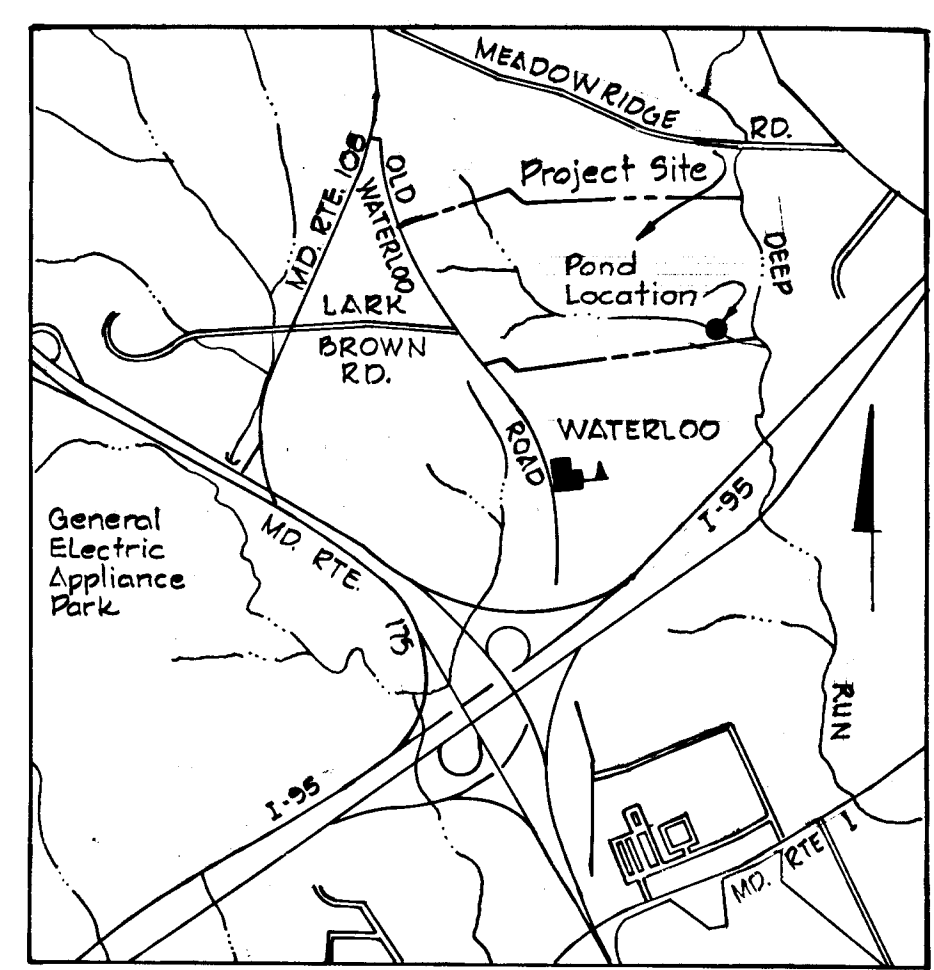
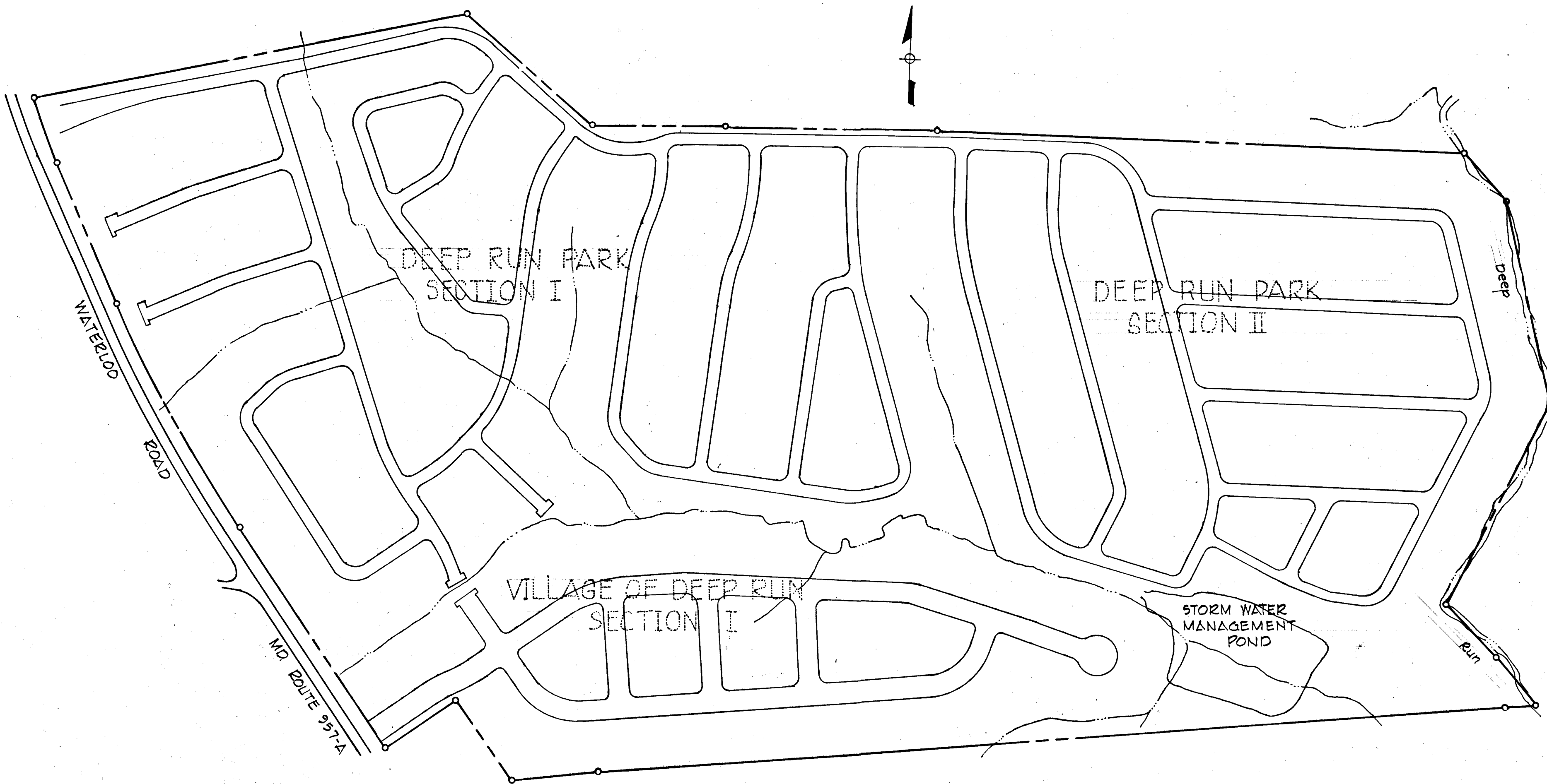


DEPARTMENT OF PUBLIC WORKS
William E. Ryan 7-15-80
 CHIEF, BUREAU OF ENGINEERING DATE
 OFFICE OF PLANNING AND ZONING
Michael Wehrman 7-10-80
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE



VICINITY MAP
 Scale: 1" = 2000'



PLAN
 Scale: 1" = 200'

| SHEET INDEX | |
|-------------|--|
| No. | DESCRIPTION |
| 1 | Cover Sheet |
| 2 | Storm Water Management, Plan & Profiles |
| 3 | Storm Water Management, Profiles & Details |

CONSTRUCTION SPECIFICATIONS

I. SITE PREPARATION
 Areas under the borrow areas, embankment, and structural works shall be cleared, grubbed and the topsoil stripped to remove all trees, vegetation, roots or other objectionable material. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.
 Areas covered by the pond or reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface.
 All cleared and grubbed material shall be disposed of outside the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

II. EARTH FILL
Material
 The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, over-size stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.
Placement
 Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of the embankment.

Compaction
 The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller.

Compaction - (Continued)
 Fill material shall contain sufficient moisture such that the required degree of compaction can be obtained with the equipment used.

Cutoff Trench
 Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

III. STRUCTURAL BACKFILL
 Backfill material shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall the contractor drive equipment over any part of a concrete structure or pipe unless there is a compacted fill of twenty-four inches or greater over the structure or pipe.

IV. PIPE CONDUITS
A. Reinforced Concrete Pipe
 1. Materials - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. Approved equivalents are ANWA Specification C-300, 301, and 302.
 2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its diameter with a minimum thickness of 3", or as shown on the drawings.

B. Reinforced Concrete Pipe (Continued)
 3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.
 4. Backfilling shall conform to structural backfill as shown above.
 5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

V. CONCRETE
 1. Materials
 a. Cement - Normal Portland cement shall conform to the latest ASTM Specification C-150.
 b. Water - The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.
 c. Sand - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a one-quarter inch sieve. Limestone sand shall not be used.
 d. Coarse Aggregate - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches.
 e. Reinforcing Steel - The reinforcing steel shall be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specifications A-615.
 2. Design Mix - The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.
 3. Mixing - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the speed of rotation of the mixer and of the introduction of the materials, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

V. CONCRETE (Continued)
 4. Forms - The forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tamping, and vibration without deflection from the prescribed lines. They shall be mortar-tight and constructed so that they can be removed without hammering or prying against the concrete.
 This inside of forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.
 Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed from the surface of the concrete.
 5. Reinforcing Steel - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.
 6. Consolidating - Concrete shall be consolidated with internal type mechanical vibrators. Vibration shall be supplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.
 7. Finishing - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be reamed and completely filled with dry-patching mortar.
 8. Protection and Curing - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.
 9. Placing Temperature - Concrete may not be placed at temperatures below 37°F with the temperature falling, or 39° with the temperature rising.

VI. STABILIZATION
 All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications shown on or accompanying the drawings.

SEEDING NOTES (HYDROSEED METHOD ONLY)
 1. All disturbed slope areas to be stabilized as soon as grading is completed.
 2. All areas other than areas with slopes greater than 3:1 to be seeded at the rate of 80lbs./Acre of the following: Kentucky 31 Tall Fescue 60lbs./Acre and Korcan Lespedeza (Scarify and Inoculate) 20lbs./Acre. Immediately after construction. Sow with mechanical spreader, rake minimum two (2) passes with "York Rake" cover and compact with cultipacker.
 3. Surface preparation to include ground limestone over topsoil surface area and commercial fertilizer in accordance with soil test analysis. Anchor with asphalt at the rate of 480 Gallons/Acre. Stabilization of slopes steeper than 3:1 shall be planted with Kentucky 31 Tall Fescue 45 lb/Acre and Crownvetch (Scarify and Inoculate) 15lbs./Acre. Inoculant for Crownvetch shall be at rate of 6.7 oz. Powder or Liquid Culture per 20lbs. Crownvetch.
 4. Application Methods: (Hydroseed)
 a. Seed, Fertilizer, Limestone and Mulch Material shall be placed by the following methods:
 (1) The seed and fertilizer, or the seed, fertilizer and suitable mulch shall be mixed in the needed amount of water to produce a slurry; applied under pressure at the rate specified or as directed with hydraulic equipment approved prior to use.
 b. Wood Cellulose Mulch may be applied during or after seeding operation. The wood cellulose mulch is to be incorporated as an integral part of the slurry mix, it shall be added after the seed and fertilizer have been thoroughly mixed. Lime, when applied hydraulically shall be a single, separate operation. Wood cellulose mulch shall be applied at the rate of 1,200 pounds per acre.
 c. Any area inadequately covered shall be re-treated.

CERTIFICATION BY THE DEVELOPER
 "I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT, POND CONSTRUCTION AND EROSION AND SEDIMENT CONTROL. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE MADE UNLESS AUTHORIZED BY THE HOWARD SOIL CONSERVATION DISTRICT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION."
Michael Wehrman 6/26/80
 MICHAEL WEHRMAN DATE

CERTIFICATION BY THE ENGINEER
 "I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION, AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION."
Kenneth A. McCord 6/26/80
 KENNETH A. McCORD, P.E.#1974 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
James R. Brown 7-9-80
 U.S. SOIL CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 APPROVED: *W.E. Ryan* 7-9-80
 HOWARD S.C.D. DATE
 F-80-162
 PLAN NUMBER

| No. | Revisions | Date |
|-----|-----------|------|
| | | |

DEEP RUN PARK AND VILLAGE OF DEEP RUN
 STORM WATER MANAGEMENT
 1ST. ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: 1" = 200' DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202
Kenneth A. McCord
 KENNETH A. McCORD
 Registered Engineer
 NO. 1974

7-15-80
 CHIEF, BUREAU OF ENGINEERING DATE

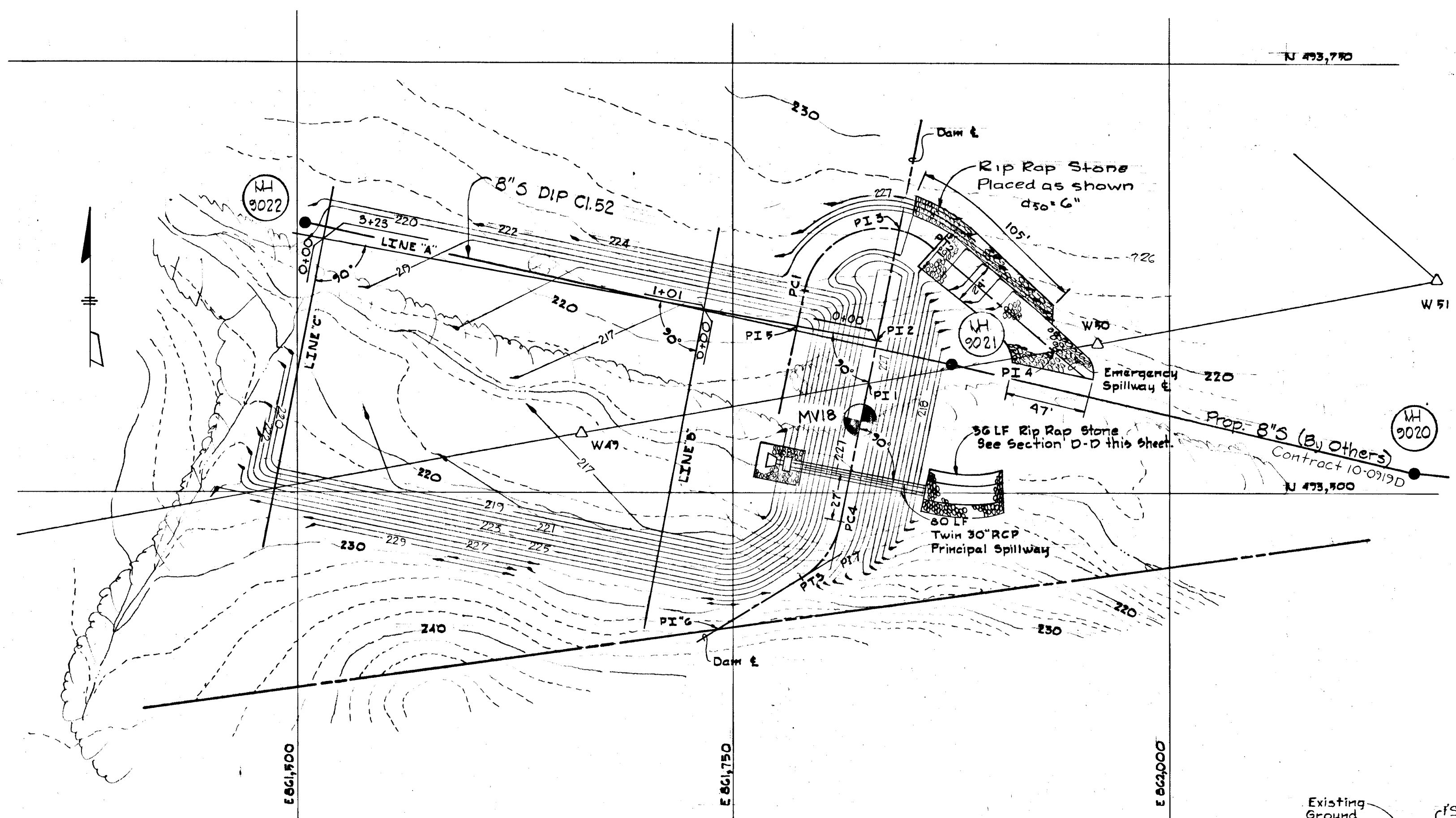
OFFICE OF PLANNING AND ZONING
 7-18-80
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

STAKEOUT DATA

| BACKSIGHT | INSTRUMENT | FORSIGHT | DISTANCE | CLOCKWISE ANGLE |
|-----------|------------|----------|----------|-----------------|
| W49 | W50 | PI1 | 131.51' | 360°-00'-00" |
| W49 | PI1 | PI3 | 91.00' | 110°-00'-00" |
| W49 | PI1 | PI2 | 26.00' | 110°-00'-00" |
| W49 | PI1 | PC4 | 82.29' | 290°-00'-00" |
| W49 | PI1 | PI7 | 103.00' | 290°-00'-00" |
| PI1 | PI2 | PI5 | 45.00' | 90°-00'-00" |
| PI2 | PI5 | PC1 | 20.00' | 270°-00'-00" |
| PI5 | PC1 | PI3 | 63.64' | 225°-00'-00" |
| PC1 | PI3 | PT2 | 24.43' | 240°-45'-00" |
| PI3 | PT2 | PI4 | 91.03' | 195°-45'-00" |
| PT2 | PI4 | W50 | 23.89' | 128°-30'-00" |
| PI1 | PI7 | PT3 | 20.71' | 225°-00'-00" |
| PI1 | PI7 | PI6 | 67.43' | 225°-00'-00" |
| PI7 | PI6 | W49 | 144.33' | 265°-13'-58" |

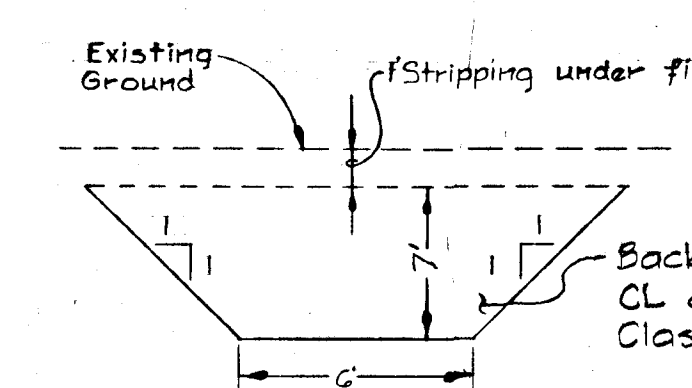
STORM WATER MANAGEMENT DATA

| YEAR STORM | PEAK INFLOW (cfs) | MAXIMUM ALLOWABLE RELEASE (cfs) | PEAK OUTFLOW (cfs) | STORAGE (1000 CF) | MAXIMUM ELEVATION (ft.) |
|------------|-------------------|---------------------------------|--------------------|-------------------|-------------------------|
| 2 | 102 | 47 | 47 | 126 | 220.18 |
| 10 | 262 | 145 | 138 | 369 | 223.93 |
| 50 | 405 | - | 266 | 513 | 225.54 |
| 100 | 489 | - | 353 | 568 | 226.13 |

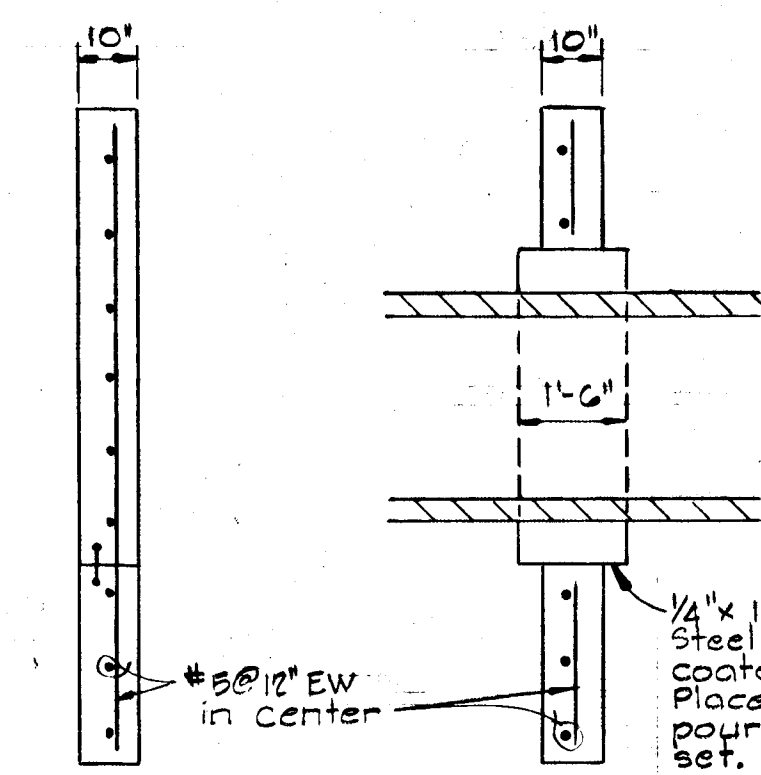


PLAN
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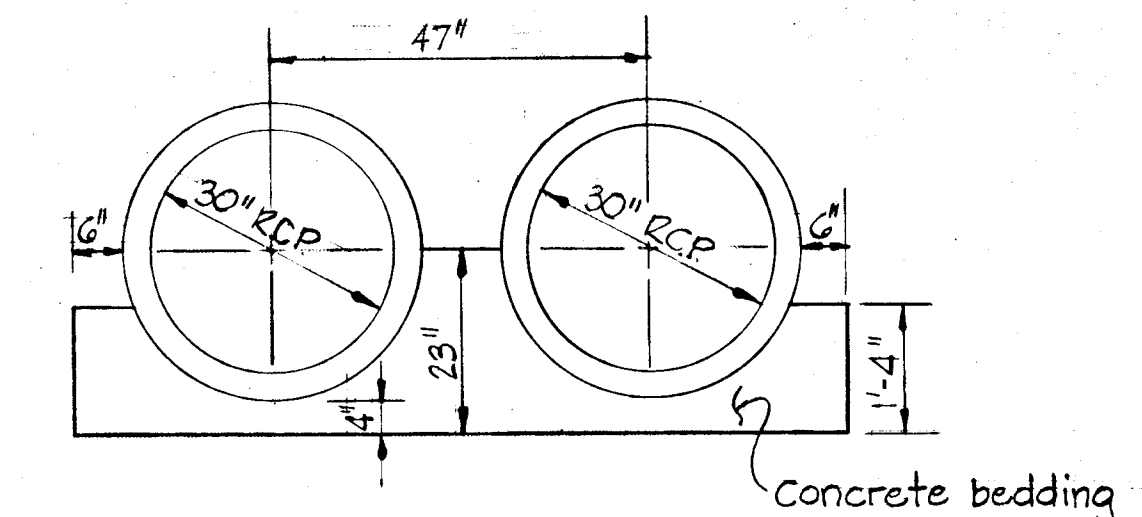
- CURVE DATA:
- PC1 TO PT2 EMERGENCY SPILLWAY
 CRD. 78.53' BR. N70°-34'-44"E
 ARC. 95.43' DEL. 121°-30'-00"
 RAD. 45.00' TAN. 80.35'
 - PC4 TO PT3 OF DAM
 CRD. 38.27' BR. S32°-19'-44"W
 ARC. 39.27' DEL. 45°-0'-00"
 RAD. 50.00' TAN. 20.71'



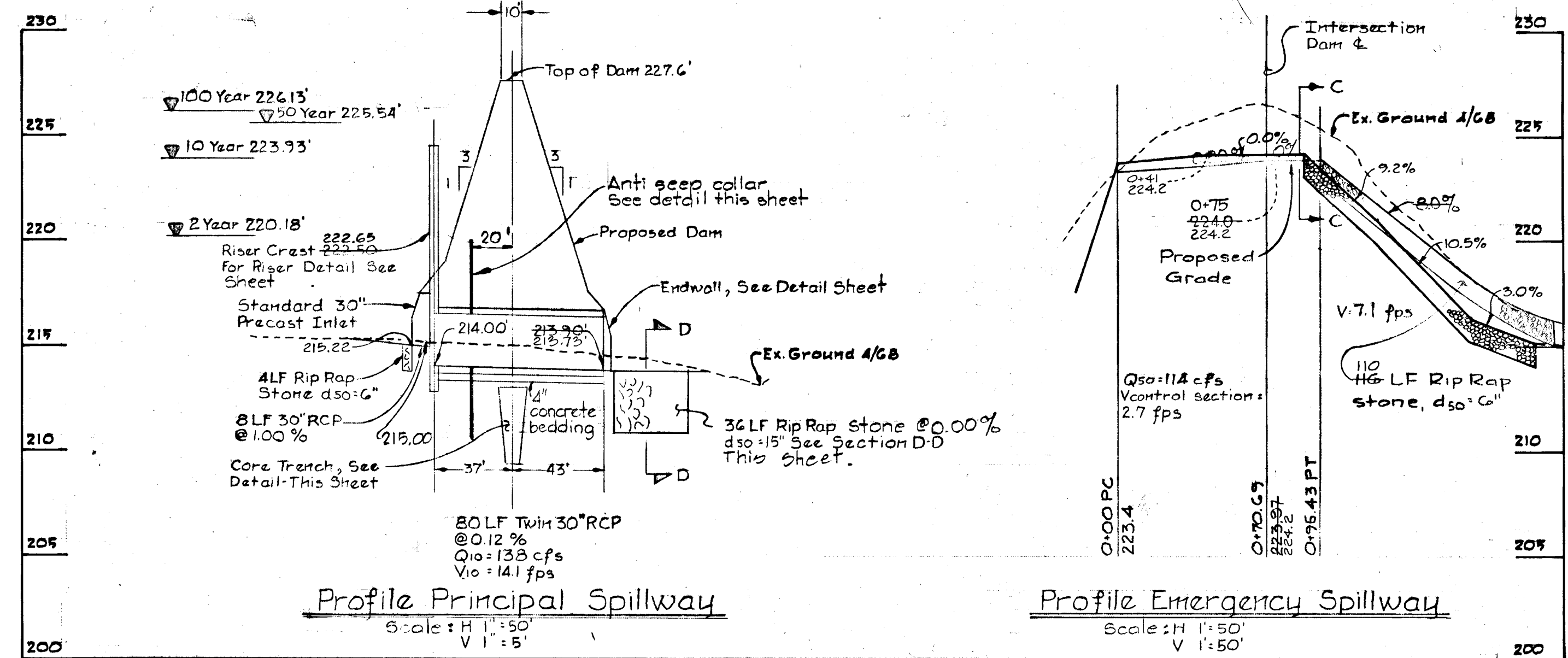
Core Trench Detail
 N.T.S.



Section HH Section GG

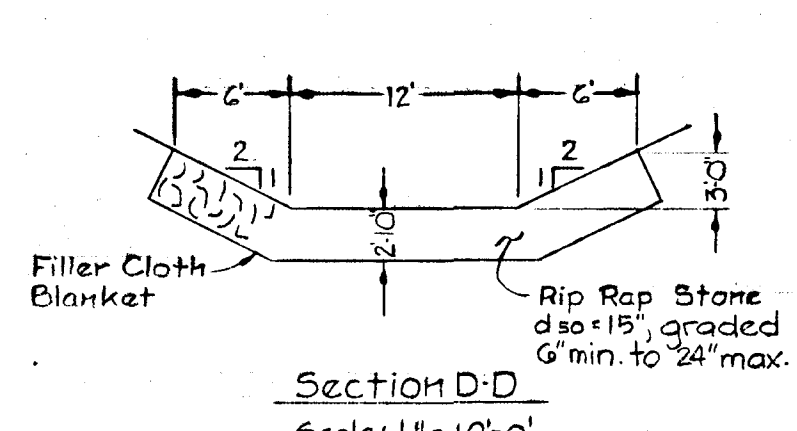


BEDDING DETAIL
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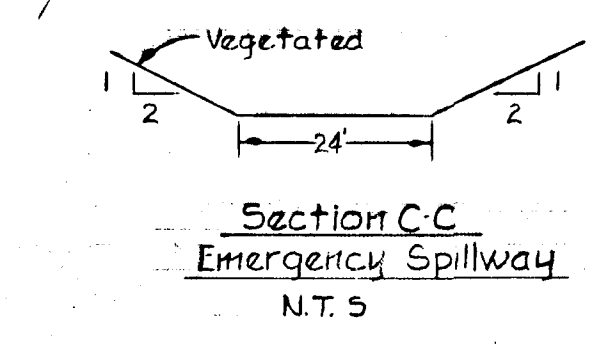


Profile Principal Spillway
 Scale: H 1"=50' V 1"=5'

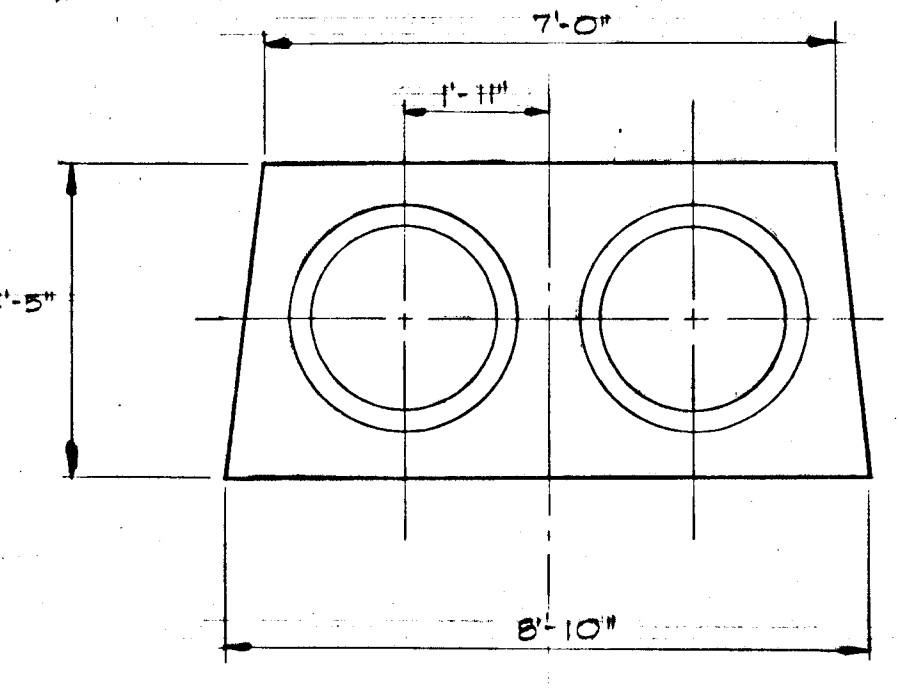
Profile Emergency Spillway
 Scale: H 1"=50' V 1"=50'



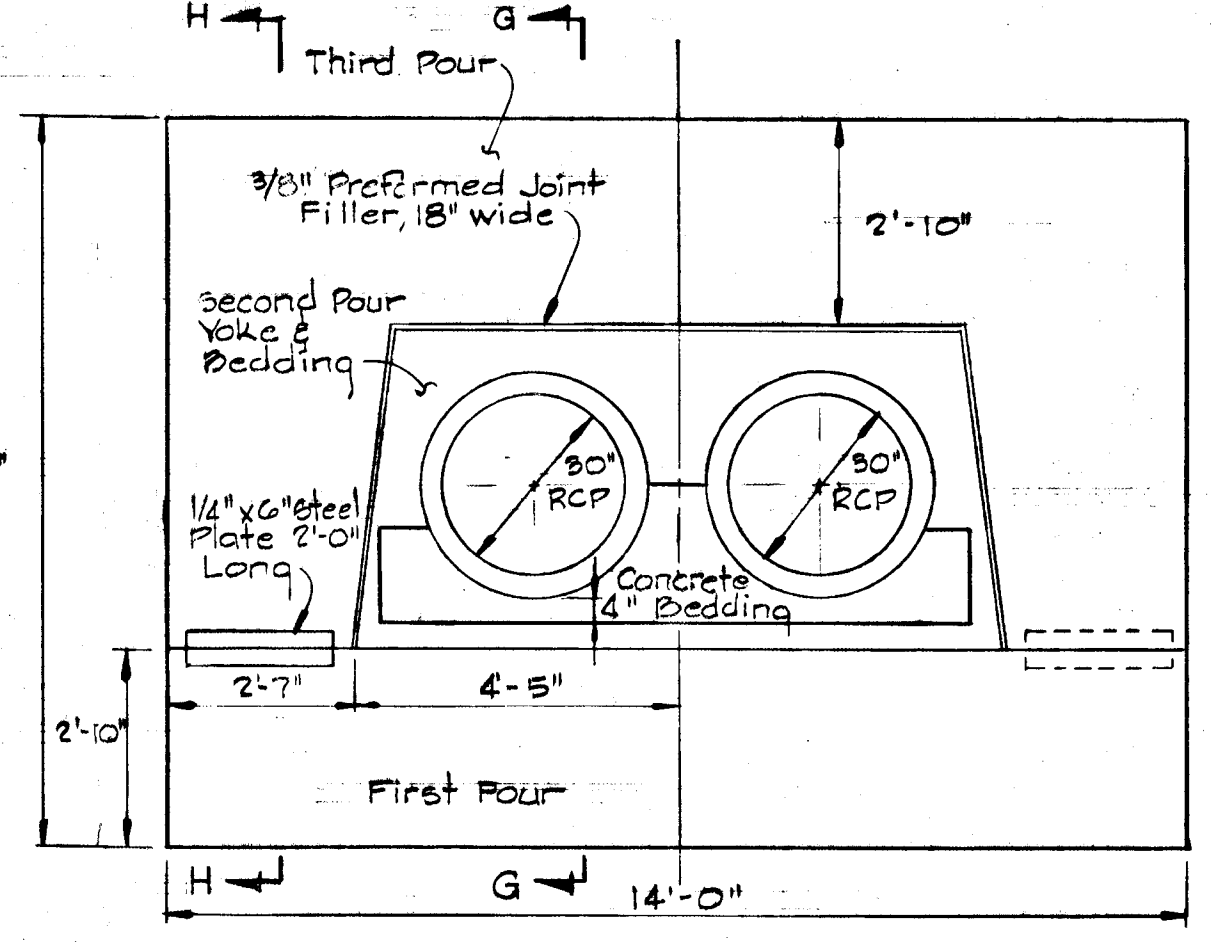
Section D-D
 Scale: 1"=10'-0"



Section C-C
 Emergency Spillway
 N.T.S.



DETAIL OF ANTI-SEEP COLLAR YOKE
 Scale: 3/8"=1'-0"



DETAIL OF ANTI-SEEP COLLAR
 Scale: 3/8"=1'-0"

CERTIFICATION BY THE DEVELOPER
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 MICHAEL WEINMAN
 6/26/80
 DATE

CERTIFICATION BY THE ENGINEER
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 KENNETH A. MCCORD P.E.#1974
 6/26/80
 DATE

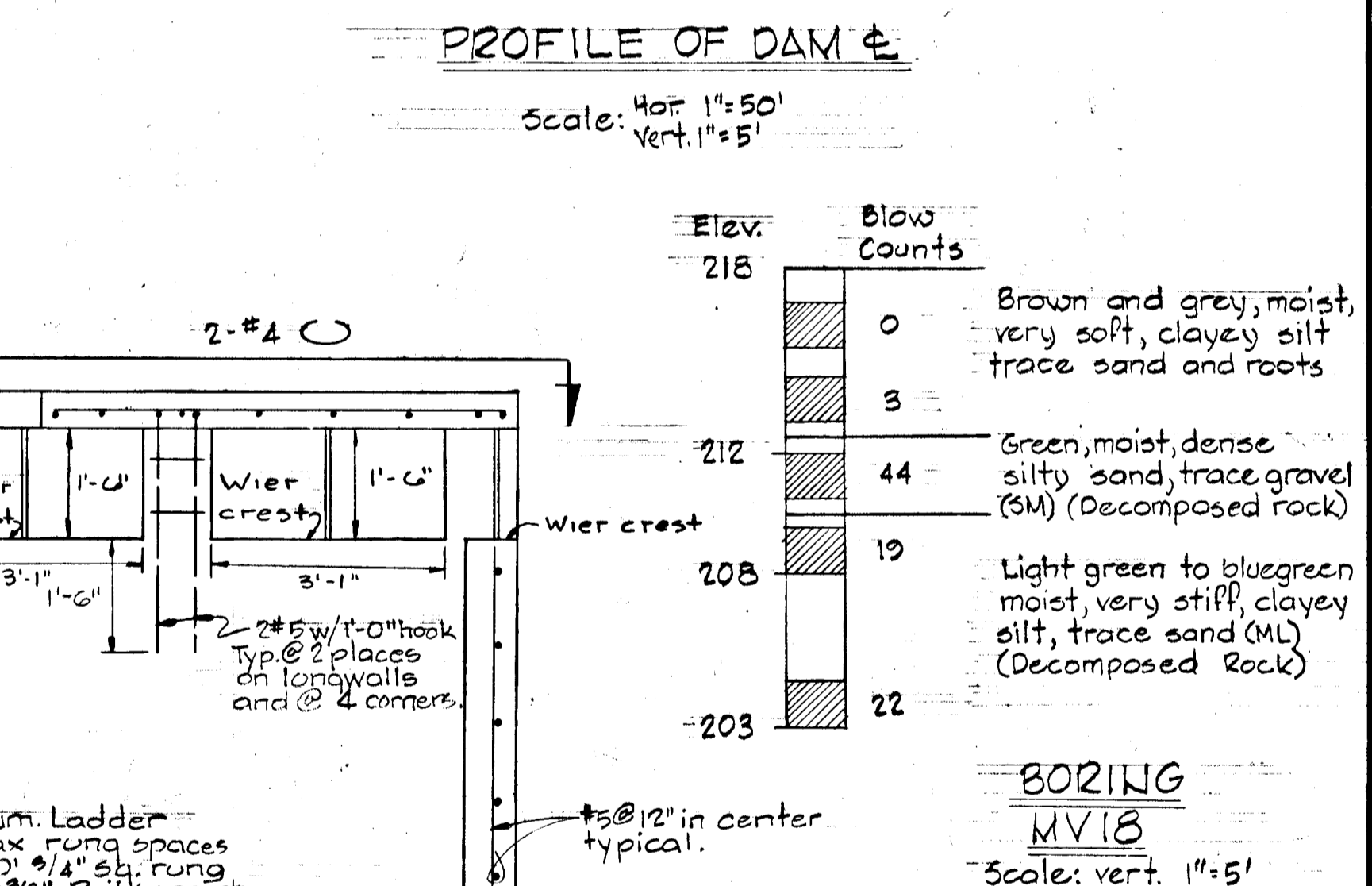
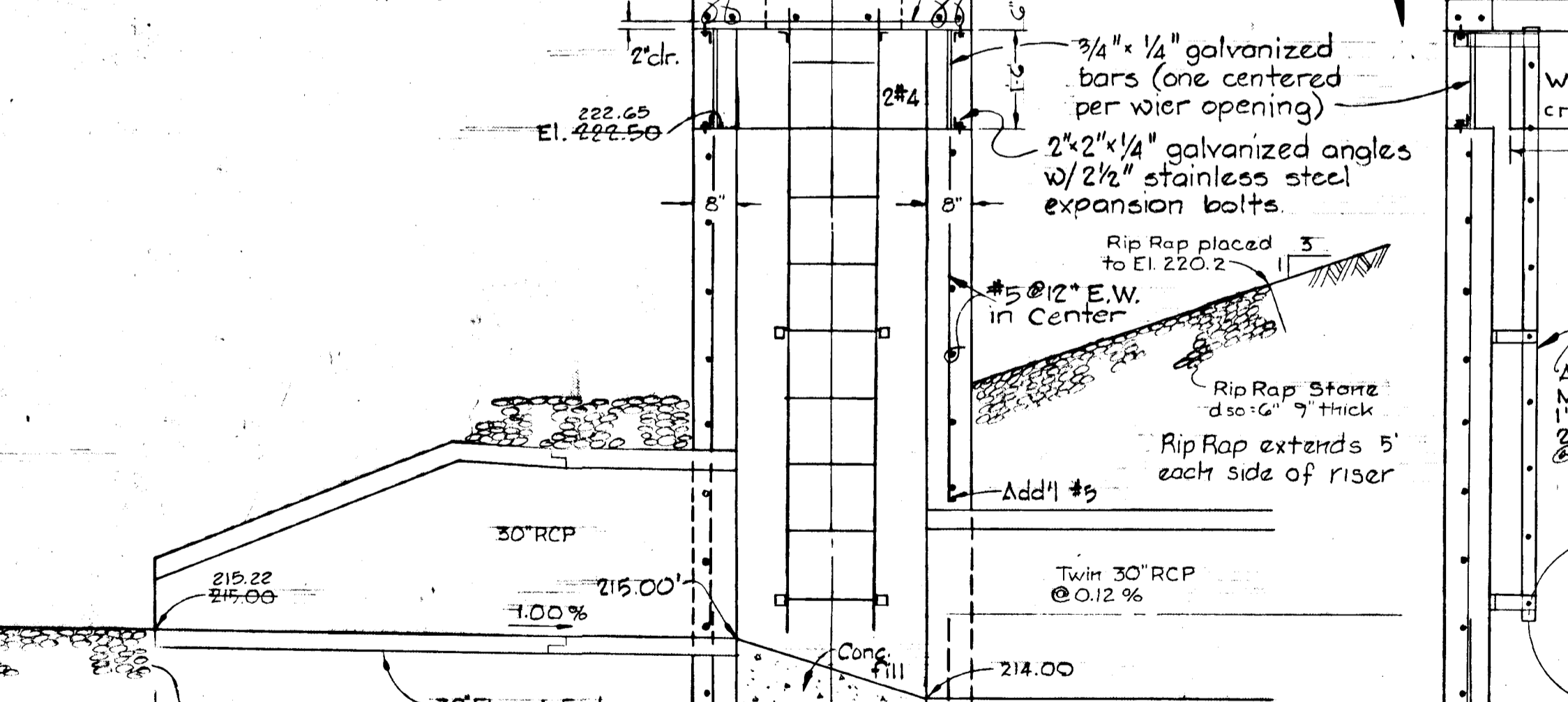
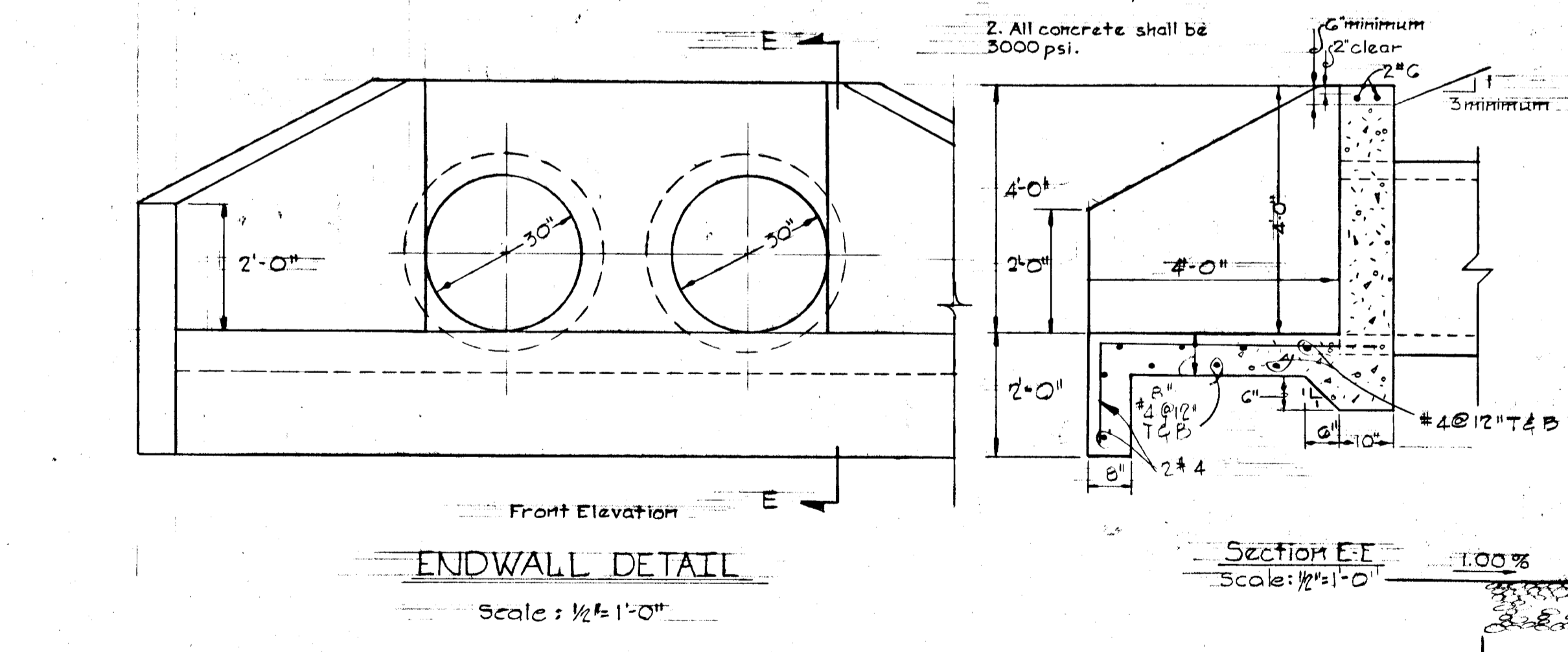
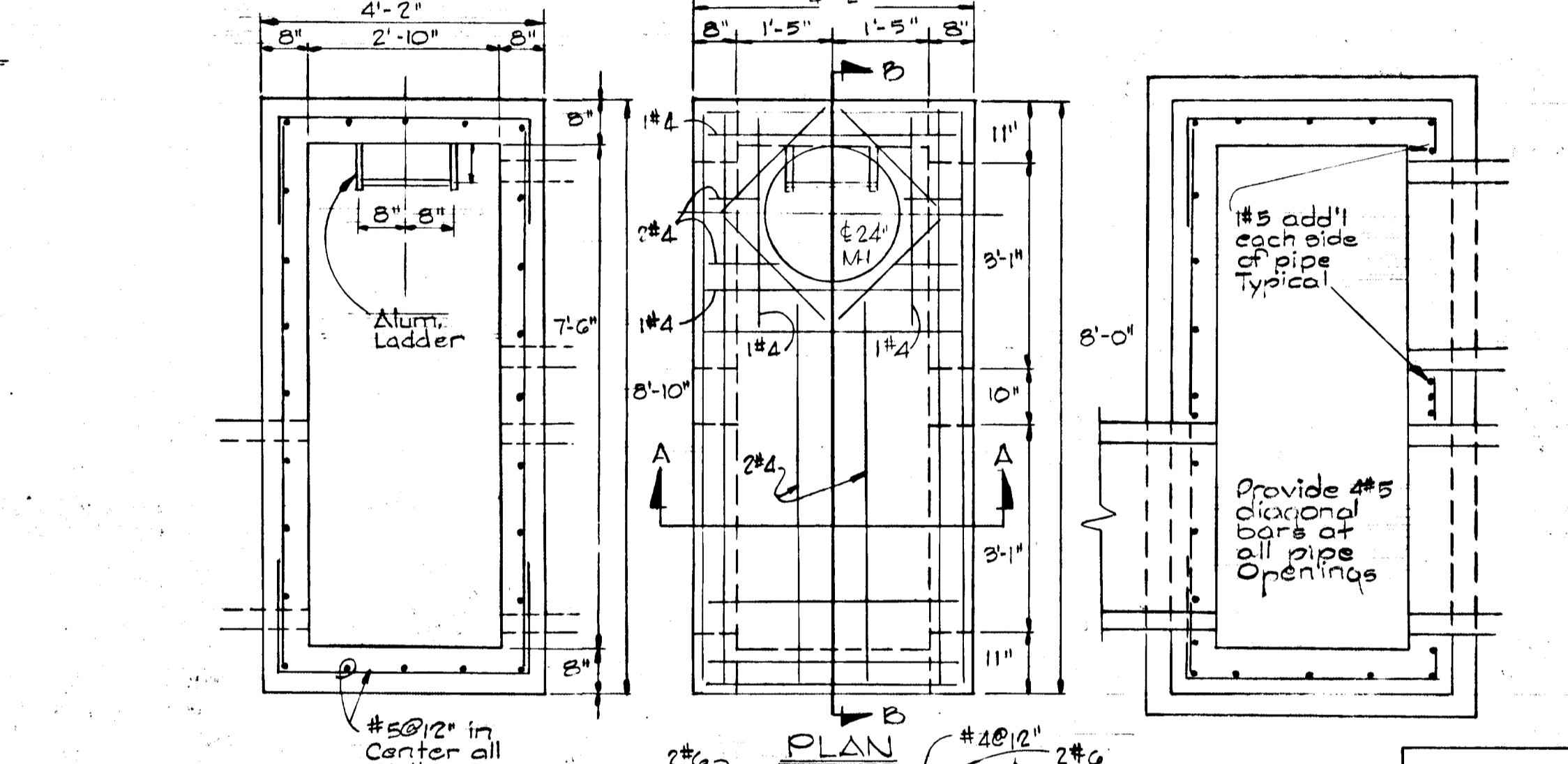
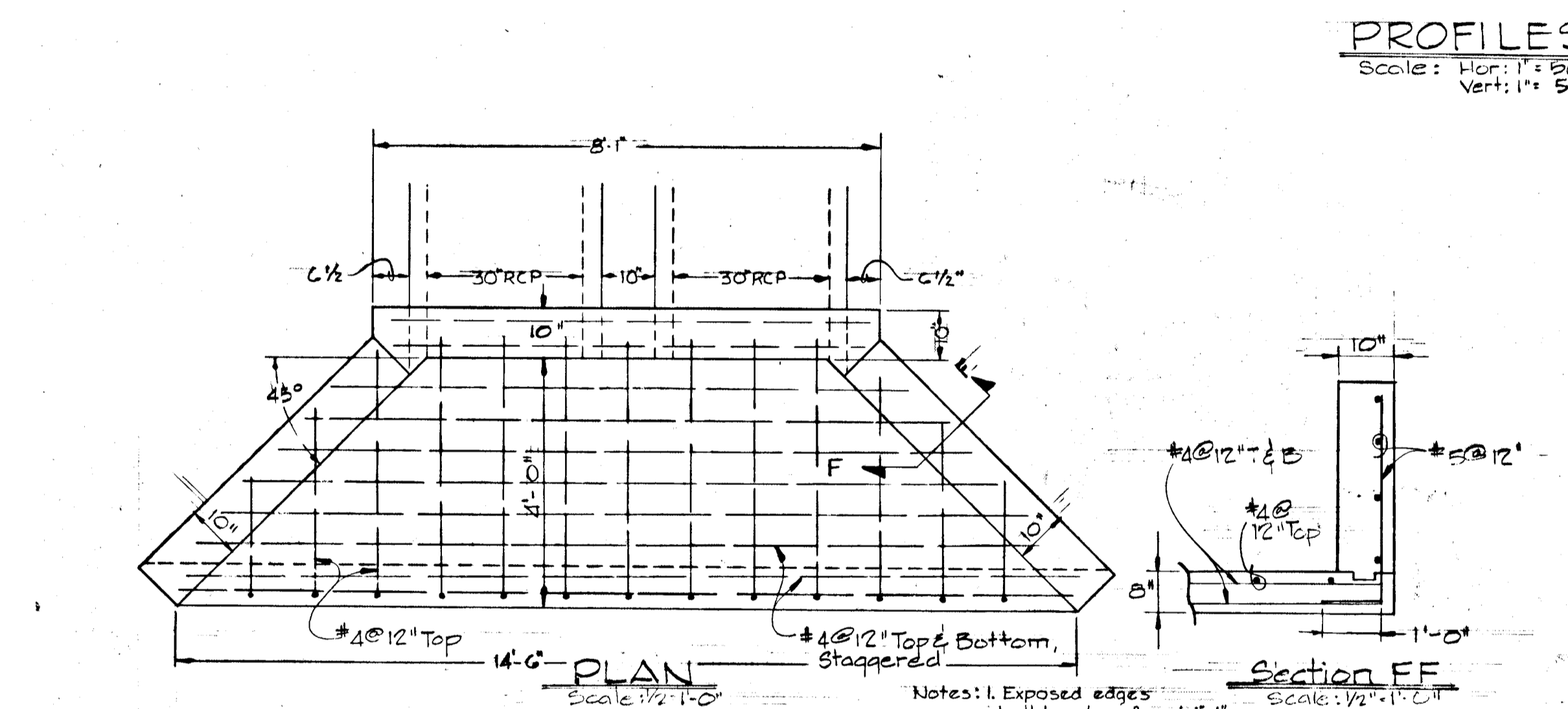
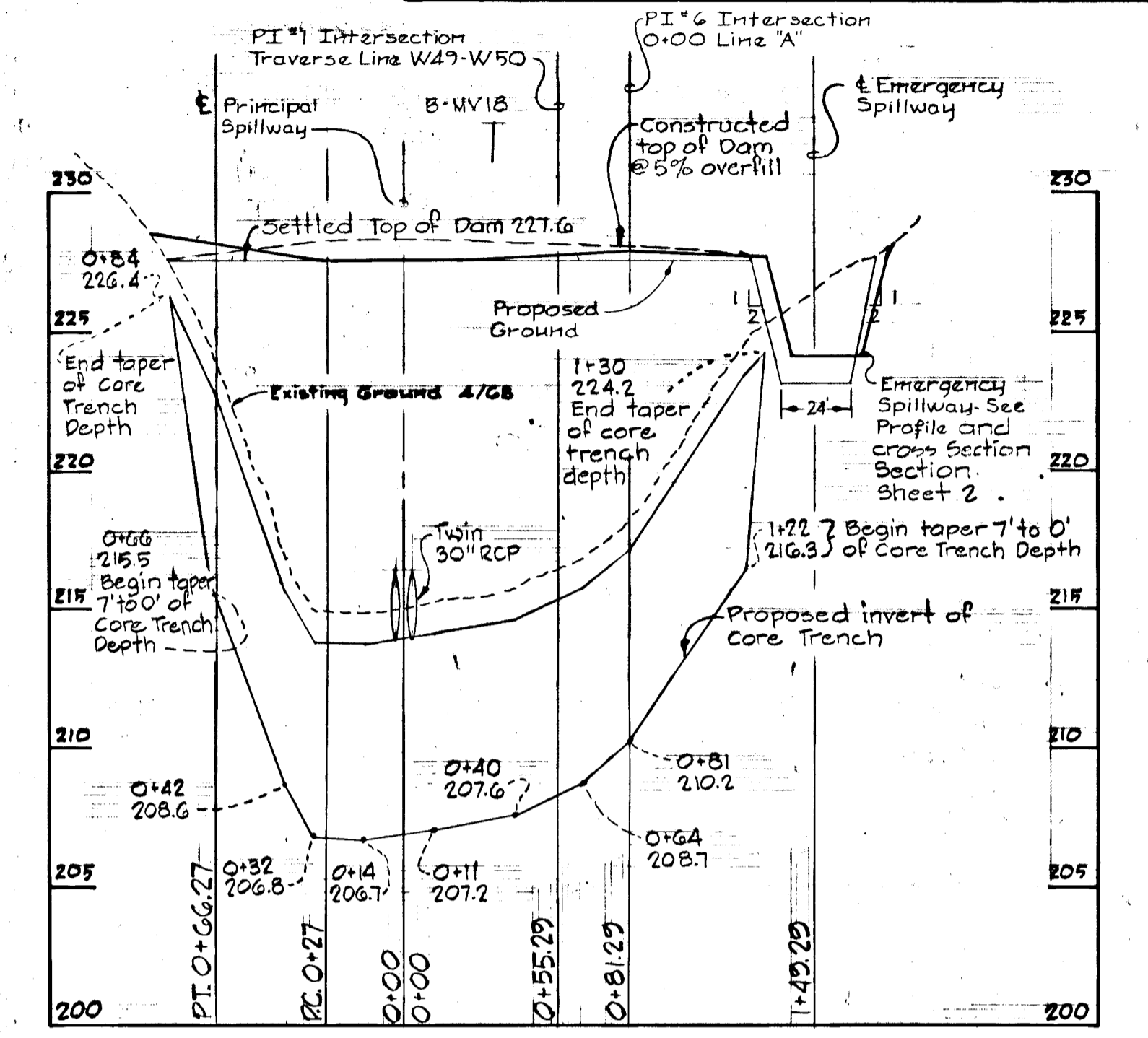
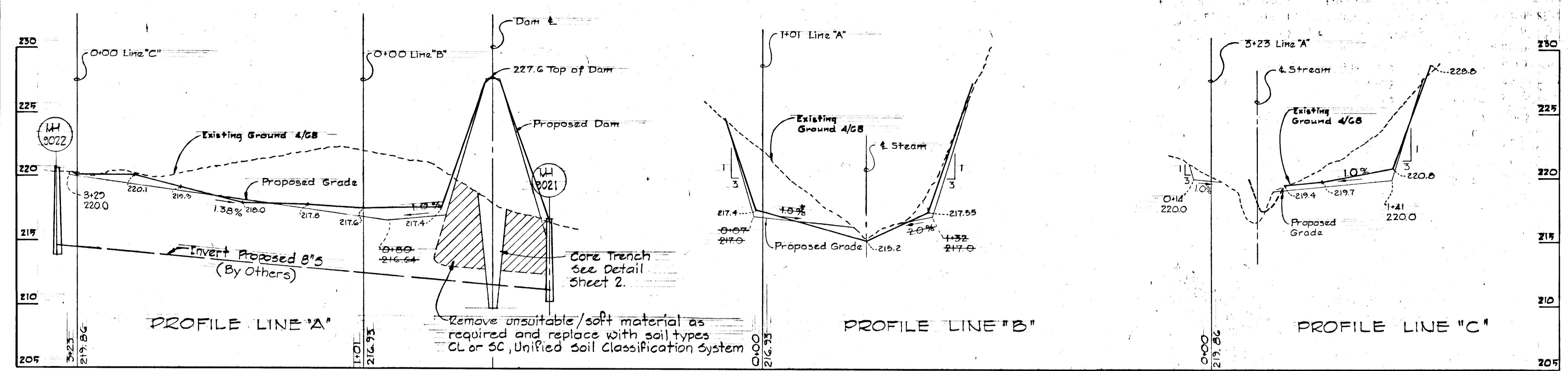
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
 JAMES J. REARDEN
 U.S. SOIL CONSERVATION SERVICE
 7-9-80
 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 APPROVED: [Signature]
 HOWARD S.C.D.
 7-9-80
 DATE
 F. S. [Signature]
 PLAN NUMBER

| No. | Revisions | Date |
|-----|-----------------------|--------|
| 1 | Add Em. Spill Rip Rap | 7/1/80 |

OWNER DEVELOPER
 DEEP RUN PARTNERSHIP
 3701 OLD COURT ROAD UNIT #11
 BALTIMORE, MARYLAND 21208

DEEP RUN PARK AND VILLAGE OF DEEP RUN
 STORM WATER MANAGEMENT
 1ST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202
 KENNETH A. MCCORD
 Registered Engineer
 NO. 1974



CERTIFICATION BY THE DEVELOPER
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 Michael Weinman 6/26/80 DATE

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 Kenneth A. McCord P.E.#1974 6/26/80 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
 David J. Beckman 7-9-80 DATE
 U.S. SOIL CONSERVATION

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 APPROVED: Les Fieck 7-2-80 DATE
 HOWARD S.C.D.
 E-80-162 PLAN NUMBER

1 Add wier & endwall dim. 7/10/80
 No. Revisions Date
 OWNER DEVELOPER
 DEEP RUN PARTNERSHIP
 8701 OLD COURT ROAD UNIT #11
 BALTIMORE, MARYLAND 21208

DEEP RUN PARK AND VILLAGE OF DEEP RUN
 STORM WATER MANAGEMENT
 1ST. ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202
 Kenneth A. McCord
 KENNETH A. McCord
 Registered Engineer
 NO. 1974