CUY-90-14.90

PID 77332/85531

APPENDIX EX-52

CUY-090-1524 PID 14091

(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

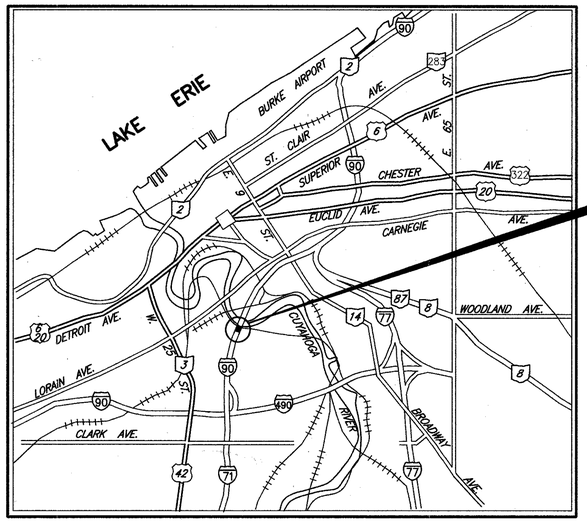
Innerbelt Bridge
Construction Contract Group 1 (CCG1)

Revision Date: 1995

L-0

BR-67-94

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
CUY-90-15.24
GRADING & DRAINAGE IMPROVEMENTS
CITY OF CLEVELAND
CUYAHOGA COUNTY



LOCATION MAP

LATITUDE: N 41°29'05" LONGITUDE: W 81°41'28"

SCALE IN MILES
0 1/2 1 2

N

PORTION TO BE IMPROVED
U.S. HIGHWAYS
STATE HIGHWAYS
INTERSTATE HIGHWAYS
OTHER STREETS

DESIGN DESIGNATION

CURRENT ADT (1995) _____
DESIGN YEAR ADT (2015) _____
DESIGN HOURLY VOLUME (2015) _____
DIRECTIONAL DISTRIBUTION _____
TRUCKS (24 HOUR B&C) _____
DESIGN SPEED _____
LEGAL SPEED _____

DESIGN EXCEPTIONS

NONE REQUIRED

INCORPORATED
APR 03 1997

INDEX OF SHEETS

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES GRADING, DRAINAGE, EROSION CONTROL, FENCING AND STRUCTURE DRAINAGE MODIFICATIONS. PROJECT LENGTH = 0.00 MILE.

1995 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTAINANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

UNDERGROUND UTILITIES
2 WORKING DAYS
BEFORE YOU DIG
CALL 800–362–2764 (Toll free)
OHIO UTILITIES
PROTECTION SERVICE
NON – MEMBERS
MUST BE CALLED DIRECTLY

PREPARED AND RECOMMENDED BY
RICHLAND ENGINEERING LIMITED
Consulting Engineers
MANSFIELD, OHIO

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS	
BP-2.2	2-21-92	MC-5	6-12-75			852	7-30-93
BP-4.1	2-21-92	MC-11	8-1-78				
BP-5.1	2-21-92	MH-3	12-18-84				
CB-2-2-A&B	5-1-79	MT-95.30	10-10-88				
CB-5	11-10-83						
F-1	11-10-83						
F-4	11-10-83						
GR-1.1	5-6-91						
GR-1.2	5-6-91						
GR-1.3	2-21-92						
GR-2.1	10-30-92						
GR-4.2	5-6-91						
MC-4	7-26-76						

APPROVED: Bryan L. Hardin
DATE: 2-24-95 DISTRICT DEPUTY DIRECTOR

APPROVED: Richard L Engel
DATE: 3-6-95 ENGINEER, BUREAU OF BRIDGES AND STRUCTURAL DESIGN

APPROVED: Alexander H. Hynds
DATE: 5-15-95 DEPUTY DIRECTOR, OPERATIONS

APPROVED: Jerry Wray per HH
DATE: 5-15-95 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO.

PID NO. 14091

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

CUY-90-15.24

1
22

Job No. 93111 Date 2/14/95 Drawn By TWH,RB

EXISTING SITE CONDITIONS

The site was previously occupied by a asphalt plant and this area was used for stockpiling aggregate. The existing sections were taken before the stockpiles were moved off the site. Some variances may exist between the plan sections and the site. The Contractor shall examine the site as per 102.05.

UTILITIES

Listed below are all utilities located within the project construction limits together with their respective owners:

Water	The City of Cleveland Water Department 1201 Lakeside Avenue Cleveland, Ohio 44114 Attn: Donald Trebar 216-664-2444
Electric	Cleveland Electric Illuminating Company 55 Public Square P.O. Box 5000 Cleveland, Ohio 44101 Attn: Glen Young 216-479-3452
Gas	East Ohio Gas Company 1201 East 55th Street Cleveland, Ohio 44103 Attn: Milt Radovic 216-736-6675
Phone	Ohio Bell Telephone Company 1020 Bolivar Road, Room 421 Cleveland, Ohio 44115 216-822-8206
	American Telephone & Telegraph 3833 Waymouth Road Medina, Ohio 44256 Attn: Tom Summerfield 216-723-9110
Cable	Cox Cable Company 12221 Plaza Parma, Ohio 44130 216-676-8300
Sewer	Northeast Ohio Regional Sewer District 3826 Euclid Avenue Cleveland, Ohio

The location of the underground utilities shown on the plans are as obtained from the owners as required by Section 153.64 O.R.C.

CONTINGENCY QUANTITIES

The Contractor shall not order materials or perform work for items designated by plan note to be used "as directed by the Engineer" unless authorized by the Engineer. The actual work locations and quantities used for such items shall be incorporated into the final change order governing completion of this project.

ELEVATION DATUM

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

SUBSURFACE INVESTIGATION EQUIPMENT

Slope inclinometers have been installed at the site to monitor subsurface movements. Piezometers have been installed at the site to monitor subsurface ground water. These instruments shall be protected and avoided by the Contractor at all times.

Monitoring and measurement of the instruments is being performed at two month intervals by BBC&M, Inc., Columbus, Ohio under contract to ODOT. The Contractor shall cooperate with the testing company and allow access to the site and instruments.

CLEARING AND GRUBBING

Miscellaneous items such as telegraph lines, telegraph poles, and guard posts at inclinometers and piezometers shall be removed as incidental to Item 202, Clearing and Grubbing. Miscellaneous items include items that are not shown to be incorporated in the final construction and are directed to be removed by the Engineer.

REMOVAL OF TREES OR STUMPS

All trees and stumps specifically marked for removal within the construction limits shall be removed under the lump sum bid for Item 201, Clearing and Grubbing. The following is an approximate estimate of the number of trees and stumps to be removed.

Sizes	No. Trees	No. Stumps	Total
18"	0	0	0
30"	1	0	1
48"	0	0	0
60"	0	0	0

REMOVAL MISC.: PIER

The Contractor shall remove the pier columns and, or the pier's piling that are called for to be removed to elevation 594. There are no available plans for the existing piers that are to be removed. The piers may not extend as deep as the removal elevation, but any pilings under the piers shall be removed to the removal elevation. The hole shall be backfilled as per Item 203.

Payment for all labor, tools, equipment, materials, and incidentals necessary to complete this item shall be included with Item 202, Removal Misc: Pier.

REMOVAL MISC.: INCLINOMETER ABANDONED

Existing inclinometer casings installed in 1990 shall be abandoned and plugged. The inclinometer casings include a steel protective conduit with a cap and a metal or plastic conduit about 120 to 130 feet deep. The casing shall be cut off at least eighteen inches below the proposed grade. Plugging shall be accomplished with ASTM C150, Type 1 Portland Cement with no air entrainment.

Payment for all labor, tools, equipment, materials, and incidentals necessary to complete this item shall be included with Item 202, Removal Misc: Inclinometer Abandoned, per each inclinometer.

ITEM 659, SEEDING AND MULCHING AS PER PLAN

All areas shall be seeded with Crown Vetch per 659.09.

Seeding and mulching shall be applied to all areas of exposed soil between the right of way lines, and within the construction limits for areas outside the right of way lines covered by work agreement or slope easement. Quantity calculations for Item 659, Seeding and Mulching, are based on these limits.

The following estimated quantity has been carried to the General Summary:.

659, Seeding and Mulching, As Per Plan	10,705	Sq. Yd.

WATERING AND MOWING PERMANENT SEEDED AREAS

The following estimated quantities are to be used as directed by the Engineer to promote growth and to care for permanent seeded areas per 659.09:

659, Water	24	M. Gal.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

The following estimated quantities are to be used as directed by the Engineer for temporary erosion and sediment control measures:

207, Temporary Seeding and Mulching	10,705	Sq. Yd.
207, Straw or Hay Bales	100	Each
207, Filter Fabric Fence	367	Lin. Ft.
659, Commercial Fertilizer	0.48	Ton

CALCULATED LVB 12/94
CHECKED DAW 12/94

GENERAL NOTES

CUY-90-15.24

2
22

Job No. 93111 Date 2/15/95 Drawn By SB,RB

CALCULATED LJB 12/94
CHECKED DAW 12/94

GENERAL NOTES

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 all existing sewers 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 inspection 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 operation shall be corrected by the Contractor to the satisfaction of the Engineer.

Payment for all operations described above shall be included in the contract price for the pertinent 603 conduit items.

ITEM 604, MANHOLE, MISC.: METER PROTECTION

The existing inclinometer and piezometer instruments designated to remain shall be protected and avoided by the Contractor at all times except when working to adjust the grade adjacent to the instruments. The inclinometers consist of 4" diameter plastic tubing grouted in 6" bored holes drilled to rock. The piezometers consist of groups of 2 or 3 tubes 3/8" diameter. The tubes are installed in 6" bored holes filled with weak grout. The piezometers and inclinometers do not have a casing. The inclinometers and piezometers are capped with a steel cover and 5 feet of 6" diameter steel casing at the ground line.

Before moving equipment on to the site and beginning any work the Contractor shall install the fenced enclosure around each instrument, as shown on sheet no. 17 and 18. The fence shall be orange plastic type at least 3 feet tall and substantially supported by posts. The fenced enclosure shall be maintained in place until all equipment is removed from the site. The fence shall be removed to work around the instruments to adjust the grade and shall be reinstalled immediately after the work is completed.

The existing instrument casing covers and caps shall remain in place at all times.

The Engineer shall be notified at least one day in advance of when soil within 20 feet of an instrument is to be excavated or placed. Within 10 feet of an instrument the soil shall be excavated with a rubber tire backhoe. Within 3 feet of an instrument the soil shall be excavated by hand equipment. The Engineer will observe the earthwork and excavation operations in the vicinity of the instruments.

Piezometer tubes designated to be relocated shall be carefully exposed by removing the grout encasement with a small hammer. Exposed piezometer tubes shall be run up the side of the adjacent inclinometer casing and secured to the casing prior to any backfilling with earth or gravel.

Each inclinometer as shown on the plan shall also be protected by a gravel filled concrete pipe as detailed in the plans. The concrete pipe and gravel shall be installed prior to general excavation or embankment placement in the area of an instrument. The Engineer will observe the installation of the concrete pipe and gravel.

Inclinometer B108 and piezometer P4 shall be excavated and concrete pipe and gravel installed all in one day. The exposed height of casing shall be temporarily supported as needed to avoid damage.

Inclinometer B-103 shall be extended upwards 4 feet by BBC&M, Inc. BBC&M, Inc. will furnish 10 feet of casing material to be installed by the Contractor. The Contractor shall notify th Engineer one week prior to beginning work at locations B-103 and P-2. The Engineer shall notify BBC&M, Inc. The Contractor shall cooperate and schedule the required work with BBC&M, Inc. at the site.

The concrete pipe & #67 gravel shall be removed from around B-104, B-105 & B-108 after all grading & seeding has been completed. The Inclinometers will be lowered and new guard posts will be installed by BBC&M. The Contractors shall notify the Engineer one week prior to this work.

The Contractor shall be responsible for the cost of repair or replacement of any inclinometer or piezometer damaged by impact from his equipment.

Payment for all labor, tools, equipment, materials and incidentals necessary to protect the instruments, shall be included a Lump Sum bid for Item 604, Manhole, Misc.: Meter Protection, Type 1, Type 2 & Type 3

MAINTAINING TRAFFIC

A. GENERAL PROVISIONS:

1. Traffic shall be maintained at all times on I-90, without interruption during construction of the work. The Contractor shall set up and operate his equipment in such a manner as to minimize encroachment upon the traveled width of pavement.
2. The lane closures will follow ODOT Standard Construction Drawing MT95.30. One-lane closures will be allowed only on weekdays from 9:00 a.m. to 3:00 p.m. and from 7:00 p.m. to 6:00 a.m. and on anytime weekend days. Two-lane closures will be allowed only on weekdays from 10:00 a.m. to 1:00 p.m. and 10:00 p.m. to 6:00 a.m. Two lane closures will be allowed on weekends from 12:01 a.m. to 12:01 p.m. Saturday and Sunday and from 10:00 p.m. Sunday to 6:00 a.m. Monday.
3. The Contractor shall furnish all material, labor and equipment necessary to maintain traffic in accordance with the preceding requirements.
4. All existing guardrail not designated for removal shall not be damaged or disturbed by the Contractor.

B. EQUIPMENT AND MATERIAL STORAGE:

In order to provide for the safety of the traveling public, the Contractors attention is directed to the following:

1. Only construction vehicles and equipment will be allowed on the bridge. No private vehicles will be allowed at any time.
2. Prior to removing the lane closure signs and barrels each work day, the Contractor shall remove all equipment and material from the bridge to an area at least 30 feet from the traveled edge of pavement behind permanent guardrail or barriers.
3. The above stipulations shall apply for all work areas on the bridge. The above procedures shall be in addition to item 614.03, Traffic Control. Exceptions to the above procedures shall not be made except as approved in writing by the Director.

The cost of complying with these safety procedures shall be included in the lump sum bid for Item 614, Maintaining Traffic.

C. TRAFFIC CONTROL MATERIALS

1. All signs and material shall be per ODOT Standard Construction Drawing MT 95.30.
2. This route is an urban freeway with a normal speed limit of 55 mph. An advisory speed of 45 mph shall be used during the closures.
3. The "S" dimension for drum spacing shall be a maximum of 50 feet.

D. PAYMENT

Unless otherwise noted for separate payment, all material, labor, equipment and tools necessary to accomplish the required traffic maintenance shall be included in the lump sum bid for Item 614, Maintaining Traffic.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

When it is necessary to splice proposed guardrail to existing guardrail, only the existing guardrail shall be cut, drilled, or punched. The connection shall be made using a "W-beam rail splice" as shown on the Standard Construction Drawing GR-1.1. Payment shall be included in the contract price for the respective guardrail items.

Job No. 93111 Date 2/15/95 Drawn By SB, RB

CUY-90-15.24

SHEET NO.								ITEM	EXT	QUANTITY	UNIT	DESCRIPTION	AS PER PLAN SHEET NO.
		2	5	6		15							
												ROADWAY	
								201	11000	LUMP		CLEARING AND GRUBBING	
				320				202	30000	320	SQ FT	WALK REMOVED	
				64				202	32500	64	LIN FT	CURB AND GUTTER REMOVED	
				1648				202	32800	1648	SQ YD	CONCRETE SLOPE PROTECTION REMOVED	
				247				202	35100	247	LIN FT	PIPE REMOVED, 24" AND UNDER	
				359				202	35200	359	LIN FT	PIPE REMOVED, OVER 24"	
				30.6				202	38000	30.6	LIN FT	GUARDRAIL REMOVED	
				2				202	58000	2	EACH	MANHOLE REMOVED	
				4				202	58100	4	EACH	CATCH BASIN REMOVED	
				LUMP				202	98000	LUMP		REMOVAL MISC.: PIER	2
				6				202	98100	6	EACH	REMOVAL MISC.: INCLINOMETER ABANDON	2
						7100		203	11000	7100	CU YD	EXCAVATION INCLUDING EMBANKMENT CONSTRUCTION	
						14168		203	20000	14168	CU YD	EMBANKMENT	
			544					203	50000	544	SQ YD	SUBGRADE COMPACTION	
				12.5				606	13000	12.5	LIN FT	GUARDRAIL, TYPE 5	
				5				606	18500	5	EACH	GUARDRAIL, POST. 9 FT.	
				1				606	26500	1	EACH	ANCHOR ASSEMBLY, TYPE T	
			1008					607	20000	1008	LIN FT	FENCE, TYPE CL	
			3					607	50900	3	EACH	GATE, TYPE CL	
			151					608	10000	151	SQ FT	4" CONCRETE WALK	
												EROSION CONTROL	
		10705						207	10000	10705	SQ YD	TEMPORARY SEEDING AND MULCHING	
		367						207	30000	367	LIN FT	FILTER FABRIC FENCE	
		100						207	70000	100	EACH	STRAW AND HAY BALES	
			1859					601	21001	1859	SQ YD	CONCRETE SLOPE PROTECTION, AS PER PLAN	17
			594					601	37500	594	LIN FT	PAVED GUTTER, TYPE 1-2	
			10705					659	10001	10705	SQ YD	SEEDING AND MULCHING, AS PER PLAN	2
		0.48	0.96					659	20000	1.44	TON	COMMERCIAL FERTILIZER	
		24						659	35000	24	M GAL	WATER	
												DRAINAGE	
				76				603	04600	76	LIN FT	12" CONDUIT, TYPE C	
				277				603	06100	277	LIN FT	15" CONDUIT, TYPE C	
				5				603	07400	5	LIN FT	18" CONDUIT, TYPE B	
				1				604	01600	1	EACH	CATCH BASIN, NO. 5	
				1				604	01601	1	EACH	CATCH BASIN, NO. 5, AS PER PLAN	17
				1				604	02000	1	EACH	CATCH BASIN, NO. 6	
				2				604	04101	2	EACH	CATCH BASIN, NO. 2-2A, AS PER PLAN	17
				2				604	31500	2	EACH	MANHOLE, NO. 3	
			LUMP					604	32500	LUMP		MANHOLE, MISC. METER PROTECTION, TYPE 1	3, 18
			LUMP					604	32500	LUMP		MANHOLE, MISC. METER PROTECTION, TYPE 2	3, 18
			LUMP					604	32500	LUMP		MANHOLE, MISC. METER PROTECTION, TYPE 3	3, 17
				3				604	35500	3	EACH	MANHOLE RECONSTRUCTED TO GRADE	
												PAVEMENT	
			544					452	12000	544	SQ YD	8" PLAIN CONCRETE PAVEMENT	
			63					609	18000	63	LIN FT	COMBINATION CURB AND GUTTER, TYPE 3	
												STRUCTURE	
												FOR STRUCTURE SEE SHEET NO. 21	
												MISCELLANEOUS	
								614	11000	LUMP		MAINTAINING TRAFFIC	
								619	15020	LUMP		FIELD OFFICE, TYPE C	
								623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
								624	10000	LUMP		MOBILIZATION	
								619		LUMP		COMPUTER EQUIPMENT FOR TYPE C OFFICE	

CALCULATED LVB 12/94
CHECKED DAW 12/94

GENERAL SUMMARY

CUY-90-15.24

Job No. 93111 Date 2/15/95 Drawn By SB, RB

ACCESS DRIVE

ITEM 452 8" PLAIN CONCRETE PAVEMENT

1-P	1 STA. D 1 + 0.00				
	2 STA. D 5 + 67.93 = 467.93 FT. X 10.00 FT. = 4679.30 SF.				
	3 STA. D 1 + 0.00 LT.				
	4 STA. D 1 + 11.26 LT. RETURN COMPUTER CALC. = 79.00 SF.				
	5 STA. D 1 + 0.00 RT.				
	6 STA. D 1 + 24.67 LT. RETURN COMPUTER CALC. = 130.00 SF.				
	7 TOTAL LINES 1 TO 6 4888.30 SF. / 9	TOTAL	(452)	=	543.14 SY.
			USE		544 SY.

ITEM 203 SUBGRADE COMPACTION

1-P	8 LINE 7	TOTAL	(203)	=	543.14 SY.
			USE		544 SY.

ITEM 601 PAVED GUTTER TYPE 1-2

2-P	9 STA. D 1 + 30.00				
	10 STA. D 4 + 48.94			=	318.94 LF.
	11 STA. D 5 + 17.43 = STA. 0+00 = 68.49 X 52 / 45			=	79.14 LF.
2-P	12 STA. 0 + 0.00				
	13 STA. 1 + 14.54			=	114.54 LF.
2-S	14 STA. 18 + 55.56 TO STA. 18 + 45.00 RT.			=	35.81 LF.
3-S	15 STA. 18 + 55.56 TO STA. 18 + 35.16 LT.			=	45.00 LF.
	16 TOTAL LINES 9 TO 15	TOTAL	(601)	=	593.43 LF.
			USE		594 LF.

ITEM 609 CURB, TYPE 3

3-P	17 STA. D 1 + 0.00 LT.				
	18 STA. D 1 + 22.56 RT.			=	62.75 LF.
	19 LINE 18	TOTAL	(609)	=	62.75 LF.
			USE		63 LF.

ITEM 608 CONCRETE WALK

4-P	20 STA. D 1 + 3.40 , 9.48 FT. LT. TO 31.71 FT. LT. , COMPUTER CALC.			=	93.00 SF.
5-P	21 STA. D 1 + 7.02 , 14.89 FT. RT. TO 58.00 FT. RT. , COMPUTER CALC.			=	58.00 SF.
	22 TOTAL LINES 20 TO 21	TOTAL	(608)	=	151.00 SF.
			USE		151 SF.

MISC. SITE WORK

ITEM 607 FENCE, TYPE CL

1-F	23 STA. 19 + 38.06 , 169.00 FT. RT.				
	24 STA. 19 + 30.06 , 169.00 FT. RT. = 8.00			=	8.00 LF.
	25 STA. 19 + 26.06 , 169.00 FT. RT. = GATE				
	26 STA. 17 + 29.00 , 169.00 FT. RT. = 197.06			=	197.06 LF.
	27 STA. 16 + 25.59 , 169.00 FT. RT. = 103.41 X 1.118 2:1 SLOPE			=	115.62 LF.
	28 STA. 16 + 9.40 , 90.31 FT. RT. = 80.34			=	80.34 LF.
	29 STA. 15 + 91.81 , 83.56 FT. RT. = 18.84			=	18.84 LF.
	30 STA. 15 + 87.28 , 69.18 FT. RT. = 15.08			=	15.08 LF.
	31 STA. 15 + 86.24 , 36.10 FT. RT. = 33.10			=	33.10 LF.
	32 STA. 15 + 91.90 , 6.34 FT. RT. = 30.29			=	30.29 LF.
	33 STA. 15 + 92.17 , 4.55 FT. LT. = 10.89			=	10.89 LF.
	34 STA. 15 + 81.74 , 90.83 FT. LT. = 86.91			=	86.91 LF.
	35 STA. 15 + 95.74 , 162.51 FT. LT. = 73.03			=	73.03 LF.
	36 STA. 16 + 8.05 , 169.19 FT. LT. = GATE				
	37 STA. 16 + 8.05 , 194.39 FT. LT. = 25.20			=	25.20 LF.
	38 STA. 16 + 75.00 , 194.39 FT. LT. = 66.95 X 1.118 2:1 SLOPE			=	74.85 LF.
	39 STA. 19 + 5.35 , 194.39 FT. LT. = 230.35				230.35 LF.
	40 STA. 19 + 9.35 , 194.39 FT. LT. = GATE				
	41 STA. 19 + 17.35 , 194.39 FT. LT. = 8.00			=	8.00 LF.
	42 TOTAL LINES 23 TO 41	TOTAL	(607)	=	1007.55 LF.
			USE		1008 LF.

ITEM 607 GATE, TYPE CL

2-F	43 STA. 15 + 95.74 , 162.51 FT. LT.				
	44 STA. 16 + 8.05 , 169.19 FT. LT. = 14 FT. GATE			=	1 EACH
	45 STA. 19 + 05.35 , 194.39 FT. LT.				
	46 STA. 19 + 09.35 , 194.39 FT. LT. = 4 FT. GATE			=	1 EACH
	47 STA. 19 + 26.06 , 169.00 FT. RT. =				
	48 STA. 19 + 30.06 , 169.00 FT. RT. = 4 FT. GATE				1 EACH
	49 TOTAL LINES 43 TO 48	TOTAL	(607)	=	3.00 EACH
			USE		3 EACH

ITEM 604 MANHOLE MISC. METER PROTECTION TYPE 1

1-M	50 STA. 16 + 93.83 , 34.49 FT. RT. (B103 & P2)				LUMP
	51 TOTAL LINES 50 TO 50	TOTAL	(604)	=	LUMP

ITEM 604 MANHOLE MISC. METER PROTECTION TYPE 2

2-M	52 STA. 18 + 0.15 , 87.80 FT. LT. (B108 & P4)			=	LUMP
5-M	53 STA. 19 + 11.38 , 90.90 FT. RT. (B105 & P3)			=	LUMP
	54 TOTAL LINES 52 TO 53	TOTAL	(604)	=	LUMP

ITEM 604 MANHOLE MISC. METER PROTECTION TYPE 3

3-M	55 STA. 18 + 50.53 , 100.20 FT. RT. (B104)			=	LUMP
4-M	56 STA. 18 + 86.96 , 65.60 FT. LT. (B109)			=	LUMP
	57 TOTAL LINES 55 TO 56	TOTAL	(604)	=	LUMP

EROSION CONTROL

ITEM 601 CONCRETE SLOPE PROTECTION, AS PER PLAN

9-S	58 STA. 15 + 90.91 TO STA. 17 + 26.70 14960 SF. COMPUTER CALC. X 1.118 / 9			=	1858.36 SY.
	59 LINE 58	TOTAL	(601)	=	1858.36 SY.
			USE		1859 SY.

ITEM 659 SEEDING AND MULCHING, AS PER PLAN

	60 STA. 15 + 91.90				
	61 STA. 16 + 78.00 COMPUTER CALC. = 33699.03 SF. X 1.1180	2:1 SLOPE / 9		=	4186.28 SY.
	62 STA. 16 + 78.00				
	63 STA. 19 + 6.40 COMPUTER CALC. = 82654.80 SF.		/ 9	=	9183.87 SY.
	64 LESS LINE 7			=	-543.14 SY.
	65 LESS LINE 16 = 593.43 LF. X 4 / 9			=	-263.75 SY.
	66 LESS LINE 59			=	-1858.36 SY.
	67 TOTAL LINES 60 TO 67	TOTAL	(659)	=	10704.90 SY.
			USE		10705SY.

ITEM 659 COMMERCIAL FERTILIZER

	68 LINE 67 10704.90 SY. X 9 / 1000 X 20 / 2000	TOTAL	(659)	=	0.96 TON
			USE		0.96 TON

ITEM 659 WATER

	69 LINE 67 10704.90 SY. X 9 X 120 X 2 / 1000 / 1000	TOTAL	(659)	=	23.12 M GAL.
		TO GEN. NOTES			24 M GAL.

TEMPORARY EROSION CONTROL

ITEM 207 TEMPORARY SEEDING AND MULCHING

	70 LINE 67	TOTAL	(207)	=	10704.90 SY.
		TO GEN. NOTES			10705 SY.

ITEM 207 COMMERCIAL FERTILIZER

	71 LINE 70 10704.90 SY. X 9 / 1000 X 10 / 2000	TOTAL	(659)	=	0.48 TON
		TO GEN. NOTES			0.48 TON

ITEM 207 FILTER FABRIC FENCE

	72 STA. 19 + 17.00 , 194.00 FT. LT.				
	73 STA. 19 + 38.00 , 169.00 FT. RT.			=	366.64 LF.
	74 LINE 73	TOTAL	(207)	=	366.64 LF.
		TO GEN. NOTES			367 LF.

CALCULATED LVB 12/94
CHECKED DAW 12/94

CALCULATIONS

CUY-90-15.24

Job No. 93111 Date 2/15/95 Drawn By SB

REF. NO.	SIDE	STATION FROM	STATION TO	202 Curb and Gutter Removed L. F.	202 Walk Removed S. F.	202 Guardrail Removed L. F.	202 Concrete Slope Protection Removed S. Y.	202 Catch Basin Removed EA.	202 Manhole Removed EA.	202 Pipe Removed Under 24" L. F.	202 Pipe Removed Over 24" L. F.	202 Removal Misc.: Pier LUMP	202 Removal Misc.: Inclinometers Abandoned EA.	603 18" Conduit, Type B L. F.	603 12" Conduit, Type C L. F.	603 15" Conduit, Type C L. F.	603 Catch Basin, No. 2-2A, As Per Plan EA.	604 Catch Basin, No. 6 EA.	604 Catch Basin, No. 5 EA.	604 Catch Basin, No. 5, As Per Plan EA.	604 Manhole, No. 3 EA.	604 Manhole Reconstructed To Grade EA.	606 Guardrail, Type 5 R=20' L. F.	606 Anchor Assembly, Type T EA.	606 Guardrail Post, 9 Ft. EA.
1-A		16+24.71, 93.69' LT.																				1			
2-A		16+74.58, 89.43' LT.																				1			
3-A		17+26.00±, 126.00'± RT.																				1			
1-G		16+04.86, 199.70' LT.	16+02.03, 187.33' LT.																				12.50		3
2-G		16+02.03, 187.70' RT.	16+07.30, 176.09' LT.																					1	2
1-R	LT.	D1+00	32' LT. to 32' RT.	64																					
2-R	LT.	D1+00	32' LT. to 32' RT.		320																				
3-R	LT.	D1+06	7.5'RT. to 23.10'LT.			30.6																			
4-R	℄	15+92.6	16+79.3				1648																		
5-R	LT. & RT.	16+17	16+28					1		80															
6-R	LT.	16+28	16+25						1	48															
7-R	LT.	18+04	18+20						1	26															
8-R	LT. & RT.	18+20	18+39					1		87															
9-R	LT.	18+20	18+26					1		6															
10-R	LT.	17+75, 111'± Lt.										LUMP													
11-R	LT.	17+98, 142'± Lt.										LUMP													
12-R	LT. & RT.	18+29, 192' Rt. to 18+68, 168' Lt.									359														
13-R	LT.	16+87, 44' Lt.											1												
14-R	LT.	16+94, 0.5' Lt.											1												
15-R	RT.	17+01, 47.9' Rt.											1												
16-R	LT.	18+80, 50.4' Lt.											1												
17-R	RT.	18+85, 3.3' Rt.											1												
18-R	RT.	18+90, 40.6' Rt.											1												
19-R	LT.	15+83.13, 174.75' Lt.						1																	
1-S	RT.	19+06.41	18+58.36													48.12			1						
4-S	RT.	18+58.36	18+05													53.44					1				
5-S	℄	18+05	16+84.04													120.96				1					
6-S	℄	16+84.04	16+30													54.11					1				
7-S	RT.	16+18	16+30												38.00		1								
8-S	LT.	16+18	16+30												38.00		1								
9-S	LT.	15+83.13	174.75' LT.											5				1							
			TOTALS	64	320	30.6	1648	4	2	247	359	LUMP	6	5	76	276.63	2	1	1	1	2	3	12.50	1	5
TOTALS CARRIED TO GENERAL SUMMARY				64	320	30.6	1648	4	2	247	359	LUMP	6	5	76	277	2	1	1	1	2	3	12.50	1	5

CALCULATED LVB 12/94
CHECKED DAW 12/94

SUBSUMMARY

CUY-90-15.24

6
22

Job No. 93111 Date 2/14/95 Drawn By SB, RB

Job No. 93111 Date 2/14/95 Drawn By RB

GRADING PLAN
STA. 15+00 TO STA. 20+00

CUY-90-15.24

CALCULATED L.V.B. CHECKED D.A.W.

HORIZONTAL SCALE IN FEET 0 20 40

CUYAHOGA RIVER

Job No. 93111 Date 2/14/95 Drawn By RB

8/22

LEGEND
= Piezometer
= Piezometer with cap
= Inclinometer
CSP = Concrete Slope Protection

SEEDING	
END WIDTH	SQ. YDS.

15+00 16+00 17+00 18+00 19+00

680 660 640 620 600 580 560

℄ University Road
Inclinometer B102 134.7' Right
10:1
Underground telephone
Underground electric
Existing edge of parking lot
Existing
Approx. location of Ex. 6" P.E.I.P (relocated by others)
Approx. location of Ex. 3" gasline (abandoned)
Approx. location of Proposed 6" P.E.I.P. (installed by others)
℄ Existing 24" storm sewer
Approximate location of 36" C.M.P. smoke stack line (remove)
Existing dock wall
Cuyahoga River Low Water EL. 570.5
Battered piles

150' RIGHT

Building
℄ University Road
Underground telephone
Underground electric
Existing edge of parking lot
Existing manhole not found
Sta. 17+26±, 162'± Lt.
Reconstruct manhole to El. 618.0
℄ El. 596.7
Existing
Approx. location of Ex. 6" P.E.I.P (relocated by others)
Approx. location of Ex. 3" gasline (abandoned)
Approx. location of Proposed 6" P.E.I.P. (installed by others)
℄ Existing 24" storm sewer
Existing dock wall
Cuyahoga River Low Water EL. 570.5
Approximate location of 36" C.M.P. smoke stack line (plug)
Approx. location of Ex. 3" H.P. gasline
Battered piles

168' RIGHT MATCH EXISTING

END AREA		VOLUME	
CUT	FILL	CUT	FILL
659	704		
		159	170
0	0		

CALCULATED L.V.B.
CHECKED D.A.W.

HORIZONTAL SCALE IN FEET
0 20 40

SEEDING CARRIED ON THE CALCULATION SHEET

Job No. 93111 Date 2/15/95 Drawn By RB

PROFILES
RIGHT TO 150' RIGHT
168' RIGHT
CUY-90-15.24

9
22

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
		1017	949		
		987	926		
		1115	1052		
		821	813		

CALCULATED L.V.B. CHECKED D.A.W.

HORIZONTAL SCALE IN FEET 0 20 40

SEEDING CARRIED ON THE CALCULATION SHEET

Job No. 93111 Date 2/15/95 Drawn By RB

15+00 16+00 17+00 18+00 19+00

680 660 640 620 600 580 560

℄ University Road
Underground telephone
Underground electric
Existing curb along University Road
10:1
2:1 Normal
℄ Access Drive
Approx. location of Ex. 3" gasline (abandoned)
Approx. location of Ex. 6" P.E.I.P (relocated by others)
℄ Access Drive
Inclinometer B104 100.2' Right
Sta. 19+00.00 El. 585.00
2:1
10:1
2:1 Normal
10:1
Slope to meet existing wall
Existing dock wall
Approx. location of Proposed 6" P.E.I.P. (installed by others)
℄ Existing 24" storm sewer
Approximate location of 36" C.M.P. smoke stack line (Remove)
Cuyahoga River Low Water EL. 570.5
Battered piles

100' RIGHT

Inclinometer B101 120.6' Right
Piezometer P1 114.5' Right
Underground telephone
Underground electric
Existing edge of parking lot
10:1
2:1 Normal
℄ Access Drive
Approx. location of Ex. 6" P.E.I.P. (relocated by others)
℄ Access Drive
Approx. location of Ex. 3" gasline (abandoned)
Sta. 19+00.00 El. 585.00
℄ Access Drive
Slope to meet existing wall
Existing dock wall
Approx. location of Proposed 6" P.E.I.P. (installed by others)
℄ Existing 24" storm sewer
Cuyahoga River Low Water EL. 570.5
Battered piles
Approximate location of 36" C.M.P. smoke stack line (Remove)

125' RIGHT

PROFILES
125' RIGHT TO 100' RIGHT

CUY-90-15.24

10
22

SEEDING CARRIED ON THE CALCULATION SHEET

Job No. 93111 Date 2/15/95 Drawn By RB

SEEDING	
END WIDTH	SQ. YDS.

15+00 16+00 17+00 18+00 19+00

680 660 640 620 600 580 560

Pier 1A
Inclinometer #3 40.4' Right
℄ University Road
10:1
West end pier El. 667.11±
Underground telephone
Concrete slope protection
Existing curb along University Road
2:1 Normal
Underground electric
Inclinometer #6 47.9' Right (abandon)
℄ Access Drive
El. 630.0±
Approx. location of Proposed 6" P.E.I.P. (installed by others)
Approx. location of Ex. 3" gasline (abandoned)
Pier 1 El. 626.17±
Sta. 18+80.00 El. 595.00
10:1
2:1
10:1
Inclinometer #9 40.6' Right (abandon)
Sta. 19+00.00 El. 587.0
Slope to meet existing wall
2.5:1
Existing dock wall
℄ Existing 24" storm sewer
Approx. location of Ex. 6" P.E.I.P (relocated by others)
Cuyahoga River Low Water El. 570.5
El. 578.5±
Battered piles
Approximate location of 36" C.M.P. smoke stack line (Remove)

50' RIGHT

Pier 1A
℄ University Road
10:1
West end pier El. 667.11±
Underground telephone
Existing curb along University Road
Underground electric
2:1 Normal
Concrete slope protection
℄ Access Drive
Approx. location of Proposed 6" P.E.I.P. (installed by others)
Existing
Approx. location of Ex. 6" P.E.I.P (relocated by others)
El. 630.0±
2:1
Proposed
10:1
Inclinometer B105 90.9' Right
Piezometer P3 86.3' Right
2.5:1 Normal
10:1
Existing Dock Wall
Approx. location of Ex. 3" gasline (abandoned)
℄ Existing 24" storm sewer
Approximate location of 36" C.M.P. smoke stack line (Remove)
Battered piles
Cuyahoga River Low Water El. 570.5

75' RIGHT

83' RIGHT END CONCRETE SLOPE PROTECTION

END AREA		VOLUME	
CUT	FILL	CUT	FILL
801	1654		
		755	1355
829	1272		
		855	1029

CALCULATED L.V.B. CHECKED D.A.W.

HORIZONTAL SCALE IN FEET 0 20 40

PROFILES

75' RIGHT TO 50' RIGHT

CUY-90-15.24

11
22

SEEDING

END WIDTH	SQ. YDS.

SEEDING CARRIED ON THE CALCULATION SHEET

Job No. 93111 Date 2/15/95 Drawn By RB

15+00 16+00 17+00 18+00 19+00

680 660 640 620 600 580 560

Pier 1A
Inclinometer #2 0.9' Left
℄ Access Drive
Sta. 16+00.00
El. 670.00
10:1
Concrete slope protection
Underground telephone
Underground electric
Existing curb along University Road
2:1 Normal
℄ Access drive
Sta. 17+62.00
El. 614.00
Inclinometer #5 0.5' Left (abandon)
2:1 Normal
10:1
2:1
10:1
Approx. location of Ex. 3" gasline (abandoned)
Concrete deadman
Sta. 18+80.00
El. 595.00
Inclinometer #8 3.3' Right (abandon)
Sta. 19+00.00
El. 587.00
Slope to meet existing wall
Existing dock wall
2.5:1
Approx. location of Proposed 6" P.E.I.P. (installed by others)
℄ Existing 24" storm sewer
Approx. location of Ex. 6" P.E.I.P (relocated by others)
Existing 12" storm sewer
Tie rod
Cuyahoga River Low Water EL. 570.5
Steel piles
Approximate location of 36" C.M.P. smoke stack line (Remove)

CENTERLINE

Pier 1A
℄ University Road
Concrete slope protection
10:1
Existing catch basin
Sta. 16+17.4, 24.99' Rt.
Rim El. 601.50
℄ 12" W 649.01
Underground telephone
Existing curb along University Road
Underground electric
Sta. 16+18 36.06' Rt.
No. CB 2-2-A, as per plan
See sewer profile
12" Conduit
2:1 Normal
Inclinometer B103 34.5' Right
℄ Access Drive
2:1 Normal 10:1
Piezometer P2 36.2' Right
℄ Existing 24" storm sewer
Approx. location of Proposed 6" P.E.I.P. (installed by others)
Existing
2:1
10:1
Proposed
Approx. location of Ex. 3" gasline (abandoned)
Approx. location of Ex. 6" P.E.I.P (relocated by others)
Existing catch basin
Sta. 18+38.66, 26.93' Rt.
Rim El. 601.50
℄ 12" W 598±
(Remove)
Concrete deadman
Sta. 18+80.00
El. 595.00
Sta. 19+00.00
El. 587.00
2.5:1
Slope to meet existing wall
Existing dock wall
Cuyahoga River Low Water EL. 570.5
Tie rod
steel piles
Approximate location of 36" C.M.P. smoke stack line (Remove)

25' RIGHT

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
560	1222		
		557	1257
		642	1493
		668	1457

CALCULATED L.V.B. CHECKED D.A.W.

HORIZONTAL SCALE IN FEET 0 20 40

PROFILES
25' RIGHT TO CENTERLINE

CUY-90-15.24

12
22

SEEDING

END WIDTH	SQ. YDS.

SEEDING CARRIED ON THE CALCULATION SHEET

Job No. 93111 Date 2/15/95 Drawn By: RB

15+00 16+00 17+00 18+00 19+00

680 660 640 620 600 580 560

Pier 1A
Inclinometer #1 48.5' Left
Underground telephone
Underground electric
Existing curb along University Road
10:1
West end pier El. 667.04±
Concrete slope protection
℄ Access Drive
2:1 Normal
El. 630.0
Existing manhole
Sta. 16+27.43, 46.21' Lt.
Rim El. 644.55
℄ 12" W & E 636.35
(Remove)
℄ Existing 24" storm sewer
Inclinometer #4 44.0' Left (abandon)
Approx. location of Proposed
6" P.E.I.P. (installed by others)
Approx. location of
Ex. 6" P.E.I.P
(relocated by others)
Approx. location of
Ex. 3" gasline (abandoned)
Pier 1 El. 626.22±
Existing manhole
Sta. 18+20.03, 58.23' Lt.
Rim El. 601.47
℄ 12" E & W 595.22
℄ 12" E 597.07
(Remove)
Existing catch basin (Remove)
Concrete deadman
Sta. 18+80.00
El. 595.00
Sta. 19+00.00
El. 587.00
2.5:1
Slope to meet existing wall
Existing dock wall
Tie rods
Cuyahoga River
Low Water EL. 570.5
El. 578.5±
Steel piles
Inclinometer #7 50.4' Left (abandon)
Approximate location of
36" C.M.P. smoke stack line
(Remove)

71' LEFT END CONCRETE SLOPE PROTECTION

50' LEFT

Pier 1A
℄ University Road
Underground telephone
Underground electric
Existing curb along University Road
Sta. 16+18.36.06' Lt.
No. CB 2-2-A, as per plan
See sewer profile
10:1
Concrete slope protection
℄ Access Drive
2:1 Normal
12" Conduit
Approx. location of Proposed
6" P.E.I.P. (installed by others)
Approx. location of
Ex. 3" gasline (abandoned)
℄ Existing 24" storm sewer
Approx. location of
Ex. 6" P.E.I.P (relocated by others)
Existing 12"
storm sewer
Concrete
deadman
Sta. 18+80.00
El. 595.0
Sta. 19+00.00
El. 587.00
Slope to meet existing wall
Existing dock wall
Tie rod
Steel piles
Cuyahoga River
Low Water EL. 570.5
Approximate location of
36" C.M.P. smoke stack line
(Remove)

25' LEFT

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
407	1263		
		374	1225
399	1383		
444	1206		

CALCULATED L.V.B.
CHECKED D.A.W.

HORIZONTAL SCALE IN FEET
0 20 40

PROFILES
25' LEFT TO 50' LEFT

CUY-90-15.24

13
22

SEEDING

END WIDTH	SQ. YDS.

THE CALCULATION SHEET

SEEDING CARRIED ON THE

Job No. 93111 Date 2/15/95 Drawn By RB

15+00 16+00 17+00 18+00 19+00

680 660 640 620 600 580 560

Old pier column El. 669.1±
℄ Access Drive
10:1 2:1 Normal
Old pier column El. 645.8±
2:1 Normal
Underground electric
Underground telephone
Existing curb along University Road
10:1
Old pier column El. 645.0±
(Remove to El. 594.0)
Concrete deadman
Approx. location of Ex. 3" gasline (abandoned)
Sta. 18+80.00 El. 595.0
Approx. location of Ex. 6" P.E.I.P (relocated by others)
Sta. 19+00.00 El. 587.00
2:1 Normal 10:1
Approx. location of Proposed 6" P.E.I.P. (installed by others)
2.5:1
Slope to meet existing wall
Existing dock wall
Existing 24" Storm Sewer
Tie rod
Cuyahoga River Low Water El. 570.5
Approximate location of 36" C.M.P. smoke stack line (Remove)
2 Steel piles
125' LEFT

Piezometer P5 93.0' Left
Inclinometer B107 89.6' Left
℄ Access Drive
10:1 2:1 Normal
Underground telephone
Underground electric
Existing curb along University Road
2:1 Normal
Piezometer P4 89.7' Left
Inclinometer B108 87.8' Left
10:1
Approx. location of Ex. 6" P.E.I.P (relocated by others)
Concrete deadman
Sta. 18+80.00 El. 595.0
Sta. 19+00.00 El. 587.00
Slope to meet existing wall
Existing dock wall
Approx. location of Proposed 6" P.E.I.P. (installed by others)
2:1
10:1
2.5:1
Tie rod
Cuyahoga River Low Water El. 570.5
Approximate location of 36" C.M.P. smoke stack line (Remove)
Steel piles
Approx. location of Ex. 3" gasline (abandoned)
100' LEFT

Existing manhole Sta. 16+24.71, 93.69' Lt. Rim El. 640.52 ℄ No. 7 597.92 ℄ 12" E. 633±
Reconstruct to El. 649.0
℄ Access Drive
10:1 2:1 Normal
Underground telephone
Underground electric
Existing curb along University Road
Existing manhole Sta. 16+74.58, 89.43' Lt. Rim El. 623.39 ℄ No. 7 592.69 ℄ 24" E
Reconstruct to El. 638.0
2:1 Normal
Existing manhole Sta. 18+03.69, 75.62' Lt. Rim El. 607.19 ℄ No. 7 581.89 ℄ 12" El. 594.2±
Approx. location of Proposed 6" P.E.I.P. (installed by others)
10:1 2:1
Concrete deadman
Approx. location of Ex. 3" gasline (abandoned)
Sta. 18+80.00 El. 595.00
Inclinometer B109 64.6' Left
Approx. location of Ex. 6" P.E.I.P (relocated by others)
Existing capped manhole
Sta. 19+00.00 El. 587.00
Slope to meet existing wall
Existing dock wall
10:1 2.5:1
No. 7 brick sewer (24"
Sta 19+10.11, 65.67' Rt. ℄ 36" R.C.P. El. 573.79
36" R.C.P.
Cuyahoga River Low Water El. 570.5
Tie rod
Steel piles
Approximate location of 36" C.M.P. smoke stack line (Remove)
75' LEFT

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
289	925		
		286	961
328	1150		
		329	1114
381	1256		
		365	1167

CALCULATED L.V.B. CHECKED D.A.W.

0 20 40 HORIZONTAL SCALE IN FEET

PROFILES
75' LEFT TO 125' LEFT

CUY-90-15.24

14/22

SEEDING

END WIDTH	SQ. YDS.

SEEDING CARRIED ON THE CALCULATION SHEET

15+00 16+00 17+00 18+00 19+00

660 640 620 600 580 560

Approx. location of Ex. 6" P.E.I.P

Underground electric
Underground telephone

Existing curb along University Road

Manhole not found
Sta. 16+37± 191'± Lt.

Existing manhole
Sta. 16+68, 188' Lt.
Rim El. 618.40

No. 7 Brick sewer (24")

TOTAL
LESS ACCESS DRIVE
LESS PAVED GUTTER

Approximate location of 36" C.M.P. smoke stack line (plug)
Battered piles

Existing dock wall

Cuyahoga River
Low Water EL. 570.5

194' LEFT MATCH EXISTING

Existing curb along University Road

℄ Access Drive

Underground electric
Underground telephone

2:1 Normal

6

STD NO 6 Catch basin
Sta. 15+83.13, 174.75' Lt.
Rim El. 653.64
Connect to existing 18" to west

Existing catch basin
Sta. 15+83.13, 174.75' Lt.
Rim El. 653.64
Catch basin full of dirt
℄ 18" W unknown

Existing 24" Storm Sewer

Approx. location of Ex. 6" P.E.I.P

Approx. location of Proposed 6" P.E.I.P. (installed by others)

Approximate location of 36" C.M.P. smoke stack line (Remove)

Existing dock wall

Cuyahoga River
Low Water EL. 570.5

Battered piles

175' LEFT

Old pier column El. 668.9±

℄ Access Drive

10:1

2:1 Normal

Old pier column El. 645.8±

Old pier column El. 645.0±
(Remove to El. 594.0)

Underground electric
Underground telephone

Existing curb along University Road

10:1

2:1

Concrete deadman

Approx. location of Ex. 3" gasline (abandoned)

Sta. 18+80.00
El. 595.00

Approx. location of Ex. 6" P.E.I.P (relocated by others)

Sta. 19+00.00
El. 585.00

2.5:1

Slope to meet existing wall

Existing dock wall

Existing 24" Storm Sewer

Approx. location of Proposed 6" P.E.I.P. (installed by others)

Tie rod

Approximate location of 36" C.M.P. smoke stack line (Remove)

Cuyahoga River
Low Water EL. 570.5

150' LEFT

Steel piles

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		7100	14168
			-143
			-39
0	0		
		35	166
99	470		
		188	555
307	729		
		276	766

CALCULATED L.V.B.
CHECKED D.A.W.

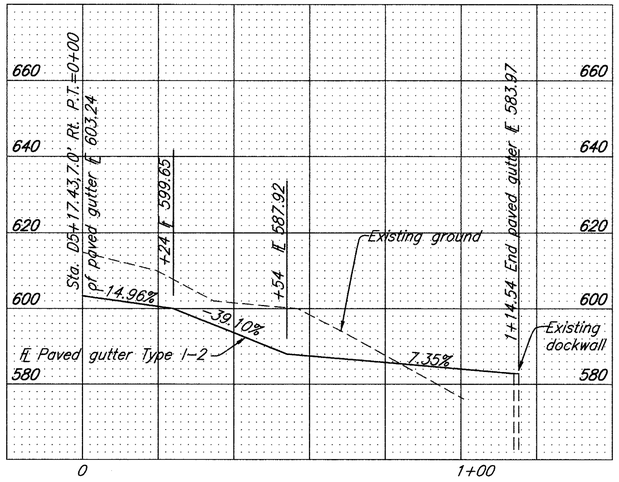
HORIZONTAL SCALE IN FEET
0 20 40

PROFILES
150' LEFT TO 186' LEFT

CUY-90-15.24

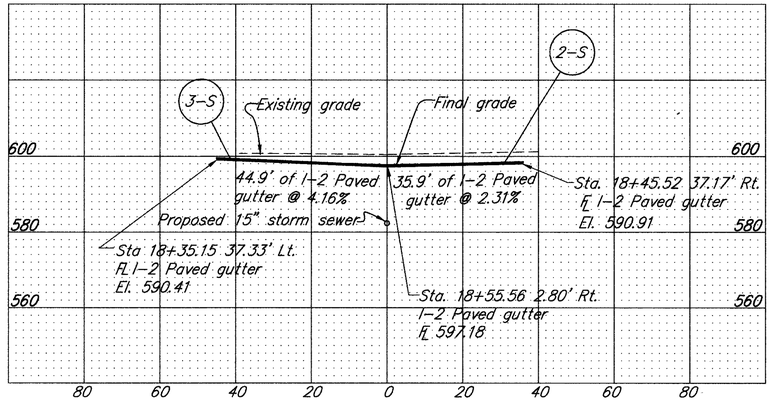
15
22

Job No. 93111 Date 2/15/95 Drawn By RB

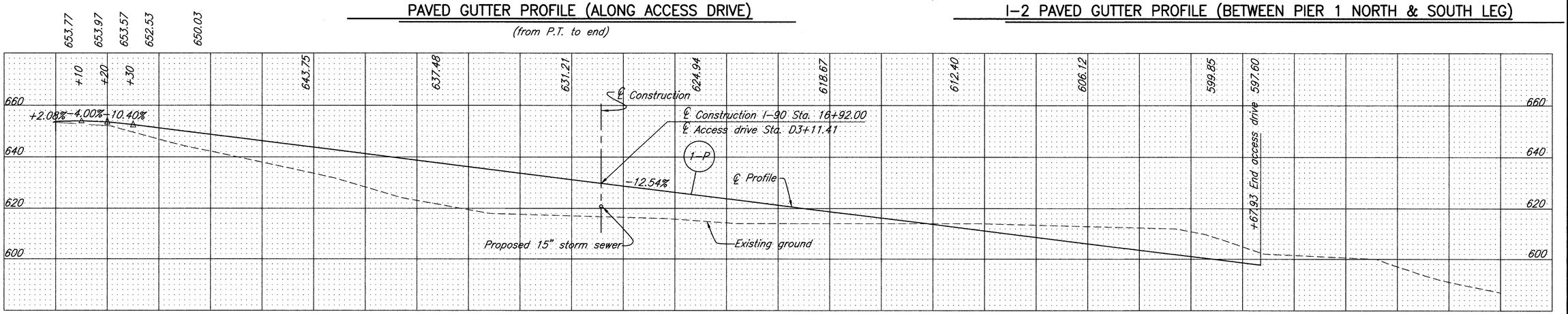


PAVED GUTTER PROFILE (ALONG ACCESS DRIVE)

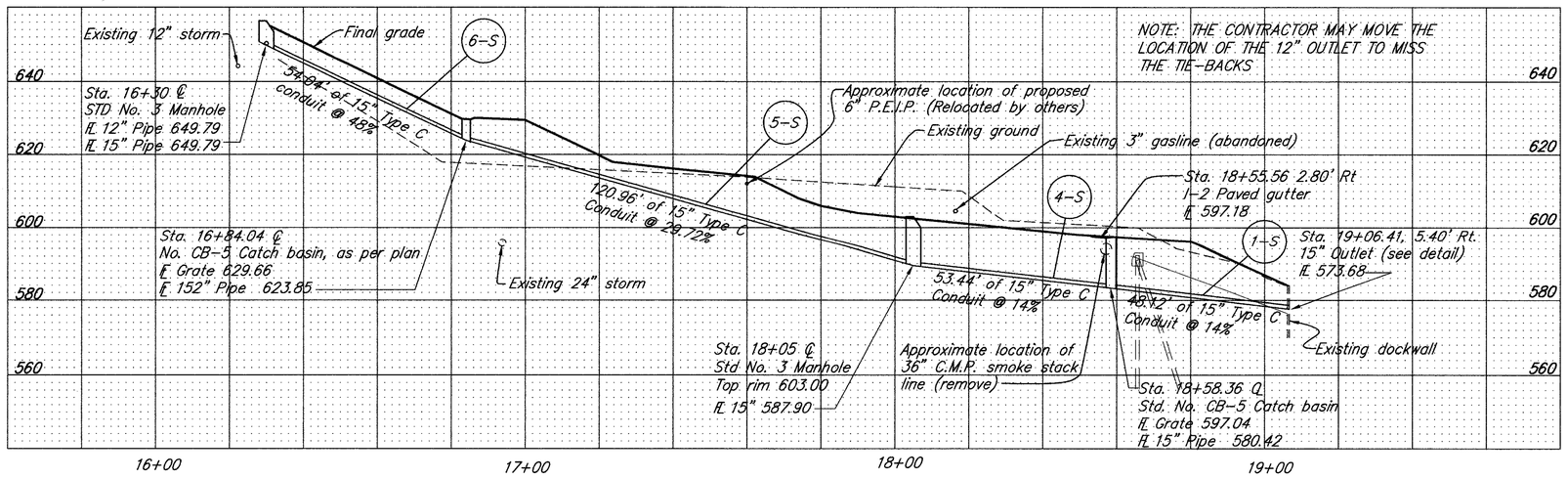
(from P.T. to end)



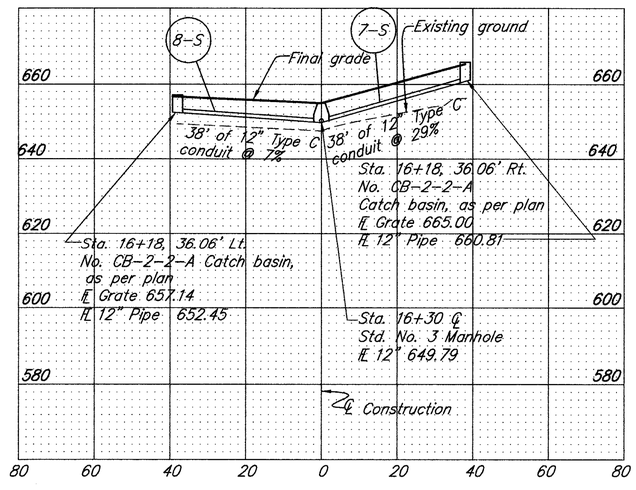
I-2 PAVED GUTTER PROFILE (BETWEEN PIER 1 NORTH & SOUTH LEG)



ACCESS DRIVE PROFILE



STORM SEWER PROFILE



STORM SEWER PROFILE

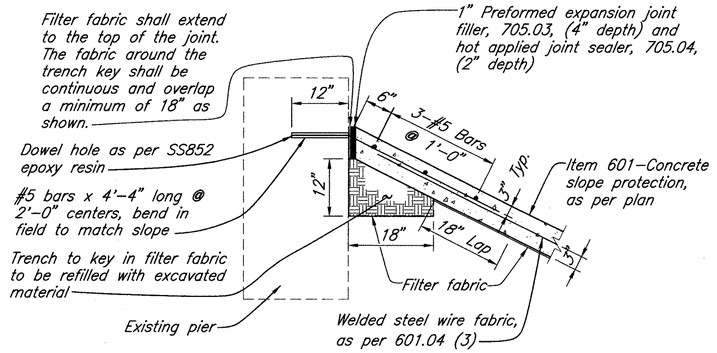
SEWER & DRIVE PROFILES

CUY-90-15.24

HORIZONTAL SCALE IN FEET
0 20 40

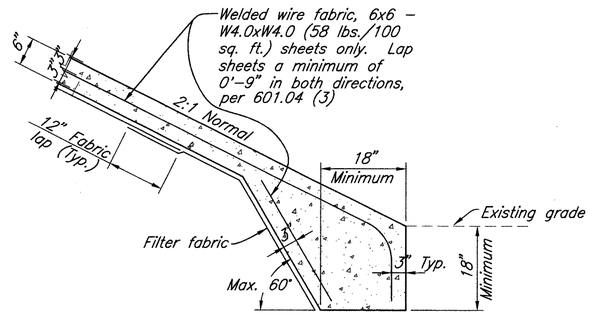
CALCULATED L.V.B.
CHECKED D.A.W.

Job No. 93111 Date 2/15/95 Drawn By RB

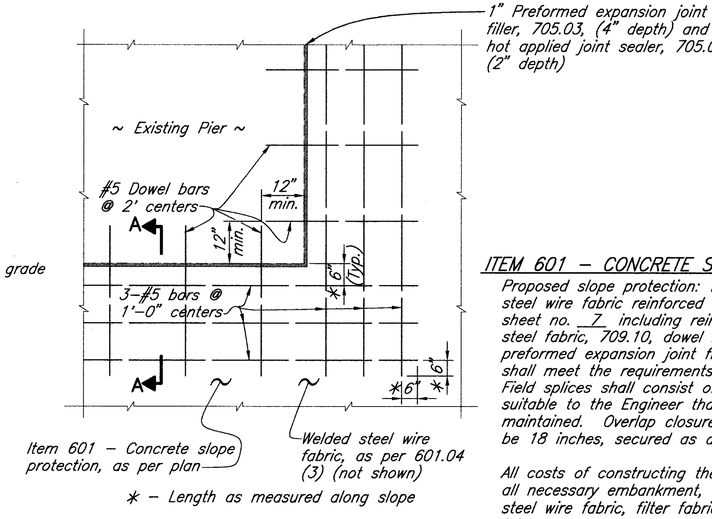


SECTION A-A

CONCRETE SLOPE ANCHORING DETAIL



AT TOE OF SLOPE



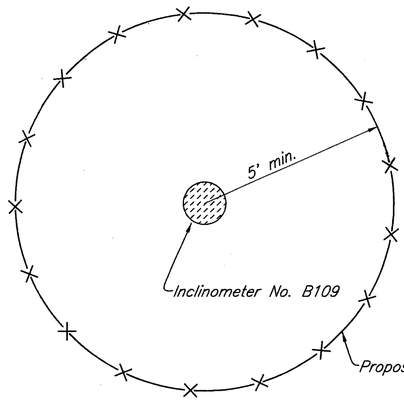
PLAN VIEW-TYPICAL ALL SIDES OF PIER

SLOPE PROTECTION REINFORCING DETAIL

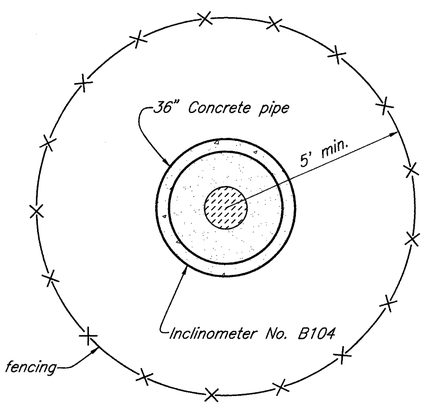
ITEM 601 - CONCRETE SLOPE PROTECTION, AS PER PLAN

Proposed slope protection: The installation of the new welded steel wire fabric reinforced slope protection as shown on sheet no. 7 including reinforcing steel, welded steel fabric, 709.10, dowel holes and grout, geotextile filter, preformed expansion joint filler and concrete. The fabric shall meet the requirements of 712.09, Type B (non-woven). Field splices shall consist of 12" overlap secured in any manner suitable to the Engineer that will assure that the overlap is maintained. Overlap closure at the top of the trench shall be 18 inches, secured as above.

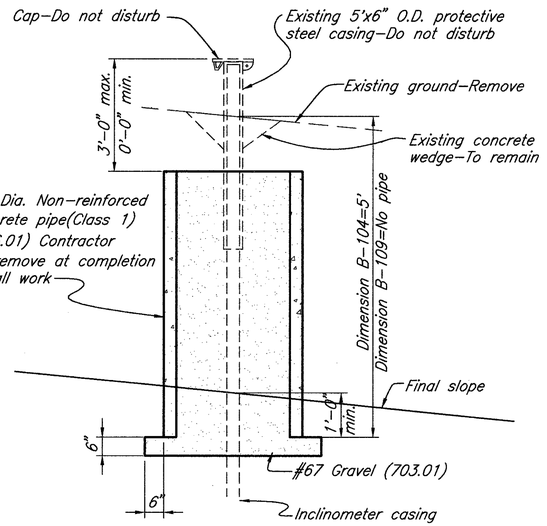
All costs of constructing the new slope protection, including all necessary embankment, excavation, rebars, dowels, welded steel wire fabric, filter fabric, preformed expansion joint filler, joint sealer, and concrete shall be included under Item 601-Concrete Slope Protection, as per plan.



PLAN METER PROTECTION TYPE 3
B-109

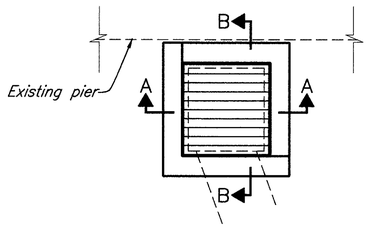


PLAN METER PROTECTION TYPE 3
B-104

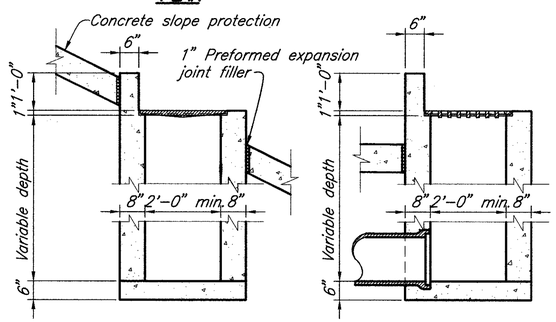


MANHOLE MISC.: METER PROTECTION TYPE 3

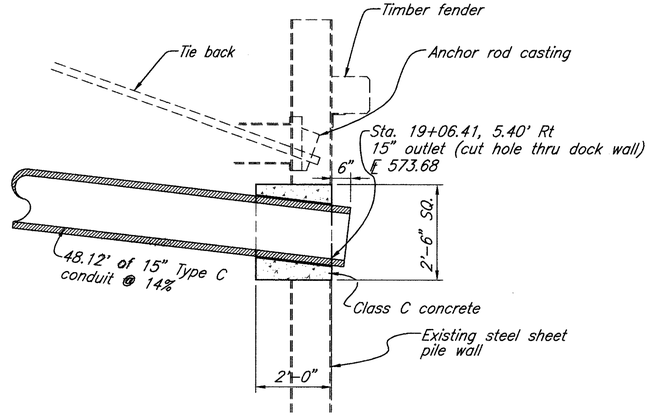
B-104 & B-109



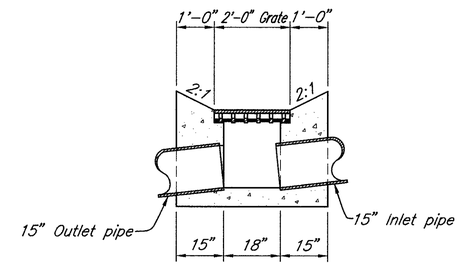
PLAN



STANDARD No. 2-2-A CATCH BASIN, AS PER PLAN



PIPE THRU DOCKWALL DETAIL



STANDARD No. 5 CATCH BASIN, AS PER PLAN

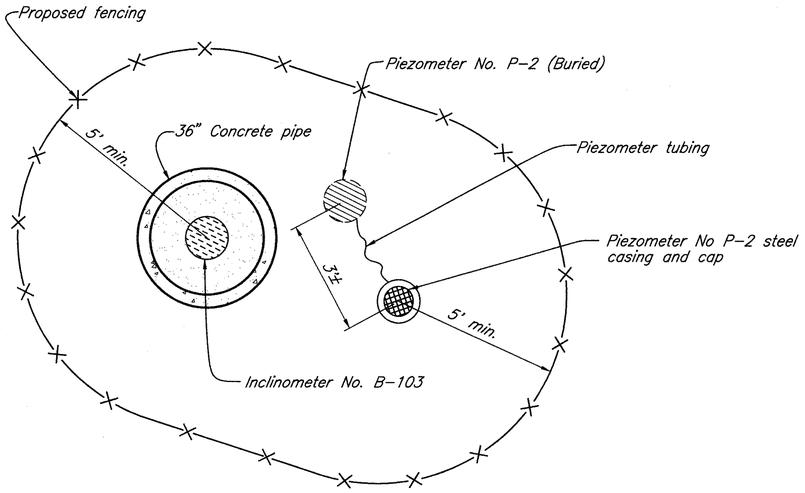
HORIZONTAL SCALE IN FEET
0 20 20 40
CALCULATED
CHECKED

DETAILS

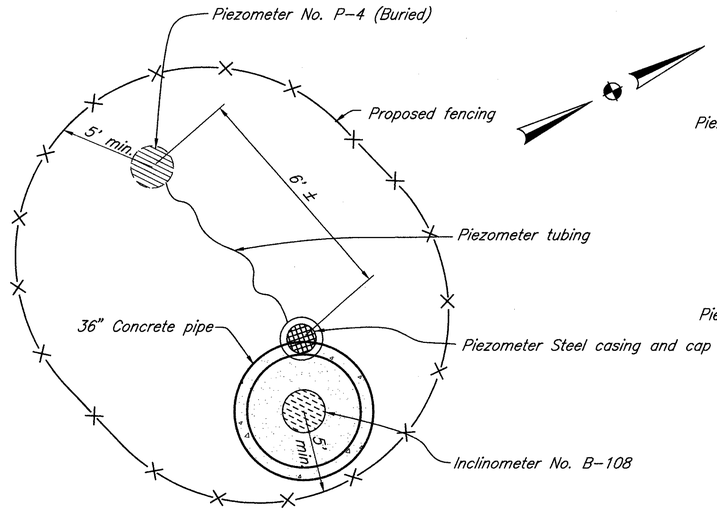
CUY-90-15.24

17
22

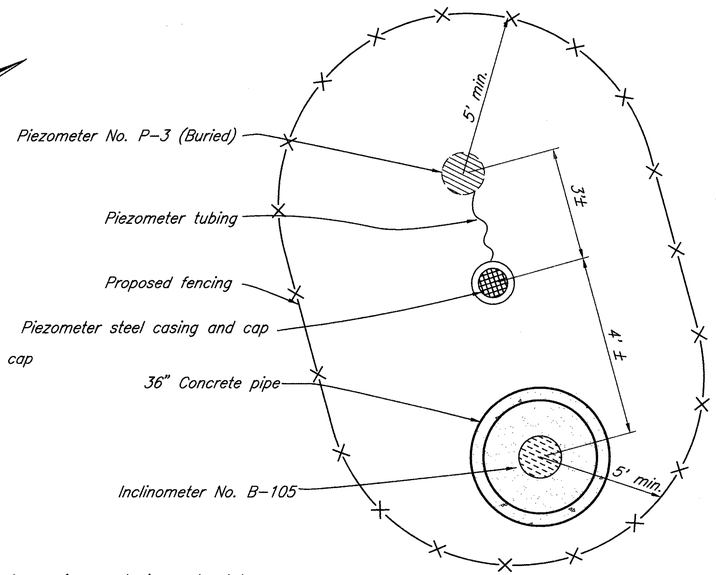
Job No. 93111 Date 2/15/95 Drawn By RB



PLAN METER PROTECTION TYPE 1
B-103 & P-2

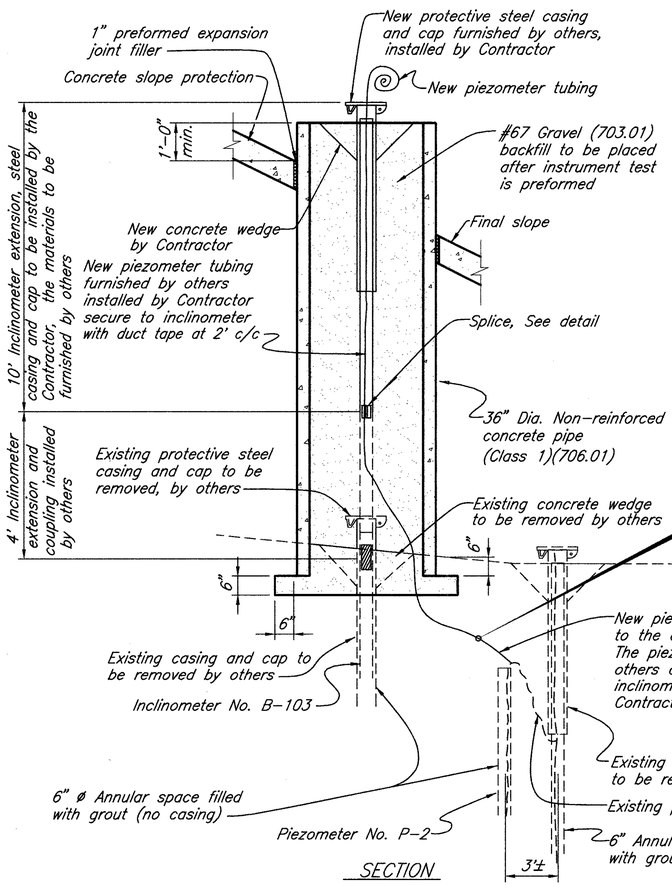


PLAN METER PROTECTION TYPE 2
B-108 & P-4



PLAN – METER PROTECTION TYPE 2
B-105 & P-3

NOTE: Inclinometer casings and piezometer tubes are encased in 1" to 3" of weak grout.

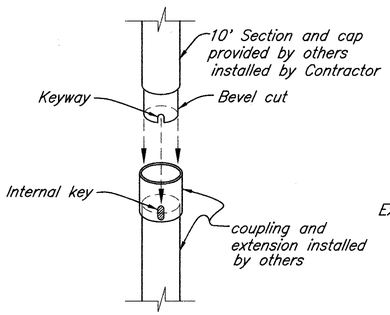


SECTION

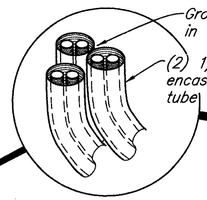
MANHOLE MISC.: METER PROTECTION TYPE 1
B-103

SPLICING NOTES

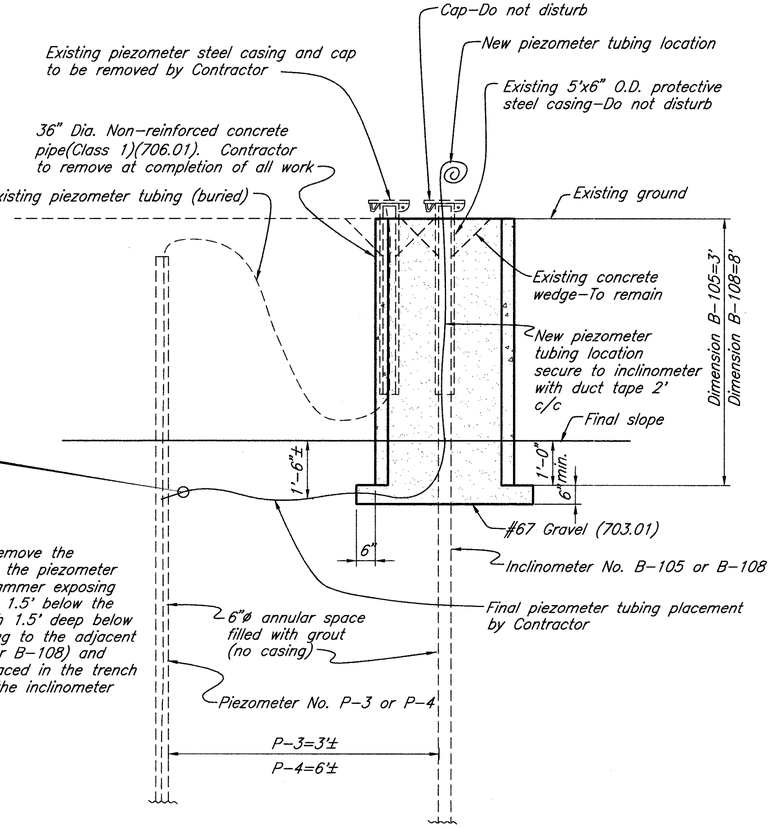
1. At all times precautions must be excersized to prohibit any objects from entering the Inclinometer.
2. Prior to making the connection the inside of coupling and the bevel cut shall be clean of dirt and debris.
3. ABS Glue shall be applied, slide extension into coupling so keyway aligns with key and that the extension seats completely. (Typically there is 1/8" space between extension and coupling)



SPLICE DETAIL
(For Proposed meter protection, Type 1)



TYPICAL PIEZOMETER TUBING



The Contractor shall remove the concrete grout around the piezometer tubing with a small hammer exposing the tubing to a depth 1.5' below the finish grade. A trench 1.5' deep below final slope shall be dug to the adjacent inclinometer (B-105 or B-108) and the tubing shall be placed in the trench and then secured to the inclinometer

MANHOLE MISC.: METER PROTECTION TYPE 2
B-105 & B-108

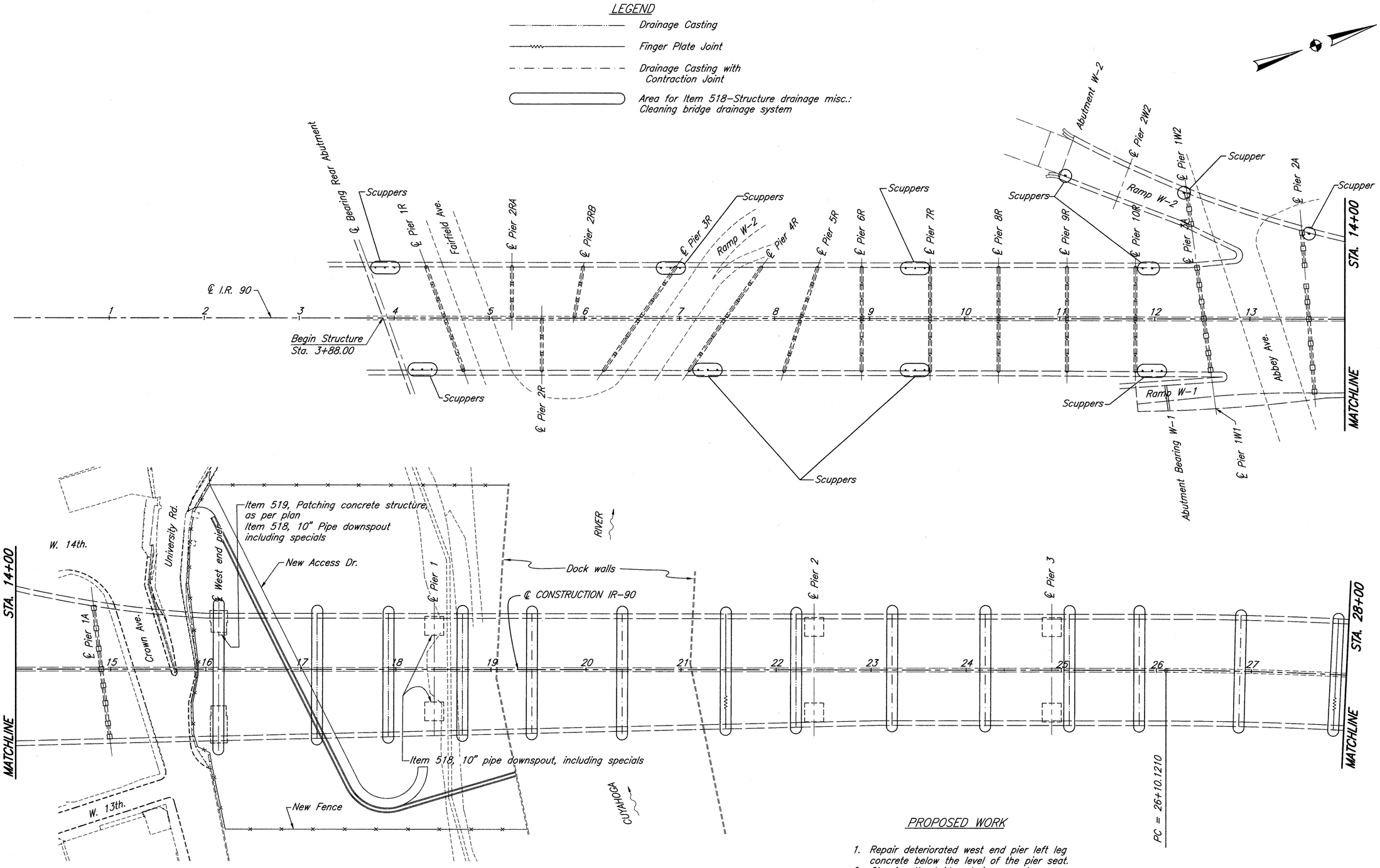
HORIZONTAL SCALE IN FEET
0 20 20 40
CALCULATED
CHECKED

INCLINOMETER AND PIEZOMETER DETAILS

CUY-90-15.24

18
22

Job No. 93111 Date 2/15/95 Drawn By RB



PROPOSED WORK

1. Repair deteriorated west end pier left leg concrete below the level of the pier seat.
2. Cleaning the bridge drainage system from deck grates to the ground below.
3. Removal of existing downspouts, supports and hopper ladder rungs. (West end pier and pier 1)
4. Installation of new downspouts.(West end pier and pier 1.)

RICHLAND ENGINEERING LIMITED
29 N. PARK ST.
MANSFIELD, OHIO

DESIGNED DT | DRAWN RB/RT | CHECKED TWH | REVISED | REVIEWED DAP | DATE 12/6/94 | STRUCTURE FILE NO. 1809393

GENERAL PLAN
BRIDGE NO. CUY–90–1524
OVER CUYAHOGA RIVER

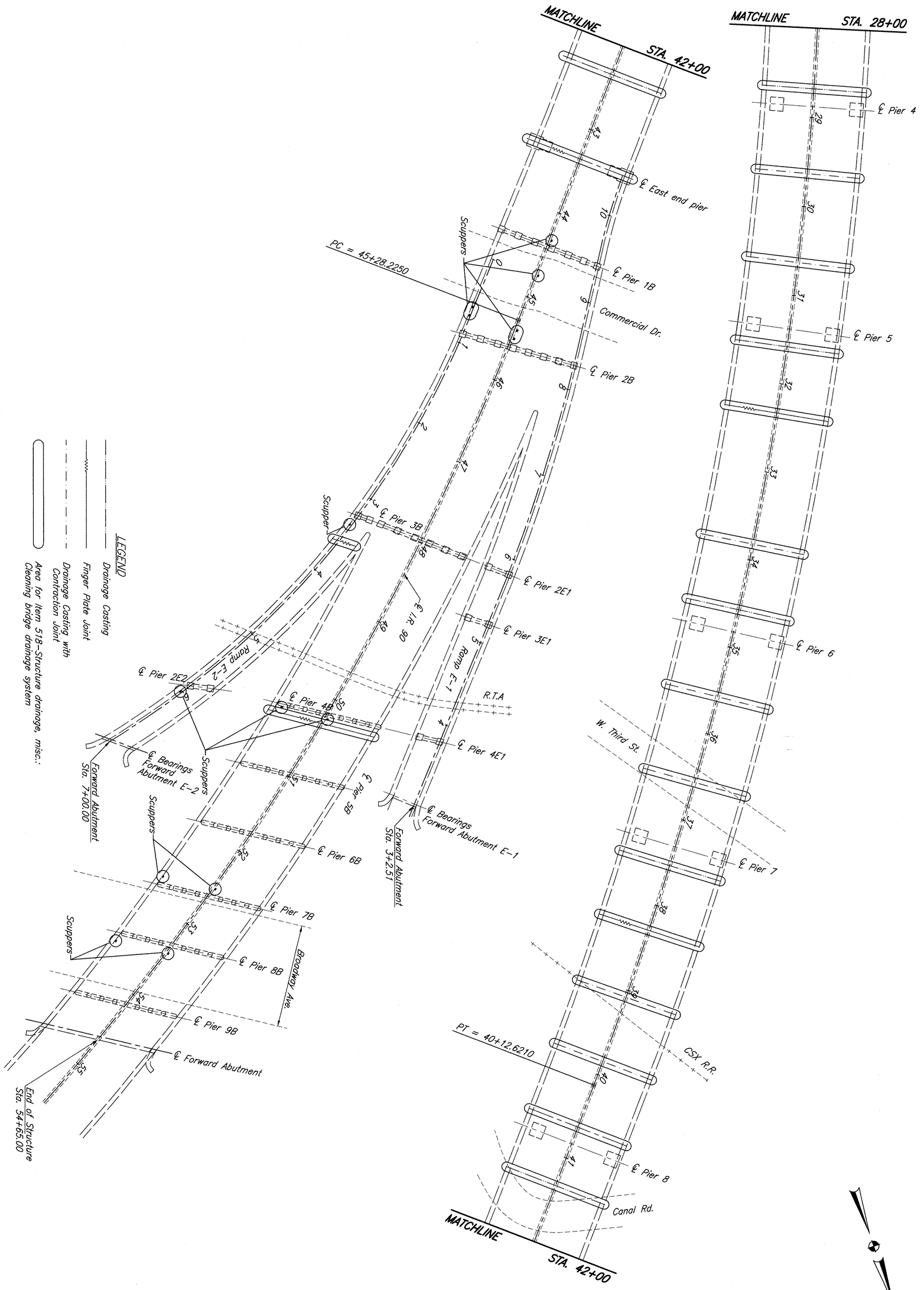
CUY–90–15.24

1 / 4

19 / 22

Job No. 93111 Date 2/15/95 Drawn By RT

Job No. 93111 Date 2/15/95 Drawn By RT



20/22	2/4	CUY-90-15.24	**GENERAL PLAN** BRIDGE NO. CUY-90-1524 OVER CUYAHOGA RIVER	DESIGNED DT	DRAWN RB/RT	REVIEWED DAP	DATE 12/6/94
				CHECKED TWH	REVISED	STRUCTURE FILE NO. 1809393	

RICHLAND ENGINEERING LIMITED
29 N. PARK ST.
MANSFIELD, OHIO

ESTIMATED QUANTITIES

ITEM	EXT. NO.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	GEN'L.	
202	98000	Lump	Lump	Removal Misc: Downspout and ladder rungs				
509	11401	200	Pound	Reinforcing steel, Grade 60, as per plan			200	
518	51200	93	L.F.	10" Pipe downspout including specials		93		
518	63300	Lump	Lump	Structure, Drainage Misc.–Cleanout of bridge drainage system				
519	11600	282	Sq.Ft.	Patching concrete structure, as per plan		141	141	

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

Reference shall be made to Supplemental Specifications:

852 7-30-93

EXISTING PLANS Original design plans and previous drainage rehabilitation plans are available for review at the ODOT District 12 offices. This ODOT office is at 5500 Transportation Blvd., Garfield Heights, Ohio.

EXISTING STRUCTURE VERIFICATION: Details and dimensions shown on these plans pertaining to the existing structure have been obtained from plans of the existing structure and from field observations and measurements. Consequently, they are indicative of the existing structure and the proposed work but they shall be considered tentative and approximate. The Contractor is referred to CMS Sections 102.05, 105.02 and 513.02.

Contract bid prices shall be based upon a recognition of the uncertainties described above and upon a prebid examination of the existing structure by the Contractor. However, all project work shall be based upon actual details and dimensions which have been verified by the Contractor in the field.

SHOP DRAWINGS shall be furnished per 501.05 for all 518 items.

REMOVAL MISC.: DOWNSPOUT, SUPPORTS AND LADDER RUNGS shall include the elements indicated in the plans and general notes and are not separately listed for payment. Items to be removed include all existing materials being replaced by new construction and miscellaneous items that are not shown to be incorporated into the final construction and are directed to be removed by the Engineer.

PIPE DOWNSPOUT shall be standard weight, schedule 40 steel pipe. Elbows shall be schedule 40 welded fittings with full penetration butt welds. Elbows and downspout inlets shall be shop fabricated with the downspouts. Field splices in the downspouts shall be Victaulic coupling Style 99, Dresser coupling Style 38, or equal.

10" Pipe downspout shall have a wall thickness of 0.365 inches.

Elbows and bends shall be smooth radius or fabricated double mitered per each 45° bend. The centerline radius shall be 18 inches.

Steel materials for downspouts, including elbows and reducers, mounting brackets, couplings and all hardware shall be galvanized per 711.02 after fabrication.

Downspouts shall be supported by brackets at a maximum spacing to 5'-0" c/c unless otherwise noted. The downspout brackets shall be anchored to the wall using 3/4" diameter bolts drilled and anchored into the pier leg using methods and materials outlined in Supplemental Specification 852. These anchors are to be considered incidental to the downspout pipe and no extra payment shall be made.

Downspout inlets shall be included in the measured length of pipe downspout.

Downspout outlet elbows shall be directed along the lines of the riprap toward catch basins as shown on the ground drainage plans.

NEW GALVANIZED STEEL shall be galvanized after fabrication per 711.02. The Contractor shall be very careful in handling the galvanized steel to minimize scratches and abrasions of the finish. Wire rope slings and metal hooks shall be padded with wood, or reinforced fabric webbing shall be used for material handling. Scratches and abrasions of the galvanized finish shall be touched up in the field by "cold applied galvanizing" as directed by the Engineer.

REPLACEMENT OF EXISTING REINFORCING STEEL: Any existing reinforcing bars which are to be incorporated into the now work and which are made unusable by the Contractor's concrete removal operations shall be replaced with new steel at their cost. Any existing reinforcing bars deemed by the Engineer to be unusable because of corrosion shall be replaced with new steel. An allowance of 200 pounds is included in Item 509 for this purpose, listed in the "General" column of the Estimated Quantities table.

CLEANING BRIDGE DRAINAGE SYSTEM: This Item consists of removing all dirt and debris from the scuppers, drainage troughs, collection boxes, hoppers, horizontal conductors and downspouts. After the dirt and debris are removed, the entire line shall be flushed out with clean water making certain the water flows smoothly to its outlet. Catch basins, paved gutters and underground storm sewers are not included for cleaning.

The Contractor shall provide necessary equipment for the purpose of examining the existing bridge drainage system. The Contractor's superintendent shall accompany the Engineer in making a detailed examination prior to beginning work and again at the completion of the work. No separate payment will be made to the Contractor to cover any costs of this examination.

All dirt and debris shall be removed from the bridge site and properly disposed of. Dirt and debris shall not be flushed into the underground system.

The following locations were noted in a September 1994 field inspection to be plugged. the list is not all inclusive and other areas may require removal of dirt and debris.

Scuppers in spans: 1R, 3R, 7R, 11R, 1B, 4B, 5B, 6B, 8B and ramps W-2, E-1 and E-2
Collection Hoppers: West end pier (two hoppers), Span 4, floorbeam 8 (two hoppers), Span 4, floorbeam 12 (one hopper), Span 8 floorbeam 7 (one hopper), East end pier (three hoppers)
Downspouts: West end pier (two segments), Span 4, floorbeam 8 (one segment) Span 8, floorbeam 7 (one segment), east end pier (four segments)
Pier or collection Troughs: Hoppers: West end pier (one hopper), east end pier (three hoppers West end pier (one location), east end pier (one location)

The cost of all labor, tools, materials and equipment necessary to complete the cleanout of the bridge drainage system shall be included in the lump sum price bid for Item 518- Structure drainage, misc.: Cleaning bridge drainage system.

BRIDGE NUMBERING: Floorbeams are numbered in each span (from rear to forward) with 0 being at the pier where the span begins and the numbers increase as you move ahead. Example: Floorbeam 0 is directly over a pier and a floorbeam 5 is the fifth floorbeam ahead of the pier

PATCHING CONCRETE SURFACES, AS PER PLAN The area to be patched under this item includes the left leg of the west end pier. The purpose of this patching is to provide a solid surface for downspout supports and protect reinforcing steel on sections of the pier to be covered by embankment being placed within 10 feet of th west end pier.

Prior to the concrete removal the Contractor shall sawcut the proposed patch perimeter. The sawcut shall be one inch deep or to the existing reinforcing steel if less than one inch.

After completion of the removal operation, the Engineer will sound the areas to insure that only solid concrete remains. Concrete may be removed by chipping or hand dressing. Chipping hammers shall not be heavier than the nominal 35 pound class. Where existing reinforcing bars would be less than one inch from the proposed finish surface of concrete, they shall, if practical, be driven back into recessed cut in the masonry to obtain that coverage unless otherwise approved by the Engineer.

Cleaning shall precede application of the patching material by not more than 24 hours. The surface to be patched and the exposed reinforcing steel shall be thoroughly cleaned by abrasive blasting to Grade SA-2 1/2 / SSPC-SP10, followed by an air blast. The abrasive used for blast cleaning shall have less than 1% free silica. It may be necessary to to use hand tools to remove scale from the reinforcing steel. Surfaces shall be made free of spall, laitance and all traces of foreign material. If necessary, detergent cleaning shall precede blast cleaning to insure th removal of contaminates detrimental to achieving an adequate bond. All unchipped surfaces that will recieve new concrete shall be mechanically roughened.

Forms shall be erected flush with the faces of repair areas to insure that the concrete does not escape from the patch area.

The coarse aggregate for the patching material shall be the largest practical and allowable size for the thickness of the patch.

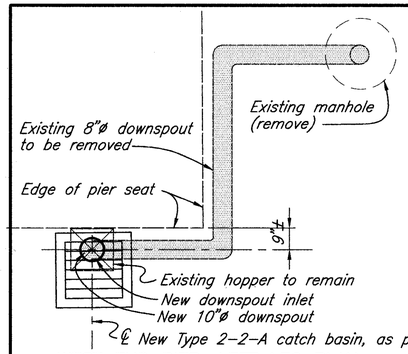
Job No. 93111 Date 2/15/95 Drawn By SB,RB

RICHLAND ENGINEERING LIMITED
29 N. PARK ST.
MANSFIELD, OHIO

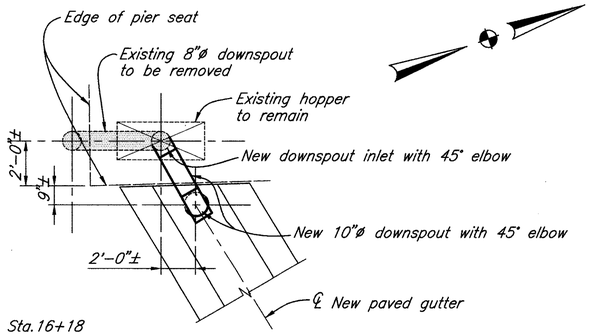
DESIGNED DT | DRAWN SB | CHECKED TWH | REVISED | REVIEWED DAP | DATE 12/6/94 | STRUCTURE FILE NO. 1809393

GENERAL NOTES & ESTIMATED QUANTITIES
BRIDGE NO. CUY-90-1524
OVER CUYAHOGA RIVER

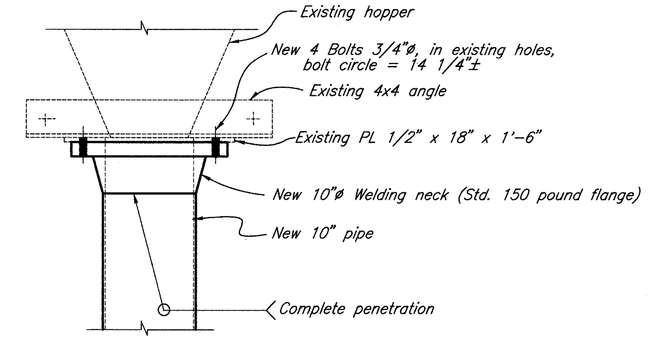
CUY-90-15.24



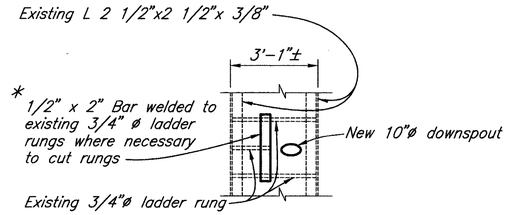
WEST END PIER, LEFT LEG PLAN
(South face)



PIER 1, LEFT LEG PLAN
(South face)

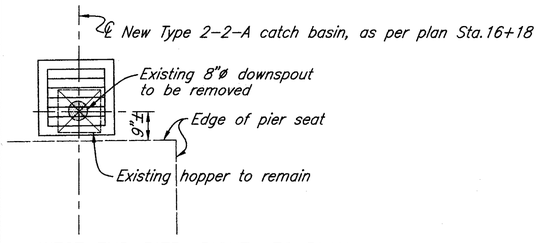


DOWNSPOUT INLET DETAIL

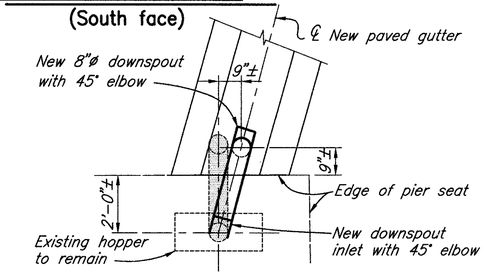


LADDER RUNG MODIFICATION DETAIL

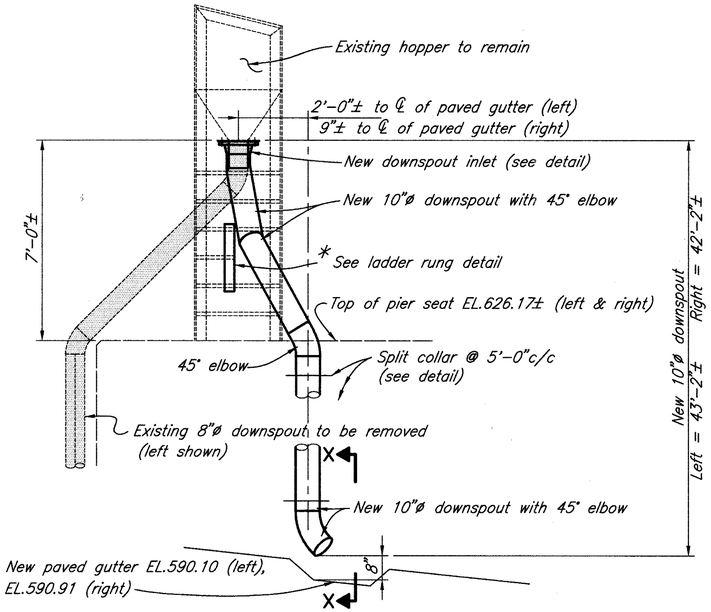
* This work is considered incidential to Item 518, 8" pipe downspout, including specials, as per plan.



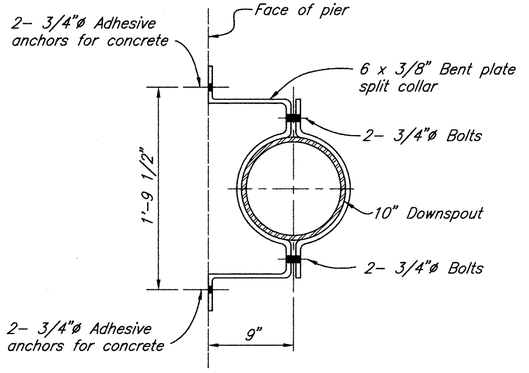
WEST END PIER, RIGHT LEG PLAN
(North face)



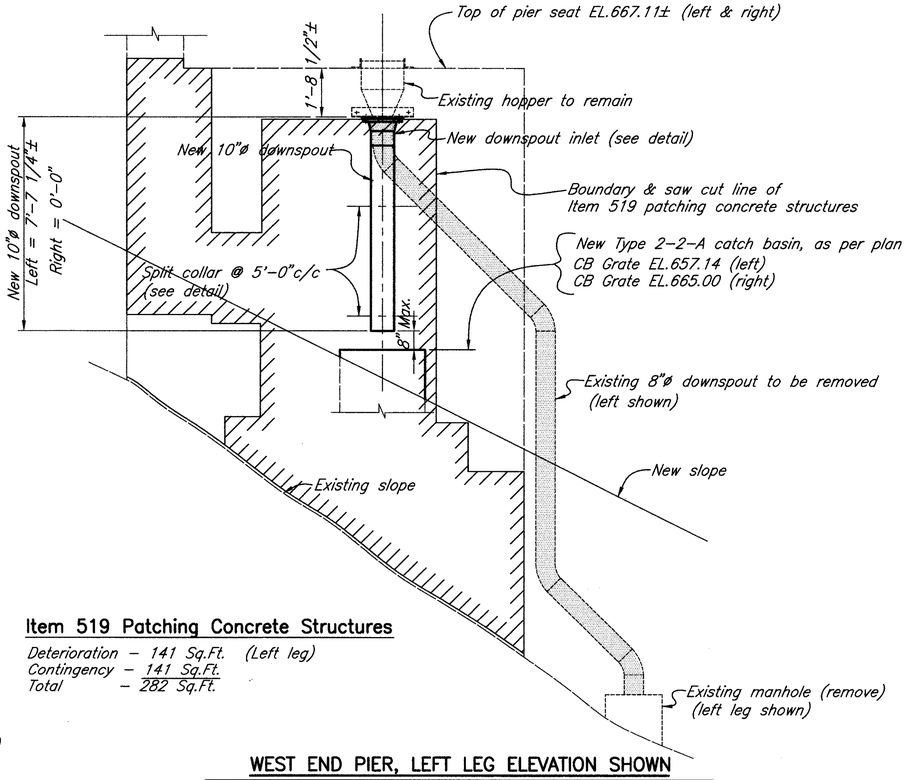
PIER 1, RIGHT LEG PLAN
(North face)



PIER 1, LEFT LEG ELEVATION SHOWN
(South face)
PIER 1, RIGHT LEG ELEVATION SIMILAR
(North face)



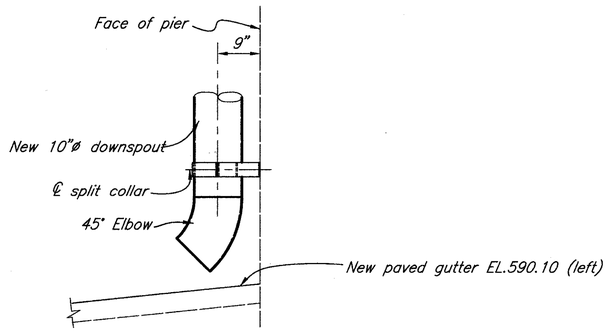
SPLIT COLLAR DETAIL



Item 519 Patching Concrete Structures

Deterioration – 141 Sq.Ft. (Left leg)
Contingency – 141 Sq.Ft.
Total – 282 Sq.Ft.

WEST END PIER, LEFT LEG ELEVATION SHOWN
(South face)
WEST END PIER, RIGHT LEG ELEVATION SIMILAR
(North face)



SECTION X–X

NOTES

— *Indicates downspout to be removed per Item 202, Removal misc.: Downspout, supports and ladder rungs.*

— *Indicates boundary of Item 519 Patching concrete structure, as per plan.*

Job No. 93111 Date 2/10/95 Drawn By RB

RICHLAND ENGINEERING LIMITED
29 N. PARK ST.
MANSFIELD, OHIO

DESIGNED DT | DRAWN TWH | REVIEWED DAP | DATE 12/6/94
CHECKED JPS | REVISED | STRUCTURE FILE NO. 1809393

DOWNSPOUT DETAILS
BRIDGE NO. CUY–90–1524
OVER CUYAHOGA RIVER

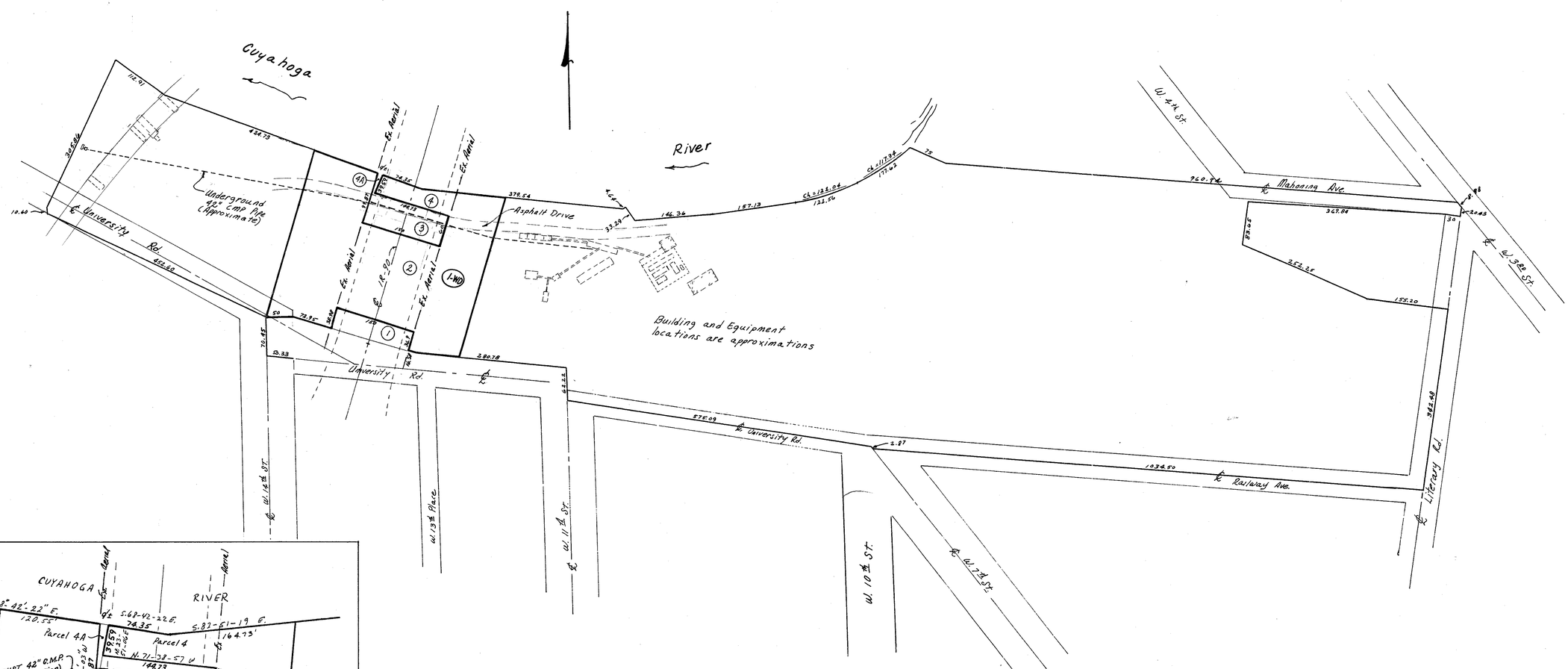
CUY–90–15.24

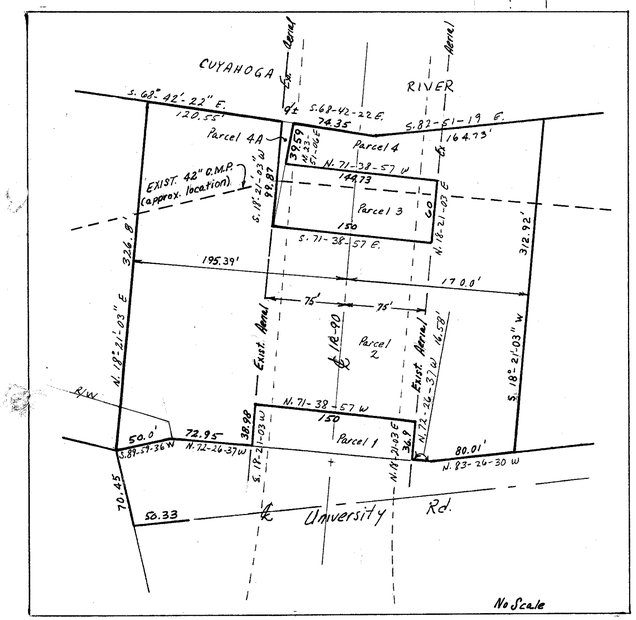
4 / 4

22
22

8-33

CUYAHOGA COUNTY CUY - 90 - 15.24	OHIO FHWA REGION 5 FEDERAL PROJECT	2.2A 2.2





SUMMARY OF ADDITIONAL RIGHT OF WAY

PARCEL NO.	OWNER	SHEET NO.	OWNERS BOOK	RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA (Ac.)	TOTAL P. R. O.	GROSS TAKE	P. R. O. IN TAKE	NET TAKE	NET RESIDUE LEFT	NET RESIDUE RIGHT		TYPE FUND	REMARKS AND PERSONALTY	AS REQUIRED BOOK	AS REQUIRED PAGE
1-WD	**River West Dock, Inc.**	1	88-6729	35	4-27-1 4-27-2 4-31-6	23.84	0.53 Ac. *	2.24 Ac.	.03 Ac.	2.21 Ac.	3.09	18.51		State			

* There is an existing Aerial Easement for the property under the bridge.
(Parcel 2 & 4 / 30417 S.F)

REV JPW 6-6-95

RIGHT - OF - WAY

Rev 12-6-94
~~Rev 8-31-93~~
~~Rev 1-18-93~~