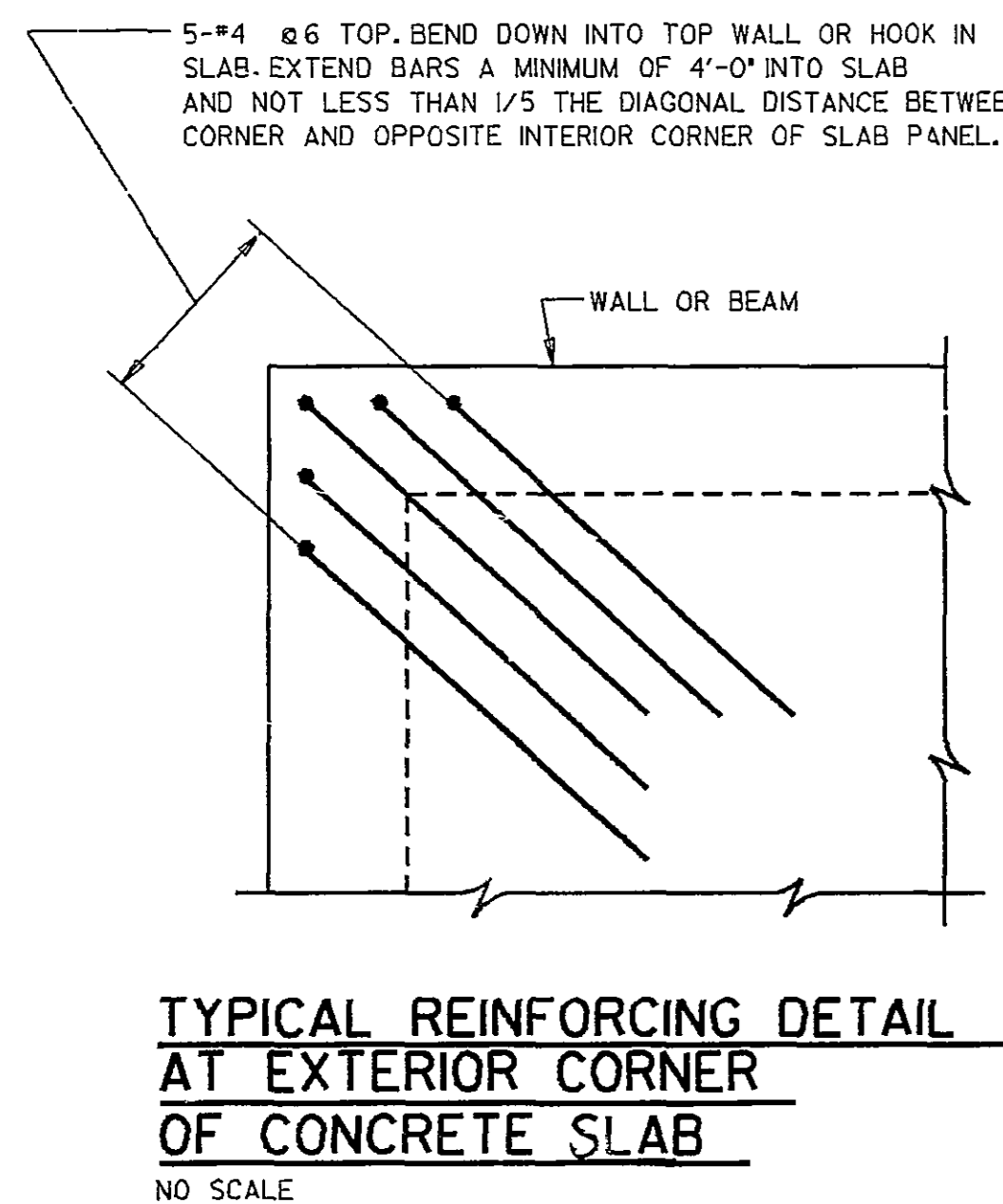
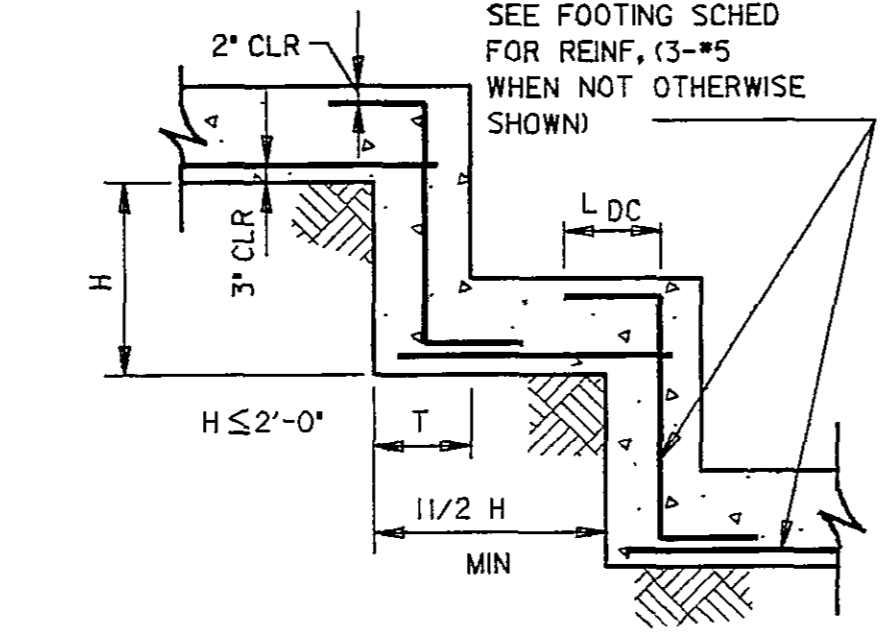


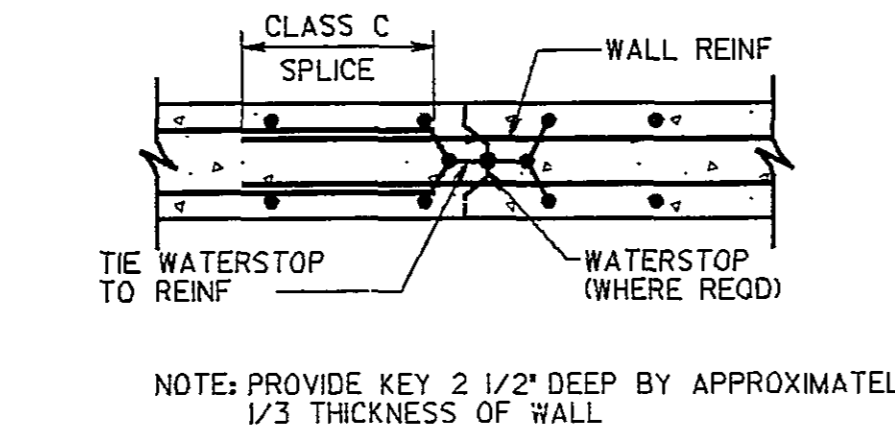
TYPICAL REINFC AT OPENINGS IN CONCRETE WALLS
NO SCALE



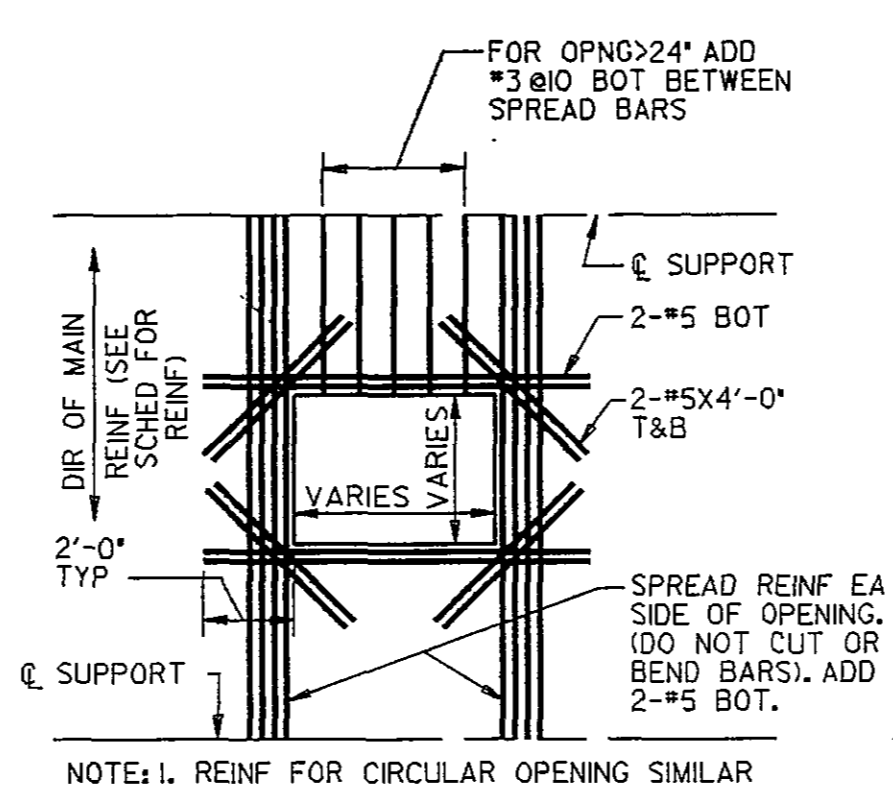
TYPICAL REINFORCING DETAIL AT EXTERIOR CORNER OF CONCRETE SLAB
NO SCALE



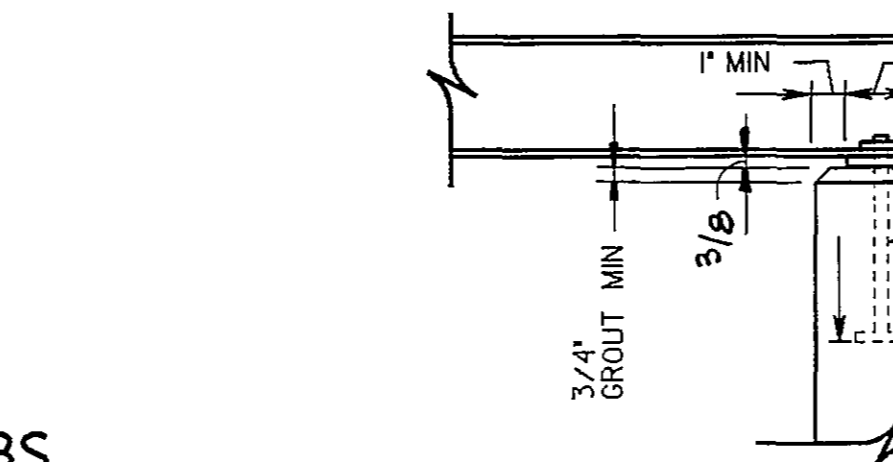
TYPICAL FOOTING STEP
NO SCALE



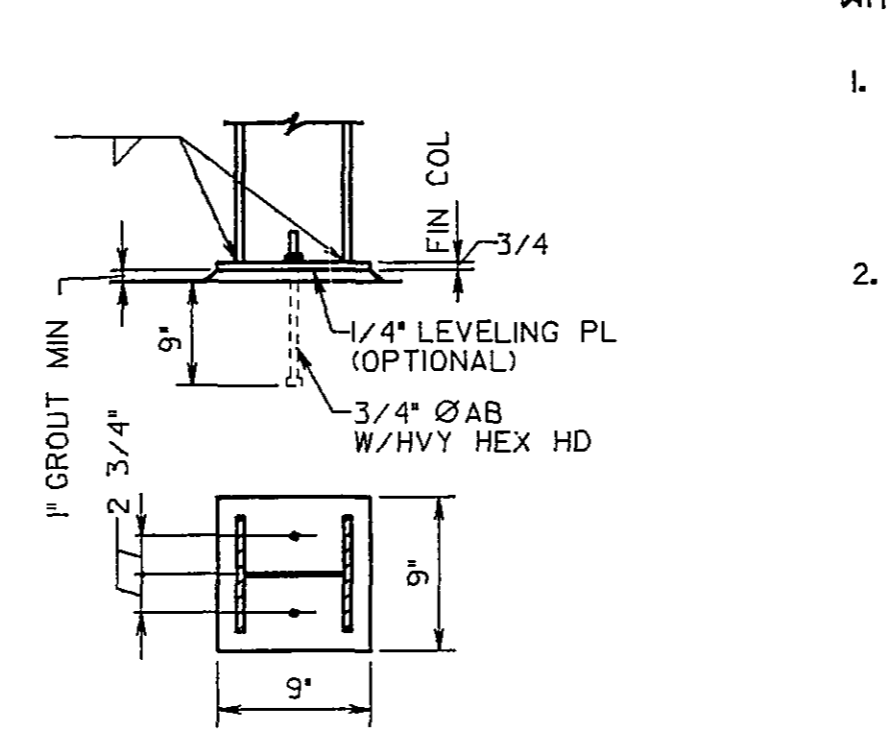
CONC WALL/FOUNDATION SLABS CONSTRUCTION JT
NO SCALE



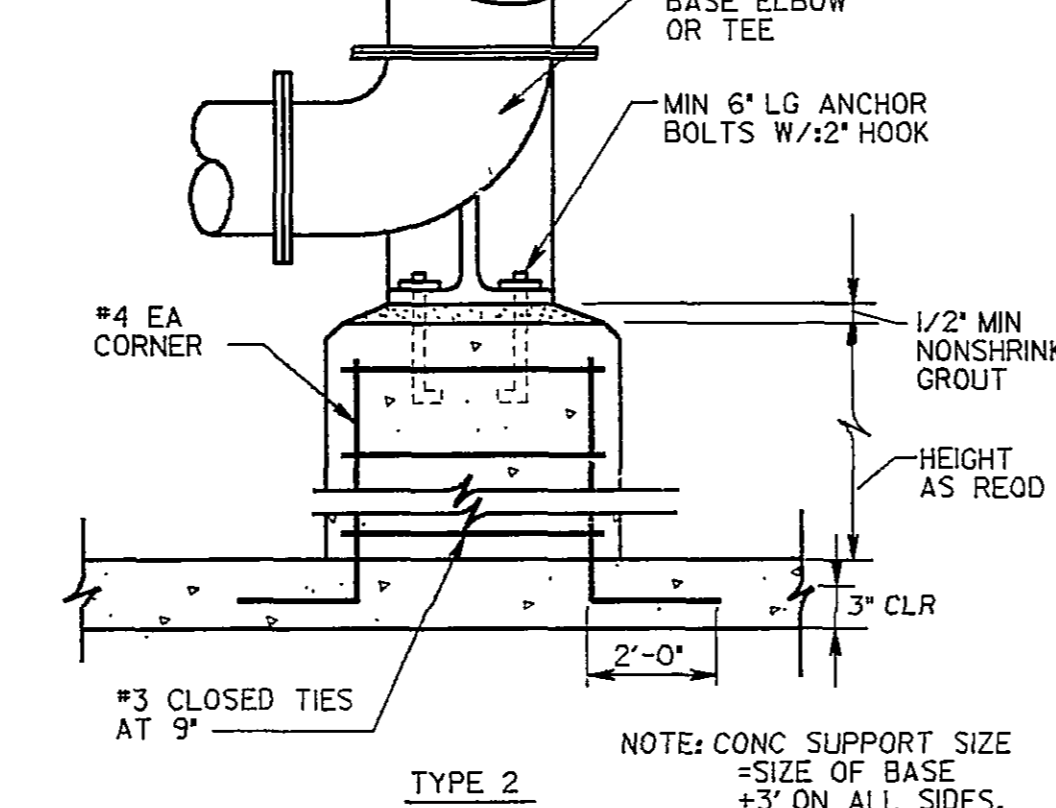
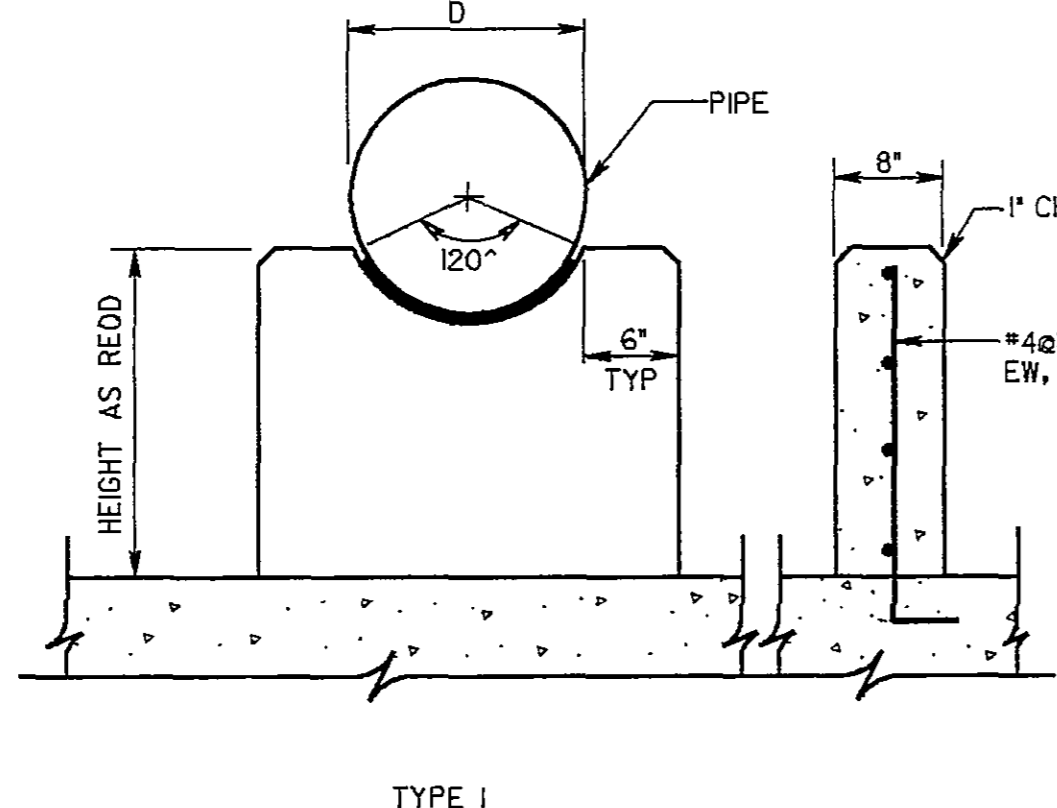
REINFC AT OPENING IN SLAB
NO SCALE



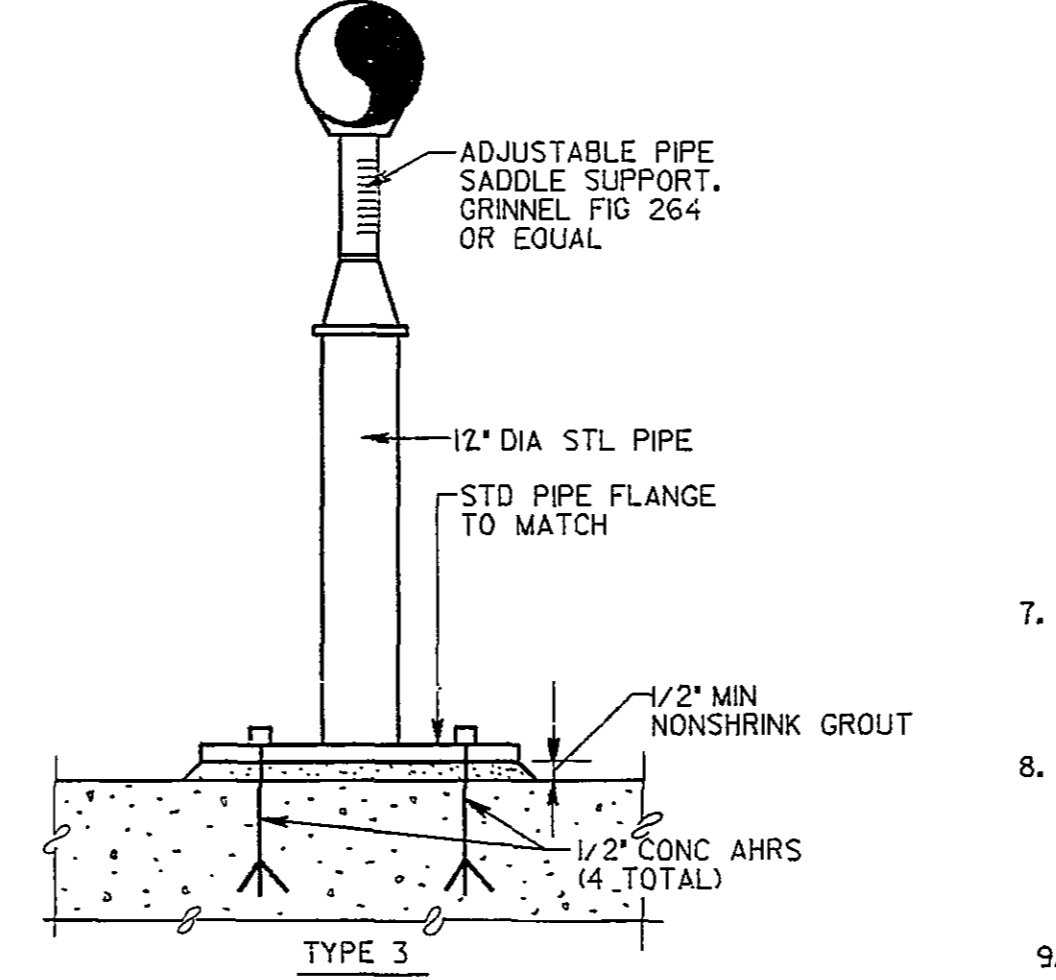
TYP BEAM BEARING DETAIL
NO SCALE



STEEL COLUMN BASE PLATE DETAIL
NO SCALE



TYPICAL PIPE SUPPORT DETAILS
NO SCALE



STRUCTURAL GENERAL NOTES FOR INTAKE/PUMPING STATION, RESERVOIR WITHDRAWAL TOWER, AND GATE HOUSE/ENERGY DISSIPATOR

- CLASSIFICATION OF CONSTRUCTION FOR INTAKE/PUMPING STATION SHALL BE - TYPE - 5A PROTECTED NONCOMBUSTIBLE, IN ACCORDANCE WITH THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE (SECTION 401.0/BOCA 1987).
- DESIGN LIVE LOADS

| | |
|---------------------------|------------|
| A. INTAKE/PUMPING STATION | 30 psf MIN |
| ROOF | 300 psf |
| MOTOR RM FLOOR | 300 psf |
| PIPING RM FLOOR | 300 psf |
| LOADING DOCK | 300 psf |
| STAIRS AND CATWALKS | 100 psf |

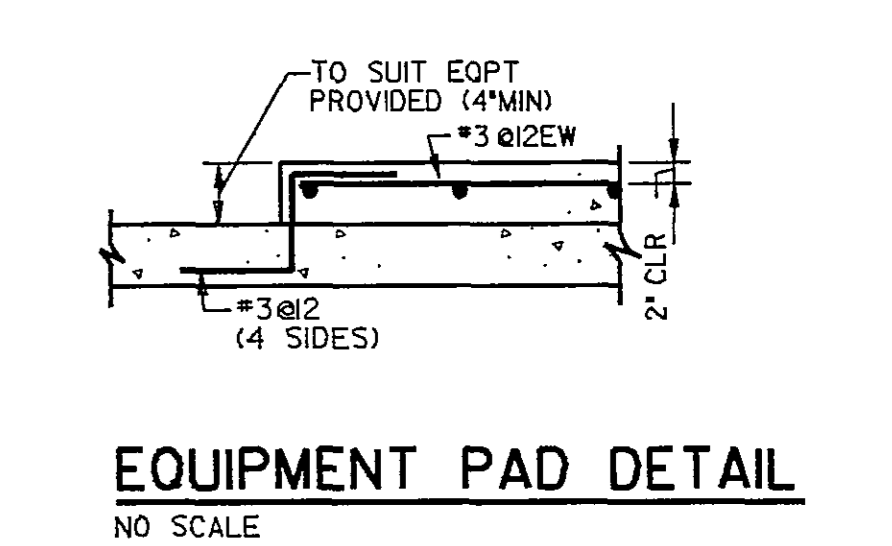
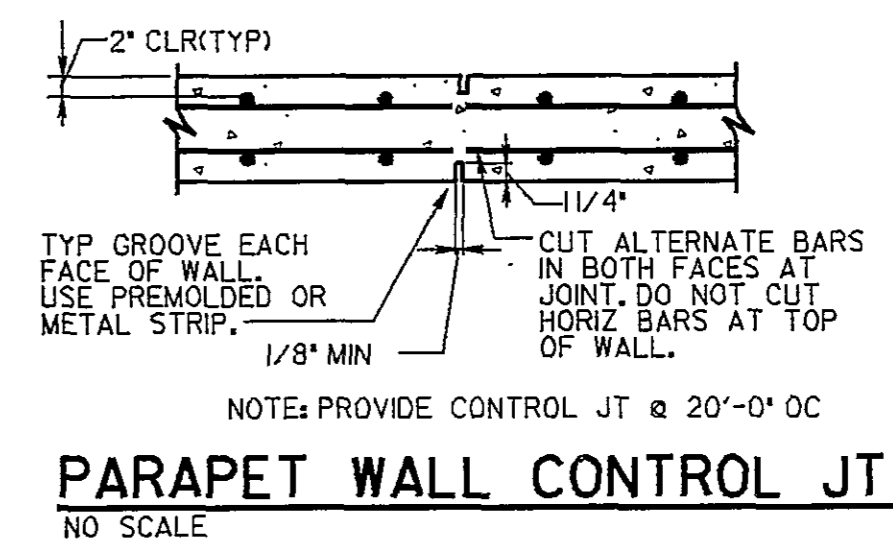
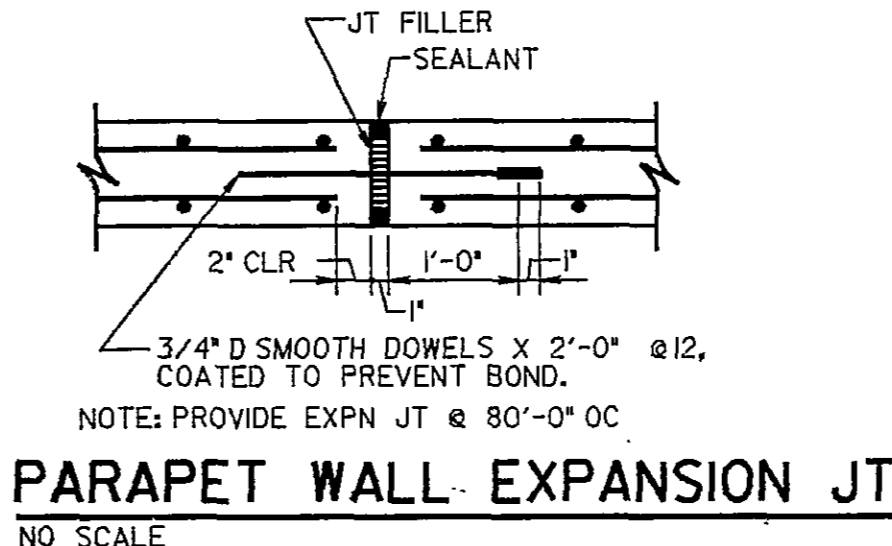
OR EQUIPMENT LOADS IF GREATER
- DESIGN OF THE STL ROOF DECK FOR INTAKE/PUMPING STATION SHALL BE BASED ON A MINIMUM SUPERIMPOSED DEAD LOAD OF 15 PSF, ROOF DECK SHALL BE 1-1/2 INCH DEEP, TYPE B, 20 GA. MIN.
- WIND LOADS FOR INTAKE/PUMPING STATION AND RESERVOIR WITHDRAWAL TOWER ARE BASED ON A BASIC WIND SPEED OF 70 MPH, EXPOSURE B, IN ACCORDANCE WITH THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE (SECTION 112.0/BOCA 1987).
- SEISMIC DATA FOR INTAKE/PUMPING STATION AND RESERVOIR WITHDRAWAL TOWER IN ACCORDANCE WITH THE VIRGINIA UNIFORM STATEWIDE BLDG CODE (SECTION 113.0 BOCA 1987)
- SHEAR WALL
ZONE: 2; Z = 9/32; K = 1.33; CS = 0.14
- MATERIALS
CONCRETE: ALL CONCRETE FOR INTAKE PUMPING STATION, RESERVOIR WITHDRAWAL TOWER AND GATE HOUSE/ENERGY DISSIPATOR SHALL BE CLASS A
STRUCTURAL STEEL
ASTM A 36
FY = 4000 PSI
FY = 36 KSI
STRUCTURAL TUBING
ASTM A 500
FY = 39 KSI
FOUNDATION BEARING CAPACITY
INTAKE/PUMPING STATION
10 TSF
RESERVOIR WITHDRAWAL TOWER
20 TSF
GATE HOUSE/ENERGY DISSIPATOR
10 TSF
- NO FOUNDATION CONCRETE SHALL BE INSTALLED UNTIL ALL FOUNDATION WORK HAS BEEN COORDINATED WITH UNDERGROUND UTILITIES. FOOTINGS SHALL BE LOWERED WHERE REQUIRED TO AVOID UTILITIES.
- TO MINIMIZE WEATHERING, THE LAST 6 INCHES OF EXCAVATION FOR ALL FOOTINGS SHALL BE MADE IMMEDIATELY PRIOR TO PLACEMENT OF FOOTINGS.
- ALL REINFORCEMENT SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI 318-80/88 UNLESS OTHERWISE SHOWN. MINIMUM SPLICE LENGTHS AND EMBEDMENT LENGTHS SHALL BE AS TABULATED THEREIN. ALL SPLICES ARE TENSION SPLICES UNLESS OTHERWISE INDICATED.
- UNLESS OTHERWISE SHOWN, REINFORCEMENT AT WALL CORNERS AND INTERSECTIONS SHALL BE DETAILED AS SHOWN ON FIGURE 11.0 OF ACI 318-80/88. CORNER REINFORCEMENT SHALL BE DETAILED AS SHOWN FOR INSIDE OR OUTSIDE LOADED CORNERS. INTERSECTIONS SHALL BE DETAILED WITH DIAGONAL REINFORCEMENT WHERE INDICATED. ALL LAP SPLICES SHALL BE CLASS C.
- MAJOR CONSTRUCTION JOINTS ARE SHOWN ON THE DRAWINGS. INTERMEDIATE JOINTS IN WALLS, SLABS, AND FLOOR FRAMING ARE NOT SHOWN. CONSTRUCTION JOINTS MAY BE ADDED, OMITTED OR RELOCATED IF PROPERLY DETAILED ON SHOP DRAWINGS AND APPROVED BY THE ARCHITECT-ENGINEER.
- CONTINUOUS REINFORCING IN WALLS AND SLABS MAY BE SPICED, AS REQUIRED, PROVIDING BARS ARE OF THE LONGEST PRACTICABLE LENGTH AND ALL SPLICES ARE SHOWN ON REINFORCING SHOP DRAWINGS. WHEREVER POSSIBLE, SPLICES SHALL BE STAGGERED. FIELD CUTTING OF REINFORCEMENT WILL NOT BE PERMITTED.

- UNLESS OTHERWISE NOTED, PROVIDE CONCRETE PROTECTION FOR ALL REINFORCING IN ACCORDANCE WITH PARAGRAPH 7.7 OF BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-89). PROVIDE 2 INCH MIN CLEAR FOR ALL WALLS AND BASE SLABS SUBJECT TO HYDROSTATIC CONDITIONS.
- PROVIDE DOWELS TO MATCH REINFORCEMENT IN ALL FOOTINGS, WALLS, SLABS, BEAMS, COLUMNS AND PIERS.
- REINFORCE ALL CAST-IN-PLACE WALLS NOT OTHERWISE SHOWN AS FOLLOWS:

| | |
|----|--------------------|
| 6" | #4 @ 12 EW, MIDDLE |
| 8" | #5 @ 12 EW, MIDDLE |

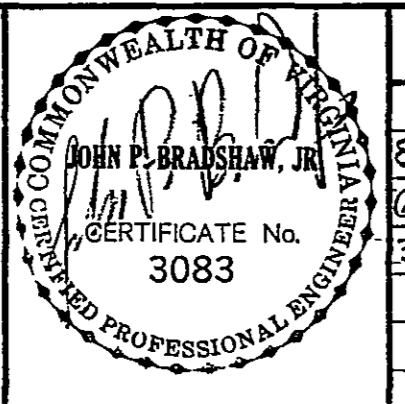
ADD 2-#5 CONTINUOUS AT THE TOP OF ALL WALLS.
- SEE ARCHITECTURAL AND CIVIL DRAWINGS FOR LOCATIONS OF OPENINGS AND SLEEVES. SPREAD REINFORCEMENT AT OPENINGS AND SLEEVES UNLESS OTHERWISE SHOWN. DO NOT CUT REINFORCEMENT.
- SLABS AND BEAMS SHALL BE CAST MONOLITHICALLY EXCEPT WHERE OTHERWISE SHOWN.
- PROVIDE ADEQUATE INSPECTION PANELS IN WALL FORMING TO FACILITATE CONCRETE PLACEMENT, TO ENSURE THAT ADEQUATE COMPACTION IS OBTAINED AND NO VOIDS OCCUR.
- WALLS SHALL BE CAST IN ALTERNATE PANELS NOT TO EXCEED 30 FEET IN LENGTH.
- CONCRETE WALLS SHALL BE TEMPORARILY BRACED AGAINST EARTH PRESSURE AND OTHER FORCES UNTIL FLOOR SLABS ARE IN PLACE AND HAVE ATTAINED REQUIRED STRENGTHS.
- WATERSTOPS SHALL BE PROVIDED AS FOLLOWS

| | |
|------------------------------|---|
| INTAKE/PUMPING STATION | ALL CONSTRUCTION JOINTS BELOW EL. 1170.0, EXCEPT JOINTS IN SCREEN THROUGH WALL |
| RESERVOIR WITHDRAWAL TOWER | ALL CONSTRUCTION JOINTS BELOW EL. 1410.0 |
| GATE HOUSE/ENERGY DISSIPATOR | AS SHOWN IN SECTIONS, AND ANY OTHER CONSTRUCTION JOINTS IN GATE HOUSE PORTION OF STRUCTURE. |
- UNLESS OTHERWISE NOTED OR SHOWN, PROVIDE CONCRETE LINTELS OVER OPENINGS IN CMU WALLS IN ACCORDANCE WITH SPECIFICATIONS.
- THE CENTERLINES OF ALL COLUMNS AND BEAMS SHALL BE LOCATED ON COLUMN LINES UNLESS OTHERWISE SHOWN.
- ALL BOLTS SHALL BE 3/4" DIAMETER UNLESS OTHERWISE SHOWN OR NOTED.
- WELDING ELECTRODES SHALL CONFORM TO REQUIREMENTS SHOWN IN TABLE 4.11 OF AWS D11.9-90, AND FILLER METAL SHALL HAVE A MINIMUM YIELD STRENGTH OF 58 KSI.
- STEEL COLUMNS SHALL NOT BE SPICED.
- ALL MAJOR FRAMING CONNECTIONS SHALL BE MADE WITH ASTM A 325 BOLTS.
- SHEAR CONNECTIONS FOR SIMPLY SUPPORTED BEAMS SHALL BE DESIGNED FOR AN END REACTION EQUAL TO W/2L AS TABULATED IN THE BEAM TABLES OF THE AISC MANUAL, EIGHTH EDITION, PLUS 5 KIPS.
- WHERE THE WORK OF OTHER TRADES REQUIRES CUTS, HOLES, ETC., IN STRUCTURAL STEEL MEMBERS, CUTS, HOLES, ETC., SHALL BE MADE IN THE SHOP AND SHALL BE SHOWN ON THE SHOP DRAWINGS. MAKING HOLES OR CUTS IN STRUCTURAL STEEL MEMBERS IN THE FIELD WILL NOT BE PERMITTED WITHOUT SPECIFIC APPROVAL OF THE ARCHITECT-ENGINEER.
- THE CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES, INSERTS, ETC., WITH SHOP DRAWINGS OF THE EQUIPMENT TO BE INSTALLED. SEE CIVIL AND MECHANICAL DRAWINGS FOR LOCATIONS OF PIPE SLEEVES.
- ALL EDGES OF PERMANENTLY EXPOSED CONCRETE SURFACES SHALL BE BEVELED 3/4 INCH.
- THE RCC DAM SHALL BE CONSTRUCTED TO FULL HEIGHT BEFORE THE WITHDRAWAL TOWER IS CONSTRUCTED TO A HEIGHT HIGHER THAN 30' ABOVE THE TOP OF TOWER BASE. THE WITHDRAWAL TOWER SHALL BE TEMPORARILY BRACED AGAINST INDICATED WIND AND SEISMIC LOADS DURING CONSTRUCTION UNTIL THE CONNECTING BRIDGE IS PLACED AND ATTAINS SPECIFIED STRENGTH.

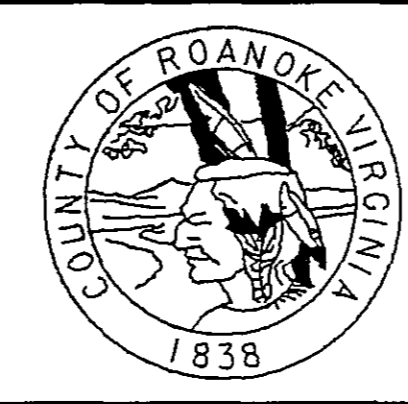


RECORD DRAWINGS
THESE DRAWINGS RECORDED ON THE BASIS OF INFORMATION FURNISHED BY THE CONTRACTOR OR SPECIFICALLY KNOWN TO HSHM. NO OTHER REPRESENTATIONS ARE MADE OR IMPLIED
Date: 6-5-95

| | | | |
|----------|---------|------|---------|
| DESIGNED | WA, RUF | DATE | 4/26/91 |
| DRAWN | KG | DATE | 4/26/91 |
| CHECKED | HW | DATE | 4/26/91 |
| APPROVED | AW | DATE | 4/26/91 |
| ISSUED | JPB | DATE | 8/21/91 |



| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION |
|---------|-----|--------------------------|------|----|-------------|------|----|-------------|
| 8-15-94 | BA | PER CONTR RECORD DWG | | | | | | |
| 6-5-95 | JBH | ISSUED TO VA. DAM SAFETY | | | | | | |
| 3-31-97 | RWF | RECORD DRAWING | | | | | | |



SPRING HOLLOW RESERVOIR
ROANOKE COUNTY, VIRGINIA
HAYES, SEAT, MATTERN & MATTERN, INC.
ARCHITECTS - ENGINEERS - PLANNERS
ROANOKE, VIRGINIA

| STRUCTURAL GENERAL NOTES AND TYPICAL DETAILS | | | | |
|--|--------|-------|-------|-----|
| SCALE | DATE | COMM | SHEET | DWG |
| AS NOTED | 8/4/91 | 4194E | S-II | 40 |