CITY OF WILLARD, OHIO

WATER SUPPLY & TREATMENT

CONTRACT NO. 3

DIVERSION DAM, RESERVOIR, PUMP STATIONS

1969

APPROVED FOR THE
BOARD OF COMMISSIONERS
HURON COUNTY, OHIO

C. C. Lovegrove
COUNTY ENGINEER

March 13, 1969
DATE

CHARLES GROSSMAN MAYOR
JOSEPH DUSH VICE MAYOR

MEMBERS OF COUNCIL

WILCOX TAYLOR PRESIDENT

STANLEY CULLER
WADE EDEN
MERLE FRYE

RALPH GRAHAM
JAMES SLOSSER
ARTHUR STEARNS

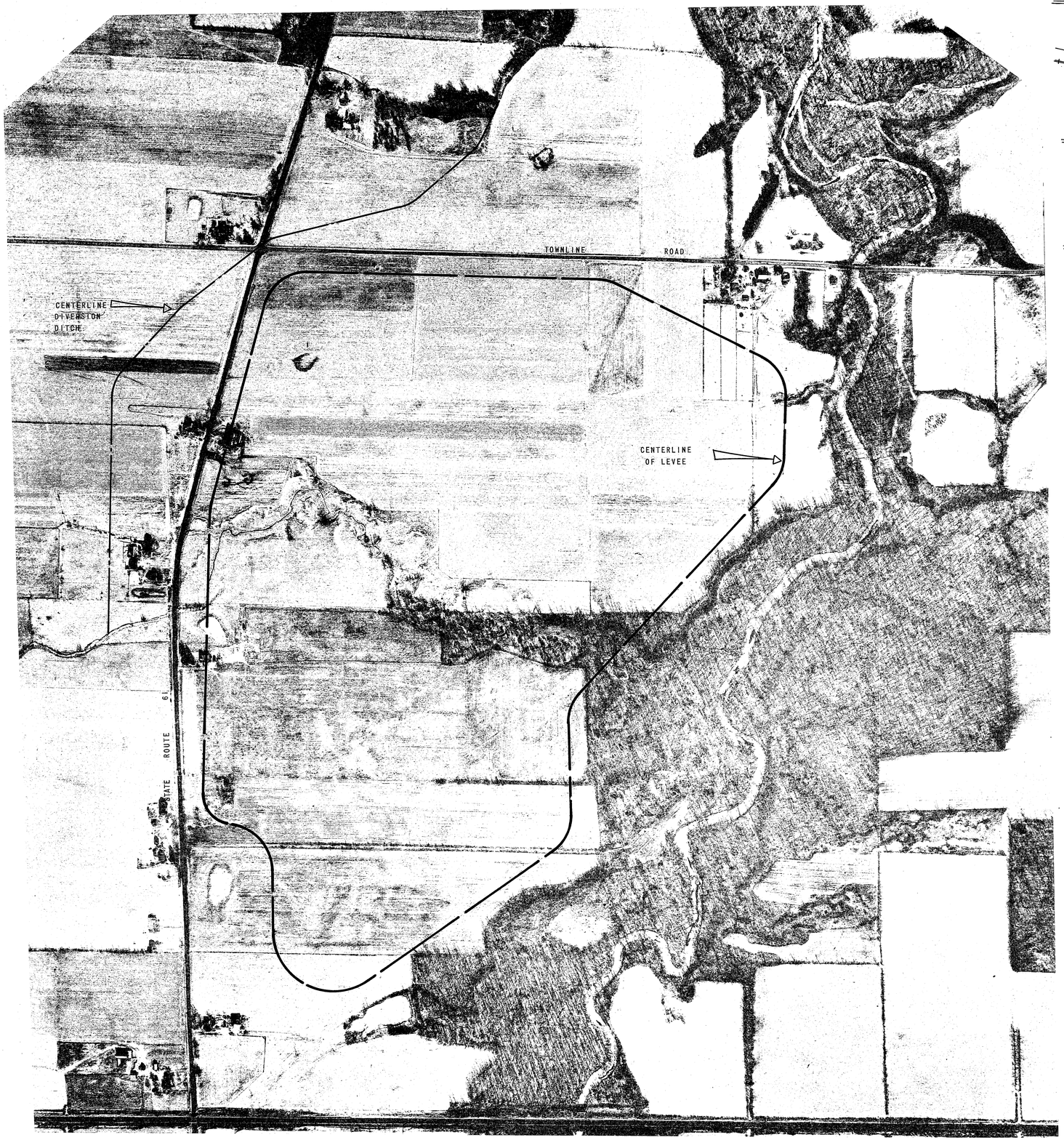
MICHAEL G. DRENIC JR. CITY MANAGER
ROBERT THORNTON LAW DIRECTOR

IN COOPERATION WITH THE
STATE OF OHIO
JAMES A. RHODES GOVERNOR
DEPARTMENT OF NATURAL RESOURCES
FRED E. MORR DIRECTOR

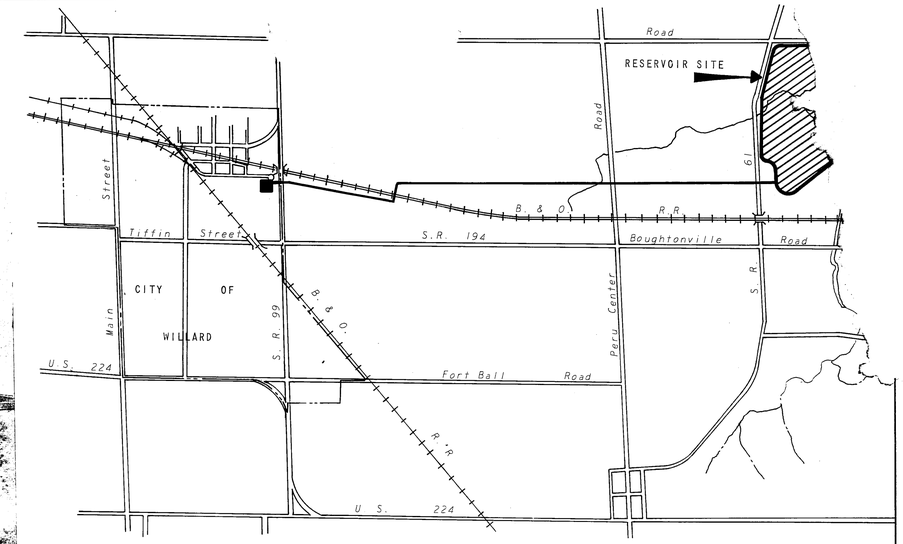
JONES & HENRY
ENGINEERS LIMITED
TOLEDO, OHIO

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT PROJECT NO.
H.U.D. WS - OHIO - 225

WIC-MS-02-68



SITE PLAN
Scale: 1" = 300'



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LOCATION PLAN
Scale: 1" = 2000'

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1	Location And Site Plan
2	South Half-Borings, Test Pits And Centerline Alignment.
3	North Half-Borings, Test Pits And Centerline Alignment.
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5	Levee Location Plan - North East Section.
6	Levee Location Plan - West Center Section.
7	Levee Location Plan - East Center Section.
8	Levee Location Plan - South West Section.
9	Levee Location Plan - South East Section.
10	Location Plan - River Water Pumping Station, Stilling Basin, & Diversion Dam.
11	Plan - Roadways & Parking At Raw Water Pumping Station.
12	Diversion Dam - Plan, Sections,& Details.
13	River Water Pumping Station - Architectural Elevations, Plan, & Details.
14	River Water Pumping Station - Foundation Plans And Sections.
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21	Reservoir Pumping Station - Valve Chamber Details And Section Thru Levee.
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23	Profile - 48" River Water Pipe Line, Paved Roadway And Stair Details.
24	Draniage Profiles And Details.
25	Boat Ramp - Sections And Details.
26	Recreation Facilities Latrine Plans,Sections & Details
27	Recreation facilities Well Shelter & Miscellaneous Details
28	Electrical Details

JONES & HENRY ENGINEERS LIMITED
TOLEDO, OHIO

HUD. PROJECT NO. WS-OHIO-225

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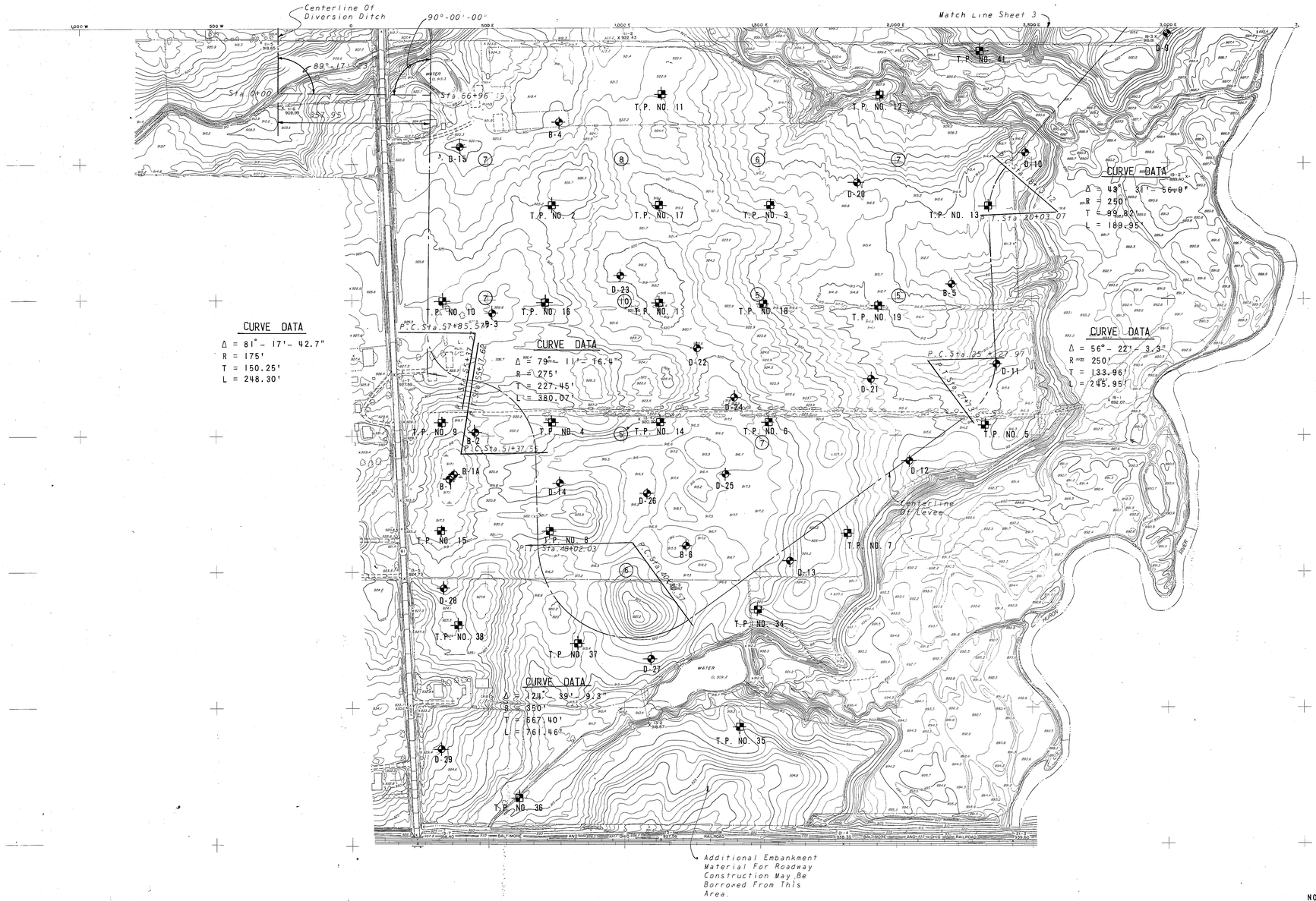


Additional Embankment Material For Roadway Construction May Be Borrowed From This Area.

NOTE:

For Logs Of Borings And Test Pits See Specifications

BORING

TEST PIT

(7) INDICATES APPROXIMATE DEPTH (IN FT.) OF COHESIVE MATERIAL THAT MAY BE EXCAVATED

DATE OF PHOTOGRAPHY FEBRUARY 1968 DATE OF MAPPING MARCH 1968

COMPILED BY PHOTOGRAMMETRIC METHODS

BY

ABRAMS AERIAL SURVEY CORPORATION

LANSING, MICHIGAN

N

200 0 200 400 600

SCALE 1" = 200' CONTOUR INTERVAL 1'

H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

NO.	DATE	REVISIONS			CH'K BY
FLD. BK.		SCALE	DRN.	CK'D	APR.
			BEH	CRN	HAK

RESERVOIR PLAN SOUTH HALF
BORING AND TEST PIT LOCATIONS
AND CENTERLINE ALIGNMENT

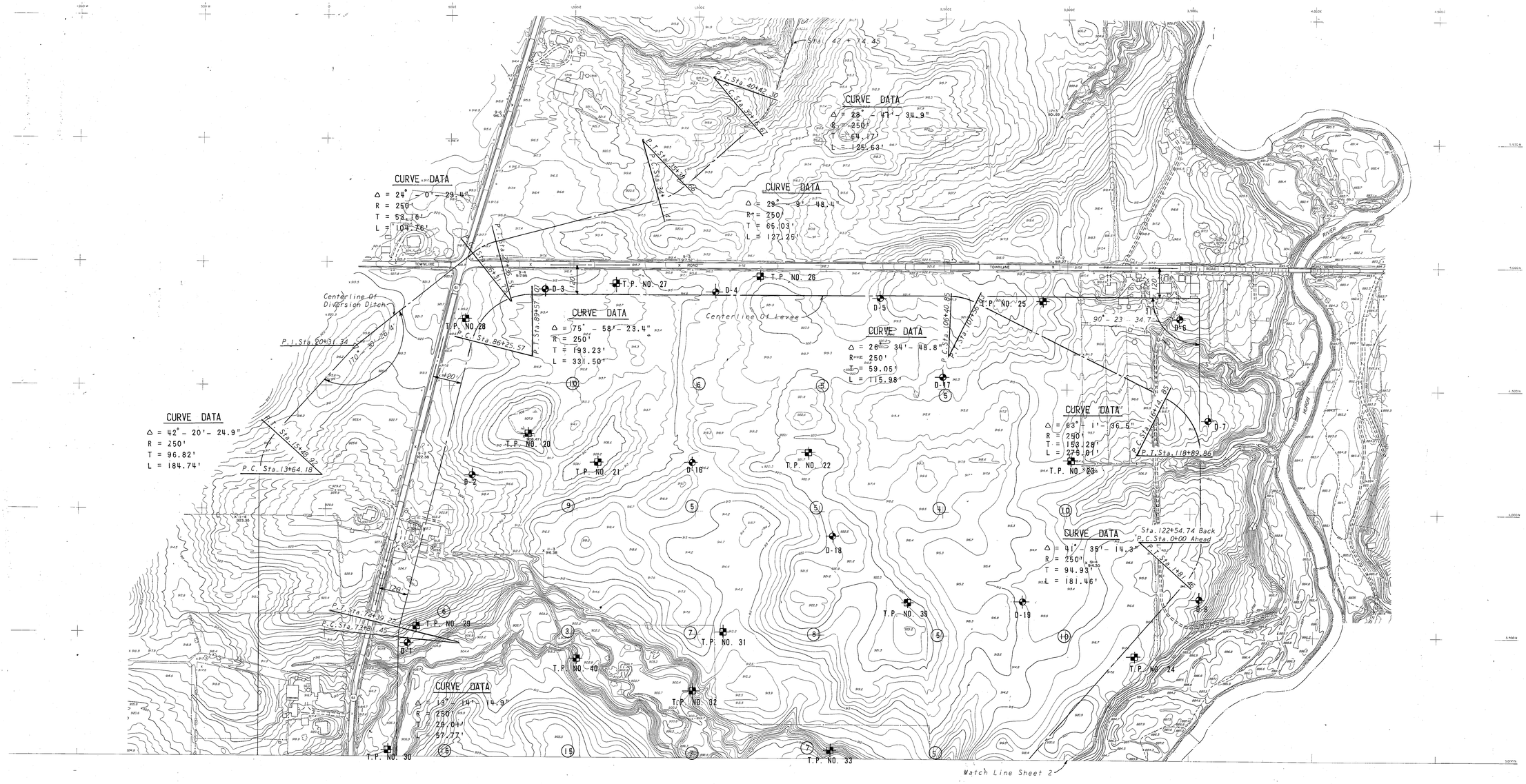
JOB NO. 70 W 3 0 2

DATE JULY 1968

JONES & HENRY ENGINEERS
LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 2 OF 28

K&E 17 0153 1-68*



BORING

TEST PIT

(7) INDICATES APPROXIMATE DEPTH (IN FT.) OF COHESIVE MATERIAL THAT MAY BE EXCAVATED.

DATE OF PHOTOGRAPHY FEBRUARY 1968 DATE OF MAPPING MARCH 1968

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LANSING, MICHIGAN

N

200 0 200 400 600

SCALE 1" = 200' CONTOUR INTERVAL 1'

H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

RESERVOIR PLAN NORTH HALF
BORING AND TEST PIT LOCATIONS
AND CENTERLINE ALIGNMENT

NO.	DATE	REVISIONS	CH'K BY.

FLD. BK.	SCALE	DRN.	CK'D	APR.
		R.E.H.	C.R.N.	[illegible]

JOB NO. T 9 W 3 D 2

DATE JULY 1968

JONES & HENRY ENGINEERS
LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

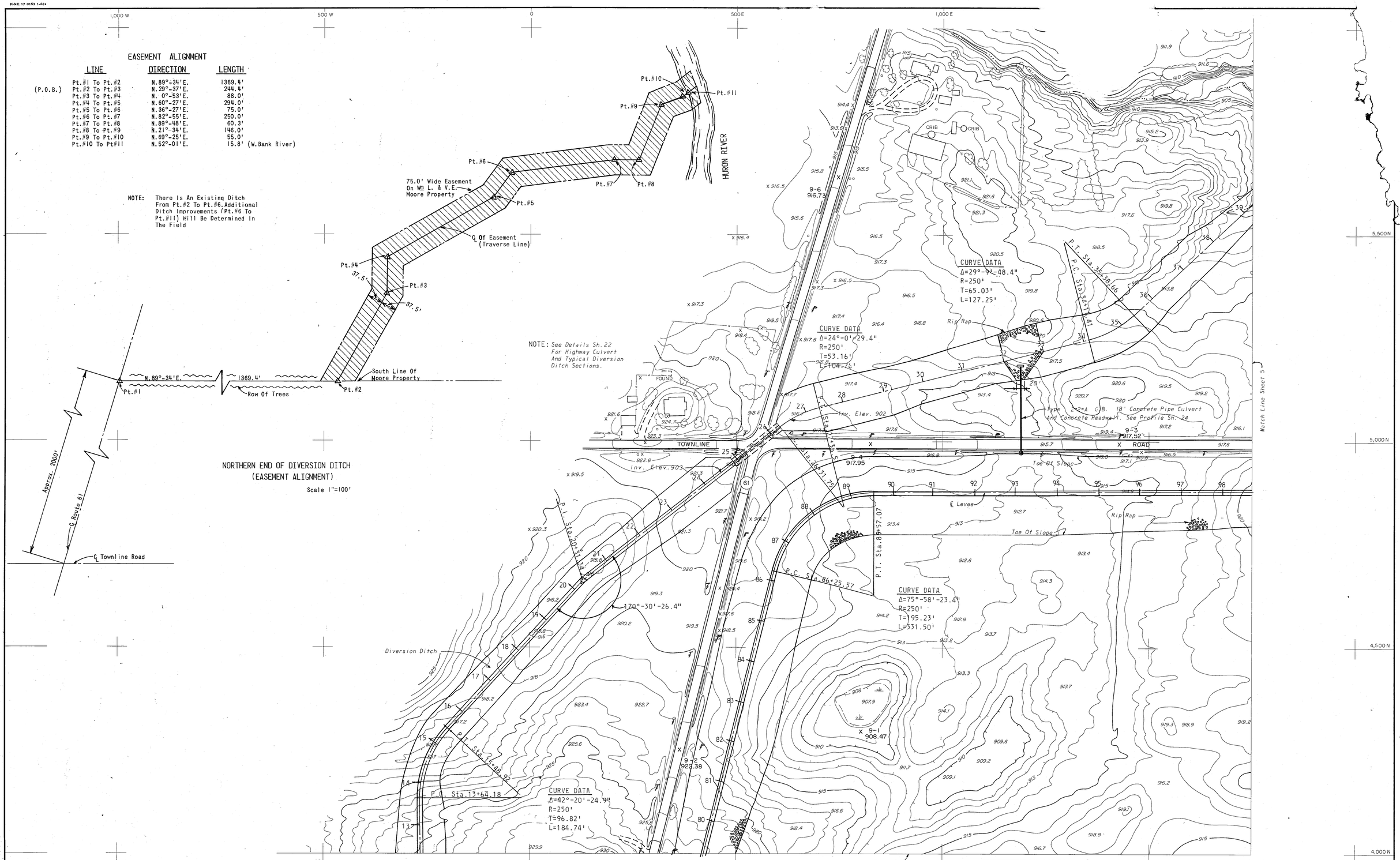
DRAWING NO. 3 OF 28

K&E 17 0153 1-58•

EASEMENT ALIGNMENT

	LINE	DIRECTION	LENGTH
(P.O.B.)	Pt.#1 To Pt.#2	N.89°-34'E.	1369.4'
	Pt.#2 To Pt.#3	N.29°-37'E.	244.4'
	Pt.#3 To Pt.#4	N. 0°-53'E.	88.0'
	Pt.#4 To Pt.#5	N.60°-27'E.	294.0'
	Pt.#5 To Pt.#6	N.36°-27'E.	75.0'
	Pt.#6 To Pt.#7	N.82°-55'E.	250.0'
	Pt.#7 To Pt.#8	N.89°-48'E.	60.3'
	Pt.#8 To Pt.#9	N.21°-34'E.	146.0'
	Pt.#9 To Pt.#10	N.69°-25'E.	55.0'
	Pt.#10 To Pt#11	N.52°-01'E.	15.8' (W.Bank River)

NOTE: There Is An Existing Ditch From Pt.#2 To Pt.#6. Additional Ditch Improvements (Pt.#6 To Pt.#11) Will Be Determined In The Field



NORTHERN END OF DIVERSION DITCH
(EASEMENT ALIGNMENT)
Scale 1"=100'

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COMPILED BY PHOTOGRAMMETRIC METHODS
BY
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LANSING, MICHIGAN

N

SCALE 1"=100' — 100 0 100 200 300 — CONTOUR INTERVAL 1'

4	5
6	7
8	9

H.U.D PROJECT NO. WS-OHIO-225

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

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		R.E.H.	C.R.N.	H.A.K.

JOB NO. 78 W 3 0 2
DATE JULY 1968

RESERVOIR PLAN
LEVEE AND DIVERSION DITCH LOCATION
NORTH WEST SECTION

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DRAWING NO. 4 OF 28

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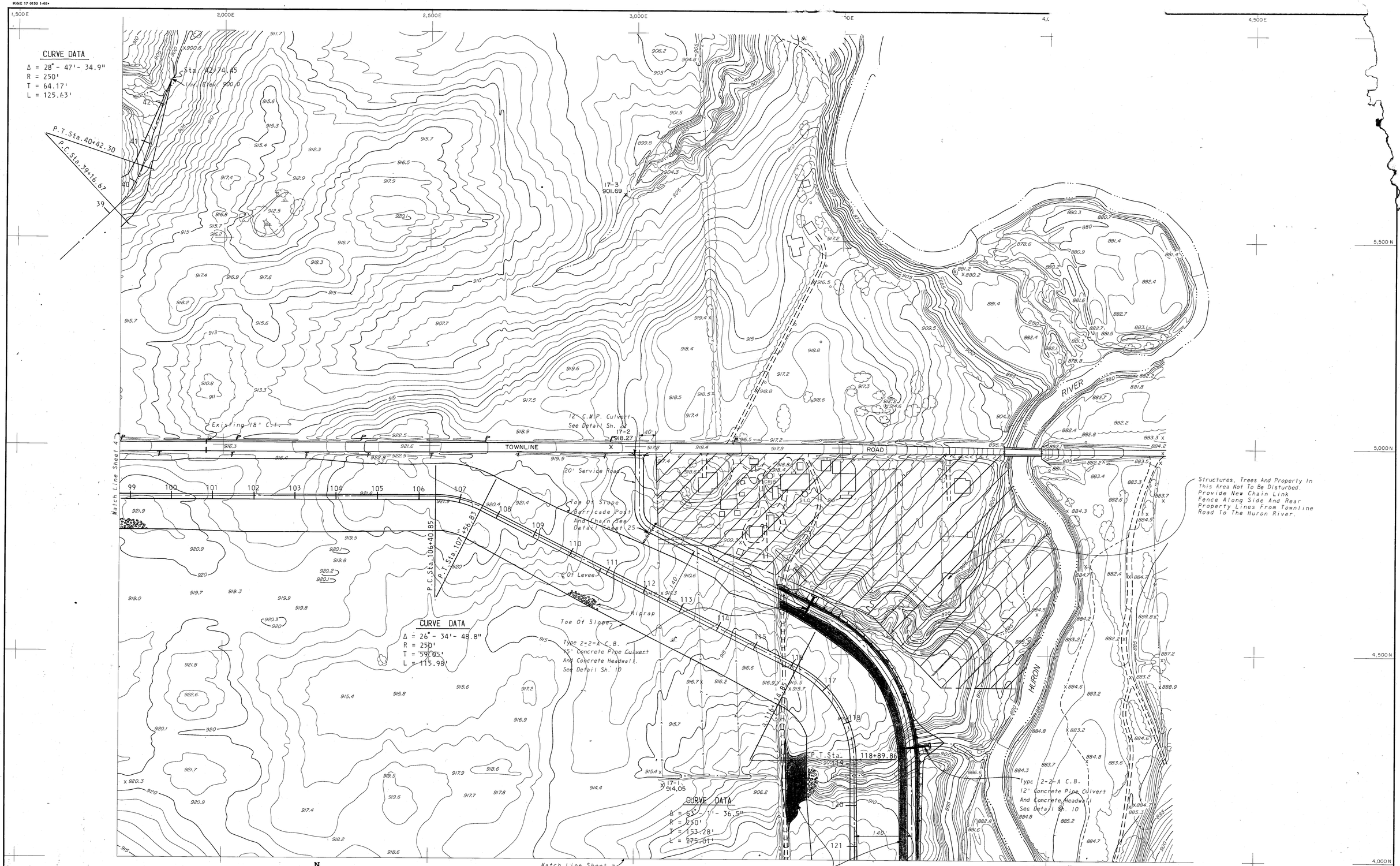

DATE OF PHOTOGRAPHY FEBRUARY 1968 DATE OF MAPPING MARCH 1968

COMPILED BY PHOTOGRAMMETRIC METHODS

BY

ABRAMS AERIAL SURVEY CORPORATION

LANSING, MICHIGAN

N

SCALE 1" = 100' — CONTOUR INTERVAL 1'

4	5
6	7
8	9

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WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO 3

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		J.C.H.	C.R.N.	H.A.K.

RESERVOIR PLAN
LEVEE AND DIVERSION DITCH LOCATION
NORTH EAST SECTION

JOB NO. 79 W 3 D 2

DATE JULY 1968

JONES & HENRY ENGINEERS
LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 5 OF 28

K&E 17 0153 1-68+

DATE OF PHOTOGRAPHY FEBRUARY 1968 DATE OF MAPPING MARCH 1968

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BY

ABRAMS AERIAL SURVEY CORPORATION

LANSING, MICHIGAN

N

SCALE 1" = 100' — CONTOUR INTERVAL 1'

4	5
6	7
8	9

H.U.D. PROJECT NO. WS-OHIO-225

HAROLD A. KELLEY 18474

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

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FLD. BK.	SCALE	DRN.	CK'D	APR.
		J.E.H.	C.R.N.	H.A.K.

JOB NO. 79 W 3 D 2

DATE JULY 1968

RESERVOIR PLAN
LEVEE AND DIVERSION DITCH LOCATION
WEST CENTER SECTION

JONES & HENRY ENGINEERS
LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 6 OF 28

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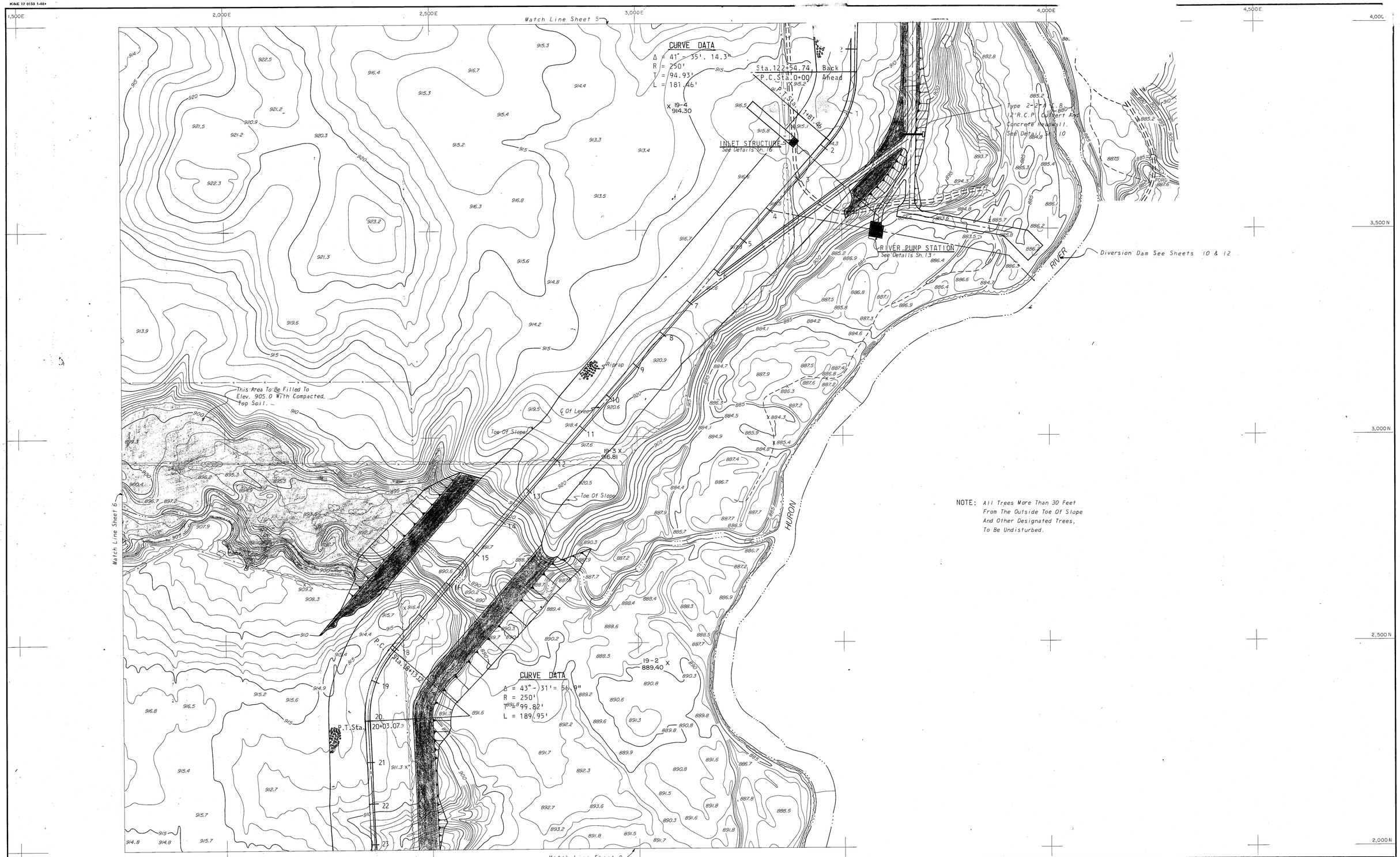

NOTE: All Trees More Than 30 Feet From The Outside Toe Of Slope And Other Designated Trees, To Be Undisturbed.

DATE OF PHOTOGRAPHY FEBRUARY 1968 DATE OF MAPPING MARCH 1968

COMPILED BY PHOTOGRAMMETRIC METHODS

BY

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LANSING, MICHIGAN

N

SCALE 1" = 100' — CONTOUR INTERVAL 1'

4	5
6	7
8	9

H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
		J.E.H.	C.R.N.	H.H.N.

JOB NO. 70 W 3 0 2

DATE JULY 1968

RESERVOIR PLAN
LEVEE LOCATION
EAST CENTER SECTION

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DRAWING NO. 7 OF 28

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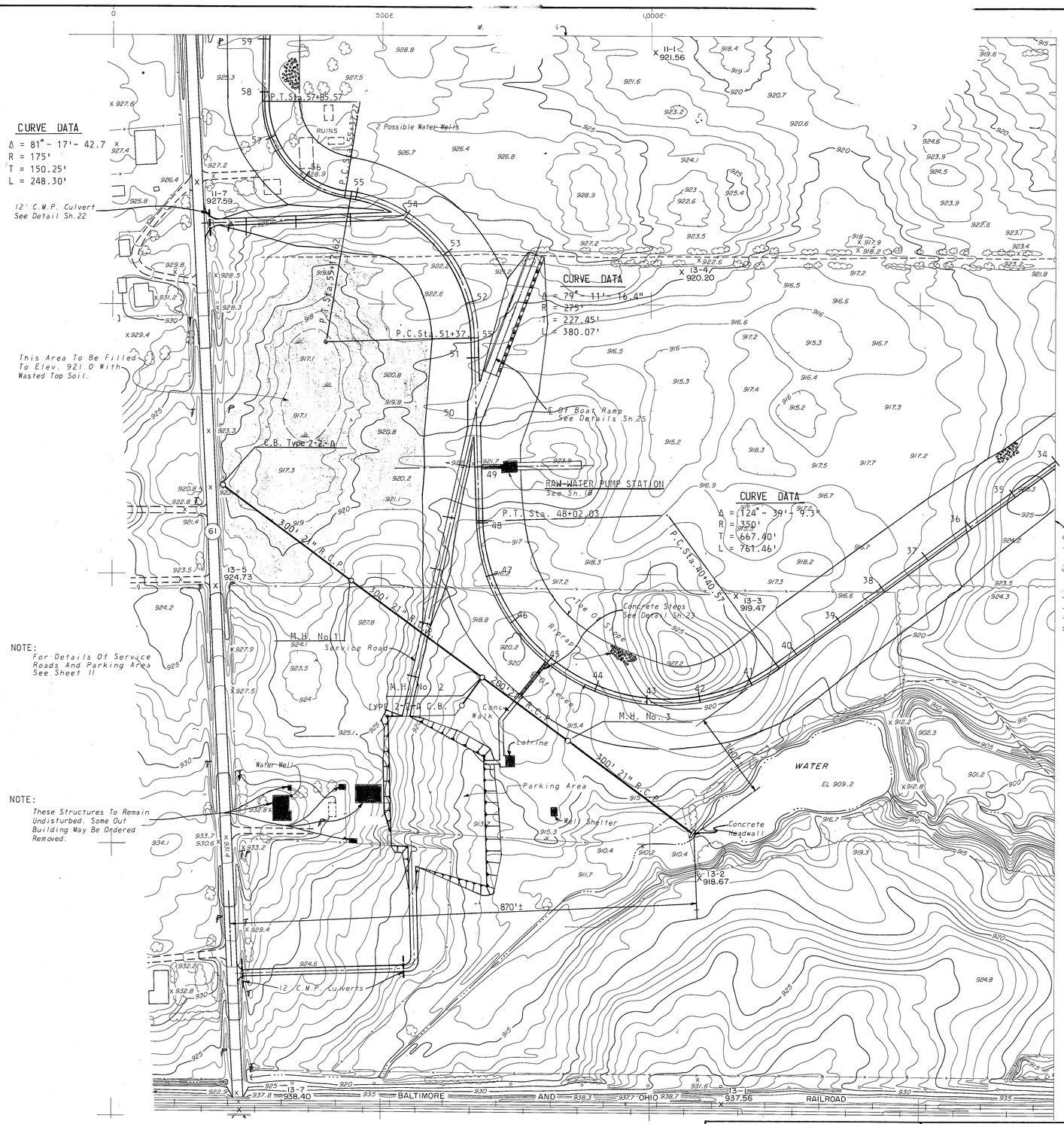

DATE OF PHOTOGRAPHY FEBRUARY 1968 DATE OF MAPPING MARCH 1968

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BY

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LANSING, MICHIGAN

N

SCALE 1" = 100' — CONTOUR INTERVAL 1'

4	5
6	7
8	9

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WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

NO.	DATE	REVISIONS	CH'K BY

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		R.E.H.	C.R.N.	H.A.K.

RESERVOIR PLAN
LEVEE LOCATION
SOUTH WEST SECTION

JOB NO. 78 W 3 0 2
DATE JULY 1968

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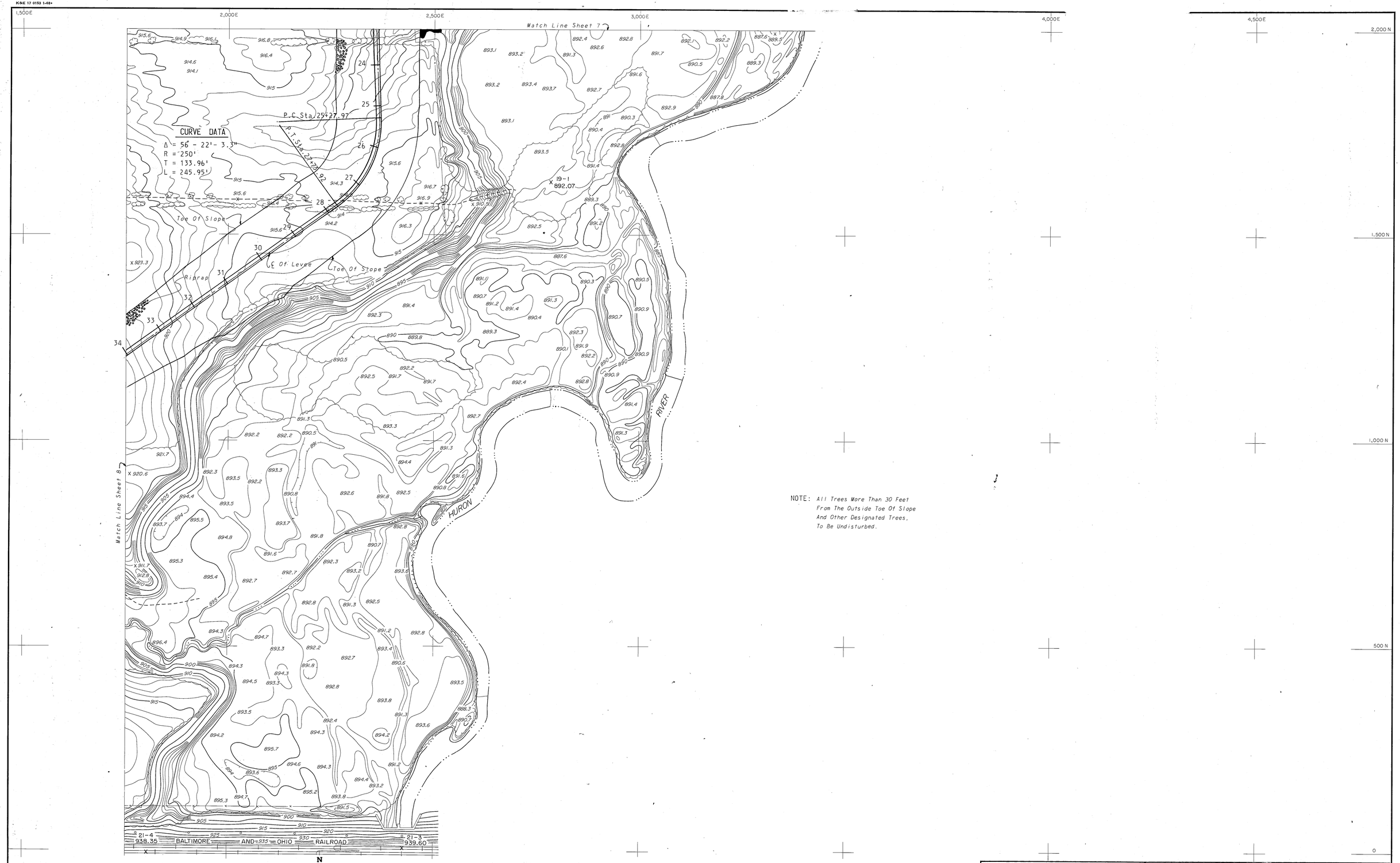
LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 8 OF 28

K&E 17 0153 1-68+



NOTE: *All Trees More Than 30 Feet From The Outside Toe Of Slope And Other Designated Trees, To Be Undisturbed.*

DATE OF PHOTOGRAPHY FEBRUARY 1968 DATE OF MAPPING MARCH 1968

COMPILED BY PHOTOGRAMMETRIC METHODS

BY

ABRAMS AERIAL SURVEY CORPORATION

LANSING, MICHIGAN

4	5
6	7
8	9

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WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

NO.	DATE	REVISIONS	CH'K BY

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		J.E.H.	C.R.N.	H.A.K.

RESERVOIR PLAN
LEVEE LOCATION
SOUTH EAST SECTION

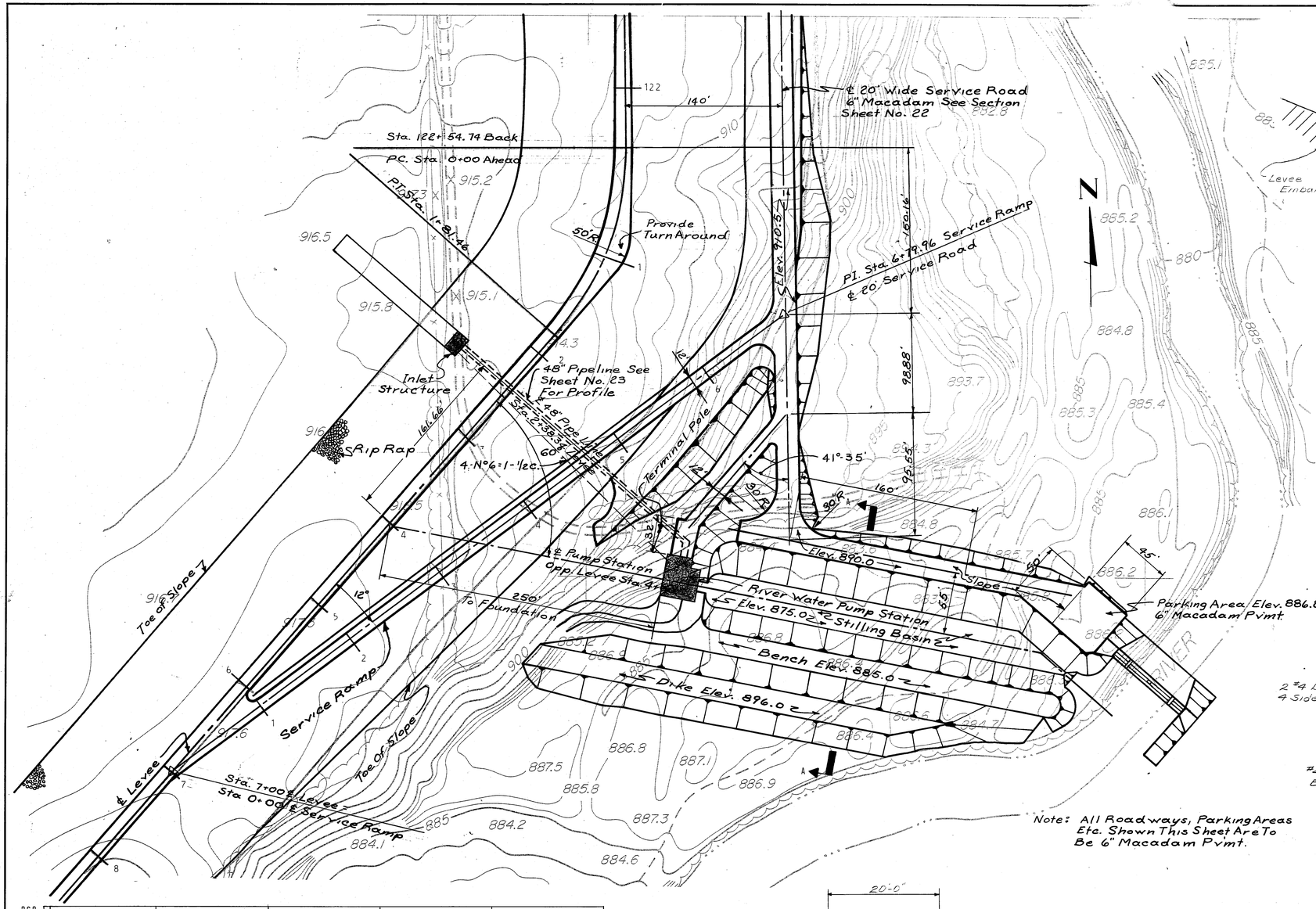
JOB NO. 78 W 3 D 2

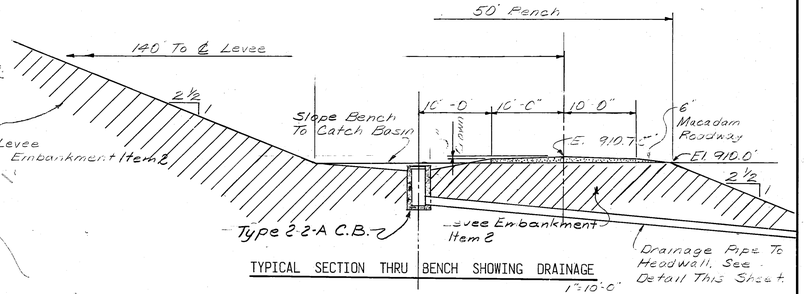
DATE JULY 1968

JONES & HENRY ENGINEERS
LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 9 OF 28

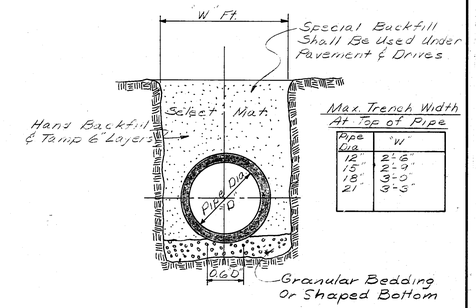
K&E 17 0153 1-68





TYPICAL SECTION THRU BENCH SHOWING DRAINAGE

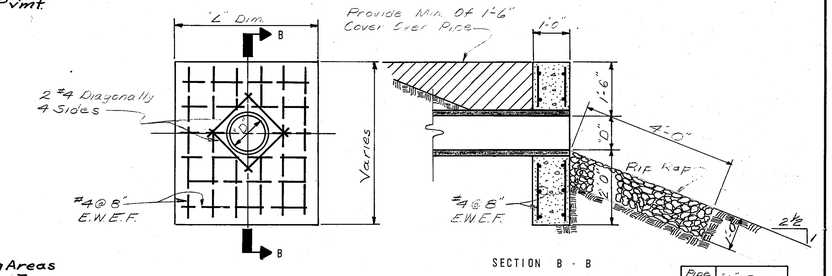
1"=10'-0"



Max. Trench Width At Top of Pipe	
Pipe Dia.	"W"
12"	2'-6"
15"	2'-9"
18"	3'-0"
21"	3'-3"

TYPICAL TRENCH DETAIL DRAINAGE LINE

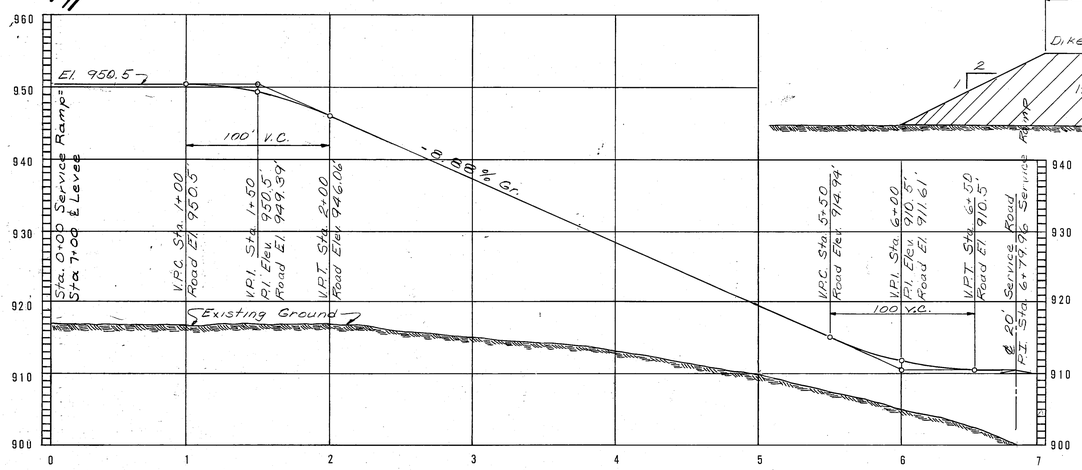
N.T.S.



Pipe Dia.	"L" Dim.
12"	4'-0"
15"	5'-0"
18"	5'-9"
21"	6'-9"

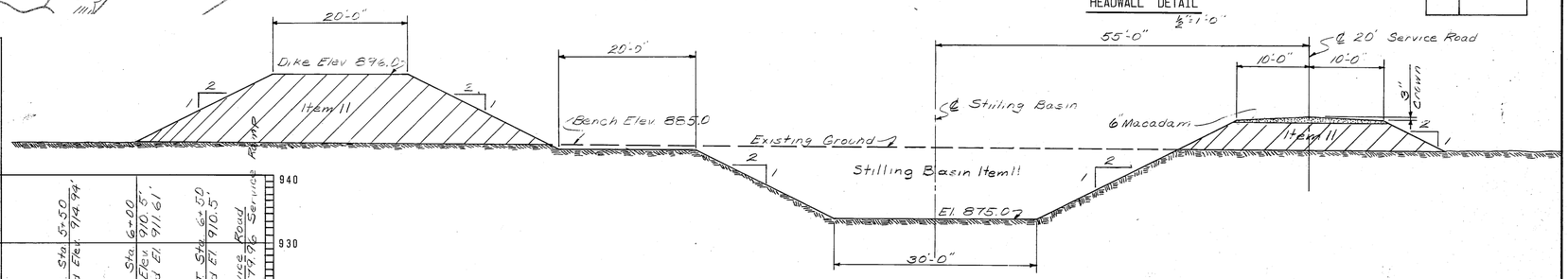
HEADWALL DETAIL

1/2"=1'-0"



PROFILE SERVICE RAMP

1"=50' H.
1"=5' V



SECTION A - A

1"=10'-0"

H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
		J.C.H.	C.R.N.	H.H.K.

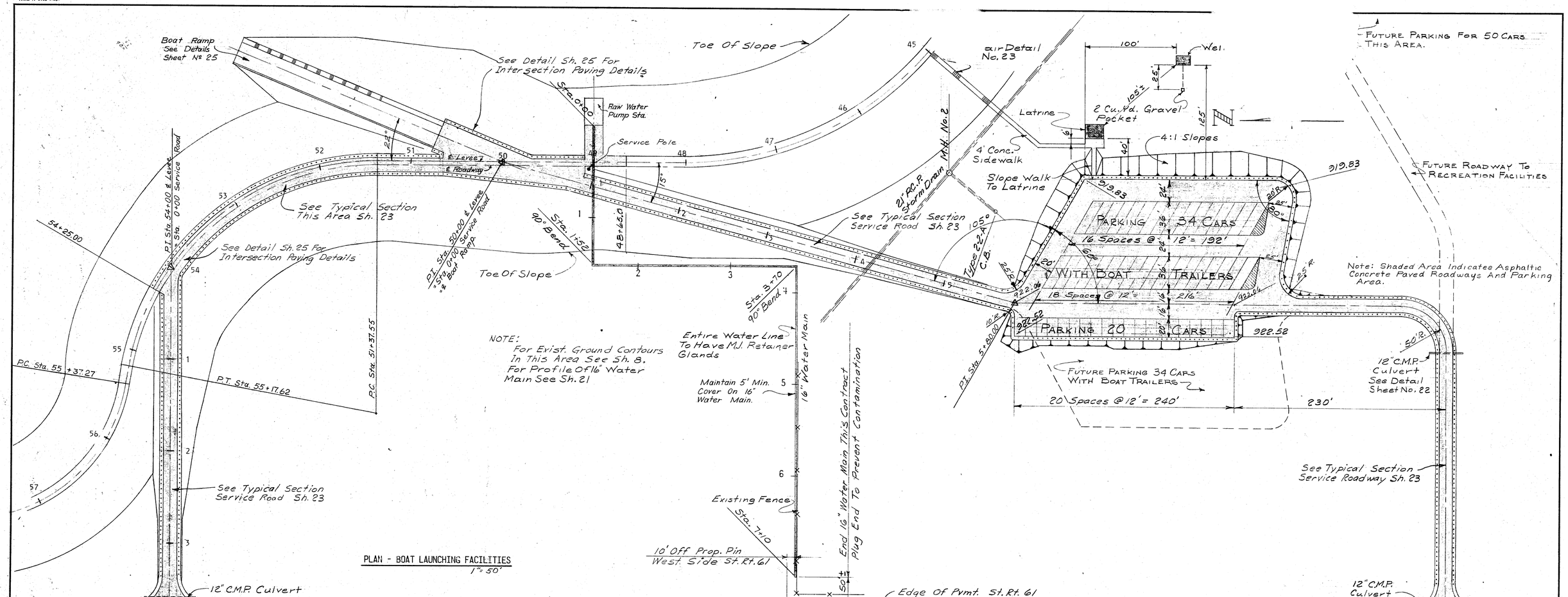
LOCATION PLAN
RIVER WATER PUMPING STATION
STILLING BASIN & DIVERSION DAM

JOB NO. 79W302
DATE JULY 1968

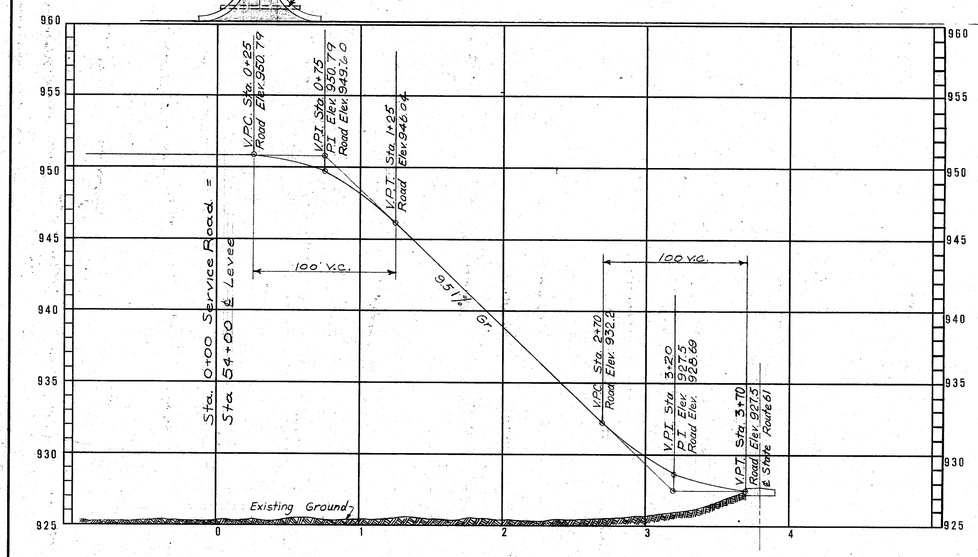
JONES & HENRY ENGINEERS
LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 10
OF 28

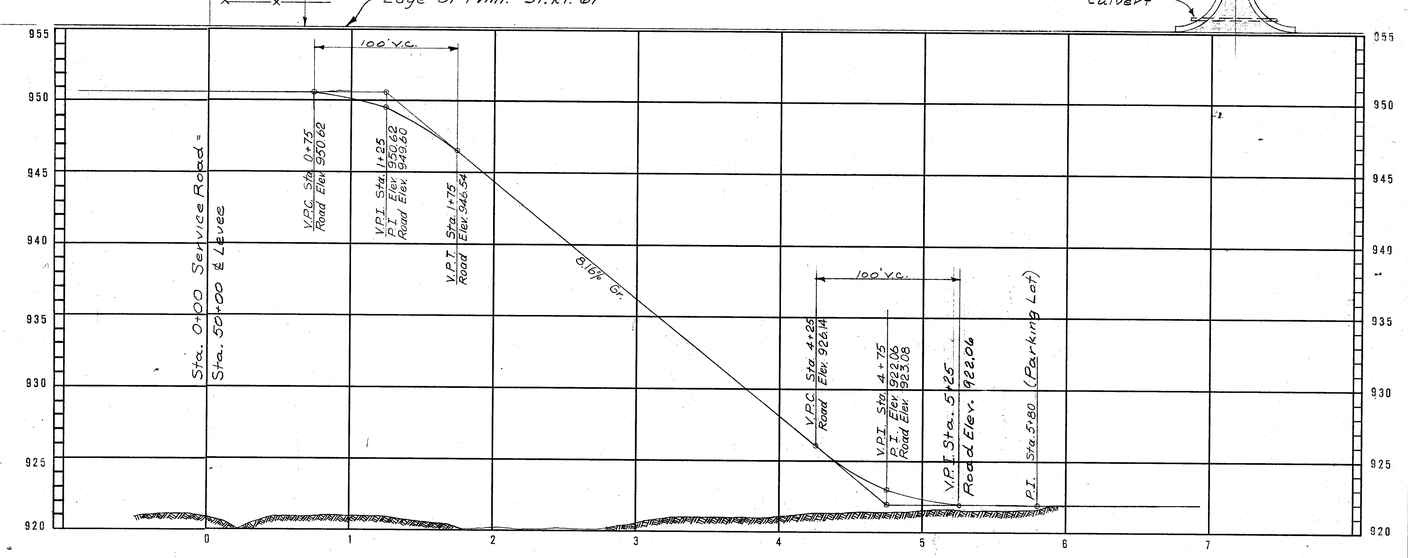
K&E 17 0153 1-68•



PLAN - BOAT LAUNCHING FACILITIES
1" = 50'



PROFILE NORTH SERVICE ROAD
1" = 50' H.
1" = 5' V.



PROFILE SOUTH SERVICE ROAD
1" = 50' H.
1" = 5' V.

STATE OF OHIO HAROLD A. KELLEY 18474 REGISTERED PROFESSIONAL ENGINEER

H.U.D. PROJECT NO. WS-OHIO-225

WILLARD OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
		T.E./J.E.H.	C.R.N.	H.A.K.

PLAN - ROADWAYS & PARKING AT RAW WATER PUMPING STATION

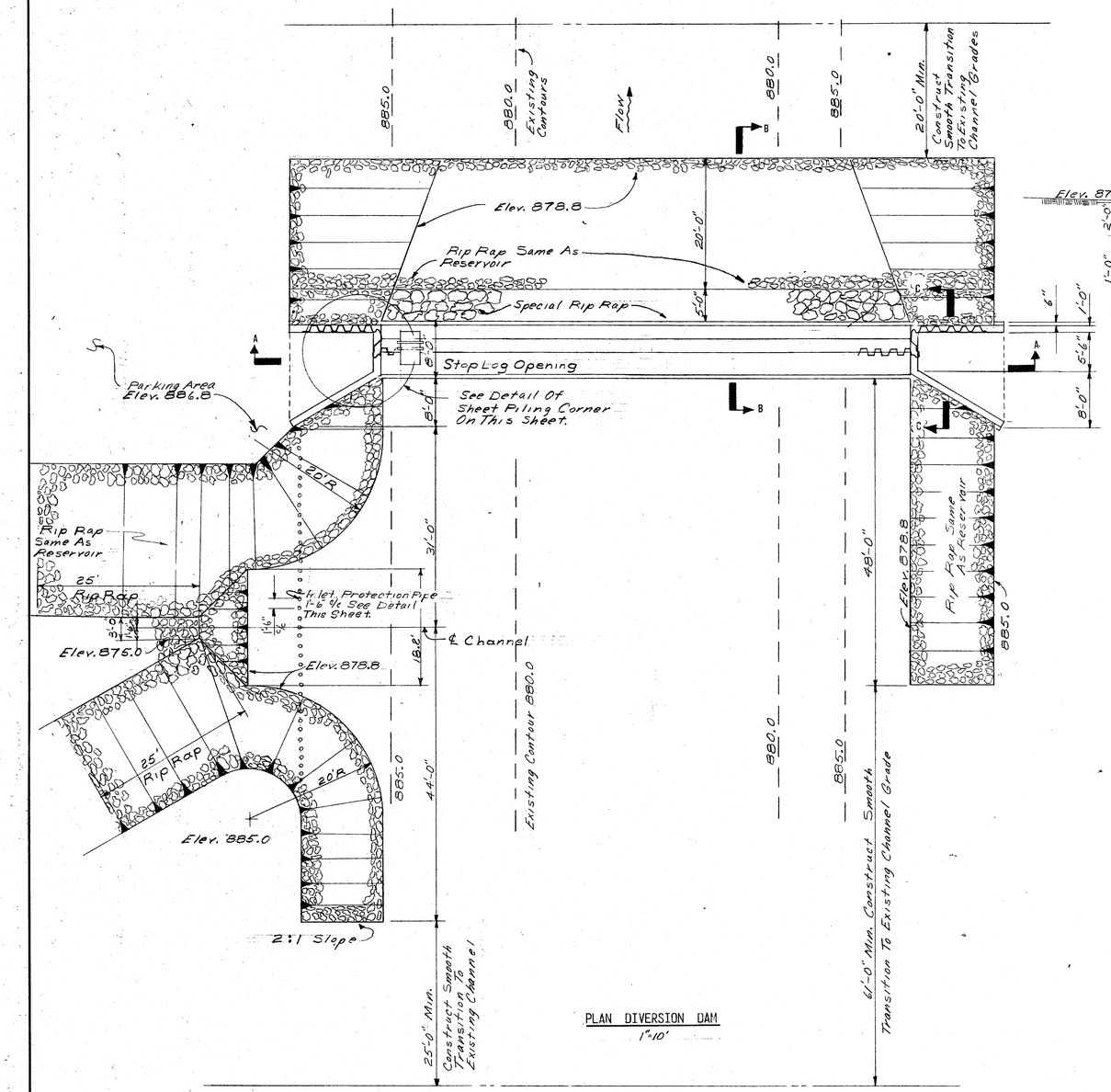
JOB NO. 79W3D2

DATE JULY 1968

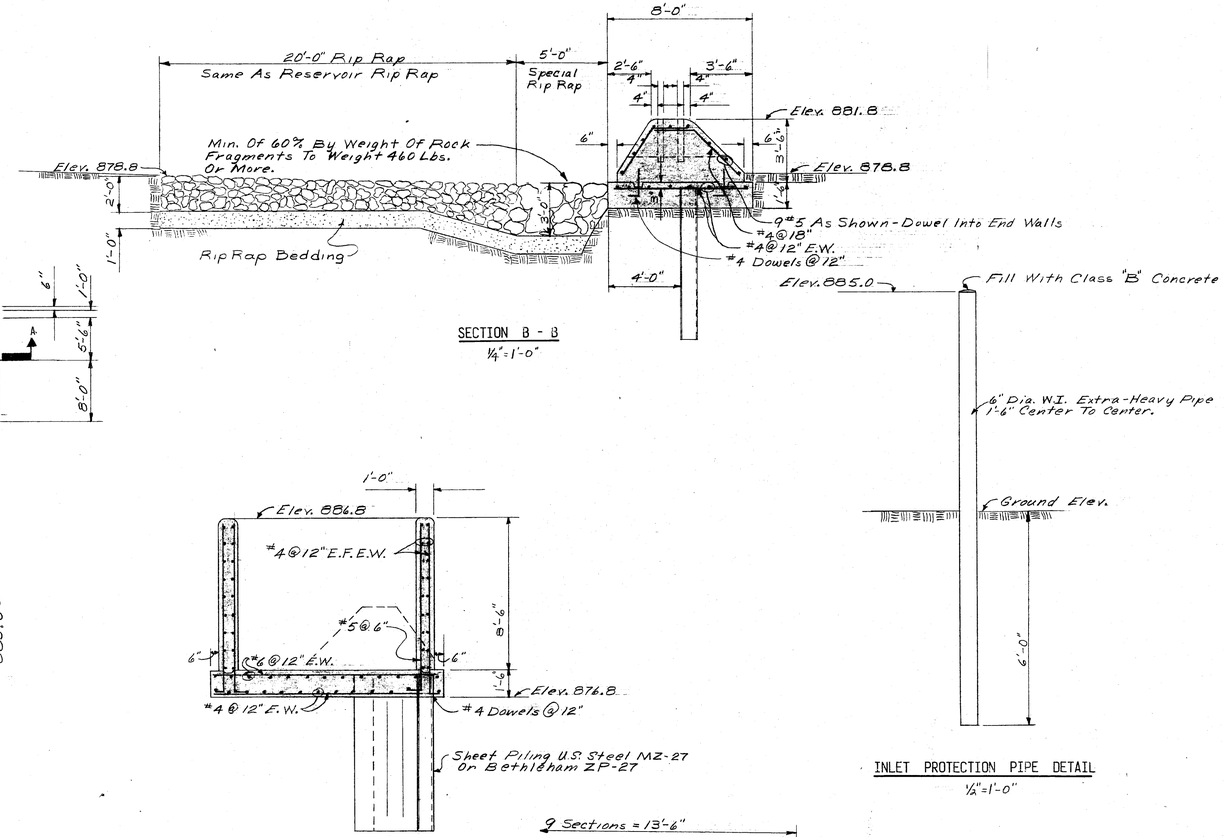
JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 11 OF 28

K&E 17 0153 1-68•



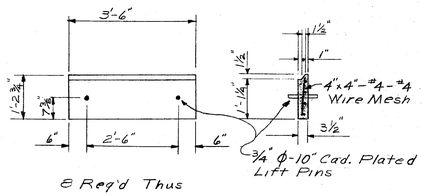
PLAN DIVERSION DAM
1"=10'



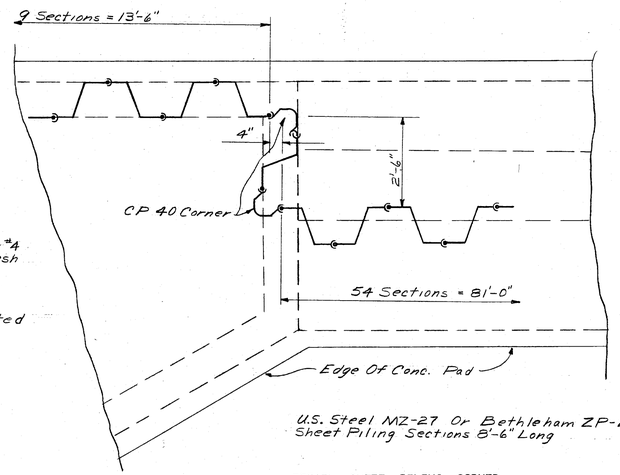
SECTION B - B
1/4"=1'-0"

INLET PROTECTION PIPE DETAIL
1/2"=1'-0"

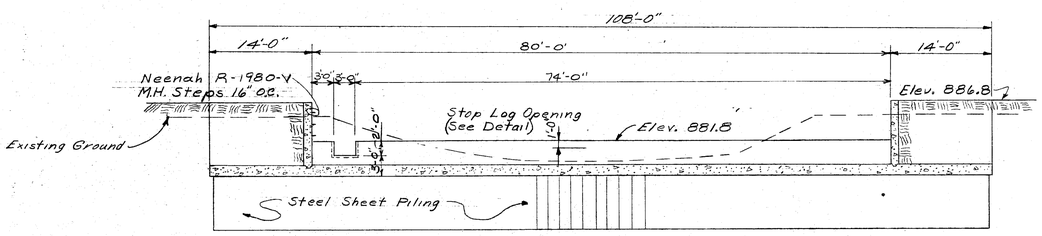
SECTION C - C
1/4"=1'-0"



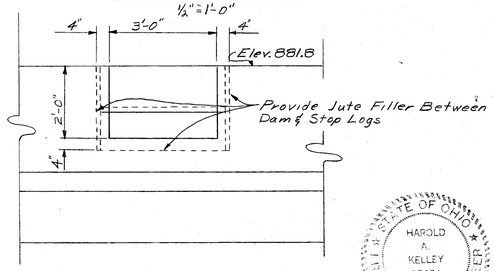
CONCRETE STOP LOG DETAIL
1/2"=1'-0"



DETAIL SHEET PILING CORNER
1/2"=1'-0"



SECTION A - A
1"=10'



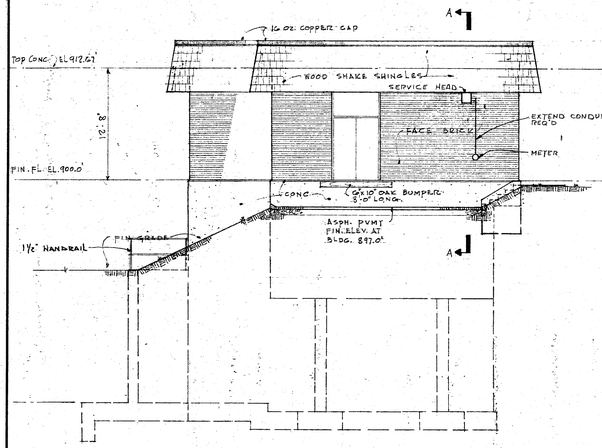
STOP LOG OPENING
1/2"=1'-0"

STATE OF OHIO
HAROLD A. KELLEY
18474
REGISTERED PROFESSIONAL ENGINEER

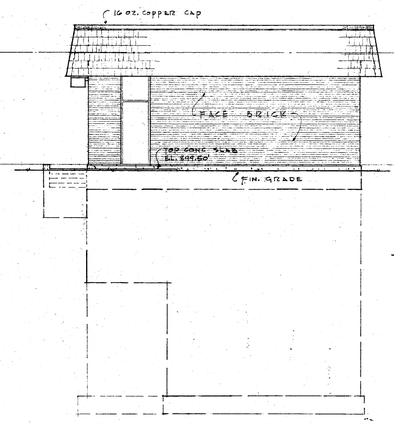
H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO WATER SUPPLY & TREATMENT CONTRACT NO. 3					DIVERSION DAM PLAN. SECTIONS. & DETAILS
NO.	DATE	REVISIONS		CH'K BY	JOB NO. 79W302
FLD. BK.	SCALE	DRN. J.E.H.	CK'D C.R.N.	APR. H.A.K.	DATE JULY 1968
JONES & HENRY ENGINEERS LIMITED 2000 W. CENTRAL AVE. TOLEDO, OHIO					DRAWING NO. 12 OF 28

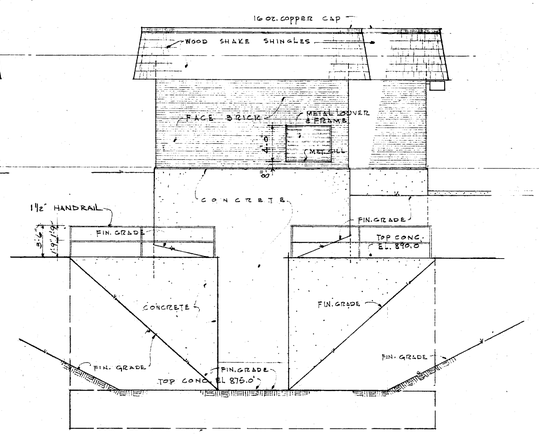
K&E 17 0153 1-68



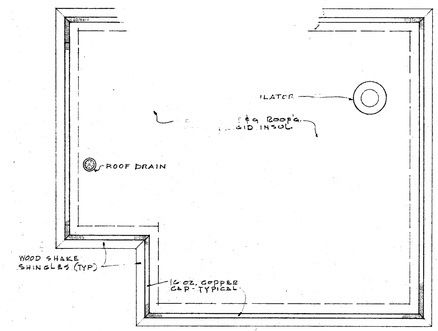
NORTH ELEV. 1/8" = 1'-0"



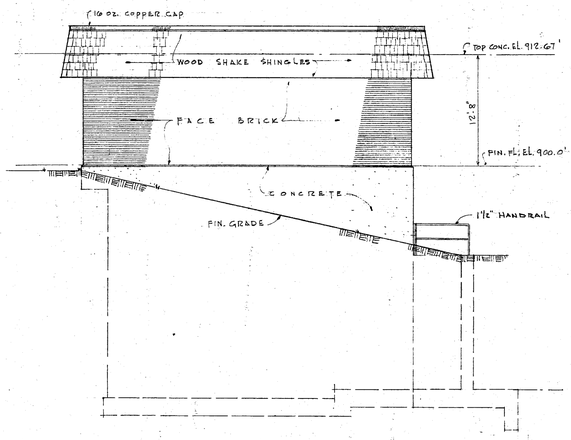
WEST ELEV. 1/8" = 1'-0"



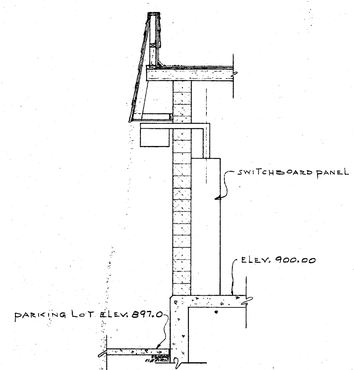
EAST ELEV. 1/8" = 1'-0"



ROOF PLAN TOP CONC ELEV. 912.67'

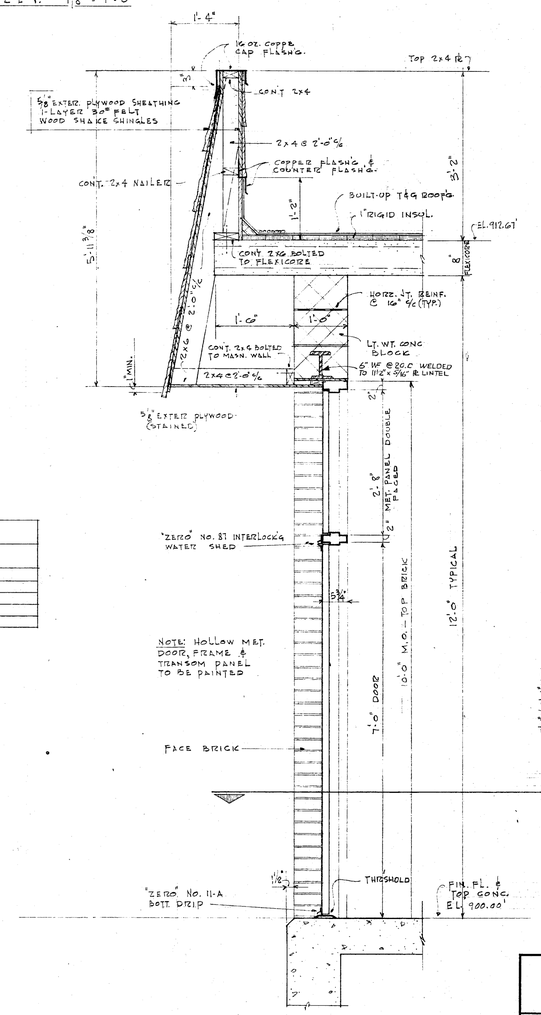


SOUTH ELEV. 1/8" = 1'-0"

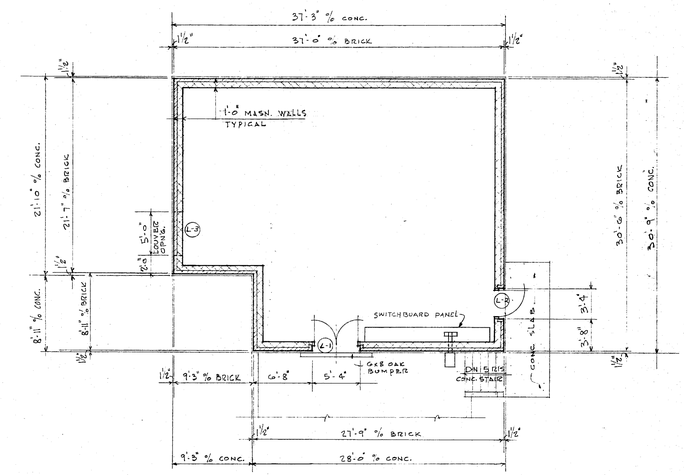


SECTION A-A 1/4" = 1'-0"

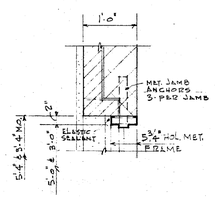
LINTEL SCHEDULE					
MARK	LINTEL	LENGTH	NO. REQ'D.	TYPE	REMARKS
L-1	ABOVE DOUBLE DOOR	7'-4"	1	STEEL	6 WF 20.0 & 11½" x 5/16" PL
L-2	ABOVE SINGLE DOOR	4'-4"	1	STEEL	3 Ls 3½" x 3½" x 5/16"
L-3	ABOVE LOUVER	6'-0"	2	STEEL	3 Ls 3½" x 3½" x 5/16"



TYPICAL WALL SECTION
3/4" = 1'-0"



PLAN AT ELEV. 900.00'



JAMB DETAIL
3/4" = 1'-0"

NORTH

MATERIAL LEGEND

- CONCRETE
- LT. WT. CONC. BLOCK
- BRICK
- WOOD - ROUGH
- WOOD - FINISH
- RIGID INSULATION
- METAL

STATE OF OHIO HAROLD A. KELLEY 16474 REGISTERED PROFESSIONAL ENGINEER

H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
		Troy		

RIVER WATER PUMPING STATION
ARCHITECTURAL
ELEVATIONS, PLAN & DETAILS

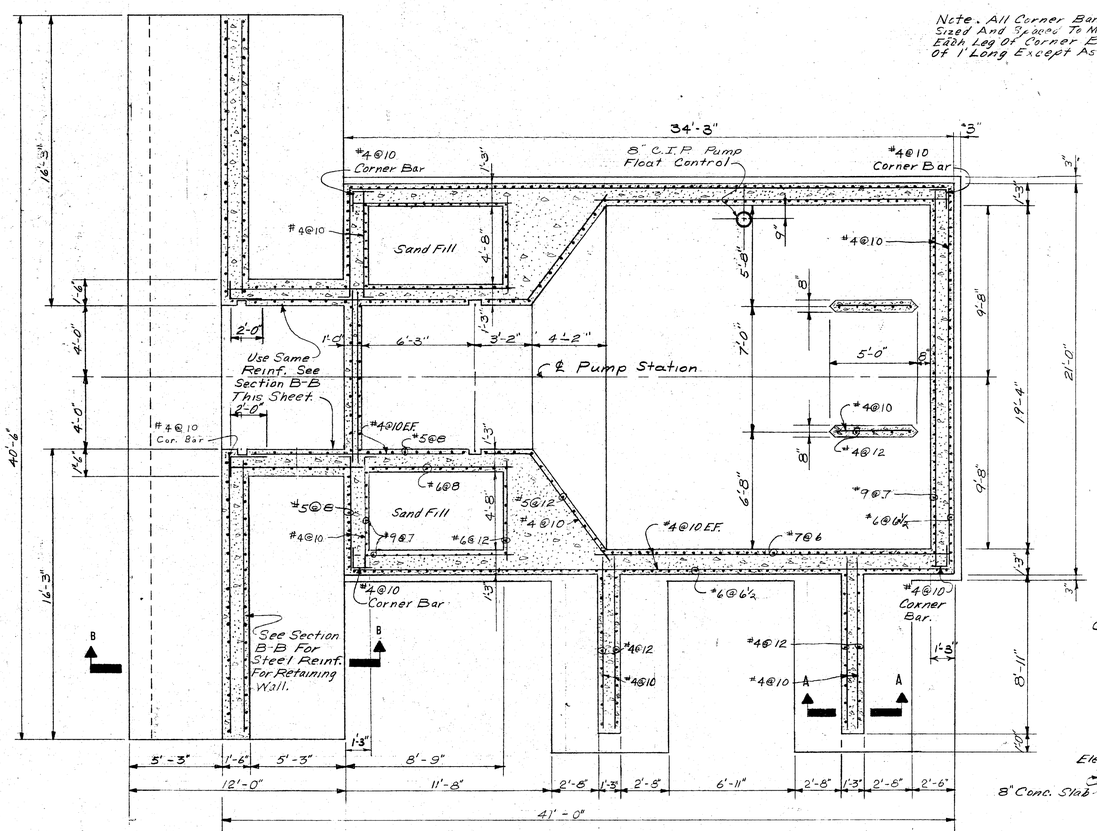
JOB NO. 79W302
DATE JULY 1968

JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

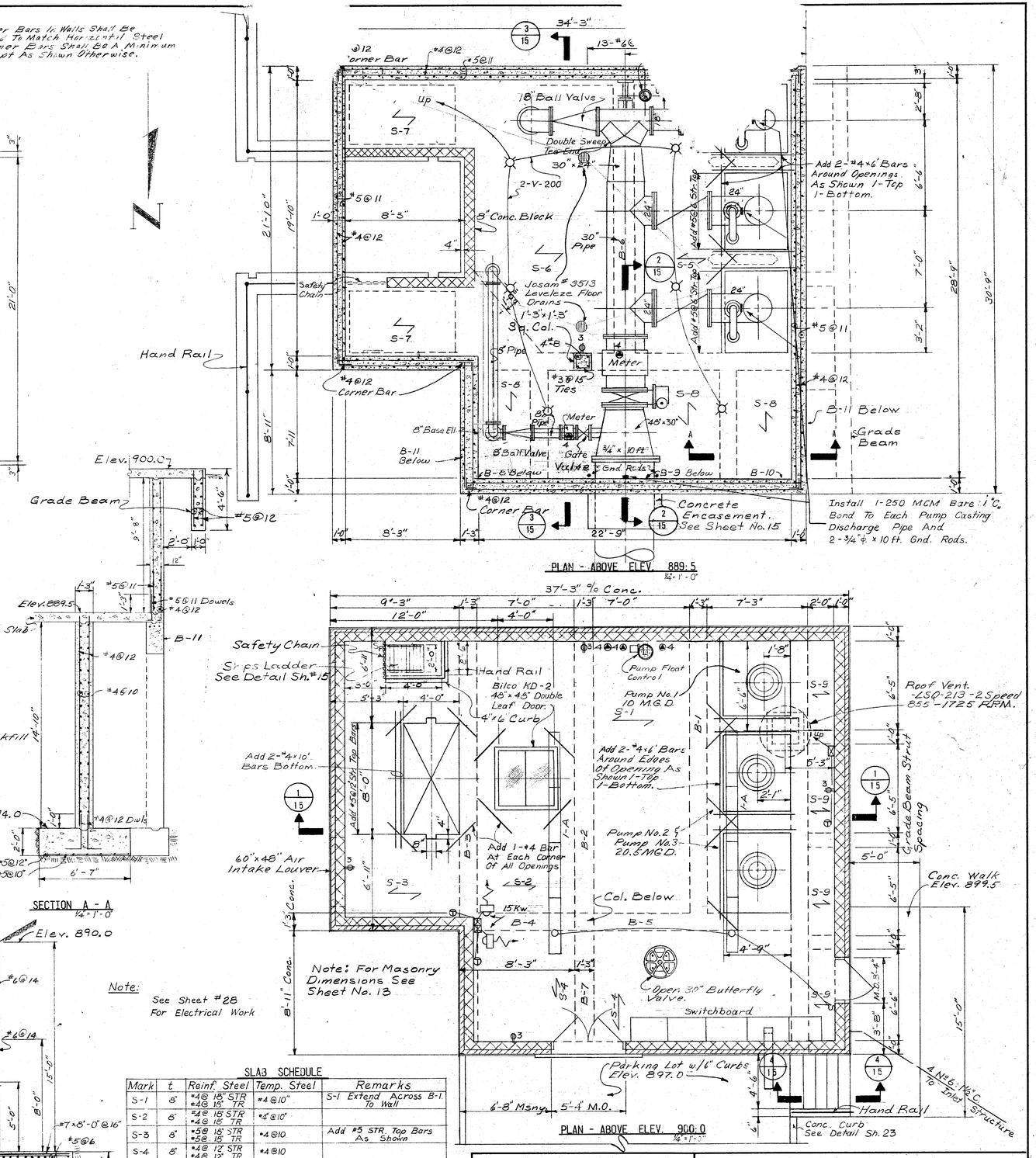
DRAWING NO. 13 OF 28

K&E 17 0153 1-68*

Note: All Corner Bars In Walls Shall Be Sized And Spaced To Match Horizontal Steel Each Leg Of Corner Bars Shall Be A Minimum Of 1' Long, Except As Shown Otherwise.



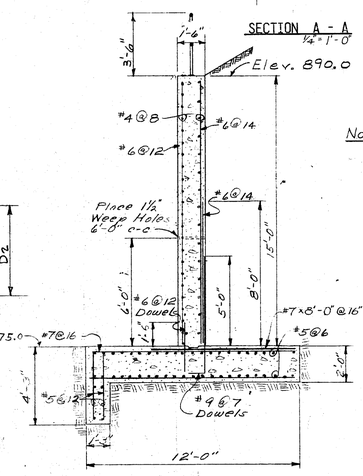
PLAN - FOUNDATION ABOVE ELEV. 875.0
1/4" = 1'-0"



PLAN - ABOVE ELEV. 889.5
1/4" = 1'-0"

PLAN - ABOVE ELEV. 900.0
1/4" = 1'-0"

SECTION A - A
1/4" = 1'-0"

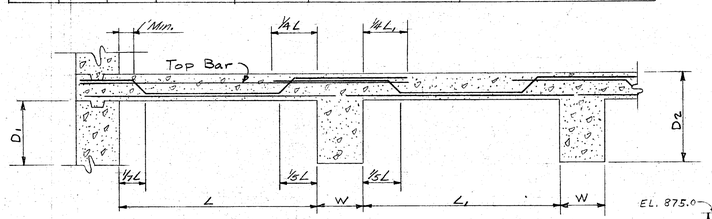


SECTION B - B
1/4" = 1'-0"

Note: See Sheet #28 For Electrical Work

BEAM SCHEDULE

K	W	D	Steel Bottom	Steel Top	#3 Stirrups	Remarks
B-1	15	30	1 - #11 TR 2 - #11 STR	None	N. End - 5@9" S. End - 5@9"	
B-2	15	30	2 - #10 STR 1 #10 TR	None	N. End - 7@9" S. End - None	Extend #10 Truss Across B-17 See Remark B-7
B-3	15	32	3 - #10 STR 1 - #10 TR	None	N. End - 6@9" S. End - 6@9"	
B-4	15	30	3 - #8 STR	3#10 STR	None	See Remark B-5
B-5	15	30	1 - #10 TR 2 - #10 STR	None	E. End - 8@9" W. End - 5@9"	Extend #10 TR. Across B-4
B-6	18	35	3 - #11 STR 1 - #11 TR	None	N. End - 8@9" S. End - 7@9"	
B-7	15	30	3 - #8 STR	2#10 STR	None	See Remark B-2 Extend 2#10 Str. Into B-2
B-8	15	36	3 - #6 STR	2#11 STR	W. End - 18@5", 6@9" E. End - None	See Remark B-9
B-9	15	36	1 - #11 STR 2 - #11 TR	None	E. End - 3@4", 10@5", 13@5@9" W. End - 3@4", 20@5", 16@5", 18@5@9"	Extend #11 Truss Across B-8, B-10
B-10	15	36	3 - #6 STR	2#11 STR	W. End - None E. End - 18@5", 5@9"	See Remark B-9
B-11	15	27	None	3#10 STR	N. End - None S. End - 4@9	3#10 Dowels Into Wall Extending 2'-6"
B-12	12	15	1 - #6 TR 2 - #6 STR	None	None	



TYPICAL BEAM & SLAB BENDING DETAIL

SLAB SCHEDULE

Mark	t	Reinf. Steel	Temp. Steel	Remarks
S-1	8"	#4@18" STR #4@15" TR	#4@10"	S-1 Extend Across B-1 To Wall
S-2	6"	#4@16" STR #4@15" TR	#4@10"	
S-3	8"	#5@15" STR #5@15" TR	#4@10	Add #5 STR. Top Bars As Shown
S-4	8"	#4@12" STR #4@12" TR	#4@10	
S-5	8"	#5@12" STR #5@12" TR	#4@10	Add #5@8" STR Top Bars As Shown
S-6	8"	#5@12" STR #5@12" TR	#4@10	
S-7	8"	#4@16" STR #4@16" TR	#4@10	
S-8	8"	#4@14" STR #4@14" TR	#4@10	
S-9	8	#4@20" STR #4@20" TR	#4@10	

H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

RIVER WATER PUMPING STATION
FOUNDATION PLANS AND SECTIONS

NO.	DATE	REVISIONS	CH'K BY

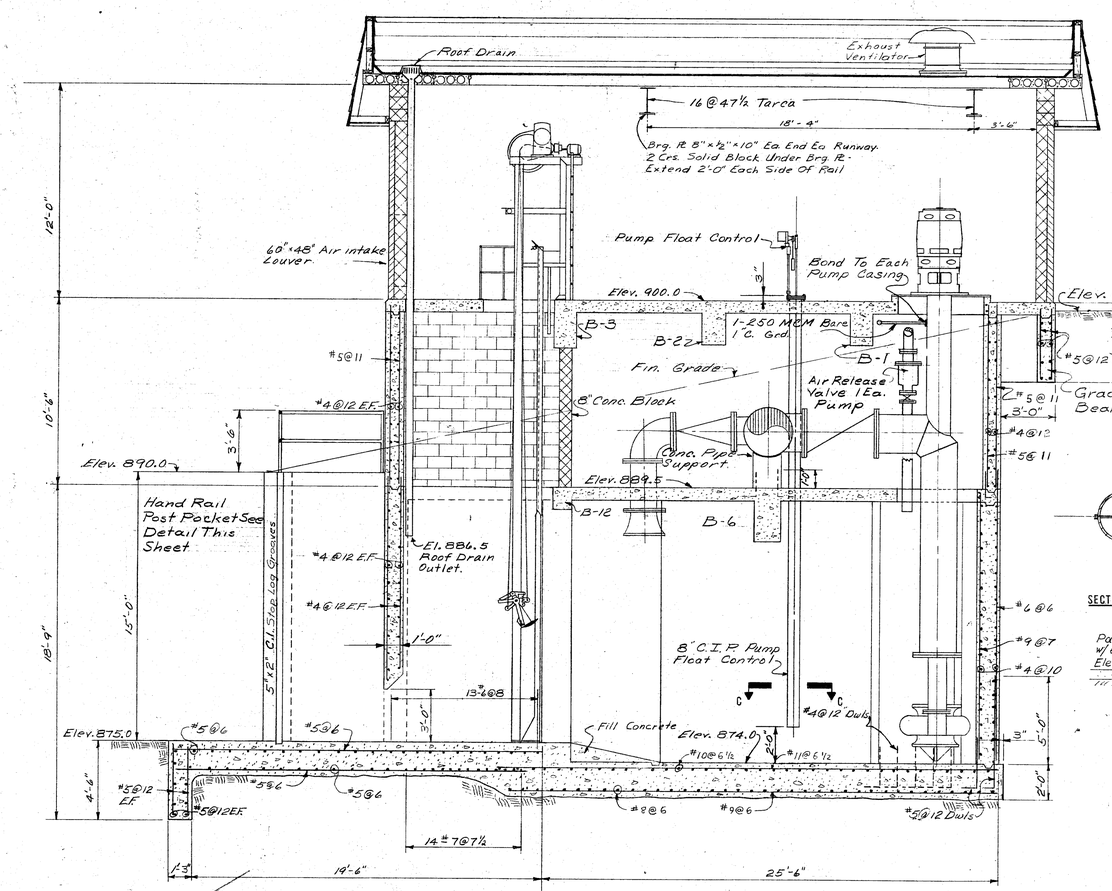
FLD. BK.	SCALE	DRN.	CK'D	APR.
		J.C.H.	C.R.N.	H.A.K.

JOB NO. 79W302
DATE JULY 1968

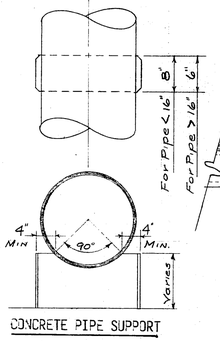
JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 14 OF 28

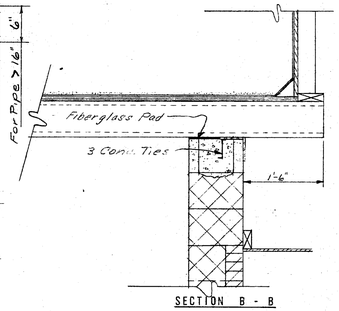
K&E 17 0153 1-68



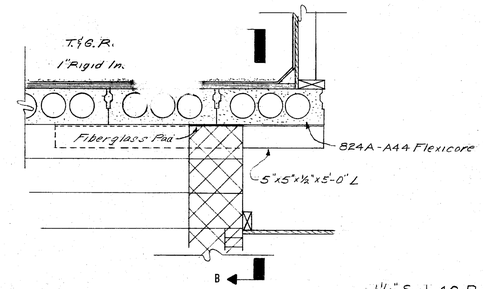
SECTION 1/14
½" = 1'-0"



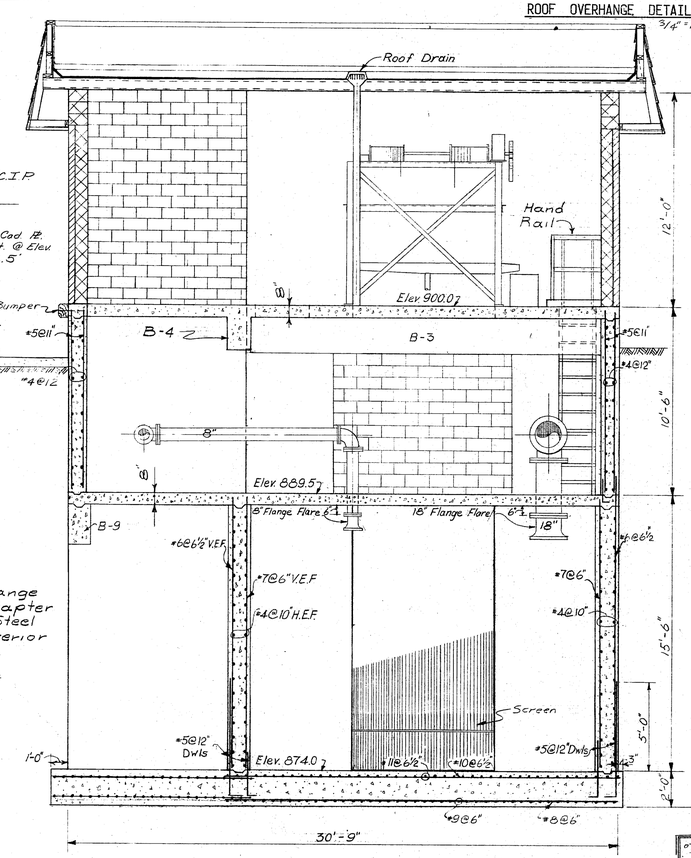
CONCRETE PIPE SUPPORT



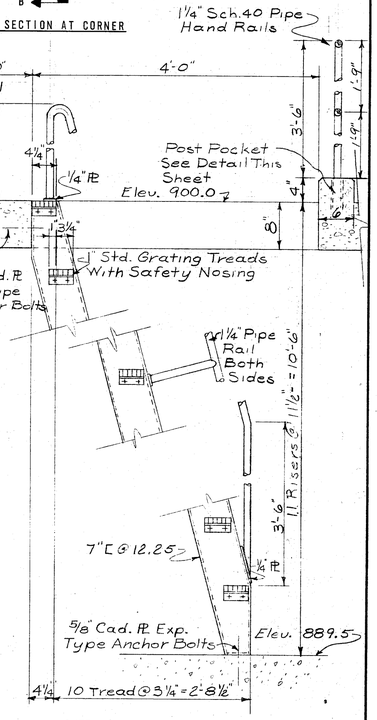
SECTION B - B



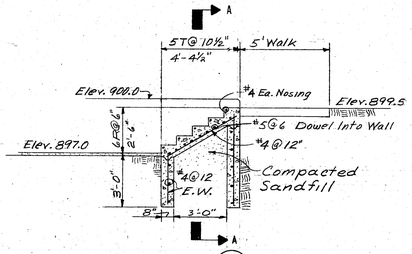
TYPICAL SECTION AT CORNER



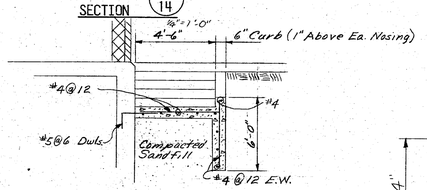
ROOF OVERHANGE DETAIL
3/4" = 1'-0"



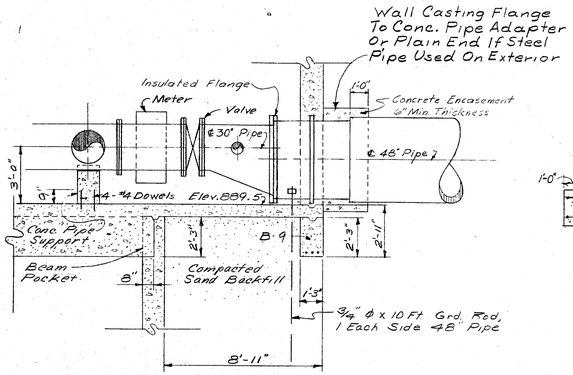
SHIPS LADDER DETAIL
1" = 1'-0"



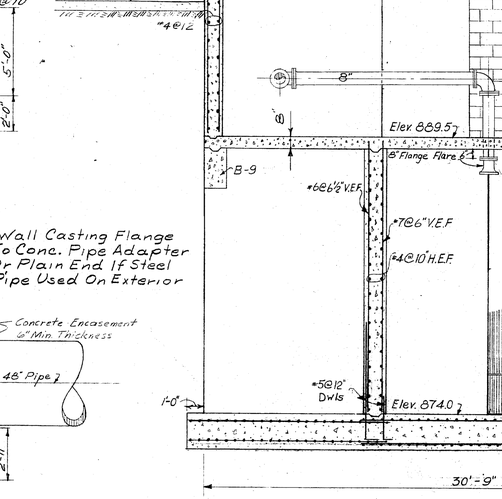
SECTION 4/14
½" = 1'-0"



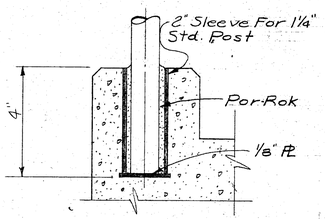
SECTION A - A
½" = 1'-0"



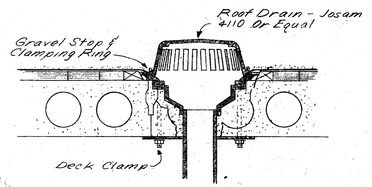
SECTION 2/14
½" = 1'-0"



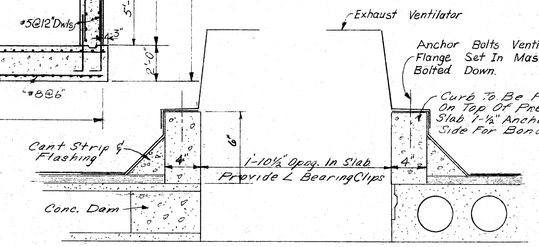
SECTION C-C



DETAIL HANDRAIL POST POCKET DETAIL
N.T.S.



ROOF DRAIN DETAIL
N.T.S.



ROOF VENTILATOR DETAIL
N.T.S.

SECTION 3/14
½" = 1'-0"

STATE OF OHIO HAROLD A. KELLEY 10374 REGISTERED ENGINEER

H.U.D. PROJECT NO. WS-OHIO-225

NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
		DEN ITF	C.R.D.	H.A.K.

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

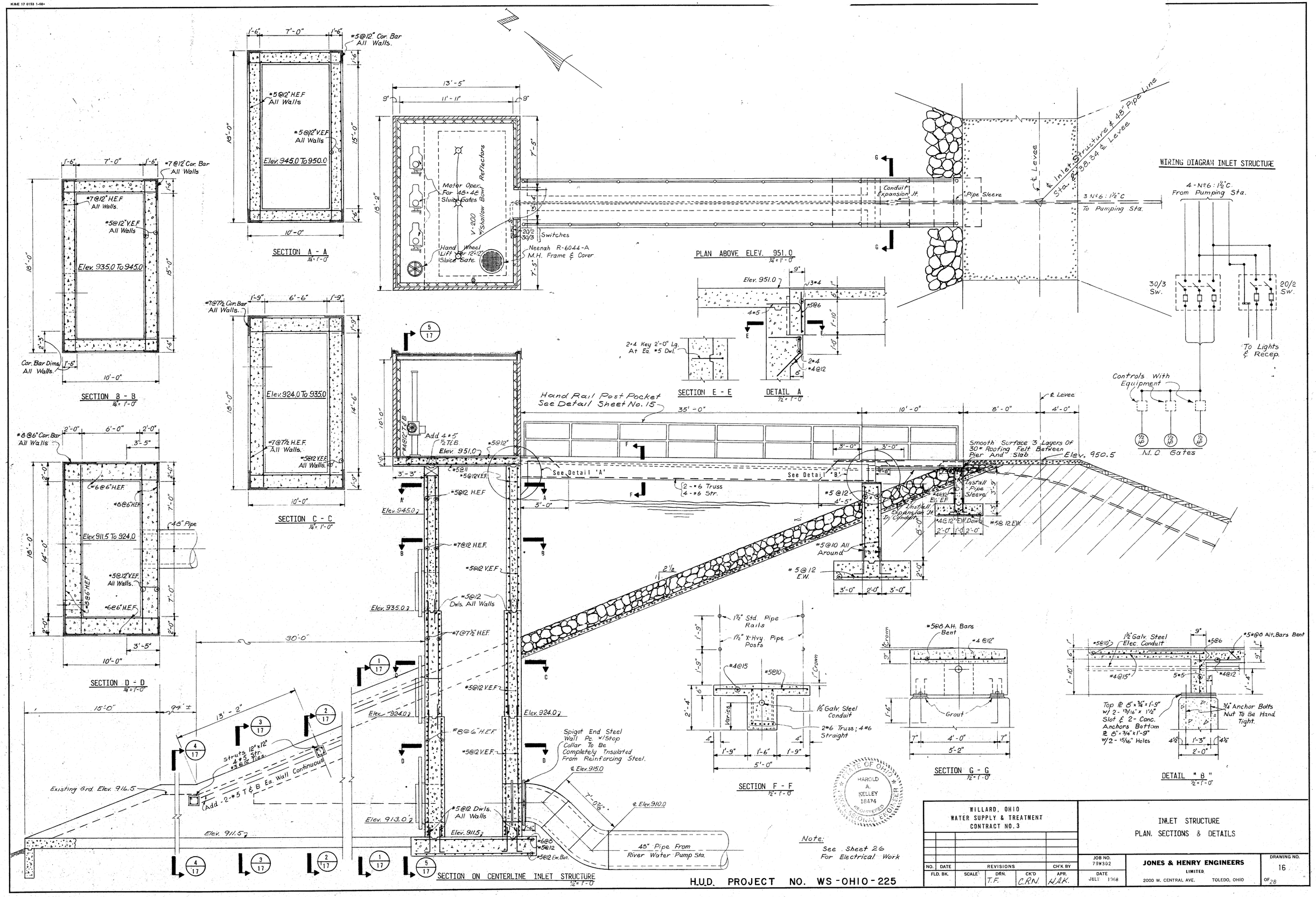
RIVER WATER PUMPING STATION
SECTIONS AND DETAILS

JOB NO. 79850
DATE JULY 1968

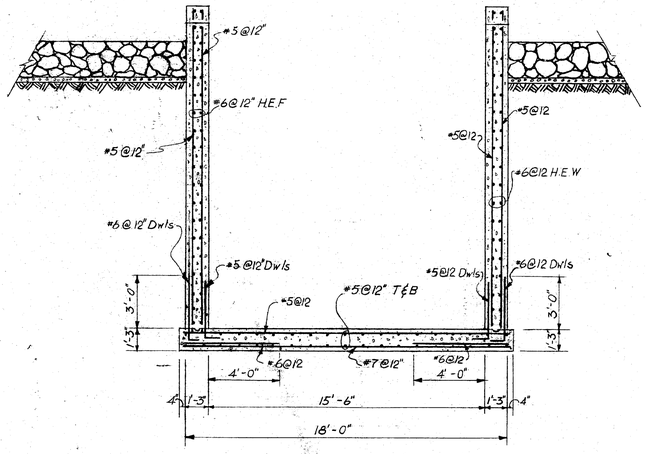
JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 15 OF 28

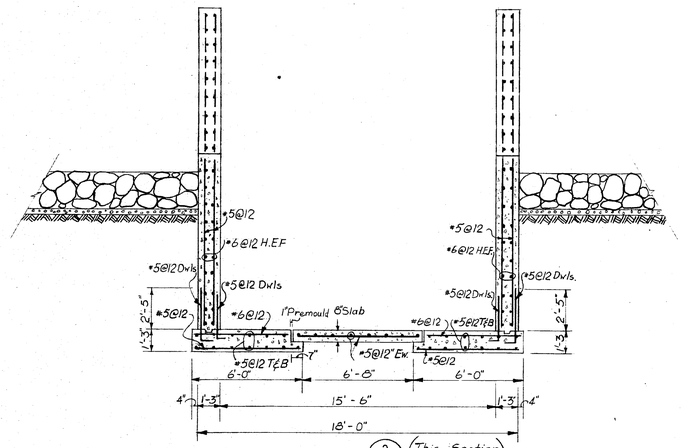
K&E 17 0153 1-68•



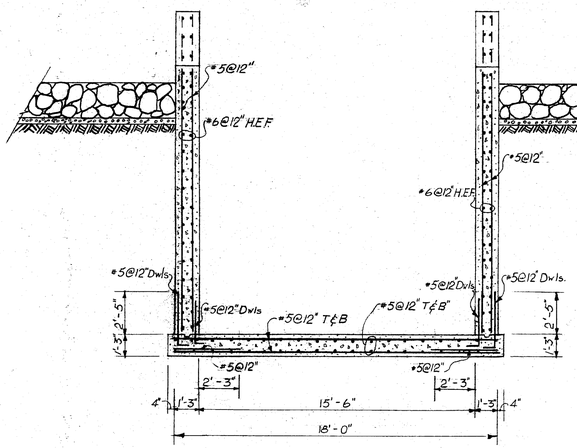
K&E 17 0153 1-68+



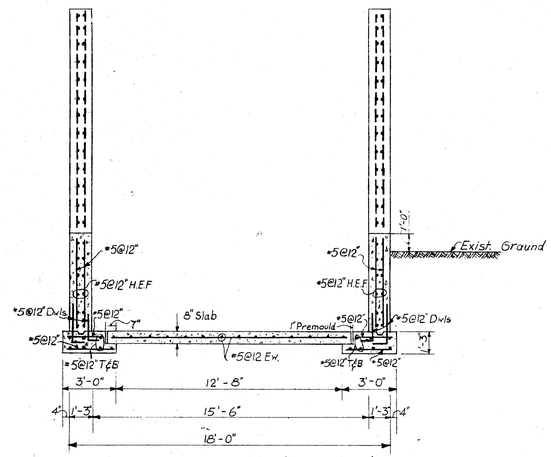
SECTION 1/16 (This Section 5'-0" Long)
4" = 1'-0"



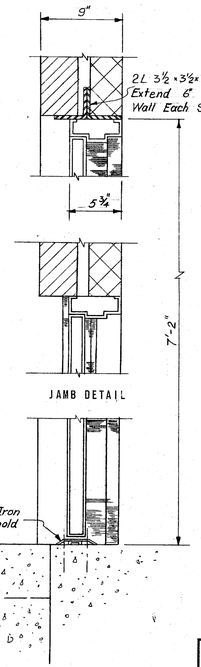
SECTION 3/16 (This Section 15'-0" Long)
4" = 1'-0"



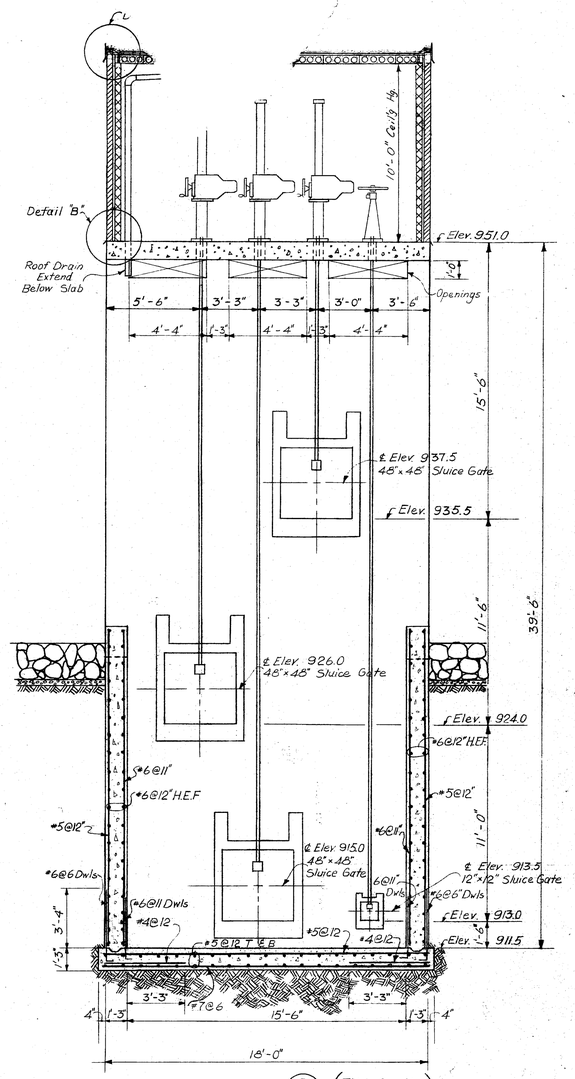
SECTION 2/16 (This Section 5'-0" Long)
1/2" = 1'-0"



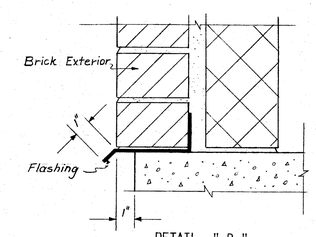
SECTION 4/16 (This Section 100'-0" Long)
1/2" = 1'-0"



DOOR SECTION
1/2" = 1'-0"



SECTION 5/16 (This Section 5'-0" Long)
1/2" = 1'-0"



DETAIL "B"
3" = 1'-0"

H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO WATER SUPPLY & TREATMENT CONTRACT NO. 3					INLET STRUCTURE SECTIONS AND DETAILS
NO.	DATE	REVISIONS		CH'K BY	
FLD. BK.	SCALE	DRN. T.F	CK'D CRN	APR. HAK	JOB NO. 79W302 / DATE JULY 1968
JONES & HENRY ENGINEERS LIMITED 2000 W. CENTRAL AVE. TOLEDO, OHIO					DRAWING NO. 17 OF 28

TOLEDO BLUE PRINT & PAPER CO. 500 2-65

Note:
See Sheet 21 For Continuation & Details

Service Pole
Guy
12'-0" Roadway
Retaining Wall
Dowels #4 x 4'-0" @ 12
Handrail Center On Wall
Sleeves
1" C. For Telephone
3-350 MCM. : 1N% : Bare 3" C
Companion Flange Tap For 3" I.P.S. Air & Vaccum Valve
Secondary Drop by O.P.C.
℄ Walk Way & Pump Sta. Opp. Levee Sta. 49+00
Telemetering Receiver
Slope 1"
Neenah R-1792-HL M.H. Frame & Cover
Handrail Center On Wall
Intake Louver 32"x24" See Detail Sh. No. 19
Gaskets
Handrail
Exh. Fan 1/8 HP
Motor Control Center
12 KW Heater
30 HP Pump & Motor
Depth Gage See Sh. 20
125 HP Pump & Motor
15 HP Pump & Motor
1-V-300
2-V-300
Contactor
Carbon Feeder
4 Kw. Heater
Neenah R-1792-FL M.H. Cover & Frame
Motor Oper. For 36"x36" Sluice Gates
Strut
℄ Pump Station
4" Hole @ 5'-0" c/c
20'-9"
29'-3"
89'-0" Msny.
20'-0" Msny.
5'-8" Msny. Opng.
13'-2"

Top El. 950.55
Round Tooled Edge
See Detail
2" I.P.S. Weep @ 5' c/c
6"x6"x1/2" Welded On Reinforcing Bar.
Add 4 #6 E.F.
Sym. About
#4 @ 12 E.W. E.F.
Round Tooled Edge
12"x18" Struts
4#9 Dwls. #3 Stirrups
#4 @ 12
#8 @ 8
See Detail
Add 6 #5 E.F.
15'-8"
℄ Levee

SECTION A - A
1/4" = 1'-0"

L = Length To Develop Bar Strength
RETAINING WALL
Weld
2x2x1/4 L
DETAIL OF WELDED LAPS
N.T.S.

Hand Rail Post Pocket See Detail Sheet No. 15
12'-0" Roadway
El. 950.5
Add 3 #6 E.F.
2" Asphaltic Macadam
Concrete
Sand Fill 6"
Slope 1"
#4 @ 12" E.W. E.F.
#4 @ 12" Dowels
3-350 MCM : 1N% Bare 3" C
Sleeves
Fill Between Retaining Walls With Compacted Levee Embankment Material
16" Discharge Pipe & Elev. 944.75
30" Carrier Pipe
Add 5 #6 E.F.
12x12 Struts 6 #8
#3 Ties @ 12"
3/4" x 10' Ground Rod
Wall Dowels #5 @ 12
Elev. 933.30
45'-0"
8'-0"
36'-0"
To ℄ 16" W. M. (See Sh. 21)

SECTION ON CENTERLINE OF PUMPING STATION
1/4" = 1'-0"

Add 6-#9 E.F.
Add 6-#5 Dowels
El. 933.30

Exhaust Vent. See Sh. 19
Pump Hoist Beam See Detail Sh. No. 19
Telemetering Receiver
3" Air & Vacuum Valve
Gate Valve
Roof Drain
10 Kva. Trans.
Motor Control Center
Ltg. Panel
Sol. Valve
2"S x 8'-0"
El. 950.25
Window
Exhaust Vent. See Sh. 19
Cl. M.H. Steps 16" c/c Neenah R-1980-E On South Wall
Overflow Opng 12"x12"
Bond Grd. Wire To Pipe
Pipe Sleeve
2" Drain Line
Reservoir "High Water" El. 946.5
3/4" I.P.S. Water Supply For Carbon Feeder See Diagram Sh. 21
NOTE: Reinforcing Steel Shown This Wall Typical in Exterior Walls East & West

PLAN VIEW ABOVE ELEVATION 950.85
1/4" = 1'-0"

Sleeves - 2 Sizes Larger Than Service Pipe
Oakum
Coupling
Lead Wool 1" Min.
PIPE SLEEVE DETAIL
NTS

LEGEND
- Ceiling Mtd. Fixture
- Convenience Outlet
- Special Purpose Outlet
- S Single Pole Switch
- Sv Exh. Fan Switch
- T Thermostat
- 3 Phase Motor
- Single Phase Motor
- Switch
- Motor Control

Applies to both pumping stations
See Sheet #28 For Electrical Diagrams.

El. 923.00
#5 @ 9 1/2
#4 @ 12
4" Hole 5'-0" c/c
#6 @ 9 1/2 Dwls.
#6 @ 9
SECTION B - B
1/4" = 1'-0"

El. Varies From 923.00 to 923.50
12x12 Strut 4 #6 #3 Ties @ 12
Add 4 #8 E.F.
#5 @ 7
#6 @ 7
#4 @ 12
#5 @ 12 Dwls.
#4 @ 12
#5 @ 9
#4 @ 9
4" Hole 5'-0" c/c
SECTION C - C
1/4" = 1'-0"

12'-6"
12'-6"
80'±
20'-0"
El. 928.00
4 #8 E.F.
Ties #3 @ 12
4 #6
Grade El. 922.00
El. 923.00
Reservoir Dike Profile
El. 914.00
El. 913.00
El. 909.33
#5 @ 12 Dwls.
#6 @ 10
24'-9"

STATE OF OHIO
HAROLD A. KELLEY
18474
REGISTERED
PROFESSIONAL ENGINEER

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

RESERVOIR PUMPING STATION
PLAN, SECTION & DETAILS

NO.	DATE	REVISIONS	CH'K BY

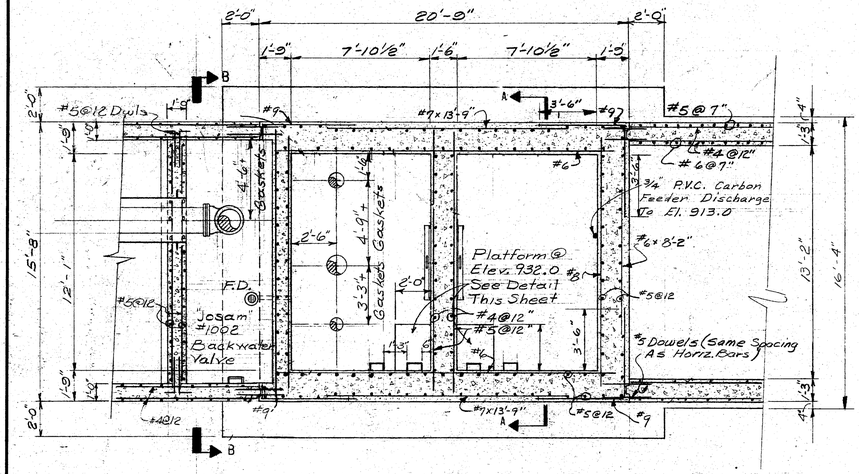
FLD. BK.	SCALE AS NOTED	DRN. C.R.N.	CK'D C.R.N.	APR. H.A.K.	DATE JULY, 1968

JOB NO. 79W3D2

JONES & HENRY - ENGINEERS LIMITED
TOLEDO, OHIO

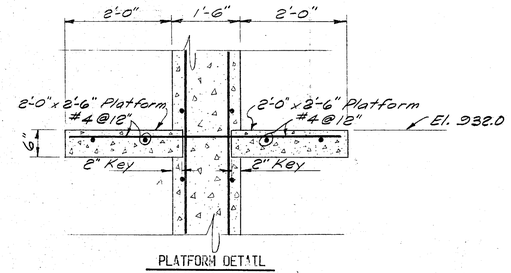
DRAWING NO. 18 OF 28

H.U.D. PROJECT NO. WS-OHIO-225



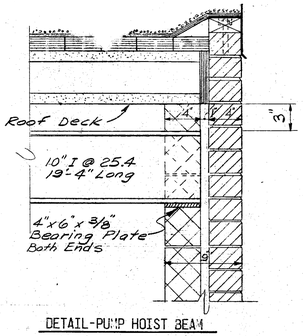
PLAN VIEW BELOW ELEV. 950.85

1/4" = 1'-0"



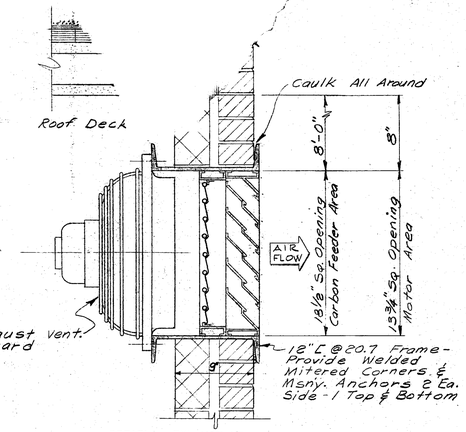
PLATFORM DETAIL

3/4" = 1'-0"



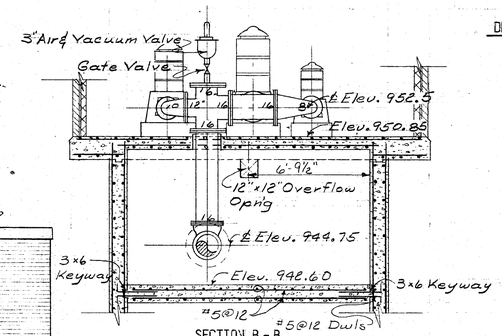
DETAIL - PUMP HOIST BEAM

1/4" = 1'-0"

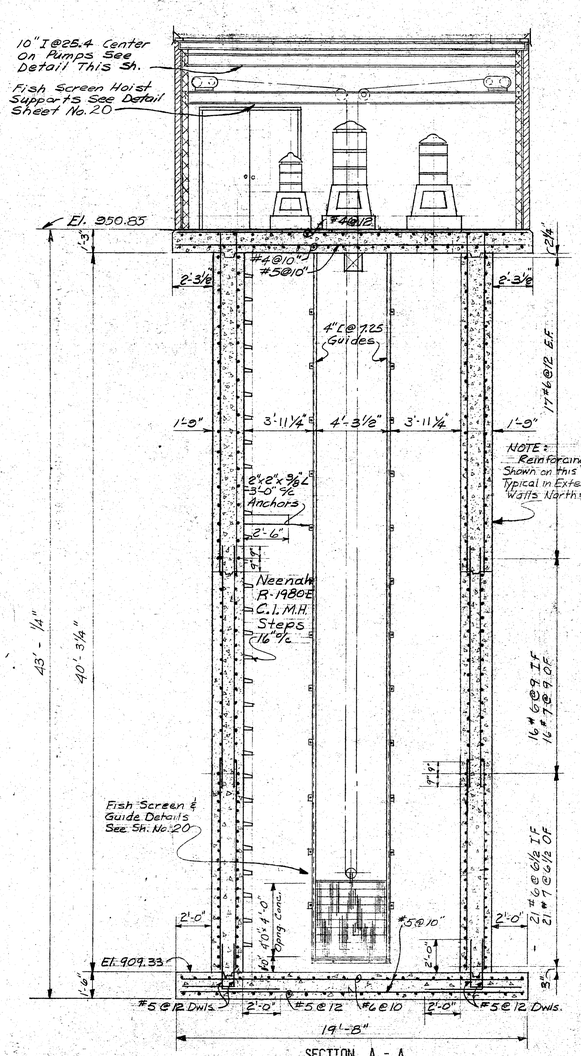


DETAIL - EXHAUST VENTILATOR

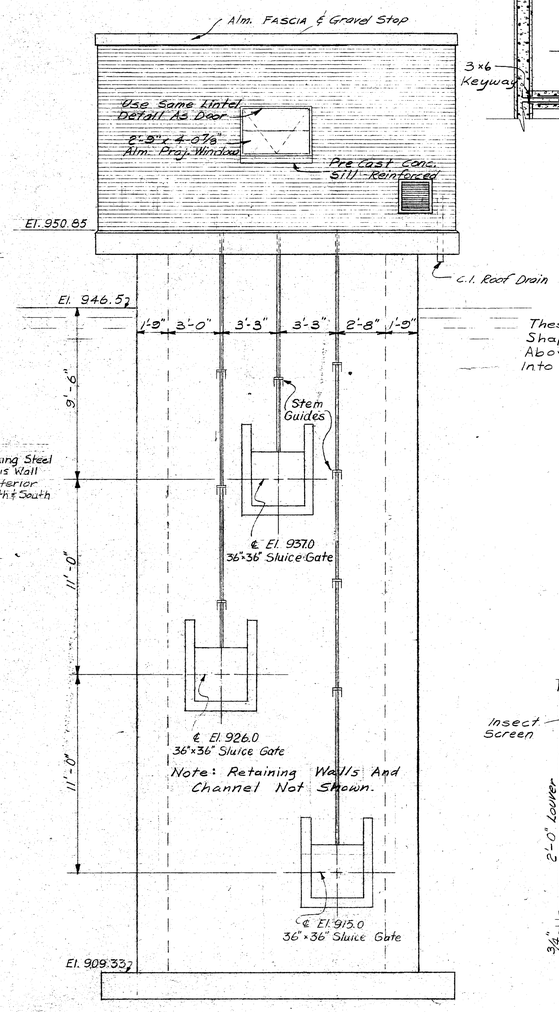
1/4" = 1'-0"



SECTION B - B

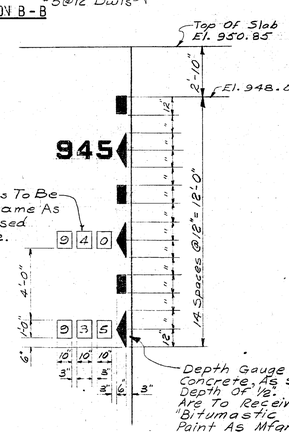


SECTION A - A

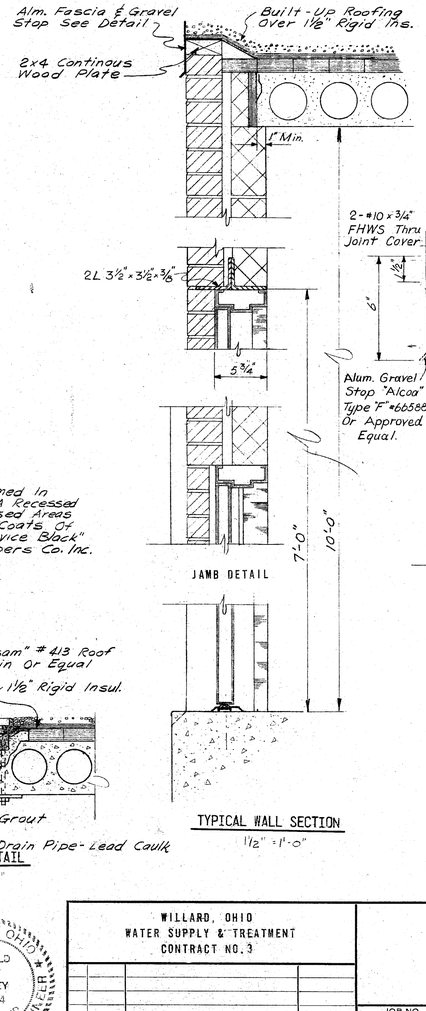


EAST ELEVATION - PUMPING STATION

1/4" = 1'-0"



DETAIL - OUTSIDE DEPTH GAUGE

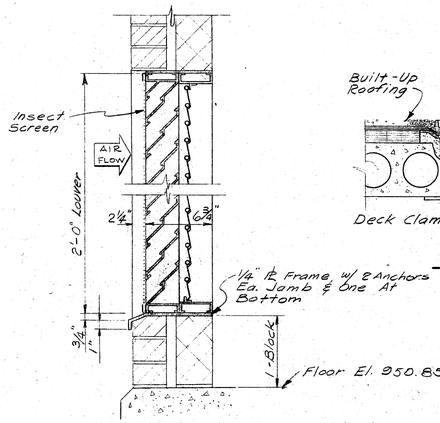


TYPICAL WALL SECTION

1/2" = 1'-0"

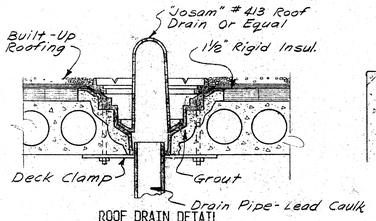
COPING DETAIL - LOAD BEARING WALL

3" = 1'-0"



DETAIL - INTAKE LOUVER

1/2" = 1'-0"



ROOF DRAIN DETAIL

1/2" = 1'-0"

STATE OF OHIO
HAROLD A. KELLEY
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NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
	AS NOTED	C.R.N.	C.R.N.	H.A.K.

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

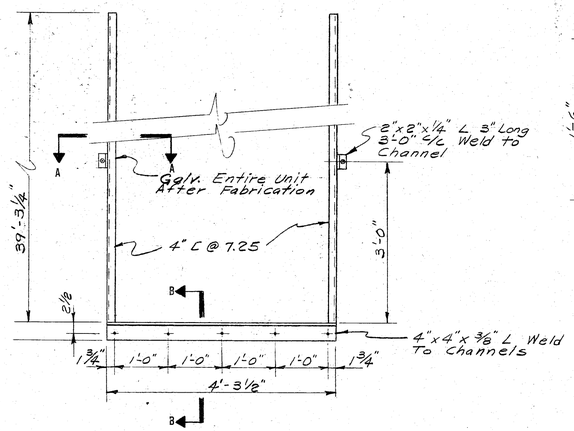
RESERVOIR PUMPING STATION
SECTIONS & DETAILS

JOB NO. 79W302
DATE JULY, 1968

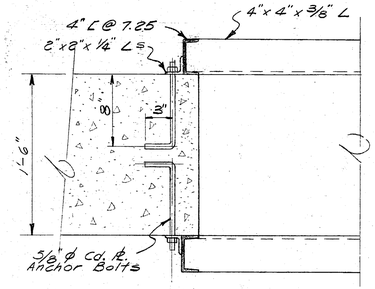
JONES & HENRY - ENGINEERS
LIMITED
TOLEDO, OHIO

DRAWING NO. 19 OF 28

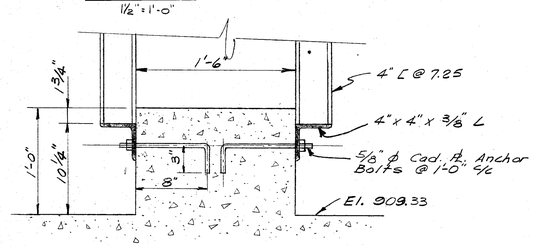
H.U.D. PROJECT NO. WS-OHIO-225



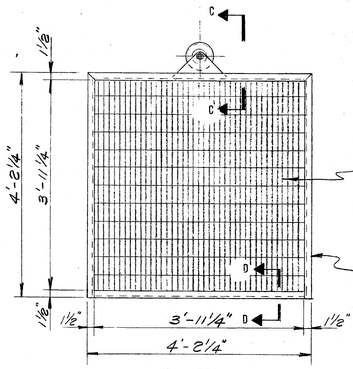
DETAIL - FISH SCREEN GUIDE
3/4" = 1'-0"



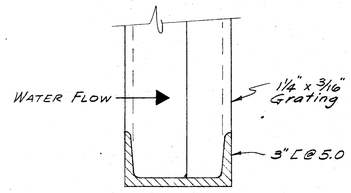
SECTION A - A
1 1/2" = 1'-0"



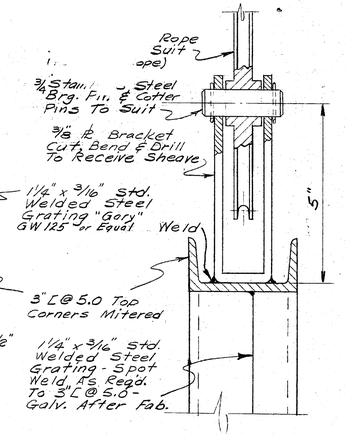
SECTION B - B
1 1/2" = 1'-0"



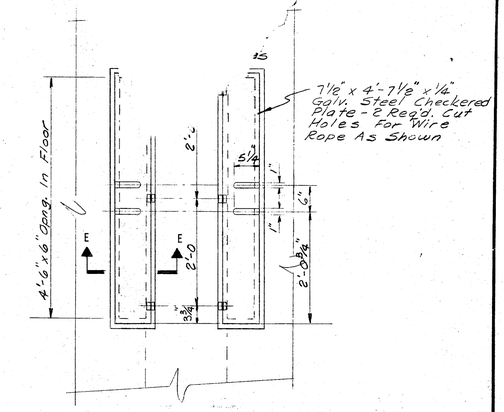
DETAIL - FISH SCREEN
3/4" = 1'-0"



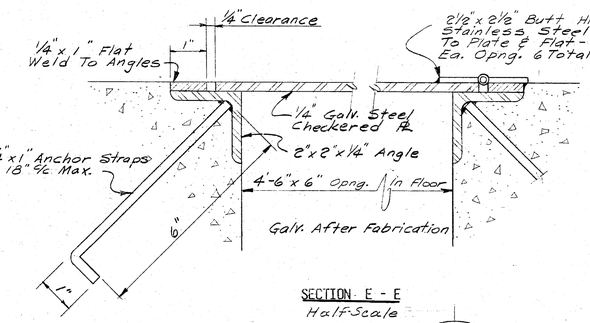
SECTION D - D
Half Scale



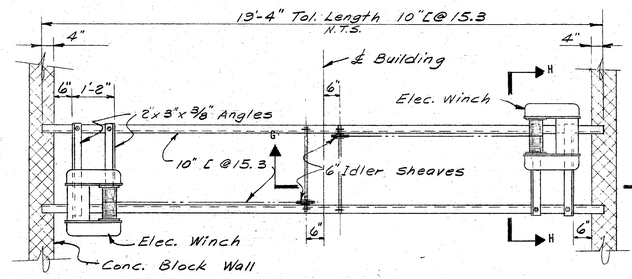
SECTION C - C
Half Scale



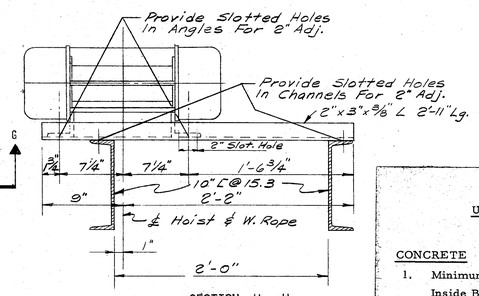
DETAIL - FLOOR PLATE OVER FISH SCREENS
Scale: 3/4" = 1'-0"



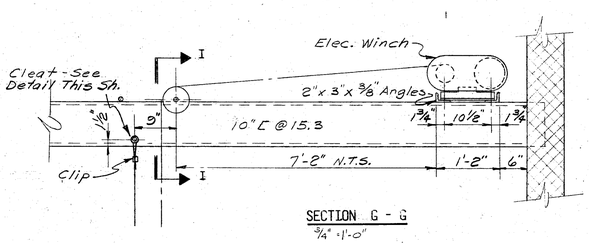
SECTION E - E
Half Scale



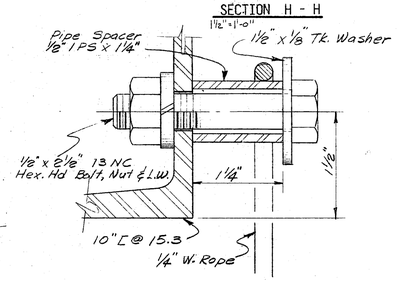
DETAIL - FISH SCREEN HOISTS
1/2" = 1'-0"



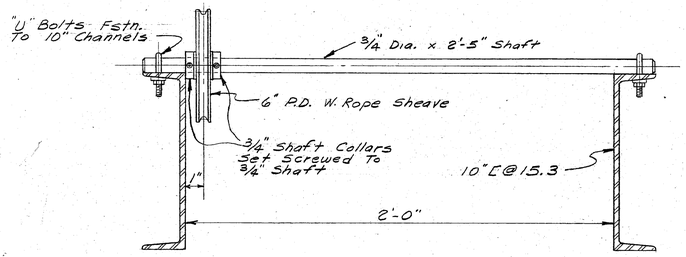
SECTION H - H
1 1/2" = 1'-0"



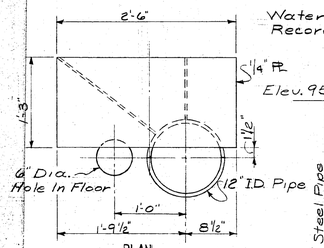
SECTION G - G
3/4" = 1'-0"



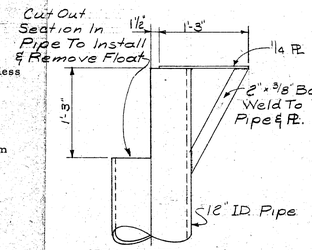
CLEAT DETAIL
Full Scale



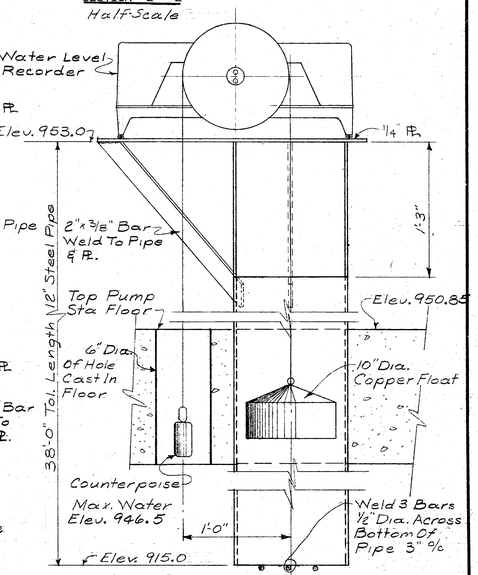
SECTION I - I
3" = 1'-0"



PLAN
1" = 1'-0"



SIDE ELEVATION
1" = 1'-0"



DETAIL - INSIDE DEPTH GAUGE
1 1/2" = 1'-0"

UNLESS SHOWN OTHERWISE ON THE PLANS OR SPECIFIED, THE FOLLOWING DESIGN NOTES SHALL APPLY

CONCRETE

1. Minimum protection over reinforcing:

Inside Buildings	
Columns, Beams and Girders	1-1/2"
Slabs and Walls	3/4"
Contact with or over Water	
All Members	2"
Contact with Earth	
Formed Walls and Columns	2"
Walls, Columns, Slabs & Footers placed against earth	3"

2. The location of bends shall be as shown in the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" ACI Standard 315, latest revision.
3. All slab and beam reinforcing bars shall be extended into the supports in accordance with the latest revision of "ACI Building Code", ACI Standard 318.
4. Hooks, Bends, Supports and Spacers shall be in accordance with the latest revision of "Manual of Standard Practice".
5. Lap all bars a minimum of 30 bar diameters but not less than 12".
6. Lintels for openings in concrete shall have one #5 bar for each 4" of wall thickness and shall be at least 2'-0" longer than the width of the openings.
7. Chamfer exposed corners of all beams, columns and end wall 1".
8. Set wall castings or sleeves in walls or slabs as shown or required.
9. Provide openings in walls and slabs, and set anchor bolts and inserts to conform with the requirements of the equipment to be installed.
10. In addition to steel shown, provide one #5 bar on each face and on four sides, placed diagonally around all wall and slab openings larger than 12".
11. Provide dowels in all footings corresponding with vertical wall reinforcement.

STRUCTURAL STEEL

1. All structural steel shall be fabricated and erected in accordance with American Institute of Steel Construction "Specifications for the Design, Fabrication, and Erection of Structural Steel Buildings", latest revision.
2. All bolts to be 3/4" - minimum of two bolts per connection.
3. All structural steel, except that encased in concrete, shall be given one shop coat of approved priming paint.
4. Beam connections shall have a capacity equivalent to AISC Table 1.
5. All columns shall have 1" grout between the base plate and concrete floor.
6. Anchor bolts to be 3/4" diameter x 2'-6" long with a 3" projection.

STATE OF OHIO HAROLD A. KELLEY 18474 REGISTERED PROFESSIONAL ENGINEER

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

RESERVOIR PUMPING STATION
MISCELLANEOUS DETAILS

NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
	AS NOTED	CKN.	CKN.	HAK.

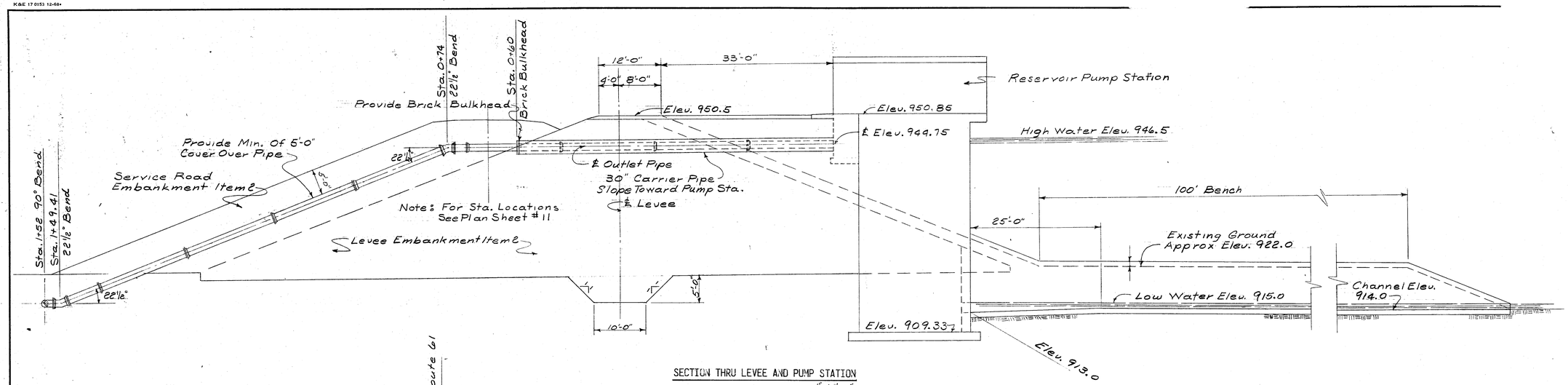
JOB NO. 79W302
DATE JULY, 1968

JONES & HENRY - ENGINEERS LIMITED
TOLEDO, OHIO

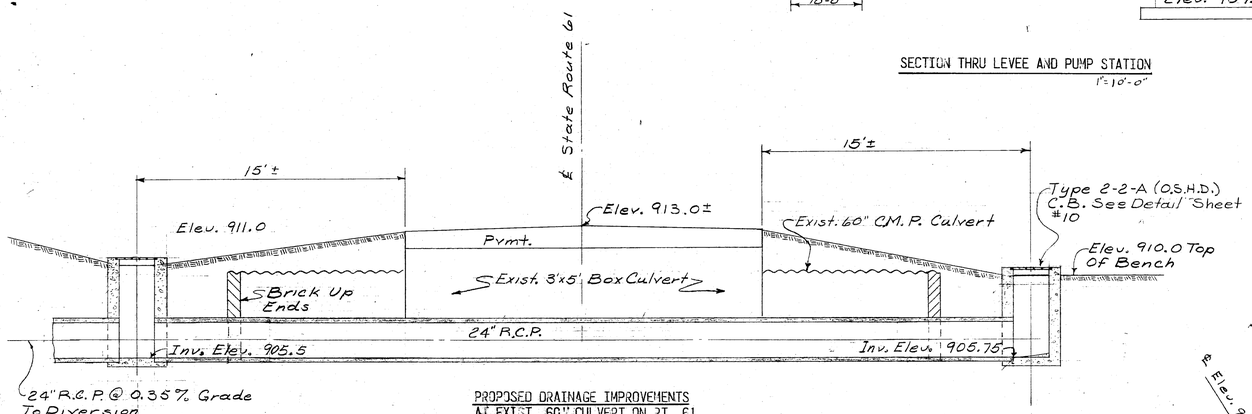
DRAWING NO. 20 OF 28

H.U.D. PROJECT NO. WS-OHIO-225

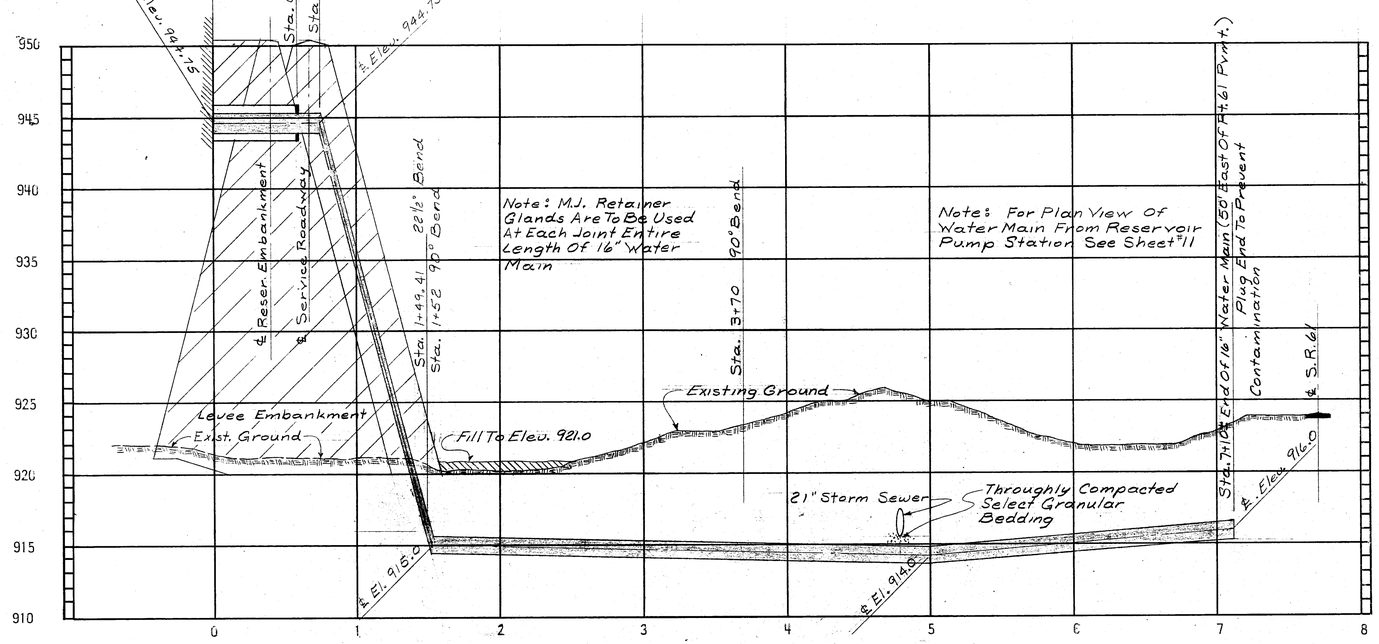
K&E 17 0153 12-68

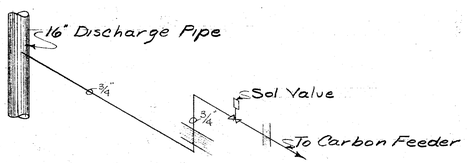


SECTION THRU LEVEE AND PUMP STATION
1"=10'-0"



PROPOSED DRAINAGE IMPROVEMENTS
AT EXIST. 60" CULVERT ON RT. 61
1/4"=1'-0"





CARBON FEEDER WATER SUPPLY
N.T.S.

STATE OF OHIO
HAROLD A. KELLEY
38474
REGISTERED PROFESSIONAL ENGINEER

H.U.D. PROJECT NO. WS-OHIO-225

NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
	AS NOTED	J.E.H.		

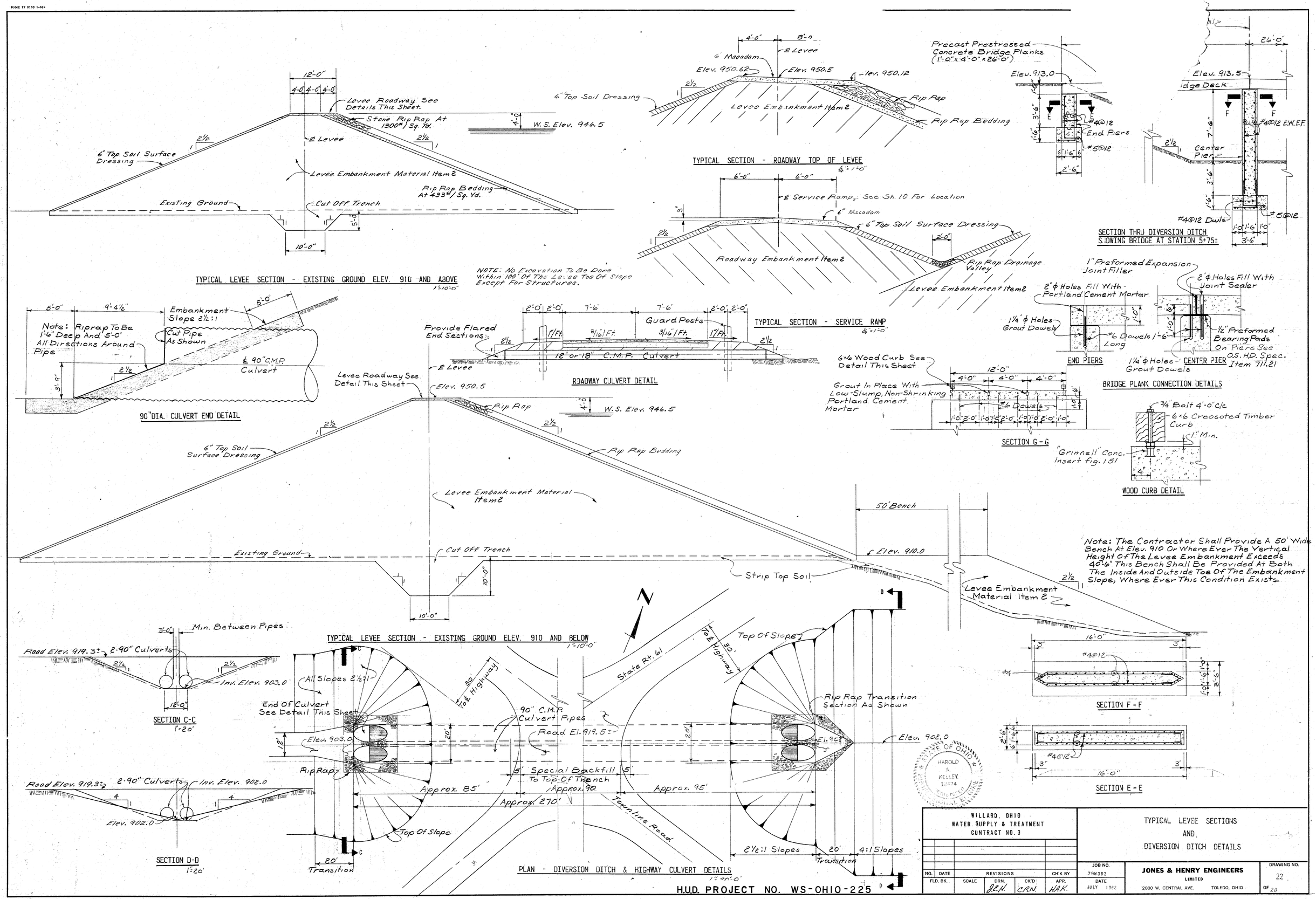
WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

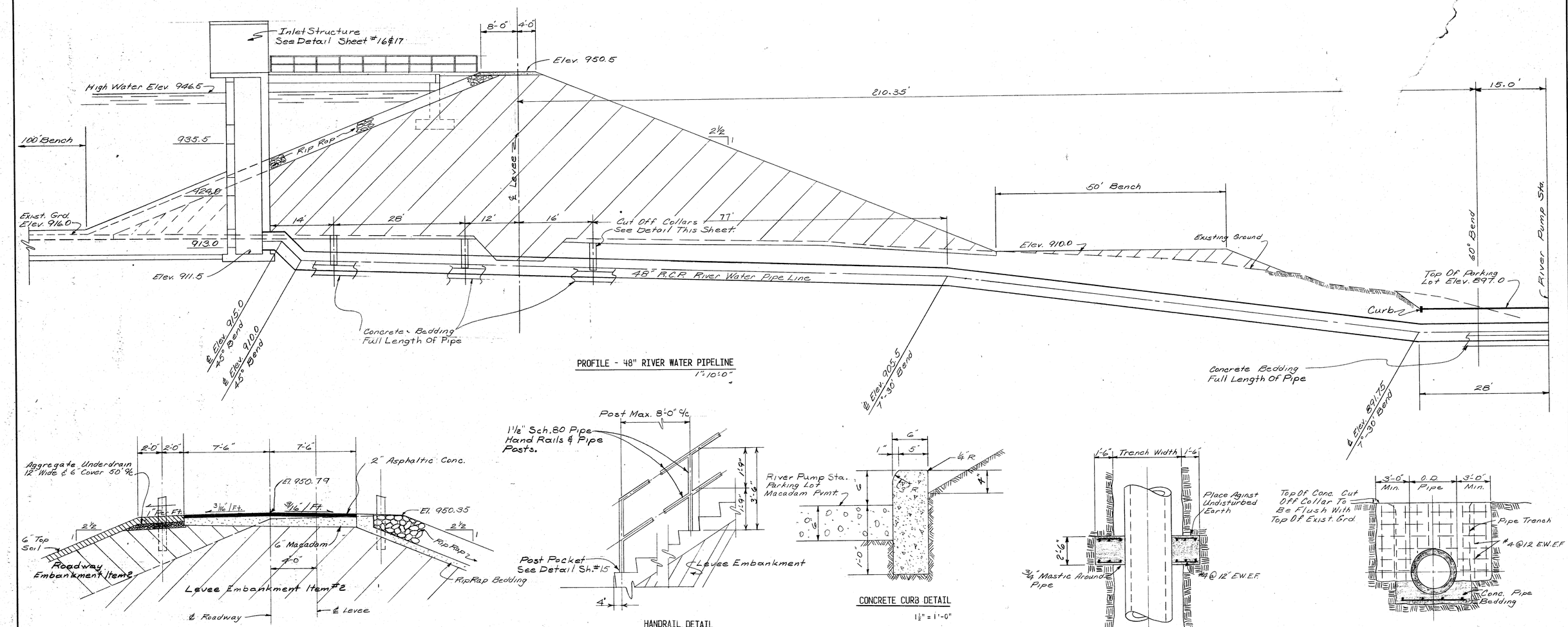
16" WATER MAIN PROFILE
AND
SECTION THRU LEVEE AT RESERVOIR PUMPING STATION

JOB NO. 7 9W3D2
DATE JULY 1968

JONES & HENRY ENGINEERS
LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 21
OF 28


TYPICAL LEVEE SECTION - EXISTING GROUND ELEV. 910 AND ABOVE
1"=10'-0"
12'-0"
4'-0" 4'-0" 4'-0"
Levee Roadway See Details This Sheet.
Stone Rip Rap At 1300#/Sq. Yd.
W.S. Elev. 946.5
℄ Levee
6" Top Soil Surface Dressing
Levee Embankment Material Item 2
Rip Rap Bedding At 433#/Sq. Yd.
Existing Ground
Cut Off Trench
10'-0"
TYPICAL SECTION - ROADWAY TOP OF LEVEE
6" Macadam
Elev. 950.62
Elev. 950.5
Elev. 950.12
6" Top Soil Dressing
Rip Rap
Levee Embankment Item 2
Rip Rap Bedding
Precast Prestressed Concrete Bridge Planks (1'-0" x 4'-0" x 26'-0")
Elev. 913.0
End Piers
#5@12
Elev. 913.5
Center Pier
#4@12 E.W.E.F.
#4@12 Dwls
#5@12
SECTION THRU DIVERSION DITCH SLOWING BRIDGE AT STATION 5+75±
TYPICAL SECTION - SERVICE RAMP
℄ Service Ramp, See Sh. 10 For Location
6" Macadam
6" Top Soil Surface Dressing
Roadway Embankment Item 2
Rip Rap Drainage Valley
Levee Embankment Item 2
NOTE: No Excavation To Be Done Within 100' Of The Levee Toe Of Slope Except For Structures.
90" DIA. CULVERT END DETAIL
Note: Riprap To Be 1'-6" Deep And 5'-0" All Directions Around Pipe
Embankment Slope 2½:1
Cut Pipe As Shown
℄ 90" C.M.P. Culvert
ROADWAY CULVERT DETAIL
Provide Flared End Sections
Guard Posts
12" or 18" C.M.P. Culvert
Levee Roadway See Detail This Sheet
Elev. 950.5
Rip Rap
W.S. Elev. 946.5
6" Top Soil Surface Dressing
Rip Rap Bedding
Levee Embankment Material Item 2
Existing Ground
Cut Off Trench
Elev. 910.0
Strip Top Soil
50' Bench
Levee Embankment Material Item 2
Note: The Contractor Shall Provide A 50' Wide Bench At Elev. 910 Or Where Ever The Vertical Height Of The Levee Embankment Exceeds 40'-6" This Bench Shall Be Provided At Both The Inside And Outside Toe Of The Embankment Slope, Where Ever This Condition Exists.
BRIDGE PLANK CONNECTION DETAILS
1" Preformed Expansion Joint Filler
2" ϕ Holes Fill With Portland Cement Mortar
1¼" ϕ Holes Grout Dowels
#6 Dowels 1'-6" Long
END PIERS
2" ϕ Holes Fill With Joint Sealer
½" Preformed Bearing Pads On Piers See O.S.H.D. Spec. Item 711.21
1¼" ϕ Holes Grout Dowels
CENTER PIER
6x6 Wood Curb See Detail This Sheet
Grout In Place With Low-Slump, Non-Shrinking Portland Cement Mortar
#6 Dowels
SECTION G-G
¾" Bolt 4'-0" c/c
6x6 Creosoted Timber Curb
1" Min.
"Grinnell" Conc. Insert fig. 151
WOOD CURB DETAIL
TYPICAL LEVEE SECTION - EXISTING GROUND ELEV. 910 AND BELOW
1"=10'-0"
Min. Between Pipes
Road Elev. 919.3±
2-90" Culverts
Inv. Elev. 903.0
SECTION C-C
1"=20'
All Slopes 2½:1
End Of Culvert See Detail This Sheet
Elev. 903.0
Rip Rap
Road Elev. 919.3±
2-90" Culverts
Inv. Elev. 902.0
Elev. 902.0
SECTION D-D
1"=20'
Top Of Slope
Transition
90" C.M.P. Culvert Pipes
Road El. 919.5±
5' Special Backfill To Top Of Trench
Approx. 85'
Approx. 90'
Approx. 95'
Approx. 270'
State Rt. 61
Township Road
30' To ℄ Highway
Rip Rap Transition Section As Shown
Elev. 902.0
2½:1 Slopes
4:1 Slopes
PLAN - DIVERSION DITCH & HIGHWAY CULVERT DETAILS
1"=20'-0"
SECTION F-F
SECTION E-E
#4@12
16'-0"
STATE OF OHIO
HAROLD A. KELLEY
H.U.D. PROJECT NO. WS-OHIO-225
WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3
NO. DATE REVISIONS CH'K BY
FLD. BK. SCALE DRN. J.E.H. CK'D C.R.N. APR. H.A.K.
TYPICAL LEVEE SECTIONS AND DIVERSION DITCH DETAILS
JOB NO. 79W302
DATE JULY 1968
JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO
DRAWING NO. 22
OF 28

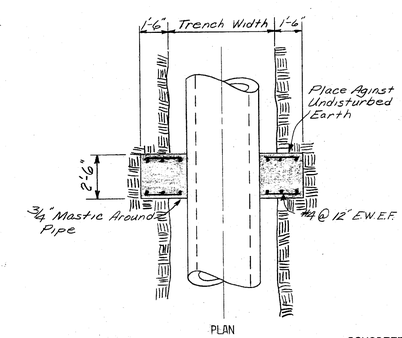


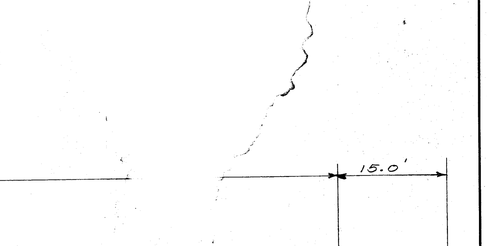
PROFILE - 48" RIVER WATER PIPELINE
1"=10'-0"

TYPICAL SECTION LEVEE ROADWAY STA. 48+65 TO STA. 54+25
¼"=1'-0"

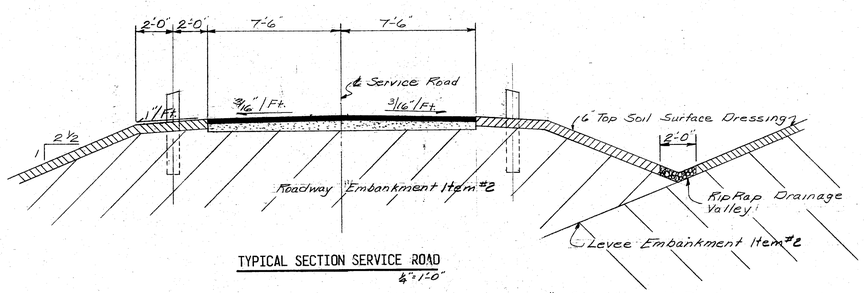
HANDRAIL DETAIL

CONCRETE CURB DETAIL
1½" = 1'-0"

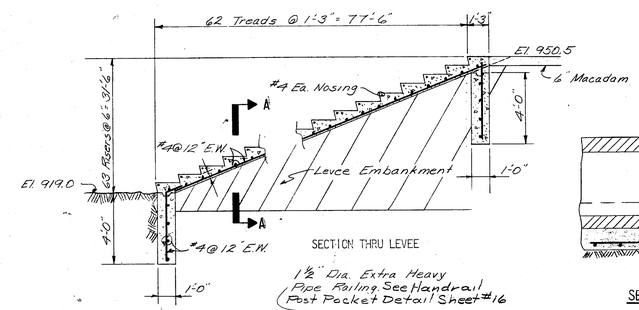


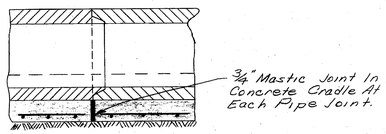


CONCRETE CUT-OFF COLLAR DETAIL
¼"=1'-0"

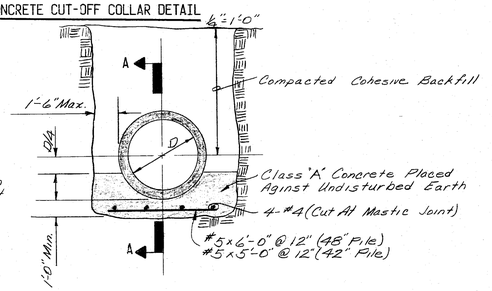


TYPICAL SECTION SERVICE ROAD
¼"=1'-0"

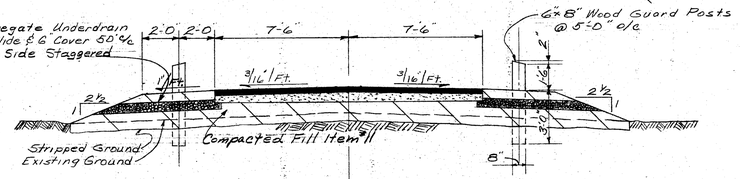




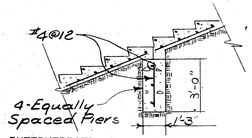
SECTION A-A



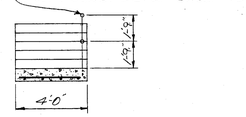
48 PIPE LINE
TYPICAL TRENCH DETAIL
¼"=1'-0"



TYPICAL SECTION SERVICE ROADWAY
¼"=1'-0"



INTERMEDIATE STAIR SECTION



SECTION A-A

LEVEE STAIR DETAIL AT STA. 45+00
¼"=1'-0"

STATE OF OHIO
HAROLD A. KELLEY
18474
REGISTERED
PROFESSIONAL ENGINEER

H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO WATER SUPPLY & TREATMENT CONTRACT NO. 3					
NO.	DATE	REVISIONS			CH'K BY
FLD. BK.	SCALE	DRN. DEH B.N.H.	CK'D C.R.N.	APR. HAK	

PROFILE - 48" RIVER WATER PIPELINE
PAVED ROADWAY AND STAIR DETAILS

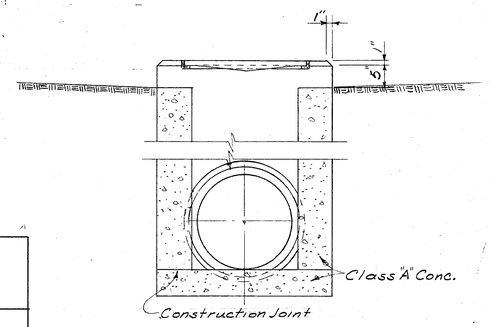
JOB NO. 79k302
DATE JULY 1968

JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

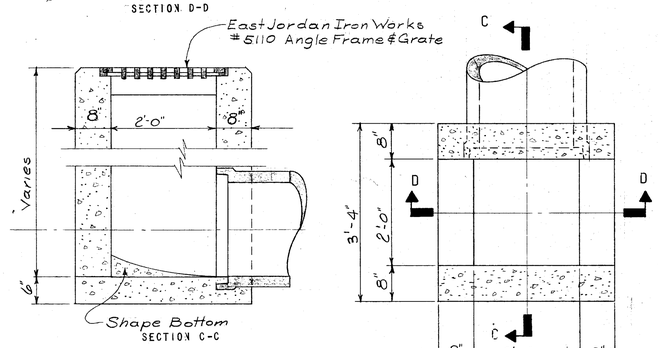
DRAWING NO. 23
OF 28

K&E 17 0153 1-68

Note: Side Inlets Shall Be Provided On Both Sides Of The Catch Basin. Side Inlets To Be Placed 4 To 6 Inches Below Normal Elevations Of Ditch Flow Line Returning To Normal 10 Feet Each Side Of Basin.



SECTION D-D

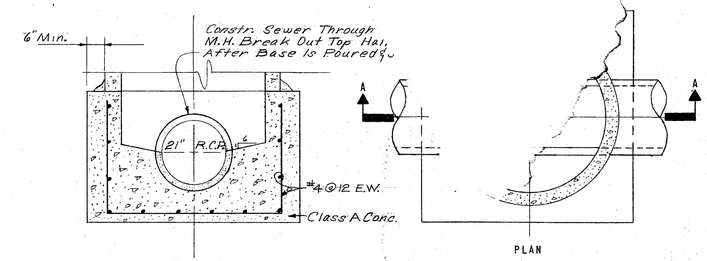


SECTION C-C

PLAN

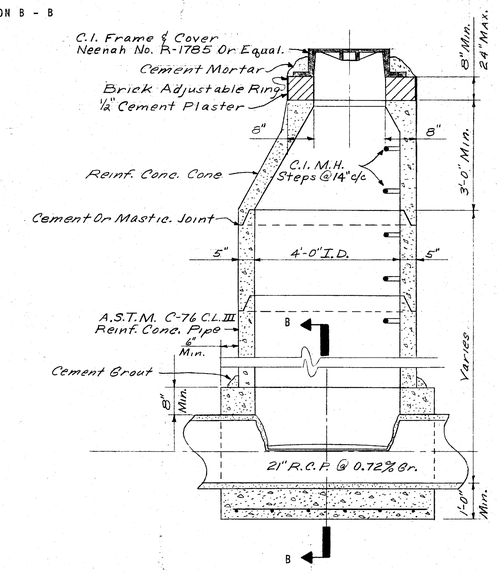
Note: Catch Basin Shown Is O.S.H.D. Standard #2-2-A And Should Be Constructed In Accordance With O.S.H.D. Specifications.

CATCH BASIN TYPE 2-2-A (O.S.H.D.)
3/4"=1'-0"



SECTION B - B

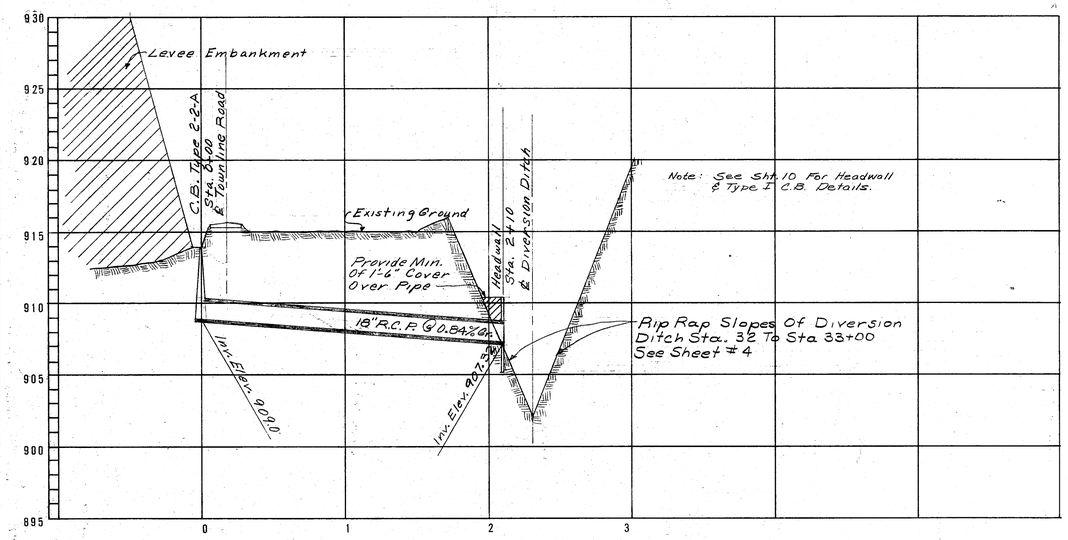
PLAN



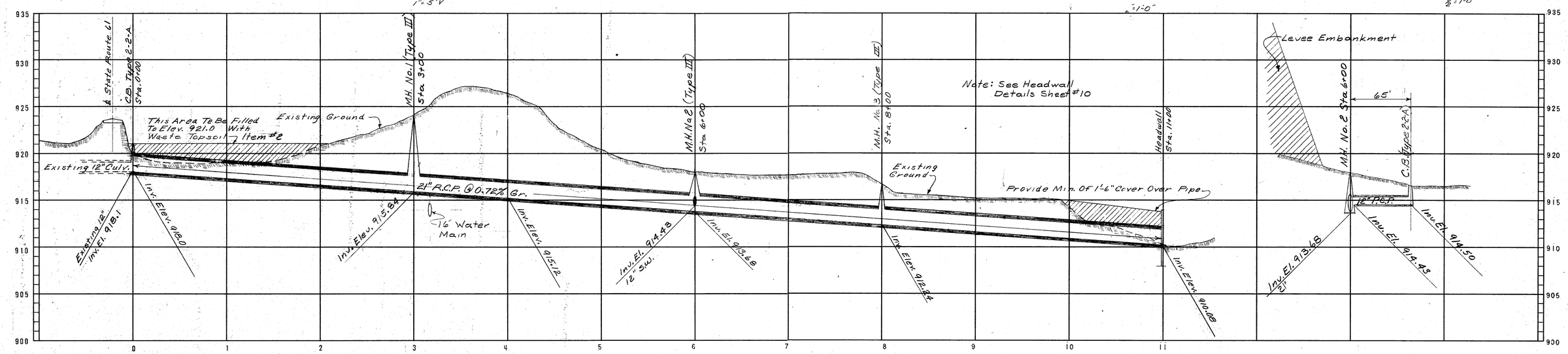
SECTION A - A

MANHOLE TYPE III
1/2"=1'-0"

DRAINAGE PROFILE UNDER TOWNLINE ROAD 670' EAST OF S.R. 61
1"=50'H
1"=5'V



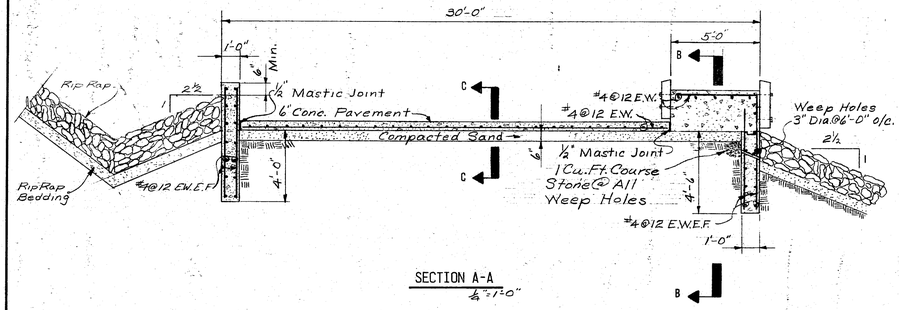
DRAINAGE PROFILE EAST OF S.R. 61 & NORTH OF B. & O. R.R. TRACKS
1"=50'H
1"=5'V



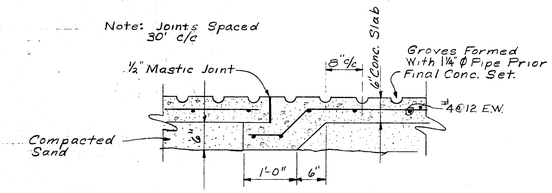
H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO WATER SUPPLY & TREATMENT CONTRACT NO. 3						DRAINAGE PROFILES AND DETAILS	
NO.	DATE	REVISIONS			CH'K BY	JOB NO. 79W302	JONES & HENRY ENGINEERS LIMITED 2000 W. CENTRAL AVE. TOLEDO, OHIO	DRAWING NO. 24
FLD. BK.		SCALE	DRN. J.C.H.	CK'D CRN	APR. H.A.K.	DATE JULY 1968		OF 28

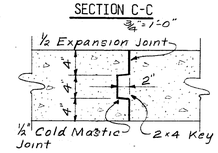
K&E '17 0153 1-68



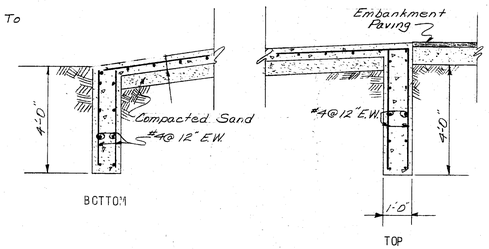
SECTION A-A
¼"=1'-0"



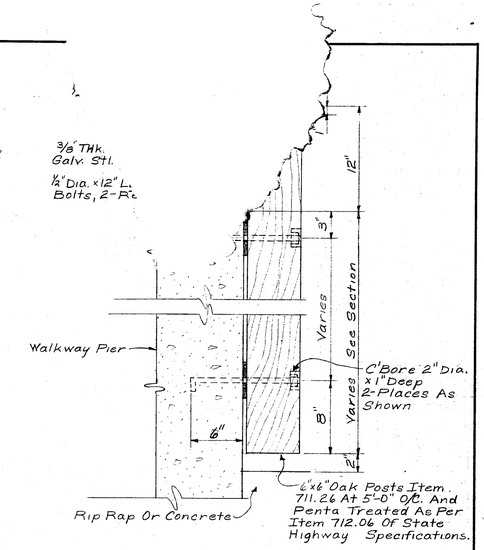
SECTION C-C
3/8"=1'-0"



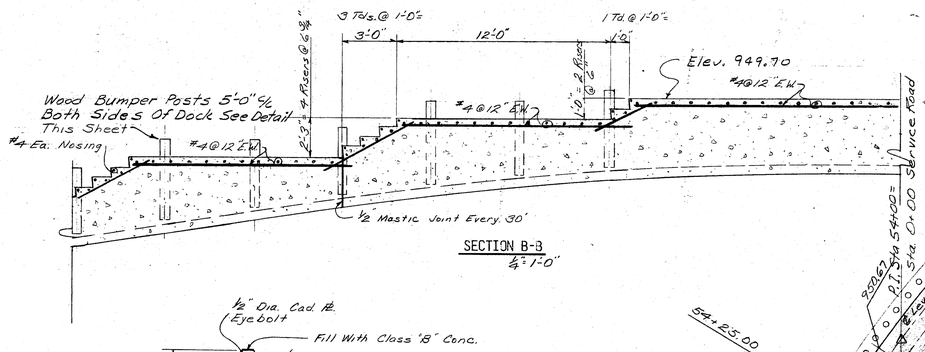
RETAINING WALL JOINT DETAIL
1"=1'-0"



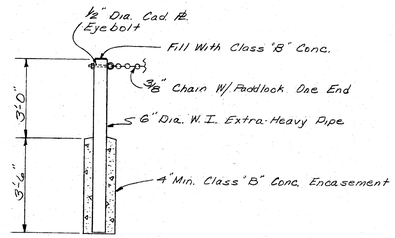
SECTION THRU BOAT RAMP
3/8"=1'-0"



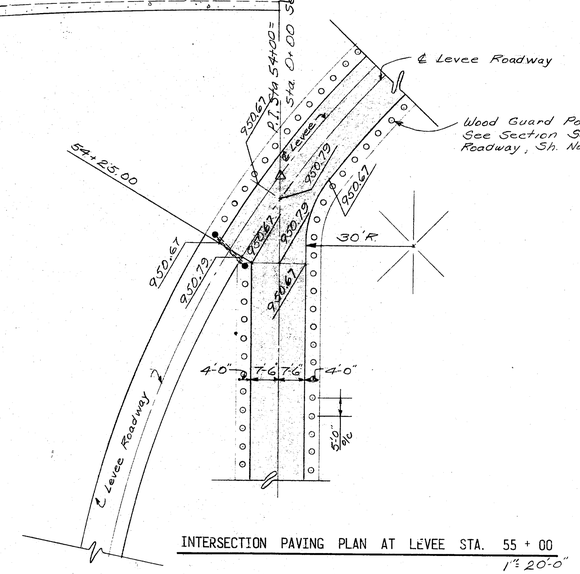
WOOD BUMPER POST DETAIL
1½"=1'-0"



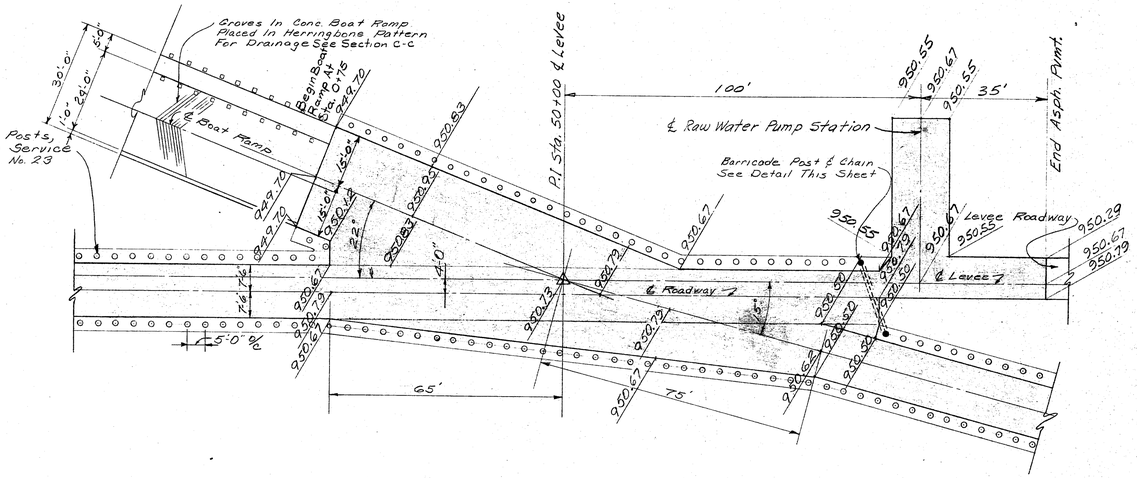
SECTION B-B
¼"=1'-0"



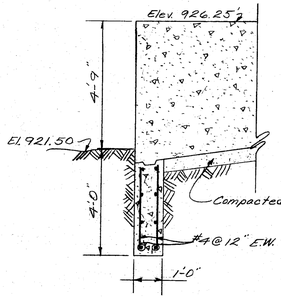
BARRICADE POST DETAIL
3/8"=1'-0"



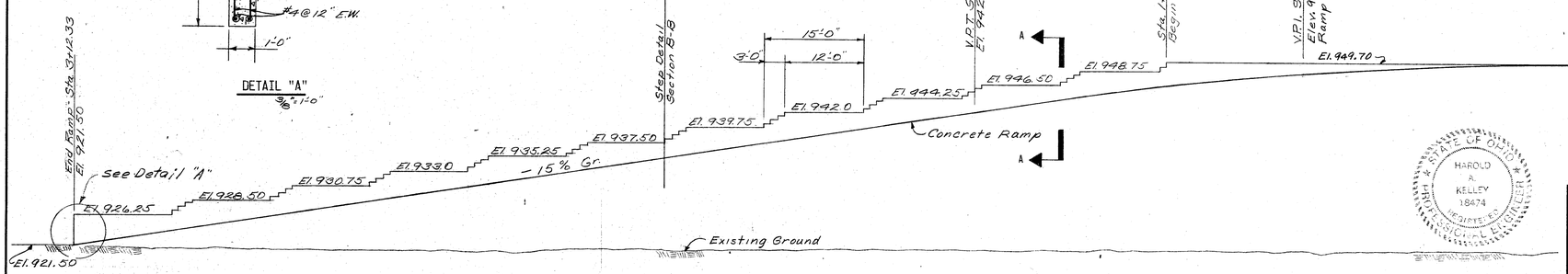
INTERSECTION PAVING PLAN AT LEVEE STA. 55 + 00
1"=20'-0"



INTERSECTION PAVING PLAN AT LEVEE STA. 50 + 00
1"=20'-0"



DETAIL "A"
3/8"=1'-0"



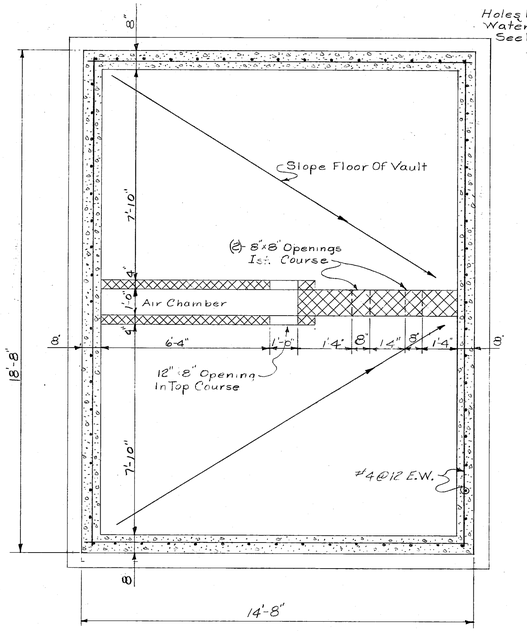
PROFILE - BOAT RAMP AND DOCK
1"=10'-0"

H.U.D. PROJECT NO. WS-OHIO-225

STATE OF OHIO
HAROLD A. KELLEY
18474
REGISTERED
PROFESSIONAL ENGINEER

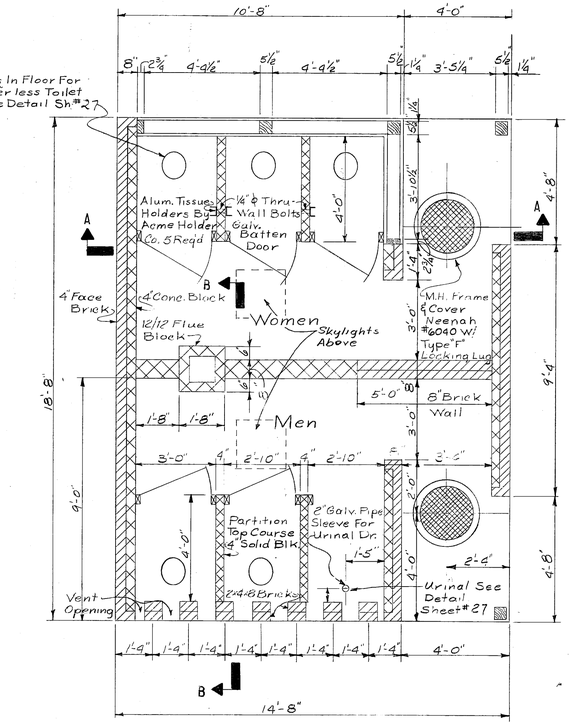
WILLARD, OHIO WATER SUPPLY & TREATMENT CONTRACT NO. 3				BOAT RAMP SECTIONS AND DETAILS
NO.	DATE	REVISIONS	CH'K BY	
FLD. BK.	SCALE	DRN. R.J.P. / B.N.A. CK'D C.R.N.	APR. H.A.K.	JOB NO. 79W302 / DATE JULY 1968
JONES & HENRY ENGINEERS LIMITED 2000 W. CENTRAL AVE. TOLEDO, OHIO				DRAWING NO. 25 OF 28

K&E 17 0153 1-68+



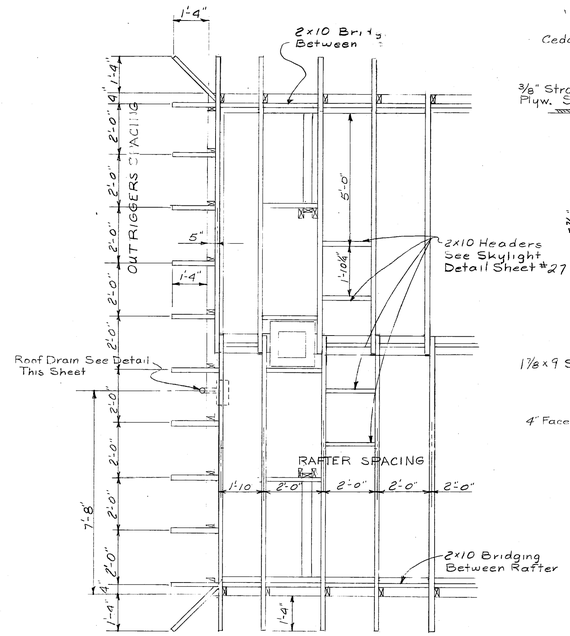
VAULT PLAN

3/8"=1'-0"



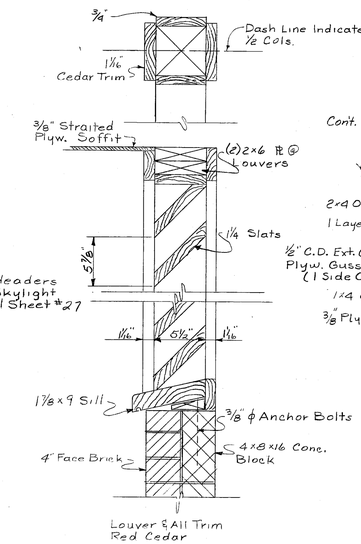
FLOOR PLAN

3/8"=1'-0"



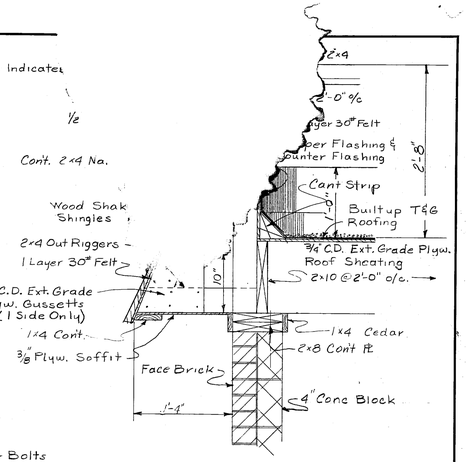
PARTIAL ROOF FRAMING PLAN

3/8"=1'-0"



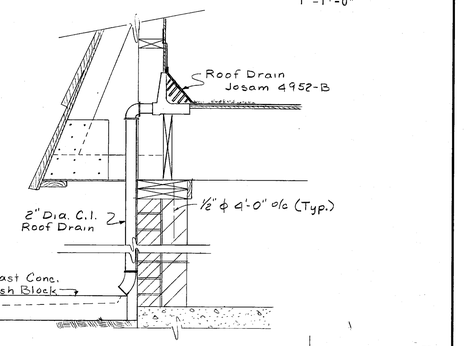
LOUVER DETAIL

1 1/2"=1'-0"



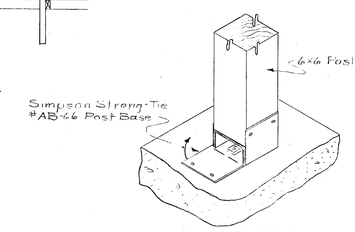
ROOF PARAPET DETAIL

1"=1'-0"

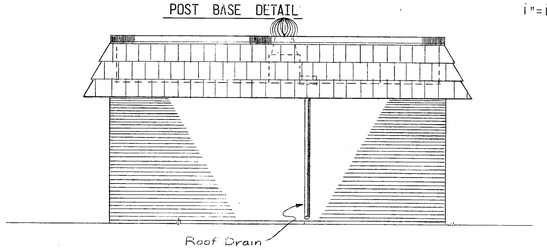


ROOF DRAIN DETAIL

1"=1'-0"

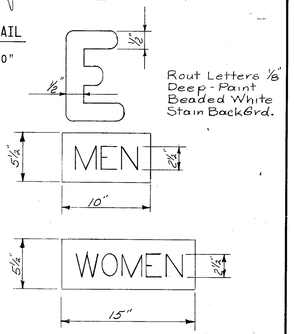


POST BASE DETAIL



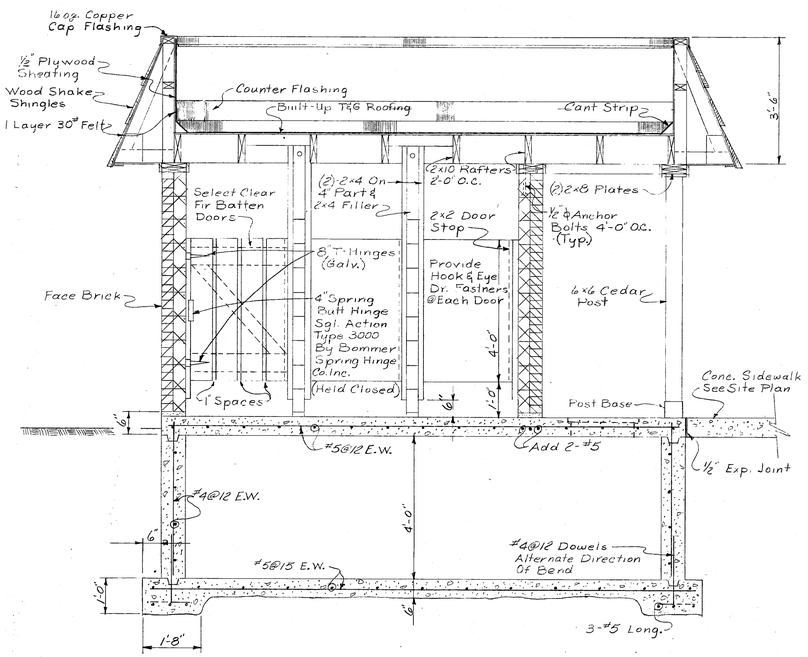
REAR ELEVATION

1/4"=1'-0"



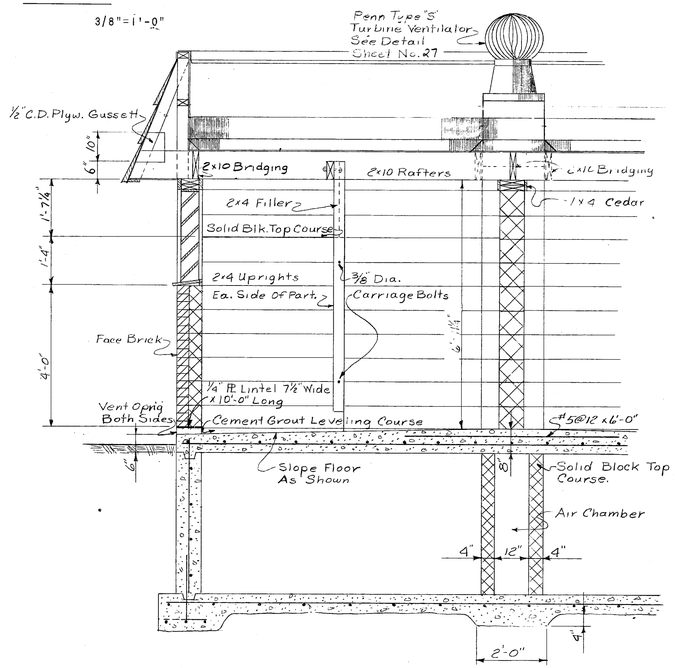
SIGN DETAILS

1 1/2"=1'-0"



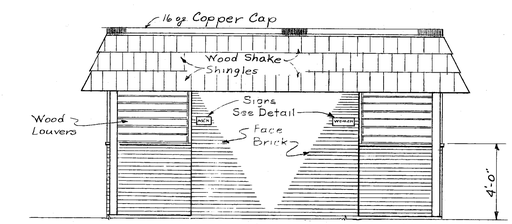
SECTION A - A

1/2"=1'-0"



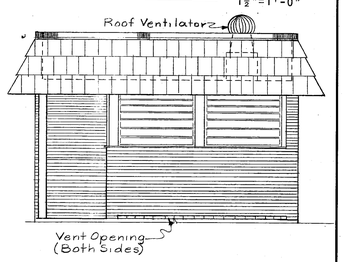
SECTION B - B

1/2"=1'-0"



FRONT ELEVATION

1/4"=1'-0"



SIDE ELEVATION

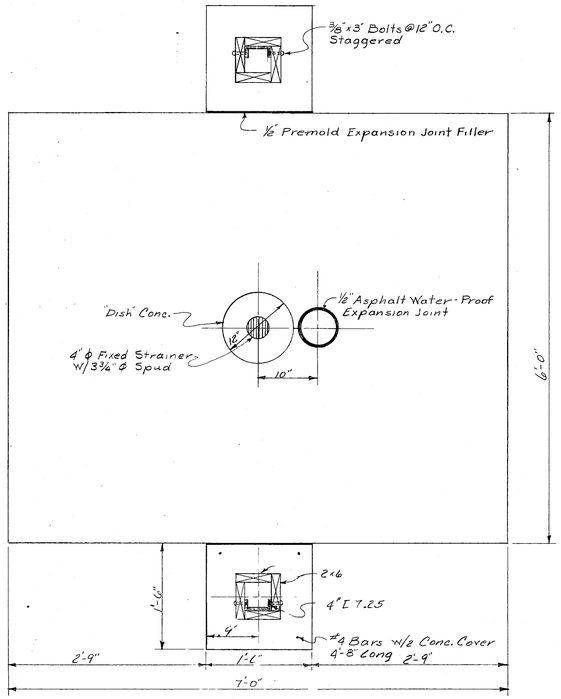
1/4"=1'-0"

WILLARD, OHIO WATER SUPPLY & TREATMENT CONTRACT NO. 3	RECREATION FACILITIES LATRINE PLANS. SECTIONS. AND DETAILS

NO.	DATE	REVISIONS			CH'K BY	JOB NO.	JONES & HENRY ENGINEERS LIMITED	DRAWING NO.
FLD. BK.		SCALE AS NOTED	DRN. J.E.H.	CK'D C.K.N.	APR. H.A.K.	79W3D2	2000 W. CENTRAL AVE. TOLEDO, OHIO	26
						DATE JULY 1968		OF 28

H.U.D. PROJECT NO. WS-OHIO-225

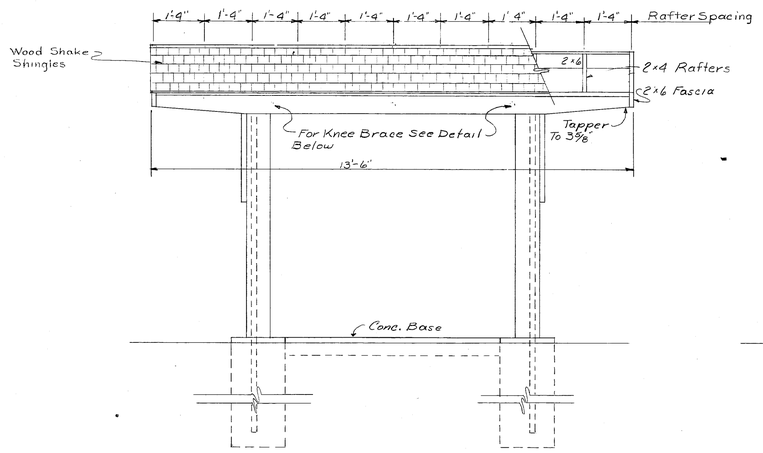
K&E 17 0153 1-68



VIEW B

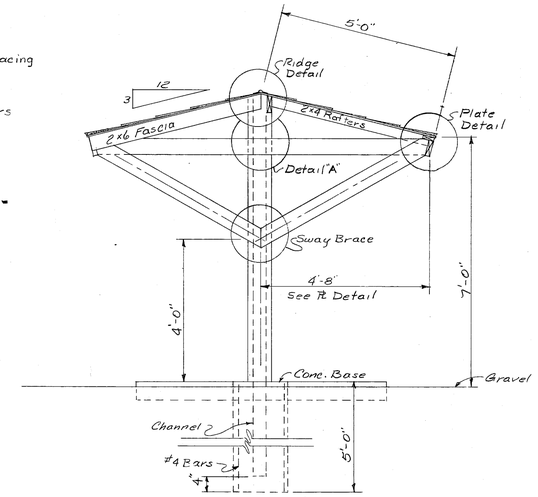
PLAN - WELL SHELTER

1"=1'-0"



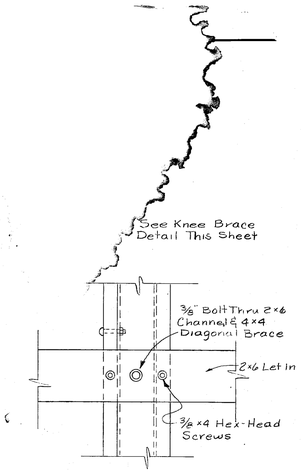
VIEW "A"

½"=1'-0"



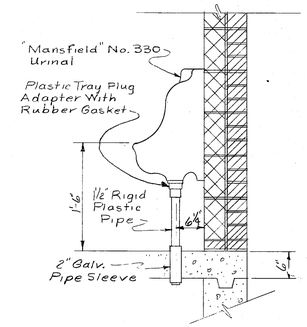
VIEW "B"

½"=1'-0"



DETAIL "A"

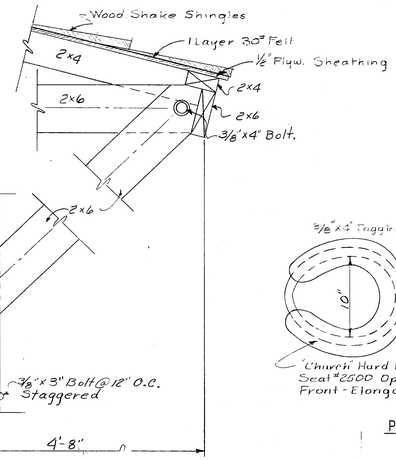
1½"=1'-0"



URINAL DETAIL

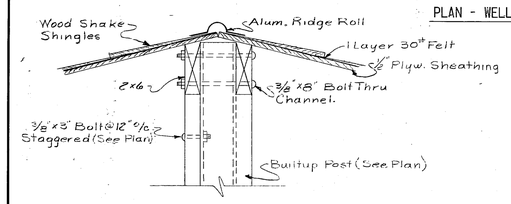
N.T.S.

Note: All Bolts, Nuts And Washers Shall Be Cadmium Plated



SWAY BRACE & PLATE DETAIL

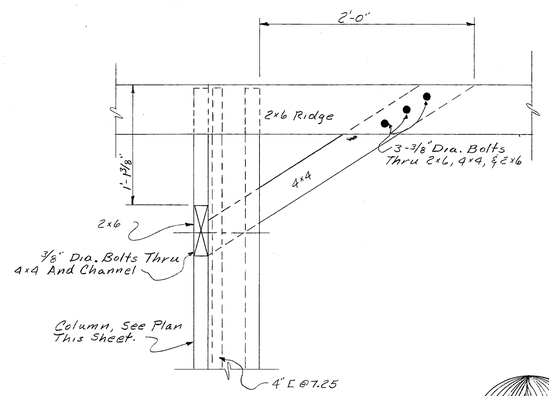
1½"=1'-0"



RIDGE DETAIL

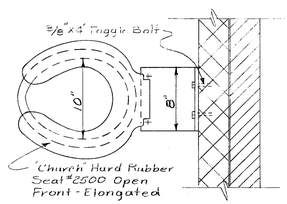
1½"=1'-0"

Note: See Knee Brace Detail This Sheet.

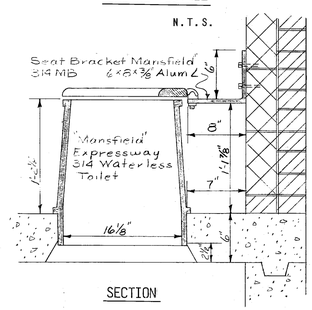


KNEE BRACE DETAIL

1½"=1'-0"



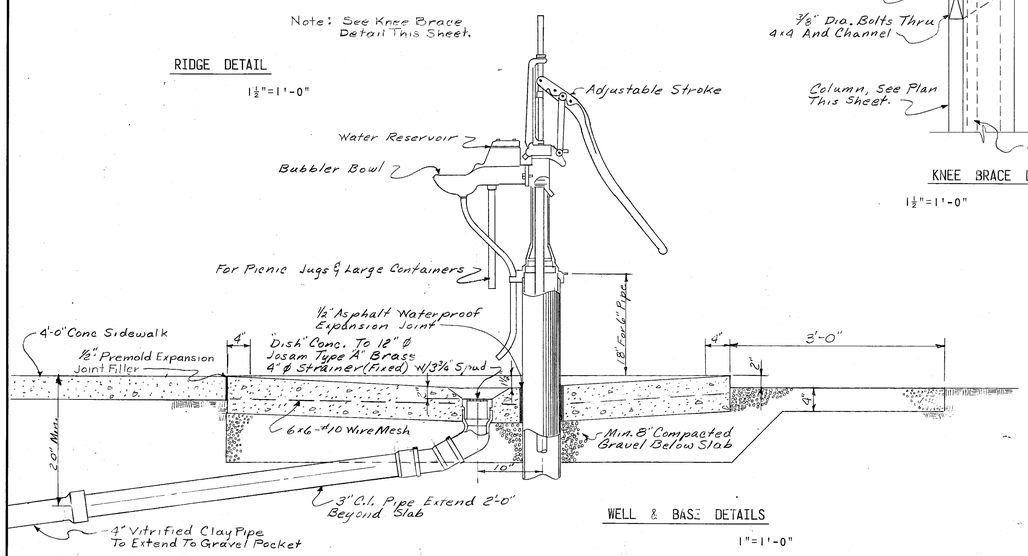
PLAN



SECTION

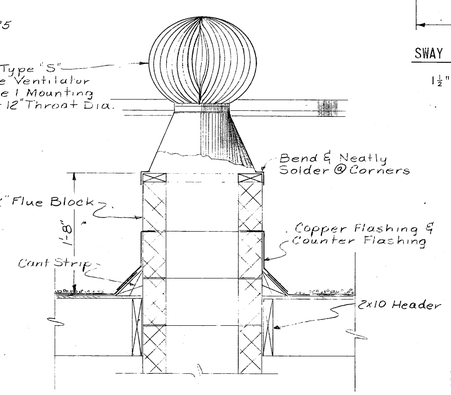
TOILET & SEAT DETAIL

N.T.S.



WELL & BASE DETAILS

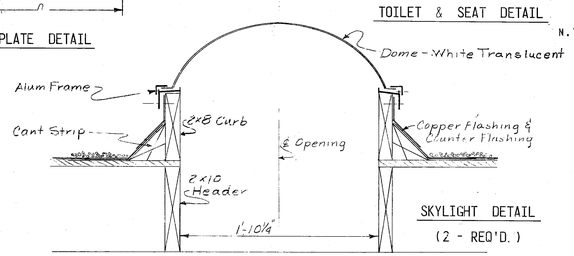
1"=1'-0"



VENTILATOR DETAIL

(1 - REQ'D.)

1"=1'-0"



SKYLIGHT DETAIL

(2 - REQ'D.)

H.U.D. PROJECT NO. WS-OHIO-225

WILLARD, OHIO
WATER SUPPLY & TREATMENT
CONTRACT NO. 3

RECREATION FACILITIES

WELL SHELTER & MISCELLANEOUS DETAILS

NO.	DATE	REVISIONS	CH'K BY

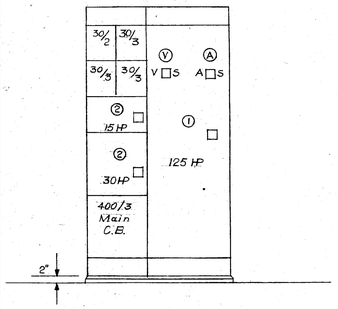
FLD. BK.	SCALE	DRN.	CK'D	APR.
	AS NOTED	JEH	C.R.N.	HAK.

JOB NO. 79W302
DATE JULY 1968

JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

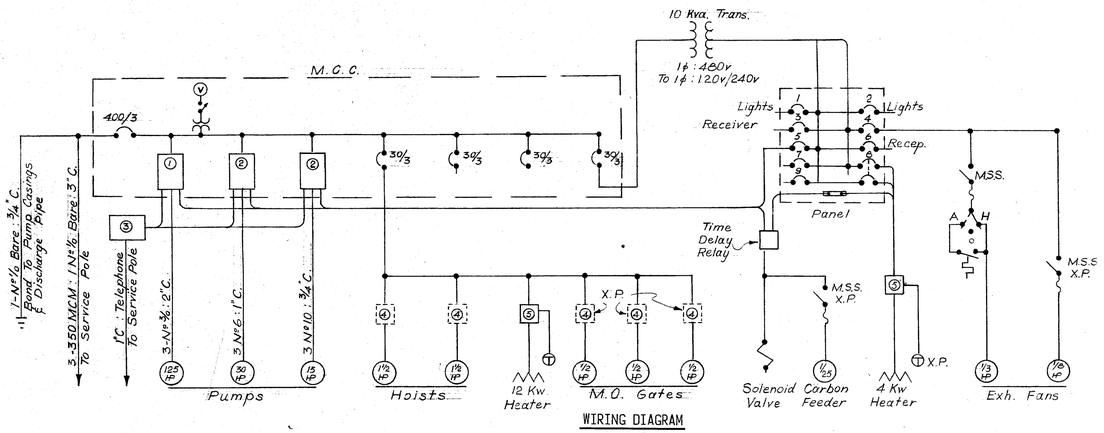
DRAWING NO. 27 OF 28

K&E 17 0153 1-68

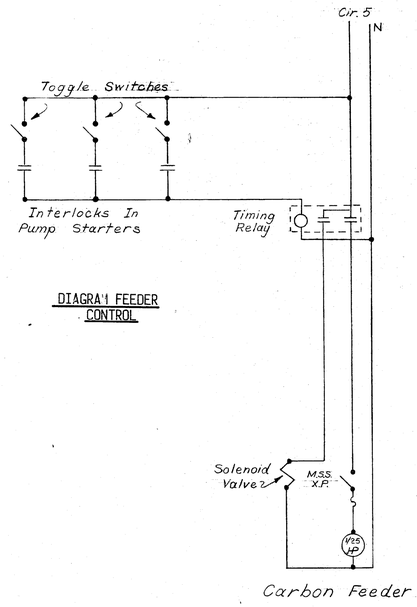


ELEV. M.C.C.
RAW WATER PUMPING STATION

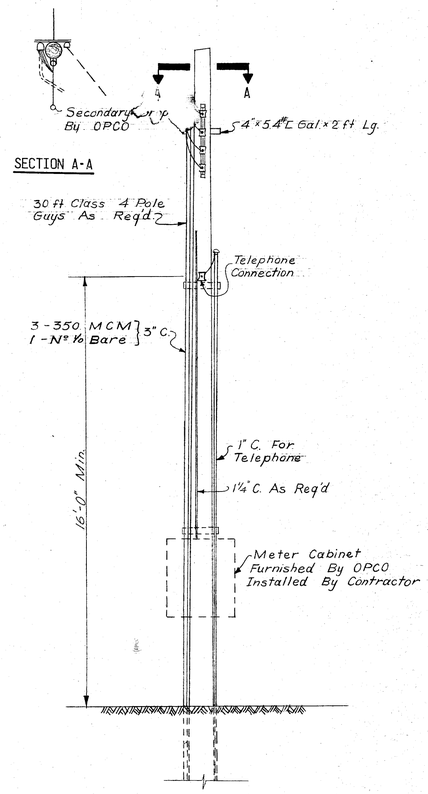
Reservoir



WIRING DIAGRAM



DIAGRA'M FEEDER CONTROL



SER'ICE POLE DETAIL
RAW WATER PUMP STATION
N.T.S.

① Comb. C.B. Auto-Trans. Starter w/c.c. Trans.; H.O.A. Sw.; Ind. Light; Voltmeter; Voltmeter Sw.; Ammeter; Ammeter Sw.; C.T.S.; 30 O.L. Relays; 2 N.O. Contacts.

② Comb. C.B. Linestarter w/c.c. Trans. H.O.A. Sw.; Ind. Light; 3 O.L. Relays; 2 N.O. Contacts.

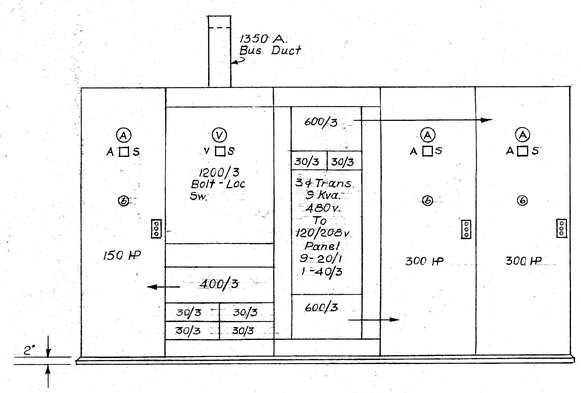
③ Telemetering Receiver For Pump Control

④ Controls Provided By Others

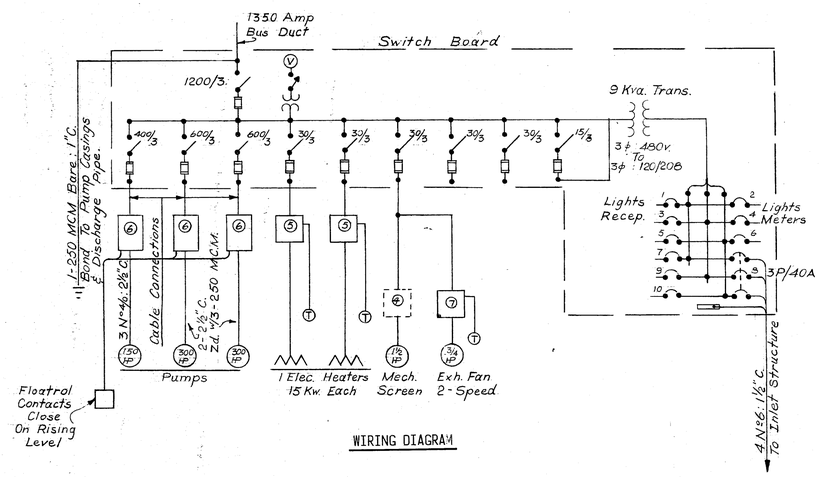
⑤ Contactor w/c.c. Trans.

⑥ Auto-Trans. Starter w/c.c. Trans.; P.B.; Ind. Light; Ammeter; Ammeter Sw.; C.T.S.; 3 O.L. Relays

⑦ Comb. C.B. 2-Speed Starter w/c.c. Trans.; H.O.A. Sw. & Ind. Light Each Speed; 3 O.L. Each Speed.



ELEV. SWITCHBOARD
RIVER PUMPING STATION



WIRING DIAGRAM

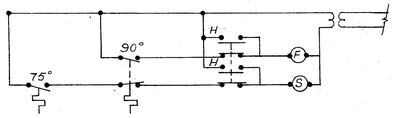


DIAGRAM
EXHAUST FA:I CO:TROL

H.U.D. PROJECT NO. WS-OHIO-225

STATE OF OHIO
HAROLD A. KELLEY
12974
REGISTERED
PROFESSIONAL ENGINEER

WILLARD, OHIO WATER SUPPLY & TREATMENT CONTRACT NO. 3				
NO.	DATE	REVISIONS		CH'K BY
FLD. BK.	SCALE	DRN. T.T.E.	CK'D C.R.N.	APR. H.A.K.

ELECTRICAL DETAILS

JOB NO.		DRAWING NO.
79W302-	JONES & HENRY ENGINEERS LIMITED	28
DATE JULY 1968	2000 W. CENTRAL AVE. TOLEDO, OHIO	OF 28