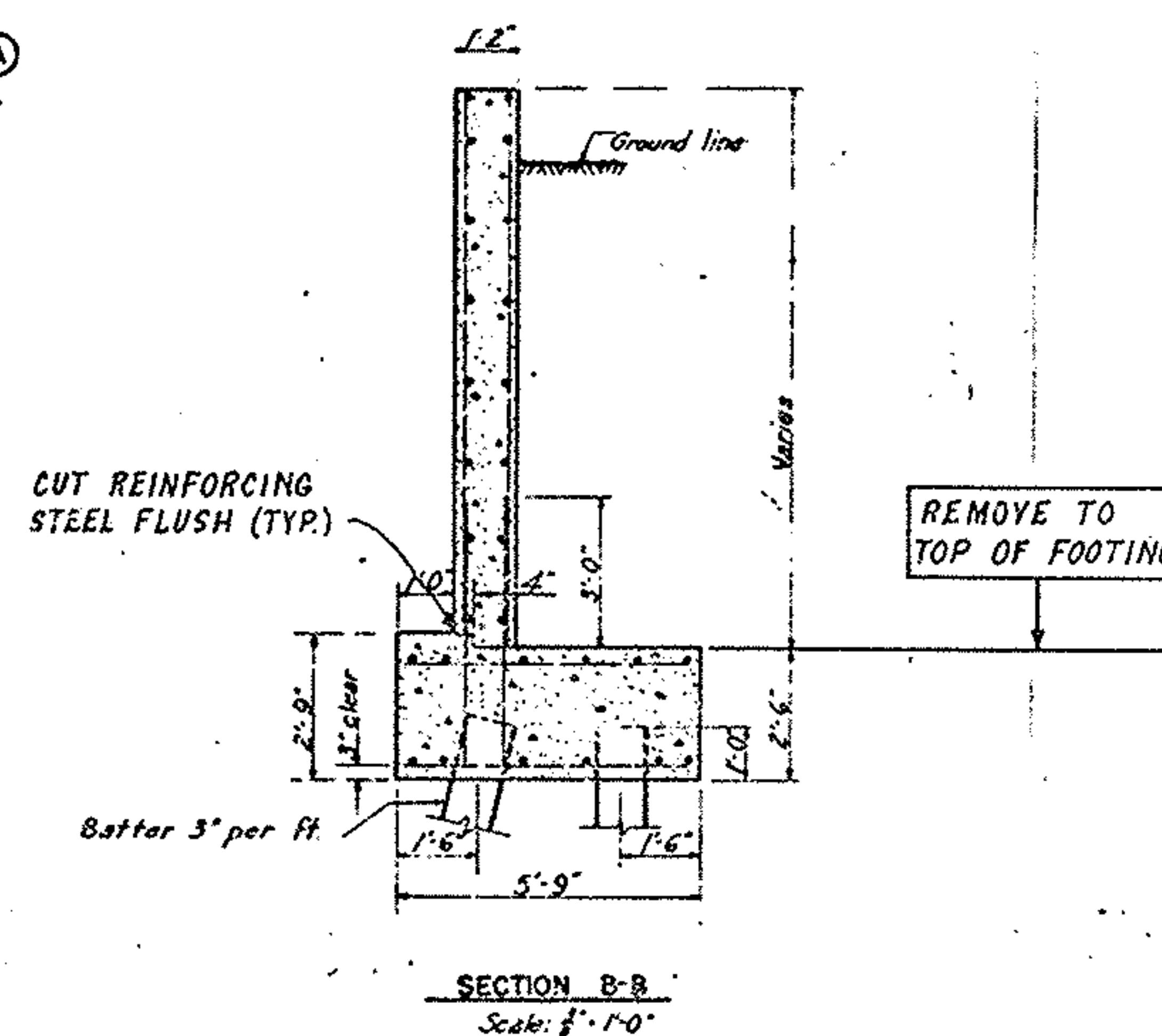
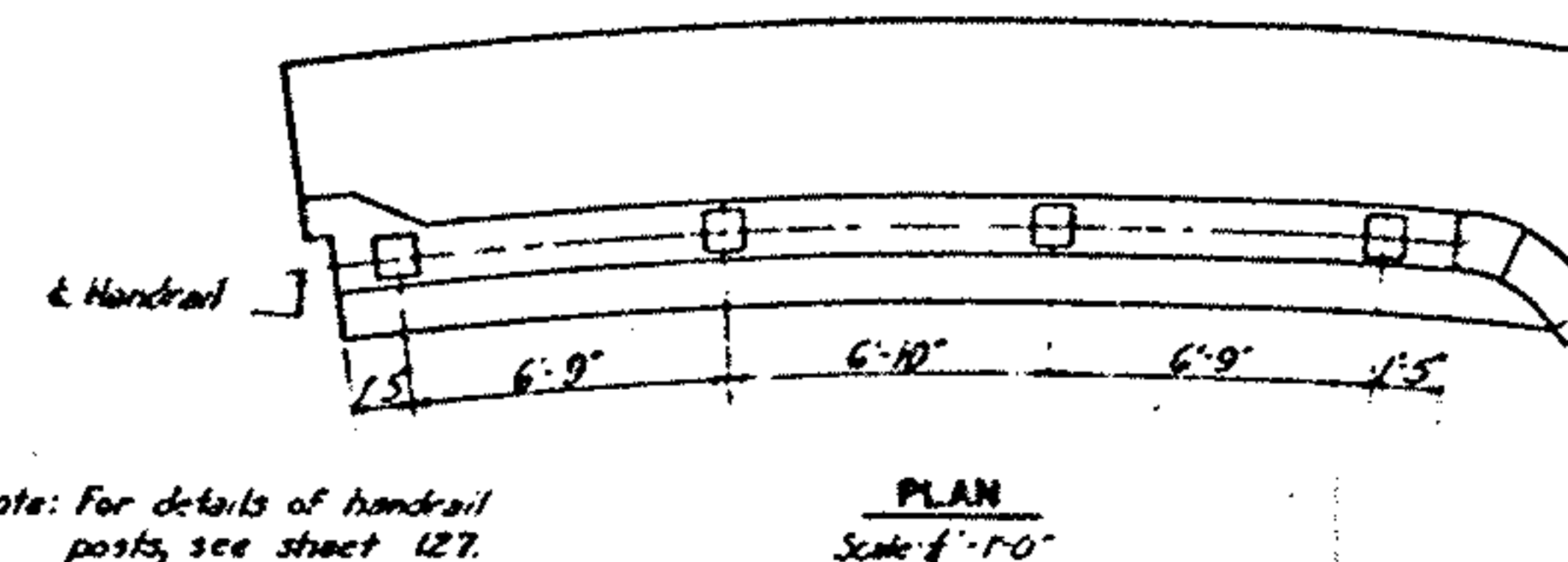
The backwall is to be placed after Expansion joint steel has been attached to Superstructure. See Expansion joint detail Sheet 127.



Note:
Pile spacing at bottom of footing.
Footing reinforcement spaced as shown.
All piles are 12 B.P. 53.
Front piles to be battered 3' per foot.

Note:
All reinforcement spaced at 18" centers unless otherwise shown.
Care should be taken in placing bars to have reinforcement clear anchor bolt holes.
Rustication lines are parallel to roadway grade.

FILE NO.	DATE	TIME	LOCATION
2	0000	1-07 (9)	

 $\frac{5}{5}$ 

AKRON EXPRESSWAY SYSTEM
EXISTING
RAMP V OVERPASS
NORTH-WEST WINGWALL
AKRON SUMMIT COUNTY
KANSAS AVENUE
KANSAS AVENUE OVERPASS
THROUGH THE EXISTING BRIDGE
CAR POOLING ENFORCEMENT
PENDING CITY

FHW REGION	STATE	PROJECT	
5	OHIO		

223
248

SUMMIT COUNTY
SUM-76-11.57 SUM-8-0.46
In Akron

EARTHWORK limits shown are approximate.
Actual slopes shall conform to plan
cross sections.

DESIGN TRAFFIC
1973 79,460 A.D.T.
1993 146,020 A.D.T.
1973 8,780 A.D.T.
1993 17,560 A.D.T.

EXISTING BRIDGE DATA (EAST BOUND STRUCTURE)

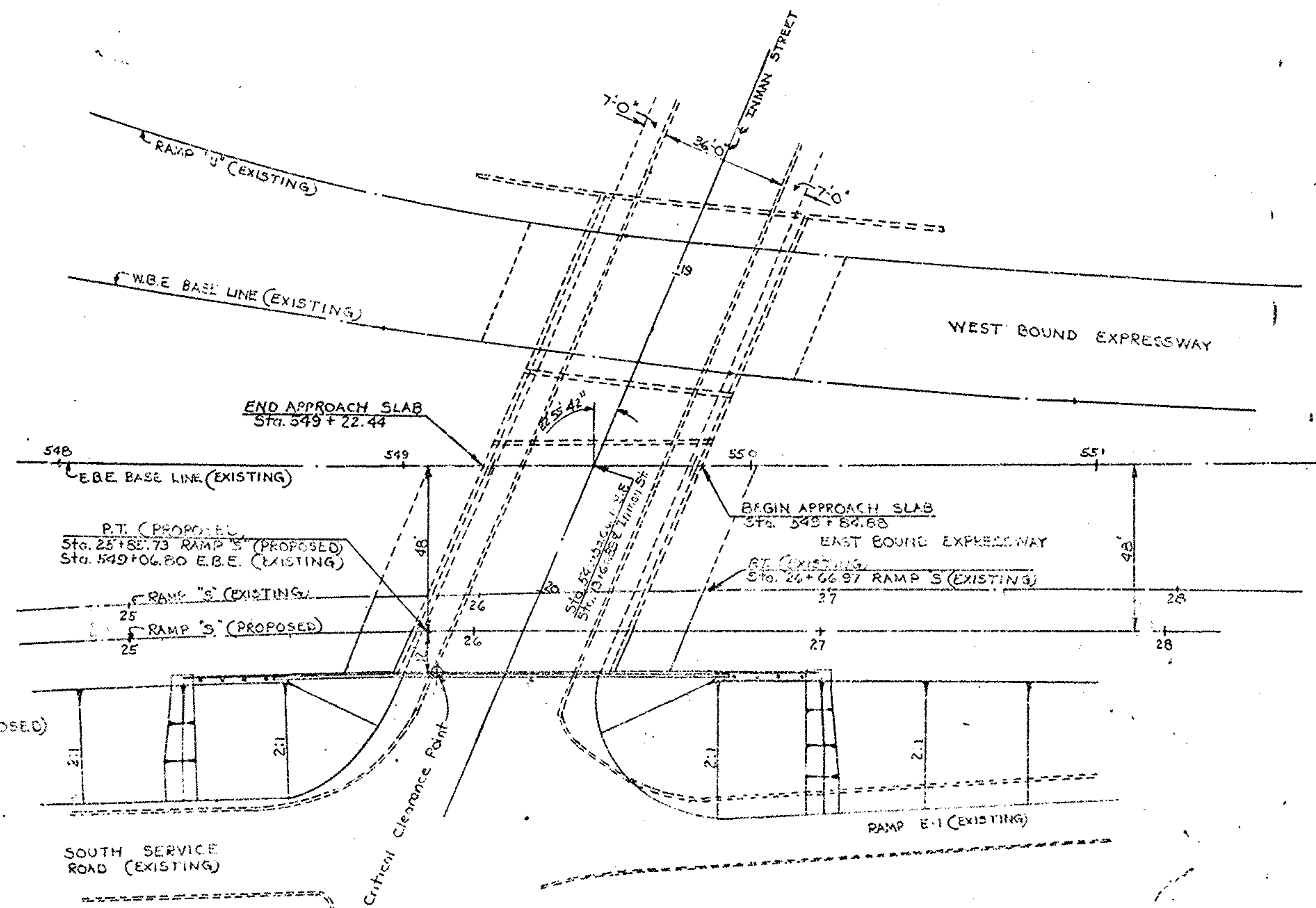
TYPE: Simple span steel beam reinforced
concrete deck and substructure.
SPAN: 57'-0" 9/16 bris.
ROADWAY: 52'-0" min. and varies.
LOADING: C.F. 2000
SKEW: 22°-58'-44" Lt. Hwy.
SURFACE COURSE: 2 1/2" Asphaltic Concrete
APPROACH SLAB: AS-1-54 (3' long)
CONDITION: GOOD
BUILT: 1956

PROPOSED STRUCTURE (Widen Existing East Bound Structure)

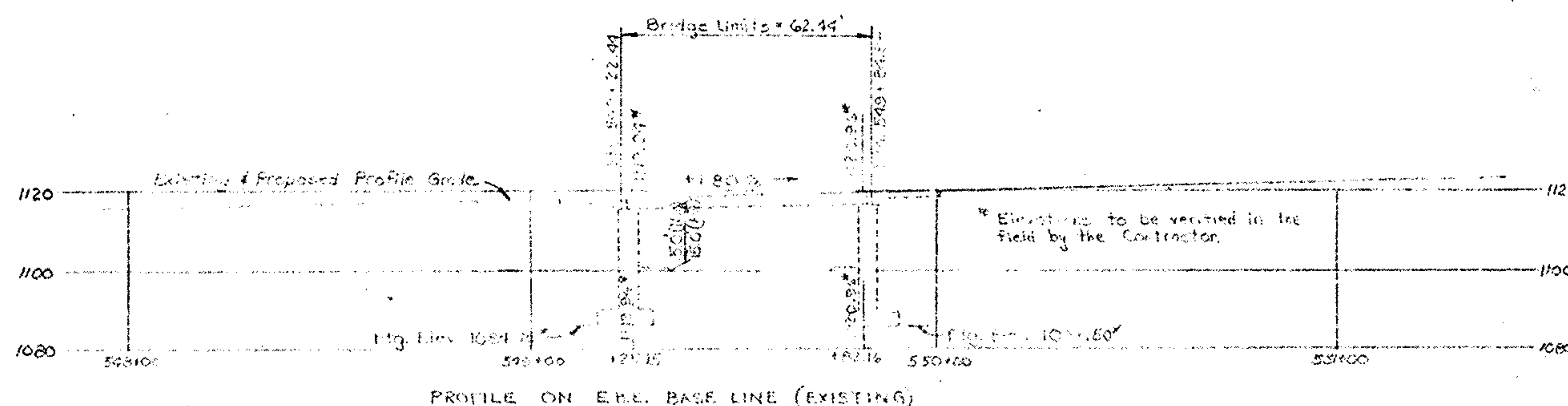
TYPE: Widen existing simple span steel beam
reinforced concrete deck and
substructure.
SPAN: 57'-0" 9/16 bris.
ROADWAY: 62'-0" 1/4 concrete parapets
LOADING: HS 20-44 Case I and the
Alternate Military Loading
SKEW: 22°-58'-44" Lt. Hwy.
SURFACE COURSE: 4 1/2" Asphaltic Concrete
APPROACH SLAB: Widen Existing (Special)
ALIGNMENT: Truest
GIRDER ELEVATION: 0.03% (on widening)

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS BUREAU OF BRIDGES				1113
SITE PLAN				
BRIDGE NO. SUM-76-1180 OVER INMAN STREET IN AKRON, OHIO				
STA. 549+22.44 549+81.12				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
				D.H.S.

CURVE DATA
RAMP "S" (PROPOSED)
A = 5°-25'-23"
D_s = 1'-30"
T = 180.96'
L = 361.54'
R = 3819.72'



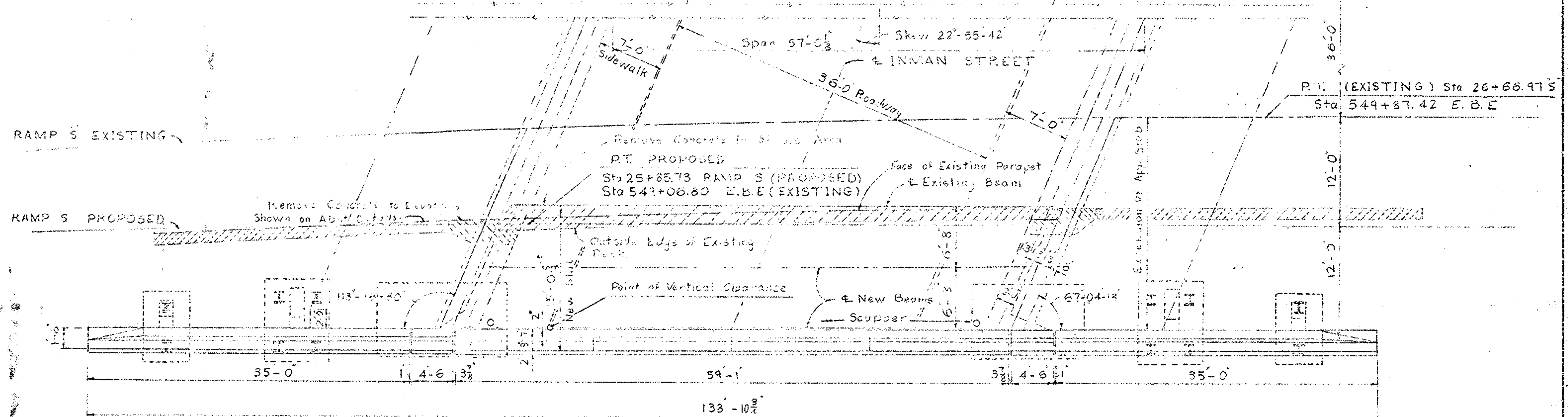
Widen Piles are HP12X53 Estimated Average Bay Length
Varies From 20' To 25'.



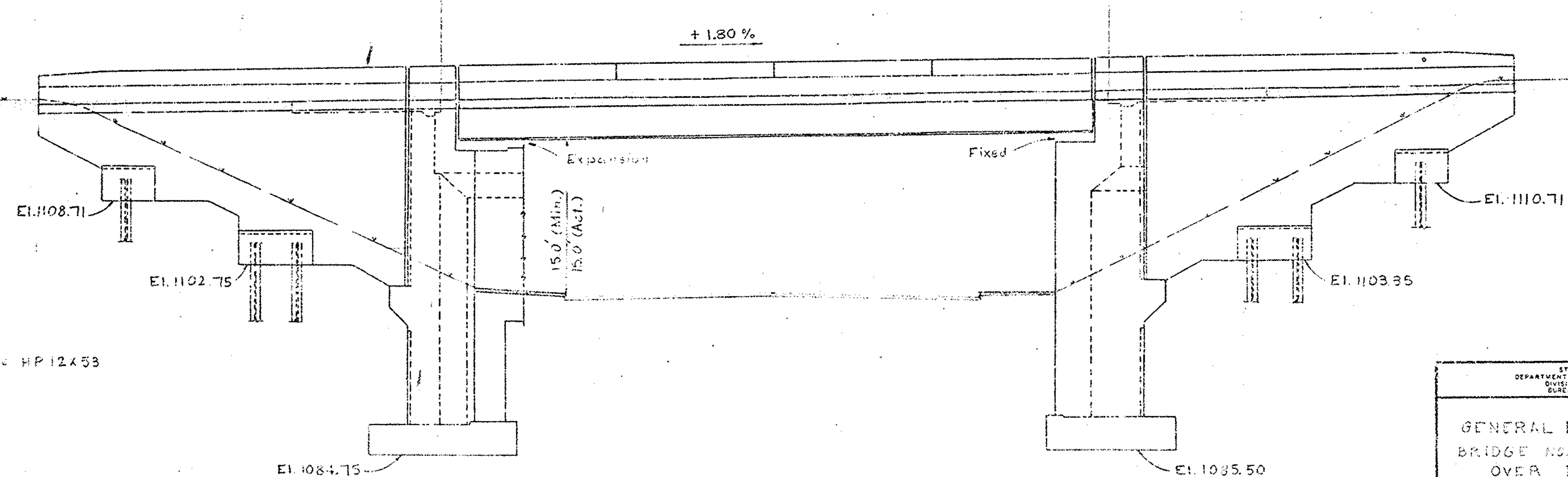
CONTRACT NO.	STATE	PROJECT
5	OHIO	

SUM-76-11.57
SUM-8-0.46

E.B.E. BASE LINE Existing
END APPROACH SLAB Sta 549+22.41
WEST ABUTMENT BEARINGS Sta 549+28.15
EAST ABUT BEARINGS Sta 549+82.16
BEGIN APP. SLAB Sta 549+84.86



GENERAL PLAN
Bridge Limits +62.44
(Along E.B.E. Base Line)



ELEVATION

All piles are HP 12x53

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS BUREAU OF BRIDGES					
GENERAL PLAN & ELEVATION BRIDGE NO. SUM-76-1150 OVER INMAN ST.					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
MRC	VRB		SEP	WJT	7-11-79

ESTIMATED QUANTITIES						Participation	
Item	Total	Unit	Description	Supers	Abut.	Gen'l.	SR
202	Lump	Sum	Portions of structure removed				
403	7	Cu Yd	Asphalt concrete (AS-1)				7
404	4	Cu Yd	Asphalt concrete (AS-2)				4
503	305	Cu Yd	Unclassified excavation (in rock)		305		305
505	Lump	Sum	Test pile				Lump
507	270	Lin. Ft.	Steel piles, HP 12x53		270		270
509	23104	Lbs	Reinforcing steel, Grade 60	4625	812	100	23104
510	173	Lin. Ft.	Dowel holes		173		173
511	30	Cu Yd	Class 3 concrete, superstructure				30
511	132	Cu Yd	Class C concrete, abutment walls		132		132
511	47	Cu Yd	Class C concrete, footings		47		47
512	12	Lin. Ft.	Type B waterproofing		12		12
513	33,000	Lbs	New structural steel	33,000			33,000
514	33,000	Lbs	Field painting of new structural steel, system 2	33,000			33,000
514	Lump	Sum	Field painting of existing steel, surface preparation	Lump			Lump
514	Lump	Sum	Field painting of existing steel, spot prime	Lump			Lump
514	Lump	Sum	Field painting of existing steel, complete prime coat	Lump			Lump
514	Lump	Sum	Field painting of existing steel, complete finish coat	Lump			Lump
516	63	Sq. Ft.	1" Preformed expansion joint filler		63		63
516	7	Sq. Ft.	Sheet asbestos packing		7		7
516	29	Lin. Ft.	Vertical extension of structural expansion joints, sealed as per plan		29		29
518	37	Cu Yd	Porous backfill		37		37
518	33	Lin. Ft.	6" Galv. standard pipe downspout including specials		33		33
518	12	Lin. Ft.	4" Galv. standard pipe downspout including specials		12		12
518	37	Lin. Ft.	6" Perf. CSP including specials, 70% oil, bituminous coated as per 707.04		37		37
518	57	Lin. Ft.	Subdrainage for wearing course, as per plan		57		57
519	1500	Sq. Ft.	Patching conc. structures as per plan		1500		1500
625			See sheet 130 for Lighting Summary				
Spec. 90	Sq. Yd.		Membrane waterproofing (see Proposal Note)	90			90
Spec. 4497	Lb.		Epoxy coated reinf. steel, Grade 60 (see Proposal Note)	4497			4497
Spec. Lump	Sum		Jacking, supporting and lowering superstructure	Lump			Lump
Spec. Lump	Sum		Repositioning bearings	Lump			Lump

* See General Notes

GENERAL NOTES

FED. REGION	STATE	PROJECT
5	OHIO	

225
2-3

SUM-76-11-57
SUM-8-0-46

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS

RB-1-55 REVISED 2-2-59
SD-1-69 SHEETS NO. 1, 2, AND 3 OF 4 DATED 6-12-69
SUPPLEMENTAL SPECIFICATIONS:
836 DATED 3-12-75

DESIGN SPECIFICATIONS: THIS STRUCTURE MODIFICATION CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1977 AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:
DESIGN LOADING - HS20-44, CASE 1 AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS S - COMPRESSIVE STRENGTH 4,500 PSI FOR SUPER-STRUCTURE
CONCRETE CLASS C - COMPRESSIVE STRENGTH 4,000 PSI FOR SUB-STRUCTURE
STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20,000 PSI
REINFORCING STEEL - ASTM A615, A616 OR A617, GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI

DECK PROTECTIVE METHOD - 1) EPOXY COATED REINFORCING STEEL, TOP MAT ONLY.
2) MEMBRANE WATERPROOFING AND ASPHALT CONCRETE OVERLAY

PROPOSED WORK:

- 1) REMOVE WINGWALL CONCRETE TO THE ELEVATIONS SHOWN ON PLANS. CONSTRUCT THE EMBANKMENTS TO THE LEVEL OF SUBGRADE.
- 2) EXCAVATE FOR THE EXTENSION OF THE ABUTMENTS AND DRIVE PILES. CONSTRUCT THE EXTENSION OF THE ABUTMENT BACKWALLS AND THE NEW WINGWALLS.
- 3) REMOVE THE EXISTING RAILING, PARAPET AND PORTION OF THE SLAB AS SHOWN.
- 4) JACK THE EXISTING SUPERSTRUCTURE, CLEAN THE BEARINGS AND CORRECT THE VERTICAL AXIS, THEN LOWER THE BRIDGE.
- 5) PLACE THE NEW BEARINGS AND BEAMS. CONSTRUCT THE SLAB EXTENSION AND THE NEW PARAPET. COMPLETE ALL WORK ITEMS.

PLANS OF EXISTING BRIDGE MAY BE EXAMINED IN THE DISTRICT OFFICE AT RAVENNA, OHIO OR IN THE BUREAU OF BRIDGES AND STRUCTURAL DESIGN IN COLUMBUS, OHIO.

DIMENSIONS OF EXISTING BRIDGE AS SHOWN ON THESE PLANS ARE TAKEN FROM PLANS FOR THE ORIGINAL CONSTRUCTION. THE CONTRACTOR IS REFERRED TO CMS SECTION 105.02 AND 513.02.

EMBANKMENT CONSTRUCTION: THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION MAY THEN BE MADE FOR THE ABUTMENTS.

PILES SHALL BE DRIVEN TO BEDROCK. THE BEARING CAPACITY SHALL BE CONSIDERED OBTAINED BY REFUSAL ON HARD BEDROCK OR BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH. THE DESIGN LOAD IS 40 TONS PER PILE.

FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

PRESERVATION OF REINFORCING BARS: SPECIAL CARE SHALL BE TAKEN IN REMOVING EXISTING CONCRETE TO AVOID DAMAGE TO REINFORCING BARS WHICH ARE TO BE INCORPORATED INTO NEW WORK. ANY SUCH BARS WHICH ARE MADE UNUSABLE BY REMOVAL OPERATIONS SHALL BE REPLACED BY DOWEL BARS OF THE SAME SIZE SET 1'-6" INTO THE EXISTING CONCRETE ACCORDING TO SEC. 510.02 AT THE CONTRACTOR'S EXPENSE.

REPLACEMENT OF EXISTING REINFORCING STEEL: ANY EXISTING REINFORCING BARS MADE UNUSABLE BY CONTRACTOR'S CONCRETE REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW STEEL AT HIS COST. ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED WITH NEW STEEL. AN ALLOWANCE OF 100 POUNDS IS INCLUDED IN ITEM 509 FOR THIS PURPOSE.

PRIOR TO PLACING NEW CONCRETE IN CONTACT WITH EXISTING CONCRETE THE SURFACE OF THE EXISTING CONCRETE SHALL BE PREPARED IN ACCORDANCE WITH THE APPLICABLE PARTS OF SEC. 519.04.

JACK THE EXISTING SUPERSTRUCTURE TO AN ELEVATION NOT MORE THAN 1/4 HIGHER THAN THE EXISTING ELEVATION TO PERMIT CORRECTION OF THE VERTICAL AXIS AND THE POSITION OF THE BEARINGS. BEARINGS SHALL BE CLEANED, SAND BLASTED AND PAINTED ACCORDING TO ITEM 514. TRAFFIC SHALL BE MAINTAINED ON I-76 DURING THE CORRECTION OF BEARING POSITIONS. APPROXIMATE REACTION AT ANY BEARING, WHICH INCLUDES DEAD LOAD AND LIVE LOADS, IS 60 TONS. DETAILS OF JACKING PROCEDURE (3 SETS) SHALL BE SUBMITTED TO THE DIRECTOR 15 DAYS PRIOR TO JACKING OPERATIONS, AND WORK SHALL NOT COMMENCE BEFORE THE DIRECTOR'S APPROVAL IS GIVEN.

PAINTING OF EXISTING BRIDGE: ALL EXISTING STRUCTURAL STEEL SHALL BE PAINTED ACCORDING TO 514.

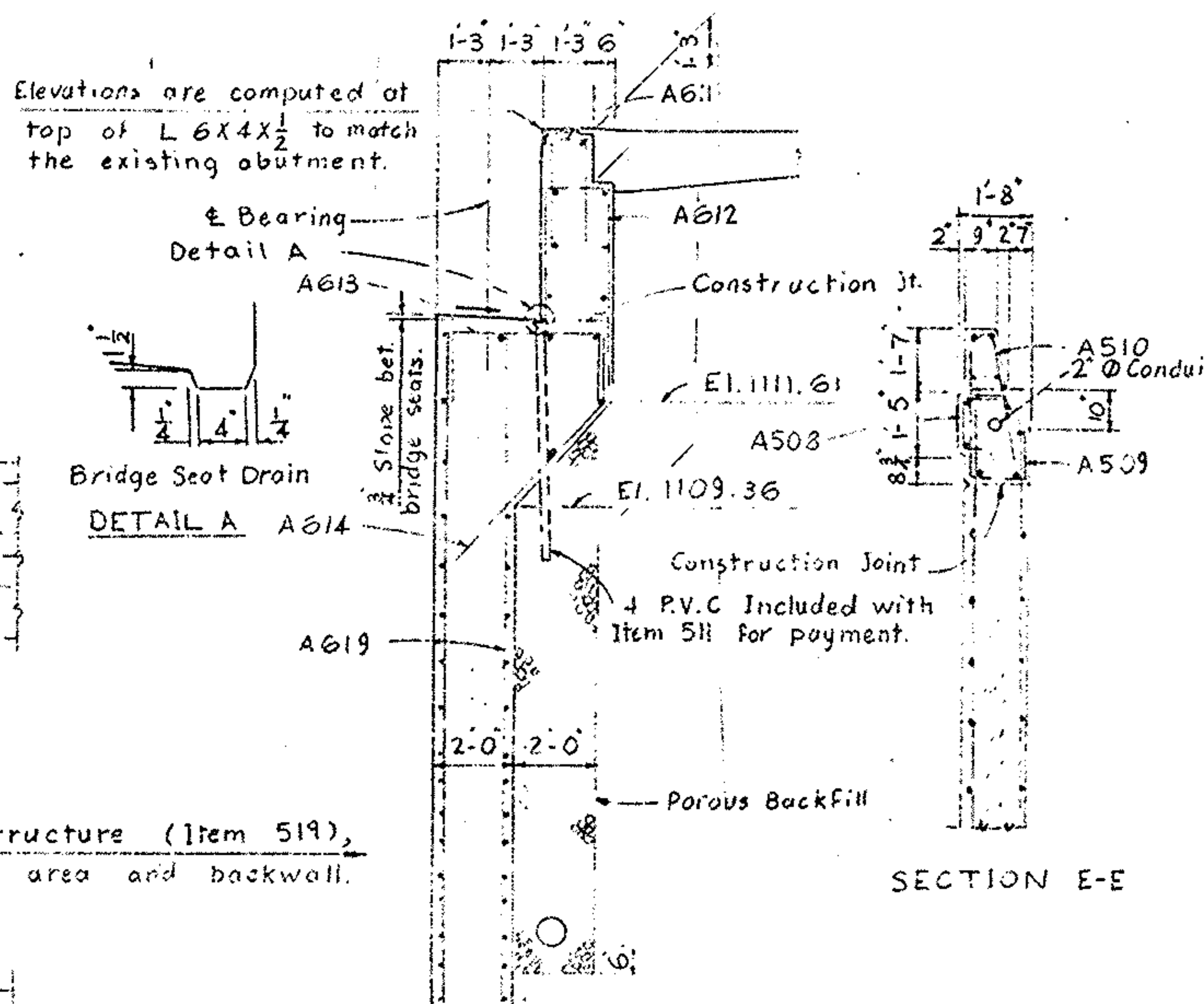
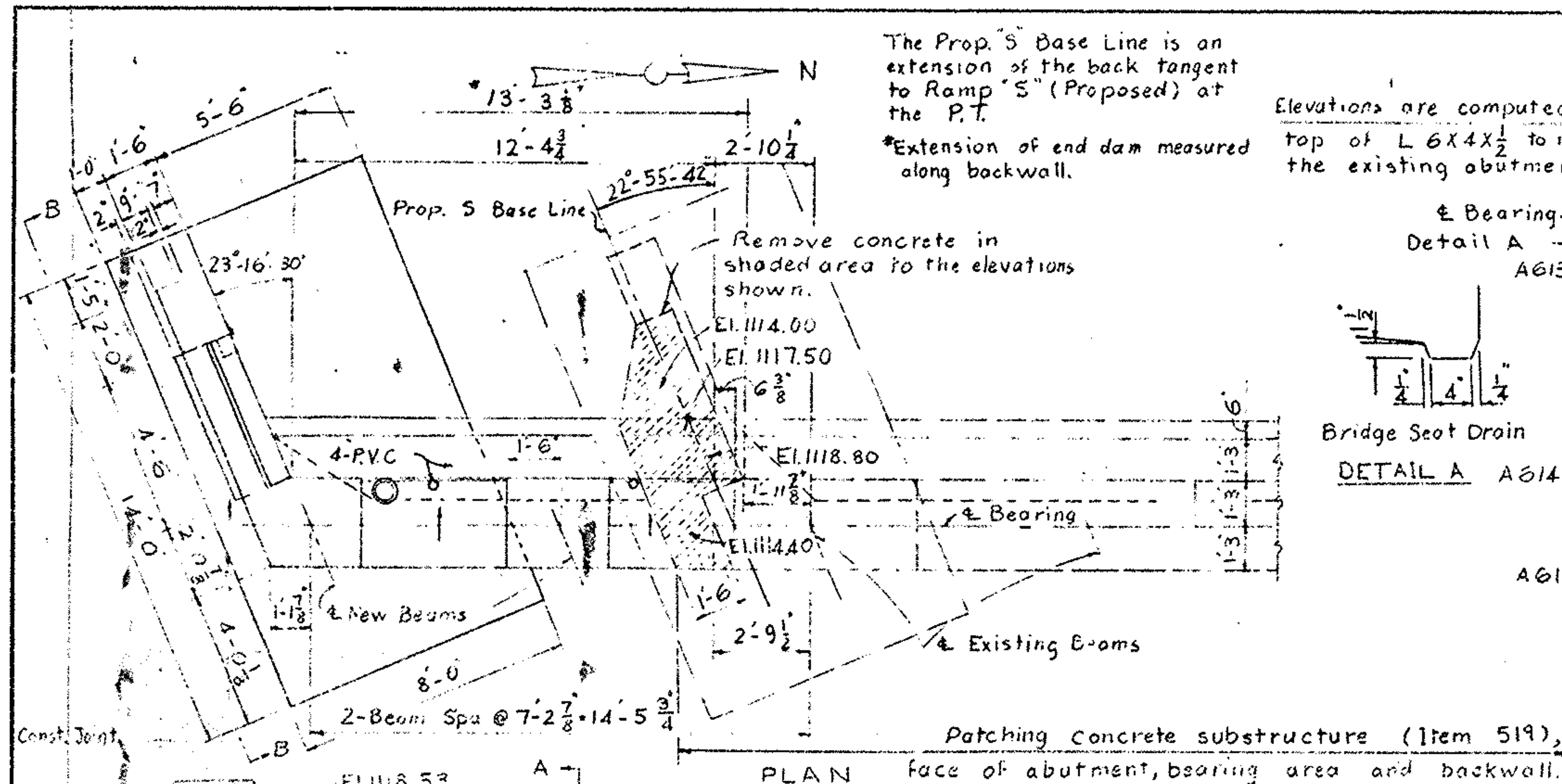
UTILITY LINES: ALL EXPENSE INVOLVED IN RELOCATING THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNERS. THE CONTRACTOR AND OWNERS ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

MAINTENANCE OF TRAFFIC: TWO LANES OF TRAFFIC WITH A MINIMUM HORIZONTAL WIDTH OF 26'-0" AND A MINIMUM VERTICAL CLEARANCE OF 13'-8" SHALL BE MAINTAINED ON INMAN STREET AT ALL TIMES. THE CONTRACTOR SHALL SAFE GUARD THE TRAVELLING PUBLIC BY PROVIDING PLATFORMS, NETS OR OTHER SUITABLE PROTECTION. HIS PROPOSED METHOD SHALL BE SUBMITTED TO THE DIRECTOR AND SHALL HAVE BEEN APPROVED BEFORE REMOVAL WORK BEGINS.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN						3/13
GENERAL NOTES and ESTIMATED QUANTITIES						
BRIDGE NO. SUM-76-1160 OVER INMAN STREET						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
MRG	ERS		SEA		7-19-79	

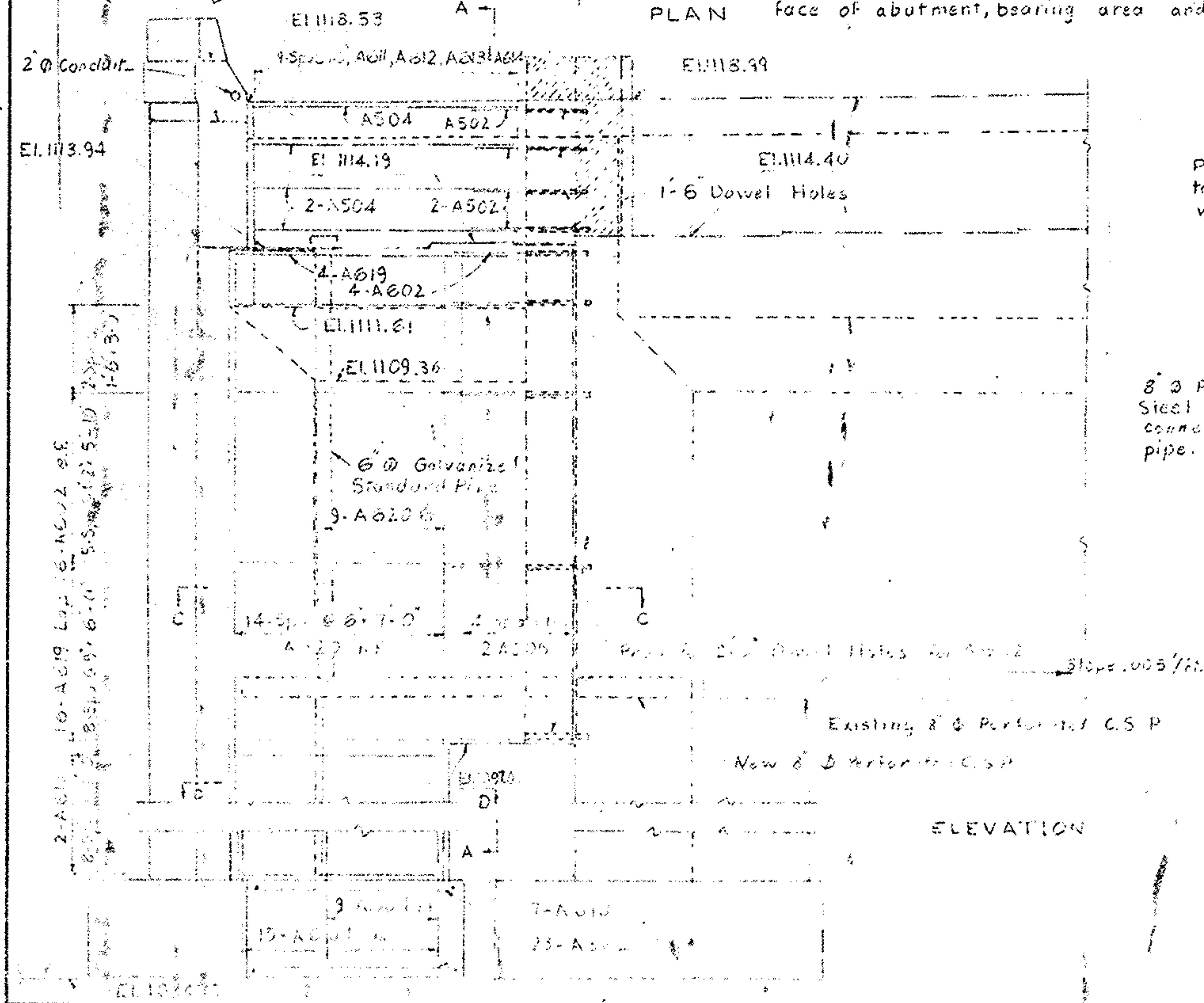
Rev. 2-18-82 SMK

SUM-76-11.57
SUM-8-0.46

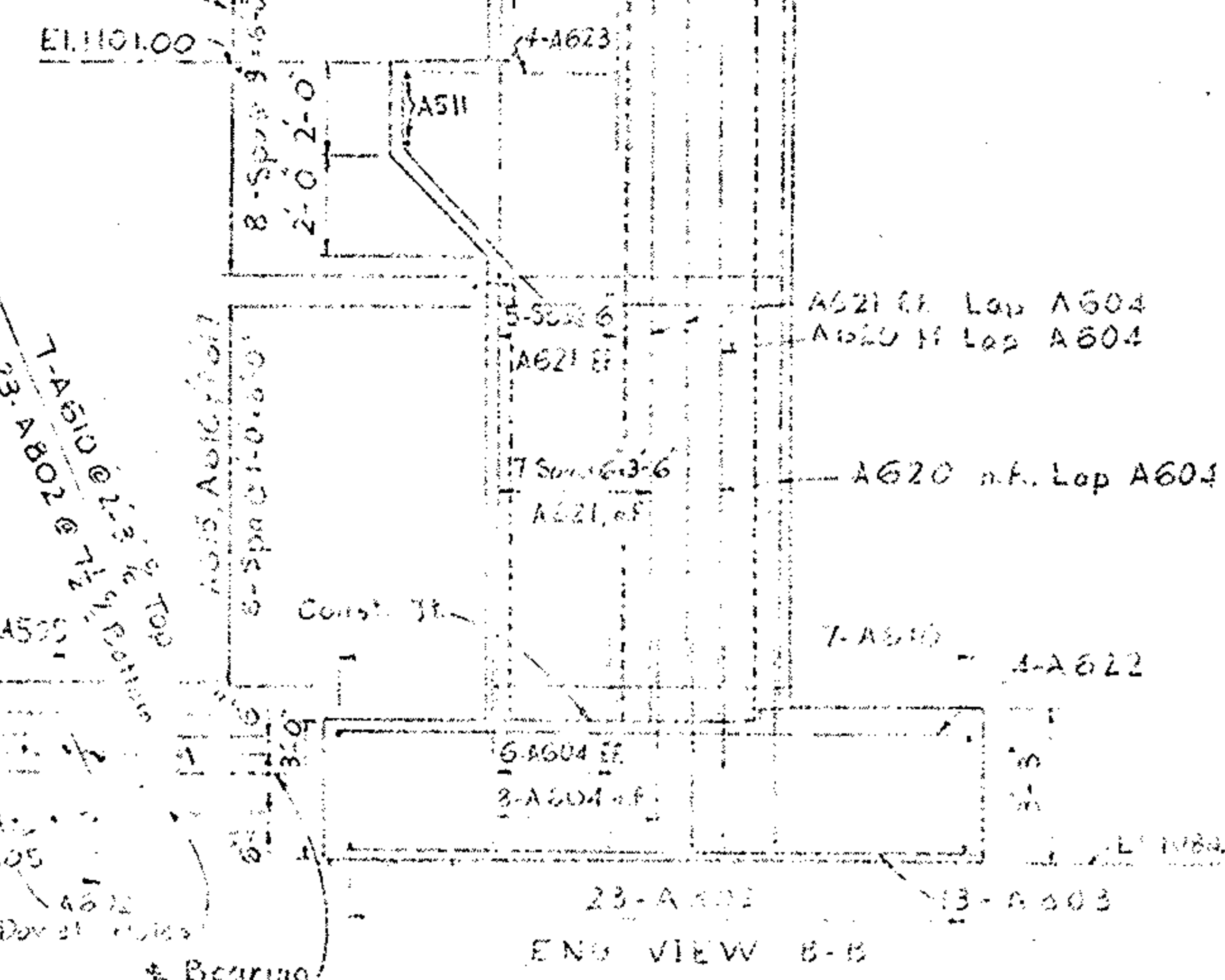


SECTION A-A

POROUS BACKFILL 2 ft. thick shall extend up to the plane of the subgrade and laterally to the wingwall.



SECTION C-C



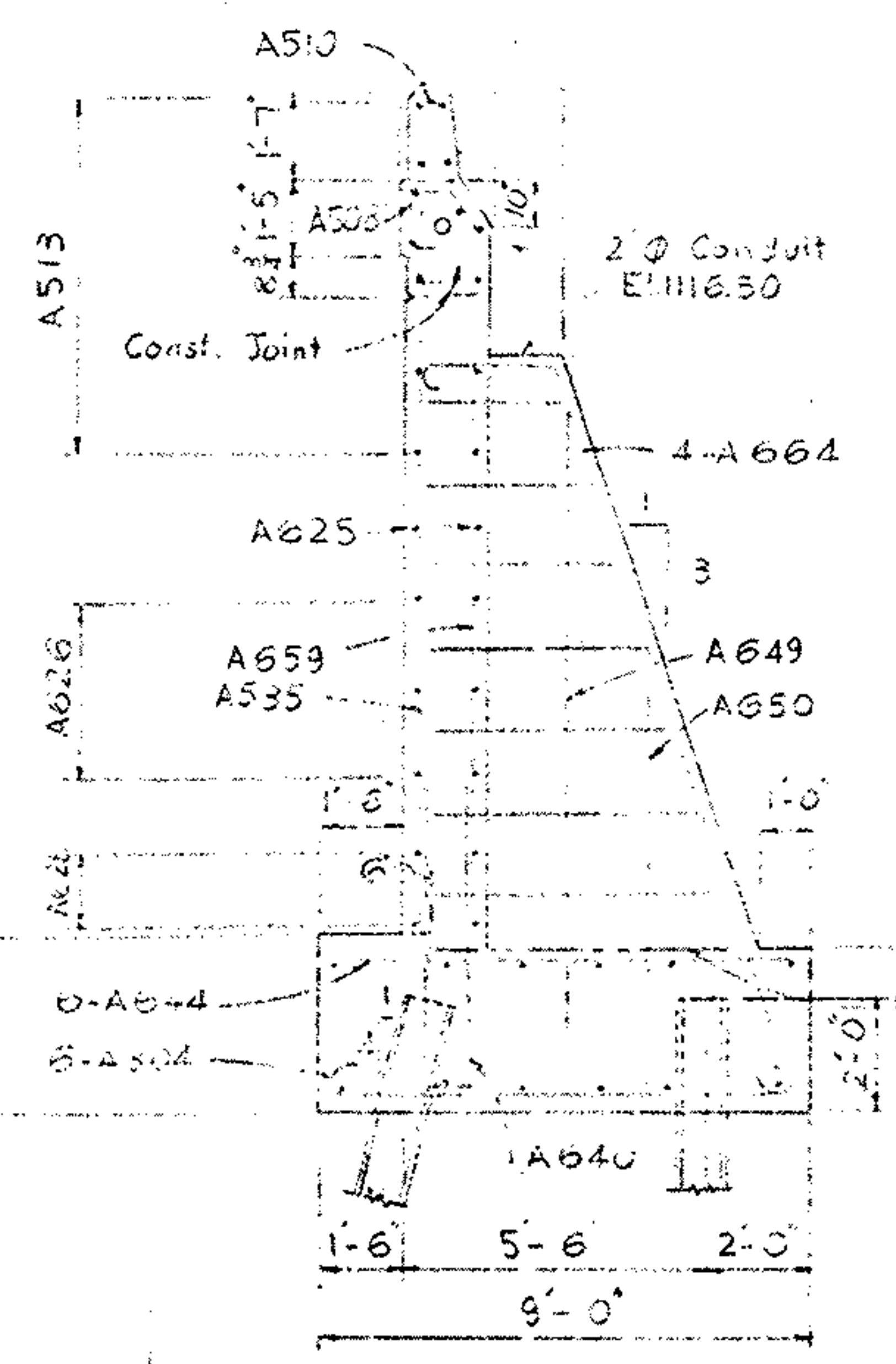
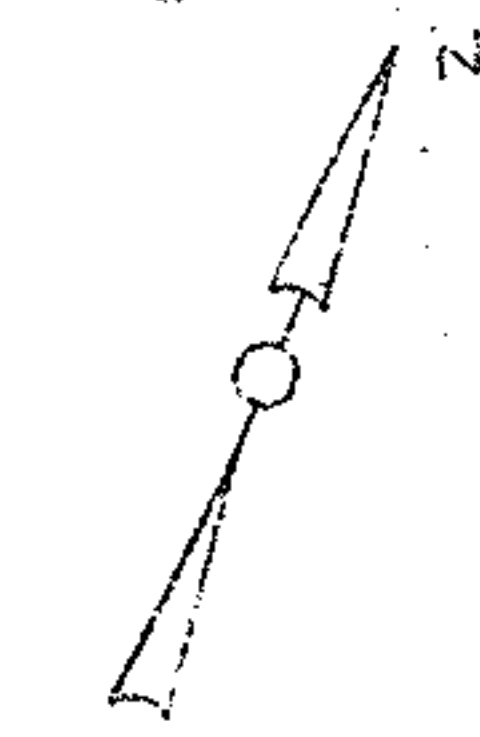
END VIEW B-B

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BUREAU OF BRIDGES

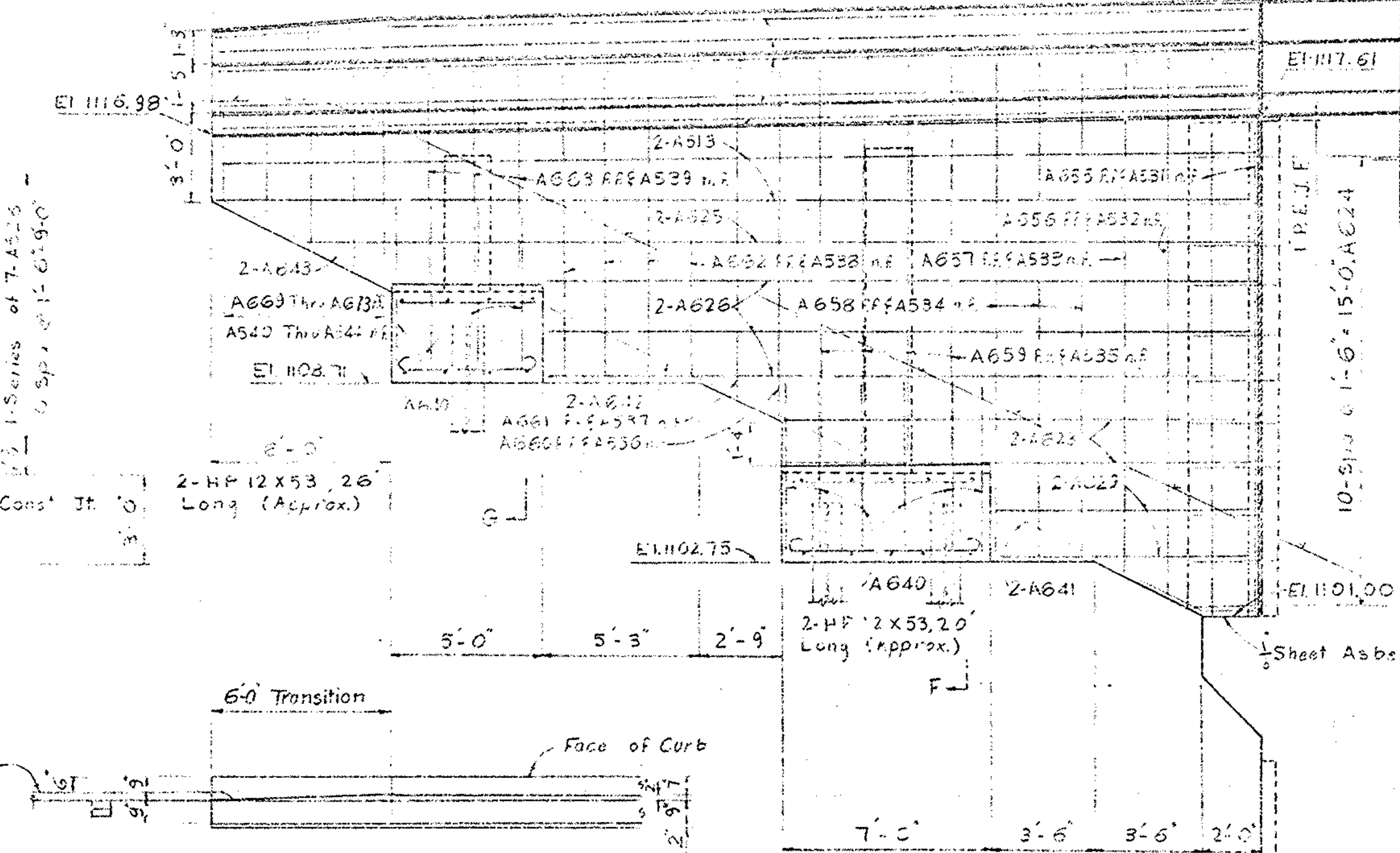
WEST ABUTMENT DETAILS
BRIDGE NO. SUM-76-1180
OVER INMAN ST.

DESIGNED	DRAWN	THROUD	CHECKED	REVIEWED	DATE	REV
MARG	MARG		SEA	WJD	7-17-75	

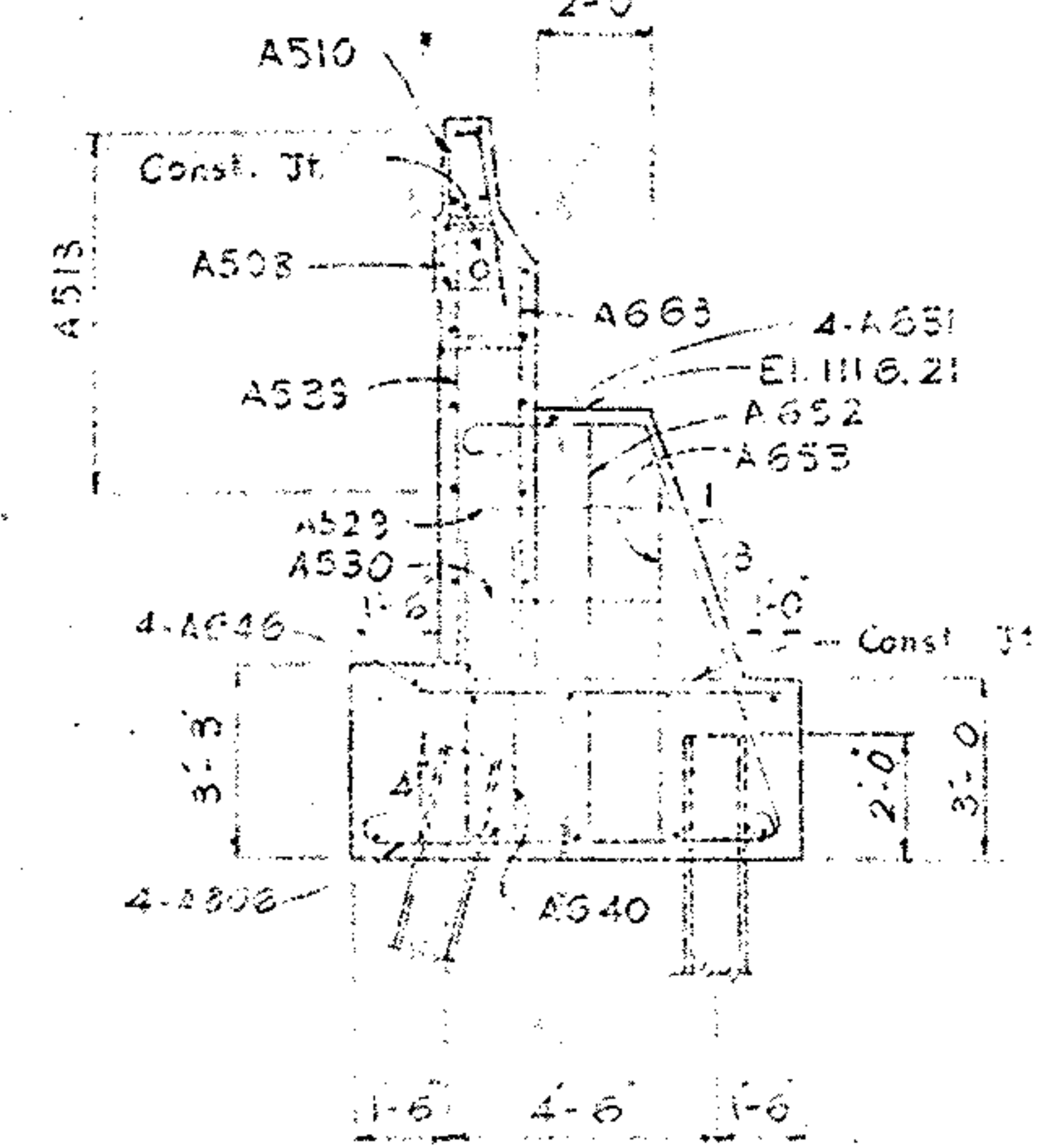
SUM-76-11.57
SUM-8-0.46



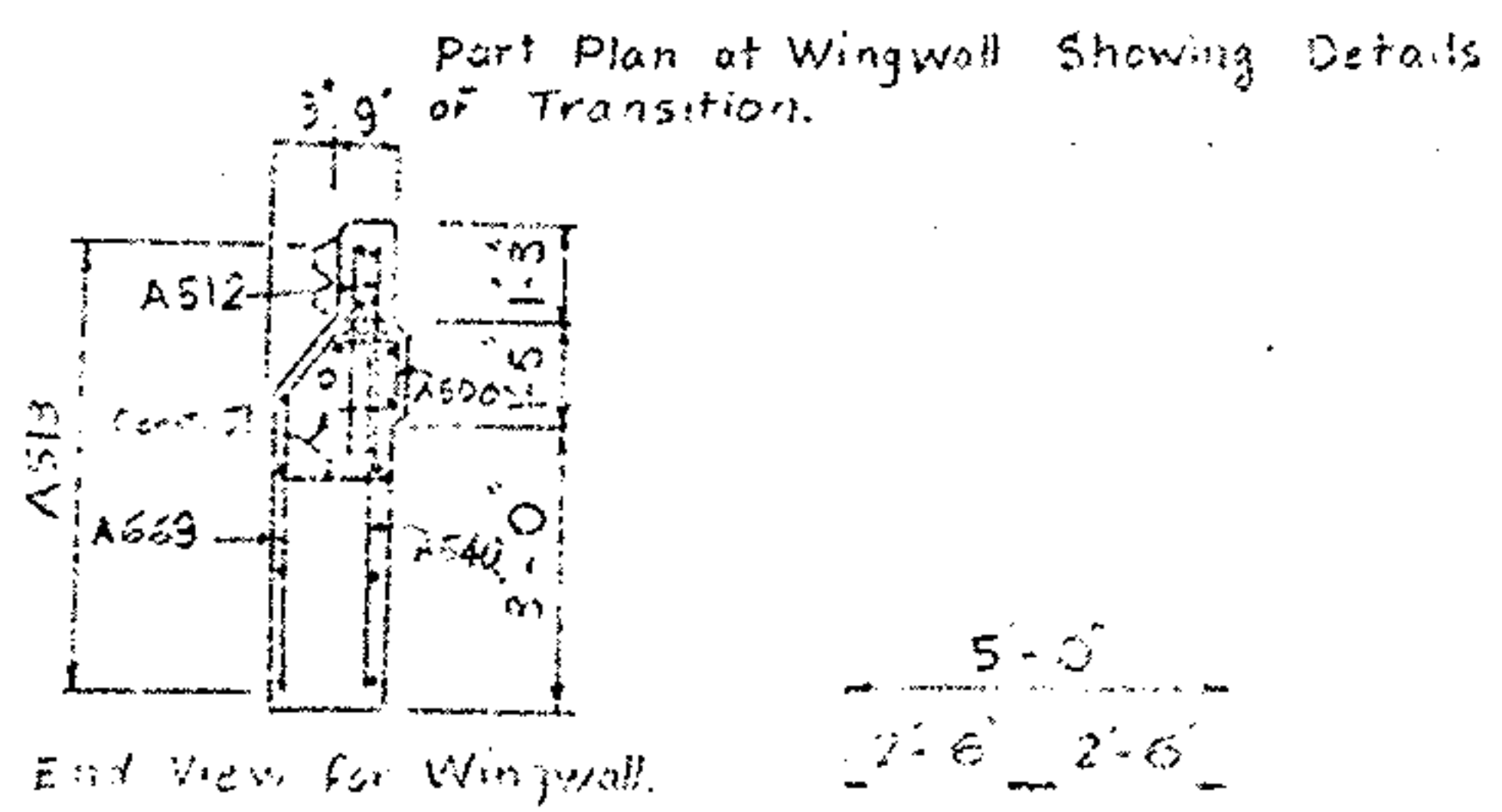
SECTION F-F



SOUTHWEST WINGWALL

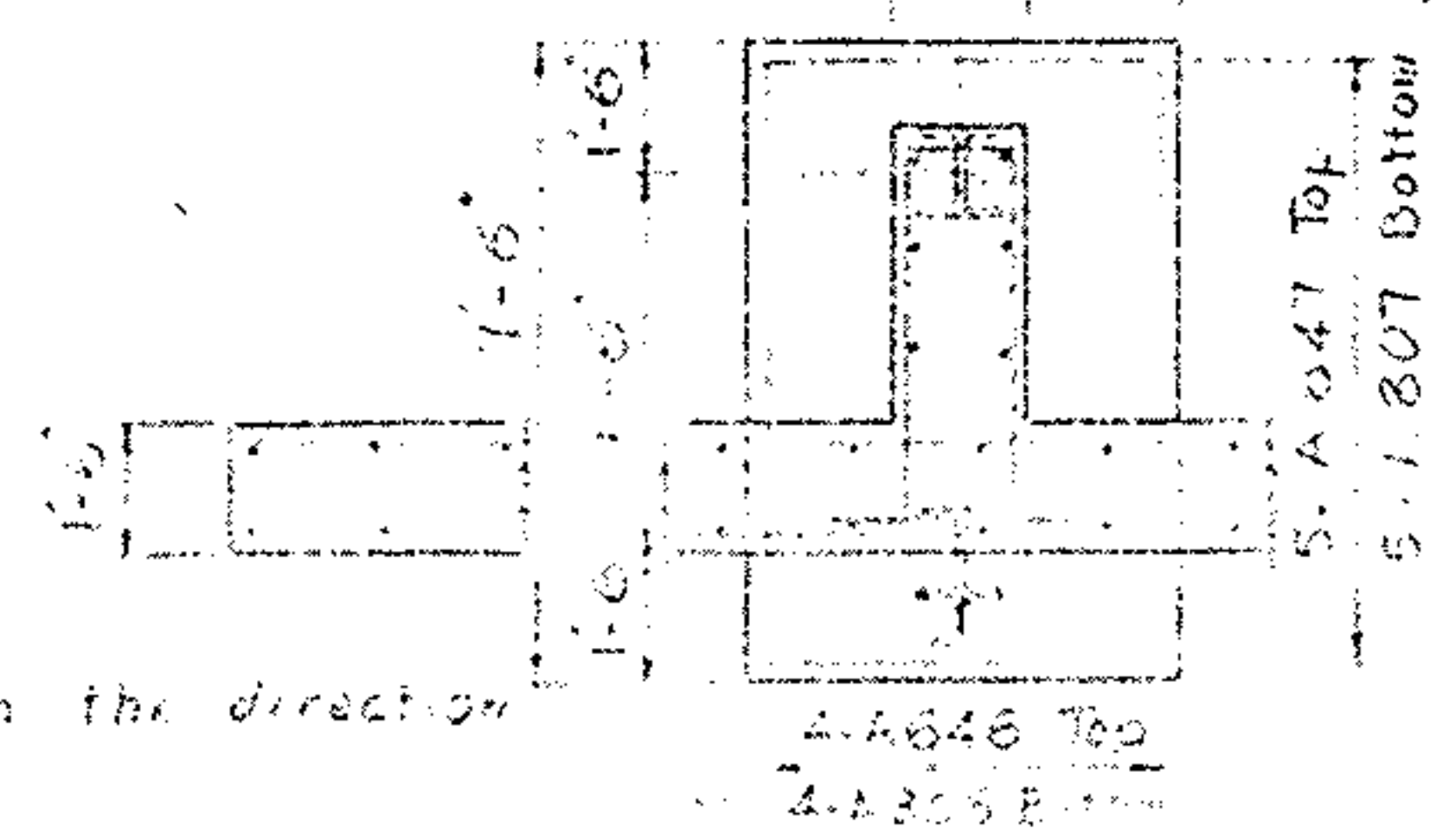


SECTION G-G

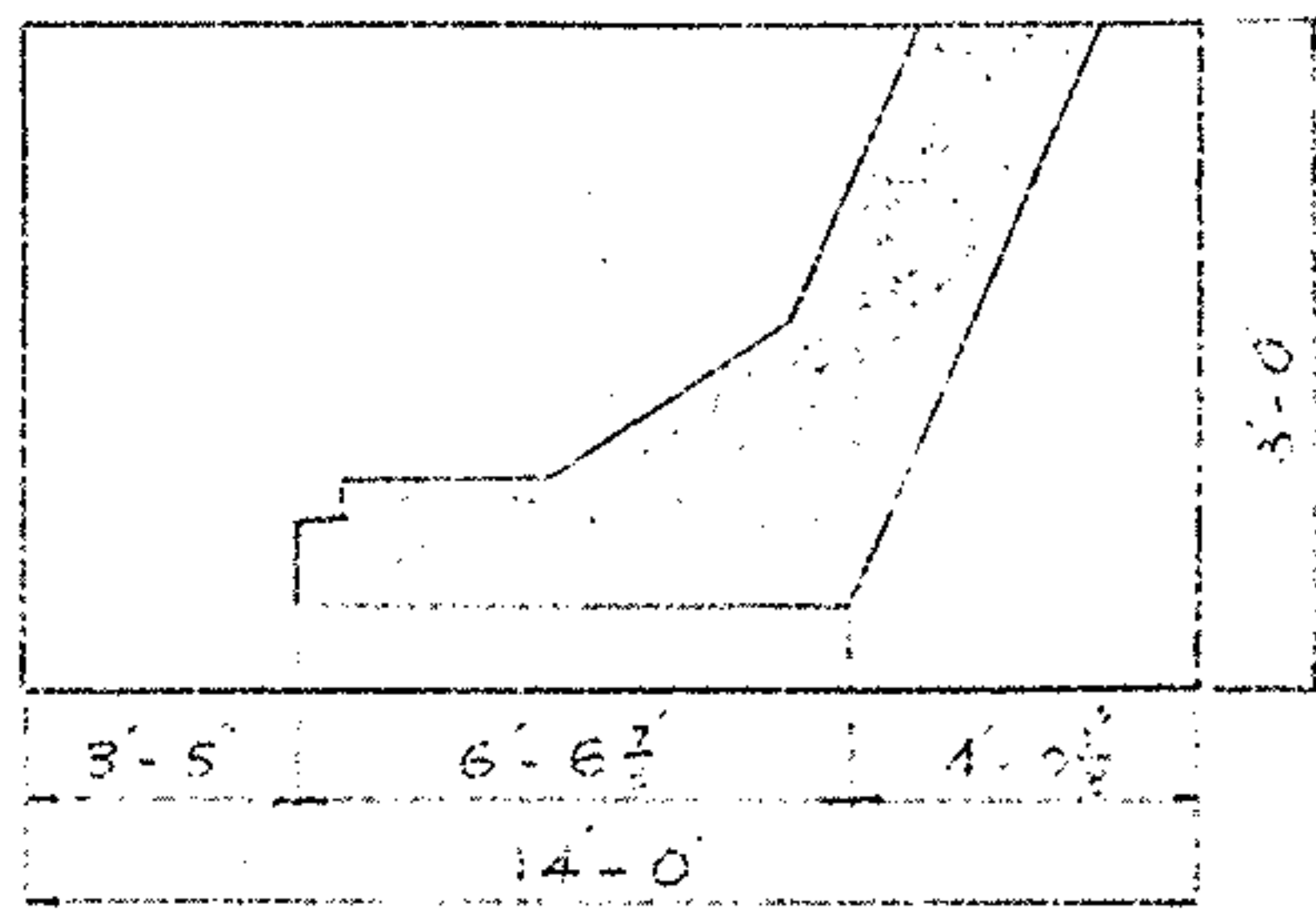
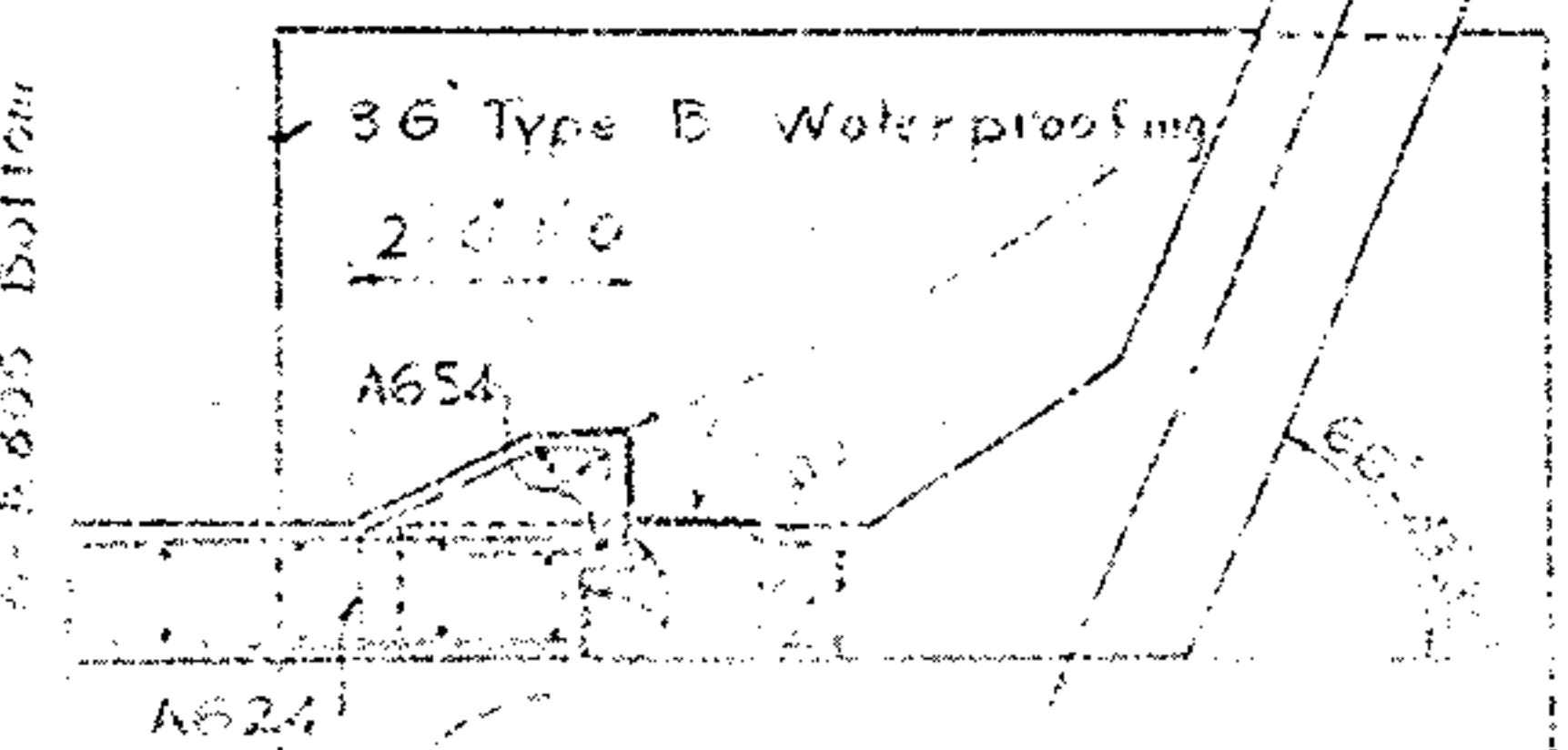


Part Plan at Wingwall Showing Details of Transition.

End View for Wingwall.



FOOTING PLAN

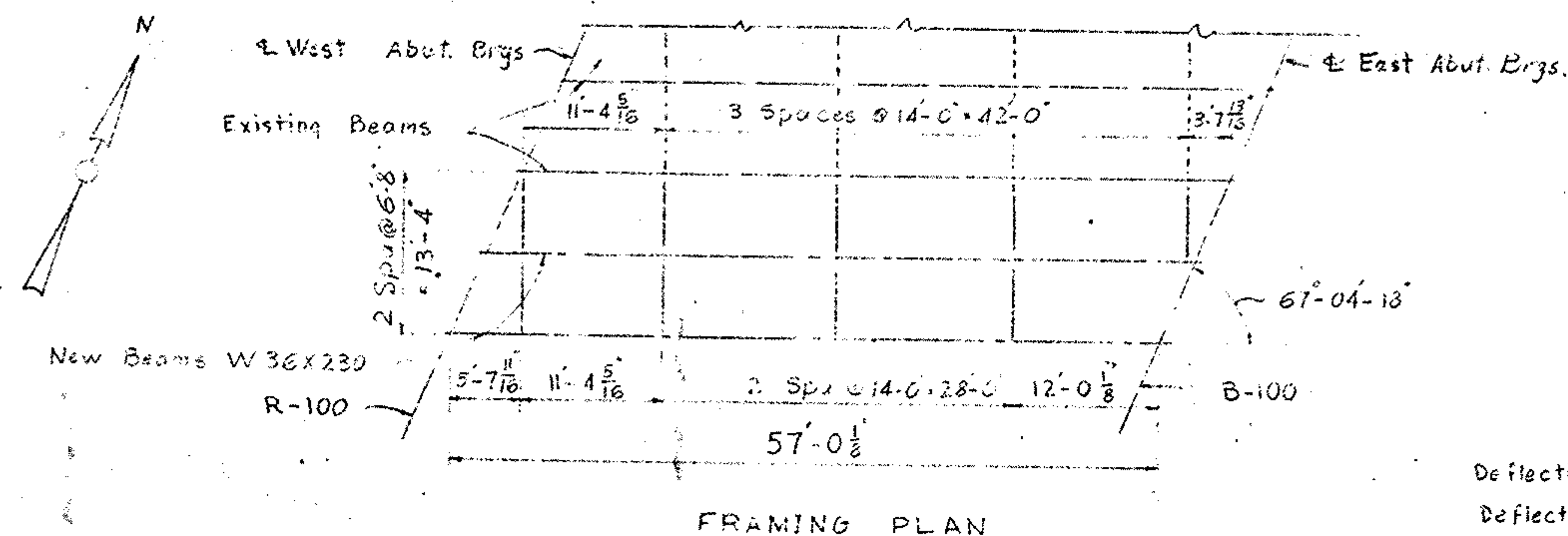
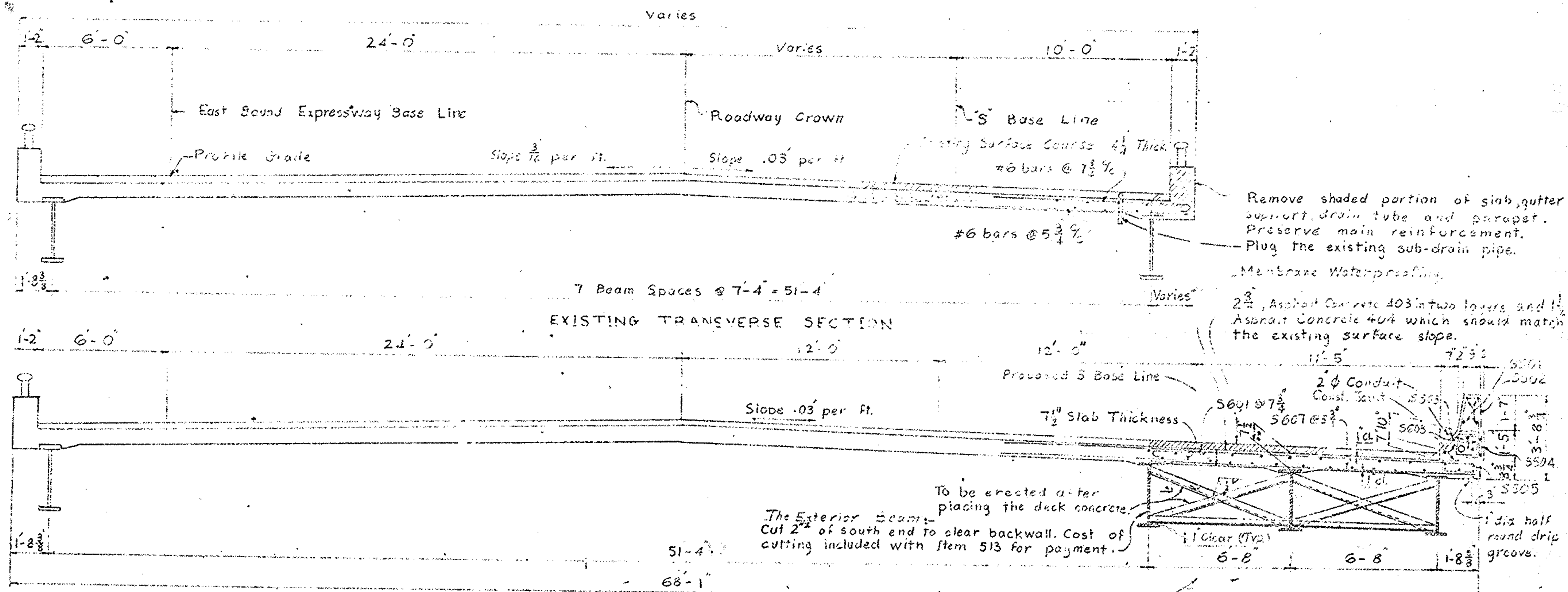


SECTION D-D
Reinforcing steel is not shown.

RUSTICATION GROOVE
Rustication Groove should match the existing grooves.
ATTACHMENT OF GUARDRAIL TO CONCRETE PARAPETS: Concrete inter anchor assemblies per Standard Construction Drawings GR-3 and GR-4 shall be placed during parapet construction.
For Conduit Details See Standard Drawing 11-L-5.
For Location of Section D-D See Sheet 0203.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS BUREAU OF BRIDGES					
WEST ABUTMENT AND SOUTHWEST WINGWALL DETAILS BRIDGE NO. SUM-76-1180 OVER INMAN CR.					
DESIGNED	DRAWN	INCHES	CHECKED	REVIEWED	DATE
MRS. M. J.	M. J.	3/8"	J. M.	M. J.	7-11-79

SUM-76-11.57
SUM-8-0.46



PROPOSED TRANSVERSE SECTION

DECK SLAB DEPTH: The distance shown from top of deck slab to top of steel beam is the design 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.

Dimensions shown for existing structure shall be verified in the field. For Bearing Details see Standard Draw No. R-1-155. For Subdrainage of Superstructure See Sheet 10/13 and Sheet 13/13. The PVC drain pipes shall not be provided.

Deflection due to weight of steel:	1/16"	1/8"	1/4"
Deflection due to remaining dead load:	1/16"	1/8"	1/4"
Required Shop Camber:	1/2"	3/4"	1"

New intermediate cross frames 15 3/4" X 3/4" X 1/2". Weld both sides of vertical leg and top side of horizontal leg to beam with 1/2" continuous fillet weld (Typ.)

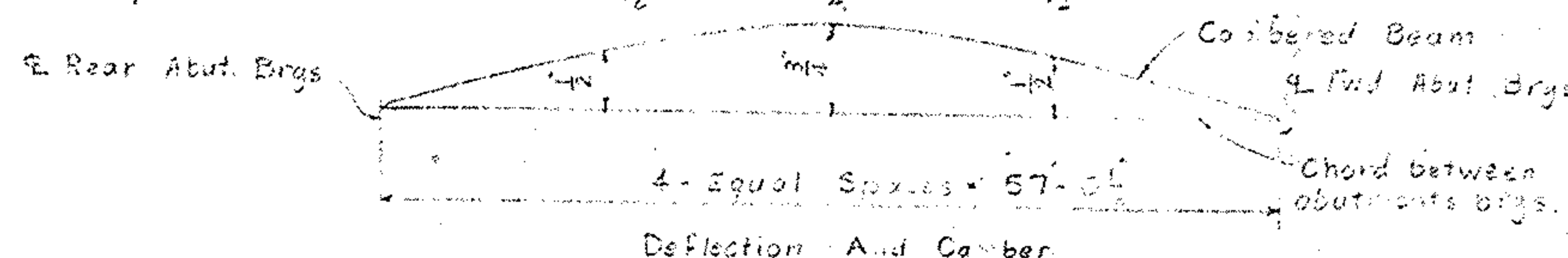
SURFACE ELEVATIONS: The surface elevations of the deck at the face of curb shall be obtained by continuing the slope of the deck of the existing structure. The final surface shall present no breaks in grade in the direction of the roadway crown.

*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.

All longitudinal reinforcements in bottom of slab are 2-sets of 15-S609 and 2-sets of 12-S603 in top of slab. See Sheet 13/13.

DECK PROTECTION METHOD: Epoxy coated reinforcing steel, top mat only, Membrane Waterproofing and asphalt concrete overlay.

Beam Bearings under the existing beams shall be corrected for position and vertical axis of the bearings. See General Notes.

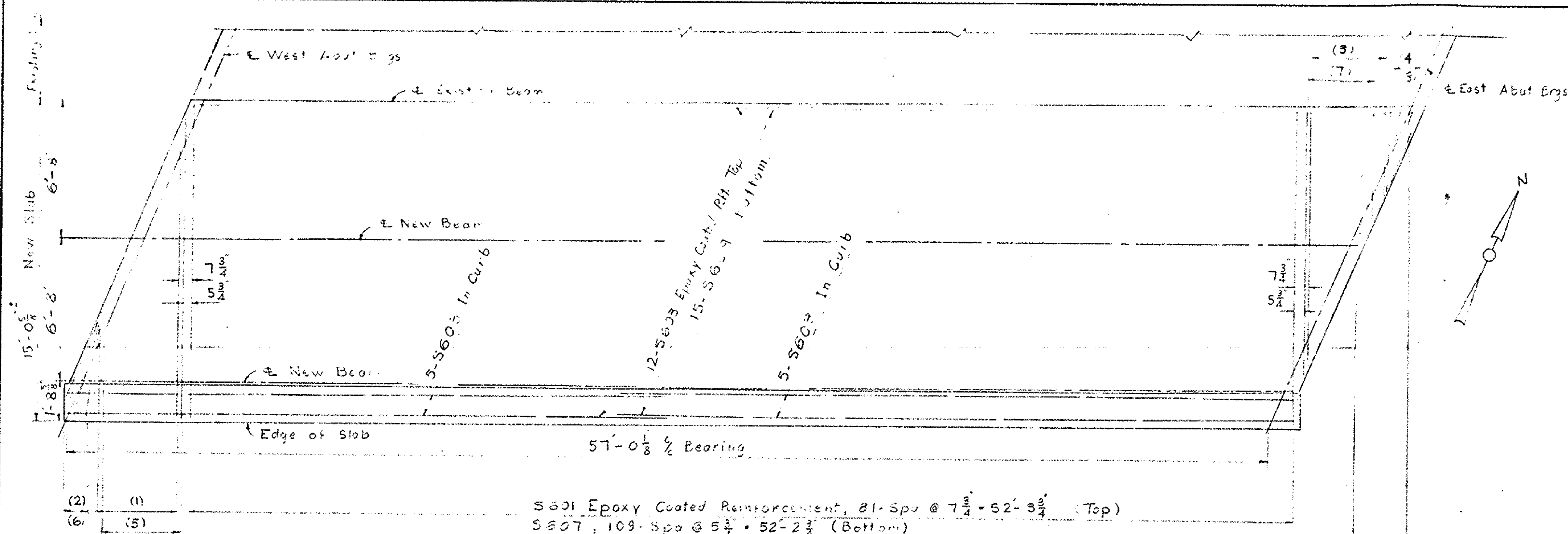


STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS BUREAU OF BRIDGES		2/13
SUPERSTRUCTURE DETAILS		
BRIDGE NO. SUM-76-11.50		
OVER INMAN ST		
DESIGNED	DRAWN	TRACED
MRG	MRS	GEA
CHECKED	REVIEWED	DATE
MRG	WJU	7-11-79

FHWA REGION	STATE	PROJECT
5	OH-10	

23
248

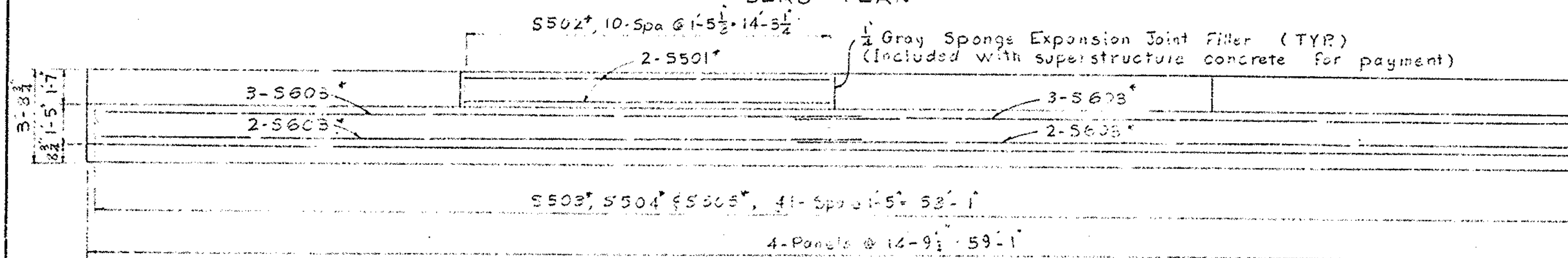
SUM-76-11.57
SUM-8-0.46



- (1) S602, Series of 7 Epoxy Coated Reinforcement, Spa @ $7\frac{3}{4} \times 3'-10\frac{1}{2}"$ (Top)
- (2) 4-S604, Epoxy Coated Reinforcement (Top)
- (3) S605, Series of 6 Epoxy Coated Reinforcement, Spa @ $7\frac{3}{4} \times 3'-2\frac{3}{4}"$ (Top)
- (4) 4-S606, Epoxy Coated Reinforcement (Top)
- (5) S608, Series of 9, Spa @ $5\frac{1}{2} \times 3'-10"$ (Bottom)
- (6) 4-S610 (Bottom)
- (7) S611, Series of 6, Spa @ $5\frac{3}{4} \times 2'-4\frac{3}{4}"$ (Bottom)
- (8) 4-S612 (Bottom)

S601, S605, S607 & S611 Should lap the preserved main reinforcement of the existing slab.

SLAB PLAN



Deck reinforcing bars are not shown.

* Epoxy coated reinforcement.

PREFORMED EXPANSION JOINT FILLER in the parapet deflection joints may be either $\frac{1}{2}$ " gray sponge rubber or $\frac{1}{2}$ " gray cellular polyvinyl chloride (PVC) sponge. If rubber is used it shall meet the requirements of ASTM M-153.

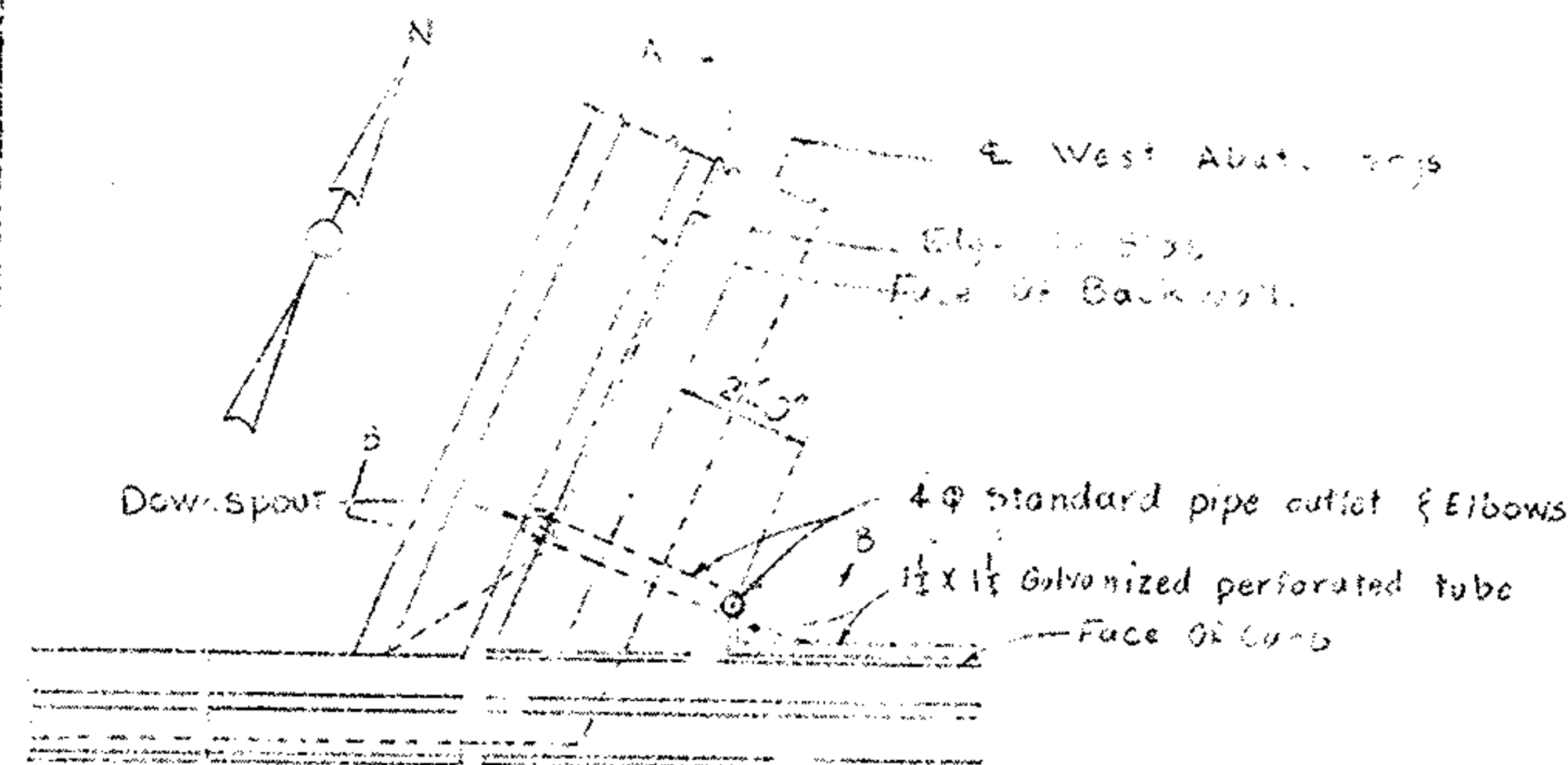
PARAPET AND CURB ELEVATION

CONCRETE PARAPETS above upper construction joint shall be placed in alternate sections by the use of bulkheads. Closing sections shall be placed after removal of bulkheads and after placement of expansion joint filler. Exposed edges of the filler shall be flush with the surface of concrete and shall be free of mortar.

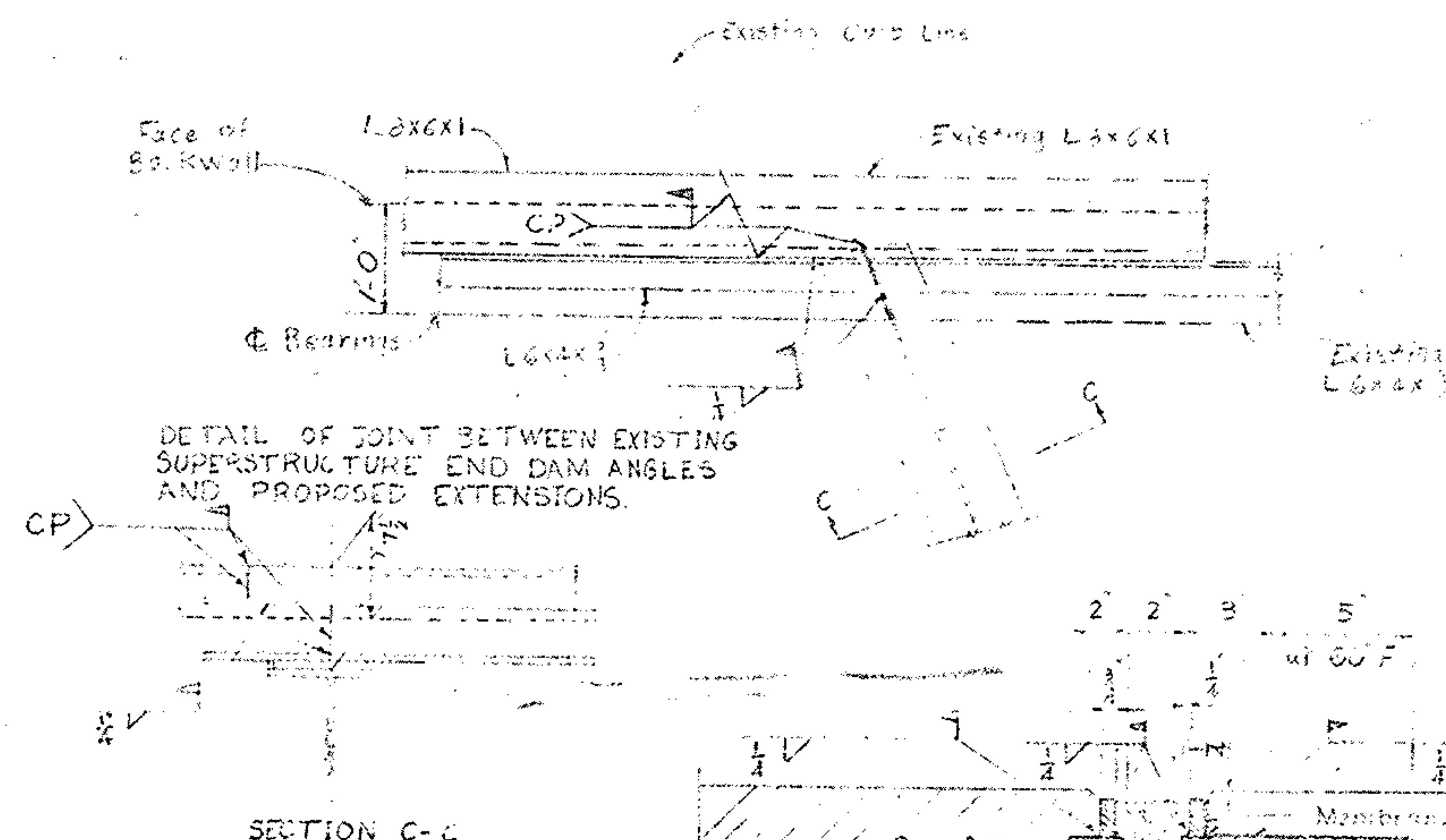
STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS BUREAU OF BRIDGES		9/8
SLAB, PARAPET AND CURB DETAILS BRIDGE NO SUM-76-1180 OVER INMAN ST.		
DRAWN M. J. WOOD	CHECKED S. J. WOOD	DATE NOV 7-11-73

FILE NO.	SHEET	PROJECT
S	0410	

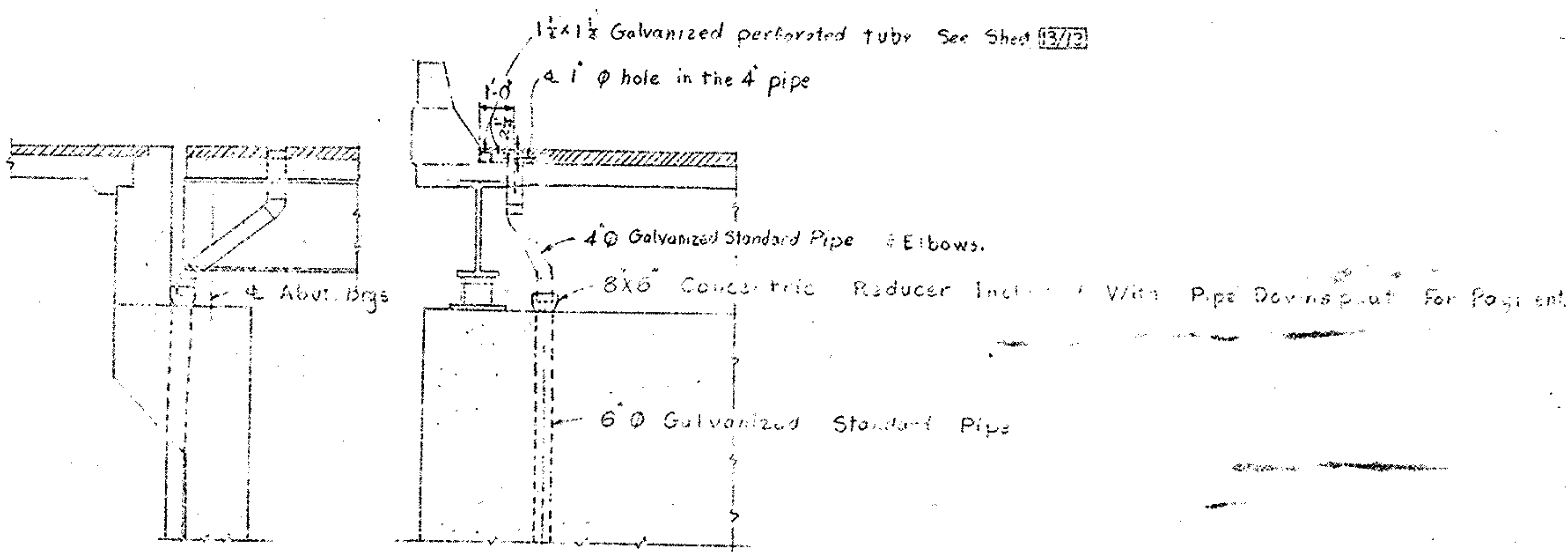
SUM-76-11.57
SUM-B-0.46



PLAN AT WEST ABUTMENT SHOWING SCUPPER
East Abut. is similar

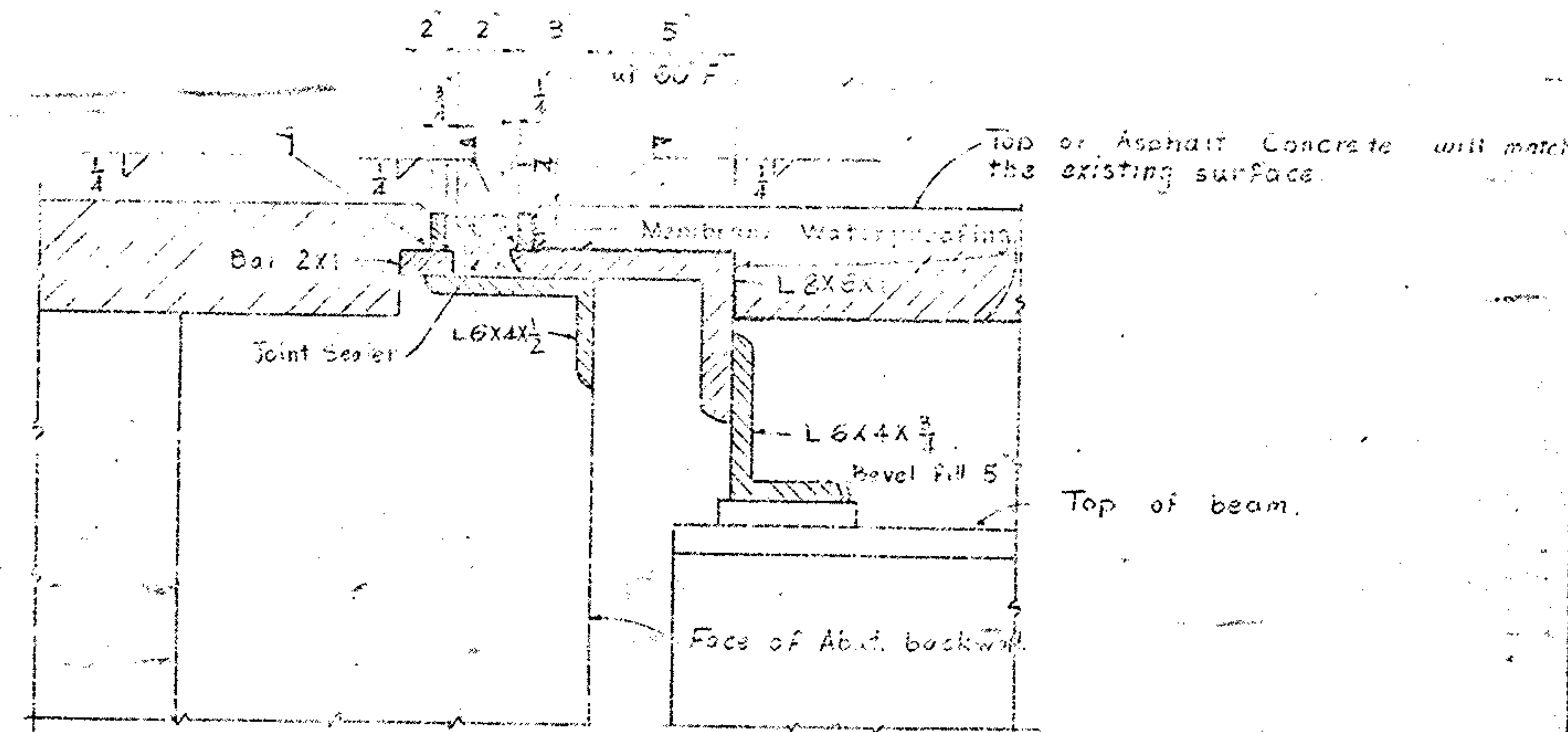


SECTION C-C



SECTION B-B

SECTION A-A

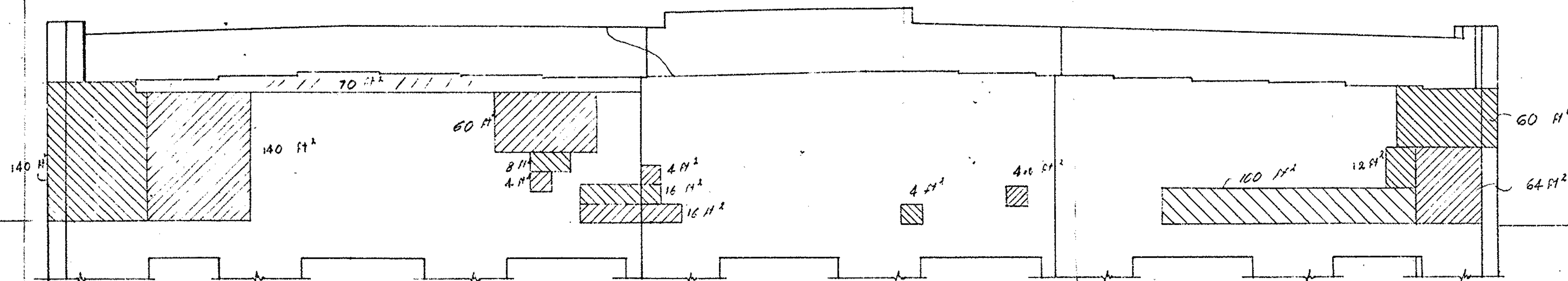


ROADWAY EXPANSION JOINT

The lateral extension of the expansion joint in the widening portion shall match the existing expansion joint.
For End Dam, End Crossframe and Curb Plate See Standard Drawing No. SD-1-69 Sheets 1 & 2 of 4 and Sheet No. 2/13 & 3/13
For seating of end dam see Std. Draw. 8P-5
All new end dam steel except vertical extension bars is included with Item 513 for payment.
Vertical extension bars are included in Item 516, Vertical Extension of Structural Expansion Joints, Sealed as per plan for payment.

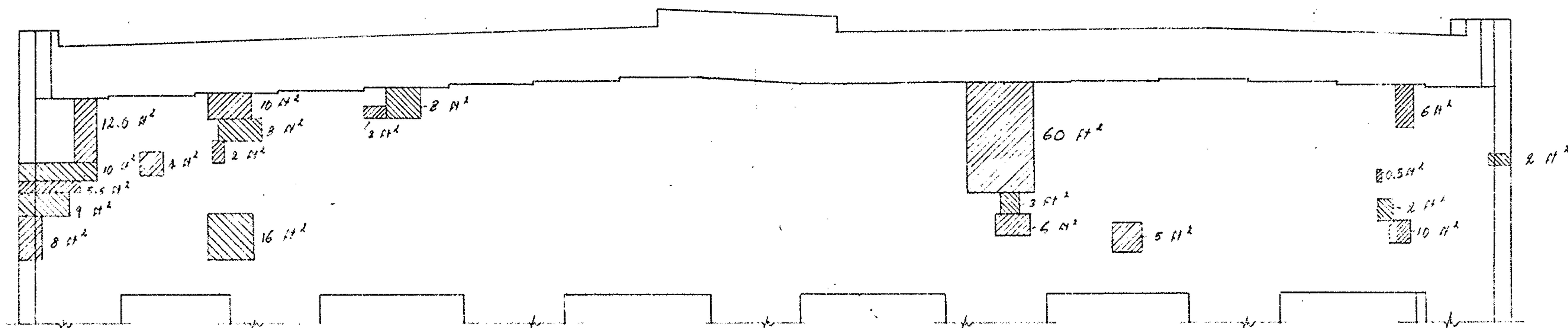
STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS BUREAU OF BRIDGES						10/13
SCUPPER & END DAM DETAILS						
BRIDGE NO. SUM-76-1180						
OVER INMAN ST.						
DESIGNED	DRAWN	TRACED	CHECKED	APPROVED	DATE	REMARKS
MRS. B. H. H.			CEA	WU	7-11-73	

SUM-76-11.57
SUM-8-0.46



ELEVATION
(West Abutment)

The abutment concrete shown in the shaded area and the distributed area of the existing seat as directed by the Engineer shall be patched according to Item 519.



ELEVATION
(East Abutment)

The quantity tabulated in the Estimated Quantities has been increased to account for further deterioration subsequent to the survey and for enlargement of areas due to removal operations.

The cost of any forming required to perform patching adequately shall be included in the unit price bid for Item 519.

At the Contractor's option, patching may be done according to Section 520 in lieu of 519.

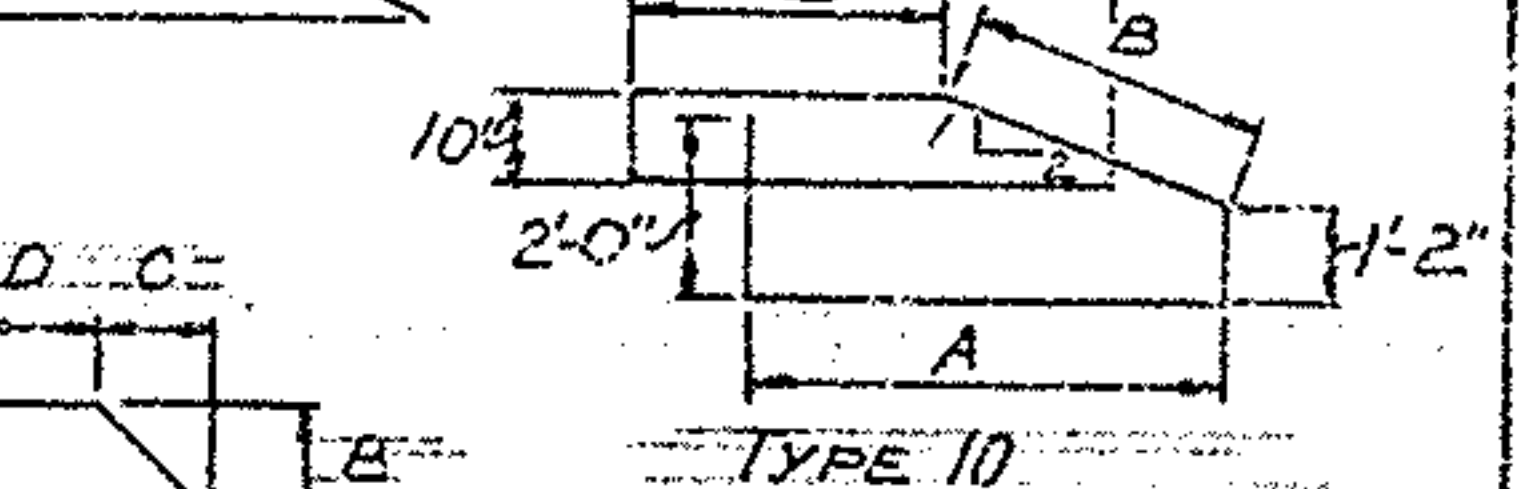
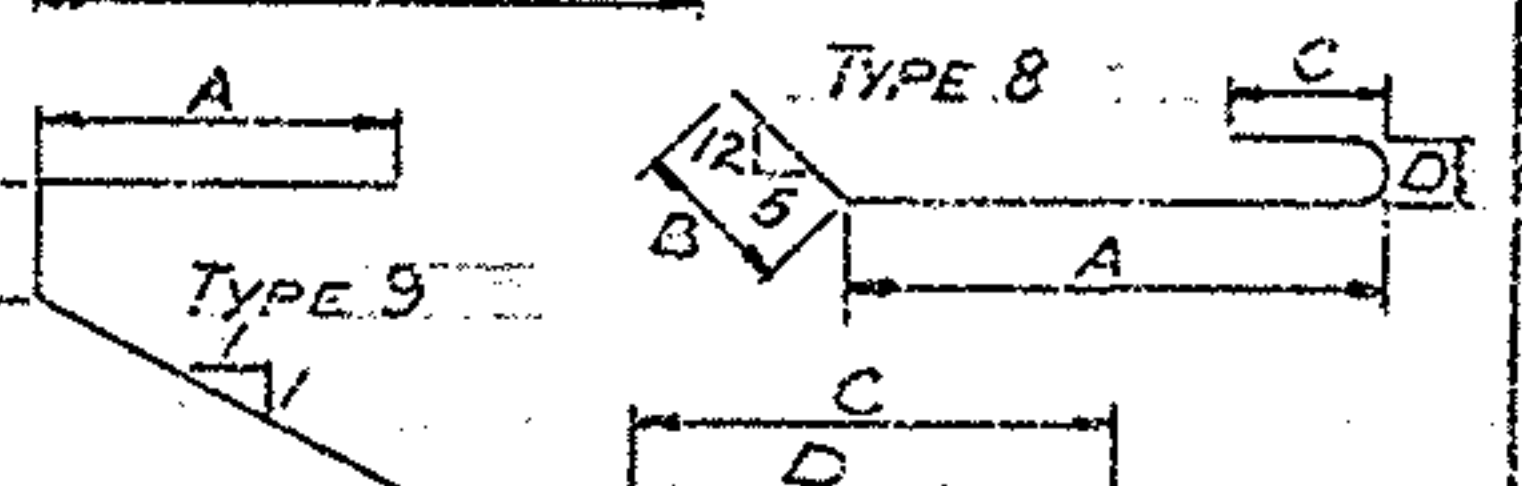
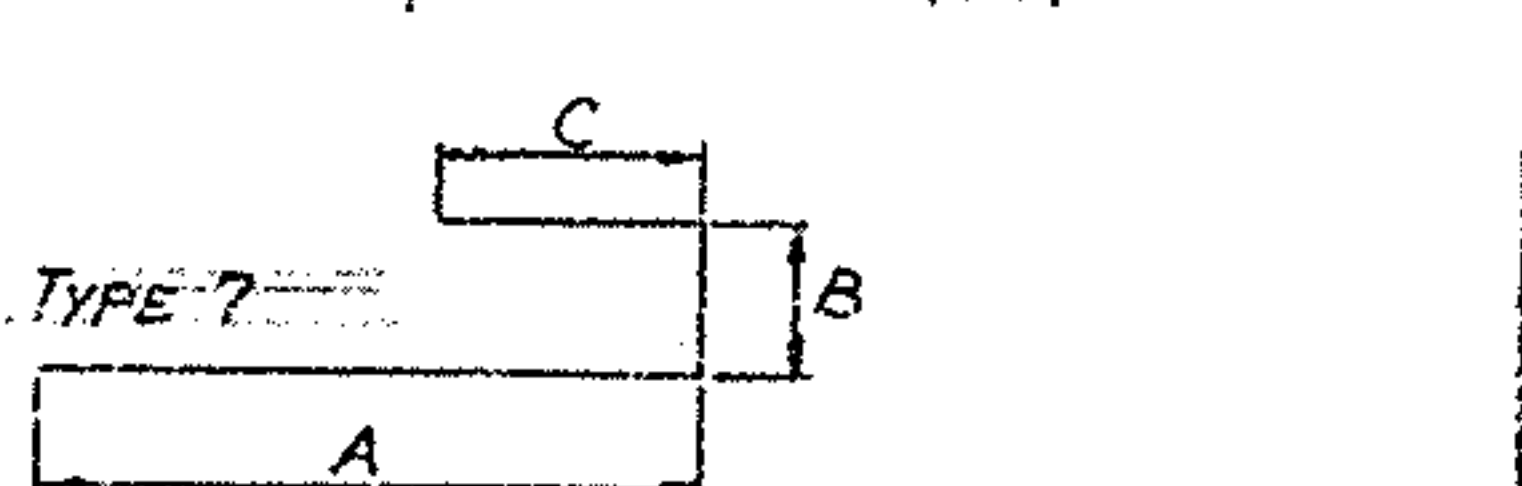
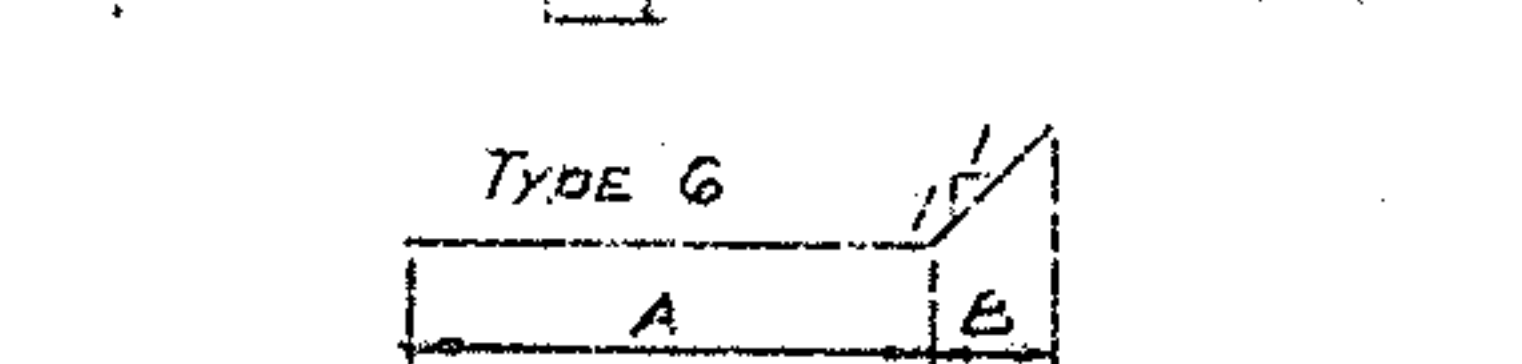
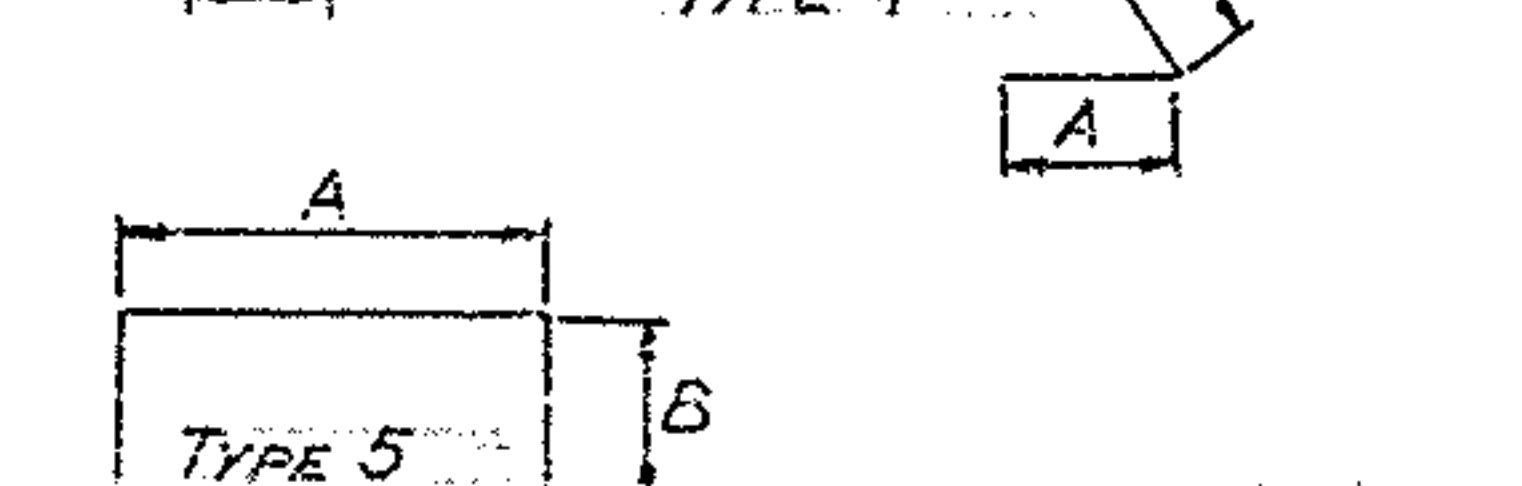
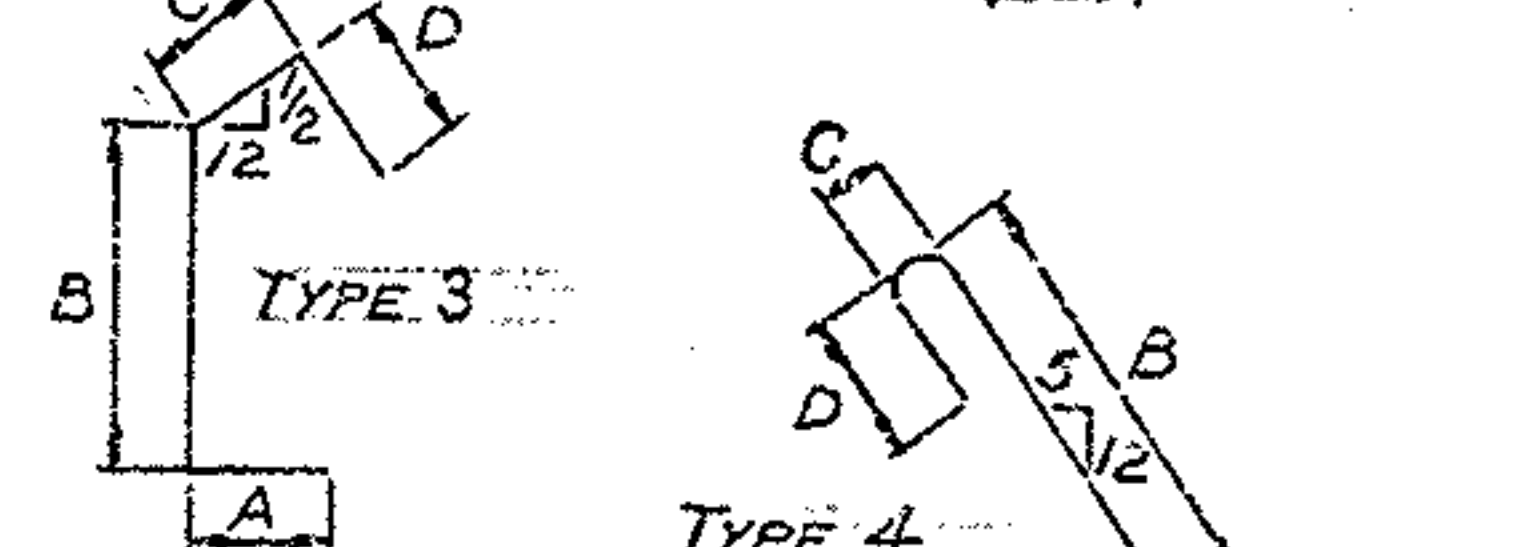
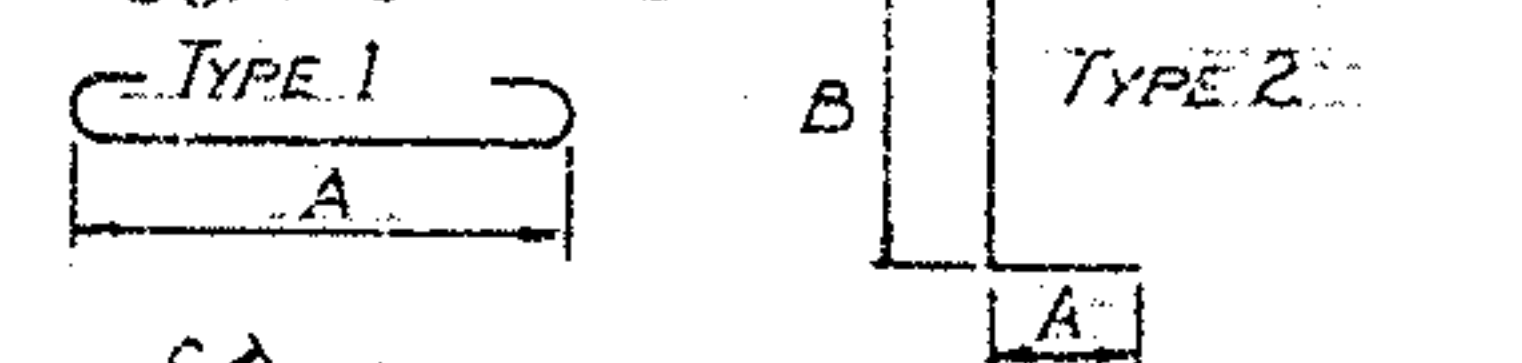
Total area shown = 891 ft²

REINFORCING STEEL LIST

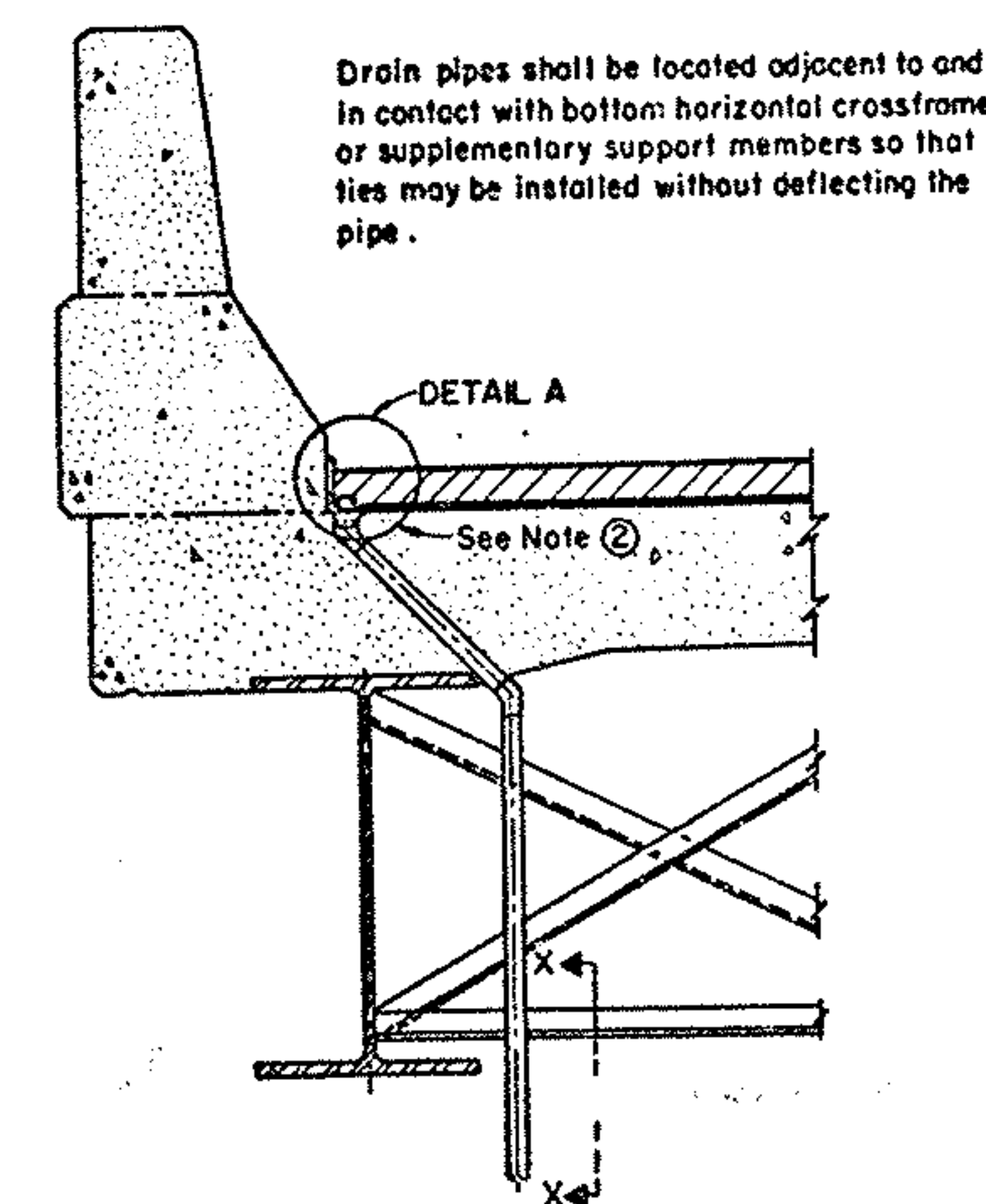
Mark			Total Length	Weight	Type	A	B	C	D	R	Mark				Total Length	Weight	Type	A	B	C	D	R	Mark				Total Length	Weight	Type	A	B	C	D	R		
ABUTMENTS											ABUTMENTS CONTINUED											ABUTMENT CONTINUED														
A601			13	11.6	399	St.					A651				8	11.1	143	13	3.3	7.5			A532				1	18.0	19	St.						
A602			42	7.6	84	St.					A652				2	14.10	45	5	1.2	7.0			A533				1	17.2	18	St.						
A603			13	13.6	469	St.					A653				2	12.10	39	5	1.2	6.0			A534				3	16.6	52	St.						
A604			10	10.8	285	1	8.6				A654				3	16.2	73	St.					A535				4	13.4	56	St.						
A605			12	8.8	278	1	6.6				A655				2	19.4	58	11	17.8	8 1/2	7"	7 1/2	A536				1	11.7	12	St.						
A606			8	5.2	196	1	7.0				A656				1	18.1	28	11	17.3	8 1/2	7"	7 1/2	A537				1	11.0	11	St.						
A607			10	6.8	178	1	4.6				A657				1	18.1	27	11	16.5	8 1/2	7"	7 1/2	A538				4	10.3	43	St.						
A601			38	12.0	685	St.					A658				3	17.5	78	11	15.9	8 1/2	7"	7 1/2	A539				3	7.2	22	St.						
A602			74	4.2	463	St.					A659				4	14.4	86	11	12.8	8 1/2	7"	7 1/2	A540				1	4.3	4	St.						
A603			21	26.0	820	St.					A660				1	12.1	19	11	11.3	8 1/2	7"	7 1/2	A541				1	5.1	5	St.						
A604			74	5.1	658	2	1.0	4.11			A661				1	11.8	18	11	10.4	8 1/2	7"	7 1/2	A542				1	5.10	6	St.						
A605			11	30.0	496	St.					A662				4	11.2	67	11	9.6	8 1/2	7"	7 1/2	A543				1	6.7	7	St.						
A606			16	7.1	170	St.					A663				3	8.1	36	11	6.5	8 1/2	7"	7 1/2	A544				1	7.2	7	St.						
A607			26	7.9	303	3	1.0	5.8	1.1	10"	A664				4	17.10	107	13	2.7	14.0																
A608			26	12.1	504	4	3.0	7.3	8"	2.6	3/4"	A665				1	8.1	12	11	6.10	8 1/2	6"	7"													
A609			4	11.6	69	St.					A666				1	7.3	11	11	6.0	8 1/2	6 1/2	7"	S601				82	15.4	1889	17	14.8					
A610			13	7.6	146	St.					A667				1	6.6	10	11	5.2	8 1/2	7"	7"					1	4.7								
A611			21	7.6	237	5	11"	3.5			A668				1	6.8	9	11	4.4	8 1/2	7 1/2	7"	S602				Series of 1 to 97	St.								
A612			21	12.0	379	5	1.5	5.5			A669				2	4.10	15	11	3.6	8 1/2	7 1/2	7"					7	13.9								
A613			21	7.6	237	5	3.11	1.11			A670				1	5.6	8	11	4.3	8 1/2	6 1/2	7"	S603				34	30.0	1532	St.						
A614			21	7.0	221	6	5.1	1.5			A671				1	6.4	10	11	5.0	8 1/2	7"	7"	S604				4	5.0	30	St.						
A615			20	9.2	358	7	6.4	1.2	1.11		A672				1	7.2	11	11	5.9	8 1/2	7 1/2	7"					1	5.0					4.4			
A616			25	9.10	369	1	8.6				A673				1	7.11	12	11	6.6	8 1/2	7 1/2	7"	S605				Series of 1 to 80	St.					12.0			
A617			26	11.11	465	8	6.2	3.0	2.6	8"					7	11.5	93	St.									6	12.8								
A618			18	7.3	196	St.					A501					14	3.1	45	St.				S606				4	4.0	24	St.						
A619			36	11.4	613	St.					A502					12	17.10	223	St.				S607				110	14.8	2423	St.						
A620			2.6	25.6	996	St.					A503					7	11.5	83	St.								1	7.4								
A621			1.6	30.2	725	St.					A504					10	16.9	175	St.				S608				Series of 7 to 113	St.								
A622			4	13.6	81	St.					A505					24	4.2	104	St.								7	14.1								
A623			8	10.11	131	9	4.6	1.9	3.5		A506					4	3.8	15	St.				S609				30	30.0	1352	St.						
A624			23	11.0	380	10	2.4	2.2	2.6	10"	A507					58	2.4	141	5	1.1	9"		S610				4	5.0	30	St.						
A625			4	31.6	189	St.					A508					8	3.4	28	14	10 1/2	1.1	8 1/2	6"				Series of 6 to 86	St.								
A626			12	23.7	425	St.					A509					48	6.7	330	15	10 1/2	3.4	2.5	2 1/8"	S611				to								
A627			2	17.7	53	St.					A510					4	1.2	5	St.								6	12.4								
A628			8	15.7	187	St.					A511					20	3.1	64	St.				S612				4	4.0	24	St.						
A629			8	8.7	103	St.					A512					28	34.7	1010	St.																	
A630			3	16.1	76	St.					A513					2	19.4	40	St.				S501				16	14.1	235	St.						
A631			2	19.7	59	11	18.3	8 1/2	6"	7"	A514					1	18.7	19	St.				S502				44	5.3	241	18	2.5	2.2	7 1/2		2 1/8"	
A632			1	19.0	29	11	17.8	8 1/2	6"	7"	A515					1	17.10	19	St.				S503				42	3.5	150	14	10 1/2	1.2	8 1/2	6"		
A633			1	18.3	27	11	16.1	8 1/2	6"	7"	A516					3	17.7	55	St.				S504				42	2.4	102	5	1.1	9"				
A634			3	18.0	81	11	16.8	8 1/2	6"	7"	A517					5	14.4	75	St.				S505				42	2.8	117	2	10 1/2	1.1				
A635			5	15.0	113	11	13.8	8 1/2	6"	7"	A518					1	11.1	12	St.																	
A636			1	12.4	19	11	11.0	8 1/2	6"	7"	A519					1	11.2	12	St.																	
A637			1	11.6	17	11	10.3	8 1/2	6"	7"	A520					3	10.5	33	St.																	
A638			3	10.9	48	11	9.6	8 1/2	6"	7"	A521					3	7.6	23	St.																	
A639			3	7.10	35	11	6.7	8 1/2	6"	7"	A522					1	7.8	8	St.																	
A640			20	10.7	318	5	1.2	4.10			A523					1	6.9	7	St.																	
A641			4	9.4	56	12	1.9	6.10			A524					1	5.11	6	St.																	
A642			4	12.0	72	St.					A525					1	5.1	5	St.																	
A643			4	6.4	38	St.					A526					1	4.3	4	St.																	
A644			10	8.6	128	St.					A527					2	7.10																			
A645			12	6.6	117	St.									Series of 7 to 13.10																					
A646			8	7.0	84	St.					A528					158	16	10 1/2	5.10	1.2																
A647			10	4.6	68	St.									13.10																					
A648			4	18.8	112	13	2.4	15.1			A529					2	9.9	20	16	10 1/2	3.8	1.2														
A649			2	26.0	78	5	1.2	12.7			A530					2	10.9	22	16	10 1/2	4.2	1.2														
A650			2	16.4	49	5	1.2	7.9			A531					2																				

STATE	PROJECT	234
5	OHIO	243

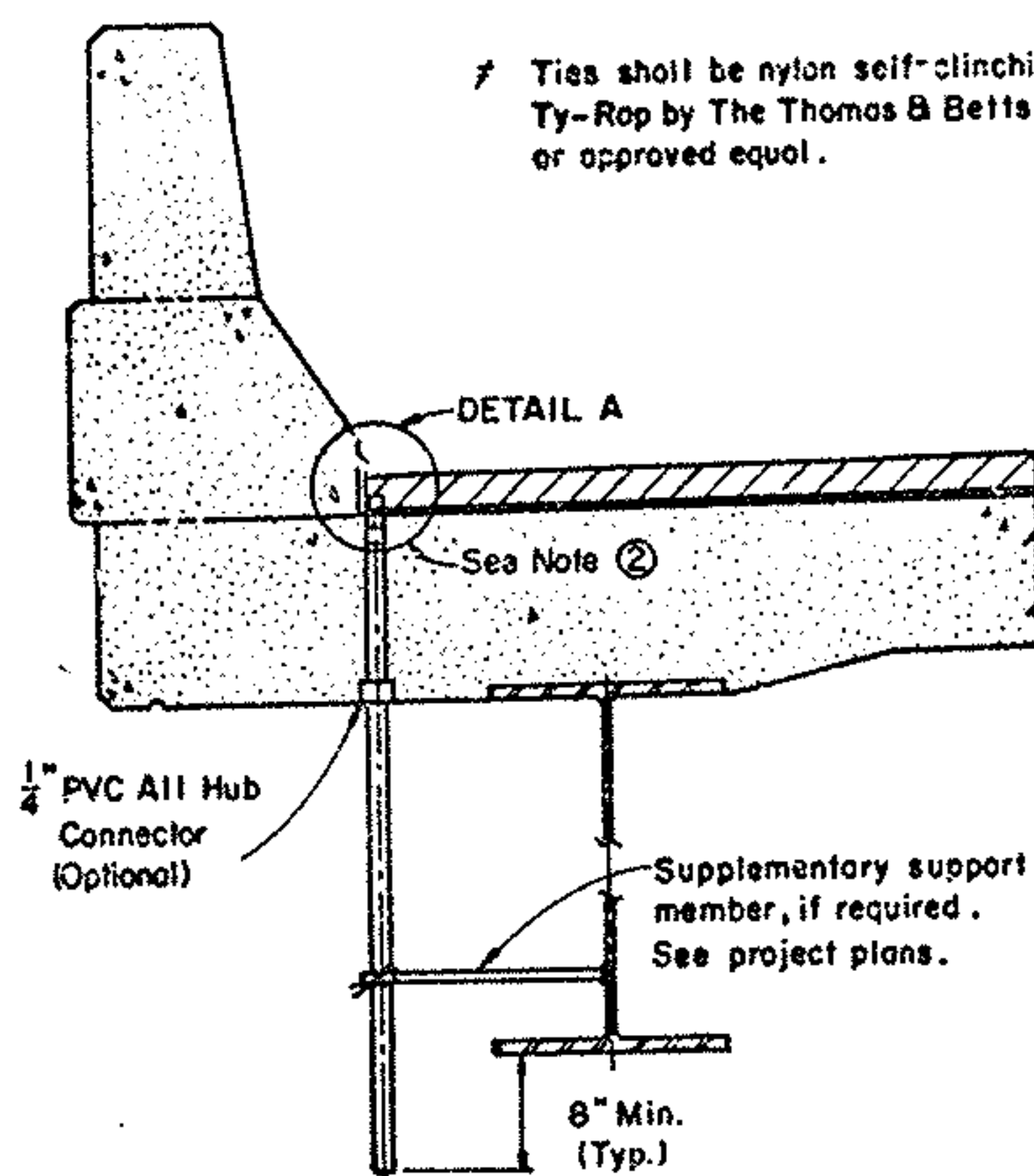
SUM-76-1157
SUM-8-0.46



SUM-76-1157
SUM-B-046

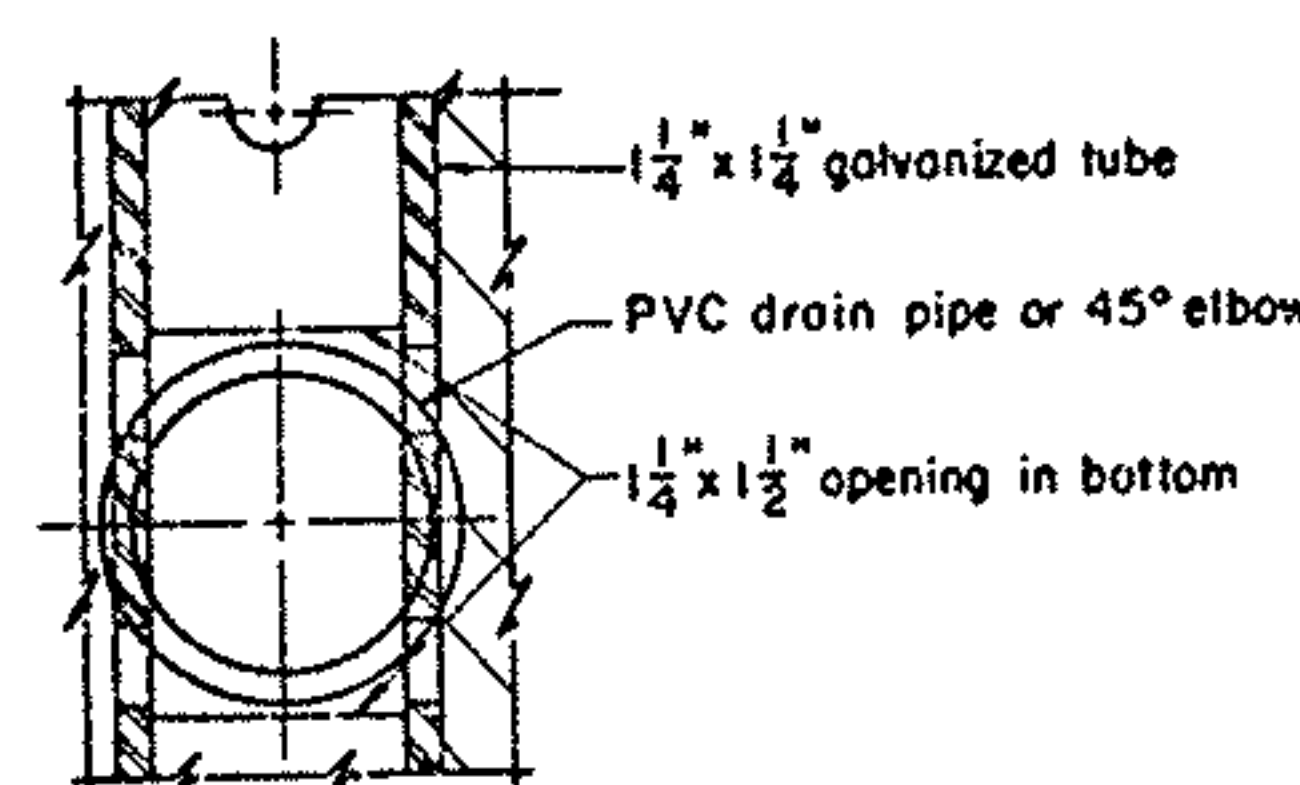


FACE OF CURB LOCATED ON CENTERLINE
OF STRUCTURAL STEEL

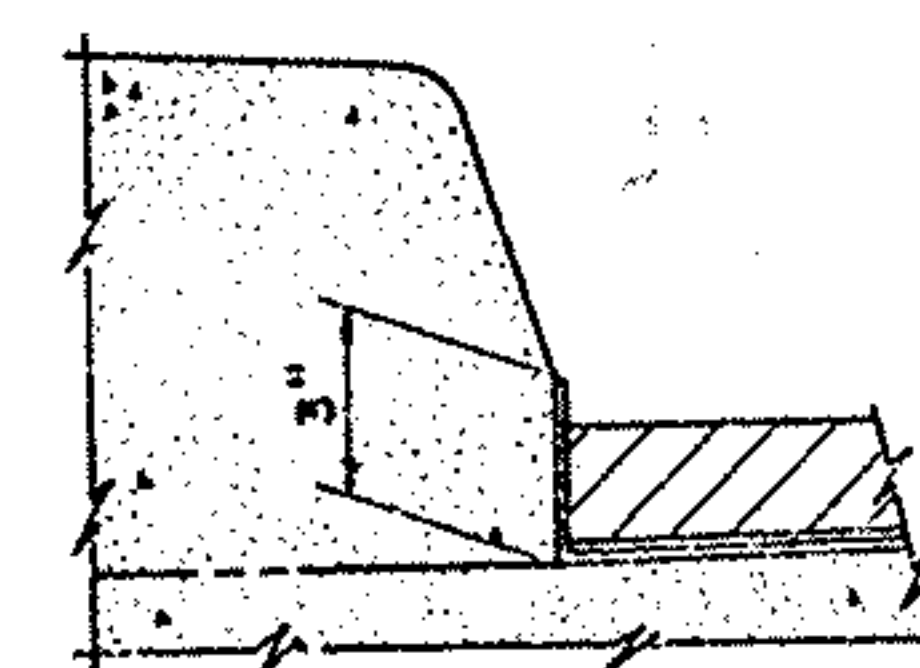


FACE OF CURB LOCATED OFF CENTER LINE
OF STRUCTURAL STEEL

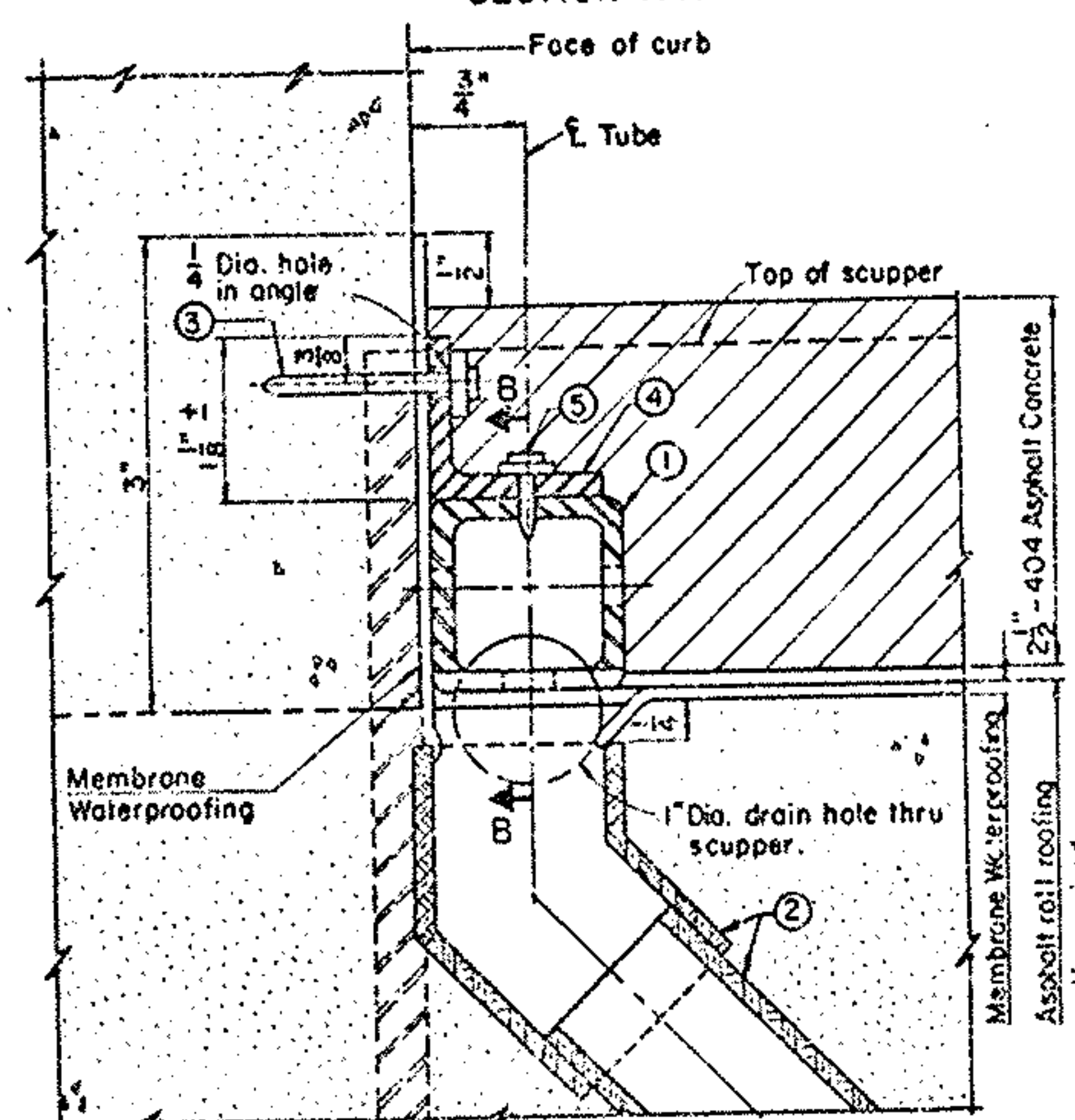
DRAINAGE TUBE ARRANGEMENT



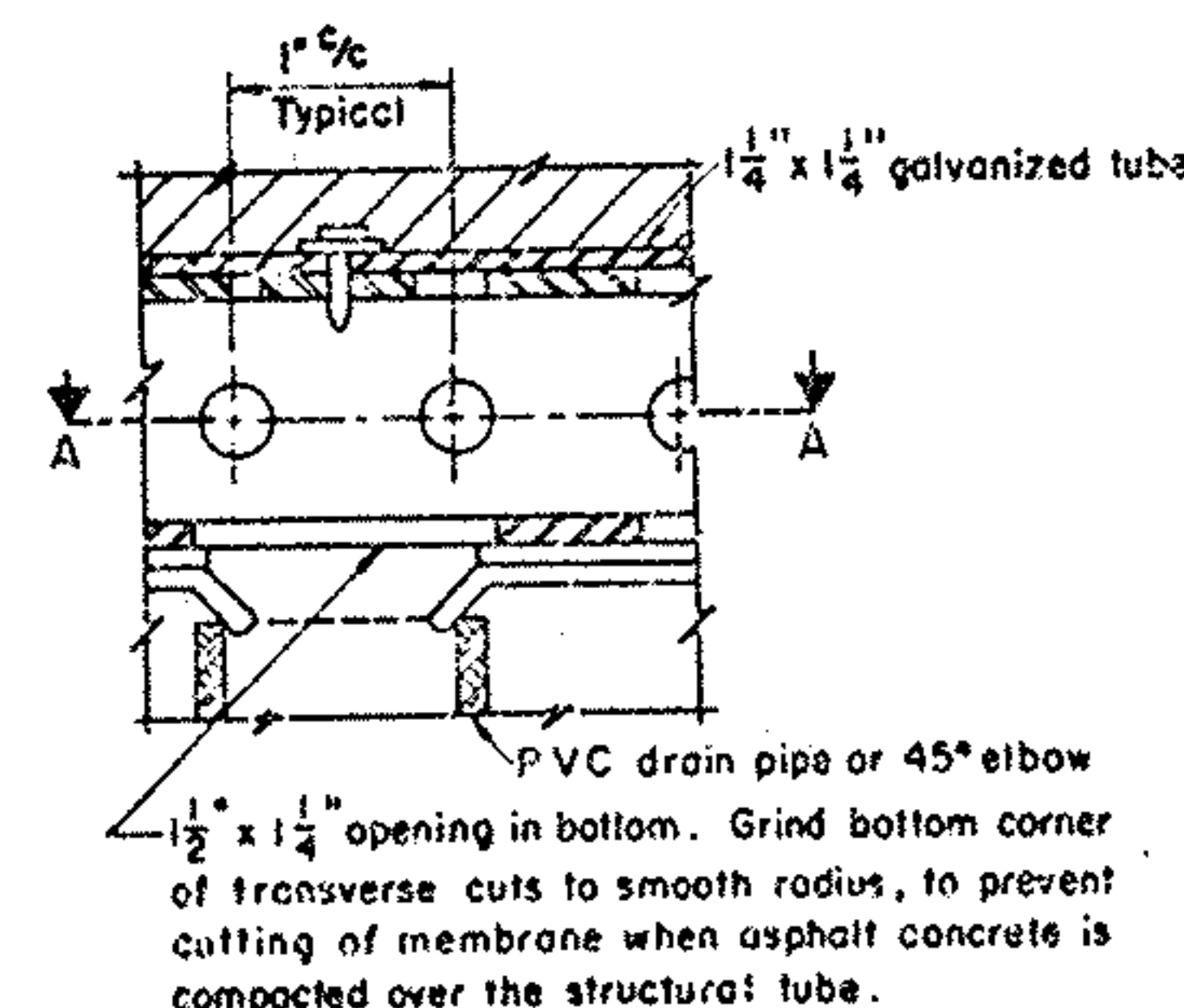
SECTION A-A



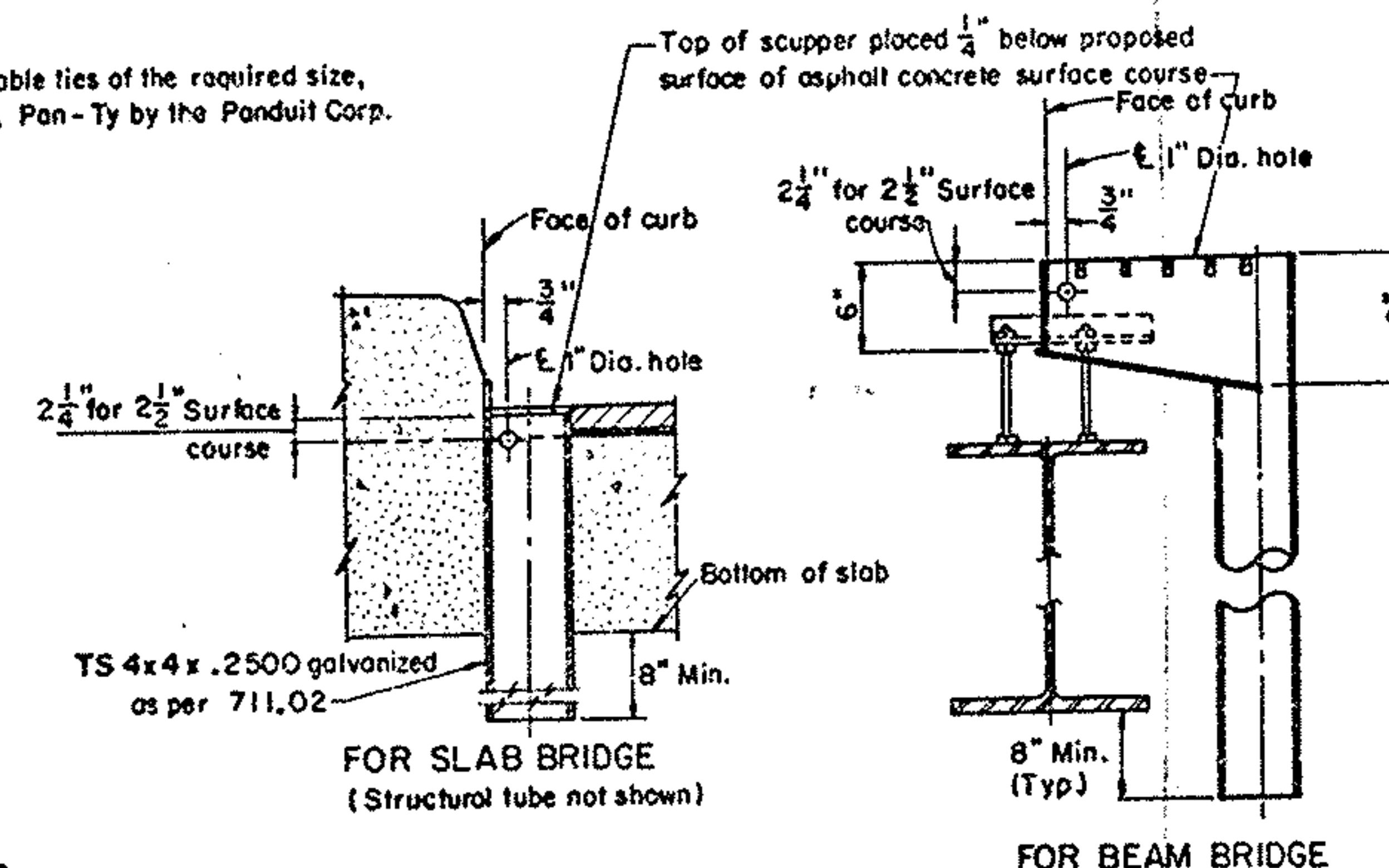
SHAPE OF SIDEWALK
CURB



DETAIL A
SUBDRAINAGE FOR 2 1/2" SURFACE COURSE



SECTION B-B



SCUPPER DETAILS

(Scupper details conform to SD-1-69 except as noted)

SUBDRAINAGE FOR ASPHALT CONCRETE SURFACE COURSE:
The subdrainage system shall consist of plastic pipes and fittings, structural tubes and fasteners. The pipe location requirements of 518.07 shall apply: the pipes shall be placed within one foot of each expansion joint; the pipe shall be extended or located in such a manner as to cause the discharge to fall clear of bridge seats and structural members; no pipes shall be placed within 4 feet of a pavement or a sidewalk, or over or within 10 feet of the centerline of a railroad track. In addition, the pipes shall be spaced approximately at six foot intervals but may be shifted 2 feet maximum longitudinally to permit tying to crossframes or other support members, as required. Pipes shall not be placed along curb lines where the deck configuration does not permit water to accumulate.

The structural tube may be placed in any convenient length using butt joints. The price bid per linear foot for this drainage system shall include all PVC pipe and fittings, structural tubes and all incidentals and all labor necessary to complete the item. The quantity will be the actual length of structural tube required. Payment will be made at the contract price for Item 518, Lin. Ft. Subdrainage for wearing course, as per plan.

The 404 shall be 2 1/2" placed in two 1 1/4" courses.

- 1 1/4" x 1 1/4" galvanized, perforated structural tube with 1/2" dia. holes 1" on centers on all four sides as shown. Cut 1 1/2" x 1 1/4" opening in bottom, centered over each PVC drain pipe. The steel for the structural tube shall conform to the following:
PREGALVANIZED, ASTM A446, Grade A Steel, Galvanizing as per ASTM A525.
POSTGALVANIZED, ASTM A569 or A366, Galvanizing as per 711.02.
The minimum steel thickness shall be 0.105".
Any damaged galvanizing shall be repaired as per AASHTO M36.
Install tubes with 1/4" expansion opening between pieces.

- 45° ELBOW AND/OR 1 1/4" PVC DRAIN PIPE. Position accurately to match 1 1/2" x 1 1/4" openings in perforated tube. Place membrane carefully at the pipe openings, making sure to completely seal around the lip of the pipe but taking care not to plug or constrict the opening. The drain pipe and elbow shall conform to the dimensional and marking requirements of ASTM D2661 or ASTM D2665.
The elbow shall be used only as required when the face of curb is located on or near the centerline of structural steel. Where the elbow is not adequate to provide clearance between the PVC pipe and the structural steel, the elbow shall be canted as required and cut on a line 1/4" below and parallel with the deck surface. The solvent cement for the pipe and fittings shall be a type suitable for the plastic used.

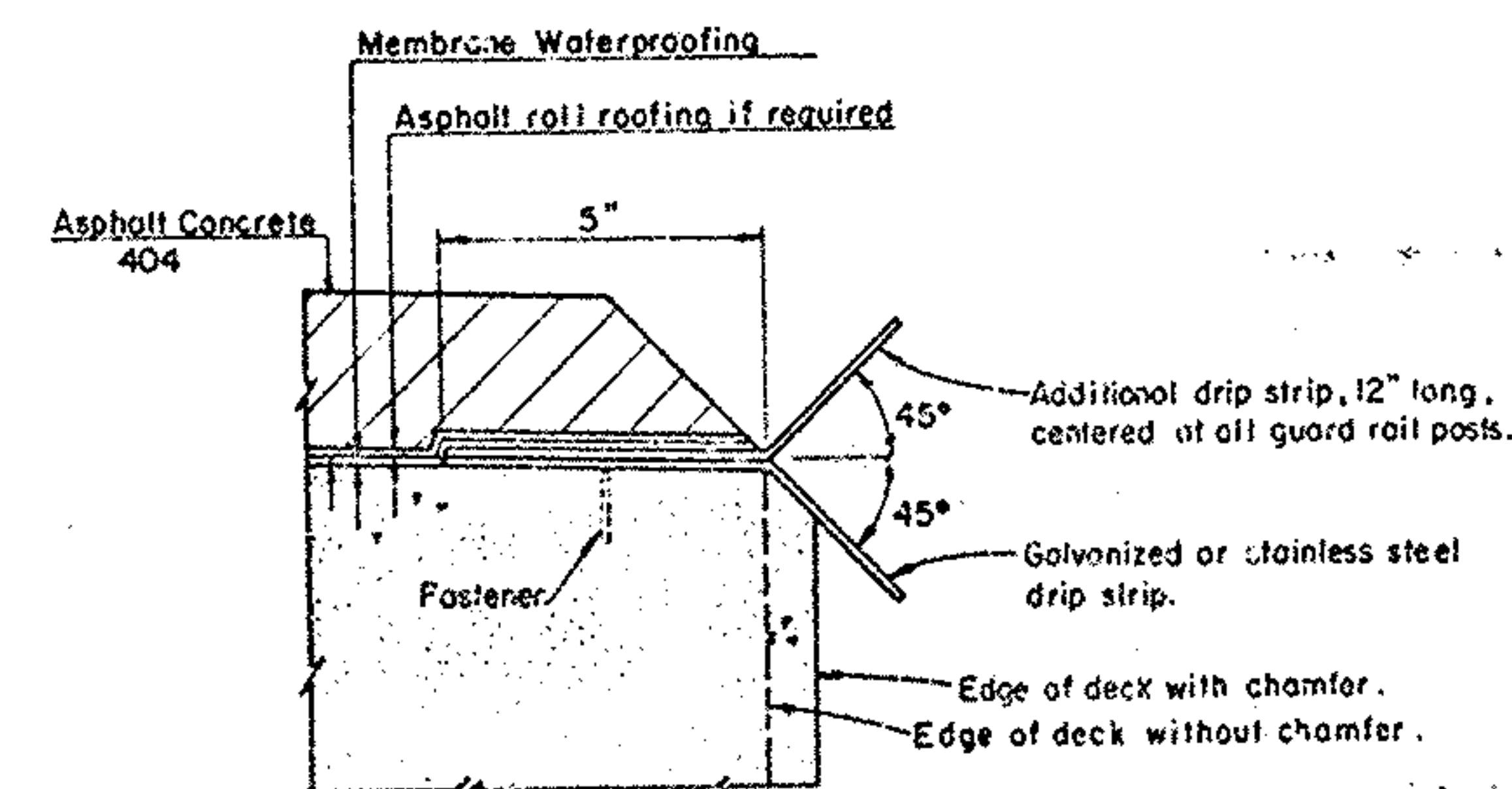
- 1 1/4" x 3/8" x 1/4" flat head drive pin and washer. (Length x Shank Dia x Head Dia.)
Fastening of the structural tube by methods other than shown shall be subject to approval by the Engineer. (Driving pins into bridge deck is prohibited, except for fastening drip strips.)

- 1 1/4" x 1 1/4" x 1/8", 3" long, clipped and galvanized, or bent galvanized steel plate 2" x 3" x 0.105" thick. Attach to curb at approximately 5'-0" except near joints, where the angle shall be placed within 6" of the end of each tube section.

- 1/2" x 1/8" x 1/4" flat head drive pin and washer driven thru angle and tube.

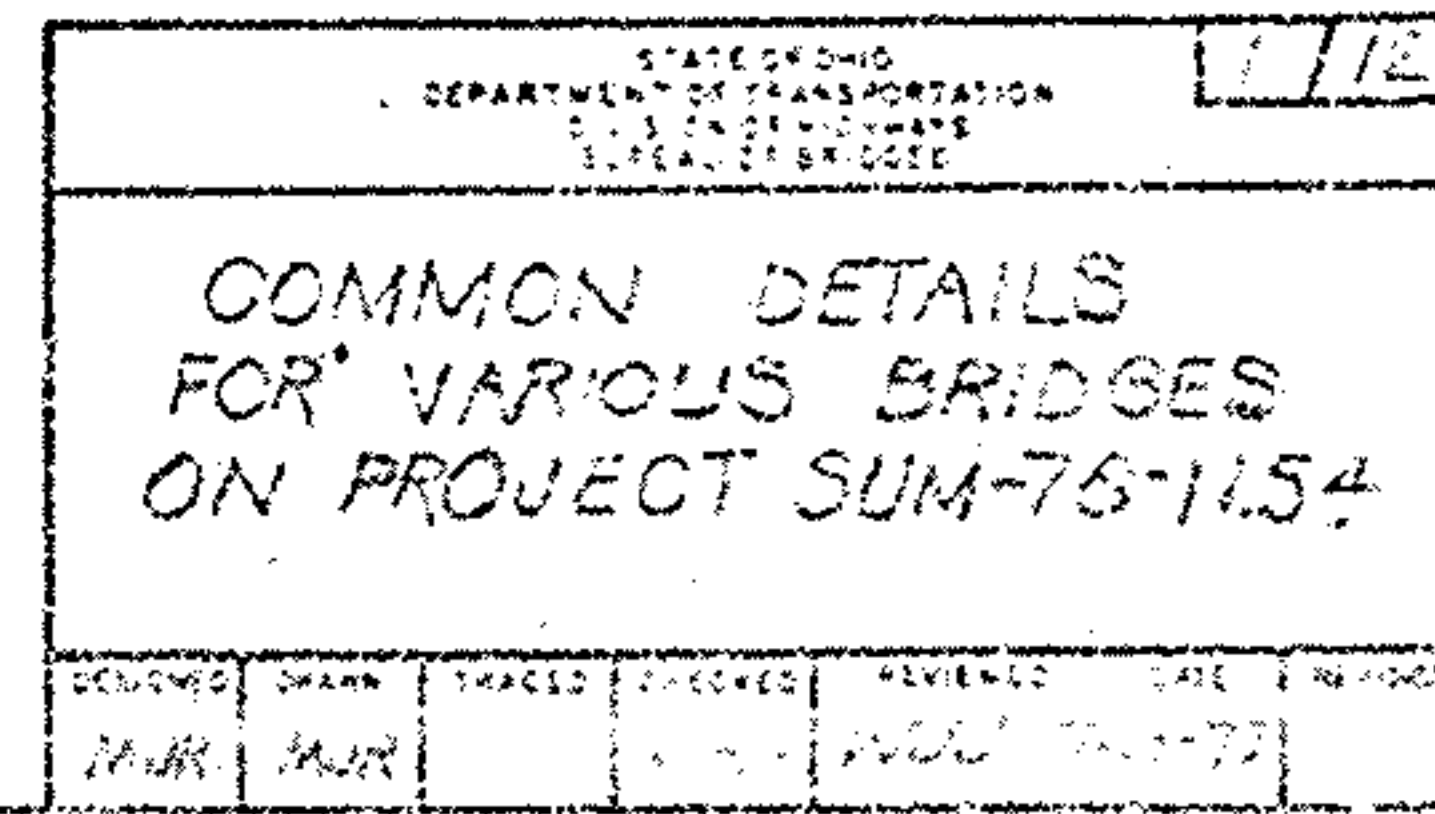
Note: Wherever "PVC" appears it shall be considered to read "PVC" or "ABS".

DRIP STRIP: Prior to applying deck membrane waterproofing, a bent drip strip shall be installed along the edges of the deck as shown. The strips shall be fastened at 1'-6" maximum with 1 1/4" x 3/8" x 1/4" flat head drive pin and washer. (Length x Shank Dia. x Head Dia.) or #10 galvanized screws and expansion anchors, subject to the approval of the Engineer. The strips shall be placed the full length of the deck, ending at the face of the abutment wingwall or steel end dam angle. Where splices are required a 3" (Min.) lap shall be used with a fastener through the lap. Steel for galvanized strips shall be 8" x 0.105" and shall meet the requirements of ASTM A568. Galvanizing shall be in accordance with 711.02. Stainless steel shall be 20 gauge ASTM A167, Type 304, mill finish. Payment shall be at the contract price bid for item Special, Sq. Ft. Steel Drip Strip, which shall include all materials, labor, tools and incidentals necessary to complete the item.

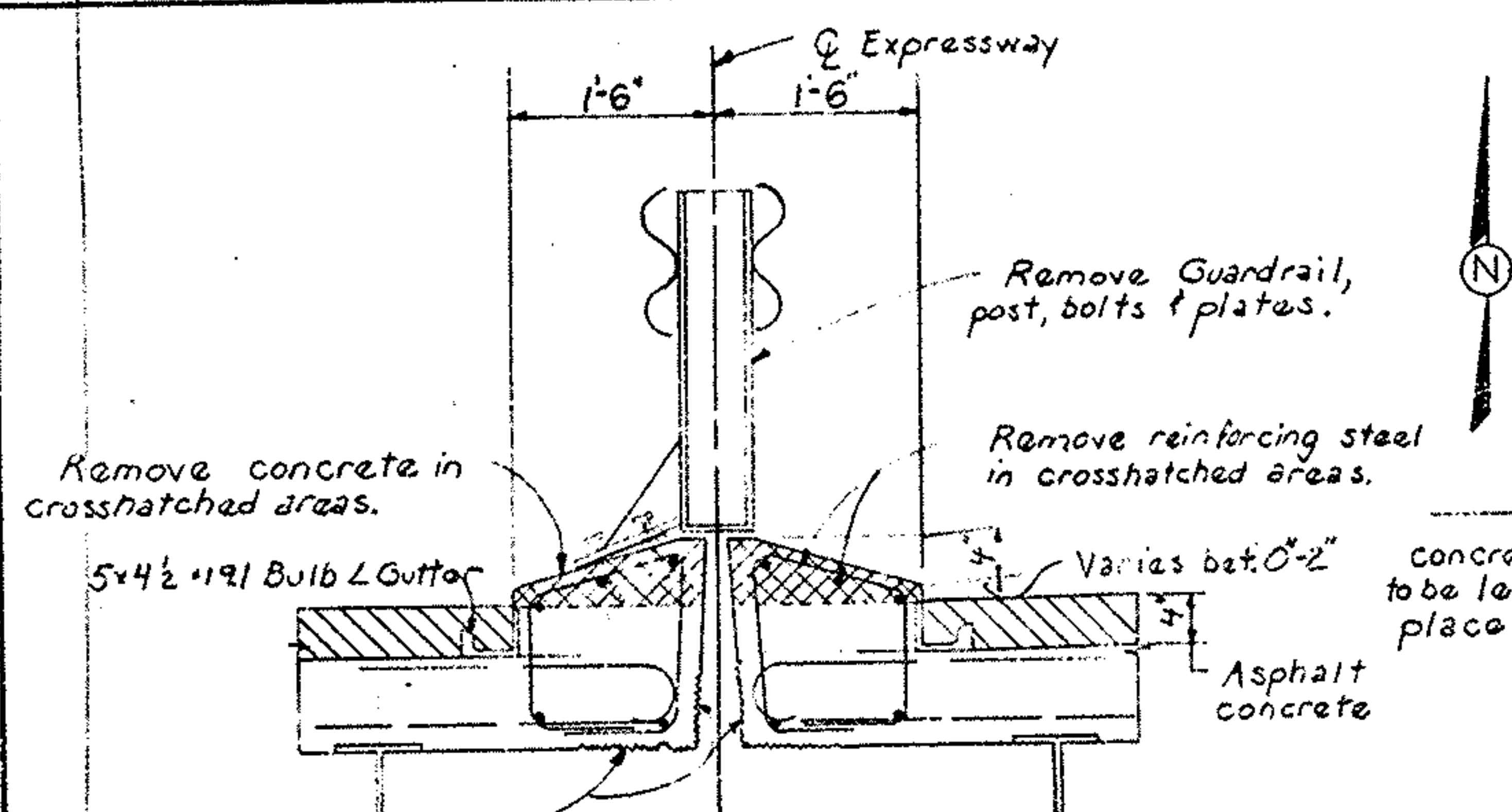


BRIDGES WITHOUT CURBS

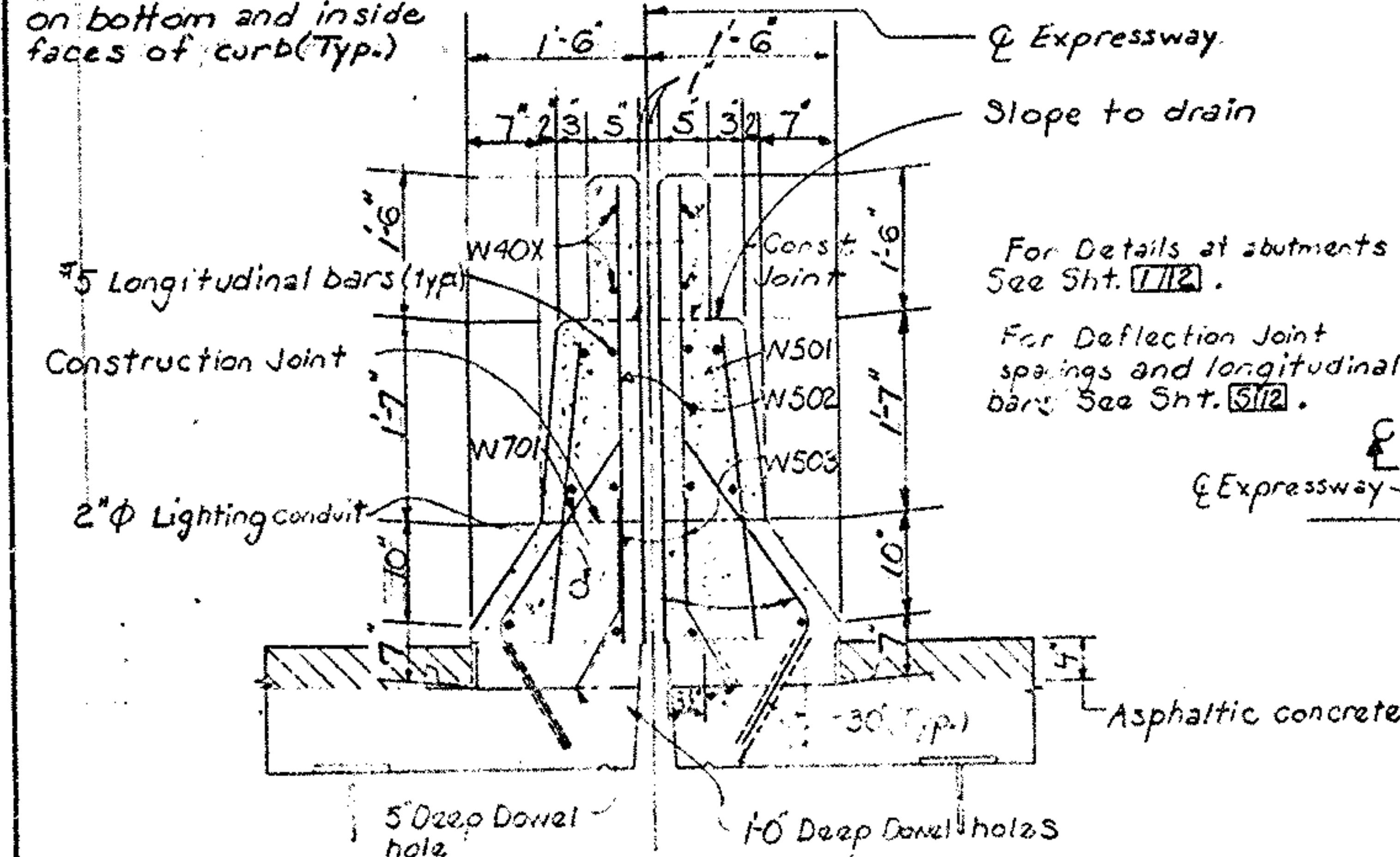
STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN					
DECK DRAINAGE DETAILS FOR BRIDGES WITH ASPHALT CONCRETE SURFACE COURSE					
BRIDGE NO. SUM-76-1150 OVER INMAN ST.					
DESIGNED	DLM	DRAWN	GFJ	TRACED	—
CHECKED	—	DATE	NOV 2-77	REVISION	2-277



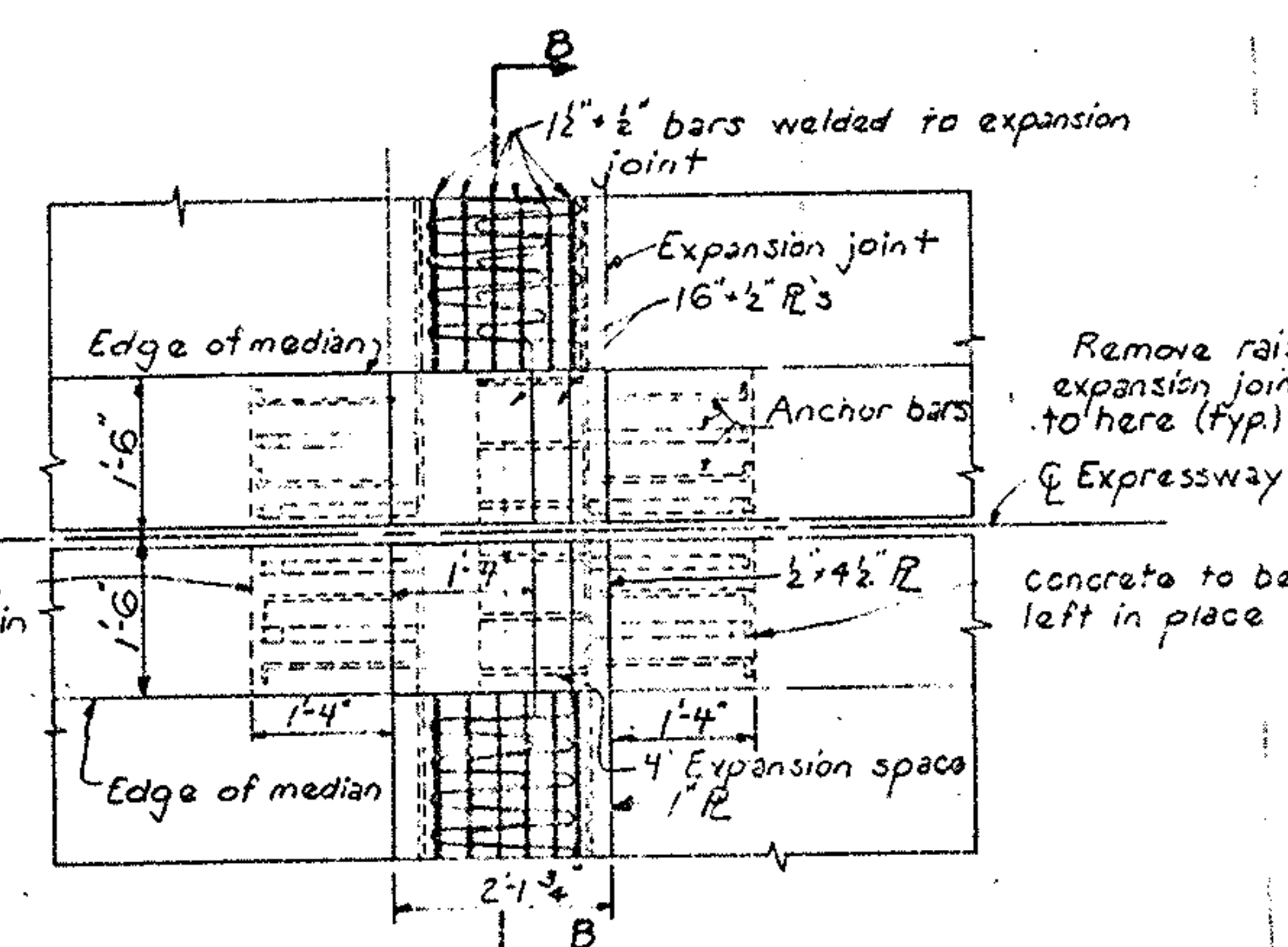
SUM-76-1157
SUM-B-046



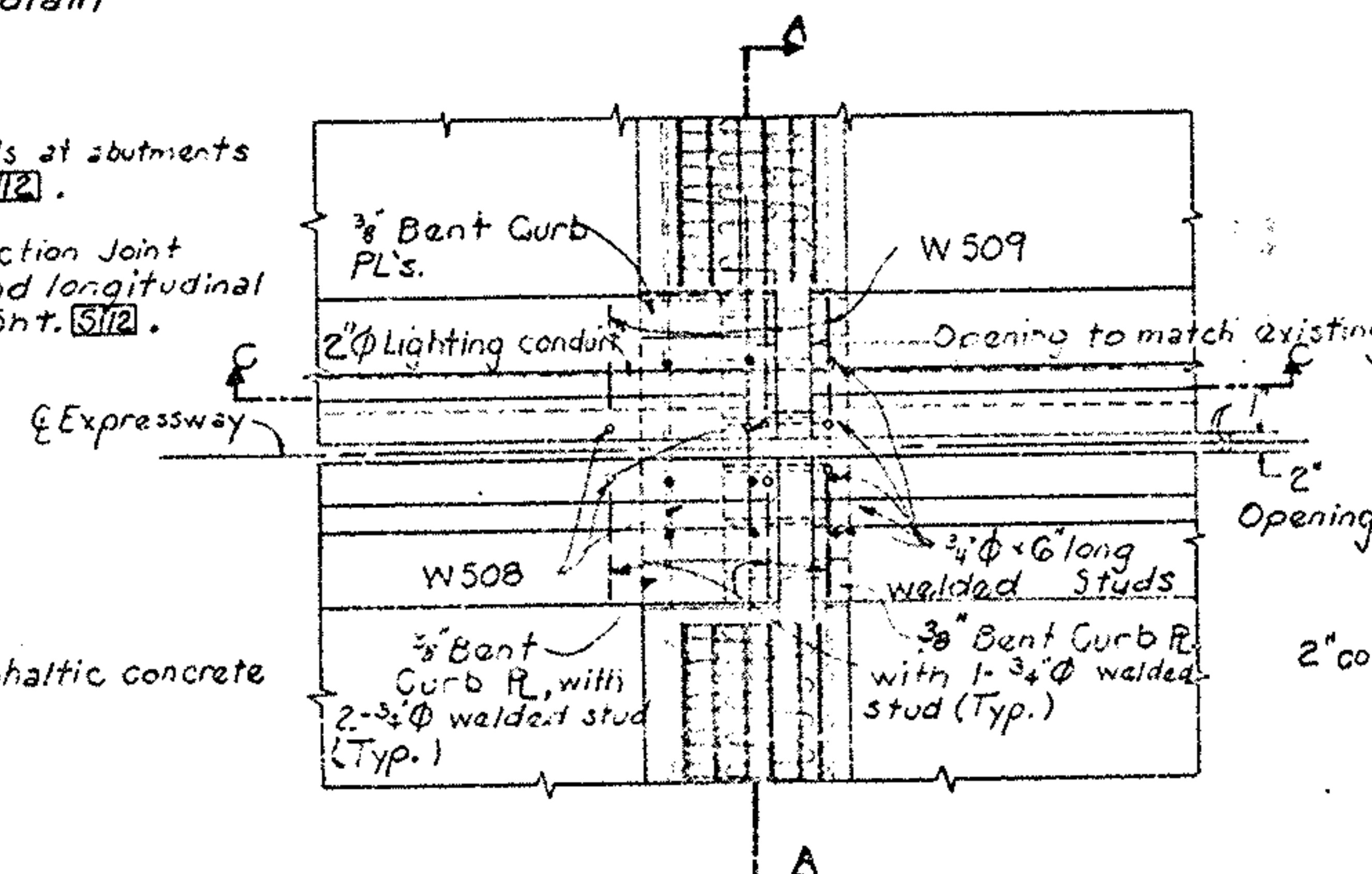
Patch deteriorated areas of concrete surfaces on bottom and inside faces of curb (Typ.)



PROPOSED SECTION



EXISTING PLAN AT EXPANSION JOINTS AT PIER 2 and 4

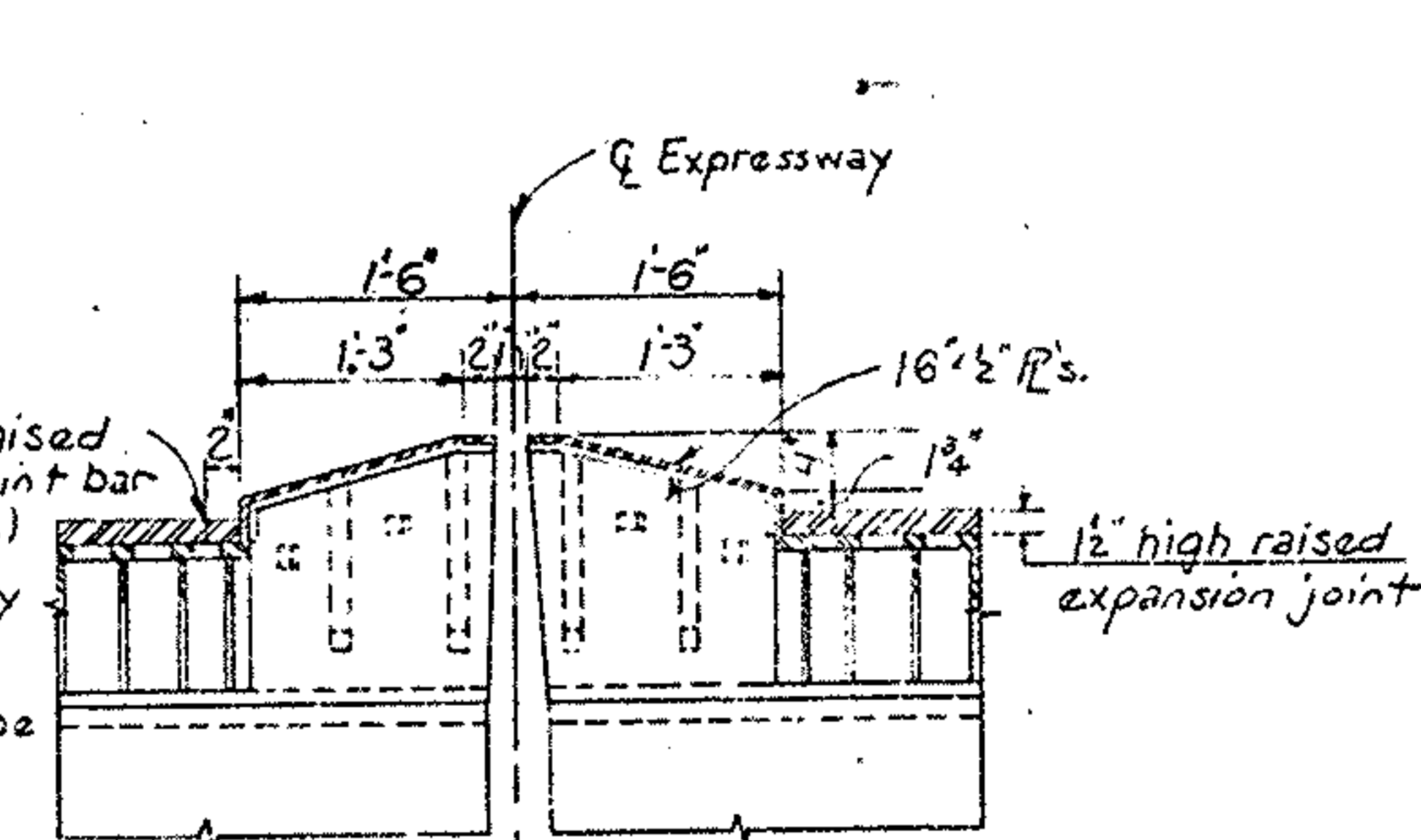


PROPOSED PLAN AT EXPANSION JOINTS AT PIER 2 and 4

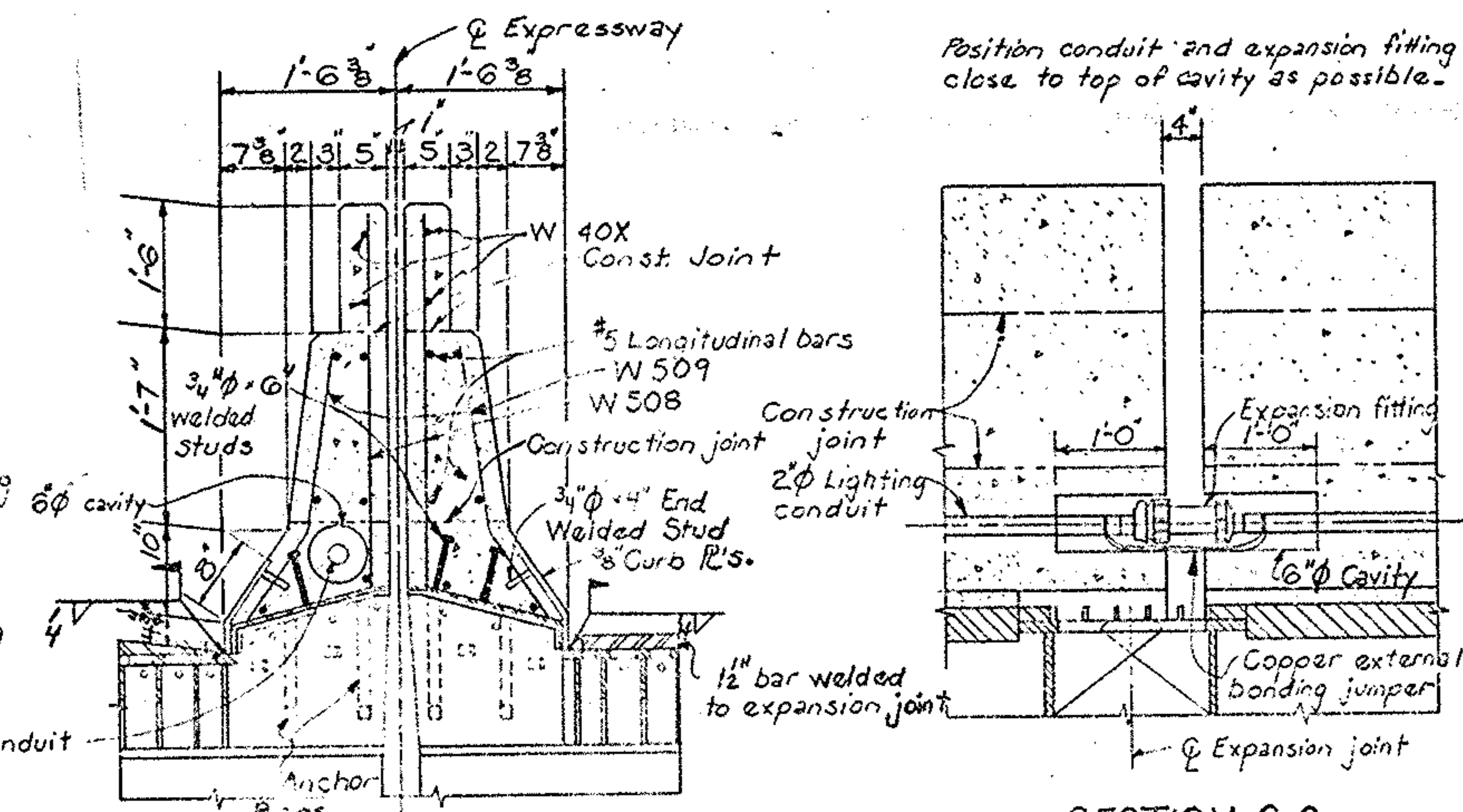
NOTES:

Clean and paint all structural steel on each side of expansion joints for a distance of 5'-0" at Piers 2 and 4. Structural steel shall include all expansion joint armor, expansion joint supporting members, beam ends, crossframes, etc. Painting shall consist of spot prime, one complete coat prime and one complete coat finish.

For details of median barrier light pole support not shown See Sht. [9/12]



SECTION B-B



SECTION A-A

SECTION C-C

See Sht. [11/12] for conduit Expansion Joint Detail at abutment.

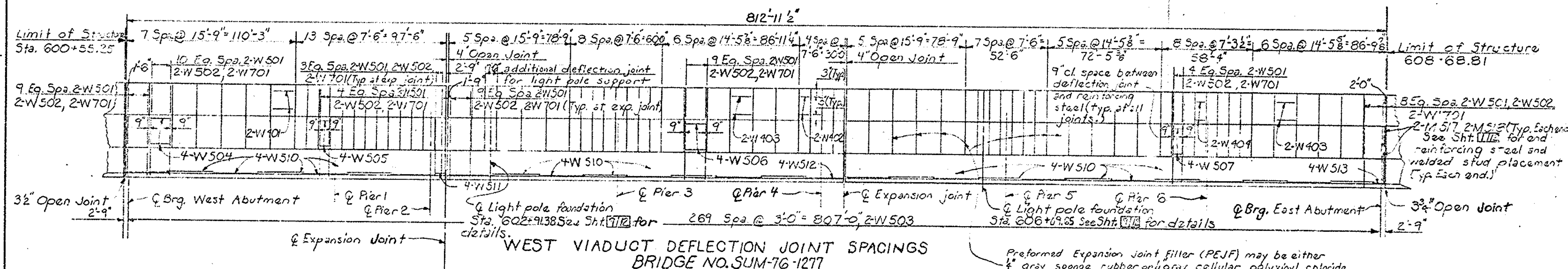
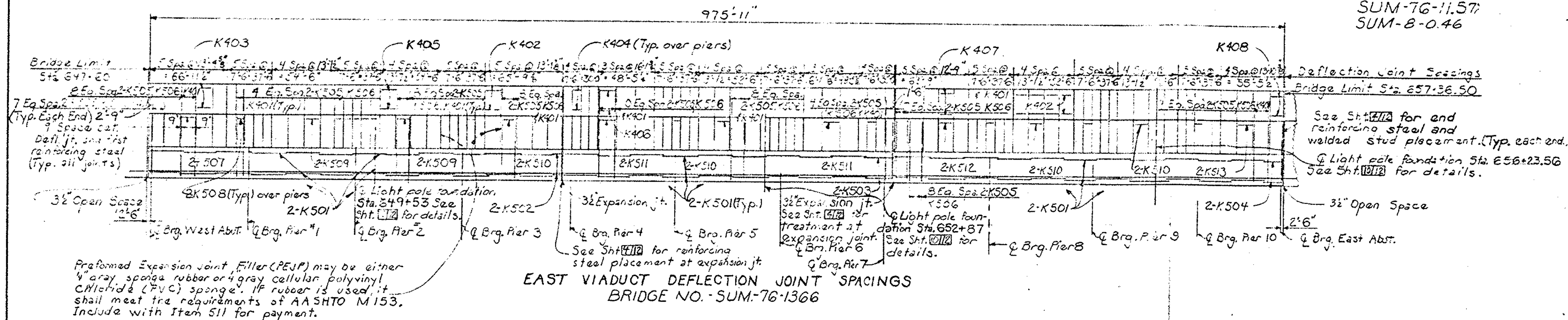
* Verify dimensions so that shape of median at the expansion joints must conform to the proposed median section.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS BUREAU OF BRIDGES					
MEDIAN REVISIONS					
BRIDGE NO. SUM-76-1277 WEST VIADUCT					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
MJR	MJR		MJS	ACW	7-13-10

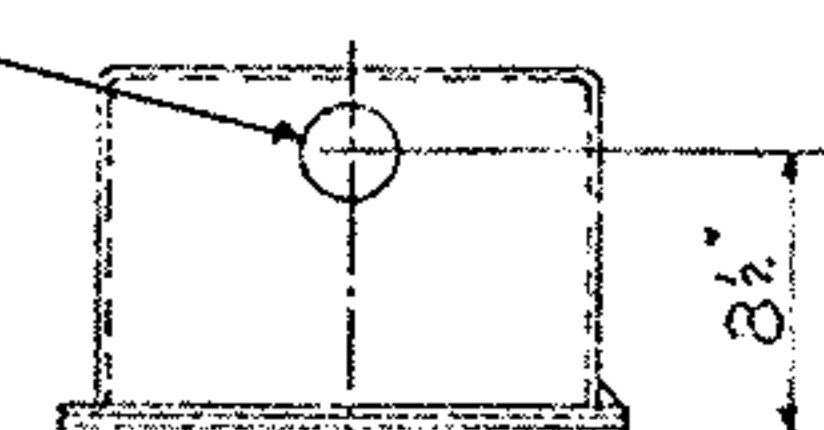
FED. REGION	STATE	PROJECT
5	OHIO	



SUM-76-11.57
SUM-8-0.46



BOSS, DRILL, & TAP FOR 2" RIGID CONDUIT, 713.04

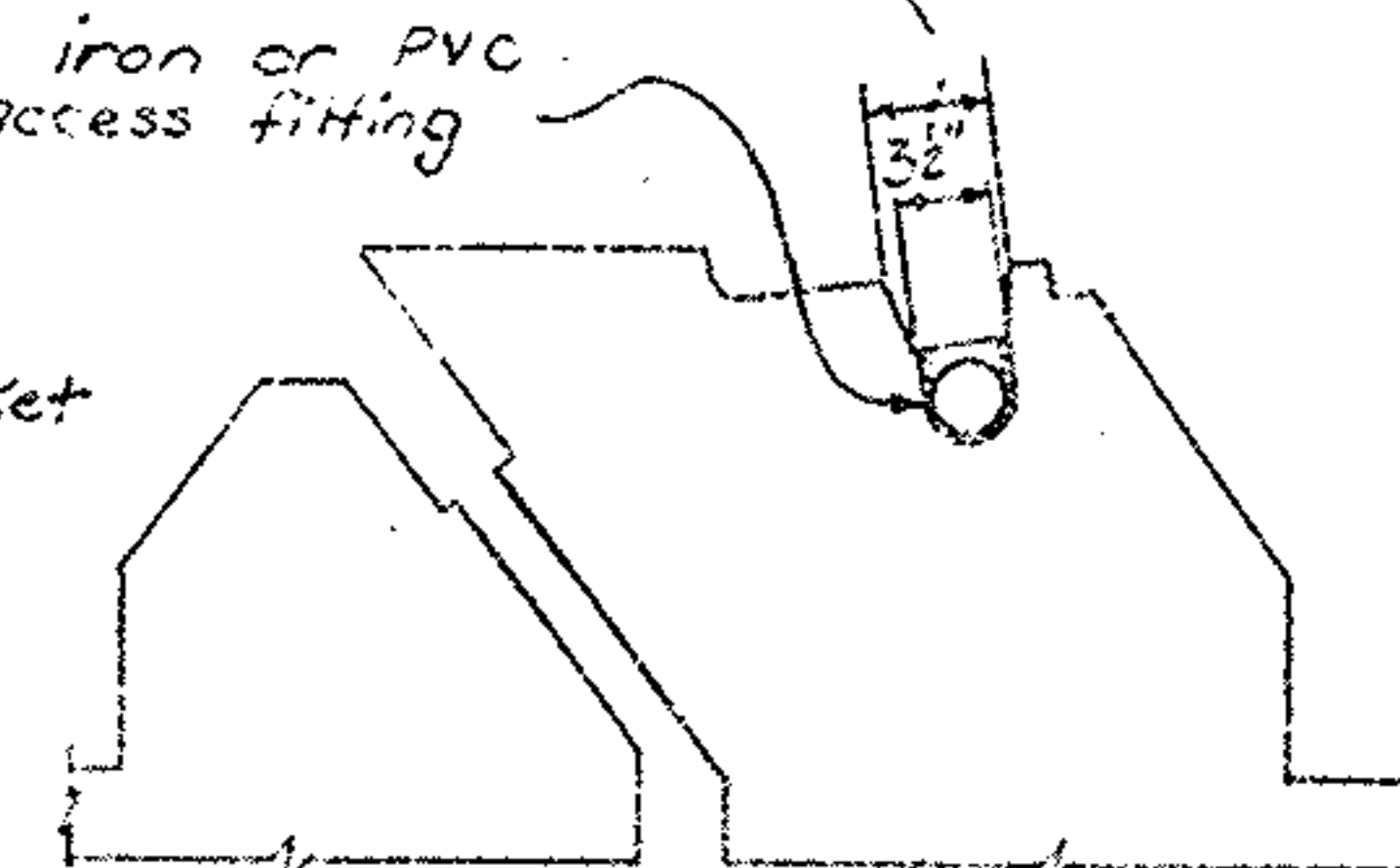


3/4" Steel plate cover H.D. Galv. in accordance with 711.02

Locate hole to fit over cavity.

JUNCTION BOX DETAILS

Taper for form removal
Malleable iron or PVC
Conduit access fitting

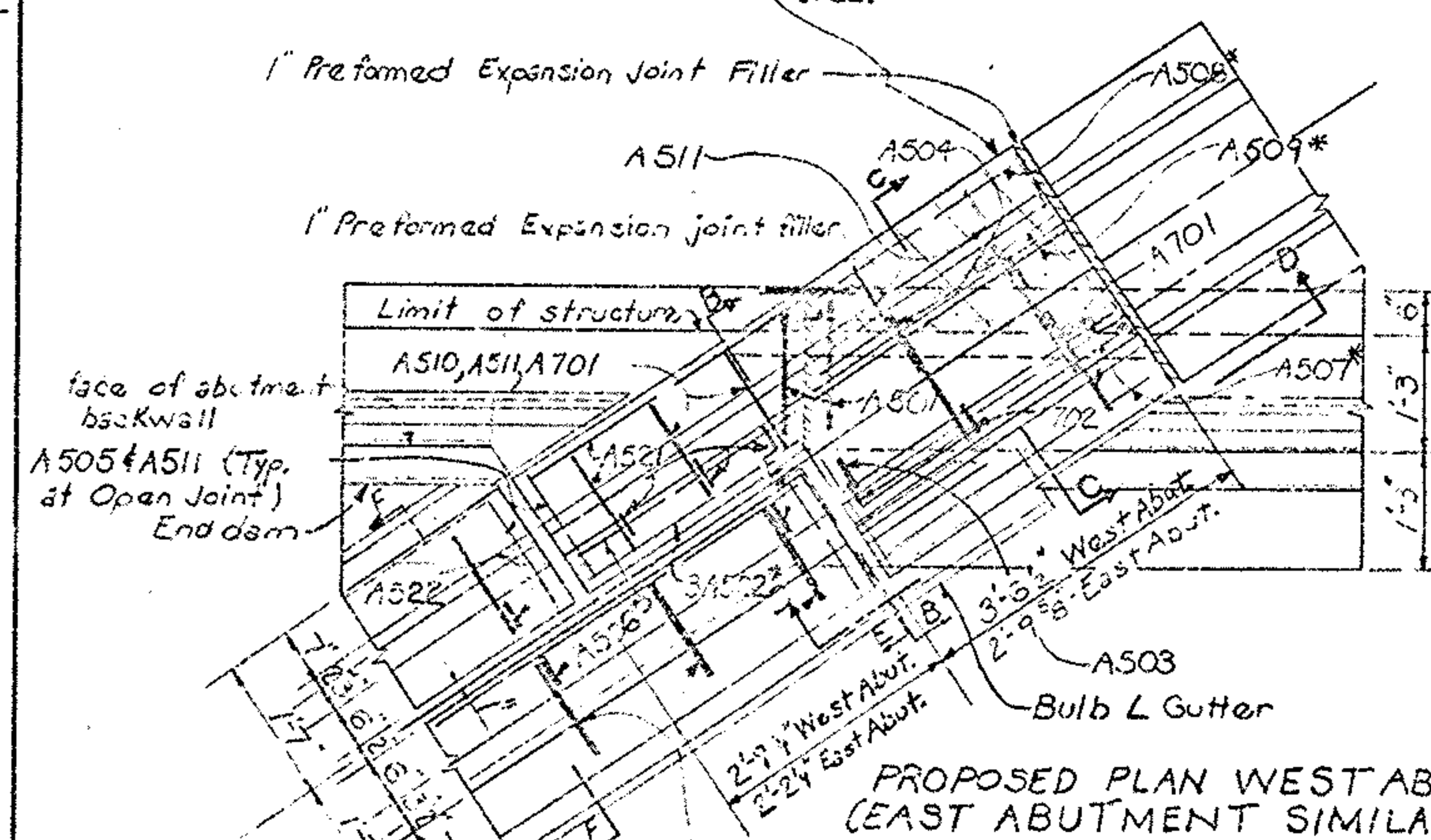


DETAIL OF CONCRETE POUR
BELOW JUNCTION BOX ON BRIDGE
NO. SUM-76-1277

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS BUREAU OF BRIDGES		6/12
DEFLECTION JOINT SPACINGS		
BRIDGE NO. SUM-76-1277 and SP-035 NO. SUM-76-1366		
DESIGNED	CHECKED	APPROVED
DATE	DATE	DATE
10/1/76	10/1/76	10/1/76

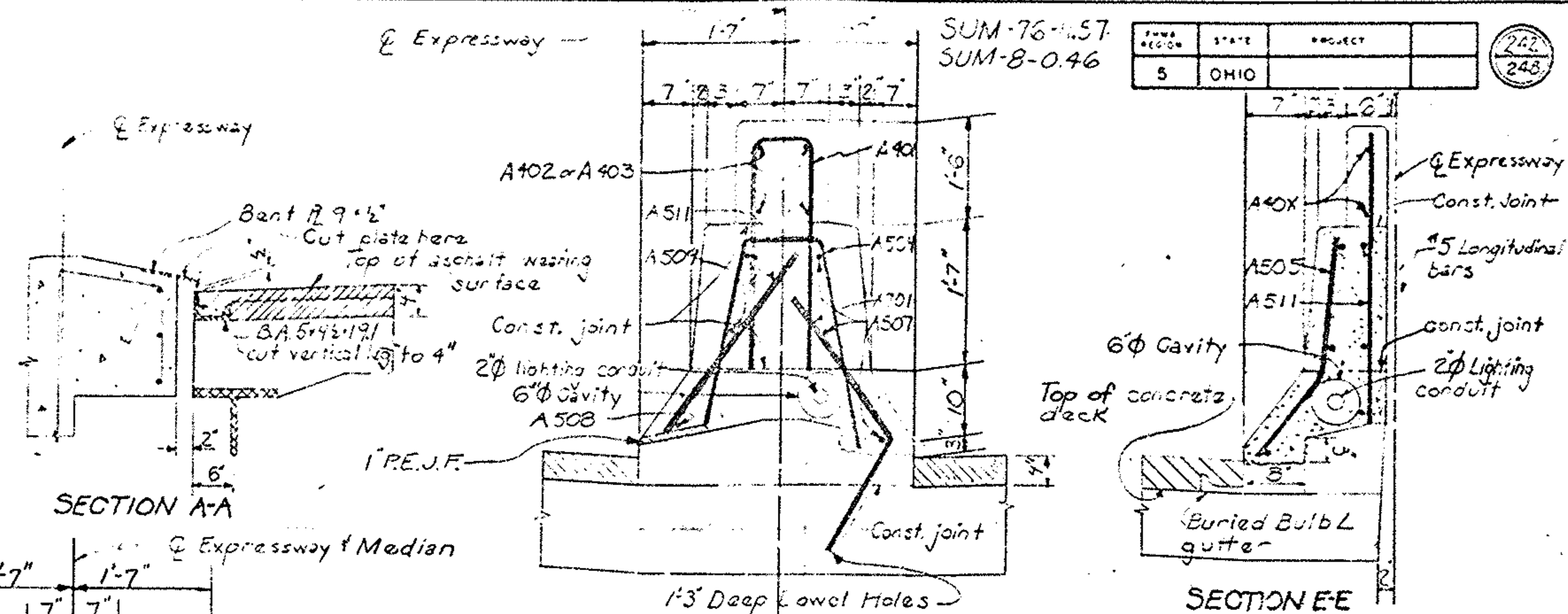


1" Preformed Expansion Joint Filler



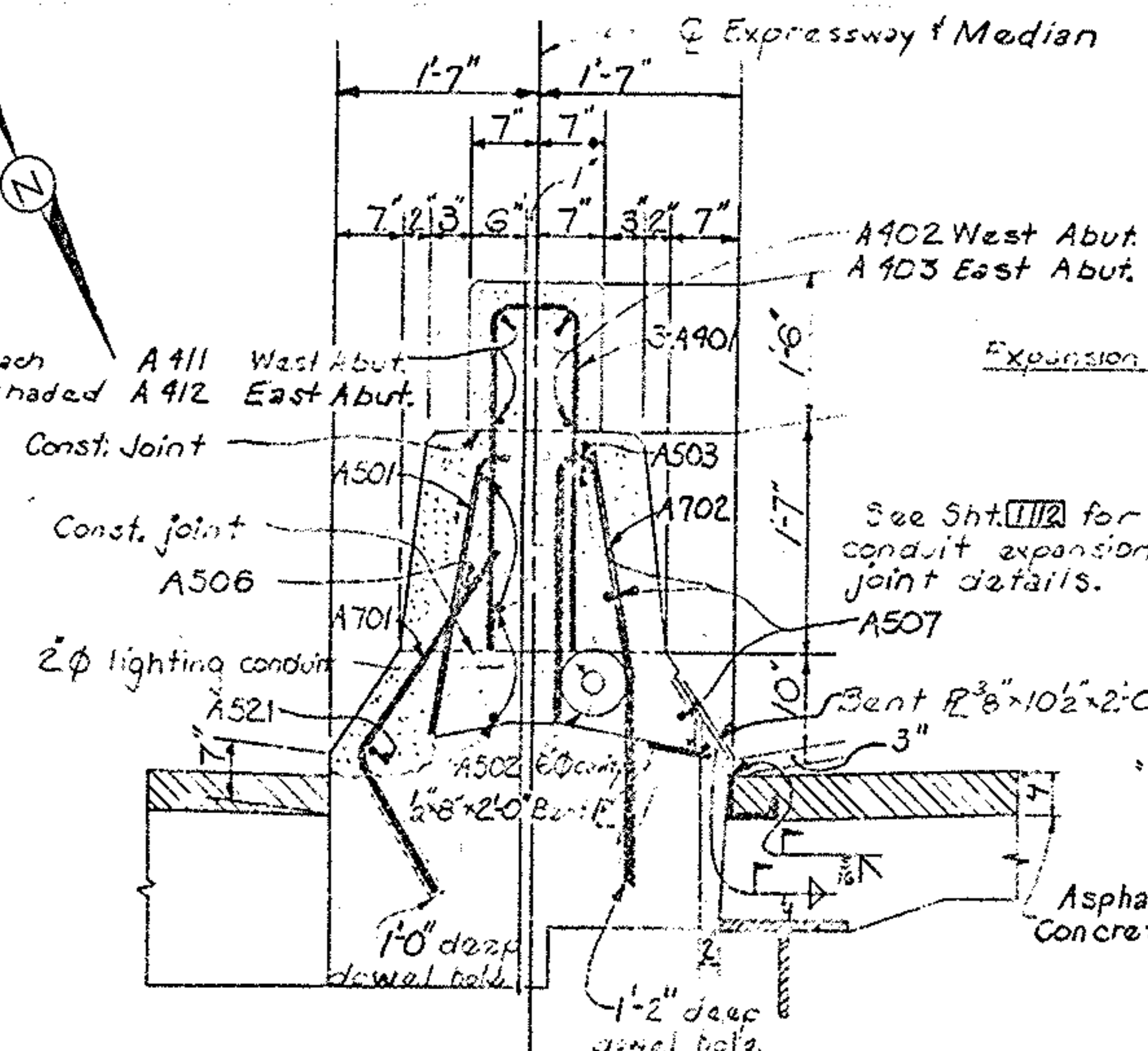
8 Ea 20.2170(2)-A510ZK5H

2A518 ps, 2A519 ps



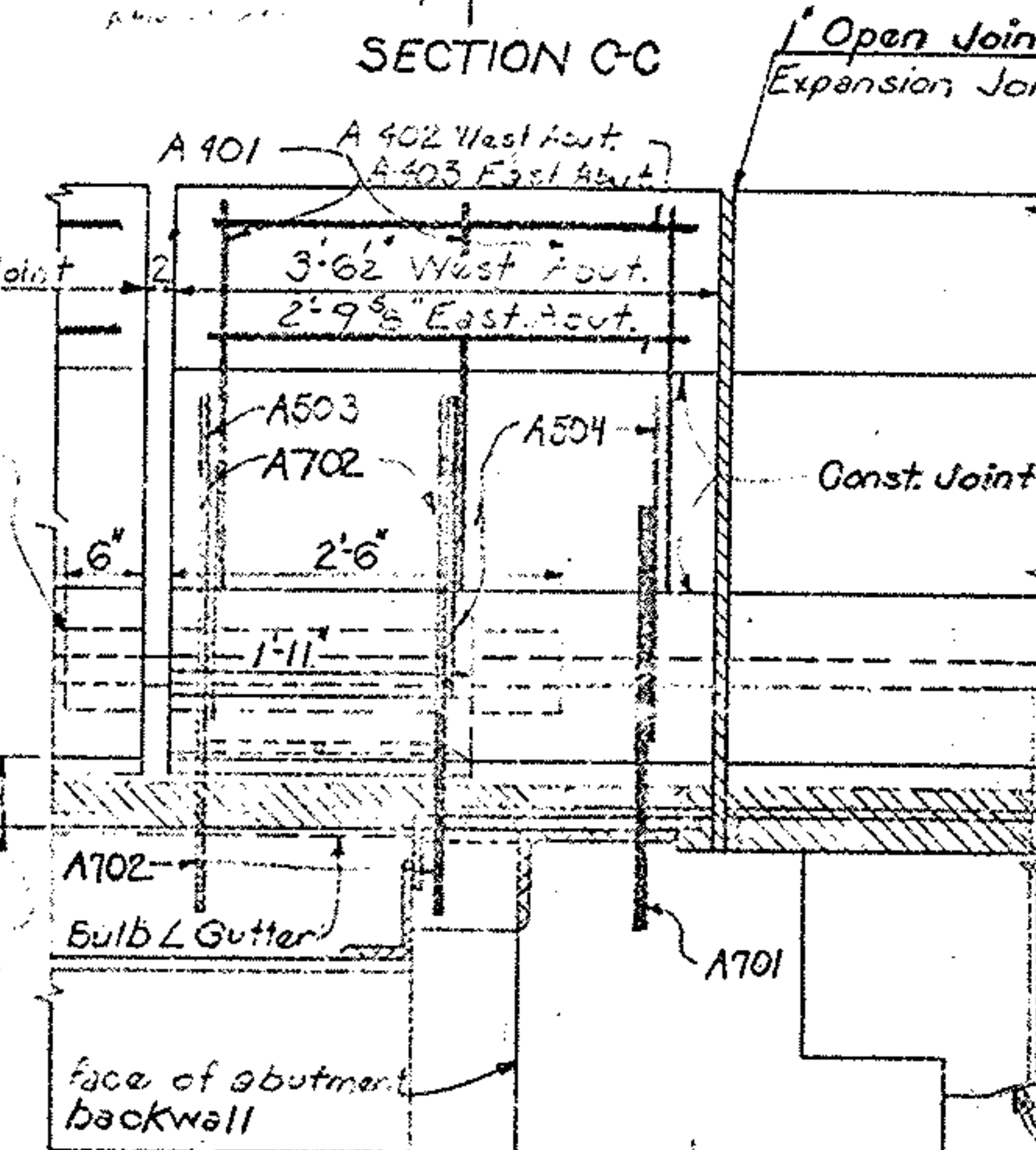
SECTION A-A

Q Expressway & Median



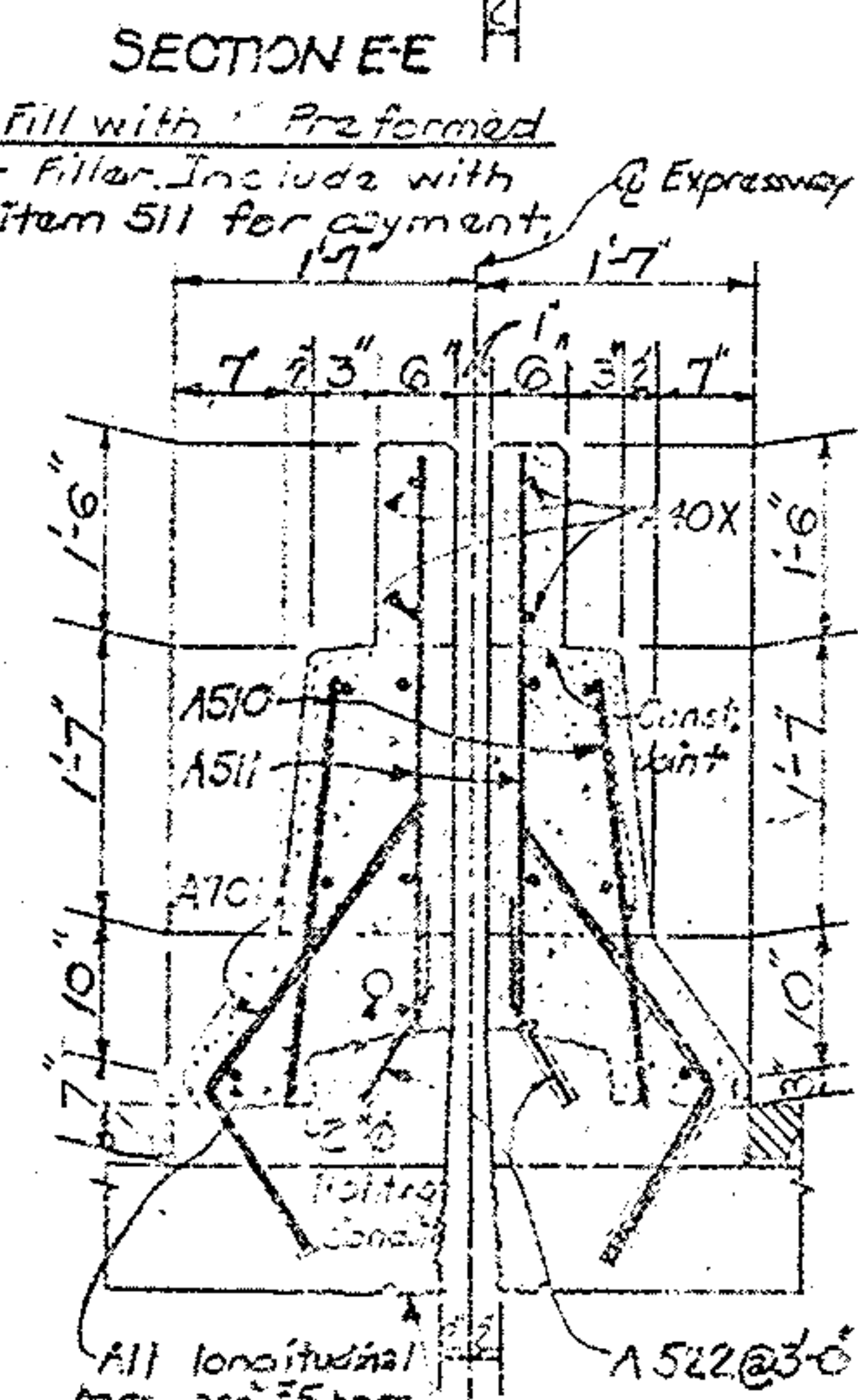
SECTION B-B

Preferred Expansion Joint Filler may be either 4' gray sponge rubber or gray cellular rubber polyvinyl chloride (PVC) sponge. If rubber is used, it shall meet the requirements of AASHTO M-153. Include with Item 511 for payment.



SECTION D-D Approach slab-

Patch deteriorated areas of concrete surfaces on bottom and inside faces of curb (Typ.)



SECTION F-F

Const. Joint

~~Const. Join~~



MEDIAN REVISIONS

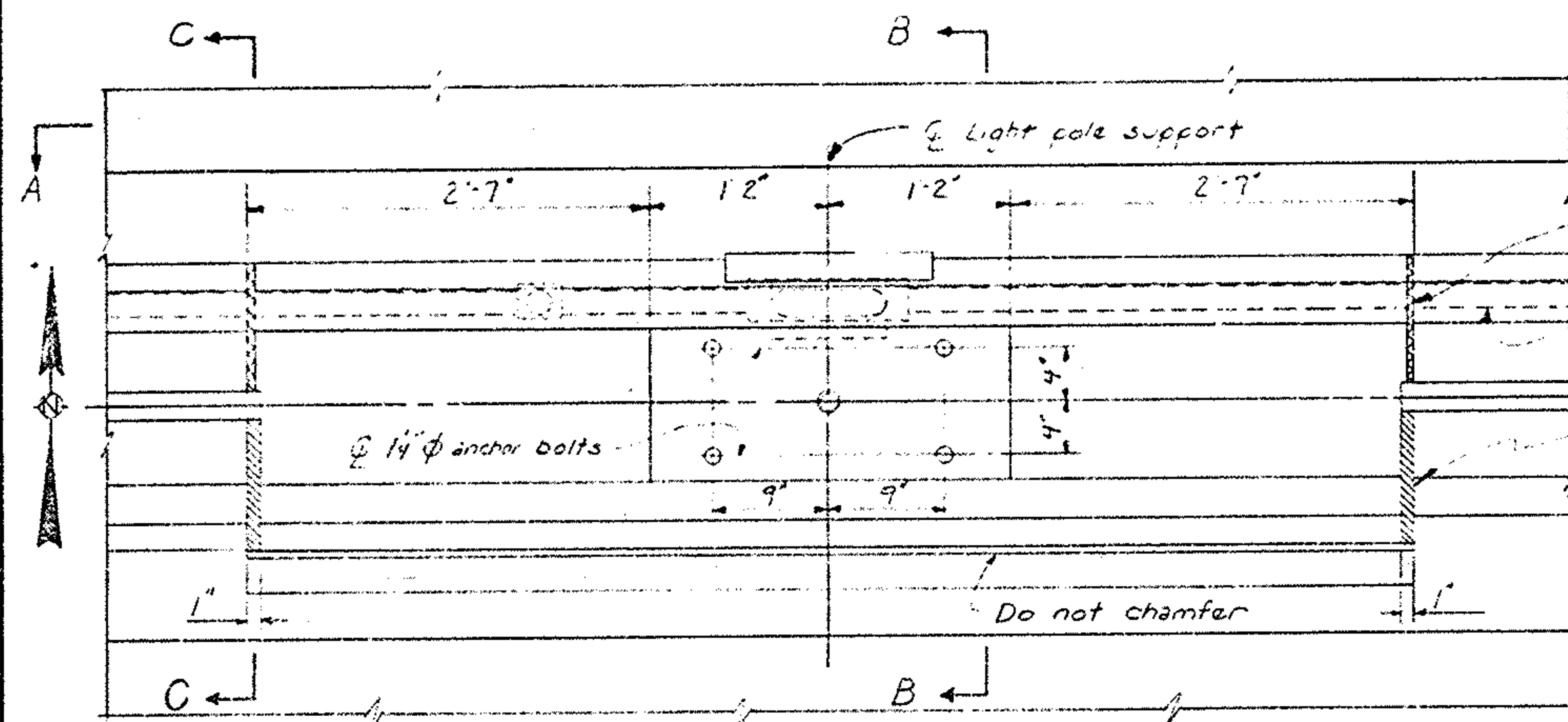
BRIDGE NO. SUM-76-1519
OVER A.C. & Y. RAILROAD

LEGEND:
n.s. - near side
f.s. - far side

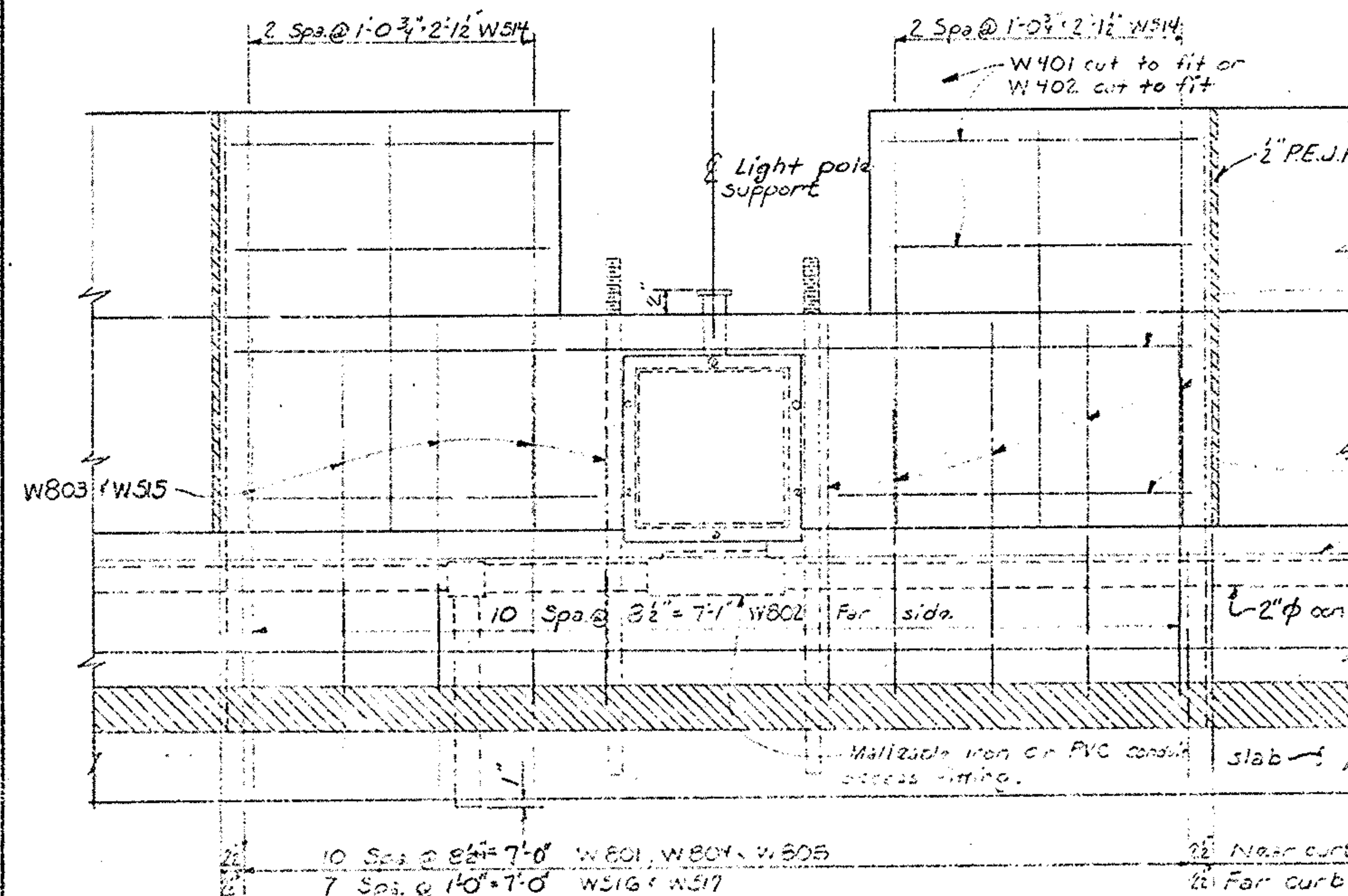
DEFLECTION JOINT SPACINGS

ISSUED	ISSUE	TRACES	ISSUED	REMOVED	DATE	REMARKS
1948	1			1950	12-12	

SUM-78-11.57, SUM-8-0.46



PLAN
LIGHT POLE SUPPORT
at STA. 602+91.38 and STA. 606+09.65



SECTION A-A

2" PEJ.F (Typ.)

2" conduit

Median Barrier

1" Expanded Polystyrene (Typ.)

See Detail A on Sht. 10/12

Preformed Elastomeric Joint
Seal 705.11 (7'-6" long)

New asphalt concrete

2-W504 or 2-W505
cut to fit (Typ.)

W803 and W515

W504 or W505 cut to fit
(near side only)

2-W318

2" conduit

4" Asphalt
concrete

slab

10 Sp. @ 8" = 7'-0"

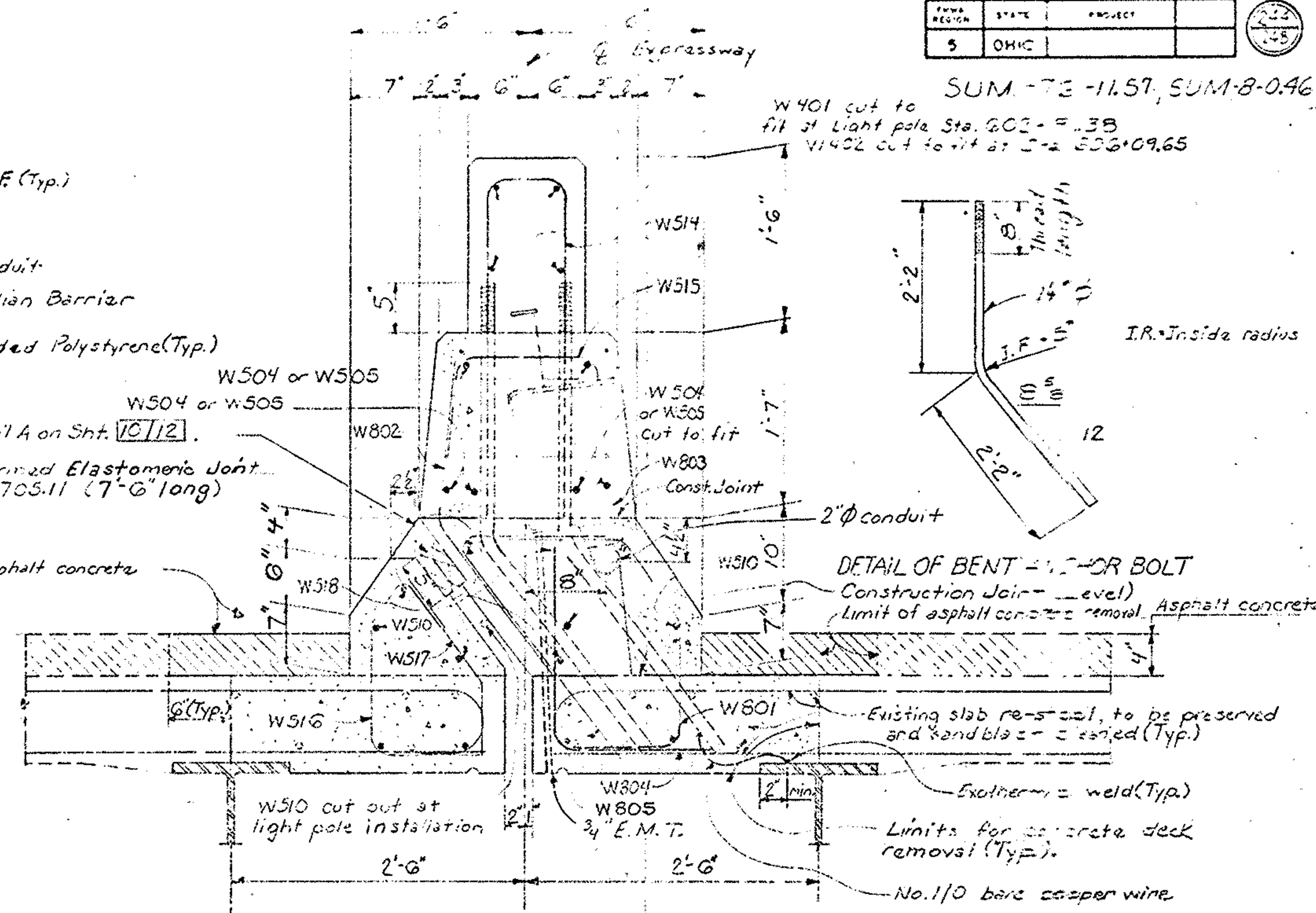
7 Sp. @ 10" = 7'-0"

10 Sp. @ 8" = 7'-0"

7 Sp. @ 10" = 7'-0"

10 Sp. @ 8" = 7'-0"

7 Sp. @ 10" = 7'-0"

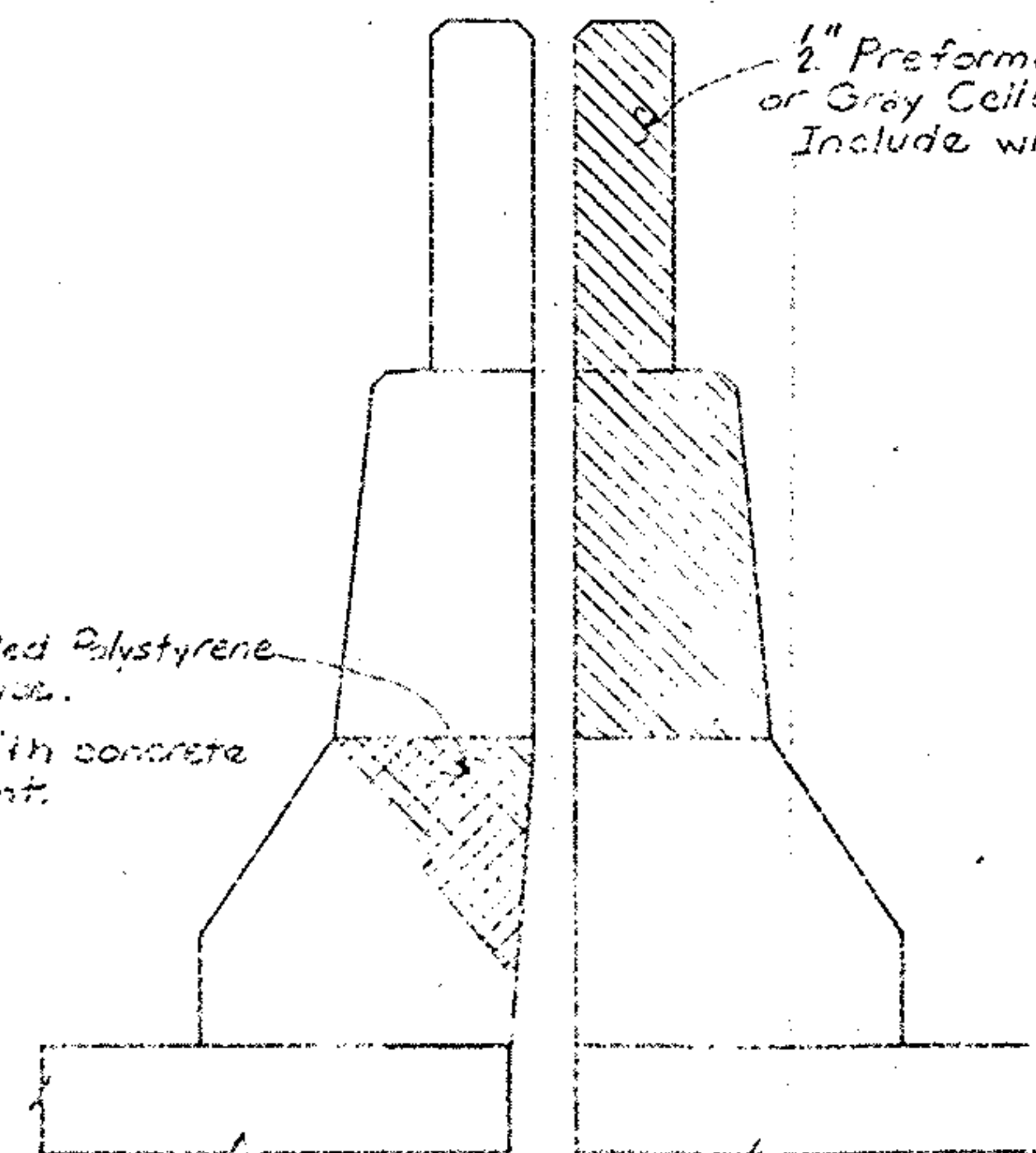


SECTION B-B

For details of junction box not shown See
Sht. 5/12

2" Preformed Expansion Joint Filler -
or Gray Cellular polyvinyl chloride (GVC) sponge
Include with Item 511 for payment

1" Expanded Polystyrene
left in place.
Include with concrete
for payment



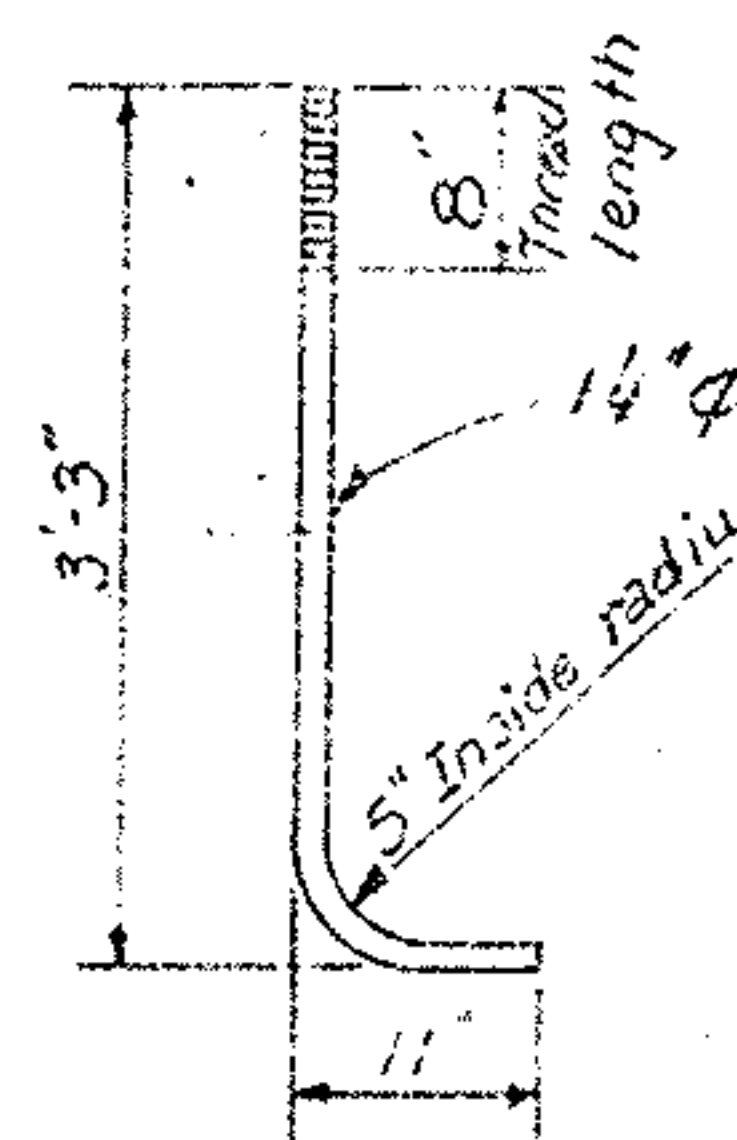
SECTION C-C

FED. PROJ. NO.	STATE	PROJECT
5	OHIO	



SUM-76-11.57
SUM-8-0.46

NOTE: Payment for bolts shall be made under Item 625, Light Pole Anchor Bolts.



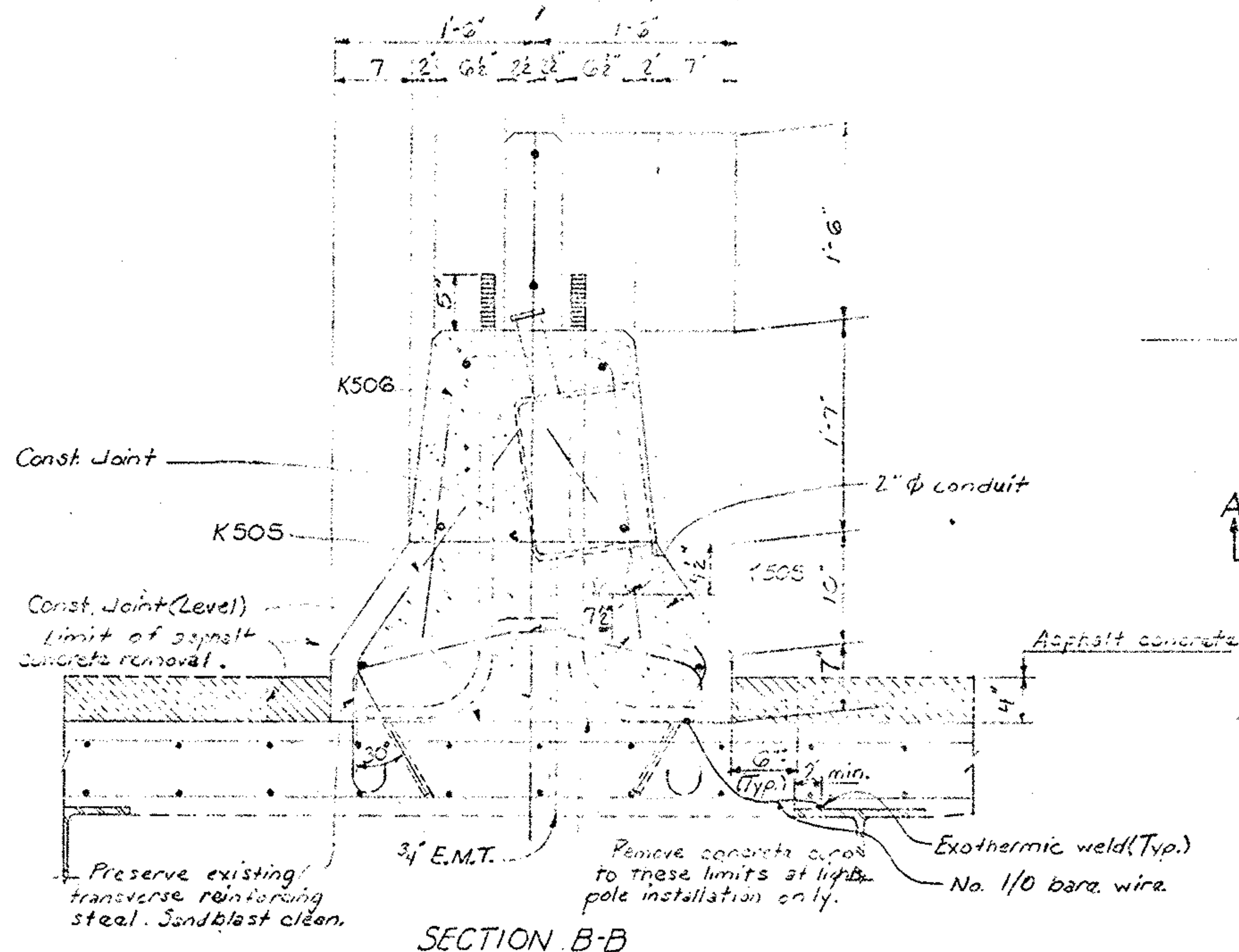
DETAIL OF BENT ANCHOR BOLT

LIGHT POLE SUPPORT NOTES

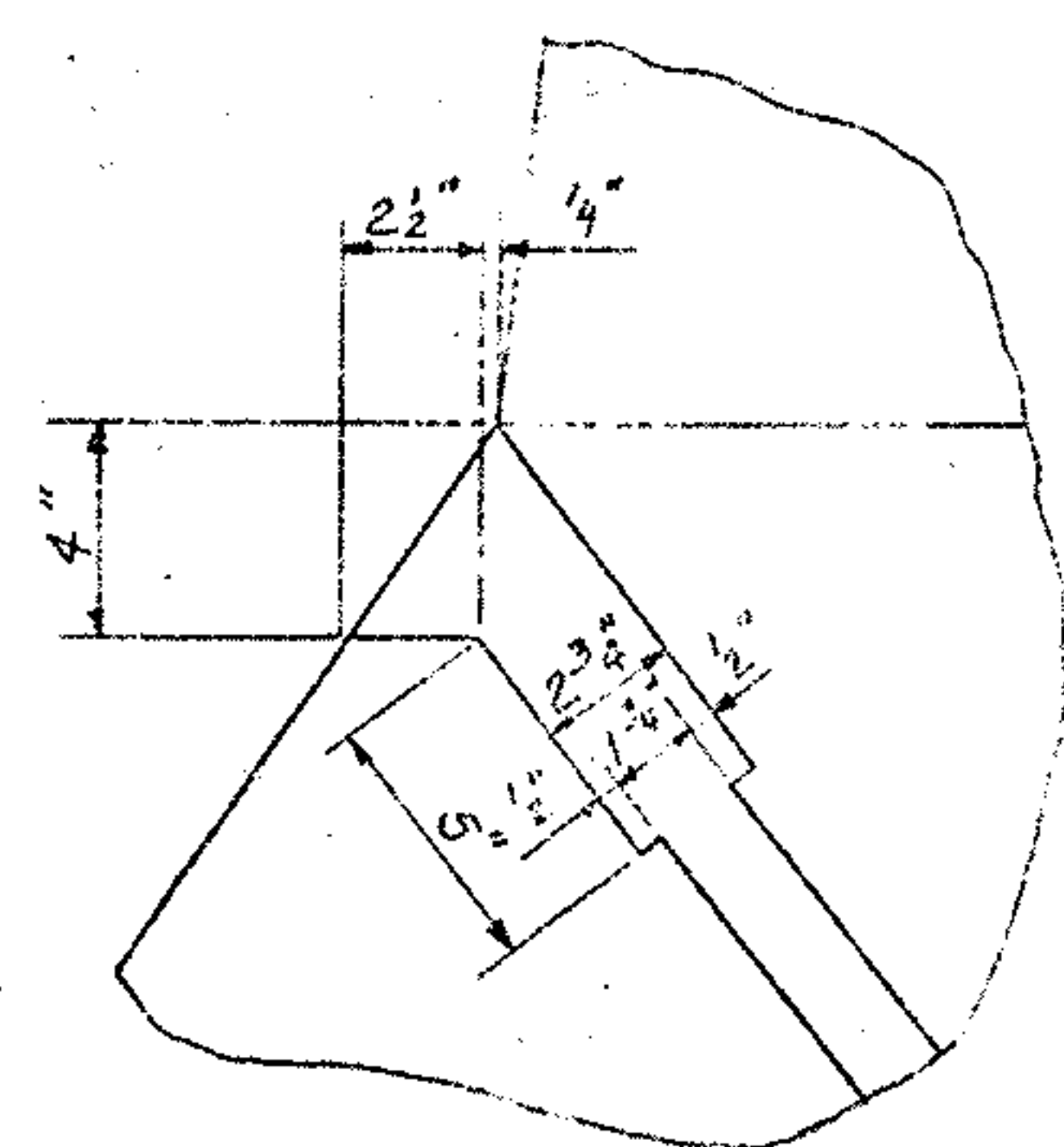
Longitudinal steel shall be field cut as required.

Provide reverse bends in 2" ϕ conduit within a distance of 10'-0" from light pole installation to change its location in deck median to run it into the junction box.

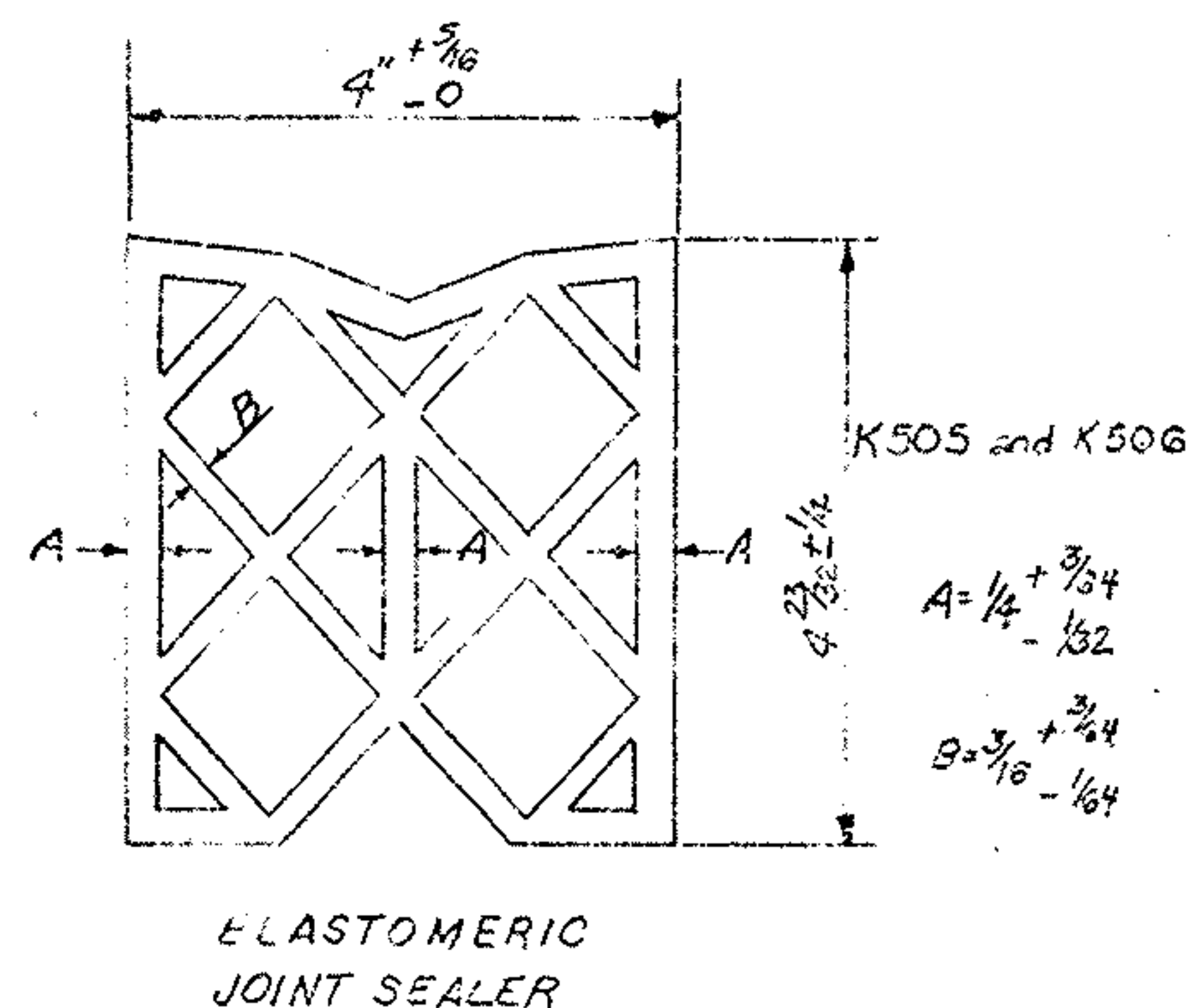
Field bending of conduit shall not be permitted. All conduit shall be composed of straight pieces, fittings and 45° bends.



SECTION B-B

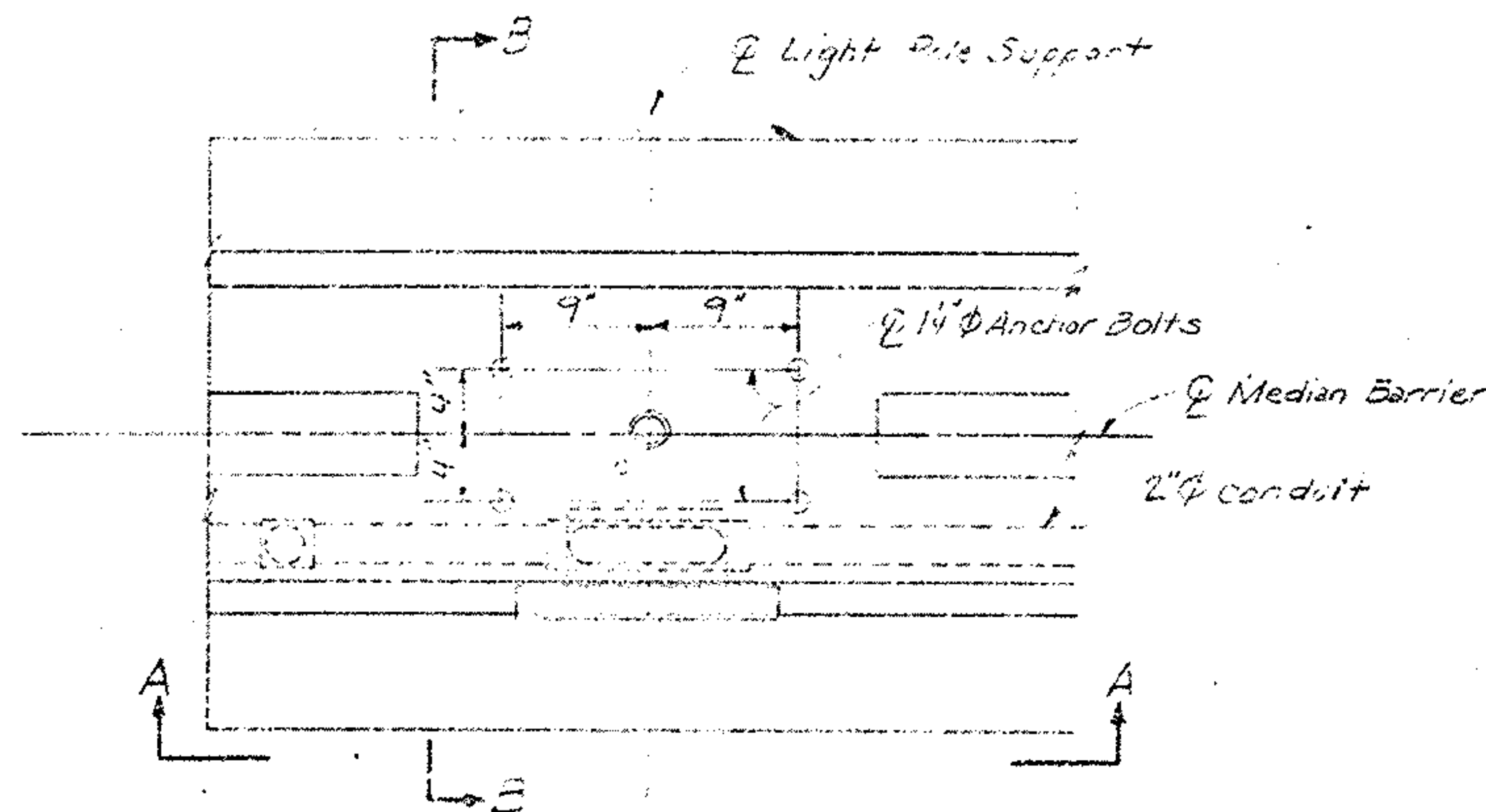


DETAIL-A
(Sheet 9/12)

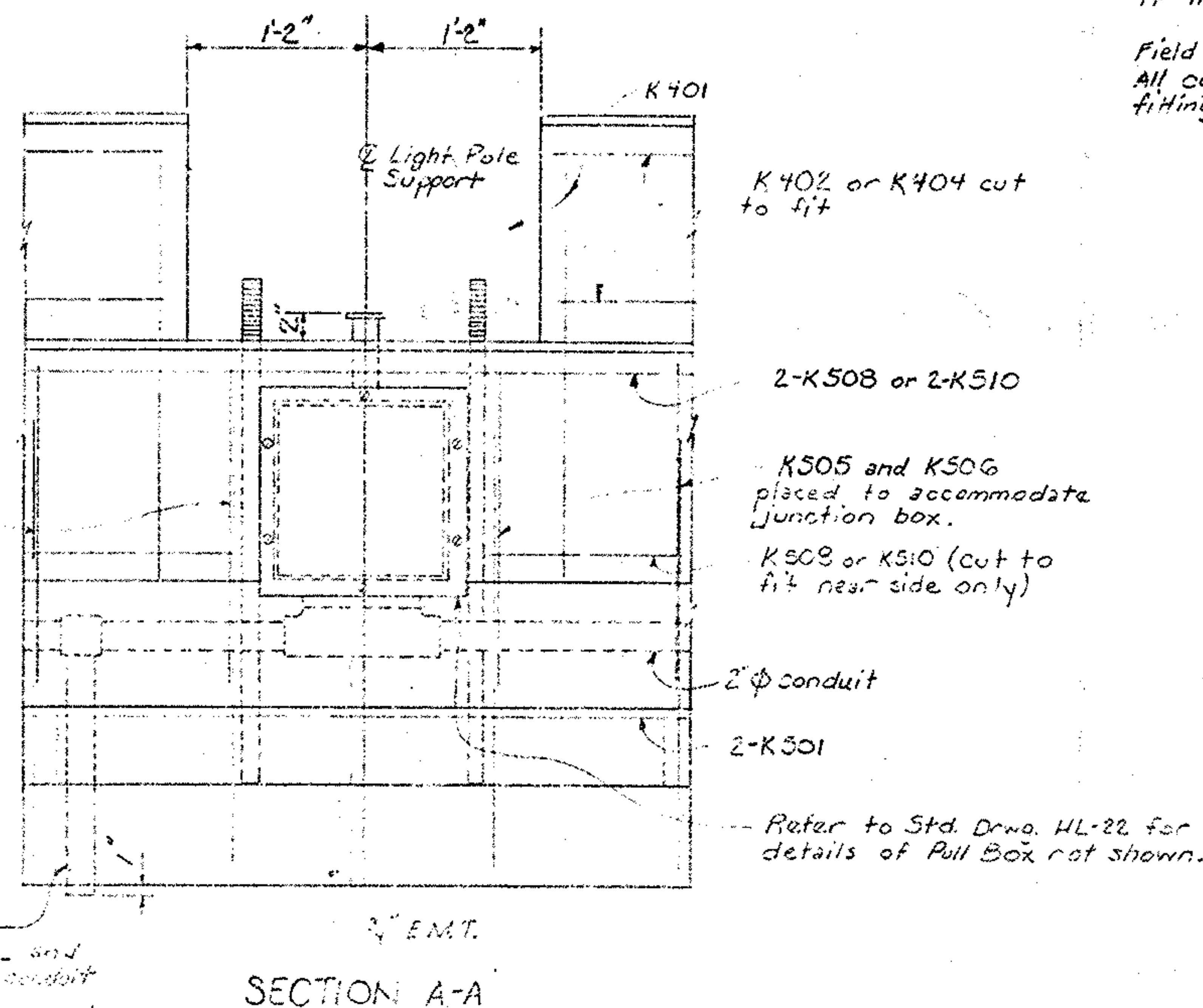


ELASTOMERIC
JOINT SEALER

2" conduit drain
Install drains here and
at all low points in conduit
system.



PLAN
LIGHT POLE SUPPORT
AT STATIONS 614+53, 652+87 and 656+23.56
ON BRIDGE NO. SUM-76-1306



SECTION A-A

STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DIVISION					
MEDIAN BARRIER LIGHT SUPPORT DETAILS FOR BRIDGE NO. SUM-76-1306					
DESIGNED	DRAWN	TRACED	CHECKED	APPROVED	DATE
MLR	MLR		MLR	MLR	10/12

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Participation
Bridge No. Sum-76-1231				
202	Lump	Sum	Portions of Structure Removed	Lump
202	79	Lin. ft.	Barrier Rail removed for reuse	79
510	50	Each	Dowel Holes (5" Deep)	50
510	104	Each	Dowel Holes (1'-0" Deep)	104
511	18	Cu. Yd.	Class 5 concrete, median barrier	18
513	6	Each	Welded Stud Shear Connectors	6
519	158	Sq. ft.	Patching concrete structures, as per plan	158
625			See sheet (S) for Lighting Summary	
Special	2584	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	2584
Bridge No. Sum-76-1242				
202	Lump	Sum	Portions of Structure Removed	Lump
202	57	Lin. ft.	Barrier Rail removed for reuse	57
510	36	Each	Dowel Holes (5" Deep)	36
510	72	Each	Dowel Holes (1'-0" Deep)	72
511	13	Cu. Yd.	Class 5 Concrete, median barrier	13
513	6	Each	Welded stud shear Connectors	6
519	116	Sq. ft.	Patching concrete structures, as per plan	116
625			See sheet (S) for Lighting Summary	
Special	1841	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	1841
Bridge No. Sum-76-1267				
202	Lump	Sum	Portions of Structure Removed	Lump
202	67	Lin. ft.	Barrier Rail removed for reuse	67
510	42	Each	Dowel Holes (5" Deep)	42
510	86	Each	Dowel Holes (1'-0" Deep)	86
511	15	Cu. Yd.	Class 5 Concrete, median barrier	15
513	6	Each	Welded Stud Shear Connectors	6
519	134	Sq. ft.	Patching concrete structures, as per plan	134
625			See sheet (S) for Lighting Summary	
Special	2174	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	2174
Bridge No. Sum-76-1277				
202	Lump	Sum	Portions of Structure Removed	Lump
202	812	Lin. ft.	Barrier Rail removed for reuse	812
510	540	Each	Dowel Holes (5" Deep)	540
510	1102	Each	Dowel Holes (1'-0" Deep)	1102
511	187	Cu. Yd.	Class 5 concrete, median barrier	187
513	264	Lbs.	Structural Steel (Curb plates and lighting bolts)	264
513	24	Each	Welded Stud Shear Connectors	24
514	115	Lbs.	Field painting of new structural steel, System B, as per plan	115
514	Lump	Sum	Field painting of existing steel, surface preparation, as per plan	Lump
514	Lump	Sum	Field painting of existing steel, spot prime, as per plan	Lump
514	Lump	Sum	Field painting of existing steel, complete coat prime, as per plan	Lump
514	Lump	Sum	Field painting of existing steel, complete coat finish, as per plan	Lump
519	1626	Sq. ft.	Patching concrete structures, as per plan	1626
625			See sheet (S) for Lighting Summary	
Special	29464	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	29464
516	15	Lin. ft.	Pre-formed Elastomeric Joint Seal and Lubricant Adhesive, 705.11	15
Bridge No. Sum-76-1296				
202	Lump	Sum	Portions of structure Removed	Lump
202	72	Lin. ft.	Barrier Rail removed for reuse	72
510	46	Each	Dowel Holes (5" Deep)	46
510	92	Each	Dowel Holes (1'-0" Deep)	92
511	15	Cu. Yd.	Class 5 Concrete, median barrier	15
513	6	Each	Welded Stud Shear Connectors	6
519	146	Sq. ft.	Patching concrete structures, as per plan	146
625			See sheet (S) for Lighting Summary	
Special	2338	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	2338

ESTIMATED QUANTITIES-(Cont)

Item	Total	Unit	Description	Participation
Bridge No. Sum-76-1309				
202	Lump	Sum	Portions of Structure Removed	Lump
202	48	Lin. ft.	Barrier Rail removed for reuse	48
510	30	Each	Dowel Holes (5" Deep)	30
510	62	Each	Dowel Holes (1'-0" Deep)	62
511	10	Cu. Yd.	Class 5 Concrete, median barrier	10
513	6	Each	Welded Stud Shear Connectors	6
519	97	Sq. ft.	Patching concrete structures, as per plan	97
625			See sheet (S) for Lighting Summary	
Special	1582	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	1582
Bridge No. Sum-76-1332				
202	Lump	Sum	Portions of Structure Removed	Lump
202	58	Lin. ft.	Barrier Rail removed for reuse	58
510	36	Each	Dowel Holes (5" Deep)	36
510	76	Each	Dowel Holes (1'-0" Deep)	76
511	12	Cu. Yd.	Class 5 Concrete, median barrier	12
513	6	Each	Welded stud shear Connectors	6
519	116	Sq. ft.	Patching concrete structures, as per plan	116
625			See sheet (S) for Lighting Summary	
Special	1901	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	1901
Bridge No. Sum-76-1366				
202	Lump	Sum	Portions of Structure Removed	Lump
202	977	Lin. ft.	Barrier Rail removed for reuse	977
510	1314	Each	Dowel Holes (1'-0" Deep)	1314
511	195	Cu. Yd.	Class 5 Concrete, median barrier	195
513	8	Each	Welded stud shear Connectors	8
513	283	Lbs.	Structural Steel (Curb plates and lighting bolts)	283
514	85	Lbs.	Field painting of new structural steel, System B, as per plan	85
514	Lump	Sum	Field painting of existing steel, surface preparation, as per plan	Lump
514	Lump	Sum	Field painting of existing steel, spot prime, as per plan	Lump
514	Lump	Sum	Field painting of existing steel, complete coat prime, as per plan	Lump
514	Lump	Sum	Field painting of existing steel, complete coat finish, as per plan	Lump
625			See sheet (S) for Lighting Summary	
Special	16,905	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	16,905
Bridge No. Sum-76-1408				
202	Lump	Sum	Portions of structure removed	Lump
202	168	Lin. ft.	Barrier Rail removed for reuse	168
510	104	Each	Dowel Holes (5" Deep)	104
510	228	Each	Dowel Holes (1'-0" Deep)	228
511	36	Cu. Yd.	Class 5 Concrete, median barrier	36
519	314	Sq. ft.	Patching concrete structures, as per plan	314
625			See sheet (S) for Lighting Summary	
Special	5868	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	5868
Bridge No. Sum-76-1416				
202	Lump	Sum	Portions of structure removed	Lump
202	42	Lin. ft.	Barrier Rail removed for reuse	42
510	26	Each	Dowel Holes (5" Deep)	26
510	52	Each	Dowel Holes (1'-0" Deep)	52
511	9	Cu. Yd.	Class 5 Concrete, median barrier	9
513	6	Each	Welded stud shear Connectors	6
519	86	Sq. ft.	Patching concrete structures, as per plan	86
625			See sheet (S) for Lighting Summary	
Special	1371	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	1371

STATE	SECTION	STATE	SECTION
OHIO			

SUM-76-11.57, SUM-8-0.46

GENERAL NOTES

REFERENCE shall be made to Supplemental Specification 836 dated 3-12-75.

DESIGN DATA:

Concrete Class 5-Compressive Strength 4500 psi.
Structural Steel-ASTM A36-unit stress 20,000 psi.
Reinforcing Steel-ASTM A615, A616 or A617-Grade 60, minimum yield strength 60,000 psi.

PROPOSED WORK:

1. Make arrangements for proper maintenance of traffic before work starts, in accordance with plans.
2. Remove existing median in parts as per plans.
3. Construct new median as per plans.

ITEM 202 BARRIER RAIL REMOVED FOR REUSE

Existing Barrier Rail shall be carefully dismantled and stored for reuse at the direction of the Engineer. The rail shall become the property of the State.

EXISTING BRIDGE PLAN may be inspected at the Bureau of Bridges in Columbus, Ohio or in the District Office in Ravenna, Ohio.

DIMENSIONS OF EXISTING BRIDGE as shown on these plans are taken from plans for the original construction. The Contractor is referred to CMS Sections 105.02 and 513.02.

EPOXY COATING OF REINFORCING STEEL:

All reinforcing bars in the Reinforcing Steel List on Sheets 12/12 and 12A/12 shall be epoxy coated.

ESTIMATED QUANTITIES CONTINUED ON SHEET 11/12

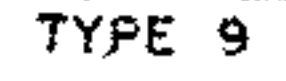
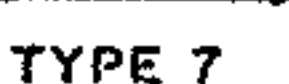
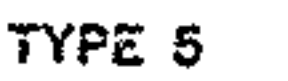
STATE OF OHIO		11/12	
DEPARTMENT OF TRANSPORTATION			
DIVISION OF HIGHWAYS			
BUREAU OF BRIDGES			
ESTIMATED QUANTITIES AND GENERAL NOTES			
BR. NO'S SUM-76-1231, SUM-76-1242, SUM-76-1267, SUM-76-1277, SUM-76-1296, SUM-76-1309, SUM-76-1332, SUM-76-1366, SUM-76-1408, SUM-76-1416, SUM-76-1519 AND SUM-76-1532			
DESIGNED BY	TRACED BY	CHECKED BY	REVIEWED BY
MJR	JAM	7/31/79	KWJ 7-13-79

Rev. 2-18-82 SMK

MARK	TOTAL LENGTH	WEIGHT	TYPE	A	B	C	D	R	MARK	TOTAL LENGTH	WEIGHT	TYPE	A	B	C	D	R	MARK	TOTAL LENGTH	WEIGHT	TYPE	A	B	C	D	R			
SUM-76-1231 ARLINGTON STREET OVERPASS										SUM-76-1277 WEST VIADUCT										SUM-76-1408 EAST MARKET STREET (CONT.)									
M401	24	12.9	204	St.					W401	68	15.3	693	St.					L512	5	8.6	27	S							
M501	104	2.5	262	St.					W402	128	7.2	593	St.					L513	3	3.0	9	S							
M502	104	3.6	380	St.					W403	68	14.1	640	St.					L514	1	3.2	3	S							
M503	12	27.5	343	St.					W404	32	7.0	150	St.					L515	10	2.6	26	4	1'-6"	10 1/2"	6"				
M504	48	12.9	638	St.					W501	1102	2.5	2777	St.					L516	104	1.2	127	4	8"	5"	4"				
M517	8	2.6	21	4	1'-6"	10 1/2"	6"		W502	1102	3.11	4502	St.					L517	7	4.8	34	S							
M518	8	4.5	37	2	9"	3'-10"			W503	540	1.8	938	4	11"	7 3/4"	4 1/2"		L518	1	4.0	4	S							
M519	50	1.2	61	4	8"	5"	4"		W504	136	15.3	2163	St.					L519	1	4.3	4	S							
									W505	256	7.0	1869	St.					L520	1	3.6	4	S							
M701	104	3.0	638	4	1'-3"	10"	1'-9"		W506	136	14.0	1989	St.					L521	1	3.3	3	S							
									W507	64	6.10	456	St.					L522	16	3.6	58								
SUM-76-1242 CHITTENDEN STREET OVERPASS										SUM-76-1366 EAST VIADUCT																			
M402	16	13.10	148	St.					W508	8	3.5	29	St.					L701	4	2.1	24	1	1'-3"	1'-7"	6"				
M501	72	2.5	181	St.					W509	12	2.6	31	4	1'-8"	10"	5"		L702	224	3.1	1412	1	1'-4"	1'-8"	6"				
M502	72	3.6	263	St.					W510	108	30.0	3379	St.																
M505	32	13.10	462	St.					W511	4	8.4	35	St.					K401	665	3.5	1517	6							
M506	8	29.2	243	St.					W512	4	27.11	116	St.					K402	34	12.9	290	S							
M517	8	2.6	21	4	6"	10 1/2"	6"		W513	4	8.0	33	St.					K403	10	13.0	87	S							
M518	8	4.5	37	2	9"	3'-10"												K404	96	7.2	460	S							
M519	36	1.2	44	4	8"	5"	4"		M517	4	2.6	10	4	1'-6"	10 1/2"	6"		K405	16	13.3	142	S							
									M518	4	4.5	18	2	9"	3'-10"			K406	12	15.9	126	S							
M701	72	3.0	442	4	1'-3"	10"	1'-9"		W514	12	6.3	78	3	8"	2'-11"			K407	10	12.5	83	S							
SUM-76-1267 FULLER STREET OVERPASS										SUM-76-1416 BRIDGE OVER RAMP E23																			
M403	20	13.0	174	St.					W515	20	2.7	54	3	1'-2"	10"	10"	1 1/4"	K501	128	30.0	4005	S							
M501	86																												

247
248

TYPE 2



STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

BR. NO's SUM-76-1231, SUM-76-1242

SUM-76-1267, SUM-76-1277, SUM-76-1
SUM-76-1280, SUM-76-1289, SUM-76-

SUM-76-1408, SUM-76-1416, SUM-76-

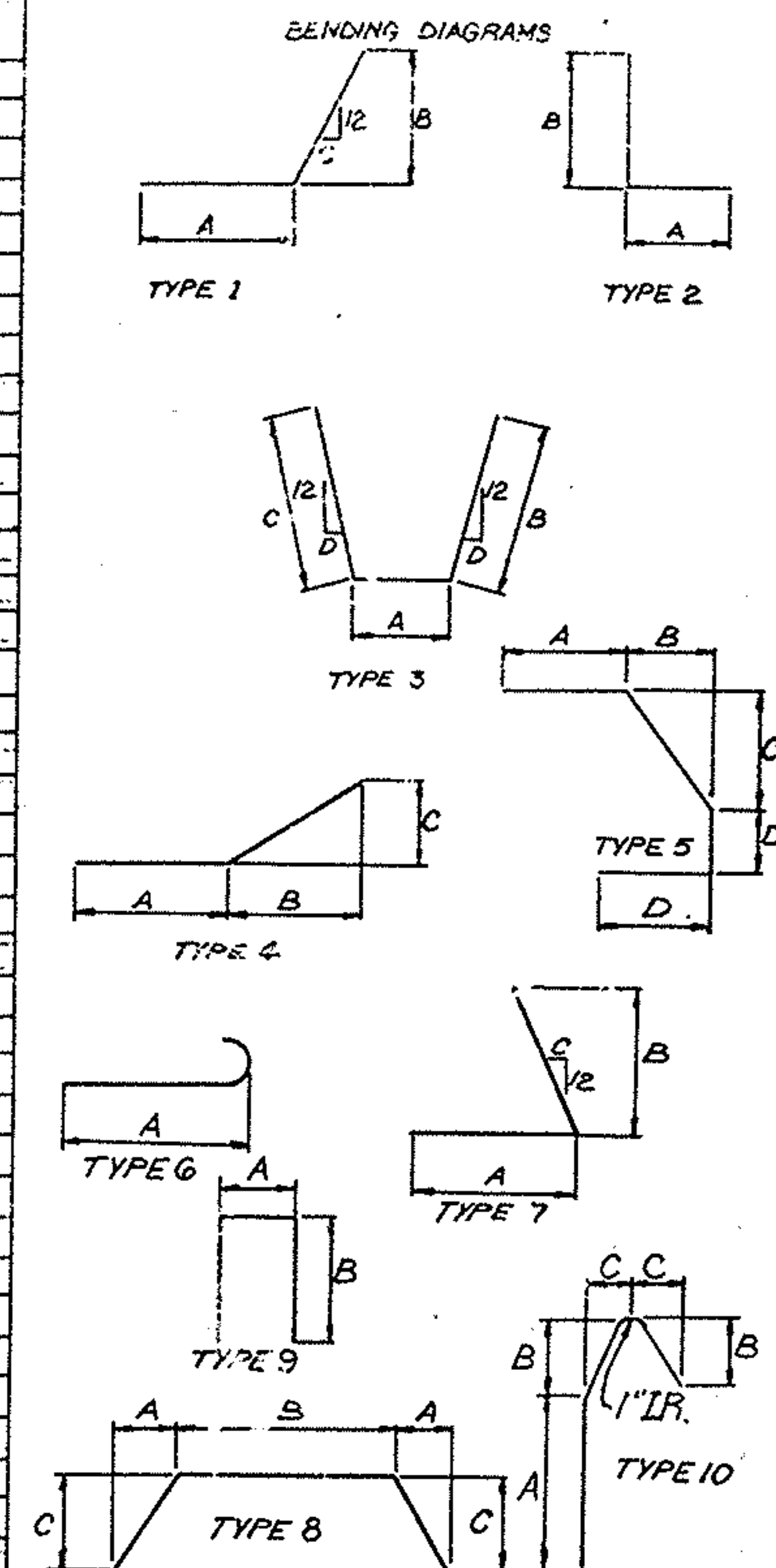
AND SUM-76-1532

DRAWN	THAWG	CHECKED	REVIEWED	DATE
-------	-------	---------	----------	------

GFJ 1944 JUL 7-13-75

ESTIMATED QUANTITIES—(Cont)				
Item	Total	Unit	Description	Participation
Bridge No. Sum 76-1519				
202	Lump	Sum	Portions of structure removed	Lump
202	374	lin. ft.	Barrier Rail removed for reuse	374
510	250	Each	Dowel Holes (5" Deep)	250
510	504	Each	Dowel Holes (1'-0" Deep)	504
511	87	Cu. Yd.	Class 5 Concrete, Median barrier	87
513	108	Lbs.	Structural steel (curb plates and lighting bolts)	108
514	108	Lbs.	Field painting of new structural steel, System B, as per plan	108
519	714	Sq. ft.	Patching concrete structures, as per plan 714	714
625			See sheet (S) for Lighting Summary	
Special	12,200	Lbs.	Epoxy coated reinforcing steel, Grade 60, (see proposal note)	12,200
Bridge No. Sum 76-1532				
202	Lump	Sum	Portions of structure removed	Lump
202	291	lin. ft.	Barrier Rail removed for re-use	291
510	188	Each	Dowel Holes (5" Deep)	188
510	386	Each	Dowel Holes (1'-0" Deep)	386
511	68	Cu. Yd.	Class 5 Concrete, Median Barrier	68
513	6	Each	Welded stud shear connectors	6
519	582	Sq. ft.	Patching concrete structures, as per plan	582
625			See sheet (S) for Lighting Summary	
Special	9379	Lbs.	Epoxy Coated reinforcing steel, Grade 60, (see proposal note)	9379

REINFORCING STEEL LIST (EPOXY COATED GRADE 60) CONT.											
MARK				TOTAL LENGTH	WEIGHT	TYPE	A	B	C	D	R
SUM-76-1519 OVER A.C. & Y RAILROAD (CONT.)											
A513				4	24'7"	103	S				
A514				32	12'7"	420	S				
A515				152	7'0"	1110	S				
A516				36	13'0"	488	S				
A517				16	11'6"	192	S				
A518				36	15'8"	582	S				
A519				4	12'9"	53	S				
A520				4	15'3"	64	S				
A521				2	3'2"	7	S				
A522				250	1'2"	304	S	8"	5"	4"	
A523				1	2'3"	2	S				
A524				3	1'11"	6	S				
A525				3	2'5"	8	S				
A526				1	1'1"	1	S				
A527				2	1'5"	3	S				
A701				500	3'1"	3151	S	1'3"	10"	1'9"	
A702				4	3'4"	27	S	1'9"	1'7"	4"	
SUM-76-1532 GILCHRIST ROAD											
G501				14	2'6"	37	S	1'6"	10 1/2"	6"	
G502				14	5'1"	74	S	1'2"	2'7"		
G503				386	2'2"	872	S				
G504				386	2'0"	805	S				
G505				72	7'0"	526	S				
G506				36	15'6"	582	S				
G507				40	30'0"	1252	S				
G508				4	6'6"	27	S				
G509				42	12'4"	540	S				
G510				12	15'0"	188	S				
G511				188	1'2"	229	S	8"	5"	4"	
G701				386	3'1"	2433	S	1'3"	1'8"	6"	
G401				48	7'2"	230	S				
G402				28	12'5"	233	S				
G403				4	15'1"	40	S				
G404				24	15'8"	251	S				



SECTION	STATE	PROJECT	248
5	OHIO		248

SUM-76-11.57
SUM-8-0.46

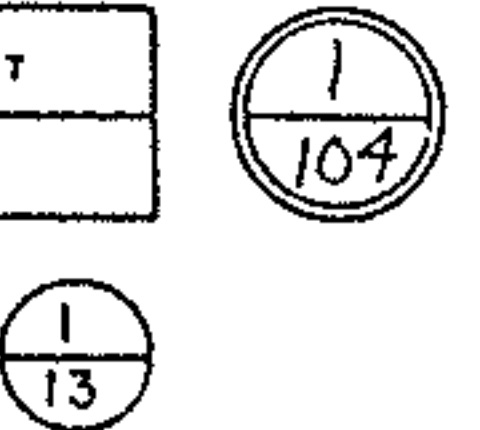
Refer to CMS Sections 106.03, 700, 709.01 through 709.05 and 709.08. Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structures by the additional steel, spliced in accordance with 509.08.

Rev. 2-18-82 S.M.K.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS BUREAU OF BRIDGES				
REINFORCING STEEL LIST AND ESTIMATED QUANTITIES (CONTINUED)				
BR. Nos. SUM-76-1231, SUM-76-1242, SUM-76-1267, SUM-76-1277, SUM-76-1309, SUM-76-1332, SUM-76-1408, SUM-76-1416, SUM-76-1532 AND SUM-76-1532				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
MJR	JAM		JAM	WJJ 7-13-77

FHWA REGION	STATE	PROJECT

SOIL PROFILE

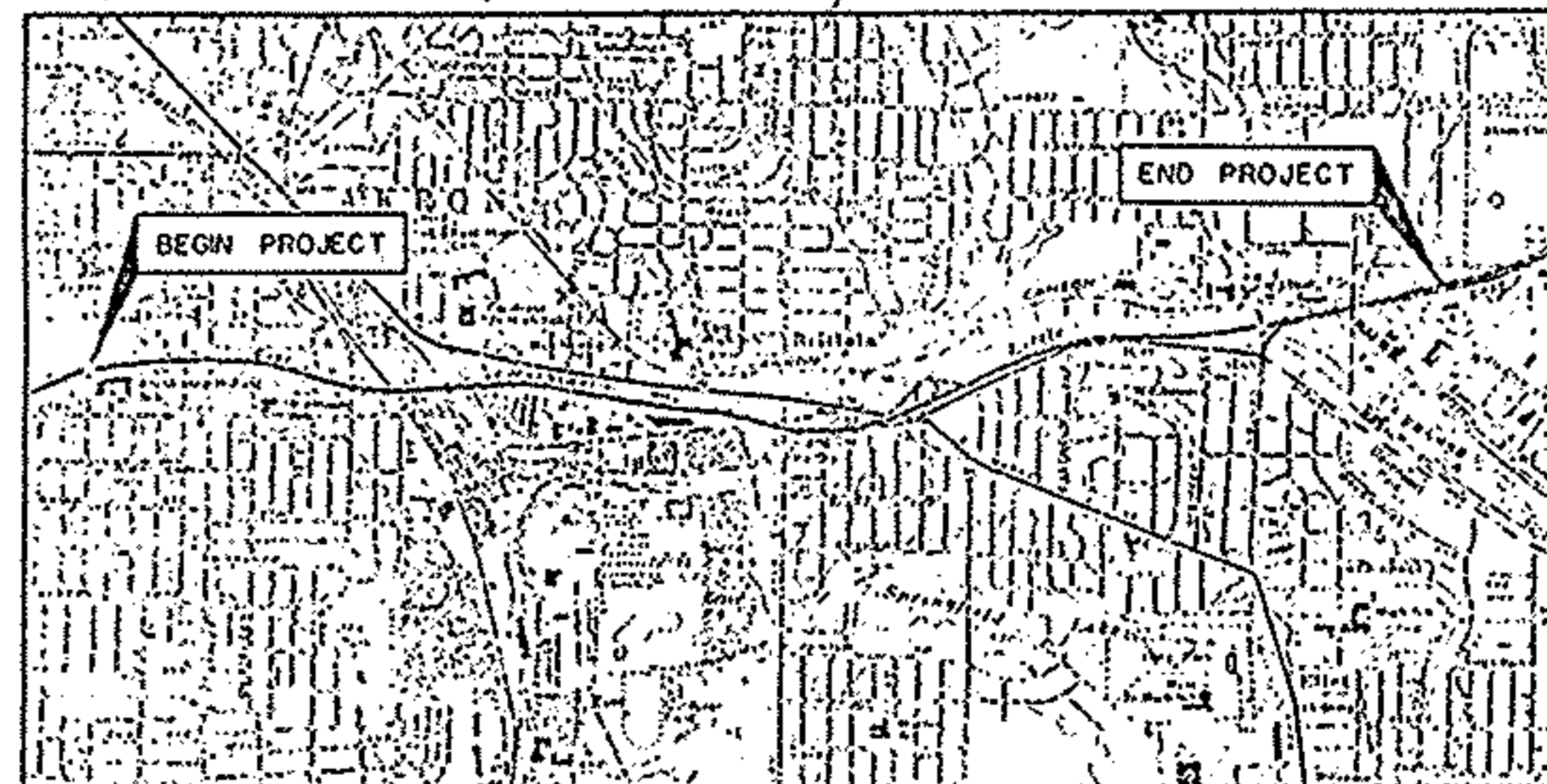


SUBSURFACE INVESTIGATION

SUM-76-11.57

AKRON EAST EXPRESSWAY (I.R. 76)

AKRON, OHIO



LOCATION MAP

LEGEND

DESCRIPTION	T.R.B. CLASS	OHIO CLASS	% A.S.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
GRAVEL	A-1-a(0)	A-1-a	57	19	10	4	14	22	10	10	4
GRAVEL AND/OR STONE FRAGS. WITH SAND	A-1-b(0)	A-1-b	20	35	22	10	5	22	10	10	11
FINE SAND	A-3()	A-3									
COARSE & FINE SAND	---	A-3a	26	16	33	16	9	22	10	10	6
GRAVEL OR STONE FRAGS. WITH SAND AND SILT	A-2-4(0)	A-2-4	39	16	13	4	32	22	10	10	1
GRAVEL WITH SAND, SILT AND CLAY	A-2-6(0)	A-2-6	10	15	32	4	35	22	10	9	1
SANDY SILT	A-4(5)	A-4a	15	10	10	33	24	23	6	12	24
SILT	A-4(8)	A-4b	2	2	15	51	30	24	5	23	4
SILT AND CLAY	A-6()	A-6a									
SILTY CLAY	A-6()	A-6b									
ELASTIC CLAY	A-7-5(9)	A-7-5	9	25	11	4	55	51	18	59	1
CLAY	A-7-6()	A-7-6									
FINE-TEXTURED PEAT											
SEDIMENTARY PEAT											
RANDOM FILL											
UNDERCLAY											
COAL											
WEATHERED SHALE											
WEATHERED SANDSTONE											
WEATHERED SILTSTONE											
MUDSTONE											
SHALE											
SANDSTONE											
SILTSTONE											
LIMESTONE											
VARIOUS OTHER MATERIAL											
SOD AND/OR TOPSOIL											
BERM MATERIAL											
PAVEMENT											

VISUAL CLASSIFICATION

AUGER BORING-PLAN VIEW	FREE WATER
DRIVE SAMPLE AND/OR CORE BORING-PLAN VIEW	STATIC WATER LEVEL
ELECTRICAL RESISTIVITY PROBE PLAN VIEW	NUMBER OF BLOWS FOR "STANDARD PENETRATION" TEST X, Y, & Z = NUMBER OF BLOWS FOR 1st, 2nd, & 3rd 6" RESPECTIVELY
CONE PENETRATION TEST	INDICATES BROKEN ROCK INTERVAL
SEISMIC SURVEY LINE	ELECTRICAL RESISTIVITY PROBE PROFILE
% SILT & CLAY; NO HYDROMETER DONE	INTERVAL OF RELATIVELY HIGH MOISTURE
WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT	TOP OF ROCK
INDICATES A NON-PLASTIC MATERIAL WITH A HIGH WATER CONTENT	NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT E.G. 15

INTRODUCTION

THIS REPORT CONSISTS OF THE SOILS INVESTIGATION FOR A 4.4 MILE SECTION OF THE EXISTING AKRON EAST EXPRESSWAY (I.R. 76) BETWEEN S.R. 8 AND GILCHRIST ROAD. IN ADDITION TO THIS REPORT, SEPARATE REPORTS FOR STRUCTURES HAVE BEEN SUBMITTED UNDER OTHER COVERS.

GEOLOGY

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE ROADWAY IS APPROXIMATELY 106 FEET. ELEVATION RANGES FROM A LOW POINT OF 1005.75 AT TEST LOCATION B-25 TO A HIGH OF 1112.06 AT TEST LOCATION B-1.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE. BASED UPON INFORMATION OBTAINED FROM THE OHIO GEOLOGIC SURVEY, THE BEDROCK SURFACE IS EXPECTED TO BE AT AN APPROXIMATE ELEVATION OF 1,000 NEAR THE WEST END OF THE PROJECT SITE AND APPROXIMATELY 1,050 NEAR THE EAST END OF THE PROJECT.

EXPLORATION

THE SUBSURFACE INVESTIGATION FOR THIS PROJECT WAS CONDUCTED BETWEEN JULY AND AUGUST, 1987. A TOTAL OF 56 ROADWAY BORINGS WERE ADVANCED WITH CME-45c TRACK MOUNTED, CME-750 ALL TERRAIN, AND CME-75 TRUCK MOUNTED DRILLING RIGS USING CONVENTIONAL 2.25 AND 3.25 INCH I.D. HOLLOW STEM AUGERS.

TEST BORING INFORMATION FOR BRIDGES AND RETAINING WALLS HAS BEEN SUBMITTED UNDER SEPARATE COVERS.

INVESTIGATIONAL FINDINGS

MATERIALS ENCOUNTERED AT THE PROJECT SITE WERE PREDOMINATELY COMPRISED OF SANDY SILTS (A-4a) AND SAND AND GRAVEL (A-1-a, A-1-b AND A-3a). OTHER SOIL UNITS ENCOUNTERED ON A MUCH MORE LIMITED BASIS WERE SILTS (A-4b), ELASTIC CLAY (A-7-b), AND GRAVEL WITH SAND, SILT, AND CLAY (A-2-6).

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THIS REPORT.

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY (I.R. 76)
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

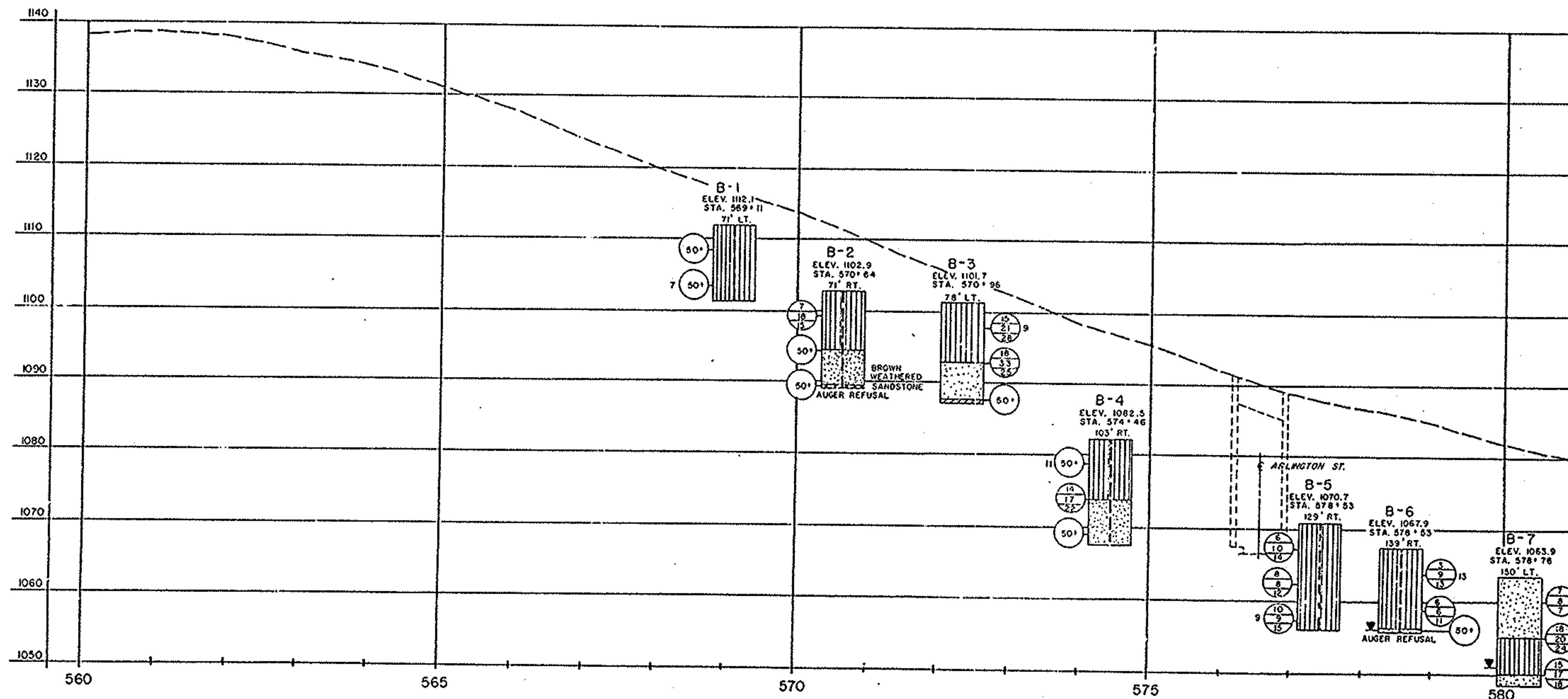
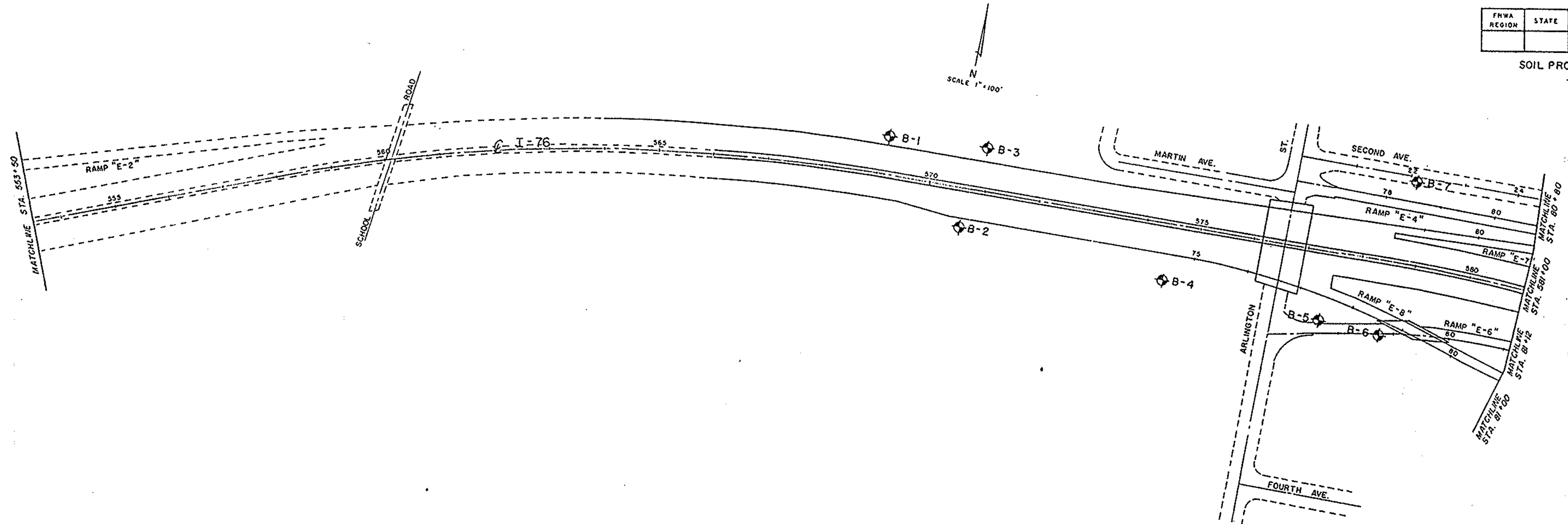
SUM-76-11.57

FHWA REGION	STATE	PROJECT

2
104

SOIL PROFILE

2
13



SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY (I.R. 76)
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200



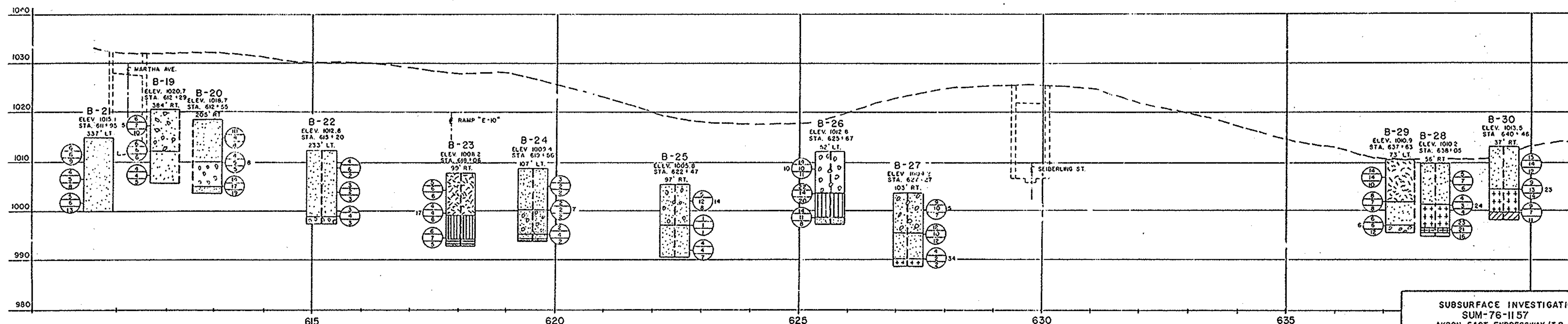
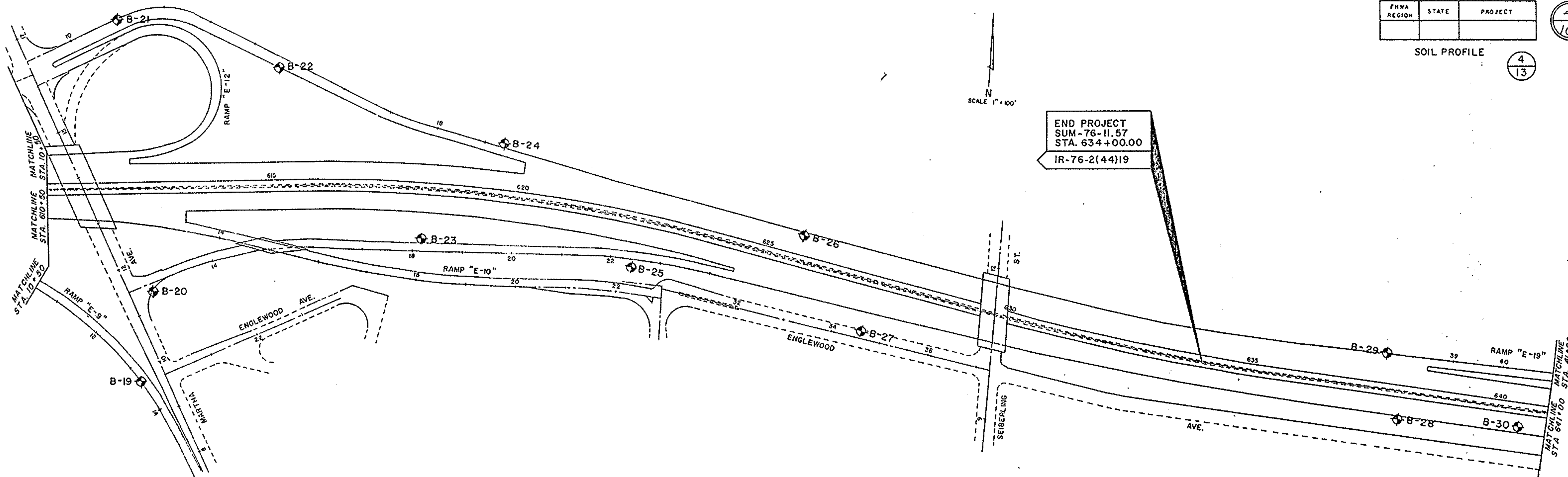
SUM-76-11.57

FHWA REGION	STATE	PROJECT

4
104

SOIL PROFILE

4
13



SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY (I.R. 76)
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-660-2200

LOG OF BORING

Date Started 7-30-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-30-87 Casing Length --- Dia. ---
Boring No. B-1 Station & Offset Sta. 569 + 12 71' LT. Surface Elev. 1112.1

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1112.1	0																	
	5	50/0.3	0.1		Hard, brown <u>SANDY SILT</u> , trace rock fragments, moist.	1	SS											
1103.6	10	50/0.3	0.3		Hard, brown and gray <u>SANDY SILT</u> , trace gravel and organics, moist.	2	SS	4.9	7.6	9.4	*	78.1	--	--	--	--	7.6	A-4a
1101.6					TERMINATION DEPTH 10.5 FEET													

LOG OF BORING

Date Started 7-30-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-30-87 Casing Length --- Dia. ---
Boring No. B-3 Station & Offset Sta. 570 + 95 78' LT. Surface Elev. 1101.7

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1101.7	0																	
	5	15-21-28	1.2		Hard, brown <u>SANDY SILT</u> , some gravel, trace rock fragments, moist.	1	SS	36.7	8.0	12.2	*	43.1	--	--	--	8.7	A-4a	
1093.2	10	18-33-25	1.5		Very dense, tan <u>SAND</u> , little silt, trace rock fragments, moist.	2	SS											
1088.2 1087.7	15	50/0.4	0.4		Hard, gray <u>SILT AND CLAY</u> , trace rock fragments, damp. TERMINATION DEPTH 14.0 FEET	3	SS											

LOG OF BORING

Date Started 7-3-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-3-87 Casing Length --- Dia. ---
Boring No. B-2 Station & Offset Sta. 570 + 64 71' RT. Surface Elev. 1102.9

ELEV.	DEPTH	STD. PEN. (N)	REC. FL	LOSS FL	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1102.9	0																	
	5	7-18-15	1.5		Very stiff, brown <u>SANDY SILT</u> , dry.	1	SS											
1094.4	10	21-52/0.4	0.5		Very dense, brown <u>SILTY SAND</u> , trace rock fragments, dry.	2	SS											
1089.4 1089.3	15	50/0.1	0.0		Brown <u>SANDSTONE</u> , extremely altered. TERMINATION DEPTH 13.6 FEET	3	SS											

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY (I.R. 76)
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

4711 JUPITER ROAD
AKRON, OH 44321
216-666-2200

Sum-76-11.57

FHWA REGION	STATE	PROJECT

6
104

SOIL PROFILE

6
13

LOG OF BORING

Date Started 7-29-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-29-87 Casing Length --- Dia. ---
Boring No. B-4 Station & Offset Sta. 574 + 46 103' RT. Surface Elev. 1082.5

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SMTL CLASS.
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1082.5	0																	
	5	18-22-50/ 0.3	1.0		Hard, brown <u>SANDY SILT</u> , trace gravel, moist.	1	SS	6.4	9.2	21.2	*	63.2	--	--	--	10.6	A-4a	
1074.0	10	14-17-22	0.0			2	SS											
	15	50/0.4	0.4		Dense to very dense, brown <u>SILTY SAND</u> , trace gravel, moist.	3	SS											
1067.5					TERMINATION DEPTH 15.0 FEET													

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 7-29-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-29-87 Casing Length --- Dia. ---
Boring No. B-5 Station & Offset Sta. 577 + 40 129' RT. Surface Elev. 1070.7

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SMTL CLASS.
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1070.7	0																	
	5	6-10-14	1.4		Very stiff, brown <u>SANDY SILT</u> , trace gravel and organics, moist.	1	SS											
1062.2	10	8-8-12	1.5			2	SS											
					Very stiff, brown <u>SANDY SILT</u> , some gravel, moist.													
		10-9-15	1.4			3	SS	22.8	17.0	22.4	*	37.8	--	--	--	9.0	A-4a	
1055.7	15				TERMINATION DEPTH 15.0 FEET													

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 7-29-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 1056.4
Date Completed 7-29-87 Casing Length --- Dia. ---
Boring No. B-6 Station & Offset Sta. 578 + 53 139' RT. Surface Elev. 1067.9

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1167.9	0																	
	5	3-9-13	1.1		Very stiff, brown <u>SANDY SILT</u> , trace gravel, moist.	1	SS	9.6	6.3	17.9	*	66.2	--	--	--	12.9	A-4a	
	10	6-6-11	0.4			2	SS											
1056.9 1056.3		50/0.1	0.1		Very dense, brown SAND, moist. ADGER REFUSAL AT 11.6 FEET. TERMINATION DEPTH 11.6 FEET	3	SS											

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY (I.R. 76)
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3875 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT



SOIL PROFILE

7
13

LOG OF BORING

Date Started 7-30-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 1051.4
Date Completed 7-30-87 Casing Length -- Dia. ---
Boring No. 8-7 Station & Offset Sta. 578 + 76 150' LT. Surface Elev. 1063.9

Boring No. _____		Station & Offset _____																
ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL. CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1063.9	0																	
	5	7-8-7	1.3		Medium dense, brown <u>SILTY SAND</u> , trace gravel, moist.	1	SS											
1055.4	10	18-20-24	1.2		Hard, brown <u>SANDY SILT</u> , trace gravel, moist.	2	SS	12.6	8.7	22.0	*	56.7	--	--	--	5.8	A-4a	
1050.4	15	15-17-18	1.0		Dense, brown <u>SILTY SAND</u> , trace gravel and rock fragments, moist.	3	SS											
1048.9					TERMINATION DEPTH 15.0 FEET													
																		</

LOG OF BORING

Date Started 7-29-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-29-87 Casing Length -- Dia. ---
Boring No. 8-8 Station & Offset Sta. 581 + 80 115' RT. Surface Elev. 1058.6

ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1058.6	0																	
	5	5-3-6	1.0				1	SS										
	10	14-16-16	1.5		Stiff to hard, brown and gray <u>SANDY SILT</u> , trace gravel, moist.		2	SS	9.9	9.6	20.9	*	59.6	21.8	15.7	6.2	12.9	A-4a
1045.1 1044.1 1043.6	15	10-29-34	1.3		Very dense, brown <u>SILTY SAND</u> , trace gravel, moist. Very dense, brown <u>SAND</u> , little silt, trace gravel and rock fragments, moist. TERMINATION DEPTH 15.0 FEET		3	SS										
													</					

LOG OF BORING

Date Started 7-29-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-29-87 Casing Length -- Dia. ---
Boring No. 8-9 Station & Offset Sta. 585 + 42 87' RT. Surface Elev. 1053.2

Boring No. 1053		Station & Elevation		Physical Characteristics														SHTL CLASS.
ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1053.2	0																	
	5	24-24-16	1.5		Hard, brown <u>SANDY SILT</u> , trace gravel, moist.	1	SS											
1044.7	10	6-10-14	1.5		Very stiff, brown and gray <u>SANDY SILT</u> , trace gravel, trace clay, moist.	2	SS											
1039.7	15	10-15-19			Dense, brown <u>SAND</u> , little silt, some gravel, moist.	3	SS	32.7	14.7	38.4	*	14.2	--	--	--	4.3	A-3a	
1038.2					TERMINATION DEPTH 15.0 FEET													

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY (I.R. 76)
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

Sum-76-11.57

FHWA REGION	STATE	PROJECT



SOIL PROFILE



LOG OF BORING

Date Started 7-30-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-30-87 Casing Length -- Dia. ---
Boring No. 3-10 Station & Offset Sta. 586 + 25 169' RT. Surface Elev. 1057.3

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1057.3	0																	
	5	7-9-12	1.1		Very stiff, brown and gray <u>SANDY SILT</u> , trace gravel, moist.	1	SS	7.6	10.2	23.0	*	59.2	--	--	--	12.2	A-4a	
1048.8	10	9-11-14	0.9		Very stiff, brown and gray <u>SANDY SILT</u> , trace gravel and organics, moist.	2	SS											
1043.8	15	6-12-19	1.5		Hard, brown and gray <u>SILT AND CLAY</u> , moist.	3	SS											
1042.3					TERMINATION DEPTH 15.0 FEET													
														</				

* SILT AND CLAY CONTAINED

LOG OF BORING

Date Started 7-29-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-29-87 Casing Length -- Dia. ---
Boring No. 8-12 Station & Offset Sta. 589 + 96 89' LT. Surface Elev. 1041.6

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1041.6	0																	
	5	13-18-30	1.2		Hard, brown <u>SANDY SILT</u> , little gravel, moist.	1	SS	24.4	11.5	18.1	*	46.0	--	--	--	7.5	A-4a	
1033.1	10	8-7-6	1.4			2	SS											
					Medium dense, brown <u>SILTY SAND</u> , little gravel and rock fragments, moist.													
1028.1		9-6-6	1.3			3	SS											
1026.6	15				medium dense, brown <u>SILTY SAND</u> , trace gravel and rock fragments, moist.													
					TERMINATION DEPTH 15.0 FEET													

* SILT AND CLAY CONTAINED

LOG OF BORING

Date Started 7-30-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-30-87 Casing Length -- Dia. ---
Boring No. B-11 Station & Offset Sta. 589 + 04 49' RT. Surface Elev. 1045.1

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1045.1	0																	
	5	9-13-15	1.3		Very stiff, brown and gray mottled <u>SANDY SILT</u> , trace gravel, moist.	1	SS											
1036.6	10	6-7-13	1.5			2	SS											
	15				Very stiff, brown <u>SANDY SILT</u> , trace gravel, moist.													
1031.6		4-4-7	1.1			3	SS	23.6	13.8	15.9	*	46.7	--	--	--	17.3	A-4a	
1030.1					<u>STIFF, brown SANDY SILT</u> , little gravel, moist.													
					TERMINATION DEPTH 15.0 FEET													

* SILT AND CLAY CONTAINED

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY (I.R. 76)
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FWHA REGION	STATE	PROJECT
----------------	-------	---------

9
104

SOIL PROFILE

9
13

LOG OF BORING

Date Started 7-30-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 7-30-87 Casing Length -- Dia. ---
 Boring No. B-12A Station & Offset --- Surface Elev. 1041.5

Boring No. B-12A		Station & Offset																
ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1041.0	0																	
	5	5-5-4	0.3		Loose, brown SAND, little silt, trace rock fragments, moist.	1	SS											
1032.5	10	5-6-7	1.1		Medium dense, brown SAND, little silt, little gravel, trace rock fragments, moist.	2	SS											
1027.5	15	12-32-50	1.3		Very dense, brown GRAVEL with sand, silt and clay, moist.	3	SS	18.3	15.5	30.9	*	35.3	--	--	--	9.3	A-2-6	
1026.0					TERMINATION DEPTH 15.0 FEET													

LOG OF BORING

Date Started 7-29-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 1020.5
 Date Completed 7-29-87 Casing Length -- Dia. ---
 Boring No. B-14 Station & Offset Sta. 590 + 72 277' LT. Surface Elev. 1035.5

Boring No.		0-14		Station 8 Offset		000-000		000-000											
ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1035.5	0																		
	5	8-7-7	1.2		Stiff, brown and gray <u>SANDY SILT</u> , trace gravel and rock fragments, moist.	1	SS												
1027.0	10	6-7-8	1.4		Medium dense, brown <u>GRAVEL</u> with sand and silt, moist.	2	SS	39.2	15.9	13.0	*	31.9	--	--	--	9.6	A-2-4		
1022.0	15	9-10-9	1.2		Medium dense, brown <u>SAND</u> , some silt, trace gravel and rock fragments, moist.	3	SS												
1020.5					TERMINATION DEPTH 15.0 FEET														

LOG OF BORING

Date Started 7-30-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 7-30-87 Casing Length -- Dia. ---
 Boring No. 9-13 Station & Offset Sta. 591 + 38 167' RT. Surface Elev. 1040.6

Boring No. 5-13		Station B Direct		557.52		557.52												
ELEV.	DEPTH	STD. PEN. (N)	REG. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1040.6	0																	
	5	6-10-11	1.4		Very stiff to stiff, brown <u>SANDY SILT</u> , trace to little gravel, moist.	1	SS											
	10	5-5-6	1.5			2	SS											
	15	5-7-7	1.3			3	SS	15.5	5.3	17.1	*	62.1	--	--	--	18.6	A-4a	
1025.6					TERMINATION DEPTH 15.0 FEET													

SUBSURFACE INVESTIGATION
 SUM-76-11.57
 AKRON EAST EXPRESSWAY (I.R. 76)
 AKRON, OHIO



R & R International, Inc.
 GEOTECHNICAL ENGINEERS - GEOLOGISTS

1000 CLEVELAND ROAD
 AKRON, OH 44321
 216-666-2200

FJWA REGION	SHEET 10	PROJECT 104
----------------	-------------	----------------

SOIL PROFILE

10
13

LOG OF BORING

Date Started 7-30-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 1025.7
Date Completed 7-30-87 Casing Length -- Dia. ---
Boring No. B-15 Station & Offset Sta. 591 + 74 318' LT. Surface Elev. 1040.7

ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1040.7	0																	
	5	11-9-6	1.0		Medium dense, brown <u>GRAVEL AND STONE</u> <u>FRAGMENTS</u> with sand, some silt, moist.	1	SS	16.7	41.1	17.2	*	25.0	--	--	--	11.1		A-1-b
1032.2	10	7-5-5	1.0		Medium dense, brown and gray <u>SILTY SAND</u> , trace gravel, trace clay and rock fragments, moist.	2	SS											
1027.2		9-9-13	1.0		Very silty, brown <u>SANDY SILT</u> , trace gravel and rock fragments, moist.	3	SS											
1025.7	15				TERMINATION DEPTH 15.0 FEET													

LOG OF BORING

Date Started 8-4-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 8-4-87 Casing Length -- Dia. ---
Boring No. B-16 Station & Offset Sta. 593 + 24 71' RT. Surface Elev. 1034.3

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1034.3	0																	
	5	19-11-11	1.0		Medium dense, brown SAND, little silt, little gravel, dry.	1	SS											
1025.8	10	2-6-8	1.5			2	SS											
	15				Stiff, brown SANDY SILT, trace gravel, moist.													
1020.8		3-8-20	1.5			3	SS											
1019.5					Medium dense, brown and gray SILTY SAND, trace rock fragments, moist.													
1019.3					Medium dense, brown SAND, trace rock fragments, moist.													
					TERMINATION DEPTH 15.0 FEET													

LOG OF BORING

Date Started 7-30-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-30-87 Casing Length -- Dia. ---
Boring No. B-17 Station & Offset Sta. 594 + 37 109' RT. Surface Elev. 1028.5

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SMTL. CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1028.5	0																	
	8-11-10	1.2			Very stiff, brown and gray <u>SANDY SILT</u> , trace gravel, moist.	1	SS											
1020.0	6-10-9	1.4				2	SS	26.3	18.3	28.5	*	26.9	--	--	--	16.5		A-3a
					Medium dense, brown and gray <u>SAND</u> , some silt, little gravel, trace rock fragments, moist.													
1015.0	31-50/0.4	0.9				3	SS											
1014.1					Very dense, brown <u>SAND</u> , little silt, trace gravel, and rock fragments. AUGER REFUSAL AT 14.4 FEET. TERMINATION DEPTH 14.4 FEET													

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY (I.R. 76)
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

10000 CLEVELAND ROAD
AKRON, OH 44321
216-866-2200

Sum-76-11.57

DATE	PROJECT
8-3-87	



SOIL PROFILE



LOG OF BORING

Date Started 8-3-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 8-3-87 Casing Length --- Dia. ---
 Boring No. 3-18 Station & Offset Sta. 600 + 59 267' RT. Surface Elev. 1020.2

Boring No. _____																		
ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1020.2	0																	
	5	5-12-10	1.0		Medium dense, brown <u>SILTY SAND</u> , trace gravel, rock fragments and cinders, moist. (Fill)	1	SS											
1011.7	10	5-6-6	1.5		Medium dense, brown <u>SAND</u> , little silt, moist.	2	SS	19.6	12.5	54.2	*	13.7	--	--	--	16.1		A-3a
1006.7		10-13-15			Medium dense, brown <u>SAND</u> , some silt, trace gravel and rock fragments, moist.	3	SS											
1005.2	15				TERMINATION DEPTH 15.0 FEET													
				</														

LOG OF BORING

Date Started 8-2-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 8-2-87 Casing Length --- Dia. ---
 Boring No. 3-20 Station & Offset Sta. 612 + 55 205' RT. Surface Elev. 1010.7

Coring No.																		
ELEV.	DEPTH	STD. PEN. (H)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1018.7	0																	
		10-8-8	1.4		Medium dense, brown <u>SILTY SAND</u> , trace gravel and rock fragments, moist.	1	SS											
1010.2		4-5-5	1.3			2	SS	61.0	23.3	9.5	*	6.2	--	--	--	7.8	A-1-a	
					Loose to medium dense, brown <u>GRAVEL</u> , some sand, trace silt, moist.													
1005.2		14-17-19	1.0		Dense, brown <u>SAND</u> , little silt, trace gravel and rock fragments, moist.	3	SS											
1003.7					TERMINATION DEPTH 15.0 FEET													
											*	SILT AND CLAY COMBINED						

LOG OF BORING

Date Started 8-2-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 8-2-87 Casing Length --- Dia. ---
 Boring No. 3-19 Station & Offset Sta. 612 + 29 334' RT. Surface Elev. 1020.7

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1020.7	0																		
	5	6-7-10	1.5		Medium dense, brown <u>GRAVEL</u> with sand, trace silt, moist.	1	SS	6.2	43.6	45.2	*	5.0	--	--	--	5.1		A-1-b	
1012.2	10	6-6-6	1.5			2	SS												
					Medium dense to loose, brown <u>SAND</u> , trace silt, trace gravel, moist.														
		4-4-5	1.1			3	SS												
1005.7	15				TERMINATION DEPTH 15.0 FEET														

LOG OF BORING

Date Started 8-4-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 8-4-87 Casing Length --- Dia. ---
 Boring No. 3-21 Station & Offset Sta. 611 + 95 337' LT. Surface Elev. 1015.1

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
						NO.	TYPE	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1015.1	0																	
	5	6-6-9	1.5		Medium dense, brown <u>SAND</u> , trace silt, trace gravel, dry.	1	SS											
	10	4-5-8	1.5			2	SS											
1001.6		5-6-13	1.5		Medium dense, brown <u>SAND</u> , little gravel, trace silt and rock fragments, moist.	3	SS											
1000.1	15				TERMINATION DEPTH 15.0 FEET													

SUBSURFACE INVESTIGATION
 SUM-76-11.57
 AKRON EAST EXPRESSWAY (I.R. 76)
 AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

10000 DUFFY ROAD
 AKRON OH 44321
 216-666-2200

LOG OF BORING

Date Started 8-3-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 8-3-87 Casing Length -- Dia. ---
Boring No. 2-22 Station & Offset Sta. 615 + 20 233' Lf. Surface Elev. 1012.6

ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS								SHTL CLASS.		
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.		W.C.	
1012.6	0																	
	5	4-6-2	0.5		Loose, brown <u>SAND</u> , some silt, trace to little gravel, moist.	1	SS											
	10	3-2-3	1.0			2	SS											
999.1		3-4-3	1.5		Loose, brown <u>GRAVEL</u> , little silt, little sand, moist.	3	SS	13.5	65.3	15.6	*	5.6	--	--	--	8.2	A-1-a	
997.6	15				TERMINATION DEPTH 15.0 FEET													

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 8-3-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 8-3-87 Casing Length -- Dia. ---
Boring No. 9-24 Station & Offset Sta. 619 + 56 107' LT. Surface Elev. 1009.4

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% ACG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1009.4	0																	
	5	3-2-2	1.0		Loose, brown <u>SILTY SAND</u> , trace gravel, moist.	1	SS											
1000.9	10	2-2-2	1.0		Loose, brown <u>GRAVEL</u> with sand, little silt, moist.	2	SS	24.3	29.7	30.6	*	15.4	--	--	--	7.1	A-1-b	
995.9 994.9 994.4	15	2-4-2	1.5		Loose, brown <u>SILTY SAND</u> , trace gravel, moist. Medium stiff, gray <u>SILTY CLAY</u> , damp. TERMINATION DEPTH 15.0 FEET	3	SS											

LOG OF BORING

Date Started 8-3-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 8-3-87 Casing Length -- Dia. ---
Boring No. 8-23 Station & Offset Sta. 618 + 06 99' RT. Surface Elev. 1008.2

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% A.G.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1008.2	0																	
	5-6-6	1.5			Stiff, brown and gray <u>SANDY SILT</u> , trace gravel, brick fragments and clinders, moist. (Fill)	1	SS											
999.7	4-4-6	1.5				2	SS	17.2	5.6	7.3	*	69.9	26.0	18.1	7.9	16.6	A-4a	
	6-7-5	1.5			Stiff, gray <u>SANDY SILT</u> , little gravel, damp.													
994.7					Stiff, gray <u>SILTY CLAY</u> , damp.	3	SS											
993.7					terious dense, brown and gray <u>SAND</u> , some gravel, trace silt, moist.													
993.2					TERMINATION DEPTH 15.0 FEET													
												* SILT AND CLAY CONTINUED						

LOG OF BORING

Date Started 8-3-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 8-3-87 Casing Length -- Dia. ---
Boring No. 3-25 Station & Offset Sta. 622 + 47 97' Rf. Surface Elev. 1005.8

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL. CLASS.
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1005.8	0																	
	5	5-12-8	1.5		Medium dense, brown <u>GRAVEL</u> with sand, little silt, moist.	1	SS	22.9	32.8	28.2	*	16.1	--	--	--	13.9	A-1-b	
997.3	10	1-1-1	0.5		Very loose, brown <u>SAND</u> , little gravel, little silt, moist.	2	SS											
992.3		4-4-7	1.5		Medium dense, brown <u>SAND</u> , some silt, moist.	3	SS											
990.8	15				TERMINATION DEPTH 15.0 FEET													

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY (I.R. 76)
AKRON, OHIO

18

R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

627 E. JEFFERSON ROAD
AKRON OH 44321
216-666-2200

SUM-76-11.57

FHWA REGION	STATE	PROJECT

13
104

SOIL PROFILE

13
13

LOG OF BORING

Date Started 8-2-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 8-2-87 Casing Length --- Dia. ---
Boring No. 8-26 Station & Offset Sta. 625 + 67 52' LT. Surface Elev. 1012.8

ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1012.8	0																	
	5	14-10-11	1.0		Medium dense, brown <u>GRAVEL</u> , some sand, trace to little silt, moist.	1	SS	64.5	14.2	10.5	*	10.8	--	--	--	10.3	A-1-a	
1004.3	10	22-14-20	0.3		Hard, brown <u>SANDY SILT</u> , trace gravel, moist.	2	SS											
999.3	15	14-11-8	1.3		Medium dense, brown <u>SILTY SAND</u> , trace gravel, moist.	3	SS											
997.8					TERMINATION DEPTH 15.0 FEET													
		</																

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 8-2-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 8-2-87 Casing Length --- Dia. ---
Boring No. 8-28 Station & Offset Sta. 638 + 05 56' RT. Surface Elev. 1010.2

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL. CLASS.
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1010.2	0																	
	5	5-7-6	1.2		Medium dense, brown <u>SAND</u> , some silt, trace gravel, moist.	1	SS											
1001.7	10	4-3-4	1.5		Medium stiff, brown <u>SILT</u> , some clay, trace sand, moist.	2	SS	0.2	0.9	6.6	*	92.3	--	--	--	23.9	A-4b	
996.7 995.7 995.2	15	23-21-16	1.5		Hard, gray <u>CLAY</u> , trace silt, trace gravel, moist. Dense, brown <u>SAND</u> , trace silt, moist.	3	SS											
					TERMINATION DEPTH 15.0 FEET													

* SILT AND CLAY COMBINED

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 8-2-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 8-2-87 Casing Length --- Dia. ---
Boring No. 8-29 Station & Offset Sta. 637 + 63 73' LT. Surface Elev. 1010.9

ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1010.9	0																	
	5	14-14-10	1.0		Medium dense, brown <u>SILTY SAND</u> , trace gravel, rock fragments and clinders, moist. (Fill)	1	SS											
1002.4	10	8-7-8	1.1		Medium dense, brown <u>SAND</u> , trace silt, trace gravel, moist.	2	SS											
997.4	15	6-6-12	1.2		Medium dense, brown <u>GRAVEL</u> , some sand, trace silt, moist.	3	SS	59.6	19.8	11.5	*	9.1	--	--	--	5.6	A-1-a	
995.9					TERMINATION DEPTH 15.0 FEET													

* SILT AND CLAY COMBINED

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 8-2-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 8-2-87 Casing Length --- Dia. ---
Boring No. 8-27 Station & Offset Sta. 627 + 27 193' RT. Surface Elev. 1004.2

ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1004.2	0																	
	5	9-10-7	1.0		Medium dense, brown <u>GRAVEL</u> with sand, little silt, moist.	1	SS	47.2	20.3	17.7	*	14.8	--	--	--	5.3	A-1-b	
996.0	10	12-10-12	1.3			2	SS											
					Medium dense, brown <u>SAND</u> , little silt, trace gravel, moist.													
990.7	15	4-2-2	1.5			3	SS	0.0	0.5	19.1	*	80.4	22.8	17.8	5.0	33.7	A-4b	
989.2																		
					TERMINATION DEPTH 15.0 FEET													
				</														

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY (I.R. 76)
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-668-2200

FHWA REGION	STATE	PROJECT



STRUCTURE SUBSURFACE INVESTIGATION



GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description—based on laboratory tests utilizing the Casagrande AC classification system—and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain-size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

12"	3"	2.0mm	0.42mm	0.074mm	0.005mm
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt
					Clay
			No. 10 sieve	No. 40 sieve	No. 200 sieve

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTORS OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION - PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW		FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
	TOP OF ROCK		X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
	CAPPED PILE		
	FOOTING		INDICATES FREE WATER ELEVATION
	FOOTING ON PILE		INDICATES STATIC WATER ELEVATION

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 25 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF ADVANCING A TOTAL OF THREE (3) DRIVE SAMPLE-CORE BORINGS WITH A CME-55 TRUCK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS, PERFORMED DURING FEBRUARY, 1988.

INVESTIGATIONAL FINDINGS

THE BORINGS DISCLOSED INTERVALS OF SANDY SILT (A-4a) AND SAND WITH GRAVEL (A-3a) WHICH EXTENDED TO APPROXIMATE ELEVATIONS RANGING FROM 1061 TO 1077. THIS MATERIAL IS UNDERLAIN BY MODERATELY TO HIGHLY ALTERED TAN SANDSTONE. EACH OF THE TEST BORINGS WERE TERMINATED IN THE SANDSTONE BEDROCK.

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THIS REPORT.

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 1
AKRON, OHIO



R & R International, Inc.

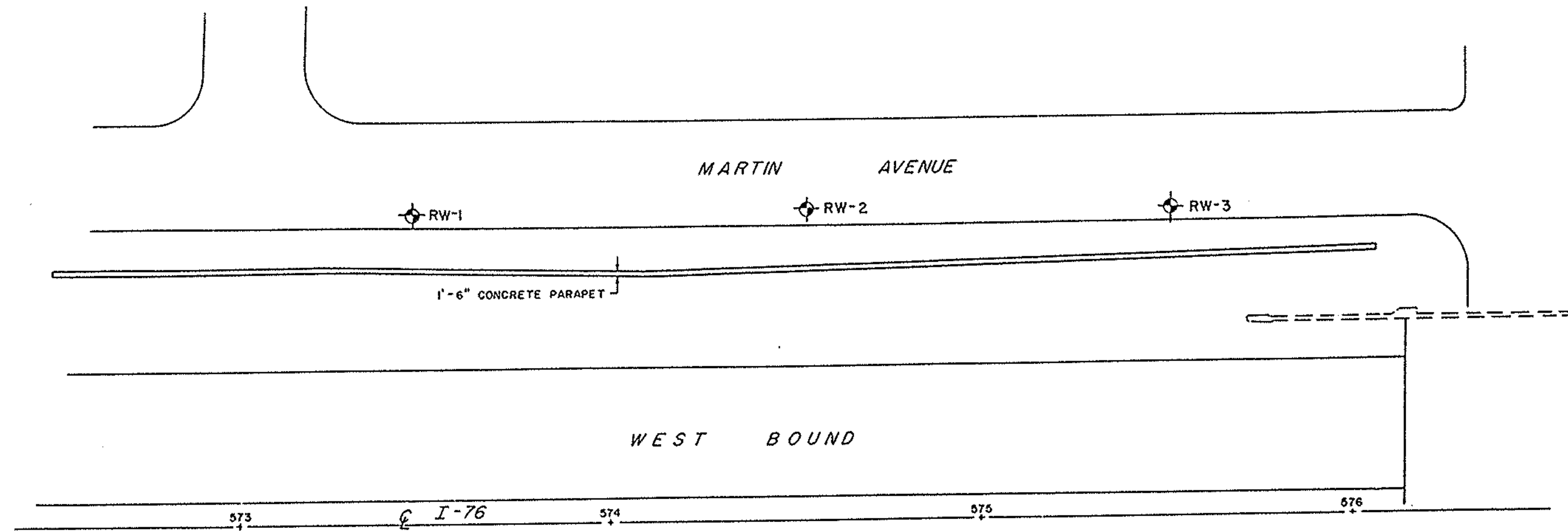
GEOTECHNICAL ENGINEERS-GEOLOGISTS

AKRON, OHIO 44321

FHWA REGION	STATE	PROJECT

$$\frac{15}{104}$$
 $\frac{2}{3}$

SCALE 1" = 20'



Profile view of a proposed roadway. The vertical axis shows elevations from 1050 to 1100. The horizontal axis shows stationing from 576 to 573. The profile includes the existing ground line, the top of the retaining wall, and the top of the concrete parapet. Three proposed structures are shown: RW-3, RW-2, and RW-1. RW-3 is located at station 576.0 and has a height of 10.0 feet. RW-2 is located at station 575.0 and has a height of 10.0 feet. RW-1 is located at station 573.5 and has a height of 10.0 feet. The structures are shown with a cross-hatched pattern. The profile also shows the existing ground line and the top of the retaining wall and concrete parapet. The existing ground line is shown as a dashed line. The top of the retaining wall and concrete parapet are shown as solid lines. The profile also shows the existing ground line and the top of the retaining wall and concrete parapet. The existing ground line is shown as a dashed line. The top of the retaining wall and concrete parapet are shown as solid lines.

Station	Elevation (ft)	Structure	Notes
576.0	1070.0	RW-3	9/10.0, 18/19/19, 50/0.4, 50/0.2, RUN 1, RQD 75%, REC. 7.7
575.0	1070.0	RW-2	31/5/5, 21/25/19, 30/25/30, RUN 1, RQD 80%, REC. 5.0
573.5	1070.0	RW-1	14/14/17, 27/16/63, 50/0.3, RUN 1, RQD 55%, REC. 5.9

VIEW A-A
ELEVATION

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 1
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-866-2200

Sum-76-11.57

FHWA REGION	STATE	PROJECT

16
1043
3

LOG OF BORING

Date Started 2-23-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 669.4
Date Completed 2-23-88 Casing Length -- Dia. ---
Boring No. RM-1 Station & Offset Sta. 574 + 64 84' LT. Surface Elev. 1087.2

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1087.2	0																	
1086.9 1086.5					ASPHALT BRICK													
1085.2					ROADBASE FILL													
	14-14-17	1.5				1	SS	41.4	9.2	11.5	*	37.9	--	--	--	3.5	A-4a	
	5				Hard, brown <u>SANDY SILT</u> , some to little gravel, moist.													
	27-50/0.3	0.8				2	SS	23.2	10.4	19.3	*	47.1	--	--	--	10.5	A-4a	
1076.9	50/0.3	0.3			AUGER REFUSAL AT 10.3 FEET.	3	SS											
	R00 55%	5.9	4.1			Run 1	NXM											
	15				Tan <u>SANDSTONE</u> , highly to moderately altered, medium grained, firm.													
1066.9	20				TERMINATION DEPTH 20.3 FEET													
									</									

LOG OF BORING

Date Started 2-23-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 669.4
Date Completed 2-23-88 Casing Length -- Dia. ---
Boring No. RM-2 Station & Offset Sta. 575 + 70 84' LT. Surface Elev. 1081.2

ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1081.2	0																	
1080.9					ASPHALT													
1080.5					BRICK													
1079.2					ROADBASE FILL													
	31-5-5	1.5				1	SS											
	5				Stiff to hard, brown <u>SANDY SILT</u> , some gravel, moist.													
	21-25-19	1.5				2	SS	21.7	7.7	35.1	*	35.5	--	--	--	13.7	A-4a	
1071.7	30-25-30	1.5				3	SS	28.2	8.1	44.1	*	19.6	--	--	--	10.2	A-3a	
	10				Very dense, light brown <u>SAND</u> , some gravel, little silt, moist.													
	15				AUGER REFUSAL AT 15.0 FEET.													
1066.2	R00 80%	5.0	5.0			Run 1	NXW											
	20				Tan <u>SANDSTONE</u> , unaltered, medium grained, hard.													
1056.2	25				TERMINATION DEPTH 25.0 FEET													

LOG OF BORING

Date Started 2-23-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 2-23-88 Casing Length -- Dia. ---
Boring No. RM-3 Station & Offset Sta. 576 + 68 83' LT. Surface Elev. 1075.9

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1075.9 1075.3 1074.9 1074.3	0				ASPHALT BRICK ROADBASE FILL													
	9-10-10	1.5				1	SS	16.6	10.3	23.0	*	50.1	--	--	--	12.6	A-4a	
	5				Very stiff to hard, brown <u>SANDY SILT</u> , little gravel, moist.													
	18-19-14	1.5				2	SS											
1066.4	50/0.4	0.4				3	SS											
	50/0.2	0.2			Very dense, light brown <u>SAND</u> , some gravel, little silt, moist.	4	SS											
1060.9	15				AUGER REFUSAL AT 15.0 FEET.													
	RQD 75%	7.7	2.3			Run 1	NXW											
	20				Tan <u>SANDSTONE</u> , moderately altered, medium grained, hard.													
1050.9	25				TERMINATION DEPTH 25.0 FEET													

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 1
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FWWA REGION	STATE	PROJECT

17
104

STRUCTURE SURFACE INVESTIGATION

1
5

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

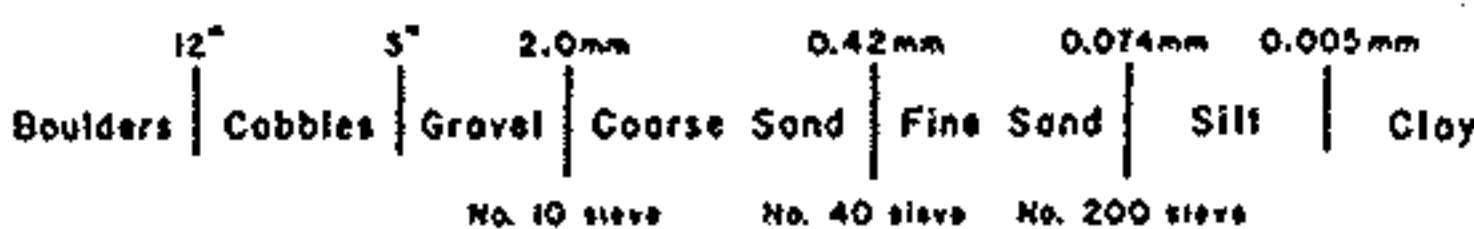
Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description based on laboratory tests utilizing the Casagrande AC classification system and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS



NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTORS OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION-PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION-PLAN VIEW		FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
	TOP OF ROCK		INDICATES FREE WATER ELEVATION
	CAPPED PILE		INDICATES STATIC WATER ELEVATION
	FOOTING		
	FOOTING ON PILE		

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLESHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 25 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF ADVANCING A TOTAL OF SIX (6) DRIVE SAMPLE-CORE BORINGS WITH A CHE-55 TRUCK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS PERFORMED DURING JANUARY AND FEBRUARY, 1988.

INVESTIGATIONAL FINDINGS

THE BORINGS DISCLOSED "STIFF" TO "HARD," BROWN SANDY SILT (A-4A) WITH LIMITED LAYERS OF SAND AND GRAVEL (A-1-B, A-2-4, AND A-3A) EXTENDING TO ELEVATIONS RANGING FROM 1034 TO 1054. AT THESE ELEVATIONS, EXTREMELY TO MODERATELY ALTERED SANDSTONE WAS ENCOUNTERED. WHERE ROCK CORE SAMPLES WERE SECURED, THE ROCK QUALITY DESIGNATION (RQD) VALUES RANGE FROM 0 TO 35 PERCENT AND MAY BE TERMED AS "POOR."

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS. REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THESE PLANS.

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 2
AKRON, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS

AKRON, OHIO 44321



3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

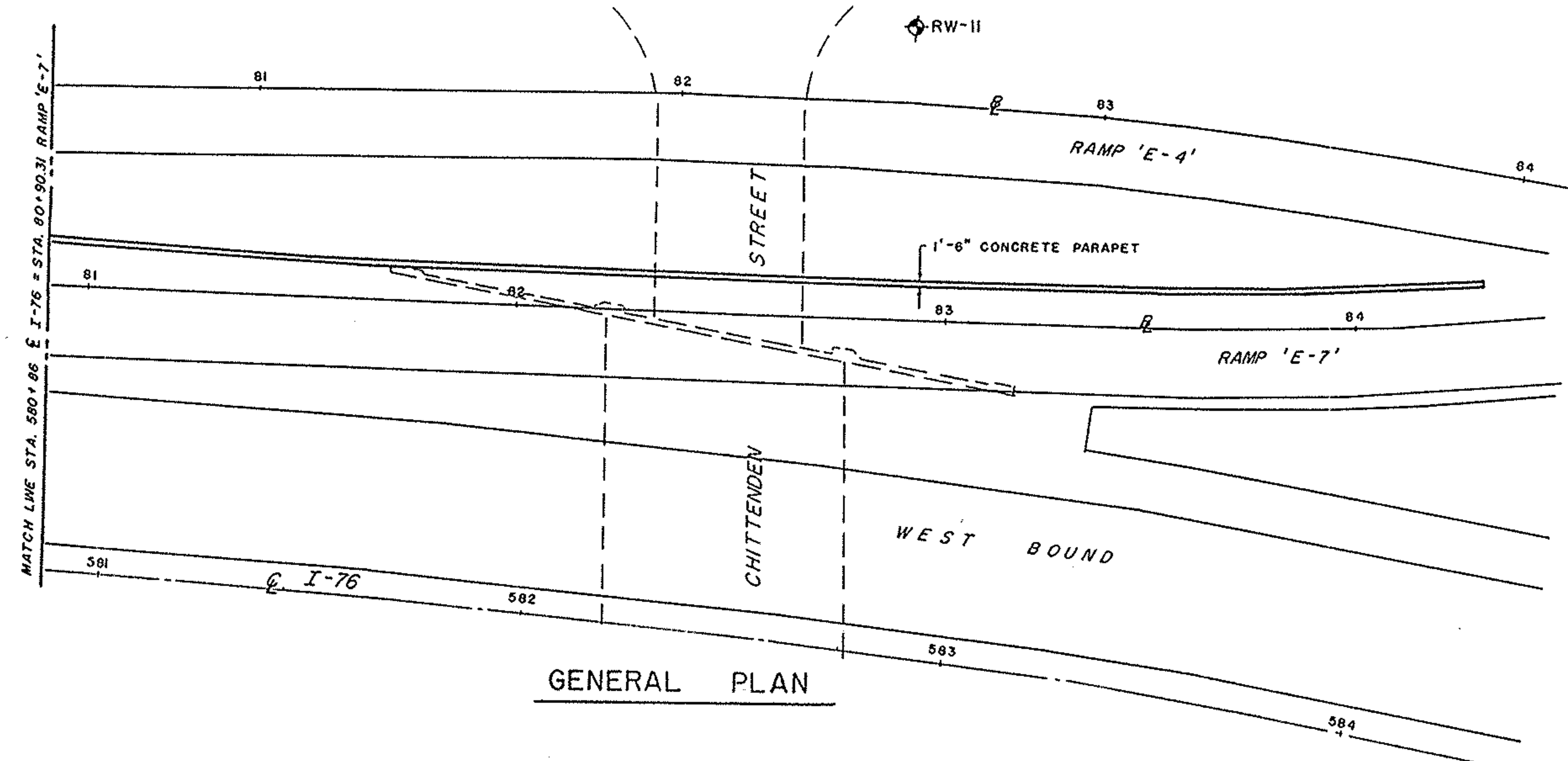
SUM-76-11.57

FHWA REGION	STATE	PROJECT

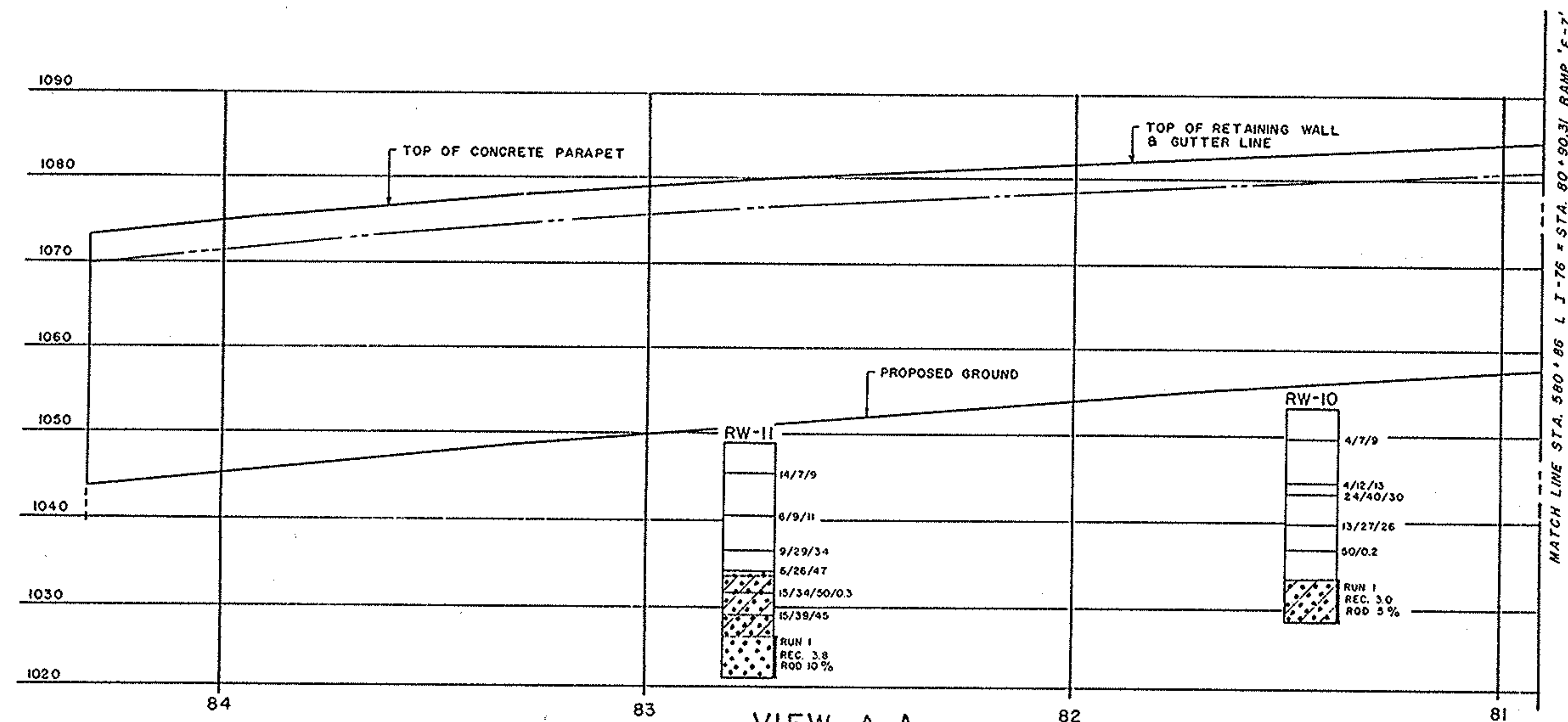
19
104

3
5

SCALE 1"=20'



GENERAL PLAN



VIEW A-A
ELEVATION

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 2
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLE Y ROAD
AKRON, OH 44321
216-666-2200

LOG OF BORING
Date Started 1-24-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 1042.2
Date Completed 1-24-88 Casing Length -- Dia. ---
Boring No. RW-6 Station & Offset Sta. 577 + 58 89' LT. Surface Elev. 1072.2

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C SAND	% F SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1072.2	0				-----													
1071.2					TOPSOIL													
	5	20-16-12	0.8			1	SS											
	10	12-14-19	1.4		Very stiff to hard, brown <u>SANDY SILT</u> , trace gravel, moist.	2	SS	7.7	8.7	20.3	*	63.3	20.9	14.7	6.2	13.1	A-4a	
	15	11-22-36	1.5			3	SS											
	20	46-50/0.3	0.7			4	SS	7.5	8.6	34.7	*	49.2	--	--	--	11.5	A-4a	
1052.2	20	50/0.3	0.3			5	SS											
	25	50/0.4	0.4		Extremely altered, brown <u>SANDSTONE</u> , friable to firm.	6	SS											
1047.2	25	50/0.1	0.1		AUGER REFUSAL	7	SS											
	30	RCD 35%	4.6	0.4	Tan <u>SANDSTONE</u> , moderately altered, firm to hard, gray shale interbeds.	Run 1	NXM											
1042.2	30				TERMINATION DEPTH 30.0 FEET													

LOG OF BORING
Date Started 1-24-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 1-24-88 Casing Length -- Dia. ---
Boring No. RW-7 Station & Offset Sta. 578 + 57 80' LT. Surface Elev. 1076.7

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG	% C SAND	% F SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1076.7	0																	
1075.9					ROADBASE MATERIAL													
	5	12-15-21	1.4			1	SS											
	10	25-26-18	1.3			2	SS											
	15	11-9-14	1.4		Very stiff to hard, brown <u>SANDY SILT</u> , little gravel, damp.	3	SS	18.1	12.3	20.2	*	49.4	29.9	20.9	9.0	21.7	A-4a	
	20	17-30-32	1.3			4	SS											
	25	20-21-29	1.2			5	SS											
1054.2	30	26-35-41	1.1			6	SS	44.6	9.4	16.1	19.4	10.5	--	--	--	9.5	A-2-4	
	35	50/0.3	0.1		Extremely altered, brown <u>SANDSTONE</u> , friable to firm.	7	SS											
		38-50/0.3	0.1			8	SS	33.4	4.3	35.7	*	26.6	--	--	--	11.4	A-2-4	
1047.2	30	50/0.1	0.0		AUGER REFUSAL	9	SS											
		RQD 5%	2.0	3.0	Tan <u>SANDSTONE</u> , highly altered, friable to firm.	Run 1	NXM											
1042.2	35				TERMINATION DEPTH 34.5 FEET													

LOG OF BORING
Date Started 2-22-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 2-22-88 Casing Length -- Dia. ---
Boring No. RW-8 Station & Offset Sta. 579 + 71 152' LT. Surface Elev. 1060.3

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1060.3	0																	
1059.6					ASPHALT													
1059.5					ROADBASE MATERIAL													
1058.8																		
		5-3-3	0.8		Medium stiff, brown <u>SANDY SILT</u> , little gravel, damp.	1	SS	14.6	15.6	21.1	*	48.7	--	--	--	17.9	A-4a	
1054.3	5																	
		26-24-10	1.5		Medium dense to dense, brown <u>SAND</u> , trace gravel, moist.	2	SS											
	10	8-9-10	1.5			3	SS	14.0	6.5	44.2	*	35.3	--	--	--	15.5	A-3a	
1048.3																		
		10-18-27	1.5			4	SS											
	15	32-20-50/ 0.4	1.4		Extremely altered, brown <u>SANDSTONE</u> , friable.	5	SS											
		32-40-50	1.5			6	SS	47.8	3.9	19.9	*	28.4	--	--	--	13.0	A-2-4	
1040.3	20																	
		RCD 0%	0.7	4.3	Tan <u>SANDSTONE</u> , extremely to highly altered, friable.	Run 1	NXM											
1035.3	25				TERMINATION DEPTH 25.0 FEET													
									</									

SUM-76-11.57
FHWA REGION STATE PROJECT
20
104

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 2
AKRON, OHIO

R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS
3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

Sum-76-11.57

FHWA REGION	STATE	PROJECT

21
1045
5

LOG OF BORING

Date Started 2-18-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 2-18-88 Casing Length -- Dia. ---
Boring No. RZ-10 Station & Offset Sta. 581 + 44 161' LT. Surface Elev. 1053.6

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1053.6	0																	
1053.1					ASPHALT													
1052.1					ROADBASE MATERIAL													
	4-7-9	0.5				1	SS											
	5																	
	4-12-13	1.5			Medium dense to very dense, brown SANDSTONE FRAGMENTS, some sand, little silt, moist.	2	SS											
	24-40-30	1.5				3	SS	37.0	4.6	33.1	*	25.3	--	--	--	12.3	A-2-4	
1041.6																		
	13-27-26	1.5				4	SS											
	15																	
	50/0.2	0.2			Hard, brown SANDY SILT, little gravel and sandstone fragments, moist.	5	SS	38.6	7.9	16.2	*	37.3	--	--	--	16.4	A-4a	
1033.6	20																	
	ROD 5%	3.0	2.0		Gray SANDSTONE, highly altered, friable to firm, clay interbeds.	Run 1	NXM											
1028.6	25																	
					TERMINATION DEPTH 25.0 FEET													

* SILT AND CLAY COMBINED

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 2-19-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 2-19-88 Casing Length -- Dia. ---
Boring No. RW-9 Station & Offset Sta. 580 + 47 154' LT. Surface Elev. 1057.4

ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1057.4	0																	
1057.1					ASPHALT													
1056.8					ROADBASE MATERIAL													
	3-5-9	1.5				1	SS											
	5																	
	28-50/0.4	0.5			Stiff to hard, brown <u>SANDY SILT</u> , little gravel and sandstone fragments, damp.	2	SS											
	29-18-21	1.5				3	SS	34.4	12.8	15.1	*	37.7	--	--	--	11.9	A-4a	
1043.9	28-50/0.5	1.0				4	SS	35.3	6.3	23.7	*	34.7	--	--	--	11.0	A-2-4	
	15																	
	43-50/0.5	1.0			Very dense, brown <u>GRAVEL</u> , sandstone fragments, some silt, moist.	5	SS											
	20					6	SS											
1035.4	24-30-50/ 0.4	1.4				7	SS											
	25				Hard, gray <u>SILT</u> , little sand, dry.	8	SS											
	29-30-27	1.5				9	SS	28.7	20.7	11.7	*	38.9	--	--	--	9.7	A-4a	
1028.4	47-50-0.4	0.9			Hard, gray and brown <u>SANDY SILT</u> , little gravel, damp.	10	SS											
1024.4	35-40-50/ 0.4	0.9				11	SS											
	33				Extremely altered, brown <u>SANDSTONE</u> , friable.	12	SS	40.9	15.2	27.5	*	16.0	--	--	--	11.9	A-1-b	
	50/0.1	0.1																
1017.4	40				TERMINATION DEPTH 40.0 FEET													

* SILT AND CLAY COMBINED

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 2-3-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 2-3-88 Casing Length -- Dia. ---
Boring No. RW-11 Station & Offset Sta. 582 + 76 149' LT. Surface Elev. 1049.3

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1049.3	0																	
1039.8	5	14-7-9	1.5		Stiff to very stiff, brown and gray <u>SANDY SILT</u> , trace to little gravel, sandstone fragments, damp.	1	SS											
	10	6-9-11	1.5			2	SS	15.2	11.1	22.2	*	51.5	--	--	--	16.4	A-4a	
					Hard, brown <u>SANDY SILT</u> , trace gravel, damp.													
1035.8		9-29-34	1.5			3	SS	12.6	13.7	28.3	*	45.4	--	--	--	11.5	A-4a	
1033.8	15	6-26-47	1.5		Very dense, gray and brown <u>SAND</u> , trace silt, trace gravel, moist.	4	SS											
1026.8	20	15-34-50/ 0.3	1.5			5	SS											
		15-39-45	1.5		Extremely altered, brown <u>SANDSTONE</u> , friable.	6	SS											
					AUGER REFUSAL													
	25	ROD 10%	3.8	1.2	Gray <u>SANDSTONE</u> , moderately altered, firm.	Run 1	NXM											
1021.8					TERMINATION DEPTH 27.5 FEET													

* SILT AND CLAY COMBINED

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY RETAINING WALL NO. 2
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLE ROAD
AKRON, OH 44321
216-668-2200

FHWA REGION	STATE	PROJECT

22
104

STRUCTURE SUBSURFACE INVESTIGATION

1
3

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description - based on laboratory tests utilizing the Casagrande AC classification system - and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

12"	3"	2.0mm	0.42mm	0.074mm	0.005mm	
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
		No. 10 sieve	No. 40 sieve	No. 200 sieve		

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION - PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW		FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
	TOP OF ROCK		X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
	CAPPED PILE		
	FOOTINGS		INDICATES FREE WATER ELEVATION
	FOOTINGS ON PILE		INDICATES STATIC WATER ELEVATION

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 25 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

THE EXPLORATION PROGRAM CONSISTED OF ADVANCING THREE (3) DRIVE SAMPLE BORINGS DESIGNATED AS RW-4, B-5, AND B-6 WITH A CM-75 TRUCK MOUNTED DRILLING RIG USING 3.25 INCH I.D. HOLLOW STEM AUGERS. TEST BORINGS B-5 AND B-6 WERE ADVANCED DURING JULY, 1987 WHILE TEST BORING RW-4 WAS ADVANCED DURING JANUARY, 1988.

INVESTIGATIONAL FINDINGS

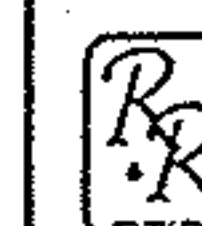
AT TEST LOCATION RW-4, A LAYER OF SAND AND GRAVEL (A-2-4) IS PRESENT FROM GROUND SURFACE TO A DEPTH OF 6.0 FEET. AT TEST LOCATIONS B-5 AND B-6 AND UNDERLYING THE A-2-4 MATERIAL IS A LAYER OF MEDIUM STIFF TO VERY STIFF SANDY SILT (A-4a). THIS SOIL UNIT EXTENDS TO THE BORING TERMINATION ELEVATION AT TEST LOCATIONS RW-4 AND B-5 WHILE AT TEST LOCATION B-6, A LAYER OF VERY DENSE SAND IS PRESENT AT A DEPTH OF 11.0 FEET.

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THESE PLANS.

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 3
AKRON, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS

AKRON, OHIO 44321

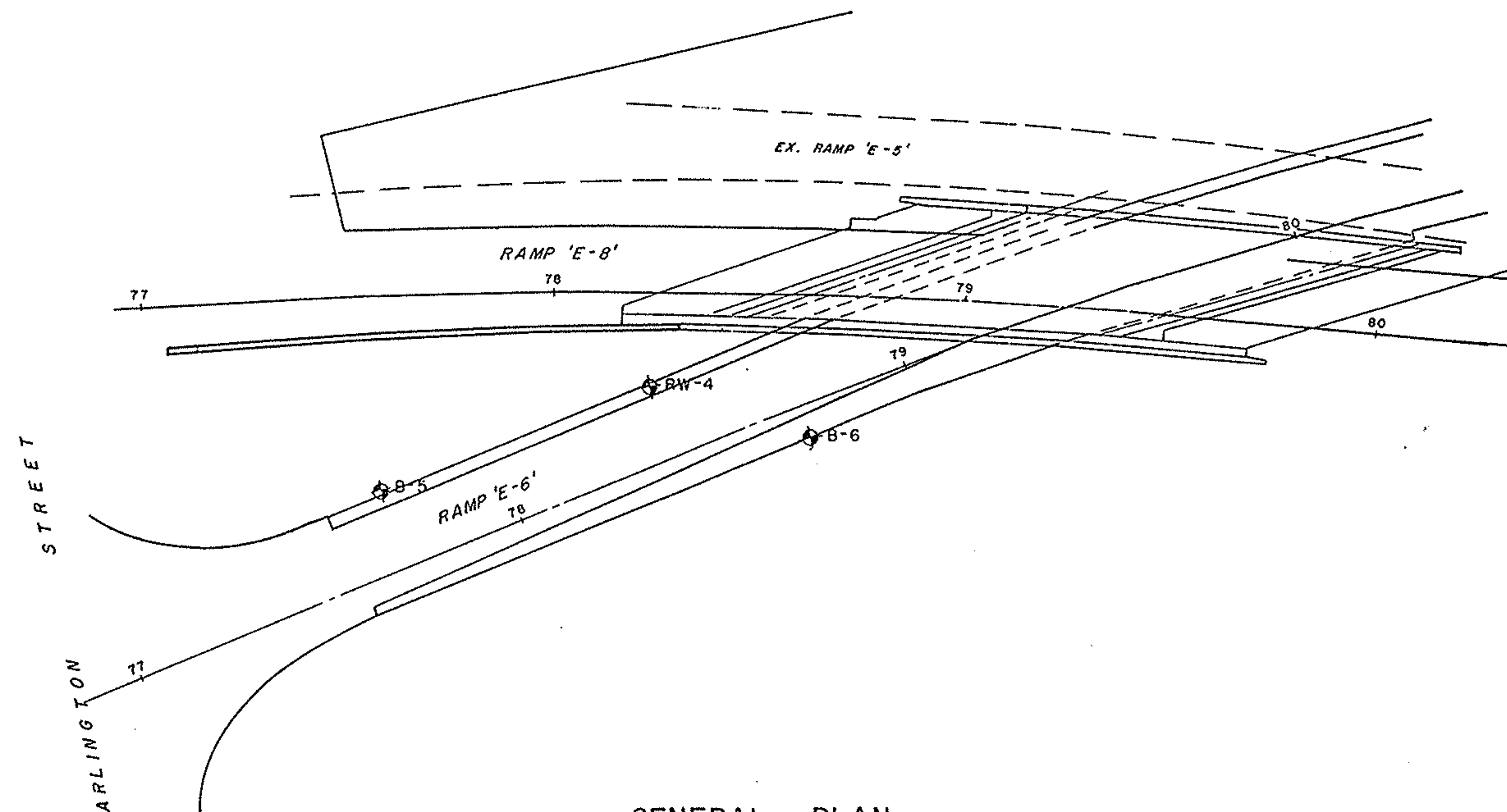
SUM-76-11.57

FHWA REGION	STATE	PROJECT

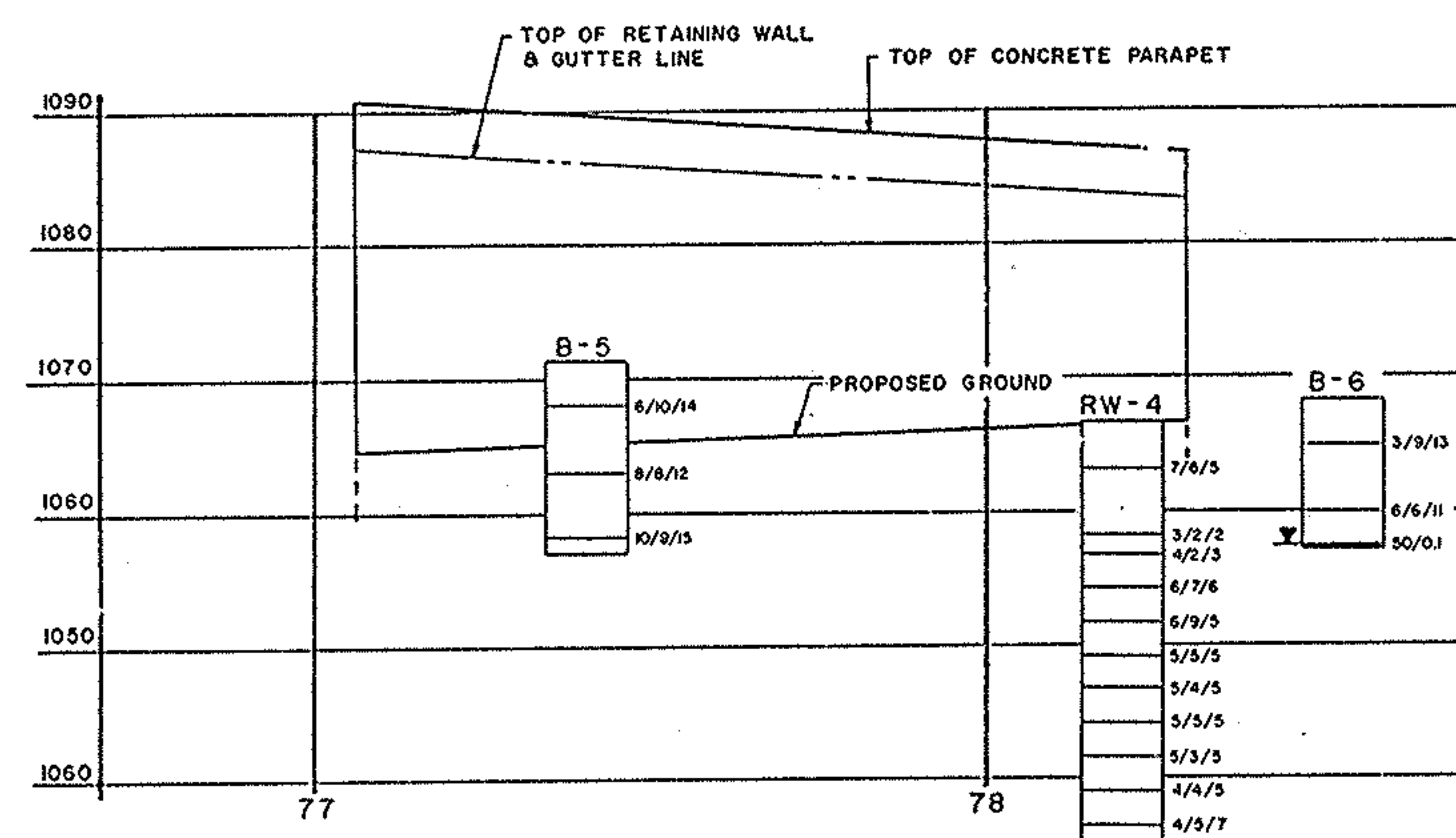
23
104

2
3

SCALE 1"=20'

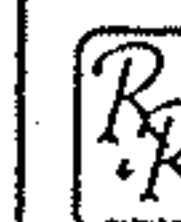


GENERAL PLAN



VIEW A-A
ELEVATION

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY RETAINING WALL NO. 3
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT

24
104

3
3

LOG OF BORING

Date Started 7-29-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 7-29-87 Casing Length --- Dia. ---
Boring No. B-5 Station & Offset Sta. 577 + 40 129' RT. Surface Elev. 1070.7

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1070.7	0																		
	5	6-10-14	1.4		Very stiff, brown <u>SANDY SILT</u> , trace gravel and organics, moist.	1	SS												
1062.2	10	8-8-12	1.5			2	SS												
		10-9-15	1.4		Very stiff, brown <u>SANDY SILT</u> , some gravel, moist.	3	SS	22.8	17.0	22.4	*	37.8	--	--	--	--	9.0	A-4a	
1055.7	15				TERMINATION DEPTH 15.0 FEET														

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 1-28-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 1-28-88 Casing Length --- Dia. ---
Boring No. RH-4 Station & Offset Sta. 578 + 20 117' RT. Surface Elev. 1066.7

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
1066.7	0							% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1060.7		7-6-5	1.5		Medium dense, brown <u>SAND AND GRAVEL</u> , little silt, moist.	1	SS											
	5																	
		3-2-2	1.5			2	SS	0.4	2.3	44.3	*	53.0	19.9	17.9	2.0	16.4	A-4a	
	10	4-2-3	1.5			3	SS											
		6-7-6	1.5			4	SS	2.3	7.9	36.5	*	53.3	--	--	--	14.8	A-4a	
	15	6-9-5	1.5			5	SS											
		5-5-5	1.5			6	SS											
	20	5-4-5	1.5		Medium stiff to stiff, brown <u>SANDY SILT</u> , little clay, trace gravel, moist.	7	SS	0.1	2.6	24.9	*	72.4	24.9	16.8	8.1	19.3	A-4a	
		5-5-5	1.5			8	SS	0.1	0.9	21.3	*	77.7	--	--	--	18.7	A-4a	
	25	5-3-5	1.5			9	SS	0.2	0.4	14.4	*	85.0	23.9	16.5	7.4	15.7	A-4a	
1035.2		4-4-5	1.5			10	SS	0.0	3.0	22.1	*	74.9	--	--	--	20.1	A-4a	
	30	4-5-7	1.5			11	SS											
					TERMINATION DEPTH 31.5 FEET													

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 7-29-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 1056.4
Date Completed 7-29-87 Casing Length --- Dia. ---
Boring No. B-6 Station & Offset Sta. 578 + 53 139' RT. Surface Elev. 1067.9

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1067.9	0																		
1056.9 1056.3	5	3-9-13	1.1		Very stiff, brown <u>SANDY SILT</u> , trace gravel, moist.	1	SS	9.6	6.3	17.9	*	66.2	--	--	--	12.9	A-4a		
		6-6-11	0.4			2	SS												
	10	50/0.1	0.1			3	SS												
					1056.9 1056.3	* SILT AND CLAY COMBINED													

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 3
AKRON, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT

25
104

STRUCTURE SURFACE INVESTIGATION

1
3

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description - based on laboratory tests utilizing the Casagrande AC classification system - and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

12"	3"	2.0mm	0.42mm	0.074mm	0.005mm	
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
		No. 10 sieve	No. 40 sieve	No. 200 sieve		

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTORS OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 4
AKRON, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS

AKRON, OHIO 44321

LEGEND



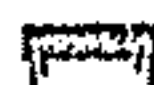
AUGER BORING LOCATION - PLAN VIEW



PRESS AND/OR DRIVE SAMPLE AND/OR
CORE BORING LOCATION - PLAN VIEW

TR

TOP OF ROCK



CAPPED PILE



FOOTING



FOOTING ON PILE



HORIZONTAL BAR ON BORING LOG INDICATES
THE DEPTH THE SAMPLE WAS TAKEN

X/Y/Z

FIGURES BESIDE THE BORING LOG IN PROFILE
INDICATE THE NUMBER OF BLOWS FOR STANDARD
PENETRATION TEST

X = NO. OF BLOWS FOR FIRST 6"
Y = NO. OF BLOWS FOR SECOND 6"
Z = NO. OF BLOWS FOR THIRD 6"

W

INDICATES FREE WATER ELEVATION

V

INDICATES STATIC WATER ELEVATION

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 15 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MORGAN TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE FORTSMITH FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF ADVANCING A TOTAL OF ONE (1) DRIVE SAMPLE BORING WITH A ONE-45c TRACK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS, PERFORMED DURING JANUARY, 1988. IN ADDITION, A TEST BORING LOG FOR A ROADWAY BORING ADVANCED DURING JULY, 1987 IS INCLUDED AS PART OF THIS REPORT.

INVESTIGATIONAL FINDINGS

THE BORINGS DISCLOSED INTERVALS OF SANDY SILT (A-4a), AND GRAVEL WITH SAND (A-1-b AND A-2-4). BOTH TEST BORINGS WERE TERMINATED IN THIS MATERIAL. THE DEEPEST TEST BORING (RW-5) WAS TERMINATED AT A DEPTH OF 48.9 FEET BELOW THE EXISTING GROUND SURFACE (ELEVATION 1023.1).

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THIS REPORT.

SYMBOLS OF ROCK TYPES



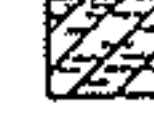
COAL



WEATHERED MUDSTONE



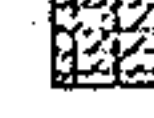
MUDSTONE



WEATHERED SHALE



SHALE



CLAYSTONE



SILTSTONE



WEATHERED SANDSTONE



SANDSTONE



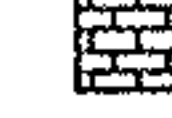
LEACHED DOLOMITE



DOLOMITE



LEACHED LIMESTONE



LIMESTONE



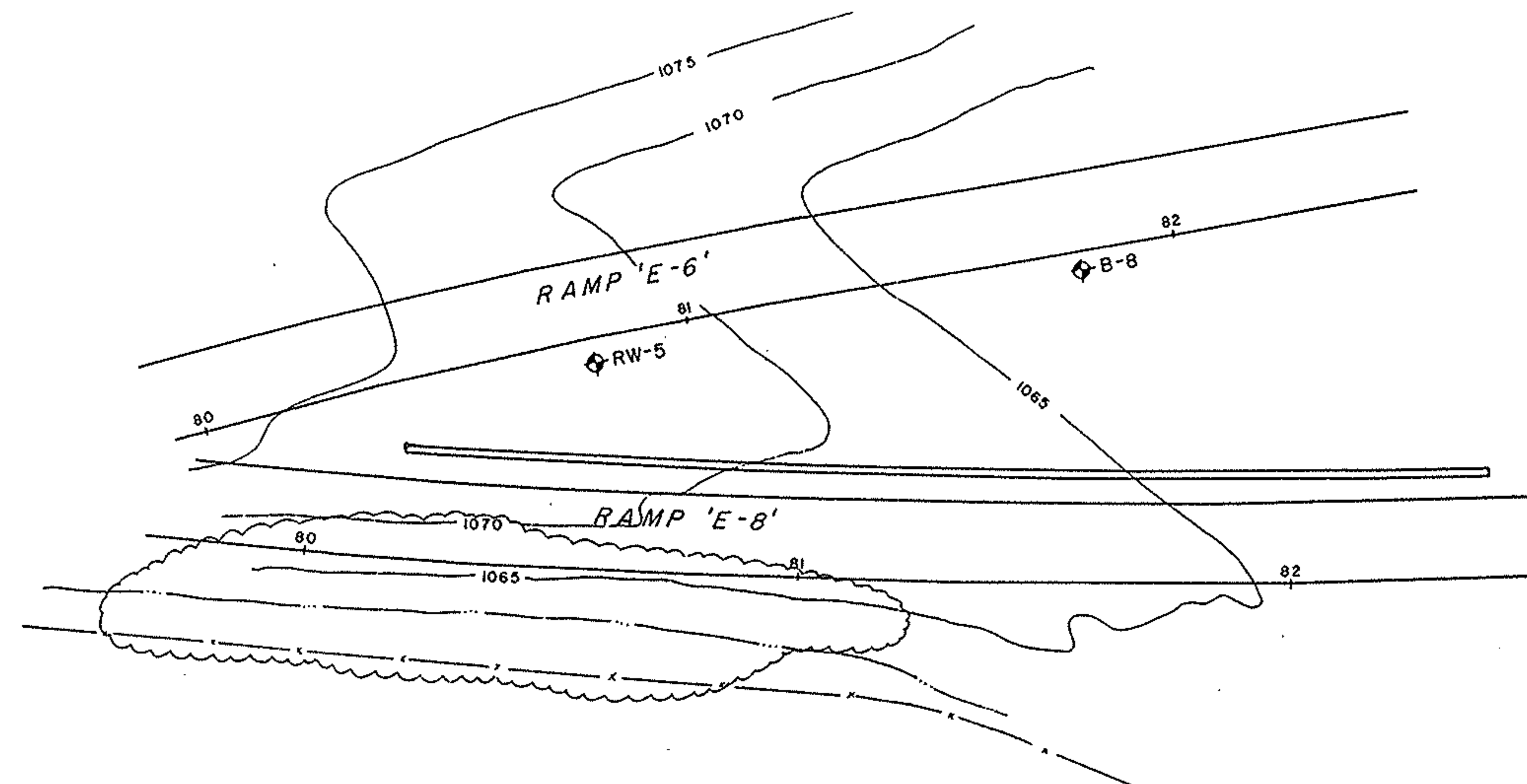
BOULDERS or COBBLES

SUM-76-11.57

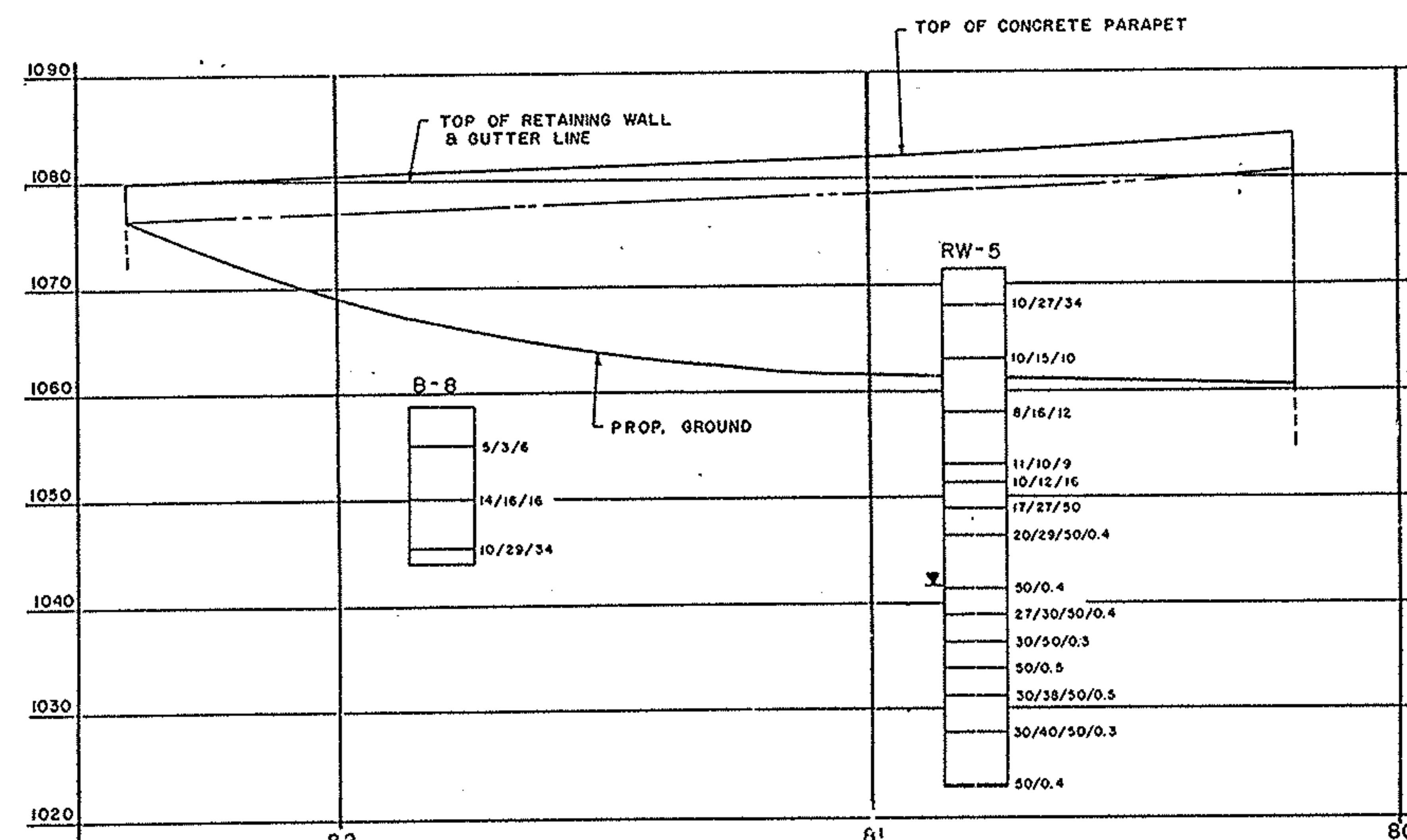
FHWA REGION	STATE	PROJECT

26
104

2
3

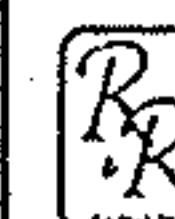


GENERAL PLAN



VIEW A-A
ELEVATION

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 4
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT

27
104

3
3

LOG OF BORING

Date Started 1-28-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 1-29-88 Casing Length -- Dia. ---
 Boring No. RJ-5 Station & Offset Sta. 500 + 74 114' RT. Surface Elev. 1071.6

Boring No.		Station & Offset																
ELEV.	DEPTH	STD. PEN. (N)	REG. FT.	LOSS FT.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.	
1071.6	0																	
1070.6					TOPSOIL													
		10-27-34	1.5		Very dense, brown <u>SAND</u> , little silt, trace gravel, moist.	1	SS											
1063.1		10-15-10	1.0			2	SS	40.8	31.9	17.2	*	10.1	--	--	--	8.4	A-1-b	
		8-16-12	1.5		Medium dense, brown <u>GRAVEL</u> with sand, moist.	3	SS											
1053.1		11-10-9	1.5			4	SS	4.3	7.0	20.4	*	68.3	--	--	--	4.7	A-4a	
		10-12-16	1.0			5	SS											
		17-27-50	1.5			6	SS	14.5	11.4	26.0	*	48.1	19.1	14.0	5.1	11.6	A-4a	
		20-29-50/ 0.4	1.4			7	SS											
		50/0.4	0.4		Very stiff to hard, brown and gray <u>SANDY SILT</u> , some gravel, trace stone fragments, moist.	8	SS											
		27-30-50/ 0.4	1.3			9	SS											
		30-50/0.3	0.5			10	SS	28.3	10.8	16.6	*	44.3	--	--	--	8.4	A-4a	
		50/0.5	0.5			11	SS											
1031.6						12	SS	36.2	22.1	10.0	*	31.7	--	--	--	15.3	A-2-4	
		30-40-50/ 1.3	1.3		Very dense, gray <u>STONE FRAGMENTS</u> with sand and silt, moist.	13	SS											
		50/0.4	0.4			14	SS				*	SILT AND CLAY COMBINED						
1022.7					TERMINATION DEPTH 48.9 FEET.													

LOG OF BORING

Date Started 7-29-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 7-29-87 Casing Length -- Dia. ---
 Boring No. 8-8 Station & Offset Sta. 581 + 80 115' RT. Surface Elev. 1058.6

Boring No.		8-8		Station & Offset		567.501 7.00 115.00		Surface Elev.											
ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1058.6	0																		
	5	5-3-6	1.0			1	SS												
	10	14-16-16	1.5		Stiff to hard, brown and gray <u>SANDY</u> <u>SILT</u> , trace gravel, moist.	2	SS	9.9	9.6	20.9	*	59.6	21.6	15.7	6.1	12.9		A-4a	
1045.1	15	10-29-34	1.3		Very dense, brown <u>SILTY SAND</u> , trace gravel, moist.	3	SS												
1044.1					Very dense, brown <u>SAND</u> , little silt, trace gravel and rock fragments, moist.														
1043.6					TERMINATION DEPTH 15.0 FEET														

SUBSURFACE INVESTIGATION
 SUM-76-11.57
 AKRON EAST EXPRESSWAY-RETAINING WALL NO. 4
 AKRON, OHIO



R & R International, Inc.
 GEOTECHNICAL ENGINEERS-GEOLOGISTS
 3675 COPLEY ROAD
 AKRON, OH 44321
 216-666-2200

FHWA REGION	STATE	PROJECT

28
104

STRUCTURE SUBSURFACE INVESTIGATION

1
3

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description based on laboratory tests utilizing the Casagrande AC classification system and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

12"	3"	2.0mm	0.42mm	0.075mm	0.005mm
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt
					Clay

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-REPAIR NO. 5
AKRON, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS

AKRON, OHIO 44321

LEGEND

	AUGER BORING LOCATION-PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION-PLAN VIEW		FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
	TOP OF ROCK		X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
	CAPPED PILE		INDICATES FREE WATER ELEVATION
	FOOTING		INDICATES STATIC WATER ELEVATION
	FOOTING ON PILE		

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 25 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF ADVANCING A TOTAL OF TWO (2) DRIVE SAMPLE-CORE BORINGS WITH A CME-45C TRACK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH HOLLOW STEM AUGERS, PERFORMED DURING FEBRUARY, 1988.

INVESTIGATIONAL FINDINGS

THE BORINGS DISCLOSED LAYERS OF STIFF TO HARD, BROWN SANDY SILT (A-4a) WITH LAYERS OF MEDIUM DENSE TO VERY DENSE, BROWN SAND AND GRAVEL (A-1-a). THESE SOIL LAYERS WERE FOUND TO EXTEND TO ELEVATIONS RANGING FROM APPROXIMATELY 1015 TO 1021. AT TEST LOCATION RW-16, SANDSTONE BEDROCK WAS ENCOUNTERED AND A CORE SAMPLE WAS OBTAINED. THE SANDSTONE IS HIGHLY TO MODERATELY ALTERED AND HAS A ROCK QUALITY DESIGNATION (RQD) VALUE OF 40 PERCENT.

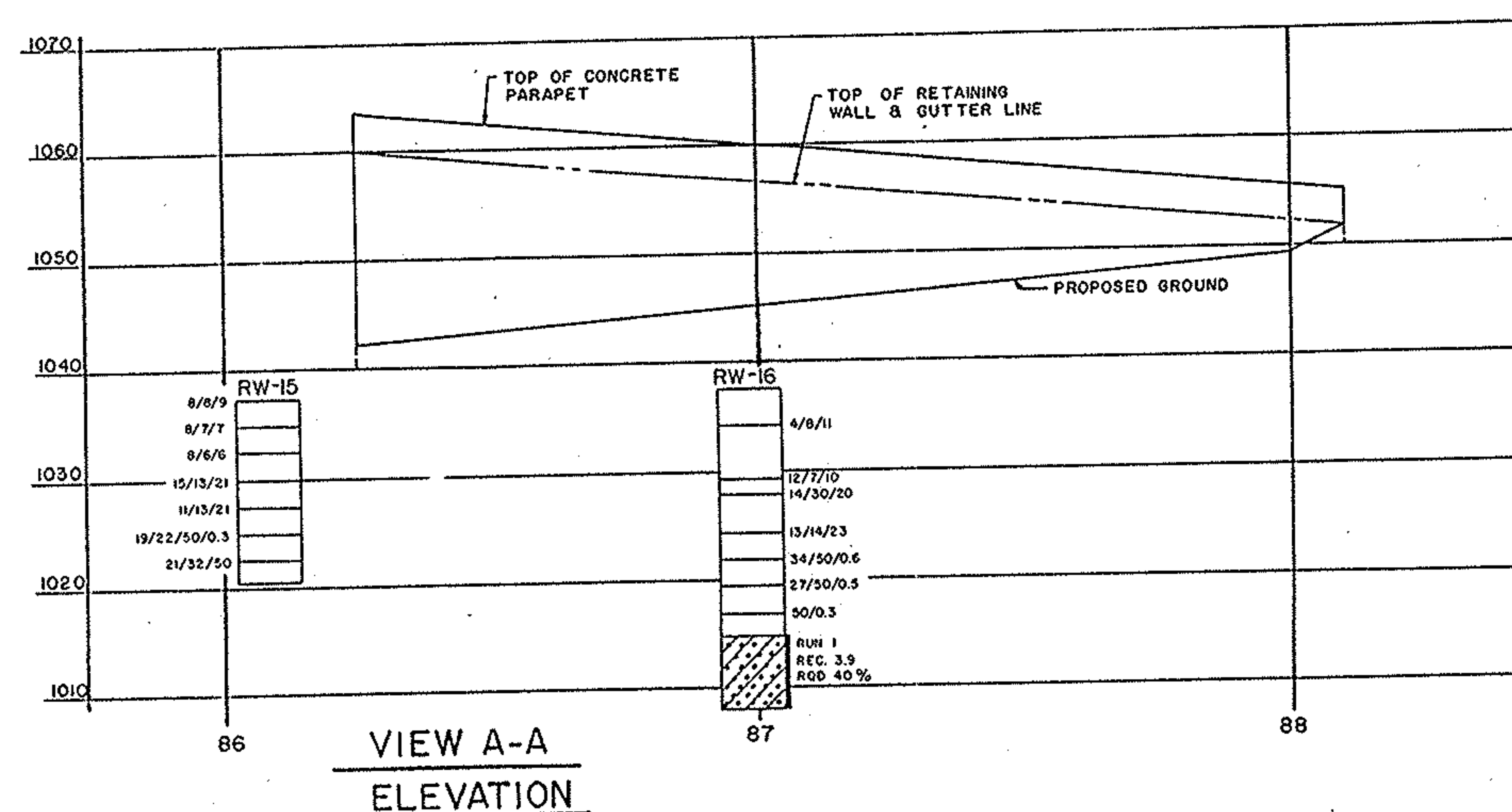
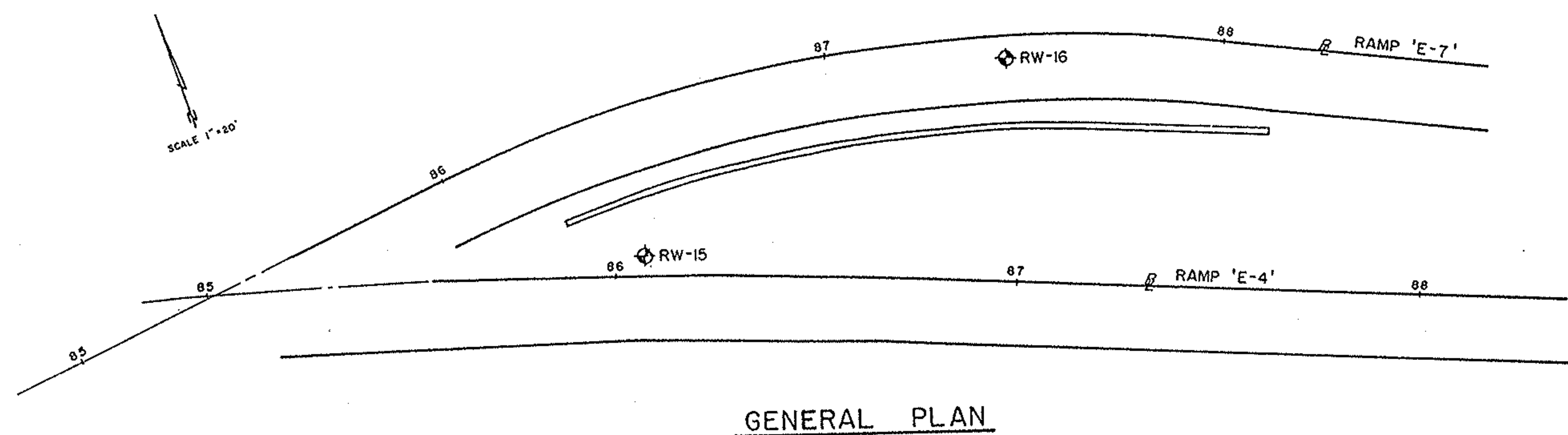
FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THESE PLANS.

SUM-76-11.57

FHWA REGION	STATE	PROJECT

29
104

2
3



SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 3
AKRON, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS
3875 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT

30
104

3
3

LOG OF BORING

Date Started 2-23-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 2-23-88 Casing Length --- Dia. ---
Boring No. RW-15 Station & Offset Sta. 586 + 08 140' LT. Surface Elev. 1037.7

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE		PHYSICAL CHARACTERISTICS										SHTL CLASS.
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1037.7	0																	
1037.2		8-8-9	1.5		TOPSOIL	1	SS											
		8-7-7	1.5		Stiff, brown and black mottled <u>SANDY SILT</u> , little gravel, trace cinders and brick fragments, moist (Fill).	2	SS											
	5	8-6-6	1.5			3	SS											
1030.7		15-13-21	1.5			4	SS	26.5	4.3	6.6	*	62.6	--	--	--	15.7	A-4a	
	10	11-13-21	1.5			5	SS	23.4	13.0	13.5	*	50.1	--	--	--	12.0	A-4a	
		19-22-50/ 0.3	1.0		Hard, brown <u>SANDY SILT</u> , some gravel, moist.	6	SS	35.5	11.5	13.5	*	39.5	--	--	--	3.3	A-4a	
	15	21-32-50	1.5			7	SS											
1020.7					TERMINATION DEPTH 17.0 FEET													

LOG OF BORING

Date Started 2-18-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 2-18-88 Casing Length --- Dia. ---
Boring No. RW-16 Station & Offset Sta. 587 + 02 184' LT. Surface Elev. 1037.6

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1037.6	0																	
1034.2					TOPSOIL													
	5	4-8-11	1.5		Very stiff, brown <u>SANDY SILT</u> , trace gravel, moist.	1	SS	7.8	13.7	38.0	*	40.5	--	--	--	16.0	A-4a	
1029.6		12-7-10	1.5			2	SS	71.9	9.7	8.4	*	10.0	--	--	--	9.3	A-1-a	
	10	14-30-20	1.5		Medium dense to very dense, brown <u>SAND AND GRAVEL</u> , trace silt, moist.	3	SS											
1024.6		13-14-23	1.5			4	SS	19.6	9.0	29.2	*	42.2	--	--	--	11.9	A-4a	
	15				Hard, brown <u>SANDY SILT</u> , trace to little gravel, moist.													
		34-50/0.6	1.0			5	SS											
1021.1		27-50/0.5	0.9		Very dense, brown <u>SAND AND GRAVEL</u> , little silt, moist.	6	SS											
	20	50/0.3	0.3			7	SS											
1014.6					AUGER REFUSAL AT 23.0 FEET.													
	25	RQD 40%	3.9	3.1	Tan <u>SANDSTONE</u> , highly to moderately altered, medium grained, massive, firm to hard.	Run 1	NKV											
1007.6	30				TERMINATION DEPTH 30.0 FEET													
		</																

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 5
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT

31
104

STRUCTURE SURFACE INVESTIGATION

1
4

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

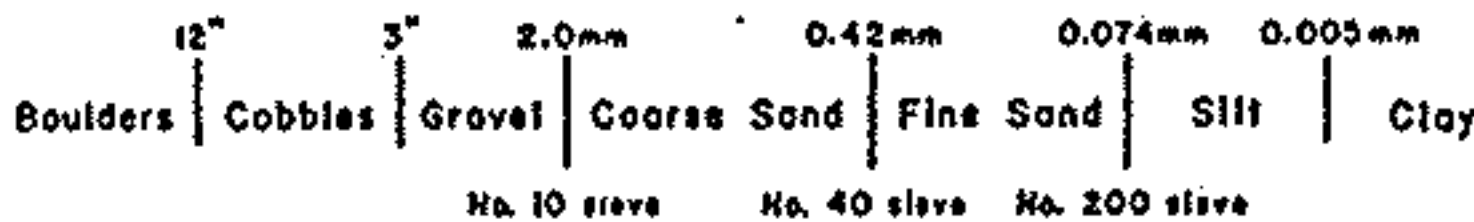
Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description—based on laboratory tests utilizing the Casagrande AC classification system—and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS



NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTORS OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION - PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW	X/Y/Z	FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
TR	TOP OF ROCK		
	CAPPED PILE		
	FOOTING	W	INDICATES FREE WATER ELEVATION
	FOOTING ON PILE	V	INDICATES STATIC WATER ELEVATION

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 25 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF ADVANCING A TOTAL OF THREE (3) DRIVE SAMPLE-CORE BORINGS WITH A CME-55 TRUCK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS, PERFORMED DURING FEBRUARY AND MARCH, 1988.

INVESTIGATIONAL FINDINGS

THE BORINGS DISCLOSED ALTERNATING LAYERS OF SANDY SILT (A-4a) AND SAND AND GRAVEL (A-1-A, A-1-B, AND A-2-4). THE SOIL UNITS EXTENDED TO THE TERMINATION ELEVATION OF EACH TEST BORING WHICH RANGED FROM APPROXIMATELY 931 TO 977. THE NON-COHESIVE SOILS HAVE A RELATIVE COMPACTNESS RANGING FROM "LOOSE" TO "VERY DENSE." THE COHESIVE SOILS WERE FOUND TO BE RELATIVELY LIMITED IN EXTENT AND HAVE A RELATIVE CONSISTENCY RANGING FROM "MEDIUM STIFF" TO "HARD."

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THESE PLANS.

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 9
AKRON, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS - GEOLOGISTS

AKRON, OHIO 44321

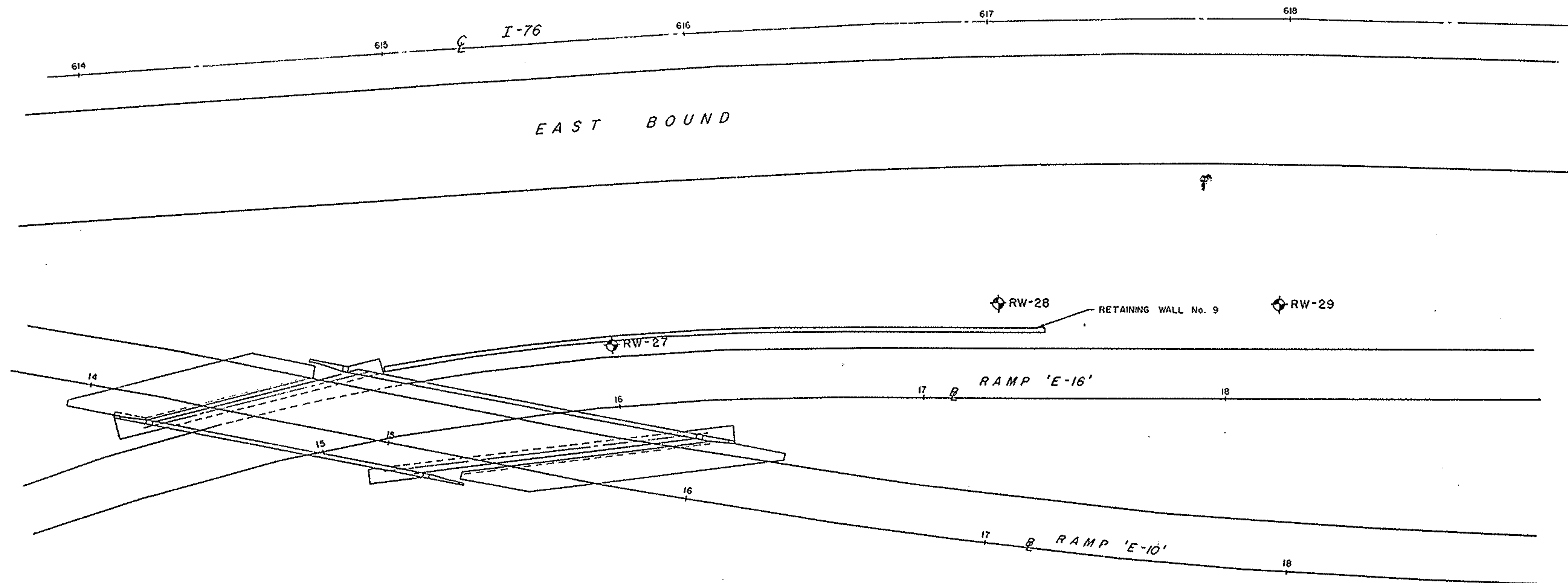
SUM-76-11.57

FHWA REGION	STATE	PROJECT

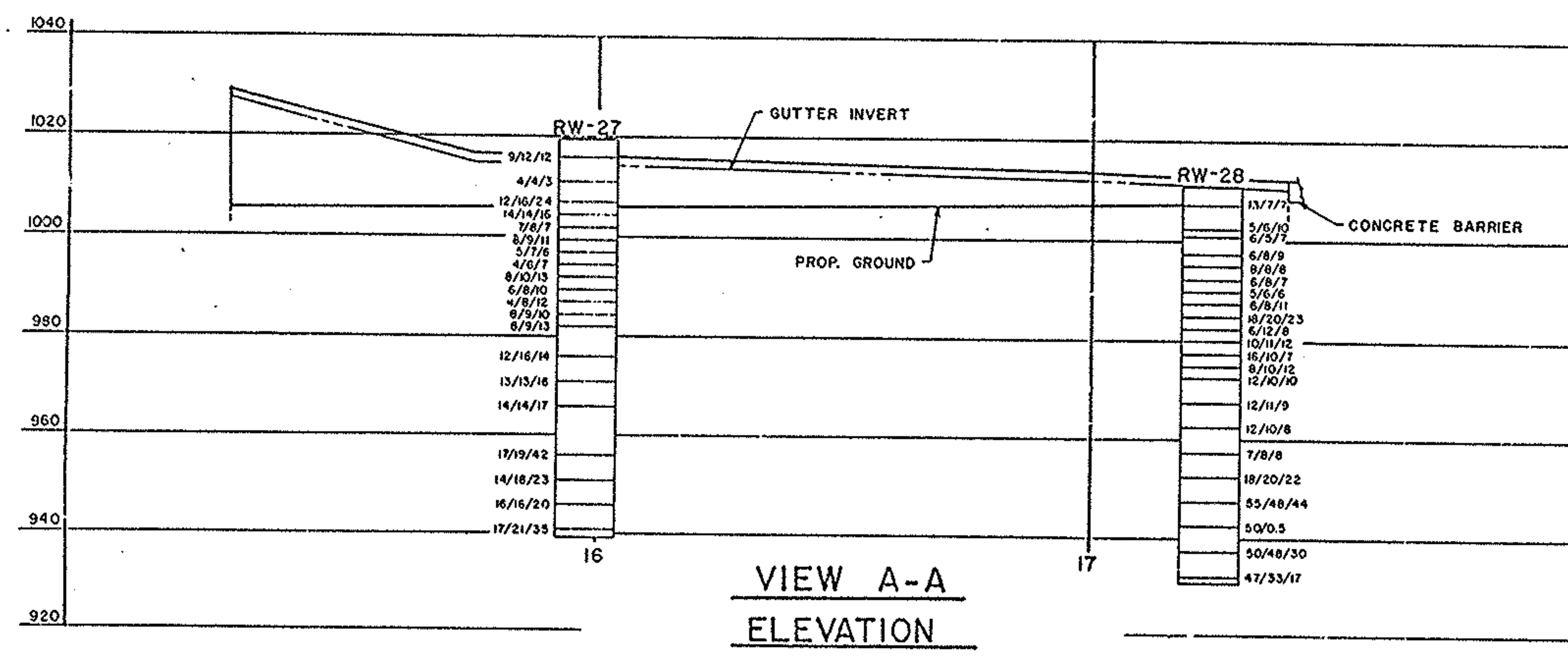
32
104

2
4

SCALE 1"=20'



GENERAL PLAN



VIEW A-A
ELEVATION

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 9
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-866-2200

Date Started 3-3-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 3-3-88 Casing Length -- Dia. ---
Boring No. RX-27 Station & Offset Sta. 615 + 70 101' RT. Surface Elev. 1019.5

FHWA REGION	STATE	PROJECT

A circular logo with a double-lined border. Inside, the number '33' is positioned above a horizontal line, and the number '104' is positioned below the line.

[illegible]

Date Started 3-3-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 3-3-88 Casing Length -- Dia. ---
Boring No. RN-27 (Cont.) Station & Offset Sta. 615 + 70 101' RT. Surface Elev. 1019.5

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	w.c.	SHTL CLASS.
949.5	0																
	75	16-16-20	1.5		SAME AS ABOVE	19	SS										
941.0		17-21-35	1.5		Hard, gray SILT, some sand, damp to moist.	20	SS										
939.5	80				TERMINATION DEPTH 80.0 FEET												

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 9
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3575 COPLEY ROAD
AKRON, OH 44321
216-666-2200

LOG OF BORING

Date Started 2-24-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 2-24-88 Casing Length -- Dia. ---
 Boring No. RW-28 Station & Offset Sta. 617 + 01 93' RT. Surface Elev. 1011.4

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1011.4	0				ROADBASE MATERIAL														
1009.4	13-7-7	1.5			Medium dense, brown SAND, little silt, trace gravel, moist to wet.	1	SS												
1005.4	5				Very stiff, brown SANDY SILT, moist.	2	SS	0.2	2.8	13.4	*	83.6	24.7	16.1	8.6	21.2		A-4a	
1001.5 1000.9	6-5-7	1.5			Medium dense, gray GRAVEL, some sand, moist.	3	SS	38.3	25.4	27.6	*	8.7	--	--	--	11.1		A-1-b	
996.9	6-8-9	1.5			Medium dense, brown and gray SILTY SAND, trace gravel, moist to wet.	4	SS												
	8-8-8	1.5				5	SS												
	6-8-7	1.5			Medium dense, brown GRAVEL and sand, moist.	6	SS	45.9	19.2	26.0	*	8.9	--	--	--	8.7		A-1-b	
990.4	5-6-6	1.5				7	SS												
	6-8-11	1.5				8	SS												
	18-20-23	1.5				9	SS												
	6-12-8	1.5			Medium dense to dense, gray GRAVEL, some sand, moist.	10	SS												
	10-11-12	1.5				11	SS												
	16-10-7	1.5				12	SS												
975.9	8-10-12	1.5				13	SS												
	12-10-10	1.5				14	SS												
	12-11-9	1.5			Medium dense, gray GRAVEL with sand, trace silt, moist.	15	SS												
	12-10-8	1.5				16	SS	11.9	56.0	28.2	*	3.9	--	--	--	15.1		A-1-b	
959.4	7-8-9	1.5			Very stiff to hard, gray SANDY SILT, moist.	17	SS												
952.4	18-20-22	1.5				18	SS												
	55-48-44	1.5			Hard, gray SANDY SILT, trace gravel; moist.	19	SS												
947.4	50/0.4	0.4			Very dense, brown SAND, little silt, moist.	20	SS												

LOG OF BORING

Date Started 2-24-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 2-24-88 Casing Length -- Dia. ---
 Boring No. RW-28 (Cont.) Station & Offset Sta. 617 + 01 93' RT. Surface Elev. 1011.4

FHWA REGION	STATE	PROJECT

34
104

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
941.4	0																	
	75	50-48-30	1.5		SAME AS ABOVE	21	SS											
932.9 932.4 931.4	80	47-33-17	1.5		Hard, brown SANDY CLAY, trace gravel, moist. Very dense, brown SAND, little silt, wet.	22	SS											
					TERMINATION DEPTH 80.0 FEET													

LOG OF BORING

Date Started 3-3-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 988.1
 Date Completed 3-3-88 Casing Length -- Dia. ---
 Boring No. RW-29 Station & Offset Sta. 617 + 97 94' RT. Surface Elev. 1008.1

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1008.1	0																		
	5	10-9-5	1.5		Loose to medium dense, brown <u>GRAVEL</u> and sand, trace silt, moist.	1	SS	29.7	25.3	26.2	*	18.8	--	--	--	10.0		A-1-b	
998.6	10	3-3-4	1.5			2	SS												
994.6		6-6-8	1.5		Loose to medium dense, gray and brown <u>SILTY SAND</u> and gravel, trace rock fragments, moist.	3	SS												
	15	5-6-5	1.2			4	SS	42.2	20.4	19.0	*	18.4	--	--	--	10.5		A-1-b	
		5-4-3	1.5			5	SS												
	20	5-3-4	1.5			6	SS												
		3-5-6	1.5		Loose to medium dense, gray <u>GRAVEL</u> and sand, trace silt, moist to saturated.	7	SS												
	25	8-8-11	1.5			8	SS	43.3	31.7	18.2	*	6.8	--	--	--	9.3		A-1-b	
		8-6-6	1.5			9	SS												
	30	7-8-7	1.5			10	SS	45.5	23.7	27.4	*	3.4	--	--	--	12.3		A-1-b	
976.6					TERMINATION DEPTH 31.5 FEET														

SUBSURFACE INVESTIGATION
 SUM-76-11.57
 AKRON EAST EXPRESSWAY-RETAINING WALL NO. 9
 AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
 AKRON, OH 44321
 216-666-2200

FHWA REGION	STATE	PROJECT

35
104

STRUCTURE SURFACE INVESTIGATION

1
4

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description - based on laboratory tests utilizing the Casagrande AC classification system - and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

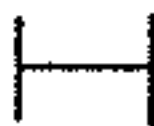
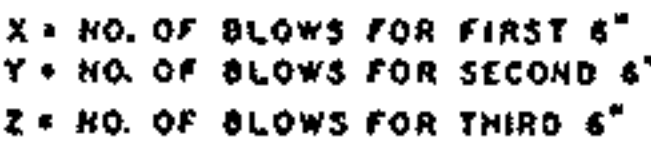
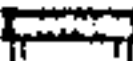
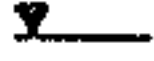
At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

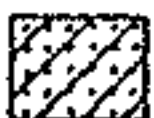
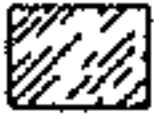
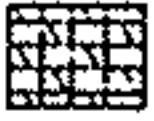
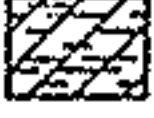
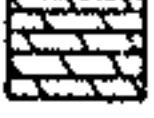
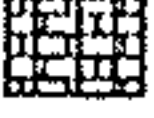
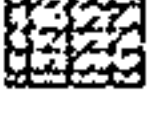
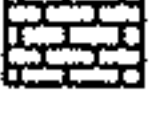
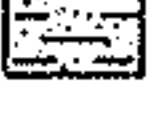
12"	3"	2.0mm	0.42mm	0.074mm	0.005mm
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt
					Clay
			No. 10 sieve	No. 40 sieve	No. 200 sieve

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTORS OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION - PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW		FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
	TOP OF ROCK		X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
	CAPPED PILE		INDICATES FREE WATER ELEVATION
	FOOTING		INDICATES STATIC WATER ELEVATION
	FOOTING ON PILE		

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 25 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MAD" LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

THE EXPLORATION PROGRAM CONSISTED OF ADVANCING A TOTAL OF TWO (2) DRIVE SAMPLE BORINGS WITH A CME-55 TRUCK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS PERFORMED DURING FEBRUARY AND MARCH, 1988.

INVESTIGATIONAL FINDINGS

THE TEST BORINGS DISCLOSED ALTERNATING LAYERS OF STIFF TO HARD SANDY SILT (A-4a) AND LOOSE TO DENSE SAND AND GRAVEL (A-1-A, A-1-B, AND A-3A). THESE SOIL UNITS EXTENDED TO THE BORING TERMINATION ELEVATION OF 967 AT TEST LOCATION RW-30 AND 928 AT TEST LOCATION RW-31. THE SAND AND GRAVEL DEPOSITS ARE MOST PREDOMINATE WITH THE SANDY SILT LAYERS BEING RELATIVELY LIMITED IN EXTENT.

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THESE PLANS.

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETARDING WALL NO. 10
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

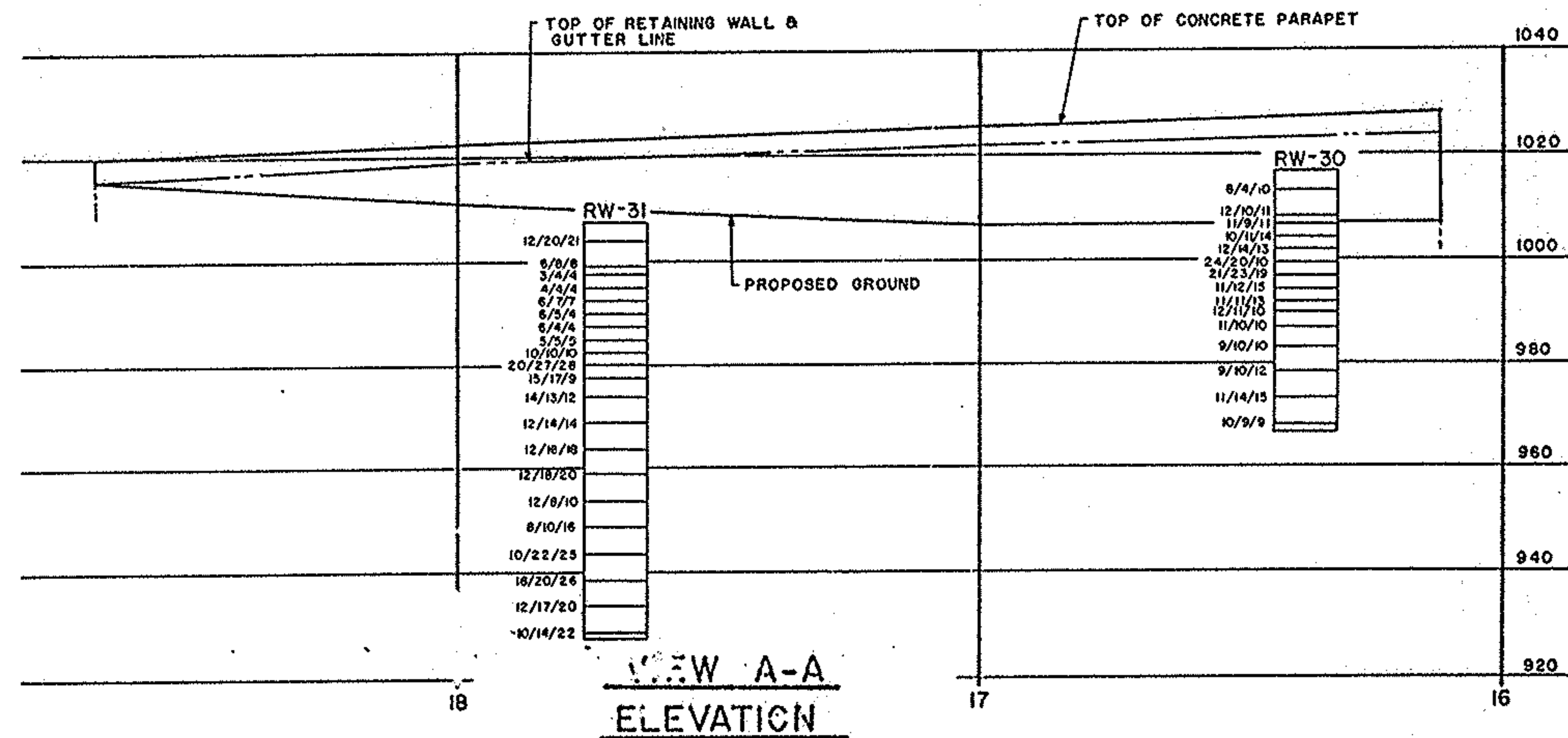
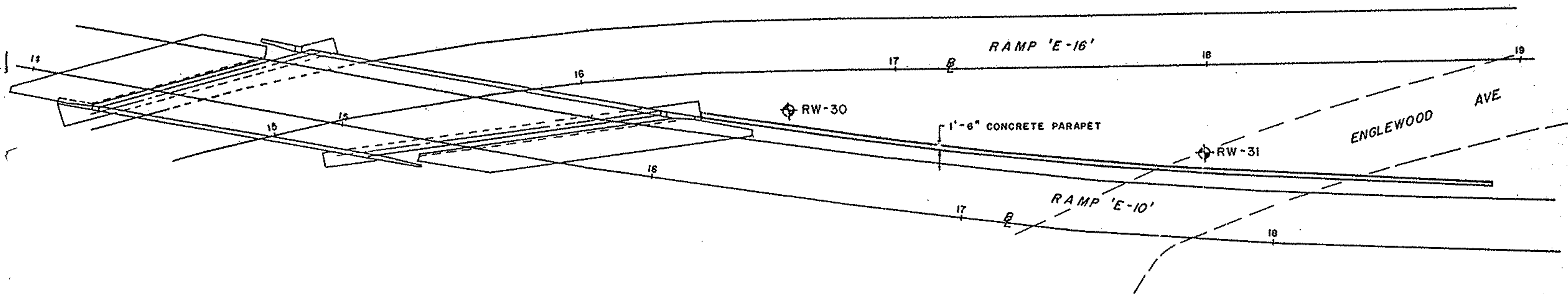
AKRON, OHIO 44321

FHWA REGION	STATE	PROJECT

36
104

2
4

SCALE 1" = 20'



SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 10
AKRON, OHIO

R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT

37
1043
4

LOG OF BORING

Date Started 3-11-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 3-11-88 Casing Length -- Dia. ---
Boring No. Rd-30 Station & Offset Sta. 616 + 38 135' RT Surface Elev. 1016.8

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	PHYSICAL CHARACTERISTICS											SHTL. CLASS.
						SAMPLE NO.	SAMPLE TYPE	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.	
1016.8	0																
	6-4-10	1.5				1	SS										
	6				Medium dense, brown SAND, little gravel, little silt, moist.												
	12-10-11	1.5				2	SS	18.8	20.5	30.1	*	30.6	--	--	--	10.7	A-3a
1006.2	10					3	SS										
	11-9-11	1.5															
	10-11-14	1.5				4	SS										
	15					5	SS	36.7	33.3	19.1	*	10.9	--	--	--	0.7	A-1-b
	24-20-10	1.5				6	SS										
	20					7	SS	62.5	13.4	15.4	*	8.7	--	--	--	0.6	A-1-a
	21-23-19	1.5															
	11-12-15	1.5			Medium dense, brown SAND AND GRAVEL, trace silt, dry to moist.	8	SS										
	25					9	SS	25.1	38.4	29.2	*	7.3	--	--	--	6.0	A-1-b
	12-11-10	1.5				10	SS										
	30					11	SS										
983.8						12	SS										
	9-10-10	1.5															
	35																
	9-10-12	1.5			Very stiff, gray SANDY SILT, little to trace gravel, moist.	13	SS										
	40																
	11-14-15	1.5				14	SS	14.4	14.0	16.2	*	55.4	--	--	--	8.5	A-4a
970.8																	
	10-9-9	1.5			Medium dense, gray SAND AND GRAVEL, little silt, wet.	15	SS										
966.8	60				TERMINATION DEPTH 50.0 FEET												

* SILT AND CLAY CONTAINED

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 10
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-868-2200

Sum-76-11.57

FHWA REGION	STATE	PROJECT

38
104

LOG OF BORING																	
Date Started		2-24-88		Sampler Type		Split Spoon		Dia.		2.0		Water Elev.		---			
Date Completed		2-24-88		Casing Length		--		Dia.		---							
Boring No.		RW-31 (Cont.)		Station & Offset		Sta. 617 + 70 154' RT		Surface Elev.		1007.7							
ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.	SHTL' CLASS.
937.7	0																
	75	12-17-20	1.5		SAME AS ABOVE	20	SS	34.8	20.9	36.1	*	8.2	--	--	--	11.6	A-1-b
	80	10-14-22	1.5			21	SS										
927.7					TERMINATION DEPTH 80.0 FEET												
												* SILT AND CLAY COMBINED					

SUBSURFACE INVESTIGATION
SUM-76-1157
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 10
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3875 COPLEY ROAD
AXRON, OH 44321
216-668-2200

FWMA REGION	STATE	PROJECT

39
104

STRUCTURE SURFACE INVESTIGATION

1
4

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1 7/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1 7/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description—based on laboratory tests utilizing the Casagrande AC classification system—and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

12"	3"	2.0mm	0.42mm	0.075mm	0.005mm
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt
			No. 10 sieve	No. 40 sieve	No. 200 sieve
					Clay

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTORS OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION - PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW		FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
	TOP OF ROCK		X = NO. OF BLOWS FOR FIRST 6"
	CAPPED PILE		Y = NO. OF BLOWS FOR SECOND 6"
	FOOTING		Z = NO. OF BLOWS FOR THIRD 6"
	FOOTING ON PILE		INDICATES FREE WATER ELEVATION
			INDICATES STATIC WATER ELEVATION

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 25 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

THE EXPLORATION PROGRAM CONSISTED OF ADVANCING A TOTAL OF THREE (3) DRIVE SAMPLE BORINGS WITH A CME-75 TRUCK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS, PERFORMED DURING MARCH, 1988.

INVESTIGATIONAL FINDINGS

THE BORINGS DISCLOSED ALTERNATING LAYERS OF "SOFT" TO "VERY STIFF," SANDY SILT (A-4a) AND "LOOSE" TO "DENSE," SAND AND GRAVEL DEPOSITS (A-1-a, A-1-b, A-3, A-3a AND A-2-4). THESE SOILS EXTENDED TO THE TERMINATION ELEVATION OF EACH BORING WHICH RANGED FROM 969 TO 989. HYDROSTATIC CONDITIONS ARE PRESENT AT TEST LOCATIONS RW-40 AND RW-41 AT AN APPROXIMATE DEPTH OF 28 FEET BELOW THE EXISTING GROUND SURFACE.

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THESE PLANS.

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

SUBSURFACE INVESTIGATION
SUM-76-1157
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 11
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

AKRON, OHIO 44321

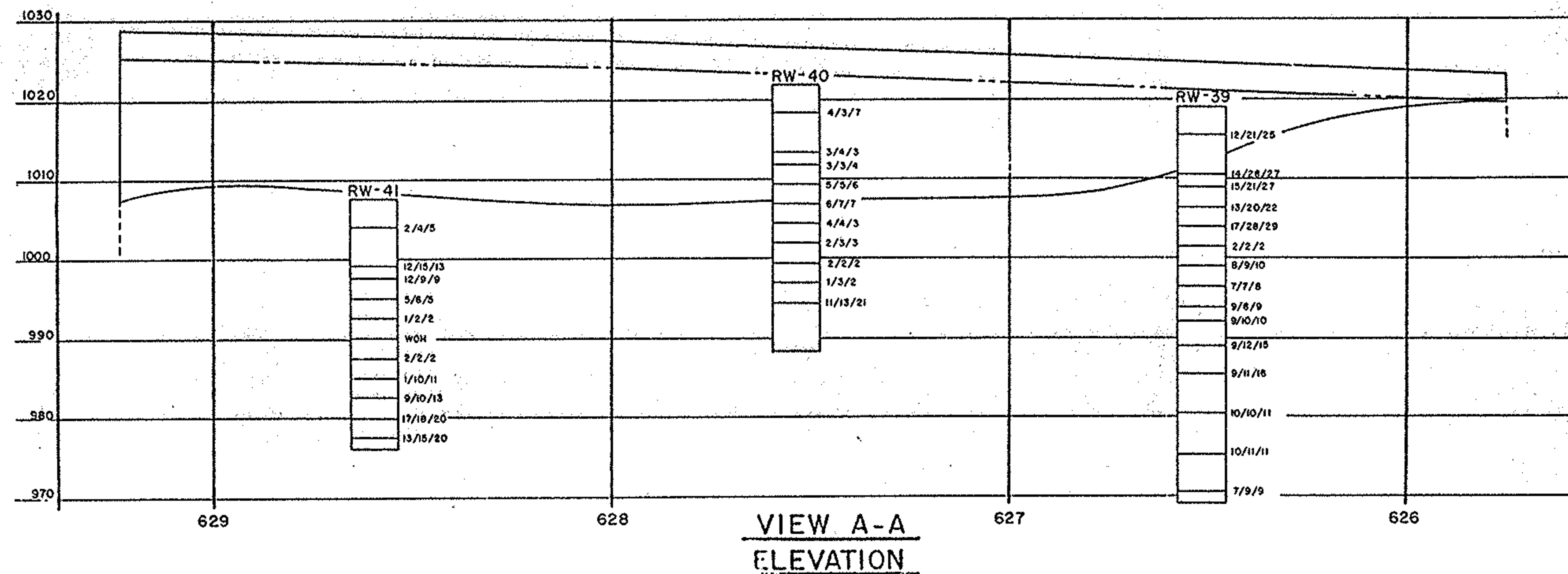
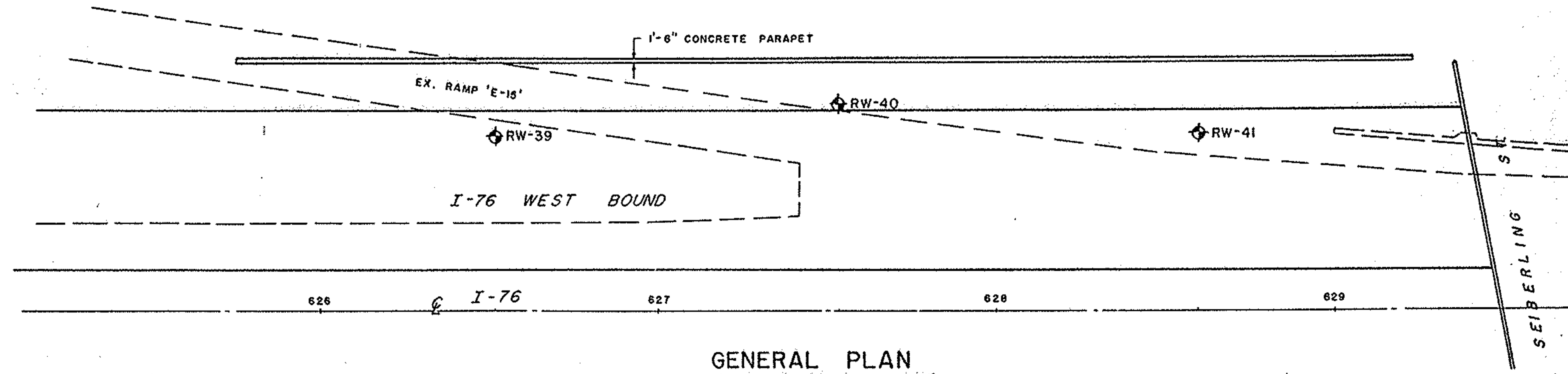
Sum-76-11.57

FHWA REGION	STATE	PROJECT

40
104

2
4

SCALE 1"=20'



SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 11
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT



3
4

LOG OF BORING

Date Started 3-11-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 3-11-88 Casing Length --- Dia. ---
 Boring No. R2-39 Station & Offset Sta. 626 + 52 52' LT. Surface Elev. 1019.1

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1019.1	0																		
	5	12-21-25	1.0		Dense, brown <u>GRAVEL</u> with sand and silt, little rock fragments, moist.	1	SS	29.4	17.3	19.1	*	34.2	--	--	--	12.4	A-2-4		
		14-28-27	1.0			2	SS												
1009.1	10	15-21-27	1.5			3	SS	34.0	26.0	26.0	*	14.0	--	--	--	10.1	A-1-b		
		13-20-22	1.5		Dense, brown <u>GRAVEL</u> with sand, little rock fragments, moist.	4	SS												
1004.1	15	17-28-29	1.0			5	SS	40.5	16.6	16.8	*	26.1	21.4	19.1	2.3	12.2	A-2-4		
		2-2-2	1.5			6	SS	30.0	25.2	29.0	*	15.8	--	--	--	10.3	A-1-b		
	20	8-9-10	1.5			7	SS												
		7-7-8	1.5			8	SS												
	25	9-8-9	1.0		Very dense to dense, brown <u>GRAVEL</u> with sand and silt, little rock fragments, moist.	9	SS												
		9-10-10	1.5			10	SS	33.2	26.5	20.1	*	20.2	--	--	--	12.4	A-1-b		
	30	9-12-15	1.0			11	SS												
985.6	35	9-11-16	1.0			12	SS	34.6	21.6	20.2	*	23.6	--	--	--	11.1	A-1-b		
		10-10-11	1.0			13	SS												
	40	10-11-11	1.0		Medium dense, brown <u>GRAVEL</u> with sand, little rock fragments, little silt, moist.	14	SS												
	45																		
970.6		7-9-9	1.5		Medium dense, brown <u>SAND</u> , little gravel and silt, moist.	15	SS	24.1	24.5	23.5	*	27.9	--	--	--	14.5	A-3a		
969.1	50				TERMINATION DEPTH 50.0 FEET														
												* SILT AND CLAY COMBINED							

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 3-4-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 3-4-88 Casing Length --- Dia. ---
 Boring No. R2-40 Station & Offset Sta. 627 + 54 62' LT. Surface Elev. 1022.7

Boring No.					STANDARD & WEIGHT		PHYSICAL CHARACTERISTICS											SHTL CLASS.
ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LL	P.L.	P.I.	W.C.		
1022.7	0																	
	5	4-3-7	0.9		Medium dense, brown <u>SAND</u> , little silt, moist.	1	SS	1.4	35.7	54.9	*	8.0	--	--	--	7.7	A-3	
1015.2																		
	10	3-4-3	1.5			2	SS											
		3-3-4	1.4		Loose to medium dense, brown <u>GRAVEL</u> , little sand, trace silt, moist.	3	SS											
		5-5-6	1.4			4	SS	55.5	20.9	16.0	*	7.6	--	--	--	5.8	A-1-a	
1006.6	15	6-7-7	1.5			5	SS											
		4-4-3	1.4		Loose, brown and gray <u>SAND</u> , little gravel, trace silt, damp to wet.	6	SS	22.3	25.6	39.0	*	13.1	--	--	--	15.1	A-3a	
1001.5	20	2-3-3	1.5			7	SS											
		2-2-2	1.5			8	SS											
	25	1-3-2	1.5		Medium stiff to hard, gray <u>SANDY SILT</u> , trace clay, moist.	9	SS	0.7	16.9	30.3	*	52.1	--	--	--	29.3	A-4a	
		11-13-21	1.5			10	SS											
	30				NOTE: Running sand at 28.5 feet to 33.5 feet.													
989.2	35				TERMINATION DEPTH 33.5 FEET													

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
 SUM-76-11.57
 AKRON EAST EXPRESSWAY-RETAINING WALL NO. 11
 AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COWLEY ROAD
 AKRON, OH 44321
 216-866-2200

LOG OF BORING

Date Started 3-4-83 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
Date Completed 3-4-83 Casing Length -- Dia. ---
Boring No. RW-41 Station & Offset Sta. 628 + 60 53' LT. Surface Elev. 1007.9

[illegible]

SUBSURFACE INVESTIGATION
SUM-76-1157
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 11
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3575 COPLEY ROAD
AKRON, OH 44321
216-866-2200

FHWA REGION	STATE	PROJECT

43
104

STRUCTURE SURFACE INVESTIGATION

1
6

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three, 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description - based on laboratory tests utilizing the Casagrande AC classification system - and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

12"	3"	2.0mm	0.42mm	0.075mm	0.005mm	
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
		No. 10 sieve	No. 40 sieve	No. 200 sieve		

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTORS OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION - PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW		FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
	TOP OF ROCK		X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
	CAPPED PILE		
	FOOTING		INDICATES FREE WATER ELEVATION
	FOOTING ON PILE		INDICATES STATIC WATER ELEVATION

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 25 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

THE SUBSURFACE EXPLORATION PROGRAM FOR THIS PROJECT INCLUDED ADVANCING A TOTAL OF FOUR (4) DRIVE SAMPLE BORINGS MADE BY MEANS OF A CME-75 TRUCK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS, PERFORMED DURING FEBRUARY, 1987 AND MARCH, 1988.

INVESTIGATIONAL FINDINGS

THE TEST BORINGS DISCLOSED ALTERNATING LAYERS OF LOOSE TO MEDIUM DENSE SAND AND GRAVEL (A-1-A, A-1-B, A-3, AND A-3a) AND MEDIUM STIFF TO HARD SANDY SILT (A-4a) EXTENDING TO THE TERMINATION DEPTH OF EACH TEST BORING. THE DEEPEST OF THE BORINGS WAS ADVANCED TO AN APPROXIMATE ELEVATION OF 926. BEDROCK WAS NOT ENCOUNTERED AT ANY OF THE FOUR (4) TEST LOCATIONS WITHIN THE EXPLORED DEPTHS.

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THESE PLANS.

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY RETAINING WALL NO. 12
AKRON, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS

AKRON, OHIO 44321

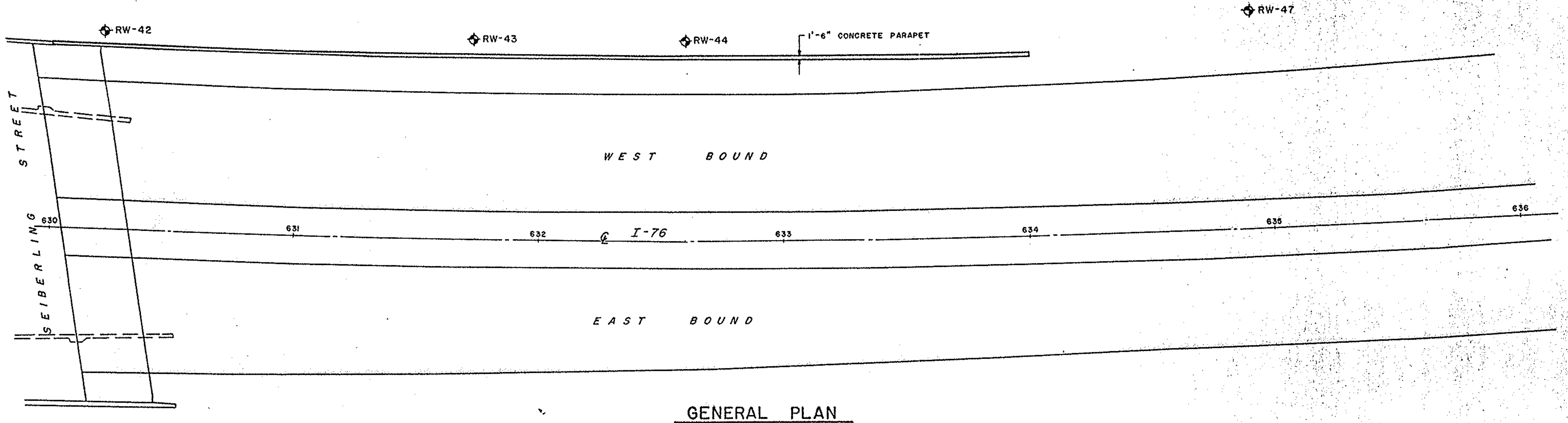
SUM-76-11.57

FHWA REGION	STATE	PROJECT

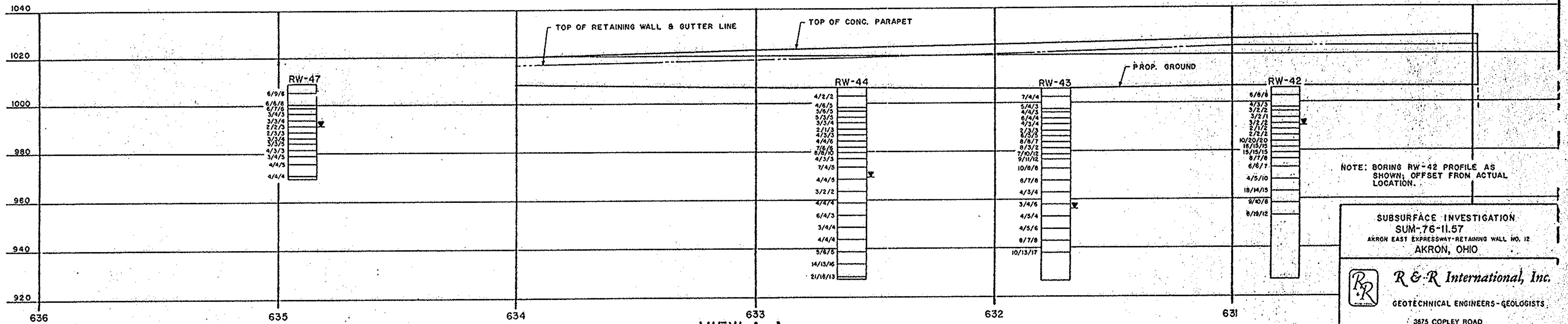
44
104

2
6

SCALE 1" = 20'



GENERAL PLAN



VIEW A-A
ELEVATION

NOTE: BORING RW-42 PROFILE AS SHOWN, OFFSET FROM ACTUAL LOCATION.

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 12
AKRON, OHIO

R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS
3875 CROPLEY ROAD
AKRON, OH 44321
216-666-2200

Sum-76-11.57

FHWA REGION	STATE	PROJECT

45
104

 $\frac{3}{6}$

LOG OF BORING

Date Started 2-2-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 991.4
 Date Completed 2-2-87 Coring Length -- Dia. ---
 Boring No. RW-42 (Cont.) Station & Offset Sta. 630 + 23 81' LT. Surface Elev. 1006.9

ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SLT	% CLAY	L.L.	P.L.	P.I.	W.C.		
936.9	0																	
	75				SAME AS ABOVE													
926.9	80				TERMINATION DEPTH 80.0 FEET													
												SILT AND CLAY COMBINED						

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 12
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

SUM-76-11.57

FHWA REGION	STATE	PROJECT

46
1044
6

LOG OF BORING

Date Started 2-2-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 955.2
Date Completed 2-2-87 Casing Length --- Dia. ---
Boring No. RH-43 Station & Offset Sta. 631 + 74 82' LT. Surface Elev. 1006.1

ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1006.1	0																	
993.6	5	7-4-4	1.1		Loose, brown GRAVEL, some sand, trace silt, moist to wet.	1	SS											
	10	5-4-3	0.7	2		SS	55.5	26.0	11.8	*	6.7	--	--	--	1.4	A-1-a		
		4-4-3	0.8	3		SS	46.3	34.2	14.6	*	4.9	--	--	--	4.3	A-1-b		
		6-4-4	1.2	4		SS												
985.2	15	4-3-4	1.4		Loose, brown SAND, little silt, trace gravel, wet to saturated.	5	SS											
		2-3-3	1.0	6		SS												
	20	6-5-5	1.2	7		SS	27.9	31.5	33.1	*	7.5	--	--	--	6.9	A-1-b		
		8-8-7	1.4	8		SS												
976.1	25	8-3-2	1.3		Medium dense, brown and gray GRAVEL with sand, trace silt, saturated.	9	SS											
		7-10-12	1.0	10		SS												
	30	9-11-12	1.2	11		SS	1.4	47.9	46.6	*	4.1	--	--	--	11.7	A-3		
		10-8-8	1.1	12		SS												
962.6	35				Medium dense, gray SAND, trace silt, saturated.													
		8-7-8	1.0	13		SS												
	40																	
		4-3-4	1.3	14		SS	0.1	2.4	17.7	*	79.8	--	--	--	18.0	A-4a		
	45				Medium stiff to hard, gray SANDY SILT, little gravel, saturated.													
		3-4-6	1.4	15		SS												
	50																	
		4-5-4	1.0	16		SS												
	55				NOTE: Running sands encountered at 70.0' to termination depth.													
		4-5-6	1.3	17		SS	1.2	4.4	15.2	*	79.2	--	--	--	16.0	A-4a		
	60																	
		8-7-8	1.0	18		SS	14.6	10.3	8.8	*	66.3	--	--	--	11.6	A-4a		
	65																	
	70	10-13-17	1.0			19	SS											

LOG OF BORING

Date Started 2-2-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 955.2
Date Completed 2-2-87 Casing Length --- Dia. ---
Boring No. RH-43 (Cont.) Station & Offset Sta. 631 + 74 82' LT. Surface Elev. 1006.9

ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
936.1	0																	
926.1	75				SAME AS ABOVE													
	80				TERMINATION DEPTH 80.0 FEET													

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 12
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3875 COPLE ROAD
AKRON, OH 44321
216-666-2200

SUM-76-11.57

FHWA REGION	STATE	PROJECT

47
1045
6

LOG OF BORING

Date Started 2-4-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 969.2
Date Completed 2-4-87 Casing Length --- Dia. ---
Boring No. RW-44 Station & Offset Sta. 632 + 60 87' LT. Surface Elev. 1006.8

Boring No.																		
ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1006.8	0																	
	5	4-4-2	1.0			1	SS											
	10	4-6-5	1.4		Loose, brown <u>SAND</u> , some gravel, little silt, moist.	2	SS											
		5-6-5	1.0			3	SS											
		5-3-5	1.2			4	SS											
	15	3-3-4	1.3			5	SS											
990.3		2-1-3	1.4			6	SS											
	20	4-3-3	1.3			7	SS											
		4-4-6	1.0		Loose to medium dense, brown <u>GRAVEL</u> with sand, little silt, moist to saturated.	8	SS											
	25	7-6-6	0.7			9	SS											
		8-8-10	1.0			10	SS											
	30	4-3-3	1.2			11	SS											
975.4		7-4-5	1.3			12	SS											
	35																	
	40	4-4-5	1.1		Loose, brown <u>SAND</u> , little gravel, little silt, saturated.	13	SS											
		3-2-2	1.2			14	SS											
961.8	45																	
	50	4-4-4	1.0			15	SS											
	55	6-4-3	1.3			16	SS											
	60	3-4-4	1.2		Stiff, gray <u>SANDY SILT</u> , little to trace gravel, trace clay, saturated.	17	SS											
					NOTE: Sand seam at 59.2' to 59.3'.													
	65	4-4-4	1.4			18	SS											
938.3	70	5-6-5	1.3			19	SS											

LOG OF BORING

Date Started 2-4-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 969.2
Date Completed 2-4-87 Casing Length --- Dia. ---
Boring No. RW-44 (Cont.) Station & Offset Sta. 632 + 60 87' LT. Surface Elev. 1006.8

Boring No.		STATION & CHASE		PHYSICAL CHARACTERISTICS													SHTL CLASS.
ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	% AGG.	% C.SAND	% F.SAND	% SHT.	% CLAY	L.L.	P.L.	P.I.	W.C.	
936.8	0																
		14-13-16	0.0		Stiff to very stiff, gray <u>SILT AND CLAY</u> , some sand, saturated. NOTE: Sand seam at 69.2' to 69.4'.	20	SS										
928.3		21-16-13	1.0		MEDIUM DENSE, gray <u>SAND</u> , little silt, saturated.	21	SS										
926.8	80				TERMINATION DEPTH 80.0 FEET												

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 12
AKRON, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS

3875 Copley Road
Akron, OH 44321
216-686-2200

FHWA REGION	STATE	PROJECT



Date Started 3-14-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 991.2
Date Completed 3-14-88 Casing Length -- Dia. ---
Boring No. RN-47 Station & Offset Sta. 634 + 90 89' LT. Surface Elev. 1039.2

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL. CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1109.2	0																	
999.2	5	6-9-6	1.5		Medium dense, brown <u>SAND</u> , some gravel, little silt, moist.	1	SS											
		6-6-6	1.5			2	SS											
	10	6-7-6	1.5			3	SS	20.3	48.3	21.3	*	10.1	--	--	--	1.2	A-1-b	
		3-4-3	1.5			4	SS											
	15	3-3-4	1.5		5	SS												
		2-2-3	1.5		6	SS												
	20	2-3-3	1.5		7	SS												
		3-3-4	1.5		8	SS												
	25	3-3-5	1.5		Medium dense to loose, brown <u>GRAVEL</u> , some sand, trace silt, moist to wet.	9	SS	33.7	35.6	20.8	*	9.7	--	--	--	2.7	A-1-b	
		4-3-3	1.5			10	SS											
	30	3-4-5	1.5			11	SS	24.8	37.7	26.5	*	11.0	--	--	--	12.2	A-1-b	
		4-4-5	1.5			12	SS											
970.7		4-4-4	1.5		Loose, brown <u>SAND</u> , some gravel, little silt, wet.	13	SS	25.6	26.8	19.0	*	28.6	--	--	--	6.9	A-3a	
969.2	40				TERMINATION DEPTH 40.0 FEET													
												*	SILT AND CLAY COMBINED					



3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FWA REGION	STATE	PROJECT

 49
164

STRUCTURE SUBSURFACE INVESTIGATION

 1
7

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, of 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description based on laboratory tests utilizing the Casagrande AC classification system and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

12"	3"	2.0mm	0.42mm	0.074mm	0.005mm	
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
		No. 10 sieve	No. 40 sieve	No. 200 sieve		

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND



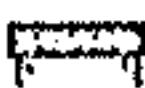
AUGER BORING LOCATION - PLAN VIEW



PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW

TR

TOP OF ROCK



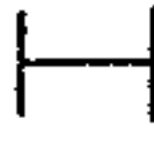
CAPPED PILE



FOOTING



FOOTING ON PILE



HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN

X/Y/Z

FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST

 X = NO. OF BLOWS FOR FIRST 6"
 Y = NO. OF BLOWS FOR SECOND 6"
 Z = NO. OF BLOWS FOR THIRD 6"

W

INDICATES FREE WATER ELEVATION

V

INDICATES STATIC WATER ELEVATION

SYMBOLS OF ROCK TYPES



COAL



WEATHERED MUDSTONE



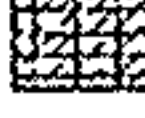
MUDSTONE



WEATHERED SHALE



SHALE



CLAYSTONE



SILTSTONE



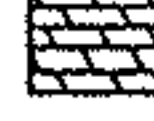
WEATHERED SANDSTONE



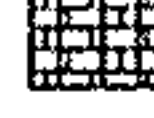
SANDSTONE



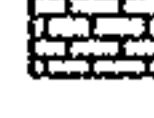
LEACHED DOLOMITE



DOLOMITE



LEACHED LIMESTONE



LIMESTONE



BOULDERS or COBBLES

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 25 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

THE EXPLORATION PROGRAM CONSISTED OF ADVANCING A TOTAL OF SEVEN (7) DRIVE SAMPLE BORINGS WITH A CME-55 TRUCK MOUNTED DRILLING RIG USING A CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS, PERFORMED DURING MARCH, 1988.

INVESTIGATIONAL FINDINGS

THE TEST BORINGS DISCLOSED ALTERNATING LAYERS OF SANDY SILT (A-4a) AND SAND AND GRAVEL (A-1-A, A-1-B, AND A-3a). THE SAND AND GRAVEL DEPOSITS ARE MOST PREDOMINATE AND HAVE A RELATIVE COMPACTNESS RANGING FROM "LOOSE" TO "DENSE," BUT IN MOST CASES IS "MEDIUM DENSE."

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THIS REPORT.

 SUBSURFACE INVESTIGATION
 SUM-76-11-57
 AKRON EAST EXPRESSWAY-RETAINING WALL NO. 13
 AKRON, OHIO


R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

AKRON, OHIO 44321

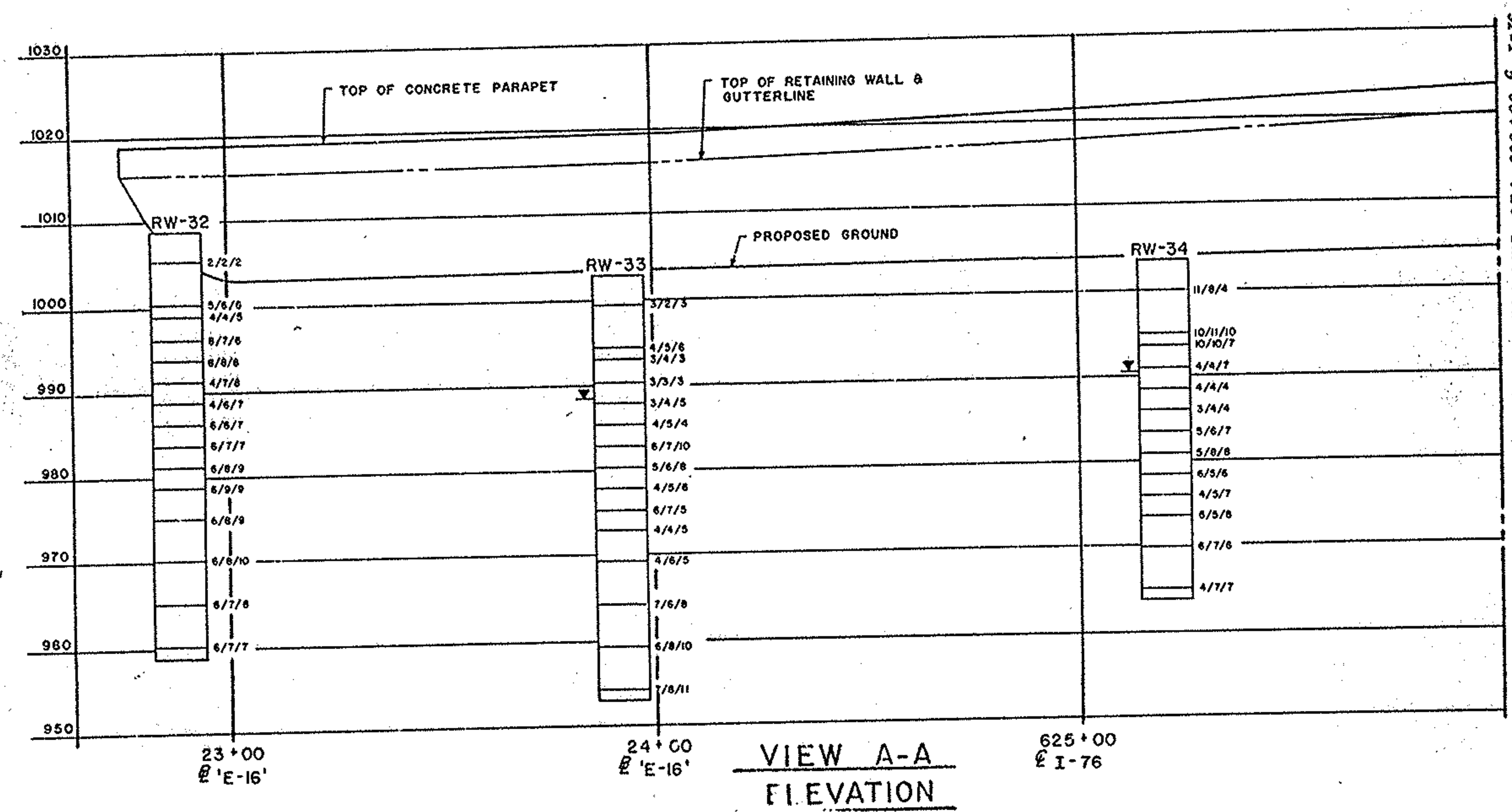
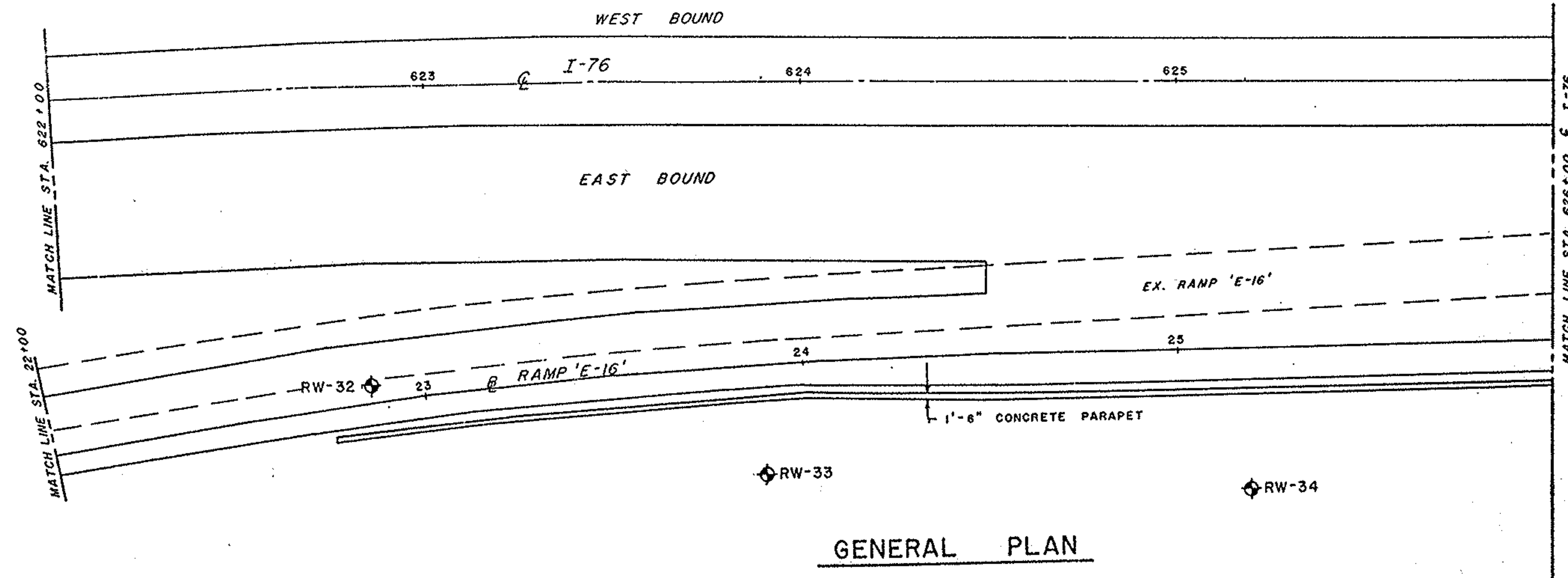
SUM-76-11.57

FHWA REGION	STATE	PROJECT

50
104

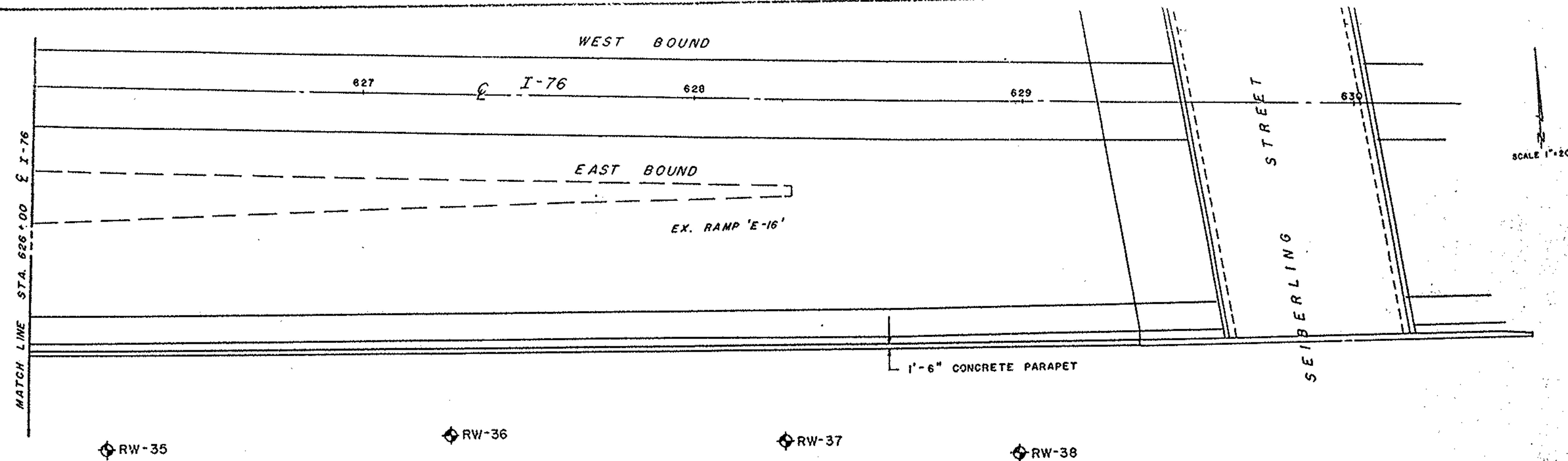
2
7

SCALE 1" = 20'



SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 13
AKRON, OHIO

R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS
3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

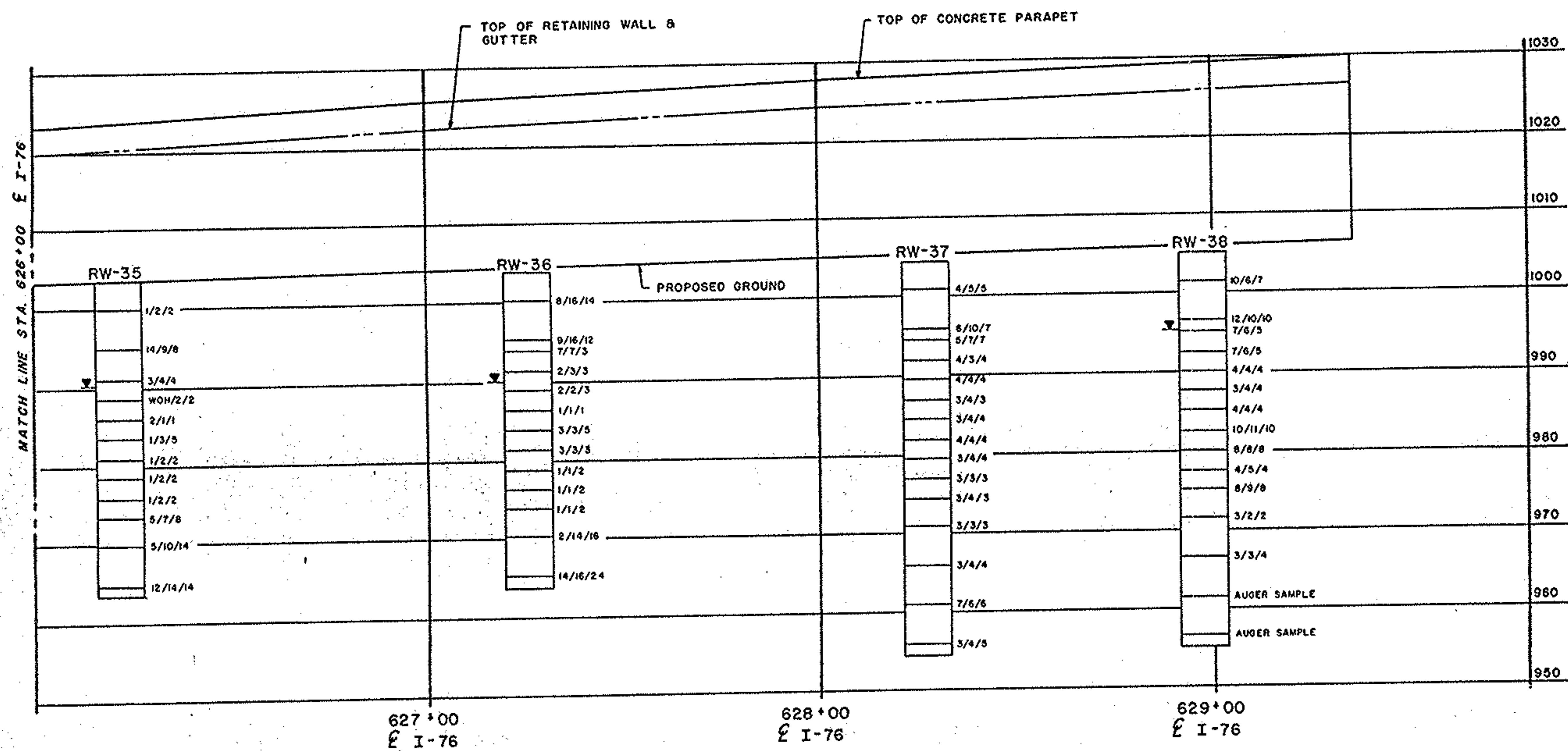


SUM-76-11.57

FWHA REGION	STATE	PROJECT

51
104

3
7



SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY RETAINING WALL NO. 13
AKRON, OHIO

R & R International, Inc.
GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-668-2200

FHWA REGION	STATE	PROJECT

52
104

LOG OF BORING

Date Started 3-9-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 3-9-88 Casing Length -- Dia. ---
 Boring No. PX-32 Station & Offset Sta. 622 + 85 80' RT. Surface Elev. 1009.3

ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1009.3	0																		
1009.0					ASPHALT BRICKS														
1008.8																			
	2-2-2	1.5			Soft, gray <u>SANDY SILT</u> , some clay, some roots, moist.	1	SS												
1004.4	5																		
	5-6-6	1.5				2	SS												
	4-4-5	1.5				3	SS												
	8-7-6	1.5			Loose to medium dense, brown <u>SAND AND GRAVEL</u> , wet.	4	SS												
	6-8-6	1.5				5	SS												
991.3	4-7-8	1.5				6	SS												
990.3					MEDIUM DENSE, BROWN <u>SAND</u> , some silt, wet.														
	4-6-7	1.5				7	SS												
	6-6-7	1.5			Medium dense, brown <u>SAND AND GRAVEL</u> , wet.	8	SS												
	6-7-7	1.5				9	SS												
981.3	6-8-9	1.5				10	SS												
	6-9-9	1.5				11	SS												
	6-8-9	1.5				12	SS												
	6-8-10	1.5			Medium dense, gray <u>SAND</u> , trace silt, wet.	13	SS												
	6-7-8	1.5				14	SS												
	6-7-7	1.5				15	SS												
959.3	50				TERMINATION DEPTH 50.0 FEET														

LOG OF BORING

Date Started 3-9-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 983.4
 Date Completed 3-9-88 Casing Length -- Dia. ---
 Boring No. RW-33 Station & Offset Sta. 623 + 90 115' RT. Surface Elev. 1002.9

ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1002.9	0																		
1002.7					ASPHALT														
1002.4					BRICKS														
1002.0					CONCRETE														
999.9					Loose, brown SAND, moist.														
998.9	3-2-3	1.5			SOFT, BLACK MUCK, trace organics, moist.	1	SS												
	5				Soft, brown PEAT, trace organics, moist.														
996.9					Soft, black MUCK, moist.														
994.9	4-5-6	1.5			Medium dense, brown SAND, moist.	2	SS	12.3	22.7	48.7	*	16.3	--	--	--	7.7	A-3a		
992.9	10	1.5				3	SS												
	3-3-3	1.5				4	SS	36.0	21.4	23.4	*	19.2	--	--	--	17.8	A-1-b		
	15	1.5			Loose, brown GRAVEL, some sand, wet.	5	SS												
	4-5-4	1.5				6	SS												
982.9	20	1.5			Medium dense, gray SAND, some silt, wet.	7	SS	20.5	25.8	29.6	*	24.1	--	--	--	15.7	A-3a		
980.9	5-6-8	1.5			Medium dense, brown SAND, wet.	8	SS												
	25	1.5				9	SS	4.4	31.6	47.3	*	16.7	--	--	--	18.9	A-3a		
976.9	6-7-5	1.5				10	SS												
	30	1.5				11	SS												
	4-6-5	1.5			Medium dense, gray GRAVEL, some sand, wet.	12	SS	10.7	49.4	33.9	*	6.0	--	--	--	15.6	A-1-b		
	35																		
	7-6-8	1.5				13	SS												
	40																		
	6-8-10	1.5				14	SS												
956.9	45				Medium dense, gray SAND, wet.	15	SS	0.2	35.9	57.4	*	6.5	--	--	--	22.3	A-3		
952.9	50				TERMINATION DEPTH 50.0 FEET														

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
 SUM-76-11.57
 AKRON EAST EXPRESSWAY-RETAINING WALL NO. 13
 AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
 AKRON, OH 44321
 216-668-2200

FHWA REGION	STATE	PROJECT

53
104

5
7

LOG OF BORING

Date Started 3-7-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 990.5
 Date Completed 3-7-88 Casing Length --- Dia. ---
 Boring No. RD-34 Station & Offset Sta. 625 + 18 109' RT. Surface Elev. 1003.5

ELEV.	DEPTH	STD. PEN. (N)	REC. FT.	LOSS FT.	DESCRIPTION	PHYSICAL CHARACTERISTICS												SHTL CLASS.		
						SAMPLE NO.	SAMPLE TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.				
1003.5	0																			
1003.1					ASPHALT															
1002.8					BRICK															
1001.6					ASPHALT															
		11-8-4	1.5		Stiff, brown CLAY, some sand, little gravel, moist.	1	SS													
998.9	5				SOFT TO MEDIUM STIFF, BLACK CLAY, some organics (peat), moist.															
997.5																				
		10-11-10	1.2			2	SS	16.9	18.7	13.5	*	50.9	--	--	--	5.9	A-4a			
	10	10-10-7	1.3		Very stiff, brown SANDY SILT, damp.	3	SS													
		4-4-7	1.5			4	SS	8.2	26.1	46.2	*	19.5	--	--	--	16.8	A-3a			
990.5																				
	15	4-4-4	1.5			5	SS	7.7	20.2	52.0	*	20.1	--	--	--	19.3	A-3a			
		3-4-4	1.5		Medium dense to loose, brown SAND, trace gravel, saturated.	6	SS													
983.5	20	5-6-7	1.5			7	SS													
		5-8-8	1.5			8	SS	43.6	34.2	16.3	*	5.9	--	--	--	11.3	A-1-b			
	25	6-5-6	1.5			9	SS													
		4-5-7	1.5		Medium dense, brown GRAVEL, some sand, saturated.	10	SS													
	30	5-5-8	1.5			11	SS	10.4	57.3	26.2	*	6.1	--	--	--	16.7	A-1-b			
970.0		6-7-6	1.5			12	SS													
	35																			
		4-7-7	1.5		Medium dense, gray SAND, some sandstone fragments, little gravel, saturated.															
						13	SS	3.1	27.2	65.3	*	4.4	--	--	--	18.4	A-3			
963.5	40				TERMINATION DEPTH 40.0 FEET															

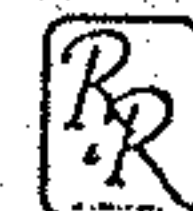
* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 3-9-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 990.3
 Date Completed 3-9-88 Casing Length --- Dia. ---
 Boring No. RW-35 Station & Offset Sta. 626 + 21 109' RT. Surface Elev. 1003.8

ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.		
						NO.	TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	LL	P.L.	P.I.	W.C.				
1003.8	0																			

SUBSURFACE INVESTIGATION
 SUM-76-11.57
 AKRON EAST EXPRESSWAY-RETAINING WALL NO. 13
 AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COWLEY ROAD
 AKRON, OH 44321
 216-668-2200

FHWA REGION	STATE	PROJECT

55
104

7
7

LOG OF BORING

Date Started 3-10-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 995.0
 Date Completed 3-10-88 Casing Length --- Dia. ---
 Boring No. R4-38 Station & Offset Sta. 628 + 98 106' RT. Surface Elev. 1005.0

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1005.0	0																		
1004.7 1004.3					ASPHALT BRICK														
1002.3					Medium dense, brown SAND and wood fill, moist.														
	10-6-7		1.5		Medium dense, brown GRAVEL, little sand, moist.	1	SS	50.1	23.7	8.2	*	8.0	--	--	--	6.4	A-1-a		
999.0	5																		
	12-10-10		1.5		Medium dense, brown SAND, some gravel, moist.	2	SS												
995.0	10		1.5			3	SS	44.1	25.2	21.0	*	9.7	--	--	--	7.9	A-1-b		
	7-6-5		1.5			4	SS												
	15		1.5		Medium dense to loose, brown GRAVEL, some sand, wet.	5	SS												
	3-4-4		1.5			6	SS	22.7	52.1	19.1	*	6.1	--	--	--	14.9	A-1-b		
	20		1.5			7	SS												
982.5	10-11-10		1.5		Medium dense, brown SAND, little gravel, wet.	8	SS	6.9	25.8	35.9	*	31.4	--	--	--	16.1	A-3a		
980.5 980.0	25		1.5		Medium dense, gray SAND, some silt, some clay, wet.	9	SS												
	4-5-4		1.5			10	SS												
	30		1.5		Loose to medium dense, gray SAND, wet.	11	SS	4.3	42.7	50.8	*	2.2	--	--	--	16.7	A-3		
971.5	3-2-2		1.5			12	SS	0.0	0.8	14.1	*	85.1	24.5	20.3	4.2	27.7	A-4a		
	35																		
	3-3-4		1.5			13	SS												
	40				Soft to medium stiff, gray SANDY SILT, trace gravel, wet.	14	AS												
	45																		
955.0	50				TERMINATION DEPTH 50.0 FEET	15	AS	0.1	1.2	22.9	*	75.8	20.7	18.0	2.7	22.1	A-4a		

SUBSURFACE INVESTIGATION
 SUM-76-11.57
 AKRON EAST EXPRESSWAY-RETAINING WALL NO. 15
 AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
 AKRON, OH 44321
 216-566-2200

FHWA REGION	STATE	PROJECT

56
104

SOIL PROFILE

1
4

LEGEND

	AUGER BORING LOCATION - PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW	X/Y/Z	FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
TR	TOP OF ROCK		
	CAPPED PILE		
	FOOTING	W	INDICATES FREE WATER ELEVATION
	FOOTING ON PILE	V	INDICATES STATIC WATER ELEVATION

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, ROLLING AND DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE AT AN APPROXIMATE ELEVATION OF 1005. THE LITTLE CUYAHOGA RIVER LIES TOWARD THE SOUTH.

THE WISCONSIN ICE SHEET PASSED OVER THE AREA LEAVING VARIABLE DEPOSITS OF GLACIAL TILL GENERALLY RANGING FROM 75 TO 150 FEET IN THICKNESS. IT IS EXPECTED THAT ALLUVIAL DEPOSITS LIE IN THE VICINITY OF THE SITE. THESE DEPOSITS ARE COMPOSED MAINLY OF SILT, SILTY SAND AND GRAVEL.

THE OHIO GEOLOGICAL SURVEY INDICATES THAT BEDROCK STANDS AT AN APPROXIMATE ELEVATION OF 850. AT THIS ELEVATION IT IS EXPECTED THAT BEDROCK IS COMPRISED OF PENNSYLVANIAN AGE SANDSTONE OF THE POTTSVILLE FORMATION.

EXPLORATION

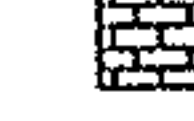
THE SUBSURFACE EXPLORATION PROGRAM FOR THIS PROJECT INCLUDED ADVANCING A TOTAL OF THREE (3) DRIVE SAMPLE BORINGS WITH A SIMCO 4000 ALL TERRAIN DRILLING RIG USING CONVENTIONAL 2.25 INCH I.D. HOLLOW STEM AUGERS, PERFORMED DURING MARCH, 1991. THE TEST BORINGS WERE ADVANCED FOR FOUNDATION DESIGN PURPOSES.

INVESTIGATIONAL FINDINGS

TEST BORING RW-121 AND RW-122 WERE BOTH ADVANCED THROUGH A LAYER OF TOPSOIL WHICH IS 0.8 FEET IN THICKNESS. AT TEST BORING LOCATION RW-123, TOPSOIL WAS NOT ENCOUNTERED. THE TEST BORINGS DISCLOSED ALTERNATING LAYERS OF SAND, SAND AND GRAVEL, SANDY SILT, SILT AND SILTY CLAY. THE RELATIVE CONSISTENCY OF THE COHESIVE SOILS WAS FOUND TO RANGE FROM "MEDIUM STIFF" TO "VERY STIFF", BUT WAS PREDOMINANTLY "VERY STIFF". THE RELATIVE DENSITY OF THE NON COHESIVE SOILS ENCOUNTERED WAS FOUND TO RANGE FROM "LOOSE" TO "VERY DENSE", BUT WAS PREDOMINANTLY "MEDIUM DENSE". BEDROCK WAS NOT ENCOUNTERED AT ANY OF THE TEST LOCATIONS WITHIN THE EXPLORED DEPTHS.

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THESE PLANS.

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description - based on laboratory tests utilizing the Casagrande AC classification system - and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

12"	3"	2.0mm	0.42mm	0.075mm	0.005mm
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt
					Clay
		No. 10 sieve	No. 40 sieve	No. 200 sieve	

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

STRUCTURE FOUNDATION INVESTIGATION
AKRON EAST EXPRESSWAY
RETAINING WALL 13
AKRON, OHIO



Geotechnical Engineers & Geologists
1234 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4303
AKRON, OH 44321

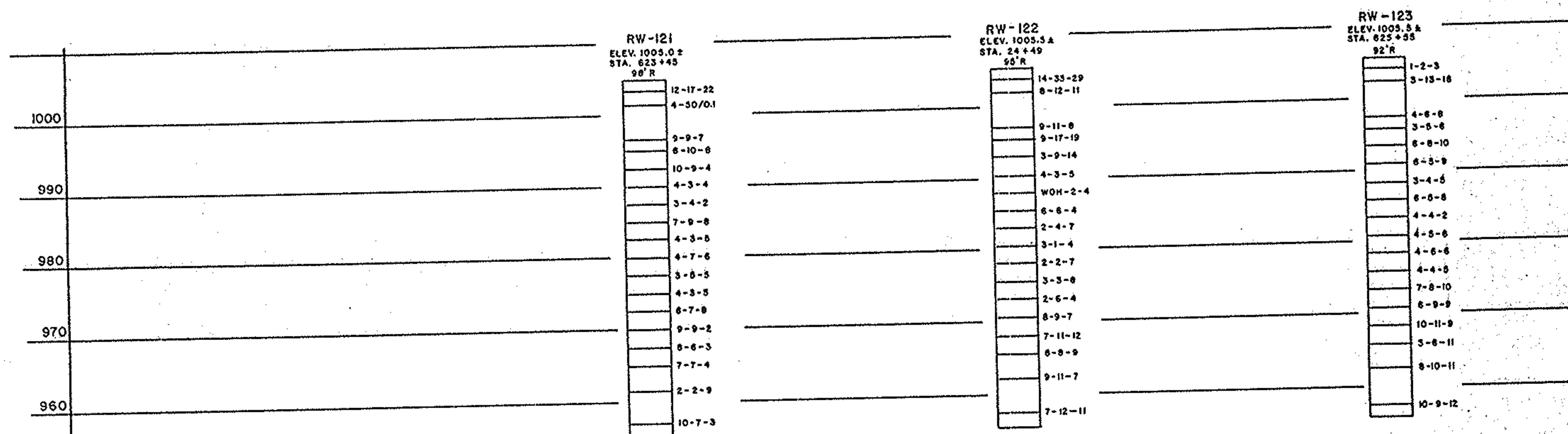
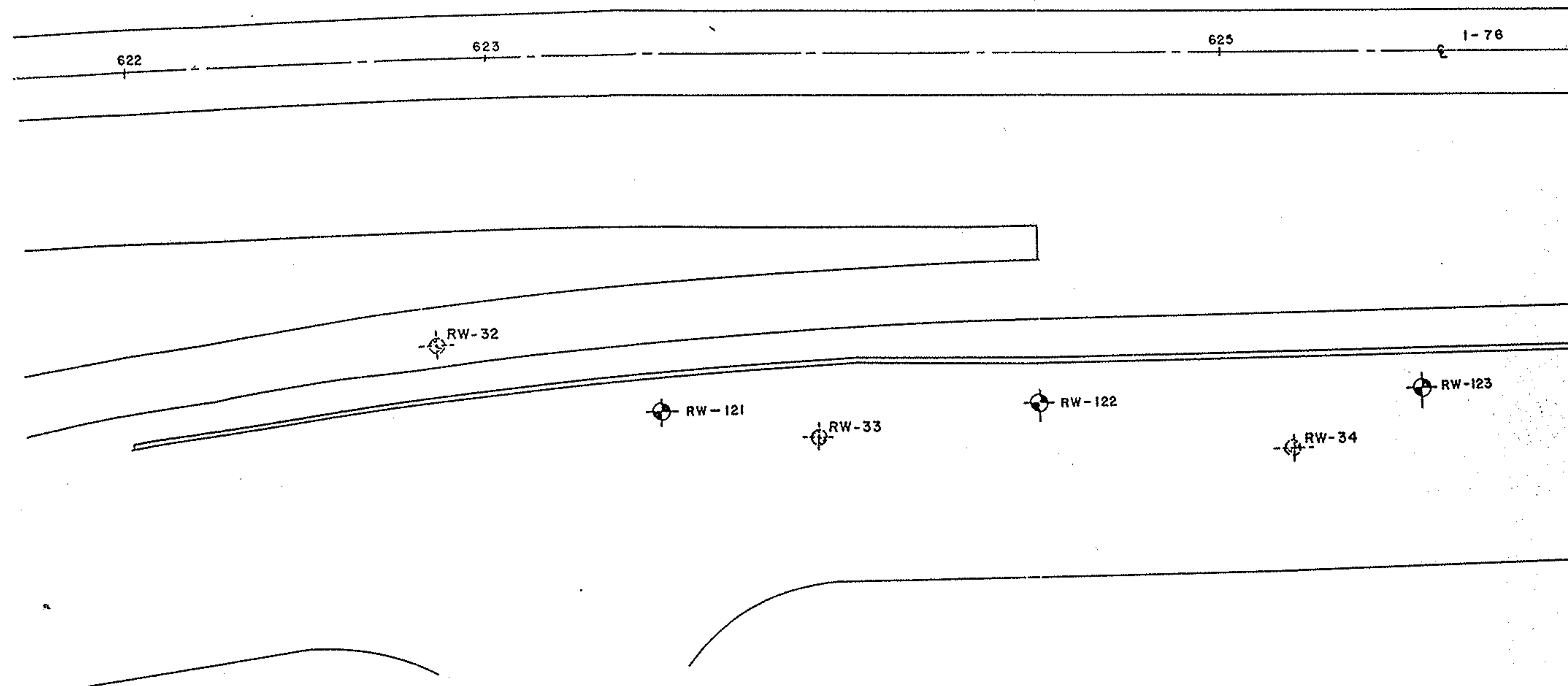
CHECKED BY: J.H. REVIEWED: G.M.R. DATE: 1/31/91

FHWA REGION	STATE	PROJECT

57
104

2
4

I-76 WEST BOUND



STRUCTURE FOUNDATION INVESTIGATION
AKRON EAST EXPRESSWAY
RETAINING WALL 13
AKRON, OHIO



Geotechnical Engineers • Geologists
1234 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4383
AKRON, OH 44321

DRAWN BY: V.M. CHECKED BY: J.W. REVIEWED: G.M.R. DATE: 2/18/91



FHWA REGION	STATE	PROJECT

58
104

3
4

LOG OF BORING

Date Started 3-12-91 Sampler Type SS Dia. 2.00 Inch. Water Elev. 991.0
Date Completed 3-12-91 Casing length -- Dia. 3.25 Inch.
Boring No. RW-121 Station & Offset STA 623+45 98' RT. Surface Elev. 1005.0±

ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE		PHYSICAL CHARACTERISTICS								SHTL CLASS.	
								%					L.L.	P.L.	P.I.		W.C. %
								AGG.	COAR. SAND	FINE SAND	SILT	CLAY					
1005.0	0					NO.	TYPE										
1004.2	0.8	12-17-22	1.8		TOPSOIL	1	SS										
					Dense, brown <u>SAHD</u> , little gravel, moist.												
1001.5	3.5	4-500.4	0.5			2	SS										
					Very dense to dense, gray <u>SAND AND GRAVEL</u> , little silt, moist.												
		9-9-7	0.5			3	SS										
995.0	10.0	6-10-8	9.5			4	SS										
					Very stiff, gray <u>SANDY SILT</u> , little gravel, moist.												
992.5	12.5	10-9-4	1.0			5	SS										
		4-3-4	1.0			6	SS										
		3-4-2	1.5		Loose to medium dense, brown and gray <u>SAND</u> , little to some gravel, saturated to wet.	7	SS										
		7-9-8	1.5			8	SS										
982.5	22.5	4-3-5	1.0			9	SS										
					Stiff, gray <u>SILT</u> , some sand, wet.												
980.0	25.0	4-7-6	1.0			10	SS										
		3-5-5	1.0			11	SS										
		4-3-5	1.5		Medium dense to loose, brown <u>SAND AND GRAVEL</u> , wet.	12	SS										
972.5	32.5	8-7-8	1.0			13	SS										
		9-9-2	1.5			14	SS										
		8-6-3	1.0			15	SS										
		7-7-4	1		Medium dense, brown <u>SAND</u> , trace gravel, trace silt, wet to moist.	16	SS										
		2-2-9	0.5			17	SS										
		10-7-3	1.5			18	SS										
955.0	50.0				TERMINATION DEPTH 50.0 FEET												

Dr. 01/021-RW121-12

LOG OF BORING

Date Started 3-13-91 Sampler Type SS Dia. 2.00 Inch. Water Elev. 992.5
Date Completed 3-13-91 Casing length -- Dia. 3.25 Inch.
Boring No. RW-122 Station & Offset STA 624+49 95' RT. Surface Elev. 1005.5±

ELE '.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE		PHYSICAL CHARACTERISTICS							SHTL CLASS.		
								%					L.L.	P.L.		P.I.	W.C. %
						AGG.	COAR. SAND	FINE SAND	SILT	CLAY							
1005.5	0					NO.	TYPE										
1004.7	0.8				TOPSOIL												
		14-33-29	1.0			1.	SS										
		8-12-11	0.6			2	SS										
		9-8-11	1.0			3	SS										
		9-17-19	0.5			4	SS										
		3-9-14	0.5			5	SS										
		4-3-5	1.5			6	SS										
		WCH-2-4	1.5			7	SS										
		6-6-4	1.5		Very dense to loose, brown to gray <u>SAND</u> , some to trace gravel, moist to saturated.	8	SS										
		2-4-7	1.5			9	SS										
		3-1-4	1.5			10	SS										
		2-2-7	1.5			11	SS										
		3-3-8	1.5			12	SS										
		2-5-4	1.5			13	SS										
		8-9-7	1.0			14	SS										
		7-11-12	1.0			15	SS										
985.5	40.0	8-8-9	1.0			16	SS										
					Very stiff, gray <u>SILT</u> , little sand, wet.												
982.0	43.6	9-11-7	1.5			17	SS										
					Medium dense, brown and gray <u>SAND</u> , little gravel, saturated.												
		7-12-11	1.0			18	SS										
955.5	50.0				TERMINATION DEPTH 50.0 FEET												

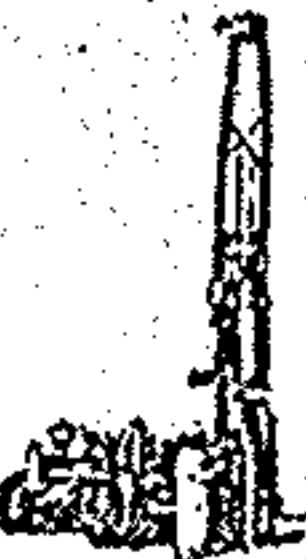
Dr. 01/021-RW122-12

STRUCTURE FOUNDATION INVESTIGATION
AKRON EAST EXPRESSWAY
RETAINING WALL 13
AKRON, OHIO



Geotechnical Engineers • Geologists
1234 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4383
AKRON, OH 44321

TYPED BY J.H. CHECKED BY J.H. REVIEWED G.M.R. DATE 4-9-91



FHWA REGION	STATE	PROJECT

59
104

4
4

LOG OF BORING

Date Started 3-15-91 Sampler Type SS Dia. 2.00 Inch. Water Elev. 990.5
 Date Completed 3-15-91 Casting length -- Dia. 3.25 Inch.
 Boring No. RW-123 Station & Offset STA 625+55 92' RT. Surface Elev. 1005.5+

ELEV.	DEPT.	STD. PEN. (t.)	REC. FT.	LOSS FT.	DESCRIPTION	SAMPLE		PHYSICAL CHARACTERISTICS							SHTL CLASS.				
						NO.	TYPE	AGG.	%				L.L.	P.L.		P.I.	W.C. %		
									COAR. SAND	FINE SAND	SILT	CLAY							
1005.5	0																		
993.0	12.5	1-2-3	1.0		Medium stiff to very stiff, brown <u>SILTY CLAY</u> , trace sand, moist.	1	SS												
		3-13-16	1.0																
		4-6-8	1.5																
		3-5-6	1.5																
		6-8-10	0.5																
		6-5-9	1.5																
		975.5	30.0	3-4-5	0.5		Medium dense to loose, brown <u>SAND AND GRAVEL</u> , trace silt, moist to saturated.	7	SS										
				6-5-8	1.5														
				4-4-2	1.0														
				4-5-6	1.5														
				4-6-6	1.0														
				4-4-5	1.0														
				7-8-10	1.5														
				6-9-9	1.5														
968.0	37.5	10-11-9	1.5		Medium dense, brown <u>SAND AND GRAVEL</u> , wet.	15	SS												
		3-6-11	1.5																
		8-10-11	1.5																
		10-9-12	1.5																
955.5	50.0				TERMINATION DEPTH 50.0 FEET														

11-11-91-11-11-91

STRUCTURE FOUNDATION INVESTIGATION
 AKRON EAST EXPRESSWAY
 RETAINING WALL 13
 AKRON, OHIO



Geotechnical Engineers & Geologists
 1234 S. CLEVELAND-MASSILLON ROAD
 P.O. BOX 4383
 AKRON, OH 44321

TYPED BY J.K. CHECKED BY J.M. REVIEWED J.M. DATE 4.19.91



FHWA REGION	STATE	PROJECT

60
104

STRUCTURE SURFACE INVESTIGATION

1
5

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description - based on laboratory tests utilizing the Casagrande AC classification system - and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

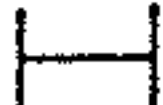
At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

12"	3"	2.0mm	0.42mm	0.074mm	0.005mm	
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
		No. 10 sieve	No. 40 sieve	No. 200 sieve		

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION - PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW	X/Y/Z	FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
TR	TOP OF ROCK		
	CAPPED PILE		
	FOOTING	W	INDICATES FREE WATER ELEVATION
	FOOTING ON PILE		INDICATES STATIC WATER ELEVATION

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. RELIEF ALONG THE LENGTH OF THE WALL IS APPROXIMATELY 25 FEET.

THE PROJECT AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET, LEAVING A VARIABLE BUT THIN DRIFT, NOT AVERAGING MORE THAN 25 FEET IN THICKNESS. THERE ARE TWO (2) DISTINCT TYPES OF GLACIAL DEPOSITS PRESENT AT THE SITE. THEY ARE THE MOGADORE TILL, WHICH IS A COARSE SANDY TILL WITH MINOR AMOUNTS OF CLAY, AND KAME AND KAME TERRACE DEPOSITS WHICH CONSIST PRIMARILY OF GRAVEL AND SAND MATERIAL. IT SHOULD BE NOTED THAT PORTIONS OF THE AREA ALONG THE LENGTH OF THE ROADWAY ARE "MADE LAND" WHICH ARE AREAS WHERE THE ORIGINAL SURFACE HAS BEEN COMPLETELY MODIFIED BY MAN.

BEDROCK AT THE PROJECT SITE CONSISTS OF THE PENNSYLVANIAN AGED SHARON CONGLOMERATE OF THE POTTSVILLE FORMATION IN THE HIGHLANDS, AND THE LOWER PORTIONS ARE UNDERLAIN BY SHALES AND SANDSTONES OF THE LOGAN FORMATION WHICH IS MISSISSIPPIAN IN AGE.

EXPLORATION

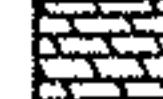
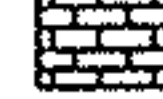
THE SUBSURFACE EXPLORATION PROGRAM CONSISTED OF ADVANCING FOUR (4) DRIVE SAMPLE BORINGS WITH A CME-55 TRUCK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS, PERFORMED DURING AUGUST, 1987 (B-28) AND AUGUST, 1988 (RW-102, RW-103, AND RW-104).

INVESTIGATIONAL FINDINGS

THE TEST BORINGS DISCLOSED LAYERS OF LOOSE TO DENSE SAND AND GRAVEL DEPOSITS, CLASSIFIED AS A-1-A, A-1-B, A-3, AND A-3A. THESE SOIL GROUPS EXTENDED TO THE TERMINATION ELEVATION OF THE BORINGS WHICH RANGES FROM 995 TO 956. IN ADDITION TO THE SAND AND GRAVEL DEPOSITS, A RELATIVELY THIN LAYER OF SILT AND CLAY WAS ENCOUNTERED AT TEST LOCATION B-28.

FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THESE PLAN SHEETS.

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 14
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

AKRON, OHIO 44321

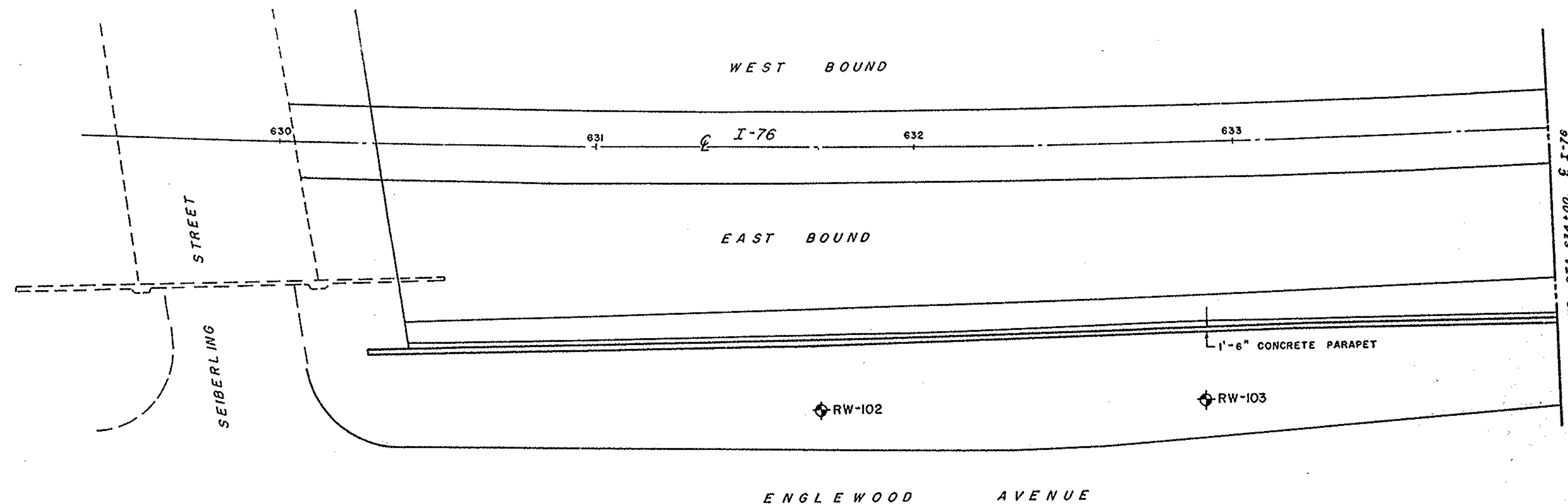
SUM-76-11.57

FHWA REGION	STATE	PROJECT

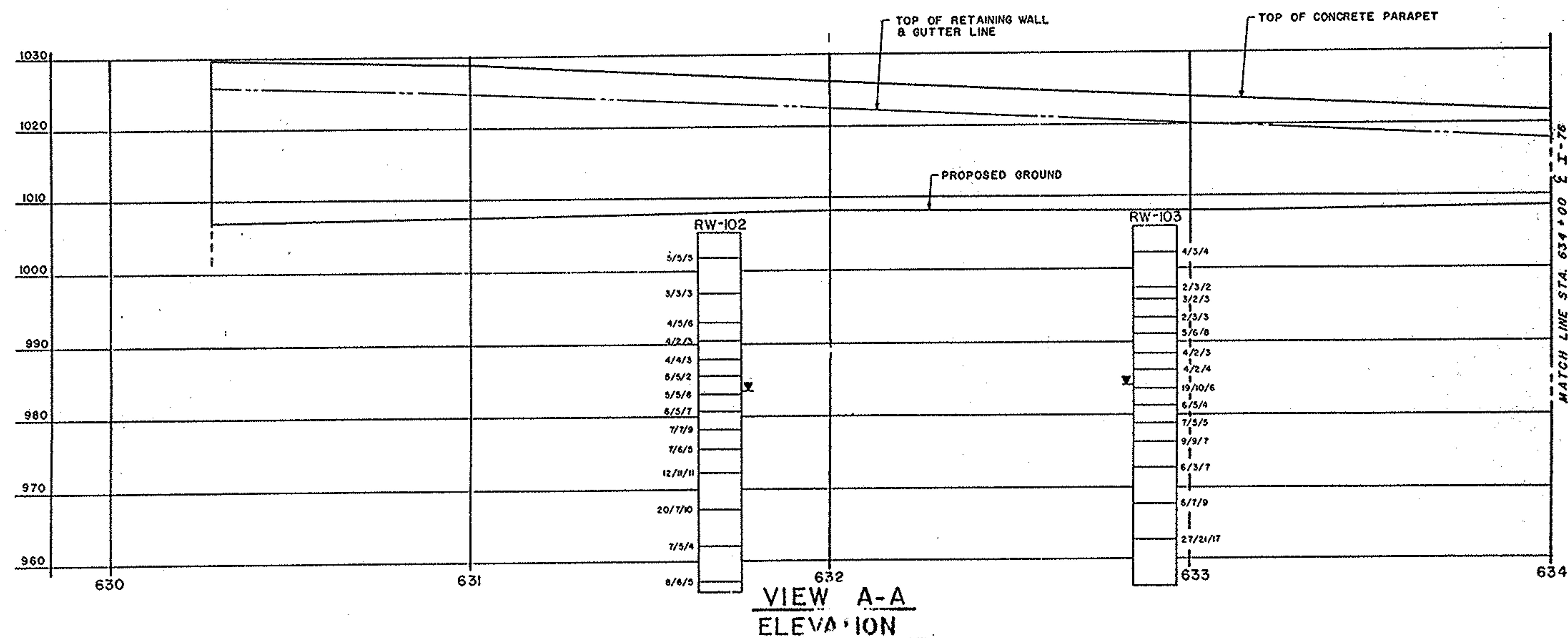
61
104

2
5

SCALE 1" = 20'



GENERAL PLAN



SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 14
AKRON, OHIO



R & R International, Inc.

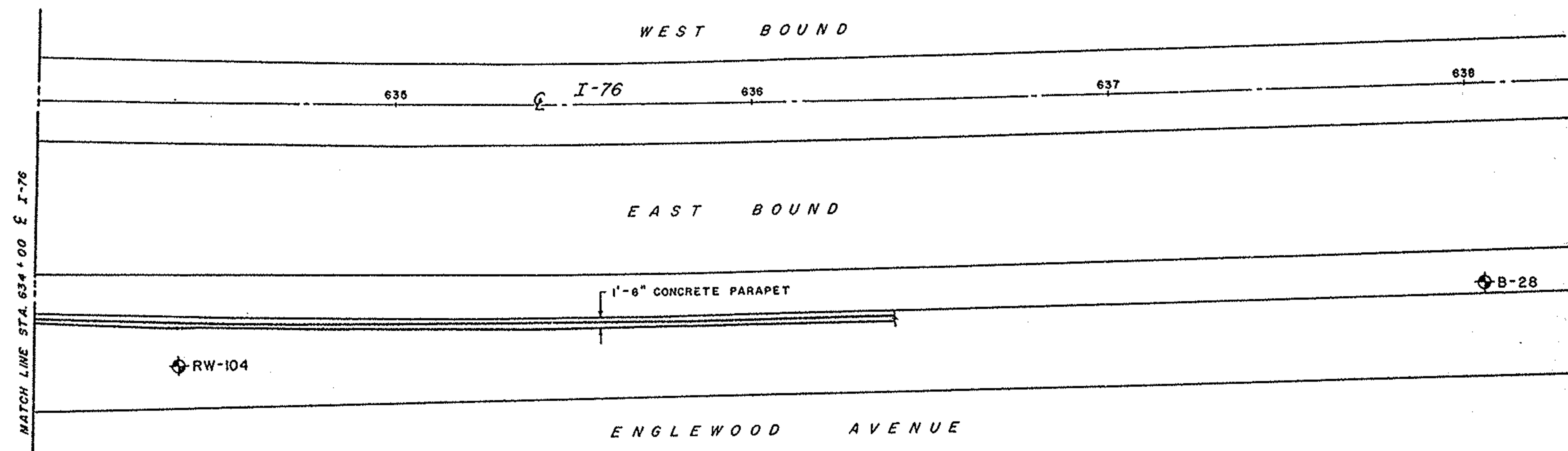
GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

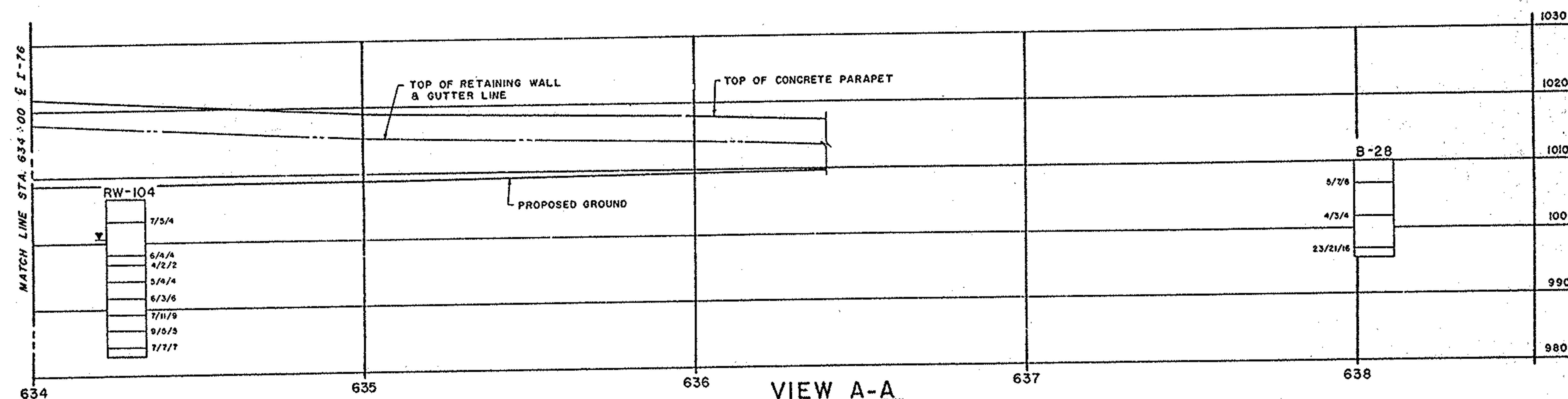
FHWA REGION	STATE	PROJECT

62
104

3
5



GENERAL PLAN



VIEW A-A ELEVATION

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 14
AKRON, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

LOG OF BORING

Date Started 8-22-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 983.5
Date Completed 8-22-88 Casing Length -- Dia. ---
Boring No. RW-102 Station & Offset Sta. 631 + 70 83' RT Surface Elev. 1005.5

Boring No.					DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.				% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1005.5	0				ROADBASE MATERIAL													
1004.3																		
	5-5-5	1.0			Medium dense, brown <u>GRAVEL</u> , little sand, trace silt, moist.	1	SS	66.1	14.8	8.7	*	10.4	--	--	--	10.6	A-1-a	
998.5																		
	3-3-3	1.0			Loose to medium dense, brown <u>SAND</u> , trace silt, trace gravel, moist.	2	SS											
	10																	
991.0	4-5-6	1.0				3	SS	0.2	26.8	61.5	*	11.5	--	--	--	6.5	A-3a	
	15																	
	4-2-3	1.5				4	SS	34.0	42.7	19.4	*	3.9	--	--	--	16.6	A-1-b	
	4-4-3	1.5			Loose, brown <u>SAND AND GRAVEL</u> , trace silt, moist.	5	SS											
	20																	
	5-5-2	1.5				6	SS											
983.5	5-5-6	1.5			Medium dense, brown <u>SAND</u> , trace silt, trace gravel, moist.	7	SS	0.9	26.0	69.0	*	4.1	--	--	--	19.1	A-3	
981.5																		
	25					8	SS											
	7-7-9	1.5				9	SS											
	30																	
	7-6-5	1.5				10	SS	17.3	44.3	34.5	*	3.9	--	--	--	16.8	A-1-b	
	12-11-11	1.5				11	SS											
	35																	
					Medium dense, brown <u>SAND AND GRAVEL</u> , trace silt, moist to wet.													
	20-7-10	1.5				12	SS											
	40																	
	20-7-10	1.5				13	SS											
	45																	
	8-6-5	1.5				14	SS	25.1	60.4	13.1	*	1.4	--	--	--	26.6	A-1-b	
955.5	50				TERMINATION DEPTH 50.0 FEET													

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 8-22-88 Sampler Type Split Spoon Dia. 2.0 Water Elev. 984.1
Date Completed 8-22-88 Casing Length -- Dia. ---
Boring No. RW-103 Station & Offset Sta. 632 + 91 81' RT Surface Elev. 1006.1

Boring No.																		
ELEV.	DEPTH	STD. PEN. (N)	REC. FT.	LOSS FT.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1006.1	0				ROADBASE MATERIAL													
1004.9																		
	4-3-4	1.0				1	SS											
	5																	
	2-3-2	1.0				2	SS	48.9	36.8	8.3	*	6.0	--	--	--	23.8	A-1-b	
	10					3	SS	55.4	32.3	7.3	*	5.0	--	--	--	5.7	A-1-a	
	3-2-3	1.0																
	2-3-3	1.5			Loose, brown SAND AND GRAVEL, trace silt, moist to wet.	4	SS											
	15					5	SS											
	5-6-8	1.5																
	4-2-3	1.0				6	SS	66.2	13.0	9.7	*	11.1	--	--	--	12.9	A-1-a	
	20					7	SS											
	4-2-4	0.3																
984.1	19-10-6	1.5			Medium dense, brown SAND AND GRAVEL, some silt, wet.	8	SS	35.3	14.0	16.2	*	34.5	--	--	--	12.0	A-2-4	
981.1	25					9	SS											
	6-5-4	1.5																
	7-5-5	1.5				10	SS											
	30					11	SS	0.1	48.2	49.7	*	2.0	--	--	--	14.5	A-3	
	9-9-7	1.0																
	6-3-7	1.5				12	SS											
	35				Medium dense to dense, brown SAND, trace silt, trace to little gravel, wet.													
	6-7-9	1.5				13	SS											
	40																	
	27-21-17	1.5				14	SS	23.1	25.2	40.9	*	10.8	--	--	--	19.3	A-3a	
	45				NOTE: Hydrostatic conditions encountered at approximately 43.0 feet.													
956.1	50				TERMINATION DEPTH 50.0 FEET													
										</								

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-11.57
AKRON EAST EXPRESSWAY-RETAINING WALL NO. 1A
AKRON, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS • GEOLOGISTS

SOIL INVESTIGATION

F HWA REGION	STATE	PROJECT
5	OHIO	

65
104

SUMMIT COUNTY
SUM-76-11.57

1
4

1. Introduction

It is proposed to widen the existing I-76 bridge over Arlington Street in Akron, Ohio. The results and recommendations from a geotechnical exploration program for the bridge are presented in this report. Soil and bedrock were identified by a field exploration program and selected samples were tested in the laboratory. Field and laboratory test results were interpreted, resulting in recommendations for foundation design.

2. Geology and Observations of the Project Site

The site is located in a glaciated area of the Allegheny Plateau. Glacial deposits are quite variable in composition and thickness in this area. The soils in the project area appear to be part of a terrace and outwash deposits. Based upon published information, the bedrock deposits in the east Akron area are of Pennsylvanian age and consist predominantly sandstone, shale, limestone and coal. The bedrock encountered at the site is part of the base of the Sharon Conglomerate of Pennsylvanian age.

The existing I-76 bridge is elevated over Arlington Street. This portion of I-76 is constructed as an embankment and is generally higher in elevation than the original ground level. The existing bridge is single span supported on abutment walls. Review of construction drawings for the bridge dated August, 1954 indicates that the abutment wall foundations are bearing in rock at elevations which range from 1062.0 to 1053.5 feet. The wing walls are stepped upward maintaining frost depth protection beneath them. The structural loads beneath the walls are transmitted down to bedrock by piles.

Ground surface elevations at the soil boring locations were estimated to be near elevation 1071. The surface elevation of the bridge deck and embankment is near 1092 feet.

3. Exploration

Subsurface conditions were studied by an exploration program consisting of 8 borings during the period of April 7th through the 8th, 1986. Approximate test locations are shown on the Boring Location Plan.

The boring depths ranged from 13.7 to 29.5 feet. All of the borings were advanced by means of a truck/trailer mounted, mechanical rotary type drill rig with soil augers. The borings were terminated in bedrock. Half of the borings were cored using an NX size, double-tube barrel with a diamond bit. Surface elevations at the boring locations were estimated from existing prints of the project area provided to us by John David Jones and Associates.

The borings were drilled in accordance with standard ASTM and ODOT specifications. A two inch O.D. split-spoon sampler was driven to obtain samples at specified intervals. The number of blows of a 140 lb. hammer dropping 30 inches was recorded for each of three, six inch penetration intervals at each sample location.

Due to shallow bedrock, fill soils, and hard natural soils, three inch O.D. thin-wall Shelby tube samples were not obtained.

Groundwater depths were observed and recorded upon encounter and at the completion of each boring. Due to the introduction of water in the coring process, no groundwater measurements were made after rock was cored. Borings in the roadway were backfilled at the completion of field testing.

The results of the field exploration program are presented on the boring logs.

4. Laboratory Testing

Samples were delivered to the laboratory, where they were examined and classified by a geotechnical engineer following ODOT specifications. As a result of sample sizes, some of the similar samples of soil were combined for laboratory tests. Soil and bedrock samples were then tested according to the following schedule:

TEST	SAMPLES
Water Content	A total of 13 split-spoon samples from selected locations
Grain size analysis	Composite samples from selected borings were tested.
Uniaxial Compression of Rock Cores	A total of 8 samples were tested representing a range of rock quality.

Water content and grain size analysis tests are indicators of soil consistency, strength, and compressibility. Uniaxial compression tests on rock cores provide an estimate of the degree of the rock's cementation and resistance to penetration during construction. The laboratory test results are presented on the appropriate boring log.

5. Exploration Findings

The subsurface profile at each boring location is presented on the boring logs. A generalized subsurface profile for the project site consists of fill overlying deposits of sand and silt followed by decomposed bedrock and sound bedrock.

Fill was encountered at most of the boring locations with the exception of B-28. Its composition varied considerably with no distinct pattern to its deposition. It appears however, that the majority of fill may be backfill for utilities. The thickness of the fill deposits ranged from 1 to 5 feet with an average of depth of 2-1/2 feet. The fill consisted of pavement sections, topsoil, sands, clays, and cinders.

Deposits of sandy silt and fine grained sand having varying amounts of gravel were encountered beneath the fill. The relative density of the soils ranged from very loose to medium dense. The overall thickness of these stratum ranged from 3-1/2 to 10 feet with an average of 6-1/2 feet.

Decomposed bedrock was encountered at a depth of 8 to 12 feet. The average thickness of this zone was approximately 6 feet. The soil consisted of medium dense to very dense, brown fine grained sand having varying amounts of silt and gravel/rock fragments.

Sandstone bedrock was encountered at depths which ranged from 11-1/2 to 18 feet. The upper zones of the bedrock exhibited varying stages of weathering and soundness. Generally the sandstone quality improves with depth. Some seams of clay and shale were noted in the core samples.

Ground water was encountered in borings B-28 at 17-1/2 feet, B-29 at 4 feet, B-30 at 14-1/2 feet, B-34 at 34 feet and B-35 at 13 feet. Coring water was lost in B-33 at a depth of approximately 22-1/2 feet.

Subsurface conditions at other times and locations on the site may differ from those found at the test locations. If different conditions are encountered during construction, it is necessary that the project geotechnical engineer be contacted so that design recommendations may be reviewed.

6. Proposed Project

From information provided by the project engineer, we understand that it is proposed to widen the existing Arlington Street bridge on both its north and south sides. This will involve constructing new abutments to support additional the bridge spans. We understand that it appears as if the existing abutment foundations are bearing slightly into the decomposed rock surface at elevations between 1058 and 1062 feet. Maximum toe pressures are less than 10,000 psf.

The above information is an important part of our engineering interpretation of the site studied. If this understanding is not correct or if project conditions change, the project geotechnical engineer must review this report relative to the recommendations presented.

7. Engineering Interpretation

The subsurface data obtained has been interpreted relative to the proposed construction. Several foundation alternatives have been considered for this project. The alternative considered most viable based upon the subsurface conditions encountered takes advantage of the relatively shallow depth to bedrock.

The foundation alternative selected would support the proposed abutment foundations on the decomposed rock using conventional spread footings. The allowable bearing capacity for foundations bearing on the decomposed rock is variable depending on their location at the site. Calculated safe allowable bearing capacities ranged from 6 to 30 ksf. Because of this variability, the foundation base at the abutments should be explored at the time of construction to determine if the excavation has been made to a sufficient depth for the final recommended bearing capacity. The following table is a summary of bearing and bedrock elevations:

BEARING & BEDROCK SUMMARY			
BORING LOCATION	EXISTING BEARING ELEVATION	TOP OF ROCK DECOMPOSED ELEVATION	TOP OF ROCK SOUND ELEVATION
28	1058	1063	1060
29	"	1063	1057
30	1055	1060	1055
31	"	1060	1053
32	1053	1059	1056
33	"	1063	1053
34	1060	1064	1055
35	"	1063	1058

IT APPEARS THAT THE FOUNDATIONS FOR THE BRIDGE ABUTMENTS ARE FOUNDED ON THE SOUNDER SANDSTONE BEDROCK.

Excavations made to sounder rock may require temporary shoring to help limit the excavation size and provide for safety of personnel.

SOIL INVESTIGATION

FEDERAL REGION	STATE	PROJECT
5	OHIO	

66
104

SUMMIT COUNTY
SUM-76-11.57

2
4

8. Recommendations

A. Spread Foundations

Spread footings can be used to support the abutment and wing walls. Footings should bear on or in very dense decomposed sandstone. Foundations should be proportioned for a net allowable bearing pressure of 6 ksf when bearing in the decomposed rock and up to 30 ksf when bearing on the surface of sound bedrock.

For the purpose of lateral resistance to sliding, a friction coefficient of 0.33 may be used at the interface of the foundation and decomposed bedrock. If a key way is required to help resist lateral loads, it should be designed using a lateral resistance of 3 ksf.

All foundations should bear at least 3.5 feet below final grade for frost protection. Footings should be excavated to a level bearing surface. Bearing surfaces should be cleaned of mud and loose cuttings, and should be protected against water accumulation from rainfall, surface drainage, or excavation sidewall seepage. Bearing surfaces should be protected from freezing if there is a delay in placing concrete during cold weather. All bearing surfaces should be observed by the geotechnical engineer or a soils technician before concrete placement.

B. Abutment and Retaining Walls

Retaining walls should be backfilled with clean, free-draining, coarse grained granular material. Drainage should be provided behind to wall so that hydrostatic pressures do not build up. Backfill should be spread in maximum 10 inch loose thickness lifts and compacted to 98% of Standard Proctor maximum dry density. Care should be taken when selecting the size of compaction equipment used so that retaining and abutment walls are not over-stressed during fill placement.

Because new retaining and abutment walls are being added onto existing structures, it is recommended that a higher than normal equivalent fluid pressure be assumed in the design. Walls should be designed for an equivalent fluid density of 50 pcf, assuming drained, granular backfill. Walls subjected to traffic surcharge may be designed by increasing the height of the wall, for computational purposes, by 2 ft.

C. Construction Observation and Testing

A soils technician working under the direct supervision of the project geotechnical engineer should be present during spread foundation construction, to verify compliance with the recommendations contained in this report.

The technician's duties would include, but not be limited to:

1. Identifying proper quality bearing materials.
2. Observing the foundation bearing surface and bearing depth, and verifying that excess water, mud, and loose soil has been removed.
3. Checking the placement of reinforcement.
4. Testing and sampling concrete for compliance with the project specifications.

D. Remarks

The recommendations and observations contained in this report are our opinions based upon data which are assumed to be representative of the site studied. Variations in soils may occur below or between the locations tested. These opinions were arrived at in accordance with currently accepted engineering practices at this time and location.

SOIL INVESTIGATION

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

SUMMIT COUNTY
SUM-76-11.5767
1043
4

LOG OF BORING
Date Started 4-8-86 Sampler: Type SS Dia. 2" OD Water Elev. ---
Date Completed 4-8-86 Casing: Length HSA Dia. 3 1/4" ID

Project Identification: SUM 76-1231
ARLINGTON STREET BRIDGE
PROPOSED WIDENING

Boring No. 28 Station & Offset SEE PRINT Surface Elev. 1071±

Elev	Depth	Sid. Pen. (in)	Description	Field No	Lab Nos. So.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	Pl.	W.C.	SMTL Class
1071±	0													
	2		Medium dense, brown sandy SILT with a trace of gravel.	1	*	10	9	25	26	30	24	5	13	A-4a
	4	14												
	6			2	**	7	8	26	29	30	24	5	17	A-4a
	8	12												
	10		Medium dense, brown fine grained SAND with some silt and a little gravel/sandstone fragments (Decomposed SANDSTONE)	3	***	14	7	57	7	15		NP		A-3
	12		Soft to hard, brown fined SANDSTONE.											
	14	70/ 0.5'		4										
	16													
	18	100/ 0.2'		5										
	20													
	22		Boring stopped at 19.2 ft.											
	24		Water encountered at 17 1/2 ft.											
	26		No water on completion.											
	28		* Composite sample B-28, B-29, B-30, B-32 & B-34											
	30		** Composite sample B-28, B-30 & B-35											
	32		*** Composite sample B-28, B-29, B-31 & B-35											
	34													
	36													

LOG OF BORING
Date Started 4-8-86 Sampler: Type SS Dia. 2" OD Water Elev. ---
Date Completed 4-8-86 Casing: Length HSA Dia. 3 1/4" ID

Project Identification: SUM 76-1231
ARLINGTON STREET BRIDGE
PROPOSED WIDENING

Boring No. 29 Station & Offset SEE PRINT Surface Elev. 1071±

Elev	Depth	Sid. Pen. (in)	Description	Field No	Lab Nos. So.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	Pl.	W.C.	SMTL Class
1071±	0		FILL, TOPSOIL and SAND.											
	2													
	4		Very loose, brown sandy SILT with a trace of gravel	1	*	10	9	25	26	30	24	5	13	A-4a
	6													
	8		Very loose, brown silty SAND with a little gravel.	2										
	10		Very dense, brown fine grained SAND with some silt and a little gravel/sandstone fragment (Decomposed SANDSTONE)	3	**	14	7	57	7	15		NP		A-3
	12													
	14	100/ 0.5'		4										
	16		Soft to hard, brown and gray, fine grained SANDSTONE well cemented. Weathered and broken in upper 3 feet. Brown stains in joints. Seams of soft gray SHALE in lower 5 feet of core.											
	18			5	SA									UNIAXIAL COMPRESSIVE STRENGTH, 3750 PSI.
	20				SB									UNIAXIAL COMPRESSIVE STRENGTH, 5470 PSI.
	22													
	24													
	26		Boring stopped at 24.0 ft.											
	28		Water encountered at 4 ft.											
	30		No water on completion.											
	32		* Composite sample B-28, B-29, B-30 & B-34.											
	34		** Composite sample B-28, B-29, B-31 & B-35.											
	36													

LOG OF BORING
Date Started 4-7-86 Sampler: Type SS Dia. 2" OD Water Elev. ---
Date Completed 4-7-86 Casing: Length HSA Dia. 3 1/4" ID

Project Identification: SUM 76-1231
ARLINGTON STREET BRIDGE
PROPOSED WIDENING

Boring No. 30 Station & Offset SEE PRINT Surface Elev. 1071±

Elev	Depth	Sid. Pen. (in)	Description	Field No	Lab Nos. So.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	Pl.	W.C.	SMTL Class
1071±	0		FILL, TOPSOIL and black SAND.											
	2													
	4		Loose, brown sandy SILT with a trace of gravel.	1	*	10	9	25	26	30	24	5	17	A-4a
	6													
	8		Medium dense, brown sandy SILT with a trace of gravel.	2	**	7	8	26	29	30	24	5	17	A-4a
	10													
	12			3	***	11	11	34	17	27	22	5	12	A-4a
	14													
	16		Very dense, brown fine grained SAND with some silt and a little gravel/rock frag. (Decomposed SANDSTONE)	4										A-3
	18		Soft to hard, brown SANDSTONE.	5										
	20	100/ 0.5'												
	22		Boring stopped at 19.0 ft.											
	24		Water encountered at 14 1/2 ft.											
	26		No water on completion.											
	28		* Composite sample B-28, 29, 30, 32 & 34.											
	30		** Composite sample B-28, 30 & 35.											
	32		*** Composite sample B-31, 30 & 32.											
	34													
	36													

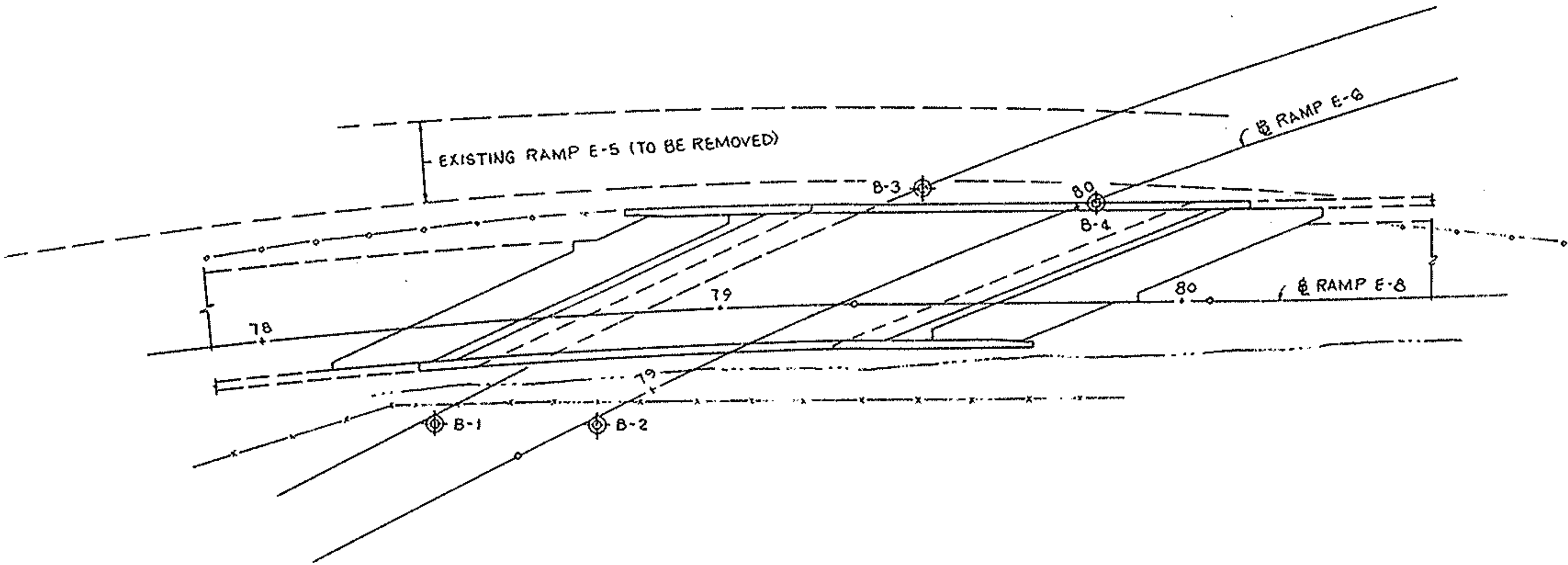
LOG OF BORING
Date Started 4-7-86 Sampler: Type SS Dia. 2" OD Water Elev. ---
Date Completed 4-7-86 Casing: Length HSA Dia. 3 1/4" ID

Project Identification: SUM 76-1231
ARLINGTON STREET BRIDGE

Boring No. 31 Station & Offset SEE PRINT Surface Elev. 1071±

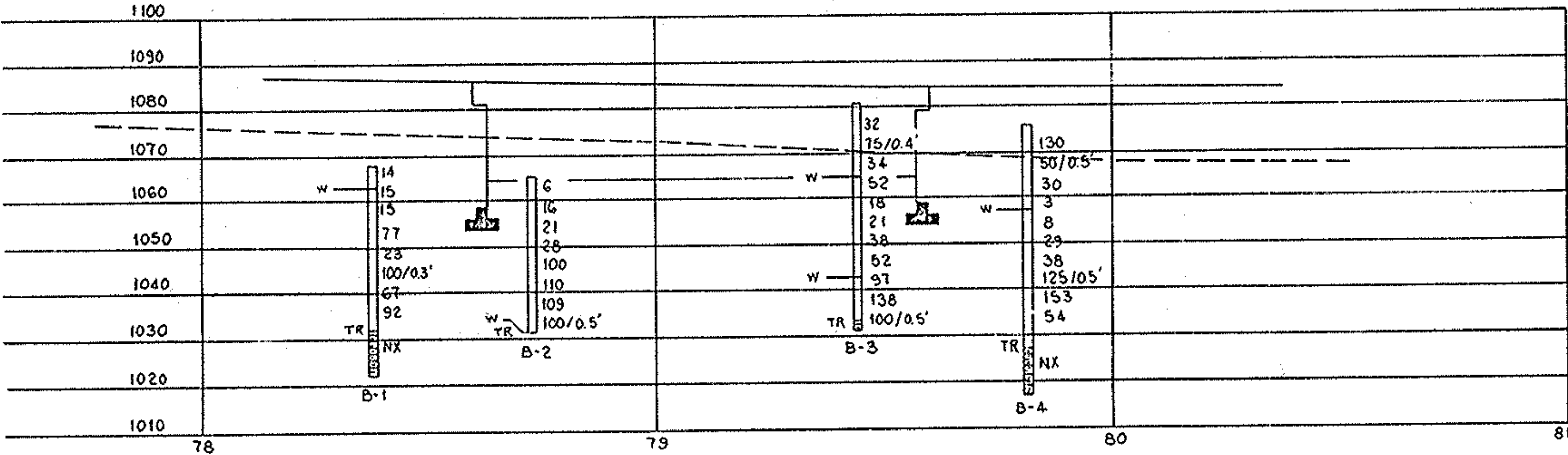
Elev	Depth	Sid. Pen. (in)	Description	Field No	Lab Nos. So.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	Pl.	W.C.	SMTL Class
1071±	0		ASPHALT (0.25') over CONCRETE (0.7').											
	2													
	4		FILL, A mixture of SAND, Concrete and Brick.											
	6													
	8		Medium dense, brown sandy SILT with a little gravel.	1										
	10													
	12			2	*	11	11	34	17	27	22	5	13	A-4a
	14													
	16		Medium dense, brown fine grained silty SAND with a little gravel/rock fragments. (Decomposed SANDSTONE)	3										A-3
	18													
	20		Firm, rusty brown SANDSTONE.	4										
	22													
	24		Hard, gray fine grained SANDSTONE, closely jointed, thinly bedded. Brown clay seam at 20.0 to 20.1 ft. Thin shale interbeds between 21 and 29 ft.		5A									UNIAXIAL COMPRESSIVE STRENGTH, 2900 PSI.
	26				5B									UNIAXIAL COMPRESSIVE STRENGTH, 5900 PSI.
	28													
	30													
	32		Boring stopped at 29.5 ft.											
	34		No water encountered.											
	36		* Composite sample B-31, 30 & 32.											

STRUCTURE FOUNDATION INVESTIGATION



LEGEND

- AUGER BORING LOCATION - PLAN VIEW
- DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW
- TR TOP OF ROCK
- CAPPED PILE FOOTING
- SPREAD FOOTING
- PILE FOOTING
- DRILLED SHAFT
- FIGURES BESIDE THE BORING LOG INDICATE THE BLOW COUNT (N) OF THE STANDARD PENETRATION TEST
- W INDICATES FREE WATER ELEVATION



JOHN DAVID JONES & ASSOC., INC.

100 EAST 100TH STREET
CUYAHOGA FALLS, OHIO 44221

ARCHITECTS

PLANNERS

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. SUM-76-1235
RAMP E-8 OVER RAMP E-6

SUMMIT COUNTY STA. 78+63.75
TO STA. 79+58.98

PLAN AND PROFILE

DRAWN BY
JRS

CHECKED BY
JRO

REVIEWED BY
PAK

DATE
6-2-87

STRUCTURE FOUNDATION INVESTIGATION

STATE	SUMMIT COUNTY
PROJECT	SUM-76-11.57

70
104

2
5

1. Introduction

It is proposed to relocate I-76 Ramp E. 8 south while constructing Ramp E.6 in Akron, Ohio. Ramp E.8 will be constructed over Ramp E.6 resulting in a new bridge with concrete abutments. The results and recommendations from a geotechnical exploration program for the bridge are presented in this report. Soil and bedrock were identified by a field exploration program and selected samples were tested in the laboratory. Field and laboratory test results were interpreted, resulting in recommendations for foundation design.

2. Geology and Observations of the Project Site

The site is located in a glaciated area of the Allegheny Plateau. Glacial deposits are quite variable in composition and thickness in this area. The soils in the project area appear to be part of a ground moraine. Based upon published information, the bedrock deposits in the east Akron area are of Pennsylvanian age and consist predominantly sandstone, shale, limestone and coal. The bedrock encountered at the site is part of the base of the Sharon Conglomerate of Pennsylvanian age.

The portion of I-76 in the area of existing ramp E.8 is constructed as an embankment and is generally higher in elevation than the original ground level. Ramp E.8 exits the elevated portion of I-76 and ramps down to Chittenden Street. The existing ramp is constructed on compacted fill.

3. Exploration

Subsurface conditions were studied by an exploration program consisting of 4 borings during the period of February 6th through the 11th, 1987. Approximate test locations are shown on the Boring Location Plan.

The boring depths ranged from 34 to 58-1/2 feet. All of the borings were advanced by means of a truck mounted, mechanical rotary type drill rig with soil augers. The borings were terminated in bedrock. Two of the borings were cored using an NX size, double-tube barrel with a diamond bit.

Ground surface elevations at the soil boring locations were determined by differential leveling methods by others and given to us by John David Jones and Associates. The boring ground surface elevations are presented on the attached boring logs.

The borings were drilled in accordance with standard ASTM and ODOT specifications. A two inch O.D. split-spoon sampler was driven to obtain samples at specified intervals. The number of blows of a 140 lb. hammer dropping 30 inches was recorded for each of three, six inch penetration intervals at each sample location.

Due to bedrock, fill soils, and hard natural soils, three inch O.D. thin-wall Shelby tube samples were not obtained.

Groundwater depths were observed and recorded upon encounter and at the completion of each boring. Due to the introduction of water in the coring process, no groundwater measurements were made after rock was cored. All boring were backfilled at the completion of field testing prohibiting long term observations of ground water levels.

The results of the field exploration program are presented on the boring logs.

4. Laboratory Testing

Samples were delivered to the laboratory, where they were examined and classified by a geotechnical engineer following ODOT specifications. As a result of sample sizes, some of the similar samples of soil were combined for laboratory tests. Soil and bedrock samples were then tested according to the following schedule:

TEST	SAMPLES
Water Content	A total of 17 split-spoon samples from selected locations
Grain size analysis	Composite samples from selected borings were tested.
Uniaxial Compression of Rock Cores	A total of 4 samples were tested representing a range of rock quality.

Water content and grain size analysis tests are indicators of soil consistency, strength, and compressibility. Uniaxial compression tests on rock cores provide an estimate of the degree of the rock's cementation and resistance to penetration during construction. The laboratory test results are presented on the appropriate boring log.

5. Exploration Findings

The subsurface profile at each boring location is presented on the boring logs. A generalized subsurface profile for the project site consists of fill overlying glacial till deposits of silt, followed by sand, weathered bedrock, and finally, sound bedrock.

Fill was encountered at all of the boring locations. Its composition and depth varied between boring locations. The fill encountered in borings B-1 and 2 was relatively shallow, 6 to 4 feet respectively, and appears to be the result of backfilling old basements or previous construction. The fill encountered in borings B-3 and 4 is the result of construction the existing ramp from I-76 down to Chittenden Street. The depth of fill in this area ranged from approximately 20 to 22 feet. It consisted predominantly of crushed sandstone mixed with clayey silt. The relative density of the fill at B-3 and 4 was compact.

Glacial till was encountered beneath the fill at all boring locations and consisted of very stiff to hard, sandy, clayey and gravelly silt. Cobble and boulder size rock was encountered through the soil mass in this area. The till was encountered at elevations which ranged from 1062 At B-1 to 1056 at B-4 and extended to elevations which ranged from 1032 at B-2 to 1049 at B-4.

Dense to very dense silty sand deposits were encountered beneath the glacial till and over bedrock. These deposits appear to be decomposed sandstone and shale. Cobble and boulder size pieces of sounder rock were detected in the soil mass of the deposits.

Sandstone bedrock was encountered at depths which ranged from approximately 33-1/2 feet at B-1 to 48-1/2 feet at B-4. These depth correspond to elevations of 1034 to 1027 respectively. The upper zone of bedrock exhibited varying degrees of weathering and soundness. Generally the sandstone quality improves with depth. Some seams of clay and shale were noted in the core samples.

Ground water was encountered in borings B-1 at 5 feet, B-2 at 33-1/2 feet, B-3 at 8 feet, and B-4 at 18-1/2 feet.

Subsurface conditions at other times and locations on the site may differ from those found at the test locations. If different conditions are encountered during construction, it is necessary that the project geotechnical engineer be contacted so that design recommendations may be reviewed.

6. Proposed Project

From information provided by the project engineer, we understand that it is proposed to reconstruct Ramp E.8 over a new ramp E.6. This will involve constructing two abutments to support a bridge span. We understand that bridge abutment foundations will be constructed near elevation 1058.

The above information is an important part of our engineering interpretation of the site studied. If this understanding is not correct or if project conditions change, the project geotechnical engineer must review this report relative to the recommendations presented.

7. Engineering Interpretation

The subsurface data obtained has been interpreted relative to the proposed construction. Several foundation alternatives have been considered for this project. It is our opinion that two of the alternatives considered are most viable based upon the subsurface conditions encountered. One alternative takes advantage of the shallower glacial till deposits while the other utilizes the higher bearing capacity of the bedrock.

The first foundation alternative would be to support the proposed abutment foundations on very stiff to hard glacial till consisting of silt with varying amounts of clay, sand, gravel, cobbles and boulders. The proposed bearing elevation of the abutment foundations is approximately 1058. The anticipated elevation of competent glacial till is between 1053 and 1058. Additional excavation to elevation 1053 would be required at locations B-1, 2 and 4. The allowable bearing capacity for foundations bearing in the glacial till would be 6,000 psf.

The second alternative for supporting the proposed abutment foundations is to use straight shaft drilled piers. The piers could utilize the higher bearing capacity of the more competent sandstone encountered at greater depth. Calculated allowable bearing capacities for the bedrock was 50 ksf. Drilled piers could also be designed to resist lateral loads associated with abutments by utilizing higher resistance capacities of the hard glacial till, and decomposed and sound bedrock. The major advantages of using drilled piers are:

- a. The utilization of higher bearing and lateral resistance capacities of the bedrock.
- b. Sidewall shear between the bedrock and pier concrete could be utilized resulting in smaller diameter piers in confined construction areas.
- c. Excavations through existing overburden will be smaller than for conventional foundations. The result is the potential for lower cost using this method than for spread footing construction. A more detailed cost analysis should be made to verify this.

The disadvantages of using this method are as follows:

- a. There could be difficulty of advancing drilled shafts through the cobble and boulder size rock encountered in the glacial till, decomposed sandstone and poor quality broken sandstone to reach intact rock. Soft clay or shale seams may also exist in the bedrock requiring that probe holes be drilled in the bottom of the piers.
- b. There exists a potential for ground water seepage into the drilled pier shafts during construction. The contractor should be aware of this and be equipped to handle groundwater if encountered.

8. Recommendations

Recommendations will be presented for foundation construction using each of the alternatives discussed. All foundations should bear at least 3.5 feet below final grade for frost protection.

A. Spread Foundations

Spread footings can be used to support the abutment and wing walls. Footings should bear on or in very stiff to hard glacial till. Foundations should be proportioned for a net allowable bearing pressure of 6 ksf when bearing at elevation 1053. For the purpose of lateral resistance to sliding, a friction coefficient of 0.33 may be used at the interface of the foundation and very stiff to hard glacial till. If a key way is required to help resist lateral loads, it should be designed using a lateral resistance of 3 ksf.

Footings should be excavated to a level bearing surface. Bearing surfaces should be cleaned of mud and loose cuttings, and should be protected against water accumulation from rainfall, surface drainage, or excavation sidewall seepage. Bearing surfaces should be protected from freezing if there is a delay in placing concrete during cold weather. All bearing surfaces should be observed by the geotechnical engineer or a soils technician before concrete placement.

B. Drilled Pier Foundations

All straight-shaft drilled pier foundations should be drilled to bear on hard intact sandstone. Piers should be proportioned for a maximum end bearing pressure of 50 ksf. Development of side wall shear on the pier may be calculated using 40 psi if socket lengths equal to or greater than the shaft diameter are used. The lateral load resistance for the shafts may be computed using 15 ksf in the sounder bedrock, 3 ksf in the very stiff to hard glacial till, and 4 ksf in the dense decomposed sandstone.

STRUCTURE FOUNDATION INVESTIGATION

1 - 1/2 A	STATE	1 - 1/2 C	
REG.			
1	0-0		

SUMMIT COUNTY
SUM-76-11.57

71
104

3
5

C. Abutment and Retaining Walls

Retaining walls should be backfilled with clean, free-draining, coarse grained granular material. Drainage should be provided behind to wall so that hydrostatic pressures do not build up. Backfill should be spread in maximum 10 inch loose thickness lifts and compacted to 98% of Standard Proctor maximum dry density. Care should be taken when selecting the size of compaction equipment used so that retaining and abutment walls are not over stressed during fill placement.

Walls should be designed for an equivalent fluid density of 50 pcf, assuming drained, granular backfill. Walls subjected to traffic surcharge may be designed by increasing the height of the wall, for computational purposes, by 2 ft.

D. Construction Observation and Testing

A soils technician working under the direct supervision of the project geotechnical engineer should be present during spread foundation construction, to verify compliance with the recommendations contained in this report.

The technician's duties would include, but not be limited to:

1. Identifying proper quality bearing materials.
2. Observing the foundation bearing surface and bearing depth, and verifying that excess water, mud, and loose soil has been removed.
3. Checking the placement of reinforcement.
4. Testing and sampling concrete for compliance with the project specifications.

Drilled piers should be constructed using full-time geotechnical observation and testing services. The engineer/geologist's duties would include, but not be limited to:

1. Identifying proper quality bearing materials.
2. Recording diameters and depths of installed piers.
3. Verifying that bearing surfaces are adequately cleaned of water, mud, and excess loose cuttings.
4. Verifying that concrete is properly placed and temporary casing, if required, is properly withdrawn.
5. Sampling plastic concrete to verify that it attains design strength.

E. Remarks

The recommendations and observations contained in this report are professional estimates based upon data which are assumed to be representative of the site studied. Variations in soils may occur below or between the locations tested. These recommendations were arrived at in accordance with currently accepted engineering practices at this time and location.

9. Signatures



John E. Dingeldein, P.E.
Project Engineer



Joseph W. Petrus, P.E.
Reviewing Engineer

Project Identification:
RAMP P.E. 8 OVER P.E. 6
I-76 SUMMIT COUNTY

Project Identification:
RAMP P.E. 8 OVER P.E. 6
I-76 SUMMIT COUNTY

[illegible]

Project Identification: RAMP P.E. 8 OVER P.E. 6
I-76 SUMMIT COUNTY

[illegible]

$\frac{5}{5}$

Project Identification:
RAMP P.E. 8 OVER P.E. 6
I-76 SUMMIT COUNTY

Project Identification: RAMP P.E. 8 OVER P.E. 6
I-76 SUMMIT COUNTY

[illegible]

Project Identification:
RAMP P.E. 8 OVER P.E. 6
I-76 SUMMIT COUNTY

[illegible]

Project Identification: _____
 RAMP P.E. 8 OVER P.E. 6
 I-76 SUMMIT COUNTY

[illegible]

Project Identification: RAMP P.E. 8 OVER P.E. 6
I-76 SUMMIT COUNTY

[illegible]

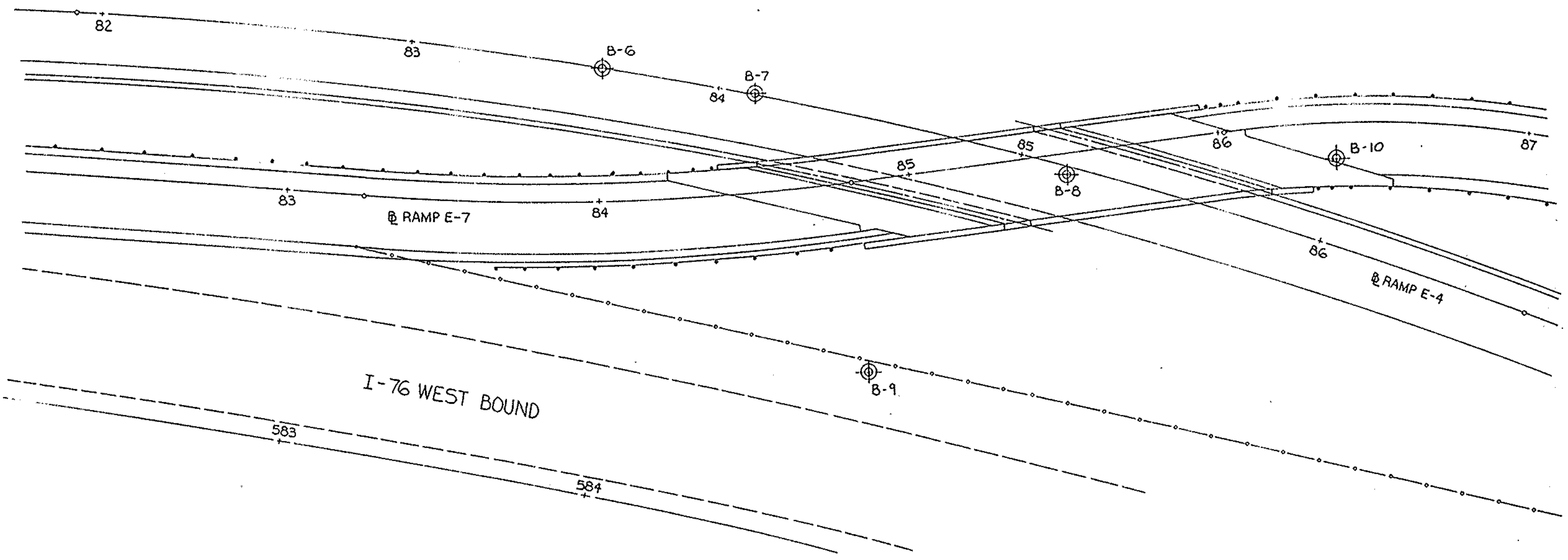
STRUCTURE FOUNDATION INVESTIGATION

74

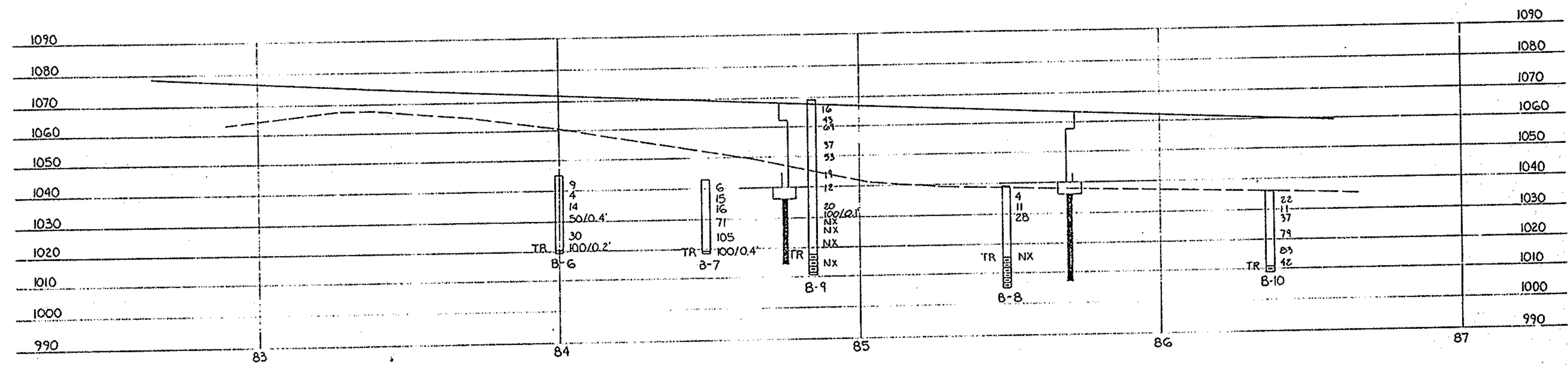
104

SUMMIT COUNTY
SUM-76-11.57

1
5



- LEGEND
- ⊕ AUGER BORING LOCATION - PLAN VIEW
 - ⊗ DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW
 - TR TOP OF ROCK
 - ▬ CAPPED PILE FOOTING
 - ▬ SPREAD FOOTING
 - ▬ PILE FOOTING
 - ▬ DRILLED SHAFT
- FIGURES BESIDE THE BORING LOG INDICATE THE BLOW COUNT (N) OF THE STANDARD PENETRATION TEST
- W — INDICATES FREE WATER ELEVATION



JCHP DAVID JENES & ASSOC, INC.
COLUMBIA FALLS, OHIO 44221
ARCHITECTS

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SUM-76-1244
RAMP E-7 OVER RAMP E-4
STA. 84+71.60
TO STA. 85+72.60
SUMMIT COUNTY

PLAN AND PROFILE

DRAWN BY J.P.M.	CHECKED BY J.R.S.	REVIEWED BY PAK	DATE 11-9-87
--------------------	----------------------	--------------------	-----------------

STRUCTURE FOUNDATION INVESTIGATION

FHWA REGION	STATE	PROJECT	
5	OHIO		

SUMMIT COUNTY
SUM - 76 - 11.57

75
104

2
5

1. Introduction

It is proposed to construct two new I-76 ramps E.7 and E.4 in Akron, Ohio. Ramp E.7 will be constructed over Ramp E.4 resulting in a new bridge with concrete abutments. The results and recommendations from a geotechnical exploration program for the bridge are presented in this report. Soil and bedrock were identified by a field exploration program and selected samples were tested in the laboratory. Field and laboratory test results were interpreted, resulting in recommendations for foundation design.

2. Geology and Observations of the Project Site

The site is located in a glaciated area of the Allegheny Plateau. Glacial deposits are quite variable in composition and thickness in this area. The soils in the project area appear to be part of a ground moraine. Based upon published information, the bedrock deposits in the east Akron area are of Pennsylvanian age and consist predominantly sandstone, shale, limestone and coal. The bedrock encountered at the site is part of the base of the Sharon Conglomerate of Pennsylvanian age.

The portion of I-76 in the area of the proposed ramps is constructed as an embankment and is generally higher in elevation than the original ground level. Ramp E.7 will enter the expressway off Third Street. Ramp E.4 will exit the expressway and ultimately connect with Arlington Street.

3. Exploration

Subsurface conditions were studied by an exploration program consisting of 4 borings during the period of February 5th through the 10th, 1987. Approximate test locations are shown on the Boring Location Plan.

The boring depths ranged from 24 to 33-1/2 feet. All of the borings were advanced by means of a truck mounted, mechanical rotary type drill rig with soil augers. The borings were terminated in bedrock. Two of the borings were cored using an NX size, double-tube barrel with a diamond bit.

Ground surface elevations at the soil boring locations were determined by differential leveling methods by others and given to us by John David Jones and Associates. The boring ground surface elevations are presented on the attached boring logs.

The borings were drilled in accordance with standard ASTM and ODOT specifications. A two inch O.D. split-spoon sampler was driven to obtain samples at specified intervals. The number of blows of a 140 lb. hammer dropping 30 inches was recorded for each of three, six inch penetration intervals at each sample location.

Due to bedrock, fill soils, and hard natural soils, three inch O.D. thin-wall Shelby tube samples were not obtained.

Groundwater depths were observed and recorded upon encounter and at the completion of each boring. Due to the introduction of water in the coring process, no groundwater measurements were made after rock was cored. All boring were backfilled at the completion of field testing prohibiting long term observations of ground water levels.

The results of the field exploration program are presented on the boring logs.

4. Laboratory Testing

Samples were delivered to the laboratory, where they were examined and classified by a geotechnical engineer following ODOT specifications. As a result of sample sizes, some of the similar samples of soil were combined for laboratory tests. Soil and bedrock samples were then tested according to the following schedule:

TEST	SAMPLES
Water Content	A total of 12 split-spoon samples from selected locations
Grain size analysis	Composite samples from selected borings were tested.
Uniaxial Compression of Rock Cores	A total of 4 samples were tested representing a range of rock quality.

Water content and grain size analysis tests are indicators of soil consistency, strength, and compressibility. Uniaxial compression tests on rock cores provide an estimate of the degree of the rock's cementation and resistance to penetration during construction. The laboratory test results are presented on the appropriate boring log.

5. Exploration Findings

The subsurface profile at each boring location is presented on the boring logs. A generalized subsurface profile for the project site consists of fill overlying glacial till deposits over bedrock.

Fill was encountered at all of the boring locations. Its composition and depth varied across the site. The fill in borings B-6, 7, and 8 varied in depth from 4 to 9 feet and appears to be backfill in old basements. The fill consisted of cinders, sand, brick, clay and topsoil. The fill noted in boring B-5 to a depth of 8 feet appears to be the result of construction the I-76 bridge over Chittenden Street.

Glacial till was encountered beneath the fill at all boring locations and consisted of medium dense to very dense sand having varying amounts of gravel, silt, clay. A second layer of till was encountered over bedrock. This soil consisted of very stiff sandy silt with varying amounts of clay, and gravel. Cobble and boulder size pieces of rock were detected in the soil mass of the deposits.

Sandstone bedrock was encountered at depths which ranged from approximately 22 to 24. These depth correspond to elevations of 1016 to 1027. The upper zone of bedrock exhibited varying degrees of weathering and soundness. Generally the sandstone quality improves with depth. Some seams of clay and shale were noted in the core samples.

Ground water was not encountered in any of the borings prior to coring or backfill.

Subsurface conditions at other times and locations on the site may differ from those found at the test locations. If different conditions are encountered during construction, it is necessary that the project geotechnical engineer be contacted so that design recommendations may be reviewed.

6. Proposed Project

From information provided by the project engineer, we understand that it is proposed to construct Ramp E.7 over ramp E.4. This will involve constructing two abutments to support a bridge span. Due to the skewed alignment of the bridge abutments the retaining walls will be relatively long. It is proposed to construct the east abutment foundation near elevation 1035. The west abutment foundation will be stepped to follow the ground contour and will range in elevation from 1045 at the west end to 1039 at the east end.

The above information is an important part of our engineering interpretation of the site studied. If this understanding is not correct or if project conditions change, the project geotechnical engineer must review this report relative to the recommendations presented.

7. Engineering Interpretation

The subsurface data obtained has been interpreted relative to the proposed construction. Several foundation alternatives have been considered for this project. It is our opinion that two of the alternatives considered are most viable based upon the subsurface conditions encountered. One alternative takes advantage of the shallower glacial till deposits while the other utilizes the higher bearing capacity of the bedrock.

The first foundation alternative would be to support the proposed abutment foundations on medium dense silty sand and/or very stiff sandy silt. These deposits have varying amounts of clay, gravel, cobbles and boulders. The proposed bearing elevation of the abutment foundations range from 1035 to 1045. The competent bearing soils, where the allowable bearing capacity would be 6,000 psf, are encountered at approximately the following elevations:

LOCATION	ELEVATION
B-5	1041
B-6	1032
B-7	1031
B-8	1031

The second alternative for supporting the proposed abutment foundations is to use straight shaft drilled piers. The piers could utilize the higher bearing capacity of the more competent sandstone encountered at greater depth. Calculated allowable bearing capacities ranged from 30 to 60 ksf. Drilled piers could also be designed to resist lateral loads associated with abutments by utilizing higher resistance capacities of the hard glacial till, and bedrock. The major advantages of using drilled piers are:

- The utilization of higher bearing and lateral resistance capacities of the bedrock.
- Sidewall shear between the bedrock and pier concrete could be utilized resulting in smaller diameter piers in confined construction areas.
- Excavations through existing overburden will be smaller than for conventional foundations. The result is the potential for lower cost using this method than for spread footing construction. A more detailed cost analysis should be made to verify this.

The disadvantages of using this method are as follows:

- There could be difficulty of advancing drilled shafts through the cobble and boulder size rock encountered in the glacial till, decomposed sandstone and poor quality broken sandstone to reach intact rock. Soft clay or shale seams may also exist in the bedrock requiring that probe holes be drilled in the bottom of the piers.
- There exists a potential for ground water seepage into the drilled pier shafts during construction. The contractor should be aware of this and be equipped to handle groundwater if encountered.

8. Recommendations

Recommendations will be presented for foundations constructed using each of the alternatives discussed. All foundations should bear at least 3.5 feet below final grade for frost protection.

A. Spread Foundations

Spread footings can be used to support the abutment and wing walls. Footings should bear on or in very dense, gray silty sand and/or very stiff, gray sandy silt till. Foundations should be proportioned for a net allowable bearing pressure of 6 ksf when bearing at the elevations listed above. For lateral resistance to sliding, a friction coefficient of 0.33 may be used at the interface of the foundation and very stiff to hard glacial till. If a key way is required to help resist lateral loads, it should be designed using a lateral resistance of 3 ksf.

Footings should be excavated to a level bearing surface. Bearing surfaces should be cleaned of mud and loose cuttings, and should be protected against water accumulation from rainfall, surface drainage, or excavation sidewall seepage. Bearing surfaces should be protected from freezing if there is a delay in placing concrete during cold weather. All bearing surfaces should be observed by the geotechnical engineer or a soils technician before concrete placement.

B. Drilled Pier Foundations

All straight-shaft drilled pier foundations should be drilled to bear on hard intact sandstone. Piers should be proportioned for an allowable bearing capacity of 50 ksf. Development of side wall shear on the pier may be calculated using 40 psi if socket lengths equal to or greater than the shaft diameter are used. The lateral load resistance for the shafts may be computed using 15 ksf in the sounder bedrock, 3 ksf in the very stiff or medium dense glacial till.

C. Abutment and Retaining Walls

Retaining walls should be backfilled with clean, free-draining, coarse grained granular material. Drainage should be provided behind to wall so that hydrostatic pressures do not build up. Backfill should be spread in maximum 10 inch loose thickness lifts and compacted to 98% of Standard Proctor maximum dry density. Care should be taken when selecting the size of compaction equipment used so that retaining and abutment walls are not over stressed during fill placement.

STRUCTURE FOUNDATION INVESTIGATION

FRA REGION	STATE	PROJECT	
5	OHIO		

SUMMIT COUNTY
SUM - 76 - 11.57

76
104

3
5

Walls should be designed for an equivalent fluid density of 40 pcf, assuming drained, granular backfill. Walls subjected to traffic surcharge may be designed by increasing the height of the wall, for computational purposes, by 2 ft.

D. Construction Observation and Testing

A soils technician working under the direct supervision of the project geotechnical engineer should be present during spread foundation construction, to verify compliance with the recommendations contained in this report.

The technician's duties would include, but not be limited to:

1. Identifying proper quality bearing materials.
2. Observing the foundation bearing surface and bearing depth, and verifying that excess water, mud, and loose soil has been removed.
3. Checking the placement of reinforcement.
4. Testing and sampling concrete for compliance with the project specifications.

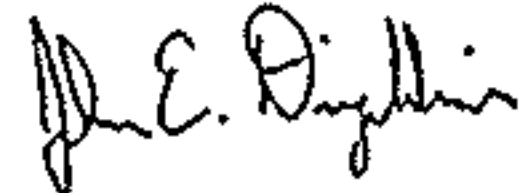
Drilled piers should be constructed using full-time geotechnical observation and testing services. The engineer/geologist's duties would include, but not be limited to:

1. Identifying proper quality bearing materials.
2. Recording diameters and depths of installed piers.
3. Verifying that bearing surfaces are adequately cleaned of water, mud, and excess loose cuttings.
4. Verifying that concrete is properly placed and temporary casing, if required, is properly withdrawn.
5. Sampling plastic concrete to verify that it attains design strength.

E. Remarks

The recommendations and observations contained in this report are professional estimates based upon data which are assumed to be representative of the site studied. Variations in soils may occur below or between the locations tested. These recommendations were arrived at in accordance with currently accepted engineering practices at this time and location.

9. Signatures



John E. Dingeldoin, P.E.
Project Engineer


Joseph W. Potraus, P.E.
Reviewing Engineer

77
104

 $\frac{4}{5}$

Boring No. 7 Station & Offset SEE PRINT Surface Elev. 1043.1

Ele.	Depth (ft.)	Sgt Pen (ft.)	Loss (ft.)	Description	Field No.	Lab No.	Physical Characteristics										SH Clog
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.			
1043	0			FILL; mixture of cinders, sand, silt, brick, and topsoil.	1												
	2																
	4	6															
	6	15															
	8																
	10	16		Medium stiff, brown gravelly SAND with a little silt and clay.	2												
	12																
	14	71															
	16																
	18																
	20	105		Very stiff gray sandy SILT with rock fragments and a little clay. Occasional cobbles and/or boulders detected.	3												
22																	
24																	
26																	
28																	
30			Gray SANDSTONE	4													
32																	
34																	
36																	
38																	
40			END OF BORING	5													
42																	
44																	
46																	
48																	
50			NO WATER ENCOUNTERED WHILE DRILLING.	6													
52																	
54																	
56																	
58																	
60				6													
62																	
64																	
66																	
68																	
70				6													
72																	
74																	
76																	
78																	
80				6													
82																	
84																	
86																	
88																	
90				6													
92																	
94																	
96																	
98																	
100				6													
102																	
104																	
106																	
108																	
110				6													
112																	
114																	
116																	
118																	
120				6													
122																	
124																	
126																	
128																	
130				6													
132																	
134																	
136																	
138																	
140				6													
142																	
144																	
146																	
148																	
150				6													
152																	
154																	
156																	
158																	
160				6													
162																	
164																	
166																	
168																	
170				6													
172																	
174																	
176																	
178																	
180				6													
182																	
184																	
186																	
188																	
190				6													
192																	
194																	
196																	
198																	
200				6													
202																	
204																	
206																	
208																	
210				6													
212																	
214																	
216																	
218																	
220				6													
222																	
224																	
226																	
228																	
230				6													
232																	
234																	
236																	
238																	
240				6													
242																	
244																	
246																	
248																	
250				6													
252																	
254																	
256																	
258																	
260				6													
262																	
264																	
266																	
268																	
270				6													
272																	
274																	
276																	
278																	
280				6													
282																	
284																	
286																	
288																	
290				6													
292																	
294																	
296																	
298																	
300				6													
302																	
304																	
306																	
308																	
310				6													
312																	
314																	
316																	
318																	
320				6													
322																	
324																	
326																	
328																	
330				6													
332																	
334																	
336																	
338																	
340				6													
342																	
344																	
346																	
348																	
350				6													
352																	
354																	
356																	
358																	
360				6													
362																	
364																	
366																	
368																	
370				6													
372																	
374																	
376																	
378																	
380				6													
382																	
384																	
386																	
388																	
390				6													
392																	
394																	
396																	
398																	
400				6													
402																	
404																	
406																	
408																	
410				6													
412																	
414																	
416																	
418																	
420				6													
422																	
424																	
426																	
428																	
430				6													
432																	
434																	
436																	
438																	
440				6													
442																	
444																	
446																	
448																	
450				6													
452																	
454																	
456																	
458																	
460				6													
462																	
464																	
466																	
468																	
470				6													
472																	
474																	
476																	
478																	
480				6													
482																	
484																	
486																	
488																	
490				6													
492																	
494																	
496																	
498																	
500				6													
502																	
504																	
506																	
508																	
510				6													
512																	
514																	
516																	
518																	
520				6													
522																	
524																	
526																	
528																	
530				6													
532																	
534																	
536																	
538																	
540				6													
542																	
544																	
546																	
548																	
550				6													
552																	
554																	
556																	
558																	
560				6													
562																	
564																	
566																	
568																	
570				6													
572																	
574																	
576																	
578																	
580				6													
582																	
584																	
586																	
588																	
590				6													
592																	
594																	
596																	
598																	
600				6													
602																	
604																	
606																	
608																	
610				6													
612																	

Boeing No. 8 Station & Offset SEE PRINT Surface Elev. 1038.8

[illegible]

78
104

$$\frac{5}{5}$$

LOG OF BORING

[illegible]

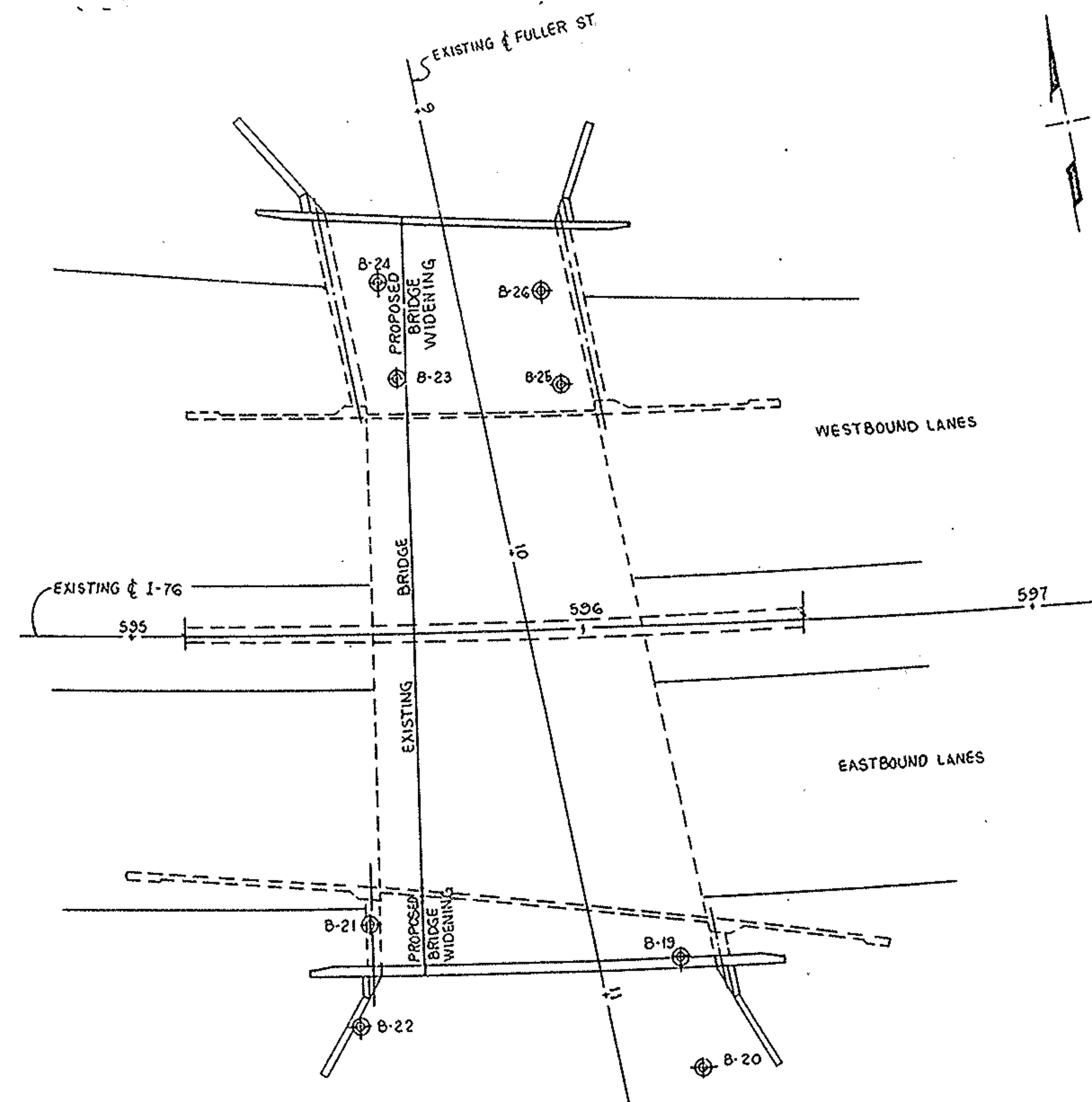
STRUCTURE FOUNDATION INVESTIGATION

F.H.A. REG.	STATE	PROJECT
5	OHIO	

SUMMIT COUNTY
SUM-76-11.57

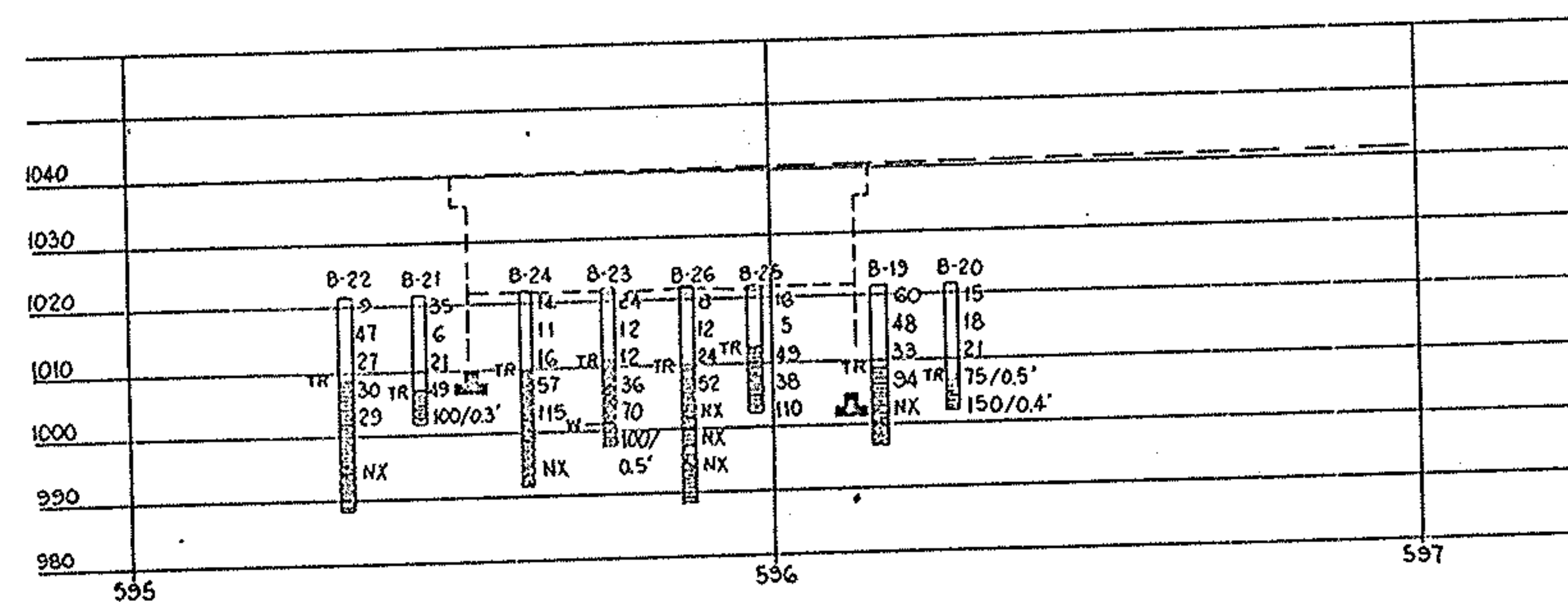
79
104

1
5



LEGEND

- ⊕ AUGER BORING LOCATION - PLAN VIEW
- ⊙ DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW
- TR TOP OF ROCK
- ▬ CAPPED PILE FOOTING
- ▬ SPREAD FOOTING
- ▬ PILE FOOTING
- ▬ DRILLED SHAFT
- FIGURES BESIDE THE BORING LOG INDICATE THE BLOW COUNT (N) OF THE STANDARD PENETRATION TEST
- W INDICATES FREE WATER ELEVATION



JOHN DAVID JONES & ASSOC., INC. 2162 FRONT STREET CUYAHOGA FALLS, OHIO 44221			
ENGINEERS	ARCHITECTS	PLANNERS	
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. SUM-76-12.67 OVER FULLER STREET			
PLAN AND PROFILE			
DRAWN BY JRS	CHECKED BY JRO	REVIEWED BY PAK	DATE 4-24-67

STRUCTURE FOUNDATION INVESTIGATION

STRUCTURE FOUNDATION INVESTIGATION

STATE	PROJECT
OHIO	

SUMMIT COUNTY
SUM-76-11.57

80
104

2
5

1. Introduction

It is proposed to widen the existing I-76 bridge over Fuller Street in Akron, Ohio. The results and recommendations from a geotechnical exploration program for the bridge are presented in this report. Soil and bedrock were identified by a field exploration program and selected samples were tested in the laboratory. Field and laboratory test results were interpreted, resulting in recommendations for foundation design.

2. Geology and Observations of the Project Site

The site is located in a glaciated area of the Allegheny Plateau. Glacial deposits are quite variable in composition and thickness in this area. The soils in the project area appear to be part of a terrace and outwash deposits. Based upon published information, the bedrock deposits in the east Akron area are of Pennsylvanian age and consist predominantly sandstone, shale, limestone and coal. The bedrock encountered at the site is part of the base of the Sharon Conglomerate of Pennsylvanian age.

The existing I-76 bridge is elevated over Fuller Street. This portion of I-76 is constructed as an embankment and is generally higher in elevation than the original ground level. The existing bridge is single span supported on abutment walls. Review of construction drawings for the bridge dated September, 1954 indicates that the abutment wall foundations are bearing in rock at elevations which range from 1001.5 to 1008.6 feet. The wing walls are stepped upward while maintaining frost depth protection beneath them. Structural loads from the walls are transmitted down to bedrock by piles.

Ground surface elevations at the soil boring locations were estimated to be approximately 1022 feet. The surface elevation of the bridge deck and embankment is near 1040 feet.

3. Exploration

Subsurface conditions were studied by an exploration program consisting of 8 borings during the period of March 23 rd through April 4 th, 1986. Approximate test locations are shown on the Boring Location Plan.

The boring depths ranged from 18.9 to 33.5 feet. All of the borings were advanced by means of a truck/trailer mounted, mechanical rotary type drill rig with soil augers. The borings were terminated in bedrock. Half of the borings were cored using an NX size, double-tube barrel with a diamond bit. Surface elevations at the boring locations were estimated from existing prints of the project area provided to us by John David Jones and Associates.

The borings were drilled in accordance with standard ASTM and ODOT specifications. A two inch O.D. split-spoon sampler was driven to obtain samples at specified intervals. The number of blows of a 140 lb. hammer dropping 30 inches was recorded for each of three, six inch penetration intervals at each sample location.

Due to shallow bedrock, fill soils, and hard natural soils, three inch O.D. thin-wall Shelby tube samples were not obtained.

Groundwater depths were observed and recorded upon encounter and at the completion of each boring. Due to the introduction of water in the coring process, no groundwater measurements were made after rock was cored. Borings in the roadway were backfilled at the completion of field testing.

The results of the field exploration program are presented on the boring logs.

4. Laboratory Testing

Samples were delivered to the laboratory, where they were examined and classified by a geotechnical engineer following ODOT specifications. As a result of sample sizes, some of the similar samples of soil were combined for laboratory tests. Soil and bedrock samples were then tested according to the following schedule:

TEST	SAMPLES
Water Content	A total of 10 split-spoon samples from selected locations
Grain size analysis	Composite samples from selected borings were tested.
Uniaxial Compression of Rock Cores	A total of 6 samples were tested representing a range of rock quality.

Water content and grainsize analysis tests are indicators of soil consistency, strength, and compressibility. Uniaxial compression tests on rock cores provide an estimate of the degree of the rock's cementation and resistance to penetration during construction. The laboratory test results are presented on the appropriate boring log.

5. Exploration Findings

The subsurface profile at each boring location is presented on the boring logs. A generalized subsurface profile for the project site consists of fill overlying deposits of sand and silt followed by decomposed bedrock and sound bedrock.

Fill was encountered at all of the boring locations. Its composition varied considerably with no distinct pattern to its deposition, however, the majority of the fill appears to be backfill for utilities. The thickness of the fill deposits ranged from 1 to 8 feet with an average of 4 feet. The fill consisted of pavement sections, sands, clays, and cinders.

Deposits of fine grained sand and silty sand having varying amounts of gravel were encountered beneath the fill. The relative density of the soils ranged from loose to very dense. The overall thickness of these strata varied from 4-1/2 to 12 feet with an average of 8-1/2 feet.

Decomposed bedrock was encountered at a depth of 9 to 13-1/2 feet. The average thickness of this zone was approximately 6 feet. The soil consisted of medium dense to very dense, brown fine grained sand having varying amounts of silt and gravel/rock fragments.

Sandstone bedrock was encountered at depths which ranged from 17 to 23-1/2 feet. The upper zones of the bedrock exhibited varying stages of weathering and soundness. Generally the sandstone quality improves with depth. Some seams of clay and shale were noted in the core samples.

Ground water was encountered in borings B-22 at 18 feet and B-23 at 17-1/2 feet.

Subsurface conditions at other times and locations on the site may differ from those found at the test locations. If different conditions are encountered during construction, it is necessary that the project geotechnical engineer be contacted so that design recommendations may be reviewed.

6. Proposed Project

From information provided by the project engineer, we understand that it is proposed to widen the existing Fuller Street bridge on both its north and south sides. This will involve constructing new abutments to support the additional bridge spans. We understand that it appears as if the existing abutment foundations are bearing slightly into the decomposed rock surface at elevations between 1008 and 1011 feet. Maximum toe pressures are less than 10,000 psf.

The above information is an important part of our engineering interpretation of the site studied. If this understanding is not correct or if project conditions change, the project geotechnical engineer must review this report relative to the recommendations presented.

7. Engineering Interpretation

The subsurface data obtained has been interpreted relative to the proposed construction. Several foundation alternatives have been considered for this project. The alternative considered most viable based upon the subsurface conditions encountered takes advantage of the relatively shallow depth to bedrock.

The foundation alternative would be to support the proposed abutment foundations on the decomposed rock using conventional spread footings. The allowable bearing capacity for foundations bearing on the decomposed rock is variable depending on their location at the site. Calculated safe allowable bearing capacities ranged from 6 to 30 ksf. Because of this variability, the foundation base at the abutments should be explored at the time of construction to determine if the excavation has been made to sufficient depth for the final design bearing capacity. The following table is a summary of bearing and bedrock elevations:

BEARING & BEDROCK SUMMARY

BORING LOCATION	EXISTING BEARING ELEVATION	TOP OF ROCK DECOMPOSED ELEVATION	TOP OF ROCK SOUND ELEVATION
23	1006	1009	1005
24	"	1009	1004
21	1009	1009	1004 *
22	"	1008	1002
25	1003	1013	1003
26	"	1010	1001
19	1009	1010	1005
20	"	1009	**

* DECOMPOSED ROCK IN THIS AREA MAY HAVE HARD ZONES OR MORE DRAMATIC CHANGES IN THE BEDROCK PROFILE.

** THE DECOMPOSED SANDSTONE IN THIS AREA IS VERY DENSE AND MAY INCLUDE ZONES OF HARDER ROCK.

IT APPEARS THAT THE FOUNDATIONS OF THE ABUTMENTS ARE BEARING PREDOMINANTLY IN SOUNDER SANDSTONE BEDROCK.

Excavations made to sounder rock may require temporary shoring to help limit the excavation size and provide for safety of personnel.

STRUCTURE FOUNDATION INVESTIGATION

F H W A REGION	STATE	PROJECT
5	OHIO	

81
104

SUMMIT COUNTY
SUM-76-11.57

3
5

8. Recommendations

A. Spread Foundations

Spread footings can be used to support the abutment and wing walls. Footings should bear on or in very dense decomposed sandstone. Foundations should be proportioned for a net allowable bearing pressure of 10 ksf when bearing at approximately the same depths as the existing structure. Foundation bearing in the deeper sound bedrock may be proportioned for a net allowable bearing pressure up to 30 ksf.

For the purpose of lateral resistance to sliding, a friction coefficient of 0.33 may be used at the interface between the foundation and decomposed bedrock. If a key way is required to help resist lateral loads, it should be designed using a lateral resistance of 5 ksf.

All footings should bear at least 3.5 feet below exterior grade for protection against frost damage. Footings should be excavated to a level bearing surface. Bearing surfaces should be cleaned of mud and loose cuttings, and should be protected against water accumulation from rainfall, surface drainage, or excavation sidewall seepage. Bearing surfaces should be protected from freezing if there is a delay in placing concrete during cold weather. All bearing surfaces should be observed by the geotechnical engineer or a soils technician before concrete placement.

B. Abutment and Retaining Walls

Retaining walls should be backfilled with clean, free-draining, coarse grained granular material. Drainage should be provided behind to wall so that hydrostatic pressures do not build up. Backfill should be spread in maximum 10 inch loose thickness lifts and compacted to 98% of Standard Proctor maximum dry density. Care should be taken when selecting the size of compaction equipment used so that retaining and abutment walls are not over-stressed during fill placement.

Because new retaining and abutment walls are being added onto existing structures, it is recommended that higher than normal equivalent fluid pressure be assumed in the design. Walls should be designed for an equivalent fluid density of 50 pcf, assuming drained, granular backfill. Walls subjected to traffic surcharge may be designed by increasing the height of the wall, for computational purposes, by 2 ft.

C. Construction Observation and Testing

A soils technician working under the direct supervision of the project geotechnical engineer should be present during spread foundation construction, to verify compliance with the recommendations contained in this report.

The technician's duties would include, but not be limited to:

1. Identifying proper quality bearing materials.
2. Observing the foundation bearing surface and bearing depth, and verifying that excess water, mud, and loose soil has been removed.
3. Checking the placement of reinforcement.
4. Testing and sampling concrete for compliance with the project specifications.

D. Remarks

The recommendations and observations contained in this report are our opinions based upon data which are assumed to be representative of the site studied. Variations in soils may occur below or between the locations tested. These opinions were arrived at in accordance with currently accepted engineering practices at this time and location.

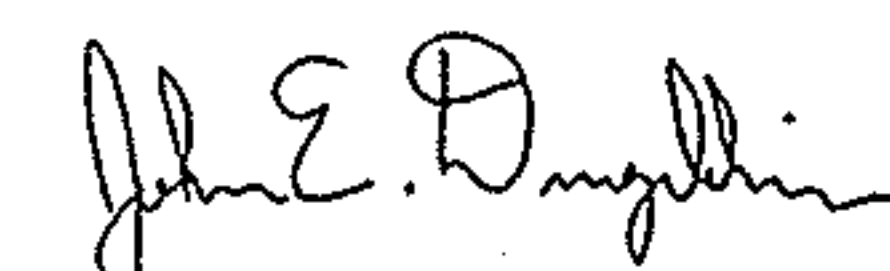
REPORT ADDENDUM

FULLER STREET

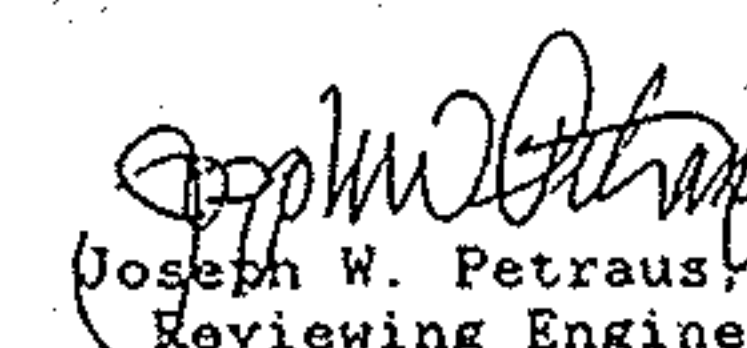
During the process of making recommendations for structurally supporting the proposed bridge abutments, consideration was given to using driven steel H or pipe piles. Although these types of piles are feasible for this project there are several potential draw backs to using them:

1. Cobbles and boulder size rock were often encountered in the dense glacial till and/or weathered bedrock found in the project area. These materials could cause lateral pile displacements or damage to the piles.
2. The relatively shallow depth of bedrock in the project areas could cause potential problems seating the piles into sound bedrock without rebounding.
3. Lateral displacement of the piles would be possible due to the relative stiffness of the soil and decomposed rock encountered above sound bedrock. Predrilling for the piles might be required to keep piles groups from moving laterally or from becoming unset.
4. It would be difficult at some locations to determine if the piles are seated in sound bedrock or stopped by a large boulder or unweathered zone in the rock. Driven pile lengths could be erratic due to early refusal on obstructions.
5. The sound sandstone bedrock often has weathered seams of shale and clay interbedded with it. Without the use of probe holes it would be difficult to determine if the piles are terminated in sound bedrock or if long term creep problems existed due to the underlying soft seams.

9. Signatures



John E. Dingeldein, P.E.
Project Engineer



Joseph W. Petraus, P.E.
Reviewing Engineer

STRUCTURE FOUNDATION INVESTIGATION

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

82
104

SUMMIT COUNTY
SUM-76-11.57

4
5

LOG OF BORING
Date Started 3-25-86 Sampler Type SS Dia. 2" OD Water Elev. ---
Date Completed 3-25-86 Casing Length HSA Dia. 3 1/4" ID

Project Identification: SUM 1267
FULLER STREET BRIDGE
PROPOSED WIDENING

Boring No. 19 Station & Offset SEE PRINT Surface Elev. 1022±

Elev.	Depth	Std. Pen. (lb)	Description	Field No.	Lab. Nos.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class
1022±	0		CONCRETE (0.8')											
	2		Very dense, brown, SAND with some gravel, a little clay and trace of silt.	1	*	22	19	33	8	18	23	4	14	A-3a
	4	60												
	6		Dense, brown fine grained SAND with a little silt and trace of clay and gravel.	2	**	6	11	72	11	7		NP	23	A-3a
	8	48												
	10			3										
	12	33												
	14		Very dense, brown fine grained SAND with a little gravel and trace of silt and clay. (Decomposed SANDSTONE)	4	***	18	7	67	2	6		NP		A-3
	16	94												
	18		Hard gray SANDSTONE with brown staining, scattered quartz pebbles, fine to medium grained, broken in upper 3 ft., closely jointed. 45° joint noted at 21 ft., clayey seam noted at 20 ft.	5	SA									
	20													
	22	NX												
	24			SB										
	26													
	28		Boring stopped at 25.0 ft.											
	30		No water encountered prior to coring.											
	32		* Composite sample, B-19, B-20 & B-25.											
	34		** Composite sample, B-19 & B-20.											
	36		*** Composite sample, B-19, B-20 & B-21.											

LOG OF BORING
Date Started 3-23-86 Sampler Type SS Dia. 2" OD Water Elev. ---
Date Completed 3-23-86 Casing Length HSA Dia. 3 1/4" ID

Project Identification: SUM 1267
FULLER STREET BRIDGE
PROPOSED WIDENING

Boring No. 20 Station & Offset SEE PRINT Surface Elev. 1022±

Elev.	Depth	Std. Pen. (lb)	Description	Field No.	Lab. Nos.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class
1022±	0		CONCRETE (0.8') over BASE COURSE (0.7')											
	2		Medium dense, brown SAND with some gravel, a little clay and trace of silt.	1	*	22	19	33	8	18	23	4	24	A-3a
	4	15												
	6		Medium dense, brown fine grained SAND with a little silt and trace of clay and gravel.	2	**	6	11	72	11	7		NP		A-3a
	8	18												
	10		Very stiff, brown sandy SILT with clay.	3	***	6	7	26	37	24	21	4	20	A-4a
	12													
	14	75/0.5'	Very dense, brown, fine grained SAND with a little gravel and trace of silt and clay. (Decomposed SANDSTONE)	4	****	18	7	67	2	6		NP		A-3
	16													
	18	150/0.4'		5										
	20		Boring stopped at 18.9 ft.											
	22		No water encountered.											
	24		* Composite sample, B-19, B-20 & B-25.											
	26		** Composite sample, B-19 & B-20.											
	28		*** Composite sample, B-19, B-20 & B-21											
	30		*** Composite sample, B-22, B-20 & B-25											
	32													
	34													
	36													

LOG OF BORING
Date Started 3-23-86 Sampler Type SS Dia. 2" OD Water Elev. ---
Date Completed 3-23-86 Casing Length HSA Dia. 3 1/4" ID

Project Identification: SUM 1267
FULLER STREET BRIDGE
PROPOSED WIDENING

Boring No. 21 Station & Offset SEE PRINT Surface Elev. 1022±

Elev.	Depth	Std. Pen. (lb)	Description	Field No.	Lab. Nos.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class
1022±	0		FILL, mostly silty CLAY mixed with gravel, sand, boulders and topsoil.											
	2			1									12	
	4	35												
	6			2									13	
	8	6												
	10		Dense to very dense, brown silty SAND with a little gravel and sandstone fragments. Boulder size pieces encountered.	3									13	
	12	21												
	14		Dense to very dense, brown fine grained SAND with a little gravel and trace of silt and clay. (Decomposed SANDSTONE)	4	*	18	7	67	2	6		NP		A-3
	16	49												
	18			5										
	20	100/0.3'												
	22		Boring stopped at 19.8 ft.											
	24		No water encountered.											
	26		* Composite sample B-19, B-20 & B-21.											
	28													
	30													
	32													
	34													
	36													

LOG OF BORING
Date Started 3-23-86 Sampler Type SS Dia. 2" OD Water Elev. ---
Date Completed 3-23-86 Casing Length HSA Dia. 3 1/4" ID

Project Identification: SUM 1276
FULLER STREET BRIDGE
PROPOSED WIDENING

Boring No. 22 Station & Offset SEE PRINT Surface Elev. 1022±

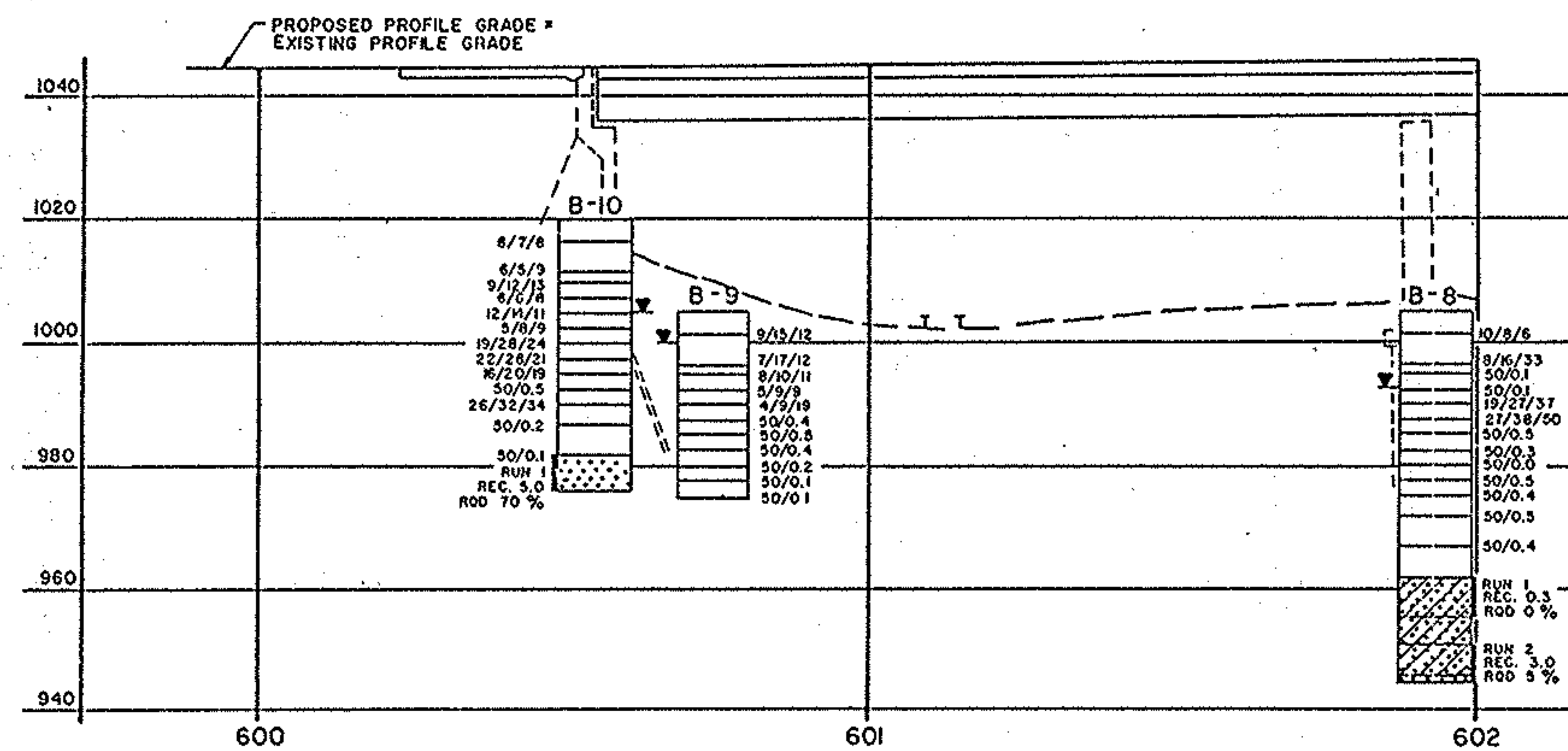
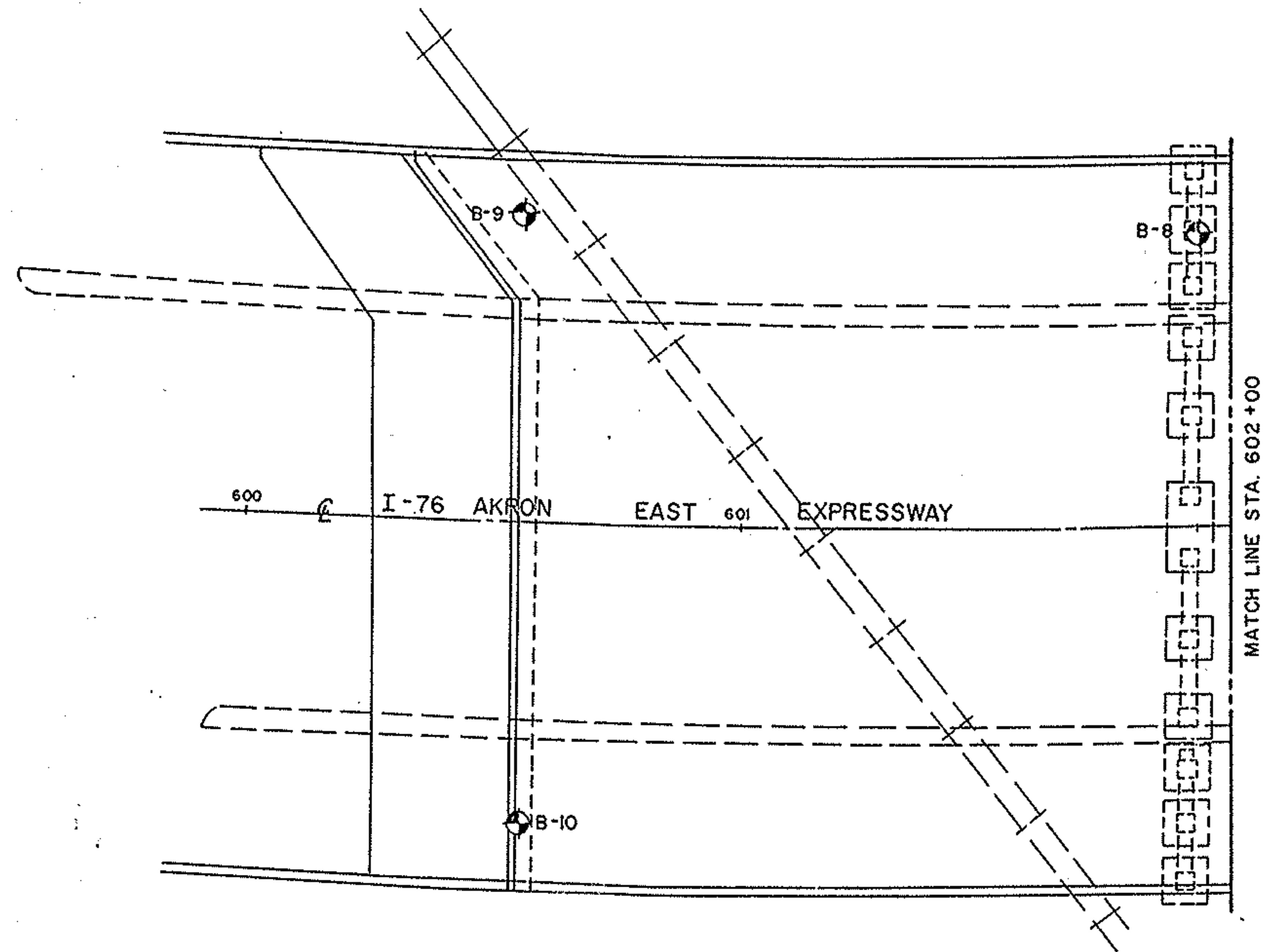
Elev.	Depth	Std. Pen. (lb)	Description	Field No.	Lab. Nos.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class
1022±	0		ASPHALT (0.25') over CONCRETE (0.7')											
	2		FILL, mostly silty CLAY mixed with sand, gravel and boulder size pieces.	1										
	4	9												
	6		Medium dense, brown sandy SILT with a trace of gravel.	2	*	6	7	26	37	24	21	4		A-4a
	8	47												
	10			3									15	
	12	27												
	14		Dense, brown fine grained SAND with a little gravel and trace of silt and clay. (Decomposed SANDSTONE)	4									24	A-3
	16	30												
	18			5										
	20	29												
	22		Hard, gray SANDSTONE with brown staining, scattered quartz pebbles, fine to medium grained, well cemented.											
	24													
	26			6A										
	28													
	30			6B										
	32		* Composite sample B-20, B-22 & B-25.											
	34													
	36		Boring stopped at 33.5 ft. Water encountered at 18 ft prior to coring.											

SUM-76-11.57

FHWA REGION	STATE	PROJECT

85
104

2
10



SUBSURFACE INVESTIGATION
SUM-76-12.77
WEST VIADUCT OVER KELLY AVE.
SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

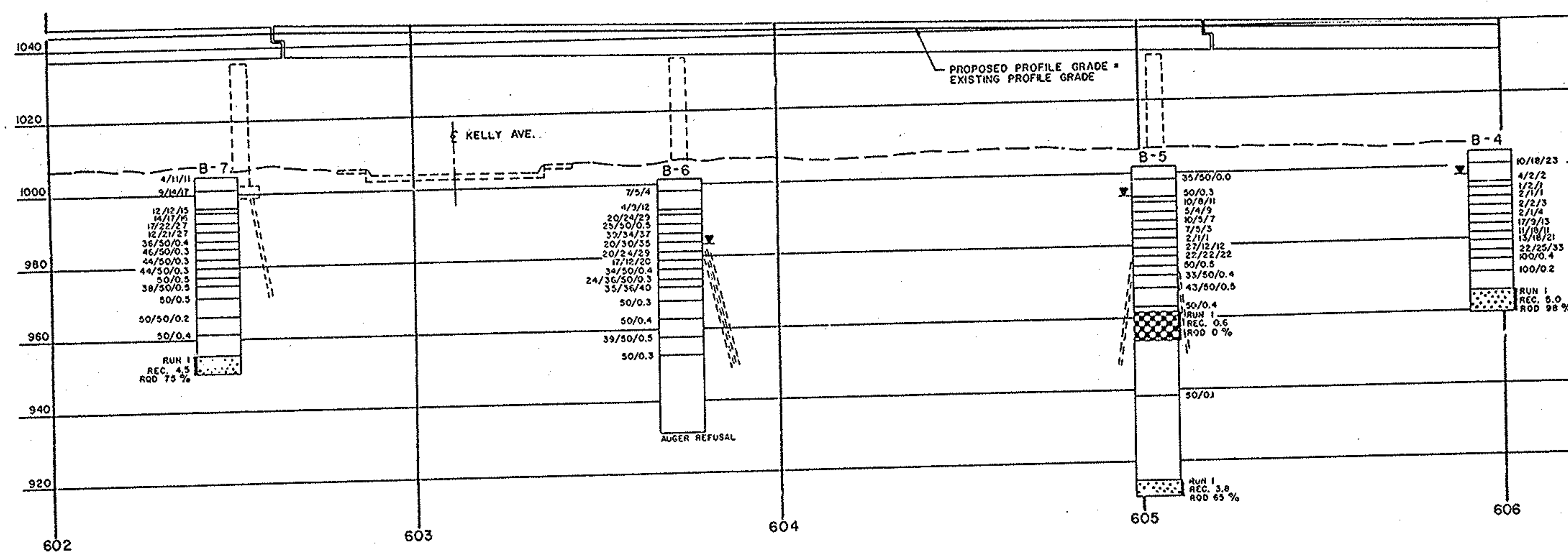
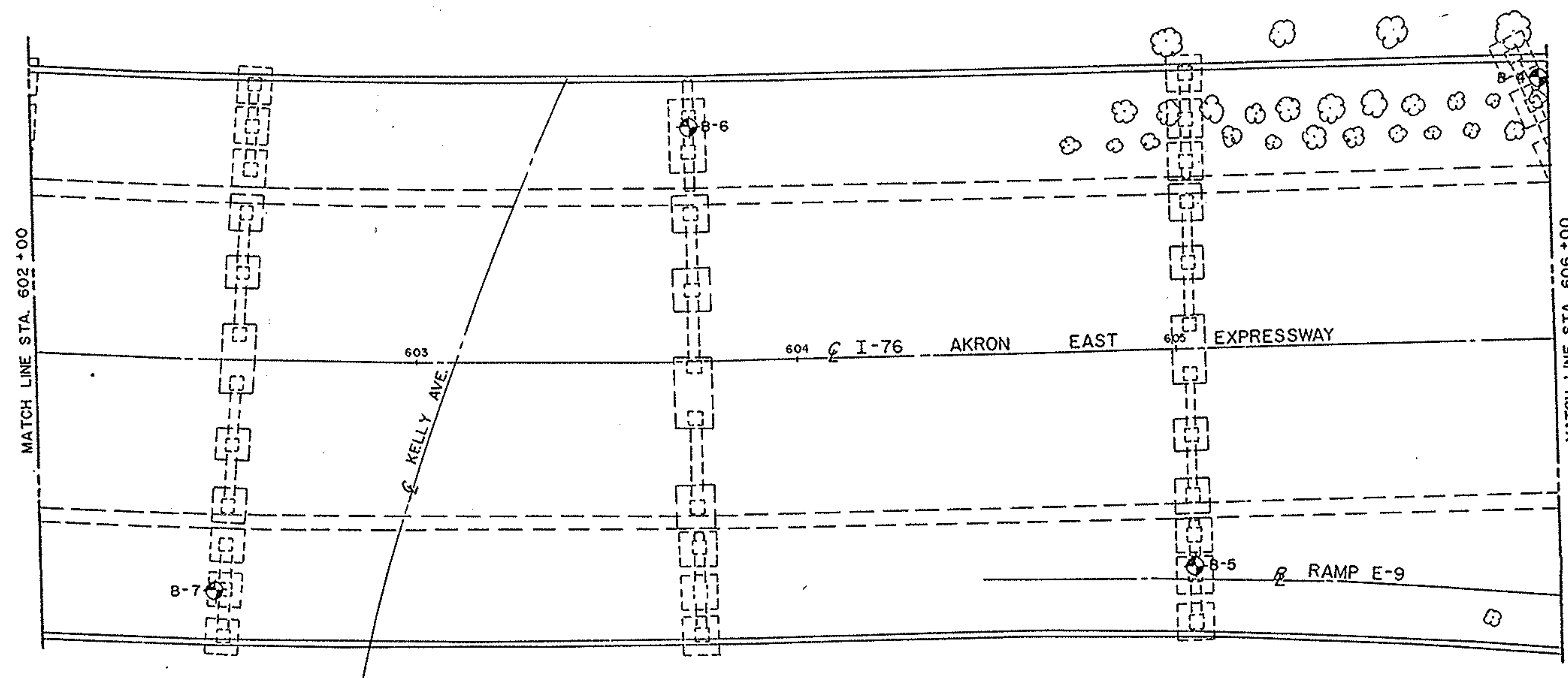
3875 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT

86
104

3
10

N
SCALE 1" = 20'



SUBSURFACE INVESTIGATION
SUM-76-12.77
WEST VIADUCT OVER KELLY AVE.
SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

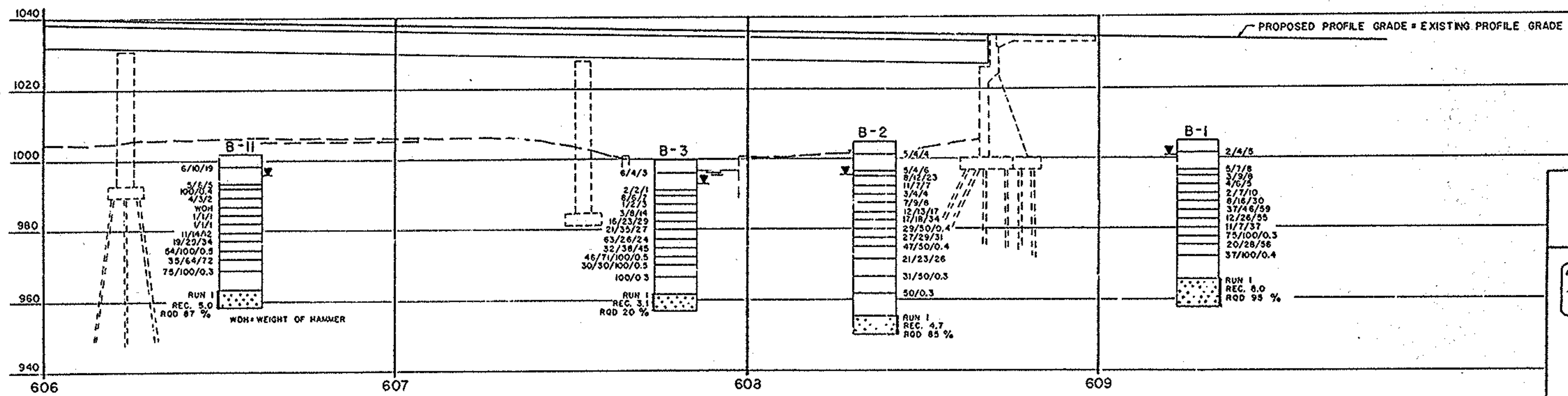
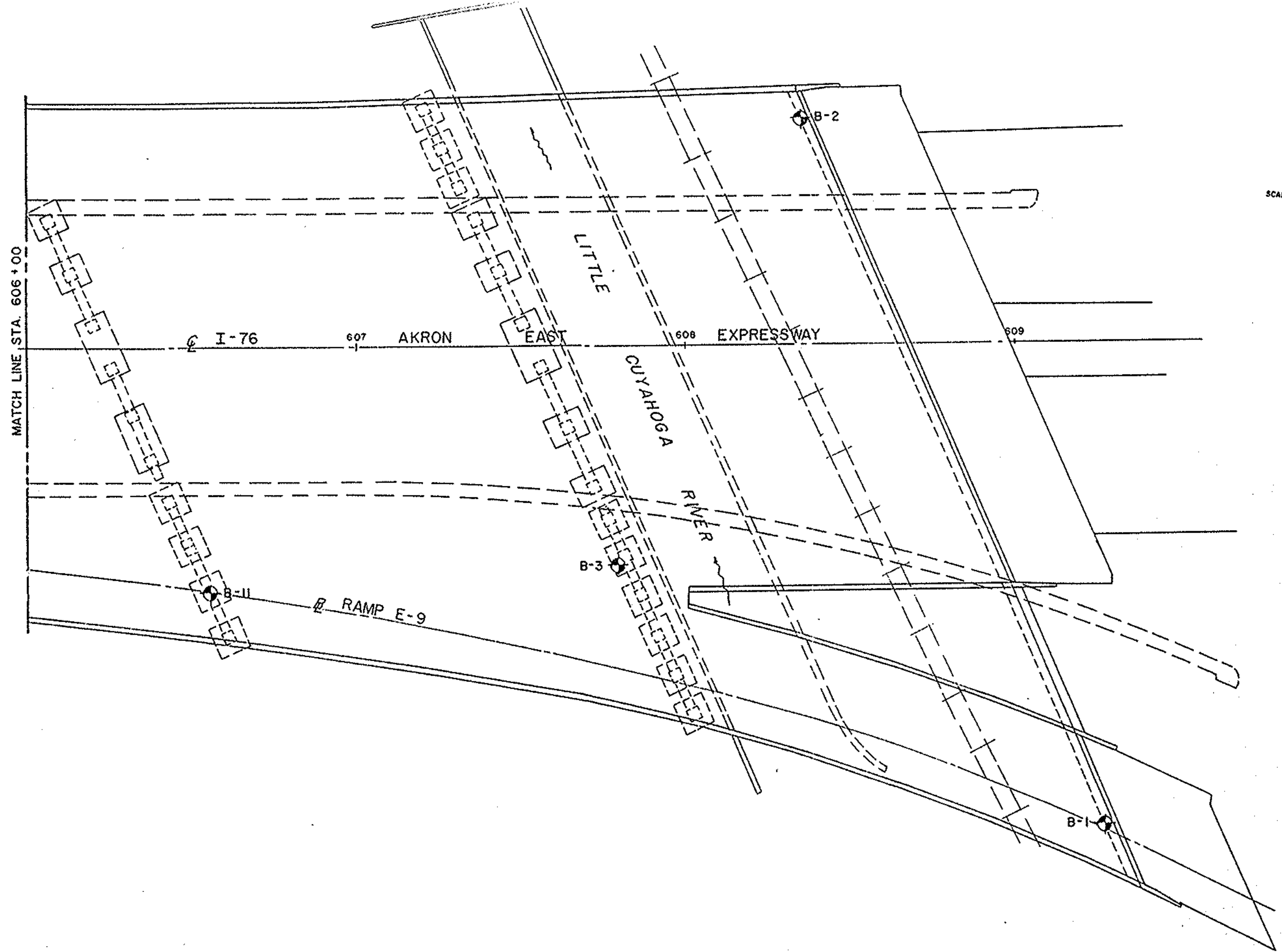
SUM-76-11.57

FHWA REGION	STATE	PROJECT

87
104

4
10

N
SCALE 1" = 20'



SUBSURFACE INVESTIGATION
SUM-76-12.77
WEST VIADUCT OVER KELLY AVE.
SUMMIT COUNTY, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS-GEOLOGISTS

3875 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT

88
104

SOIL PROFILE

5
10

LOG OF BORING

Date Started 3-11-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 1001.0
Date Completed 3-11-87 Casing Length --- Dia. ---
Boring No. 3-1 Station & Offset Sta. 609 + 24 147' RT. Surface Elev. 1005±

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1005.0	0																	
	2-4-5	0.8				1	SS											
	5				Stiff, brown <u>SANDY SILT</u> , little clay and gravel, moist.													
	5-7-8	1.5				2	SS	12.7	3.8	20.8	48.3	14.4	--	--	--	15.1	A-4a	
	10	3-9-8	1.0			3	SS	53.4	22.5	10.5	*	13.6	--	--	--	13.1	A-1-a	
994.0					Medium dense, gray <u>STONE FRAGMENTS</u> , some sand, trace silt, moist.													
992.5	4-6-5	1.0			Medium dense, gray <u>SILTY SAND</u> , little gravel, trace clay, wet.	4	SS											
990.0	15	2-7-10	1.2		Medium dense, gray <u>CLAYEY SAND</u> , trace gravel, wet.	5	SS											
987.5	8-16-30	1.5			Hard, gray <u>SANDY SILT</u> , little gravel, moist.	6	SS	18.8	11.2	34.2	*	35.8	11.8	9.3	2.5	9.7	A-4a	
985.0	20	37-46-59	1.4		Very dense, white <u>SILTY SAND</u> , moist.	7	SS											
982.5	12-26-55	1.5			Very dense, gray <u>GRAVEL AND STONE FRAGMENTS</u> with sand and silt, moist.	8	SS	26.6	10.2	30.1	22.8	10.3	--	--	--	9.8	A-2-4	
	25	11-7-37	1.5			9	SS											
979.0		75-100/0.3	1.5			10	SS											
	30	20-28-56	1.5		Hard, gray <u>SANDY SILT</u> , little stone fragments, moist.	11	SS											
		37-100/0.4	1.5			12	SS											
971.0	35				Very dense, brown <u>SILTY SAND</u> , wet.													
965.0	40	RQD 95%	8.0	--	Brown <u>SANDSTONE</u> , unaltered, fine grained, well cemented, hard.	Run 1	NXW											
961.5	45				Brown <u>SANDSTONE</u> , unaltered, medium grained well cemented, hard.													
957.0					TERMINATION DEPTH 48.0 FEET													
	50																	

LOG OF BORING

Date Started 3-17-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 995.2
Date Completed 3-17-87 Casing Length --- Dia. ---
Boring No. 8-2 Station & Offset Sta. 608 + 36 69' LT. Surface Elev. 1005±

ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1005.0	0																	
	5	5-4-4	0.5		Stiff, brown <u>SANDY SILT</u> , little gravel and stone fragments, moist.	1	SS											
		5-4-6	1.2			2	SS											
995.0	10	8-12-23	1.5		Dense, brown <u>GRAVEL</u> , some sand, trace silt, moist.	3	SS	57.9	17.7	12.0	*	12.4	--	--	--	9.9	A-1-a	
992.5		11-7-7	1.4		Medium dense, brown <u>GRAVEL</u> with sand, little silt, moist.	4	SS	47.3	15.4	18.8	12.8	5.7	--	--	--	9.1	A-1-b	
990.0	15	3-4-4	1.2			5	SS											
		7-9-8	1.4		Loose to medium dense, brown <u>SILTY SAND</u> , little gravel, wet to moist.	6	SS											
985.0	20	12-13-17	1.0		Dense, gray <u>GRAVEL</u> with sand and silt, moist.	7	SS	36.9	8.1	25.4	*	29.6	--	--	--	7.8	A-2-4	
982.5		17-18-34	1.5			8	SS											
	25	29-50/0.4	0.7			9	SS											
		27-29-31	1.2			10	SS	11.8	11.9	40.9	23.1	12.3	--	--	--	8.0	A-3a	
	30	47-50/0.4	0.9			11	SS											
		21-23-26	1.2			12	SS	9.5	20.9	45.9	*	23.7	--	--	--	10.6	A-3a	
	35				Very dense, gray <u>SAND</u> , some silt, trace to little gravel, moist.													
		31-50/0.3	1.3			13	SS											
	40																	
		50/0.3	0.0			14	SS											
	45																	
955.0	50	R00 85%	4.7	0.3	Tan <u>SANDSTONE</u> , slightly altered, fine grained, well cemented, firm.	Run 1	HXW											
950.0	55				TERMINATION DEPTH 55.0 FEET													

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-12.77
WEST VIADUCT OVER KELLY AVE.
SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3875 COPLEY ROAD
AKRON, OH 44321
216-866-2200

THWA REGION	STATE	PROJECT

89
104

6
10

LOG OF BORING

Date Started 3-9-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 993.2
 Date Completed 3-9-87 Casing Length --- Dia. ---
 Boring No. 3-3 Station & Offset Sta. 607 + 80 67' RT. Surface Elev. 1000±

Boring No.		STANDARD & OTHER		PHYSICAL CHARACTERISTICS												SHTL CLASS.	
ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	% AGG.	% C SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.	
1000.0	0																
	5	6-4-3	1.2		Medium stiff to soft, brown <u>SANDY SILT</u> , little gravel, moist.	1	SS										
	10	2-2-1	0.2			2	SS										
999.0	10	8-6-7	1.0		Medium dense, black <u>GRAVEL</u> with sand and silt, moist.	3	SS	32.8	16.6	21.5	*	29.1	--	--	--	N.T.	A-2-4
987.5	15	1-2-3	1.4			4	SS										
	20	3-8-14	1.3		Medium stiff to very stiff, black <u>ORGANIC SILT</u> , little sand and rock fragments, moist.	5	SS										
982.5	25	16-23-29	1.3		Very dense, brown <u>SILTY SAND</u> , trace gravel, moist.	6	SS										
980.0	30	21-35-27	1.2		Very dense, brown <u>GRAVEL AND STONE FRAGMENTS</u> with sand and silt, moist.	7	SS	25.5	13.0	34.9	17.3	9.3	--	--	--	9.3	A-2-4
977.5	35	63-26-24	0.7			8	SS										
	40	32-38-45	1.2			9	SS	13.7	15.1	43.2	*	28.0	--	--	--	8.5	A-3a
	45	46-71-100/0.5	1.4			10	SS										
	50	31-30-100/0.5	1.2		Very dense, brown <u>SAND</u> with rock fragments, moist.	11	SS	12.9	26.4	42.1	*	18.6	--	--	--	10.3	A-3a
	55	100/0.3	0.3			12	SS										
961.8	60	800	3.1	1.9	Tan <u>SANDSTONE</u> , moderately altered, fine grained, well cemented, hard.	Run 1	NXM										
960.3	65	20%			Brown <u>SANDSTONE</u> , moderately altered, conglomerate, well cemented, hard.												
956.8	70				TERMINATION DEPTH 43.2 FEET												
	75																
	80																
	85																
	90																
	95																
	100																
	105																
	110																
	115																
	120																
	125																
	130																
	135																
	140																
	145																
	150																
	155																
	160																
	165																
	170																
	175																
	180																
	185																
	190																
	195																
	200																
	205																
	210																
	215																
	220																
	225																
	230																
	235																
	240																
	245																
	250																
	255																
	260																
	265																
	270																
	275																
	280																
	285																
	290																
	295																
	300																
	305																
	310																
	315																
	320																
	325																
	330																
	335																
	340																
	345																
	350																
	355																
	360																
	365																
	370																
	375																
	380																
	385																
	390																
	395																
	400																
	405																
	410																
	415																
	420																
	425																
	430																
	435																
	440																
	445																
	450																
	455																
	460																
	465																
	470																
	475																
	480																
	485																
	490																
	495																
	500																
	505																
	510																
	515																
	520																
	525																
	530																
	535																
	540																
	545																
	550																
	555																
	560																
	565																
	570																
	575																
	580																
	585																
	590																
	595																
	600																
	605																
	610																
	615																
	620																
	625																
	630																
	635																
	640																
	645																
	650																
	655																
	660																
	665																
	670																
	675																
	680																
	685																
	690																
	695																
	700																
	705																
	710																
	715																
	720					</											

* SILT AND CLAY COMBINED
N.T. = NOT TESTED

LOG OF BORING

Date Started 3-9-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 997.5
 Date Completed 3-9-87 Casing Length --- Dia. ---
 Boring No. 3-4 Station & Offset Sta. 605 + 98 69' LT. Surface Elev. 1004±

Boring No. 02																		
ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LL	P.L.	P.I.	W.C.		
1004.0	0																	
	5	10-18-23	1.5		Dense to very loose, brown <u>GRAVEL AND STONE FRAGMENTS</u> with sand, moist.	1	SS	28.4	21.7	25.9	14.8	9.2	--	--	--	11.3	A-1-b	
	10	4-2-2	0.2			2	SS											
		1-2-1	0.0			3	SS											
991.5		2-1-1	1.5			4	SS											
	15	2-1-1	1.5		Soft to medium stiff, black <u>ORGANIC SILT</u> , trace sand, moist.	5	SS											
		2-2-3	1.5			6	SS											
	20	2-1-4	1.5			7	SS	31.2	27.8	31.0	*	10.0	--	--	--	41.3	A-1-b	
983.0		17-9-13	0.0		Loose to medium dense, brown <u>GRAVEL AND STONE FRAGMENTS</u> with sand, moist to wet.	8	SS											
	25	11-18-11	1.4		Medium dense, brown <u>STONE FRAGMENTS</u> with sand and silt, trace clay, moist.	9	SS	30.3	13.5	32.3	*	23.9	--	--	--	13.1	A-2-4	
976.5		13-18-21	1.5			10	SS											
	30	22-25-33	1.5			11	SS	21.8	12.1	39.3	15.3	11.5	--	--	--	8.4	A-3a	
	35	100/0.4	0.4		Dense to very dense, brown <u>SAND</u> , some gravel, little silt, trace clay and sandstone fragments, wet to saturated.	12	SS											
	40	100/0.2	0.2			13	SS											
964.5		200	5.0	0.0	Tan <u>SANDSTONE</u> , unaltered, fine grained, well cemented, hard, 0.1 feet clay interbed at 40.5 feet.	Run 1	NXW											
	45	98%			TERMINATION DEPTH 44.5 FEET													
959.5																		

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-12.77
WEST VIADUCT OVER KELLY AVE.
SUMMIT COUNTY, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS - GEOLOGISTS

SUM-76-11.57

FYWA REGION	STATE	PROJECT

90
104

 $\frac{7}{10}$ [illegible]

Date Started 3-12-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 994.0
Date Completed 3-12-87 Casing Length -- Dia. ---
Boring No. 8-5 (Cont.) Station & Offset Sta. 605 + 4 58' RT Surface Elev. 1002+

[illegible]

SUBSURFACE INVESTIGATION
SUM-76-12.77
WEST VIADUCT OVER KELLY AVE.
SUMMIT COUNTY, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS • GEOLOGISTS

LOG OF BORING

Date Started 3-18-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 985.0

Date Completed 3-18-87 Casing Length -- Dia. ---

Boring No. B-6 Station & Offset Sta. 603 + 73 62' LT. Surface Elev. 1002±

ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.	SHTL CLASS.
1002.0	0																
	5	7-5-4	1.0			1	SS										
	10	4-9-12	1.4		Stiff to hard, brown SANDY SILT, little stone fragments, moist.	2	SS										
	15	20-24-29	1.5			3	SS										
	20	25-50/0.5	1.0			4	SS	18.2	9.2	32.3	*	40.3	--	--	--	9.4	A-4a
	25	39-34-37	1.1			5	SS										
984.5	30	20-30-35	1.5			6	SS										
	35	20-24-29	1.4		Very dense to dense, gray SILTY SAND, little sandstone fragments, moist.	7	SS										
	40	17-12-20	1.5			8	SS										
977.0	45	34-50/0.4	1.1		Very dense, gray SANDY SILT, trace gravel, moist.	9	SS	10.5	9.5	44.1	*	35.9	--	--	--	7.1	A-4a
974.5	50	24-36-50/0.3	1.2			10	SS										
	55	35-36-40	1.5			11	SS										
	60	50/0.3	0.3		Very dense, gray SILTY SAND, little gravel, moist.	12	SS										
	65	50/0.4	0.4			13	SS										
958.5	70	39-50/0.5	1.0		Very dense, gray SAND AND GRAVEL, trace silt, wet to saturated.	14	SS										
	75	50/0.3	0.3			15	SS										
952.0	80																
	85																
	90																
	95																
932.0	100				Auger Refusal at 70.0 Feet.												

TERMINATION DEPTH 70.0 FEET

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 3-16-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---

Date Completed 3-16-87 Casing Length -- Dia. ---

Boring No. S-7 Station & Offset Sta. 602 + 48 61' RT. Surface Elev. 1005±

ELEV.	DEPTH	STD. PEN. (N)	REC. FL.	LOSS FL.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.	SHTL CLASS.
1005.0	0																
	5	4-11-11	1.2			1	SS										
	10	9-14-17	1.1		Very stiff, brown SANDY SILT, little gravel and stone fragments, moist.	2	SS										
	15	12-12-15	1.5			3	SS	14.4	12.2	26.8	*	46.6	16.0	11.7	4.3	9.0	A-4a
995.0	20	14-17-16	1.4			4	SS										
	25	17-22-27	1.3			5	SS										
	30	12-21-27	1.4		Dense to very dense, gray SAND, some silt, little sandstone fragments, moist.	6	SS	12.7	10.9	43.6	23.3	9.5	--	--	--	9.0	A-3a
	35	36-50/0.4	0.9			7	SS										
	40	46-50/0.3	0.6			8	SS										
982.5	45	44-50/0.3	0.7			9	SS										
	50	44-50/0.3	0.4		Hard, gray SANDY SILT, little sandstone fragments, moist.	10	SS	9.6	10.3	44.1	*	36.0	--	--	--	10.7	A-4a
	55	50/0.5	0.4			11	SS										
975.0	60	38-50/0.5	1.0		Very dense, gray GRAVEL AND STONE FRAGMENTS, little sand, trace silt, moist.	12	SS	68.9	13.4	9.8	*	7.9	--	--	--	9.3	A-1-a
974.0	65	50/0.5	0.3			13	SS										
	70	50-50/0.2	0.3		Very dense, gray SAND, some sandstone fragments and gravel, little silt, moist.	14	SS										
	75	50/0.4	0.3			15	SS										
956.0	80	RQD 75%	4.5	0.5	Tan SANDSTONE, moderately altered, fine grained, well cemented, firm.	Run 1	HXW										
951.0	85				TERMINATION DEPTH 54.0 FEET												

* SILT AND CLAY COMBINED

FHWA REGION	STATE	PROJECT

8
10

SUBSURFACE INVESTIGATION
SUM-76-12.77
WEST VIADUCT OVER KELLY AVE.
SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLE ROAD
AKRON, OH 44321
216-668-2200

FWHA REGION	STATE	PROJECT



9
10

LOG OF BORING

Date Started 3-17-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 993.0
Date Completed 3-17-87 Casing Length -- Dia. ---
Boring No. 8-8 Station & Offset Sta. 601 + 93 60' LT. Surface Elev. 1005±

ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1005.0	0																	
	5	10-8-6	1.0		Medium dense, brown <u>GRAVEL</u> with sand, trace silt, moist.	1	SS	28.9	22.1	40.0	*	9.0	--	--	--	8.2	A-1-a	
996.0	10	8-16-33	1.5			2	SS											
		50/0.1	0.1			3	SS											
		50/0.1	0.1		Hard, gray <u>SANDY SILT</u> , little to trace gravel, moist.	4	SS											
990.0	15	19-27-37	1.5			5	SS	14.7	10.6	41.7	22.8	10.2	--	--	--	8.7	A-3a	
					Very dense, gray <u>SAND</u> , some silt, little gravel, moist.													
987.5		27-38-50	1.5			6	SS											
	20	50/0.5	0.5			7	SS											
		50/0.3	0.0		Hard, gray <u>SANDY SILT</u> , little to trace gravel, moist.	8	SS											
	25	50/0.0	0.0			9	SS											
977.5		50/0.5	0.5			10	SS	22.9	17.6	26.6	*	32.9	12.9	9.2	3.7	8.5	A-2-4	
					Very dense, gray <u>GRAVEL</u> with sand and silt, moist.													
975.0	30	50/0.4	0.4			11	SS											
		50/0.5	0.5			12	SS											
	35																	
		50/0.4	0.4		Hard, gray <u>SANDY SILT</u> , little gravel and sandstone fragments, wet to moist.	13	SS											
	40																	
961.5	45	RQD 0%	0.3	6.2		Run 1	NXW											
	50																	
	55	RQD 5%	3.0	3.0	Tan <u>SANDSTONE</u> , extremely altered, fine grained, poorly cemented, friable.	Run 2	NXW											
945.0	60																	
944.0					Tan <u>SANDSTONE</u> , moderately altered, fine grained, well cemented, firm.													
					TERMINATION DEPTH 61.0 FEET													

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 5-22-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 1000.0
Date Completed 5-22-87 Casing Length -- Dia. ---
Boring No. 8-9 Station & Offset Sta. 600 + 57 62' RT.± Surface Elev. 1005±

ELEV.	DEPTH	STD. PEN. (N)	REG. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1005.0	0																	
	5	9-15-12	1.0		Medium dense, brown <u>GRAVEL AND STONE</u> <u>FRAGMENTS</u> with sand and silt, wet.	1	SS											
996.5	10	7-17-12	1.3			2	SS											
	15	8-10-11	1.5			3	SS											
		5-9-9	1.5		Very stiff, gray <u>SANDY SILT</u> , some sandstone fragments, little clay, moist.	4	SS	26.8	11.8	25.5	*	35.9	--	--	--	9.6	A-4a	
	20	4-9-19	1.5			5	SS											
987.5	25	50/0.4	0.4			6	SS	66.8	13.1	14.6	*	5.5	--	--	--	8.8	A-1-a	
					Very dense, gray <u>GRAVEL</u> , wet.													
985.0	30	50/0.5	0.5			7	SS											
		50/0.4	0.4			8	SS											
	35	50/0.2	0.2		Very dense, brown <u>SILTY SAND</u> , trace sandstone fragments, moist.	9	SS											
		50/0.1	0.1			10	SS											
975.0	40	50/0.1	0.1			11	SS											
					TERMINATION DEPTH 30.0 FEET													
									</									

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
SUM-76-12.77
WEST VIADUCT OVER KELLY AVE.
SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3875 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT

93
104

10
10

LOG OF BORING

Date Started 3-23-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 1005.1
 Date Completed 3-23-87 Casing Length --- Dia. ---
 Boring No. B-10 Station & Offset Sta. 600 + 56 62' RT. Surface Elev. 1020.1

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	SAMPLE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
						NO.	TYPE	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1020.0	0																		
1008.5	5	8-7-8	1.2		Medium dense, brown <u>GRAVEL</u> with sand and silt, moist.	1	SS												
	10	6-5-9	1.0	2		SS													
	10	9-12-13	1.3	3		SS	35.6	12.1	27.9	*	24.4	--	--	--	10.4	A-2-4			
1004.5	15	6-6-6	1.4		Stiff to very stiff, brown and gray <u>SANDY SILT</u> , little gravel, moist.	4	SS												
	15	12-14-11	1.3	5		SS													
	1002.5	5-8-9	1.1	6		SS													
995.0	20	19-28-24	1.0		Very stiff to hard, brown <u>SANDY SILT</u> , little gravel, moist.	7	SS	15.2	12.0	16.9	*	55.9	--	--	--	11.5	A-4a		
	25	22-28-21	1.3	8		SS													
	25	16-20-19	1.3	9		SS													
981.5	30	50/0.5	0.4		Dense, gray to brown <u>SAND</u> , some silt, trace gravel, moist to wet.	10	SS												
	30	26-32-34	1.0	11		SS	4.4	15.8	54.4	*	25.4	--	--	--	11.4	A-3a			
	35	50/0.2	0.2	12		SS													
975.5	40	50/0.1 RQD 70%	0.0 5.0	1.0	Brown <u>SANDSTONE</u> , moderately altered, medium grained, well cemented, conglomerate, hard.	13	SS Run 1												
	45																		
					TERMINATION DEPTH 44.5 FEET														

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 3-10-87 Sampler Type Split Spoon Dia. 2.0 Water Elev. 996.0
 Date Completed 3-10-87 Casing Length --- Dia. ---
 Boring No. B-11 Station & Offset Sta. 606 + 55 75' RT. Surface Elev. 1002.1

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1002.0	0																	
	5	6-10-19	1.5		Very stiff to soft, brown to black <u>SANDY SILT</u> , little brick fragments and slag, trace organics, moist (fill).	1	SS											
	10	5-6-5	0.8			2	SS	15.1	17.6	30.3	21.5	15.5	--	--	--	10.3	A-4a	
		100/0.4	0.3			3	SS											
		4-3-2	0.5			4	SS											
987.0	15	W.O.H.	1.5			5	SS											
		1-1-1	1.5		Soft, black <u>ORGANIC SILT</u> , moist.	6	SS											
	20	1-1-1	1.5			7	SS											
979.5		11-14-12	1.5			8	SS	4.1	14.7	66.5	13.4	1.3	--	--	--	48.9	A-3a	
	25	19-29-34	1.5			9	SS											
		54-100/0.5	1.5			10	SS											
	30	35-64-72	1.5		Medium dense to very dense, brown <u>SAND</u> , little silt, trace sandstone fragments, moist to wet.	11	SS	10.2	17.7	48.8	*	23.3	--	--	--	10.4	A-3a	
	35	75-100/0.3	0.8			12	SS											
963.0	40	RQD 87%	5.0	0.0	Tan <u>SANDSTONE</u> , slightly altered, fine grained, well cemented, hard.	Run 1	NHW											
958.0	45																	
					TERMINATION DEPTH 44.0 FEET													

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
 SUM-76-12.77
 WEST VIADUCT OVER KELLY AVE.
 SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

FHWA REGION	STATE	PROJECT

94
104

STRUCTURE SUBSURFACE INVESTIGATION

1
3

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, at 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description—based on laboratory tests utilizing the Casagrande AC classification system—and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS

12"	3"	2.0mm	0.42mm	0.074mm	0.005mm	
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
		No. 10 sieve	No. 40 sieve	No. 200 sieve		

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION—PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION—PLAN VIEW		FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
	TOP OF ROCK		X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
	CAPPED PILE		INDICATES FREE WATER ELEVATION
	FOOTING		INDICATES STATIC WATER ELEVATION
	FOOTING ON PILE		

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. THIS AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET WITH DRIFT VARIABLE BUT THIN, GENERALLY AVERAGING LESS THAN 25 FEET. IN THIS AREA, THE GEOLOGY MAY HAVE BEEN ALTERED SOMEWHAT BY THE PLACEMENT OF FILL MATERIAL DURING EXPRESSWAY CONSTRUCTION. GLACIAL DEPOSITS UNDERLYING THE FILL GENERALLY CONSIST OF KAME DEPOSITS COMPOSED OF SANDS AND GRAVELS UNDERLAIN BY GLACIAL TILL WHICH IS COMPOSED OF PRIMARILY SILTS AND CLAYS.

THE SITE IS LOCATED NEAR THE CONTACT OF THE MISSISSIPPIAN ROCKS WITH THOSE OF PENNSYLVANIAN AGE. THE HIGHLANDS ARE UNDERLAIN BY SHARON CONGLOMERATE AND LOWER PORTIONS BY SANDSTONES OF THE LOGAN FORMATION.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO (2) DRIVE SAMPLE-CORE BORINGS, MADE BY MEANS OF CME-75 TRUCK MOUNTED DRILLING RIG USING 3 1/4 INCH I.D. HOLLOW STEM AUGERS, PERFORMED DURING OCTOBER, 1986.

INVESTIGATIONAL FINDINGS

THE TEST BORINGS DISCLOSED A LAYER OF SAND AND GRAVEL FILL MATERIAL UNDERLAIN BY ALTERNATING LAYERS OF SAND AND GRAVEL, SAND, AND SANDY SILT. SANDSTONE WAS ENCOUNTERED AT BOTH TEST LOCATIONS AT AN APPROXIMATE ELEVATION OF 955. FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THIS REPORT.

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

SUBSURFACE INVESTIGATION
SUM-76-1296
OVER MARTHA AVENUE
SUMMIT COUNTY, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS—GEOLOGISTS

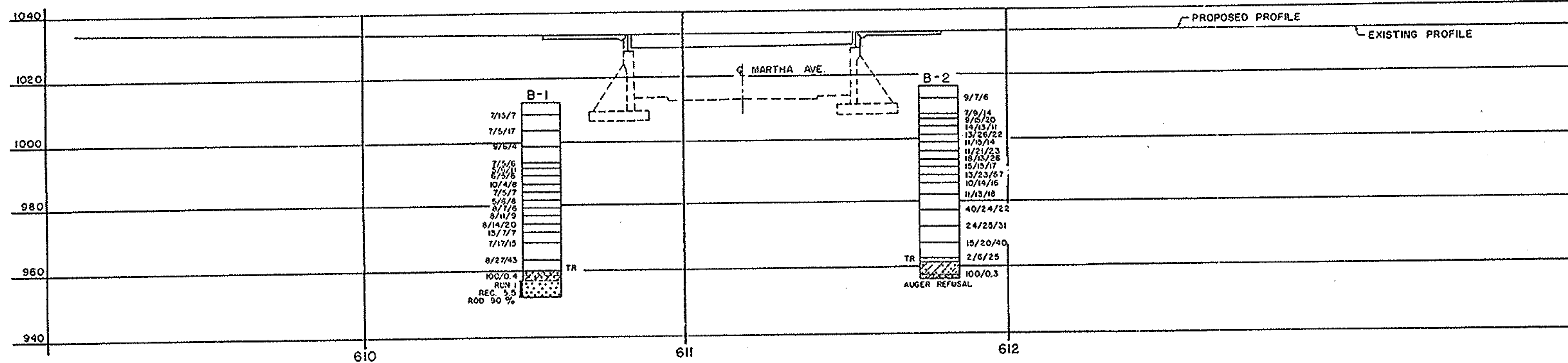
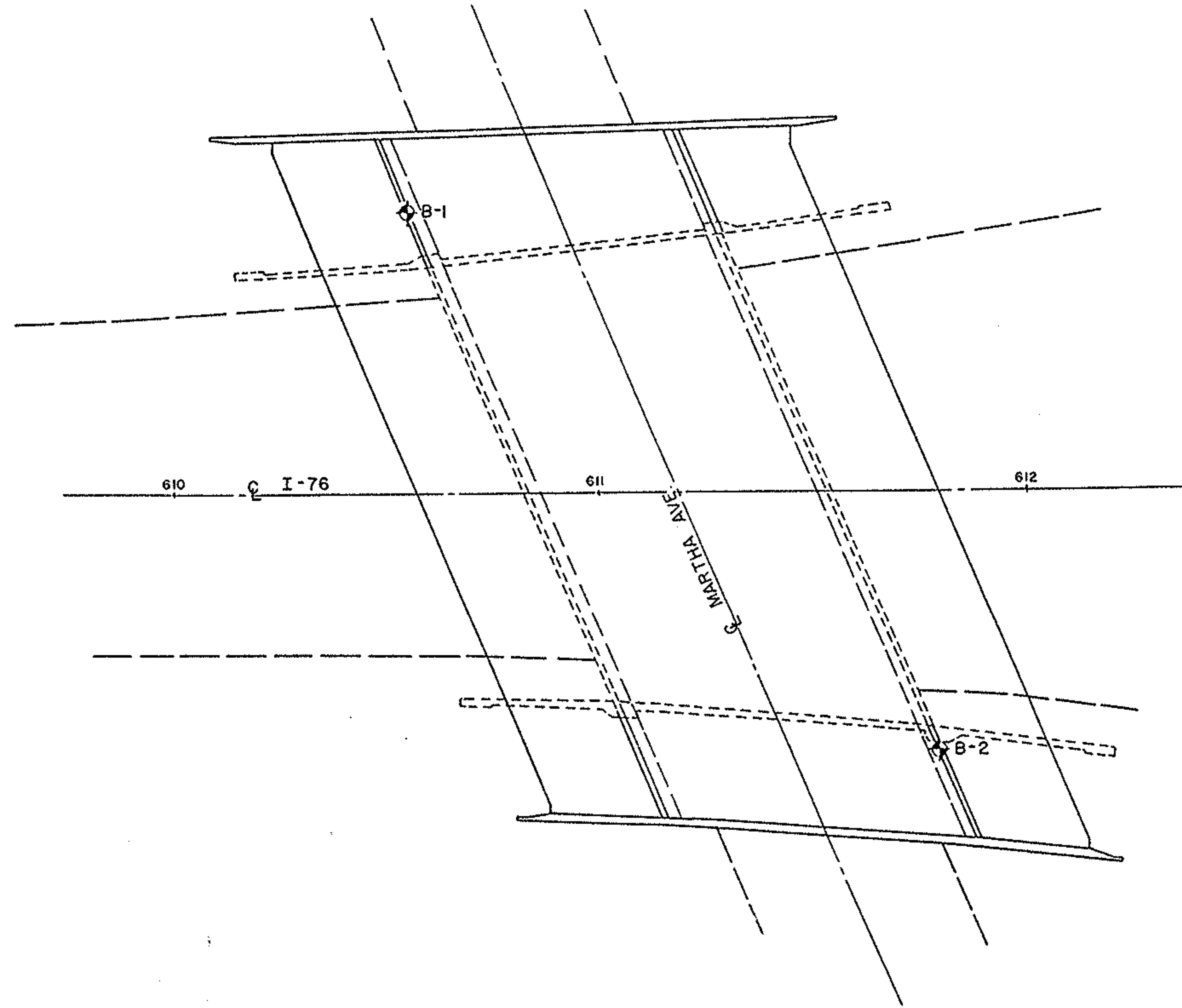
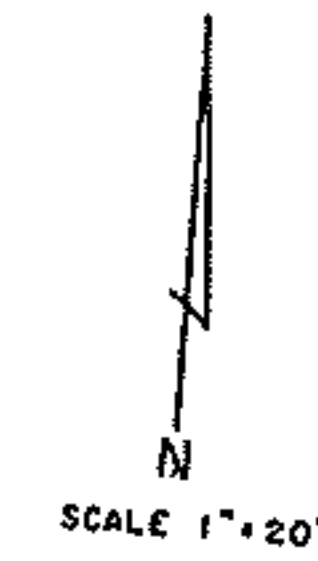
AKRON, OHIO 44321

SUM-76-11.57

FHWA REGION	STATE	PROJECT

95
104

2
3



SUBSURFACE INVESTIGATION
SUM-76-1296
OVER MARTHA AVENUE
SUMMIT COUNTY, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-668-2200

F.A.W.A. REGION	STATE	PROJECT

96
104

3
3

LOG OF BORING

Date Started 10-28-85 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 10-29-85 Casing Length --- Dia. ---
 Boring No. 8-1 Station & Offset Sta. 610 + 57 56' LT. Surface Elev. 1012.6

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.	SHTL CLASS.
1012.6	0				TOPSOIL												
1012.1																	
	5					1	SS										
	7-13-7	1.4															
	7-5-17	0.6			Medium dense, brown SAND AND GRAVEL, trace silt, trace brick fragments, moist (F111).	2	SS										
	10																
998.1	15					3	SS	23.8	33.2	38.8	*	4.2	--	--	--	8.1	A-1-b
	7-5-6	1.5			Medium dense, brown SAND, some gravel, trace silt, moist (F111).	4	SS	28.7	16.5	50.5	*	4.3	--	--	--	6.3	A-3
992.1	20					5	SS	59.8	24.7	10.3	*	5.2	--	--	--	5.4	A-1-a
	6-5-6	1.2			Medium dense, brown SAND AND GRAVEL, trace silt, trace brick fragments, moist (F111).	6	SS										
988.6	25					7	SS	18.1	30.3	46.7	*	4.9	--	--	--	17.0	A-3
	7-5-7	1.5				8	SS	22.8	29.2	38.7	*	9.3	--	--	--	16.9	A-1-b
	5-6-8	1.5				9	SS	3.6	34.6	57.9	*	3.9	--	--	--	19.4	A-3
	8-7-6	1.5			Medium dense, brown SAND AND GRAVEL, trace silt, moist.	10	SS	29.1	47.4	19.9	*	3.6	--	--	--	13.4	A-1-b
	8-11-9	1.5				11	SS	56.8	30.8	12.1	*	0.3	--	--	--	11.9	A-1-a
	8-14-20	1.5				12	SS										
973.1	40					13	SS	8.3	38.8	47.0	*	5.9	--	--	--	19.4	A-3
	7-17-15	0.8			Medium dense, brown SAND, trace gravel, trace to little silt, moist.	14	SS	6.1	21.5	57.8	*	14.6	--	--	--	21.4	A-3a
	8-27-43	1.5				15	SS										
963.1	50				Hard, gray SANDY SILT, trace gravel, moist.												
960.6	100/0.4	0.0			Tan SANDSTONE, highly altered, friable.	16	SS										
957.6	55	200			AUGER REFUSAL AT 55.0 FEET	Run 1	NXM										
	90%	5.5	--		Tan SANDSTONE, unaltered, hard, medium grained, massive, Sharon Conglomerate interbed 58.5' - 59.0'.												
952.1	60				TERMINATION DEPTH 60.5 FEET												

* SILT AND CLAY COMBINED

LOG OF BORING

Date Started 10-28-85 Sampler Type Split Spoon Dia. 2.0 Water Elev. ---
 Date Completed 10-29-85 Casing Length --- Dia. ---
 Boring No. 8-2 Station & Offset Sta. 611 + 77 81' RT. Surface Elev. 1015.9

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.	SHTL CLASS.
1015.9 1015.4	0				TOPSOIL												
	5	9-7-6	0.8			1	SS										
	10	7-9-14 9-15-20	0.8 0.9		Medium dense to dense, brown <u>SAND AND GRAVEL</u> , trace silt, moist (F111).	2 3	SS SS	34.1 38.1	37.3 41.2	24.9 16.0	* *	3.7 4.7	-- --	-- --	-- --	4.3 3.8	A-1-b A-1-b
	15	14-13-11 13-26-22	1.0 1.2			4 5	SS SS	20.8 24.7	42.6 34.2	29.9 33.8	* *	6.7 7.3	-- --	-- --	-- --	3.8 4.6	A-1-b A-1-b
995.4	20	11-21-23	1.1			7	SS										
	25	18-13-26 15-15-17	1.3 0.9		Hard, brown <u>SANDY SILT</u> , trace gravel, moist.	8 9	SS SS	8.3 7.3	11.6 6.6	33.6 12.8	* *	46.5 73.3	-- 22.4	-- 15.5	-- 6.9	16.8 14.4	A-4a A-4a
	30	13-23-57 10-14-16	1.5 1.3			10 11	SS SS										
985.9	35	11-13-18	1.2		Dense, brown <u>SAND AND GRAVEL</u> , trace silt, moist.	12	SS	46.1 46.8	35.8 30.5	15.0 16.9	* *	3.1 5.8	-- --	-- --	-- --	12.7 11.3	A-1-b A-1-b
	40	40-24-22	1.5			13	SS										
973.9	45	24-25-31	1.5			14	SS	9.9	11.8	29.4	*	48.9	22.0	13.2	8.8	10.4	A-4a
	50	15-20-40	0.8		Hard, gray <u>SANDY SILT</u> , trace gravel, moist.	15	SS										
961.4	55	2-6-25	0.6			16	SS	1.5	16.9	42.2	*	39.4	--	--	--	13.9	A-4a
	60	100/0.3	0.3		Tan <u>SANDSTONE</u> , highly altered, friable.	17	SS										
955.9					AUGER REFUSAL AT 60.0 FEET TERMINATION DEPTH 60.0 FEET												

* SILT AND CLAY COMBINED

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
 SUM-76-1296
 OVER MARTHA AVENUE
 SUMMIT COUNTY, OHIO



R & R International, Inc.
 GEOTECHNICAL ENGINEERS • GEOLOGISTS

FWWA REGION	STATE	PROJECT

97
104

STRUCTURE SUBSURFACE INVESTIGATION

1
4

GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, of 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

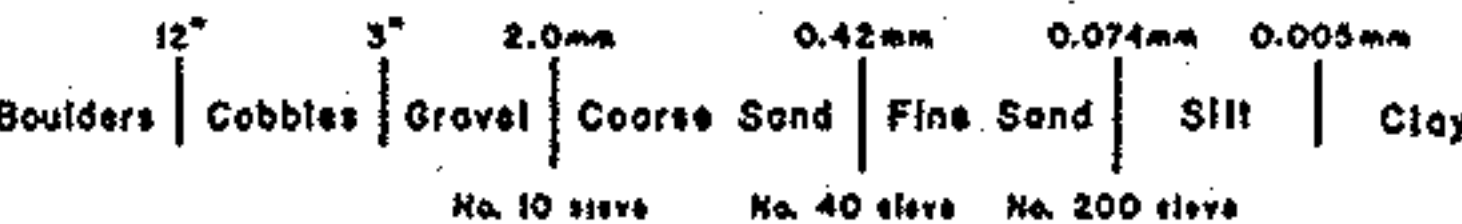
Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a HXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description - based on laboratory tests utilizing the Casagrande AC classification system - and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS



NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION-PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION-PLAN VIEW		FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
	TOP OF ROCK		INDICATES FREE WATER ELEVATION
	CAPPED PILE		INDICATES STATIC WATER ELEVATION
	FOOTING		
	FOOTING ON PILE		

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. THIS AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET WITH DRIFT VARIABLE BUT THIN, GENERALLY AVERAGING LESS THAN 25 FEET. IN THIS AREA, THE GEOLOGY MAY HAVE BEEN ALTERED SOMEWHAT BY THE PLACEMENT OF FILL MATERIAL DURING EXPRESSWAY CONSTRUCTION. GLACIAL DEPOSITS UNDERLYING THE FILL GENERALLY CONSIST OF KAME DEPOSITS COMPOSED OF SANDS AND GRAVELS UNDERLAIN BY GLACIAL TILL WHICH IS COMPOSED OF PRIMARILY SILTS AND CLAYS.

THE SITE IS LOCATED NEAR THE CONTACT OF THE MISSISSIPPIAN ROCKS WITH THOSE OF PENNSYLVANIAN AGE. THE HIGHLANDS ARE UNDERLAIN BY SHARON CONGLOMERATE AND LOWER PORTIONS BY SANDSTONES OF THE LOGAN FORMATION.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE-BORINGS MADE BY MEANS OF A CME-55 TRUCK MOUNTED DRILLING RIG USING CONVENTIONAL 3.25 INCH I.D. HOLLOW STEM AUGERS AND A NX SIZE CORE BARREL. THE TEST BORINGS WERE PERFORMED DURING AUGUST, 1986.

INVESTIGATIONAL FINDINGS

THE TEST BORINGS DISCLOSED A LAYER OF SAND AND GRAVEL FILL MATERIAL, CLASSIFIED AS A-1-A AND A-1-B, UNDERLAIN BY ALTERNATING LAYERS OF NATURALLY OCCURRING CLAYEY SILT, SILTY SAND, AND SAND AND GRAVEL, CLASSIFIED AS A-6A, A-4A, AND A-1-A OR A-1-B, RESPECTFULLY. THE SOIL DEPOSITS ARE UNDERLAIN BY A THIN LAYER OF FINE GRAINED SANDSTONE UNDERLAIN BY COARSE GRAINED SANDSTONE BELONGING TO THE SHARON CONGLOMERATE FORMATION.

SUBSURFACE INVESTIGATION
SUM-76-13.03
RAMP E-10 BRIDGE
SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

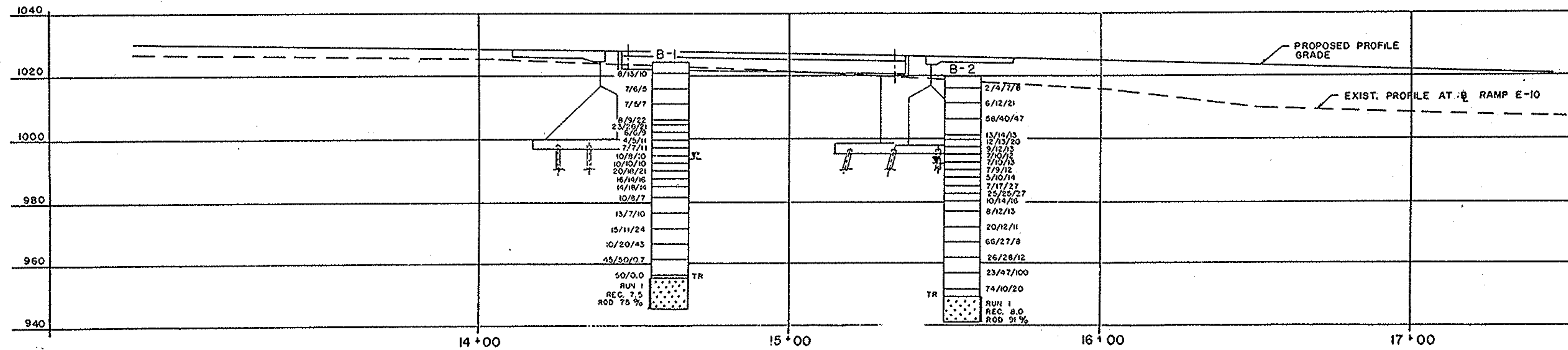
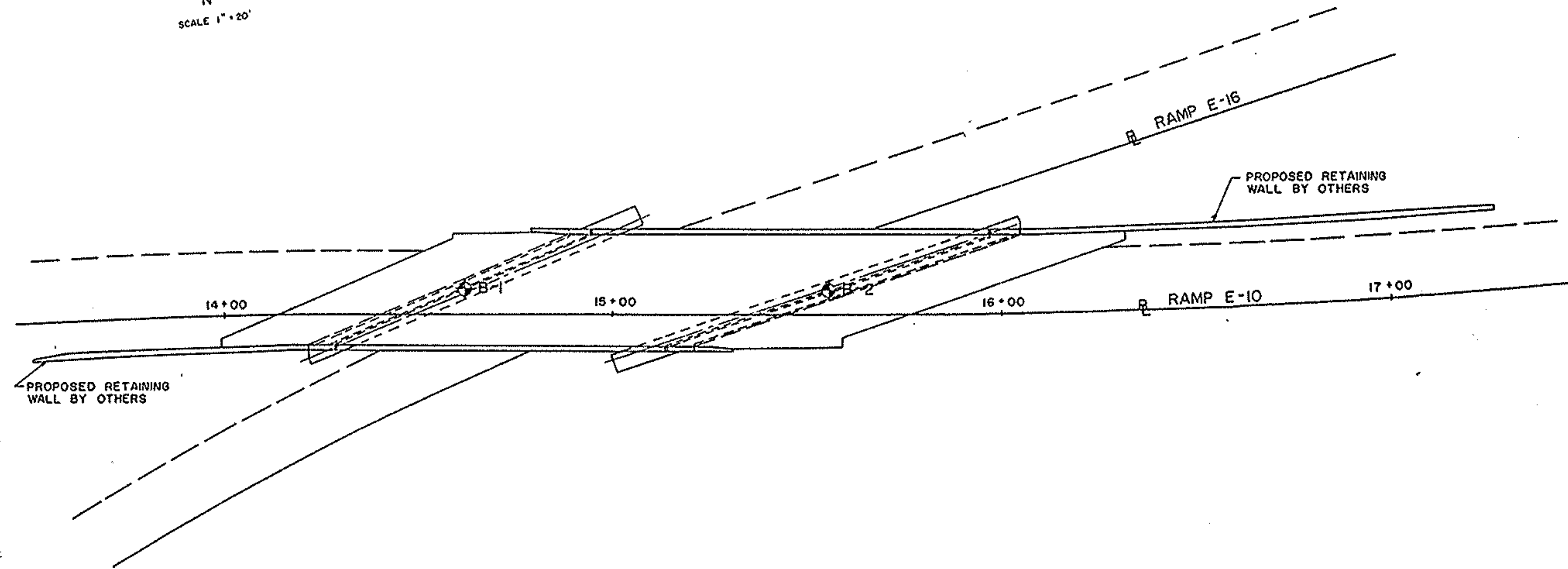
AKRON, OHIO 44321

FHWA REGION	STATE	PROJECT

98
104

2
4

N
SCALE 1" = 20'



SUBSURFACE INVESTIGATION
SUM-76-13.03
RAMP E-10 BRIDGE
SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-866-2200

LOG OF BORING

Date Started 8-25-86 Sampler Type Split Spoon Dia. 2.0 Water Elev. 994.4
Date Completed 8-25-86 Casing Length --- Dia. ---
Boring No. 8-1 Station & Offset Sta. 14 + 62 7' LT. Surface Elev. 1025.4

FHWA REGION	STATE	PROJECT

99
104

3
4

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1025.4	0				TOPSOIL													
1024.8																		
	5	8-13-10	1.2			1	SS											
		7-6-5	1.2			2	SS											
	10																	
		7-5-7	1.2		Medium dense to dense, brown SAND AND GRAVEL, little silt, moist (Fill).	3	SS	63.7	13.4	12.5	*	10.4	--	--	--	5.7	A-1-a	
	15																	
		8-9-22	1.3			4	SS											
	20	23-26-21	1.2			5	SS											
		6-6-9	1.2			6	SS											
	25	4-5-11	1.2			7	SS	49.8	27.0	15.4	*	7.8	--	--	--	7.8	A-1-b	
997.4		7-7-11	1.2			8	SS											
995.4	30	10-8-10	1.2		Very stiff, brown to gray CLAYEY SILT, some gravel, moist.	9	SS											
		10-10-10	1.4		Medium dense, brown SILTY SAND, trace gravel, moist.	10	SS	2.8	0.8	5.6	*	90.8	36.1	23.5	12.6	28.7	A-6a	
991.9		20-18-21	1.4		Very stiff, gray CLAYEY SILT, moist.	11												
990.4	35																	
		16-14-16	1.5			12	SS	36.4	25.4	30.6	*	7.6	--	--	--	10.1	A-1-b	
	40	14-18-14	1.5			13	SS											
		10-8-7	1.5		Dense to medium dense, brown SAND AND GRAVEL, trace silt, moist.	14	SS	39.2	25.0	25.4	*	10.4	--	--	--	9.5	A-1-b	
	45																	
		13-7-10	1.5			15	SS											
	50																	
		15-11-24	1.5			16	SS											
970.6	55				Hard, gray CLAYEY SILT, little gravel, moist.													
966.9	60	10-20-43	1.2			17	SS	13.0	28.5	12.5	*	46.0	16.4	12.8	3.6	10.0	A-4a	
		45-50/0.7	0.7		Hard, gray to brown SANDY SILT, little gravel, moist.	18	SS											
	65																	
955.9	70	50/0.0	0.0			19	SS											
		800	7.5	2.5		Ryn	HXM											

LOG OF BORING

Date Started 8-25-86 Sampler Type Split Spoon Dia. 2.0 Water Elev. 994.4
Date Completed 8-25-86 Casing Length --- Dia. ---
Boring No. 8-1 (Cont.) Station & Offset Sta. 14 + 62 7' LT. Surface Elev. 1025.4

ELEV.	DEPTH	STD. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.	
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
955.4	0																		
953.4					Tan <u>SANDSTONE</u> , unaltered, fine grained, hard, massive.														
	75				Brown <u>SANDSTONE</u> , unaltered, fine to very coarse grained, hard, massive (Sharon Conglomerate).														
945.9	80				TERMINATION DEPTH 79.5 FEET														

SUBSURFACE INVESTIGATION
SUM-76-13.03
RAMP E-10 BRIDGE
SUMMIT COUNTY, OHIO



R & R International, Inc.
GEOTECHNICAL ENGINEERS - GEOLOGISTS

Date Started 8-21-86 Sampler Type Split Spoon Dia. 2.0 Water Elev. 992.1
Date Completed 8-21-86 Casing Length -- Dia. --
Boring No. B-2 Station & Offset Sta. 15 + 54 7' LT. Surface Elev. 1020.1

[illegible]

Date Started	8-21-86	Sampler Type	Split Spoon	Dia	2.0	Water Elev.	992.1
Date Completed	8-21-86	Casing Length	--	Dia	---		
Boring No.	9-2 (Cont.)	Station & Offset	Sta. 15 + 54	7' LT.		Surface Elev.	1020.1

ELEV.	DEPTH	STO. PEN. (N)	REC. Ft.	LOSS Ft.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS									SHTL CLASS.
								% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	F.I.	W.C.	
950.1	0																
949.1		R00 91%	8.0		Dense, brown <u>SILTY SAND</u> , trace sandstone fragments, moist.	Run 1	HXM										
	75				Brown <u>SANDSTONE</u> , unaltered, fine to coarse grained, with cobbles, hard, massive (Sharon Conglomerate).												
941.1	80				TERMINATION DEPTH 79.0 FEET												
												* SILT AND CLAY COMBINED					

SUBSURFACE INVESTIGATION
SUM-76-13.03
RAMP E-10 BRIDGE
SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-665-2200

FHWA REGION	STATE	PROJECT



STRUCTURE SUBSURFACE INVESTIGATION



GENERAL INFORMATION

Drive sample / Press sample / Core borings

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, of 2.5 and/or 5-foot depth intervals, driven by means of a 140 lb. drop hammer with a free fall of 30". The number of blows required to drive the sampler 18" is considered the standard penetration test.

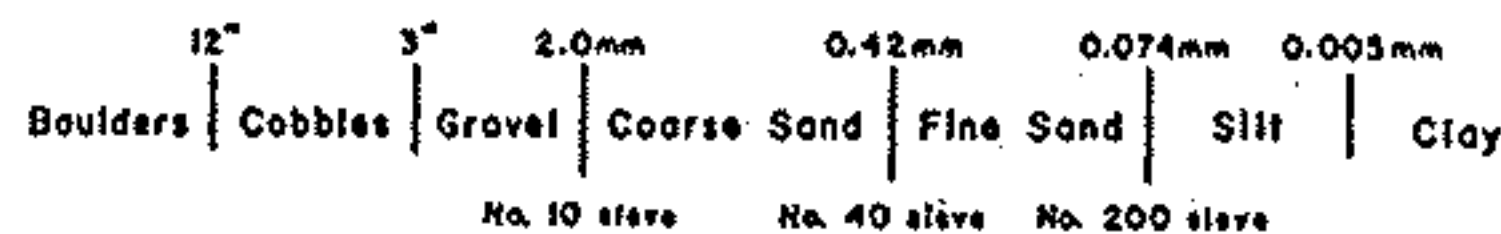
Drive/press borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampler, and 3" O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing a NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description - based on laboratory tests utilizing the Casagrande AC classification system - and gradation, plasticity and moisture determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, deterioration, bedding, acid reaction and other qualifying factors.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be utilized, a wash sample is procured and visually classified, in order to determine the general characteristics of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

PARTICLE SIZE DEFINITIONS



NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

LEGEND

	AUGER BORING LOCATION - PLAN VIEW		HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
	PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION - PLAN VIEW		FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST X = NO. OF BLOWS FOR FIRST 6" Y = NO. OF BLOWS FOR SECOND 6" Z = NO. OF BLOWS FOR THIRD 6"
	TOP OF ROCK		INDICATES FREE WATER ELEVATION
	CAPPED PILE		INDICATES STATIC WATER ELEVATION
	FOOTING		
	FOOTING ON PILE		

SYMBOLS OF ROCK TYPES

	COAL		WEATHERED SANDSTONE
	WEATHERED MUDSTONE		SANDSTONE
	MUDSTONE		LEACHED DOLOMITE
	WEATHERED SHALE		DOLOMITE
	SHALE		LEACHED LIMESTONE
	CLAYSTONE		LIMESTONE
	SILTSTONE		BOULDERS or COBBLES

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED ON THE GLACIATED, HILLY, DEEPLY DISSECTED ALLEGHENY PLATEAU PHYSIOGRAPHIC PROVINCE. THIS AREA WAS GLACIATED BY THE WISCONSIN ICE SHEET WITH DRIFT VARIABLE BUT THIN, GENERALLY AVERAGING LESS THAN 25 FEET. IN THIS AREA, THE GEOLOGY MAY HAVE BEEN ALTERED SOMEWHAT BY THE PLACEMENT OF FILL MATERIAL DURING EXPRESSWAY CONSTRUCTION. GLACIAL DEPOSITS UNDERLYING THE FILL GENERALLY CONSIST OF KAME DEPOSITS COMPOSED OF SANDS AND GRAVELS UNDERLAIN BY GLACIAL TILL WHICH IS COMPOSED OF PRIMARILY SILTS AND CLAYS.

THE SITE IS LOCATED NEAR THE CONTACT OF THE MISSISSIPPIAN ROCKS WITH THOSE OF PENNSYLVANIAN AGE. THE HIGHLANDS ARE UNDERLAIN BY SHARON CONGLOMERATE AND LOWER PORTIONS BY SANDSTONES OF THE LOGAN FORMATION.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO (2) DRIVE SAMPLE-CORE BORINGS, MADE BY MEANS OF CME-75 TRUCK MOUNTED DRILLING RIG USING 3 1/4 INCH I.D. HOLLOW STEM AUGERS, PERFORMED DURING OCTOBER, 1986.

INVESTIGATIONAL FINDINGS

THE TEST BORINGS DISCLOSED A THIN LAYER OF TOPSOIL UNDERLAIN BY A LAYER OF FILL MATERIAL COMPOSED OF SAND AND GRAVEL WITH MINOR QUANTITIES OF SILT. THE FILL MATERIAL IS UNDERLAIN BY A LAYER OF MEDIUM STIFF, GRAY SILT, CLASSIFIED AS A-48, FOLLOWED BY A LAYER OF SAND AND GRAVEL DEPOSITS, CLASSIFIED AS A-1-A, A-1-B, AND A-3A. FOR SPECIFIC CONDITIONS AT VARIOUS DEPTHS, REFER TO THE INDIVIDUAL TEST BORING LOGS WHICH FORM A PART OF THIS REPORT.

SUBSURFACE INVESTIGATION
SUM-76-1332
OVER SEIBERLING STREET
SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS-GEOLOGISTS

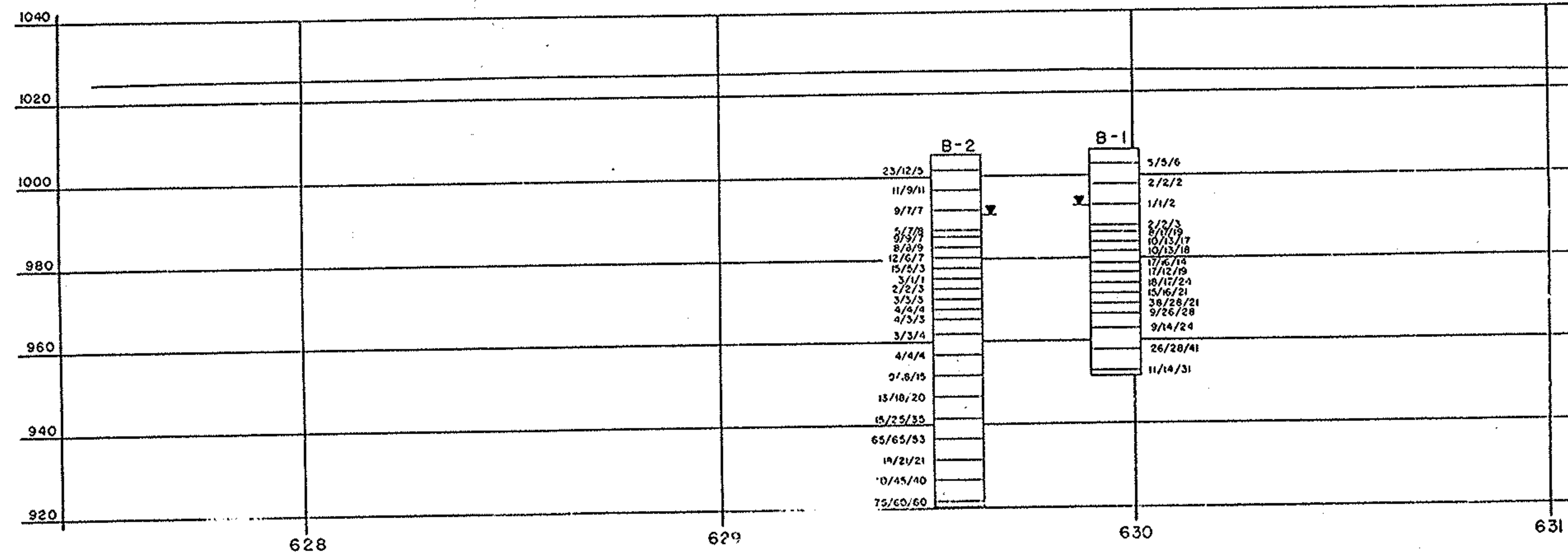
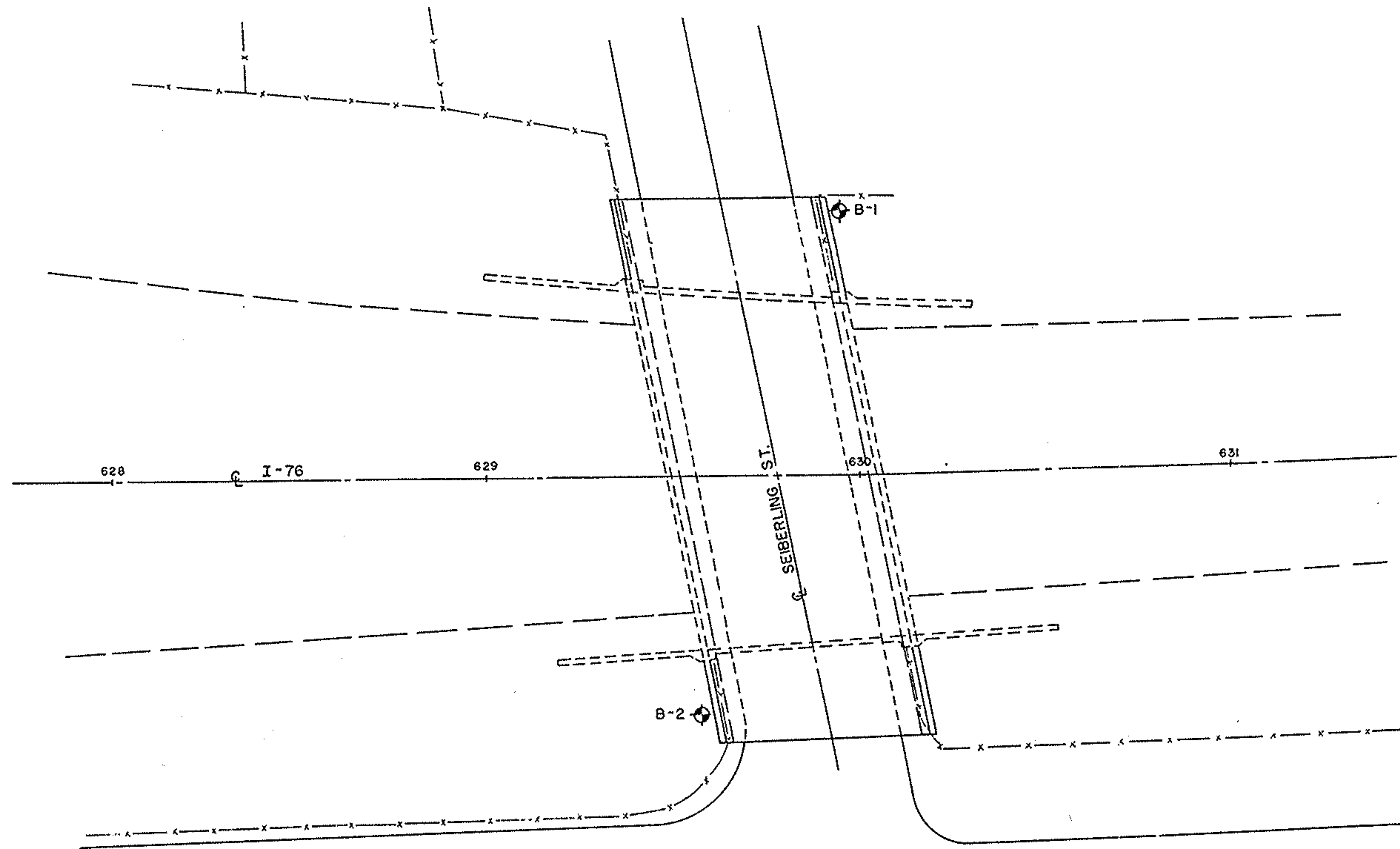
AKRON, OHIO 44321

FHWA REGION	STATE	PROJECT

102
104

2
4

N
SCALE 1" = 20'



SUBSURFACE INVESTIGATION
SUM-76-1332
OVER SEIBERLING STREET
SUMMIT COUNTY, OHIO



R & R International, Inc.

GEOTECHNICAL ENGINEERS - GEOLOGISTS

3675 COPLEY ROAD
AKRON, OH 44321
216-666-2200

FHWA REGION	STATE	PROJECT

103
104

3
4

LOG OF BORING

Date Started 10-31-86 Sampler Type Split Spoon Dia. 2.0 Water Elev. 993.4
 Date Completed 12-31-86 Casing Length -- Dia. --
 Boring No. A-1 Station & Offset Sta. 629 + 96 71' LT. Surface Elev. 1007.4

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS										SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
1007.4	0				TOPSOIL													
1006.9																		
	5	5-5-6	0.8		Medium dense to loose, brown <u>SAND AND GRAVEL</u> , trace silt, moist (Fill).	1	SS	40.3	34.7	15.7	*	9.3	--	--	--	11.3	A-1-b	
		2-2-2	1.4			2	SS											
997.9	10																	
	15	1-1-2	1.5		Soft to medium stiff, gray <u>SILT</u> , some clay, trace sand, moist.	3	SS											
		2-2-3	1.5			4	SS	0.1	0.2	5.2	*	94.5	24.7	17.7	7.0	26.6	A-4b	
986.9	20	9-17-19	1.5			5	SS	40.0	20.4	29.3	*	10.3	--	--	--	9.3	A-1-b	
		10-13-17	1.5			6	SS											
	25	10-13-18	1.5			7	SS	23.5	44.3	27.6	4.3	0.3	--	--	--	15.3	A-1-b	
		17-16-14	1.5			8	SS											
	30	17-12-19	1.5			9	SS	22.3	48.3	25.8	*	3.6	--	--	--	14.9	A-1-b	
		18-17-24	1.5		Dense, gray <u>SAND AND GRAVEL</u> , trace silt, moist to wet.	10	SS											
	35	15-16-21	1.5			11	SS	57.8	20.9	13.1	*	8.2	--	--	--	9.8	A-1-a	
		39-29-21	1.5			12	SS	1.4	58.7	34.0	5.6	0.3	--	--	--	15.9	A-1-b	
	40	9-26-28	1.5			13	SS											
966.4					Hard, gray <u>SILT</u> , trace sand, moist.													
965.4		9-14-24	1.5			14	SS											
	45																	
	50	26-29-41	0.0		Dense, gray <u>SAND AND GRAVEL</u> , trace silt, moist to wet.	15	SS											
		11-14-31	1.5		NOTE: At 48.5 feet, sample drive pushed cobble.	16	SS	4.3	69.3	23.2	*	3.2	--	--	--	18.1	A-1-b	
952.4	55				TERMINATION DEPTH 55.0 FEET													

* SILT AND CLAY COMBINED

SUBSURFACE INVESTIGATION
 SUM-76-1332
 OVER SEIBERLING STREET
 SUMMIT COUNTY, OHIO



R & R International, Inc.
 GEOTECHNICAL ENGINEERS-GEOLOGISTS

LOG OF BORING

Date Started --- Sampler Type --- Dia. --- Water Elev. Unknown
Date Completed January 7, 1956 Casing Length --- Dia. ---
Boring No. B-15 A-2 Station & Offset Sta. 735 + 98 G Surface Elev. 1052.2

ELEV.	DEPTH	STD. PEN. (N)	REC. FT.	LOSS FT.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS											SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SLT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1052.2	0																		
1047.2	5	22			BROWN SILTY GRAVELLY SAND	56235	SS	23	17	38	13	9	NP	NP	NP	15		A-3a	
1042.2	10	15			BROWN SILTY GRAVELLY SAND	56236	SS	29	17	31	9	14	19	14	5	18		A-3a	
1037.2	15	31			BROWN SILTY GRAVELLY SAND	56237	SS	18	41	30	3	8	NP	NP	NP	14		A-1-b	
1032.2	20				TOP OF ROCK														
	25				SANDSTONE, brown and gray mottled with reddish brown, coarse grained, medium firm to firm.														
	30																		
1017.2	35																		
					TERMINATION DEPTH 35.0 FEET														
					NOTE: Information obtained from O.D.O.T. Log of Boring dated January 7, 1956.														

LOG OF BORING

Date Started --- Sampler Type --- Dia. --- Water Elev. Unknown
Date Completed January 7, 1956 Casing Length --- Dia. ---
Boring No. B-15 A-12 Station & Offset Sta. 738 + 11 10' RT. Surface Elev. 1057.0

ELEV.	DEPTH	STD. PEN. (N)	REC. FT.	LOSS FT.	DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	PHYSICAL CHARACTERISTICS											SHTL CLASS.
								% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.			
1067.0	0																		
1062.0	5	20			BROWN SILTY SANDY GRAVEL	56239	SS	55	20	11	10	4	HP	HP	HP	15		A-1-a	
1057.0	10	29			BROWN SILTY SANDY GRAVEL	56240	SS	52	12	24	7	5	HP	HP	HP	13		A-1-b	
1052.0	15				SAND AND GRAVEL														
1047.0	20	75			GRAY SILTY SAND	56241	SS	3	10	55	18	14	HP	HP	HP	12		A-3a	
	25																		
	26																		
1039.0	30				TOP OF ROCK														
	30				SANDSTONE, gray, coarse-grained, firm, medium bedded with 0.6 feet medium grained, thin bedded sandstone at top.														
	35																		
	40																		
1027.0	40				TERMINATION DEPTH 40.0 FEET														
					NOTE: Information obtained from O.D.O.T. Log of Boring dated January 7, 1956.														