

# HOWARD COUNTY MARYLAND DEPARTMENT OF PUBLIC WORKS PROJECT NO. S-6113-W AUXILIARY POWER

## BLACK & VEATCH CONSULTING ENGINEERS BETHESDA, MARYLAND

1982

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	SITE PLAN
3	ARCHITECTURAL PLANS
4	ARCHITECTURAL DETAILS
5	STRUCTURAL AND MECHANICAL PLANS AND SECTIONS
6	STRUCTURAL AND MECHANICAL DETAILS
7	STANDARD CONCRETE DETAILS
8	ELECTRICAL PLANS AND SCHEMATICS
9	ELECTRICAL PLANS AND SCHEMATICS

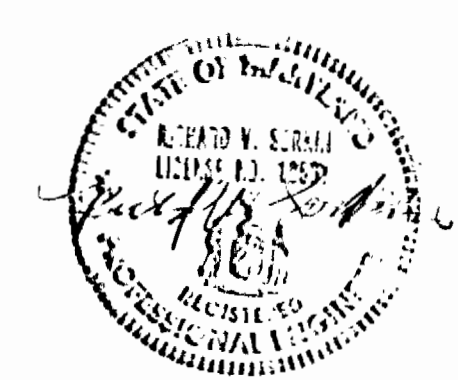
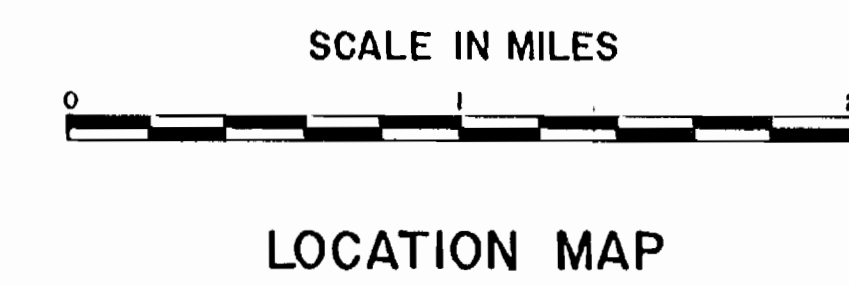
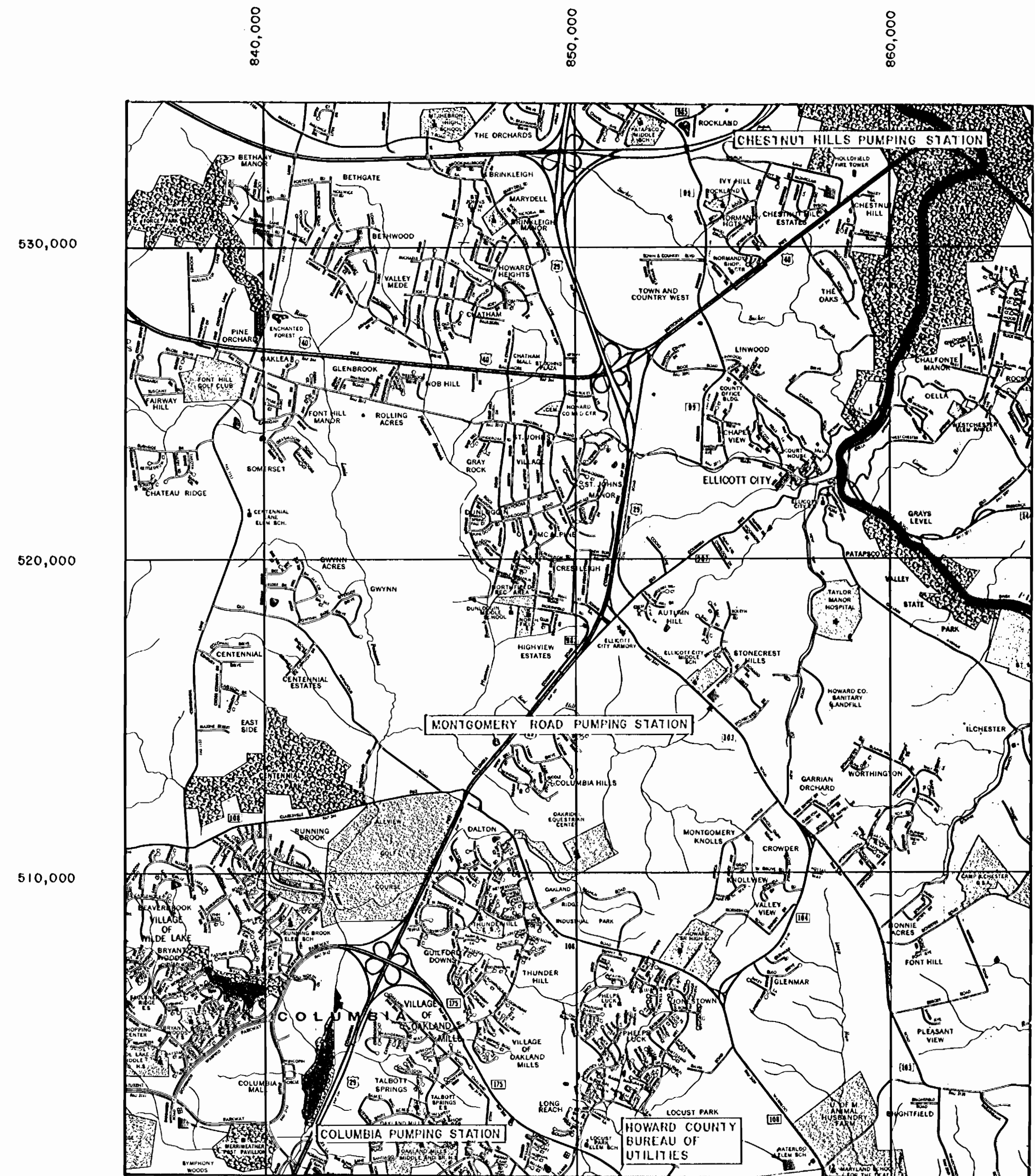
LEGEND	DESCRIPTION
	EXISTING GROUND CONTOUR
	FINISH GRADE CONTOUR
	OVERHEAD POWER OR TELEPHONE LINES
	WATER LINE AND SIZE
	SHUTOFF OR SECTIONALIZING VALVE
	CHECK VALVE
	HOSE FAUCET
	SECTION OR DETAIL DESIGNATION
	DWG. NO. ON WHICH SECTION OR DETAIL APPEARS (OR WHERE SECTION OR DETAIL IS CUT)

ABBREVIATIONS

ALUM.	ALUMINUM	ENEF	EACH WAY, EACH FACE	OC.	ON CENTER
BH	BEAM	EW76B	EACH WAY, TOP AND BOTTOM	OD.	OUTSIDE DIAMETER
BOTT.	BOTTOM	EXIST.	EXISTING	P.C.	PRECAST CONCRETE
BU	BELL UP	EXP. JT.	EXPANSION JOINT	RAD	RADIUS
C	CENTERLINE	FIN. FL.	FINISH FLOOR	REQ'D	REQUIRED
CFM	CUBIC FEET PER MINUTE	GA.	GAUGE	S.P.	STATIC PRESSURE
CMU	CONCRETE MASONRY UNIT	GAL.	GALLON	S.S.	STAINLESS STEEL
CO	CLEANOUT	GALV.	GALVANIZED	SIM.	SIMILAR
COL.	COLUMN	HF.	HOSE FAUCET	STA.	STATION
CONC.	CONCRETE	INSUL.	INSULATION	STL.	STEEL
CONN.	CONNECTION	ID.	INSIDE DIAMETER	STRUC.	STRUCTURE
CONT.	CONTINUOUS	INV.	INVERT	SYMM	SYMMETRICAL
DET.	DETAIL	JT.	JOINT	T&G	TONGUE AND GROOVE
DIA.	DIAMETER	MET.	METAL	TYPE.	TYPICAL
DR.	DOOR	MO.	MASONRY OPENING	THK	THICK
DWL.	DOWEL	MIN.	MINIMUM	WD	WOOD
EL.	ELEVATION	HOD.	MOTOR OPERATED DAMPER	W.P.	WORKING POINT

GENERAL NOTES

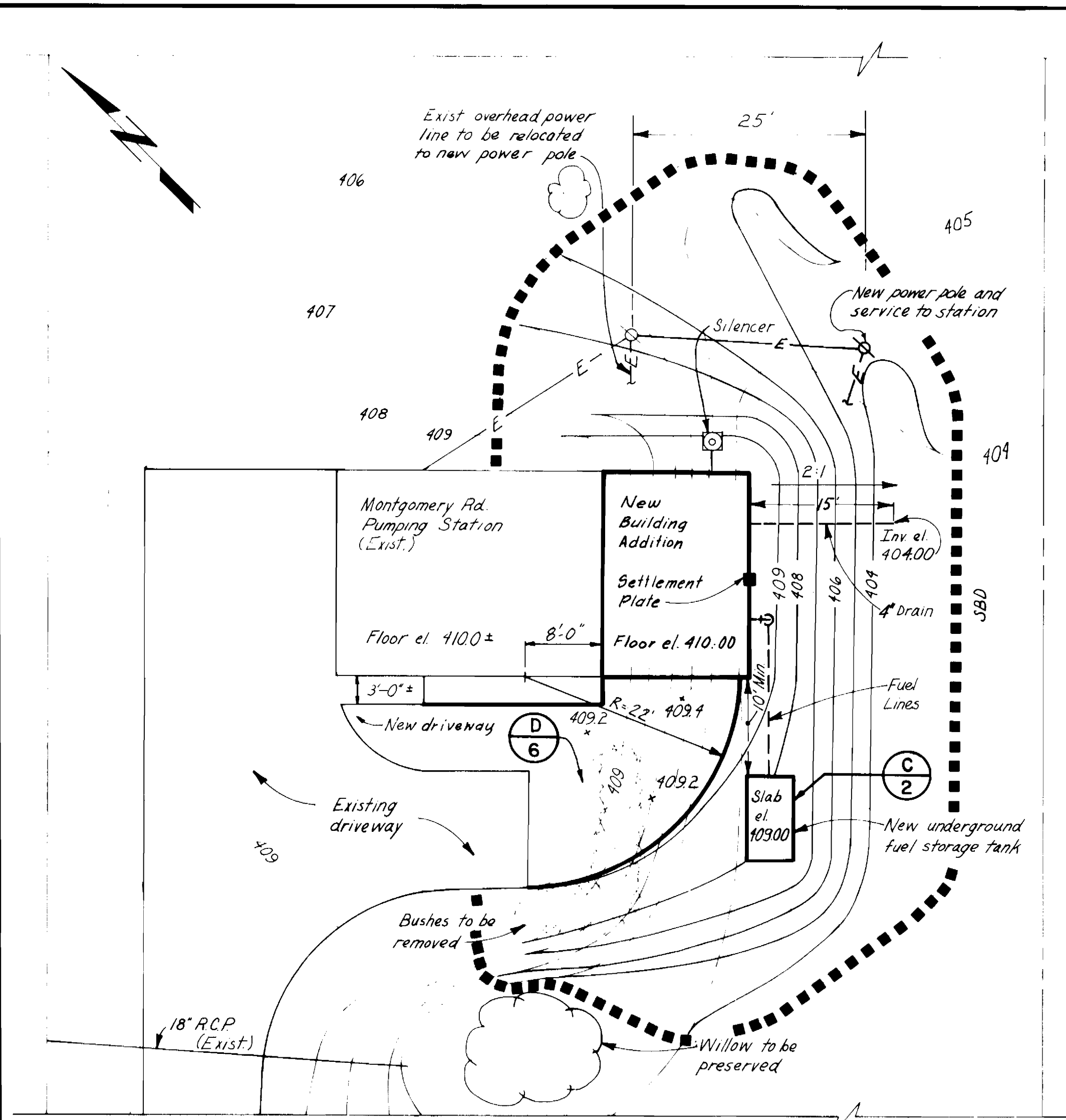
- Approximate location of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer, at the Contractor's expense.
- All horizontal controls are based on Maryland State Coordinates.
- All vertical controls are based on U.S.G.S. Datum.
- All pipe elevations shown are invert elevations, unless noted otherwise.
- Clear all utilities by a minimum of 6". Clear all poles by 2'-0" minimum or tunnel as required. Any cost incurred to the contractor for tunneling or bracing at poles shall be included in unit price bid for construction of the main.
- For details not shown on the drawings use Howard County Standard Details.
- For materials and construction methods use Howard County Standard Specifications.
- Contractor shall locate existing utilities at minimum of two (2) weeks in advance of construction operations in the vicinity of proposed utilities at his own expense.
- Contractor shall notify the following utilities or agencies at least five (5) working days before starting work shown on these plans:
  - Baltimore Gas & Electric Company - Energy Services Dept. Mr. Bill Beers 298-1883
  - "Miss Utility" - 1-559-0100
  - Chesapeake & Potomac (C&P) Telephone Company - 298-0172
  - Bureau of Utilities Howard County - 992-2366
- Trees to be protected from damage to maximum extent. Trees located within the construction area are not to be removed or damaged by the Contractor unless noted otherwise.
- Contractor shall remove trees, stumps and roots along line of excavation as directed by the Engineer. Payment for such removal shall be included in the lump sum price bid for construction.
- The Contractor shall not operate any valves on the existing water system.



Contract no. 44-1052  
Capital Project S-6113-W  
Water Pump Station Auxiliary Power  
Howard County, Md.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>John F. Nunnery</i> 6-11-82 Chief-Bureau of Engineering: <i>Robert M. Green</i> 6-24-82 Chief-Bureau of Utilities: <i>Robert M. Green</i> 6-24-82		2-1-84 CONFORMED TO CONSTRUCTION RECORDS Chief-Utility Division: <i>Allen D. Brown</i> 6/15/82		Black & Veatch Engineers - Architects Bethesda, Maryland		PROJECT NO. S-6113-W CONTRACT NO. 44-1052		COVER SHEET		WATER PUMPING STATION AUXILIARY POWER ELLICOTT CITY SUB-DISTRICT		DRAWING NO. 1 OF 9 SCALE AS SHOWN	
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16, 12, 19 2-84 7-15-82



**SITE PLAN**

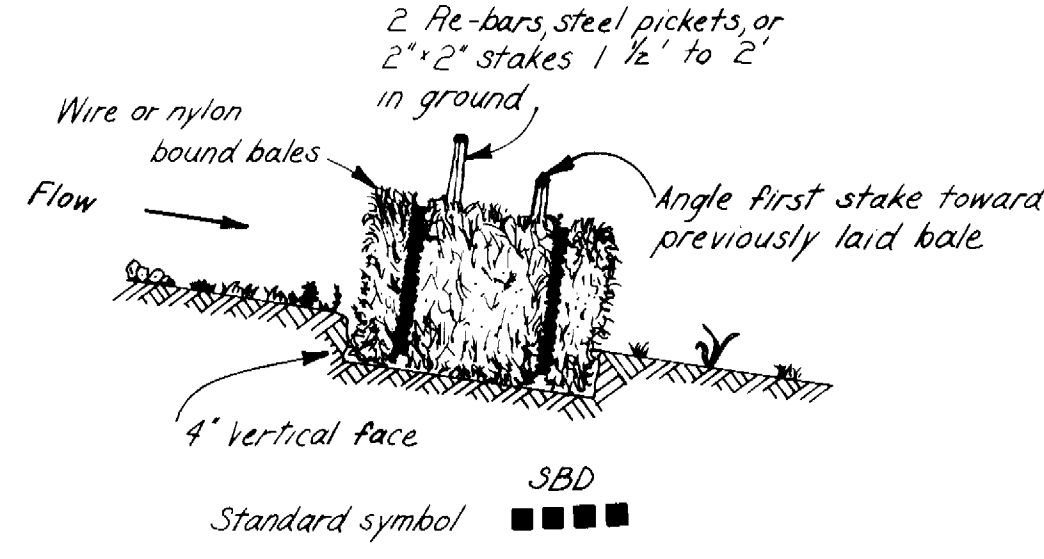
1" = 10'

**SEDIMENT CONTROL NOTES**

1. The sediment control facilities shown on these drawings have been developed in accordance with the U.S. Department of Agriculture Soil Conservation Service "Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas" (July 1975). The Contractor is required to implement, construct and maintain the sediment control plan indicated on these drawings in conformance with the policies and practices in the above mentioned standards.
2. All disturbed areas, particularly soil areas, not to be constructed upon, within 30 days following initial grading, will receive temporary stabilization by mulching, according to pages 50.01 and 50.05 of the above mentioned standards.
3. All disturbed areas not to be constructed upon, within 60 days following initial grading, will receive stabilization by temporary seedings according to pages 51.01 thru 51.08 of the above mentioned standards.

**CONSTRUCTION SEQUENCE FOR SEDIMENT CONTROL**

- Step No. 1. Install the straw bale dike at the perimeter of the disturbed area shown.
- Step No. 2. Proceed with remainder of construction.
- Step No. 3. After completion of construction and stabilization of disturbed area, remove straw bale dike.



**STRAW BALE DIKE**

No scale

By the 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.  
 R.A. Foster 7-14-82  
 Signature of Engineer Date  
 Print name below signature

Reviewed for Howard S.C.D. Name  
 and meets Technical Requirements.  
 James M. Vela 6-29-82 Date  
 U.S. Soil Conservation Service  
 Date  
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT  
 William R. ... 6-28-82 Date  
 Howard S.C.D. Date

**DEPARTMENT OF PUBLIC WORKS**  
 HOWARD COUNTY, MARYLAND

Director of Public Works: Thomas F. Nunn 6-17-82 DATE  
 Chief-Bureau of Engineering: William R. ... DATE  
 Chief-Bureau of Utilities: Robert M. ... 6-24-82 DATE  
 Chief-Utility Division: Allen S. ... 6/15/82 DATE

2-1-84 CONFORMED TO CONSTRUCTION RECORDS

**Black & Veatch**  
 Engineers - Architects  
 Bethesda, Maryland

PROJECT NO. S-6113-W  
 CONTRACT NO. 44-1052

MONTGOMERY ROAD  
 PUMPING STATION  
 SITE PLAN AND DETAILS

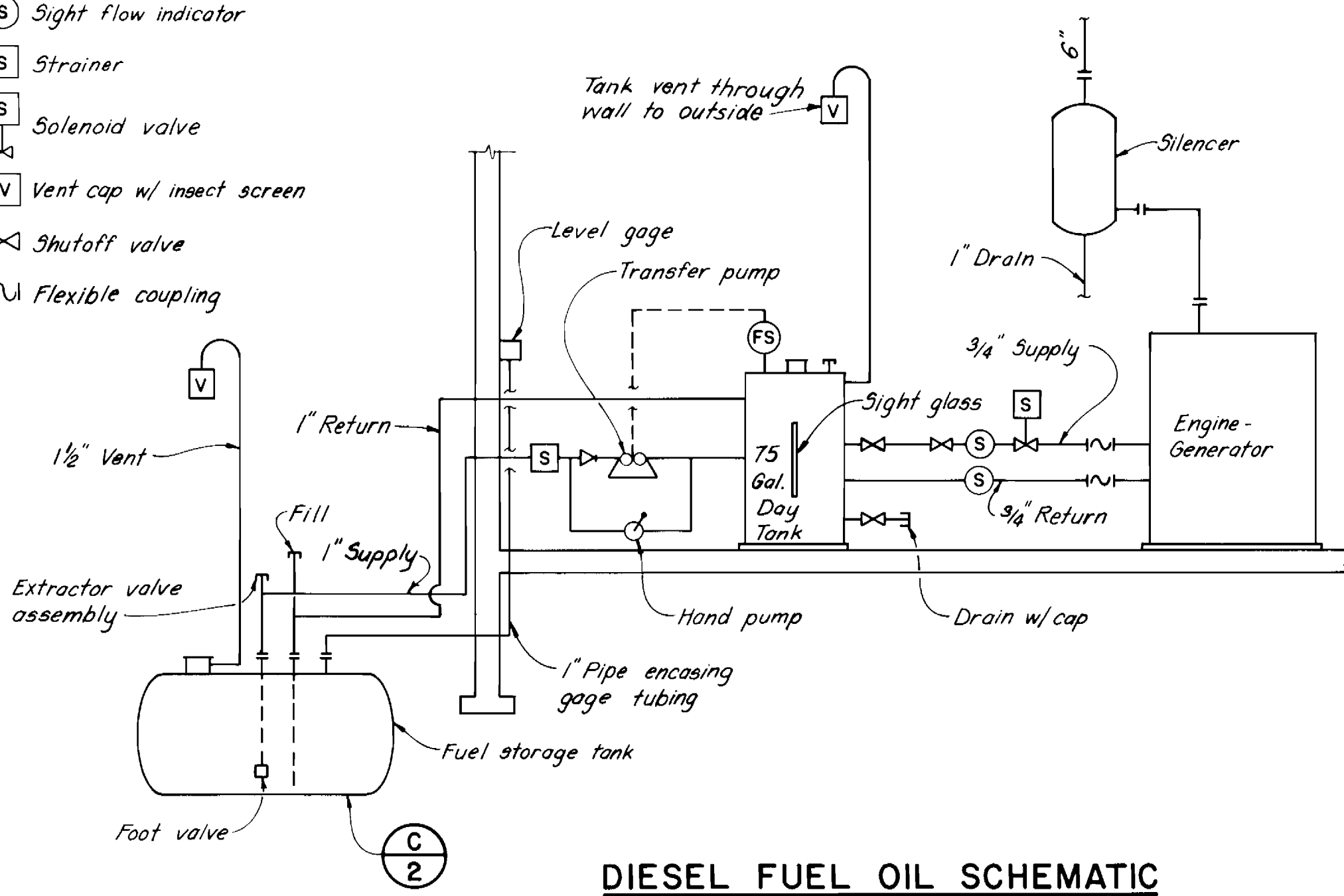
WATER PUMPING STATION AUXILIARY POWER  
 ELLICOTT CITY SUB-DISTRICT

DRAWING NO. 2 OF 9 SCALE AS SHOWN

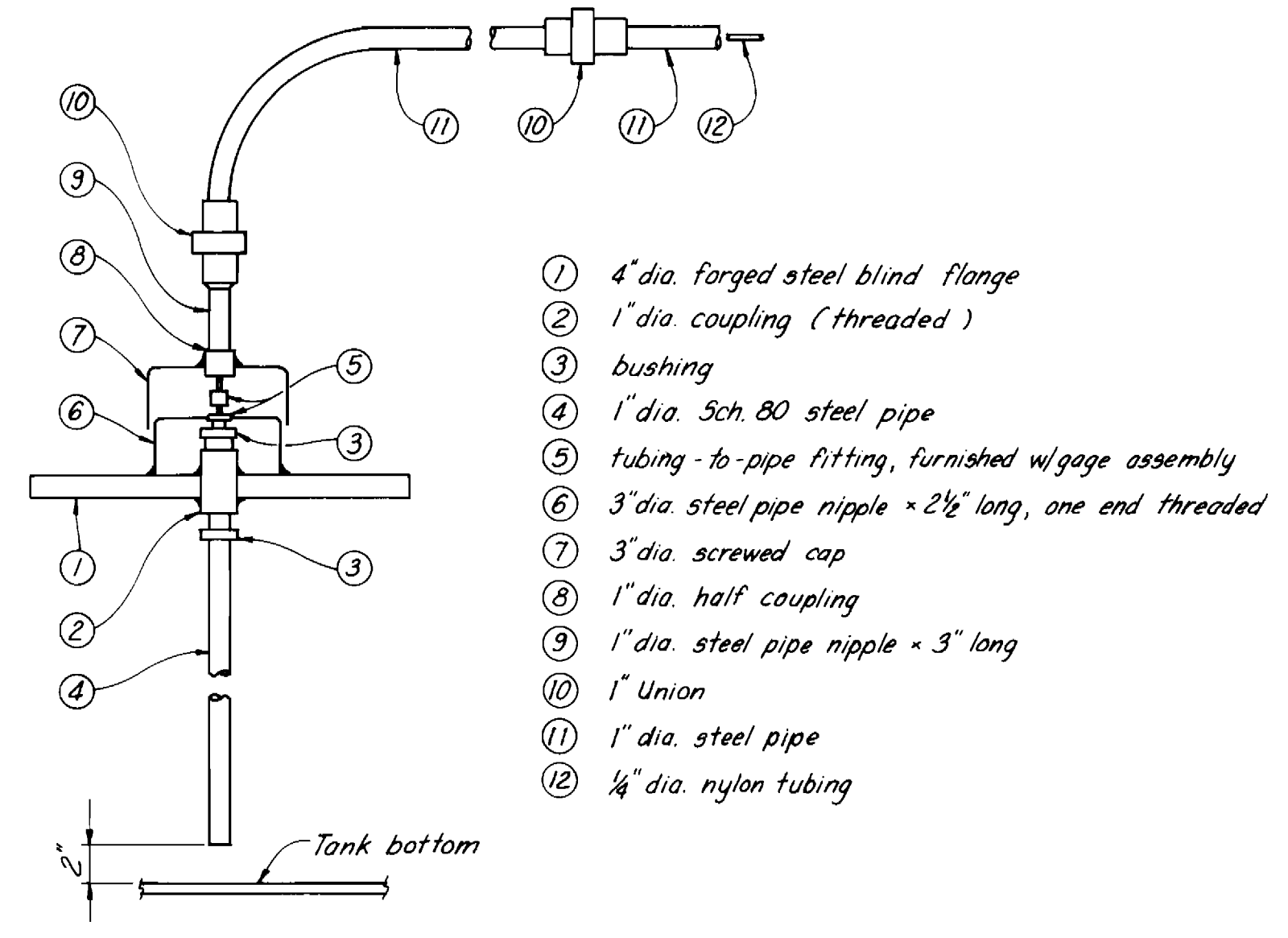
AP BUILT 2-8 7-15-82

**LEGEND:**

- (FS) Float switch
- (S) Sight flow indicator
- [S] Strainer
- [S] Solenoid valve
- [V] Vent cap w/ insect screen
- [X] Shutoff valve
- [~] Flexible coupling



**DIESEL FUEL OIL SCHEMATIC**



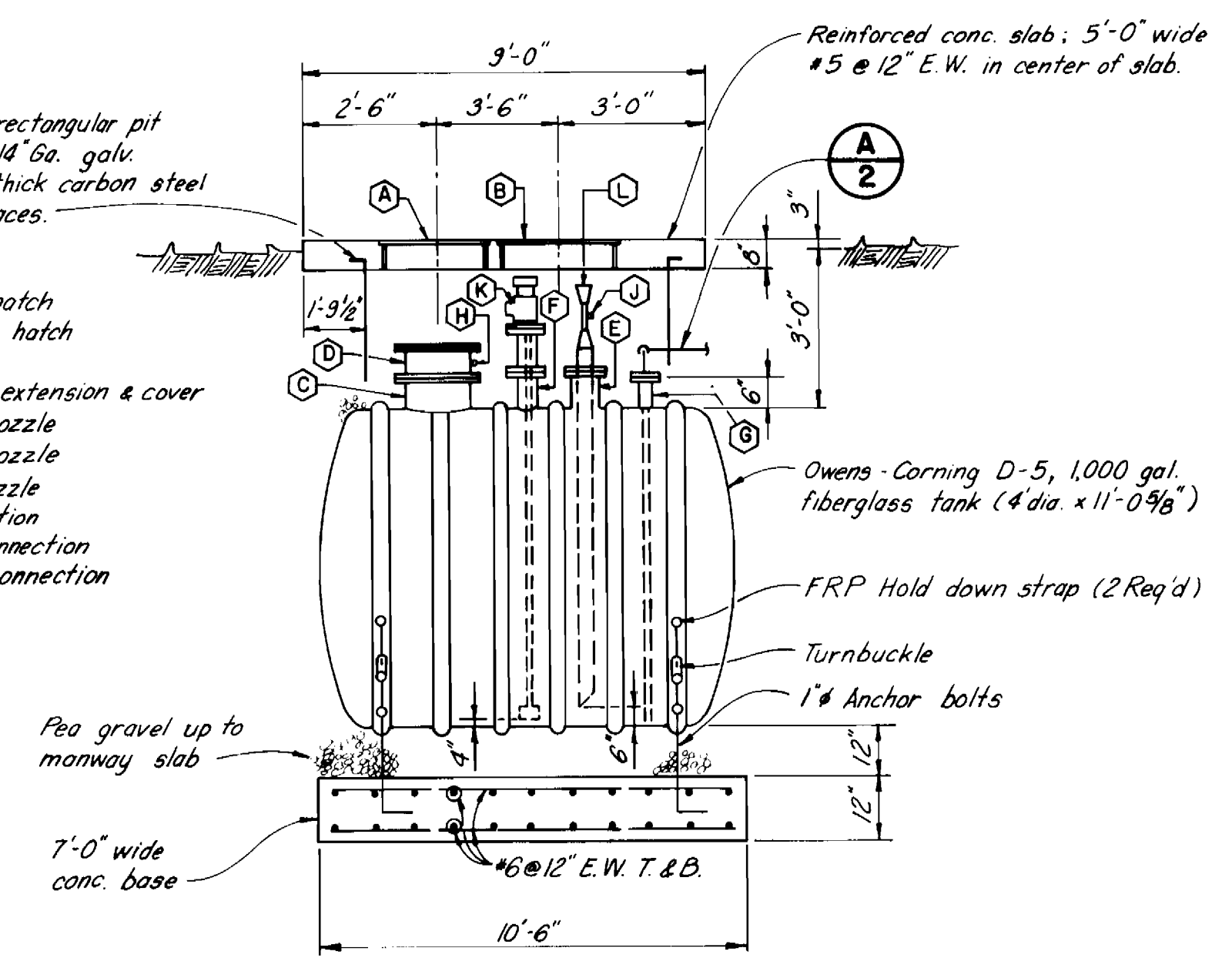
**GAGE CONNECTION**

DETAIL A 2  
 No scale

- 1 4" dia. forged steel blind flange
- 2 1" dia. coupling (threaded)
- 3 bushing
- 4 1" dia. Sch. 80 steel pipe
- 5 tubing-to-pipe fitting, furnished w/ gage assembly
- 6 3" dia. steel pipe nipple x 2 1/2" long, one end threaded
- 7 3" dia. screwed cap
- 8 1" dia. half coupling
- 9 1" dia. steel pipe nipple x 3" long
- 10 1" Union
- 11 1" dia. steel pipe
- 12 1/4" dia. nylon tubing

3'-6" w x 7'-0" long x 2'-3" h. rectangular pit enclosure (bottom open). 14 Ga. galv. corrugated steel or 1/8" thick carbon steel coal tar coated all surfaces.

- A 24" x 24" manway hatch
- B 24" x 30" manway hatch
- C 22" dia. manway
- D 22" dia. manway extension & cover
- E 8" dia. flanged nozzle
- F 4" dia. flanged nozzle
- G 4" dia. flanged nozzle
- H 1/2" vent connection
- J 1" fuel return connection
- K 1" fuel supply connection
- L Fill box

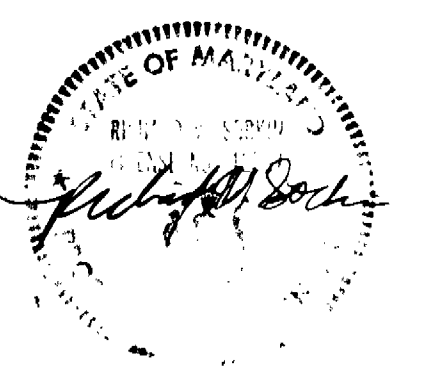


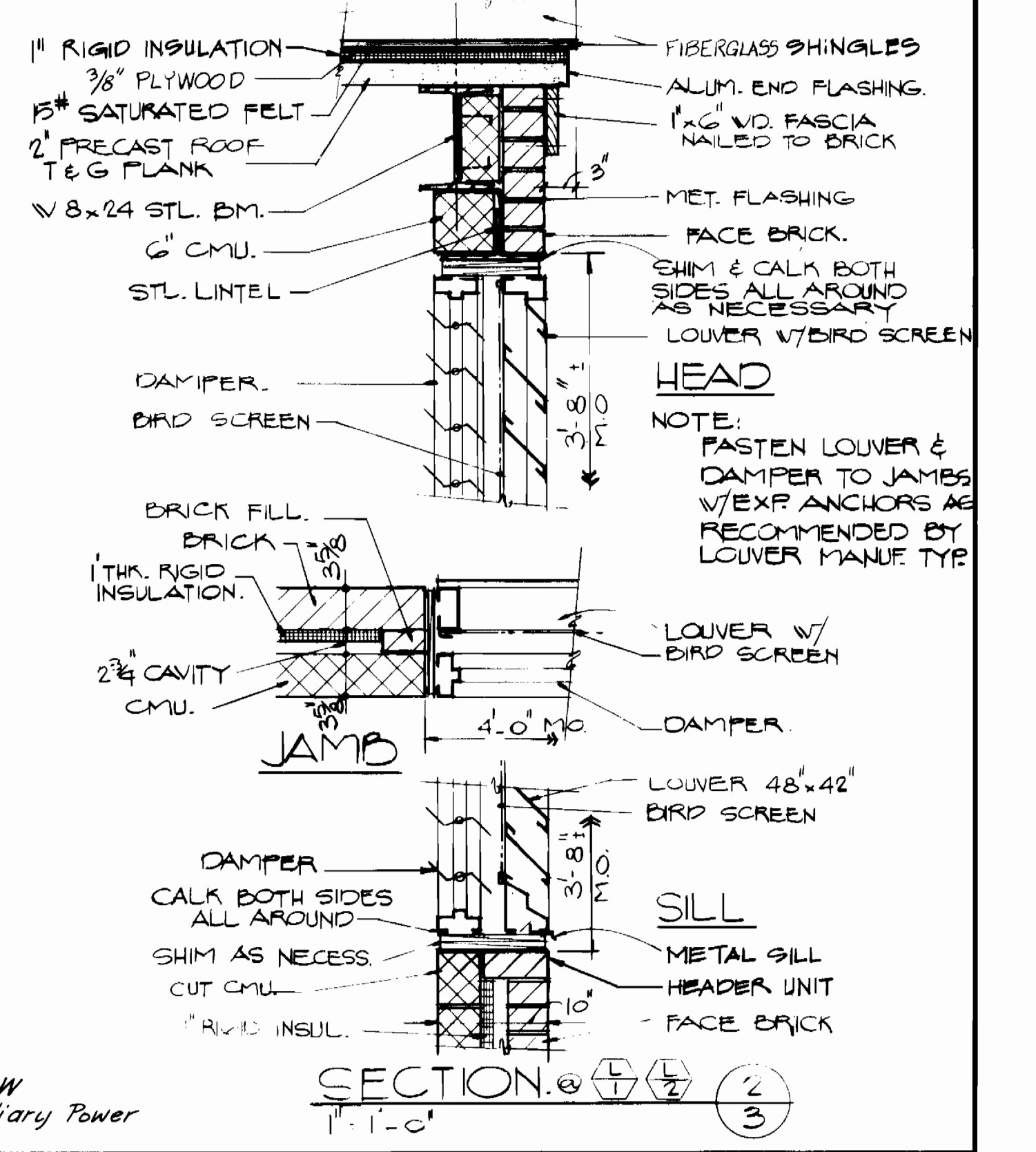
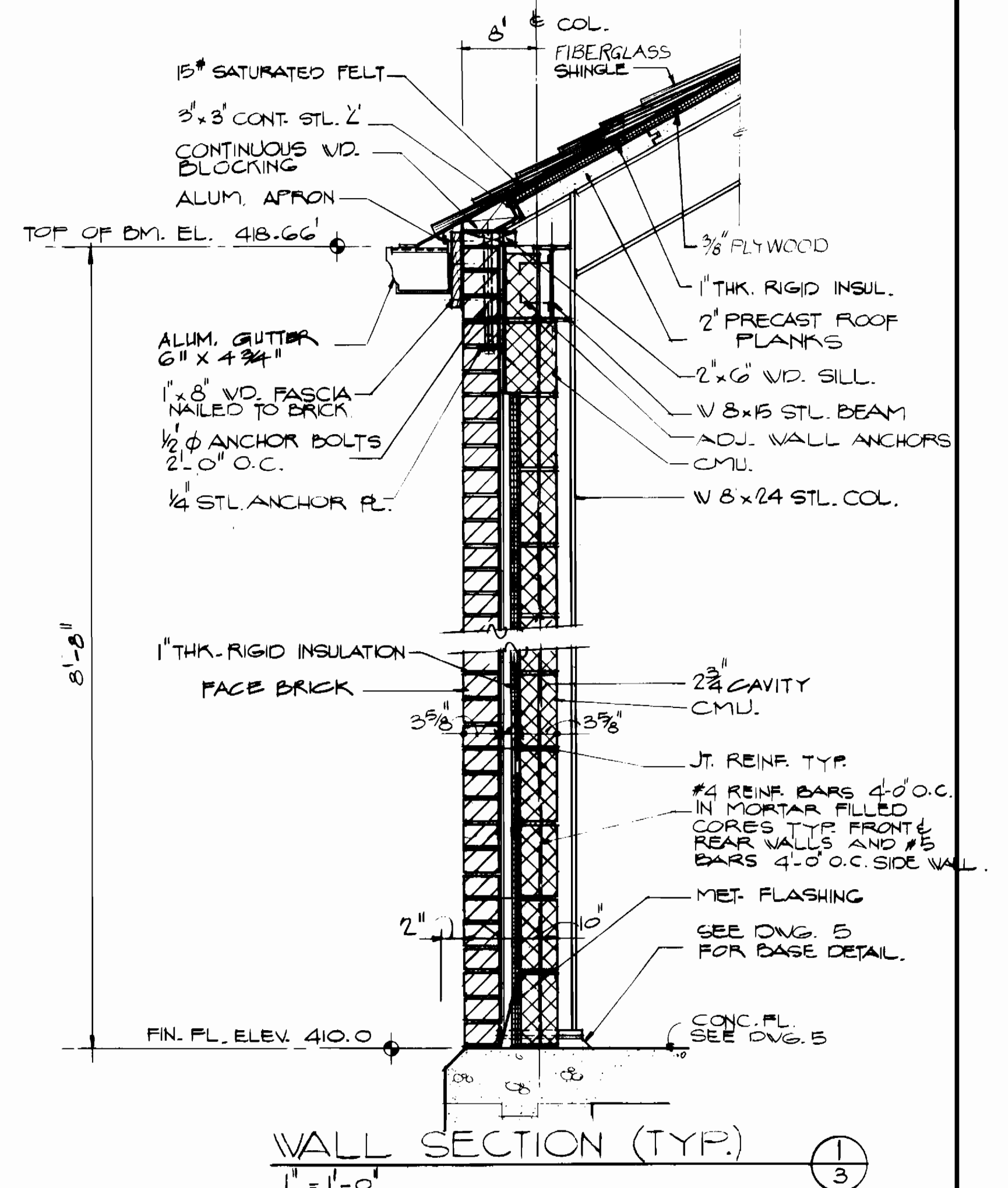
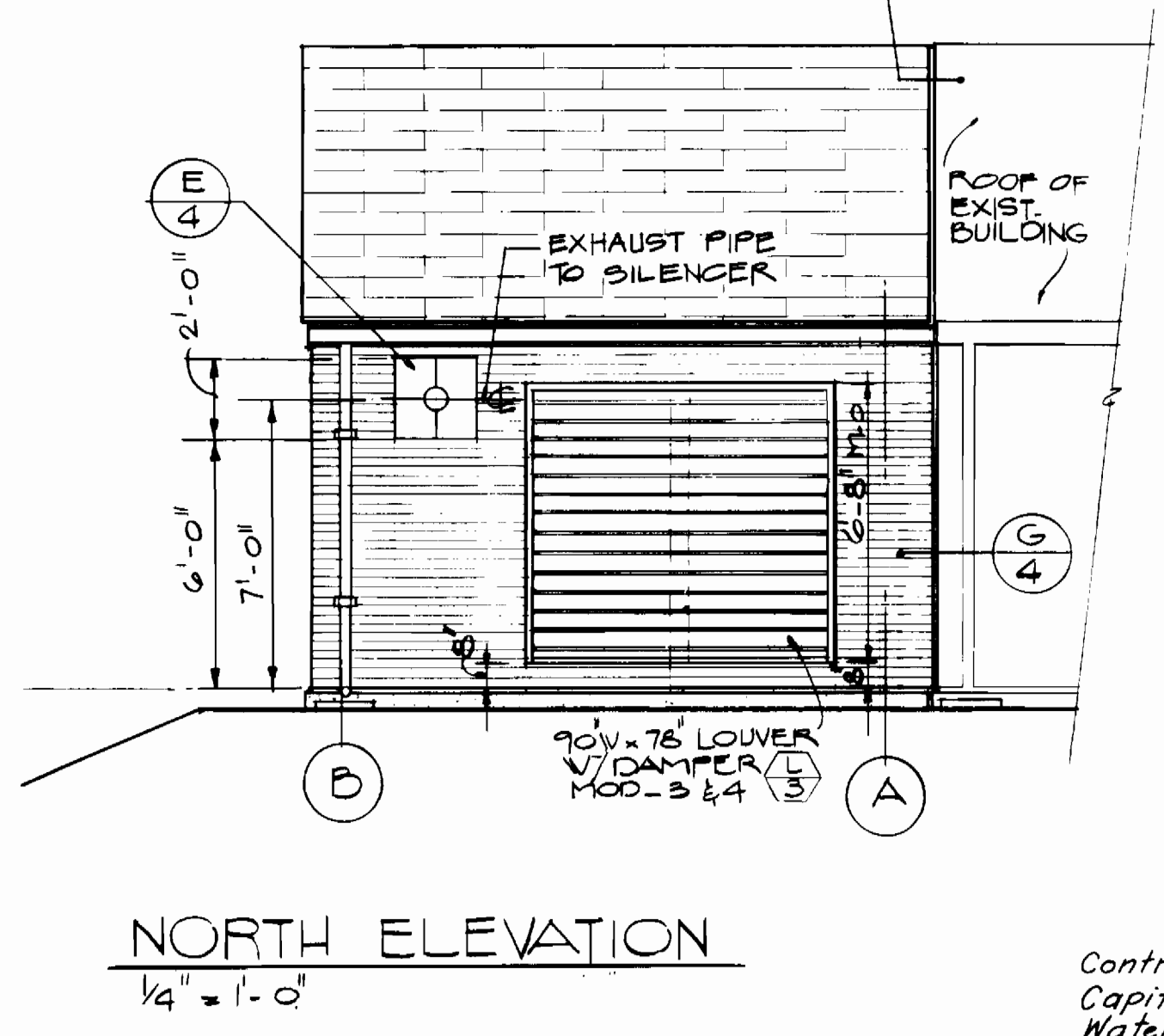
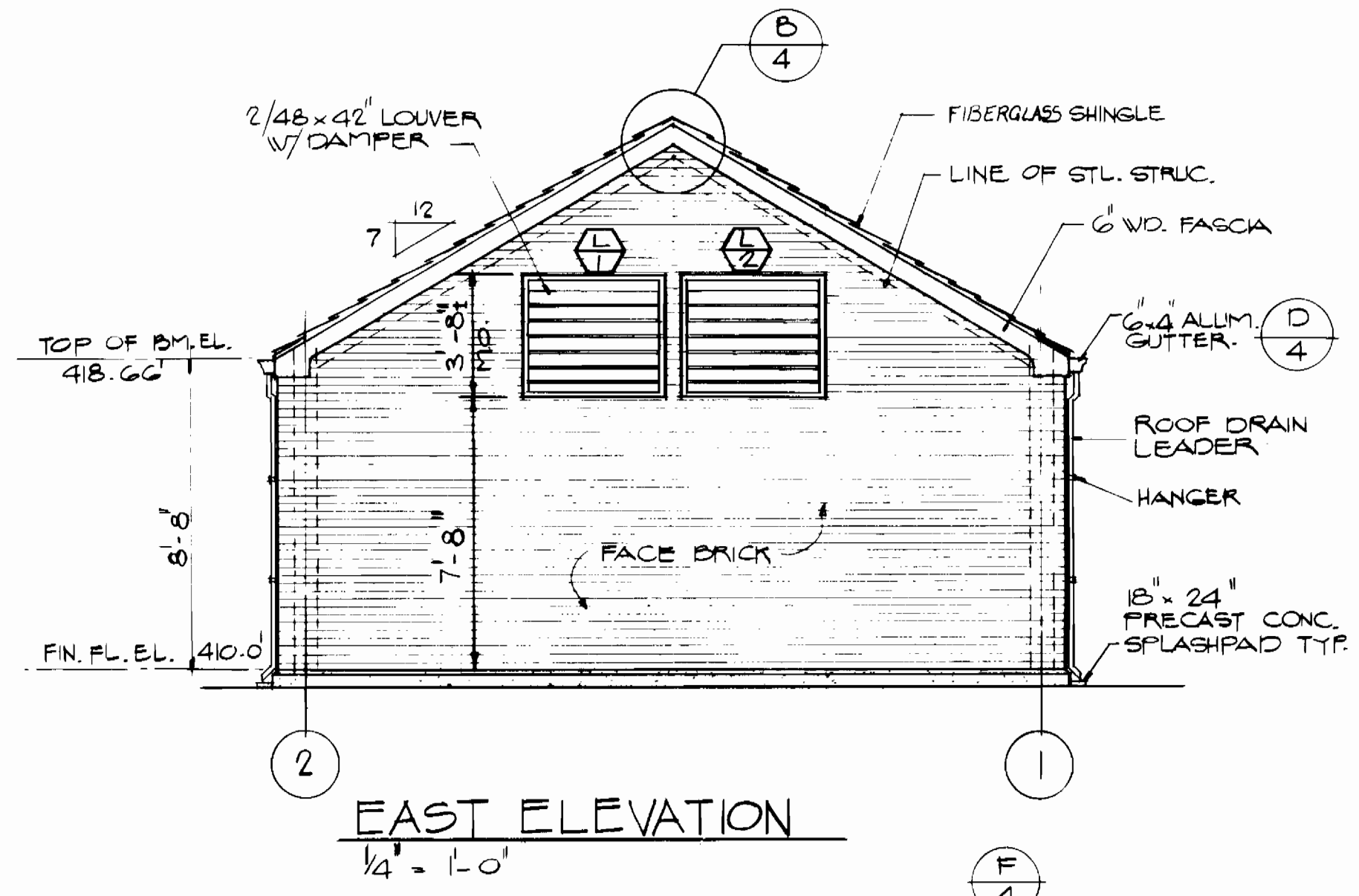
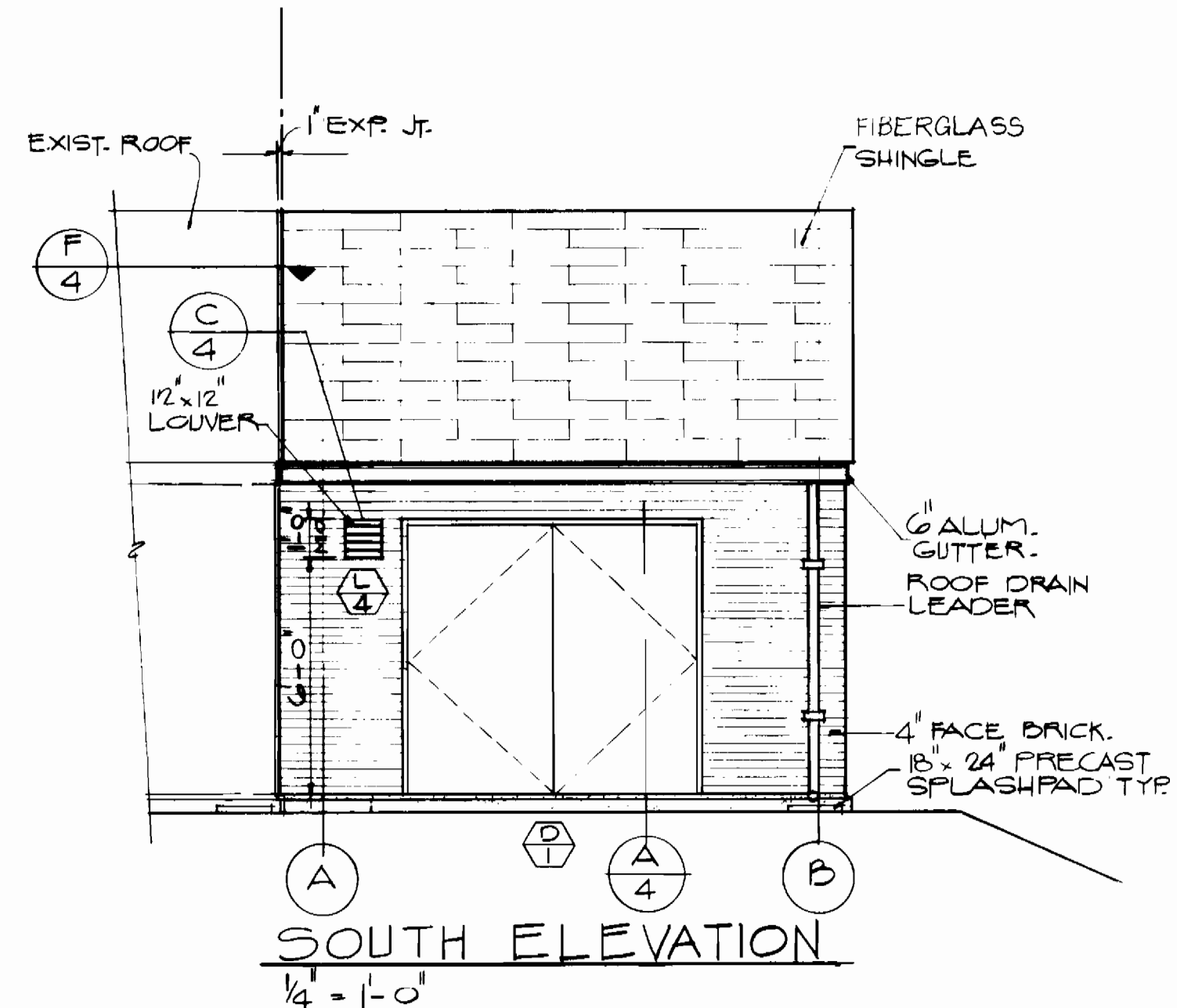
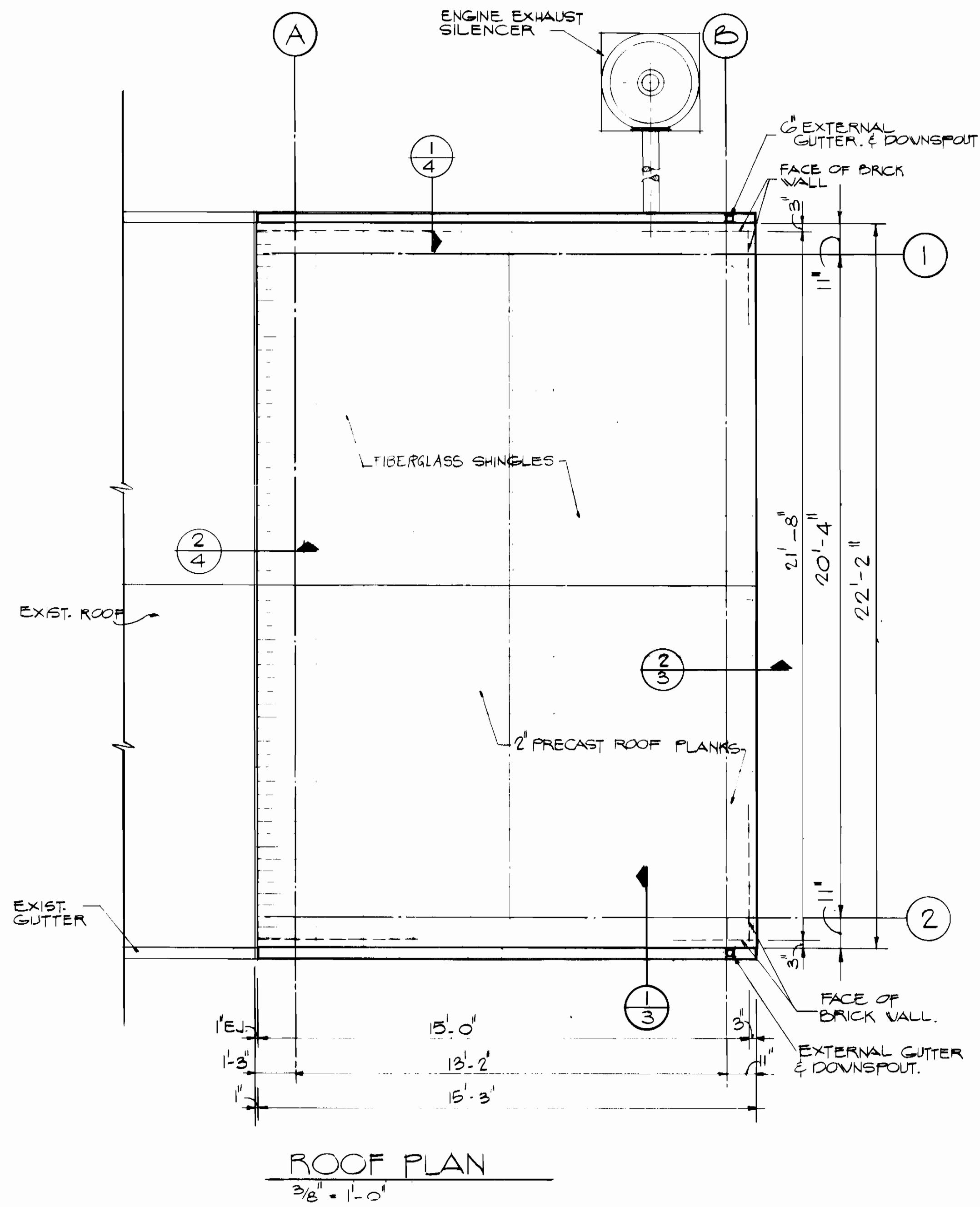
**FUEL STORAGE TANK**

DETAIL C 2  
 No scale

NOTE:  
 Fuel tank to be installed in accordance with NFPA Standard 30 and 31.  
 All applicable Howard County permits shall be obtained by the contractor.

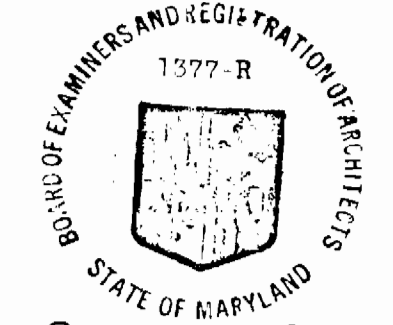
Contract No. 44-1052  
 Capital Project S-6113-W  
 Water Pump Station Auxiliary Power  
 Howard County, MD





2-1-84 CONFORMED TO CONSTRUCTION RECORDS  
 DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

Director of Public Works: *W. F. N...* 6-17-84  
 Chief - Bureau of Engineering: *W. S. C...* 6/15/82  
 Chief - Bureau of Utilities: *R. M. B...* 6-24-82  
 Chief Utility Division: *A. B...* 6/15/82



**Black & Veatch**  
 Engineers - Architects  
 Bethesda, Maryland

PROJECT NO. S-6113-W  
 CONTRACT NO. 44-1052

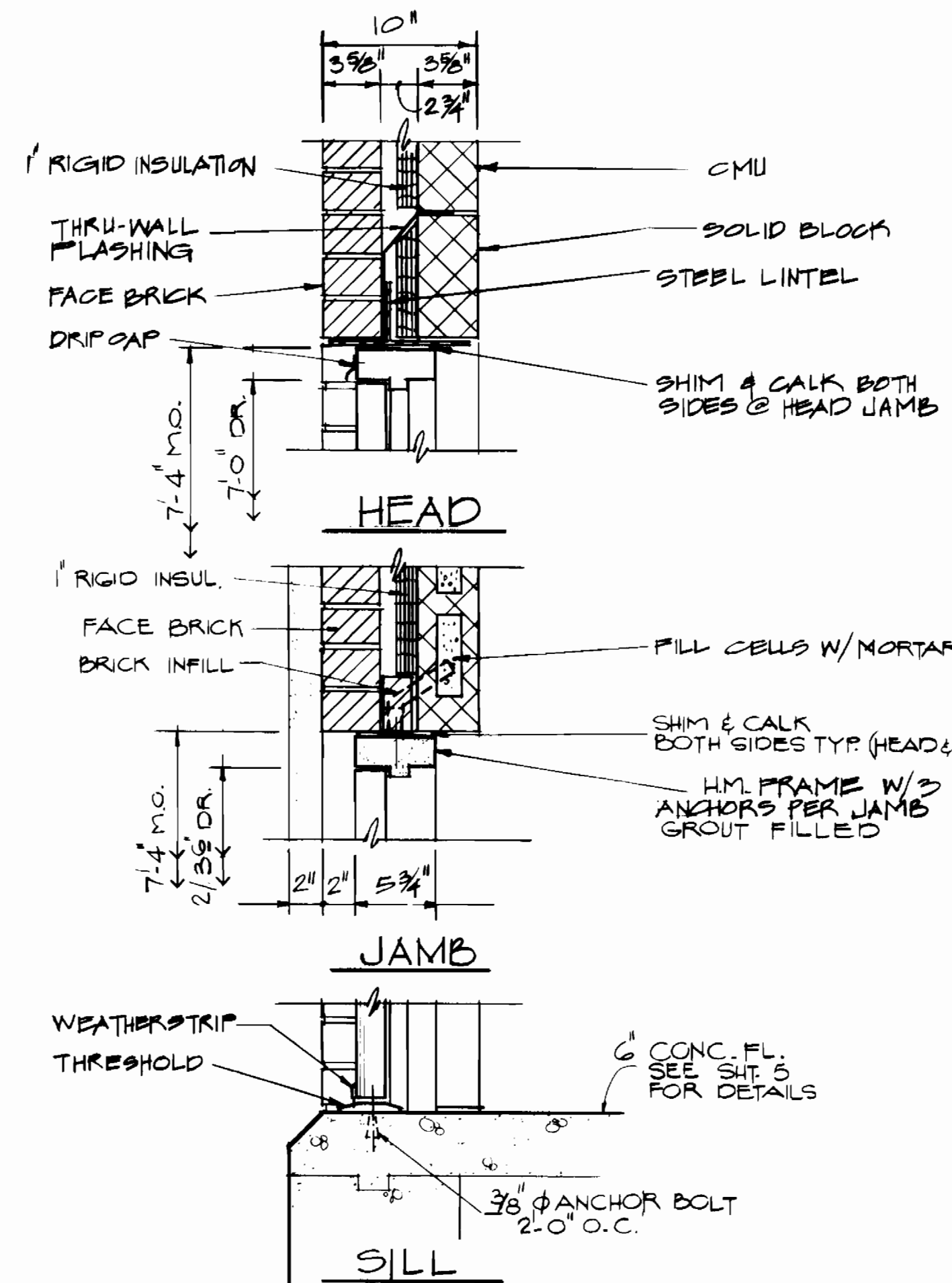
ARCHITECTURAL  
 PLANS, ELEVATIONS  
 & DETAILS

Contract No. 44-1052  
 Capital Project S-6113-W  
 Water Pump Station Auxiliary Power  
 Howard County, MD

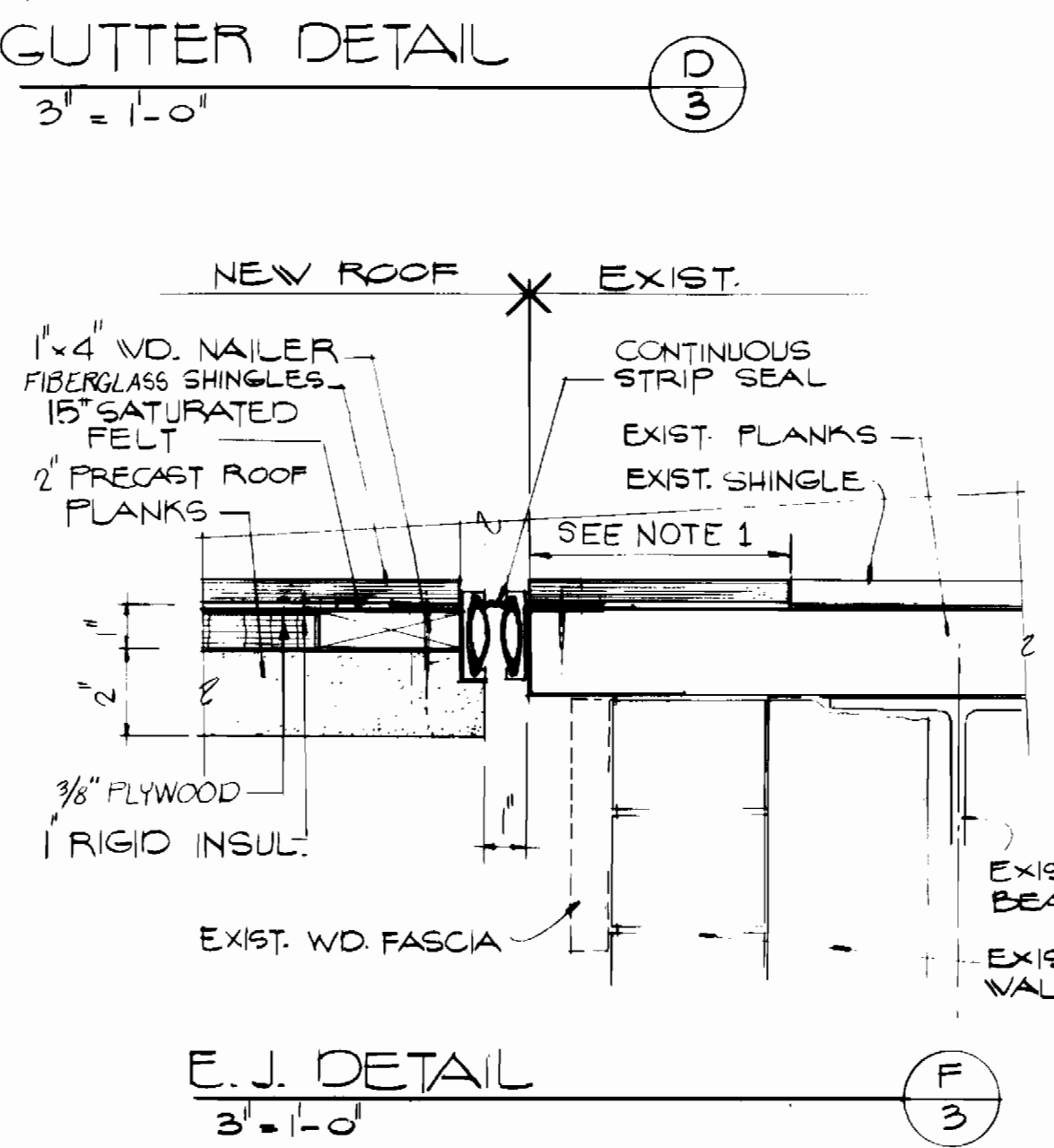
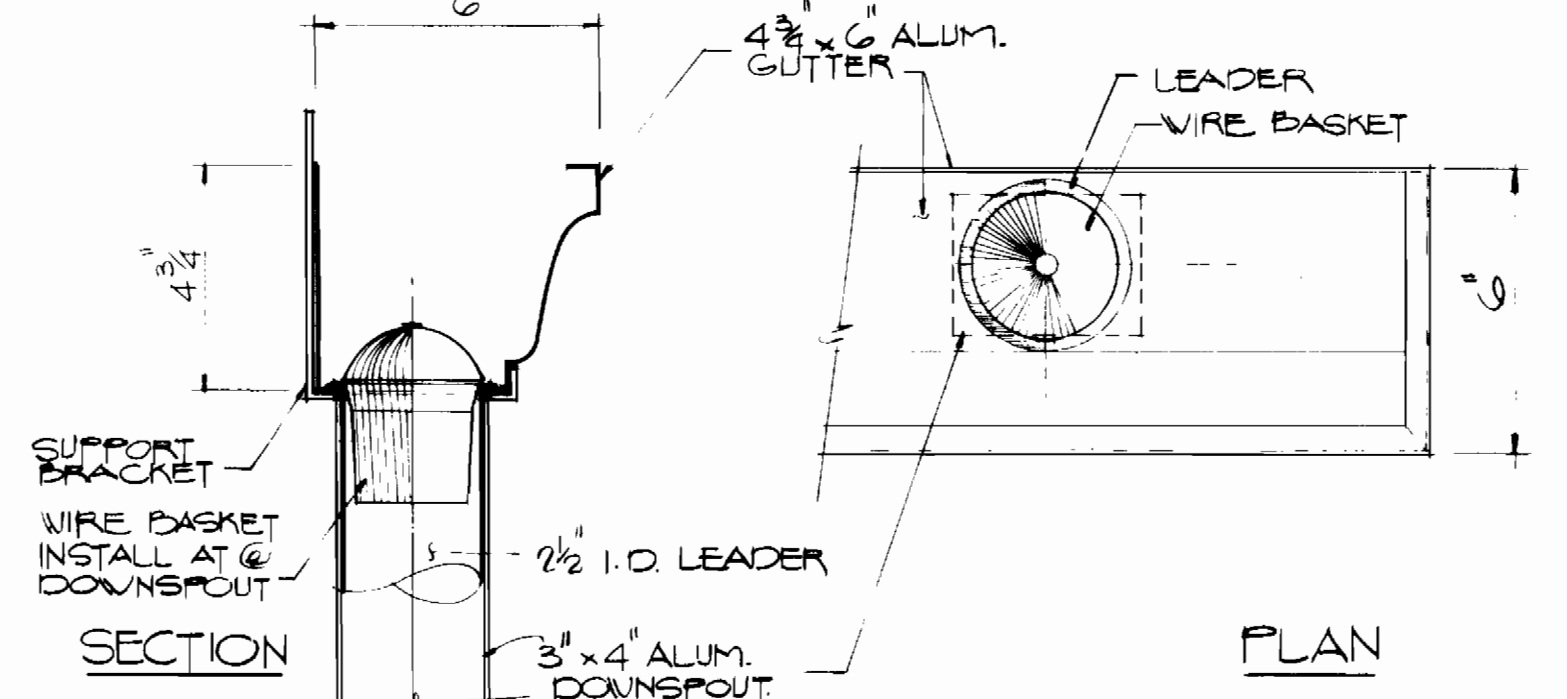
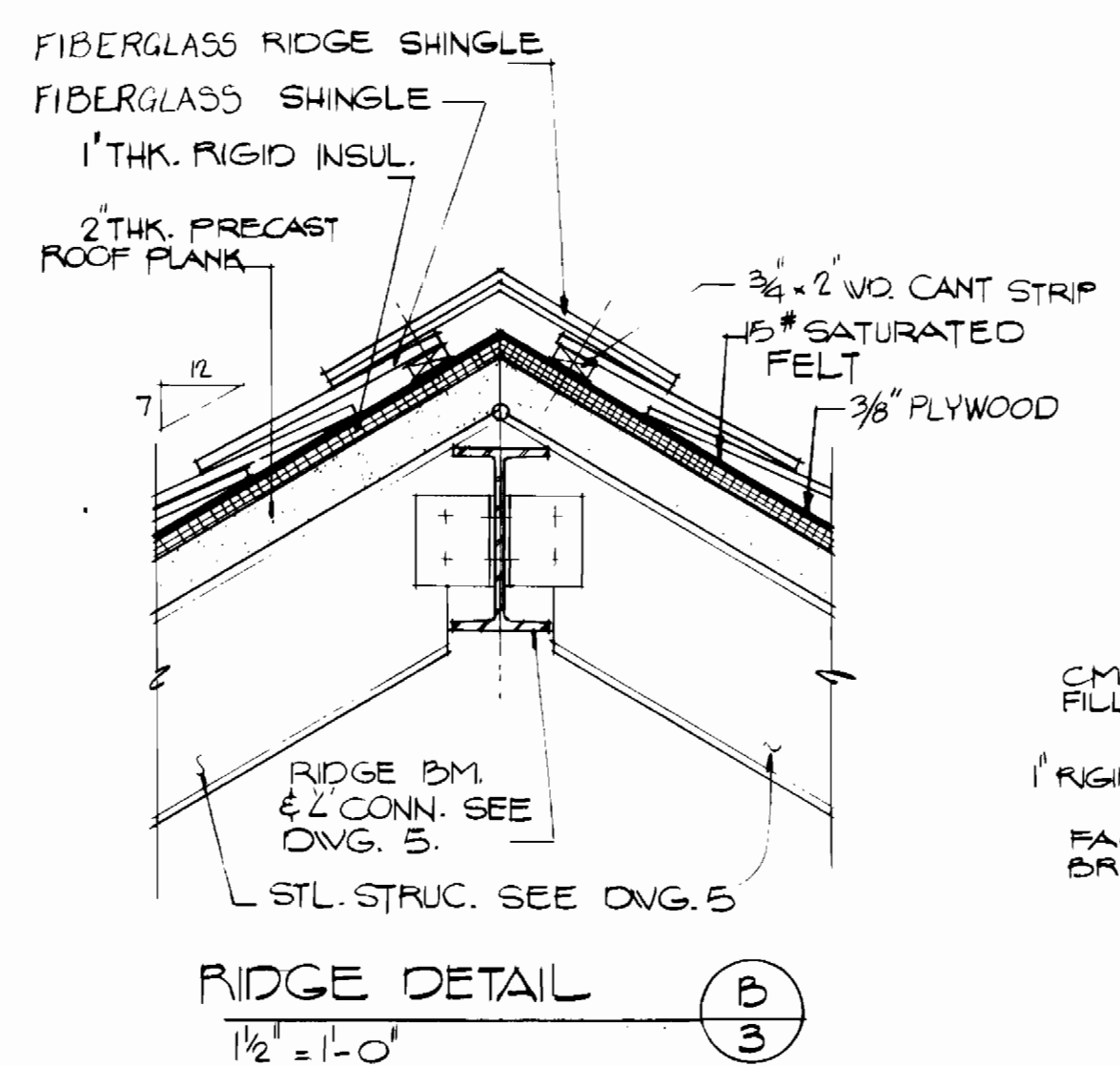
WATER PUMPING STATION AUXILIARY POWER  
 ELLICOTT CITY SUB-DISTRICT

DRAWING NO. 3 OF 9  
 SCALE AS SHOWN

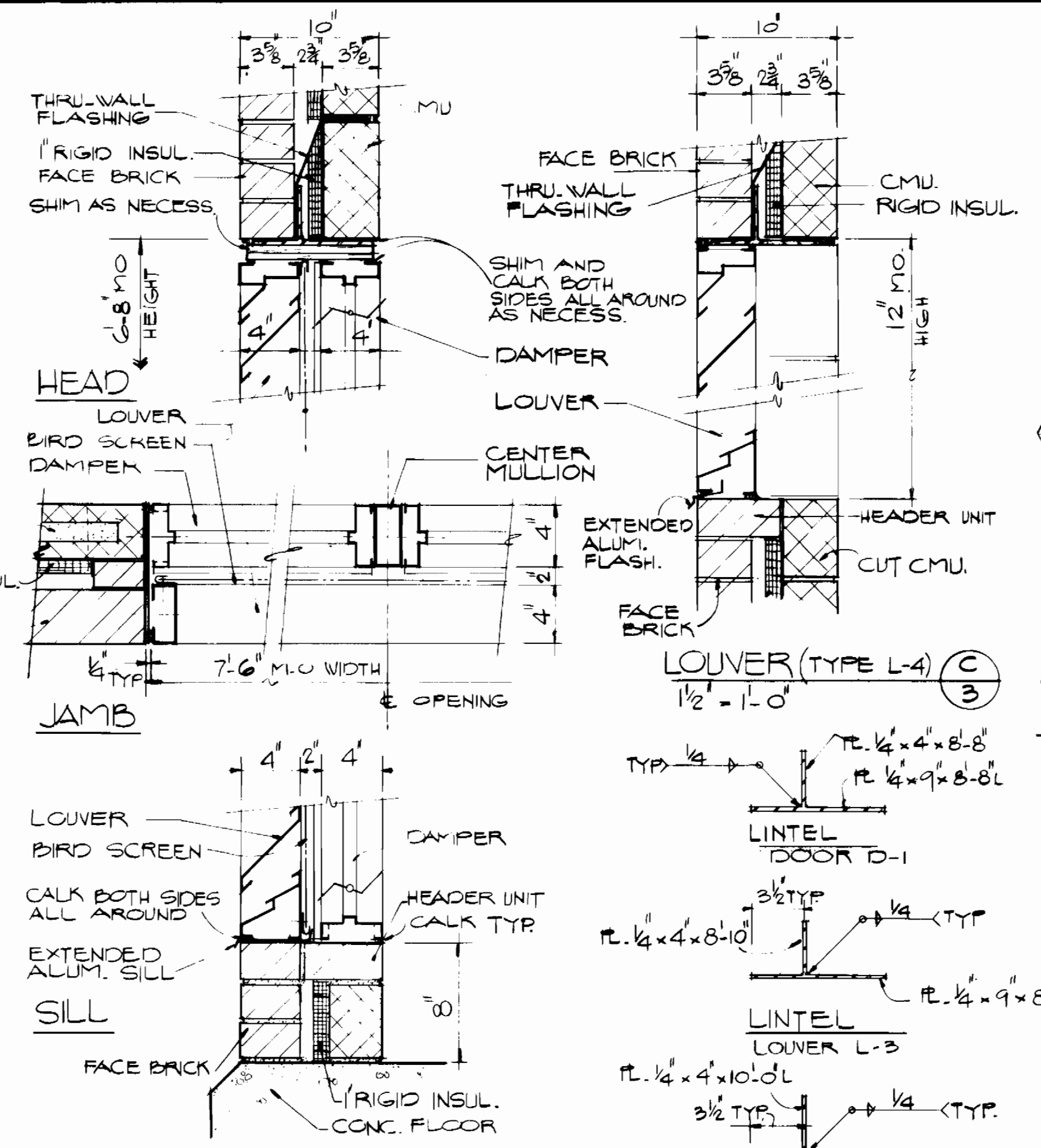
BUILT 2-84 07-15-82



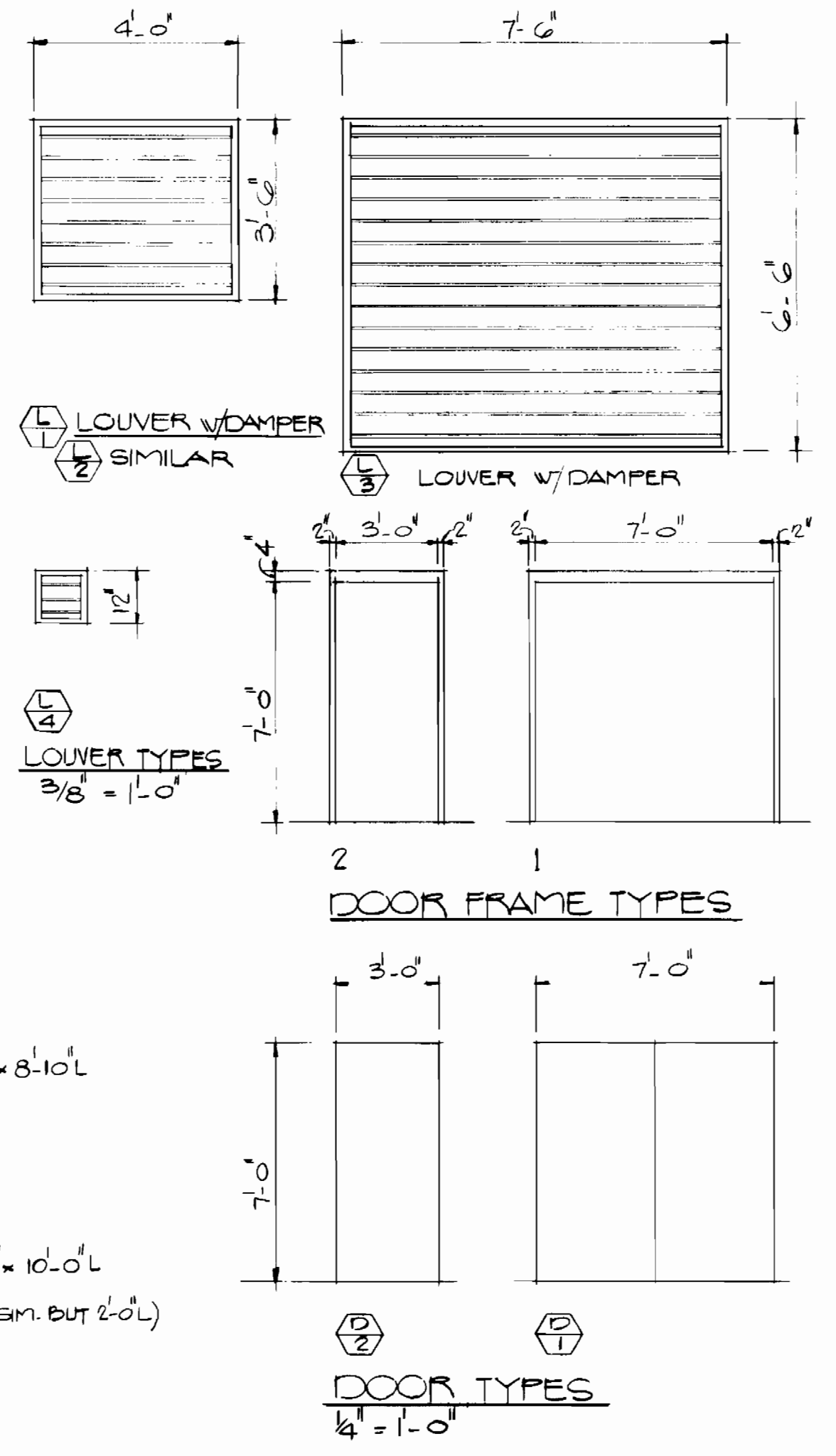
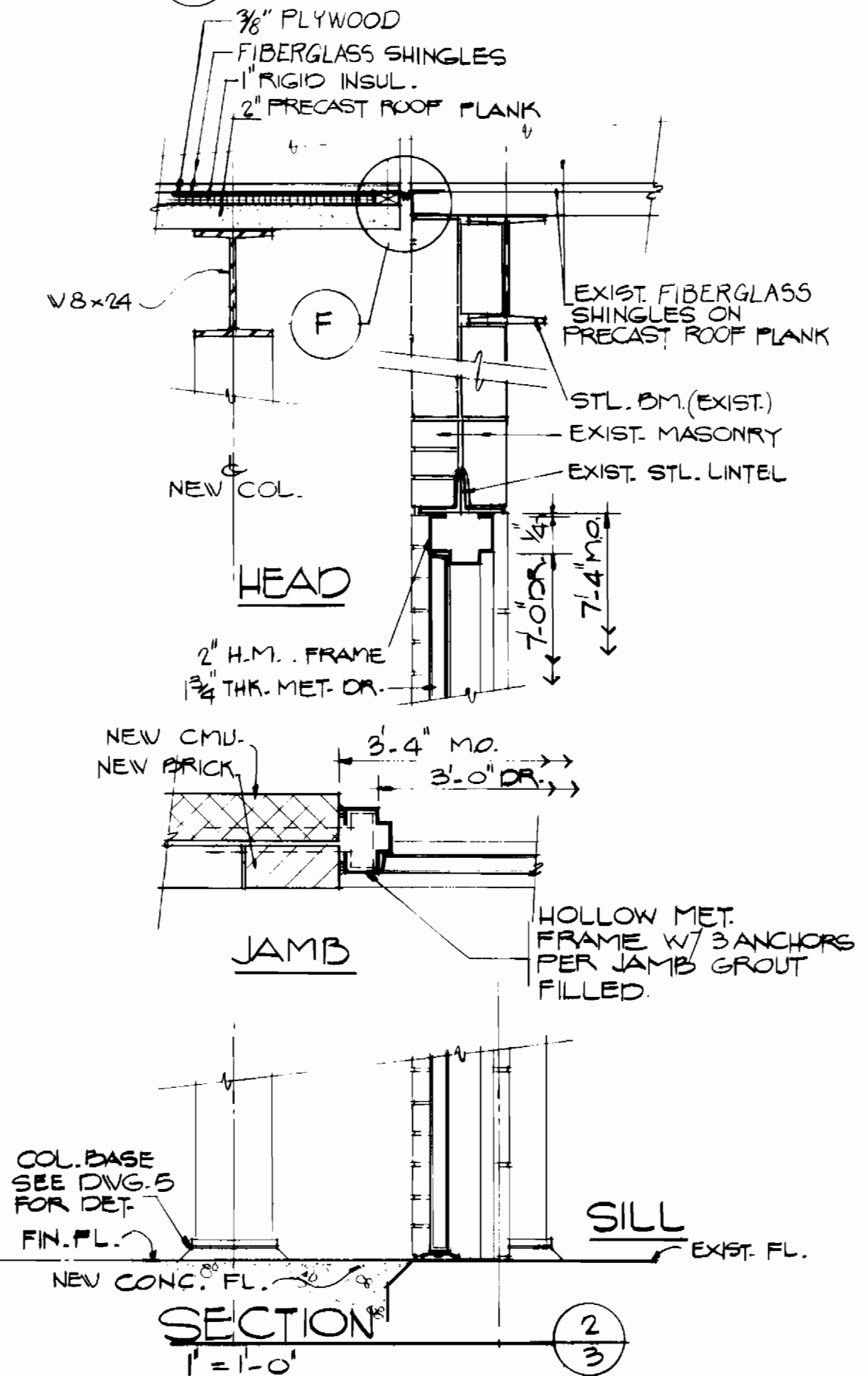
**DOOR DETAIL** (A) 3  
 1/2" = 1'-0"



**NOTES:**  
 1: CUT-BACK SHINGLES EXIST. ROOF 6" MIN. & PREPARE ROOF SURE FOR NEW SHINGLES  
 2: REMOVE EXIST. WD. FASCIA.



**SECTION (LOUVER TYPE L-3)** (C) 3  
 1/2" = 1'-0"



**SECTION @ ENGINE EXHAUST** (E) 3/5  
 1/2" = 1'-0"

2-1-84 CONFORMED TO CONSTRUCTION RECORDS  
 DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

W. F. Neuman 6-17-84 DIRECTOR OF PUBLIC WORKS  
 R. M. B. 6-24-82 CHIEF - BUREAU OF UTILITIES  
 C. J. 4-17-82 CHIEF - BUREAU OF ENGINEERING  
 A. S. 6/15/82 CHIEF UTILITY DIVISION



Black & Veatch  
 Engineers - Architects  
 Bethesda, Maryland

PROJECT NO. S-6113-W  
 CONTRACT NO. 44-1052

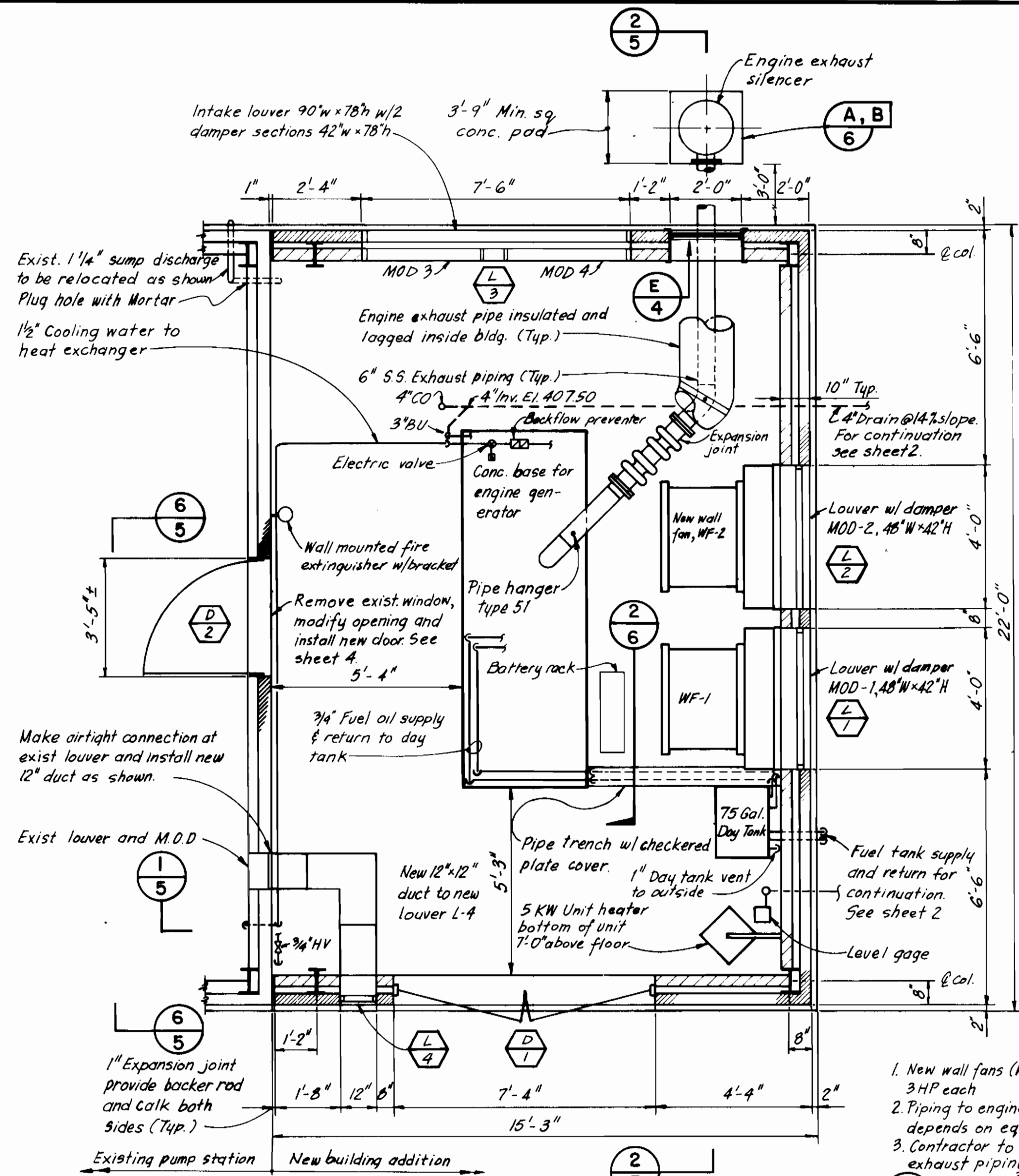
ARCHITECTURAL  
 DETAILS & SECTIONS

WATER PUMPING STATION AUXILIARY POWER  
 ELLICOTT CITY SUB-DISTRICT

DRAWING NO. 4 OF 9  
 SCALE AS SHOWN

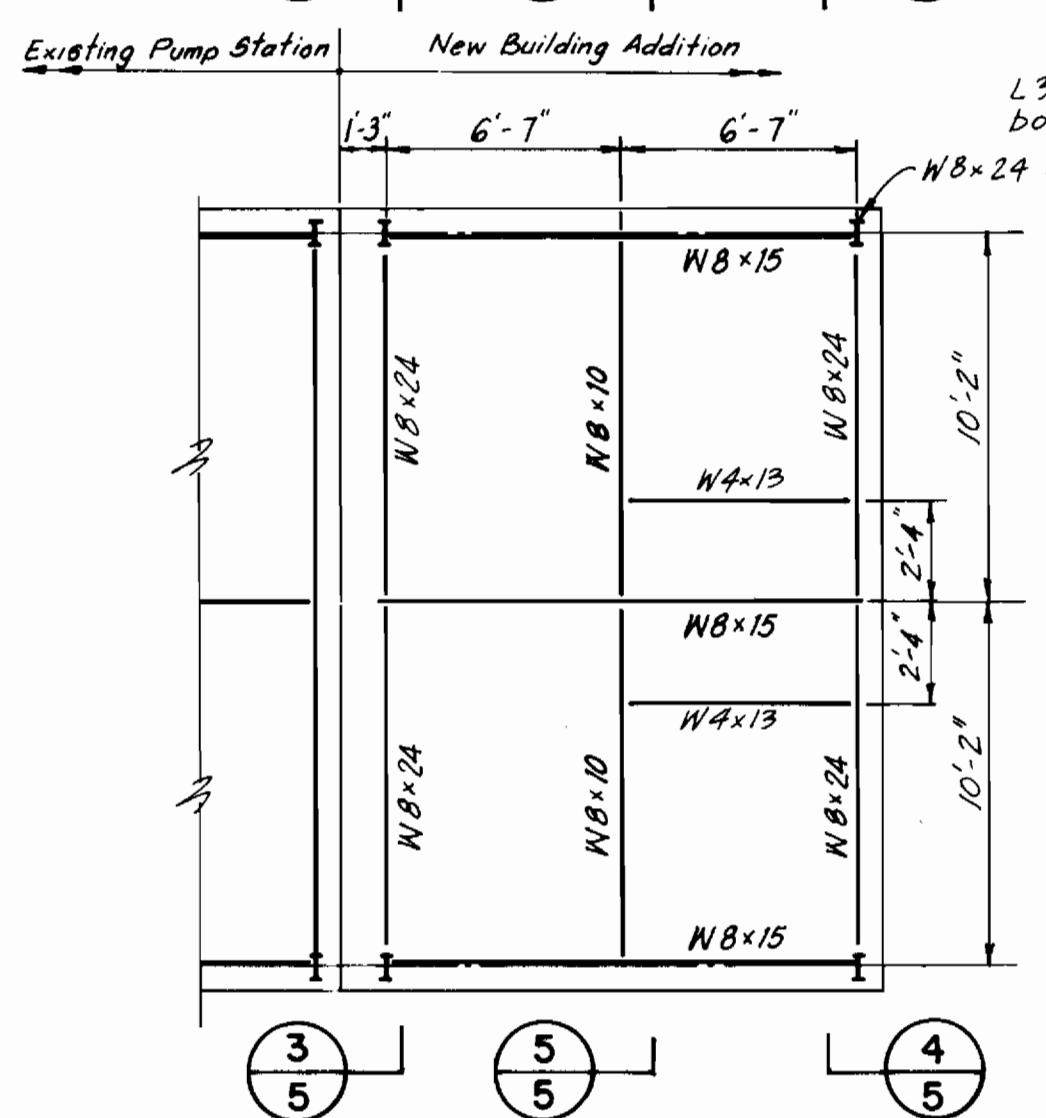
Contract No. 44-1052  
 Capital Project S-6113-W  
 Water Pump Station Auxiliary Power  
 Howard County, MD

AS BUILT 2-84 07-15-82

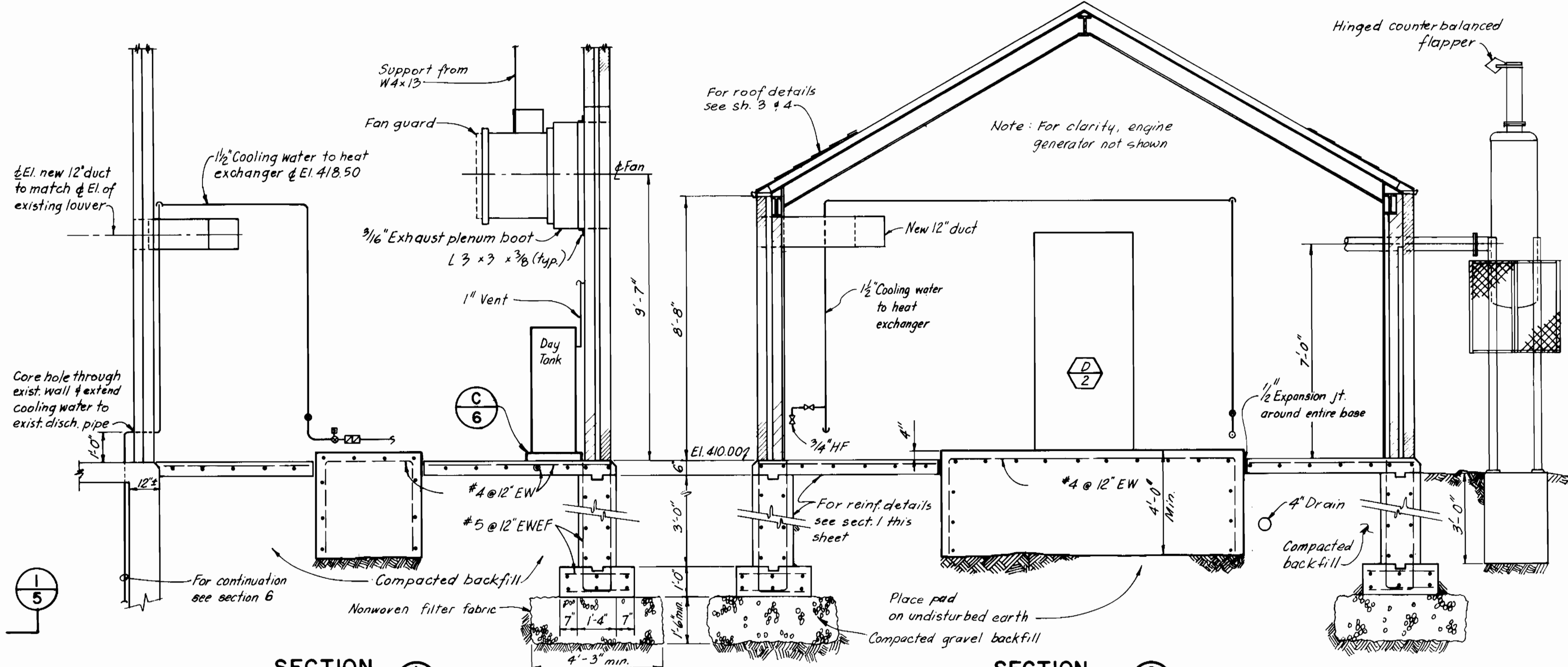


**FLOOR PLAN**  
3/8" = 1'-0"

1. New wall fans (WF-1, WF-2) to be 14000 CFM e.o.s.p. 3HP each
2. Piping to engine (exhaust, fuel) (typical Actual layout depends on equipment furnished)
3. Contractor to furnish support details for wall fans, exhaust piping, 12" exhaust duct and cooling water

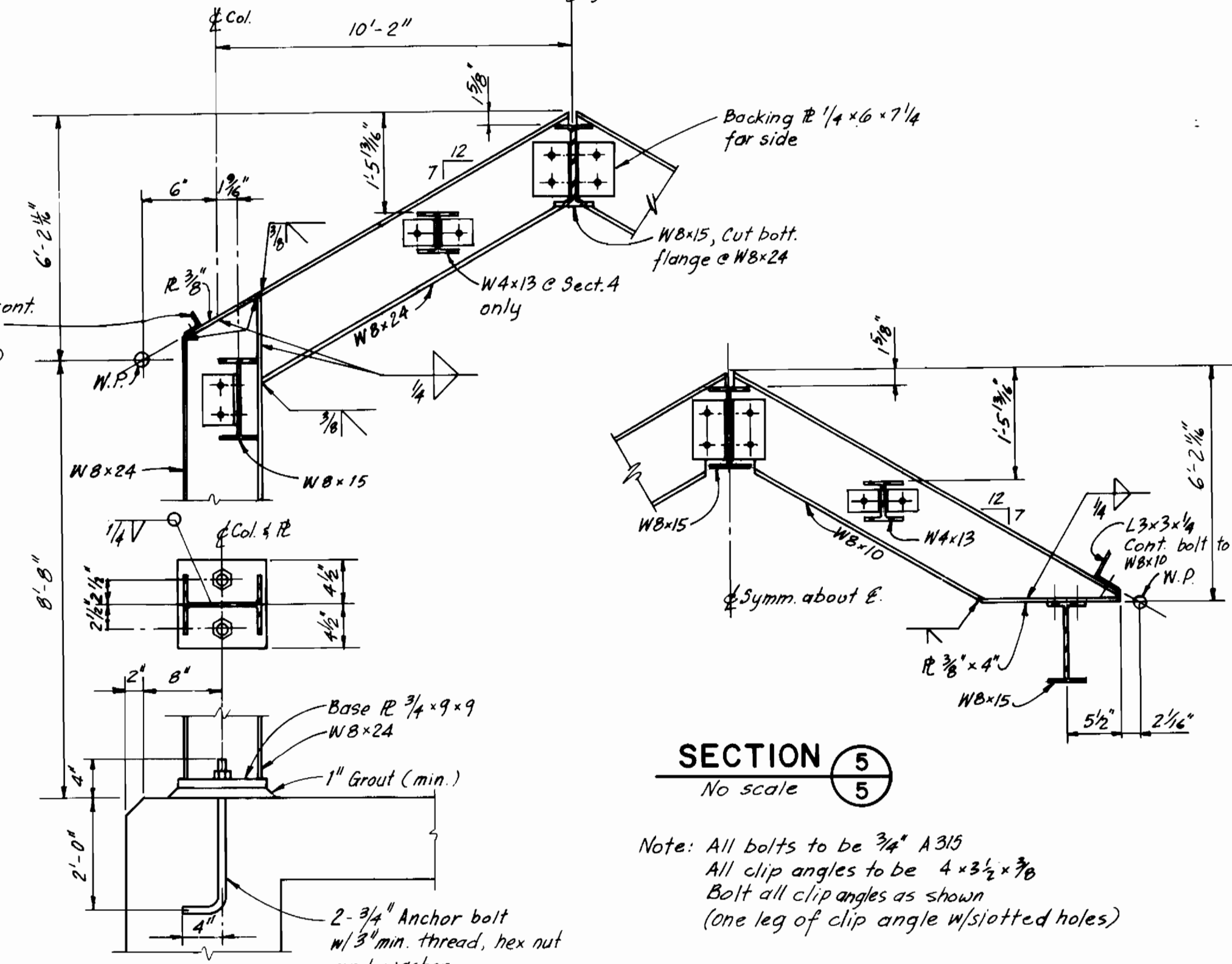


**ROOF FRAMING PLAN**  
3/16" = 1'-0"



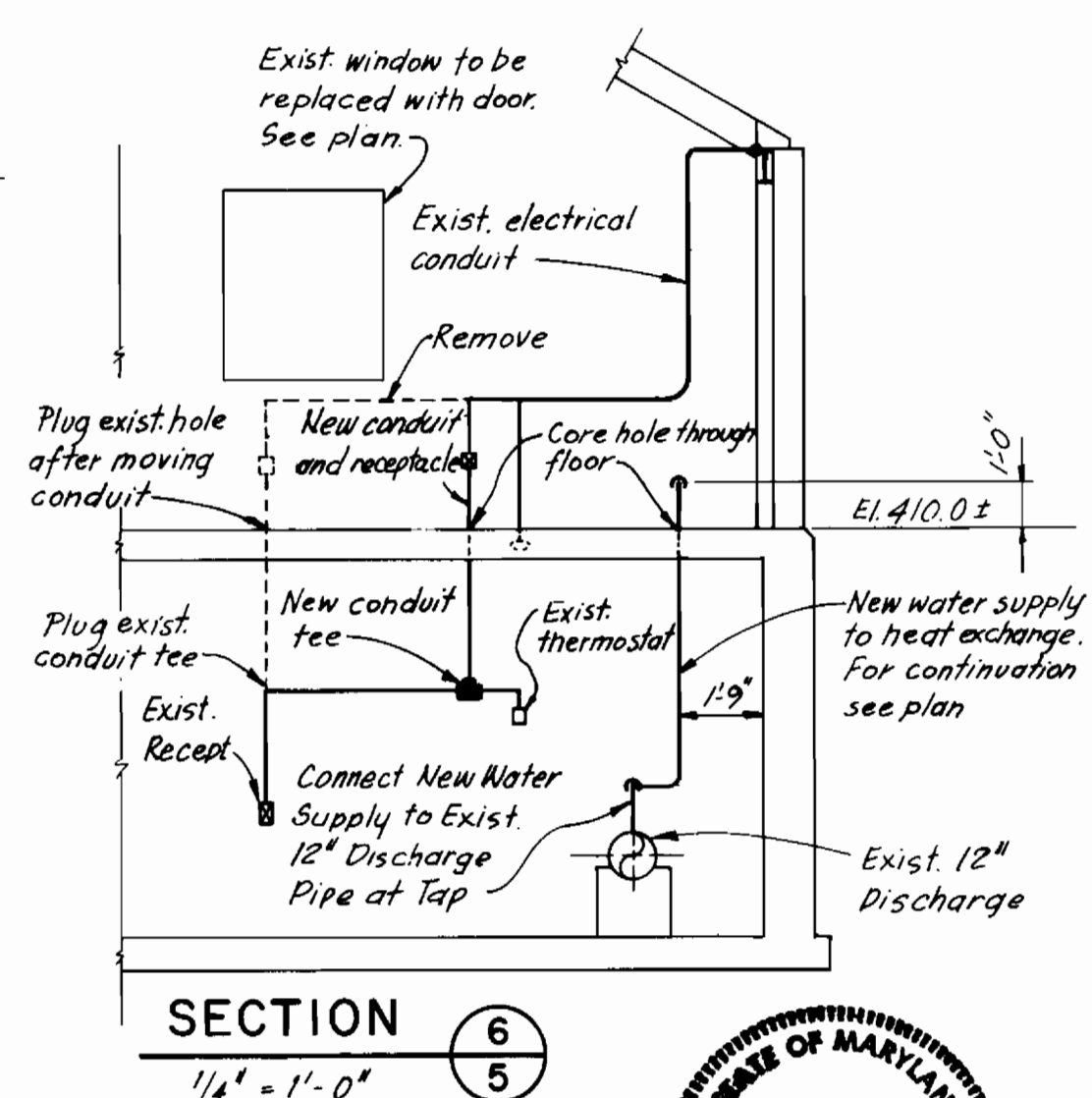
**SECTION 1-5**  
3/8" = 1'-0"

**SECTION 2-5**  
3/8" = 1'-0"



**SECTION 3-5**  
No scale

**SECTION 4-5**  
No scale



**SECTION 5-5**  
No scale

**SECTION 6-5**  
1/4" = 1'-0"

Note: All bolts to be 3/4" A315  
All clip angles to be 4 x 3 1/2 x 7/8  
Bolt all clip angles as shown  
(one leg of clip angle w/ slotted holes)

Contract No. 44-1052  
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Water Pump Station Auxiliary Power  
Howard County, MD



**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND

*John F. Nunn* 6-17-82  
DIRECTOR OF PUBLIC WORKS - DATE

*Robert M. Brown* 6-24-82  
CHIEF-BUREAU OF UTILITIES - DATE

*William S. Reddy* 6-15-82  
CHIEF-BUREAU OF ENGINEERING - DATE

*Allen S. Brown* 6/15/82  
CHIEF UTILITY DIVISION - DATE

2-1-84 CONFORMED TO CONSTRUCTION RECORDS

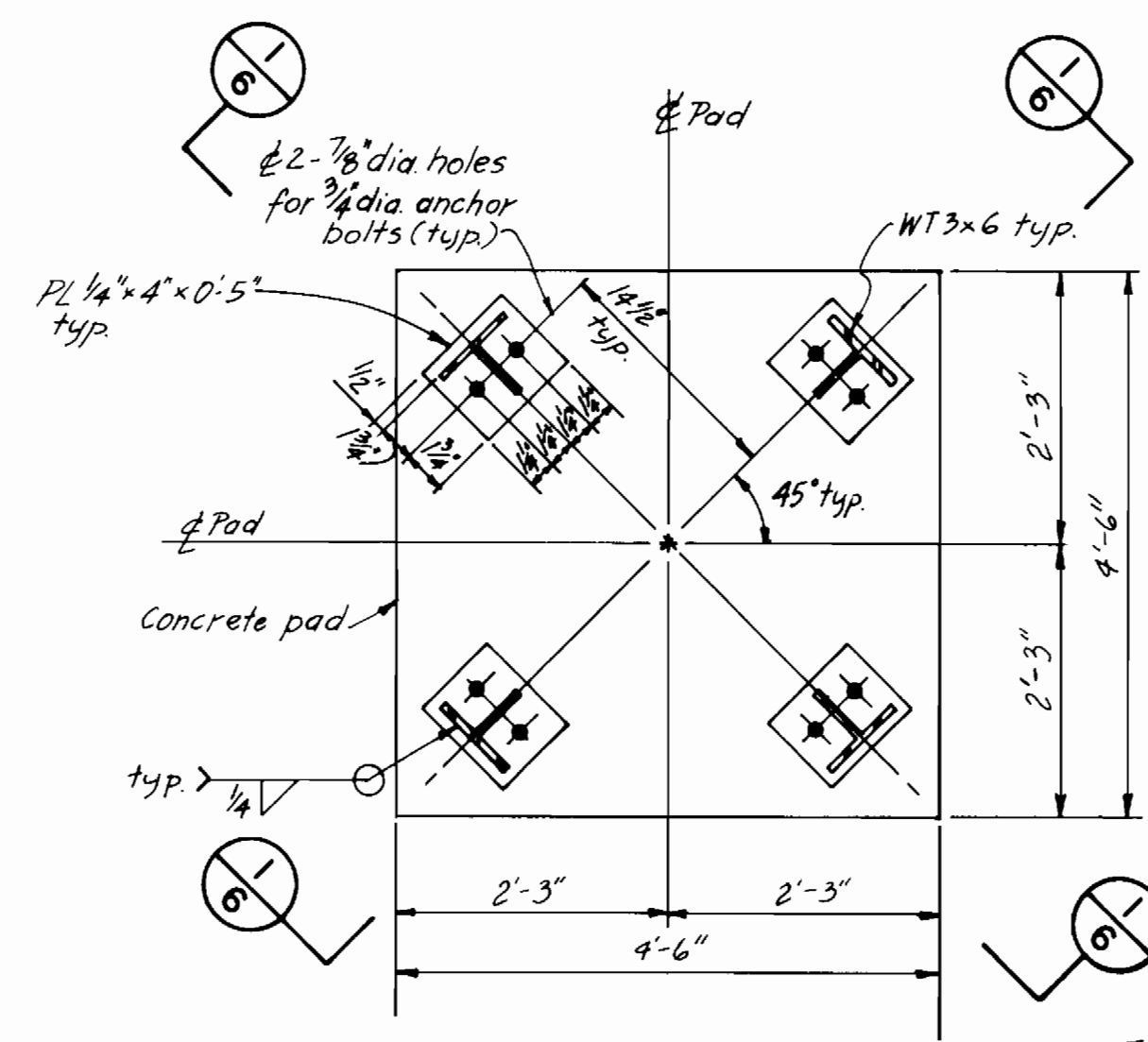
**Black & Veatch**  
Engineers - Architects  
Bethesda, Maryland

PROJECT NO. S-6113-W  
CONTRACT NO. 44-1052

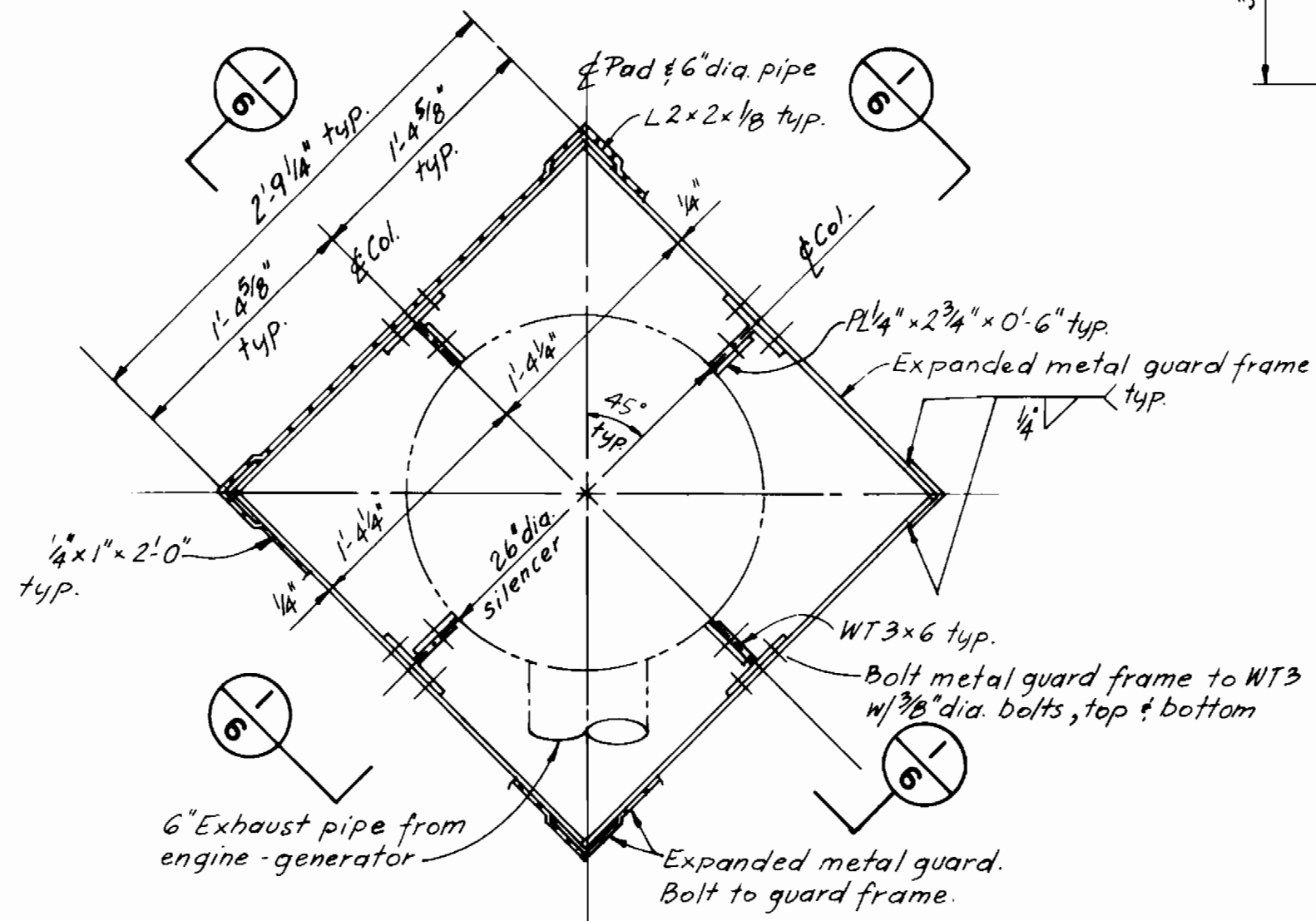
MONTGOMERY ROAD PUMPING STATION  
PLANS AND SECTIONS

WATER PUMPING STATION AUXILIARY POWER  
ELLICOTT CITY SUB-DISTRICT

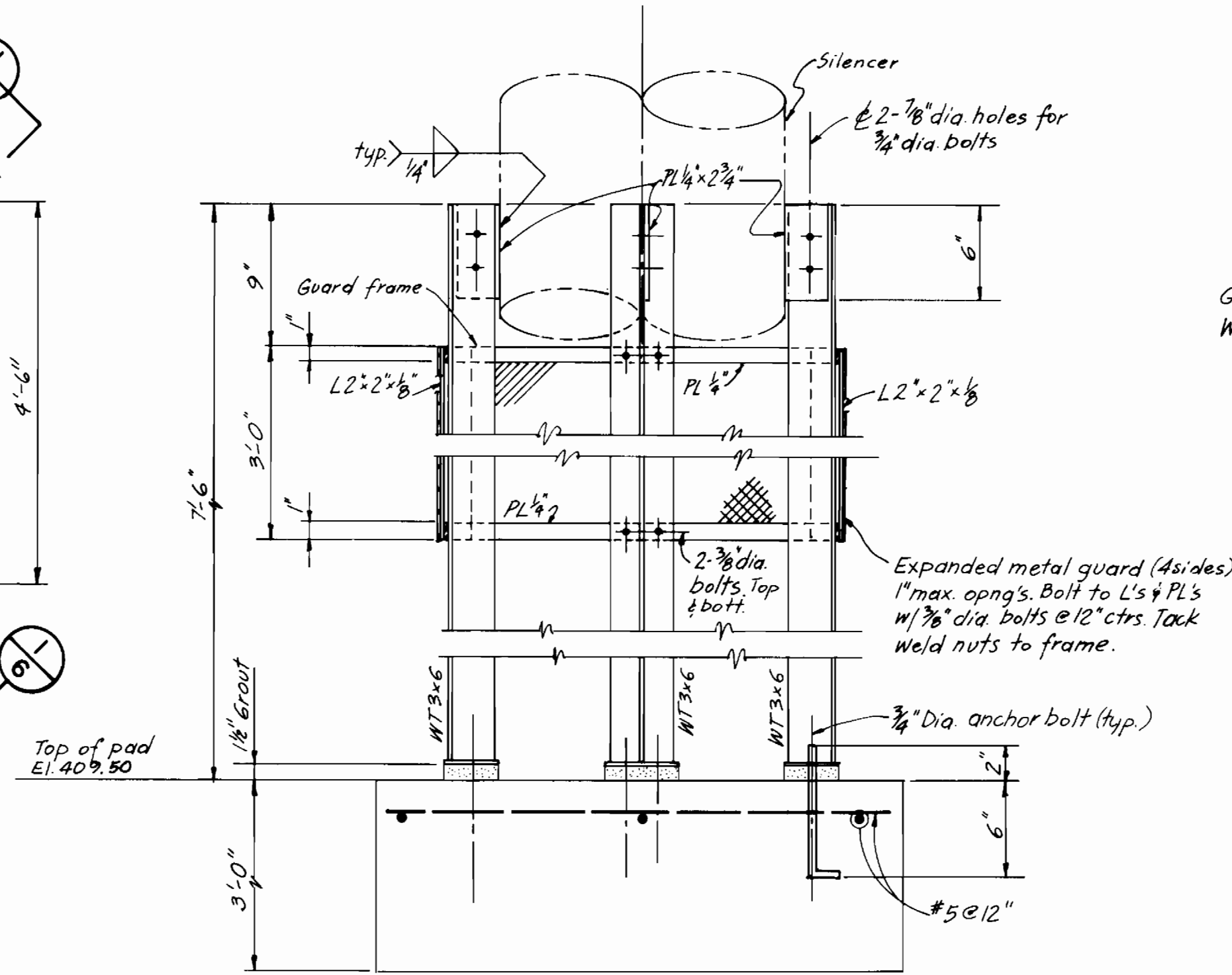
DRAWING NO. 5 OF 9  
SCALE AS SHOWN



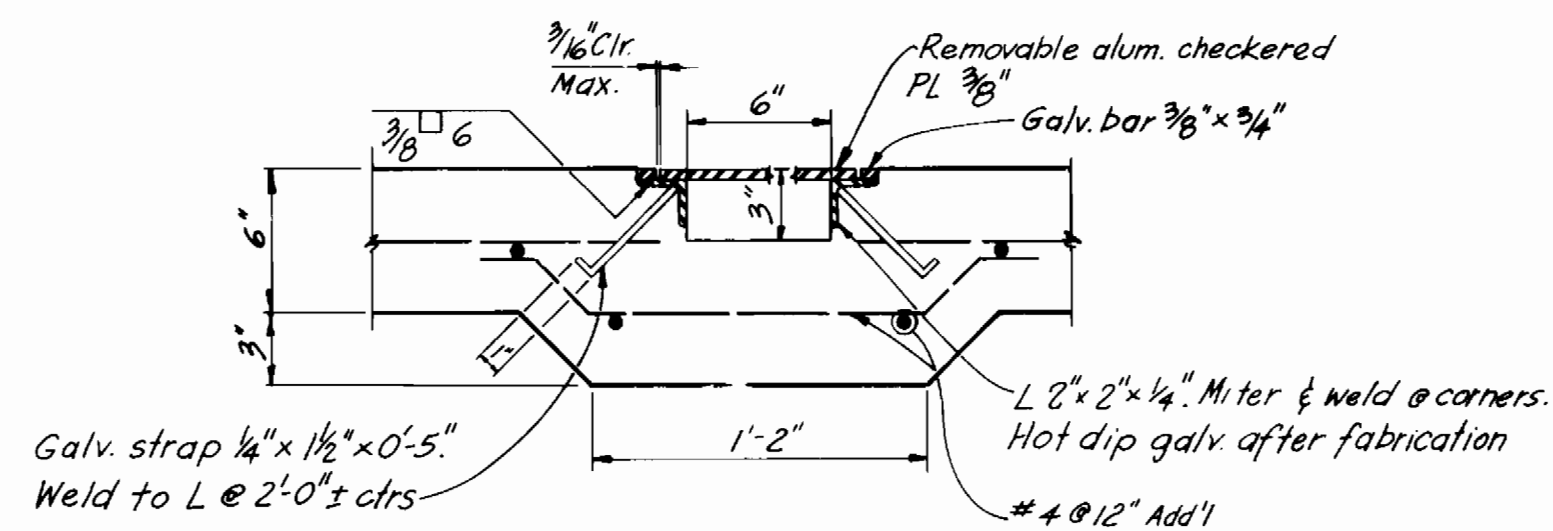
**PLAN**  
**DETAIL A**  
No scale



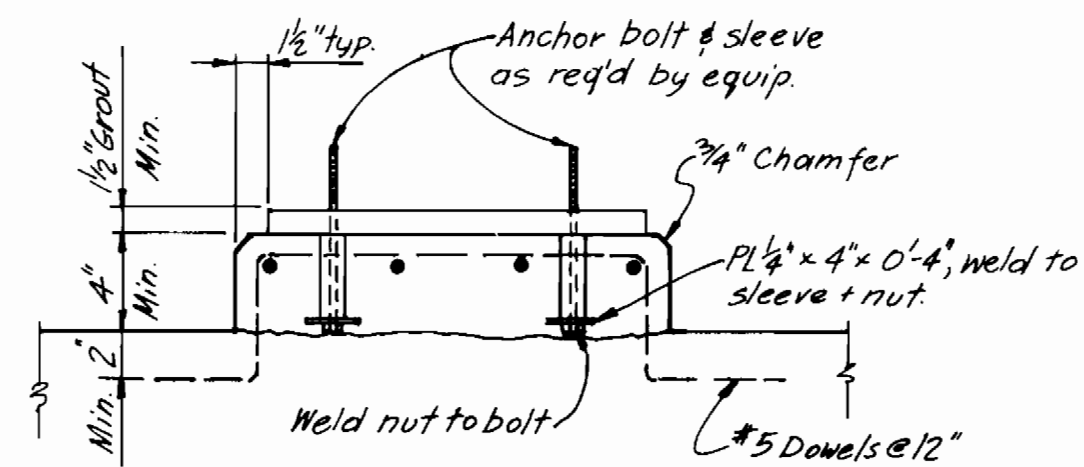
**PLAN AT EL. 416.50**  
**DETAIL B**  
No scale



**SECTION 1**  
No scale

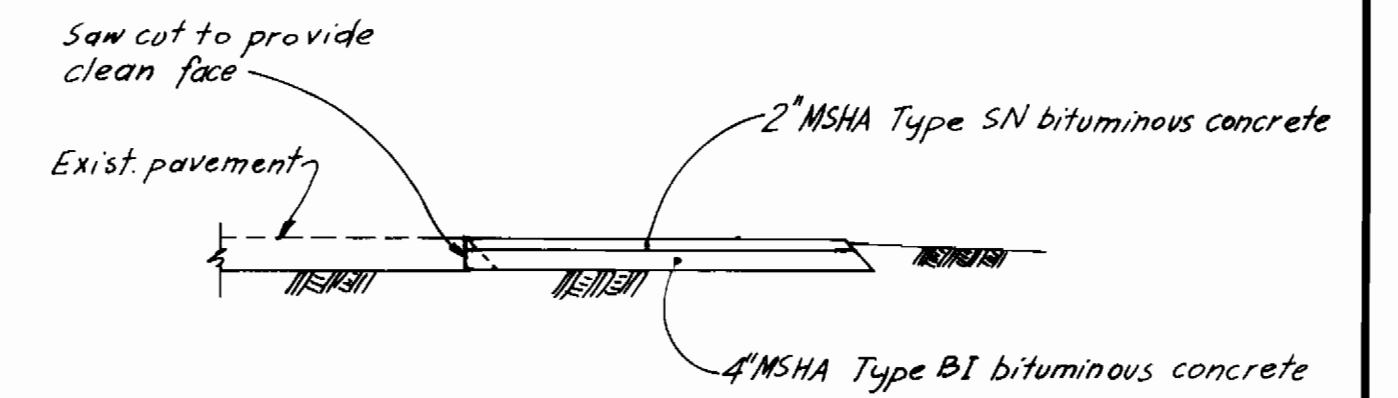


**PIPE TRENCH**  
**SECTION 2**  
1 1/2" = 1'-0"

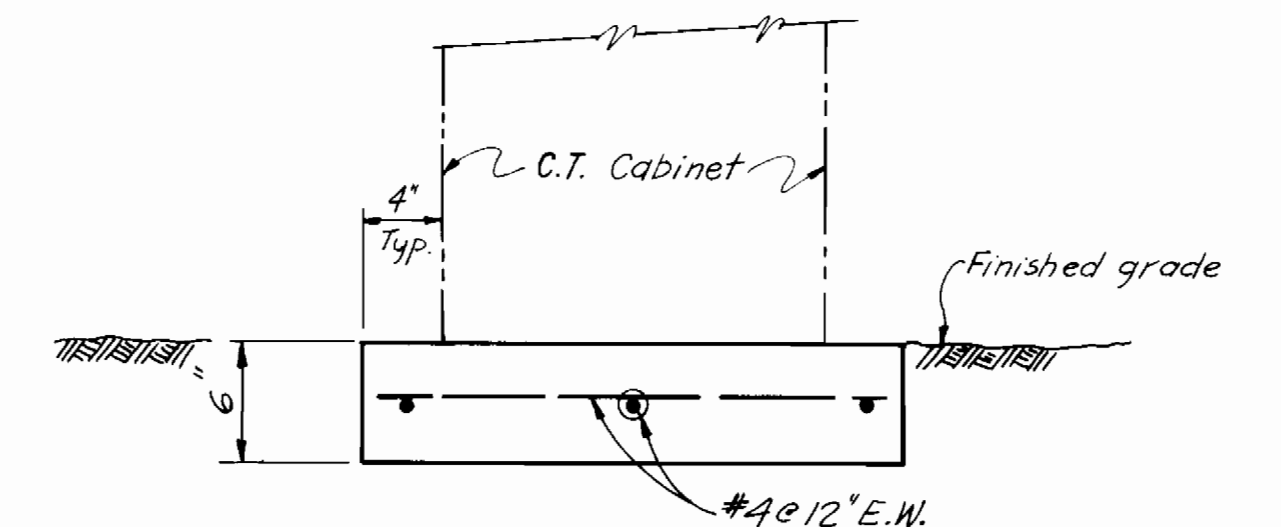


Note: Wilson anchor sleeves may be substituted for steel pipe sleeves.

**DAY TANK BASE**  
**DETAIL C**  
No scale



**SECTION THROUGH NEW DRIVEWAY**  
**DETAIL D**  
No scale



**SECTION 3**  
No scale

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Robert M. Bruner* 6-17-82  
DIRECTOR OF PUBLIC WORKS DATE

*Allen S. Brown* 6/15/82  
CHIEF - BUREAU OF UTILITIES DATE

2-1-84 CONFORMED TO CONSTRUCTION RECORDS

**Black & Veatch**  
Engineers - Architects  
Bethesda, Maryland

PROJECT NO. S-6113-W  
CONTRACT NO. 44-1052

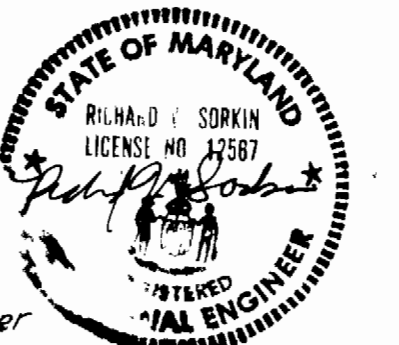
MONTGOMERY ROAD  
PUMPING STATION  
SECTIONS AND DETAILS

WATER PUMPING STATION AUXILIARY POWER  
ELLCOTT CITY SUB-DISTRICT

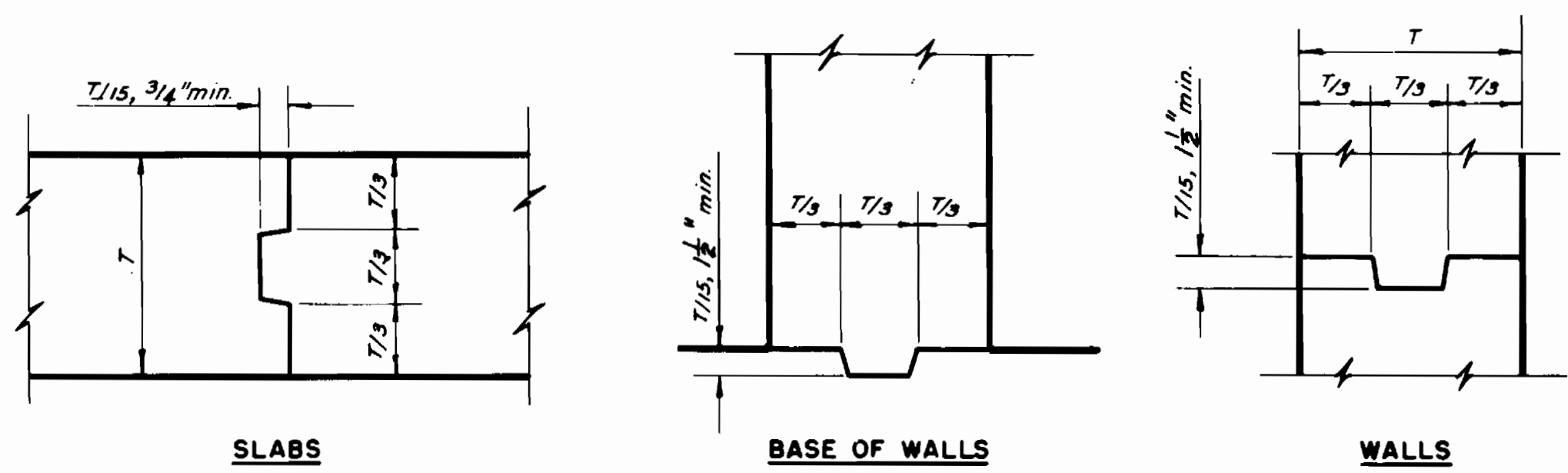
DRAWING  
NO. 6  
OF 9

SCALE  
AS  
SHOWN

AS BUILT 2-84 7-15-82



Contract no. 44-1052  
Capital Project S-6113-W  
Water Pump Station Auxiliary Power  
Howard County, Md.



**JOINTS WITHOUT WATER STOPS**

BAR SIZE	LENGTH OF LAPPED SPLICES FOR REINFORCING IN INCHES		LENGTH OF EMBEDMENT FOR END ANCHORAGE OF REINFORCING WITH STANDARD HOOKS, IN INCHES	
	* TOP BARS	OTHERS	* TOP BARS	OTHERS
3	20	20	14	14
4	23	20	16	16
5	29	20	20	18
6	37	26	26	20
7	50	36	36	22
8	66	47	44	26
9	83	60	55	32
10	106	76	66	41
11	130	93	78	52
14	← Not Permitted →		108	79
18	← Not Permitted →		158	119

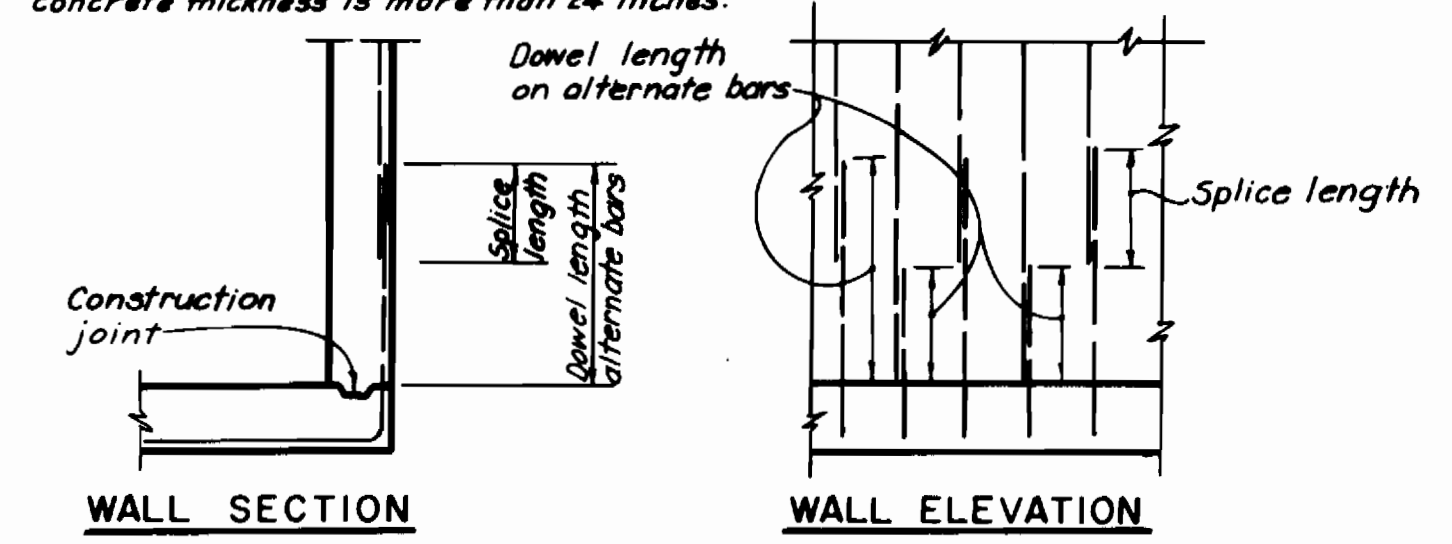
**CONCRETE COVER FOR REINFORCEMENT**

LOCATION	MINIMUM COVER
Unformed surfaces adjacent to excavation	3"
Formed or top surfaces exposed to weather or saturated air, submerged or in contact with earth	
#6 or larger bars	2"
#5 or smaller bars	1 1/2"
Other locations	
Bars in beams or girders, including stirrups and column spirals or ties	1 1/2"
Slabs, walls and joist	1 1/2"
#14 and #18	3"
#11 and smaller	2"

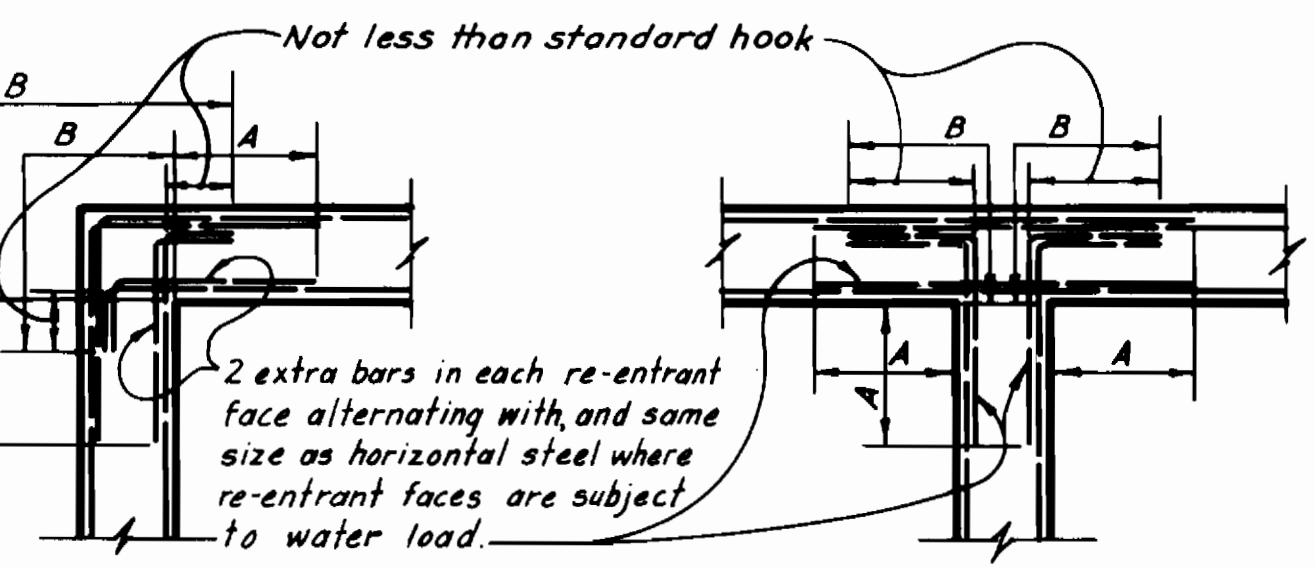
Cover for reinforcing steel shall not be less than the minimum given above (no minus tolerance), and shall not exceed the minimum by more than 1/4 inch where the concrete thickness is 24 inches or less, or more than 1/2 inch where the concrete thickness is more than 24 inches.

\* Top bars are horizontal bars so placed that more than 12" of concrete is cast in the member below the bar. Horizontal bars in walls are to be provided with laps as required for top bars.

Except as otherwise indicated on the plans, embedment lengths for end anchorage and lapped splices shall be not less than (no minus tolerance) shown above. Lapped splices shall not be made at points of maximum stress as determined by the Engineer, and shall not be spaced closer than 6 inches on centers. If splices are staggered so that no more than 1/2 are spliced in a lap splice length, the splice length can be reduced to 75% of the lengths tabulated above.



**TYPICAL WALL JOINT REINFORCING DETAILS FOR ALTERNATING DOWEL LENGTHS**



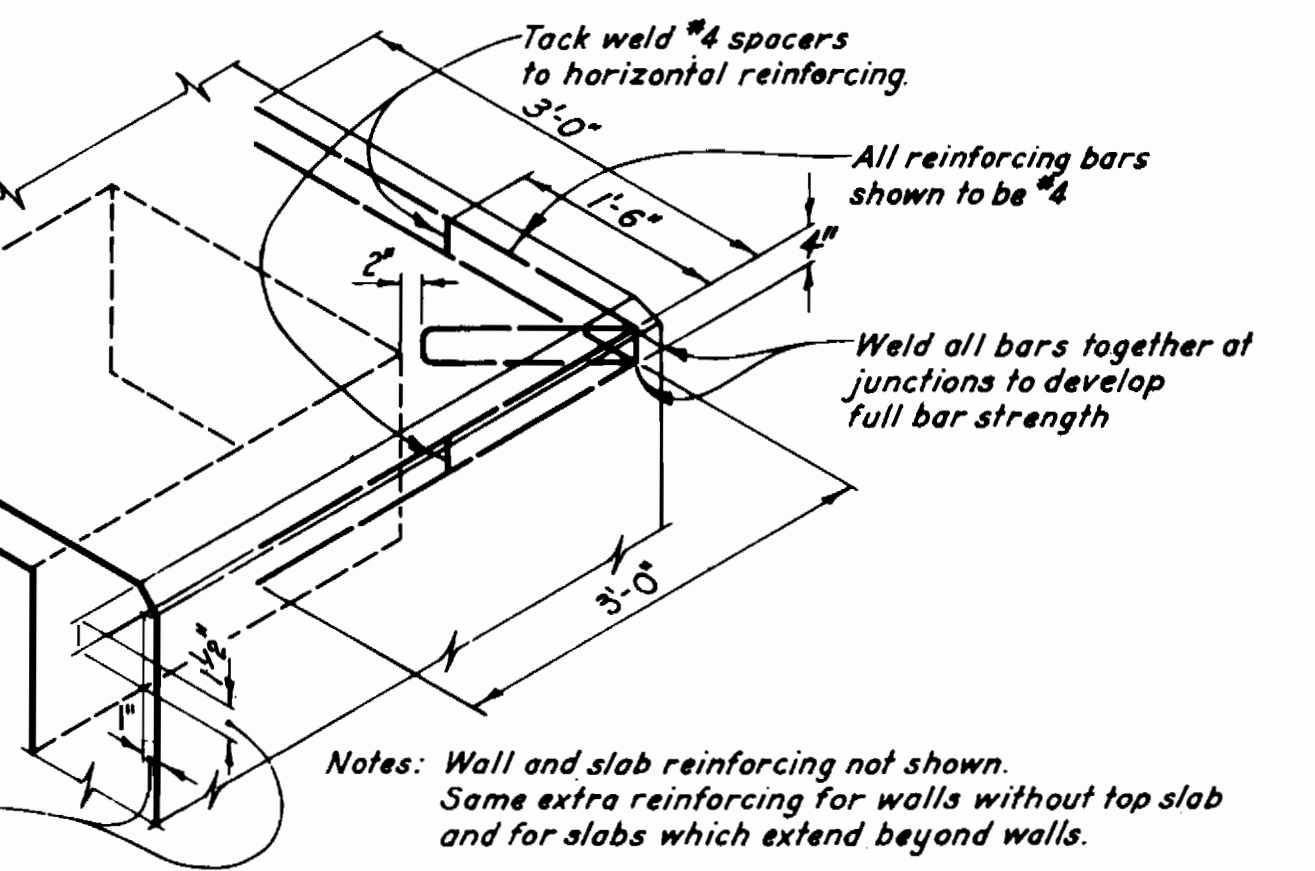
A = the clear span distance measured horizontally or O.D. the clear span or cantilever measured vertically, whichever is the smaller; but in no case less than the required length of lapped splices for top bars as shown on this sheet. The "A" dimension for one-half of the extra bars can be reduced by 30%.

Note: Vertical reinforcing not shown.

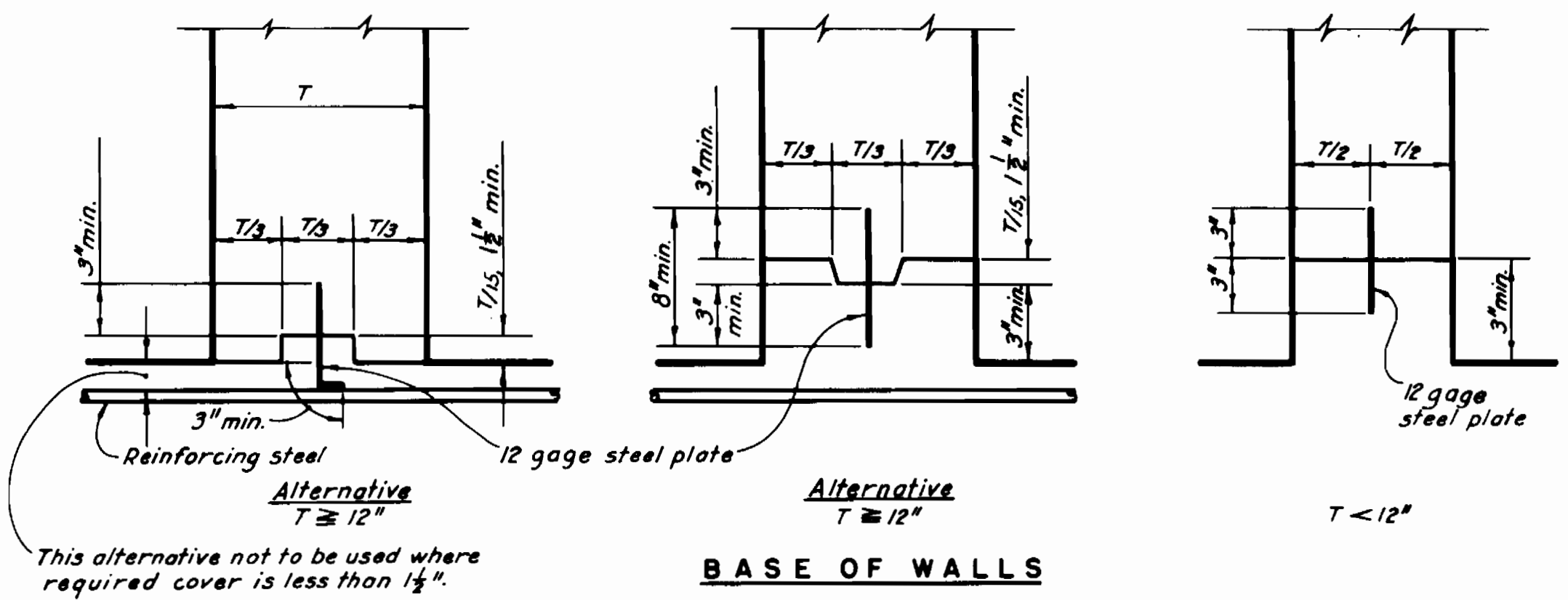
B = Sufficient length to permit bars to extend through the wall to the opposite face and terminate in a standard hook but shall not be less than the length required for embedment of top bars, as shown on this sheet.

D = not less than the length required for lapped splices for top bars, as shown on this sheet.

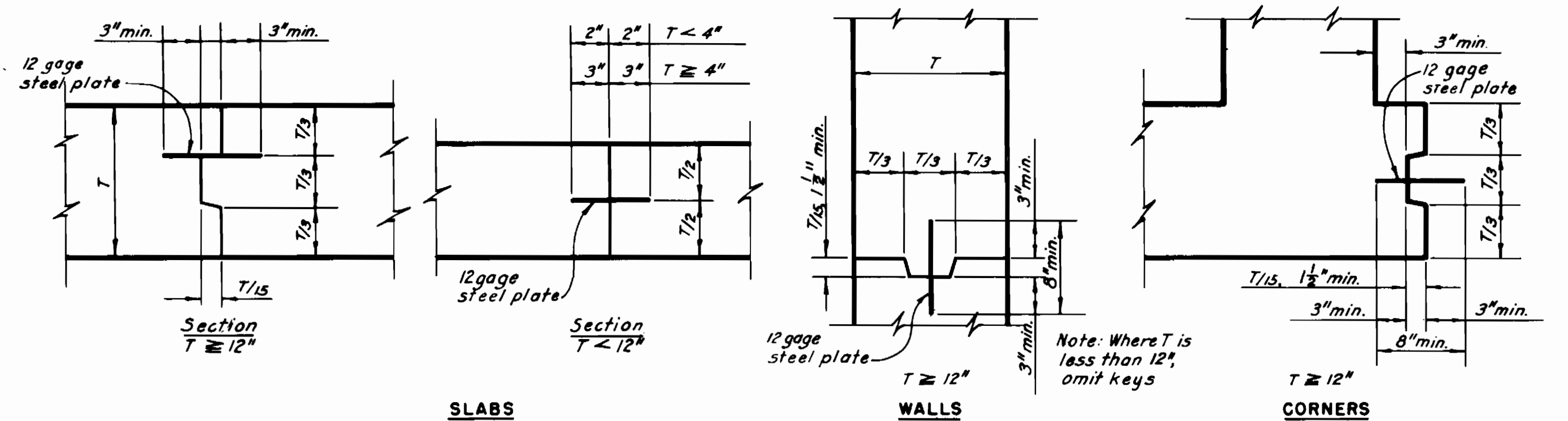
**TYPICAL CORNER REINFORCING DETAILS**



**EXTRA CORNER REINFORCING AT TOP OF WALLS AND/OR SLABS WHICH ARE TO SUPPORT MASONRY**



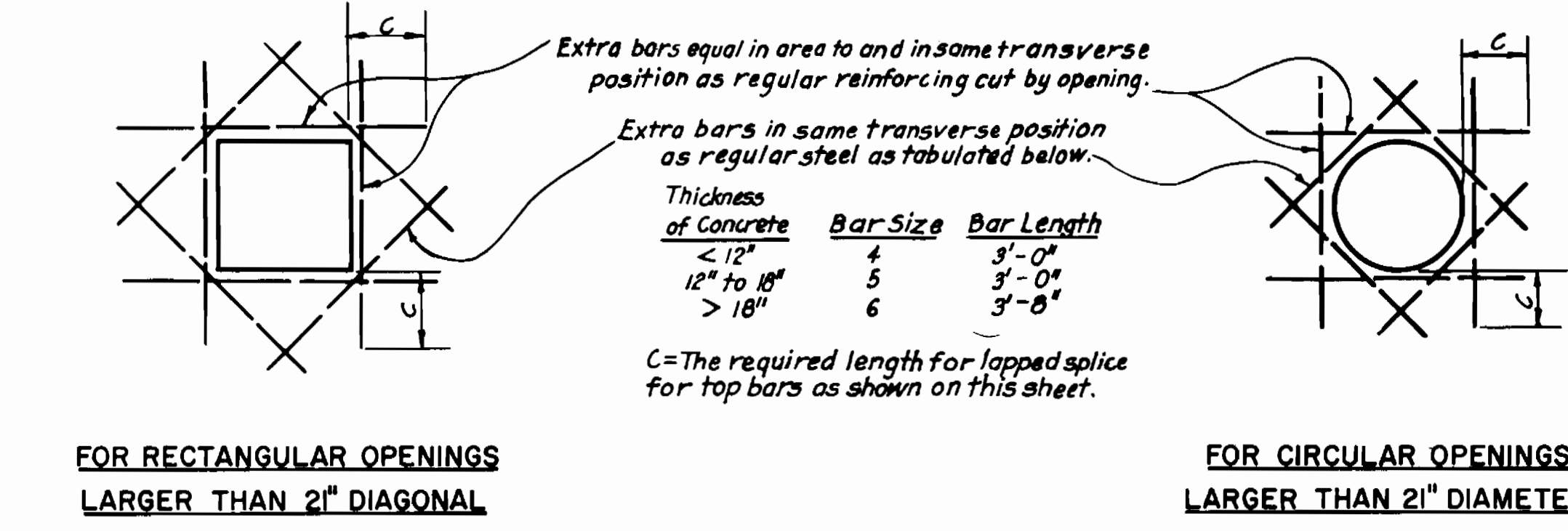
**SPACERS FOR WALL REINFORCEMENT**



**WATERTIGHT JOINTS**

**TYPICAL CONSTRUCTION JOINTS**

Note: Reinforcing steel is to be carried across all construction joints.

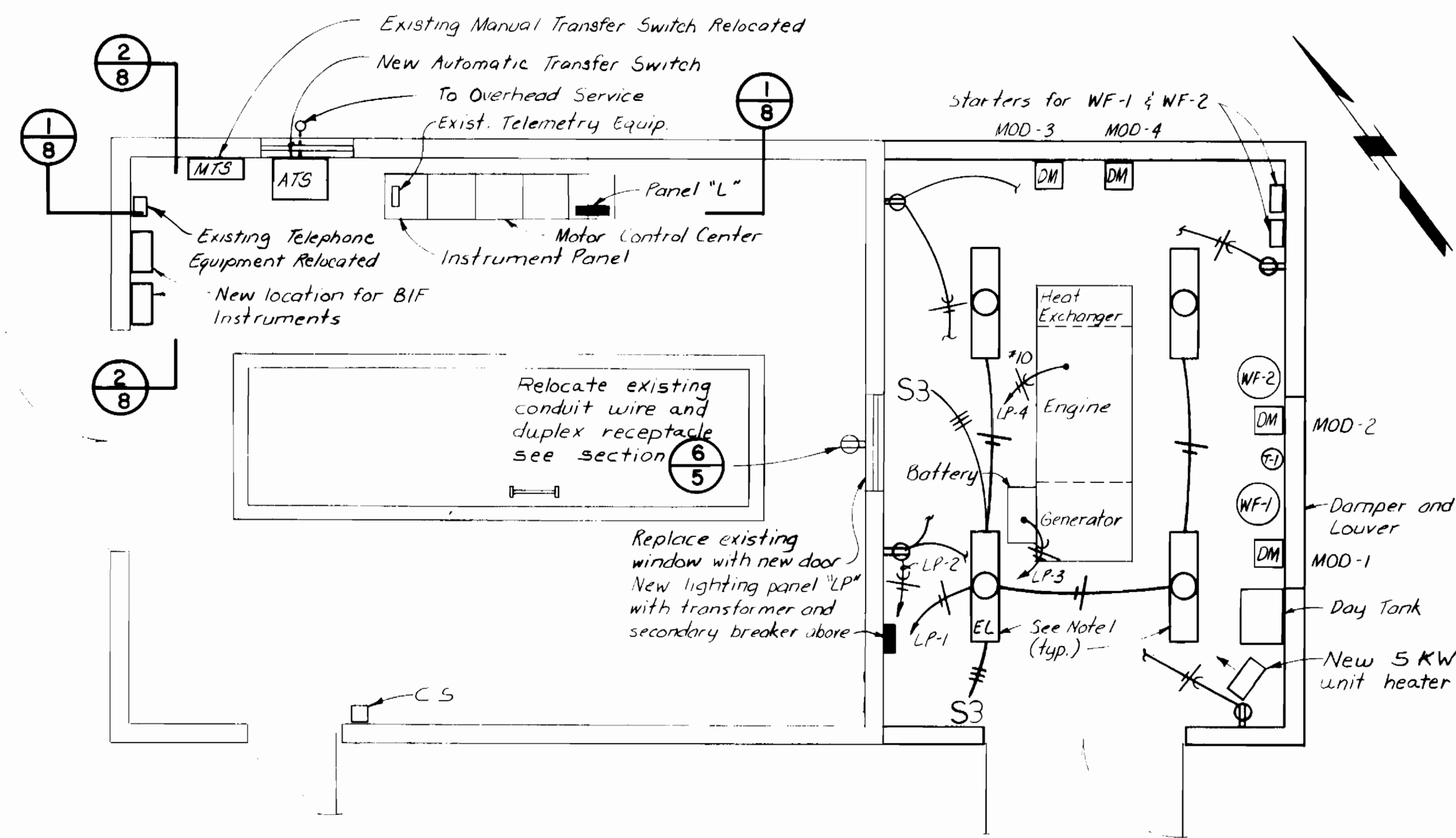


**TYPICAL EXTRA REINFORCING AT OPENINGS**

Thickness of Concrete	Bar Size	Bar Length
< 12"	4	3'-0"
12" to 18"	5	3'-0"
> 18"	6	3'-8"

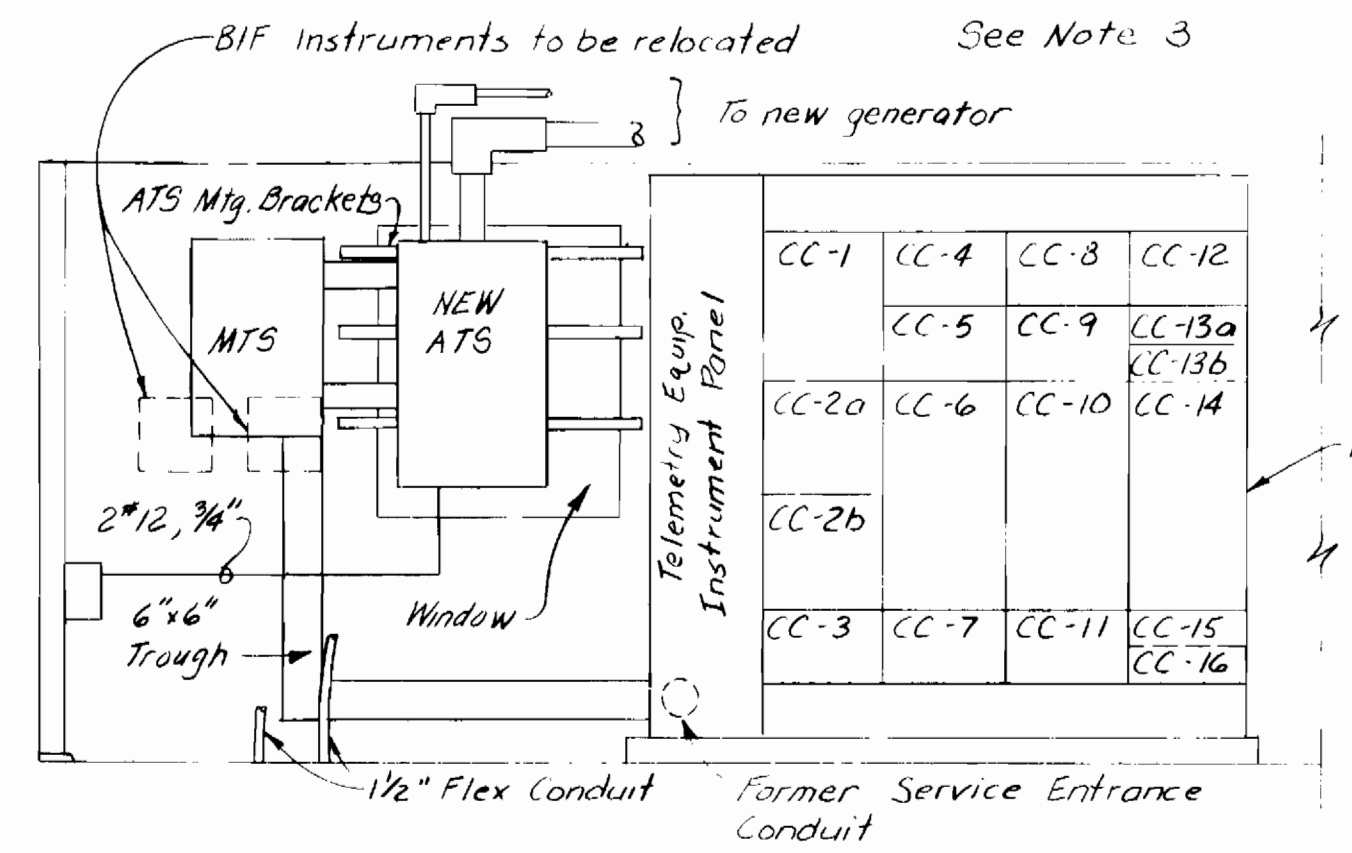
C = The required length for lapped splice for top bars as shown on this sheet.

**GENERAL NOTE:**  
Details on this sheet apply to the entire set of plans except where specifically shown otherwise.

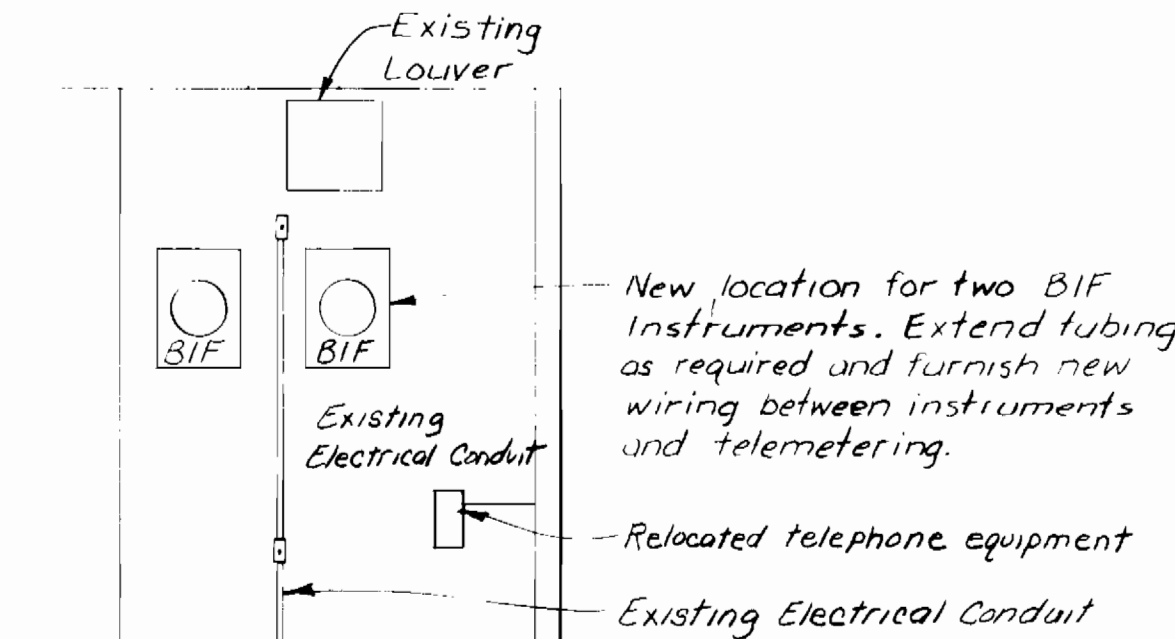


**MONTGOMERY ROAD PUMP STATION  
OPERATING FLOOR PLAN**

1/4" = 1'-0"



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

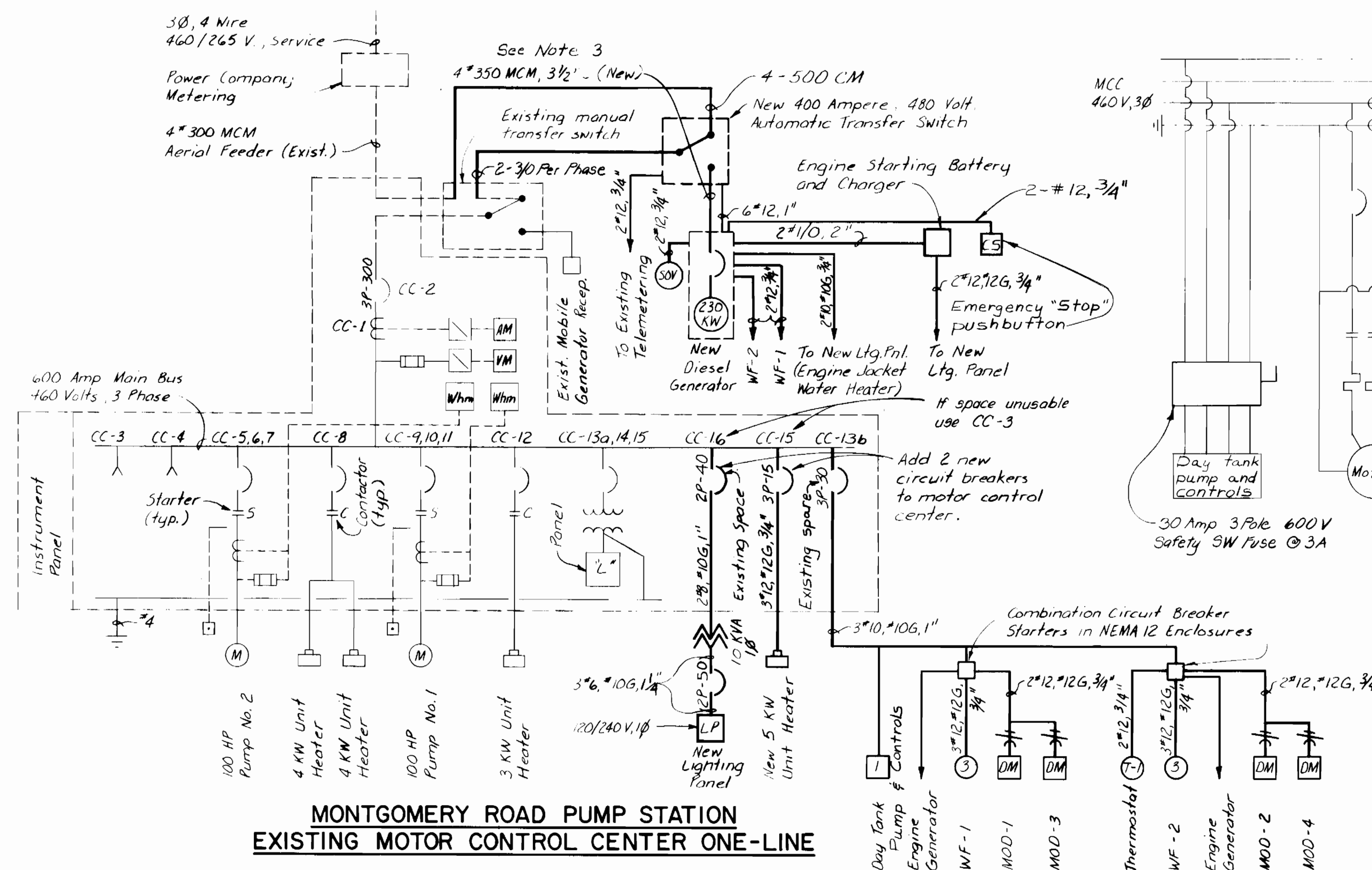


**SECTION 2**  
3/8" = 1'-0"

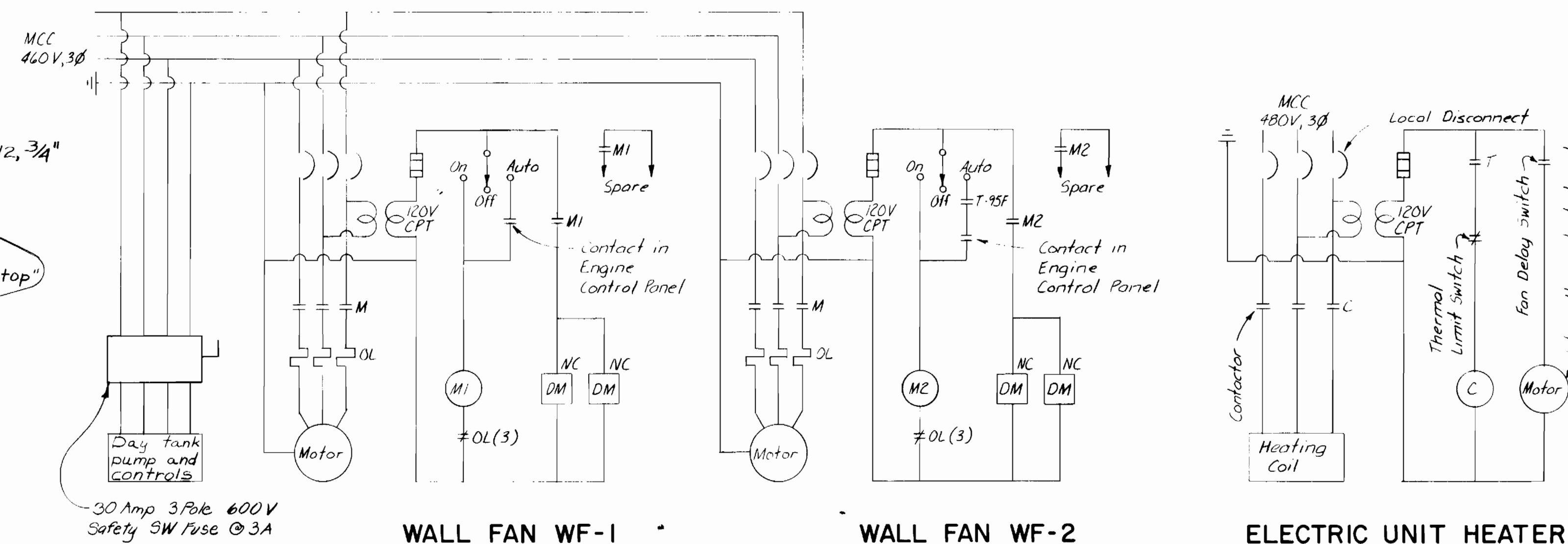
**Notes:**

- Lighting fixtures will be 2 lamp vapor-tight fluorescent fixtures, Lithonia DL240AR with 2-F40CW Rapid start lamps and low temperature ballasts. Provide fixture marked "EL" with emergency battery pack. Mounting height, 8'-6".
- Spare contacts shall be provided in the Automatic Transfer switch for generator running and/or trouble alarms to be telemetered to Bureau of Utilities Office.
- See approved service entrance cabinet brochures for revised service equipment.

NEW PANEL SCHEDULE "LP"									
120/240V, 1 PHASE, S/N, 50A MCB									
LOAD	WATTS	P	BKR.	CKT. NO.	BKR.	P	WATTS	LOAD	
Lighting, Generator Room	400	1	15	1	2	15	1	720	Receptacles, Generator Room
Engine Battery Charger	200	1	15	3	4	30	1	2500	Engine Jacket Water Heater
Spare		1	15	5	6	30	1		Spare
Spare		1	20	7	8	20	1		Spare
Spare		1	20	9	10	20	1		Spare
Space				11	12				Space



**MONTGOMERY ROAD PUMP STATION  
EXISTING MOTOR CONTROL CENTER ONE-LINE**



**WALL FAN WF-1**

**WALL FAN WF-2**

**ELECTRIC UNIT HEATER**

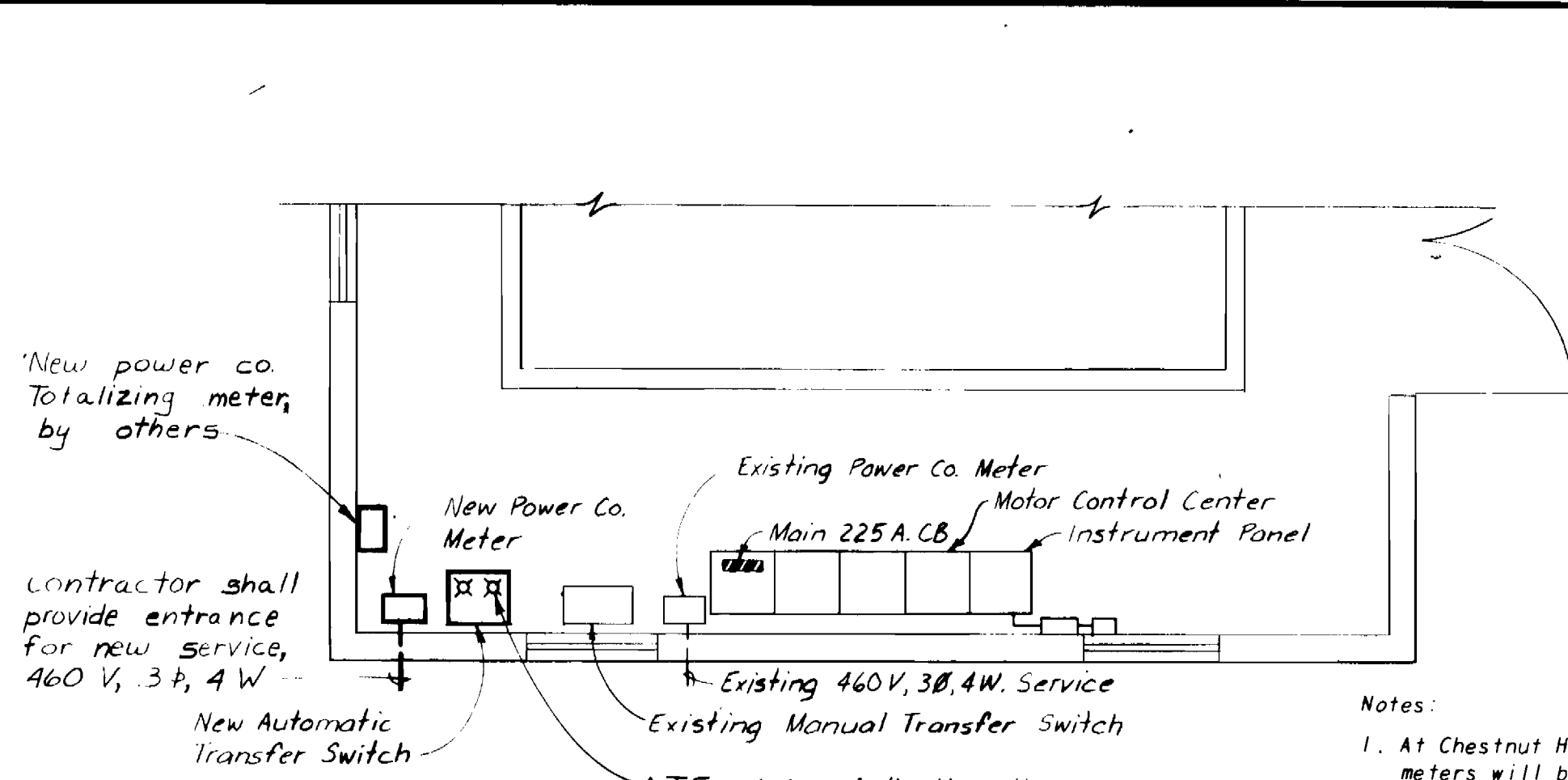


Contract No. 44-1052  
Capital Project S-6113-W  
Water Pump Station Auxiliary Power  
Howard County, MD

<b>DEPARTMENT OF PUBLIC WORKS</b> HOWARD COUNTY, MARYLAND Director of Public Works: <i>Frank F. Neman</i> 6-12-82 Chief - Bureau of Engineering: <i>Allen J. Brown</i> 6/15/82 Chief - Bureau of Utilities: <i>Allen J. Brown</i> 6/15/82		2-1-84 CONFORMED TO CONSTRUCTION RECORDS	<b>Black &amp; Veatch</b> Engineers - Architects Bethesda, Maryland	PROJECT NO. S-6113-W CONTRACT NO. 44-1052	<b>MONTGOMERY ROAD PUMPING STATION</b> ELECTRICAL PLANS AND SCHEMATICS	<b>WATER PUMPING STATION AUXILIARY POWER</b> ELLICOTT CITY SUB-DISTRICT	DRAWING NO. 8 OF 9	SCALE AS SHOWN
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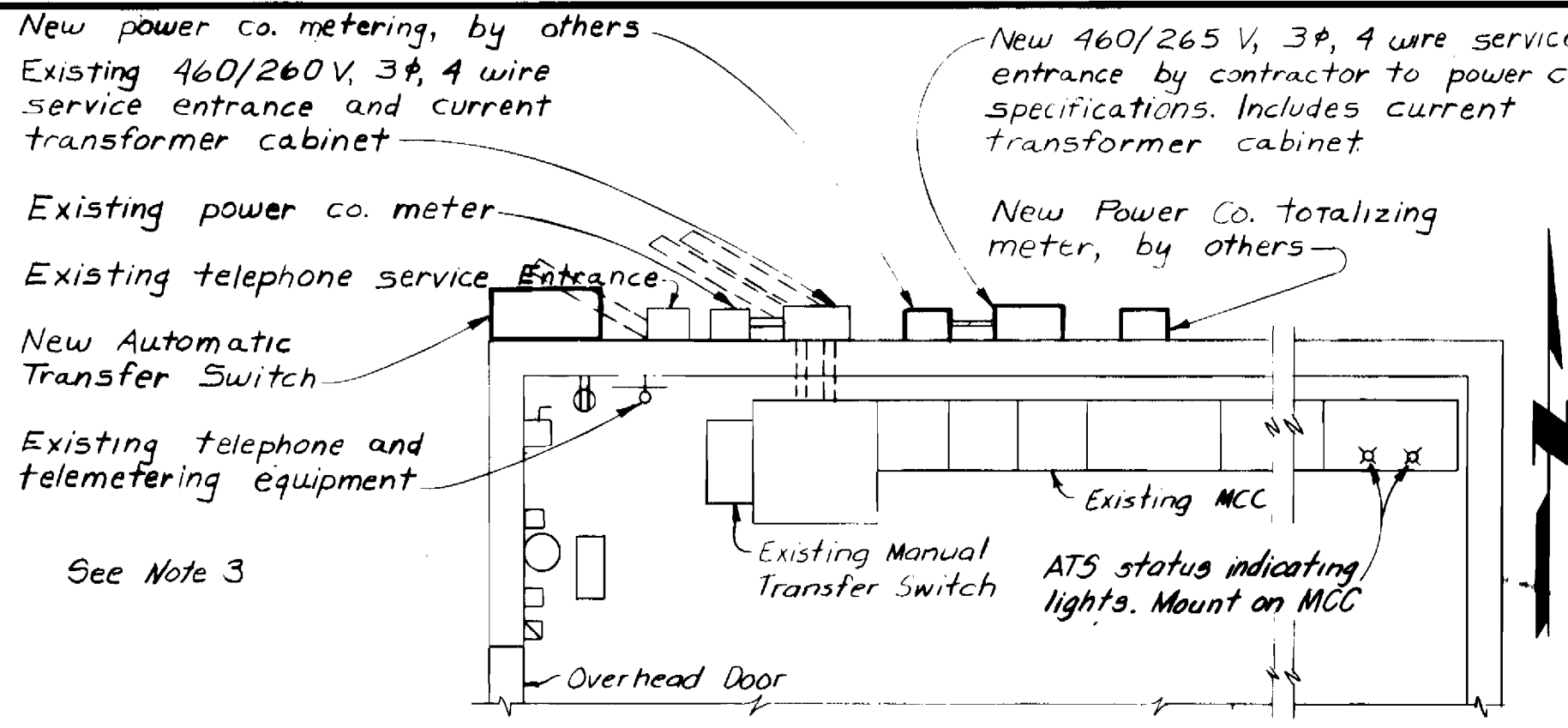
ABSLT 2-84 07/15/82



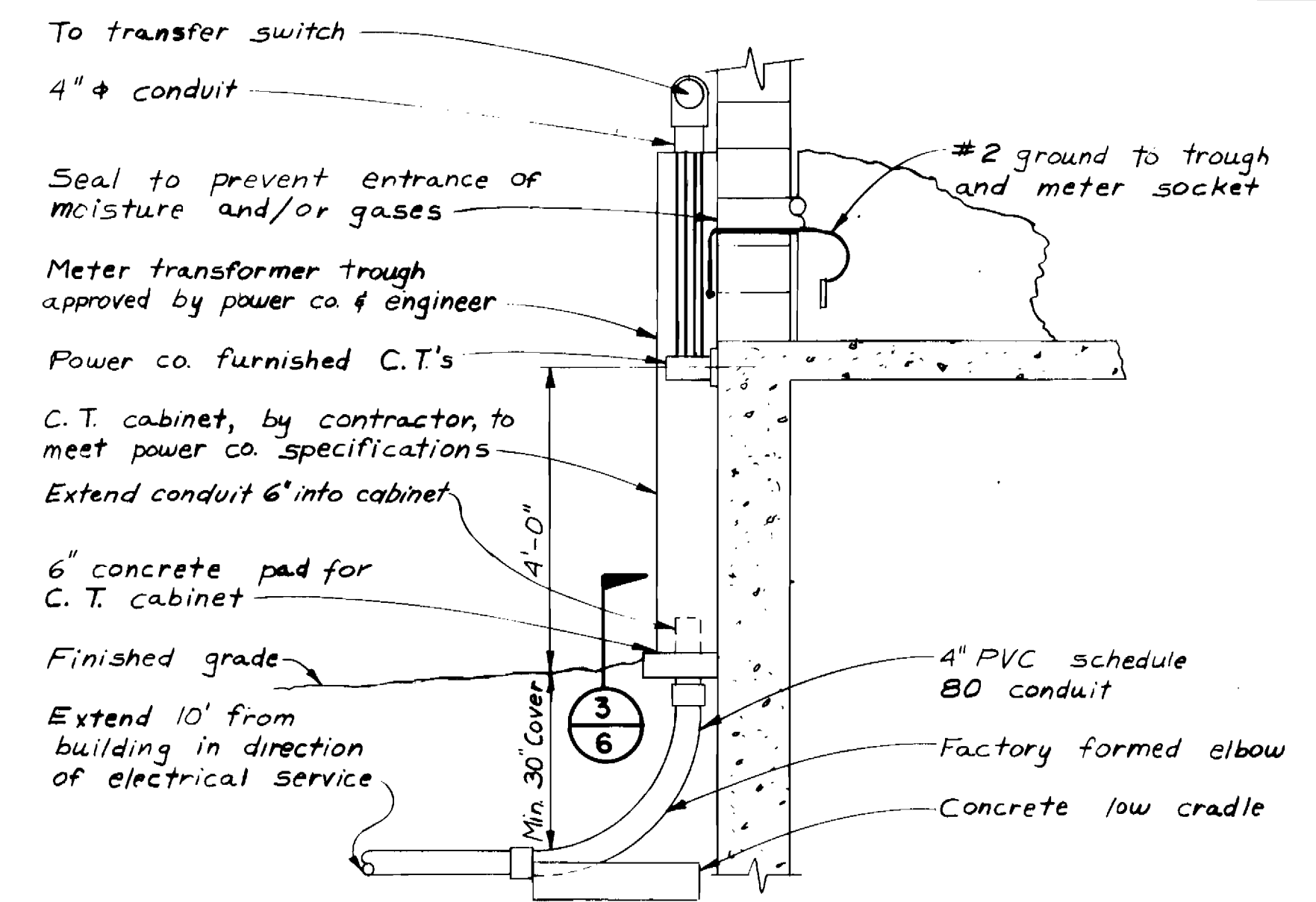


**CHESTNUT HILLS PUMP STATION  
OPERATING FLOOR PARTIAL PLAN**  
1/4" = 1'-0"

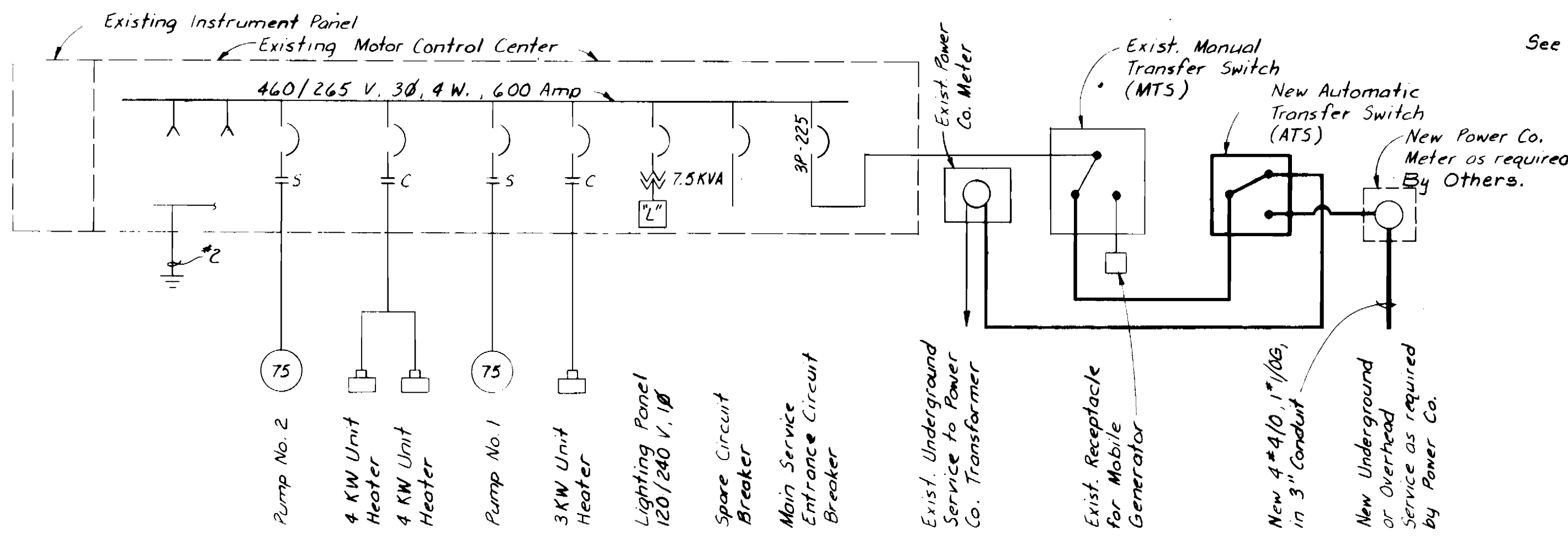
- Notes:
- At Chestnut Hills Pump Station, the new power co. meters will be furnished and installed by others, including electrical connections. The Contractor shall provide a sleeve through the station wall, conduit to the new meters, and all other work as shown.
  - At Columbia Pump Station, the new power co. meters will be furnished and installed by others, including electrical connections. The Contractor is to provide the new current transformer cabinet, sleeve through the wall, and all other work as shown.
  - See approved service entrance cabinet brochures for revised service equipment.



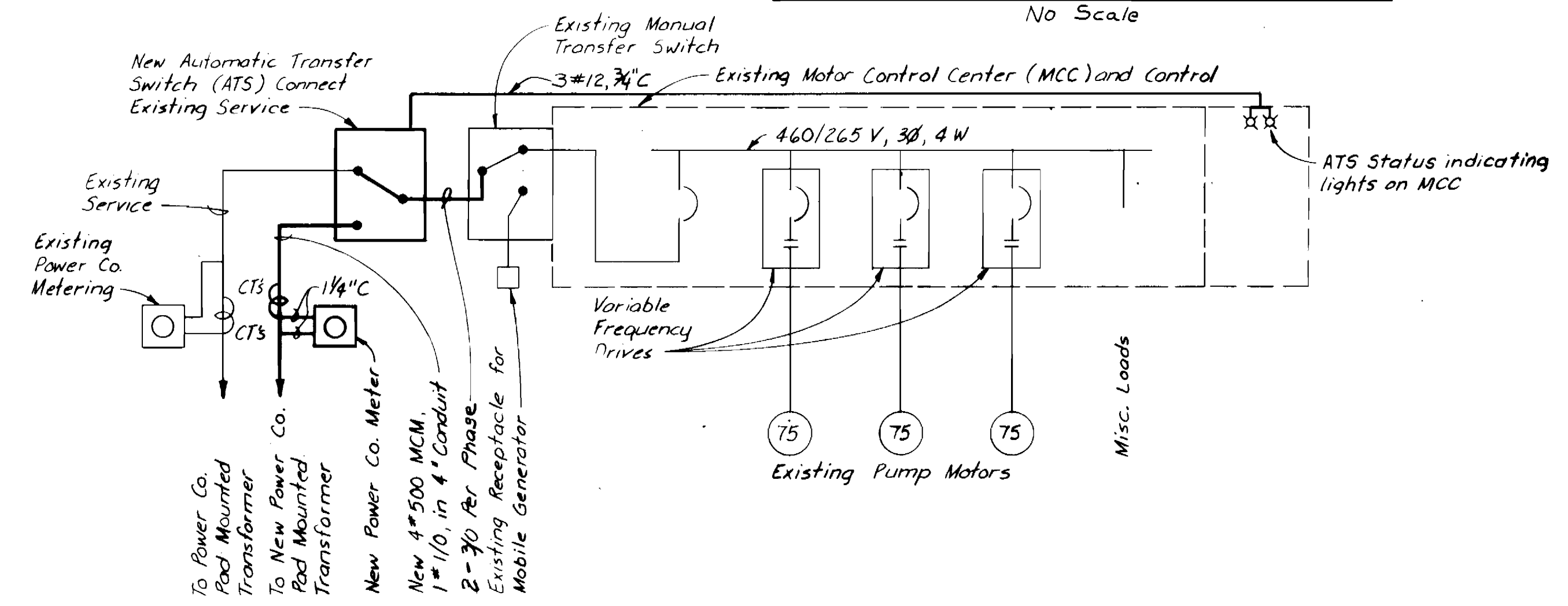
**COLUMBIA WATER PUMP STATION  
OPERATING FLOOR PARTIAL PLAN**  
1/4" = 1'-0"



**TYPICAL C.T. CABINET INSTALLATION**  
No Scale



**CHESTNUT HILLS PUMP STATION POWER ONE-LINE**  
Note: New wiring shown above is functional and may be located in the field to suit existing conditions.



**COLUMBIA WATER PUMP STATION POWER ONE-LINE**  
Note: Wiring shown above is functional, new wiring and new ATS shall be located on the outside building wall. New meter and C.T. cabinet shall be located adjacent to existing meter, outside the building. New C.T. cabinet to be furnished by the contractor. Cabinet and installation shall meet all requirements of Baltimore Gas and Electric Company.

**ELECTRICAL LEGEND**

	Conduit exposed
	Conduit turning up. Conduit turning down
	Short dash for each phase conductor. Long dash for neutral conductor. Circular dash for ground wire. Min. size 12 AWG except as otherwise noted.
	Typical for home run to be routed to lighting panel LP and connected to circuit #5.
	New Fluorescent Lighting fixture
	Existing Incandescent Lighting fixture
<b>Surface Mounting</b>	
	Single Pole Switch
	Three-way Switch
	Weatherproof Switch
	Duplex Receptacle, 120 Volt

**ONE-LINE DIAGRAM LEGEND**

	4Ø 8, 10Ø, 2"	4Ø insulated conductors, 1Ø10 ground wire all in 2" conduit to 20 HP motor. Loads as indicated in HP or KW are expected, but may vary with the equipment furnished. If equipment has larger load the cable, conduit, and electrical equipment shall be enlarged as required.
	3P-20	Low Voltage Air Circuit Breaker, 3 pole, 20 ampere.
	S	Circuit Breaker combination magnetic Motor Starter. (C = Contactor)
	New	
	Existing	

**ELECTRICAL ABBREVIATIONS**

A	Ammeter, Amber Pilot Light	M	Motor Starter Contactor
ATS	Automatic Transfer Switch	MCC	Motor Control Center
C	Contactor, Conduit	MTS	Manual Transfer Switch
CPT	Control Power Transformer	T	Thermostat
CS	Control Switch, Control Station	TTB	Telephone Terminal Box
DM	Damper Motor	UH-1	Unit Heater No. 1
EF	Exhaust Fan	WP	Weatherproof
G	Green Pilot Light	X	Auxiliary Relay
LP	Lighting Panel	OL	Overload Relay
		R	Red Pilot Light

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

May F. N... 6-17-84  
DIRECTOR OF PUBLIC WORKS - DATE

Robert M. Be... 6-29-82  
CHIEF - BUREAU OF UTILITIES - DATE

2-1-84 CONFORMED TO CONSTRUCTION RECORDS

**Black & Veatch**  
Engineers - Architects  
Bethesda, Maryland

PROJECT NO. S-6113-W  
CONTRACT NO. 44-1052

CHESTNUT HILLS AND  
COLUMBIA PUMP STATIONS  
ELECTRICAL PLANS  
AND SCHEMATICS

WATER PUMPING STATION AUXILIARY POWER  
ELLCOTT CITY SUB-DISTRICT

DRAWING NO. 9 OF 9  
SCALE AS SHOWN

Contract No. 44-1052  
Capital Project S-6113-W  
Water Pump Station Auxiliary Power  
Howard County, MD



AS BUILT 2-84 07/15/82