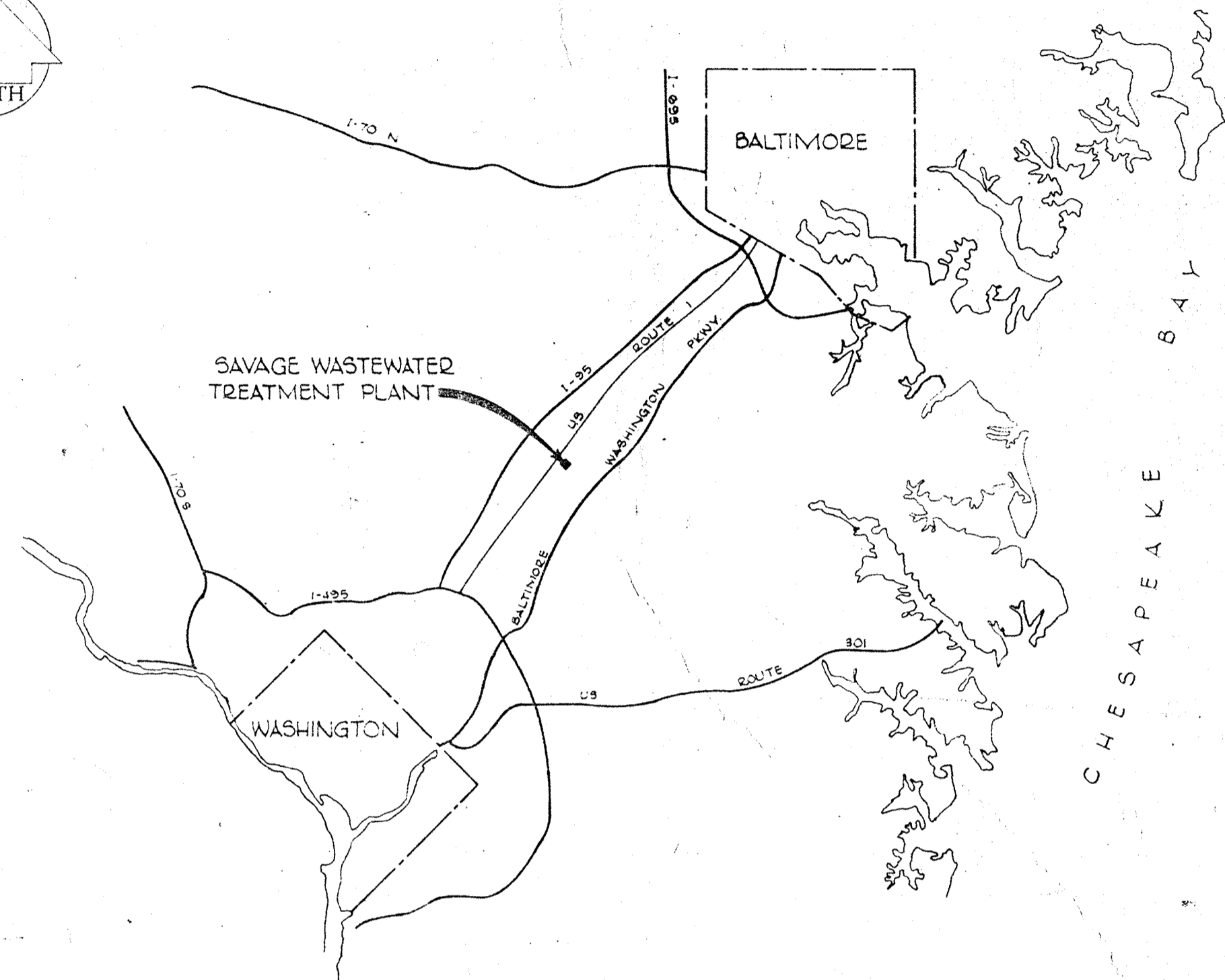
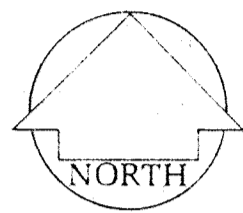
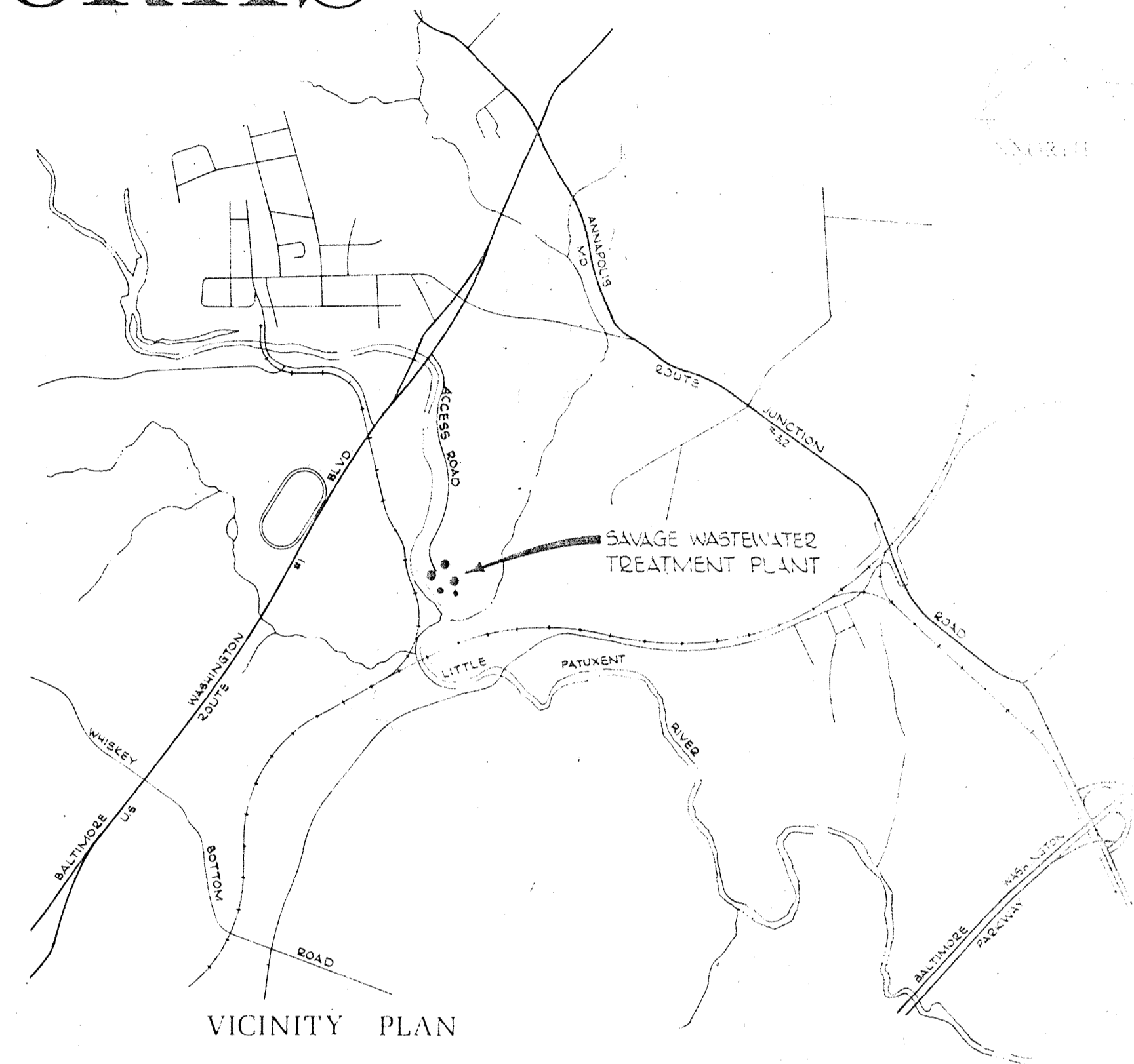
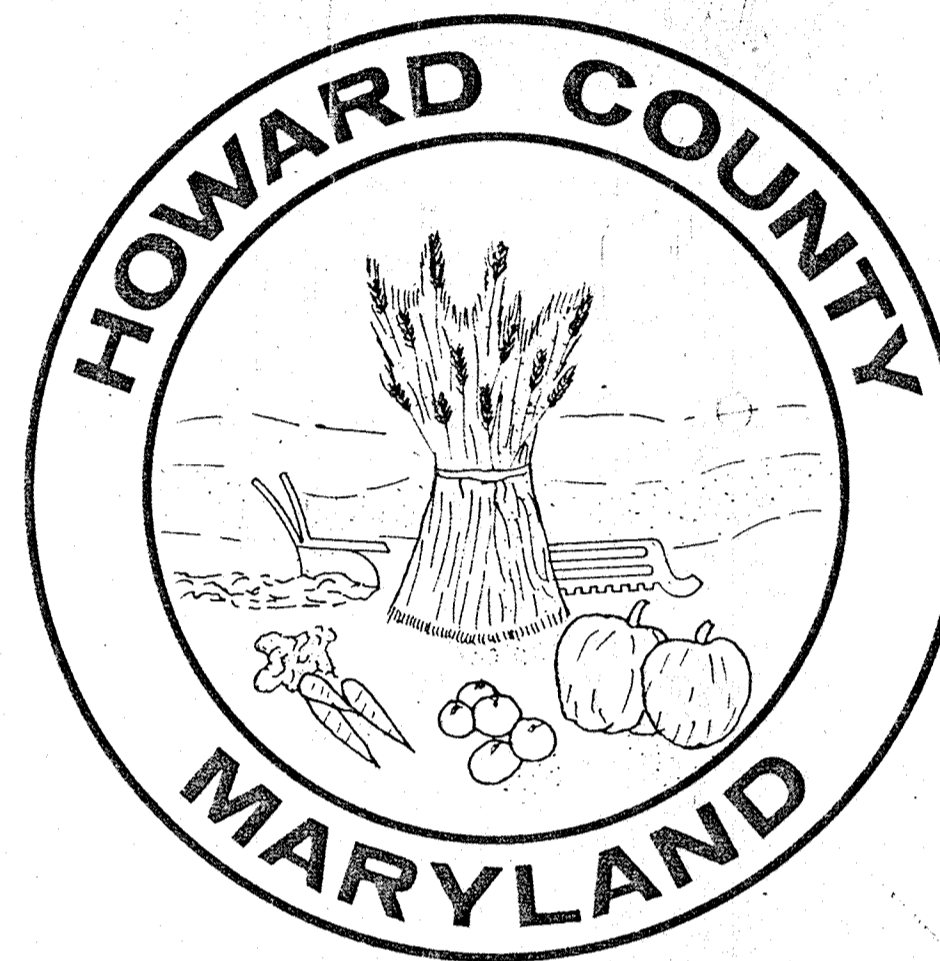


HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS



LOCATION MAP



VICINITY PLAN

SAVAGE WASTEWATER TREATMENT PLANT

ADDITION NO. 3(A)

CONTRACT 527(A)-S

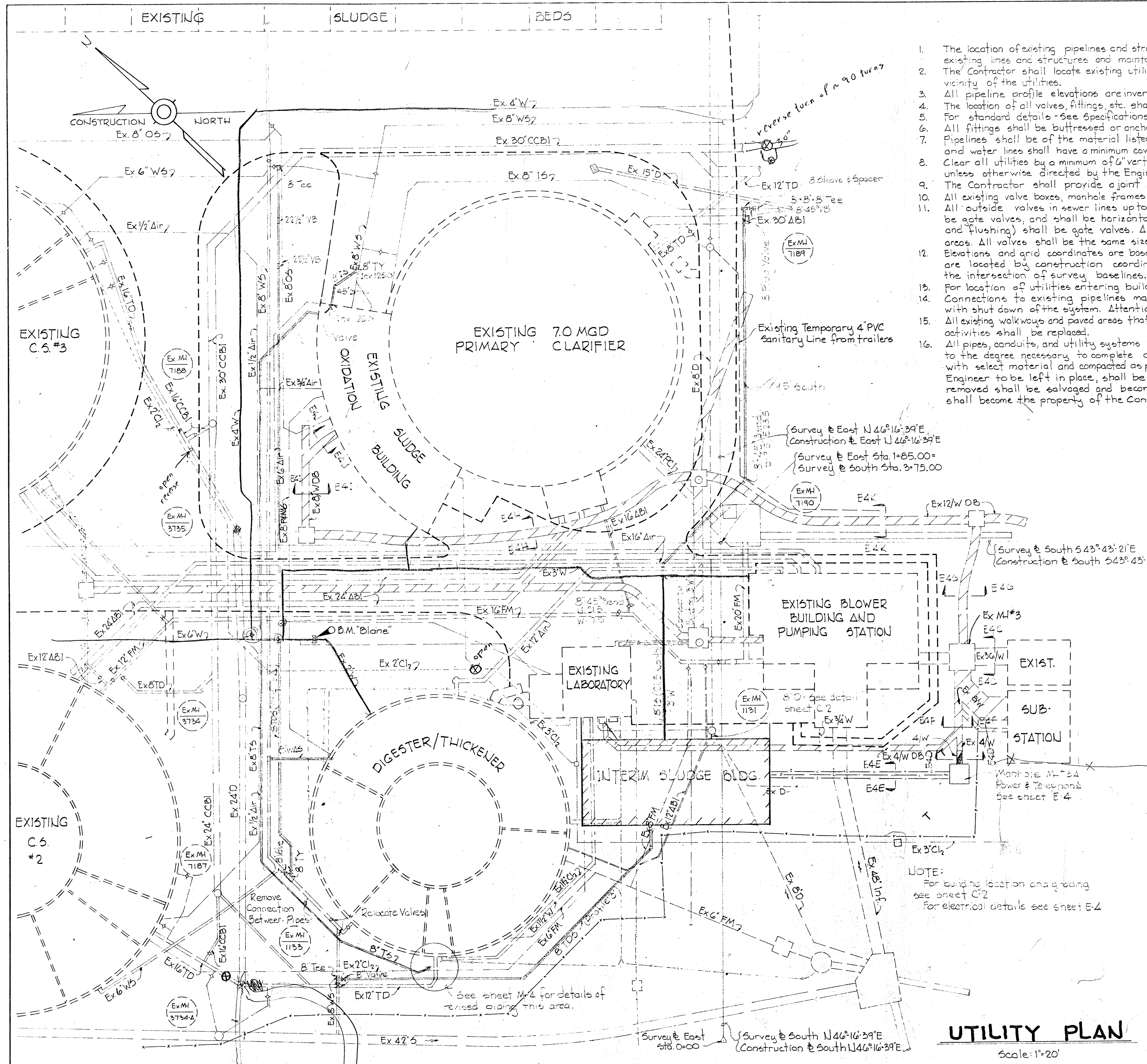
HOWARD COUNTY

WILLIAM O. FILBERT - CHIEF - BUREAU OF ENGINEERING

WHITMAN, REQUARDT & ASSOCIATES - ENGINEERS

KENNETH A. McCORD - PARTNER

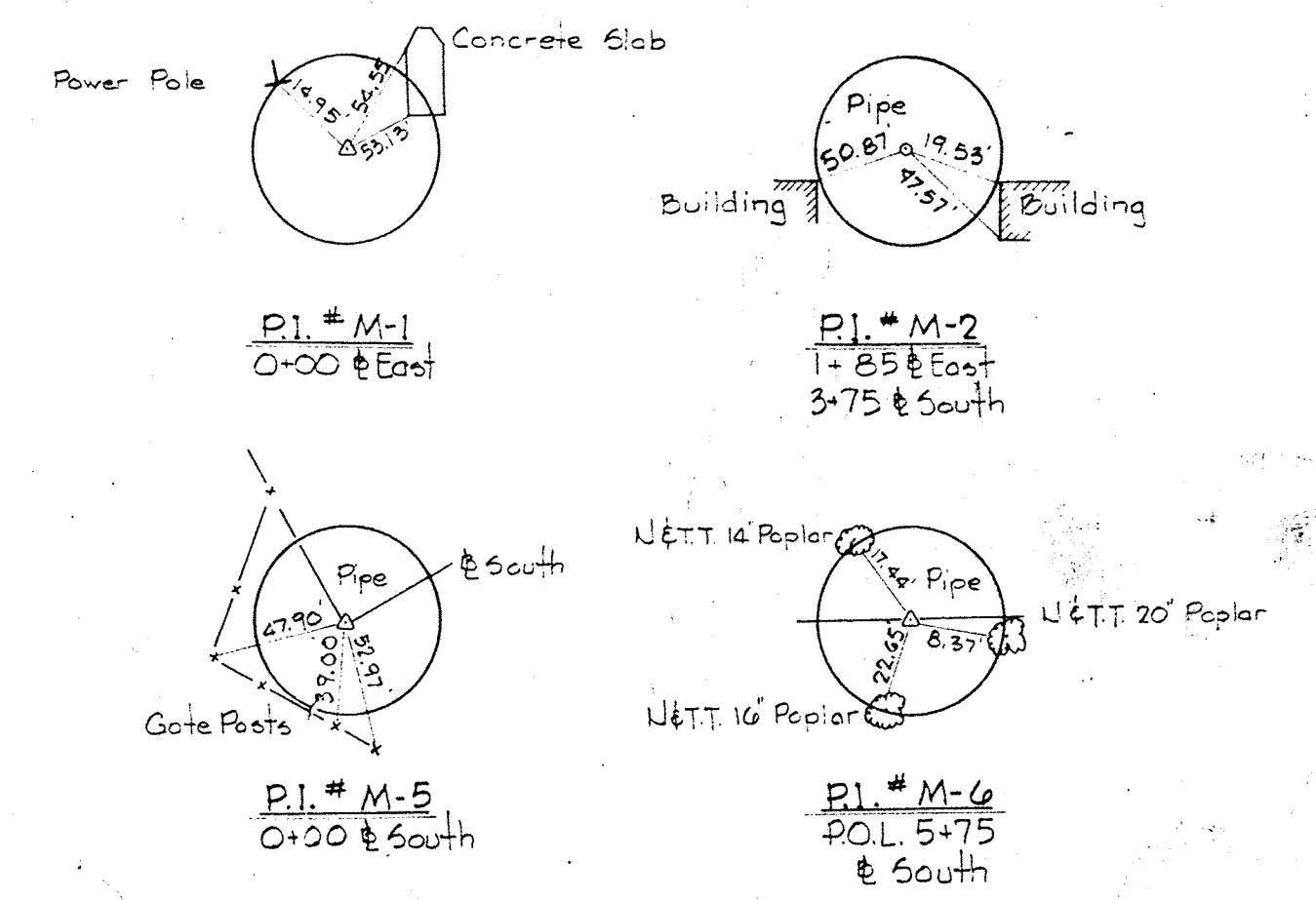
948-653



GENERAL NOTES

- The location of existing pipelines and structures are approximate. The Contractor shall take all necessary precautions to protect existing lines and structures and maintain uninterrupted supply. Any damage incurred shall be repaired immediately.
- The Contractor shall locate existing utilities by test pits a minimum of two weeks in advance of construction operations in the vicinity of the utilities.
- All pipeline profile elevations are invert elevations.
- The location of all valves, fittings, etc. shall be located where shown on the drawings unless otherwise directed by the Engineer. For standard details - See Specifications.
- All fittings shall be buttressed or anchored with concrete or restrained with special approved devices - See Specifications.
- Pipelines shall be of the material listed in the specifications. All pipelines shall have a minimum cover of 2 feet except sewer and water lines shall have a minimum cover of 3 feet unless otherwise shown by profiles or elevations on plans.
- Clear all utilities by a minimum of 6' vertically. All parallel pipe systems shall have 1.5 feet minimum horizontal clearance unless otherwise directed by the Engineer.
- The Contractor shall provide a joint in all exterior loose jointed pipe systems within 2 feet of exterior walls.
- All existing valve boxes, manhole frames and covers and similar appurtenances shall be adjusted to finished grade.
- All outside valves in sewer lines up to and including 12 inch diameter shall be plug valves. All valves larger than 12 inches shall be gate valves, and shall be horizontal or vertical as indicated on profile drawings. All outside valves in waterlines (potable and flushing) shall be gate valves. All buried valves shall have roadway boxes with concrete slabs in all areas other than covered areas. All valves shall be the same size as the pipelines unless otherwise indicated.
- Elevations and grid coordinates are based on the Maryland State System. All structures, buildings, roadways, pipe, centerlines etc. are located by construction coordinates. Zero base for the construction coordinate system is as noted on sheet C-1 @ the intersection of survey baselines.
- For location of utilities entering buildings, see Mechanical and Electrical Drawings.
- Connections to existing pipelines may be made by tapping existing pipelines under pressure or by use of sleeves and spacers with shut down of the system. Attention is directed to the specifications for plant operational requirements while making connections.
- All existing walkways and paved areas that require removal for construction purposes or that are disturbed or damaged by construction activities shall be replaced.
- All pipes, conduits, and utility systems including structures that are designated to be abandoned shall be removed by the Contractor to the degree necessary to complete construction as determined by the Engineer. Voids left by systems removed shall be backfilled with select material and compacted as per the specifications. Systems that are designed to be abandoned and allowed by the Engineer to be left in place, shall be permanently capped or sealed, watertight at each end. Materials and appurtenances removed shall be salvaged and become the property of the County unless otherwise directed by the Engineer, then they shall become the property of the Contractor and removed from the site.

P.I. REFERENCES



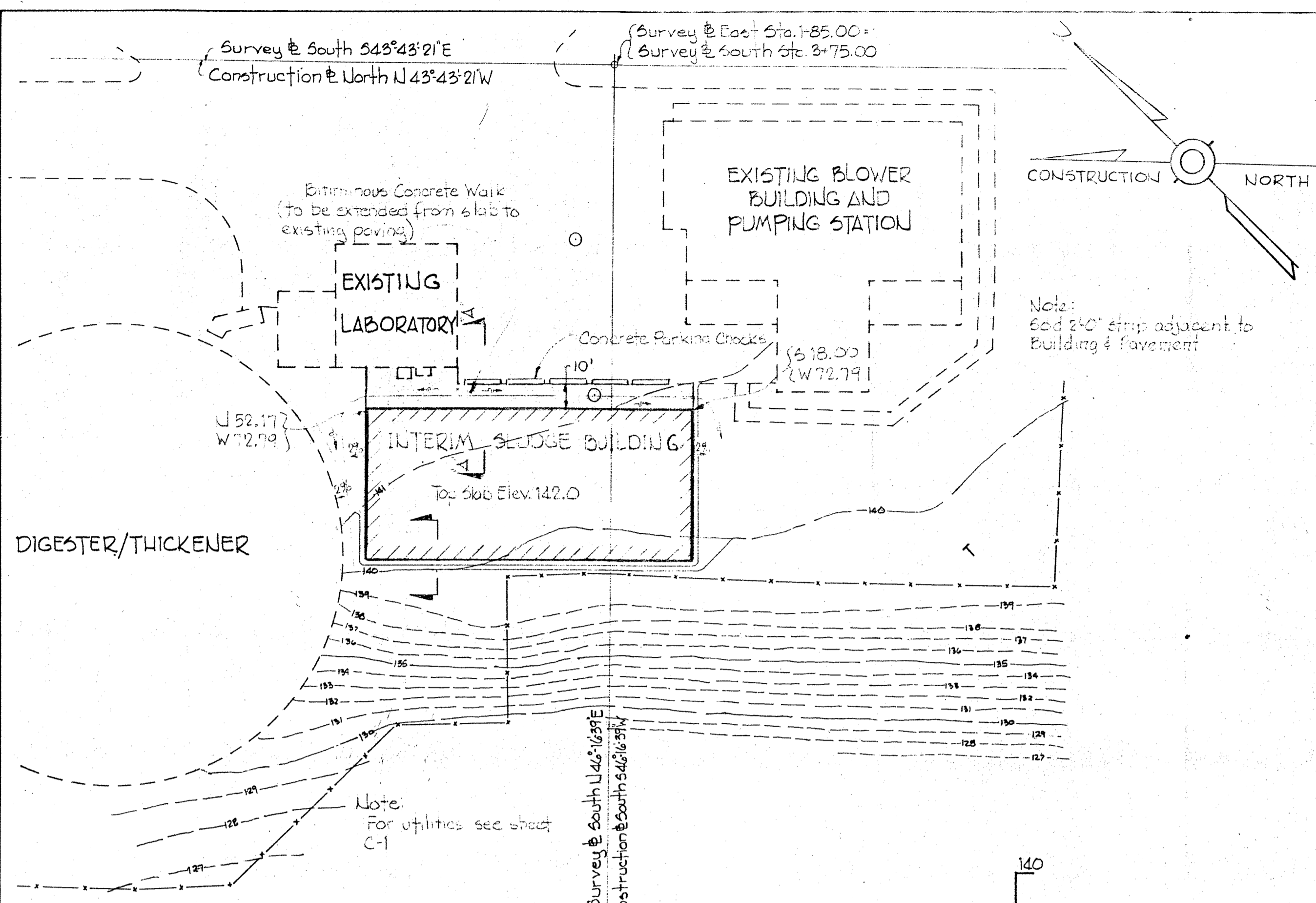
NOTE:
 For building location and grading see sheet C-2
 For electrical details see sheet E-4

UTILITY PLAN

Scale: 1"=20'

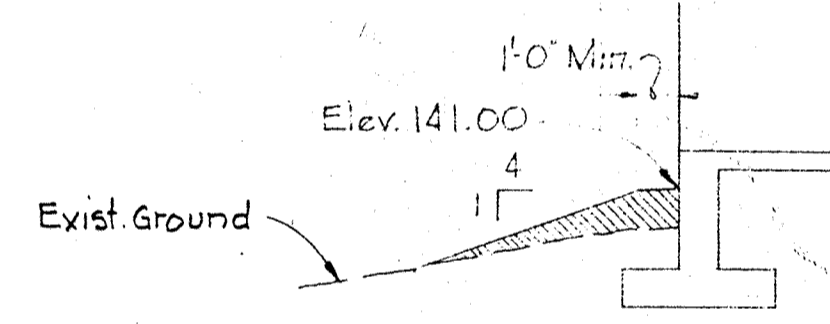
BENCH MARK
 W.R. & A. B.M. "Blaine" Elev. 139.06'
 X-Cut on flange bolt of fire hydrant
 40± Rf. of Sta. 2+25 ± @ South

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>P.P. [Signature]</i> 1-14-77 DIRECTOR OF PUBLIC WORKS - DATE <i>[Signature]</i> 1-14-77 CHIEF-BUREAU OF ENGINEERING - DATE	CONTRACT NO. 527(A)-S	UTILITY PLAN AND REFERENCES	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 3 (A)	DRAWING NO. 2 OF 16 SCALE AS SHOWN SHEET C-1
---	---	-----------------------	--------------------------------	---	--



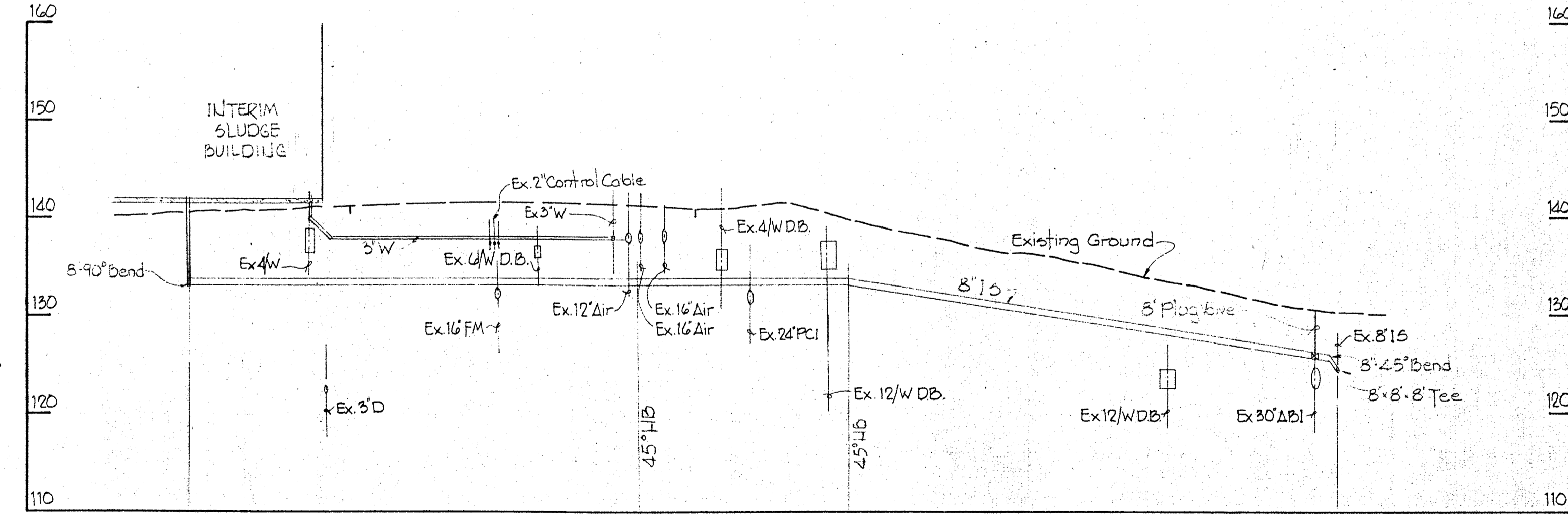
GRADING PLAN

Scale: 1"=20'



TYPICAL SECTION AT SOUTH & WEST WALLS

Scale: 1"=50'

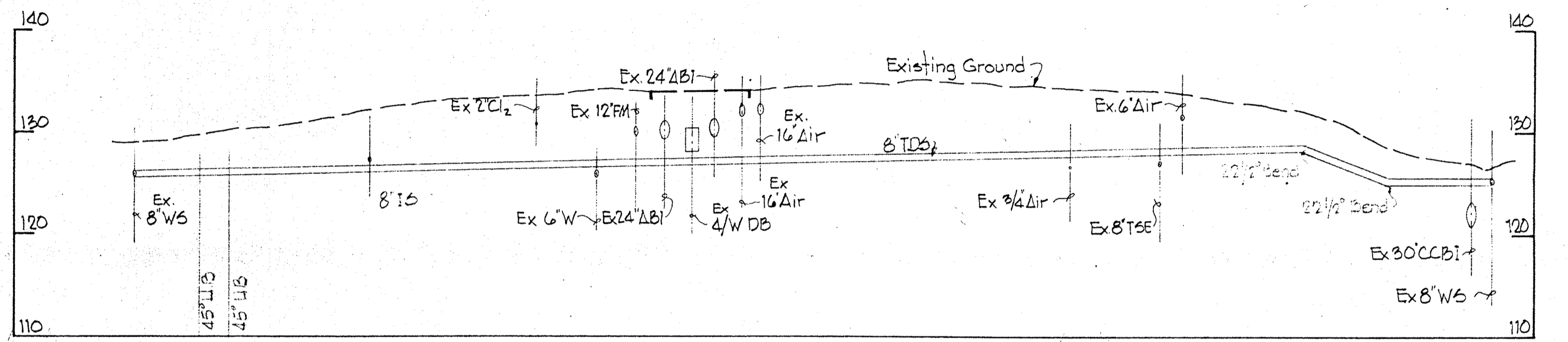


PROFILE of 8" INTERIM SLUDGE and 3" WATER

Scale: Horiz. 1"=20'
Vert. 1"=10'

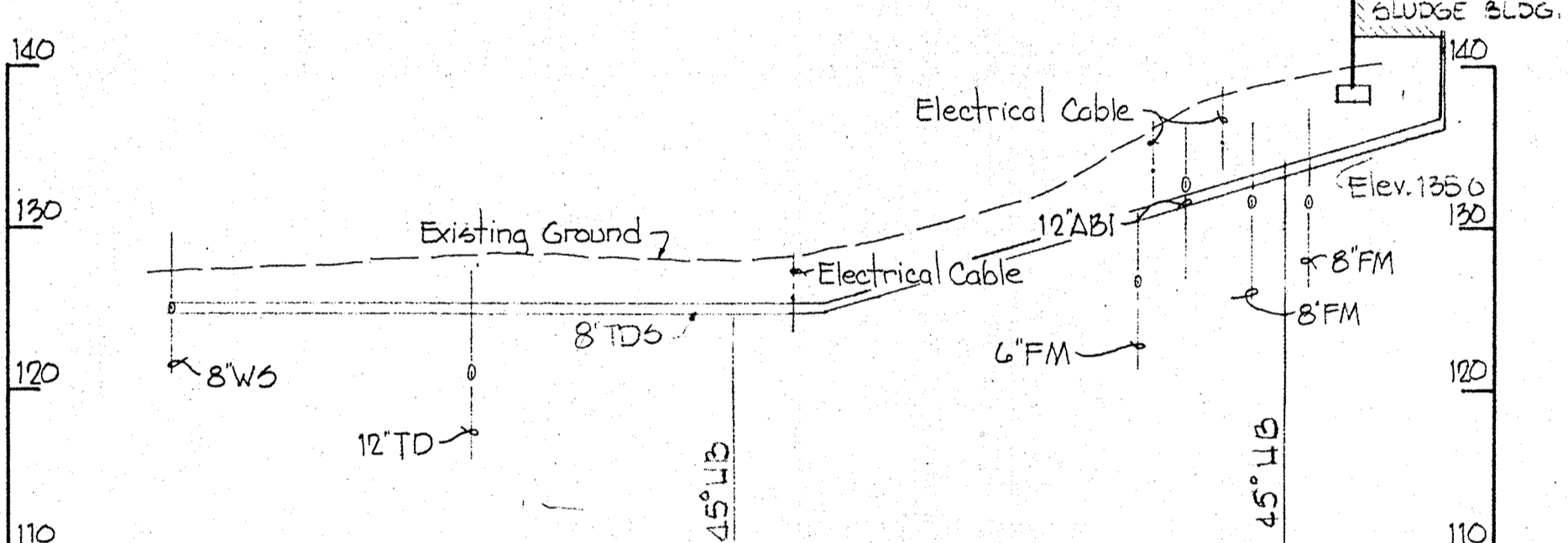
PAVEMENT SECTION

Scale: 1/2"=10'



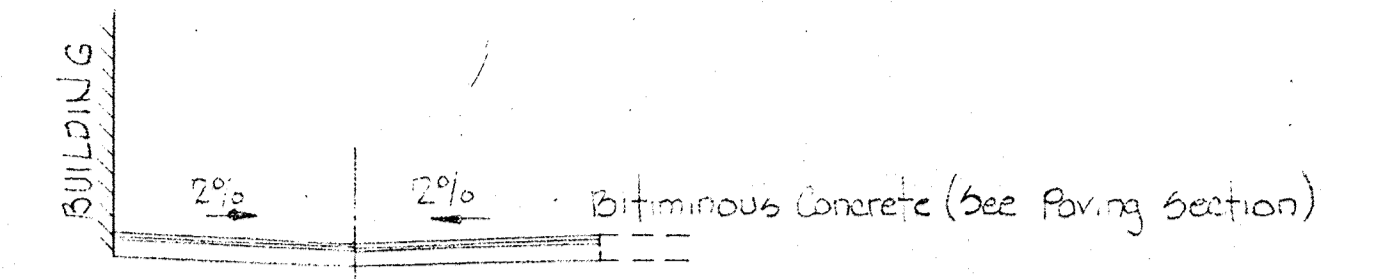
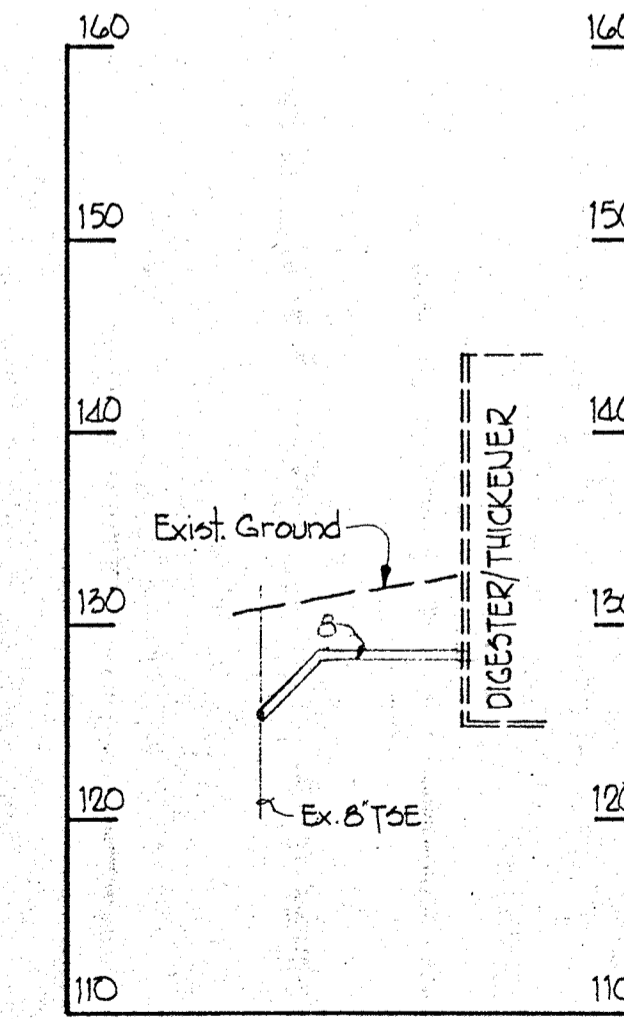
PROFILE "B"

Scale: Horiz. 1"=20'
Vert. 1"=10'



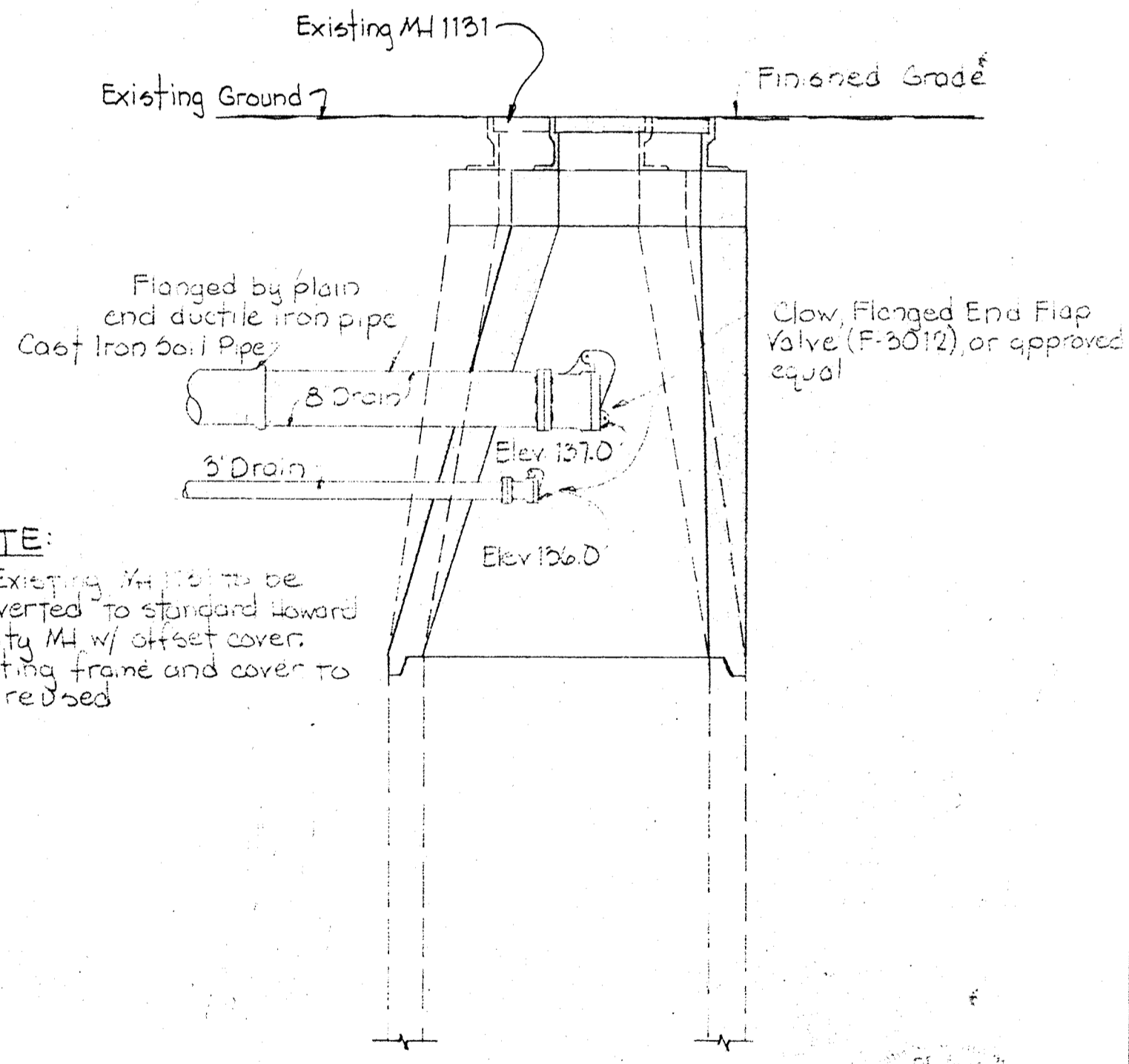
PROFILE 8" WASTE Dig./Thick.

Scale: Horiz. 1"=20'
Vert. 1"=10'



NOTE:

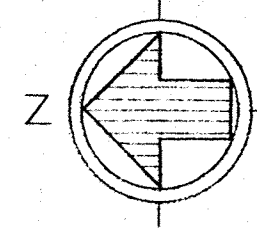
Existing MH 1131 to be converted to standard Howard County MH w/ offset cover. Existing frame and cover to be reduced.



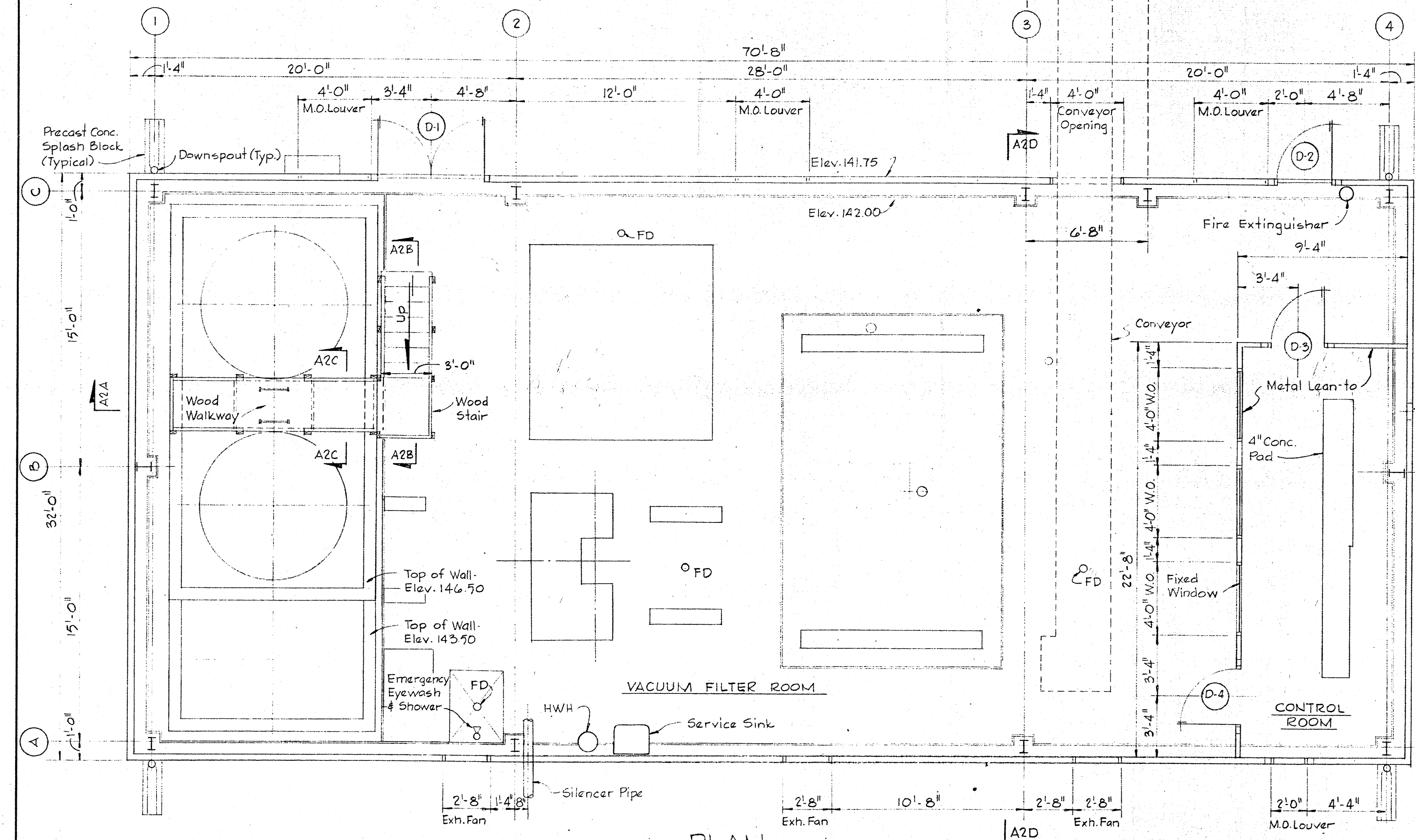
DETAIL OF PLANT DRAIN CONNECTION INTO MANHOLE

Scale: 1/2"=10'

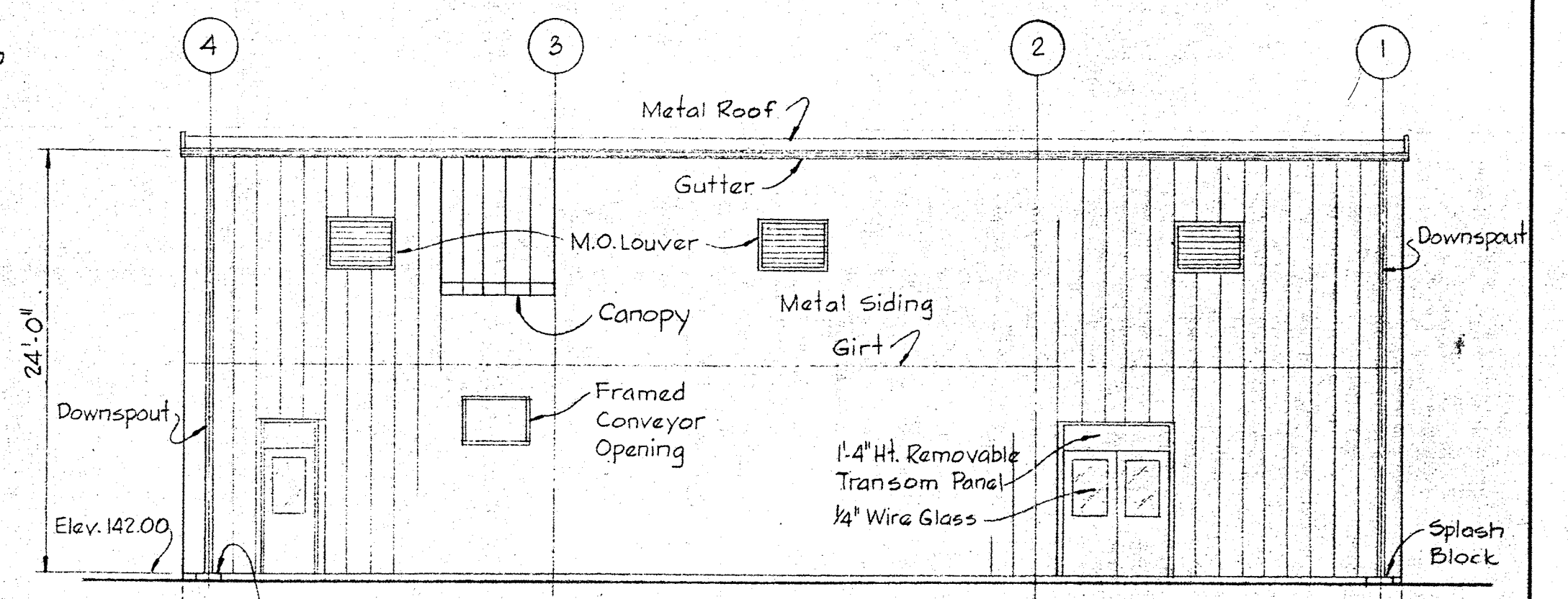
<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 1-14-77 DIRECTOR OF PUBLIC WORKS — DATE</p>	<p>CONTRACT NO. 527(A)-S W. O. 7026-2 CHIEF BUREAU OF ENGINEERING — DATE</p>	<p>GRADING PLAN, PROFILES AND DETAILS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 3 (A)</p>	<p>DRAWING NO. 3 OF 16 SCALE AS SHOWN</p>
---	---	--	---	---	---



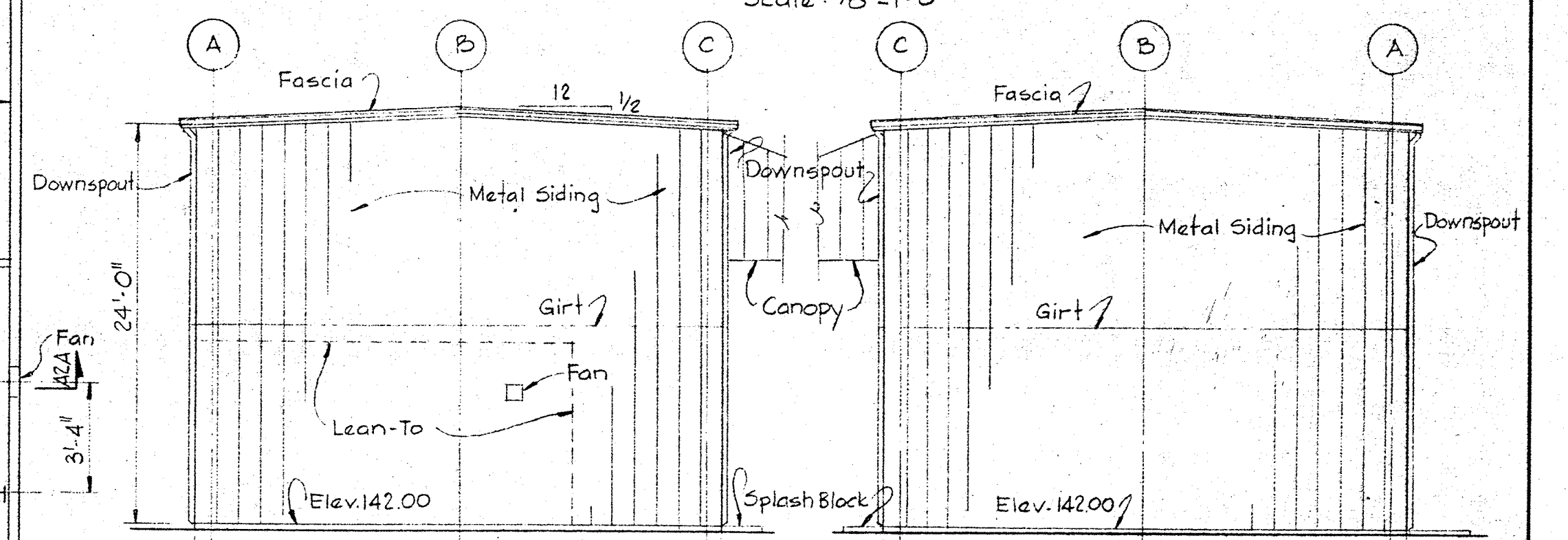
NOTE:
 Conveyor Canopy And Supports Shown
 On The Drawings Shall Be Designed
 And Provided By The Preengineered
 Building Manufacturer.



PLAN
 Scale: 1/4" = 1'-0"

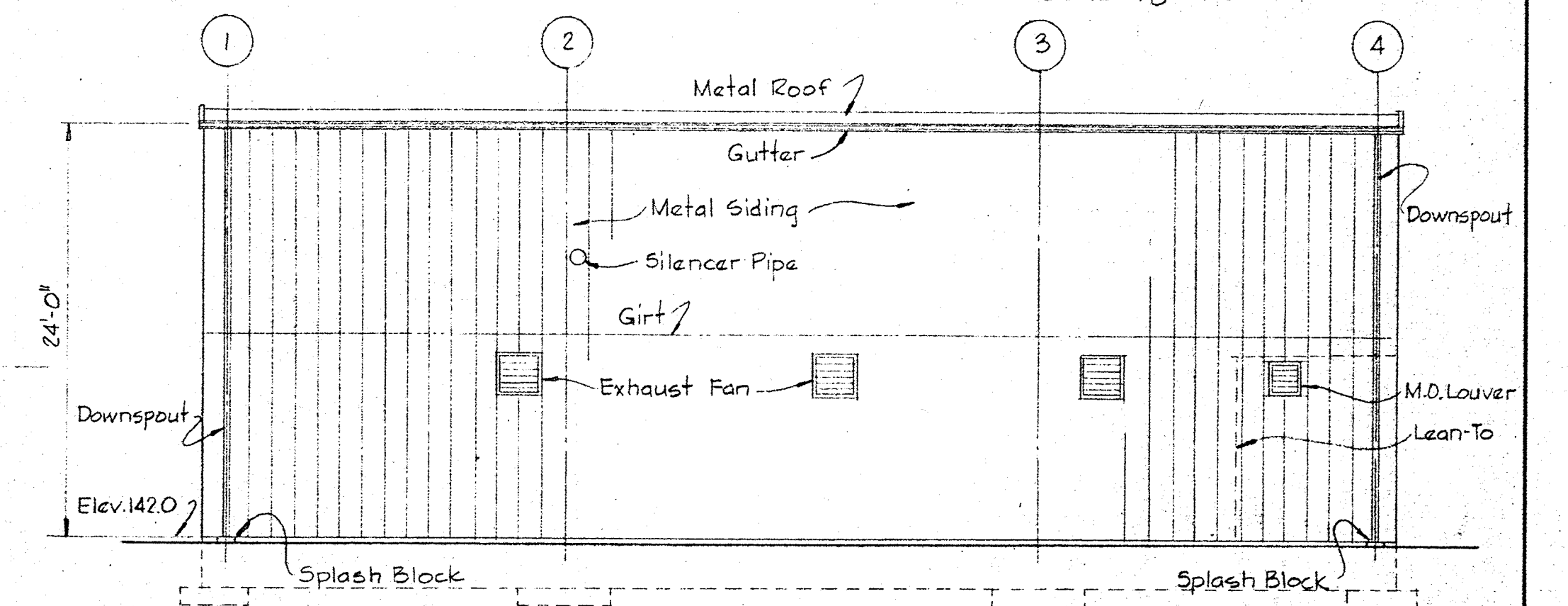


EAST ELEVATION
 Scale: 1/8" = 1'-0"



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

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



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

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 1304 ST. PAUL ST.
 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
P. J. Ryan 1-19-77 *W. O. L. Hest* 1-19-77
 DIRECTOR OF PUBLIC WORKS - DATE CHIEF BUREAU OF ENGINEERING - DATE

CONTRACT NO. 527(A)-S

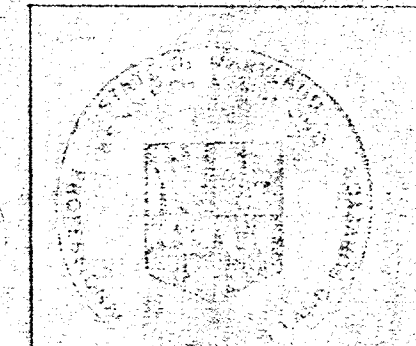
PLAN & ELEVATIONS

SAVAGE WASTEWATER
 TREATMENT PLANT ADDITION NO. 3(A)

DRAWING
 NO. 4
 OF 16

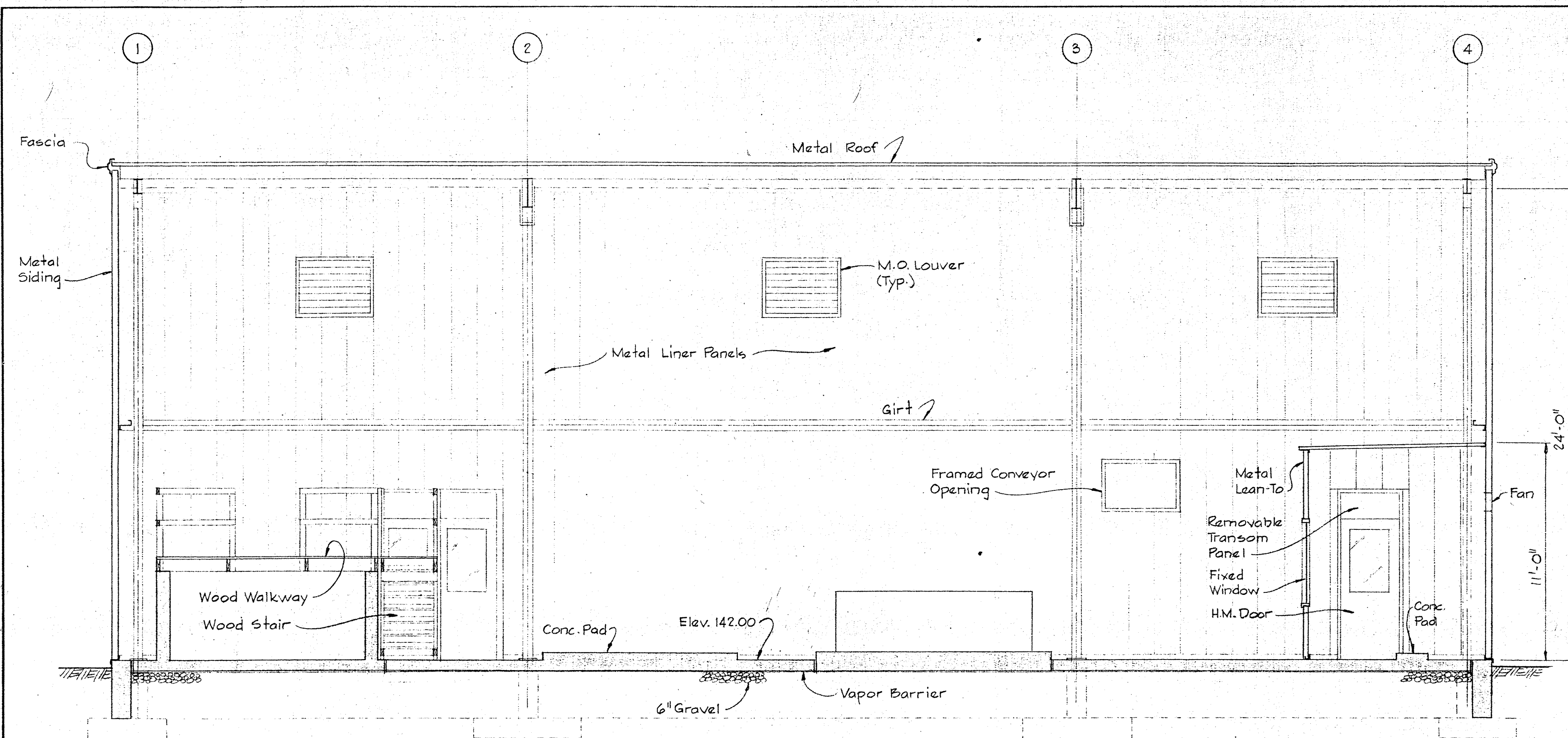
SCALE
 AS
 SHOWN

W. O. 7026-2

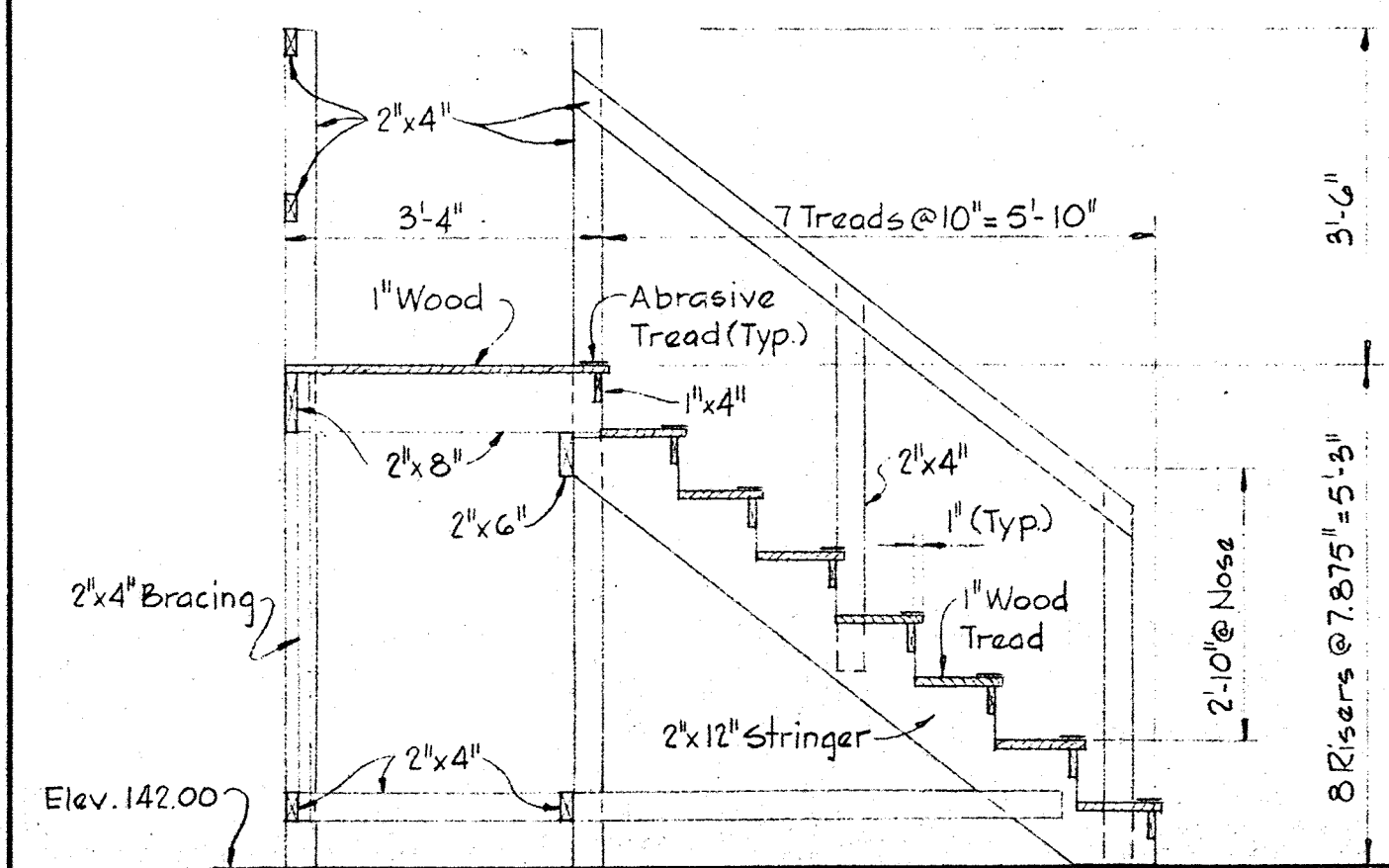


SHEET A-1

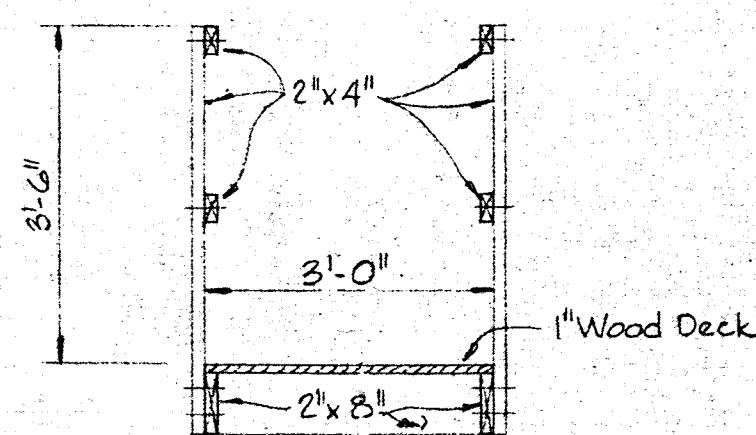
BRUNING 44510 18392



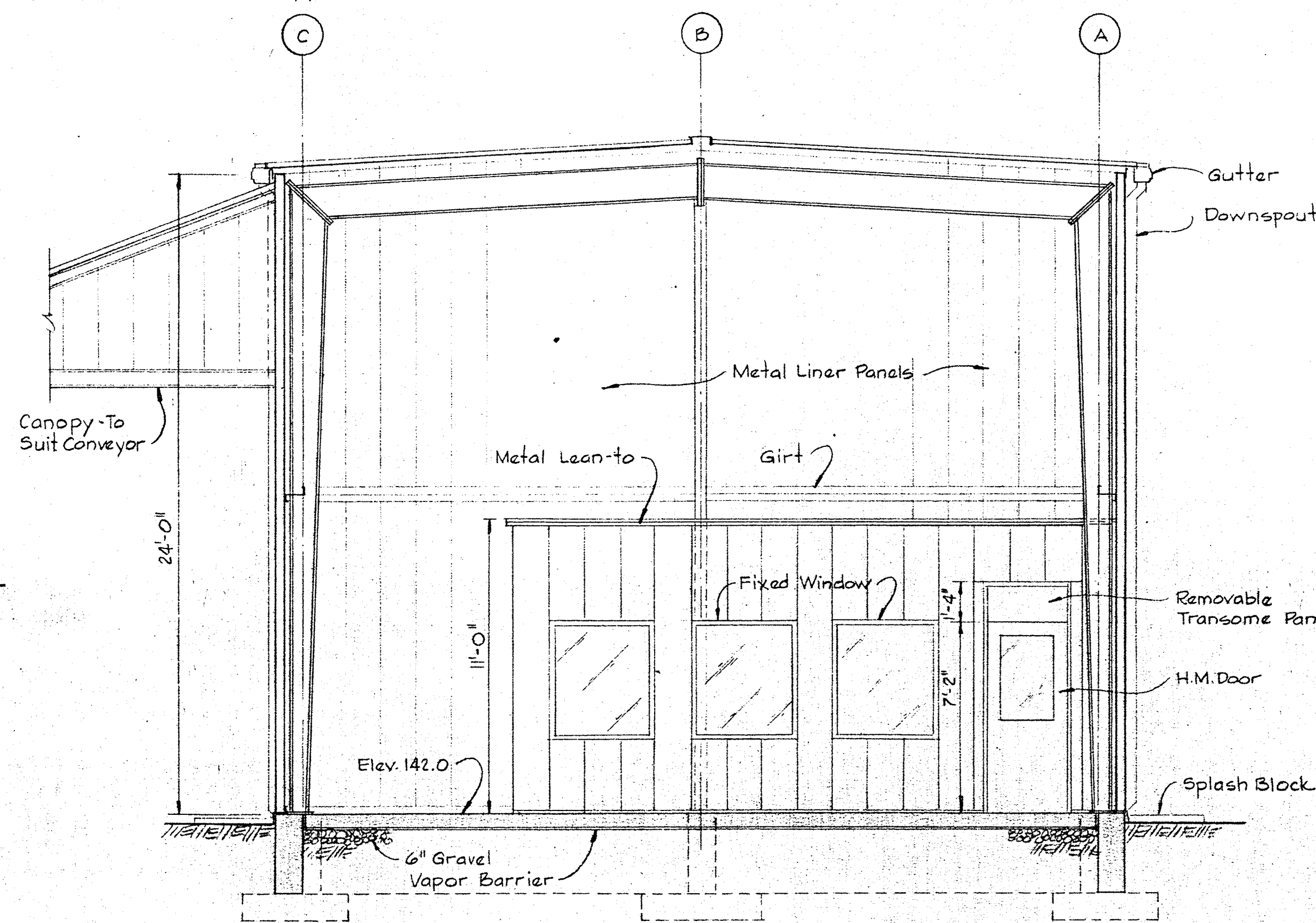
SECTION A2A/A1
Scale: 1/4" = 1'-0"



SECTION A2B/A1
Scale: 1/2" = 1'-0"



SECTION A2C/A1
Scale: 1/2" = 1'-0"



SECTION A2D/A1
Scale: 1/4" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
1-1977
DIRECTOR OF PUBLIC WORKS - DATE

CONTRACT NO. 527(A)-S

SECTIONS & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 3(A)

DRAWING
NO. 5
OF 16

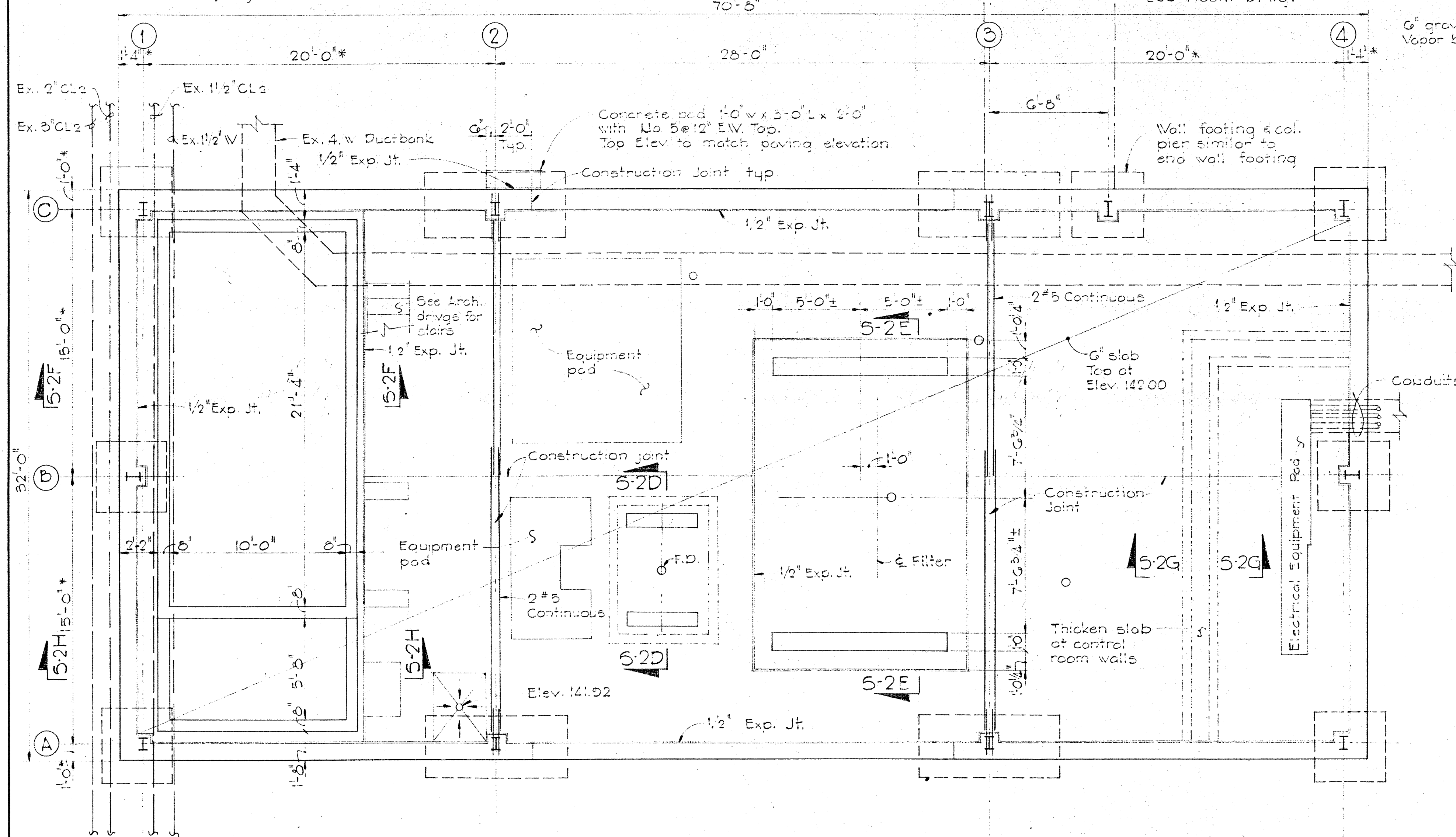
SCALE
AS
SHOWN

W. O. 7026-2

SHEET A-2

NOTES:

1. For footing details see drawing 62
2. Dimensions marked * to suit building furnished
3. Existing utilities shown for the convenience of the Contractor only. Exact size, number, location, and depth shall be verified by the Contractor before beginning excavation
4. Provide 1" sleeves in grade beams to allow existing utilities to pass thru.



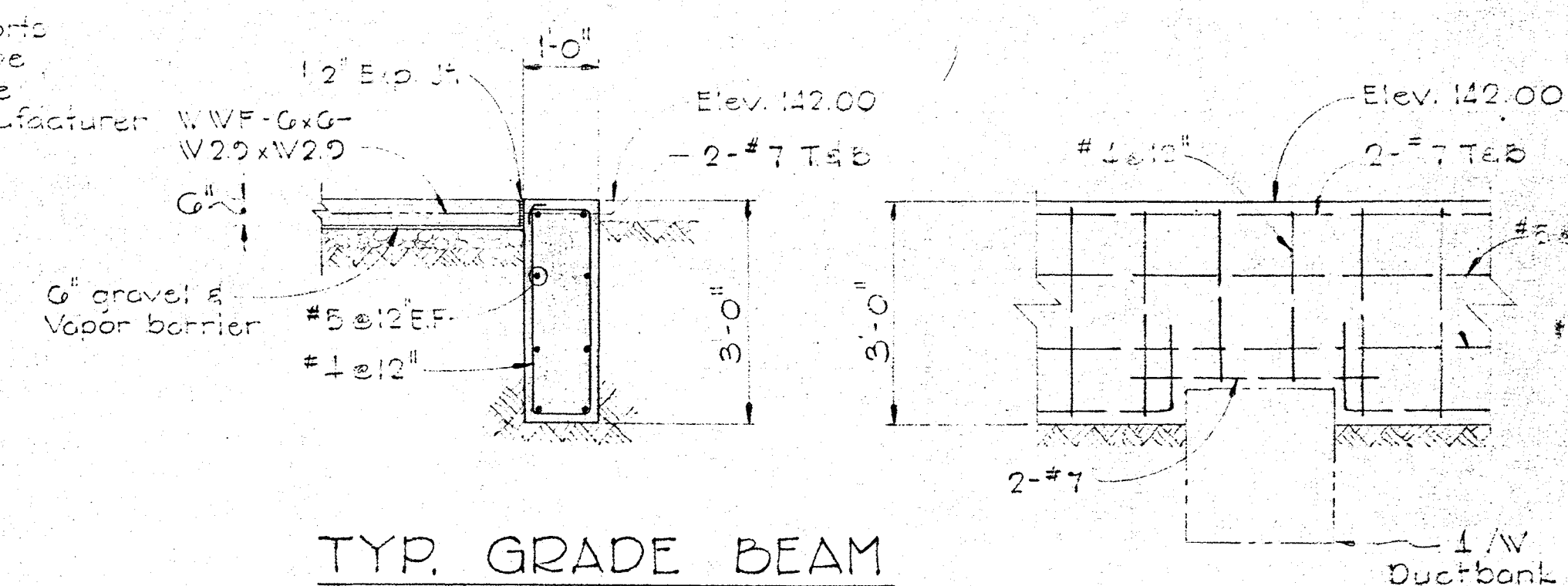
FOUNDATION PLAN
Scale: 1/2"=1'-0"

FOUNDATION NOTES

1. All excavations shall be inspected and approved by the Engineer before placing any gravel, crushed stone and/or concrete.
2. Any excavation below the elevation of the crushed stone, gravel or concrete shall be filled with compacted crushed stone or gravel.
3. For Mechanical and Electrical work to be incorporated in foundation work, see Mechanical and Electrical drawings.
4. All foundations have been designed for a maximum soil capacity of 1500 p.s.f.
5. All excavations shall be kept dry. Water shall not be allowed to stand in excavations.
6. Bottom of excavations, where indicated, shall receive a minimum of 6" of well compacted crushed stone or gravel. Where indicated footings shall rest on earth. See Specifications for other requirements.

CONCRETE NOTES

1. All concrete shall have a minimum compressive strength of 4000 psi at 28 days
2. Reinforced concrete shall be detailed and constructed in accordance with the current A.C.I. Specification (218-17). Concrete has been designed by the alternate design method.
3. All reinforcing shall conform to ASTM Specification G10.20 with grades as follows:
Grade 60 - main reinforcement
Grade 40 - stirrups and ties
4. Unless otherwise noted on the drawings, concrete cover for reinforcement shall be as follows:
a. Unformed concrete, bottom bars in footings and slabs on earth, gravel or crushed stone - 3"
7. A layer of vapor barrier shall be placed on crushed stone or gravel before any concrete is poured.



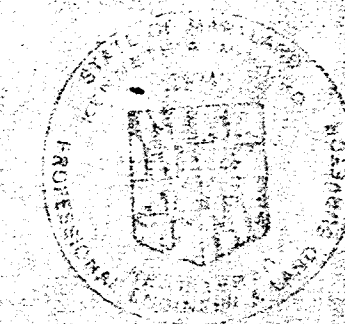
TYP. GRADE BEAM
Scale: 1/2"=1'-0"

GRADE BEAM ELEVATION AT DUCTBANK
Scale: 1/2"=1'-0"

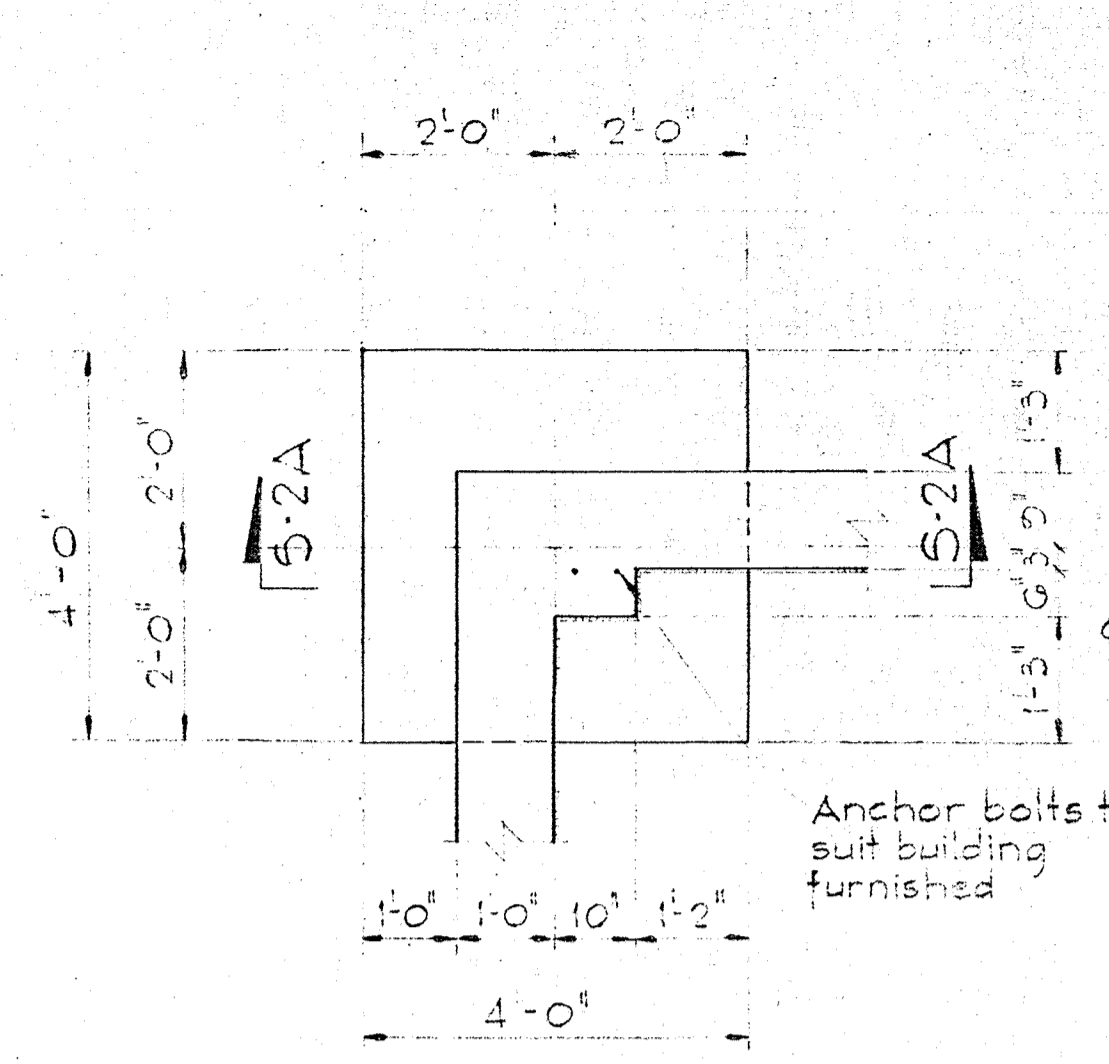
5. All exposed concrete edges shall be chamfered 3/4" unless otherwise noted
6. The Contractor shall submit shop details of reinforcing steel before proceeding with fabrication.
7. Reinforcing shall be detailed in accordance with ACI 318-74, Manual of Standard Practice for Detailing Reinforced Concrete Structures except where shown otherwise.
8. All splices for reinforcing bars not dimensioned on the drawings shall class C. Horizontal bars in beams and walls shall be detailed as top bars
9. Concrete slabs and walls shall be poured between indicated joints allowing a minimum period of 2 days to elapse between adjacent pours.
10. Construction joints shall be as detailed on the drawings and no additional joints shall be used nor any omitted except by written authorization of the Engineer.
11. Anchor bolts and equipment supports shall be sized and located as required for suit equipment furnished
12. See Civil, Mechanical and Electrical drawings for all embedded items, such as sleeves, anchors, electrical conduits, pipes, etc., which interfere with concrete construction.

DESIGN LOADS

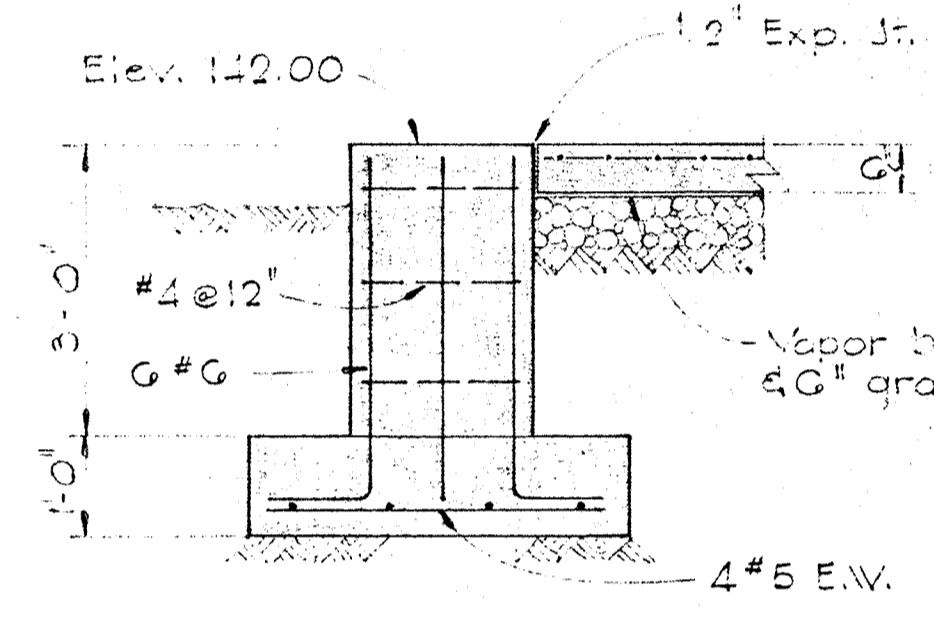
- Dead Loads - actual weight of structure and equipment
- Live Loads - walkways and platforms - 100 psf
- floor slabs on grade - 500 psf or equipment plus 100 psf or
- roof - 20 psf
- Wind Loads - 20 psf
Ground water and construction water assumed below base of structure
- Flood Level - maximum assumed at Elev. 140.00
- Conveyor - 2000 lb. - Two feet from centerline of high end drum



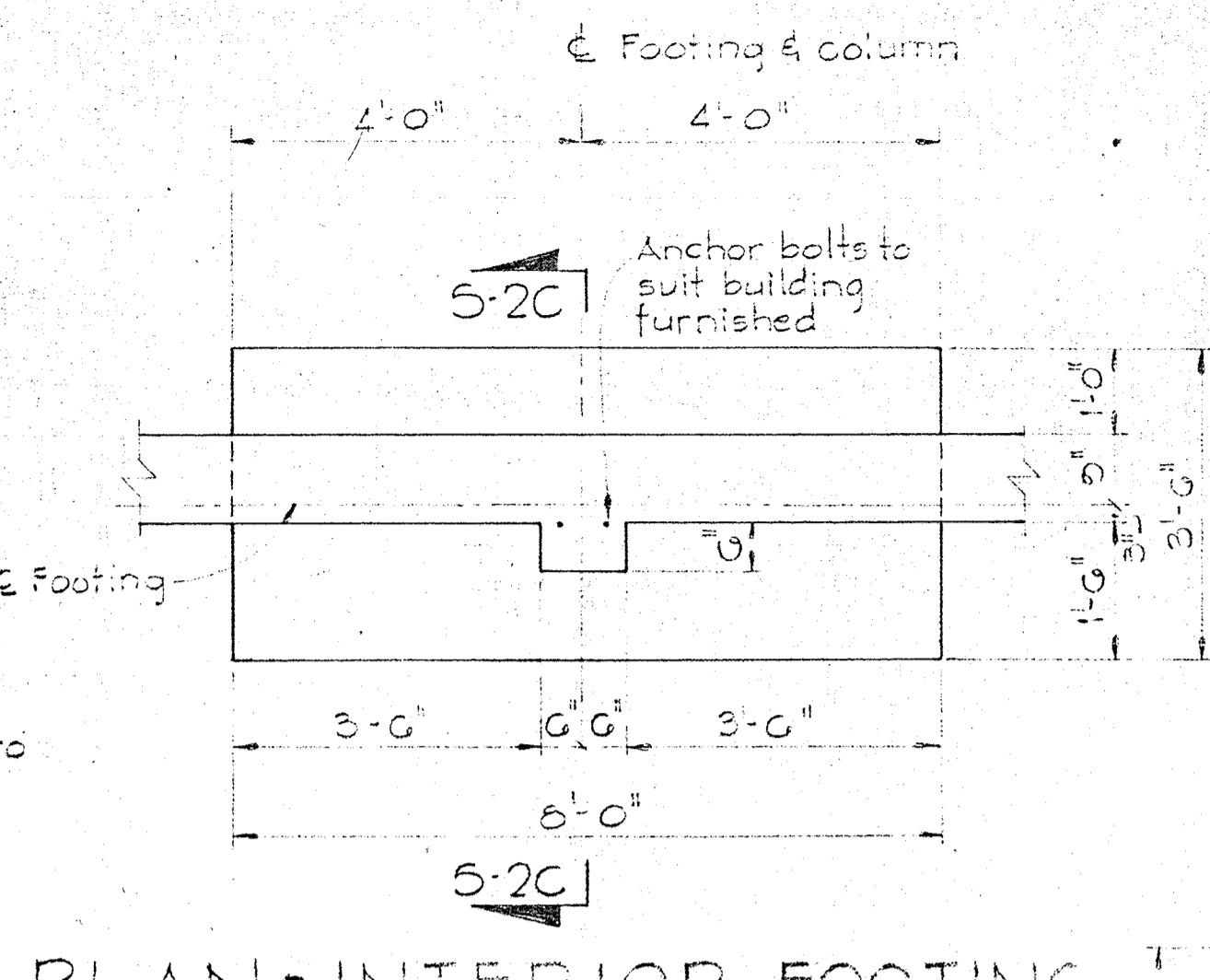
<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 1-19-77 DIRECTOR OF PUBLIC WORKS - DATE</p>	<p>CONTRACT NO. 527(A)-S</p>	<p>PLAN, NOTES & DETAILS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO.3(A)</p>	<p>DRAWING NO. 6 OF 16 SCALE AS SHOWN</p>
--	--	-------------------------------------	---	--	---



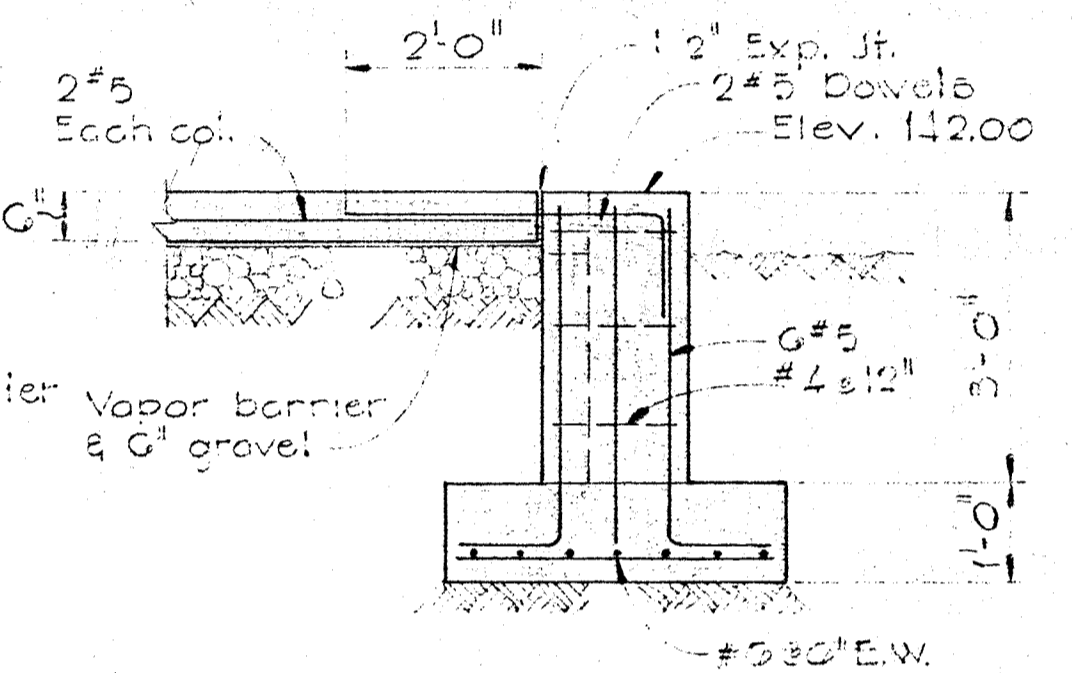
PLAN - CORNER FOOTING
Scale: 1/2"=1'-0"



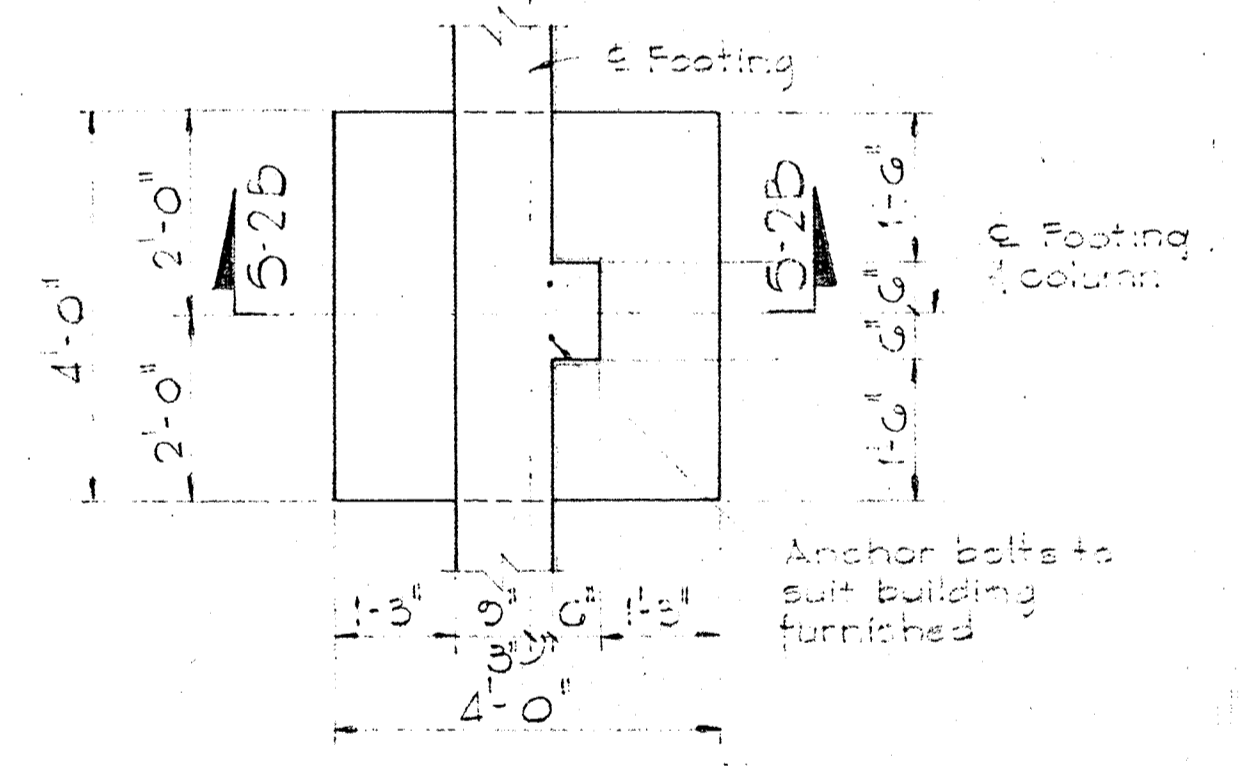
SECTION 5-2A/5-2
Scale: 1/2"=1'-0"



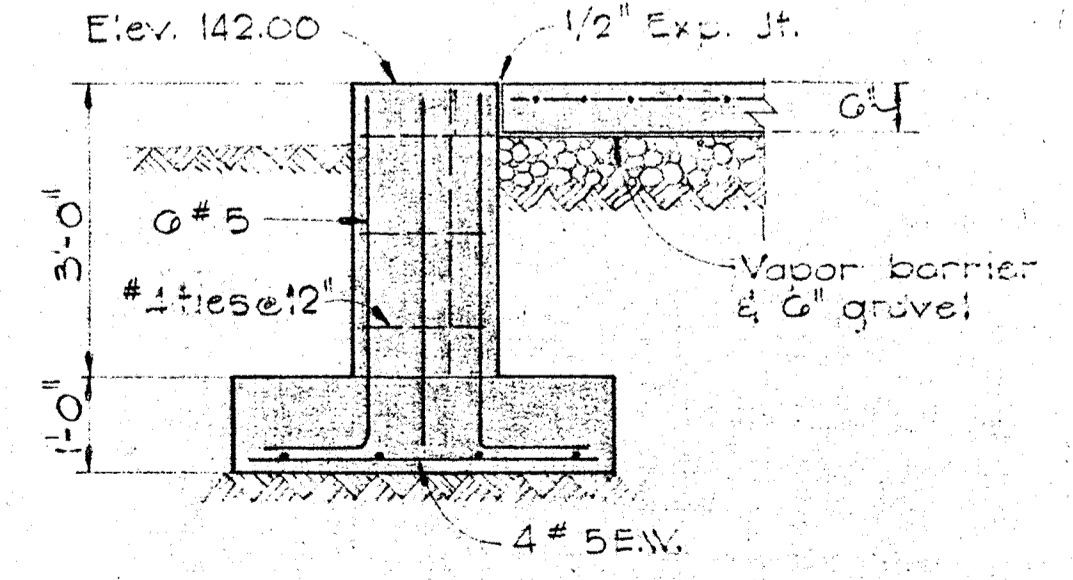
PLAN - INTERIOR FOOTING
Scale: 1/2"=1'-0"



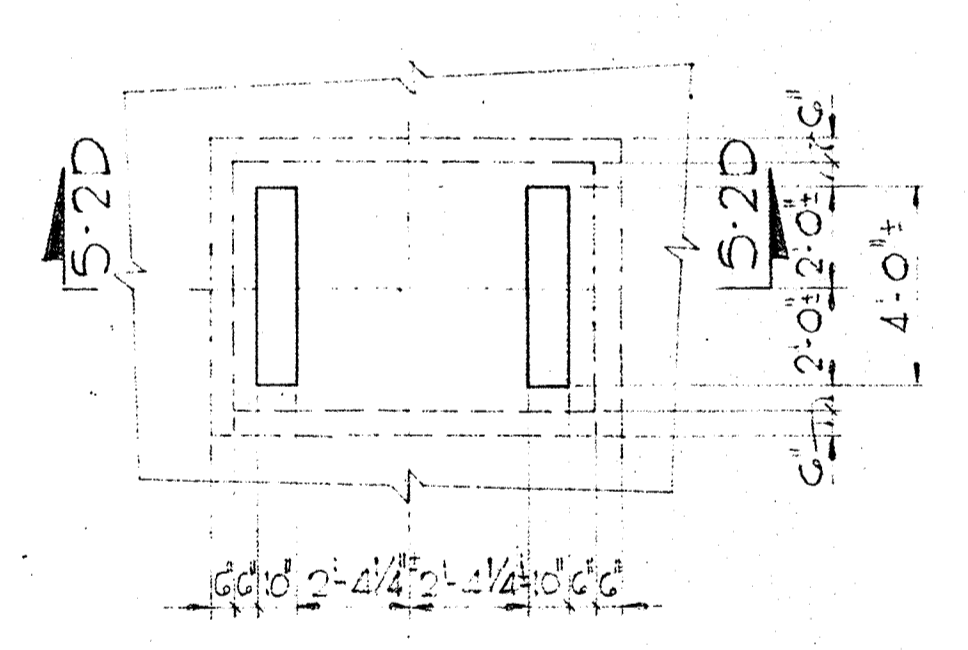
SECTION 5-2C/5-2
Scale: 1/2"=1'-0"



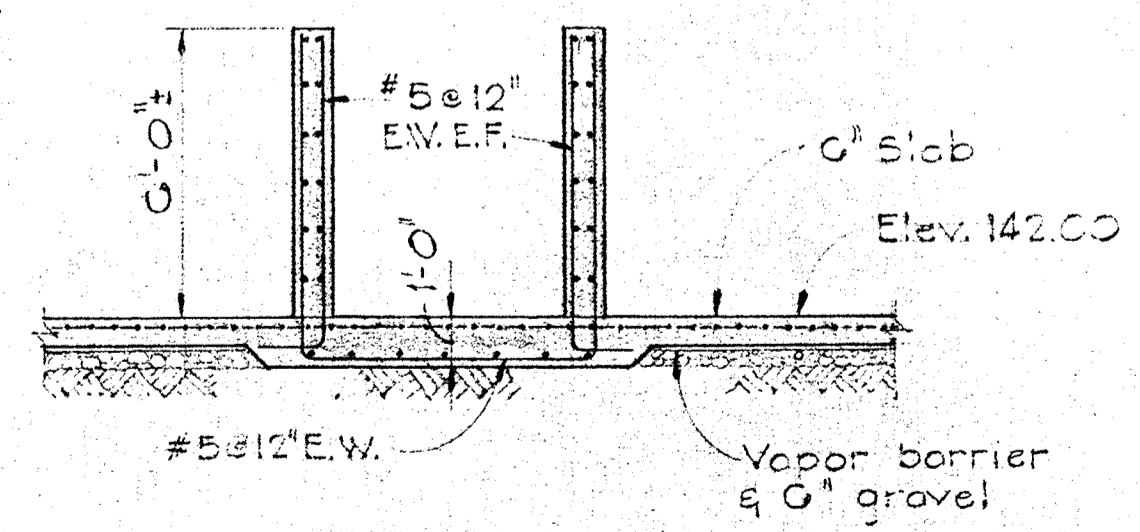
PLAN - END WALL FOOTING
Scale: 1/2"=1'-0"



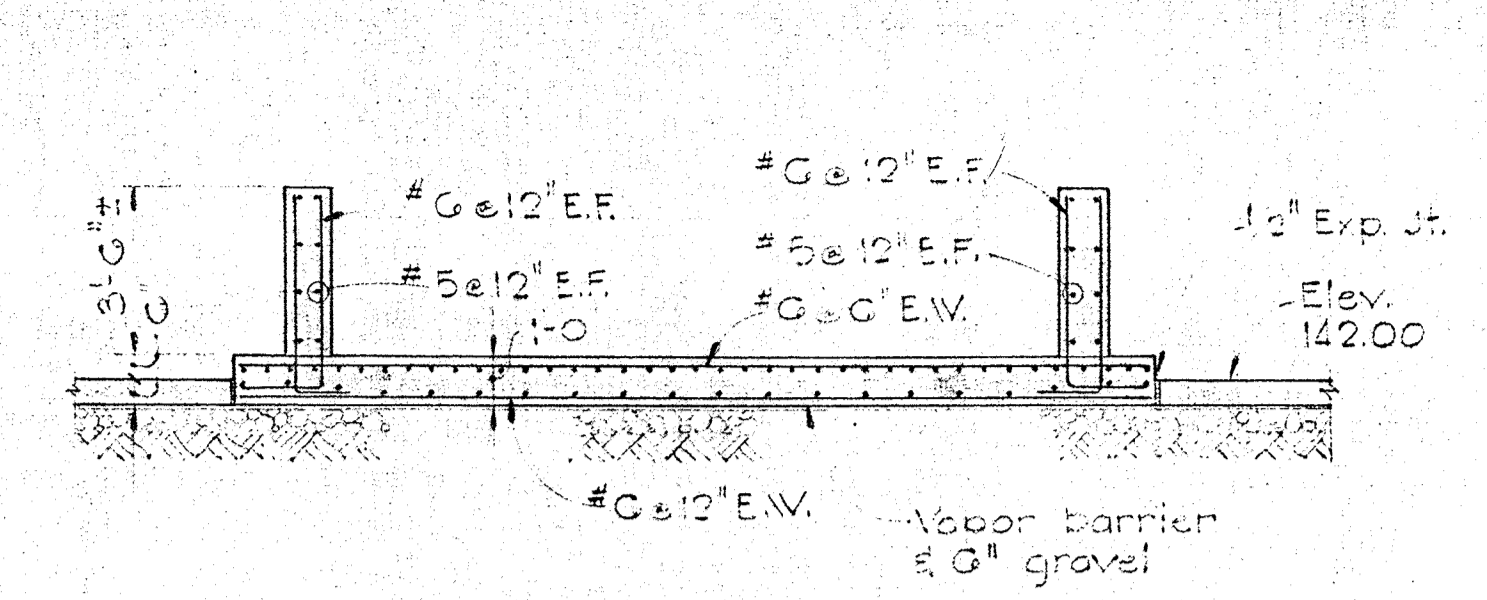
SECTION 5-2B/5-2
Scale: 1/2"=1'-0"



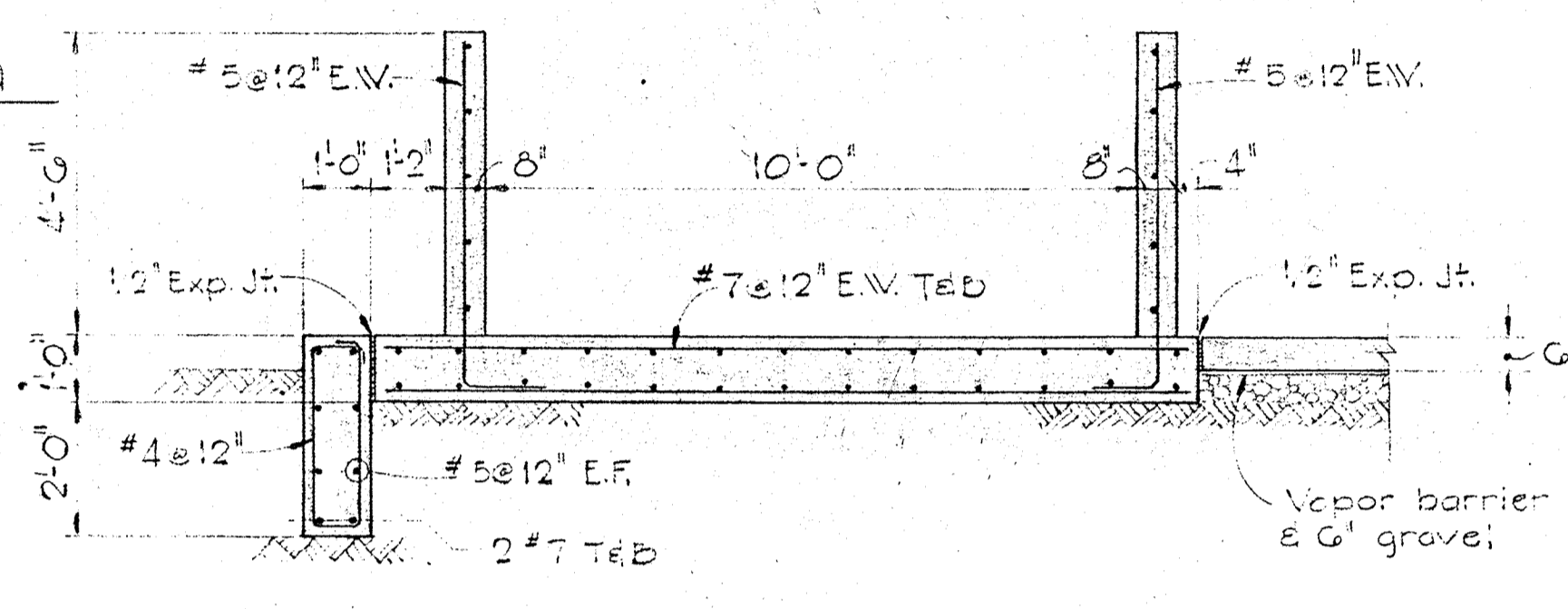
CONDITIONING TANK FOUNDATION PLAN
Scale: 1/4"=1'-0"



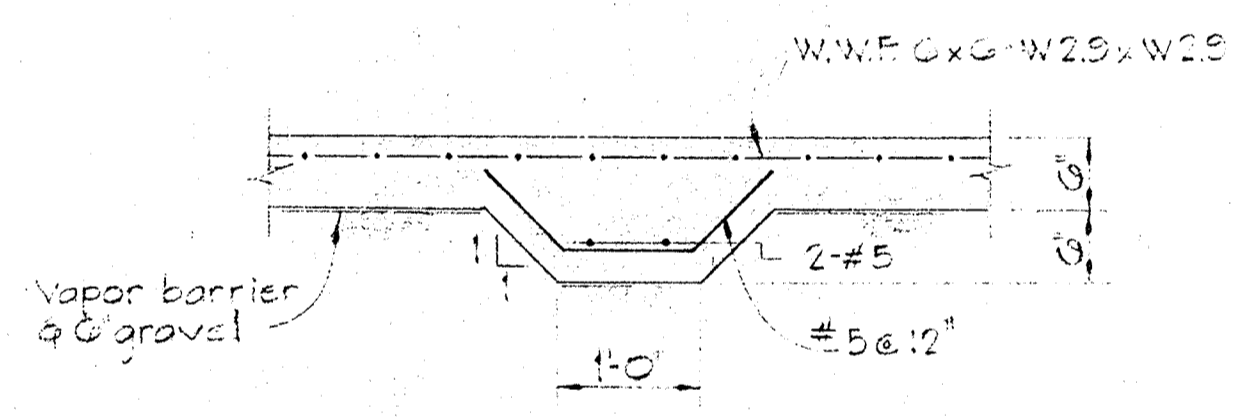
SECTION 5-2D/5-1.5-2
Scale: 1/4"=1'-0"



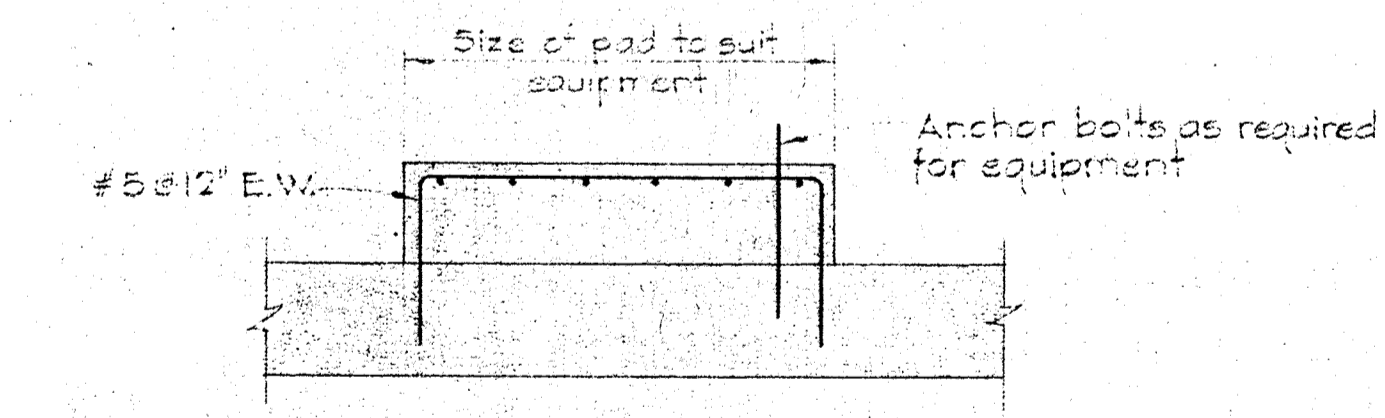
SECTION 5-2E/5-1
Scale: 1/4"=1'-0"



SECTION 5-2F/5-1
Scale: 2/5"=1'-0"

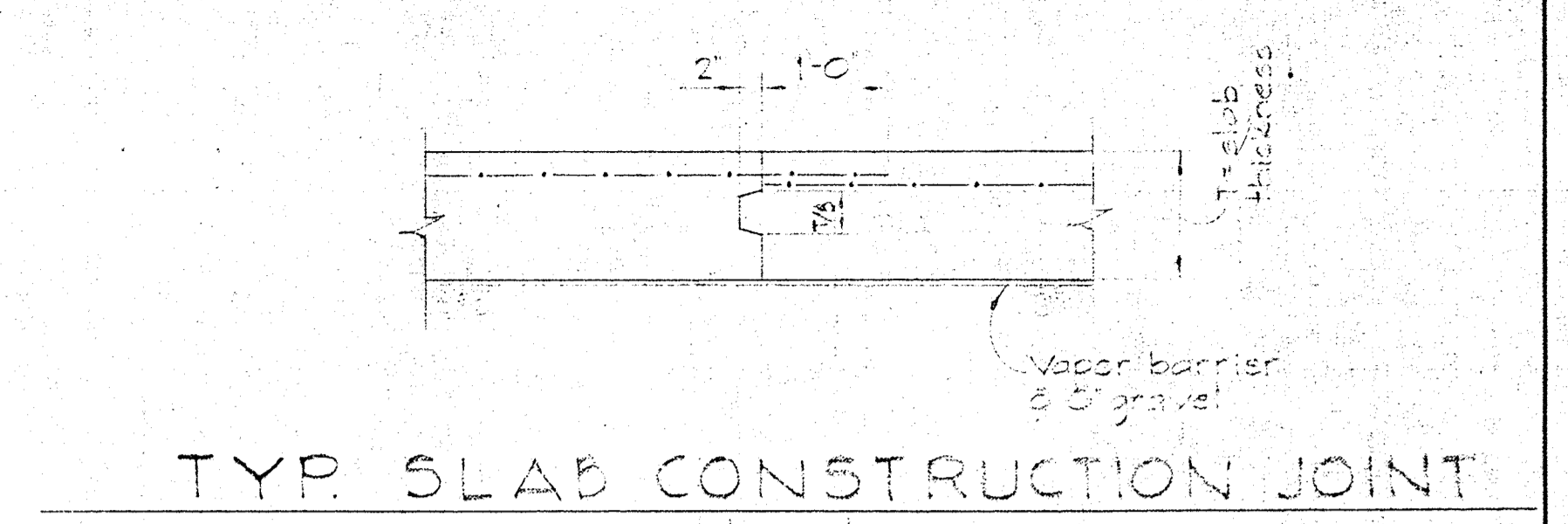


SECTION 5-2G/5-1
Scale: 3/4"=1'-0"

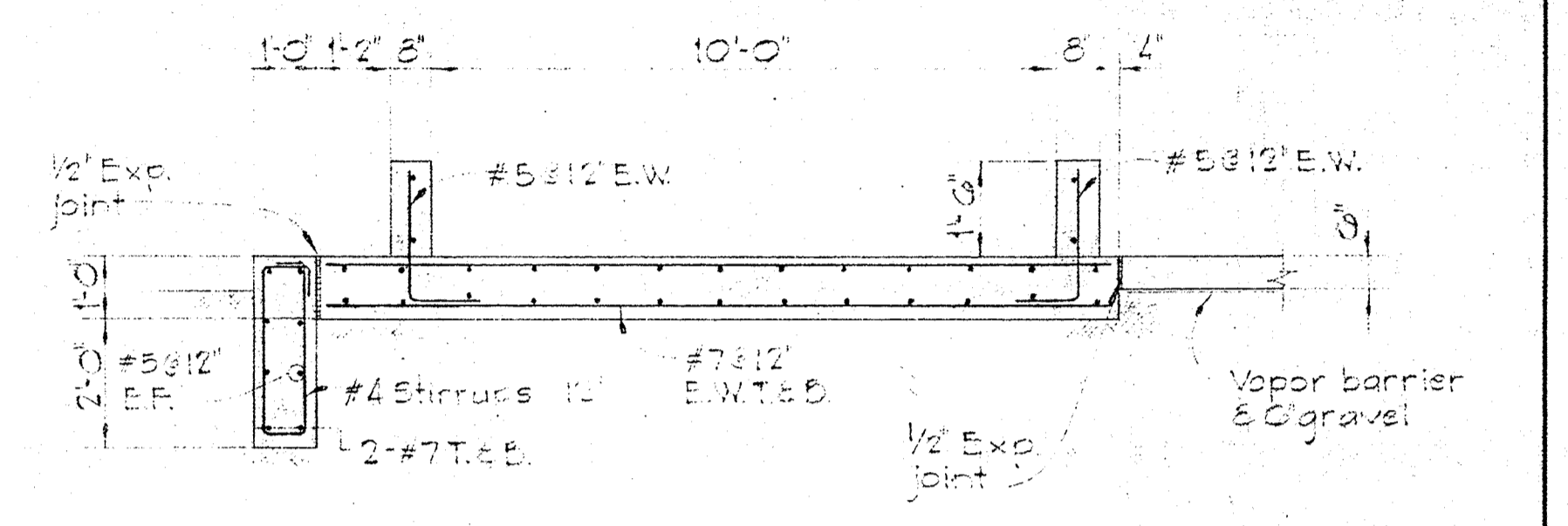


TYPICAL EQUIPMENT PAD
Not to Scale

Note:
See Architectural, Mechanical and Electrical sheets for size and location of pads.



TYP. SLAB CONSTRUCTION JOINT
Not to Scale



SECTION 5-2H/5-1
Scale: 3/8"=1'-0"

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
1-19-77
DIRECTOR OF PUBLIC WORKS - DATE

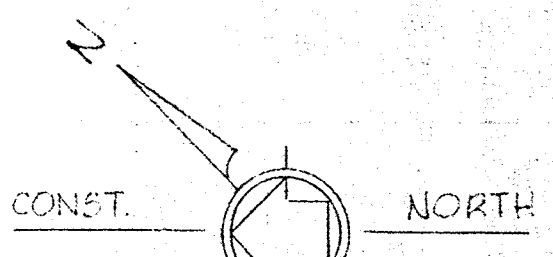
CONTRACT NO. 527(A)-S

PLANS, SECTIONS & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO.3(A)

DRAWING NO. 7 OF 16
SCALE AS SHOWN

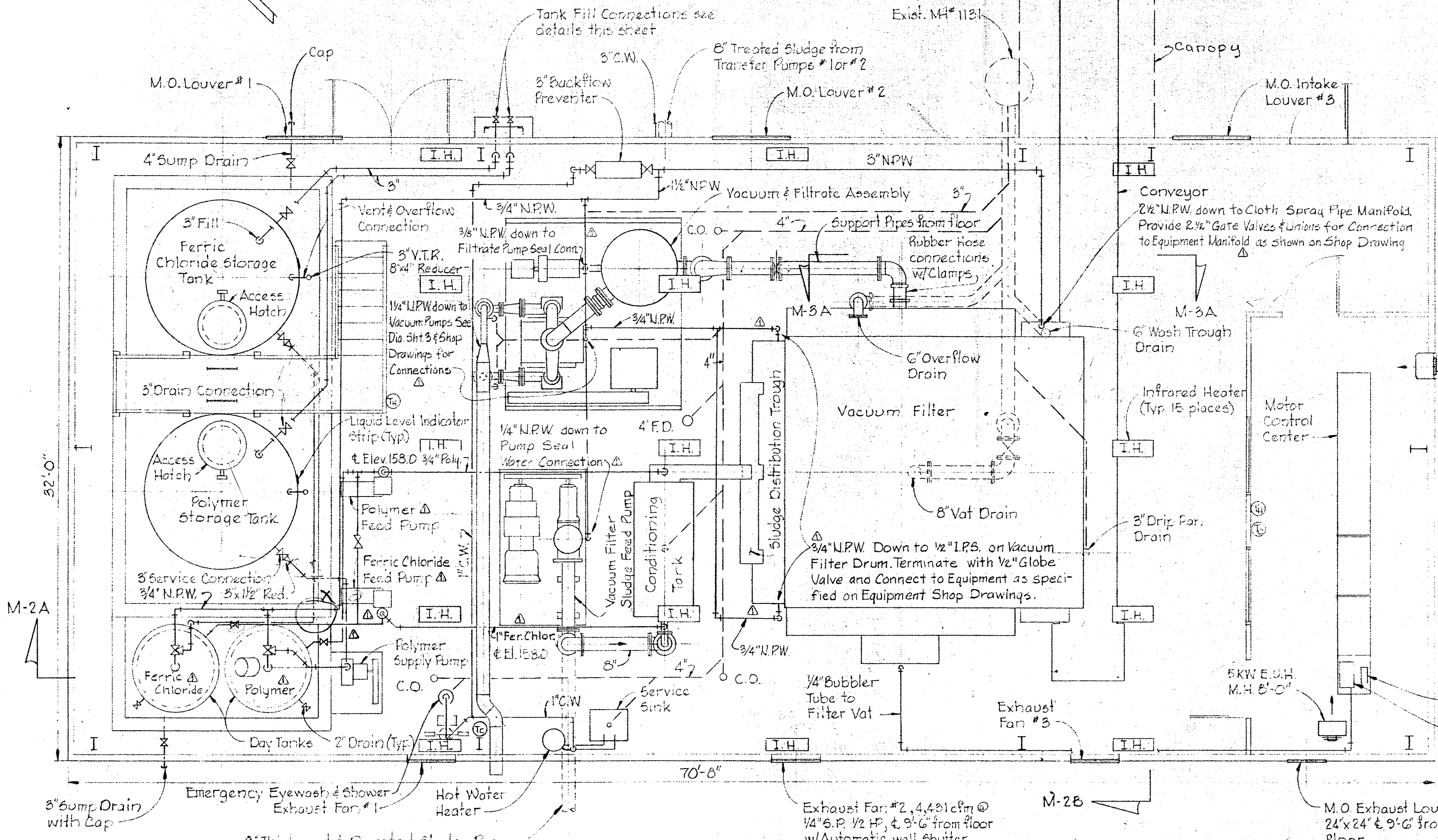




Note:
For continuation of outside
Piping see Sheet C-1

GENERAL NOTES

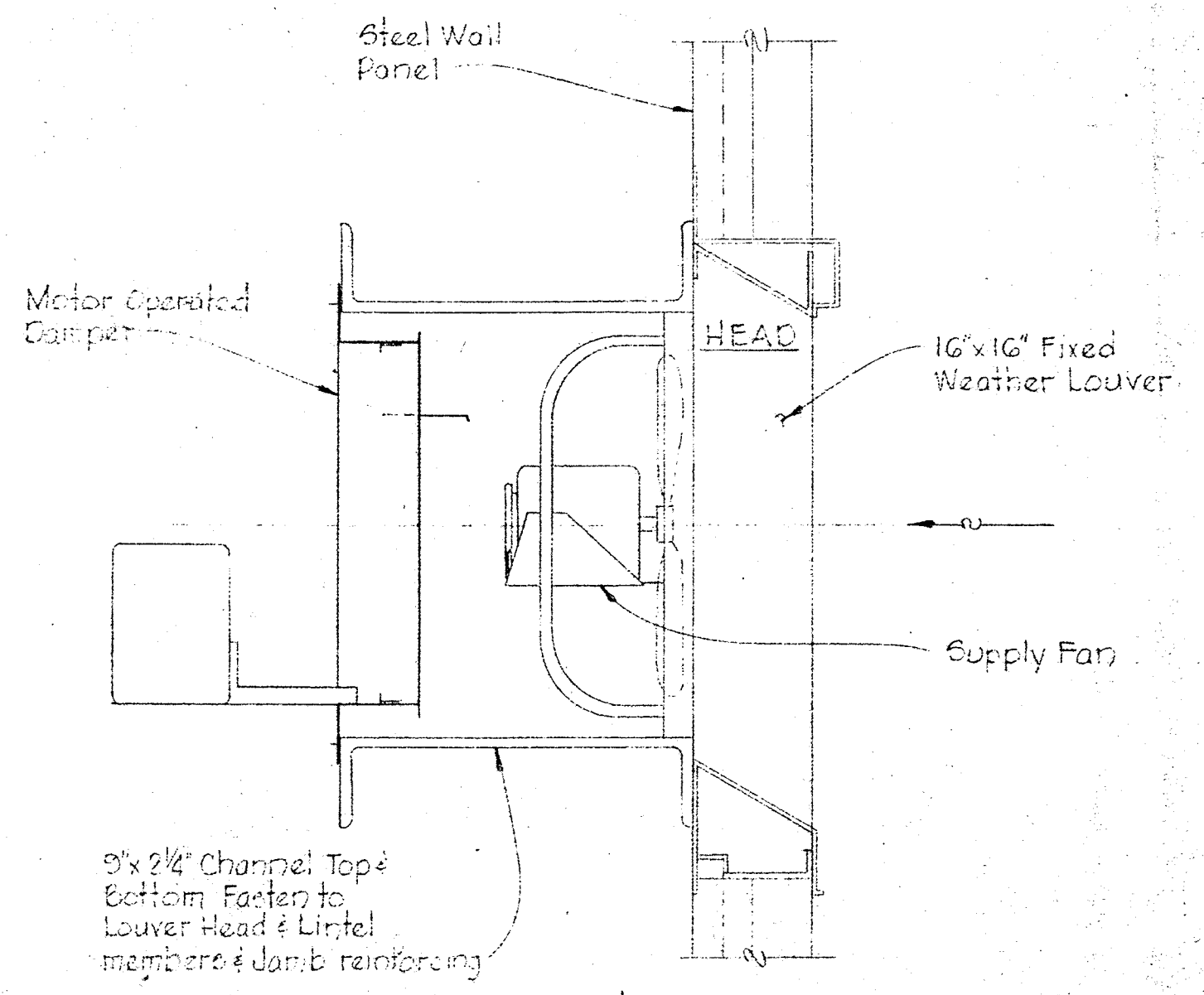
1. Contractor shall install all pre-purchased equipment and piping connections to Vacuum Filter and appurtenances as shown on the equipment shop drawings or as directed by the manufacturer's representative. See shop drawings to determine equipment furnished, all other equipment, pipe, valves, fittings, fixtures etc. shall be furnished by the contractor.



NOTE:
See Equipment Shop
Drawings for Details of
Equipment Connections.

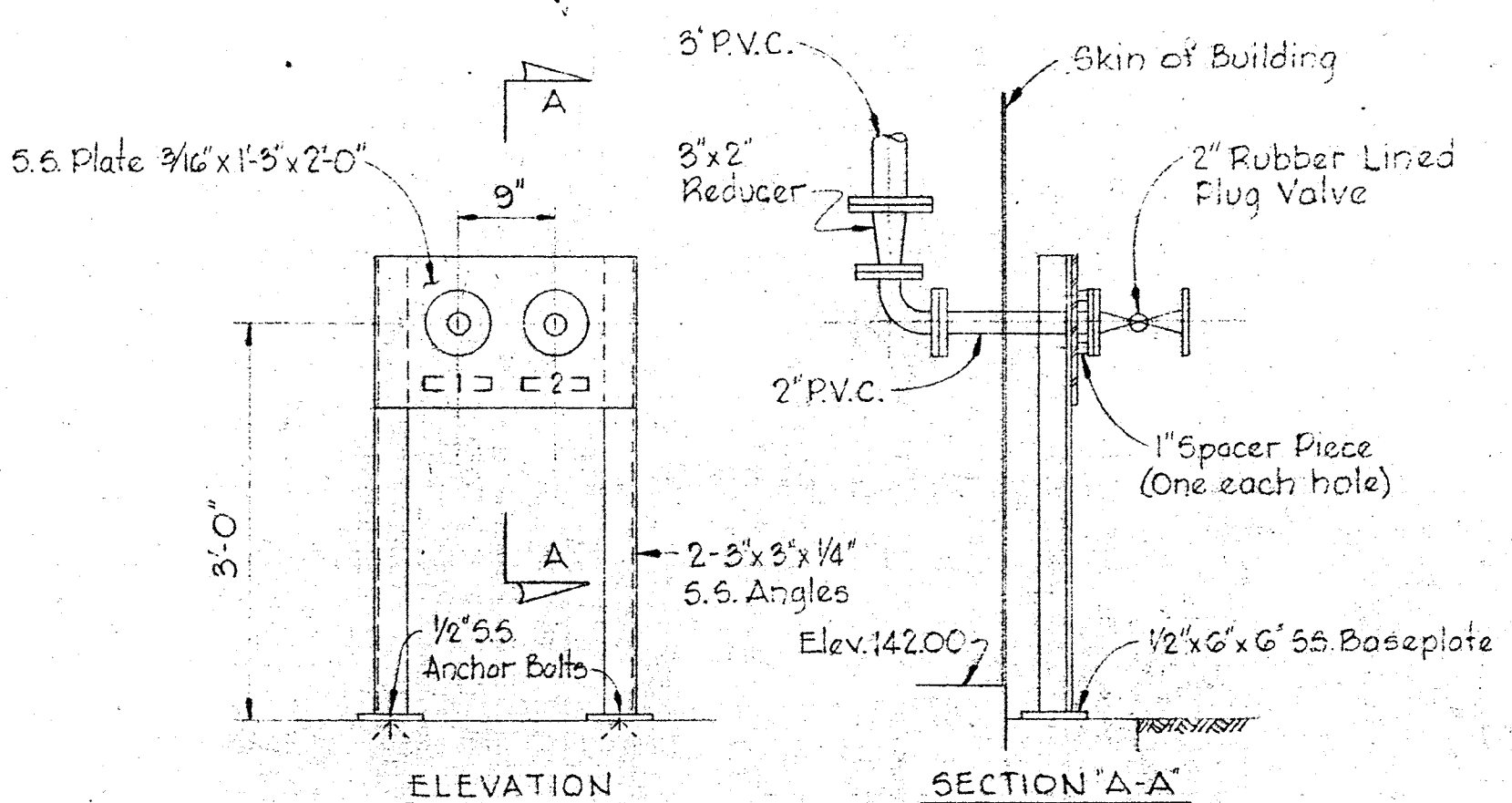
LEGEND

- I.H. Infrared Heater
- C.W. Cold Water
- N.P.W. Non-Pressure Water
- S.S. Stainless Steel
- P.V.C. Polyvinyl Chloride
- M.O. Motor Operated
- C.O. Clean out
- F.D. Floor Drain
- Gate Valve
- Plug Valve
- Globe Valve
- Ball Valve



DETAILS - SUPPLY FAN

Scale 3"=1'-0"



DETAILS - TANK FILL CONNECTIONS

Scale 3/4"=1'-0"

Note:
Name plates to be made of S.S.
with 1/32" deep etched letters.
Plates 1'x6" long with 1/4" letters.
Plate 1 - Polymer
Plate 2 - Ferric Chloride

REVISION	DATE	DESCRIPTION
Δ		Construction Clarification - Chem. Piping & N.P.W.

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

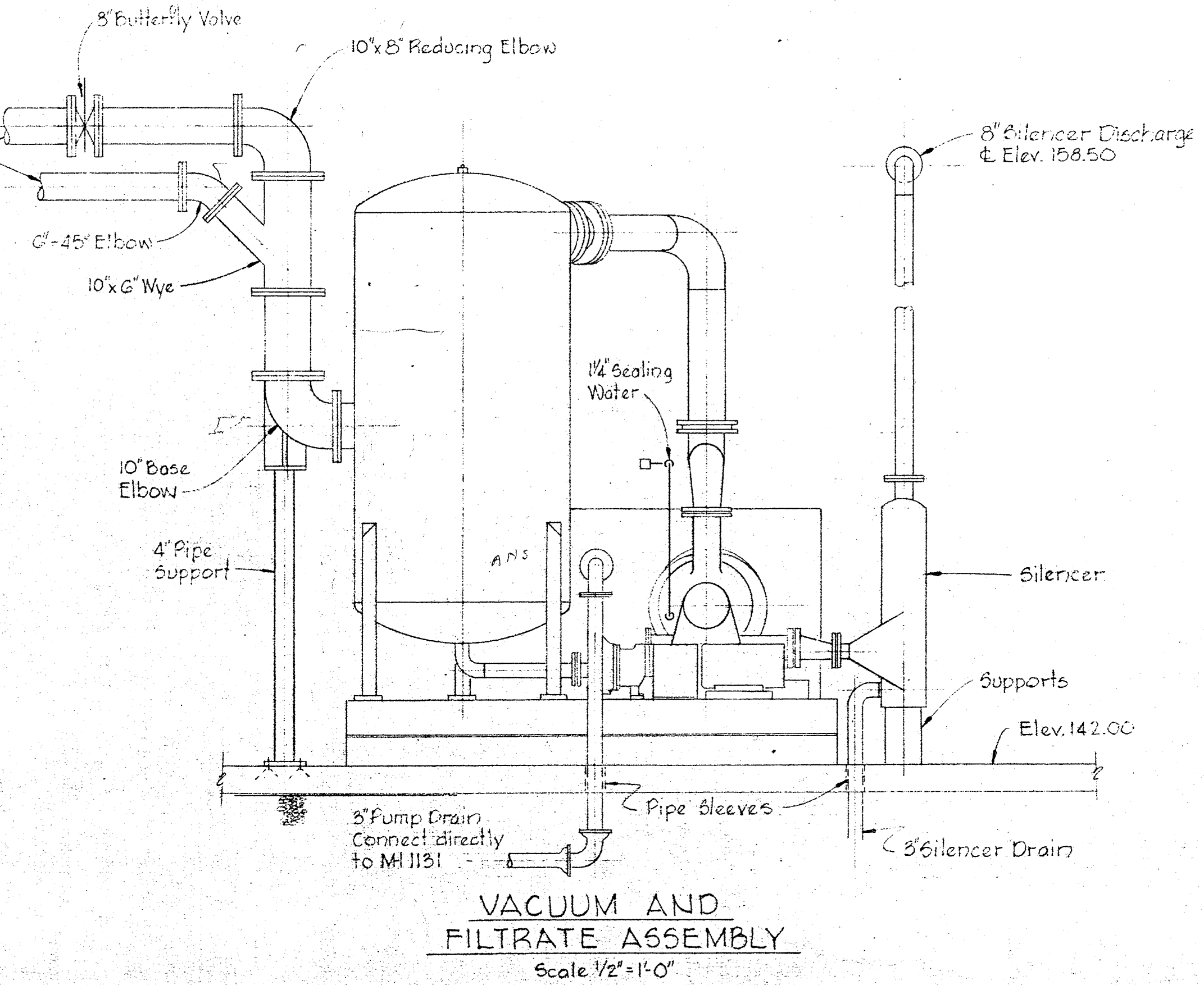
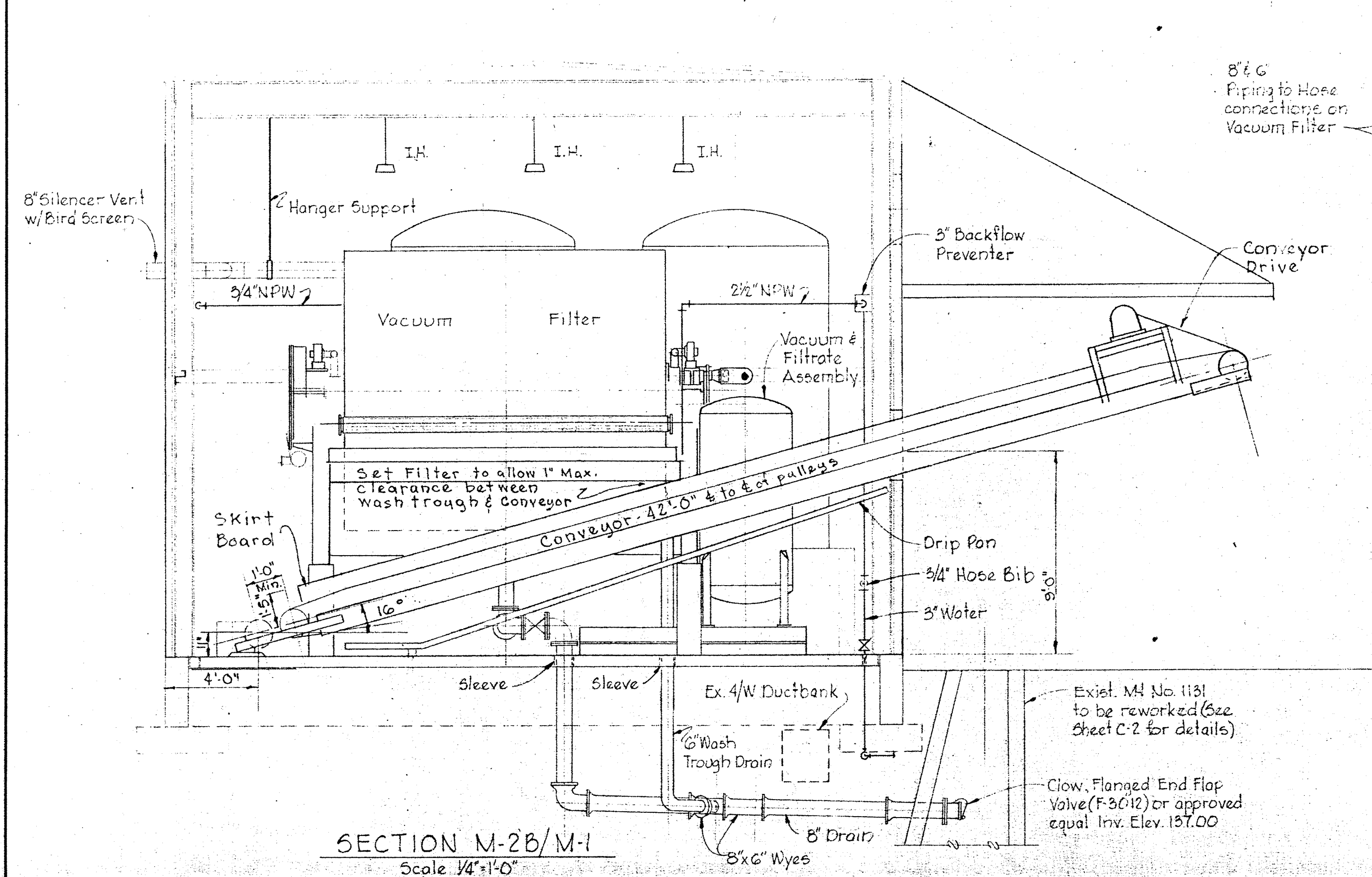
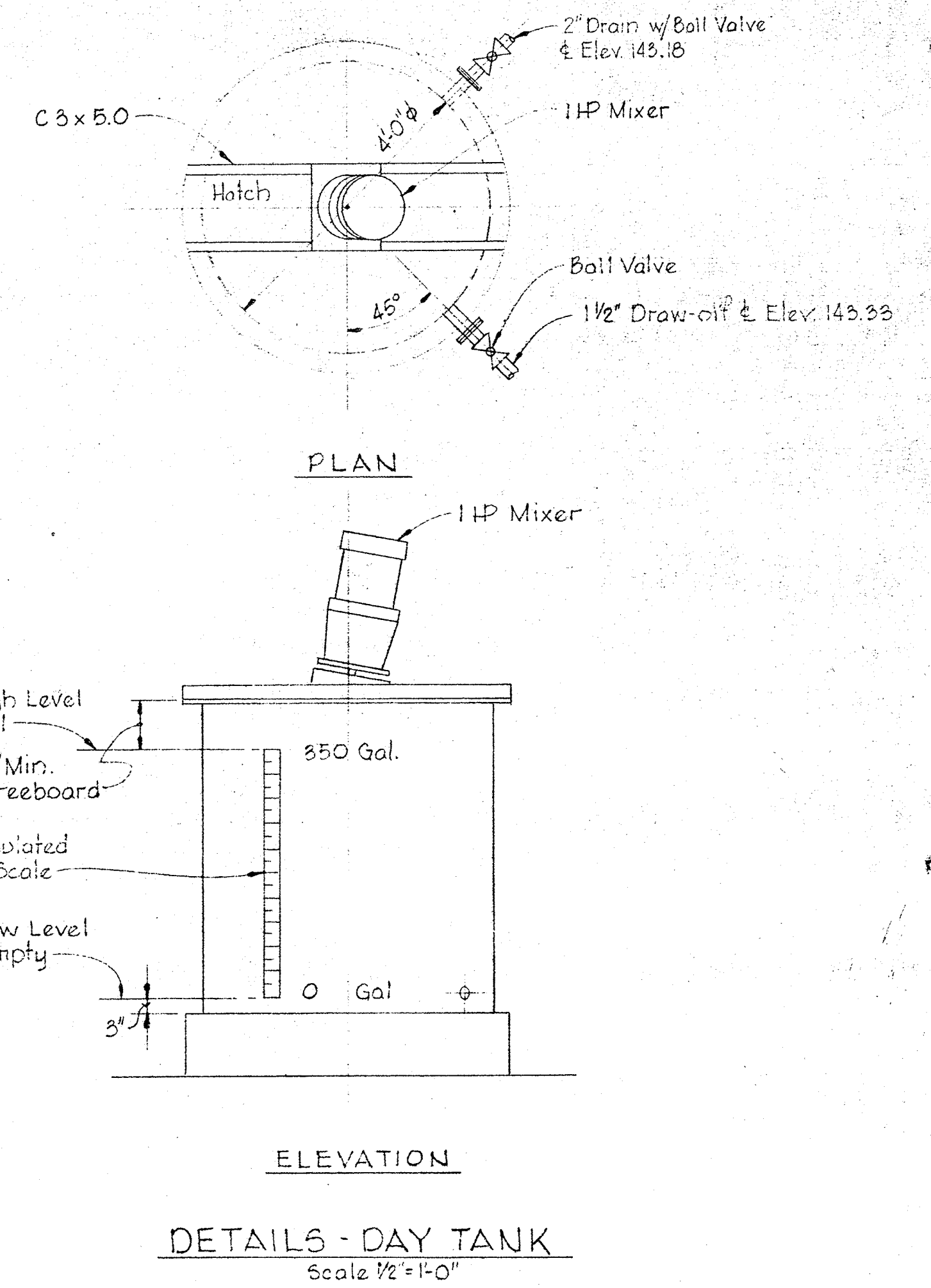
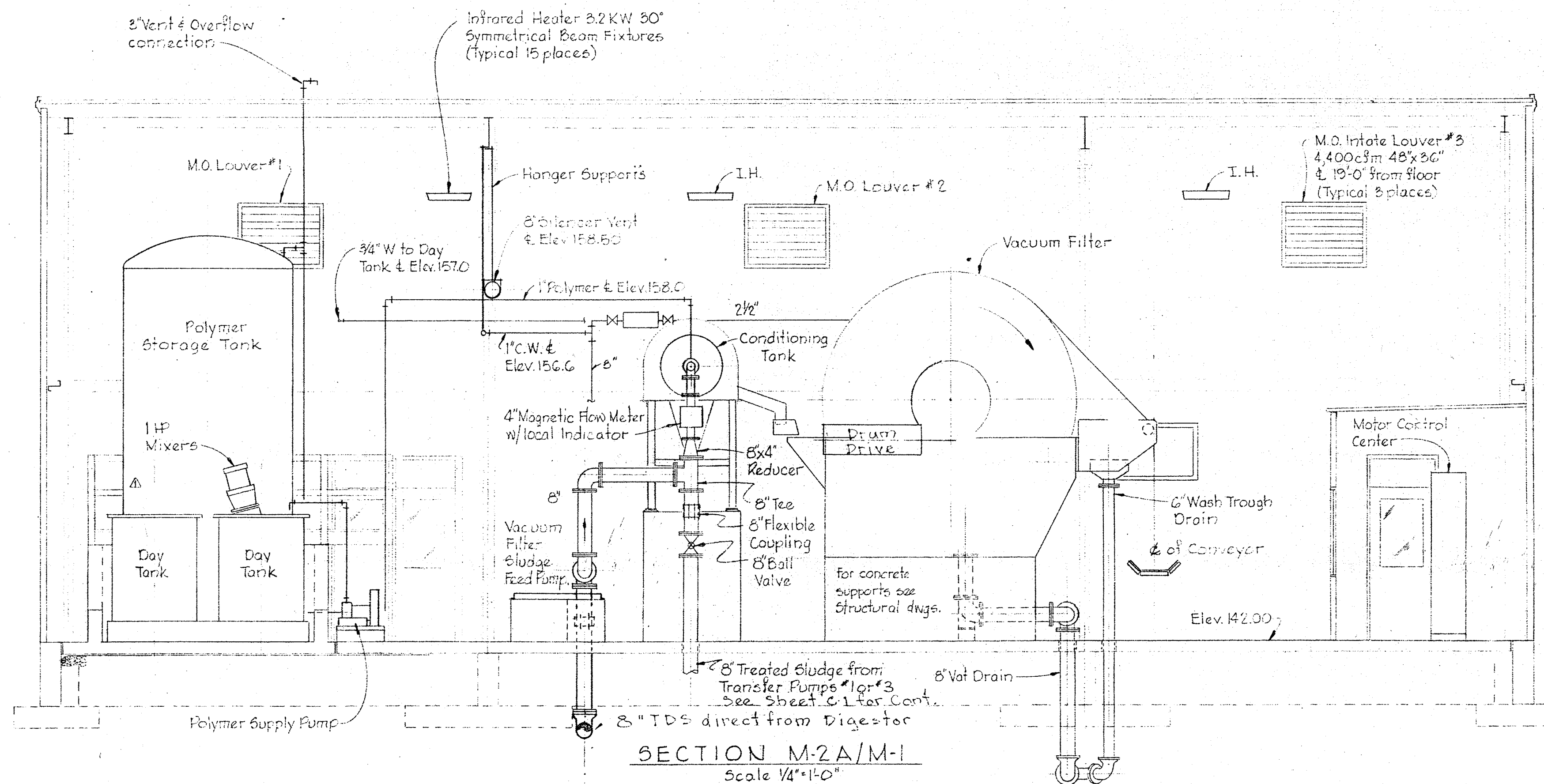
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
PA Requardt 1-19-77
DIRECTOR OF PUBLIC WORKS - DATE

CONTRACT NO. 527(A)-S
W.O. Talbot 1-19-77
CHIEF BUREAU OF ENGINEERING - DATE

PLAN & DETAILS

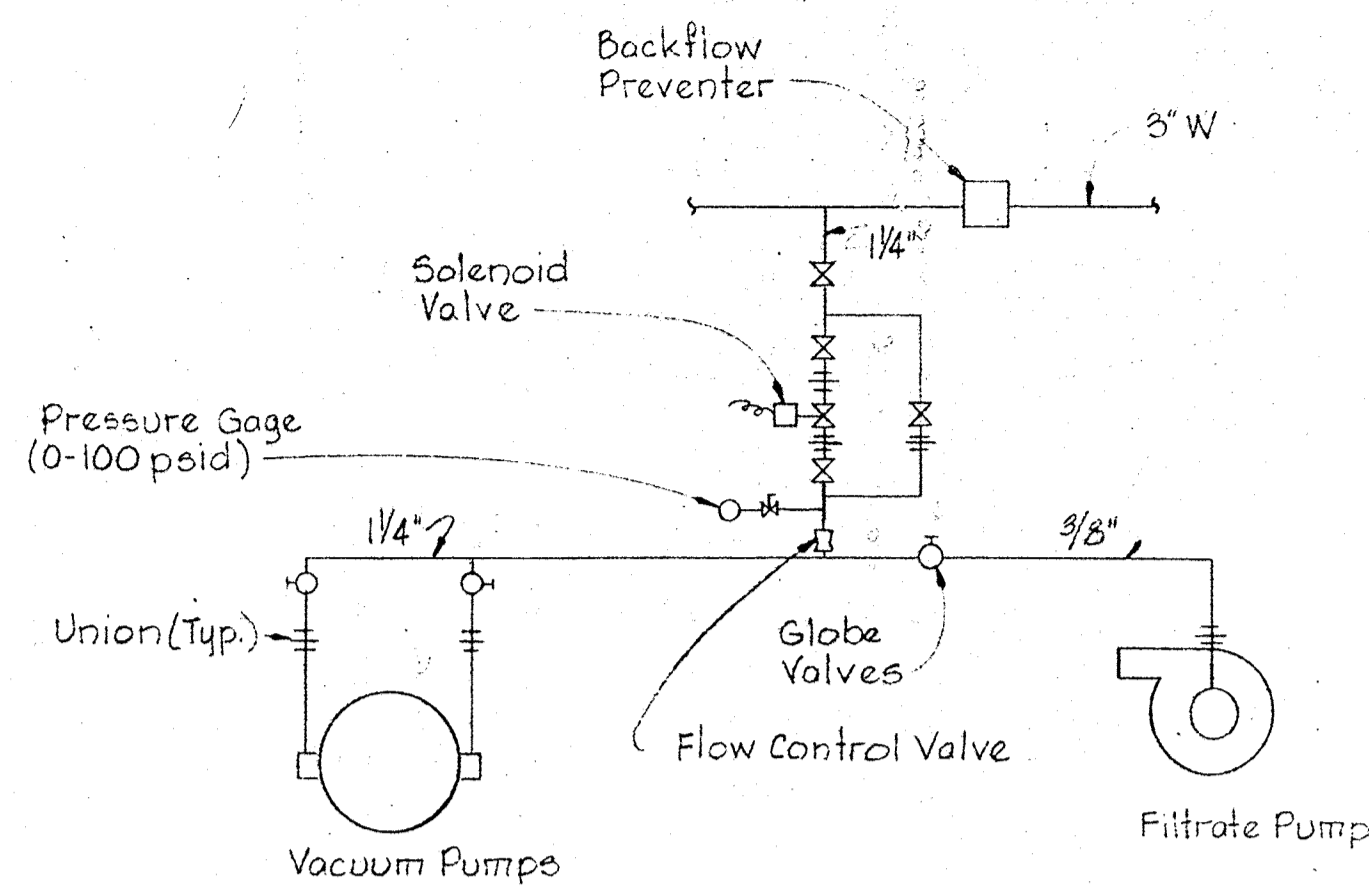
SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 3(A)

DRAWING NO. 8 OF 16
SCALE AS SHOWN



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 1-19-77 DIRECTOR OF PUBLIC WORKS - DATE	CONTRACT NO. 527(A)-S 1-19-77 CHIEF-BUREAU OF ENGINEERING - DATE	SECTIONS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO.3 (A)	DRAWING NO. 9 OF 16 SCALE AS SHOWN SHEET M-2
---	---	--	--------------------	--	--

BRUNING 44-510 18392



SCHEMATIC - SEALING WATER FOR VACUUM AND FILTRATE UNITS
No Scale

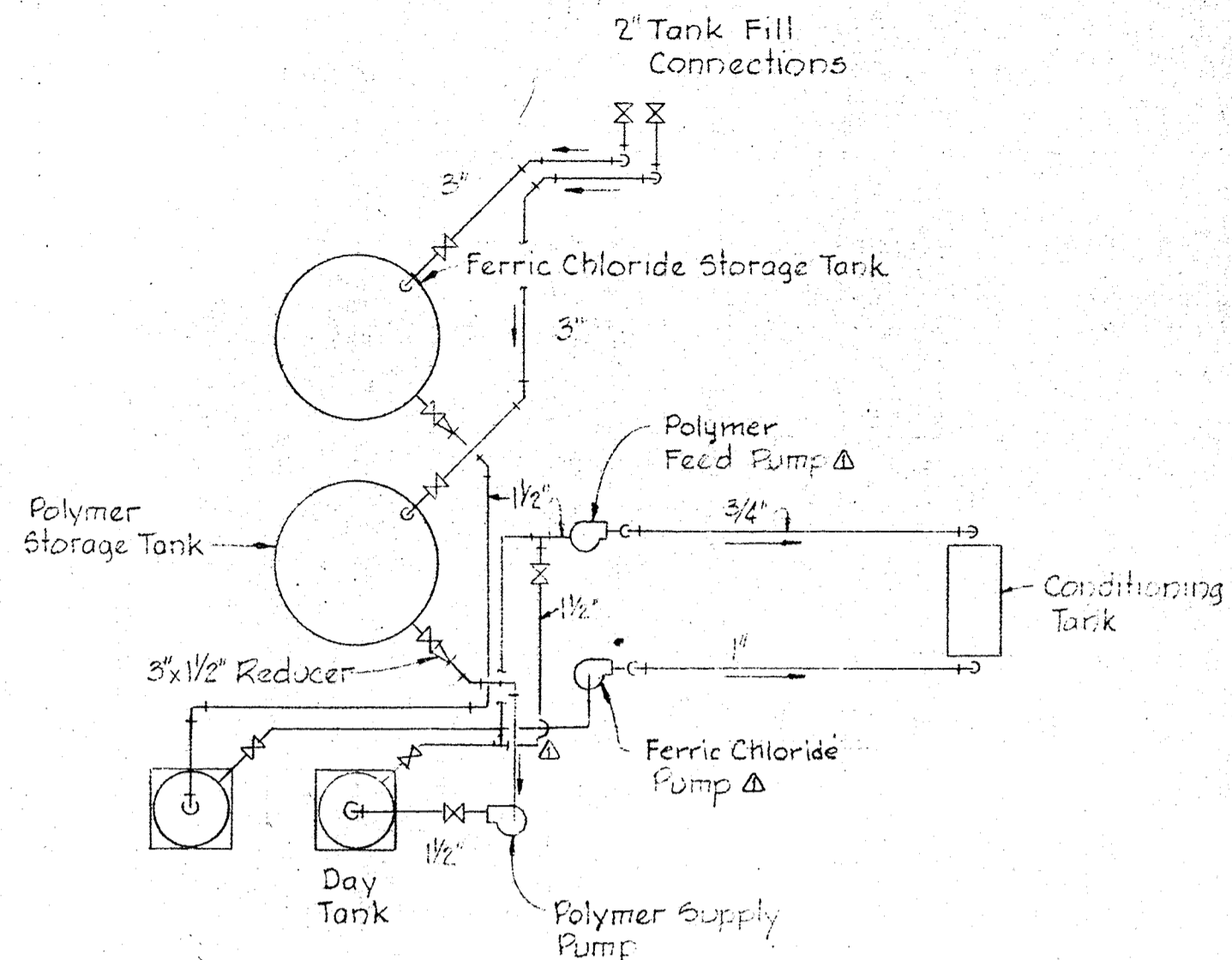
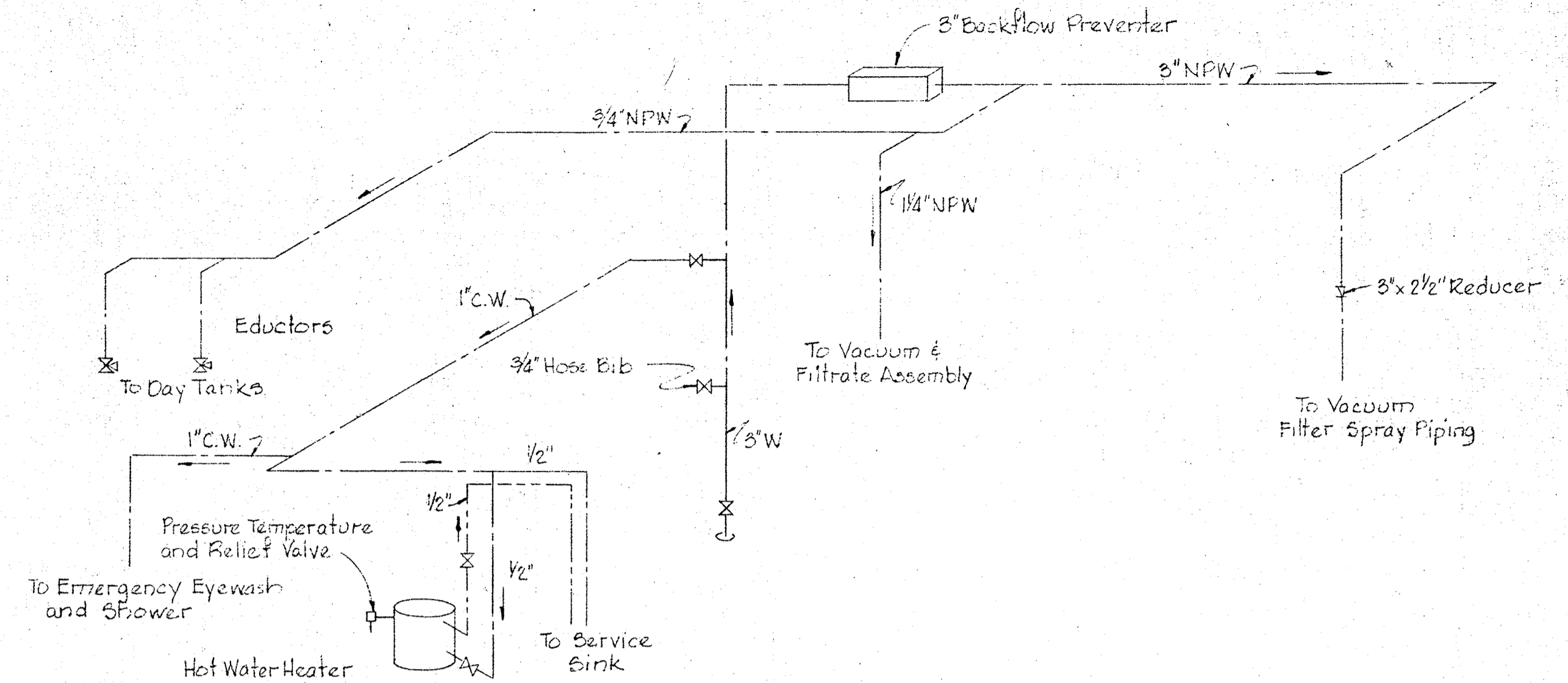
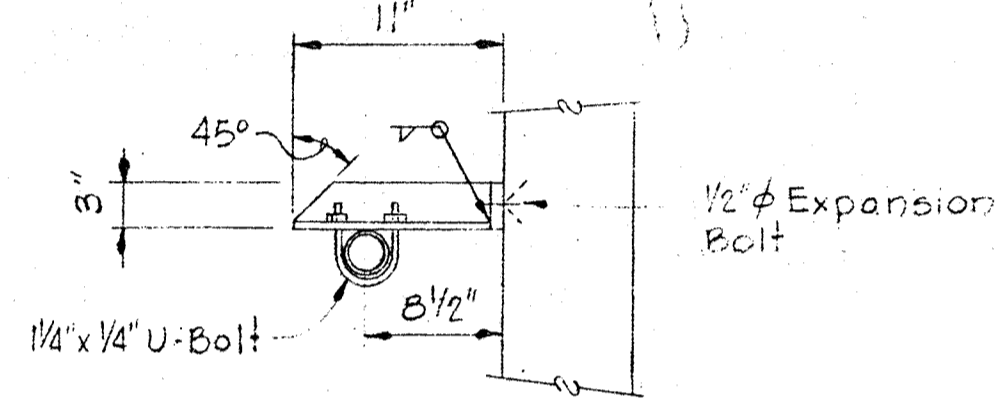


DIAGRAM - CHEMICAL PIPING
Scale: None

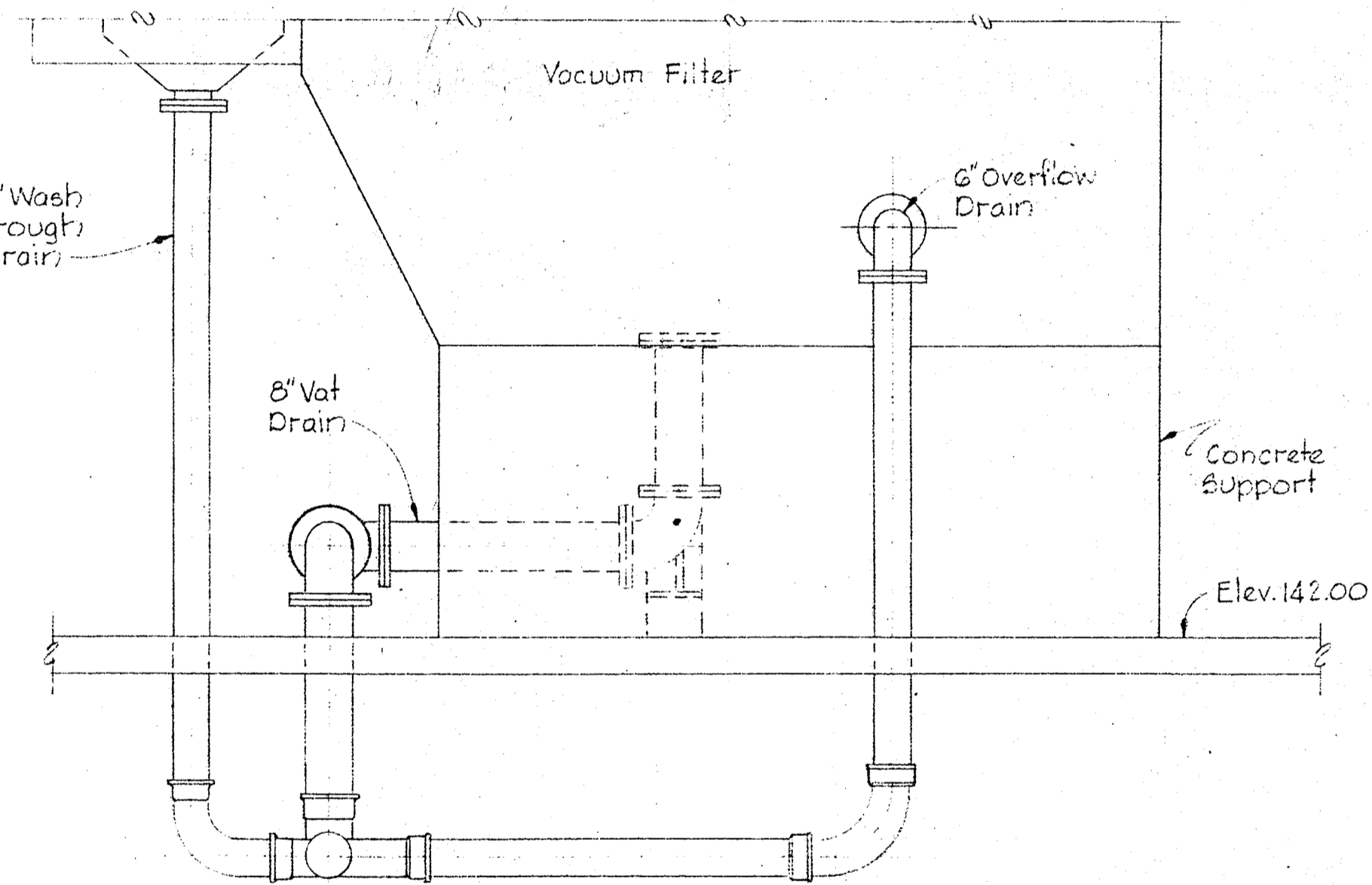


SCHEMATIC - HOT AND COLD WATER
Scale: None

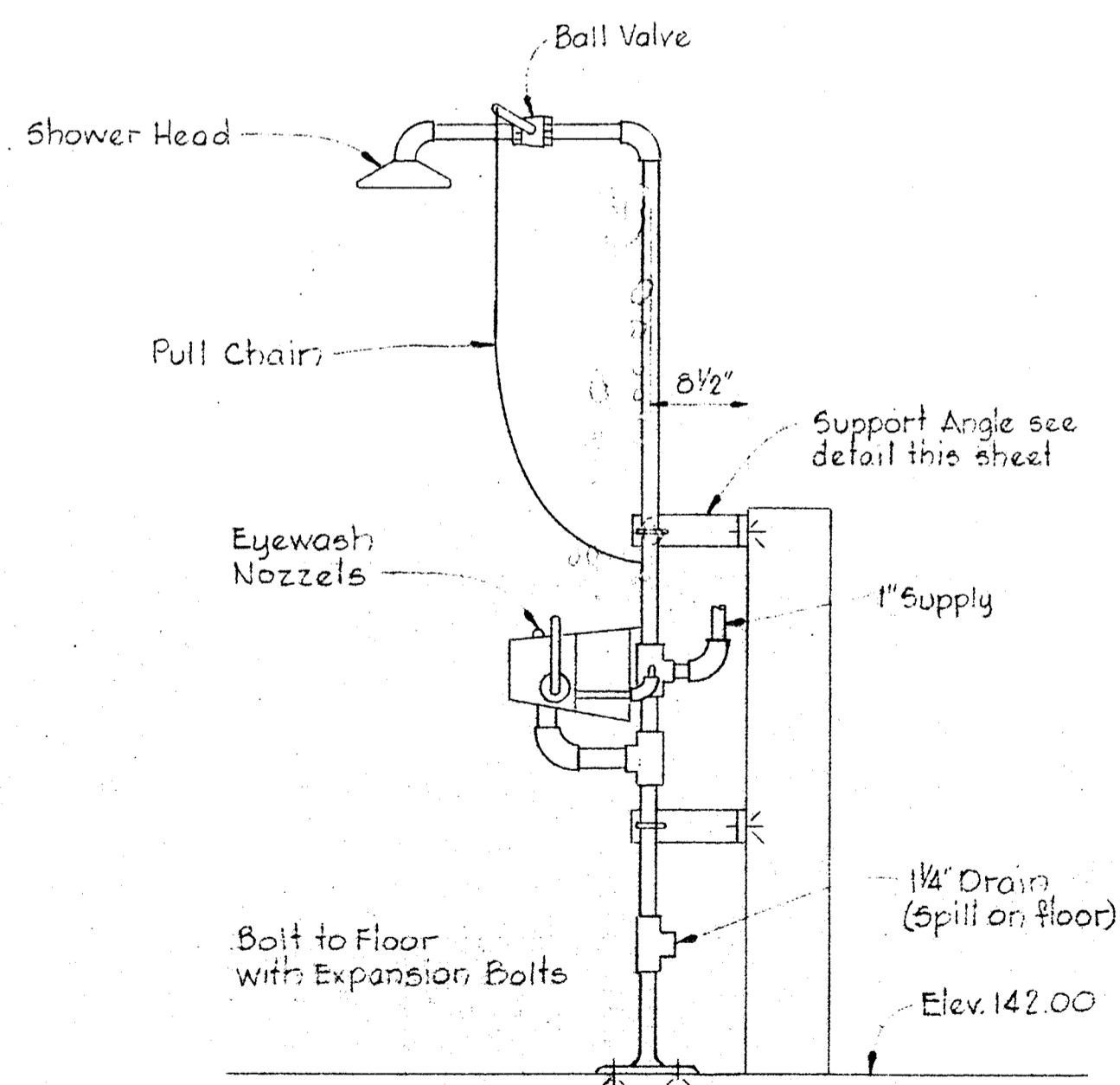


NOTE:
Support Angles to be 1020 H.P. Steel.
Hot dipped Galv. after assembly.

DETAIL - SUPPORT ANGLE
Scale: 1"=1'-0"

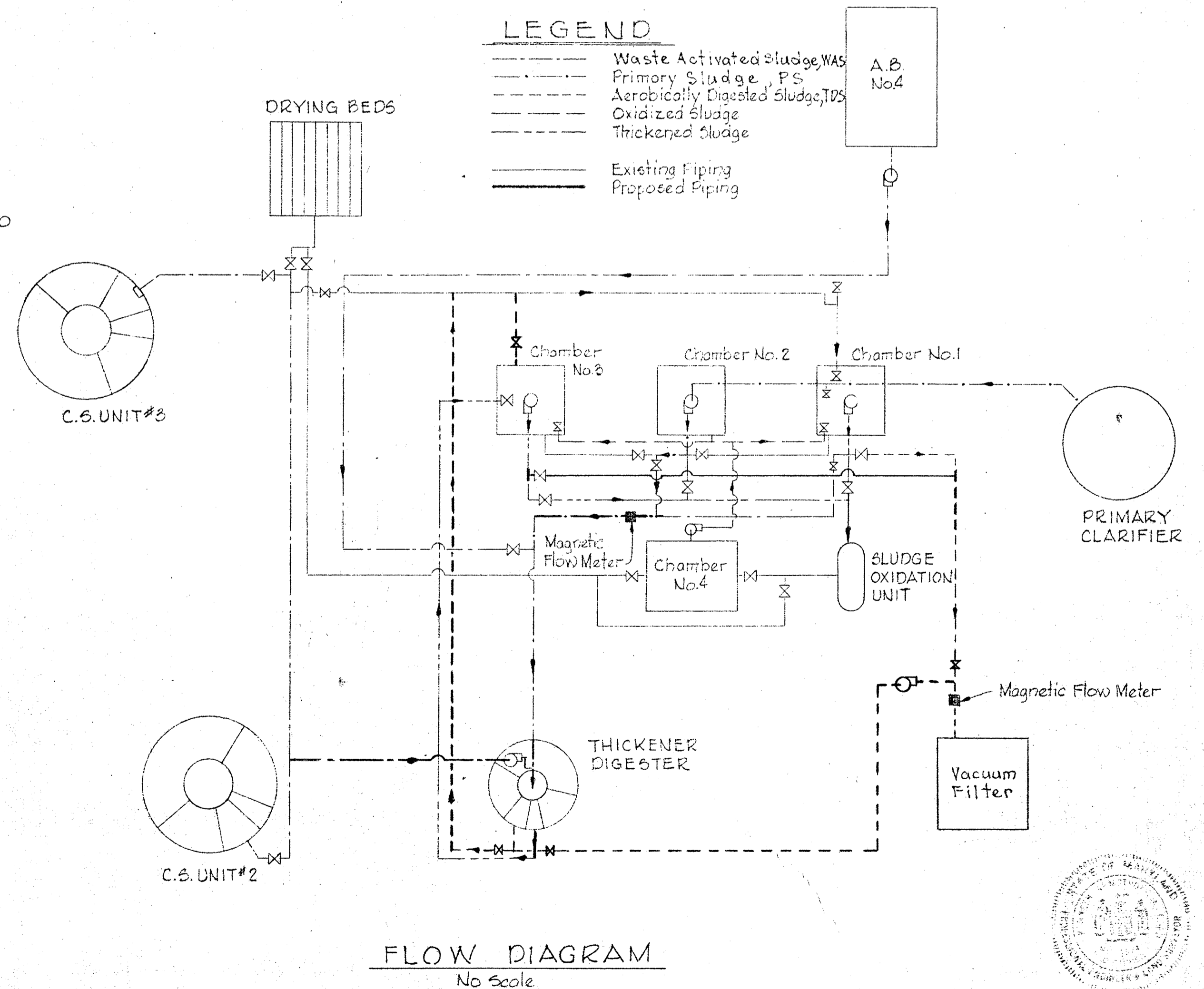


SECTION M3A/M-1
Scale: 1/2"=1'-0"



EMERGENCY SHOWER AND EYEWASH
Scale: 3/4"=1'-0"

Notes:
1-Chamber Nos 1, 3 and associated pumps can alternately be used for Aerobically Digested thickened Sludge to Vacuum Filter. Thickened only to Oxidation Unit from Chamber No. 3.
2-If aerobic digested sludge only is in service, then both chambers and pumps can be used for that service, alternately or together.
3-The oxidized sludge pump discharge must always be directed to the chamber being used for transfer to the Vacuum Filter.
4-Chamber No.1 and pump also serves as an alternate pump for primary sludge to Thickener.



FLOW DIAGRAM
No Scale

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

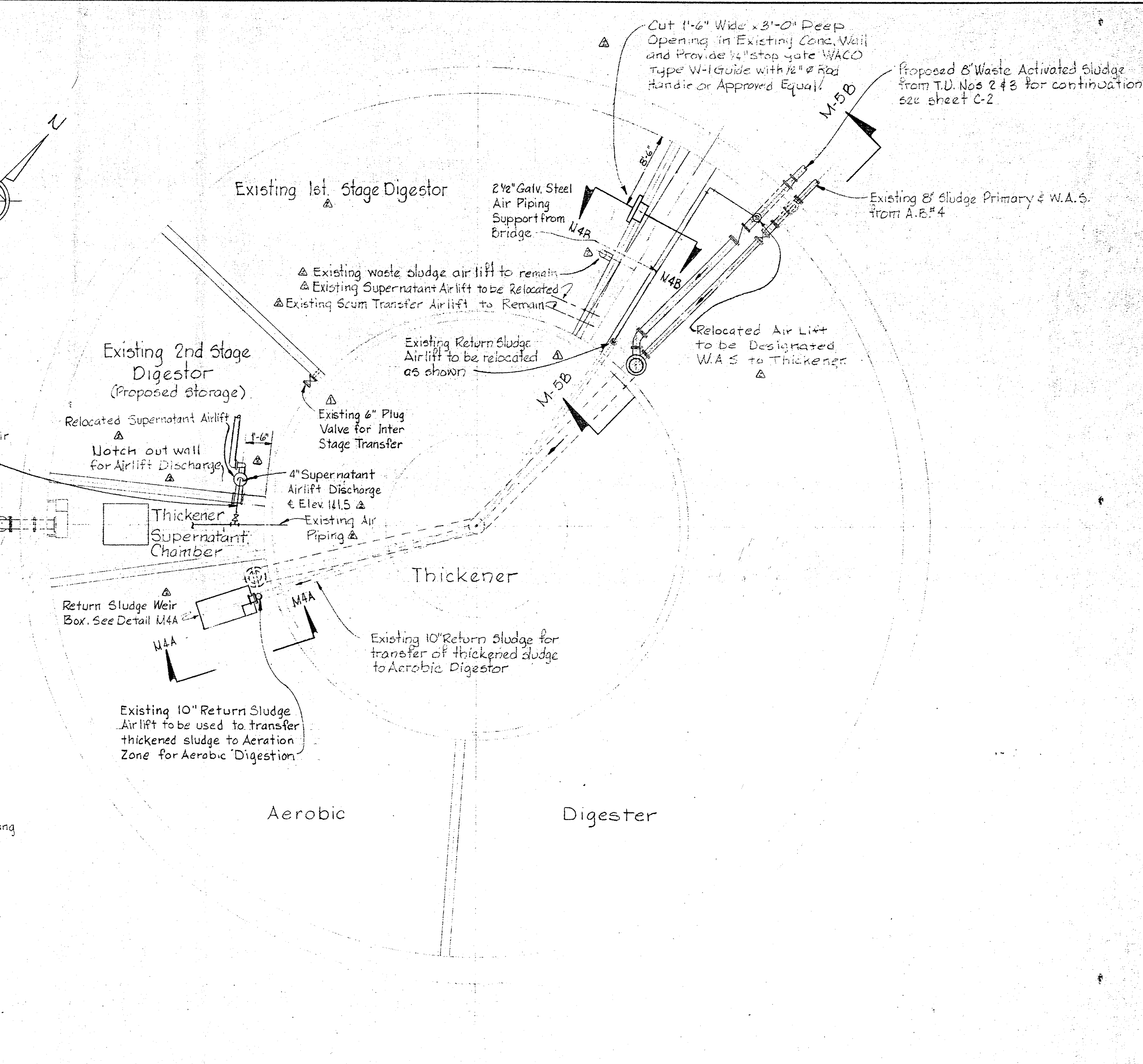
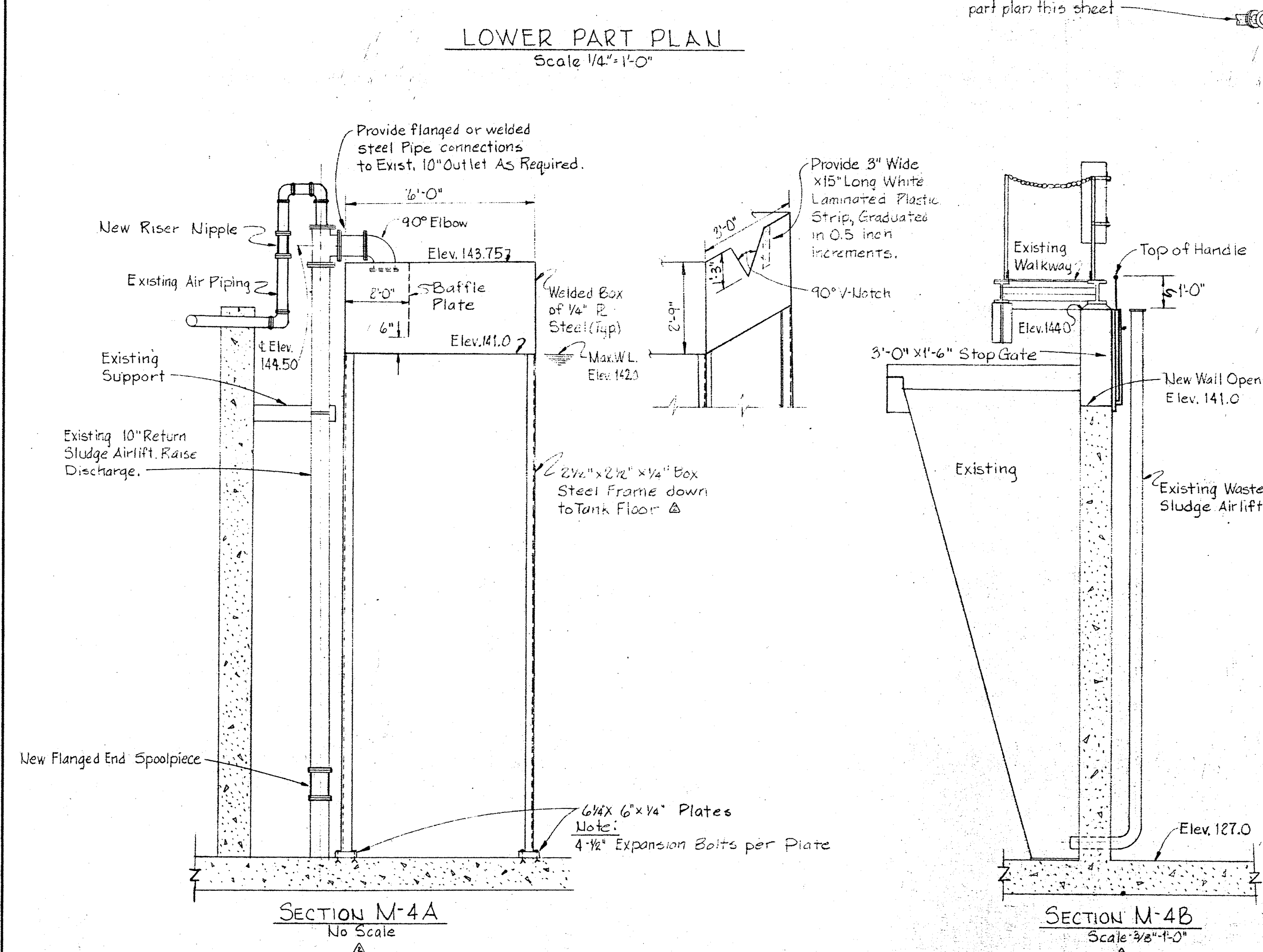
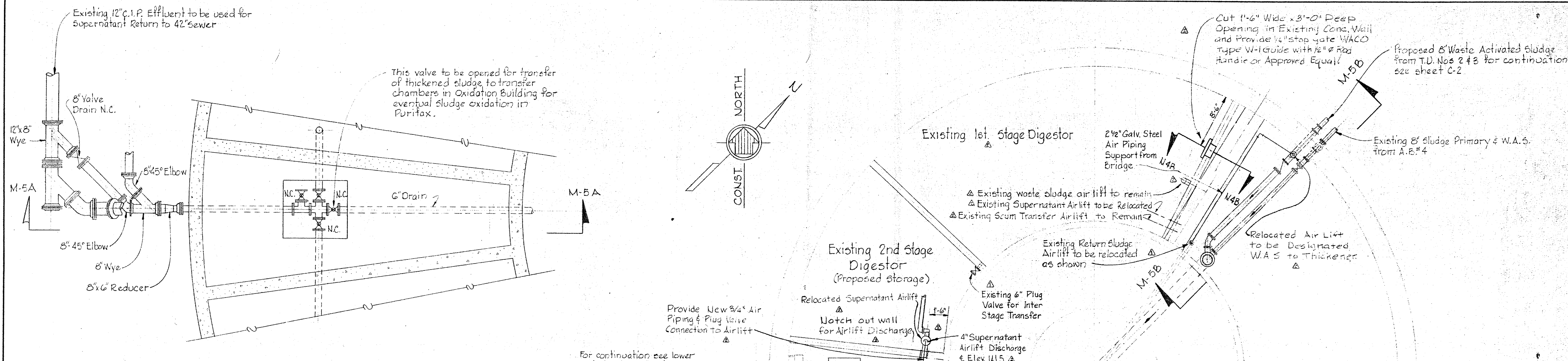
CONTRACT NO. 527(A)-S

SECTIONS & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO.3(A)

DRAWING
NO. 10
OF 16

SCALE
AS
SHOWN



REVISION	DATE	DESCRIPTION
△	6/21/77	Change Order No. 1
△		Construction Clarification

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
 1304 ST. PAUL ST.
 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 DATE 1-19-77
 W.O. Libard 1-19-77
 CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 527(A)-S

MODIFICATIONS
 TO EXISTING T.U. NO. 1
 PLAN & SECTIONS

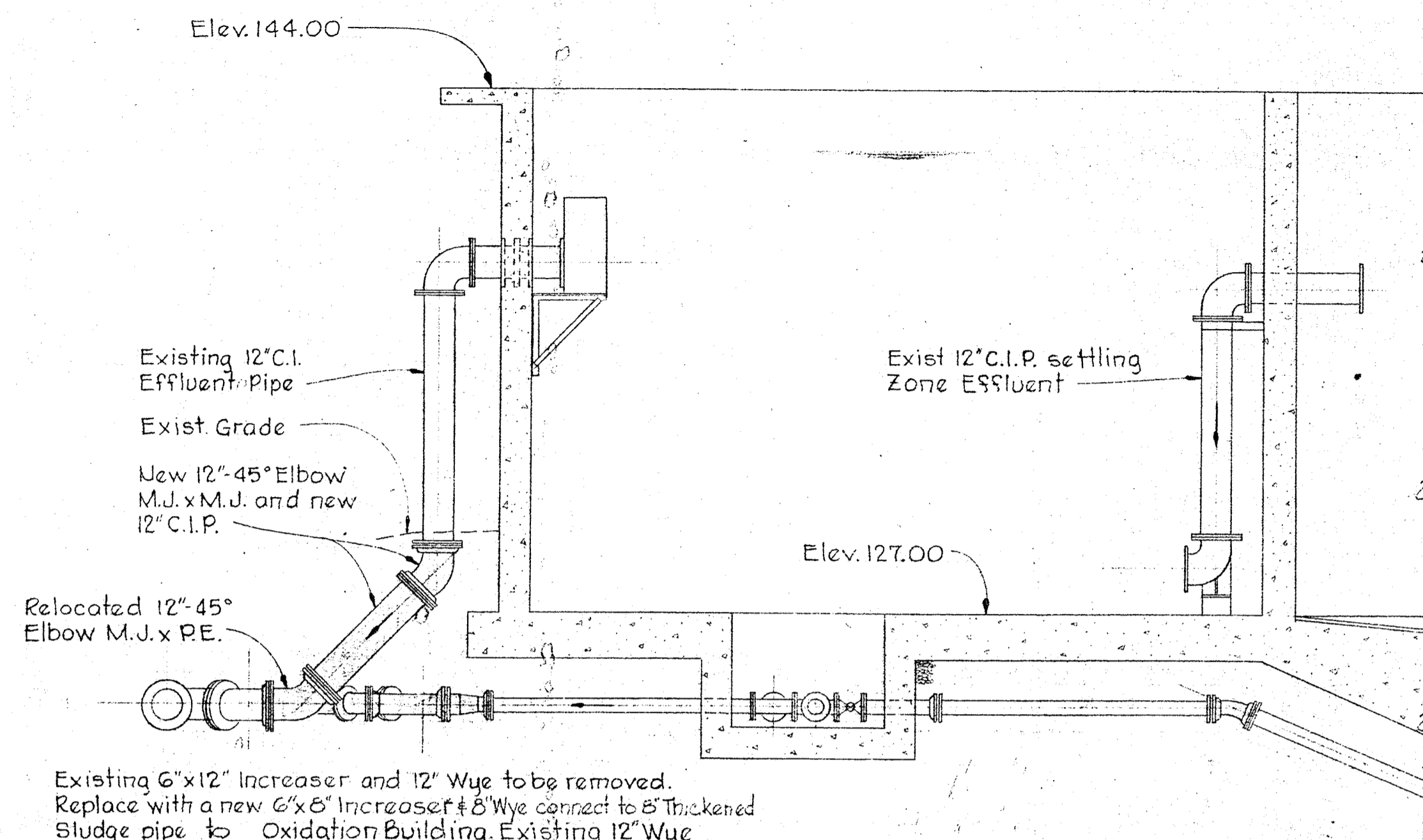
SAVAGE WASTEWATER
 TREATMENT PLANT ADDITION NO. 3(A)

DRAWING
 NO. 11
 OF 16

SCALE
 AS
 SHOWN

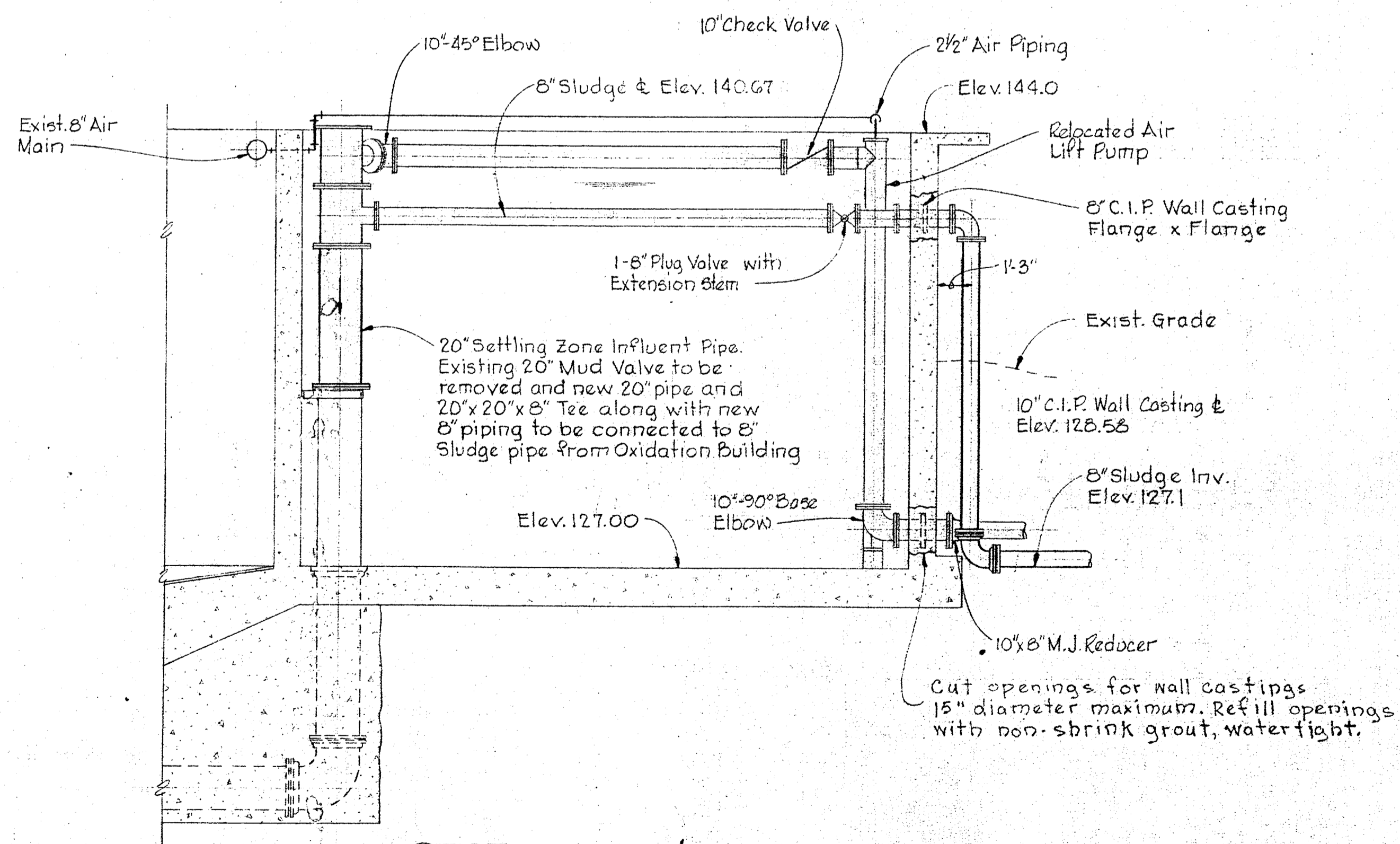
W. O. 7026-2

SHEET M-4

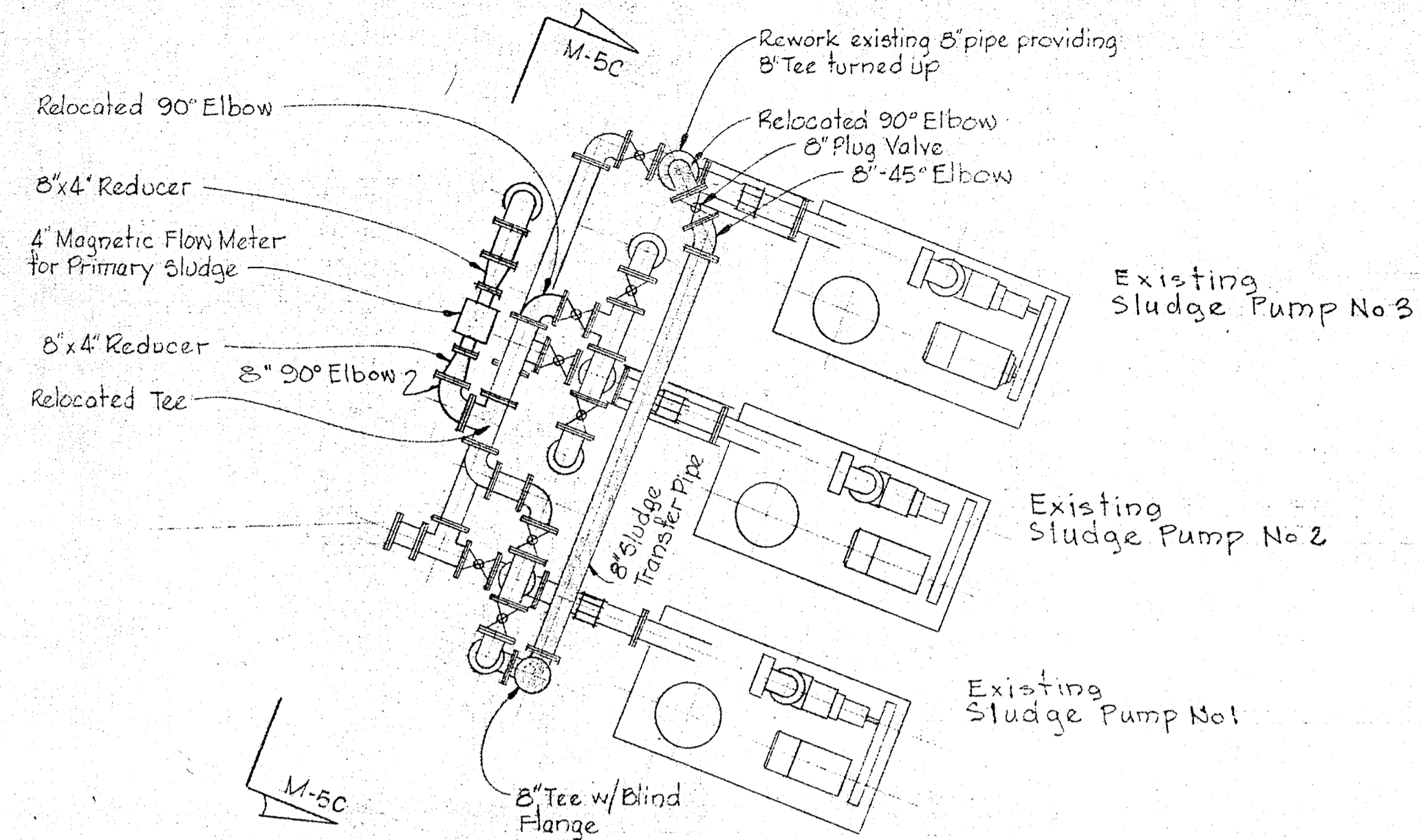


Existing 6"x12" increaser and 12" Wye to be removed. Replace with a new 6"x8" increaser & 8" Wye connect to 8" thickened Sludge pipe to Oxidation Building. Existing 12" Wye to be replaced by new 12" piping and reconnected to existing 12" Effluent drain.

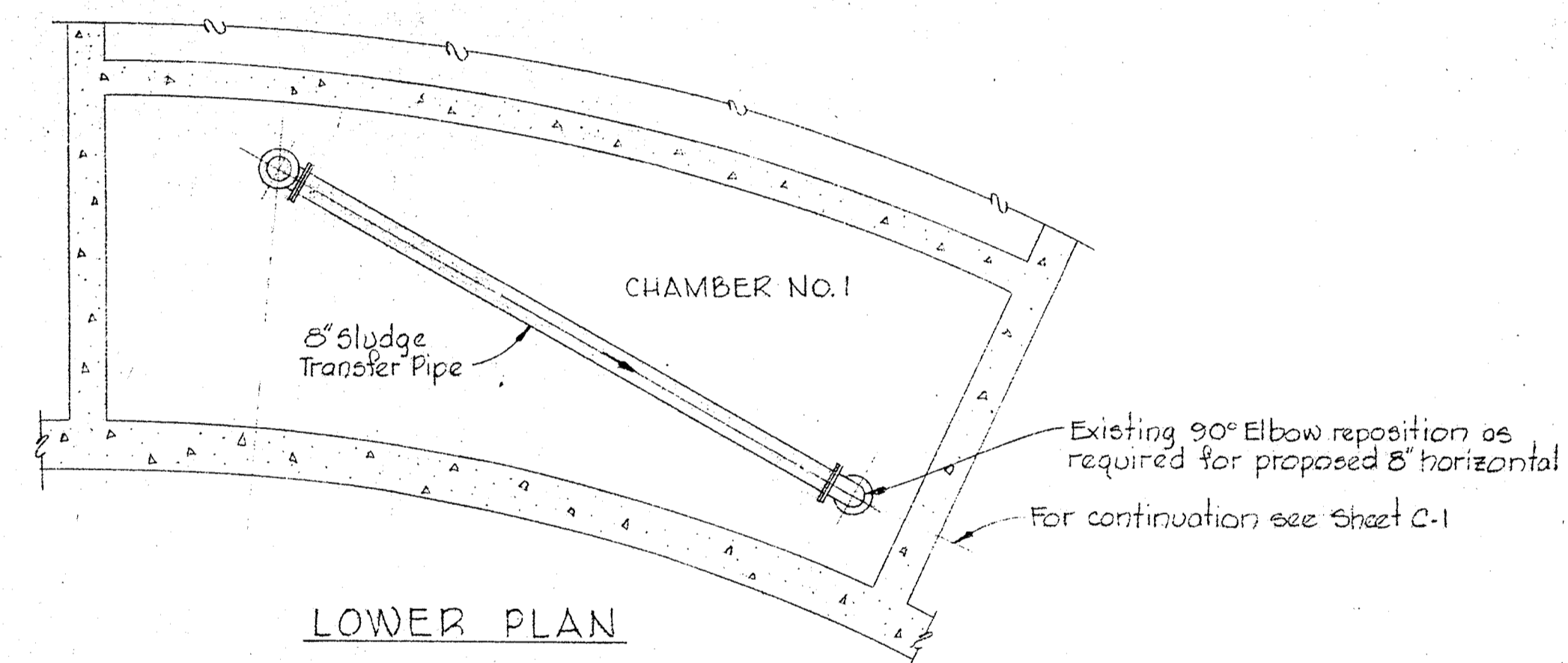
SECTION M-5A/M-4
Scale 1/4"=1'-0"



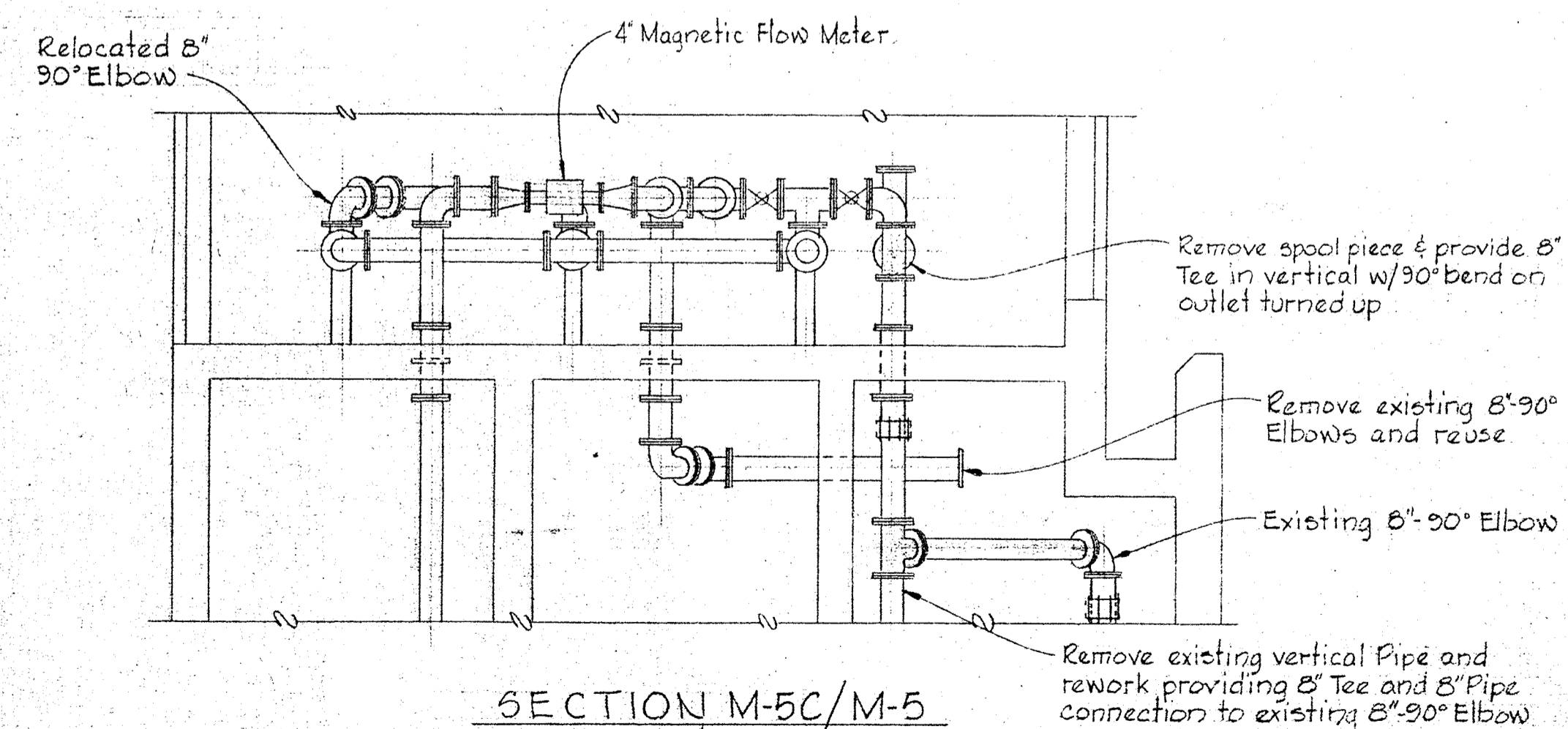
SECTION M-5B/M-4
Scale 1/4"=1'-0"



UPPER PLAN



LOWER PLAN
PLANS-SLUDGE OXIDATION BUILDING
EXISTING PIPING MODIFICATIONS
Scale: 1/4"=1'-0"



SECTION M-5C/M-5
Scale 1/4"=1'-0"

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE 1-19-77
W. O. Gilbert 1-19-77
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 527(A)-S

MODIFICATIONS
TO EXISTING T.U. NO. 1
SECTIONS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 3(A)

DRAWING NO. 12
OF 16
SCALE AS SHOWN



LEGEND

- ○ Outlet - Incandescent - Ceiling - Wall
- ⊕ Outlet - Incandescent, Emergency
- Outlet - Fluorescent - 4 Foot
- ▬ Outlet - Fluorescent - 4 Foot w/ Kindorf Wiring Channel
- ⊖ Outlet - Mercury Ceiling w/ Kindorf Wiring Channel
- ⊕ Outlet - Duplex Convenience
- Ⓜ Junction Box
- WP Weatherproof where indicated
- S S2 S3 Switch - Single Pole - Double Pole - Three way
- Ⓜ Ⓜ c Thermostat - Heating - Cooling
- Ⓜ Ⓜ Starter - Manual - Magnetic (FVNR)
- Ⓜ Ⓜ Disconnect Switch - Fused - Unfused
- Ⓜ → Homerun to panelboard - Number of arrows indicate number of circuits, number of cross lines indicate number of wires. Where no cross lines appear, two wires are implied.
- Conduit - On Ceiling or Wall
- Ⓜ Ⓜ Pushbutton Station - One, Two or Three Pushbuttons
- CCA-6a Motor Control Center Wire & Cable run number
- SS1-1a Unit Substation Wire & Cable run number
- Ⓜ Contact - Normally Open
- Ⓜ Contact - Normally Closed
- Ⓜ Current Transformer
- Ⓜ Potential Transformer
- Ⓜ Power Transformer
- Ⓜ Ground
- Ⓜ Thermostat
- Ⓜ Pushbutton
- Ⓜ Disconnect Link
- Ⓜ A.C. Power Circuit Breaker
- Ⓜ RTM Running Time Meter
- Ⓜ Indicating Light - Color indicated by letter
- Ⓜ AS Ammeter - Ammeter Switch
- Ⓜ VS Voltmeter - Voltmeter Switch
- Ⓜ Timer
- Ⓜ Pushbutton - Maintained Type
- c — Underground Conduits

LOCATION SYMBOLS FOR E.C. DIAG

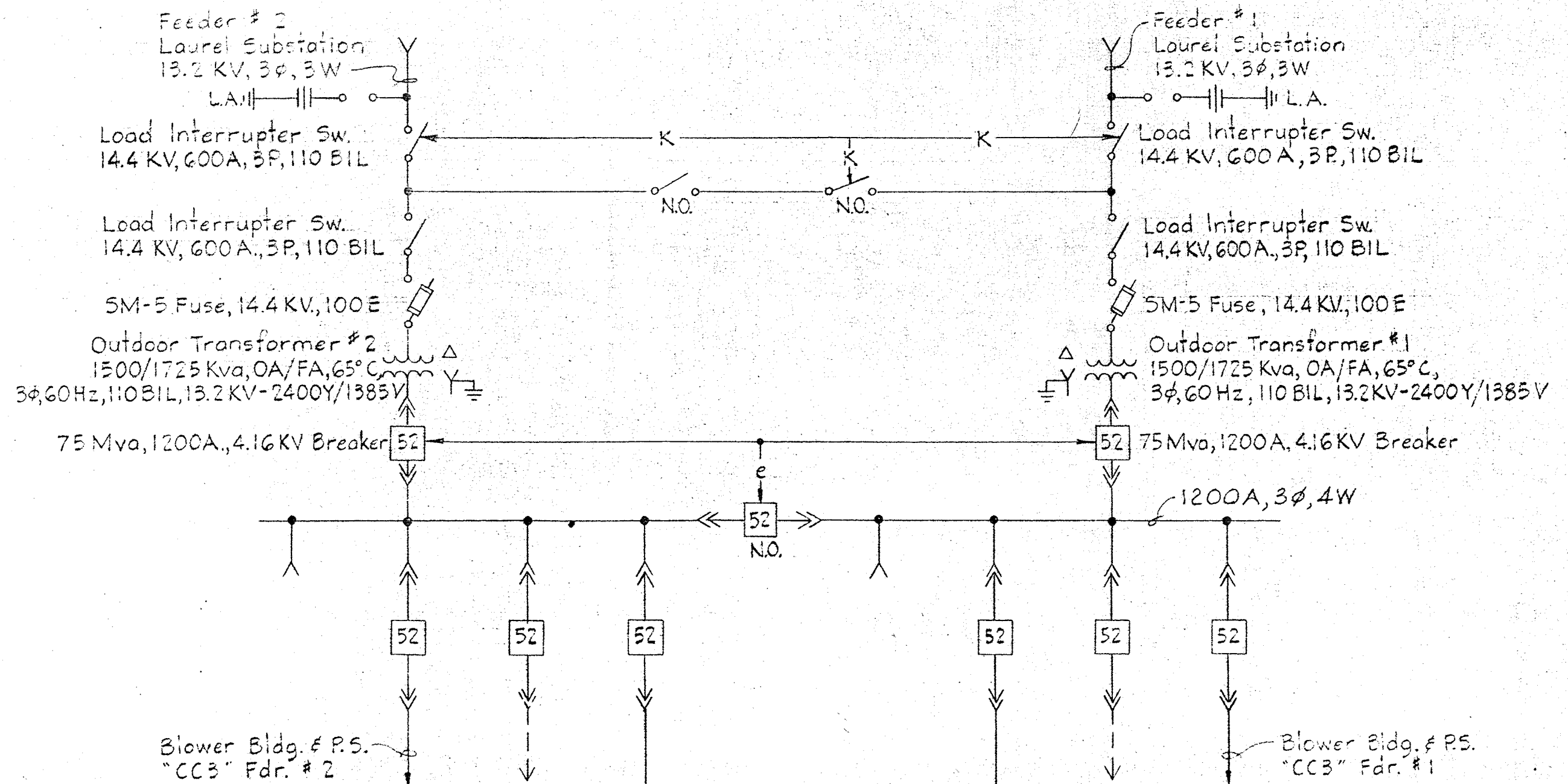
- Device located in Motor Control Center
- Device located in Vacuum Filter Control Panels
- ▲ Device located at respective motor or unit
- △ Device located in Sludge Oxid. Bldg. Sludge Control Cab.
- Device located in Instrument Panel

M.C.C. AUXILIARY DESCRIPTION

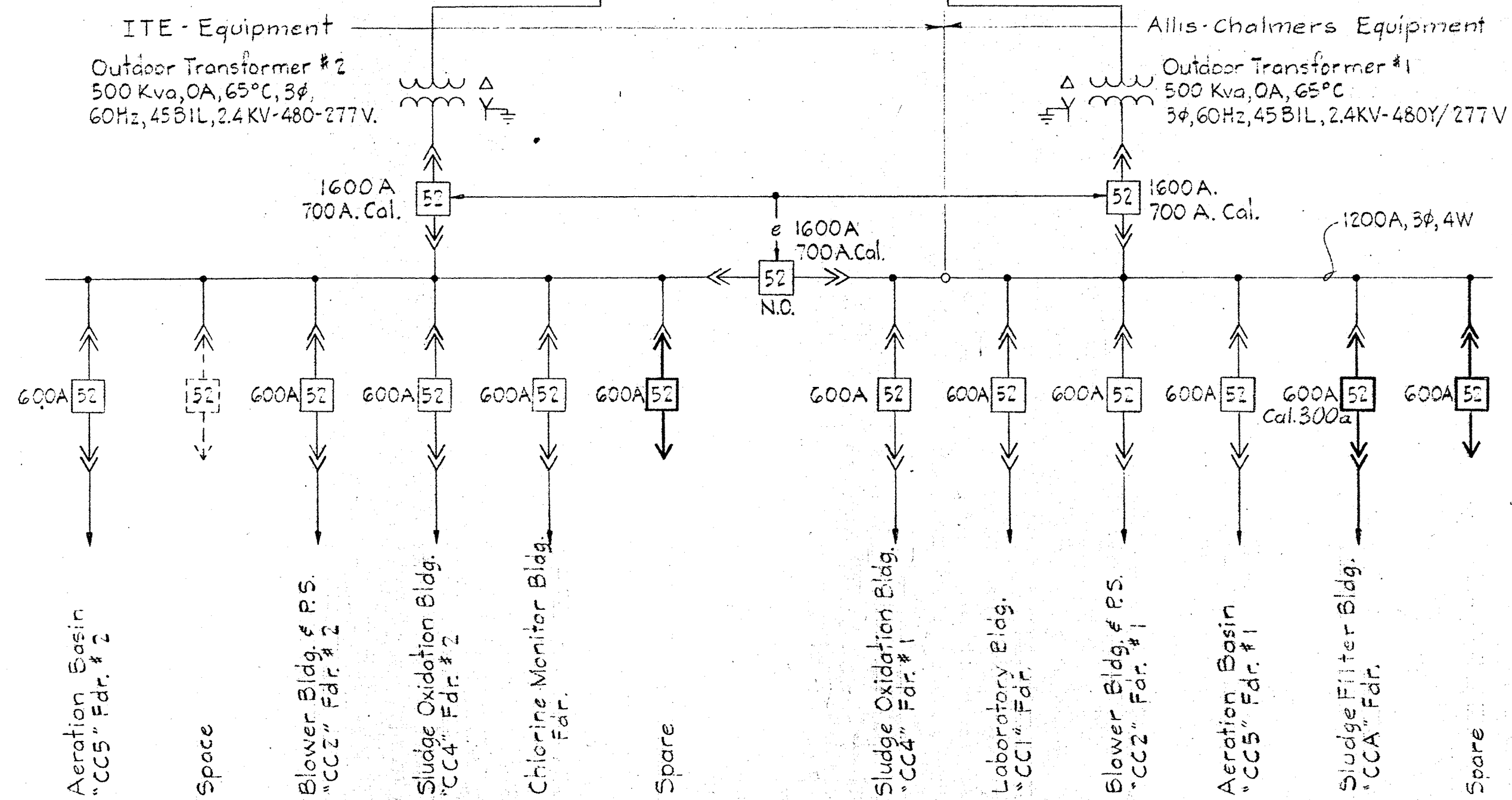
- a Red & Green Indicating Lights
- b 480-120 Volt Control Transformer
- c Running Time Meter
- d Hand-Off-Automatic Selector Switch
- e Start-Stop Pushbutton Station

GENERAL NOTES

1. For Panelboard Schedules see specifications, DETAILED ELECTRICAL REQUIREMENTS.
2. For explanation of lighting fixture types as shown on the drawings see specifications, DETAILED ELECTRICAL REQUIREMENTS.
3. Mounting heights for interior lighting fixtures shall be from finished floor to bottom of fixture unless otherwise noted.
4. Mounting heights for lighting fixtures mounted on exterior walls of buildings shall be from finished floor to center line of recessed junction box unless otherwise noted.
5. Verify all door swings before installing switch boxes.
6. Receptacles shall be mounted 2'-0" above finished floor unless otherwise noted.
7. All Elementary Control Diagrams are shown in the de-energized position.
8. Lighting Switches shall be mounted 4'-0" above finished floor unless otherwise noted.
9. In Existing Outdoor Secondary & Primary Substation One Line Diagrams and Elevations light lines indicate existing and heavy lines indicate equipment to be provided.



EXISTING OUTDOOR PRIMARY SUBSTATION "PSI"



EXISTING OUTDOOR SECONDARY SUBSTATION "SSI"

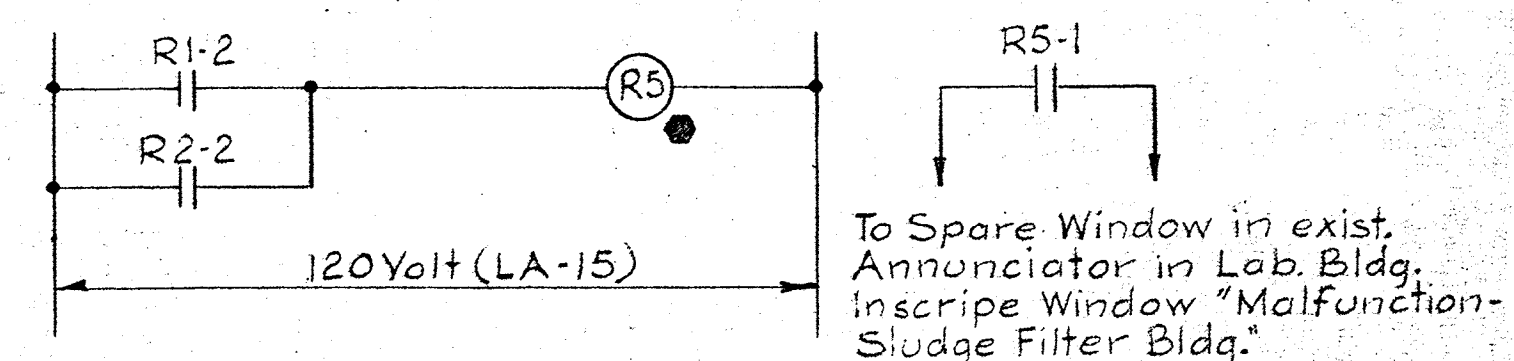
Allis-Chalmers Equipment		ITE Equipment	
CPT's & P.T.'s	1600A Spare	Relays & Controls	Blank
1600A MB #1	600A Sludge Filter Bldg. CCA	1600A Tie	1600A MB #2
600A Lab. Bldg. CCI	600A Aeration CCA Fdr. #1	600A Sludge Oxidation CCA Fdr. #1	600A Sludge Oxidation CCA Fdr. #2
	600A Blower #PS CC2 Fdr. #1	Blank	600A Aeration CCA Fdr. #2
			600A CPT.

FRONT ELEVATION

FRONT ELEVATION

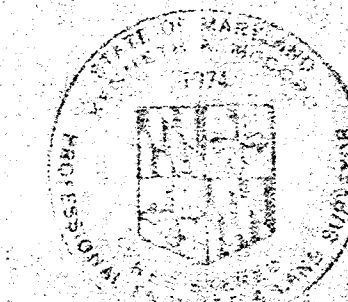
PARTIAL EXISTING OUTDOOR SECONDARY SUBSTATION "SSI"

No Scale



ECD #13

Remote Annunciation



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

W. O. Requardt 1-19-77
DIRECTOR OF PUBLIC WORKS - DATE

W. O. Albert 1-19-77
CHIEF BUREAU OF ENGINEERING - DATE

CONTRACT NO. 527(A)-S

POWER-ONE LINE DIAGRAM
LEGEND & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 3(A)

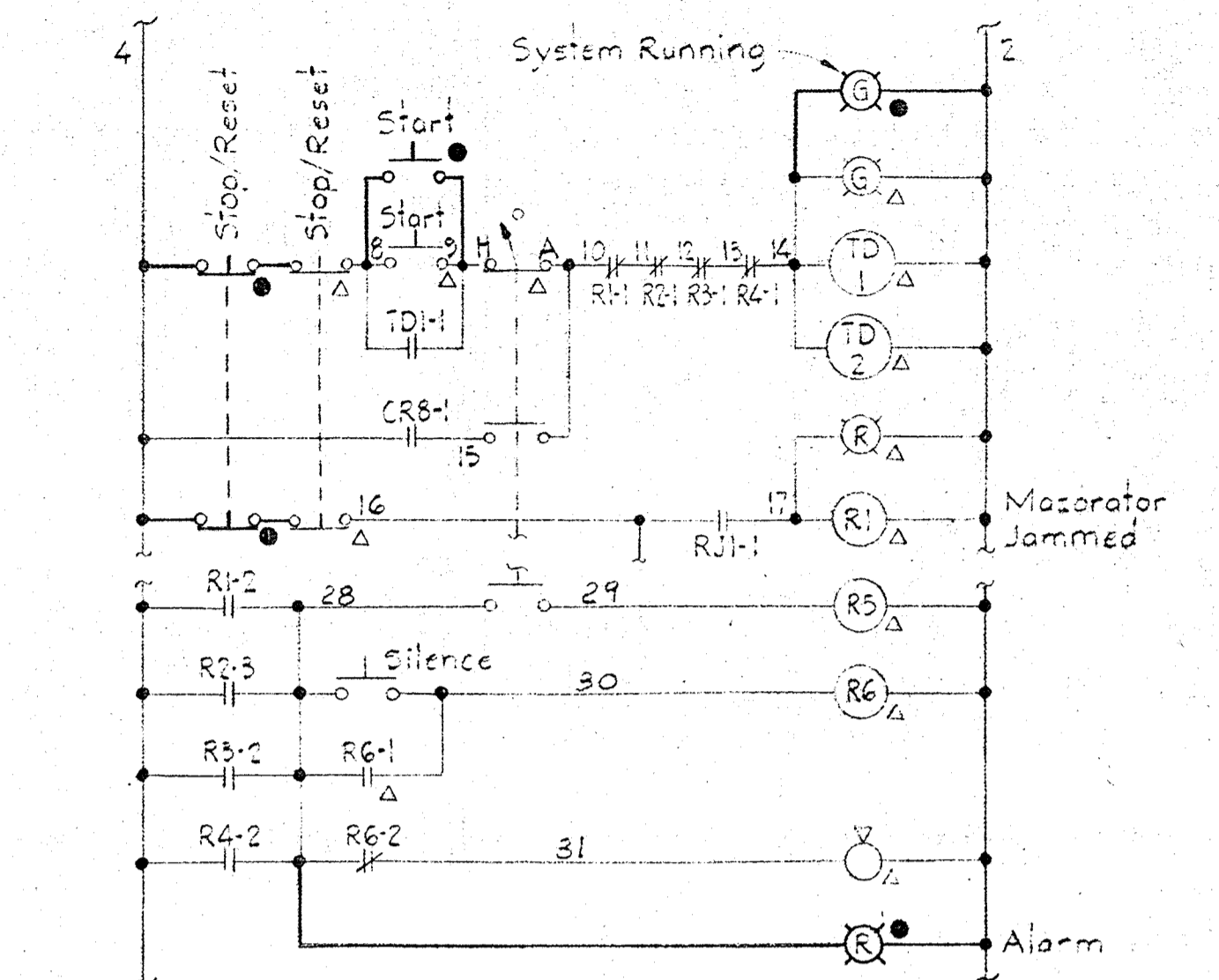
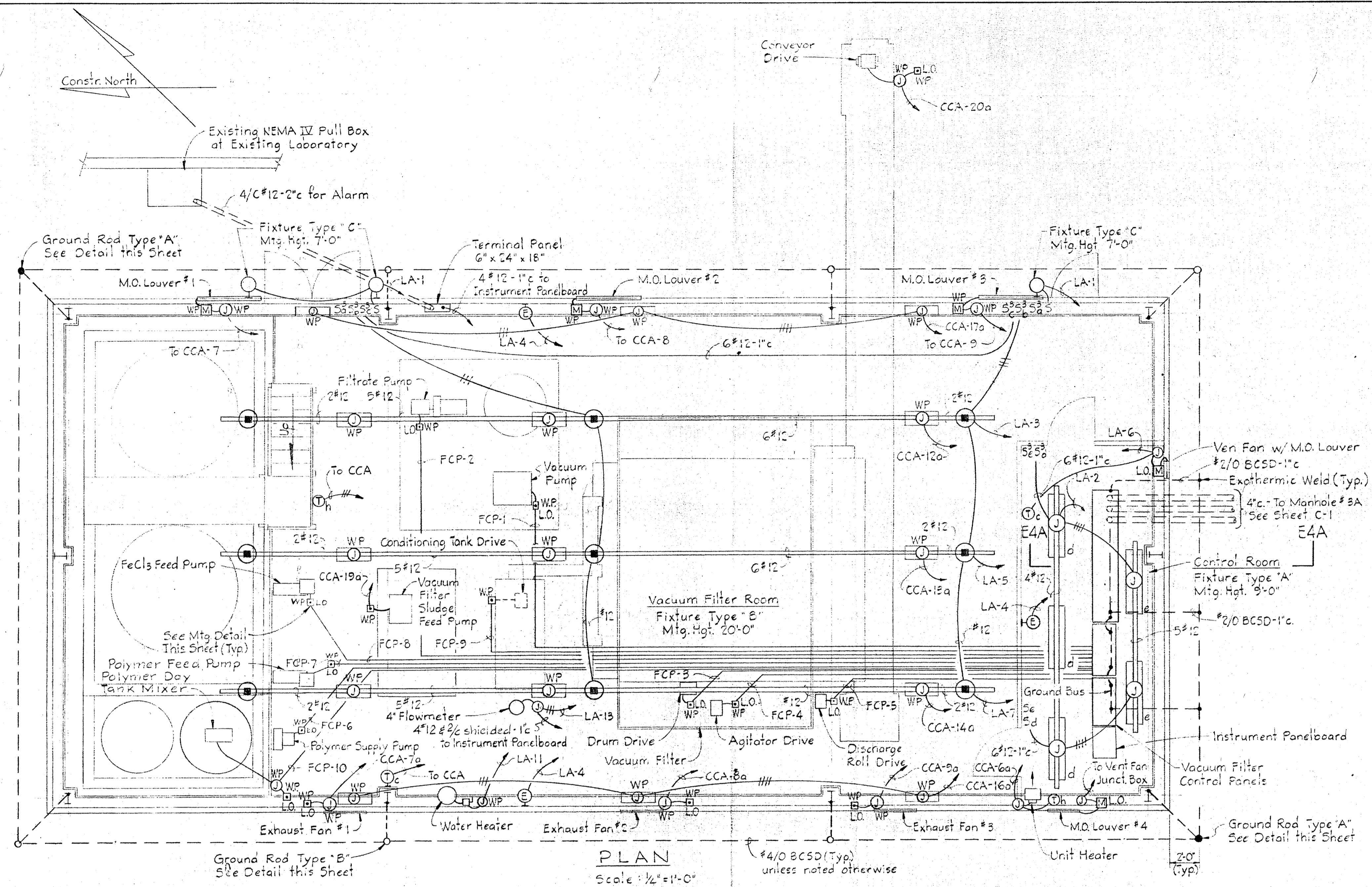
DRAWING NO. 13
OF 16

SCALE AS SHOWN

SHEET E-1

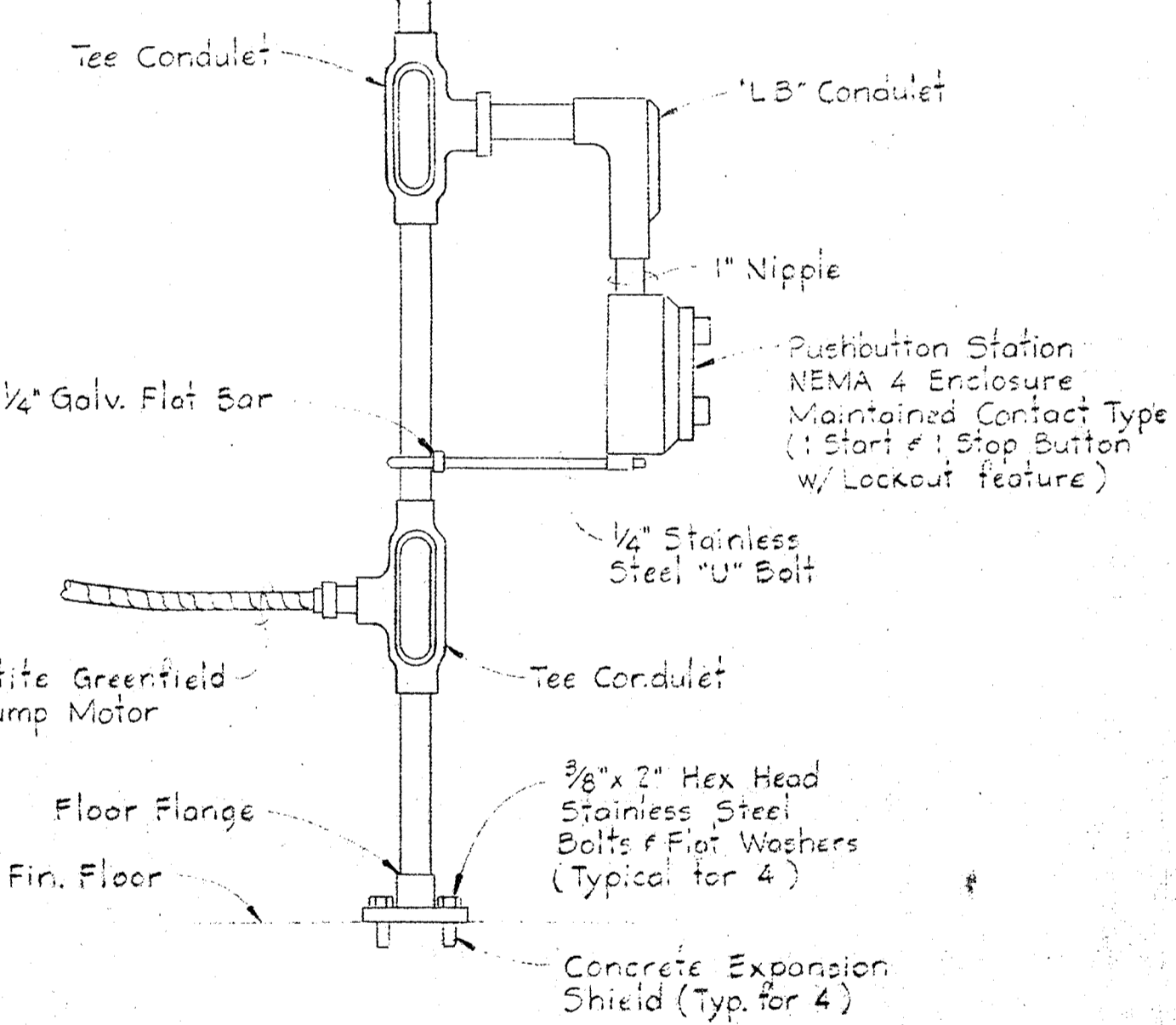
NOTES

1. For GENERAL ELECTRICAL NOTES & LEGEND see Sheet E-1.



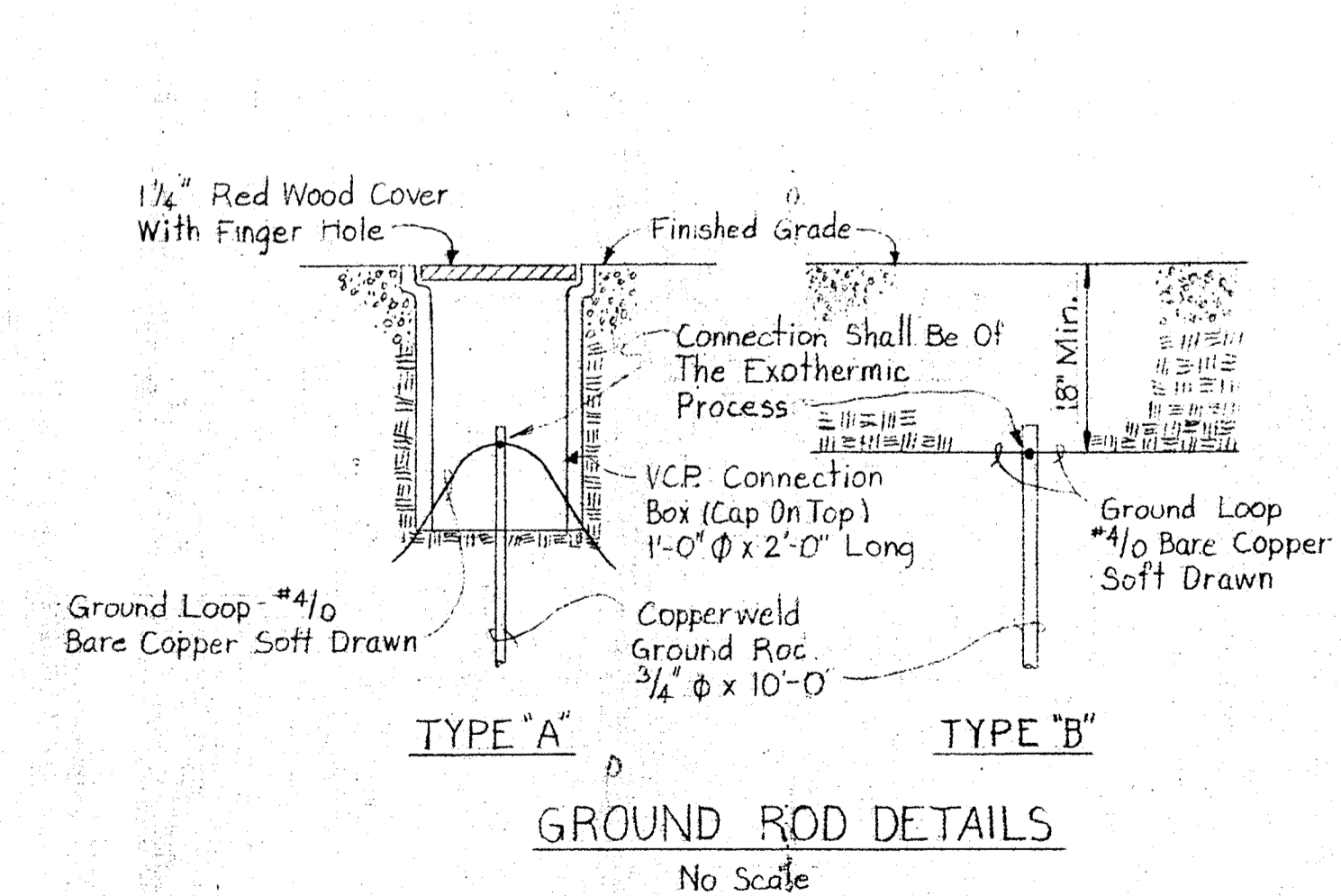
**PARTIAL ELEMENTARY-EXIST. SLUDGE PUMP #3
SLUDGE OXIDATION BLDG.**

(Typical for Existing Sludge Pump #1)
Note: Dark lines denote additional wiring and light lines denote existing wiring.
- Conduit to Motor
- Conduit to Control Center



**MOUNTING DETAIL
PUSHBUTTON STATION**

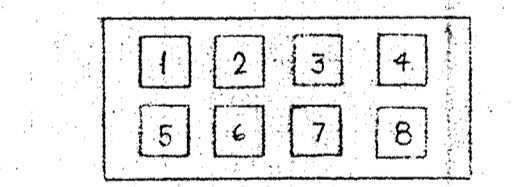
No. Scale
Typical for: Polymer Feed Pump, FeCl3 Feed Pump, Polymer Supply Pump, Filtrate Pump, Vacuum Pump, Conditioning Tank Drive, Filter Drum Drive, Filter Agitator Drive, Filter Discharge Roll Drive, Vacuum Filter Sludge Feed Pump



GROUND ROD DETAILS
No Scale

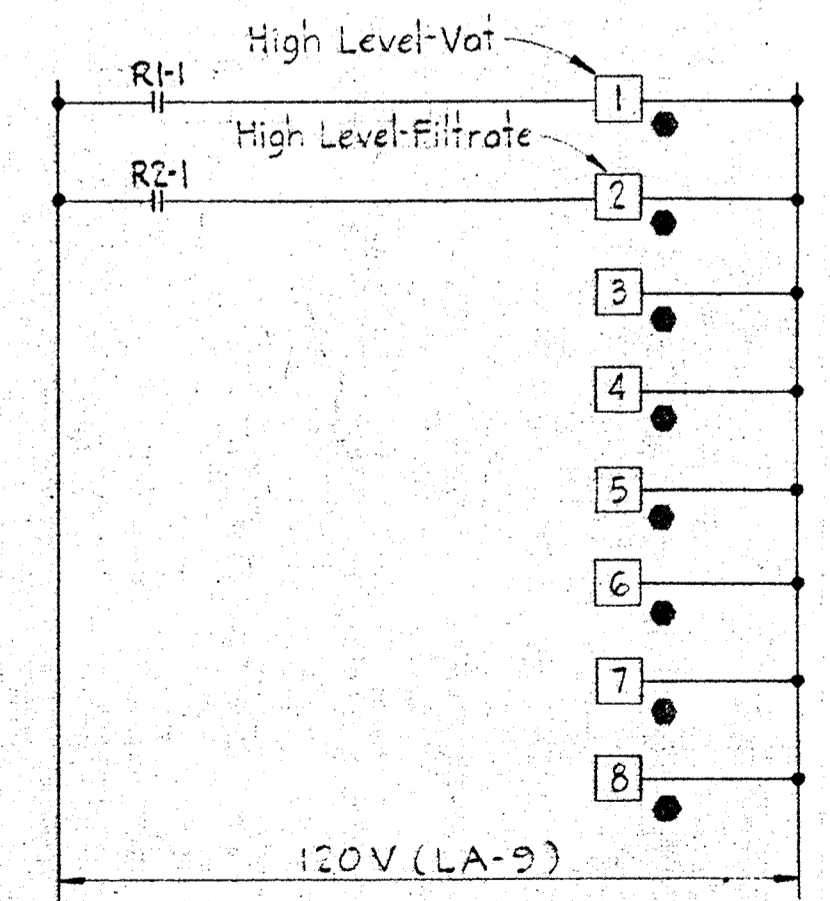
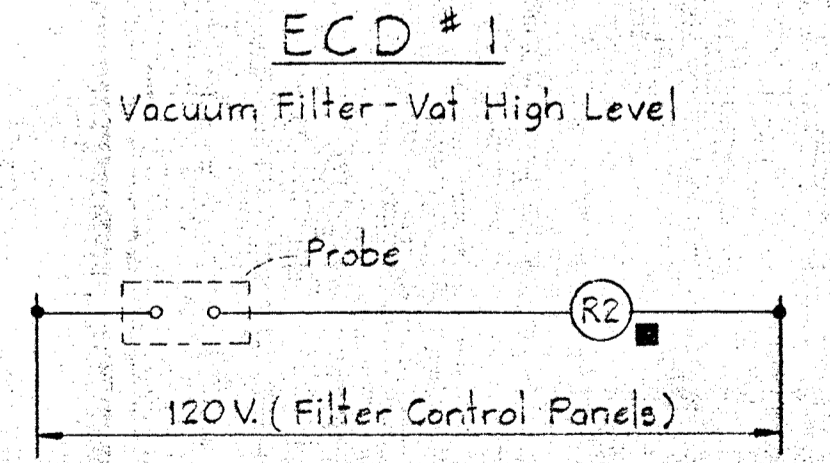
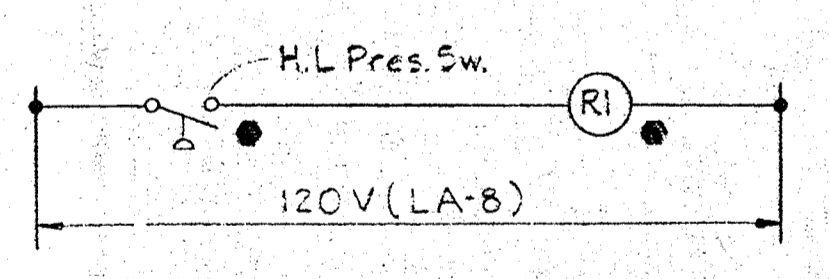
PLAN

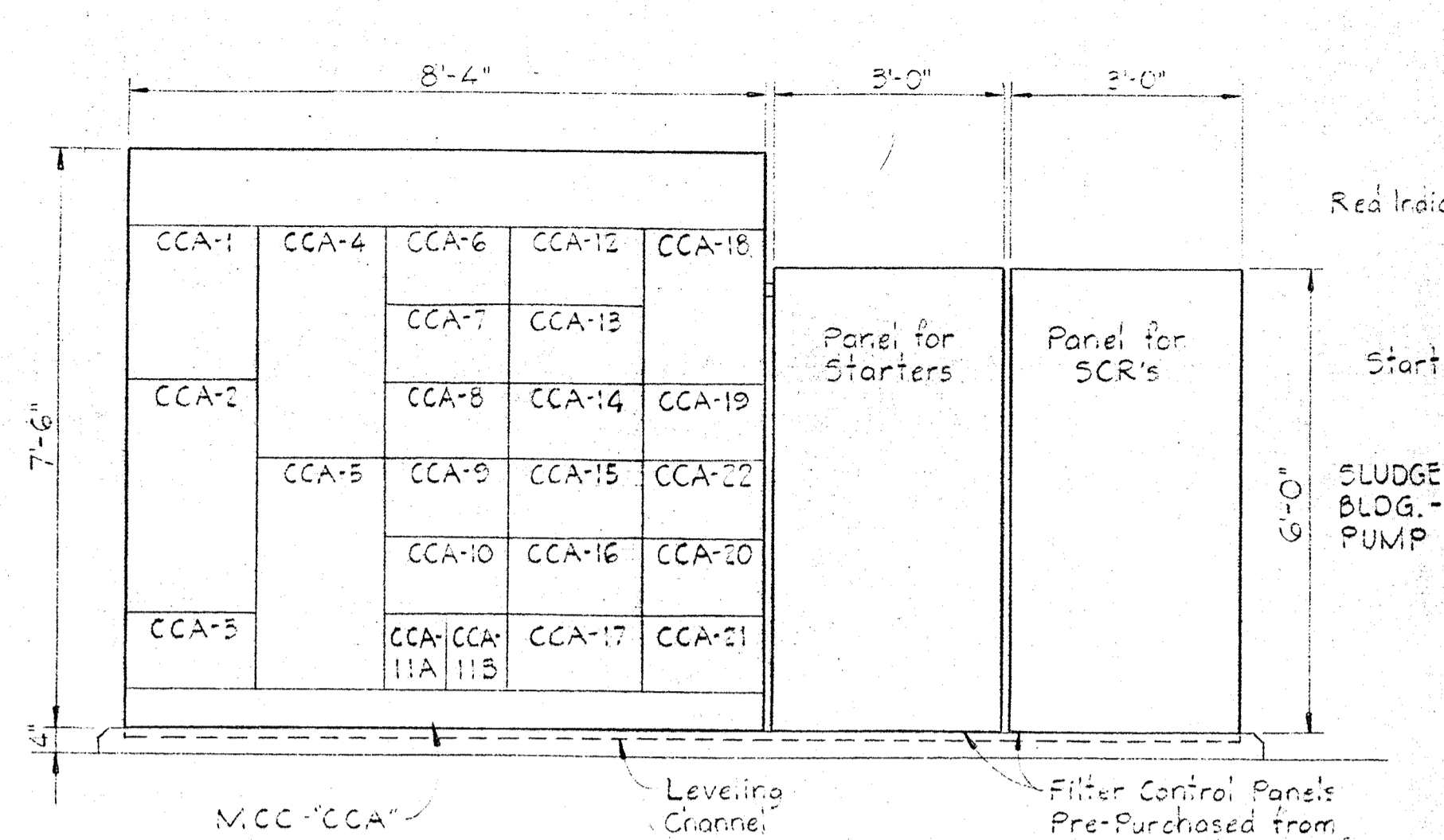
Scale: 1/2" = 1'-0"



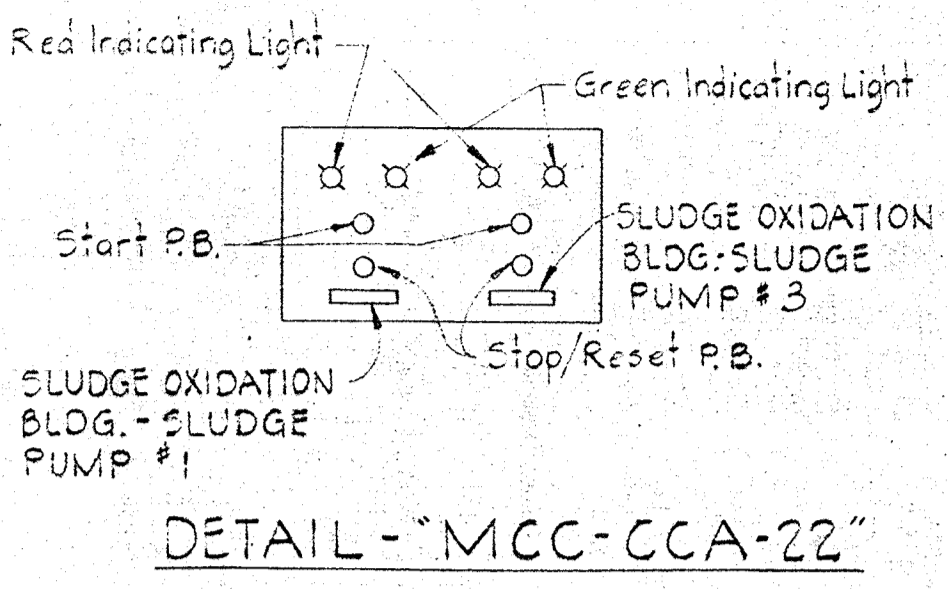
ANNUNCIATOR "A"
Mid in Instrument Panelboard

Point No.	Window Inscription	ECD
1	High Liquid Level Vacuum Filter - Vat Sludge Filter Bldg.	1
2	High Liquid Level Filtrate Receiver Sludge Filter Bldg.	2
3	Blank (Spare)	
4	Blank (Spare)	
5	Blank (Spare)	
6	Blank (Spare)	
7	Blank (Spare)	
8	Blank (Spare)	



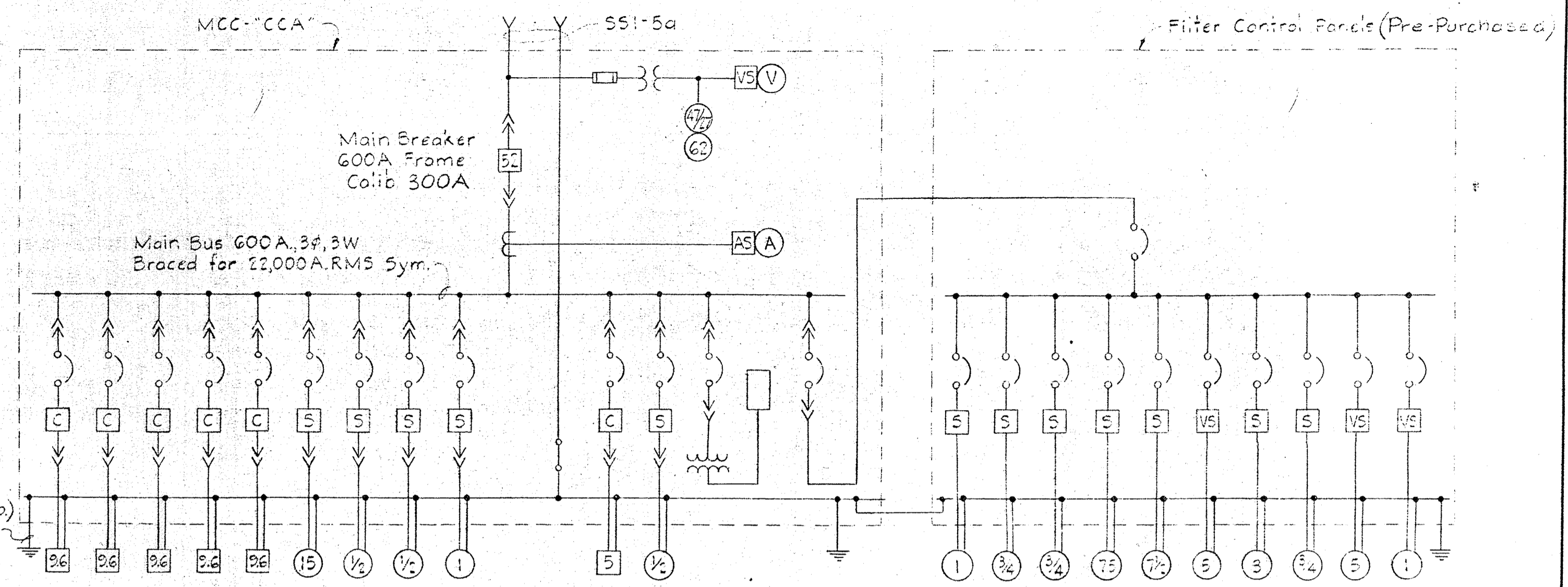


ELEVATION - MCC-CCA
Scale: 1/2" = 1'-0"



DETAIL - "MCC-CCA-22"

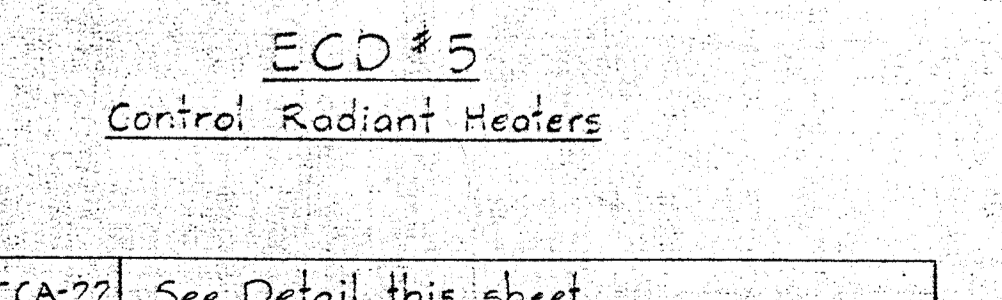
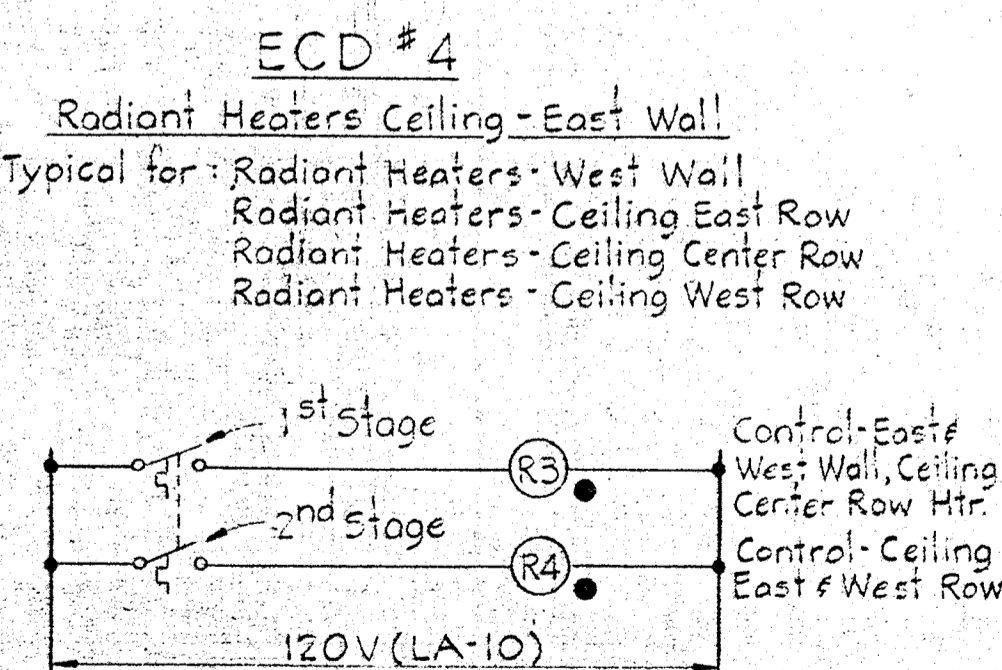
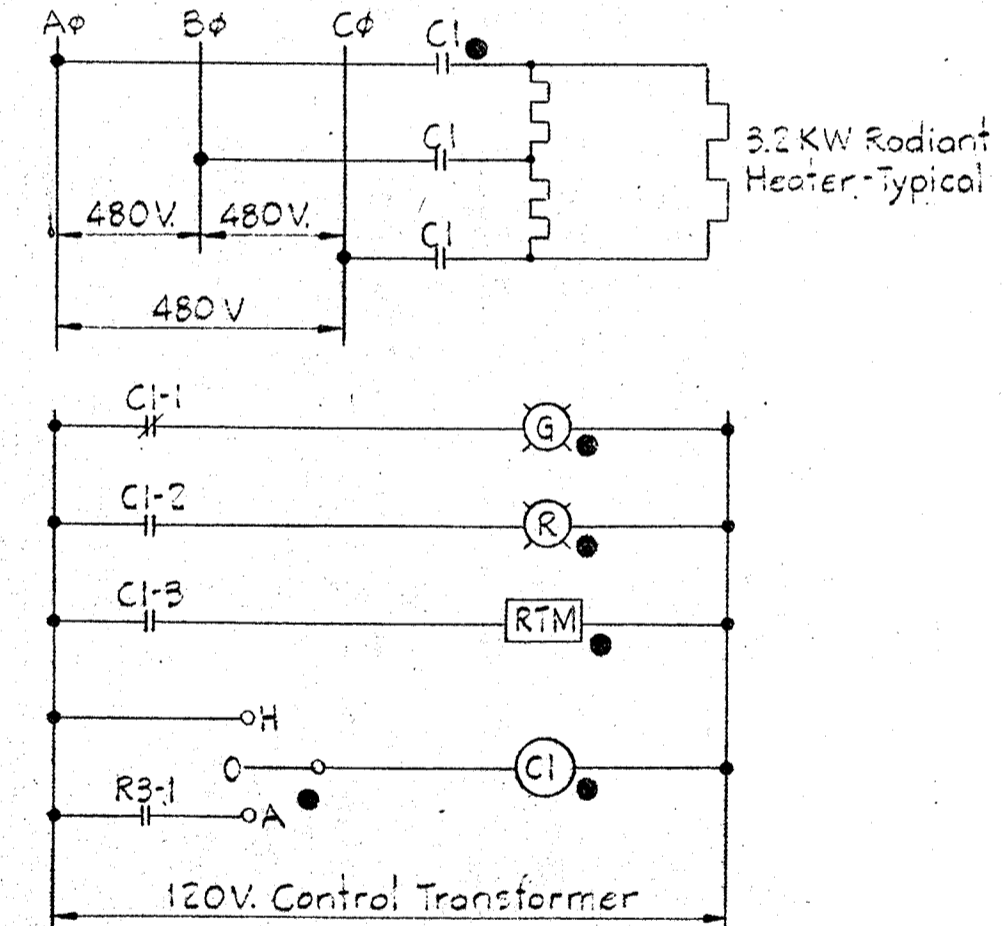
To Ground Field (Typ)
See Sheet E-2



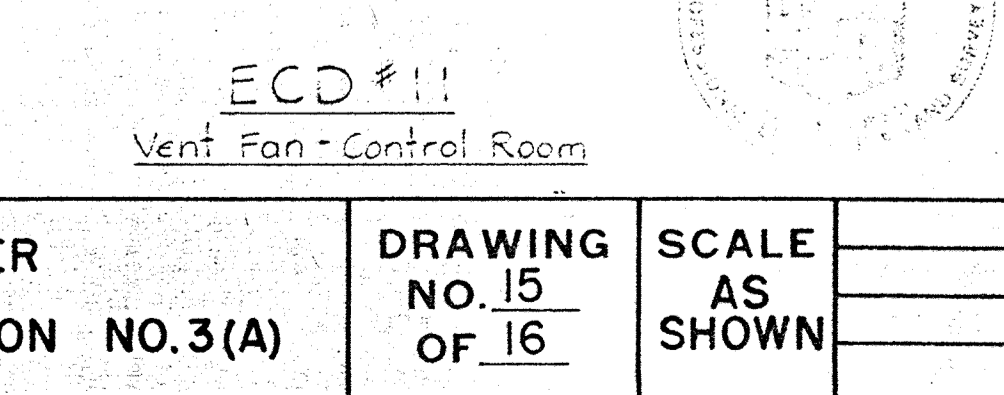
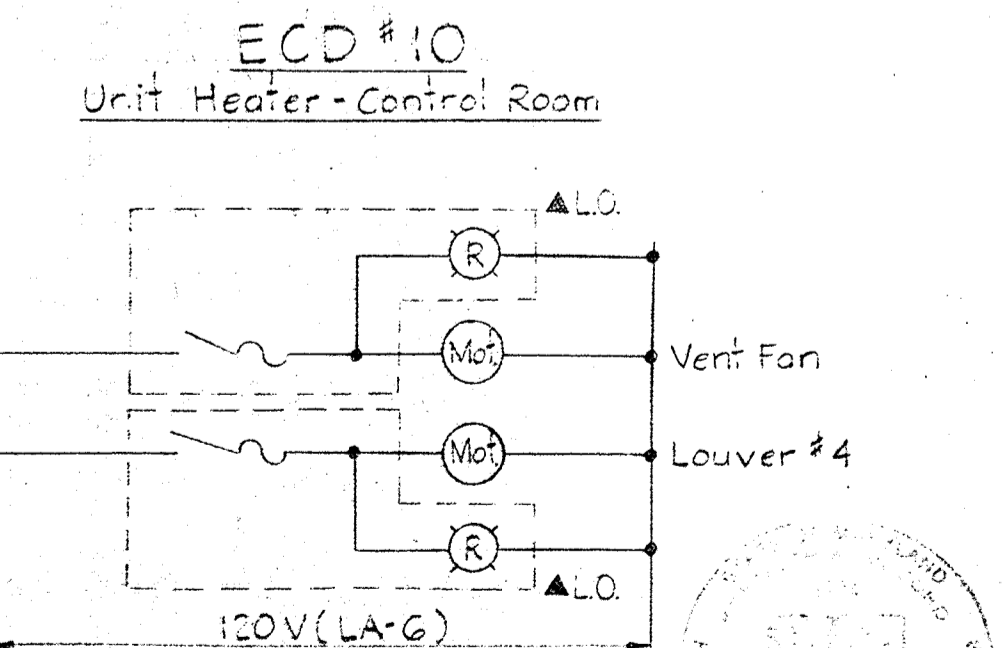
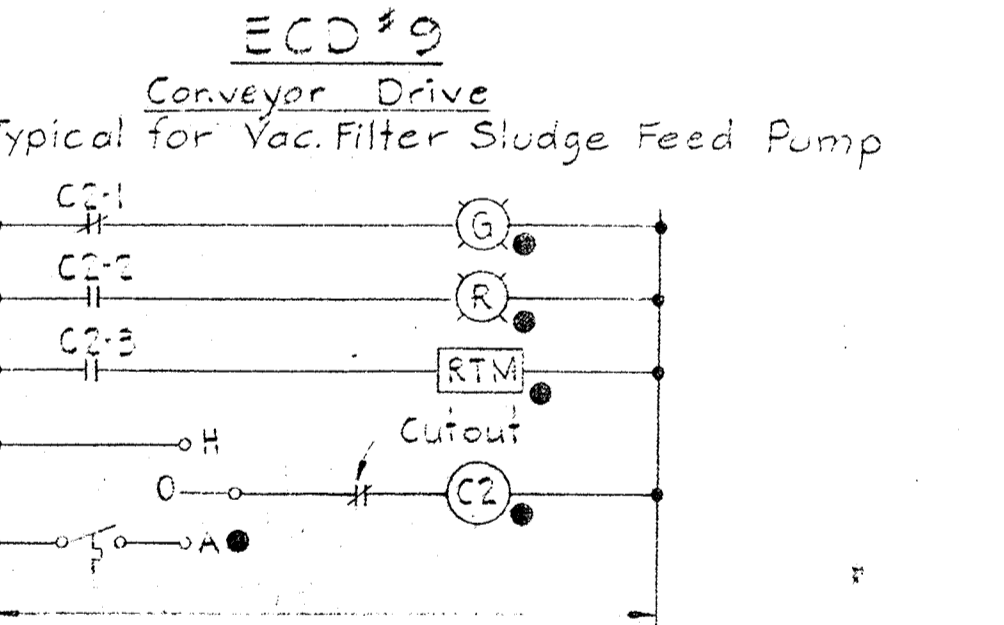
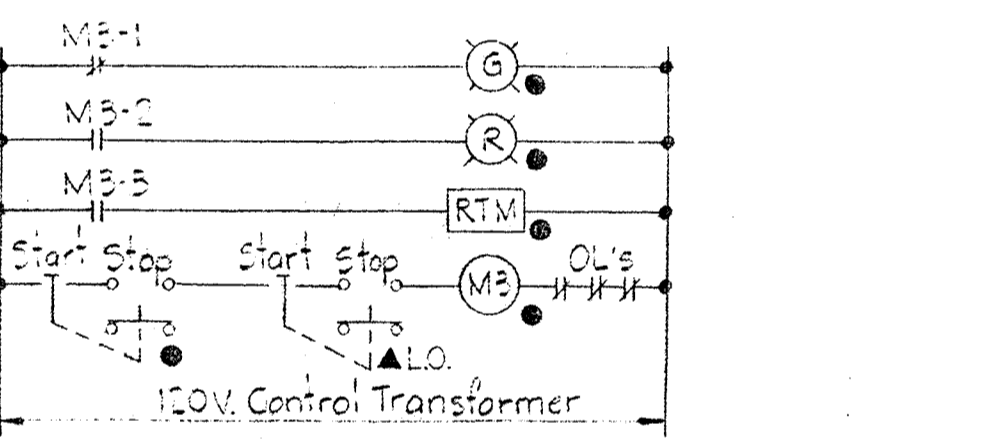
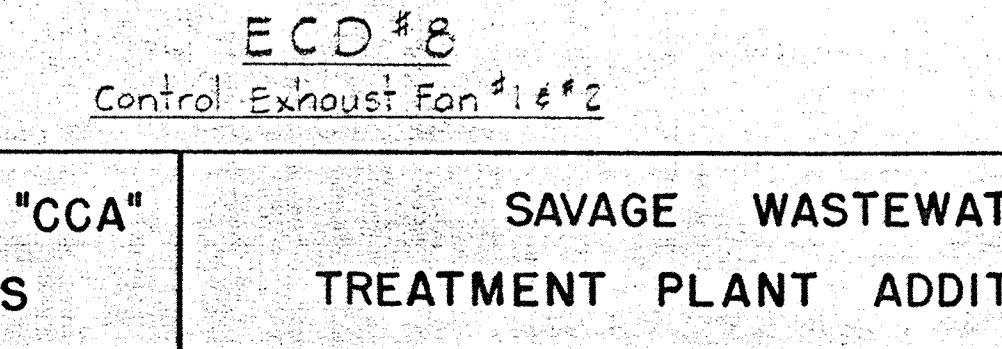
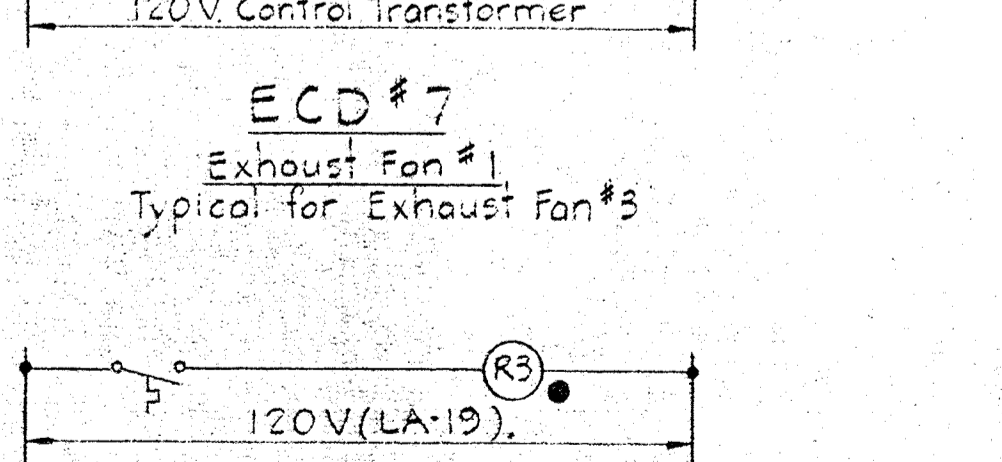
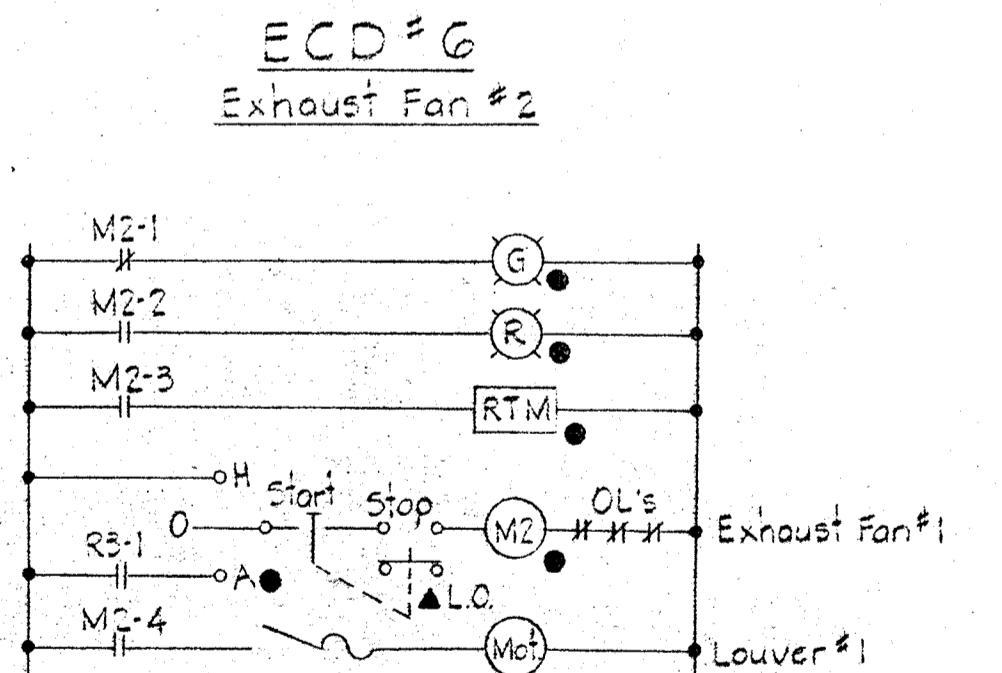
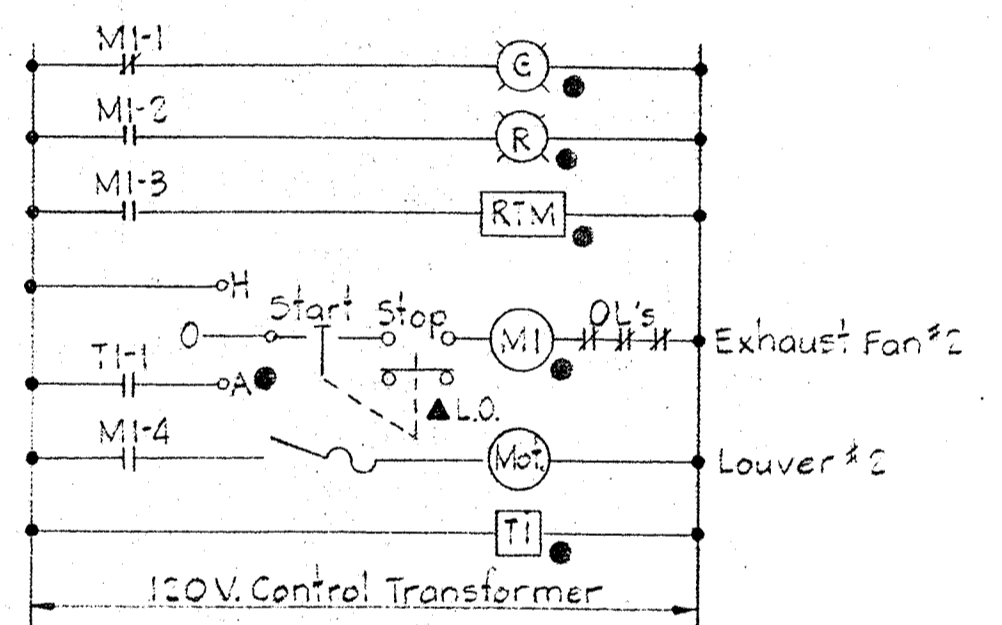
- Radiant Heaters East Wall
- Radiant Heaters West Wall
- Radiant Heaters Ceiling East Row
- Radiant Heaters Ceiling Center Row
- Radiant Heaters Ceiling West Row
- Vacuum Filter Sludge Feed Pump
- Exhaust Fan #1
- Exhaust Fan #2
- Conveyor Drive
- Unit Heater Control Room
- Exhaust Fan #3
- 15 Kva Transformer 480V-208/120V, 50
- Panel "LA"
- Filter Control Panel-Feeder
- Polymer Day Tank Mixer
- Conditioning Tank Drive
- Polymer Feed Pump
- Vacuum Pump
- Vacuum Filtrate Pump
- Filter Drum Drive
- Polymer Supply Pump
- Ferric Feed Pump
- Filter Agitator Drive
- Filter Discharge Roll Drive

ONE LINE WIRING DIAGRAM

MOTOR CONTROL CENTER "CCA" 480V - 3φ - 3W - 60HZ											
UNIT NUMBER	NAMEPLATE DATA	DEVICE DESCRIPTION	HP or KVA	AUX. DESCR.	BREAKER or MCP FRAME POLE CAL. SET SIC	RUN NUMBER	POWER WIRE NO. SIZE TYPE	CONTROL WIRE NO. SIZE TYPE	GRD. WIRE	COND. SIZE	
CCA-1	STANDARD NAMEPLATES	Ammeter, Voltmeter, Switches, PT's, etc.	-	See Spec.	-	-	-	By Manufacturer	-	-	
CCA-2	MAIN BREAKER	Circuit Breaker	-	See Spec.	600 3 300 30	-	By Manufacturer	-	-	-	
CCA-3	-	Incoming Feeder Space	-	-	-	-	551-5a	3/C 350 MCM	See Spec.	3#3 See DWG's	
CCA-4	PANEL "LA"	Circuit Breaker	-	See Spec.	-	-	-	By Manufacturer	-	-	
CCA-5	TRANSFORMER "A"	Transformer 480-208Y/120V, 3φ 4W, 60HZ	15	See Spec.	-	-	-	By Manufacturer	-	-	
CCA-6	UNIT HEATER CONTROL ROOM	Combination Contactor NEMA Size 1, FVNR	5	a, b, c, d	100 3 15 14	CCA-6a	3 12 THW	2 14 THW	12 1"	-	
CCA-7	EXHAUST FAN #1 FILTER ROOM	Combination Starter NEMA Size 1, FVNR	1/2	a, b, c, d	100 3 10X 14	CCA-7a	3 12 THW	-	12 1"	-	
CCA-8	EXHAUST FAN #2 FILTER ROOM	Combination Starter NEMA Size 1, FVNR	1/2	a, b, c, d	100 3 10X 14	CCA-8a	3 12 THW	-	12 1"	-	
CCA-9	EXHAUST FAN #3 FILTER ROOM	Combination Starter NEMA Size 1, FVNR	1/2	a, b, c, d	100 3 10X 14	CCA-9a	3 12 THW	-	12 1"	-	
CCA-10	Blank (Spare)	Combination Starter NEMA Size 1, FVNR	-	a, b, c, d	100 3 10X 14	-	-	-	-	-	
CCA-11a	TRANSFORMER "A"	Circuit Breaker	-	-	100 3 30 14	-	By Manufacturer	-	-	-	
CCA-11b	Blank (Spare)	Circuit Breaker	-	-	100 3 30 14	-	By Manufacturer	-	-	-	
CCA-12	RADIANT HEATERS CEILING-EAST ROW	Combination Contactor NEMA Size 1, FVNR	9.6	a, b, c, d	100 3 20 14	CCA-12a	3 12 THW	-	12 1"	-	
CCA-13	RADIANT HEATERS CEILING-CENTER ROW	Combination Contactor NEMA Size 1, FVNR	9.6	a, b, c, d	100 3 20 14	CCA-13a	3 12 THW	-	12 1"	-	
CCA-14	RADIANT HEATERS CEILING-WEST ROW	Combination Contactor NEMA Size 1, FVNR	9.6	a, b, c, d	100 3 20 14	CCA-14a	3 12 THW	-	12 1"	-	
CCA-15	RADIANT HEATERS EAST WALL	Combination Contactor NEMA Size 1, FVNR	9.6	a, b, c, d	100 3 20 14	CCA-15a	3 12 THW	-	12 1"	-	
CCA-16	RADIANT HEATERS WEST WALL	Combination Contactor NEMA Size 1, FVNR	9.6	a, b, c, d	100 3 20 14	CCA-16a	3 12 THW	-	12 1"	-	
CCA-17	Blank (Spare)	Combination Contactor NEMA Size 1, FVNR	-	a, b, c, d	100 3 20 14	-	-	-	-	-	
CCA-18	FILTER CONTROL PANELS	Circuit Breaker	-	-	225 3 175 22	CCA-18a	3 3/0 THW	-	6 2 1/2"	-	
CCA-19	VACUUM FILTER SLUDGE FEED PUMP	Combination Starter NEMA Size 1, FVNR	15	a, b, c, e	100 3 10X 14	CCA-19a	3 10 THW	2 14 THW	12 1"	-	
CCA-20	CONVEYOR DRIVE	Combination Starter NEMA Size 1, FVNR	1	a, b, c, e	100 3 10X 14	CCA-20a	3 12 THW	-	12 1"	-	
CCA-21	Blank (Spare)	Combination Starter NEMA Size 1, FVNR	-	a, b, c, d	100 3 10X 14	-	-	-	-	-	
-	VACUUM PUMP	By Filter Mfr.	75	By Filter Mfr.	FCP-1	3 1/0 THW	2 14 THW	6 2"	-	-	
-	FILTRATE PUMP	By Filter Mfr.	7 1/2	By Filter Mfr.	FCP-2	3 12 THW	2 14 THW	12 1"	-	-	
-	FILTER DRUM DRIVE	By Filter Mfr.	5	By Filter Mfr.	FCP-3	3 8 THW	2 14 THW	10 1 1/2"	-	-	
-	FILTER AGITATOR DRIVE	By Filter Mfr.	5	By Filter Mfr.	FCP-4	3 8 THW	2 14 THW	10 1 1/2"	-	-	
-	FILTER DISCHARGE ROLL DRIVE	By Filter Mfr.	1	By Filter Mfr.	FCP-5	3 8 THW	2 14 THW	10 1 1/2"	-	-	
-	POLYMER SUPPLY PUMP	By Filter Mfr.	5	By Filter Mfr.	FCP-6	3 12 THW	2 14 THW	12 1"	-	-	
-	POLYMER FEED PUMP	By Filter Mfr.	2	By Filter Mfr.	FCP-7	3 12 THW	2 14 THW	12 1"	-	-	
-	FERRIC CHLORIDE PUMP	By Filter Mfr.	3/4	By Filter Mfr.	FCP-8	3 12 THW	2 14 THW	12 1"	-	-	
-	CONDITIONING TANK DRIVE	By Filter Mfr.	3/4	By Filter Mfr.	FCP-9	3 12 THW	2 14 THW	12 1"	-	-	
-	POLYMER DAY TANK MIXER	By Filter Mfr.	1	By Filter Mfr.	FCP-10	3 12 THW	2 14 THW	12 1"	-	-	

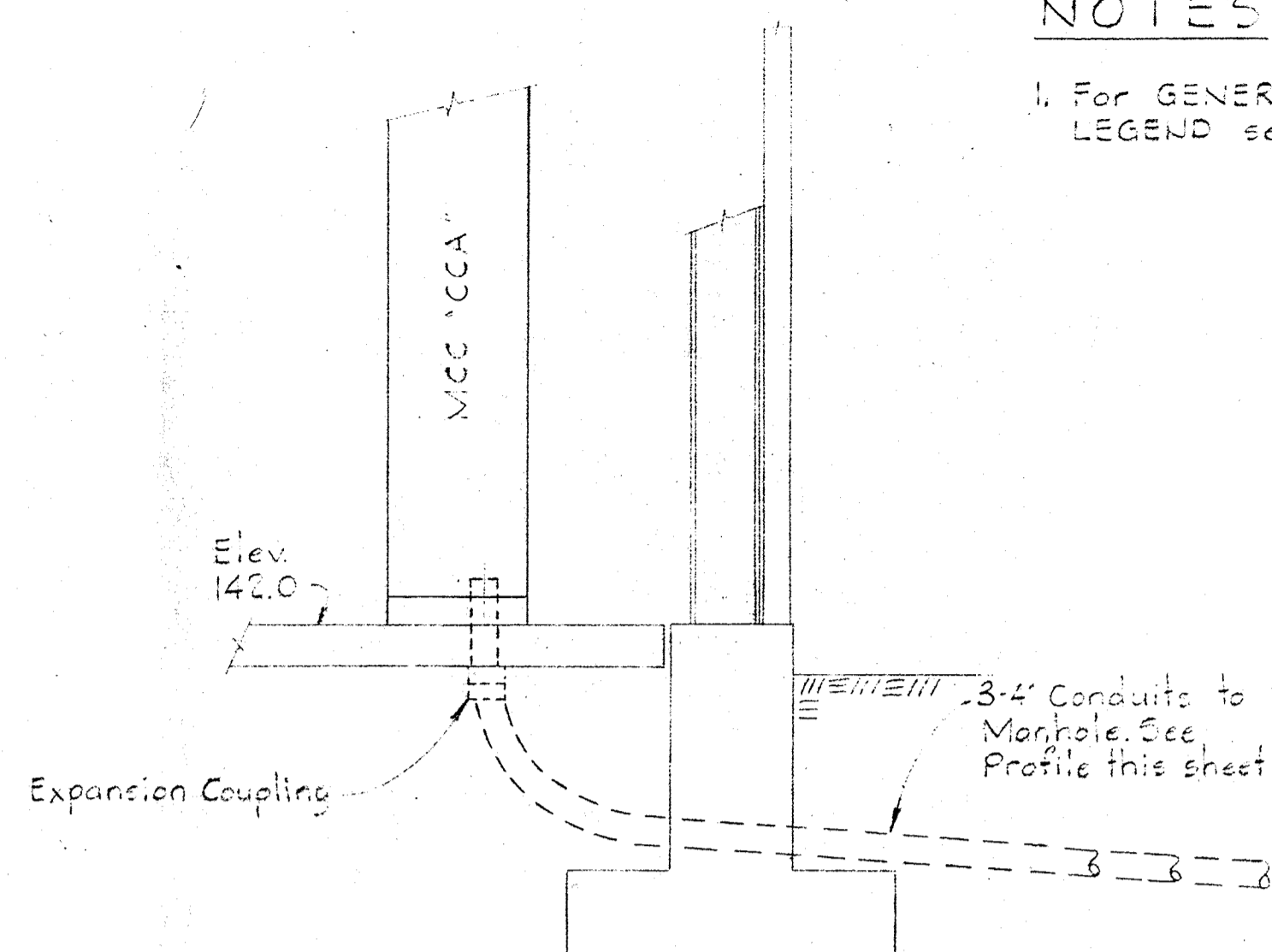


CCA-22 See Detail, this sheet

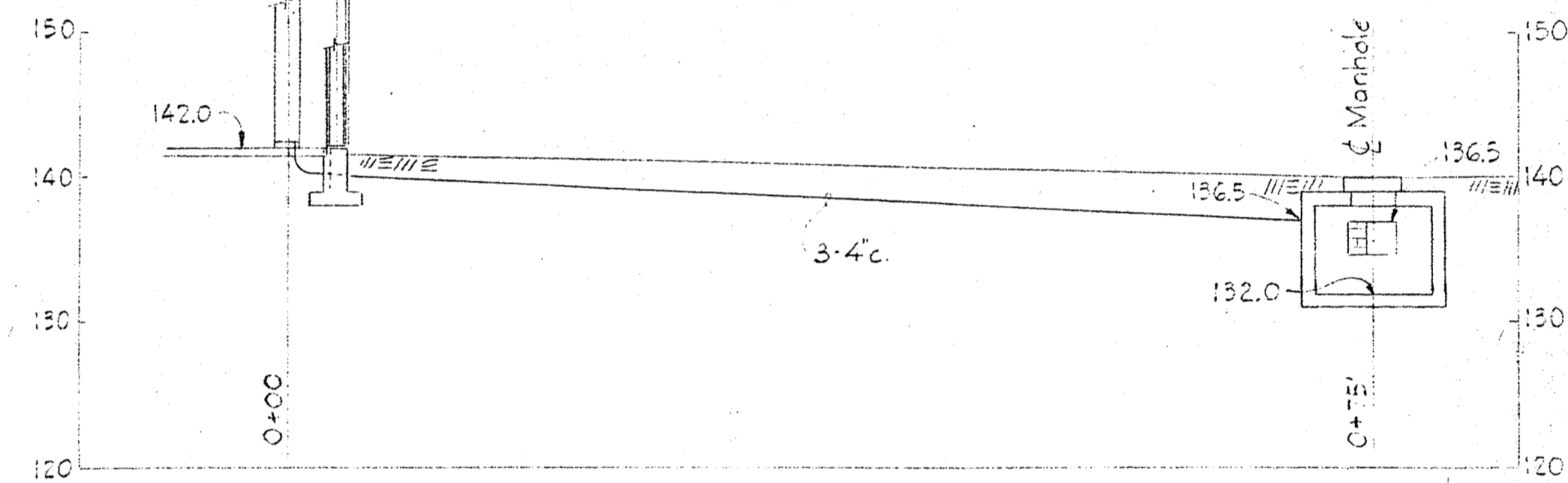


NOTES

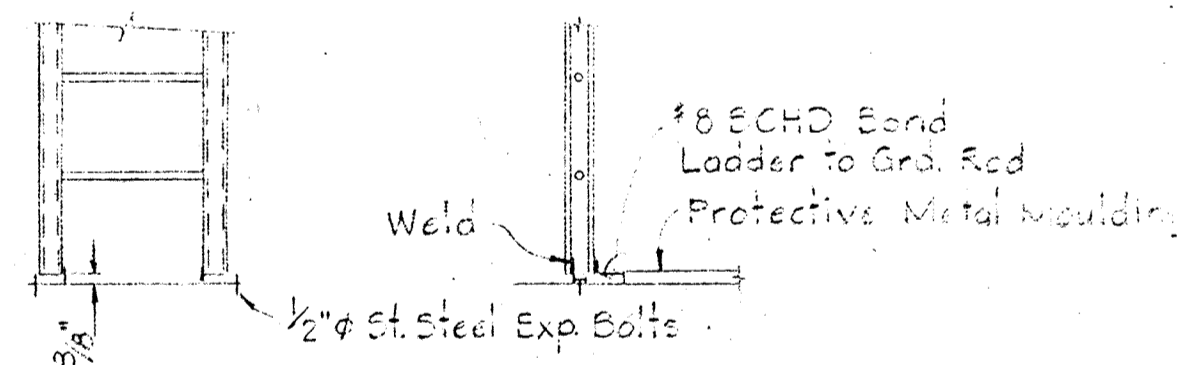
1. For GENERAL ELECTRICAL NOTES & LEGEND see Sheet E-1.



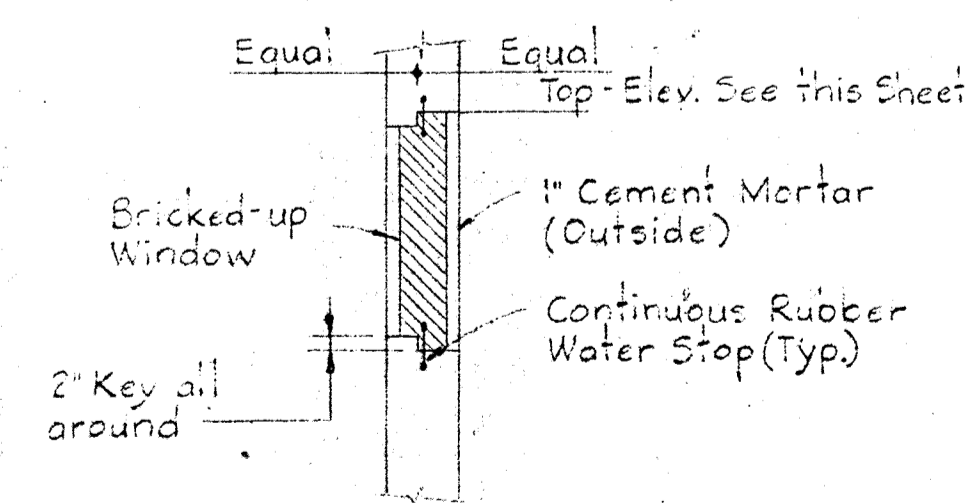
SECTION E4A/E4
Scale: 1/2" = 1'-0"



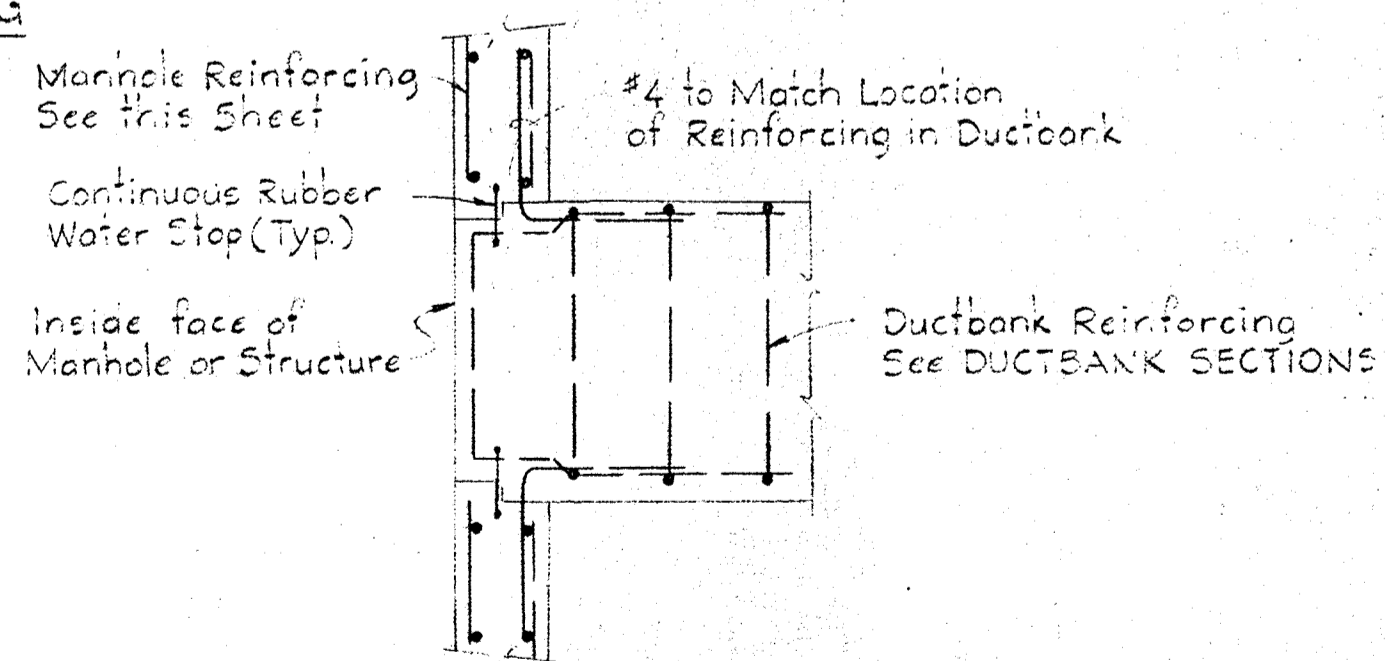
CONDUITS PROFILE
Scale: 1" = 10'-0"



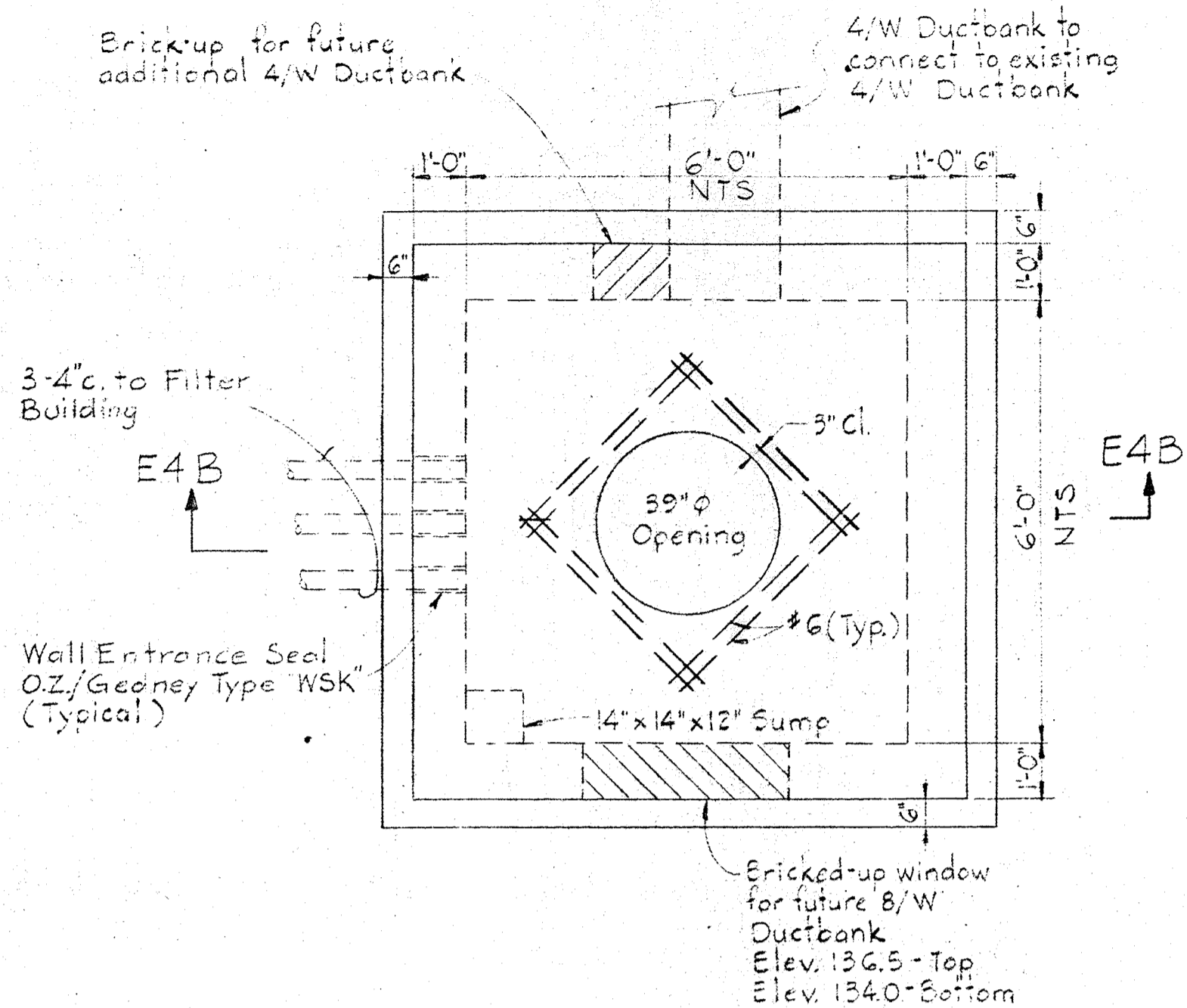
DETAIL OF MANHOLE LADDER GROUNDING
Scale: 1/2" = 1'-0"



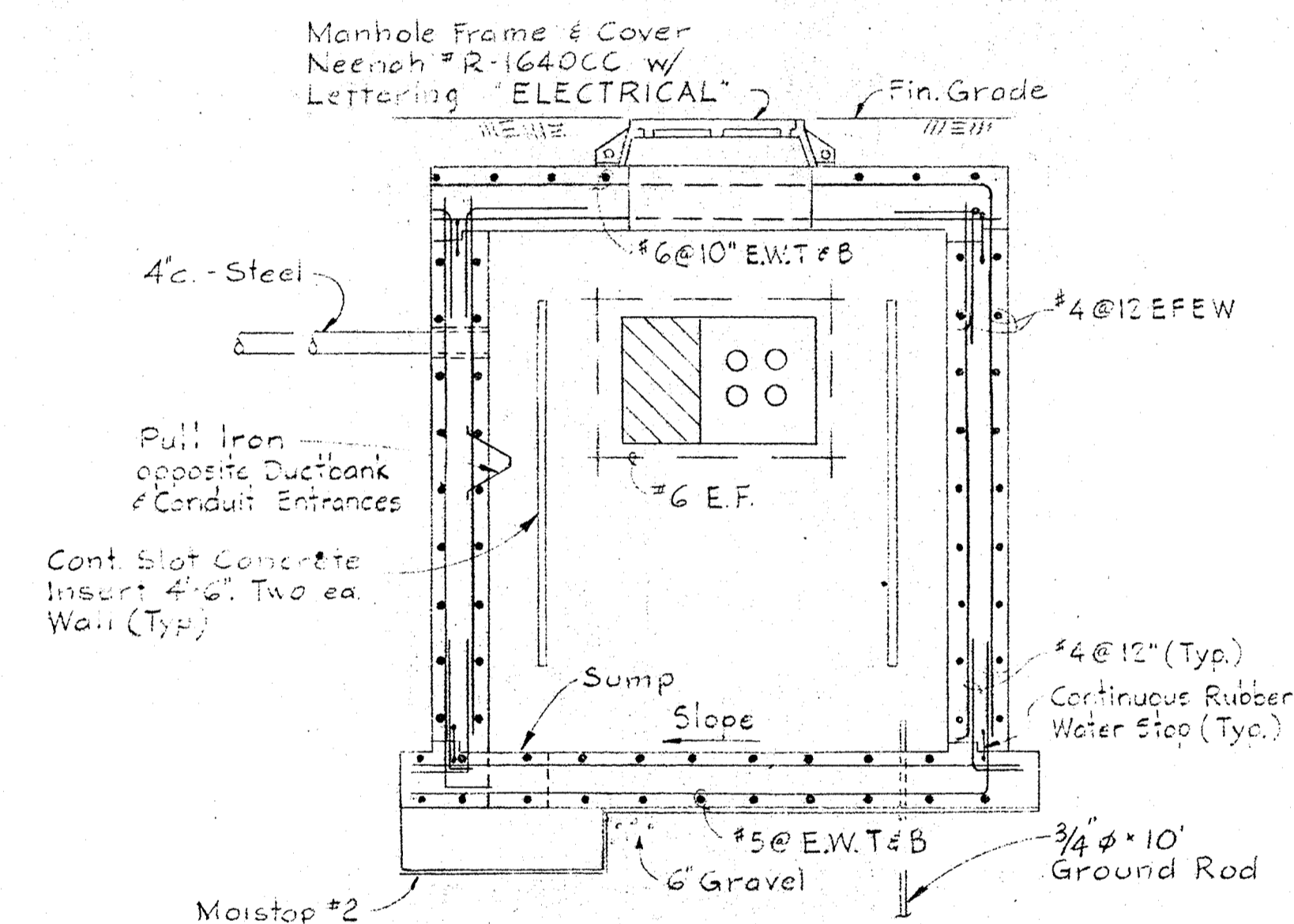
DETAIL OF BRICKED UP WINDOW FOR FUTURE DUCTBANKS
Scale: 3/8" = 1'-0"



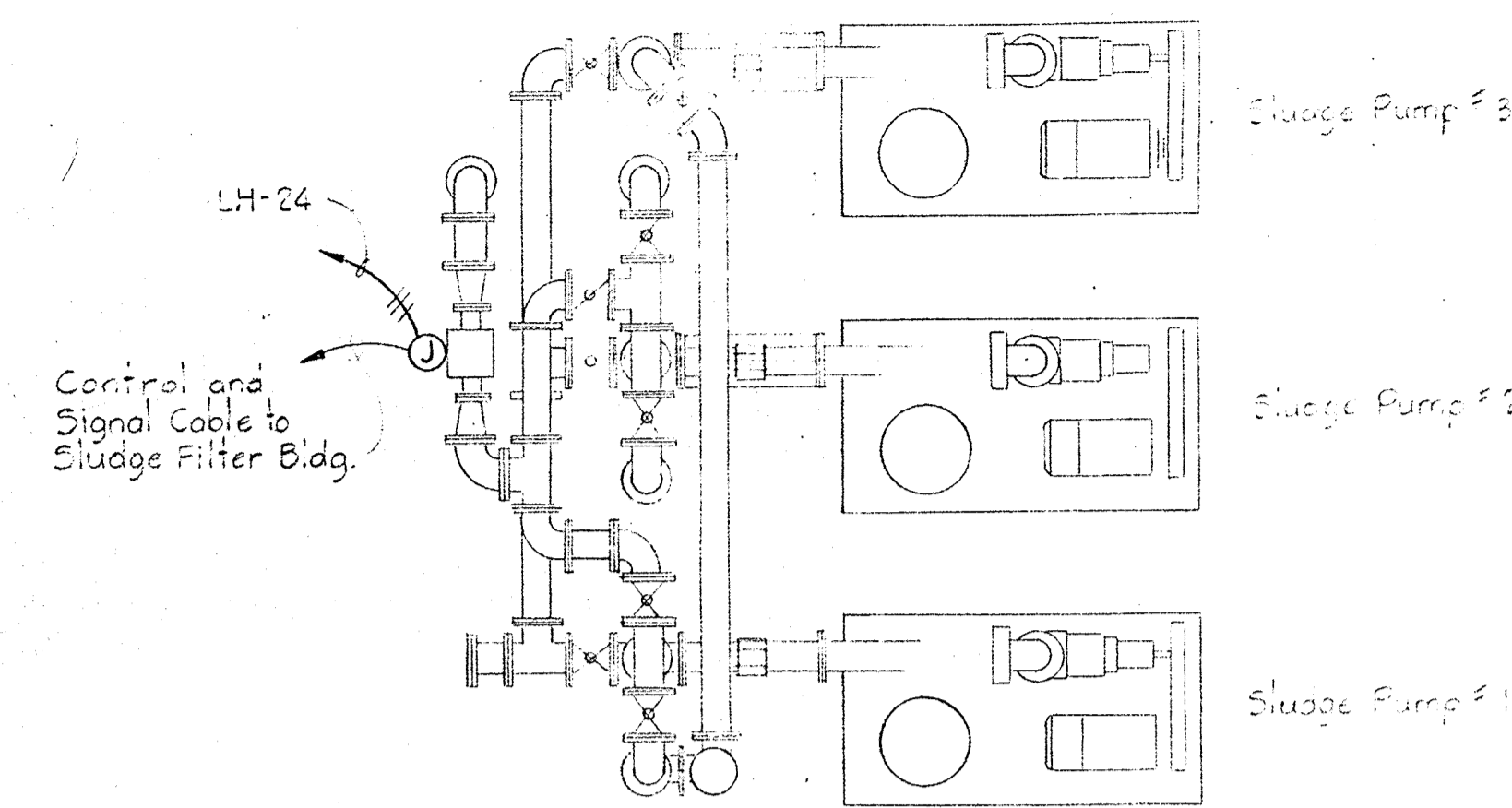
ARRANGEMENT OF DUCTBANK REINFORCING AT ENTRANCE TO MANHOLE STRUCTURES



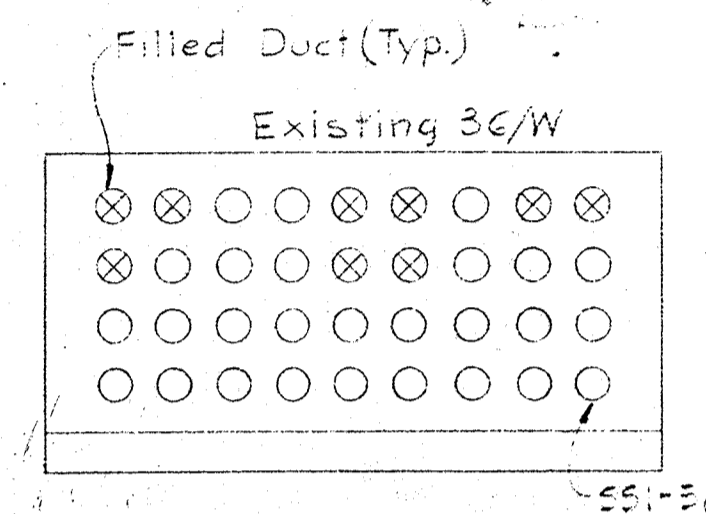
PLAN



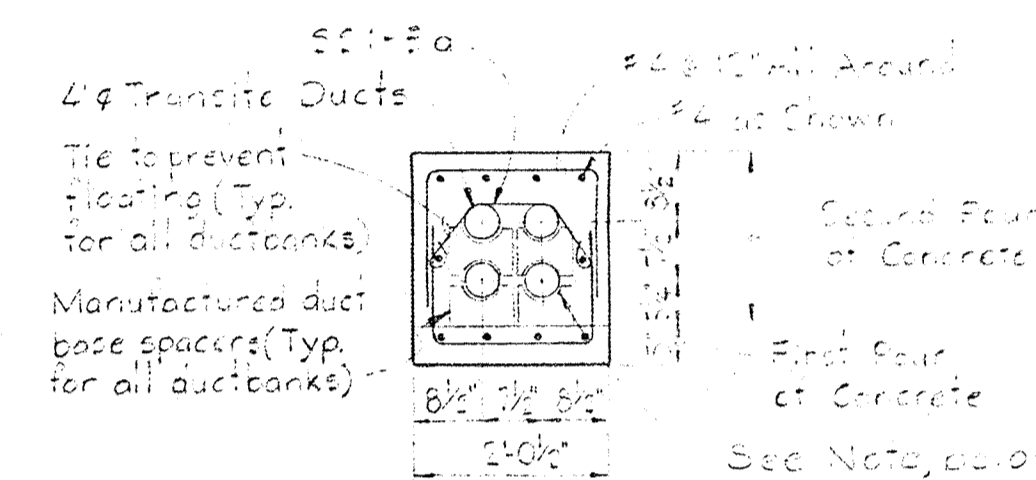
SECTION E4B/E4 MANHOLE #3A
Scale: 3/8" = 1'-0"



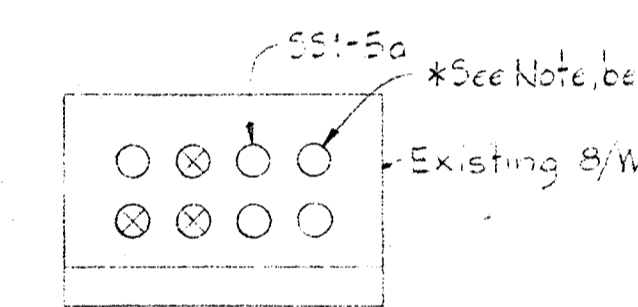
PART PLAN - EXISTING SLUDGE OXIDATION BLDG.



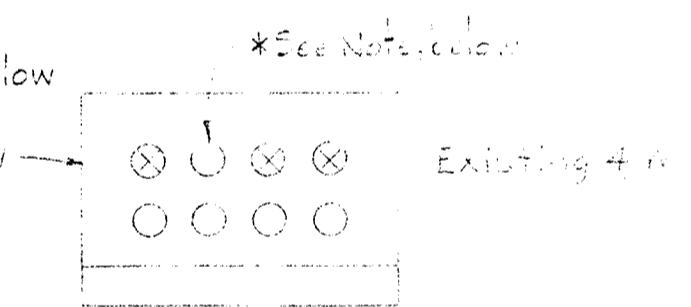
SECTION E4C/E4



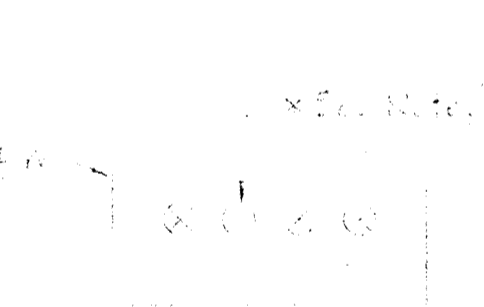
SECTION E4D, E4



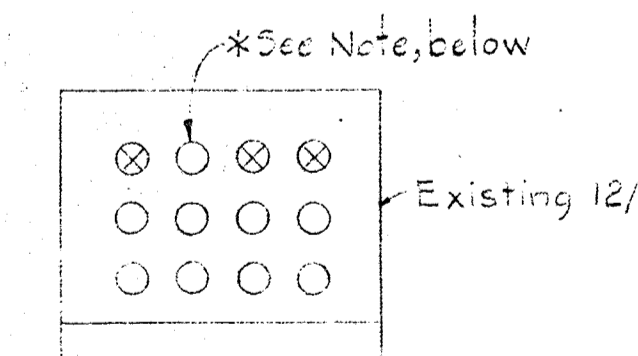
SECTION E4F/E4



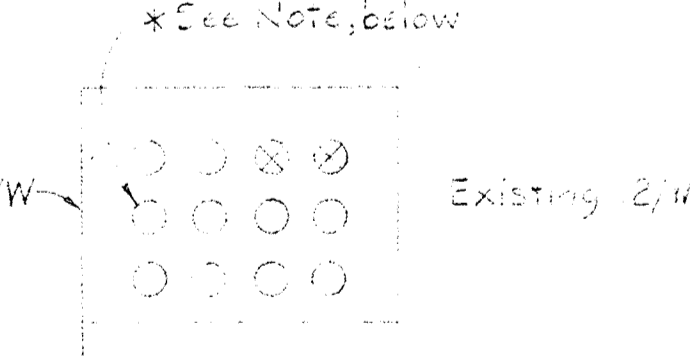
SECTION E4I/E4



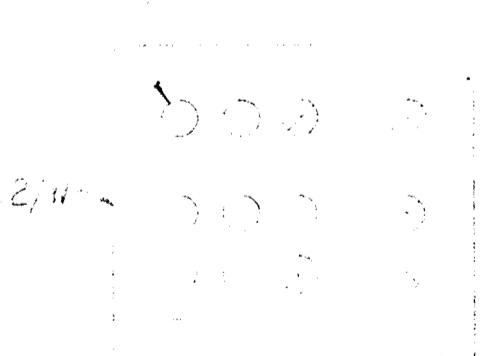
SECTION E4J, E4



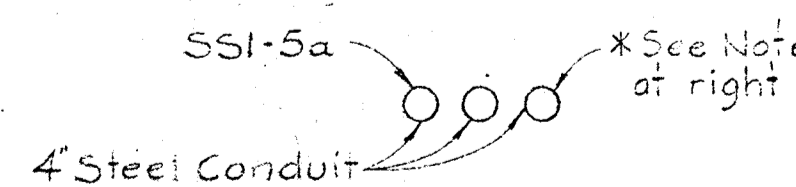
SECTION E4H/E4



SECTION E4K/E4



SECTION E4G/E4



SECTION E4E/E4

* NOTE
2(10/C*12) Control #4/C*12 #2/C
Shielded Primary Sludge Flowmeter

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
1-19-77

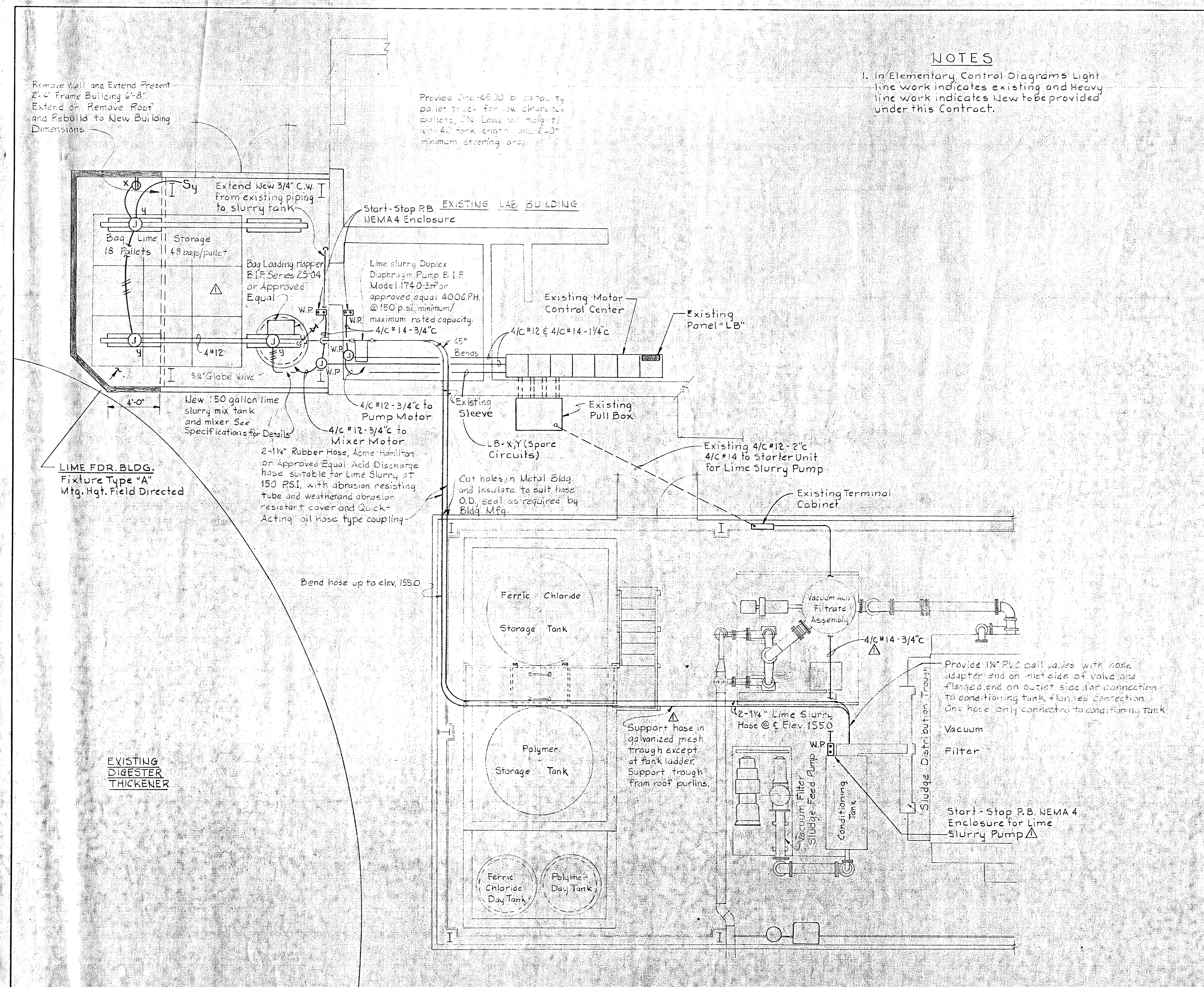
CONTRACT NO. 527(A)-S

UNDERGROUND AND
MISCELLANEOUS DETAILS

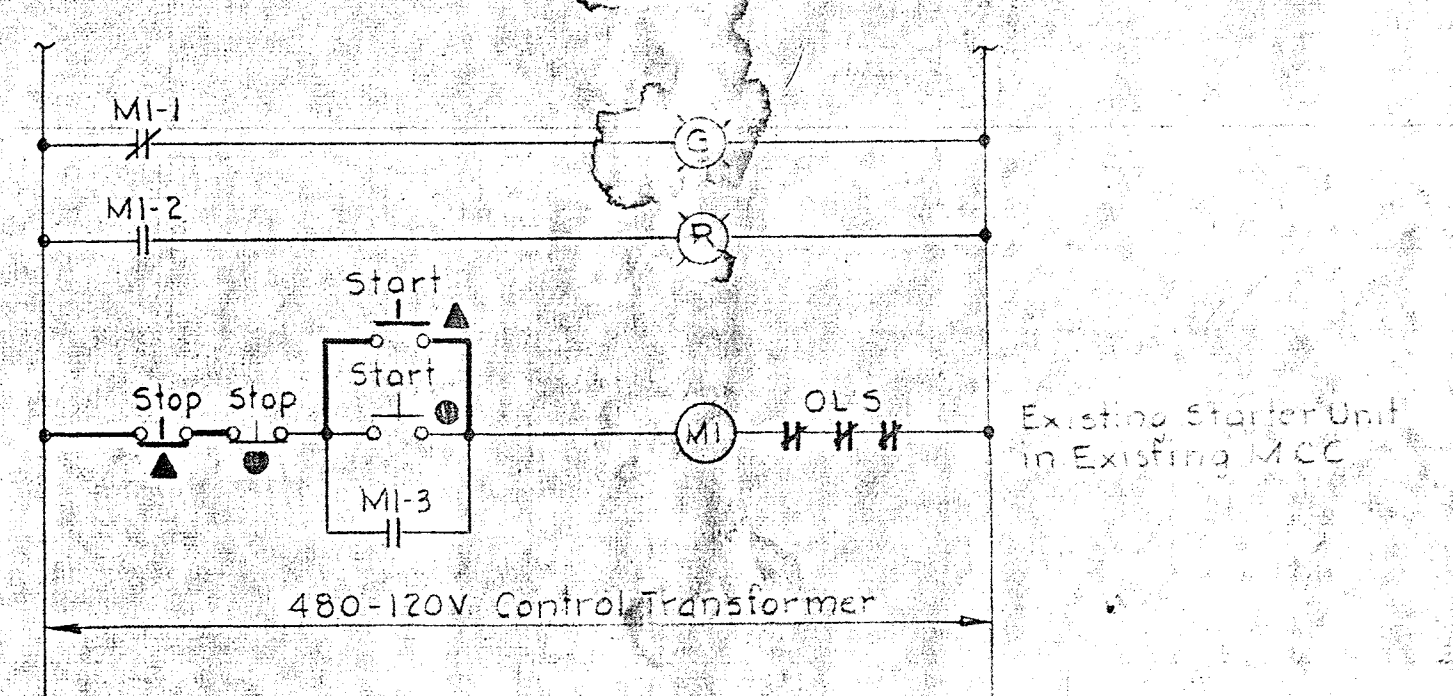
SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO.3(A)

DRAWING NO. 16
OF 16

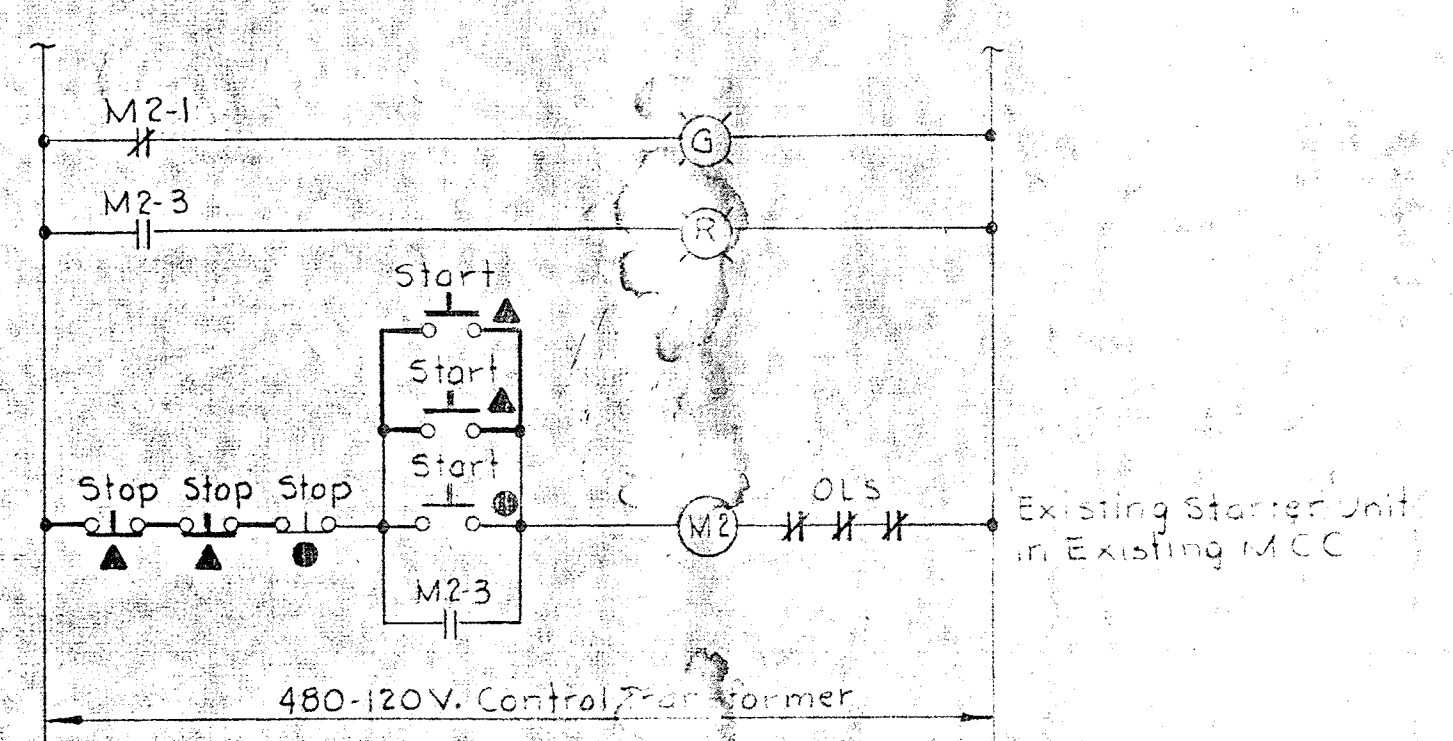
SCALE AS
SHOWN



NOTES
 1. In Elementary Control Diagrams Light line work indicates existing and Heavy line work indicates New to be provided under this Contract.



ELEMENTARY CONTROL DIAGRAM FOR LIME SLURRY MIXER



ELEMENTARY CONTROL DIAGRAM FOR LIME SLURRY PUMP

PLAN-INTERIM SLUDGE BUILDING
 Scale: 1/4"=1'-0"

REVISION	DATE	DESCRIPTION
△ 6/2/77		Change order No. 2

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 1304 ST. PAUL ST.
 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE _____ CHIEF BUREAU OF ENGINEERING — DATE _____

CONTRACT NO. 527(A)-S

PLAN & DETAILS
 LIME HANDLING AND
 APPLICATION SYSTEM C.O.#2

SAVAGE WASTEWATER
 TREATMENT PLANT ADDITION NO.3(A)

DRAWING NO. 18(A) OF 16
 SCALE 1/4"=1'