E-4

21

DESIGN DESIGNATION	
CURRENT YEAR (1970) A. D. T.	14,500
DESIGN YEAR (1993) A. D. T.	15,000
D.H.V.	1,250
D (DIRECTIONAL DISTRIBUTION)	60%
T (PERCENT B & C TRUCKS)	3%
V (DESIGN SPEED)	40 M.P.H.

PHOTOPROCESSED JUL 19 1979

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-254DA-0.17
CUY-6A-0.34
DETROIT-ROCKY RIVER BRIDGE
CITY OF LAKEWOOD
CITY OF ROCKY RIVER
CUYAHOGA COUNTY

ISSUE NO. 1

M-BRM-IA 30(1)

THE PROJECT DESIGNATION CUY.-254DA-0.20 CUY.-6A-0.37 APPEARING THROUGHOUT THIS PLAN SHALL BE CONSTRUED TO READ CUY.-254DA-0.17 CUY.-6A-0.34

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	M-BRM-IA 30(1)	

1 / 91

CUYAHOGA COUNTY
CUY.-254DA-0.17
CUY.-6A-0.34

WE, THE COMMISSIONERS OF CUYAHOGA COUNTY, IN FORMAL SESSION HEREBY APPROVE THESE PLANS. WE AGREE TO MAINTAIN THE PROJECT IN A MANNER SATISFACTORY TO THE DIRECTOR, DEPARTMENT OF TRANSPORTATION, STATE OF OHIO OR HIS DULY AUTHORIZED REPRESENTATIVE AND WILL MAKE AMPLE PROVISIONS EACH YEAR FOR SUCH MAINTENANCE.
DONE UNDER AUTHORITY OF SECTIONS 5555.02 ET SEQ. AND 5535.01 OF THE REVISED CODE OF OHIO.

BOARD OF COMMISSIONERS
CUYAHOGA COUNTY

DATE 12-28-78

THE STANDARD 1979 SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.
THE RIGHT OF WAY FOR THIS IMPROVEMENT WILL BE PROVIDED BY THE STATE OF OHIO.
I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING OF THE HIGHWAY TO TRAFFIC AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED DATE 12-21-78 — Ronald A. Stackhouse, COUNTY ENGINEER

APPROVED DATE 1-3-79 — Thomas M. Frall, DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

APPROVED DATE 1-25-79 — Robert B. Sheridan, ENGINEER, BUREAU OF BRIDGES AND STRUCTURAL DESIGN

APPROVED DATE 5-23-79 — R. E. Gallon, CHIEF ENGINEER, PLANNING AND DESIGN

APPROVED DATE 5-23-79 — David L. Weir, DIRECTOR, DEPARTMENT OF TRANSPORTATION

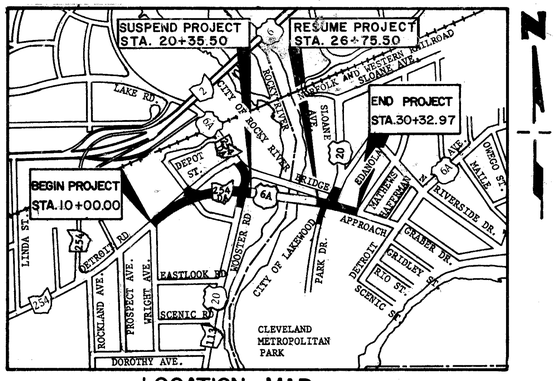
CONVENTIONAL SIGNS

COUNTY LINE
TOWNSHIP LINE
CORPORATION LINE
CENTER LINE
PROPERTY LINE — R — R —
EXISTING R/W LINE — R/W —
EXISTING LA LINE — LA — LA —
RIGHT OF WAY LINE — R/W —
LIMITED ACCESS RIGHT OF WAY ONLY — LA-R/W — LA-R/W —
TEMPORARY EASEMENT
CONSTRUCTION LIMITS — CONSTRUCTION LIMITS —
FENCE LINE (EXISTING, PROPOSED) — x — x — xx —
GUARD RAIL (EXISTING, PROPOSED)
RAILROAD
POLE LINE (POWER, TELEPHONE)
UNDERGROUND UTILITIES (GAS, WATER) — G — W —
" " " (TELEPHONE, POWER) — T — E —
SEWERS (SANITARY, STORM) — SAN — ST —
EXISTING TREES & STUMPS (EXIST., REMOVED)

INDEX OF SHEETS

LINE DATA

BEGIN PROJECT	STA. 10+00.00	
SUSPEND PROJECT	STA. 20+35.50	
RESUME PROJECT	STA. 26+75.50	
END PROJECT	STA. 30+32.97	
TOTAL	1,392.97	LIN. FT. OR 0.263 MILE
BEGIN WORK	STA. 10+00.00	
END WORK	STA. 30+32.97	
TOTAL	2,032.97	LIN. FT. OR 0.385 MILE



LOCATION MAP
400 0 400 800 1200
SCALE IN FEET

STATE HIGHWAYS
FEDERAL HIGHWAY
OTHER ROADS
FUTURE IMPROVEMENTS
PORTION TO BE IMPROVED

SCALES

PLAN	1" = 20'	
PROFILE HORIZONTAL	1" = 20'	
PROFILE VERTICAL	1" = 5' OR 1" = 10'	
CROSS SECTION	1" = 5'	

GRAPHIC SCALES
20 10 0 20 — 1"=20'
10 5 0 10 — 1"=10'
5 0 5 — 1"=5'

SUPPLEMENTAL SPECIFICATIONS			
NUMBER	DATE	NUMBER	DATE
839	11-25-70		
842	8-29-74		
843	10-23-75		
844	11-8-74		
948	2-19-76		
1001	1-3-77		

STANDARD CONSTRUCTION DRAWINGS									
DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE	DRAWING NO.	DATE
A3-1-72	6-30-72	CB-2-2-A&B	6-1-65	HL-1	9-6-73	I-2A	6-6-69	TC-21.10	10-1-74
		CB-3	1-1-76	HL-2	7-27-73	L-1	6-1-73	TC-22.10	10-1-74
BP-1	6-1-65	CB-3A	1-1-76	HL-3	7-27-73	MC-1	6-13-69	TC-41.20	4-1-77
BP-2	12-6-76	CB-6	6-1-65	HL-5	9-6-73	MC-3	6-1-73	TC-41.50	4-1-77
BP-3	12-6-76			HL-7	1-21-76	MC-4	7-26-76	TC-42.20	4-1-77
BP-4	12-6-76			HL-8	1-21-76	MC-6	6-1-65	TC-52.10	4-1-77
BP-5	8-11-75			HL-9	3-22-77	MC-2	6-1-65	TC-52.20	4-1-77
BP-6	6-1-65			HL-10	1-21-76			TC-71.10	12-1-75
BP-7	12-6-76			HL-11	4-6-73	MH-1	6-12-75	TC-82.10	9-5-75
				HL-12	4-6-73	MH-3	6-12-75	TC-83.10	9-5-75
BP-10	1-3-75			HL-15	1-21-76	MH-5	6-12-75	TC-85.10	9-5-75
BP-12	8-11-75							TC-85.20	9-5-75
BR2-67	10-15-71								

FILE NO.	CUYAHOGA COUNTY
	DATE OF LETTING
	CONTRACT NO.

PLANS PREPARED BY
ADACHE ASSOCIATES INC. · ENGINEERS
6325 YORK RD. · PARMA HGTS., OHIO 44130

483 1215

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED:

DIVISION ADMINISTRATOR — DATE

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

2/91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

SCHEMATIC PLAN

0 50 100 200 300 400 500
SCALE IN FEET

N

254 DA ℄ LAKE ROAD 6A

END WORK STA.13+00.00

SUSPEND PROJECT STA. 20+35.50

SECTION 24 SECTION 23

BRM-IA-30(1)

℄ DETROIT-ROCKY RIVER BRIDGE

RESUME PROJECT STA. 26+75.50

℄ SLOANE AVE. 20 ℄ EDANOLA DRIVE

℄ DEPOT ST.

STA. 14+57.41
=℄ DEPOT ST. STA. 10+00.00

END WORK STA.11+75.67

℄ RIVERSIDE DRIVE

℄ MATHEWS AVENUE

M-BRM-IA-30(1)

BEGIN PROJECT & WORK STA. 10+00.00

STA. 19+42.87
=℄ WOOSTER RD. & LAKE RD.
STA. 10+00.00

℄ RELOCATED DETROIT ROAD

STA. 20+35.50

BRIDGE LIMITS 640.00'

STA. 23+62.59

STA. 26+75.50

M-BRM-IA-30(1)

END PROJECT & WORK STA.30+32.97

℄ HAFERMALZ CT.

BEGIN WORK STA.8+00.00

℄ WEST 192 ST.

BRIDGE NUMBER CUY.-6A-0041 BY OTHERS

STA. 27+83.86
=℄ PARK DR. & RELOC. SLOANE AVE STA. 10+02.75

℄ BRIDGE APPROACH

BEGIN WORK STA.7+85.56

℄ PARK DRIVE

6A ℄ GRABER DRIVE

℄ CURVE DATA
℄ RELOC. DETROIT ROAD
P.I. STA.15+56.58
△= 48° 04' 12"
D = 6° 00' 00"
R = 954.93'
T = 425.86'
L = 801.16'
E = 90.66'

℄ WRIGHT AVE.

ROCKY RIVER

CITY OF ROCKY RIVER
CITY OF LAKEWOOD

℄ CURVE DATA
℄ RELOC. DETROIT ROAD
P.I. STA.27+99.78
△= 13° 10' 07.5"
D = 4° 00' 00"
R = 1432.40'
T = 165.34'
L = 329.22'
E = 9.51'

℄ DETROIT AVENUE

℄ GRIDLEY STREET

℄ RIO STREET

℄ SCENIC STREET

℄ EASTLOOK ROAD

℄ WOOSTER ROAD 20

PARK ROAD

SCHEMATIC PLAN

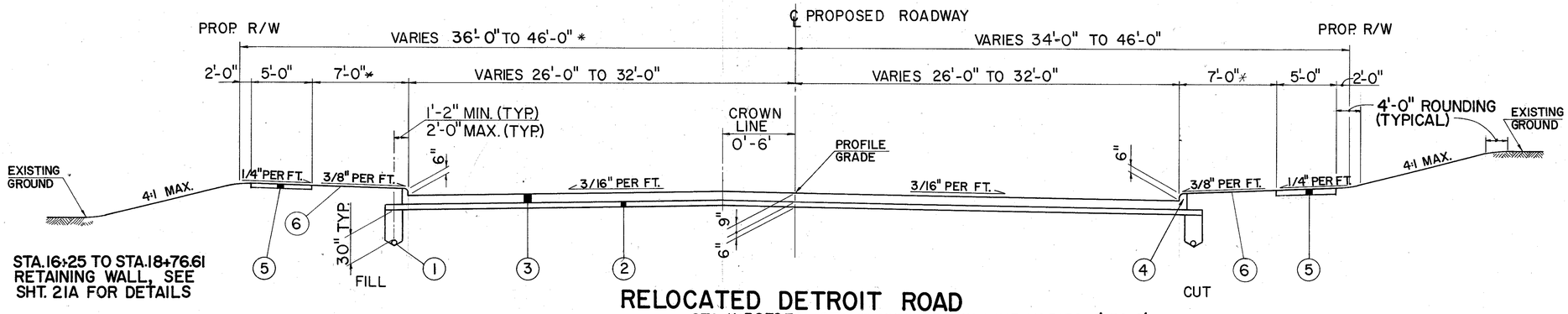
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

3
91

CUYAHOGA COUNTY
CUY - 254 DA - 0.20
CUY - 6A - 0.37

TYPICAL SECTIONS

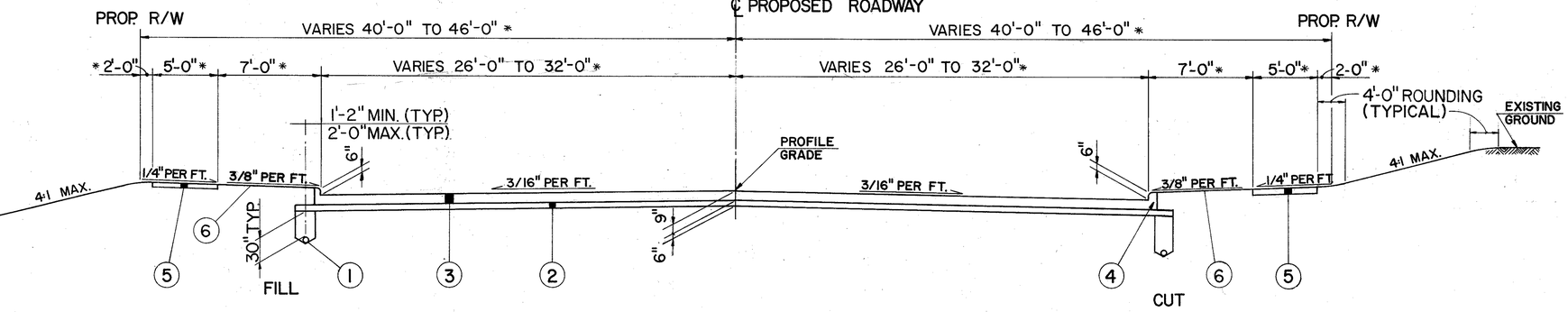
TYPE 451



STA. 16+25 TO STA. 18+76.61
RETAINING WALL, SEE SHT. 21A FOR DETAILS

RELOCATED DETROIT ROAD

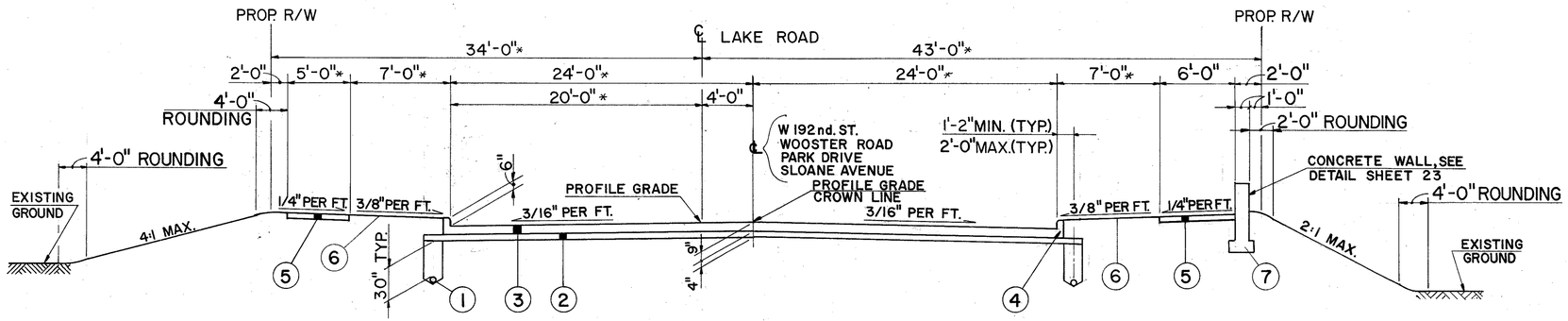
STA. 11+30.72 TO STA. 13+10.72 CROWN LINE VARIES 0' TO 6'
STA. 13+10.72 TO STA. 18+00.00
STA 18+00.00 TO STA. 19+31.89 CROWN LINE VARIES 6' TO 0'

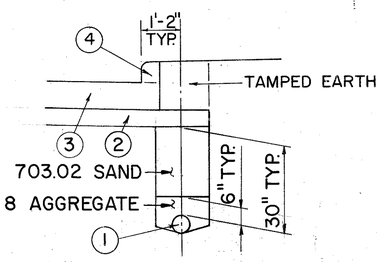


RELOCATED DETROIT ROAD

STA. 10+00 TO STA. 11+30.72
STA. 19+31.89 TO STA. 20+05.50
STA. 27+05.53 TO STA. 30+32.97

STRUCTURE NO.- CUY. 6A 0041
STA. 20+35.50 TO STA. 26+75.50
30' APPROACH SLABS





TYPICAL UNDERDRAIN DETAIL

LEGEND

(1)	ITEM 605	6" PIPE UNDERDRAINS, AS PER PLAN
(2)	ITEM 310	SUBBASE TYPE II
(3)	ITEM 451	9" REINFORCED CONCRETE PAVEMENT
(4)	ITEM 609	CURB, TYPE 2A
(5)	ITEM 608	4" CONCRETE SIDEWALK
(6)	ITEM 660	SODDING
(7)		CONCRETE WALL

* VARIABLE DIMENSIONS, SEE PLAN DETAILS.

NOTES

1. CROSS SECTIONS SHALL GOVERN OVER TYPICAL SECTIONS WHERE VARIABLE CONDITIONS ARE ENCOUNTERED IN SLOPES.
2. CUT AND FILL SECTIONS ARE INTERCHANGEABLE FOR EITHER SIDE OF ROADWAY.
3. PAVEMENT DETAILS SHALL GOVERN OVER TYPICAL SECTIONS.

WEST 192nd STREET
STA. 10+32.94 TO STA. 11+03.12
SEE PAVEMENT DETAILS SHEET 19

WOOSTER ROAD
STA. 8+00.00 TO STA. 9+67.94
SEE PAVEMENT DETAILS SHEET 20

LAKE ROAD
STA. 10+32.06 TO STA. 13+00.00
SEE PAVEMENT DETAILS SHEET 20

PARK DRIVE
STA. 7+85.56 TO STA. 9+71.62
SEE PAVEMENT DETAILS SHEET 21

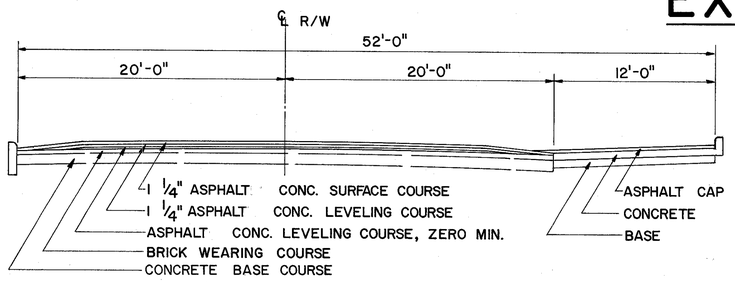
SLOANE AVENUE
STA. 10+35.15 TO STA. 11+75.67
SEE PAVEMENT DETAILS SHEET 21

EXISTING SECTIONS

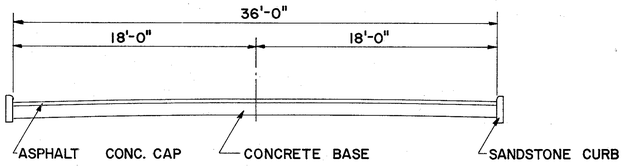
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

4
91

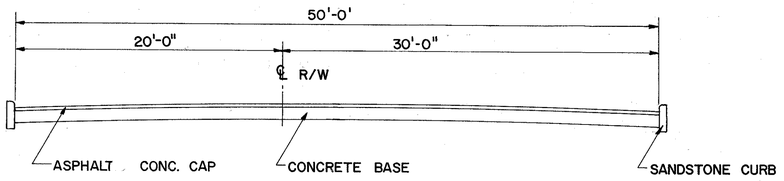
CUYAHOGA COUNTY
CUY-254DA-0.20
CUY-6A-0.37



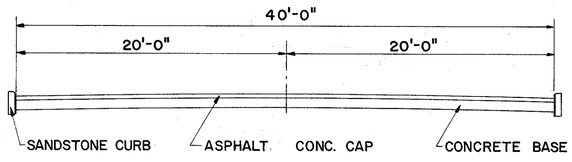
DETROIT ROAD



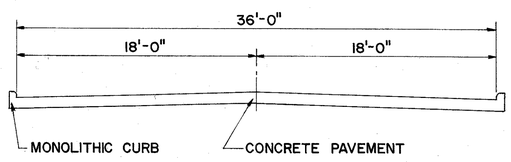
WOOSTER ROAD



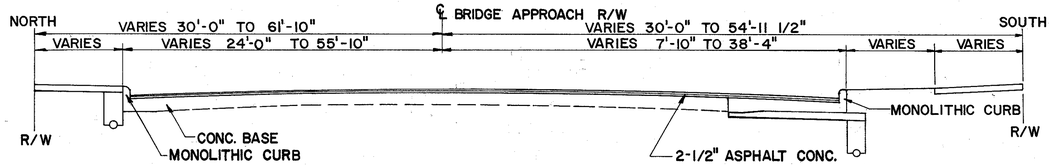
LAKE ROAD



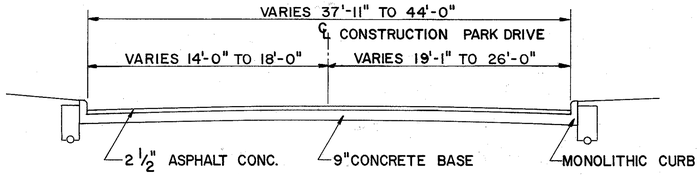
DEPOT STREET



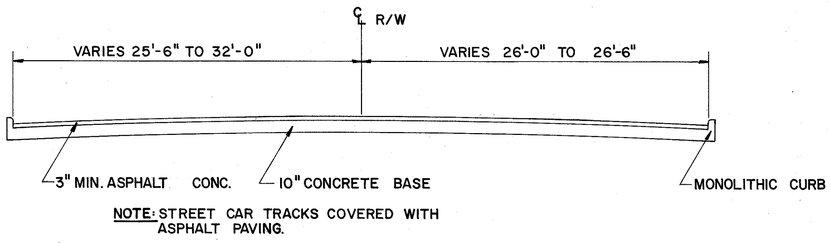
WEST 192nd STREET



DETROIT AVENUE BRIDGE APPROACH



METROPOLITAN PARK DRIVE



SLOANE AVENUE

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

5
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

GENERAL NOTES

TRAFFIC

DETROIT ROAD BETWEEN WRIGHT AVE. & DEPOT STREET

TWO LANES OF TRAFFIC, ONE (1) IN EACH DIRECTION, SHALL BE MAINTAINED BY USE OF THE EXISTING PAVEMENT, THE PROPOSED PAVEMENT OR TEMPORARY PAVEMENT PLACED AS DIRECTED BY THE ENGINEER.

DEPOT STREET MAY BE CLOSED TO THRU TRAFFIC DURING THE RECONSTRUCTION OF THE INTERSECTION. LOCAL TRAFFIC SHALL BE MAINTAINED.

WEST 192ND STREET

TO BE CLOSED TO TRAFFIC AT THE CONSTRUCTION LIMITS AFTER STAGE I OF WOOSTER RD. AND LAKE RD. CONSTRUCTION IS COMPLETED OR AS DIRECTED BY THE ENGINEER.

WOOSTER RD. & LAKE RD.

STAGE I
DETOUR (U.S.20) WOOSTER RD. TRAFFIC ONTO 192ND STREET TO DETROIT RD. TO LAKE RD. TO THE EXISTING BRIDGE. COMPLETE PAVEMENT CONSTRUCTION OF THE ROAD WAY BETWEEN STA 8+00 AND STA 11+25 ± . MAINTAIN LOCAL ACCESS FOR RESIDENCES TO THE SOUTH. DETOUR TIME SHALL NOT EXCEED 90 CALENDAR DAYS.

STAGE II
PROVIDE A TEMPORARY ROADWAY FOR TWO (2) LANES OF TRAFFIC ONE(1) IN EACH DIRECTION ON THE EASTERLY HALF OF THE PROPOSED ROADWAY COMPLETED IN STAGE I TO THE EXISTING ROADWAY. CONSTRUCT THE WESTERLY HALF OF THE PROPOSED PAVEMENT WHILE MAINTAINING TRAFFIC ON THE EASTERLY HALF BETWEEN STATIONS 11+25± AND 13+00.

STAGE III
REDIRECT TRAFFIC ON THE RECONSTRUCTED ROADWAY PROVIDED IN STAGE II AND COMPLETE THE EASTERLY HALF OF THE ROADWAY, BETWEEN STATIONS 11+25± AND 13+00.

NOTE STAGES II & III SHALL BE DONE AFTER TRAFFIC CAN BE REROUTED ONTO THE RELOCATED BRIDGE.

DETROIT ROAD BETWEEN THE BRIDGE AND MATHEWS AVE.

STAGE I
TRAFFIC SHALL BE MAINTAINED ON THE EXISTING ROADWAY UNTIL THE RELOCATED BRIDGE IS READY FOR TRAFFIC.

STAGE II
MAINTAIN TWO (2) LANES OF TRAFFIC ONE (1) IN EACH DIRECTION ON THE NORTHERLY SIDE OF THE EXISTING ROADWAY WHILE CONSTRUCTING THE SOUTHERLY ONE-HALF OF THE ROADWAY.

STAGE III
REDIRECT AND MAINTAIN TWO (2) LANES OF TRAFFIC ONE (1) IN EACH DIRECTION ON THE ROADWAY CONSTRUCTED IN STAGE II AND COMPLETE THE NORTHERLY ONE-HALF OF THE ROADWAY.

SLOANE AVE.

TWO (2) LANES OF TRAFFIC ONE (1) IN EACH DIRECTION SHALL BE MAINTAINED BY USE OF THE EXISTING PAVEMENT, THE PROPOSED PAVEMENT OR TEMPORARY PAVEMENT PLACED AS DIRECTED BY THE ENGINEER.

PARK DRIVE

TWO (2) LANES OF TRAFFIC ONE (1) IN EACH DIRECTION SHALL BE MAINTAINED BY USE OF THE EXISTING PAVEMENT, THE PROPOSED PAVEMENT OR TEMPORARY PAVEMENT PLACED AS DIRECTED BY THE ENGINEER.

ESTIMATED QUANTITIES FOR TRAFFIC MAINTENANCE

ESTIMATED QUANTITIES OF 404, 410, AND 616 HAVE BEEN PROVIDED IN THE GENERAL SUMMARY FOR MAINTENANCE OF TRAFFIC, AND SHALL BE APPLIED AT LOCATIONS WHERE DIRECTED AND IN THE AMOUNTS SPECIFIED BY THE ENGINEER.

		ROCKY RIVER	LAKEWOOD
ITEM 404	BITUMINOUS CONCRETE MAINTAINING TRAFFIC. FOR	200	100 CU. YDS.
ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	200	100 CU. YDS
ITEM 616	CALCIUM CHLORIDE	10	5 TONS

DUST CONTROL

ITEM 616	WATER	500	300 M-GALS.
ITEM 616	CALCIUM CHLORIDE	10	10 TONS

ITEM 410, TRAFFIC COMPACTED SURFACE, TYPE A OR B

WHEN OPEN HEARTH SLAG IS USED FOR THE ITEM 410, "TRAFFIC COMPACTED SURFACE", THE NUMBER OF CUBIC YARDS OF AGGREGATE CALCULATED BY WEIGHT CONVERSION WILL BE ON THE BASIS OF 3500 POUNDS PER CUBIC YARD.

USE OF TEMPORARY PAVEMENT

THE LIMITS AND DURATION OF USE OF TEMPORARY ROADWAYS AND DETOURS SHALL BE HELD TO AN ABSOLUTE MINIMUM, AND IN ALL CASES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. MINIMUM WIDTH OF A TEMPORARY TRAFFIC LANE SHALL BE TEN (10) FEET.

LIGHTS AND SIGNS AT ADJACENT ROAD INTERSECTIONS

THE CONTRACTOR SHALL, IN ADDITION TO THE GENERAL REQUIREMENTS OF ITEM 614 ON THIS PROJECT, PERFORM THE FOLLOWING:

PROVIDE, ERECT, AND MAINTAIN STANDARD 48" X 30" SIZE "ROAD CLOSED" SIGNS, SIGN SUPPORTS, AND LIGHTS AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC.

1. WOOSTER ROAD AT 192ND STREET
2. WOOSTER ROAD AT LAKE ROAD

SIGN SUPPORTS AND LIGHTS FOR "ROAD CLOSED" SIGNS SHALL BE AS DETAILED IN THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".

PAYMENT FOR PROVIDING, ERECTING, MAINTAINING, AND REMOVING LIGHTS, SIGNS, AND SIGN SUPPORTS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 "MAINTAINING TRAFFIC".

GENERAL

ITEM 619 FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 400 SQ. FT. OF FLOOR SPACE.

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.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON "U.S.C.G.S." DATUM.

GEODETIC MONUMENT

THE MONUMENT (OM 1437) IS LOCATED 39 FEET RIGHT OF THE CENTERLINE OF RELOCATED DETROIT ROAD STA. 28+34. UNDER "ITEM 202 , EXISTING MONUMENT REMOVED AND STORED" THE CONTRACTOR SHALL CAREFULLY REMOVE AND STORE THE BRONZE PLATE, MARKER AND MONUMENT BOX. THE CONTRACTOR SHALL NOTIFY THE CLEVELAND REGIONAL GEODETIC OFFICE LOCATED AT 1236 STANDARD BUILDING CLEVELAND, OHIO AT LEAST ONE (1) WEEK PRIOR TO THE REMOVAL OF THE MONUMENT. MATERIALS REMOVED AND STORED BY THE CONTRACTOR SHALL BE PICKED UP BY A REPRESENTATIVE OF THE CLEVELAND REGIONAL GEODETIC OFFICE.

ROADWAY

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.

REMOVAL OF TREES AND STUMPS

ALL TREES AND STUMPS WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM 201, "CLEARING AND GRUBBING", EXCEPT THAT THOSE TREES FOR WHICH PROTECTION AND PRESERVATION WORK IS INDICATED ELSEWHERE IN THESE PLANS SHALL NOT BE REMOVED.

THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED.

SIZES	ROCKY RIVER	LAKEWOOD
18" (12"-24")	25	—
30" (24"-36")	20	—
48" (36"-60")	—	—
60" & OVER	—	—

THE ABOVE ESTIMATE IS APPROXIMATE AND THE STATE OF OHIO RESERVES THE RIGHT TO ORDER THE REMOVAL OF ADDITIONAL TREES OR STUMPS OUTSIDE OF THE LIMITS OF CONSTRUCTION BUT WITHIN THE RIGHT-OF-WAY AND/OR EASEMENT LINES. PAYMENT FOR THE REMOVAL OF THESE ADDITIONAL TREES OR STUMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, "CLEARING AND GRUBBING".

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

6
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

GENERAL NOTES

NON-RIGID PAVEMENT REMOVAL

REMOVAL AND DISPOSAL OF EXISTING NON-RIGID PAVEMENT, UNLESS OTHERWISE INDICATED ON THESE PLANS, SHALL BE MEASURED AND PAID FOR AS ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION.

RIGID PAVEMENT REMOVAL

EXISTING RIGID PAVEMENT, SIDEWALK, CURB, AND PARKING ISLANDS SHALL BE REMOVED UNDER ITEM 202 WHEN IT IS LOCATED LESS THAN THREE (3) FEET BELOW THE PROPOSED PAVEMENT SUBGRADE IN PROPOSED PAVEMENT AREAS OR LESS THAN THREE (3) FEET BELOW THE PROPOSED FINISHED SURFACE IN AREAS OUTSIDE THE PROPOSED PAVEMENT

BRIDGE DEMOLITION

FOR DEMOLITION OF EXISTING STRUCTURE SEE DEMOLITION PLAN SHEETS NO. 37-39.

MONUMENTS

MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS SHOWN ON STANDARD DRAWING MC-1. FOR LOCATIONS SEE SHEET 84.

WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL

SEE SHEET 8 FOR ESTIMATED QUANTITIES TO BE USED, AS DIRECTED BY THE ENGINEER, TO CONTROL EROSION AND SILTATION.

ITEM 660 SODDING

QUANTITIES FOR SODDING ARE CALCULATED FOR ALL TREE LAWNS AND AREAS BEHIND THE SIDEWALK TO THE CONSTRUCTION LIMIT WHERE IT ABUTS A DEVELOPED AREA OR AS DIRECTED BY THE ENGINEER.

ITEM 659, SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN LINES TEN (10) FEET OUTSIDE THE WORK LIMITS, AS SHOWN ON THE CROSS SECTIONS, OR TO THE RIGHT-OF-WAY LINE IF SUCH LINE IS LESS THAN 10 FEET FROM THE WORK LIMITS.

AGRICULTURAL LIMING, AS PER PLAN

THE LOCATION AND NEED FOR AGRICULTURAL LIMING WILL BE DETERMINED BY LABORATORY TESTS AFTER ROUGH GRADING OPERATIONS HAVE BEEN PERFORMED. QUANTITIES OF AGRICULTURAL LIMING, AS SHOWN ON THE PLANS, ARE SUFFICIENT FOR THE ENTIRE PROJECT, BUT WILL BE NONPERFORMED FOR THE AREAS WHERE TESTS SHOW THAT THE LIMING IS NOT REQUIRED.

PAVEMENT

CONTRACTION AND EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN EXPANSION AND CONTRACTION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. PROVISIONS OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES AND THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS SHALL IN ALL CASES BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWINGS AND SPECIFICATIONS. **DOWEL BARS REQUIRED BY STANDARD CONSTRUCTION DRAWING BP-4 SHALL BE COATED AS PER SUPPLEMENTAL SPECIFICATION 948.**

DRIVES

DRIVEWAYS SHALL BE LOCATED AND CONSTRUCTED AS SHOWN ON THE PLANS AND STANDARD CONSTRUCTION DRAWING BP-6.

DRAINAGE

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.

ITEM 604, CATCH BASIN AND MANHOLES

THE TOP OF GRATE (T/G) ELEVATION FOR ALL SLANTING GRATES INDICATED ON THESE PLANS SHALL BE THE TOP OF THE FRAME OR GRATE AT ITS LOWEST POINT.

CATCH BASINS DEEPER THAN FOUR FEET SHALL HAVE STEPS MEETING THE REQUIREMENTS OF 604 AND LOCATED AS PER STANDARD CONSTRUCTION DRAWING NO. CB-458A.

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.

UNRECORDED SANITARY CONNECTIONS

ANY UNRECORDED ACTIVE CONNECTION TO A SANITARY SEWER ENCOUNTERED DURING CONSTRUCTION SHALL BE RECONNECTED TO THE EXISTING SEWER AS DIRECTED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 603 - 6" CONDUIT, TYPE C, 706.01, 706.02, 706.08 WITH JOINTS AS PER 706.11 OR 706.12 ..... 50 LIN. FT.

ITEM 603 - 6" CONDUIT, TYPE B, 706.01, 706.02, 706.08, WITH JOINTS AS PER 706.11 OR 706.12 ..... 50 LIN. FT.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL REQUESTED BY THE ENGINEER.

COOPERATION WITH UTILITY COMPANIES

THE CONTRACTOR IS ADVISED THAT THROUGHOUT THESE PLANS THE UTILITY COMPANIES HAVE BEEN CALLED UPON TO PERFORM NECESSARY ADJUSTMENTS OF PUBLIC OR PRIVATE UTILITY FIXTURES, PIPE LINES AND OTHER APPURTENANCES WITHIN OR ADJACENT TO THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY COMPANIES IN ACCORDANCE WITH 105.06 TO ARRANGE A MUTUALLY ACCEPTABLE WORK SCHEDULE, SUBJECT TO THE APPROVAL OF THE ENGINEER.

THE FOLLOWING IS A LIST OF THE VARIOUS UTILITY COMPANIES AFFECTED BY THIS CONTRACT.

CLEVELAND ELECTRIC ILLUMINATING COMPANY
55 PUBLIC SQUARE, CLEVELAND, OHIO

EAST OHIO GAS COMPANY
1201 EAST 55TH STREET, CLEVELAND, OHIO

OHIO BELL TELEPHONE COMPANY
820 WEST SUPERIOR AVENUE, CLEVELAND, OHIO

CITY OF CLEVELAND WATER DEPARTMENT
1201 LAKESIDE AVENUE, CLEVELAND, OHIO

COMPENSATION FOR THE ABOVE COOPERATION SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS INCLUDED WITHIN THIS PROJECT.

FOR GENERAL NOTES PERTAINING TO WATER WORK, SEE SHEET NO. 43-55.

FOR GENERAL NOTES PERTAINING TO TRAFFIC CONTROL, SEE SHEET NO. 71 & 72.

FOR GENERAL NOTES PERTAINING TO LIGHTING, SEE SHEET NO. 68.

TEMPORARY USE OF PARCEL 21T

THE CONTRACTOR SHALL SCHEDULE HIS OPERATIONS SO THAT ALL OF THE WORK ON PARCEL 21T CAN BE COMPLETED DURING ONE OF THE FOLLOWING TWO PERIODS OF TIME; 1) OCTOBER 15, 1979 TO APRIL 15, 1980 OR 2) OCTOBER 15, 1980 TO APRIL 15, 1981. THE CONTRACTOR SHALL ADVISE THE PROPERTY OWNER IN WRITING 30 DAYS PRIOR TO DOING ANY WORK ON PARCEL 21T.

ACCESS-PARCEL 18T

SEE NOTE ON SHEET NO. 39

SCHEDULE OF OPERATIONS AND COOPERATION

THE CONTRACTOR FOR THIS PROJECT IS HEREBY ADVISED THAT A CONTRACT FOR PROJECT NO. 651-78, CUY-6A-0.41 IS PRESENTLY IN FORCE TO CONSTRUCT THE NEW BRIDGE OVER ROCKY RIVER WITH A SCHEDULED COMPLETION DATE SET AT SEPTEMBER 30, 1980.
THERE ARE CERTAIN OPERATIONS UNDER THIS CONTRACT THAT CANNOT BE PERFORMED UNTIL TRAFFIC IS ROUTED OVER THE NEW BRIDGE.
IT IS THEREFOR IMPORTANT THAT THIS CONTRACTOR SCHEDULE HIS OPERATIONS IN ORDER TO CREATE THE LEAST POSSIBLE INTERFERENCE WITH PROGRESS OF THE WORK ON BOTH PROJECTS.

(UNLESS OTHERWISE SHOWN)

TYPE CODE 7221
GENERAL SUMMARY

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

7/91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

M-1A-30(1) * BRM-1A-30(1)

ITEM	ROCKY RIVER	LAKE-WOOD		TOTAL	UNIT	PARCEL	DESCRIPTION	SHEET
							BUILDING REMOVAL	
202	LUMP			LUMP		9	ONE-2½ STORY FRAME RESIDENCE, & ONE-1 STORY CONCRETE BLOCK BUILDING	
202	LUMP			LUMP		11	ONE-1 STORY BRICK OFFICE BUILDING	
202	LUMP			LUMP		12	ONE-CANOPY	
202	LUMP			LUMP		14	ONE-1 STORY BRICK OFFICE BUILDING	
202	LUMP			LUMP		15	ONE-1 STORY CONCRETE BLOCK GARAGE & TWO-STORAGE TANKS	
202		LUMP		LUMP		21	ONE-1 STORY FRAME BUILDING, ONE-FRAME SHED	
							ROADWAY	
201	LUMP	LUMP		LUMP			CLEARING AND GRUBBING	
202	6,954	9,010		15,964	SQ. YD.		PAVEMENT REMOVED	8
202	12,760	4,005		16,765	SQ. FT.		SIDEWALK REMOVED	8&37
202	76	—		76	SQ. FT.		CONCRETE STEPS REMOVED	8
202	2,620	1,124		3,744	LIN. FT.		CURB REMOVED	8&37
202	88	—		88	CU. YD.		CONCRETE WALL REMOVED	8
202	185	525		710	SQ. FT.		CONCRETE ISLAND REMOVED	8&37
202	257	—		257	LIN. FT.		GUARD RAIL REMOVED	9
202	135	—		135	LIN. FT.		FENCE REMOVED	8
202	—	1,660		1,660	LIN. FT.		STREET CAR TRACKS REMOVED	37
202	122	96		218	LIN. FT.		PIPE REMOVED 24" & UNDER	9
202	—	2		2	EACH		MANHOLE REMOVED	9
202	8	2		10	EACH		CATCH BASIN REMOVED	9
202	LUMP*	LUMP*	*	LUMP			STRUCTURE REMOVED, AS PER PLAN * Type Code X031	39
202	2	—		2	EACH		CATCH BASIN ABANDONED	9
202	—	1		1	EACH		GEODETIC MONUMENT REMOVED AND STORED	9
202		1		1	EACH		MONUMENT ASSEMBLY REMOVED	9
202		2		2	EACH		UNDERGROUND STORAGE TANK REMOVED	38
203	3,631	395		4,026	CU. YD.		EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION	9
203	2,620	733		3,353	CU. YD.		EMBANKMENT	9
203	10,448	4,930		15,378	SQ. YD.		SUBGRADE COMPACTION	8
404	200	100		300	CU. YD.		BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	5
								5
410	200	100		300	CU. YD.		TRAFFIC COMPACTED SURFACE, TYPE-A OR B	5
604	5	1		6	EACH		MONUMENT ASSEMBLY	9
604	2	1		3	EACH		MONUMENT BOX, ADJUSTED TO GRADE	9
517	248	—		248	LIN. FT.		RAILING DOUBLE PIPE RAIL	9
608	10	6		16	EACH		CURB RAMP, TYPE 1	9
608	2	—		2	EACH		CURB RAMP, TYPE 2	9
608	20	—		20	LIN. FT.		CONCRETE STEPS	9
608	16,317	4,637		20,954	SQ. FT.		4" CONCRETE WALK	9
608	402	381		783	SQ. FT.		6" REINFORCED PORTLAND CEMENT CONCRETE WALK	40
616	20	15		35	TON		CALCIUM CHLORIDE	5
616	500	300		800	M. GAL.		WATER	5
503	480	89		569	CU. YD.		UNCLASSIFIED EXCAVATION	9
509	20,454	4,142		24,596	LBS.		REINFORCING STEEL	9
511	147	18		165	CU. YD.		CLASS 'C' CONCRETE, FOOTINGS	9
511	176	22		198	CU. YD.		CLASS 'C' CONCRETE, ABOVE FOOTINGS	9
512	16	—		16	SQ. YD.		TYPE 'B' WATERPROOFING	9
516	22	—		22	SQ. FT.		1" PREFORMED EXPANSION JOINT FILLER	9
518	60	—		60	CU. YD.		POROUS BACKFILL	9
SPECIAL	1	1		2	EACH		RELOCATE EXISTING PLAQUE	9
SPECIAL	1	1		2	EACH		PROPOSED PLAQUE	9
SPECIAL	83	86		169	LIN. FT.		PRESSURE RELIEF JOINT, TYPE A	9
							EROSION CONTROL Y-005	
659	6,358	2,773		9,131	SQ. YD.		SEEDING AND MULCHING	9
659	318	139		457	SQ. YD.		REPAIR SEEDING AND MULCHING	8
659	3.64	1.48		5.12	TON		AGRICULTURAL LIMING	8
659	1.32	0.56		1.88	TON		COMMERCIAL FERTILIZER (12-12-12)	8
659	3	2		5	M. GAL.		WATER	8
659	15	7		22	M. SQ. FT.		MOWING	8
660	1,740	524		2,264	SQ. YD.		SODDING	9
207	1,272	555		1,827	SQ. YD.		TEMPORARY SEEDING AND MULCHING	8

ITEM	ROCKY RIVER	LAKE-WOOD		TOTAL	UNIT	DESCRIPTION	SHEET
						DRAINAGE	
603	18	61		79	LIN. FT.	6" CONDUIT, TYPE B	9
603	456	10		466	LIN. FT.	12" CONDUIT, TYPE B	9
603	165	—		165	LIN. FT.	15" CONDUIT, TYPE B	9
603	87	—		87	LIN. FT.	18" CONDUIT, TYPE B	9
603	23	—		23	LIN. FT.	12" CONDUIT, TYPE C	9
603	180	—		180	LIN. FT.	15" CONDUIT, TYPE C	9
603	20	—		20	LIN. FT.	18" CONDUIT, TYPE C	9
603	180	20		200	LIN. FT.	6" CONDUIT, TYPE F	9
604	2	—		2	EACH	STANDARD CATCH BASIN NO. 2-2-B	9
604	4	—		4	EACH	STANDARD CATCH BASIN NO. 3	9
604	3	1		4	EACH	STANDARD CATCH BASIN NO. 3A	9
604	3	—		3	EACH	STANDARD CATCH BASIN NO. 6	9
604	2	—		2	EACH	STANDARD INLET NO. 2-A-6	9
604	4	—		4	EACH	STANDARD INLET NO. 2-A-8	9
604	1	—		1	EACH	STANDARD INLET NO. 2-A-10	9
604	2	—		2	EACH	STANDARD MANHOLE NO. 1	9
604	14	—		14	EACH	MANHOLE, ADJUST TO GRADE	9
604	1	—		1	EACH	MANHOLE, RECONSTRUCT TO GRADE	9
604	5	2		7	EACH	CATCH BASIN OR INLET, ADJUST TO GRADE	9
605	2469	729		3,198	LIN. FT.	6" SHALLOW PIPE UNDERDRAIN.	9
						SANITARY Y-060	
603	50	—		50	LIN. FT.	6" CONDUIT, TYPE B 706.01, 706.02 OR 706.08 WITH JOINTS AS PER 706.11 OR 706.12	6
603	50	—		50	LIN. FT.	6" CONDUIT, TYPE C 706.01, 706.02 OR 706.08 WITH JOINTS AS PER 706.11 OR 706.12	6
604	6	2		8	EACH	MANHOLE, ADJUST TO GRADE	9
						PAVEMENT	
304	87	—		87	CU. YD.	AGGREGATE BASE	9
310	1,612	731		2,343	CU. YD.	SUBBASE TYPE II	8
404	18	—		18	CU. YD.	ASPHALT CONCRETE AC 20	9
404	7	—		7	CU. YD.	ASPHALT CONCRETE AC 20 DRIVEWAYS	9
451	9,778	4,472		14,250	SQ. YD.	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	9
452	39	—		39	SQ. YD.	7" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT	9
452	299	76		375	SQ. YD.	8" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT	9
609	2,701	1,082		3,783	LIN. FT.	CURB, TYPE 2B	9
609	—	103		103	LIN. FT.	CURB, TYPE 2A, MODIFIED AS PER PLAN	9
609	376	—		376	LIN. FT.	CURB, TYPE 6	9
611	226	230		456	SQ. YD.	REINFORCED CONCRETE APPROACH SLAB (T=17")	40
612	3	—		3	SQ. YD.	CONCRETE TRAFFIC ISLAND	9
614	LUMP	LUMP		LUMP		MAINTAINING TRAFFIC	
619	LUMP	LUMP		LUMP		FIELD OFFICE	5
623	LUMP	LUMP		LUMP		CONSTRUCTION LAYOUT STAKES	
624	LUMP	LUMP		LUMP		MOBILIZATION	

FOR WATER WORK QUANTITIES, SEE SHEET 42
FOR TRAFFIC CONTROL QUANTITIES, SEE SHEET 73
FOR LIGHTING QUANTITIES, SEE SHEET 67

ADACHE ASSOCIATES, INC.
CALC. BY R.W.H. DATE 6-14-76
CHKD. BY DATE

C A L C U L A T I O N S

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

FHWA REGION	STATE	PROJECT	
5	OHIO		

LINE NO.	DESCRIPTION			QUANTITY	UNIT
1					
2	ITEM 202 BITUMINOUS WEARING COURSE WITH BRICK AND CONCRETE BASE REMOVED				
3					
4	ROCKY RIVER				
5	DETROIT ROAD ℄ WRIGHT AVE. TO 50'± EAST OF DEPOT ST. = 500 x 40 x 1/9 = 2,222 S.Y.			2,222	S.Y.
6					
7	ITEM 202 BITUMINOUS WEARING COURSE WITH CONCRETE BASE REMOVED				
8					
9	ROCKY RIVER				
10	DETROIT ROAD FROM WRIGHT AVE. TO W. 192 ND. ST.	430 x 12 x 1/9 =	573 S.Y.		
11	WEST 192 ND. SOUTH OF DETROIT RD.	165 x 36 x 1/9 =	660 S.Y.		
12	DEPOT ST. NORTH OF DETROIT RD.	40 x 30 x 1/9 =	133 S.Y.		
13	WOOSTER RD. STA. 8+00 TO STA. 10+40	240 x 36 x 1/9 =	960 S.Y.		
14	FROM SHEET 37		2056 S.Y.		
15		SUBTOTAL		4,382	S.Y.
16	LAKEWOOD FROM SHEET 37	SUBTOTAL		8865	S.Y.
17					
18	ITEM 202 CONCRETE PAVEMENT REMOVED				
19					
20	ROCKY RIVER				
21	PARCEL 11 DRIVEWAY AND PARKING AREA	(96 x 8 + 55 x 15) 1/9 =	177 S.Y.		
22	LAKE RD. STA. 12+90 TO. STA 13+00	10 x 55 x 1/9 =	62 S.Y.		
23	PARCEL 15	12 x 16 x 1/9 =	21 S.Y.		
24	FROM SHEET 37		90 S.Y.		
25		SUBTOTAL	350 S.Y.	350	S.Y.
26	LAKEWOOD FROM SHEET 37	SUBTOTAL PAVEMENT REMOVED		145	S.Y.
27		TOTAL PAVEMENT REMOVED		6954 9,010	S.Y.
28	ITEM 202 CONCRETE WALL REMOVED				
29					
30	ROCKY RIVER				
31	PARCEL 11	140 x 4 x 0.75 x 1/27 =	16 C.Y.		
32	FROM SHEET 37		72 C.Y.		
33		TOTAL		88	C.Y.
34					
35					
36	ITEM 202 CONCRETE CURB REMOVED				
37					
38	ROCKY RIVER				
39	DETROIT RD.	500 x 2	1000 L.F.		
40	WEST 192 ND ST.	165 x 2	330 L.F.		
41	WOOSTER RD.	240 x 2	480 L.F.		
42	LAKE RD.	10 x 2	20 L.F.		
43	PARCEL 7		245 L.F.		
44	PARCEL 9		55 L.F.		
45	FROM SHEET 37		490 L.F.		
46		TOTAL		2,620	L.F.
47					
48					
49	ITEM 202 SIDEWALK REMOVED				
50					
51	ROCKY RIVER				
52	DETROIT RD. NO. SIDE	450 x 7	3,150 S.F.		
53	DETROIT RD. SO. SIDE	150 x 5 + 300 x 8 + 75 x 6	3,600 S.F.		
54	WOOSTER RD. EAST ℄ WEST SIDE	2 x 240 x 5	2,400 S.F.		
55	PARCEL 9, 10 ℄ 15	90 x 2.5 + 20 x 3, + 30 x 2.5, + 25 x 3	435 S.F.		
56	FROM SHEET 37		3175 S.F.		
57		TOTAL		12,760	S.F.
58					
59					
60	ITEM 202 CONCRETE ISLAND REMOVED				
61					
62	ROCKY RIVER				
63	PARCEL 7	(12 + 25 + 37) x 2.5	185 S.F.		
64		TOTAL		185	S.F.
65					
66					
67	ITEM 202 CONCRETE STEPS REMOVED				
68					
69	ROCKY RIVER				
70	PARCELS 9, 10 ℄ 14	4 x 4, + 2 x 4 x 5, + 4 x 5	76 S.F.		
71		TOTAL		76	S.F.
72	ITEM 202 FENCE REMOVED				
73	ROCKY RIVER				
74	PARCEL 9		135 L.F.		
75		TOTAL		135	L.F.
76					

LINE NO.	DESCRIPTION			QUANTITY	UNIT
77					
78	ITEM 203 SUBGRADE COMPACTION				
79					
80	ROCKY RIVER				
81	FROM SHEET 9		10,212 S.Y.		
82	UNDER APPROACH SLAB	226 S.Y. + 30 x 3 x 1/9	236 S.Y.		
83		TOTAL		10,448	S.Y.
84	LAKEWOOD				
85	FROM SHEET 9		4,690 S.Y.		
86	UNDER APPROACH SLAB	230 S.Y. + 30 x 3 x 1/9	240 S.Y.		
87		TOTAL		4,930	S.Y.
88					
89					
90					
91					
92					
93					
94					
95					
96					
97	ITEM 310 SUBBASE GRADING A				
98					
99	ROCKY RIVER				
100	FROM SHEET 9		1538 C.Y.		
101	UNDER APPROACH SLAB ℄ SIDEWALK	226 S.Y. x 6/36 + 402 S.F. x 2.42 x 1/27 =	73.10 C.Y.		
102		TOTAL		1,612	C.Y.
103					
104	LAKEWOOD				
105	FROM SHEET 9		659 C.Y.		
106	UNDER APPROACH SLAB ℄ SIDEWALK	230 S.Y. x 6/36 + 381 S.F. x 2.42 x 1/27 =	72.48 C.Y.		
107		TOTAL		731	C.Y.
108					
109	ITEM 659 REPAIR SEEDING AND MULCHING				
110	ROCKY RIVER FROM SHEET 9 AREA ITEM 659 SEEDING AND MULCHING x FACTOR =	6,358 x 0.05		318	S.Y.
111	LAKEWOOD FROM SHEET 9 AREA ITEM 659 SEEDING AND MULCHING x FACTOR =	2,773 x 0.05		139	S.Y.
112					
113	ITEM 207. TEMPORARY SEEDING AND MULCHING				
114	ROCKY RIVER FROM SHEET 9 AREA ITEM 659 SEEDING AND MULCHING x FACTOR =	6,358 x 0.20		1,272	S.Y.
115	LAKEWOOD FROM SHEET 9 AREA ITEM 659 SEEDING AND MULCHING x FACTOR =	2,773 x 0.20		555	S.Y.
116					
117	ITEM 659 WATER				
118	ROCKY RIVER AREA FROM LINE 114 x FACTOR =	1,272 x 9 x 240/1000 x 1/1000	= 2.75	3	M.GAL.
119	LAKEWOOD AREA FROM LINE 115 x FACTOR =	555 x 9 x 240/1000 x 1/1000	= 1.20	2	M.GAL.
120					
121	ITEM 659 MOWING				
122	ROCKY RIVER AREA FROM LINE 110 x FACTOR =	6,358 x 9/1000 x 0.25	= 14.31	15	M.S.F.
123	LAKEWOOD AREA FROM LINE 11 x FACTOR =	2,773 x 9/1000 x 0.25	= 6.24	7	M.S.F.
124					
125	ITEM 659 AGRICULTURAL LIMING				
126	ROCKY RIVER FROM SHEET 9 AREA ITEM 659 SEEDING AND MULCHING =	6,358 S.Y.			
127	FROM SHEET 9 AREA ITEM 660 SODDING =	1,740 S.Y.			
128	AREA FROM LINES 126 ℄ 127 x FACTOR =	8,098 x 9 x 100/1000 x 1/2000		3.64	TON
129					
130	LAKEWOOD FROM SHEET 9 AREA ITEM 659 SEEDING AND MULCHING	2,773 S.Y.			
131	FROM SHEET 9 AREA ITEM 660 SODDING	524 S.Y.			
132	AREA FROM LINES 130 ℄ 131 x FACTOR =	3,297 x 9 x 100/1000 x 1/2000		1.48	TON
133					
134	ITEM 659 COMMERCIAL FERTILIZER (12-12-12)				
135	ROCKY RIVER AREA FROM LINE 128 x FACTOR =	8,098 x 9 x 20/1000 x 1/2000	0.73		
136	AREA FROM LINE 110 x FACTOR =	318 x 9 x 15/1000 x 1/2000	0.02		
137	AREA FROM LINE 114 x FACTOR =	1,272 x 9 x 10/1000 x 1/2000	0.57		
138		TOTAL		1.32	TON
139					
140	LAKEWOOD AREA FROM LINE 132 x FACTOR =	3,297 x 9 x 20/1000 x 1/2000	0.30		
141	AREA FROM LINE 111 x FACTOR =	139 x 9 x 15/1000 x 1/2000	0.01		
142	AREA FROM LINE 115 x FACTOR =	555 x 9 x 10/1000 x 1/2000	0.25		
143		TOTAL		0.56	TON
144					
145					
146					
147					
148					
149					
150					
151					
152					

ADACHE ASSOCIATES, INC.
CALC. BY D.T.N. DATE 6-14-76
CHKD. BY R.W.H. DATE 6-15-76

SUMMARY OF TABLES
PLAN & PROFILE SHEETS

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

9/91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

SHEET NO.	DESCRIPTION / LOCATION	202 REMOVE GUARD RAIL LIN. FT.	202 PIPE REMOVAL LIN. FT.	202 CATCH BASIN RBAND. EACH	202 CATCH BASIN REMOVE EACH	202 MANHOLE REMOVED EACH	202 REMOVE AND STORE GEO. MONUMENT EACH	202 MONUMENT ASSEMBLY REMOVED EACH	203 EXCAVATION CU. YD.	203 EMBANKMENT CU. YD.	603 TYPE B 6" L.F.	603 TYPE B 12" L.F.	603 TYPE B 15" L.F.	603 TYPE B 18" L.F.	603 TYPE C 12" L.F.	603 TYPE C 15" L.F.	603 TYPE C 18" L.F.	603 TYPE F 6" L.F.	604 MONUMENT ASSEMBLY EACH	604 MONUMENT BOX, ADJUST TO GRADE EACH	604 ADJ. CB OR INLET TO GR. AS PER PLAN EACH	604 MANHOLE ADJUST TO GRADE ST. EA.	604 MANHOLE ADJUST TO GRADE SAN. EA.	604 MANHOLE STANDARD NO. 1 EACH	604 MANHOLE RECONST. TO GRADE EACH	604 CATCH BASIN STANDARD NO. 2-2.8 EA.	604 CATCH BASIN STANDARD NO. 3 EA.	604 CATCH BASIN STANDARD NO. 3A EA.	604 CATCH BASIN STANDARD NO. 6 EA.	604 INLET STD. NO. 2-A-6 EA.	604 INLET STD. NO. 2A-8 EA.	604 INLET STD. NO. 2-A-10 EA.	605 6" PIPE UNDERDRAIN SHAL. L.F.	605 6" PIPE UNDERDRAIN DEEP L.F.	605 6" PIPE UNDERDRAIN UNC. L.F.	659 SEEDING AND MULCHING SQ. YD.	SHEET NO.
	ROCKY RIVER																																				
	DETROIT ROAD																																				
10	8+00 TO 13+00			1					255	180		63	8			10		20	1			4	1								1	1	562				10
11	13+00 TO 17+00		112	1	5				2,337	753	18	167	157	87		122	20	70	1		1	4	3	1		1	2		3	1	2		778			2,065	11
12	17+00 TO 21+00	257							607	985		139			18	48		30	2					1		1	2			1	1	384			1,482	12
13	21+00 TO 25+00																																			13
	WOOSTER & LAKE																																			
16	7+00 TO 11+00								308	249		68						40	1		2	1	1					1				377				16
17	11+00 TO 15+00		10		3			1	124	153		19			5			20		2	2	5	1		1			2				368			311	17
39	DEMOLITION PLAN									300																									2,500	39
	TOTAL ROCKY RIVER	257	122	2	8	—	—	1	3,631	2,620	18	456	165	87	23	180	20	180	5	2	5	14	6	2	1	2	4	3	3	2	4	1	2,469	—	—	6,358	
	LAKEWOOD																																			
	DETROIT ROAD																																			
13	21+00 TO 25+00																																			13
14	25+00 TO 29+00		80			2	1		209	176									1	1		1										167			77.3	14
15	29+00 TO 34+00								84	44								10			2											114				15
	PARK & SLOANE																																			
18	8+00 TO 12+00		16		2				102	213	61	10						10				1				1						448				18
39	DEMOLITION PLAN									300																									2,000	39
	TOTAL LAKEWOOD	—	96	—	2	2	1	—	395	733	61	10	—	—	—	—	—	20	1	1	2	—	2	—	—	—	—	—	1	—	—	—	729	—	—	2,773	

PAVEMENT DETAIL QUANTITIES

SHEET NO.	DESCRIPTION / LOCATION	203 SUBGRADE COMPACTION SQ. YD.	304 AGGREGATE BASE CU. YD.	310 SUBBASE TYPE II CU. YD.	404 ASPHALT CONCRETE (AC 20) CU.YD.	404 ASPHALT CONCRETE (AC 20) FOR DRIVEWAYS CU. YD.	451 9" REINF. PORTLAND CEMENT CONCRETE PAVEMENT SQ. YD.	452 PLAIN PORTLAND CEMENT CONCRETE 7" S.Y.	452 PLAIN PORTLAND CEMENT CONCRETE 8" S.Y.	608 CONCRETE STEPS L.F.	608 CURB RAMP TYPE 1 EA.	608 CURB RAMP TYPE 2 EA.	608 CONCRETE WALK S.F.	609 CONCRETE CURB TYPE 2A L.F.	609 CONCRETE CURB TYPE 2A MOD. L.F.	609 CONCRETE CURB TYPE 6 L.F.	612 CONCRETE ISLAND SQ. YD.	660 SODDING SQ. YD.	SPECIAL PRESSURE RELIEF JOINT TYPE A LIN. FT.	SHEET NO.
	ROCKY RIVER																			
19	10+00 TO 15+50	4,297	28	692	7.87		4,107			20	4	2	7411	1129		376	3	770		19
**	15+50 TO 18+00	1,889		315			1,806						2,766	467				343		
20	18+00 TO 20+05.50	4,026		531			3,865				6		6,140	1105				627	83	20
▲	16+90 TO 18+70		33		9.55															
	SUBTOTAL DRIVEWAY		26			7.34		39	299											
	TOTAL ROCKY RIVER	10,212	87	1,538	17.42	7.34	9,778	39	299	20	10	2	16317	2,701	—	376	3	1,740	83	
	LAKEWOOD																			
21	27+05.53 TO 30+32.97	4,690		659			4,472				6		4,637	1,082	103			524	86	21
	SUBTOTAL DRIVEWAY								76											
	TOTAL LAKEWOOD	4,690	—	659	—	—	4,472	—	76	—	6	—	4,637	1,082	103	—	—	524	86	

** TYPICAL SECTION CALCULATIONS - STA. 15+50 TO STA. 18+00

ITEM 203 250 × 68 × 1/9 = 1,888.9 SQ. YD.
ITEM 310 250 × 68 × 1/9 × 6/36 = 314.8 CU. YD.
ITEM 451 250 × 65 × 1/9 = 1,805.6 SQ. YD.
ITEM 608 250 × 5 × 2 + 175 × 999.53/954.53 × 2 − 20 × 5 = 2764 S.F.
ITEM 609 (250 × 2) − (2 × 7.33) − (2 × 9.33) = 466.7 LIN. FT.
ITEM 660 250 × 13 × 1/9 − 6.5 × 25/9 = 343.0 SQ. YD.

▲ ASPHALT CONCRETE REPLACEMENT — STA. 16+90 ± — STA. 18+70 ±

ITEM 304 180 × 1005.93/954.93 × 8 × 0.58 × 1/27 = 32.6 CU. YD
ITEM 404 180 × 1005.93/954.93 × 8 × 0.17 × 1/27 = 9.55 CU. YD

WALL DETAIL QUANTITIES

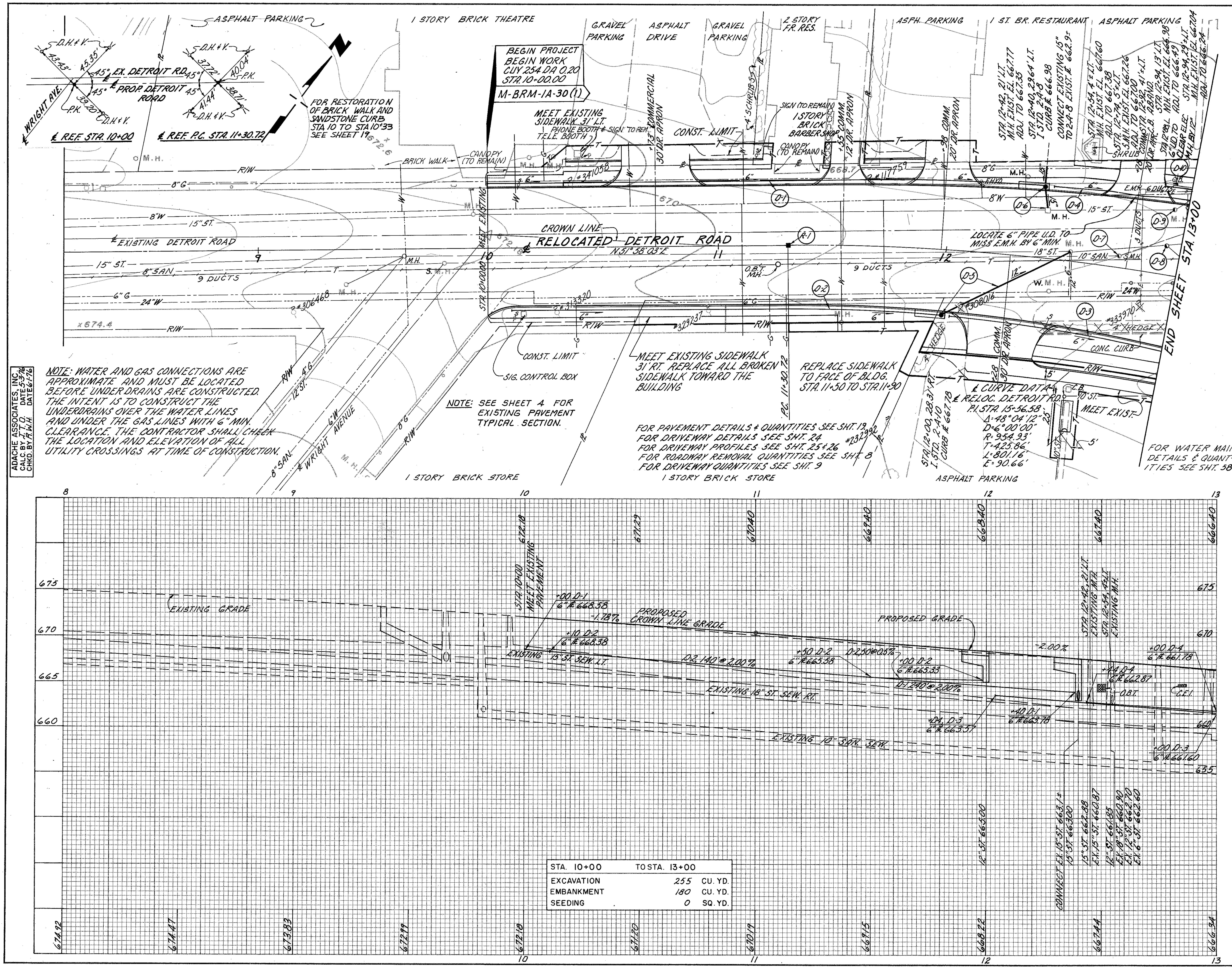
SHEET NO.	DESCRIPTION / LOCATION	503 UNCLASSIFIED EXCAVATION CU. YD.	509 REINFORCING STEEL LBS.	511 CLASS C CONCRETE, FOOTING CU. YD.	511 CLASS C CONCRETE, ABOVE FOOTING CU. YD.	512 TYPE B WATERPROOFING S.Y.	516 PREFORMED EXPANSION JOINT FILLER S.F.	518 POROUS BACKFILL CU. YD.	517 DOUBLE PIPE RAILING LIN. FT.	SPECIAL RELOCATE EXISTING PLAQUE AS PER ADM EA.	SPECIAL PROPOSED PLAQUE AS PER ADM EA.
21A	ROCKY RIVER	285	11,401	108	128	16	22	60	248		
23	ROCKY RIVER	195	9,053	39	48					1	1
	TOTAL	480	20,454	147	176	16	22	60	248	1	1
23	LAKEWOOD	89	4,142	18	22					1	1
	TOTAL	89	4,142	18	22	—	—	—		1	1

DRIVEWAY QUANTITIES

SHEET NO.	DESCRIPTION / LOCATION	SIDE	TYPE	AREA SQ. YD.	ANGLE	304 AGGREGATE BASE CU. YD.	404 ASPHALT CONCRETE (AC 20) FOR DRIVEWAYS CU. YD.	452 7" PLAIN PORTLAND CEMENT CONCRETE SQ. YD.	452 8" PLAIN PORTLAND CEMENT CONCRETE SQ. YD.	SHEET NO.
	ROCKY RIVER									
	DETROIT ROAD									
19	10+73	LT.	COMM.	66.9	90° ±	6.5	1.85		33.6	19
19	11+55	LT.	COMM.	27.6	90° ±	2.6	0.74		14.3	19
19	11+98	LT.	COMM.	45.8	86° ±	4.3	1.23		23.6	19
19	12+28	RT.	COMM.	83.6	90° ±	5.8	1.67		53.6	19
19	12+78	LT.	COMM.	36.9	90° ±				36.9	19
19	13+21	LT.	COMM.	56.9	90° ±				56.9	19
11	16+05	LT.	COMM.	43.6	90° ±				43.6	11
	WOOSTER ROAD									
20	8+11	RT.	RES.	19.6	90° ±			19.6		20
20	8+62	RT.	RES.	19.6	90° ±			19.6		20
	LAKE ROAD									
20	11+55	LT.	COMM.	70.2	90° ±	6.5	1.85		36.9	20
	TOTAL ROCKY RIVER					25.7	7.34	39.2	279.4	
	LAKEWOOD									
	DETROIT ROAD									
21	29+18	RT.	COMM.	28.4	90° ±				28.4	21
21	29+40	LT.	COMM.	21.3	90° ±				21.3	21
21	29+68	RT.	COMM.	25.8	90° ±				25.8	21
	TOTAL LAKEWOOD					—	—	—	75.5	

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

CUYAHOGA COUNTY
CUY.-254 DA -0.20
CUY. - 6A -0.37



STA. 10+00	TO STA. 13+00	
EXCAVATION	255	CU. YD.
EMBANKMENT	180	CU. YD.
SEEDING	0	SQ. YD.

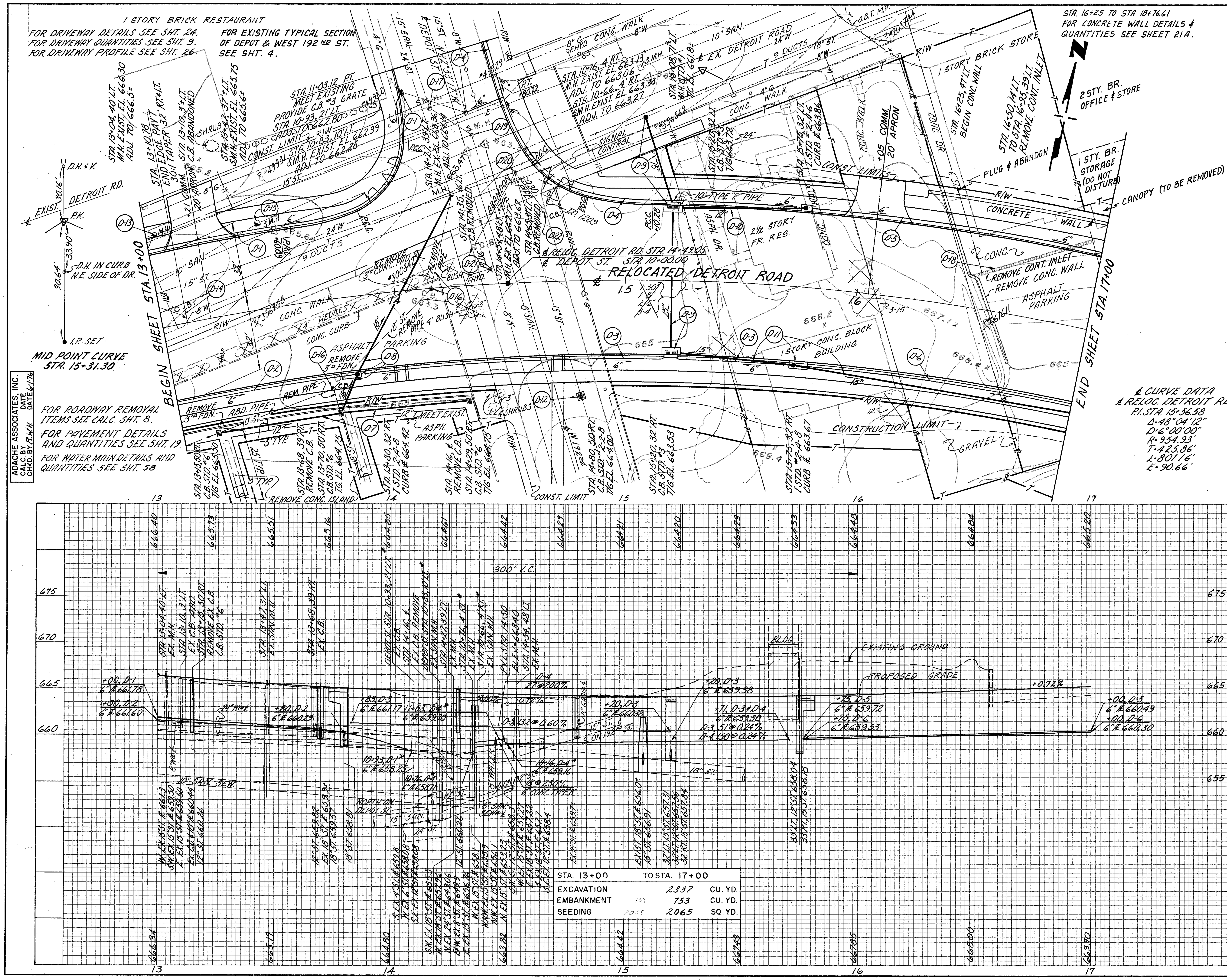
ESTIMATED QUANTITIES

REF. NO.	STATION	TO STATION	SIDE	202 Catch Basin or Inlet ABD. EA.	603 Type B Conduit 12" L.F.	603 Type B Conduit 15" L.F.	603 Type C Conduit 15" L.F.	603 Type F Conduit 6" L.F.	Mon. Assem. EA.	604 Inlet Std. 2-A-8 EA.	604 Inlet Std. 2-A-10 EA.	604 M.H. Adj. to Grade EA.	604 S.M.H. Adj. to Grade EA.	605 Pipe Underdrain Shallow 6" L.F.	SEE SHT. NO.
D-1	10+00	12+40	LT.					10						230	
D-2	10+10	12+00	RT.					10						180	
D-3	12+04	13+00	RT.											96	
D-4	12+44	13+00	LT.											56	
D-5	12+00	12+54	RT.-LT.		63						1	1			36
D-6	12+40	12+42	LT.			8	10			1		1			26
D-7	12+74		LT.										1		
D-8	12+94		LT.									1			
D-9	12+94		LT.									1			
D-10	12+92		LT.	1											
R-1	11+30.72		℄						1						
TOTALS TO SHEET 9				1	63	8	10	20	1	1	1	4	1	562	

DETROIT ROAD PLAN & PROFILE STA. 8+00 TO STA. 13+00

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

CUYAHOGA COUNTY
CUY.-254 DA -0.20
CUY.- 6A -0.37



STA. 13+00	TO STA. 17+00	
EXCAVATION	2337	CU. YD.
EMBANKMENT	753	CU. YD.
SEEDING	2065	SQ. YD.

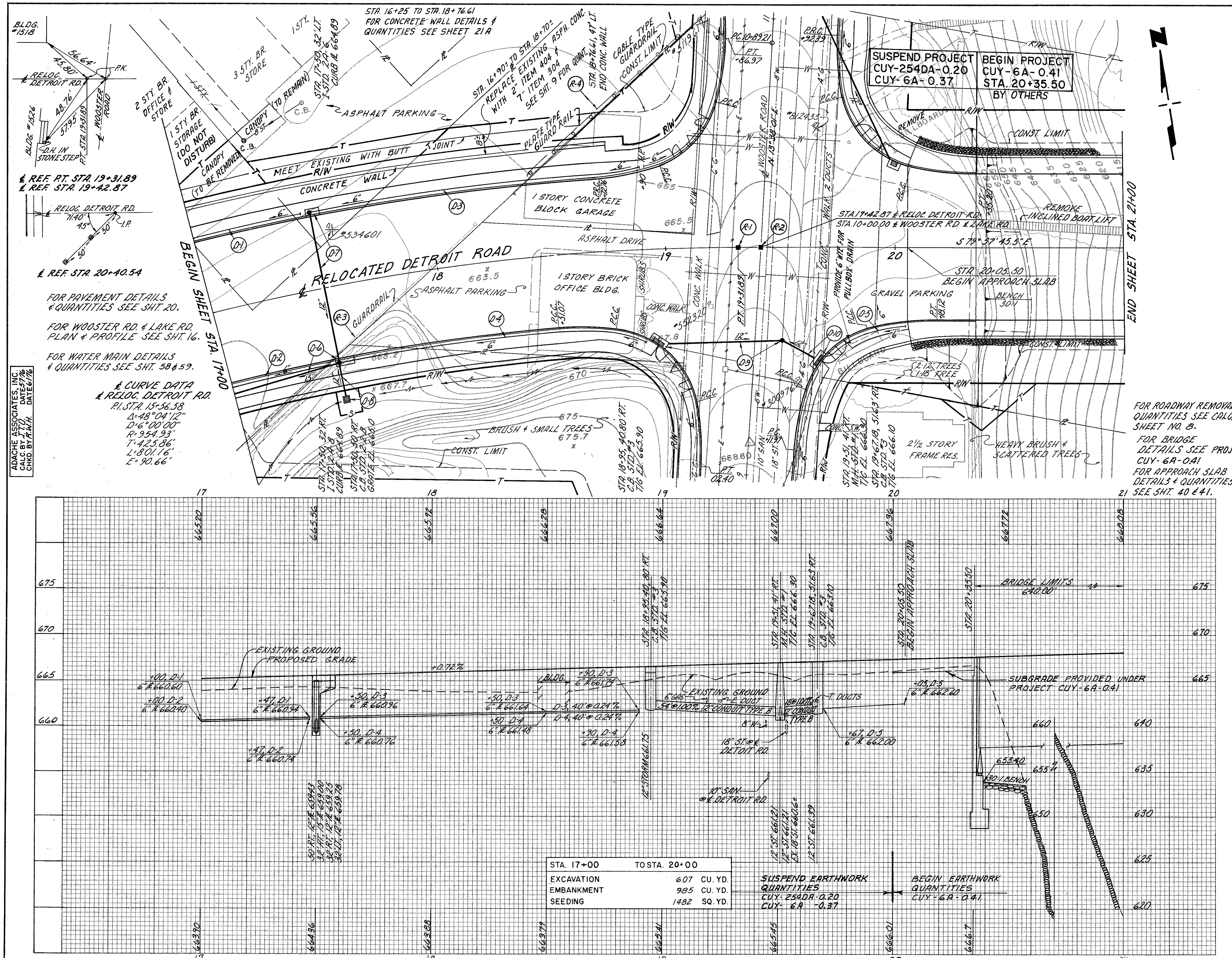
ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION (*) DEPOT ST. STA.		SIDE	202 CATCH BASIN OR INLET REM. EA.	202 CATCH BASIN OR INLET ABD. EA.	202 PIPE REM. L.F.	603 TYPE B CONDUIT 6" L.F.	603 TYPE B CONDUIT 12" L.F.	603 TYPE B CONDUIT 15" L.F.	603 TYPE B CONDUIT 18" L.F.	603 TYPE C CONDUIT 15" L.F.	603 TYPE C CONDUIT 18" L.F.	603 TYPE F COND. 6" L.F.	604 INLET STD. 2-A-6 EA.	604 INLET STD. 2-A-8 EA.	604 CATCH BASIN STANDARD 2-2-B EA.	604 CATCH BASIN STANDARD #3 EA.	604 CATCH BASIN STANDARD #6 EA.	604 M.H. STD. #1 EA.	604 M.H. ADJ. TO GRADE EA.	604 C.B. & INL. AS PER PLAN EA.	604 S.M.H. ADJ. TO GRADE EA.	604 MON. ASSEM. EA.	605 6" PIPE UNDER DRAIN L.F.	BENDS & BRANCHES 6" TEE EA.	SEE SHT. NO.
D-1	13+00	10+93 *	LT.										10								1			140		
D-2	13+00	13+80	RT.										10											70		
D-3	13+83	15+71	RT.										20											172		
D-4	11+03	15+71	LT.				18						10							1				166	1	
D-5	15+75	17+00	LT.										10											115		
D-6	15+75	17+00	RT.										10											115		
D-7	13+15	14+29	RT.					110										3								36
D-8	13+70	14+27	LT.&RT.							87		20			1					1						36
D-9	15+08	15+20	LT.&RT.						104								2		1							27
D-10	15+20	15+75	LT.					57						1												36
D-11	15+20	17+00	RT.						53		122				1											36
D-12	14+80		RT.													1										
D-13	13+04		LT.																	1						
D-14	13+10		LT.		1																					
D-15	13+47		LT.																			1				
D-16	13+68	14+27	LT.&RT.	2		112																				
D-17	10+83 *		LT.																			1				
D-18	16+50	16+95	LT.	1																						
D-19	10+66 *		RT.																			1				
D-20	14+54		LT.																	1						
D-21	14+35		LT.	1																						
D-22	14+65		LT.	1																						
R-1	14+49.05		℄																				1			
TOTALS TO SHEET 9				5	1	112	18	167	157	87	122	20	70	1	2	1	2	3	1	4	1	3	1	778		

DETROIT ROAD PLAN & PROFILE STA. 13+00 TO STA. 17+00

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

CUYAHOGA COUNTY
CUY.-254 DA -0.20
CUY.- 6A -0.37

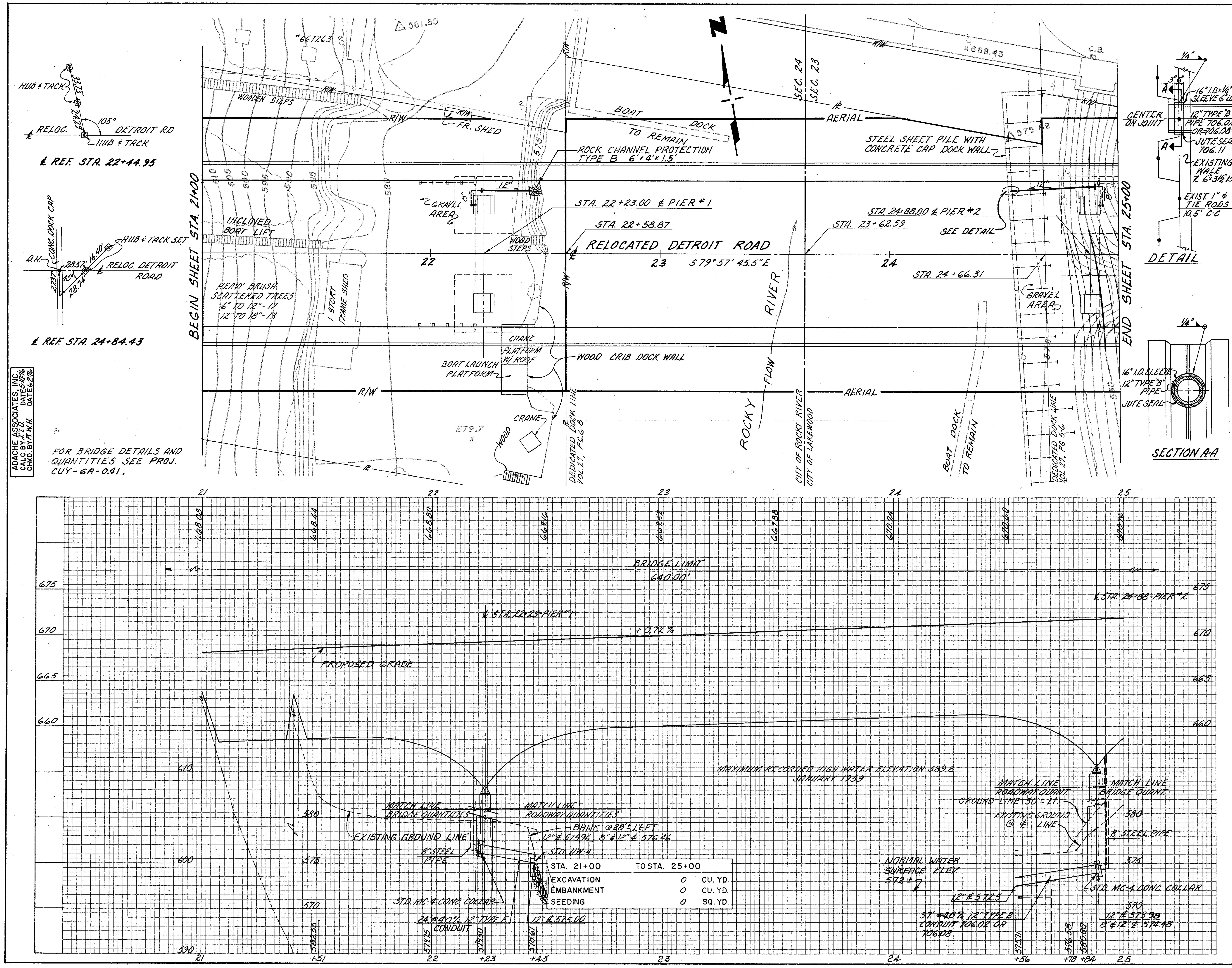


STA. 17+00	TO STA. 20+00	
EXCAVATION	607	CU. YD.
EMBANKMENT	985	CU. YD.
SEEDING	1482	SQ. YD.

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	202 REMOVE GUARD RAIL L.F.	603 TYPE B CONDUIT 12" L.F.	603 TYPE C CONDUIT 12" L.F.	603 TYPE C CONDUIT 15" L.F.	603 TYPE F 6" L.F.	604 CATCH BASIN OR INLET 2-2B EA.	604 CATCH BASIN OR INLET 3 EA.	604 CATCH BASIN OR INLET 2A-6 EA.	604 CATCH BASIN OR INLET 2A-8 EA.	604 MANHOLE 1 EA.	604 MON. ASSEM. EA.	605 6" PIPE UNDERDRAIN SHALLOW L.F.	BENDS & BRANCHES 6" WYE EA.	SEE SHT. NO.
D-1	17+00 - 17+47	LT.												47		
D-2	17+00 - 17+47	RT.												47		
D-3	17+50 - 18+90	LT.					10							130		
D-4	17+50 - 18+90	RT.					10							130		
D-5	19+67 - 20+05	RT.					10							30	1	
D-6	17+00 - 17+50	RT.				48					1					36
D-7	17+50	LT.-RT.		66						1						28
D-8	17+50	RT.			18			1								28
D-9	18+95 - 19+50±	RT.		55					1			1				
D-10	19+50± - 19+67	RT.		18					1							
R-1	19+31.89	℄											1			
R-2	19+42.87	℄											1			
R-3	16+90 - 18+20	RT.&LT.	155													
R-4	18+35 - 19+15	LT.	102													
TOTALS TO SHEET 9			257	139	18	48	30	1	2	1	1	1	2	384		

DETROIT ROAD PLAN & PROFILE STA. 17+00 TO STA. 21+00



HUB & TACK
105°
RELOC. DETROIT RD
HUB & TACK
℄ REF. STA. 22+44.95
CONC. DOCK CAP
HUB & TACK SET
RELOC. DETROIT ROAD
℄ REF. STA. 24+84.43
ADACHE ASSOCIATES, INC.
FOR BRIDGE DETAILS AND QUANTITIES SEE PROJ. CUY-6A-0.41.
△ 581.50
WOODEN STEPS
R/W
FR. SHED
BOAT DOCK TO REMAIN
ROCK CHANNEL PROTECTION TYPE B 6'x4'x1.5'
SEC. 24
SEC. 23
℄ AERIAL
STEEL SHEET PILE WITH CONCRETE CAP DOCK WALL
× 668.43
C.B.
BEGIN SHEET STA. 21+00
GRAVEL AREA
STA. 22+23.00 ℄ PIER #1
STA. 22+58.87
INCLINED BOAT LIFT
WOOD STEPS
RELOCATED DETROIT ROAD
S 79° 57' 45.5" E
STA. 23+62.59
STA. 24+88.00 ℄ PIER #2
SEE DETAIL
STA. 24+66.31
HEAVY BRUSH SCATTERED TREES 6" TO 12" - 17 12" TO 18" - 13
1 STORY FRAME SHED
RIVER
CRANE PLATFORM W/ ROOF
BOAT LAUNCH PLATFORM
WOOD CRIB DOCK WALL
GRAVEL AREA
END SHEET STA. 25+00
AERIAL
CRANE
579.7
WOOD
FLOW
ROCKY
DEDICATED DOCK LINE VOL. 27, PG. 63
CITY OF ROCKY RIVER
CITY OF LAKEWOOD
BOAT DOCK TO REMAIN
DEDICATED DOCK LINE VOL. 27, PG. 56
16" I.D. × 1/4" STEEL SLEEVE 6' LONG
CENTER ON JOINT
12" TYPE "B" PIPE 706.02 OR 706.08
JUTE SEAL 706.11
EXISTING WALE 2 6"×3½"×15.7#
EXIST. 1" ϕ TIE RODS 10.5' C-C
DETAIL
16" I.D. SLEEVE
12" TYPE "B" PIPE
JUTE SEAL
SECTION A-A
BRIDGE LIMIT 640.00'
℄ STA. 22+23 PIER #1
℄ STA. 24+88 PIER #2
+0.72%
PROPOSED GRADE
MAXIMUM RECORDED HIGH WATER ELEVATION 589.8 JANUARY 1959
MATCH LINE BRIDGE QUANTITIES
MATCH LINE ROADWAY QUANTITIES
BANK @ 28' ± LEFT
12" ℄ 575.96, 8" & 12" ℄ 576.46
EXISTING GROUND LINE
8" STEEL PIPE
STD. HW-4
STD. MC-4 CONC. COLLAR
24' @ 4.07% 12" TYPE F CONDUIT
12" ℄ 575.00
MATCH LINE ROADWAY QUANT.
MATCH LINE BRIDGE QUANT.
GROUND LINE 30' ± LT.
EXISTING GROUND @ ℄ LINE
8" STEEL PIPE
NORMAL WATER SURFACE ELEV. 572 ±
12" ℄ 572.5
STD. MC-4 CONC. COLLAR
37' @ 4.07% 12" TYPE B CONDUIT 706.02 OR 706.08
12" ℄ 573.98
8" & 12" ℄ 574.48

STA. 21+00	TO STA. 25+00	
EXCAVATION	0	CU. YD.
EMBANKMENT	0	CU. YD.
SEEDING	0	SQ. YD.

ESTIMATED QUANTITIES (ALL QUANTITIES INCLUDED UNDER PROJECT CUY-6A-0.41)

SEE SHT. NO. | REF NO. | STATION TO STATION | SIDE | TOTALS

DETROIT ROAD PLAN & PROFILE STA. 21+00 TO STA. 25+00

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

CUYAHOGA COUNTY
CUY.-254 DA -0.20
CUY.- 6A -0.37

FOR LIMIT OF ROADWAY REMOVAL ITEMS & BRIDGE DEMOLITION SEE SHT. 37-39.

NOTE: REGRADING OF EXIST. BRIDGE APPROACH INCLUDED WITH BRIDGE DEMOLITION.

B.M. C.R.G.S. O.M. 1437
52' E. OF ℄ SLOANE AVE. PRODUCED S. &
25' S. OF ℄ DETROIT AVE. - EL. 672.258

FOR APPROACH SLAB DETAILS & QUANTITIES SEE SHT. 40 & 41.

FOR WATER MAIN DETAILS & QUANTITIES SEE SHTS. 59

FOR PAVEMENT DETAILS & QUANTITIES SEE SHT. 21.

FOR PARK DRIVE & SLOANE RD. PLAN & PROFILE SEE SHT. 18.

ADACHE ASSOCIATES, INC.
CALC. BY J.T.O. DATE 5-12-76
CHKD. BY R.W.H. DATE 6-2-76

CURVE DATA

℄ RELOC. DETROIT RD.
P.I. STA. 27+99.78
Δ = 13°10'07.5"
D = 4°00'00"
T = 165.34'
R = 1432.40'
L = 329.22'
E = 9.51'

℄ PARK DRIVE
P.I. STA. 8+68.29
Δ = 30°50'03"
D = 19°05'55"
T = 82.73'
R = 300.00'
L = 161.45'
E =

END EARTHWORK QUANTITIES
CUY-6A-0.41

RESUME EARTHWORK QUANTITIES
CUY-254DA-0.20
CUY-6A-0.37

STA. 27+25	TO STA. 29+00	
EXCAVATION	209	CU. YD.
EMBANKMENT	176	CU. YD.
SEEDING	773	SQ. YD.

ESTIMATED QUANTITIES

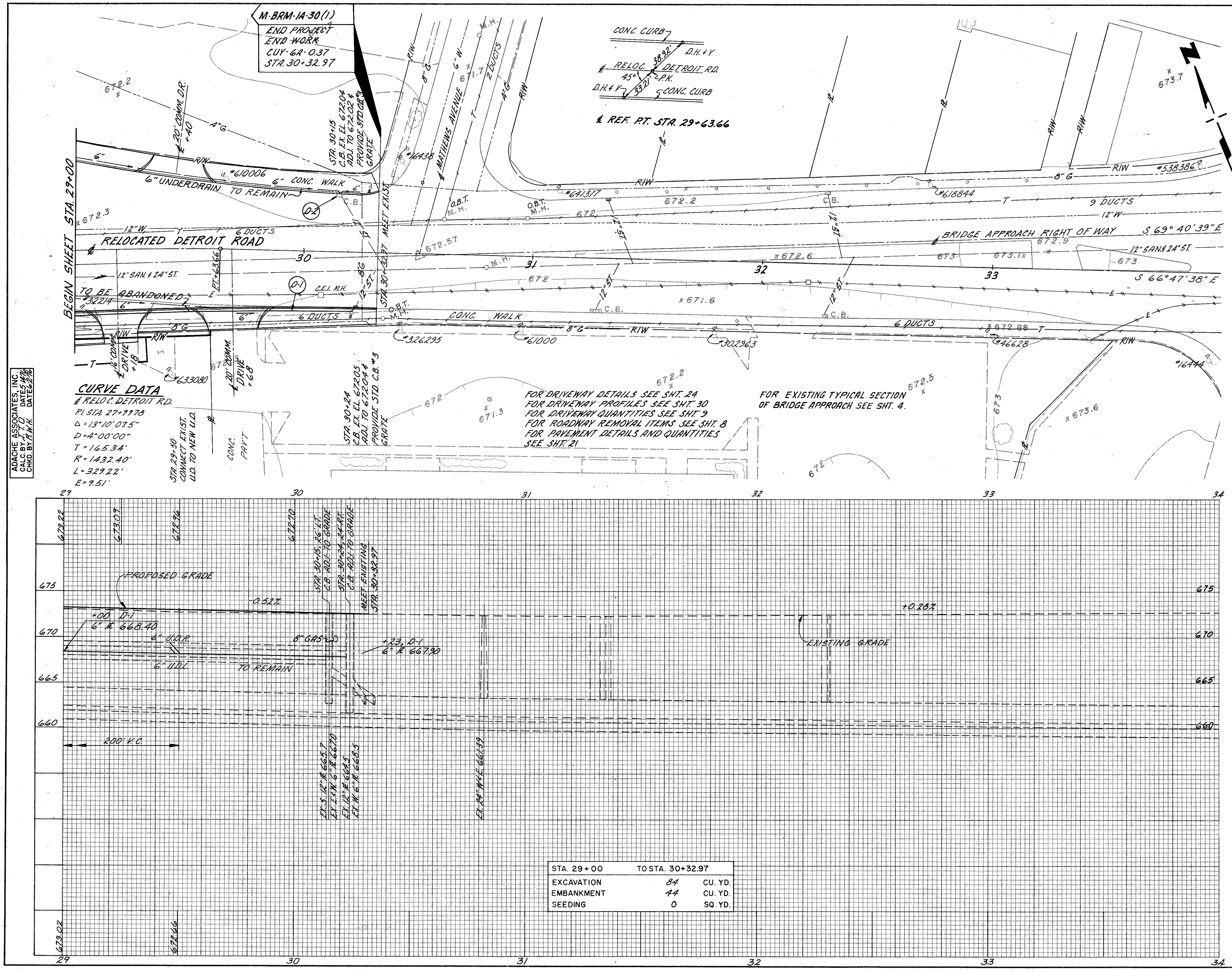
REF. NO.	STATION TO STATION * PARK DR. & SLOANE AVE.		SIDE	202 MANHOLE REMOVED EA.	202 PIPE REMOVED L.F.	202 GEODETIC MON. REMOVE & STORE EA.	604 MON. ASSEM EA.	604 MON. BOX ADJUST TO GRADE EA.	604 SAN. MANHOLE ADJUST TO GRADE EA.	605 6" PIPE UNDERDRAIN SHALLOW L.F.	BENDS & BRANCHES 6" WYE EA.	SEE SHT. NO.
D-1	27+06	27+43	LT.							45	2	
D-2	27+06	27+38	RT.							36		
D-3	28+17	29+00	RT.							86	1	
D-4	27+25	27+83	RT.	2	80							
D-5	28+52		RT.						1			
R-1	27+99.78 (P.I.)		LT.				1					
R-2	28+34		RT.			1						
R-3	27+38		LT.					1				
TOTALS TO SHEET 9				2	80	1	1	1	1	167		

DETROIT ROAD PLAN & PROFILE STA. 25+00 TO STA. 29+00

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

15/91

CUYAHOGA COUNTY
CUY.-254 DA -0.20
CUY.- 6A -0.37



M-BRM-1A-30(1)
END PROJECT
END WORK
CUY-6A-0.37
STA. 30+32.97
CONC. CURB
RELOC. DETROIT RD.
D.H. & Y.
P.K.
CONC. CURB
℄ REF. PT. STA. 29+63.66
MATHEWS AVENUE
STA. 30+15 C.B. EX. EL. 672.04 ADJ. TO 672.02 ± PROVIDE STD. C.B. #3 GRATE
20' COMM. DR. +40
6" UNDERDRAIN TO REMAIN
6" CONC. WALK
RELOCATED DETROIT ROAD
BEGIN SHEET STA. 29+00
12" SAN. & 24" ST.
TO BE ABANDONED
6 DUCTS
CONC. WALK
9 DUCTS
BRIDGE APPROACH RIGHT OF WAY
S 69° 40' 39" E
S 66° 47' 38" E
12" SAN. & 24" ST.
MEET EXIST. STA. 30+32.97
16' COMM. DRIVE +18
20' COMM. DRIVE +68
CURVE DATA
℄ RELOC. DETROIT RD.
P.I. STA. 27+99.78
Δ = 13°10'07.5"
D = 4°00'00"
T = 165.34'
R = 1432.40'
L = 329.22'
E = 9.51'
STA. 29+50 CONNECT EXIST. U.D. TO NEW U.D.
STA. 30+24 C.B. EX. EL. 672.05 ADJ. TO 672.04 ± PROVIDE STD. C.B. #3 GRATE
FOR DRIVEWAY DETAILS SEE SHT. 24
FOR DRIVEWAY PROFILES SEE SHT. 30
FOR DRIVEWAY QUANTITIES SEE SHT. 9
FOR ROADWAY REMOVAL ITEMS SEE SHT. 8
FOR PAVEMENT DETAILS AND QUANTITIES SEE SHT. 21
FOR EXISTING TYPICAL SECTION OF BRIDGE APPROACH SEE SHT. 4.
ADACHE ASSOCIATES, INC.
PROPOSED GRADE
-0.52%
+0.28%
+00 D-1 6" ℄ 668.40
+23 D-1 6" ℄ 667.90
6" U.D.R.
6" U.D.L. TO REMAIN
8" GAS
EXISTING GRADE
200' V.C.
STA. 30+15, 26' LT. C.B. ADJ. TO GRADE
STA. 30+24, 24' RT. C.B. ADJ. TO GRADE
MEET EXISTING STA. 30+32.97

STA. 29+00	TO STA. 30+32.97	
EXCAVATION	84	CU. YD.
EMBANKMENT	44	CU. YD.
SEEDING	0	SQ. YD.

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	603 TYPE F CONDUIT 6" L.F.	604 CATCH BASIN OR INLET AS PER PLAN EA.	605 6" PIPE UNDERDRAIN SHALLOW L.F.	BENDS & BRANCHES 6" WYE EA.	BENDS & BRANCHES 6" 45° BEND EA.	SEE SHT. NO.
D-1	29+00 - 30+24	RT.	10	1	114	1	1	
D-2	30+15	LT.		1				
	TOTALS TO SHEET 9		10	2	114			

DETROIT ROAD PLAN & PROFILE STA. 29+00 TO STA. 34+00

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	M-IA 30 (1)	

CUYAHOGA COUNTY
CUY. 254 DA -0.20
6A -0.37

STA. 8+00	TO STA. 11+00	
EXCAVATION	308	CU. YD.
EMBANKMENT	249	CU. YD.
SEEDING	0	SQ. YD.

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	603 TYPE B CONDUIT 12" L.F.	603 TYPE F CONDUIT 6" L.F.	604 C.B. STD. #3A EA.	604 C.B. OR INLET AS PER PLAN EA.	604 M.H. ADJ. TO GR. EA.	604 S.M.H. ADJ. TO GR. EA.	604 MON. ASSEM. EA.	605 6" PIPE UNDERDRAIN SHALLOW L.F.	BENDS & BREAKS 45° BEND 6" EA.	BENDS & BREAKS 6" WYE EA.	SEE SHT. NO.
D-1	8+55 - 9+54	LT.		10						97		1	
D-2	8+67 - 9+50	RT.		10						75			
D-3	10+33 - 11+00	LT.								85		1	
D-4	9+67 - 11+00	RT.		20						120	1		
D-5	8+52	LT.				1							
D-6	8+60	RT.					1						
D-7	8+62	RT.						1					
D-8	8+64	RT.				1							
D-9	10+41 - 11+00	RT.	68		1								36
R-1	8+61.35	℄							1				
TOTALS TO SHEET 9			68	40	1	2	1	1	1	377			

WOOSTER ROAD & LAKE ROAD PLAN & PROFILE STA. 8+00 TO STA. 11+00

FOR PAVEMENT DETAILS AND QUANTITIES SEE SHT. 20.
FOR WATER MAIN RELOCATION PLAN AND QUANTITIES SEE SHTS. 58.
FOR DRIVEWAY DETAILS SEE SHT. 24.
FOR DRIVEWAY PROFILE SEE SHT. 32.
FOR DRIVEWAY QUANTITIES SEE SHT. 9.
FOR ROADWAY REMOVAL AND BRIDGE DEMOLITION ITEMS SEE SHT. 37-39.

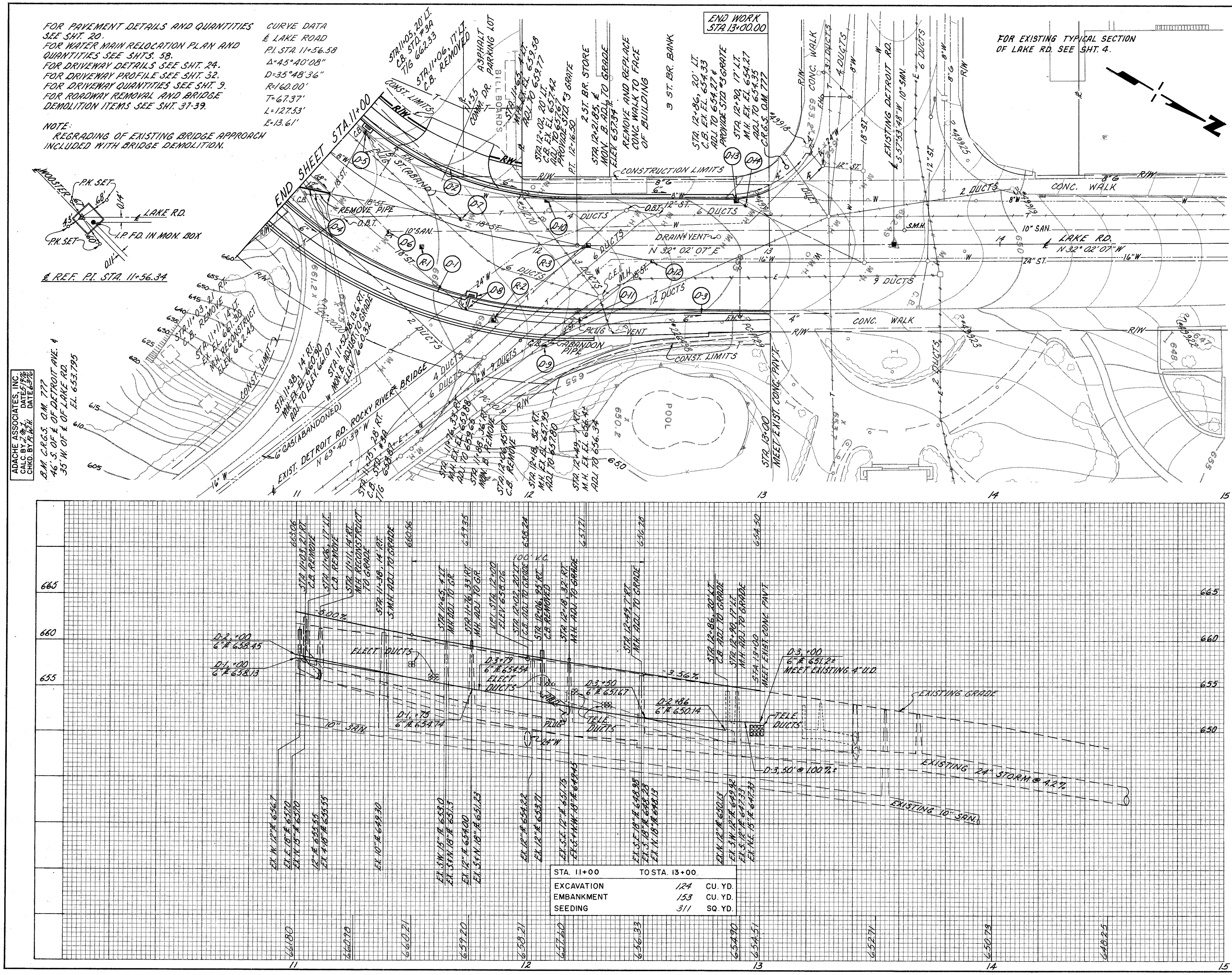
NOTE:
REGRADING OF EXISTING BRIDGE APPROACH INCLUDED WITH BRIDGE DEMOLITION.

CURVE DATA
℄ LAKE ROAD
P.I. STA. 11+56.58
Δ=45°40'08"
D=35°48'36"
R=160.00'
T=67.37'
L=127.53'
E=13.61'

FOR EXISTING TYPICAL SECTION OF LAKE RD. SEE SHT. 4.

F.H.W.A. REGION	STATE	PROJECT		17 / 91
5	OHIO			

CUYAHOGA COUNTY
CUY.-254 DA -0.20
CUY.- 6A -0.37



STA. 11+00	TO STA. 13+00	
EXCAVATION	124	CU. YD.
EMBANKMENT	153	CU. YD.
SEEDING	311	SQ. YD.

ESTIMATED QUANTITIES

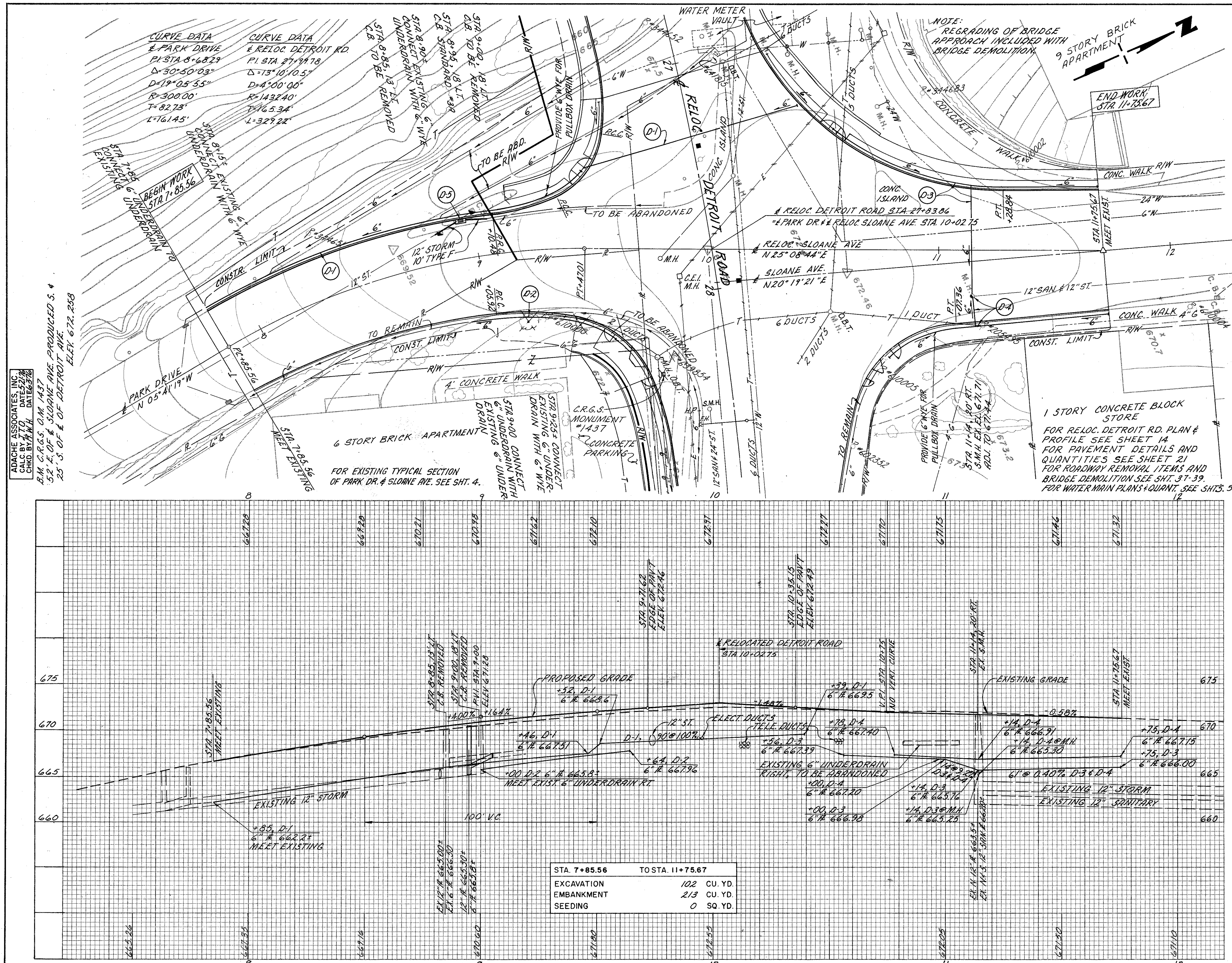
REF. NO.	STATION TO STATION	SIDE	202 C.B. OR INLET REMOVE (EA.)	202 PIPE REMOVE (L.F.)	202 MON. B. ASSEM. REMOVE (EA.)	603 TYPE B CONDUIT 12" (L.F.)	603 TYPE C CONDUIT 12" (L.F.)	603 TYPE F CONDUIT 6" (L.F.)	604 C.B. STD. #3A (EA.)	604 C.B. AS PER PLAN (EA.)	604 M.H. RECON. TO GR. (EA.)	604 M.H. ADJ. TO GR. (EA.)	604 S.M.H. ADJ. TO GR. (EA.)	604 MON. BOX ADJ. TO GRADE (EA.)	605 6" PIPE UNDERDRAIN SHALLOW (L.F.)	SEE SHT. NO.
D-1	11+00 - 11+75	RT.						10							79	
D-2	11+00 - 12+86	LT.						10							160	
D-3	11+79 - 13+00	RT.													129	
D-4	11+00 - 11+11	RT.	1	10		14					1					36
D-5	11+05 - 11+06	LT.	1			5			1							32
D-6	11+38	RT.											1			
D-7	11+65	LT.										1				
D-8	11+75 - 11+76	RT.					5		1			1				36
D-9	12+06	RT.	1													
D-10	12+02	LT.								1						
D-11	12+18	RT.										1				
D-12	12+49	RT.										1				
D-13	12+86	LT.								1						
D-14	12+90	LT.										1				
R-1	11+38	RT.												1		
R-2	11+88	RT.			1											
R-3	12+21.85	℄												1		
TOTALS TO SHEET 9			3	10	1	19	5	20	2	2	1	5	1	2	368	

LAKE ROAD PLAN & PROFILE STA. 11+00 TO STA. 13+00

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

18/91

CUYAHOGA COUNTY
CUY.-254 DA -0.20
CUY.- 6A -0.37



CURVE DATA
℄ PARK DRIVE
P.I. STA. 8+68.29
Δ=30°50'03"
D=19°05'55"
R=300.00'
T=82.73'
L=161.45'
CURVE DATA
℄ RELOC. DETROIT RD.
P.I. STA. 27+99.78
Δ=13°10'10.5"
D=4°00'00"
R=1432.40'
T=165.34'
L=329.22'
WATER METER VAULT
NOTE: REGRADING OF BRIDGE APPROACH INCLUDED WITH BRIDGE DEMOLITION.
9 STORY BRICK APARTMENT
END WORK STA. 11+75.67
BEGIN WORK STA. 7+85.56
RELOC. DETROIT ROAD
℄ RELOC. DETROIT ROAD STA. 27+83.86
=℄ PARK DR. & ℄ RELOC. SLOANE AVE. STA. 10+02.75
℄ RELOC. SLOANE AVE N 25°08'44"E
℄ SLOANE AVE. N 20°19'21"E
℄ PARK DRIVE N 05°41'19"W
6 STORY BRICK APARTMENT
4" CONCRETE WALK
CONC. WALK
CONCRETE WALK
CONSTR. LIMIT
TO BE ABANDONED
TO REMAIN
C.R.G.S. MONUMENT #1437
CONCRETE PARKING
1 STORY CONCRETE BLOCK STORE
FOR RELOC. DETROIT RD. PLAN & PROFILE SEE SHEET 14
FOR PAVEMENT DETAILS AND QUANTITIES SEE SHEET 21
FOR ROADWAY REMOVAL ITEMS AND BRIDGE DEMOLITION SEE SHT. 37-39.
FOR WATER MAIN PLANS & QUANT. SEE SHTS. 59.
FOR EXISTING TYPICAL SECTION OF PARK DR. & SLOANE AVE. SEE SHT. 4.
ADACHE ASSOCIATES, INC.
B.M. C.R.G.S. O.M. 1437
52' E. OF ℄ SLOANE AVE. PRODUCED S. & 25' S. OF ℄ OF DETROIT AVE. ELEV. 672.258
PROPOSED GRADE
EXISTING GRADE
℄ RELOCATED DETROIT ROAD STA. 10+02.75
EXISTING 12" STORM
EXISTING 12" SANITARY
EXISTING 6" UNDERDRAIN RIGHT, TO BE ABANDONED
100' V.C.
+85, D-1 6" ℄ 662.2± MEET EXISTING

STA. 7+85.56	TO STA. 11+75.67	
EXCAVATION	102	CU. YD.
EMBANKMENT	213	CU. YD.
SEEDING	0	SQ. YD.

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	202 PIPE REMOVE L.F.	202 C.B. OR INLET REMOVE EA.	603 TYPE B CONDUIT 6" L.F.	603 TYPE B CONDUIT 12" L.F.	603 TYPE F CONDUIT 6" L.F.	604 C.B. STD. #3A EA.	604 SAN. M.H. ADJ. TO GRADE EA.	605 6" PIPE UNDERDRAIN SHALLOW L.F.	BENDS & BRANCHES 6" WYE EA.	BENDS & BRANCHES 6" TEE EA.	SEE SHT. NO.
	PARK DRIVE												
D-1	7+85 - 10+39	LT.								275	4		
D-2	9+00 - 9+64	RT.								63	1		
	SLOANE AVENUE												
D-3	10+56 - 11+75	RT./LT.			49					110		1	35
D-4	10+78 - 11+75	RT.			12				1		1	1	35
	PARK DRIVE												
D-5	8+85 - 9+00	LT.	16	2		10	10	1					
TOTALS TO SHEET 9			16	2	61	10	10	1	1	448			

PARK DRIVE & SLOANE AVE. PLAN & PROFILE STA. 7+85.56 TO STA. 11+75.67

ADACHE ASSOCIATES INC.
CALC. BY: R.W.H DATE: 4-22-76
CHKD BY: T.M.J. DATE: 4-26-76

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

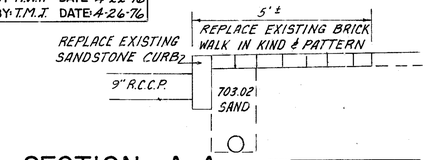
19/91

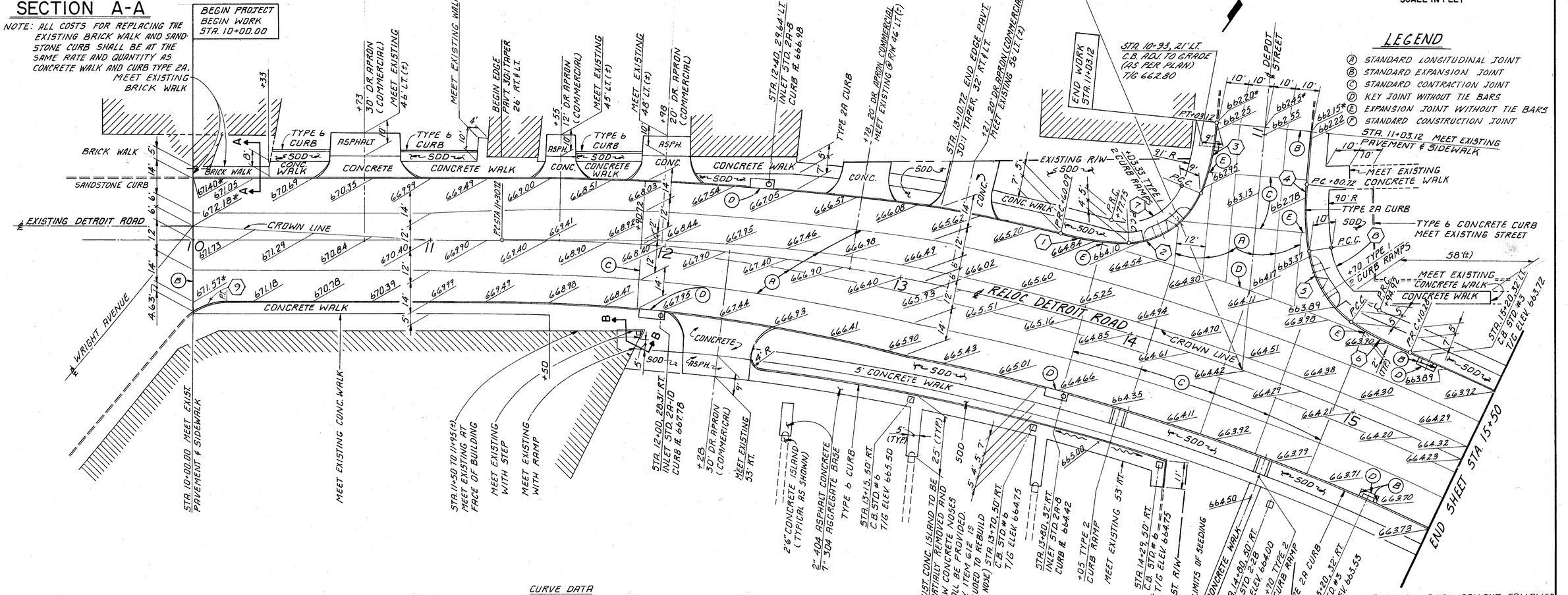
CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

0 10 20 30 40 50 100
SCALE IN FEET

SECTION A-A

NOTE: ALL COSTS FOR REPLACING THE EXISTING BRICK WALK AND SANDSTONE CURB SHALL BE AT THE SAME RATE AND QUANTITY AS CONCRETE WALK AND CURB TYPE 2A.





LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT
- (D) KEY JOINT WITHOUT TIE BARS
- (E) EXPANSION JOINT WITHOUT TIE BARS
- (F) STANDARD CONSTRUCTION JOINT

MISCELLANEOUS CURVE DATA

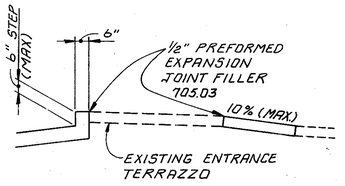
NO.	①	②	③	④	⑤	⑥	⑦	⑧	⑨
Δ	16°57'12"	64°11'21"	17°28'31"	13°51'41"	46°17'52"	12°48'32"	80°04'58"	58°11'07"	35°27'02"
R	100'	35'	100'	120'	45'	120'	26'	35'	25'
T	14.90'	21.95'	15.37'	14.95'	19.24'	13.47'	21.85'	19.47'	7.99'
L	29.59'	39.21'	30.50'	29.03'	36.36'	26.83'	36.34'	35.54'	15.47'

ESTIMATED QUANTITIES

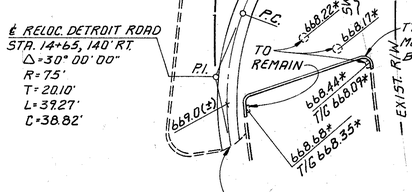
203	304	310	404	451	608		608	608	609		612	660
SUBGRADE COMPACTION	AGGREGATE BASE	SUBBASE Type II	ASPHALT CONCRETE	9" REINFORCED PORT. CEMENT CONC. PAV'T	CURB RAMP TYPE 1	CURB RAMP TYPE 2	CONCRETE STEP	CONCRETE WALK	CONCRETE CURB TYPE 2A	CONCRETE CURB TYPE 6	CONCRETE ISLAND	SODDING
S.Y.	C.Y.	C.Y.	C.Y.	SQ. YD.	EA.	EA.	L.F.	S.F.	L.F.	L.F.	S.Y.	S.Y.
4,297	28	692	787	4,107	4	2	20	7,411	1,129	376	3	770

CURVE DATA

℄ RELOC. DETROIT ROAD
P.I. STA. 15+56.58
Δ = 48° 04'12"
D = 6° 00'00"
R = 954.93'
T = 425.86'
L = 801.16'
E = 90.66'



SECTION B-B



NOTES: ELEVATION CALLOUT FOLLOWED WITH * (ASTERISK), INDICATES ELEVATION OF EXISTING PAVEMENT.

⬡ DENOTES MISCELLANEOUS CURVE NUMBER.

FOR DRIVEWAY DETAILS SEE SHEET 24, FOR DRIVEWAY QUANTITIES SEE SHEET 9.

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

CUY.-254DA-0.20
CUY.-6A-0.37

PAVEMENT DETAILS

RELOCATED DETROIT ROAD
STA. 10+00 TO STA. 15+50

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	TMJ	R.W.H.			

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

20
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

0 10 20 30 40 50 100
SCALE IN FEET

ADACHE ASSOCIATES INC.
CALC. BY: R.W.H. DATE: 4-26-76
CHKD. BY: T.M.J. DATE: 4-28-76

CURVE DATA
℄ RELOC. DETROIT ROAD
P.I. STA. 15+56.58
Δ = 48°04'12"
D = 6°00'00"
R = 954.93'
T = 425.86'
L = 801.16'
E = 90.66'

CURVE DATA
CROWN LINE
DETROIT ROAD
Δ = 7°54'48"
R = 500.00'
T = 34.58'
L = 69.06'

CURVE DATA
℄ LAKE ROAD
P.I. STA. 11+56.58
Δ = 45°40'08"
D = 35°48'36"
R = 160.00'
T = 67.37'
L = 127.53'
E = 13.61'

BEGIN SHEET STA. 18+00

BEGIN WORK STA. 8+00.00

CONCRETE WALL FOR DETAILS AND QUANTITIES SEE SHEET 21A.

℄ RELOCATED DETROIT ROAD STA. 19+42.87 = ℄ WOOSTER ROAD ℄ ℄ LAKE ROAD STA. 10+00.00

END WORK STA. 13+00.00

STA. 8+42.40 BEGIN EDGE PAVT. TAPER 30:1, 18' RT. ℄ L.T. STA. 8+52.18 L.T. ADJ. ℄ PROVIDE NEW C.B. #3 GRATE T/G ELEV. 670.29 STA. 8+61.35 Δ = 3°58'07" (RT.) (RAD. PLAN) (NO CURVE)

STA. 9+02.40 PT. ℄ END EDGE PAVT. TAPER, 20' RT. ℄ L.T.

STA. 18+25.40 30' RT. ℄ L.T. C.B. STD. #3 T/G ELEV. 665.90

+02.88 TYPE I CURB RAMPS

+14.31 TYPE I CURB RAMPS

STA. 12+02.20 L.T. ADJ. ℄ PROVIDE NEW C.B. #3 GRATE T/G ELEV. 657.67 (RT. PER PLAN)

STA. 12+88.20 L.T. ADJ. ℄ PROVIDE NEW C.B. #3 GRATE T/G ELEV. 655.27 (RT. PER PLAN) MEET EXISTING AT FACE OF BUILDING

STA. 11+75.20 RT. C.B. STD. #3A T/G ELEV. 658.87

STA. 11+05.20 L.T. C.B. STD. #3A T/G ELEV. 662.33

+55 30' DR. APRON (COMMERCIAL) MEET EXISTING 40' L.T.

STA. 13+00.00 MEET EXIST. PAVT. END 12.5':1 TAPER, CROWN LINE

END CONCRETE WALK AT EXISTING DR. APRON

STA. 12+50.00 BEGIN CROWN LINE 12.5':1 TAPER, ℄

STA. 12+40.00 BEGIN EDGE PAVT. 30':1 TAPER, 28' RT.

TYPE 2A CURB END CONC. WALL & BEGIN SODDING P.T. STA. 12+16.50

STA. 12+24.34

STA. 8+00.00 MEET EXIST. SIDEWALK PAVEMENT ℄ SIDEWALK

+11 12' DR. APRON (RESIDENTIAL)

MEET EXISTING AT R/W

TYPE 2A CURB

STA. 8+64.18 RT. ADJ. ℄ PROVIDE NEW C.B. #3 GRATE T/G 669.82 (RT. PER PLAN)

+96 12' DR. APRON (RESIDENTIAL)

MEET EXISTING CONC. WALK P.O.C. BEGIN CONC. WALL AS PER PLAN

+72.96 TYPE I CURB RAMP

STA. 19+67.18, 51.63' RT. C.B. STD. #3 T/G ELEV. 666.10

END CONC. WALL BEGIN WING WALL

STA. 20+05.50 BEGIN APPROACH SLAB

STA. 20+00.00, 35.53' LT. C.B. STD. #3A T/G ELEV. 666.42

END WING WALL BEGIN CONC. WALL

SEE SOUTHWEST WALL DETAILS SHEET 22.

SEE NORTHWEST WALL DETAILS SHEET 22.

END SHEET STA. 20+50

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT
- (D) KEY JOINT WITHOUT TIE BARS
- (E) EXPANSION JOINT WITHOUT TIE BARS
- (F) STANDARD CONSTRUCTION JOINT
- (G) PRESSURE RELIEF JOINT

NOTES: ELEVATION CALLOUT FOLLOWED WITH * (ASTERISK), INDICATES ELEVATION OF EXISTING PAVEMENT.

℄ INDICATES JOINTS TYPICAL AT ALL CATCH BASINS.

INTEGRAL CONCRETE CURB, TYPE 2A ALONG THE PRESSURE RELIEF JOINT SHALL BE FULL DEPTH.

⬡ DENOTES CURVE NUMBER.

FOR DRIVEWAY DETAILS, SEE SHEET 24.
FOR DRIVEWAY QUANTITIES, SEE SHEET 9.
FOR CONCRETE WALL DETAILS, SEE SHEET 22 & 23.

ESTIMATED QUANTITIES

203		310	451			608	608	609	660	SPECIAL	
SUBGRADE COMPACTION		SUBBASE Type II	9" REINFORCED PORT. CEMENT CONC. PAV'T.			4" CONCRETE WALK	CURB RAMP TYPE I	CONCRETE CURB TYPE 2A	SODDING	PRESSURE RELIEF JOINT TYPE A	
SQ. YD.		CU. YD.	SQ. YD.			SQ. FT.	EACH	LIN. FT	SQ. YD.	LIN. FT.	
4,026		531	3,865			6,140	6	1,105	627	83	

MISCELLANEOUS CURVE DATA

NO.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
Δ	12°22'13"	57°38'50"	12°50'19"	11°03'52"	67°28'02"	12°50'19"	12°50'19"	60°43'35.5"	12°50'19"	12°50'19"	72°08'57"	13°27'29"	82°51'22"	48°16'13.5"	48°31'36"	17°15'25"	4°20'46"	60°43'35.5"	3°43'56"	85°36'22"	
R	120'	40'	120	120'	40'	120'	120'	40'	120'	120'	40'	120'	30'	201'	29'	47.37'	166.98'	29'	109'	30'	
T	13.00'	22.01'	13.50'	11.62'	26.71'	13.50'	13.50'	23.43'	13.50'	13.50'	29.14'	14.16'	26.47'	90.06'	13.07'	7.19'	6.34'	16.99'	3.55'	27.78'	
L	25.91'	40.25'	26.89'	23.17'	47.10'	26.89'	26.89'	42.40'	26.89'	26.89'	50.37'	28.19'	43.38'	169.34'	24.56'	14.26'	12.66'	30.74'	7.10'	44.82'	

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

CUY.-254DA-0.20
CUY.-6A-0.37

PAVEMENT DETAILS

RELOCATED DETROIT ROAD
STA. 18+00 TO STA. 20+05.50

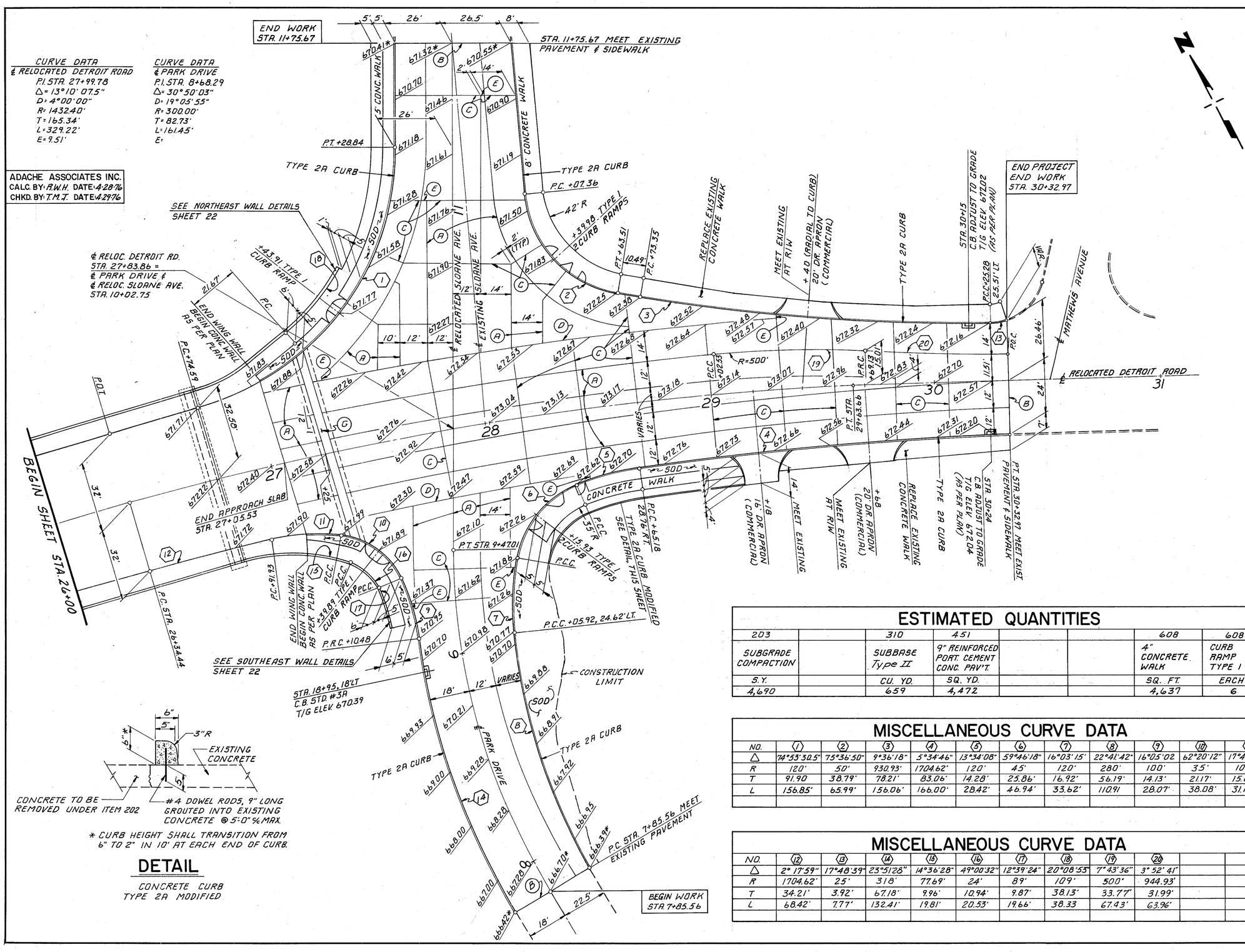
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	TMJ	R.W.H.			

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

21/91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

0 10 20 30 40 50 100
SCALE IN FEET



* CURB HEIGHT SHALL TRANSITION FROM 6" TO 2" IN 10' AT EACH END OF CURB.

DETAIL

CONCRETE CURB TYPE 2A MODIFIED

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT
- (D) KEY JOINT WITHOUT TIE BARS
- (E) EXPANSION JOINT WITHOUT TIE BARS
- (F) STANDARD CONSTRUCTION JOINT
- (G) PRESSURE RELIEF JOINT, TYPE A

NOTES: ELEVATION CALLOUT FOLLOWED WITH * (ASTERISK) INDICATES EXISTING PAVEMENT ELEVATION.

INTEGRAL CONCRETE CURB, TYPE 2A ALONG THE PRESSURE RELIEF JOINT SHALL BE FULL DEPTH.

⬡ DENOTES MISCELLANEOUS CURVE NUMBER.

# INDICATES JOINTS TYPICAL AT ALL CATCH BASINS.

FOR DRIVEWAY DETAILS, SEE SHEET 24.
FOR DRIVEWAY QUANTITIES, SEE SHEET 9.
FOR DETAILS OF CONCRETE WALL, SEE SHEETS 22 & 23.

ESTIMATED QUANTITIES

203		310	451			608	608	609		660	SPECIAL
SUBGRADE COMPACTION		SUBBASE Type II	9" REINFORCED PORT. CEMENT CONC. PAV'T.			4" CONCRETE WALK	CURB RAMP TYPE 1	CONC. CURB TYPE 2A STD.	CONC. CURB TYPE 2A MOD.	SODDING	PRESSURE RELIEF JOINT TYPE A
S.Y.		CU. YD.	SQ. YD.			SQ. FT.	EACH	L.F.	L.F.	SQ. YD.	LIN. FT.
4,690		659	4,472			4,637	6	1,082	103	524	86

MISCELLANEOUS CURVE DATA

NO.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Δ	74°53'30.5"	75°36'50"	9°36'18"	5°34'46"	13°34'08"	59°46'18"	16°03'15"	22°41'42"	16°05'02	62°20'12"	17°49'14"
R	120'	50'	930.93'	1704.62'	120'	45'	120'	280'	100'	3.5'	100'
T	91.90	38.79'	78.21'	83.06'	14.28'	25.86'	16.92'	56.19'	14.13'	21.17'	15.68'
L	156.85'	65.99'	156.06'	166.00'	28.42'	46.94'	33.62'	110.91	28.07'	38.08'	31.10'

MISCELLANEOUS CURVE DATA

NO.	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)		
Δ	2° 17'59"	17°48'39"	23°51'28"	14°36'28"	49°00'32"	12°39'24"	20°08'55"	7°43'36"	3° 52' 41"		
R	1704.62'	25'	318'	77.69'	24'	89'	109'	500'	944.93'		
T	34.21'	3.92'	67.18'	9.96'	10.94'	9.87'	38.13'	33.77'	31.99'		
L	68.42'	7.77'	132.41'	19.81'	20.53'	19.66'	38.33	67.43'	63.96'		

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

CUY.-254DA-0.20
CUY.-6A-0.37

PAVEMENT DETAILS

RELOCATED DETROIT ROAD
STA. 27+05.53 TO 30+32.97

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	TMJ	R.W.H.			

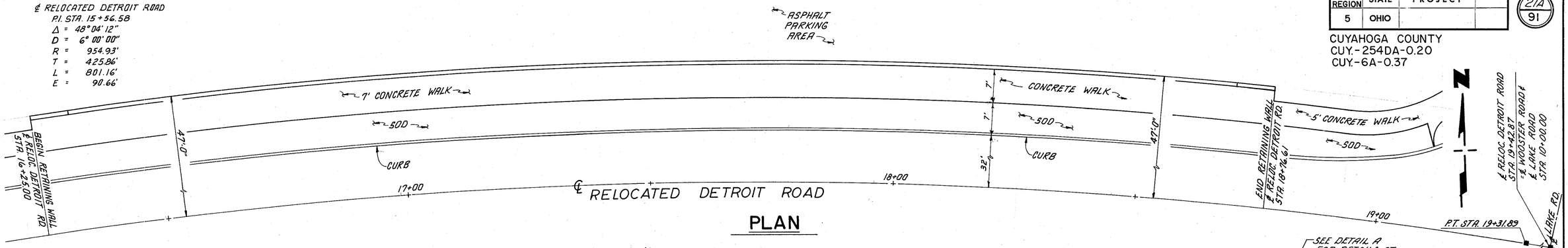
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

21A
91

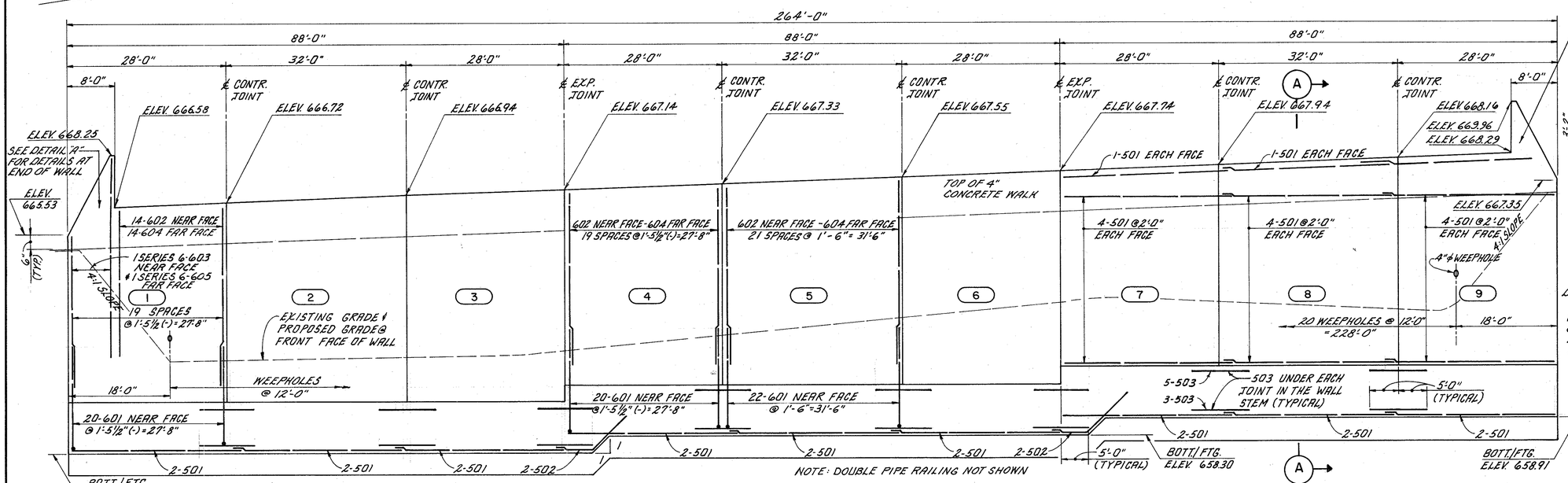
CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

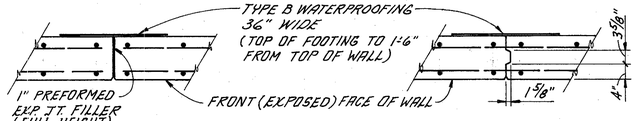
℄ CURVE DATA

℄ RELOCATED DETROIT ROAD
P.I. STA. 15+56.58
Δ = 48°04'12"
D = 6°00'00"
R = 954.93'
T = 425.86'
L = 801.16'
E = 90.66'



PLAN





EXPANSION JOINT DETAIL

CONTRACTION JOINT DETAIL

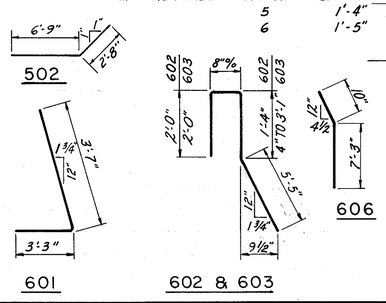
ELEVATION

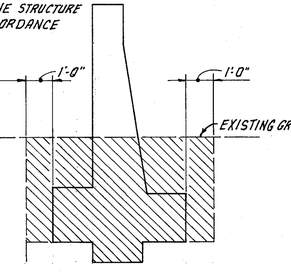
DEVELOPED LENGTH AT FRONT FACE OF WALL

REINFORCING STEEL SAMPLES: SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURE BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

MINIMUM LAP REQUIRED:

BAR SIZE	LENGTH
5	1'-4"
6	1'-5"





LIMITS OF EXCAVATION

NOTES: FOR RUSTICATION GROOVE DETAILS, SEE SHEET 23
ALL HORIZONTAL MEASUREMENTS ARE GIVEN ALONG THE FRONT FACE OF WALL.

FOR DOUBLE PIPE RAIL DETAILS, SEE STD. DWG. BR-2-67

HORIZONTAL REINFORCING DETAILS SHOWN IN PANELS (7) (8) (9) IS TYPICAL FOR PANELS (1) (2) (3), (4) (5) (6) AND (7) (8) (9).

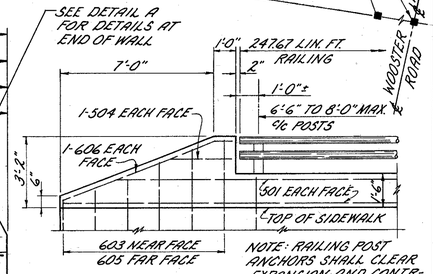
VERTICAL REINFORCING SHOWN IN PANEL (1) IS TYPICAL FOR PANEL (1) AND PANEL (9), OPPOSITE HAND.

VERTICAL REINFORCING SHOWN IN PANELS (4) AND (5) IS TYPICAL FOR PANELS (3) (4) (6) (7) AND PANELS (2) (5) (8), RESPECTIVELY.

FOUNDATION BEARING PRESSURE: FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 2,100 POUNDS PER SQUARE FOOT.

DESIGN DATA:
CONCRETE CLASS "C" - UNIT STRESS 1,333 P.S.I.
REINFORCING STEEL - ASTM A615, A616, OR A617 UNIT STRESS 20,000 P.S.I.
WALL DESIGNED FOR 2 FOOT LIVE LOAD SURCHARGE.

FOOTING KEY: THE KEY SHALL BE PLACED IN A CAREFULLY MADE TRENCH AGAINST UNDISTURBED EARTH.



DETAIL A

SECTION A-S

1/1

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION
503	285	CU.YD.	UNCLASSIFIED EXCAVATION
509	10,401	LBS.	REINFORCING STEEL
511	108	CU.YD.	CONCRETE FOOTINGS (CLASS "C" CONCRETE)
511	128	CU.YD.	CONCRETE ABOVE FOOTINGS (CLASS "C" CONCRETE)
512	16	SQ.YD.	TYPE B WATERPROOFING
516	22	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER
517	24.767	LIN.FT.	RAILING, (DOUBLE PIPE RAIL)
518	60	CU.YD.	POROUS BACKFILL

REINFORCING

MARK	NO.	LENGTH	WEIGHT	TYPE
501	108	30'-0"	3,379	STRAIGHT
502	4	9'-4"	39	BENT
503	64	10'-0"	668	STRAIGHT
504	4	3'-0"	13	STRAIGHT
601	186	6'-8"	1,863	BENT
602	174	9'-1"	2,374	BENT
603	2 SER OF 6	8'-1" TO 10'-10"	170	BENT
604	174	6'-7"	1,721	STRAIGHT
605	2 SER OF 6	3'-7" TO 8'-4"	125	STRAIGHT
606	4	8'-1"	43	STRAIGHT
		TOTAL	10,401	

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

CUY.-254DA-0.20
CUY.-6A-0.37

RETAINING WALL

ALONG
RELOCATED DETROIT ROAD
STA. 16+25.00 TO STA. 18+76.61

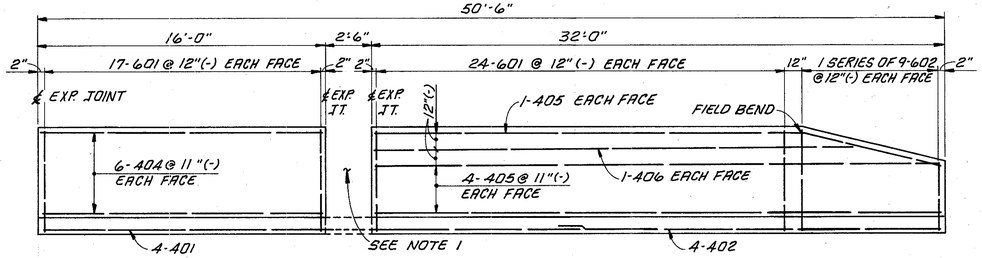
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.D.H.	T.M.J.	R.W.H.	R.D.H.	9/28/77	

FHWA REGION	STATE	PROJECT	
5	OHIO		

22/91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

0 1 2 3 4 5 10 20
SCALE IN FEET

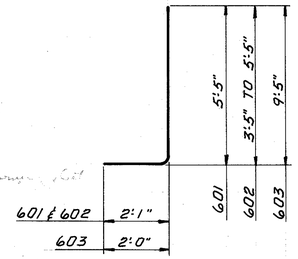


SOUTHWEST WALL (DEVELOPED)

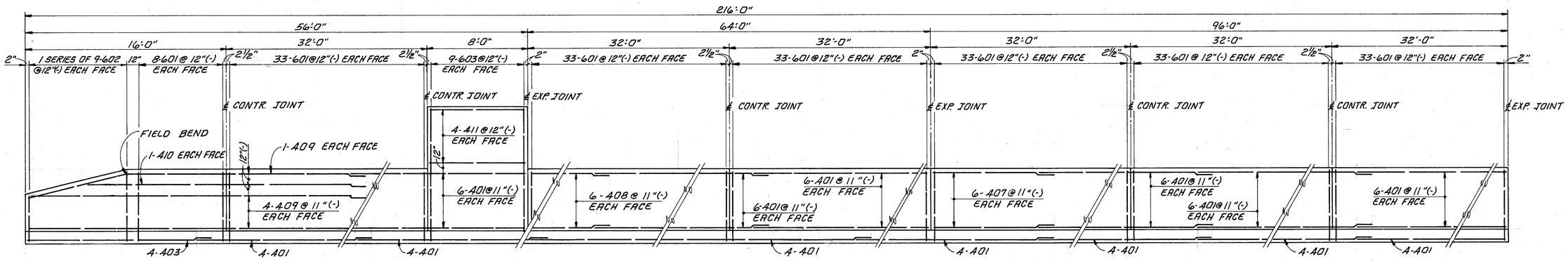
ALONG WOOSTER ROAD

NOTES:

1) PROVISION FOR TRAFFIC CONTROLLER CABINET. FOR QUANTITIES AND DETAILS, SEE TRAFFIC CONTROL PLANS.
2) FOR WALL GEOMETRICS AND LOCATIONS, SEE PAVEMENT DETAIL SHEETS 20 AND 21.
3) FOR SECTIONS, DETAILS, QUANTITIES AND ADDITIONAL NOTES, SEE SHEET 2 / 2.
4) DEVELOPED PLAN LENGTHS ARE ALONG THE SIDEWALK SIDE OF THE WALL.
5) ALL LONGITUDINIAL REINFORCING BARS IN THE CURVED PORTIONS OF WALL SHALL BE FIELD BENT AS REQUIRED. FIELD BENDING SHALL BE INCLUDED WITH "ITEM 509" REINFORCING STEEL FOR PAYMENT.

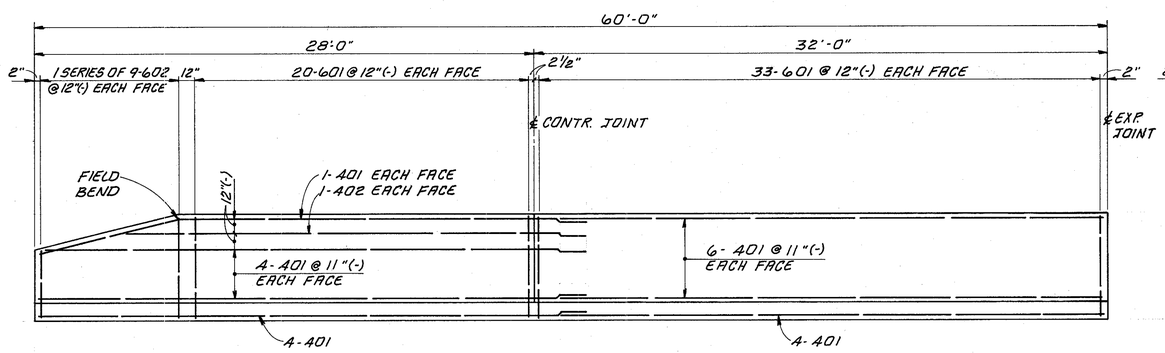


BAR BENDING DIAGRAM



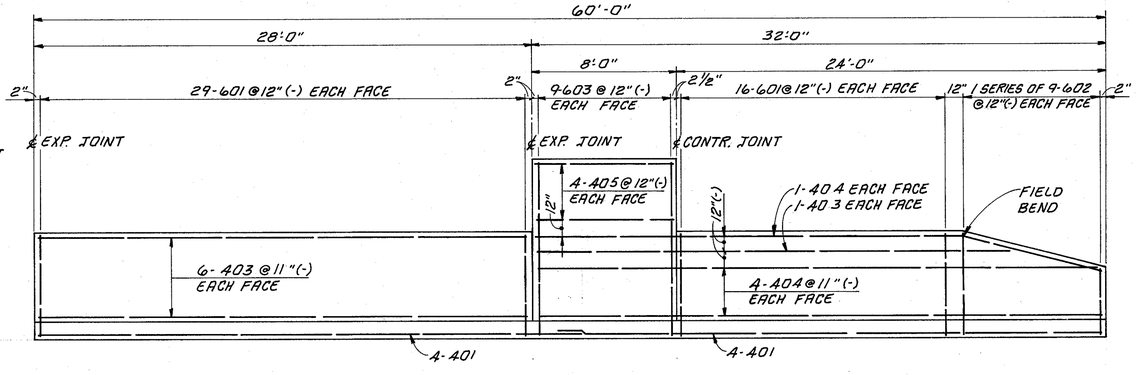
NORTHWEST WALL (DEVELOPED)

ALONG LAKE ROAD



SOUTHEAST WALL (DEVELOPED)

ALONG PARK DRIVE



NORTHEAST WALL (DEVELOPED)

ALONG SLOANE AVENUE

REINFORCING BAR SCHEDULE

ROCKY RIVER

MARK	SW	NW	LENGTH	WEIGHT	TYPE
401	4	100	30'-0"	2,084	ST.
402	4		21'-3"	57	ST.
403		4	14'-3"	38	ST.
404	12		15'-8"	126	ST.
405	10		31'-8"	212	ST.
406	2		27'-8"	37	ST.
407		12	9'-5"	76	ST.

MARK	SW	NW	LENGTH	WEIGHT	TYPE
408		12	6'-2"	49	ST.
409		10	26'-11"	180	ST.
410		2	22'-11"	31	ST.
411		8	7'-8"	41	ST.

MARK	SW	NW	LENGTH	WEIGHT	TYPE
601	82	412	7'-4½"	5,472	BT.
602	2 SER. OF	2 SER. OF	5'-4½" TO	345	BT.
	9	9	7'-4½"	INC.=2⅝"	
603		18	11'-3½"	305	BT.

TOTAL ROCKY RIVER 9,053 LBS

LAKEWOOD

MARK	SE	NE	LENGTH	WEIGHT	TYPE
401	30	8	30'-6"	774	ST.
402	2		26'-6"	35	ST.
403		14	27'-8"	259	ST.
404		10	31'-8"	212	ST.
405		8	7'-8"	41	ST.

MARK	SE	NE	LENGTH	WEIGHT	TYPE
601	106	90	7'-4½"	2,171	BT.
602	2 SER. OF	2 SER. OF	5'-4½" TO	345	BT.
	9	9	7'-4½"	INC.=2⅝"	
603		18	11'-3½"	305	BT.

TOTAL LAKEWOOD 4,142 LBS.

ADACHE ASSOCIATES INC.
CALC. BY: T.M.J. DATE: 12-16-76
CHKD. BY: R.W.H. DATE: 12-17-76

1 / 2

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

CUY.-254DA-0.20
CUY.-6A-0.37

CONCRETE WALL ELEVATIONS

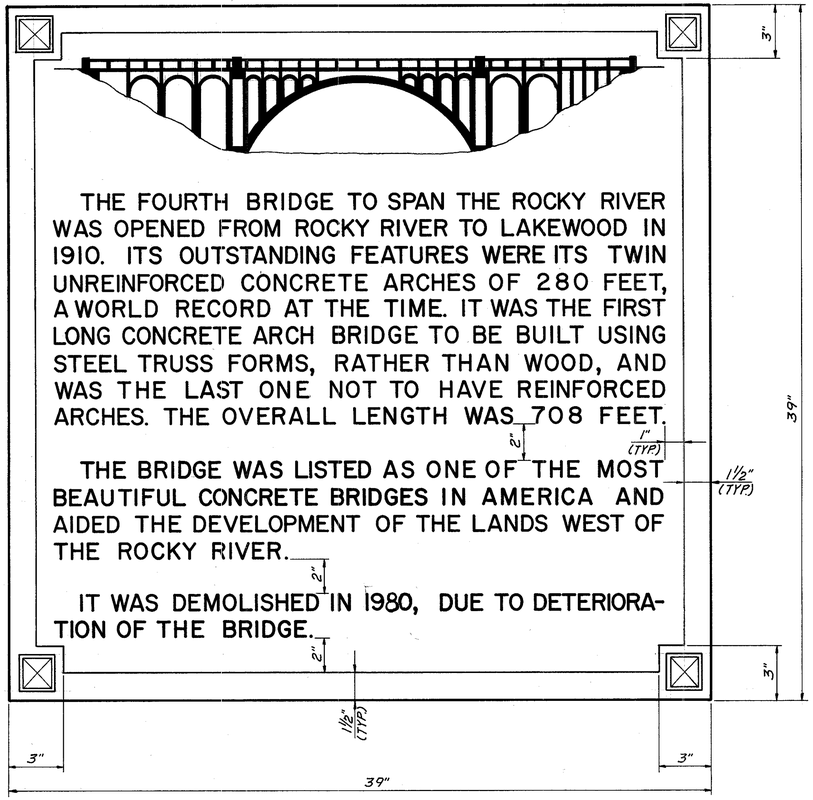
RELOCATED DETROIT ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T. M.J.	T.M.J.	R.W.H.			

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

23
91

CUYAHOGA COUNTY
CUY.-254 DA-0.20
CUY.-6A-0.37



THE FOURTH BRIDGE TO SPAN THE ROCKY RIVER WAS OPENED FROM ROCKY RIVER TO LAKEWOOD IN 1910. ITS OUTSTANDING FEATURES WERE ITS TWIN UNREINFORCED CONCRETE ARCHES OF 280 FEET, A WORLD RECORD AT THE TIME. IT WAS THE FIRST LONG CONCRETE ARCH BRIDGE TO BE BUILT USING STEEL TRUSS FORMS, RATHER THAN WOOD, AND WAS THE LAST ONE NOT TO HAVE REINFORCED ARCHES. THE OVERALL LENGTH WAS 708 FEET.

THE BRIDGE WAS LISTED AS ONE OF THE MOST BEAUTIFUL CONCRETE BRIDGES IN AMERICA AND AIDED THE DEVELOPMENT OF THE LANDS WEST OF THE ROCKY RIVER.

IT WAS DEMOLISHED IN 1980, DUE TO DETERIORATION OF THE BRIDGE.

PROPOSED PLAQUE

PROPOSED PLAQUE NOTES:

PROPOSED PLAQUE SHALL BE CAST BRONZE, COMPOSED OF 85% COPPER, 5% TIN, 5% ZINC AND 5% LEAD, AS MANUFACTURED BY ARCHITECTURAL ARTS FOUNDRY, CLEVE, OHIO OR APPROVED EQUAL.

PLAQUES SHALL HAVE A THICKNESS OF ½" AT THE BORDERS, 15/32" AT THE RAISED LETTERING AND BRIDGE LINES, 7/16" BRIDGE BACKGROUND AND ⅜" BASE.

LETTERING SHALL BE ONE (1) INCH IN HEIGHT AND THE STYLE SHALL MATCH THAT OF THE EXISTING PLAQUES. THE BRIDGE SHALL BE AS SHOWN ON THE PLAN.

LETTER SPACING AS SHOWN IS SUGGESTED AND MAY BE ALTERED WITH APPROVAL OF THE ENGINEER.

THE DEMOLITION DATE SHALL BE VERIFIED BY THE ENGINEER.

THE CONTRACTOR SHALL SUBMIT RUBBINGS OF THE PLAQUE MOLD TO THE DIRECTOR FOR APPROVAL, PRIOR TO CASTING.

FINISHED PLAQUES SHALL BE COATED WITH THREE (3) COATS OF CLEAR ACRYLIC AND MOUNTED WITH STAINLESS STEEL MOUNTINGS, COVERED BY BRONZE CAPS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF MOUNTINGS TO THE ENGINEER FOR APPROVAL.

THE CONTRACTOR SHALL COMPLY WITH CONSTRUCTION AND MATERIAL SPECIFICATION No. 106.

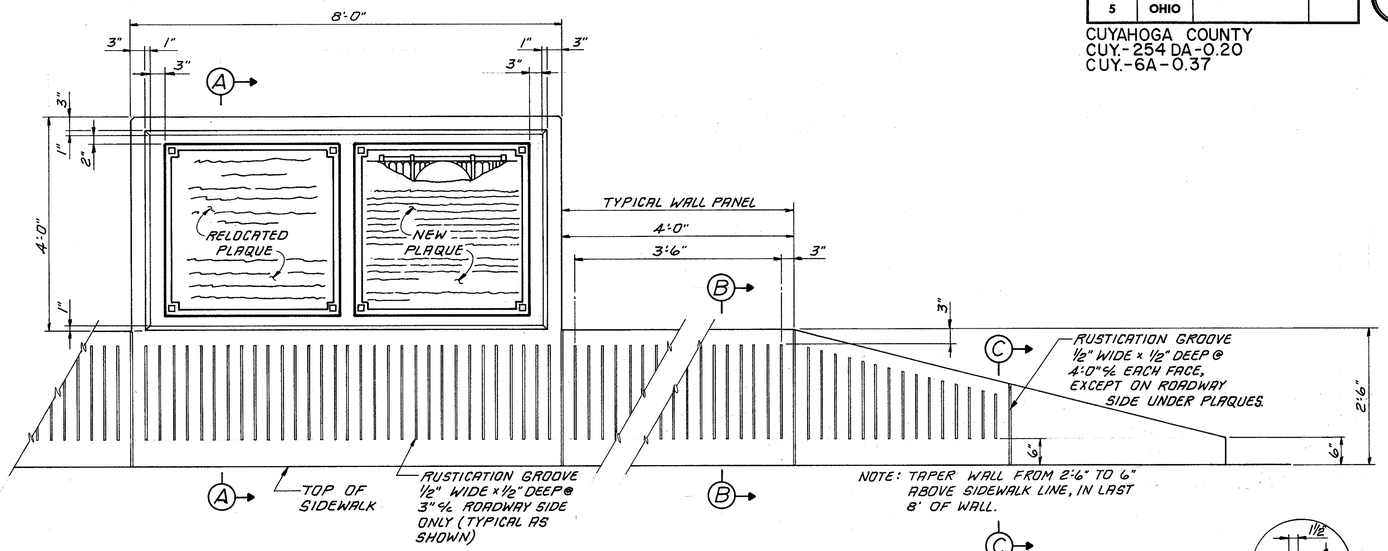
THE WORK INCLUDED IN THIS ITEM SHALL BE PAID AT THE CONTRACT UNIT BID PRICE FOR EACH, "ITEM SPECIAL - PROPOSED PLAQUE" WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR PROVIDING AND INSTALLING PLAQUE AS PER PLAN AND FOR FURNISHING OF ALL LABOR, EQUIPMENT, TOOLS MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

EXISTING PLAQUE NOTES:

THE EXISTING PLAQUES SHALL BE CAREFULLY REMOVED, REFURBISHED AND RELOCATED AS PER PLAN.

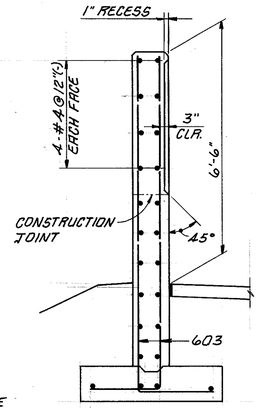
REFURBISHING OF THE EXISTING PLAQUES SHALL BE DONE BY SANDBLAST, OXIDIZE, SAND AND POLISH METHOD OR BY OTHER APPROVED METHOD TO RESTORE PLAQUES TO AS "LIKE NEW" CONDITION AS POSSIBLE.

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID AT THE CONTRACT UNIT BID PRICE FOR EACH, "ITEM SPECIAL - RELOCATE EXISTING PLAQUE" WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR REMOVING, REFURBISHING AND RELOCATING EXISTING PLAQUE AS PER PLAN AND FOR THE FURNISHING OF ALL LABOR, EQUIPMENT, TOOLS, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.



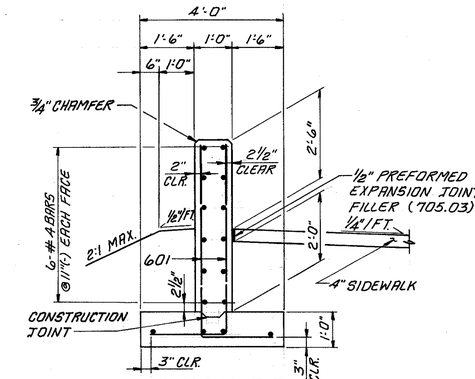
PARTIAL WALL ELEVATION

NORTHEAST AND NORTHWEST (OPPOSITE HAND) WALL SHOWN, SOUTHWEST AND SOUTHEAST (OPPOSITE HAND) WALL SIMILAR.

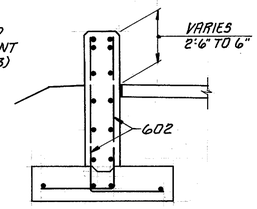


SECTION A-A

FOR DETAILS NOT SHOWN, SEE SECTION B-B, THIS SHEET.

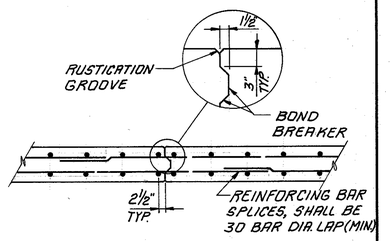


SECTION B-B

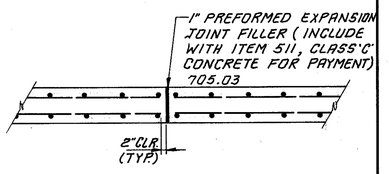


SECTION C-C

FOR DETAILS NOT SHOWN, SEE SECTION B-B, THIS SHEET.



CONTRACTION JOINT



EXPANSION JOINT

ESTIMATED QUANTITIES

ITEM	503	509	511	511	SPECIAL	SPECIAL
DESCRIPTION	EXCAVATION (UNCLASSIFIED)	REINFORCING STEEL	CONCRETE CLASS 'C' FOOTINGS	CONCRETE CLASS 'C', ABOVE FOOTINGS	PROPOSED PLAQUE 'AS PER PLAN'	RELOCATE EXISTING PLAQUE 'AS PER PLAN'
UNIT	CU. YD.	LBS.	CU. YD.	CU. YD.	EACH	EACH
ROCKY RIVER	195	9,053	39	48	1	1
LAKEWOOD	89	4,142	18	22	1	1

NOTE: FOR WALL ELEVATIONS, REINFORCING SCHEDULE AND ADDITIONAL NOTES, SEE SHEET 1 / 2

2 / 2

ADACHE ASSOCIATES INC., ENGINEERS
CEVELAND, OHIO 44130

CUY.-254DA-0.20
CUY.-6A-0.37

CONCRETE WALL DETAILS

RELOCATED DETROIT ROAD

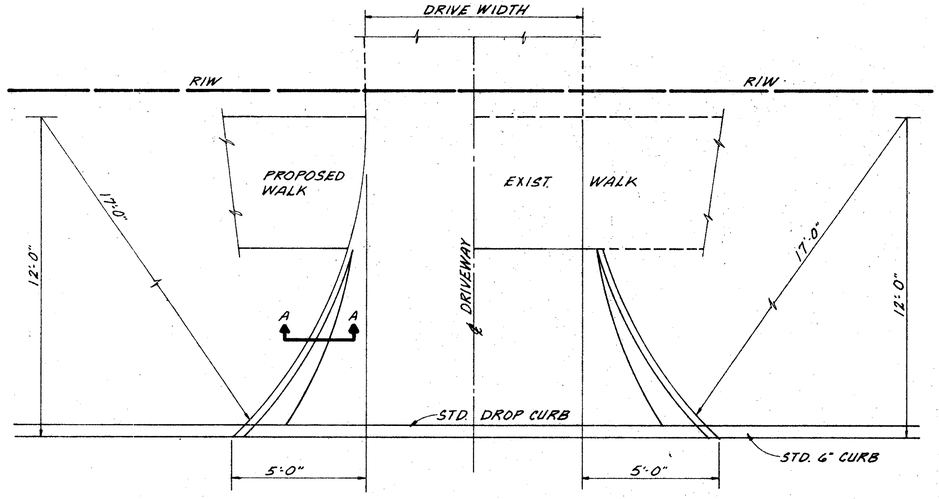
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	T.M.J.	R.W.H.			

DRIVEWAY APRON DETAILS

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

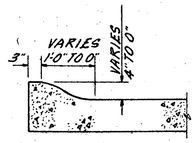
24
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

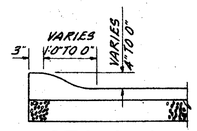


NORMAL DRIVEWAY

0 1 2 3 4 5 10
SCALE IN FEET



SEC. A-A
TYPE 452



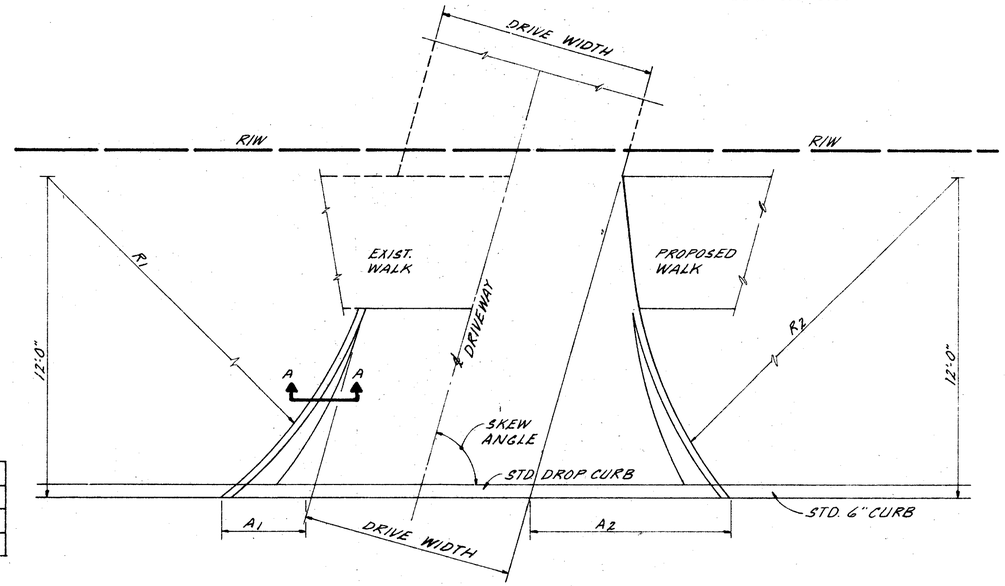
SEC. A-A
TYPE 404 ON 304A

SKEW ANGLE	A1	R1	A2	R2
80° - 90°	5'	17'	5'	17'
70° - 80°	3'	15'	8'	20'
60° - 70°	2'	14'	10'	22'

NOTES: WALK LOCATION IS INTERCHANGEABLE WITH EITHER SIDE OF DRIVE AS PER PLAN.

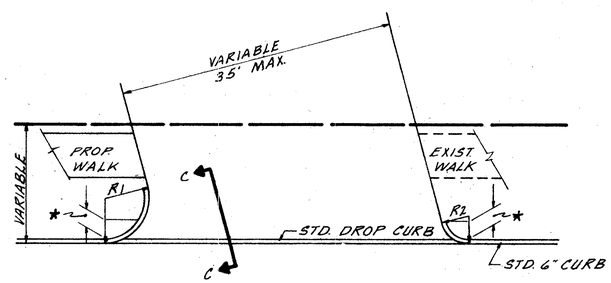
FOR DETAILS NOT SHOWN, SEE STD. DWG. BP-6.

ALL DRIVES SHALL BE PAVED WITH ONE OF THE FOLLOWING PAVEMENT TYPES:
COMMERCIAL DRIVES: 8"-452 OR 2"-404 ON 7"-304
RESIDENTIAL DRIVES: 7"-452 OR 2"-404 ON 5"-304



SKEWED DRIVEWAY

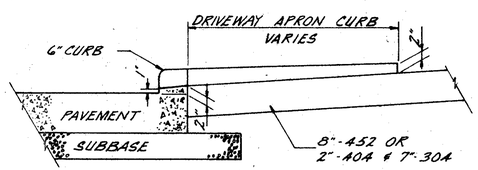
0 1 2 3 4 5 10
SCALE IN FEET



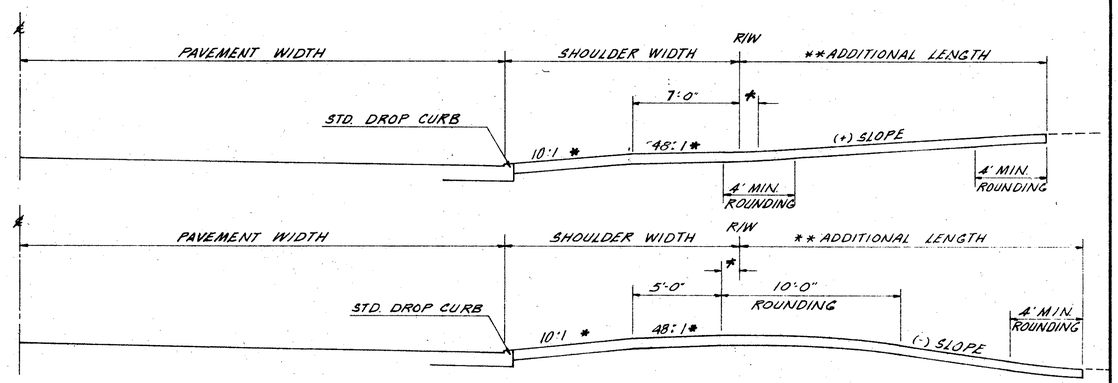
COMMERCIAL DRIVEWAY WITH RADIAL FLARES

0 1 2 3 4 5 10 20
SCALE IN FEET

NOTE: WHERE CURB EXISTS ALONG THE THROUGH PAVEMENT, THE EDGES OF THE APPROACH SHALL BE DELINEATED BY A SIMILAR CURB THROUGH THE ARC OF THE RADIUS.
R1 = 3' MIN. ; 5' MAX.
R2 = 3' MIN.
★ DENOTES 2' CONCRETE EAR.



SEC. C-C



TYPICAL DRIVEWAY PROFILE

NOTES: * THE GRADES SHOWN ARE FOR A NORMAL 14' SHOULDER WIDTH. THEY MAY BE VARIED, IF NECESSARY TO MEET THE EXISTING DRIVE WITHIN THE R/W, AS DIRECTED BY THE ENGINEER.
** REFER TO THE CROSS SECTION SHEETS FOR DRIVE WORK EXTENDING BEYOND THE R/W.
★ DIMENSION AS PER PLAN.

0 1 2 3 4 5 10
SCALE IN FEET

DRIVEWAY APRON DETAILS

SEEDING		ADACHE ASSOCIATES INC.
END WIDTH	SQ. YDS.	CALC. BY: D.J.N. DATE: 5-13-76 CHKD. BY: R.W.H. DATE: 6-8-76

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

25/91

CUYAHOGA COUNTY
CUY-254DA-0.20
CUY-6A-0.37

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
	9	24		
			14	38
	6	17		
			12	33
	7	19		
			19	18
STA. 10+00 BEGIN EARTHWORK	14	0		

50 40 30 20 10 0 10 20 30 40 50

670
665
660
665
670
665
670
665

FOR 660' SODDING SEE PAVEMENT DETAIL SHEET 19

T
MEET EX. 45' LT. ±
-7% ±
W.P. 35' LT. EL. 669.5 ±
EXIST R/W STA. 11+55 PROFILE OF DRIVE LEFT
SOD
R/W (EXIST.)
CROWN LINE
MEET EXISTING 31' RT. ± BK.
R/W
MEET EXIST. @ 12.0% AH.
BUILDING
END BUILDING STA. 11+95

BUILDING STA. 11+24 ± TO STA. 11+46 ±

669.40
STA. 11+50
669.15

SOD
SOD
MEET EXISTING 31' RT. ±
R/W
BUILDING
L 51

MEET EXIST. 46' LT. ±
-10% ±
W.P. 35' LT. EL. 671.1 ±
670
R/W
STA. 10+73 PROFILE OF DRIVE LEFT

670.40
STA. 11+00
670.19

EXISTING R/W
SOD
CROWN LINE
MEET EXISTING 31' RT. ±
EXIST. R/W
BUILDING
L 19
L 21

671.29
STA. 10+50
671.20

BUILDING STA. 9+62 ± TO STA. 10+35 ±
EXISTING R/W
MEET EXIST. WALK 31' LT. TO STA. 10+33
CROWN LINE
MEET EXISTING 35' RT. ±
EXIST. R/W
BUILDING

672.18
BEGIN WORK
STA. 10+00
672.18
MEET EXISTING

CROSS SECTIONS STA. 10+00 TO STA. 11+50

RELOC. DETROIT ROAD

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

26 / 91

CUYHOGA COUNTY
CUY-254DA-0.20
CUY-6A-0.37

SEEDING	
END WIDTH	SQ. YDS.

ADACHE ASSOCIATES INC.
CALC. BY: D.J.N. DATE: 5-13-76
CHKD. BY: R.W.H. DATE: 6-8-76

70 60 50 40 30 20 10 0 10 20 30 40 50 60
FOR 660 SODDING SEE PAVEMENT DETAIL SHEET 19
R/W
SOD
CROWN LINE
665
660
664.85
STA. 14+00
664.80
665.0
MEET EXISTING 53' RT.
T
665.00
MEET EXIST. 56' LT.±
W.P. 46' LT. ELEV. 666.2±
-10%±
670
STA. 13+21 PROFILE OF DRIVE LEFT
665.51
STA. 13+50
665.19
665.75
W.P. 41' LT. EL. 667.0±
-5.0%
STA. 12+78 PROFILE OF DRIVE LEFT
666.40
STA. 13+00
666.34
BUILDING STA. 12+08 TO STA. 12+52
STA. 12+40, 32' LT. CURB # 666.98
STA. 12+42, 21' LT.
10 @ 1.0% 15" COND. TYPE C
8' @ 1.50% 15" COND. TYPE B
8" W
CONNECT EXIST. 15" @ ELEV. 663.1±
15" # 663.00
15" # 662.88
E.W. EX. 15" # 660.87
E. EX. 15" # 662.87
STA. 12+40 PIPE PROFILE
10 D-6
667.00
667.40
STA. 12+50
667.44
+1.5%±
STA. 12+28 PROFILE OF DRIVE RIGHT
-10%±
STA. 11+98 PROFILE OF DRIVE LEFT
W.P. 46' RT. EL. 667.4
668.40
STA. 12+00
668.22

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
43	85			
		85	127	
49	52			
		100	68	
		(10)		STA. 13+21 FOR DRIVE LT.
59	21			
		93	32	
		(10)		STA. 12+78 FOR DRIVE LT.
41	14			
		61	25	
		(15)		STA. 12+28 FOR DRIVE RT.
25	13			
		31	34	
9	24			STA 11+50

RELOC. DETROIT ROAD

CROSS SECTIONS STA. 12+00 TO STA. 14+00

SEEDING		ADACHE ASSOCIATES INC.
END WIDTH	SQ. YDS.	CALC: D.J.N. DATE: 5-13-76
		CHKD: R.W.H. DATE: 6-8-76

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

27
91

CUYAHOGA COUNTY
CUY-254DA-0.20
CUY-6A-0.37

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

LT. PARCEL BWD-1 BETWEEN WALKS .5X.15X.75X1/9 = 42 SY.
LT. PARCEL 9T-1 (1867 @ +21.73)1X1/9 = 224 SY.
LT. PARCEL 10T-1 (1922 @ +43.73+51)1X1/9 = 240 SY.
LT. PARCEL 11T-1 (1293 @ +31.63.)1X1/9 = 498 SY.

RT. AREA OF W. 192 ND ST. 45X100 X1/9 = 500 SY.
RT. PARCEL 8T-1 (1019 @ + 21.32.)1X1/9 = 125 SY.
RT. PARCEL 9T-2 (1650 @ + 21.74.0)1X1/9 = 200 SY.
RT. PARCEL 10T-2 (1280 @ + 21.43.)1X1/9 = 152 SY.
RT. PARCEL 11T-2 (1283 @ + 21.43.)1X1/9 = 64 SY.

R/W
EX. R/W & T.
130'± LT. LIMIT 659 SEEDING
SOD
BUILDING DEMOLITION
GRADE AFTER DEM.
LIMITS OF STRUCTURE EXCAVATION
657.70
CROWN LINE
664.84
STA. 16+50
668.00
STA. 16+25 BEGIN CONCRETE WALL
R/W
SOD
LIMIT 659 SEEDING 82' RT.
T
A:1
BLDG. DEM.
LIMIT 659 SEEDING
GRADE AFTER DEM.
EX. R/W & T
100'± LT. LIMIT 659 SEEDING
MEET EXIST. 50' LEFT
2.0%
STA. 16+05 LEFT
COMMERCIAL DRIVE
664.48
STA. 16+00
667.85
EX. R/W & T
LIMIT 659 SEEDING
BUILDING DEMOLITION
GRADE AFTER DEM.
4:1
664.23
STA. 15+50
667.43
SOD
LIMIT 659 SEEDING
EXIST. R/W
MH STD #1 STA 15+08.5 71' LT. T/C EL. 661.8±
CB STD #3 STA 15+20.1 32' LT. T/G EL. 663.72
CB STD #3 STA 15+20.1 32' RT. T/G EL. 663.53
T AH. R/W W. 192 ND ST. BK
LIMIT 659 SEEDING AHEAD
4" G
40' @ 1.00% 15" CONDUIT TYPE B
64' @ .80% 15" CONDUIT TYPE B
8" W
664.21
STA. 15+00
662.42
STA. 14+75 BEGIN 659 SEEDING PARCEL BWD-1
STA 15+08 - STA 15+20 PIPE PROFILE
11/D-9
15" E 636.91
EX. 18" E 636.00
15" E 657.31
12" E 657.56
15" E 657.84
CROWN LINE
LIMIT 659 SEEDING RT. TO R/W W. 192 ND. ST.
500
STA. 14+30 BEGIN 659 SEEDING
664.42
STA. 14+50
663.80
STA. 14+00
110 100 90 80 70

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	204	96		
			535	89
	374	0		
			724	0
	408	0		
			484	45
	115	49		
			124	110
R/W				
	19	70		
			57	144
	43	85		

RELOC. DETROIT ROAD

CROSS SECTIONS STA. 14+50 TO STA. 16+50

SEEDING		ADACHE ASSOCIATES INC.
END WIDTH	SQ. YDS.	CALC BY: D.J.N. DATE: 5-13-76
		CHKD BY: R.W.H. DATE: 6-8-76

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

28
91

CUYAHOGA COUNTY
CUY-254DA-0.20
CUY-6A-0.37

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

RT. SIDE PARCEL 87-2 & 85 10615+95+2(123.2+30.2+26.2+24.2+42.4)1:1/9=1245 S.Y.

PARCEL 15T [1166+2(+374+18.8+30)]1:1/9 = 143 S.Y.

R/W 83' LT. LIMIT 659 SEEDING — SOD — CROWN LINE 0.53' — WOOSTER RD. AH. — R/W 4:1 NOR.

4:1 NOR. — MATCH LINE LAKE RD. AH. — MATCH LINE WOOSTER RD. AH.

LIMIT 659 SEEDING 100' RT.

666.64
STA. 19+00
665.41

STA. 18+76. END CONCRETE WALL

STA. 18+70± END ASPHALT CONCRETE REPLACEMENT & RESUME SEEDING

MEET EXISTING 55' LT. WITH BUTT JOINT TYP.

BUILDING — CROWN LINE 4.79' — BUILDING — SOD — R/W 4:1 4:1

GRADE AFTER DEMOLITION — FILL INCLUDED WITH BUILDING DEM.

658.91

666.0

LIMIT 659 SEEDING 76' RT.

666.28
STA. 18+50
663.79

CROWN LINE 6' — R/W 4:1 4:1

MEET EXISTING 55' LT.

658.91

665.5

ADD FOR ASPH. CONC. REPLACEMENT 180×5.5×.067×1/27 =

665.92
STA. 18+00
663.88

12/D-6

STA. 17+50, 32' LT. CURB Æ 664.89

STA. 17+50, 32' RT. CURB Æ 664.89

STA. 17+30, 50' RT. T/G EL 665.00

LIMIT 659 SEEDING 87' RT.

R/W 4:1 4:1

MEET EXISTING 55' LT.

658.30

66' @ 0.80% 12" COND. TYPE B — 18' @ 1.00% 12" COND. TYPE C

665.56
STA. 17+50
664.36

PIPE PROFILE

17/D-7 — 12/D-8

12" Æ 659.19 — 12" Æ 659.25 15" Æ 659.00 — 12" Æ 659.43

CROWN LINE — SOD — SOD — LIMIT 659 SEEDING

BUILDING — MEET EXISTING 55' LT. — R/W 4:1

LIMITS OF STRUCTURE EXCAVATION TYPICAL

657.70

665.20
STA. 17+00
663.90

STA. 16+90±
BEGIN ASPHALT CONCRETE REPLACEMENT & SUSPEND SEEDING

STA. 16+50

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
AH	37	41		
BK	55	44		
			108	173
			62	143
			120	248
			68	125
			(25)	
			150	167
			94	55
			116	132
			31	88
			218	170
	204	96		

RELOC. DETROIT ROAD

CROSS SECTIONS STA. 17+00 TO STA. 19+00

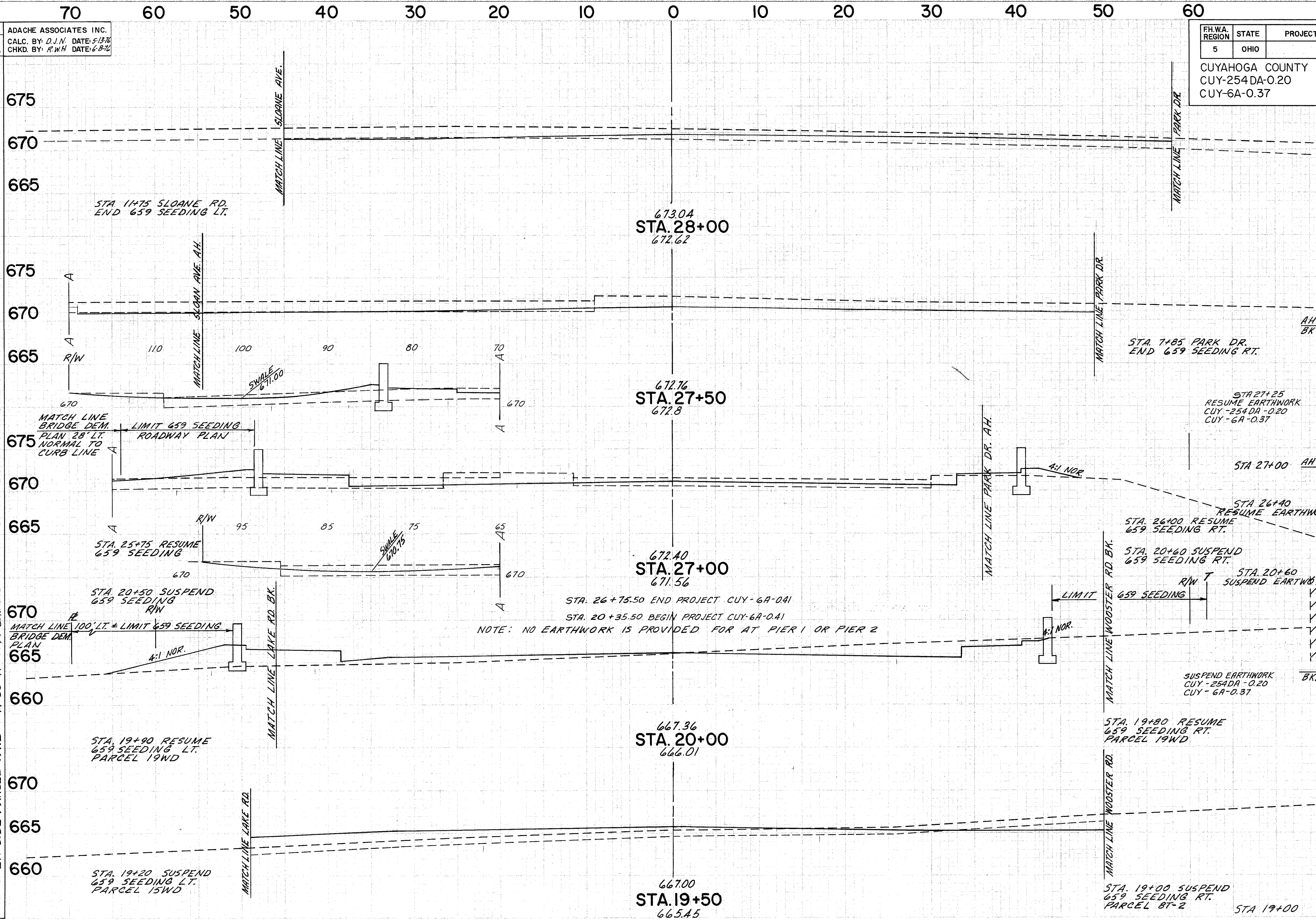
F.H.W.A. REGION	STATE	PROJECT		29/91
5	OHIO			

CUYAHOGA COUNTY
CUY-254 DA-0.20
CUY-6A-0.37

ADACHE ASSOCIATES INC.
CALC. BY: D.J.N. DATE: 5-13-76
CHKD. BY: R.W.H. DATE: 6-8-76

SEEDING	
END WIDTH	SQ. YDS.
180 × 25 × 1/9 = 500 S.Y.	145 × 17 × 1/9 = 274 S.Y.
LT. SIDE PARCEL 19WD - 17×50×1/9 = 94 S.Y.	

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
STA. 28+00	4	46		
			65	47
STA. 27+50 AH	66	5		
STA. 27+50 BK	74	48		
			57	52
STA 27+25	50	65		
STA 27+00 AH	29	81		
STA 27+00 BK.	38	33		
			44	129
STA. 20+00	10	106		
			44	136
STA 19+50	37	41		



70 60 50 40 30 20 10 0 10 20 30 40 50 60
675 670 665 660
MATCH LINE SLOANE AVE.
MATCH LINE PARK DR.
STA. 11+75 SLOANE RD. END 659 SEEDING LT.
673.04
STA. 28+00
672.62
MATCH LINE SLOAN AVE. AH.
MATCH LINE PARK DR.
STA. 7+85 PARK DR. END 659 SEEDING RT.
R/W
110 100 90 80 70
SWALE 671.00
670
672.76
STA. 27+50
672.8
STA 27+25 RESUME EARTHWORK CUY-254DA-0.20 CUY-6A-0.37
MATCH LINE BRIDGE DEM. PLAN 28' LT. NORMAL TO CURB LINE
LIMIT 659 SEEDING ROADWAY PLAN
MATCH LINE PARK DR. AH.
4:1 NOR.
STA 27+00
STA 26+40 RESUME EARTHWORK
STA. 26+00 RESUME 659 SEEDING RT.
R/W
95 85 75 65
SWALE 670.75
STA. 25+75 RESUME 659 SEEDING
670
672.40
STA. 27+00
671.56
STA. 20+60 SUSPEND 659 SEEDING RT.
STA. 20+60 SUSPEND EARTWORK
R/W
STA. 26+75.50 END PROJECT CUY-6A-0.41
STA. 20+35.50 BEGIN PROJECT CUY-6A-0.41
NOTE: NO EARTHWORK IS PROVIDED FOR AT PIER 1 OR PIER 2
STA. 20+50 SUSPEND 659 SEEDING
R/W
MATCH LINE BRIDGE DEM. PLAN
℄ 100' LT. ± LIMIT 659 SEEDING
4:1 NOR.
MATCH LINE LAKE RD. BK.
LIMIT 659 SEEDING
4:1 NOR.
MATCH LINE WOOSTER RD. BK.
SUSPEND EARTHWORK CUY-254DA-0.20 CUY-6A-0.37
667.36
STA. 20+00
666.01
STA. 19+90 RESUME 659 SEEDING LT. PARCEL 19WD
STA. 19+80 RESUME 659 SEEDING RT. PARCEL 19WD
MATCH LINE LAKE RD.
MATCH LINE WOOSTER RD.
STA. 19+20 SUSPEND 659 SEEDING LT. PARCEL 15WD
667.00
STA. 19+50
665.45
STA. 19+00 SUSPEND 659 SEEDING RT. PARCEL 8T-2

RELOC. DETROIT ROAD

CROSS SECTIONS STA. 19+50, STA. 20+00 & STA. 27+00 TO STA. 28+00

SEEDING		ADACHE ASSOCIATES INC.
END WIDTH	SQ. YDS.	CALC. BY: D.J.N. DATE: 5-13-76 CHKD. BY: R.W.H DATE: 6-8-76

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

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91

CUYAHOGA COUNTY
CUY-254DA-0.20
CUY-6A-0.37

660 SODDING

SEE PAVEMENT DETAIL SHEET # 21

NO 659 SEEDING OR 660 SODDING

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

675
670

EXIST. R/W
SOD
MEET EXIST. @ R/W

672.45
END WORK STA. 30+32.97 MEET EXISTING
672.45

675
670

EXIST. R/W
SOD
MEET EXIST @ R/W

672.65
STA. 30+00
672.55

675
670

EXIST. R/W
MEET EXIST @ R/W
EL. 673.1±

675
670
20 30 40

EXIST. R/W
MEET EXIST. @ R/W
STA 29+68 PROFILE OF COMM. DR. RT.

675
670

EXIST. R/W
CONC. PAVEMENT

672.96
STA. 29+50
672.56

R/W
MEET EXIST. @ R/W
EL. 673.0±

675
670
50 40 30 20

STA. 29+40 PROFILE OF COMM. DR. LT.

R/W
MEET EXIST @ R/W
EL. 673.3±
STA 29+40
FOR DRIVE LT.

675
670
20 30 40

R/W
MEET EXISTING
41 RT.
T
CONC. PAVEMENT
STA 29+18 PROFILE OF COMM. DR. RT.
STA 29+18
FOR DRIVE RT.

675
670

EXIST. R/W

673.14
STA. 29+00
673.02

675
670

EXIST. R/W
FULL SECTION AHEAD
MATCH LINE
SLOANE AVE. BACK

R/W
SOD
MEET EXISTING
43 RT.
T

673.17
STA. 28+50
672.82

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
STA. 30+32.97 END EARTHWORK	8	6		
			10	9
	8	9		
STA 29+68 PROFILE OF COMM. DR. RT.			21	19
STA 29+68 FOR DRIVE RT.			(7)	
CONC. PAVEMENT	15	12		
STA 29+40 FOR DRIVE LT.			(6)	
			32	16
STA 29+18 PROFILE OF COMM. DR. RT.				
STA 29+18 FOR DRIVE RT.			(8)	
CONC. PAVEMENT	20	5		
			52	22
AH.	36	19		
BK.	33	15		
			34	56
STA. 28+00	4	46		

RELOC. DETROIT ROAD

CROSS SECTIONS STA. 28+50 TO STA. 30+32.69

SEEDING		ADACHE ASSOCIATES INC.
END WIDTH	SQ. YDS.	CALC. BY: D.J.N. DATE: 5-13-76 CHKD BY: R.W.H. DATE: 6-8-76

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

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91

CUYAHOGA COUNTY
CUY-254 DA-0.20
CUY-6A-0.37

END AREA		VOLUME	
CUT	FILL	CUT	FILL
95	0		
		89	15
3	16		
		12	19
10	4		

50 40 30 20 10 0 10 20 30 40 50

675
670
665

LIMIT 659 SEEDING
INCLUDED WITH RELOC. DETROIT RD.
R/W
SOD
R/W
668.34
MEET EXISTING 33'± RT.

STA. 8+96 PROFILE OF DRIVE RT.

668.65
STA. 9+00
669.12

T
LIMIT 659 SEEDING
INCLUDED WITH RELOC. DETROIT RD
R/W
R/W

670.82
STA. 8+50
670.83

R/W
671.71
R/W
MEET EXISTING 30'± RT.

STA. 8+12 PROFILE OF DRIVE RT.

R/W
SOD
SOD
R/W

STA. 8+00
BEGIN 659 SEEDING

672.35
BEGIN WORK STA. 8+00 MEET EXISTING
672.33

R/W

STA. 7+50
673.54

STA. 7+00
674.38

STA. 8+00
BEGIN EARTHWORK

LT. SIDE 659 SEEDING INCLUDED WITH DETROIT RD.
RT. SIDE SEE PAVEMENT DETAILS FOR 660 SODDING

WOOSTER ROAD

CROSS SECTIONS STA. 7+00 TO STA. 9+00

SEEDING		ADACHE ASSOCIATES INC.
END WIDTH	SQ. YDS.	CALC. BY: D.J.N. DATE: 5-13-76
		CHKD. BY: R.W.H DATE: 6-8-76

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

32/91

CUYAHOGA COUNTY
CUY-254DA-0.20
CUY-6A-0.37

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
STA. 11+40 ± LAKE RD. END 659 SEEDING	16	24		
			16	113
STA. 11+05 BEGIN EXISTING WALL SEE SHT. 37				
STA. 11+00 BEGIN 659 SEEDING	1	98		
			1	215
	0	134		
	127	0		
			206	0
STA. 9+00	95	0		

40'x10'x 1/9 = 44 S.Y.
160'x15'x 1/9 = 267 S.Y.

LT. SIDE
RT. SIDE

50 40 30 20 10 0 10 20 30 40 50

660 655 650 665 660 655 665 660 670 665 660 670 665 660

MEET EXIST. 40¢ L.T.
7%±
W.P. 34' L.T. ELEV. 661.0±
660.25
SOD
LIMIT 659 SEEDING
4:1
MATCH LINE BRIDGE DEMOLITION

660.56
STA. 11+50
660.21

STA. 11+40 ± LAKE RD. END 659 SEEDING

STA 11+55 PROFILE OF DRIVE LT.

R/W
T
LIMIT 659 SEEDING
PARCEL 11T-3 SOUTH OF D.R.
SOD
4:1
C.B. STD #3A STA. 11+05. 20' LT. T/G EL. 662.33

STA. 11+05 BEGIN EXISTING WALL SEE SHT. 37

STA 11+20
R/W
LIMIT 659 SEEDING
SOD
2:1
660
660

STA. 10+90 BEGIN 659 SEEDING LT.

STD. MC-4
5@ 2.00%
12" COND.
EXIST. 18" ST.
TYPE B
12" ℄ 657.0±

STA. 11+00 BEGIN 659 SEEDING

R/W
80'± LT. LIMIT 659 SEEDING INCLUDED WITH RELOC. DETROIT RD.
SOD
12" ℄ 657.10
STA. 11+05 PIPE PROFILE (17/D-5)

663.06
STA. 11+00
661.80

4:1
MATCH LINE RELOC. DETROIT RD.

663.56
STA. 10+50 RESUME EARTHWORK
663.76

MATCH LINE RELOC. DETROIT RD.
MATCH LINE RELOC. DETROIT RD.

STA. 10+00
665.75

MATCH LINE RELOC. DETROIT RD.
SOD

666.48
STA. 9+50 SUSPEND EARTHWORK
667.47

WOOSTER ROAD & LAKE ROAD

CROSS SECTIONS STA. 9+50 TO STA. 11+50

SEEDING		ADACHE ASSOCIATES INC.
END WIDTH	SQ. YDS.	CALC. BY: D.J.N DATE: 5-18-74 CHKD. BY: R.W.H. DATE: 6-8-74

F.H.W.A. REGION	STATE	PROJECT		33 / 91
5	OHIO			

CUYAHOGA COUNTY
CUY-254 DA-0.20
CUY-6A-0.37

50 40 30 20 10 0 10 20 30 40 50

655
650
645

STA. 14+00
650.73

655
650
645

R/W

STA. 13+50
652.71

BLDG.

SOD R/W SOD T

655
650
645

STA. 13+00
END EARTHWORK

STA. 12+93±
END EXIST. WALL
655 SEE SHT. 37 655

654.50
END WORK STA. 13+00 MEET EXISTING
654.51

R/W

BLDG.

R/W T

660
655
650

STA. 12+24.34 END 659 SEEDING
BEGIN 660 SODDING INCLUDED ON SHT. 20

STA. 12+24.34
END 659 SEEDING

R/W

656.28
STA. 12+50
656.33

STA. 12+24.34
END NEW WALL

BLDG.

SOD LIMIT 659 SEEDING MATCH LINE BRIDGE DEMO.
R/W 80' RT.

REMOVE EXISTING WALL, SIDEWALK, CONC. CURB & 1.5'x1.5'x1.5' ANCHOR BLOCKS @ 7' C-C. SEE SHT. 37

MATCH LINE BRIDGE DEMOLITION

660
655
650

658.24
STA. 12+00
658.21

STA. 11+50

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
STA. 13+00 END EARTHWORK	13	1		
			32	4
STA. 12+24.34 END 659 SEEDING BEGIN 660 SODDING INCLUDED ON SHT. 20	22	3		
			41	8
STA. 12+24.34 END NEW WALL	22	6		
			35	28
STA. 11+50	16	24		

LAKE ROAD

CROSS SECTIONS STA. 12+00 TO STA. 14+00

SEEDING		ADACHE ASSOCIATES INC.
END WIDTH	SQ. YDS.	CALC. BY: D.J.N. DATE: 5-13-76 CHKD. BY: R.W.H. DATE: 6-8-76

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

34
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

LT. SIDE 659 SEEDING INCLUDED WITH RELOC. DETROIT RD. AREA

RT. SIDE FOR 660 SODDING SEE PAVEMENT DETAIL SHT. 21

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

675
670
665
670
665
670
665
665
660

MATCH LINE RELOC. DETROIT RD.

R/W
MEET EXIST. 44.5' RT.
CONC. PAVT.

STA. 9+47.01
SUSPEND EARTHWORK

STA. 9+47.01 SUSPEND EARTHWORK
671.68

T — LIMIT 659 SEEDING — ℄ — SOD — R/W — BLDG.

670.98
STA. 9+00
670.56

T — LIMIT 659 SEEDING — ℄ — SOD — R/W — BLDG.

669.28
STA. 8+50
669.00

T — LIMIT 659 SEEDING — SOD — R/W — BLDG.

667.28
STA. 8+00
667.14

T — LIMIT 659 SEEDING — SOD — R/W

STA. 7+85.56
BEGIN SEEDING

STA. 7+85.56
BEGIN EARTHWORK

666.70
BEGIN WORK STA. 7+85.56 MEET EXISTING
666.52

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
	29	41		
			31	68
	5	37		
			6	53
	1	22		
			2	25
	1	5		
			1	3
	2	8		

PARK DRIVE

CROSS SECTIONS STA. 7+85.56 TO STA. 9+47.01

SEEDING		ADACHE ASSOCIATES INC.
END WIDTH	SQ. YDS.	CALC. BY: D.J.N. DATE: 5-13-76 CHKD. BY: R.W.H. DATE: 6-8-76

LT. SIDE 659 SEEDING INCLUDED WITH RELOC. DETROIT RD. AREA

RT. SIDE NO 659 SEEDING

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

35
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

50 40 30 20 10 0 10 20 30 40 50

675
670
670
665
670
665
675
670
675
670

R/W

STA. 12+00
671.03

R/W
EXIST. CONC. WALL
BUILDING

STA. 11+75.76
END EARTHWORK

671.32
END WORK
STA. 11+75.76
671.26
MEET EXISTING

R/W
EXIST. CONC. WALL
BUILDING

671.46
STA. 11+50
671.38

MATCH LINE RELOC. DETROIT RD.

STA 11+14.20 RT. EXIST. MH. ADJ. TO GRADE 671.44

R/W

6"W
19' @ 7.00% 6" COND. TYPE B
24"W
66.60
671.76
STA. 11+00
671.98
30' @ 1.00% 6" COND. TYPE B
12' @ 4.25% 6" COND. TYPE B
TELE. DUCTS

STA 11+14 PIPE PROFILE
18 / D-3
18 / D-4

6"TEE @ 666.91
6"E 665.30
N. 12"E 663.31
E 662.21
N.S.
6"E 665.25
6"TEE @ 665.76

MATCH LINE RELOC. DETROIT RD.

STA. 10+50
RESUME EARTHWORK

672.27
STA. 10+50
672.50
RESUME EARTHWORK

MATCH LINE RELOC. DETROIT RD.

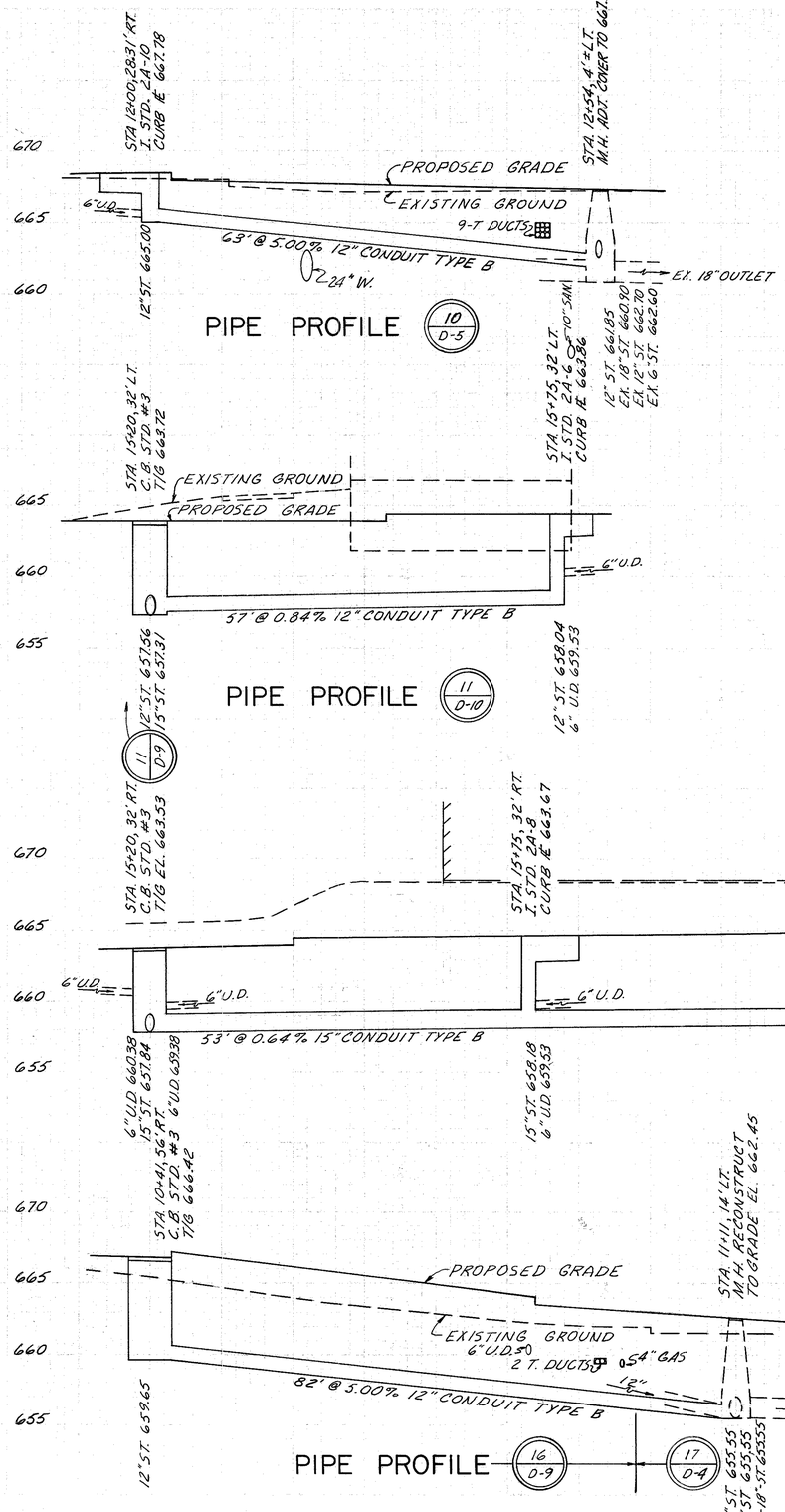
END AREA		VOLUME	
CUT	FILL	CUT	FILL
12	2		
		10	4
8	7		
		21	34
15	30		
		31	28
18	0		

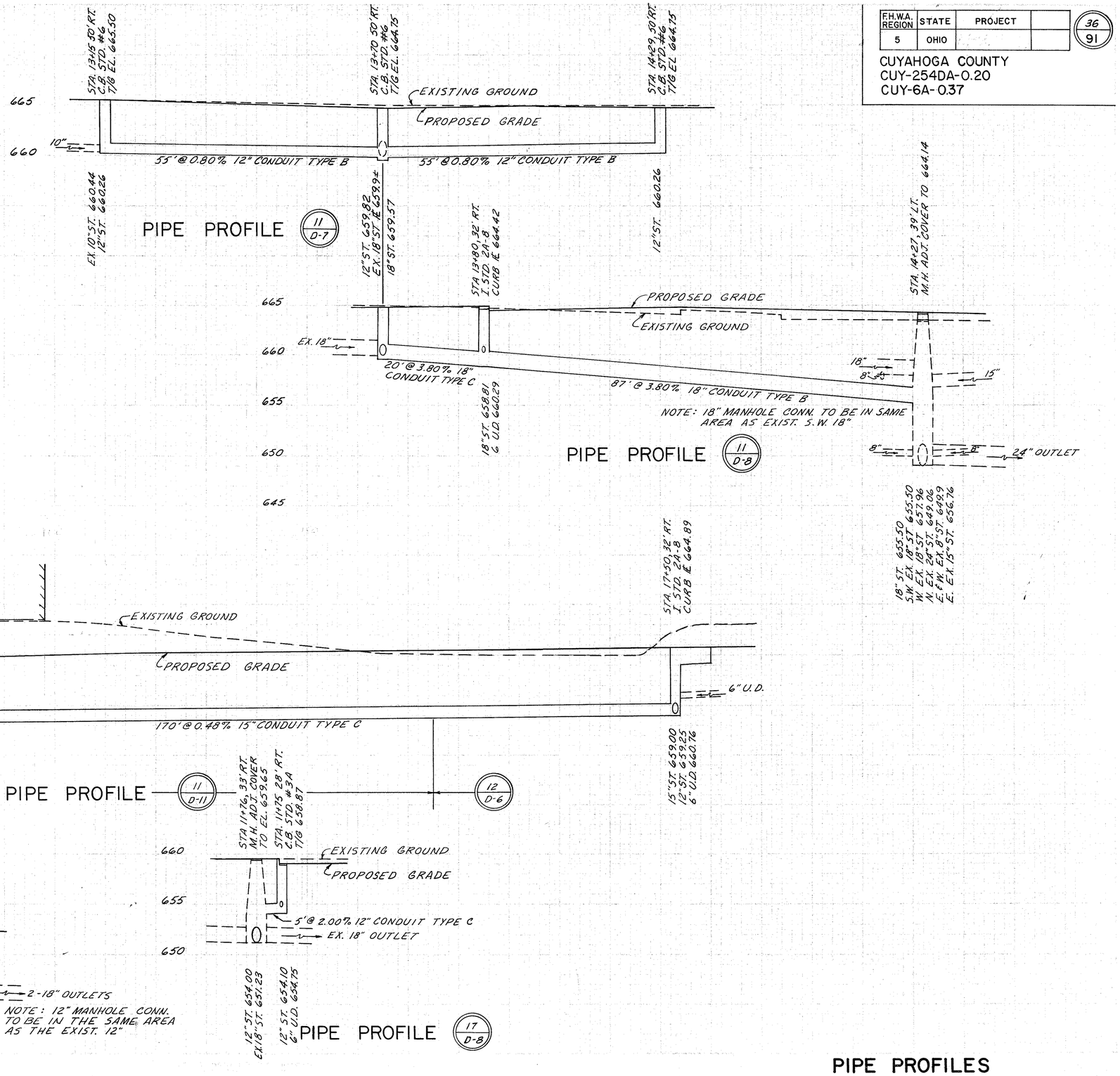
SLOANE AVENUE

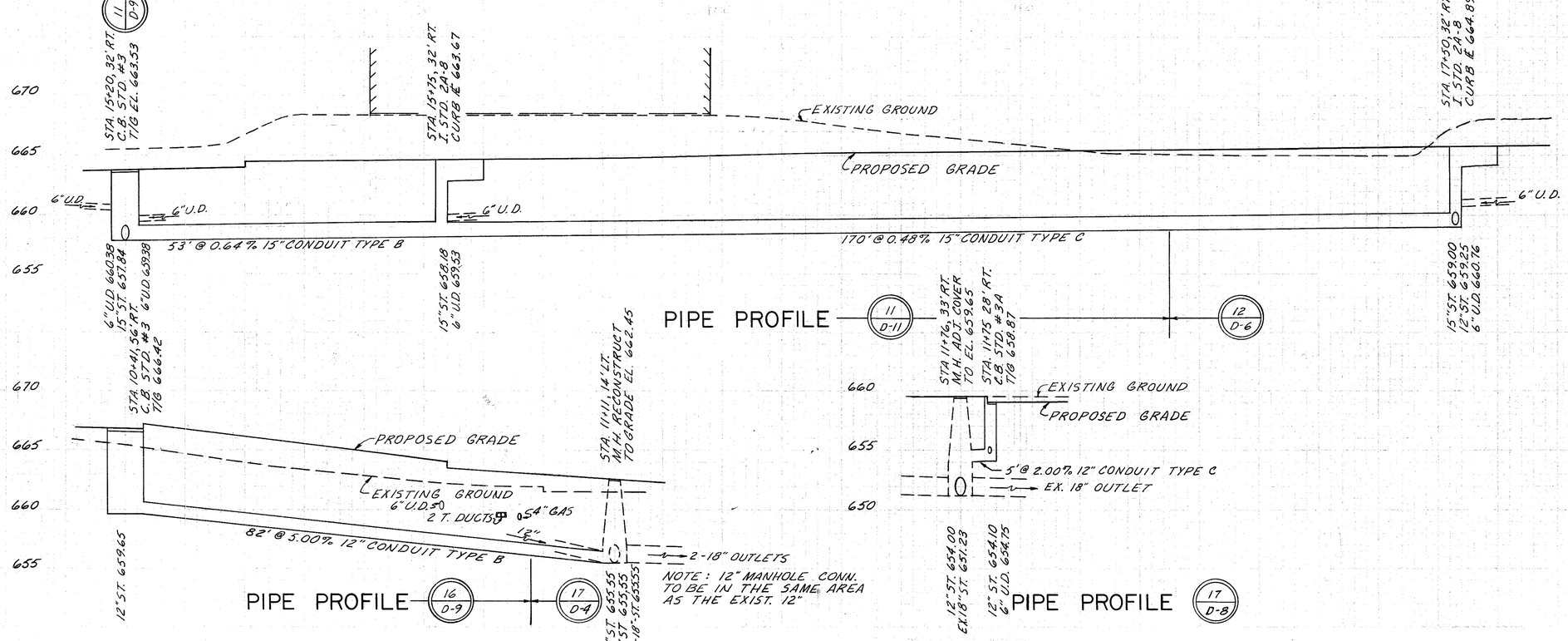
CROSS SECTIONS STA.10+50 TO STA. 12+00

F.H.W.A. REGION	STATE	PROJECT		36 / 91
5	OHIO			

CUYAHOGA COUNTY
CUY-254DA-0.20
CUY-6A-0.37







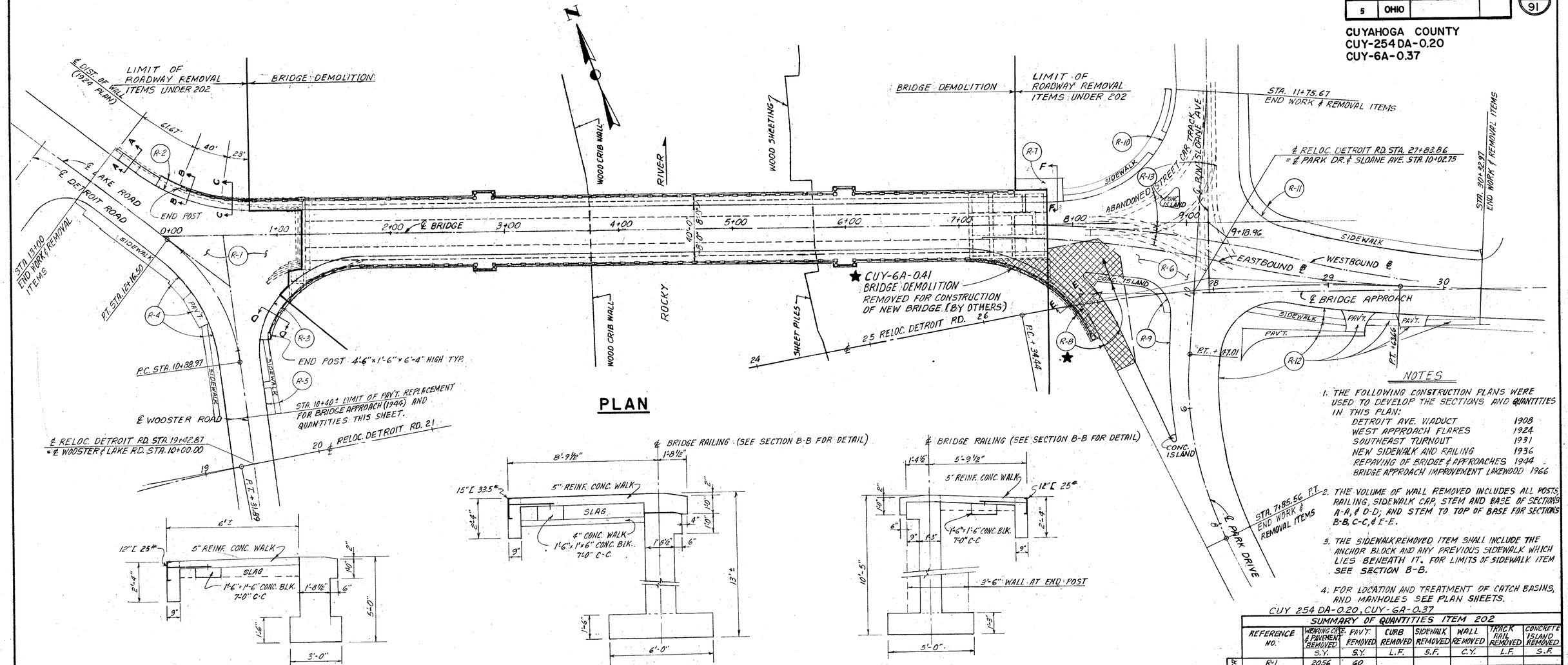
PIPE PROFILES

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

37
91

CUYAHOGA COUNTY
CUY-254 DA-0.20
CUY-6A-0.37

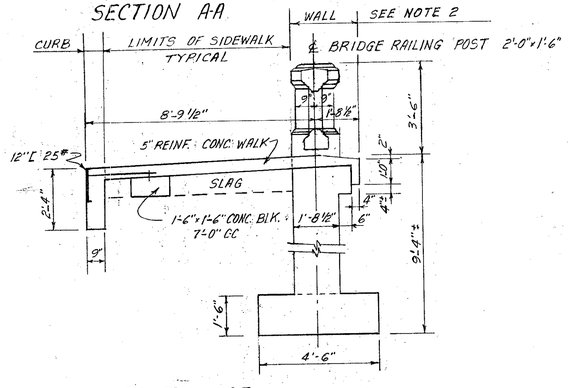
PLAN



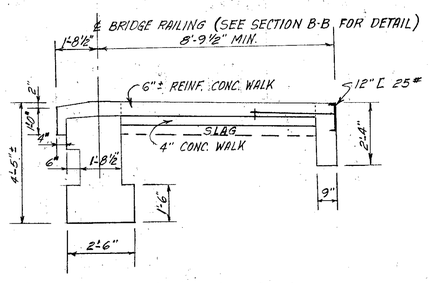
SECTION A-A

SECTION C-C

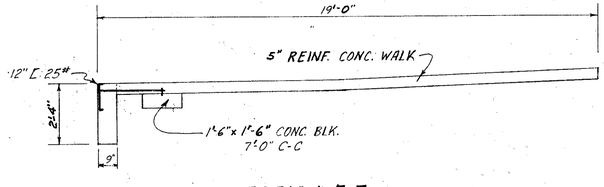
SECTION E-E



SECTION B-B



SECTION D-D



SECTION F-F

NOTES

1. THE FOLLOWING CONSTRUCTION PLANS WERE USED TO DEVELOP THE SECTIONS AND QUANTITIES IN THIS PLAN:

DETROIT AVE. VIADUCT	1908
WEST APPROACH FLARES	1924
SOUTHEAST TURNOUT	1931
NEW SIDEWALK AND RAILING	1936
REPAVING OF BRIDGE & APPROACHES	1944
BRIDGE APPROACH IMPROVEMENT LAKEWOOD	1966

2. THE VOLUME OF WALL REMOVED INCLUDES ALL POSTS, RAILING, SIDEWALK CAP, STEM AND BASE OF SECTIONS A-A, & D-D; AND STEM TO TOP OF BASE FOR SECTIONS B-B, C-C, & E-E.

3. THE SIDEWALK REMOVED ITEM SHALL INCLUDE THE ANCHOR BLOCK AND ANY PREVIOUS SIDEWALK WHICH LIES BENEATH IT. FOR LIMITS OF SIDEWALK ITEM SEE SECTION B-B.

4. FOR LOCATION AND TREATMENT OF CATCH BASINS, AND MANHOLES SEE PLAN SHEETS.

CUY 254 DA-0.20, CUY-6A-0.37

SUMMARY OF QUANTITIES ITEM 202

	REFERENCE NO.	WEARING CRSE. & PAVEMENT REMOVED S.Y.	PAV'T. REMOVED S.Y.	CURB REMOVED L.F.	SIDEWALK REMOVED S.F.	WALL REMOVED C.Y.	TRACK RAIL REMOVED L.F.	CONCRETE ISLAND REMOVED S.F.
ROCKY RIVER	R-1	2056	60					
	R-2			128	960	53		
	R-3			47	340	19		
	R-4		30	250	1525			
	R-5			65	350			
	TOTAL	2056	90	490	3175	72		
LAKEWOOD	R-6	8865						
	R-7			14	450			
	R-9			245				355
	R-10			150	810			
	R-11			310	1935			
	R-12		145	405	810			
	R-13						1660	170
	TOTAL	8865	145	1124 *	4005 *		1660 *	525 *

* ITEMS CARRIED TO GENERAL SUMMARY

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

EXISTING
DETROIT-ROCKY RIVER BRIDGE
ROADWAY REMOVAL ITEMS
AT BRIDGE APPROACHES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	R.W.H.				

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

38
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

ROADWAY REMOVAL — LIMIT OF BRIDGE DEMOLITION UNDER ITEM 202 (LUMP SUM)

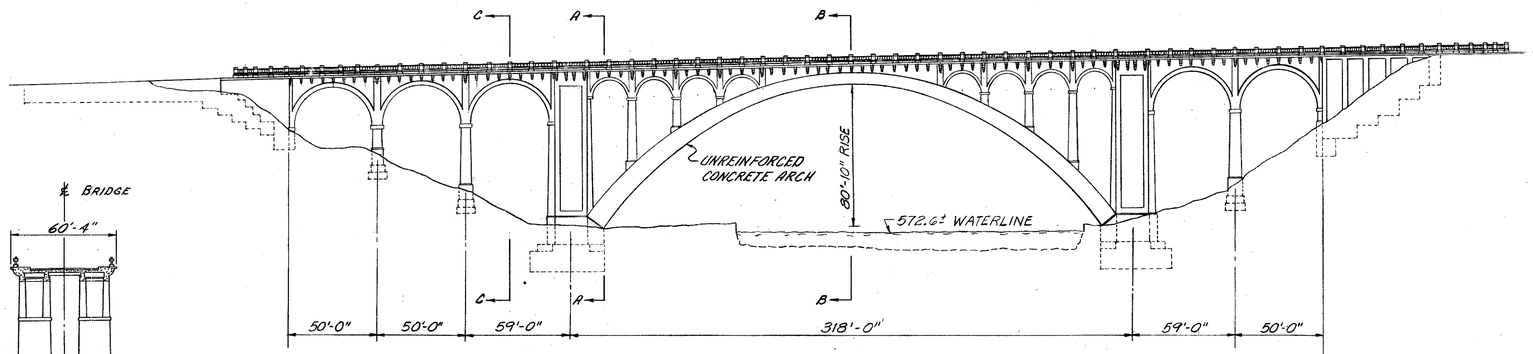
LIMIT OF BRIDGE DEMOLITION UNDER ITEM 202 (LUMP SUM) — ROADWAY REMOVAL

℄ LAKE ROAD
℄ DETROIT ROAD
℄ WOOSTER ROAD
℄ RIVER SLOANE AVE
℄ PARK DRIVE
℄ BRIDGE APPROACH
EASTBOUND ℄
WESTBOUND ℄
25 RELOC. DETROIT RD. 26

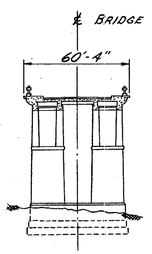
PLANTERS (TO REMAIN)
DOCK LINE
WOOD CRIB WALL (TO REMAIN)
RIVER
ROCKY
SHEET PILES
1 STOREY FRAME SHED (TO BE REMOVED)
TANKS (TO REMAIN)
GAS PUMPS (TO BE REMOVED)
TANK & PUMP (TO BE REM.)
DOCK WALL (TO REMAIN)
4' WOOD DOCK (TO BE REMOVED)
ASPHALT DRIVE (TO REMAIN)
FENCE (TO BE REMOVED)
ASPHALT PARKING (TO REMAIN)
BOAT CRADLES (TO REMAIN)
ABANDONED BRIDGE FOUNDATIONS (TO BE REMOVED)
ROOF & UNDERGROUND PARKING GARAGE
APARTMENT BUILDING
UNDERGROUND GARAGE & RETAINING WALLS (TO REMAIN)
DRIVE DOWN TO UNDERGROUND PARKING
CONC. WALK (TO BE REMOVED)
SWALE
0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 9+18.96

PLAN

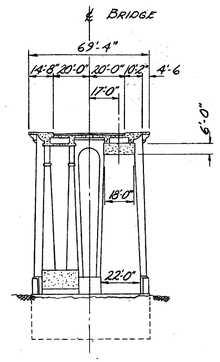
CUY-6A-0.41
BRIDGE & ROADWAY ITEMS REMOVED BY OTHERS FOR CONSTRUCTION OF NEW BRIDGE.



ELEVATION



SECTION C-C



HALF SECTIONS A-A & B-B

NOTE:
PLANS & DETAILS OF THE EXISTING BRIDGE AND MODIFICATIONS ARE AVAILABLE THROUGH THE CUYAHOGA COUNTY ENGINEER'S OFFICE AT CLEVELAND, OHIO.

1-R 202 ITEM, REMOVE UNDERGROUND STORAGE TANK. 2 Each

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

DETROIT-ROCKY RIVER BRIDGE
EXISTING BRIDGE DEMOLITION PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
RWH	PLUTO	RWH			

FHWA REGION	STATE	PROJECT	
5	OHIO		

39
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

SPECIAL DEMOLITION NOTES

ITEM 202 - STRUCTURE REMOVED, EXISTING DETROIT ROCKY RIVER BRIDGE

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS.

REMOVAL OF THE EXISTING DETROIT ROCKY RIVER BRIDGE INCLUDES THE COMPLETE DEMOLITION, REMOVAL, AND DISPOSAL OF THE ENTIRE SUPERSTRUCTURE, SUBSTRUCTURE AND ALL ABANDONED UTILITY LINES AND OTHER MISCELLANEOUS ITEMS SUPPORTED BY THE BRIDGE. ALL ABUTMENTS, PIERS, WALLS AND FOUNDATIONS SHALL BE REMOVED DOWN TO AT LEAST TWO FEET BELOW THE GRADE AT THE SURROUNDING AREA OR BELOW THE FINISHED GRADE OR SLOPES AS SHOWN ON THE PLANS.

THE DEMOLITION WORK UNDER THIS ITEM MAY BE ACCOMPLISHED BY THE USE OF EXPLOSIVES. THE USE OF EXPLOSIVES SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF SECTION 107.11. THE EXPLOSIVES CONTRACTOR SHALL OBTAIN PREQUALIFICATIONS IN ACCORDANCE WITH SECTION 102.

THE CONTRACTOR SHALL SUBMIT FOUR COPIES OF THE PROPOSED METHODS AND OPERATIONS OF DEMOLITION TO THE ENGINEER FOR REVIEW PRIOR TO THE START OF WORK. THE SCHEDULE SHALL INCLUDE THE COORDINATION FOR CONTROL OF WATER TRAFFIC AND REMOVAL AND DISPOSAL OF DEBRIS.

THE CONTRACTOR SHALL USE ACCEPTABLE METHODS TO LIMIT THE AMOUNT OF DUST AND DIRT RISING AND SCATTERING IN THE AIR, TO THE LOWEST LEVEL OF AIR POLLUTION PRACTICAL FOR THE CONDITION OF THE WORK.

UNDER NO CIRCUMSTANCES WILL ANY PERSONS CONNECTED WITH THIS CONTRACT USE ANY ADJACENT PROPERTY OUTSIDE THE LIMITS OF THIS CONTRACT FOR THE PURPOSE OF STORING DEMOLITION MATERIALS, OR DEBRIS WITHOUT FIRST OBTAINING PERMISSION IN WRITING FROM SAID PROPERTY OWNER.

ACCESS - PARCEL 18T - THE CONTRACTOR SHALL MAINTAIN ACCESS ON THE EXISTING ASPHALT DRIVE TO THE WESTLAKE YACHT CLUB AT ALL TIMES EXCEPT DURING THE DEMOLITION OF THE BRIDGE IN THE NON-BOATING SEASON (NOVEMBER 1 THROUGH MARCH 1). DURING THE NON-BOATING SEASON, THE CONTRACTOR WILL BE PERMITTED TO CLOSE THE EXISTING ASPHALT DRIVE FOR MINIMUM PERIODS OF TIME, NOT TO EXCEED 48 HOURS, TO DEMOLISH THE BRIDGE AND REMOVE ALL BRIDGE DEBRIS *FROM THE EXISTING ASPHALT DRIVE. HOWEVER, THE CONTRACTOR SHALL KEEP THE DRIVE SUFFICIENTLY CLEAR OF DEBRIS AT ALL TIMES TO PERMIT EMERGENCY VEHICLES ACCESS TO THE BOAT STORAGE AREA.*

DEMOLITION OPERATIONS AND THE REMOVAL OF DEBRIS SHALL BE PERFORMED IN AN ACCEPTABLE MANNER TO ENSURE MINIMUM INTERFERENCE WITH STREETS, SIDEWALKS, RIVER TRAFFIC AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DEMOLITION OPERATIONS *OVER & IN THE STREAM MUST SUBSTANTIALLY BE LIMITED TO THE NON-BOATING SEASON (NOVEMBER 1 THRU MARCH 1*

ALL MATERIAL AND EQUIPMENT TO BE DEMOLISHED WILL BECOME THE PROPERTY OF THE CONTRACTOR, UNLESS SPECIFIED HEREIN OR INDICATED ON THE PLANS. BEFORE DEMOLISHING THE STRUCTURE, THE CONTRACTOR SHALL REMOVE ALL STEEL PLATES BELONGING TO THE COUNTY AND DELIVER THEM TO A POINT DESIGNATED BY THE ENGINEER.

THE ENTIRE SITE SHALL BE CLEARED OF ALL DEBRIS AND OBSTRUCTIONS AS DESCRIBED ABOVE, AS INDICATED ON THE DRAWINGS, AND AS REQUIRED. ALL DAMAGES TO ADJACENT FACILITIES OR TO ITEMS SCHEDULED TO REMAIN SHALL BE REPAIRED PROMPTLY AND/OR RESTORED TO THEIR ORIGINAL CONDITION. THE RIVER BOTTOM SHALL BE LEFT IN SUBSTANTIALLY THE SAME CONDITION AS EXISTED PRIOR TO DEMOLITION OPERATIONS. ALL BACKFILLED AREAS SHALL BE GRADED, SEEDED, AND PROTECTED TO MINIMIZE EROSION. ESTIMATED QUANTITIES OF ITEM 203 EMBANKMENT AND ITEM 659 SEEDING AND MULCHING ARE INCLUDED IN THE GENERAL SUMMARY FOR RESTORATION OF THE SITE:

	ROCKY RIVER	LAKEWOOD
ITEM 203 EMBANKMENT	300 C.Y.	300 C.Y.
ITEM 659 SEEDING AND MULCHING	2500 S.Y.	2000 S.Y.

ALL MATERIALS SHALL BE HAULED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR.

1. IF THE CONTRACTOR ELECTS TO USE METROPOLITAN PARK ROADS, HE SHALL OBTAIN WRITTEN PERMISSION OF THE PARK BOARD.
2. IF A DUMPING SITE IN LAKE ERIE IS CHOSEN, THE SITE SHALL BE APPROVED BY THE ARMY CORPS OF ENGINEERS. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS.

THE EXPLOSIVES CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF OHIO, TO PREPARE A STRUCTURAL SURVEY REPORT OF STRUCTURES WITHIN 100 FEET OF THE LIMITS OF THE WORK AND TO ESTABLISH VERTICAL CONTROL POINTS ON THE SAME.

THE EXPLOSIVES CONTRACTOR'S ENGINEER SHALL CONDUCT THIS STRUCTURAL SURVEY IN THE PRESENCE OF THE ENGINEER AND THE OWNERS OF THE STRUCTURES OR THEIR DELEGATED REPRESENTATIVE. THE REPORT SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

A. A DETAILED ON-SITE INSPECTION OF THE INTERIOR AND EXTERIOR OF BUILDINGS LOCATED WITHIN 100 FEET OF THE BRIDGE.

B. *COLOR PHOTOGRAPHS OF THE INTERIOR & EXTERIOR OF THE BUILDINGS SHALL BE TAKEN BY A PROFESSIONAL PHOTOGRAPHER. ADDITIONAL PHOTOGRAPHS MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.*

C. LOCATION AND ELEVATION OF THE CONTROL POINTS.

D. THE REPORT SHALL NOTE ALL CRACKS AND OTHER STRUCTURAL DEFICIENCIES IN THE BUILDINGS AND PROVIDE DETAILS PERTINENT TO EACH AS TO LOCATION, LENGTH, SIZE, THICKNESS, TYPE, ETC. THREE (3) COPIES OF THE REPORT AND *3 SETS OF PHOTOGRAPHS (MIN. PRINT SIZE 5x8) SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO THE START OF ANY DEMOLITION & ONE (1) COPY EACH TO THE CONTRACTOR AND THE OWNERS OF THE STRUCTURES*

E. FOLLOWING THE COMPETION OF THE PROJECT, THE EXPLOSIVES CONTRACTOR'S ENGINEER SHALL INSPECT THE PREVIOUSLY DESCRIBED STRUCTURES & SUBMIT A REPORT NOTING ANY CHANGE IN THE STRUCTURE OR THAT NO CHANGE TOOK PLACE & SHALL RECORD THE ELEVATIONS OF THE CONTROL PTS. IN ADDITION SUBSEQUENT ELEV. OF THE CONTROL PTS. SHALL BE RECORDED AT INTERVALS OF 1 AND 6 MO. AFTER THE COMPLETION OF ALL EXPLOSIVES WORK. AREAS PHOTOGRAPHED PRIOR TO DEMOLITION SHALL BE REPHOTOGRAPHED FOLLOWING COMPLETION OF THE PROJECT. PRINTS OF THIS SECOND SET OF PHOTOGRAPHS SHALL BE MADE AN INTEGRAL PART OF THE REPORT.

THE EXPLOSIVES CONTRACTOR SHALL ENGAGE THE SERVICES OF AN ACOUSTICS AND VIBRATION CONSULTANT TO MEASURE AND RECORD THE VIBRATION AND SOUND LEVELS AT THREE LOCATIONS EACH TIME THE EXPLOSIVES ARE DETONATED. THE THREE LOCATIONS SHALL BE SELECTED BY THE EXPLOSIVES CONTRACTOR AND THEY SHALL MEET WITH THE APPROVAL OF THE ENGINEER. THE CONSULTANT SHALL SUBMIT A REPORT, ON EVERY SET OF MEASUREMENTS THAT ARE TAKEN, RECORDING THESE MEASUREMENTS, NOTING THE ACCEPTABILITY CRITERIA AND ANALYZING THE ACQUIRED DATA. THE VIBRATION CONSULTANT SHALL SUBMIT THREE (3) COPIES OF THE REPORT TO THE ENGINEER WITHIN ONE WEEK AFTER EACH DETONATION.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A DESCRIPTION OF THE LIMITS OF THE DANGER ZONE THAT WILL PREVAIL DURING THE BLASTING OF THE BRIDGE COMPONENTS AND HIS MEANS OF PREVENTING UNAUTHORIZED PERSONS FROM ENTERING THIS DANGER ZONE DURING THE BLAST. THE CONTRACTOR WILL ASSUME FULL RESPONSIBILITY FOR PREVENTING UNAUTHORIZED PERSONS FROM ENTERING THIS DANGER ZONE.

PRIOR TO THE INITIATION OF DEMOLITION OPERATIONS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL HIS DEMOLITION PLAN, PROTECTION PLAN AND SEQUENCE OF OPERATIONS OF THE DEMOLITION WORK WITH TIME LIMITS FOR EACH OPERATIONS INCLUDING THE REMOVAL OF THE DEMOLITION MATERIAL FROM THE SITE. THE CONTRACTOR SHALL FOLLOW THE APPROVED SEQUENCE OF OPERATIONS. DEVIATIONS FROM THIS SEQUENCE OF OPERATIONS WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER IN WRITING BEFORE THE START OF SUCH WORK. FURTHER, THE SEQUENCE OF OPERATIONS SHALL BE SUCH THAT NO UNSAFE OR UNSTABLE CONDITIONS ARE ALLOWED.

THE CONTRACTOR SHALL MAKE THE NECESSARY PREPARATIONS TO THE BRIDGE FOR THE INSTALLATION OF EXPLOSIVES ALL IN ACCORDANCE WITH THE INSTRUCTIONS AND UNDER THE DIRECT SUPERVISION OF THE EXPLOSIVES CONTRACTOR. THE PREPARATION AND HANDLING OF EXPLOSIVES ON THE JOB SITE SHALL BE PERFORMED BY OR UNDER THE DIRECT SUPERVISION OF THE EXPLOSIVES CONTRACTOR. IT IS THE INTENT OF THESE SPECIFICATIONS THAT THE EXPLOSIVES CONTRACTOR SHALL, WHERE POSSIBLE, USE INSENSITIVE EXPLOSIVES, e.g. WATER-GELS OR SIMILAR BLASTING AGENTS, TO DEMOLISH THE STRUCTURE. EVERY PRECAUTION SHOULD BE TAKEN TO MINIMIZE VIBRATION, AIR CONCUSSION AND THE FLY OF DEBRIS.

THE CONTRACTOR SHALL TAKE SPECIAL CARE TO AVOID ANY SPILLAGE OF OILS, FUELS, OR OTHER TYPES OF POLLUTANTS WHILE WORKING WITHIN OR ALONG THE BANKS OF A WATERWAY. SPECIFIC PLANS SHOULD BE FORMULATED IN ADVANCE OF ANY CONSTRUCTION TO CONTAIN SUCH SPILLS IN THE EVENT OF ANY CONTINGENCY.

ELECTRICAL CIRCUITRY AND WIRING SHALL BE IN CONFORMANCE WITH THE INDUSTRY STANDARDS AND BLAST RECORDS MUST INDICATE THE WIRING PLAN AND CIRCUIT RESISTANCE. THE CONTRACTOR SHALL SUBMIT A LOADING AND DELAY PLAN FOR EACH BLAST *BEFORE* THE END OF THE WORKING DAY *PRIOR TO THE DATE ANTICIPATED THAT EACH BLAST WILL ACTUALLY TAKE PLACE.*

THE CONTRACTOR SHALL CONTROL FLYING DEBRIS BY THE USE OF SUITABLE METHODS SUCH AS MATS, ETC. THE CONTRACTOR SHALL REMOVE FROM THE SITE AS EXPEDITIOUSLY AS POSSIBLE THE DEMOLITION MATERIAL AND DISPOSE OF IT AT A SITE WHICH IS ACCEPTABLE AND IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

THE CONTRACTOR SHALL CONSULT WITH THE LOCAL WEATHER AUTHORITIES TO DETERMINE THE EXTENT OF ANY PREDICTABLE STORM ACTIVITY WHICH WOULD CAUSE THE RIVER TO RISE SUBSTANTIALLY PRIOR TO HIS REMOVAL OF THE DEMOLITION MATERIAL. SHOULD IT BE PREDICTED THAT THIS CONDITION MAY OCCUR, THE DEMOLITION OPERATIONS SHALL BE DELAYED UNTIL SUCH TIME AS NECESSARY TO PERMIT THE REMOVAL OF THE DEMOLITION MATERIAL AT LOW FLOW.

DEMOLITION DEBRIS WITHIN THE WATERWAY OPENING SHALL BE CONTINUOUSLY REMOVED TO THE EXTENT NECESSARY TO MAINTAIN THE FLOW OF THE RIVER WITH MINIMUM "DAMMING" DURING EACH WORK DAY. THE REMAINING DEBRIS SHALL BE COMPLETELY REMOVED WITHIN THIRTY (30) CONSECUTIVE CALENDAR DAYS AFTER COMPLETION OF THE BLASTING OPERATIONS.

THE ESTIMATED QUANTITIES INDICATE THE APPROXIMATE AMOUNT OF MATERIALS INVOLVED IN THE WORK REQUIRED FOR THIS ITEM. THESE QUANTITIES ARE ESTIMATED AND NOT OFFICIAL AND ARE INCLUDED FOR GENERAL INFORMATION ONLY. *PAYMENT WILL BE MADE AT THE CONTRACT LUMP SUM PRICE BID FOR ITEM 202, STRUCTURE REMOVED, AS PER PLAN.*

SUPERSTRUCTURE: ROADWAY, SIDEWALK AND RAILING	3,000 C.Y.
PIERS, COLUMNS AND JACK, SPANDREL AND APPROACH ARCHES	8,500 C.Y.
UNREINFORCED MAIN ARCH	4,235 C.Y.
WEST ABUTMENT	690 C.Y.
EAST ABUTMENT	875 C.Y.
TOTAL	17,300 C.Y.

BITUMINOUS SURFACE COURSE (Var. thickness 4"-8") 27,310 Sq. Ft.

IN ADDITION TO THE ABOVE QUANTITIES, MISCELLANEOUS ITEMS SUCH AS ABANDONED BRIDGE FOUNDATIONS, FENCES, ETC. (SHOWN TO BE REMOVED ON SHEET 38) SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 202, STRUCTURE REMOVED. *AS PER PLAN.*

REGARDLESS OF ANY VARIATION IN THE QUANTITY LISTING SHOWN ABOVE, PAYMENT FOR REMOVAL OF THE EXISTING STRUCTURE TO THE EXTENT REQUIRED BY THE PLANS AND SPECIFICATIONS WILL BE MADE AT THE LUMP SUM PRICE BID FOR ITEM 202, "STRUCTURE REMOVED, AS PER PLAN". IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY (PRIOR TO SUBMITTING HIS BID) TO VERIFY, TO HIS OWN SATISFACTION, THE ACCURACY OF THE QUANTITIES LISTED AND THE COMPLETENESS OF THE LISTING

TEMPORARY USE OF PARCEL 21T SEE NOTE ON SHEET 6.

Rev. 6-6-79

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

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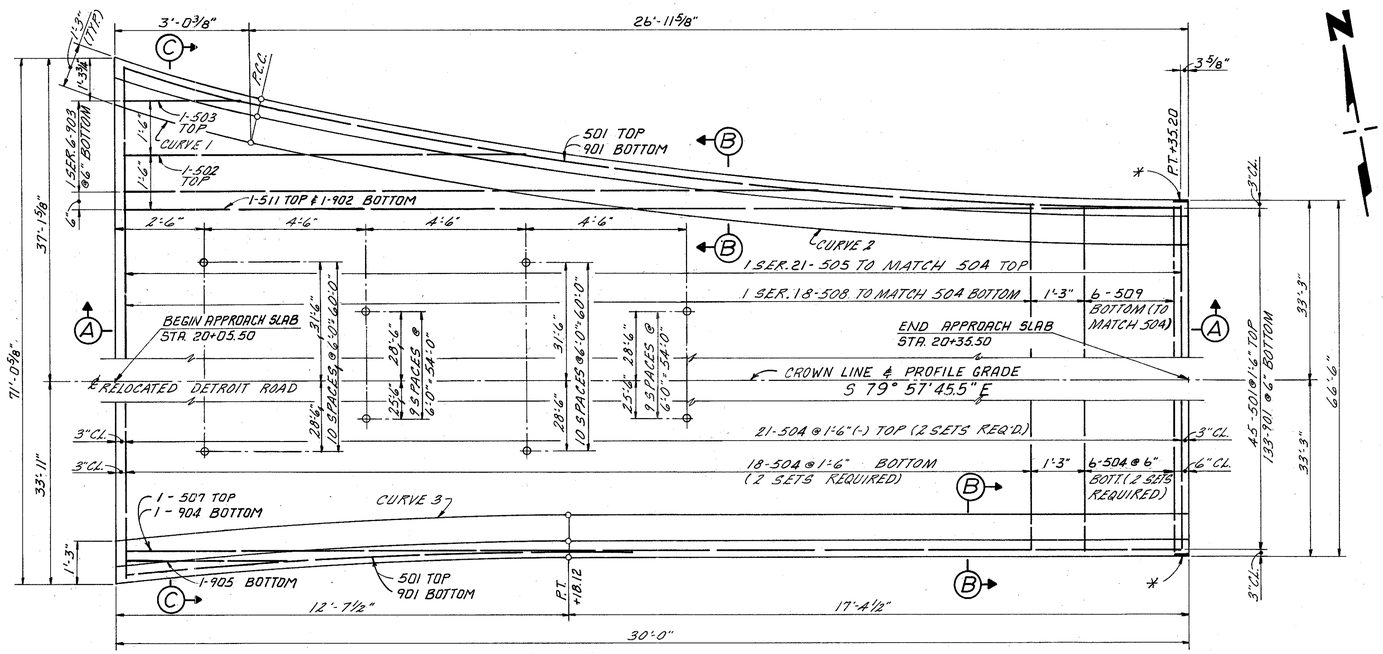
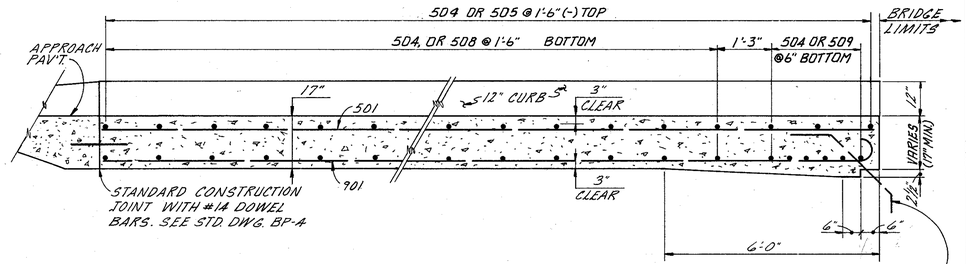
CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37



WEST APPROACH SLAB

*- 1" PREFORMED EXPANSION JOINT FILLER

ESTIMATED QUANTITIES	ROCKY RIVER	LAKEWOOD
ITEM 608, 6" REINFORCED CONCRETE SIDEWALK	402 S.F.	381 S.F.
ITEM 611, 17" REINF. CONC. APPROACH SLAB	226 S.Y.	230 S.Y.



SECTION A-A

WEST APPROACH SLAB SHOWN, EAST APPROACH SLAB IS SIMILAR.
FOR APPROACH PAVEMENT AND CURB DEPTH TRANSITION SEE SHEET 41

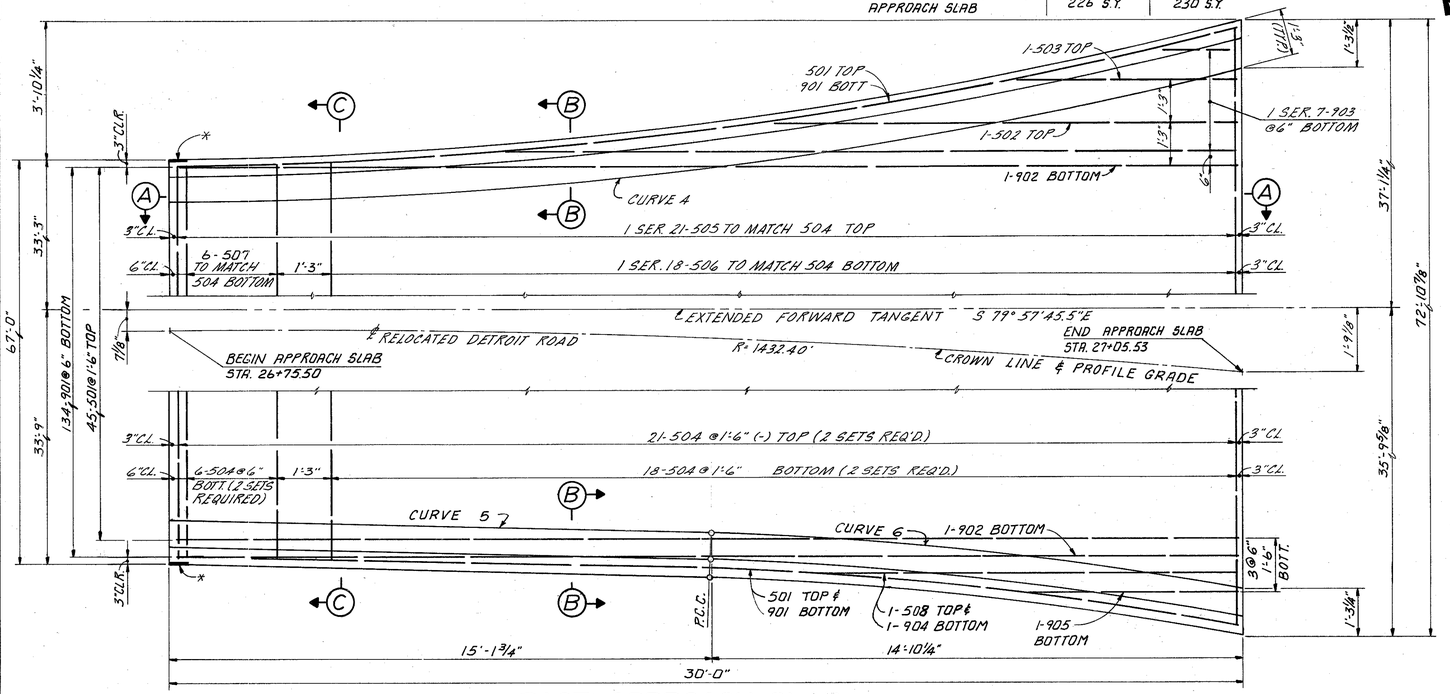
CURVE DATA

CURVE 1	CURVE 2	CURVE 3	CURVE 4	CURVE 5	CURVE 6
△ = 4°30'14"	△ = 12°50'19"	△ = 6°02'12"	△ = 14°28'39"	△ = 0°30'33"	△ = 8°34'08"
R = 40'	R = 120'	R = 120'	R = 120'	R = 1704.62'	R = 100'
A = 3.14'	A = 26.89'	A = 12.64'	A = 30.32'	A = 15.15'	A = 14.96'
C = 3.14'	C = 26.83'	C = 12.64'	C = 30.24'	C = 15.15'	C = 14.94'
T = 1.57'	T = 13.50'	T = 6.33'	T = 15.24'	T = 7.58'	T = 7.49

NOTE: CURVE DATA IS GIVEN TO FACE OF CURB.

REINFORCING SCHEDULE

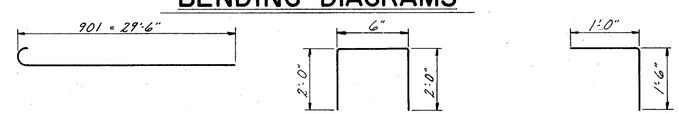
WEST APPROACH SLAB						EAST APPROACH SLAB					
MARK	NUMBER	LENGTH	TYPE	WEIGHT	SH.	MARK	NUMBER	LENGTH	TYPE	WEIGHT	SH.
AS 501	51	29'-6"		1,570	ST.	AS 501	53	29'-6"		1,631	ST.
AS 502	1	11'-6"		12	ST.	AS 502	1	13'-6"		14	ST.
AS 503	1	3'-6"		4	ST.	AS 503	1	6'-3"		7	ST.
AS 504	90	30'-0"		2,816	ST.	AS 504	90	30'-0"		2,816	ST.
AS 505	1 SER OF 21	9'-2" TO 13'-8"		250	ST.	AS 505	1 SER OF 21	9'-8" TO 15'-6"		276	ST.
AS 506	6	9'-2"		58	ST.	AS 506	1 SER OF 18	10'-0" TO 15'-6"		239	ST.
AS 507	1	14'-0"		15	ST.	AS 507	6	10'-0"		63	ST.
AS 508	1 SER OF 18	9'-2" TO 13'-8"		214	ST.	AS 508	1	12'-0"		13	ST.
AS 509	42	4'-3"	2	186	BT.	AS 509	42	4'-3"	2	186	BT.
AS 510	42	2'-5"	3	106	BT.	AS 510	42	2'-5"	3	106	BT.
AS 511	1	28'-0"		29	ST.						
AS 901	133	30'-9"	1	13,905	BT.	AS 901	134	30'-9"	1	14,010	BT.
AS 902	1	28'-0"		96	ST.	AS 902	2	28'-0"		191	
AS 903	1 SER OF 6	3'-6" TO 19'-6"		235	ST.	AS 90	1 SER OF 7	3'-0" TO 20'-3"		277	
AS 904	1	14'-0"		48	ST.	AS 904	1	12'-0"		41	
AS 905	1	6'-0"		21	ST.	AS 905	1	7'-0"		24	
		WEST TOTAL		19,565				EAST TOTAL		19,894	



EAST APPROACH SLAB

*- 1" PREFORMED EXPANSION JOINT FILLER

BENDING DIAGRAMS



TYPE 1 TYPE 2 TYPE 3

NOTES: FOR JACKING HOLE LOCATIONS IN THE EAST APPROACH SLAB, USE THOSE SHOWN IN THE WEST APPROACH SLAB, OPPOSITE HAND & REFERENCE TO THE EXTENDED FORWARD TANGENT.

THE PREFIX 1AS & 2AS SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE WEST APPROACH SLAB AND THE EAST APPROACH SLAB RESPECTIVELY, UNLESS SHOWN OTHERWISE.

THE BAR SIZE IS INDICATED BY THE FIRST DIGIT OF THE BAR MARK. (EXAMPLE: 1AS 501 IS A NUMBER 5 SIZE BAR).

FOR SECTIONS B-B & C-C, AND ADDITIONAL DETAILS & NOTES, SEE SHT. 41.

CURB REINFORCING STEEL AND APPROACH SLAB SEATS, NOT SHOWN IN PLAN VIEWS.

PREFORMED EXPANSION JOINT FILLER, SEALER AND CURB PLATES SHALL BE INCLUDED WITH ITEM 611 (APPROACH SLAB) FOR PAYMENT.

REINFORCING STEEL CONCENTRIC TO CURB SHALL BE FIELD BENT AS REQUIRED.

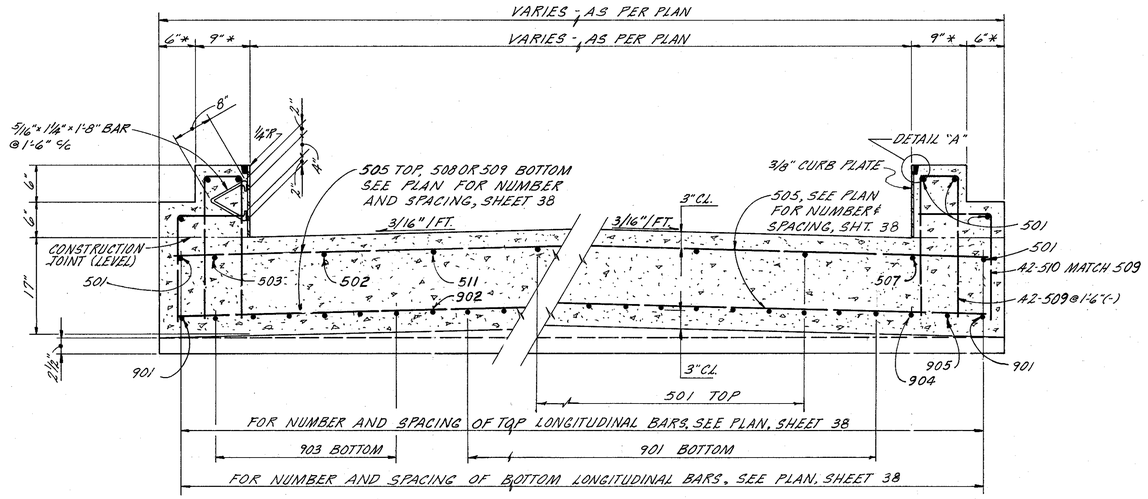
ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

CUY.-254DA-0.20
CUY.-6A-0.37

APPROACH SLAB DETAILS

RELOCATED DETROIT ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TMJ	TMJ	R.W.H.			



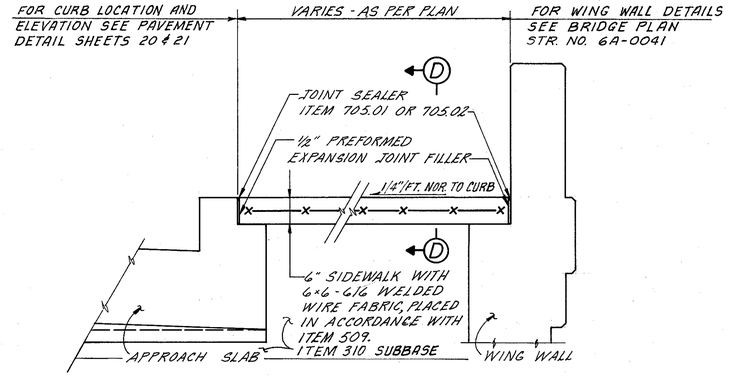
SECTION C-C

WEST APPROACH SLAB SHOWN, EAST APPROACH SLAB IS SIMILAR.

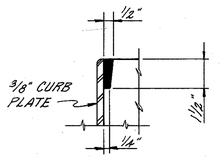
CURB REINFORCING AND CURB PLATE DETAILS SHOWN ARE TYPICAL IN BOTH CURBS OF BOTH APPROACH SLABS.

CURB PLATES SHALL BE FIELD BENT AS REQUIRED.

* NORMAL TO FACE OF CURVE.

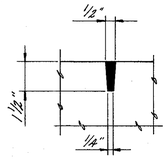


SECTION B-B



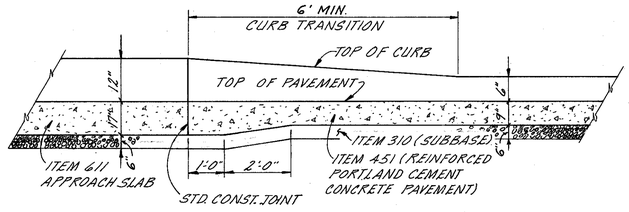
DETAIL "A"

LONGITUDINAL CURB PLATE SEAL SHALL BE ITEM 705.01 (HOT APPLIED JOINT SEALER) OR APPROVED EQUAL, TO BE INCLUDED WITH ITEM 611 (APPROACH SLAB) FOR PAYMENT.



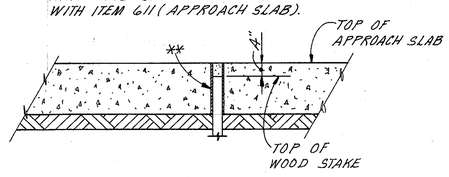
SECTION D-D

TRANSVERSE SIDEWALK JOINTS SHALL BE PLACED AT 5'-0" c/c MAXIMUM AND SHALL BE ITEM 705.01 OR 705.02, TO BE INCLUDED WITH ITEM 608 (WALKS AND STEPS) FOR PAYMENT.



APPROACH PAVEMENT AND CURB DEPTH TRANSITION DETAIL

** SET 2½" ϕ STANDARD PIPE FLUSH WITH TOP AND BOTTOM OF SLAB. DRIVE 2"x2" WOOD STAKE THROUGH PIPE TO PROVIDE SUPPORT DURING PLACING OF CONCRETE. FILL PORTION ABOVE STAKE WITH CONCRETE. PAYMENT FOR STANDARD PIPE AND WOOD STAKE SHALL BE INCLUDED WITH ITEM 611 (APPROACH SLAB).



DETAIL OF HOLE FOR FUTURE JACKING OF APPROACH SLAB

FHWA REGION	STATE	PROJECT	
5	OHIO		

41
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

CUY.-254DA-0.20
CUY.-6A-0.37

APPROACH SLAB DETAILS

RELOCATED DETROIT ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TMJ	TMJ	R.W.H.			

WATERWORK GENERAL PLAN

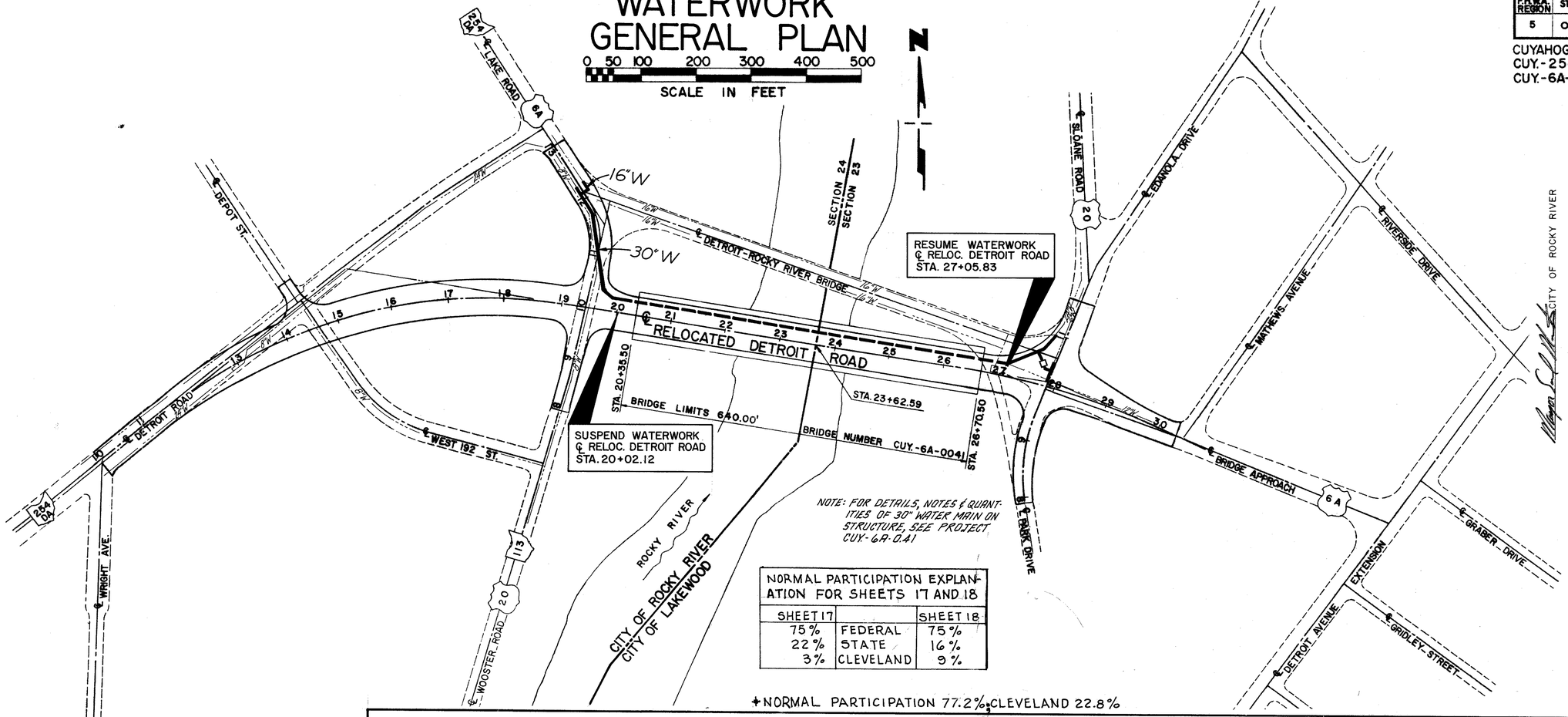
0 50 100 200 300 400 500
SCALE IN FEET

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

42/91

1/25

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37



NOTE: FOR DETAILS, NOTES & QUANTITIES OF 30" WATER MAIN ON STRUCTURE, SEE PROJECT CUY-6A-0.41

NORMAL PARTICIPATION EXPLANATION FOR SHEETS 17 AND 18		
SHEET 17		SHEET 18
75 %	FEDERAL	75 %
22 %	STATE	16 %
3 %	CLEVELAND	9 %

+NORMAL PARTICIPATION 77.2% CLEVELAND 22.8%

APPROVED Nov. 20, 19 78

CITY OF ROCKY RIVER
CITY OF LAKEWOOD
DIRECTOR OF PUBLIC UTILITIES
COMMISSIONER OF WATER AND HEAT
ACTING COMMISSIONER DIVISION OF UTILITIES ENGINEERING
ENGINEER OF DESIGN REVIEW

NO.	DATE	BY

REVISIONS

INDEX OF SHEETS

GENERAL SUMMARY

TYPE CODE Y060

ITEM	QUANTITY	UNIT	DESCRIPTION	ROCKY RIVER SHEET NO.16	ROCKY RIVER SHEET NO.17	CLEVELAND SHEET NO.17	CLEVELAND SHEET NO.18	LAKEWOOD SHEET NO.18
SPECIAL	20	LIN.FT.	6" WATER MAIN, CAST IRON, ANSI CLASS 25 PIPE & CLASS D FITTINGS	10	10	—	—	—
			ALL CEMENT LINED, ALL FITTINGS W/ LEAD JOINTS					
SPECIAL	42	LIN.FT.	6" WATER MAIN, DUCTILE IRON, ANSI CLASS 56 PIPE & CLASS D FITTINGS	—	—	—	—	42
			ALL CEMENT LINED, ALL FITTINGS W/ LEAD JOINTS					
SPECIAL	45	LIN.FT.	12" WATER MAIN, DUCTILE IRON, ANSI CLASS 56 PIPE & CLASS D FITTINGS	—	—	—	—	45
			ALL CEMENT LINED, ALL FITTINGS W/ LEAD JOINTS					
SPECIAL	7	LIN.FT.	16" WATER MAIN, CAST IRON, ANSI CLASS 25 PIPE & CLASS D FITTINGS	7	—	—	—	—
			ALL CEMENT LINED					
SPECIAL	34	LIN.FT.	24" WATER MAIN, PRESTRESSED CONCRETE CYLINDER PIPE & FITTINGS	—	—	23	11	—
SPECIAL	329	LIN.FT.	30" WATER MAIN, PRESTRESSED CONCRETE CYLINDER PIPE & FITTINGS	—	—	210	119	—
SPECIAL	1	EACH	6" GATE VALVE WITH HUB ENDS AND NO.3 VALVE BOX	—	—	—	—	1
SPECIAL	1	EACH	6" CUT-IN VALVE WITH NO.3 VALVE BOX	—	—	—	—	1
SPECIAL	1	EACH	8"x6" TAPPING SLEEVE VALVE WITH NO.2 VALVE BOX	1	—	—	—	—
SPECIAL	1	EACH	12"x12" TAPPING SLEEVE VALVE WITH HUB END & NO.4 VALVE BOX	—	—	—	—	1
SPECIAL	2	EACH	12" GATE VALVE WITH HUB ENDS & NO.4 VALVE BOX	—	—	—	—	2
SPECIAL	1	EACH	16" GATE VALVE WITH FLANGED ENDS & NO.4 VALVE BOX	—	—	—	—	1
SPECIAL	1	EACH	16" CUT-IN VALVE WITH NO.4 VALVE BOX	1	—	—	—	—
SPECIAL	2	EACH	24" GATE VALVE WITH VICTAULIC ENDS; 4" BY-PASS GATE VALVE & NO. 2 VALVE BOX	—	—	1	1	—
SPECIAL	2	EACH	24" GATE VALVE WITH FLANGED ENDS, 4" BY-PASS GATE VALVE & NO. 2 VALVE BOX	—	—	1	1	—
SPECIAL	4	EACH	VALVE CHAMBER FOR 24" GATE VALVE	—	—	2	2	—
SPECIAL	3	EACH	2" AIR COCK WITH NO.7 VALVE BOX	1	—	1	1	—
SPECIAL	1	EACH	4" DRAIN COMPLETE WITH 4" GATE VALVE / NO.2 VALVE BOX	—	—	1	—	—

ITEM	QUANTITY	UNIT	DESCRIPTION	ROCKY RIVER SHEET NO.16	ROCKY RIVER SHEET NO.17	CLEVELAND SHEET NO.17	CLEVELAND SHEET NO.18	LAKEWOOD SHEET NO.18
SPECIAL	4	EACH	30" ACCESS MANHOLE WITH ANCHORAGE TYPE A	—	—	2	2	—
SPECIAL	2	EACH	30" PLAIN ANCHOR	—	—	1	1	—
SPECIAL	3	EACH	REMOVE 6" HYDRANT FOR RESETTING	1	1	—	—	1
SPECIAL	3	EACH	RESET 6" HYDRANT	1	1	—	—	1
SPECIAL	1	EACH	6" PLUG & CLAMP AT SERVICE MAIN AND TEE WITH CONCRETE PIER	1	—	—	—	—
SPECIAL	1	EACH	PLUG & BLOCK 12" WATER MAIN	—	—	—	—	1
SPECIAL	1	EACH	6" HYDRANT, ADJUST TO GRADE	—	1	—	—	—
SPECIAL	14	EACH	VALVE BOX, ADJUST TO GRADE	11	2	—	—	1
SPECIAL	LUMP		CONCRETE METER VAULT	—	—	—	—	LUMP
SPECIAL	1	EACH	NEW METER VAULT	1	—	—	—	—
SPECIAL	1	EACH	RESET METER	1	—	—	—	—
SPECIAL	2	EACH	METER VAULT, ADJUST TO GRADE	2	—	—	—	—
SPECIAL	5	EACH	EXTEND SERVICE CONNECTION, COMPLETE	5	—	—	—	—
SPECIAL	12	EACH	ABANDON SERVICE CONNECTION, REMOVE CURB BOX, PLUG & CLAMP AT SERVICE MAIN	8	4	—	—	—
SPECIAL	5	EACH	REMOVE CURB BOX	5	—	—	—	—
SPECIAL	1	EACH	ABANDON VALVE BOX	1	—	—	—	—
SPECIAL	9	EACH	CURB BOX, ADJUST TO GRADE	8	1	—	—	—
SPECIAL	1	EACH	MANHOLE, ADJUST TO GRADE	1	—	—	—	—
SPECIAL	14	CU.YD.	CONCRETE PIERS			7.0	5.0	2.0
SPECIAL	1	M.B.F.	SHEETING & BRACING (TO BE LEFT IN PLACE)	FROM GENERAL NOTES				

WATERWORK GENERAL PLAN & GENERAL SUMMARY

WATERWORK NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO		

43
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

2
25

SCOPE OF WORK

THE WORK CONTEMPLATED UNDER THIS CONTRACT COMPRISES THE FURNISHING AND INSTALLING OF DUCTILE IRON PIPE, CAST IRON CEMENT LINED PIPE, DUCTILE IRON CEMENT LINED PIPE, AND PRESTRESSED CONCRETE CYLINDER PIPE WITH ALL APPURTENANCES, COMPLETE IN ALL DETAILS, TESTED AND READY FOR OPERATION. THE CONTRACTOR SHALL DO ALL THE WORK AND FURNISH ALL THE LABOR AND MATERIALS NECESSARY FOR THE PROPER AND FINAL COMPLETION OF THIS CONTRACT IN THE MANNER AND UNDER THE CONDITIONS HEREIN SPECIFIED AND PROVIDED, AND IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

DEFINITIONS

WHEREVER IN THESE SPECIFICATIONS OR IN OTHER CONTRACT DOCUMENTS THE FOLLOWING TERMS OR PRONOUNS IN PLACE OF THEM ARE USED, THE INTENT AND MEANING SHALL BE INTERPRETED AS FOLLOWS:

THE STATE

THE STATE IS THE STATE OF OHIO ACTING THROUGH ITS AUTHORIZED REPRESENTATIVE

THE ENGINEER

THE ENGINEER IS DIVISION DEPUTY DIRECTOR OR DIVISION ENGINEER, THE DIVISION CONSTRUCTION ENGINEER OR THE DIVISION MAINTENANCE ENGINEER OR THE PROJECT ENGINEER ASSIGNED TO ADMINISTER THE CONTRACT.

THE CITY

THE CITY IS THE DIRECTOR, DEPARTMENT OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND.

STATUS OF CITY INSPECTOR

INSPECTORS AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES SHALL BE AUTHORIZED TO INSPECT ALL WORK DONE AND MATERIALS FURNISHED. SUCH INSPECTION MAY EXTEND TO ALL OR ANY PART OF THE WATER-WORKS, AND TO THE PREPARATION OR MANUFACTURE OF THE MATERIALS TO BE USED IN THE WATERWORKS. THE CITY INSPECTORS AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES SHALL MAKE WORK INSTRUCTIONS THROUGH THE PROJECT ENGINEER.

ACCESS TO WORK AND PLACE OF MANUFACTURE

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES, AT LEAST SEVEN (7) DAYS PRIOR TO THE COMMENCEMENT OF THE MANUFACTURE OF ANY MATERIALS, OF THE TIME AND PLACE WHERE THE MANUFACTURE IS TO COMMENCE, IN ORDER THAT A REPRESENTATIVE OF THE ENGINEER AND DIRECTOR MAY BE PRESENT TO INSPECT THE MANUFACTURE. THE CONTRACTOR SHALL PROVIDE, WITHOUT CHARGE OR EXPENSE TO THE STATE AND CITY, ALL NECESSARY ASSISTANCE TO THE ENGINEER AND DIRECTOR WHEN REQUIRED FOR IN-SPECTION OR VERIFICATION OF WORK DONE.

DIMENSIONS, DETAILED DRAWINGS & ELEVATIONS

(A) - FIGURED DIMENSIONS ON DRAWINGS SHALL TAKE PRECEDENCE OVER MEASUREMENTS BY SCALE, AND DETAILED DRAWINGS ARE TO TAKE PRECEDENCE OVER GENERAL DRAWINGS AND SHALL BE CONSIDERED AS EXPLANATORY OF THEM AND NOT AS INDICATING EXTRA WORK. IF HOWEVER , ANY OF THE DETAILED DRAWINGS SHOW MORE ELABORATE OR EXPENSIVE WORK THAN IS SPECIFIED AND INDICATED BY THE CONTRACT DRAWINGS, NOTICE THEREOF MUST BE GIVEN TO THE ENGINEER BY THE CONTRACTOR WITHIN TEN (10) DAYS AFTER THE RECEIPT OF SUCH DETAILED DRAWINGS IN ORDER THAT THE DRAWINGS MAY BE AMENDED OR THE ADDITIONAL EXPENSE ON ACCOUNT OF SUCH WORK MAY BE ADJUSTED AND AUTHORIZED. IF THE ENGINEER DOES NOT RECEIVE SUCH NOTICE FROM THE CON-TRACTOR WITHIN THEN (10) DAYS AFTER DETAILED DRAWINGS HAVE BEEN RECEIVED BY HIM, IT IS HEREBY AGREED THAT THE CONTRACTOR ACCEPTS THE DRAWINGS AND WILL EXECUTE THEM WITHOUT CLAIM FOR EXTRA COMPEN-SATION.

FLOODS & FREEZING WEATHER

PROPER FACILITIES SHALL BE PROVIDED FOR PROTECTING THE WORK FROM DAMAGE BY FLOOD, RAIN OR FROST, AND WORK DONE IN FREEZING WEATHER SHALL BE DONE IN SUCH MANNER AS THE ENGINEER MAY APPROVE. VALVES SHALL BE PROTECTED FROM FREEZING UNTIL BACKFILLED IN THE COMPLETED WORK.

ADDITIONAL WORK

(A) - ATTENTION IS CALLED TO THE FACT THAT THE WORK OF THIS CONTRACT INCLUDES CERTAIN PERFORMANCES AS INCIDENTAL TO THE ITEMIZED REQUIREMENTS HEREOF AND THOUGH NOT EXCLUSIVE, ARE AS FOLLOWS: TO PERFORM ALL EXCAVATION, BACKFILLING, SHEETING, BRACING, TEMPORARY AND FINAL REPAVING AND TO TEST THE INSTALLATION.SAND BACKFILL SHALL BE PLACED UNDER EXISTING AND PROPOSED PAVEMENT AND SIDEWALK. FOR THE PERFORMANCES HEREIN DESCRIBED AND FOR OTHER INCIDENTAL PERFORMANCES OF LIKE NATURE. THE STATE WILL MAKE NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCE , BUT THE COST THEREOF SHALL BE IN-CLUDED IN THE PRICES STIPULATED TO BE PAID FOR THE VARIOUS ITEMS OF THE WORK TO BE DONE UNDER THIS CONTRACT.

(B) - PRELIMINARY FLUSHING;BEFORE BEING PLACED IN SERVICE ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED FROM THE NEW WATER MAIN OR EXTENSIONS TO EXISTING MAINS BY A THOROUGH FLUSHING THROUGH THE HYDRANTS OR BY OTHER APPROVED MEANS. EACH VALVED SECTION OF NEWLY LAID PIPE SHALL BE FLUSHED INDEPENDENTLY. THIS SHALL BE DONE AFTER THE PRESSURE TEST AND MAY BE DONE BEFORE OR AFTER THE TRENCH HAS BEEN BACKFILLED.

(C) - CHLORINATION: FOLLOWING PRELIMINARY FLUSHING, THE NEWLY LAID WATER PIPE SHALL BE CHLORINATED. THE PROCESS OF CHLORINATING. THE METHOD OF PROCEDURE. THE CHLORINATING AGENT, AND THE RATE OF APPLICATION SHALL BE DETERMINED BY THE ENGINEER. THE CITY WILL FURNISH THE NECESSARY TAPS AT THE ENDS OF THE WATER MAIN SECTIONS TO BE CHLORINATED. NO CHARGE WILL BE ASSESSED THE CONTRACTOR FOR ANY MATERIAL, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND, DIVISION OF WATER, FOR THE CHLORINATION AND THE SAMPLING OF THE WATER. THE CONTRACTOR SHALL FURNISH THE NECESSARY LABOR FOR EXCAVATING AND BACKFILLING WHICH WILL BE REQUIRED FOR THE IN-STALLATION OF TAPS FOR INJECTING THE CHLORINE SOLUTION, OPERATING PUMPS AND FLUSHING MAINS.

(D) - FINAL FLUSHING AND TEST: FOLLOWING CHLORINATION, ALL TREATED WATER SHALL BE THOROUGHLY FLUSHED FROM THE NEWLY LAID PIPE AT ITS EXTREMITIES UNTIL THE REPLACEMENT WATER THROUGHOUT ITS LENGTH SHALL, UPON TEST, BOTH CHEMICALLY AND BACTERIOLOGICALLY, BE PROVEN EQUAL TO THE WATER QUALITY SERVED THE PUBLIC FROM THE EXISTING WATER SUPPLY SYSTEM.

(E) - FOR THE PERFORMANCES DESCRIBED IN PARAGRAPHS A,B,C, AND D. THE STATE WILL MAKE NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCES, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES STIPULATED TO BE PAID FOR EACH LINEAR FOOT OF PIPE FURNISHED AND INSTALLED.

MAINTENANCE OF SERVICE AND CONNECTING RELOCATED MAINS

THE CONTRACTOR SHALL FOLLOW STRICTLY THE SEQUENCE OF CONSTRUCTION SHOWN ON THE PLANS. ALL EXISTING FIRE HYDRANT LEADS AND HOUSE SERVICES SHALL BE HAND TUNNELED USING SPECIAL CARE TO AVOID ANY DAMAGE WHICH MIGHT REQUIRE SHUTTING DOWN THE EXISTING MAIN UNTIL THE NEW MAIN IS READY TO BE PLACED IN SERVICE.

WHEN THE NEW MAINS HAVE BEEN TESTED AND CHLORINATED AND ARE READY TO BE CONNECTED TO THE OLD MAIN, THE CONTRACTOR SHALL MAKE SUCH CONNECTIONS AT A TIME DESIGNATED BY THE CITY. PRIOR TO SHUTTING DOWN THE EXISTING MAINS, THE CONTRACTOR SHALL TAKE SUITABLE PRECAUTIONS TO ASSURE A MINIMUM INTERRUPTION TO SERVICE, INCLUDING THE FOLLOWING:

1. PERFORM ALL NECESSARY EXCAVATION INCLUDING BELL HOLES EXPOSING THE EXISTING MAIN SUFFICIENTLY FOR THE OPERATION OF THE PIPE SAW BY THE CITY.
2. REMOVE THE CAP OR PLUG FROM THE END OF THE NEW MAIN.
3. SWAB THE INSIDE OF ALL PIPES, BENDS AND SLEEVES TO BE USED IN CONNECTION THOROUGHLY WITH A CHLORINE SOLUTION OF AT LEAST 100 P.P.M.
4. MAKE-UP AS MUCH OF THE CONNECTION AS POSSIBLE OUTSIDE THE DITCH TO ELIMINATE THE NEED FOR CAULKING MOST OF THE NECESSARY JOINTS DURING THE SHUTDOWN. BY CAREFUL MEASUREMENT ALL PIPE CUTS CAN BE MADE BY THE CONTRACTOR PRIOR TO SHUTTING DOWN.
5. HAVE SUFFICIENT MANPOWER AND EQUIPMENT ON THE SITE TO PERFORM THE OPERATION IN A MINIMUM OF TIME.

PAINTING

(A) - IT IS THE INTENTION OF THESE SPECIFICATIONS TO PROVIDE THAT ALL METAL WORK SUBJECT TO CORROSION SHALL BE SATISFACTORILY PROTECTED BY A DURABLE COATING OF PAINT OR OTHER APPROVED MATERIAL AND THAT ALL METAL SURFACES NOT BURIED IN EARTH, OR IN CONCRETE, SHALL BE LEFT CLEAN AND WELL PAINTED AT THE COMPLETION OF THE CONTRACT. UNLESS OTHERWISE SPECIFIED, THE PROTECTION SHALL BE AT LEAST THAT GIVEN BY THREE (3) COATS OF APPROVED PAINT; THE FIRST COAT IS TO BE APPLIED AT THE SHOP BEFORE THE METAL HAS RUSTED AND AFTER ALL GREASE, DIRT AND SCALE HAS BEEN REMOVED. BOLTS AND NUTS SHALL NOT BE SHOP COATED, BUT SHALL RECEIVE THREE (3) COATS OF APPROVED PAINT AFTER INSTALLATION.

(B) - ALL METAL WORK WHICH HAS NOT BEEN COATED BEFORE THE ARRIVAL ON THE JOB SHALL BE GIVEN A TEMPORARY PROTECTIVE COATING OF SUCH A NATURE, AS TO PERMIT THE READY ADHERENCE OF FUTURE COATINGS. THE TEMPORARY COATING SHALL BE A GOOD GRADE ASPHALTIC PAINT OR OTHER APPROVED MATERIAL. THIS TEM-PORARY PROTECTION SHALL APPLY PARTICULARLY TO THE FOLLOWING MATERIAL, AND ELSEWHERE WHEN IN THE OPINION OF THE ENGINEER, SUCH PROTECTION IS NECESSARY.

METER VAULT FRAME AND COVER
MANHOLE RINGS AND COVERS — VICTAULIC TYPE COUPLINGS
LADDERS AND LADDER RUNGS — VALVE BOXES AND COVERS

(C) - ALL SURFACES OF METAL WHICH WILL BE IN CONTACT AFTER ASSEMBLING SHALL BE PAINTED, AT LEAST ONE COAT, BEFORE ASSEMBLING. THE FINAL COAT OF PAINT ON ALL EXPOSED WORK SHALL BE GIVEN SHORTLY BEFORE THE COMPLETION OF THE CONTRACT.

(D) - WHERE PAINTING CLAUSES APPEAR HEREINAFTER, THEY SHALL TAKE PRECEDENCE OVER THIS SECTION, EXCEPT THAT TEMPORARY PROTECTION HEREIN DESCRIBED MAY BE REQUIRED.

(E) - ALL OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE PARTICULAR ITEM REQUIRING THE PAINTING.

TESTS, INSPECTION AND REPORTS

NOT WITHSTANDING THE REQUIREMENTS OF ANY OTHER PROVISIONS OF THESE SPECIFICATIONS, THE CONTRACTOR SHALL ARRANGE FOR AND PAY ALL COSTS INVOLVED FOR SHOP INSPECTION OF ALL MATERIALS FURNISHED, MANUFACTURE OF ALL PIPE, VALVES, FITTINGS, ETC., FIELD AND SHOP WELDS AND WELDING, AND FURNISH TO THE STATE AND THE CITY COPIES OF ALL SHOP, FABRICATION, MANUFACTURE AND OTHER RELATED INSPECTION REPORTS OF MATERIALS FURNISHED. THIS INSPECTION SHALL BE DONE BY A RECOGNIZED INSPECTION LABORATORY APPROVED BY THE CITY.

IN THE CASE OF ANY ITEM NOT SPECIFICALLY MENTIONED IN THE "WATERWORK NOTES", THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION "CONSTRUCTION AND MATERIAL SPECIFICATIONS - JAN. 1, 1979" SHALL GOVERN.

WEIGHTS, MEASURES AND PLANIMETER

(A) - TO AID THE DIRECTOR IN DETERMINING ALL QUANTITIES OF METAL WORK, CAST IRON PIPE WORK AND OTHER MATERIALS TO BE PAID FOR UNDER THE UNIT PRICE ITEMS, THE CONTRACTOR SHALL, WHENEVER SO REQUESTED, PROVIDE SCALES, EQUIPMENT AND ASSISTANCE FOR WEIGHING OR FOR MEASURING ANY OF THE MATERIALS.

(B) - IT IS UNDERSTOOD AND AGREED THAT A "TON" SHALL MEAN THE SHORT TON OF TWO THOUSAND (2,000) POUNDS.

(C) - FOR ESTIMATING QUANTITIES IN WHICH COMPUTATION OF AREAS BY GEOMETRIC METHODS WOULD BE COMPARATIVELY LABORIOUS, IT IS AGREED THAT THE PLANIMETER SHALL BE CONSIDERED AN INSTRUMENT OF PRECISION ADAPTED TO THE MEASUREMENT OF SUCH AREAS.

(D) - WEIGHTS AND MEASURES OF QUANTITY FOR PAYMENT WILL BE THE ACTUAL WEIGHT OR ACTUAL MEASURE, AND NO SPECIAL OR TRADE OR SO-TERMED CUSTOMARY ALLOWANCES WILL BE MADE.

HANDLING PIPE AND ACCESSORIES

(A)- UNLOADING: CAST IRON OR DUCTILE IRON PIPE, FITTINGS, VALVES, HYDRANTS, AND OTHER ACCESSORIES SHALL, UNLESS OTHERWISE DIRECTED, BE UNLOADED AT THE POINT OF DELIVERY, HAULED TO AND DISTRIBUTED AT THE SITE OF THE PROJECT BY THE CONTRACTOR. THEY SHALL AT ALL TIMES BE HANDLED WITH CARE TO AVOID DAMAGE. IN LOADING AND UNLOADING THEY SHALL BE LIFTED BY HOISTS OR SLID OR ROLLED ON SKIDWAYS IN SUCH MANNER AS TO AVOID SHOCK. UNDER NO CIRCUMSTANCES SHALL THEY BE DROPPED. PIPE HANDLED ON SKID-WAYS MUST NOT BE SKIDDED OR ROLLED AGAINST PIPE ALREADY ON THE GROUND.

(B) - AT SITE OF WORK: IN DISTRIBUTING THE MATERIAL AT THE SITE OF THE WORK, EACH PIECE SHALL BE UNLOADED OPPOSITE OR NEAR THE PLACE WHERE IT IS TO BE LAID IN THE TRENCH.

(C) - PROTECTION OF PIPE COATING: PIPE SHALL BE HANDLED IN SUCH MANNER THAT A MINIMUM AMOUNT OF DAMAGE TO THE COATING WILL RESULT. ANY CAST IRON OR DUCTILE IRON PIPE OR FITTING, THE COATING OF WHICH HAS BEEN DAMAGED IN SHIPPING OR HANDLING, SHALL HAVE THE DAMAGED PORTION WELL CLEANED AND COVERED WITH AN ASPHALT PAINT, APPROVED BY THE ENGINEER, BEFORE BEING PLACED IN THE WORK. THE CONTRACTOR SHALL THOROUGHLY COAT ALL EXPOSED PARTS OF BOLTS AND NUTS WITH AN APPROVED ASPHALT PAINT AFTER ALL PIPE HAS BEEN LAID AND BEFORE BACKFILLING HAS BEEN PLACED. ALL FIELD COATING SHALL BE FURNISHED BY THE CONTRACTOR.

(D) - PIPE KEPT CLEAN: THE INTERIOR OF THE PIPE, FITTINGS AND OTHER ACCESSORIES SHALL BE KEPT FREE FROM DIRT AND FOREIGN MATTER AT ALL TIMES.

(E) - FROST PROTECTION: VALVES AND HYDRANTS BEFORE INSTALLATION SHALL BE DRAINED AND STORED IN A MANNER THAT WILL PROTECT THEM FROM DAMAGE BY FREEZING.

APPROVED Nov. 20, 19 78

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN G.A.D. | SCALE NONE | No.
CHECKED R.W.H. | DATE 7-19-77

WATERWORK NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO		

44/91

3/25

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

CHANGES IN WATER PIPE

(A)- IN SUCH LOCATIONS AS MAY BE INDICATED ON THE CONTRACT DRAWINGS OR AS ORDERED BY THE ENGINEER TO CHANGE THE LOCATION OF HOUSE CONNECTIONS, SUCH CHANGES WILL BE MADE AS WORK TO BE DONE BY THE CITY. THE CONTRACTOR SHALL NOTIFY THE CITY IN AMPLE TIME TO PERMIT THE CITY TO MAKE SUCH CHANGES AND AVOID UNNECESSARY DELAY IN THE COMPLETION OF THE WORK. THE CONTRACTOR SHALL ALSO COOPERATE WITH THE CITY IN MAKING THESE CHANGES AND SHALL DO ALL EXCAVATING, BACKFILLING, SEEDING, SODDING, REPAVING, FURNISHING ALL MATERAL REQUIRED. PAYMENT FOR THE WORK PERFORMED BY THE CONTRACTOR WILL BE AT THE UNIT PRICE BID FOR THE APPROPRIATE SERVICE CONNECTIONS. SEE WORK TO BE DONE BY THE CITY.

(B) - WHEREVER IT BECOMES NECESSARY, IN THE OPINION OF THE ENGINEER, TO CHANGE THE LOCATION OR ELEVATION OF WATER MAINS AND HYDRANTS AND WHERE CONNECTIONS ARE TO BE MADE BETWEEN EXISTING DISTRIBUTION MAINS AND WATER MAINS UNDER THIS CONTRACT, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING WATER LINE MATERIALS REQUIRED TO MAKE THE CONNECTION, AND SHALL FURNISH AND INSTALL COMPLETE ALL THE CAST IRON OR DUCTILE IRON PIPE, PRESTRESSED CONCRETE CYLINDER PIPE, FITTINGS, AND VALVES TO MAKE THE CONNECTIONS INDICATED, EXCEPT TAPPING SLEEVES AND VALVES WHICH WILL BE INSTALLED BY THE CITY. THE CONTRACTOR SHALL ALSO FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS, AND EQUIPMENT AND MAKE THE EXCAVATION, BACKFILL, AND REPAVING FOR SUCH CONNECTIONS. PAYMENT FOR THIS WILL BE INCLUDED IN PRICE BID UNDER APPROPRIATE ITEM FOR SIZE OF WATER MAIN OR CONNECTION TO BE INSTALLED. ALL PIPES, VALVES, AND APPURTENANCES REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR. (SEE WORK TO BE DONE BY THE CITY).

WORK TO BE DONE BY THE CITY

(A) - THE CONTRACTOR WILL FURNISH THE PIPING MATERIAL FOR AND THE CITY WATER DEPARTMENT SHALL MAKE ALL CHANGES REQUIRED, INCLUDING TAPPING, IN THE LOCATION OF EXISTING HOUSE SERVICE CONNECTIONS AND METERS. NO CHARGE WILL BE ASSESSED THE CONTRACTOR FOR LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND DIVISION OF WATER.

(B) - THE CITY WATER DEPARTMENT WILL INSTALL ALL TAPPING SLEEVES AND VALVES ON CAST IRON AND DUCTILE IRON PIPE. BUT THE CONTRACTOR SHALL SUPPLY THE TAPPING SLEEVES AND VALVES AND LEAD. THE CONTRACTOR SHALL FURNISH ALL AIR COMPRESSORS REQUIRED FOR THE WORK AND DO ALL OTHER WORK NECESSARY FOR THE INSTALLATION. NO CHARGE WILL BE ASSESSED THE CONTRACTOR FOR THE LABOR AND INSTALLATION COST INCIDENTAL TO THE WORK PERFORMED BY THE CITY OF CLEVELAND DIVISION OF WATER.

(C) - IN LOCATIONS WHERE BRANCH SLEEVES AND VALVES CANNOT BE INSTALLED, THE CONTRACTOR WILL BE REQUIRED TO CUT IN TEES AND SLEEVE IN THE REMAINDER OF THE CUT SECTION OF THE EXISTING MAIN. TO SPEED UP THIS OPERATION, IT IS CALLED TO THE CONTRACTOR'S ATTENTION THAT THE WATER DEPARTMENT HAS ON HAND AT HARVARD YARDS MOTOR OPERATED PIPE CUTTERS WHICH ARE AVAILABLE FOR CUTTING PIPE BY CITY FORCES. CONTRACTOR SHALL ARRANGE WITH AND PAY CHARGES AS DETERMINED BY DIVISION OF UTILITIES FISCAL CONTROL-PERMIT-SALES FOR CUTTING PIPE.

EXCAVATION

(A) - THE CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURES, ROADWAYS, DRIVEWAYS, AND OTHER SIMILAR MATERIALS AND MAKE, TO THE LINE AND GRADES GIVEN, ALL EXCAVATION NECESSARY FOR THE PROPER CONSTRUCTION OF THE WATER MAIN, PIPE CONNECTIONS, AND APPURTENANT STRUCTURES, INCLUDING TUNNEL AND SHAFT EXCAVATION. THE EXCAVATION SHALL INCLUDE THE REMOVAL, HANDLING, REHANDLING, AND DISPOSAL OF MATERIALS ENCOUNTERED IN THE WORK AND SHALL INCLUDE ALL PUMPING, BAILING, DRAINING, SHEETING, AND BRACING. MOREOVER, THE CONTRACTOR MUST ASSUME ALL RESPONSIBILITY FOR ANY ADDED EXPENSE OR OTHER LIABILITY WHICH MAY ARISE BY MEANS OF QUICKSAND, OBSTACLES, OR CONDITIONS FORESEEN OR UNFORESEEN AND ENCOUNTERED IN THE WORK OF THIS CONTRACT.

(B) - TRENCHES SHALL IN EVERY CASE BE OF SUFFICIENT WIDTH TO PERMIT SOLID PACKING OF REFILL UNDER AND AROUND PIPES, AND SATISFACTORY CONSTRUCTION OF ALL APPURTENANCES AND FOR SUCH SHEETING AND BRACING, PUMPING, AND DRAINING AS MAY BE NECESSARY.

(C) - THE TRENCH SHALL BE DUG TO THE ALIGNMENT AND DEPTH REQUIRED AND ONLY SO FAR IN ADVANCE OF PIPE LAYING AS THE ENGINEER SHALL PERMIT. THE TRENCH SHALL BE SO BRACED AND DRAINED THAT WORKMEN MAY WORK THEREIN SAFELY AND EFFICIENTLY. IT IS ESSENTIAL THAT THE DISCHARGE FROM PUMPS BE LED TO NATURAL DRAINAGE CHANNELS, TO DRAINS, OR TO SEWERS.

(D) - THE TRENCH WIDTH MAY VARY WITH AND DEPEND UPON THE DEPTH OF TRENCH AND THE NATURE OF THE EXCAVATED MATERIAL ENCOUNTERED, BUT IN ANY CASE SHALL BE OF AMPLE WIDTH TO PERMIT THE PIPE TO BE LAID AND JOINTED PROPERLY AND THE BACKFILL TO BE PLACED AND COMPACTED PROPERLY. THE MINIMUM WIDTH OF UNSHEETED TRENCH SHALL BE EIGHTEEN (18) INCHES AND, FOR PIPE TEN (10) INCHES OR LARGER, AT LEAST TWELVE (12) INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR CONCRETE PIPE AND EIGHTEEN (18) INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR CAST IRON AND STEEL PIPE. EXCEPT BY CONSENT OF THE ENGINEER, THE MAXIMUM CLEAR WIDTH OF TRENCH SHALL BE NOT MORE THAN TWO (2) FEET GREATER THAN THE OUTSIDE PIPE DIAMETER. WHEN SHEETING AND BRACING IS USED, THE TRENCH WIDTH SHALL BE INCREASED ACCORDINGLY.

(E) - THE TRENCH, UNLESS OTHERWISE SPECIFIED, SHALL HAVE A FLAT BOTTOM CONFORMING TO THE GRADE TO WHICH THE PIPE IS TO BE LAID. THE PIPE SHALL BE LAID UPON SOUND SOIL CUT TRUE AND EVEN, SO THAT THE BARREL OF THE PIPE WILL HAVE A BEARING FOR ITS FULL LENGTH.

(F) - ANY PART OF THE TRENCH EXCAVATED BELOW GRADE SHALL BE CORRECTED WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(G) - WHEN THE UNCOVERED TRENCH BOTTOM AT SUBGRADE IS SOFT AND IN THE OPINION OF THE ENGINEER CANNOT SUPPORT THE PIPE, A FURTHER DEPTH AND OR WIDTH SHALL BE EXCAVATED AND REFILLED TO PIPE FOUNDATION GRADE AS REQUIRED UNDER (F), OR OTHER APPROVED MEANS SHALL BE ADOPTED TO ASSURE A FIRM FOUNDATION FOR THE PIPE.

(H) - LEDGE ROCK, BOULDERS, LARGE STONES, AND SHALE SHALL BE REMOVED TO PROVIDE A CLEARANCE OF AT LEAST SIX (6) INCHES BELOW ALL PARTS OF THE PIPE, VALVES, OR FITTINGS, AND TO A CLEAR WIDTH OF SIX (6) INCHES ON EACH SIDE OF ALL CONCRETE PIPE AND NINE (9) INCHES ON EACH SIDE OF ALL CAST IRON AND STEEL PIPE.

(I) - EXCAVATION BELOW SUBGRADE IN ROCK, SHALE, OR IN BOULDERS SHALL BE REFILLED TO SUBGRADE WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(J) - BELL HOLES OF AMPLE DIMENSIONS SHALL BE DUG IN EARTH TRENCHES AT EACH JOINT TO PERMIT THE JOINTING TO BE MADE PROPERLY. ADEQUATE CLEARANCE FOR PROPERLY JOINTING PIPE LAID IN ROCK SHALL BE PROVIDED AT BELL HOLES.

(K) - THE USE OF EXCAVATING MACHINERY WILL BE PERMITTED EXCEPT IN PLACES WHERE OPERATION OF SAME WILL CAUSE DAMAGE TO TREES, BUILDINGS, OR EXISTING STRUCTURES ABOVE OR BELOW GROUND, IN WHICH CASE HAND METHODS SHALL BE EMPLOYED.

(L) - TREES, FENCES, POLES, AND ALL OTHER PROPERTY SHALL BE PROTECTED UNLESS THEIR REMOVAL IS AUTHORIZED. ANY PROPERTY DAMAGED SHALL BE SATISFACTORILY RESTORED BY THE CONTRACTOR.

(M) - HYDRANTS UNDER PRESSURE, VALVE PIT COVERS, VALVE BOXES, CURB STOP BOXES, FIRE OR POLICE CALL BOXES, OR OTHER UTILITY CONTROLS SHALL BE LEFT UNOBSTRUCTED AND ACCESSIBLE DURING THE CONSTRUCTION PERIOD.

(N) - THE CONTRACTOR SHALL MAINTAIN ALL EXCAVATIONS IN GOOD ORDER DURING THE CONSTRUCTION, SO AS NOT TO HINDER OR INJURE THE PIPE LAYING, MASONRY OR OTHER WORK. HE SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT MOVEMENT OF THE SIDES OF SUCH EXCAVATION AND SHALL REMOVE AT HIS OWN EXPENSE ANY MATERIAL SLIDING INTO THE EXCAVATION.

SHEETING AND BRACING

(A) - THE CONTRACTOR SHALL FURNISH AND PUT IN PLACE SUCH SHEETING AND BRACING AS MAY BE REQUIRED TO SUPPORT THE SIDES OF TRENCHES OR OTHER EXCAVATION AND SHALL REMOVE SUCH SHEETINGS AND BRACINGS, AS THE TRENCH OR EXCAVATION IS FILLED UP, UNLESS THE ENGINEER SHALL ORDER IT LEFT IN PLACE, IN WHICH CASE THE CONTRACTOR SHALL CUT THE PLANK OFF AT A HEIGHT AS ORDERED BY THE ENGINEER OR AS CALLED FOR ON THE CONTRACT DRAWINGS. THAT PORTION OF THE TIMBER ORDERED TO BE LEFT IN PLACE WILL BE SEPARATELY PAID FOR AS ITEM SPECIAL, SHEETING & BRACING LEFT IN PLACE PER THOUSAND FEET BOARD MEASURE. NO PAYMENT WILL BE MADE FOR WASTED ENDS.

BY C03

A QUANTITY OF 1 MBF HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR SHEETING AND BRACING LEFT IN PLACE.

(B) - WHENEVER THE EXCAVATIONS FOR THE WORK HEREIN TO BE DONE ARE IMMEDIATELY ADJACENT TO OTHER SUBSURFACE STRUCTURES, THE CONTRACTOR SHALL FURNISH AND PLACE SHEETING AND BRACING WHERE NOTED ON CONTRACT DRAWINGS AND AS MAY BE NECESSARY SO AS TO REDUCE TO A MINIMUM THE POSSIBILITY OF INJURING OR DAMAGING THE SAME.

(C) - IF THE ENGINEER IS OF THE OPINION THAT AT ANY POINT SUFFICIENT OR PROPER SUPPORTS, SHEETING, OR BRACINGS HAVE NOT BEEN PROVIDED, HE MAY ORDER ADDITIONAL SUPPORTS, SHEETING OR BRACING, AT THE EXPENSE OF THE CONTRACTOR, AND THE COMPLIANCE WITH SUCH ORDERS BY THE CONTRACTOR SHALL NOT RELIEVE OR RELEASE HIM FROM HIS RESPONSIBILITY FOR SUFFICIENCY OF SUCH SUPPORTS.

REMOVAL OF EXCAVATED MATERIAL

THIS ITEM SHALL BE AS SPECIFIED IN SECTION 203.05 OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1979.

LAYING PIPE

(A) - PROPER IMPLEMENTS, TOOLS, AND FACILITIES, SATISFACTORY TO THE ENGINEER, SHALL BE PROVIDED AND USED BY THE CONTRACTOR FOR THE SAFE AND CONVENIENT PROSECUTION OF THE WORK. ALL PIPE, FITTINGS, AND VALVES SHALL BE CAREFULLY LOWERED INTO THE TRENCH PIECE BY PIECE BY MEANS OF DERRICK, PROPER SLINGS, AND OTHER SUITABLE TOOLS OR EQUIPMENT, IN SUCH MANNER AS TO PREVENT DAMAGE TO PIPE OR COATING. UNDER NO CIRCUMSTANCES SHALL PIPE OR ACCESSORIES BE DROPPED OR DUMPED INTO THE TRENCH. IF ANY DEFECTIVE PIECE BE DISCOVERED WHILE PIPE IS SUSPENDED OR AFTER BEING LAID, A NEW PIECE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AT THE SITE OF THE WORK.

(B) - ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH, AND IT SHALL BE KEPT CLEAN BY APPROVED MEANS DURING AND AFTER LAYING.

(C) - AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF PIPE SHALL BE CLOSED BY APPROVED MEANS AND NO TRENCH WATER SHALL BE PERMITTED TO ENTER THE PIPE. NO PIPE SHALL BE LAID IN WATER OR WHEN THE TRENCH CONDITIONS OR THE WEATHER IS UNSUITABLE FOR SUCH WORK, EXCEPT BY PERMISSION OF THE ENGINEER.

(D) - WHEREVER NECESSARY TO DEFLECT PIPE FROM A STRAIGHT LINE, EITHER IN THE VERTICAL OR HORIZONTAL PLANE TO AVOID OBSTRUCTIONS, TO PLUMB STEMS, OR FOR OTHER REASONS, THE DEGREE OF DEFLECTION SHALL BE APPROVED BY THE ENGINEER.

(E) - BEFORE LAYING CAST IRON, DUCTILE IRON, OR STEEL PIPE ALL LUMPS, BLISTERS, AND EXCESS COAL TAR COATING SHALL BE REMOVED FROM THE BELL AND SPIGOT ENDS OF EACH PIPE, THE PIPE ENDS SHALL THEN BE KEPT CLEAN UNTIL JOINTS ARE MADE.

(F) - PREPARATION OF PIPE ENDS FOR STEEL PIPE SHALL BE IN ACCORDANCE WITH THE A.W.W.A. SPECIFICATIONS C 201-66 AND C 202-64 OR LATEST REVISIONS THEREOF FOR ELECTRIC FUSION WELDED STEEL WATER PIPE.

(G) - BEFORE LAYING CONCRETE PIPE, THE PIPE ENDS SHALL BE MADE SMOOTH WITH EMERY CLOTH, FILE, OF OTHER APPROVED MEANS, WIRE BRUSHED, AND WIPED UNTIL CLEAN AND DRY; PIPE ENDS SHALL BE KEPT CLEAN UNTIL JOINTS ARE MADE. AFTER CLEANING AND DRYING, ALL CONTACT SURFACES OF THE GASKETS AND STEEL JOINT RINGS SHALL BE COATED WITH AN APPROVED FLAX SOAP BEFORE ENTERING THE SPIGOT AND INTO THE SOCKET. IMMEDIATELY AFTER THE JOINT IS PULLED TOGETHER THE PIPE SHALL BE BLOCKED WITH WOOD BLOCKING. A SURCINGLE SHALL BE INSTALLED AROUND THE JOINT AND PIPE SHALL BE SECURED THERE WITH EARTH OR SAND, AS REQUIRED, CAREFULLY TAMPED UNDER AND ON EACH SIDE OF IT UP TO THE SPRING LINE OF PIPE INCLUDING THE BELL HOLES. ALL BLOCKING SHALL BE REMOVED WHEN BACKFILL HAS REACHED THE SPRING LINE OF PIPE.

APPROVED Nov. 20, 1978

Millard J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	LOW SERVICE DISTRICT
	DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER AND HEAT CLEVELAND, OHIO
	SUBJECT WATERWORK NOTES
	DRAWN G.A.D. SCALE NONE CHECKED R.W.H. DATE 7-19-77 No.

WATERWORK NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO		

45/91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

4/25

FLOATING

THE CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST THE FLOATING OF THE PIPE DUE TO WATER COMING INTO THE TRENCH OR THROUGH CAVING IN, FLUSHING, OR PUDDLING. IN CASE OF SUCH FLOATING THE CONTRACTOR SHALL REPLACE THE PIPE AT HIS OWN EXPENSE AND MAKE WHOLLY GOOD ANY INJURY OR DAMAGE WHICH MAY HAVE RESULTED.

TESTING MAINS

(A) - ALL PIPES, VALVES, FITTINGS, ETC., SHALL BE LAID IN SUCH A MANNER AS TO LEAVE ALL JOINTS WATERTIGHT. AFTER THE PIPE IS LAID, AND BEFORE BACKFILLING IS PLACED AROUND THE JOINTS, SUCH LENGTHS OF THE WATER MAIN AS THE ENGINEER MAY DETERMINE SHALL BE TESTED UNDER A HYDROSTATIC PRESSURE OF SEVENTY-FIVE (75) POUNDS PER SQUARE INCH ABOVE THE STATIC PRESSURE, BUT NOWHERE LESS THAN 150 POUNDS PER SQUARE INCH.

(B) - THE TEST SHALL BE UNDER THE DIRECTION OF THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES OR HIS DESIGNATE. THE CONTRACTOR MAY OBTAIN WATER FOR TESTING BY OBSERVING THE RULES AND REGULATIONS ENFORCED IN THE MUNICIPALITIES OR TOWNSHIPS IN WHICH THE WORK IS BEING DONE. THE CITY WILL FURNISH A PRESSURE GAGE FOR MEASURING THE PRESSURE ON THE WATER MAIN, BUT THE CONTRACTOR SHALL FURNISH A SUITABLE PUMP, PIPES, TEST HEADS AND ALL APPLIANCES, LABOR, FUEL, AND OTHER APPURTENANCES NECESSARY TO MAKE THESE TESTS.

(C) - THE TEST PRESSURE SHALL BE MAINTAINED FOR A SUFFICIENT LENGTH OF TIME TO ALLOW FOR A THOROUGH EXAMINATION OF JOINTS AND ELIMINATION OF LEAKAGE WHERE NECESSARY. THE PIPE LINES SHALL BE MADE ABSOLUTELY TIGHT UNDER THE TEST PRESSURE.

(D) - AFTER A SECTION OF THE WATER MAIN HAS BEEN TESTED, THE CONTRACTOR SHALL DRAIN SAME. IN CASE THE DRAINS ARE CONNECTED TO VALVE OR DRAIN VAULTS, THEN THE CONTRACTOR SHALL, WITHIN A REASONABLE TIME AFTER THE TEST HAS BEEN COMPLETED, PUMP ALL WATER OUT OF THE VAULTS.

(E) - IN COLD WEATHER, IMMEDIATELY AFTER TESTING A SECTION OF THE WATER MAIN, THE CONTRACTOR IS TO OPEN ALL VALVES, AIR COCKS, BYPASSES, AND DRAINS AND PROPERLY DRAIN BONNETS OF ALL VALVES IN THE SECTION OF THE WATER MAIN AND TAKE ALL OTHER PRECAUTIONS NECESSARY TO PREVENT INJURY TO WATER MAIN AND APPURTENANCES DUE TO FREEZING.

(F) - AS AN ALTERNATE FOR TESTING CONCRETE AND STEEL MAINS OTHER THAN BY THE PRECEDING METHOD, THE CONTRACTOR MAY CHOOSE THE FOLLOWING PRECEDURE:
THE WATER MAIN SHALL BE TESTED UNDER THE SAME HYDROSTATIC PRESSURE AS PREVIOUSLY NOTED. THE TEST PRESSURE SHALL BE MAINTAINED FOR A PERIOD OF TWO (2) HOURS BY PUMPING ADDITIONAL WATER INTO THE MAIN, IF NECESSARY. THE QUANTITY OF WATER THUS PUMPED INTO THE MAIN MULTIPLIED BY TWELVE (12) SHALL BE TAKEN AS THE LEAKAGE PER TWENTY-FOUR (24) HOURS.

(G) - THE PERMITTED LEAKAGE SHALL NOT EXCEED A RATE OF SEVENTY-FIVE (75) GALLONS PER TWENTY-FOUR (24) HOURS PER MILE OF PIPE PER INCH OF NOMINAL DIAMETER.

(H) - IN CALCULATING LEAKAGE, THE DIRECTOR WILL MAKE ALLOWANCE FOR ANY LEAKAGE AT THE VALVES, THE REMOVABLE BULKHEADS, ETC.

(I) - IN USING THIS METHOD OF TESTING, THE CONTRACTOR MAY BACKFILL THE PIPE EXCEPT AT LEAD JOINTS, FLANGED JOINTS, VICTAULIC COUPLINGS, AND DRAIN CONNECTION IMMEDIATELY FOLLOWING THE LAYING AND BEFORE THE ACTUAL TEST HAS BEEN MADE. IN CASE THE LEAKAGE EXCEEDS THE PERMISSIBLE AMOUNT MENTIONED ABOVE, THE CONTRACTOR SHALL FIND THE LEAK AND MAKE THE JOINTS TIGHT. THE CONTRACTOR SHALL FURNISH SUITABLE MEANS FOR DETERMINING THE QUANTITY OF WATER LOST BY LEAKAGE DURING THE TEST.

(J) - IN ORDER TO BE ABLE TO MAKE PROPER ALLOWANCE FOR LEAKAGE AT VALVES, ETC., PREVIOUSLY NOTED, ONLY SUCH SECTIONS OF WATER MAIN MAY BE SELECTED FOR TEST AS WILL HAVE SUCH VALVES, REMOVABLE BULKHEADS, ETC., ACCESSIBLE.

(K) - THE EVALUATION OF ACTUAL LEAKAGE TO STANDARD PRESSURE (150#)LEAKAGE IS CALCULATED BY THE APPLICATION OF THE RATIO DETERMINED FROM THE SQUARE ROOT OF RESPECTIVE PRESSURES, OTHER FACTORS BEING EQUAL.

(L) - PRESSURE TO BE USED FOR BOTH DESIGN AND TESTING SHALL BE MEASURED FROM ELEVATION 809 FOR RELOCATED 24" OR 30" WATER MAIN.

CLOSING VALVES

THE CLOSING OF ALL GATE VALVES ON EXISTING MAINS FOR MAKING CONNECTIONS, TESTS, OR FOR ANY OTHER CAUSE SHALL BE DONE BY THE CITY AND SUFFICIENT NOTICE SHALL BE GIVEN TO THE CITY, BY THE CONTRACTOR, SO THAT THE WORK MAY BE DONE WITH A MINIMUM OF INCONVENIENCE TO THE PUBLIC AND DELAY TO THE CONTRACTOR.

EXISTING STRUCTURES REMOVED

THIS WORK SHALL CONSIST OF THE ENTIRE REMOVAL, DISPOSAL AND BACKFILLING OF ALL WATER MANHOLES, DRAIN VAULTS, FIRE VAULTS, METER VAULTS, AND STRUCTURES WHICH ARE NOT PERMITTED TO REMAIN, EXCEPT FOR THESE OBSTRUCTIONS TO BE REMOVED AND DISPOSED OF UNDER OTHER ITEMS IN THE CONTRACT.

CAVITIES LEFT BY STRUCTURE REMOVAL SHALL BE FILLED TO THE LEVEL OF THE SURROUNDING GROUND AND COMPACTED IN ACCORDANCE WITH SECTION 203 OF THE STATE HIGHWAY DEPARTMENT SPECIFICATIONS.

CASTINGS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE NOTED ON THE PLANS.

THE ACCEPTED QUANTITIES OF STRUCTURES REMOVED AND DISPOSED OF, WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID, WHICH PRICE SHALL BE FULL COMPENSATION FOR REMOVAL, DISPOSAL, EXCAVATION, AND BACKFILL INCIDENTAL TO THEIR REMOVAL.

PAYMENT WILL BE MADE AT THE CONTRACT PRICE BID FOR "ITEM SPECIAL - LUMP SUM - STRUCTURES REMOVED".

PLUGGING DEAD ENDS

STANDARD PLUGS WITH CLAMPS SHALL BE INSERTED INTO THE BELLS OF ALL DEAD ENDS OF PIPES, TEES, OR CROSSES AND SPIGOT ENDS CAPPED AND CLAMPED BY THE CONTRACTOR, ON ALL MAINS CONSTRUCTED BY HIM, AND ON ALL EXISTING WATER MAINS WHERE INDICATED ON THE CONTRACT DRAWINGS. CONCRETE PIERS SHALL BE PLACED WHEN CALLED FOR ON THE CONTRACT DRAWINGS, OR ORDERED BY THE ENGINEER. THE COST OF FURNISHING THE PLUGS SHALL BE INCLUDED IN THE PER LINEAL FOOT PRICE BID FOR THE VARIOUS SIZES OF NEW WATER MAINS, AND FOR THE SIZE OF PLUG INSTALLED WHERE SHOWN ON EXISTING WATER MAIN.

TEMPORARY PLUGS

WHEN THE CONTRACTOR INSTALLS A WATER MAIN PLUG AND SUBSEQUENTLY REMOVES THE SAME PLUG UNDER PHASE CONSTRUCTION, SAID PLUG SHALL BE CLASSIFIED AS A TEMPORARY PLUG.

TEMPORARY PLUGS WILL NOT BE PAID FOR UNDER A SEPARATE PAY ITEM.

PAYMENT FOR TEMPORARY PLUGS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR LINEAL FEET OF ITEM SPECIAL - WATER MAINS TYPE AND SIZE SPECIFIED ON THE PLANS.

BACKFILLING

(A) - THIS WORK INCLUDES ALL BACKFILLING, TOGETHER WITH RAMMING, PUDDLING, AND ROLLING, AS REQUIRED, THE REGRADING OF GROUNDS, THE REPLACING OF SURFACE AND SUBSURFACE STRUCTURES, THE PLACING AND MAINTAINING OF TEMPORARY SIDEWALKS AND DRIVEWAYS, THE FURNISHING OF SUITABLE MATERIAL FOR BACKFILL, RESEEDING LAWNS AND REPLACING TREES AND SHRUBBERY DAMAGED BY THE CONTRACTOR, AND ALL APPURTENANT WORK INCIDENTAL THERETO. PAVEMENTS, CURBS, SIDEWALKS, AND DRIVEWAYS WITHIN THE LIMITS OF THE WORK SHALL BE TEMPORARILY SURFACED, MAINTAINED, AND FINALLY REPLACED OR REPAVED AS SET FORTH UNDER "ROAD SURFACES, SIDEWALKS, DRIVEWAYS AND CURBING".

(B) - BACKFILL, UNLESS OTHERWISE SPECIFIED, MAY BE MADE WITH MATERIAL EXCAVATED FROM THE TRENCHES, PROVIDING SAME IS SATISFACTORY TO THE ENGINEER. IF, IN THE OPINION OF THE ENGINEER, THE MATERIAL EXCAVATED IS UNSATISFACTORY, THEN THE CONTRACTOR SHALL FURNISH AT HIS OWN EXPENSE OTHER MATERIAL SUITABLE FOR BACKFILL. ALL BACKFILL SHALL BE FREE FROM SLAG, CINDERS, RUBBISH, AND OTHER OBJECTIONALBE MATERIAL.

(C) - BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE BROUGHT TO THE GRADE OF THE BOTTOM OF THE PIPE EXCEPT AT FIELD JOINTS. WHEREVER THE BOTTOM OF THE TRENCH HAS BEEN EXCAVATED BELOW THE BOTTOM OF THE PIPE, THE CONTRACTOR SHALL PLACE SAND OR OTHER MATERIAL SATISFACTORY TO THE ENGINEER TO BRING THE BOTTOM OF THE TRENCH TO THE GRADE OF THE BOTTOM OF THE PIPE. THIS BED SHALL BE THOROUGHLY TAMPED BEFORE THE PIPE IS LAID.

(D) - UNLESS OTHERWISE SPECIFIED, THE BACKFILL UNDER, AROUND, AND TO A DEPTH OF ONE (1) FOOT ABOVE THE TOP OF ALL PIPE SHALL BE MADE WITH MATERIAL SATISFACTORY TO THE ENGINEER, WHICH MATERIAL SHALL BE FREE FROM STONE AND OTHER OBJECTIONABLE MATERIAL NOTED ABOVE. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL, SO AS TO AVOID INJURING, DISTORTING, OR MOVING THE PIPE WHEN COMPACTING SAME. ABOVE THIS LEVEL THE BACKFILL SHALL BE MADE WITH MATERIAL SATISFACTORY TO THE ENGINEER. HOWEVER, WHERE SPECIFIED, SAND SHALL BE USED FOR THE ENTIRE PORTION OF THE BACKFILL - SEE PARAGRAPH (H).

(E) - BACKFILLING AS NOTED IN PARAGRAPH (D) SHALL BE TAMPED IN THIN LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.

(F) - ONLY AFTER THE BACKFILL PREVIOUSLY MENTIONED HAS BEEN SATISFACTORILY COMPACTED, MAY WORK PROCEED IN PLACING THE REMAINING BACKFILL WHICH MUST BE CAREFULLY PLACED AND COMPACTED BY TAMPING, PUDDLING, OR ROLLING. ALL PRECAUTIONS MUST BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE NUMBER OF MEN TAMPING SHALL BE NOT LESS THAN THE NUMBER BACKFILLING, AND ADDITIONAL MEN SHALL BE KEPT IN THE TRENCH TO SPREAD THE MATERIAL.

(G) - BACKFILLING SHALL NOT BE DONE IN FREEZING WEATHER, EXCEPT BY PERMISSION OF THE ENGINEER, AND IT SHALL NOT BE MADE WITH FROZEN MATERIAL, NOR SHALL ANY FILL BE MADE WHERE THE MATERIAL ALREADY IN THE DITCH IS FROZEN.

(H) - THE ENTIRE BACKFILL SHALL BE MADE WITH COMPACTED SAND WHERE PERMANENT PAVEMENTS, CURBS, DRIVEWAYS, OR SIDEWALKS HAVE BEEN OPENED FOR OR UNDERCUT BY THE EXCAVATION.

(I) - ALL SAND TO BE USED FOR BACKFILL SHALL BE A NATURAL BANK SAND, GRADED FROM FINE TO COARSE, NOT LUMPY OR FROZEN, AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH, OR OTHER DELETERIOUS OR OBJECTIONABLE MATERIAL. IT SHALL NOT CONTAIN A TOTAL OF MORE THAN 10 PER CENT BY WEIGHT OF LOAM AND CLAY, AND ALL MATERIAL MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. NOT MORE THAN 5 PER CENT SHALL REMAIN ON A NO. 4 SIEVE.

(J) - SPECIAL TREATMENT OF THE TRENCH WILL BE REQUIRED WHERE CINDER EXCAVATION, EXCEEDING ONE (1) FOOT MEASURED FROM THE TOP SURFACE, IS ENCOUNTERED. BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE DUG BELOW GRADE AND THEN BROUGHT TO THE GRADE OF THE PIPE IN THE FOLLOWING MANNER: A FOUR (4) INCH LAYER OF CRUSHED LIME STONE SHALL BE PLACED ON THE ENTIRE WIDTH OF THE BOTTOM OF THE TRENCH, FOLLOWED BY A FILLER OF HYDRATED LIME AND A LAYER OF THREE (3) INCHES OF SAND, THE CRUSHED LIME STONE SHALL BE WELL GRADED FROM FINE TO COARSE, AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH OR OTHER OBJECTIONABLE MATERIAL. ALL LIME STONE MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. ON TOP OF THIS LAYER OF CRUSHED STONE, HYDRATED LIME SHALL BE SUPPLIED IN THE AMOUNT OF 3/8 OF A POUND PER SQUARE FOOT OF TRENCH. THIS BED OF CRUSHED LIME STONE SHALL BE THOROUGHLY TAMPED BEFORE THE 3" LAYER OF SAND IS PLACED. THE BACKFILL AROUND AND TO THE DEPTH OF 3 INCHES ABOVE THE TOP OF THE PIPE SHALL BE MADE WITH SAND. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL SO AS TO AVOID INJURING OR MOVING THE PIPE WHEN COMPACTING SAME. ON TOP OF THE SAND THE CONTRACTOR SHALL PLACE ANOTHER LAYER OF CRUSHED LIME STONE FIVE (5) INCHES THICK ON THE ENTIRE WIDTH OF THE TRENCH. ON TOP OF THE COMPACTED LAYER OF LIME STONE HYDRATED LIME SHALL BE THEN APPLIED IN THE AMOUNT OF 3/4 OF A POUND PER SQUARE FOOT OF TRENCH. THE REMAINING BACKFILL SHALL BE MADE WITH SAND, CAREFULLY PLACED AND COMPACTED BY TAMPING, PUDDLING, OR ROLLING. ALL PRECAUTIONS SHALL BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE TREATMENT OF THE TRENCH BOTTOM, PREVIOUSLY DESCRIBED MAY BE OMITTED WHERE THE CINDER DEPTH, MEASURED FROM THE TOP SURFACE DOES NOT EXCEED 2' - 6".

APPROVED Nov 20, 19 78

William Schwarzwald
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN G.A.D. | SCALE NONE
CHECKED R.W.H. | DATE 7-19-77 | No.

WATERWORK NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO		

46/91

5/25

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

SEEDING AND SODDING

(A) - IN PREPARATION FOR SEEDING OR SODDING, THE SURFACES SHALL BE HARROWED TO A DEPTH OF THREE (3) INCHES. ALL GRASS, WEEDS, ROOTS, STICKS, STONES, ETC., ARE TO BE REMOVED AND THE SOIL CAREFULLY BROUGHT TO THE EXACT FINISHED GRADE OR SUBBASE BY RAKING. AN APPLICATION OF NOT LESS THAN ONE POUND PER ONE HUNDRED (100) SQUARE FEET OF A HIGH NITROGEN CONTENT COMMERCIAL FERTILIZER HAVING AN ANALYSIS OF 10:6:4 SHALL THEN BE UNIFORMLY DISTRIBUTED AND CAREFULLY RAKED IN.

(B) - IMMEDIATELY AFTER THE PREPARATION AND FERTILIZING OF THE SEED BED, THE PREPARED SURFACE SHALL BE SEEDED WITH NOT LESS THAN THREE HUNDRED (300) POUNDS OF GRASS SEED PER ACRE. THE SEED SHALL BE CAREFULLY AND UNIFORMLY SOWN BY EXPERIENCED AND SKILLED WORKMEN. FOLLOWING THE SEEDING, THE SURFACE SHALL BE LIGHTLY RAKED AND ROLLED WITH A LIGHT ROLLER. THE GRASS SEED TO BE USED SHALL BE APPROVED BY THE DIRECTOR.

(C) - IMMEDIATELY AFTER THE PREPARATION OF THE SURFACE FOR SOD, THE FRESHLY CUT SOD SHALL BE CAREFULLY PLACED IN FINAL POSITION, STAKED WITH SUFFICIENT WOODEN STAKES TO PREVENT MOVEMENT, CAREFULLY TAMPED TO FINAL POSITION AND ALL JOINTS CAREFULLY FILLED WITH SCREENED TOPSOIL TO BRING ALL TO A UNIFORM SURFACE.

(D) - ALL SEEDED AND SODDED SURFACES SHALL BE CAREFULLY LOOKED AFTER AND TENDED BY THE CONTRACTOR; SHALL BE WATERED AND THE GRASS CUT WHEN NECESSARY. SETTLED AREAS SHALL BE REFILLED, LEVELLED, AND TAMPED TO THE PROPER GRADE. ALL SEEDED AND SODDED SURFACES SHALL BE LEFT IN GOOD CONDITION ON THE COMPLETION OF THE WORK.

(E) - AS SEEDING AND SODDING CAN ONLY BE SUCCESSFULLY DONE AT CERTAIN SEASONS OF THE YEAR, THE PREPARATION OF THE SOD OR SEED BED, AND THE WORK OF SODDING AND SEEDING, SHALL ONLY BE DONE AT SUCH TIMES AS MAY BE APPROVED BY THE DIRECTOR.

ROAD SURFACES, SIDEWALKS, DRIVEWAYS, AND CURBING

(A) - THE CONTRACTOR SHALL REMOVE ALL PAVEMENTS AND ROAD SURFACES WITHIN THE LINES OF EXCAVATION. AFTER THE PIPE HAS BEEN LAID, ALL APPURTENANT WORK CONSTRUCTED, AND BACKFILL COMPLETED, HE SHALL FURNISH, PLACE AND MAINTAIN, WHEREVER THE PAVEMENT OR ROAD SURFACE HAS BEEN REMOVED OR DAMAGED BY HIM, A TEMPORARY PAVEMENT IN THE PAVED PORTION OF STREETS, OR A TEMPORARY ROAD SURFACE IN THE UNPAVED PORTION OF STREETS, SO AS TO PROVIDE A SAFE AND PASSABLE ROADWAY UNTIL SUCH TIME AS THE FINAL PAVEMENT OR ROAD SURFACE IS COMPLETED.

(B) - ALL FINAL PAVING OF ROAD SURFACES, IF SO NOTED ON CONTRACT DRAWINGS, SHALL BE DONE BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND IN CONFORMITY TO THE APPROPRIATE TYPICAL SECTIONS SHOWN IN THE PLANS. THE CONTRACTOR SHALL BEAR THE ENTIRE COST OF THE WORK. THE BASE OF PAVEMENT OF ITEM 305 SHALL BE INSTALLED ON A CAREFULLY PREPARED BED LEVEL WITH THE BOTTOM OF THE ABUTTING BASE OVER DISTRUBED AREAS AND SHALL BE OF THE THICKNESS SPECIFIED, BUT IN NO CASE LESS THAN 7" THICK. WHERE PAVEMENT OR BASE OF PAVEMENT HAS BEEN DAMAGED BY CAVE-IN, OR BY TRENCH CUT LEAVING A PORTION OR PORTIONS OF PAVEMENT 18 INCHES OR LESS IN WIDTH BETWEEN SUCH CUT OR DAMAGE TO CURB OR OTHER SUBSTRUCTURE, THAT REMAINING PORTION OF PAVEMENT SHALL BE REMOVED AND RESTORED MONOLITHIC WITH THE TYPE AND KIND OF PAVEMENT SPECIFIED FOR THE ADJACENT TRENCH AREA. THE WEARING COURSE OVER TRENCH OR OTHER DISTURBED AREAS SHALL BE RESTORED TO MATCH EXISTING PAVEMENT UNLESS OTHERWISE SPECIFIED. ASPHALTIC CONCRETE WEARING COURSE OVER SUCH AREAS SHALL BE NEATLY AND SQUARELY CUT, BEFORE THE INSTALLATION OF A CAREFULLY TOOTHEDIN-TO ADJACENT PAVEMENT, UNLESS OTHERWISE SPECIFIED. EXPANSION JOINTS SHALL BE INSTALLED BETWEEN BRICK WEARING COURSE, IF GROUTED, AND CURB OR OTHER SUBSTRUCTURE, WHERE SUCH RESTORATION IS REQUIRED BY THESE SPECIFICATIONS.

(C) - IF ANY SIDWALKS, DRIVEWAYS OR CURBS ARE REMOVED OR INJURED BY THE CONTRACTOR IN THE COURSE OF MAKING EXCAVATION OR HANDLING MATERIALS, OR FOR ANY OTHER REASON WHICH MAY BE ATTRIBUTED TO WORK WHICH HAS BEEN DONE BY THE CONTRACTOR, THEN HE SHALL RELAY SAME AFTER ALL WORK, INCLUDING BACKFILLING, HAS BEEN COMPLETED. IF ANY STONE SIDEWALKS, DRIVEWAYS, OR CURBS, WHICH HAVE BEEN REMOVED OR INJURED, ARE UNFIT TO BE RELAID, THEN THE CONTRACTOR SHALL FURNISH NEW MATERIAL AND RELAY SAME. ALL CONCRETE OR CEMENT SIDEWALKS, DRIVEWAYS, OR CURBS, WHICH ARE REMOVED OR INJURED BY THE CONTRACTOR, SHALL BE BROKEN UP BY HIM AND HE SHALL FURNISH ALL LABOR AND MATERIALS AND CONSTRUCT NEW SIDEWALKS, DRIVEWAYS, OR CURBS TO REPLACE THOSE REMOVED OR INJURED. AT INTERSECTING WALKS, DRIVES, ETC., ADDITIONAL CONCRETE SLABS BEYOND THE EXCAVATION LIMITS SHALL BE REMOVED AND REPLACED WITH NEW MATERIAL, IN ORDER TO AVOID HAVING MORE JOINTS THAN IN THE ORIGINAL WORK. ALL SLABS REPLACED SHALL BE OF FULL WIDTH. THE CONTRACTOR SHALL FURNISH, PLACE, AND MAINTAIN, WHEREEVER THE SIDEWALK HAS BEEN REMOVED OR DAMAGED BY HIM, A TEMPORY SIDEWALK SO AS TO PROVIDE A SAFE AND PASSABLE SIDEWALK UNTIL SUCH TIME AS THE FINAL SIDEWALK IS COMPLETED.

(D) - ALL DAMAGED OR DISPLACED CURB SHALL BE RENEWED OR RESET TO THE SATISFACTION OF THE DIRECTOR OF PUBLIC SERVICE. NO FAULTY CURB OR CURB LESS THAN 30" LONG WILL BE PERMITTED FOR REUSE.

(E) - LOCATION OF WORK. EXISTING PAVEMENT AS SHOWN ON CITY RECORDS, AND RESTORATIONS ACCEPTABLE ARE GIVEN ON THE CONTRACT DRAWINGS.

(F) - ALL PAVEMENTS, ROAD SURFACES, SIDEWALKS, DRIVEWAYS, OR CURBS, WHICH THE CONTRACTOR IS REQUIRED TO REPLACE OR TO HAVE REPLACED, SHALL, AT THE EXPIRATION OF THIS CONTRACT, BE IN AT LEAST AS GOOD CONDITION AS AT THE TIME OF AWARDING THE CONTRACT.

(G) - IF, PRIOR TO THE EXPIRATION OF THE PERIOD OF MAINTENANCE, ANY OF THE PAVEMENTS OR ROAD SURFACES WITHIN THE LINES OF EXCAVATION OR ADJACENT THERETO SHALL HAVE BEEN DAMAGED OR INJURED, DUE TO UNDERMINING OR FOR ANY OTHER CAUSE WHICH MAY BE ATTRIBUTED TO THE WORK WHICH IS BEING DONE BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL REMOVE SUCH DAMAGED OR INJURED PAVEMENTS OR ROAD SURFACES, FOUNDATIONS OF SAME AND ALL LOOSE EARTH. HE SHALL THEN BACKFILL WITH SAND PROPERLY RAMMED AND REPLACE THE FINAL PAVEMENT OR ROAD SURFACE.

(H) - TUNNELING WILL NOT BE PERMITTED WITHOUT PERMISSION OF THE ENGINEER. IN BACKFILLING TUNNELS, SAND SHALL BE USED AS FAR AS POSSIBLE, AND THE BALANCE OF BACKFILLING MADE WITH CLASS "C" CONCRETE, RAMMED IN PLACE.

(I) - NO SPECIFIC OR SEPARATE PAYMENT WILL BE MADE FOR ALL OF THIS WORK, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES BID FOR THE VARIOUS ITEMS OF THE WORK TO BE DONE UNDER THIS CONTRACT. RESTORATION AS NOTED ABOVE WILL ONLY BE REQUIRED IN AREAS WHERE THE PLANS DO NOT OTHER WISE PROPOSE NEW CONSTRUCTION OF PAYMENT, SIDEWALKS, AND CURBS, EXCEPT THAT TEMPORARY RESTORATION IN SUCH AREAS MAY BE REQUIRED BY THE ENGINEER IN ORDER TO MAINTAIN TRAFFIC OR LOCAL ACCESS PER 104.04 AND 107.10 OF THE STATE OF OHIO, DEPT. OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS.

LIST AND INVOICES

(A) - THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH THE LIST IN DUPLICATE OF PIECES IN EACH SHIPMENT OF PIPE AND SPECIALS, GIVING THE SERIAL NUMBER AND DESIGNATION OF EACH PIPE AND SPECIAL SENT AT THAT TIME.

(B) - THE MATERIAL SHALL BE SHIPPED IN SUCH SECTIONS AS THE ENGINEER MAY ORDER.

CAST IRON AND DUCTILE IRON PIPE AND FITTINGS

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT IN PLACE, AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL CAST IRON OR DUCTILE IRON PIPE AND FITTINGS, INCLUDING ALL EXCAVATION WORK, THE CUTTING INTO AND REMOVAL OF EXISTING PIPE, BACKFILLING, SAND BACKFILL AND REPAVING, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

(A) - ALL PIT CAST PIPE SHALL BE MANUFACTURED IN ALL RESPECTS IN ACCORDANCE WITH, AND SHALL MEET THE REQUIREMENTS OF, THE LATEST "STANDARD SPECIFICATIONS FOR CAST IRON PIPE AND SPECIAL FITTINGS" AS ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION WHICH SPECIFICATIONS EXCEPT AS HEREIN MODIFIED ARE MADE A PART OF THESE SPECIFICATIONS.

(B) - ALL PIT CAST PIPE AND FITTINGS, UNLESS OTHERWISE SHOWN IN THE PLANS, SHALL BE DOUBLE STANDARD THICKNESS CEMENT LINED AND OF THE SIZE AND CLASSES NOTED ON THE RESPECTIVE CONTRACT DRAWINGS.

(C) - IN LIEU OF PIT CAST PIPE ABOVE, THE CONTRACTOR WILL BE PERMITTED TO FURNISH EITHER CENTRIFUGAL OR HIGH STRENGTH CEMENT LINED PIPE. THE METAL SHALL HAVE A MODULUS OF RUPTURE OF NOT LESS THAN 40,000 PSI AND A TENSILE STRENGTH OF NOT LESS THAN 18,000 PSI AND SHALL BE OF THE CLASS NOTED ON THE CONTRACT DRAWINGS. PIPE MAY BE FURNISHED IN 12, 16, OR 18 FOOT LENGTHS. THE CENTRIFUGALLY CAST PIPE SHALL CONFORM TO THE AMERICAN NATIONAL STANDARDS INSTITUTE SPECIFICATIONS A21 6-1962 AND ALL SUBSEQUENT AMENDMENTS THERETO.

WHEN NOTED ON THE CONTRACT DRAWINGS, DUCTILE IRON PIPE SHALL BE SUPPLIED. ALL DUCTILE IRON PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.A. A21 51. ALL DUCTILE IRON FITTING SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.A. A21 .10 OR AWWA C 100-55. DUCTILE IRON SHALL HAVE A MINIMUM OF 60,000 PSI ULTIMATE TENSILE STRENGTH, 40,000 PSI YIELD POINT, AND 10% ELONGATION. THE CHEMICAL ANALYSIS SHALL BE AS FOLLOWS: CARBON 3% MINIMUM. PHOSPHORUS .08% MAXIMUM, AND SILICON 2.75% MAXIMUM.

(1) THE THICKNESS OF THE CENTRIFUGALLY CAST DUCTILE IRON PIPE AND CAST IRON PIPE SHALL CONFORM TO THE FOLLOWING:

CAST IRON PIPE				DUCTILE IRON PIPE			
SIZE	WORKING PRESSURE	STANDARD THICKNESS	CLASS	SIZE	WORKING PRESSURE	STANDARD THICKNESS	CLASS
4"	250	0.44	24	12"	350	0.49	6
6"	250	0.48	25	16"	350	0.52	6
8"	250	0.52	25				
12"	250	0.60	25				

(2) ALL FITTINGS, SUCH AS BENDS, TEES, CROSSES, OFFSETS, HYDRANT BRANCHES, ETC., SHALL HAVE BELL AND BELL OR BELL AND SPIGOT ENDS WITH CAST LEAD JOINTS. PIPE BETWEEN OFFSETS OR BENDS AND ON HYDRANT BRANCHES SHALL ALSO BE OF BELL AND SPIGOT TYPE WITH LEAD JOINTS.

(D) - ALL PIPE SHALL HAVE BELL AND SPIGOT ENDS FOR CAST LEAD JOINTS OR A SLIP ON TYPE JOINT WITH COMPRESSED RUBBER RING INSERTS. ALL PIPE AND FITTINGS SHALL BE CEMENT LINED.

(E) - GASKETS SHALL BE OF RUBBER OR OTHER EQUALLY EFFECTIVE PROTECTION AGAINST UNEVEN DISTORTION OF THE GASKET.

(F) - WHERE FITTINGS ARE SHOWN WHICH ARE NOT COVERED BY THE ABOVE SPECIFICATIONS, THEY, IN SUCH PARTICULARS AS ARE LACKING THEREON, SHALL CONFORM TO THE DIMENSIONS AND OTHERWISE MEET THE SPECIFICATIONS FOR THE RESPECTIVE TYPE WHICH ARE CARRIED IN THE LATEST REVISIONS TO THE CONTRACT DRAWINGS.

(G) - WHEREVER CHANGES IN LINE AND GRADES OF THE MAIN AS SHOWN ON THE DRAWINGS ARE NOT STANDARD FITTING DEFLECTIONS, THE CONTRACTOR WILL BE PERMITTED TO SUBMIT DETAILS USING COMBINATIONS OF STANDARD FITTINGS AND SMALL DEFLECTION. (NOT TO EXCEED A MAXIMUM OF ONE HALF (1/2) INCH JOINT OPENING) IN THE ADJOINING LENGTHS OF PIPE.

(H) - PLUGS FOR BELL AND SPIGOT PIPE SHALL BE FURNISHED WITH TWO (2) PLUGGED TWO (2") INCH TAPS FOR DRAIN AND AIR COCK CONNECTIONS.

(I) CLOSURE PIECES SHALL BE ACCURATELY MEASURED AND CUT IN THE FIELD AND INSTALLED USING SOLID TYPE PATTERN SLEEVES AS SHOWN OR AS REQUIRED.

(J) - TESTS, INSPECTION, REPORTS, AND ANALYSES OF TESTS OF SAMPLES FOR ALL MATERIALS SHALL BE FURNISHED AS SET FORTH ELSEWHERE IN THESE NOTES.

(K) - BITUMASTIC COATING SHALL BE APPLIED ON THE EXTERIOR OF ALL CAST IRON PIPE AND FITTINGS IN ACCORDANCE WITH AWWA SPECIFICATIONS. ALL DUCTILE WATER MAIN PIPE AND FITTINGS SHALL BE GIVEN, IN ADDITION TO THAT SPECIFIED, PROTECTION WITH POLYETHELENE ENCASEMENT IN ACCORDANCE WITH ANSI A21.5-1972 (AWWA C105-72), CLASS "C" INSTALLATION METHOD "B". ALL FITTINGS SHALL HAVE ANSI A21.5-1972 PROTECTION.

CEMENT LINING

ALL CAST IRON OR DUCTILE IRON PIPE AND FITTINGS, UNLESS OTHERWISE SHOWN IN THE PLANS, SHALL BE GIVEN A STANDARD THICKNESS CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE LINING SHALL CONFORM TO THE AMERICAN NATIONAL STANDARDS INSTITUTE SPECIFICATION A21.4 - 1964.

APPROVED Nov 20, 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN G.A.D. | SCALE NONE | No.

CHECKED R.W.H. | DATE 7-19-77

WATERWORK NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO	M-IA 30 (1)	

47/91

6/24

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

CAST IRON AND DUCTILE IRON PIPE AND FITTINGS CONT'D.

MARKING

ALL CAST IRON OR DUCTILE IRON PIPE AND FITTINGS SHALL BE SUITABLY MARKED TO DENOTE THE MANUFACTURER, CLASS, DATE, WEIGHT, AND OTHER ELEMENTS OF IDENTIFICATION.

FACING AND DRILLING

ALL FLANGES SHALL BE CAST SOLID AND FACED ACCURATELY AT RIGHT ANGLES TO THE AXIS OF THE PIPE. ALL FLANGES SHALL BE COATED WITH WHITE LEAD IMMEDIATELY AFTER THEY HAVE BEEN FACED AND DRILLED. ALL FLANGED PIPE AND FITTINGS SHALL BE FACED AND DRILLED TO "AMERICAN 1928 STANDARD" DRILLING, 125 POUND TEMPLATE, UNLESS SPECIAL DRILLING IS CALLED FOR. WHERE TAP OR STUD BOLTS ARE REQUIRED, FLANGES SHALL ALSO BE TAPPED AND SPOT FACED.

LAYING

(A) - PROPER AND SUITABLE TOOLS AND APPLIANCES FOR THE SAFE AND CONVENIENT HANDLING AND LAYING OF THE PIPES AND FITTINGS SHALL BE USED. GREAT CARE SHALL BE TAKEN TO PREVENT THE PIPE COATING FROM BEING DAMAGED PARTICULARLY ON THE INSIDE OF PIPES AND FITTINGS AND ANY SUCH DAMAGE SHALL BE REMEDIED AS DIRECTED. ALL PIPES AND FITTINGS SHALL BE CAREFULLY EXAMINED BY THE CONTRACTOR FOR DEFECTS JUST BEFORE LAYING AND NO PIPE OR FITTINGS SHALL BE LAID WHICH IS KNOWN TO BE DEFECTIVE.

(B) - IF ANY DEFECTIVE PIPE IS DISCOVERED AFTER HAVING BEEN LAID, IT SHALL BE REMOVED AND REPLACED WITH A SOUND PIPE OR FITTING IN A SATISFACTORY MANNER BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL PIPES AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE THEY ARE LAID, SHALL BE KEPT CLEAN UNTIL THEY ARE USED IN THE COMPLETED WORK, AND WHEN LAID SHALL CONFORM TO THE LINES AND GRADES GIVEN BY THE PLANS OR ENGINEER. OPEN ENDS OF PIPES SHALL BE KEPT PLUGGED WITH A BULKHEAD DURING CONSTRUCTION. IN NO EVENT SHALL ANY PORTION OF THE DAMAGED PIPE BE PERMITTED TO REMAIN IN THE LINE. ANY APPROVAL STAMPS FOUND ON THE PIPE SHALL BE REMOVED OR THE PIPE BROKEN UP FOR SCRAP.

(C) - PIPE LAID IN TRENCH SHALL BE LAID TO A FIRM AND EVEN BEARING FOR ITS FULL LENGTH. PRECAUTIONS SHALL BE TAKEN AGAINST FLOATING.

(D) - IT IS THE INTENTION OF THESE SPECIFICATIONS TO SECURE FIRST CLASS WORKMANSHIP IN THE PLACING OF PIPE AND ACCESSORIES. IN SUCH DETAILS AS ARE NOT SPECIFICALLY MENTIONED HEREIN OR CALLED FOR ON THE DRAWINGS. THE CONTRACTOR WILL BE REQUIRED TO CONFORM WITH THE APPLICABLE SECTIONS OF THE LATEST SPECIFICATION C600, "STANDARD FOR INSTALLATION OF CAST IRON WATER MAINS"

CUTTING PIPE

WHENEVER THE PIPES REQUIRE CUTTING TO FIT INTO THE LINES, THE WORK SHALL BE DONE IN A SATISFACTORY MANNER SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE. IN NO EVENT SHALL FLAME CUTTING BE USED. WHEN A PIECE OF PIPE IS CUT TO FIT INTO THE LINE, NO PAYMENT WILL BE MADE FOR THE PORTION CUT OFF AND NOT USED IN THE LINE.

JOINTS

(A) - LEAD JOINTS: IN JOINTING ALL BELL AND SPIGOT PIPE AND FITTINGS HAVING LEAD JOINTS, THE SPIGOT OF EACH PIPE SHALL BE PROPERLY SEATED IN THE BELL OF THE NEXT ADJACENT PIECE AND ADJUSTED SO AS TO GIVE A UNIFORM ANNULAR SPACE. THE JOINT SHALL BE MADE WITH TWISTED HARD JUTE AND SOFT PIG LEAD. BEFORE PLACING THE JUTE IT SHALL BE STERILIZED EITHER BY BOILING OR BY DIPPING IN A CONCENTRATED SOLUTION OF "HTH". THE JUTE SHALL BE TWISTED AND THOROUGHLY DRIVEN INTO THE BELL SO THAT THE LEAD, AFTER HAVING BEEN CAULKED, SHALL HAVE THE FOLLOWING DEPTH:

SIZE OF PIPE	DEPTH OF LEAD
4" THRU 20" BOTH INCLUSIVE	2-1/2 INCHES
30" & 36"	3-1/4 INCHES
SLEEVES	SOLID

THE FURNACE AND MELTING POT SHALL BE KEPT NEAR THE JOINT TO BE POURED AND EACH JOINT SHALL BE MADE WITH ONE POURING. DROSS SHALL NOT BE ALLOWED TO ACCUMULATE IN THE MELTING POT. THE JOINTS SHALL BE THOROUGHLY CAULKED BY COMPETENT PIPE JOINERS AND IN SUCH MANNER AS WILL SECURE A TIGHT JOINT WITHOUT OVERSTRAINING THE IRON OF THE BELL.

PUSH-ON & BOLTLESS RESTRAINED JOINTS

(A) - WHERE LUGGED OR RESTRAINED JOINTS ARE USED IN PLACE OF BELL & BELL OR BELL AND SPIGOT JOINTS FOR CAST LEAD JOINTS AS INDICATED OR SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL SUPPLY PIPE AND FITTINGS HAVING LUGGED JOINTS OR POSITIVE RESTRAINED COMPRESSION LOCKED JOINT IN PUSH-ON OR SLIP-ON JOINT. LUGGED JOINTS SHALL IN ALL RESPECTS, COMPLY TO THE STANDARD A.W.W.A. SPECIFICATIONS AND DIMENSIONS FOR THE CLASS OF PIPE AND FITTINGS SPECIFIED. POSITIVE RESTRAINED COMPRESSION LOCKED JOINT PUSH-ON OR SLIP-ON JOINT SHALL HAVE ENDS WITH POSITIVE COMPRESSION LOCKED JOINT IN PUSH-ON OR SLIP-ON JOINT PROVIDING A RESTRAINED FLEXIBLE JOINT USING CORROSION RESISTANT LOCKING SO AS TO PROVIDE A MINIMUM OF STRESS IN THE JOINT, BUT PROVIDING A MINIMUM OF 400 LBS. PER INCH OF PIPE CIRCUMFERENCE RESISTANCE TO SEPARATION OF JOINT.

LOCKING GROOVES OR SLOTS WILL BE ALLOWED IN PLAIN END OF PIPE OR FITTING, THICKNESS OF FITTING SHOULD NOT BE REDUCED TO LESS THAN THAT FOR:

*(1) U.S.A.S. A21.6(A.W.W.A.C106) CLASS 22 FOR CAST IRON PIPE.

*(2) U.S.A.S. A21.51 (A.W.W.A. C151) CLASS 4 FOR DUCTILE IRON PIPE.

ALL BOLT DIMENSIONS AND OTHER FEATURES SHALL STRICTLY COMPLY WITH THOSE WHICH HAVE BEEN ESTABLISHED UNDER THE AMERICAN WATER WORKS ASSOCIATION STANDARDS. DRAWINGS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION C-2, SHEET NO. 180, DRAWINGS, FULLY AND DISTINCTLY ILLUSTRATING AND DESCRIBING AND GIVING COMPLETE LAYOUT AND ASSEMBLY DIRECTION FOR THE JOINT TO BE FURNISHED. APPROVAL OF THE CITY OF CLEVELAND, DIVISION OF WATER WILL BE REQUIRED. COATING AND PROTECTION SHALL BE REQUIRED IN ACCORDANCE WITH SECTION K, CAST IRON PIPE AND FITTINGS.

* WHERE LOCKING GROOVES OR SLOTS ARE FURNISHED AS THE METHOD OF RESTAINT, PIPE THICKNESS SHALL BE FULL ASA A21.5 (AWWA C151) CLASS 57 (WITH NO MINUS FOUNDRY TOLERANCE PERMITTED) FOR DUCTILE IRON PIPE AND ASA A21.6 (AWWA C100 FULL CLASS 27 WITH NO MINUS TOLERANCE).

PAINTING

AFTER ERECTION, ALL EXPOSED OR DAMAGED COATINGS AND ALL BOLTS FOR LUGGED JOINTS SHALL BE CLEANED AND PAINTED WITH THREE (3) FIELD COATS OF INERTOL 50 OR BITUMASTIC 50 OR APPROVED EQUAL.

DRAWINGS

(A) THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, DUPLICATE PRINTS OF ALL SHOP DRAWINGS FOR PIT CAST IRON PIPE AND FITTINGS AND MISCELLANEOUS DETAILS WHICH ARE NOT STANDARD CONSTRUCTION, AND ARE NOT MENTIONED IN THE REGULAR CATALOGUE OF THE COMPANY FURNISHING THE PIPE, OR WHERE PUSH-ON BOLTLESS RESTRAINED JOINTS ARE USED OR REQUIRED, NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN APPROVED.

(B) THE APPROVAL OF THE DRAWINGS BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

MEASUREMENT

THE NUMBER OF LINEAL FEET OF CAST IRON AND DUCTILE IRON, PIPE MAINS AND CONNECTIONS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF LINEAL FEET FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AS MEASURED ALONG THE AXIS OF THE PIPING INCLUDING FITTINGS AND VALVES CONNECTED UP IN PLACE. FOR CONNECTION BETWEEN NEW AND EXISTING MAINS, MEASUREMENT SHALL BE THE DISTANCE FROM CENTERLINE TO CENTERLINE OF MAINS AND THE ACTUAL LENGTH OF EXISTING MAIN ORDERED TO BE REMOVED TO MAKE THE CONNECTION.

PAYMENT

THE FOOTAGE MEASURED AS PROVIDED ABOVE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR "ITEM SPECIAL-WATER MAIN: CLASSIFIED AS TO SIZE AND TYPE, WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR EXCAVATING AND FOR FURNISHING, HAULING, PLACING, CUTTING INTO AND CONNECTING THE PIPE, PIPE BENDS, C.I. PLUGS AND CLAMPS AT DEAD ENDS, CONCRETE PIERS, SHEETING AND BRACING, SAND BACKFILL, WATER USED FOR COMPACTION, INCIDENTAL CONCRETE, THE REMOVAL OF ALL SURPLUS EXCAVATION AND DISCARDED MATERIAL, REPAVING, AND FOR THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM, EXCEPT FOR THE ITEMS SPECIFICALLY LISTED AS SEPARATE PAY ITEMS.

THE CHLORINATION BY THE CITY OF CLEVELAND, DIVISION OF WATER, OF THE NEWLY LAID WATER MAINS WHICH IS DESCRIBED UNDER "ADDITIONAL WORK, PART C CHLORINATION:" WILL BE AT NO EXPENSE TO THE CONTRACTOR.

APPROVED Nov. 20 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	LOW SERVICE DISTRICT
	DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER AND HEAT CLEVELAND, OHIO
	SUBJECT WATERWORK NOTES
	DRAWN G.A.D. SCALE NONE
	CHECKED R.W.H. DATE 7-19-77 No.

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

48/91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

7/25

WATERWORK NOTES

PRESTRESSED CONCRETE CYLINDER PIPE

WORK INCLUDED:

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS, LABOR, TOOLS, AND EQUIPMENT FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT IN PLACE THE WATER MAIN AT LOCATIONS SHOWN ON THE DRAWINGS, OR AS DIRECTED, USING PRESTRESSED CONCRETE CYLINDER PIPE AND FITTINGS AND INCLUDING ALL EXCAVATION WORK, BACKFILLING, SAND BACKFILL, REPAVING, CONCRETE CYLINDER FITTINGS, CAST IRON PIPE AND FITTINGS, VICTAULIC AND DRESSER COUPLINGS, ETC., ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

DEFINITIONS:

WHENEVER THE WORDS "CONCRETE PIPE" OR "PRESTRESSED CONCRETE CYLINDER PIPE" ARE USED, THEY SHALL REFER TO AND MEAN "PRESTRESSED STEEL CYLINDER REINFORCED CONCRETE PRESSURE PIPE".

PRESTRESSED CONCRETE CYLINDER PIPE AND FITTINGS

(A) ALL PIPE TO BE FURNISHED UNDER THIS ITEM SHALL BE MANUFACTURED TO CONFORM IN ALL RESPECTS TO THE AMERICAN WATER WORKS SPECIFICATIONS, DESIGNATION C301-72 AND ANY AMENDMENTS THERETO FOR PRESTRESSED CONCRETE CYLINDER PIPE, EXCEPT AS HEREIN NOTED. ALL PIPE SHALL BE PRE-STRESSED CONCRETE CYLINDER PIPE DESIGNED FOR THE PRESSURES AND SERVICE HEREIN INDICATED, AND AS SHOWN ON THE DRAWINGS.

(B) THE PRESTRESSED CONCRETE CYLINDER STRAIGHT PIPE SHALL, IN GENERAL, BE SIXTEEN (16) OR TWENTY(20) FEET IN LENGTH BUT BENDS, TEES AND OTHER FITTINGS AND CLOSURE PIECES MAY BE MADE IN SHORTER LENGTHS. THE NOMINAL THICKNESS OF THE CORE AND THE NOMINAL THICKNESS OF THE MORTAR COATING SHALL NOT BE LESS THAN THAT GIVEN IN THE FOLLOWING TABLE:

NOMINAL I.D.	CORE THICKNESS	MINIMUM MORTAR COATING OVER WIRE
24"	1 1/2"	1 1/4"
30"	1 7/8"	1 1/4"

THE PRESTRESSED CONCRETE CYLINDER PIPE SHALL CONSIST OF A CORE FORMED BY A CONTINUOUS ARC-WELDED STEEL CYLINDER WITH STEEL JOINT RINGS WELDED TO ITS ENDS, LINED WITH CONCRETE, WRAPPED UNDER TENSION WITH A WIRE OF HIGH TENSILE STRENGTH AND COATED WITH A DENSE COVERING OF CEMENT MORTAR. EACH PIPE SHALL BE CONSTRUCTED WITH A SELF-CENTERING EXPANSION JOINT, SEALED WITH A RUBBER GASKET, AND CAPABLE OF CARING FOR EARTH SETTLEMENT AND EXTREMES OF TEMPERATURE. THE PIPE LINE SHALL BE COMPLETE, INCLUDING ALL STRAIGHT PIPE, BEVEL END PIPE, BENDS, TEES, SPECIAL END PIPE, AND ANY AND ALL OTHER FITTINGS WHICH ARE REQUIRED FOR THE PROPER COMPLETION OF THE WORK AS SHOWN ON THE DRAWINGS OR AS DIRECTED. PIPE SHALL BE THE PRODUCT OF A WELL-KNOWN AND REPUTABLE MANUFACTURER AND OF THE TYPE WHICH HAS BEEN SUCCESSFULLY USED IN SIMILAR OR EQUIVALENT INSTALLATIONS ELSEWERE. THE ENDS OF PIPE SHALL BE AT RIGHT ANGLES TO THE PIPE AXIS. PIPES MAY BE BEVELED TO FORM CURVES. MAXIMUM ALLOWABLE BEVEL ANGLE SHALL BE SUCH AS MANUFACTURED AS STANDARD BEVELS. THE CONCRETE LINING OF THE STEEL CYLINDER SHALL BE FORMED BY CENTRIFUGAL, VERTICAL, OR OTHER APPROVED CASTING METHOD. PROPORTIONS OF CEMENT, FINE AND COARSE AGGREGATE, AND WATER USED IN MIXING THE CONCRETE SHALL BE AS SPECIFIED IN AWWA C301-72. A MINIMUM OF 7 BAGS OF CEMENT SHALL BE USED PER CUBIC YARD OF CONCRETE. COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE AS SPECIFIED IN AWWA C301-72. CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI IN SEVEN DAYS AND 4500 PSI IN 28 DAYS.

(C) THE PIPE SHALL BE REINFORCED WITH A STEEL CYLINDER. THE STEEL FOR CYLINDERS SHALL MEET THE REQUIREMENTS OF SEC. 2.7 OF AWWA C301-72 EXCEPT THAT THE MINIMUM YIELD POINT SHALL BE 30,000 PSI AND CYLINDERS SHALL BE NOT LESS THAN 10 GAUGE, U.S. STANDARD. WHERE THE PIPES ARE DESIGNED FOR SPECIAL CONDITIONS OR FOR HIGH OPERATING PRESSURES, THE CYLINDER MAY BE MADE FROM HOT-ROLLED SHEETS OF SPECIAL ALLOY STEEL HAVING HIGHER ELASTIC LIMIT AND ULTIMATE STRENGTH THAN THOSE SPECIFIED. IN SUCH CASE, THE SHEETS SHALL BE OF GOOD WELDING QUALITY AND SHALL CONFORM TO THE STEEL MANUFACTURER'S PUBLISHED SPECIFICATIONS FOR THE SPECIAL GRADE OF STEEL BEING SUPPLIED. EACH COMPLETED CYLINDER WITH JOINT RINGS WELDED TO IT SHALL BE SUBJECTED TO A HYDROSTATIC TEST BY CLOSING THE ENDS OF THE JOINT RINGS, FILLING WITH WATER IN CONTACT AT ALL POINTS WITH WELDS, AND RAISING THE WATER PRESSURE TO STRESS THE CYLINDER TO A FIBRE STRESS OF 25,000 POUNDS PER SQUARE INCH. WHILE UNDER PRESSURE TEST, ALL WELDS SHALL BE THOROUGHLY INSPECTED. IF ANY LEAKS ARE FOUND, THEY SHALL BE REPAIRED AND THE CYLINDER SHALL BE RETESTED. THE FINISHED CYLINDER WITH JOINT RINGS ATTACHED SHALL BE WATER TIGHT UNDER THE REQUIRED TEST PRESSURE. ARC WELDING SHALL BE AN APPROVED PROCESS AND TEST WELDS SHALL BE FURNISHED FROM THE WORK AS REQUIRED. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER DETAILED DESIGNS AND SHALL RECEIVE HIS APPROVAL BEFORE THE CONSTRUCTION OF ANY PIPE.

(D) THE HIGH TENSILE WIRE USED FOR CIRCUMFERENTIAL REINFORCEMENT SHALL BE OF HARD-DRAWN STEEL SPRING WIRE CONFORMING TO ASTM DESIGNATION A227. THE CIRCUMFERENTIAL REINFORCEMENT PROPERTIES MAY BE INCREASED BY THE MANUFACTURER UPON APPROVAL BY THE ENGINEER. TEST REPORTS WILL BE REQUIRED BEFORE APPROVAL. THE AVERAGE GROSS WRAPPING STRESS OF THE HIGH TENSILE WIRE SHALL NOT EXCEED SEVENTY-FIVE (75) PERCENT OF THE MINIMUM ULTIMATE TENSILE STRENGTH OF THE WIRE, AND CENTERLINE SPACING OF THE WIRE SHALL NOT EXCEED 1-1/2 INCHES FOR LINES CYLINDER PIPE WITH WIRE OF NO. 6 GAUGE U.S.S. THE MAXIMUM CENTERLINE SPACING OF WIRE LARGER THAN NO. 6 GAUGE SHALL BE 1 INCH. NO CIRCUMFERENTIAL WIRE SHALL BE LESS THAN NO. 6 GAUGE. THE WIRE SHALL BE PLACED DIRECTLY AGAINST THE STEEL CYLINDER OF THE CORE AND SHALL BE WRAPPED SPIRALLY, EVENLY AND UNDER CONSTANT TENSION. THE WIRE SHALL BE ANCHORED AT THE ENDS OF THE PIPE BY MECHANICAL DEVICES OF SUFFICIENT STRENGTH TO MAINTAIN THE STRESS IN THE WIRE. THE THICKNESS OF THE STEEL CYLINDERS AND DIAMTER OF WIRE USED, AS WELL AS THE CENTERLINE SPACING AT WHICH THE CIRCUMFERENTIAL WIRE IS PLACED AND THE TENSION UNDER WHICH THE WIRE IS WOUND AROUND THE LINED CYLINDER, SHALL BE SUCH THAT THE ZERO COMPRESSION PRESSURE BE AT LEAST 50 POUNDS PLUS 1-1/4 TIMES THE STATIC PRESSURE. WHERE THE COVER OVER THE PIPE EXCEEDS EIGHT (8) FEET, THE DESIGN SHALL BE MODIFIED TO WITHSTAND THE ADDITIONAL EXTERNAL LOADING.

(E) EACH LENGTH OF PIPE SHALL BE PROVIDED WITH BELL AND SPIGOT ENDS FORMED BY STEEL JOINT RINGS SECURELY WELDED TO THE STEEL CYLINDER. THE SPIGOT RING SHALL BE LINED BY THE CONCRETE OF THE CORE AND THE BELL RING SHALL BE PROTECTED ON ITS EXTERIOR SURFACE BY THE CEMENT MORTAR COATING. PORTIONS OF THE JOINT RINGS WHICH WILL BE EXPOSED AFTER THE PIPE IS MAWUFACTURED SHALL BE PROTECED FROM CORROSION BY METALIZING A MINIMUM OF 0.003" THICK FOR 20" AND SMALLER PIPE, AND 0.002" THICK FOR 24" AND LARGER PIPE. THE SPIGOT RING SHALL HAVE A GROOVE FOR THE PURPOSE OF RECEIVING, HOLDING, AND PROTECTING THE GASKET, AND THE JOINT SURFACES SHALL BE OF SUCH SHAPE AND DIMENSION THAT THE JOINTS SHALL BE SELF-CENTERING WHEN THE PIPES ARE LAID SO THAT THE GASKET SHALL NOT BE REQUIRED TO SUPPORT THE WEIGHT OF THE ADJOINING PIPES. THE JOINT SHALL BE SEALED BY A RUBBER GASKET IN SUCH A WAY THAT THE JOINT SHALL REMAIN TIGHT UNDER ALL CONDITIONS OF SERVICE INCLUDING EXPANSION, CONTRACTION, AND NORMAL SETTLEMENT. THE WELDING OF THE JOINT RINGS TO THE CYLINDER PIPE SHALL CONSIST OF AT LEAST ONE FULL CONTINUOUS WELD FOR PIPE SECTIONS THAT ARE PROPERLY TESTED HYDRAULICALLY FOR STRENGTH AND WATER TIGHT-NESS. FOR PIPE SECTIONS THAT HAVE TO BE CUT TO BE FITTED UP TO MAKE BENDS, SUCH CONSTRUCTION SHALL HAVE DOUBLE CONTINUOUS WELDS, LIKEWISE, ANY SPECIAL CONSTRUCTION SUCH AS FOR OUTLETS OR FOR PIPE HAVING SPECIAL ENDS SHALL HAVE DOUBLE CONTINOUS WELDS.

(F) THE GASKET SHALL BE MADE OF RUBBER OF SPECIAL COMPOSITION MEETING THE REQUIREMENTS OF SEC. 2.11 OF AWWA C301-72 AND HAVING A TEXTURE TO ASSURE A WATER-TIGHT AND PERMAWENT SEAL. THE GASKET SHALL BE AN ENDLESS RING OF APPROPRIATE CROSS SECTION AND OF SUCH SIZE AS TO COMPLETELY FILL THE RECESS BETWEEN THE BELL AND SPIGOT SURFACES AND ADEQUATELY PRODUCE A WATER-TIGHT SEAL WHEN THE PIPES ARE LAID.

(G) FITTINGS OR SPECIALS CONFORMING TO TYPE B REQUIREMENTS OF SEC.4.3 OF AWWA STANDARD C301-72 SHALL BE FURNISHED AND INSTALLED AS SHOWN ON THE DRAWINGS OR AS REQUIRED, AND SHALL INCLUDE SPECIALS WITH BELL END, SPIGOT END, FLANGED END, AND VICTAULIC END OUTLETS WITH ACCESS MAN-HOLES, AIR COCKS, PITOMETER, AND DRAIN CONNECTIONS, ANCHOR RINGS, BENDS, TEST HEADS, CLOSURE PIECES, BEVEL AND PIPE, JOINT HARDNESSES, ETC. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER DETAILED DESIGNS AND SHALL RECEIVE HIS APPROVAL BEFORE THE CONSTRUCTION OF ANY SUCH SPECIALS.

(H) SPECIAL PIECES, SUCH AS TEES, WYES, OR BRANCH OPENINGS, SHALL ALSO BE OF CYLINDER CON-STRUCTION. IN ALL CASES THE REINFORCEMENT SHALL ADEQUATELY COMPENSATE FOR THE OPENINGS IN THE PIPE WALL. IF THE SPECIAL PIECE IS PRESTRESSED, THEN THE AREA OF THE STEEL IN THE CYLINDER AND CAGE, IN ADDITION TO THE COMPENSATING REINFORCEMENT PREVIOUSLY MENTIONED, SHALL BE NOT LESS THAN THAT FOR THE ADJOINING PRESTRESSED STRAIGHT PIPE. IF THE SPECIAL PIECE IS NOT PRESTRESSED, THEN THE ADDITIONAL AREA OF THE STEEL IN THE CYLINDER AND CAGE SHALL BE NOT LESS THAN THAT FOR THE ADJOINING STRAIGHT PIPE IF SUCH STRAIGHT PIPE WERE DESIGNED AS CONCRETE CYLINDER PIPE. STEEL THICKNESS SHALL BE NOT LESS THAN 5/16 INCHES.

(I) THE OPENINGS IN THE SPECIAL MAY BE FORMED BY STEEL RINGS OR CASTINGS OF SUITABLE DESIGN SECURELY WELDED TO THE CYLINDER AND REINFORCING CAGE. ALL BENDS AND SPECIAL PIECES SHALL BE PROVIDED WITH JOINT RINGS CORRESPONDING TO THOSE IN THE STRAIGHT PIPE.

(J) ON VERTICAL AND HORIZONTAL BENDS AND STRAIGHT PIPE WITHIN TIED JOINTS, THE THICKNESS OF THE CYLINDER SHALL BE SUCH THAT THE RESULTANT OF THE LONGITUDINAL AND CIRCUMFERENTIAL STRESS SHALL BE NOT MORE THAN SIXTEEN THOUSAND (16,000) PSI AT THE TEST PRESSURE, OR TWELVE THOUSAND FIVE HUNDRED (12,500) PSI OF THE WORKING PRESSURE.

(K) CAST STEEL SADDLE AND FORGINGS OR THE EQUIVALENT IN FABRICATED STEEL PLATES SHALL BE WELDED TO THE STEEL CYLINDER FOR MANHOLE AND PIPE CONNECTIONS AND FOR DRAIN, PITOMETER, AND AIR COCK CONNECTIONS, AND SHALL BE DRILLED AND TAPPED AND PROVIDED WITH TWO (2") INCH MALLEABLE IRON PLUGS.

(L) CLOSURE PIECES OF FOLLOWER RING TYPE WHICH CAN BE CUT IN THE FIELD TO FIT REQUIRED MEASURE-MENTS SHALL BE PROVIDED AS ARE NECESSARY FOR THE PROPER CONSTRUCTION OF THE WATER MAIN. CLOSURE PIECES ARE TO BE AVOIDED WHERE POSSIBLE WITHIN "TIED DISTANCES" BUT WHEN SO REQUIRED, THEY SHALL BE FITTED WITH LOCKING DEVICES EQUIVALENT TO THOSE PROVIDED FOR REGULAR PIPE AND FITTINGS WITHIN "TIED DISTANCES." MEASUREMENTS FOR LENGTHS OF CLOSURE PIECES WILL BE MADE IN THE FIELD AFTER ADJACENT PIPE SECTIONS ARE IN PLACE IN THE TRENCH. TESTING BULKHEADS SHALL BE FURNISHED AND INSTALLED FOR TESTING ANY COMPLETED SECTIONS OF THE CONCRETE CYLINDER PIPE MAIN AS MAY BE REQUIRED, BUT PROPER CARE MUST BE TAKEN IN THEIR USE TO PREVENT OPENING OF ADJACENT OR NEARBY PIPE JOINTS.

(M) ALL FORGED OR ROLLED STEEL PIPE FLANGES SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR FORGED OR ROLLED STEEL PIPE FLANGES, FORGED FITTINGS, AND VALVES AND PARTS FOR GENERAL SERVICE." ASTM DESIGNATION A181-61T, GRADE 1.

(N) ALL STEEL FOR CASTINGS SHALL CONFORM TO THE SPECIFICATIONS FOR GRADE 70-36 STEEL CASTINGS, AS GIVEN IN THE "STANDARD SPECIFICATIONS FOR MILD-TO-MEDIUM STRENGTH CARBON STEEL CASTINGS FOR GENERAL INDUSTRIAL USE." ASTM DESIGNATION A27-62.

(O) ALL STEEL FORGINGS SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR CARBON-STEEL FORGINGS," ASTM DESIGNATION A235-62T, CLASS C.

(P) ALL STRUCTURAL STEEL SHALL CONFORM TO "TENTATIVE SPECIFICATIONS FOR STEEL FOR BRIDGES AND BUILDINGS," ASTM DESIGNATION A7-61T, OR TO "SPECIFICATIONS FOR LOW AND INTERMEDIATE TENSILE STRENGTH CARBON STEEL PLATES OF STRUCTURAL QUALITY." ASTM DESIGNATION A283-58, GRADE C.

(Q) ALL CAST IRON PIPE AND FITTINGS INCLUDED IN THE INSTALLATION OF "PRESTRESSED CONCRETE CYLINDER PIPE AND FITTINGS" SHALL BE AS SPECIFIED UNDER "CAST IRON AND DUCTILE IRON PIPE AND FITTINGS."

(R) TEST, INSPECTION, REPORTS AND ANAYLSES OF TESTS OF SAMPLES FOR ALL MATERIALS USED SHALL BE FURNISHED IN ACCORDANCE WITH THE "TESTS, INSPECTION AND REPORTS" CLAUSE OF THIS SPECIFICATION.

(S) MANUFACTURER'S DESIGN CALCULATIONS WILL BE REQUIRED.

(T) A DETAILED, TABULATED LAYING SCHEDULE ALONG WITH A PLAN AND PROFILE LAYOUT WILL BE REQUIRED.

(U) IN ADDITION TO MINIMUM COATING OVER WIRES APPLY AN EXTERIOR SEAL COAT PER AWWA C 301 AND ANSI A 21.4 (AWWA C 104) HAVING A THICKNESS OF 6 TO 8 MILS AND EQUAL TO "FLINTKOTE 410-50" SEAL COAT AS PRODUCED BY MONSEY PRODUCTS COMPANY, EAST RUTHERFORD, NEW JERSEY UNDER PRODUCT NAME OF "265-I PIPE COATING" OR "KOPPER'S SUPER SERVICE BLACK." JOINTS SHALL HAVE FIELD APPLICATION.

APPROVED Nov. 20, 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN G.A.D. | SCALE NONE
CHECKED R.W.H. | DATE 7-19-77 | No.

WATERWORK NOTES

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

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

49/91

8/25

MARKING

EACH PIPE AND SPECIAL SHALL HAVE CONSPICUOUSLY PAINTED IN BLACK ON THE INSIDE, A SERIAL NUMBER FOR THE PURPOSE OF IDENTIFICATION. SERIAL NUMBERS SHALL AGREE WITH LISTS TO BE FURNISHED TO THE ENGINEER. THE TOP CENTER LINE OF ALL SPECIAL FITTINGS AND EACH PIPE THAT HAS A BEVELED END SHALL HAVE A WHITE RING PAINTED IN THE SHOP AROUND THE MARK BOTH ON THE INSIDE AND OUTSIDE OF THE PIPE.

FLANGED JOINTS

(A) FLANGED JOINTS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. FLANGES SHALL BE EITHER CAST STEEL, FORGED OR ROLLED STEEL, OR PROPERLY WELDED AND MACHINE FABRICATED STEEL PLATES, WELDED TO PIPE WITH TWO CONTINUOUS WELDS. THEY SHALL HAVE PLAIN FACES AND SHALL BE FACED TRUE AND SMOOTH AT RIGHT ANGLES TO THE AXIS OF THE PIPE AND SHALL BE SPOT FACED ON THE BACK. DRILLING SHALL CONFORM TO "AMERICAN 1928 STANDARD, DRILLING, 125 POUND TEMPLATE". EACH BLIND FLANGE SHALL BE CAST IRON AND SHALL HAVE BOSSES TAPPED AT TOP AND BOTTOM FOR TWO (2) INCH STANDARD PIPE AND FURNISHED WITH PLUGS.

(B) ALL BOLTS AND NUTS USED IN THE FINISHED WORK FOR FLANGES AND TIED JOINTS FOR CONCRETE PIPE SHALL BE STAINLESS STEEL, HEXAGONAL, AMERICAN STANDARD COARSE THREAD. GASKETS FOR FLANGED PIPE SHALL BE FULL FACED RUBBER ONE-SIXTEENTH (1/16) INCH THICK 5X MANILA ROPE PATTERN OR OTHER APPROVED TYPE.

TYPICAL FIELD JOINTS FOR CONCRETE PIPE:

THE CONTRACTOR SHALL MAKE ALL TYPICAL FIELD JOINTS AND WELDED TIED JOINTS AS DETAILED ON THE DRAWINGS. THE ANNULAR RECESSES AT THE JOINT, BOTH INSIDE AND OUTSIDE OF THE PIPE, SHALL BE FILLED WITH CEMENT MORTAR MIXED IN A PROPORTION OF NOT LESS THAN ONE PART OF CEMENT TO TWO PARTS OF SAND. "HARNESSED" TIED JOINTS CONSISTING OF A MECHANICAL CLAMP TYPE DEVICE MAY BE USED WHERE TIED JOINTS ARE INTENDED. SEE (5) FOR SPECIAL COATING. ALL JOINTS SHALL BE ELECTRICALLY BONDED THAT ARE NOT WELDED TIED. ELECTROLYSIS TEST STATIONS SHALL BE PROVIDED AS SHOWN IN PLANS.

PRESSURE TESTING

WHERE REQUIRED TO PROPERLY RESTRAIN THE PIPE FOR PRESSURE TEST AS SPECIFIED THE CONTRACTOR SHALL PROVIDE SUFFICIENT "TEST DISTANCE" ALONG THE PIPE TO PREVENT MOVEMENT OR FAILURE DURING TEST. THE COST THEREOF SHALL BE INCLUDED IN THE ITEM IN WHICH IT IS USED. PIPE SHALL BE TESTED IN ACCORDANCE WITH THE "TESTING MAINS" CLAUSE OF THIS SPECIFICATION.

ELECTROLYSIS BONDS AND TEST TAPS

GENERAL

UNLESS INDICATED OR SPECIFIED OTHERWISE, INSTALLATION, MATERIAL AND EQUIPMENT SHALL CONFORM TO THE SPECIFICATIONS SHOWN IN THE CONTRACT DRAWINGS AND SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE AND THE ELECTRICAL CODES OF THE STATE OF OHIO AND THE POLITICAL SUBDIVISIONS AS APPLICABLE TO THE LOCATION IN WHICH THE WORK IS TO BE PERFORMED AND WITH THE APPROVAL OF THE ENGINEER. SEE DETAIL SHEET NO. 22 .

ELECTRICAL WORK

THE WORK COVERED BY THIS SUBSECTION CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, APPLIANCES, AND MATERIALS AND IN PERFORMING ALL OPERATIONS NECESSARY FOR THE INSTALLATION OF ALL ELECTRICAL WORK COMPLETE IN STRICT ACCORDANCE WITH THIS SECTION AND THE CONTRACT DRAWINGS AND APPROVAL OF THE ENGINEER.

TERMINALS

THE TERMINALS SHALL BE CLEARLY MARKED TO SHOW POLARITY AND SHALL BE READILY ACCESSIBLE FOR TESTING. THE NEGATIVE TERMINAL SHALL BE CLEARLY OR PERMANENTLY TAGGED "STRUCTURE." THE POSITIVE TERMINAL SHALL BE CLEARLY MARKED OR PERMANENTLY TAGGED "ANODE." THE ANODE LEADS SHALL TERMINATE IN THE TERMINAL BOX AS SHOWN ON THE DRAWINGS. SUFFICIENT SLACK SHALL BE LEFT IN THE WELL HEAD TO PERMIT MOVEMENT OF THE WIRES DUE TO SOIL SETTLEMENT.

MEASUREMENT AND PAYMENT

CORROSION CONTROL AS SHOWN ON THE CONTRACT DRAWINGS WILL NOT BE MEASURED FOR PAYMENT, BUT WILL BE INCLUDED IN PAYMENT FOR RESPECTIVE WATER MAIN PIPE.

SHOP COATING AND PAINTING

(A) THE EXPOSED SURFACE OF THE STEEL ENDS OF SPIGOT, BELL, VICTAULIC OR FLANGED STEEL OUTLET CONNECTIONS AND THE FLANGED ENDS OF CONCRETE PIPE, ETC., SHALL BE CLEANED, PRIMED, AND ENAMELED INSIDE AND OUTSIDE IN ACCORDANCE WITH THE AWWA SPECIFICATIONS C203-73. THE COATING MAY BE APPLIED BY BRUSH OR SPRAY; ALL COATINGS SHALL BE APPLIED IN THE SHOP BEFORE SHIPMENT. THE OUTSIDE COATING SHALL STOP AGAINST THE FLANGES AT ENDS OF PIPE SECTIONS.
(B) GALVANIZED PIPE ENDS FOR RUBBER GASKET JOINTS ARE NOT TO BE COATED.
(C) ALL FINISHED SURFACES SHALL BE COATED WITH WHITE LEAD AND TALLOW AND NOT PRIMED.
(D) AFTER ERECTION, ALL EXPOSED OR DAMAGED COATINGS ON SURFACES BURIED UNDER GROUND AND ALL BOLTS ON FLANGES AND VICTUALIC COUPLINGS SHALL BE CLEANED AND PAINTED WITH THREE FIELD COATS OF COAL TAR PITCH PAINT EQUAL TO INERTOL 66 OR KOPPERS BITUMASTIC 50 OR APPROVED EQUAL.

TRANSPORTATION AND DELIVERY

(A) THE CONTRACTOR SHALL TRANSPORT, DELIVER AND DISTRIBUTE ALONG THE LINE OF THE WORK, THE PIPE, SPECIALS AND APPURTENANCES.
(B) PIPE SHALL BE LOADED FOR SHIPMENT UPON SUITABLE CARS OR TRUCKS WHICH SHALL BE PROVIDED WITH WOODEN SKIDS. IN LOADING AND UNLOADING THE PIPE, MORE THAN ORDINARY CARE MUST BE TAKEN TO PREVENT ANY INJURY TO THE CONCRETE CYLINDER PIPE, STEEL AND PIPE ENDS AND PROTUBERANT STEEL CONNECTIONS. SUCH WORK MUST BE DONE SLOWLY WITH THE PIPE AT ALL TIMES UNDER PERFECT CONTROL, AND UNDER NO CONDITION SHALL THE PIPE BE DROPPED.
(C) IN DISTRIBUTING THE PIPE IN THE FIELD, EACH PIPE MUST BE PLACED AS NEARLY AS POSSIBLE TO THE POINT WHERE IT IS TO BE LAID, AND FACING IN THE PROPER DIRECTION. SUITABLE SKIDS OR BLOCKS MUST ALSO BE LEFT UNDER EACH PIPE, AND THE PIPE SECURELY WEDGED IN PLACE TO PREVENT ITS BEING MOVED UNTIL REQUIRED. A STEEL CABLE SLING SHALL BE USED FOR ROLLING OR LIFTING PIPE. NO IRON CHAINS SHALL BE USED. PIPE WHICH HAS BEEN IMPROPERLY DISTRIBUTED AND WHICH MUST BE MOVED LONGITUDINALLY ALONG THE TRENCH SHALL BE RELOADED ON A WAGON, OR LIFTED AND SWUNG BY A DERRICK OR MOVED BY SUCH MEANS AS MAY BE SATISFACTORY TO THE ENGINEER.
(D) IF, IN THE PROCESS OF MANUFACTURE, TRANSPORTATION, OR HANDLING, ANY CONCRETE PIPE OR SPECIAL RECEIVES ANY INDENTATION OR DEFORMATION TO THE CONCRETE, STEEL ENDS, OR CONNECTIONS, THE REMOVAL OF WHICH WILL IN ANY DEGREE INJURE IT, SUCH PIPE OR SPECIAL SHALL BE REJECTED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
(E) PIPE WHICH IS PLACED IN STORAGE, STREETS, OR DRIVES MUST BE SO ARRANGED AS NOT TO CAUSE UNDUE INCONVENIENCE TO TRAFFIC AND MUST BE PROTECTED SUFFICIENTLY TO PREVENT INJURY TO THE CONCRETE CYLINDER PIPE, AND THE COATING OF THE STEEL ENDS AND CONNECTIONS.

MATERIALS DATA WITH PROPOSAL

EACH BIDDER SHALL SUBMIT WITH HIS PROPOSAL, AND IN THE FORM PROVIDED, THE INFORMATION CALLED FOR BELOW:

1. NAME OF PIPE MANUFACTURER AND LOCATION OF PLANT.
2. NAME OF COUPLING MANUFACTURER AND LOCATION OF PLANT.
3. PIPE COATING AND LINING DATA.

APPROVED Nov. 20, 19 78

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

LOW SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN S.A.D. | SCALE NONE
CHECKED R.W.H. | DATE 7-19-77 | No.

WATERWORK NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO	M-IA 30 (1)	

50
91

9
24

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

DRAWINGS

(A) THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL, DUPLICATE PRINTS OF ALL SHOP DRAWINGS FOR CONCRETE PIPE, FITTINGS, AND SPECIALS, AND MISCELLANEOUS DETAILS, SUCH AS AIR COCK AND DRAIN FORGINGS, CASTINGS, ETC.
(B) THE CONTRACTOR SHALL ALSO FURNISH AN ASSEMBLY PLAN FOR THE ENTIRE LENGTH OF THE PIPE LINE FOR WHICH CONCRETE PIPE IS FURNISHED UNDER THE APPROPRIATE ITEMS. THIS ASSEMBLY PLAN SHALL ALSO SHOW THE CORRECT LOCATION OF ALL FITTINGS FURNISHED AND ITEMIZED LAYING SCHEDULE.
(C) ONE PRINT OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE DIRECTOR. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL DUPLICATE REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED AND AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL AGAIN FURNISH TO THE DIRECTOR THREE TRACINGS ON MYLAR OR REPRODUCIBLE CLOTH TRACING OF EACH DRAWING. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED. ALL DRAWINGS SHALL BE ON COMPOSITE SHEETS 24" X 36". NO SMALLER TRACINGS WILL BE ACCEPTED.
(D) THE APPROVAL OF THE DRAWINGS BY THE DIRECTOR SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

EXPERIENCE QUALIFICATIONS

ALL BIDDERS WILL BE REQUIRED TO SHOW TO THE SATISFACTION OF THE DIRECTOR THAT THE TYPE AND SIZE OF PIPE AND FITTINGS HE PROPOSES TO FURNISH, WILL BE MADE BY A MANUFACTURER WHOSE PIPE HAS BEEN SUCCESSFULLY USED FOR LIKE WORK OUTSIDE OF THE BUILDER'S WORKS FOR A PERIOD OF NOT LESS THAN FIVE (5) YEARS.

MEASUREMENT

THE NUMBER OF LINEAR FEET OF WATER MAIN TO BE PAID FOR UNDER PRESTRESSED CONCRETE CYLINDER PIPE SHALL BE THE ACTUAL NUMBER OF LINEAR FEET FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AS MEASURED ALONG THE AXIS OF THE MAIN, INCLUDING FITTINGS AND VALVES CONNECTED UP IN PLACE.

PAYMENT

THE UNIT PRICE STIPULATED TO BE PAID FOR EACH LINEAR FOOT OF "ITEM SPECIAL - WATER MAIN" CLASSIFIED AS TO SIZE SHALL CONSTITUTE FULL COMPENSATION FOR THE FURNISHING, LAYING, PAINTING AND INSPECTION AND TESTING OF PRESTRESSED CONCRETE PIPE, CONCRETE CYLINDER FITTINGS, CAST IRON PIPE AND FITTINGS, VICTAULIC AND DRESSER COUPLINGS, CONCRETE PIERS AND ANCHORS, EXCAVATION, SHEETING AND SHORING, BACKFILLING, SAND BACKFILLING, SEEDING AND SODDING, SIDEWALK REPLACEMENT, AND THE TEMPORARY AND PERMANENT REPAVING FOR THE ABOVE MAIN AND FOR SERVICE CONNECTION CHANGES BY THE CITY WATER DEPARTMENT, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, APPLIANCES AND EQUIPMENT TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. THE CLORINATION OF THE NEWLY LAID WATER MAINS BY THE CITY OF CLEVELAND, DIVISION OF WATER, IS DESCRIBED UNDER ADDITIONAL WORK PART C, CHLORINATION.

2-INCH GALVANIZED BLACK IRON AND BRASS PIPE FOR FLUSHING CONNECTIONS

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS ORDERED, ALL 2-INCH EXTRA STRONG BRASS PIPE AND FITTINGS, AND ALL 2-INCH EXTRA STRONG GALVANIZED BLACK IRON PIPE AND FITTINGS RESPECTIVELY, WHICH ARE NECESSARY FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT. SEE "ADDITIONAL WORK" PARAGRAPHS (A) THROUGH (D) SHEET NO. 2

BRASS PIPE AND FITTINGS

ALL BRASS PIPE AND FITTINGS SHALL BE EXTRA STRONG 2-INCH PIPE SIZE AND SHALL CONFORM TO A.S.T.M SPECIFICATIONS B43-42. FITTINGS SHALL BE EXTRA STRONG WEIGHT AND SHALL HAVE SOUND WELL-FITTING THREADS.

GALVANIZED BLACK IRON PIPE AND FITTINGS

ALL GALVANIZED BLACK IRON PIPE, NIPPLES AND COUPLINGS SHALL BE EXTRA STRONG BLACK IRON PIPE A.S.T.M. DESIGNATION A120. THE FITTINGS SHALL BE BEADED AND OF EXTRA HEAVY WEIGHT MALLEABLE IRON. ALL PIPE AND FITTINGS SHALL BE HOT DIPPED ZINC COATED INSIDE AND OUTSIDE, AND SHALL HAVE SOUND WELL-FITTING THREADS.

ERECTION

ALL PIPE SHALL BE CAREFULLY PLACED TO THE PROPER LINES AND GRADES, AND SHALL BE CONNECTED UP, UNLESS OTHERWISE SHOWN, WITH SCREW FITTINGS. SCREW JOINTS SHALL BE MADE TIGHT WITH A GRAPHITE PASTE AND SCREWED HOME. A LIBERAL NUMBER OF UNIONS SHALL BE USED TO PERMIT THE READY REMOVAL OF ANY SECTION.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH "ITEM SPECIAL-FLUSHING CONNECTIONS",WHETHER TEMPORARY OR LEFT IN PLACE, WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR EXCAVATING AND FOR FURNISHING, HAULING AND PLACING PLUGS, CLAMPS, VALVES, ROADWAY BOXES, PRESSURE BACKING AND APPURTENANCES, AND FOR THE FURNISHING OF ALL LABOR, EQUIPMENT, TOOLS, MATERIALS REQUIRED TO COMPLETE THIS ITEM OF WORK IN PLACE.

ADJUST FIRE HYDRANT TO GRADE

WORK INCLUDED

THE CONTRACTOR SHALL RAISE THE EXISTING FIRE HYDRANT TO FIT THE NEW GRADE. BY USING APPROPRIATE BRANCH OFFSET PIPE SECTIONS IF NEEDED. THE ENGINEER SHALL FIRST CONFIRM THE NECESSITY FOR RAISING EACH HYDRANT. ANY HYDRANT CONSIDERED SATISFACTORY AS EXISTING SHALL BE NONPERFORMED FROM THIS ITEM.

ADJUSTING OF HYDRANTS SHALL COMPLY WITH THE "SETTING" SECTION HEREIN FOR "ITEM SPECIAL FURNISHING AND SETTING 6" FIRE HYDRANTS".

THE CONTRACTOR SHALL PERFORM ALL OPERATIONS NECESSARY FOR THE PROPER ADJUSTMENT OF THE HYDRANT, INCLUDING INSPECTING AND CLEANING.

MEASUREMENT

THE "ADJUST FIRE HYDRANT TO GRADE" TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH LISTED AND ESTIMATED SEPARATELY COMPLETED AND ACCEPTED.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL - ADJUST HYDRANT TO GRADE" SHALL INCLUDE THE EXCAVATION, BACKFILLING, INSPECTING AND CLEANING, SEEDING AND SODDING AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN .

FIRE HYDRANTS ABANDONED

WHERE FIRE HYDRANTS ARE INDICATED TO BE ABANDONED (NOT FOR REMOVAL), HYDRANTS BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED AND DISPOSED OF BY HIM. THE COST OF SUCH REMOVAL AND DISPOSAL SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION.

REMOVING AND RESETTING OF HYDRANT

WORK INCLUDED

THE CONTRACTOR SHALL PERFORM ALL OPERATIONS NECESSARY FOR THE PROPER REMOVAL OF THE HYDRANT AT THE LOCATION SHOWN ON THE PLANS. THE CONTRACTOR SHALL INSPECT, CLEAN AND RESET THE HYDRANT AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS: FURNISHING ALL MATERIAL, LABOR, TOOLS AND EQUIPMENT REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

SETTING

THE HYDRANT SHALL BE RESET AS REQUIRED IN THE SECTION ON "SETTING" UNDER "ITEM FURNISHING AND SETTING 6" FIRE HYDRANT."

APPROVED Nov. 20, 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	LOW SERVICE DISTRICT
	DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER AND HEAT CLEVELAND, OHIO
	SUBJECT WATERWORK NOTES
	DRAWN G.A.D. SCALE NONE
	CHECKED R.W.H. DATE 7-19-77 No.

WATERWORK NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO	M-IA 30 (1)	

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

51/91

10/24

PAYMENT

(A) - THE UNIT PRICE STIPULATED TO BE PAID FOR EACH "ITEM SPECIAL-FIRE HYDRANT REMOVED AND RESET" WHICH PRICE AND PAYMENT SHALL INCLUDE THE REMOVING, INSPECTION, CLEANING, SETTING, CONNECTING, TESTING, PAINTING, EXCAVATION, SHEETING AND BRACING, BACKFILLING, SEEDING AND SODDING, REPAVING AND THE FURNISHING OF ALL LABOR, MATERIAL, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.
(B) THE PIPE WILL BE PAID FOR UNDER "CAST IRON AND DUCTILE IRON PIPE AND FITTINGS."

FURNISHING AND SETTING 6" FIRE HYDRANTS

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL HYDRANTS, CAULKING MATERIAL, LABOR, TOOLS AND EQUIPMENT FOR AND SHALL PROPERLY CONNECT AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS 6" FIRE HYDRANTS, COMPLETE, AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

HYDRANTS

THE 6" FIRE HYDRANTS SHALL BE CITY OF CLEVELAND STANDARD AND SHALL CONFORM TO THE CITY SPECIFICATIONS ON FILE AT 1201 LAKESIDE AVENUE, CLEVELAND, OHIO 44114 OHIO AND THE HYDRANT DETAIL SHOWN ON SHEET NO. 65A

SETTING

(A) - GENERAL LOCATION: HYDRANT SHALL BE LOCATED IN A MANNER TO PROVIDE COMPLETE ACCESSIBILITY AND IN SUCH MANNER THAT THE POSSIBILITY OF DAMAGE FROM VEHICLES OR INJURY TO PEDESTRIANS WILL BE MINIMIZED. UNLESS OTHERWISE DIRECTED THE SETTING OF ANY FIRE HYDRANT SHALL CONFORM TO THE FOLLOWING:

(B) - LOCATION REGARDING CURB LINES: WHEN PLACED BEHIND CURB, THE HYDRANT BARREL SHALL BE SET SO THAT CENTER OF BARREL WILL BE NO LESS THAN 3 FEET FROM THE GUTTER FACE OF THE CURB OR DEVIATE FROM LOCATION INDICATED ON CONTRACT DRAWINGS EXCEPT BY CONSENT OF THE ENGINEER.
(C) - LOCATION REGARDING SIDEWALK: WHEN SET IN THE LAWN SPACE BETWEEN THE CURB AND THE SIDE-WALK OR BETWEEN THE SIDEWALK AND THE PROPERTY LINE, NO PORTION OF THE HYDRANT OR NOZZLE CAP SHALL BE WITHIN 6 INCHES OF THE SIDEWALK.
(D) - POSITION OF NOZZLES: THE HYDRANT SHALL STAND PLUMB WITH NOZZLE POINTING TOWARD CURB AND AT AN ANGLE OF FORTY-FIVE DEGREES THEREFROM. WHERE HYDRANT BRANCH PIPING IS PARALLEL WITH, OR NOT AT RIGHT-ANGLES TO CURB, THE CONTRACTOR SHALL RELEASE SWIVEL HEAD BOLTS AND ADJUST HYDRANT NOZZLES TO FACE CURB AT PROPER ANGLE. HYDRANT WITHOUT SWIVEL HEADS WILL BE ADJUSTED BY THE CITY WHERE NECESSARY TO CORRECT ANGLE ON NOZZLES WITH CURBING. ELEVATION SHALL CONFORM TO THE ESTABLISHED GRADE WITH TOPS OF FROST CASING AT LEAST FOUR INCHES ABOVE GRADE.
(E) - CONNECTION TO MAIN: THE FIRE HYDRANT SHALL BE CONNECTED TO THE MAIN PIPE WITH A CAST IRON BRANCH CONTROLLED BY THE INDEPENDENT GATE VALVE OF THE SAME SIZE AS FIRE HYDRANT EXCEPT AS OTHERWISE DIRECTED.
(F) - DRAINAGE AT HYDRANT: DRAINAGE SHALL BE PROVIDED AT BASE OF THE HYDRANT BY FILLING AROUND ELBOW WITH COARSE GRAVEL OR CRUSHED STONE TO AT LEAST SIX - INCHES ABOVE THE WASTE OPENING. WHEREVER HYDRANT IS SET IN ROCK, CLAY OR OTHER IMPERVIOUS SOIL, THE TRENCH SHALL BE WIDENED AND DEEPENED ON EACH SIDE OF HYDRANT BASE. WHICH SPACE SHALL BE FILLED COMPACTLY WITH COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND OF SUFFICIENT QUANTITY TO ABSORB ALL SPECIAL-WATER TO BE DRAINED FROM HYDRANT WHEN VALVE IS CLOSED.
(G) - ANCHORAGE FOR HYDRANT: THE HYDRANT SHALL BE SET ON A STONE SLAB OR SIMILAR FOUNDATION AND BASE OF HYDRANT AND HYDRANT TEE WELL BRACED AGAINST UNEXCAVATED EARTH AT THE END OF THE TRENCH WITH CONCRETE BACKING OR IT SHALL BE TIED TO THE PIPE WITH SUITABLE RODS OR CLAMPS AS DIRECTED BY THE ENGINEER.
(H) - CLEANING: HYDRANT SHALL BE THOROUGHLY CLEANED OF DIRT OR FOREIGN MATTER BEFORE SETTING.

PAYMENT

(A) - THE UNIT PRICE STIPULATED TO BE PAID FOR EACH "ITEM SPECIAL-FURNISHING AND SETTING 6" FIRE HYDRANT" SHALL INCLUDE FURNISHING THE HYDRANT, IN ACCORDANCE WITH RESPECTIVE SPECIFICATION SET FORTH ELSEWHERE IN THESE NOTES, SETTING, TESTING, PAINTING, THE EXCAVATION, SHEETING AND BRACING, BACKFILLING, AND THE FURNISHING OF ALL LABOR, MATERIAL, TOOLS AND APPLICANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.
(B) - THE PIPE WILL BE PAID FOR UNDER "CAST IRON AND DUCTILE IRON PIPE AND FITTINGS."

(C) - THE VALVES WILL BE PAID FOR UNDER "VALVES."

(D) - THE VALVE BOX WILL BE PAID FOR UNDER "VALVES."

VALVES

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY SET IN PLACE AND CONNECT AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL AIR COCKS, DRAIN VALVES, AND GATE VALVES OF THE VARIOUS SIZES AND TYPES SPECIFIED OR ORDERED, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

AIR COCKS

ALL AIR COCKS OR AIR VENT VALVES SHALL BE 2-INCH BRASS ANGLE TYPE GLOBE VALVES. AND SHALL BE EQUAL IN ALL RESPECTS TO THE FARNAN "CLEVELAND STANDARD" BRASS AIR VENT VALVE NO. W-4695 AS MANUFACTURED BY THE FARNAN BRASS WORKS.

CHECK VALVES

CHECK VALVES SHALL BE GRAVITY OPERATED, HORIZONTAL SWING TYPE, CAST IRON BODY. BRONZE DISC AND SEAT RINGS, WITH FLANGED OR HUB ENDS AS SHOWN OR CALLED FOR ON THE DRAWINGS. VALVES SHALL BE RATED FOR 150 P.S.I. WORKING PRESSURE AND 300 P.S.I. TEST PRESSURE AND SHALL CONFORM IN ALL RESPECTS TO THE "MATERIAL SPECIFICATIONS FOR VALVES."

GATE VALVES

(A) - TYPE OF VALVES: THE GATE VALVES SHALL BE MANUFACTURED IN FULL COMPLIANCE WITH THE STANDARD SPECIFICATIONS FOR GATE VALVES FOR ORDINARY WATERWORKS SERVICE OF THE AMERICAN WATERWORKS ASSOCIATION AWWA C 500-71 OR LATEST REVISION THEREOF AND IN ADDITION SHALL COMPLY WITH THE FOLLOWING SUPPLEMENTARY REQUIREMENTS. ALL GATE VALVES SHALL BE THE NON-REVOLVING DOUBLE DISC PARALLEL SEAT BOTTOM WEDGE OR SIDE WEDGE TYPE. IN OPENING OR CLOSING THE VALVE, THE GATES SHALL BE FORCED TO ASCEND OR DESCEND BY REASON OF THE THRUST EXERTED UPON THEM BY THE VALVE STEM NUT: THIS THRUST BEING GENERATED BY THE ROTATION OF THE VALVE STEM. IN CLOSING THE VALVE, THE DISCS WHEN OPPOSITE THE PORTS, SHALL BE PRESSED FIRMLY AGAINST THE BODY SEATS BY WEDGES OR SOME OTHER DEVICE EQUALLY SUITABLE TO THE ENGINEER.
(B) - VALVES WITH STATIONARY STEMS: ALL GATE VALVES, UNLESS OTHERWISE ORDERED, SHALL BE MADE WITH SINGLE, NON-RISING STEMS.
(C) - SCREW ENDS: ALL 2 INCH GATE VALVES AND UNDER SHALL BE MADE WITH SCREW ENDS UNLESS OTHER-WISE SPECIFIED. THE 3-INCH AND 4-INCH HAND - WHEEL GATE VALVES SHALL BE FURNISHED WITH SCREW ENDS WHEN REQUIRED BY THE DIRECTOR. THREADS TO BE INSIDE STANDARD IRON PIPE THREADS.
(D) - VERTICAL AND HORIZONTAL VALVES: ALL GATE VALVES, 16-INCHES AND UNDER SHALL BE CONSTRUCTED TO WORK VERTICALLY. VALVES OVER 16-INCH WATERWAY SHALL BE CONSTRUCTED TO WORK HORIZONTALLY.
(E) - BY-PASSES: BY-PASSES WITH GATE VALVES SHALL BE PROVIDED ON VALVES 20 INCHES AND LARGER. THE BY-PASSES SHALL BE LOCATED ON OR BELOW THE HORIZONTAL CENTERLINE OF THE VALVES. BY-PASS VALVES SHALL BE OF THE SAME SIZE AS THE BY-PASS AND SHALL CONFORM TO THE REQUIREMENT OF THESE SPECIFICATIONS FOR THE SPECIFIC VALVE USED. THE SIZE REQUIREMENTS OF BY-PASSES SHALL BE AS FOLLOWS:
VALVES 24 INCH TO 30 INCH INCLUSIVE, SHALL BE PROVIDED WITH 4 INCH BY-PASSES.
TAPPING SLEEVE AND TAPPING VALVE WILL CONFORM TO THE REQUIREMENTS OF GATE VALVE SPECIFICATIONS AS MANUFACTURED BY A. P. SMITH, DIVISION OF U.S. CAST IRON PIPE CORPORATION.
(F) - BOSSES: OUTSIDE SCREW AND YOKE GATE VALVES 6-INCHES AND LARGER IN SIZE SHALL BE PROVIDED WITH TWO BOSSES ON ONE SIDE OF BODY, LOCATED ON THE HORIZONTAL CENTERLINE OF GATE VALVES, TO PERMIT THE INSTALLATION OF BY-PASS AROUND THE GATE. BOSSES ARE TO BE LEFT SOLID AND OF AMPLE SIZE TO PERMIT DRILLING AND TAPPING FOR BY-PASSES HAVING DIAMETERS NOT LESS THAN ONE-SIXTH OF THE NOMINAL SIZE OF GATE VALVE.
(G) - FLANGES: WHEN FLANGED VALVES ARE REQUIRED THE FLANGES SHALL BE FACED AND DRILLED. BOLT HOLES SHALL BE SPOT FACED ON THE BACK WHEN NECESSARY TO SECURE AN EVEN BEARING. ALL BOLT HOLES SHALL BE OF THE SIZE SHOWN ON THE DRAWINGS TO BE SUBMITTED AND APPROVED, SHALL BE ACCURATELY DRILLED FROM TEMPLATES SPACED EQUAL DISTANCES APART AND SHALL STRADDLE HORIZONTAL AND VERTICAL AXIS, ALL AS SHOWN ON THE DRAWINGS. THE DIMENSIONS AND DRILLING OF ALL END FLANGES SHALL CONFORM TO THE SPACING INDICATED ON THE DRAWINGS WHICH SHALL BE THE AMERICAN 125 LBS, CAST IRON FLANGE STANDARD, FLANGES SHALL BE PLAIN FACE WITH A SMOOTH FINISH.
(H) - MARKING ALL GATE VALVES 3 INCH AND OVER SHALL HAVE THE IDENTITY OF MAKER, SIZE AND THE YEAR WHEN MADE AND ALSO THE LETTERS "C.W.D." CAST UPON ITS BODY OR DOME IN RAISED LETTERS.
(I) - STUFFING BOXES: THE STUFFING BOX ON EACH GATE VALVES 3 INCH OR OVER, MUST BE SEPARATE FROM THE DOME AND FASTENED TO IT BY BOLTS. FOR 2 INCH VALVES AND UNDER, THE STUFFING BOXES MAY BE FORMED IN THE DOME OF THE VALVE. WHEN REQUIRED BY THE ENGINEER, VALVES 16 INCH AND SMALLER, SHALL BE FURNISHED WITH "O" RING TYPE SEAL PLATE. THE SEAL PLATE SHALL BE FITTED WITH AT LEAST TWO "O" RINGS, THE LOWER "O" RING SERVING AS THE PRESSURE SEAL AND THE UPPER "O" RING AS A COMBINED DIRT AND MOISTURE SEAL. THE "O" RINGS SHALL BE PRECISION RUBBER CORPORATION QUALITY COMPOUND NO. 122-70, OR APPROVED EQUAL.
(J) - SEAT AND GATE RINGS DIMENSIONS OF THE BRONZE SEAT AND GATE RINGS SHALL BE PROPORTIONED TO FIT THE TEST PRESSURE REQUIRED, AND SHALL MEET THE APPROVAL OF THE ENGINEER. THE RINGS SHALL BE FIRMLY SECURED IN PLACE BY AN APPROVED DEVICE WHICH WILL PREVENT THEM FROM WORKING LOOSE, PARTICULARLY WHEN THE VALVE IS LEFT PARTLY OPEN. DIMENSIONS OF THE BRONZE SEAT AND GATE RINGS FOR GATE VALVES SHALL BE NOT LESS THAN THAT SPECIFIED IN THE FOLLOWING TABLES. BODY SEAT RINGS SHALL BE MADE OF GRADE ONE BRONZE. GATE SEAT RINGS SHALL BE MADE OF GRADE FIVE BRONZE.

APPROVED Nov. 20, 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN G.A.D. | SCALE NONE
CHECKED R.W.H. | DATE 7-19-77 | No.

WATERWORK NOTES

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

52
91

11
25

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

BODY AND GATE RINGS

BOTTOM WEDGE

VALVE SIZE	BODY RINGS FACE	BODY RINGS DEPTH	BODY RINGS THICKNESS AT BASE OF THREADS	GATE RINGS FACE THICKNESS	GATE RINGS FACE	GATE RINGS FACE THICKNESS	GATE RINGS DEPTH
4"	9/16	9/16	3/16	3/16	5/8	5/32	5/16
6"	11/16	9/16	3/16	5/32	11/16	5/32	5/16
8"	3/4	5/8	3/16	7/32	13/16	5/32	5/16
10"	3/4	5/8	3/16	7/32	13/16	5/32	11/32
12"	7/8	5/8	7/32	7/32	1	5/32	11/32
16"	1-1/8	3/4	1/4	9/32	1-1/4	3/16	1/2
20"	1-3/8	1-1/8	5/16	3/8	1-3/8	3/8	5/8
24"	1-3/8	1-1/8	5/16	3/8	1-3/8	3/8	5/8
30"	1-1/2	1-1/4	3/8	7/16	1-1/2	7/16	3/4

SIDE WEDGE

4"	7/16	9/16	3/16	3/16	1/2	5/32	21/64
6"	1/2	11/16	9/32	1/4	5/8	5/32	21/64
8"	17/32	11/16	9/32	1/4	11/16	5/32	21/64
10"	5/8	13/16	3/8	5/16	13/16	5/32	21/64
12"	5/8	13/16	3/8	5/16	13/16	5/32	21/64
16"	3/4	1	15/32	3/8	7/8	3/16	13/32
20"	7/8	1-5/16	17/32	7/16	1	1/4	17/32
24"	1-1/16	1-3/8	21/32	1/2	1-3/16	5/16	19/32
30"	1-5/16	1-1/2	25/32	1/2	1-7/16	5/16	19/32

DIMENSIONS IN INCHES

(Q) VALVE STEM: ALL GATE VALVES SHALL BE OF THE SINGLE SCREW TYPE. THE STEMS SHALL BE OF GRADE THREE BRONZE. THE THREADS OF STEMS AND STEM NUTS SHALL BE OF ACME, MODIFIED ACME OR ONE-HALF V TYPE. IF REQUESTED, A MANUFACTURER'S CERTIFICATE OF TEST SHALL BE FURNISHED WITH ALL BRONZE STEMS. ALL STEM COLLARS SHALL BE CAST INTEGRAL WITH STEMS. THE DIAMETERS OF STEMS AT THE BASE OF THE THREAD SHALL BE NOT LESS THAN THOSE SHOWN BELOW. THE STEM OPENING AND THRUST-BEARING RECESS SHALL BE GRADE ONE BRONZE BUSHED. THE NUMBER OF THREADS PER INCH SHALL BE AS GIVEN BELOW:

SIZE OF VALVE INCHES	DIAMETER OF STEM AT BASE OF THREAD - INCHES	NO. OF THREADS PER INCH
4	0.859	3
6	1.000	3
8	1.000	3
10	1.125	3
12	1.188	3
16	1.438	3
20	1.896	3
24	1.980	2
30	2.480	2

(R) WRENCH CAPS: THE WRENCH CAPS AND RETAINING NUTS ON HEADS OF VALVE STEMS AND PINION SHAFTS SHALL BE OF GRADE THREE BRONZE. ON VALVES 24-INCHES AND OVER, WRENCH CAPS SHALL BE 2 IN. SQUARE AND 2 IN. DEEP. ON VALVES 4-INCHES TO 20 INCHES INCLUSIVE, THEY SHALL BE 1-3/4 INCHES SQUARE ON TOP, 1-7/8 INCHES SQUARE AT BASE, AND 1-3/4 INCHES DEEP. FOR LAKEWOOD ALL WRENCH CAPS SHALL BE 2" MACHINED WRENCH CAPS FOR VALVES 3-INCHES TO 48 INCHES INCLUSIVE SHALL BE FITTED TO A MACHINED SQUARE STEM OR PINION SHAFT AND HELD IN PLACE BY A RETAINING NUT. WRENCH CAPS SHALL HAVE A CUT-AWAY SKIRT TO PERMIT EASY ACCESS TO GLAND BOLTS.

(S) VALVES TO OPEN CLOCKWISE, EXCEPT 2-INCHES AND UNDER: ALL GATE VALVES 3-INCHES AND OVER, INCLUDING BY-PASS VALVES, SHALL BE MADE TO OPEN BY TURNING IN A CLOCKWISE DIRECTION. VALVES 2-INCHES AND UNDER SHALL BE MADE TO OPEN BY TURNING IN A COUNTER-CLOCKWISE DIRECTION. ALL VALVES TO BE SO MADE THAT THEY CAN BE EASILY OPERATED.

(T) FACING OF GATES: ALL DISCS OR GATES AND THREADS FOR SEAT RINGS IN THE BODY SHALL BE MACHINED TRUE AND A GROOVE OR GROOVES SHALL BE MACHINED IN EACH DISC OR GATE FOR THE RECEPTION OF THE FACE RING. THE DISC AND SEAT RINGS SHALL BE SECURELY AND RIGIDLY ATTACHED TO THE DISCS OR BODY SEATS IN A MANNER APPROVED BY THE ENGINEER, AND THE RINGS ARE TO BE FINISHED TO A TRUE SURFACE.

(U) ROLLERS AND SCRAPERS: IN ALL VALVES 20-INCHES IN DIAMETER AND LARGER DESIGNED TO LIE HORIZONTALLY, EACH GATE OR DISC SHALL BE PROVIDED WITH TWO BRONZE ROLLERS TRAVELING ON BRONZE-FACED TRACKS AND PROVIDED WITH SUITABLE BRONZE SCRAPERS OR TWO STAINLESS STEEL ROLLERS TRAVELING ON STAINLESS STEEL-FACED TRACKS AND PROVIDED WITH SUITABLE STAINLESS STEEL SCRAPERS. THE THICKNESS OF THE FACING OF THE TRACKS SHALL BE NOT LESS THAN 1/4-INCH. THE BRONZE SHALL BE CLASS I AND THE STAINLESS STEEL SHALL BE ASTM A276-55, TYPE 302.

(V) VALVE GUIDES: ALL VALVES 20-INCHES IN DIAMETER AND LARGER SHALL BE PROVIDED WITH GUIDES OR TRACKS WHICH SHALL BE MADE STRAIGHT AND TRUE AND ALL IRREGULARITIES MUST BE MACHINED OFF. THE GUIDES OR TRACKS OF HORIZONTAL VALVES SHALL BE SUBSTANTIALLY FACED WITH A MINIMUM OF 1/4 IN. OF GRADE ONE BRONZE, OR STAINLESS STEEL ASTM A 276-55, TYPE 302, SATISFACTORY TO THE ENGINEER, SECURELY FASTENED AND PLANED OFF SMOOTH AND TRUE.

(W) GEARING: ALL VALVES 20-INCHES IN DIAMETER AND LARGER SHALL BE EQUIPPED WITH ENCLOSED CUT TOOTH STEEL GEARS. GEARS, SHAFTS AND BEARINGS, SHALL BE SUCH AS TO PRODUCE EASY OPERATION WITHOUT BENDING OR TWISTING.

(X) DOWEL PINS: ALL GEAR VALVES SHALL HAVE TWO DOWEL PINS SET IN THE FLANGES CONNECTING THE DOME AND BODY. SIZE OF THE PINS TO BE SHOWN IN PLANS.

(Y) INDICATORS: ALL VALVES 20-INCHES IN DIAMETER AND OVER, SHALL BE EQUIPPED WITH INDICATORS DENOTING THE POSITIONS OF THE GATE. THE MOVING PART AND BEARINGS TO BE OF BRONZE OR BRONZE-LINED.

(Z) GREASE CASES: ALL VALVES 20-INCHES IN DIAMETER AND LARGER, SHALL HAVE WATER TIGHT GREASE CASES INSTALLED. THE GREASE CASES SHALL BE OF THE EXTENDED TYPE AND SHALL BE MADE OF CAST IRON CONFORMING TO ASTM SPECIFICATIONS SERIAL DESIGNATION A 126, CLASS B OR ANY SUBSEQUENT AMENDMENT THERETO. BEARING SURFACES FOR VALVE STEM AND PINION SHAFT SHALL BE BRONZE BUSHED WITH GRADE ONE BRONZE. THE GREASE CASES SHALL BE SECURELY BOLTED TO THE VALVE BONNET THROUGH A HEAVY CAST IRON YOKE. THE YOKE SHALL BE OF SUFFICIENT LENGTH TO PROVIDE SPACE FOR REPACKING VALVE AND GREASE CASE STUFFING BOXES. ALL GREASE CASES SHALL BE OF THE EXTENDED TYPE AND SHALL BE MADE OF CAST IRON CONFORMING TO ASTM SPECIFICATIONS SERIAL DESIGNATION A 126, CLASS B OR ANY SUBSEQUENT AMENDMENT THERETO. BEARING SURFACES FOR VALVE STEM AND PINION SHAFT SHALL BE BRONZE BUSHED WITH GRADE ONE BRONZE. THE GREASE CASES SHALL BE SECURELY BOLTED TO THE VALVE BONNET THROUGH A HEAVY CAST IRON YOKE. THE YOKE SHALL BE OF SUFFICIENT LENGTH TO PROVIDE SPACE FOR REPACKING VALVE AND GREASE CASE STUFFING BOXES. ALL GREASE CASES SHALL BE PROVIDED WITH A REMOVABLE COVER SECURELY BOLTED IN PLACE TO ALLOW EASY ACCESS TO THE GEARS. THERE SHALL ALSO BE PROVIDED CONVENIENT FILLING AND DRAINING PLUGS AND SUFFICIENT OIL TO FULLY SUBMERGE THE PINION GEAR. THE VALVES SHALL BE DELIVERED WITH THE GREASE CASES FILLED WITH THE PROPER OIL AS RECOMMENDED BY THE MANUFACTURER.

(AA) BRONZE PARTS: THE STEMS, STEM NUTS, OPERATING NUTS, RETAINING NUTS, DISC AND SEAT RINGS, SHALL BE OF SOLID BRONZE. OTHER PARTS SUCH AS WEDGES, GLANDS, THRUST BEARINGS, GEAR SPINDLES, ROLLERS, SCRAPERS AND TRACKS, AND ALL OTHER PARTS COMING TOGETHER IN OPERATION, SHALL BE OF BRONZE, OR SUBSTANTIALLY LINED WITH BRONZE OR STAINLESS STEEL OF A THICKNESS NOT LESS THAN 1/4 OF AN INCH AND AS SHOWN ON DRAWINGS SUBMITTED AND APPROVED. ALL 2" VALVES AND UNDER SHALL BE MADE ENTIRELY OF BRONZE, EXCEPT HAND-WHEELS WHICH SHALL BE OF MALLEABLE IRON.

(BB) CAST IRON PARTS: THE BODIES, COVERS, DISCS, FRAMES, ETC., OF ALL GATE VALVES 3" AND OVER, SHALL BE OF CAST IRON.

(CC) WATERWAY OPENING: WITH THE VALVE OPEN, AN UNOBSTRUCTED WATERWAY SHALL BE AFFORDED. THE DIAMETER OF WHICH IS NOT TO BE LESS THAN THE FULL NOMINAL DIAMETER OF THE VALVE.

MATERIAL SPECIFICATIONS

(A) STRENGTH OF VALVES: THE GATE VALVES AND CHECK VALVES SHALL BE DESIGNED FOR 150 LB. WORKING PRESSURE AND SHALL WITHSTAND AN INTERNALLY APPLIED HYDROSTATIC PRESSURE AT ALL POINTS OF AT LEAST 300 LBS. PER SQUARE INCH. A FACTOR OF SAFETY OF NOT LESS THAN 10 SHALL BE USED ON THE DESIGN. SHOULD TESTS DEVELOP ANY WEAKNESS, THE VALVES FROM THAT DESIGN SHALL BE REJECTED AND A NEW DESIGN MADE.

(B) REINFORCEMENT AT FLANGES: ALL VALVE FLANGES SHALL BE REINFORCED BY FILLETS IN ACCORDANCE WITH THE MANUFACTURER'S PRACTICE PROVEN SATISFACTORY IN ACTUAL SERVICE.

(C) JOINTS: ALL JOINTS OF THE VALVES SHALL BE FACED TRUE IN A LATHE OR PLANER AND PUT TOGETHER WITH A GASKET OF SOME MATERIAL ACCEPTABLE TO THE ENGINEER.

(D) BOLT HOLES: ALL BOLT HOLES SHALL BE ACCURATELY DRILLED FROM TEMPLATES AND SPACED EQUAL DISTANCES APART.

(E) BOLTS AND NUTS: ALL BOLTS AND NUTS SHALL BE MADE OF SILICON BRONZE (ASTM B 98-69, ALLOY A), OR STAINLESS STEEL (ASTM A 276-72, TYPE 302)

(F) PARTS TO BE INTERCHANGEABLE: ALL PARTS OF VALVES OF THE SAME SIZE AND MAKE MUST BE PERFECTLY INTERCHANGEABLE AND ALL WORK DONE IN A THOROUGH AND WORKMANLIKE MANNER.

(G) CASTINGS: ALL CASTINGS, WHETHER OF BRONZE, IRON OR STEEL, SHALL BE SOUND AND SMOOTH WITHOUT COLD SHUTS, SWELLS, LUMPS, SCABS, BLISTERS, SAND HOLES OR OTHER PRACTICE TO OBTAIN CASTINGS OF THE BEST QUALITY AND OF UNIFORM THICKNESS. NO WELDING, PLUGGING OR FILLING OF HOLES OR OTHER DEFECTS WILL BE PERMITTED. FOR PARTS WHOSE THICKNESS IS LESS THAN ONE (1") - INCH, CASTING BEING THINNER THAN THE SPECIFIED THICKNESS BY .06 INCH OR MORE SHALL BE REJECTED, AND FOR PARTS WHOSE THICKNESS IS ONE (1") INCH OR MORE, CASTINGS BEING THINNER THAN SPECIFIED BY .08 INCH OR MORE SHALL BE REJECTED.

(H) BRONZE PARTS: (1) BRONZE FOR PARTS, OTHER THAN THOSE LISTED BELOW, SHALL BE GRADE ONE. (2) VALVE STEMS, PINION SHAFTS, STEM NUTS, WRENCH CAPS AND RETAINING NUTS SHALL BE MADE OF GRADE THREE BRONZE. (3) DISC RINGS SHALL BE MADE OF GRADE FIVE BRONZE.

(I) TESTS OF BRONZE: (1) IF DEMANDED, A MANUFACTURER'S CERTIFICATE OF TEST SHALL BE FURNISHED WITH ALL BRONZE STEMS. (2) ALL STEMS OF 16-INCH GATE VALVES AND OVER, SHALL HAVE A PROLONGATION ON ONE END OF EACH STEM, OF THE SAME DIMENSIONS AND CROSS SECTIONS AS THE STEM AND OF SUFFICIENT LENGTH TO ENABLE THE CUTTING OF SPECIMENS PARALLEL WITH THE LONGITUDINAL AXIS OF THE STEM. SPECIMENS SHALL BE CUT FROM PROLONGATIONS ONE-HALF WAY BETWEEN SURFACE AND CENTRAL AXIS. OTHER METHODS OF TEST WILL BE CONSIDERED BY THE ENGINEER, BUT MUST BE SUBMITTED IN DETAIL WITH THE BID (3) FOR ALL STEMS OF GATE VALVES SMALLER THAN 16-INCHES, NOT LESS THAN TWO TEST PIECES SHALL BE CAST FROM THE MOLTEN METAL OF EACH HEAT FROM WHICH VALVE STEMS ARE BEING MADE. (4) ALL STEMS MADE FROM BRONZE SHOWING LESS STRENGTH, ELONGATION AND/OR DUCTILITY THAN ABOVE REQUIRED SHALL BE REJECTED. (5) TESTS OF VALVE STEMS OR THE VARIOUS PARTS OF ANY VALVE MAY BE MADE AT ANY TIME BEFORE OR AFTER DELIVERY AND, IF FOUND TO BE DEFICIENT IN STRENGTH OR UNSATISFACTORY TO THE ENGINEER, THE WHOLE LOT OR SHIPMENT MAY BE REJECTED.

(J) - CAST IRON:

(1) - QUALITY: CAST IRON SHALL CONFORM TO ASTM SPECIFICATIONS A126, CLASS B, OR LATEST REVISION THEREOF. ALL IRON CASTINGS SHALL BE TOUGH AND WITHOUT BRITTLENESS, SUCH AS MAY BE CUT, DRILLED AND CHIPPED BY HAND WITH DUE EASE. A BLOW FROM A HAMMER SHALL PRODUCE AN INDENTATION ON THE EDGE OF THE CASTING WITHOUT FLAKING THE METAL.

(2) - TESTS: BARS FROM THE MOLTEN METAL FROM WHICH THE VALVES ARE BEING MADE SHALL BE TESTED AT SUCH TIME AND IN SUCH MANNER, AS THE ENGINEER MAY REQUIRE. THE REQUIREMENTS OF ASTM SPECIFICATIONS A 126 SHALL GOVERN TESTING PROCEDURES TO DETERMINE THE PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE IRON CASTINGS. SHOULD THE RESULT OBTAINED FROM THE BAR TESTED FAIL TO SHOW THAT THE CAST IRON MEETS THE REQUIREMENTS HEREIN SPECIFIED, THE ENTIRE MELT WILL BE REJECTED. TEST BARS, HOWEVER, WHOSE FAILURE IS DUE TO INHERENT DEFECTS SHALL NOT BE CONSIDERED. ALL VALVES MADE FROM IRON SHOWING LESS STRENGTH THAN CALLED FOR IN THE ASTM SPECIFICAITONS SHALL BE REJECTED.

APPROVED Nov. 20, 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	LOW SERVICE DISTRICT
	DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER AND HEAT CLEVELAND, OHIO
	SUBJECT WATERWORK NOTES
	DRAWN G.A.D. SCALE NONE
	CHECKED R.W.H. DATE 7-19-77 No.

WATERWORK NOTES

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

53
91

12
25

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

VALVES - CON'T.

(K) QUALITY OF MATERIALS·

GRADE ONE CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 62.

GRADE TWO CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 132 ALLOY NO. 864.

GRADE THREE CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 132 ALLOY NO. 867.

GRADE FOUR ROLLED BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 21, ALLOY NO. 464 (ONE-HALF HARD)

GRADE FIVE BRONZE SHALL BE SUFFICIENTLY MALLEABLE TO CONFORM TO DOVETAILED GROOVES WHEN PEENED OR ROLLED: AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH WITHOUT DEFORMATION OF 4000 PSI, AND SHALL HAVE THE FOLLOWING CHEMICAL COMPOSITION:

COPPER, PERCENT	91.0
TIN, PERCENT	0.0
ZINC, PERCENT	5.0
LEAD, PERCENT	4.0

SILICON BRONZE

THIS BRONZE SHALL CONFORM TO ASTM SPECIFICATION B-98, ALLOY A

STAINLESS STEEL

THE STAINLESS STEEL SHALL CONFORM TO ASTM SPECIFICATIONS A-276 TYPE 302.

CAST IRON

THE CAST IRON SHALL CONFORM TO ASTM SPECIFICATION A 126 CLASS B

(L) - OTHER MATERIALS: ALL OTHER MATERIALS USED IN THE MANUFACTURE OF THESE VALVES AND NOT SPECIFIED IN THE SPECIFICATIONS SHALL BE OF THE BEST QUALITY OF THEIR RESPECTIVE KINDS, AND SUBJECT TO INSPECTION, TESTS, AND APPROVAL BY THE ENGINEER.

(M) - CHEMICAL ANALYSIS: CHEMICAL ANALYSIS OF THE MATERIAL USED SHALL BE FURNISHED BY THE CONTRACTOR WHENEVER REQUIRED BY THE ENGINEER.

(N) - CLEANING OF CASTINGS: ALL IRON CASTINGS SHALL BE THOROUGHLY CLEANED ON THE OUTSIDE AND INSIDE SURFACES AND PROTECTED FROM RAIN OR MOISTURE UNTIL THEY ARE PAINTED.

(O) - HYDROSTATIC TESTS AT SHOP: ALL GATE VALVES SHALL BE TESTED IN THE SHOP BY HYDROSTATIC PRESSURE, BY CLOSING THE VALVE AND APPLYING THE REQUIRED TEST PRESSURE IN THE BODY AND DOME OF THE VALVE AS SPECIFIED BELOW.

4 " THROUGH 12"	400 PSI - NO TIME REQUIREMENT
14" THROUGH 48"	300 PSI - FOR 1/2 HOUR, DROP PRESSURE TO 150 PSI, THEN ELEVATE AGAIN TO 300 PSI FOR 30 MINS. A TOTAL OF 1 HOUR

THIS IS A MODIFICATION OF SECTION 29 OF THE "STANDARD SPECIFICATIONS AWWA DESIGNATION C-500-61". ALL LEAKS, FLAWS OR OTHER DEFECTS DEVELOPED IN MAKING THESE TESTS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER OR THE ENTIRE PIECE SHALL BE REJECTED. AFTER TESTING, ALL VALVES SHALL BE THOROUGHLY DRAINED. ALL EQUIPMENT FOR TESTING AND ALL TESTS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.

(P) - PERFORMANCE TESTS: EACH VALVE SHALL BE OPERATED IN THE POSITION THAT IT WILL ASSUME IN SERVICE AND FOR THE FULL LENGTH OF GATE TRAVEL IN BOTH DIRECTIONS, TO DEMONSTRATE THE FREE AND PERFECT FUNCTIONING OF ALL PARTS IN THE INTENDED MANNER. ANY DEFECTS OF WORKMANSHIP SHALL BE CORRECTED AND THE TEST REPEATED UNTIL SATISFACTORY PERFORMANCE IS DEMONSTRATED.

PLACING AND TESTING

(A) - ALL VALVES SHALL BE SET ACCURATELY AND CAREFULLY TO THE LINES AND GRADES GIVEN. ALL CONNECTIONS TO PIPE SHALL HAVE THE NECESSARY FLANGE, LEAD, SCREWED, VICTAULIC OR SOLDERED ENDS AS REQUIRED UNDER THE FOLLOWING ITEMS: CAST IRON AND DUCTILE IRON PIPE AND FITTINGS, PRESTRESSED CONCRETE CYLINDER PIPE AND FITTINGS, FURNISHING AND SETTING 6" (SIX INCH) HYDRANT, 4" DRAIN, COMPLETE, AND AS SHOWN ON THE VALVE SCHEDULE.

(B) - AFTER THE VALVES ARE SET IN PLACE AND READY TO OPERATE, THE CONTRACTOR SHALL TEST THEM UNDER WORKING PRESSURE AND CONDITIONS HEREIN SPECIFIED UNDER THE SPECIFICATION "TESTING MAINS" AND ANY VALVE FOUND TO LEAK SHALL BE MADE WATERTIGHT AND IF FOUND TO BE OF FAULTY DESIGN, SHALL BE SATISFACTORILY REPAIRED OR REPLACED BY THE CONTRACTOR.

PAINTING

(A) - IRON BODY VALVES SHALL EITHER BE DIPPED IN ASPHALT PAINT AND ALL BRONZE PARTS CLEANED, OR ALL IRON CASTINGS SHALL BE PAINTED INSIDE BEFORE ASSEMBLING WITH TWO (2) COATS OF AN APPROVED PAINT, AND, AFTER PASSING THE HYDRAULIC TEST SHALL BE GIVEN AT LEAST TWO (2) COATS OF APPROVED PAINT OUTSIDE.

(B) - AFTER ERECTION, ALL EXPOSED METAL SURFACES OF VALVES EXCEPT BRASS OR BRONZE SHALL BE PAINTED WITH TWO (2) FIELD COATS OF COAL TAR PITCH PAINT INERTOL 66 OR KOPPERS BITUMASTIC 50, OR APPROVED EQUAL.

INSPECTION

THE ENGINEER, OR HIS AUTHORIZED DESIGNATE WILL INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE RESPECTIVE CITIES OR STATE MAY REQUIRE. SUCH OFFICE SHALL HAVE UNRESTRICTED ACCESS TO THE CONTRACTOR'S PLANT AND TO ALL PARTS OF THE WORK AND OTHER PLACES AT WHICH THE PREPARATION OF THE MATERIAL AND THE CONSTRUCTION OF THE DIFFERENT PARTS OF THE WORK TO BE DONE UNDER THESE SPECIFICATIONS ARE CARRIED ON, AND HE SHALL RECEIVE ALL FACILITIES AND ASSISTANCE TO CARRY OUT HIS WORK OF INSPECTION AND TESTING, IN A MANNER SATISFACTORY TO THE ENGINEER. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, OR ANY MODIFICATIONS THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE.

DRAWINGS

(A) - PRIOR TO THE MANUFACTURE OF ANY VALVES, THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND COMPLETE WORKING, DETAIL AND DIMENSION DRAWINGS SHOWING THICKNESS AND KINDS OF MATERIAL AND SIMILAR INFORMATION.

(B) - ONE PRINT OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE ENGINEER. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SNED FOR APPROVAL, DUPLICATE REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED. AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL FURNISH TO THE ENGINEER THREE (3) PRINTS OF EACH DRAWING REPRODUCIBLE ON CLOTH OR .003 THICKNESS MYLAR. SHALL BE FURNISHED TO THE DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND, ONE TO OHIO DEPARTMENT OF TRANSPORTATION AND ONE RETURNED TO THE CONTRACTOR.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL-VALVES" CLASSIFIED AS TO SIZE AND TYPE SHALL INCLUDE THE FURNISHING, PLACING, TESTING AND PAINTING OF THE AIR COCKS, DRAIN VALVES, GATE VALVES, INCLUDING BY-PASS VALVES OPERATING NUTS AND OTHER ACCESSORIES AND APPURTENANCES AND THE FURNISHING OF ALL LABOR, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

AIR COCK IS INCLUDED FOR PAYMENT IN "ITEM SPECIAL - 2" AIR COCK COMPLETE".

VALVE BOXES SHALL BE INCLUDED FOR PAYMENT IN "ITEM SPECIAL-VALVES".

TAPPING SLEEVE

WORK INCLUDED

TAPPING SLEEVE AND VALVES WILL BE INSTALLED BY THE CITY OF LAKEWOOD OR CITY OF CLEVELAND WATER DEPARTMENT.

THE TIME OF INSTALLATION WILL BE SET BY THE DIVISION OF WATER

THE CITY WILL DO ALL WORK NECESSARY FOR THE INSTALLATION OF THE TAPPING SLEEVE AND VALVES.

THE CONTRACTOR SHALL FURNISH THE TAPPING VALVE, VALVE BOX COMPLETE, SLEEVES, CAST IRON PIPE, LEAD AND INCIDENTALS FOR THE INSTALLATION. THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION, SHEETING AND BRACING, SAND BACKFILLING, BACKFILLING AND REPAVING REQUIRED FOR THIS ITEM.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE UNIT PRICE BID FOR EACH"TAPPING SLEEVE VALVE, COMPLETE" AND CLASSIFIED AS TO SIZE. THE PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL EXCAVATION, SHEETING, BRACING, SAND BACKFILLING, BACKFILLING AND REPAVING AS NECESSARY AND THE FURNISHING OF ALL MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

THE MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS FURNISHED BY THE CITY OF LAKEWOOD OR THE CITY OF CLEVELAND, DIVISION OF WATER, WILL BE AT NO EXPENSE TO THE CONTRACTOR.

2" AIR COCK, COMPLETE

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH PIPE WITH A 2" AIR COCK CONNECTION AND FURNISH AND INSTALL THE "2" AIR COCK, COMPLETE" AS SHOWN IN THE "WATERWORK DETAILS" AT THE LOCATIONS SHOWN IN THE PLANS

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH "ITEM SPECIAL-2" AIR COCK, COMPLETE" WHICH PRICE AND PAYMENT SHALL CONSITITUE FULL PAYMENT FOR FURNISHING AND INSTALLING ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THIS ITEM. THE VALVE BOX SHALL BE INCLUDED IN THE PAYMENT BID FOR THE ITEM "2" AIR COCK COMPLETE".

PLUGGING DEAD ENDS

STANDARD PLUGS WITH CLAMPS SHALL BE INSERTED INTO THE BELLS OF ALL DEAD ENDS OF PIPES, TEES, OR CROSSES, AND SPIGOT ENDS CAPPED AND CLAMPED BY THE CONTRACTOR ON ALL MAINS CONSTRUCTED BY HIM AND ON EXISTING WATER MAINS WHERE INDICATED IN THE CONTRACT DRAWING. CONCRETE PIERS SHALL BE PLACED WHEN CALLED FOR ON THE CONTRACT DRAWINGS OR ORDERED BY THE ENGINEER. THE COST OF FURNISHING THE PLUGS SHALL BE INCLUDED IN THE PER LINEAR FOOT PRICE BID FOR THE VARIOUS SIZES OF NEW WATER MAINS AND FOR SIZE PLUG INSTALLED WHERE SHOWN ON EXISTING WATER MAIN. (SEE ITEM BELOW)

ITEM SPECIAL - PLUGGING EXISTING WATER MAINS AND BRANCHES AND PLUGGING SERVICE CONNECTIONS

WORK INCLUDED

THE WORK INCLUDED UNDER THESE ITEMS SHALL CONSIST OF THE PLUGGING OF EXISTING WATER MAINS AND BRANCHES, AND THE PLUGGING OF SERVICE CONNECTIONS AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS ORDERED, INCLUDING CAST IRON PLUGS OR CAPS WITH CLAMPS AND CONCRETE PIERS, ALL EXCAVATION, SHEETING AND BRACING, CONCRETE, SAND BACKFILL, BACKFILL, TEMPORARY REPAVING AND PERMANENT REPAVING, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

(A) PLUGGING MAINS AND BRANCHES:

WHEN INDICATED ON THE PLANS OR AS ORDERED, THE CONTRACTOR SHALL MAKE PIPE CUTS, REMOVE FITTINGS AND SHALL PLUG OR CAP MAINS, TEES OR CROSSES, PLUG CONNECTIONS AT MAIN OR BRANCHES, SHALL DO ALL THE EXCAVATION, BACKFILLING AND REPAVING, ALL AS REQUIRED.

APPROVED Nov. 20, 19 78

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN G.A.D.	SCALE NONE	No.
CHECKED R.W.H.	DATE 7-19-77	

WATERWORK NOTES

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

54
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

13
25

(B) PLUGGING SERVICE CONNECTION:
THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION, SHEETING AND BRACING, SAND BACKFILLING, BACKFILLING AND REPAVING REQUIRED FOR THIS ITEM, BUT THE CLEVELAND OR LAKEWOOD WATER DEPARTMENT WILL FURNISH THE PLUG AND PLUG THE SERVICE CONNECTION. THE CONTRACTOR SHALL ARRANGE WITH THE CLEVELAND OR LAKEWOOD WATER DEPARTMENT FOR THE NECESSARY WORK UNDER THIS ITEM, DEPENDING ON LOCATION.

MEASUREMENT
THE EXISTING WATER MAINS AND BRANCHES PLUGGED OR SERVICE CONNECTIONS PLUGGED TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH LISTED AND ESTIMATED SEPARATELY, COMPLETED AND ACCEPTED.

BASIS OF PAYMENT
THE UNIT PRICE STIPULATED FOR (A) "ITEM SPECIAL - PLUGGING EXISTING WATER MAINS AND BRANCHES" CLASSIFIED AS TO SIZE SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THIS ITEM INCLUDING FURNISHING ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS TO MAKE THIS A COMPLETE ITEM OF WORK. THE ITEM SHALL BE PAID FOR ON PER "EACH" BASIS.
THE UNIT PRICE STIPULATED FOR (B) "ITEM SPECIAL - PLUGGING SERVICE CONNECTIONS" SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THIS ITEM INCLUDING FURNISHING ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS TO MAKE THIS A COMPLETE ITEM OF WORK. THE ITEM SHALL BE PAID FOR ON PER "EACH" BASIS.
THE MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS FURNISHED BY THE CITY OF CLEVELAND, DIVISION OF WATER OR LAKEWOOD WATER DEPARTMENT, WILL BE AT NO EXPENSE TO THE CONTRACTOR. THE WORK PERFORMED BY THE CITY OF CLEVELAND APPLIED TO (B) PLUGGING SERVICE CONNECTIONS.

SERVICE CONNECTIONS EXTENDED

THE CONTRACTOR SHALL DO ALL THE NECESSARY EXCAVATION, BACKFILLING, SEEDING, SODDING, AND REPAVING REQUIRED IN MAKING THESE SERVICE CONNECTIONS AND ALTERATIONS AND COSTS THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "SERVICE CONNECTIONS EXTENDED". THE CURB BOXES SHALL BE RELOCATED BY THE CITY AND SET TO FINAL GRADE BY THE CONTRACTOR.

MATERIAL REQUIRED FOR ITEM SPECIAL SERVICE CONNECTION EXTENDED

(3/4" OR 1" GENERAL SUPPLY WATER CONNECTION)

ON CAST IRON PIPE

1	-	3/4" OR 1" CURB COCK - COPPER TO IRON
1	-	CURB COCK BOX BOTTOM
1	-	CURB COCK BOX TOP
X #	-	3/4" OR 1" COPPER TUBING
		OR
1	-	3/4" OR 1" COMPRESSION CORPORATION STOP
1	-	3/4" OR 1" ORASEAL COMPRESSION VALVE
1	-	ORASEAL BOX
1	-	ORASEAL BOX FOOT PIECE
X #	-	3/4" OR 1" COPPER TUBING
2	-	3/4" OR 1" FLARE COUPLINGS - COPPER TO IRON FEMALE
2	-	3/4" OR 1" FLARE COUPLINGS - COPPER TO IRON MALE
2	-	3/4" OR 1" FLARE COUPLINGS - COPPER TO COPPER

MEASUREMENT

THE SERVICE CONNECTIONS EXTENDED" TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH LISTED AND EXTIMATED SEPARATELY COMPLETED AND ACCEPTED.

WORK INCLUDED

THE CITY OF CLEVELAND, DIVISION OF WATER, WILL RESET METERS AND EXTEND CONNECTIONS AT NO COST TO THE CONTRACTOR AS NOTED, BUT ONLY TO THE POINT OF CURB COCK OR METER VAULT. ALL ADDITIONAL EXTENSION WORK SHALL BE DONE BY THE CONTRACTOR, INCLUDING RELOCATING CURB BOX.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL-SERVICE CONNECTIONS EXTENDED" SHALL INCLUDE THE EXCAVATION, BACKFILLING, SEEDING AND SODDING AND REPAVING AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

MISCELLANEOUS METAL WORK

WORK INCLUDED

(A) THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MISCELLANEOUS METAL WORK WHICH IS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT AND IS NOT SPECIFICALLY INCLUDED UNDER THE OTHER ITEMS OF THESE SPECIFICATIONS.
(B) IN GENERAL, THE WORK SHALL INCLUDE THE FURNISHED AND INSTALLING OF MANHOLE FRAMES AND COVERS, MANHOLE STEPS, VALVE BOXES AND COVERS, EXTENSION STEMS AND BRACE STRUCTURAL MEMBERS, BRONZE BOLTS, AND OTHER SIMILAR ITEMS REQUIRED FOR THE PROPER COMPLETION OF THE WORK.

MATERIALS

ALL CASTINGS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 604 OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, "CONSTRUCTION AND MATERIALS SPECIFICATIONS", EXCEPT THAT:
(A) MANHOLE FRAME AND COVERS CAST IRON SHALL CONFORM TO ASTM DESIGNATION 48 CLASS NO. 30.
(B) VALVE BOXES AND COVERS SHALL BE GRAY IRON CASTINGS, IN WHICH APPEARANCE AND DIMENSION TOLERANCES ARE PRIMARY CONSIDERATIONS AND STRENGTH IS NOT A PRIMARY OR MAJOR CONSIDERATION. VALVE BOXES AND COVERS SHALL BE ASTM DESIGNATION A-48 WITH NO SPECIFIC REQUIREMENT AS TO CLASS. CHEMICAL COMPOSITION SHALL NOT BE CONSIDERED, BUT THE MATERIAL SHALL BE OF GOOD QUALITY AND OF SUCH CHARACTER AS SHALL MAKE THE METAL OF THE CASTINGS STRONG, TOUGH AND OF EVEN GRAIN. THE METAL SHALL BE MADE WITHOUT ANY ADMIXTURE OF CINDER IRON OR OTHER INFERIOR METAL.
WORKMANSHIP AND FINISH SHALL CONFORM SUBSTANTIALLY TO THE DIMENSIONS ON THE CONTRACT DRAWINGS OR FURNISHED DRAWINGS. THE CASTINGS SHALL BE FREE FROM INJURIOUS DEFECTS, CRACKS, GAS HOLES, FLAWS, AND EXCESSIVE SHRINKAGE. ADDITIONAL INSPECTION MAY BE MADE AT THE PROJECT OR WORK SITE. INSPECTION SHALL BE VISUAL INSPECTION FOR APPEARANCE AND SURFACE SMOOTHNESS IN COMPARISON WITH SAMPLES ACCEPTED AS STANDARD.
SAMPLE CASTINGS FROM EACH PATTERN, WHEN REQUIRED BY THE ENGINEER, SHALL BE SUBMITTED BY THE MANUFACTURER FOR THE PURPOSE OF ESTABLISHING STANDARDS OF APPEARANCE AND DIMENSIONAL TOLERANCES. THE MANUFACTURER SHALL CERTIFY THAT HIS PRODUCT CONFORMS TO THESE SPECIFICATIONS. EACH CERTIFICATION SO FURNISHED SHALL BE SIGNED BY AN AUTHORIZED AGENT OF THE MANUFACTURER.
(C) ALL STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF THE ASTM DESIGNATION A-7-46.
(D) ALL BRONZE BOLTS AND NUTS SHALL CONFORM TO THE U.S. STANDARD SIZES, AND SHALL BE CLEAN CUT AND HAVE WELL FITTED THREADS. ALL BRONZE BOLTS AND NUTS SHALL BE OF TOBIN OR MANGANESE BRONZE, OR OF SIMILAR APPROVED MATERIALS.

CLEANING AND TESTING

ALL CASTINGS SHALL BE THOROUGHLY CLEANED AND SUBJECTED TO A CAREFUL HAMMER TEST. NO CASTINGS SHALL BE COATED UNLESS CLEAN AND FREE FROM RUST, AND APPROVED IN THESE RESPECTS BY THE ENGINEER OR HIS AUTHORIZED INSPECTOR IMMEDIATELY BEFORE BEING DIPPED.

COATING

EAST CASTING SHALL BE SPRAYED OR BRUSHED INSIDE AND OUT WITH ONE COAT OF ASPHALTIC COMPOUND VARNISH. THE VARNISH SHALL BE MADE OF HIGH GRADE ASPHALT FLUXED AND BLENDED WITH PROPERLY TREATED DRYING OILS AND THINNED TO A PROPER CONSISTENCY WITH A VOLATILE SOLVENT. THE VARNISH SHALL BE MADE TO COMPLY WITH FEDERAL SPECIFICATION 77-V-51a OR JOINT ARMY-NAVY SPECIFICATION JAN.-P-450.
OTHER METHODS OF COATING AND TYPES OF COATING MATERIALS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. IN ADDITION TO THE SHOP COAT THE CASTINGS SHALL RECEIVE TWO (2) COATS OF APPROVED PAINT.

INSPECTION

THE ENGINEER OR HIS AUTHORIZED ASSISTANT SHALL HAVE THE RIGHT TO INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE CITY OR STATE MAY REQUIRE. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, OR ANY MODIFICATION THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR, AT HIS OWN EXPENSE. ALL MANHOLE RINGS AND COVERS MUST BE SOUND AND SHALL CONFORM TO THESE SPECIFICATIONS, AND ANY DEFECTIVE CASTINGS WHICH MAY HAVE PASSED THE INSPECTOR AT THE WORKS, OR ELSEWHERE, SHALL BE AT ALL TIMES LIABLE TO REJECTION WHEN DISCOVERED, UNTIL THE DATE OF FINAL PAYMENT UNDER THIS CONTRACT.

STEPS AND LADDERS

DUCTILE IRON STEPS AND LADDERS OF THE SIZE AND SHAPE SHOWN ON THE CONTRACT DRAWINGS SHALL BE BUILT INTO THE BRICK AND CONCRETE MASONRY OF THE MANHOLES AS INDICATED ON THE DRAWINGS.

MANHOLE FRAMES AND COVERS

(A) ALL CAST IRON MANHOLE FRAMES AND COVERS OF THE FORMS, DIMENSIONS AND DETAILS SHOWN ON THE CONTRACT DRAWINGS, SHALL BE FURNISHED AND INSTALLED AS DIRECTED.

(B) THE FRAMES SHALL BE PROPERLY SET IN PLACE IN A FULL BED OF MORTAR OR POURED MONOLITHIC IN THE MASONRY, AT SUCH ELEVATION AS TO MAKE THE TOP OF THE RIM CONFORM TO THE FINISHED SURFACES OF THE STRUCTURES OR THE FINISHED GRADE AS ESTABLISHED BY THE ENGINEER.

APPROVED Nov. 20, 19 78

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	LOW SERVICE DISTRICT
	DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER AND HEAT CLEVELAND, OHIO
	SUBJECT WATERWORK NOTES
	DRAWN G.A.D. SCALE NONE
	CHECKED R.W.H. DATE 7-19-77 No.

WATERWORK NOTES

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

55/91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

14/25

VALVE BOXES AND COVERS

THE CONTRACTOR SHALL FURNISH AND INSTALL, OVER EACH VERTICALLY SET VALVE AT THE LOCATIONS SHOWN ON THE DRAWINGS, OR AS REQUIRED, VALVE BOXES AND COVERS OF THE TYPES AND SIZES INDICATED ON THE CONTRACT PLANS. THESE SHALL BE CAREFULLY LOCATED OVER THE VALVE NUTS, AND SHALL BE SET PLUMB AND TRUE TO ELEVATION AS REQUIRED.

DETAILED DRAWINGS

COMPLETE DETAILED DRAWINGS OF MISCELLANEOUS METAL WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL, PRIOR TO THE MANUFACTURE OF ANY WORK TO BE FURNISHED UNDER THIS ITEM, IN ACCORDANCE WITH THESE SPECIFICATIONS.

PAINTING

ALL MISCELLANEOUS METAL WORK NOT GALVANIZED SHALL BE THOROUGHLY CLEANED AND GIVEN THREE (3) COATS OF COAL TAR PITCH, INERTOL 50, BITUMASTIC 50, OR APPROVED EQUAL.

PAYMENT

THE COST OF "MISCELLANEOUS METAL WORK" SHALL BE INCLUDED IN THE COST OF THE ITEM (VALVE, MANHOLE, TEST STATION, METER VAULT, SERVICE CONNECTION, ETC.) WITH WHICH THE METAL WORK IS ASSOCIATED.

ADJUST EXISTING VALVE BOX TO GRADE
ADJUST EXISTING SERVICE BOX TO GRADE

WORK INCLUDED

THE CONTRACTOR SHALL RAISE OR LOWER THE EXISTING VALVE BOX AND EXISTING SERVICE BOX TO FIT THE NEW GRADE BY USING APPROPRIATE EXTENSION SECTIONS (IF NEEDED) OR BY EXCAVATING UNDER AND LOWERING BOX. BACKFILL SHALL BE TAMPED UNDER THE VALVE BOX TO INSURE THE BOX HAS A FIRM FOOTING.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH, "ITEM SPECIAL - ADJUST VALVE BOX TO GRADE", "ADJUST SERVICE BOX TO GRADE" WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR ADJUSTING THE VALVE BOX, SERVICE BOX, EXCAVATION, TAMPING EARTH UNDER VALVE BOX, BACKFILLING, AND FOR THE FURNISHING OF ALL LABOR, EQUIPMENT, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

BRICK AND PLAIN CONCRETE MASONRY

(A) - UNDER THESE ITEMS THE CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS, AND EQUIPMENT FOR THE CONSTRUCTION, COMPLETE, OF ALL MISCELLANEOUS MASONRY STRUCTURES AND INCLUDING ALL WATER MANHOLES AND PIERS, AND OTHER APPURTENANT WORK, TOGETHER WITH THE HAULING, MIXING, PLACING, FORMS, SCAFFOLDING, SHEETING AND BRACING, GROUTING, PLASTERING, CURING, ETC., ALL AS SPECIFIED, REQUIRED, OR SHOWN ON THE CONTRACT DRAWINGS.

(B) - THE MATERIAL FURNISHED BY THE CONTRACTOR FOR THE VARIOUS KINDS OF MASONRY CONSTRUCTION SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

(1) - PORTLAND CEMENT - STATE OF OHIO SPEC. SECTION 701.04.
(2) - AGGREGATE FOR PORTLAND CEMENT CONCRETE - STATE OF OHIO SPEC. SECTION 703.02.
(3) - FINE AGGREGATE FOR MORTAR OR GROUT - STATE SPEC. SECTION 703.03.
(4) - BRICK - STATE OF OHIO SPEC. SECTION 704.01, SHALE BRICK, GRADE MS.

(C) - ALL BRICK MANHOLE ADJUSTMENTS SHALL BE BUILT IN ACCORDANCE WITH THE CONTRACT DRAWINGS. THE WALLS OF MANHOLES ADJUSTED OR RECONSTRUCTED SHALL BE BUILT OF BRICK LAID IN 1:3 PORTLAND CEMENT MORTAR, WITH BRICK ARRANGED RADIALLY AS HEADERS, FORMING A WALL AT LEAST NINE INCHES THICK. ALL OF THE BRICK COMPOSING SAID MANHOLE ADJUSTMENTS SHALL BE LAID IN FULL MORTAR BEDS AND JOINTS, WITH NO MORTAR JOINTS APPEARING ON THE INNER SURFACE OF THE MANHOLE EXCEEDING THREE-EIGHTS INCH (3/8") THICK.

(D) - THE TOP OF THE WALLS OF MANHOLES ADJUSTED OR RECONSTRUCTED TO GRADE SHALL BE PROPERLY LEVELED OFF WITH MORTAR SO AS TO FORM A FLAT SURFACE UPON WHICH THE CASTING OR SLAB IS TO REST.

(E) - THE ENTIRE OUTER SURFACE OF ALL ADJUSTED OR RECONSTRUCTED MANHOLES SHALL BE PLASTERED WITH A SMOOTH COATING OF 1:3 PORTLAND CEMENT MORTAR AT LEAST ONE-HALF INCH (1/2") THICK.

PAYMENT

NO SEPARATE PAYMENT WILL BE MADE FOR BRICK OR PLAIN CONCRETE MASONRY. PAYMENT WILL BE INCLUDED IN THE PRICE BID FOR THE ITEM IN WHICH IT IS USED. PAYMENT FOR CONCRETE PIERS IS TO BE INCLUDED IN THE PRICE BID FOR RESPECTIVE PIPE ITEM.

MANHOLE CONSTRUCTION

ALL BRICK MANHOLES, BRICK NECKS, AND EXTENSIONS SHALL BE BUILT IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

THE WALLS OF MANHOLES SHALL BE BUILT OF NO. 2 SHALE BRICK LAID IN 1:3 PORTLAND CEMENT MORTAR, WITH BRICK ARRANGED RADIALLY AS HEADERS, FORMING A WALL NINE INCHES THICK. IN DEEP MANHOLES THE WALL SHALL BE 13" THICK BELOW A POINT 12' FROM THE SURFACE. ALL OF THE BRICK COMPOSING SAID MANHOLES SHALL BE LAID IN FULL MORTAR BEDS AND JOINTS, WITH NO MORTAR JOINTS APPEARING ON THE INNER SURFACE OF THE MANHOLE EXCEEDING THREE-EIGHTS INCH (3/8") THICK.

THE TOP OF THE WALLS OF MANHOLES SHALL BE PROPERLY LEVELED OFF WITH MORTAR SO AS TO FORM A FLAT SURFACE UPON WHICH THE CAST IRON MANHOLE RING IS TO REST AND SAID MANHOLE SHALL BE CARRIED TO PROPER HEIGHT AS INDICATED BY THE CONTRACT DRAWINGS.

THE ENTIRE OUTER SURFACE OF ALL BRICK MANHOLES SHALL BE PLASTERED WITH A SMOOTH COATING OF 1:3 PORTLAND CEMENT MORTAR, AT LEAST ONE-HALF (1/2") INCH THICK.

THE BASE SHALL BE PORTLAND CEMENT CONCRETE, CAST INTO PLACE AGAINST FIRM SOIL FOR ANCHOR BEARING.

PAYMENT

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH "ITEM SPECIAL-DRAIN VAULT, ACCESS AND ANCHORAGE MANHOLE TYPE B, AND VALVE CHAMBER," COMPLETE AND ACCEPTED IN PLACE.

NO SEPARATE PAYMENT WILL BE MADE FOR BRICK OR PLAIN CONCRETE MASONRY. PAYMENT WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM IN WHICH IT IS USED. PAYMENT FOR CONCRETE PIERS AND ANCHORS IS TO BE INCLUDED IN THE PRICE BID FOR "ITEM SPECIAL - WATERMAINS".

REMOVAL ITEMS

ALL MATERIALS CONSISTING OF PIPE, FIRE HYDRANTS, VALVES, VALVE BOXES, CURB COCK VALVE BOXES, MANHOLES, AND ALL APPURTENANCES WHICH ARE INDICATED FOR REMOVAL BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED AND DISPOSED OF BY HIM.

CAVITIES LEFT BY STRUCTURE REMOVAL SHALL BE FILLED TO THE LEVEL OF THE SURROUNDING GROUND, AND COMPACTED IN ACCORDANCE WITH STATE OF OHIO SPECIFICATION SECTION 203.

THE UNIT PRICE STIPULATED FOR ITEM 203-"REMOVED" (CLASSIFIED AS TO TYPE) SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THIS ITEM INCLUDING EXCAVATION, REMOVING AND DISPOSING OF THE "ITEM", BACKFILLING, SEEDING AND SODDING, REPAVING AND FOR THE FURNISHING OF ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS TO MAKE THIS A COMPLETE ITEM OF WORK.

IN LIEU OF COMPLETE REMOVAL OF VALVE AND CURB COCK VALVE BOXES THE CONTRACTOR MAY BREAK OFF THE TOP OF THE BOXES TO A LEVEL AT LEAST TWO (2) FEET BELOW THE FINISHED GRADE IN PAVEMENT AREAS AND AT LEAST ONE (1) FOOT BELOW THE FINISHED GRADE IN EARTH AREAS, AND THE VOID SPACE WITHIN THE REMAINING BOX SHALL BE COMPLETELY FILLED WITH CONCRETE OR COMPACTED DRY SAND.

GENERAL NOTES - FOR PRESTRESSED CONCRETE CYLINDER PIPE

1. THE CONTRACTOR SHALL NOTIFY THE CITY OF CLEVELAND INSPECTION AND ENFORCEMENT OFFICE (MR. R. J. METTLER, (216)-694-3065) AT LEAST THREE (3) WEEKS PRIOR TO STARTING WATERWORK FOR THE RELOCATED MAINS.

2. FOR PROCEDURE NOTE ON RELOCATED WATER MAINS, SEE SHEET NO. 15/25

3. BEFORE ANY WORK CAN BE PERFORMED ON THE 30" MAIN, THE CONTRACTOR SHALL EXCAVATE AND EXPOSE THE EXISTING 24" AND 16" MAIN TO OBTAIN ELEVATIONS ON THE PIPE (ACCORDING TO U.S.G.S. DATUM) AND SHALL SUBMIT A SKETCH CERTIFIED BY A REGISTERED SURVEYOR, APPROVED BY THE PROJECT ENGINEER, TO THE CITY OF CLEVELAND WATER DEPARTMENT.

4. THE TRENCH FOR THE RELOCATED WATER MAIN SHALL BE DEWATERED, IF NECESSARY, TO ENABLE DRY WORKING CONDITIONS AND INSTALLATION.

5. THE PIPE STATIONING IS ALONG HORIZONTAL CENTERLINE OF PIPE, AND ALONG TANGENTS TO P.I. AT HORIZONTAL BENDS.

6. ELEVATIONS ARE BASED ON SEA LEVEL DATUM.

7. THE PIPE FABRICATOR SHALL FOLLOW AS CLOSELY AS POSSIBLE THE POINTS OF CHANGE OF GRADE AS GIVEN ON THESE CONTRACT DRAWINGS.

8. TAPS FOR CHLORINATION ARE TO BE PROVIDED IN THE RELOCATED WATER MAIN. THE CITY OF CLEVELAND WATER DEPARTMENT WILL DETERMINE THE LOCATION OF THE NECESSARY TAPS.

9. THE FIELD TESTING HEAD FOR THE 24" AND 30" WATER MAIN SHALL BE MINIMUM OF 150 P.S.I. THE OTHER PROVISIONS OF "TESTING MAINS", ON SHEET NO. 4/25 WILL APPLY.

10. THE PRESTRESSED CONCRETE CYLINDER PIPE SHALL BE DESIGNED TO RESIST ALL THRUSTS. THE CYLINDER STEEL SHALL BE DESIGNED FOR A MAXIMUM OPERATING STRESS OF 12,500 P.S.I., AND A MAXIMUM TEST STRESS OF 16,000 P.S.I.
THE CYLINDER STEEL FOR THE 24" AND 30" WATER MAIN SHALL BE A MINIMUM OF 16 GAUGE.
SEE NOTE (H) ON SHEET NO. 7/25 FOR MINIMUM CYLINDER STEEL THICKNESS FOR BENDS, ETC.

11. AT LEAST THREE (3) FEET OF APPROPRIATE COMPACTED BACKFILL SHALL BE PLACED OVER THE RELOCATED WATER MAINS BEFORE TESTING.

12. ALL JOINTS NOT HAVING VICTAULIC OR STEEL FLANGE CONNECTORS SHALL BE TIED WITH A PRICE BROTHERS COMPANY CLAMP TYPE HARNESSED JOINT, OR APPROVED EQUAL WITHIN TIED DISTANCES, SEE DETAIL ON SHEET NO. 19/25.
SHOP JOINTS MAY BE TIED BY WELDING, AS SHOWN IN DETAIL ON SHEET NO. 22/25.

13. A PIPE MANUFACTURER FIELD REPRESENTATIVE SHALL SUPERVISE ALL CLAMP TYPE HARNESSED JOINT INSTALLATIONS, AND THE SUBSEQUENT GROUTING OF THE JOINTS.

14. HIGH EARLY CEMENT, OR AN APPROVED FAST SETTING CEMENT SUBSTITUTE, SHALL BE USED FOR THE GROUTING OF THE JOINTS COMPRISING THE CONNECTIONS TO THE EXISTING WATER MAINS.

APPROVED Nov. 20, 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN G.A.D. | SCALE NONE
CHECKED R.W.H. | DATE 7-19-77 | No.

WATERWORK NOTES

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	M-IA 30(1)	

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

56/91

15/24

CONSTRUCTION PROCEDURE

PROCEDURE FOR CONSTRUCTION OF THE 30" WATER MAIN, 24" WATER MAIN, 16" WATER MAIN AND 12" WATER MAIN TIE-IN TO THE METER VAULT.

1. THE CONTRACTOR SHALL FURNISH ALL SHOP DRAWINGS, INSTALLATION DRAWINGS AND INSTALLATION SCHEDULE TO THE DIRECTOR OF PUBLIC UTILITIES, CITY OF CLEVELAND, AND THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE WATER MAIN.

2. THE CONTRACTOR SHALL COMPLETE THE 12" & 6" WATER MAIN ON SLOANE AVENUE BEFORE DISRUPTING THE 6" WATER MAIN SERVICE TO SLOANE AVENUE.WATER SERVICE TO LAKEWOOD SHALL BE MAINTAINED THRU THE EXISTING METER VAULT UNTIL THE METERS ARE READY TO BE TRANSFERRED TO THE NEW VAULT.

3. CONSTRUCT THE 30", 24" AND 12" WATER MAIN TIE-IN TO THE METER VAULT ON THE LAKEWOOD SIDE OF THE BRIDGE. THE 30" WATER MAIN IN LAKE ROAD TO THE TEST POINT, AND THE METER VAULT AS PER PLAN.

4. LOCATE THE EXISTING 24" AND 16" WATER MAINS AND FURNISH MEASUREMENTS TO THE CITY OF CLEVELAND WATER DEPARTMENT AND THE FABRICATOR, AND SUBMIT SHOP DRAWINGS FOR APPROVAL OF THE CLOSURE PIECES REQUIRED FOR THE CONNECTIONS TO THE 24" AND 16" WATER MAINS. NOTE THE EXISTING 24" WATER MAIN AND 16" WATER MAINS SHALL REMAIN IN SERVICE UNTIL THIS TIME.

5. THE WATER MAINS PLACED DURING PROCEDURE STEP 3 SHALL BE TESTED AND CHLORINATED IMMEDIATELY PRIOR TO THE NEXT STEP.

6. THE CITY OF CLEVELAND WATER DEPARTMENT WILL DESIGNATE WHEN THE CONNECTIONS TO THE EXISTING 24" AND 16" WATER MAINS WILL BE MADE. ONCE THE WATER IS SHUT OFF THE CONTRACTOR SHALL EXPEDITE THE INSTALLATION OF THE CONNECTIONS UNTIL SUCH TIME THAT WATER SERVICE CAN BE RESUMED. IT IS THE INTENT THAT CONNECTIONS BE INSTALLED TO MINIMIZE THE LENGTH OF TIME THAT WATER SERVICE IS DISRUPTED. THEREFORE, THE CONTRACTOR MUST HAVE SUFFICIENT LABOR, EQUIPMENT, AND SUPPLIES TO INSTALL THESE CONNECTIONS SIMULTANEOUSLY. AFTER INSTALLATION, SERVICE SHALL BE RESTORED IN THE RELOCATED WATER MAINS.

7. ANY VARIATION IN THIS CONSTRUCTION PROCEDURE MUST FIRST BE APPROVED IN WRITING BY THE DIRECTOR OF PUBLIC UTILITIES.

NOTE: THE CONTRACTOR SHALL COORDINATE THIS WATER WORK TO BE DONE AFTER OR DURING THE LATER STAGES OF COMPLETION OF THE 30" WATER MAIN WORK UNDER PROJECT CUY-6A-0.41. IF THE WATER MAINS ARE SCHEDULED TO BE COMPLETED CONCURRENTLY THEY MAYBE TESTED AND CHLORINATED AT THE SAME TIME WITH EACH CONTRACTOR BEING RESPONSIBLE FOR HIS AREA OF WORK. IF THE WATER WORK OF PROJECT CUY-6A-0.41 IS COMPLETE AND ACCEPTED,THE CONTRACTOR SHALL MAKE THE CONNECTIONS ON EITHER END AND INCLUDE THE BRIDGE AREA AS ONE TEST SECTION BETWEEN THE TEST LIMITS AS PER PLAN.

CONSTRUCTION PROCEDURE

PROCEDURE FOR CONSTRUCTION OF THE 12" AND 6" WATER MAINS IN SLOANE AVENUE AND RELOCATED DETROIT ROAD INTERSECTION.

1. LOCATE EXISTING 6" WATER MAIN IN SLOANE AVENUE AND PROJECT ITS ALIGNMENT TO WHERE IT INTERSECTS THE EXISTING 12" WATER IN THE EXISTING BRIDGE APPROACH ROADWAY.

2. PROVIDE 12" TAPPING VALVE AND 6" CUT-IN VALVE TO BE INSTALLED BY CITY OF LAKEWOOD WATER DEPARTMENT.

3. CONSTRUCT THE 12" AND 6" WATER MAINS IN SLOANE AVENUE AS WELL AS THE 12" TIE-IN WATER MAIN TO THE METER VAULT.

4. TEST AND CHLORINATE WATER MAIN.

5. MEASURE AND PROVIDE ALL NECESSARY MATERIAL, LABOR AND EQUIPMENT TO DISCONNECT AND RECONNECT THE 6" AND 12" WATER MAINS TO THE EXISTING WATER MAIN. THE CITY OF LAKEWOOD WATER DEPARTMENT SHALL MAKE THE ACTUAL CONNECTION AT NO EXPENSE TO THE CONTRACTOR.

6. PLUG THE 12" WATER MAIN WEST OF THE 12" TAPPING VALVE AFTER SERVICE THRU THE EXISTING METER VAULT HAS STOPPED. NOTE WATER SERVICE THRU THE EXISTING METER VAULT SHALL BE MAINTAINED DURING THE CONSTRUCTION OF THE 30" WATER MAIN AND THE NEW METER VAULT.

MISCELLANEOUS WATER WORK

THE CONTRACTOR SHALL NOTIFY THE CITY OF CLEVELAND ENGINEERING OFFICE AT LEAST THREE DAYS PRIOR TO STARTING ANY WORK WHICH REQUIRES PLUGGING, MAKING NEW OR RELOCATING SERVICE CONNECTIONS.

NEW WATER METER VAULT AS PER PLAN

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS, AND EQUIPMENT FOR THE EXCAVATION, HAULING, MIXING, PLACING FORMS, SCAFFOLDING, SHEETING AND BRACING, AND CURING FOR THE CONSTRUCTION OF THE METER VAULT AS SPECIFIED, REQUIRED, OR SHOWN ON THE CONTRACT DRAWINGS. IN ADDITION HE SHALL FURNISH AND INSTALL ALL PIPE, PIPE FITTINGS, VALVES AND APPURTENANCES BETWEEN THE 12" FLANGES AS SPECIFIED, REQUIRED, OR SHOWN, ON THE CONTRACT DRAWINGS. THE CLEVELAND WATER DEPARTMENT WILL REMOVE FROM THE EXISTING METER VAULT AND INSTALL INTO THE NEW VAULT THE 8" AND 6" CREST METERS AT NO EXPENSE TO THE CONTRACTOR.

MATERIALS

THE MATERIAL FURNISHED BY THE CONTRACTOR SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

(1)	CONCRETE FOR STRUCTURES - STATE OF OHIO SPEC.	SECTION 499 CLASS C
(2)	JOINT SEALER	705.01, 705.02
(3)	CURING MATERIALS	705.05, 705.06, 705.07
(4)	REINFORCING STEEL	709.01, 709.03, TYPE 2
(5)	CAST IRON AND DUCTILE IRON PIPE & FITTINGS	SEE SHEET 5 & 6
(6)	GATE AND CHECK VALVES	SEE SHEET 10, 11 & 12
(7)	MISCELLANEOUS METAL WORK	SEE SHEET 13 & 14

PAYMENT

THE LUMP SUM STIPULATED FOR "ITEM SPECIAL - NEW WATER METER VAULT AS PER PLAN "SHALL CONSTITUTE FULL COMPENSATION FOR THE EXCAVATION, CONSTRUCTION OF, AND BACKFILLING OF THIS ITEM OF WORK: INCLUDING ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS NEEDED TO MAKE THIS A COMPLETE ITEM OF WORK.

APPROVED Nov. 20 1978

William J. Summerl
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK NOTES

DRAWN G.A.D. | SCALE NONE | No.
CHECKED R.W.H. | DATE 7-19-77

ADACHE ASSOCIATES INC.
CALC. BY: T.M.J. DATE: 8-17-77
CHKD. BY: R.W.H. DATE: 8-18-77

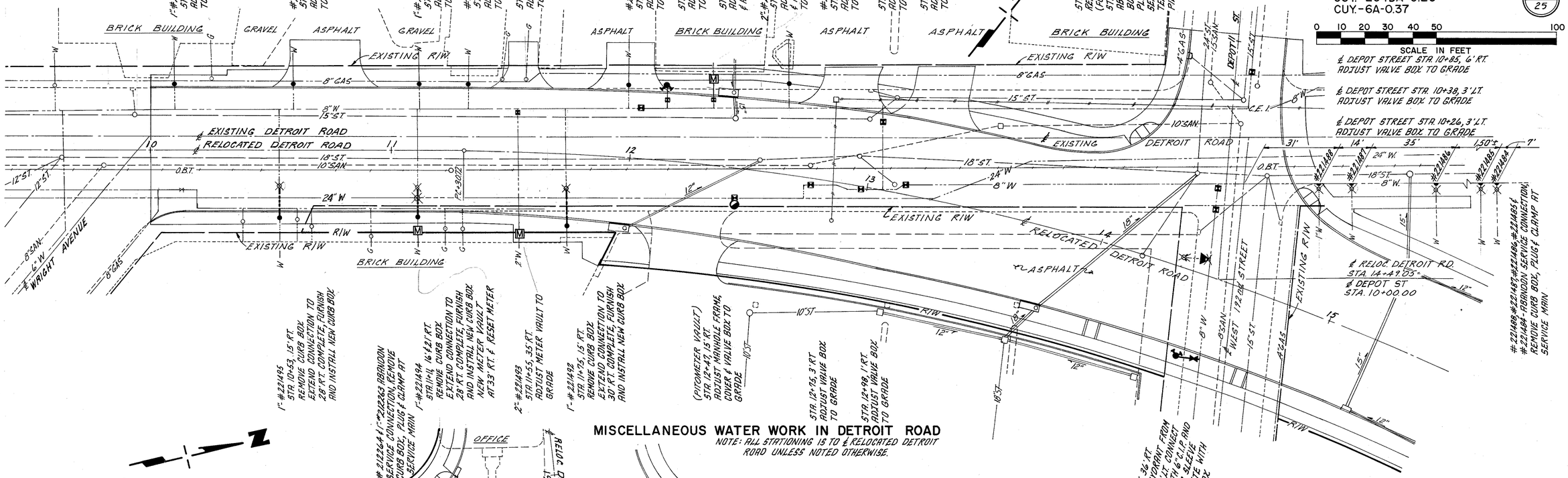
FH.W.A. REGION	STATE	PROJECT	
5	OHIO		

57/91

16/25

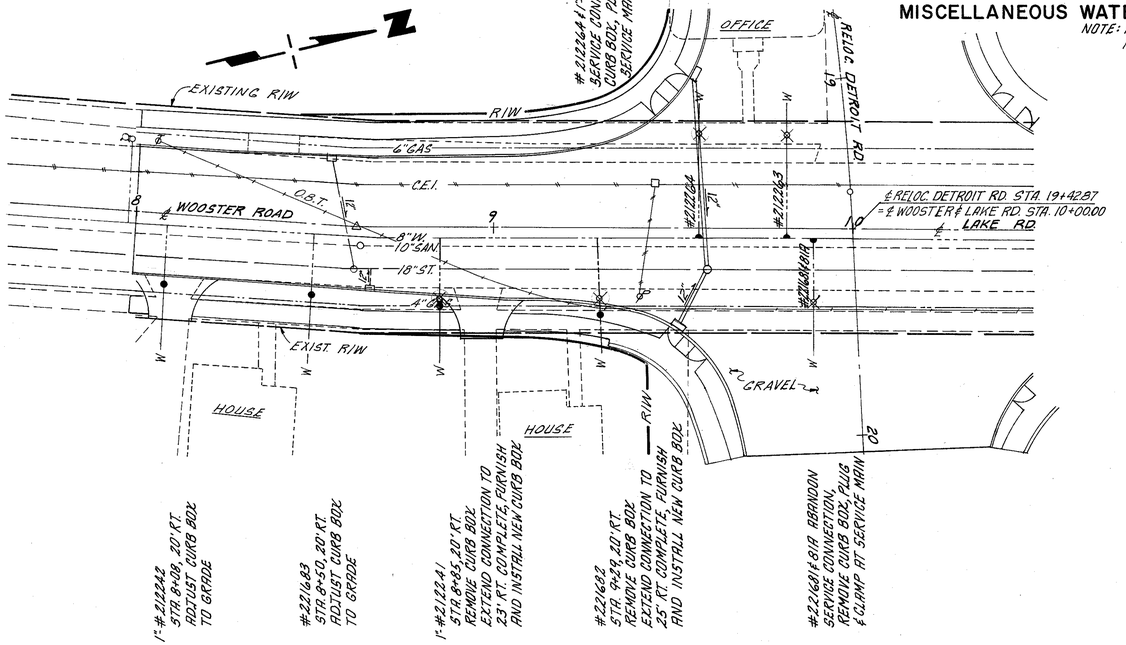
CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

0 10 20 30 40 50 100
SCALE IN FEET



MISCELLANEOUS WATER WORK IN DETROIT ROAD

NOTE: ALL STATIONING IS TO ℄ RELOCATED DETROIT ROAD UNLESS NOTED OTHERWISE.



MISCELLANEOUS WATER WORK IN WOOSTER ROAD

NOTE: ALL STATIONING IS TO ℄ WOOSTER ROAD UNLESS NOTED OTHERWISE.

SUMMARY OF QUANTITIES

ITEM	DESCRIPTION		ROCKY RIVER	TOTAL	UNIT
SPECIAL	ABANDON SERVICE CONNECTION, REMOVE CURB BOX, PLUG & CLAMP AT SERVICE MAIN		8	8	EACH
SPECIAL	ADJUST CURB BOX TO GRADE		8	8	EACH
SPECIAL	ADJUST VALVE BOX TO GRADE		11	11	EACH
SPECIAL	ADJUST METER VAULT TO GRADE		2	2	EACH
SPECIAL	ADJUST MANHOLE TO GRADE		1	1	EACH
SPECIAL	NEW METER VAULT		1	1	EACH
SPECIAL	RESET METER		1	1	EACH
SPECIAL	EXTEND SERVICE CONNECTION, COMPLETE		5	5	EACH
SPECIAL	REMOVE CURB BOX		5	5	EACH
SPECIAL	ABANDON VALVE BOX		1	1	EACH
SPECIAL	6" PLUG & CLAMP AT SERVICE MAIN AND TEE WITH CONCRETE PIER		1	1	EACH
SPECIAL	REMOVE 6" HYDRANT FOR RESETTING		1	1	EACH
SPECIAL	RESET 6" HYDRANT		1	1	EACH
SPECIAL	8"x6" TAPPING SLEEVE VALVE WITH NO. 2 VALVE BOX		1	1	EACH
SPECIAL	6" CAST IRON PIPE, ANSI CLASS 25 & CLASS D FITTINGS, ALL CEMENT LINED		10	10	LIN. FT

APPROVED Nov. 20, 1978

William J. Surovec
DESIGN REVIEW ENGINEER

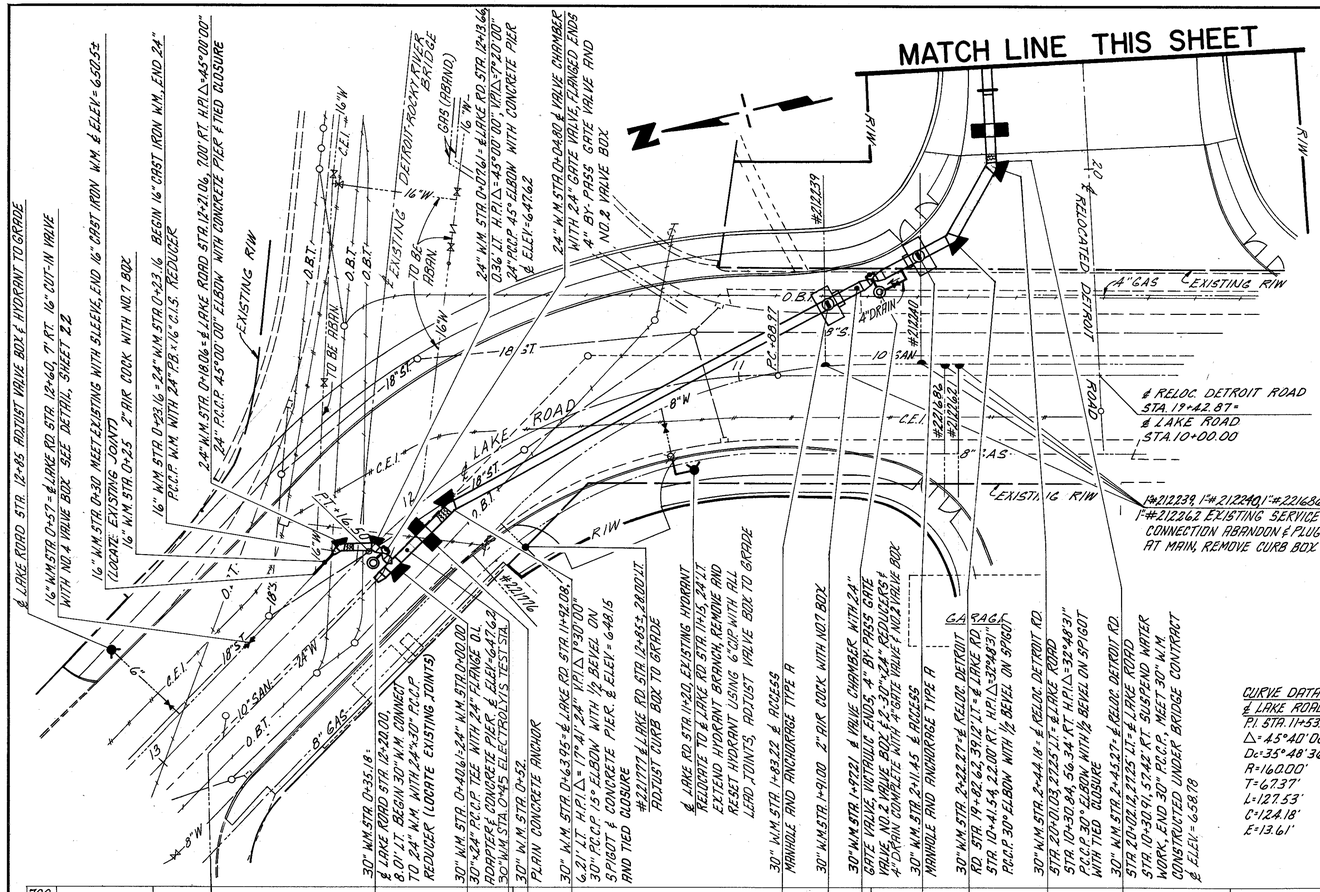
REVISIONS

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT MISCELLANEOUS WATER WORK IN DETROIT AND WOOSTER ROADS

DRAWN T.M.J. SCALE 1" = 20'
CHECKED R.W.H. DATE 7-19-77 No.



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

58
91

17
25

CUYAHOGA COUNTY
CUY. - 254DA - 0.20
CUY. - 6A - 0.37

0 10 20 30 40 50 100
SCALE IN FEET

ADACHE ASSOCIATES INC.
CALC. BY: R.W.H. DATE: 7-8-77
CHKD. BY: T.M.J. DATE: 8-1-77

PROFILE 16" & 24" WATER MAIN

PROFILE 30" WATER MAIN

SUMMARY OF QUANTITIES

ITEM	DESCRIPTION	CLEVELAND	ROCKY RIVER	TOTAL	UNIT
SPECIAL	30" WATER MAIN, PRESTRESSED CONCRETE CYLINDER PIPE & FITTINGS	210	—	210	LIN. FT.
SPECIAL	24" WATER MAIN, PRESTRESSED CONCRETE CYLINDER PIPE & FITTINGS	23	—	23	LIN. FT.
SPECIAL	16" WATER MAIN, CAST IRON ANSI CLASS 25 PIPE & CLASS D FITTINGS,	—	7	7	LIN. FT.
	ALL CEMENT LINED, ALL FITTINGS WITH LEAD JOINTS				
SPECIAL	6" WATER MAIN, CAST IRON ANSI CLASS 25 PIPE & CLASS D FITTINGS	—	10	10	LIN. FT.
	ALL CEMENT LINED, ALL FITTINGS WITH LEAD JOINTS				
SPECIAL	24" GATE VALVE WITH VICTAULIC ENDS; 4" BY-PASS GATE VALVE & NO. 2 VALVE BOX	1	—	1	EACH
SPECIAL	24" GATE VALVE WITH FLANGED ENDS; 4" BY-PASS GATE VALVE & NO. 2 VALVE BOX	1	—	1	EACH
SPECIAL	VALVE CHAMBER FOR 24" GATE VALVE	2	—	2	EACH
SPECIAL	4" DRAIN COMPLETE WITH 4" GATE VALVE & NO. 2 VALVE BOX	1	—	1	EACH
SPECIAL	2" AIR COCK WITH NO. 7 VALVE BOX	1	1	2	EACH
SPECIAL	30" ACCESS MANHOLE WITH ANCHORAGE TYPE A	2	—	2	EACH
SPECIAL	30" PLAIN ANCHOR	1	—	1	EACH
SPECIAL	16" CUT-IN VALVE WITH NO. 4 VALVE BOX	—	1	1	EACH
SPECIAL	REMOVE 6" HYDRANT FOR RESETTING	—	1	1	EACH
SPECIAL	VALVE BOX, ADJUSTED TO GRADE	—	2	2	EACH
SPECIAL	6" HYDRANT, ADJUSTED TO GRADE	—	1	1	EACH
SPECIAL	CURB BOX, ADJUSTED TO GRADE	—	1	1	EACH
SPECIAL	ABANDON SERVICE CONNECTION PLUG AT WATER MAIN & REMOVE CURB BOX, 4-1"	—	4	4	EACH
SPECIAL	RESET 6" HYDRANT	—	1	1	EACH.
SPECIAL	CONCRETE PIERS	7	—	7	CU. YD.

APPROVED Nov. 20, 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

LOW SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 30" WATER MAIN IN RELOCATED DETROIT RD.
30" & 16" WATER MAIN IN LAKE ROAD

DRAWN T. M. J. SCALE 1" = 20'
CHECKED R.W.H. DATE 7-11-77
No.

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

CUYAHOGA COUNTY
CUY.- 254DA-0.20
CUY.- 6A-0.37

59 / 91

18 / 25

0 10 20 30 40 50 100
SCALE IN FEET

ADACHE ASSOCIATES INC
CALC: R.W.H. DATE: 7-8-77
CHKD: T.M.J. DATE: 8-1-77

CITY OF ROCKY RIVER
CITY OF LAKEWOOD

BEGIN SHEET W. STA. 6+06.08

END 30" W.M. STA. 10+68.96 = ℄ RELOC. DETROIT RD STA. 27+81.03, 110.64' LT. = ℄ CONST. SLOANE AVE. 11+11.50, 20.57' LT. 30"×24" REDUCER, WITH CAST IRON ADAPTER ON SMALL END. MEET EXISTING WITH TIED CLOSURE

30" W.M. STA. 10+63 ELECTROLYSIS TEST STATION

30" W.M. STA. 10+47.54, PLAIN CONCRETE ANCHOR

30" W.M. STA. 10+16.87 = ℄ RELOC. DETROIT ROAD STA. 27+58.46, 64.38' LT. = ℄ CONST. SLOANE AVE. STA. 10+61.87, 36.39' LT. H.P.I. △ = 22° 30'. P.C.C.P. ELBOW ℄ CONCRETE PIER

30" W.M. STA. 10+13.37 = ℄ RELOC. DETROIT RD. STA. 27+55.88, 62.15' LT. = ℄ CONST. SLOANE AVE. STA. 10+59.20, 38.65' LT. 30"×24" P.C.C.P. TEE WITH 24" FLANGE ADAPTER O.L. AND CONCRETE PIER

℄ 24" W.M. STA. 0+04.80 = ℄ 30" W.M. STA. 10+16.87, 4.80' RT. = ℄ CONST. SLOANE AVE. 10+56.10, 34.98' LT. ℄ 24" GATE VALVE WITH VALVE CHAMBER, 4" BY-PASS ℄ NO. 3 VALVE BOX

24"×16" REDUCER WITH FLANGE ENDS

16" GATE VALVE ℄ NO. 4 VALVE BOX

16"×12" REDUCER WITH BELL SMALL END

END 24" W.M. STA. 0+10.67 ℄ CITY OF CLEVELAND QUANTITIES BEGIN 12" W.M. STA. 0+10.67 TIE-IN, DUCTILE IRON PIPE & FITTINGS

℄ 12" W.M. STA. 0+18.67 12" GATE VALVE ℄ NO. 4 VALVE BOX

℄ 6" W.M. STA. 0+54± 6" CUT-IN VALVE ℄ NO. 3 VALVE BOX, SEE DETAIL, SHEET 22

END ℄ 6" W.M. STA. 0+44.0± 6" C.I. (BELL OR SPIGOT) CONNECT TO EXISTING, ℄ ELEV. = 666.±

℄ 12" W.M. TIE-IN STA. 0+43.00 = ℄ CONST. SLOANE AVE. STA. 10+30.46, 5.79' LT. H.P.I. △ = 45° 00', 1/8 BEND, HUB ENDS ℄ CONCRETE PIER

℄ 12" W.M. TIE-IN STA. 0+45.64 12" GATE VALVE, HUB ENDS ℄ NO. 4 VALVE BOX

12"×6" BELL ℄ SPIGOT REDUCER, BELL SMALL END

12" W.M. STA. 0+16.24 = 12" W.M. TIE-IN STA. 0+48.14

12"×12"×12" TEE WITH HUB ENDS ℄ ELEV. = 664.96 ℄ CONCRETE PIER

BEGIN ℄ 12" W.M. STA. 0+00 - ℄ RELOC. DETROIT ROAD STA. 27+86.65, 12.50' LT. = ℄ PARK DR. ℄ SLOANE AVE. - ℄ RELOC. DETROIT ROAD STA. 27+83.86 - ℄ CONST. SLOANE AVE. STA. 10+02.75

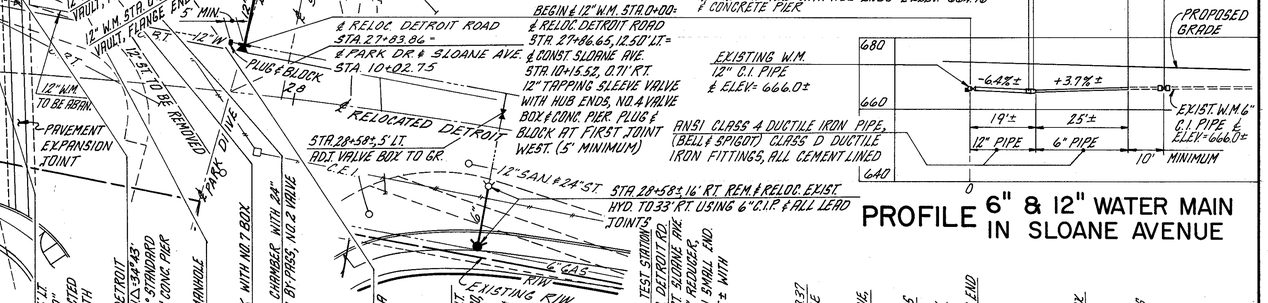
12" TAPPING SLEEVE VALVE WITH HUB ENDS, NO. 4 VALVE BOX ℄ CONC. PIER, PLUG ℄ BLOCK AT FIRST JOINT WEST. (5' MINIMUM)

STA. 28+58±, 5' LT. ADJ. VALVE BOX TO GR.

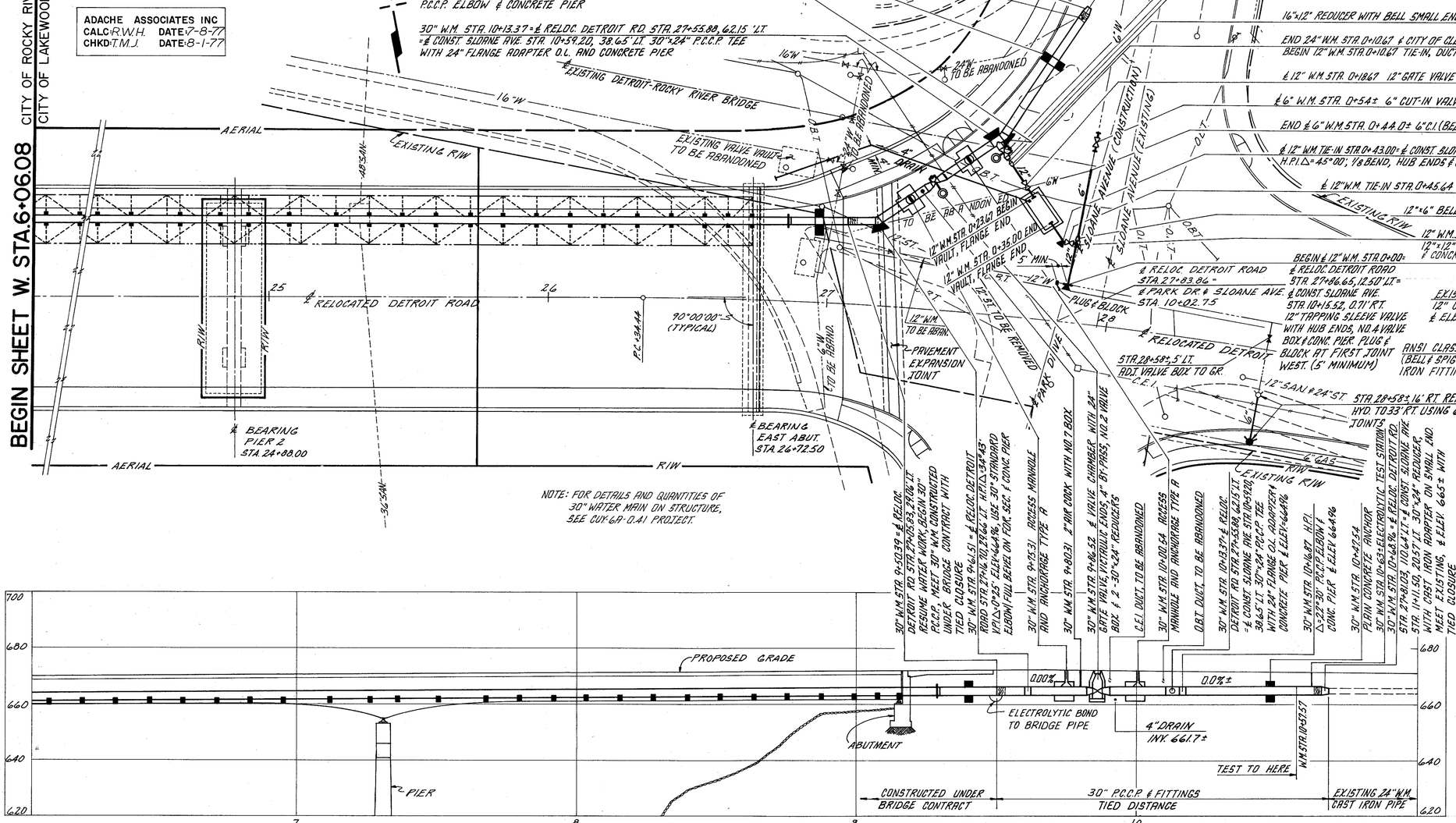
12"SAN ℄ 24"ST. STA. 28+58± 16' RT. REM. ℄ RELOC. EXIST. HYD. TO 33' RT. USING 6" C.I.P. ℄ ALL LEAD JOINTS

EXISTING W.M. 12" C.I. PIPE ℄ ELEV. = 666.0±

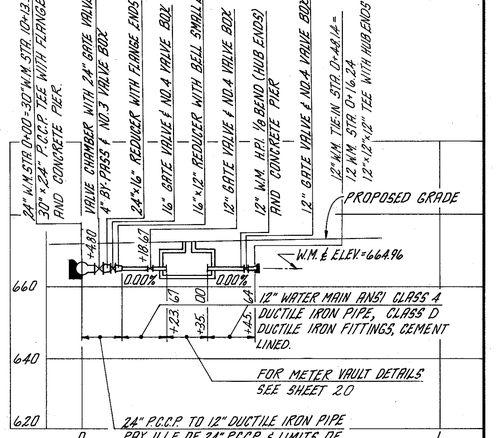
ANSI CLASS A DUCTILE IRON PIPE, (BELL ℄ SPIGOT) CLASS D DUCTILE IRON FITTINGS, ALL CEMENT LINED



PROFILE 6" & 12" WATER MAIN IN SLOANE AVENUE



PROFILE 30" WATER MAIN



PROFILE 12" WATER MAIN TIE-IN AND METER VAULT

NOTE: FOR DETAILS AND QUANTITIES OF 30" WATER MAIN ON STRUCTURE, SEE CUY. 6A-0.41 PROJECT.

PROFILE 30" WATER MAIN
SUMMARY OF QUANTITIES

ITEM	DESCRIPTION	CLEVELAND	LAKEWOOD	TOTAL	UNIT
SPECIAL	30" WATER MAIN, PRESTRESSED CONCRETE CYLINDER PIPE & FITTINGS	119	———	119	LIN. FT.
SPECIAL	24" WATER MAIN, PRESTRESSED CONCRETE CYLINDER PIPE & FITTINGS	11	———	11	LIN. FT.
SPECIAL	12" WATER MAIN, ANSI CLASS 56 DUCTILE IRON PIPE & CLASS D DUCTILE IRON FITTINGS, CEMENT LINED	———	45	45	LIN. FT.
SPECIAL	6" WATER MAIN, ANSI CLASS 56 DUCTILE IRON PIPE & CLASS D DUCTILE IRON FITTINGS, CEMENT LINED	———	42	42	LIN. FT.
SPECIAL	24" GATE VALVE WITH VICTAULIC ENDS, 4" BY-PASS GATE VALVE & NO. 2 VALVE BOX	1	———	1	EACH
SPECIAL	24" GATE VALVE WITH FLANGED ENDS, 4" BY-PASS GATE VALVE & NO. 2 VALVE BOX	1	———	1	EACH
SPECIAL	VALVE CHAMBER FOR 24" GATE VALVE	2	———	2	EACH
SPECIAL	30" ACCESS MANHOLE WITH ANCHORAGE TYPE A	2	———	2	EACH
SPECIAL	30" PLAIN ANCHOR	1	———	1	EACH
SPECIAL	2" AIR COCK WITH NO. 7 VALVE BOX	1	———	1	EACH
SPECIAL	16" GATE VALVE WITH FLANGE ENDS & NO. 4 VALVE BOX	———	1	1	EACH

ITEM	DESCRIPTION	CLEVELAND	LAKEWOOD	TOTAL	UNIT
SPECIAL	12" GATE VALVE WITH HUB ENDS & NO. 4 VALVE BOX	———	2	2	EACH
SPECIAL	6" GATE VALVE WITH HUB ENDS & NO. 3 VALVE BOX	———	1	1	EACH
SPECIAL	12" TAPPING SLEEVE VALVE WITH HUB END & NO. 4 VALVE BOX	———	1	1	EACH
SPECIAL	6" CUT-IN VALVE WITH NO. 3 VALVE BOX	———	1	1	EACH
SPECIAL	PLUG & BLOCK 12" WATER MAIN	———	1	1	EACH
SPECIAL	CONCRETE METER VAULT	———	LUMP	LUMP	LUMP SUM
SPECIAL	CONCRETE PIERS	5.0	2.0	7.0	CU. YD.
SPECIAL	REMOVE 6" HYDRANT FOR RESETTING	———	1	1	EACH
SPECIAL	VALVE BOX, ADJUSTED TO GRADE	———	1	1	EACH
SPECIAL	RESET 6" HYDRANT	———	1	1	EACH

APPROVED Nov. 20, 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT 30" WATER MAIN IN RELOCATED DETROIT RD.
12" & 6" WATER MAIN IN SLOANE AVENUE

DRAWN T.M.J. SCALE 1" = 20"
CHECKED R.W.H. DATE 7-11-77 No.

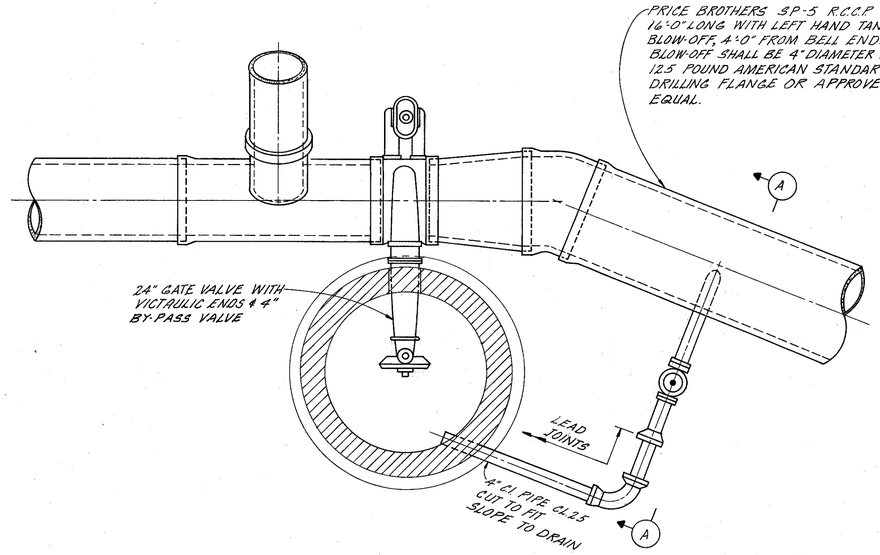
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

60/91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

19/25

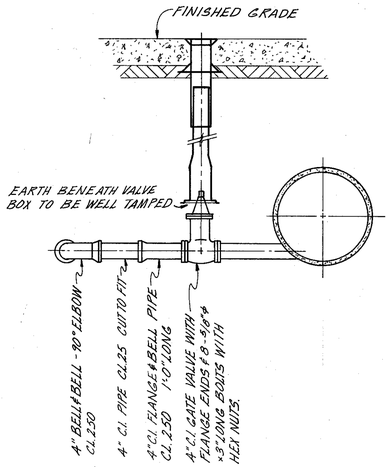
0 1 2 3 4 5 10
SCALE IN FEET



4" DRAIN TO VALVE CHAMBER

1/2"-1'-0"

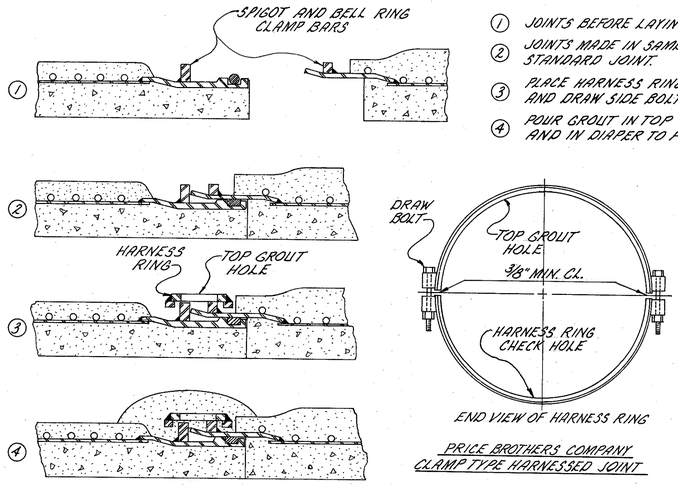
FOR DRAIN DETAILS NOT SHOWN SEE SECTION A-A, THIS SHEET.
FOR 24" VALVE & MANHOLE DETAILS SEE CHAMBER FOR 24" VALVE SHEET 20



SECTION A-A

1/2"-1'-0"

ALL FLANGES SHALL BE FURNISHED FACED AND DRILLED TO AMERICAN STANDARD 125 POUND TEMPLATE



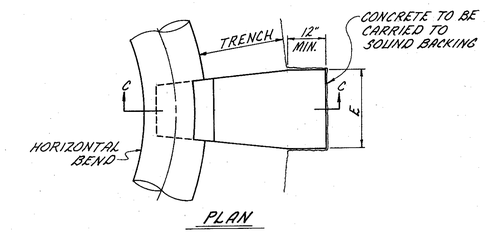
1. JOINTS BEFORE LAYING.
2. JOINTS MADE IN SAME MANNER AS A STANDARD JOINT.
3. PLACE HARNESS RING AROUND JOINT AND DRAW SIDE BOLTS TIGHT.
4. POUR GROUT IN TOP GROUT HOLE AND IN DIAPER TO FINISH JOINT.

END VIEW OF HARNESS RING

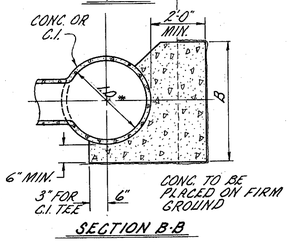
PRICE BROTHERS COMPANY CLAMP TYPE HARNESSED JOINT

NOTE: HARNESSED JOINTS MUST BE GROUTED BEFORE LINE IS PRESSURIZED.

HARNESSED RING CLAMPED TYPE TIED JOINT



PLAN

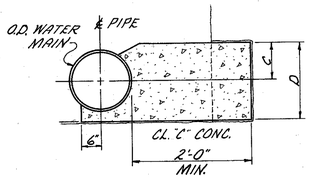


SECTION B-B

CONCRETE PIERS FOR TEES

DIMENSIONS OF PIERS FOR TEES		
SIZE OF MAIN *	A	B
6"	2'-0"	2'-0"
8"	2'-6"	2'-6"

PLAN

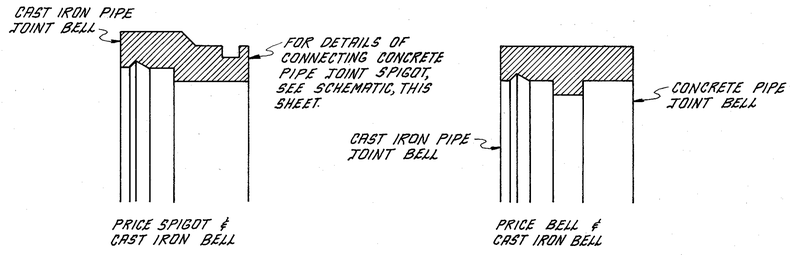


SECTION C-C

CONCRETE PIERS FOR BENDS

DIMENSIONS OF PIERS FOR BENDS			
SIZE OF MAIN	C	D	E
6" & 8"	0'-4"	1'-2"	2'-0"
12"	1'-0"	2'-0"	2'-0"
16"	1'-2"	2'-6"	2'-6"
24"	1'-8"	3'-0"	3'-0"
30"	2'-0"	4'-0"	4'-0"

NOTE:
FOR CONCRETE PIER ITEM PLUG EXIST. TEE, CROSS, OR BEND WITH CLAMPS & CONC. PIER, USE DIMENSIONS SHOWN ABOVE FOR 8" MAIN.



PRICE SPIGOT & CAST IRON BELL

PRICE BELL & CAST IRON BELL

DETAIL OF ADAPTER FROM PRESTRESSED CONCRETE CYLINDER PIPE TO EXISTING CAST IRON PIPE

APPROVED Nov. 20, 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK DETAILS

DRAWN T.M.J. | SCALE | No.
CHECKED R.W.H. | DATE

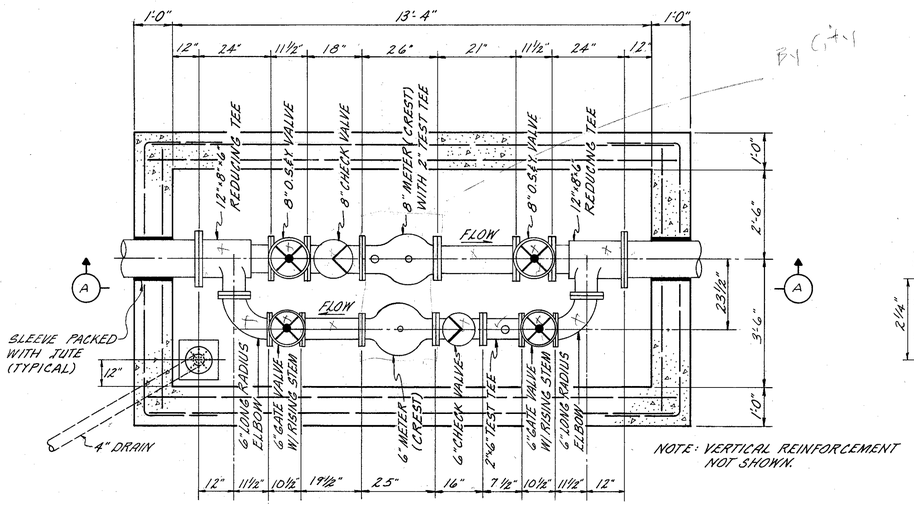
FHWA REGION	STATE	PROJECT	
5	OHIO		

61/91

20/25

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

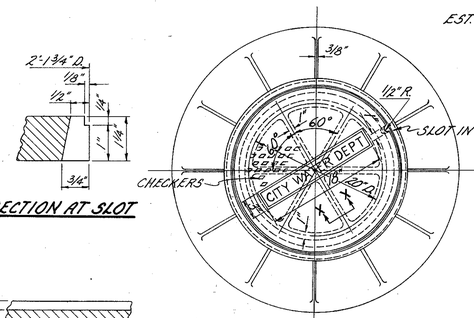
0 1 2 3 4 5 10
SCALE IN FEET



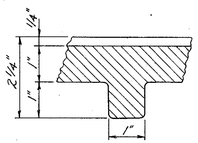
NOTE: VERTICAL REINFORCEMENT NOT SHOWN.

PLAN OF METER VAULT

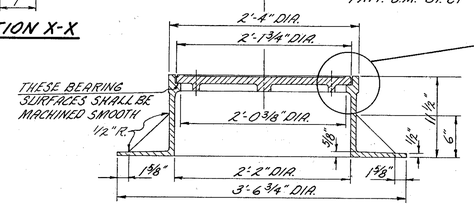
AS AN OPTION, METER VAULT MAY BE PRE-CAST CONCRETE, REINFORCED AS PER MANUFACTURER'S SPECIFICATIONS



SECTION AT SLOT

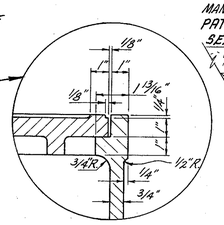


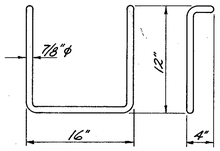
SECTION X-X



METER VAULT FRAME AND COVER DETAIL

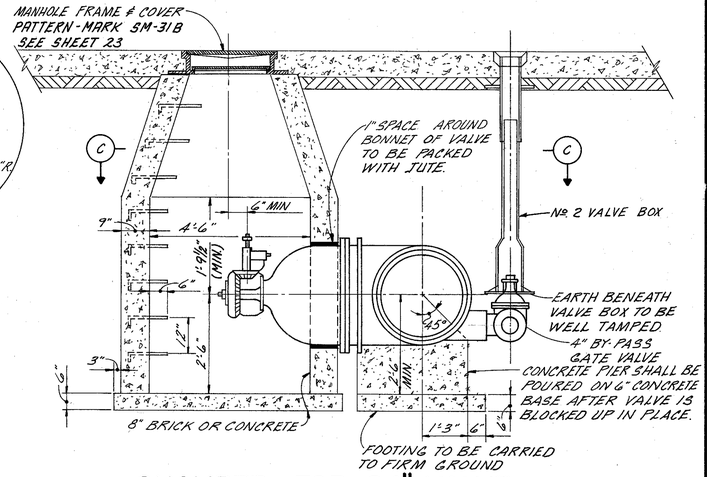
(DUPLICATED FROM ORIGINAL DWG. C-876 DATED FEB. 10, 1928)



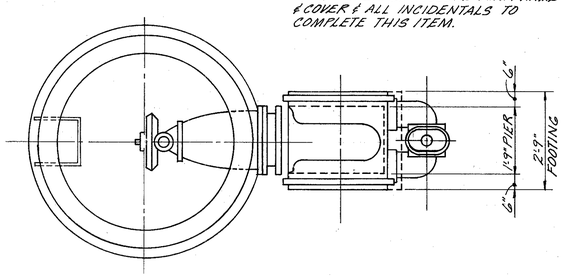


LADDER RUNG DETAIL DUCTILE IRON

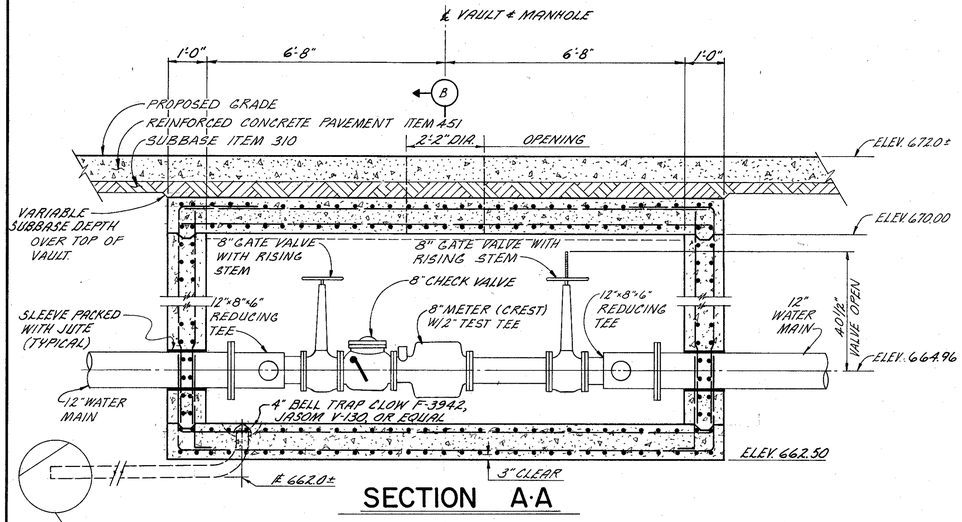
NUMBER REQUIRED SHALL BE DETERMINED BY DEPTH OF VAULT, CHAMBER, ETC.



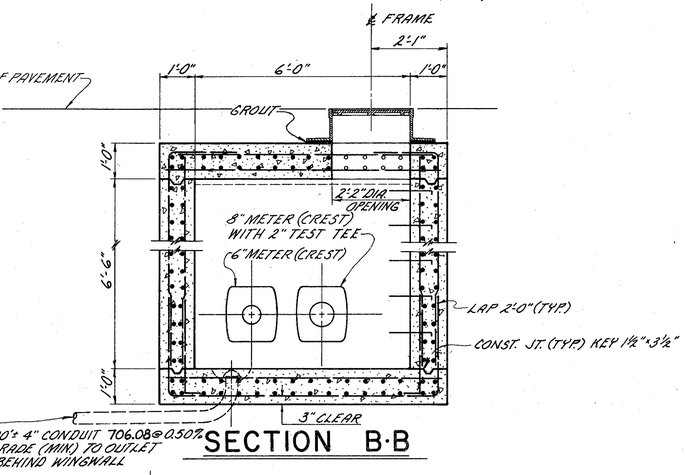
CHAMBER FOR 24" VALVE



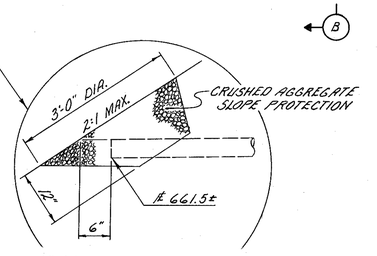
SECTION C·C



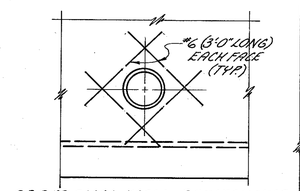
SECTION A·A



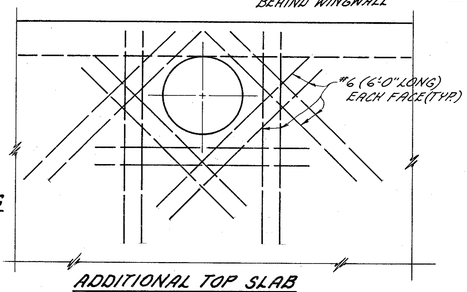
SECTION B·B



4" METER VAULT DRAIN OUTLET DETAIL



ADDITIONAL WALL REINFORCING AT PIPE SLEEVES



ADDITIONAL TOP SLAB REINFORCING AT M.H. OPENING

NOTES: REINFORCING BARS SHALL BE #6 BARS SPACED ON 6" CENTERS EACH WAY, EACH FACE.
CONCRETE COVER FOR REINFORCEMENT SHALL BE 2" MIN. EXCEPT WHERE NOTED.
FIELD CUT BARS AS REQUIRED AT OPENINGS.
ALL REINFORCING BAR SPLICES SHALL BE LAPPED 2'-0" MIN.

APPROVED Nov. 20, 19 78

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK DETAILS

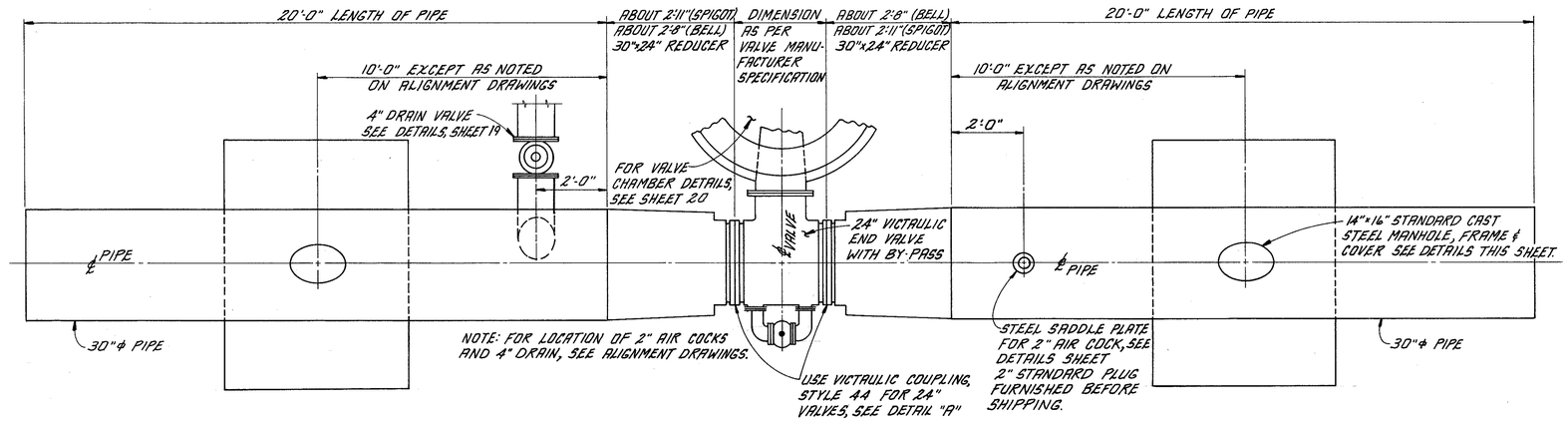
DRAWN T.M.J. | SCALE
CHECKED R.W.H. | DATE | No.

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

62
91

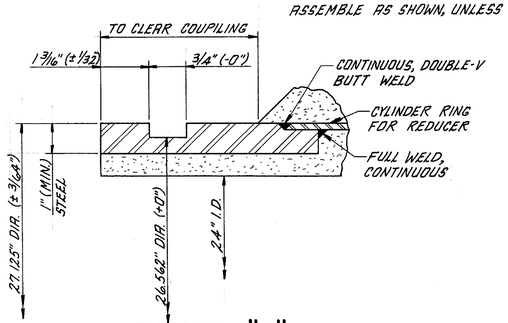
21
25

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

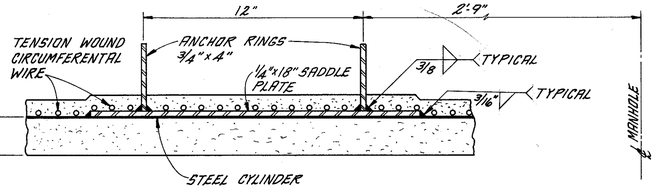


TYPICAL VALVE ASSEMBLIES FOR 30" CONCRETE PIPE

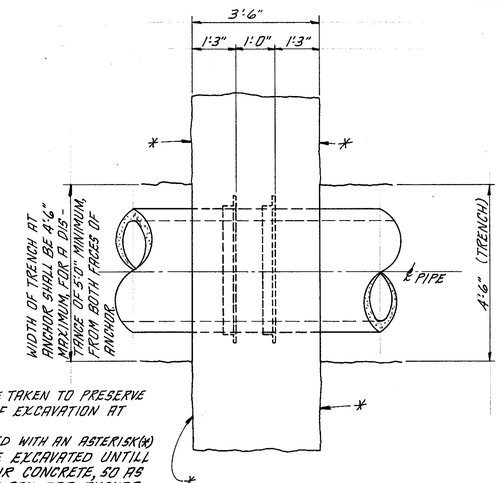
ASSEMBLE AS SHOWN, UNLESS SHOWN OTHERWISE ON ALIGNMENT DRAWINGS.



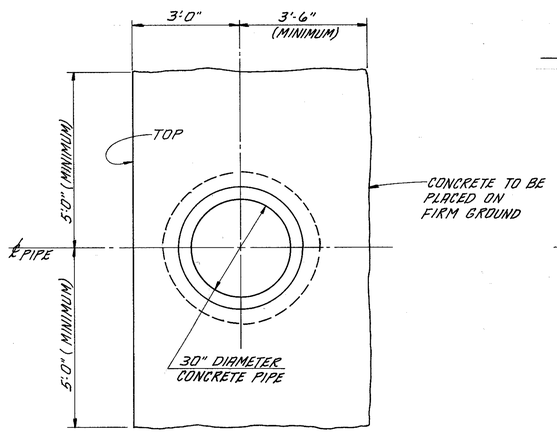
DETAIL "A"

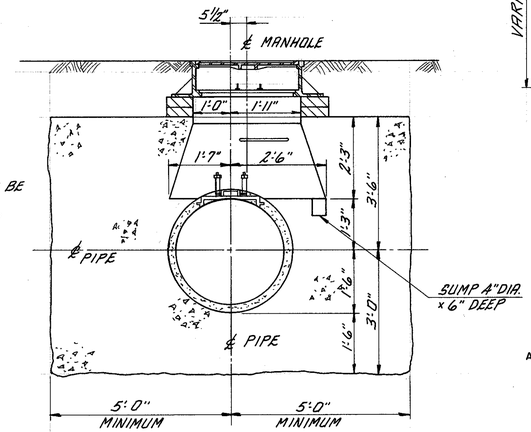


ANCHORAGE DETAILS FOR 30" PRESTRESSED CONCRETE CYLINDER PIPE FOR MANHOLE TYPE A



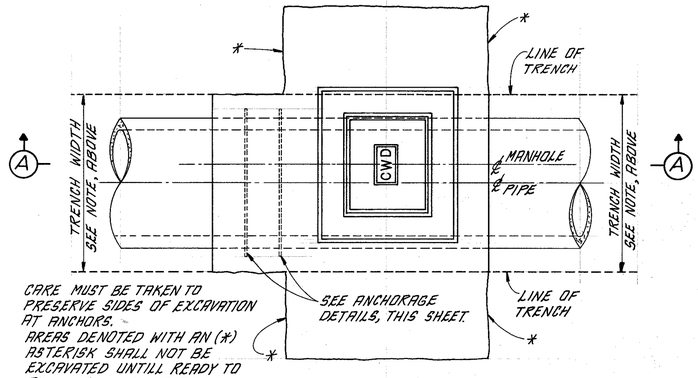
PLAIN CONCRETE ANCHOR





SECTION B-B

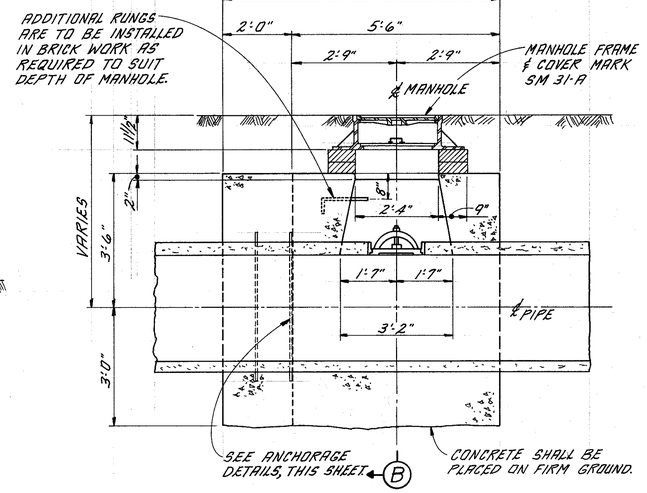
NOTE: WIDTH OF TRENCH AT ANCHOR SHALL BE 4'-6" MAXIMUM FOR A DISTANCE OF 5'-0" MINIMUM, FROM BOTH FACES OF THE ANCHOR



CARE MUST BE TAKEN TO PRESERVE SIDES OF EXCAVATION AT ANCHORS.
AREAS DENOTED WITH AN (*) ASTERISK SHALL NOT BE EXCAVATED UNTILL READY TO POUR CONCRETE SO AS TO HAVE FIRM SOIL FOR ANCHOR BEARING.

PLAN
MANHOLE TYPE A

NOTE: MANHOLE FRAME & COVER, STEP(S) & INCIDENTALS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM "SPECIAL, ACCESS MANHOLE, COMPLETE".



SECTION A-A

APPROVED Nov. 20, 19 78

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

LOW SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK DETAILS

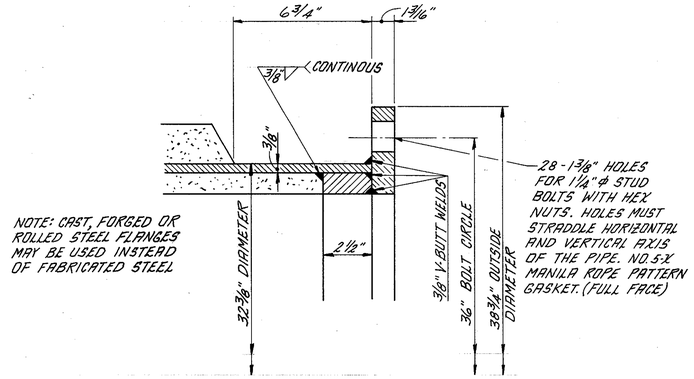
DRAWN T.M.J. SCALE NONE
CHECKED R.W.H. DATE No.

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

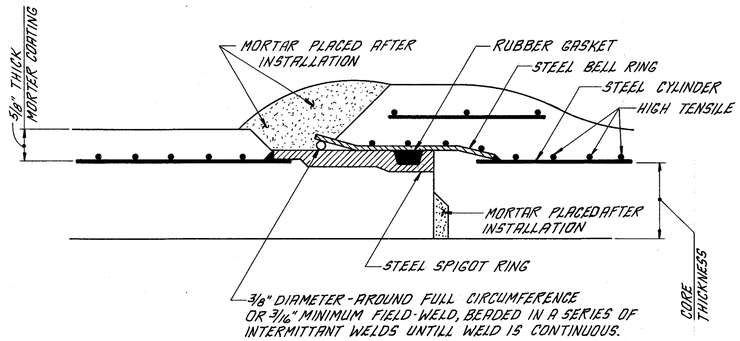
63/91

22/25

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

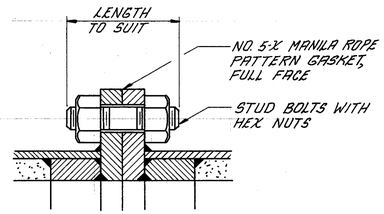


DETAIL OF 30" FABRICATED STEEL FLANGES

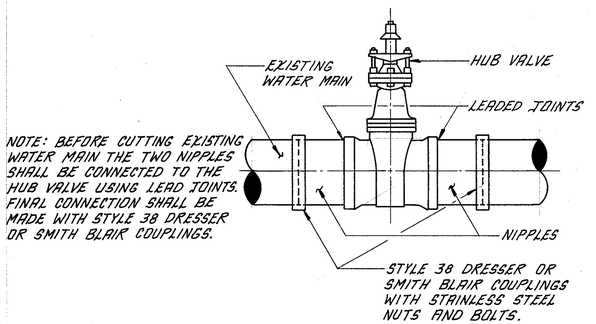


WELDED TYPE TIED JOINT

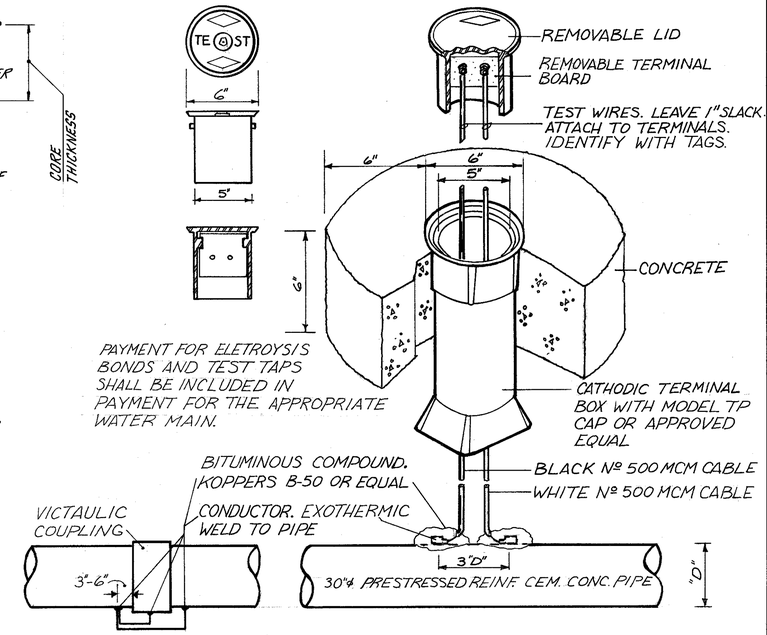
PRESTRESSED CONCRETE CYLINDER PIPE WITH RUBBER AND STEEL JOINT. (SAME TYPE OF WELD FOR REINFORCED CONCRETE CYLINDER PIPE)



TYPICAL DETAIL OF FLANGE CONNECTION



DETAIL OF CUTTING IN VALVE



ELECTROLYSIS BOND AND TEST STATION

NOT TO SCALE

APPROVED Nov. 20, 1978

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK DETAILS

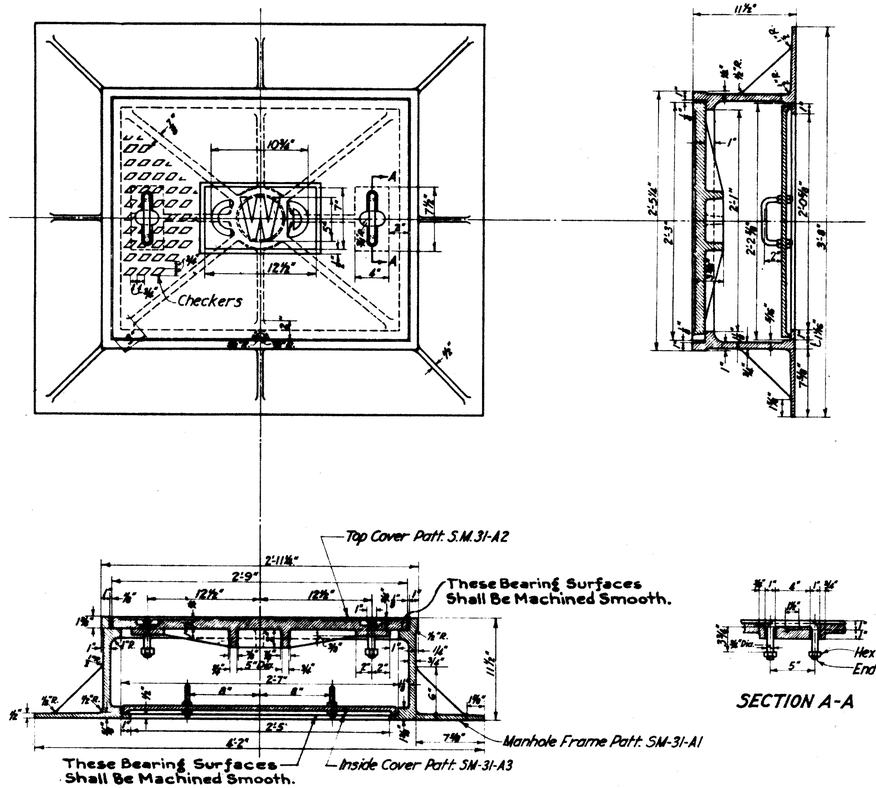
DRAWN T.M.J. | SCALE NONE
CHECKED R.W.H. | DATE | No.

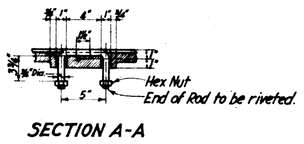
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

64/91

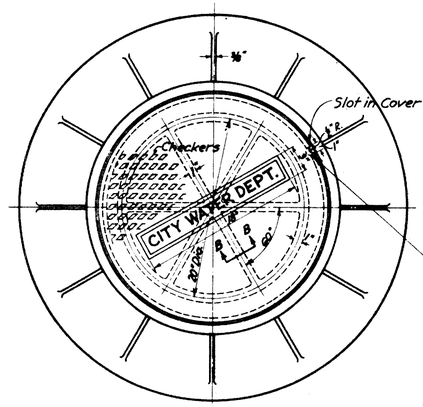
23/25

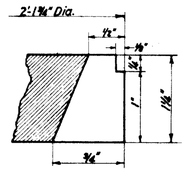
CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37



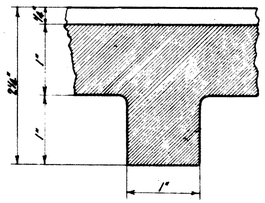


SECTION A-A

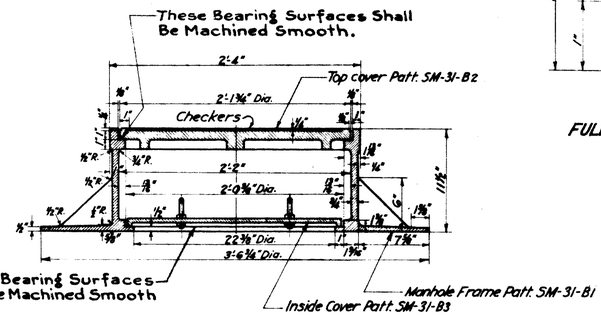


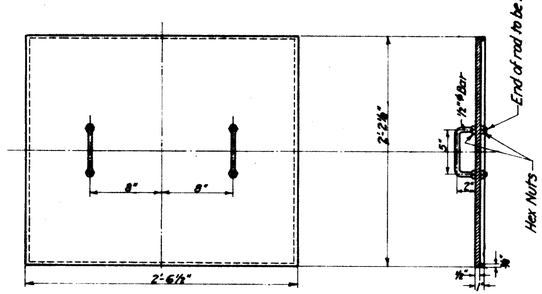


FULL SIZE SECTION AT SLOT



FULL SIZE SECTION AT B-B

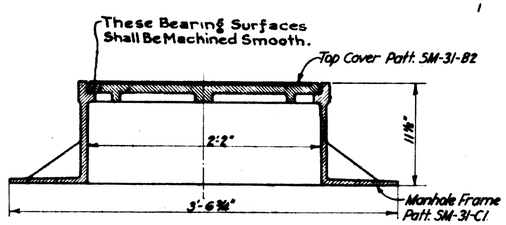




INSIDE COVER (C.I.) PATT. SM-31-A3

MANHOLE FRAME AND COVERS MARK SM-31A

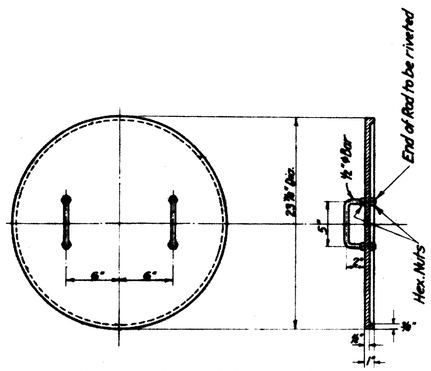
Consisting of { C.I. Manhole Frame Patt. SM-31-A1; C.I. Top Cover Patt. SM-31-A2; C.I. Inside Cover Patt. SM-31-A3 }



MANHOLE FRAME AND COVER MARK N°3

Consisting of { C.I. Manhole Frame Patt. SM-31-C1; C.I. Top Cover Patt. SM-31-B2 }

(Dimensions not given are the same as those shown for Manhole Frame Patt. Mark SM-31-B1)



INSIDE COVER (C.I.) PATT. SM-31-B3

MANHOLE FRAME AND COVER MARK SM-31B

Consisting of { C.I. Manhole Frame Patt. SM-31-B1; C.I. Top Cover Patt. SM-31-B2; C.I. Inside Cover Patt. SM-31-B3 }

NOTE: THIS IS A DUPLICATE TRACING OF THE ORIGINAL APPROVED TRACING SM-31 DATED 6-29-1926

6-30-1977 T.M.J.

APPROVED Nov. 20, 19 78

REVISIONS	
4-23-30	M.H. SM-31A
7-21-31	" " "
2-15-54	NOTES

William J. Lawrence
DESIGN REVIEW ENGINEER

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT STANDARD DETAILS
MANHOLE FRAMES AND COVERS

DRAWN | SCALE 1½" = 1'-0" | No. SM-31

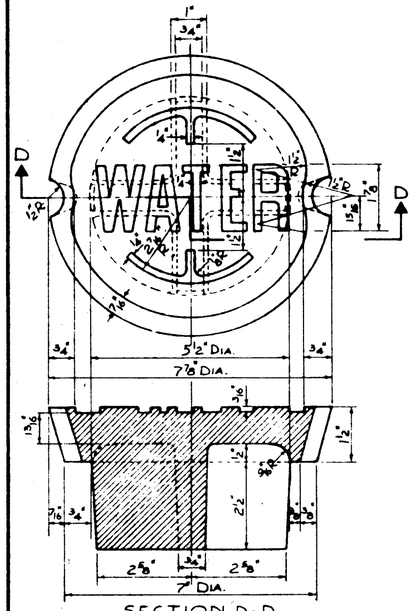
CHECKED | DATE

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

65
91

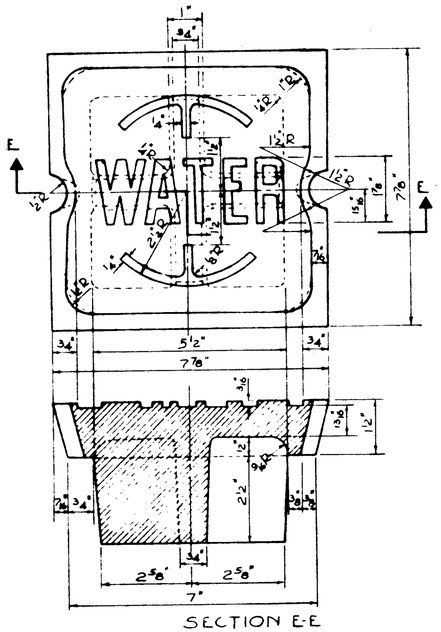
24
25

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37



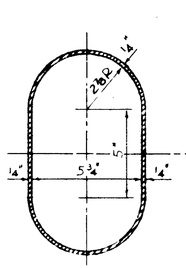
SECTION D-D

DETAIL OF ROUND COVER FOR No.1 AND 2 TOP
EST. WT. 20#

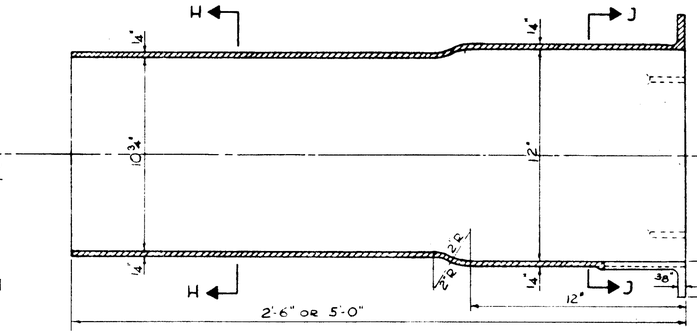


SECTION E-E

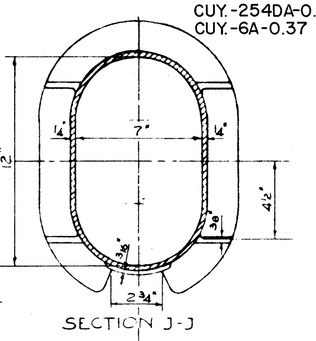
DETAIL OF SQUARE COVER FOR No.3 AND 4 TOP
EST. WT. 23#



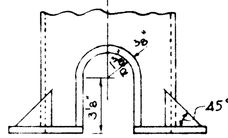
SECTION H-H



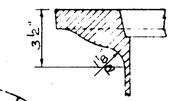
BASE
EST. WEIGHT 2'-6" LONG = 70#
EST. WEIGHT 5'-0" LONG = 126#



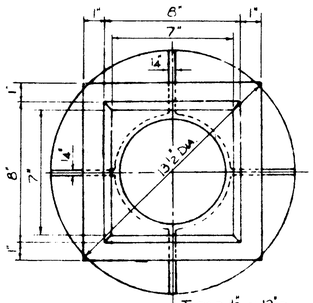
SECTION J-J

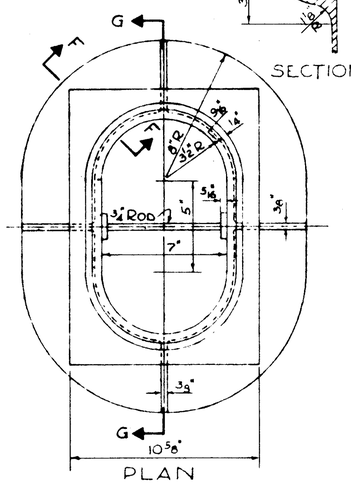


THIS OPENING TO BE IN 5'-0" BASE ONLY

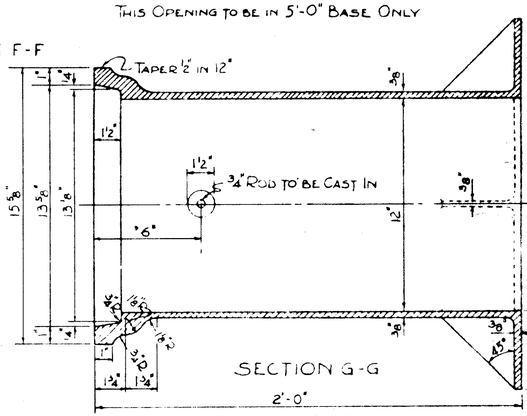


SECTION F-F

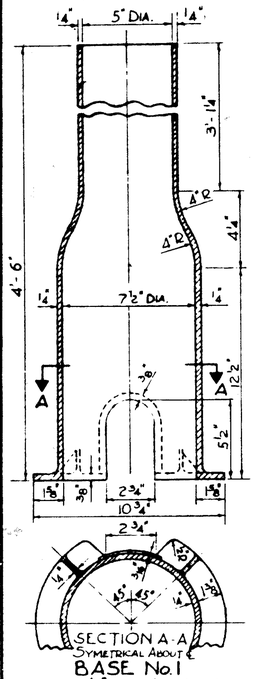




PLAN

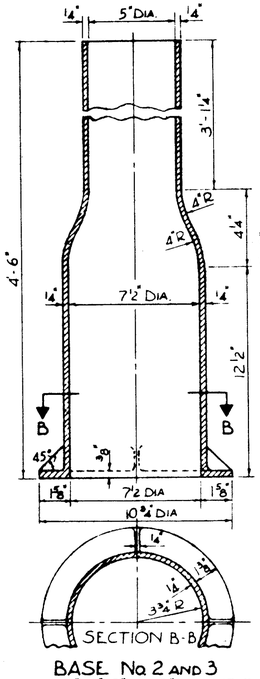


AIR COCK BOX No 5 IS TOP AND COVER
AIR COCK BOX No 6 IS TOP, BASE 2'-6" LONG AND COVER
FLUSHING BOX No 7 IS TOP, BASE 5'-0" LONG AND COVER



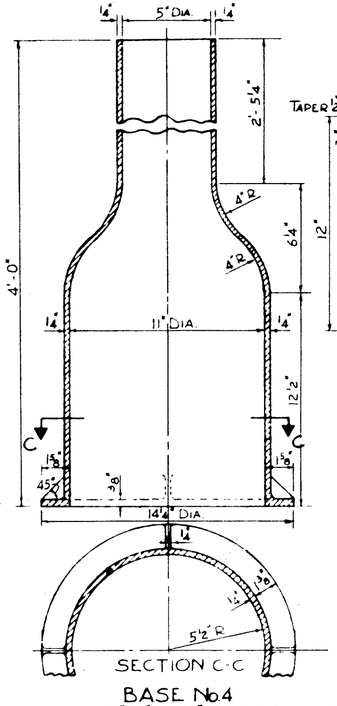
SECTION A-A

BASE No.1
FOR 1½" AND 2" VALVES
EST. WEIGHT 69#



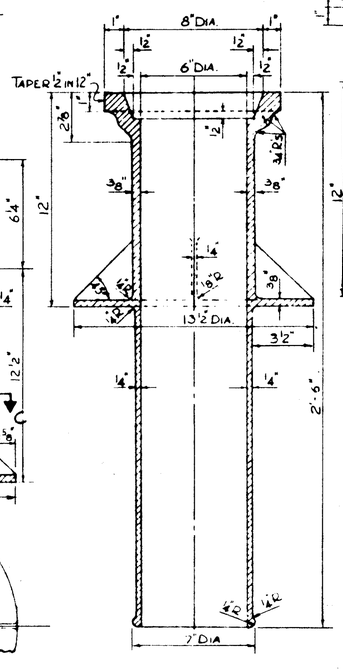
SECTION B-B

BASE No. 2 AND 3
FOR 3", 4", 6" AND 8" VALVES
EST. WEIGHT 71#

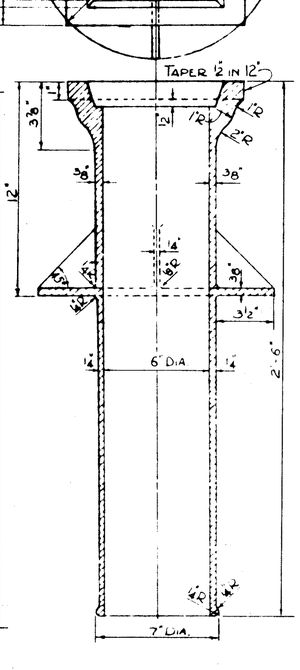


SECTION C-C

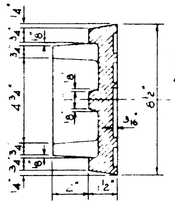
BASE No.4
FOR 10", 12" AND 16" VALVES
EST. WEIGHT 79#



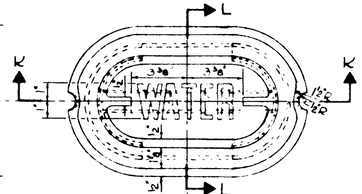
TOP WITH ROUND HEAD No.1 AND 2
EST WEIGHT 73#



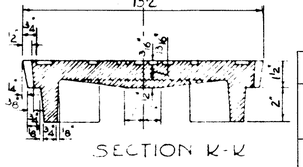
TOP WITH SQUARE HEAD No. 3 AND 4
EST. WEIGHT 85#



SECTION L-L



TOP
EST. WEIGHT 128#



SECTION K-K

COVER
EST WEIGHT 37#

DETAIL OF AIR COCK BOX No.5 AND 6
AND FLUSHING BOX No 7

APPROVED Nov. 20, 19 78

William J. Sweeney
DESIGN REVIEW ENGINEER

REVISIONS

LOW SERVICE DISTRICT
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK DETAILS

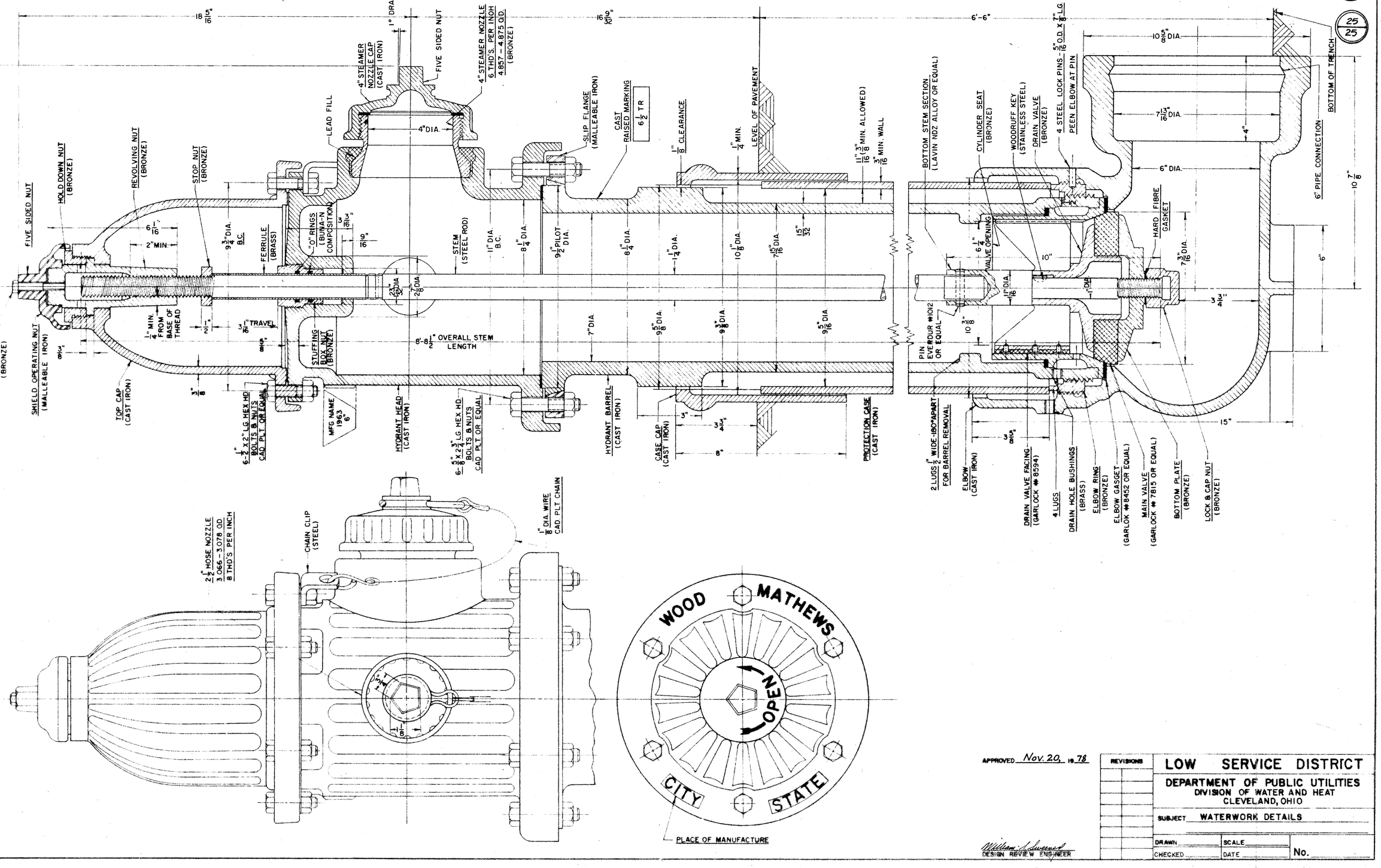
DRAWN | SCALE | No.
CHECKED | DATE

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

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

65A / 91

25 / 25



APPROVED Nov. 20, 1978

William J. Lucente
DESIGN REVIEW ENGINEER

REVISIONS	

LOW SERVICE DISTRICT

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER AND HEAT
CLEVELAND, OHIO

SUBJECT WATERWORK DETAILS

DRAWN	SCALE	
CHECKED	DATE	No.

LIGHTING SCHEMATIC PLAN

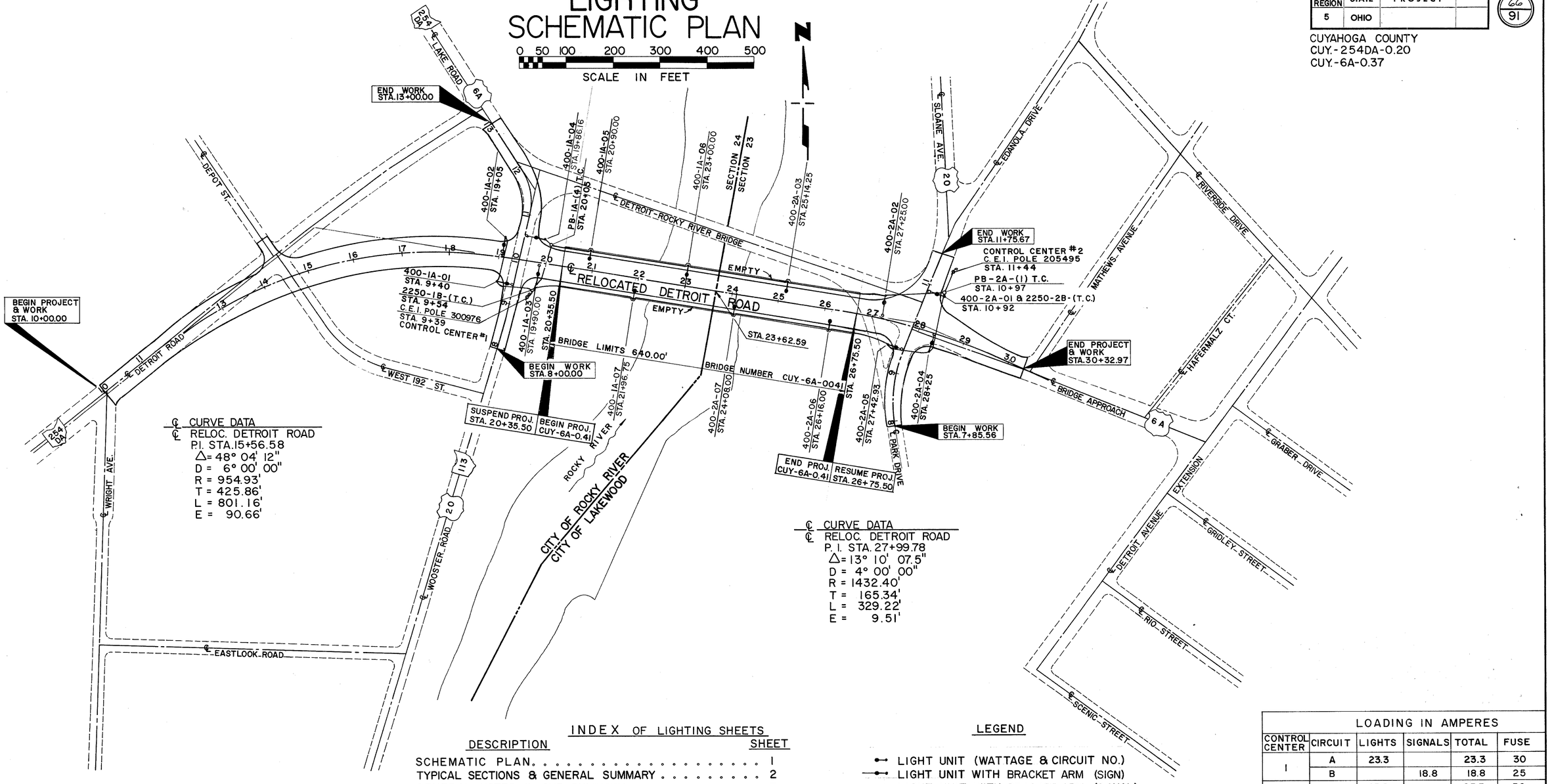
0 50 100 200 300 400 500

SCALE IN FEET

F.H.WA. REGION	STATE	PROJECT	
5	OHIO		

66/91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37



℄ CURVE DATA
℄ RELOC. DETROIT ROAD
P.I. STA.15+56.58
△= 48° 04' 12"
D = 6° 00' 00"
R = 954.93'
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D = 4° 00' 00"
R = 1432.40'
T = 165.34'
L = 329.22'
E = 9.51'

INDEX OF LIGHTING SHEETS

LEGEND

- LIGHT UNIT (WATTAGE & CIRCUIT NO.)
- LIGHT UNIT WITH BRACKET ARM (SIGN)
- LIGHT UNIT WITH BRACKET ARM (SIGNAL)
- CONTROL CENTER
- PULLBOX
- CONDUIT

LOADING IN AMPERES

CONTROL CENTER	CIRCUIT	LIGHTS	SIGNALS	TOTAL	FUSE
1	A	23.3		23.3	30
	B		18.8	18.8	25
2	A	23.3		23.3	30
	B		18.8	18.8	25

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

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CUYAHOGA COUNTY
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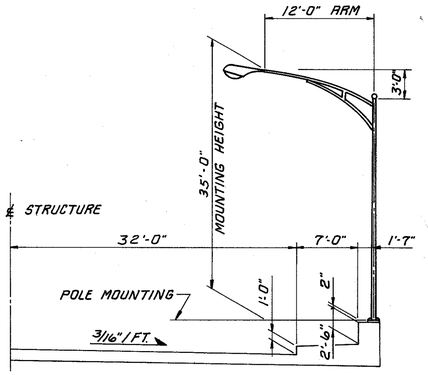
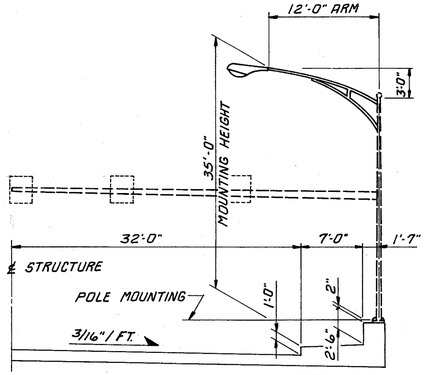


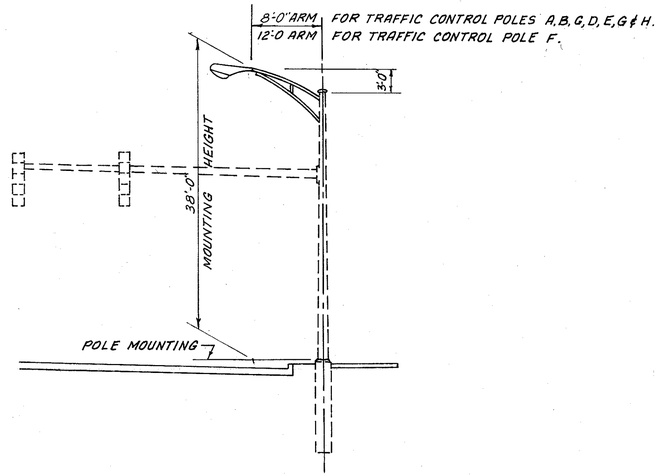
TYPICAL LIGHT POLE MOUNTING ON STRUCTURE

BRIDGE FENCE NOT SHOWN.
FOR LIGHT POLE PILASTER LOCATIONS, SEE BRIDGE PLANS.



BRACKET ARM MOUNTING ON SIGN SUPPORT POLE

FOR DETAILS SEE TRAFFIC CONTROL PLAN



BRACKET ARM MOUNTING ON SIGNAL SUPPORT POLE

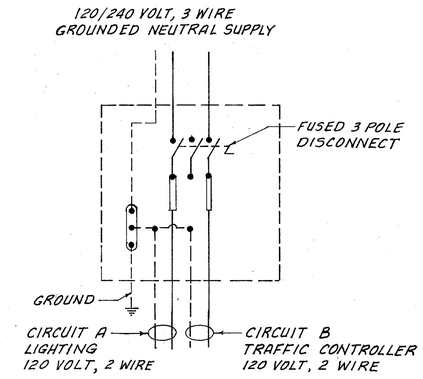
FOR DETAILS SEE TRAFFIC CONTROL PLAN

ADACHE ASSOCIATES INC.
CALC. BY: T.M.J. DATE: 10-27-76
CHKD. BY: R.W.H. DATE: 10-29-76

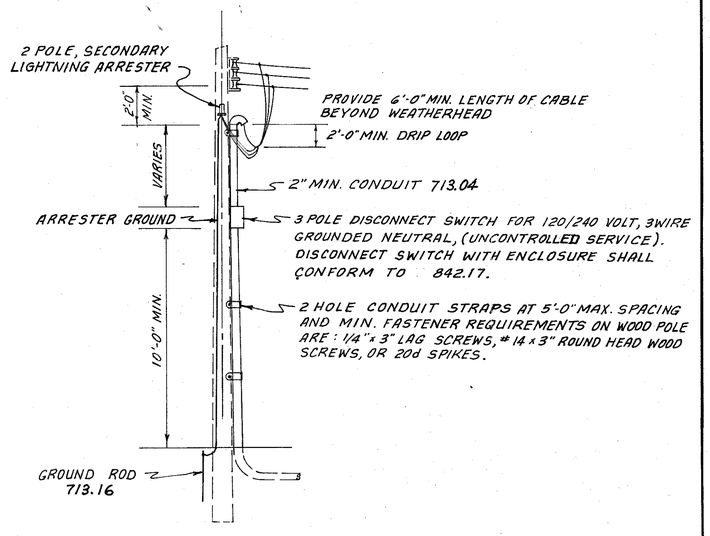
LIGHTING PLAN

GENERAL SUMMARY – TYPE CODE 7221

ITEM	ROCKY RIVER	LAKE-WOOD		TOTAL	UNIT	DESCRIPTION
625	2	2		4	EACH	LIGHT POLE, A 128 35D
625	7	7		14	EACH	LUMINAIRE, TYPE III, 120 V, 400 W., MERCURY -713.11
						WITH P.E. CELL
625	4	3		7	EACH	BRACKET ARM, 8 FOOT
625	1	2		3	EACH	BRACKET ARM, 12 FOOT
625	75	124		199	LIN. FOOT	TRENCH 24" DEEP
625	110	143		253	LIN. FOOT	CONDUIT, 2", 713.04
625	325	345		670	LIN. FOOT	CONDUIT, 3", 713.04
625	7	7		14	EACH	CONNECTOR KIT, TYPE II, As per plan
625	7	7		14	EACH	CONNECTOR KIT, TYPE III, As per plan
625	2	-		2	EACH	CONNECTOR KIT, TYPE VII B, As per plan
625	2	2		4	EACH	CONNECTOR KIT, TYPE VII C, As per plan
625	2082	2171		4253	LIN. FOOT	NO. 4 AWG, 600 VOLT, DISTRIBUTION CABLE
625	626	634		1260	LIN. FOOT	NO. 10 AWG, POLE AND BRACKET CABLE
625	LUMP			LUMP	LUMP	CONTROL CENTER NO.1, AS PER PLAN
625		LUMP		LUMP	LUMP	CONTROL CENTER NO.2, AS PER PLAN
839	Lump	Lump		LUMP	LUMP	HIGH VOLTAGE TEST



WIRING DIAGRAM



CONTROL CENTER ON C.E.I. WOOD POLE

FH.W.A. REGION	STATE	PROJECT	
5	OHIO		

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CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

LIGHTING NOTES

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.

625.01 WORK INCLUDED IN THIS PLAN SHALL BE COORDINATED WITH THE TRAFFIC CONTROL PORTION NOTED AS (T.C.) ON THE PLAN AND THE BRIDGE CONTRACT SECTION, CUY-6A-0041.

THE TRAFFIC CONTROL PORTION SHALL INCLUDE THE PLACEMENT OF THE CONDUITS IN COMMON TRENCHES, SIGNAL POLE BASES, PEDESTAL CONTROLLER BASE, AND PULL BOXES AS NOTED ON THE PLAN.
THE BRIDGE PLAN SHALL PROVIDE THE LIGHT POLE BASES WITH ANCHOR BOLTS AS REQUIRED BY THE REQUIREMENTS OF 713.01. THE BRIDGE PLAN SHALL ALSO PROVIDE THE 2" CONDUIT COMPLETE WITH JUNCTION BOXES AND EXPANSION FITTINGS TO THE LIMITS OF THE BRIDGE WORK AS SHOWN ON THE PLAN OR AS APPROVED BY ALL SHOP DRAWINGS. ALL CONDUITS SHALL BE LEFT WITH A PULL WIRE WHICH SHALL BE UTILIZED TO COMPLETE THE WORK SHOWN ON THESE PLANS.

625.03 - GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

CLEVELAND ELECTRIC ILLUMINATING COMPANY
55 PUBLIC SQUARE
CLEVELAND, OHIO 44113

THE PROJECT HAS BEEN DESIGNED ON THE BASIS OF 5% VOLTAGE DROP PERMISSIBLE ON BRANCH CIRCUITS. THE PROJECT WILL RECEIVE UNCONTROLLED 120/240 VOLT THREE-WIRE SECONDARY SERVICE ONE SIDE GROUNDED FROM CLEVELAND ELECTRIC ILLUMINATING COMPANY .

625.05 LIGHT POLES

DESIGN NUMBER	A 12B 35D*
TRANSFORMER BASE STYLE	NONE
ANCHOR BOLTS	SHALL BE PROVIDED BY BRIDGE CONTRACT (1¼" DIAMETER)

* THE BOLT CIRCLE FOR THESE POLES MUST BE 13½ INCHES IN DIAMETER.

625.07 - 713.11 LUMINAIRES

400-WATT LUMINAIRES SHALL HAVE DUAL RATED 120/240 VOLT INTEGRAL REGULATOR BALLASTS AND SHALL BE EQUIPPED WITH A PHOTO-ELECTRIC CELL, BE GENERAL ELECTRIC M400, WESTINGHOUSE OV-25, McGRAW-EDISON "UNISTYLE, OR EQUAL APPROVED BY THE ENGINEER.

HIGH VOLTAGE DIRECT CURRENT TEST

A HIGH VOLTAGE DIRECT CURRENT TEST, AS DESCRIBED IN SUPPLEMENTAL SPECIFICATION 839, SHALL BE PERFORMED ON ALL DISTRIBUTION CABLE SYSTEMS TO BE INSTALLED ON THIS PROJECT. THE TEST SHALL NOT BE PERFORMED UNTIL AFTER ALL NEW CONSTRUCTION IN THE IMMEDIATE VICINITY OF THE LOCATION OF THE CABLE RUN BEING TESTED HAS BEEN COMPLETED.

CONNECTOR KITS

AT THE OPTION OF THE CONTRACTOR, TYPE IX CABLE CONNECTIONS MAY BE SUBSTITUTED WHERE TYPE II OR III CABLE CONNECTIONS ARE SPECIFIED IN HAND HOLES OR TRANSFORMER BASES OF LIGHT POLES.

TYPE I THROUGH TYPE VII CABLE CONNECTIONS IN PULL BOXES, JUNCTION BOXES, AND OTHER ENCLOSURES BELOW GROUND MAY BE ACCOMPLISHED BY THE USE OF EITHER OF THE FOLLOWING:

1. A SLEEVE OR TEE CABLE CONNECTOR CONFORMING TO THE GENERAL REQUIREMENTS OF STYLE "S" OR "H", OR OTHER CONNECTING DEVICE APPROVED BY THE ENGINEER. THE CONNECTOR SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND THE CONNECTION SHALL BE SEALED AND WATERPROOFED WITH A HI-DIELECTRIC COMPOUND SUCH AS "AQUA SEAL" AS MANUFACTURED BY KEARNEY, THE SCOTCH #2200 COMPOUND MANUFACTURED BY 3-M COMPANY, OR KIT AS MANUFACTURED BY BLACKBURN, OR EQUAL APPROVED BY THE ENGINEER. THE SEALING MATERIAL SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS TO MAKE A WATER-TIGHT CONNECTION. CONNECTIONS NOT ACCOMPLISHED IN-LINE OR IN TEE FORM SHALL BE ADDITIONALLY PROTECTED BY USE OF A HI-DIELECTRIC PVC, OR OTHER APPROVED MATERIAL, BOOT WITH AN APPROVED FASTENING DEVICE.
2. A PREASSEMBLED KIT, AS MANUFACTURED BY JOY OR BUSSMAN, OR APPROVED EQUAL, WITH A WATER-PROOF OR WATER-TIGHT RATING ACCEPTABLE TO THE ENGINEER.

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.

625.07—713.11-LAMPS

MERCURY LAMPS SHALL BE GENERAL ELECTRIC "BONUS LINE", WESTINGHOUSE "LIFEGUARD", SYLVANIA "ROUGH SERVICE", OR EQUAL APPROVED BY THE ENGINEER.

CONTROL CENTER

CONTROL CENTERS NO.1 AND NO.2 SHALL CONSIST OF ITEMS FURNISHED AND INSTALLED ON THE INDICATED CEI POLES AS DETAILED ON SHEET 67. ANY LABOR, MATERIAL, OR EQUIPMENT NECESSARY FOR A PROPERLY FUNCTIONING CONTROL CENTER WILL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM BID ITEM "CONTROL CENTER NO.__, AS PER PLAN." SERVICE CONDUIT LOCATIONS AND TERMINATION HEIGHTS ON THE SERVICE POLES SHALL BE AS DIRECTED BY THE UTILITY COMPANY. THE CONTRACTOR SHALL ARRANGE WITH THE UTILITY COMPANY FOR A FIELD INSPECTION OF EACH SERVICE LOCATION PRIOR TO HIS INSTALLATION OF THE SERVICE EQUIPMENT.

LIGHTING SUB-SUMMARY

STATION * WOOSTER OR LAKE RD. * PARK DR. OR SLOANE AVE.			LIGHT POLE A 12B 35D	LUMINAIRE, TYPE III 400 WATT, MERC. 713.11 WITH P.E. CELL		BRACKET ARM, 8'	BRACKET ARM, 12'	CONDUIT, 2" 713.04	CONDUIT, 3" 713.04	TRENCH, 24"		CONNECTOR KIT, TYPE III, AS PER PLAN	CONNECTOR KIT, TYPE III, AS PER PLAN	CONNECTOR KIT, TYPE VIII B	CONNECTOR KIT, TYPE VIII C	NO.4 AWG, 600 VOLT DISTRIBUTION CABLE	NO.10 AWG, POLE AND BRACKET CABLE	CONTROL CENTER NO.1	CONTROL CENTER NO.2
FROM	TO	SIDE	EACH	EACH		EACH	EACH	LIN. FOOT	LIN. FOOT	LIN. FOOT		EACH	EACH	EACH	EACH	LIN. FOOT	LIN. FOOT	LUMP	LUMP
9+39 *	9+54 *	RT.						35		15					2	160		LUMP	
9+54 *	9+40 *	LT.		1		1			95	10		1	1			210	86		
9+40 *	19+05	LT.		1		1			110	20		1	1			240	86		
9+54 *	19+90	RT.		1		1		20				1	1			60	86		
19+90	10+60 *	RT-LT.		1		1			120	10		1	1	2		280	86		
20+05	20+90	LT.	1	1				30				1	1			252	94		
20+90	23+00	LT.		1			1					1	1			440	94		
9+54 *	21+96.75	RT.	1	1				25		20		1	1			440	94		
TOTAL ROCKY RIVER			2	7		4	1	110	325	75		7	7	2	2	2082	626	LUMP	
11+44 *	10+97 *	RT.						60		47					2	215			LUMP
10+97 *	10+92 *	RT.		1			1	8				1	1			36	94		
10+97 *	27+25	RT-LT.		1		1			125	15		1	1			270	86		
27+25	25+18.25	LT.	1	1				30				1	1			450	94		
10+97 *	28+25	RT.		1		1			130	5		1	1			280	86		
28+25	9+40 *	RT-LT.		1		1			90	15		1	1			200	86		
9+40 *	26+16	LT-RT.		1			1	45		42		1	1			280	94		
26+16	24+08	RT.	1	1								1	1			440	94		
TOTAL LAKEWOOD			2	7		3	2	143	345	124		7	7		2	2171	634		LUMP

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CUYAHOGA COUNTY
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CUY.-6A-0.37

0 10 20 30 40 50 100
SCALE IN FEET

NOTE:
THIS PROJECT SHALL PROVIDE ALL LIGHT POLES, BRACKET ARMS, CONDUCTOR CABLE, LUMINAIRES, LAMPS, CONNECTOR KITS AND TESTS AS REQUIRED AND NECESSARY TO COMPLETE THE ELECTRIC WORK WITHIN THE PROJECT LIMITS OF CUY-6A-0.41. QUANTITIES FOR THE ABOVE ARE INCLUDED IN THE LIGHTING SUMMARY.

BEGIN PROJECT
CUY-6A-0.41
STA. 20+35.50

END PROJECT
CUY-6A-0.41
STA. 26+75.50

400-1A-02
℄ DETROIT ROAD STA. 19+05.42, 44' LT.
= ℄ LAKE ROAD STA. 10+31.61, 41.62' LT.
COMBINATION POLE "A"

400-1A-01
℄ DETROIT ROAD STA. 19+05.63, 57.54' RT.
= ℄ WOOSTER ROAD STA. 9+40, 31.95' LT.
COMBINATION POLE "C"

400-1A-04
℄ DETROIT ROAD STA. 19+86.16, 57.40' LT.
= ℄ LAKE ROAD STA. 10+60, 39.60' RT.
COMBINATION POLE "B"

400-1A-05, 20+90.00
A-12B-35

400-1A-06, 23+00.00
COMBINATION POLE (T.C.)

400-1A-07, 21+96.75
A-12B-35

400-1A-03, 19+90.39, 52' RT.
STA. 9+63.51, 49.51' RT.
COMBINATION POLE "D"

400-2A-02
℄ DETROIT ROAD STA. 27+25, 51.63' LT.
℄ SLOANE AVENUE STA. 10+42.81, 68.19' LT.
COMBINATION POLE "E" (T.C.)

400-2A-03, 25+14.25
A-12B-35

400-2A-07, 24+08.00
COMBINATION POLE (T.C.)

400-2A-06, 26+16.00
A-12B-35

400-2A-05
℄ DETROIT ROAD STA. 27+42.93, 51.38' RT.
= ℄ PARK DRIVE STA. 9+40, 29.68' LT.
COMBINATION POLE "G" (T.C.)

400-2A-04
℄ DETROIT ROAD STA. 28+25, 41.69' RT.
= ℄ PARK DRIVE STA. 9+67.36, 46.14' RT.
COMBINATION POLE

400-2A-01
℄ DETROIT ROAD STA. 28+39.31, 82.11' LT.
= ℄ SLOANE AVENUE STA. 10+92, 45.02' RT.
COMBINATION POLE "F" (T.C.)
2250-2B-CONTROLLER CABINET (POLE MOUNTED)

℄ LAKE ROAD
N 13° 38' 01" E

℄ WOOSTER ROAD
N 13° 38' 01" E

℄ RELOCATED DETROIT ROAD
℄ S 79° 57' 45.5" E

℄ RELOCATED DETROIT ROAD
STA. 19+42.87
= ℄ WOOSTER ROAD ℄
℄ LAKE ROAD
STA. 10+00.00

℄ RELOCATED DETROIT ROAD
STA. 27+83.86
℄ PARK DRIVE ℄
℄ SLOANE AVENUE
STA. 10+02.75

℄ SLOANE AVENUE
N 23° 08' 44" E

℄ PARK DRIVE

P.T. STA. 19+31.89

P.C. STA. 26+34.44

P.T. STA. 9+47.01

℄ PIER-1
STRUCTURE GROUNDING SYSTEM AS PER STD. DWG. HL-7

℄ PIER-2
STRUCTURE GROUNDING SYSTEM AS PER STD. DWG. HL-7

℄ PIER=
STA. 22+23.00

℄ PIER=
STA. 24+88.00

90° 00' 00" SKEW (TYPICAL)

2" DUCT EMPTY
4" DUCT (T.C.)

2" ℄ DUCT (L.)
3" ℄ DUCT ℄ COMMON TRENCH (T.C.)

3" ℄ DUCT (L.)
3" ℄ DUCT (T.C.) ℄ COMMON TRENCH (T.C.)

3" ℄ DUCT (L.)
4" ℄ DUCT ℄ COMMON TRENCH (T.C.)

2" ℄ CONDUIT, FOR EXACT LOCATION IN PARAPET SEE STD. DWG. HL-7 (TYPICAL AS SHOWN)

℄ WOOSTER RD. STA. 9+54±, 50'± RT.
SIGNAL CONTROL CENTER PEDESTAL MOUNTED (T.C.)
2250-1B-CONTROLLER CABINET
P.B.-1A-01 (2-VII C)

℄ C.E.I. POLE #300976 SERVICE POLE CONNECTION (SEE SHT. 2 FOR DETAIL)

C.E.I. POLE #205495 SERVICE POLE CONNECTION (L.) (SEE SHT. 2 FOR DETAIL)

REFER TO STD. DWG. HL-5 FOR "CONDUIT THROUGH OPEN JOINT AT ABUTMENT" AND "CONDUIT THROUGH WINGWALL". (TYPICAL)

3" ℄ DUCT ℄ COMMON TRENCH (T.C.)

2" ℄ DUCT (L.)

3" ℄ DUCT (L.)

3" ℄ DUCT (L.) 4" ℄ DUCT (T.C.) COMMON TRENCH (T.C.)

3" ℄ DUCT (L.) 3" ℄ DUCT (T.C.) COMMON TRENCH (T.C.)

℄ SLOANE AVENUE STA. 10+97.43' RT. (T.C.)
P.B.-1A-01 (2-VII C)

℄ SLOANE AVENUE STA. 10+92.24' (T.C.)
P.B.-2A-01 (2-VII C)

CITY OF ROCKY RIVER
CITY OF LAKEWOOD

STA. 23+62.59

MATCH LINE

MATCH LINE

19 20 21 22 23 24 25 26 27 28

RELOCATED DETROIT ROAD
℄ S 79° 57' 45.5" E

LIGHT POLE IDENTIFICATION

- CIRCUIT NUMBER
- POLE NUMBER
- STATION
- NOMINAL MOUNTING HEIGHT
- BRACKET ARM LENGTH
- "A" FOR ANCHOR

1A-01, 20+90.00
A-12B-35

4/4

LIGHTING PLAN

TRAFFIC CONTROL SCHEMATIC PLAN

F.H.W.A. REGION	STATE	PROJECT	
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CUY.-254DA-0.20
CUY.-6A-0.37

0 50 100 200 300 400 500
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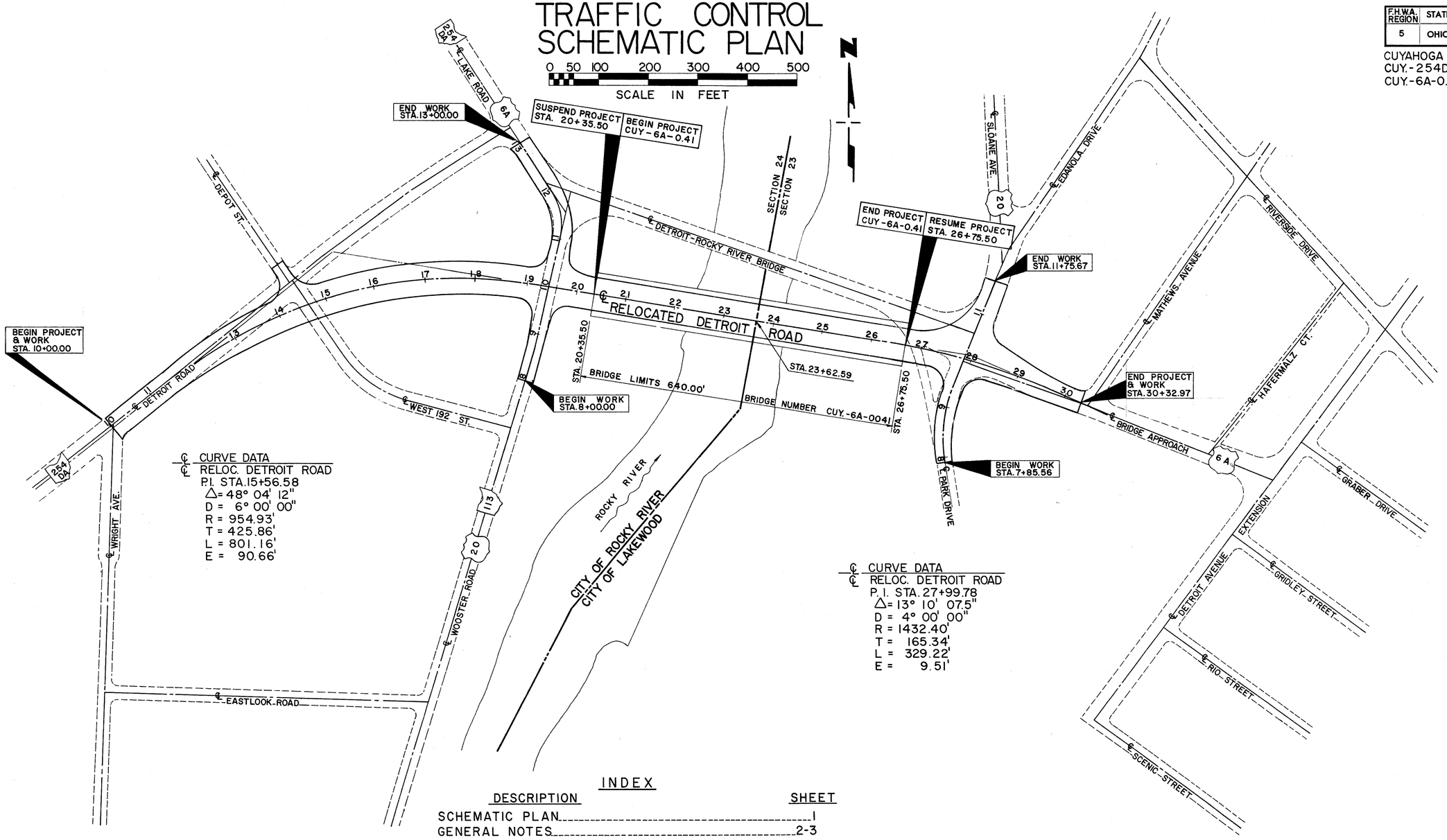

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INDEX

TRAFFIC CONTROL NOTES

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77/91

REMOVAL OF GROUND OR POLE MOUNTED SIGNS AND SIGN SUPPORTS

THIS WORK SHALL CONSIST OF THE REMOVAL OF ALL GROUND OR POLE MOUNTED SIGNS AND THEIR SUPPORTS WITHIN THE PROJECT CONSTRUCTION LIMITS NOT INDICATED ON THE PLAN "(TO REMAIN)"

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE CITY OF ROCKY RIVER AND LAKEWOOD A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE REQUIRED REMOVAL OF ANY SIGN OR ITS SUPPORT FOR CONSTRUCTION PURPOSES. THE CONTRACTOR SHALL REMOVE AND STORE ALL SALVAGEABLE MATERIAL ON THE R/W FOR PICK-UP BY THE CITIES OF ROCKY RIVER & LAKEWOOD. ANY ITEMS WHICH THE CITIES DO NOT WANT SHALL BE DISPOSED OF BY THE CONTRACTOR.

TO ASSURE MAINTENANCE OF ADEQUATE TRAFFIC CONTROL AT ALL TIMES, NO SIGN SHALL BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

PAYMENT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ITEM 202, REMOVAL OF GROUND OR POLE MOUNTED SIGNS FOR STORAGE, AS PER PLAN.

REMOVAL OF EXISTING SIGNAL INSTALLATION

THIS WORK SHALL CONSIST OF THE REMOVAL OF THE VEHICULAR SIGNAL HEADS, PEDESTRIAN SIGNAL HEADS, CONDUCTOR CABLES, MESSENGER WIRE, CONTROLLER, POLES, POLE FOUNDATION AND ANY OTHER ITEM OF AN EXISTING TRAFFIC SIGNAL INSTALLATION WITHIN THE CONSTRUCTION LIMITS NOT INDICATED TO REMAIN ON THE PLAN. EXCEPT FOR THE FOUNDATIONS, ALL ITEMS OF TRAFFIC SIGNALS, CABLE, POLES, AND RELATED ITEMS SHALL BE STORED ON THE RIGHT-OF-WAY TO BE PICKED-UP BY THE CITIES OF ROCKY RIVER AND LAKEWOOD. ANY ITEMS WHICH THE CITIES DECIDE NOT TO ACCEPT, SHALL THEN BE DISPOSED OF BY THE CONTRACTOR.

PAYMENT WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 REMOVAL OF EXISTING SIGNAL INSTALLATION.

MAINTENANCE OF EXISTING SIGNAL INSTALLATION

THE LOCAL MAINTAINING AGENCY OF THE CITY SHALL BE RESPONSIBLE FOR NORMAL MAINTENANCE AND UPKEEP OF THE EXISTING INSTALLATION UNTIL ALTERATION AND/OR RELOCATION FOR CONSTRUCTION ARE REQUIRED. THE CONTRACTOR SHALL NOTIFY THE CITY TEN (10) WORKING DAYS PRIOR TO THE START OF ANY ALTERATION OR RELOCATION WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE SIGNAL INSTALLATION AFTER ALTERATION AND/OR RELOCATION UNTIL IT IS NO LONGER REQUIRED FOR MAINTENANCE OF TRAFFIC. SEE REMOVAL OF EXISTING SIGNAL INSTALLATION NOTE. THE CONTRACTOR MAY RELOCATE THE EXISTING SIGNALS, POLES, SERVICE WIRE AND ADD TEMPORARY ITEMS IN GOOD REPAIR AS NEEDED TO KEEP THE SIGNAL OPERATIONAL. SIGNAL HEADS SHALL BE COVERED WHEN NOT IN OPERATION AND TRAFFIC SHALL BE MAINTAINED AT THE INTERSECTION THROUGH THE USE OF GROUND MOUNTED SIGNS AND FLAGMEN OR POLICE OFFICERS AS REQUIRED BY THE ENGINEER.

SIGNAL CONTROL OF THE INTERSECTION SHALL NOT BE INTERRUPTED DURING THE HOURS OF 7 AM TO 10 AM AND 3 PM TO 6 PM ON WEEKDAYS. SIGNALS SHALL BE INOPERATIVE NO LONGER THAN SIX (6) HOURS.

FOR MINIMUM NUMBER OF LANES AND LANE WIDTH FOR MAINTENANCE OF TRAFFIC DURING CONSTRUCTION AT EACH INTERSECTION SEE GENERAL NOTES SHEET.

PAYMENT WILL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID FOR ITEM 614 MAINTENANCE OF TRAFFIC.

614 EXISTING SIGNS

EXISTING SIGNS LOCATED WITHIN THE ROADWORK AREAS WHICH ARE NECESSARY FOR INTERIM OR PERMANENT TRAFFIC CONTROL SHALL BE REMOVED AND RE-ERECTED IN LOCATIONS INDICATED BY THE PLANS OR AS APPROVED BY THE ENGINEER. STOP SIGNS SHALL BE MAINTAINED AT ALL TIMES WHILE TRAFFIC IS MAINTAINED. THE COST OF REMOVAL, RE-ERECTION, AND SUBSEQUENT REMOVAL IF REQUIRED WILL BE CONSIDERED A SUBSIDIARY WORK ITEM, THE COST OF WHICH WILL BE INCLUDED IN THE PRICE BID FOR THE ROADWAY ITEMS. THE SIGNS WHICH ARE TO BE RE-ERECTED OUTSIDE THE PAVED BERMS SHALL BE LOCATED WITH THE CENTER LINE OF SUPPORT ON THE POINT OF INTERSECTION (P.I.) OF THE SHOULDER.

TEMPORARY PAVEMENT MARKINGS

DURING CONSTRUCTION OF NEW PAVEMENT ON A ROADWAY, 4" LANE LINES SHALL BE MAINTAINED WHILE THE VARIOUS PAVEMENT COURSES ARE APPLIED. TEMPORARY 4" LANE LINES SHALL BE APPLIED IN ACCORDANCE WITH 621 WITHIN 24 HOURS OF ANY RECONSTRUCTED SECTION OF ROADWAY PAVEMENT FOLLOWING BASE OR FINISHED PAVEMENT COURSE CONSTRUCTION.

PAYMENT WILL BE INCLUDED IN THE LUMP SUM PRICE BID FOR 614, MAINTENANCE OF TRAFFIC.

INTERIM PAVEMENT MARKINGS REMOVED

THIS WORK SHALL CONSIST OF THE REMOVAL OR OBLITERATION OF INTERIM PAVEMENT MARKINGS ON THE PAVEMENT.

THE MARKINGS MAY BE REMOVED BY APPLYING HEAT OR A SOLVENT OR BY ANY OTHER METHOD APPROVED BY THE ENGINEER, EXCEPT THAT THE METHOD SHALL NOT BE INJURIOUS TO THE APPEARANCE, TEXTURE, OR STRENGTH OF THE PAVEMENT.

UPON REMOVAL OF ALL PULL UP TAPE, THE PRIMER STAINS SHALL BE REMOVED BY USE OF KEROSENE OR OTHER APPROVED SOLVENT.

PAYMENT WILL BE INCLUDED IN THE LUMP SUM PRICE BID FOR 614, MAINTENANCE OF TRAFFIC.

625 POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM THE CLEVELAND ILLUMINATING COMPANY, CLEVELAND, OHIO AT THE LOCATION SHOWN ON THE PLANS. THE VOLTAGE SUPPLIED SHALL BE 120 VOLTS.

ALL NECESSARY WORK TO INSTALL A COMPLETE OPERATIVE SYSTEM WILL BE INCLUDED IN THE VARIOUS ELECTRICAL BID ITEMS IN THIS CONTRACT.

625 PULL BOXES, BY SIZE

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLATION OF CIRCULAR CORRUGATED METAL PULL BOXES, LOCATED WHERE DESIGNATED ON THE PLANS. FOR PULL BOX DETAIL, SEE STANDARD CONSTRUCTION HL-10

PULL BOXES SHALL HAVE UNDERDRAINS TO ROADWAY UNDERDRAINS. THE INSTALLATION AND PAYMENT SHALL BE IN ACCORDANCE WITH 605, 6" PIPE UNDERDRAIN.

BASIS OF PAYMENT WILL BE AT THE CONTRACT BID PRICE PER EACH, 625 PULL BOXES, BY SIZE WHICH PRICE WILL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, GRANULAR MATERIAL, AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED WORK.

TRAFFIC CONTROL NOTES

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

72/91

CUYAHOGA COUNTY
CUY. - 254DA - 0.20
CUY. - 6A - 0.37

842 & 843 GUARANTEES AND WARRANTIES

THE CONTRACTOR SHALL WARRANT OR GUARANTEE SATISFACTORY OPERATION OF ELECTRICAL TRAFFIC CONTROL EQUIPMENT FOR A PERIOD OF 90 DAYS FOLLOWING ACCEPTANCE OF THE EQUIPMENT BY THE STATE. THE CONTRACTOR'S RESPONSIBILITY SHALL BE LIMITED TO NECESSARY REPAIRS, REPLACEMENT OF DEFECTIVE PARTS WITH PARTS EQUAL TO OR BETTER THAN THOSE ORIGINALLY SPECIFIED, AND REMEDYING FAULTY INSTALLATION IN AN APPROVED MANNER; INCLUDING ALL LABOR, MATERIAL, AND EQUIPMENT COSTS RELATED THERETO.

THE FOLLOWING ITEMS SHALL BE PROVIDED WITH THE SPECIFIED GUARANTEE:

1. TRAFFIC SIGNAL CONTROLLERS AND ASSOCIATED CONTROL EQUIPMENT.
2. LOOP DETECTOR AMPLIFIERS
3. INTERCONNECTION AND MASTER CONTROL DEVICES

IN ADDITION, THE MANUFACTURER'S NORMAL WARRANTIES FOR THE ABOVE EQUIPMENT AND OTHER MANUFACTURER'S EQUIPMENT FOR WHICH GUARANTEES ARE NORMALLY PROVIDED SHALL BE ASSIGNED AND DELIVERED TO THE STATE.

THE CONTRACTOR SHALL INSTALL AND HANDLE ITEMS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES, PROVIDED SUCH PROCEDURES ARE NOT IN CONFLICT WITH THE PLANS AND SPECIFICATIONS.

COSTS FOR PROVISION AND PERFORMANCE OF GUARANTEES AND WARRANTIES HEREIN DESCRIBED WILL BE INCIDENTAL TO AND INCLUDED IN THE UNIT PRICE(S) BID FOR THE VARIOUS TRAFFIC CONTROL ITEMS.

842 SIGNAL POLES AND SIGNAL STRAIN POLES

WALL THICKNESS IN THIS PLAN ARE REFERRED TO BY GAUGE NUMBERS IN LIEU OF WALL THICKNESS IN INCHES. THE GAUGE NUMBERS SHOWN IN THIS PLAN SHALL BE INTERPRETED AS FOLLOWS.

GAUGE NO.	NOMINAL THICKNESS INCHES
10	0.1345
7	0.1793
3	0.2391

843 CONTROLLER CABINETS

IN ADDITION TO AND MODIFYING THE REQUIREMENTS OF 843 CONTROLLER CABINETS SHALL BE AS FOLLOWS,

THE CABINET FOR LAKEWOOD SHALL BE POLE MOUNTED AND HAVE MINIMUM DIMENSIONS OF 11 1/4 INCHES IN DEPTH BY 14 INCHES IN WIDTH BY 28 INCHES IN HEIGHT. THE CABINET FOR ROCKY RIVER SHALL BE GROUND MOUNTED AND HAVE MINIMUM DIMENSIONS OF 14-11/16 INCHES IN DEPTH, 28-5/8 INCHES IN WIDTH, BY 41-3/8 INCHES IN HEIGHT. THE CABINET SHALL BE CAST FROM ALUMINUM ALLOY, OR APPROVED EQUAL, AND SHALL HAVE A MINIMUM THICKNESS OF 3/16 INCH. EXCESS METAL SUCH AS GATES, FINS, AND FLASHES SHALL BE REMOVED FROM ALL SURFACES OF THE CABINET IN ORDER TO PROVIDE A SMOOTH FINISH.

THE POLE MOUNTED CABINET SHALL BE EQUIPPED WITH POLE CLAMPS AND SHALL HAVE AN OPENING ON THE BOTTOM TO ACCOMMODATE A 2-1/2" DIAMETER LB CONDUIT FITTING. THE LOCATION OF THE HOLE SHALL BE SUCH AS TO ALLOW THE BACK OF THE CABINET TO BE MOUNTED FLUSH TO THE POLE, AND ALSO ALLOW THE LB FITTING TO BE DIRECTLY ATTACHED TO A 2-1/2" DIAMETER BLIND HALF-COUPLING ON THE POLE.

THE GROUND MOUNTED CABINET SHALL BE PROVIDED WITH ANCHOR BOLTS AS PER THE MANUFACTURERS SPECIFICATIONS. THE BOTTOM OF THE CABINET SHALL BE OPEN TO RECEIVE CONDUITS PLACED IN THE FOUNDATION. FOR DETAILS SEE SHEET 12/14.

844 FIELD DRILLING OF SIGNS

IT MAY BE NECESSARY TO FIELD DRILL SOME ROUTE MARKER ASSEMBLIES FOR MOUNTING BOLTS WHEN THESE ARE TO BE MOUNTED ON DRIVEN SUPPORTS.

844 SIGNS, BY TYPE

SIGN FACE BACKGROUND MATERIAL SHALL BE TYPE F REFLECTIVE SHEETING UNLESS OTHERWISE SPECIFIED IN THE PLANS. THE PROPOSED BACKGROUND COLOR AND LEGEND TYPE SHALL BE SHOWN ON EACH SIGN LAYOUT SHOP DRAWING SUBMITTED FOR REVIEW IN ACCORDANCE WITH 844.04.

844 DRIVE POSTS

DRIVE POSTS SHALL BE STEEL IN ACCORDANCE WITH 712.20.

ADACHE ASSOCIATES INC.	
CALC: T.M.J.	DATE: 6-9-77
CHKD: R.W.H.	DATE: 6-13-77

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

CUYAHOGA COUNTY
CUY. - 254DA-0.20
CUY. - 6A-0.37

TRAFFIC CONTROL PLAN

GENERAL SUMMARY – TYPE CODE 7221

ITEM	ROCKY RIVER	LAKEWOOD	TOTAL	UNIT	DESCRIPTION	SHEET
202	54	10	64	EACH	REMOVAL OF GROUND OR POLE MOUNTED SIGNS FOR STORAGE AS PER PLAN.	2
202	4	1	5	EACH	REMOVAL OF GROUND OR POLE MOUNTED SIGN SUPPORTS, NO. 8 POSTS AND SMALLER	2
202	1	—	1	EACH	REMOVAL OF EXISTING SIGNAL INSTALLATION AT DETROIT ROAD, DEPOT STREET & W. 192 STREET	7
202	1	—	1	EACH	REMOVAL OF EXISTING SIGNAL INSTALLATION AT DETROIT ROAD, WOOSTER RD. & LAKE ROAD	9
202	—	1	1	EACH	REMOVAL OF EXISTING SIGNAL INSTALLATION AT DETROIT ROAD, PARK DRIVE & SLOANE AVENUE	10
605	20	25	45	LIN. FT.	6" SHALLOW PIPE UNDERDRAIN, AS PER PLAN	11 & 12
621	0.52	0.26	0.78	MILES	6" LANE LINE, WHITE	5
621	971	449	1,420	LIN. FT.	8" CHANNELIZING LINE, WHITE	5
621	872	544	1,416	LIN. FT.	6" CROSSWALK LINE, WHITE	5
621	0.34	0.18	0.52	MILES	6" DOUBLE SOLID CENTER LINE, YELLOW	5
621	13	15	28	EACH	LANE ARROW, WHITE	5
621	135	177	312	LIN. FT.	18" STOP LINE, WHITE	5
621	5	2	7	EACH	WORD "ONLY" ON PAVEMENT, WHITE	5
621	51	32	83	LIN. FT.	18" BROAD TRANSVERSE LINE, YELLOW	5
621	—	65	65	LIN. FT.	18" BROAD TRANSVERSE LINE, WHITE	5
625	4	5	9	EACH	PULL BOX, 18" CORRUGATED METAL TYPE	6
625	223	10	233	LIN. FT.	TRENCH	6
625	125	16	141	LIN. FT.	1"⌀ CONDUIT	6
625	188	115	303	LIN. FT.	3"⌀ CONDUIT	6
625	360	273	633	LIN. FT.	4"⌀ CONDUIT	6
842	2	4	6	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 12" LENS, ONE WAY	6
842	6	4	10	EACH	VEHICULAR SIGNAL HEAD, 5 SECTION, 12" LENS, ONE WAY	6
842	6	6	12	EACH	PEDESTRIAN SIGNAL HEAD, TYPE A2	6
842	8	8	16	EACH	COVERING FOR VEHICULAR SIGNAL HEAD	6
842	6	6	12	EACH	PEDESTRIAN PUSHBUTTON WITH SIGN	6
842	3	1	4	EACH	LOOP DETECTOR AMPLIFIER	6
842	824	340	1,164	LIN. FT.	LOOP DETECTOR PAVEMENT CUTTING	6
842	1,575	478	2,053	LIN. FT.	LOOP DETECTOR WIRE	6
842	580	440	1,020	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE	6
842	889	774	1,663	LIN. FT.	SIGNAL CABLE, 2 CONDUCTOR, NO. 14 AWG	6
842	209	766	975	LIN. FT.	SIGNAL CABLE, 4 CONDUCTOR, NO. 14 AWG	6
842	1,153	778	1,931	LIN. FT.	SIGNAL CABLE, 6 CONDUCTOR, NO. 14 AWG	6
842	468	507	975	LIN. FT.	INTERCONNECT CABLE, 12 CONDUCTOR, NO. 12 AWG	6
842	20	15	35	LIN. FT.	POWER CABLE, 2 CONDUCTOR, NO. 12 AWG	6
842	1	1	2	EACH	POWER SERVICE	
842	10.3	9.6	19.9	CU. YD.	CONCRETE FOR ANCHOR BASE FOUNDATIONS	13 & 14

ITEM	ROCKY RIVER	LAKEWOOD	TOTAL	UNIT	DESCRIPTION	SHEET
842	1	—	1	EACH	COMBINATION SIGNAL AND LIGHT SUPPORT POLE: 0.188"×14"×35'-0" MAST ARM: 0.188"×11"×36'-0"	6
842	2	—	2	EACH	COMBINATION SIGNAL AND LIGHT SUPPORT POLE: 0.188"×13"×35'-0" MAST ARM: 0.188"×10"×34'-0"	6
842	1	—	1	EACH	COMBINATION SIGNAL AND LIGHT SUPPORT POLE: 0.188"×11"×35'-0" MAST ARM: 0.188"×8"×26'-0"	6
842	—	1	1	EACH	COMBINATION SIGNAL AND LIGHT SUPPORT POLE: 0.249"×13"×35'-0" MAST ARM: 0.249"×13"×15'-3" & 0.188"×8.40"×30'-0"	6
842	—	2	2	EACH	COMBINATION SIGNAL AND LIGHT SUPPORT POLE: 0.249"×12"×35'-0" MAST ARM: 0.249"×9"×15'-0" & 0.188"×7.40"×26'-0"	6
842	—	1	1	EACH	COMBINATION SIGNAL AND LIGHT SUPPORT POLE: 0.188"×10"×35'-0" MAST ARM: 0.188"×7"×24'-0"	6
842	1	1	2	EACH	COMBINATION SIGN AND LIGHT SUPPORT (STRUCTURE MOUNTED) POLE: 0.249"×13"×35'-0" MAST ARM: 0.249"×13"×15'-3" & 0.188"×8.40"×30'-0"	13
843	—	1	1	EACH	CONTROLLER, PRETIMED ELECTROMECHANICAL TYPE WITH CABINET, 3 phase, as per plan	6
843	1	—	1	EACH	CONTROLLER, SEMI-ACTUATED SOLID STATE DIGITAL TYPE WITH CABINET, 5 phase, as per plan 14 1/16 × 28 5/8 × 41 3/8	6
843	0.65	—	0.65	CU. YD.	CONCRETE FOR CABINET FOUNDATION	
843	1	—	1	EACH	COORDINATOR, OFFSET	
844	22.5	22.5	45	SQ. FT.	SIGNS, EXTRU SHEET TYPE	5
844	303	127	430	SQ. FT.	SIGNS, FLAT SHEET TYPE	5
844	176	27	203	LIN. FT.	2 LB. STEEL DRIVE POST	5
844	475.5	78.25	553.75	LIN. FT.	3 LB. STEEL DRIVE POST	5
[illegible]	[illegible]	[illegible]			[illegible]	5
844	6	6	12	EACH	POLE MOUNTED SIGN ATTACHMENT ASSEMBLY	5
844	1	1	2	EACH	BRIDGE MOUNTED SIGN ATTACHMENT ASSEMBLY	5

ADACHE ASSOCIATES INC.
CALC. BY: T.M.J. DATE: 9-17-76
CHKD. BY: R.W.H. DATE: 5-3-77

NOTES:
* INDICATES POLE MOUNTED SIGN(S).
▲ INDICATES CLIP ANGLE MOUNTING TO BRIDGE.
+ INDICATES OVERHEAD CANTILEVERED ARM SUPPORT, EXTRU SHEET SIGNS
( ) INDICATES EXISTING SIGN RELOCATED TO NEW DRIVE POST OR POLE.

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

CUYAHOGA COUNTY
CUY-254DA-0.20
CUY-6A-0.37

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PAVEMENT MARKINGS

STATION FROM	STATION TO	SIDE	6" LANE LINE (WHITE) LIN. FT.	8" SOLID CHANNELIZING LINE (WHITE) LIN. FT.	6" SOLID CROSSWALK LINE (WHITE) LIN. FT.	6" DOUBLE SOLID CENTERLINE (YELLOW) LIN. FT.	LANE ARROW (WHITE) EACH	18" SOLID STOP BAR (WHITE) LIN. FT.	LANE WORD "ONLY" (WHITE) EACH	18" BROAD TRANSVERSE SOLID LINE (YELLOW) LIN. FT.	18" BROAD TRANSVERSE SOLID LINE (WHITE) LIN. FT.
ROCKY RIVER											
DETROIT ROAD											
10+18	13+93	L,C,R	750		153	375					
11+40	12+75	L,C,R				135				43	
13+13	13+93	R		80							
13+45	13+63	C					1		1		
14+79	18+98	L,C,R	838		325	419		45			
14+79	18+98	R		419							
16+00	℄ 17+00	C					2				
	18+22	C							1		
	18+72	C					1				
19+86	23+62.59	L,C,R	754			377					
	20+16	C					1				
	20+66	C							1		
21+50	℄ 23+00	C					2				
19+86	22+90	L		304							
DEPOT STREET											
10+60	11+03	L,C,R			120	43		28			
WOOSTER ROAD											
8+00	9+45	L,C,R			134	145		34			
8+20	8+72.40	L,C				53				8	
8+72.40	9+45	R		73							
	8+95	C							1		
	9+17	C,R					2				
LAKE ROAD											
10+55	13+00	L,C,R	245		140	245		28			
10+55	11+50	L		95							
	10+85	L,C					2				
	11+25	C							1		
11+50	13+00	L	150								
	12+15	L,C					2				
TOTAL - ROCKY RIVER			2,737	971	872	1,792	13	135	5	51	—0—
LAKEWOOD											
DETROIT ROAD											
23+62.57	27+34	L,C,R	744			372		48			
24+25	℄ 25+30	C					2				
24+30	27+34	R		304							
	26+50	C							1		
	27+00	C,R					3				
28+42	30+33	L,C,R	382		195	191		52			
28+42	28+73	L									65
28+42	28+85	L		43							
29+00	30+33	L,C,R				133				32	
	28+50	L,C					3				
	28+73	L					1				
	29+75	L					2				
PARK DRIVE											
7+86	9+49	C,R	163		152	163		34			
	9+25	C,R					2				
SLOANE AVENUE											
10+74	11+76	L,C,R	102	102	197	102		43			
	11+00	L					2				
	11+50	L							1		
TOTAL - LAKEWOOD			1,391	449	544	961	15	177	2	32	65

SIGN QUANTITIES

SHEET NUMBER	STATION	SIDE	SIGN CODE NUMBER	SIGN FLAT SHT. TYPE S.F.	STRUCTURAL SUPPORT 2 LBS. POST PCS.	STRUCTURAL SUPPORT 2 LBS. POST LENGTH	STRUCTURAL SUPPORT 3 LBS. POST PCS.	STRUCTURAL SUPPORT 3 LBS. POST LENGTH	POLE MOUNT ASSEMBLY EA	BRIDGE MOUNT ASSEMBLY EA	SIGN EXTRU SHEET SF
	ROCKY RIVER										
	DETROIT ROAD										
7	10+40	L	R-55-12	1.5	1	13'-6"					
7	10+50	R	R-55-12	1.5	1	13'-6"					
7	11+50	R	R-10-24	5.0			1	14'-6"			
7	12+25	L	R-55-12	1.5	1	13'-6"					
7	13+00	R	R-55-12	1.5	1	13'-6"					
7	13+60	L	R-55-12	1.5	1	13'-6"					
7	15+00	R	R-55-12	1.5	1	13'-6"					
7	15+00	R	X-4-18	2.3	1	14'-0"					
7	15+25	L	R-55-12	1.5	1	13'-6"					
8	16+50	L	R-55-12	1.5	1	13'-6"					
8	16+50	R	R-55-12	1.5	1	13'-6"					
8	17+00	R	M-17-24	2.0			2	22'-0"			
			M-9-24	2.0							
			M-1-24	4.0							
			M-30-20	2.1							
8	17+00	R	M-17-24	2.0			2	21'-0"			
			M-1-24	4.0							
			M-29-30	2.1							
			M-17-24	2.0							
			M-2-24	4.0							
			M-24-20	2.1							
			M-2-24	4.0							
			M-24-20	2.1							
			M-2-24	4.0							
			M-24-20	2.1							
8	18+50	L	R-55-12	1.5	1	13'-6"					
8	19+05 *	L	M-1-24	4.0					1		
			M-24-20	2.1							
			M-2-24	4.0							
			M-24-20	2.1							
			M-2-24	4.0							
			M-24-20	2.1							
			M-2-24	4.0							
			M-24-20	2.1							
			M-2-24	4.0							
			M-26-20	2.1							
8	19+90 *	R	M-9-24	2.0					1		
			M-1-24	4.0							
			M-30-20	2.1							
			M-14-24	2.0							
			M-2-24	4.0							
			M-1-24	4.0							
			M-29-20	2.1							
			M-2-24	4.0							
			M-24-20	2.1							
8	20+90 *	L	R-84-30	6.3					1		
8	21+96.75 *	R	M-39-24	2.0					1		
			M-9-24	2.0							
			M-1-24	4.0							
			M-39-24	2.0							
			M-1-24	4.0							
8	23+00 +	L	R-26A-30								7.5
			R-30A-30								2.5
			R-29A-30								7.5
8	23+62 ▲	L	N-1-40	5.6						1	
	DEPOT STREET										
7	10+70	L	R-1-30	5.25			1	14'-6"			
	WOOSTER ROAD										
9	6+85	L	W-48-30	6.3	(MOUNT ON EXISTING STOP SIGN)						
9	7+30	L	W-48-30	6.3			1	15'-6"			
9	8+25	L	R-55-12	1.5	1	13'-6"					
9	8+25	R	R-55-12	1.5	1	13'-6"					

SHEET NUMBER	STATION	SIDE	SIGN CODE NUMBER	SIGN FLAT SHT. TYPE S.F.	STRUCTURAL SUPPORT 2 LBS. POST PCS.	STRUCTURAL SUPPORT 2 LBS. POST LENGTH	STRUCTURAL SUPPORT 3 LBS. POST PCS.	STRUCTURAL SUPPORT 3 LBS. POST LENGTH	POLE MOUNT ASSEMBLY EA	BRIDGE MOUNT ASSEMBLY EA	SIGN EXTRU SHEET SF
	WOOSTER ROAD CONT.										
9	8+50	R	M-17-24	2.0			2	22'-0"			
			M-9-24	2.0							
			M-1-24	4.0							
			M-29-20	2.1							
			M-2-24	4.0							
			M-24-20	2.1							
9	8+50	R	M-1-24	4.0			2	20'-0"			
			M-24-20	2.1							
			M-14-24	2.0							
			M-2-24	4.0							
9	8+75	L	M-40-24	2.0			4	15'-0"			
			M-1-24	4.0							
			M-1-24	4.0							
			M-40-24	2.0							
			M-2-24	4.0							
8	9+15	L	R-55-12	1.5	1	13'-6"					
8	9+40 *	L	M-9-24	2.0					1		
			M-1-24	4.0							
			M-24-20	2.1							
			M-2-24	4.0							
			M-1-24	4.0							
			M-30-20	2.1							
			M-2-24	4.0							
			M-24-20	2.1							
	LAKE ROAD										
8	10+60 *	R	M-9-24	2.0					1		
			M-1-24	4.0							
			M-29-20	2.1							
			M-2-24	4.0							
			M-24-20	2.1							
			M-1-24	4.0							
			M-30-20	2.1							
9	11+00	R	R-55-12	1.5	1	13'-6"					
9	11+50	R	M-40-24	2.0			2	16'-0"			
			M-9-24	2.0							
			M-1-24	4.0							
9	12+25	L	M-9-24	2.0			2	21'-0"			
			M-1-24	4.0							
			M-1-24	4.0							
			M-30-20	2.1							
			M-2-24	4.0							
			M-19-20	2.1							
9	12+75	R	R-10-24	5.0			1	14'-6"			
9	12+75	L	R-31A-36	7.5			2	21'-0"			
			W-47-36	9.0							
			WP-47-24	3.0							
	TOTAL - ROCKY RIVER			302.95		176'-0"		475.5		1	22.5

SHEET NUMBER	STATION	SIDE	SIGN CODE NUMBER	SIGN FLAT SHT. TYPE S.F.	STRUCTURAL SUPPORT 2 LBS. POST PCS.	STRUCTURAL SUPPORT 2 LBS. POST LENGTH	STRUCTURAL SUPPORT 3 LBS. POST PCS.	STRUCTURAL SUPPORT 3 LBS. POST LENGTH	POLE MOUNT ASSEMBLY EA	BRIDGE MOUNT ASSEMBLY EA	SIGN EXTRU SHEET SF
	LAKEWOOD										
	DETROIT ROAD										
10	23+63 ▲	R	N-1-40	5.6						1	
10	24+08 +	R	R-26A-30								7.5
			R-26A-30								7.5
			R-29A-30								7.5
10	25+14.25 *	L	M-1-24	4.0					1		
			M-21-20	2.1							
			M-17-24	2.0							
			M-2-24	4.0							
			M-14-24	2.0							
			M-2-24	4.0							
			M-21-20	2.1							
			M-9-24	2.0							
			M-1-24	4.0							
			M-19-20	2.1							
			M-17-24	2.0							
			M-2-24	4.0							
			M-26-20	2.1							
			M-24-20	2.1							
10	26+16 *	R	M-1-24	4.0					1		
			M-20-21	2.1							
			M-9-24	2.0							
			M-1-24	4.0							
			M-26-20	2.1							
			M-1-24	4.0							
			M-29-20	2.1							
10	27+25 *	L	M-1-24	4.0					1		
			M-26-20	2.1							
			M-1-24	4.0							
			M-29-20	2.1							
10	28+25 *	R	M-1-24	4.0					1		
			M-24-20	2.1							
			M-9-24	2.0							
			M-1-24	4.0							
			M-26-20	2.1							
10	28+55	L	R-2-36	3.9						1	14'-9"
10	28+75	R	R-55-12	1.5						1	16'-0"
			(24"x30")	(5.0)							
10	29+45	R	R-10-24	5.0						1	14'-6"
10	29+90	L	M-17-24	2.0						2	16'-6"
			M-1-24	4.0							
			M-29-20	2.1							
	PARK DRIVE										
10	9+40 *	L	M-9-24	2.0							1
			M-1-24	4.0							
			M-25-20	2.1							
			M-1-24	4.0							
			M-24-20	2.1							
	SLOANE AVENUE										
10	10+90 *	R	M-1-24	4.0							1
			M-29-20	2.1							
			M-9-24	2.0							
			M-1-24	4.0							
			M-25-20	2.1							
10	11+50	L	R-55-12	1.5	1	13'-6"					
10	11+50	R	R-55-12	1.5	1	13'-6"					
	TOTAL - LAKEWOOD			126.80		27'-0"		78.25		1	22.5

ADACHE ASSOCIATES, INC.
CALC. BY: R.W.H. DATE:5-27-77
CHKD. BY: T.M.J. DATE: 6-1-77

TRAFFIC CONTROL
SUMMARY OF QUANTITIES

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

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

SHEET NUMBER	ITEM	605	625							842																			843			SHEET NUMBER
							CONDUIT			VEHICLE SIGNAL HEAD (12" LENS)								SIGNAL CABLE NO. 14 AWG.					COMBINATION SIGNAL & LIGHT SUPPORT									
	DESCRIPTION / LOCATION	6" PIPE UNDERDRAIN (SHALLOW) LIN.FT.	PULL BOX 18" EACH	PULL BOX 24" EACH	TRENCH 24" LIN.FT.	COMMON TRENCH 24" WITH LIGHTING CONDUIT LIN. FT.	1"φ LIN.FT.	3"φ LIN.FT.	4"φ LIN.FT.	3 SECTION EACH	5 SECTION EACH	PEDESTRIAN SIGNAL 12" TYPE 2A EACH	PEDESTRIAN PUSH-BUTTON WITH SIGN EACH	LOOP DETECTOR AMPLIFIER EACH	LOOP DETECTOR PAVEMENT CUTTING LIN. FT.	LOOP DETECTOR WIRE LIN.FT.	LOOP DETECTOR LEAD-IN CABLE LIN.FT.	2 CONDUCTOR LIN.FT.	4 CONDUCTOR LIN.FT.	6 CONDUCTOR LIN.FT.	INTER-CONNECT CABLE 12 CONDUCTOR, NO.12 AWG. LIN.FT.	POWER CABLE 2 CONDUCTOR NO. 4 AWG. LIN.FT.	POLE: 0.188"×14"×35' MAST ARM: 0.188"×11"×36' EACH	POLE: 0.188"×13"×35' MAST ARM: 0.188"×10"×34' EACH	POLE: 0.188"×11"×35' MAST ARM: 0.188"×8"×26' EACH	POLE: 0.249"×13"×35' M.A.:0.249"×10"×15'3" & 0.188"×8.40"×30' EACH	POLE: 0.249"×12"×35' M.A.:0.249"×9"×15' & 0.188"×7.40"×26' EACH	POLE: 0.188"×10"×35' MAST ARM: 0.188"×7"×24' EACH	CONTROLLER, PRETIMED WITH CABINET EACH	CONTROLLER WITH CABINET EACH	CONTROLLER FOUNDATION, AS PER PLAN EACH	
	ROCKY RIVER																															
11	POLE "A"	10	2		20	170		120	85		2	2	2					466		548			1									11
11	POLE "B"	5		1	15	105		35	93		2	1	1					151		372				1								11
11	POLE "C"				5			10		1	1	2	2					236	141	151					1							11
11	POLE "D"				8			18		1	1	1	1					36	68	82				1								11
11	LOOP Ø C, STA.18+60-19+24				25		25							1	124	238	90															11
11	Ø C, STA.19+65 - 19+85	5	1		10		15								95	160	15															11
11	Ø C, STA.20+09-20+34				25		25								100	170	15															11
11	Ø D, STA.9+02*-9+32*				35		35							1	55	140	15															11
11	Ø D, STA.10+63≠-11+00≠				25		25								96	211	215															11
11	Ø E, STA 9+02*-9+67*				5		5							1	181	332	15															11
11	Ø E, STA.10+34≠-11+00≠				5		5								173	324	215															11
11	CONTROL CENTER					30			30												468	90								1	1	11
	TOTAL-ROCKY RIVER	20	3	1	188	305	135	183	208	2	6	6	6	3	824	1,575	580	889	209	1,153	468	90	1	2	1					1	1	
	LAKEWOOD																															
12	POLE "E"	10	1	1	10	115		15	118	1	1	1	1					166	203	222						1						12
12	POLE "F"									1	1	2	2					30	70	58							1					12
12	POLE "G"	10	2		25	190		100	130	1	1	1	1					252	294	282								1	1			12
12	POLE "H"				5			10		1	1	2	2					326	199	216							1					12
12	LOOP Ø B, STA.26+77-27+02	5	1		5		5							1	100	171	145															12
12	LOOP Ø B, STA.27+06-27+22				3		3								82	33	145															12
12	LOOP Ø B, STA.28+00-28+50				8		8								158	274	150															12
12	CONTROL CENTER				60				60												507	180										12
	TOTAL - LAKEWOOD	25	4	1	116	305	16	125	308	4	4	6	6	1	340	478	440	774	766	778	507	180				1	2	1	1			

* DENOTES WOOSTER ROAD STATION
≠ DENOTES LAKE ROAD STATION

F.H.W.A. REGION	STATE	PROJECT		76/91
5	OHIO			

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

(A) 6" BROKEN WHITE LANE LINE, 15' LINE WITH 25' SPACE
(B) 8" SOLID WHITE CHANNELIZING LINE
(C) 6" SOLID WHITE CROSSWALK LINE
(D) 6" DOUBLE SOLID YELLOW CENTERLINE, 6" APART
(E) LANE WORD
(F) 18" SOLID WHITE STOP BAR
(G) LANE ARROW
(H) 18" SOLID YELLOW TRANSVERSE STRIPE LINE, 45° AND 12' CENTER TO CENTER
(I) 18" SOLID WHITE TRANSVERSE STRIPE LINE 45° AND 12' CENTER TO CENTER

EXISTING UTILITY POLE
EXISTING SIGN; TO BE REMOVED UNLESS NOTED (TO REMAIN).
EXISTING SIGNAL HEAD; TO BE REMOVED UNLESS NOTED (TO REMAIN).
SIGNAL POLE WITH ARM AND SIGNAL HEAD
LIGHT POLE
LIGHT POLE, BY OTHERS
DETECTOR CABLE
SIGNAL CONTROLLER
SIGNAL HEAD IN ELEVATION VIEW
PULLBOX, WITH DUCT

0 10 20 30 40 50 100
SCALE IN FEET
N
ALT 6
(RELOCATED) DETROIT
DEPOT (RELOCATED) BY CITY OF ROCKY RIVER
NO PARKING
(TO REMAIN) BUS STOP
(TO REMAIN) WALK DON'T WALK
NO PARKING ANY TIME
R-55-12
STOP
R-1-30
DEPOT STREET
STA. 11+03 END ALL PAVEMENT MARKINGS
STA. 10+60 BEGIN DOUBLE SOLID YELLOW CENTERLINE
EXISTING DETROIT ROAD
(REMOVED BY OTHERS)
STA. 10+70
STA. 10+40
STA. 12+25
STA. 13+60
EXISTING SPAN WIRE AND SIGNAL HEADS (TO REMAIN)
WRIGHT AVENUE
RELOCATED
DETROIT ROAD
STA. 14+81
STA. 15+25
EXISTING SIGNAL CONTROLLER CROUSE-HINDS FIXED TIME
END SHEET STA. 15+50
SPEED LIMIT 25
R-10-24
STA. 10+50
STA. 11+50
1-HR PARKING 8AM. 6PM.
EXISTING SIGNAL CONTROLER (TO REMAIN) CROUSE-HINDS FIXED TIME
STA. 10+18 BEGIN DOUBLE SOLID YELLOW CENTERLINE BEGIN WHITE LANE LINE (LEFT & RIGHT)
STA. 11+40 BEGIN DOUBLE SOLID YELLOW CENTERLINE (RIGHT)
STA. 12+75 END DOUBLE SOLID YELLOW CENTERLINE (LEFT)
STA. 13+13 BEGIN WHITE CHANNELIZING LINE (RIGHT)
STA. 13+93 END DOUBLE SOLID YELLOW CENTERLINE END WHITE CHANNELIZING LINE (RIGHT) END WHITE LANE LINE (LEFT & RIGHT)
℄ RELOC. DETROIT RD. STA. 14+49.05 = ℄ DEPOT ST. STA. 10+00.00
TOW AWAY ZONE
STA. 14+79 BEGIN DOUBLE SOLID YELLOW CENTERLINE (LEFT) BEGIN WHITE CHANNELIZING LINE (RIGHT) BEGIN WHITE LANE LINE (LEFT & RIGHT)
STA. 15+00
X-4-18
STA. 13+00

NOTE

FOR TRAFFIC CONTROL NOTES, SEE SHEETS 2/14 AND 3/14.

TRAFFIC CONTROL PLAN STA.10+00 TO STA.15+50

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

77 / 91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

SCALE IN FEET
MATCH LINE STA.11+00
SEE SHEET 9/14
MATCH LINE STA.9+00
SEE SHEET 9/14
BEGIN SHEET STA.15+50
MATCH LINE STA.22+00
END SHEET STA.23+62.59
RELOCATED DETROIT ROAD
LAKE ROAD
WOOSTER ROAD
STA.10+55
BEGIN DOUBLE SOLID YELLOW CENTERLINE (RIGHT)
BEGIN WHITE CHANNELIZING LINE (LEFT)
BEGIN WHITE LANE LINE (RIGHT)
STA.18+98
END DOUBLE SOLID YELLOW CENTERLINE (LEFT)
END WHITE CHANNELIZING LINE (RIGHT)
END WHITE LANE LINE (LEFT & RIGHT)
STA.9+45
END DOUBLE SOLID YELLOW CENTERLINE (LEFT)
END WHITE CHANNELIZING LINE (RIGHT)
BEGIN 6" WHITE DOTTED LINE, 4' LINE 6' SPACE, 50' R.
STA.19+86
BEGIN DOUBLE SOLID YELLOW CENTERLINE (RIGHT)
BEGIN WHITE CHANNELIZING LINE (LEFT)
BEGIN WHITE LANE LINE (LEFT & RIGHT)
END 6" WHITE DOTTED LINE, 4' LINE 6' SPACE, 50' R.
STA.22+90
END WHITE CHANNELIZING LINE (LEFT)
3" ⌀ DUCTS
4" ⌀ DUCTS
VEHICLE DETECTOR, TYPICAL AS SHOWN
PULLBOX
SIGNAL INTER-CONNECTION 4" ⌀ DUCT
NO PARKING ANY TIME
R-55-12
ROCKY RIVER CORPORATION LIMIT
CITY OF ROCKY RIVER
CITY OF LAKEWOOD
DETROIT RD. (BY CITY OF ROCKY RIVER) D-14-3
STOP FOR SCHOOL BUS LOADING OR UNLOADING
RIGHT LANE CLOSED AT BRIDGE
RELOCATE
NO PARKING
R-29A-30
R-30A-30
R-26A-30
ONLY

NOTES

FOR LEGEND, SEE SHEET 7/14.

FOR INTERSECTION TRAFFIC CONTROL SIGNALS, SEE SHEET 11/14.

FOR TRAFFIC CONTROL NOTES, SEE SHEETS 2/14 AND 3/14.

* INDICATES POLE MOUNTING, AS PER PLAN

⌖ INDICATES SIGNAL CONTROL CENTER.

** INDICATES OVERHEAD CANTILEVERED ARM SUPPORT.

FOR OVERHEAD CANTILEVERED ARM SUPPORT AND SIGN MOUNTING BRACKET DETAILS, SEE SHEET 13/14 & 14/14.

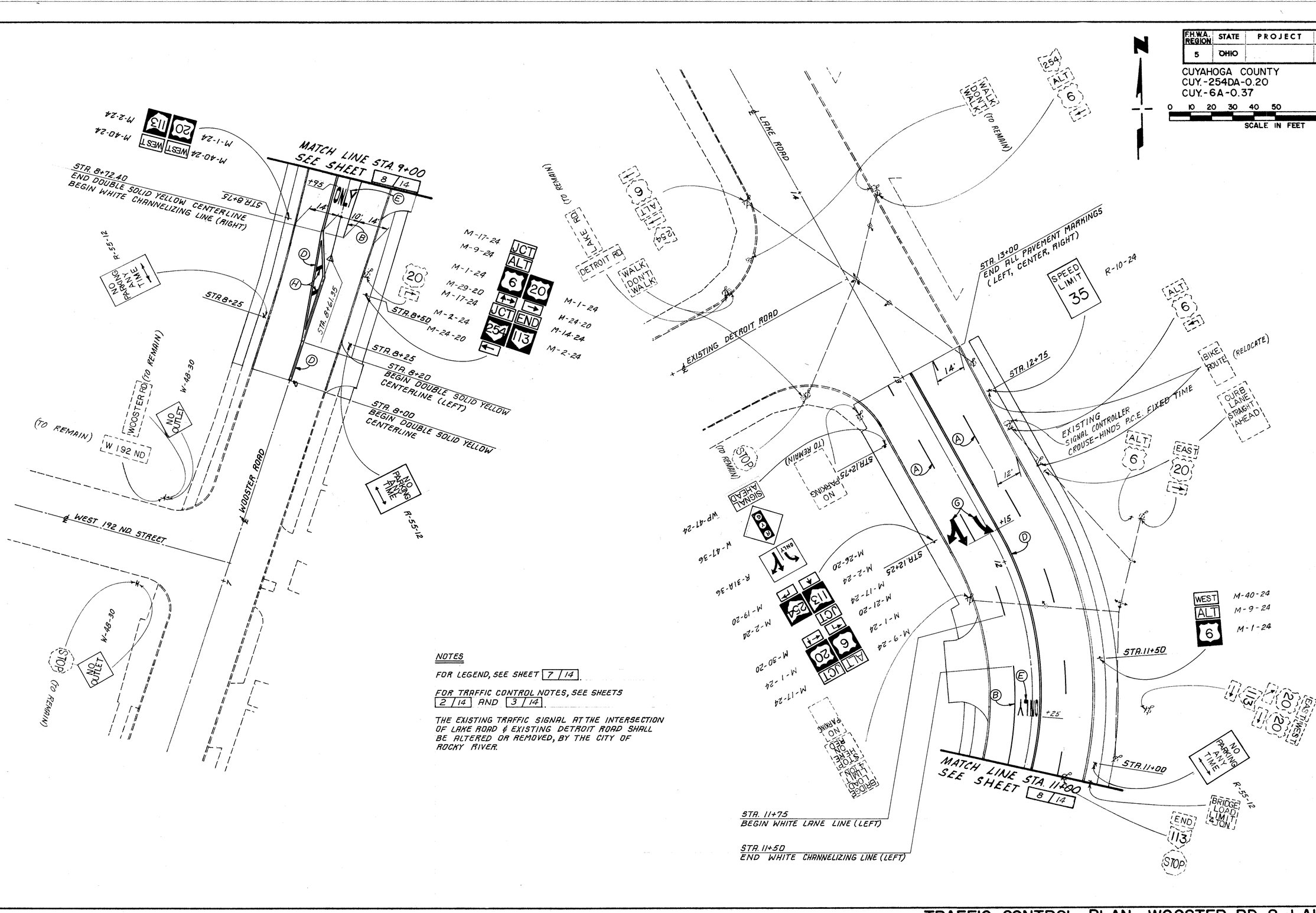
TRAFFIC CONTROL PLAN STA.15+50 TO STA.23+62.59

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

78
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

0 10 20 30 40 50 100
SCALE IN FEET



NOTES

FOR LEGEND, SEE SHEET 7 14.

FOR TRAFFIC CONTROL NOTES, SEE SHEETS 2 14 AND 3 14.

THE EXISTING TRAFFIC SIGNAL AT THE INTERSECTION OF LAKE ROAD & EXISTING DETROIT ROAD SHALL BE ALTERED OR REMOVED, BY THE CITY OF ROCKY RIVER.

9 14

TRAFFIC CONTROL PLAN - WOOSTER RD. & LAKE RD.

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

79
91

CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37

0 10 20 30 40 50 100
RELOCATED DETROIT ROAD
RELOCATED SLOANE AVENUE
PARK DRIVE
MATHEWS AVENUE
MATCH LINE STA. 30+00
BEGIN SHEET STA. 23+62.59
CITY OF LAKEWOOD
CITY OF ROCKY RIVER
LAKEWOOD CORPORATION LIMIT
N-1-40
STA. 11+76 END ALL PAVEMENT MARKINGS (LEFT, CENTER, RIGHT)
STA. 11+50
STA. 10+74 BEGIN DOUBLE SOLID YELLOW CENTERLINE (CENTER) BEGIN WHITE CHANNELIZING LINE (LEFT) BEGIN WHITE LANE LINE (RIGHT)
SIGNAL CONTROL CENTER
STA. 10+90 *
STA. 10+78
EXISTING SIGNAL CONTROL CENTER CROUSE-HINDS FIXED TIME
4"ϕ DUCT
3"ϕ DUCT
℄ RELOC. DETROIT ROAD STA. 27+83.84= ℄ PARK DRIVE ℄ SLOANE AVENUE STA. 10+02.75
PRESSURE RELIEF JOINT
VEHICLE DETECTOR LOOP, TYPICAL AS SHOWN
SIGNAL INTER-CONNECTION 4"ϕ DUCT
STA. 30+33 END ALL PAVEMENT MARKINGS (LEFT, CENTER, RIGHT)
STA. 25+14.25 *
STA. 27+25 *
STA. 27+34 SOLID YELLOW CENTERLINE (LEFT) END DOUBLE CHANNELIZING LINE (LEFT & RIGHT) END WHITE LANE LINE (RIGHT)
STA. 27+30
STA. 26+16 *
STA. 9+49 END DOUBLE SOLID YELLOW CENTERLINE (CENTER) END WHITE LANE LINE (RIGHT)
STA. 9+40 *
STA. 28+25 *
STA. 28+42 BEGIN DOUBLE SOLID YELLOW CENTER LINE (RIGHT) BEGIN WHITE LANE LINES (LEFT & RIGHT) BEGIN WHITE CHANNELIZING LINE (LEFT)
STA. 28+75
STA. 28+85 END WHITE CHANNELIZING LINE (LEFT)
STA. 29+00 BEGIN DOUBLE SOLID YELLOW CENTERLINE (RIGHT)
STA. 29+45
STA. 29+90
STA. 24+08 **
STA. 23+63
STA. 24+30 BEGIN WHITE CHANNELIZING LINE (RIGHT)
STA. 7+86 BEGIN DOUBLE SOLID YELLOW CENTERLINE (CENTER) BEGIN WHITE LANE LINE (RIGHT)
NO PARKING ANY TIME R-55-12
NO PARKING
BUS STOP (TO REMAIN)
BUS STOP NO PARKING (TO REMAIN)
BRIDGE LOAD LIMIT 4 TONS
NO HITCH HIKING (RELOCATE)
BIKES MUST TRAVEL SINGLE FILE
SPEED LIMIT 25 R-10-24
YIELD R-2-36
STOP (TO REMAIN)
DETROIT (TO REMAIN)
MATHEWS (TO REMAIN)
DETROIT RD D-14-3
SLOANE AVE D-14-3 (BY CITY OF LAKEWOOD)
PARK DRIVE D-14-3
DETROIT RD. D-14-3 (BY CITY OF LAKEWOOD)
ALT 20 6 JCT 254 113
M-9-24 M-1-24 M-29-20 M-25-20 M-26-20 M-21-20 M-17-24 M-2-24 M-24-20
R-26A-30 R-30A-30 R-29A-30
ONLY

NOTES

FOR LEGEND, SEE SHEET 7/14.

FOR INTERSECTION TRAFFIC CONTROL SIGNALS, SEE SHEET 12/14.

FOR TRAFFIC CONTROL NOTES, SEE SHEETS 2/14 AND 3/14.

* INDICATES POLE MOUNTING, AS PER PLAN

** INDICATES OVERHEAD CANTILEVERED ARM SUPPORT

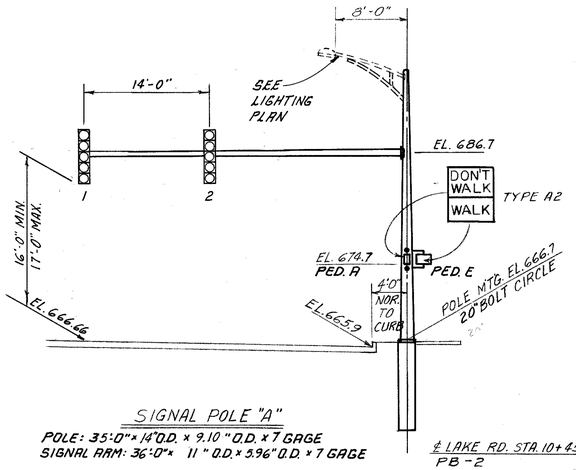
FOR OVERHEAD CANTILEVERED ARM SUPPORT AND SIGN MOUNTING BRACKET DETAILS, SEE SHEET 13/14 & 14/14.

TRAFFIC CONTROL PLAN STA. 23+62.59 TO STA. 31+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

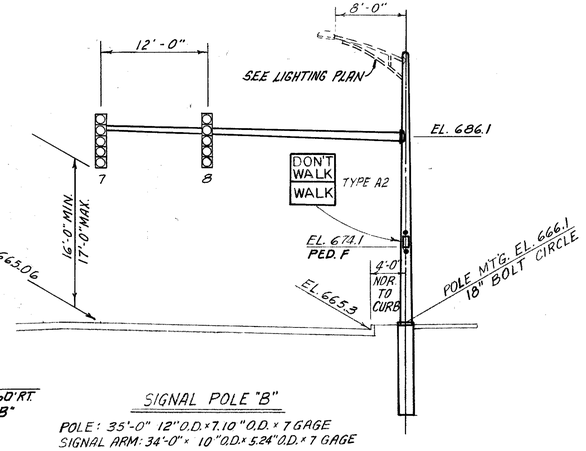
80
91

CUYAHOGA COUNTY
CUY.-254 DA-0.20
CUY.-6A-0.37



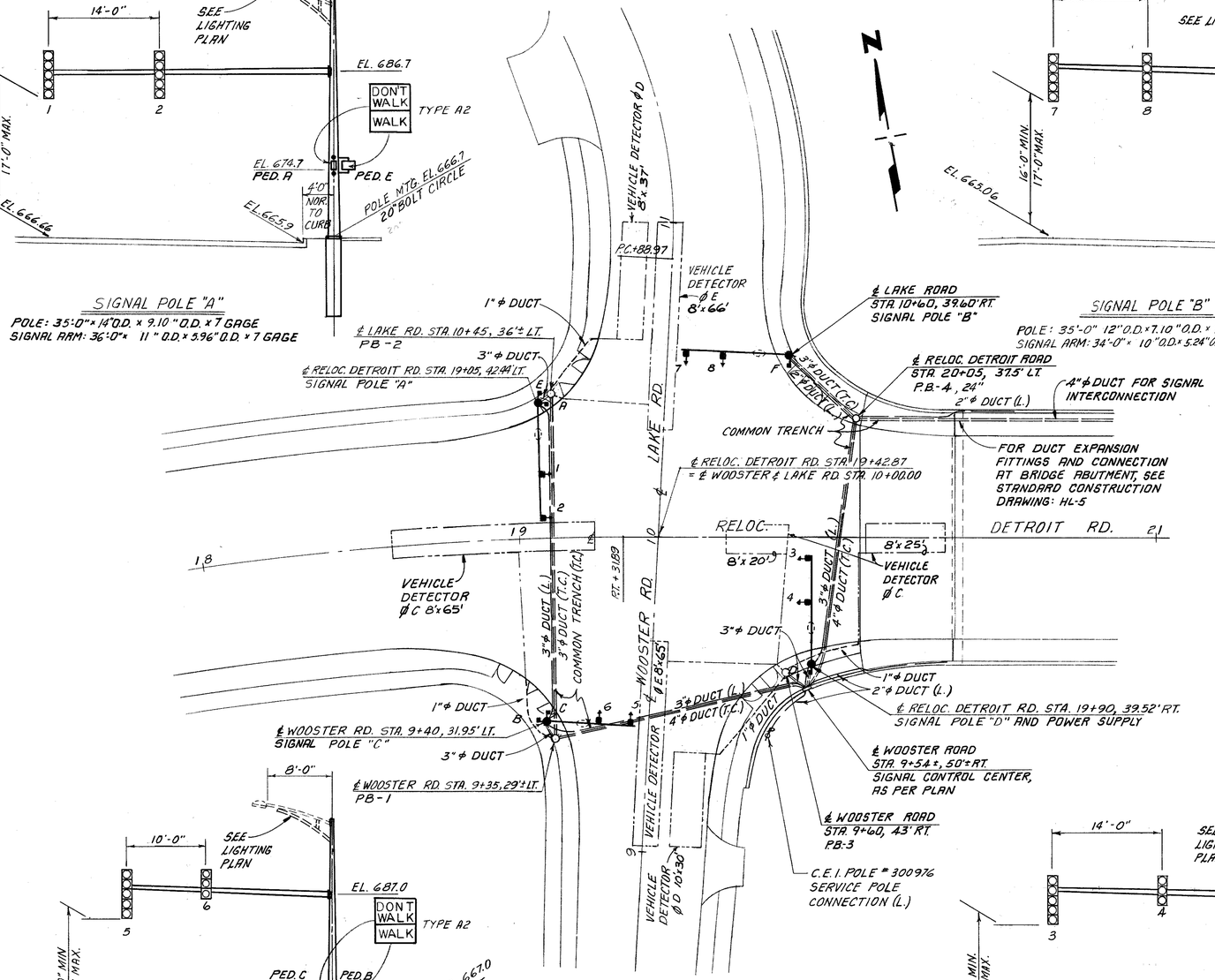
SIGNAL POLE "A"

POLE: 35'-0" x 14" O.D. x 9.10" O.D. x 7 GAGE
SIGNAL ARM: 36'-0" x 11" O.D. x 5.96" O.D. x 7 GAGE



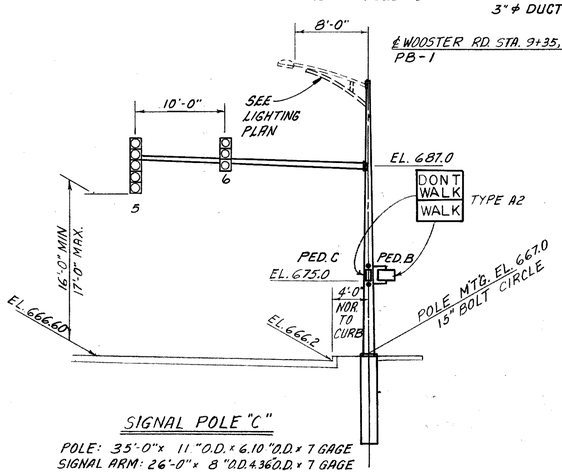
SIGNAL POLE "B"

POLE: 35'-0" 12" O.D. x 7.10" O.D. x 7 GAGE
SIGNAL ARM: 34'-0" x 10" O.D. x 5.24" O.D. x 7 GAGE



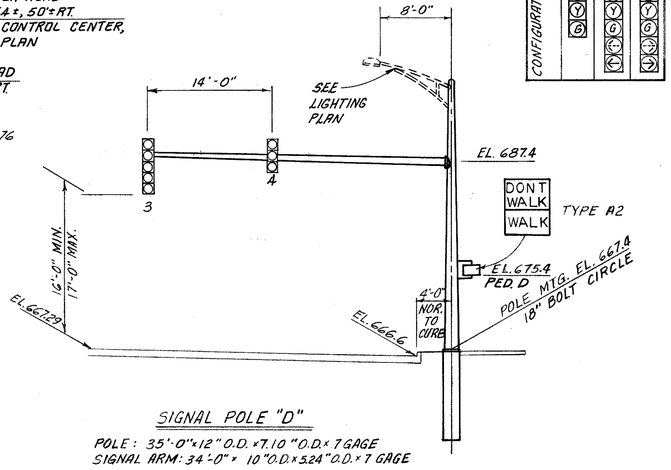
PLAN

0 10 20 30 40 50 100
SCALE IN FEET



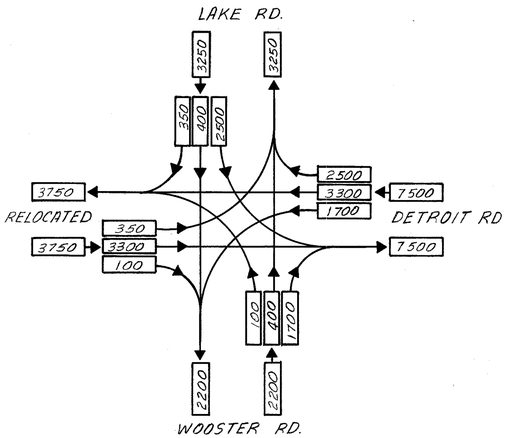
SIGNAL POLE "C"

POLE: 35'-0" x 11" O.D. x 6.10" O.D. x 7 GAGE
SIGNAL ARM: 26'-0" x 8" O.D. 4.360 O.D. x 7 GAGE

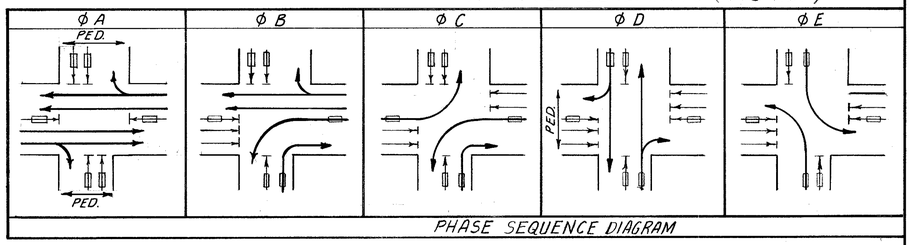


SIGNAL POLE "D"

POLE: 35'-0" x 12" O.D. x 7.10" O.D. x 7 GAGE
SIGNAL ARM: 34'-0" x 10" O.D. x 5.24" O.D. x 7 GAGE



TRAFFIC SCHEMATIC (1978 ADT)



PHASE SEQUENCE DIAGRAM

CONFIGURATION SIGNAL NO.	4,6	2,3,5,7	1,8
	(R) (Y) (G)	(R) (Y) (G)	(R) (Y) (G)

PHASE / SIG. INT.	ØA 1	2	3	ØB 4	5	ØC 6	7	ØD 8	9	10	ØE 11	12	FLASH
1	G	G	G ①	G	Y	R	R	R	R	R	R/G₄	R/Y₄	Y
2	G	G	G ②	G/G	Y/G ④	R/G	R/Y	R	R	R	R	R	Y
3	G	G	Y	R	R	R/G	R/Y	R	R	R	R	R	Y
4	G	G	Y	R	R	R	R	R	R	R	R	R	Y
5	R	R	R	R	R	R	R	G	G	Y	R/G	R/Y	R
6	R	R	R	R	R	R	R	G	G	Y	R	R	R
7	R	R	R	R	R	R	R	G	G	Y	R/G	R/Y	R
8	R	R	R	R/G	R/G ⑤	R/G	R/G ⑤	G/G	G/G	Y	R	R	R
A	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DARK
B	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DARK
C	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
D	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
E	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
F	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK

ALL ACTUATED PHASES TO BE SKIPPABLE.
ALL WAY RED CAPABILITY AT END OF EACH PHASE.
① BECOMES Y IF Ø B IS SKIPPED ④ BECOMES Y₄ IF Ø C IS SKIPPED & Ø D IS SKIPPED
② BECOMES Y IF Ø B IS SKIPPED ⑤ BECOMES Y₄ IF Ø D IS SKIPPED
③ BECOMES Y₄ IF Ø C IS SKIPPED

NOTES: THE TRAFFIC CONTROLLER SHALL BE A SOLID STATE DIGITAL TYPE WITH DIGITAL TIMING AND CIRUITRY REQUIRING NO MOVING PARTS AND UTILIZING SEPARATE SOLID STATE LOAD SWITCHES TO PERFORM SIGNAL SWITCHING.

INTERVAL TIMING, DETECTOR PHASE CONTROL AND INTERCONNECT SEQUENCE CONTROL SHALL BE APPROVED BY THE TRAFFIC ENGINEER OF ROCKY RIVER.

EACH SIGNAL FACE SHALL HAVE A RED (R), YELLOW (Y), GREEN (G) AND YELLOW ↷ OR ↶ & GREEN ↶ OR ↷, AS PER PLAN, TOP TO BOTTOM ORIENTATION, WITH 12" SIGNAL SECTIONS AND DISCONNECT HANGERS.

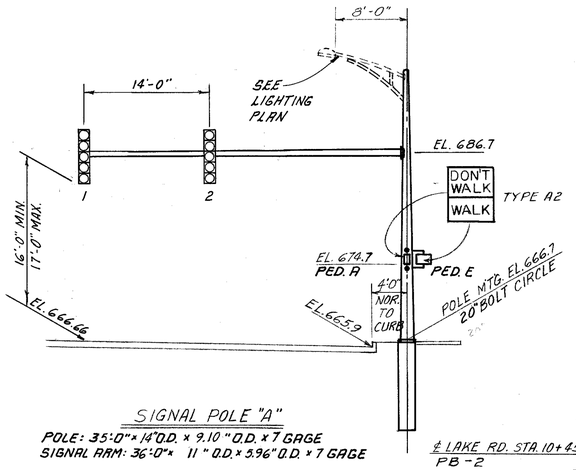
11/14

TRAFFIC CONTROL AT INTERSECTION DETAILS

FHWA REGION	STATE	PROJECT	
5	OHIO		

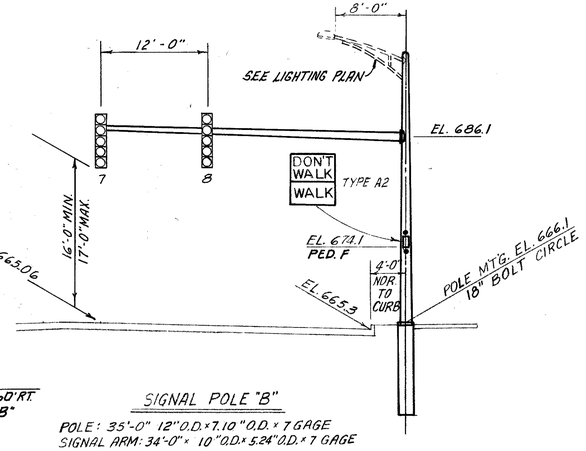
80
91

CUYAHOGA COUNTY
CUY.-254 DA-0.20
CUY.-6A-0.37



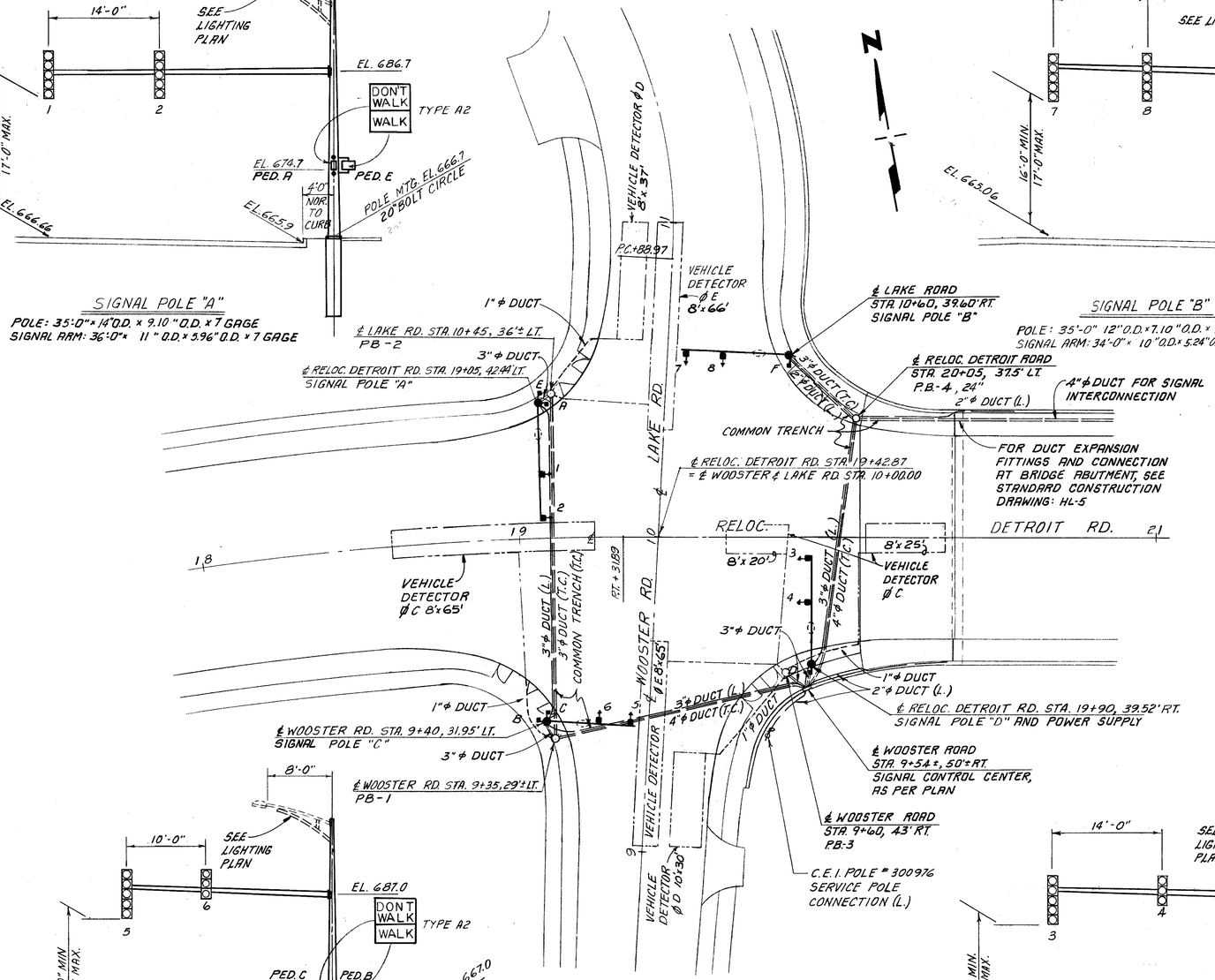
SIGNAL POLE "A"

POLE: 35'-0" x 14" O.D. x 9.10" O.D. x 7 GAGE
SIGNAL ARM: 36'-0" x 11" O.D. x 5.96" O.D. x 7 GAGE



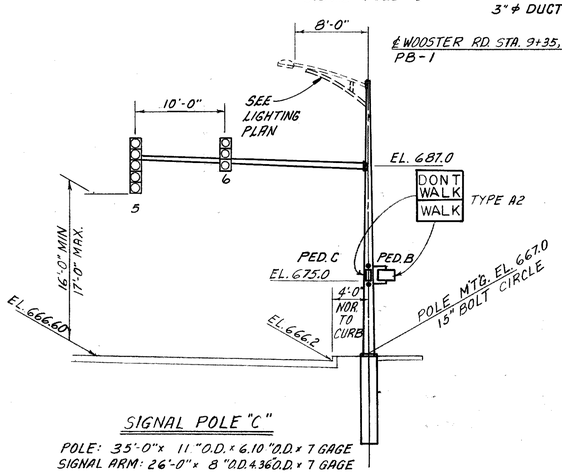
SIGNAL POLE "B"

POLE: 35'-0" 12" O.D. x 7.10" O.D. x 7 GAGE
SIGNAL ARM: 34'-0" x 10" O.D. x 5.24" O.D. x 7 GAGE



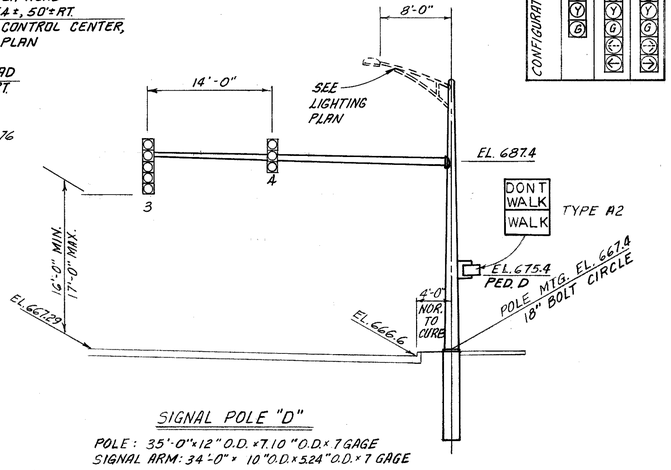
PLAN

0 10 20 30 40 50 100
SCALE IN FEET



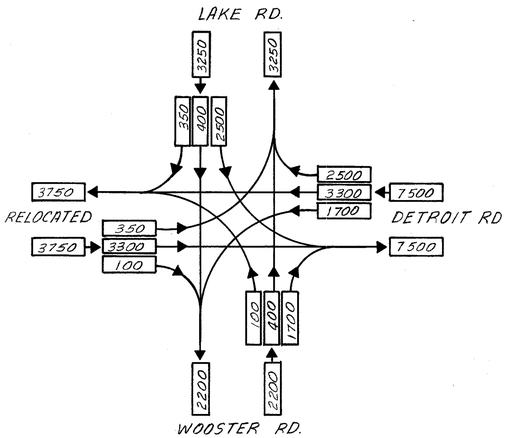
SIGNAL POLE "C"

POLE: 35'-0" x 11" O.D. x 6.10" O.D. x 7 GAGE
SIGNAL ARM: 26'-0" x 8" O.D. 4.360 O.D. x 7 GAGE

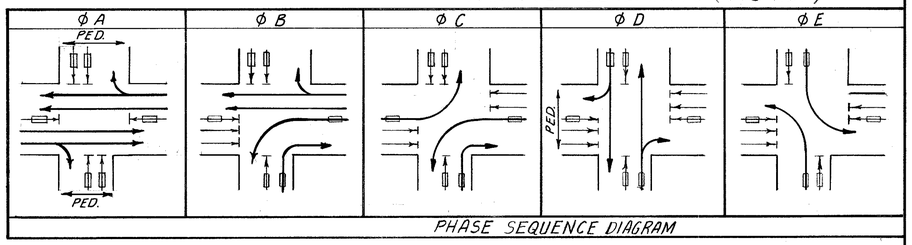


SIGNAL POLE "D"

POLE: 35'-0" x 12" O.D. x 7.10" O.D. x 7 GAGE
SIGNAL ARM: 34'-0" x 10" O.D. x 5.24" O.D. x 7 GAGE



TRAFFIC SCHEMATIC (1978 ADT)



PHASE SEQUENCE DIAGRAM

CONFIGURATION SIGNAL NO.	4,6	2,3,5,7	1,8
	(R) (Y) (G)	(R) (Y) (G)	(R) (Y) (G)

PHASE / SIG. INT.	ØA 1	2	3	ØB 4	5	ØC 6	7	ØD 8	9	10	ØE 11	12	FLASH
1	G	G	G ①	G	Y	R	R	R	R	R	R/G₄	R/Y₄	Y
2	G	G	G ②	G/G	Y/G ④	R/G	R/Y	R	R	R	R	R	Y
3	G	G	Y	R	R	R/G	R/Y	R	R	R	R	R	Y
4	G	G	Y	R	R	R	R	R	R	R	R	R	Y
5	R	R	R	R	R	R	R	G	G	Y	R/G	R/Y	R
6	R	R	R	R	R	R	R	G	G	Y	R	R	R
7	R	R	R	R	R	R	R	G	G	Y	R/G	R/Y	R
8	R	R	R	R/G	R/G ⑤	R/G	R/G ⑤	G/G	G/G	Y	R	R	R
A	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DARK
B	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DARK
C	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
D	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
E	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
F	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK

ALL ACTUATED PHASES TO BE SKIPPABLE.
ALL WAY RED CAPABILITY AT END OF EACH PHASE.
① BECOMES Y IF Ø B IS SKIPPED ④ BECOMES Y₄ IF Ø C IS SKIPPED & Ø D IS SKIPPED
② BECOMES Y IF Ø B IS SKIPPED ⑤ BECOMES Y₄ IF Ø D IS SKIPPED
③ BECOMES Y₄ IF Ø C IS SKIPPED

NOTES: THE TRAFFIC CONTROLLER SHALL BE A SOLID STATE DIGITAL TYPE WITH DIGITAL TIMING AND CIRUITRY REQUIRING NO MOVING PARTS AND UTILIZING SEPARATE SOLID STATE LOAD SWITCHES TO PERFORM SIGNAL SWITCHING.

INTERVAL TIMING, DETECTOR PHASE CONTROL AND INTERCONNECT SEQUENCE CONTROL SHALL BE APPROVED BY THE TRAFFIC ENGINEER OF ROCKY RIVER.

EACH SIGNAL FACE SHALL HAVE A RED (R), YELLOW (Y), GREEN (G) AND YELLOW ↷ OR ↶ & GREEN ↶ OR ↷, AS PER PLAN, TOP TO BOTTOM ORIENTATION, WITH 12" SIGNAL SECTIONS AND DISCONNECT HANGERS.

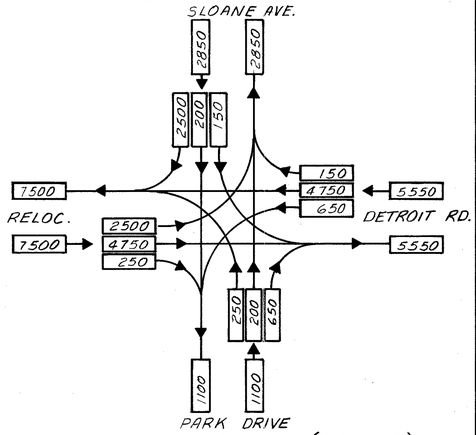
11/14

TRAFFIC CONTROL AT INTERSECTION DETAILS

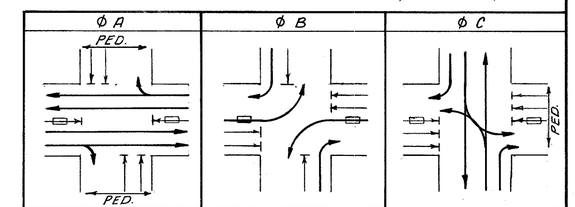
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

81/91

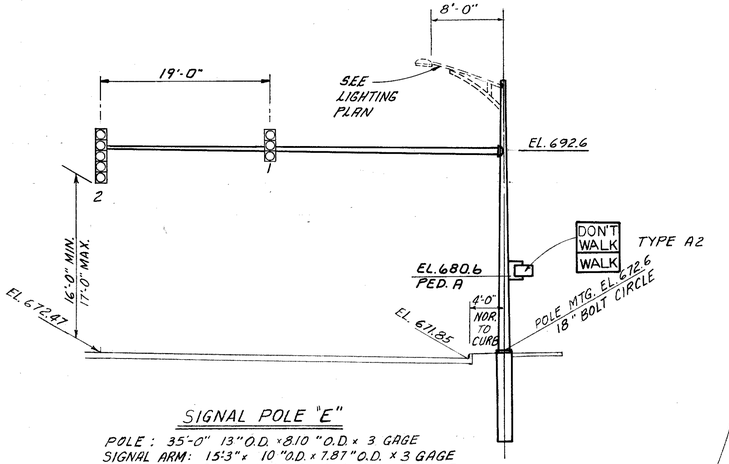
CUYAHOGA COUNTY
CUY.-254 DA-0.20
CUY.-6A-0.37



TRAFFIC SCHEMATIC (1978 ADT)

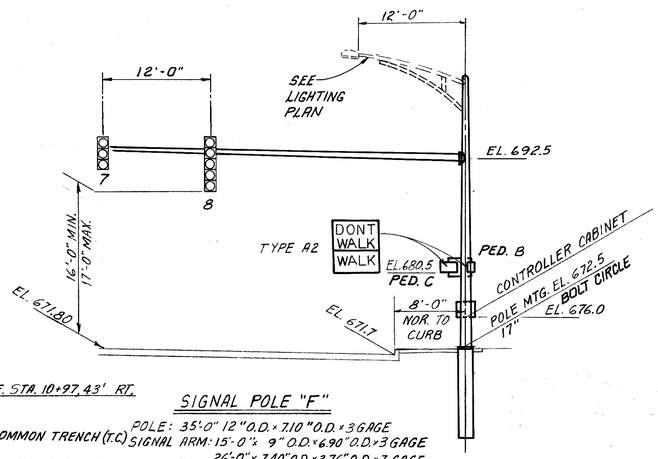


PHASE SEQUENCE DIAGRAM



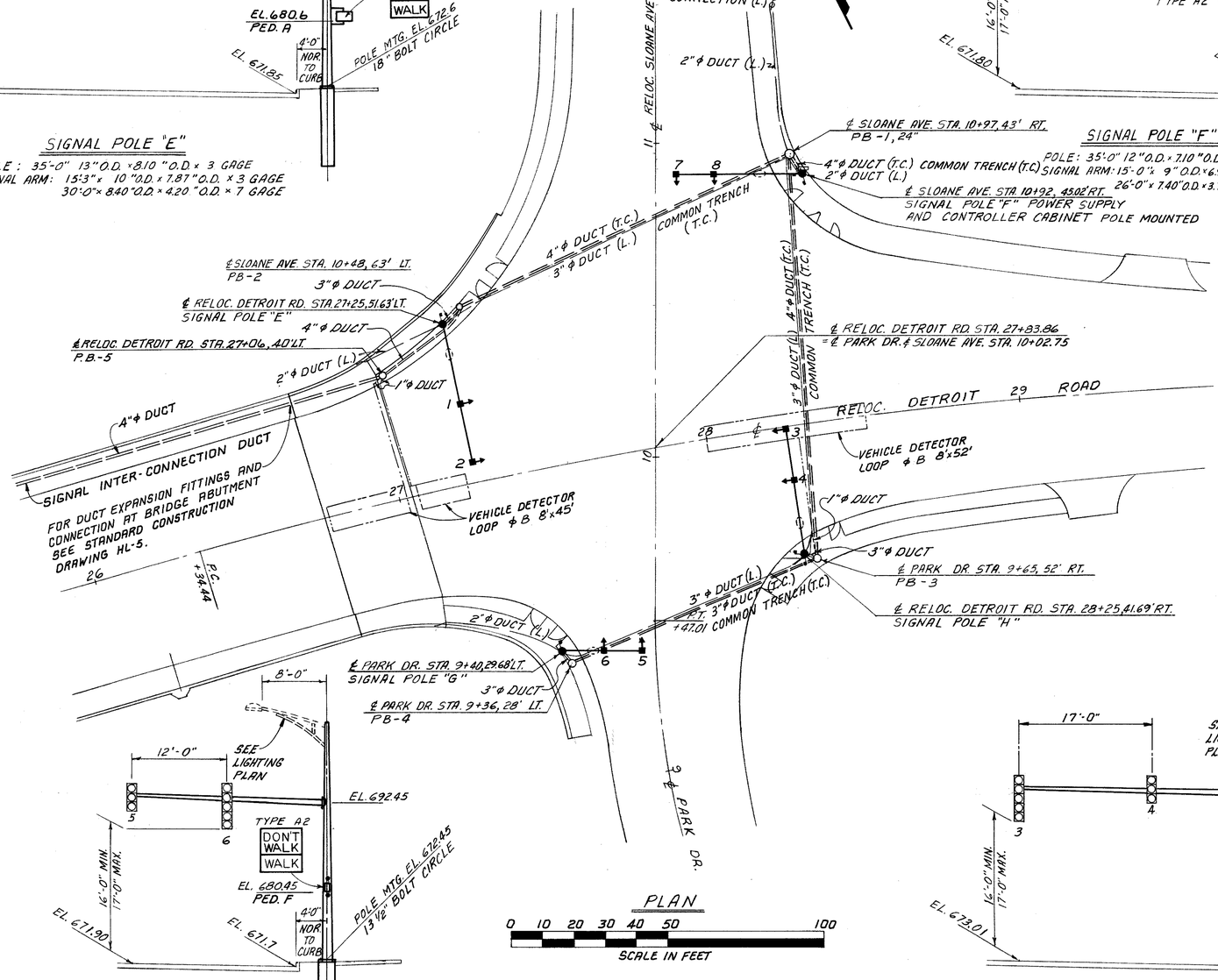
SIGNAL POLE "E"

POLE: 35'-0" 13" O.D. × 8.10 " O.D. × 3 GAGE
SIGNAL ARM: 15'3" × 10 "O.D. × 7.87 "O.D. × 3 GAGE
30'-0" × 8.40 "O.D. × 4.20 "O.D. × 7 GAGE



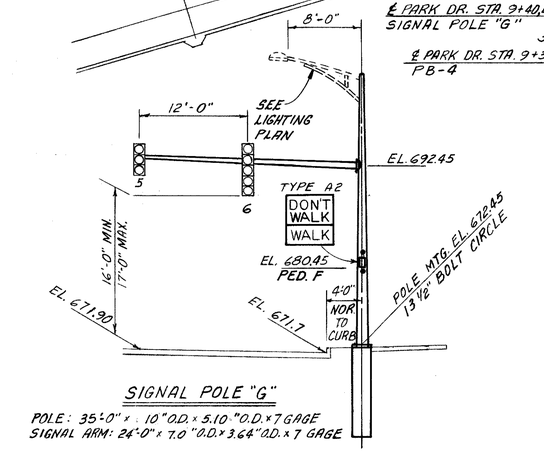
SIGNAL POLE "F"

POLE: 35'-0" 12" O.D. × 7.10 "O.D. × 3 GAGE
SIGNAL ARM: 15'-0" × 9 "O.D. × 6.90 "O.D. × 3 GAGE
26'-0" × 7.40 "O.D. × 3.76 "O.D. × 7 GAGE



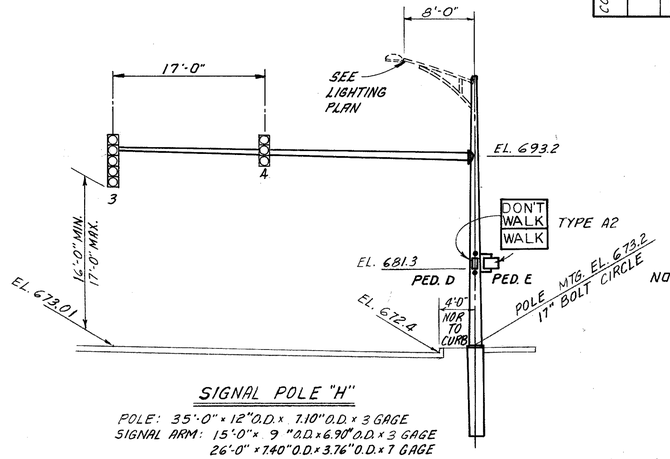
PLAN

0 10 20 30 40 50 100
SCALE IN FEET



SIGNAL POLE "G"

POLE: 35'-0" × 10" O.D. × 5.10 "O.D. × 7 GAGE
SIGNAL ARM: 24'-0" × 7.0 "O.D. × 3.64 "O.D. × 7 GAGE



SIGNAL POLE "H"

POLE: 35'-0" × 12" O.D. × 7.10" O.D. × 3 GAGE
SIGNAL ARM: 15'-0" × 9 "O.D. × 6.90" O.D. × 3 GAGE
26'-0" × 7.40" O.D. × 3.76" O.D. × 7 GAGE

CONFIGURATION SIGNAL NO.	1,4,5,7	2,3	6,8

PHASE / HEAD / INT	ϕ A 1	2	3	ϕ B 4	5	ϕ C 6	7	8	FLASH
1	G	G	Y	R	R	R	R	R	Y
2	G	G	Y	←G	←Y	R	R	R	Y
3	G	G	Y	←G	←Y	R	R	R	Y
4	G	G	Y	R	R	R	R	R	Y
5	R	R	R	R	R	G	G	Y	R
6	R	R	R	G→	Y→	G	G	Y	R
7	R	R	R	R	R	G	G	Y	R
8	R	R	R	G→	Y→	G	G	Y	R
A	W	FDW	FDW	DW	DW	DW	DW	DW	DARK
B	W	FDW	FDW	DW	DW	DW	DW	DW	DARK
C	DW	DW	DW	DW	DW	W	FDW	FDW	DARK
D	DW	DW	DW	DW	DW	W	FDW	FDW	DARK
E	W	FDW	FDW	DW	DW	DW	DW	DW	DARK
F	W	FDW	FDW	DW	DW	DW	DW	DW	DARK

NOTES: EACH SIGNAL FACE SHALL HAVE A RED (R), YELLOW (Y), GREEN (G) AND YELLOW (←) OR (→) & GREEN (←) (→), AS PER PLAN, TOP TO BOTTOM ORIENTATION, WITH 12" SIGNAL SECTIONS, AND DISCONNECT HANGERS FOR ALL SIGNAL ARM MOUNTINGS.

THE TRAFFIC CONTROLLER SHALL BE AN ELECTROMECHANICAL TYPE USING SYNCHRONOUS MOTOR DRIVEN TIMER DIALS, ELECTRICALLY INTERLOCKED TO A CAMSHAFT TO PERFORM SIGNAL SWITCHING.

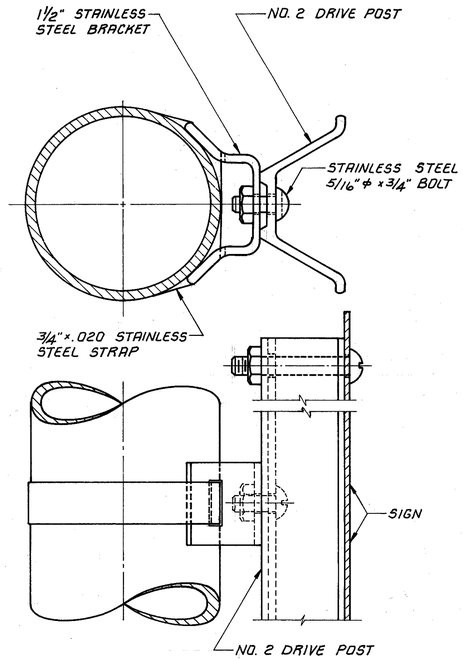
12/14

TRAFFIC CONTROL AT INTERSECTION DETAILS

FHWA REGION	STATE	PROJECT	
5	OHIO		

82/91

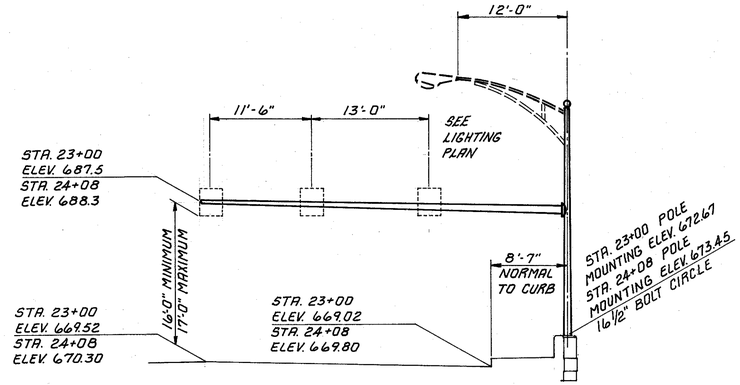
CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37



SIGN MOUNTING BRACKET FOR POLE MOUNTED SIGNS

USE THIS DETAIL FOR POLE MOUNTED SIGNS

USE A MINIMUM OF TWO (2) BRACKETS (LOCATED 6" FROM THE TOP AND BOTTOM OF THE SIGN) WITH A MAXIMUM SPACING OF 3'-0". FOR ADDITIONAL DETAILS PER INSTALLATION, SEE SHEET 82A 13A/14

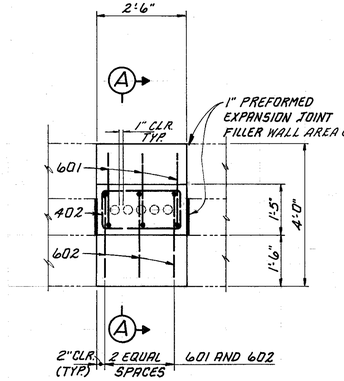


LIGHT POLE WITH OVERHEAD CANTILEVERED SUPPORT ARM FOR SIGNS

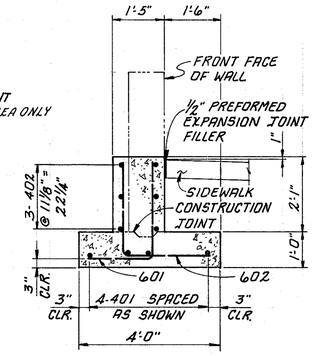
FOR LIGHT POLE PILASTER DETAILS, SEE BRIDGE PLANS.

FOR LIGHTING DETAILS, SEE LIGHTING PLANS.

COMBINATION SIGN AND LIGHT SUPPORT (STRUCTURE MOUNTED)
POLE: 0.249"x13"x35'0"
MAST ARM: 0.249"x13"x15'3" & 0.188"x8.40"x30'0"

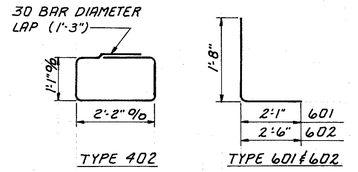


PLAN



SECTION A-A

SIGNAL CONTROLLER CABINET FOUNDATION (ROCKY RIVER)

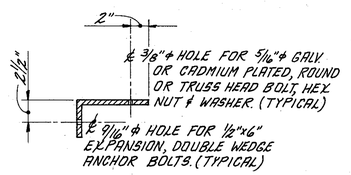


SIGNAL CONTROLLER CABINET FOUNDATION REINFORCING SCHEDULE				
MARK	NO.	LENGTH	WEIGHT	SHAPE
601	3	3'-8"	17	BENT
602	3	4'-1"	18	BENT
401	4	2'-6"	7	STRAIGHT
402	3	7'-3"	15	BENT

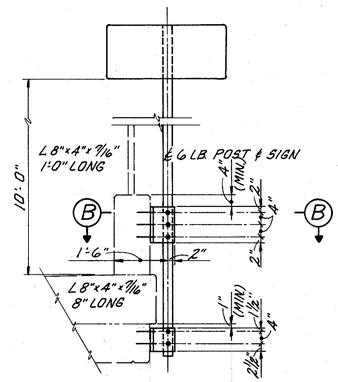
NOTES: PROVIDE FIVE (5) DUCTS THROUGH THE BASE CONCRETE, SPACED APPROXIMATELY AS SHOWN ON THE PLAN.

FOOTING TO BE POURED MONOLITHIC WITH THE WALL FOOTING.

1" PREFORMED EXPANSION JOINT FILLER (705.03) SHALL BE INCLUDED WITH ITEM 511 (CONCRETE, CLASS 'C') FOR PAYMENT.



SECTION B-B

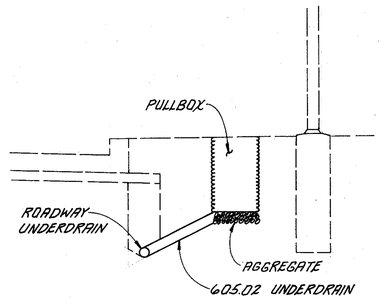


CORPORATION LIMIT SIGN SUPPORT

USE THIS DETAIL @ STA. 23+62 LEFT (BACK) AND STA. 23+63 RIGHT (AHEAD).

L 8"x4"x7/16" SHALL BE A-36 STEEL AND GALVANIZED AS PER ASTM A-123.

BRIDGE MOUNTED



PULL BOX DRAIN TO ROADWAY UNDERDRAIN DETAIL

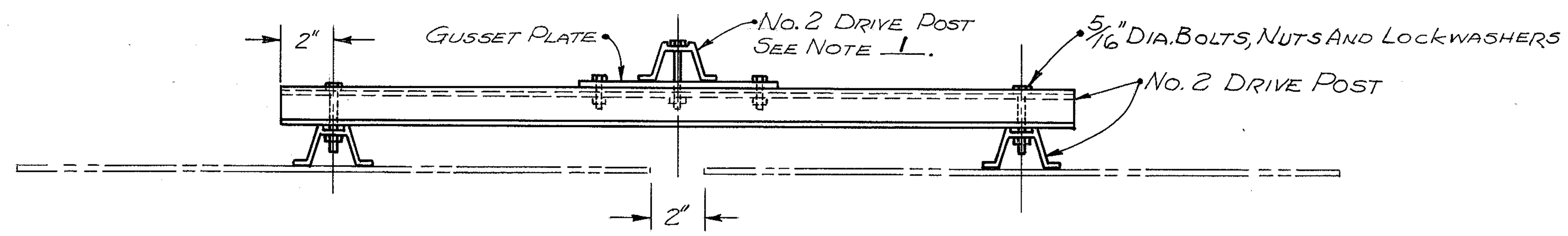
FOR PULL BOX LOCATIONS, SEE SHEETS 11/14 & 12/14.
FOR ROADWAY UNDERDRAIN LOCATIONS, SEE ROADWAY PLANS.

13/14

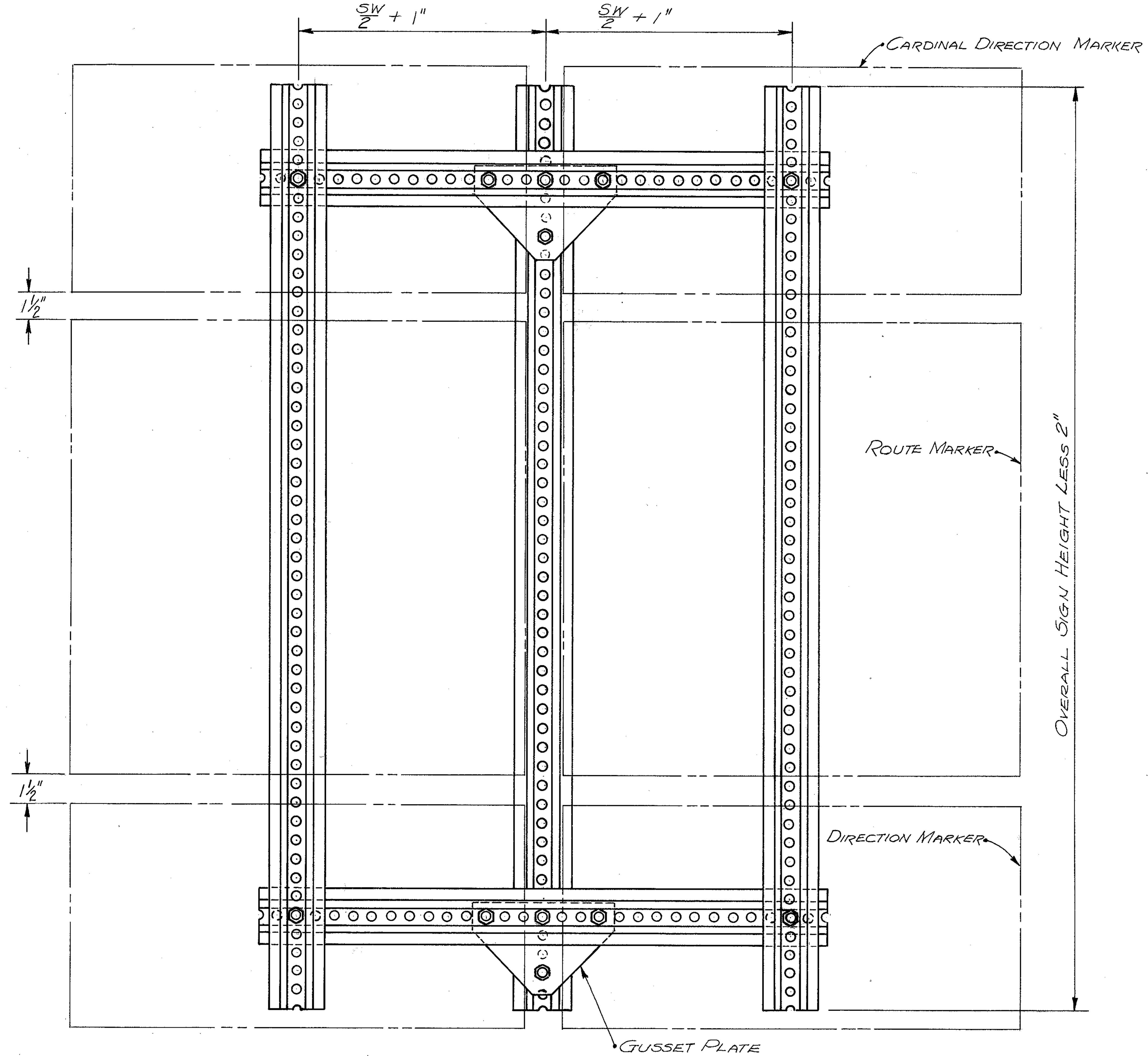
CUY-254 DA-0.20
CUY-6A -0.37

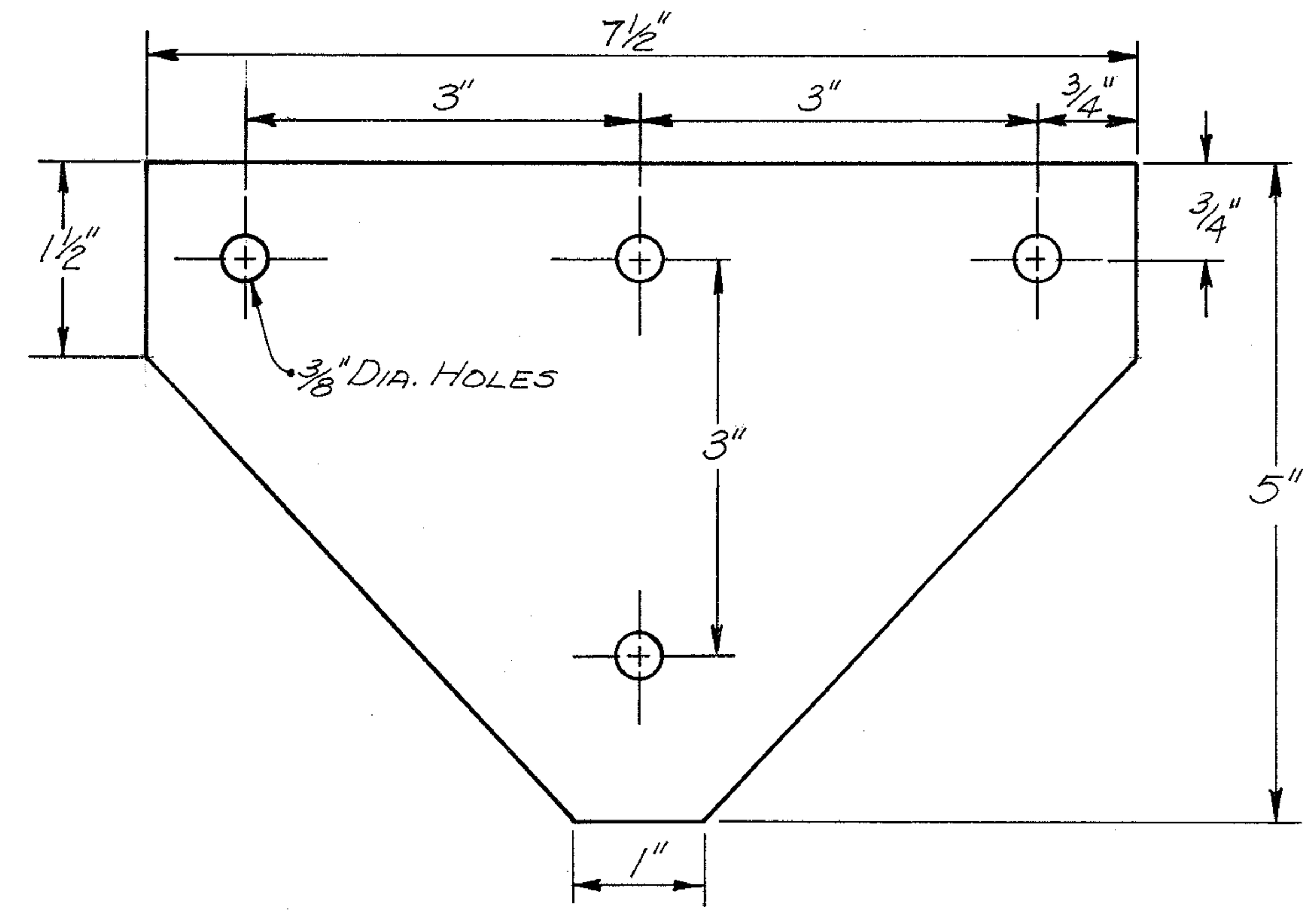
NOTES

1. A No. 2 Post Shall Be Used When Signs Are To Be Pole Mounted. When Signs Are Mounted In Conjunction With A Guide Sign The Post Shall Be An Extention Of The Post Required For The Guide Sign Installation.



SW = SIGN WIDTH





GUSSET PLATE

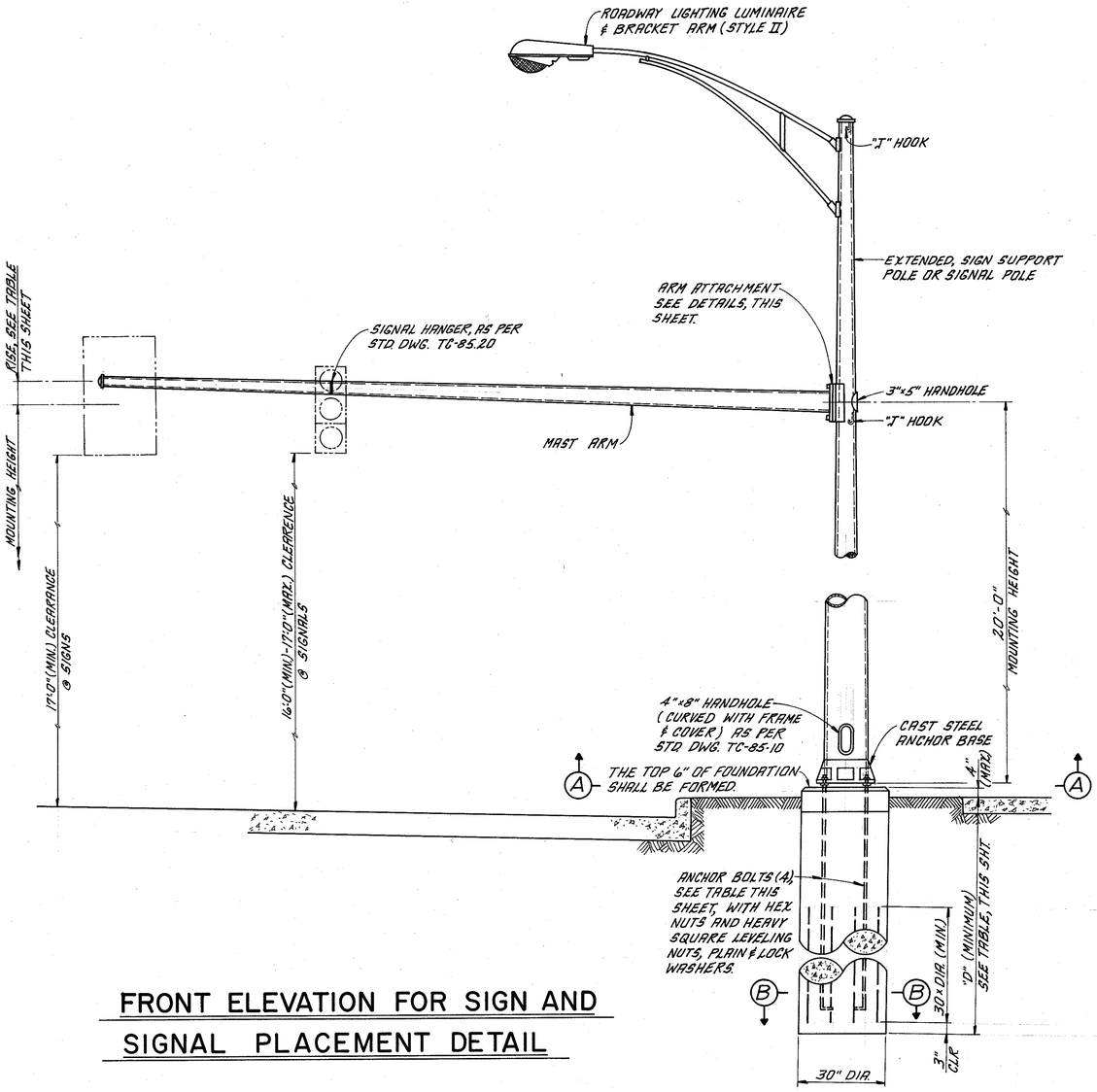
.063" Min. Thk. Aluminum

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
	DATE
ROUTE MARKER BRACKET ASSEMBLY	2/14/79

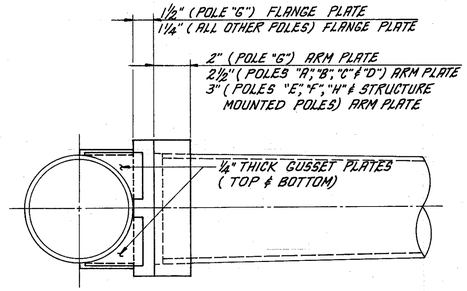
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

83
91

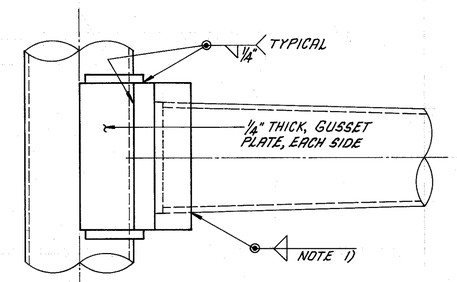
CUYAHOGA COUNTY
CUY.-254DA-0.20
CUY.-6A-0.37



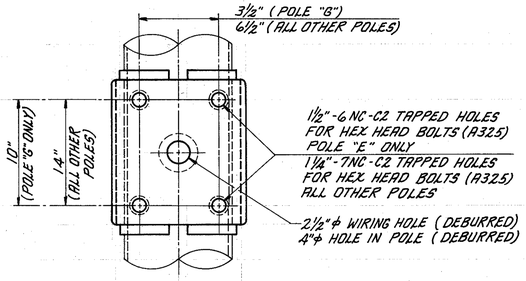
FRONT ELEVATION FOR SIGN AND SIGNAL PLACEMENT DETAIL



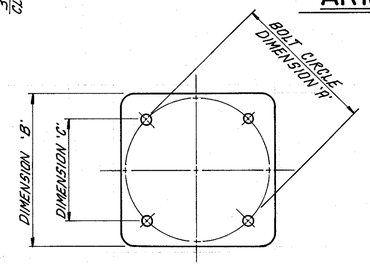
PLAN



ELEVATION

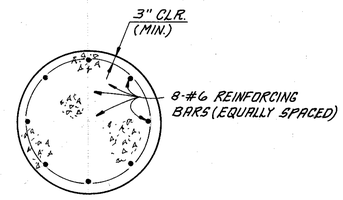


ELEVATION ARM ATTACHMENT DETAILS



SECTION A-A

FOR DIMENSIONS 'A', 'B' & 'C', SEE TABLE, THIS SHEET.



SECTION B-B

ANCHOR BOLTS, NOT SHOWN.

DATA TABLE

POLE "LETTER"	POLE SIZE	MAST ARM SIZE	RISE		ANCHOR BOLTS				REINFORCING		FOUNDATION
			MIN.	MAX.	DIM. "A"	DIM. "B"	DIM. "C"	SIZE	SIZE	NO.	"D" (MIN.)
"A"	0.188"x14"x35'-0"	0.188"x11"x36'-0"	11"	23"	20"	20½"	14⅛"	1½"x60"	#6	8	7'-6"
"B" & "D"	0.188"x13"x35'-0"	0.188"x10"x34'-0"	11"	22"	18"	18½"	12¾"	1½"x60"	#6	8	7'-6"
"C"	0.188"x11"x35'-0"	0.188"x8"x26'-0"	9"	17"	15"	15-⅝"	10⅝"	1½"x60"	#6	8	7'-6"
"E"	0.249"x13"x35'-0"	0.249"x10"x15'-3" & 0.188"x8.40"x30'-0"	–	–	18"	18½"	12¾"	1¾"x90"	#6	8	9'-0"
"F" & "H"	0.249"x12"x35'-0"	0.249"x9"x15'-0" & 0.188"x7.40"x26'-0"	–	–	16"	17"	11⅝"	1¾"x90"	#6	8	9'-0"
"G"	0.188"x10"x35'-0"	0.188"x7"x24'-0"	8"	16"	13½"	14⅛"	9⅝"	1½"x60"	#6	8	7'-6"
STRUCTURE MOUNTED *	0.249"x12"x35'-0"	0.249"x9"x15'-0" & 0.188"x7.40"x26'-0"	–	–	16"	17"	11⅝"	1¾"x#	#	#	#

* MOUNTED ON BRIDGE, SEE BRIDGE PLANS FOR LOCATION. # INCLUDED WITH BRIDGE QUANTITIES.

MATERIAL SPECIFICATIONS:
POLE & MAST ARM - ANY STEEL WITH MINIMUM 52,000 P.S.I. YIELD STRESS AFTER ERECTION.
BASE AND OTHER PLATE STOCK - ASTM A-36
ANCHOR BOLTS - MINIMUM 54,000 P.S.I. YIELD STRESS AS ERECTED.
MISC. NUTS & BOLTS - ASTM A-307 (GALVANIZED PER ASTM A-153).
WELDING - SECTION 513.17, OHIO CONSTRUCTION & MATERIAL SPECS.
GALVANIZING - ALL STRUCTURAL PARTS, AFTER FABRICATION & TOP 16" OF ALL ANCHOR BOLTS (ONLY) AS PER ASTM A-123.

NOTES:
1) POLE BASE AND ARM ATTACHMENT PLATE SHALL BE WELDED INSIDE AND OUTSIDE WITH FILLET WELDS. EACH FILLET WELD SHALL BE EQUAL TO THE WALL THICKNESS OF THE RESPECTIVE TUBING.
2) CONSTRUCTION DETAILS AND LOCATION OF HANDHOLE CONTROLLER CABINET MOUNTING BRACKETS, PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS ARE SHOWN ON STANDARD CONSTRUCTION DRAWINGS TC-22.10, TC-83.10 & TC-85.10 RESPECTIVELY.
3) LIGHTING BRACKET ARM ATTACHMENTS SHALL BE AS SPECIFIED BY THE BRACKET ARM MANUFACTURER.

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" MINIMUM BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 100% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

FOUNDATIONS:
THE TOP OF ALL FOUNDATIONS SHALL BE FORMED FLUSH WITH ADJOINING CONCRETE, OR A MAXIMUM OF 4" ABOVE FINISHED GRADE.

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TRAFFIC CONTROL POLE & MAST ARM DETAILS