

# COUNTY OF CUYAHOGA MILES ROAD CULVERT NO. 21, C.R. II

**RONALD A. STACKHOUSE**  
COUNTY ENGINEER

REPLACE EXISTING CULVERT

BENTLEYVILLE VILLAGE & MORELAND HILLS VILLAGE

&

# MILES ROAD BRIDGE NO. 176, C.R. II

REPAIR EXISTING BRIDGE

CHAGRIN FALLS VILLAGE & MORELAND HILLS VILLAGE

### SPECIFICATION

THE STANDARD CONSTRUCTION AND MATERIAL SPECIFICATION OF THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS, DATED JANUARY 1, 1975 INCLUDING ALL CHANGES AND SUPPLEMENTAL SPECIFICATIONS THERE TO AND THE SUPPLEMENTAL CONSTRUCTION AND MATERIAL SPECIFICATIONS OF CUYAHOGA COUNTY, ARE A PART OF THE TERMS OF THE CONTRACT FOR THIS IMPROVEMENT AND SHALL APPLY TO ALL CONSTRUCTION AS CALLED FOR ON THE PLANS, OR IN THE PROPOSAL.

### NOTES:

THE NUMBER OF CALENDAR DAYS STIPULATED IN THE CONTRACT FOR THE COMPLETION OF THE PROJECT SHALL BE EFFECTIVE FROM THE DATE OF THE COUNTY ENGINEER'S WRITTEN NOTICE TO THE CONTRACTOR TO START CONSTRUCTION. ANY SUBSEQUENT LOSS OF TIME OCCASIONED BY A WRITTEN NOTICE FROM THE COUNTY ENGINEER TO SUSPEND OPERATIONS, BY REASON OF PREVAILING UNSATISFACTORY WEATHER CONDITIONS, SHALL NOT BE INCLUDED IN THE TIME STIPULATED FOR THE COMPLETION OF THE PROJECT.

THE STATIONS SHOWN ON THE PLANS ARE FOR CONSTRUCTION PURPOSE ONLY AND ARE NOT TO BE USED FOR RECORD.

THE CONTRACTOR SHALL COOPERATE WITH THE ENGINEER IN PROTECTING AND PRESERVING CORNERSTONES AND MONUMENTS THAT ARE WITHIN THE HIGHWAY AS REQUIRED BY SECTION 5519.05 OF THE REVISED CODE OF OHIO.

### UTILITIES

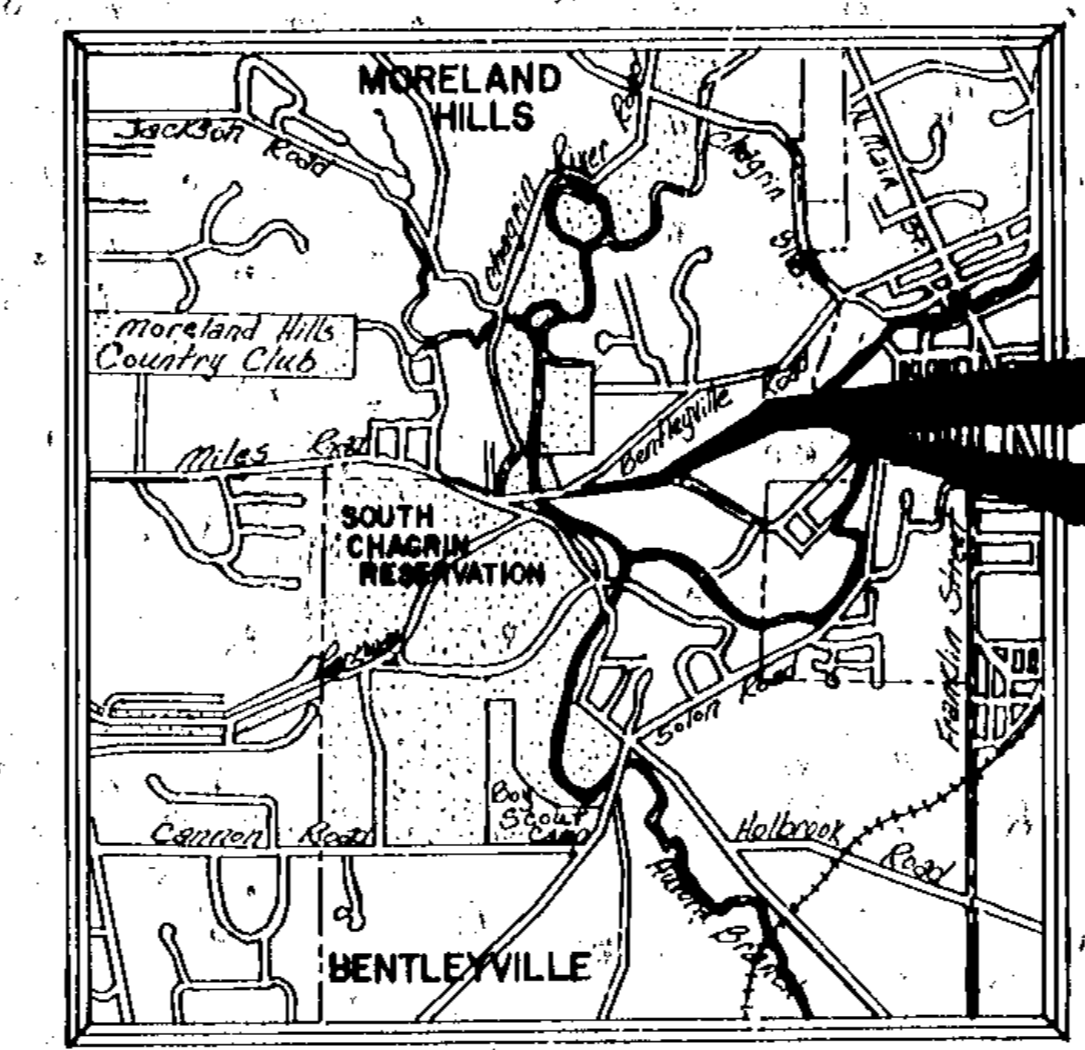
THE LOCATION OF UNDERGROUND UTILITIES ARE PLOTTED ACCORDING TO INFORMATION FURNISHED BY THE UTILITY CONCERNED AND THE COUNTY OF CUYAHOGA DOES NOT GUARANTEE THE ACCURACY THEREOF. THE FOLLOWING IS BELIEVED TO BE A LIST OF UTILITY OWNERS WITHIN THE LIMITS OF CONSTRUCTION:

VILLAGE OF CHAGRIN FALLS  
SERVICE DEPARTMENT  
21 WEST WASHINGTON ST.  
CHAGRIN FALLS, OHIO 44022  
PHONE: 247-5050

CLEVELAND ELECTRIC ILLUMINATING CO.  
THE ILLUMINATING COMPANY  
55 PUBLIC SQUARE  
CLEVELAND, OHIO 44113  
PHONE: 623-1350

EAST OHIO GAS COMPANY  
1201 EAST 55 TH. STREET  
CLEVELAND, OHIO 44103  
PHONE: 361-2753

OHIO BELL TELEPHONE COMPANY  
DIAL 0  
ASK FOR ENTERPRISE 8989



LOCATION PLAN



PROJECT SITE  
CULVERT NO. 21

PROJECT SITE  
BRIDGE NO. 176

### CONVENTIONAL SIGNS

- 1. CENTER LINE \_\_\_\_\_
- 2. PROPERTY LINE \_\_\_\_\_ P/L
- 3. RIGHT OF WAY LINE \_\_\_\_\_ R/W
- 4. WATER LINE \_\_\_\_\_ W
- 5. EXISTING MONUMENT
- 6. TREES TO BE REMOVED
- 7. TELEPHONE POLE
- 8. LIGHT POLE

### MUNICIPALITIES

APPROVED IN THE VILLAGE OF CHAGRIN FALLS  
ORDINANCE OF CONSENT NO. 1977-1067  
PASSED 5-17-77

APPROVED IN THE VILLAGE OF BENTLEYVILLE  
ORDINANCE OF CONSENT NO. 1976-12  
PASSED 7-14-76

APPROVED IN THE VILLAGE OF MORELAND HILLS  
ORDINANCE OF CONSENT NO. 1977-30  
PASSED 5-11-77

APPROVED Eugene A. Halupnik  
Bridge Engineer  
DATE 12-8-77

APPROVED Felix A. Spittler  
Chief Engineer  
DATE 12-9-77

APPROVED Matin Aballab  
Chief Deputy Engineer  
DATE 12-9-77

APPROVED Ronald A. Stackhouse  
County Engineer  
DATE Dec. 9, 1977

### BOARD OF COMMISSIONERS

APPROVED \_\_\_\_\_  
County Commissioner  
DATE 1/12/77

APPROVED [Signature]  
County Commissioner  
DATE 12/12/77

APPROVED [Signature]  
County Commissioner  
DATE 12/12/77

JOURNAL 177 PAGE \_\_\_\_\_ DATE 12/12/77

### STANDARD DRAWINGS

GR-4 \_\_\_\_\_ 1-1-71  
GR-2A \_\_\_\_\_ 5-1-77

APPROVED BY: [Signature]  
LAND DEPUTY  
DATE: 10/5/77

# GENERAL SUMMARY

ESTIMATED QUANTITIES							ESTIMATED QUANTITIES								
REF. NO.	ITEM	PROPOSAL QUANTITIES	UNIT	DESCRIPTION	ESTIMATED QUANTITIES			REF. NO.	ITEM	PROPOSAL QUANTITIES	UNIT	DESCRIPTION	ESTIMATED QUANTITIES		
					CULV. 21	BR. 176	TOTAL						CULV. 21	BR. 176	TOTAL
1	201	Lump	Lump	Clearing and Grubbing	Lump	—	Lump	26	517	280	Lin. Ft.	Railing (Aluminum Rails, Supports, Concrete Parapet)	—	276	276
2	202	Lump	Lump	Culvert Removed	Lump	—	Lump	27	518	85	Cu. Yds.	Porous Backfill	—	71	71
3	202	280	Lin. Ft.	Guard Rail, Removed For Storage	270	—	270	28	601	30	Sq. Yds.	Riprap	20	—	20
4	202	250	Lin. Ft.	Railing Removed	—	244	244	29	601	20	Cu. Yds.	Rock Channel Protection, Type "B" with Bedding	13	—	13
5	202	Lump	Lump	Concrete End Posts Removed	—	Lump	Lump	30	602	8	Cu. Yds.	Concrete Masonry	6	—	6
6	202	430	Sq. Yds.	Pavement Removed	—	400	400								
7	203	1080	Sq. Yds.	Subgrade Compaction	646	414	1060								
8	203	1650	Cu. Yds.	Embankment	1554	—	1554	31	603 Spl.	260	Lin. Ft.	54" $\phi$ Conduit - Type "A" 20707 with Type "B" Bedding	257	—	257
9	203 Spl.	500	Cu. Yds.	Excavation, Unclassified (Not Including Embankment)	414	—	414	32	604 Spl.	1	Each	12" $\phi$ Manhole with Fittings, Including Casting	1	—	1
10	304 Spl.	95	Cu. Yds.	8" Aggregate Base	85	—	85					as per plan			
11	304 Spl.	75	Cu. Yds.	6" Aggregate Base	—	68	68	33	605	280	Lin. Ft.	6" Perforated Deep Pipe Underdrains	270	—	270
12	310 Spl.	150	Cu. Yds.	6" Subbase	66	66	132	34	606	200	Lin. Ft.	Guard Rail, Type 4	181	—	181
13	402 Spl.	50	Cu. Yds.	1 3/4" Asphalt Concrete - Intermediate Course	18	20	38	35	606	6	Each	Anchor Assembly	2	4	6
14	404 Spl.	30	Cu. Yds.	1" Asphalt Concrete - Surface Course	10	11	21	36	606	4	Each	Bridge Terminal Assembly, as per plan	—	4	4
15	408 Spl.	320	Gals.	Bituminous Prime Coat	144	160	304								
16	409	30	Gals.	Seal Coat - Bituminous Material	24	—	24	37	616	2	Tons.	Calcium Chloride	—	2	2
17	409	1	Cu. Yds.	Seal Coat - Cover Aggregate No. 8	0.5	—	0.5	38	623	Lump	Lump	Construction Layout Stakes	Lump	Lump	Lump
18	410 Spl.	20	Cu. Yds.	Traffic Compacted Surface	—	20	20	39	659	1	Tons.	Commercial Fertilizer (12-12-12)	0.3	—	0.3
19	411	40	Cu. Yds.	6" Stabilized Crushed Aggregate	28	—	28	40	659	2	Tons.	Agricultural Liming	125	—	125
								41	659 Spl.	2850	Sq. Yds.	Seeding & Mulching	2723	—	2723
20	509	11,000	Lbs.	Reinforcing Steel	—	9232	9232								
21	510	220	Each	Dowel Holes	—	208	208	42	Special	400	Sq. Ft.	Concrete Repair Less Than 6", In Accordance with Item 519 or 520.	—	225	225
22	511	70	Cu. Yds.	Class "C" Concrete - Spandrel Wall, Including Removal of Existing Spandrel Wall	—	57	57	43	Special	150	Sq. Ft.	Concrete Repair 6" To 12", In Accordance with Item 519.	—	84	84
23	511	75	Cu. Yds.	Class "C" Concrete - Arch, Including Removal of Existing Arch Concrete	—	54	54	44	Special	4850	Sq. Ft.	Finish Coating For Concrete	—	4764	4764
24	511	8	Cu. Yds.	Class "C" Concrete - Railing Footing	—	4	4	45	Special	Lump	Lump	Replacement Of Water Main	—	Lump	Lump
								46	614 Spl.	Lump	Lump	Maintaining Traffic	Lump	Lump	Lump
25	512	220	Sq. Yds.	Type "A" Waterproofing	—	198	198	47	619 Spl.	Lump	Lump	Field Office	Lump	Lump	Lump

CUYAHOGA COUNTY ENGINEER  
CLEVELAND OHIO

**MILES ROAD**  
BRIDGE OVER CHAGRIN RIVER &  
CULVERT NO. 21

**GENERAL SUMMARY**

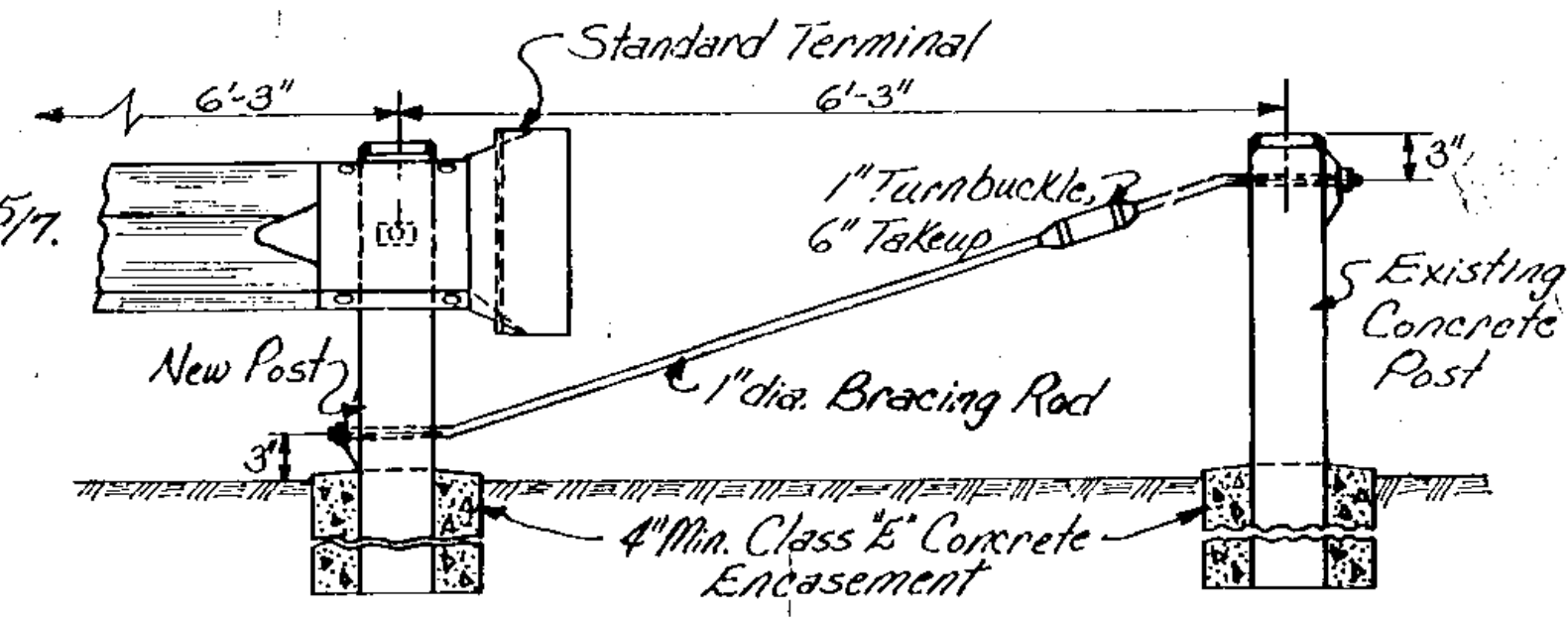
BRIDGE NO. 176 CULV. NO. 21 REPORT NO. 7029 DATE 9/29/77

**NO. B-39**

DESIGN WRP	DRAWN WRP	CHECKED S.R.L.	REVISED TO AS BUILT
---------------	--------------	-------------------	---------------------

**INDEX OF DRAWINGS**

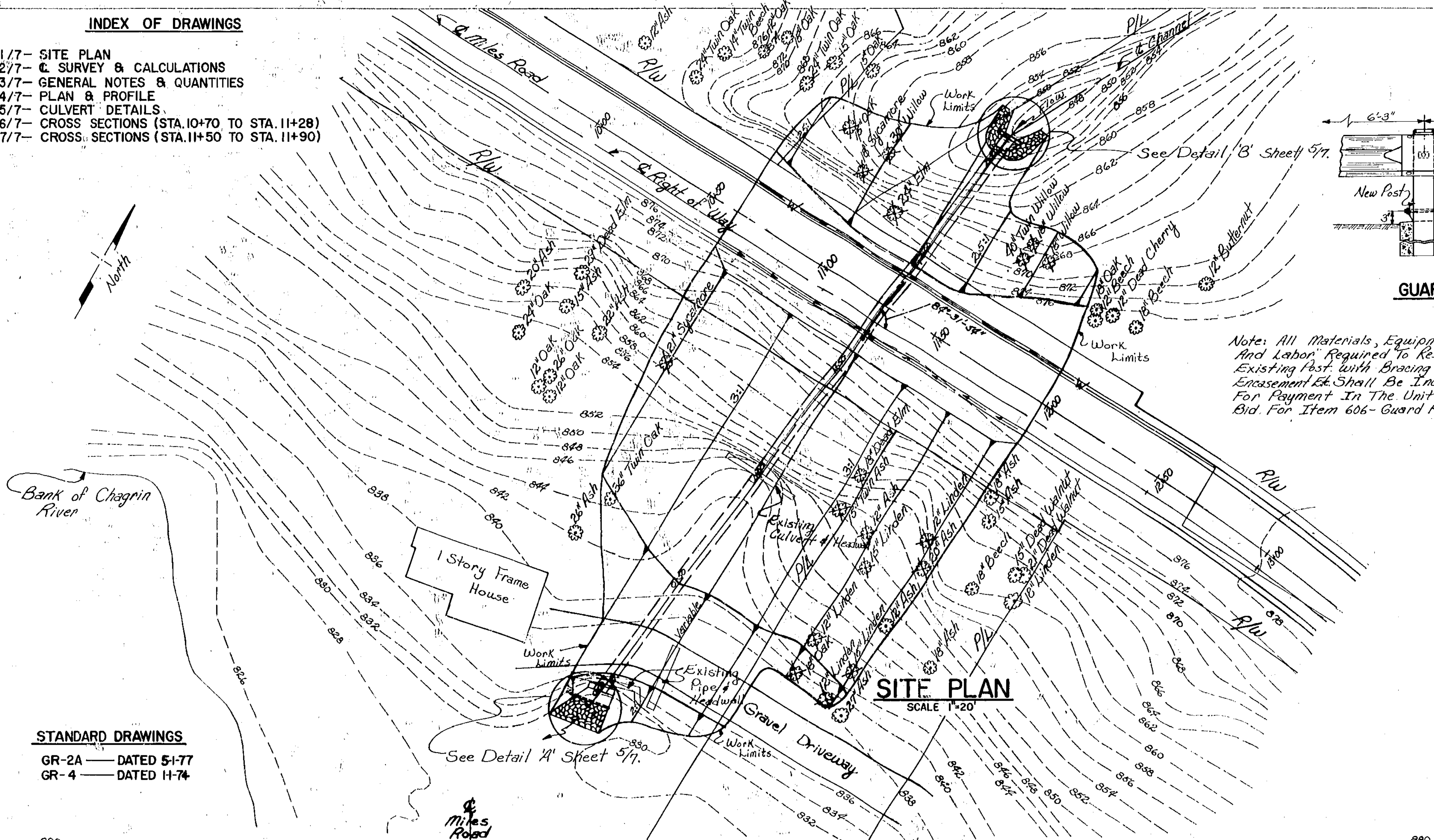
- 1/7- SITE PLAN
- 2/7- C. SURVEY & CALCULATIONS
- 3/7- GENERAL NOTES & QUANTITIES
- 4/7- PLAN & PROFILE
- 5/7- CULVERT DETAILS
- 6/7- CROSS SECTIONS (STA. 10+70 TO STA. 11+28)
- 7/7- CROSS SECTIONS (STA. 11+50 TO STA. 11+90)



**GUARD RAIL TERMINAL SECTION**  
SCALE 3/4"=1'-0"

Note: All Materials, Equipment And Labor Required To Reset Existing Post With Bracing Rod, Encasement Et. Shall Be Included For Payment In The Unit Price Bid For Item 606- Guard Rail Type 4

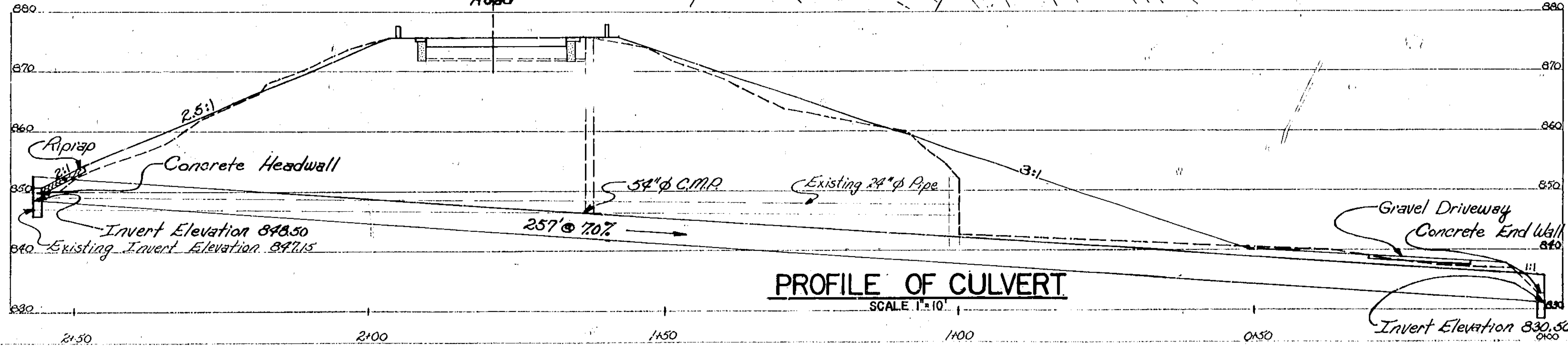
EXISTING CULVERT DATA	
TYPE:	Cast Iron Pipe
SKEW:	5° 50' 00" Right Forward
SPAN:	24" diameter
ROADWAY:	24'
HEIGHT OF FILL:	29'
CONDITION:	Poor
DATE BUILT:	1914
LENGTH:	161.2'
PROPOSED STRUCTURE	
TYPE:	Corrugated Metal Pipe
SKEW:	5° 28' 6" Right Forward
SPAN:	54" diameter
LENGTH:	257'
HEADWALLS:	upstream- Concrete downstream- Concrete
ROADWAY:	24'
HEIGHT OF FILL:	29'
LOCATION	
1440 FT. East of Bentleyville Rd.	
REF. STATION 11+27.39	
DRAINAGE DATA	
DRAINAGE AREA 62 acres	
Q <sub>10</sub> 126 cfs.	
WATERWAY OPENING 16 sq.ft.	



**SITE PLAN**  
SCALE 1"=20'

**STANDARD DRAWINGS**

- GR-2A — DATED 5-1-77
- GR-4 — DATED 11-74



**PROFILE OF CULVERT**  
SCALE 1"=10'

**CUYAHOGA COUNTY ENGINEER**  
CLEVELAND OHIO

**MILES ROAD**  
BENTLEYVILLE VILLAGE & MORELAND HILLS VILLAGE  
CULVERT NO. 21

**SITE PLAN**

CULVERT NO. 21 REPORT NO. 7029 DATE 3/18/77

**NO. B-39**

DESIGN	DRAWN	CHECKED	REVISED TO AS BUILT
WAP	WAP	S.R.	

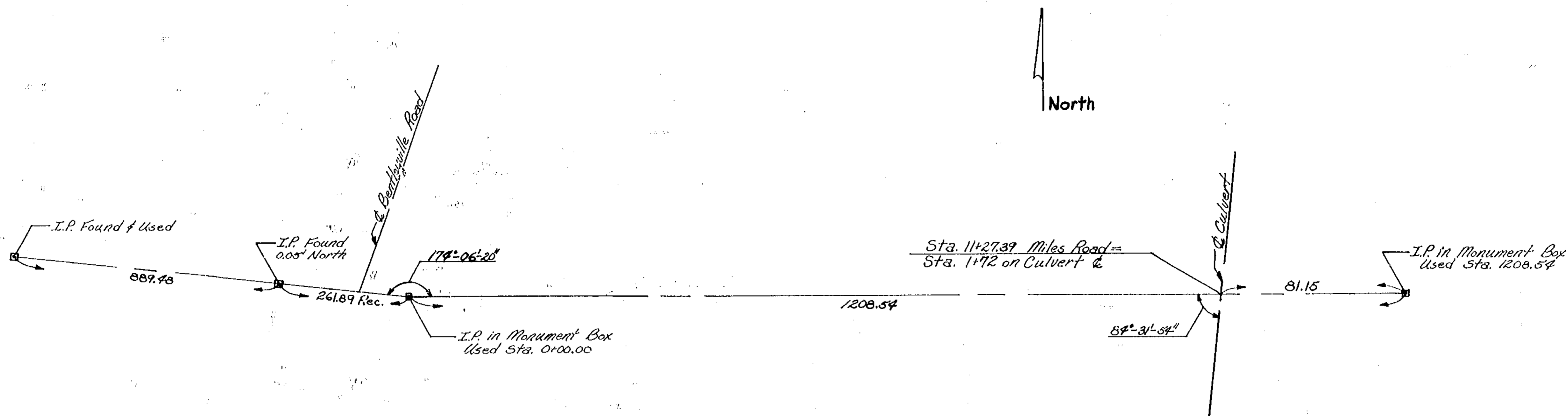
PLAN

PROFILE

# CENTERLINE SURVEY

Not to Scale  
F.B. 529/1042

4  
18



SURVEY ENGINEER *A.L. Japilla*  
DATE 3/18/77

## QUANTITY CALCULATIONS

### 304 & SPECIAL-8" AGGREGATE BASE

$$\begin{aligned} 135' \times 25.33' \times 67' &= 2291 \text{ Cu.Ft.} \\ \div 27 & \\ \hline 84.85 \text{ Cu.Yds.} \end{aligned}$$

### 310 & SPECIAL-6" SUBBASE

$$\begin{aligned} 135' \times 26.33' \times 50' &= 1777.3 \text{ Cu.Ft.} \\ \div 27 & \\ \hline 65.82 \text{ Cu.Yds.} \end{aligned}$$

### 402 & SPECIAL-1 1/4" INT. COURSE ASPHALT

$$\begin{aligned} 135' \times 24' \times .146' &= 473.0 \text{ Cu.Ft.} \\ \div 27 & \\ \hline 17.52 \text{ Cu.Yds.} \end{aligned}$$

### 404 & SPECIAL-1" SURF COURSE ASPHALT

$$\begin{aligned} 135' \times 24' \times .083' &= 268.9 \text{ Cu.Ft.} \\ \div 27 & \\ \hline 9.96 \text{ Cu.Yds.} \end{aligned}$$

### 408 & SPECIAL-BITUMINOUS PRIME COAT

$$\begin{aligned} (135' \times 24') \div 9 &= 360 \text{ Sq.Yds.} \\ \times 40 & \\ \hline 144.0 \text{ Gal.} \end{aligned}$$

### 409-SEAL COAT BITUMINOUS MATERIAL

$$\begin{aligned} 2 \times (2' \times 135' \div 9) &= 60.0 \text{ Sq.Yds.} \\ \times 40 & \\ \hline 24.0 \text{ Gal.} \end{aligned}$$

### 409-SEAL COAT COVER AGGREGATE

$$\begin{aligned} 2 \times (2' \times 135' \div 9) &= 60.0 \text{ Sq.Yds.} \\ \times .008 & \\ \hline .48 \text{ Cu.Yds.} \end{aligned}$$

### 411-6" STABILIZED CRUSHED AGGREGATE

$$\begin{aligned} 2 (135' \times 2' \times 5') &= 270.00 \text{ Cu.Ft.} \\ (39' \times 15' \times 5') + (21' \times 17.5' \times 5') &= 476.25 \text{ Cu.Ft.} \\ \hline 746.25 \text{ Cu.Ft.} \\ \div 27 & \\ \hline 27.63 \text{ Cu.Yds.} \end{aligned}$$

### 659 & SPECIAL-SEEDING & MULCHING

SEE CROSS SECTION SHEETS = 2722.90 Sq.Yds.

### 659-COMMERCIAL FERTILIZER (12-12-12)

$$\begin{aligned} (2722.9 \times 9) \div 1000 &= 24.50 \text{ 1000 Sq.Ft.} \\ \times 0.01 & \\ \hline 0.24 \text{ Tons} \end{aligned}$$

### 659-AGRICULTURAL LIMING

$$\begin{aligned} (2722.9 \times 9) \div 1000 &= 24.50 \text{ 1000 Sq.Ft.} \\ \times 0.05 & \\ \hline 1.22 \text{ Tons} \end{aligned}$$

### 202-GUARD RAIL, REMOVED FOR REUSE

$$2 \times 135' = 270.00 \text{ Lin.Ft.}$$

CUYAHOGA COUNTY ENGINEER CLEVELAND OHIO			
<b>MILES ROAD</b>			
BENTLEYVILLE VILLAGE & MORELAND HILLS VILLAGE CULVERT NO.21			
<b>CALCULATIONS &amp; C SURVEY</b>			
CULVERT NO. <u>21</u>		REPORT NO. <u>7029</u> DATE <u>3/18/77</u>	
<b>NO. B-39</b>		<b>2/7</b>	
DESIGN <i>WAP</i>	DRAWN <i>WAP</i>	CHECKED <i>S.R.L.</i>	REVISED TO AS BUILT

# GENERAL NOTES

### MAINTENANCE OF TRAFFIC

THE MAKING OF THIS IMPROVEMENT SHALL REQUIRE THE CLOSING OF MILES ROAD FROM BENTLEYVILLE ROAD TO SOLON ROAD TO THROUGH TRAFFIC. THE CONTRACTOR SHALL PROSECUTE WITH EXPEDIENCY AND TO THE FULLEST EXTENT THE WORK INVOLVED SO AS TO REDUCE TO A MINIMUM THE LENGTH OF TIME THAT THE ROADWAY WILL BE CLOSED TO THROUGH TRAFFIC. THE VILLAGES OF BENTLEYVILLE AND MORELAND HILLS POLICE AND FIRE DEPARTMENTS SHALL BE NOTIFIED OF THE ROAD CLOSING AT LEAST 72 HOURS PRIOR TO THE ACTUAL CLOSING. THE ROAD SHALL NOT BE CLOSED UNTIL THE NECESSARY DETOUR SIGNS HAVE BEEN ERECTED. DETOUR SIGNS SHALL BE FURNISHED

AND ERECTED BY CUYAHOGA COUNTY. THE CONTRACTOR SHALL MAINTAIN SAFE AND SATISFACTORY ACCESS TO ABUTTING PROPERTIES AT ALL TIMES DURING CONSTRUCTION OF THE IMPROVEMENT, INCLUDING, IF NECESSARY THE CONSTRUCTION AND REMOVAL OF TEMPORARY BY-PASSES, BRIDGING, CROSS OVERS AND DRIVEWAYS. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, SATISFACTORY BARRIERS, LIGHTING, FLAGMEN, TEMPORARY GUARDRAIL, AND SUCH OTHER TRAFFIC CONTROL DEVICES AS PROVIDED IN "ITEM 614-MAINTAINING TRAFFIC" SO AS TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS USING THE ROADWAY DURING CONSTRUCTION.

### FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE IN ACCORDANCE WITH ITEM 619 & SPECIAL, HAVING A MINIMUM OF 150 SQ. FT. OF FLOOR SPACE. THE CONTRACTOR SHALL INSTALL AND MAINTAIN STURDY WORK TABLES, DESK AND TELEPHONE FOR THE EXCLUSIVE USE OF THE COUNTY AND FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL HAVE PROVISIONS FOR HEATING IN THE FIELD OFFICE TO A TEMPERATURE OF 68°F, AND SHALL MAINTAIN SUITABLE LATRINE FACILITIES NEAR THE FIELD OFFICE IN ACCORDANCE WITH 107.06. ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 619 & SPECIAL - FIELD OFFICE.

### CULVERT REMOVAL

THE EXISTING CULVERT AND ENDWALLS SHALL BE REMOVED COMPLETELY. STORAGE OF STONE FOR REUSE IN SLOPE PROTECTION SHALL BE IN LOCATIONS DESIGNATED, AND/OR IN LOCATIONS APPROVED BY THE ENGINEER. CULVERT REMOVAL, REMOVAL OF STONE FOR REUSE, AND DISPOSAL OF ANY UNUSED STONE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - CULVERT REMOVED.

### CULVERT PIPE

PIPE SHALL BE 54" DIAMETER CORRUGATED METAL PIPE FABRICATED OF 3"x1" CORRUGATION MATERIAL. MATERIAL SHALL BE 16 GAGE THICKNESS GALVANIZED STEEL (0.064") CONFORMING TO AASHTO M36. CULVERT LAYOUT DESIGN IS FOR 257' LENGTH OF 54" DIAMETER PIPE, ANY OVERRUN OR UNDERRUN IN THE LAYING LENGTH SHALL BE ADJUSTED FOR AT THE OUTLET END. PIPE COATING SHALL CONFORM TO AASHTO M-190 TYPE 'C'.

### RIPRAP

SANDSTONE SALVAGED FROM THE ENDWALLS MAY BE USED PROVIDED THAT THE STONE MEETS THE REQUIREMENTS OF SECTION 601.04.

### ROCK CHANNEL PROTECTION

SANDSTONE BLOCKS SALVAGED FROM THE EXISTING WALLS MAY BE USED PROVIDED THAT THE STONE MEETS THE REQUIREMENTS SECTION 601.07 TYPE "B". THE 6" REINFORCED CONCRETE SLAB AND 9" CUTOFF WALL IN ACCORDANCE WITH SECTION 601.04 SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 601 - ROCK CHANNEL PROTECTION.

### GUARDRAIL

POSTS AND CABLES SHALL BE REMOVED AND STORED IN THE LOCATIONS DESIGNATED BY THE ENGINEER IF THEY ARE REUSABLE.

### PAVEMENT REMOVAL

THE REMOVAL AND DISPOSAL OF THE EXISTING PAVEMENT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 & SPECIAL - EXCAVATION, UNCLASSIFIED.

ESTIMATED		QUANTITIES		ESTIMATED	
REF. NO.	ITEM	PROPOSAL QUANTITIES	UNIT	DESCRIPTION	QUANTITIES
<u>ROADWAY</u>					
	201		Lump	Clearing & Grubbing	Lump
	202		Lin. Ft.	Guard Rail, Removed for storage	270
	203 & Special		Cu. Yds.	Excavation, unclassified (Not including Embankment)	414
	203		Cu. Yds.	Embankment	1357
	203		Sq. Yds.	Subgrade Compaction	646
	606		Lin. Ft.	Guard Rail, Type 4	131
	606		Each	Anchor Assemblies	2
<u>EROSION CONTROL</u>					
	659 & Special		Sq. Yds.	Seeding & Mulching	2723
	659		Tons	Commercial Fertilizer (12-12-12)	0.3
	659		Tons	Agricultural Liming	1.25
<u>CULVERT</u>					
	202		Lump	Culvert Removed	Lump
	601		Sq. Yds.	Riprap	20
	601		Cu. Yds.	Rock Channel Protection - Type "B" with Bedding	13
	602		Cu. Yds.	Concrete Masonry	6
	603 & Special		Lin. Ft.	54" Ø Conduit - Type "A" 707.07 with Type "B" Bedding	257
	604 & Special		Each	12" Ø Manhole with Fittings, including Casting as per plan	1
<u>PAVEMENT</u>					
	304 & Special		Cu. Yds.	8" Aggregate Base	85
	310 & Special		Cu. Yds.	6" Subbase	66
	402 & Special		Cu. Yds.	1 1/2" Asphalt Concrete - Intermediate Course	18
	404 & Special		Cu. Yds.	1" Asphalt Concrete - Surface Course	10
	408 & Special		Gals.	Bituminous Prime Coat	144
	409		Gals.	Seal Coat - Bituminous Material	24
	409		Cu. Yds.	Seal Coat - Cover Aggregate No. 8	0.5
	411		Cu. Yds.	6" Stabilized Crushed Aggregate	28
	605		Lin. Ft.	6" Perforated Deep Pipe Underdrains	270
	614 & Special		Lump	Maintaining Traffic	Lump
	619 & Special		Lump	Field Office	Lump
	623		Lump	Construction Layout Stakes	Lump

### PRECAUTIONS AGAINST UTILITY DAMAGE

THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS, AT NO EXPENSE TO THE COUNTY, TO AVOID DAMAGE TO EXISTING UTILITY LINES DURING THE INSTALLATION OF THE CULVERT AND PERTINENT FACILITIES.

### PREPARATION FOR PLACING FILL

THE EXISTING STREAM CHANNEL AND ALL SLOPES IN CONTACT WITH FILL SHALL BE CLEARED OF ALL LOGS, LIMBS, TOP SOIL, SOD AND OTHER UNSUITABLE MATERIAL PRIOR TO BEGINNING OF PLACING FILL. STREAM FLOW SHALL BE PROVIDED FOR DURING PLACEMENT OF FILL AND OTHER CONSTRUCTION PRIOR TO AND DURING PLACEMENT OF THE CULVERT. PAYMENT FOR MAINTAINING STREAM FLOW SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 & SPECIAL - EMBANKMENT.

### WATER LINE

THE CONTRACTOR SHALL EXERCISE CAUTION IN PERFORMING ALL WORK IN THE VICINITY OF THE EXISTING WATER LINE. ANY DAMAGE TO THE EXISTING WATER LINE SHALL BE REPAIRED, AT NO EXPENSE TO THE COUNTY, IN ACCORDANCE WITH ANY SPECIFICATIONS OF THE VILLAGE OF CHAGRIN FALLS WATER DEPARTMENT. ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO PRESERVE & SUPPORT THE EXISTING WATER LINE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 & SPECIAL - EXCAVATION, UNCLASSIFIED (NOT INCLUDING EMBANKMENT).

THE CONTRACTOR SHALL SUPPORT THE EXISTING WATER LINE CONTINUOUSLY. A PLAN SHOWING THE PROPOSED METHOD OF SUPPORT SHALL BE SUBMITTED TO THE VILLAGE OF CHAGRIN FALLS WATER DEPARTMENT FOR THEIR APPROVAL PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL NOTIFY THE WATER DEPARTMENT 24 HRS. IN ADVANCE OF WATER WORK.

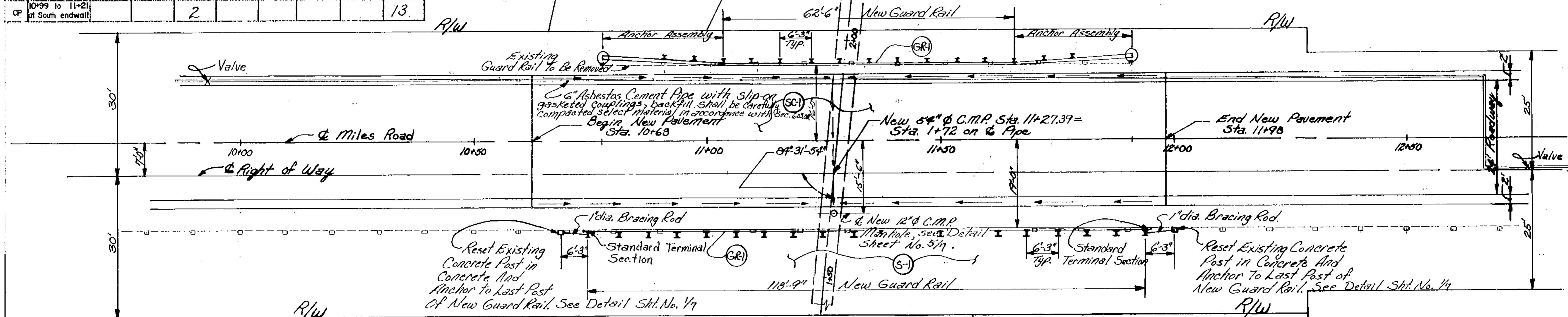
**ROADWAY & DRAINAGE**

REF. NO.	STATION	603 & Spcl. 54" Conduit Type A' LIN. FT.	606 Guard Rail Type 4 LIN. FT.	602 Concrete Masonry CU. YDS.	203 Subgrade Compaction SQ. YDS.	659 & Spcl. Seeding & Mulching SQ. YDS.	411 Stabilized Aggregate CU. YDS.	601 Riprap SQ. YDS.	601 Rock Channel Protection CU. YDS.
RR	at North Headwall							20	
C-1	11+28.06 at G. Miles Rd	257							
D-1	11+00 to 11+60				106		18		
EW	11+11 at 179' South			2					
GR-1	10+63 to 11+98		181.25						
HW	11+35.5 at 78' North			2					
S-1	10+63 to 11+98 both sides					272			
SC-1	10+63 to 11+98				540				
CP	10+99 to 11+21 at South endwall			2					13

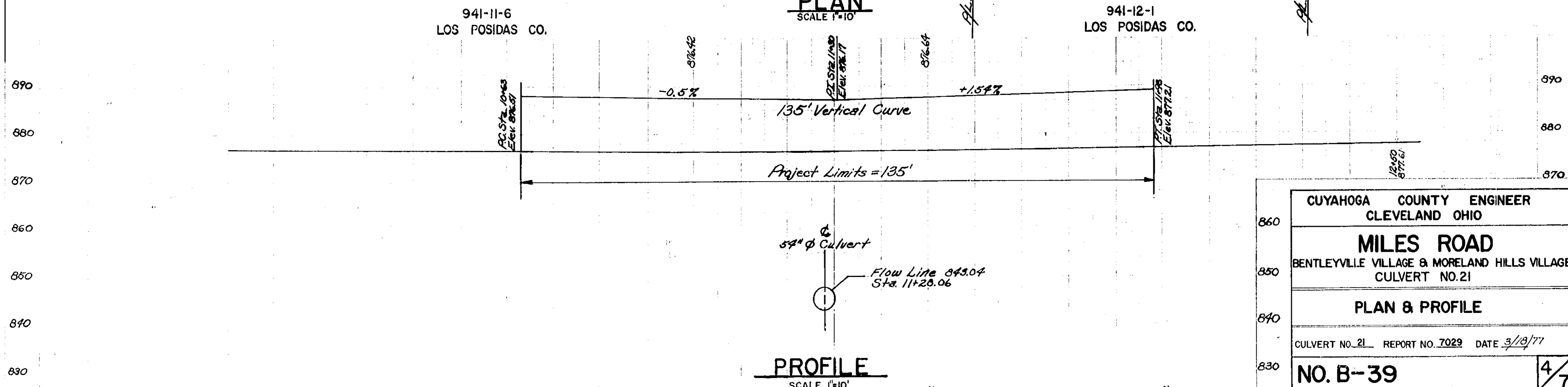
**\* PAVEMENT**

ITEM	DESCRIPTION	STATION	CU. YD.	GAL.
304B Spcl.	8" Aggregate Base	10+63 to 11+98	85	
310 & Spcl.	6" Subbase	10+63 to 11+98	66	
402 & Spcl.	1 1/4" Asphalt-Int. Course	10+63 to 11+98	18	
404 & Spcl.	1" Asphalt-Surf. Course	10+63 to 11+98	10	
408 & Spcl.	Bituminous Prime Coat	10+63 to 11+98		174
409	Seal Coat-Bitu. Mat.	10+63 to 11+98		24
409	Seal Coat-Cover Agg.	10+63 to 11+98		0.5
411	6" Stab. Crushed Agg.	10+63 to 11+98	10	

\* SEE SHEET NO. 517 FOR TYPICAL ROADWAY SECT.



**PLAN**  
SCALE 1"=10'



**PROFILE**  
SCALE 1"=10'

CUYAHOGA COUNTY ENGINEER  
CLEVELAND OHIO

**MILES ROAD**  
BENTLEYVILLE VILLAGE & MORELAND HILLS VILLAGE  
CULVERT NO. 21

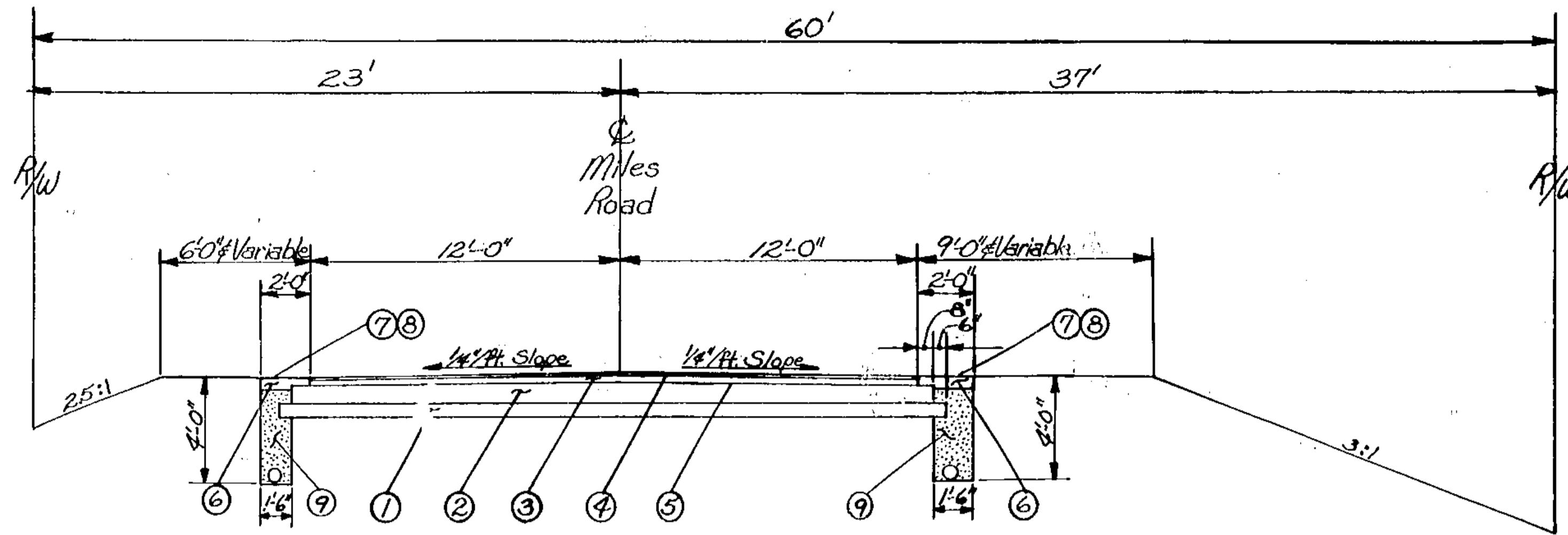
**PLAN & PROFILE**

CULVERT NO. 21 REPORT NO. 7029 DATE 3/18/77

**NO. B-39**

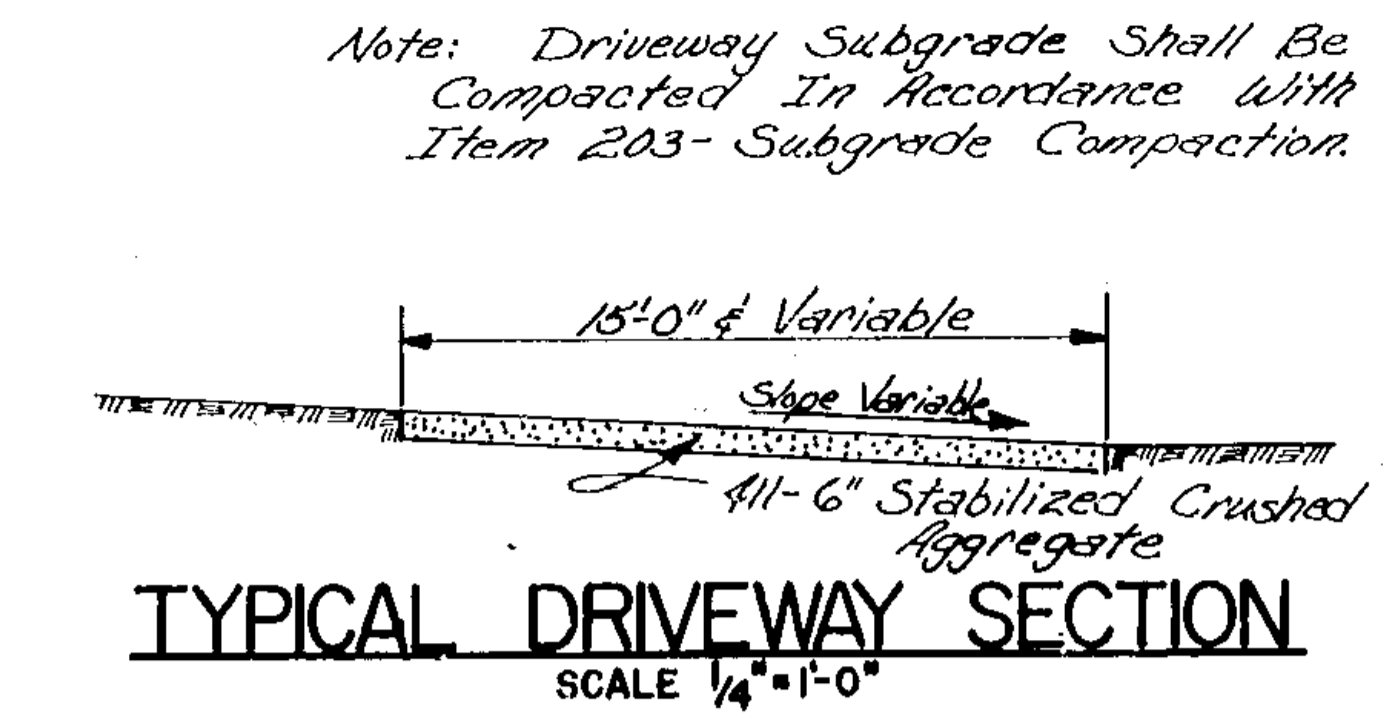
DESIGN WAP	DRAWN WAP	CHECKED SKL.	REVISED TO AS BUILT
---------------	--------------	-----------------	---------------------

10+00 876.87  
11+00 876.33  
11+50 876.44  
12+00 877.24

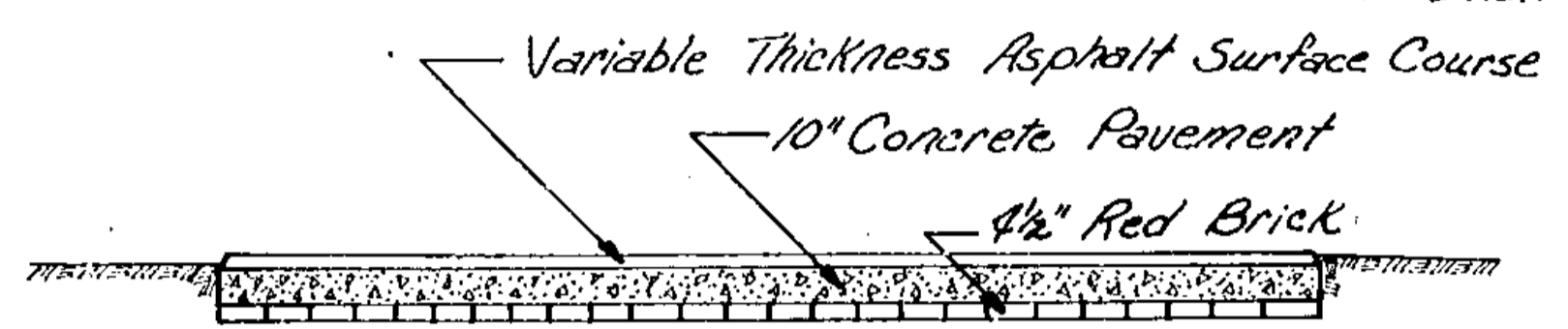


- ① 310 & SPECIAL-6" SUBBASE
- ② 304 & SPECIAL-8" AGGREGATE BASE
- ③ 402 & SPECIAL-1 3/4" ASPHALT CONCRETE-INT. COURSE
- ④ 404 & SPECIAL-1" ASPHALT CONCRETE-SURF. COURSE
- ⑤ 408 & SPECIAL-BITUMINOUS PRIME COAT, APPLIED AT THE RATE OF 0.4 GAL. PER SQ.YD. (RT 1,2 OR 3)
- ⑥ 411-6" STABILIZED CRUSHED AGGREGATE
- ⑦ 409-SEAL COAT BITUMINOUS MATERIAL, APPLIED AT THE RATE OF 0.4 GAL. PER SQ.YD. 702.02 (RC 250,800 OR 3000)
- ⑧ 409-SEAL COAT COVER AGGREGATE, APPLIED AT THE RATE OF 0.008 CU.YDS. PER SQ.YD. (NO. 8 AGGREGATE)
- ⑨ 605-6" PERFORATED DEEP PIPE UNDERDRAINS

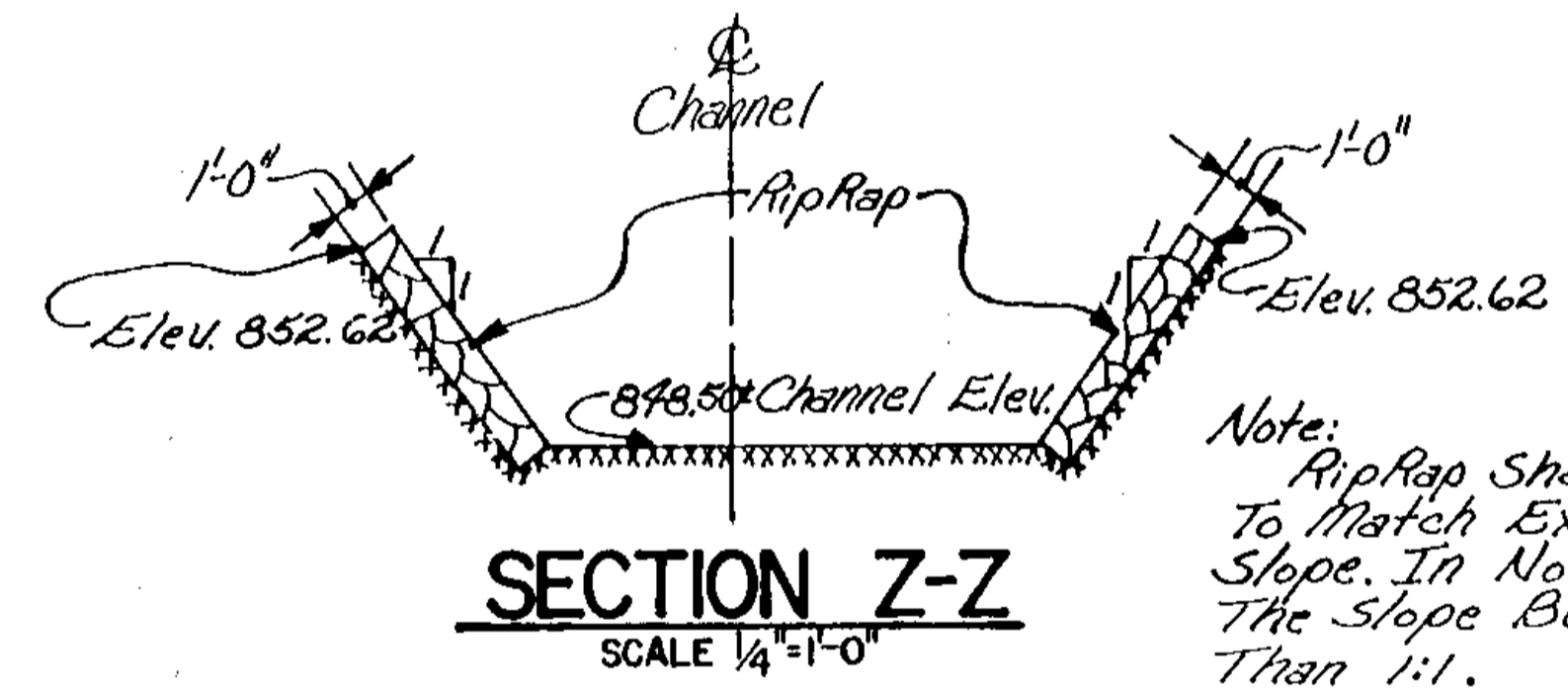
**TYPICAL ROADWAY SECTION**  
SCALE 1/4"=1'-0"



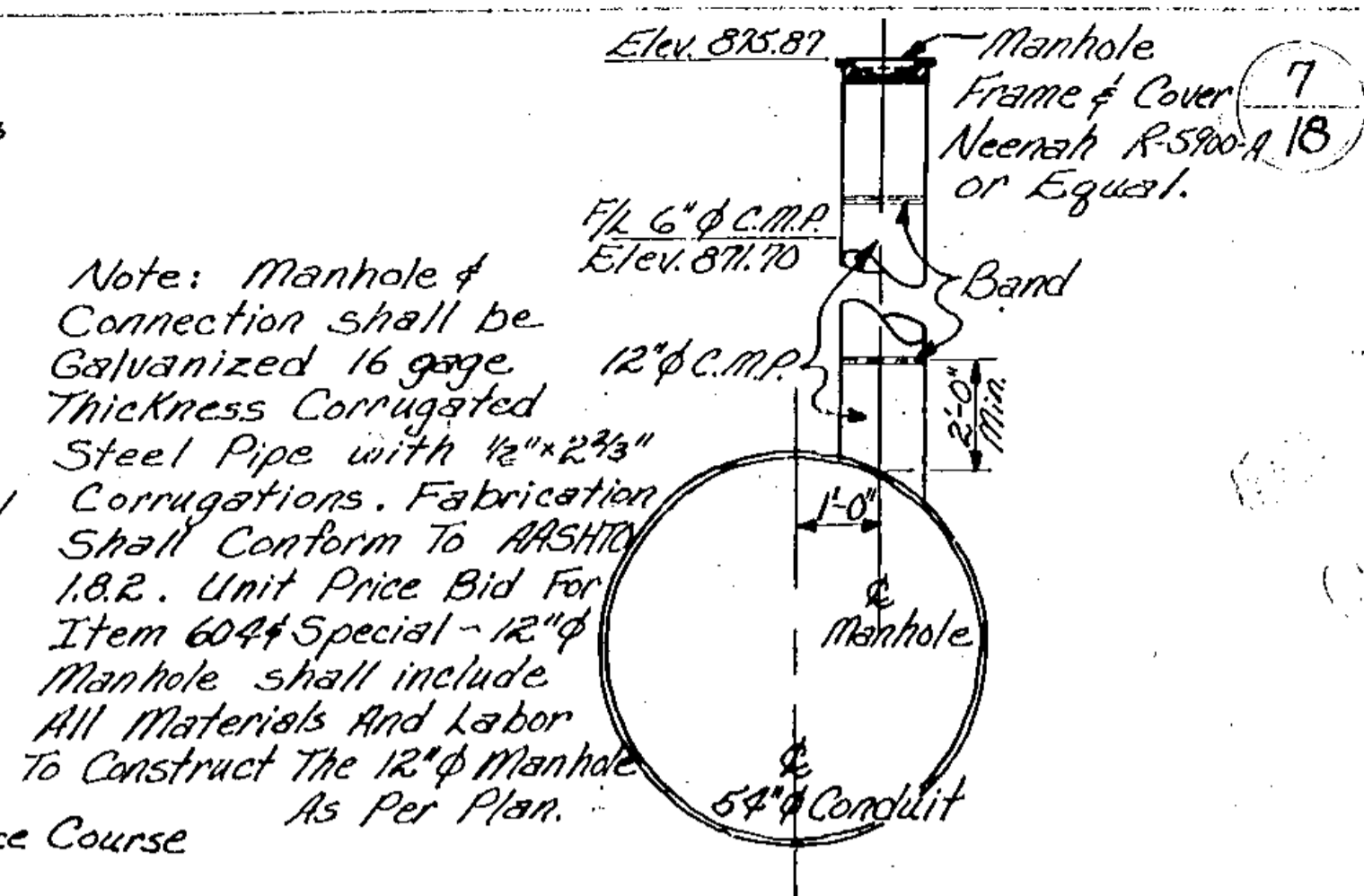
**TYPICAL DRIVEWAY SECTION**  
SCALE 1/4"=1'-0"



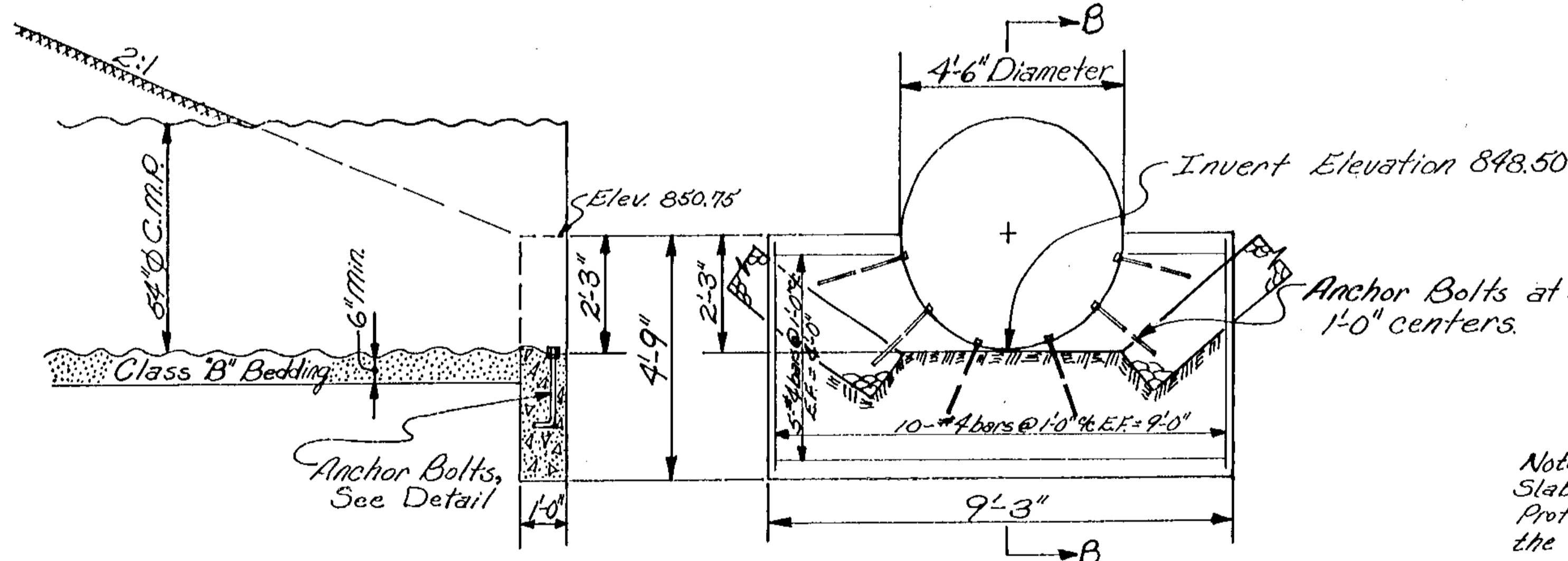
**EXISTING ROADWAY SECTION**  
SCALE 3/16"=1'-0"



**SECTION Z-Z**  
SCALE 1/4"=1'-0"

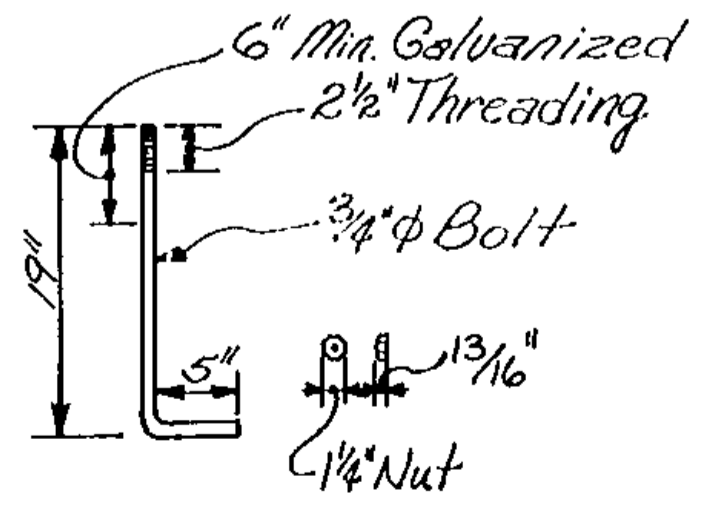


**MANHOLE DETAIL**  
SCALE 1/2"=1'-0"



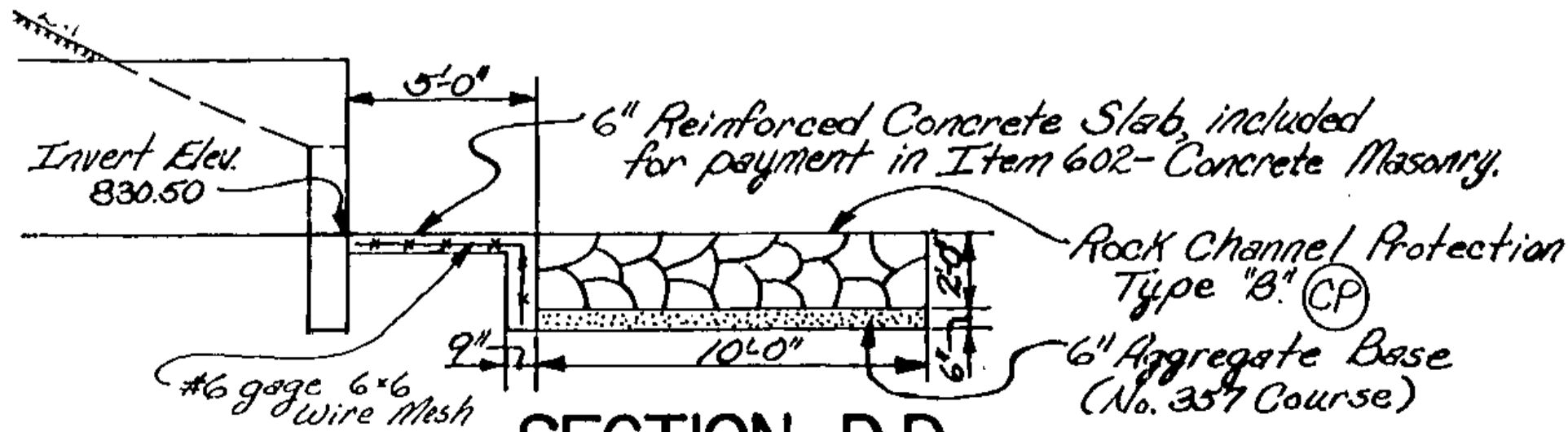
**SECTION B-B**  
SCALE 1/2"=1'-0"

**ELEVATION A-A**  
SCALE 1/2"=1'-0"



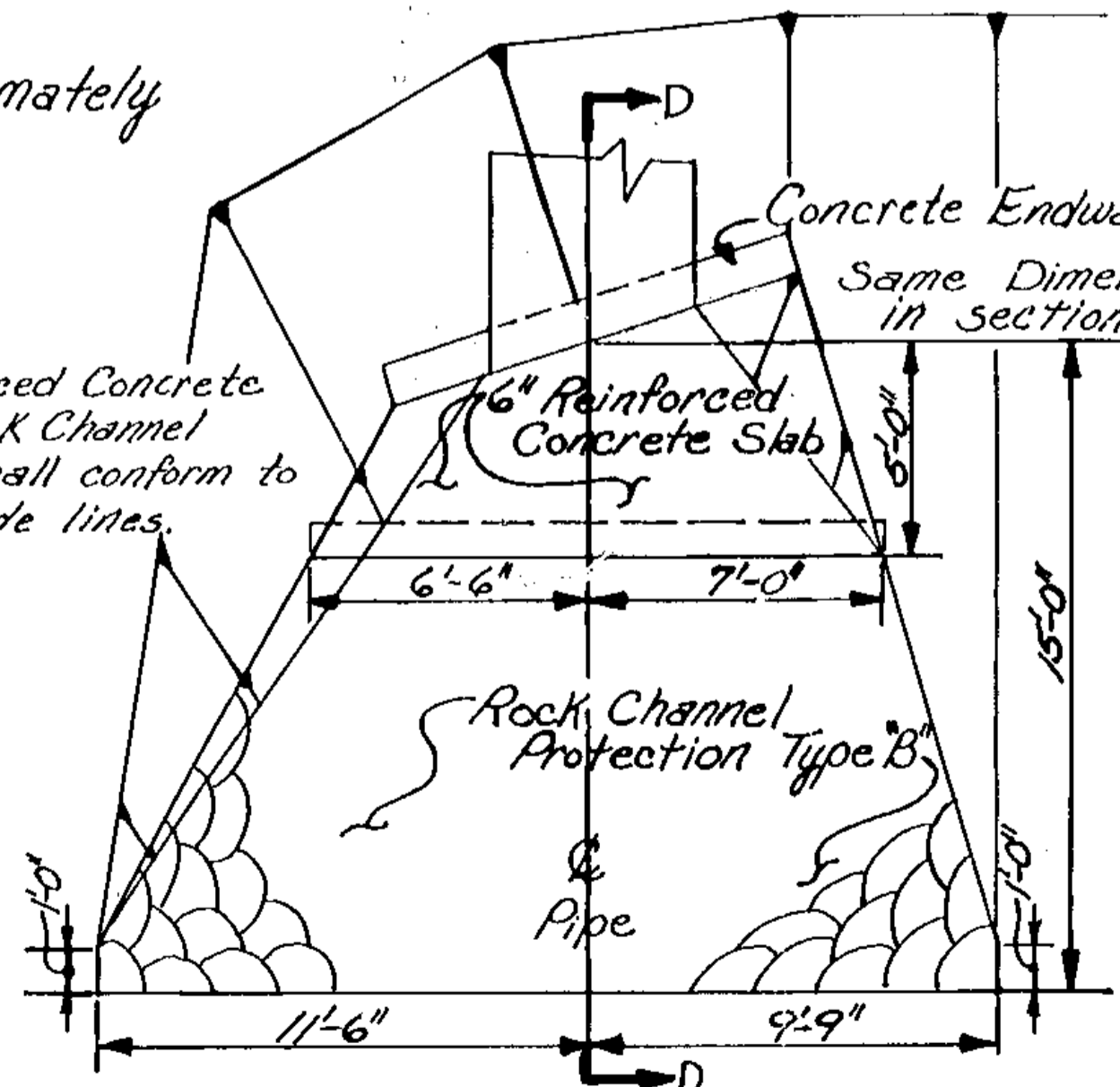
**ANCHOR BOLT DETAIL**  
SCALE 1"=1'-0"

**Note:**  
Anchor Bolts For Anchoring Upstream End of Metal Pipe Shall Meet ASTM A307. The Top 6" Minimum of Bolt Shall Be Galvanized According to ASTM A-325 And A-153. Cost of Anchors Shall Be Included In the Unit Price Bid Per Linear Foot of Item 603 Special-54" & Conduit-Type "A" 70107 With Class "B" Bedding.

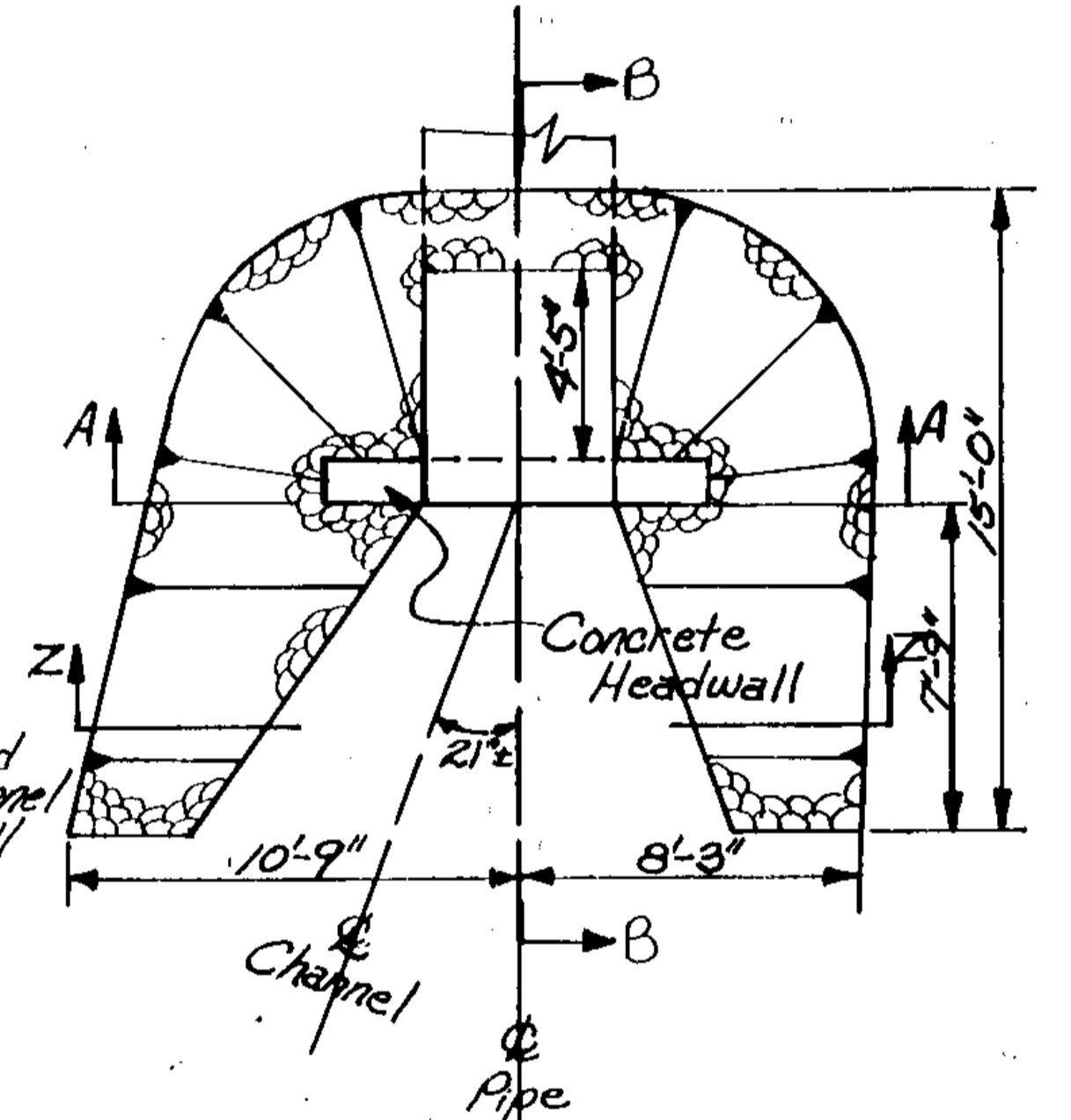


**SECTION D-D**  
SCALE 1/4"=1'-0"

**Note:** Reinforced Concrete Slab and Rock Channel Protection shall conform to the final grade lines.

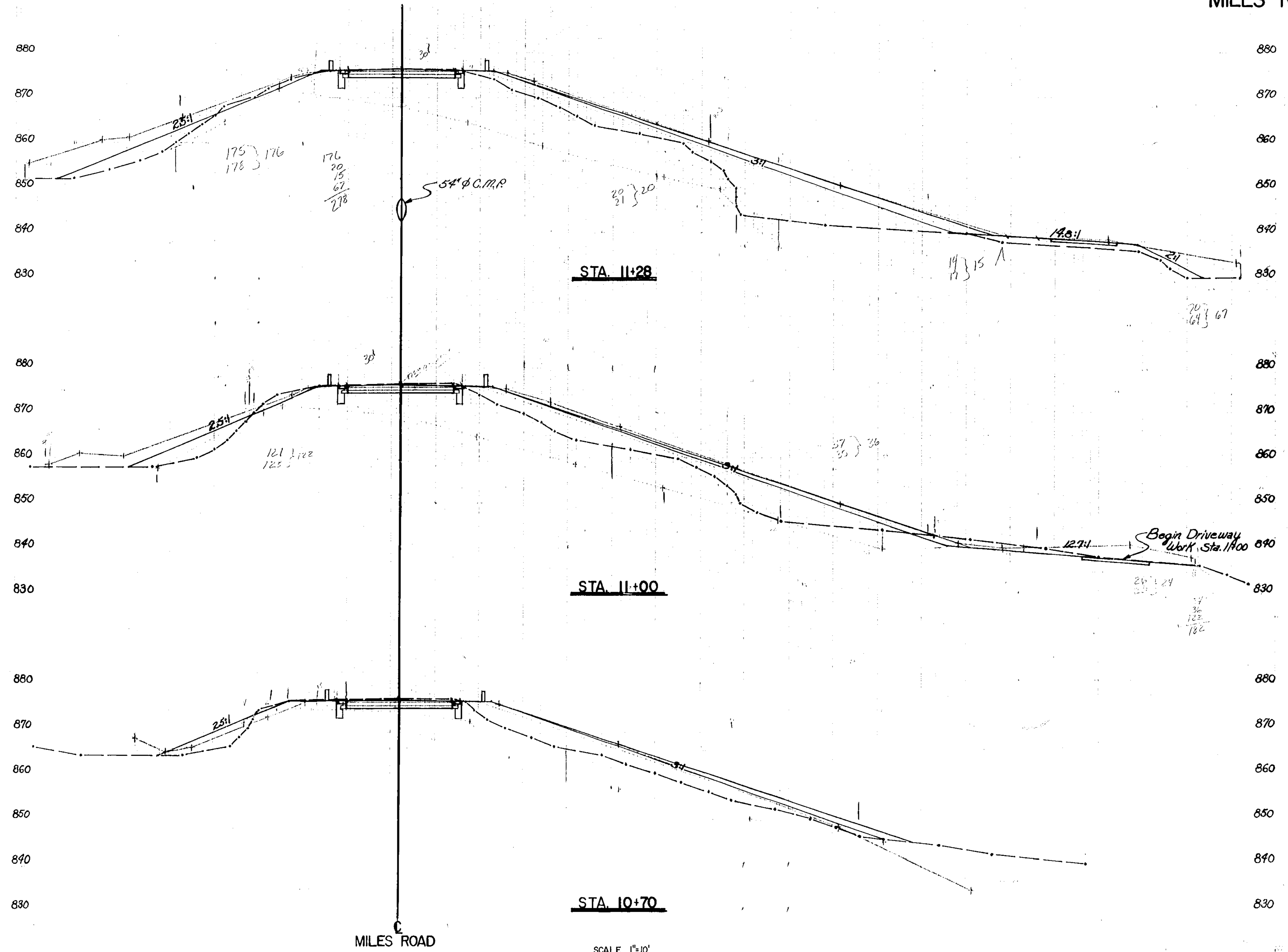


**DETAIL A-A**  
SCALE 1/4"=1'-0"



**DETAIL B-B**  
SCALE 1/4"=1'-0"

CUYAHOGA COUNTY ENGINEER CLEVELAND OHIO			
MILES ROAD BENTLEYVILLE VILLAGE & MORELAND HILLS VILLAGE CULVERT NO. 21			
CULVERT DETAILS			
CULVERT NO. 21	REPORT NO. 7029	DATE 3/13/17	
NO. B-39			5/7
DESIGN WAD	DRAWN WAD	CHECKED S.R.L.	REVISED TO AS BUILT



EARTHWORK					
SEEDING & MULCHING		END AREA		VOLUME	
LENGTH	AREA	CUT	FILL	CUT	FILL
LN. FT.	SQ. YDS.	SQ. FT.	SQ. FT.	CU. YDS.	CU. YDS.
	382.6 RT 128.3 LT			19.6 RT 27.3 LT	311.7 RT 28.5 LT
160 RT 67 LT		22 RT 39 LT	474 RT 67 LT		
	471.6 RT 182.1 LT			48.2 RT 41.5 LT	428.3 RT 76.2 LT
156 RT 50 LT		71 RT 41 LT	332 RT 78 LT		
	426.7 RT 153.3 LT			57.1 RT 38.3 LT	307.2 RT 76.1 LT
100 RT 42 LT		21 RT 28 LT	221 RT 57 LT		
	389 RT 163 LT			2.7 RT 3.6 LT	28.7 RT 76 LT
0 RT 0 LT		0 RT 0 LT	0 RT 0 LT		Sta. 10+65

STA. 10+70

STA. 11+28

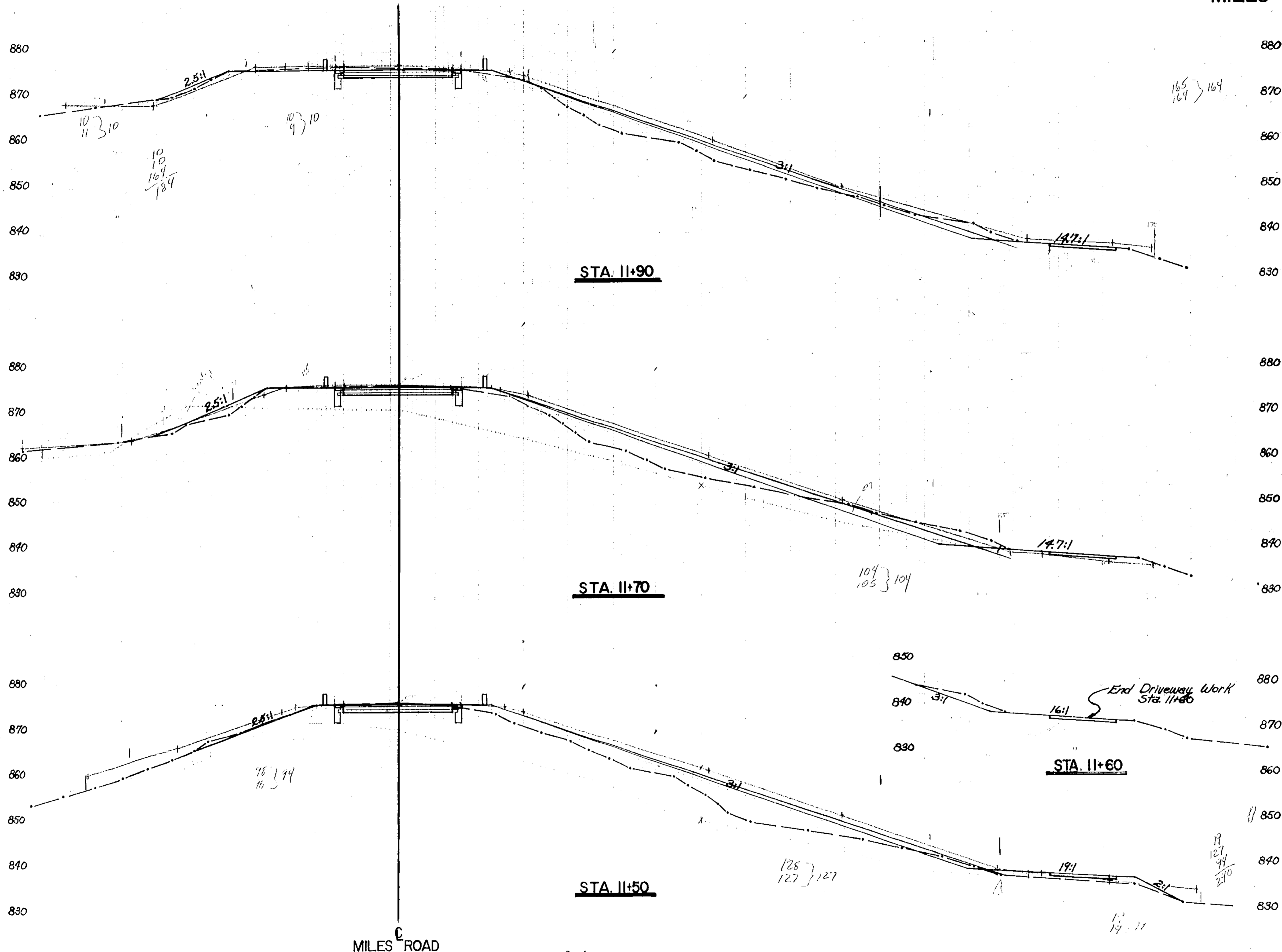
STA. 11+00

MILES ROAD

SCALE 1"=10'

CROSS SECTIONS (STA. 10+70 to STA. 11+28)

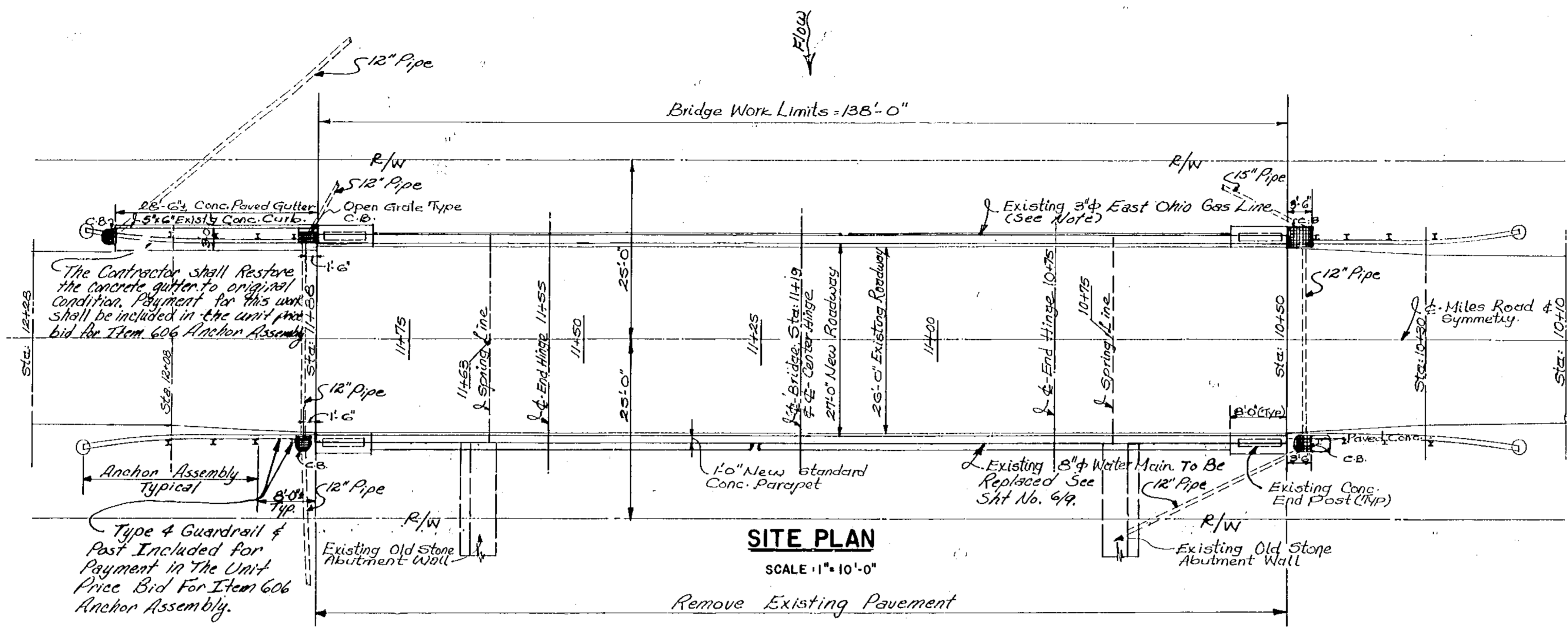




EARTHWORK					
SEEDING & MULCHING		END AREA		VOLUME	
LENGTH	AREA	CUT	FILL	CUT	FILL
LIN. FT.	SQ. YDS.	SQ. FT.	SQ. FT.	CU. YDS.	CU. YDS.
TOTALS =		27229		4139	15532
0 Rt. 0 Lt.		0 Rt. 0 Lt.	0 Rt. 0 Lt.	0 Rt. 0 Lt.	Sta. 11+98
140 Rt. 40 Lt.	622 Rt. 178 Lt.	86 Rt. 34 Lt.	102 Rt. 8 Lt.	79 Rt. 5 Lt.	15.1 Rt. 12 Lt.
	313.3 Rt. 92.2 Lt.			72.6 Rt. 23 Lt.	92.2 Rt. 14.1 Lt.
142 Rt. 43 Lt.		110 Rt. 28 Lt.	147 Rt. 30 Lt.		
	3271 Rt. 90 Lt.			50.4 Rt. 20.7 Lt.	1548 Rt. 115 Lt.
153 Rt. 38 Lt.		26 Rt. 28 Lt.	271 Rt. 1 Lt.		

MILES ROAD  
SCALE 1"=10'

CROSS SECTIONS (STA. 11+50 to 11+90) 7/7



Note:  
The 3" Gas Line will be removed by East Ohio Gas prior to the start of work. A new gas line will be installed by East Ohio Gas Company after the completion of work.

**EXISTING BRIDGE DATA**

For details of existing bridge, see attached Drawing Nos. WA-46, WA-46-2, YA-3 and YA-4.

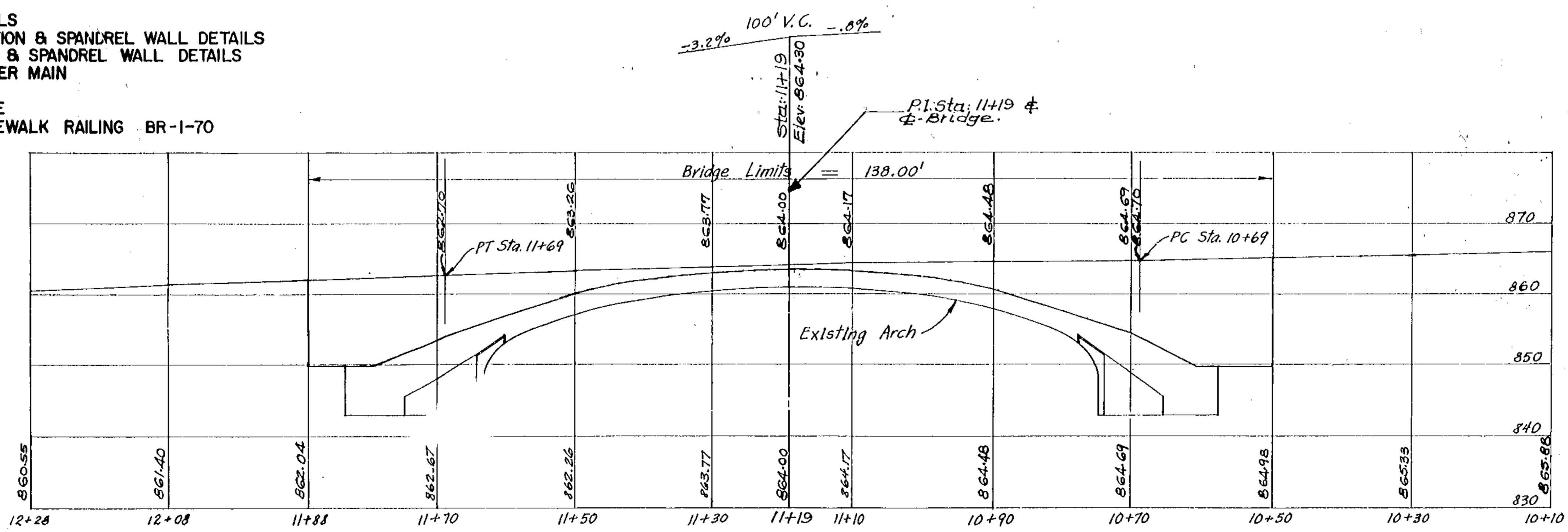
**PROPOSED REPAIRS**

1. Replace Existing Pavement.
2. Replace existing pipe railing with new standard Concrete Parapet and Aluminum Railing.
3. Replace Spandrel Wall Between Sta. 10+63 and Sta. 11+55. The Other Sections Of Spandrel Walls Shall Be Replaced And/Or Repaired As Directed By The Engineer.
4. Remove All Corner Posts As Shown.
5. Replace And/Or Repair Concrete Arch As Directed By The Engineer.

**INDEX OF DRAWINGS**

- 1/9-SITE PLAN
- 2/9-PLAN & ELEVATION
- 3/9-SPANDREL WALL DETAILS
- 4/9-TYPICAL ROADWAY SECTION & SPANDREL WALL DETAILS
- 5/9-ESTIMATED QUANTITIES & SPANDREL WALL DETAILS
- 6/9-REPLACEMENT OF WATER MAIN
- 7/9-GENERAL NOTES
- 8/9-REINFORCING SCHEDULE
- 9/9-STANDARD BRIDGE SIDEWALK RAILING BR-1-70

STANDARD DRAWINGS  
GR-4 1/1/74



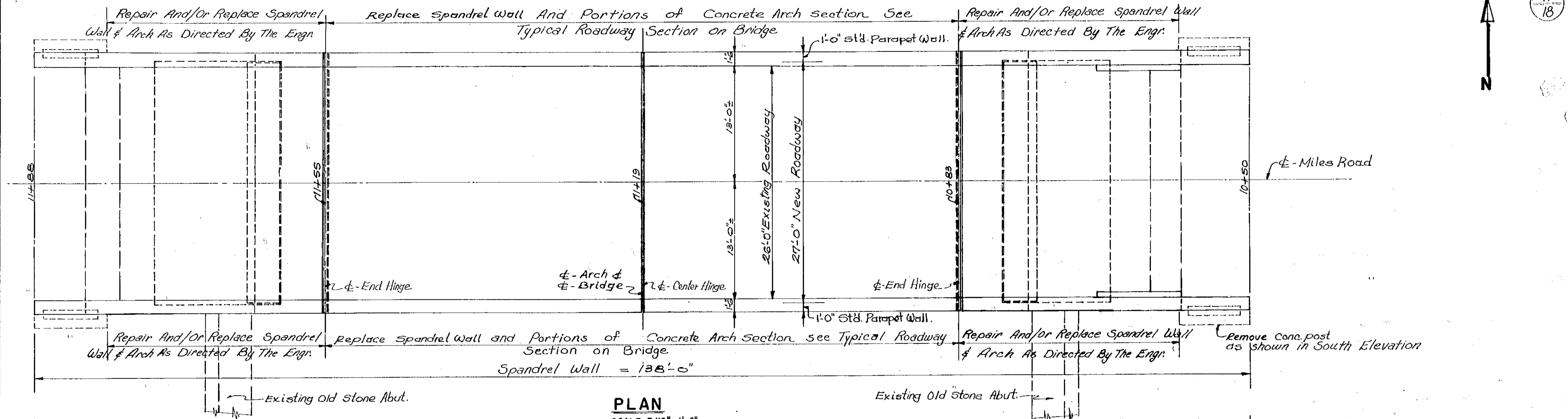
PROFILE GRADE ELEVATION ALONG C. OF ROADWAY

SCALE: 1" = 10'-0"

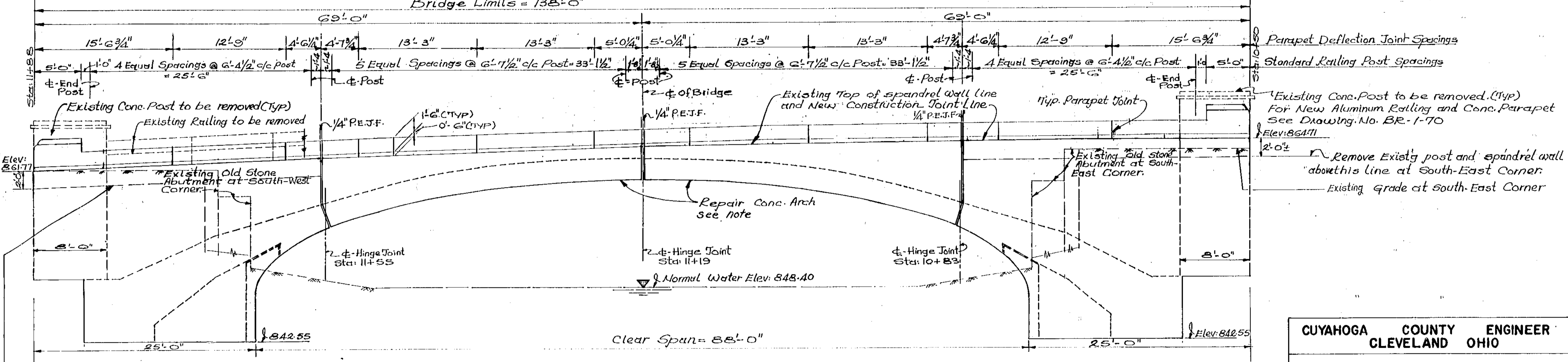
CUYAHOGA COUNTY ENGINEER CLEVELAND OHIO	
<b>MILES ROAD</b>	
CHAGRIN FALLS VILLAGE & MORELAND HILLS VILL BRIDGE OVER CHAGRIN RIVER	
<b>SITE PLAN</b>	
BRIDGE NO. 176	REPORT NO. 7029 DATE 9/29/77
<b>NO. B-39</b>	
DESIGN SND	DRAWN SND
CHECKED WAD	REVISED TO AS BUILT

PLAN

PROFILE



**PLAN**  
SCALE: 3/16" = 1'-0"



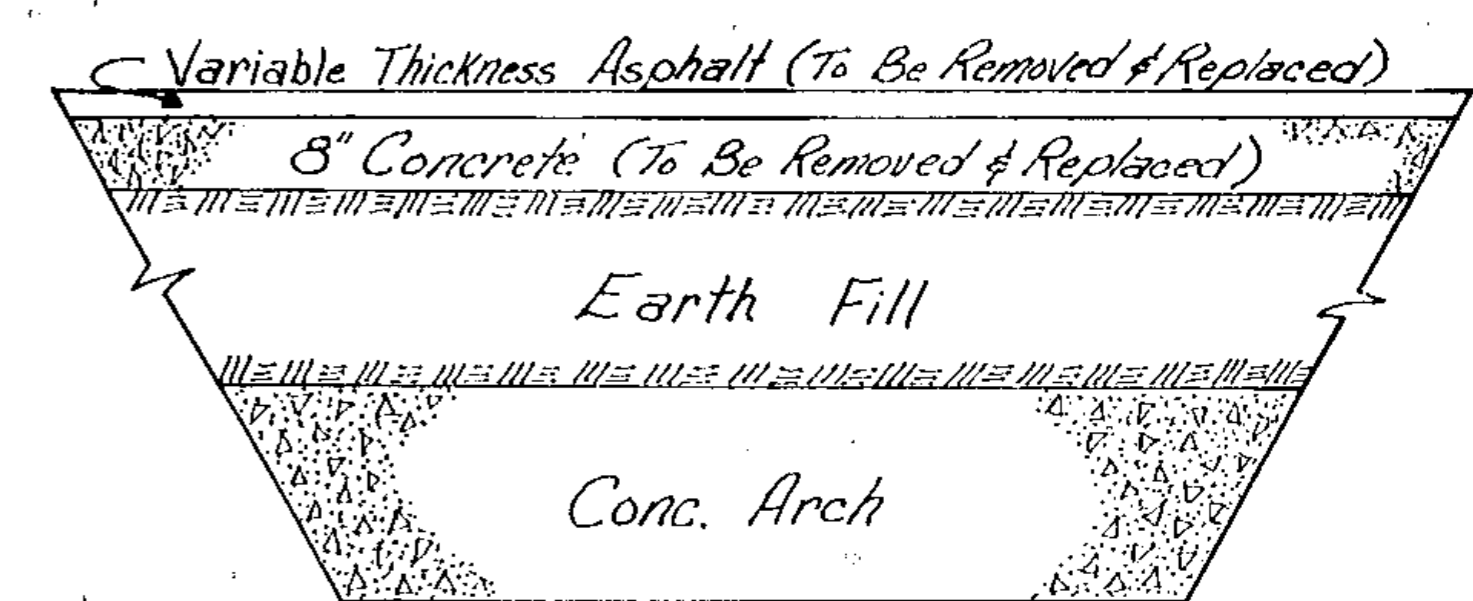
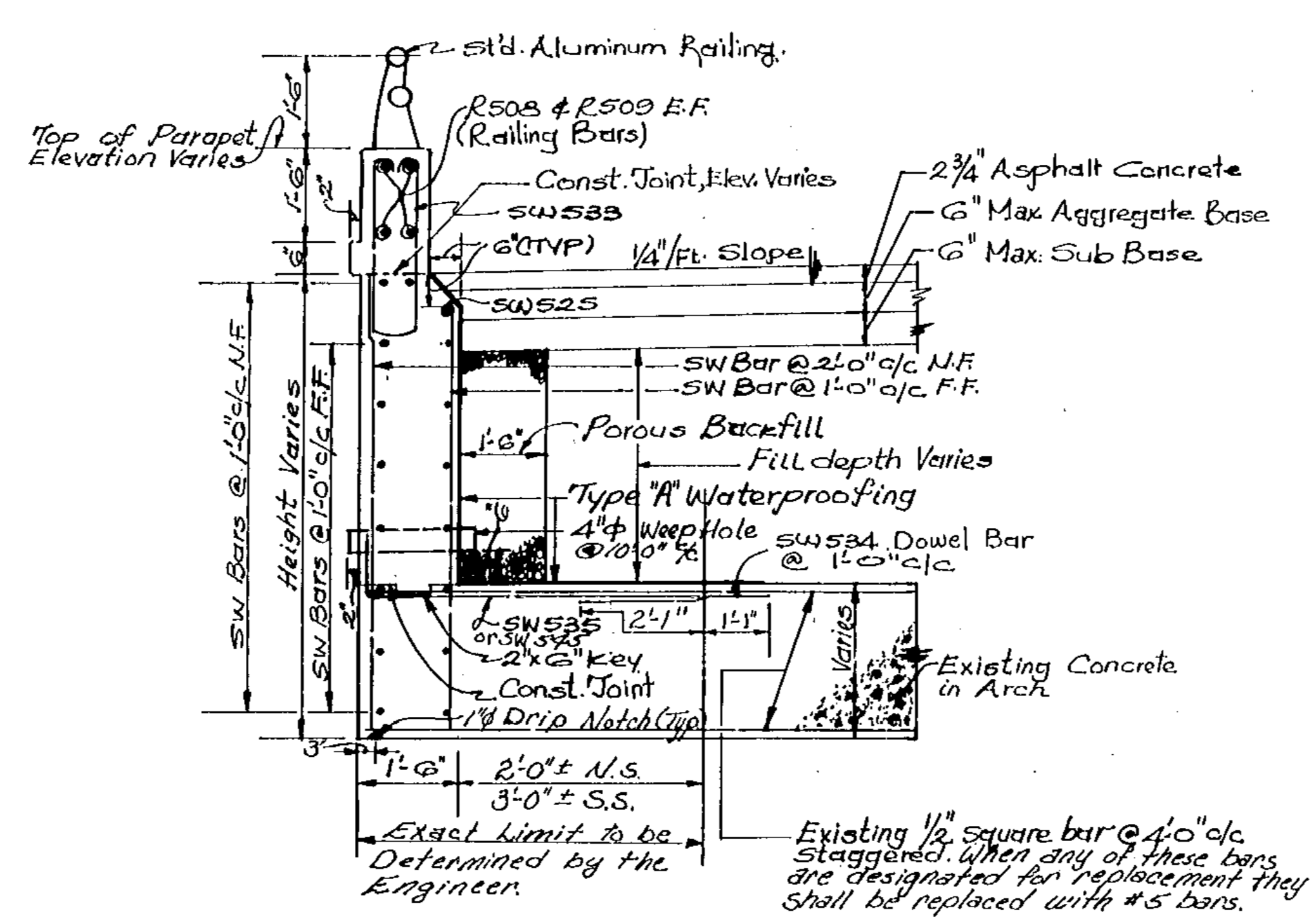
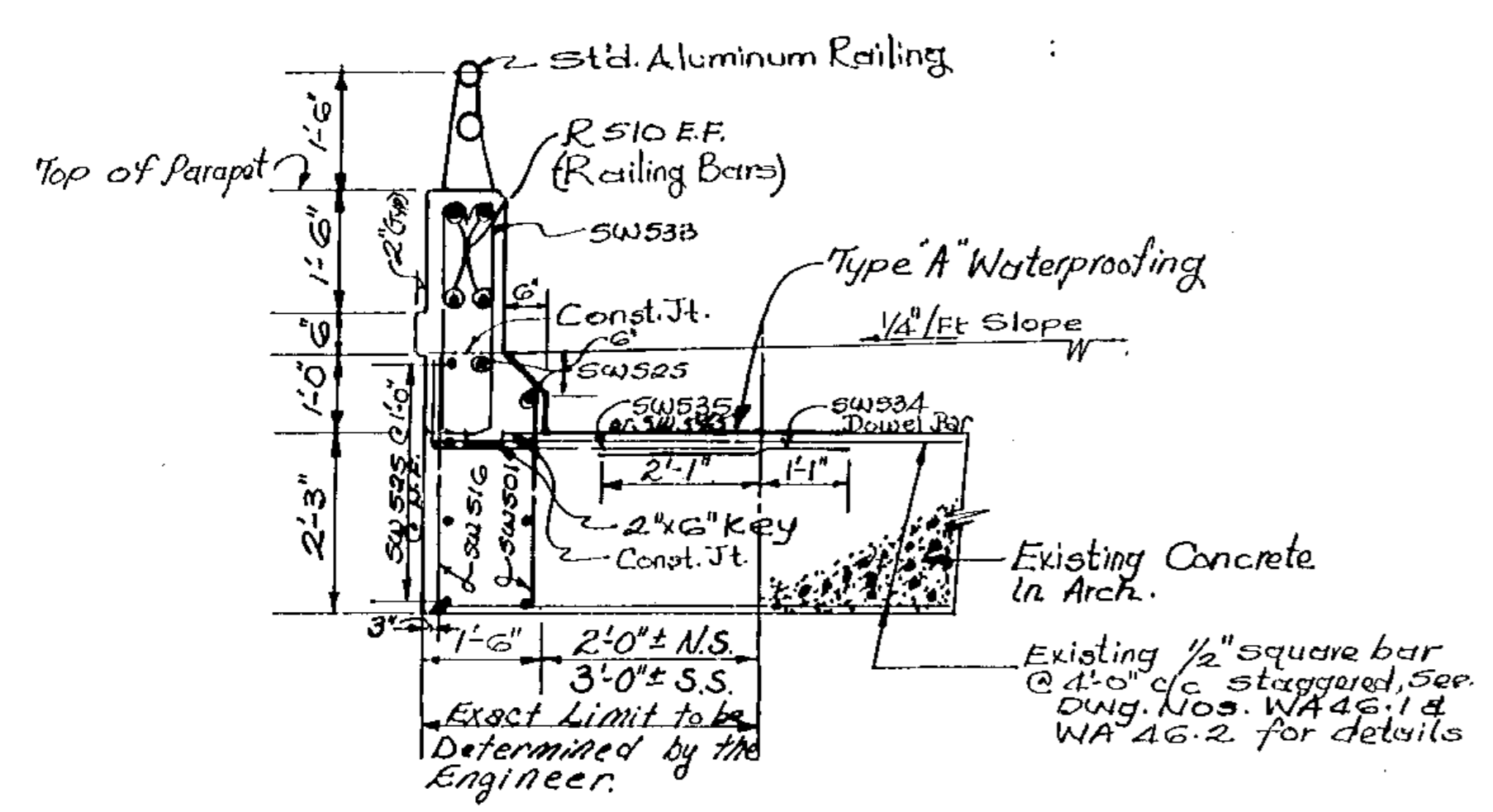
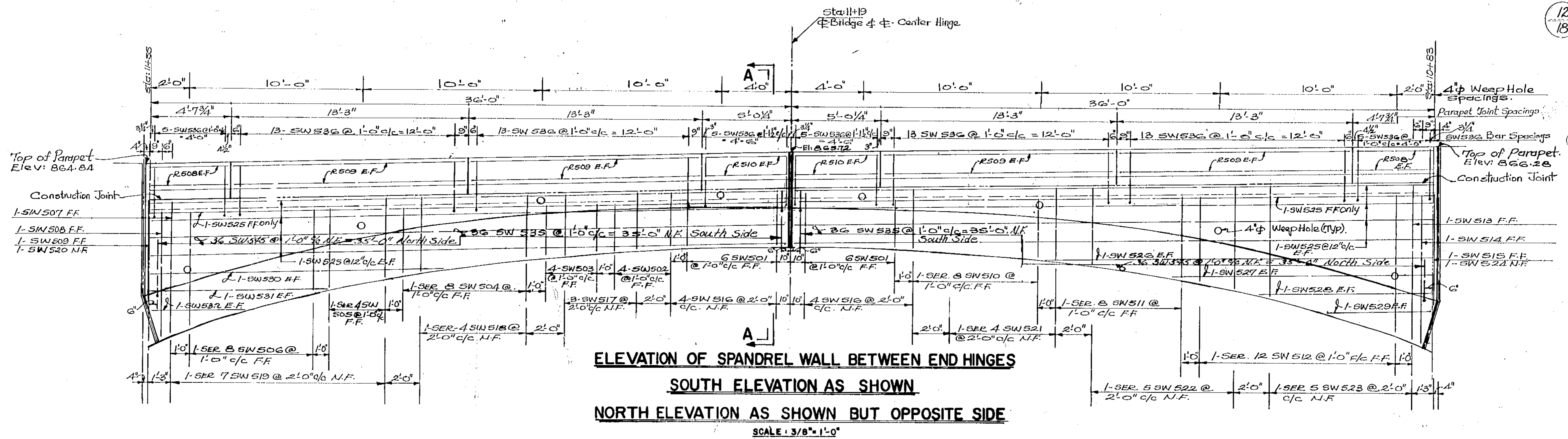
**SOUTH ELEVATION**  
SCALE: 3/16" = 1'-0"

**Note:**  
Concrete Arch To Be Repaired And/Or Replaced Using The Following Limits And Type Of Repairs As Determined In The Field By The Engineer.  
Greater Than 12" Deep - Item 511 Class "C" Concrete Arch Including Removal Of Existing Arch Concrete.  
6" To 12" Deep - Concrete Repair 6" To 12" Depth In Accordance With Item 512  
Less Than 6" Deep - Concrete Repair Less Than 6" Deep In Accordance With Items 519 Or 520.

CUYAHOGA COUNTY ENGINEER CLEVELAND OHIO			
<b>MILES ROAD</b>			
CHAGRIN FALLS VILLAGE & MORELAND HILLS VILL BRIDGE OVER CHAGRIN RIVER			
<b>PLAN &amp; ELEVATION</b>			
BRIDGE NO. 176	REPORT NO. 7029	DATE 9/29/77	
<b>NO. B-39</b>			<b>2</b> <b>9</b>
DESIGN S.N.D.	DRAWN S.N.D.	CHECKED W.A.D.	REVISED TO AS BUILT

PLAN  
SCALE: 3/16" = 1'-0"

PROFILE  
SCALE: 1/4" = 1'-0"



Existing Square Bar		Replacement Bar	
Size	Area	Diam.	Area
1/2"	0.25 in <sup>2</sup>	#5	0.31 in <sup>2</sup>
5/8"	0.39 in <sup>2</sup>	#6	0.44 in <sup>2</sup>
3/4"	0.56 in <sup>2</sup>	#7	0.60 in <sup>2</sup>
7/8"	0.77 in <sup>2</sup>	#8	0.79 in <sup>2</sup>

This table shall be used as a guide for the replacement of any bars as deemed necessary by the Engineer.

CUYAHOGA COUNTY ENGINEER  
 CLEVELAND OHIO

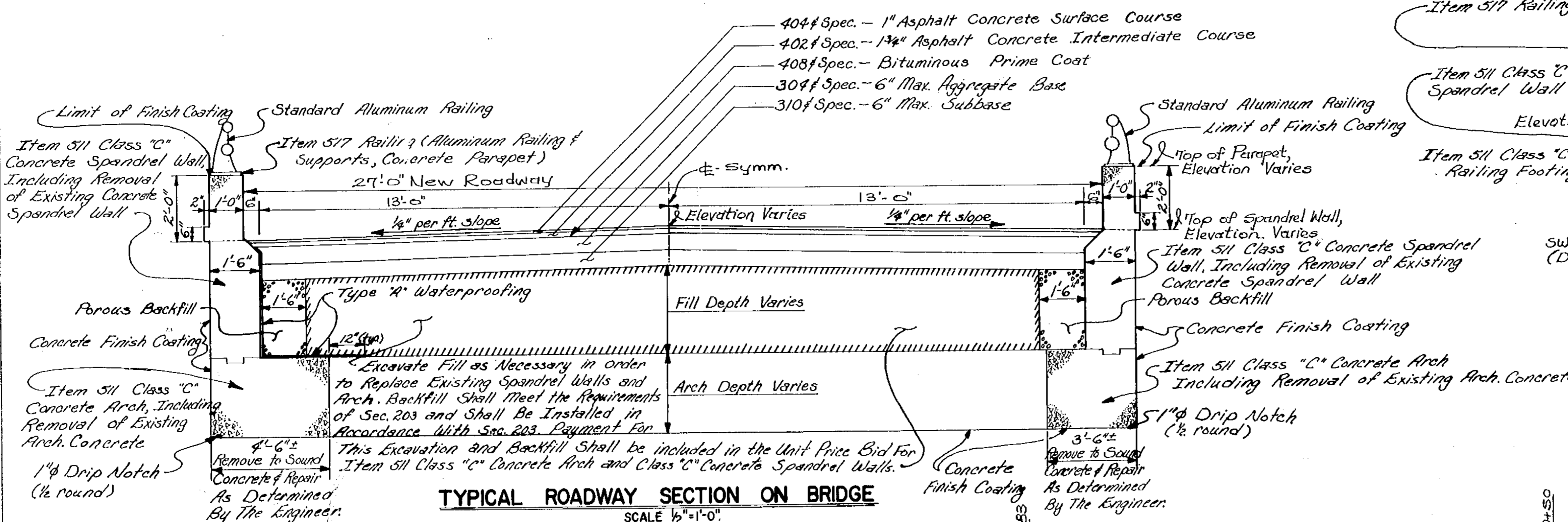
**MILES ROAD**  
 CHAGRIN FALLS VILLAGE & MORELAND HILLS VILL  
 BRIDGE OVER CHAGRIN RIVER

**SPANDREL WALL DETAILS**

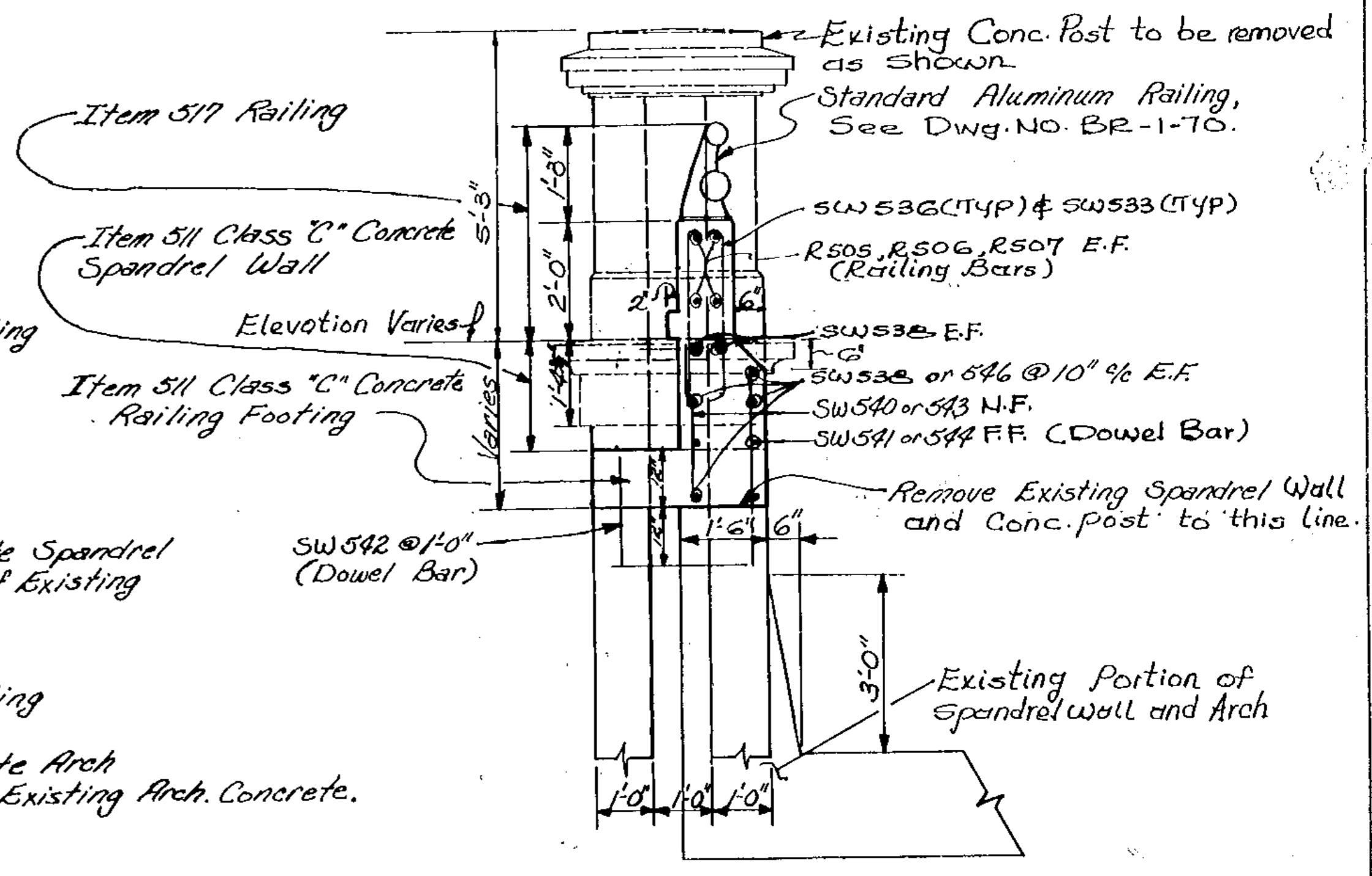
BRIDGE NO. 176    REPORT NO. 7029    DATE: 9/29/77

**NO. B-39**

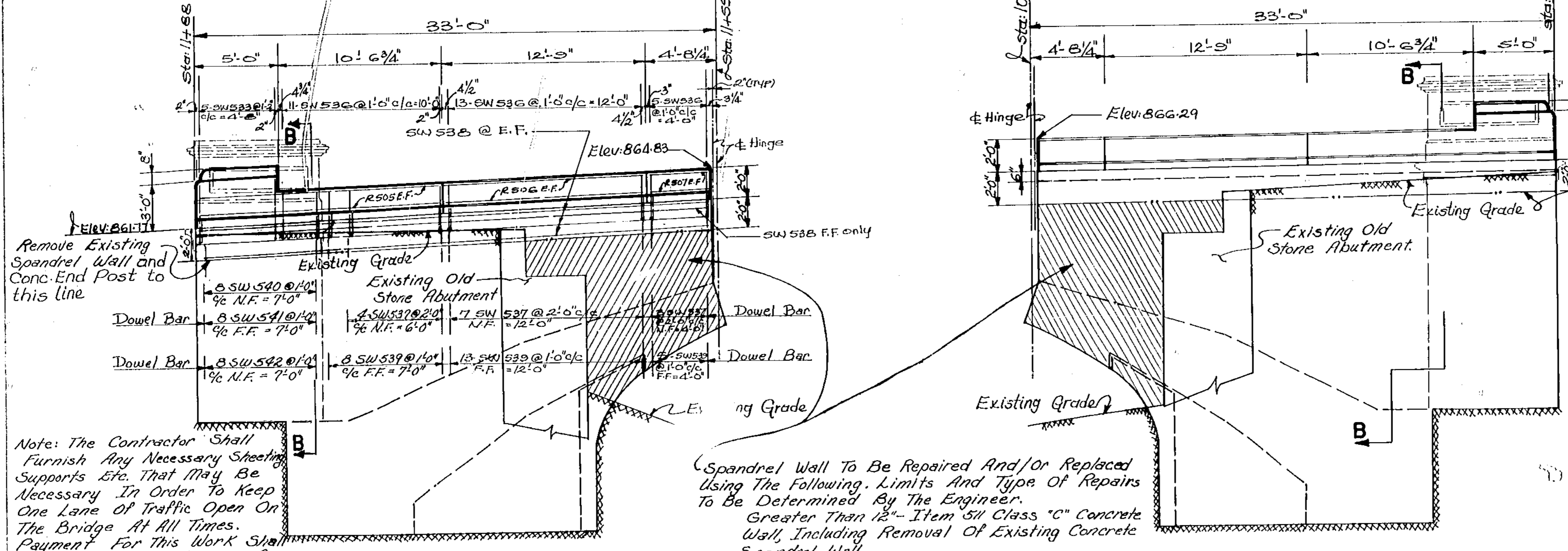
DESIGN: SNR    DRAWN: SNR    CHECKED: WAD    REVISED TO AS BUILT



**TYPICAL ROADWAY SECTION ON BRIDGE**  
SCALE 1/2"=1'-0"



**SECTION B-B**  
SCALE 1/2"=1'-0"



**SOUTHWEST ELEVATION**  
SCALE 1/4"=1'-0"

**SOUTHEAST ELEVATION**  
SCALE 1/4"=1'-0"

Note: The Contractor Shall Furnish Any Necessary Scaffolding, Supports Etc. That May Be Necessary In Order To Keep One Lane Of Traffic Open On The Bridge At All Times. Payment For This Work Shall Be Included In The Unit Price Bid For Item 511-Class 'C' Concrete Spandrel Wall.

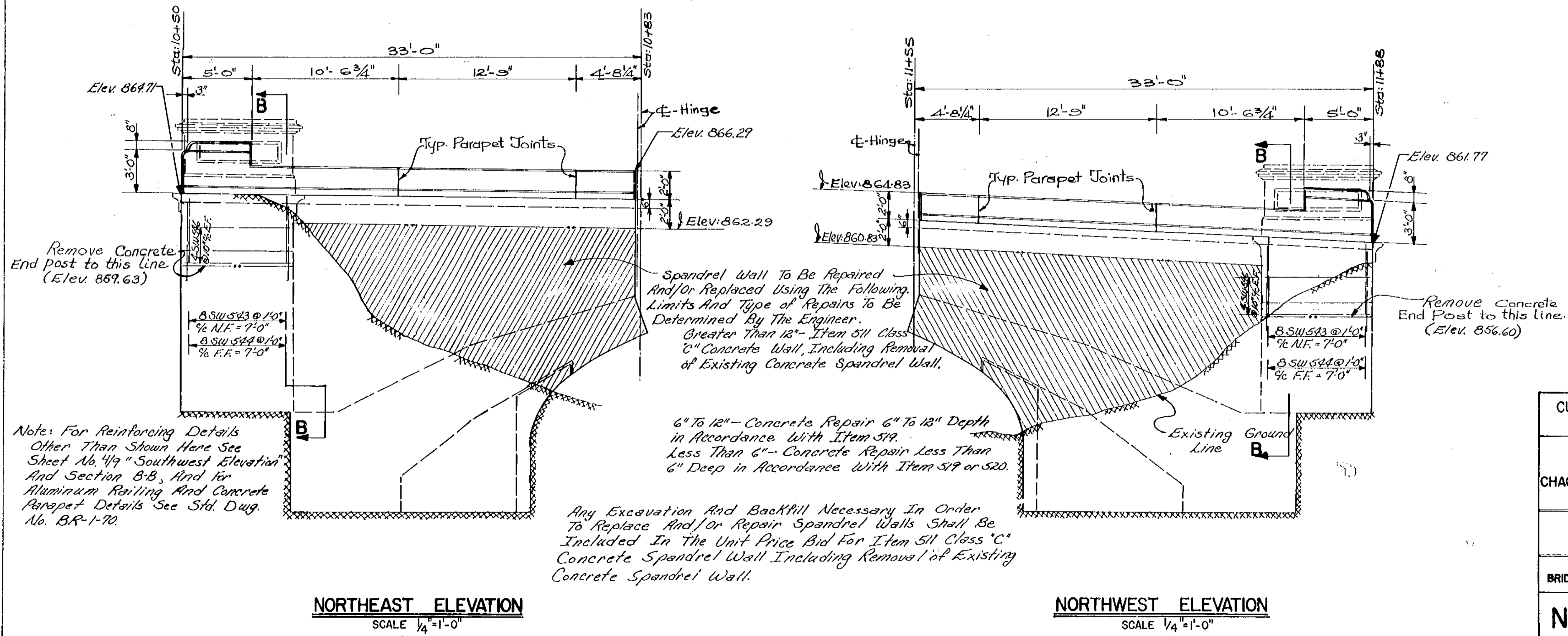
Note: Reinforcing Details of Four Corners Same as Show in "Southwest Elevation" Except as Otherwise Shown. For New Aluminum Railing and Concrete Parapet Details, See Dwg. No. BR-1-70.

CUYAHOGA COUNTY ENGINEER CLEVELAND OHIO			
<b>MILES ROAD</b>			
CHAGRIN FALLS VILLAGE & MORELAND HILLS VILL BRIDGE OVER CHAGRIN RIVER			
<b>TYPICAL ROADWAY SECTION AND SPANDREL WALL DETAILS</b>			
BRIDGE NO. 176	REPORT NO. 7029	DATE 9/29/77	
<b>NO. B-39</b>			4 9
DESIGN SJD	DRAWN SNE/WAP	CHECKED WTD	REVISED TO AS BUILT

## ESTIMATED STRUCTURE QUANTITIES

14  
18

REF. NO.	ITEM	PROPOSAL QUANTITIES	UNIT	DESCRIPTION	ESTIMATED QUANTITIES	REF. NO.	ITEM	PROPOSAL QUANTITIES	UNIT	DESCRIPTION	ESTIMATED QUANTITIES
202	Lump			Concrete End Posts Removed	Lump	511	Cu. Yd.			Class "C" Concrete Railing Footing	4
202	Lin. Ft.			Railing Removed	244						
202	Sq. Yd.			Pavement Removed	399	512	Sq. Yd.			Type "A" Waterproofing	198
203	Sq. Yd.			Subgrade Compaction	44	517	Lin. Ft.			Railing (Alum. Rails & Supports, Concrete Parapet)	276
304 Spl.	Cu. Yd.			6" Aggregate Base	68	518	Cu. Yd.			Porous Backfill	71
310 Spl.	Cu. Yd.			6" Subbase	66						
						606	Each			Anchor Assembly	4
402 Spl.	Cu. Yd.			1 3/4" Asphalt Concrete Intermediate Course	20	606	Each			Bridge Terminal Assembly, as per plan	4
404 Spl.	Cu. Yd.			1" Asphalt Concrete Surface Course	11	616	Ton			Calcium Chloride	2
408 Spl.	Gal.			Bituminous Prime Coat	160	623	Lump			Construction Layout Stakes	Lump
410 Spl.	Cu. Yd.			Traffic Compacted Surface		Spl.	Sq. Ft.			Concrete Repair Less Than 6" in Accordance with Item 519 or 520	159
										Concrete Repair 6" to 12" in Accordance with Item 519	839
509	Lbs.			Reinforcing Steel	9232	Spl.	Sq. Ft.			Finish Coating for Concrete	4764
510	Each			Dowel Holes	208					Replacement of Water Main	Lump
511	Cu. Yd.			Class "C" Concrete Spandrel Wall Including Removal of Existing Concrete Spandrel Wall	54	Spl.	Sq. Ft.			Maintaining Traffic	Lump
						614 Spl.	Lump			Field Office	Lump
						614 Spl.	Lump				Lump



Remove Concrete End post to this line (Elev. 869.63)

Remove Concrete End Post to this line. (Elev. 856.60)

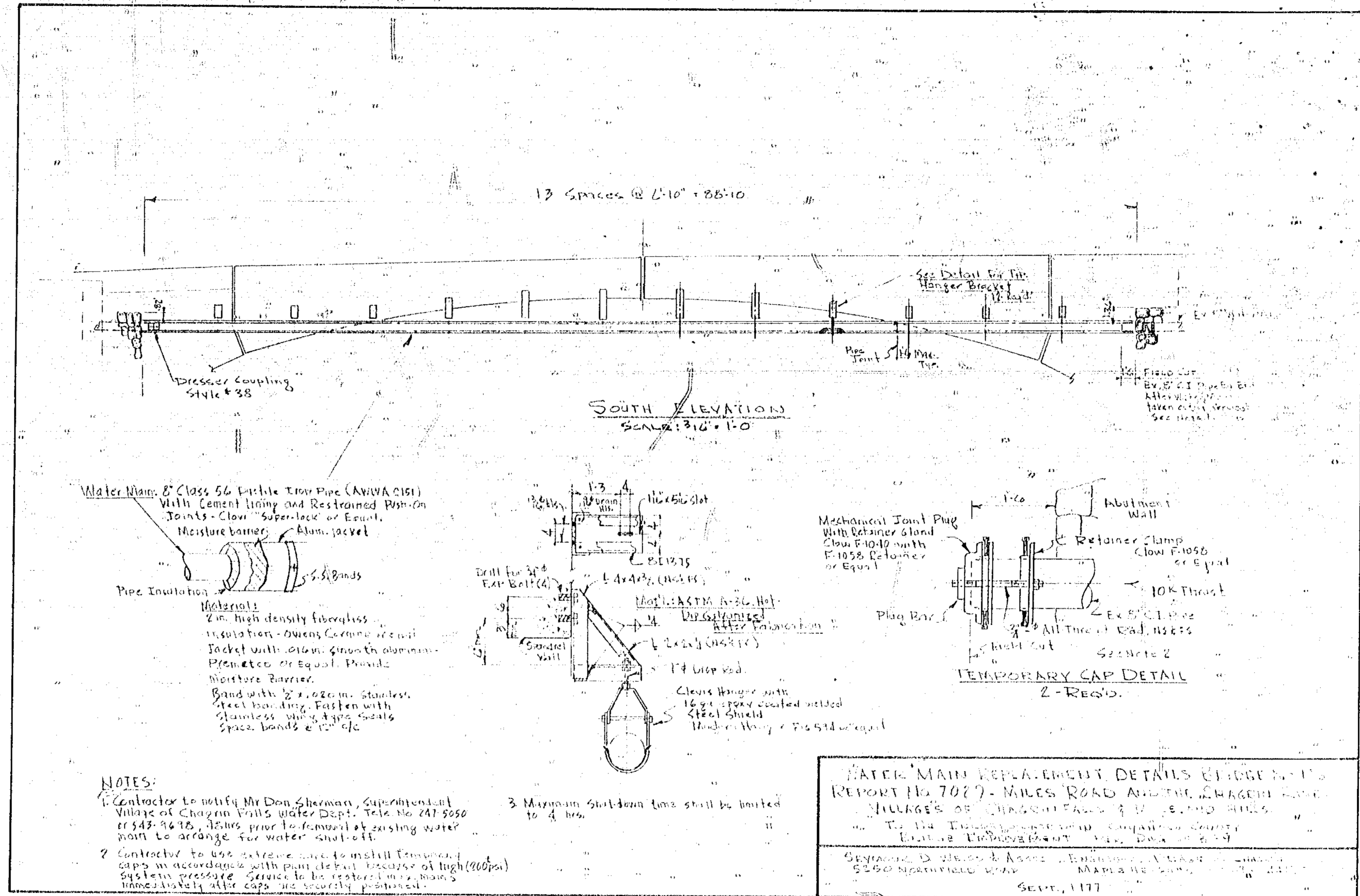
Note: For Reinforcing Details Other Than Shown Here See Sheet No. 419 "Southwest Elevation" And Section B-B, And for Aluminum Railing And Concrete Parapet Details See Std. Dwg. No. BR-1-70.

**NORTHEAST ELEVATION**  
SCALE 1/4" = 1'-0"

**NORTHWEST ELEVATION**  
SCALE 1/4" = 1'-0"

CUYAHOGA COUNTY ENGINEER CLEVELAND OHIO	
<b>MILES ROAD</b> CHAGRIN FALLS VILLAGE & MORELAND HILLS VILL BRIDGE OVER CHAGRIN RIVER	
<b>ESTIMATED QUANTITIES &amp; SPANDREL WALL DETAILS</b>	
BRIDGE NO. 176	REPORT NO. 7029 DATE 9/29/77
<b>NO. B-39</b>	
DESIGN SND	DRAWN WAP/END
CHECKED WAP	REVISED TO AS BUILT

5  
9



REPLACEMENT OF WATER MAIN-- PAYMENT FOR REMOVAL OF EXISTING WATER MAIN, BRACKETS, ETC., TEMPORARY CAPS ETC., AND INSTALLATION OF THE NEW WATER MAIN, INSULATION, ALUMINUM JACKET, MOISTURE BARRIER, BANDS, BRACKETS, HANGERS, BOLTS, ETC. SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM SPECIAL--REPLACEMENT OF WATER MAIN, THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THIS WORK.

CUYAHOGA COUNTY ENGINEER		CLEVELAND OHIO	
<b>MILES ROAD</b>			
CHAGRIN FALLS VILLAGE & MORELAND HILLS VILL.			
<b>BRIDGE OVER CHAGRIN RIVER</b>			
<b>REPLACEMENT OF WATER MAIN</b>			
BRIDGE NO. 176	REPORT NO. 7029	DATE	10/3/77
<b>NO. B-39</b>			6/9
DESIGN	DRAWN	CHECKED	REVISED TO AS BUILT

**EXISTING REINFORCING BARS**

EXISTING REINFORCING BARS THAT ARE TO REMAIN IN THE ARCH AND SPANDREL WALL REPAIR AREAS SHALL BE DETERMINED BY THE ENGINEER. THESE BARS SHALL BE THOROUGHLY CLEANED OF CONCRETE FRAGMENTS, FOREIGN MATTER ETC. TO THE SATISFACTION OF THE ENGINEER. NO SEPARATE PAYMENT WILL BE MADE FOR CLEANING EXISTING REINFORCING BARS AND THIS WORK SHALL BE INCLUDED IN THE PERTINENT WORK ITEM.

EXISTING REINFORCING BARS THAT ARE TO BE REMOVED SHALL BE DETERMINED BY THE ENGINEER. THE SIZE AND LENGTH OF THE NEW BARS SHALL BE DETERMINED BY THE ENGINEER. PAYMENT FOR THE NEW REINFORCING BARS SHALL BE PAID UNDER ITEM 509 REINFORCING BARS. PAYMENT FOR REMOVAL OF EXISTING BARS SHALL BE INCLUDED UNDER ITEM 509 REINFORCING STEEL.

LAPPING EXISTING BARS WITH NEW BARS SHALL BE A MIN. OF 30 BAR DIAMETERS OR MAY BE SPLICED BY MECHANICAL MEANS AS APPROVED BY THE ENGINEER. WELDING OF REINFORCING STEEL TO EXISTING REINFORCING STEEL WILL NOT BE PERMITTED.

**SPECIAL FINISH COATING FOR CONCRETE**

DESCRIPTION—THIS ITEM CONSISTS OF FURNISHING THE NECESSARY MATERIALS, LABOR AND EQUIPMENT REQUIRED TO PREPARE SURFACES AND TO APPLY TWO COATS OF FINISH MATERIAL.

MATERIAL—THE FINISH COATING SHALL BE A HEAVY BASE CEMENT COATING THAT CAN BE APPLIED WITH A BRUSH TO GIVE A SMOOTH UNIFORM AND PLEASING APPEARANCE WITHOUT REQUIRING RUBBING. THE COATINGS ARE TO FILL AND SEAL ALL PORES AND VOIDS AND SHALL ADHERE TO THE CONCRETE ADEQUATELY TO RESIST WATER PRESSURE.

THE COATINGS ARE TO BE OF MATERIALS SPECIFICALLY FORMULATED FOR APPLICATION ON CONCRETE EQUAL TO "THOROSEAL" WITH THE ADMIXTURE "ACRYL-60" AS MANUFACTURED BY STANDARD DRY WALL PRODUCTS INC.

COLORING MAY BE ADDED TO THE SECOND COAT SO AS TO MATCH THE COLOR OF CONCRETE.

PREPARATION OF SURFACES—AFTER EXISTING CONCRETE HAS BEEN REPAIRED AS PER PLAN THE SURFACE DESIGNATED TO BE FINISH COATED SHALL BE THOROUGHLY CLEANED OF ALL DIRT, DUST AND FOREIGN MATERIALS BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS.

APPLICATION OF FINISH COATING—AFTER THE SURFACES HAVE BEEN CLEANED, BRUSH APPLY AN EVENLY DISTRIBUTED BASE COAT AT THE RATE OF 2 POUNDS PER SQUARE YARD OF SURFACE. THEN BRUSH APPLY A SECOND COAT AT THE RATE OF 1 POUND PER SQUARE YARD OF SURFACE.

MIX ALL MATERIALS PER MANUFACTURER'S PRINTED INSTRUCTIONS, FILE COPY OF SAME WITH THE ENGINEER.

TEST CERTIFICATION—IF THE CONTRACTOR DESIRES TO USE A MATERIAL OTHER THAN THE BRANDNAMED MATERIAL SPECIFIED HEREIN, HE SHALL INSTRUCT THE MANUFACTURER OF THE MATERIAL TO SUBMIT TO THE TESTING LABORATORY OF THE COUNTY ENGINEER A CERTIFIED LABORATORY TEST REPORT FROM A RELIABLE TESTING LABORATORY INDICATING THAT THE MATERIAL HE PROPOSES TO FURNISH WILL MEET THE REQUIREMENTS OF THESE SPECIFICATIONS. IN ADDITION HE SHALL SUBMIT IN WRITING EVIDENCE THAT THIS MATERIAL HAS BEEN USED ON CONCRETE SURFACES OF STRUCTURES AND HAS PERFORMED SATISFACTORYLY.

THE MANUFACTURER SHALL ALSO SUBMIT A SAMPLE OF THE MATERIAL TO BE USED FOR FINISH COATING TO THE TESTING LABORATORY OF THE COUNTY ENGINEER, 2429 WEST SUPERIOR AVF CLEVELAND OHIO, 44113, AT LEAST ONE MONTH PRIOR TO THE TIME IT IS EXPECTED TO BE USED.

THE COUNTY ENGINEER RESERVES THE RIGHT TO USE ANY ADDITIONAL INFORMATION OR PERFORM ANY TESTS DEEMED NECESSARY TO DETERMINE WHETHER OR NOT THE COATING MATERIAL CONFORMS TO THE REQUIREMENTS OF THIS SPECIFICATION AND IS SUITABLE FOR THE PURPOSE INTENDED.

METHOD OF MEASUREMENT—THE QUANTITY OF FINISH COATING TO BE PAID FOR SHALL BE THE NUMBER OF SQUARE FEET IN PLACE AND COMPLETED.

BASIS OF PAYMENT—THE FINISH COATING MEASURED AS ABOVE PROVIDED SHALL BE PAID FOR AT THE CONTRACT UNIT BID PRICE PER SQUARE FOOT WHICH PRICE SHALL BE PAYMENT IN FULL FOR FURNISHING ALL MATERIALS, LABOR AND EQUIPMENT FOR PREPARING THE CONCRETE SURFACE AND APPLYING THE 2 COATS

AT THE REQUIRED RATE.

**ESTIMATED QUANTITIES FOR MAINTAINING TRAFFIC**

QUANTITIES OF THE FOLLOWING ITEMS ARE ESTIMATED AND ARE INCLUDED FOR USE ONLY WHEN AND IN AMOUNTS AS DIRECTED BY THE ENGINEER. THE PROVISIONS OF SECTIONS 104.02 WILL APPLY TO THESE ITEMS. THE AMOUNTS OF THESE ITEMS AND THE LOCATIONS WHERE USED SHALL BE RECORDED AS USED AND PAYMENT WILL BE INCLUDED IN THE FINAL PAY ESTIMATE.

ITEM 410 & SPECIAL	TRAFFIC COMPACTED SURFACE	CU. YDS.
ITEM 616	CALCIUM CHLORIDE	TON

**PROTECTION FROM DUST**

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT THE AREA FROM DUST. HE SHALL KEEP THE DUST LAID BY THE USE OF WATER, CALCIUM CHLORIDE, OR ROAD OIL, WHICHEVER IS CONSIDERED NECESSARY BY THE ENGINEER. THIS OPERATION SHALL BE CONSIDERED PART OF THE CONTRACT, AND PAYMENT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR THE VARIOUS CONTRACT ITEMS. SEE SUPPLEMENTAL SPECIFICATIONS.

**CONTINGENCY QUANTITIES**

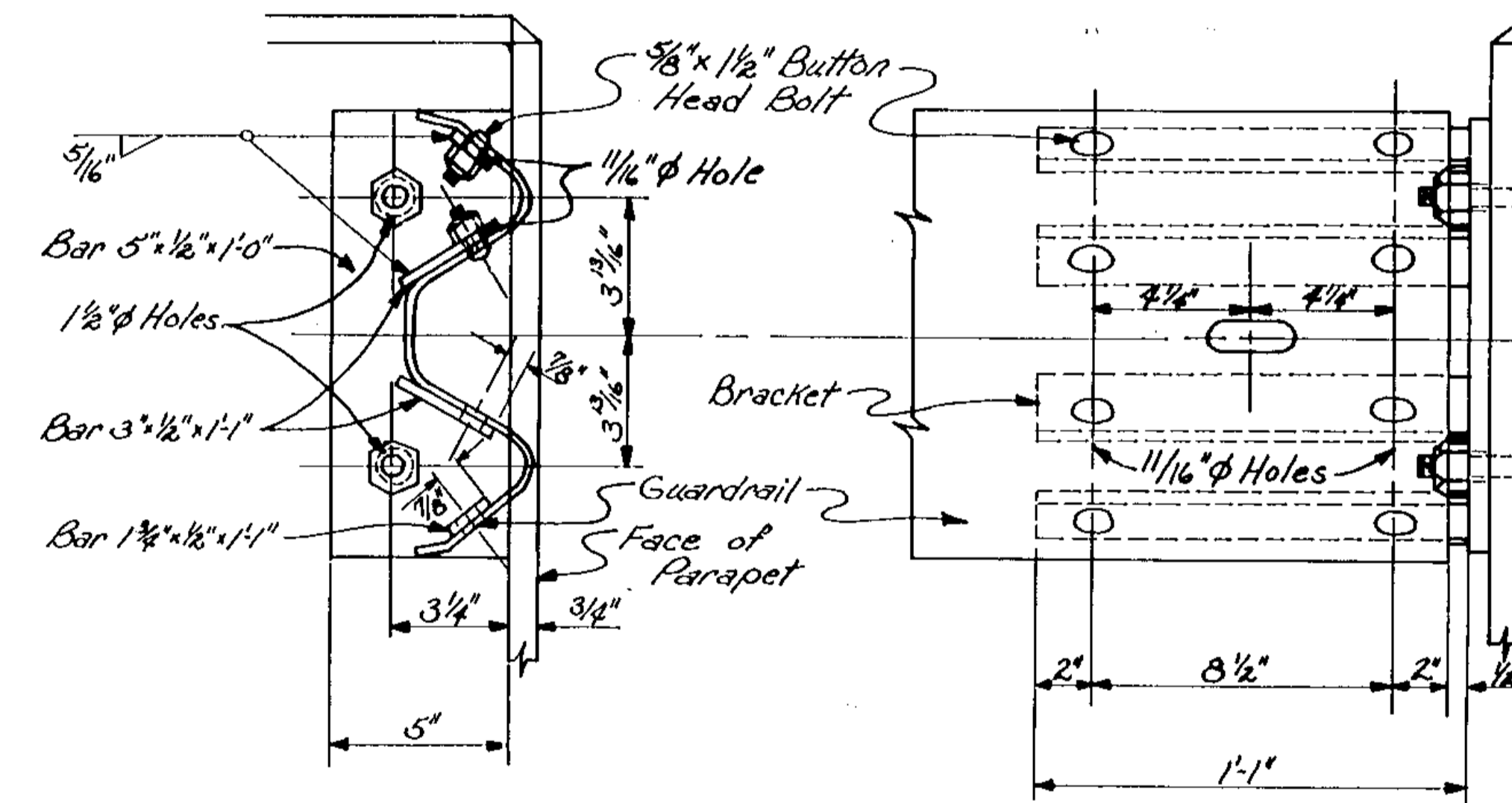
MATERIALS ASSOCIATED WITH CONTINGENCY WORK AND MISCELLANEOUS QUANTITIES SHALL NOT BE ORDERED BY THE CONTRACTOR UNTIL DIRECTED BY THE ENGINEER.

**MAINTAINING TRAFFIC**

ONE LANE ON THE BRIDGE SHALL BE OPEN FOR LOCAL ACCESS AT ALL TIMES. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY SAFEGUARDS SUCH AS SIGNS, BARRICADES, SATISFACTORY BARRIERS, LIGHTING, FLAGMEN, TEMPORARY GUARDRAIL AND OTHER TRAFFIC CONTROL DEVICES AS PROVIDED IN ITEM 614-MAINTAINING TRAFFIC SO AS TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS USING THE ROADWAY DURING CONSTRUCTION. PAYMENT FOR LABOR AND EQUIPMENT REQUIRED FOR CONSTRUCTION, MAINTENANCE AND SUBSEQUENT REMOVAL OF APPROACHES BYPASSES, CROSSOVERS, DRIVEWAYS, BARRICADES, LIGHTS, SIGNS AND SIGN SUPPORTS SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614-MAINTAINING TRAFFIC.

**ROADWAY BASE**

THE DEPTHS OF ITEM 304 & SPECIAL-AGGREGATE BASE AND ITEM 310 & SPECIAL-SUBBASE SHOWN ON THE PLANS SHALL BE MAXIMUM DEPTHS. THESE DEPTHS MAY BE LESS AT THE CENTER OF THE BRIDGE NEAR THE PARAPETS DUE TO THE TRANSVERSE SLOPE AND THE SHALLOW COVER ON THE ARCH AT THAT POINT. WHEN THE DEPTH OF COVER DOES NOT ALLOW FOR THE FULL 6" DEPTH OF THESE ITEMS TO BE PROVIDED THEY SHALL BE DECREASED AS DIRECTED BY THE ENGINEER.

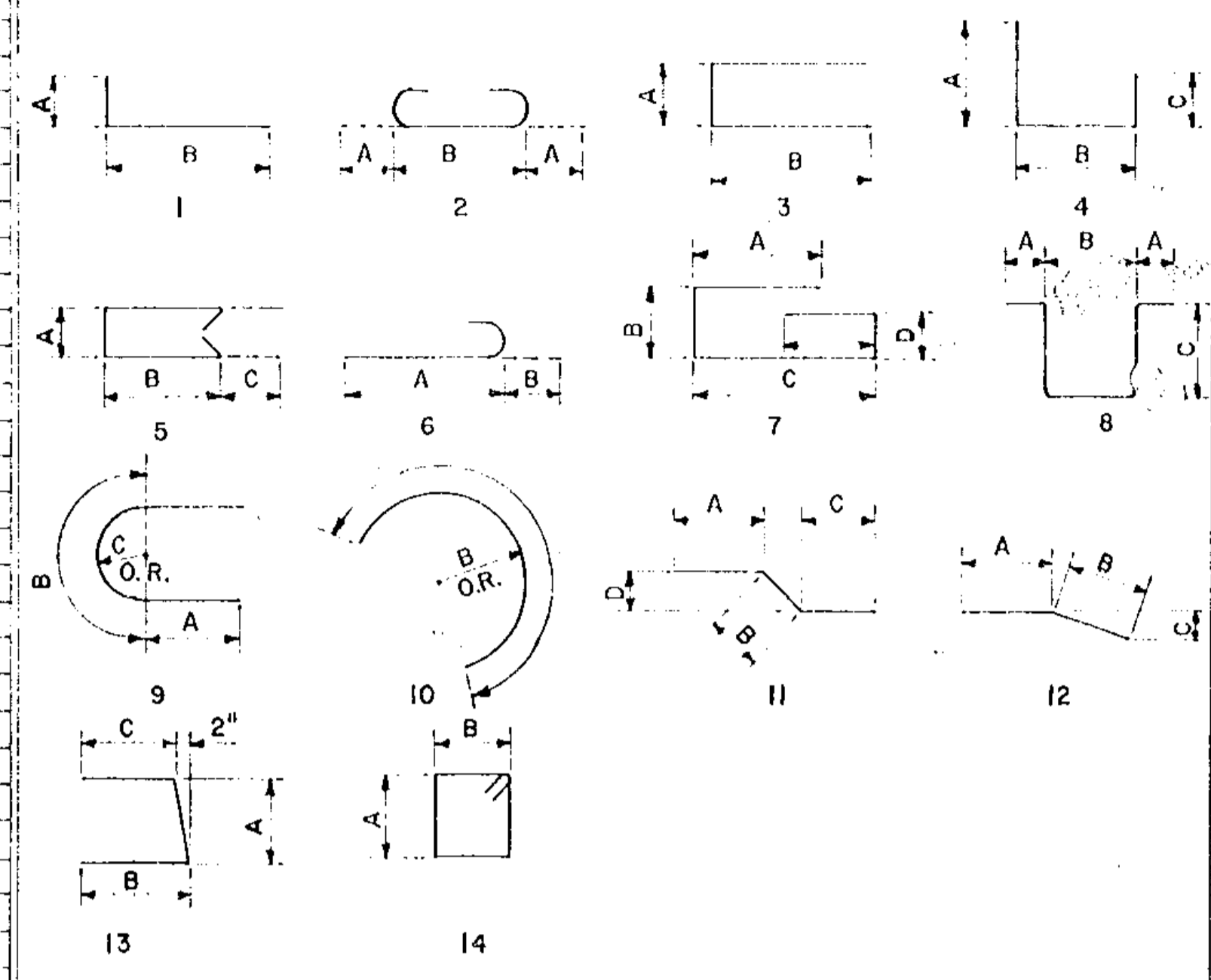


**BRIDGE TERMINAL ASSEMBLY AS PER PLAN**

CUYAHOGA COUNTY ENGINEER CLEVELAND OHIO			
MILES ROAD CHAGRIN FALLS VILLAGE & MORELAND HILLS VILL BRIDGE OVER CHAGRIN RIVER			
GENERAL NOTES			
BRIDGE NO. 176		REPORT NO. 7029 DATE 9/29/71	
NO. B-39			7/9
DESIGN WAP	DRAWN WAP	CHECKED S.E.	REVISED TO AS BUILT



MARK	NO. REQ'D.	LENGTH	TYPE	DIMENSIONS				SERIES INCR.	WEIGHT LBS.	MARK	NO. REQ'D.	LENGTH	TYPE	DIMENSIONS				SERIES INCR.	WEIGHT LBS.	MARK	NO. REQ'D.	LENGTH	TYPE	DIMENSIONS				SERIES INCR.	WEIGHT LBS.				
				A	B	C	D							A	B	C	D							A	B	C	D			A	B	C	D
<b>Spandrel Wall</b>																																	
SW501	24	2'-3"	Str.																														
SW502	8	2'-6"	Str.																														
SW503	8	2'-8"	Str.																														
SW504	2-Ser 8=16	2'-9 3/4"	Str.					0'-1"	51																								
SW505	2-Ser 4=8	3'-8 1/4"	Str.					0'-2"	33																								
SW506	2-Ser 8=16	4'-3 1/2"	Str.					0'-3"	85																								
SW507	2	6'-6"	Str.						14																								
SW508	2	6'-8"	Str.						14																								
SW509	2	4'-9"	Str.						10																								
SW510	2-Ser 8=16	2'-6 3/4"	Str.					0'-1"	47																								
SW511	2-Ser 8=16	3'-4 1/4"	Str.					0'-2"	65																								
SW512	2-Ser 12=24	4'-6 1/2"	Str.					0'-3"	147																								
SW513	2	7'-9"	Str.						16																								
SW514	2	8'-0"	Str.						17																								
SW515	2	6'-0"	Str.						13																								
SW516	16	2'-9"	Str.						46																								
SW517	6	3'-0"	Str.						19																								
SW518	2-Ser 4=8	3'-3 3/4"	Str.					0'-2"	29																								
SW519	2-Ser 7=14	4'-2 1/2"	Str.					0'-6"	83																								
SW520	2	5'-3"	Str.						11																								
SW521	2-Ser 4=8	3'-2 3/4"	Str.					0'-2"	29																								
SW522	2-Ser 5=10	4'-2 1/2"	Str.					0'-4"	50																								
SW523	2-Ser 5=10	6'-0 3/8"	Str.					0'-8"	77																								
SW524	2	6'-6"	Str.						14																								
SW525	36	36'-0"	Str.						1352																								
SW526	4	21'-6"	Str.						90																								
SW527	4	14'-6"	Str.						61																								
SW528	4	9'-6"	Str.						40																								
SW529	4	5'-9"	Str.						24																								
SW530	4	16'-6"	Str.						69																								
SW531	4	10'-0"	Str.						42																								
SW532	4	5'-0"	Str.						21																								
SW533	20	8'-11"	5	0'-8"	3'-10"	0'-5"			186																								
SW534	144	3'-2"	Str.						476																								
SW535	72	*5'-9"	1	1'-6"	4'-4"				432																								
SW536	260	6'-11"	5	0'-8"	2'-10"	0'-5"			1877																								
SW537	68	2'-10"	Str.						201																								
SW538	28	32'-5"	Str.						947																								
SW539	124	2'-6"	Str.						323																								
SW540	16	1'-8"	Str.						28																								
SW541	16	2'-6"	Str.						42																								
SW542	32	1'-10"	Str.						61																								
SW543	16	4'-9"	Str.						79																								
SW544	16	5'-7"	Str.						93																								
SW545	72	*4'-9"	1	1'-6"	3'-4"				357																								
SW546	16	7'-8"	Str.						128																								
									7917																								
<b>Rallings</b>																																	
R501	16	3'-3"	Bt.						54																								
R502	8	6'-7"	Bt.						55																								
R503	8	6'-8"	Bt.						56																								
R504	8	4'-8"	Str.						39																								
R505	16	15'-2"	Str.						253																								
R506	16	12'-5"	Str.						207																								
R507	16	4'-2"	Str.						70																								
R508	16	4'-4"	Str.						72																								
R509	32	12'-11"	Str.						431																								
R510	16	4'-8"	Str.						78																								
									1315																								



\*Lengths are assumed actual lengths shall be determined in the field by the Engineer.

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A700 IS A NO. 7 SIZE BAR AND A1014 IS A NO. 10 SIZE.

**CUYAHOGA COUNTY ENGINEER**  
**CLEVELAND OHIO**

**MILES ROAD**  
CHAGRIN FALLS VILLAGE & MORELAND HILLS VILL  
**BRIDGE OVER CHAGRIN RIVER**

**REINFORCING SCHEDULE**

BRIDGE NO. 176      REPORT NO. 7029      DATE 9/29/17

NO. B-39

