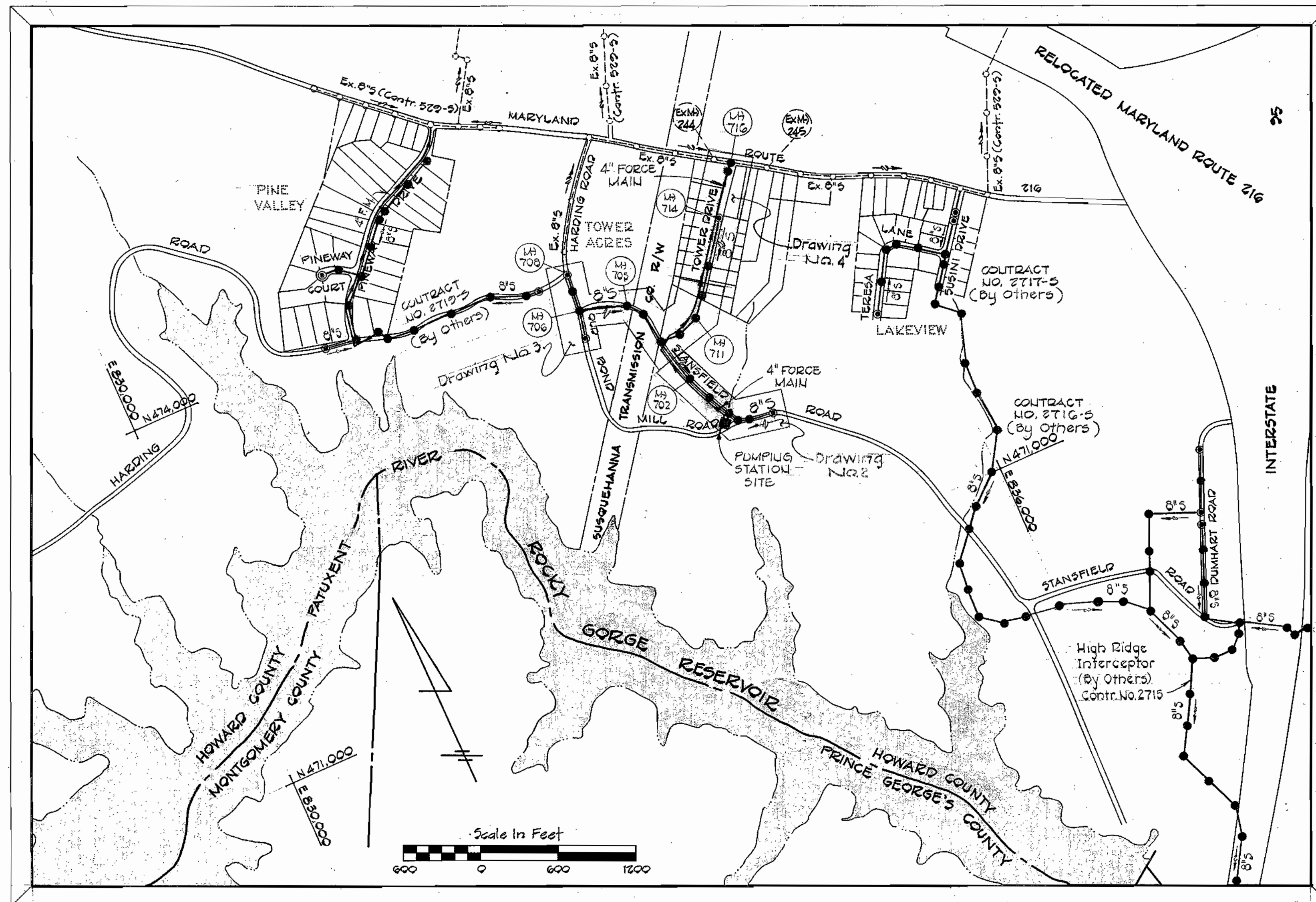


INDEX OF DRAWINGS	
NO.	DESCRIPTION
1	Title Drawing
2	Sewer Plans
3	Sewer Plans
4	Sewer Plans
5	Sewer Profiles
6	Sewer Profiles
7	Site Plan
8	Drainage and Sediment Control Map and Details
9	Mechanical Plans and Details
10	Mechanical Sections and Details
11	Miscellaneous Details
12	Structural Plans and Details
13	Structural Sections and Details
14	Electrical Plans and Details
15	Electrical Details

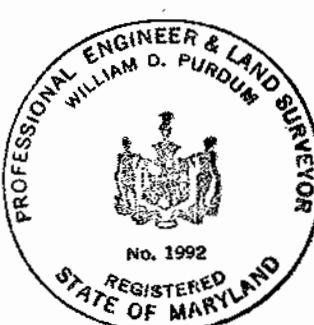
Type of Buildings	SFD
Number of Lots	27
Number of Sewer House Connections	26
Drainage Area	Patuxent



- GENERAL NOTES**
- Approximate locations of existing utilities are shown. The Contractor shall take all necessary precautions to protect existing utilities and to maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer by the Contractor at the Contractor's expense.
  - The Contractor shall locate existing utilities a minimum of two weeks in advance of construction operations in vicinity of utilities. Cost shall be included in the unit prices bid for excavation and backfill for sewer mains.
  - Contractor shall notify the following utilities or agencies at least five (5) days before starting work shown on these plans:  
 Baltimore Gas & Electric Company - Underground Electric Distribution Engineering - "Damage Control" - 234-5621  
 Baltimore Gas & Electric Company - Underground Gas Distribution Engineering - 685-0132  
 Chesapeake and Potomac Telephone Company - 725-9976  
 Miss Utility - 1-559-6100
  - Clear all utilities by a minimum of 6" vertically. Clear all poles 2'-0" minimum or tunnel as required. Cost for tunneling or bracing at poles shall be included in the unit prices bid for excavation and backfill for sewer mains.
  - All pipe elevations shown are invert elevations.
  - The Contractor shall provide a pipe joint in each sewer main within 2'-0" of the exterior manhole walls.
  - All manholes shall be 4'-0" inside diameter, unless otherwise noted.
  - For details not shown on the Contract Drawings see Standard Details bound in the specifications.
  - Trees are to be protected from damage to the maximum extent. Trees located within the construction strips are not to be removed by the Contractor.
  - Refer to Special Provisions, Section 17-26 for removal of trees.
  - Place regulation "Men Working" and warning signs as required to comply with Maryland State Highway Administration Manual of Traffic Control for Highway Construction & Maintenance Operations.
  - All sewer mains shall be C.S.P.X., V.C.P.X., or A.C.P. Class 2400 unless otherwise noted.
  - Force mains shall be ductile iron pipe Class 54.
  - Buttress or anchor all force main fittings with concrete. For details see Standard Details bound in the Specifications.
  - Horizontal and vertical controls are based on the Maryland State Grid Coordinate System.

QUANTITIES			
	Proposed	"As Built"	Material
8" Sewer	3,850 L.F.	3,820.80	PVC (Robintec)
6" Sewer	600 L.F.	650.5	PVC (Robintec)
Manholes	204 V.F.	191.02 V.F.	Terre-Hill
4" Force Main	2,350 L.F.	2,346 L.F.	D.I.P. (Griffen)

**CAPITAL PROJECT S-4-6049**  
**CONTRACT NO. 2718-S**  
**TOWER ACRES SANITARY SEWERS**  
**AND PUMPING STATION**  
**HOWARD COUNTY, MARYLAND**  
**DEPARTMENT OF PUBLIC WORKS**



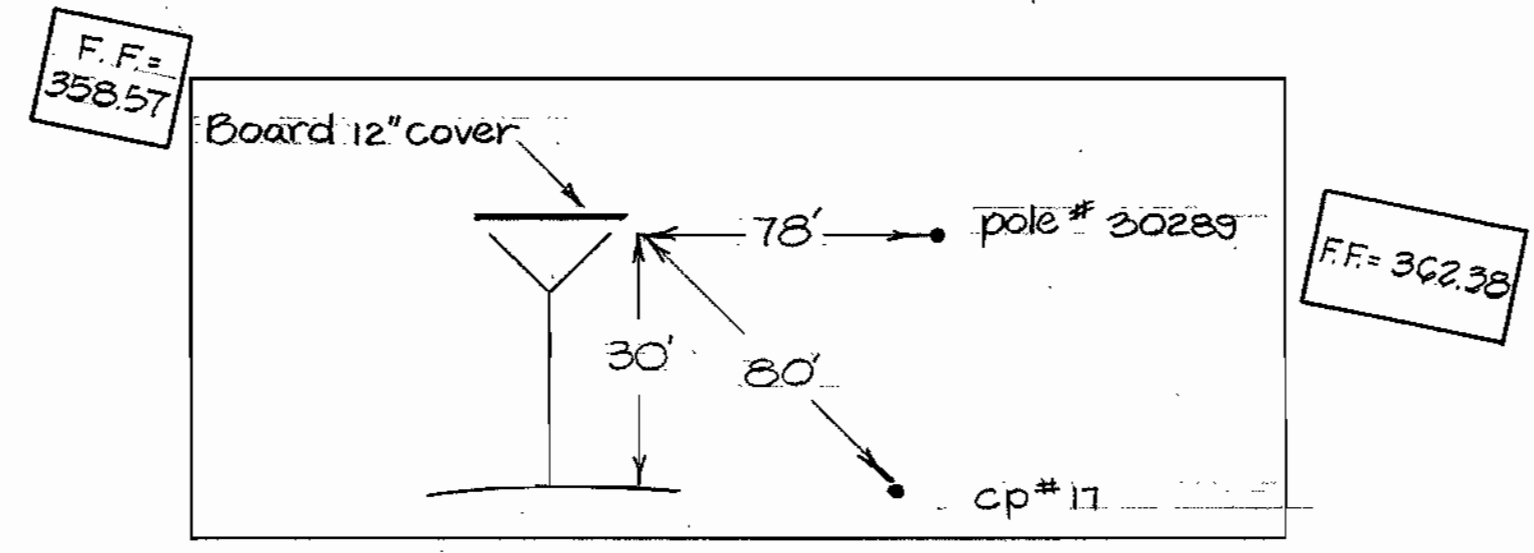
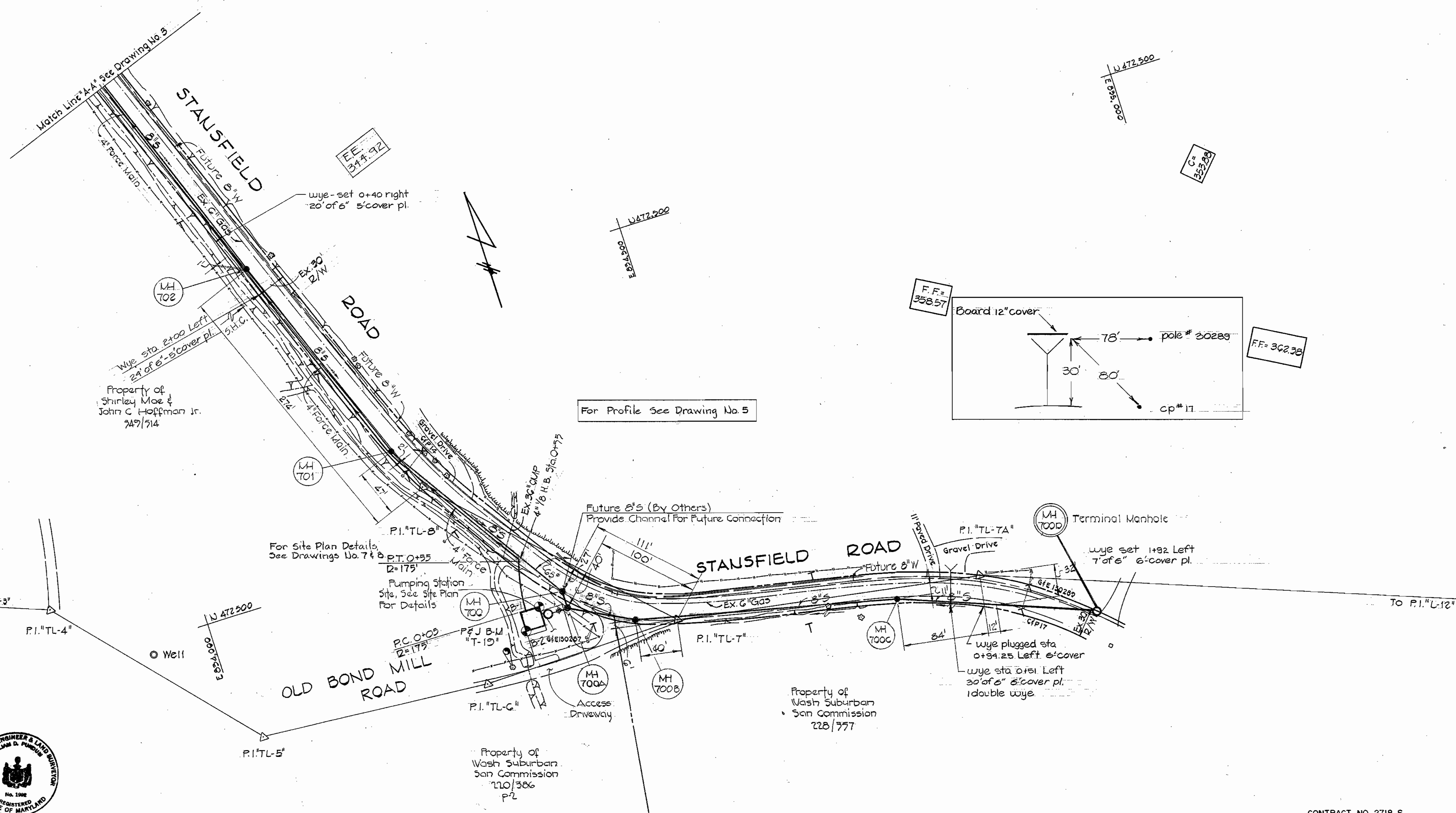
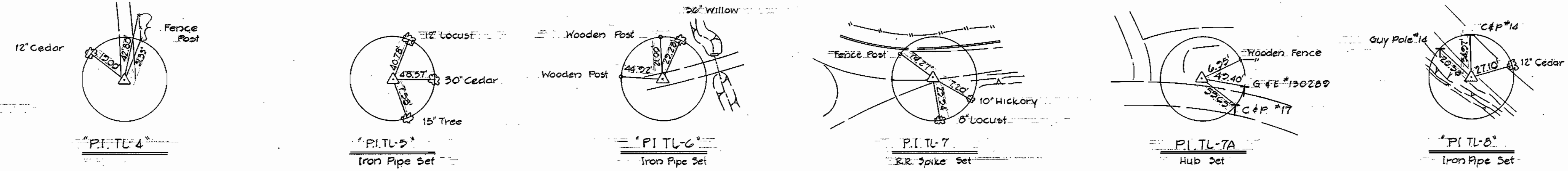
*William D. Purdum*

CONTRACT NO. 2718-S  
TOWER ACRES SANITARY SEWERS  
CAPITAL PROJECT NO. S-4-6049

<b>PURDUM &amp; JESCHKE</b> ENGINEERS 1023 N. CALVERT ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF-BUREAU OF UTILITIES DATE: 7/30/80 DIRECTOR OF PUBLIC WORKS DATE: 7/21/80 CHIEF-BUREAU OF ENGINEERING DATE: 7/21/80	CONTRACT NO. 2718-S CAPITAL PROJECT NO. S-4-6049	LOCATION MAP FOR SANITARY SEWERS	TOWER ACRES SANITARY SEWERS ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND	DRAWING NO. 1 OF 15	SCALE 1" = 600'	MAP:219-40
					AS BUILT 2/83 Feb. 17, 1981	K&E BALTIMORE 17 0453 PHOENIX MC 3343-	

**BENCH MARKS**

B.M. "T-10" Elev. 302.38  
 R.R. spike in south side 30'  
 Willow, 30' ± East of P.I. "TL-G"  
 Temp Bench Mark ELEV. 301.81  
 R.R. spike in G&E pole #130287  
 Stanfield & Old Bond Rds.



*William D. Purdum*

**PURDUM & JESCHKE**  
 ENGINEERS  
 1023 N. CALVERT ST.  
 BALTIMORE, MARYLAND

**DEPARTMENT OF PUBLIC WORKS**  
 HOWARD COUNTY, MARYLAND  
 CHIEF-BUREAU OF UTILITIES  
 DATE 7-31-80  
 DIRECTOR OF PUBLIC WORKS

CONTRACT NO. 2718-S  
 CAPITAL PROJECT NO. S-4-6049

PLAN OF  
 SANITARY SEWER

**TOWER ACRES SANITARY SEWERS**  
 ELECTION DISTRICT NO. 6  
 HOWARD COUNTY, MARYLAND

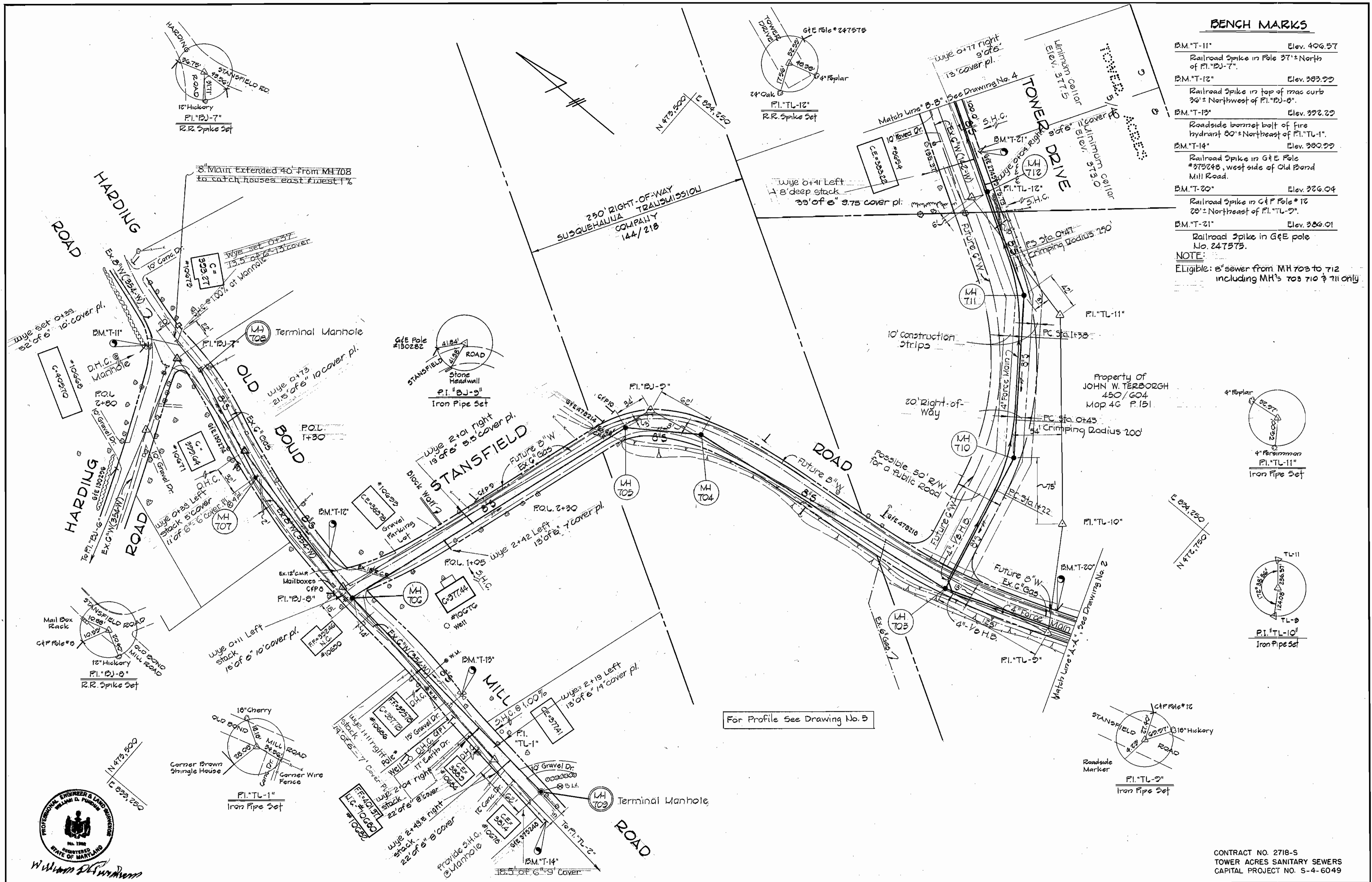
DRAWING NO. 2 OF 15  
 SCALE 1" = 50'  
 Design: RDB  
 Drafted: ARZ  
 Checked: TAF

WS 718-S/2

**BENCH MARKS**

B.M."T-11"	Elev. 406.57
Railroad Spike in Pole 37'± North of P.I."BJ-7"	
B.M."T-12"	Elev. 383.22
Railroad Spike in top of masonry curb 36'± Northwest of P.I."BJ-8"	
B.M."T-13"	Elev. 392.22
Roadside bonnet bolt of fire hydrant 80'± Northeast of P.I."TL-1"	
B.M."T-14"	Elev. 380.22
Railroad Spike in G&E Pole #375248, west side of Old Bond Mill Road.	
B.M."T-20"	Elev. 326.04
Railroad Spike in G&E Pole #12 28'± Northeast of P.I."TL-2"	
B.M."T-21"	Elev. 386.01
Railroad Spike in G&E pole No. 247575.	

**NOTE:**  
Eligible: 8" sewer from MH 703 to 712 including MH's 703 710 & 711 only.



**PURDUM & JESCHKE**  
ENGINEERS  
1023 N. CALVERT ST.  
BALTIMORE, MARYLAND

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND  
CHIEF - BUREAU OF UTILITIES  
DATE: 7-23-88  
DIRECTOR OF PUBLIC WORKS DATE: 7-23-88  
CHIEF - BUREAU OF ENGINEERING DATE: 7-23-88

CONTRACT NO. 2718-S  
CAPITAL PROJECT NO. S-4-6049

PLAN OF  
SEWER MAINS

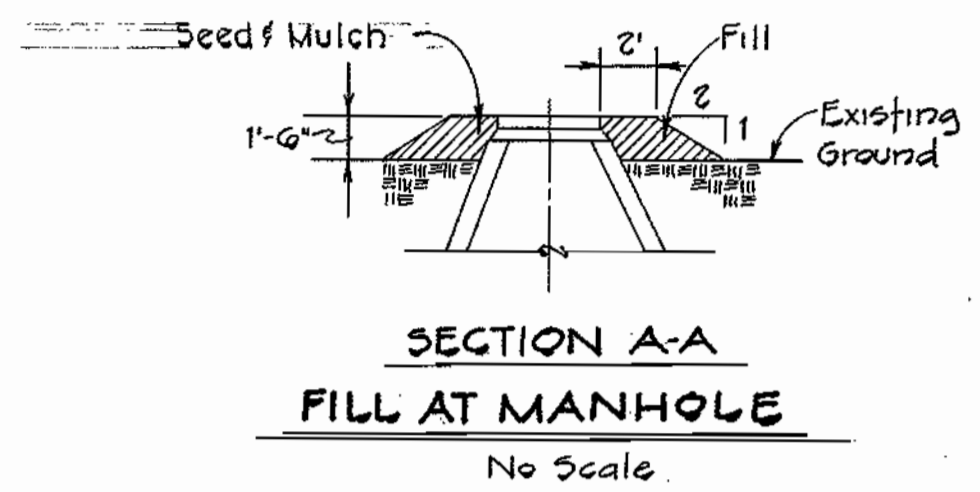
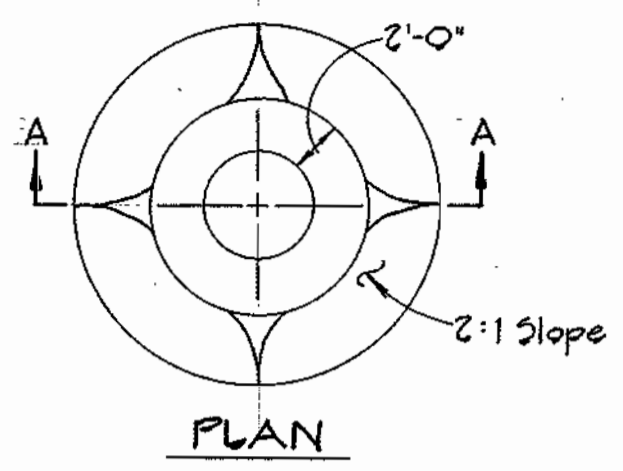
**TOWER ACRES SANITARY SEWERS**  
ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

DRAWING NO. 3 OF 15  
SCALE 1" = 50'

Designed: RDB  
Drafted: TAW  
Checked: TAF

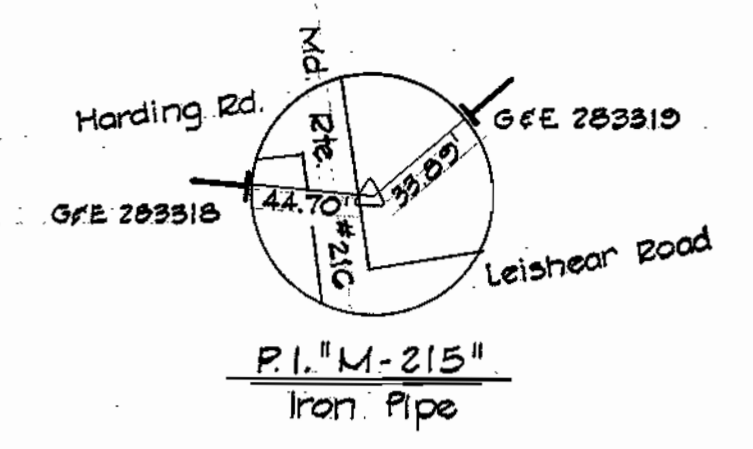
W.O.\*3403-10

AS BUILT 2/83  
K&E BALTIMORE 17 0483 PHO  
Feb. 17, 1983

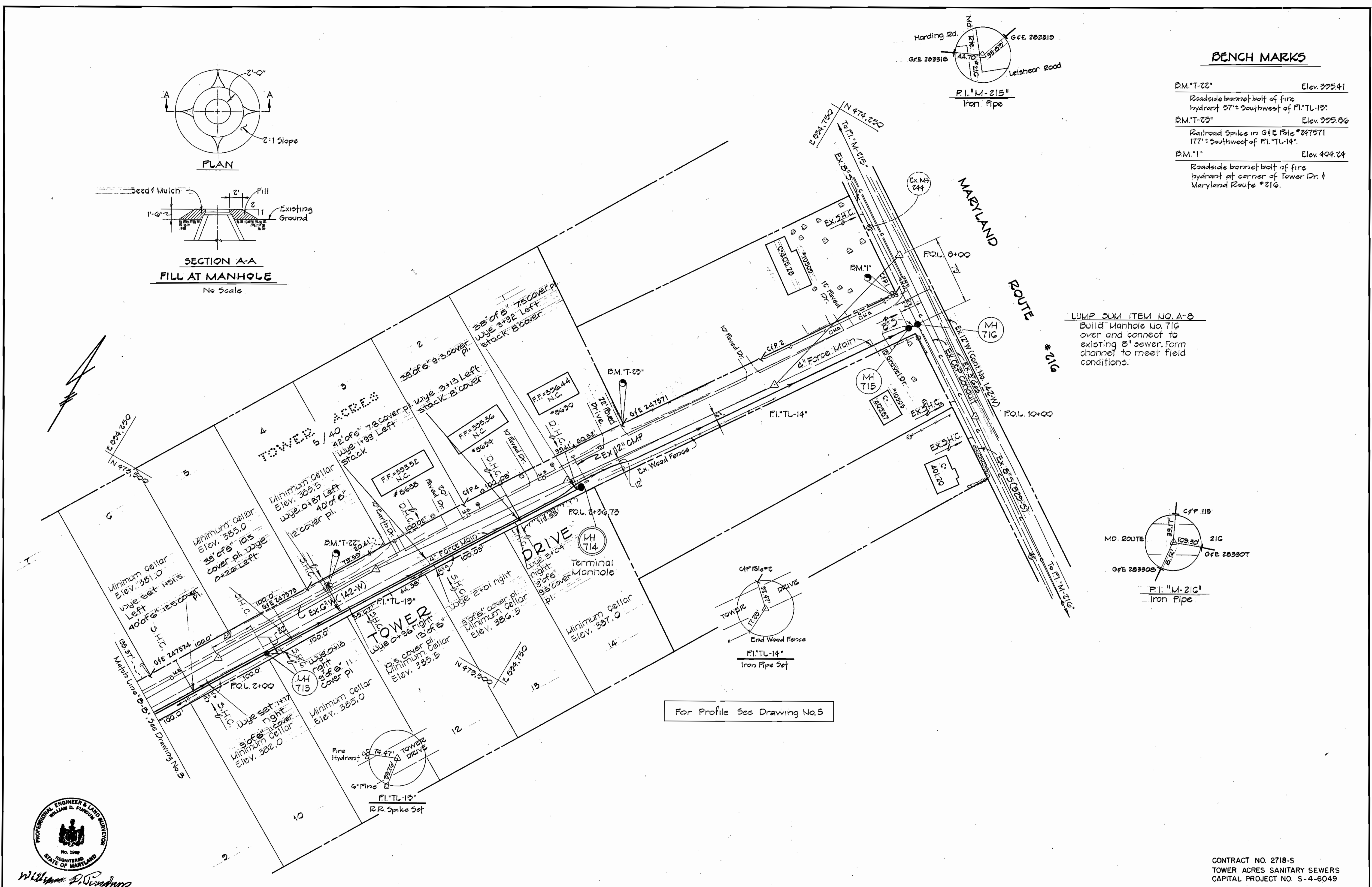
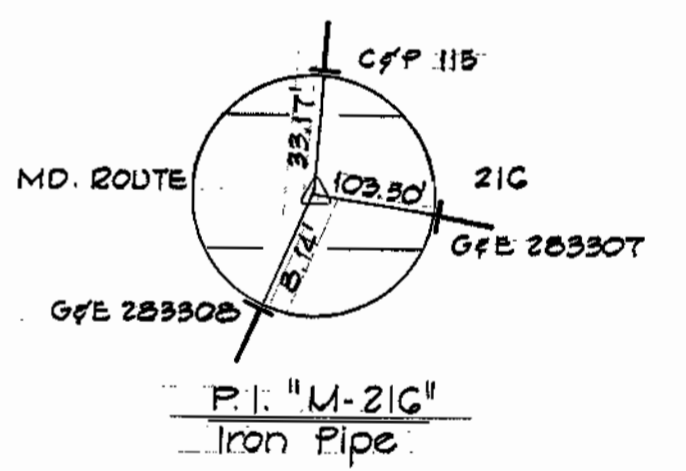


**BENCH MARKS**

B.M. T-22	Elev. 325.41
Roadside baromet bolt of fire hydrant 57' ± Southwest of P.I. TL-13	
B.M. T-23	Elev. 325.86
Railroad Spike in G.E. Pole #247571 177' ± Southwest of P.I. TL-14	
B.M. 1	Elev. 404.24
Roadside baromet bolt of fire hydrant at corner of Tower Dr. & Maryland Route #216	



LUMP SUM ITEM NO. A-8  
Build Manhole No. 716 over and connect to existing 8" sewer. Form channel to meet field conditions.



William D. Purdum

**PURDUM & JESCHKE**  
ENGINEERS  
1023 N. CALVERT ST.  
BALTIMORE, MARYLAND

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND  
CHIEF - BUREAU OF UTILITIES  
DATE: 7/21/80  
DIRECTOR OF PUBLIC WORKS

CONTRACT NO. 2718-S  
CAPITAL PROJECT NO. S-4-6049

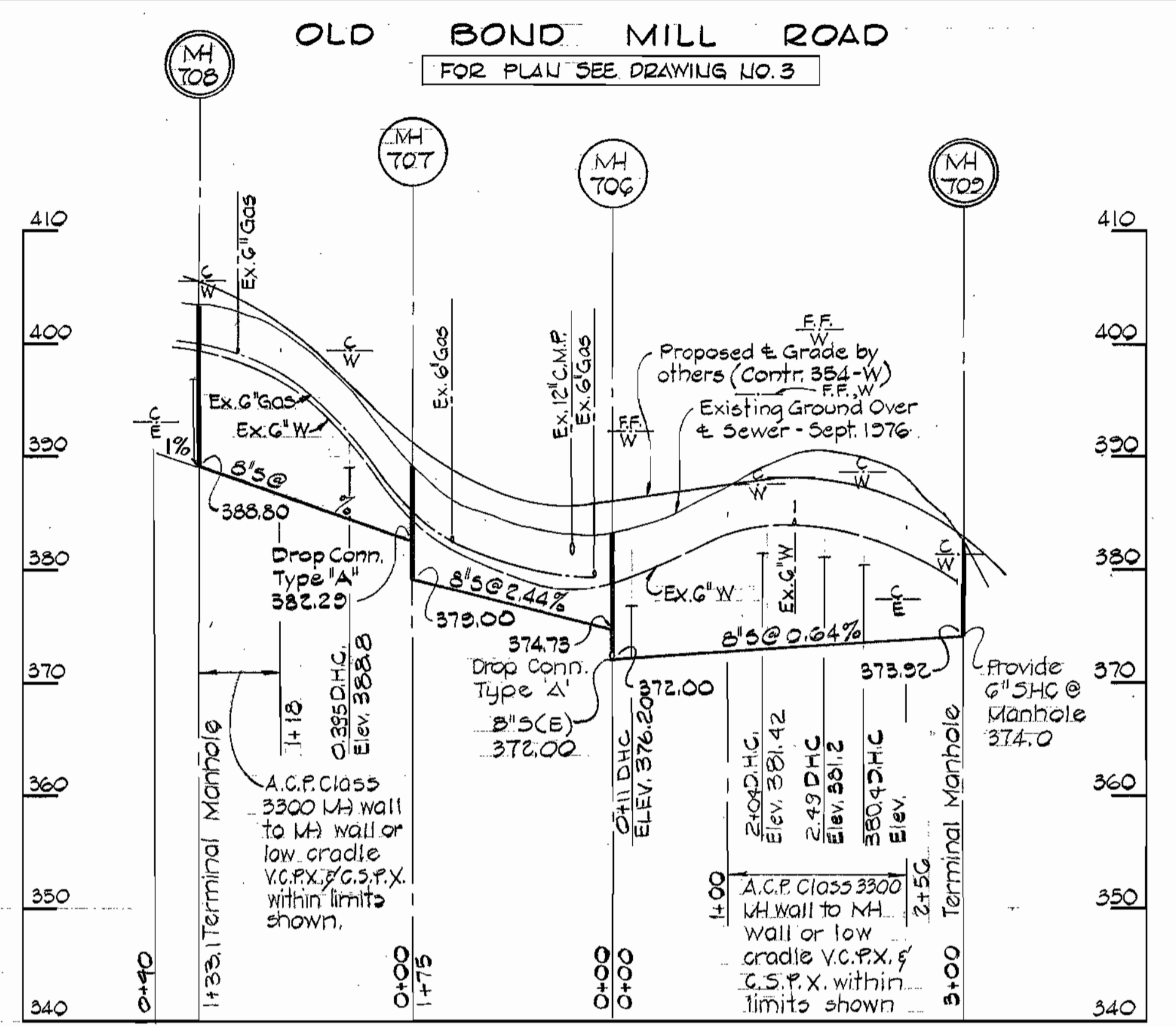
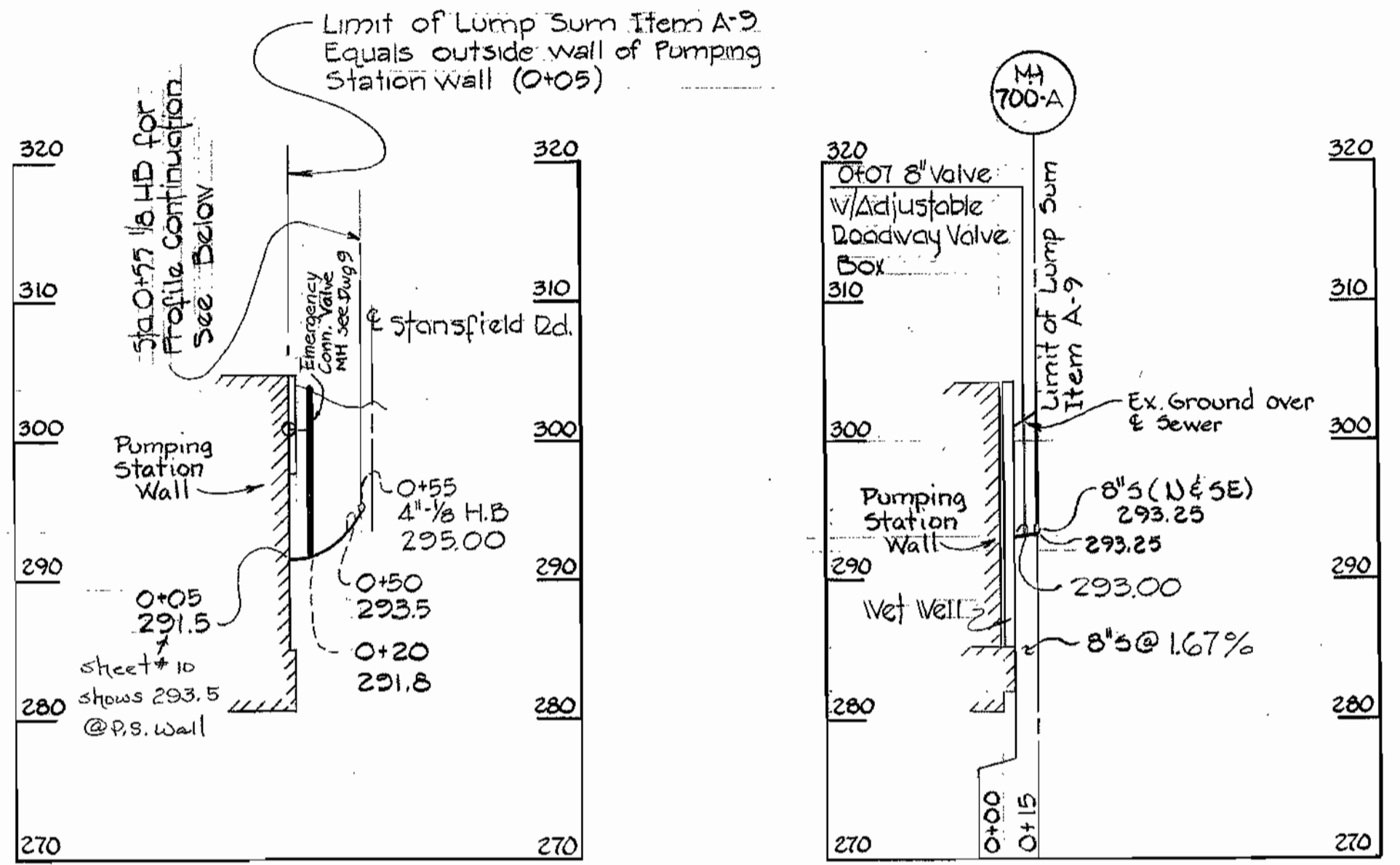
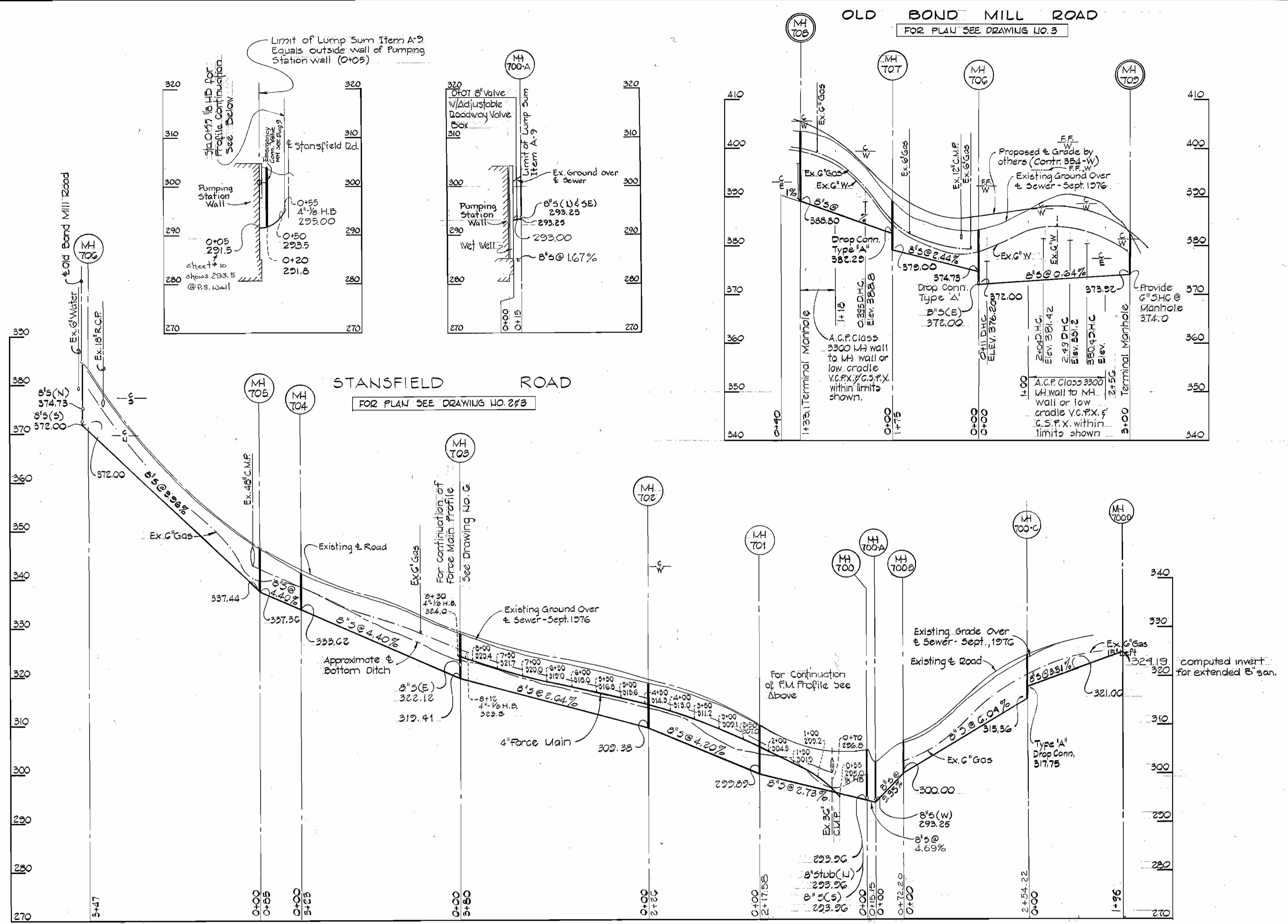
PLAN OF  
SANITARY SEWERS

TOWER ACRES SANITARY SEWERS  
ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

DRAWING NO. 4 OF 15	SCALE 1" = 50'	Designed: RDB Drafted: TAW Checked: TAF
---------------------	----------------	---

WS 718-S/4

WS 718-5/5



*William D. Purdum*

**PURDUM & JESCHKE**  
ENGINEERS  
1023 N. CALVERT ST.  
BALTIMORE, MARYLAND

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND  
CHIEF-BUREAU OF UTILITIES  
DATE 7.29.81  
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 718-5  
CAPITAL PROJECT NO. S-4-6049

PROFILES OF  
SANITARY SEWERS AND  
FORCE MAIN

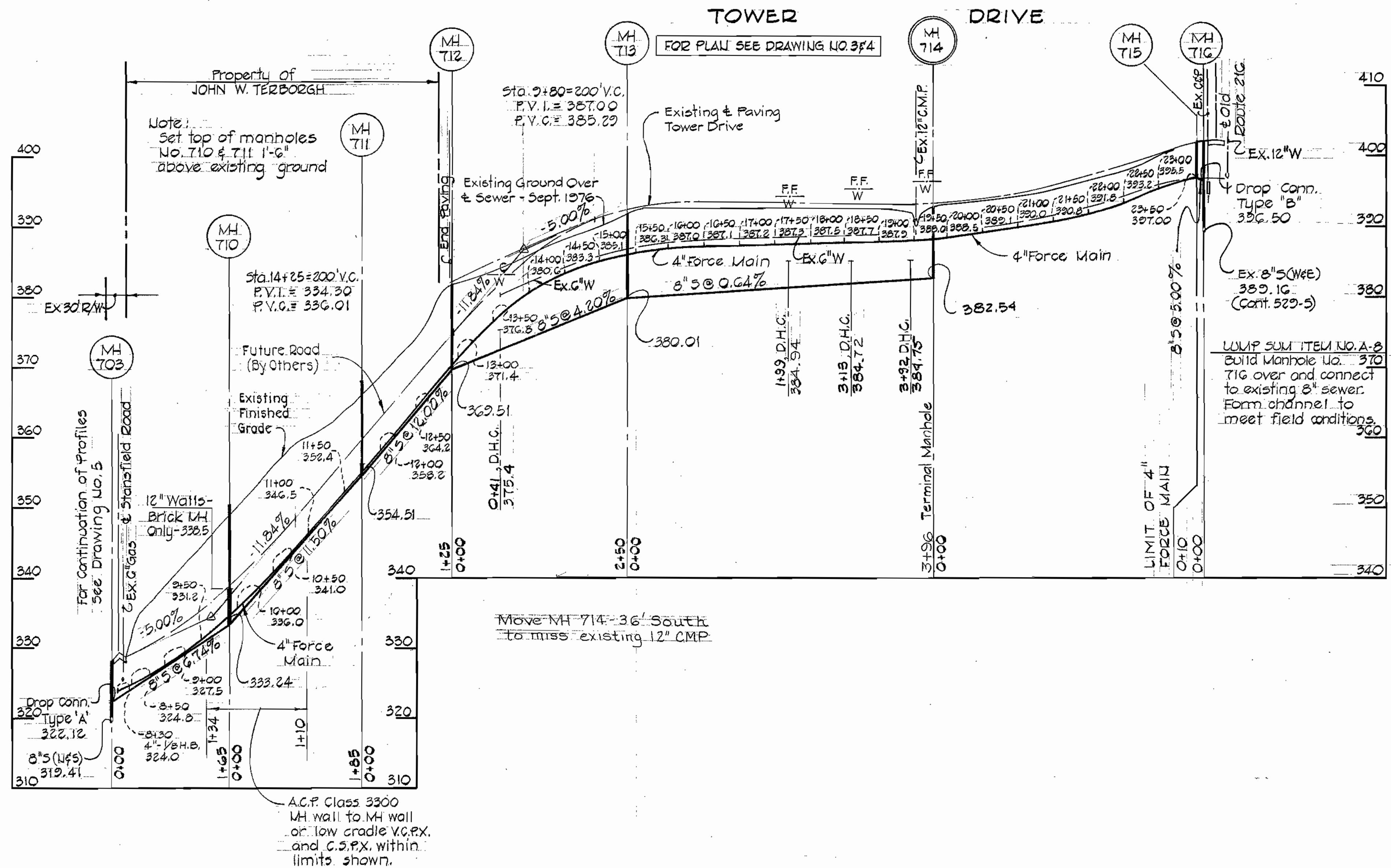
**TOWER ACRES SANITARY SEWERS**  
ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

CONTRACT NO. 2718-5  
TOWER ACRES SANITARY SEWERS  
CAPITAL PROJECT NO. S-4-6049

DRAWING NO. 5 OF 15  
SCALE VERT: 1"=10'  
HORZ: 1"=100'

Designed: RDB  
Drafted: TAW  
Checked: TAF

WS 718-5/6



*William D. J. Purdum*

**PURDUM & JESCHKE**  
ENGINEERS  
1023 N. CALVERT ST.  
BALTIMORE, MARYLAND

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND  
CHIEF - BUREAU OF UTILITIES  
DATE: 7/21/80  
DIRECTOR OF PUBLIC WORKS

CONTRACT NO. 718-S  
CAPITAL PROJECT NO. S-4-6049

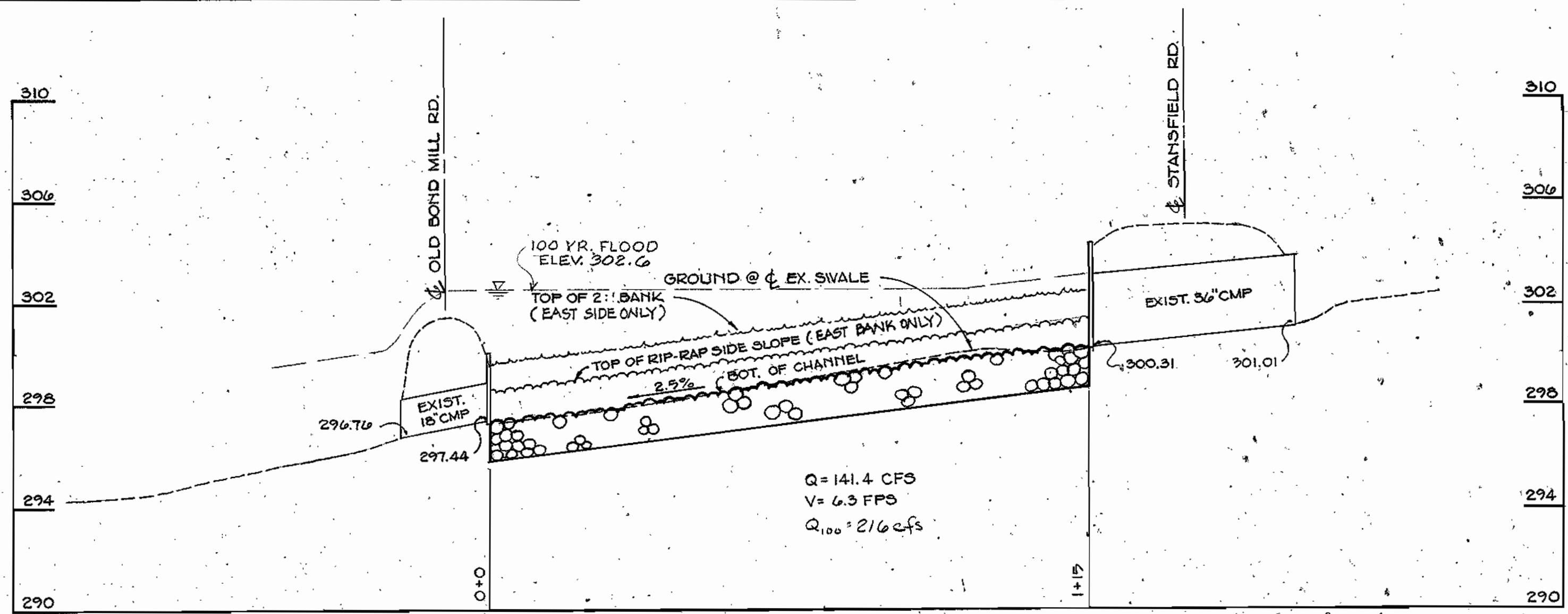
PROFILES OF  
SANITARY SEWERS AND  
FORCE MAIN

**TOWER ACRES SANITARY SEWERS**  
ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

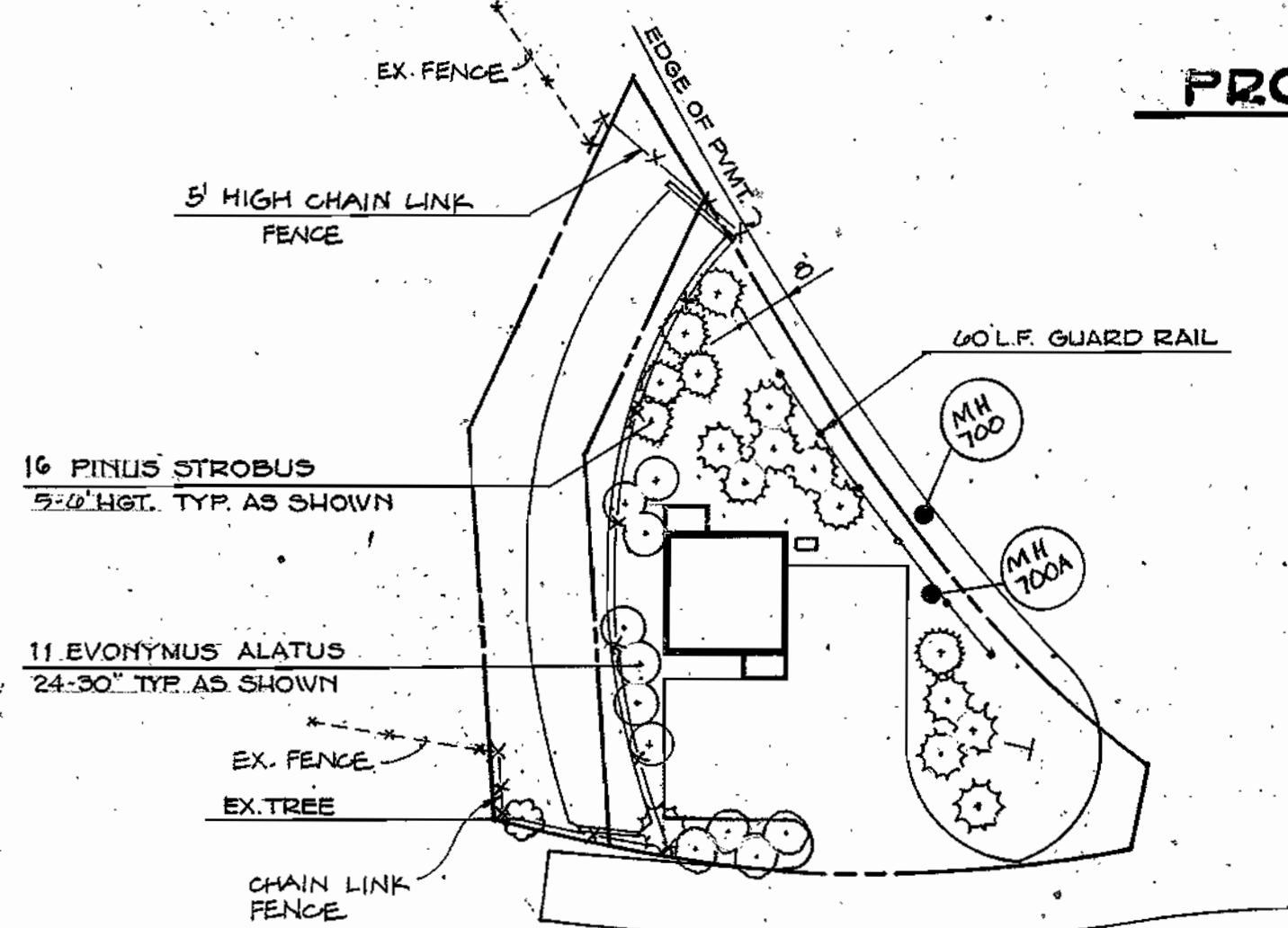
DRAWING NO. 6 OF 15  
SCALE VERT: 1"=10'  
HORZ: 1"=100'

Designed: R  
Drafted: R  
Checked: R

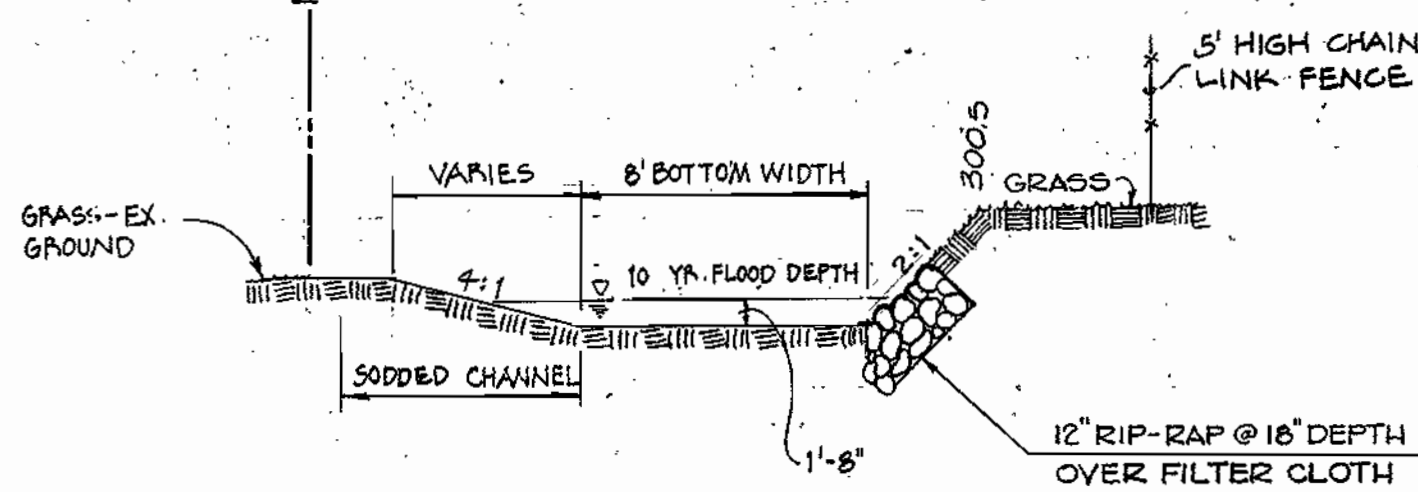
CONTRACT NO. 2718-S  
TOWER ACRES SANITARY SEWERS  
CAPITAL PROJECT NO. S-4-6049



**PROFILE**  
SCALE: HOR. 1" = 20'  
VERT. 1" = 4'

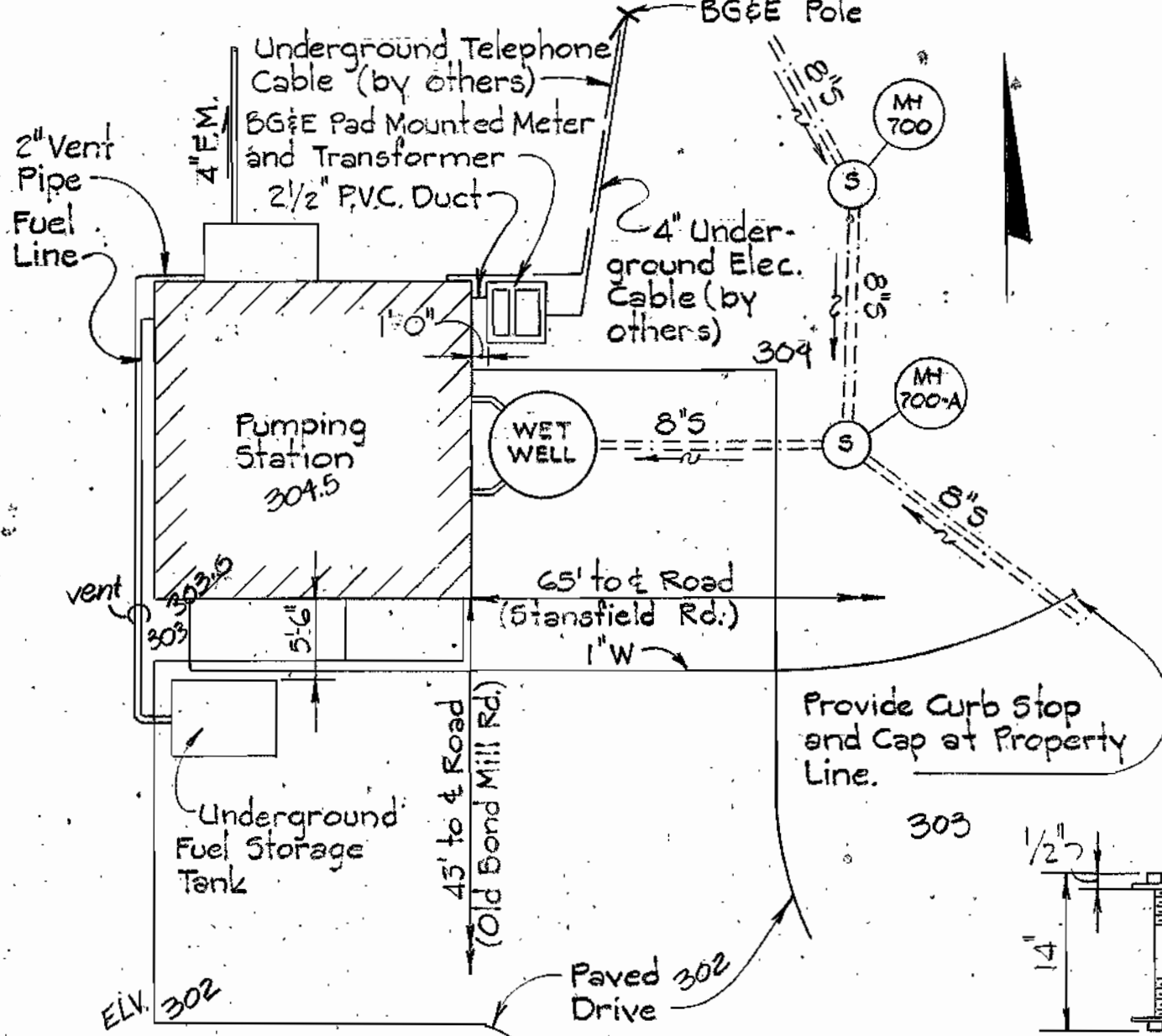


**SCREEN PLANTING**  
SCALE: 1" = 30'

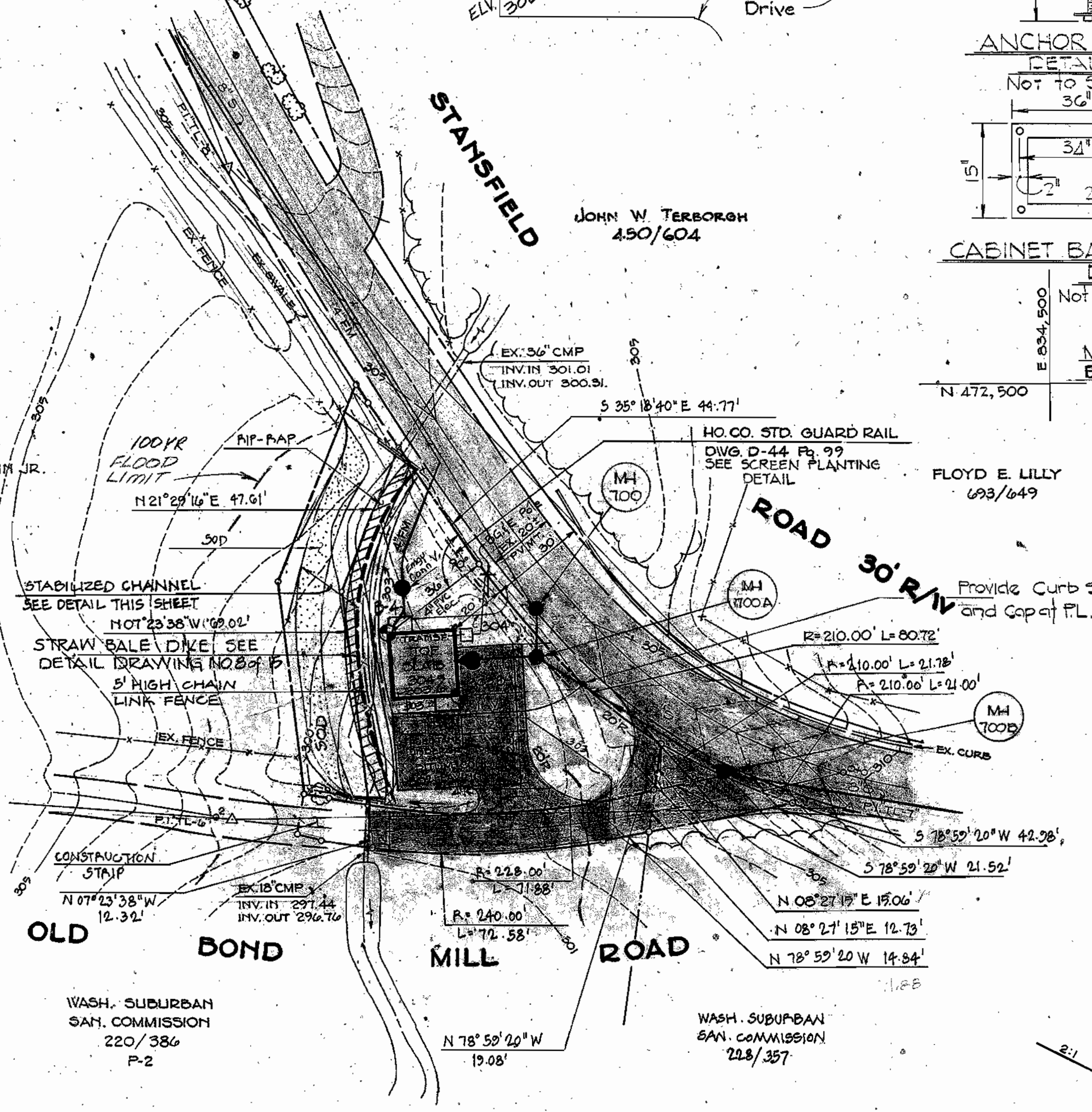
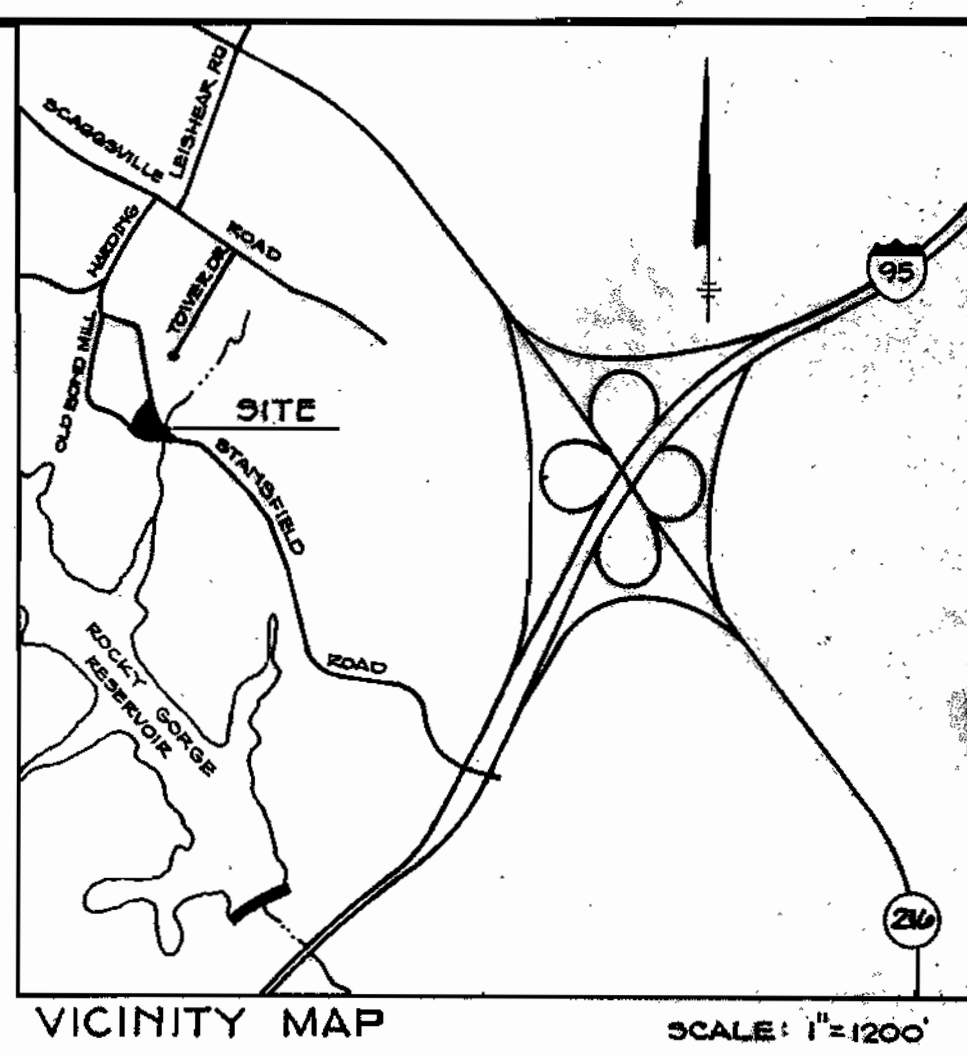


**CHANNEL DETAIL**  
NOT TO SCALE

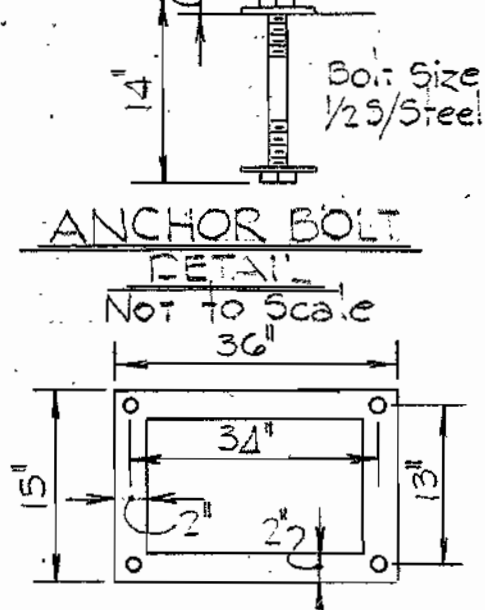
**LEGEND**



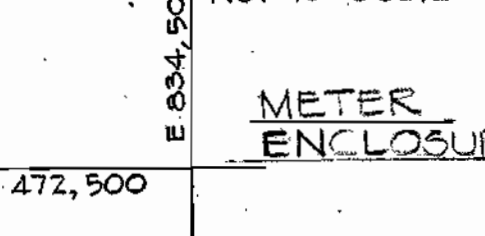
- GENERAL NOTES**
1. PARCEL AREA 0.202 AC. ±
  2. PRESENT ZONING R-20
  3. PROPOSED ZONING R-20
  4. EXIST. PROPERTY USE UNDEV.
  5. PARKING NEEDED & ALLOWED 1
  6. PROPOSED BLDG. HEIGHT UNDERGR.
  7. BLDG. SURFACE AREA 620 S.F. ±
  8. DRAWING AND PAGE NUMBERS SHOWN HEREON ARE REFERENCED TO THE HOWARD COUNTY ROAD CONSTRUCTION CODE AND STANDARD SPECIFICATIONS, DATED AUGUST 1988.
  9. THE LOCATION OF EXISTING UTILITIES SHOWN HEREON ARE BASED ON THE LATEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL, HOWEVER, DETERMINE THE EXACT LOCATION BEFORE MAKING ANY CONNECTIONS.
  10. THE CONTRACTOR SHALL NOTIFY "MIDG UTILITY" AT LEAST 5 DAYS PRIOR TO BEGINNING ANY WORK SHOWN HEREON.
  11. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY ROAD CONSTRUCTION CODE AND STANDARD SPECIFICATIONS UNLESS OTHERWISE SPECIFIED.



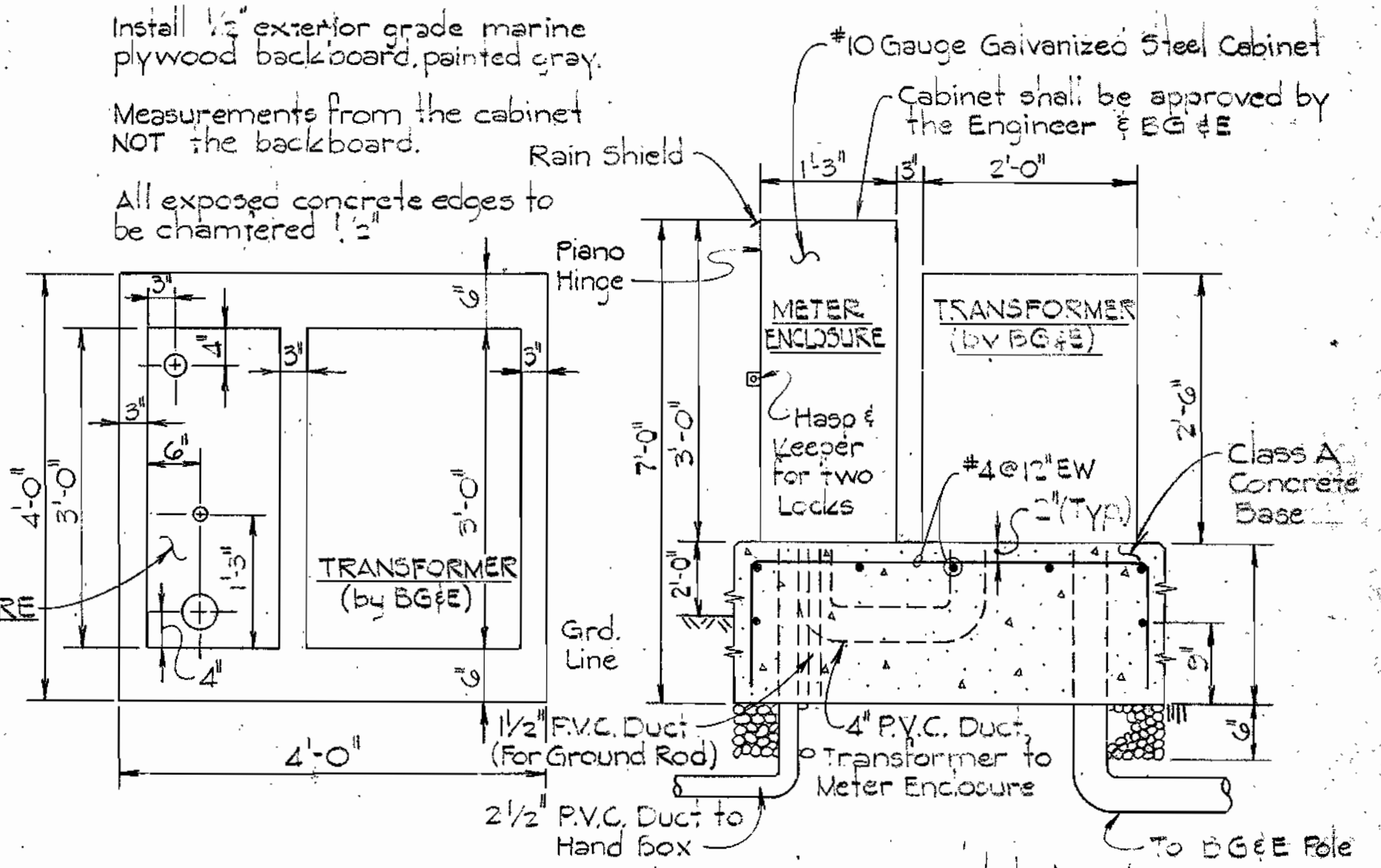
**PLAN**  
SCALE: 1" = 30'



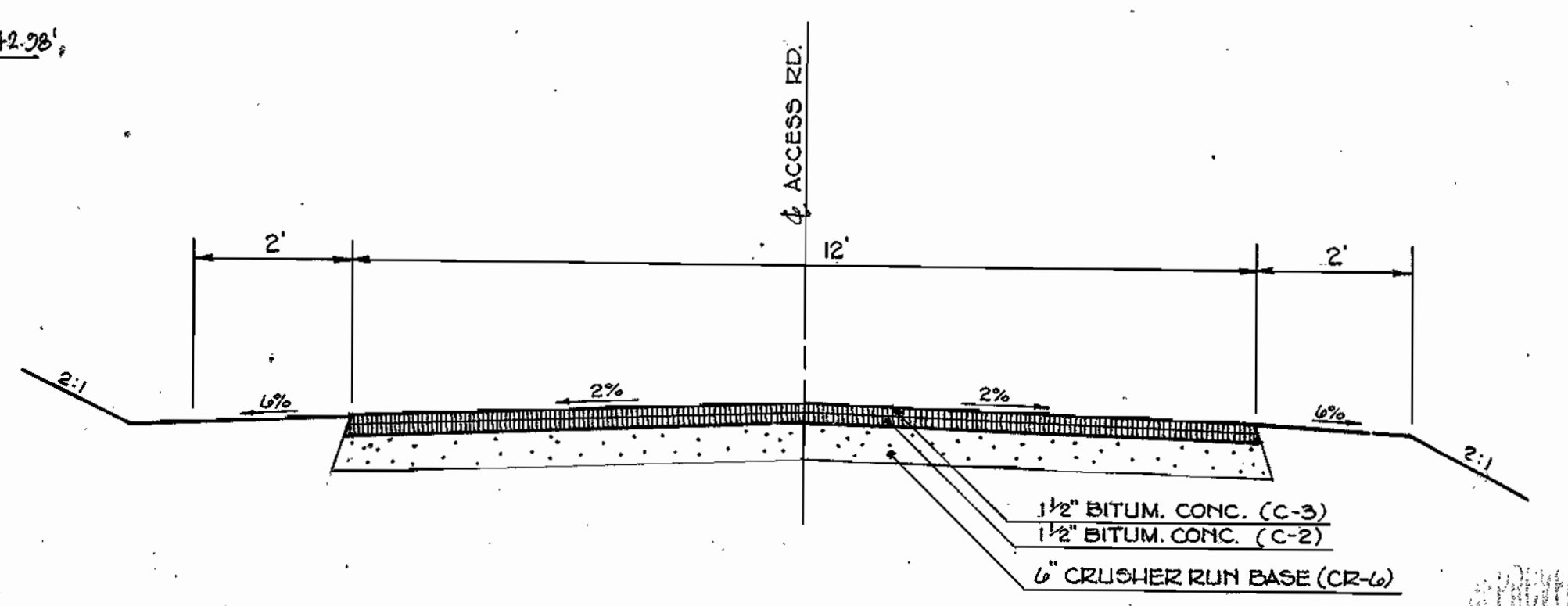
**ANCHOR BOLT**  
DETAIL  
Not to Scale



**CABINET BASE**  
DETAIL  
Not to Scale



**PLAN**  
**SECTION**  
BG&E PAD MOUNTED METER and TRANSFORMER  
Scale: 3/4" = 1'-0"



**TYPICAL DRIVE SECTION**  
SCALE: 1/2" = 1'-0"

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.  
 APPROVED: HOWARD SOIL CONSERVATION DISTRICT.  
 REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  
 APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

**PURDUM & JESCHKE**  
CONSULTING ENGINEERS  
LAND SURVEYORS  
1023 North Calvert Street  
Baltimore, Maryland 21202 301/837-0194

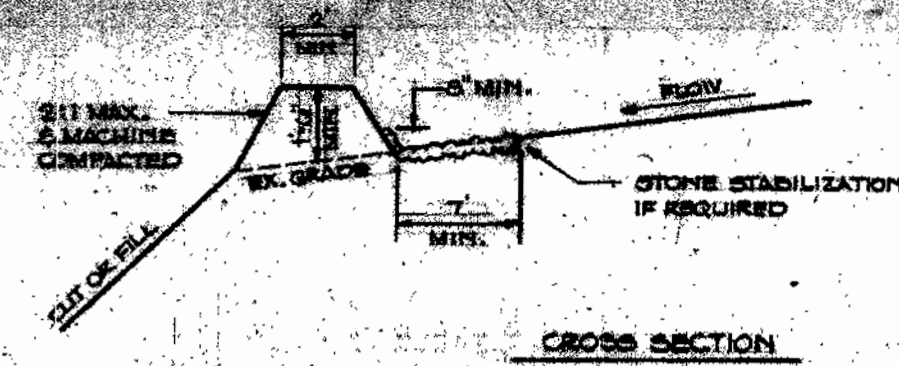
APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.  
 APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING.  
 I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS DEEMED NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE MADE UNLESS AUTHORIZED BY THE HOWARD SOIL CONSERVATION DISTRICT.

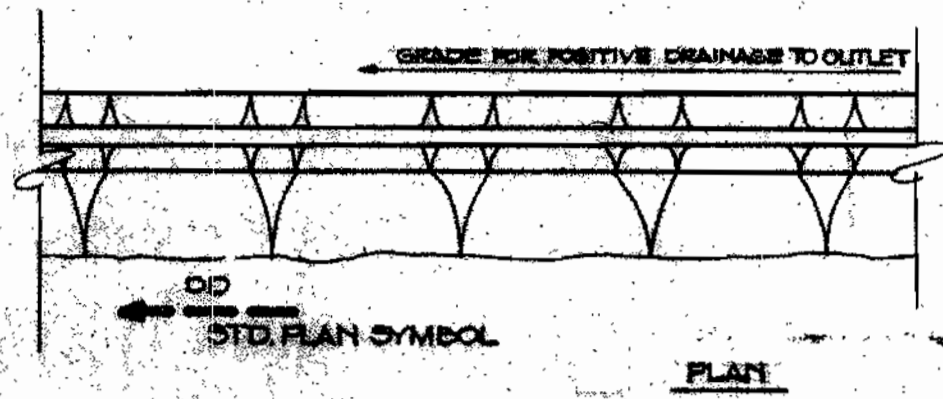
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

PROFESSIONAL ENGINEER & LAND SURVEYOR  
 WILLIAM D. PURDUM REG. NO. 1392  
 11/19/79

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 PROJECT S-4-6049  
 CONTRACT 2718-S  
 TOWER ACRES SANITARY SEWER  
 TOWER ACRES PUMPING STATION  
**SITE DEVELOPMENT PLAN**  
 ELECTION DISTRICT NO. 6  
 TAX MAP 46  
 HOWARD COUNTY, MD.  
 PARCEL A  
 DESIGNED: CRH  
 DRAWN: CRH  
 CHECKED: RJT  
**DRAWING NO. 7 OF 15**  
 SCALE: AS SHOWN  
 Feb. 17, 1981  
 SDP-81-33  
 AS BUILT 2/83  
 SH. 1 of 2



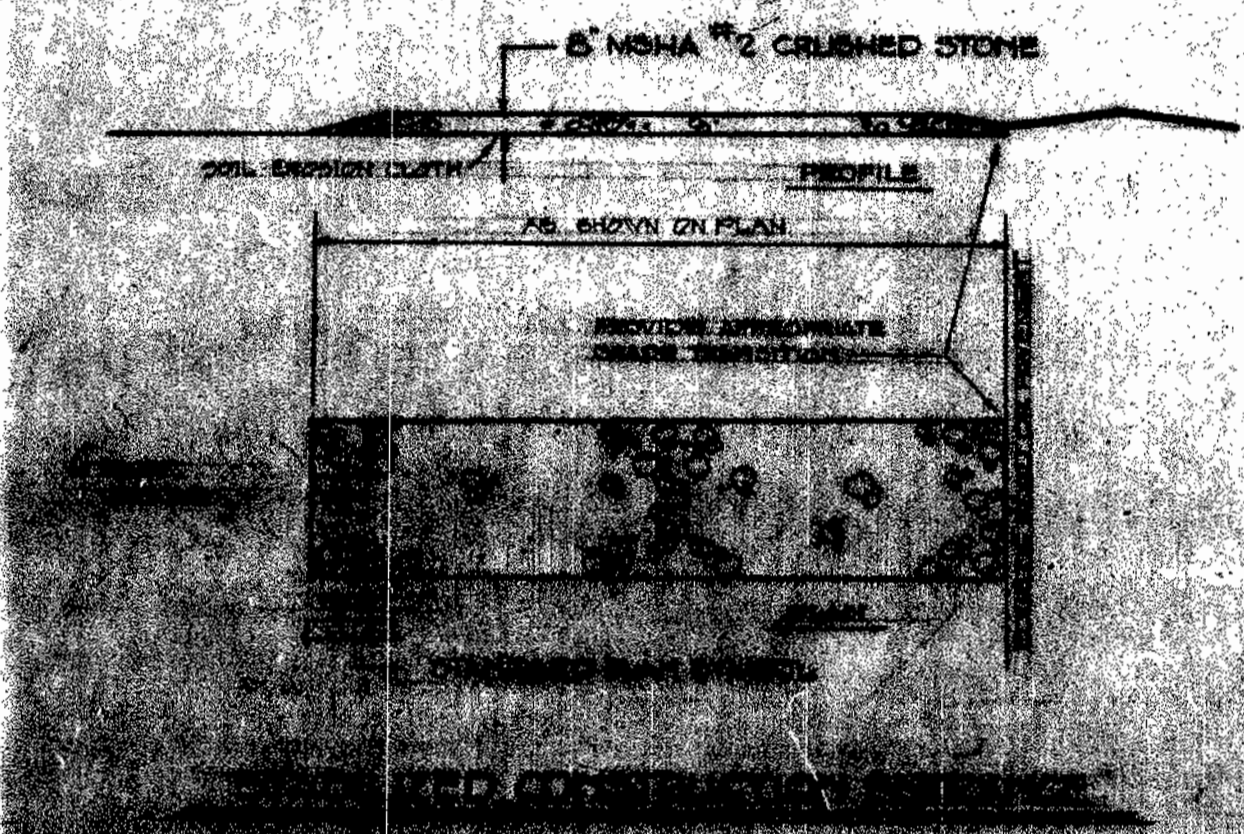
CROSS SECTION



PLAN

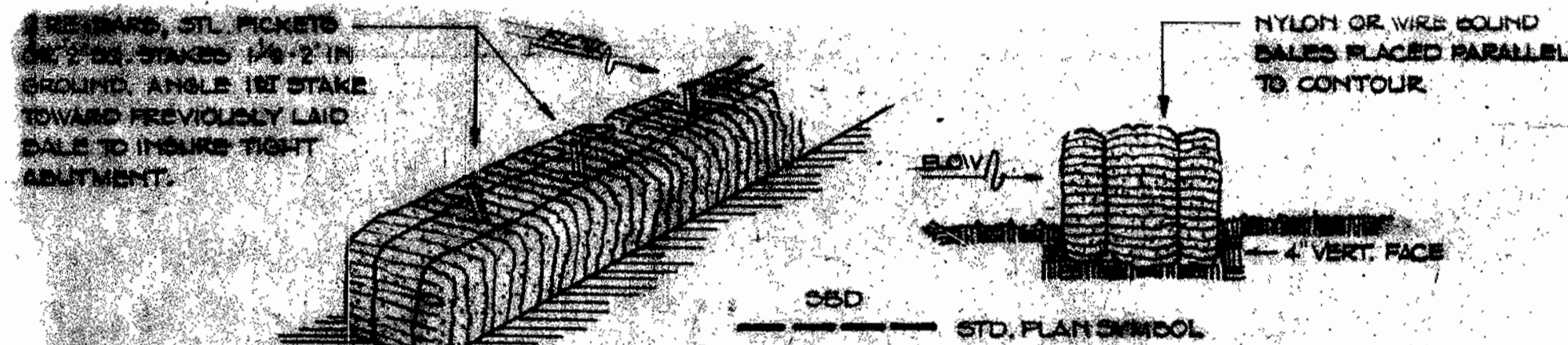
**DIVERSION DIKE**

1. All dikes shall be machine compacted and shall have positive drainage to an outlet.
2. Diverted runoff from an undisturbed or stabilized area shall outlet to an undisturbed or stabilized area.
3. Diverted runoff from a disturbed area shall outlet into an area protected by a sediment control device.
4. Stabilization shall be as specified in Sediment Control Notes.
5. Stone if required as shown on the plan shall have MSHA No. 2 placed in a 3" thick layer and pressed into the soil.

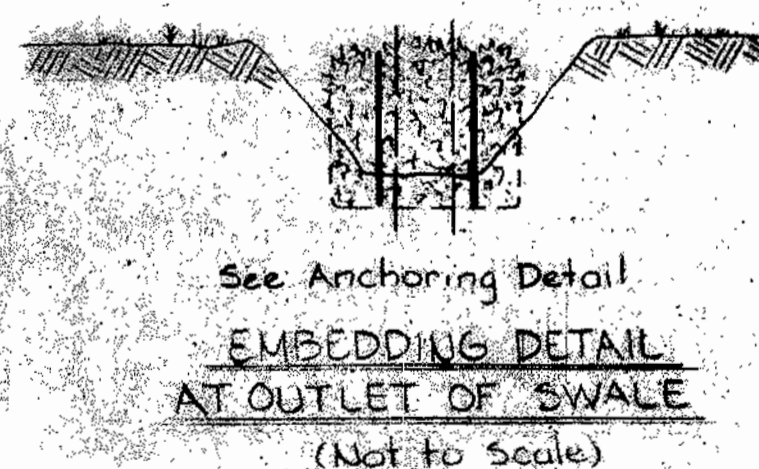


MSHA #2 CRUSHED STONE

1. All dikes shall be machine compacted and shall have positive drainage to an outlet.  
 2. Diverted runoff from an undisturbed or stabilized area shall outlet to an undisturbed or stabilized area.  
 3. Diverted runoff from a disturbed area shall outlet into an area protected by a sediment control device.  
 4. Stabilization shall be as specified in Sediment Control Notes.  
 5. Stone if required as shown on the plan shall have MSHA No. 2 placed in a 3" thick layer and pressed into the soil.

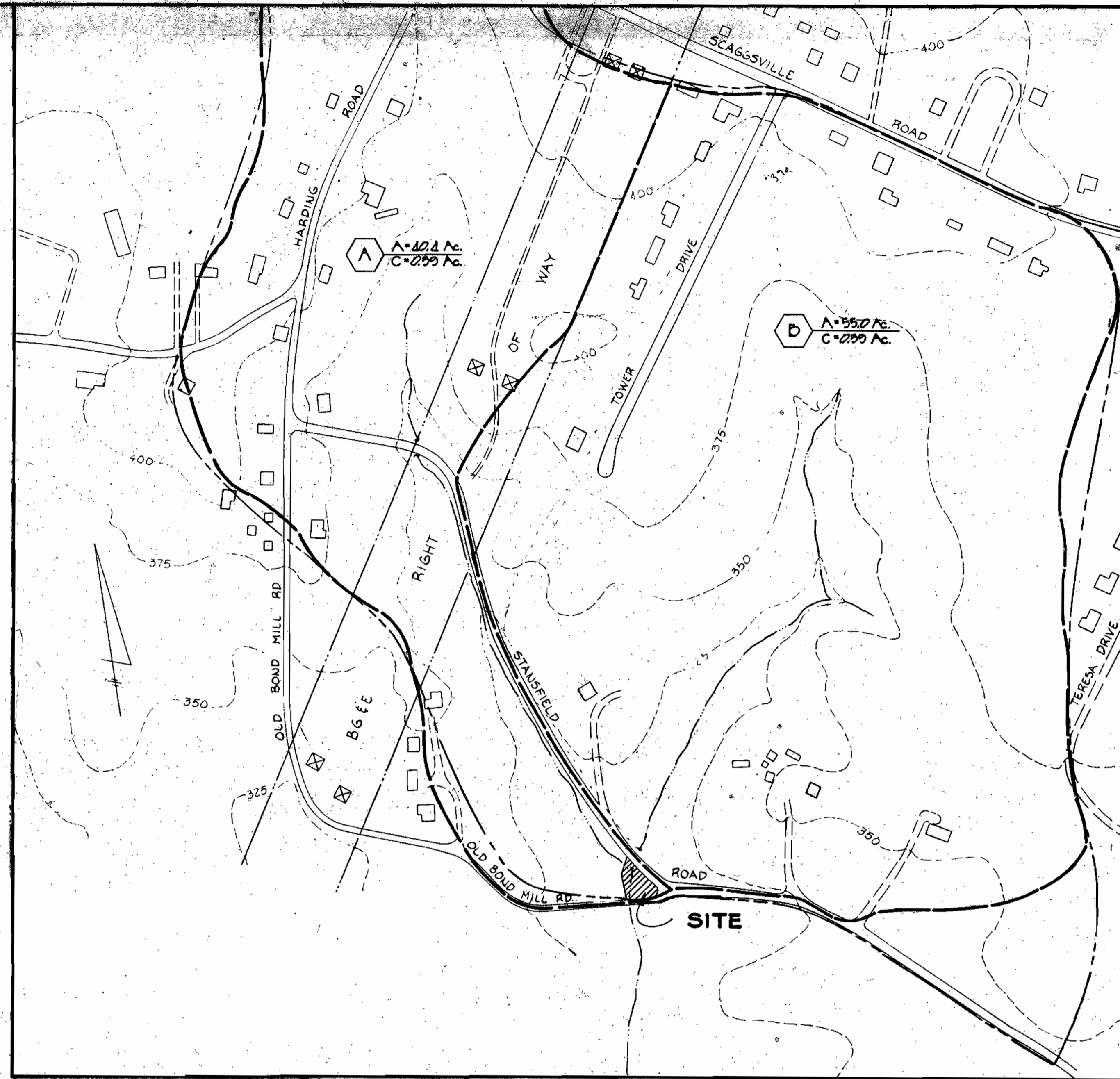


**STRAW BALE DIKE**  
NOT TO SCALE

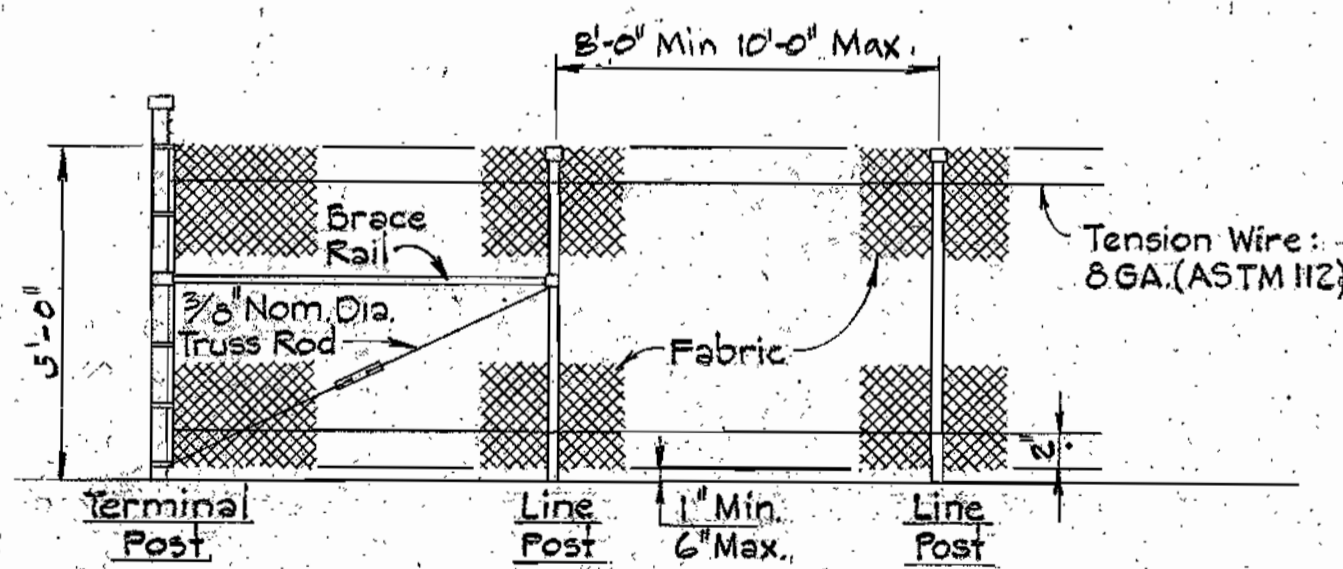


See Anchoring Detail  
**EMBEDDING DETAIL**  
AT OUTLET OF SWALE  
(Not to Scale)

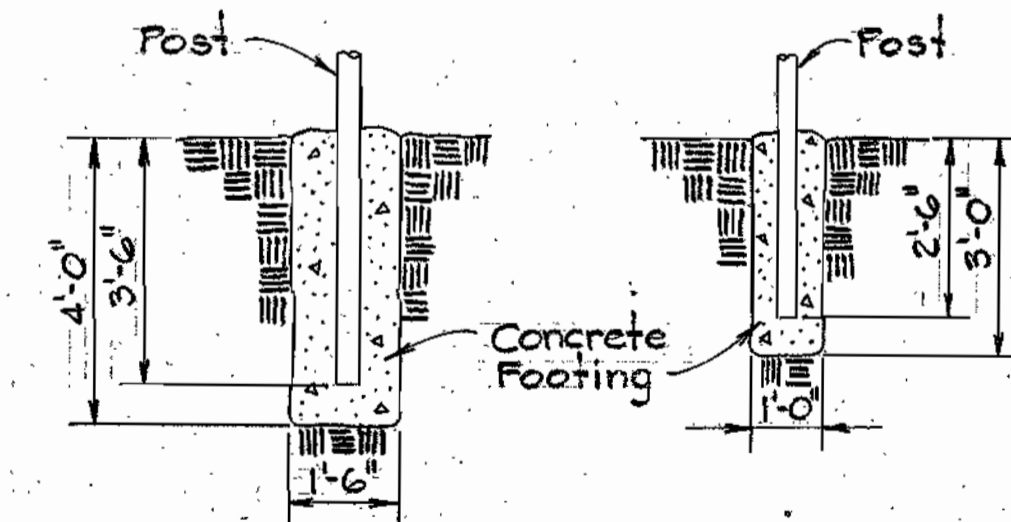
APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.  
*Joseph B. ...* 7-31-80  
 HOWARD SOIL CONSERVATION DISTRICT  
 REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS  
*Robert ...* 8-22-80  
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 APPROVED: *Robert ...* 8-22-80  
 HOWARD SOIL CONSERVATION DISTRICT DATE



**DRAINAGE AREA MAP**  
SCALE: 1" = 200'



**CHAIN-LINK FENCE DETAIL**  
Not to Scale



**TERMINAL POST MOUNTING**  
**LINE POST MOUNTING**  
Not to Scale

- NOTES: 1. Terminal Post: Size 2-1/2" Steel Pipe (ASTM A-120)  
 2. Brace Rail: Size 1-1/2" Steel Pipe (ASTM A-120)  
 3. Line Post: Size 1-1/2" Steel Pipe (ASTM A-120) or Beam @ 4.1" Per L.F.  
 4. Frame Member: Size 1 1/2" Steel Pipe (ASTM A-120)

**SEDIMENT CONTROL NOTES**

1. The Contractor shall notify the Ho. Co. Office of Inspections and Permits at least 24 hours prior to beginning any construction shown hereon at 992-2433
2. Dikes, sediment traps, etc. to be constructed prior to any onsite grading or disturbance to any existing surface material and are to be stabilized as soon as constructed
3. All sediment structures to remain in place until permission for their removal has been obtained from the Ho. Co. Office of Inspections and Permits at 992-2433
4. All graded areas not to be seeded shall be stabilized by seeding and mulching in accordance with the following.
  1. Site Preparations:
    - A. Harrow or disc in areas proposed to be seeded with the following materials at the specified rate to a depth of 3"
      1. Pulverized limestone at 1-1/2 tons/acre
      2. Commercial fertilizer 10-10-10 at 3/4 tons/acre
      3. Super Phosphate of 600 lbs/acre
  2. Seeding:
    - A. Sow the following seed mixture at the rate of 200 lbs/acre with a mechanical spreader
      1. Temporary: Italian or Perennial Rye Grass
      2. Permanent: 40% Merion Blue Grass, 40% South Dakota Blue Grass & 20% Penn. Lawn Creeping Red Fescue
    - B. The seeded area shall then be raked with a York Rake (minimum of 2 passes) covered and compacted with Cultipacker or other approved method.
  3. Mulching:
    - A. Seeded areas shall be uniformly mulched immediately after seeding with unweathered small grain straw at the rate of 1-1/2 to 2 tons/acre
    - B. Tie mulch down with liquid asphalt at 0.1 gal/sy or emulsified asphalt at 0.04 gal/sy on mulch netting
  4. Sodding:
    - A. Apply 10-10-10 Fertilizer = 1000 lbs/acre (25 lbs/1000 sq. ft.)
    - B. Apply Ground Agricultural Limestone = 2000 lbs/acre (50 lbs/1000 sq. ft.)
    - C. Incorporate both lime and fertilizer into soil by discing. Firm up after incorporation.
    - D. Lay sod to a tight fit. Roll to ensure contact with underlying soil. Water as necessary for first two weeks (in summer) to ensure establishment.
5. Critical area (2:1 slope) stabilization shall be Common Kentucky K-31 (certified) = 40#/acre and Crownvetch scarified and inoculated = 15#/acre

**CONSTRUCTION SEQUENCE**

1. Obtain grading permit.
2. Construct temporary stabilized entrance.
3. Place straw bale dikes as shown on plans.
4. Construct Perimeter Dike to the dimensions shown on Drawings.
5. Stabilize Perimeter Dike using "Temporary Seeding". See Sediment Control Notes.
6. Clear and rough grade site.
7. Cut Channel and place Rip Rap.
8. Place gravel base for access driveway.
9. Place building footings and begin building construction.
10. Place 6" crusher run base course for access driveway.
11. Fine grade slopes.
12. Stabilize site with permanent seeding and mulching. See Sediment Control Notes.
13. Place triple surface treatment course of pavement.
14. Remove temporary sediment control devices and stabilize disturbed area per sediment control notes.

APPROVED  
DIVISION OF LAND DEVELOPMENT

HOWARD COUNTY, MARYLAND  
DATE 9-15-80

**PURDUM & JESCHKE**  
CONSULTING ENGINEERS  
LAND SURVEYORS

1023 North Calvert Street  
Baltimore, Maryland 21202 301/837-0194

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND ROADS - HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

*Joseph F. Nemmings* 7-31-80  
*William S. ...* 7-29-80

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

*Arnold ...* 10-27-80  
*Alan ...* 10-22-80

DEVELOPER  
I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS DEEMED NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE MADE UNLESS AUTHORIZED BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Joseph F. Nemmings* 7-31-80

PROFESSIONAL ENGINEER  
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*William D. Purdum* 11/19/79

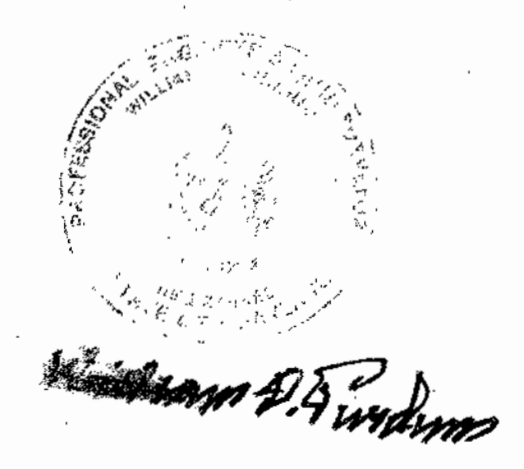
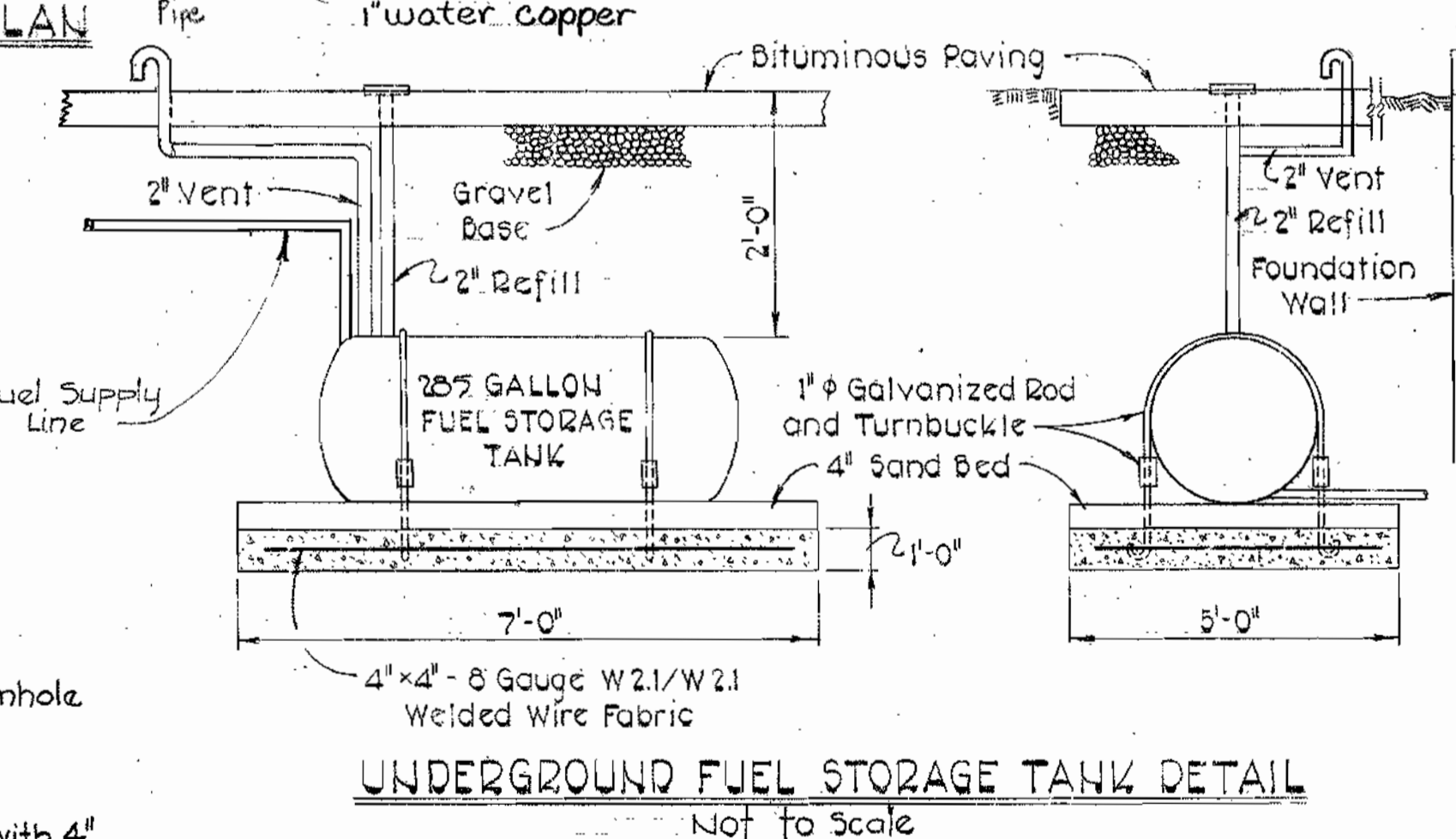
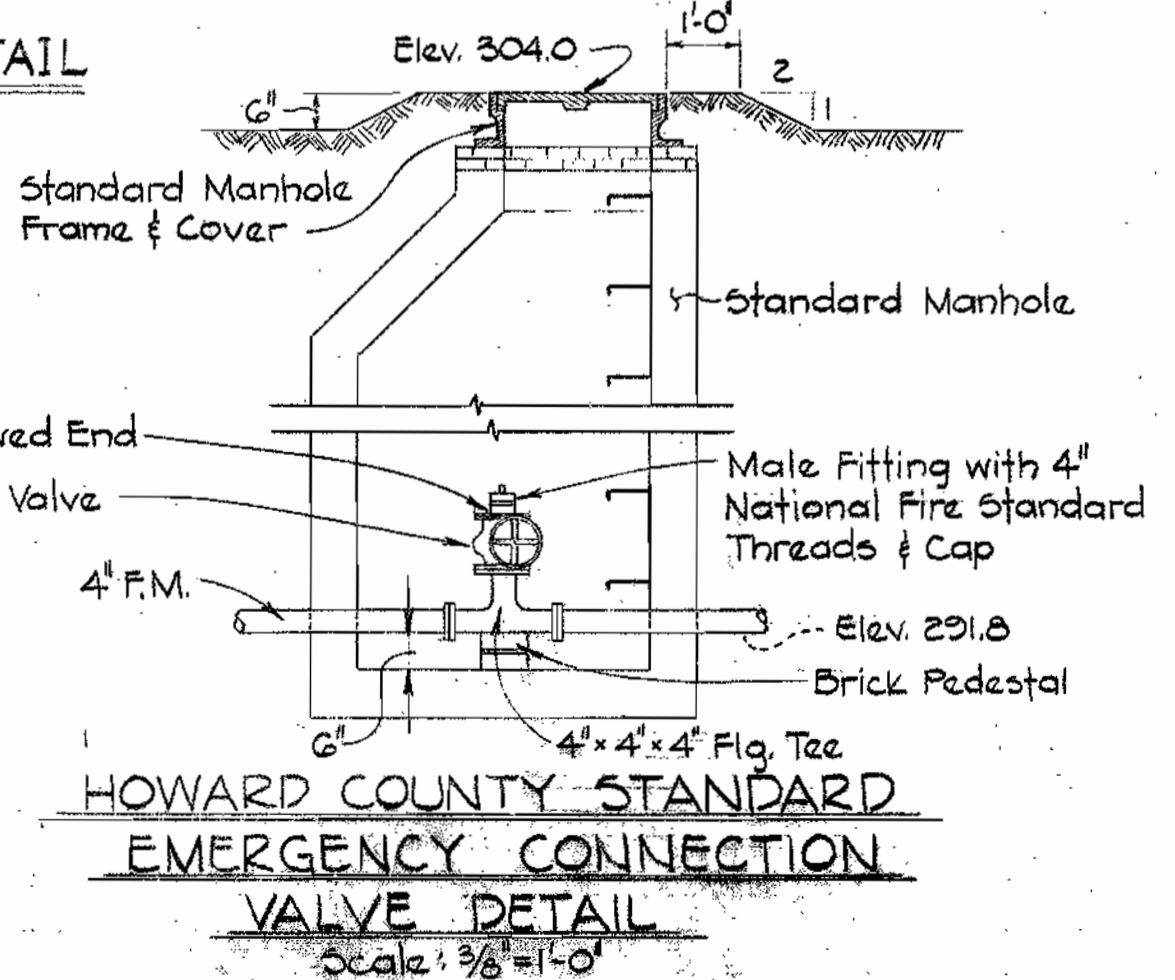
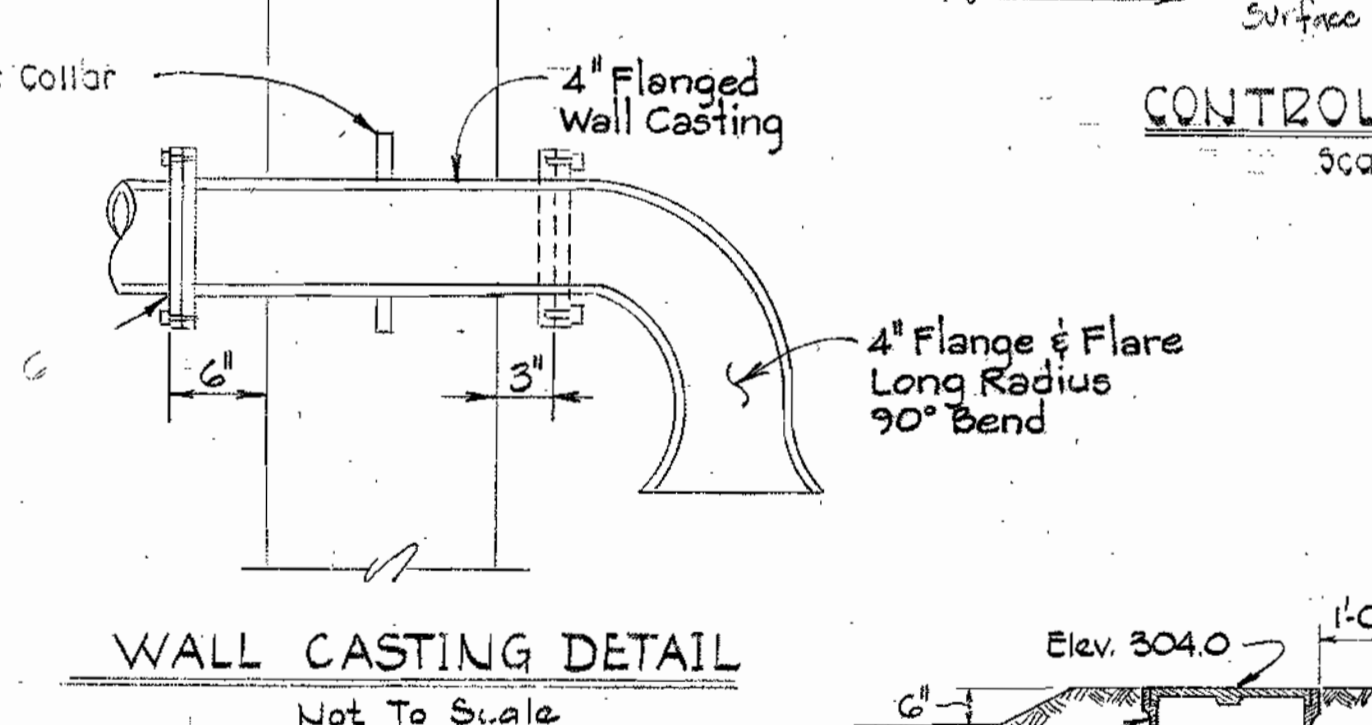
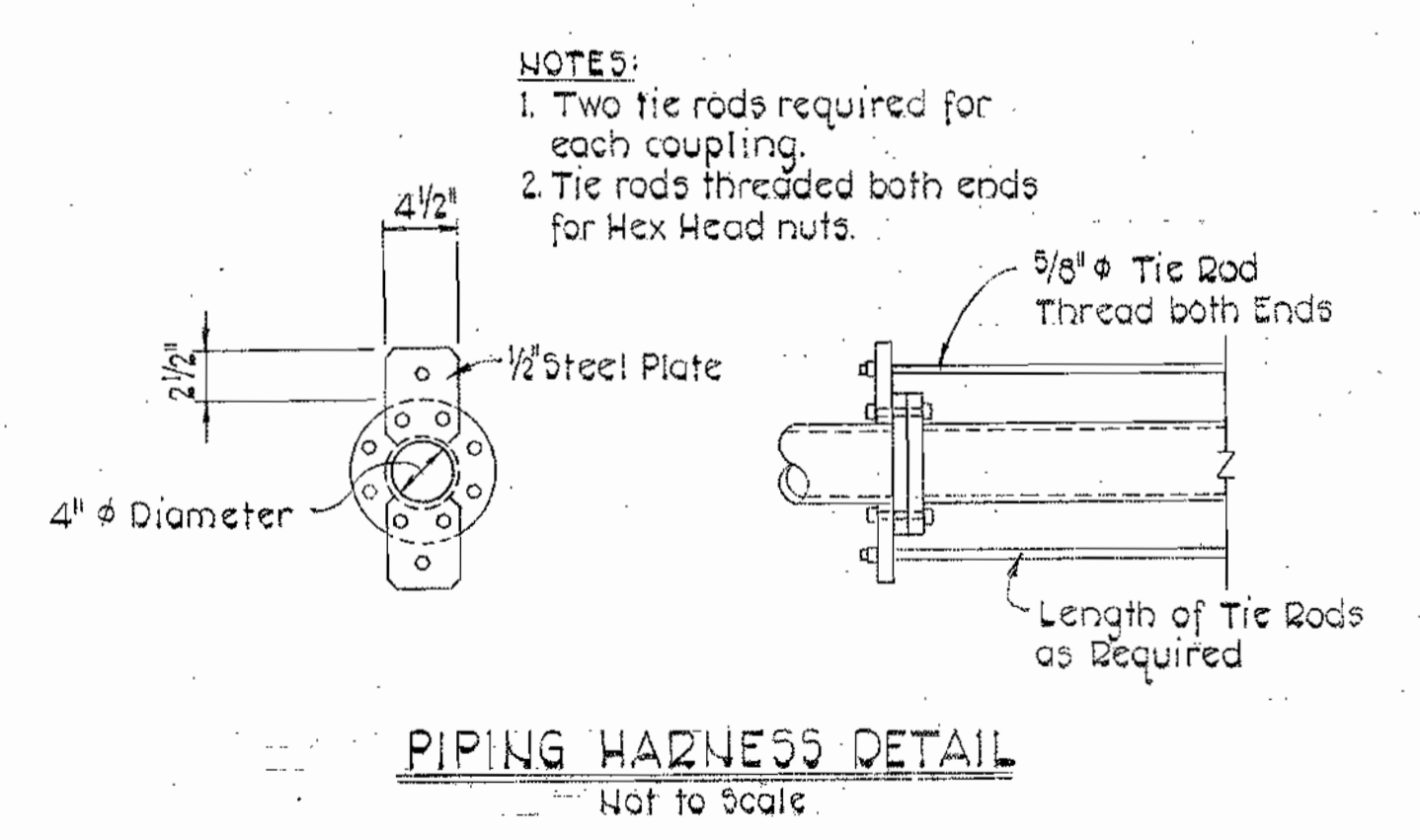
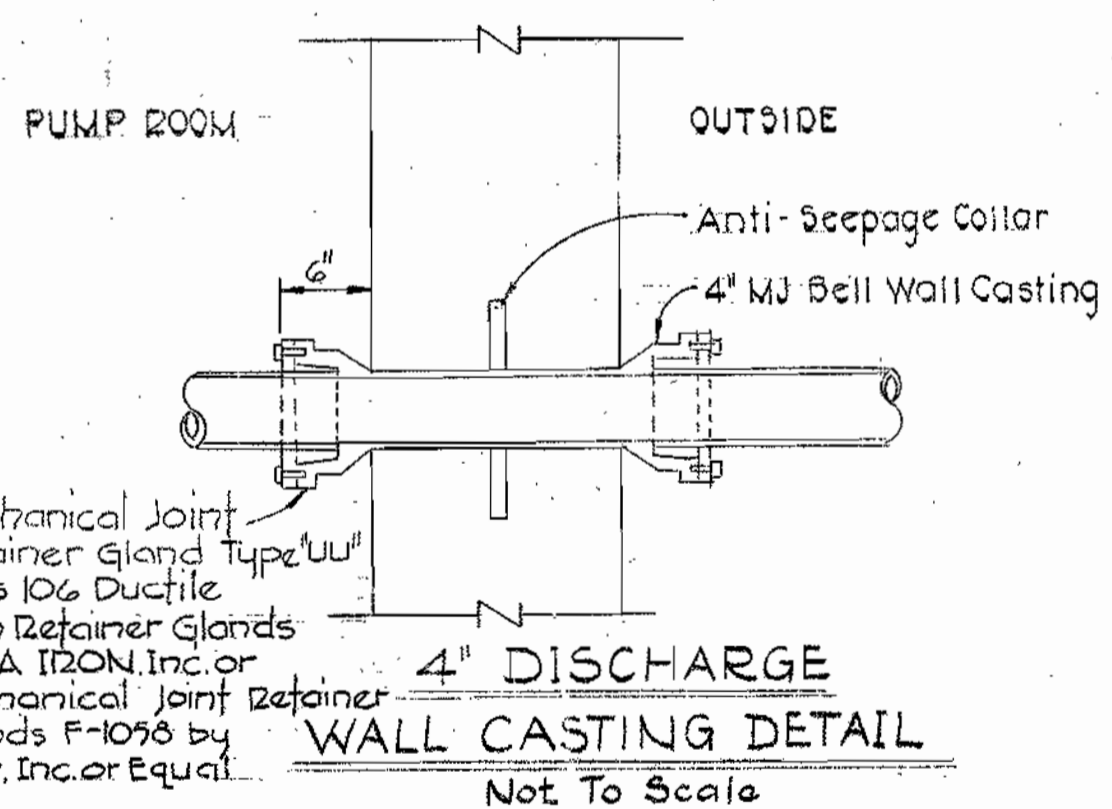
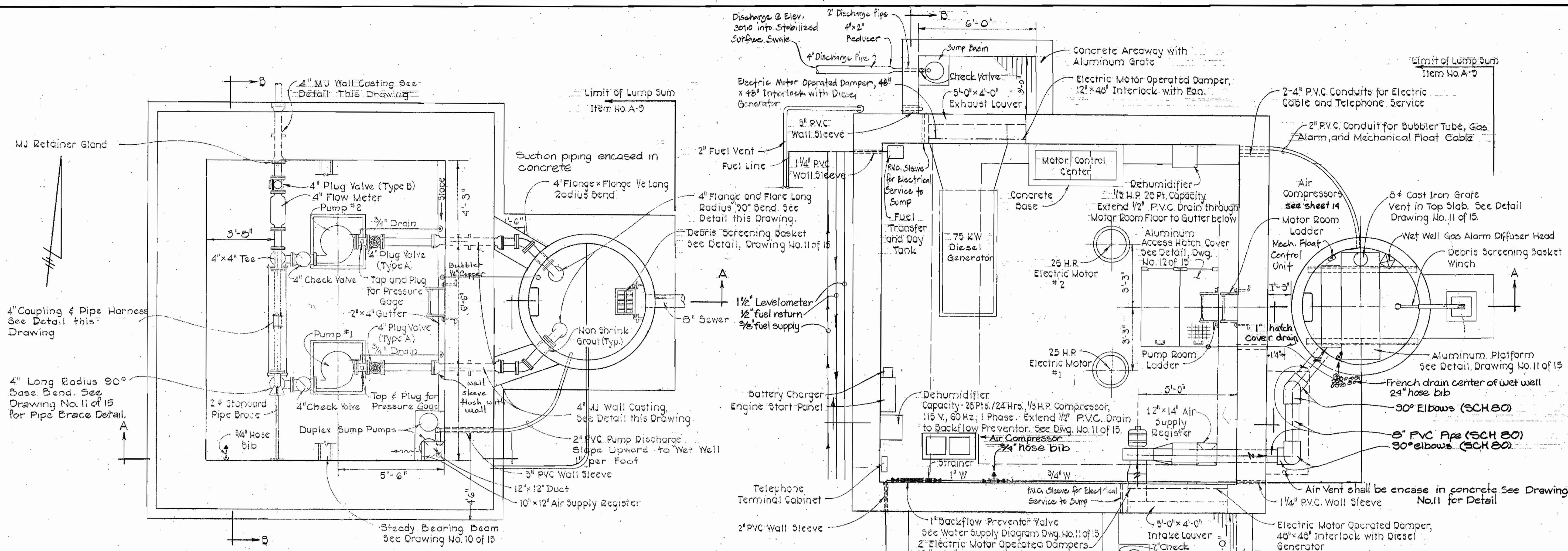


HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
PROJECT: S-4-6049  
CONTRACT: 2718-S

TOWER ACRES SANITARY SEWER  
TOWER ACRES PUMPING STATION  
DRAINAGE AREA MAP AND  
SEDIMENT CONTROL DETAILS  
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MD  
TAX MAP: 46 PARCEL: A

CRH  
SPE  
RJT  
DRAWING  
8 OF 15  
AS SHOWN





**PURDUM & JESCHKE**  
ENGINEERS  
1023 N. CALVERT ST.  
BALTIMORE, MARYLAND

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND  
7-31-80  
DIRECTOR OF PUBLIC WORKS-DATE

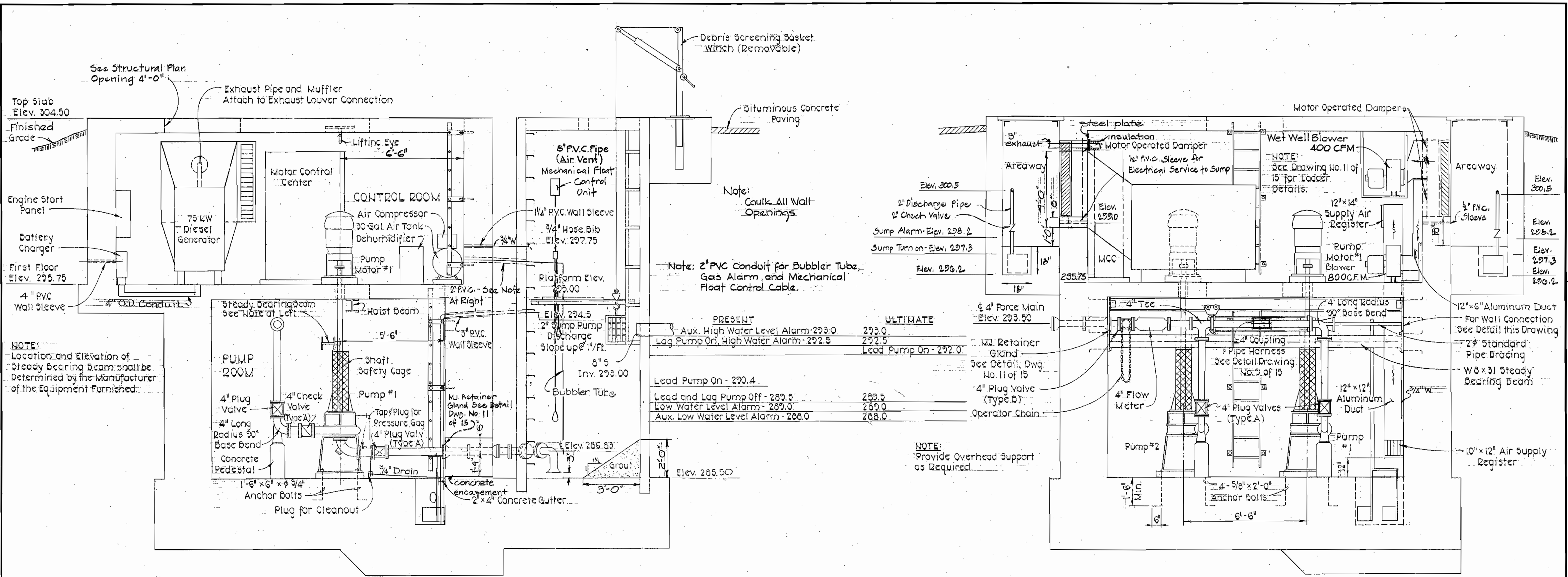
**CHIEF-BUREAU OF UTILITIES**  
DATE  
7-29-80  
CHIEF-BUREAU OF ENGINEERING-DATE

**CONTRACT NO. 2718-S**  
**CAPITAL PROJECT NO. S-4-6049**

**PLAN AND DETAILS**  
**TOWER ACRES PUMPING STATION**

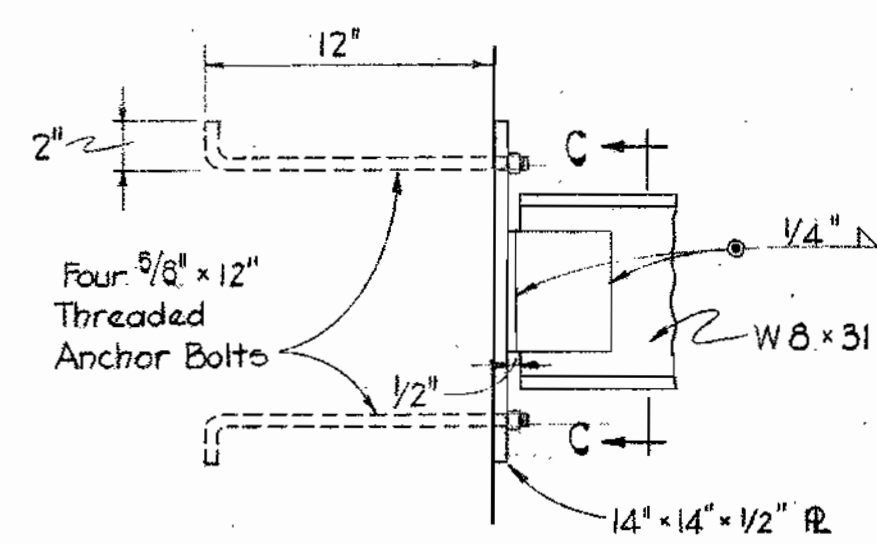
**TOWER ACRES SANITARY SEWERS**  
ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

<b>DRAWING NO. 9 OF 15</b>	<b>SCALE AS SHOWN</b>	Designed: REP Drafted: NLS Checked: RHB
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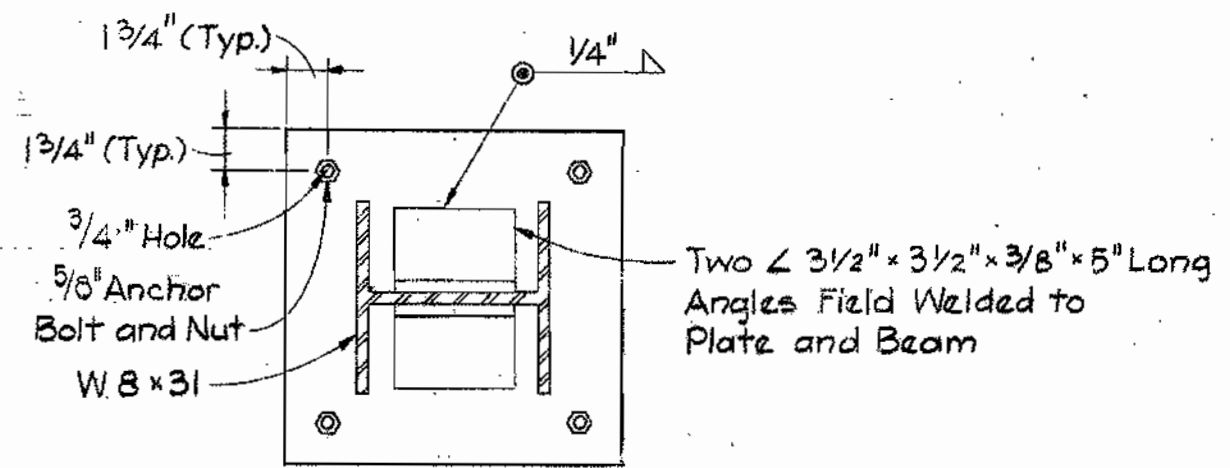


SECTION A-A  
Scale: 3/8" = 1'-0"

SECTION B-B  
Scale: 3/8" = 1'-0"



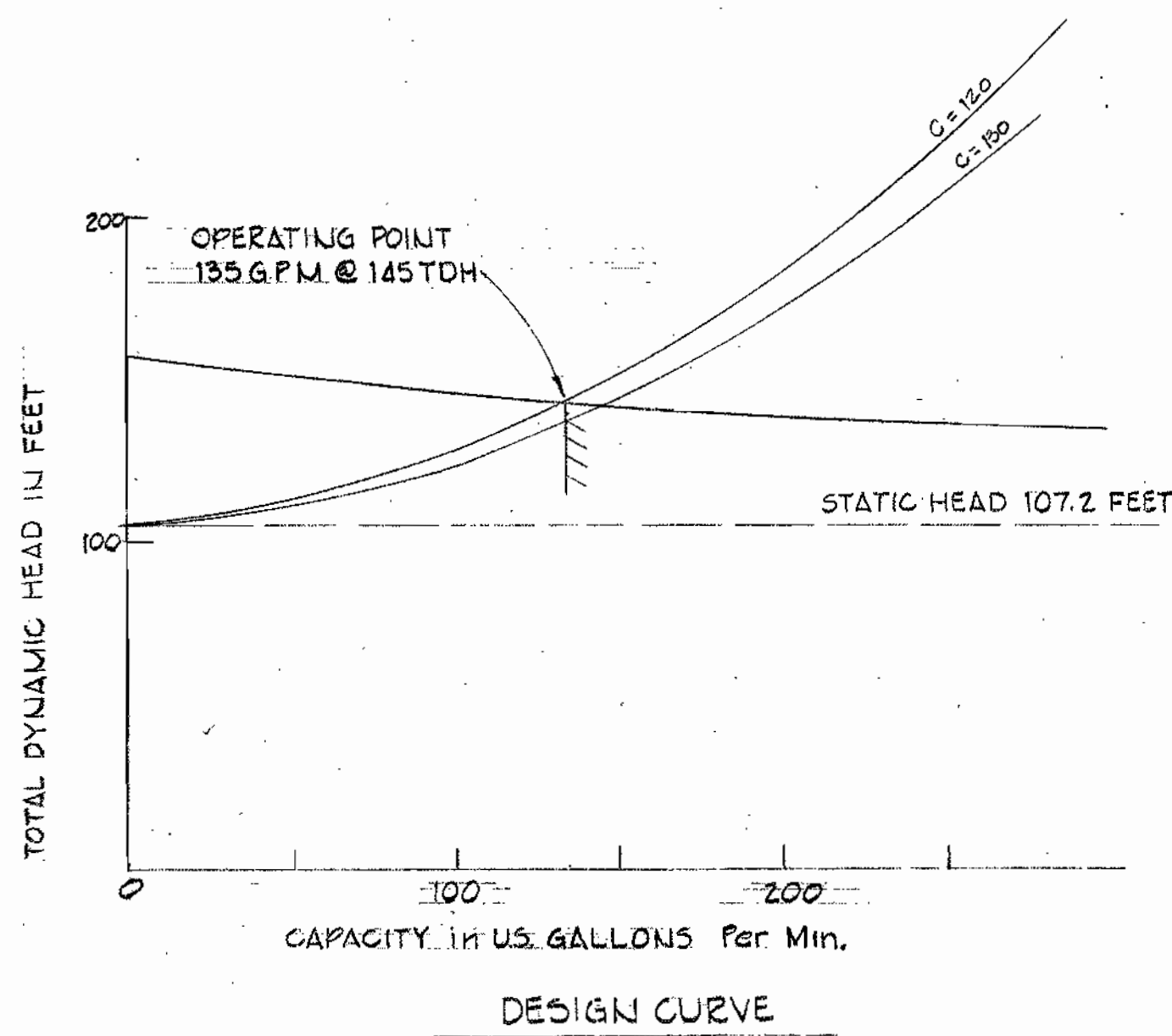
PLAN



SECTION "C-C"

STEADY BEARING BEAM  
WALL CONNECTION DETAIL  
Scale: 1/2" = 1'-0"

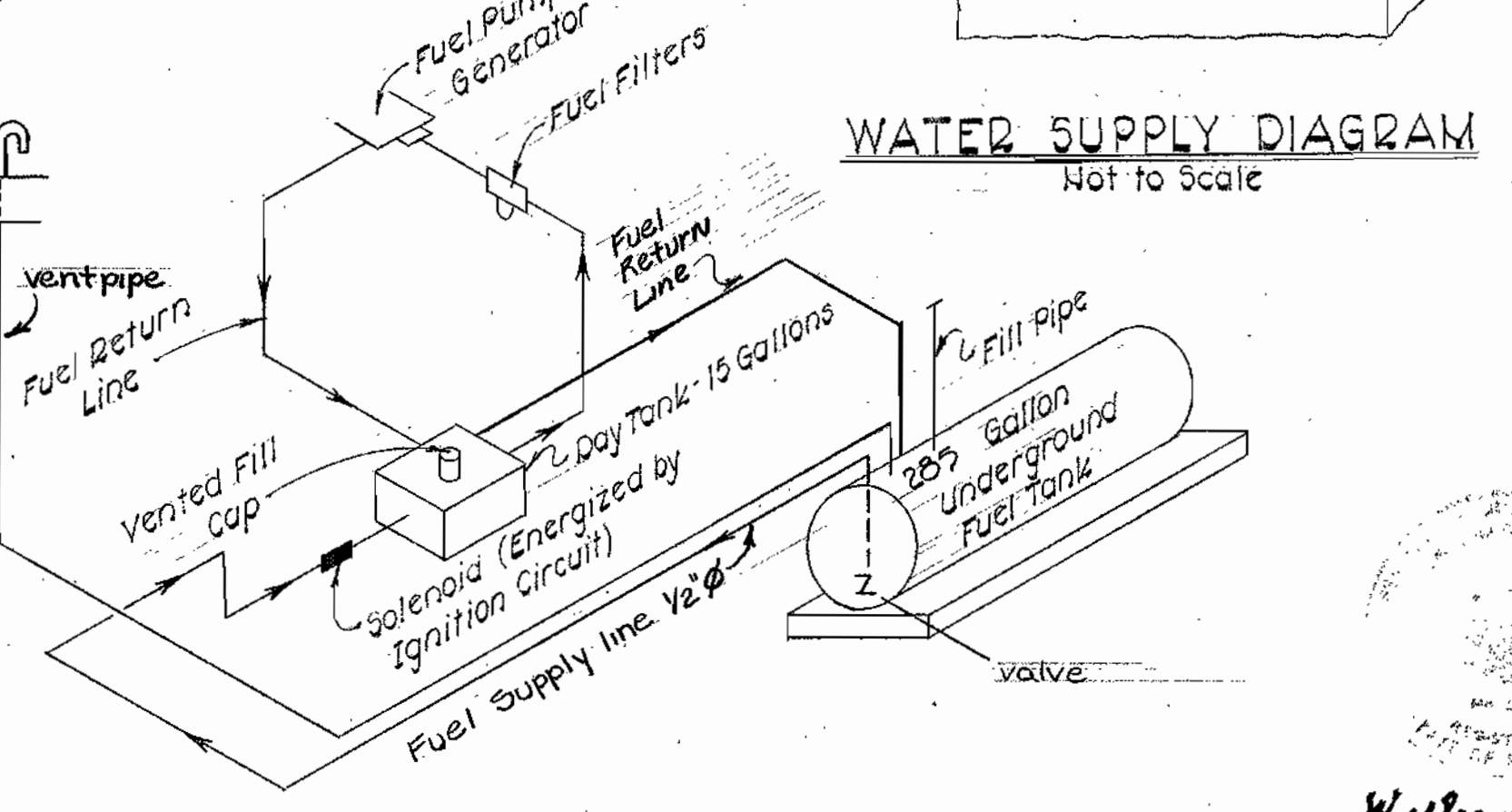
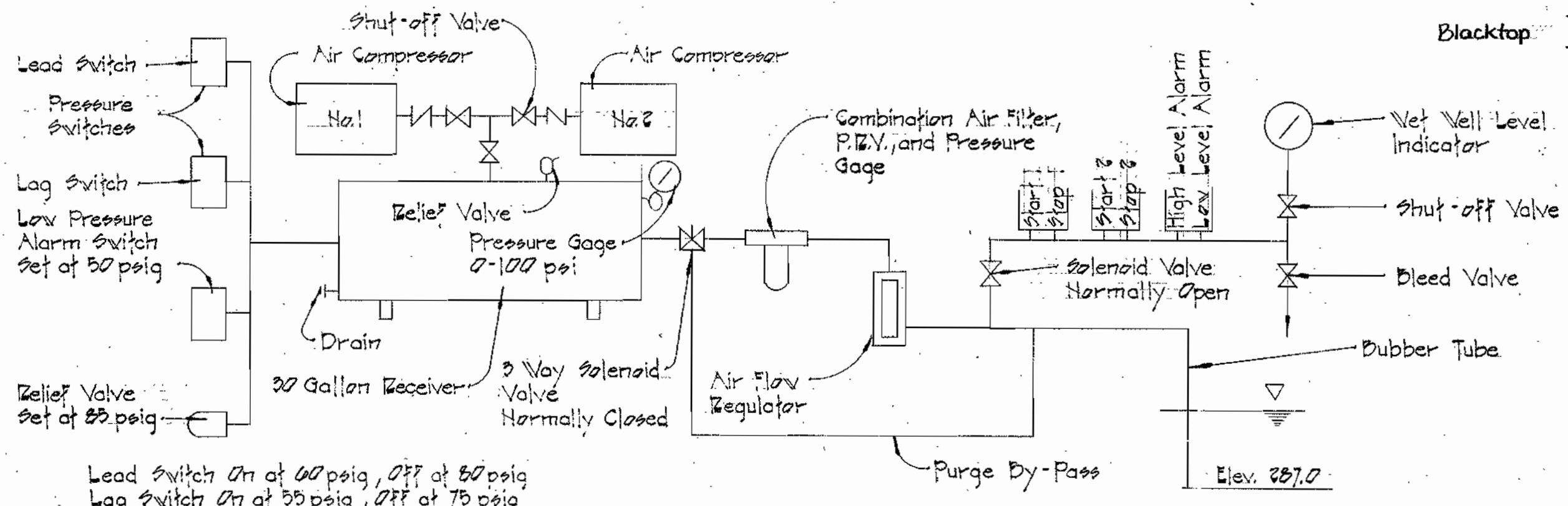
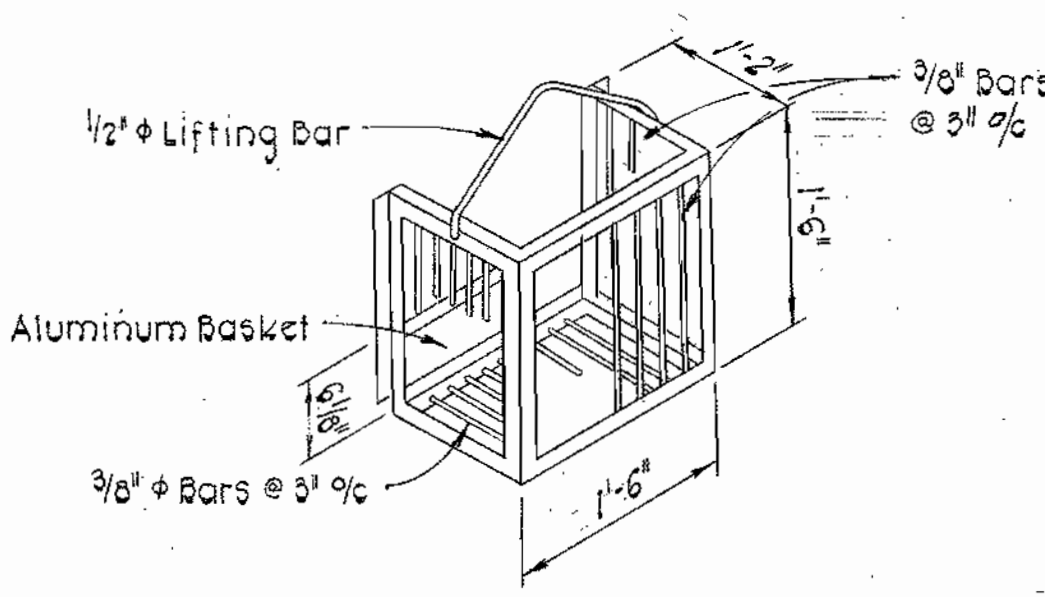
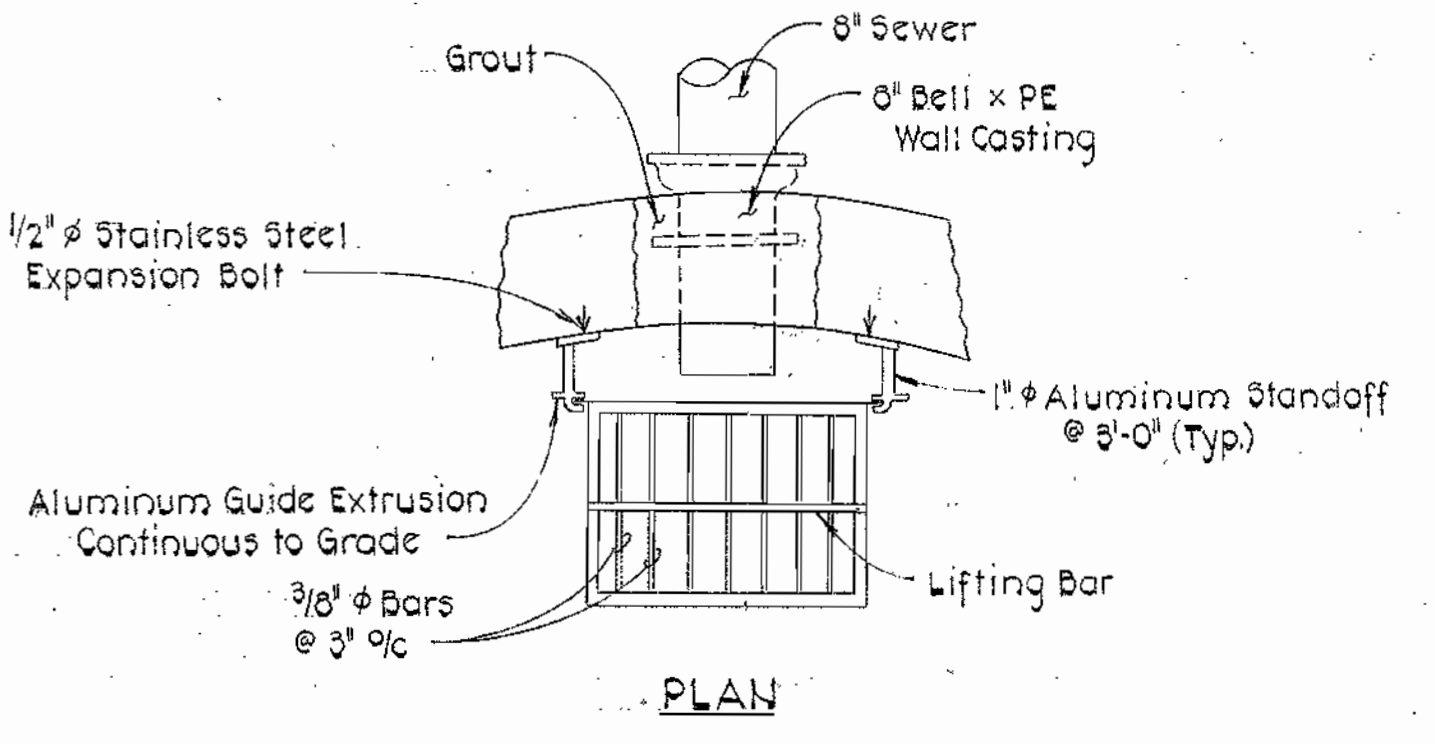
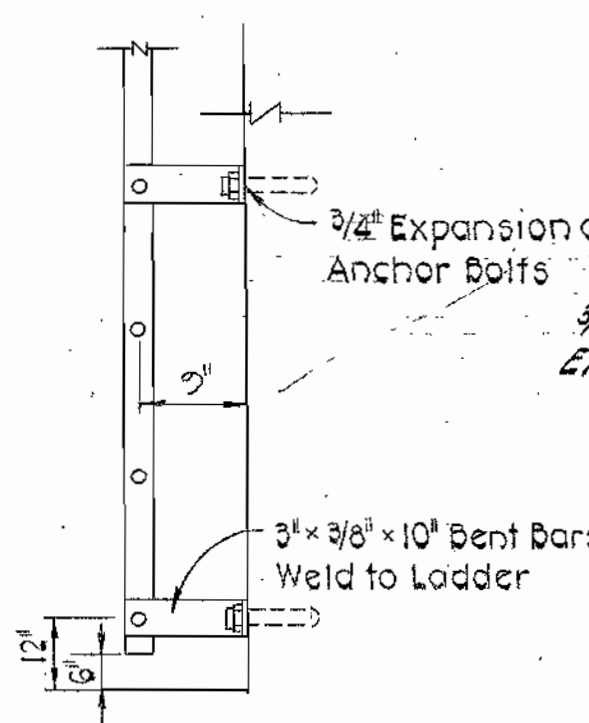
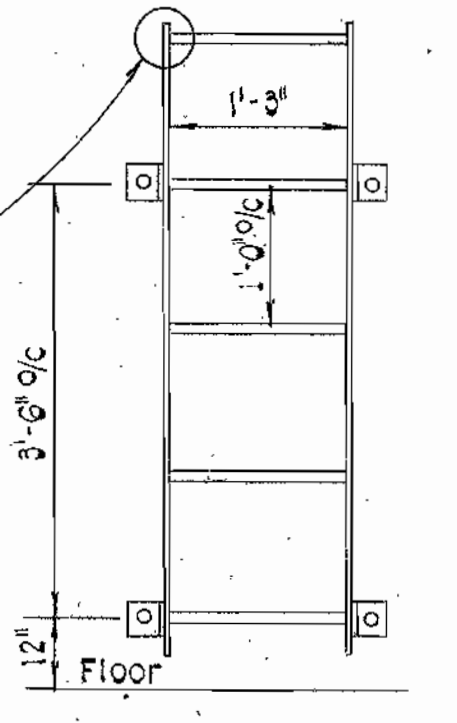
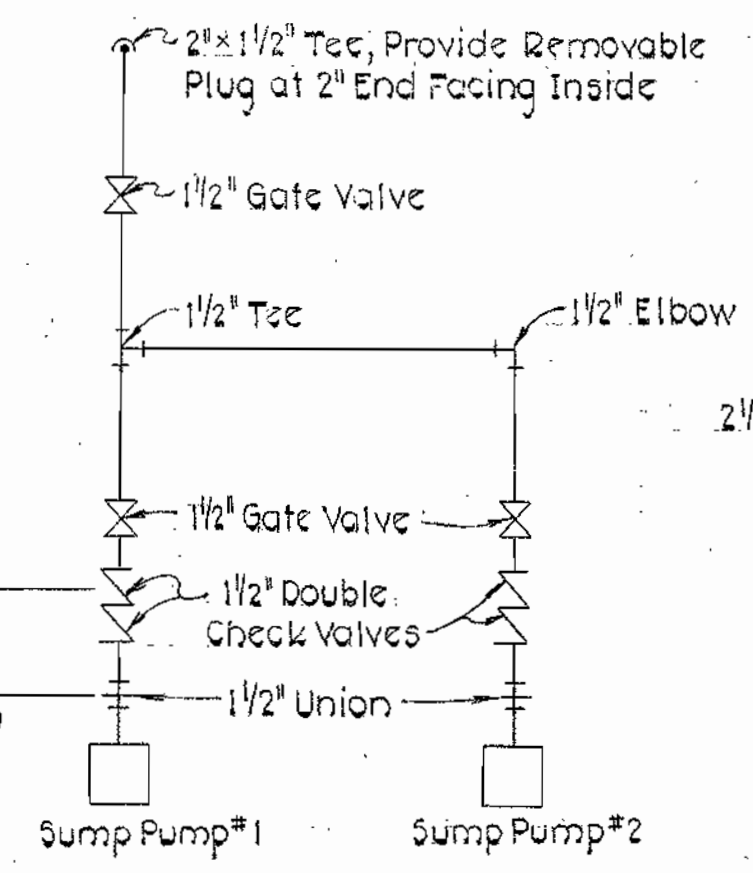
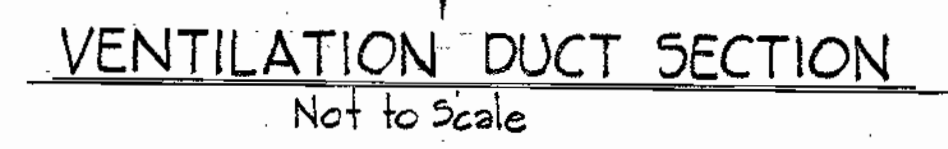
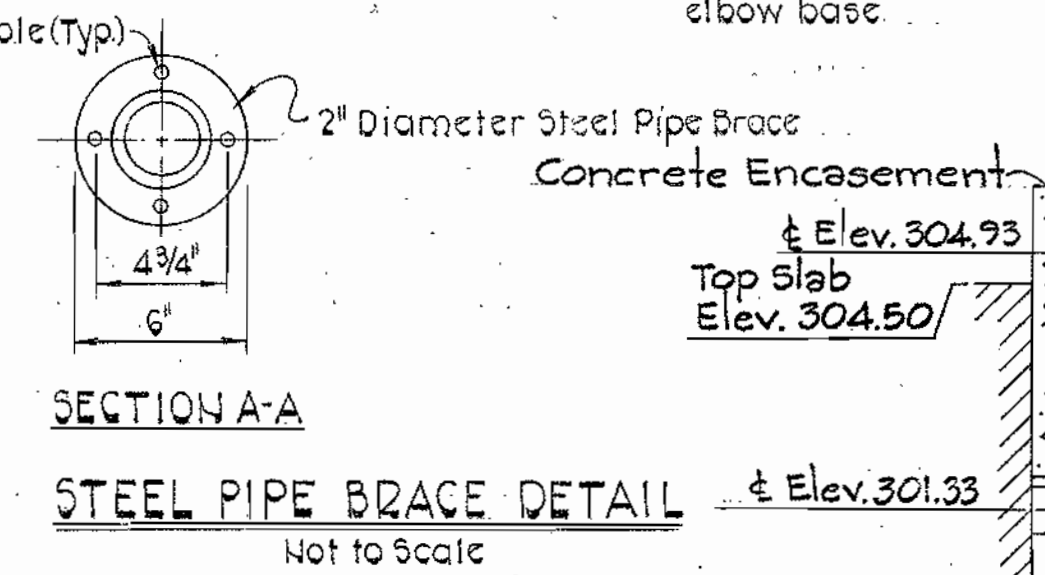
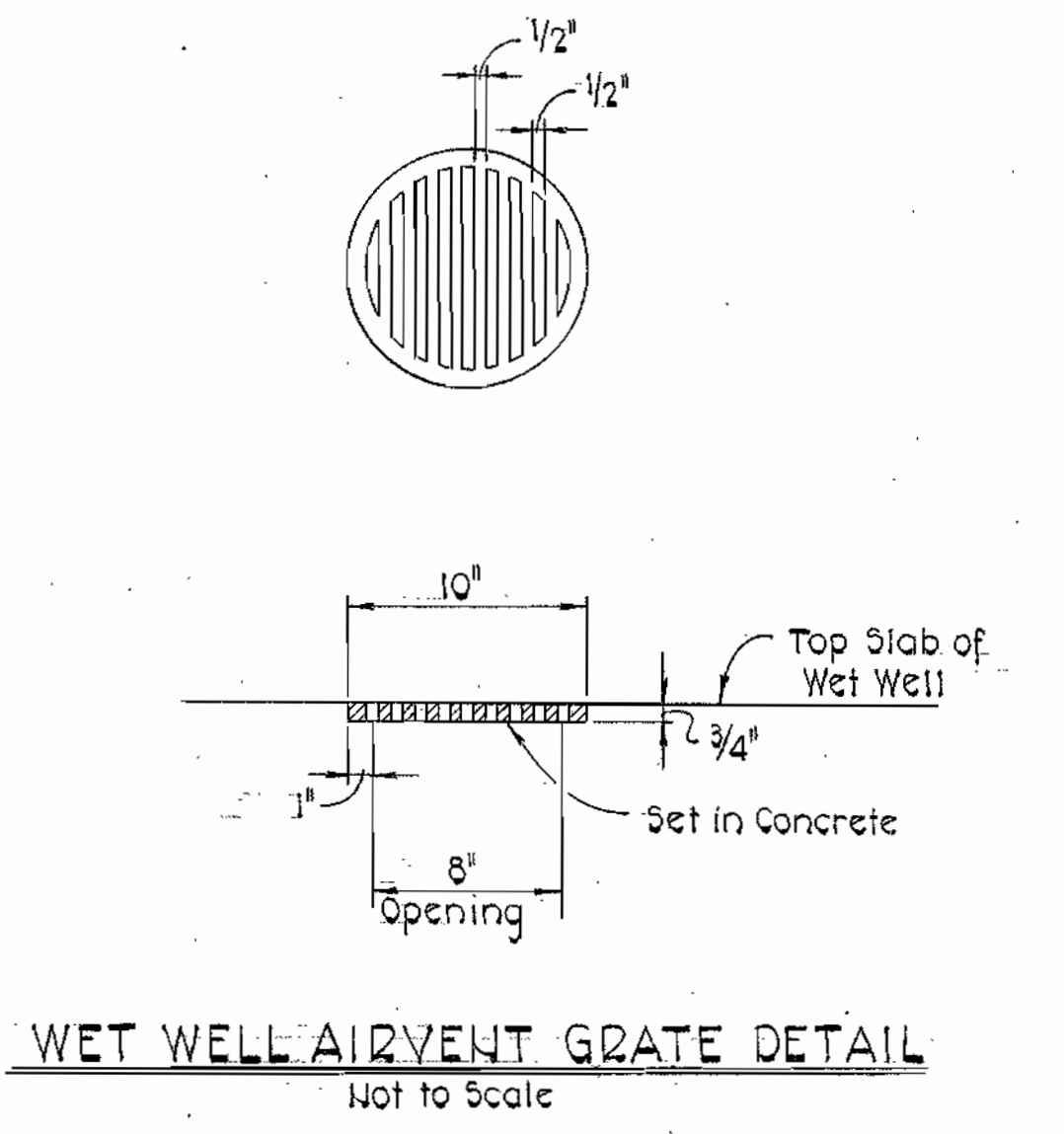
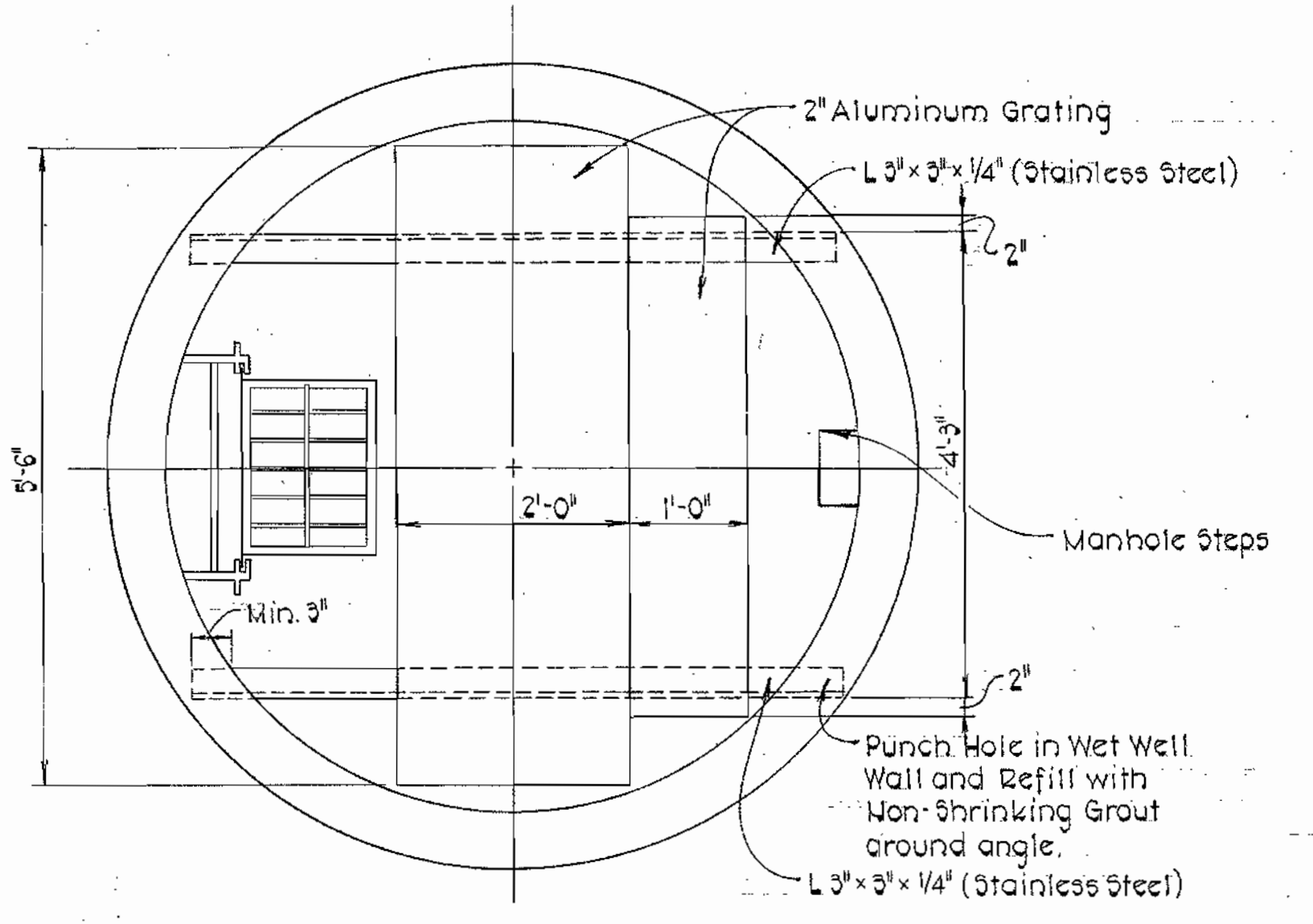
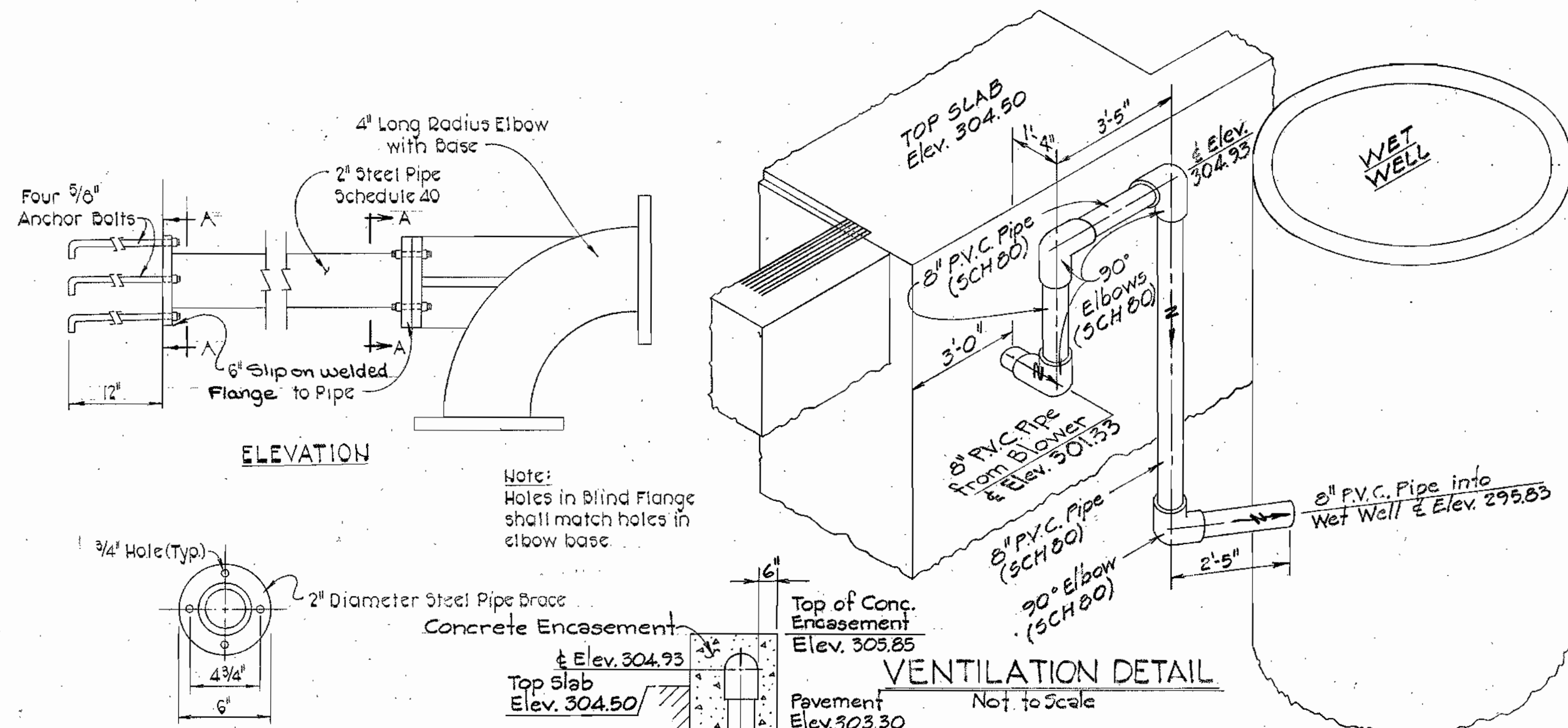
Note:  
Drill 1/4"  $\phi$  Holes in Web  
of Steady Bearing Beam  
@ 5' c/c.



W. Purdum

CONTRACT NO. 2718-S  
TOWER ACRES SANITARY SEWERS  
TOWER ACRES PUMPING STATION  
CAPITAL PROJECT NO. S-4-6049

PURDUM & JESCHKE ENGINEERS 1023 N. CALVERT ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF-BUREAU OF UTILITIES DATE: 7-21-80 DIRECTOR OF PUBLIC WORKS-DATE: 7-22-80 CHIEF-BUREAU OF ENGINEERING-DATE: 7-22-80	CONTRACT NO. 2718-S CAPITAL PROJECT NO. S-4-6049	MECHANICAL SECTIONS TOWER ACRES PUMPING STATION	TOWER ACRES SANITARY SEWERS ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND	DRAWING NO. 10 OF 15 SCALE AS SHOWN Designed: REP Drafted: ARZ Checked: RHB
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W. J. JESCHKE

PURDUM & JESCHKE  
 ENGINEERS  
 1023 N. CALVERT ST.  
 BALTIMORE, MARYLAND

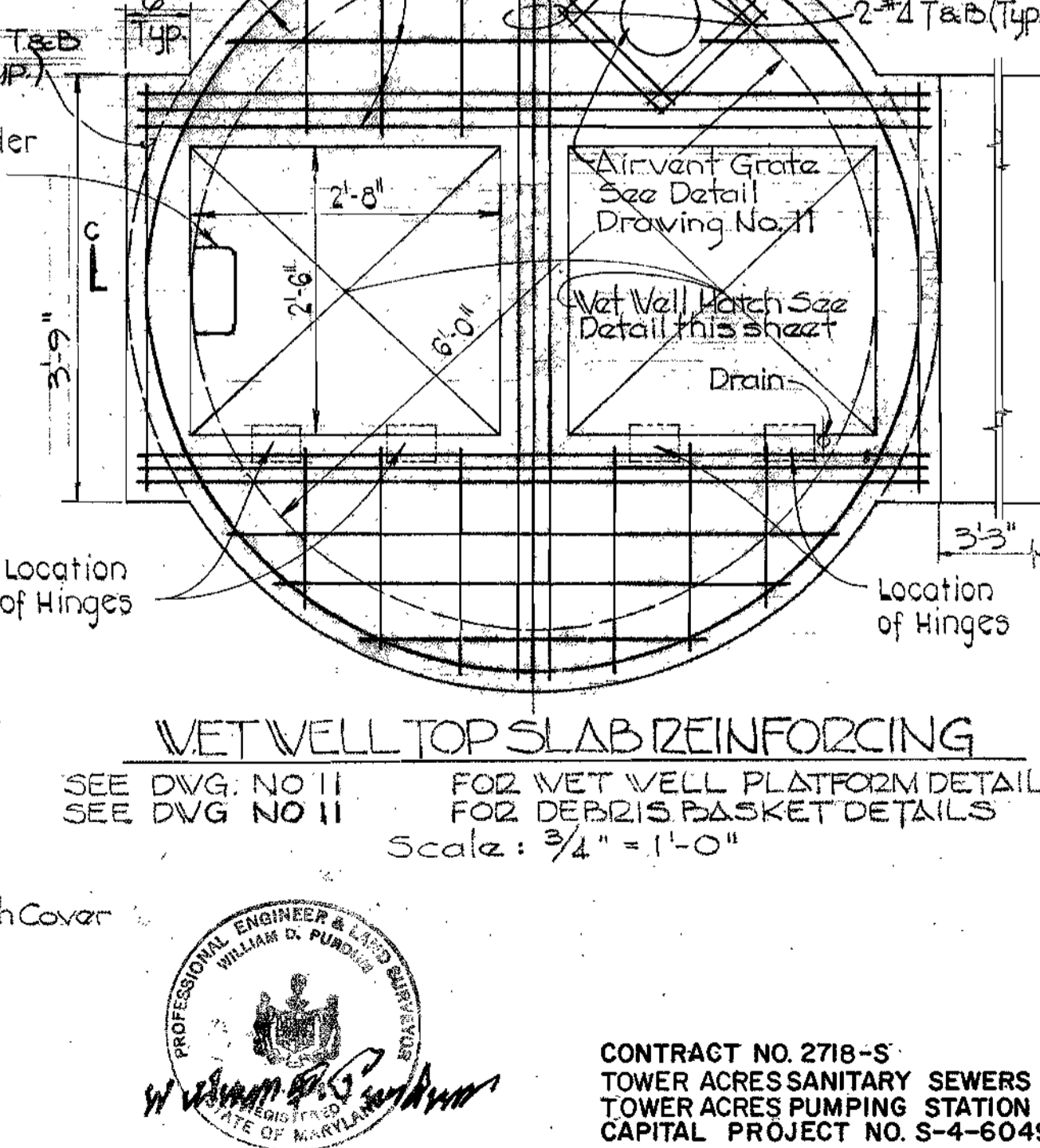
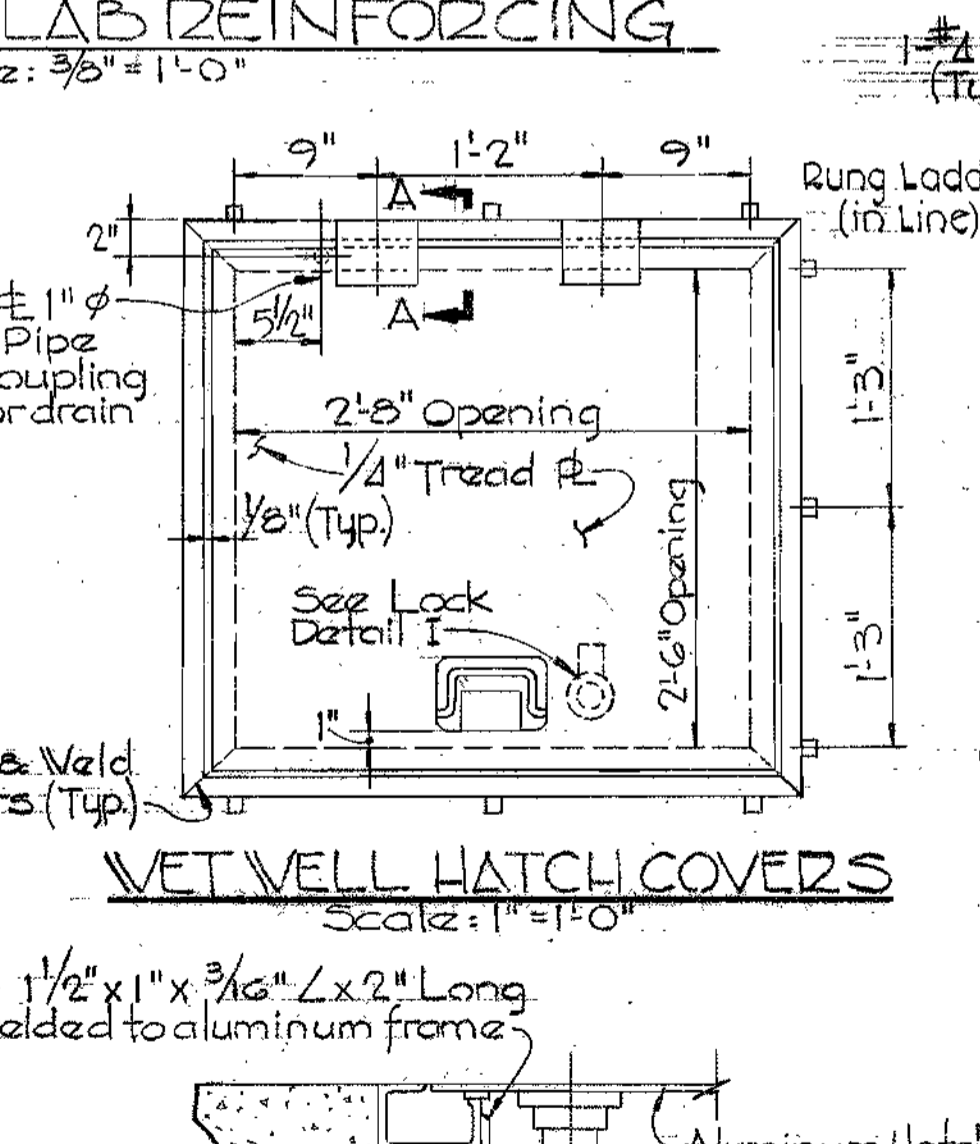
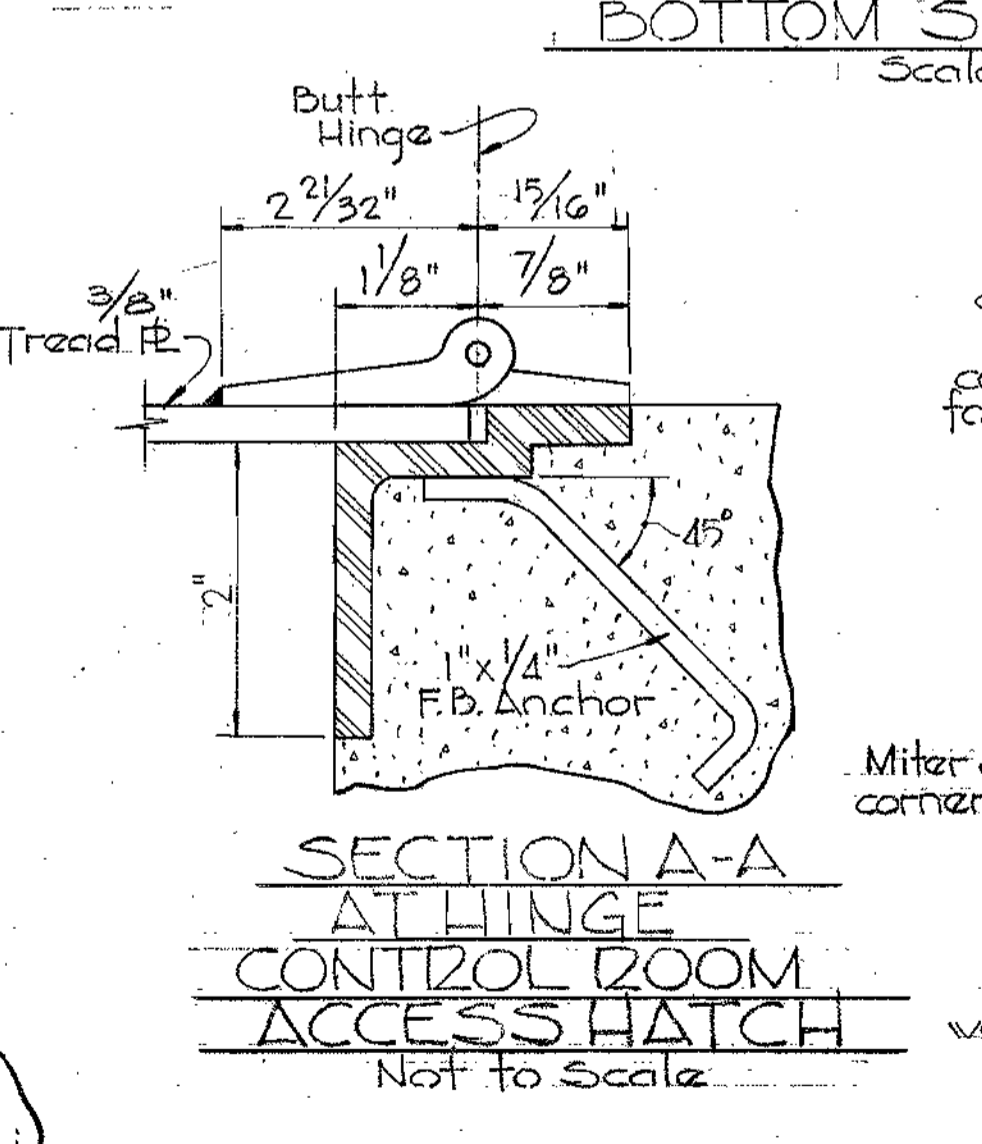
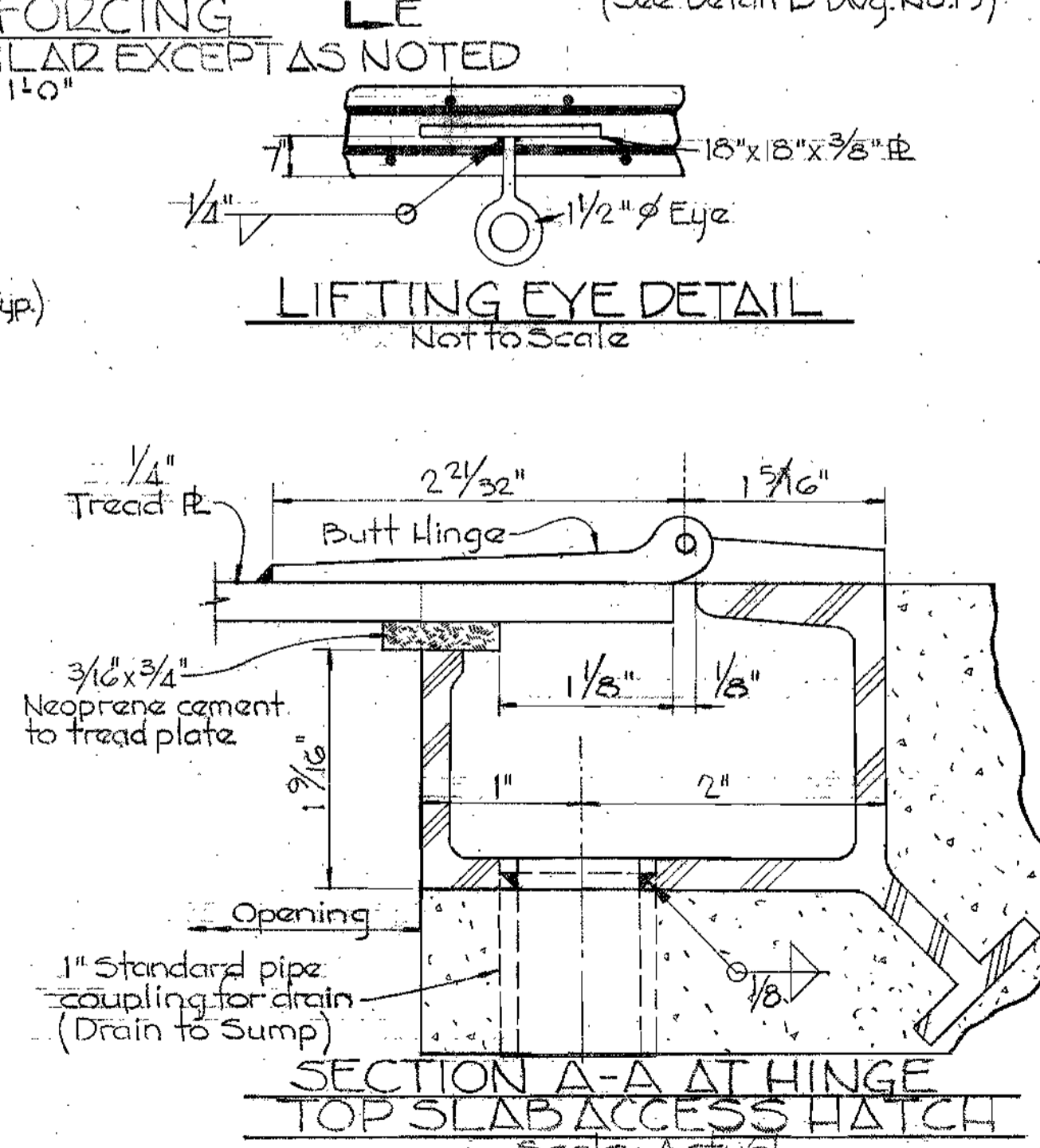
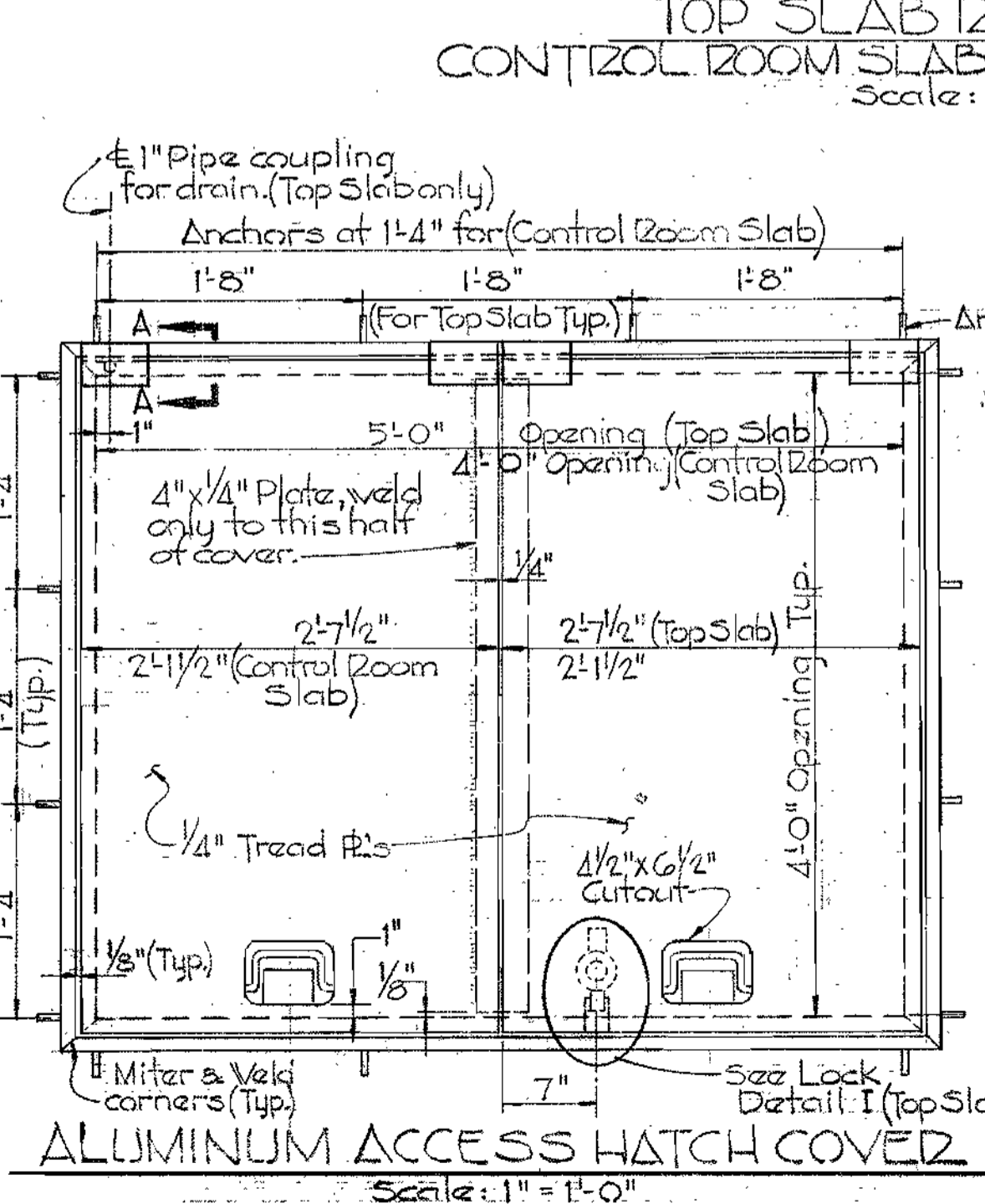
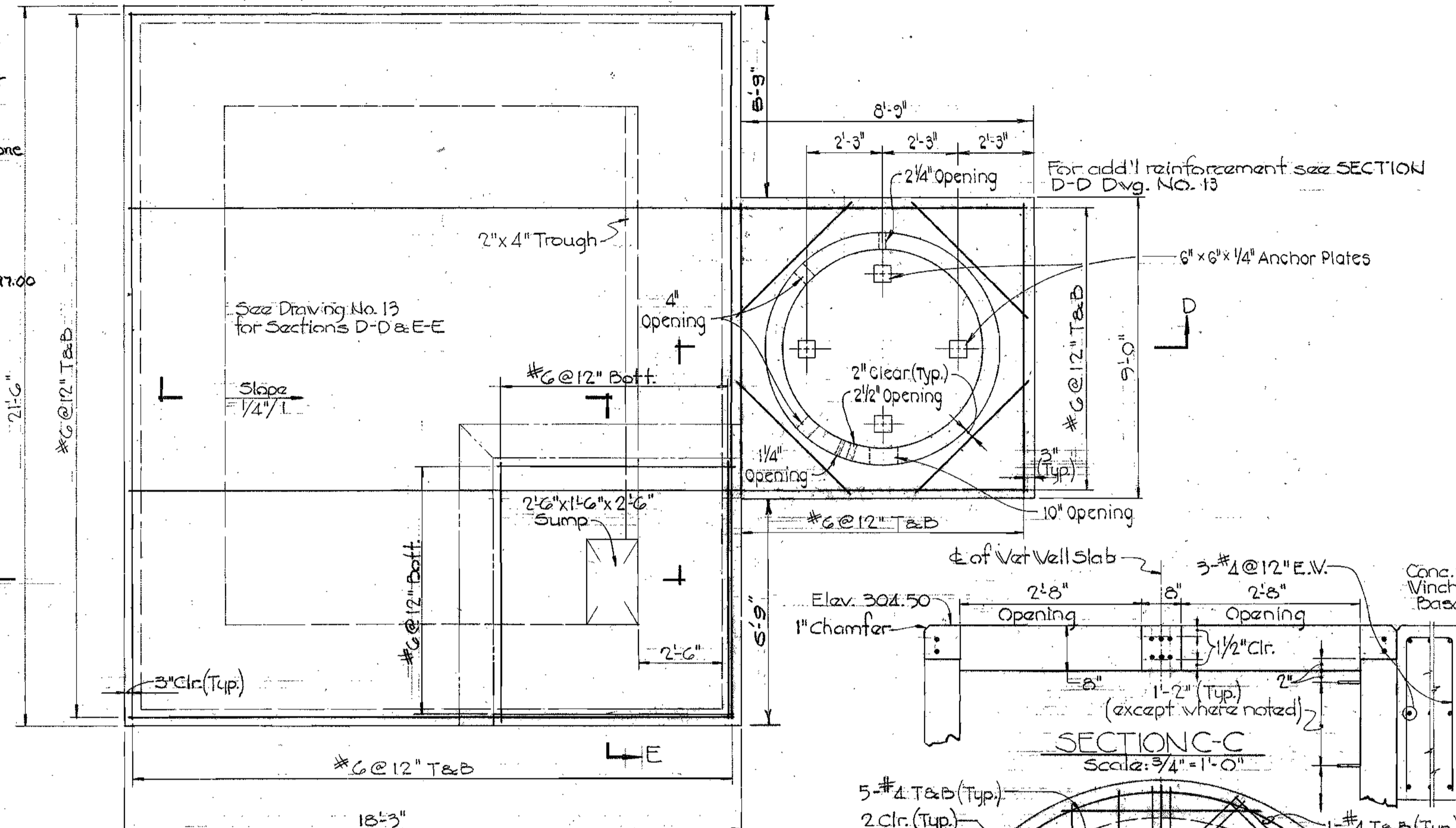
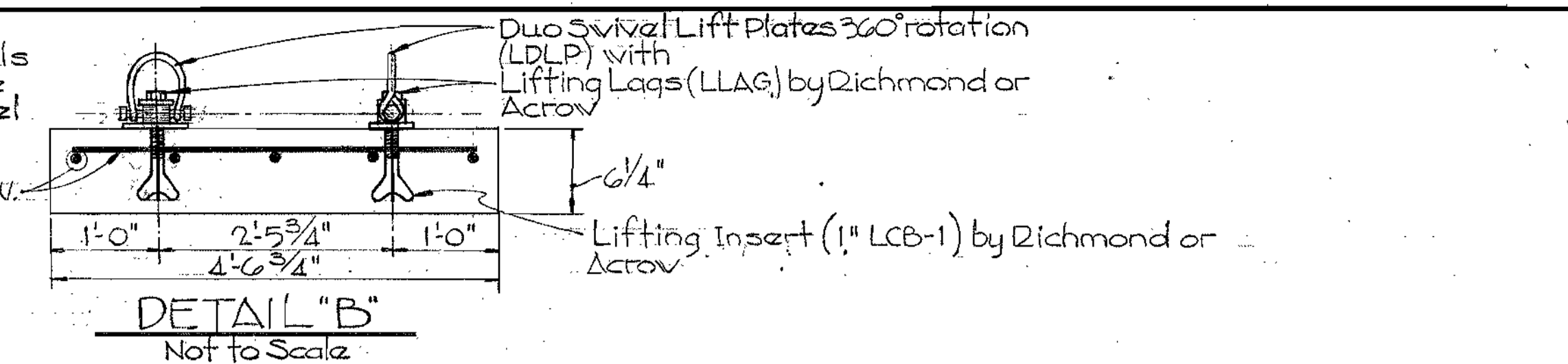
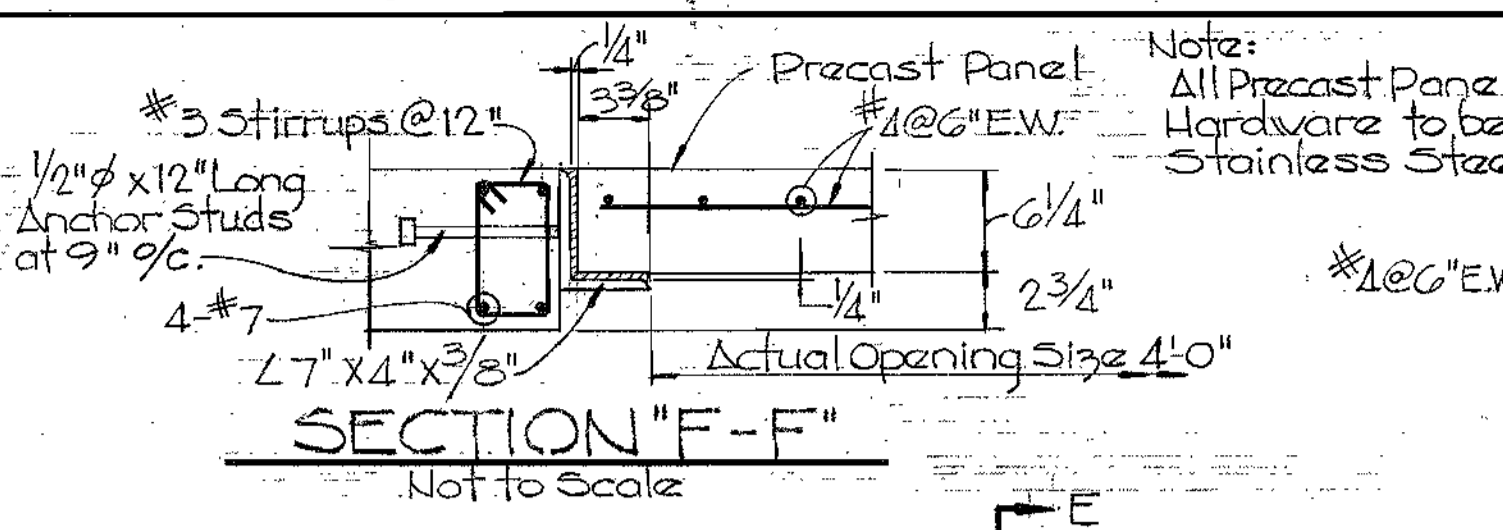
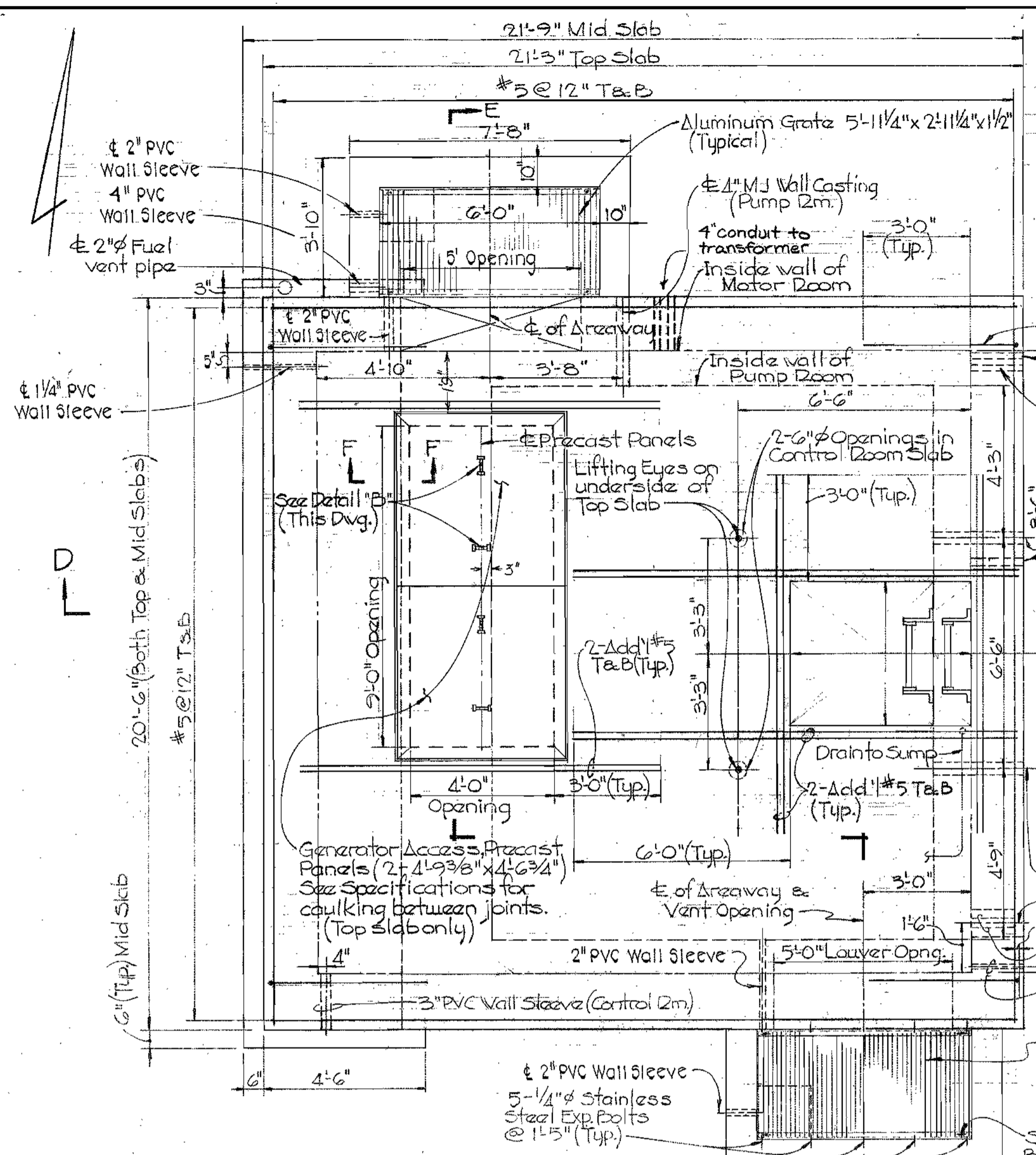
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 HOWARD COUNTY, MARYLAND  
 CHIEF - BUREAU OF UTILITIES  
 DATE 7-21-80  
 DIRECTOR OF PUBLIC WORKS - DATE 7-23-80  
 CHIEF - BUREAU OF ENGINEERING - DATE

CONTRACT NO. 2718-S  
 CAPITAL PROJECT NO. S-4-6049

MISCELLANEOUS DETAILS  
 TOWER ACRES PUMPING STATION

TOWER ACRES SANITARY SEWERS  
 ELECTION DISTRICT NO. 6  
 HOWARD COUNTY, MARYLAND

DRAWING NO. 11 OF 15  
 SCALE AS SHOWN  
 Designed: RDB  
 Drafted: ARZ  
 Checked: CHL



PURDUM & JESCHKE ENGINEERS  
1023 N. CALVERT ST.  
BALTIMORE, MARYLAND

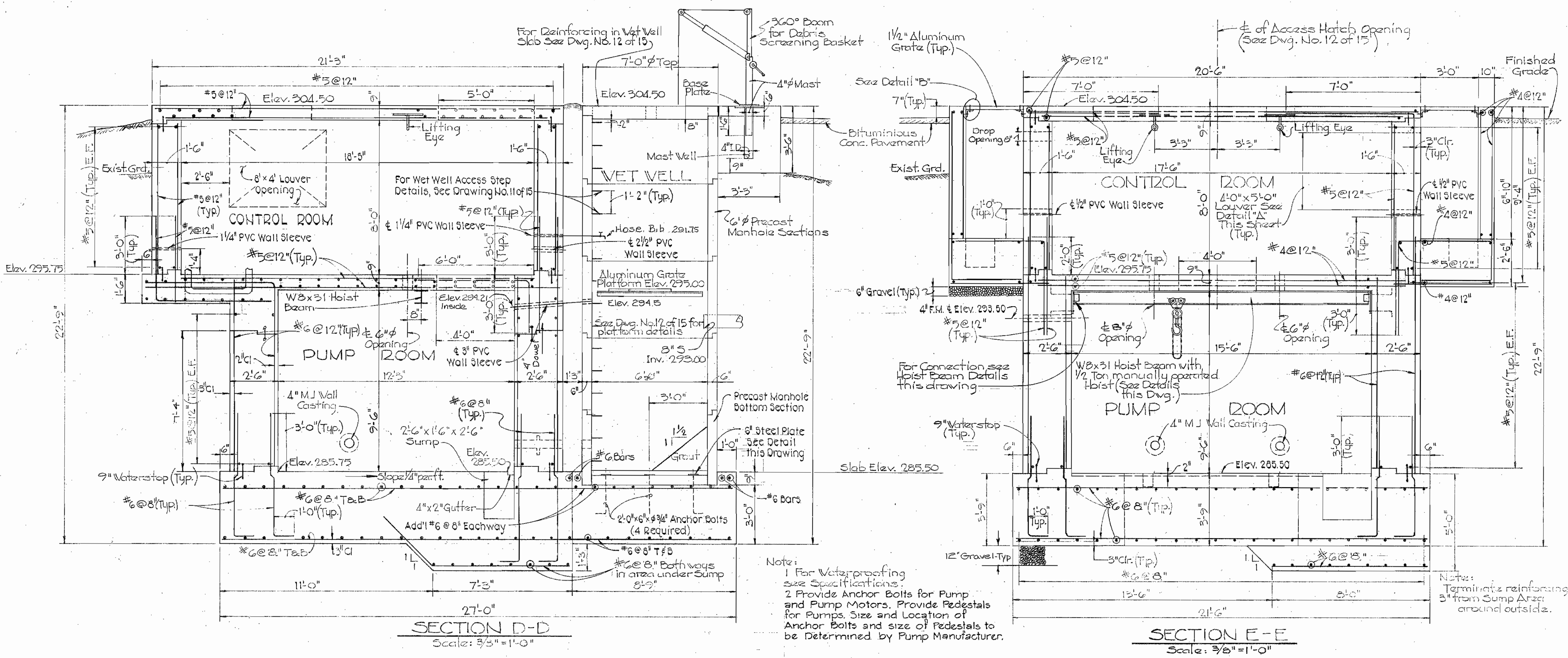
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HOWARD COUNTY, MARYLAND  
CHIEF-BUREAU OF UTILITIES DATE  
7-31-80

CONTRACT NO. 2718-S  
CAPITAL PROJECT NO. S-4-6049

STRUCTURAL PLANS AND DETAILS  
TOWER ACRES PUMPING STATION

TOWER ACRES SANITARY SEWERS  
ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

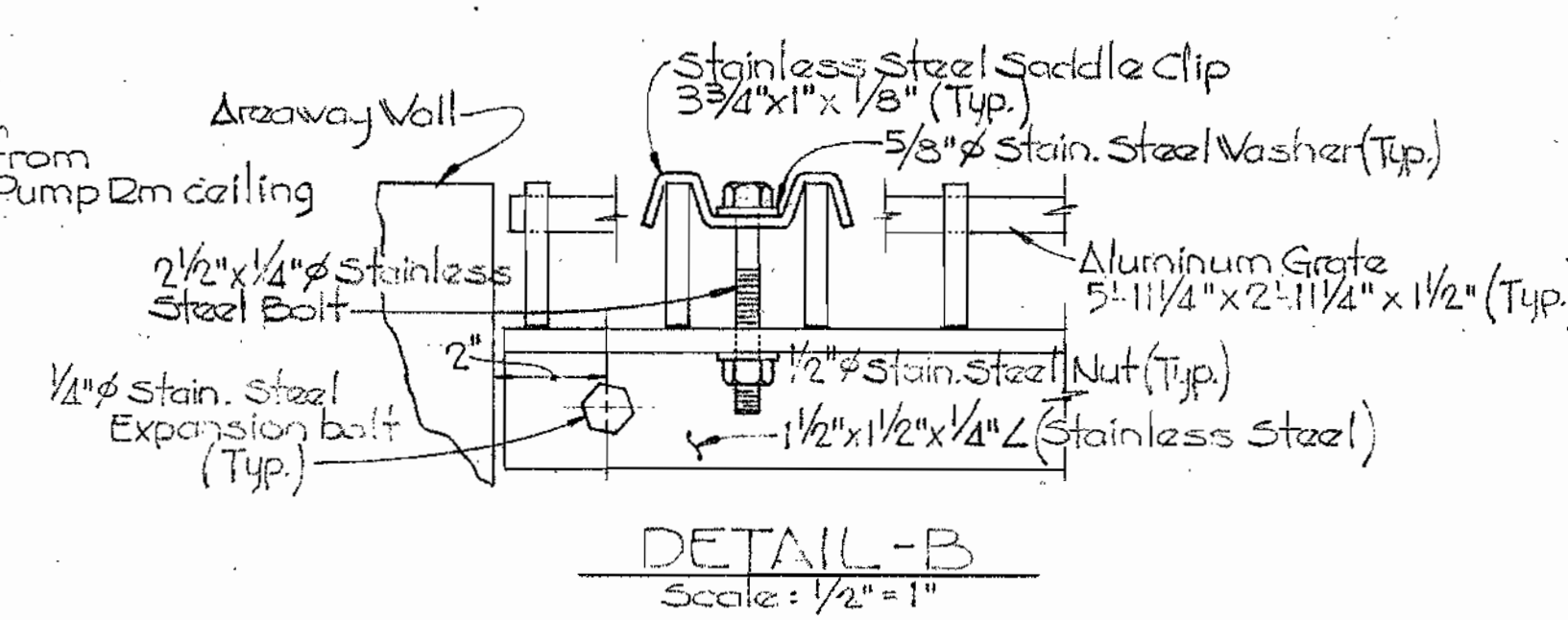
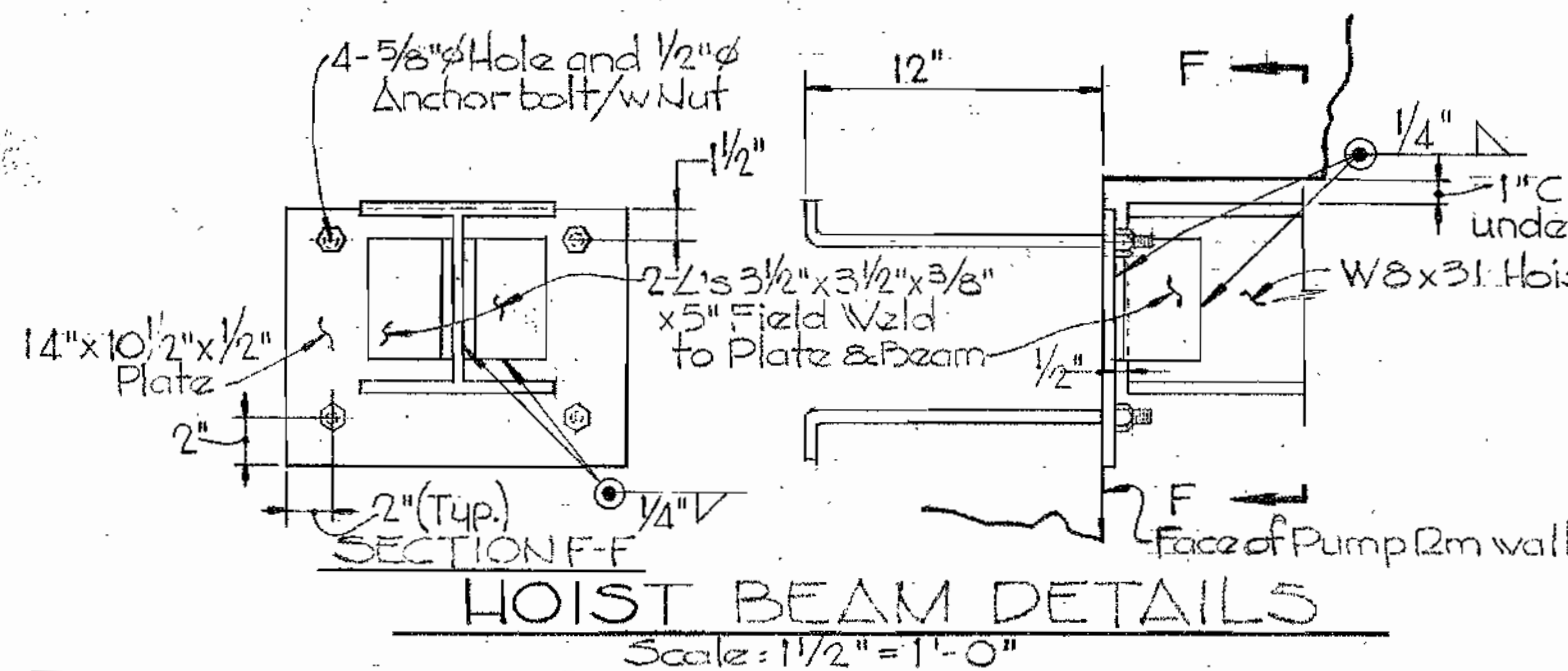
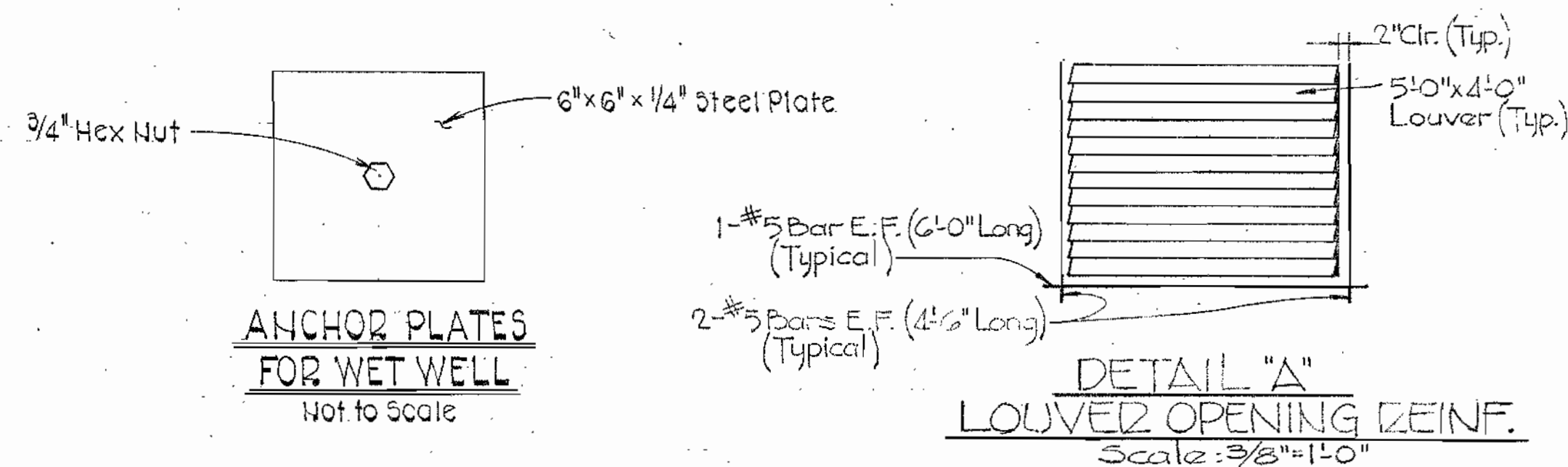
DRAWING NO. 12 OF 15  
SCALE AS SHOWN



**GENERAL STRUCTURAL NOTES**

- DESIGN LIVE LOADS:**  
Slabs: 100 P.S.F. + Concentrated Equipment Loads. Grating: 100 P.S.F.
- CONCRETE:** All concrete work, both plain and reinforced shall be in accordance with the latest A.C.I. Specifications. All Structural Concrete shall have a minimum 28 day strength of 3,500 P.S.I. Class "C" shall have a minimum 28 day strength of 2,000 P.S.I. Reinforcing Steel shall conform to A.S.T.M. A-615 Grade 60. All exposed corners shall be chamfered 1"x1" unless otherwise noted. All Pipe Sleeves, Conduits, Floor Boxes, Frames, etc. shall be placed before concrete is poured. All openings thru concrete shall be watertight. See Mechanical and Electrical Drawings for openings not shown or located on Structural Plans.
- EARTHWORK:**  
All excavation for structures shall be kept free of water until backfill is properly tamped in place to finish grade. Backfill shall be placed in 6" layers and adequately compacted to 90% of maximum density in accordance with A.A.S.H.O. designation T-99 Method-A. Contractor shall adequately protect all walls during backfill operations.
- METAL WORK:**  
All structural steel shall be A.S.T.M. A-36. All bolts except anchor bolts shall be A.S.T.M. A-307. All structural Aluminum shall be Alloy 6063-T6. Bolts in contact with Aluminum shall be Stainless Steel. Stainless Steel anchor bolts, nuts and washers shall be Alloy No. 304.

- FLOATATION:**  
The entire structure, complete in place, is required to offset uplift due to hydrostatic pressure.
- MISCELLANEOUS:**  
All Aluminum Surfaces in contact with concrete or steel shall be coated (See Specifications) prior to erection. There shall be no contact between dissimilar metals or aluminum and concrete.
- REINFORCING STEEL:**  
Shall be treated with oil, or other non-metallic coatings that adversely affect bonding capacity. Bars are to be securely tied to prevent displacement during the concreting operation and all details are to be wired in place before depositing concrete. All splicing of bars, placing tolerances and bar spacings shall conform to A.C.I. 318-71.



PROFESSIONAL ENGINEER & LAND SURVEYOR  
WILLIAM G. PURDUM  
REGISTERED  
STATE OF MARYLAND  
William G. Purdum  
CONTRACT NO. 218-S  
TOWER ACRES SANITARY SEWERS  
TOWER ACRES PUMPING STATION  
CAPITAL PROJECT NO. S-4-6049

PURDUM & JESCHKE  
ENGINEERS  
1023 N. CALVERT ST.  
BALTIMORE, MARYLAND

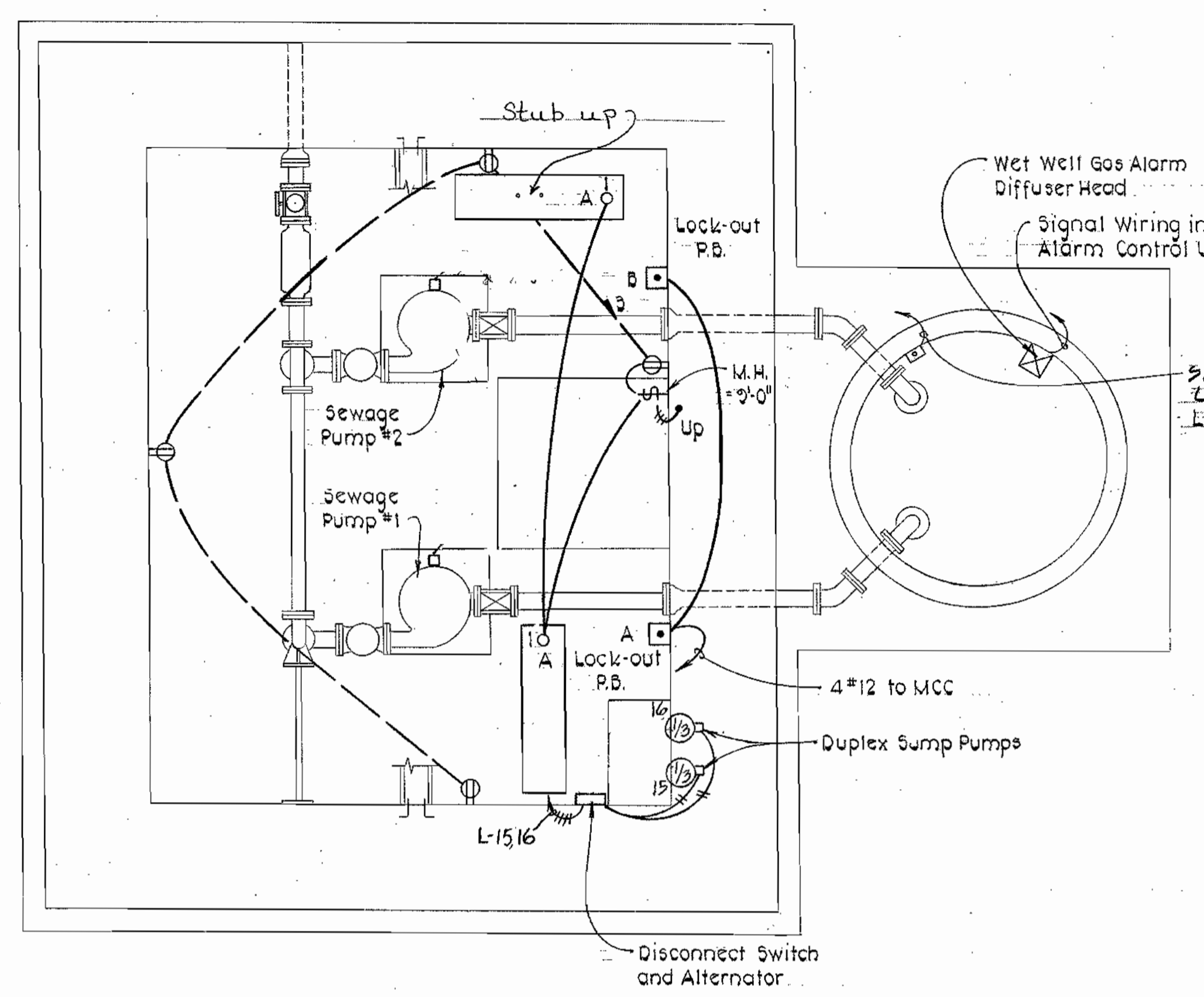
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HOWARD COUNTY, MARYLAND  
CHIEF-BUREAU OF UTILITIES DATE 7-23-80  
DIRECTOR OF PUBLIC WORKS DATE 7-23-80

CONTRACT NO. 218-S  
CAPITAL PROJECT NO. S-4-6049

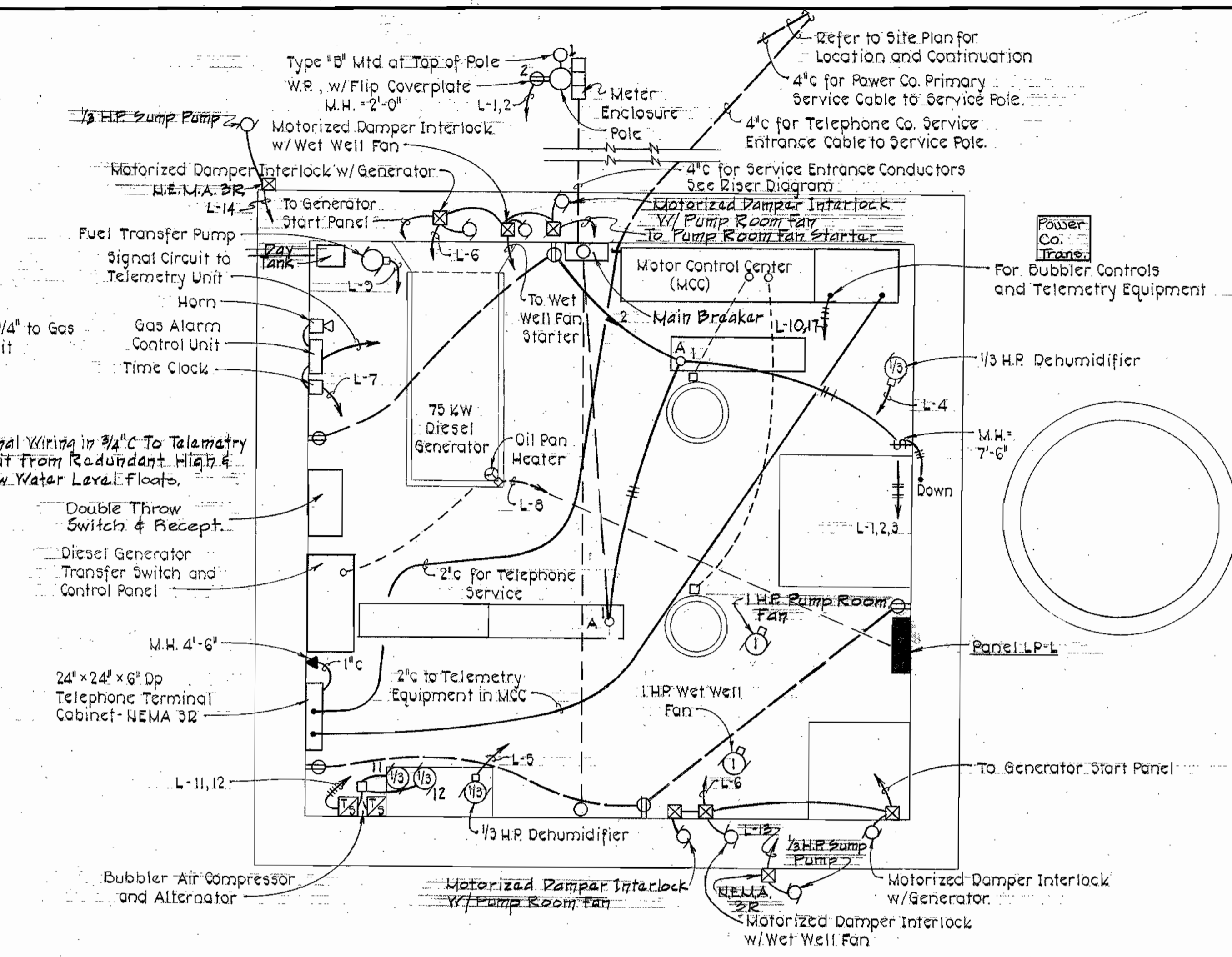
STRUCTURAL SECTIONS  
AND DETAILS  
TOWER ACRES PUMPING STATION

TOWER ACRES SANITARY SEWERS  
ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

DRAWING NO. 13 OF 15  
SCALE AS SHOWN  
Designed: BCC  
Drafted: JFT  
Checked: BCC



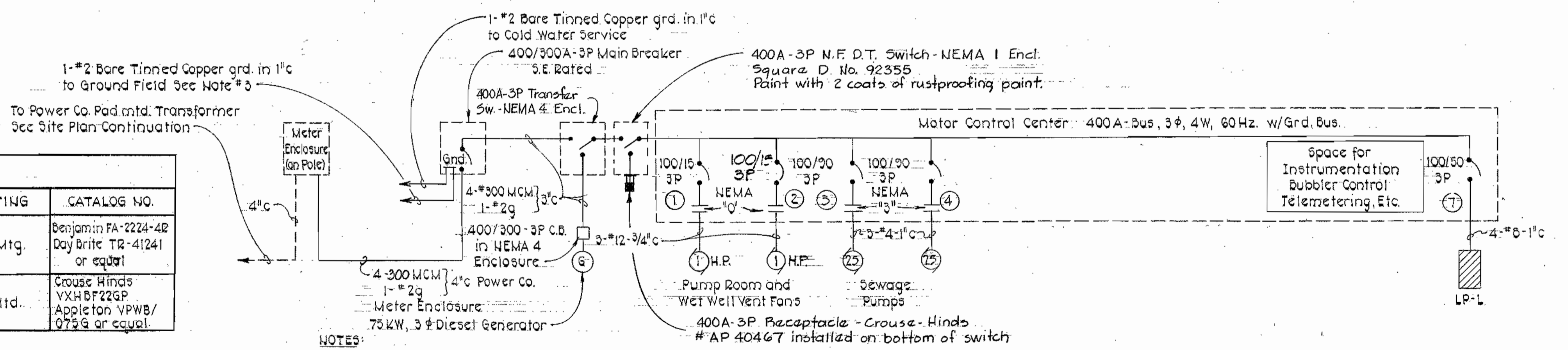
**PUMP ROOM PLAN**  
Scale: 3/8"=1'-0"



**CONTROL ROOM PLAN**  
Scale: 3/8"=1'-0"

LIGHTING FIXTURE SCHEDULE				
TYPE	DESCRIPTION	LAMP	MOUNTING	CATALOG NO.
A	4' Fluorescent U.L. Listed Enclosed and Gasketed with Clear Acrylic Diffuser w/o P Ballast	2-40W T-12	stem Mtg.	Benjamin PA-2224-4R Day Brite TR-41241 or equal
B	Incandescent U.L. Listed Enclosed and Gasketed with Red Glass Globe and Guard	1-200W A-23	Pole Mtd.	Crouse-Hinds YXH BF 22GP Appleton VPWB/ 075G or equal

**NOTES:**  
 1. Pole for Type 'B' fixture shall be wood 18"x6" # Class I with Pentachloroethane treatment.  
 2. Time clocks shall be Paragon 4001-00, Tork, or equal.

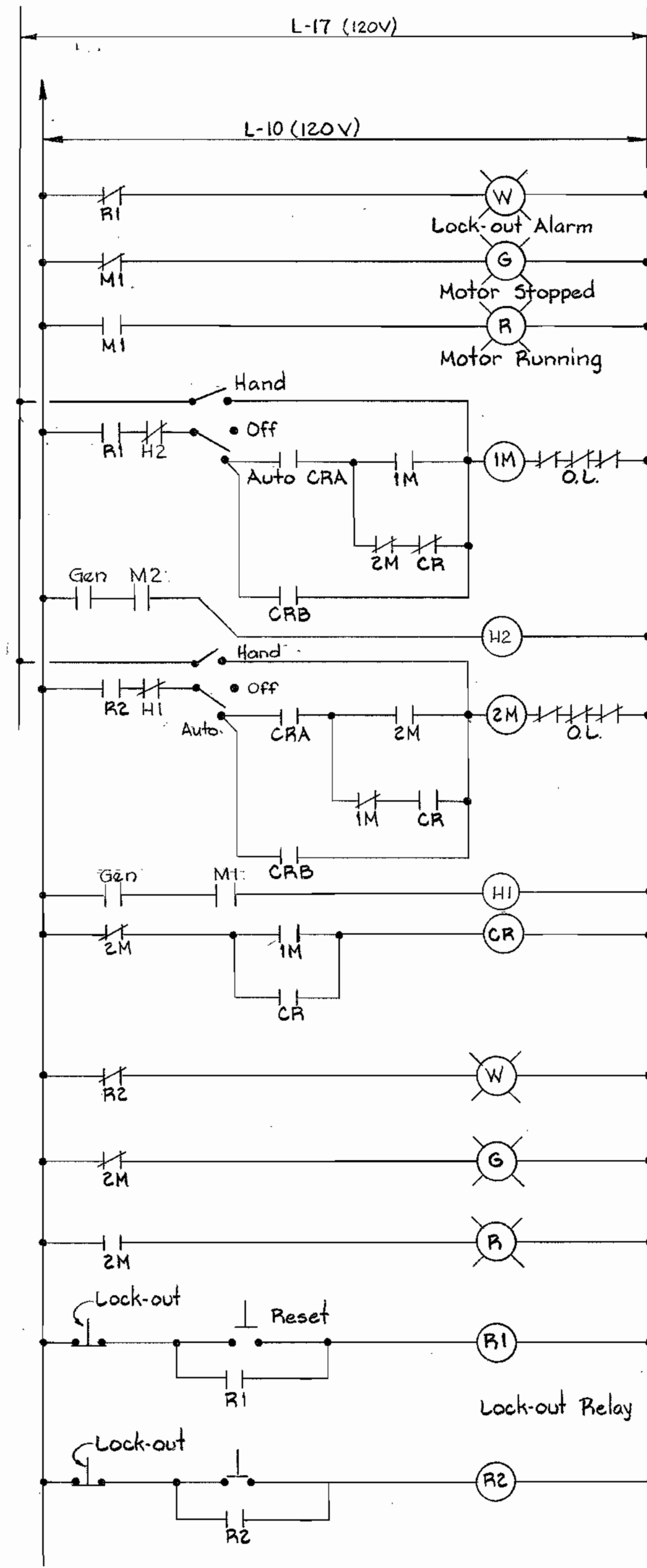


**NOTES:**  
 1. Starter Size in MCC Indicated Above. All Starters to be Provided with H.O.A. Switches Fused Transformers for 120 Volts Control Red (Running) Indicator Light Green (Stopped) Indicator Light  
 2. Starters for Sewage Pumps to be Provided with Control Relay Similar to DUL 700 Type B (Allen-Bradley) Square D, or equal to provide alternating operation of pumps.  
 3. Ground Field shall consist of 3-3/4" x 10'-0" Copperweld Ground Rods in Triangular Pattern near the Pad Mtd. Transformer. Interconnect all Ground Rods w/1" Bare Tinned Copper Ground Conductor.  
 4. All breakers in MCC shall be 5 pole unless otherwise noted.  
 5. The grounding electrode conductor shall be made electrically continuous with the protective metal conduit by bonding the grounding electrode conductor to the metal conduit at both ends.

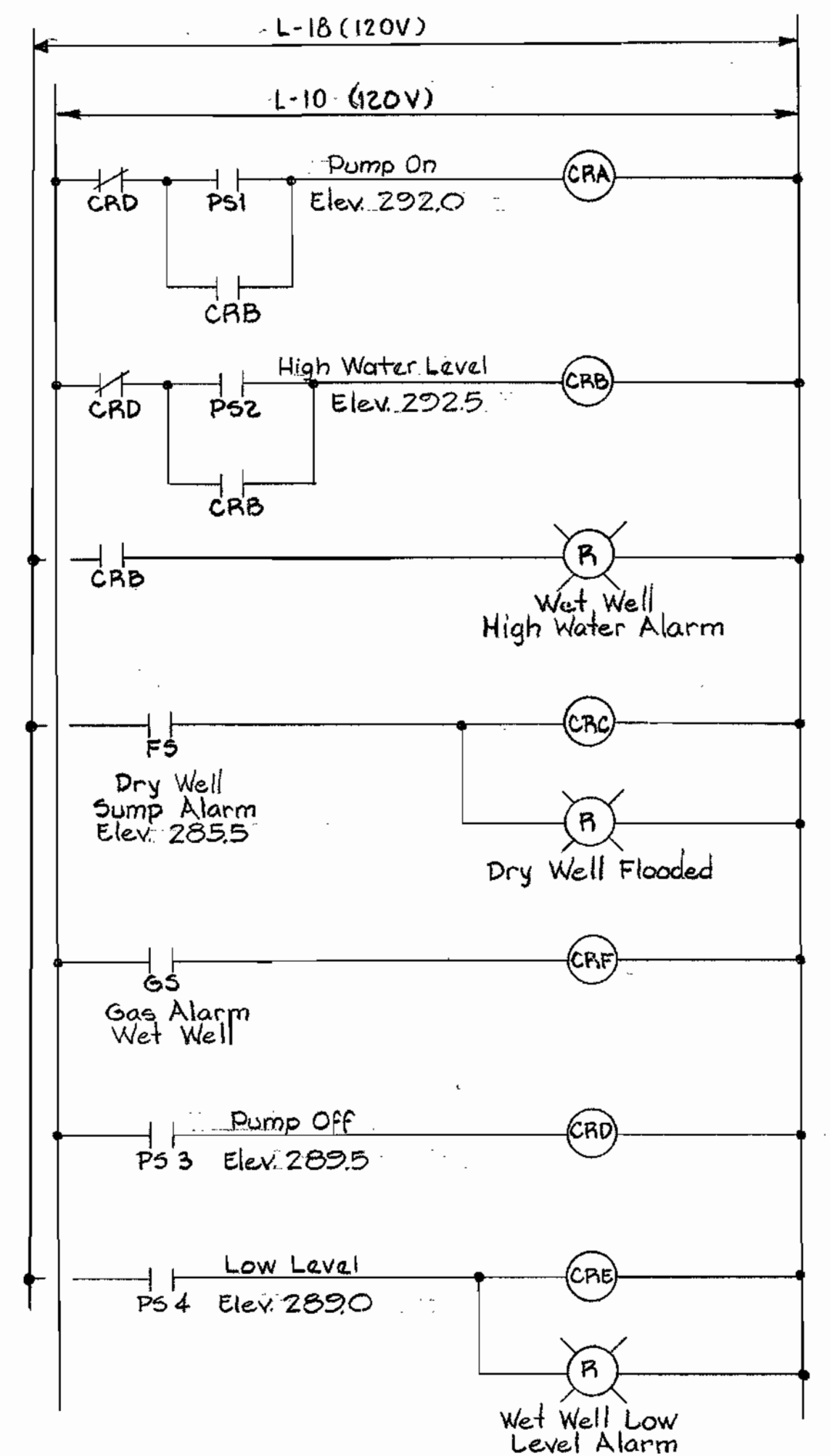


ELECTRICAL LEGEND	
SYMBOL	DESCRIPTION
	Fixture - Fluorescent
	Fixture - Incandescent - Ceiling Wall Bracket
S, Sa	Switch - Single Pole - M.H. 4'-0" Subscript Denotes Outlets Controlled
	Receptacle - 20A, 125V - Duplex - M.H. 3'-0"
	Receptacle - 20A, 125V - Single - M.H. 3'-0"
	Receptacle - Clock Hanger 15A, 125V, M.H. 7'-6"
	Junction Box
	Motor - Horsepower As Indicated
	Thermostat - M.H. 5'-0"
	Percentage Timer
	Time Clock M.H. 5'-6" To Top
	Control Device As Indicated on Plans
	Baseboard Electric Heater
	Panelboard - M.H. 6'-6" To Top
	Unfused Disconnect Switch - M.H. 5'-6" To Top
	Thermal Manual Motor Starter w/ Hand - Off - Auto Selector Switch - M.H. 5'-0"
	Conduit - In Or On Ceiling Or Wall 2 #12, 3/4" C. Unless Otherwise Noted
	Conduit - In Or Under Floor
	Hammerin To Panel - No. of Arrows Indicate No. of Circuits & No. of Crosslines Indicate No. of Conductors
M.H.	Mounting Height to Center of Outlet Unless Otherwise Indicated
W.P.	Weatherproof
X.P.	Explosion - Proof
	Outlet, Telephone, Wall Mtd.
	Ground Rod 3/4" x 10'-0" Copper clad Steel
	Exothermically Welded Connection
	Solenoid Valve
	Fixture - Mercury Vapor
	Combination Magnetic Starter (M.C.C)
	Contactors
	Starter Coil (One Line Diagram)
	Indicating Light - Red - Heavy Duty Type
T.C.	Timer Relay Contact (One Line Diagram)
	Time Delay Relay

SCHEDULE OF PANEL-L					
208/120 VOLTS, 3 PHASE, 4-WIRE, 100 AMP MAINS W/EQUIPT. GRD. BUS.					
CKT. NO.	EQUIPMENT SERVED	CIRCUIT BREAKER			REMARKS
		POLES	TRIP	FRAME	
1	Lights - Motor and Pump Rooms	1	20	100	
2	Receptacles - Motor Room	1	20	100	Ground Fault Breakers
3	Receptacles - Pump Room	1	20	100	
4	Dehumidifier	1	15	100	
5	Dehumidifier	1	15	100	
6	Motor Operated Dampers	1	20	100	
7	Gas Alarm Control Unit	1	20	100	
8	Oil Pan Heater	1	20	100	
9	Fuel Transfer Pump	1	15	100	
10	Telemetry & Bubble Controls	1	15	100	
11	Air Compressor	1	15	100	
12	Air Compressor	1	15	100	
19-21	Battery Charger	1	20	100	
22-24	Spaces	1	-	100	
13	Sump pump	1	15	100	
14	Sump pump	1	15	100	
15	Sump pump	1	15	100	
16	Sump pump	1	15	100	
17	Control circuit for "HAND" operation of sewage pumps	1	15	100	
Panel shall be complete w/equipt. grd. bus					
18	Circuit for Bubbler Alarm & Telemeter Alarm				

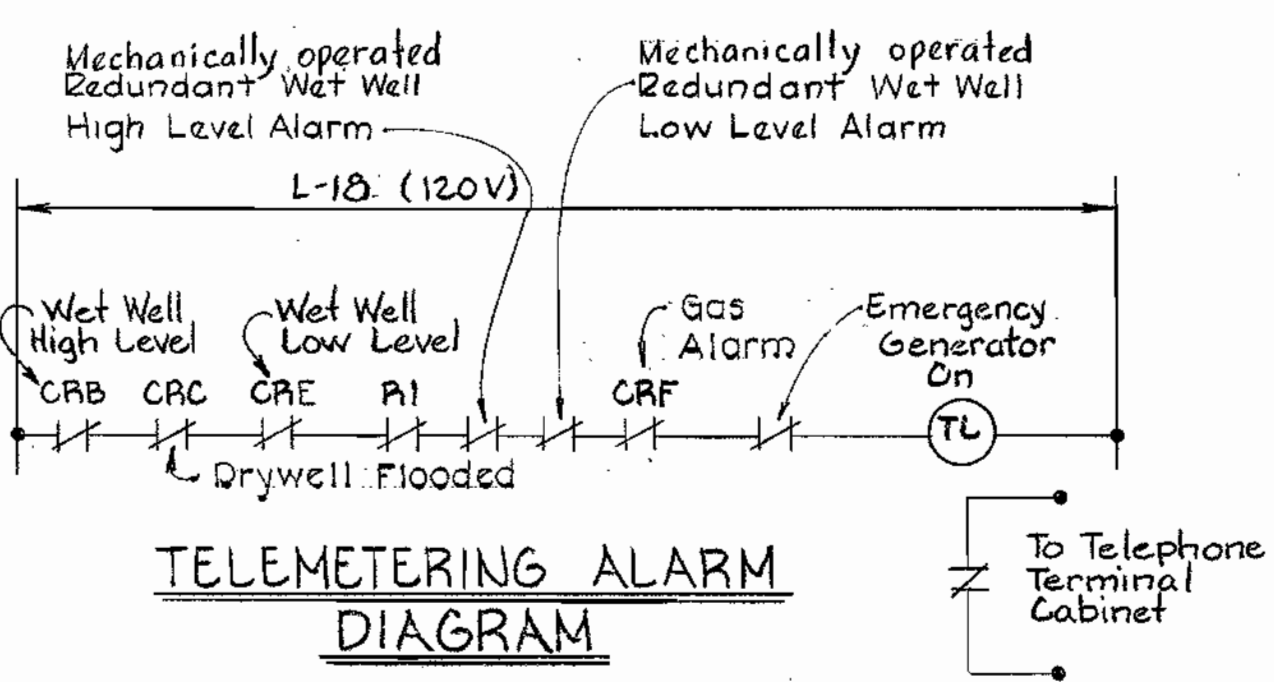


PUMP MOTOR CONTROL

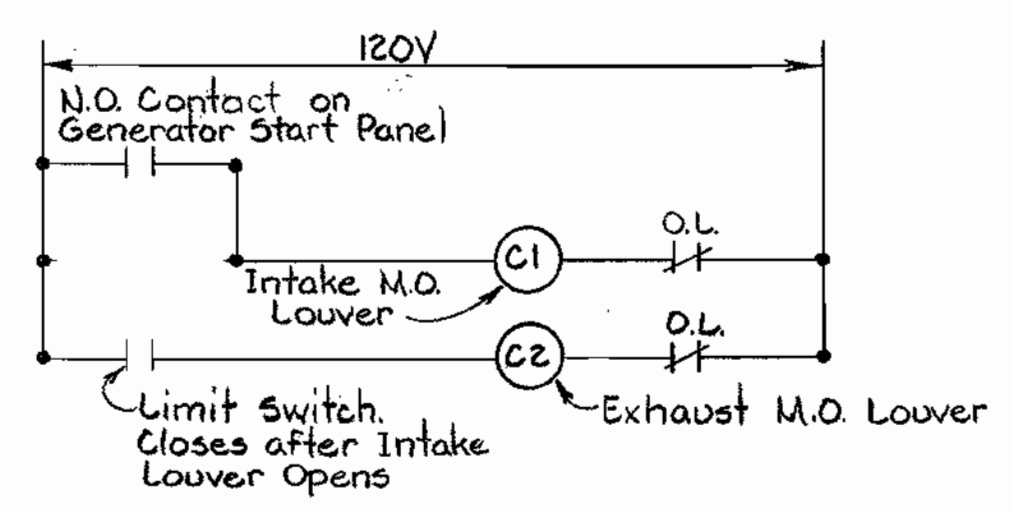


BUBBLER SYSTEM CONTROL

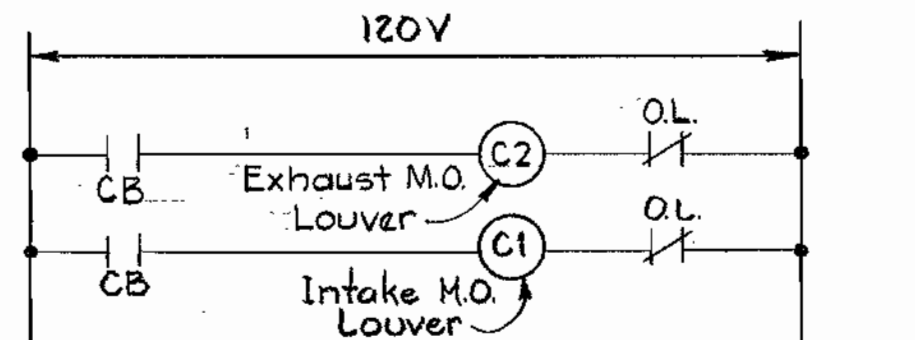
- NOTES**
- The Contractor shall verify with equipment manufacturers the exact number of control wires before installing conduits.
  - Check working drawings for conduit stub locations.
  - Control diagrams indicate the system of control required. Exact wiring connections shall be installed per manufacturers wiring diagrams.
  - All electrical work in the wet well shall be suitable for Class 1 Division 1 Group D areas. Provide seals on all conduits.
  - All panels shall be mounted to wall utilizing 1/4 kindorf channel.
  - A green insulated ground conductor (min. #12 AWG) shall be installed in all conduits from panel equipment ground bus to particular items of equipment.
  - All conduit shall be PVC, heavy wall schedule 40 conduit with a minimum inside diameter of 3/4 inch trade size.



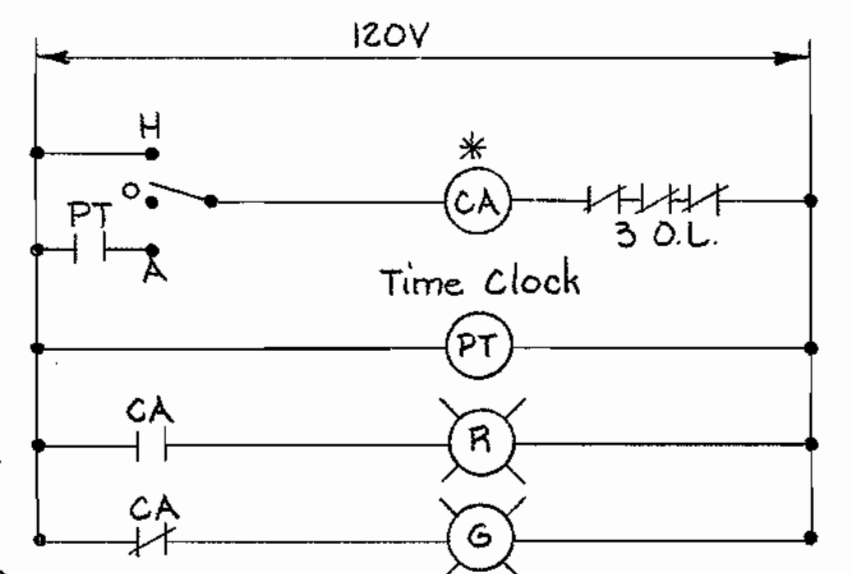
TELEMETERING ALARM DIAGRAM



MOTOR OPERATED LOUVERS FOR DIESEL GENERATOR



MOTOR OPERATED DAMPERS FOR VENT FANS (TYPICAL)



PUMP ROOM AND WET WELL VENT FANS

\* CB for Wet Well



William D. Purdum

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1023 N. CALVERT ST.  
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
CHIEF - BUREAU OF UTILITIES  
DATE 7-31-80

CONTRACT NO. 2718-S  
CAPITAL PROJECT NO. S-4-6049

ELECTRICAL DETAILS  
TOWER ACRES PUMPING STATION

TOWER ACRES SANITARY SEWERS  
ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

DRAWING NO. 15 OF 15  
SCALE NOT TO SCALE  
Designed: JAH  
Drafted: LJP  
Checked: JAH

WS 718-S/15