Jones & Henry Engineers, Ltd.

Village of Ada, Ohio
Water Treatment Plant Improvements
Contract No. 21

ADDENDUM 1

August 1, 2025

Planholders of the Village of Ada, Water Treatment Plant Improvement, Contract No. 21 project are hereby notified of the following amendments to the Contract Documents. This Addendum is hereby made a part of the Contract Documents.

DRAWINGS

Replace sheet A-.02 with attached A-0.2

Replace sheet E-1.1 with attached E-1.1

Replace sheet E-2.0 with attached E-2.0

Replace sheet E-6.1 with attached E-6.1

SPECIFICATIONS

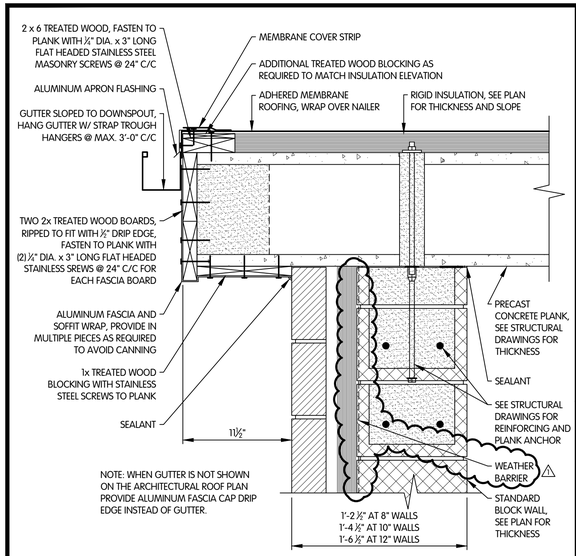
Add C-800-5, Exhibit 3 to the Supplementary Conditions. Exhibit 3 includes documents listed in the Supplementary Conditions, paragraph SC-5.03.

Add 07200 – Wall and Ceiling Insulation with attached 07200 – Wall and Ceiling Insulation

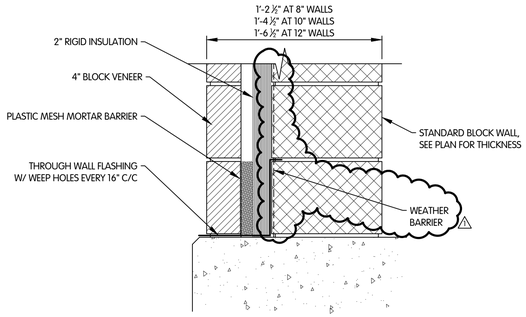
Add 07272 – Fluid-Applied Membrane Air Barriers with attached 07272 – Fluid Applied Membrane Air Barriers

Attachments: Drawing Sheet A-0.2
Drawing Sheet E-1.1
Drawing Sheet E-2.0
Drawing Sheet E-6.1
Specification C-800, Exhibit 3
Specification 07200
Specification 07272

RECEIPT OF THIS ADDENDUM MUST BE ACKNOWLEDGED ON PAGE C-410 - 1 OF THE BID.



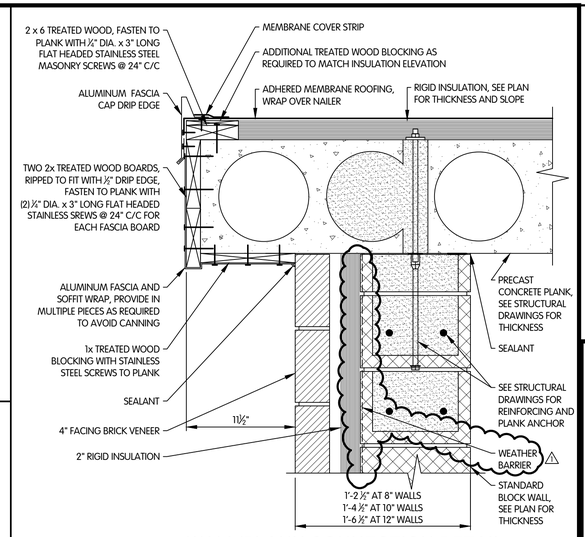
WPCA-06.02 **WALL/PLANK CONNECTION DETAIL**
NTS



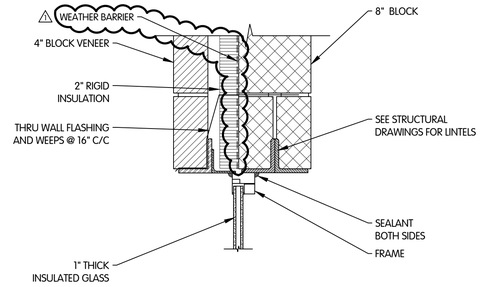
WBA-06.03 **WALL/BASE CONNECTION DETAIL**
NTS

NOTES:
1. ALL VENEER BLOCK UNITS ARE SHOWN AS STANDARD TYPE, REFER TO ARCHITECTURAL ELEVATIONS FOR SPECIFIC VENEER TYPE.

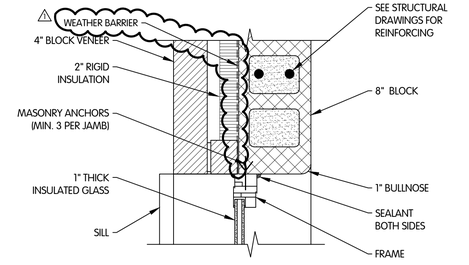
STANDARD MASONRY WALL DETAILS:
(MULTI-WYTHE BLOCK WALLS)



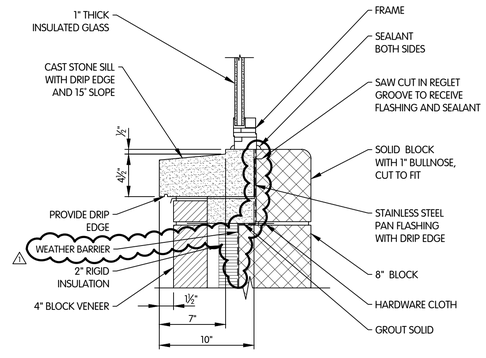
WPCA-06.01 **WALL/PLANK CONNECTION DETAIL**
NTS



HEAD WH-A01



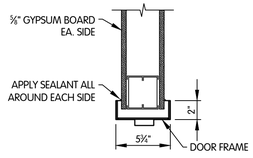
JAMB WJ-A01



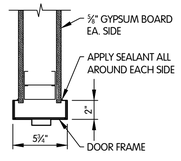
SILL WS-A01

NOTES:
1. ALL VENEER BLOCK UNITS ARE SHOWN AS STANDARD TYPE, REFER TO ARCHITECTURAL ELEVATIONS FOR SPECIFIC VENEER TYPE.

STANDARD WINDOW/MASONRY WALL OPENING DETAILS
(MULTI-WYTHE BLOCK WALLS) NTS

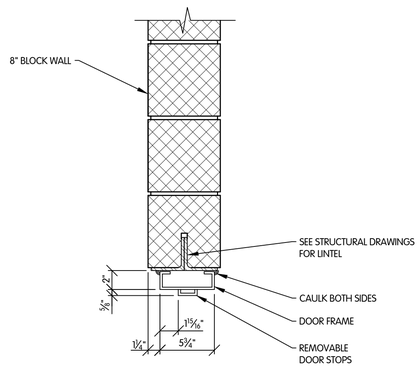


HEAD DH-A03

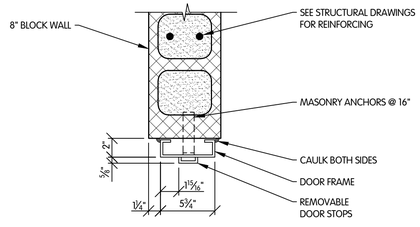


JAMB DJ-A03

STANDARD DOOR OPENING DETAILS
(METAL STUD WALLS) NTS



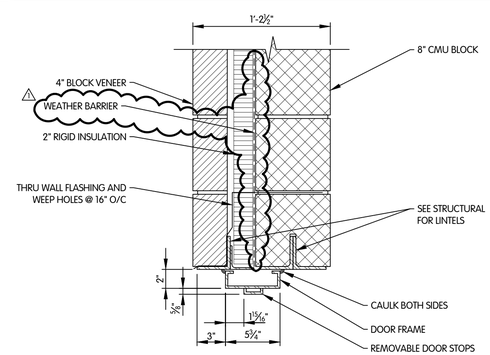
HEAD DH-A02
(INTERIOR DOOR)



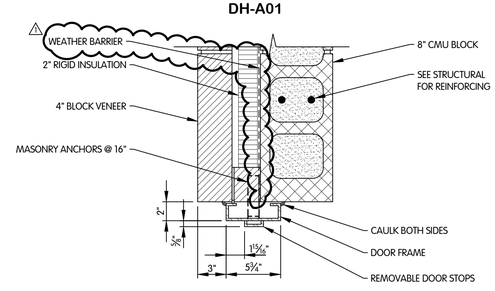
JAMB DJ-A02
(INTERIOR DOOR)

NOTES:
1. ALL MASONRY BLOCK UNITS ARE SHOWN WITH SMOOTH FACE, REFER TO ARCHITECTURAL ELEVATIONS FOR ACTUAL BLOCK PATTERN.

STANDARD DOOR/MASONRY WALL OPENING DETAILS
(SINGLE-WYTHE BLOCK WALLS) NTS



HEAD DH-A01



JAMB DJ-A01

NOTES:
1. ALL VENEER BLOCK UNITS ARE SHOWN AS STANDARD TYPE, REFER TO ARCHITECTURAL ELEVATIONS FOR SPECIFIC VENEER TYPE.

STANDARD DOOR/MASONRY WALL OPENING DETAILS
(MULTI-WYTHE BLOCK WALLS) NTS

MASONRY
ARCHITECTURAL
PLANK SUPPORT, DOOR FRAME AND WINDOW FRAME
STANDARD DETAILS

VILLAGE OF ADA, OHIO - WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 2I

NO.	DATE	REVISIONS AFTER ISSUED FOR BID	BY
1	7/30/25	ADDENDUM I	JDM

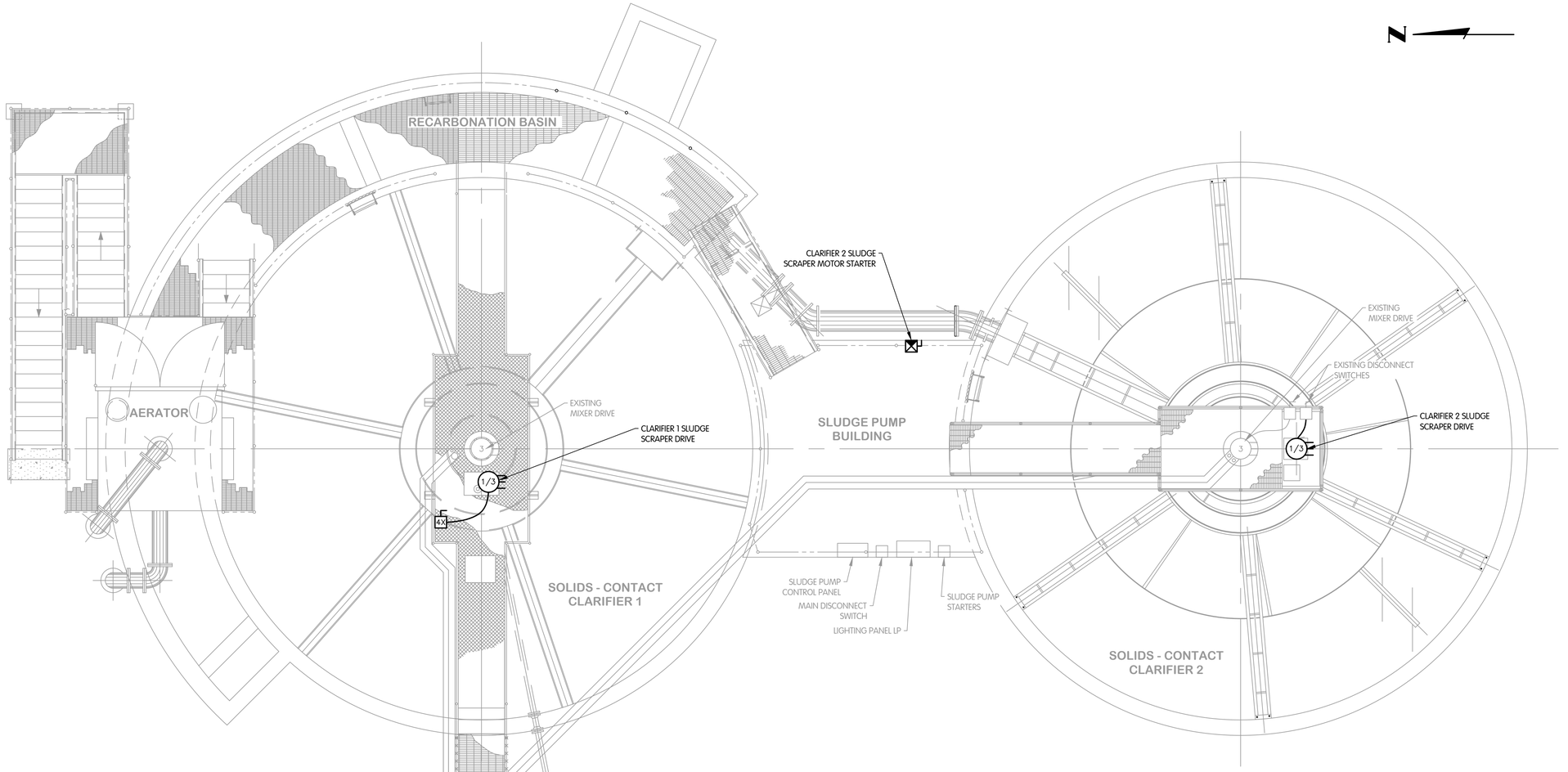
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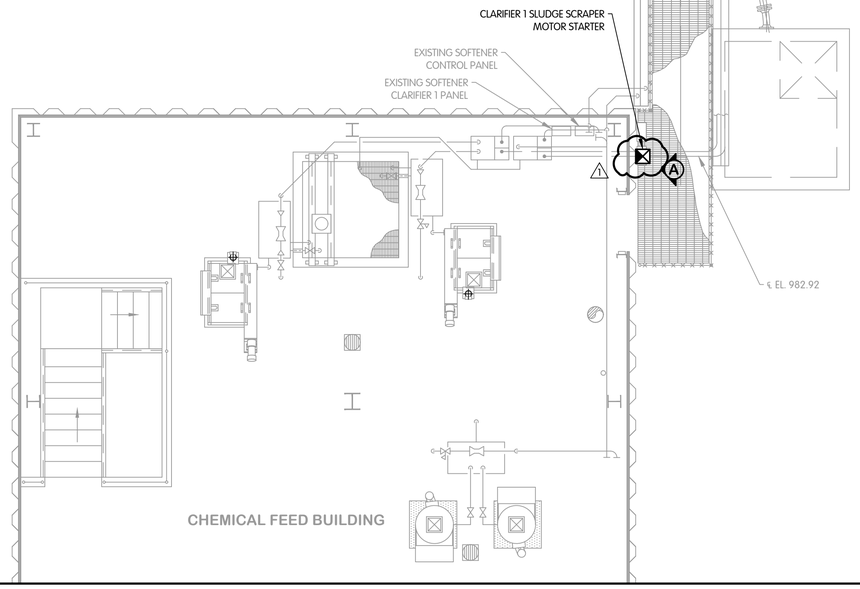
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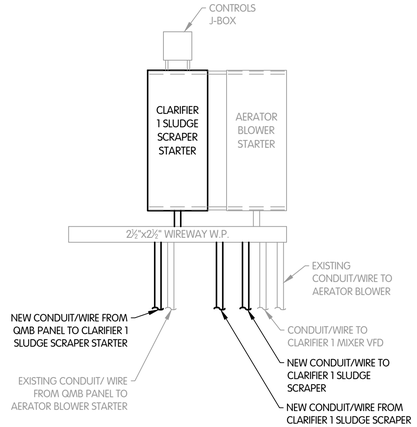
DESIGNED	DRAWN	CHECKED
DC	LKB	JDM

STATUS: ISSUED FOR BID
DATE: JULY 2025
SHEET NO.
A-0.2
22 OF 78

CIN-8046001A03
7/30/2025 11:40 AM
7/30/2025 11:40 AM







ELEVATION A
N.T.S.

NOTE:
1. SEE CLARIFIER SINGLE-LINE DIAGRAM ON NEXT SHEET.
2. SEE EXISTING CLARIFIER 1 CONTROL PANEL RISER DIAGRAM ON NEXT SHEET.

EXISTING CLARIFIERS I AND 2 ELECTRICAL POWER PLAN

VILLAGE OF ADA, OHIO - WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 21

NO.	DATE	REVISIONS AFTER ISSUED FOR BID	BY
1	7/29/25	ADDENDUM I	EBK

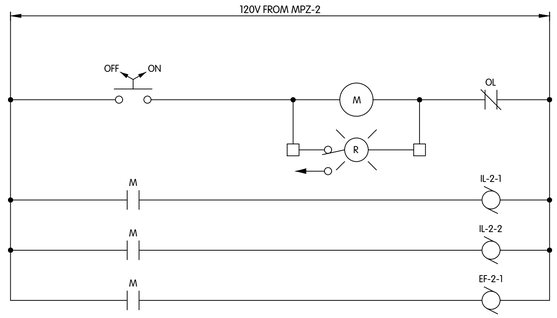
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DESIGNED	DRAWN	CHECKED
EBK	LKB	JDM

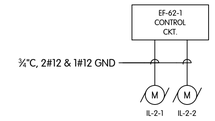
STATUS: ISSUED FOR BID
DATE: JULY 2025
SHEET NO.
E-1.1
62 OF 78

C:\JN-8046000\E\E-1.1 EXISTING CLARIFIERS I AND 2 ELECTRICAL POWER PLAN
7/29/2025 9:09 AM - LBROWN
7/29/2025 9:09 AM



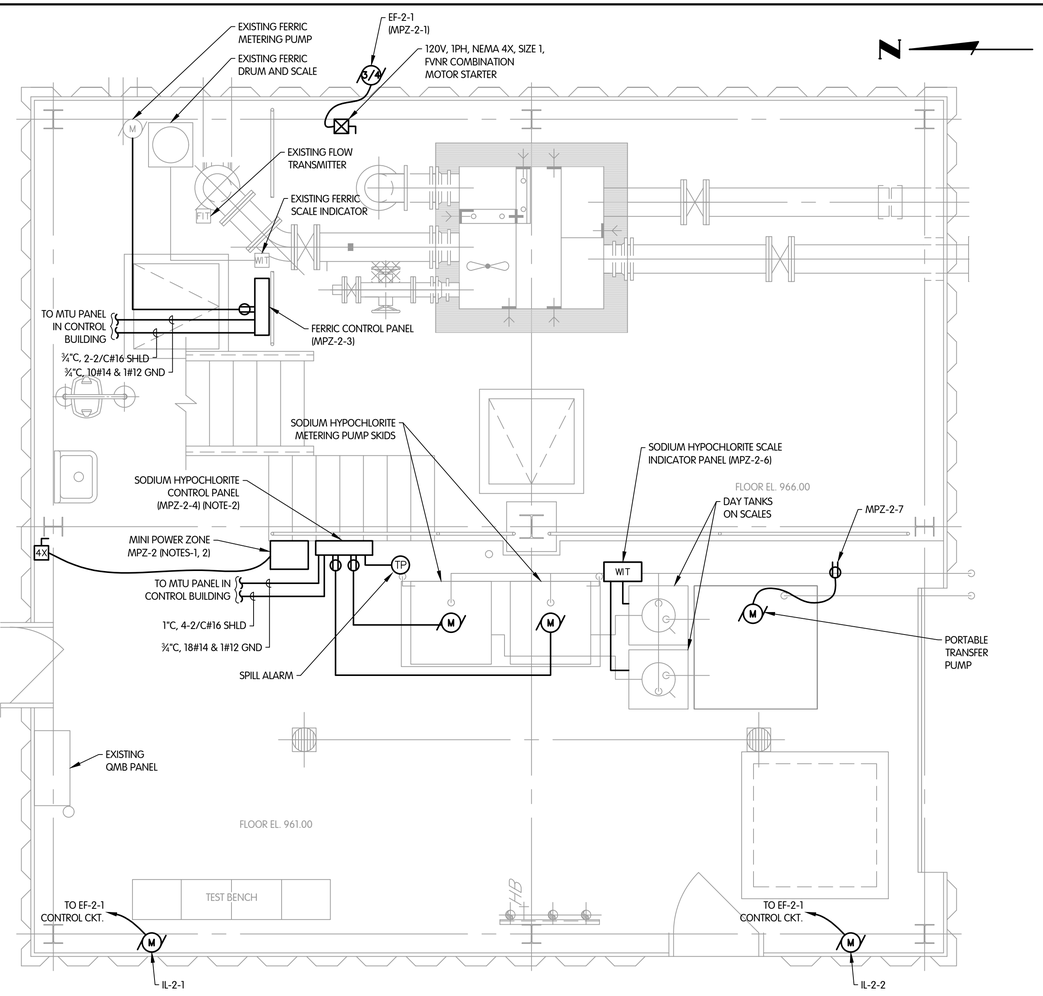
EXHAUST FAN EF-2-1 SCHEMATIC

NOTE:
1. INFORMATION FROM VENDOR MAY DEVIATE FROM DIAGRAM SHOWN ABOVE.



EF-2-1 CONTROL CKT. INTERFACE DIAGRAM

NOTE:
1. INFORMATION FROM VENDOR MAY DEVIATE FROM DIAGRAM SHOWN ABOVE.



POWER PLAN AT EL. 961.00

⅜"=1'-0"

PANELBOARD DESIGNATION / TAG:	MPZ-2			LOCATION:	CHEMICAL BUILDING LOWER FLOOR									
ELECTRICAL CHARACTERISTICS:	120/240v - 1ph - 3w			FEEDER SIZE:	SEE MDP-4 ONE-LINE DIAGRAM SHEET E-4.2									
PANELBOARD CONSTRUCTION:	CIRCUIT BREAKER			FED FROM:	INTERNAL 7.5kVA XFMR									
	AMP MAIN LUGS			A.I.C. (FULLY RATED)			SURFACE	MOUNTING						
40	AMP MAIN BREAKER/SWITCH		100	% NEUTRAL (SOLID)			NEMA 4X	ENCLOSURE						
12	AVAILABLE CIRCUIT SPACES			INCOMING FEED				MISC.						
'L'	After the circuit no. indicates handle locking device.													

		VOLT AMPS		CIRCUIT		WIRE SIZE		CIRCUIT		VOLT AMPS			
	LOAD DESCRIPTION	A	B	POLE	AMP			AMP	POLE	A	B	LOAD DESCRIPTION	
1	**EF-2-1, IL-2-1, IL-2-2**	**1856**		**1**	**25**	**#10**		**20**	**1**			**SPARE**	2
3	**FERRIC CONTROL PANEL**		**600**	**1**	**20**	**#12**	**#12**	**20**	**1**		**600**	**SODIUM HYPOCHLORITE CONTROL PANEL**	4
5	**SPARE**			**1**	**20**			**20**	**1**			**SPARE**	6
7	**RECEPTACLE**		**200**	**1**	**20**	**#12**	**#12**	**15**	**1**		**400**	**SODIUM HYPOCHLORITE SCALE INDICATOR**	8
9	SPACE											SPACE	10
11	SPACE											SPACE	12
	SUB TOTAL VA											**SUB TOTAL VA**	
	PHASE TOTALS	**A**	**B**	Circuit wire size(s) indicated are									
	TOTAL PHASE VA	1,856	1,800	minimum allowable. Refer to wire						15.2		**CONNECTED AMPS (Balanced)**	
	TOTAL PHASE AMPS	15.5	15.0	sizing Table(s) and one-line diagram(s)								**PHASE DEMAND AMPS (Balanced)**	
	TOTAL CONNECTED KVA	3.656		on plan(s) additional information								**TOTAL DEMAND KVA**	

	SUB-FEED LUGS	MULTIPLE SECTIONS
	SUB-FEED BREAKER	INTERNAL SPD
	FEED-THRU LUGS	BOLT-ON BREAKERS
	SERVICE ENTRANCE RATED 100% RATING	MAIN TERMINAL LUGS

* SIZE BREAKER, WIRE AND CONDUIT TO MATCH EXISTING SERVICE

NOTES:
1. SEE THIS SHEET FOR MPZ-2 PANELBOARD SCHEDULE.
2. MOUNT EQUIPMENT ON UNISTRUT FRAME.

CHEMICAL BUILDING
ELECTRICAL
POWER PLAN

VILLAGE OF ADA, OHIO - WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 2I

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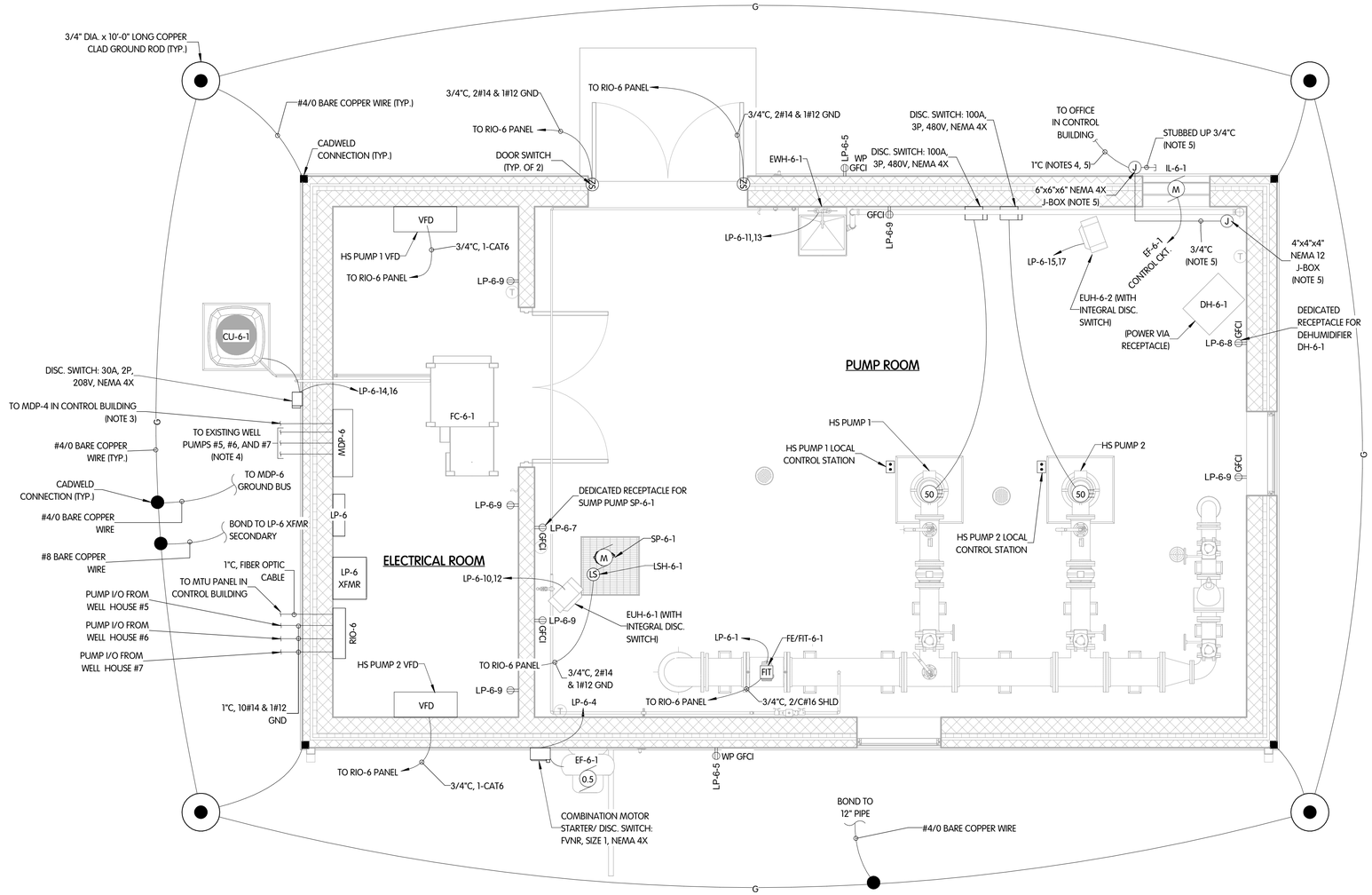
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DESIGNED	DRAWN	CHECKED
EBK	LKB	JDM

STATUS: ISSUED FOR BID
DATE: JULY 2025

SHEET NO.
E-2.0
64 OF 78

C:\N-8046\00\E20-E-2.0 CHEMICAL BUILDING ELECTRICAL POWER PLAN
7/29/2025 9:49 AM - LBROWN



POWER PLAN AT EL. 961.00

3/8" = 1'-0"

PANELBOARD DESIGNATION/TAG	LP-6				
LOCATION:	ELECTRICAL ROOM 6-2	VOLTS:	208Y/120V-3PH-4W	A.I.C. (Fully Rated):	10kA
FEEDER SIZE:	(SEE MDP-6 SINGLE LINE)	PHASES:	3	BREAKERS:	BOLT-ON
FED FROM:	MDP-6	WIRES:	4	MAINS RATING:	125 A
MOUNTING:	SURFACE	AVAILABLE CIRCUITS:	24	MCB RATING:	100 A
ENCLOSURE:	NEMA 12	% SOLID NEUTRAL:	100%	SPD:	INTERNAL

Notes:

CKT	CIRCUIT DESCRIPTION	WIRE SIZE	AMP	POLES	A	B	C	A	B	C	POLES	AMP	WIRE SIZE	CIRCUIT DESCRIPTION	CKT
1	MAGNETIC FLOW TRANSMITTER FIT/FE-6-1	#12	15 A	1	100 VA			635 VA			1	20 A	#12	INTERIOR LIGHTING - PUMP ROOM	2
3	EXTERIOR LIGHTING	#12	20 A	1		212 VA			1176 VA		1	20 A	#12	EXHAUST FAN EF-6-1	4
5	RECEPTACLES - EXTERIOR	#12	20 A	1			360 VA			395 VA	1	20 A	#12	INTERIOR LIGHTING - ELECTRIC ROOM	6
7	RECEPTACLE - SUMP PUMP SP-6-1	#12	20 A	1	978 VA			600 VA			1	20 A	#12	RECEPTACLE - DEHUMIDIFIER DH-6-1	8
9	RECEPTACLES - INTERIOR	#10	20 A	1		1080 VA			1500 VA						10
11	TANKLESS WATER HEATER EWH-6-1	#6	50 A	2			4160 VA			1500 VA	2	20 A	#12	EUH-6-1	12
13					4160 VA			2080 VA							14
15	EUH-6-2	#12	20 A	2		1500 VA			2080 VA		2	30 A	#10	CONDENSING UNIT CU-6-1	16
17							1500 VA			0 VA	1	20 A	--	SPARE	18
19	SPARE	--	20 A	1	0 VA			0 VA			1	20 A	--	SPARE	20
21	SPACE	--	--	1		--			--		1	--	--	SPACE	22
23	SPACE	--	--	1			--			--	1	--	--	SPACE	24
			Total Load:		8552 VA		7548 VA		7915 VA						
			Total Amps:		72 A		63 A		66 A						

NOTES:
1. SEE ELECTRICAL MDP-6 SINGLE LINE DIAGRAM SHEET.
2. SEE LIGHTING PANEL LP-6 PANELBOARD SCHEDULE THIS SHEET.
3. SEE ELECTRICAL MDP-4 SINGLE LINE DIAGRAM AND LP-C PANELBOARD SCHEDULE SHEET.
4. SEE ELECTRICAL SITE PLAN FOR WELL HOUSE LOCATIONS AND UNDERGROUND CONDUIT PATHS.
5. ITEMS INDICATED ARE PROVISIONS FOR FUTURE SECURITY CAMERA ETHERNET.
6. NUMBER OF GROUND RODS SHOWN IS AN APPROXIMATION. THE CONTRACTOR SHALL FURNISH GROUND RODS AS NECESSARY TO MEET NEC ARTICLE 250 OHMIC REQUIREMENTS.
7. METAL UNDERGROUND PIPES SHALL BE GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250.52(A)(1).
8. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF THE EXISTING WTP GROUND RING AND BOND/CONNECT THE NEW GROUND RING TO IT TO ENSURE GROUND CONTINUITY.

PUMP BUILDING
ELECTRICAL
POWER PLAN AT EL. 961.00

VILLAGE OF ADA, OHIO - WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 21

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DESIGNED EBK | DRAWN EBK | CHECKED JDM
STATUS: PERMIT
DATE: JULY 2025
SHEET NO.
E-6.1
69 OF 78

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7/29/2025 9:06:20 AM

EXHIBIT 3

FUNDING REQUIREMENTS

Intertek-PSI
2341 Spencerville Road
Lima, Oh 45805

Tel +1 419 999 5660
intertek.com/building

July 21, 2023

Jones & Henry Engineers, Ltd.
4357 Ferguson Drive
Suite 220
Cincinnati, Ohio 45245

Attn.: Mr. Jake Meinerding

Re: **Geotechnical Exploration Report**
Ada Water Treatment Plant (WTP) Improvements
New High Service/MCC Building
110 Simon Court
Ada, Ohio 45810
PSI Report No. 01253085

Dear Mr. Meinerding:

Per your request, Professional Service Industries, Inc. (PSI), an Intertek Company, is pleased to submit this Geotechnical Exploration Report for the proposed new Ada Water Treatment Plant (WTP) High Service/MCC Building project located at 110 Simon Court in Ada, Hardin County, Ohio 45810. Included in this report are the results of the geotechnical exploration and recommendations concerning design and construction of the proposed development.

It is considered imperative that the geotechnical engineer and/or their representative be present during earthwork operations, foundation, and floor slab installations to observe the field conditions with respect to the design assumptions and specifications. PSI will not be held responsible for interpretations and field quality control observations made by others.

We appreciate the opportunity to have provided you with our geotechnical engineering services and look forward to participation in the construction phase of this project. If you have any questions concerning this report or if we may be of further service in any manner, please contact our office.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

Brandon France
Project Manager

Christopher L. Carson
Principal Consultant

Paul Hundley, P.E.
Principal Consultant

The above signatures are an electronic reproduction of the original. An original hard copy is available upon request. The electronic reproduction shall not be construed as an original or certified document

Enclosures

STATE OF OHIO
PAUL S. HUNDLEY
E-43741
7.21.23
REGISTERED
PROFESSIONAL ENGINEER

Geotechnical Exploration Report

for

Proposed Ada Water Treatment Plant (WTP)
High Service/MCC Building
110 Simon Court
Ada, Hardin County, Ohio 45810

Prepared for

Jones & Henry Engineers, Ltd.
4357 Ferguson Drive
Suite 220
Cincinnati, Ohio 45245

Prepared by

Intertek-PSI
2341 Spencerville Road
Lima, OH 45805

Report Date: July 20, 2023

PSI Project No. 01253085

Brandon France
Project Manager

Christopher L. Carson
Principal Consultant

Paul Hundley, P.E.
Principal Consultant

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Boring Logs
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General Notes
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1 PROJECT INFORMATION

1.1 PROJECT AUTHORIZATION

This report presents the results of a geotechnical exploration and foundation evaluation conducted for Jones & Henry Engineers, Ltd. in connection with the proposed Ada Water Treatment Plant (WTP) High Service/MCC Building project located at 110 Simon Court in Ada, Hardin County, Ohio 45810. PSI's services for this project were performed in accordance with PSI Proposal Number 0125-394572R1, initially issued March 15, 2023 and revised May 25, 2023, and approved via Jones & Henry Task Order on March 28, 2023 signed by Mr. Jake Meinerding and Mr. Raymond France with PSI.

1.2 PROJECT DESCRIPTION

Based on the provided information, the project will include construction of a single-story pre-engineered metal building or wood framed structure within the existing Ada Water Treatment Plant facility. The proposed building structure will measure approximately 875 SF in plan area with slab-on-grade construction and a 10-feet deep well. PSI has based the report recommendations on estimated maximum wall and floor loads of 4 kips per lineal foot, and 100 pounds per square foot, respectively.

Based on the topographical information reviewed on Google Earth Pro™, the overall site appears to be relatively flat with a maximum existing surface elevation change of approximately 1 foot. The proposed finish floor elevation was not provided. PSI has based the report recommendations assuming the proposed finish floor within 2 feet of current grade and therefore, approximately 1 to 2 feet of cut/fill is estimated to reach finish elevation.

The geotechnical recommendations presented in this report are based on the available project information, the proposed location and orientation of the structure, and the subsurface materials described in this report. If any of the information we have is incorrect, please contact us so that we may amend the recommendations presented accordingly. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

1.3 SCOPE OF SERVICES

The purpose of this study was to explore the subsurface conditions at the site to prepare recommendations for foundation systems and other design parameters for the proposed development. PSI's contracted scope of services included drilling soil test borings, a select laboratory testing program, and preparation of this geotechnical report. This report briefly outlines the testing procedures, presents available project information, describes the site and subsurface conditions, and presents recommendations regarding the following:

- General site development and subgrade preparation recommendations.
- Estimated potential soil movements associated with collapsing, shrinking, and swelling soils and methods to reduce these movements to acceptable levels.
- Recommendations for site excavation, fill compaction, and the use of on-site and imported fill material under the structures.

- Recommendations for building pad preparation for ground supported slabs having a maximum movement potential, due to heave or settlement, of 1-inch.
- Recommendations for the design of foundations for supporting the proposed structure. Analyses may include bearing capacity of soil, bearing capacity of rock and estimated consolidation settlement for shallow foundations.
- Seismic design site classification per the 2015 International Building Code.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, groundwater, or air on, below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes. Prior to further development of this site, an environmental assessment is advisable.

PSI's scope also did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence or the amplification of the same. The Client should be aware that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. The Client should also be aware that site conditions are outside of PSI's control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or reoccurrence of mold amplification.

2 SITE AND SUBSURFACE CONDITIONS

2.1 SITE LOCATION AND CONDITIONS

The proposed project site area is located within the existing Ada Water Treatment Plant (WTP) facility located at 110 Simon Court in Ada, Hardin County, Ohio 45810. The aerial photo below was provided by the client and shows the overall proposed structure layout.



The following table provides a generalized description of the existing site conditions based on available information.

TABLE 1: SITE DESCRIPTION

Site Location	Latitude: 40.7703; Longitude: -83.8196
Site History	Existing water treatment plant, constructed prior to 1994 (Google Earth Pro™)
Existing Site Ground Cover	Topsoil/Grass
Existing Site Features	Other water treatment structures
Existing Grade/Elevation Changes	± 1 Foot (Google Earth Pro™)
Existing Drainage	Site drainage is by sheet runoff to existing catch basins
Surrounding Area	Residential and commercial properties

2.2 SITE GEOLOGY

Based on the on-line geologic map provided by the Ohio Geological Survey, the proposed site area is located in the Central Lowland Province, Till Plains Section, Central Ohio Clayey Till Plain and Lake Basin /Deposits outside Huron-Erie Lake Plains Region with ground moraine and ridge moraine topography as part of the Wisconsinan Glacial Period and supported by Silurian bedrock.

Based on refusal during drilling operations at test boring location B-1, the area's bedrock formation is estimated to be at a depth of approximately 28.5 feet.

2.3 SUBSURFACE CONDITIONS

The scope of PSI's services included a subsurface exploration program consisting of drilling test borings and Standard Penetration Testing (SPT) at two (2) locations to depths of about 20 to 33.6 feet. The general test boring locations were selected by the client and field located by PSI.

The borings were advanced utilizing a 3¼ inch inside diameter, hollow-stem auger drilling methods. Soil samples were routinely obtained during the drilling process. Select soil samples were later tested in the laboratory to obtain soil material properties for the foundation and concrete slab-on-grade recommendations. Drilling, sampling, and laboratory testing was accomplished in general accordance with ASTM procedures.

SURFICIAL MATERIALS: The surface material thicknesses were determined in the field by measurements obtained during the drilling process. The surface materials at the test boring consisted of approximately 10 to 18 inches of topsoil. Surficial material thicknesses should be expected to vary across the site. Additionally, surficial material thicknesses are included in this report for informational purposes only and should not be used for bidding or estimating purposes.

COHESIVE SOILS: Underlying the surficial materials, cohesive soils consisting of **Lean Clay (CL)** with varying amounts of sand and gravel were encountered. The Standard Penetration Test values ("N_{60}"-values) for the cohesive soils generally ranged from twelve (12) to thirty-eight (38) blows per foot indicating "stiff" to "hard" consistencies. Two (2) Atterberg limit tests were performed on select samples of clay soil and indicated liquid limits ranging from thirty (30) to forty (40) and plasticity indices ranging from twelve (12) to nineteen (19). The moisture contents of the cohesive soil samples ranged from ten (10) to twenty-six (26) percent.

WEATHERED LIMESTONE: The area's bottom most formation encountered consisted of very severely weathered limestone. The limestone was encountered at a depth of approximately 23.5 feet below the surface grade. The limestone formation was cored 5 feet at the test boring location B-1. Please refer to the boring logs in the appendix of this report for the recovery and RQD results.

The above subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in the appendix should be reviewed for specific information at individual boring locations. These records include soil/rock descriptions, stratifications, penetration resistances, and locations of the samples and laboratory test data. The stratifications shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected between boring locations. The stratifications

represent the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during the field operations is also shown on these boring logs. The samples that were not altered by laboratory testing will be retained for thirty (30) days from the date of this report and then will be discarded.

2.4 ROCK CORE

The images below show the rock core recovered from test boring B-1 at a depth of approximately 28.6 feet to 33.6 feet, beneath the existing surface grades.

B-1 (28.6'-33.6')



2.5 GROUNDWATER LEVEL MEASUREMENTS

Groundwater was only encountered at test boring location B-1 during and upon completion of drilling operations at depths of approximately 18.5 and 28 feet, respectively, beneath the existing surface grade. A delayed water level reading was taken from a previously installed piezometer in test boring location B-1 on 6/27/2023 and was measured to be at a depth of approximately 13 feet below grade. It must be recognized that free groundwater levels can significantly fluctuate (seasonally) and as a function of rainfall and may be present at other locations or at depths shallower than those encountered. During a time of year or weather different from the time of drilling, there may be a considerable change in the water table, or the occurrence of water where not previously encountered. Furthermore, the free groundwater levels in the boreholes often are not representative of the actual groundwater level, because the boreholes remain open for a relatively short time. In fine-grained glacial soils, the depth of the soil color change from brown to gray can be an indicator of the prevailing groundwater level. Above the prevailing groundwater level, fine-grained soils oxidize to a brown color. The color change was observed at a depth of approximately 13.5 to 16 feet in each of the test boring locations. To obtain longer-term measurements, it is necessary to install water level observation wells or piezometers. The water level measurements presented in this report are the levels that were measured at the time of PSI's field activities. Therefore, we recommend that the contractor determine the actual groundwater levels at the time of construction to evaluate groundwater impact on the construction procedures.

2.6 SOIL CORROSIVITY

Steel/metal and concrete elements in contact with soil are subject to corrosion or degradation due to soil chemical activity. Buried metal/steel and concrete elements should be designed to resist this soil

chemical activity. The table below presents general corrosive potential ratings as a function of electrical resistivity:

TABLE 2: CORROSIVE RATINGS BASED ON SOIL RESISTIVITY

Electrical Resistivity Ohm-cm	Corrosivity Rating
Greater than 20, 000	Essentially Non-Corrosive
10,000 to 20,000	Mildly Corrosive
5,000 to 10,000	Moderately Corrosive
3,000 to 5,000	Corrosive
1,000 to 3,000	Highly Corrosive
Less than 1,000	Extremely Corrosive

The corrosion potential of the soil is also dependent on the pH, chloride content, Sulfide content, Redox potential, and soluble chlorides present in the soil.

The split spoon samples obtained from test boring location B-1, at a depth of 6 to 7.5 feet and B-2, at a depth of 3.5 to 5 feet, were combined to make one composite sample. This composite sample was tested for water soluble sulfate ion, soluble chloride ion, moisture content, pH, soil resistivity, and sulfides, in accordance with the applicable standards. Table 4 presents the results of chemical tests performed.

TABLE 3: SUMMARY OF CORROSIVITY RESULTS
(PER THE BOWSER-MORNER REPORT INCLUDED IN THE APPENDIX)

Test Parameter	Results
Water Soluble Chloride Ion, mg/kg (ppm):	<10
Water Soluble Sulfate Ion, mg/kg (ppm):	37
As Received Moisture Content, %:	14.8
pH (in Distilled Water):	8.1
pH (in Calcium Chloride Solution):	7.8
Resistivity (As Received), ohm-cm:	74,250
Resistivity (100% Saturated), ohm-cm:	6,975
Sulfide, ppm:	29.60

Numerical Corrosivity Scale

The American Water Works Association (AWWA) developed a numerical soil corrosivity scale, applicable to cast iron alloys. The severity ranking by assigning points for different variables. When the points total of a soil in the AWWA scale equals ten (or higher), corrosion protective measures (such as cathodic protection) have been recommended for cast iron alloys. The point system for predicting soil corrosivity, according to the AWWA C-105 Standard, is described below.

The 10-point system, like all such evaluation procedures, is intended to serve as a guide for identifying potential corrosive conditions to iron pipes. It should be used by qualified engineers or technicians experienced in soil analysis and evaluation. For a given soil sample, each parameter is evaluated and assigned points according to its contribution to corrosivity. The points for all five areas are totaled, and if the sum is 10 or more, the soil is considered potentially corrosive to iron pipe and warrants taking protective measures.

Soil Parameter	Assigned Points
Resistivity (ohm-cm)	
<700	10
700 - 1000	8
1000 - 1200	5
1200 - 1500	2
1500 - 2000	1
> 2000	0
pH	
0-2	5
2-4	3
4-6.5	0
6.5-7.5	0
7.5-8.5	0
>8.5	3
Redox Potential (mV)	
>100	0
50-100	3.5
0-50	4
<0	5
Sulfides	
Positive	3.5
Trace	2
Negative	0
Moisture	
Poor drainage continuously wet	2
Fair drainage generally moist	1
Good drainage generally dry	0

2.6.1 CHEMICAL ATTACK POTENTIAL OF CONRETE REINFORCING

The major soil Map Unit is Blount silt loam, ground moraine, 0-2% slopes and Pewamo silty clay loam, 0-1 percent slopes. Based on the information provided in the NRCS soil survey, the soil in this area has a high corrosive potential for steel. The laboratory resistivity test results indicate corrosive potential are Moderately Corrosive.

Concrete normally provides reinforcing steel with excellent corrosion protection. The principles of corrosion, identification of conditions promoting corrosion of steel, and design and construction practices to mitigate these conditions are described in ACI 222R “Protection of Metals in Concrete Against Corrosion”. Based on the rating of “high potential” for corrosion by the NRCS Soil Survey, results of field resistivity tests indicating “highly corrosive” rating, and the site and ground water conditions

anticipated for the structure; the exposure category for concrete in ACI 318 Table 19.3.1.1.A is judged to be **Class C1**.

Through careful design and good construction practices, the protection provided by Portland cement concrete to embedded reinforcing steel can be optimized. Some of these practices include:

- Provision for adequate drainage
- Providing adequate concrete cover
- Optimizing the permeability of the concrete through low water cement ratio, good consolidation and finishing practices and proper curing.

It should be realized that limited testing alone might not provide a reliable indication of corrosion potential. Standard local/state codes should be followed.

2.6.2 CHEMICAL ATTACK POTENTIAL OF BURIED METAL STRUCTURES

Soil corrosion is a complex phenomenon, with a multitude of variables involved. Chemical reactions involving almost each of the existing elements are known to take place in soils, many of which are not yet fully understood. The relative importance of variables changes for different materials, making a universal guide to corrosion impossible.

For design and corrosion risk assessment purposes, it is desirable to estimate the corrosivity of soils. One of the simplest classifications is based on a single parameter, soil resistivity. The generally adopted corrosion severity ratings are:

- Sandy soils are high up on the resistivity scale and therefore considered the least corrosive.
- Clay soils, especially those contaminated with saline water are on the opposite.
- The soil resistivity parameter is very widely used in practice and generally considered to be the dominant variable in the absence of microbial activity.

Based on the laboratory soil resistivity tests performed, the test results indicate that the near surface soils at this site are rated as Corrosive to Moderately Corrosive. The corrosion potential of the soil is dependent on the pH of the soil, chloride content, and other chemical properties present in the soil. In the previous section the 10-point system for rating corrosivity potion of cast iron pipe is presented using these other factors. It should be realized that limited testing alone might not provide a reliable indication of corrosion potential. Based on experience in this area and for long-term purposes, PSI considers it necessary to provide appropriate wrappings or cathodic protection for buried metal utility pipelines, communication lines, or other structures.

PSI recommends the civil designer/owner engage the services of a corrosion engineer specializing in the design of cathodic protection and similar corrosion mitigating systems.

2.6.3 CHEMICAL ATTACK POTENTIAL FOR DEGREDATION OF CONCRETE

The concentration of water-soluble sulfates is considered to be a good indicator of the potential for chemical attack on concrete. Based on the ACI Manual of Concrete Practice (ACI 201.2R-10) or (ACI

318/318R-33), the magnitude of water-soluble sulfate in soil can be used to determine the sulfate exposure as shown in Table 5 as follows.

TABLE 5: SULFATE EXPOSURE RATING

Water Soluble Sulfate in soil, percent mass	Sulfate Exposure
$SO_4 < 0.10$	Negligible or Class 0 Exposure
$0.10 < SO_4 < 0.20$	Moderate or Class 1 Exposure
$0.20 < SO_4 < 2.00$	Severe or Class 2 Exposure
$SO_4 > 2.00$	Very Severe or Class 3 Exposure

The results of the laboratory sulfate ion concentration test result was 37 mg/kg ppm, indicating negligible sulfate exposure. The major soil Map Unit is Blount silt loam, ground moraine, 0-2% slopes and Pewamo silty clay loam, 0-1 percent slopes. The soil survey reports the soil in this area have a **low corrosive potential for concrete.**

On the basis of the laboratory sulfate ion concentration test results, a negligible sulfate exposure to concrete is expected and according to ACI 318 Table 19.3.1.1.A is judged to be Class S0. It should be realized that limited testing alone might not provide a reliable indication of corrosion potential. Standard local/state codes should be followed.

3 GEOTECHNICAL RECOMMENDATIONS

The following geotechnical related recommendations have been developed based upon the subsurface conditions encountered, our experience with similar soils and site conditions, and PSI's understanding of the proposed development. Should changes in the project criteria occur, a review must be made by PSI to determine if modifications to our recommendations will be required.

3.1 SITE PREPARATION

PSI recommends that all surficial materials, soft/loose, organic, frozen, or otherwise objectionable soils in the construction areas be removed and either wasted or stockpiled for later use in non-structural areas. It should be noted that it is not unusual for surficial material or other objectionable material thicknesses to vary from the values observed in the soil test borings. A representative of the geotechnical engineer should determine and document the depth of removal at the time of construction. A proof roll should also be observed in areas that were undercut by a representative of the geotechnical engineer prior to adding engineered fill.

In this region, these otherwise competent sands, silts and lean clays can undergo a significant loss of stability when construction activities are performed during wetter portions of the year. PSI anticipates that the soils in the project area can become easily disturbed if subjected to conventional rubber tire or narrow track-type equipment. Soils that become disturbed would need to be excavated and replaced; however, this remedial excavation may expose progressively wetter soils with depth, thus compounding the situation. Therefore, a normal approach to subgrade preparation may not be possible. Appropriate wide-track equipment selection should aid in minimizing potential disturbance.

After stripping to the proposed subgrade level and replacing unsuitable fill soils and/or objectionable soils if present, with engineered fill, as required, the building and paving areas should be proof-rolled with a loaded tandem-axle dump truck or similar heavy rubber-tired vehicle (typically with an load greater than nine (9) tons per axle). Soils that are observed to rut or deflect excessively (typically greater than one (1) inch) under the moving load should be undercut and replaced with properly compacted low plasticity fill material. The proof-rolling and undercutting activities should be witnessed by a representative of the geotechnical engineer and should be performed during a period of dry weather. If the earthwork activities take place during wet seasons, lime stabilization of the subgrade could be required prior to engineered fill placement. Care should be taken during construction activities not to allow excessive drying or wetting of exposed soils. The subgrade soils should be scarified and compacted to at least 98% of the materials' standard Proctor maximum dry density, in general accordance with ASTM procedures, to a depth of at least twelve (12) inches below the surface. Additionally, new fill for building structures, asphalt, and concrete should not be placed on soft or frozen ground.

3.2 ENGINEERED FILL

After subgrade preparation and observation have been completed, fill placement required to establish grade may begin. Low plasticity structural fill materials should be free of organic or other deleterious materials and have a maximum particle size of less than three (3) inches. Low-plasticity soils are defined as having a liquid limit less than forty-five (45) and plasticity index between ten (10) and twenty (20). Samples of proposed fill materials should be provided to PSI well in advance of their use to determine if the proposed fill material is suitable for use at the project. Additionally, a representative of PSI should be on-site to

observe, test, and document placement of the fill. If the fill is too dry, water should be uniformly applied and thoroughly mixed into the soil by disking or scarifying. Close moisture content control will be required to achieve the recommended degree of compaction. If wet or cool season earthwork is necessary, PSI recommends the use of imported fill materials meeting the requirements of Ohio Department of Transportation (ODOT) No. 304 aggregate.

Fill should be placed in maximum loose lifts of eight (8) inches and compacted to at least 98% of the materials' standard Proctor maximum dry density, and within a range of the optimum moisture content as designated in Table 2 below, as determined in general accordance with ASTM procedures. Each lift of compacted-engineered fill should be tested and documented by a representative of the geotechnical engineer prior to placement of subsequent lifts. The edges of compacted fill should extend a minimum of five (5) feet beyond the building footprint, or a distance equal to the depth of fill beneath the footings, whichever is greater. The measurement should be taken from the outside edge of the footing to the toe of the excavation prior to sloping.

In utility trenches, shallow foundation excavations, and other areas where large compaction equipment cannot be used, granular engineered fill should be placed as backfill. PSI recommends the use of material meeting Ohio Department of Transportation (ODOT) No. 304, for use as granular engineered fill. Engineered fill should be placed in accordance with the recommendations stated in this section of the report.

The fill placed should be tested and documented by a geotechnical technician and directed by a geotechnical engineer to evaluate the placement of fill material. It should be noted that the geotechnical engineer of record can only certify the testing that is performed, and the work observed by that engineer or staff in direct report to that engineer. The fill should be evaluated in accordance with the following table.

Table 6

MATERIAL TESTED	PROCTOR TYPE	MIN % DRY DENSITY	PLACEMENT MOISTURE CONTENT RANGE	FREQUENCY OF TESTING *[1]
Structural Lean Clay Fill (Cohesive)	Standard	98%	-2 to +2 %	1 per 1,500 ft^2 of fill placed / lift
Structural Fill (Granular)	Standard	98%	-2 to +2 %	1 per 1,500 ft^2 of fill placed / lift
Random Fill (non-load bearing)	Standard	90%	-3 to +3 %	1 per 6,000 ft^2 of fill placed / lift
Utility Trench Backfill	Standard	98%	-2 to +2 %	1 per 150 lineal foot / lift

*[1] Minimum 2 per lift.

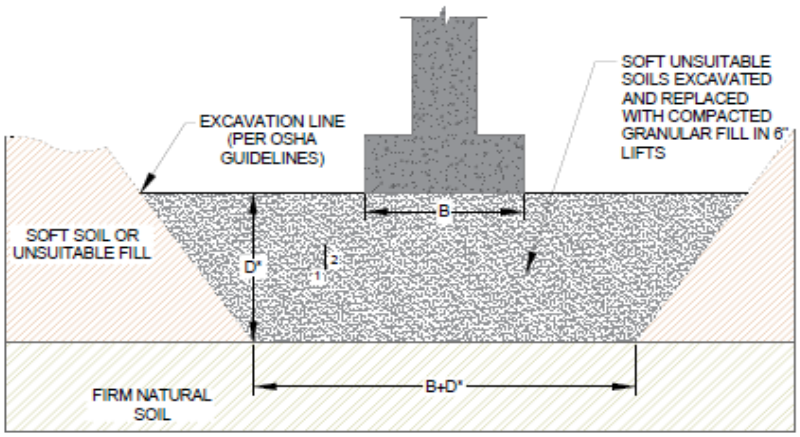
Tested fill materials that do not achieve either the required dry density or moisture content range shall be recorded, the location noted, and reported to the Contractor and Owner. A re-test of that area should be performed after the Contractor performs remedial measures and prior to the placement of additional fill material.

3.3 FOUNDATION RECOMMENDATIONS-MAT FOUNDATION

PSI has based this report on the walls having maximum loads of 4 kips per lineal foot, respectively. Accordingly, the proposed building structure can be supported on conventional spread-type footing foundations bearing on either competent naturally deposited soils or properly compacted, tested, and documented structural fill. If it is desired for the planned foundations to bear on properly compacted and documented fill, the geotechnical engineer should be allowed to review the material to determine its consistency with the recommended bearing pressures. Spread footings for building columns and continuous footings for bearing walls can be designed using a maximum allowable soil bearing pressure of **3,000 pounds per square foot (psf)** based on dead load plus design live load. These values contain a safety factor of 3 against ultimate soil failure. PSI recommends a minimum dimension of twenty-four (24) inches for square footings and eighteen (18) inches for continuous footings to minimize the possibility of a local bearing capacity failure.

Exterior footings and footings in unheated areas should be located at a depth of thirty-six (36) inches or deeper below the final exterior grade to provide adequate frost protection. If the structure is to be constructed during the winter months or if footings will likely be subjected to freezing temperatures after foundation construction, then the footings should be protected from freezing. PSI recommends that interior footings be a minimum depth of eighteen (18) inches below the finished floor elevation.

The foundation excavations should be observed and documented by a representative of PSI prior to steel or concrete placement to determine that the foundation materials are consistent with the materials discussed in this report, and therefore can support the design loads. Soft or loose soil zones encountered at the bottom of the footing excavations should be removed to the level of suitable natural soils and replaced with adequately compacted (granular) structural fill. Additionally, where high plasticity clay (CH) is encountered at the base of the footing, the CH soils should be removed to a minimum depth at least equal to the width of the footing. Fill placed below the foundations where unsuitable materials are removed should extend one half (½) foot outside the foundation limits for every one (1) foot in thickness between the intended bearing surface and the underlying, suitable natural soils. Alternately, the foundations may be extended through unsuitable soils to bear on the underlying suitable material. Cavities formed because of excavation of soft or loose soil zones should be backfilled with lean concrete or dense graded compacted crushed stone.



D* IS DEPTH FOR SUITABLE SOILS

After opening, footing excavations should be observed, and concrete placed as quickly as possible to avoid exposure of the footing bottoms to wetting and drying. Surface run-off water should be drained away from the excavations and not be allowed to pond. If possible, the foundation concrete should be placed during the same day the excavation is made. If it is required that footing excavations be left open for more than one day, they should be protected to reduce evaporation or entry of moisture by placing a relatively thin seal slab of concrete.

Based on the known subsurface conditions and site geology, laboratory testing and past experience, PSI anticipates that properly designed and constructed footings supported on the recommended materials should experience total and differential settlement between adjacent columns of less than one (1) inch and ¾ inch, respectively.

Be advised that as a part of the foundation selection process, there is a cost/benefit evaluation. Although PSI is recommending a specific foundation type, we have not accomplished the cost/benefit evaluation.

3.4 EARTHQUAKE AND SEISMIC DESIGN CONSIDERATION

The 2019 Ohio Building Code requires a site class for the calculation of earthquake design forces. This class is a function of soil type (i.e., depth of soil and strata types). Based on the depth to rock and the estimated shear strength of the soil at the test boring locations, Site Class "C" is recommended. The United States Geological Survey National Earthquake Hazard Reduction Program (USGS-NEHRP) probabilistic ground motion values "C" are as follows:

Table 7: For Latitude 40.7703°N / Longitude -83.8196°W

Period (seconds)	Site Coefficients	Max. Spectral Acceleration Parameters	Design Spectral Acceleration Parameters
0.166 (S_s)	F_a = 1.2	S_{ms} = 0.199	S_{Ds}= 0.133
0.064 (S_1)	F_v = 1.7	S_{m1} = 0.11	S_{D1}= 0.073

The Site Coefficients, F_a and F_v were interpolated from IBC 2015 Tables 1613.3.3 (1) and 1613.3.3 (2) as a function of the site classifications and the mapped spectral response acceleration at the short (S_s) and 1 second (S_1) periods.

If a **Seismic Design Category B** is selected by the architect or structural engineer for this structure, Section 1802 of the Code does not require an assessment of slope stability, liquefaction potential, and surface rupture due to faulting or lateral spreading.

3.5 FLOOR SLAB RECOMMENDATIONS

The floor slab should be supported on properly placed, compacted, and tested fill or native low plasticity soil. Once the site area has been prepared in accordance with the "Site Preparation" section of this report, the floor slab can be grade supported on a minimum 2 feet non-expansive engineered fill. Proof-rolling, as discussed earlier in this report, should be accomplished to identify soft or unstable soils that should be removed from the floor slab area prior to fill placement and/or floor slab construction. These soils should be replaced with properly compacted structural fill as described earlier in this report.

PSI recommends that a minimum six (6) inch thick trimmable, compactable granular material be placed beneath the floor slab to enhance drainage. The soil surface shall be graded to drain away from the building without low spots that can trap water prior to placing the granular drainage layer. Polyethylene sheeting should be placed to act as a vapor retarder where the floor will be in contact with moisture sensitive equipment or products such as tile, wood, carpet, etc., as directed by the design engineer. The decision to locate the vapor retarder in direct contact with the slab or beneath the layer of granular fill should be made by the design engineer after considering the moisture sensitivity of subsequent floor finishes, anticipated project conditions, and the potential effects of slab curling and cracking. The floor slabs should have an adequate number of joints to reduce cracking resulting from differential movement and shrinkage.

For subgrade prepared as recommended and properly compacted fill, a modulus of subgrade reaction, *k* value, of **150 pounds per cubic inch (pci)** may be used in the grade slab design based on correlation to values typically resulting from a 1 ft. x 1 ft. plate load test. However, depending on how the slab load is applied, the value should be geometrically modified. The value should be adjusted for larger areas using the following expression for cohesive and cohesionless soil:

$$\text{Modulus of Subgrade Reaction, } k_s = \left(\frac{k}{B}\right) \text{ for cohesive soil and}$$

$$k_s = k\left(\frac{B+1}{2B}\right)^2 \text{ for cohesionless soil}$$

where:

k_s	=	coefficient of vertical subgrade reaction for loaded area,
k	=	coefficient of vertical subgrade reaction for 1 square foot area, and
B	=	effective width of area loaded, in feet

The precautions listed below should be followed for construction of slab-on-grade pads. These details will not reduce the amount of movement, but are intended to reduce potential damage should some settlement of the supporting subgrade take place. Some increase in moisture content is inevitable because of development and associated landscaping. However, extreme moisture content increases can be largely controlled by proper and responsible site drainage, building maintenance and irrigation practices.

Cracking of slab-on-grade concrete is normal and should be expected. Cracking can occur not only because of heaving or compression of the supporting soil and/or bedrock material, but also because of concrete curing stresses. The occurrence of concrete shrinkage cracks, and problems associated with concrete curing may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement, finishing, and curing, and by the placement of crack control joints at frequent intervals, particularly where re-entrant slab corners occur. The American Concrete Institute (ACI) recommends a maximum panel size (in feet) equal to approximately three times the thickness of the slab (in inches) in both directions. For example, joints are recommended at a maximum spacing of twelve (12) feet based on having a four-inch slab. PSI also recommends that the slab be independent of the foundation walls. Using fiber reinforcement in the concrete can also control shrinkage cracking.

Areas supporting slabs should be properly moisture conditioned and compacted. Backfill in all interior and exterior water and sewer line trenches should be carefully compacted to reduce the shear stress in the concrete extending over these areas.

Exterior slabs should be isolated from the building. These slabs should be reinforced to function as independent units. Movement of these slabs should not be transmitted to the building foundation or superstructure.

3.6 RETAINING WALLS (10 FOOT DEEP WELL)

Below-grade walls must be designed to resist lateral earth pressures. Lateral earth pressure is developed from the soils present within a wedge formed by the vertical below-grade basement wall and an imaginary line extending up and away from the bottom of the wall at an approximate 45° angle. The lateral earth pressures are determined by multiplying the vertical applied pressure by the appropriate lateral earth pressure coefficient K. If the walls are rigidly attached to the structure and not free to rotate or deflect at the top, PSI recommends designing the walls for the "at-rest" lateral earth pressure condition using K_o. Walls that are permitted to rotate and deflect at the top can be designed for the active lateral earth pressure condition using K_a. Passive pressure can be determined using K_p, with a factor of safety of 2.0. Recommended parameters for use in the design of below grade walls with level backfill are as follows:

Table 8: Recommended Parameters for use in Below-Grade Wall Design*

Material Type	Drained Friction Angle		
1) Lean Silty Clay (in-situ)	26°		
2) Lean Silty Clay (conditioned and compacted)	28°		
3) Granular Soils (well- graded sand)**	34°		
Total Soil Density (pcf)	130		
Cohesion for Clay Soils (psf) (undrained, $\phi = 0$)	1,500		
Groundwater Elevation	See Boring Logs		
Parameters specific to soil type * **	**1**	**2**	**3**
Friction Factor for Base	0.33	0.36	0.45
Coefficient of Active Pressure (K_a) ***	0.39	0.36	0.28
Coefficient of Passive Pressure (K_p) ***	2.56	2.77	3.54
Coefficient of At-Rest Pressure (K_o) ***	0.56	0.53	0.44

* Values based on properly installed subsurface drainage system is in-place and no hydrostatic pressure from groundwater

** These values may be used for design only if the well-graded granular backfill extends back from the wall certain distances; a horizontal distance approximately equal to or greater than the total height of the wall at the surface, and at least 1-foot beyond the heel of the wall footing.

*** Earth pressure coefficients valid for level backfill conditions with no surcharge

Please note that the values presented above were calculated based on positive foundation drainage being provided to prevent the buildup of hydrostatic pressure on subsurface walls. An "equivalent fluid" pressure can be obtained from the above chart by multiplying the appropriate K-factor times the total unit weight of the soil. This applies to unsaturated conditions only. If a saturated "equivalent fluid" pressure is needed, the effective unit weight (total unit weight minus unit weight of water) should be multiplied times the appropriate K-factor and the unit weight of water added to that resultant.

However, PSI does not recommend that earth retaining walls be designed with a hydrostatic load and that drainage should be provided to relieve the pressure. In specific design cases where water is allowed to build up on the below-grade wall structure, the hydrostatic load correlating to the maximum height of the water build-up should be added to the lateral loads acting on the wall. Also, if surface loads are placed near the walls (such as traffic loads) they should be designed to resist an additional uniform lateral load of one-half of the vertical surface loads.

3.7 UTILITIES TRENCHING

Excavation for utility trenches shall be performed in accordance with OSHA regulations as stated in 29 CFR Part 1926. It should be noted that utility trench excavations have the potential to degrade the properties of the adjacent fill materials. Utility trench walls that can move laterally can lead to reduced bearing capacity and increased settlement of adjacent structural elements and overlying slabs.

Backfill for utility trenches is as important as the original subgrade preparation or structural fill placed to support either a foundation or slab. Therefore, it is imperative that the backfill for utility trenches be placed to meet the project specifications for the structural fill of this project. PSI recommends that flowable fill or lean mix concrete be utilized for utility trench backfill. If on-site soils are placed as trench backfill, the backfill for the utility trenches should be placed in four (4) to six (6) inch loose lifts and compacted according to the parameters detailed in Table 2. Up to four (4) inches of bedding material placed directly under the pipes or conduits placed in the utility trench can be compacted to the 90% compaction criteria with respect to the standard Proctor. Compaction testing should be performed for every 150 cubic yards of backfill place or each lift within 150 linear feet of trench, whichever is less. The backfill of utility trenches should not be performed with water standing in the trench. If granular material is used for the backfill of the utility trench, the granular material should have a gradation that will filter protect the backfill material from the adjacent soils. If this gradation is not available, a geosynthetic non-woven filter fabric should be used to reduce the potential for the migration of fines into the backfill material. Granular backfill material shall be compacted to meet the above compaction criteria. The clean granular backfill material should be compacted to achieve a relative density greater than 75% or as specified by the geotechnical engineer for the specific material used.

3.8 SILTATION CONTROL

The Clean Water Act implemented in 1990 includes a federal permit program called the National Pollutant Discharge Elimination System (NPDES). This program requires that projects sites more than one (1) acre or are part of a development which exceeds one (1) acre be covered under a permit. This typically includes the development of a storm water pollution prevention plan (SWPPP) as well as period inspections (typically once a week plus after significant rainfall). PSI is available to assist with these services.

4 CONSTRUCTION CONSIDERATIONS

PSI should be retained to provide observation and testing of construction activities involved in the foundation, earthwork, and related activities of this project. PSI cannot accept responsibility for conditions that deviate from those described in this report, nor for the performance of the foundation system if not engaged to also provide construction observation and testing for this project.

4.1 MOISTURE SENSITIVE SOILS/WEATHER RELATED CONCERNS

The upper fine-grained soils encountered at this site will be sensitive to disturbances caused by construction traffic and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather.

4.2 DRAINAGE AND GROUNDWATER CONSIDERATIONS

Groundwater was only encountered at test boring location B-1 during and upon completion of drilling operations at depths of approximately 18.5 and 28 feet, respectively, beneath the existing surface grade. A delayed reading in an existing piezometer showed a water level of 13 feet below existing grade. However, PSI recommends that the Contractor determine the actual groundwater levels at the site at the time of the construction activities to assess the impact groundwater may have on construction. Water should not be allowed to collect in the foundation excavation, on floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of collected rainwater, groundwater, or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slabs. The grades should be sloped away from the building and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the building. Overall site area drainage is to be arranged in a manner such that the possibility of water impounding below slab-on-grade areas and over the structural fill, is prevented at all times during and after construction.

4.3 EXCAVATONS

In Federal Register, Volume 54, Number 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better enhance the safety of workers entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new OSHA guidelines. It is PSI's understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

Care must be taken to protect adjacent structure foundations and structures during the foundation excavation process, so no structure or foundation is undermined. All existing foundations must be protected during the installation process. In addition, care must be taken to maintain the groundwater level at least 2 feet below the deepest excavation at the site to reduce the potential for unstable soil conditions.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case, should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

PSI is providing this information solely as a service to our client. PSI does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations. A trench safety plan was beyond the scope of our services for this project.

5 GEOTECHNICAL RISK

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations presented in the preceding section constitutes PSI's professional estimate of those measures that are necessary for the proposed structure to perform per the proposed design based on the information generated and referenced during this evaluation, and PSI's experience in working with these conditions.

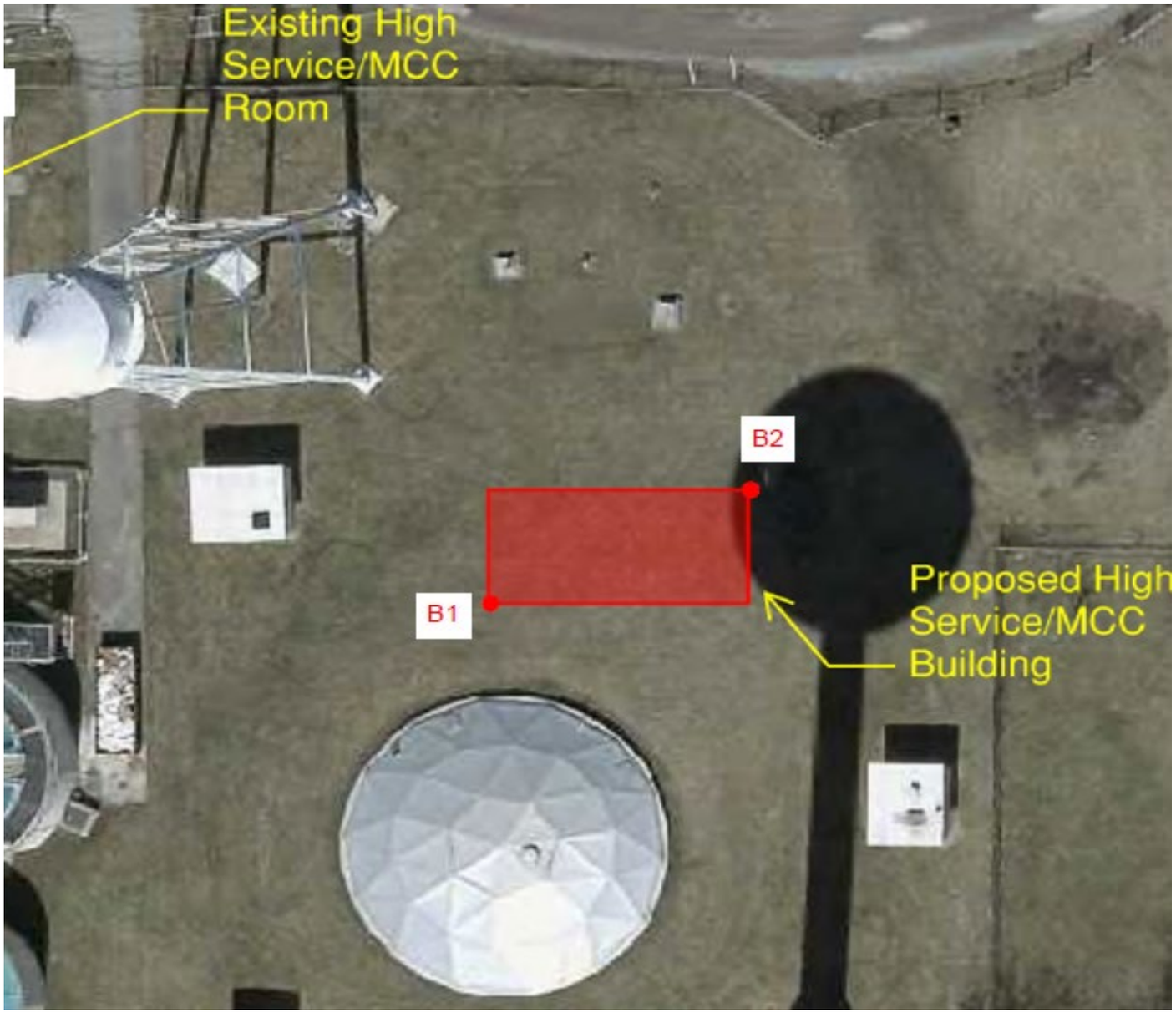
6 REPORT LIMITATIONS

The recommendations submitted in this report are based on the available subsurface information obtained by PSI for the proposed new building project. If there are any revisions to the plans for the proposed development or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be retained to determine if changes in the recommendations are required. If PSI is not retained to perform these functions, PSI will not be responsible for the impact of those conditions on the geotechnical recommendations for the project.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein, have been presented after being prepared in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics and engineering geology. No other warranties are implied or expressed.

This report has been prepared for the exclusive use Jones & Henry Engineers, Ltd. for the specific application to the proposed Ada Water Treatment Plant (WTP) High Service/MCC Building project located at 110 Simon Court in Ada, Hardin County, Ohio 45810.

APPENDIX



intertek psi

Boring Location Plan
Ada WTP
110 Simon Court
Ada, Hardin County, Ohio

Drawing provided by Client

Project No. 01253085

N

BORING B-1

DATE STARTED:	6/2/23	**DRILL COMPANY:**	PSI, Inc.
DATE COMPLETED:	6/2/23	**DRILLER:** Jared	**LOGGED BY:** Jon
COMPLETION DEPTH	33.5 ft	**DRILL RIG:**	CME 45
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	N/A	**SAMPLING METHOD**	2-in SS1.874-in Core Split Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	87%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	TJ

Water

While Drilling	18.5 feet
Upon Completion	28 feet
25 Day Delay	14 feet

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS) RQD & Recovery % (NX)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ Moisture × PL ◪ LL ✚ (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**18" TOPSOIL**	TOPSOIL		22		
				1	17	STIFF, MOIST, BROWN, **LEAN CLAY**	CL	6-4-4 N_{60}=12	26		LL = 40 PL = 21 Fines=85.5%
				2	18	VERY STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND**		5-6-8 N_{60}=20	15	>>✳	
	5			3	18			5-8-9 N_{60}=25	15	>>✳	
				4	17	BROWN/GRAY 8.5'		5-7-11 N_{60}=26	17	✳	
	10			5	12	HARD 11'		7-11-15 N_{60}=38	14	✳	
				6	18			6-10-12 N_{60}=32	14	>>✳	
	15			7	16	VERY STIFF AND GRAY 16'	CL	4-5-8 N_{60}=19	17	✳	
				8	18			5-6-8 N_{60}=20	20 11		
	20			9	18	HARD 23.5'		7-12-14 N_{60}=38	10	>>✳	
	25			10	0	REFUSAL ON APPARANT LIMESTONE	LIMESTONE	50/1"		>>◎	
	30			11	52	HARD, VERY SEVERELY WEATHERED, GRAY, **LIMESTONE**	LIMESTONE	RQD=13 Rec=86%			
						AUGER REFUSAL 28.6' **END OF BORING 33.6'**					

Professional Service Industries, Inc.
2341 Spencerville Road
Lima, OH 45805
Telephone: (419) 999-5660

PROJECT NO.: 01253085
PROJECT: Ada WTP
LOCATION: 110 Simon Court
Ada, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-2

DATE STARTED:	6/2/23	**DRILL COMPANY:**	PSI, Inc.
DATE COMPLETED:	6/2/23	**DRILLER:** Jared	**LOGGED BY:** Jon
COMPLETION DEPTH	20.0 ft	**DRILL RIG:**	CME 45
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	N/A	**SAMPLING METHOD:**	2-in SSSplit Spoon
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	87%
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	TJ

Water

While Drilling	NONE feet
Upon Completion	NONE feet
Delay	N/A

BORING LOCATION:

REMARKS: N_{60} denotes the normalization to 60% efficiency as described in ASTM D4633.

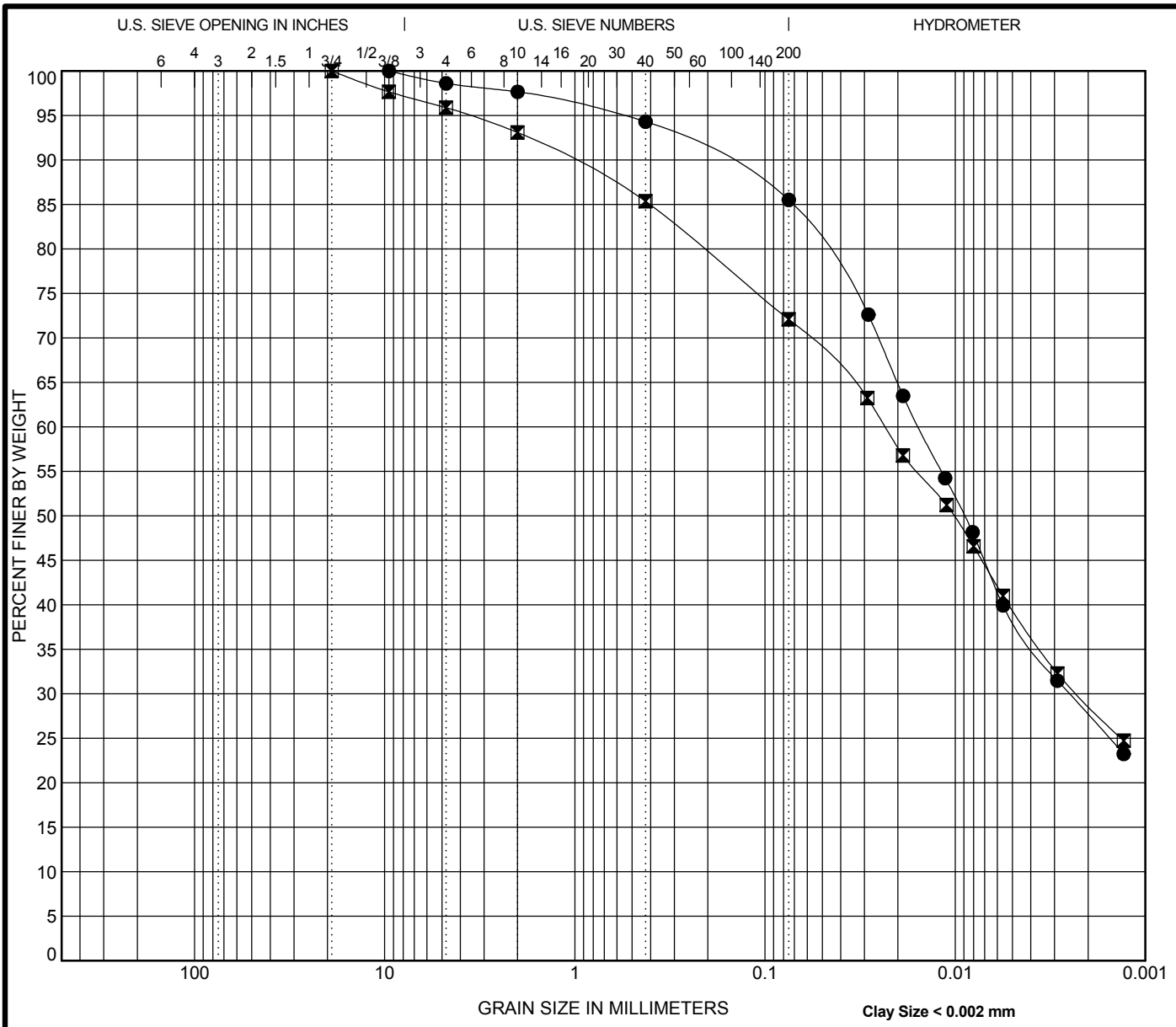
Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA (N in blows/ft ◎; × Moisture; ◪ PL; ✚ LL; 0–25–50) / STRENGTH, tsf (▲ Qu; ✳ Qp; 0–2.0–4.0)	Additional Remarks
	0					**10" TOPSOIL**	TOPSOIL				
				1	15	STIFF, MOIST, BROWN, **LEAN CLAY WITH SAND**		4-4-4 N_{60}=12	22		
				2	18	VERY STIFF 3.5'		4-6-8 N_{60}=20	16		
	5			3	18			5-8-9 N_{60}=25	17		LL = 30 PL = 18 Fines=72.1%
				4	18	HARD 8.5'	CL	5-12-13 N_{60}=36	15		
	10			5	18	VERY STIFF 11'		5-5-7 N_{60}=17	15		
				6	18	STIFF AND GRAY 13.5'		3-4-6 N_{60}=14	15		
	15			7	18	STIFF, MOIST, GRAY, **SANDY LEAN CLAY**	CL	3-4-4 N_{60}=12	17		
				8	18	HARD, MOIST, GRAY, **LEAN CLAY WITH SAND**	CL	3-11-10 N_{60}=30	18		
	20					**END OF BORING WITHOUT REFUSAL 20'**					

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Professional Service Industries, Inc.
2341 Spencerville Road
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Telephone: (419) 999-5660

PROJECT NO.: 01253085
PROJECT: Ada WTP
LOCATION: 110 Simon Court
Ada, Ohio

The stratification lines represent approximate boundaries. The transition may be gradual.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

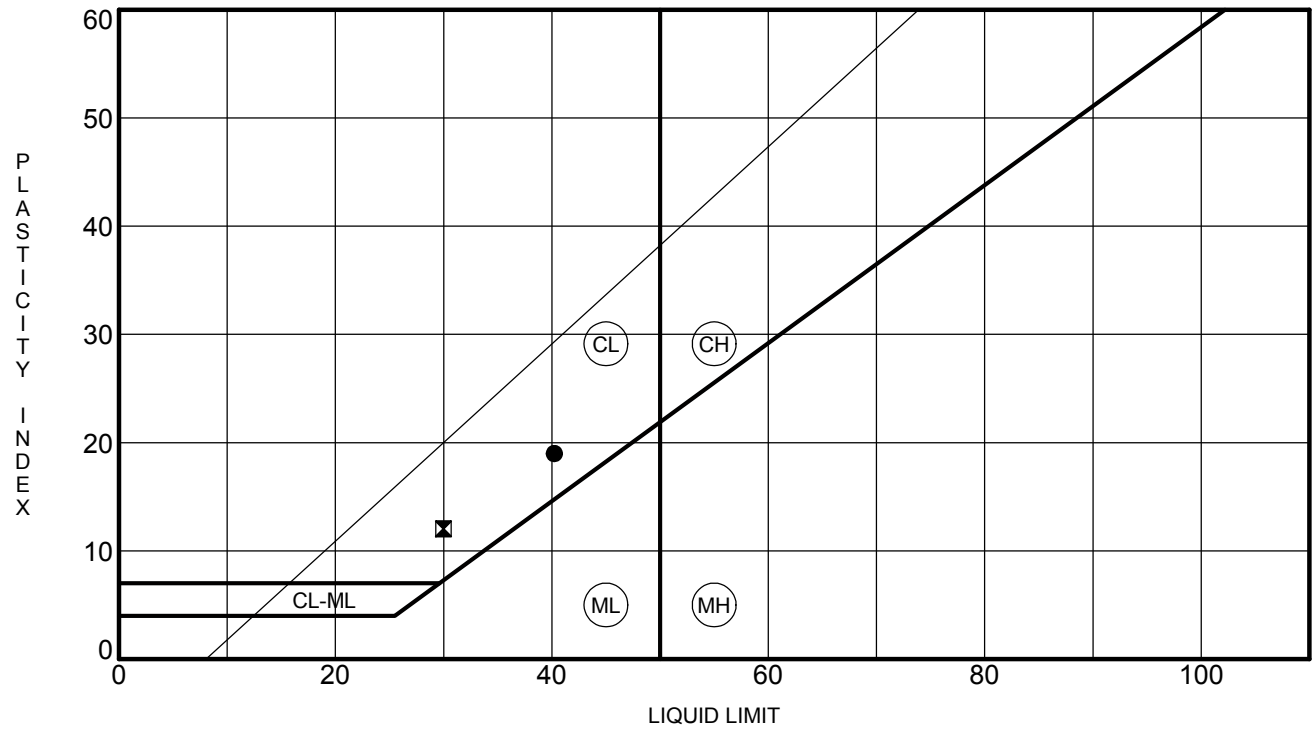
Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	B-1	1.3	LEAN CLAY (CL)	40	21	19		
⊠	B-2	6.8	LEAN CLAY WITH SAND (CL)	30	18	12		

Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1	1.3	9.5	0.016	0.003		1.4	13.1	57.9	27.6
⊠	B-2	6.8	19	0.023	0.002		4.1	23.8	43.3	28.8

intertek psi
Professional Service Industries, Inc.
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Fax: (419) 999-6029

GRAIN SIZE DISTRIBUTION

Project: Ada WTP
PSI Job No.: 01253085
Location: 110 Simon Court
Ada, Ohio



	Boring	Depth (ft)	LL	PL	PI	Fines	Classification (*Visual)
●	**B-1**	**1.3**	**40**	**21**	**19**	**85.5**	**LEAN CLAY (CL)**
⊠	**B-2**	**6.8**	**30**	**18**	**12**	**72.1**	**LEAN CLAY WITH SAND (CL)**

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ATTERBERG LIMIT RESULTS

PSI Job No.: 01253085
Project: Ada WTP
Location: 110 Simon Court
Ada, Ohio

Boring B-1
Run 1



intertek psi	**Rock Core-1** Ada WTP 110 Simon Court Ada, Hardin County, Ohio	**DEPTH 28.6' - 33.6'** **Project No.: 01253085** **Ada WTP**

BOWSER-MORNER, INC.

Delivery Address: 4518 Taylorsville Road • Dayton, Ohio 45424 **Mailing Address:** P. O. Box 51 • Dayton, Ohio 45401

AASHTO/ISO 17025 Accredited • USACE Validated

LABORATORY REPORT

Report To: Intertek PSI
Attn: Tiffani Joseph
2341 Spencerville Road
Lima, OH 45805

Report Date: June 29, 2023
Job No.: 210634
Report No.: 433708
No. of Pages: 2

Report On: Laboratory Analysis of One Composite Soil Sample
Project: Intertek Job #3085
Sample ID: **Composite Sample B-1 (6.0'-7.5') & B-2 (3.5'-5.0')**

On June 9, 2023, one sample of soil was submitted for selected laboratory analysis from the above referenced source. Testing was performed as specified by the client and in accordance with the following procedures:

AASHTO T 290, "Determining Water-Soluble Sulfate Ion Content in Soil".

AASHTO T 291, "Determining Water-Soluble Chloride Ion Content in Soil".

ASTM D 2216, "Laboratory Determination of Water (Moisture) Content of Soil and Rock".

ASTM D 4972, "pH of Soils".

ASTM G 187, "Measurement of Soil Resistivity Using the Two-Electrode Soil Box Method".

EPA 376.1, "Sulfide (Titrimetric, Iodine)".

Results are presented in TABLE I.

Should you have any questions, or if we may be of further service, please contact me at (937) 236-8805, extension 269.

Respectfully submitted,

BOWSER-MORNER, INC.

Brooke L. Chapman

Digitally signed by Brooke L. Chapman
Date: 2023.06.29 15:50:01-04'00'

BLC/bwt/blc
433708
1-File
1-tiffani.joseph@intertek.com

Brooke L. Chapman, Manager
Assistant Director, CMT &
Geotechnical Laboratories

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Sample ID: Composite Sample B-1 (6.0'-7.5') & B-2 (3.5'-5.0')

TABLE I
Summary of Results

Test Parameter	Results
Water Soluble Chloride Ion, mg/kg (ppm):	**<10**
Water Soluble Sulfate Ion, mg/kg (ppm):	**37**
As Received Moisture Content, %:	**14.8**
pH (in Distilled Water):	**8.1**
pH (in Calcium Chloride Solution):	**7.8**
Resistivity (As Received), ohm-cm:	**74,250**
Resistivity (100% Saturated), ohm-cm:	**6,975**
Sulfide, ppm:	**29.60**

This is a beta release of the new ATC Hazards by Location website. Please contact us with feedback.

The ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Hazards by Location

Search Information

Coordinates: 40.7703, -83.8196

Elevation: 958 ft

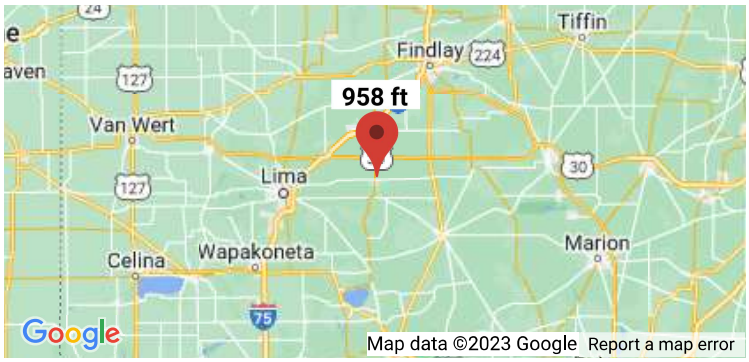
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Hazard Type: Seismic

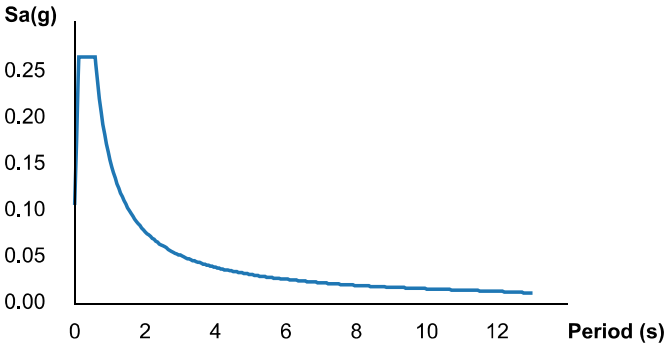
Reference Document: IBC-2015

Risk Category: I

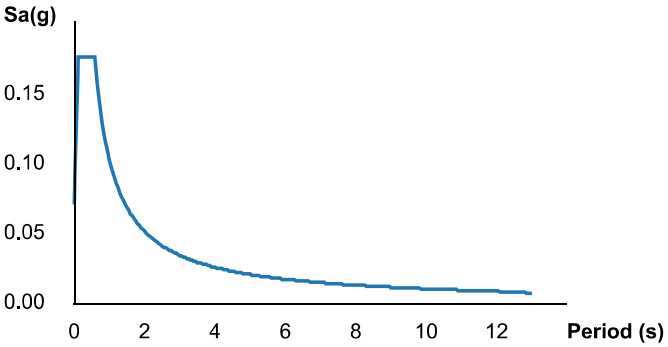
Site Class: D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	0.166	MCE_R ground motion (period=0.2s)
S_1	0.064	MCE_R ground motion (period=1.0s)
S_{MS}	0.266	Site-modified spectral acceleration value
S_{M1}	0.155	Site-modified spectral acceleration value
S_{DS}	0.177	Numeric seismic design value at 0.2s SA
S_{D1}	0.103	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	B	Seismic design category
F_a	1.6	Site amplification factor at 0.2s
F_v	2.4	Site amplification factor at 1.0s
CR_S	0.896	Coefficient of risk (0.2s)
CR_1	0.907	Coefficient of risk (1.0s)

PGA	0.09	MCE_G peak ground acceleration
F_{PGA}	1.6	Site amplification factor at PGA
PGA_M	0.145	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	0.166	Probabilistic risk-targeted ground motion (0.2s)
SsUH	0.185	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.064	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.071	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.6	Factored deterministic acceleration value (PGA)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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GENERAL NOTES

SAMPLE IDENTIFICATION

The Unified Soil Classification System (USCS), AASHTO 1988 and ASTM designations D2487 and D-2488 are used to identify the encountered materials unless otherwise noted. Coarse-grained soils are defined as having more than 50% of their dry weight retained on a #200 sieve (0.075mm); they are described as: boulders, cobbles, gravel or sand. Fine-grained soils have less than 50% of their dry weight retained on a #200 sieve; they are defined as silts or clay depending on their Atterberg Limit attributes. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size.

DRILLING AND SAMPLING SYMBOLS

SFA: Solid Flight Auger - typically 4" diameter flights, except where noted.
HSA: Hollow Stem Auger - typically 3¼" or 4¼ I.D. openings, except where noted.
M.R.: Mud Rotary - Uses a rotary head with Bentonite or Polymer Slurry
R.C.: Diamond Bit Core Sampler
H.A.: Hand Auger
P.A.: Power Auger - Handheld motorized auger

SS: Split-Spoon - 1 3/8" I.D., 2" O.D., except where noted.
ST: Shelby Tube - 3" O.D., except where noted.
RC: Rock Core
TC: Texas Cone
BS: Bulk Sample
PM: Pressuremeter
CPT-U: Cone Penetrometer Testing with Pore-Pressure Readings

SOIL PROPERTY SYMBOLS

N: Standard "N" penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch O.D. Split-Spoon.
N_{60}: A "N" penetration value corrected to an equivalent 60% hammer energy transfer efficiency (ETR)
Q_u: Unconfined compressive strength, TSF
Q_p: Pocket penetrometer value, unconfined compressive strength, TSF
w%: Moisture/water content, %
LL: Liquid Limit, %
PL: Plastic Limit, %
PI: Plasticity Index = (LL-PL),%
DD: Dry unit weight, pcf
▼,▽,▼ Apparent groundwater level at time noted

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Relative Density	N - Blows/foot
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 - 80
Extremely Dense	80+

ANGULARITY OF COARSE-GRAINED PARTICLES

Description	Criteria
Angular:	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular:	Particles are similar to angular description, but have rounded edges
Subrounded:	Particles have nearly plane sides, but have well-rounded corners and edges
Rounded:	Particles have smoothly curved sides and no edges

GRAIN-SIZE TERMINOLOGY

Component	Size Range
Boulders:	Over 300 mm (>12 in.)
Cobbles:	75 mm to 300 mm (3 in. to 12 in.)
Coarse-Grained Gravel:	19 mm to 75 mm (¾ in. to 3 in.)
Fine-Grained Gravel:	4.75 mm to 19 mm (No.4 to ¾ in.)
Coarse-Grained Sand:	2 mm to 4.75 mm (No.10 to No.4)
Medium-Grained Sand:	0.42 mm to 2 mm (No.40 to No.10)
Fine-Grained Sand:	0.075 mm to 0.42 mm (No. 200 to No.40)
Silt:	0.005 mm to 0.075 mm
Clay:	<0.005 mm

PARTICLE SHAPE

Description	Criteria
Flat:	Particles with width/thickness ratio > 3
Elongated:	Particles with length/width ratio > 3
Flat & Elongated:	Particles meet criteria for both flat and elongated

RELATIVE PROPORTIONS OF FINES

Descriptive Term	% Dry Weight
Trace:	< 5%
With:	5% to 12%
Modifier:	>12%

GENERAL NOTES

(Continued)

CONSISTENCY OF FINE-GRAINED SOILS

Q_U - TSF	N - Blows/foot	Consistency
0 - 0.25	0 - 2	Very Soft
0.25 - 0.50	2 - 4	Soft
0.50 - 1.00	4 - 8	Firm (Medium Stiff)
1.00 - 2.00	8 - 15	Stiff
2.00 - 4.00	15 - 30	Very Stiff
4.00 - 8.00	30 - 50	Hard
8.00+	50+	Very Hard

MOISTURE CONDITION DESCRIPTION

Description	Criteria
Dry:	Absence of moisture, dusty, dry to the touch
Moist:	Damp but no visible water
Wet:	Visible free water, usually soil is below water table

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term	% Dry Weight
Trace:	< 15%
With:	15% to 30%
Modifier:	>30%

STRUCTURE DESCRIPTION

Description	Criteria
Stratified:	Alternating layers of varying material or color with layers at least ¼-inch (6 mm) thick
Laminated:	Alternating layers of varying material or color with layers less than ¼-inch (6 mm) thick
Fissured:	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided:	Fracture planes appear polished or glossy, sometimes striated
Blocky:	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed:	Inclusion of small pockets of different soils
Layer:	Inclusion greater than 3 inches thick (75 mm)
Seam:	Inclusion 1/8-inch to 3 inches (3 to 75 mm) thick extending through the sample
Parting:	Inclusion less than 1/8-inch (3 mm) thick

SCALE OF RELATIVE ROCK HARDNESS

Q_U - TSF	Consistency
2.5 - 10	Extremely Soft
10 - 50	Very Soft
50 - 250	Soft
250 - 525	Medium Hard
525 - 1,050	Moderately Hard
1,050 - 2,600	Hard
>2,600	Very Hard

ROCK BEDDING THICKNESSES

Description	Criteria
Very Thick Bedded	Greater than 3-foot (>1.0 m)
Thick Bedded	1-foot to 3-foot (0.3 m to 1.0 m)
Medium Bedded	4-inch to 1-foot (0.1 m to 0.3 m)
Thin Bedded	1¼-inch to 4-inch (30 mm to 100 mm)
Very Thin Bedded	½-inch to 1¼-inch (10 mm to 30 mm)
Thickly Laminated	1/8-inch to ½-inch (3 mm to 10 mm)
Thinly Laminated	1/8-inch or less "paper thin" (<3 mm)

ROCK VOIDS

Voids	Void Diameter
Pit	<6 mm (<0.25 in)
Vug	6 mm to 50 mm (0.25 in to 2 in)
Cavity	50 mm to 600 mm (2 in to 24 in)
Cave	>600 mm (>24 in)

GRAIN-SIZED TERMINOLOGY

(Typically Sedimentary Rock)

Component	Size Range
Very Coarse Grained	>4.76 mm
Coarse Grained	2.0 mm - 4.76 mm
Medium Grained	0.42 mm - 2.0 mm
Fine Grained	0.075 mm - 0.42 mm
Very Fine Grained	<0.075 mm

ROCK QUALITY DESCRIPTION

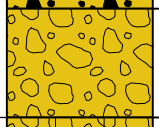
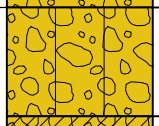
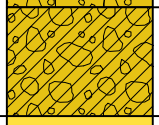
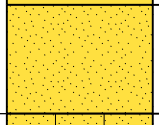
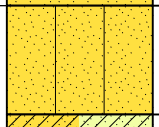
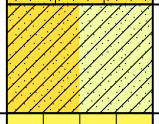
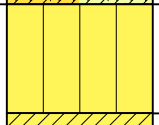
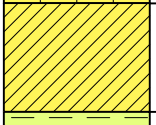
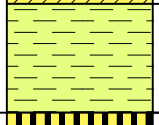
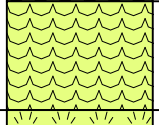
Rock Mass Description	RQD Value
Excellent	90 -100
Good	75 - 90
Fair	50 - 75
Poor	25 -50
Very Poor	Less than 25

DEGREE OF WEATHERING

Slightly Weathered:	Rock generally fresh, joints stained and discoloration extends into rock up to 25 mm (1 in), open joints may contain clay, core rings under hammer impact.
Weathered:	Rock mass is decomposed 50% or less, significant portions of the rock show discoloration and weathering effects, cores cannot be broken by hand or scraped by knife.
Highly Weathered:	Rock mass is more than 50% decomposed, complete discoloration of rock fabric, core may be extremely broken and gives clunk sound when struck by hammer, may be shaved with a knife.

SOIL CLASSIFICATION CHART

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

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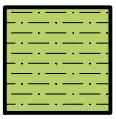
Graphic Symbols for Materials and Rock Deposits



CONCRETE
Portland Cement Concrete



BITUMINOUS CONCRETE



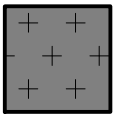
CLAYSTONE



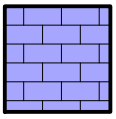
COAL
Coal, Anthracite Coal



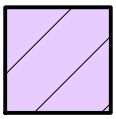
CONGLOMERATE/BRECCIA
Conglomerate, Breccia



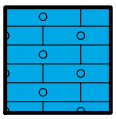
IGNEOUS ROCK
Anorthsite, Basalt, Metabasalt, Diabase (Gabbro), Gabbro, Granite/Granodionite, Homfels, Pegmatite, Rhyolite/Metarhyolite



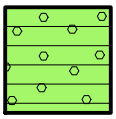
LIMESTONE
Limestone, Dolomite



METAMORPHIC ROCK
Amphibolite, Gneiss, Marble, Phyllite, Quartzite, Schist, Serpentinite, Slate



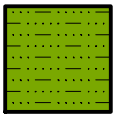
CHERT



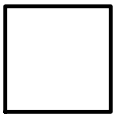
SANDSTONE
Sandstone, Orthoquarzite (Sandstone)



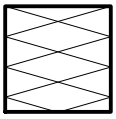
SHALE



SILTSTONE



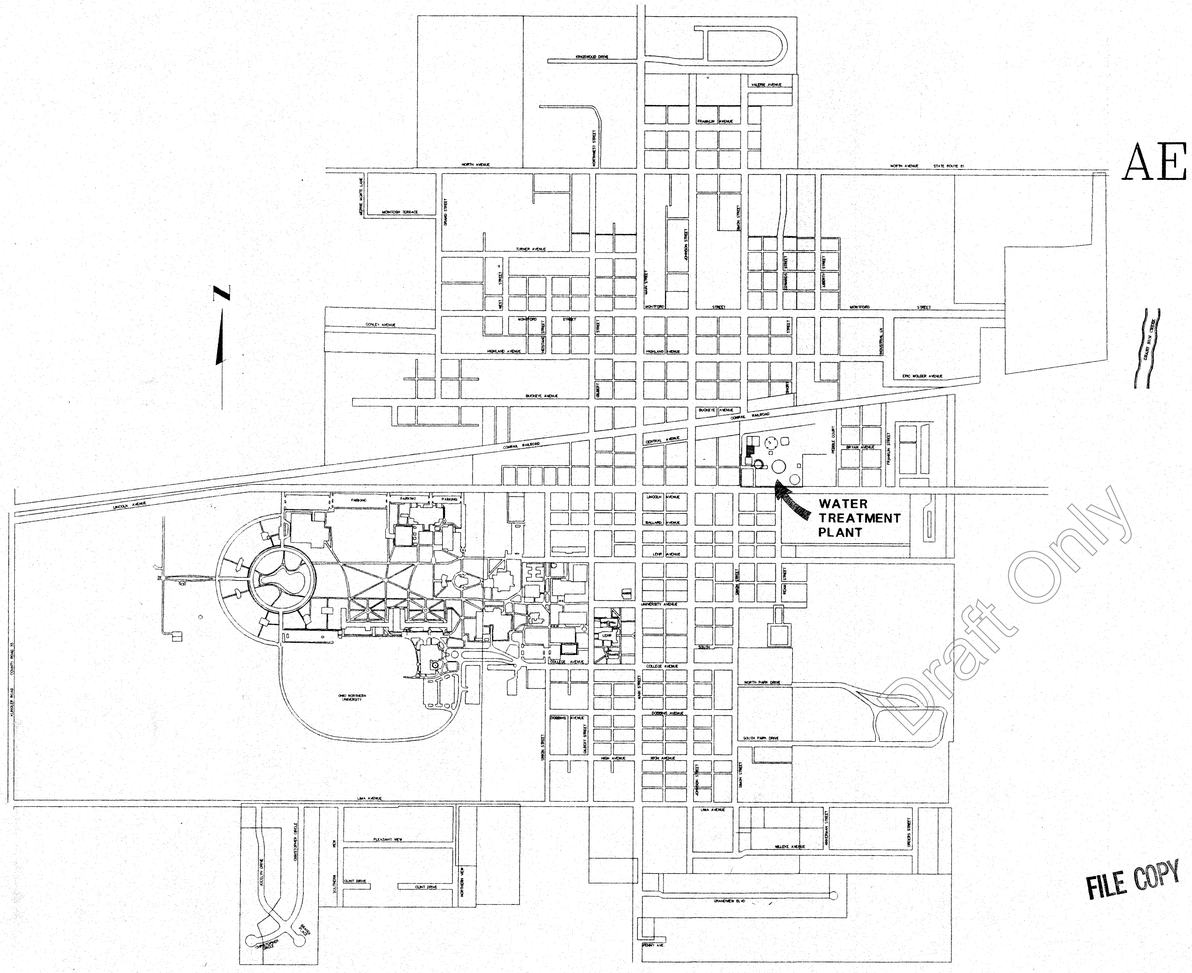
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VILLAGE OF ADA, OHIO

WATER TREATMENT PLANT AERATOR AND CLARIFIER ADDITIONS

CONTRACTS 14G – GENERAL
14E – ELECTRICAL

1995

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Jones & Henry Engineers, Inc.
TOLEDO & CINCINNATI OHIO
LANSING, MICHIGAN • FORT WAYNE, INDIANA

STATE OF OHIO
THOMAS C. NETGALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

TOL-404'COV1
12/12/94 07-12

CONT. 14G & 14E

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FILE COPY SHELF 1

STRUCTURAL LEGEND

- EXISTING STRUCTURE
- EXISTING STRUCTURE OR EQUIPMENT TO BE REMOVED
- EXISTING EQUIPMENT TO BE RELOCATED
- NEW STRUCTURE

VALVE SYMBOL LEGEND

- GATE, KNIFE GATE, BUTTERFLY OR GLOBE VALVES
- PLUG VALVE
- BALL VALVE
- PINCH VALVE
- CHECK VALVE

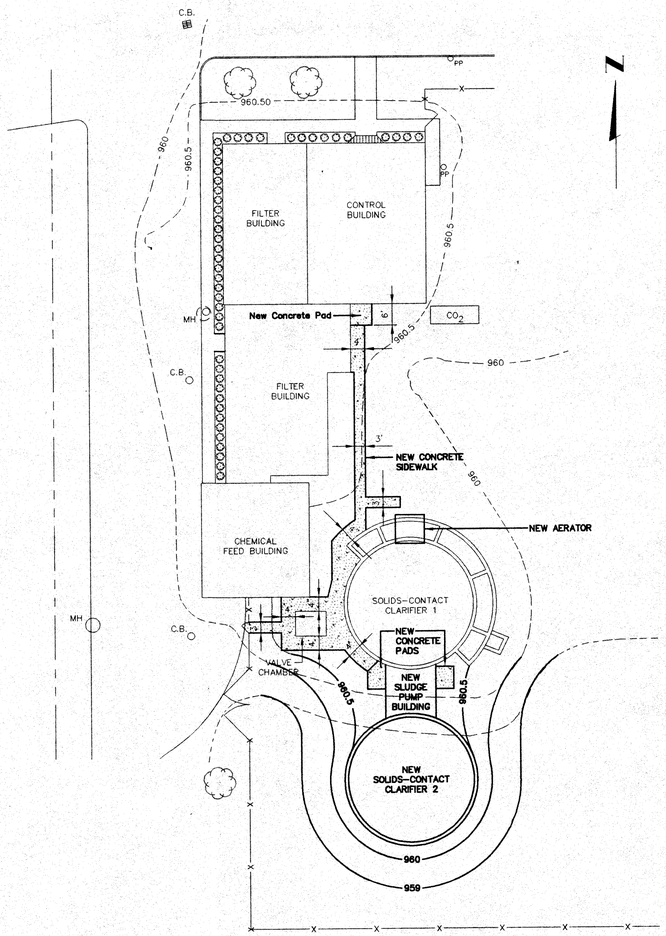
PIPING ABBREVIATIONS

	MATERIAL
BSP	BLACK STEEL PIPE
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CMP	CORRUGATED METAL PIPE
Cu	COPPER TUBING OR PIPING
DIP	DUCTILE IRON PIPE
FRP	FIBERGLASS REINFORCED PIPE
GSP	GALVANIZED STEEL PIPE
PCP	PLAIN CONCRETE PIPE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
SP	STEEL PIPE
SSP	STAINLESS STEEL PIPE

	SERVICE
NG	NATURAL GAS
CW	CITY WATER
HW	HOT CITY WATER
PW	PLANT WATER
CA	COMPRESSED AIR
TD	TANK DRAIN
SS	SANITARY SEWER
NPW	NON-POTABLE WATER
SL	SLUDGE

DRAWING INDEX

SHEET	DESCRIPTION
1	LEGENDS , INDEX & GRADING PLAN
2	SITE PLAN – YARD PIPING
3	NEW CLARIFIER, SLUDGE PUMP BUILDING AND AERATOR – STRUCTURAL – PLANS, SECTIONS AND DETAILS
4	NEW CLARIFIER, SLUDGE PUMP BUILDING AND AERATOR – STRUCTURAL – SECTIONS AND DETAILS
5	NEW CLARIFIER, SLUDGE PUMP BUILDING, AERATOR AND CHEMICAL FEED BUILDING – PIPING AND EQUIPMENT – SECTIONAL PLANS
6	NEW CLARIFIER, SLUDGE PUMP BUILDING, AERATOR AND CHEMICAL FEED BUILDING – PIPING AND EQUIPMENT – PLAN AND DETAILS
7	NEW CLARIFIER, SLUDGE PUMP BUILDING, AERATOR AND CHEMICAL FEED BUILDING – PIPING AND EQUIPMENT – SECTIONS AND DETAILS
8	CONTROL BUILDING – ROOF PLANS, SECTIONS AND DETAILS
9	MISCELLANEOUS DETAILS
10	MISCELLANEOUS DETAILS
11	MISCELLANEOUS DETAILS AND PIPING ISOMETRICS
12	FLOW DIAGRAM AND HYDRAULIC PROFILE
E-1	NEW CLARIFIER, SLUDGE PUMP BUILDING, AERATOR AND CHEMICAL FEED BUILDING – ELECTRICAL – POWER EQUIPMENT, MINI POWER ZONE, CONTROL LAYOUT & LEGENDS
E-2	NEW CLARIFIER, SLUDGE PUMP BUILDING, AERATOR AND CHEMICAL FEED BUILDING – ELECTRICAL – POWER AND LIGHTING PLAN
E-3	NEW SLUDGE PUMP BUILDING, LEGEND, CONTROL DIAGRAM AND P & ID'S



GRADING PLAN
1"=20'

PIPING LEGEND

(THIS LEGEND APPLIES ONLY WHERE COMBINATION OF NEW AND EXISTING PIPING APPEAR ON THE SAME DRAWING.)

- EXISTING PIPING
- EXISTING PIPING TO BE REMOVED (IF YARD PIPING, ABANDON OR REMOVE AS REQ'D)
- EXISTING PIPING TO BE RELOCATED
- NEW PIPING

8/12 = NUMBER OF SECTION / SHEET NUMBER ON WHICH SECTION IS SHOWN

SECTION 3/4 = NUMBER OF SECTION / SHEET NUMBER ON WHICH SECTION IS CUT

DELINEATION OF SECTIONS

(SECTIONS LETTERED ARE SHOWN ON SAME SHEET)

A = ELEVATION VIEW

5/7 = NUMBER OF DETAIL IN SECTION / SHEET NUMBER ON WHICH DETAIL IS SHOWN

6/7 = NUMBER OF DETAIL IN PLAN / SHEET NUMBER ON WHICH DETAIL IS SHOWN

DETAIL 5/9 = NUMBER OF DETAIL / SHEET NUMBER ON WHICH DETAIL IS TAKEN

DELINEATION OF BLOW – UP DETAILS

(DETAILS LETTERED ARE SHOWN ON SAME SHEET)

TOPOGRAPHY LEGEND

- X — FENCE LINE
- G — GAS LINE
- W — WATER LINE
- E — UNDERGROUND ELECTRICAL CONDUIT
- T — UNDERGROUND TELEPHONE CONDUIT
- S — UNDERGROUND SIGNAL CONDUIT
- STORM SEWER
- SANITARY SEWER
- CENTER LINE
- SURVEY LINE
- PROPERTY LINE
- 960.5 — NEW GROUND CONTOUR ELEVATION
- 960 — EXISTING GROUND CONTOUR ELEVATION
- MH — MANHOLE
- PP — POWER POLE OR TELEPHONE POLE
- LP — LIGHT POLE
- FH, YH — FIRE HYDRANT OR YARD HYDRANT
- VALVE
- CO — CLEAN OUT
- IP — IRON PIN (OR LABELED POST, MARKER ETC.)
- CB — CATCH BASIN

NOTE: ACCURACY OF EXISTING ELEVATIONS AND DIMENSIONS IS NOT GUARANTEED. FIELD VERIFY BEFORE CONSTRUCTION.

Draft Only

STATE OF OHIO — THOMAS C. METCALF — No. E-47328 — REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT
AERATOR AND CLARIFIER ADDITIONS
CONTRACT 14

LEGENDS, INDEX & GRADING PLAN

NO.	DATE	REVISIONS	BY

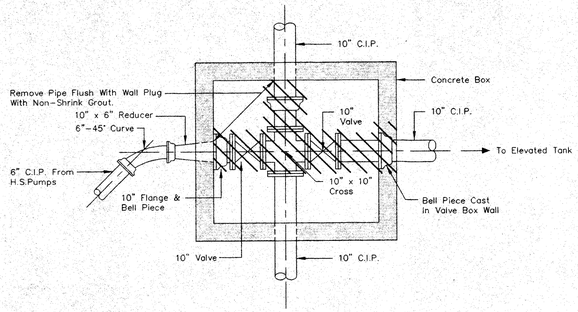
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AS NOTED	G.L.W.	A.R.B.	T.C.M.

JOB NO. 014-4047
DATE MARCH 1995

Jones & Henry Engineers, Inc.

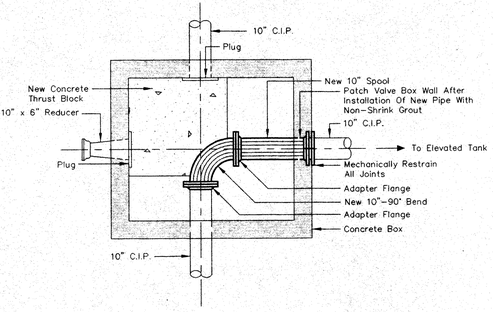
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02/28/95 07-12



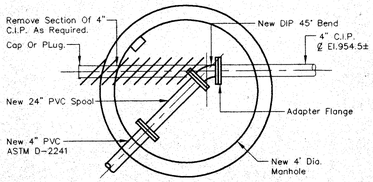
VALVE BOX – REMOVAL PLAN

3/8"=1'

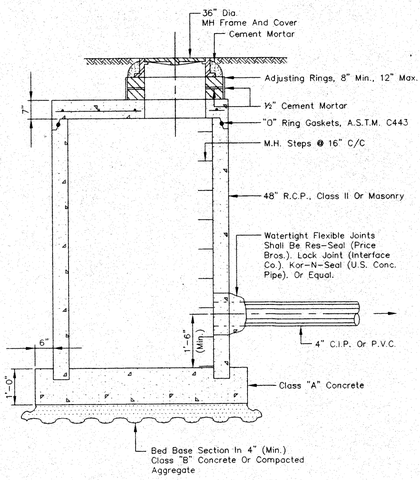


VALVE BOX – NEW PLAN

3/8"=1'



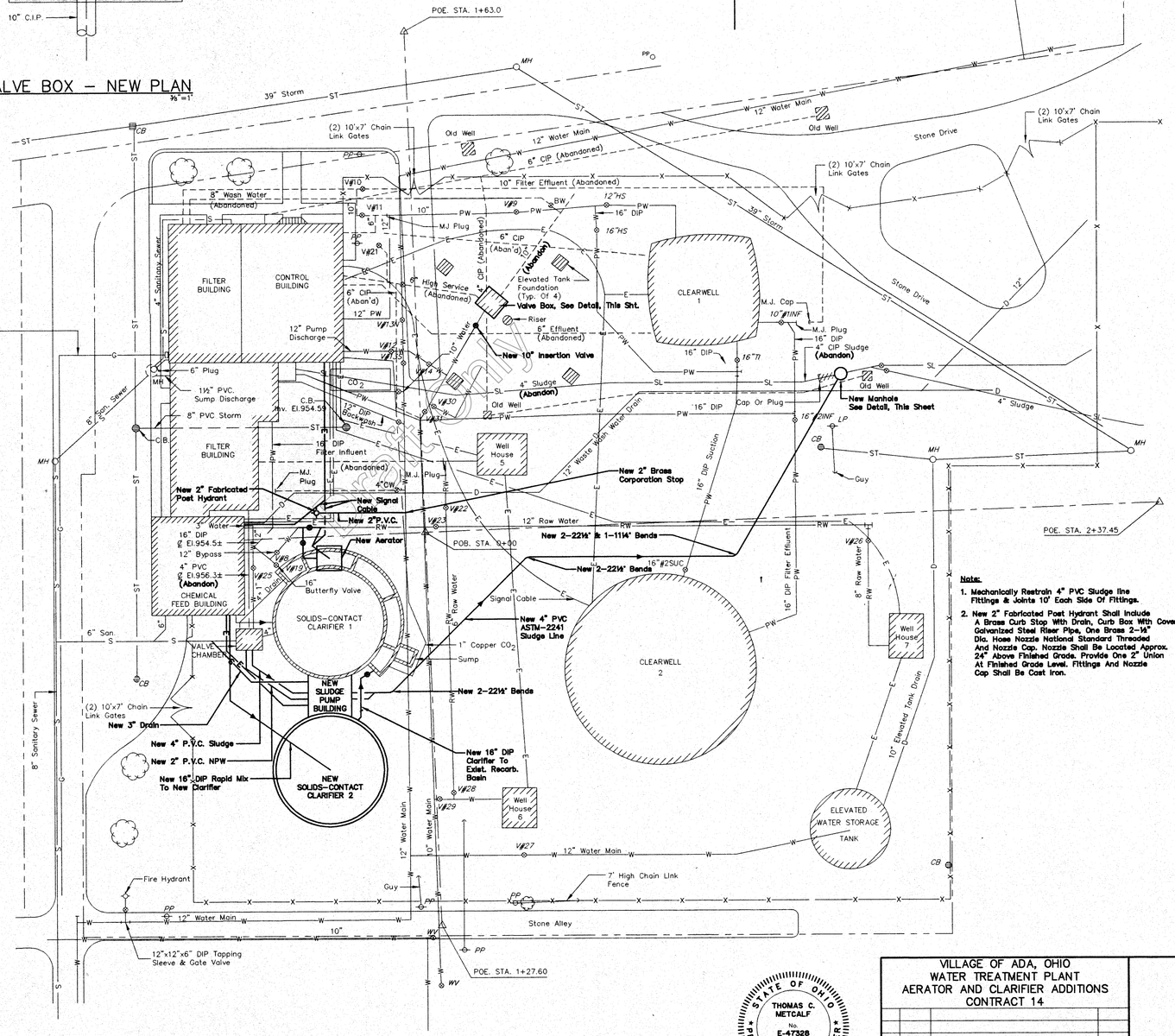
PLAN



SECTION

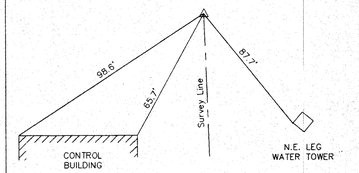
MANHOLE DETAILS

N.T.S.

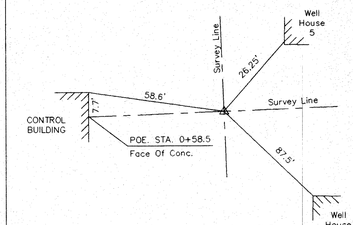


YARD PIPING

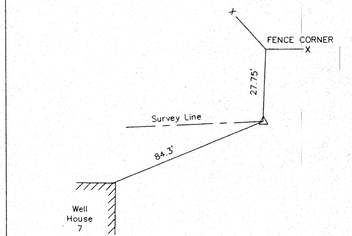
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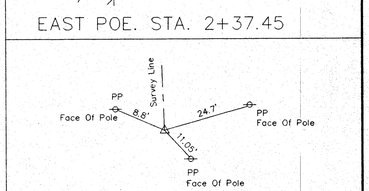
NORTH POE. STA. 1+63.0



CENTER POB. STA. 0+00



EAST POE. STA. 2+37.45



SOUTH POE. STA. 1+27.60

BASELINE SURVEY WITNESSES

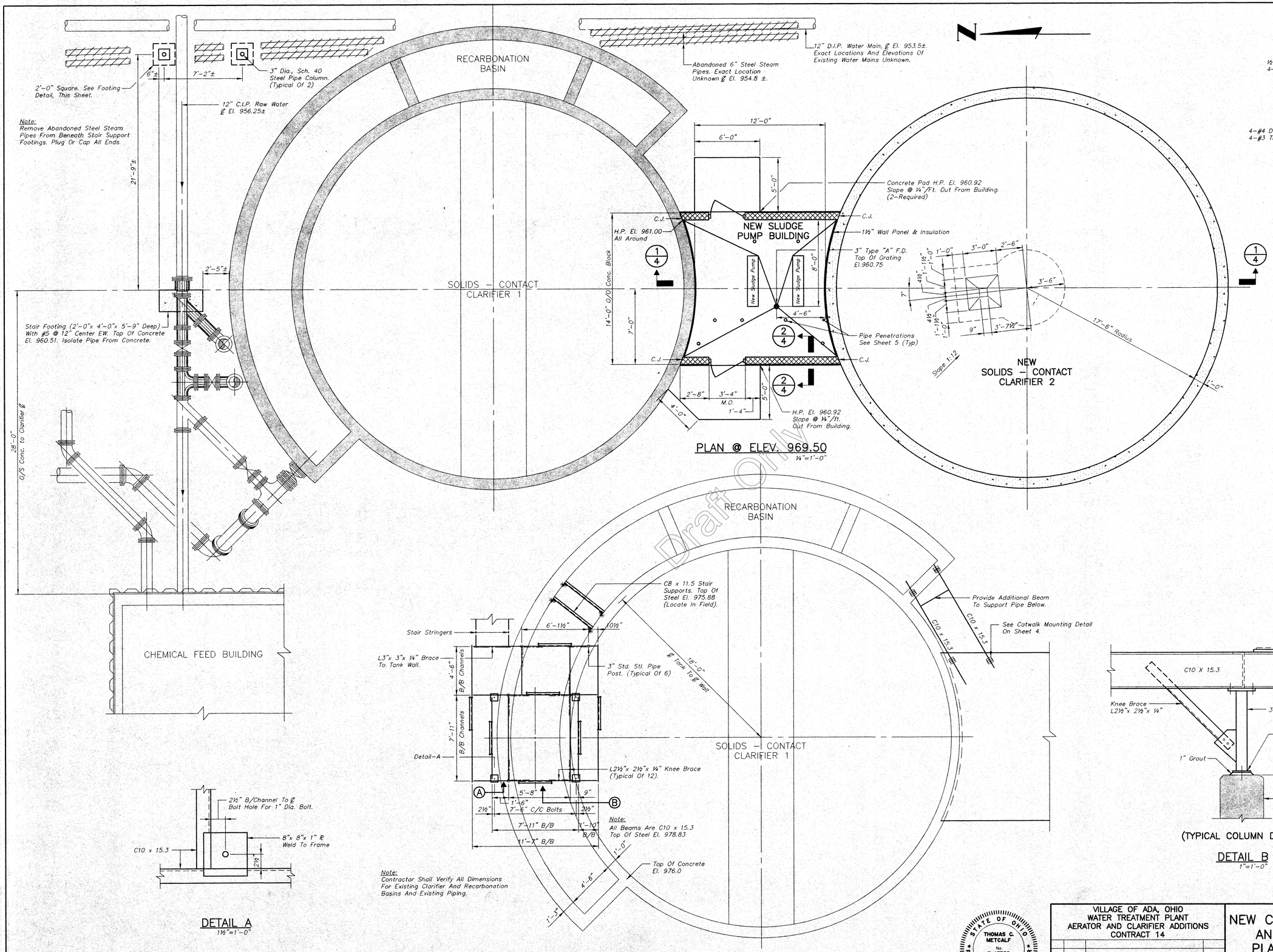
LEGEND

- Abandoned Lines & Structures
- D — Drain
- E — Electrical
- S — Sanitary
- ST — Storm
- SL — Sludge
- RW — Raw Water
- PW — Process Water
- W — Water Mains (Finished Water)
- — Survey Line
- G — Gas Line

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT AERATOR AND CLARIFIER ADDITIONS CONTRACT 14				SITE PLAN – YARD PIPING	
NO.	DATE	REVISIONS	BY	JOB NO. 014-4047	SHEET NO. 2
SCALE AS NOTED	DESIGN-LAYOUT G.L.W.	DRAWN A.R.B.	CHECKED T.C.M.	DATE MARCH 1995	Jones & Henry Engineers, Inc.

TO2-4047SITE
03/01/95 07-12



Draft Only

THOMAS C. METCALF No. E-47328 REGISTERED PROFESSIONAL ENGINEER STATE OF OHIO

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT
AERATOR AND CLARIFIER ADDITIONS
CONTRACT 14

NEW CLARIFIER, SLUDGE PUMP BLDG. AND AERATOR – STRUCTURAL PLANS, SECTIONS AND DETAILS

NO.	DATE	REVISIONS	BY

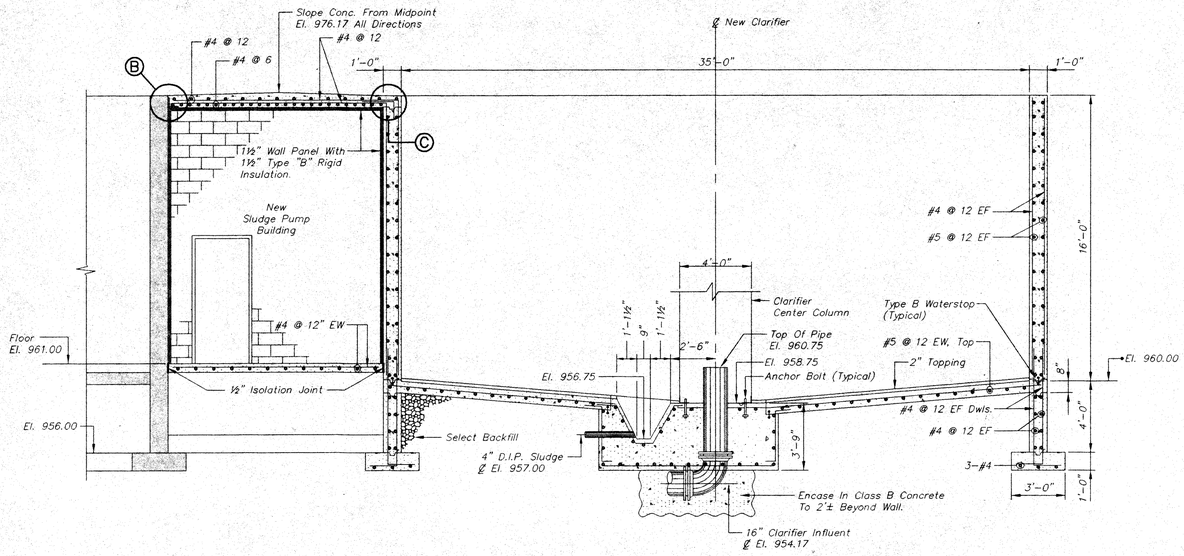
SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
AS NOTED	D.A.R./G.L.W.	A.R.B.	T.C.M.

JOB NO. 014–4047
DATE MARCH 1995

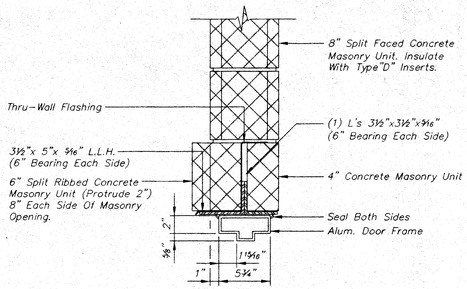
Jones & Henry Engineers, Inc.

SHEET NO. 3 OF 15

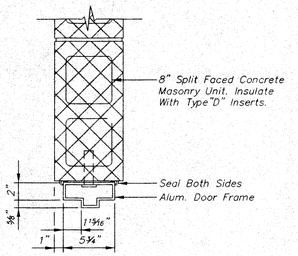
TOL–4047A501
02/28/95 07–12



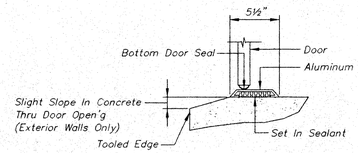
SECTION 1/3
¼"=1'-0"



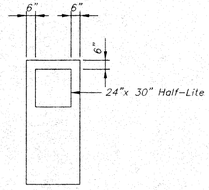
HEAD



JAMB

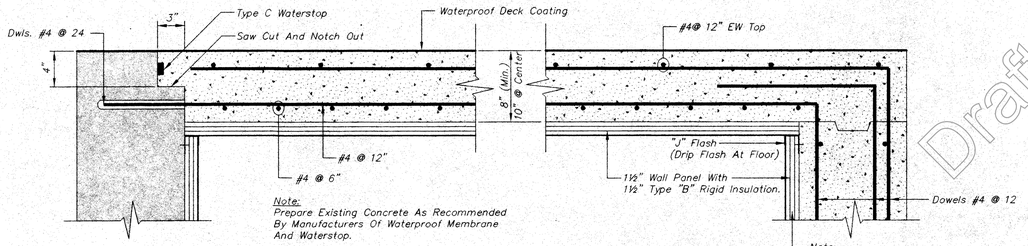


THRESHOLD



DOOR TYPE
(2 - Required)

DOOR DETAILS
N.T.S.

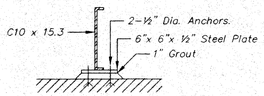


Note:
Prepare Existing Concrete As Recommended By Manufacturers Of Waterproof Membrane And Waterstop.

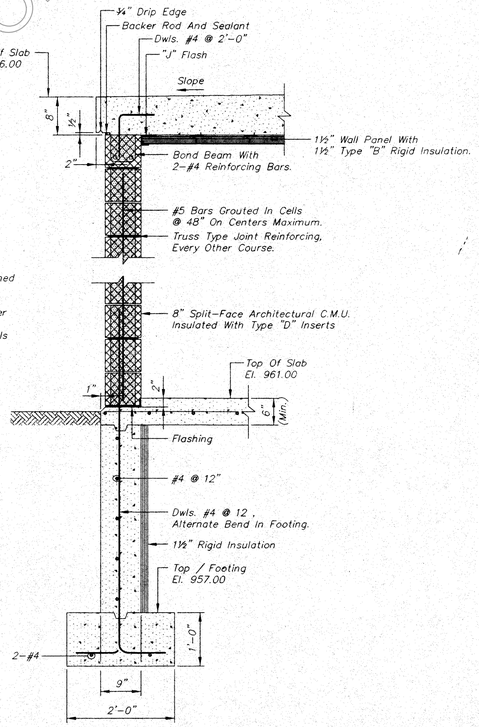
DETAIL B
1½"=1'-0"

DETAIL C
1½"=1'-0"

Note:
Wall Panels And Trim Shall Be 22 Gauge (Min.) Steel. Panels Shall Lay 12" C/C And Be 1½" Deep. Panels Shall Have A Concealed Fastener System. Panel And Trim Flashing Shall Be Attached To Concrete With Tapcon Fasteners At 24" C/C. Panel And Trim Shall Be Hot Dip Galvanized With The Exposed Surfaces Coated With 0.3 Mil. Primer And Epoxy Base Coat. Final Color Coat Shall Be Versacor PF. Color Selected By Owner. Wall Panels Shall Be As Manufactured By H.H. Robertson Co. IW-10A Or Equal.



CATWALK MOUNTING DETAIL
1"=1'-0"



SECTION 2/3
¼"=1'-0"

Draft Only

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT
AERATOR AND CLARIFIER ADDITIONS
CONTRACT 14

NEW CLARIFIER, SLUDGE PUMP BLD'G. AND AERATOR - STRUCTURAL - SECTIONS AND DETAILS

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
AS NOTED	D.A.R./G.L.W.	A.R.B.	T.C.M.

JOB NO. 014-4047
DATE MARCH 1995

Jones & Henry Engineers, Inc.

SHEET NO. 4 OF 15

TO1-40417502
02-28-96 07-12

Abandoned 6" Steel Steam Pipes. Exact Location Unknown ℄ El. 954.8 ±. Remove From Beneath Stair Support Footings. Plug Or Cap All Ends.

Note: Location Of Existing Piping Is Approximate. Contractor Shall Locate Existing Pipe And Submit New Piping Layout For Approval.

12" C.I.P. Raw Water ℄ El. 956.25±

New 12" Cutting In Sleeve.

Top Of Concrete El. 960.51

New 12" Wye

Remove Section Of Pipe As Required.

New 12" Plug Valve. (Typical Of 2).

New 12" Tee (Typical Of 2).

12" C.I.P. Waste Washwater Drain

Remove 4" Plug Valve

Remove 4" Gate Valve & 2" Hose Connection

Abandon 4" Sludge Line

Remove Plug Valve Drain

VALVE CHAMBER – REMOVAL PLAN @ EL. 954.00

¼"=1'-0"

Reduced Pressure Principle Backflow Preventer

2" Tee For NPW Supply Below

Manhole

Install New 2" Bronze Ball Valve @ El. 963.0±

2" Sch. 80 P.V.C. NPW ℄ El. 963.59±

New 2" Sch. 80 P.V.C. Tee For NPW Supply Pipe To New Sludge Pump Building.

2" Truck Fill Hose

VALVE CHAMBER PLAN @ EL. 961.00

¼"=1'-0"

SUMP

RECARBONATION BASIN

SOLIDS – CONTACT CLARIFIER 1

NEW SLUDGE PUMP BUILDING

Sludge Pumps Furnished By Owner. Contractor Shall Coordinate Laying Length And Concrete Base Dimensions With Owner.

Sill Cock

New 3" D.I.P. Tee With 2" Reducing Flange.

Sludge Pump 2

Sludge Pump 1

¾" Sch. 80 P.V.C. NPW ℄ El. 973.50

¾" Hose Bibb 25' Hose & Wall Rack

2" Vent, ℄ El. 974.00

¾" Sch. 80 P.V.C. NPW To Sample Sink Core Holes And Install.

Type "C" Wall Sleeve For ¾" Sch. 80 P.V.C. Sample Pipes. (Typical Of 4)

Sample Sink

New 10" C.I.P. Water Main ℄ El. 953.5±.

New 4" ASTM-2241, P.V.C. Pipe To Sludge Lagoons. Slope To Existing C.I.P. Sludge Pipe At New Manhole.

12" D.I.P. Water Main ℄ El. 953.5±.

Exact Locations And Elevations Of Existing Water Mains Unknown.

MJ, 45° Bend

MJ, Wye

New 4" P.V.C. Sludge Pipe

MJ, 45° Bend

New 4" D.I.P. Sludge Pipe ℄ El. 957.38

D.I.P. P.V.C. 5'-0"

New Instrument Tap (By Owner)

2" Sch. 80 P.V.C. NPW ℄ El. 973.50

New Concrete Bases

New 4" D.I.P. Sludge Pipe ℄ El. 957.00

Type "A" Wall Pipe

4'-0" 2'-6" 9'-2" 6'-0"±

3" Type "D" F.D.

P-5 P-6 P-7

C.O.

3" D.I.P. Tee W/ 2" Red. Flange

MJ, 45° Bend Rotate Up

2'-0"

P.V.C.

New 4" P.V.C. ℄ El. 955.75

NEW SOLIDS – CONTACT CLARIFIER 2

4'-0" Dia. Center Column Draft Tube

2" Sch. 80 P.V.C. NPW

2" Vent, 4" Vent Thru Roof

¾" Sch. 80 P.V.C. Sample Pipes

¾" Sch. 80 P.V.C. NPW To Sample Sink

Sample Piping Insert. See Detail On Sheet 9.

Sample Sink

Note: Scraping Mechanism And Cone Not Shown For Clarity.

Flg x PE Type "A" Wall Pipe

P-9

New 4" Plug Valve ℄ El. 965.00

New 3" Drain ℄ El. 957.50 Slope To San. Wye @ 6" Sewer

New 2" Sch. 80 P.V.C., NPW Supply Line

VALVE CHAMBER @ Fl. El. 954.00

Recarbonation Drain

New MJ Plug

New Blind Flange

4" Sludge Line

New Sch. 80 P.V.C. NPW From Exist. 2" Gate Valve To Reducing Flange. Provide 2" Union 18"± Above Flange.

New 4" D.I.P. Tee With 2" Reducing Flange.

D.I.P. P.V.C.

P-8

℄ El. 956.33±

Core Holes And Install Type "C" Wall Sleeve.

℄ El. 954.50

New 12" D.I.P. Overflow Pipe

New Fabricated Aluminum Overflow Box. See Detail On Sheet 11.

90° Bend

New 12" D.I.P. Raw Water ℄ El. 970.17

New Rapid Mix Impeller

New Fabricated Aluminum Flow Splitting Box. See Detail On Sheet 11.

Clarifier Influent ℄ El. 973.08

New 12" Coupling

B-2 B-3 B-4

New Butterfly Valves

New 16" D.I.P. Clarifier Influent ℄ El. 954.17

6" Sewer ℄ El. 955.25±

New Sanitary Wye

Backwash Water Recycle Influent

New Aluminum Baffle See Detail On Sheet 11.

12" D.I.P. New Clarifier Influent ℄ El. 973.08

90° Bend Rotate 45°

45° Bend

Up

Sample Tap

Rapid Mix Drain

Dn

Floor El. 966.00

12" x 16" Eccentric Reducer

Cut Neat Opening In Wall For New 12" D.I.P. Flash & Caulk Building Wall As Required.

Relocate Ferric Chloride Feed. Install New Corp Stop, Diffuser And Clear P.V.C. Tubing From Feed Pump To New Corp Stop.

Rotate 4" Gate Valve 180°

CHEMICAL FEED BUILDING

Floor El. 961.00

Remove 12" C.I.P. Raw Water

Remove Spool Piece And Pipe Section.

Remove Cast Coupling

Remove 12" MJ Plug

Remove 12" MJ Plug

RAPID MIX BASIN

Up

Dn

REMOVAL PLAN @ EL. 966.00

¼"=1'-0"

Proof Only

STATE OF OHIO THOMAS C. METCALF No. E-47328 REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT AERATOR AND CLARIFIER ADDITIONS CONTRACT 14				
NO.	DATE	REVISIONS		BY
SCALE 1/4"=1'-0"	DESIGN-LAYOUT G.L.W.	DRAWN A.R.B.	CHECKED T.C.M.	

NEW CLARIFIER, SLUDGE PUMP BLDG. AERATOR & CHEMICAL FEED BLDG. PIPING AND EQUIPMENT SECTIONAL PLANS

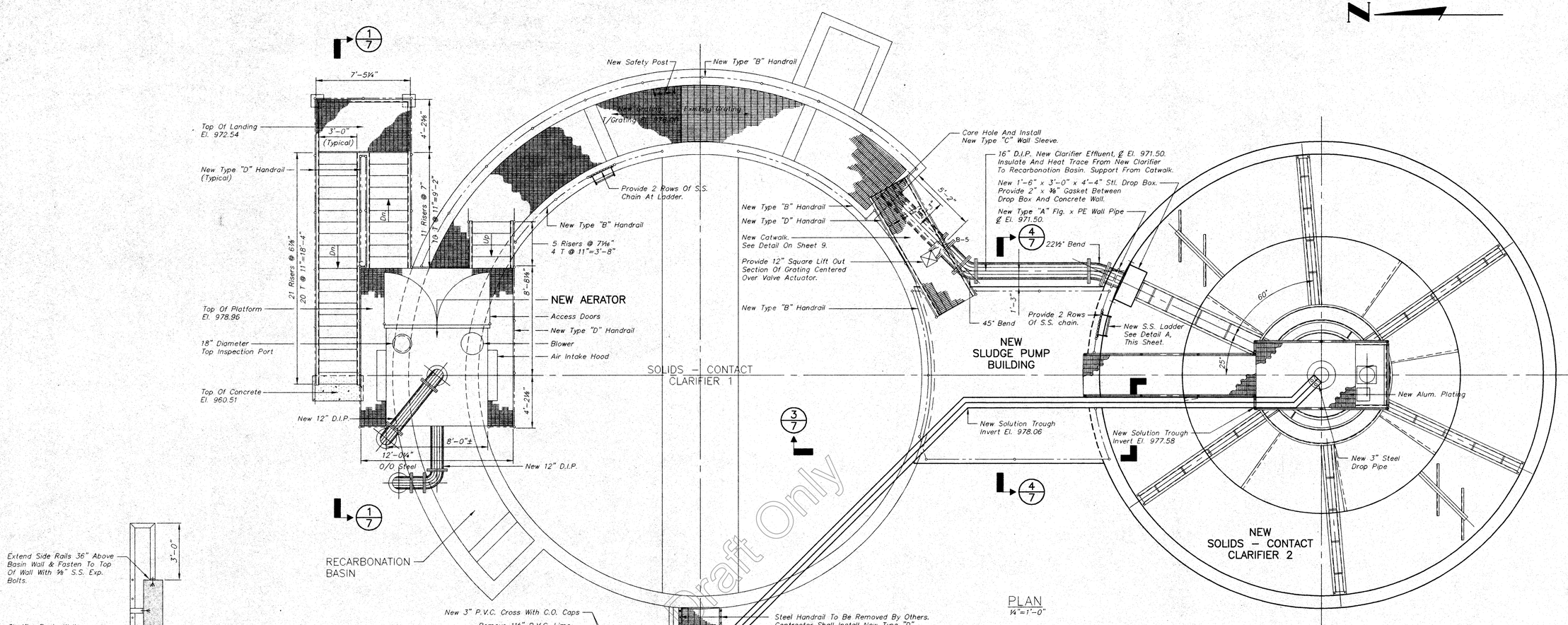
JOB NO. 014-4047

DATE MARCH 1995

Jones & Henry Engineers, Inc.

SHEET NO. 5 of 15

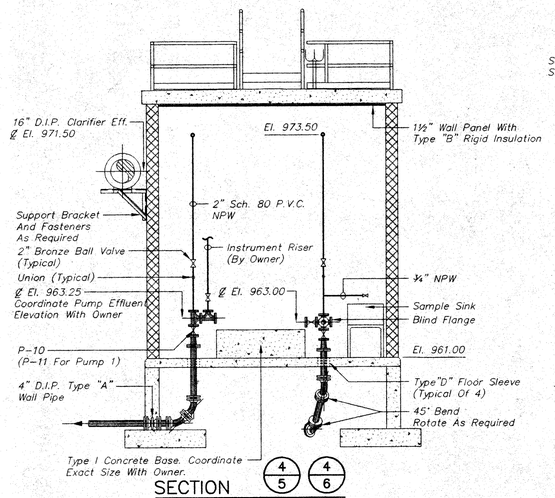
TOH-4047E01 02/28/96 07-12



STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED PROFESSIONAL ENGINEER

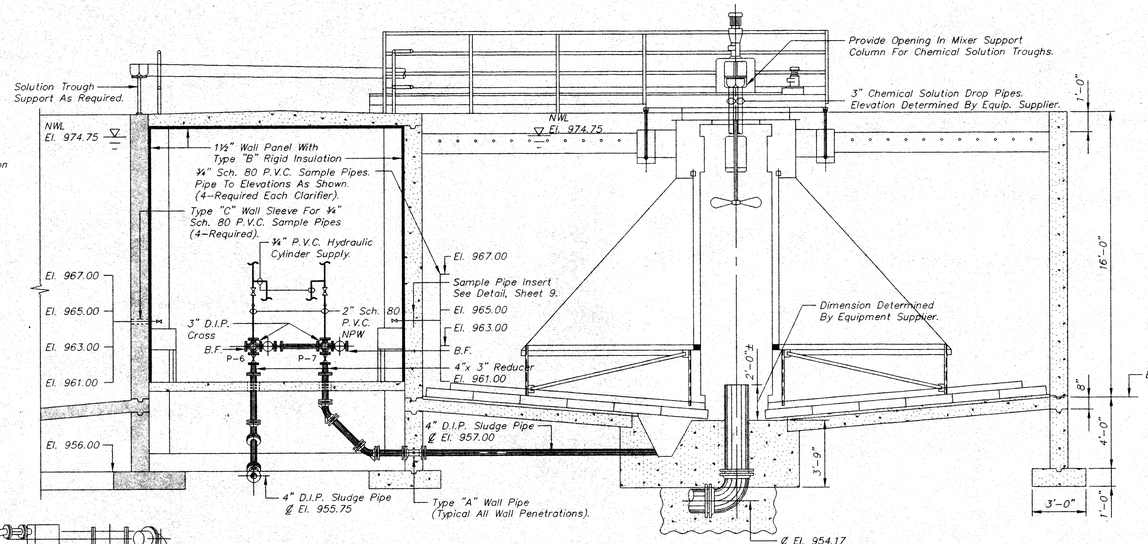
VILLAGE OF ADA, OHIO WATER TREATMENT PLANT AERATOR AND CLARIFIER ADDITIONS CONTRACT 14				NEW CLARIFIER, SLUDGE PUMP BLDG., AERATOR AND CHEMICAL FEED BLDG. PIPING AND EQUIPMENT PLAN AND DETAILS	
NO.	DATE	REVISIONS	BY	JOB NO. 014-4047	SHEET NO. 6
SCALE AS NOTED	DESIGN-LAYOUT G.L.W.	DRAWN A.R.B.	CHECKED T.C.M.	DATE MARCH 1995	Jones & Henry Engineers, Inc. OF 15

TOL-4047E03
02/28/95 07-12



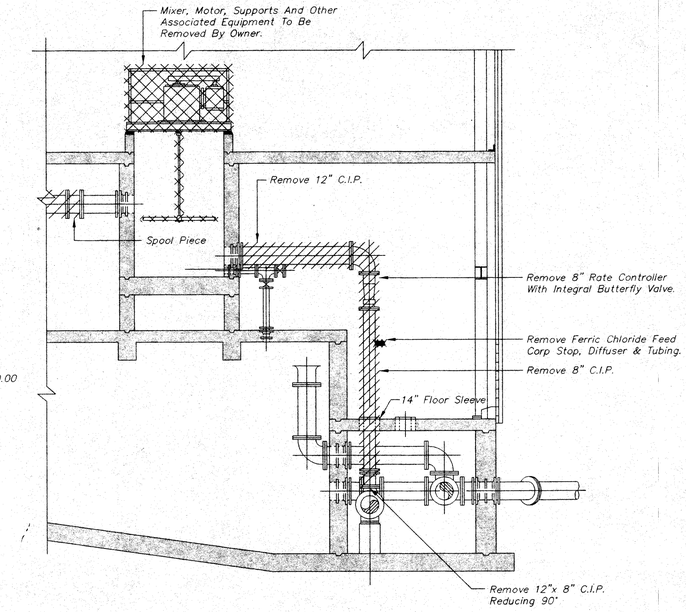
SECTION 4/5 4/6

¼"=1'-0"



SECTION 3/5 3/6

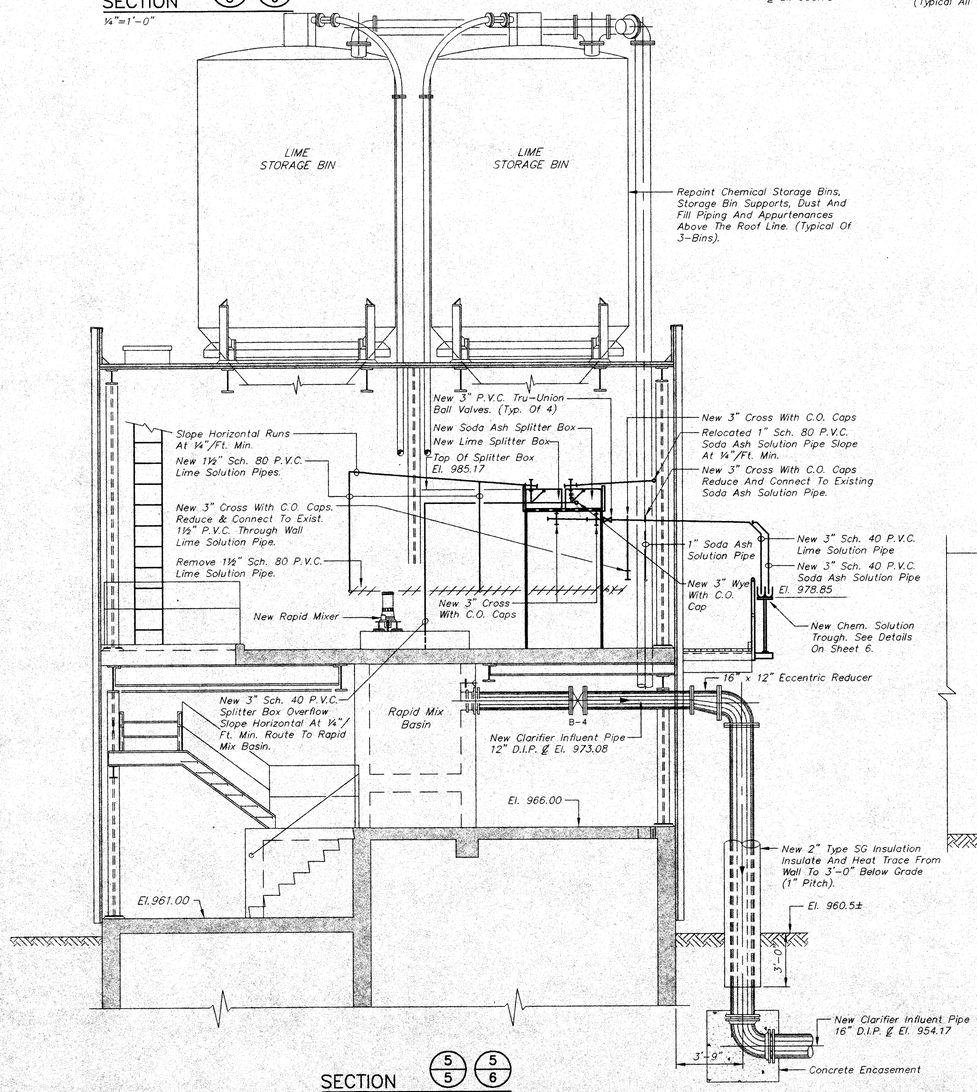
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REMOVAL

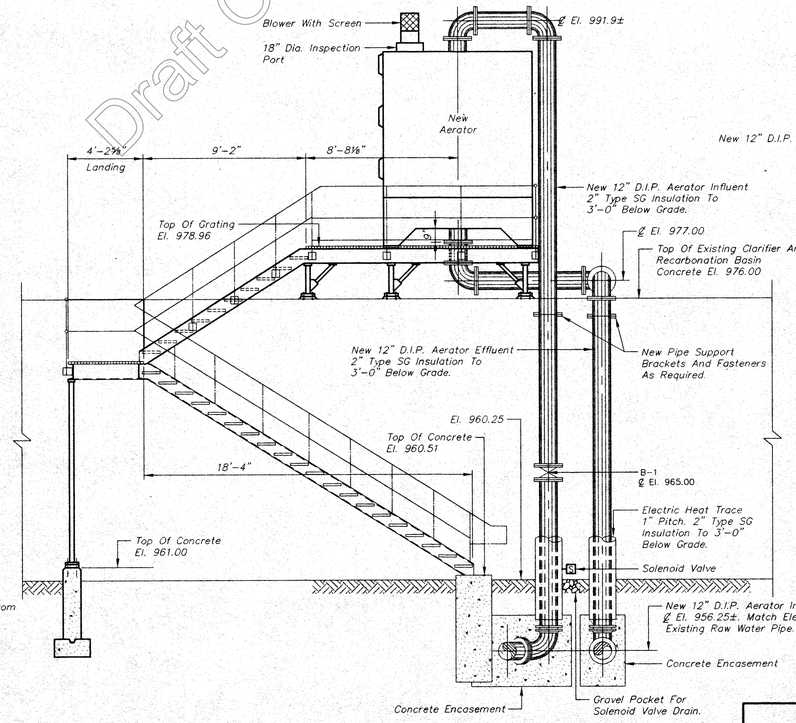
SECTION 2/5

¼"=1'-0"



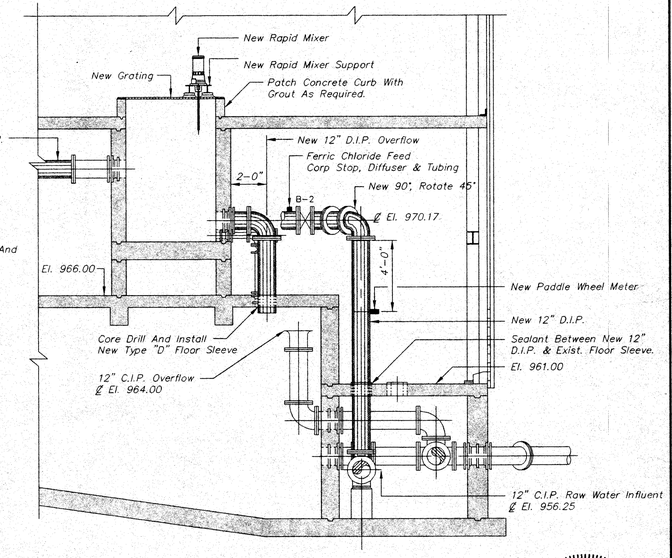
SECTION 5/5 5/6

¼"=1'-0"



SECTION 1/5 1/6

¼"=1'-0"



NEW WORK

SECTION 2/5

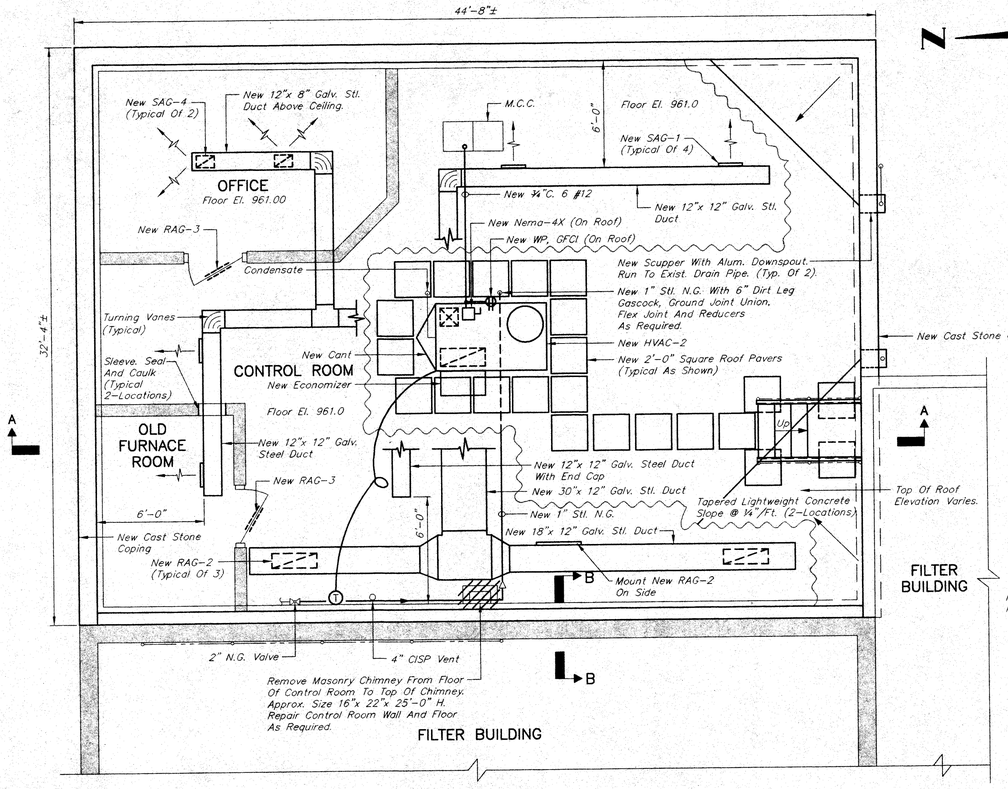
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STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

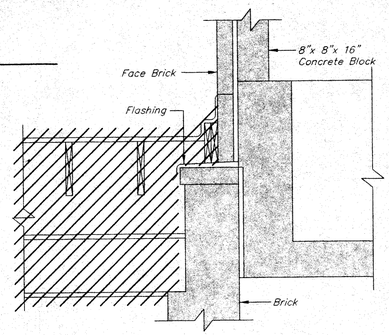
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VILLAGE OF ADA, OHIO WATER TREATMENT PLANT AERATOR AND CLARIFIER ADDITIONS CONTRACT 14					NEW CLARIFIER, SLUDGE PUMP BLDG., AERATOR & CHEMICAL FEED BLDG. PIPING AND EQUIPMENT SECTIONS AND DETAILS	
NO.	DATE	REVISIONS		BY	JOB NO. 014-4047	SHEET NO. 7
SCALE 1/4"=1'-0"	DESIGN-LAYOUT G.L.W.	DRAWN A.R.B.	CHECKED T.C.M.	DATE MARCH 1995	Jones & Henry Engineers, Inc.	OF 15

TOL-4047PE02
03/01/95 07-12

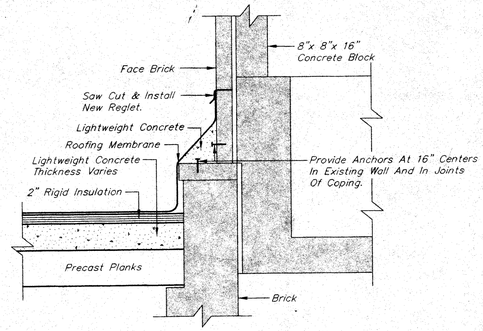


ROOF PLAN
¼"=1'-0"



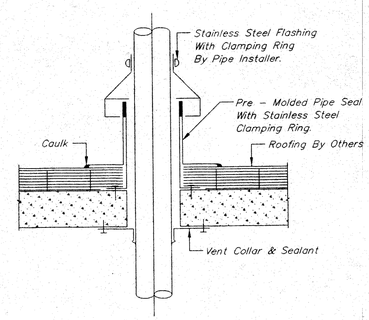
REMOVAL

SECTION B-B
¼"=1'-0"

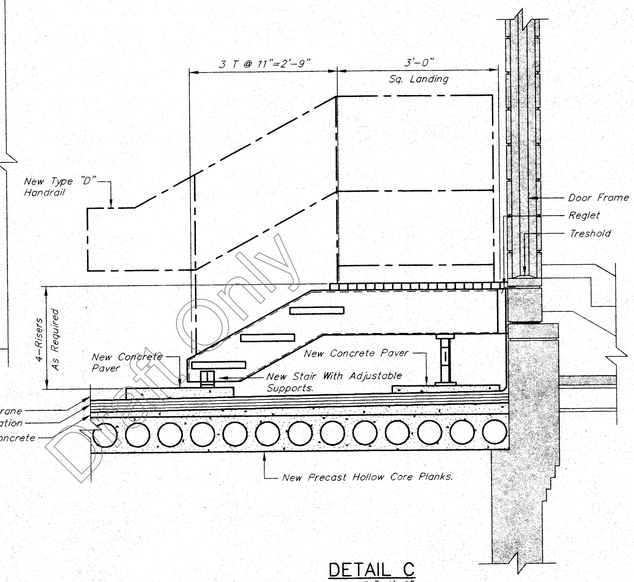


NEW

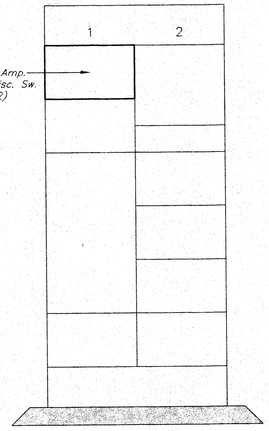
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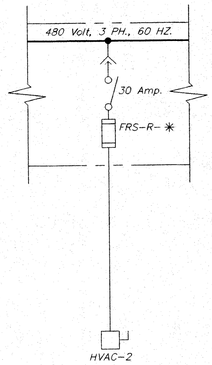
VENT PIPE DETAIL
Pipe & Conduit Similar (Metal Sleeve Not Required)



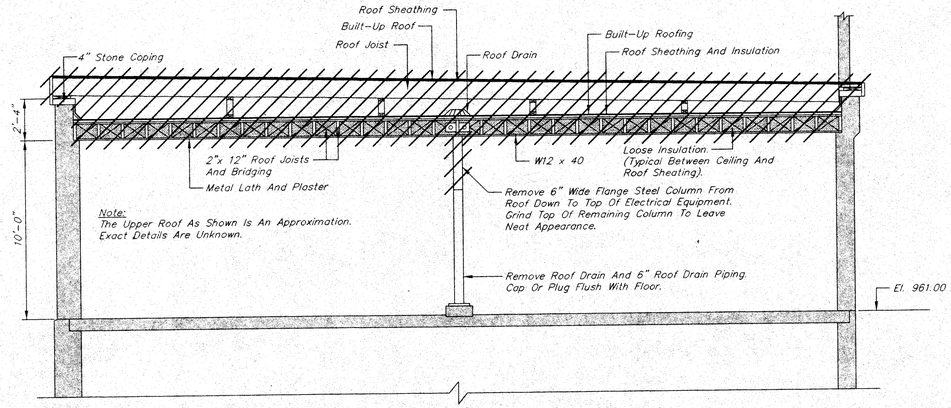
DETAIL C
¼"=1'-0"



CONTROL BLDG. - M.C.C.
FRONT ELEVATION
N.T.S.

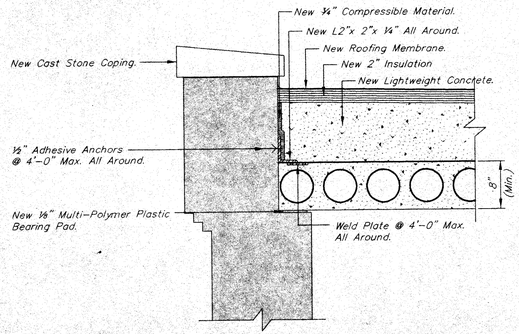


CONTROL BLDG. - M.C.C.
PARTIAL SINGLE LINE DIA.
N.T.S.
✳ - Fuse Size Per HVAC Manufacturer's Recommendations.

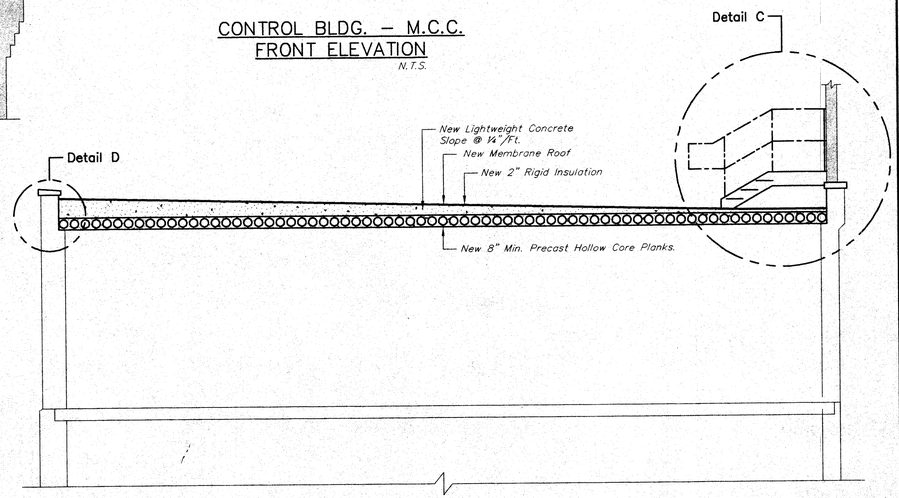


REMOVAL

SECTION A-A
¼"=1'-0"



DETAIL D
1"=1'-0"



NEW

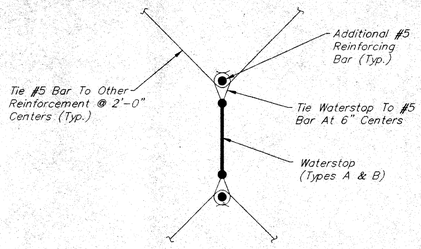
SECTION A-A
¼"=1'-0"

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT AERATOR AND CLARIFIER ADDITIONS CONTRACT 14					CONTROL BUILDING ROOF PLANS, SECTIONS AND DETAILS		
NO.	DATE	REVISIONS		BY			
SCALE AS NOTED	DESIGN-LAYOUT G.L.W.	DRAWN A.R.B.	CHECKED T.C.M.		JOB NO. 014-4047 DATE MARCH 1995	Jones & Henry Engineers, Inc.	SHEET NO. 8 of 15

Bid Only

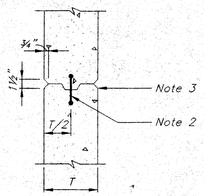
FOL-4617301
03/01/95 07-12



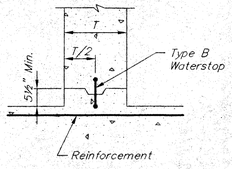
TYPICAL WATERSTOP DETAIL

Construction Joint Notes:

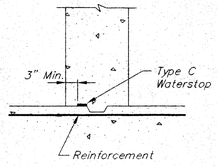
1. *Continue Reinforcement Through Joint*
2. *Type B Waterstop Where Shown Or Specified*
3. *¾" Deep x 1½" Rustication On Permanently Exposed Joints. Extend To 6" Below Grade On Vertical Joints. Omit Rustication On Interior Surfaces Of Liquid-Retaining Structures.*
4. *Place 2" Deep Bed Of Bonding Grout In Horizontal Joints.*



WALL

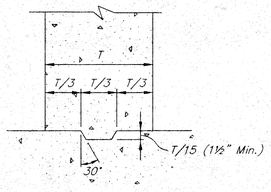


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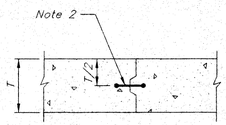


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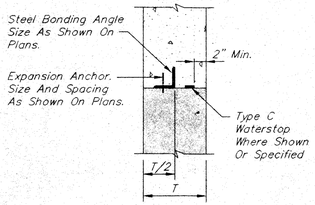
WATERTIGHT JOINT AT BASE OF WALL



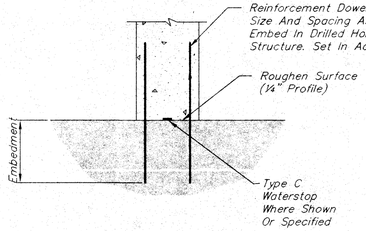
TYPICAL SHEAR KEY



SLAB



NEW TO EXISTING



NEW TO EXISTING

Bar Size	Minimum Embedment	Drilled Hole
#4	12"	⅝"
#5	15"	¾"
#6	18"	⅞"
#7	21"	1"
#8	24"	1⅛"
#9	27"	1⅜"

TYPICAL CONCRETE COVER

Concrete Cast Against And Permanently Exposed To Earth	3"
Surface Exposed To Earth Or Weather	2"
Surface Exposed To Or Over Water, Sewage, Or Other Liquids	
Slabs, Walls, Joists	2"
Beams, Columns Primary Reinforcement:	2½"
Stirrups And Ties:	2"
Other Surfaces	
Slabs, Walls, Joists	¾"
Beams, Columns Primary Reinforcement:	2"
Stirrups And Ties:	1½"

LAP SPLICE LENGTH (IN.) *Unless Shown Otherwise*

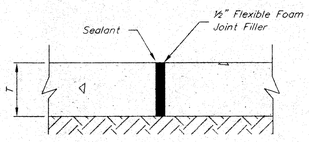
Bar Size	Top Reinforcement	Bottom Reinforcement
#3	18	16
#4	24	19
#5	30	23
#6	36	28
#7	42	33
#8	48	37
#9	90	69
#10	114	88
#11	140	108

Top Reinforcement Is Defined As Horizontal Reinforcement With More Than 12" Of Fresh Concrete Cast Beneath The Bar. Horizontal Bars In Walls Shall Be Considered As Top Reinforcement.

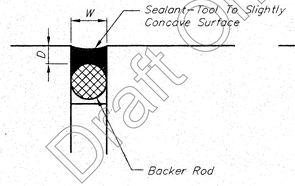
STRUCTURAL DESIGN DATA

Building Code	*1992 Ohio Basic Building Code*	
Seismic	*Seismic Zone*	*Z = 1*
	Acceleration Coefficient	*Av = 0.075*
	Importance Factor	*I = 1.5*
	Soil Factor	*S = 1.5*
Wind	*Basic Wind Speed*	*V = 80 MPH*
	Exposure	*C*
	Importance Factor	*I = 1.07*
Snow	*Ground Snow Load*	*Pg = 30 PSF*
	Snow Exposure Factor	*Ce = 0.9*
	Importance Factor	*I = 1.2*
Floor	*Live Load (As Shown)*	*100 PSF Min.*
	Mechanical & Electrical	*= 20 PSF*
	Partitions	*= 60 PSF*
Roof	*Live Load*	*= 85 PSF*
	Snow Load (See Above)	
	Mechanical & Electrical	*= 10 PSF*
	Roofing System	*= 15 PSF*
	Lightweight Insulating Concrete	*= 5 To 30 PSF*
Stairs	*Live Load*	*= 100 PSF*
Corridors	*Live Load*	*= 100 PSF*
Equipment Platforms	*Live Load (As Shown)*	*= 100 PSF Min.*
Bearing Capacity	*Presumed Bearing Capacity At 5' Ft. Below Grade*	*= 2000 PSF*

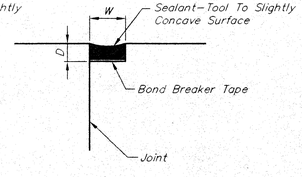
TYPICAL CONSTRUCTION JOINT DETAILS



ISOLATION JOINT



STANDARD



SHALLOW

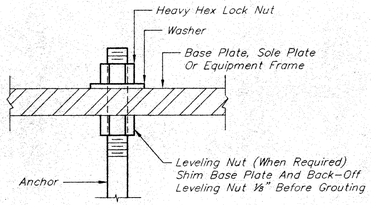
Typical Sealant Notes:

1. *Joint Width (W) As Shown On Plans*

W ≤ ½"	D = ¼"
W = ¾"	D = ⅜"
W ≥ 1"	D = ½"

2. *Blunt Sharp Edges Of Concrete Joints With Grinder Before Sealing.*

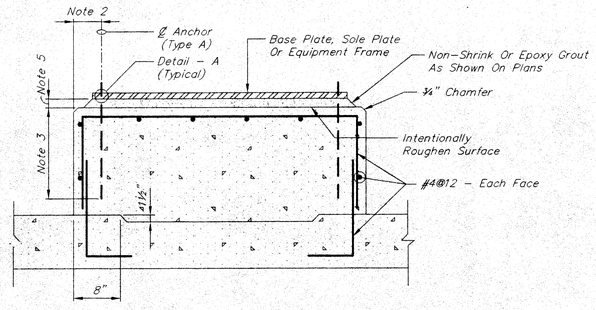
TYPICAL SEALANT DETAILS



DETAIL A

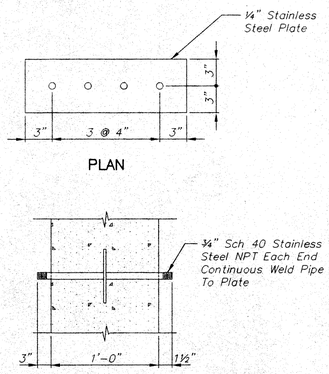
Equipment Base Notes:

1. *Base Dimensions As Shown On Plans. Modify To Suit Equipment Furnished.*
2. *Minimum Anchor Edge Distance - See Anchor Details*
3. *Minimum Anchor Embedment - See Anchor Details. Anchor May Extend Into Or Through Floor Slab*
4. *Anchors As Specified By Equipment Manufacturer*
5. *1" Min. - 3" Max.*
6. *Minimum Anchor Size = ¾"*



TYPE I (ON NEW SLAB)

TYPICAL EQUIPMENT BASE DETAILS



PLAN

SECTION

SAMPLE PIPING INSERT

1½"=1'-0"

TYPICAL CAST-IN ANCHORS (TYPE A)

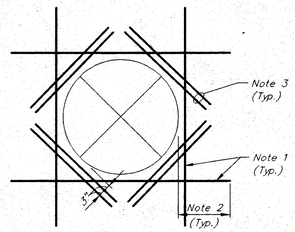
Anchor Diameter	Minimum Embedment (In)	Minimum Edge Distance (In)	Minimum Spacing (In)	Sleeve *
⅜"	6.0	3.5	4.5	
½"	7.5	4.5	6.0	
⅝"	9.5	4.5	7.5	
¾"	11.5	4.5	9.0	2" x 6"
⅞"	13.5	4.5	10.5	2" x 7"
1"	15.0	4.5	12.0	2" x 8"
1⅛"	17.0	4.5	13.5	2½" x 9"
1¼"	19.0	5.0	15.0	2½" x 10"
1½"	22.5	6.0	18.0	3" x 12"

* - *Sleeve Length May Be Increased If Anchor Embedment Is Increased By Same Amount.*

Reinforcement At Opening Notes:

1. *Additional Reinforcement Equal In Area To Reinforcement Cut By Opening.*
2. *Lap Splice Length For Top Bars.*
3. *Diagonal Bars - Each Face, 2 Each Corner - Size As Follows*

Conc. Thickness	Bar Size	Length
Less Than 12"	#4	3'-0"
12" To 18"	#5	3'-6"
Greater Than 18"	#6	4'-0"



CIRCULAR

TYPICAL ADDITIONAL REINFORCEMENT AT OPENINGS LARGER THAN 12"

Draft Only

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT
AERATOR AND CLARIFIER ADDITIONS
CONTRACT 14

MISCELLANEOUS DETAILS

NO.	DATE	REVISIONS	BY

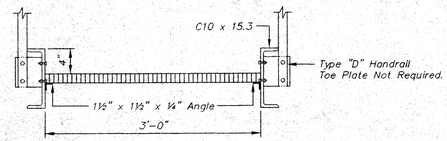
SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
AS NOTED	G.L.W.	A.R.B.	T.C.M.

JOB NO. 014-4047
DATE MARCH 1995

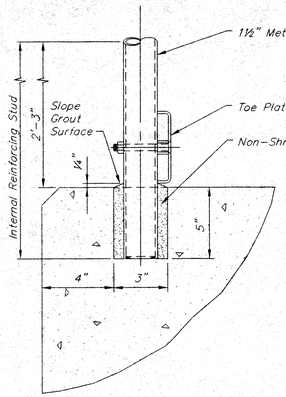
Jones & Henry Engineers, Inc.

SHEET NO. 9 OF 15

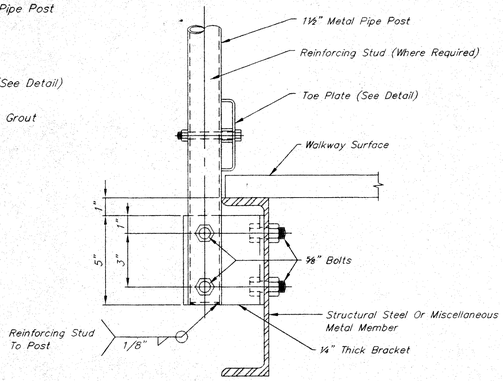
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CATWALK DETAIL
1"=1'-0"

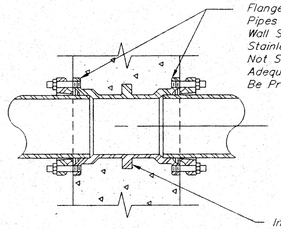


TYPE B RAILING



TYPE D

WALL PIPE

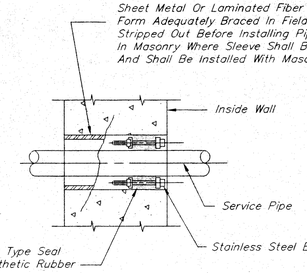


Note: Unless Shown Otherwise, Cast Iron Or Ductile Iron Wall Pipes Shall Be Used For 4" Diameter And Larger Piping.

Note: Joint Types Are Shown On Drawings.

TYPE A

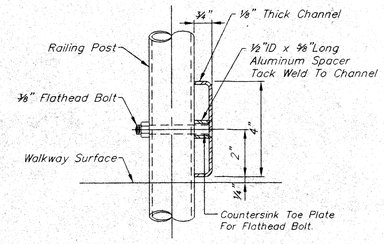
WALL PIPE



Note:
1. Walls Shall Be Core Drilled Where Shown And Elsewhere If Approved By The Engineer.
2. Concrete Shall Be Worked In And Vibrated To Eliminate All Voids In Concrete – If Voids Do Remain, Fill With Grout Before Installing Pipe And Rubber Seals.

TYPE C

PIPE SLEEVE



TOE PLATE DETAIL

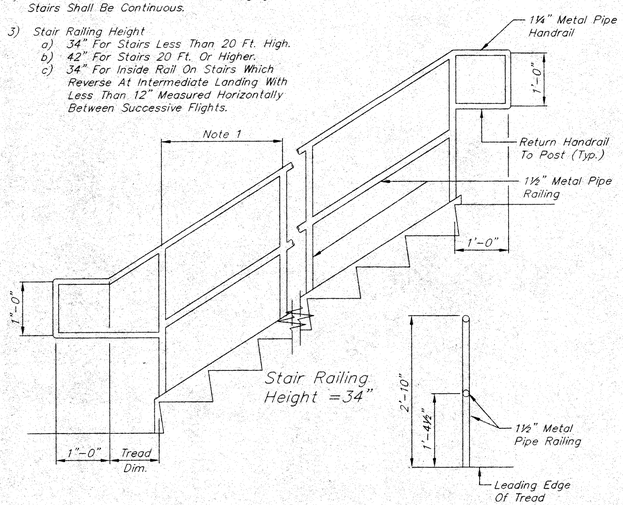
RAILING NOTES:

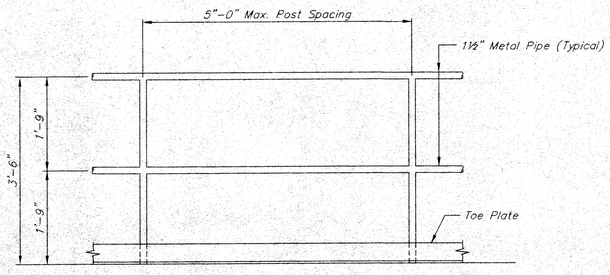
1) Max. Stair Railing Post Spacing

	H=34"	H=42"
Metal Stairs	2'-8"	2'-2"
Concrete Stairs	5'-0"	5'-0"

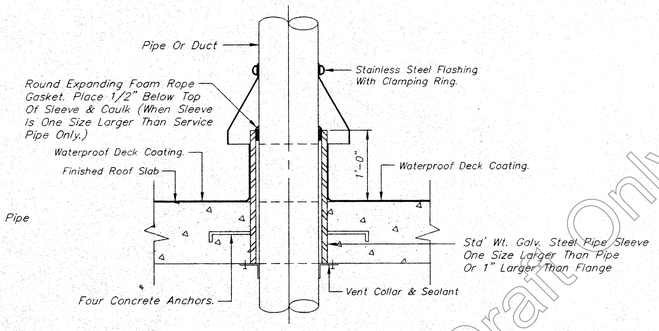
2) Inside Handrail On Switchback Or Dogleg Stairs Shall Be Continuous.

3) Stair Railing Height
   a) 34" For Stairs Less Than 20 Ft. High.
   b) 42" For Stairs 20 Ft. Or Higher.
   c) 34" For Inside Rail On Stairs Which Reverse At Intermediate Landing With Less Than 12" Measured Horizontally Between Successive Flights.





TYPICAL STANDARD RAILING
¾"=1'-0"

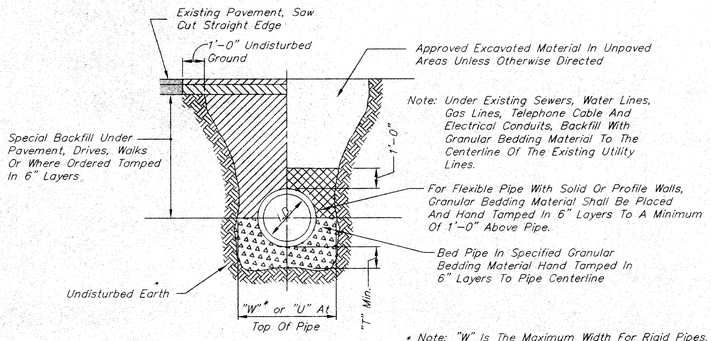


VENT PIPE DETAIL
CAST-IN PLACE ROOF

SIZE	"W"	"U"**	"T"
4"	2'-0"	2'-0"	4"
6"	2'-6"	2'-0"	4"
8"	2'-6"	2'-1"	4"
10"	2'-6"	2'-3"	4"
12"	2'-9"	2'-5"	4"
15"	3'-0"	2'-8"	5"
16"	3'-6"	3'-0"	5"

TRENCH SCHEDULE

** Table Is For ASTM D-3034, Wall Thickness Class SDR 35 For 6"-15" And ASTM F-679 Wall Thickness Class T-1 For 18"-36. For Other Flexible Pipes, Minimum Trench Width "U" Shall Meet Manufacturer's Requirements.



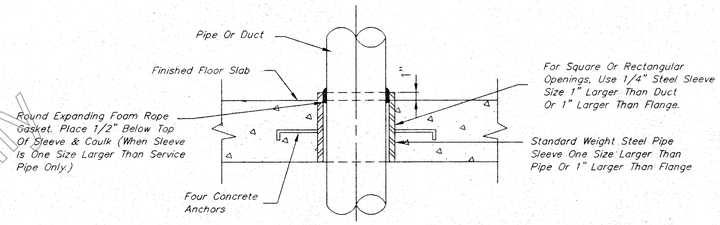
Note: Under Existing Sewers, Water Lines, Gas Lines, Telephone Cable And Electrical Conduits, Backfill With Granular Bedding Material To The Centerline Of The Existing Utility Lines.

For Flexible Pipe With Solid Or Profile Walls, Granular Bedding Material Shall Be Placed And Hand Tamped In 6" Layers To A Minimum Of 1'-0" Above Pipe.

Bed Pipe In Specified Granular Bedding Material Hand Tamped In 6" Layers To Pipe Centerline

* Note: "W" Is The Maximum Width For Rigid Pipes. "U" Is The Minimum Width For Flexible Pipes In Accordance With ASTM D-2321.

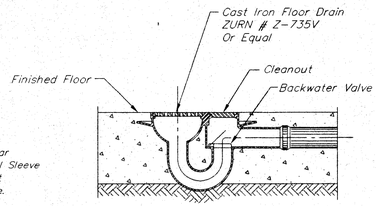
TRENCH DETAIL
NTS



Note:
Thru Existing Floors Where Type "D" Floor Sleeves Are Called Out, The Contractor Shall Core Floor And Caulk As Shown, Eliminating The Steel Sleeve.

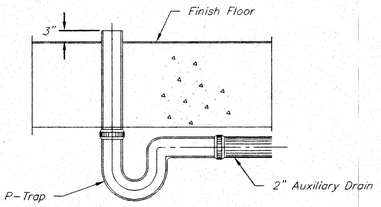
TYPE D

FLOOR SLEEVE

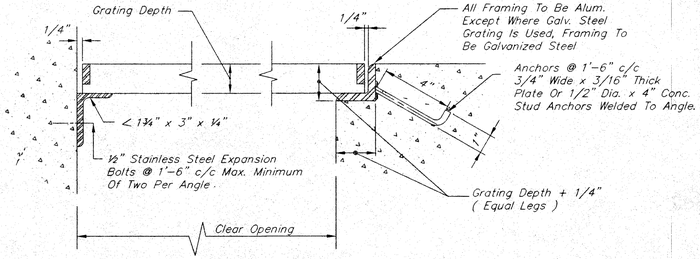


TYPE A

FLOOR DRAIN DETAIL
NTS



EQUIPMENT DRAIN DETAIL
NTS



TYPE B TYPE A

GRATING FRAMES

Note: Apply Bituminous Paint To All Aluminum Surfaces In Contact With Concrete

Draft Only

STATE OF OHIO
THOMAS C. NETCALF
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VILLAGE OF ADA, OHIO
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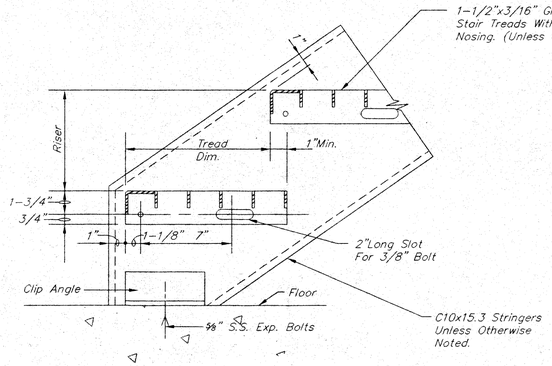
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Jones & Henry Engineers, Inc.

MISCELLANEOUS DETAILS

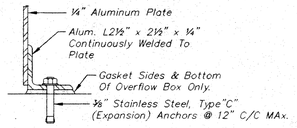
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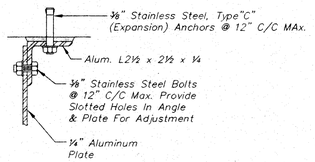


GRATING TREADS–METAL STAIR DETAILS

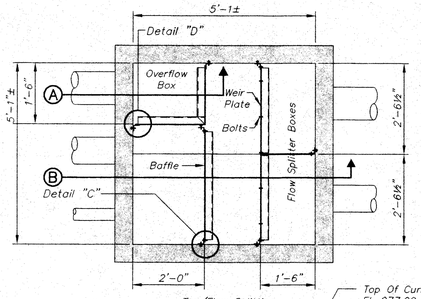
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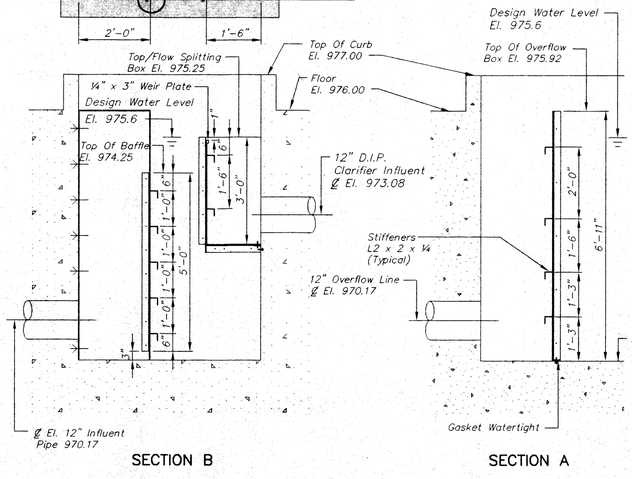


DETAIL D



DETAIL C



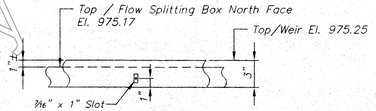


SECTION B

SECTION A

Notes:

1. Overflow Box, Baffle, Weir Plate And Splitter Boxes Shall Be Fabricated Of 6061–T6 Aluminum.
2. Attach Weir Plate To Flow Splitting Box With ⅛" Stainless Steel Bolts @ 12" C/C.

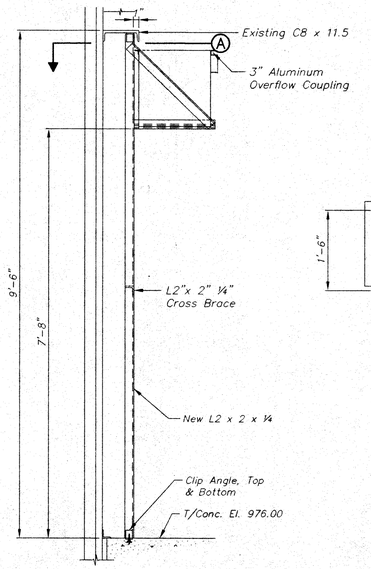


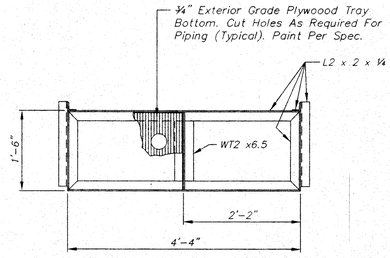
WEIR PLATE DETAIL

1½"=1'-0"

RAPID MIX DETAIL

½"=1'-0"



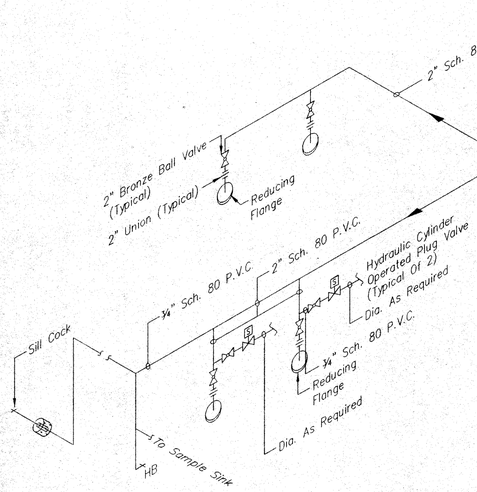


DETAIL A

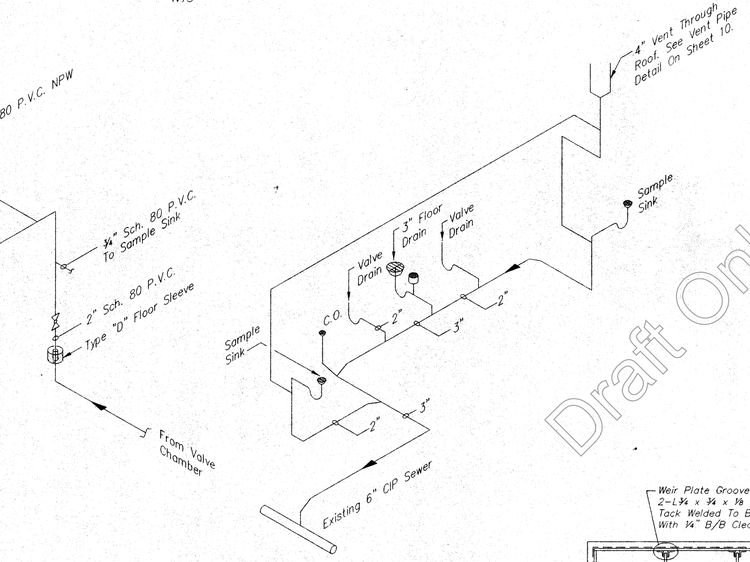
¾"=1'-0"

SPLITTER BOX MOUNTING DETAIL

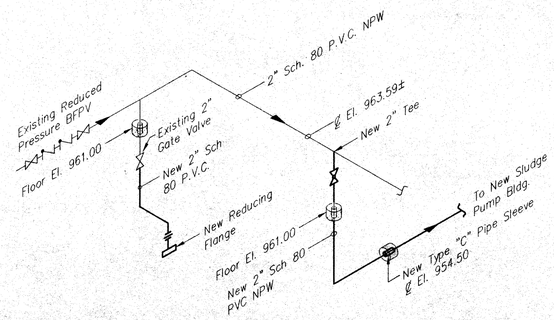
½"=1'-0"



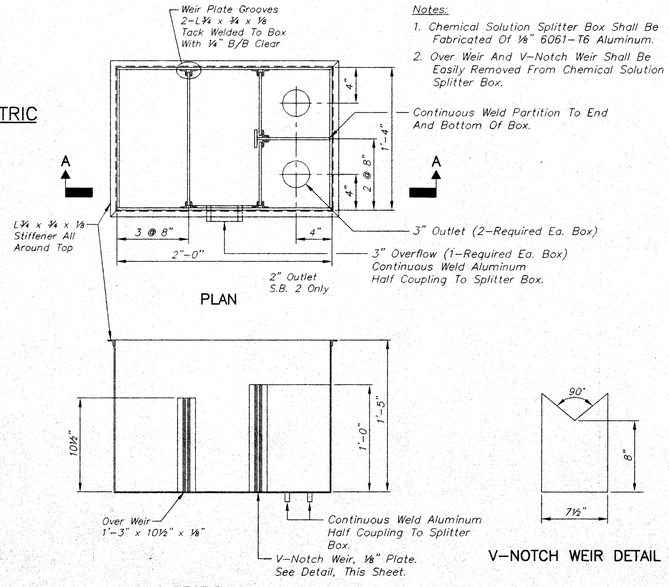
NEW SLUDGE PUMP BUILDING NPW ISOMETRIC



DRAIN ISOMETRIC



VALVE CHAMBER NPW ISOMETRIC



SECTION A–A

V–NOTCH WEIR DETAIL

Notes:

1. Chemical Solution Splitter Box Shall Be Fabricated Of ⅛" 6061–T6 Aluminum.
2. Over Weir And V–Notch Weir Shall Be Easily Removed From Chemical Solution Splitter Box.

CHEMICAL SOLUTION SPLITTER BOX DETAIL

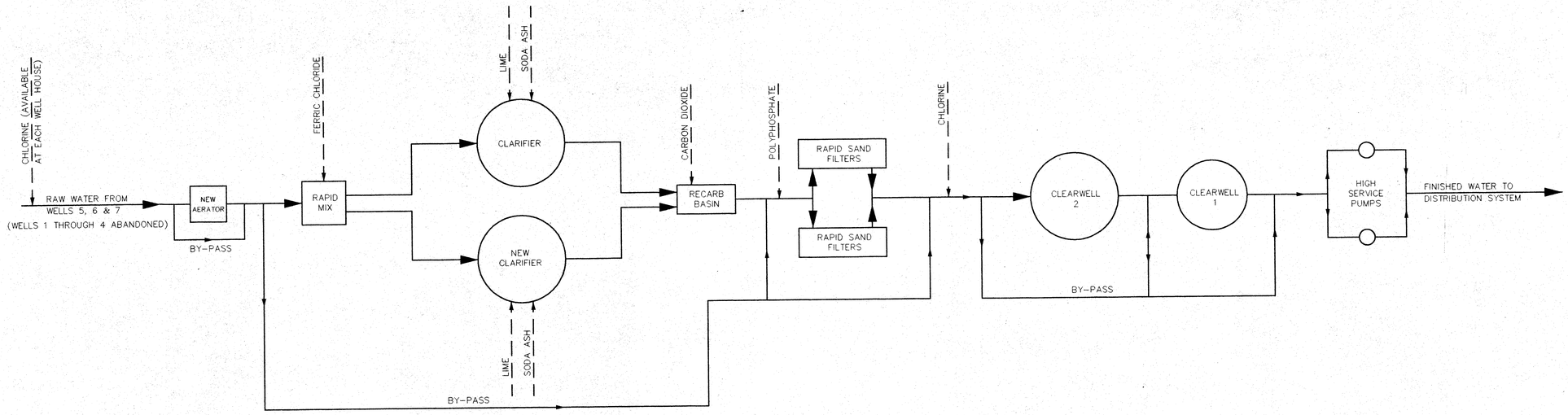
1½"=1'-0"

Draft Original Only

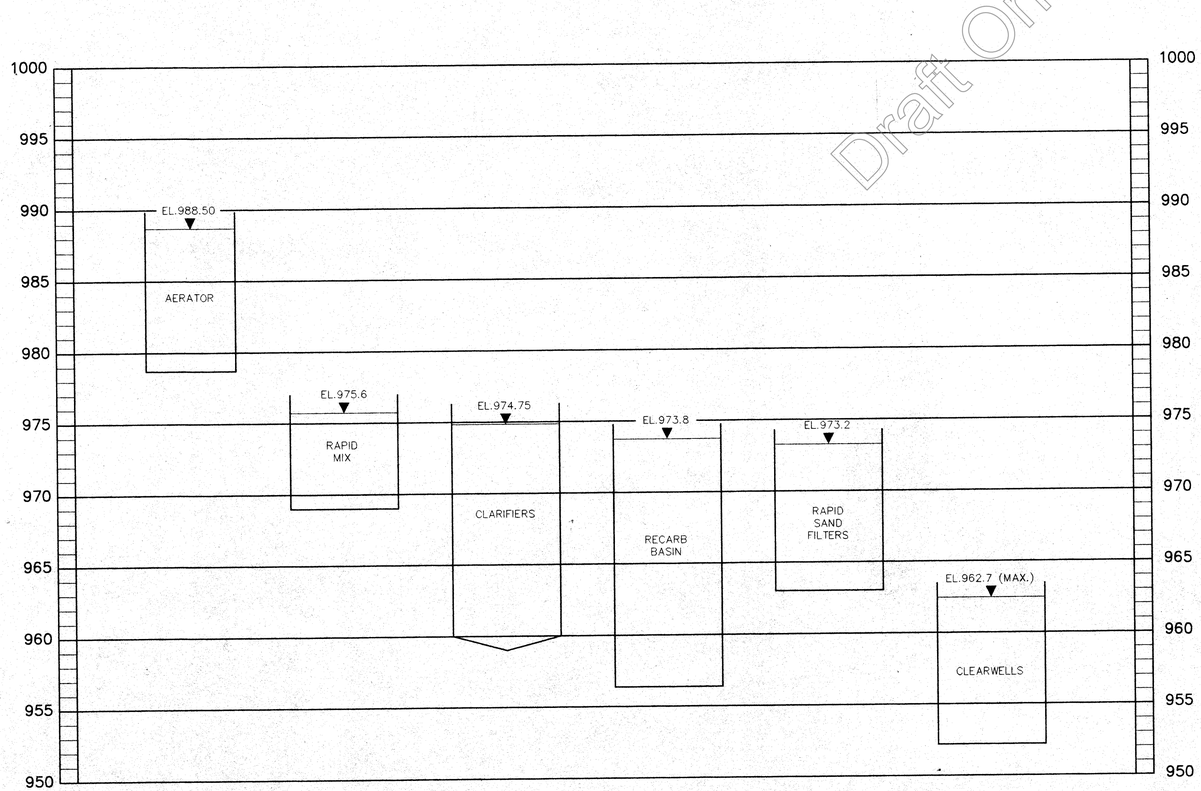
STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT AERATOR AND CLARIFIER ADDITIONS CONTRACT 14				MISCELLANEOUS DETAILS AND PIPING ISOMETRICS	
NO.	DATE	REVISIONS	BY	JOB NO. 014–4047	SHEET NO. 11
SCALE AS NOTED	DESIGN-LAYOUT G.L.W.	DRAWN A.R.B.	CHECKED T.C.M.	DATE MARCH 1995	Jones & Henry Engineers, Inc. OF 15

T01–4047M003
03/01/95 07–12



FLOW DIAGRAM



HYDRAULIC PROFILE

Draft Only

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT
AERATOR AND CLARIFIER ADDITIONS
CONTRACT 14

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
N.T.S.	G.L.W.	A.R.B.	G.L.W.

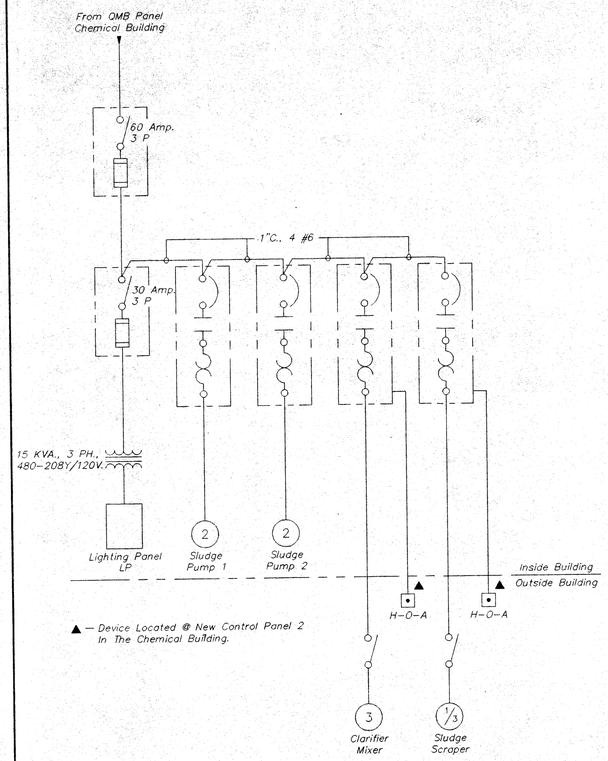
FLOW DIAGRAM & HYDRAULIC PROFILE

JOB NO. 014-4047
DATE MARCH 1995

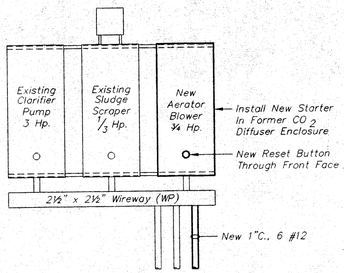
Jones & Henry Engineers, Inc.

SHEET NO. 12 OF 15

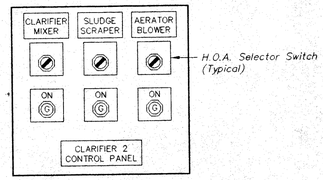
TOL-4047P01
03/01/95 07-12



NEW SLUDGE PUMP BUILDING SINGLE LINE DIAGRAM
(NEMA-4X)

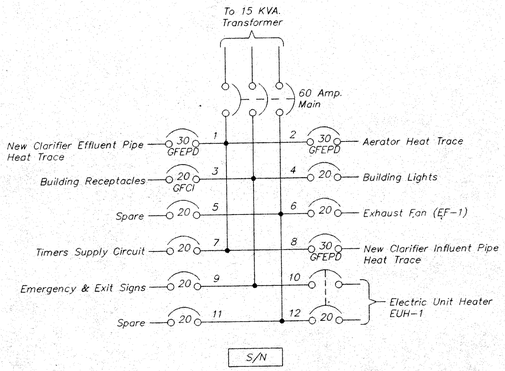


EXISTING MOTOR STARTER PANEL



NEW CLARIFIER CONTROL PANEL 2
(NEMA-4X)

NEW CLARIFIER CONTROL PANEL 2
(NEMA-4X)



GFCI — Ground Fault Circuit Interrupter Is On The Circuit Breaker (Class A, 4-6 mA.).

GFEPD — Ground Fault Equipment Protection Device Is On The Circuit Breaker (Class B, 30 mA.).

LIGHTING PANEL — LP
(NEMA-4X)

ELECTRICAL LEGEND (CONDUIT LAYOUT)

- G — Ground Wire
- Conduit Either In Floor Slab Or Under Ground
- Conduit Exposed Or Concealed In Arch. Wall Or Ceiling
- Conduit Homerun
- Conduit Turns Up
- Conduit Turns Down
- Conduit Tee
- Cadweld
- S — Single Pole Toggle Switch
- S_2 — Double Pole Toggle Switch
- S_3 — Three-Way Toggle Switch
- S_4 — Four-Way Toggle Switch
- S — Toggle Switch With Green Pilot Light
- Duplex Receptacle Number Indicates Circ. No.(WP=Weatherproof)
- Power Receptacle 480V,3Ph,60A With Disconnect Switch
- Receptacle, (Single)120,30A.Or Larger
- Receptacle, (Single)240V,2Pole
- Telephone Receptacle
- Ceiling Mounted Fixture (Letter Indicates Fixture Type)
- Wall Mounted Fixture (letter Indicates Fixture Type)
- A — Fluorescent Fixture (Letter Indicates Fixture Type)
- Pole Mounted Fixture (Letter Indicates Fixture Type)
- E — Emergency Lighting Fixture (Letter Indicates Fixture Type)
- Exit Fixture (Letter Indicates Fixture Type)(No.Indicates Circuit)
- Exit Fixture With Direction Arrow
- 480V Power Panel
- Lighting Panel 120/208V Or 120/240V
- CP — Control Panel
- Magnetic Motor Starter 480V, 3 Phase
- Magnetic Starter120V, 1 Phase
- Combination 480V, 3 Phase Starter
- Combination 120V, 1 Phase Starter
- S_V — Manual Motor Starter 120V, 1 Phase
- S_M — Manual Motor Starter 480V, 3 Phase
- Disconnect Switch (See One Line Diagram For Size & Type)
- B — Box — Junction, Terminal, Pull Or Hand Hole
- Single Phase Motor(Horsepower Shown)
- 3 Phase Motor(Horsepower Shown)
- Control Station

- Air Terminal (Lightning Protection)
- Ground Rod
- XF — Transformer (Size And Type As Shown On Single line Diagram)
- Horn
- Horn/Strobe Combination
- F — Fire Alarm Strobe Light
- CA — Capacitor
- LS — Limit Switch
- P — Pressure Switch
- TS — Temperature Switch
- C — Conveyor Cable Switch
- Z — Zero Speed Switch
- S — Solenoid
- T — Thermostat
- F — Flow Switch
- L — Level Switch
- TP — Motor Thermo Protector
- H — Heater In Motor
- Q — Torque Switch
- V — Vibration Switch
- F — Flow Transmitter
- L — Level Transmitter
- P — Pressure Transmitter
- T — Temperature Transmitter
- D — Dissolved Oxygen Transmitter
- DT — Density Transmitter
- TY — Turbidity Transmitter
- E — Transmitter Element
- G — Natural Gas Detector With Control Panel
- C — Chlorine Gas Detector With Control Panel
- S — Sulfur Dioxide Detector With Control Panel
- PC — Photoelectric Cell
- S/P — Smoke Detector — Photoelectric
- H/F — Heat Detector — Rate Of Rise/Fixed Temperature
- P/F — Pull Station — Fire Alarm
- T — Thermocouple
- V — Pneumatic Valve Operator
- I — Current To Pressure Transducer

Electrical Notes:

1.) *Structural Materials Are Not Shown On These Electrical Drawings. Refer To Architectural And Structural Drawings.*

2.) *All Electrical Equipment Elevations Shown Are To Bottom Of Device Or Panel, Unless Otherwise Noted.*

3.) *(11735) Indicates A Specification Reference For Items Other Than Division 16000. This Electrical Item Under This Reference Is Supplied By The General Contractor. Unless Otherwise Noted In That Specification, The Electrical Contractor Shall Then Install And Wire This Item Per The Drawings And Division 16000 Specifications.*

4.) *Project Control Wiring Requirements Shall Conform To All Requirements As Shown On the P & ID Series Drawings Whether Shown On The Electrical Series Drawings Or Not.*

5.) *Where Lines Are Shown Connecting Electrical Equipment. They Are Not Intended As Conduit Routing. Contractor Is To Route All Conduit Runs (Shown Or Not) Per Spec.16000*

ONE LINE DIAGRAM LEGEND

- 30A FRS-R -30 — Fused Disconnect Switch (Numbers Indicates Switch Size, Fuse Type,And Fuse Size)
- 30A — Unfused Disconnect Switch (Number Indicates Switch Size)
- Non Reversing Starter
- F, R — Reversing Starter
- F, S — Two Speed Starter
- 40A — Circuit Breaker Or Motor Circuit Protector (MCP)
- 25KVA — Lighting Or Power Transformer (Number Indicates Size;3-Phase, Unless Otherwise Noted)
- AS, AM — Current Transformer With Ammeter Switch, And Ammeter
- VS, VM — Potential Transformer With Voltmeter Switch, And Voltmeter
- 6KV — Earth Ground With Lightning Arrester (Number Indicates Voltage Rating Of Arrester)
- K — Kirk Key
- 5 — Motor, 3-Phase Unless Otherwise Noted. (Number Indicates Horsepower Size)
- 25KVAR — Capacitor (Number Indicates Size)
- High Or Medium Voltage Fused Cutout
- WH/M — Watthour Meter

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STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT
AERATOR AND CLARIFIER ADDITIONS
CONTRACT 14

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
NONE	S.S.K.	A.R.B.	G.M.W.

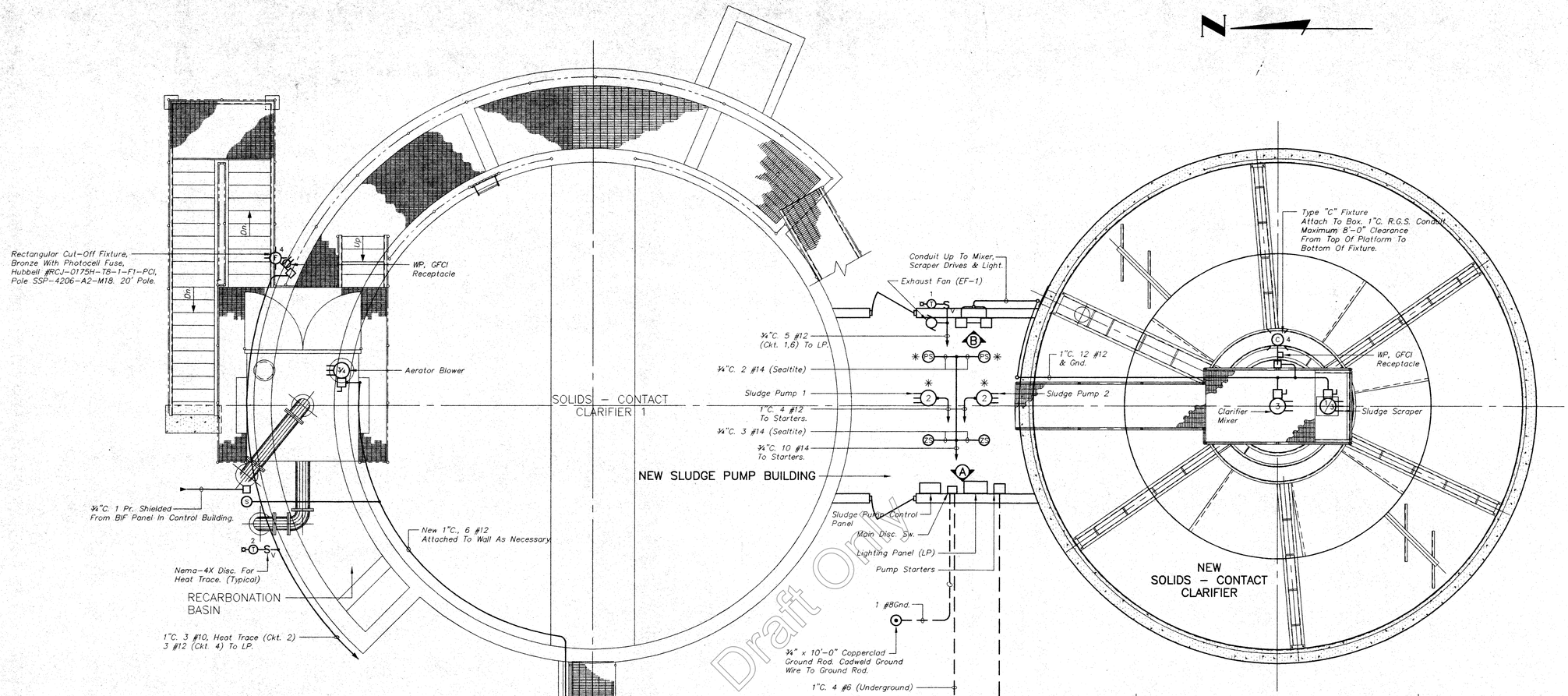
NEW CLARIFIER, SLUDGE PUMP BLDG. AND AERATOR — ELECTRICAL POWER EQUIP., MINI POWER ZONE, CONTROL LAYOUT & LEGENDS

JOB NO. 014-4047
DATE MARCH 1995

Jones & Henry Engineers, Inc.

SHEET NO. E-1 OF 15

TOL-4047E02
02/01/95 07:12



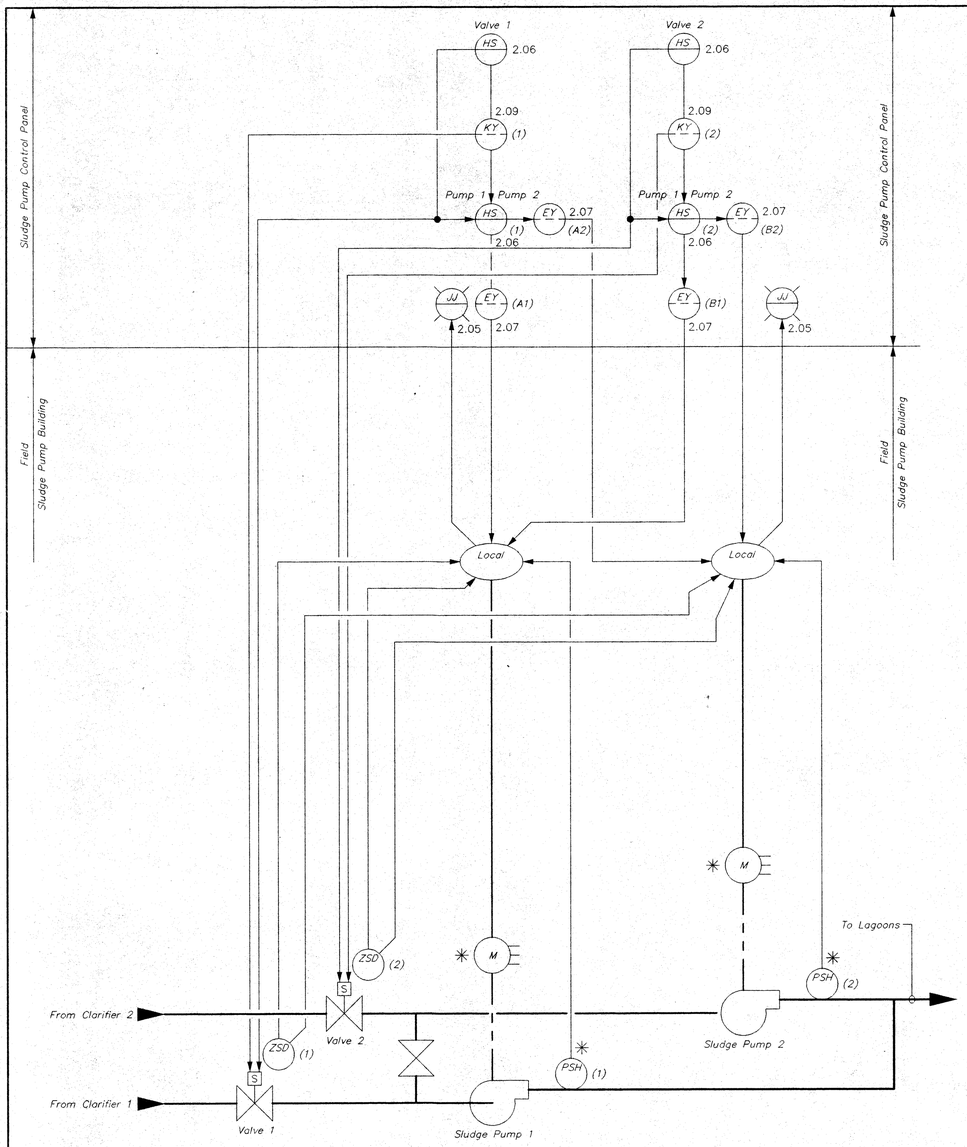
NEW SLUDGE PUMP BUILDING - LIGHTING PLAN
(NEMA-4X)
¼"=1'-0"

ELEVATION B
N.T.S.

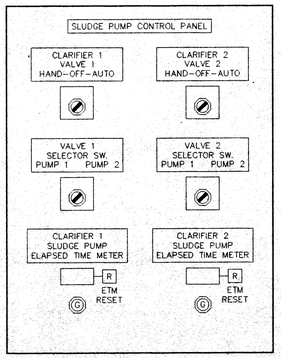
THOMAS C. METCALF No. E-47328 REGISTERED PROFESSIONAL ENGINEER STATE OF OHIO

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT AERATOR AND CLARIFIER ADDITIONS CONTRACT 14				NEW CLARIFIER, SLUDGE PUMP BLD'G. AND AERATOR ELECTRICAL POWER & LIGHTING PLAN	
NO.	DATE	REVISIONS	BY	JOB NO. 014-4047	SHEET NO. E-2
SCALE 1/4"=1'-0"	DESIGN-LAYOUT S.S.K.	DRAWN A.R.B.	CHECKED G.M.W.	DATE MARCH 1995	Jones & Henry Engineers, Inc. OF 15

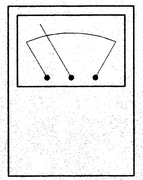
TOL-4047E01
03/01/95 07-12



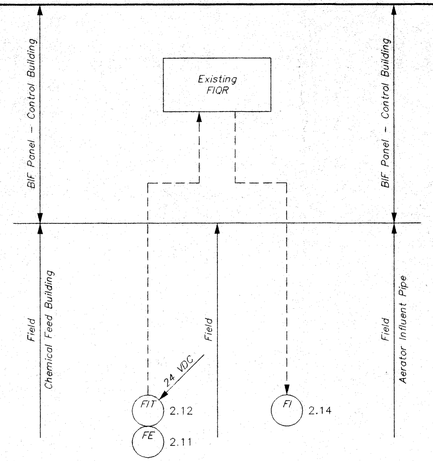
✳ — Provided By Owner, Installed By Contractor.

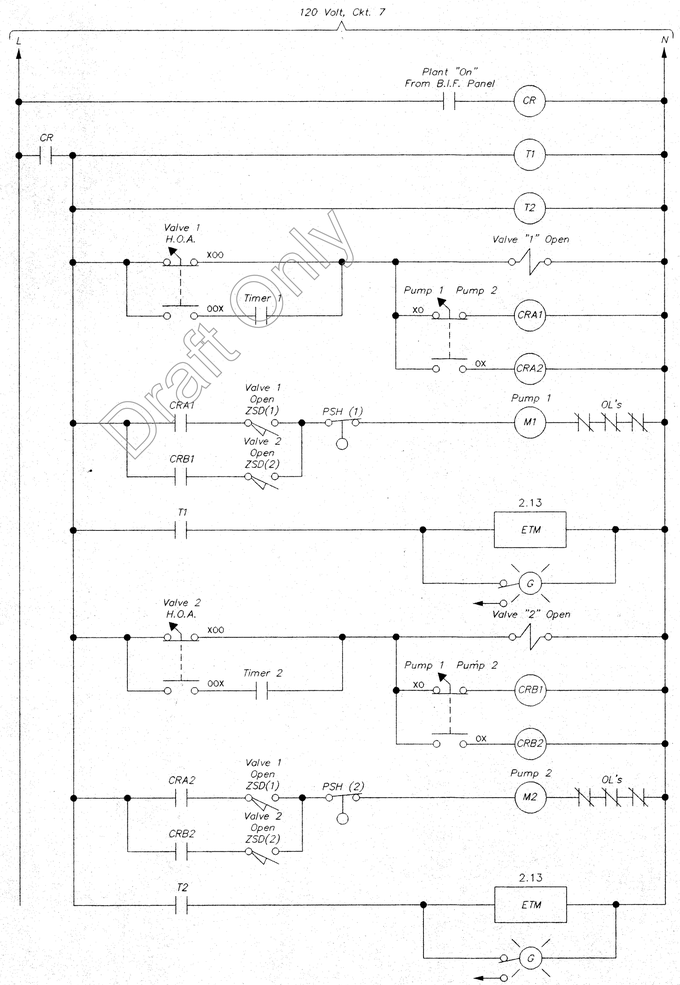


SLUDGE PUMP CONTROL PANEL
(NEMA-4X)



ANALOG FLOW INDICATOR PANEL





SLUDGE PUMP 1 & 2 CONTROL DIAGRAM

PROCESS AND INSTRUMENTATION DIAGRAM
DEVICE SYMBOLS AND DESIGNATION

SYMBOL	DESCRIPTION	SYMBOL	INSTRUMENT OR DEVICE IDENTIFICATION
	Front Panel Mounted Instrument Or Device	F — First Letter, Succeeding Letter, Succeeding Letter, Loop Number	
	Back Panel Mounted Instrument Or Device		
	Field Mounted Instrument Or Device		
	Annuciator Window With Description		Discrete Data Output Point
M	Single Phase Motor		Discrete Data Input Point
M	Three Phase Motor (DC Indicates DC Motor)		Analog Data Output Point
J	Isolation Switch Lockable In Off Position		Analog Data Input Point
	Motor Starter		Process Flow Direction Normal 1
	Horn, Bell Or Siren Per Specs		Process Flow Line
			Pneumatic Signal
			Electrical Connection – 480 V
			Electrical Connection 240 or 120 V
			Analog Signal (Usually 4–20 ma)
			Mechanical Connection
(2.19)	Typical Specification Reference Number Within Section 16902		
(11735)	Typical Specification Section Number	Note: All Equipment Symbols Are Per ISA S5.5	

INSTRUMENT AND DEVICE LETTERING TABLE

	FIRST LETTER	SUCCEEDING LETTERS
A	Analysis	Alarm
B	Burner Flame	Close or Decrease
C	Conductivity	Control
D	Density	Open or Increase
E	Voltage	Primary Element
F	Flow Rate	Ratio
G		Glass Viewing Device
H	Hand (Manual)	High
I	Current (Elec.)	Indicate
J	Power	Light
K	Time	Control Station
L	Level	Low
M	Motor	Operate or On/Off
N	Moisture	Start/Stop or Open/Close
O	Torque	Overload
P	Pressure or Vacuum	Point or Test
Q	Quantity or Event	Totalize or Integrate
R	Radioactivity	Recorder
S	Speed or Frequency	Switch
T	Temperature	Transmitter
U	Multivariable	Multifunction
V	Vibration or Motion	
W	Weight or Force	Well
X	Vibration, Motion	Excess
Y	Computer	Relay or Compute
Z	Position	Drive or Actuate
△	Differential	

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THOMAS C. METCALF
No. E-47328
REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT
AERATOR AND CLARIFIER ADDITIONS
CONTRACT 14

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
NONE	M.L.B.	A.R.B.	G.M.W.

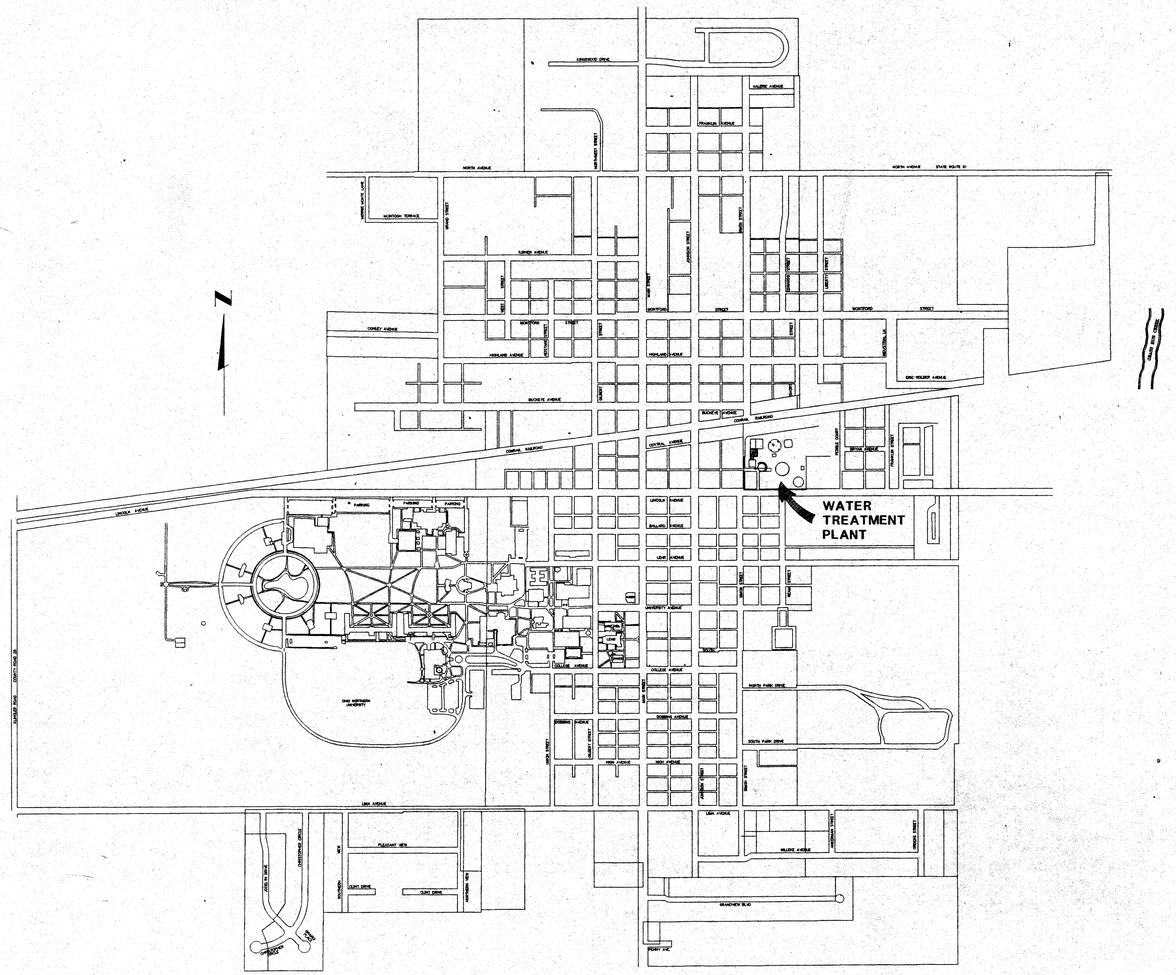
JOB NO. 014-4047
DATE MARCH 1995

NEW SLUDGE PUMP BUILDING LEGEND, CONTROL DIAGRAM & P & ID'S

Jones & Henry Engineers, Inc.

SHEET NO. E-3 OF 15

TCL-4047C01
03/01/95 07:12



VILLAGE OF ADA, OHIO

WATER TREATMENT PLANT FILTER ADDITIONS

CONTRACTS 13G – GENERAL
13M – MECHANICAL
13E – ELECTRICAL

1994

DONALD L. TRAXLER – MAYOR

MEMBERS OF COUNCIL

RONALD PARSHALL – PRESIDENT

TERRY KEISER
JEFF SCHULMAN
WILLIAM ROBINSON
RICHARD LAWRENCE
DONALD FLEMING

JAMES A. MEYER – VILLAGE ADMINISTRATOR
KATHRYN J. GULBIS – VILLAGE CLERK – TREASURER
DANIEL S. CADE – VILLAGE SOLICITOR
PHILIP EPLEY – SUPERINTENDENT, WATER & WASTEWATER

Jones & Henry Engineers, Inc.
TOLEDO & CINCINNATI OHIO
LANSING, MICHIGAN ● FORT WAYNE, INDIANA

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED PROFESSIONAL ENGINEER

TOL—3717.COV1
03/23/94 02

Ada, Contract 13 (1994) Shelf #1 As-Bid

FILE COPY

STRUCTURAL LEGEND

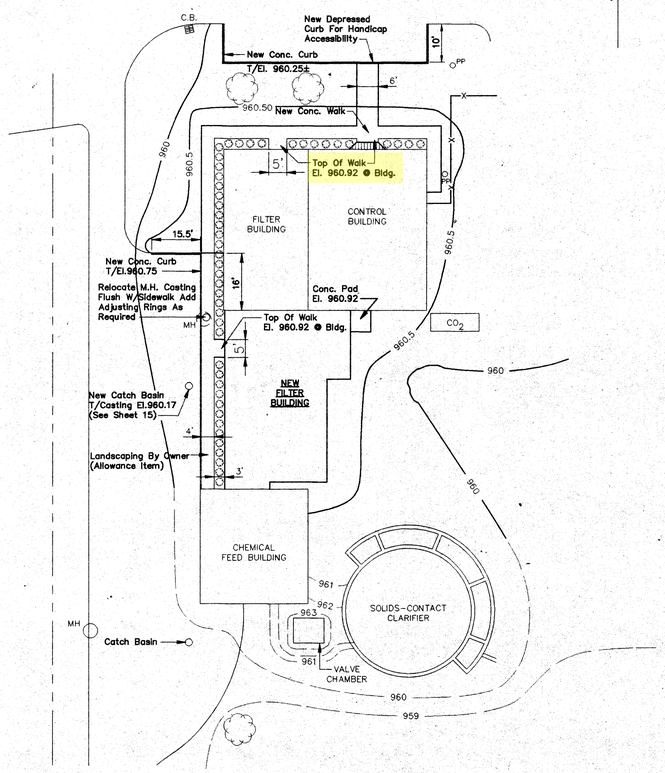
- EXISTING STRUCTURE
- EXISTING STRUCTURE OR EQUIPMENT TO BE REMOVED
- EXISTING EQUIPMENT TO BE RELOCATED
- NEW STRUCTURE

VALVE SYMBOL LEGEND

- GATE, KNIFE GATE, BUTTERFLY OR GLOBE VALVES
- PLUG VALVE
- BALL VALVE
- PINCH VALVE
- CHECK VALVE

PIPING ABBREVIATIONS

	MATERIAL		SERVICE
BSP	BLACK STEEL PIPE	NG	NATURAL GAS
CIP	CAST IRON PIPE	CW	CITY WATER
CISP	CAST IRON SOIL PIPE	HW	HOT CITY WATER
CMP	CORRUGATED METAL PIPE	PW	PLANT WATER
Cu	COPPER TUBING OR PIPING	CA	COMPRESSED AIR
DIP	DUCTILE IRON PIPE	TD	TANK DRAIN
FRP	FIBERGLASS REINFORCED PIPE	SS	SANITARY SEWER
GSP	GALVANIZED STEEL PIPE		
PCP	PLAIN CONCRETE PIPE		
PVC	POLYVINYL CHLORIDE PIPE		
RCP	REINFORCED CONCRETE PIPE		
SP	STEEL PIPE		
SSP	STAINLESS STEEL PIPE		



GRADING PLAN
1"=20'

N

PIPING LEGEND

(THIS LEGEND APPLIES ONLY WHERE COMBINATION OF NEW AND EXISTING PIPING APPEAR ON THE SAME DRAWING.)

- EXISTING PIPING
- EXISTING PIPING TO BE REMOVED (IF YARD PIPING, ABANDON OR REMOVE AS REQ'D)
- EXISTING PIPING TO BE RELOCATED
- NEW PIPING

8/12 = NUMBER OF SECTION / SHEET NUMBER ON WHICH SECTION IS SHOWN

SECTION 3/4 = NUMBER OF SECTION / SHEET NUMBER ON WHICH SECTION IS CUT

DELINEATION OF SECTIONS

(SECTIONS LETTERED ARE SHOWN ON SAME SHEET)

A = ELEVATION VIEW

5/7 = NUMBER OF DETAIL IN SECTION / SHEET NUMBER ON WHICH DETAIL IS SHOWN

6/7 = NUMBER OF DETAIL IN PLAN / SHEET NUMBER ON WHICH DETAIL IS SHOWN

DETAIL 5/9 = NUMBER OF DETAIL / SHEET NUMBER ON WHICH DETAIL IS TAKEN

DELINEATION OF BLOW – UP DETAILS

(DETAILS LETTERED ARE SHOWN ON SAME SHEET)

INDEX OF DRAWINGS

SHEET	DESCRIPTION
1	Legends, Index & Grading Plan
2	Site Plans – Yard Piping
3	New Filter Building– Architectural Elevations
4	New Filter Building– Architectural Plan & Details
5	New Filter Building– Architectural Plan & Details
6	New Filter Building– Architectural Roof Plan
7	New Filter Building– Architectural Wall Sections
8	New Filter Building– Architectural Wall Sections
9	Architectural– Door Schedule & Details
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12	New Filter Building– Structural Plans, Sections & Details
13	Filter Building– Piping & Equipment Plans
14	Filter Building– Piping & Equipment Sections
15	Miscellaneous Details
16	Miscellaneous Details
17	Flow Diagram & Hydraulic Profile
M–1	Filter Building– Mechanical Plans
M–2	Filter Building– Mechanical ROOF PLAN
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E–1	Electrical Legends & Roof Plan
E–2	New Filter Building– Electrical Plan & Wiring Diagram
E–3	Instrumentation & Control Filter Panels P & ID
E–4	Instrumentation & Control Filter Control System P & ID
E–5	Instrumentation & Control Filter Control Panel Schematic P & ID
E–6	Instrumentation & Control Level Probe & Transmitter Details P & ID

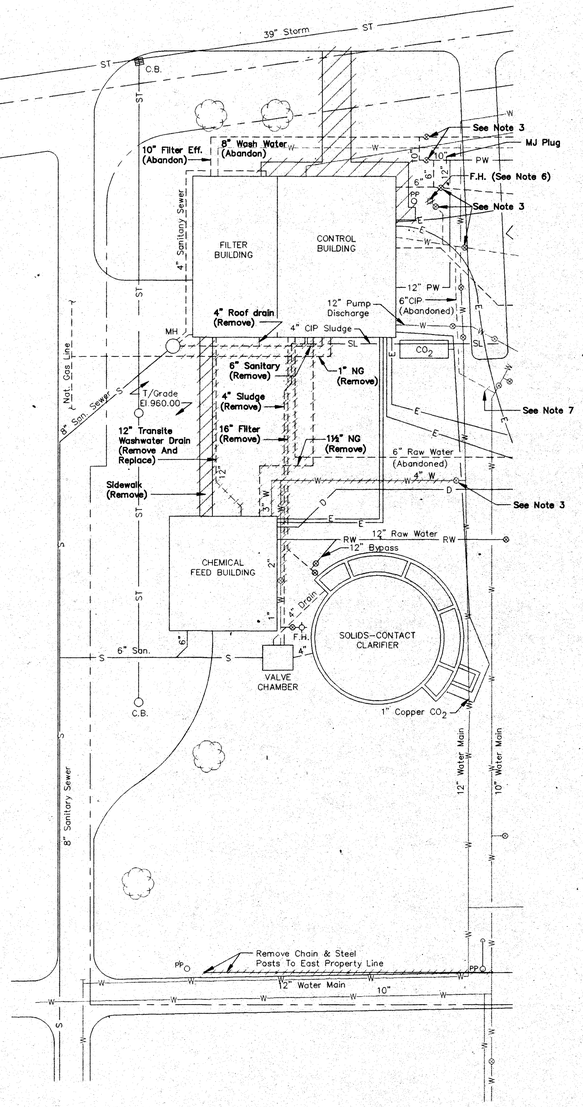
TOPOGRAPHY LEGEND

- X — FENCE LINE
- G — GAS LINE
- W — WATER LINE
- E — UNDERGROUND ELECTRICAL CONDUIT
- T — UNDERGROUND TELEPHONE CONDUIT
- S — UNDERGROUND SIGNAL CONDUIT
- STORM SEWER
- SANITARY SEWER
- ℄ CENTER LINE
- ℄ SURVEY LINE
- PROPERTY LINE
- 960.5 NEW GROUND CONTOUR ELEVATION
- 960 EXISTING GROUND CONTOUR ELEVATION
- MH MANHOLE
- PP POWER POLE OR TELEPHONE POLE
- LP LIGHT POLE
- FH,YH FIRE HYDRANT OR YARD HYDRANT
- V VALVE
- CO CLEAN OUT
- IP IRON PIN (OR LABELED POST, MARKER ETC.)
- CB CATCH BASIN

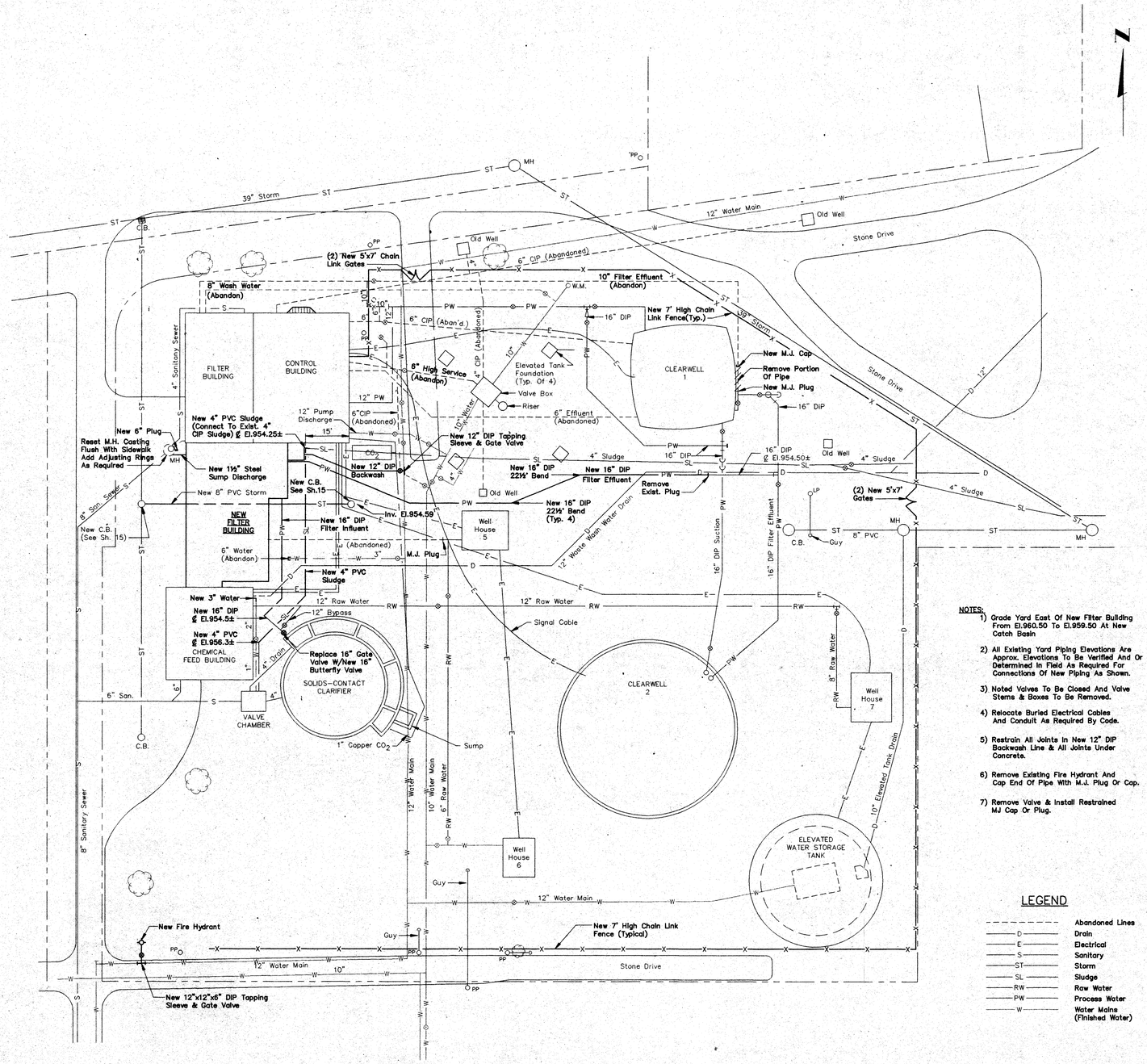
NOTE: ACCURACY OF EXISTING ELEVATIONS AND DIMENSIONS IS NOT GUARANTEED. FIELD VERIFY BEFORE CONSTRUCTION.

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT FILTER ADDITIONS CONTRACT 13					LEGENDS, INDEX & GRADING PLAN
NO.	DATE	REVISIONS		BY	JOB NO. 14–3717
SCALE: NONE	DESIGN-LAYOUT: C.E.M.	DRAWN: C.E.M.	CHECKED: T.C.M.	DATE: 1994	Jones & Henry Engineers, Inc.
					SHEET NO. 1 OF 26

TDK-377.TEC
03/24/94 02



YARD PIPING REMOVAL



YARD PIPING

NOTES:

1) Grade Yard East Of New Filter Building From El.960.50 To El.959.50 At New Catch Basin
2) All Existing Yard Piping Elevations Are Approx. Elevations To Be Verified And Or Determined In Field As Required For Connections Of New Piping As Shown.
3) Noted Valves To Be Closed And Valve Stems & Boxes To Be Removed.
4) Relocate Buried Electrical Cables And Conduit As Required By Code.
5) Restrain All Joints In New 12" DIP Backwash Line & All Joints Under Concrete.
6) Remove Existing Fire Hydrant And Cap End Of Pipe With M.J. Plug Or Cap.
7) Remove Valve & Install Restrained MJ Cap Or Plug.

LEGEND

----------	Abandoned Lines
D	Drain
E	Electrical
S	Sanitary
ST	Storm
SL	Sludge
RW	Raw Water
PW	Process Water
W	Water Mains (Finished Water)

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
1"=20'	G.W.	C.E.M.	T.C.M.

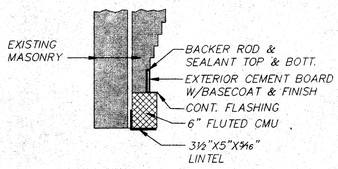
JOB NO. 14-3717
DATE 1994

SITE PLANS
YARD PIPING

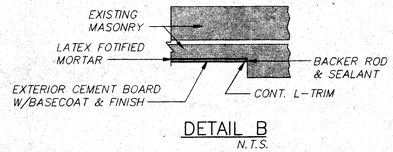
Jones & Henry Engineers, Inc.

SHEET NO. 2 OF 26

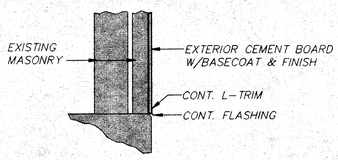
TOL-3717SITE
05/24/94 02



DETAIL A
N.T.S.

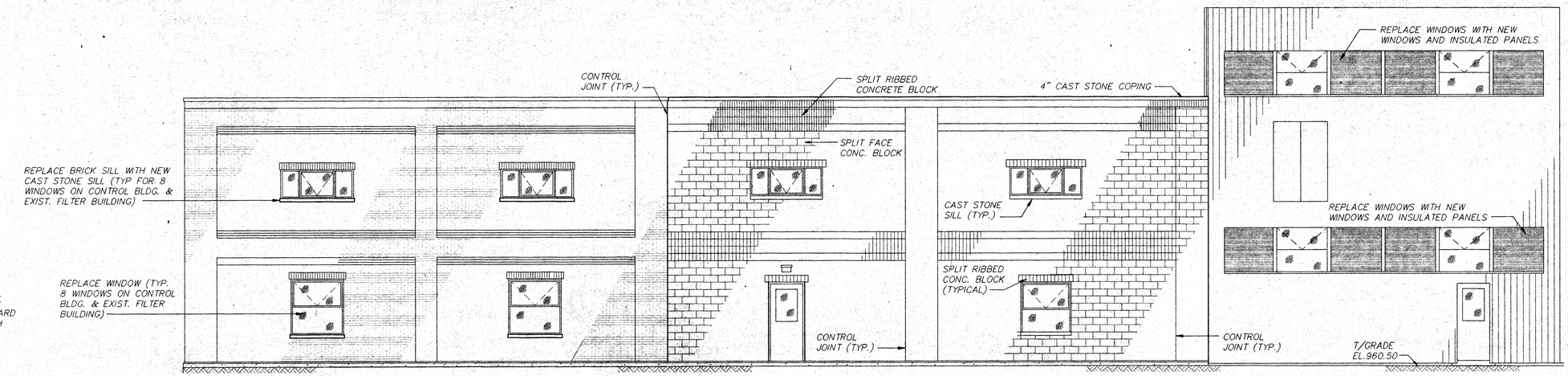


DETAIL B
N.T.S.

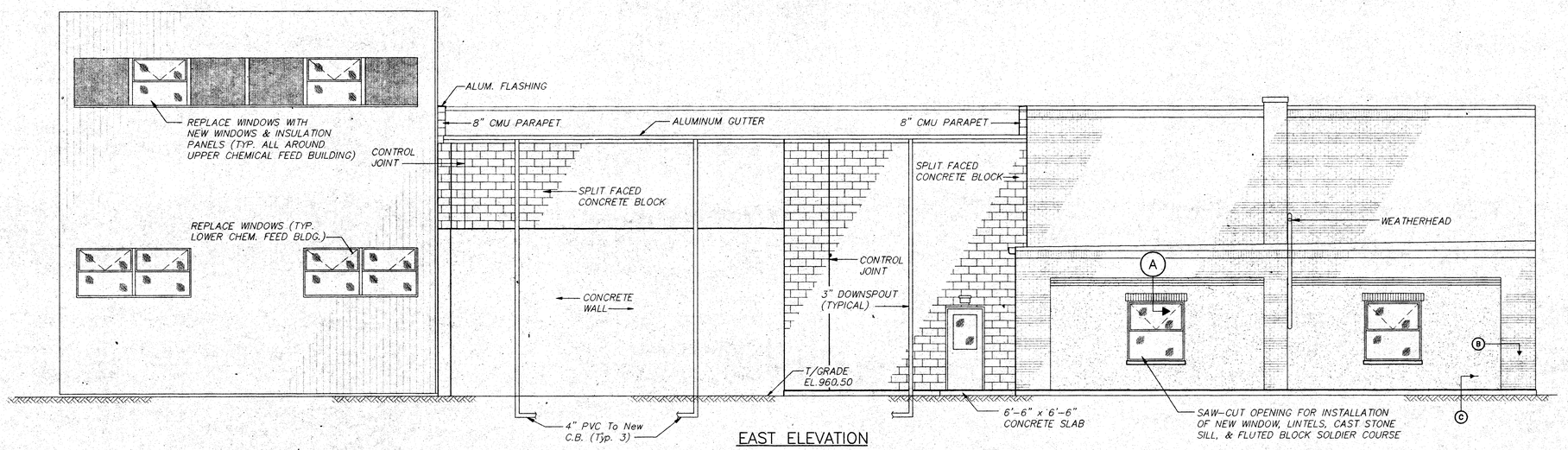


DETAIL C
N.T.S.

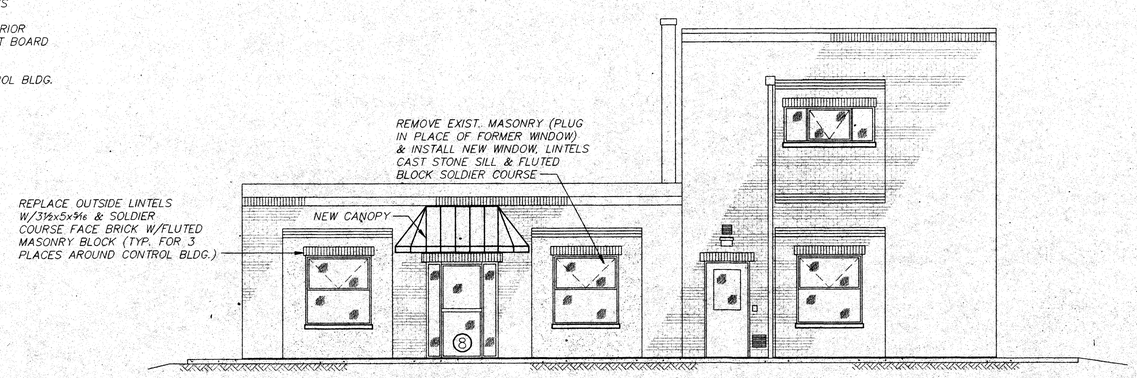
NOTES:
1) FASTEN CEMENT BOARD WITH 2" TAPCON FASTENERS SPACED AT 12" c/c BOTH DIRECTIONS
2) MASONRY TO BE CLEANED PRIOR TO INSTALLATION OF CEMENT BOARD
3) DETAILS TYPICAL FOR ALL RECESSED AREAS ON CONTROL BLDG.



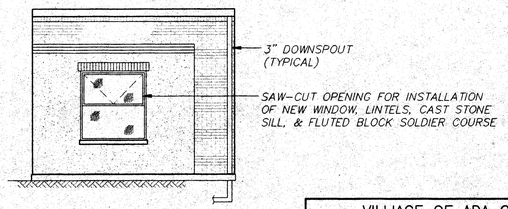
WEST ELEVATION



EAST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

NOTE:
TUCK POINT ALL MASONRY CRACKS IN CONTROL BUILDING & EXISTING FILTER BUILDING.

NOTE: THIS DRAWING PLOTTED AT NO SCALE

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED PROFESSIONAL ENGINEER

VILLIAGE OF ADA OHIO
WATER TREATMENTS PLANT FILTER ADDITIONS
CONTRACT 13

NO.	DATE	REVISIONS	BY

SCALE:	DESIGN-LAYOUT	DRAWN	CHECKED
3/16"=1'-0"	C.E.M. \G.W.	C.E.M.	T.C.M.

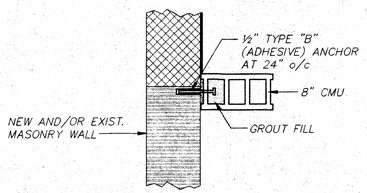
JOB NO. 14-3717
DATE 1994

NEW FILTER BUILDING ARCHITECTURAL ELEVATIONS

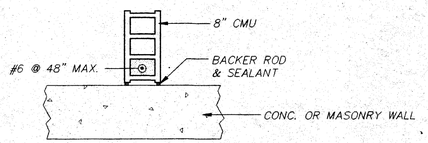
Jones & Henry Engineers, Inc.

SHEET NO. 3 OF 26

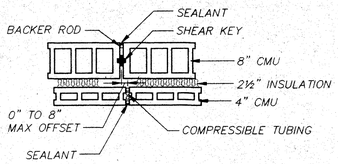
No. 27720
03/23/94



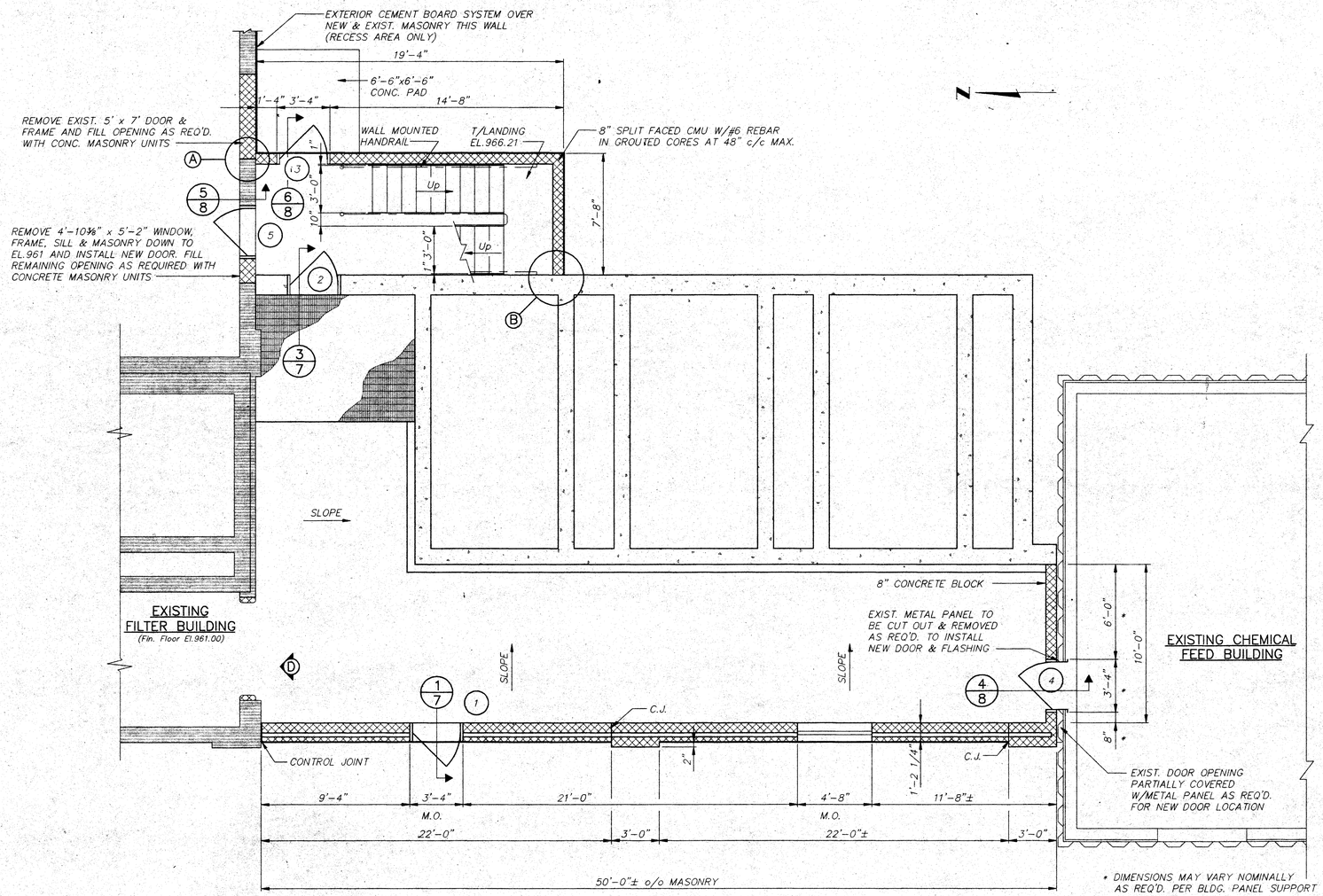
DETAIL "A"
N.T.S.



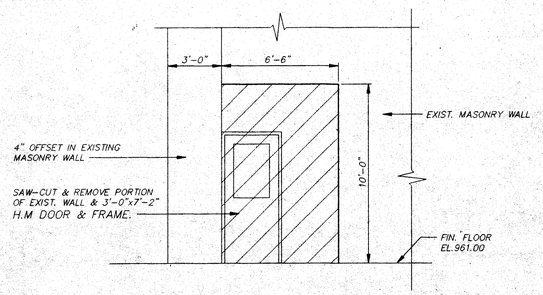
DETAIL "B"
N.T.S.



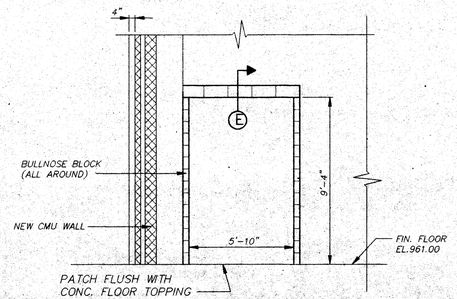
CONTROL JOINT DETAIL
N.T.S.



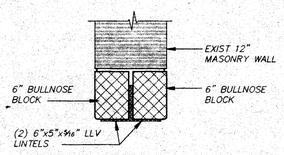
PLAN AT EL.961.00
¼"=1'-0"



REMOVAL ELEVATION "D"
¼"=1'-0"



RENOVATION ELEVATION "D"
¼"=1'-0"



DETAIL "E"
N.T.S.

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
AS NOTED	C.E.M./GW	C.E.M.	T.C.M.

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13

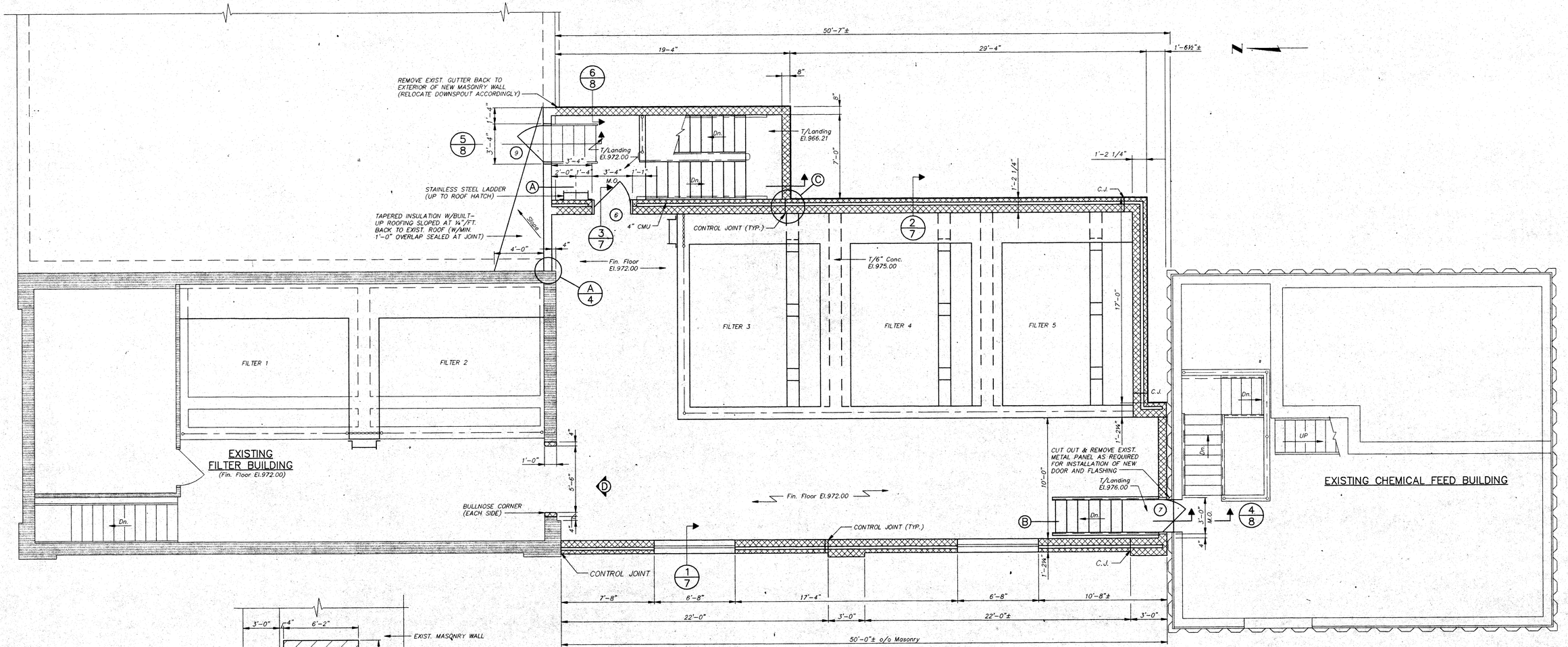
NEW FILTER BUILDING ARCHITECTURAL PLAN & DETAILS

JOB NO. 14-3717
DATE 1994

Jones & Henry Engineers, Inc.

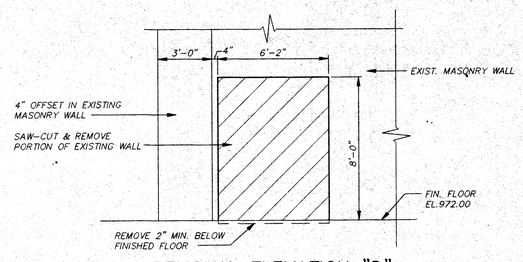
SHEET NO. 4 OF 28

TOL-3717A05
03/23/94 02



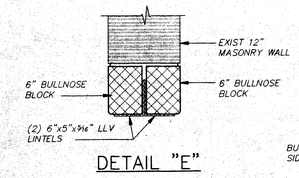
PLAN AT EL.972.00

¼"=1'-0"

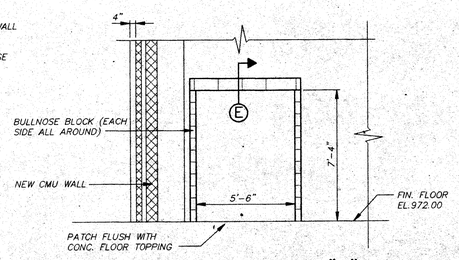


REMOVAL ELEVATION "D"

¼"=1'-0"

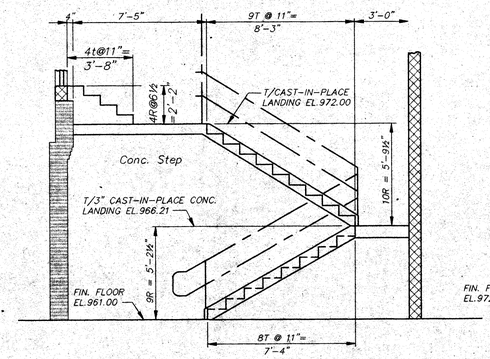


DETAIL "E"



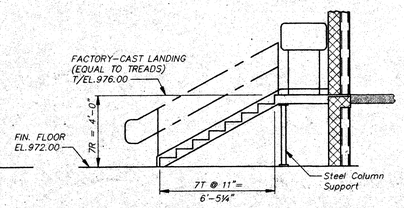
RENOVATION ELEVATION "D"

¼"=1'-0"



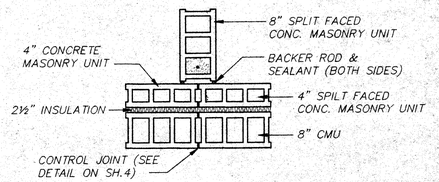
DETAIL "A"

N.T.S.



DETAIL "B"

N.T.S.



DETAIL "C"

N.T.S.

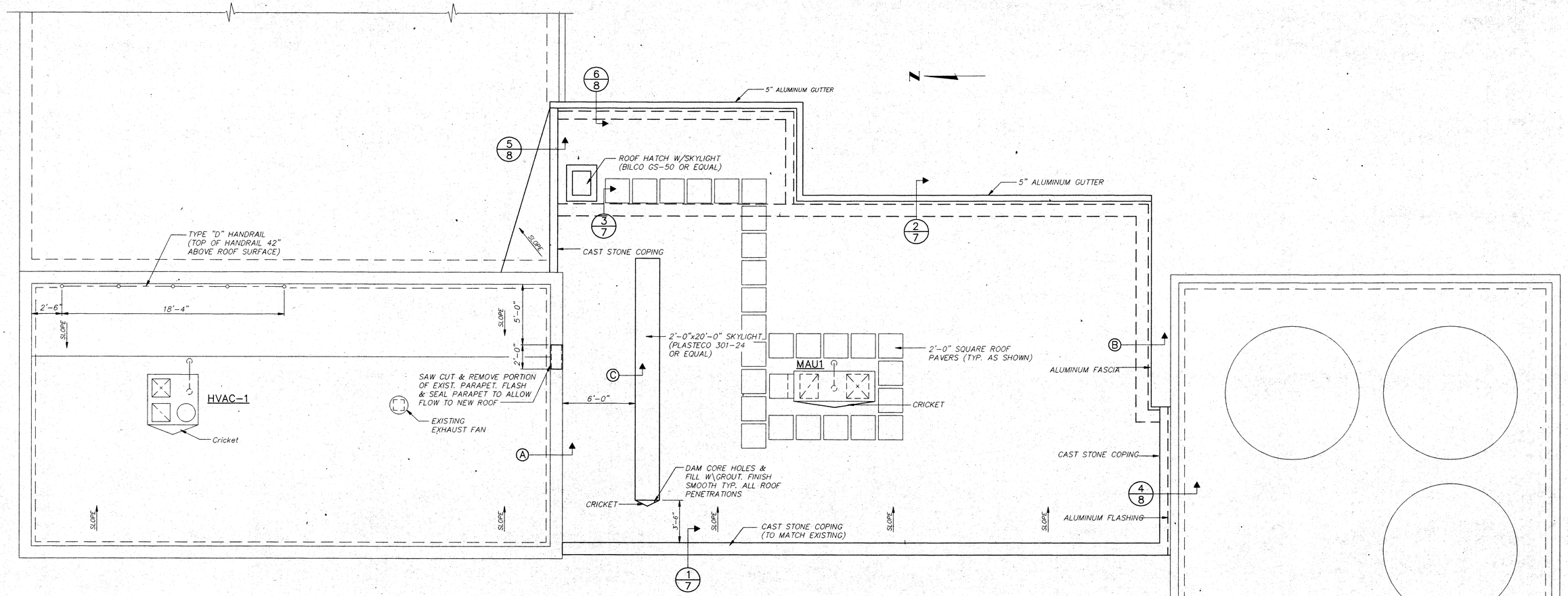
NOTES:
1) FOR CONTROL JOINT LOCATIONS SEE ELEVATIONS ON SHEET 3

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

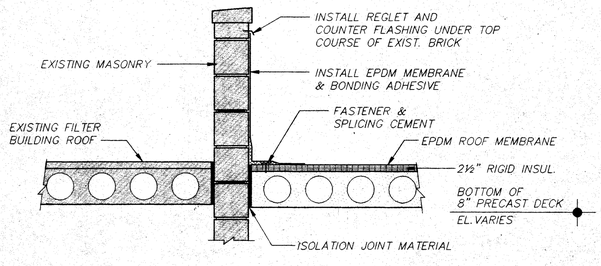
VILLAGE OF ADA, OHIO WATER TREATMENT PLANT IMPROVEMENTS CONTRACT 13					NEW FILTER BUILDING ARCHITECTURAL PLAN & DETAILS	
NO.	DATE	REVISIONS		BY	JOB NO. 14-3717	SHEET NO. 5
SCALE AS NOTED		DESIGN-LAYOUT G.L.W./C.E.M.	DRAWN C.E.M.	CHECKED T.C.M.	DATE 1994	OF 26

Jones & Henry Engineers, Inc.

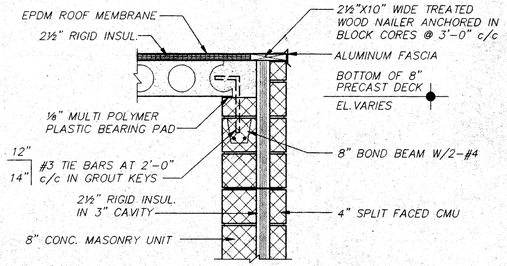
TO-3717A02
03/23/94 02



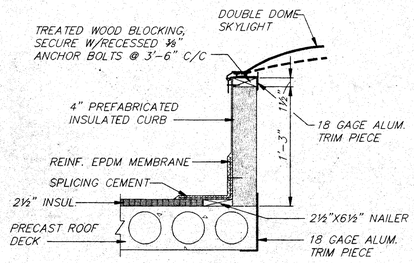
ROOF PLAN
1/4"=1'-0"



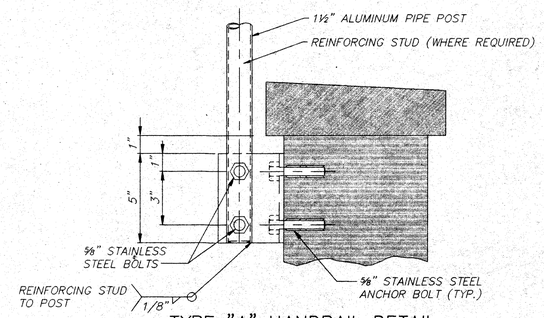
DETAIL A
N.T.S.



DETAIL B
N.T.S.



DETAIL C
N.T.S.

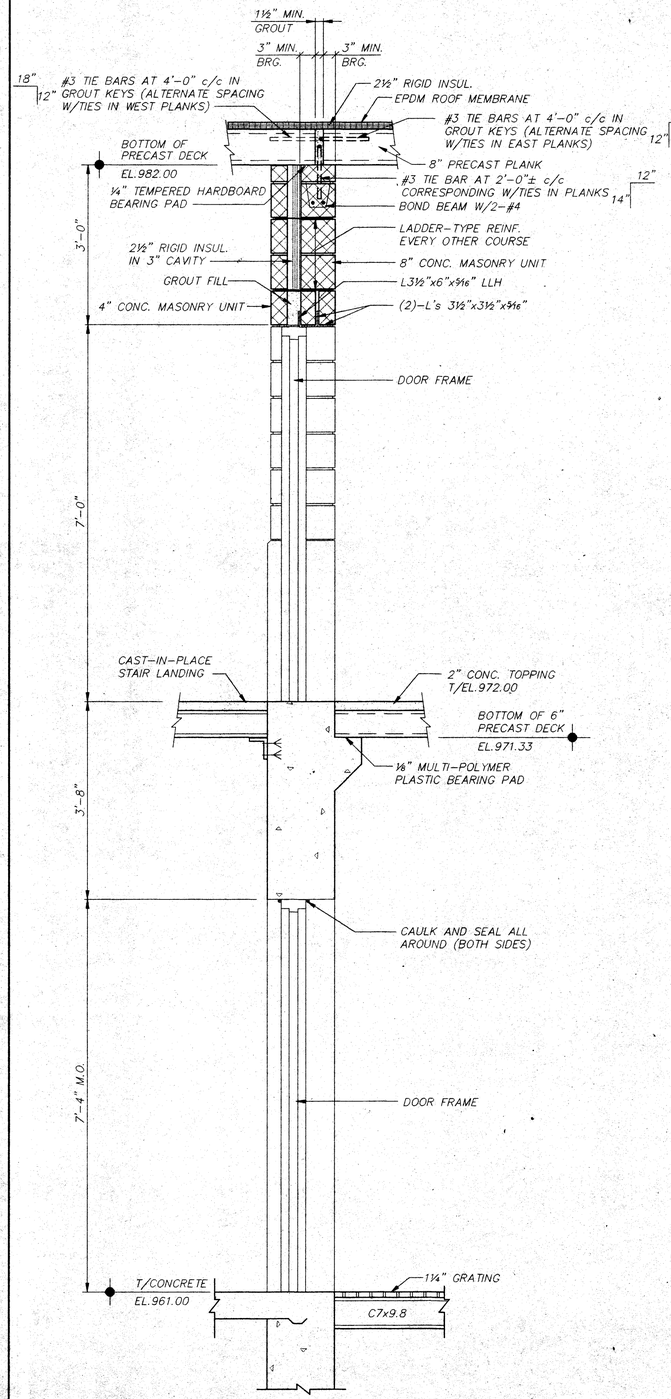


TYPE "A" HANDRAIL DETAIL
N.T.S.

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

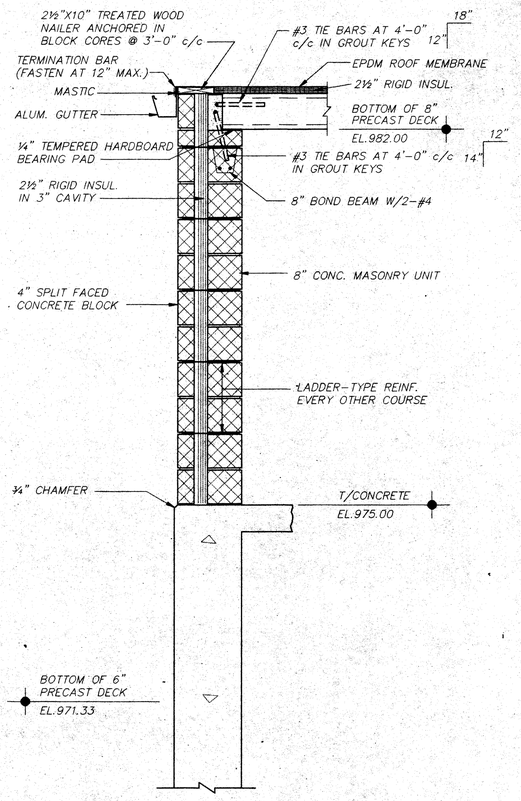
VILLAGE OF ADA, OHIO WATER TREATMENT PLANT FILTER ADDITIONS CONTRACT 13					NEW FILTER BUILDING ARCHITECTURAL ROOF PLAN	
NO.	DATE	REVISIONS		BY	JOB NO. 14-3717	SHEET NO. 6 OF 26
SCALE AS NOTED	DESIGN-LAYOUT CCW/WTL	DRAWN C.E.M.	CHECKED CCW/WTL	DATE 1994	Jones & Henry Engineers, Inc.	

TDL-3717A08
05/23/94 02



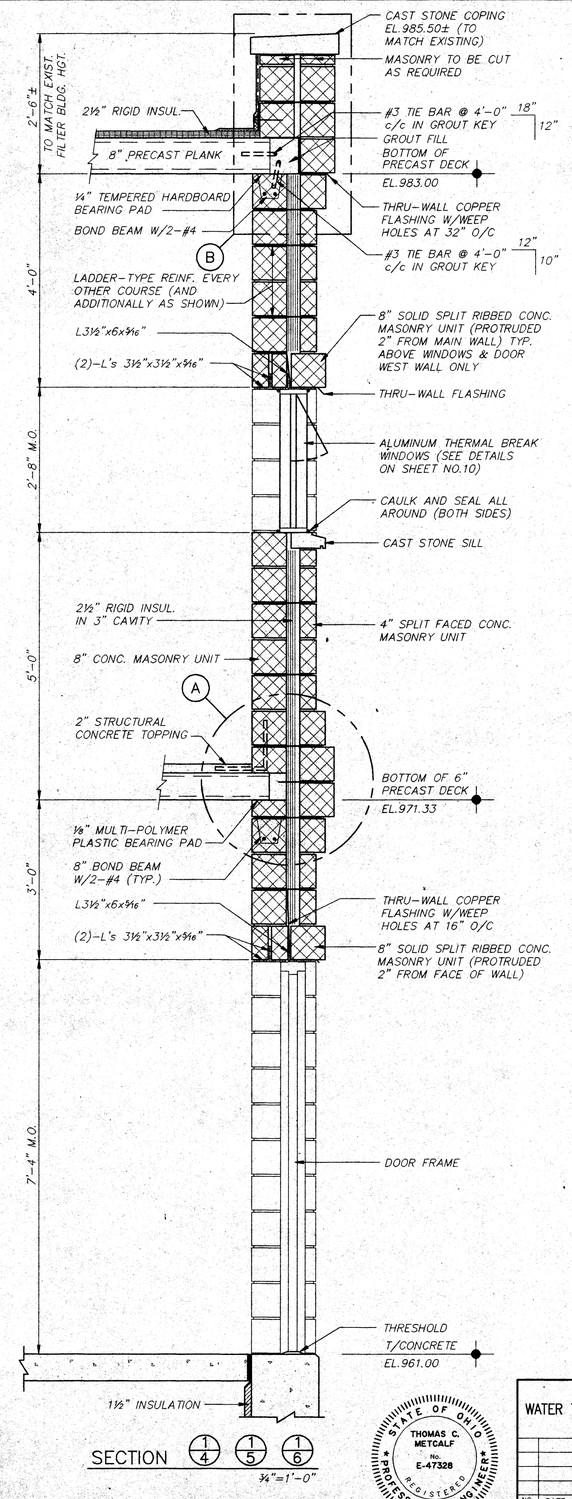
SECTION 3/4 3/5 3/6

¾"=1'-0"



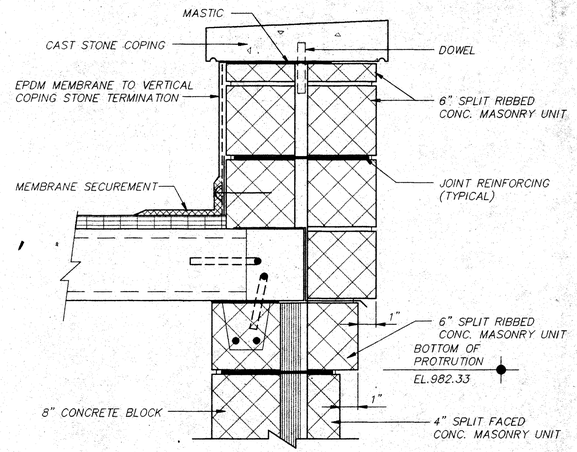
SECTION 2/5 2/6

¾"=1'-0"



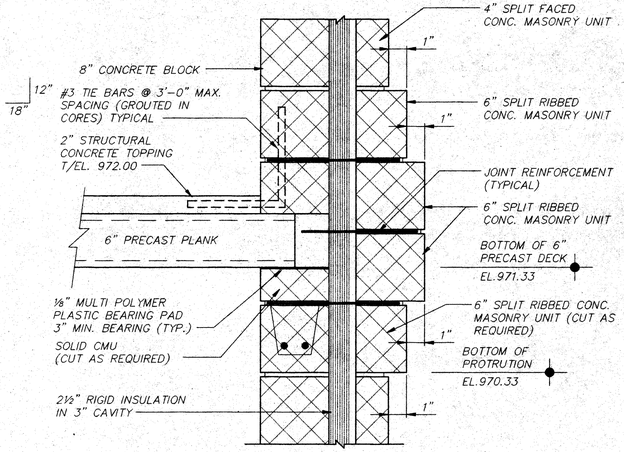
SECTION 1/4 1/5 1/6

¾"=1'-0"



DETAIL "B"

N.T.S.



DETAIL "A"

N.T.S.

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13

NEW FILTER BUILDING ARCHITECTURAL WALL SECTIONS

NO.	DATE	REVISIONS	BY

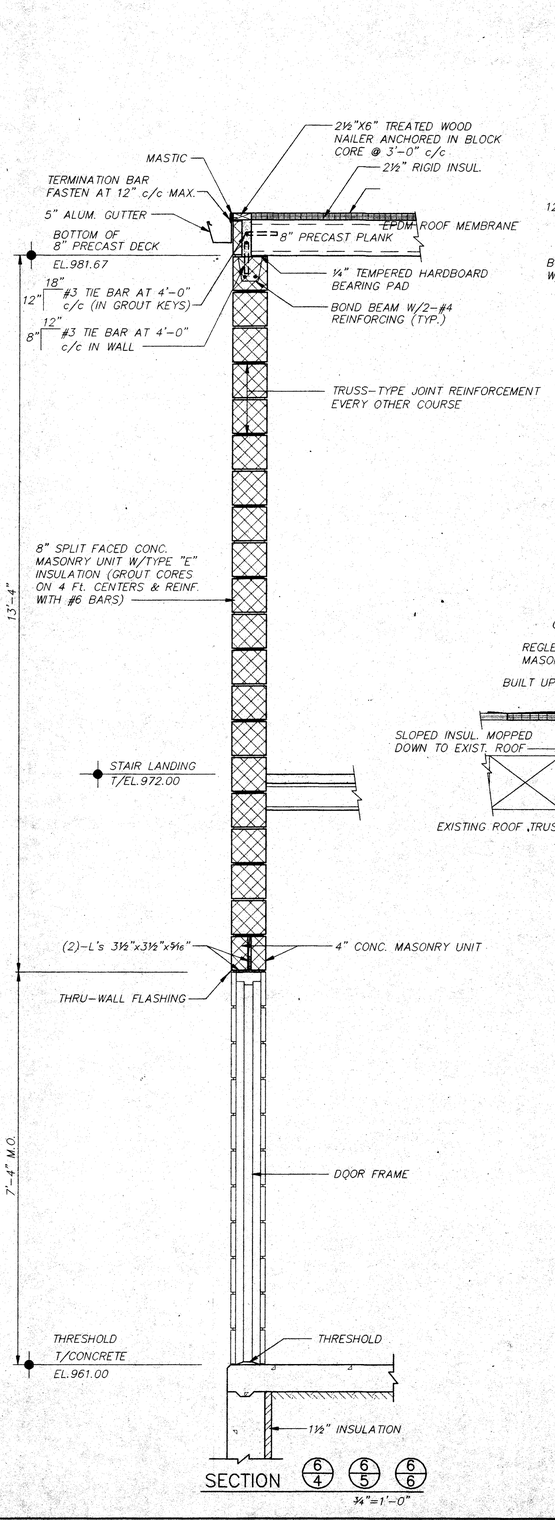
SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
AS NOTED	C.E.M.	C.E.M.	D.A.R.

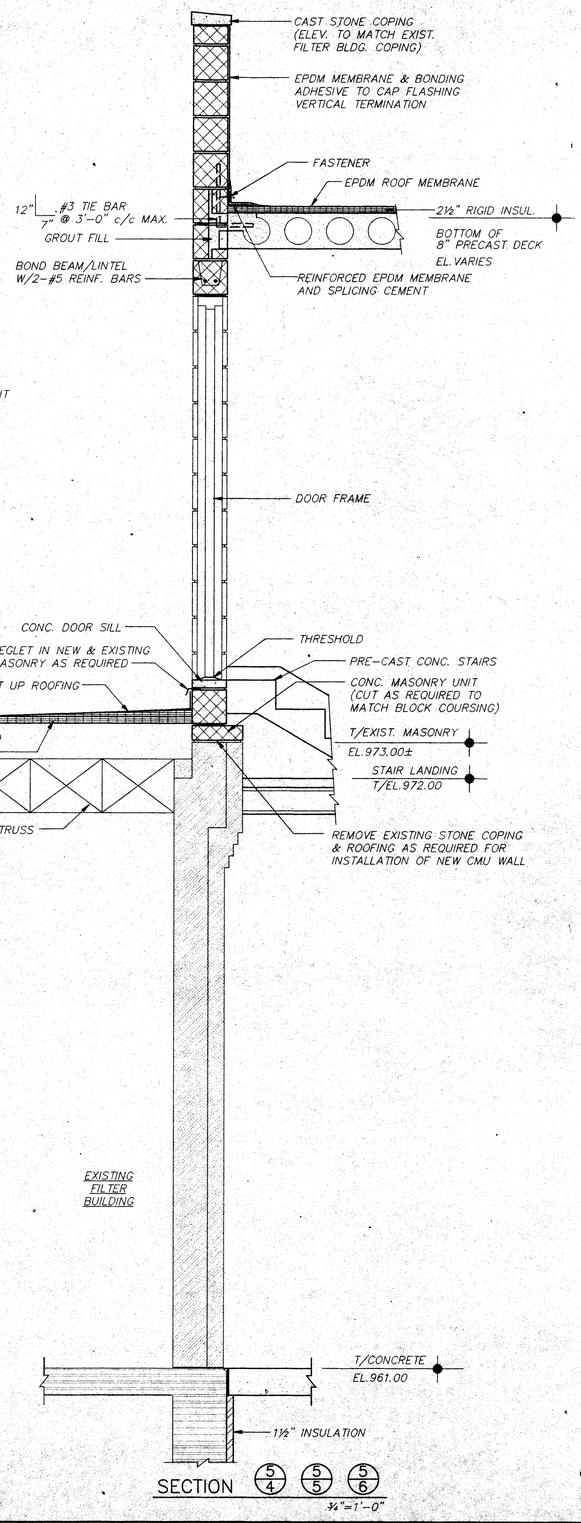
JOB NO. 14-3717
DATE 1994

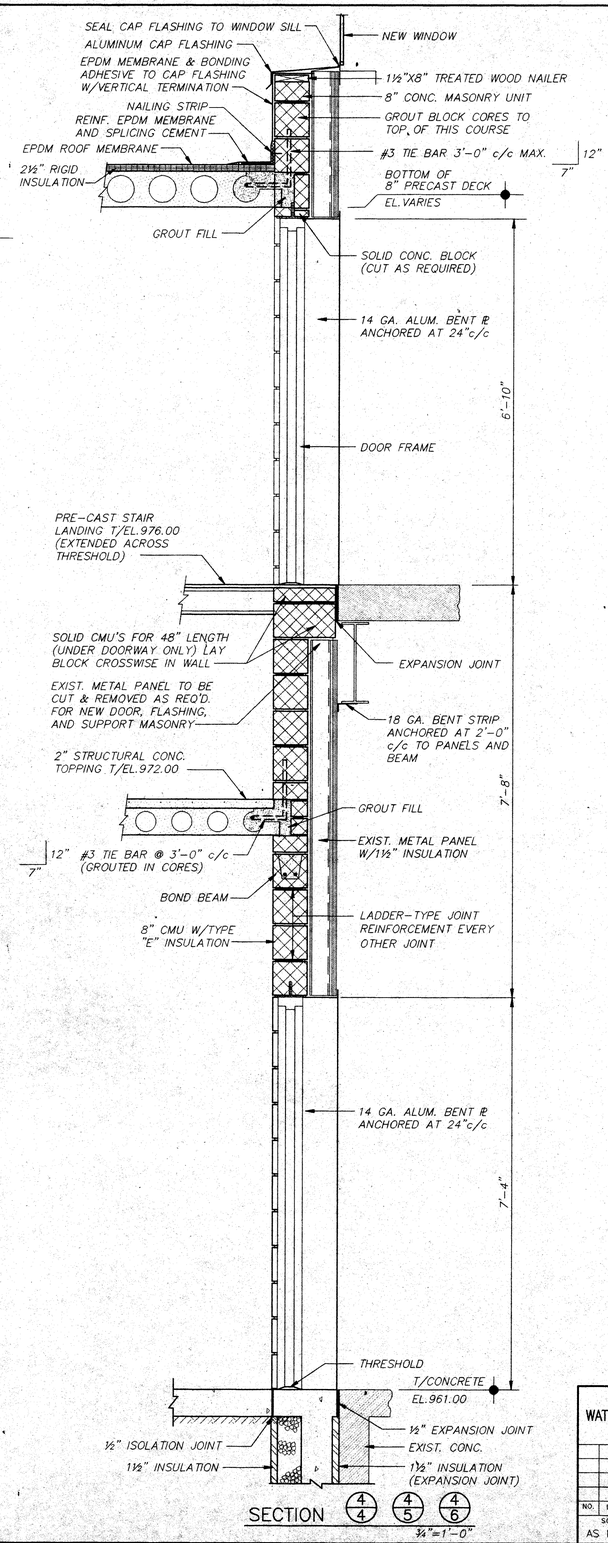
Jones & Henry Engineers, Inc.

SHEET NO. 7 OF 26

T01-3717A03
03/23/94 02



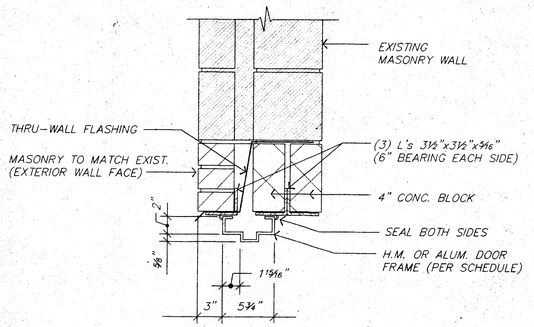




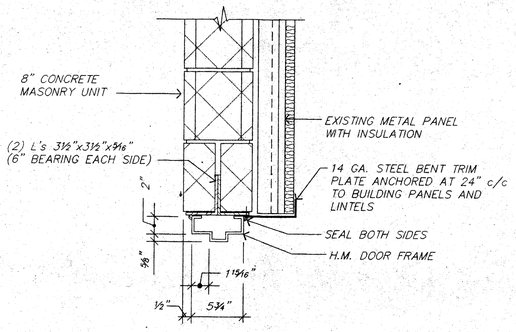
STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT FILTER ADDITIONS CONTRACT 13					NEW FILTER BUILDING ARCHITECTURAL WALL SECTIONS	
NO.	DATE	REVISIONS		BY	JOB NO. 14-3717	SHEET NO. 8
SCALE AS NOTED	DESIGN-LAYOUT C.E.M.	DRAWN C.E.M.	CHECKED D.A.R.		DATE 1994	OF 26
					Jones & Henry Engineers, Inc.	

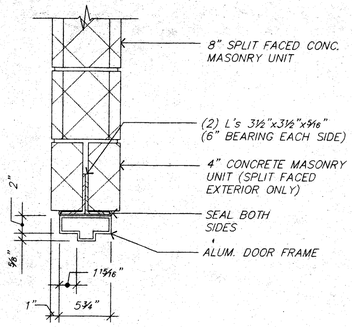
TDL-3717404
03/23/94 02



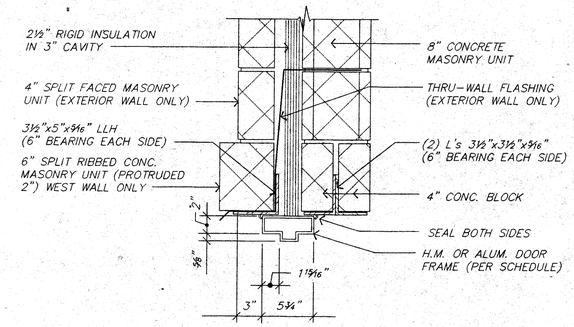
HEAD H-4



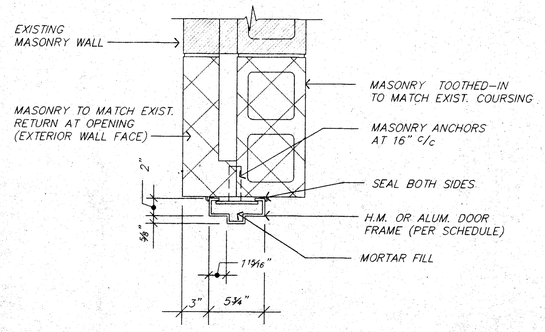
HEAD H-3



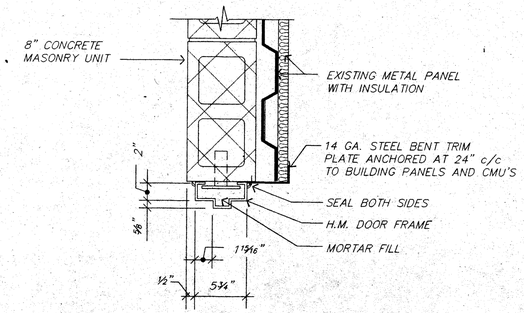
HEAD H-2



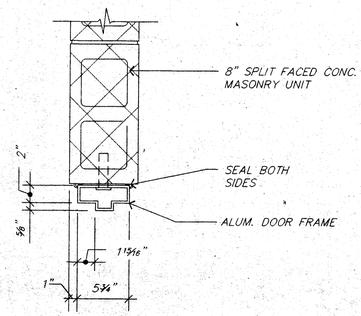
HEAD H-1



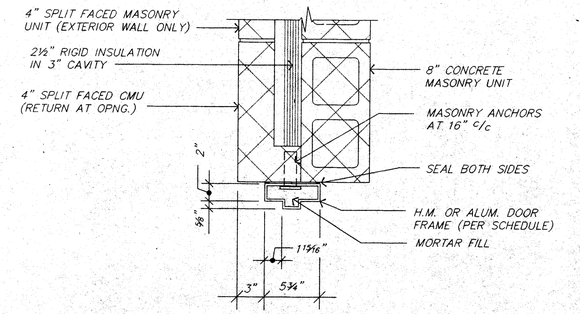
JAMB J-4



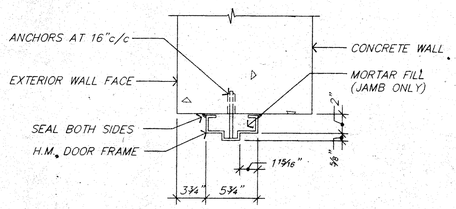
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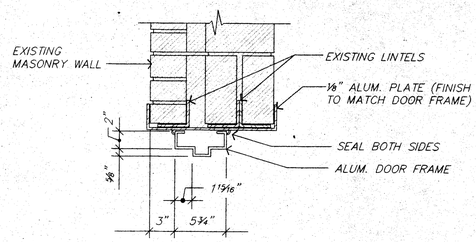
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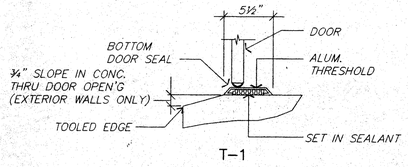
JAMB J-1



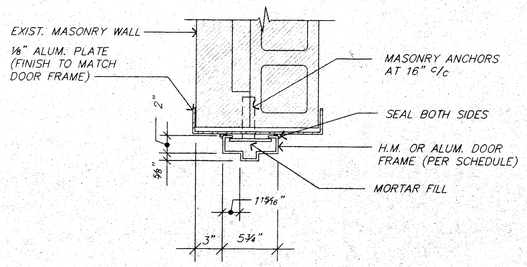
JAMB J-5
HEAD H-5



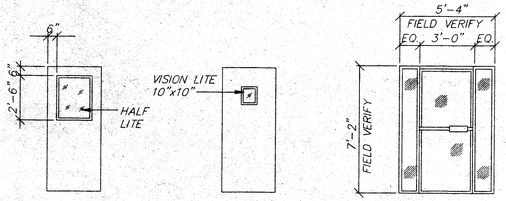
HEAD H-6



THRESHOLD DETAIL
N.T.S.



JAMB J-6



DOOR TYPES
N.T.S.

DOOR SCHEDULE

DOOR NO.	SIZE	DOOR MAT.	DOOR TYPE	FRAME MAT.	FRAME JAMB	FRAME HEAD	THRESH.	UL LABEL	LINTEL TYPE	BEARING EACH END	REMARKS
1	3'-0"x7'-2"x1¾"	ALUM.	A	ALUM.	J-1	H-1	T-1		*	6"	WEST ENTRANCE - NEW FILTER BUILDING
2	3'-0"x7'-2"x1¾"	H.M.	B	H.M.	J-5	H-5	——	B	*	6"	FIRE - RATED DOOR - STAIRWELL - LOWER LEVEL
3	3'-0"x7'-2"x1¾"	ALUM.	A	ALUM.	J-2	H-2	T-1		*	6"	EAST ENTRANCE - STAIRWELL
4	3'-0"x7'-2"x1¾"	H.M.	B	H.M.	J-3	H-3	T-1	B	*	6"	FIRE - RATED DOOR - FILTER BLDG./CHEM. BLDG. - LOWER LEVEL
5	3'-0"x7'-2"x1¾"	H.M.	B	H.M.	J-4	H-4	——	B	*	6"	FIRE - RATED DOOR - STAIRWELL/CONTROL ROOM
6	3'-0"x7'-2"x1¾"	H.M.	B	H.M.	J-5 & J-1	H-1	——	B	*	6"	FIRE - RATED DOOR - STAIRWELL - UPPER LEVEL
7	2'-8"x7'-2"x1¾"	H.M.	B	H.M.	J-3	H-3	T-1	B	*	6"	FIRE - RATED DOOR - FILTER BLDG./CHEM. BLDG. - UPPER LEVEL
8	3'-0"x7'-0"x1¾"	ALUM.	C	ALUM.	J-6	H-6	T-1		*	6"	INSTALLED IN EXIST. OPNG. VERIFY ACTUAL M.O. SIZE IN FIELD PRIOR TO PURCHASE OF DOOR - NORTH ENTRANCE
9	3'-0"x6'-8"x1¾"	ALUM.	B	ALUM.	J-2	H-2	T-1		*	6"	ROOF ACCESS

* SEE HEAD DETAILS

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No. E-47328
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PROFESSIONAL ENGINEER

VILLIAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13

ARCHITECTURAL DOOR SCHEDULE AND DETAILS

NO.	DATE	REVISIONS	BY

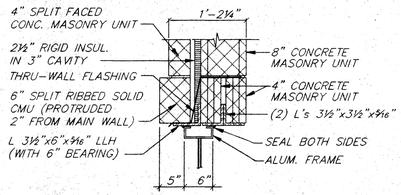
SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
1½"= 1'-0"	C.E.M.	C.E.M.	T.C.M.

JOB NO. 14-3717
DATE 1994

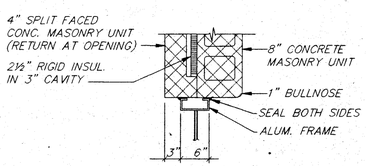
Jones & Henry Engineers, Inc.

SHEET NO. 9 OF 26

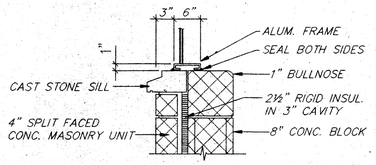
TOL-3717A08
03/23/94 02



TYPICAL HEAD



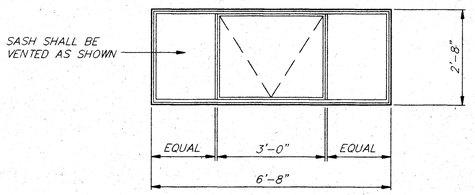
TYPICAL JAMB



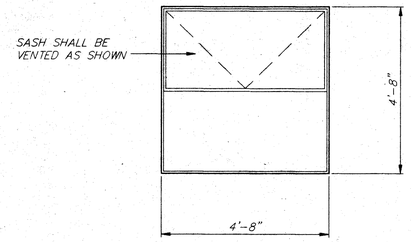
TYPICAL SILL

¾"=1'-0"

NOTE:
COAT INSIDE OF ALL ALUM. FRAMES WITH A BITUMINOUS PAINT BEFORE INSTALLATION.



Ⓐ
(TYP. 2 LOCATIONS)

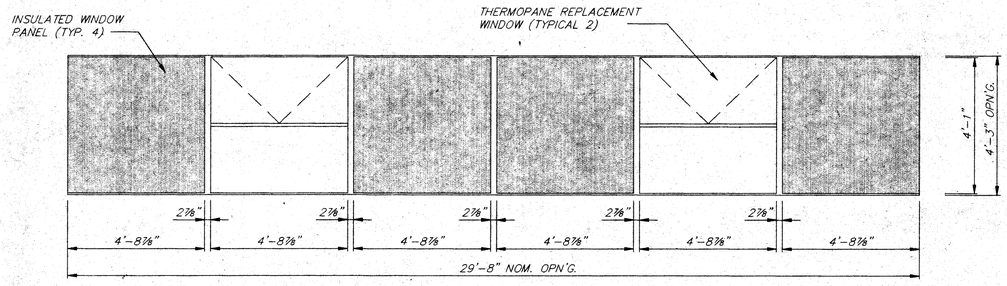


Ⓑ
(TYP. 1 LOCATION)

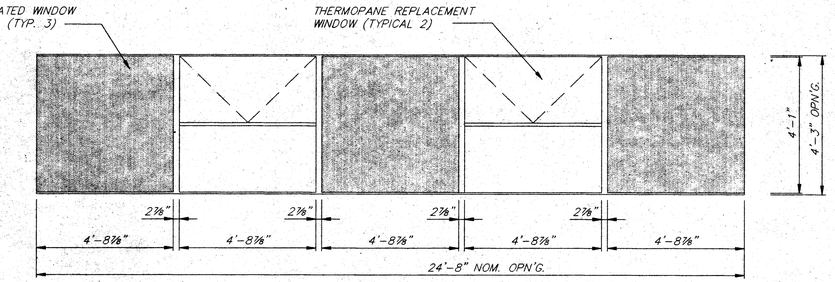
½"=1'-0"

WINDOW DETAILS

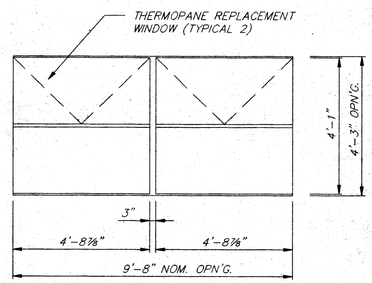
(NEW FILTER BUILDING)



TYPE "1"
(1) EAST ELEVATION
(2) WEST ELEVATION



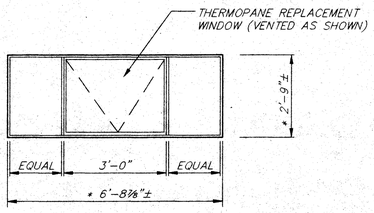
TYPE "2"
(1) NORTH ELEVATION
(1) SOUTH ELEVATION



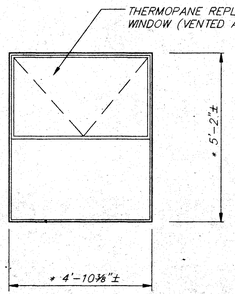
TYPE "3"
(2) EAST ELEVATION

REPLACEMENT WINDOW DETAILS

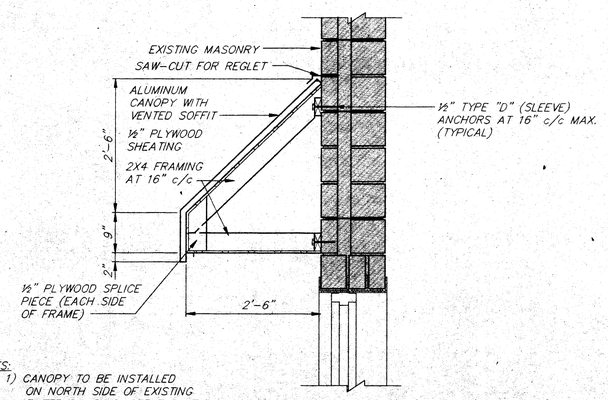
(CHEMICAL BUILDING) N.T.S.



TYPE "4"
(1) NORTH ELEVATION
(2) WEST ELEVATION

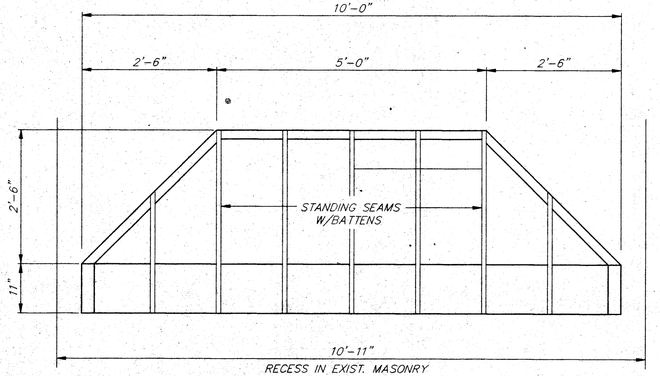


TYPE "5"
(3) NORTH ELEVATION
(2) EAST ELEVATION
(2) WEST ELEVATION
(1) SOUTH ELEVATION



SECTION

NOTES:
1) CANOPY TO BE INSTALLED ON NORTH SIDE OF EXISTING FILTER BUILDING, SEE ELEVATION ON SHEET 3.
2) ROOF SHOULD HAVE STANDING SEAMS W/BATTENS, AND COLOR TO BE A MEDIUM BRONZ.



ELEVATION

CANOPY DETAILS

¼"=1'-0"

REPLACEMENT WINDOW DETAILS

(FILTER BUILDING) N.T.S.

* CONTRACTOR SHALL FIELD VERIFY ALL EXISTING MASONRY OPENINGS.

STATE OF OHIO
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VILLIAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
AS NOTED	C.E.M.	C.E.M.	T.C.M.

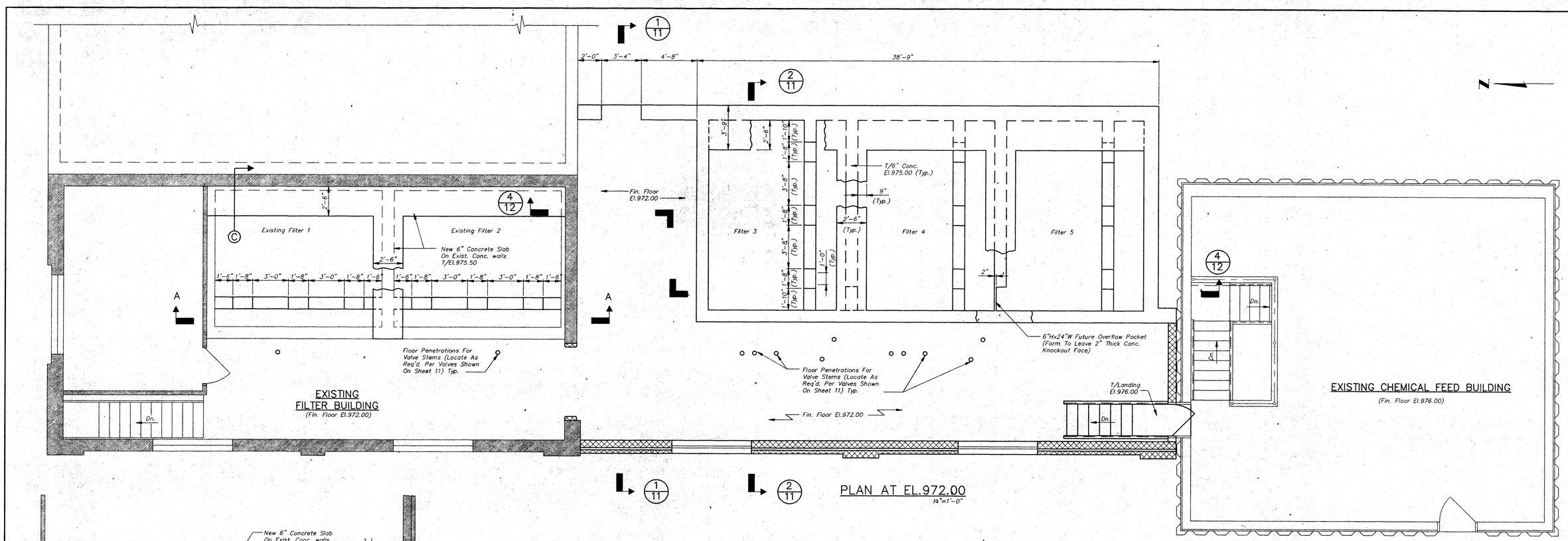
JOB NO. 14-3717
DATE 1994

ARCHITECTURAL WINDOW DETAILS

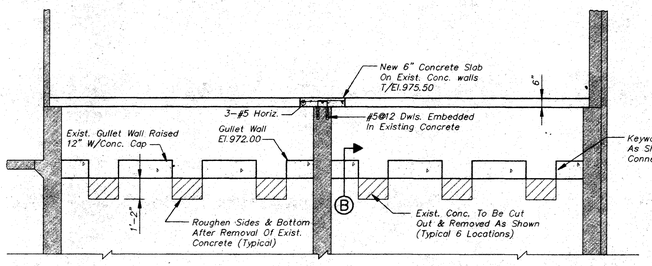
Jones & Henry Engineers, Inc.

SHEET NO. 10 OF 26

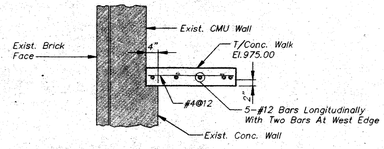
TDL-3717A07
03/23/94 02



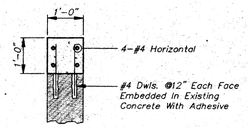
PLAN AT EL.972.00
1/4"=1'-0"



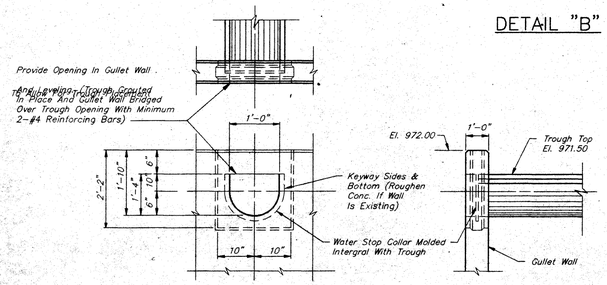
SECTION A-A
1/4"=1'-0"



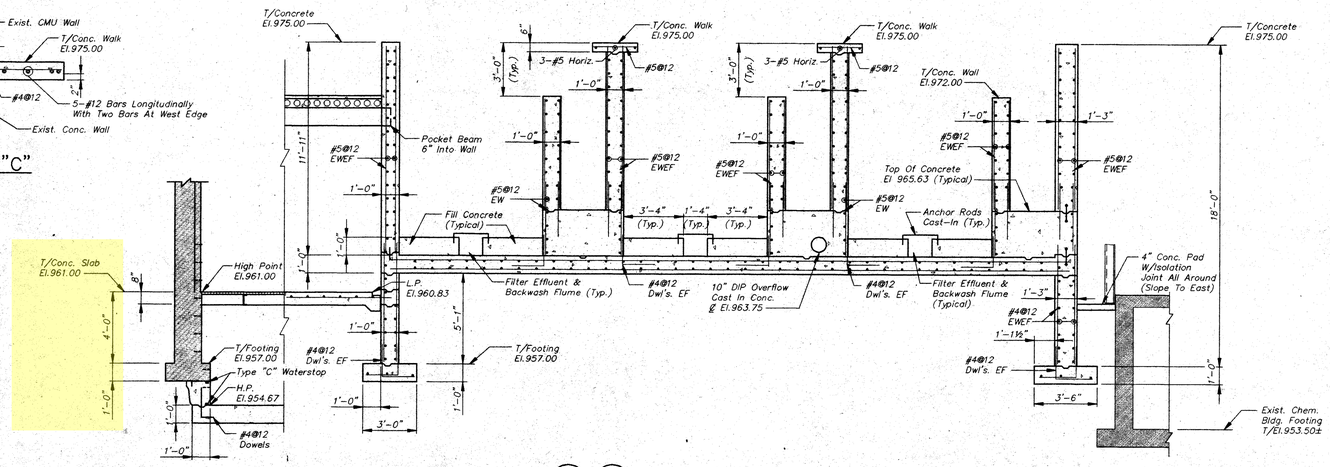
DETAIL "C"



DETAIL "B"



TROUGH CONNECTION DETAIL
NTS



SECTION 4/11 4/12
1/4"=1'-0"

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13

NEW FILTER BUILDING STRUCTURAL PLANS, SECTIONS & DETAILS

NO.	DATE	REVISIONS	BY.

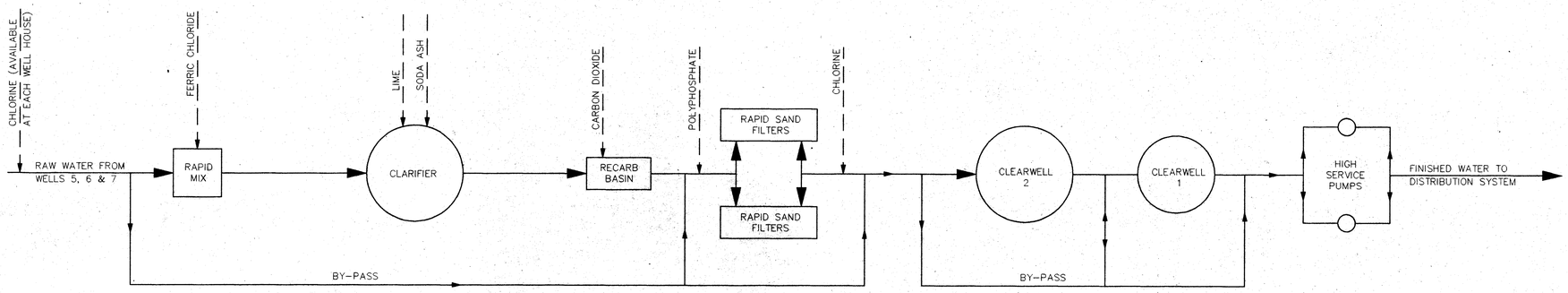
SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
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JOB NO. 14-3717
DATE 1994

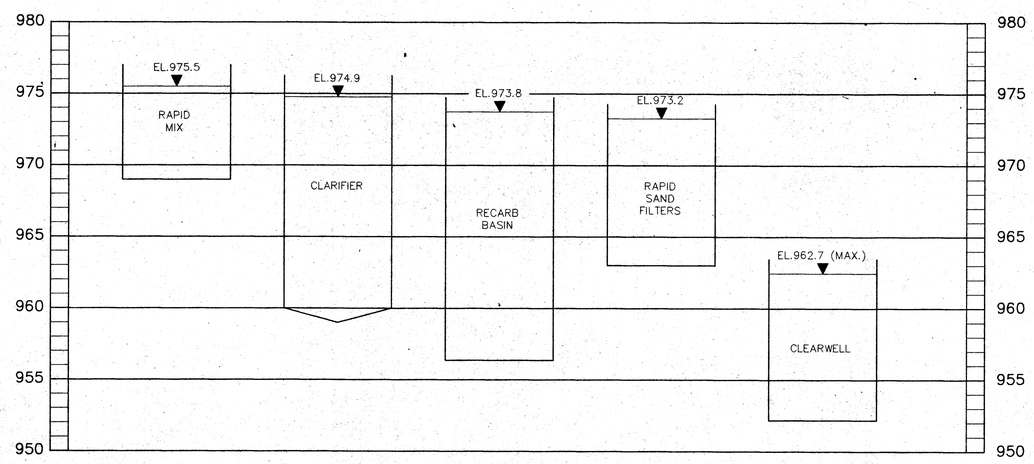
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SHEET NO. 12 OF 26

TDL-3717502
03/23/94 02



FLOW DIAGRAM



HYDRAULIC PROFILE

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
N.T.S.	G.W.	C.E.M.	G.W.

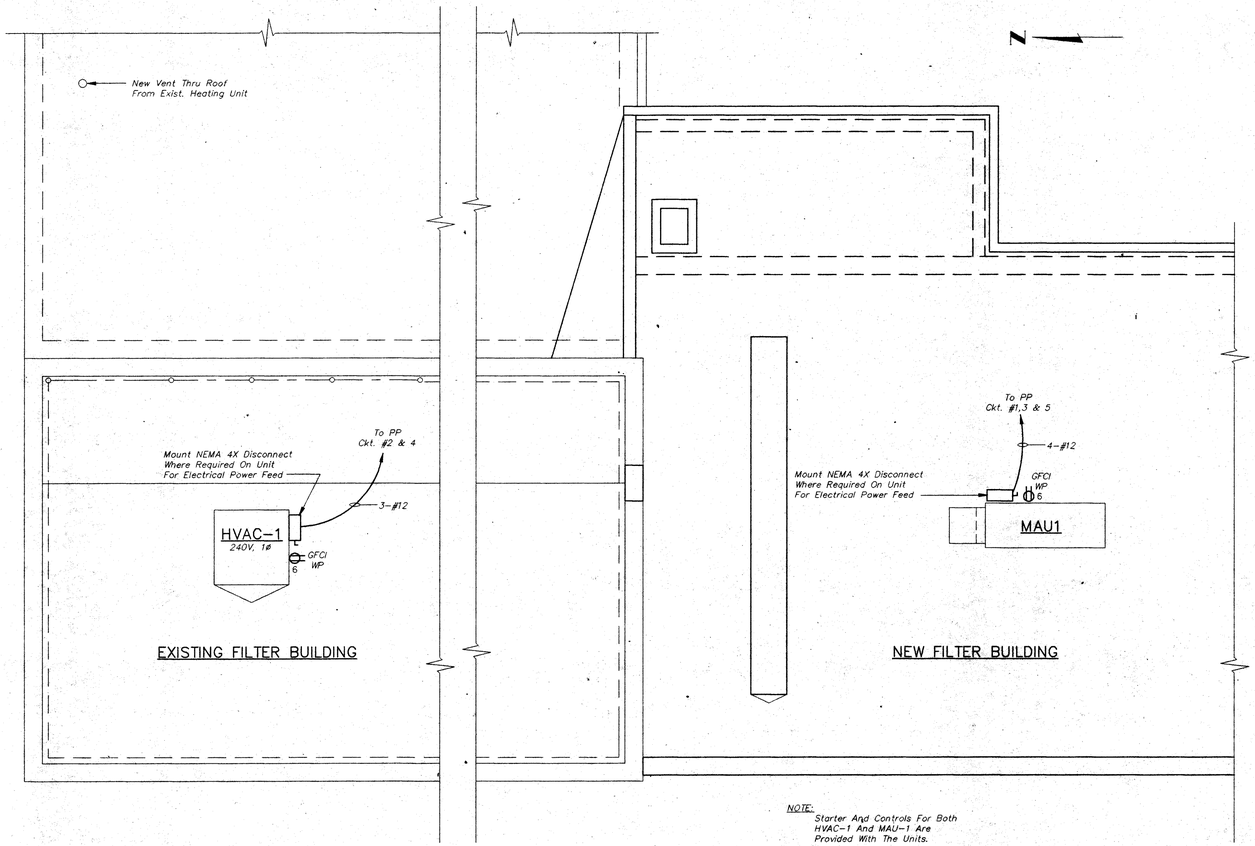
FLOW DIAGRAM & HYDRAULIC PROFILE

JOB NO. 14-3717
DATE 1994

Jones & Henry Engineers, Inc.

SHEET NO. 17 OF 26

T01-3717P01
03/24/94 02



ROOF PLAN

ELECTRICAL LEGEND (CONDUIT LAYOUT)

- G — Ground Wire
- Conduit Either In Floor Slab Or Under Ground
- Conduit Exposed Or Concealed In Arch. Wall Or Ceiling
- Conduit Homerun
- Conduit Turns Up
- Conduit Turns Down
- Conduit Tee
- Cadweld
- S — Single Pole Toggle Switch
- S_2 — Double Pole Toggle Switch
- S_3 — Three-Way Toggle Switch
- S_4 — Four-Way Toggle Switch
- S — Toggle Switch With Green Pilot Light
- 3 — Duplex Receptacle Number Indicates Circ. No.(WP=Weatherproof)
- Power Receptacle 480V,3Ph,60A With Disconnect Switch
- Receptacle, (Single)120,30A.Or Larger
- Receptacle, (Single)240V,2Pole
- Telephone Receptacle
- Ceiling Mounted Fixture (Letter Indicates Fixture Type)
- Wall Mounted Fixture (letter Indicates Fixture Type)
- A — Fluorescent Fixture (Letter Indicates Fixture Type)
- Pole Mounted Fixture (Letter Indicates Fixture Type)
- E — Emergency Lighting Fixture (Letter Indicates Fixture Type)
- F — Exit Fixture (Letter Indicates Fixture Type)
- 480V Power Panel
- Lighting Panel 120/208V Or 120/240V
- CP — Control Panel
- Combination Magnetic Motor Starter 480V,3Phase
- Magnetic Starter 120V,1 Phase
- S_V — Manual Motor Starter 120V, 1 Phase
- S_M — Manual Motor Starter 480V, 3 Phase
- Disconnect Switch (See One Line Diagram For Size & Type)
- B — Box – Junction, Terminal, Pull Or Hand Hole
- M — Single Phase Motor(Horsepower Shown)
- 2 — 3 Phase Motor(Horsepower Shown)
- Control Station
- Air Terminal (Lightning Protection)
- Motor Operated Valve 3 Phase,With Magnetic Starter And Controls
- Motor Operated Valve,1 Phase,With Magnetic Starter And Controls
- Piling With "Cadweld" Ground Connection
- Ground Rod
- XF — Transformer (Size And Type As Shown On Single line Diagram)
- Horn
- Horn/Strobe Combination
- F — Fire Alarm Strobe Light
- CA — Capacitor
- LS — Limit Switch
- P — Pressure Switch
- TS — Temperature Switch
- C — Conveybr Cable Switch
- Z — Zero Speed Switch
- S — Solenoid
- T — Thermostat
- F — Flow Switch
- L — Level Switch
- MP — Motor Thermo Protector
- H — Heater In Motor
- Q — Torque Switch
- V — Vibration Switch
- F — Flow Transmitter
- L — Level Transmitter
- P — Pressure Transmitter
- T — Temperature Transmitter
- D — Dissolved Oxygen Transmitter
- DT — Density Transmitter
- TY — Turbidity Transmitter
- E — Transmitter Element
- G — Natural Gas Detector With Control Panel
- C — Chlorine Gas Detector With Control Panel
- S — Sulfur Dioxide Detector With Control Panel
- PC — Photoelectric Cell
- S — P — Smoke Detector – Photoelectric
- H — R/F — Heat Detector – Rate Of Rise/Fixed Temperature
- P — F — Pull Station – Fire Alarm
- T — Thermocouple
- V — Pneumatic Valve Operator
- I — Current To Pressure Transducer
- Computer Outlet
- LC — Load Cell

General Electrical Notes:

1.) *Structural Materials Are Not Shown On These Electrical Drawings. Refer To Architectural And Structural Drawings.*

2.) *All Electrical Equipment Elevations Shown Are To Bottom Of Device Or Panel, Unless Otherwise Noted.*

3.) *(11735) Indicates A Specification Reference For Items Other Than Division 16. The Item Under This Reference Is Supplied By The General Contractor. Unless Otherwise Noted In That Specification, The Electrical Contractor Shall Then Wire This Item Per The Drawings And Division 16 Specifications.*

4.) *Project Control Wiring Requirements Shall Conform To All Requirements As Shown On the P & ID Series Drawings Whether Shown On The Electrical Series Drawings Or Not.*

5.) *Lines Connecting Electrical Equipment (Light Fixtures, Switches, Instruments, Control Panels, Power Panels, Valve Operators, Etc.) Are Not Intended As Conduit Routing. Contractor Is To Route Conduit Per Spec.16000.*

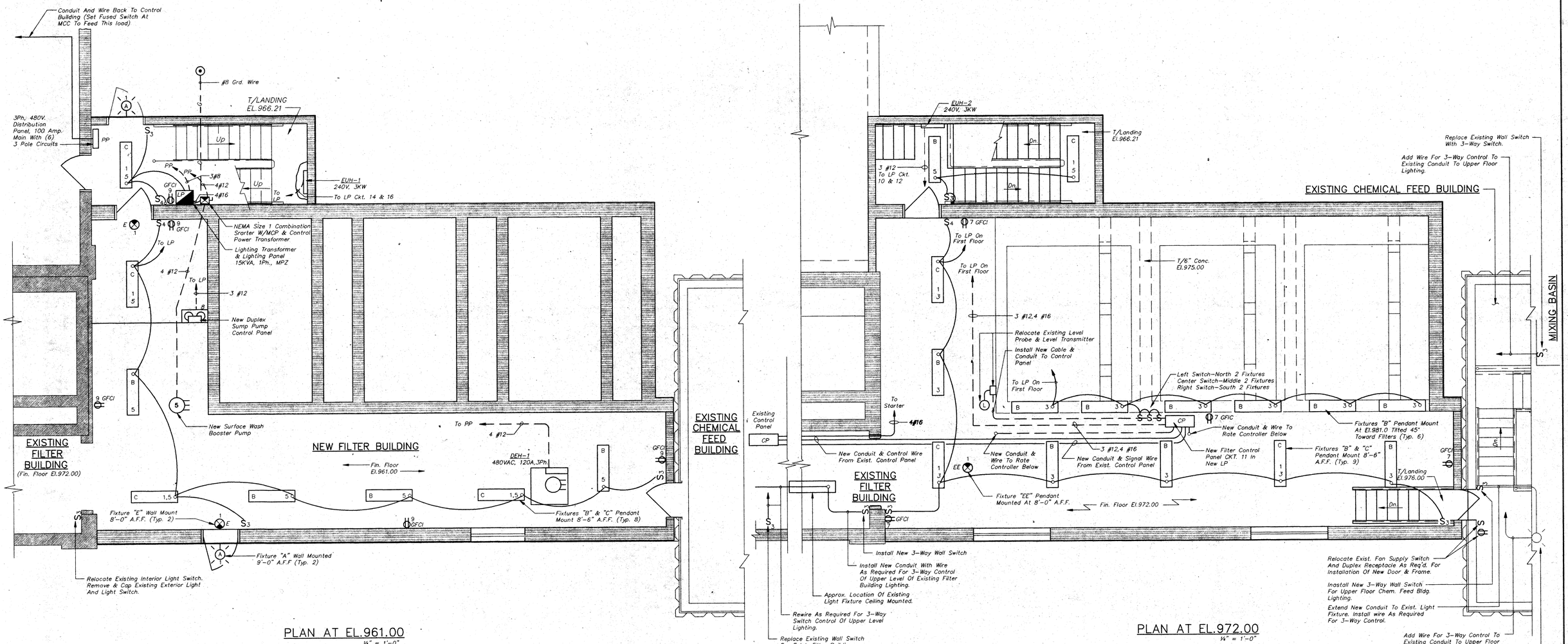
ONE LINE DIAGRAM LEGEND

- 30A FRS-R 30 — Fused Disconnect Switch (Numbers Indicates Switch Size, Fuse Type,And Fuse Size)
- 30A — Unfused Disconnect Switch (Number Indicates Switch Size)
- Non Reversing Starter
- F, R — Reversing Starter
- F, S — Two Speed Starter
- 40A — Circuit Breaker (Number Indicates Trip Size)
- 60A — Circuit Interrupter (Number Indicates Frame Size)
- 25KVA — Lighting Or Power Transformer (Number Indicates Size; 3-Phase, Unless Otherwise Noted)
- AS — AM — Current Transformer With Ammeter Switch, And Ammeter
- VS — VM — Potential Transformer With Voltmeter Switch, And Voltmeter
- 6KV — Earth Ground With Lightning Arrester (Number Indicates Voltage Rating Of Arrester)
- K — Kirk Key
- 5 — Motor, 3-Phase Unless Otherwise Noted. (Number Indicates Horsepower Size)
- Plug And Receptacle
- 25KVAR — Capactor (Number Indicates Size)
- Self Protected Combination Magnetic Motor Starter
- Self Protected Manual Motor Starter
- Higher Medium Voltage Cutout
- WH/M — Watthour Meter

STATE OF OHIO — THOMAS C. METCALF — No. E-47328 — REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT IMPROVEMENTS CONTRACT 13E					ELECTRICAL LEGENDS AND ROOF PLAN	
NO.	DATE	REVISIONS		BY	JOB NO. 14-3717	SHEET NO. E-1
SCALE 1/4"=1'-0"		DESIGN-LAYOUT G.M.W.	DRAWN C.E.M.	CHECKED L.R.W.	DATE 1994	OF 26
Jones & Henry Engineers, Inc.						

TOL-3717E03
03/24/94 02

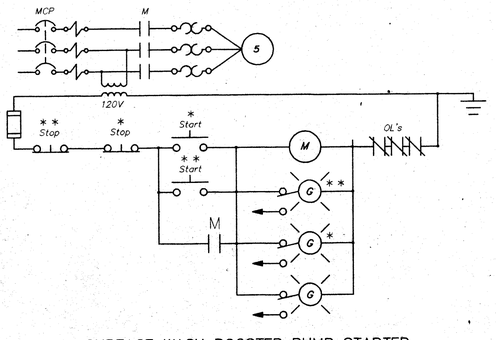


PLAN AT EL.961.00

¼" = 1'-0"

PLAN AT EL.972.00

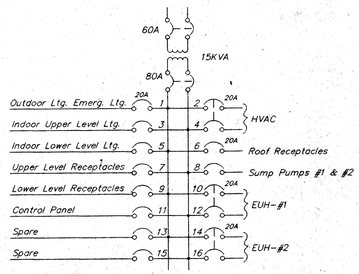
¼" = 1'-0"



SURFACE WASH BOOSTER PUMP STARTER

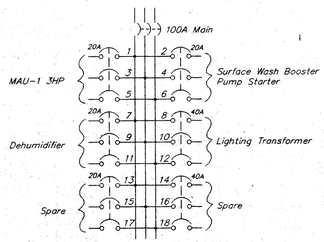
* Stop & Start Push Buttons And Run Light Located On Control Panel At Filters On Upper Level

* * Stop & Start Push Buttons And Run Light Located On Exist. Control Panel At Exist. Filters On Upper Level



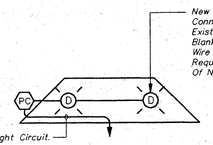
LIGHTING PANEL-LP

110V. Power - 15KVA, 1ø, 480-120/240V MPZ



POWER PANEL-PP

480V Distribution Panel, 3 Phase



New Light Fixtures And Remote Photocell Connected To Exist. Circuit. Remove Exist. Switch And Light Fixture. Install Blank Cover Plates Include Conduit And Wire As Required. Locate Photocell As Required And Adjust For Proper Operation Of New Canopy Lights.

CANOPY LIGHTS

N.T.S.

(See Sheet 3 For Location)

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13E

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
AS NOTED	G.M.W.	C.E.M.	G.M.W.

NEW FILTER BUILDING ELECTRICAL PLANS & WIRING DIAGRAMS

JOB NO. 14-3717
DATE 1994

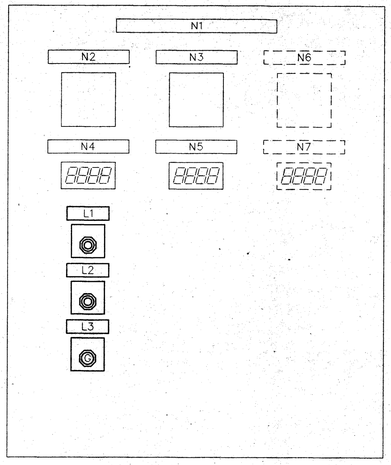
Jones & Henry Engineers, Inc.

SHEET NO. E-2 OF 26

TOL-3717E01
03/24/94 02

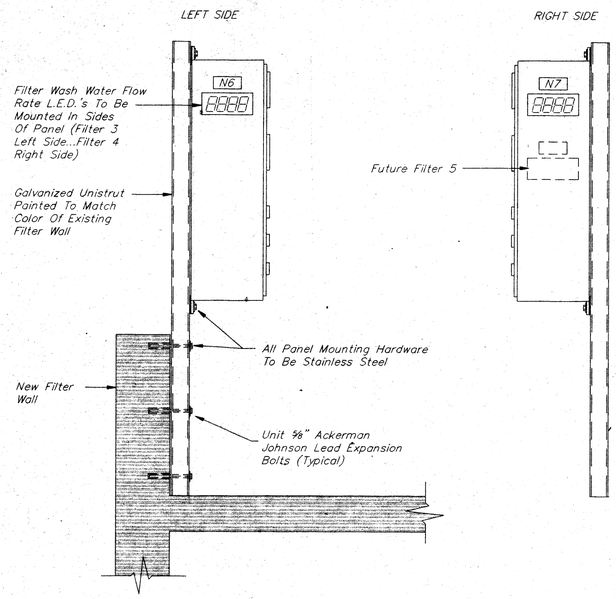
INSTRUMENT AND DEVICE LETTERING TABLE

	FIRST LETTER	SUCCEEDING LETTERS
A	Analysis	Alarm
B	Burner Flame	Close or Decrease
C	Conductivity	Control
D	Density	Open or Increase
E	Voltage	Primary Element
F	Flow Rate	Ratio
G		Glass Viewing Device
H	Hand (Manual)	High
I	Current (Elec.)	Indicate
J	Power	Light
K	Time	Control Station
L	Level	Low
M	Motor	Operate or On/Off
N	Moisture	Start/Stop or Open/Close
O	Torque	Overload
P	Pressure or Vacuum	Point or Test
Q	Quantity or Event	Totalize or Integrate
R	Radioactivity	Recorder
S	Speed or Frequency	Switch
T	Temperature	Transmitter
U	Multivariable	Multifunction
V	Vibration or Motion	
W	Weight or Force	Well
X	Vibration, Motion	Excess
Y	Computer	Relay or Compute
Z	Position	Drive or Actuate
△	Differential	



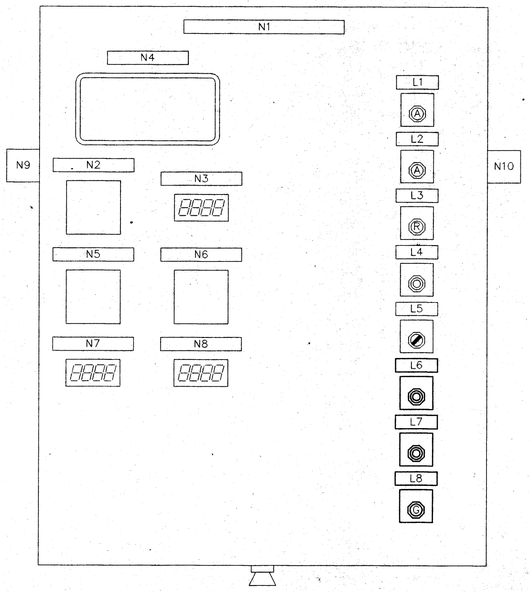
NEW FILTER CONTROL PANEL
36"H. X 24"W. X 16"D.
(NEMA – 4X STAINLESS STEEL ENCLOSURE)

NEW FILTER CONTROL PANEL NAMEPLATE LEGEND	
N1	FILTER CONTROL PANEL
N2	FILTER 3 FLOW CONTROLLER (GPM)
N3	FILTER 4 FLOW CONTROLLER (GPM)
N4	FILTER 3 HEAD LOSS (FT.)
N5	FILTER 4 HEAD LOSS (FT.)
N6	FUTURE FOR FILTER 5
N7	FUTURE FOR FILTER 5
L1	**SURFACE WASH START**
L2	**SURFACE WASH STOP**
L3	**SURFACE WASH RUN**



PROCESS AND INSTRUMENTATION DIAGRAM
DEVICE SYMBOLS AND DESIGNATION

SYMBOL	DESCRIPTION	SYMBOL	INSTRUMENT OR DEVICE IDENTIFICATION
	Front Panel Mounted Instrument Or Device	F--	First Letter Succeeding Letter Succeeding Letter Loop Number
	Back Panel Mounted Instrument Or Device		
	Field Mounted Instrument Or Device		
	Annuciator Window With Description		Discrete Data Output Point
M	Single Phase Motor		Discrete Data Input Point
M	Three Phase Motor (DC Indicates DC Motor)		Analog Data Output Point
	Isolation Switch Lockable In Off Position		Analog Data Input Point
	Motor Starter		Process Flow Direction Normal 1
	Horn, Bell Or Siren Per Specs		Process Flow Line
			Pneumatic Signal
			Electrical Connection – 480 V
			Electrical Connection 240 or 120 V
			Analog Signal (Usually 4–20 ma)
			Mechanical Connection
(2.19)	Typical Specification Reference Number Within Section 16902		
(11735)	Typical Specification Section Number	Note: All Equipment Symbols Are Per ISA S5.5	



FILTER CONTROL PANEL MODIFICATIONS
48"H. X 36"W. X 16"D.
(NEMA – 4X STAINLESS STEEL ENCLOSURE)

FILTER CONTROL PANEL MODIFICATIONS NAMEPLATE LEGEND	
N1	FILTER CONTROL PANEL
N2	FILTER LEVEL CONTROLLER (INCHES)
N3	FILTER 1 & 2 TOTAL FLOW (GAL. X 1000)
N4	BACKWASH FLOW RATE & TOTALIZER
N5	FILTER 1 FLOW CONTROLLER (GPM)
N6	FILTER 2 FLOW CONTROLLER (GPM)
N7	FILTER 1 HEAD LOSS (FT.)
N8	FILTER 2 HEAD LOSS (FT.)
N9	FILTER 1 BACKWASH FLOW RATE
N10	FILTER 2 BACKWASH FLOW RATE
L1	HIGH LEVEL
L2	LOW LEVEL
L3	LOW–LOW LEVEL
L4	HORN ACKNOWLEDGE
L5	FILTER 1 & 2 TOTALIZER RESET
L6	**SURFACE WASH START**
L7	**SURFACE WASH STOP**
L8	**SURFACE WASH RUN**

STATE OF OHIO
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WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13E

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
NONE	M.L.B.	A.R.B./C.M.	D.W.D.

JOB NO. 14–3717
DATE 1994

Jones & Henry Engineers, Inc.

INSTRUMENTATION & CONTROL FILTER PANELS P & ID

SHEET NO. E–3 OF 26

TS-377C04
02/24/94 02

New Filter Control Panel

From Filters 1 & 2 Level Controller

120 VAC

LΔ

ΔPI-3

FC-3

FC-4

ΔPI-4

Existing

FQ

FYT

Existing Filters 1 & 2 Control Panel

FI-3

FI-4

Note: For Panel Details See Sheet E-1

From Filter 1 & 2 Panel Wash Water Meter

Field

ZC

HS Local Remote

HN Open

HN Close

HN Stop

M

To Both New & Exist. Control Panels

Sand Trap (Typ.) *

Filter 3

Filter 4

FIT-3

FIT-4

24VDC

FE-3

FE-4

Valve B-7

Valve B-8

ΔPIT-3

ΔPIT-4

24 VDC

FIT-5

Filter Effluent

Filter Influent

Backwash

New Propeller Meter

From Filters 1 & 2

To Filters 1 & 2

* Reference Mounting Details Sheet E-5

STATE OF OHIO
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VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13E

INSTRUMENTATION & CONTROL FILTER CONTROL SYSTEM P & ID

NO.	DATE	REVISIONS	BY

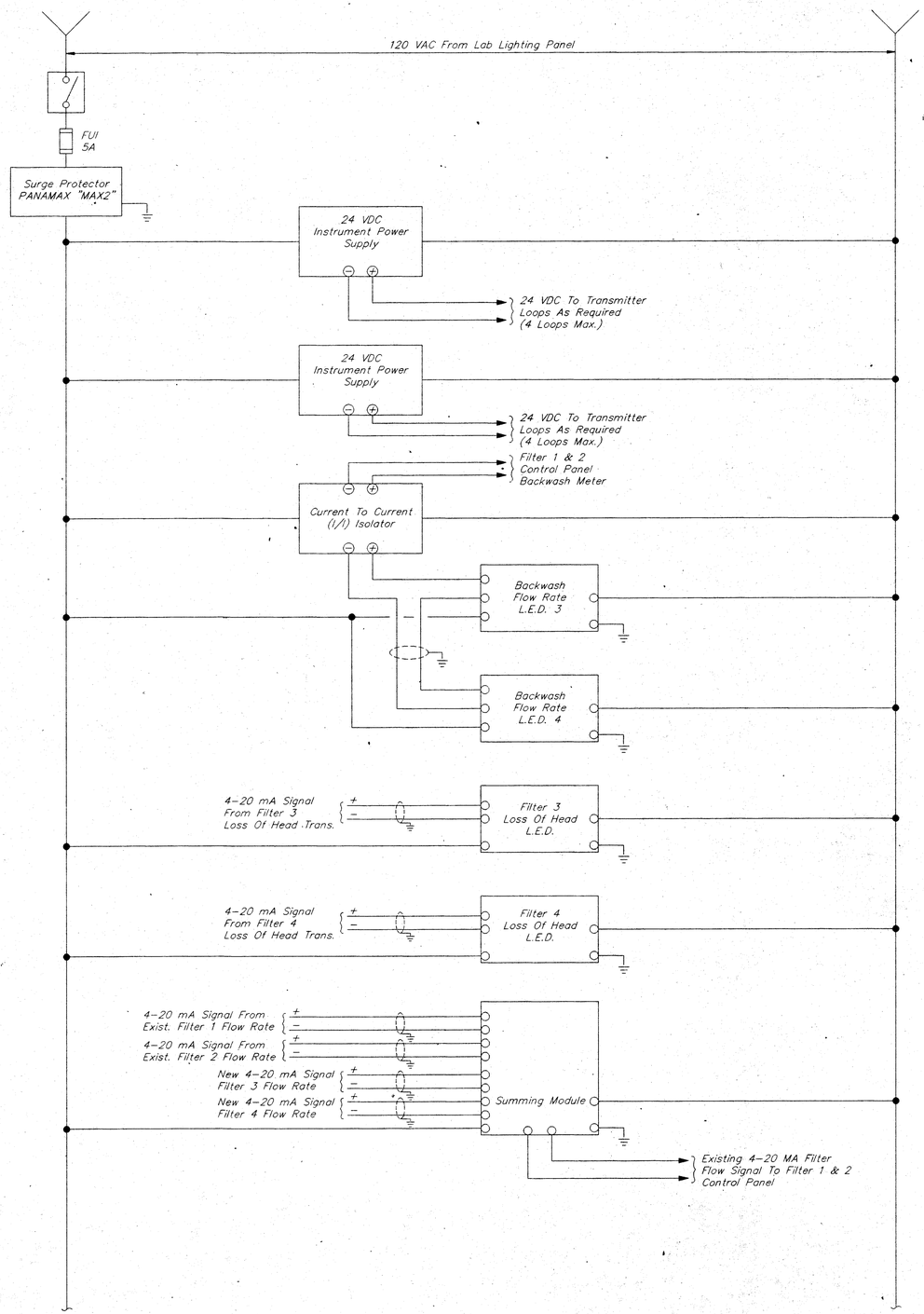
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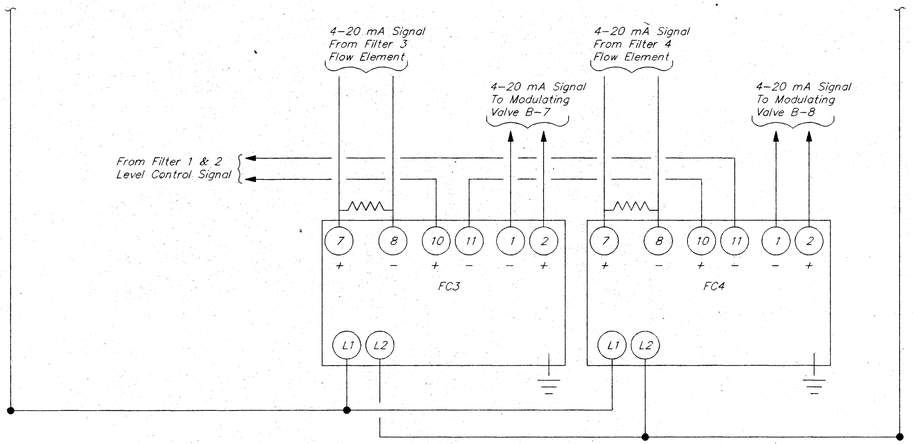
JOB NO. 14-3717
DATE 1994

Jones & Henry Engineers, Inc.

SHEET NO. E-4 OF 26

TQL-3717C01
03/24/94 02





TCB_3717F02
03/24/94 02

THOMAS C. METCALF
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VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13E

INSTRUMENTATION & CONTROL
FILTER CONTROL PANEL SCHEMATIC
P & ID

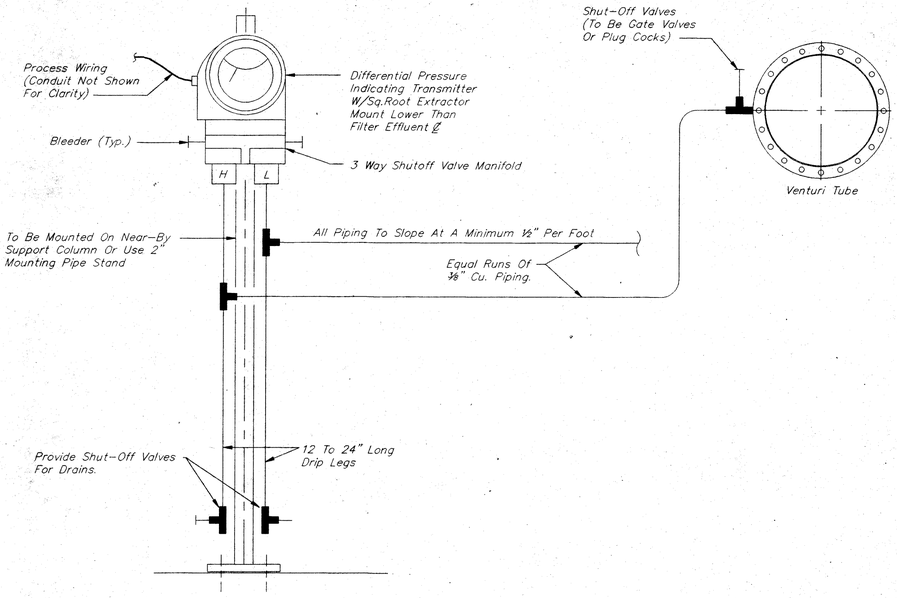
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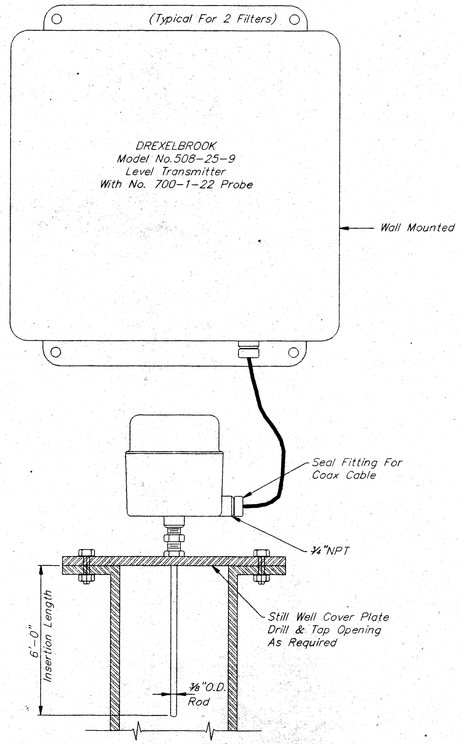
JOB NO. 14-3717
DATE 1994

Jones & Henry Engineers, Inc.

SHEET NO. E-5
OF 26

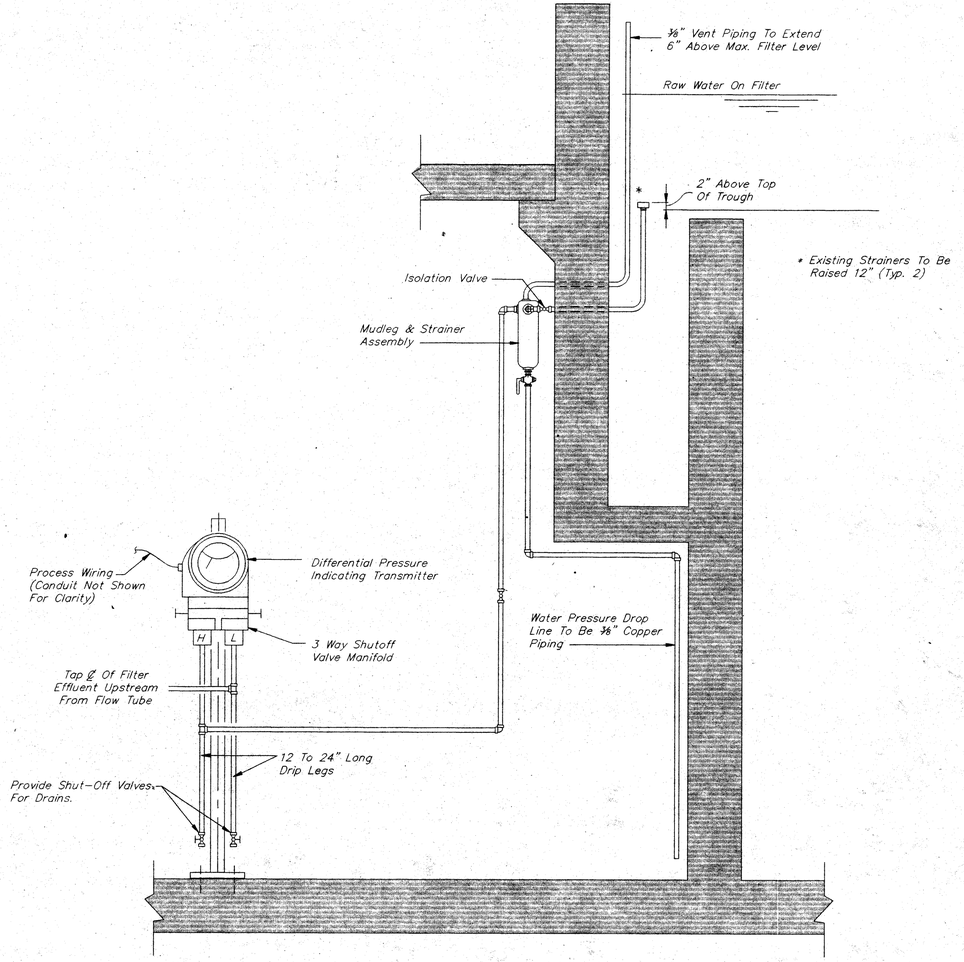


FLOW TRANSMITTER DETAIL



FILTER INFLUENT STILLWELL LEVEL PROBE MOUNTING DETAIL

N.T.S.



LOSS OF HEAD TRANSMITTER AND PIPING DETAIL

(Typical For 2 Filters) N.T.S.

STATE OF OHIO
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VILLAGE OF ADA, OHIO WATER TREATMENT PLANT FILTER ADDITIONS CONTRACT 13E					INSTRUMENTATION & CONTROL LEVEL PROBE & TRANSMITTER DETAILS P & ID		
NO.	DATE	REVISIONS		BY	JOB NO. 14-3717	Jones & Henry Engineers, Inc.	SHEET NO. E-6
SCALE N.T.S	DESIGN-LAYOUT M.L.B.	DRAWN A.R.B./C.M.	CHECKED D.W.D.		DATE 1994		OF 26

TOL-3717C03
03/24/94 02

Existing NPW (See Iso. On Sh. M-3)
1" Cu. Potable Water. Connect To Exist Line (See Iso. On Sh. M-3)
Remove 8"ø Duct To Use Points & Seal. (Cap At Plenum)
Exist. Core To Be Plugged (See Detail On Sh. MD-2)
Relocate Exist. Gas Meter
Install New Cap
Exist. 2" Stl. Nat. Gas (To Furnace)
Exist. 1" Pot. Water
Remove Existing 1" Stl. Nat. Gas
New Valve & Cap (See Iso. On Sh.M-2)
Up
T/Landing El.966.21
Up
EUH-1 (Bott. El.962.00)
C.O.
Sump Pumps P-1 & P-2
L.P. El.960.83
H.P. El.961.00
SAG-1 (Typ. For 3)
6" Wide Trench Drain Inv. El.960.00
3" DIP Surface Wash
6" Wide Trench Drain Inv. El.960.17
Sill Cock
L.P. El.960.83
1½" Sch. 80 PVC Sump Pump Discharge (Cast In Floor Slab)
¾" Cu. Potable Water @ El.970.17
¾" Cu. Pot. Water (Up To El.972.00)
3" D.I.P. Potable Water @ El.968.00
L.P. El.960.83
DEH-1 Control Humidistat
New Back Flow Preventor (See Iso On Sh. M-3)
1½" B.S. Nat. Gas Reconncted To Exist. U.H.
3" D.I.P. Potable Water @ El.968.00
6" Wide Trench Drain Inv. El.960.80
Type "F" Wall Penetration (Insulate Exposed 3" PVC)
UP
15ø Duct At El.970.00 To MAU-1 Above
7'-6"
1'-0"
To Lab
Exist. 2" Nat. Gas
Remove Exist. 1½" & Any Other Lines To Exist. Unit Heater
Remove Exist. U.H.
Remove Exist Flue & Plug Floor Opening
2" Riser
C.O.
New Type "F" Wall Penetration At Min. Elev.
H.P. El.961.00
Sill Cock
SAG-2
SAG-3
12" DIP Backwash.
10" x 18" Alum. Duct At Maximum Elev.
DEH-1 At Max. Elevation W/¾" Condensate Line With Trap To Trench Drain
Transition Piece As Required
¾" Cu. Potable Water @ El.970.17
H.P. El.961.00
Sill Cock
New Type "F" Wall Penetration At Min. Elev.
1½" Sch. 80 PVC Sump Discht To New Storm Water C.B.
1½" Polyethylene Nat. Gas Connection To Exist. Service
Natural Gas Meter
Anodeless Riser

PLAN · AT EL.961.00

EUH-2 (Bott. El.973.00)
Dn.
Dn.
T/Landing El.977.21
Plug Exist. Flue At Ceiling (Typ. 3 Locations)
Fin. Floor El.972.00
T/Concrete El.975.00
SAG-4
SAG-4
1¼" Steel Nat. Gas (Core & Seal At Roof)
10"x24" Alum. Duct Bott. El.981.50
Transition Piece As Required
Insulated Backing Stat For MAU-1
15"ø Alum. Duct Up To MAU-1 On Roof
15"ø Alum. Duct @ El.981.50
¾" Cu. Pot. Water With Sill Cock
Valve & Cap For Future Use
Remove Exist. Window AC unit & Deliver To Owner
18" x 18" Alum. Supply Duct Up To MAU-1
2" Steel Nat. Gas (Core & Seal At Roof)
SAG-2
RAG-3
18" x 18" Alum. Return Duct Up To MAU-1
Remove Exist. Unit Heater (Cap Gas Service At Unit)
Type "C" Wall Penetration
1¼" Steel Nat. Gas @ El.982.50
2" PVC Sleeve For 1¼" Steel Nat. Gas (Coulk & Seal All Around) @ El. 982.50
Fin. Floor El.972.00
Dn.

PLAN AT EL.972.00

STATE OF OHIO
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REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 13M

FILTER BUILDING MECHANICAL PLANS

NO.	DATE	REVISIONS	BY

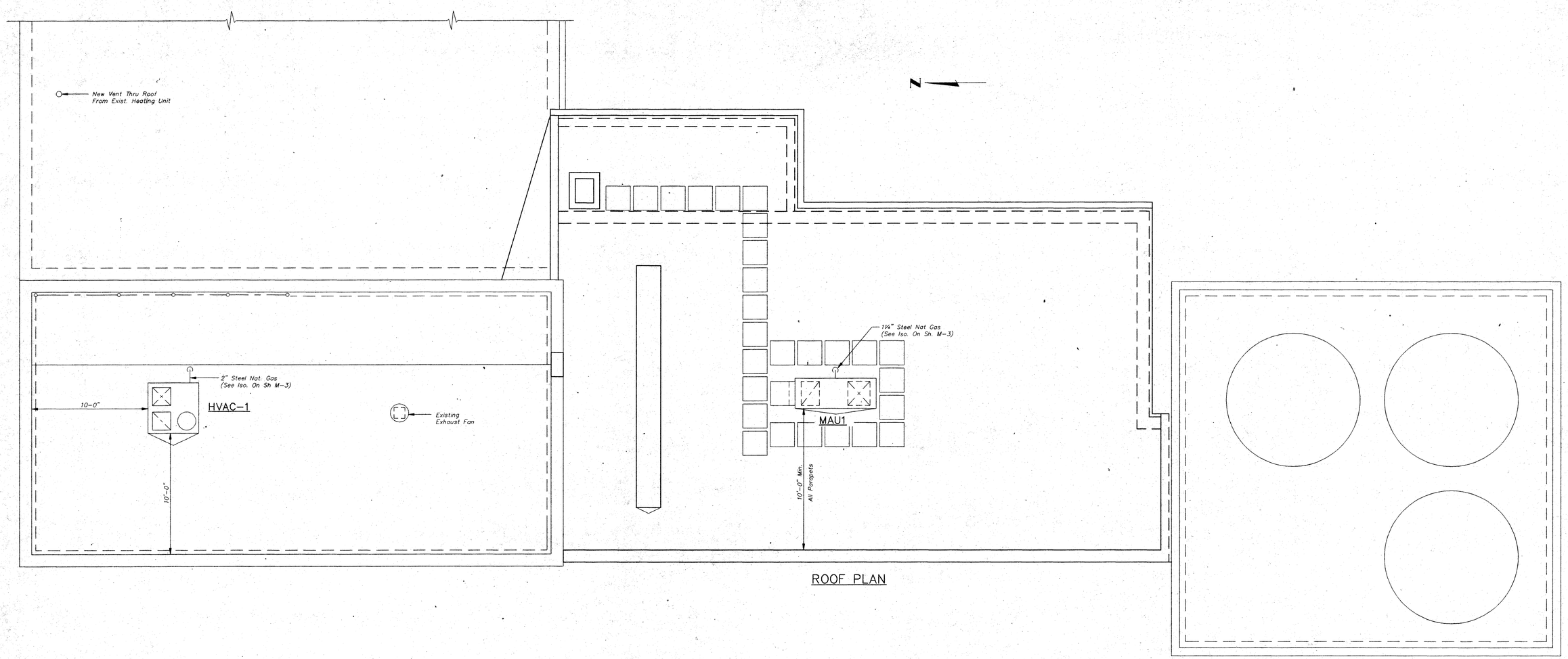
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JOB NO. 14-3717
DATE 1994

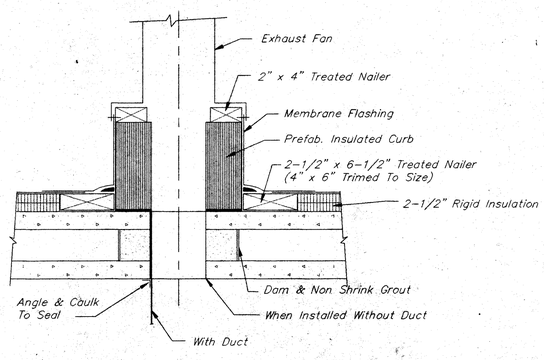
Jones & Henry Engineers, Inc.

SHEET NO. M-1 OF 26

TOL-3717H01
03/24/94 02



ROOF PLAN



TYPICAL VENTILATOR INSTALLATION
NTS

THOMAS C. METCALF
No. E-47328
STATE OF OHIO
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PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 13M

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
¼"=1'-0"	C.C.W.	C.E.M.	C.C.W.

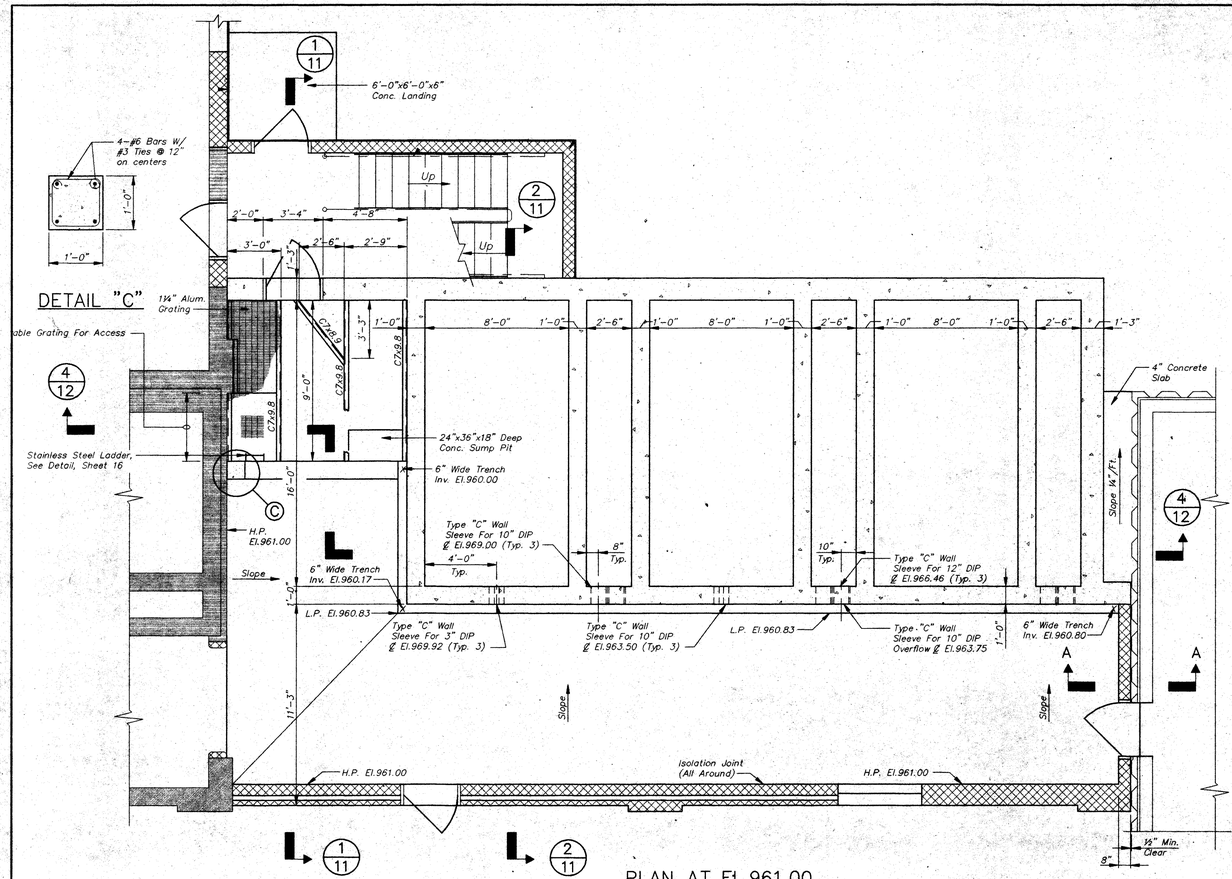
JOB NO. 14-3717
DATE 1994

Jones & Henry Engineers, Inc.

FILTER BUILDING MECHANICAL ROOF PLAN

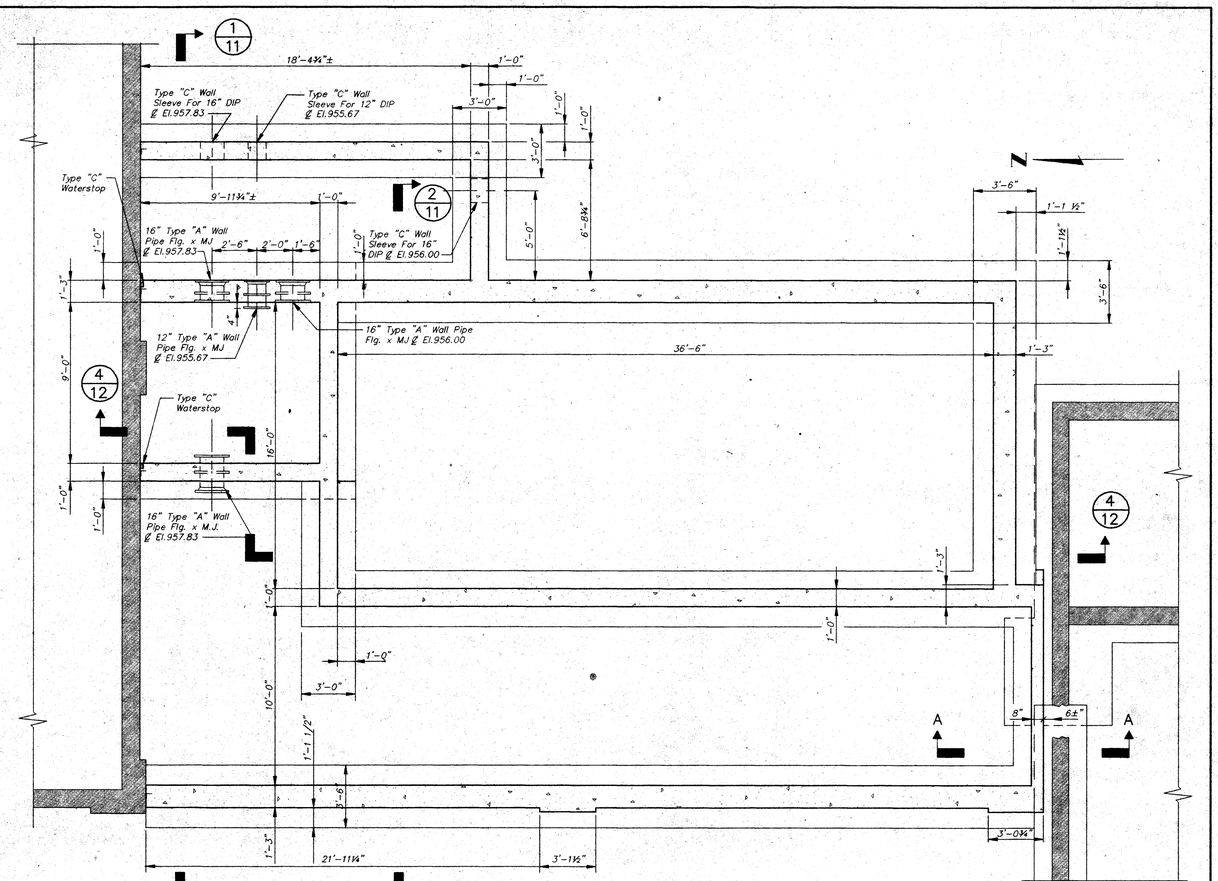
SHEET NO. M-2 OF 26

T01-3717H02
03/24/94 02



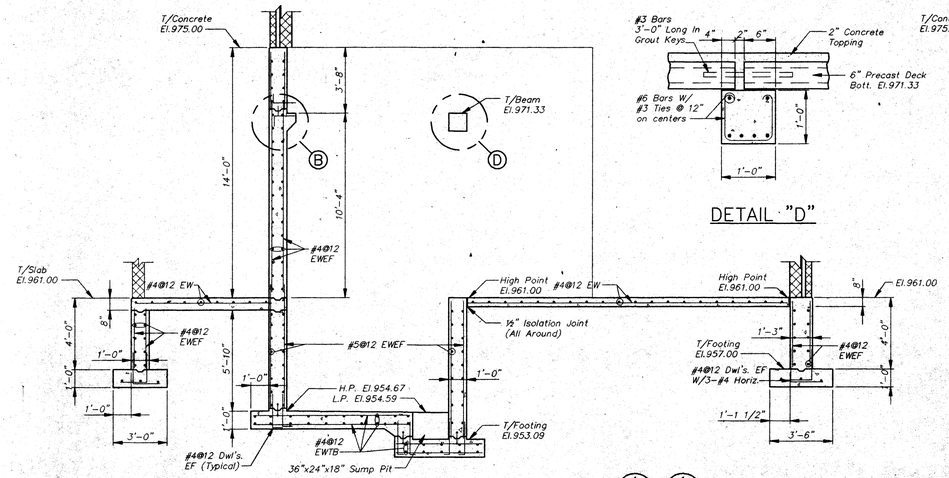
PLAN AT EL.961.00

¼"=1'-0"



FOUNDATION PLAN

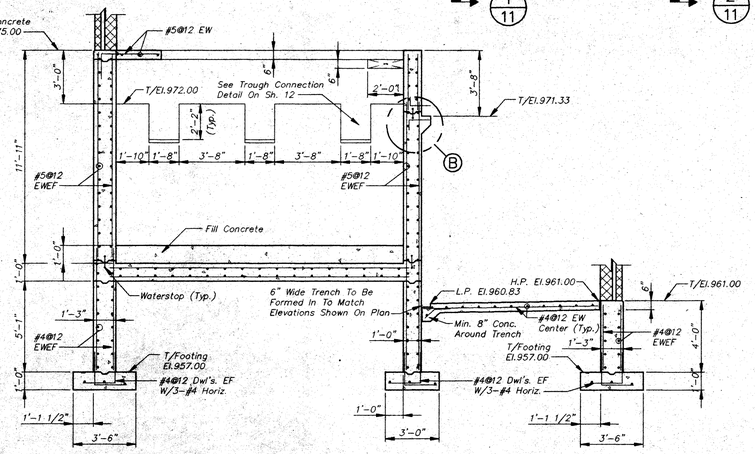
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SECTION 1/11 1/12

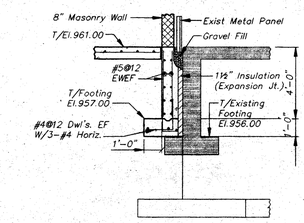
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DETAIL "D"



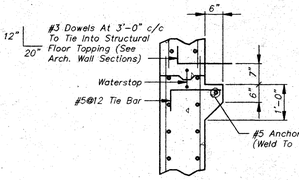
SECTION 2/11 2/12

¼"=1'-0"



SECTION A-A

¼"=1'-0"



DETAIL "B"

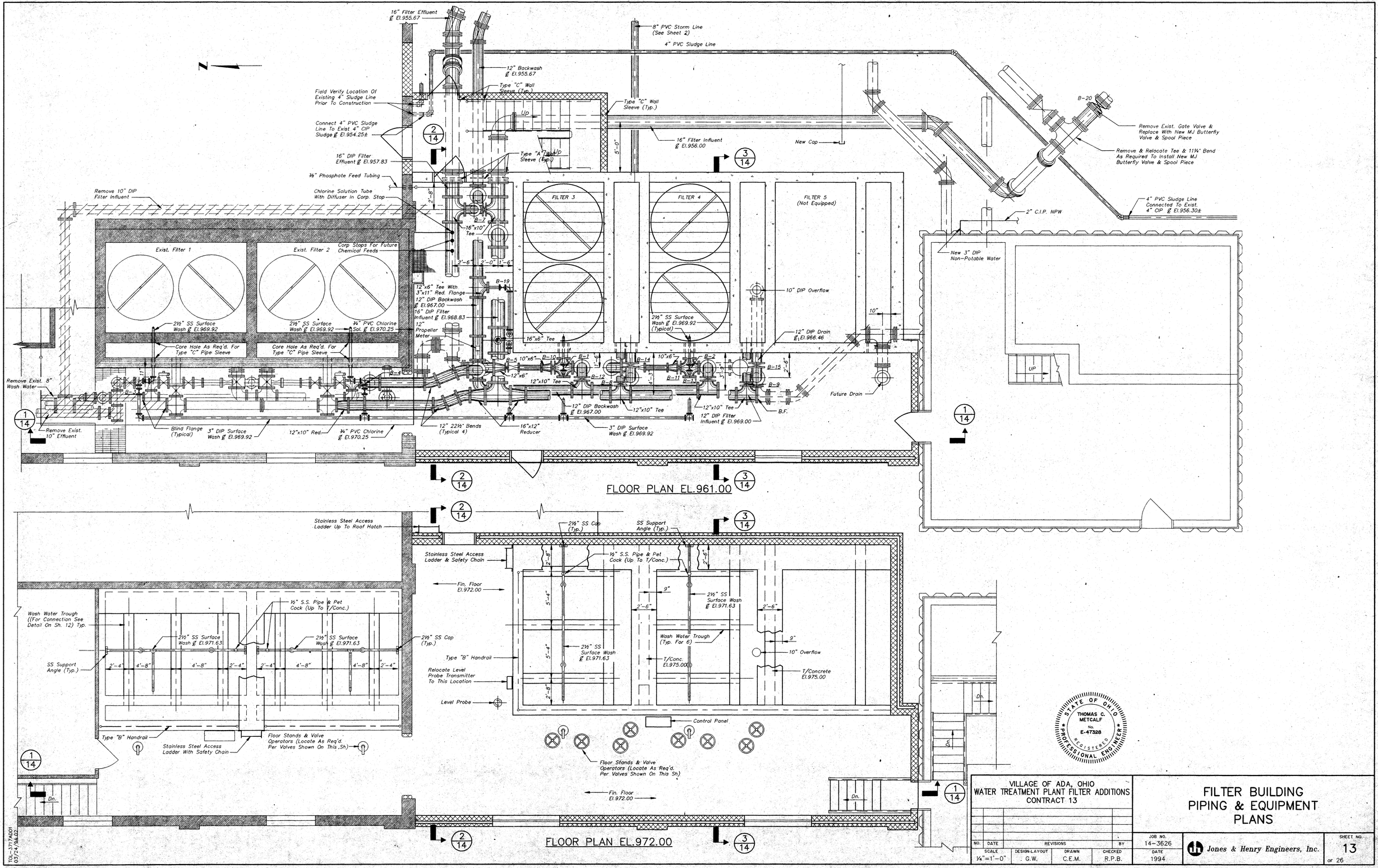
N.T.S.

NOTE:
Ground Floor & Second Floor Design Live Loads = 150 psf

STATE OF OHIO
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VILLAGE OF ADA, OHIO WATER TREATMENT PLANT FILTER ADDITIONS CONTRACT 13					NEW FILTER BUILDING STRUCTURAL PLANS, SECTIONS & DETAILS
NO.	DATE	REVISIONS		BY	JOB NO. 14-3626
SCALE: AS NOTED		DESIGN-LAYOUT: D.A.R./C.E.M.	DRAWN: C.E.M.	CHECKED: D.A.R.	DATE: 1994
Jones & Henry Engineers, Inc.					SHEET NO. 11 of 26

TOL-3717501
03/23/94 02



THOMAS C. METCALF
No. E-47328
REGISTERED PROFESSIONAL ENGINEER
STATE OF OHIO

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13

FILTER BUILDING PIPING & EQUIPMENT PLANS

NO.	DATE	REVISIONS	BY

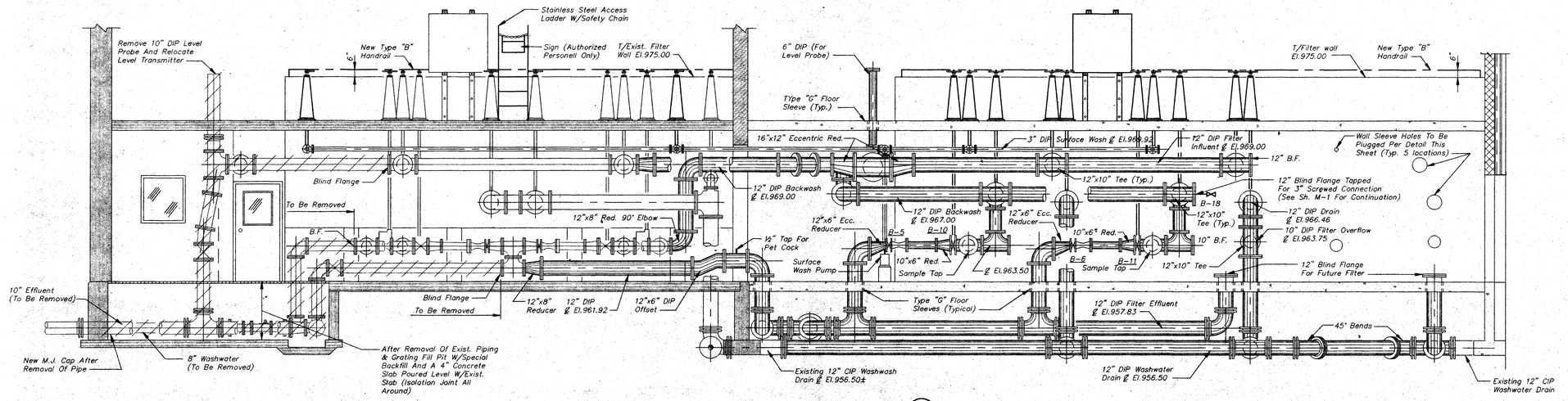
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JOB NO. 14-3626
DATE 1994

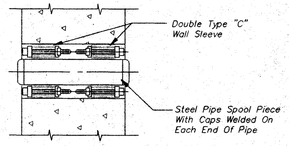
Jones & Henry Engineers, Inc.

SHEET NO. 13 OF 26

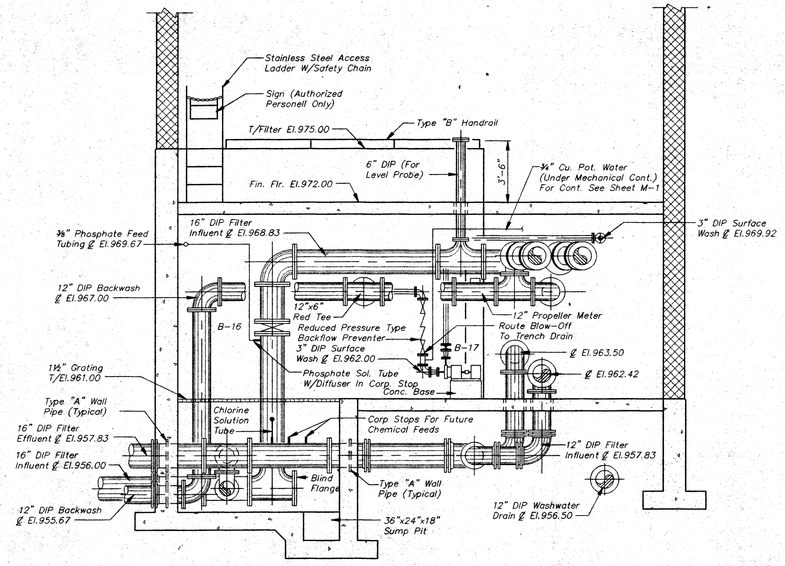
TOL-3717A001
03/24/94.02



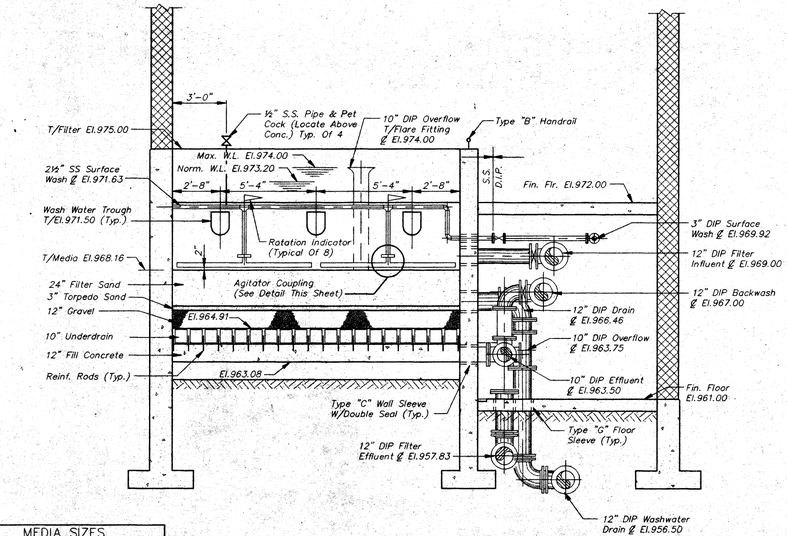
SECTION (1/13)



WALL SLEEVE PLUG DETAIL
N.T.S.

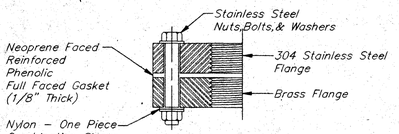


SECTION (2/13)

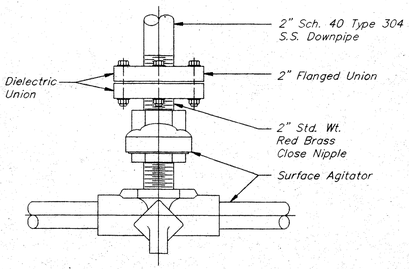


SECTION (3/13)

MEDIA SIZES	
Filter Sand	(24") 0.35 – 0.50mm
Torpedo Sand	(3") 0.8 – 2.0mm.
Gravel:	3" 1½" – #12
	3" ¼" – ½"
	3" ½" – 1½"
	3" ¾" – 1½"



DIELECTRIC UNION DETAIL



AGITATOR COUPLING DETAIL
(8 Required) NTS

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13

FILTER BUILDING PIPING & EQUIPMENT SECTIONS

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
¼"=1'-0"	G.W.	C.E.M.	R.P.B.

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DATE 1994

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TO-37174002
03/23/94 02

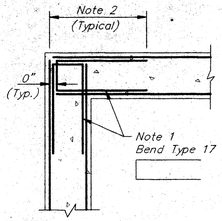
TYPICAL CONCRETE COVER

Concrete Cast Against And Permanently Exposed To Earth	3"
Surface Exposed To Earth Or Weather	2"
Surface Exposed To Or Over Water, Sewage, Or Other Liquids	
Slabs, Walls, Joists	2"
Beams, Columns	
Primary Reinforcement:	2½"
Stirrups And Ties:	2"
Other Surfaces	
Slabs, Walls, Joists	¾"
Beams, Columns	
Primary Reinforcement:	2"
Stirrups And Ties:	1½"

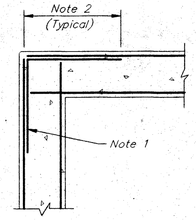
LAP SPLICE LENGTH (IN.)

Bar Size	Top Reinforcement	Bottom Reinforcement
#3	18	16
#4	24	19
#5	30	23
#6	36	28
#7	42	33
#8	48	37
#9	90	69
#10	114	88
#11	140	108

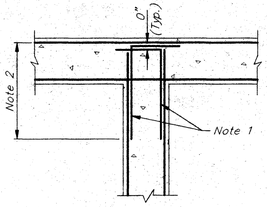
Top Reinforcement Is Defined As Horizontal Reinforcement With More Than 12" Of Fresh Concrete Cast Beneath The Bar. Horizontal Bars In Walls Shall Be Considered As Top Reinforcement.



LIQUID–RETAINING STRUCTURES



OTHER STRUCTURES



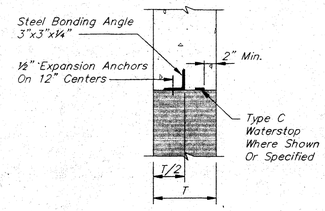
ALL STRUCTURES

Wall Corner Reinforcement Notes:

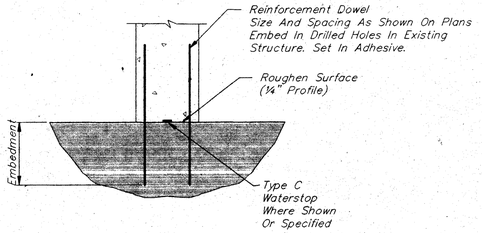
1. Same Size And Spacing As Horizontal Reinforcement Unless Shown Otherwise
2. Lap Splice Length For Top Bars Unless Shown Otherwise. Lap Location May Be Shifted To Reduce Congestion At Corner.

STRUCTURAL DESIGN DATA

Building Code	1992 Ohio Basic Building Code	
Seismic	Seismic Zone	Z = 1
	Acceleration Coefficient	Av = 0.075
	Importance Factor	I = 1.5
	Soil Factor	S = 1.5
Wind	Basic Wind Speed	V = 80 MPH
	Exposure	C
	Importance Factor	I = 1.07
Snow	Ground Snow Load	Pg = 30 PSF
	Snow Exposure Factor	Ce = 0.9
	Importance Factor	I = 1.2
Floor	Live Load (As Shown)	100 PSF Min.
	Mechanical & Electrical	= 20 PSF
	Partitions	= 60 PSF
Roof	Live Load	= 30 PSF
	Snow Load (See Above)	
	Mechanical & Electrical	= 10 PSF
	Roofing System	= 15 PSF
Stairs	Live Load	= 100 PSF
Corridors	Live Load	= 100 PSF
Equipment Platforms	Live Load (As Shown)	= 100 PSF Min.
Bearing Capacity	Presumed Bearing Capacity At 5' Ft. Below Grade	= 2000 PSF



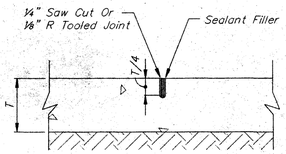
NEW TO EXISTING



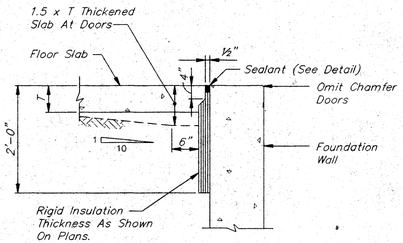
NEW TO EXISTING

TYPICAL WALL CORNER REINFORCEMENT DETAILS

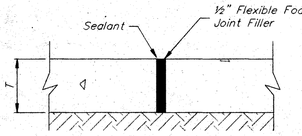
(Double Curtain Reinforcement)



CONTRACTION JOINT

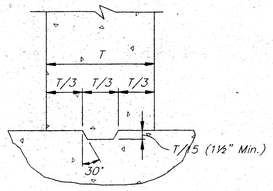


PERIMETER ISOLATION JOINT

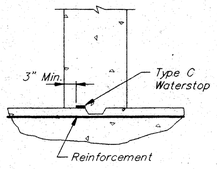


ISOLATION JOINT

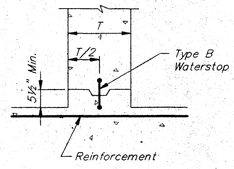
TYPICAL FLOOR–SLAB–ON–GRADE DETAILS



TYPICAL SHEAR KEY



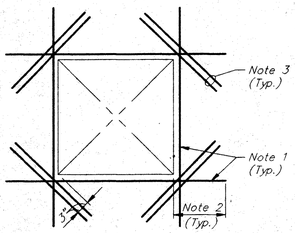
WATERTIGHT JOINT AT BASE OF WALL



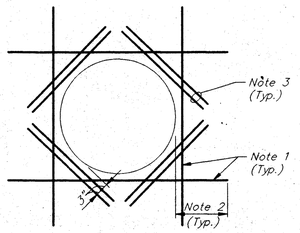
ALTERNATIVE

WATERTIGHT JOINT AT BASE OF WALL

TYPICAL CONSTRUCTION JOINT DETAILS



RECTANGULAR



CIRCULAR

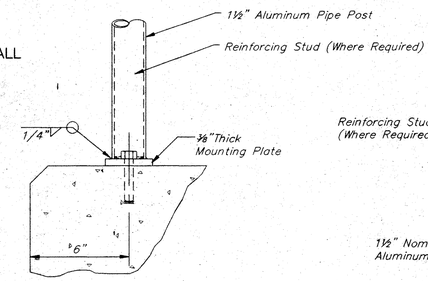
Note 1 – Additional Reinforcement Equal In Area To Reinforcement Cut By Opening.

Note 2 – Lap Splice Length For Top Bars.

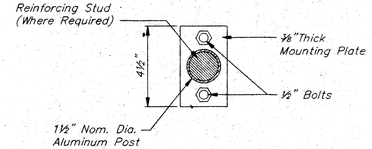
Note 3 – Diagonal Bars – Each Face, 2 Each Corner – Size As Follows

Conc. Thickness	Bar Size	Length
< 12"	#4	3'-0"
12" To 18"	#5	3'-6"
> 18"	#6	4'-0"

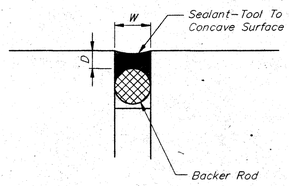
TYPICAL ADDITIONAL REINFORCEMENT AT OPENINGS LARGER THAN 12"



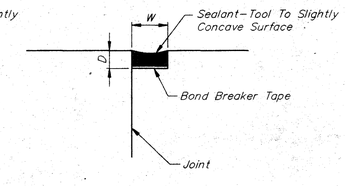
TYPE "B" HANDRAIL DETAIL



DETAIL A



STANDARD



SHALLOW

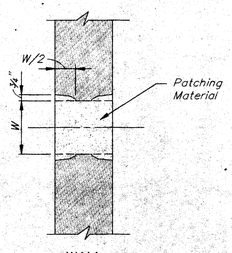
TYPICAL SEALANT DETAILS

Typical Sealant Notes:

1. Joint Width (W) As Shown On Plans

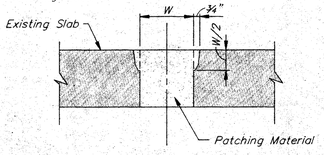
W ≤ ½"	D = ¼"
W = ¾"	D = ⅜"
W ≥ 1"	D = ½"

2. Blunt Sharp Edges Of Concrete Joints With Grinder Before Sealing.



WALL

Chip Surfaces Of Opening To Dimensions Shown. Fill Opening With Polymer–Modified Cementitious Patching Material.



SLAB

TYPICAL DETAILS FOR PATCHING OF ABANDONED OPENINGS

(W ≤ 18")

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
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VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 13

MISCELLANEOUS DETAILS

NO.	DATE	REVISIONS	BY

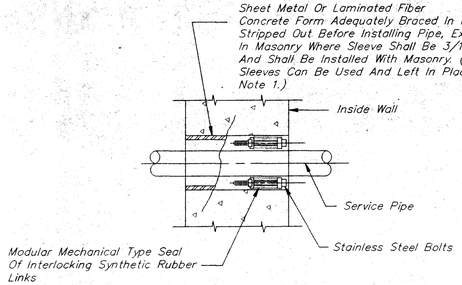
SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
NONE	M.R.K.	C.E.M.	T.C.M.

JOB NO. 14–3626
DATE 1994

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SHEET NO. 15 OF 26

TOL-3717M001
03/24/94 02

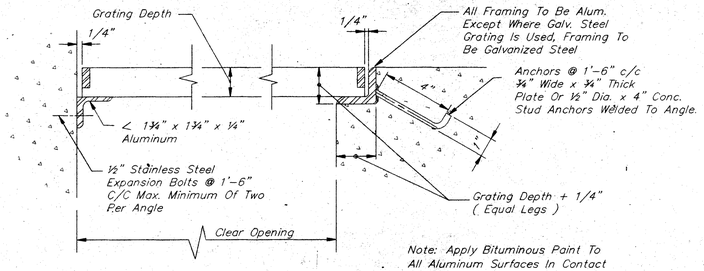


Notes:

1. A Compatible High Impact Thermoplastic Sleeve With Waterstop Anchor Collar May Be Used For Forming The Penetration. Nailer End Caps For Positioning Sleeve In Forms Shall Be Included.
2. Walls Shall Be Core Drilled Where Shown And Elsewhere If Approved By The Engineer.
3. Concrete Shall Be Worked In And Vibrated To Eliminate All Voids In Concrete – If Voids Do Remain, Fill With Grout Before Installing Pipe And Rubber Seals.

TYPE C

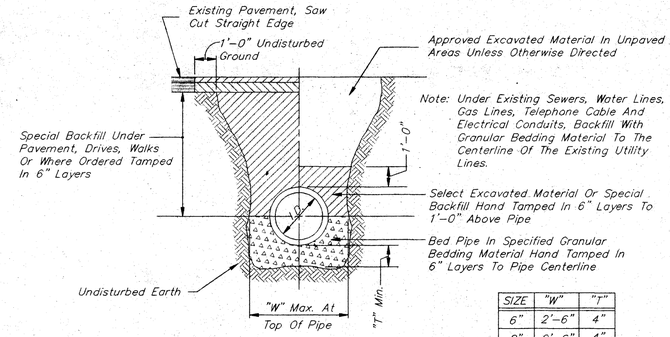
PIPE SLEEVE



Note: Apply Bituminous Paint To All Aluminum Surfaces In Contact With Concrete

TYPE B TYPE A

GRATING FRAMES

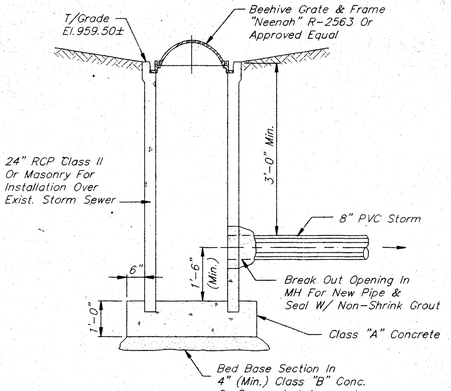


TRENCH DETAIL

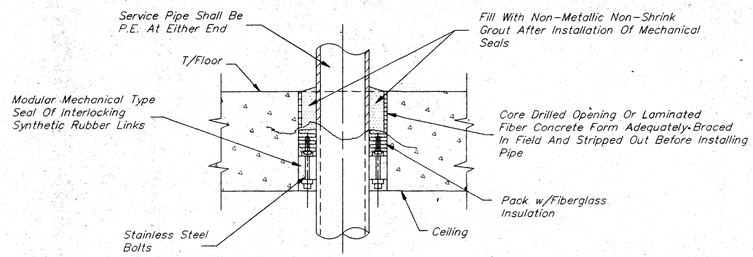
NTS

SIZE	"W"	"T"
6"	2'-6"	4"
8"	2'-6"	4"
10"	2'-6"	4"
12"	2'-9"	4"
15"	3'-0"	5"
18"	3'-4"	5"

TRENCH SCHEDULE



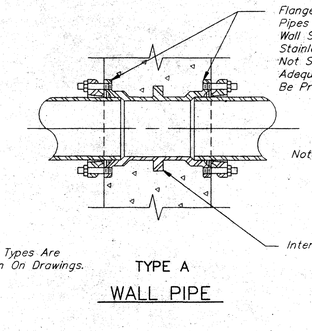
CATCH BASIN DETAIL



Note: Concrete Shall Be Worked In And Vibrated To Eliminate All Voids In Concrete – If Voids Do Remain, Fill With Grout Before Installing Pipe And Rubber Seals

TYPE G (GAS TIGHT)

FLOOR SLEEVE



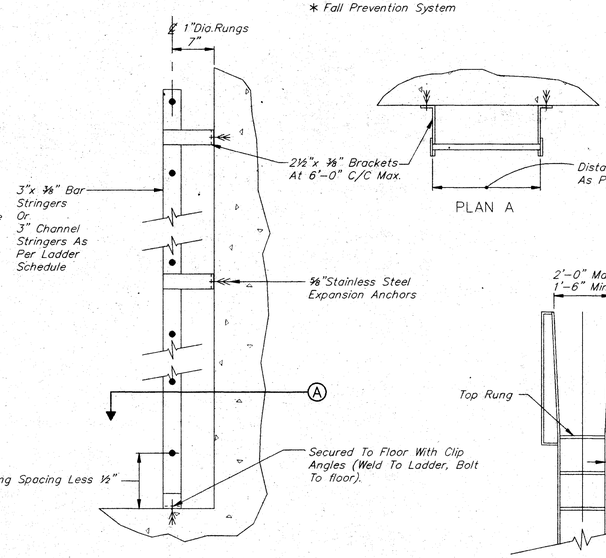
Note: Joint Types Are Shown On Drawings.

TYPE A

WALL PIPE

LADDER SCHEDULE						
MARK	NO. REQ'D	* FPS REQ'D	MATERIAL	DISTANCE BETWEEN STRINGERS	NO. OF RUNGS AND SPACING	LOCATED ON SHEET NO.	REMARKS
L-1	1	No	Stainless Steel	1'-6"	12 @ 11 3/16"	5	To Roof From Inside Stairwell
L-2	1	No	Stainless Steel	1'-6"	6 @ 11 3/16"	11	Pipe Pit
L-3	2	No	Stainless Steel	1'-6"	3 @ 12"	5 & 13	At Filters

* Fall Prevention System

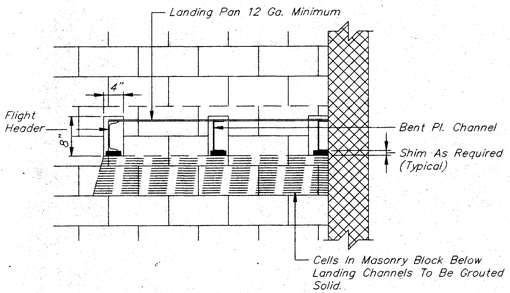


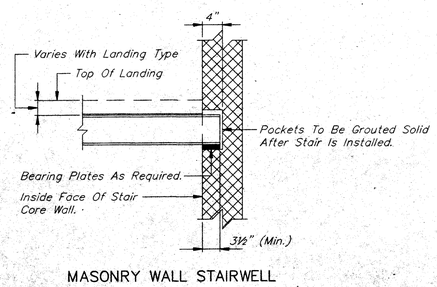
LADDER DETAIL

N.T.S.

Notes:

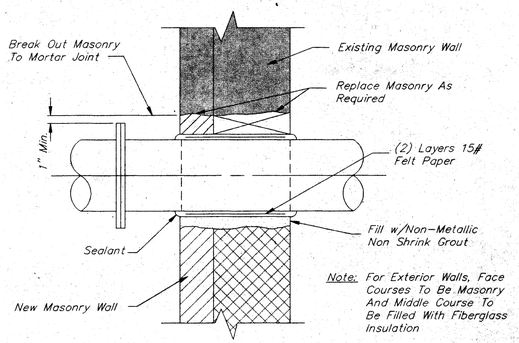
1. The Ladder From Upper Stair Landing To Roof And The Ladder Located In The Pipe Pit Shall Be Furnished With Bilco "Ladder Up" Safety Posts.
2. The Ladders At The Filters Shall Be Walk-Thru Ladders.





MASONRY WALL STAIRWELL

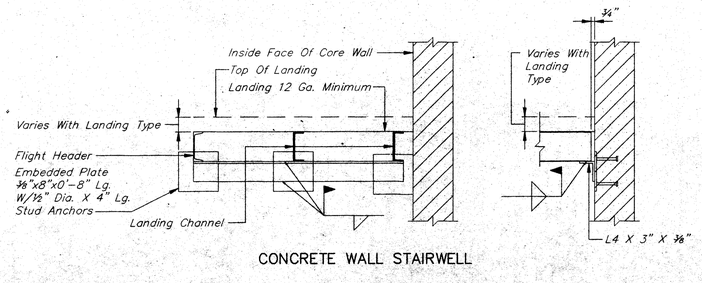
LANDING DETAILS



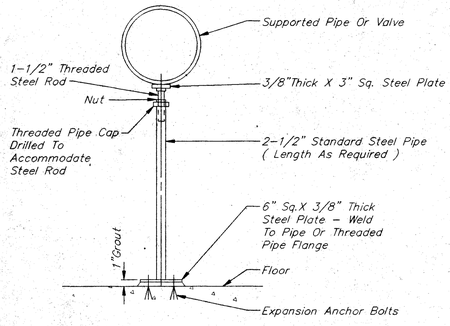
Note: For Exterior Walls, Face Courses To Be Masonry And Middle Course To Be Filled With Fiberglass Insulation

TYPE F

PIPE SLEEVE THRU EXISTING OR NEW MASONRY WALL



CONCRETE WALL STAIRWELL



ADJUSTABLE PIPE SUPPORT

Note:
Pipe Supports Shall Be Spaced Not More Than 12'-0" On Center. Support Piping Near Each Side Of Valves, Flowmeters, And Couplings.

STATE OF OHIO
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WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 13

MISCELLANEOUS DETAILS

NO.	DATE	REVISIONS	BY

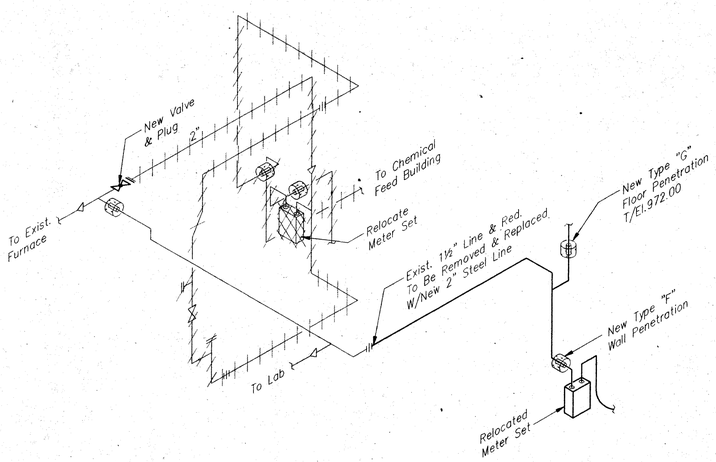
SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
NONE	M.R.K.	C.E.M.	T.C.M.

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DATE 1994

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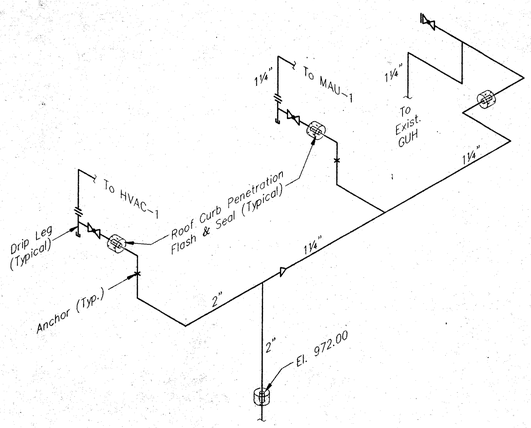
SHEET NO. 16 OF 26

TOL-3717M002
03/24/94 02



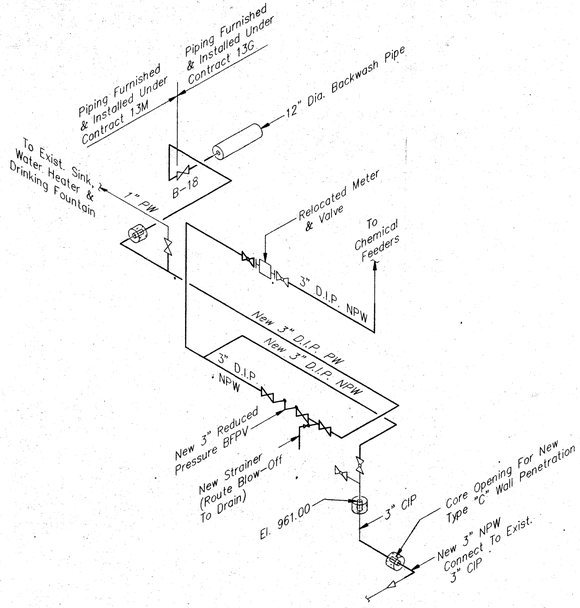
NATURAL GAS ISOMETRIC EL.961.08

All Black Steel, Threaded *N.T.S.*



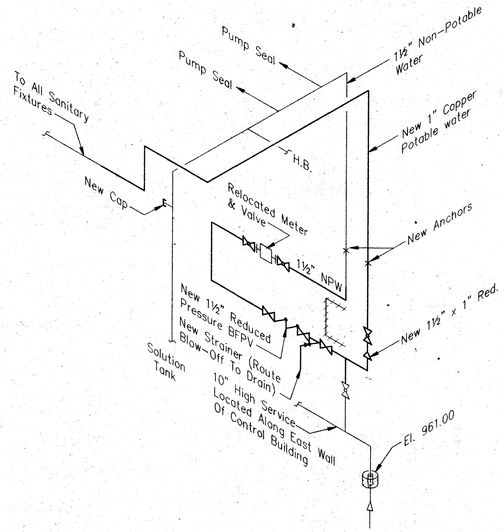
NATURAL GAS ISOMETRIC EL.972.00

All Black Steel, Threaded *N.T.S.*



CHEMICAL BUILDING WATER MODIFICATIONS

All 3" Piping Shall Be D.I.P. (Red. As Req'd.) *N.T.S.*



CONTROL BUILDING WATER MODIFICATIONS

All Copper Unless Noted (Red. As Req'd.) *N.T.S.*

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT FILTER ADDITIONS
CONTRACT 13M

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
N.T.S.	C.W.	C.E.M.	C.W.

MECHANICAL ISOMETRIC DIAGRAMS

JOB NO. 14-3626
DATE 1994

Jones & Henry Engineers, Inc.

SHEET NO. M-3 OF 26

T01-371P02
03/24/94 02

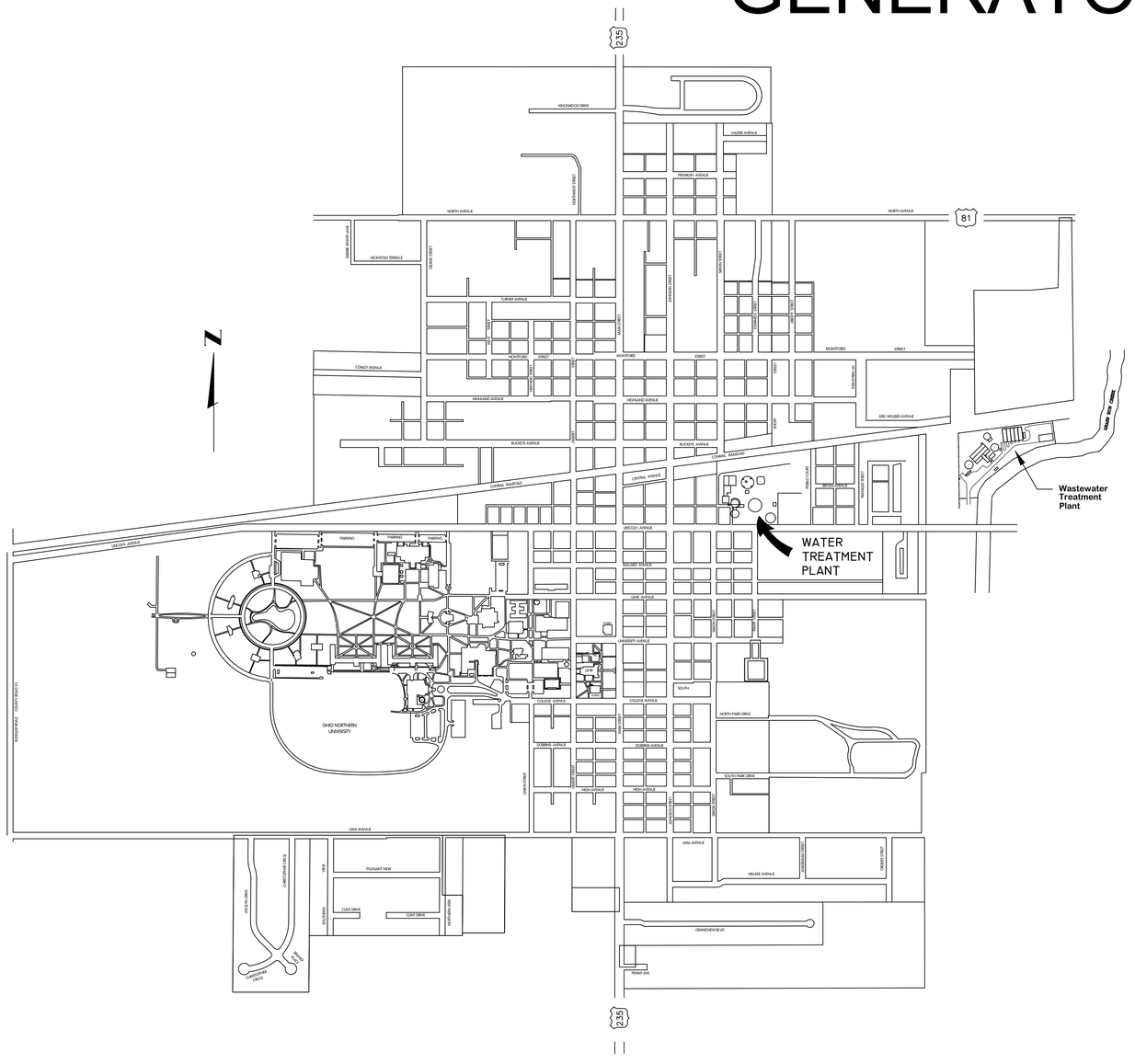


VILLAGE OF ADA, OHIO

WATER TREATMENT PLANT GENERATOR ATS AND SCADA SYSTEM

CONTRACT 20

2021



DAVID RETTERER - MAYOR

MEMBERS OF COUNCIL

BOB SIMMONS - PRESIDENT

SHEILA CORESSEL — **LINDA MASON**

TERRY KEISER — **JEFF OESTREICH**

NOAH RISTAU

JAMIE HALL - VILLAGE ADMINISTRATOR
JANE NAPIER - VILLAGE SOLICITOR
JOHN BOWERS - WATER SUPERINTENDENT

JONES & HENRY ENGINEERS, LTD.
3103 EXECUTIVE PARKWAY
SUITE 300
TOLEDO, OHIO 43606

ADA WATER PLANT
115 WEST BUCKEYE AVENUE
ADA, OHIO 45810

Jones & Henry Engineers, Ltd.

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STATUS: RECORD DRAWING
DATE: NOVEMBER 2022

TDL-7179600\COV-COVER
11/21/2022 7:54 AM - LBROWN
11/21/2022 7:54 AM

SCHEMATIC LEGEND

OPEN CONTACTS
WITH TIME-DELAY CLOSING

CLOSED CONTACTS
WITH TIME-DELAY OPENING

OPEN CONTACTS
WITH TIME-DELAY OPENING

CLOSED CONTACTS
WITH TIME-DELAY CLOSING

FLOW SWITCH
CLOSES ON INCREASE IN FLOW

FLOW SWITCH
OPENS ON INCREASE IN FLOW

LIQUID LEVEL SWITCH CLOSES ON
RISING LEVEL

LIQUID LEVEL SWITCH OPENS ON
RISING LEVEL

PRESSURE OR VACUUM SWITCH CLOSES ON
RISING PRESSURE

PRESSURE OR VACUUM SWITCH OPENS ON
RISING PRESSURE

TEMPERATURE SWITCH
CLOSES ON RISING TEMPERATURE

TEMPERATURE SWITCH
OPENS ON RISING TEMPERATURE

LIMIT SWITCH
NORMALLY OPEN

LIMIT SWITCH
NORMALLY OPEN - HELD CLOSED

LIMIT SWITCH NORMALLY
CLOSED

LIMIT SWITCH
NORMALLY CLOSED - HELD OPEN

FOOT SWITCH
OPENS BY FOOT PRESSURE

FOOT SWITCH
CLOSES BY FOOT PRESSURE

MUSHROOM HEAD, MAINTAINED ACTION (PUSH-PULL)
PUSH BUTTON SWITCH
(SHOWN WITH ONLY 1 CIRCUIT)

ON OFF
XO
2 - POSITION, MAINTAINED ACTION
SELECTOR SWITCH

H O A
XOO
OOX
3 - POSITION, MAINTAINED ACTION
SELECTOR SWITCH
H - O - A: HAND-OFF-AUTOMATIC
L - O - R: LOCAL-OFF-REMOTE
PCS: PLANT CONTROL SYSTEM
PLC: PROGRAMMABLE LOGIC CONTROLLER

INDICATES ITEMS IN A SEPARATE COMMON
ENCLOSURE

XY
CONTACTOR COIL
M - MOTOR STARTER CONTACTOR
MF - MOTOR STARTER FORWARD CONTACTOR
MR - MOTOR STARTER REVERSE CONTACTOR
ML - MOTOR STARTER LOW SPEED CONTACTOR
MH - MOTOR STARTER HIGH SPEED CONTACTOR
SC - MOTOR STARTER STARTING CONTACTOR
RC - MOTOR STARTER RUN CONTACTOR
BP - BYPASS CONTACTOR
CC - CAPACITOR CONTACTOR
LC - LIGHTING CONTACTOR
IC - ISOLATION CONTACTOR
C - GENERAL CONTACTOR

XR
CONTROL RELAY COIL
CR - INSTANTANEOUS CONTROL RELAY
TR - TIME DELAY RELAY

OL
MOTOR STARTER OVERLOAD RELAY N.C.
CONTACT

SOLENOID COIL
SV - SOLENOID VALVE

NORMALLY OPEN MOMENTARY ACTION
PUSHBUTTON SWITCH
(SHOWN WITH ONLY 1 CIRCUIT)

NORMALLY CLOSED MOMENTARY ACTION
PUSHBUTTON SWITCH
(SHOWN WITH ONLY 1 CIRCUIT)

R
PUSH-TO-TEST PILOT LIGHT WITH COLORED
LENS CAP
R - RED
G - GREEN
A - AMBER
W - WHITE
B - BLUE
CL - CLEAR

F
ZERO SPEED SWITCH
(NORMALLY CLOSED)

ETM
ELAPSED TIME METER

F
ZERO SPEED SWITCH (NORMALLY
OPEN)

SUPP
LOW VOLTAGE
SURGE SUPPRESSOR

SINGLE-LINE DIAGRAM LEGEND

30A
FRS-R -30
FUSED DISCONNECT SWITCH.
(SWITCH SIZE, FUSE TYPE AND FUSE SIZE AS
SHOWN)

30A
UNFUSED DISCONNECT SWITCH
(SWITCH SIZE AS SHOWN)

40A
THERMAL-MAGNETIC CIRCUIT BREAKER OR MOTOR
CIRCUIT PROTECTOR-MCP
(TRIP SIZE AS SHOWN)

CB
HIGH OR MEDIUM VOLTAGE CIRCUIT
BREAKER

12470
1000KVA
480Y/277V
LIGHTING OR POWER TRANSFORMER,THREE PHASE UNLESS
NOTED OTHERWISE (CONNECTION, SIZE & RATING AS
SHOWN)

FULL VOLTAGE NON-REVERSING MOTOR STARTER
WITH OVERLOADS (FVNR)

R F
FULL VOLTAGE REVERSING MOTOR STARTER WITH
OVERLOADS
(FVR)

S F
TWO SPEED MOTOR STARTER WITH
OVERLOADS

VACUUM CONTACTOR

5
THREE PHASE AC MOTOR
(HORSEPOWER AS SHOWN)

600/5 AS AM
CURRENT TRANSFORMER WITH AMMETER
SWITCH, AND AMMETER
(RATIO AS SHOWN)

600/5
CURRENT TRANSFORMER WITH SHORTING BLOCK
(RATIO AS SHOWN)

VS VM
POTENTIAL TRANSFORMER WITH VOLTMETER
SWITCH, AND VOLTMETER

6KV
LIGHTNING ARRESTER
(VOLTAGE RATING AS SHOWN)

TRANSIENT VOLTAGE SURGE
SUPPRESSOR
(TVSS)

GROUND CONNECTION

LINE OR LOAD REACTOR

K
KIRK KEY
(DASHED LINES TO INTERLOCKED
DEVICES)

DRAWOUT FOR SWITCHGEAR OR
MOTOR CONTROL CENTER

POWER FACTOR CORRECTION CAPACITOR - (PFCC) (SIZE PER MOTOR
MANUFACTURER RECOMMENDATIONS.)

100E
HIGH OR MEDIUM VOLTAGE FUSED CUTOUT (SIZE AS
SHOWN)

4/0
CABLE LIMITER (SIZE AS
SHOWN)

G 800A
450KW
STAND-BY GENERATOR
(SIZE AS SHOWN)
WITH FIELD PROTECTION CIRCUIT BREAKER
(TRIP SIZE AS SHOWN)

VFD BP
VARIABLE FREQUENCY DRIVE WITH A BY-PASS OPTION (SHOWN WITH INTEGRAL
EXTERNAL DISCONNECT HANDLE)

CP = CONTROL PANEL
SSRVS = SOLID STATE REDUCED VOLTAGE STARTER
(SHOWN WITH INTEGRAL EXTERNAL DISCONNECT HANDLE)

DPM
DIGITAL POWER METER

WHM
WATTHOUR METER

AUTOMATIC TRANSFER SWITCH (ATS)

MANUAL TRANSFER SWITCH (MTS)

INDEX

CAD NO.	CONSEC. NO.	SHEET NO.	SHEET TITLE
	1	1	LEGENDS AND INDEX
	2	2	MISCELLANEOUS DETAILS
	3	3	GENERATOR, ATS AND SCADA SYSTEM LOCATION PLAN
	4	4	ENGINE GENERATOR RISER DIAGRAM
	5	5	NETWORK ARCHITECTURE

ELECTRICAL PLAN LEGEND

G — GROUND WIRE
DIRECT BURIAL CABLE
CONDUIT CONCEALED
CONDUIT EXPOSED
CONDUIT IN CONCRETE DUCT BANK
HOMERUN
CONDUIT TURNS UP
CONDUIT TURNS DOWN
CAPPED CONDUIT (FUTURE USE)
CONDUIT TEE
CADWELD CONNECTION
B — B — BUSWAY
C — C — CABLE TRAY
S — SINGLE POLE TOGGLE SWITCH
S_2 — DOUBLE POLE TOGGLE SWITCH
S_3 — THREE-WAY TOGGLE SWITCH
S_4 — FOUR-WAY TOGGLE SWITCH
S_P — TOGGLE SWITCH WITH GREEN PILOT LIGHT
S_K — KEY-OPERATED SWITCH
5 — SINGLE RECEPTACLE
3 — DUPLEX RECEPTACLE
5 — RECEPTACLE, (SINGLE) 120,30A.OR LARGER
6,8 — RECEPTACLE, (SINGLE) 240V,2POLE
4,6,8 — POWER RECEPTACLE 480V,3PH WITH DISCONNECT SWITCH (SIZE AS SHOWN)
TELEPHONE RECEPTACLE
COMPUTER RECEPTACLE
BOLLARD LIGHT FIXTURE
B 2 — CEILING MOUNTED FIXTURE
C 1 — WALL MOUNTED FIXTURE
D 1 — POLE MOUNTED FIXTURE
A 2 — FLUORESCENT FIXTURE
A 2 — FLUORESCENT TROFFER - GRID CEILING LAY IN
E 1 — EMERGENCY LIGHTING FIXTURE, (2-HEAD SHOWN)
EXIT FIXTURE (WITH DIRECTION ARROW WHERE INDICATED)
MCC — MOTOR CONTROL CENTER (MCC) OR SWITCHGEAR (SWG)
DISTRIBUTION PANEL 480V OR 480Y/277V
LIGHTING PANEL 120/208V OR 120/240V
UPS — UNINTERRUPTIBLE POWER SUPPLY
EPP — EMERGENCY POWER PACK
CP — CONTROL PANEL (SHOWN WITH EXTERNAL DISCONNECT HANDLE)
MAGNETIC MOTOR STARTER 480V, 3 PHASE
MAGNETIC MOTOR STARTER 120V, 1 PHASE
COMBINATION MAGNETIC MOTOR STARTER 480V, 3 PHASE
COMBINATION MAGNETIC MOTOR STARTER 120V, 1 PHASE
S_M — MANUAL MOTOR STARTER 480V, 3 PHASE
S_V — MANUAL MOTOR STARTER 120V, 1 PHASE
DISCONNECT SWITCH (SEE SINGLE LINE DIAGRAM FOR SIZE & TYPE)
SINGLE PHASE AC MOTOR(HORSEPOWER AS SHOWN,DC INDICATES DC MOTOR)
2 — THREE PHASE AC MOTOR(HORSEPOWER AS SHOWN)
MOTOR OPERATED VALVE, 3 PHASE,WITH MAGNETIC
STARTER AND CONTROLS
MOTOR OPERATED VALVE, 1 PHASE,WITH MAGNETIC
STARTER AND CONTROLS
GROUND ROD WITH CADWELD CONNECTION
PP — PP= POWER POLE, LP = LIGHT POLE
AIR TERMINAL (LIGHTNING PROTECTION)
F — STROBE LIGHT (F=FIRE ALARM, G=GAS ALARM)
R/F — HEAT DETECTOR - RATE OF RISE/FIXED TEMPERATURE
P — SMOKE DETECTOR - (P = PHOTOELECTRIC, I = IONIZATION)
F — PULL STATION - FIRE ALARM
HORN, BELL, OR SIREN
HORN/STROBE COMBINATION

CA — CAPACITOR
CONTROL STATION
JB — BOX - JUNCTION, TERMINAL, PULL OR HAND HOLE
M — ELECTRIC MANHOLE
XF — TRANSFORMER (SEE SINGLE LINE FOR SIZE & TYPE)
LC — LIGHTING CONTACTOR
FT — FLOW TRANSMITTER
LT — LEVEL TRANSMITTER
PT — PRESSURE TRANSMITTER
TT — TEMPERATURE TRANSMITTER
AT — ANALYSIS TRANSMITTER (I.E. OXYGEN, TURBIDITY)
PI — INDICATOR - PRESSURE, FLOW, LEVEL, DENSITY, ANALYSIS
DT — DENSITY TRANSMITTER
ZS — LIMIT (POSITION) SWITCH
PS — PRESSURE SWITCH
TS — TEMPERATURE SWITCH (I.E. MOTOR THERMO PROTECTOR)
CS — CONVEYOR CABLE SWITCH
SS — SPEED SWITCH
FS — FLOW SWITCH
LS — LEVEL SWITCH
NS — MOISTURE SWITCH
OS — TORQUE SWITCH
VS — VIBRATION SWITCH
LC — LOAD CELL
LE — TRANSMITTER SENSING ELEMENT - LEVEL, FLOW, DENSITY, PRESSURE, ANALYSIS
S — SOLENOID
T — THERMOSTAT
H — HEATER IN MOTOR
PC — PHOTOELECTRIC CELL
G — GAS DETECTOR WITH CONTROL PANEL (GAS TYPE AS SHOWN)
T — THERMOCOUPLE
V — PNEUMATIC VALVE OPERATOR
/ — CURRENT TO PRESSURE TRANSDUCER

ELECTRICAL NOTES

1. STRUCTURAL MATERIALS ARE NOT SHOWN ON ELECTRICAL DRAWINGS. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS.
2. ALL ELECTRICAL EQUIPMENT ELEVATIONS SHOWN ARE TO BOTTOM OF DEVICE OR PANEL, UNLESS OTHERWISE NOTED.
3. NUMBER SHOWN (I.E.11735), INDICATES A SPECIFICATION REFERENCE FOR ITEMS OTHER THAN DIVISION 16. THE ELECTRICAL ITEM UNDER THIS REFERENCE IS SUPPLIED BY ANOTHER PART OF THE CONTRACT. UNLESS OTHERWISE NOTED IN THAT SPECIFICATION, THE CONTRACTOR SHALL INSTALL AND WIRE THE ITEM PER THE DRAWINGS AND DIVISION 16 SPECIFICATIONS.
4. CONTROL WIRING SHALL CONFORM TO ALL REQUIREMENTS AS SHOWN ON THE P & ID DRAWINGS WHETHER SHOWN ON THE ELECTRICAL DRAWINGS OR NOT.
5. WHERE LINES ARE SHOWN CONNECTING ELECTRICAL EQUIPMENT, THEY ARE NOT INTENDED AS CONDUIT ROUTING. CONTRACTOR SHALL ROUTE ALL CONDUIT RUNS (SHOWN OR NOT) PER DIVISION 16 SPECIFICATIONS.
6. WP INDICATES WATERPROOF. LETTER ON OR NEXT TO LIGHT FIXTURE INDICATES TYPE, PER SECTION 16510. NUMBER WITH LIGHT FIXTURE OR RECEPTACLE INDICATES CIRCUIT NUMBER.
7. GFCI INDICATES A CIRCUIT BREAKER OR RECEPTACLE WITH A 6 MA GROUND FAULT CIRCUIT INTERRUPTER. GFEPD INDICATES A CIRCUIT BREAKER OR RECEPTACLE WITH A 30 MA GROUND FAULT EQUIPMENT PROTECTION DEVICE.
8. FOR BELOW GRADE CONDUIT PENETRATIONS THROUGH EXISTING EXTERIOR CONCRETE WALLS, PROVIDE TYPE A CONDUIT SLEEVE FOR PVC CONDUIT. FOR RGS OR PVC-COATED RGS CONDUIT, PROVIDE TYPE B CONDUIT SLEEVE THROUGH CONCRETE WALLS, AND TYPE C CONDUIT SLEEVE THROUGH EXISTING CONCRETE WALLS.
9. FOR ABOVE GRADE CONDUIT PENETRATIONS THROUGH EXTERIOR CONCRETE WALLS, PROVIDE TYPE C CONDUIT SLEEVE. FOR MASONRY WALLS PROVIDE TYPE F CONDUIT SLEEVE.
10. FOR CONDUIT PENETRATIONS THROUGH EXISTING CONCRETE FLOORS AND WALLS BETWEEN ADJACENT NON-CLASSIFIED (NON-HAZARDOUS) AREAS, PROVIDE TYPE C CONDUIT SLEEVES FOR ALL CONDUIT TYPES. FOR SIMILAR PENETRATIONS THROUGH CONCRETE FLOORS AND WALLS, PROVIDE TYPE D CONDUIT SLEEVES FOR ALL CONDUIT TYPES.
11. FOR CONDUIT PENETRATIONS THROUGH CONCRETE FLOORS AND WALLS SEPARATING CLASSIFIED (HAZARDOUS) AREAS FROM NON-CLASSIFIED (NON-HAZARDOUS) AREAS, PROVIDE TYPE G CONDUIT SLEEVES. FOR SIMILAR PENETRATIONS THROUGH MASONRY WALLS, PROVIDE TYPE H CONDUIT SLEEVE. FOLLOW MECHANICAL SEAL MANUFACTURER'S RECOMMENDATIONS TO MEET 3-HOUR FIRE RESISTANCE REQUIREMENTS.
12. LEGENDS ARE FOR REFERENCE ONLY AND DOES NOT MEAN THAT ALL ITEMS ARE USED.

GENERAL ELECTRICAL ABBREVIATIONS

PVC - POLYVINYL CHLORIDE
RGS - RIGID GALVANIZED STEEL
OCPD - OVERCURRENT PROTECTIVE DEVICE
GFCI - GROUND FAULT CIRCUIT INTERRUPTER

MOTOR STARTER ABBREVIATIONS

FVNR - FULL VOLTAGE, NON-REVERSING
FVR - FULL VOLTAGE REVERSING
TS1W - TWO SPEED, ONE WINDING
TS2W - TWO SPEED, TWO WINDING
TSR1W - TWO SPEED REVERSING, ONE WINDING
TSR2W - TWO SPEED REVERSING, TWO WINDING

LEGENDS AND INDEX
VILLAGE OF ADA, OHIO - WTP
GENERATOR ATS AND SCADA SYSTEM UPGRADES

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1	REVISIONS AFTER ISSUED FOR BID	

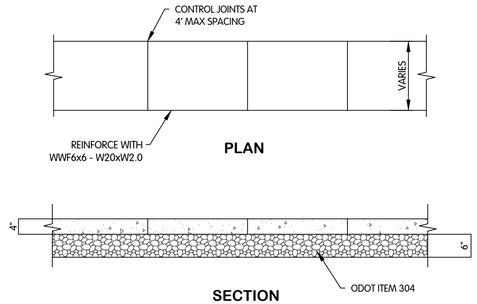
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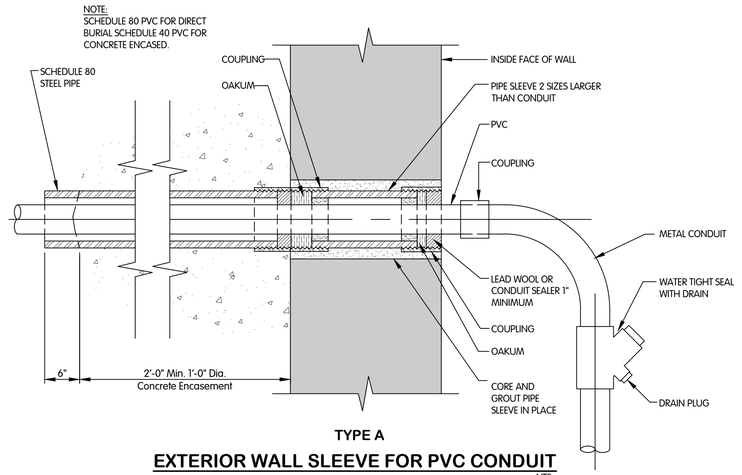
DESIGNED	DRAWN	CHECKED
PEM	LKB	JDM

STATUS: RECORD DRAWING
DATE: NOVEMBER 2022
SHEET NO. 1
1 OF 5

TOL-7796001E01-LEGENDS AND INDEX
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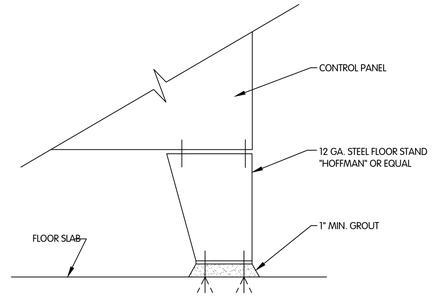


TYPICAL CONCRETE SIDEWALK DETAIL
NTS

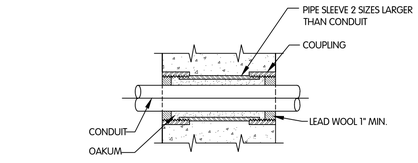


TYPE A

EXTERIOR WALL SLEEVE FOR PVC CONDUIT
NTS



FLOOR-MOUNTED CONTROL PANEL MTG. DETAIL
NTS

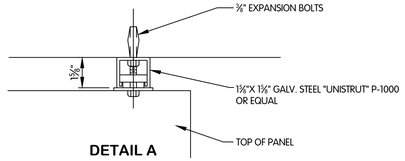


TYPE B

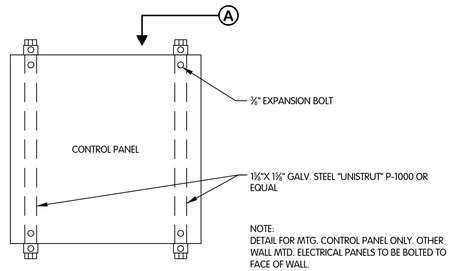
NOTE:
FOR CONDUIT LESS THAN 4" DIA., USE GALVANIZED STEEL PIPE SLEEVE. FOR CONDUITS 4" DIA. OR LARGER, USE CI OR DI TYPE "E" SLEEVE.

EXTERIOR CONCRETE WALL SLEEVE
NTS

R.G.S. OR PVC COATED R.G.S.



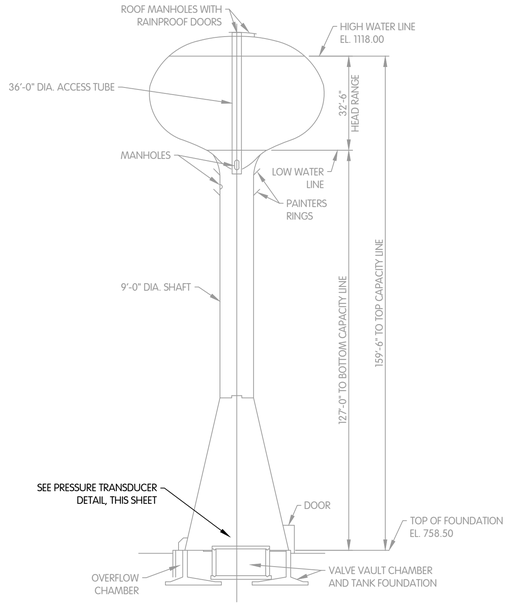
DETAIL A



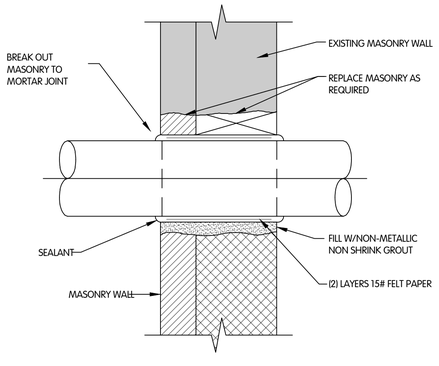
WALL MOUNTED CONTROL PANEL DETAIL
NTS



PRESSURE TRANSDUCER DETAIL
NTS



TANK ELEVATION
NTS

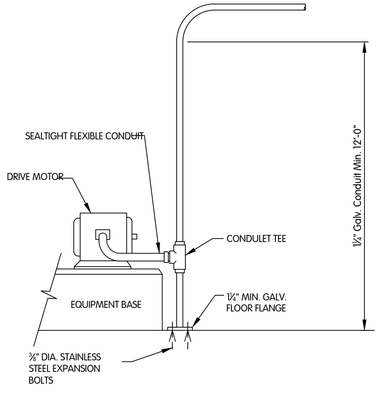


TYPE F

NOTE:
FOR EXTERIOR WALLS, FACE COURSES TO BE MASONRY

CONDUIT SLEEVE THRU MASONRY WALL
NTS

R.G.S. OR PVC COATED R.G.S.



OVERHEAD WIRING TO EQUIPMENT INSTALLATION DETAIL
NTS

MISCELLANEOUS DETAILS

VILLAGE OF ADA, OHIO - WTP
GENERATOR ATS AND SCADA SYSTEM UPGRADES

NO.	DATE	REVISIONS AFTER ISSUED FOR BID	BY
5			
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JDM	LKB	JDM

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DATE: NOVEMBER 2022

SHEET NO.
2
2 OF 5

TOL-7796001E02-MISCELLANEOUS DETAILS
11/21/2022 7:47 AM
11/21/2022 7:47 AM T.JOLLIET

N

SPARE 1"C, UTILIZE FOR 10#14 & 1#12 GND, GENERATOR START, RUNNING, AND COMMON FAULT (INCLUDES 4 SPARES)

ABANDON 4" FEEDER CONDUIT FROM MANUAL TRANSFER SWITCH

CONTRACTOR SHALL SAW CUT SIDE WALK AND HAND DIG TO INSTALL CONDUIT TO CONDUIT ENTRY AREA. REPAIR SIDEWALK FOLLOWING CONDUIT INSTALLATION.

Guardrail To Protect Generator From Vehicular Traffic

1" CO_2

12" PW

10" PW

6" CIP (Aban'd)

Plug

6"

10"

NEMA 3R 400A FDS With 400A Class R Fuses Lockable In On Position Provide New Weatherhead, Mast, And Service Drop

1-4" PVC & 2-1" Conduit PVC 30" Deep

12" Pump Discharge

1" Copper CO 2

Existing Carbon Dioxide Tank On Concrete Pad

12" DIP

Conduit Entry Area

#4/0 Bare Copper To Generator Frame (Typ. 2 Places)

#4/0 Bare Copper Ground Loop

TO GEN C.P.

4" Wide Sidewalk All Around

4" CW

12" Raw Water

RW

" Dia. x 10'-0" Long Copper Clad Ground Rod

REMOVE 4"C, FEEDER CONDUITS, WIRING AND MANUAL TRANSFER SWITCH

NEMA 3R Manual Transfer Switch

Exist. Sidewalk

3'-0"

1"C

(2) 2"C, 3#250 KCMIL EA. & 1#1/0 GND.

4"C, 6#250 KCMIL & 1#1/0 GND.

1"C, 10#14 & 1#12 GND. GENERATOR START, RUNNING, AND COMMON FAULT (INCLUDES 4 SPARES)

SPARE 4" CONDUIT NOTED FROM PREVIOUS PROJECTS NOT FOUND

CB

Generator Foundation Radiator

NOTE:
1. CONTRACTOR SHALL HAND DIG TO CONDUIT ENTRY AREA.

CAT 6 RECEPTICLE SEE PLC RISER DIAGRAM ON SHEET 4

Exist. 400A FDS

Exist. 100A FDS For Power Panel

OFFICE PC BY OTHERS

PC

OFFICE

15 KVA TRANSFORMER

1"C, 3-1/0 1-#6 Grd.

Exist. MCC

600A ATS ON HOUSEKEEPING PAD. SEE PLC RISER DIAGRAM ON SHEET 4

4"C, 6#250 KCMIL & 1#1/0 GND.

Exist. Pump 4 Base

Exist. Pump 3 Base

ATS

J
4X

4" Perf. Tile

" Dia. x 10'-0" Long Copper Clad Ground Rod (Typ. 4)

Generator Base

FD

HIGH SERVICE PUMP 4 CONTROLLER

Exist. Main Instrument Panel With Remote Annunciator And E-Stop

Exist. Auto-Trans Starter

AutoDialer

SEE PLC RISER DIAGRAM ON SHEET 4

EXISTING AIR COMPRESSOR AND VACUUM SYSTEM

MH

HIGH SERVICE PUMP 3 VFD

1" PVC Conduit

Exist. Sidewalk

8" PVC Storm

6" SDR 35 Storm

Up

Up

16" DIP Filter Influent

PW

[Abandoned]

Plug

D

RW — 12" Bypass

Exist. Plant Telephone Terminal Board

CONTROL BUILDING

HIGH SERVICE PUMP 4 VFD

PLC

PLC CABINET BY OTHERS. SEE PLC RISER DIAGRAM ON SHEET 4

EXISTING PHOSPHATE DRUM AND METERING PUMP

1" Conduit

FILTER BUILDING

Exist. Power Panel (480)

Exist. Lighting Panel (120)

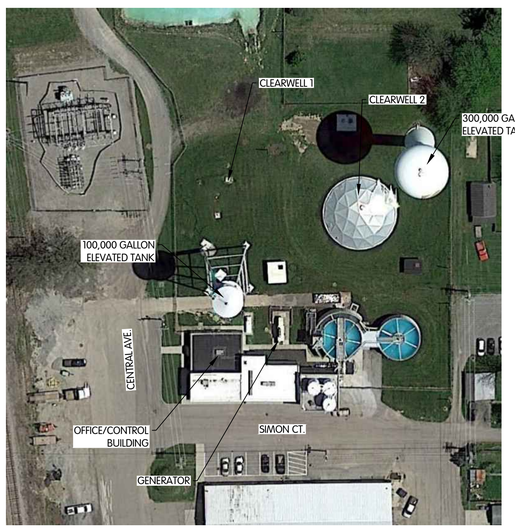
PROVIDE 1 20A CIRCUIT BREAKER FOR NEW PLC PANEL. SEE PLC RISER DIAGRAM ON SHEET 4

8" Wash Water (Abandoned)

Legend

W	Water
E	Electrical
ST	Storm Sewer
PW	Process Water
RW	Raw Water
SL	Sludge
CO_2	Carbon Dioxide
[Abandoned]	Abandoned Utility

Note:
Location Of Existing Underground Utilities Are Approximate Only. Contractor To Verify Exact Location Before Construction



SITE PLAN

GENERATOR, ATS AND SCADA SYSTEM LOCATION PLAN

VILLAGE OF ADA, OHIO - WTP
GENERATOR ATS AND SCADA SYSTEM UPGRADES

NO.	DATE	BY
5		
4		
3		
2		
1	REVISIONS AFTER ISSUED FOR BID	

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SCALE 1/4"=1'-0"

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

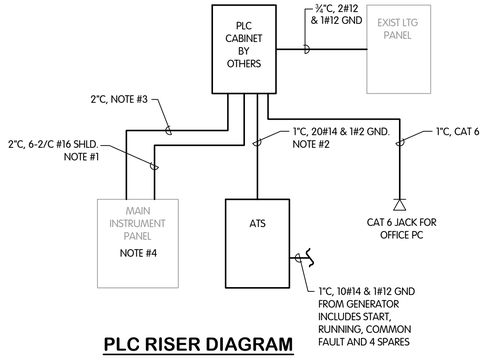
DESIGNED	DRAWN	CHECKED
PEM	LKB	JDM

STATUS: RECORD DRAWING

DATE: NOVEMBER 2022

SHEET NO.
3
3 OF 5

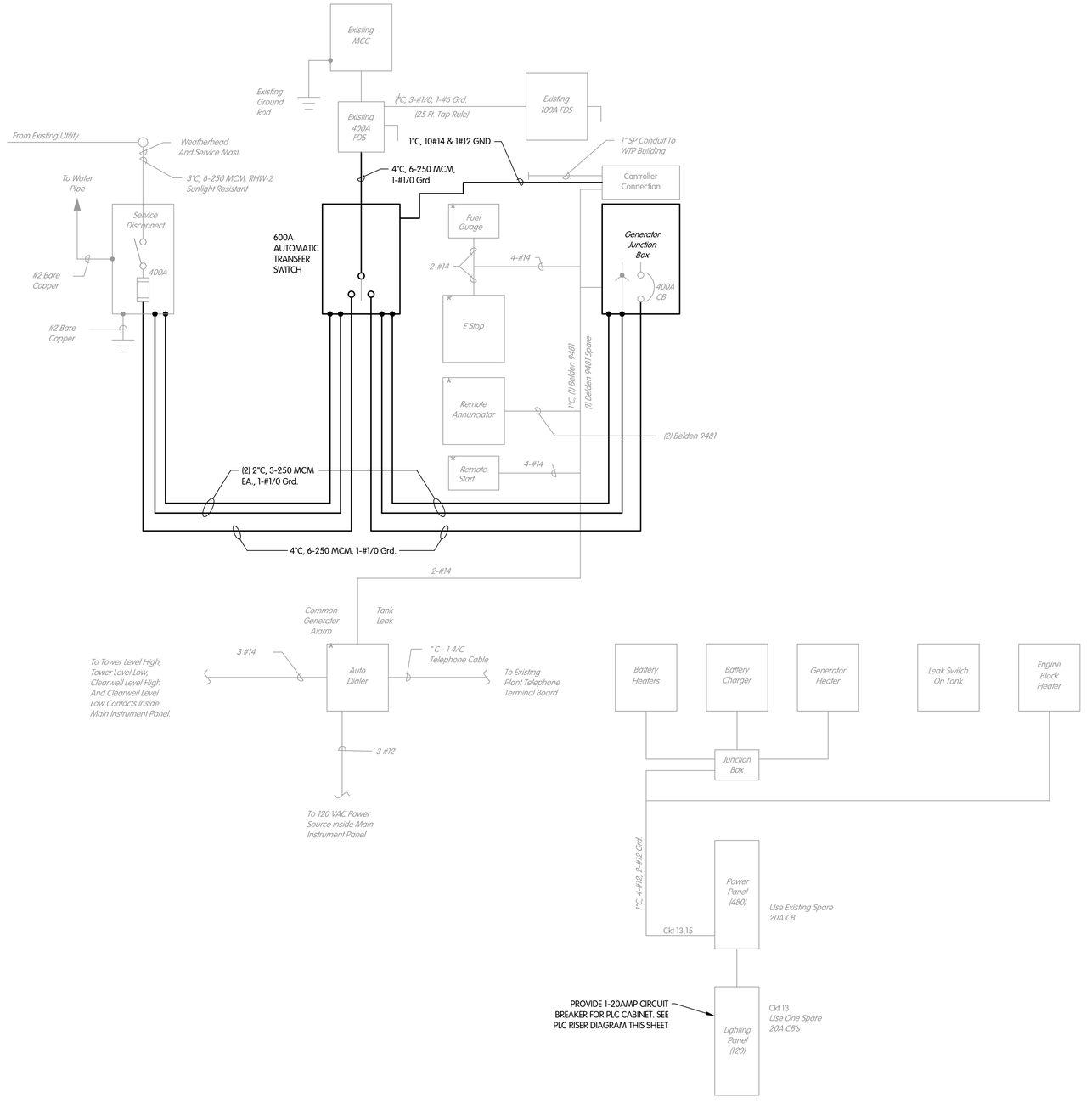
TOL-7796001E03-GENERATOR ATS AND SCADA SYSTEM LOCATION PLAN
11/21/2022 8:29 AM - LBROWN
11/21/2022 8:29 AM



PLC RISER DIAGRAM

NOTES:

1. CABLES INDICATED ARE FOR EXISTING FLOW/LEVEL SIGNALS TO NEW PLC CABINET. PROVIDE A PULL STRING IN CONDUIT FOR INSTALLATION OF FUTURE ANALOG CABLES. PROVIDE 15 FEET OF ADDITIONAL CONDUCTOR LENGTH IN MAIN INSTRUMENT PANEL.
2. CONDUCTORS INDICATED ARE FOR GENERATOR/ATS MONITORING. PROVIDE A PULL STRING IN CONDUIT FOR INSTALLATION OF FUTURE DISCRETE CABLES.
3. CONDUIT INDICATED IS FOR FUTURE DISCRETE I/O FROM MAIN INSTRUMENT PANEL TO PLC PANEL.
4. TERMINATION OF ANALOG CABLES AND INSTALLATION OF I/I SIGNAL CONDITIONERS IN MAIN INSTRUMENT PANEL SHALL BE BY OTHERS. ANALOG CABLES SHALL INCLUDE EXISTING FLOW/LEVEL SIGNALS FROM THE FIELD AS WELL AS NEW FLOW/LEVEL SIGNAL WIRING SHOWN ROUTED TO THE NEW PLC CABINET.



GENERATOR AND ACCESSORIES RISER DIAGRAM

* Denotes Items Located In BIF Instrument Panel

ENGINE GENERATOR RISER DIAGRAM

VILLAGE OF ADA, OHIO - WTP
GENERATOR ATS AND SCADA SYSTEM UPGRADES

NO.	DATE	BY
1	REVISIONS AFTER ISSUED F OR BID	

Jones & Henry Engineers, Ltd.
Fluid thinking©.
www.JHeng.com

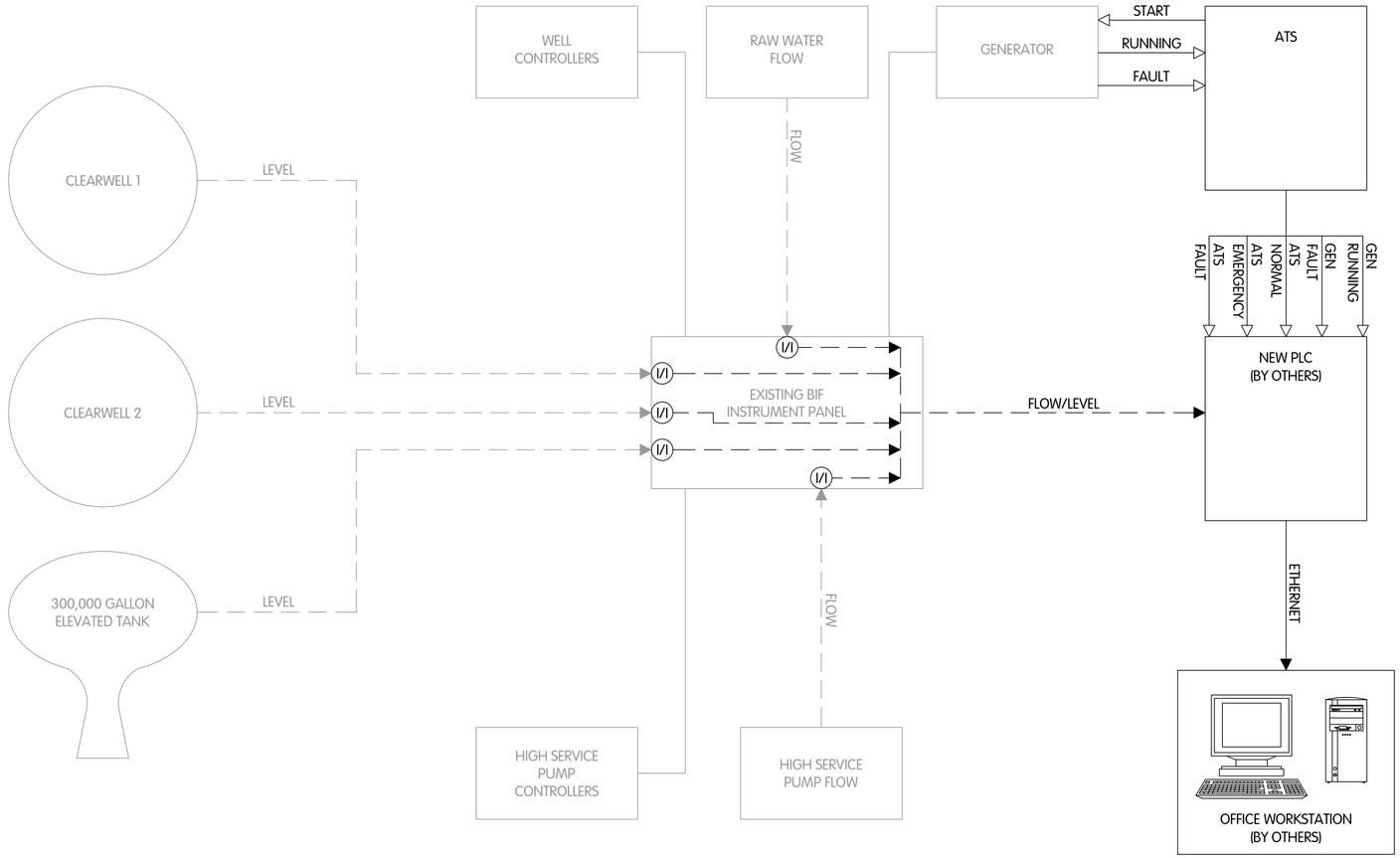
JOB NO. 014-7796.001
SCALE NONE
THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

DESIGNED	DRAWN	CHECKED
PEM	LKB	JDM

STATUS: RECORD DRAWING
DATE: NOVEMBER 2022

SHEET NO.
4
4 OF 5

TOL-7796\01E04-ENGINE GENERATOR RISER DIAGRAM
11/21/2022 7:41 AM - LBROWN
11/21/2022 7:41 AM



NETWORK ARCHITECTURE

VILLAGE OF ADA, OHIO - WTP
GENERATOR ATS AND SCADA SYSTEM UPGRADES

NO.	DATE	REVISIONS AFTER ISSUED FOR BID	BY
5			
4			
3			
2			
1			

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JOB NO. 014-7796.001

SCALE NONE

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

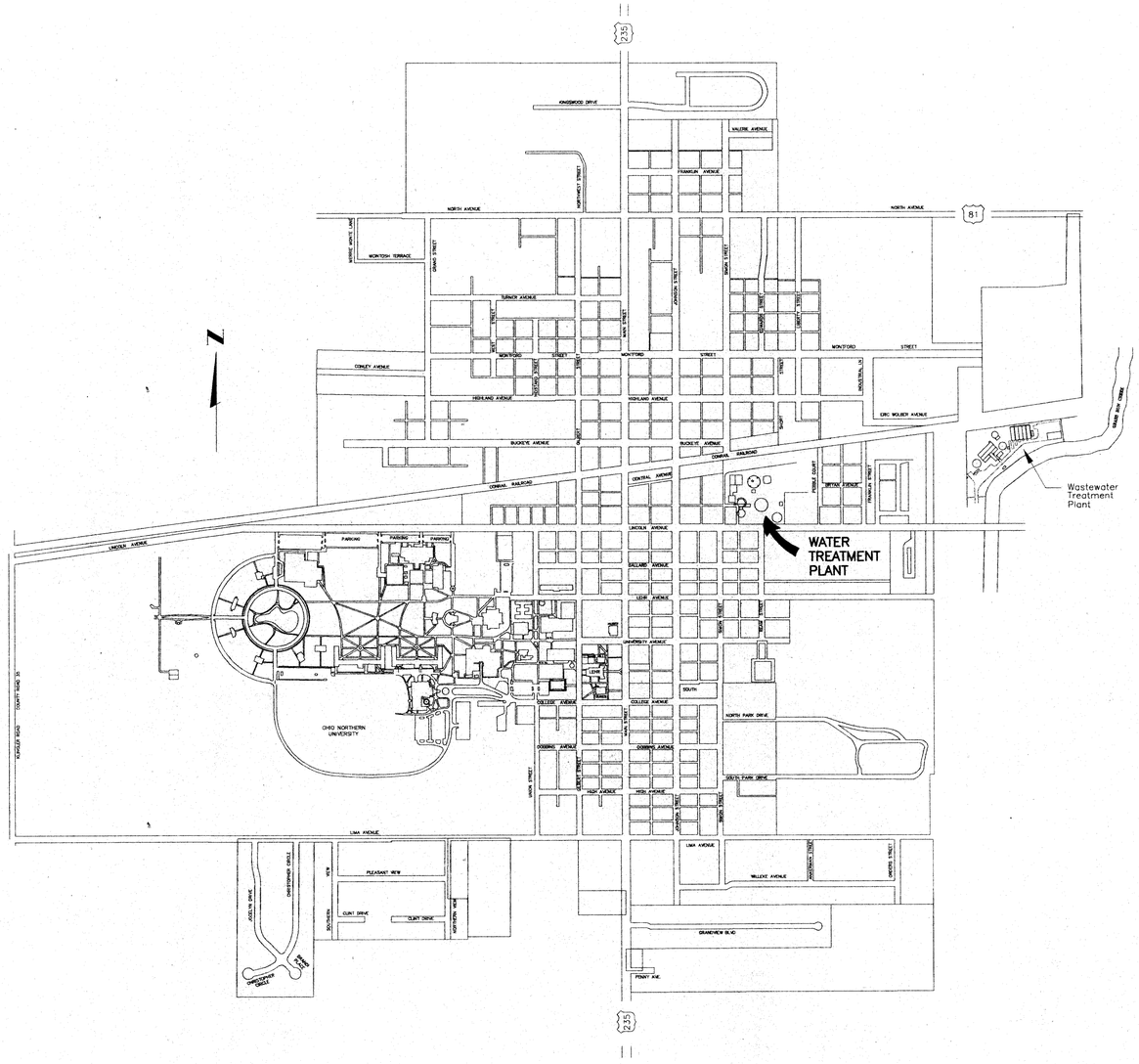
DESIGNED	DRAWN	CHECKED
PEM	LKB	JDM

STATUS: RECORD DRAWING

DATE: NOVEMBER 2022

SHEET NO.
5
5 OF 5

T:\DL-7796\01\01-NETWORK ARCHITECTURE
11/21/2022 9:04 AM LKB
11/21/2022 1:42 AM TJOLLKEY



VILLAGE OF ADA, OHIO

WATER TREATMENT PLANT ENGINE GENERATOR

CONTRACT 17A

2004

DAVID RETTERER – MAYOR

MEMBERS OF COUNCIL

DONALD FLEMING – PRESIDENT

CATHY COLE
KAREN COOPER
JAMES
WILLIAM RO

FRED ROWE

As Built File

JAMES A. MEYER – VILLAGE ADMINISTRATOR
JANE NAPIER – VILLAGE SOLICITOR
PHILIP EPLEY – SUPERINTENDENT, WATER & WASTEWATER

Jones & Henry Engineers, Ltd.
TOLEDO, OHIO

SHEET 1

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA BY TCM DATE 9/7/05

ISSUED FOR BID
JUNE 2004

TOL-3460COV-Mail-002
09/07/05 09:16

N

10" Water
6" High Service (Abandoned)
Asphalt Pavement
10" PW
6" CIP (Aban'd)
12" PW
Plug
6"
10"
New NEMA 3R 400A FDS With 400A Class R Fuses Lockable In On Position Provide New Weatherhead, Mast, And Service Drop
Remove & Replace Section Of Sidewalk To Facilitate Installation Of New Conduit And Ground Rod
Remove Exist. Service Mast & LB And Cap Conduit
New ¾" Dia. x 10'-0" Long Copper Clad Ground Rod
New NEMA 3R Manual Transfer Switch
1-4" PVC & 2-1" Conduit PVC 30" Deep
12" Pump Discharge
1" Copper CO_2
12" DIP
Existing Carbon Dioxide Tank On Concrete Pad.
New 5'-5" x 4'-6" x 6" Concrete Pad
New Controller
2'-0"
10'-0"
New Guardrail To Protect Generator And Fuel Port From Vehicular Traffic
14" Transite Under
24'-4"± Inside To Inside Of Guard Rail
4'-0"
New #6 Bare Copper To Tank Filling System
Conduit Entry Area
Jct. Box
Conduit Below Sidewalk
New #4/0 Bare Copper To Generator Frame (Typ. 2 Places)
New #4/0 Bare Copper Ground Loop
3"ø Pipe Nozzle On Tank Route To Fill
New 4' Wide Sidewalk All Around
New Oil Automatic Fuelport
CB
Stub Up
Heater Block
New Generator Foundation
Radiator
Generator Base
4" CW
12" Raw Water
RW
New ¾" Dia. x 10'-0" Long Copper Clad Ground Rod (Typ. 4)
Use Directional Boring To Route Conduits Under Sidewalk & Remove And Replace As Required.
SOLIDS-CONTACT CLARIFIER
RW — 12" Bypass
4" Drain
16" DIP Filter Influent
Exist. Sidewalk
3'-0"
1"C
1½"C
Exist. 400A FDS
Exist. 100A FDS For Power Panel
1½"C, 3-1/0 1-#6 Grd.
Exist. MCC
Exist. Pump Base
Exist. Pump Base
FD
FD
MH
Exist. Main Instrument Panel With Remote Annunciator And E-Stop
Exist. Auto-Trans Starter
New AutoDialer
Exist. Plant Telephone Terminal Board
CONTROL BUILDING
8" PVC Storm ST
PW
SL
Up
Up
16" DIP Filter Influent
(Abandoned)
Plug
1" Conduit
Exist. Power Panel (480)
Exist. Lighting Panel (120)
FILTER BUILDING
FILTER BUILDING
CHEMICAL BUILDING
8" Wash Water (Abandoned)
3" Water
2"
1"
4" PVC
SL
SL

Legend

- W — Water
- E — Electrical
- ST — Storm Sewer
- PW — Process Water
- RW — Raw Water
- SL — Sludge
- CO_2 — Carbon Dioxide
- Abandoned Utility

Note:
Location Of Existing Underground Utilities Are Approximate Only. Contractor To Verify Exact Location Before Construction

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA BY TCM DATE 9/7/05

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

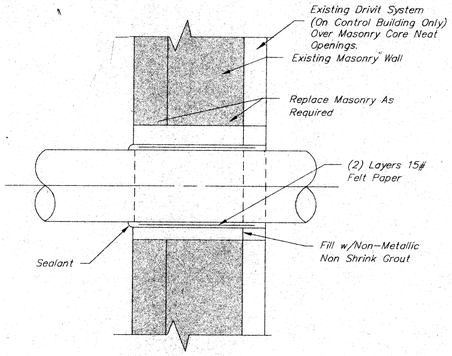
VILLAGE OF ADA, OHIO
WTP ENGINE GENERATOR
CONTRACT 17A

NO.	DATE	REVISIONS AFTER ISSUED FOR BID	BY
STATUS:	ISSUED FOR BID	DESIGNED FLS	DRAWN RCD	CHECKED TCM
DATE:	JUNE 2004		

NEW ENGINE GENERATOR LOCATION PLAN

JOB NO. 14-3460-002
SCALE 1/4" = 1'-0"
Jones & Henry Engineers, Ltd.
SHEET NO. E-1 1 of 3

TDL-3460PE01-MdlI-002
09/07/05 09:V16



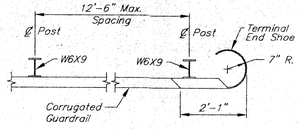
TYPE F

Note: For Exterior Walls, Face Courses To Be Masonry

CONDUIT SLEEVE THRU EXISTING MASONRY WALL

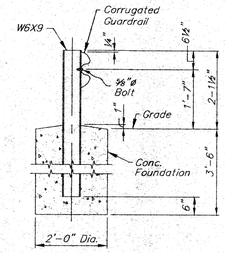
R.G.S. OR PVC COATED R.G.S.

NTS



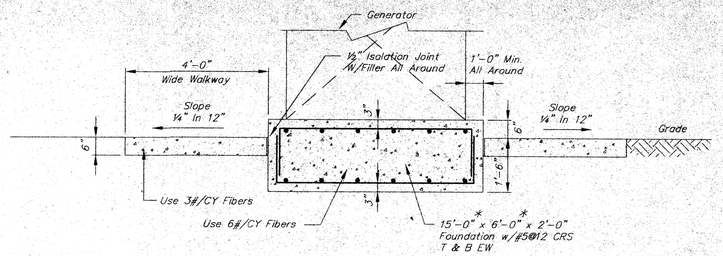
PLAN

NTS



SINGLE GUARDRAIL DETAIL

NTS



SECTION A–A

CONCRETE NOTES

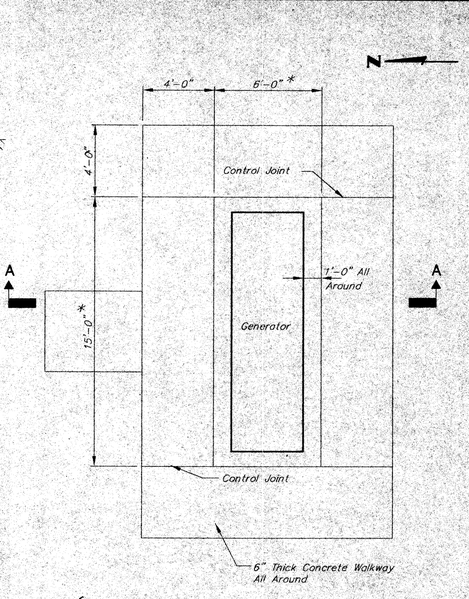
1. Concrete Work Shall Be In Accordance With The Current Edition Of "Specification For Structure Concrete For Buildings" (ACI 301) And "Building Code Requirements For Reinforced Concrete" (ACI 318).
2. Additional Concrete Requirements:
   Minimum Compressive Strength Of 4000 psi @ 28 Days:- 4000 psi
   Max Slump - 4"
   Entrained Air - 6%+/-1%
   Water/Cement Ratio - 0.45 Max.
   Reinforcing Steel - A615 Gr. 60
3. Prior To Placing Concrete, The Contractor Shall Confirm That Anchor Bolts, Pipe Sleeves Etc. Required By Other Trades Have Been Placed For Embedment.
4. There Shall Be No Voids In The Concrete Beneath Bars And Plates, No Exception.
5. Provide a ¾"x45 Deg. Chamfer On All Exposed Edges Of Concrete.
6. Provide Bar Supports In Accordance With The Requirements Of ACI 315.
7. Beginning Immediately After Placement, Concrete Shall Be Protected From Moisture Loss And Premature Drying By Curing. Concrete Shall Be Continuously Cured Above 50 Degrees F For A Minimum Of 7 Days.
8. Concrete Must Cure At Least 7 Days Before Setting Generator.
9. Provide 1½" Long Fibrillated Polypropylene Fibers With UL Rating In The Foundation And Walkway Slab. Fibermesh Inc. "Fibermesh" Forta Corp. "Econo-Net" Or Equal.
10. Shims To Be Used To Level The Fuel Tank Where Necessary.
11. Isolators Shall Be Provided At The Base Of Generator To Minimize The Dynamic Effect.

GENERAL NOTES:

1. Top Of Foundation Slab To Be 6" Above Surrounding Grade.
2. On Natural Soil, Proof Roll The Exposed Surface With A Medium Weight Roller To Determine If Any Pockets Of Soft Unsuitable Material Exist Beneath The Exposed Surface. Notify The Engineer Of Any Unsuitable Soil discovered. Remove And Replace It With Well Compacted Backfill As Directed By The Engineer.
3. Foundation To Bear On Firm Undisturbed Soil Consisting Of One Type Of Bearing Material With A Minimum Static Bearing Capacity Of 2000 psf. If Required Bearing Capacity Is Not Found, Over-Excavate To Suitable Material. Compact Subgrade And Backfill To Desired Footing Elevation With Lean Concrete Or Compacted Granular Backfill Material.
4. Backfill With Granular Material Free Of Deleterious Or Organic Materials. Place Backfill Material In 6" Layers And Compact To 95% Of Maximum Density As Measured By Modified Proctor ASTM D1557.

SPECIAL NOTES:

1. If The Generator Provided Has Control Or Service Points Above 6 Feet 0 Inches Than A Service Platform With Stairs And Handrail Shall Be Provided. Stair Treads & Platform Shall Be Grated Galvanized Steel Or Aluminum. Stringers, Framing, Handrail And Supports Shall Be Galvanized Steel Or Aluminum To Match Treads And Platform
2. Walkways Shall Be Extended Accordingly To Accommodate Stairs And Platform.



*(Generator Dimensions May Vary Depending On Generator Manufacturer)

PLAN

GENERATOR PAD

NTS

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA BY TCM DATE 9/7/05

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

VILLAGE OF ADA, OHIO
WTP ENGINE GENERATOR
CONTRACT 17A

NO	DATE	REVISIONS AFTER ISSUED FOR BID	BY

STATUS: ISSUED FOR BID	DESIGNED	DRAWN	CHECKED
DATE: JUNE 2004	FLJ	RCD	TCM

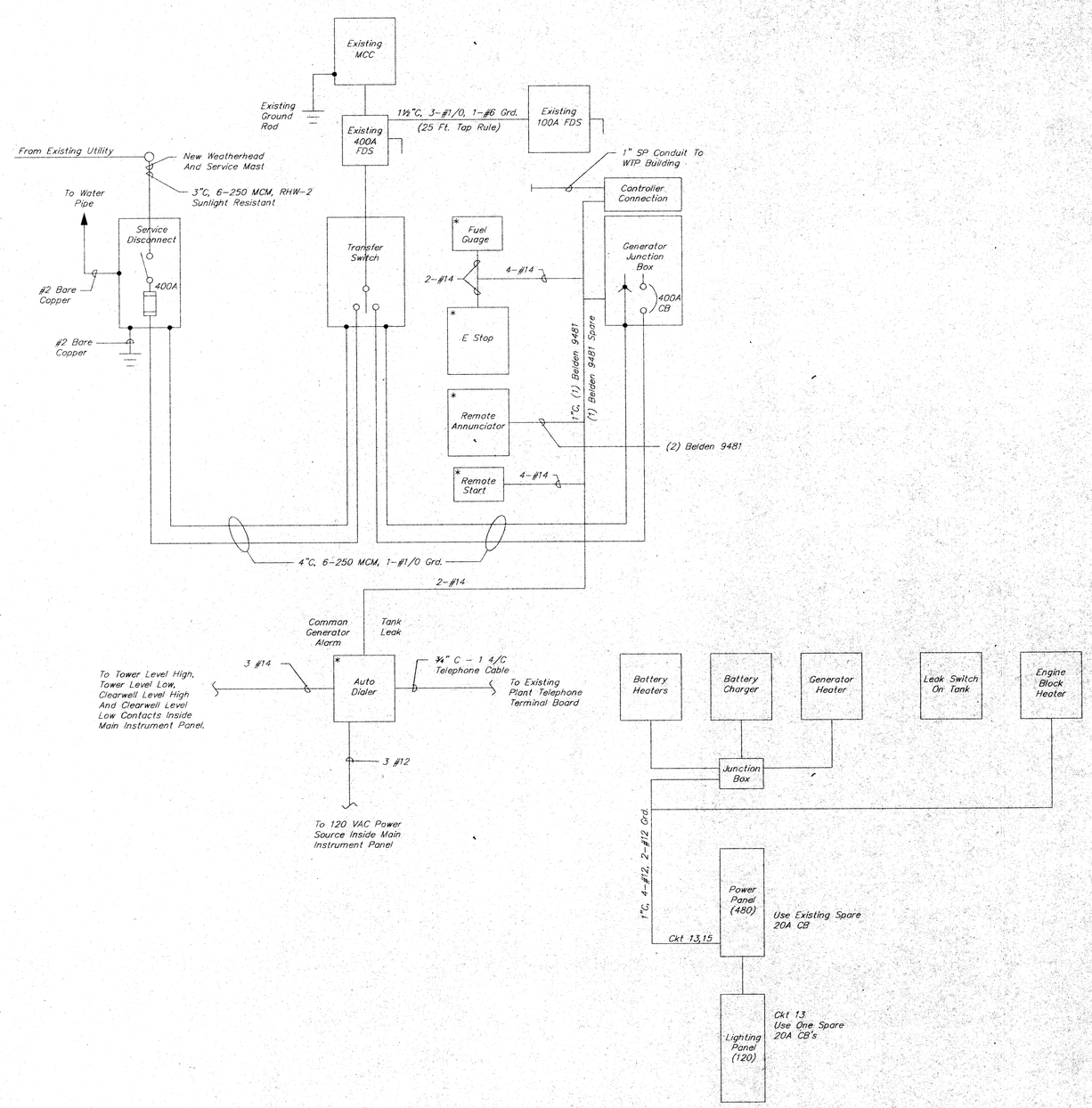
ENGINE GENERATOR PAD AND DETAILS

JOB NO. 14-3460-002
SCALE 1/4"=1'-0"

Jones & Henry Engineers, Ltd.

SHEET NO. E-3 3 OF 3

TCD_3460PE03_Hall1-002
09/07/05 09:1/16



GENERATOR AND ACCESSORIES RISER DIAGRAM

* Denotes Items Located In BIF Panel

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA BY TCM DATE 9/7/05

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

VILLAGE OF ADA, OHIO
WTP ENGINE GENERATOR
CONTRACT 17A

NO.	DATE	REVISIONS AFTER ISSUED FOR BID	BY

STATUS: ISSUED FOR BID	DESIGNED	DRAWN	CHECKED
DATE: JUNE 2004	FLJ	RCD	TCM

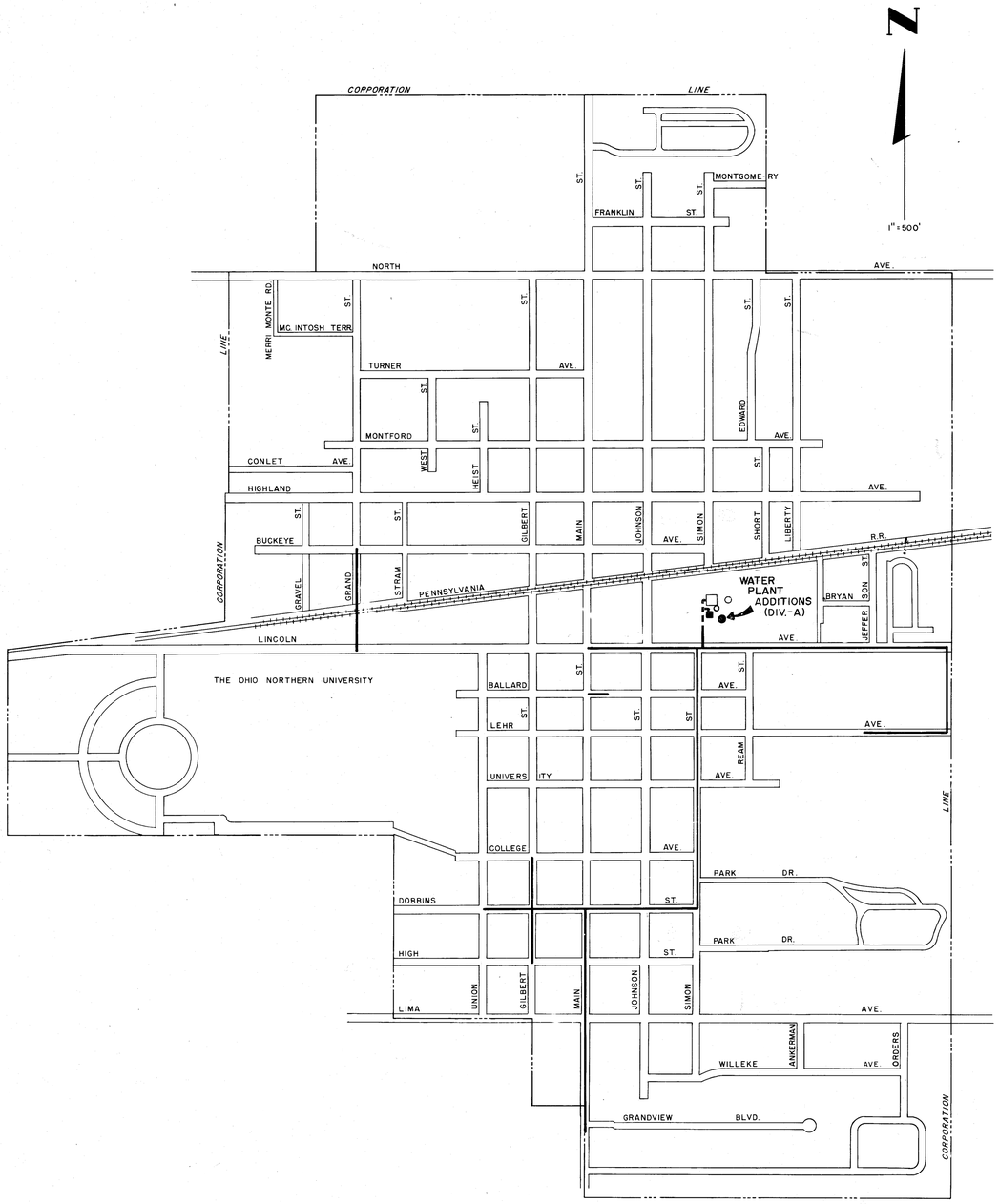
ENGINE GENERATOR RISER DIAGRAM

JOB NO 14-3460-002
SCALE 1/4"=1'-0"

Jones & Henry Engineers, Ltd.

SHEET NO E-2 2 OF 3

TOL-3460FE02-Mell1-002
09/07/05 08:41:16



LOCATION PLAN

VILLAGE OF ADA, OHIO

WATER WORKS IMPROVEMENTS

CONTRACT NO. 2

1972

ROBERT BISCHOFF - MAYOR

MEMBERS OF COUNCIL

WILLIAM ANSLEY	NORMAN REX
EARL BAUGHMAN	CARL SIMON
DALE GARDNER	BOYD SOBERS

FLORENCE SMITH - CLERK

BOARD OF PUBLIC AFFAIRS

ROBERT LARUE - PRESIDENT

DALE MADISON	SAMUEL KYVIG

LEE HENNING - VILLAGE ENGINEER
DAVID C. FAULKNER - VILLAGE SOLICITOR
GEORGE HESSER - SUPERINTENDENT, WATER DEPARTMENT

JONES & HENRY ENGINEERS LIMITED
TOLEDO, OHIO

B.M. # 1
N. Bolt F.H. N Side Lincoln St. Alley E. Of Simon.
Elev.

B.M. # 2
S.W. Leg Of Old Elevated Tank S.W. Corner Of Steel Base Plate.
Elev 960.94

B.M. # 3
P.I Nail In Fence Post At The S.W. Property Cor By New Sludge Ponds.
Elev. 959.96

VALVE LOCATIONS

Valve No.	Located From	Distance
G-8	NE Corner Chemical Feed Bldg.	9.5' East, 12.5' South
G-10	NE Corner Control Bldg.	7.0' East, 11.0' North
G-11	NE Corner Control Bldg.	6.5' East, 2.5' North
G-12	SE Corner Control Bldg.	15.5' East, 3.5' North
G-13N	SE Corner Control Bldg.	19.5' East, 13.5' North
G-13S	SE Corner Control Bldg.	19.5' East, 0.5' South
G-14	SE Corner Control Bldg.	27.5' East, 1.0' South
G-19	NE Corner Chemical Feed Bldg.	9.0' East, 16.5' South
G-20	NE Corner Control Bldg.	11.0' East, 3.0' South
G-21	NE Corner Control Bldg.	11.5' East, 7.5' South
G-22	SW Corner #5 Well House	11.5' West, 10.5' South
G-23	SW Corner #5 Well House	16.0' West, 16.5' South
G-24	SW Corner #5 Well House	27.0' West, 5.0' South
G-25	NE Corner Chemical Feed Bldg.	2.0' East, 17.5' South
G-26	NW Corner #7 Well House	6.0' West, 23.5' North
G-27	SE Corner #6 Well House	4.5' West, 8.0' South
G-28	NW Corner #6 Well House	16.0' West, 1.0' South
G-29	NW Corner #6 Well House	20.5' West, 2.5' South
G-30	NW Corner #5 Well House	12.5' West, 9.0' North
G-31	NW Corner #5 Well House	15.0' West, 6.5' North
G-32	NW Corner #5 Well House	18.0' West, 5.5' North
P-6N	Centerline New MH Div. C	12.5' West, 33.5' North
P-6S	Centerline New MH Div. C	15.0' West, 31.0' North

Sub-Station
Stone Drive
PP
M.H.
8" Vit. Drain
Sludge
Overflow Box
Plug
Discharge Riser
Ponds
Remove Exist. Fence
Exist. Fence To Be Replaced With New Fence
8" P.C.P. C-14-II @ 3.00% Gr.
New fence & Gate
39" Combined Sewer
Exist. 3'x6' Conc. Block Chamber Break Hole In Exist. Wall & Install New 8" P.C.P. Drain. Match Inverts Of 8" P.C.P. & Chamber Bottom (Approx. El. 953.85). Grout In Place With Embeco Grout.
New 12" Water Main Under Div. B
Old Well
Div. B
℄ El 953.30
For Connections See Sheet No 12
G-10
8" C.I. Wash Water
10" C.I. Filter Effluent Line
New 12" C.I.P. Suction Line
Provide Tee w/ Plug For Future Conn.
G-9
C.I. Suction Line (To Be Abandoned)
4" C.I.P. (Abandoned)
New Suction Conn. See Sheet No 14
Elevated Tank Foundations
Underground Clear Water Basin
Filter Bldg.
Control Bldg.
New 12" C.I.P. Pump Disch.
6" C.I. High Service Line
Valve Box
Riser
6" C.I. Effluent Line (Abandoned)
G-12
G-13N
G-13S
G-14
4" Sewer
6" Vit. Sewer
4" C.I. Sludge Line
4", 4" Wye
P-6N
P-6S
Old Well
G-30
G-31
G-32
Remove Valve & Plug Tee
Well House No 5
Future Filter Bldg.
3-N: 1½"c: 4-N: 2"c
6" C.I. Raw Water (To Be Abandoned)
G-24
Remove Section Of Exist. 18"ø
New 12" C.I.P. Connections
12"x6" Tee
4" Valve
Inv. 4'
12" Transite Pipe-Waste Wash Water Drain
G-22
G-23
2-6" Cutting-in Sleeves
2-6"x12" Reducers
1-12"x12" M.J. Cross & Required Bends & Piping As Determined In Field
3-N: 4:4½"12:1½"c.
12"x12"x8" Tee
New 12" C.I.P. Raw Water Line
8" Gate Valve
G-26
Div. D
Div. A
Boring #5
Boring #1
4" C.W.
New 16" C.I.P. Filter Influent
12" Bypass
Boring #11
NEW CHEMICAL FEED BUILDING
G-25
G-8
G-18
NEW SOFTENING TANK
Boring #6
Boring #9
Boring #5
New 4" C.I. Sludge Line
New 16" Drain
New 1" Copper CO_2 Line
NEW WELL HOUSE (Div. D)
7
Shed
New Manhole Invert To Match Exist. 8" Sewer - El. 954.5 ±
New 6" C.I. Sewer
NEW VALVE CHAMBER
Future Softening Tank
Boring #7
Boring #12
8" Vit. Pipe Sewer
10" Water Main
6" Raw Water
8" Fire Hydrant
New Pavement Water Bound Macadam
NEW ELEVATED TANK (Div. C)
Dia. Of Tank Above
Outside Dia. Of Footing
Boring #2
Boring #4
House
Div. C
Well House No 6
G-28
G-29
30'
9'
G-27
11¼° Bend
New 12" C.I.P.
℄ El. 953.00
New 12" C.I.P. Water Mains
Div. A
Div. B
10"
Stone Drive
Shed
Conc. Patio
House Trailer
New M.H. Div. C
Break Hole In Existing M.H. & Install New 8" P.C.P. Drain. Grout In Place With Embeco Grout @ Inv. El. 951.60 ±.
New 10" P.C.P. Elevated Tank Drain Line Div. C
11¼° Bend
New 4" C.I.P. Sludge Line
℄ El. 954.50
New Fence
4" C.I.P. Sludge Line - ℄ El. 954.50 - For Continuation See Sheet No 3
NEW SLUDGE PONDS
(See Sheet No 3)
New Fence
14'-0"
5'-0"
80.5'
13'-0"
25'-0"
T.B.M. #3
N

Legend
- Existing Structures
- New Structures
- Existing Piping To Be Abandoned - Plug Ends
- Existing Piping And Valves To Remain
- New Piping And Valves

1-5 — Number Of Section / Sheet Number Section Is Shown On

SECTION 1-3 — Number Of Section / Sheet Number Section Is Cut On

SECTION NUMBERING

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA By D.Mc Date 4-77

STATE OF OHIO — MERRILL G. SMITH — 23602 — REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO. 2 DIV.-A

OUTSIDE PIPING

NO.	DATE	REVISIONS	CH'K BY

FLD. BK. | SCALE 1" = 20' | DRN. BMC | CK'D | APR. D.H.S.

JOB NO. 14-74
DATE JULY 1973

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

DRAWING NO. 1 OF 15

Sub Station

Stone Drive

P.P.

Old Well

Sludge

Overflow Box

Discharge Riser

Ponds

Filter Bldg.

Control Bldg.

Future Filter Bldg.

Elevated Tank Foundations

Underground Clear Water Basin

Valve Box

Riser

Bm #2

Well House №1

NEW CHEMICAL FEED BUILDING

NEW SOFTENING TANK

NEW VALVE CHAMBER

Future Softening Tank

NEW PAVEMENT

AREA 1

959 Contour In Area 1 Filled

AREA 2

Slope & Grade

NEW WELL HOUSE

NEW ELEVATED TANK

Well House №2

New 12" C.I.P. Waterline

Shed

Conc. Patio

House Trailer

House

Note
Areas Shown With Finished Contours Shall Be Filled First. Any Remaining Excess Excavation Shall Be Used To Fill Area 1 To El. 959.0. Then Area 2 Shall Be Filled To El. 958.0.

Legend
- Existing Structures
- New Structures
- New Pavement
- Existing Contours
- 960 Finished Contours

New Fence

NEW SLUDGE

PONDS

D.M. 4-77

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO. 2 DIV.-A

LOCATION AND GRADING PLAN

NO.	DATE	REVISIONS	CH'K BY

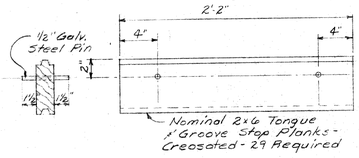
FLD. BK.	SCALE	DRN.	CK'D	APR.
	1" = 20'	BMR		W.H.S.

JOB NO. 14-74
DATE JULY 1973

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

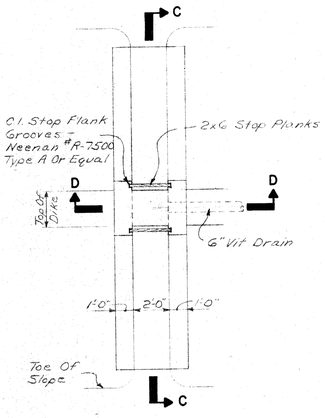
DRAWING NO. 2
OF 15

K&E 17 0153 10-70•

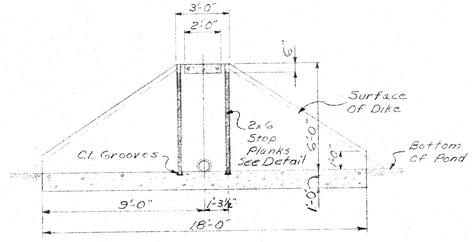


TIMBER STOP PLANKS

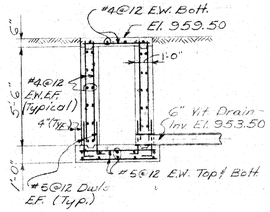
1½"=1'-0"



PLAN



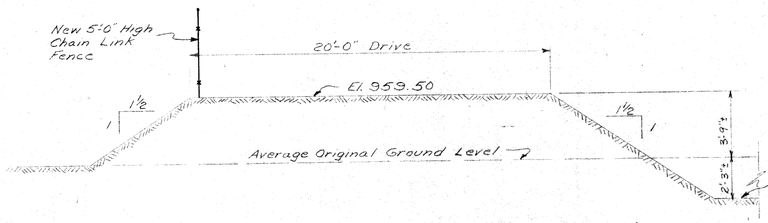
SECTION C - C



SECTION D - D

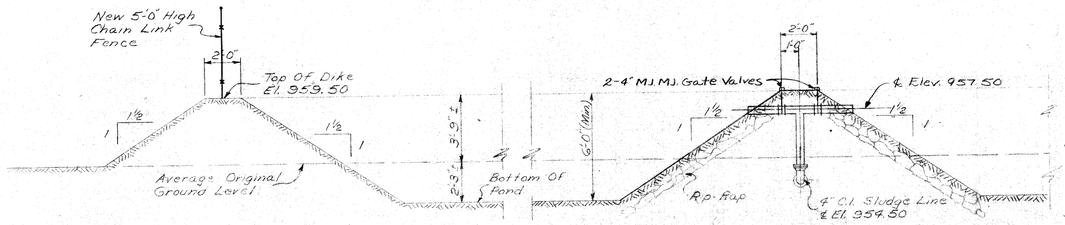
OVERFLOW BOX DETAIL

1¼"=1'-0"



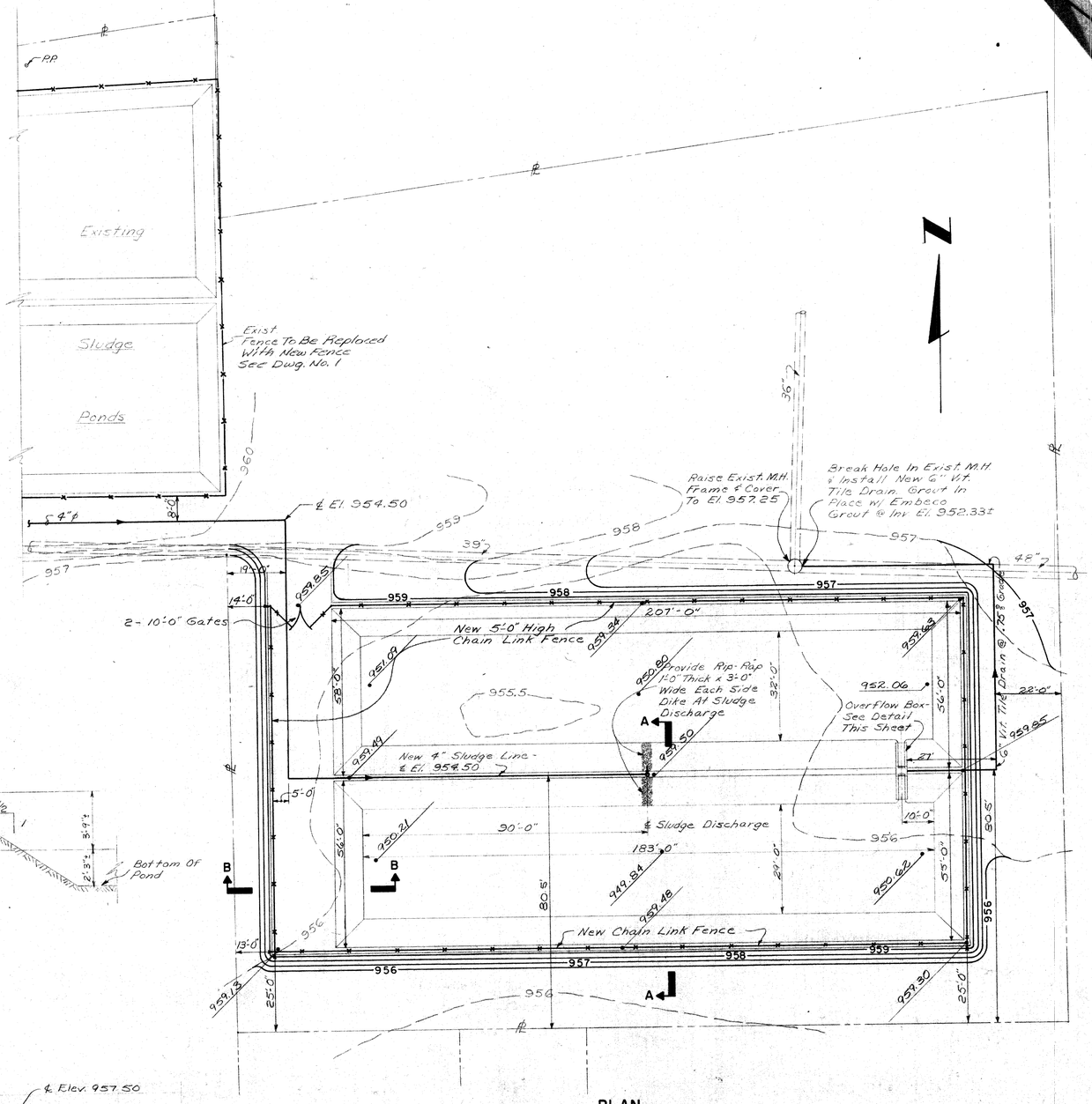
SECTION B-B

1¼"=1'-0"



SECTION A-A

1¼"=1'-0"



PLAN

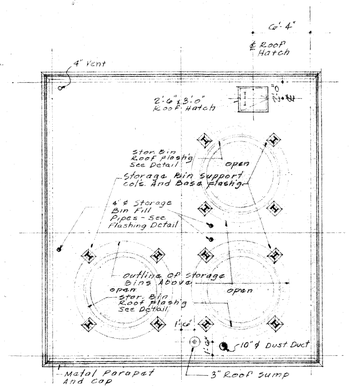
1"=20'

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA. O.M.C. Date 4-77

STATE OF OHIO — MERRILL G. SMITH — 23107 — REGISTERED PROFESSIONAL ENGINEER

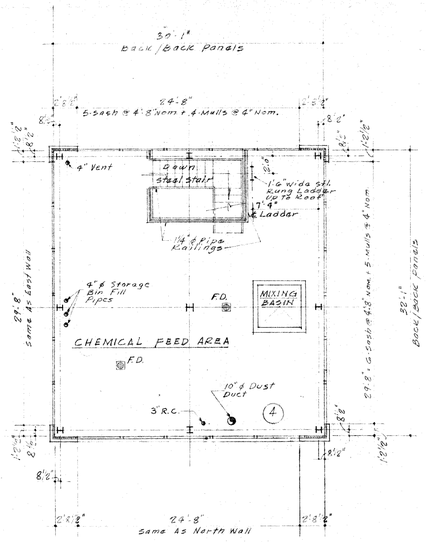
VILLAGE OF ADA, OHIO WATER WORKS IMPROVEMENTS TREATMENT PLANT ADDITIONS CONTRACT NO. 2 DIV.-A					NEW SLUDGE PONDS	
NO.	DATE	REVISIONS		CH'K BY	JOB NO. 14-74	DRAWING NO. 3
FLD. BK.	SCALE AS NOTED	DRN. SRR	CK'D	APR. WHS	DATE JULY 1973	OF 15
					JONES & HENRY ENGINEERS LIMITED 2000 W. CENTRAL AVE. TOLEDO, OHIO	

K&E 17 0153 10-70•



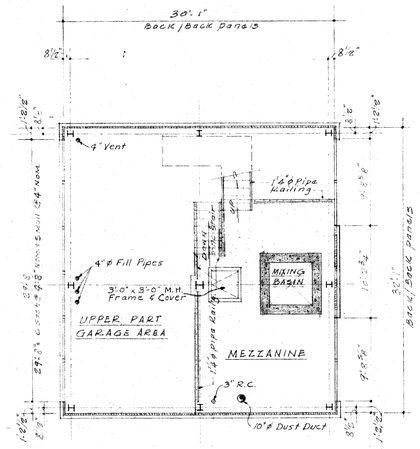
ROOF PLAN ABOVE ELEV. 991.75

scale: 1/8" = 1'-0"



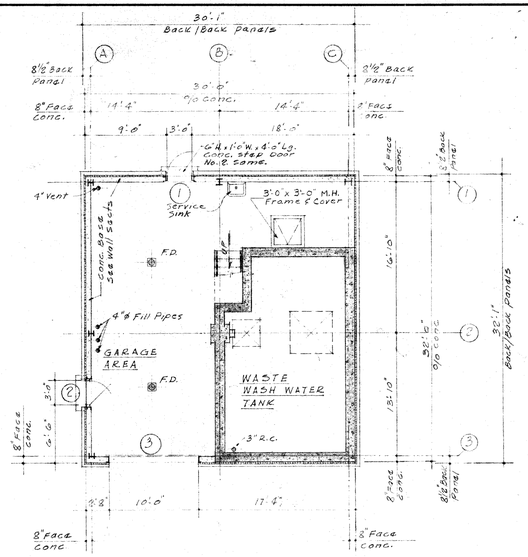
PLAN AT ELEV. 976.0

scale: 1/8" = 1'-0"



PLAN AT ELEV. 966.0

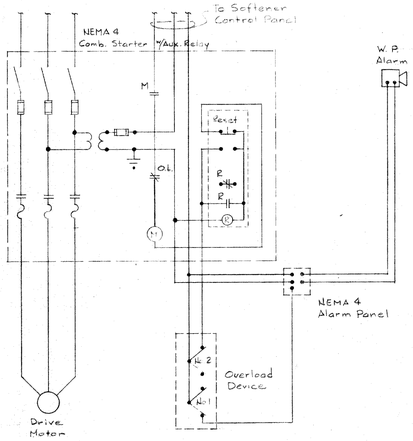
scale: 1/8" = 1'-0"



PLAN AT ELEV. 961.0

scale: 1/8" = 1'-0"

NORTH



CONTROL DIAGRAM
SLUDGE COLLECTOR

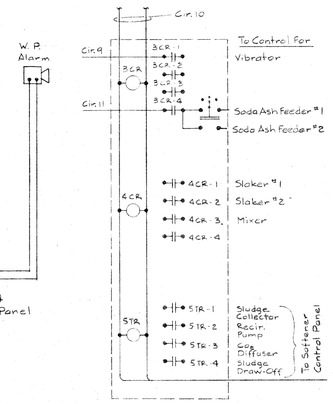
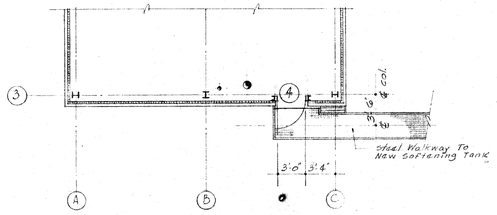
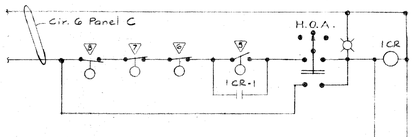


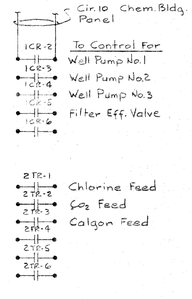
DIAGRAM
RELAY PANEL



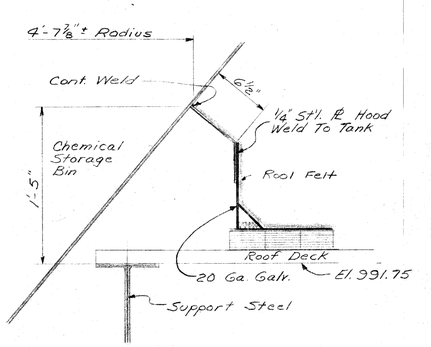
PART PLAN AT ELEV. 976.0
BELOW DASH

scale: 1/8" = 1'-0"



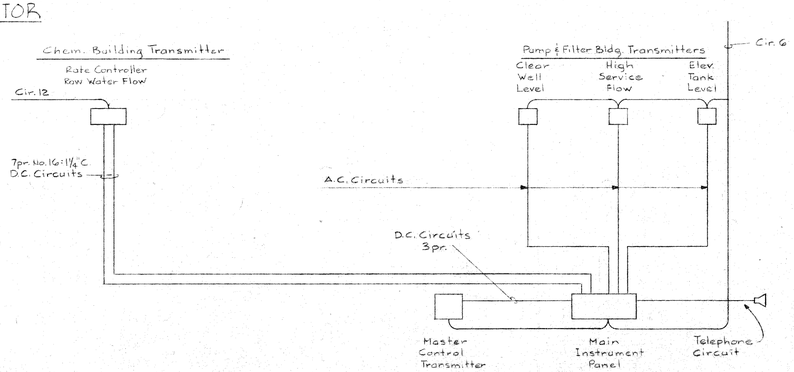


MAIN INSTRUMENT PANEL
PLANT CONTROL DIAGRAM

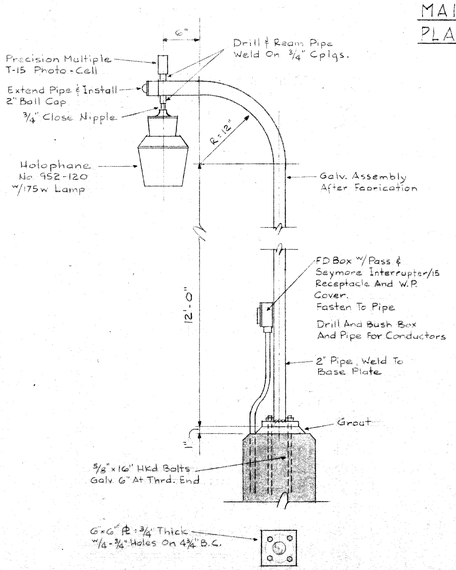


STORAGE BIN ROOF FLASHING DETAIL

Scale: 1½" = 1'-0"



METER & CONTROL DIAGRAM



LAMP POST DETAIL

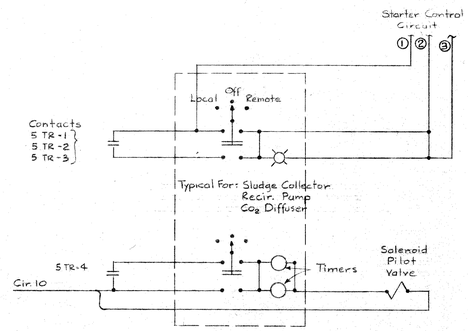
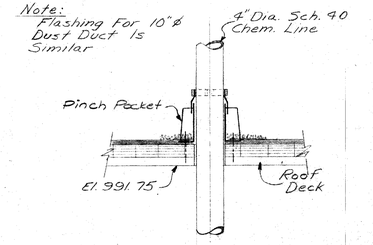


DIAGRAM
SOFTNER CONTROL PANEL



FILL PIPE FLASHING DETAIL

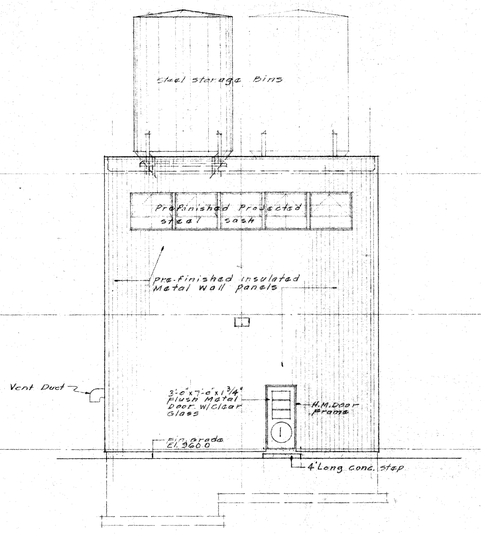
Scale: 1" = 1'-0"

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA. By DMc Date 4-77

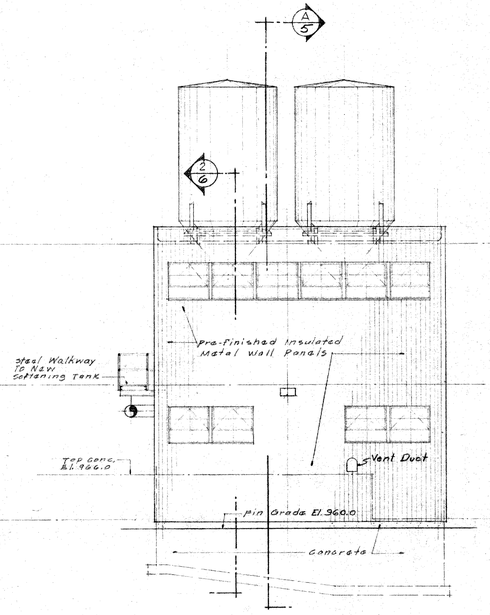
STATE OF OHIO MERRILL G. SMITH 23602 REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER WORKS IMPROVEMENTS TREATMENT PLANT ADDITIONS CONTRACT NO. 2 DIV. – A					CHEMICAL FEED BUILDING ARCHITECTURAL PLANS		
NO.	DATE	REVISIONS		CH'K BY	JOB NO. 14-74	JONES & HENRY ENGINEERS LIMITED	DRAWING NO. 4
FLD. BK.		SCALE AS NOTED	DRN. RFD	CK'D	DATE JULY 1973	2000 W. CENTRAL AVE. TOLEDO, OHIO	OF 15

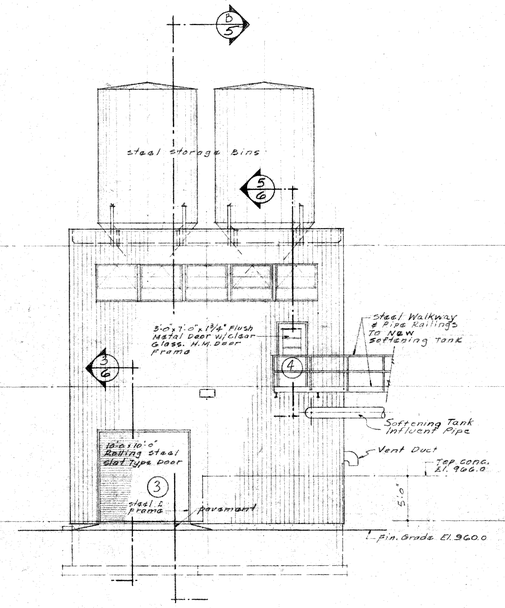
K&E 17 0133 10-70+



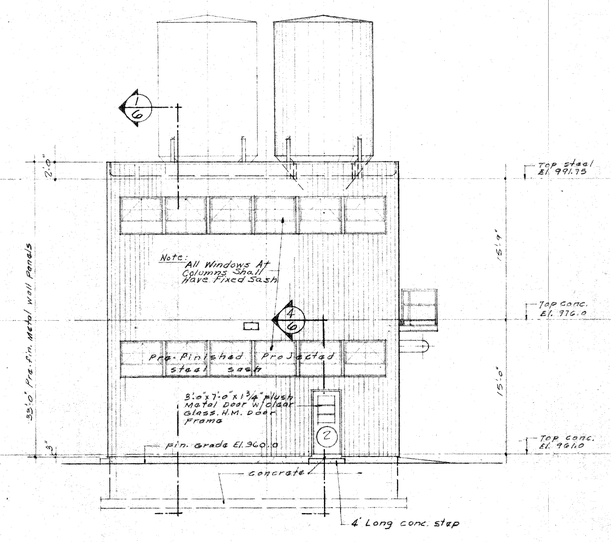
NORTH ELEVATION
scale: 1/8"=1'-0"



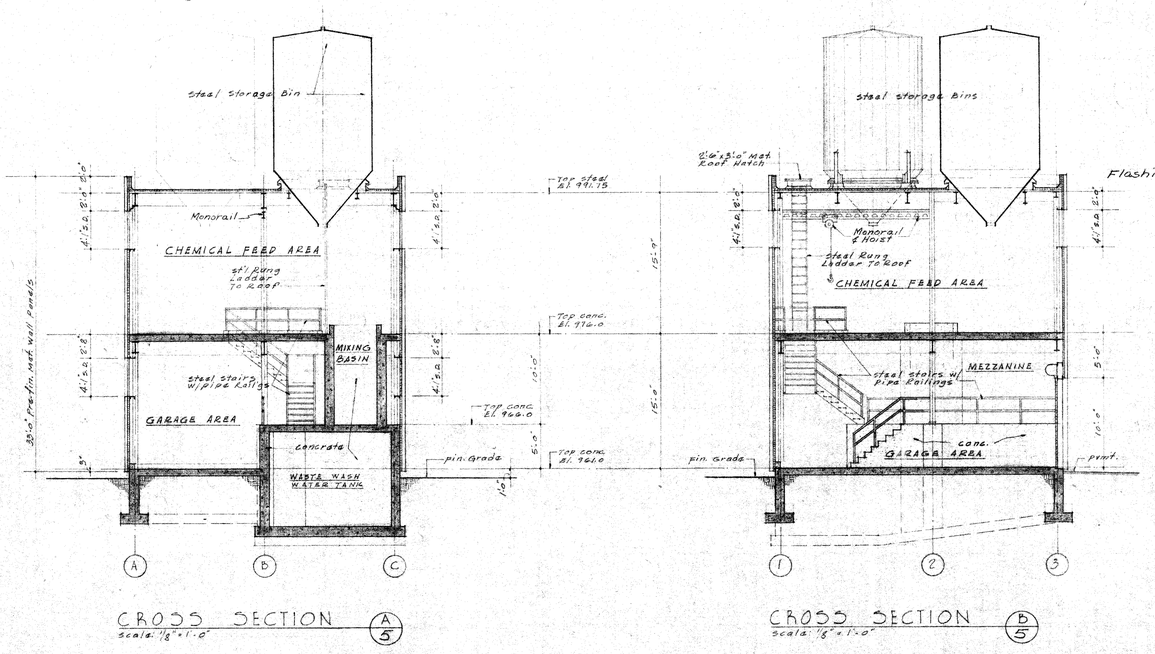
EAST ELEVATION
scale: 1/8"=1'-0"



SOUTH ELEVATION
scale: 1/8"=1'-0"

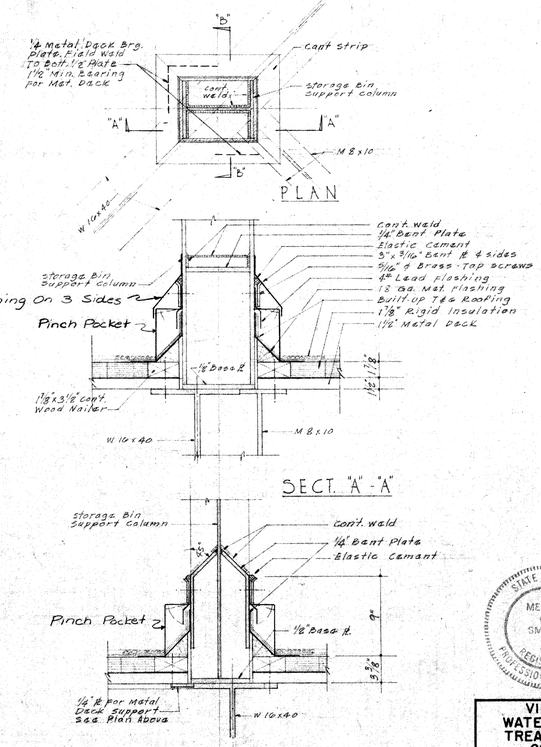


WEST ELEVATION
scale: 1/8"=1'-0"

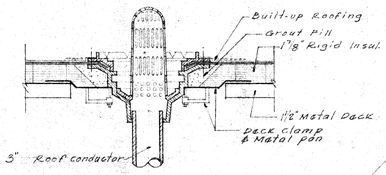


CROSS SECTION (A/5)
scale: 1/8"=1'-0"

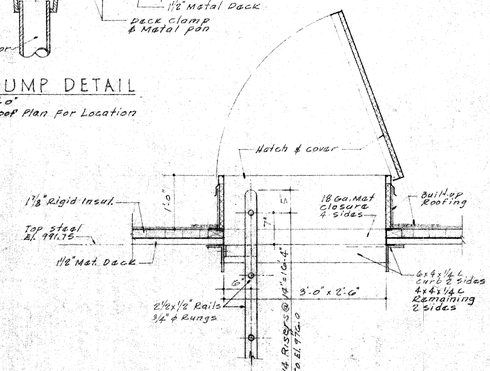
CROSS SECTION (B/5)
scale: 1/8"=1'-0"



FLASHING DETAILS OF ROOF STORAGE BIN SUPPORTS
scale: 1 1/2"=1'-0"



ROOF SUMP DETAIL
scale: 1 1/2"=1'-0"
NOTE: See Roof Plan for Location



DETAIL-ROOF HATCH
scale: 3/4"=1'-0"
NOTE: See Roof Plan For Location

STATE OF OHIO
MERRILL G. SMITH
13603
REGISTERED PROFESSIONAL ENGINEER

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA By: DMc Date: 4-77

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO. 2 DIV.-A

NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
	AS NOTED	RFD		JHS

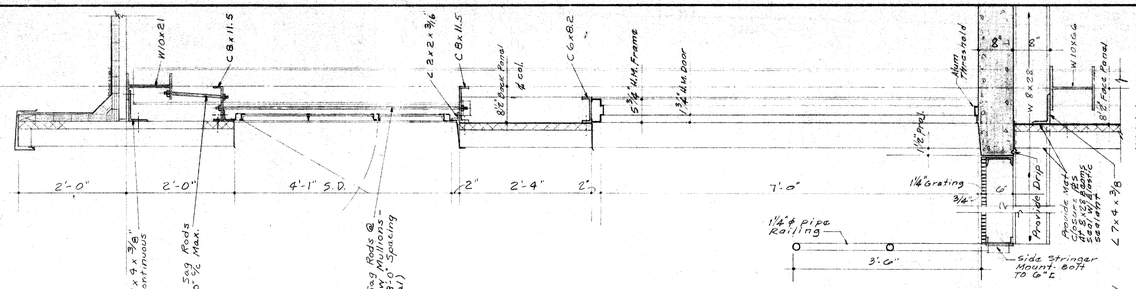
JOB NO. 14-74
DATE JULY 1973

CHEMICAL FEED BUILDING ARCHITECTURAL ELEVATIONS & SECTIONS

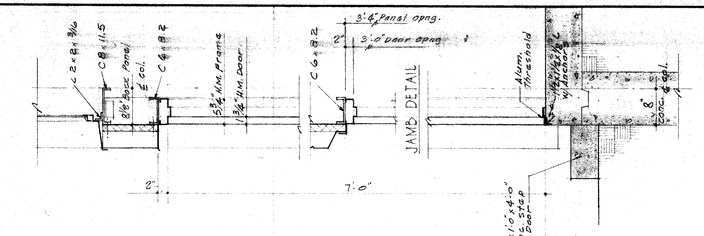
JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 5
OF 15

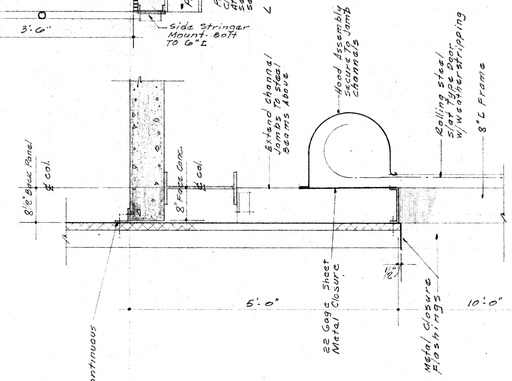
K&E 17.0153 10-70

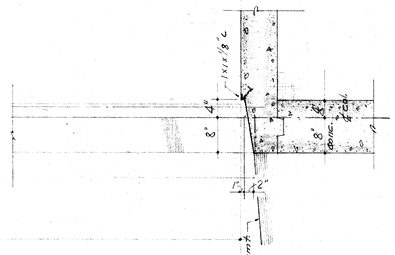


WALL SECTION 5/5
scale: 3/4"=1'-0"

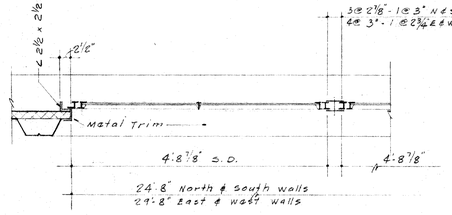


WALL SECTION 4/5
scale: 3/4"=1'-0"

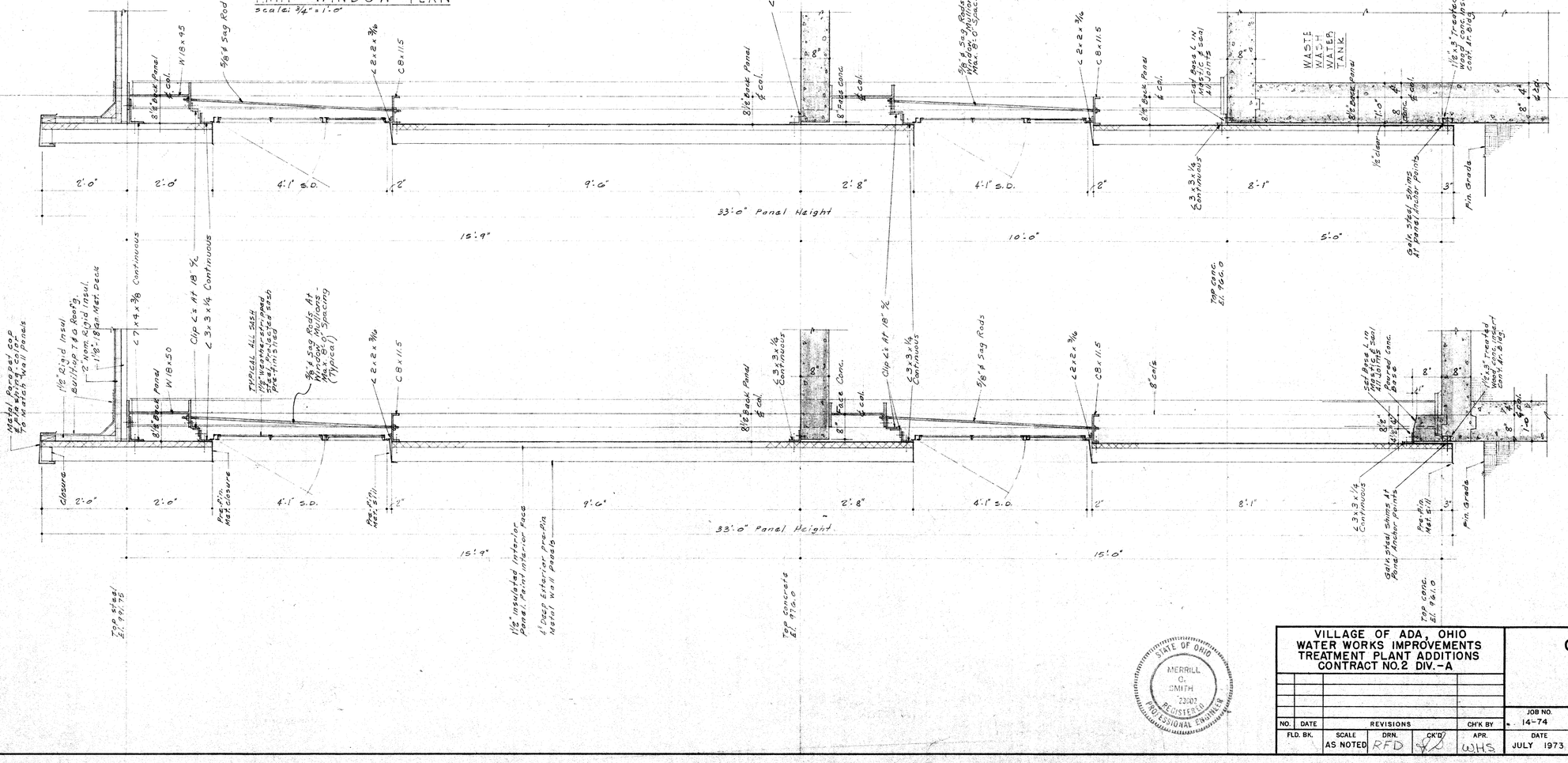




WALL SECTION 3/5
scale: 3/4"=1'-0"



PART WINDOW PLAN
scale: 3/4"=1'-0"



WALL SECTION 2/5
scale: 3/4"=1'-0"

WALL SECTION 1/5
scale: 3/4"=1'-0"

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA By D.M. Date 4-77

STATE OF OHIO
MERRILL C. SMITH
23002
REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO. 2 DIV. - A

CHEMICAL FEED BUILDING
ARCHITECTURAL
WALL SECTIONS

NO.	DATE	REVISIONS	CH'K BY

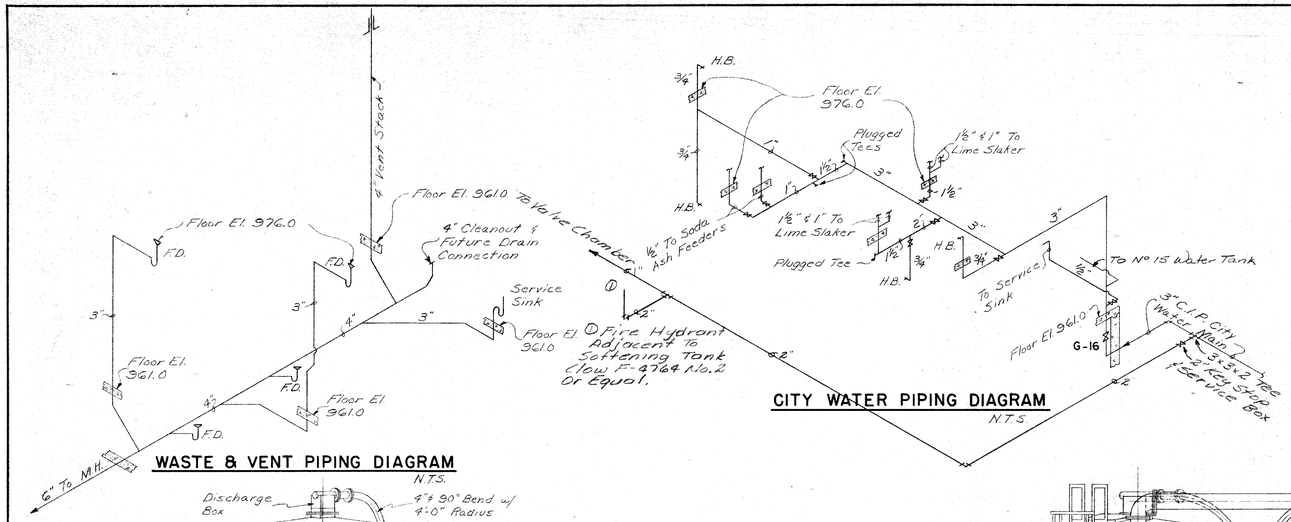
FLD. BK.	SCALE	DRN.	CK'D	APR.
	AS NOTED	RFD		WHS

JOB NO. 14-74
DATE JULY 1973

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

DRAWING NO. 6 OF 15

KAE 17 0153 10-70

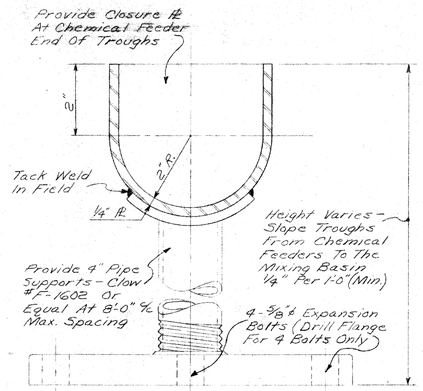


WASTE & VENT PIPING DIAGRAM

N.T.S.

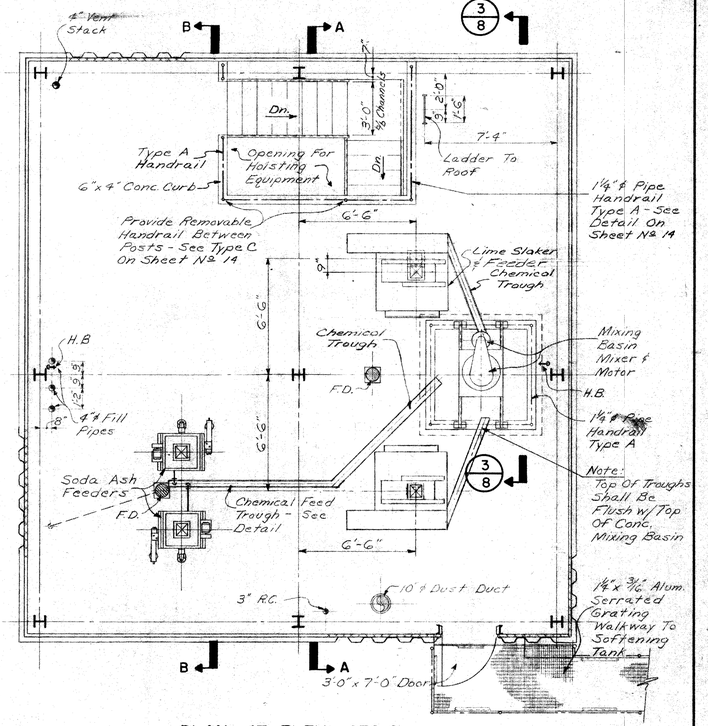
CITY WATER PIPING DIAGRAM

N.T.S.

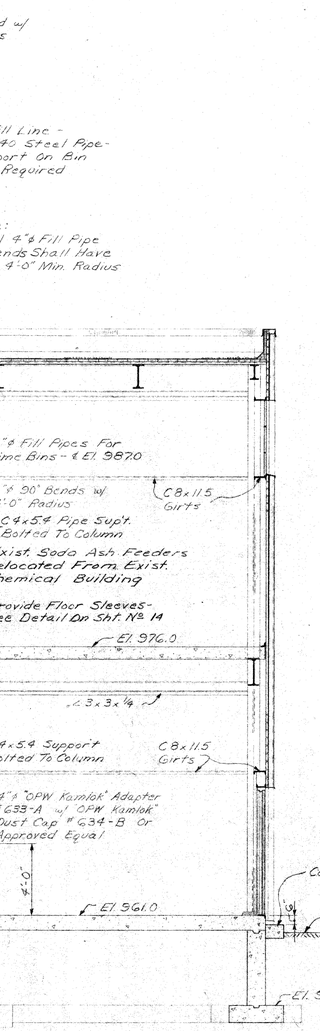


CHEMICAL FEED TROUGH DETAIL

Half Scale

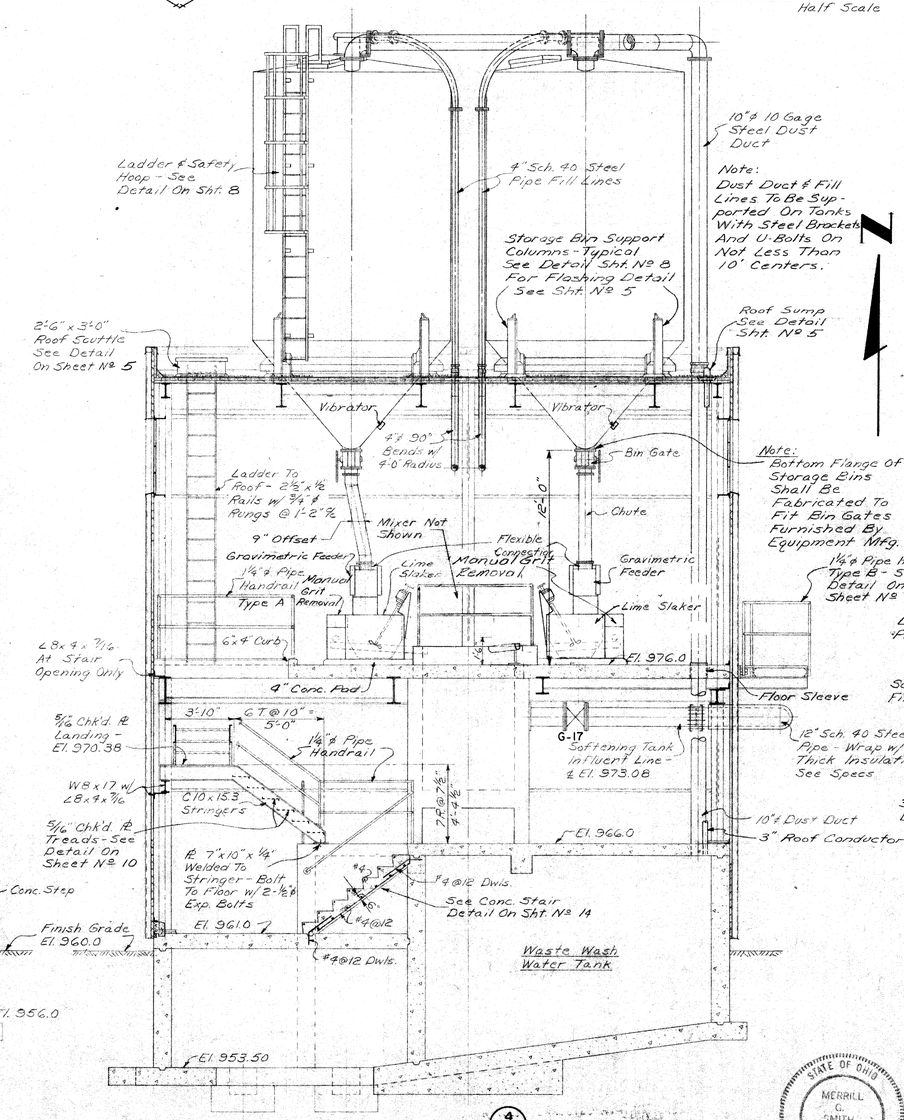


PLAN AT ELEV. 976.0



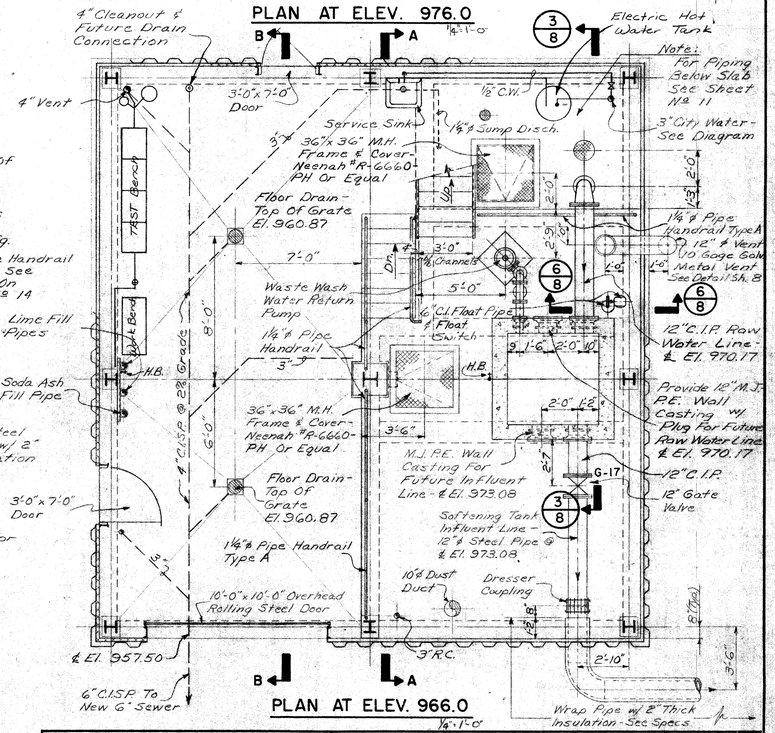
SECTION B-B (5/8)

¼" = 1'-0"



SECTION A-A (4/8)

¼" = 1'-0"



DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA. By D.Mc Date 4-77

STATE OF OHIO MERRILL G. SMITH 23602 REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO. 2 DIV.-A

CHEMICAL FEED BUILDING EQUIPMENT LAYOUT

NO.	DATE	REVISIONS	CH'K BY.
FLD. BK.			

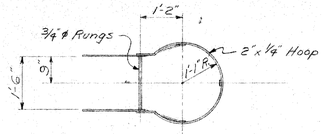
SCALE	DRN.	CH'D	APR.
AS NOTED	DRR		W.H.S.

JOB NO. 14-74
DATE JULY 1973

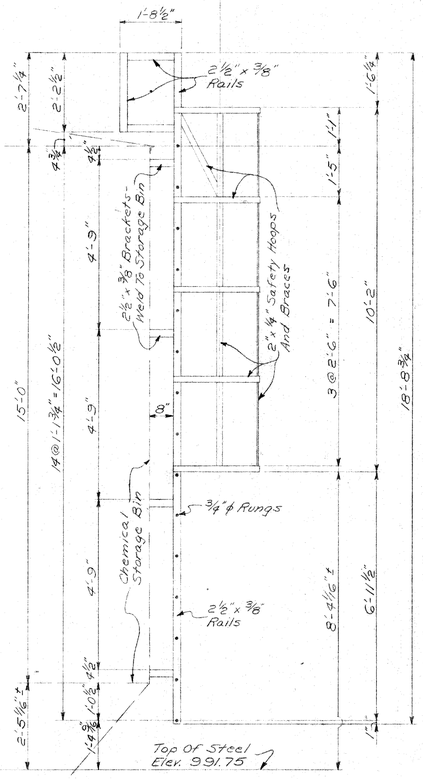
JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 7
OF 15

K&E 17 0133 10-70+



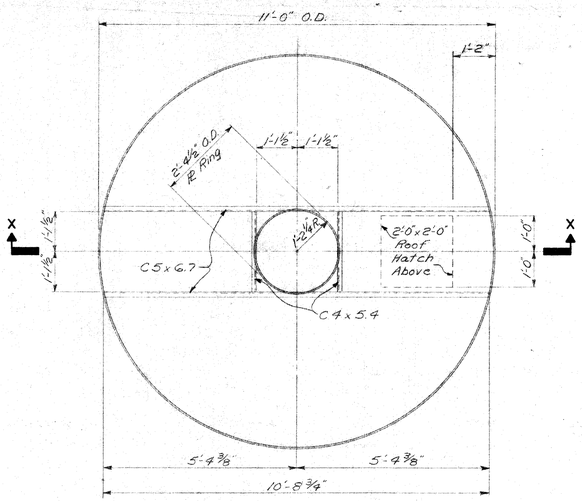
PLAN



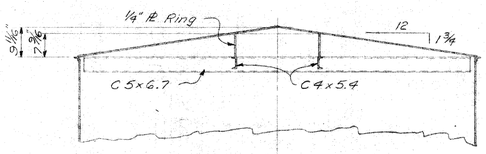
ELEVATION

LADDER & SAFETY HOOP DETAIL

½"=1'-0"



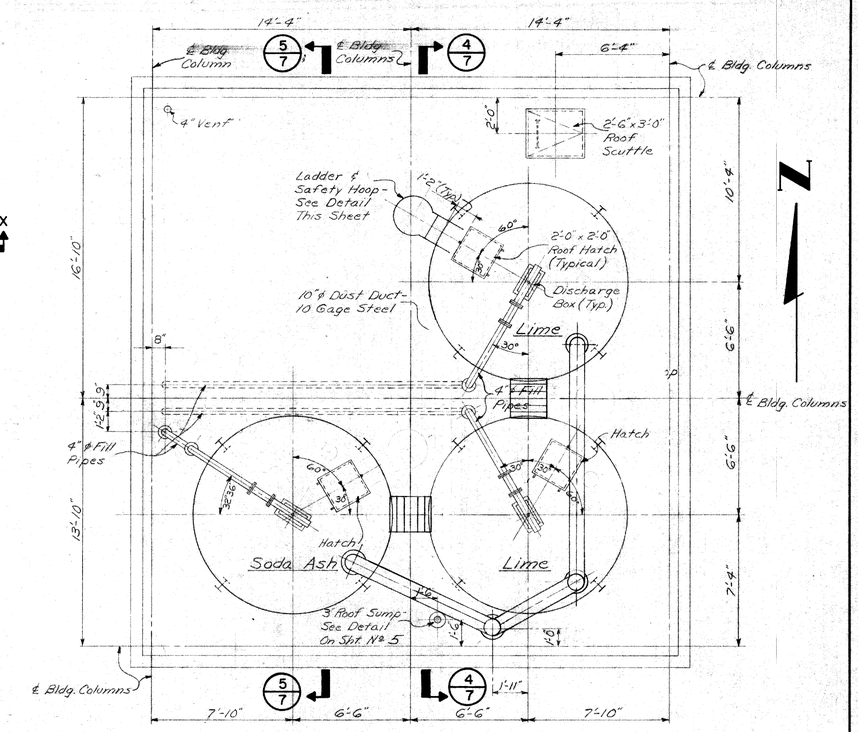
PLAN



SECTION X-X

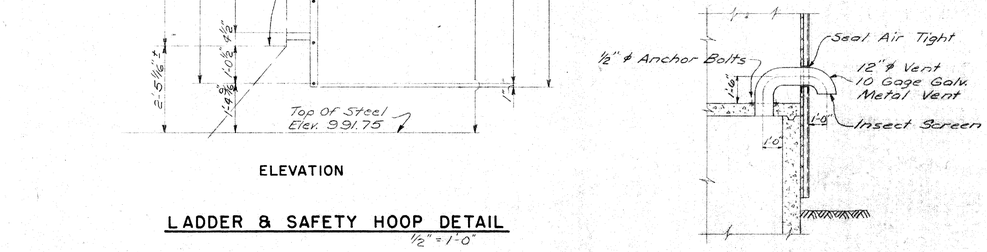
BIN ROOF FRAMING DETAIL

½"=1'-0"



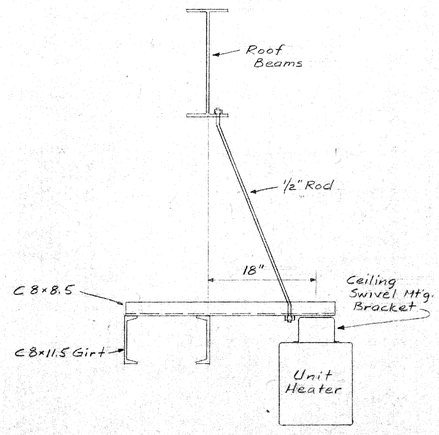
ROOF PLAN

¼"=1'-0"



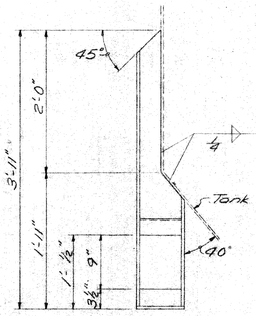
WASTE WASH WATER TANK VENT DETAIL

¼"=1'-0"



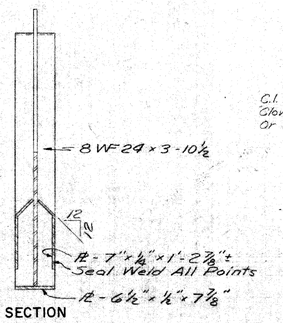
UNIT HEATER MOUNTING

(Typical Upper Level)

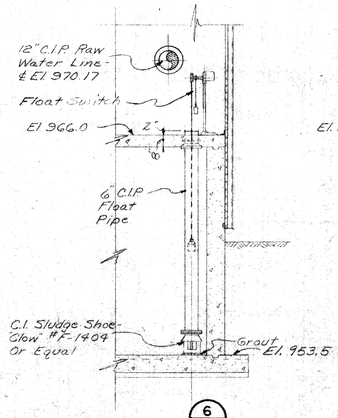


STORAGE BIN SUPPORT COLUMN DETAIL

1"=1'-0"

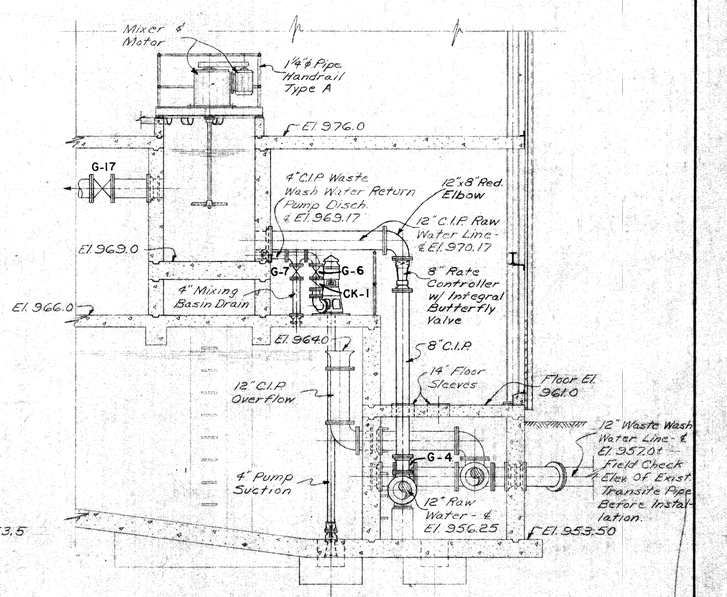


SECTION



SECTION 6/7

¼"=1'-0"



SECTION 3/7 3/11

¼"=1'-0"

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO.2 DIV.-A

CHEMICAL FEED BUILDING ROOF PLAN, SECTIONS AND DETAILS

NO.	DATE	REVISIONS	CH'K BY

FLD. BK. | SCALE AS NOTED | DRN. | CK'D | APR. | JOB NO. 14-74 | DATE JULY 1973

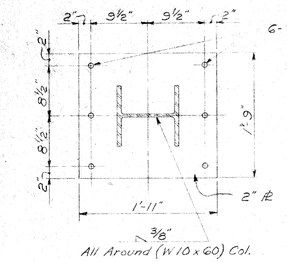
JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 8 OF 15

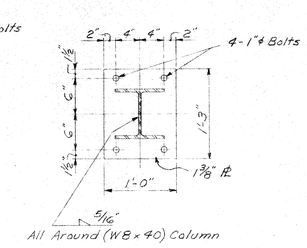
STATE OF OHIO MERRILL C. SMITH 23603 REGISTERED PROFESSIONAL ENGINEER

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA By DHC Date 4-77

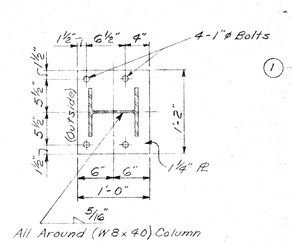
K&E 17 0153 10-70+



COLUMN B-2

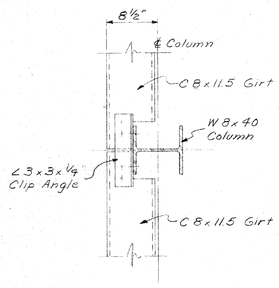


COLUMN B-3

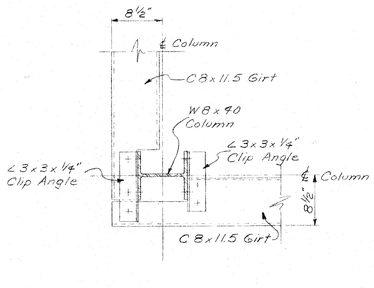


ALL COLUMNS EXCEPT B-2 & B-3
(7 Required)

BASE PLATE DETAILS
1" = 1'-0"

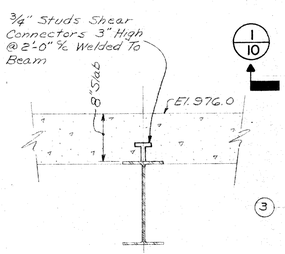


TO COLUMN

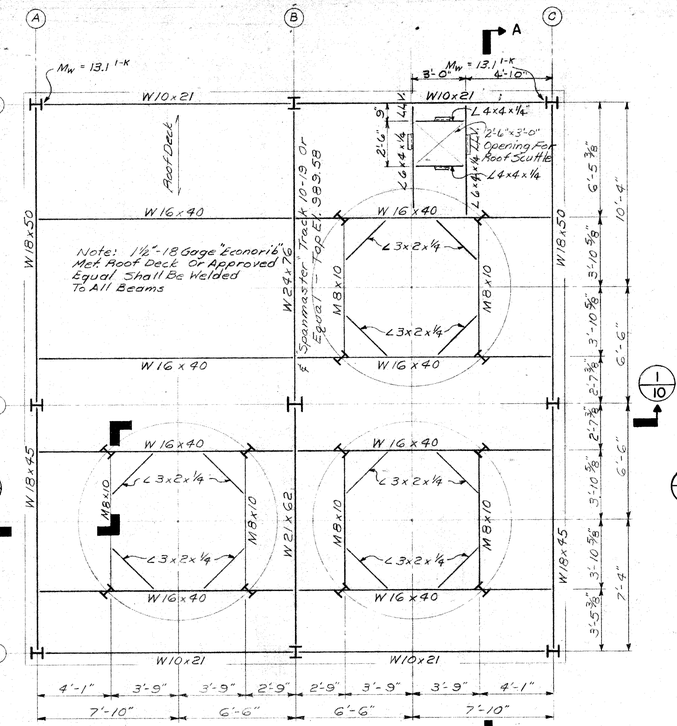


TO CORNER COLUMN

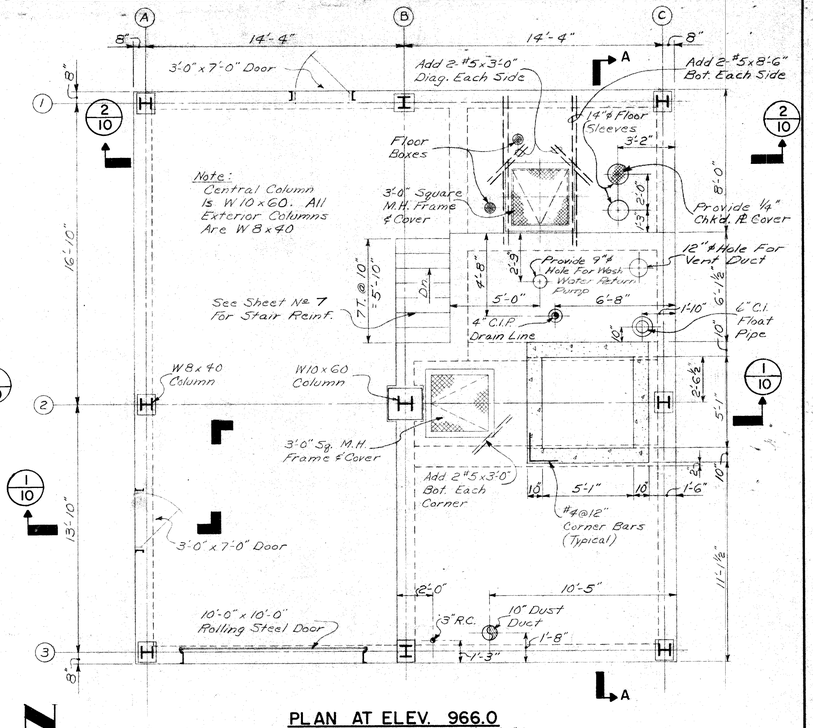
TYPICAL GIRT CONNECTIONS
1" = 1'-0"



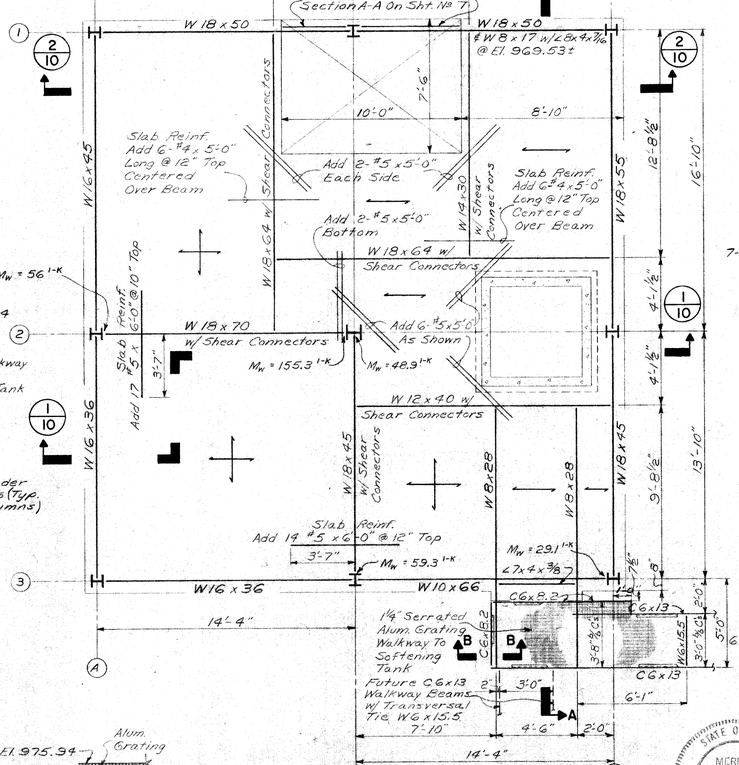
SHEAR CONNECTOR DETAIL
1" = 1'-0"



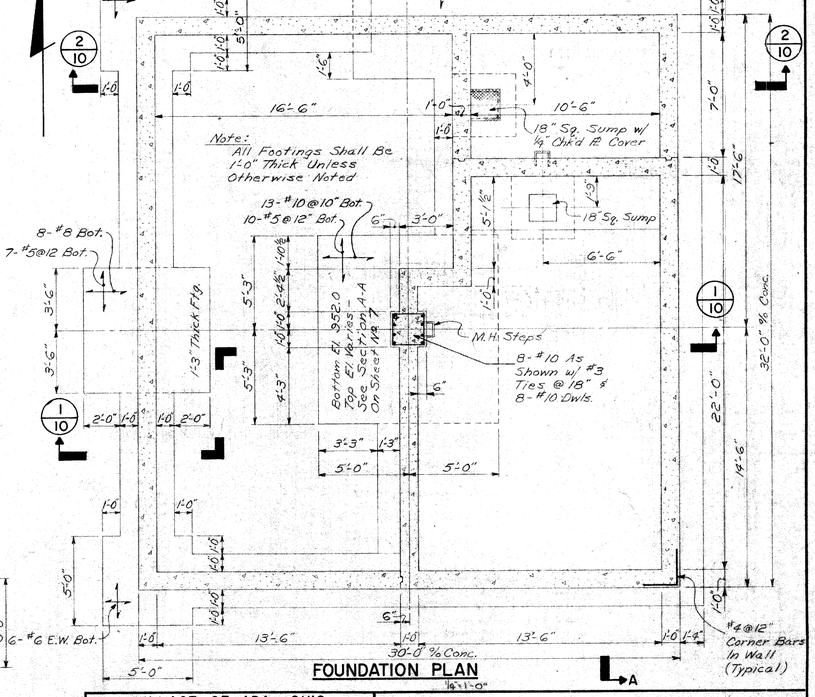
ROOF FRAMING PLAN



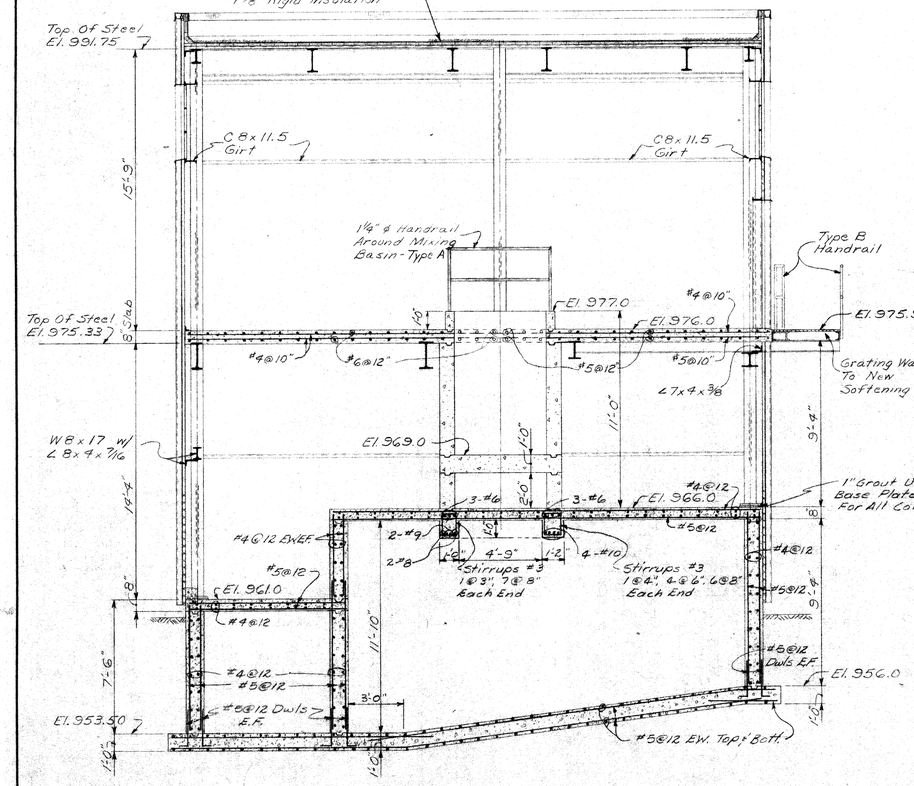
PLAN AT ELEV. 966.0



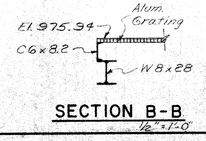
PLAN AT ELEV. 976.0



FOUNDATION PLAN



SECTION A-A
¼" = 1'-0"



SECTION B-B
½" = 1'-0"

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA BY DWC Date 4-77

STATE OF OHIO
MERRILL G. SMITH
23003
REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO. 2 DIV.-A

CHEMICAL FEED BUILDING
STRUCTURAL

NO.	DATE	REVISIONS	CH'K BY

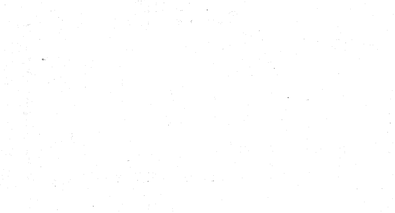
FLD. BK.	SCALE	DRN.	CK'D	APR.
	AS NOTED	AHC	AJ	WHS

JOB NO. 14-74
DATE JULY 1973

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

DRAWING NO. 9
OF 15

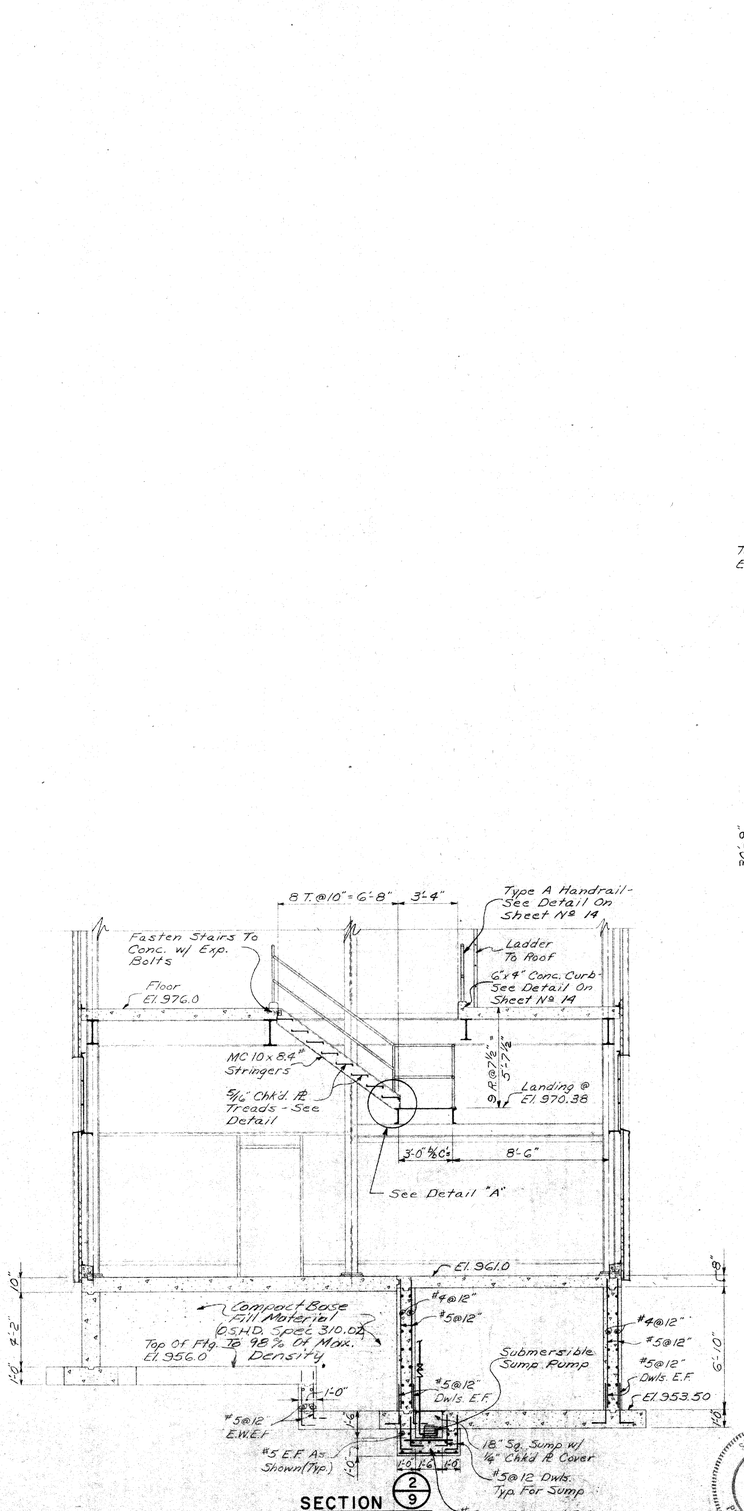
K&E 17 0153 10-70•



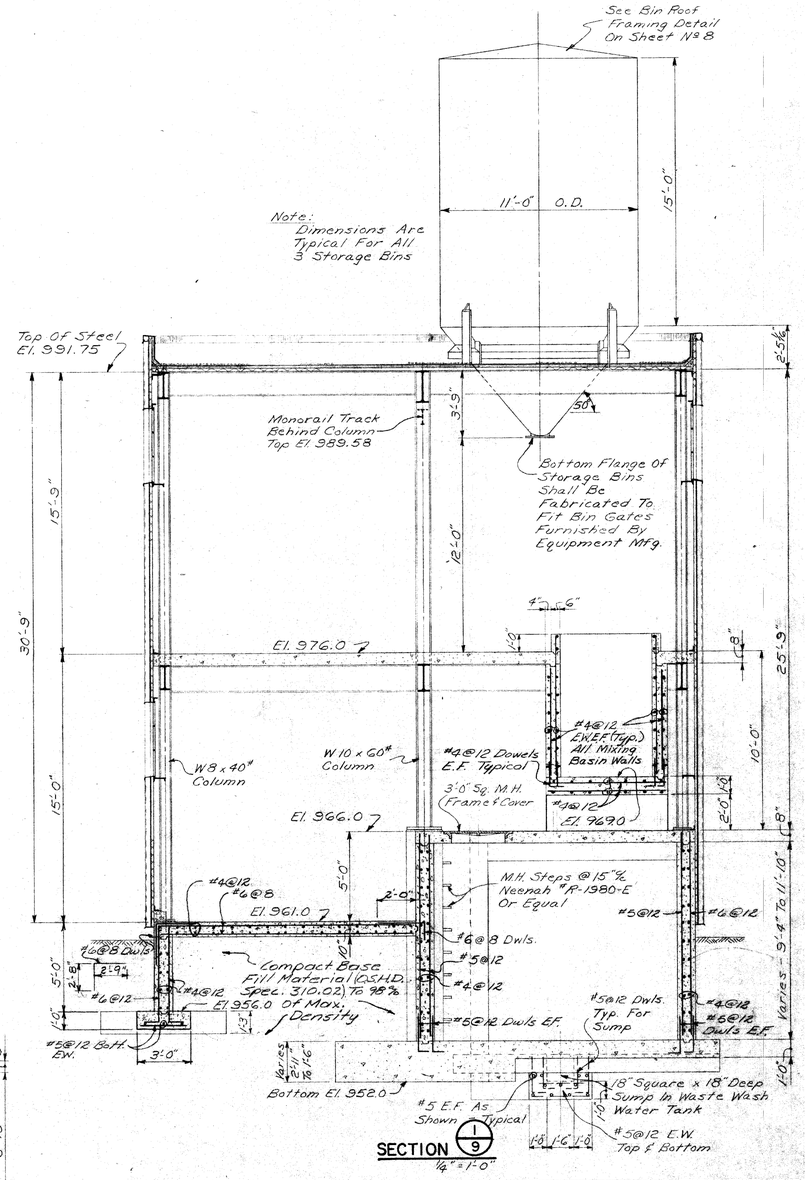
TREAD DETAIL
3"=1'-0"



DETAIL "A"
1"=1'-0"



SECTION (2/9)
¼"=1'-0"



SECTION (1/9)
¼"=1'-0"

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA By D.M.C. Date 4-77

STATE OF OHIO
MERRILL G. SMITH
23503
REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO. 2 DIV.-A

CHEMICAL FEED BUILDING STRUCTURAL

NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
	AS NOTED	DRL		W.H.S.

JOB NO. 14-74
DATE JULY 1973

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

DRAWING NO. 10
OF 15

K&E 17 0153 10-70

Chemical Feed Bldg.

Duplex Coupling
Exist. 12" Transite Pipe
C.I. Nipple Adapter
Cut Exist 12" Transite Pipe & Remove As Required
12"ø C.I.M.J. 45° Bends
1¼"ø Sump Discharge
Provide Chk'g. Rt. Cover For Sump
12"x8" Red. Elbow
M.H. Steps @15"c/c
18" Sq. x 18" Deep Sump
12" C.I.P. Overflow
Waste Wash Water Tank
Floor El. 976.0
4" C.I.P. Sludge Line
4" C.I.P. Drain Line
1¼"x⅜" Serrated Alum. Grating Over C.G. 13 Walkway Beams - See Sheet No 9
New 6" C.I.P. Sewer
New Valve Chamber See Detail
Add 2-#4 Bottom of Top Slab
M.H. Frame & Cover (Frost-Proof) Neenah R-1758-F Or Equal
2'-2"
C.I. Nipple Adapter
Duplex Coupling
Exist. 12" Transite Pipe Waste Wash Water Drain
See Sht #7 For Valve
3" C.I.P. City Water - See Piping Diagram On Sheet No 7
2" C.I.P.
16" C.I.P. Filter Influent Line & El. 954.50
Rotate 45° Bend As Required
12" Gate Valve W/ Valve Box
2" C.I.P. Bypass
11¼° Bend
16" Gate Valve W/ Valve Box
16" C.I.P. - & El. 956.0
#5@12 Corner Bars
#5@12
#5@12 Dwls E.F.
16-#8 Dwls - E.F.
6-#7 x 16'-8" Vert. E.F.
New 12" Raw Water Line From New Well
Top Of Baffle Wall El. 976.0 - Provide 1'-6" x 1'-0" Opening At Base Of Wall - See Section A-A
Top Of Baffle Wall El. 972.0 - Provide Triangular Opening At Base Of Wall
1'-0" (Typ. Baffle Wall)
#5@12 Dwls E.F. (Typ. At Baffle Walls)
#5@12 E.W.E.F. (Typ. For Baffle Walls)
2" Fire Hydrant
Provide ⅜"ø Anchor Bolt In 1"x4" Slotted Hole (Typ.)
Add 4-#4@12 x 16'-8" LF. Verticals Centered At Bracket
8"x8"x½" R. (Typical)
M.J. Wall Sleeve
New 1" Copper Carbon Dioxide Line.
12" C.I.P. Effluent Line See Top Plan
#5@12 Dwls E.F.
12" Wall Casting For Future Tank With M.S. Plug & El. 957.0
6-#8 Dwls E.F.
6-#7 x 16'-8" Vert. E.F.
CO₂ Diffuserator Above

1¼"ø Pipe Handrail Type B - See Detail On Sht. No 14
8-1¼" Rt. Weir Troughs - 8"x8"
12" C.I.P. Effluent Line
1⅛"x⅜" Serrated Alum. Grating
1¼"ø Pipe Handrail - Type A - See Detail On Sht. No 14
CO₂ Diffuserator
Mechanism Drive
Mixer Motor

TOP PLAN
1/8"=1'-0"

SECTION D-D

El. 961.0
1¼" Checkered Rt. Cover - See Floor Plate Frame Detail Sht. No 14
1¼"ø Disch.
1" Plug Valve Drain
#5@12 Dowels
El. 954.0
#4@12 E.W. Top & Bott.
#4@12

SECTIONAL PLAN

4" C.I.P. To Sludge Well In Existing Control Bldg.
4" C.I.P. Drain From Recarbonation Chamber
Provide 1¼"ø Bass On 6"x4" Increaser
Electric Actuated Hydraulic Cylinder Operated Plug Valve
6" C.I.P.
4" C.I.P. Sludge Line From Softening Tank
2" Hose Connection
1¼"ø Disch.
1" Plug Valve Drain
#5@12 Corner Bars In Middle of Wall Typ.
M.H. Steps - Neenah R-1980-E Or Equal @ 16"c/c
Submersible Sump Pump w/ 1½" Checkered Rt. Cover
P-5
P-4
G-5
7'-0"

SECTIONAL PLAN

NEW VALVE CHAMBER
1/4"=1'-0"

Diffuserator Drive Unit
El. 976.0
W.L. El. 975.0
Maximum & El. 971.50
CO₂ Diffuserator
12" C.I.P. Softening Tank Effluent Line
C.I. Sludge Shoe Claw # F-1909 Or Equal
Grnd. El. 960.0
Grout
El. 956.0
Sch 80 PVC CO₂ Piping - & El. 956.50

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

Mechanism Drive
1¼"ø Pipe Handrail
Provide 2 Grating Treads Each End Bridge
1⅛"x⅜" Serrated Alum. Grating
Bridge Beam
13'-0" O.D.
El. 976.0
El. 975.94
5-#6@11 (El. 975.0
12"ø Steel Pipe Influent Line - Wrap w/ 2" Thick Insulation - & El. 973.08
4-#4 x 3'-6"
7'-0" O.D.
11'-0" O.D.
12" C.I.P. Eff. Shown Out Of Section
Note: Weir Troughs Not Shown - See Top Plan Above For Location
7-#5@12 E.F. Circ.
4-#6@12 E.F.
Mixer
Flocculation Skirt
#4@12
Recirculation Tube
10-#6@12 E.F. Circular
16-#6@8 E.F.
15'-0" S.W.D.
20'-0"
3'-0"
2" Grout Swept In By Mechanism
El. 960.0
4-#6 E.F. Circular
#5@12
#5@12 Dwls. E.F.
5-#6@8 E.F.
El. 956.0
El. 956.17
Undisturbed Soil
#4@12 All Bars
#5@10
#8@12
Opening In Baffle Wall
Undisturbed Soil Compacted Base Fill Material (ASHO Spec. 310.02) To 98% Max. Density
5'-0" Dia.

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

M.H. Frame & Cover (Frost-Proof) Neenah R-1768-F Or Equal
El. 963.07
El. 961.10
½" Cement Plaster Both Sides
8" Brick
#4@12 E.W. Top & Bott.
#5@12 Horiz. In Middle Of Wall (Typ.)
#5@12 Typical All Walls
6" C.I.P. Sewer & El. 955.25
El. 954.0
#5@12 Dwls (Typ.)
#4@12 E.W. Top & Bott.
P-4
G-5

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

2'-0" 1'-0"
16" C.I.P. & El. 956.0
El. 955.0
El. 954.0
4" C.I.P. Drain & El. 955.33

DRAWING(S) CORRECTED AS-BUILT AVAILABLE CONSTRUCTION DATA By D.M.C. Date 4-77

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO 2 DIV.-A

SOFTENING TANK PLAN & SECTIONS

NO.	DATE	REVISIONS	CH'K BY

FLD. BK. | SCALE AS NOTED | DRN. MK | CK'D | APR. WHS

JOB NO. 14-74
DATE JULY 1973

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

DRAWING NO. 11 OF 15

STATE OF OHIO MERRILL G. SMITH 23003 REGISTERED PROFESSIONAL ENGINEER

Note: Exist. Motor Control Panel Not Shown

Mount New Float Meter On Exist. 8" Float Pipe As Specified

Exist. 480 Volt Main Switch

Exist. Elec. Meter

Remove Exist. 6" L.R. 90° Elbow & Install New 6" Tee & Flange Fillers As Req'd.

1½" To Exist. Pumps

Priming Valve

Gate Valves 1"

1½" To Priming System

Float Switch

Air Release Valve

Venturi Tube

℄ Exist. Pump

G-1

B.F.

Provide 1" Tapped Hole In Tee

℄ El. 964.02 ±

12"x10" Red. Elbow

Floor El. 961.0 ±

Exist. 8" C.I. Float Pipe

6" Gate Valve

6" M.J. 45° Bend w/ Restrained Joints

Exist. 6" C.I. High Service Line

12" C.I.P. Suction Line From Clearwell - ℄ El. 954.50

12" C.I.P. Discharge To 12" Water Main - ℄ El. 955.0

SECTION A-A

Float Transmitter Mounted On 10"ø Float Pipe

Break Hole In Exist. Floor For 10" C.I.P. & Patch As Req'd.

Floor El. 972.0 ±

10" C.I.P.

10" Flg. M.J. Connector Piece

Drill & Tap ¾" Hole For ¾" Line To 6" Float Pipe In Filter

¾" Line To 6" Float Pipe

Exist. 10" Filter Influent - ℄ El. 962.50 ±

10"x10" Tee

11¼° Bend

Dresser

11¼° Bend

G-3

10" Gate Valve

El. 961.0 ±

Cut Hole In Exist. Grating @ New 10"

Cut Exist. 10" C.I. Filter Effluent Pipe As Req'd. To Install 10"x10" M.J. Tee, Provide Conc. Support Under Tee.

Exist. 8" C.I.P. Wash Water Line

El. 957.0 ±

℄ El. 957.83 ±

SECTION D-D

Install 10" Float Pipe Thru Floor Above

3/8" Cinch Anchor

L 3"x2"x3/16"x1'-4"

6" Float Pipe

CONNECTION DETAIL

½" Tap On ℄ of Tee For Elev. Tank Gauge Transmitter

New 500 G.P.M. Pump & Conc. Base

G-1

C-1

G-2

1'-8"

Saw Cut & Remove Exist. Conc. Floor As Req'd. Construct New Floor To Match Exist.

Crushed Stone Backfill

Tunnel Under Exist. Foundation & Install 12" C.I.P. Backfill W/Class B Conc. To Underside of Foundation. Fully Encasing 90° Bend. 12" C.I.P. Discharge Line To Be Installed Similarly.

SECTION B-B

15"x8"x½" Rk. D & T As Req'd

Install Cover on Float Pipe

H.W. El. 973.5

Float Switch

El. 975.0

⅜ Cinch Anchor L 3"x2"x3/16"x1'-4" See Detail This Sht.

Exist. 6" Sewer

6" Float Pipe

Drill & Tap ¾" Hole In 6" Float Pipe

Filter Wall

L.W. El. 970.5

¾" Line Waterproof Sleeve

6" Min.

¼" Min. Slope

1" Cement Grout El. 965.43

¾" Cinch Anchor L 3"x2"x3/16"x1'-4"

Blind Flange

DETAIL FLOAT SWITCH MTG

½"=1'-0"

Exist. Chlorine Line

Up

Install New Chlorinator & Piping

Exist. Scale

Install 10"x10" M.J. Tee In Exist. 10" C.I.P. Filter Effluent Line

¾" Line

Exist. Chlorinator

D

Float Switch

6" Float Pipe

Exist. Electrically Operated Hydraulic Cylinder Plug Valve

Exist 8" Filter Effluent Lines

Exist. 10" Filter Influent Line

N.B.

Exist. 8" Wash Water Line

Exist. 8" Sewer

Water Cooler

Exist. Sink

Exist. F.D.

Exist. Roof Drain

Main Instrument Panel - Provide 2" Conc. Base

Auto-Trans Starter

Exist. Motor Control Panel

Exist. Chemical Feed Pumps

Exist. High Service Pumps

Exist. 8" C.I.P. Wash Water Line

Exist. 6" C.I.P. Abandoned

Exist. 10" C.I.P. Filter Effluent To Clear Water Basin

10" M.J. Cutting-In Sleeve

10" Gate Valve

10" Tee Rotated 45° Bend

℄ El. 954.25

15'-0"

12"x10" Red.

10" Gate Valve

G-9

G-11

10"x6" Tee

12" Gate Valve

6"ø

Exist. 6" C.I. Suction Line From Clearwell ℄ El. 955.0 ±

M.J. Cutting-In Sleeve

Plug & Abandon

Exist. Fire Hydrant

New 12" C.I.P. Suction Line From Exist. Clearwell

6" Flg.-M.J. Connector Piece w/ Restrained Joint

6" 45° Bends

6" Gate Valve

Exist. 6" C.I. High Service Line To 10" Water Main & Elevated Tank - ℄ El. 955.30 ±

Exist. 6" C.I.P. ℄ El. 953.30 ± (Abandoned)

4'-9"

8'

6" 45° Bend

M.J. Plug

New 500 G.P.M. Pump

6" 22½° Bends

10"x6" Ecc. Red.

10"x6" Tee

M.J. Plug

10"x6" M.J. Tee w/ Restrained Jts.

½" Tap On ℄ Of Tee For Elev. Tank Gauge Transmitter

Plug Exist. Hole With Similar Brick

Provide 1" Tapped Hole For Air Release Valve

New 12" C.I.P. Discharge To 12" Water Main - ℄ El. 955.0 ±

CO₂ Dist. Panel

12"x10" Red. Elbow

22½° Bend

Existing Carbon Dioxide Tank

1" Copper CO₂ Piping

Plug

¼" Mastic Joint

Exist. F.D.

Install 5'x7' Double Door With 2"x6"x6" Conc. Pad

Note: Contractor Shall Provide Vertical Joist Bracing When Installing New Door

Install New Blind Flange

New Conc. Slab

Calgon Tank

10" Venturi Tube

New Priming System

Roof Drain

℄ 10" El. 956.0

16"x10" Reducer

Plug

Exist. 6" V.it. Sewer

Exist. Manhole

16"x16" Tee w/ M.J. Plug

New 16" C.I.P. Filter Influent Line

22½° Bends

New 4" C.I.P. Sludge Line From New Softening Tank

Exist. 6" C.I.P. Raw Water (To Be Abandoned)

PLAN

Exist. Lab

Exist. W.C.

Exist. Sink

Exist. 30 Gal. W.H.

Exist. Low Lift Pumps Not Shown

Exist. 10" Filter Influent Line - ℄ El. 969.0 ±

Exist. Wood Planking & Storage Cabinets Over Pump Pit Not Shown

Exist. Sump & Pump

Exist. Sludge Pump & Piping

Plug

Exist. 8" Raw Water

Exist. M.H.

Exist. Calgon Feeder & Pump

Exist. 4" Sludge

Exist. 8" Float Pipe

Exist. Electric Meter

Exist. Motor Control Panel

Exist. 480 Volt Main Switch

Exist. Roof Drain

Remove Exist. Agitator Control

Exist. F.D.

CONTROL BLDG. — PARTIAL FLOOR PLAN (EXISTING)

2 - L 8"x6"x½" For Lintels 6'-4" Long

Remove Exist. Lime & Soda Ash Feeders, Scales, Feed Pump And Piping, Wooden Platform And Stairs. The Two Scales And Feeders Shall Be Relocated In The New Chemical Bldg. Under The New Soda Ash Bin.

New 5'x7' Double Door

Brick Up Exist. Opening In Sludge Well - ½" Cement Plaster. Provide Bit. Waterproofing.

Exist. 6" V.it. Sewer

M.J. Plug

New 16" C.I.P. Filter Influent

Exist. 4" Sludge Line

Exist 10" C.I.P. Filter Influent - ℄ El. 969.0 ±

New 10" C.I.P.

½" Mastic Joint

New 8" Conc. Slab

#4@12" E.W.

Compacted Foundation Fill Material (CSHD Spec. 511.03) To 95% Max. Density

Plug

El. 953.0

P-1

SECTION C-C

Existing Structures

New Structures

Exist. Pipe

New Pipe

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA By D.M.C. Date 4-77

STATE OF OHIO MERRILL G. SMITH 23003 REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO. 2 DIV-A

MODIFICATIONS TO EXIST. CONTROL & FILTER BUILDING

NO.	DATE	REVISIONS	CH'K BY

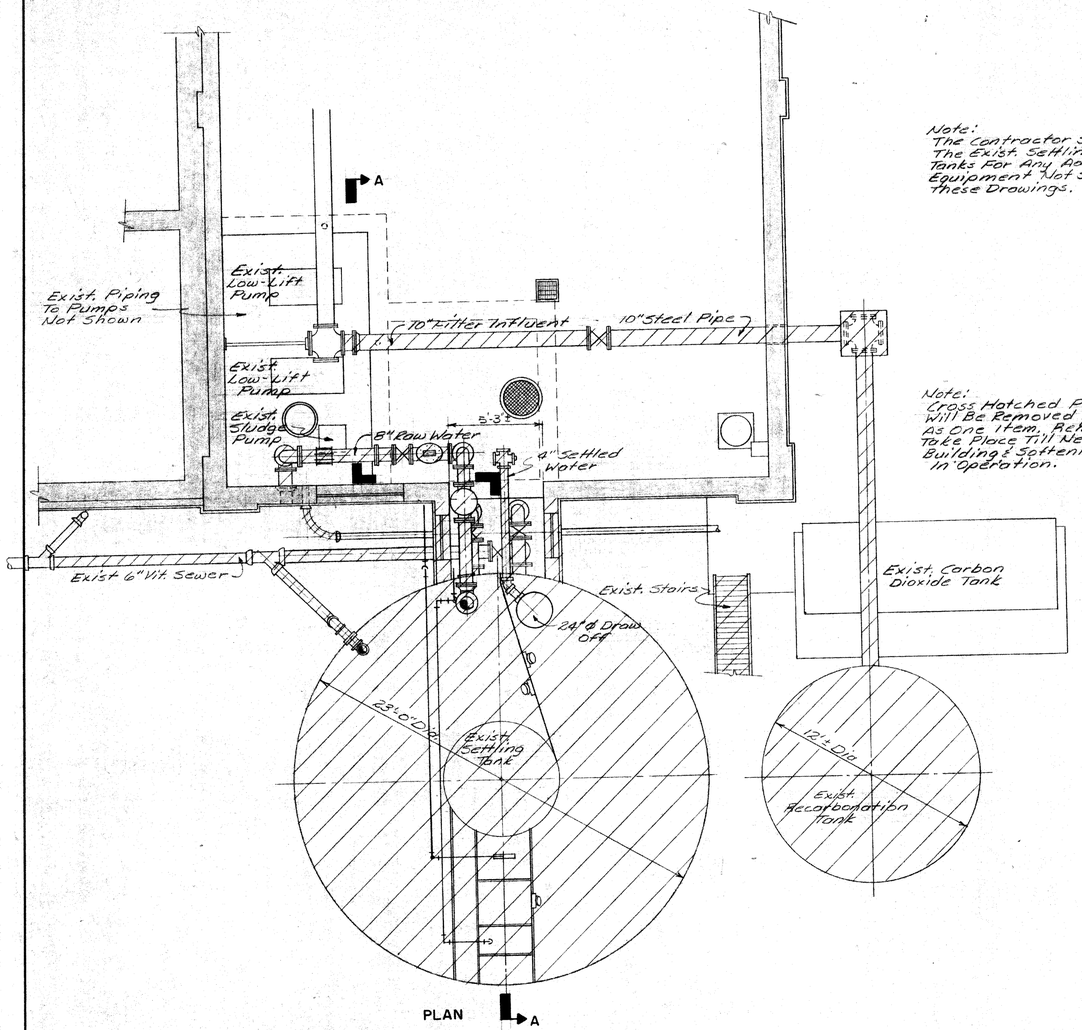
FLD. BK. | SCALE 1/4"=1'-0" | DRN. RRR | CK'D | APR. WHS

JOB NO. 14-74 | DATE JULY 1973

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

DRAWING NO. 12 OF 15

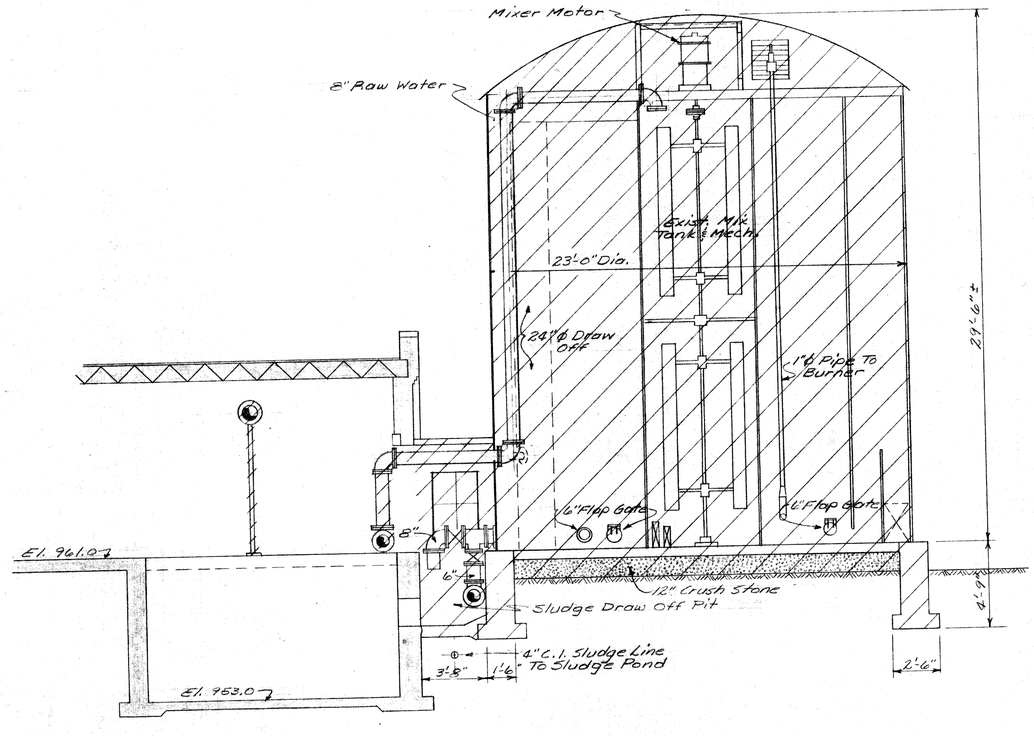
K&E 17 0153 10-72 53040-



EXISTING STRUCTURES TO BE REMOVED

Note:
The Contractor Shall Inspect The Exist. Settling & Recarbonation Tanks For Any Additional Equipment Not Shown on These Drawings.

Note:
Cross Hatched Piping & Tanks Will Be Removed & Disposed Of As One Item. Removal Shall Not Take Place Till New Chemical Building & Softening Tanks Are In Operation.



SECTION A-A

Existing Structures
Existing Piping
Existing Piping To Be Removed

CONSTRUCTION DATA By _____ Date _____

STATE OF OHIO
MERRILL C. SMITH
23602
REGISTERED PROFESSIONAL ENGINEER

DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA By D.Mc. Date 4-77

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO.2 DIV.-A

REMOVAL OF EXISTING TANKS

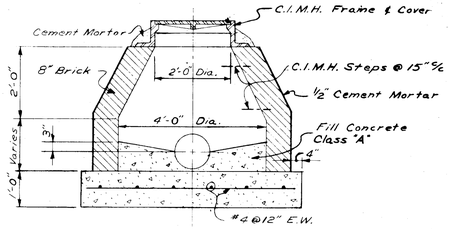
NO.	DATE	REVISIONS	CH'K BY

FLD. BK. | SCALE AS NOTED | DRN. JEH. | CH'K | APR. WHS

JOB NO. 14-74
DATE JULY 1973

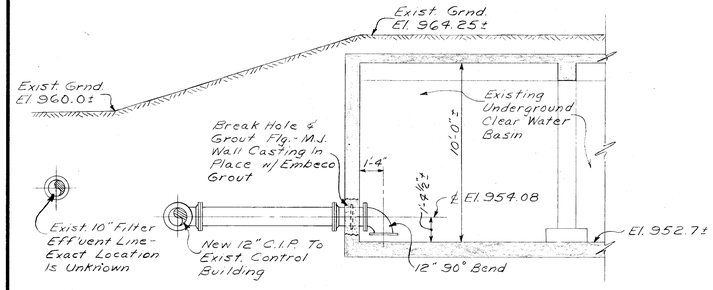
JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO

DRAWING NO. 13
OF 15



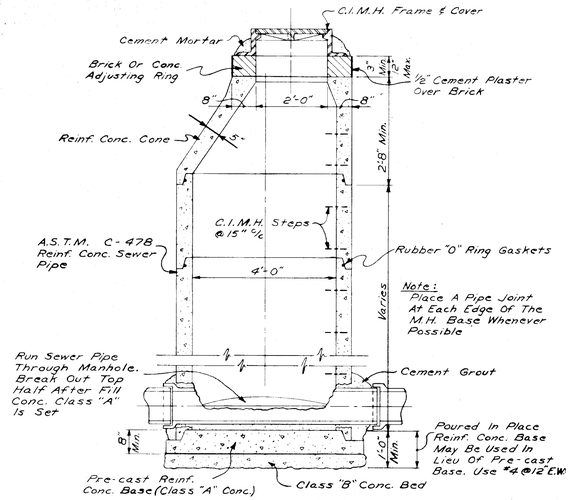
TYPE "B" MANHOLE

1/2" = 1'-0"



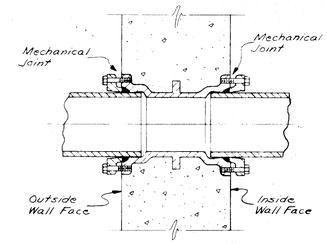
NEW SUCTION CONN. AT EXIST. CLEAR WATER BASIN

1/4" = 1'-0"



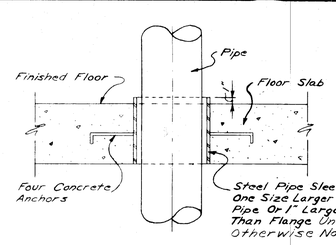
TYPE "A" MANHOLE

1/2" = 1'-0"



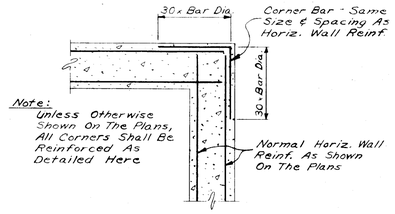
C.I. WALL PIPE CONNECTION

N.T.S.



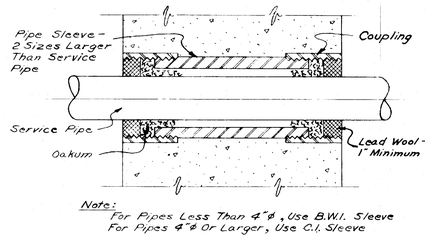
FLOOR SLEEVE DETAIL

N.T.S.



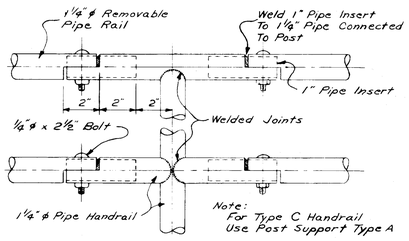
TYP. CORNER DETAIL

N.T.S.



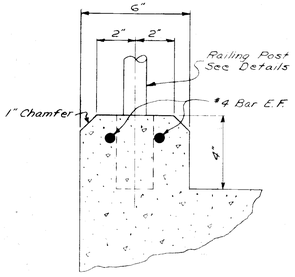
EXTERIOR WALL SLEEVE DETAIL

N.T.S.



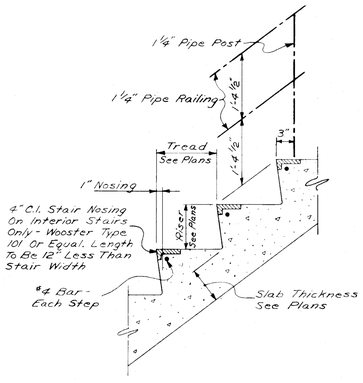
TYPE C

REMOVABLE



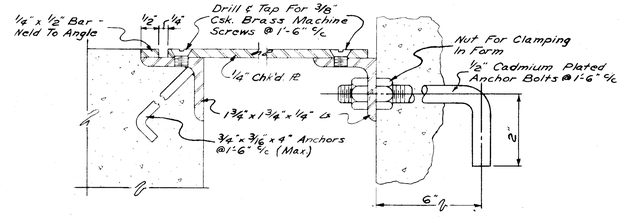
CURB DETAIL

3" = 1'-0"



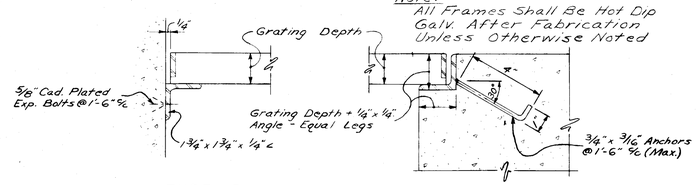
CONC. STAIR DETAIL

N.T.S.



FLOOR PLATE FRAME DETAIL

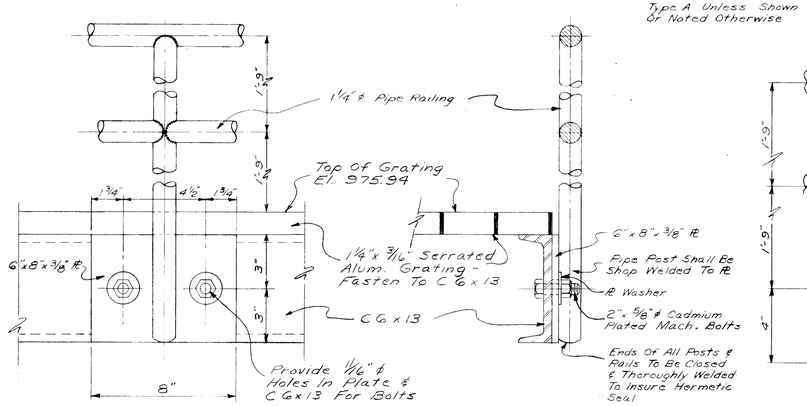
N.T.S.



TYPE B TYPE A

GRATING FRAMES

N.T.S.

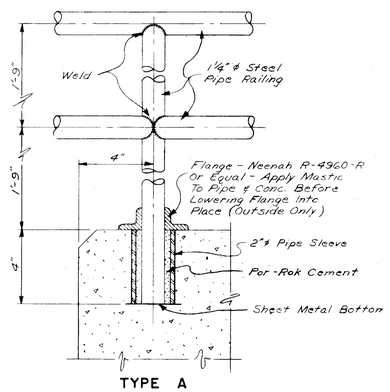


TYPE B

STATIONARY

RAILING SUPPORT DETAILS

3" = 1'-0"



TYPE A

D.M. 4-77

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. All exposed corners of beams, columns, and walls shall have 1" chamfers.
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.
12. All construction joints shall have nominal 2" x 4" keyways.

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" -- minimun 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. Welded connections to be Table III or VI Case 1.
5. All columns shall have 1" grout between the base plate and concrete floor.
6. Base plates shall be welded to columns.
7. Anchor bolts to be 3/4" diameter x 2'-6" long with a 3" projection.

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO. 2 DIV.-A

MISCELLANEOUS DETAILS

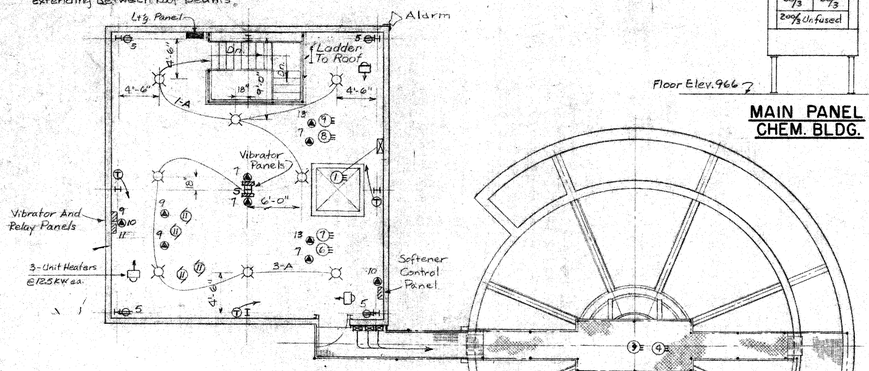
NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
	AS NOTED	DAR		W.H.S.

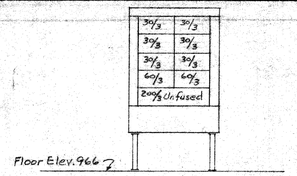
JOB NO. 14-74
DATE JULY 1973
JONES & HENRY ENGINEERS LIMITED
2000 W. CENTRAL AVE. TOLEDO, OHIO
DRAWING NO. 14
OF 15

K&E 17 0153 10-76

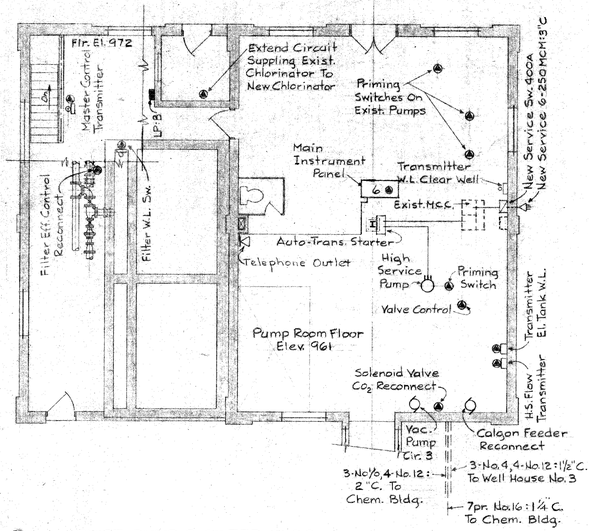
NOTE: Suspend Fixtures From C's Extending Between Roof Beams.



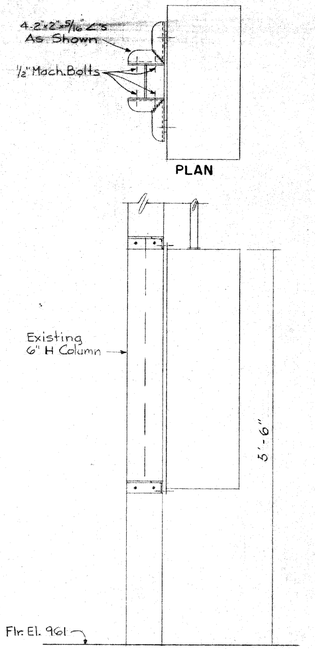
PLAN @ ELEV. 976.0



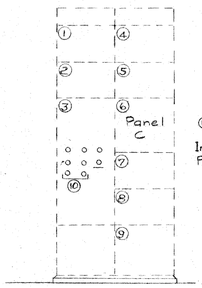
MAIN PANEL CHEM. BLDG.



EXIST. PUMP & FILTER BLDG.



AUTO-TRANSFORMER STARTER MOUNTING

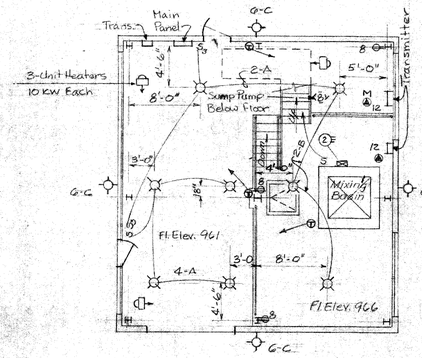


REPLACE:
④ & ⑤ With 1-225/3 C.B. 150A. Trip.
⑨ With 2-100/3 C.B.
1-With 100A Trip.
1-With 70A Trip.

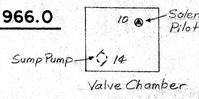
⑩ Exist. Well Pump Control

Install Sel. Sw. & Ind. Lt. For Well No. 3, Adjacent

MOTOR CONTROL CENTER

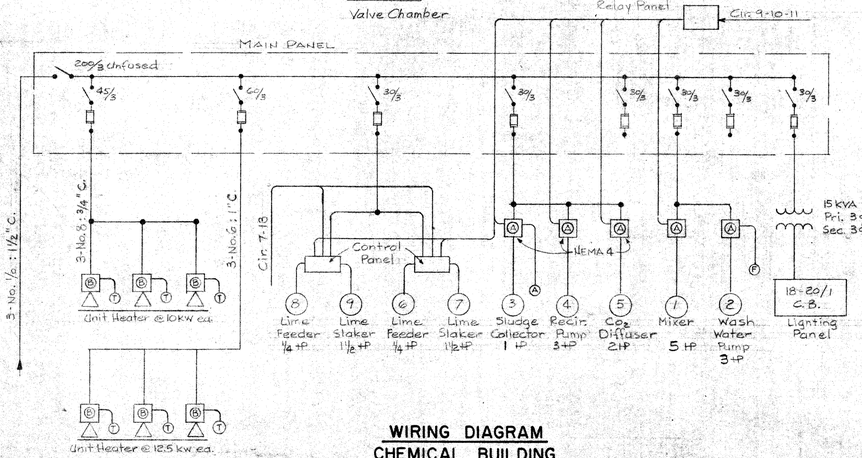


PLAN @ ELEV. 966.0

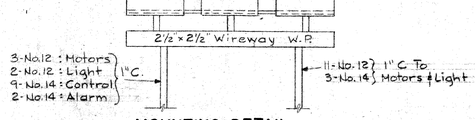


CIRCUIT SCHEDULE
LIGHTING PANEL: CHEM. BLDG.

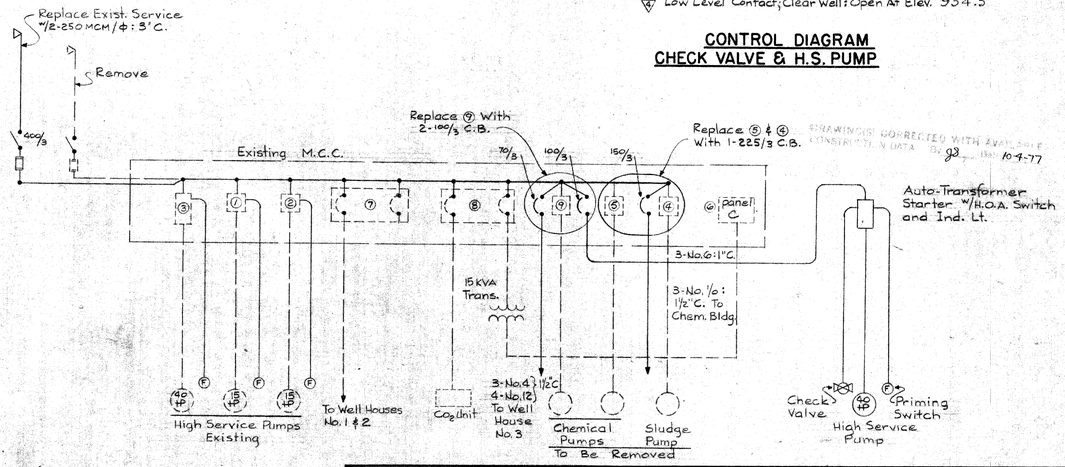
Cir. No.	Location	Lamps	Outlets conv.	Outlets spec'l	Fix. Style	Remarks
1	Flr. El. 976	4-300w			A	M.H. 10ft.
2	Flr. El. 966	2-300w			B	Surface Mtd.
	Flr. El. 961	2-300w			A	M.H. 10ft.
3	Flr. El. 976	4-300w			A	M.H. 10ft.
4	Flr. El. 961	4-300w			A	M.H. 10ft.
5	Flr. El. 976		4			
	Softening Tank	1-175w				See Detail
6	Exterior Walls	4-175w			C	M.H. Elev. 975
7	Flr. El. 976			2		Vibrators on Lime Bins
8	Flr. El. 966 & 961		3	#1		½ HP Sump Pump
9	Flr. El. 976			2		Vibrators-Soda Ash Bins
10	Flr. El. 976			2		Softener Cont. & Relay Panels
	Valve Chamber			1		Solenoid Pilot Valve
11	Flr. El. 976			6		Soda Ash Feeders
12	Flr. El. 966			2		Float & Meter Controls
13	Flr. El. 976			2		Slaker Controls
14	Valve Chamber			1		⅓ HP Sump Pump



WIRING DIAGRAM CHEMICAL BUILDING

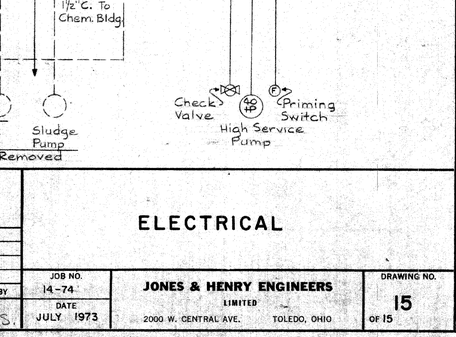


MOUNTING DETAIL SOFTENING TANK CONTROL



DRAWING(S) CORRECTED WITH AVAILABLE CONSTRUCTION DATA By gs 10-4-77

WIRING DIAGRAM PUMP & FILTER BUILDING



*Limit Switch: Pressure Switch: Solenoids On Check Valve
▽ "On" Contact } Elevated Tank
② "Off" Contact } Water Level Receiver
③ Priming Switch Contact
④ Low Level Contact; Clear Well: Open At Elev. 954.5

CONTROL DIAGRAM CHECK VALVE & H.S. PUMP

LEGEND

- Wall Mounted Fixture
- Ceiling Mounted Fixture
- Post Mounted Fixture
- S Single Pole Switch
- S_3 3-Way Switch
- Sv Exh. Fan Switch w/Pilot Light
- Duplex Receptacle
- Single Receptacle
- Special Purpose Outlet
- M Meter Outlet
- (T) Thermostat
- (F) Float Switch
- (P) Pressure Switch
- (A) Alarm
- [A] Comb. F.S. & Linestarter
- [B] Control With Equipment
- Single Phase Motor
- 3-Phase Motor

STATE OF OHIO MERRILL G. SMITH 23402 REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER WORKS IMPROVEMENTS
TREATMENT PLANT ADDITIONS
CONTRACT NO. 2 DIV.-A

ELECTRICAL

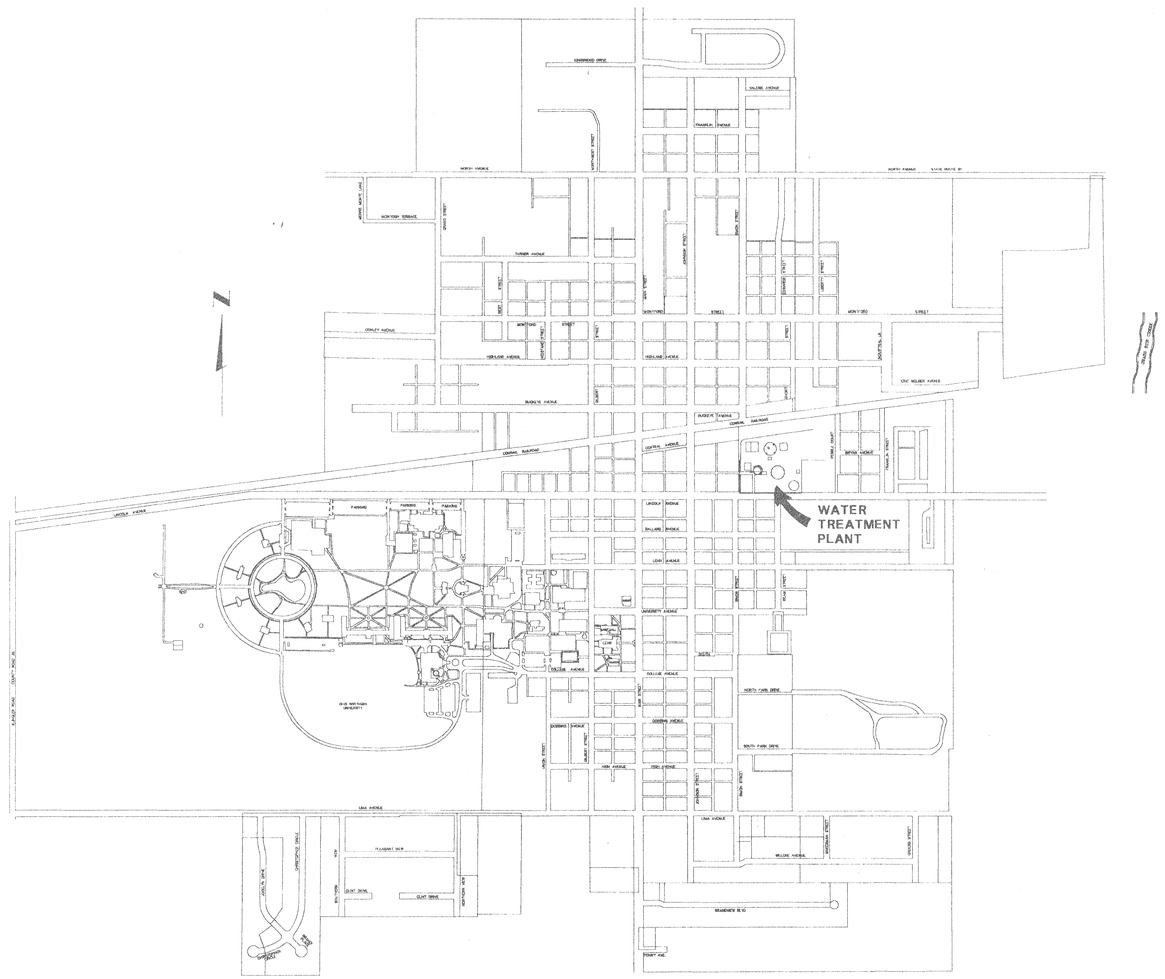
NO.	DATE	REVISIONS	CH'K BY

FLD. BK.	SCALE	DRN.	CK'D	APR.
	N.T.S.	DKR	CR	W.H.S.

JOB NO. 14-74
DATE JULY 1973

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

DRAWING NO. 15 OF 15



VILLAGE OF ADA, OHIO

WATER TREATMENT PLANT IMPROVEMENTS

CONTRACT 12

1993

DONALD L. TRAXLER – MAYOR

MEMBERS OF COUNCIL

TERRY KEISER
DALE MADISON
RONALD PARSHALL
WILLIAM ROBINSON
RICHARD LAWRENCE
DONALD FLEMING

JAMES A. MEYER – VILLAGE ADMINISTRATOR
KATHRYN J. GULBIS – VILLAGE CLERK – TREASURER
DANIEL S. CADE – VILLAGE SOLICITOR
PHILIP EPLEY – SUPERINTENDENT, WATER & WASTEWATER

Jones & Henry Engineers, Inc.
TOLEDO & CINCINNATI OHIO
LANSING, MICHIGAN ● FORT WAYNE, INDIANA

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

01/04/93 13:36:56 ADA96C12

STRUCTURAL LEGEND

- EXISTING STRUCTURE
- EXISTING STRUCTURE OR EQUIPMENT TO BE REMOVED
- EXISTING EQUIPMENT TO BE RELOCATED
- NEW STRUCTURE

VALVE SYMBOL LEGEND

- GATE, KNIFE GATE, BUTTERFLY OR GLOBE VALVES
- PLUG VALVE
- BALL VALVE
- PINCH VALVE
- CHECK VALVE

PIPING ABBREVIATIONS

	MATERIAL
BSP	BLACK STEEL PIPE
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CMP	CORRUGATED METAL PIPE
Cu	COPPER TUBING OR PIPING
DIP	DUCTILE IRON PIPE
FRP	FIBERGLASS REINFORCED PIPE
GSP	GALVANIZED STEEL PIPE
PCP	PLAIN CONCRETE PIPE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
SP	STEEL PIPE
SSP	STAINLESS STEEL PIPE

	SERVICE
NG	NATURAL GAS
CW	CITY WATER
HW	HOT CITY WATER
PW	PLANT WATER
CA	COMPRESSED AIR
TD	TANK DRAIN
SS	SANITARY SEWER

PIPING LEGEND

(THIS LEGEND APPLIES ONLY WHERE COMBINATION OF NEW AND EXISTING PIPING APPEAR ON THE SAME DRAWING.)

- EXISTING PIPING
- EXISTING PIPING TO BE REMOVED (IF YARD PIPING, ABANDON OR REMOVE AS REQ'D)
- EXISTING PIPING TO BE RELOCATED
- NEW PIPING

(8/12) = NUMBER OF SECTION / SHEET NUMBER ON WHICH SECTION IS SHOWN

SECTION (3/4) = NUMBER OF SECTION / SHEET NUMBER ON WHICH SECTION IS CUT

DELINEATION OF SECTIONS

(SECTIONS LETTERED ARE SHOWN ON SAME SHEET)

(A) = ELEVATION VIEW

(5/7) = NUMBER OF DETAIL IN SECTION / SHEET NUMBER ON WHICH DETAIL IS SHOWN

(6/7) = NUMBER OF DETAIL IN PLAN / SHEET NUMBER ON WHICH DETAIL IS SHOWN

DETAIL (5/9) = NUMBER OF DETAIL / SHEET NUMBER ON WHICH DETAIL IS TAKEN

DELINEATION OF BLOW – UP DETAILS

(DETAILS LETTERED ARE SHOWN ON SAME SHEET)

TOPOGRAPHY LEGEND

- FENCE LINE
- GAS LINE
- WATER LINE
- UNDERGROUND ELECTRICAL CONDUIT
- UNDERGROUND TELEPHONE CONDUIT
- UNDERGROUND SIGNAL CONDUIT
- STORM SEWER
- SANITARY SEWER
- CENTER LINE
- SURVEY LINE
- PROPERTY LINE
- MH MANHOLE
- PP POWER POLE OR TELEPHONE POLE
- LP LIGHT POLE
- FH, YH FIRE HYDRANT OR YARD HYDRANT
- V VALVE
- CU CLEAN OUT
- IP IRON PIN (OR LABELED POST, MARKER ETC.)
- CB CATCH BASIN
- Boring No. B-2 DATE DRILLED (8-1-85) SOIL BORING

NOTE: ACCURACY OF EXISTING ELEVATIONS AND DIMENSIONS IS NOT GUARANTEED. FIELD VERIFY BEFORE CONSTRUCTION.

INDEX OF DRAWINGS

SHEET	DESCRIPTION
1	Legends And Index
2	Site Plans – Yard Piping & Grading Plan
3	Chemical Feed Building – Piping & Equipment Plans, Sections & Details
4	Solids–Contact Clarifier And Chemical Feed Building – Plans, Sections & Details
5	Recarbonation Basin – Piping & Equipment, Removals And Structural Plan, Sections & Details
6	Filter Building – Removal And Piping & Equipment Plans & Sections
7	Existing Clearwell – Structural, Piping & Equipment Plan, Sections & Details
8	New Clearwell – Structural, Piping & Equipment Plan, Sections & Details
9	Chemical Piping – Lime & Soda Ash Schematics
10	Miscellaneous Details – Structural, Piping, Grating And Trench Details
11	Instrumentation & Control – Filter Panel & Existing Pump Control Panel
12	Instrumentation & Control – Filter Control System
13	Instrumentation & Control – Filter Control Panel Schematic
14	Instrumentation & Control – Removal And Piping & Equipment Plans & Sections

STATE OF OHIO — THOMAS C. METCALF — No. E-47328 — REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 12

NO.	DATE	REVISIONS	BY

SCALE	DESIGN LAYOUT	DRAWN	CHECKED
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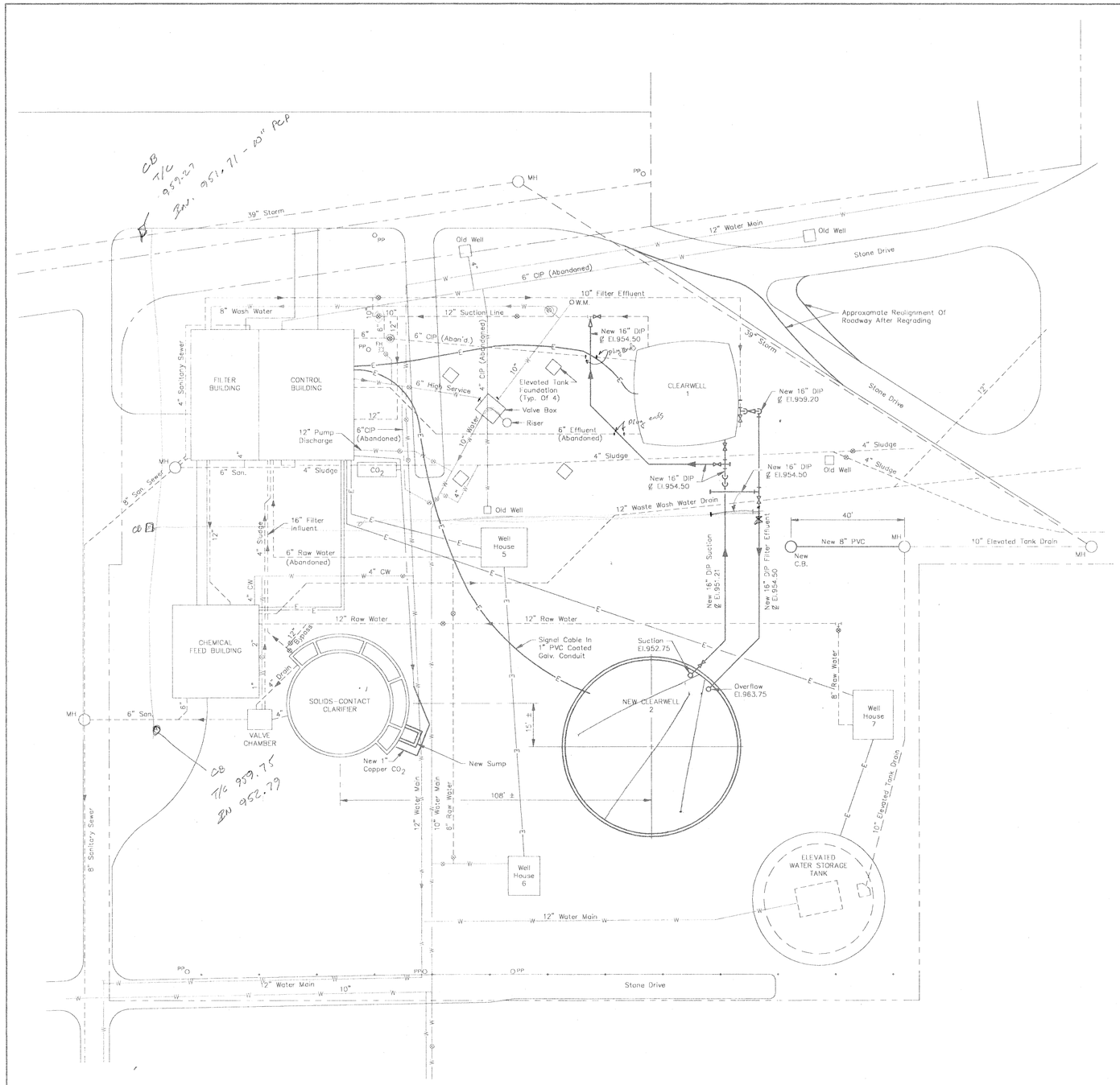
LEGENDS AND INDEX

JOB NO. 14-3626
DATE MAR. 1993

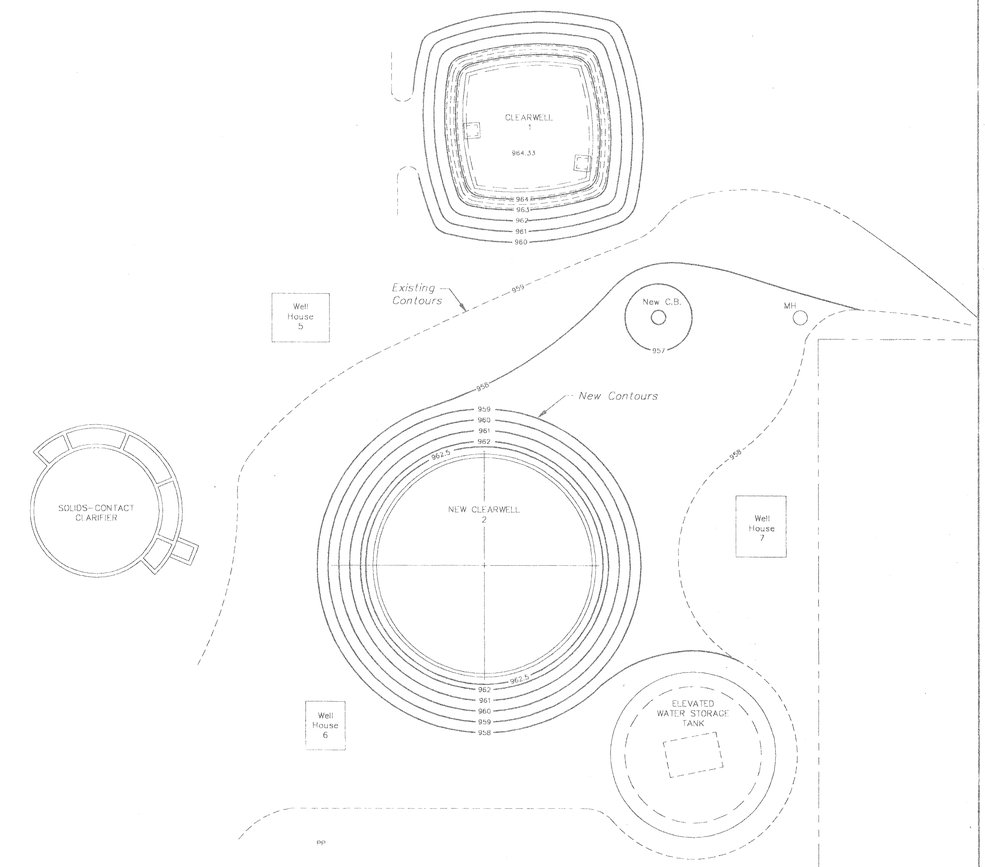
Jones & Henry Engineers, Inc.

SHEET NO. 1 OF 14

TD-3626W001
05/1/93 18



YARD PIPING



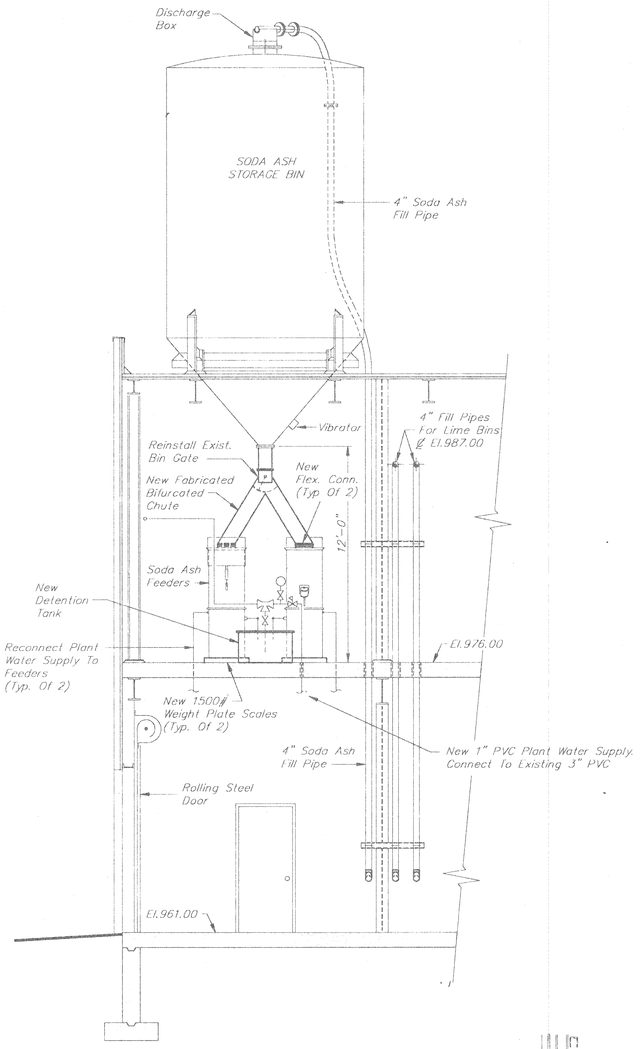
GRADING PLAN

THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER
STATE OF OHIO

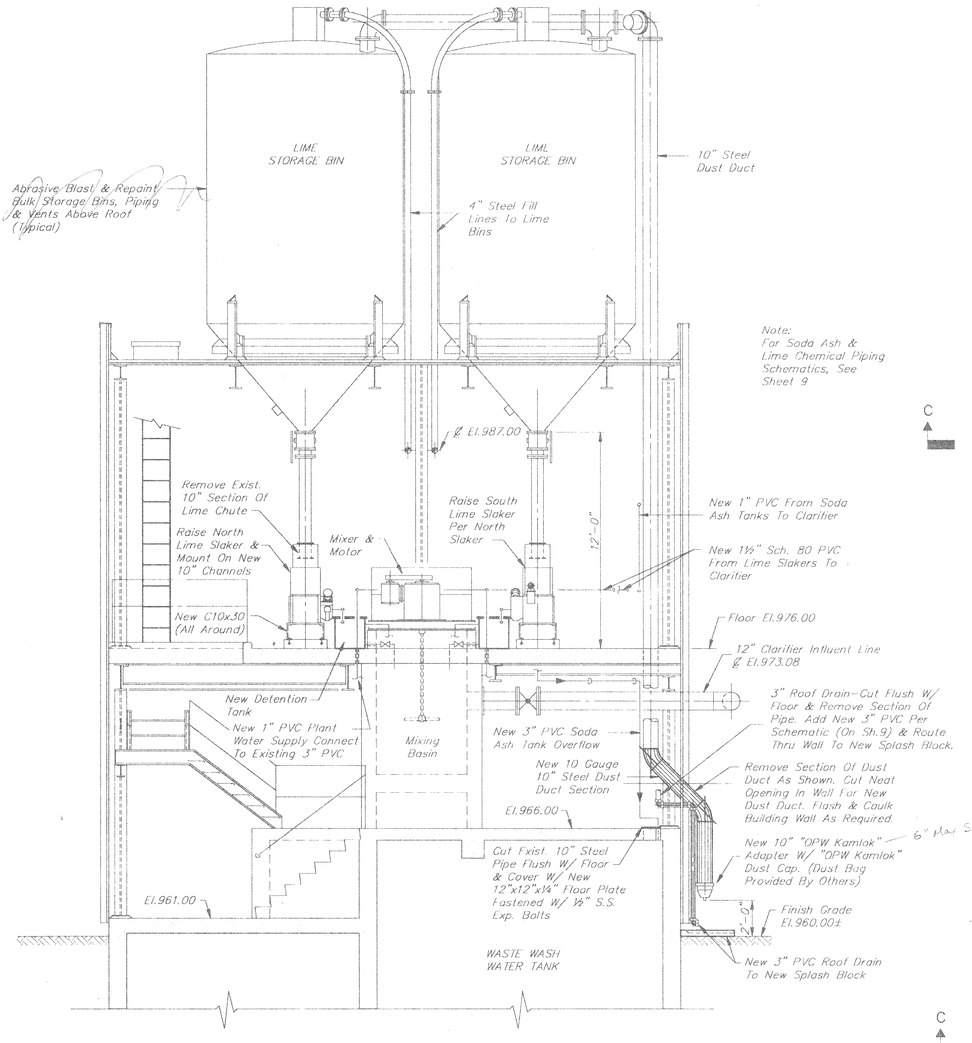
VILLAGE OF ADA, OHIO WATER TREATMENT PLANT IMPROVEMENTS CONTRACT 12					SITE PLANS YARD PIPING AND GRADING PLAN	
NO.	DATE	REVISIONS		BY	JOB NO. 14-3626	SHEET NO. 2
SCALE 1"=20'		DESIGN-LAYOUT T.C.M.	DRAWN R.C.D.	CHECKED R.P.B.	DATE MAR. 1993	OF 14

Jones & Henry Engineers, Inc.

TO - GRISSITE
05/19/93 18

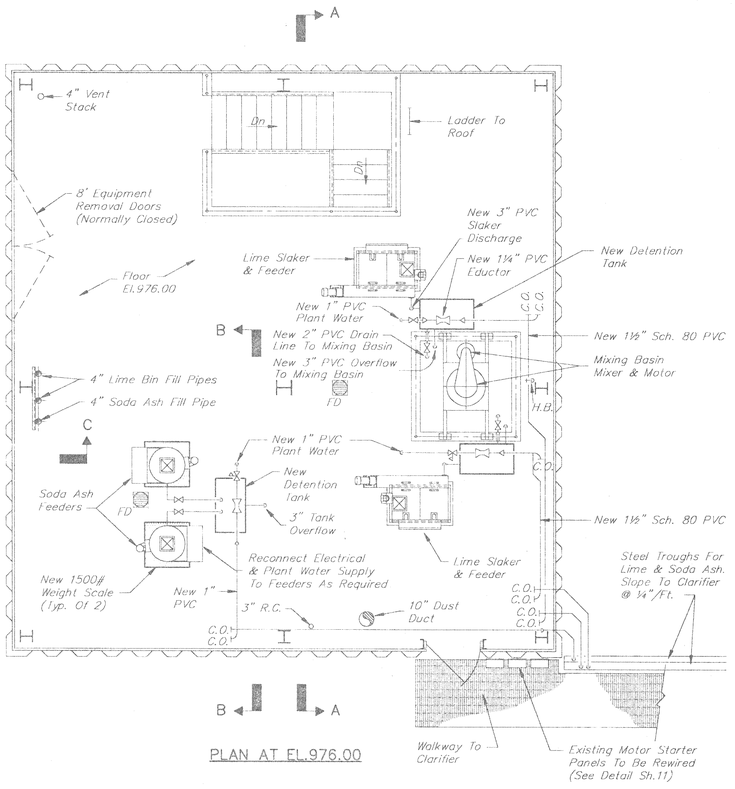


SECTION B–B

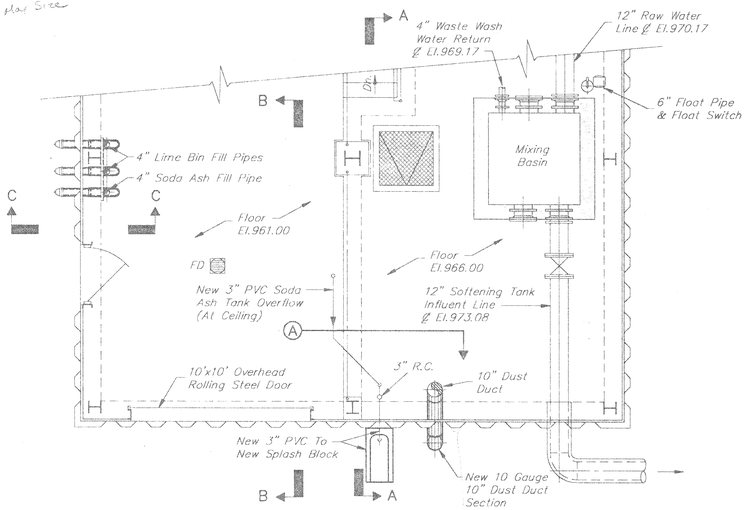


Note: For Soda Ash & Lime Chemical Piping Schematics, See Sheet 9

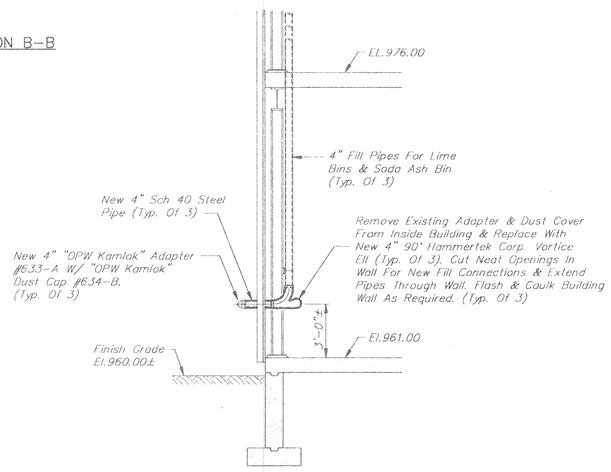
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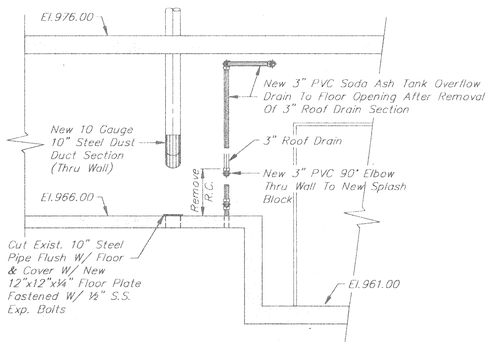
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PLAN AT EL.966.00



SECTION C–C

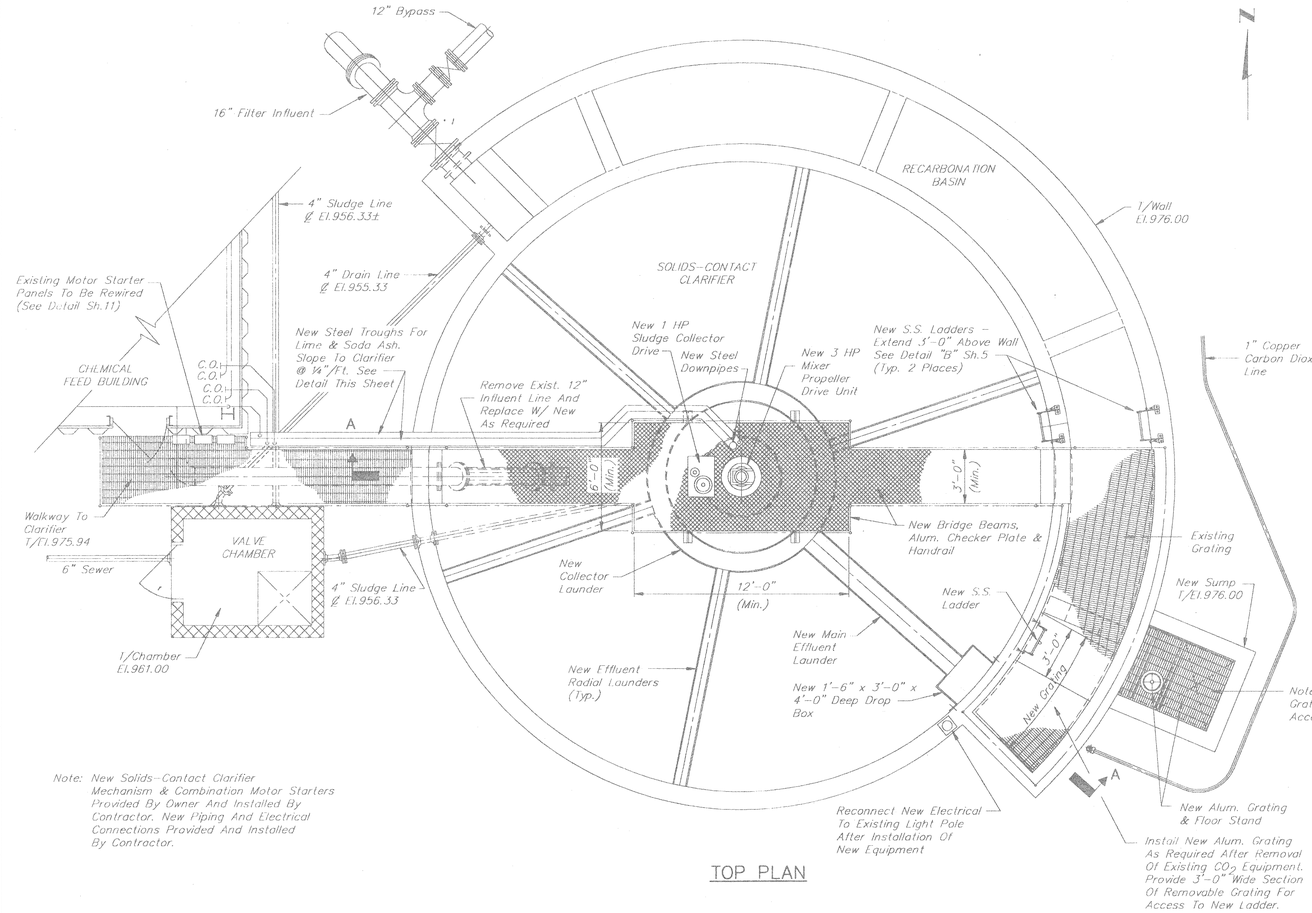


DETAIL A

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

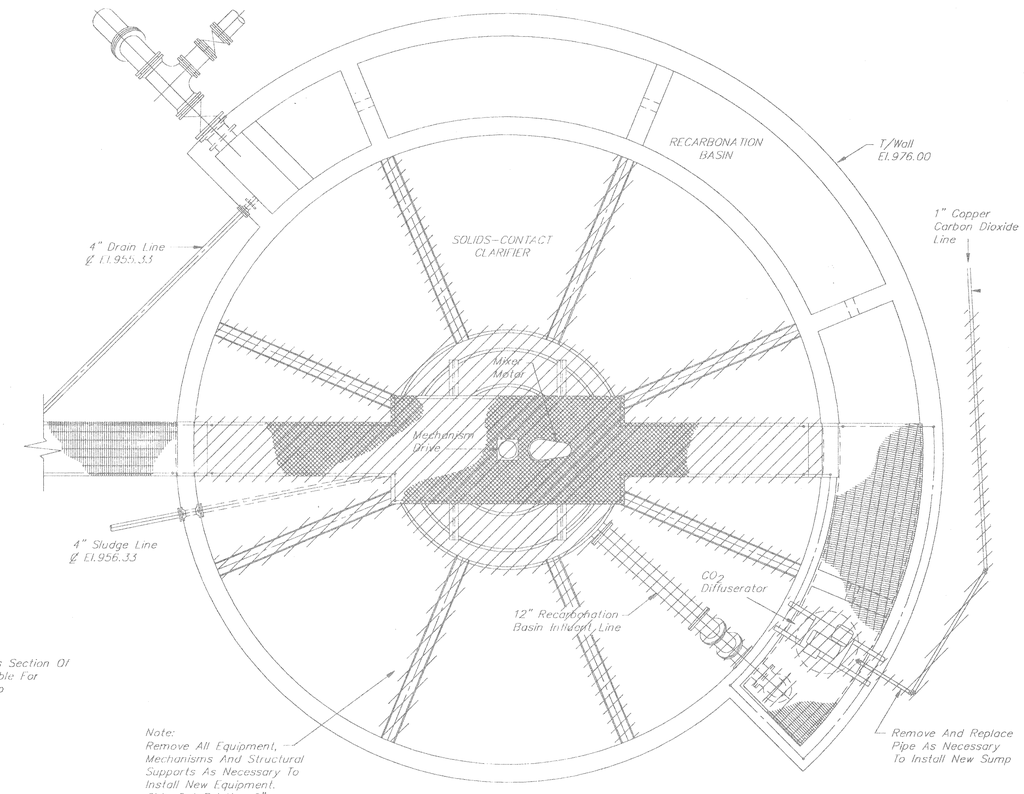
VILLAGE OF ADA, OHIO WATER TREATMENT PLANT IMPROVEMENTS CONTRACT 12				CHEMICAL FEED BUILDING PIPING & EQUIPMENT PLAN, SECTIONS & DETAIL	
NO.	DATE	REVISIONS	BY	JOB NO. 14-3626	SHEET NO. 3
SCALE 1/4"=1'-0"	DESIGN-LAYOUT T.C.M.	DRAWN R.C.D.	CHECKED R.P.B.	DATE MAR. 1993	OF 14
				Jones & Henry Engineers, Inc.	

TO-3626\M64
05/12/93.18

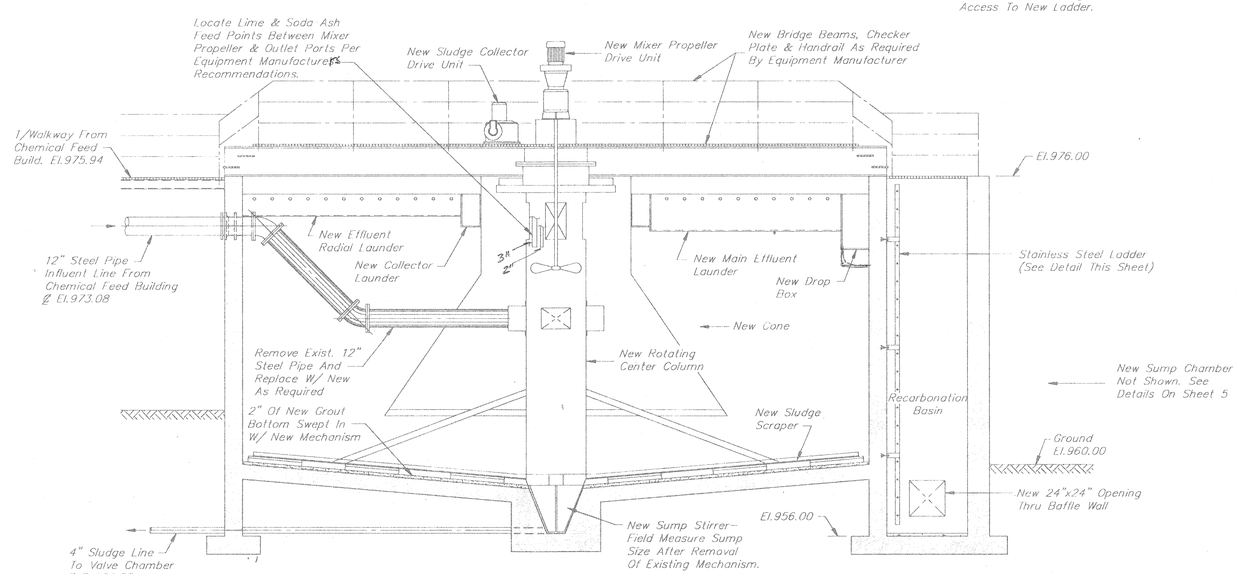


Note: New Solids-Contact Clarifier Mechanism & Combination Motor Starters Provided By Owner And Installed By Contractor. New Piping And Electrical Connections Provided And Installed By Contractor.

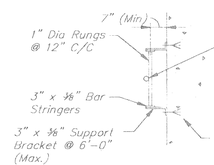
TOP PLAN



REMOVAL TOP PLAN

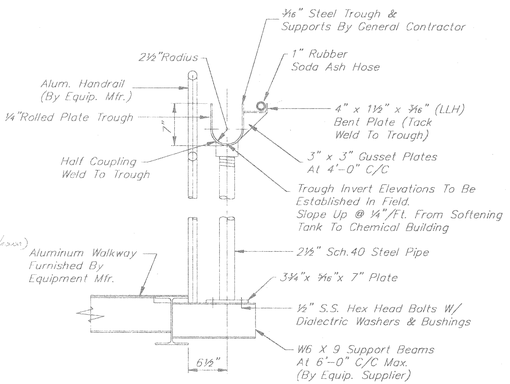


SECTION A-A



Note: All Ports To Be 304L Stainless Steel

TYPICAL LADDER DETAIL
½"=1'-0"

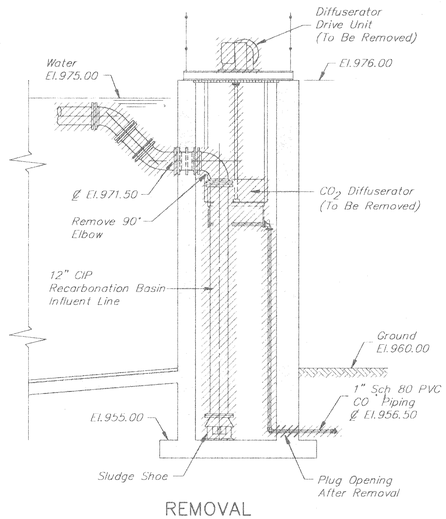


LIME & SODA ASH TROUGH DETAIL
1"= 1'-0"

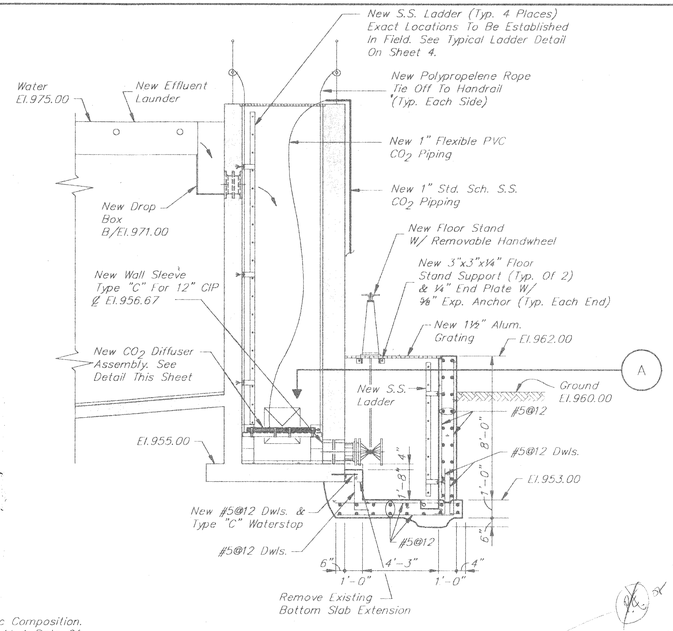
STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT IMPROVEMENTS CONTRACT 12				SOLIDS-CONTACT CLARIFIER REMOVAL AND PIPING & EQUIPMENT PLANS AND SECTION	
NO.	DATE	REVISIONS	BY	JOB NO. 14-3625	SHEET NO. 4
SCALE 1/4"=1'-0"	DESIGN-LAYOUT T.C.M.	DRAWN R.C.D.	CHECKED R.P.B.	DATE MAR. 1993	Jones & Henry Engineers, Inc. OF 14

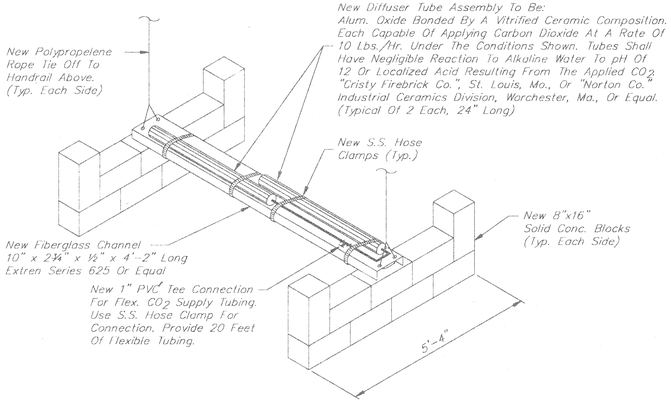
TO-3626TW07
05/12/93 18



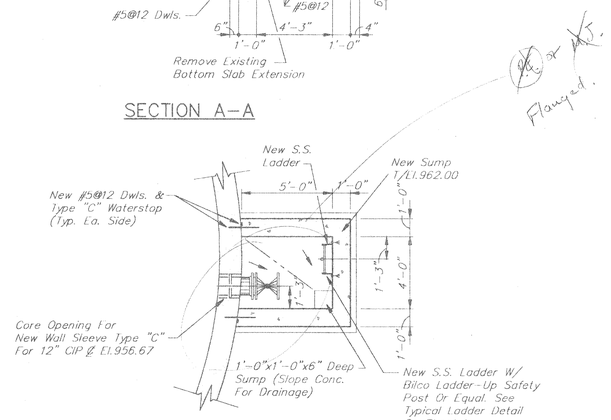
REMOVAL
SECTION A–A



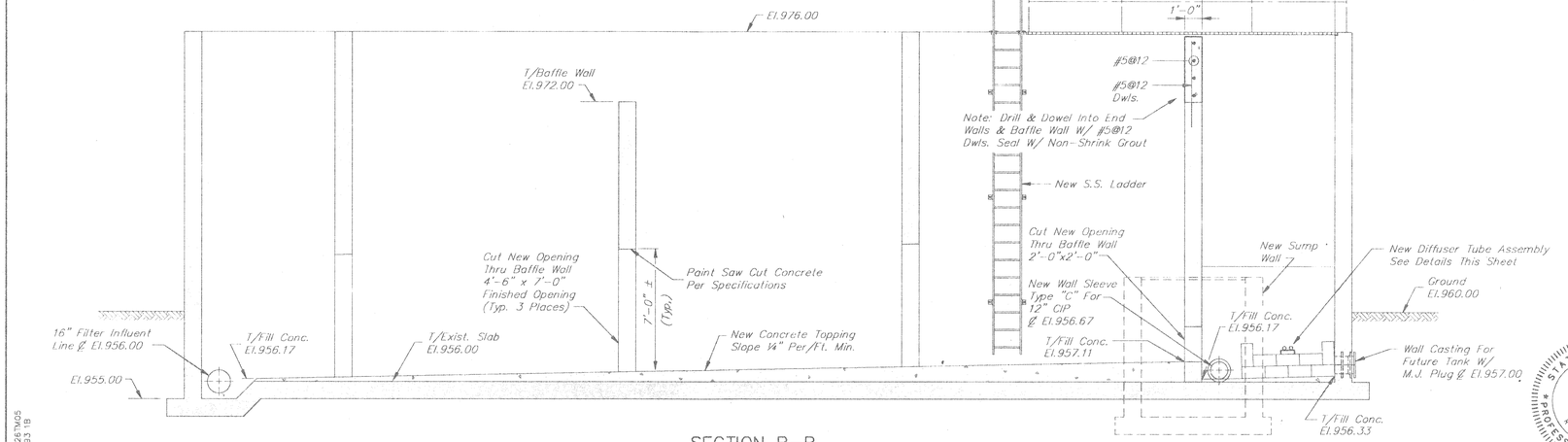
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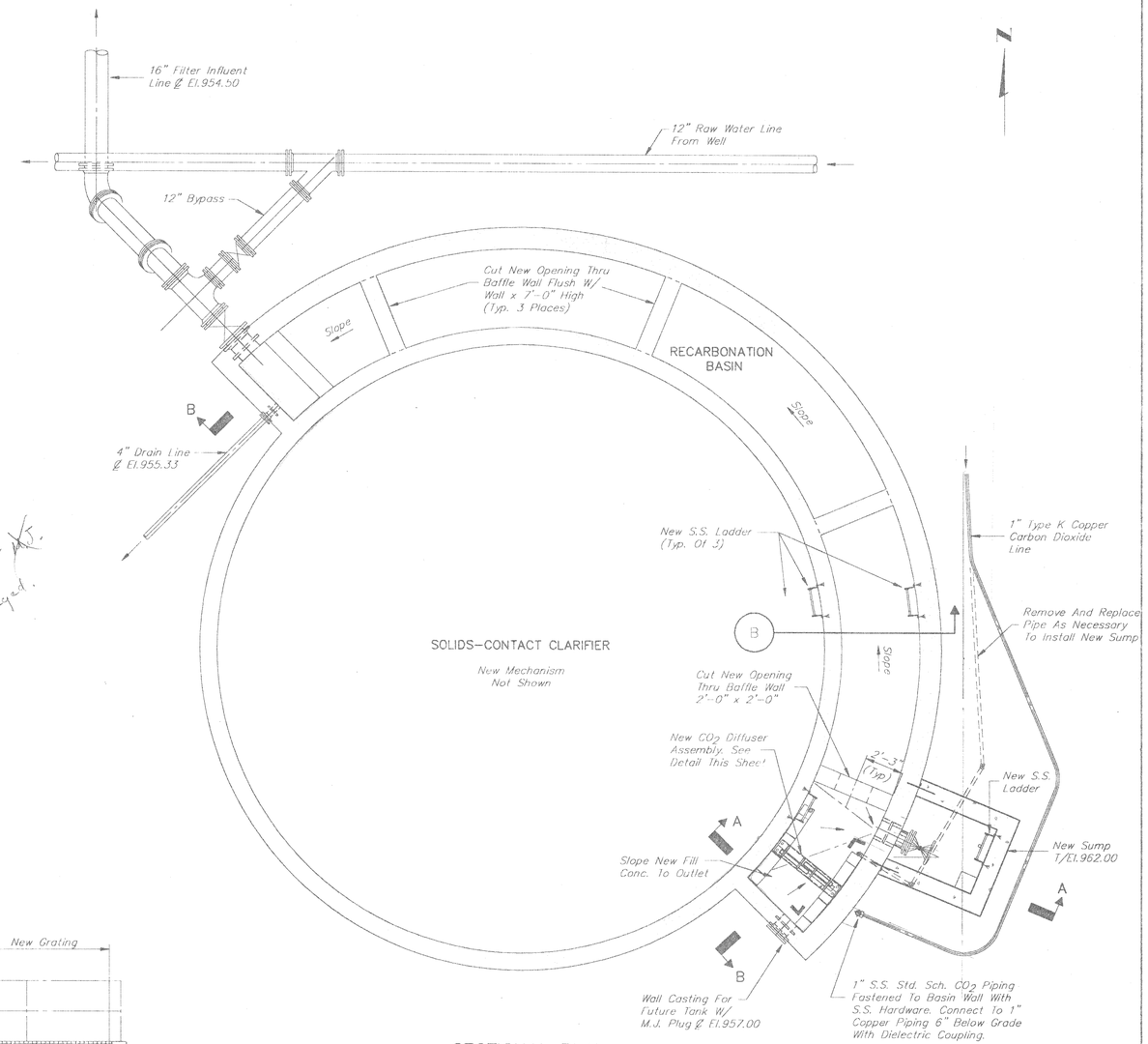
DIFFUSER TUBE MOUNTING DETAIL
N.T.S.



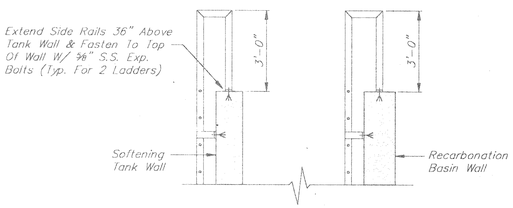
DETAIL A



SECTION B–B



SECTIONAL PLAN

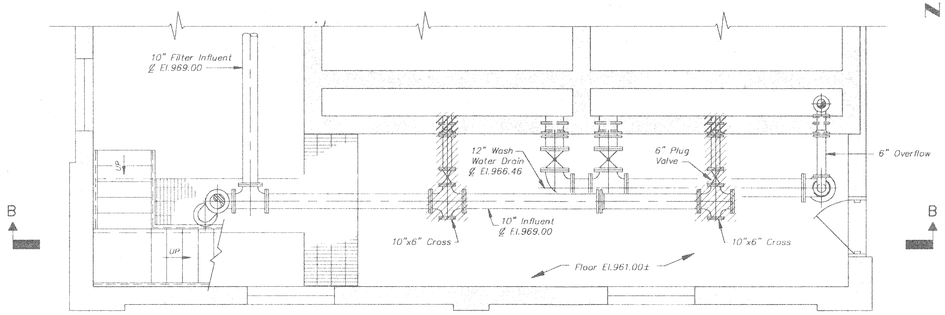


DETAIL B
⅜"=1'-0"

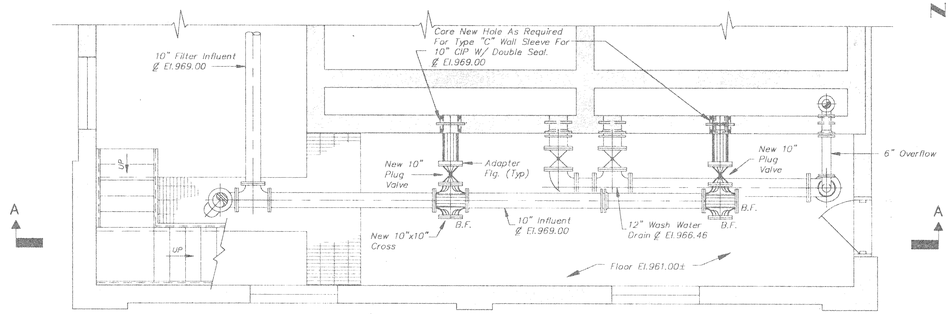
THOMAS C. METCALF
No. E-47328
REGISTERED PROFESSIONAL ENGINEER
STATE OF OHIO

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT IMPROVEMENTS CONTRACT 12	RECARBONATION BASIN PIPING & EQUIPMENT REMOVAL AND STRUCTURAL PLAN, SECTIONS & DETAILS
NO. DATE REVISIONS BY	JOB NO. 14–3626
SCALE 1/4"=1'-0" · DESIGN-LAYOUT T.C.M. · DRAWN R.C.D. · CHECKED R.P.B.	DATE MAR. 1993
Jones & Henry Engineers, Inc.	SHEET NO. 5 of 14

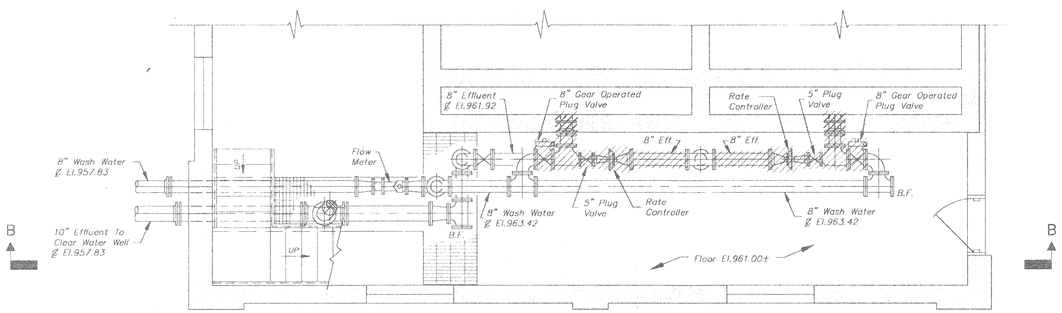
TD-3626 TWD5
05/12/93 18



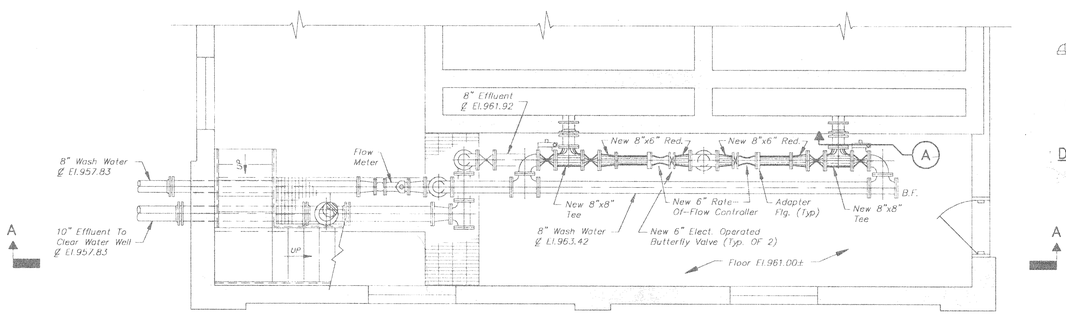
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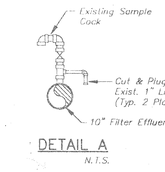
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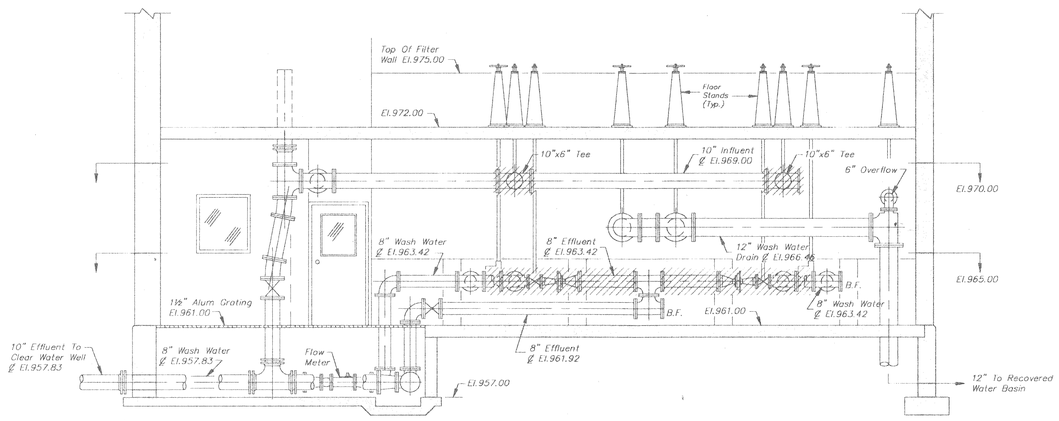
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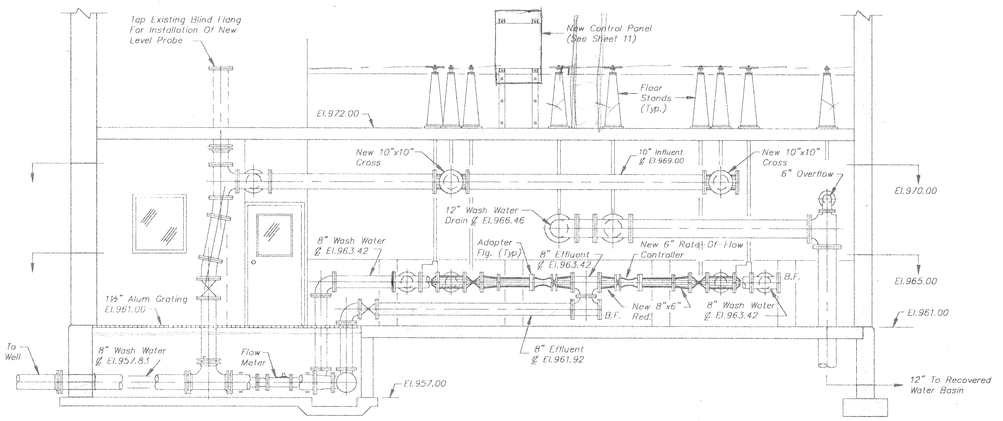
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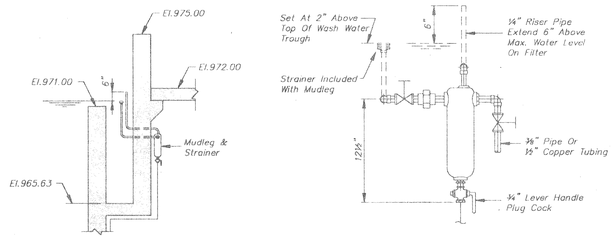
DETAIL A
N.T.S.



REMOVAL
SECTION B–B



SECTION A–A



MUDLEG & STRAINER FOR LOSS OF HEAD GAUGE
N.T.S.

Notes:

1.) Reconnect New Valves To Existing Floor Stand Operators Above. Modify Connector Shafts, Add Universal Joints, Etc., As Required To Freely Operate New Valves.

2.) Remove Existing Loss Of Head Piping & Miscellaneous Other Small Piping No Longer In Use. Plug Openings Through Filter Walls.

3) All pipe [illegible] and couplings shall be DIP

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 12

NO.	DATE	REVISIONS	BY

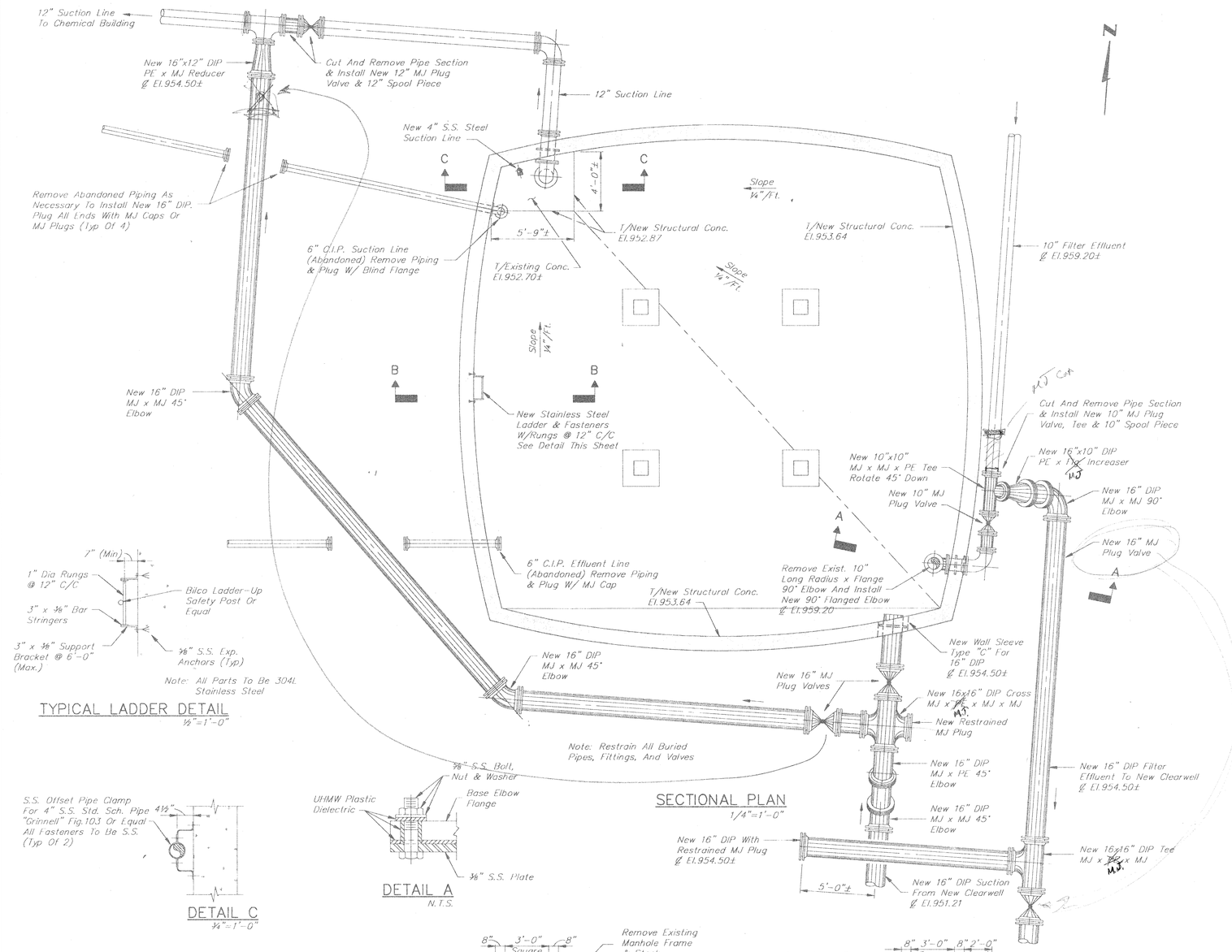
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FILTER BUILDING
REMOVAL AND PIPING & EQUIPMENT PLANS & SECTIONS

JOB NO.	SHEET NO.
14-3626	6
DATE	OF 14
MAR. 1993	

Jones & Henry Engineers, Inc.

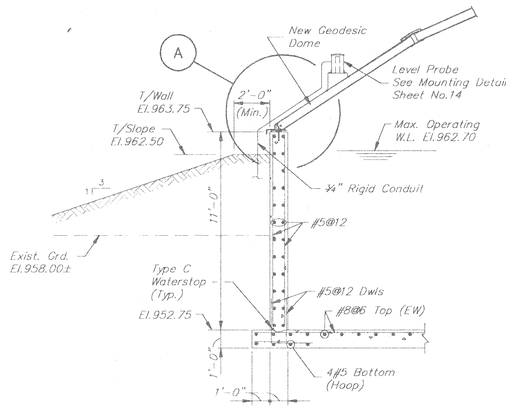
TO-3626\W03
05/11/93 1B



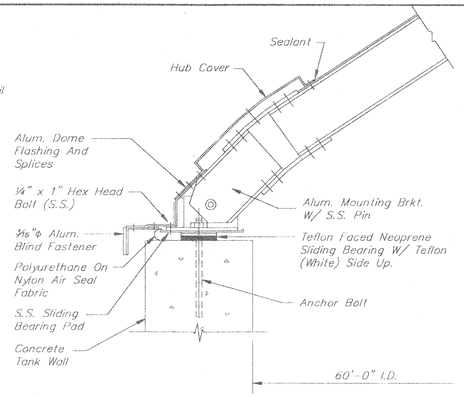
THOMAS C. METCALF No. E-47328 REGISTERED PROFESSIONAL ENGINEER STATE OF OHIO

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT IMPROVEMENTS CONTRACT 12				EXISTING CLEARWELL STRUCTURAL AND PIPING & EQUIPMENT PLANS, SECTIONS & DETAILS	
NO.	DATE	REVISIONS	BY	JOB NO. 14-3626	SHEET NO. 7
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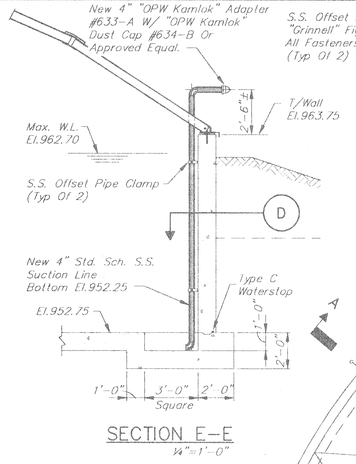
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05/12/93 1B



SECTION A–A
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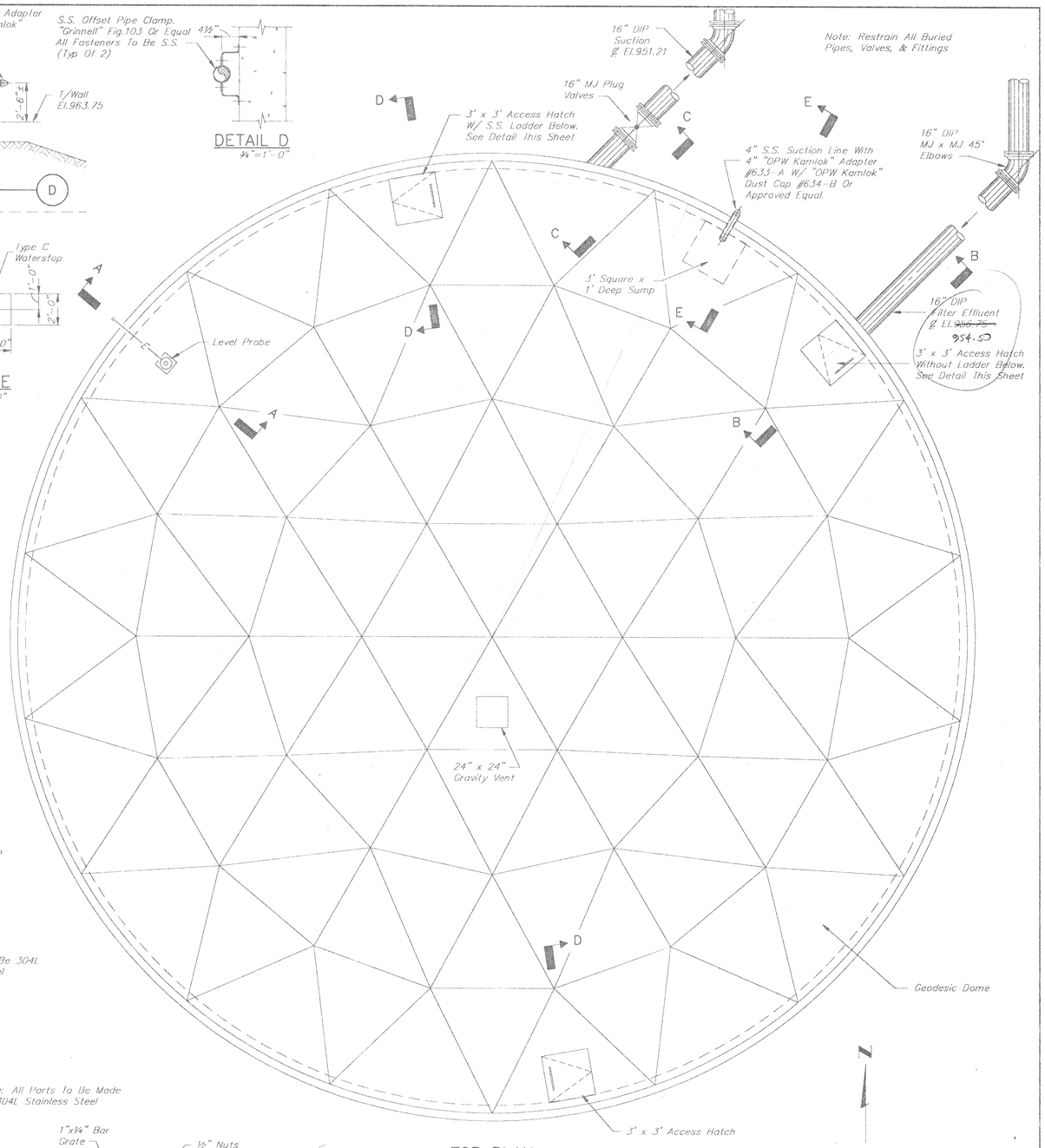
DETAIL A
N.T.S.



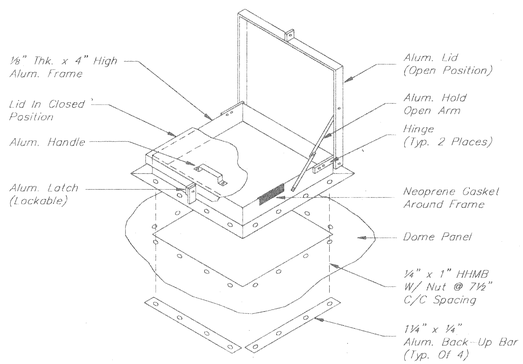
SECTION E–E
¼"=1'-0"

DETAIL D
¼"=1'-0"

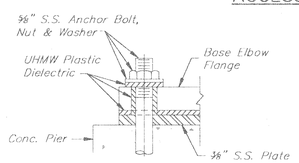
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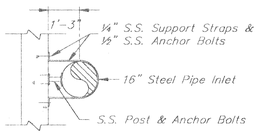
TOP PLAN
¼"=1'-0"



ACCESS HATCH
N.T.S.

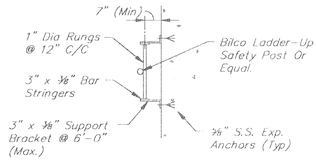


DETAIL E



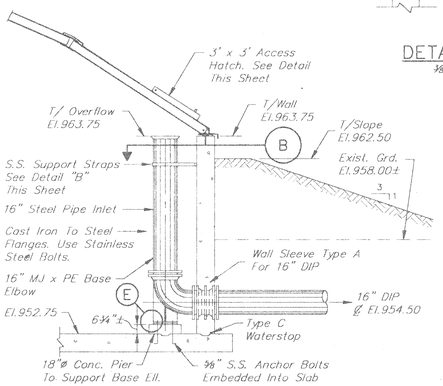
DETAIL B
⅜"=1'-0"

Note: Provide Dielectric Separation Between Pipe & Supports

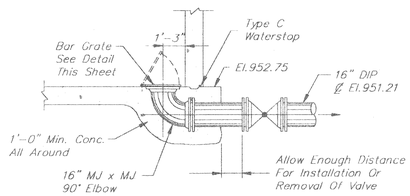


Note: All Parts To Be 304L Stainless Steel

TYPICAL LADDER DETAIL
(Typ. Of 2)
½"=1'-0"

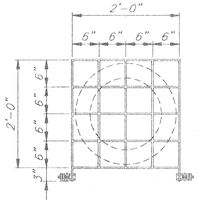


SECTION B–B
¼"=1'-0"

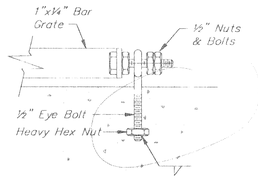


SECTION C–C
¼"=1'-0"

Note: All Parts To Be Made Of 304L Stainless Steel



BAR GRATE DETAIL
N.T.S.

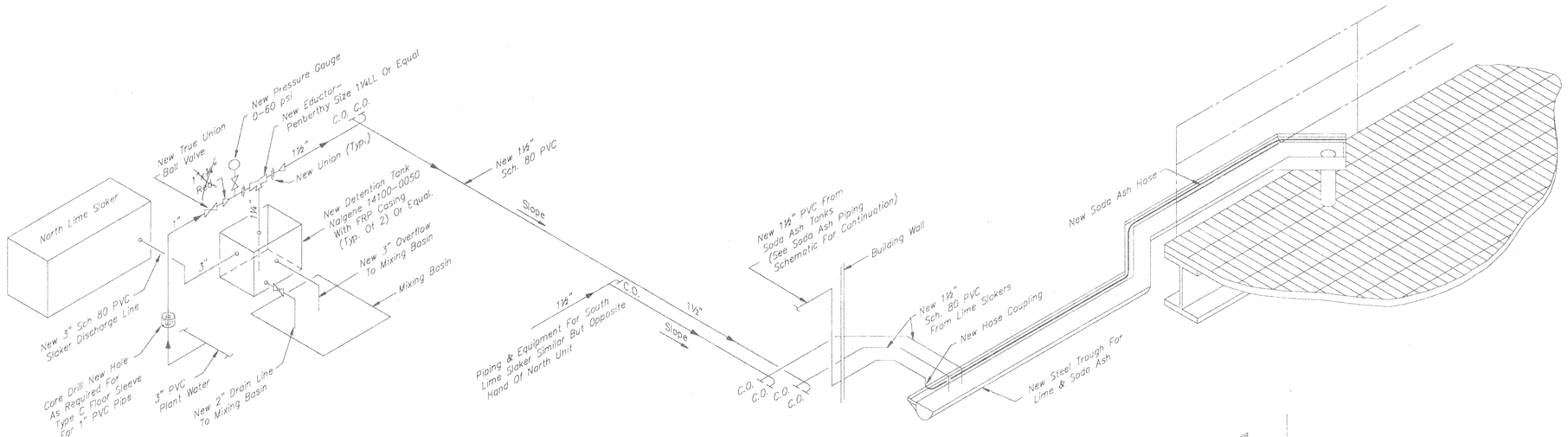


USE Expansion ANCHOR

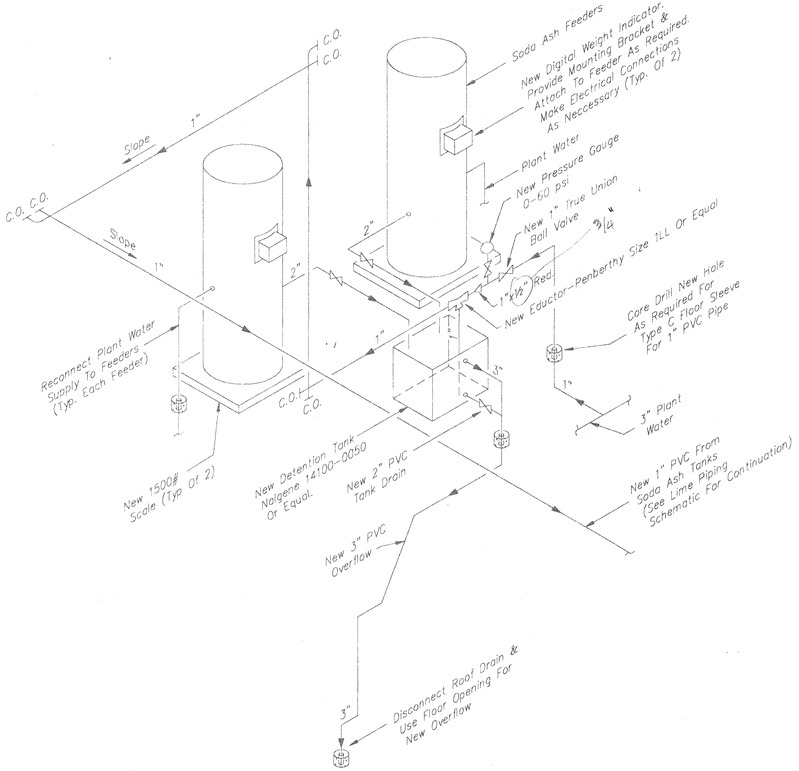
STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT IMPROVEMENTS CONTRACT 12				NEW CLEARWELL STRUCTURAL PIPING & EQUIPMENT PLAN, SECTIONS & DETAILS	
NO.	DATE	REVISIONS	BY	JOB NO. 14-3626	SHEET NO. 8
SCALE AS NOTED	DESIGN-LAYOUT T.C.M.	DRAWN R.C.D.	CHECKED R.P.B.	DATE MAR. 1993	Jones & Henry Engineers, Inc. OF 14

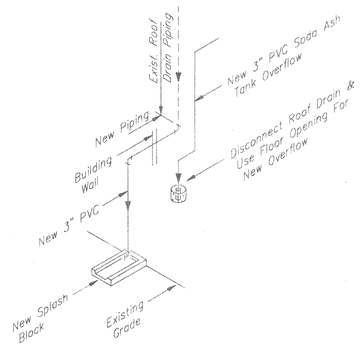
TOL-3626TM02
05/12/93 1B



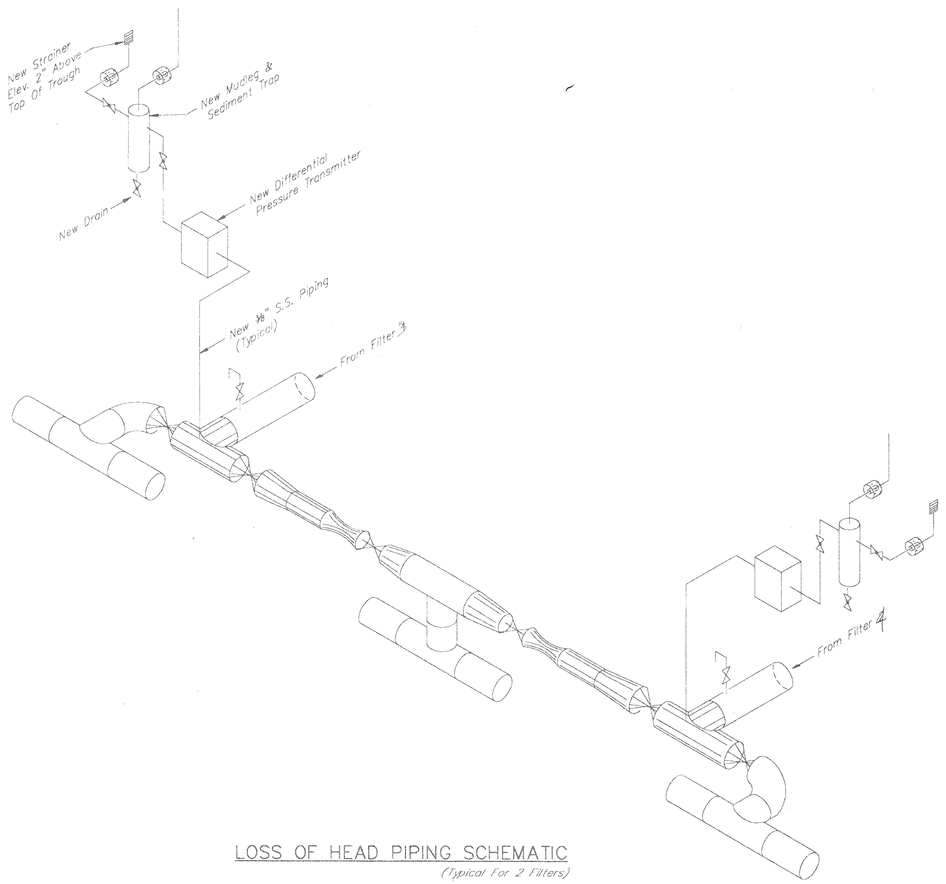
LIME PIPING SCHEMATIC



SODA ASH PIPING SCHEMATIC



ROOF DRAIN SCHEMATIC



LOSS OF HEAD PIPING SCHEMATIC

(Typical For 2 Filters)

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT IMPROVEMENTS CONTRACT 12				CHEMICAL PIPING LIME & SODA ASH SCHEMATICS AND LOSS OF HEAD SCHEMATIC	
NO.	DATE	REVISIONS	BY	JOB NO. 14-3626	SHEET NO. 9
SCALE N.T.S.	DESIGN-LAYOUT T.C.M.	DRAWN R.C.D.	CHECKED R.P.B.	DATE MAR. 1993	Jones & Henry Engineers, Inc. OF 14

TO-3628TWG
05/11/93 12

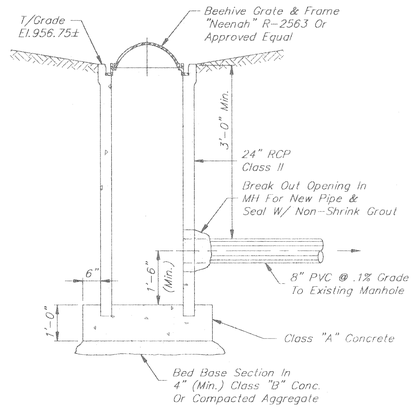
TYPICAL CONCRETE COVER

Concrete Cast Against And Permanently Exposed To Earth	3"
Surface Exposed To Earth Or Weather	2"
Surface Exposed To Or Over Water, Sewage, Or Other Liquids	
Slabs, Walls, Joists	2"
Beams, Columns Primary Reinforcement:	2½"
Stirrups And Ties:	2"
Other Surfaces	
Slabs, Walls, Joists	¾"
Beams, Columns Primary Reinforcement:	2"
Stirrups And Ties:	1½"

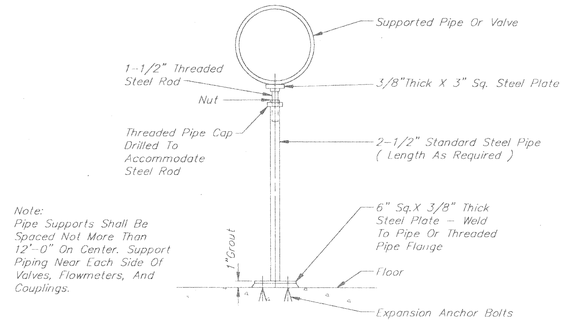
LAP SPLICE LENGTH (IN.)

Bar Size	Top Reinforcement	Bottom Reinforcement
#3	18	16
#4	24	19
#5	30	23
#6	36	28
#7	42	33
#8	48	37
#9	90	69
#10	114	88
#11	140	108

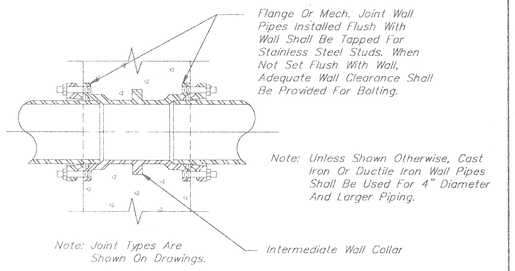
Top Reinforcement Is Defined As Horizontal Reinforcement With More Than 12" Of Fresh Concrete Cast Beneath The Bar. Horizontal Bars In Walls Shall Be Considered As Top Reinforcement.



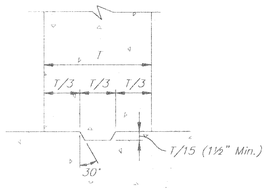
CATCH BASIN DETAIL



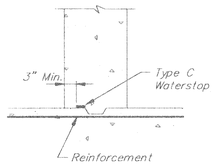
ADJUSTABLE PIPE SUPPORT



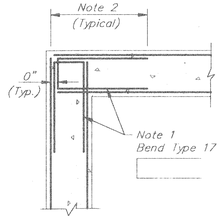
TYPE A
WALL PIPE



TYPICAL SHEAR KEY



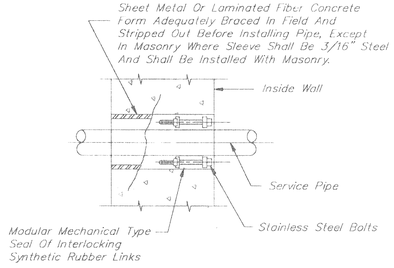
WATERTIGHT JOINT AT BASE OF WALL



LIQUID-RETAINING STRUCTURES

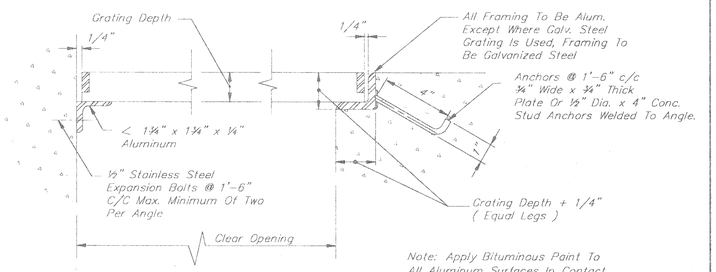
Note 1 – Same Size And Spacing As Horizontal Reinforcement Unless Shown Otherwise

Note 2 – Lap Splice Length For Top Bars Unless Shown Otherwise. Lap Location May Be Shifted To Reduce Congestion At Corner.

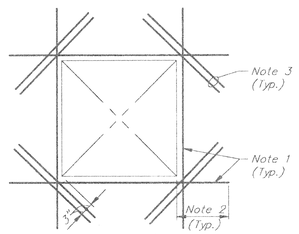


Note:
1. Walls Shall Be Core Drilled Where Shown And Elsewhere If Approved By The Engineer.
2. Concrete Shall Be Worked In And Vibrated To Eliminate All Voids In Concrete – If Voids Do Remain, Fill With Grout Before Installing Pipe And Rubber Seals.

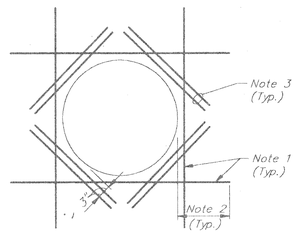
TYPE C
PIPE SLEEVE



TYPE B TYPE A
GRATING FRAMES



RECTANGULAR



CIRCULAR

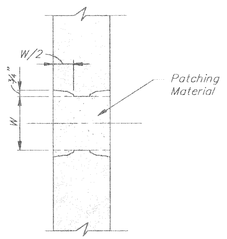
Note 1 – Additional Reinforcement Equal In Area To Reinforcement Cut By Opening.

Note 2 – Lap Splice Length For Top Bars.

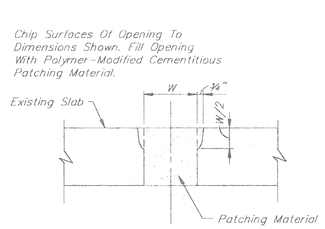
Note 3 – Diagonal Bars – Each Face, 2 Each Corner – Size As Follows

Conc. Thickness	Bar Size	Length
< 12"	#4	3'-0"
12" To 18"	#5	3'-6"
> 18"	#6	4'-0"

TYPICAL ADDITIONAL REINFORCEMENT AT OPENINGS LARGER THAN 12"



WALL

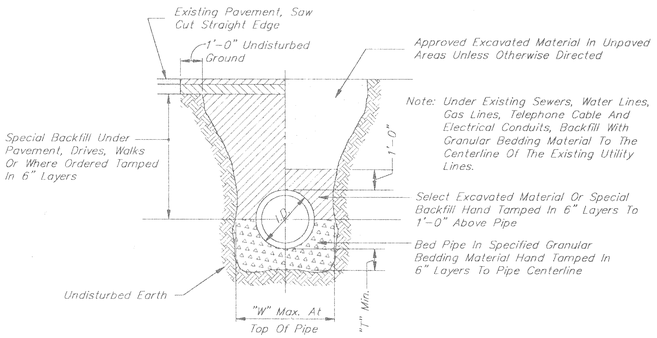


SLAB

TYPICAL DETAILS FOR PATCHING OF ABANDONED OPENINGS
(W ≤ 18")

SIZE	"W"	"T"
6"	2'-6"	4"
8"	2'-6"	4"
10"	2'-6"	4"
12"	2'-9"	4"
15"	3'-0"	5"
18"	3'-4"	5"

TRENCH SCHEDULE



TRENCH DETAIL
NTS

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT IMPROVEMENTS
CONTRACT 12

NO.	DATE	REVISIONS	BY

SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
NONE	T.C.M.	R.C.D.	R.P.B.

MISCELLANEOUS DETAILS CATCH BASIN, STRUCTURAL, PIPING, GRATING AND TRENCH DETAILS

JOB NO. 14-3626
DATE MAR. 1993

Jones & Henry Engineers, Inc.

SHEET NO. 10 OF 14

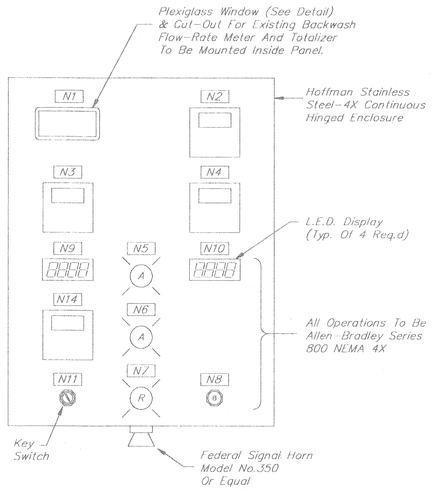
TO-3526\002
05/04/93\18

INSTRUMENT AND DEVICE LETTERING TABLE

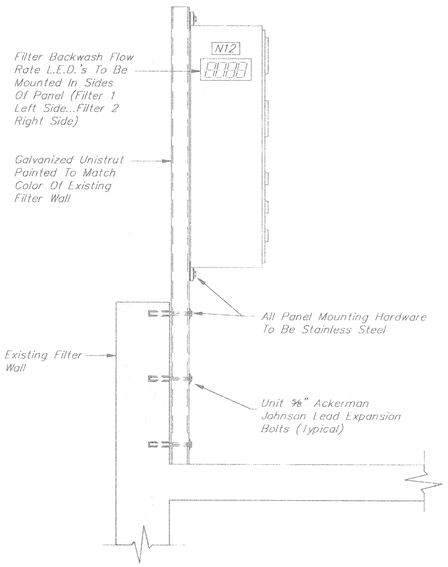
	FIRST LETTER	SUCCEEDING LETTERS
A	Analysis	Alarm
B	Burner Flame	Close or Decrease
C	Conductivity	Control
D	Density	Open or Increase
E	Voltage	Primary Element
F	Flow Rate	Ratio
G		Glass Viewing Device
H	Hand (Manual)	High
I	Current (Elec.)	Indicate
J	Power	Light
K	Time	Control Station
L	Level	Low
M	Motor	Operate or On/Off
N	Moisture	Start/Stop or Open/Close
O	Torque	Overload
P	Pressure or Vacuum	Point or Test
Q	Quantity or Event	Totalize or Integrate
R	Radioactivity	Recorder
S	Speed or Frequency	Switch
T	Temperature	Transmitter
U	Multivariable	Multifunction
V	Vibration or Motion	
W	Weight or Force	Well
X	Vibration, Motion	Excess
Y	Computer	Relay or Compute
Z	Position	Drive or Actuate
△	Differential	

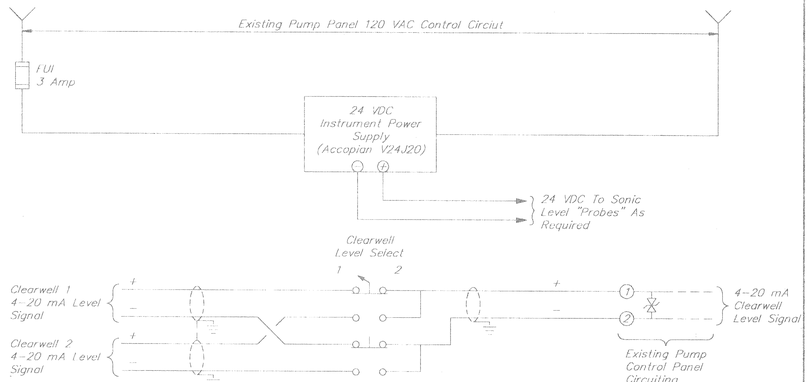
PROCESS AND INSTRUMENTATION DIAGRAM
DEVICE SYMBOLS AND DESIGNATION

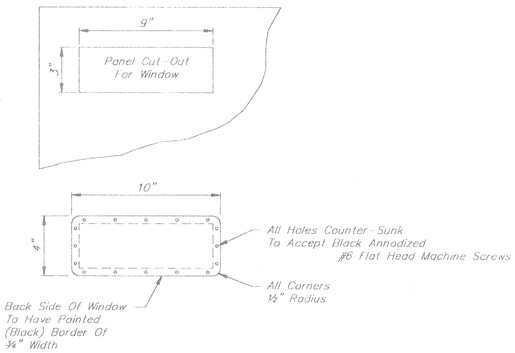
SYMBOL	DESCRIPTION	SYMBOL	INSTRUMENT OR DEVICE IDENTIFICATION
	Front Panel Mounted Instrument Or Device		First Letter; Succeeding Letter; Succeeding Letter; Loop Number
	Back Panel Mounted Instrument Or Device		
	Field Mounted Instrument Or Device		
	Annuciator Window With Description		Discrete Data Output Point
M	Single Phase Motor		Discrete Data Input Point
M	Three Phase Motor (DC Indicates DC Motor)		Analog Data Output Point
	Isolation Switch Lockable In Off Position		Analog Data Input Point
	Motor Starter		Process Flow Direction Normal ?
	Horn, Bell Or Siren Per Specs		Process Flow Line
			Pneumatic Signal
			Electrical Connection - 480 V
			Electrical Connection 240 or 120 V
			Analog Signal (Usually 4-20 ma)
			Mechanical Connection
(2.19)	Typical Specification Reference Number Within Section 16902		
(11735)	Typical Specification Section Number	Note: All Equipment Symbols Are Per ISA S5.5	



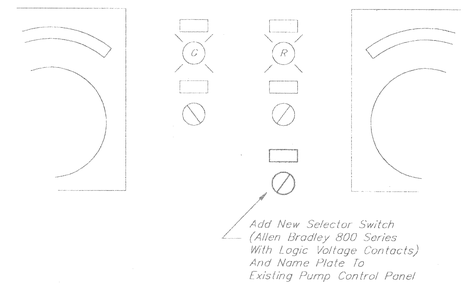
Name Plate Legend	
N1	Backwash Flow Rate & Totalizer
N2	Filter Level Controller (Inches)
N3	Filter 1 Flow Controller (GPM)
N4	Filter 2 Flow Controller (GPM)
N5	High Level
N6	Low Level
N7	Low-Low Level
N8	Horn Acknowledge
N9	Filter 1 Head Loss (Ft.)
N10	Filter 2 Head Loss (Ft.)
N11	Filter 1 & 2 Totalizer Reset
N12	Filter 1 Backwash Flow Rate
N13	Filter 2 Backwash Flow Rate
N14	Filter 1 & 2 Total Flow (Gal. x 1000)



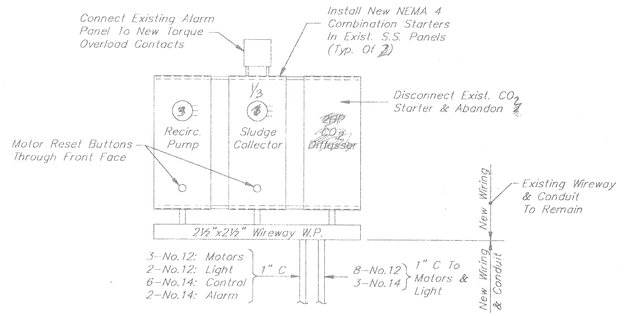




PLEXIGLASS WINDOW DETAIL



MODIFICATIONS TO EXISTING PUMP CONTROL PANEL



EXISTING MOTOR STARTER PANEL

THOMAS C. METCALF No. E-47328 REGISTERED PROFESSIONAL ENGINEER STATE OF OHIO

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT INPROVEMENTS
CONTRACT 12

INSTRUMENTATION & CONTROL FILTER PANEL & EXISTING PUMP CONTROL PANEL P & ID

NO.	DATE	REVISIONS	BY

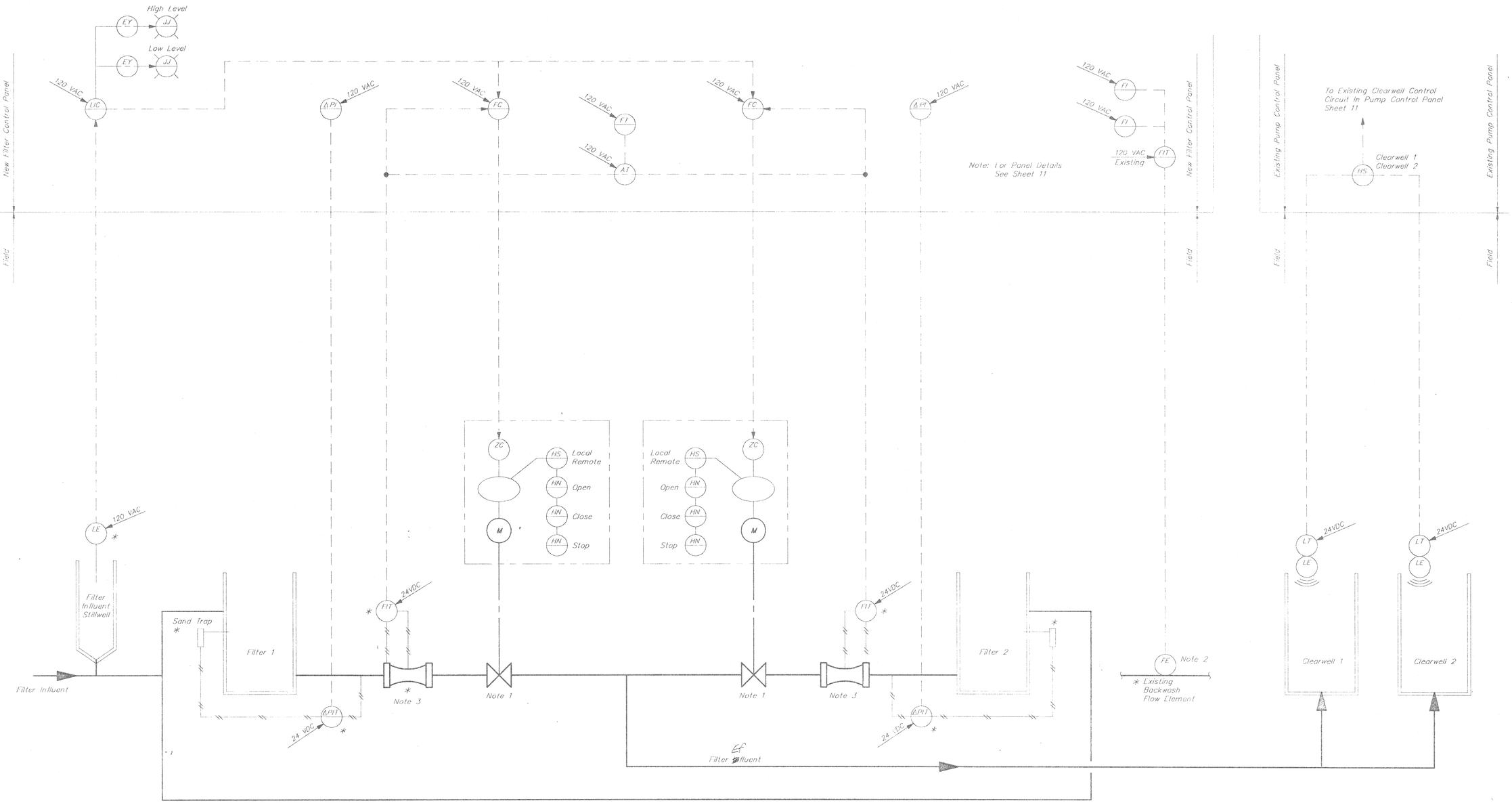
SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
NONE	M.E.J.	R.C.D.	R.P.B.

JOB NO. 14-3626
DATE MAR. 1993

Jones & Henry Engineers, Inc.

SHEET NO. 11 OF 14

TOL-3626C04
05/12/93 19



* Reference Mounting And/Or Plumbing Details

Note 1 Filter Effluent Modulating Valve ~~To Be~~ Should Be
Auma # SAR 10.1–9.6B
(4–20mA, Lock In Last Place, 440 Volt, 3Ø 120V - 1Ø
W/ Local/Remote Open/Close Station)

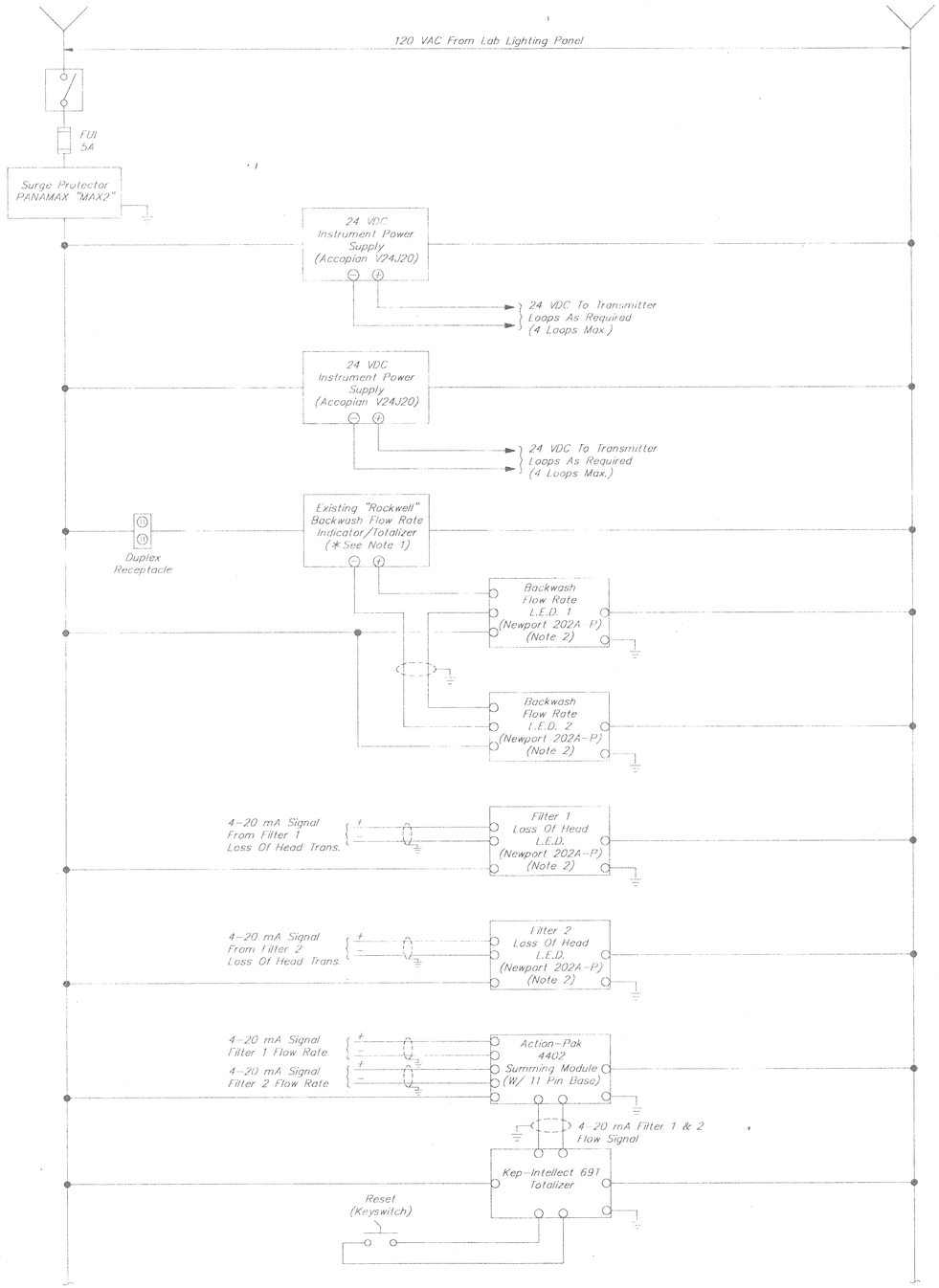
Note 2 Existing Rockwell Model 1000–5–2264A
And Totalizer To Be Returned To
Factory To Receive Upgrade. Unit Is
To Have Option "A" Installed (4–20mA
Output Signal Proportional To Flow Rate).

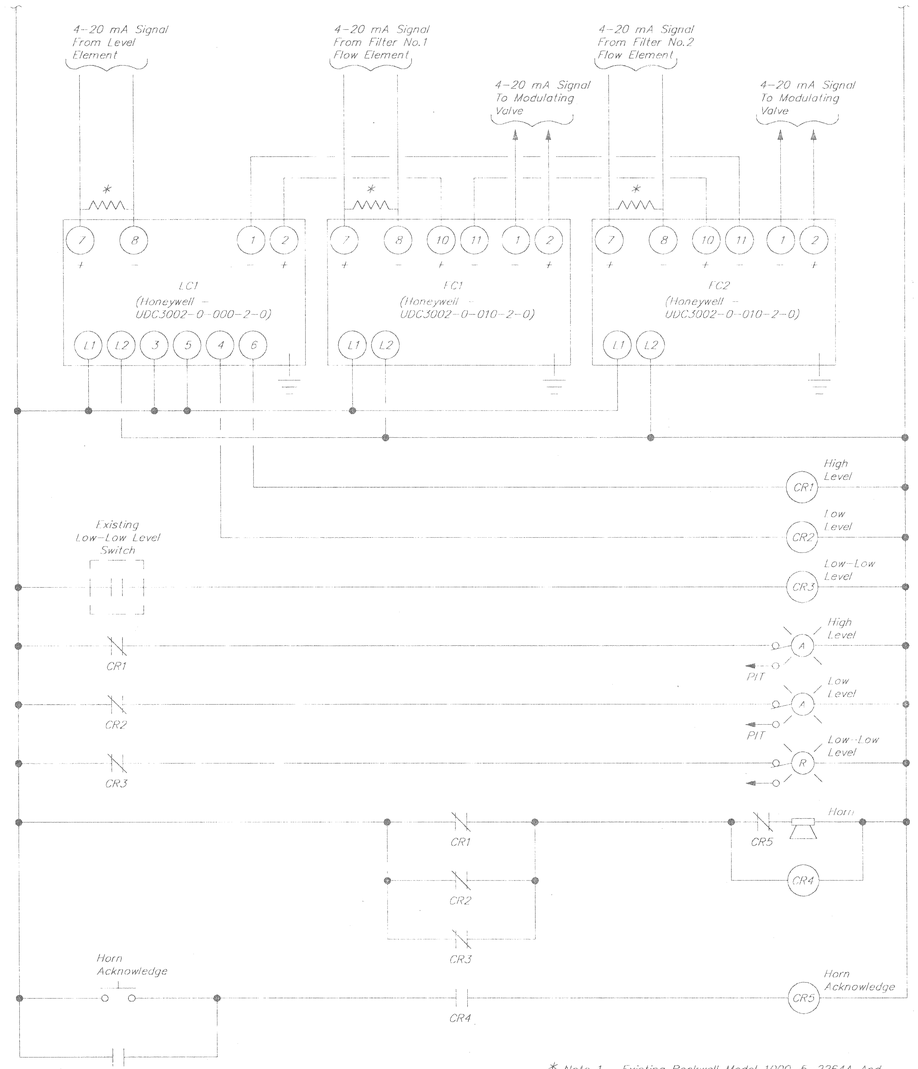
Note 3 Filter Rate Of Flow Venturi To Be Leopold
Model No. MDC–SFH (6" Dia. W/ 3" Throat)

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT INPROVEMENTS CONTRACT 12					INSTRUMENTATION & CONTROL FILTER CONTROL SYSTEM P & ID		
NO.	DATE	REVISIONS		BY	JOB NO. 14–3626	Jones & Henry Engineers, Inc.	SHEET NO. 12 OF 14
SCALE NONE		DESIGN-LAYOUT M.E.J.	DRAWN R.C.D.	CHECKED R.P.B.	DATE MAR. 1993		

TO–3626C01
05/1/93 1B





* Note 1 Existing Rockwell Model 1000-5-2264A And Totalizer To Be Returned To Factory By Contractor To Receive Upgrade. Unit Is To Have Option "A" Installed. (4-20mA Output Signal Proportional To Flow Rate).

Note 2 L.E.D. Display To Be Ranged To Process Valves.

THOMAS C. METCALF
No. E-47328
STATE OF OHIO
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO
WATER TREATMENT PLANT INPROVEMENTS
CONTRACT 12

INSTRUMENTATION & CONTROL FILTER CONTROL PANEL SCHEMATIC P & ID

NO.	DATE	REVISIONS	BY

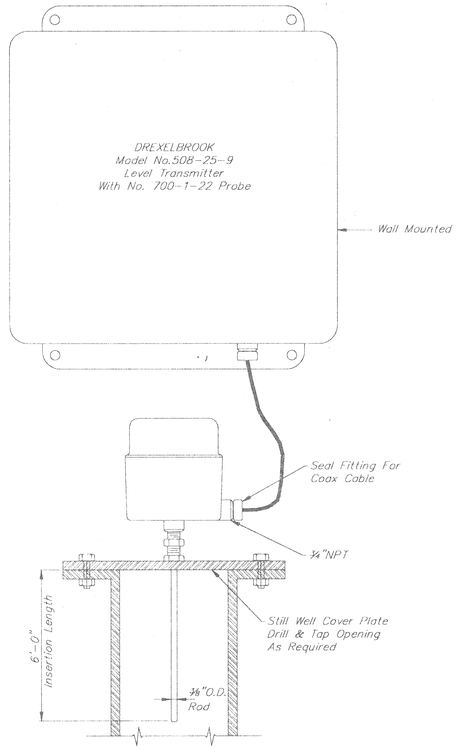
SCALE	DESIGN-LAYOUT	DRAWN	CHECKED
NONE	M.E.J.	R.C.D.	R.P.B.

JOB NO. 14-3626
DATE MAR. 1993

Jones & Henry Engineers, Inc.

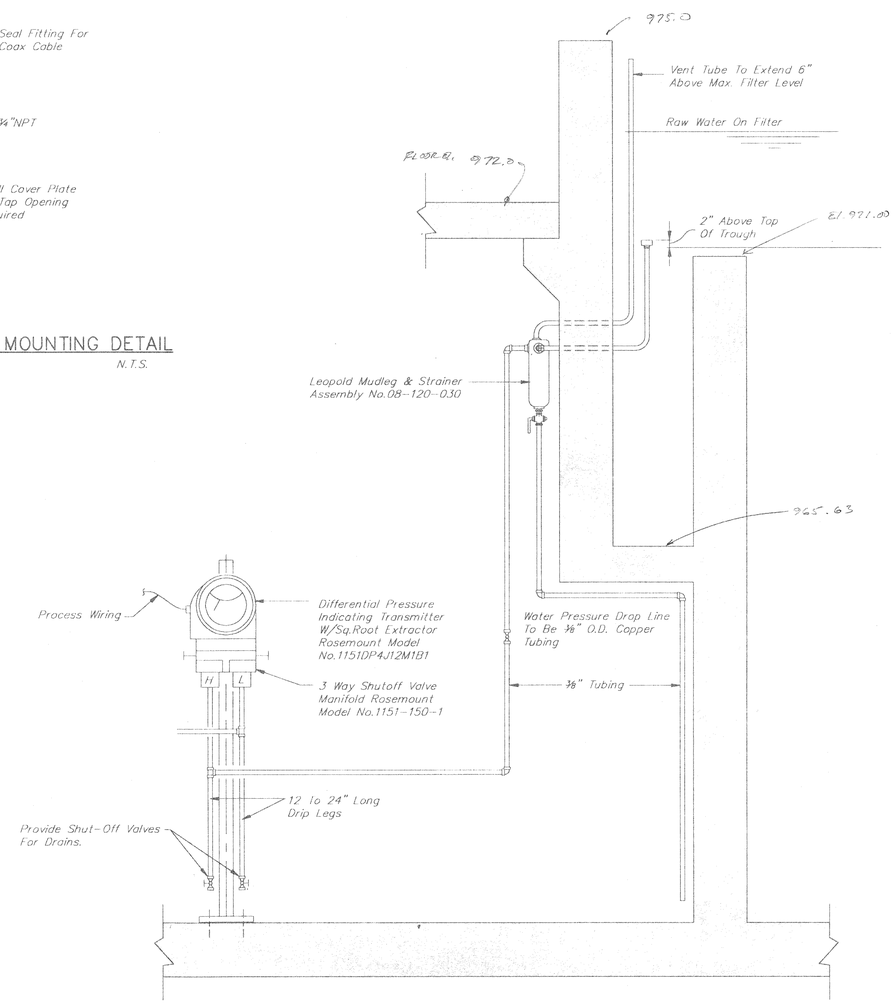
SHEET NO. 13 OF 14

TOL-3626002
05/04/93 19



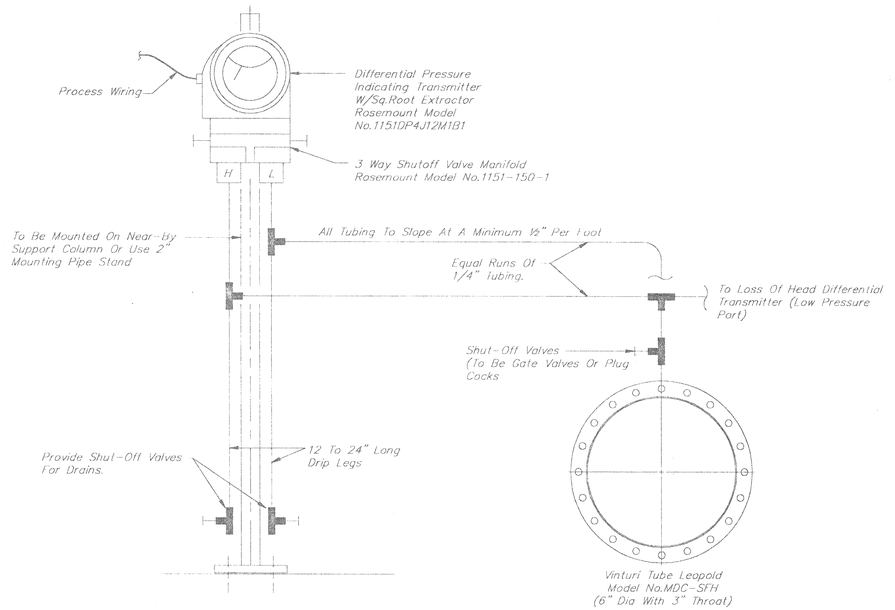
FILTER INFLUENT STILLWELL LEVEL PROBE MOUNTING DETAIL

N.T.S.



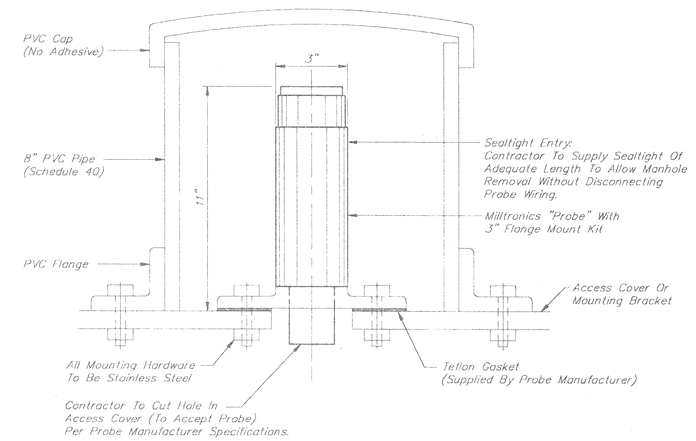
LOSS OF HEAD TRANSMITTER AND PIPING DETAIL

(Typical For 2 Filters) N.T.S.



FLOW TRANSMITTER DETAIL

(Typical For 2 Filters)



CLEARWELL SONIC PROBE MOUNTING DETAIL

(Typical Of 2) NTS

STATE OF OHIO
THOMAS C. METCALF
No. E-47328
REGISTERED
PROFESSIONAL ENGINEER

VILLAGE OF ADA, OHIO WATER TREATMENT PLANT IMPROVEMENTS CONTRACT 12					FILTER BUILDING REMOVAL AND PIPING & EQUIPMENT PLANS & SECTIONS	
NO.	DATE	REVISIONS		BY	JOB NO. 14-3626	SHEET NO. 14
SCALE ¼"=1'-0"		DESIGN-LAYOUT M.E.J.	DRAWN ART	CHECKED R.P.B.	DATE MAR. 1993	OF 14

Jones & Henry Engineers, Inc.

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SECTION 07200
WALL AND CEILING INSULATION

PART 1 GENERAL

1.01 SCOPE

A. This Section includes thermal insulation for buildings excluding roof insulation.

1.02 SUBMITTALS

A. Submittals shall be in accordance with the requirements of Section 01300 and shall include:

1. Shop Drawings for Review:

a. Product literature.

b. Two samples of each type and thickness of insulation. Samples shall be minimum 8-inch by 8-inch.

2. Information for the Record:

a. Manufacturer's certification.

b. Manufacturer's installation instructions.

PART 2 PRODUCTS

2.01 MATERIALS

A. Insulation shall be of type and thickness shown or specified.

B. Insulation shall not rot, disintegrate, slump, or leave uninsulated voids and shall not provide sustenance to vermin, rodents, insects, bacteria, or fungi. Insulation shall not react with or accelerate corrosion of steel, aluminum, or copper. Insulation shall be odorless.

C. Combustible insulation shall be treated with fire retardant.

D. Insulation shall retain thermal capacity for minimum of 20 years.

E. Production of insulation shall not utilize chemicals banned by the Montreal Accord.

2.02 TYPES

A. Extruded Polystyrene Rigid Foam Insulation:

1. Manufacturers: Owens Corning Foamular, Dupont Styrofoam Brand SM, Dow, or equal.

2. Description: Rigid foam insulated sheathing for exterior applications complying with ASTM C578, Type IV.

3. Construction: Extruded polystyrene, closed-cell, moisture-resistant rigid foam boards.

4. Physical Properties:

Physical Property	Test Method	Specification
Thermal Resistance Min., R-Value per inch, degrees F-Sqft-Hr/BTU @75 degrees F Mean Temperature	ASTM C518	5.0
Compressive Strength, Min. psi	ASTM D1621	25
Flexural Strength, Min. psi	ASTM C203	50
Water Absorption, Max., Percent by Volume	ASTM C272	0.3
Water Vapor Permeance, Max., Perms	ASTM E96	1.5
Dimensional Stability, Max % by Volume	ASTM D2126	2.0
Surface Burning Characteristics, Flame Spread, Index	ASTM E84	10
Surface Burning Characteristics, Smoke Developed, Index	ASTM E84	175
Service Temperature, Max. degrees F		165

PART 3 EXECUTION

3.01 PREPARATION

A. Contractor shall examine surfaces to receive insulation prior to installation. Surfaces shall be dry, free of dirt, dust, and debris.

B. Unacceptable conditions shall be reported to Engineer.

3.02 INSTALLATION

A. Insulation shall be installed and secured in locations shown. Installation shall be in accordance with manufacturer’s instructions.

B. For masonry cavity walls provide insulation between the veneer masonry and the structural backup masonry and secure with insulation retainers. The insulation shall be placed against the interior face of the structural backup masonry. Provide or cut the board height to match the vertical spacing between veneer ties.

C. For foundations provide insulation around the inside face of foundation walls. Adhere the insulation to the foundation.

3.03 PROTECTION

A. Insulation shall be protected from moisture and inclement weather. Exposed insulation shall be covered at end of each work day or at onset of inclement weather.

B. Damaged or wet insulation shall be removed and replaced with new material.

PART 4 SPECIAL PROVISIONS

Not used.

END OF SECTION

SECTION 07272
FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 GENERAL

1.01 SCOPE

A. This Section includes vapor permeable, fluid-applied air barriers and accessories.

1.02 SUBMITTALS

A. Submittals shall be in accordance with the requirements of Section 01300 and shall include:

1. Shop Drawings for Review:

a. Product literature.

2. Information for the Record:

a. Manufacturer's certification.

b. Manufacturer's installation instructions.

PART 2 PRODUCTS

2.01 MATERIALS

A. Source Limitations: Obtain primary air-barrier materials and air-barrier accessories from single source from single manufacturer.

2.02 PERFORMANCE REQUIREMENTS

A. Air-Barrier Performance: Air-barrier assembly and seals with adjacent construction shall be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.

B. Air-Barrier Assembly Air Leakage: Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft. (0.2 L/s x sq. m of surface area at 75 Pa), when tested according to ASTM E2357.

2.03 MEDIUM-BUILD AIR BARRIERS, VAPOR PERMEABLE

A. Medium-Build, Vapor-Permeable Air Barrier: Synthetic polymer material with an installed dry film thickness, according to manufacturer's written instructions, of 17 to 30 mils (0.4 to 0.8 mm) over smooth, void-free substrates.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Henry Company; a Carlisle company; Air-Bloc® All Weather STPE or comparable product by one of the following.
    a. Carlisle Coatings & Waterproofing Inc.
    b. DuPont de Nemours, Inc.
    c. Hohmann & Barnard, Inc.
    d. Sto Corp.
    e. W. R. Meadows, Inc.
2. Physical and Performance Properties:
    a. Air Permeance: Maximum 0.004 cfm/sq. ft. of surface area at 1.57-lbf/sq. ft. (0.02 L/s x sq. m of surface area at 75-Pa) pressure difference; ASTM E2178.
    b. Vapor Permeance: Minimum 10 perms (580 ng/Pa x s x sq. m); ASTM E96/E96M, Desiccant Method, Procedure B.
    c. Ultimate Elongation: Minimum 250 percent; ASTM D412, Die C.
    d. Adhesion to Substrate: Minimum 60 lbf/sq. in. when tested according to ASTM D4541.
    e. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
    f. UV Resistance: Can be exposed to sunlight for 180 days according to manufacturer's written instructions.

2.04 ACCESSORY MATERIALS

A. Requirement: Provide primers, transition strips, termination strips, joint reinforcing fabric and strips, joint sealants, counterflashing strips, flashing sheets and metal termination bars, termination mastic, substrate patching materials, adhesives, tapes, foam sealants, lap sealants, and other accessory materials that are recommended in writing by air-barrier manufacturer to produce a complete air-barrier assembly and that are compatible with primary air-barrier material and adjacent construction to which they may seal.

PART 3 EXECUTION

3.01 PREPARATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
    1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.

2. Verify that substrates have cured and aged for minimum time recommended in writing by air-barrier manufacturer.

3. Verify that substrates are visibly dry and free of moisture.

4. Verify that masonry joints are flush and completely filled with mortar.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 SURFACE PREPARATION

A. Clean, prepare, treat, fill, and seal substrate and joints and cracks in substrate according to manufacturer's written instructions and details. Provide clean, dust-free, and dry substrate for air-barrier application.

B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.

C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching material.

E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.

F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.

G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

H. Bridge isolation joints, expansion joints, and discontinuous wall-to-wall, deck-to-wall, and deck-to-deck joints with air-barrier accessory material that accommodates joint movement according to manufacturer's written instructions and details.

3.03 ACCESSORIES INSTALLATION

A. Install accessory materials according to air-barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.

1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.

2. Install transition strip on roofing membrane or base flashing so that a minimum of 3 inches (75 mm) of coverage is achieved over each substrate.

3. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.

4. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.

B. Connect and seal exterior wall air-barrier material continuously to roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.

C. At end of each working day, seal top edge of strips and transition strips to substrate with termination mastic.

D. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

E. Wall Openings: Prime concealed, perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply transition strip so that a minimum of 3 inches (75 mm) of coverage is achieved over each substrate. Maintain 3 inches (75 mm) of full contact over firm bearing to perimeter frames, with not less than 1 inch (25 mm) of full contact.

1. Transition Strip: Roll firmly to enhance adhesion.

F. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air-barrier material with foam sealant.

G. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.

H. Seal top of through-wall flashings to air barrier with an additional 6-inch- (150-mm-) wide, transition strip.

I. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.

J. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches (150mm) beyond repaired areas in strip direction.

3.04 PRIMARY AIR-BARRIER MATERIAL INSTALLATION

A. Apply air-barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier according to air-barrier manufacturer's written instructions and details. Apply air-barrier material within manufacturer's recommended application temperature ranges.

1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.

2. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.

3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.

B. Medium-Build Air Barriers: Apply continuous unbroken air-barrier material to substrates according to the following thickness. Apply an increased thickness of air-barrier material in full contact around protrusions such as masonry ties.

1. Vapor-Permeable, Medium-Build Air Barrier: Total dry film thickness as recommended in writing by manufacturer to comply with performance requirements, applied in one or more equal coats. Apply additional material as needed to achieve void- and pinhole-free surface, but do not exceed thickness on which required vapor permeability is based.

C. Do not cover air barrier until it has been inspected by Commissioning Agent, Construction Manager, and Air Barrier Manufacturer.

D. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

3.05 FIELD QUALITY CONTROL

A. Inspections: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements.

B. Air barriers will be considered defective if they do not pass tests and inspections.

1. Apply additional air-barrier material, according to manufacturer's written instructions, where inspection results indicate insufficient thickness.

2. Remove and replace deficient air-barrier components for retesting as specified above.

C. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.

D. Prepare test and inspection reports.

3.06 CLEANING AND PROTECTION

A. Protect air-barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.

1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full-thickness, air-barrier application after repairing and preparing the overexposed materials according to air-barrier manufacturer's written instructions.

2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.

B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

C. Remove masking materials after installation.

PART 4 SPECIAL PROVISIONS

Not used.

END OF SECTION