



**I. SITE PREPARATION**  
Areas under the embankment and structural works shall be cleared, grubbed and the topsoil stripped to remove all trees, vegetation, roots or other objectionable material. To facilitate clean out and restoration, it is recommended that the permanent pool area be cleared of all brush and trees.

**II. EARTH FILL**  
**Material**  
The fill material shall be taken from approved designated borrow area or areas. It shall be free from 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 at least 5 percent above the design elevation (including freeboard) unless otherwise 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.

**Core Trench**  
Where specified, a core 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 core 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. CORRUGATED METAL PIPE**  
1. Materials - METAL Pipe - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211, with watertight coupling bands.  
2. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the control structure shall be mortared all around. Watertight coupling bands shall be used at all joints. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight.  
3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.  
4. Laying pipe - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.  
5. Backfilling shall conform to structural backfill as shown above.  
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

**V. CONCRETE**  
Concrete shall meet minimum requirements set forth in Maryland State Highway Administration Specifications for Materials, Highways, Bridges, and Incidental Structures, Article 20.07 (Portland Cement Concrete Mixtures), Mix No. 3.

**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 and borrow areas shall be stabilized by seeding and applying straw mulch in accordance with Standards and Specifications for Soil Erosion and Sediment Control in Urbanizing Areas immediately after finish grading.

All exposed areas of the embankment and pond shall be stabilized by:  
a. Spreading 4" topsoil  
b. Working in 1 ton of ground limestone and 1,000 pounds of 10-10-10 fertilizer per acre.  
c. Seed with 40 lbs./acre of "Kentucky 31" tall fescue, and 15 lbs./acre of Crownvetch inoculated.  
d. Mulch with 1-1/2 tons straw per acre.  
e. Tie down mulch with emulsified asphalt @ 348 gallons/acre.

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 M. ...* 3-6-84  
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.

*Robert ...* 3-6-84  
Howard Soil Conservation District Date

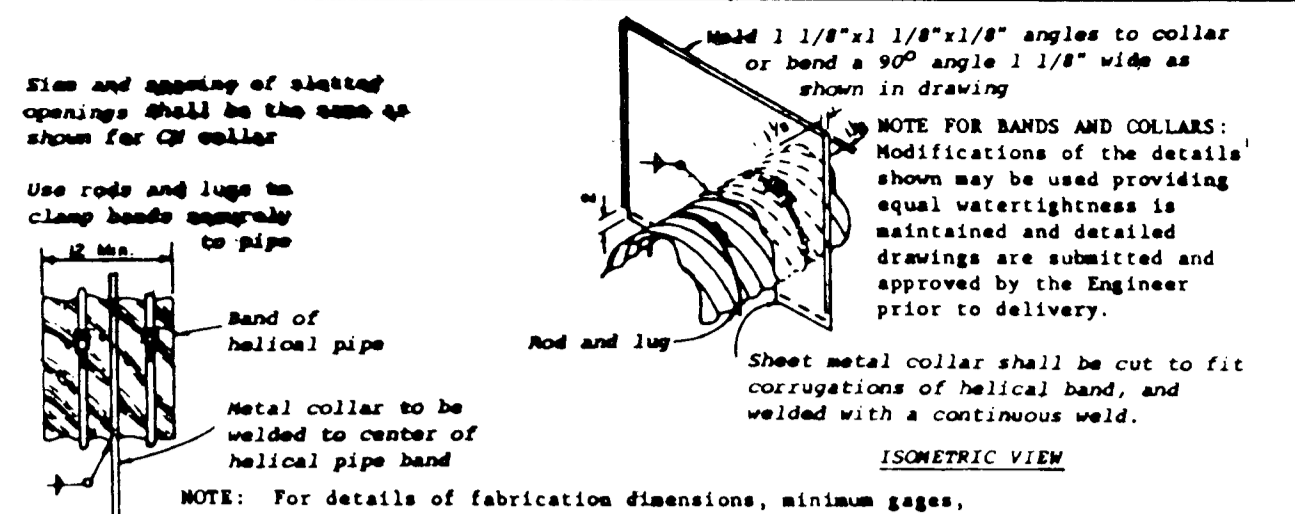
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF ENGINEERING DATE

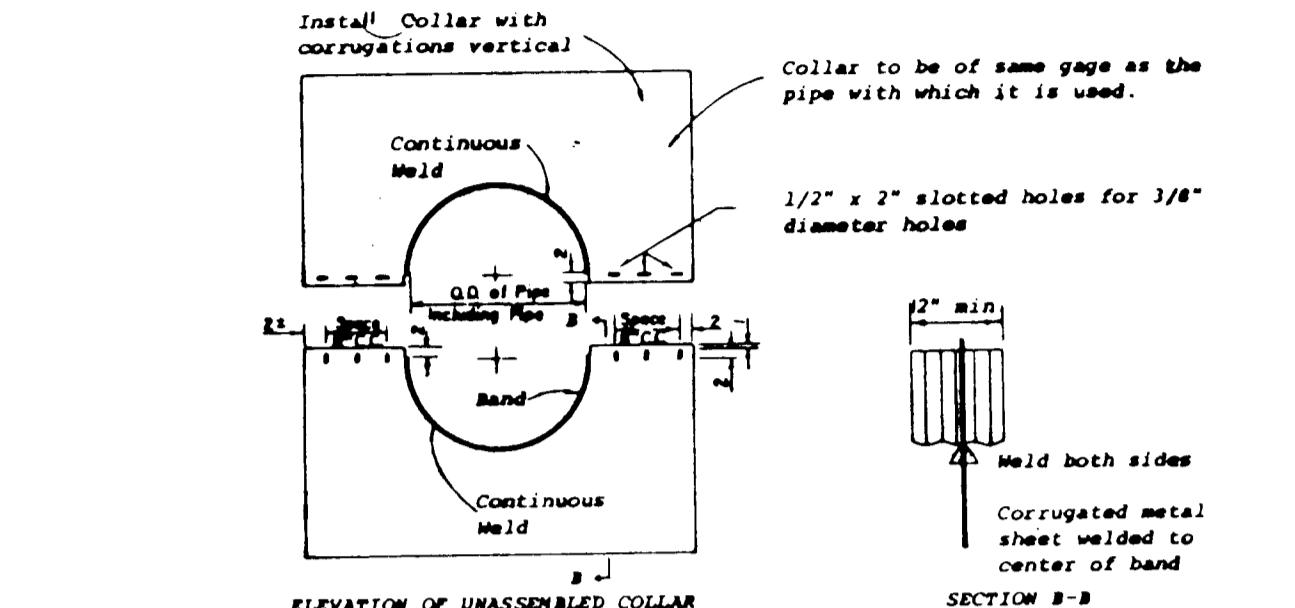
APPROVED: OFFICE OF PLANNING AND ZONING

*John ...* 3-6-84  
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

FISHER, COLLINS AND CARTER, INC.  
CIVIL ENGINEERS AND LAND SURVEYORS  
6360 COURT AVENUE  
BELLGOTT CITY, MARYLAND 21043  
TELEPHONE: (301) 461-2066



**DETAILS OF HELICAL PIPE ANTI-SEEP COLLAR**  
NOTE: For details of fabrication dimensions, minimum gages, slotted holes, and notes, see detail above.  
NOTE: Two other types of anti-seep collars are:  
1. Corrugated metal, similar to upper detail, except shop welded to a short (4 ft.) section of the pipe and connected with connecting bands to the pipe.  
2. Concrete, six inches thick formed around the pipe with #3 rebar spaced 15" horizontally and vertically.

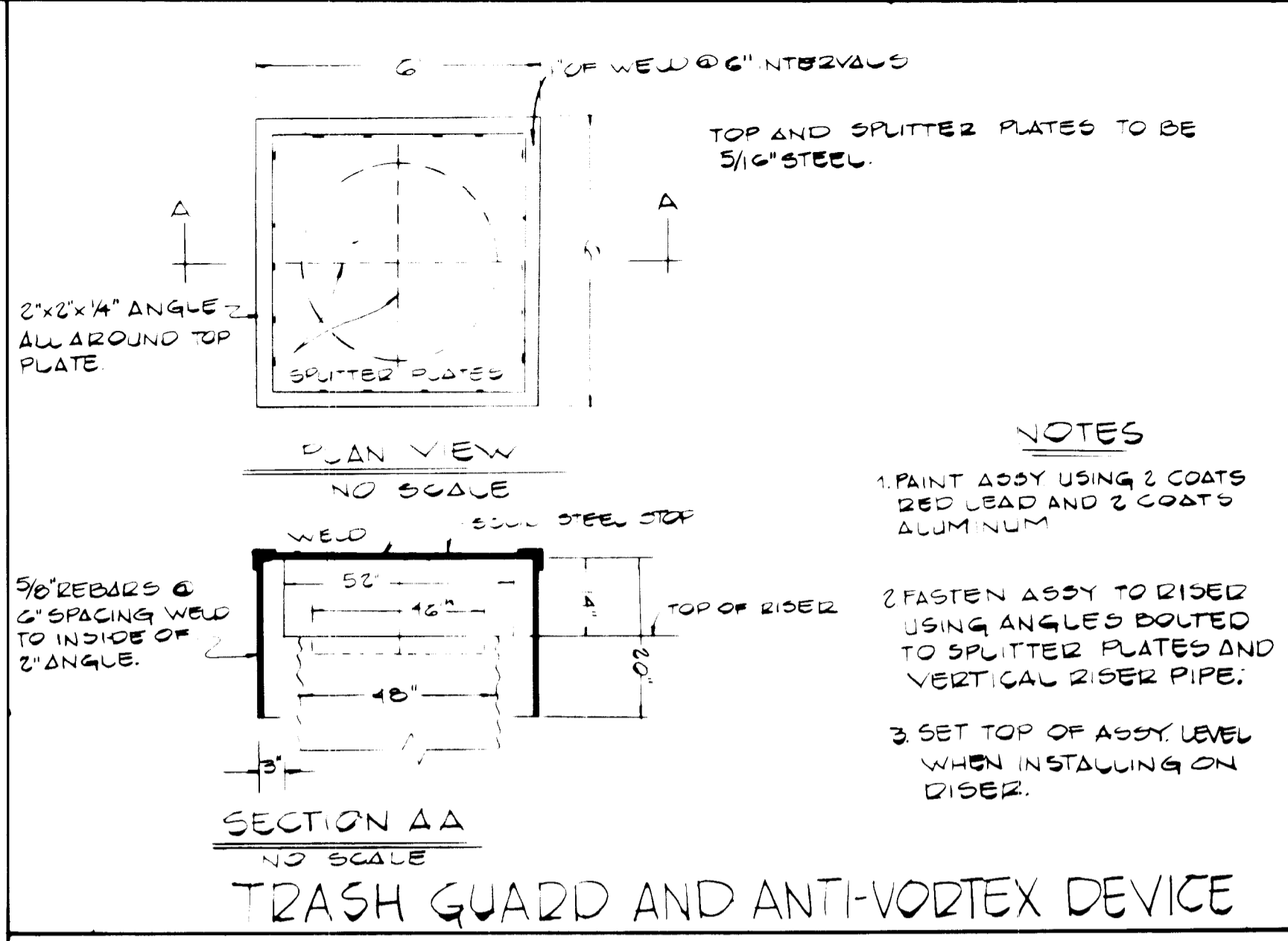


**NOTES FOR COLLARS:**  
1. All materials to be in accordance with construction and construction material specifications.  
2. When specified on the plans, coating of collars shall be in accordance with construction and construction material specifications.  
3. Unassembled collars shall be marked by painting or tagging to identify matching pairs.  
4. The lap between the two half sections and between the pipe and connecting band shall be coated with asphalt mastic at time of installation.  
5. Each collar shall be furnished with two 1/2" diameter rods with standard tank lugs for connecting collars to pipe.

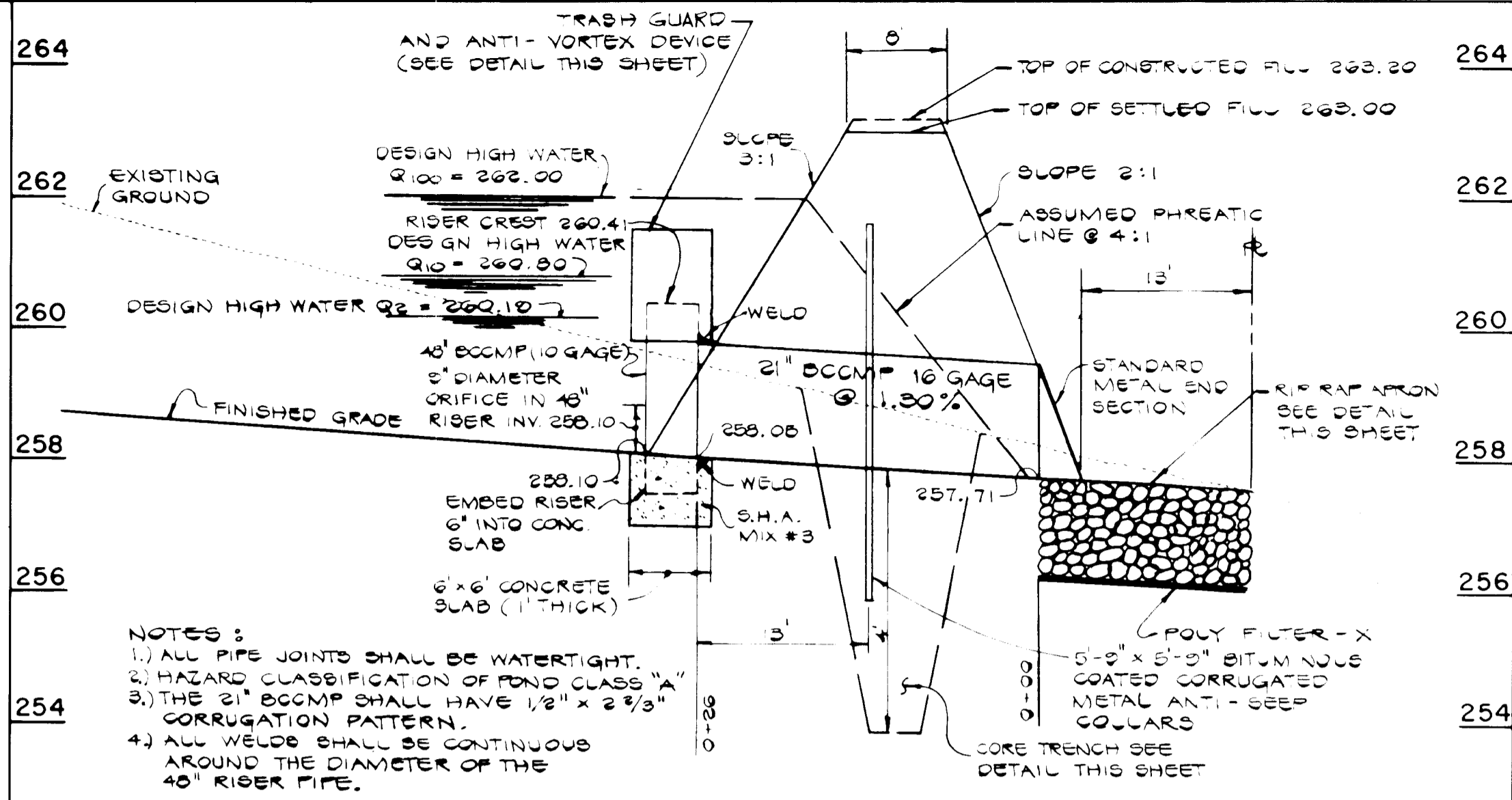
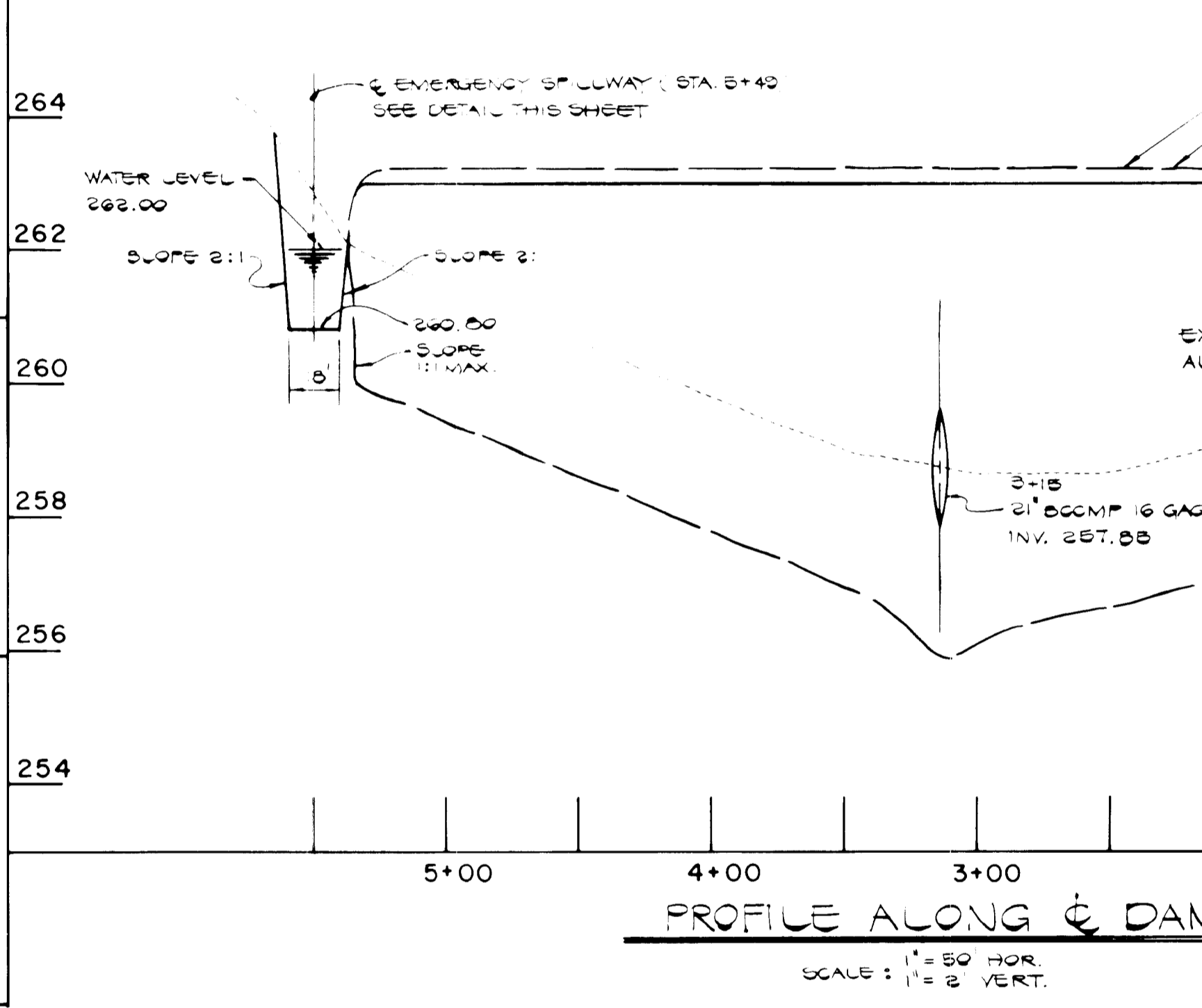
**CORRUGATED METAL ANTI-SEEP COLLAR DETAIL**  
NOT TO SCALE

**DEVELOPER'S CERTIFICATE**  
"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."  
*Charles ...* 9/26/83  
SIGNATURE OF DEVELOPER DATE

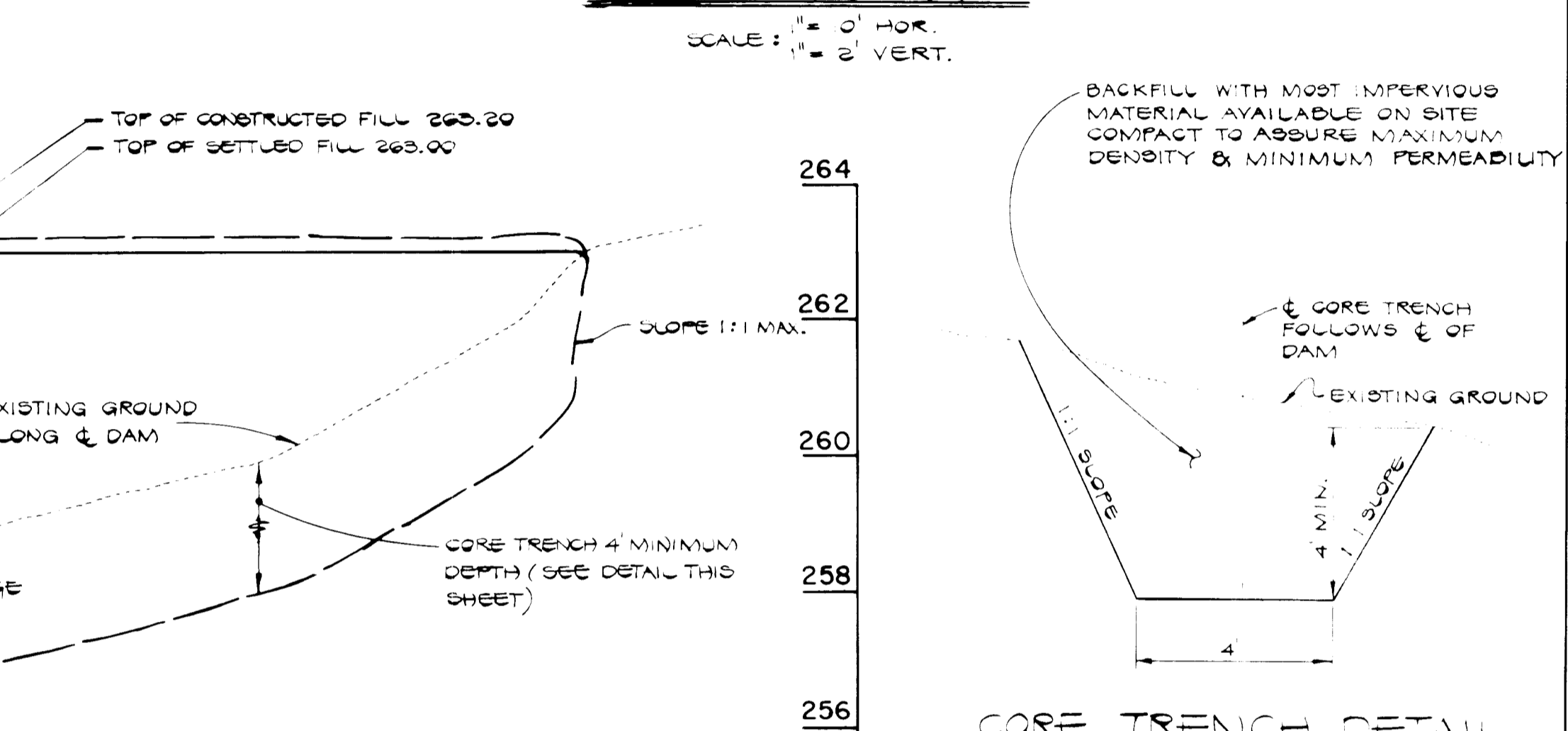
**ENGINEER'S CERTIFICATE**  
"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."  
*Charles ...* 9/26/83  
SIGNATURE OF ENGINEER DATE



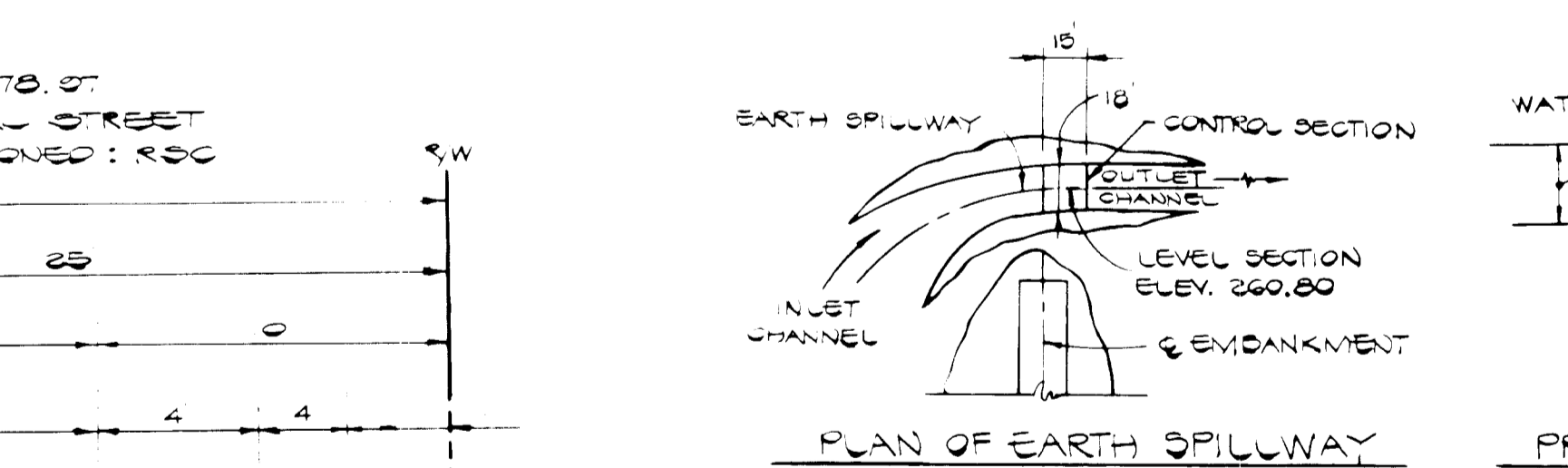
**TRASH GUARD AND ANTI-VORTEX DEVICE**



**STORM WATER MANAGEMENT POND PROFILE**



**CORE TRENCH DETAIL**  
NO SCALE

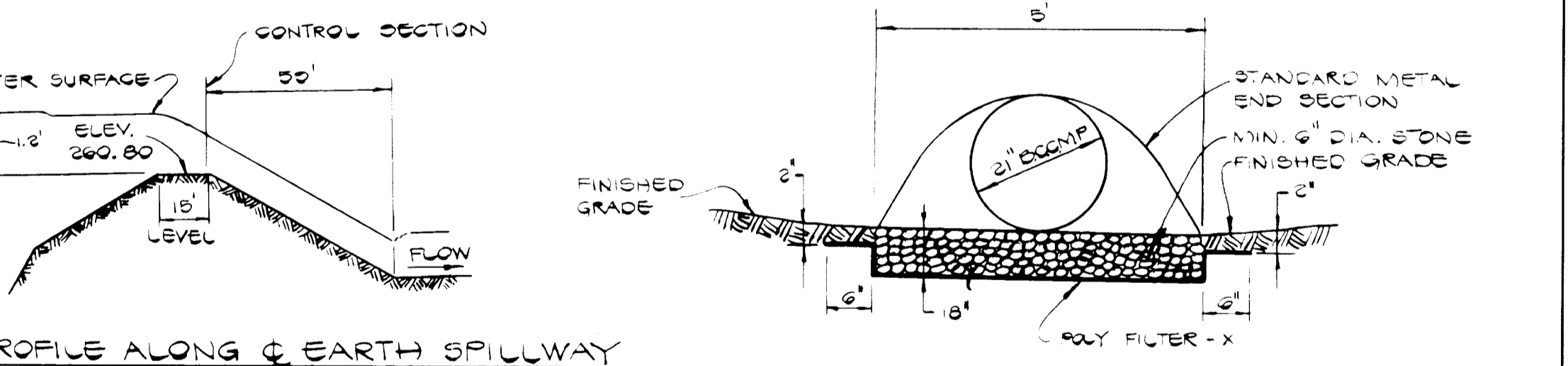


**EMERGENCY SPILLWAY DETAILS**  
NO SCALE



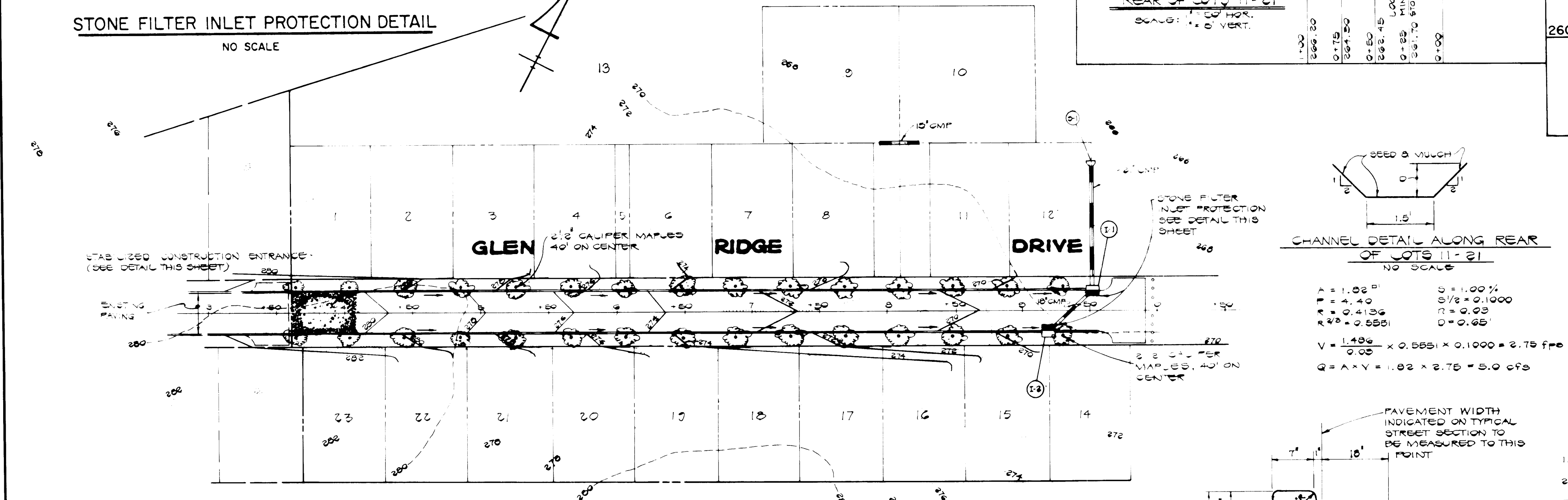
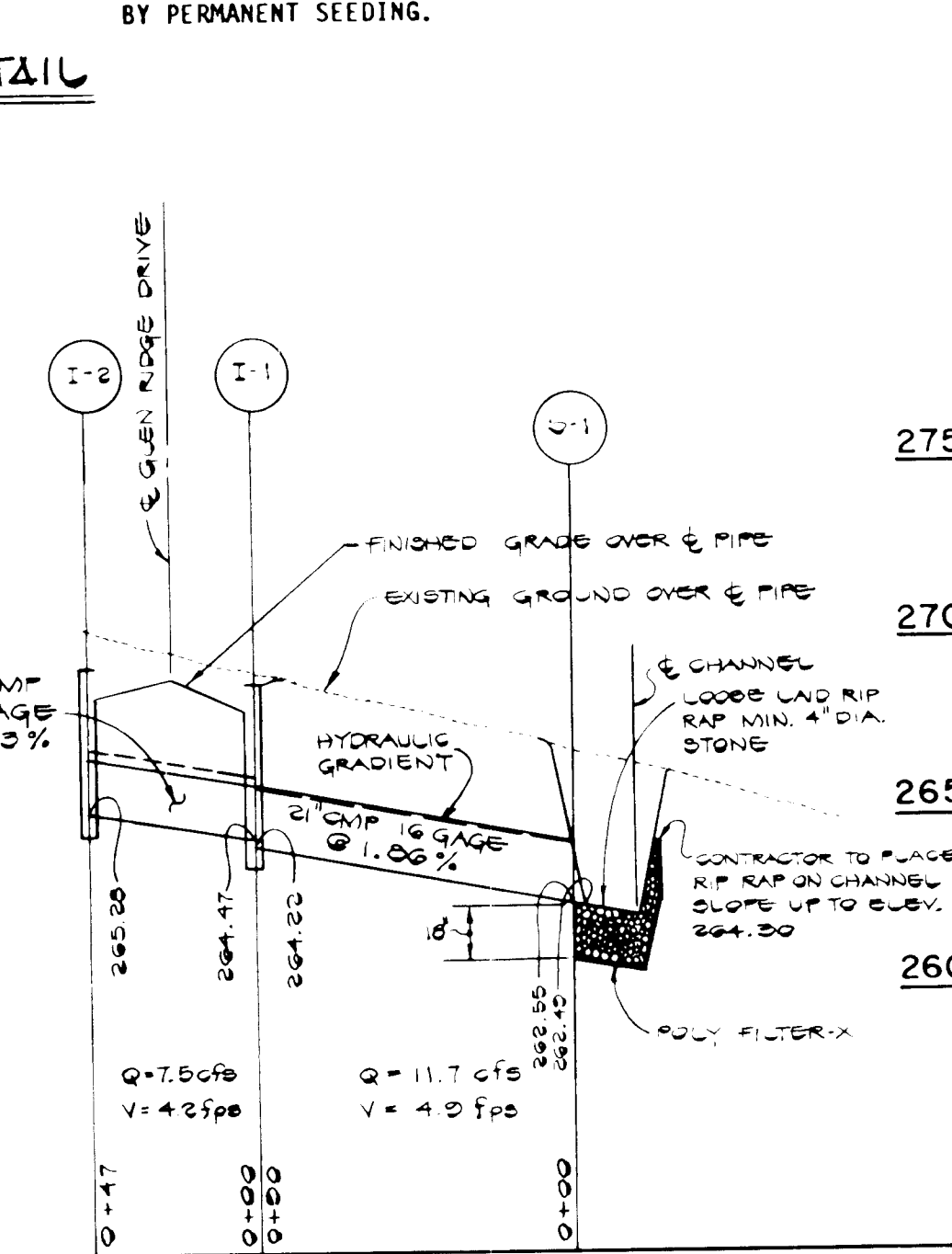
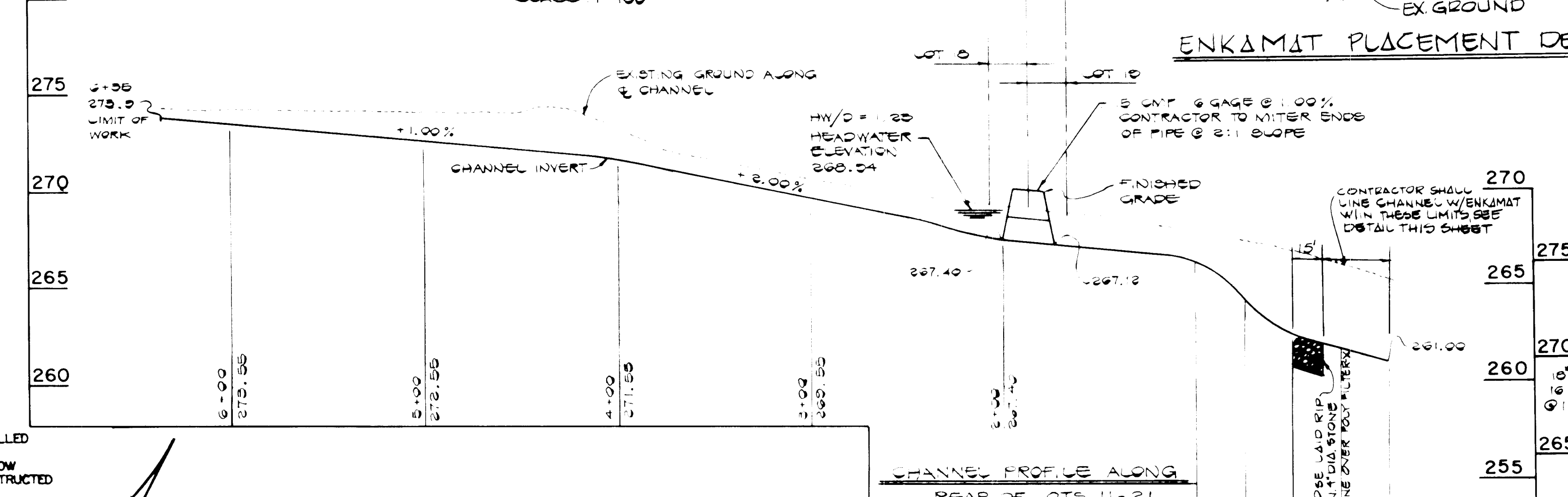
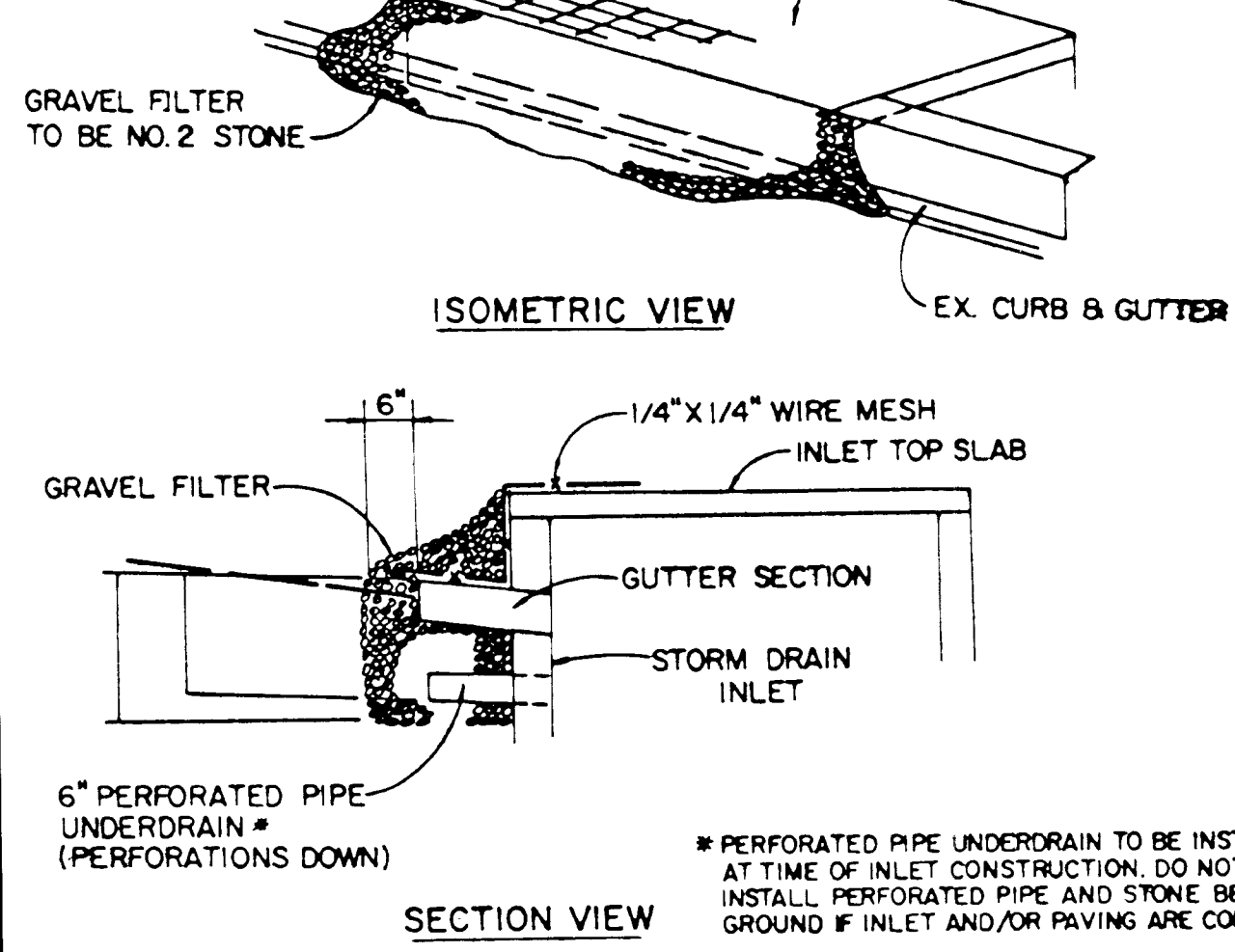
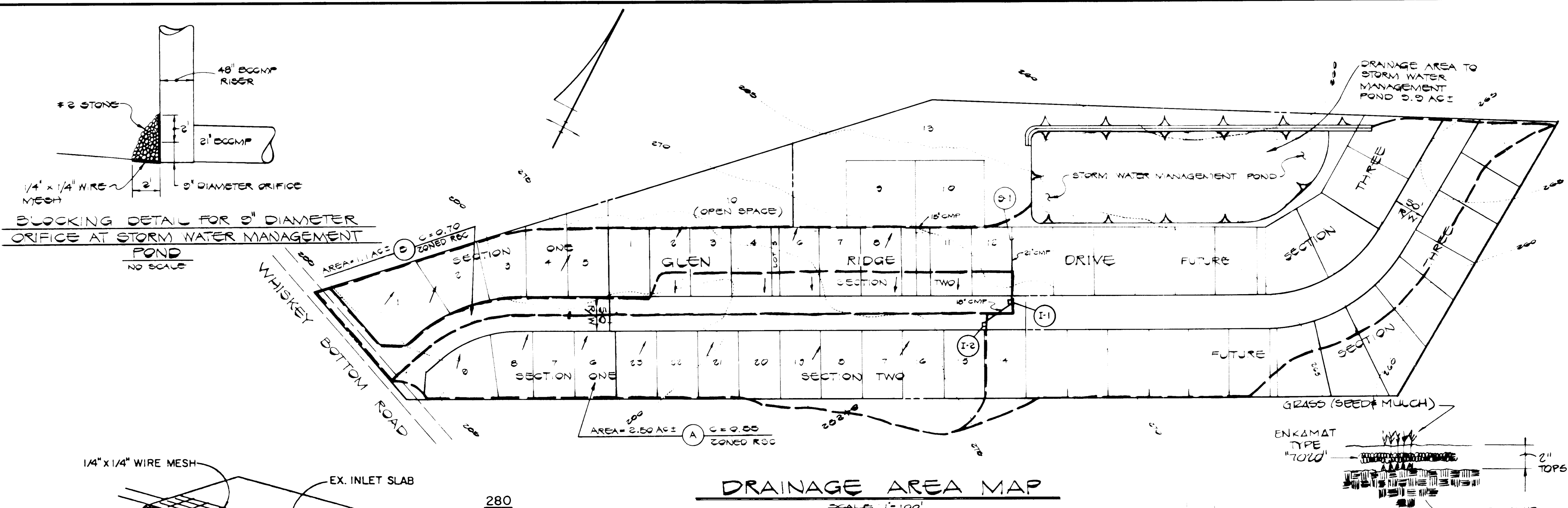
**TYPICAL SECTION**  
NO SCALE

ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL - VOLUME II, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION



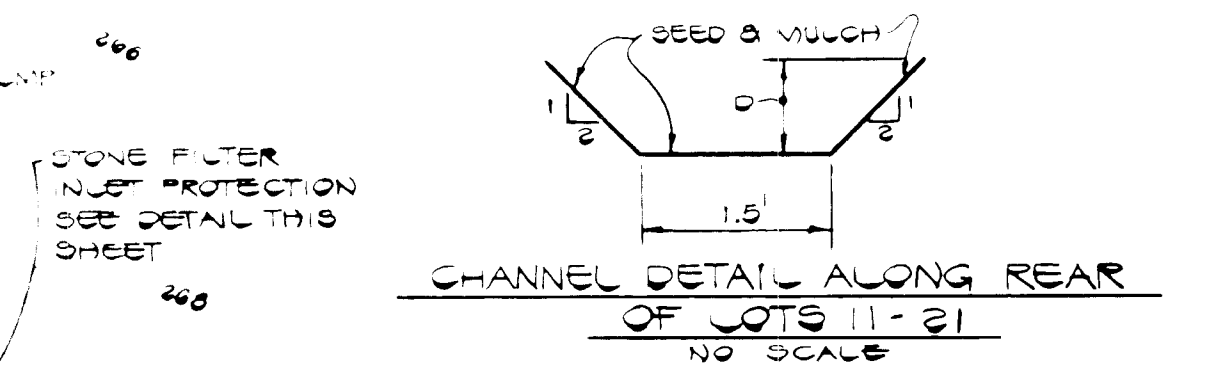
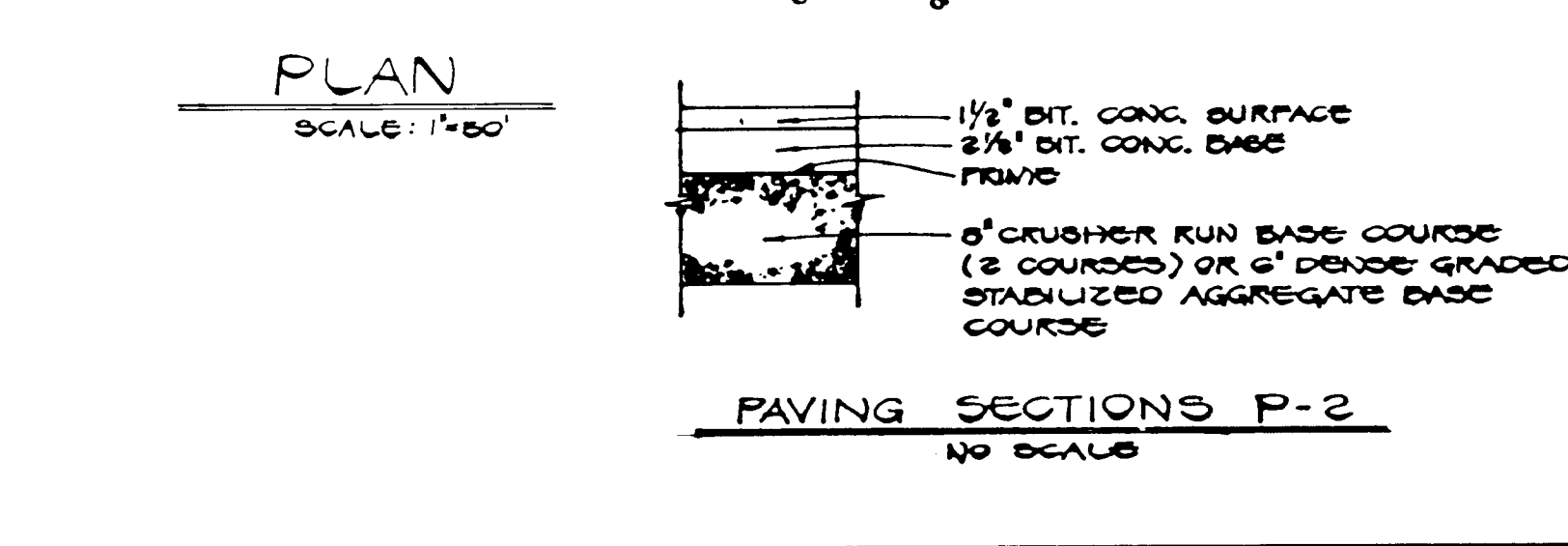
**RIP RAP APRON DETAIL @ S.W.M. POND OUTFALL**  
NO SCALE

STORM WATER MANAGEMENT POND  
PROFILES AND DETAILS  
NORTH RIDGE  
SECTION TWO  
LOTS 1-23  
6TH ELECTION DISTRICT HOWARD COUNTY, MD  
SCALE: AS SHOWN AUGUST 31, 1983  
SHEET 2 OF 3

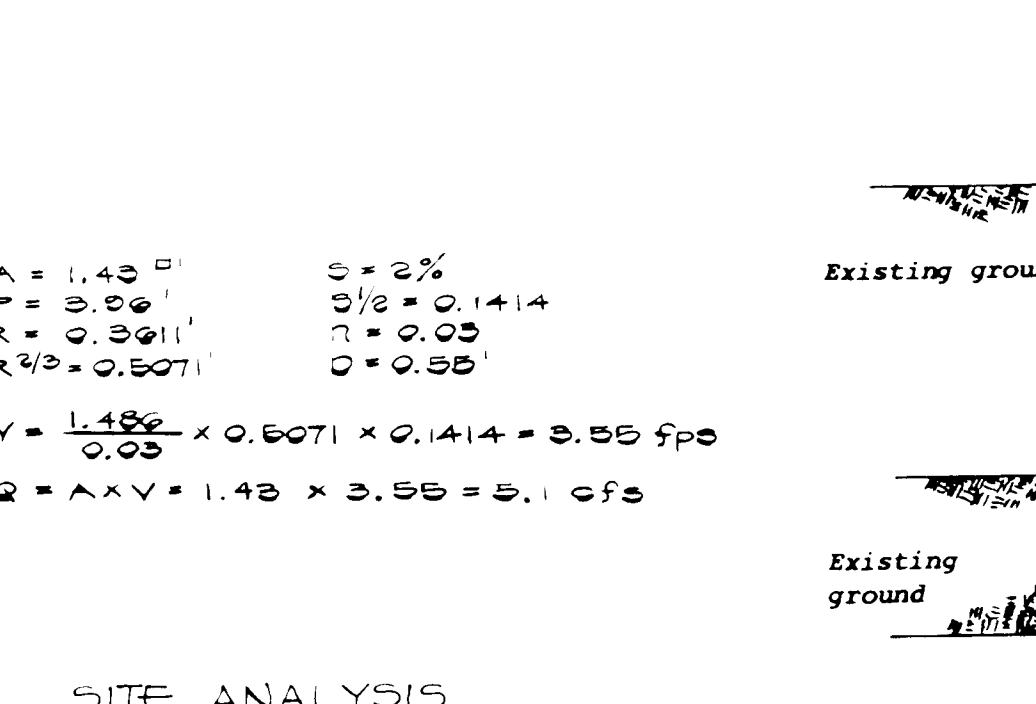
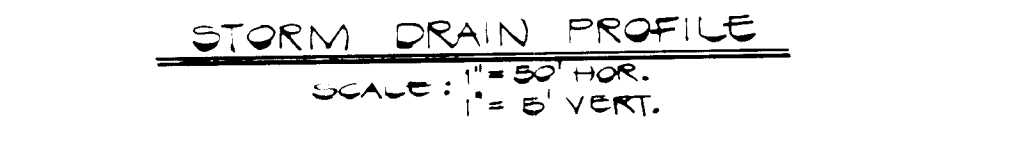
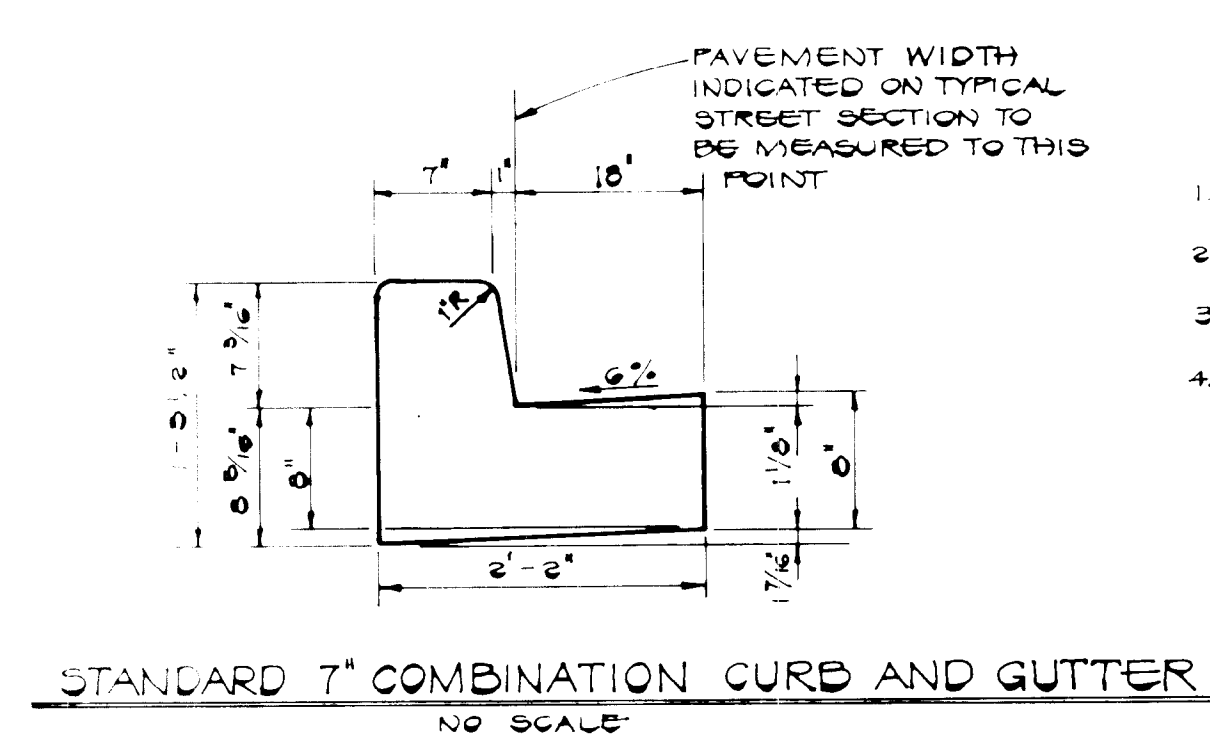


NO.	TYPE	INVERT IN	INVERT OUT	TOP ELEV.	REMARKS
I-1	A-10	264.47	264.22	268.00	DRWG 504.02
I-2	A-10	-	265.20	269.00	DRWG 504.02
S-1	STANDARD METAL MANHOLE	-	262.50	264.30	DRWG 505.01

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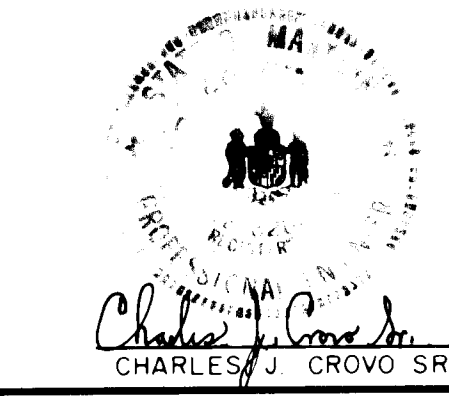


$A = 1.02 \text{ ft}^2$        $S = 1.00 \%$        $A = 1.43 \text{ ft}^2$        $S = 2 \%$   
 $F = 4.40$        $S/2 = 0.1000$        $F = 3.09$        $S/2 = 0.1414$   
 $R = 0.4136$        $R = 0.03$        $R = 0.3611$        $R = 0.03$   
 $R/2 = 0.5551$        $R = 0.65$        $R/2 = 0.5071$        $R = 0.55$   
 $V = \frac{1.43}{0.03} \times 0.5551 \times 0.1000 = 2.75 \text{ fps}$        $V = \frac{1.43}{0.03} \times 0.6071 \times 0.1414 = 3.55 \text{ fps}$   
 $Q = A \times V = 1.02 \times 2.75 = 2.80 \text{ cfs}$        $Q = A \times V = 1.43 \times 3.55 = 5.1 \text{ cfs}$



- SITE ANALYSIS**
- TOTAL AREA OF SECTION 2 6.5 AC ±
  - IMPERVIOUS AREA 0.55 AC ±
  - AREA TO BE VEGETATED 2.7 AC ±
  - UNDISTURBED AREA 3.25 AC ±

STREET TREE, GRADING, DETAILS AND SEDIMENT CONTROL PLAN  
 NORTH RIDGE  
 SECTION TWO  
 LOTS 1-23  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN      AUGUST 31, 1983  
 SHEET 3 OF 3



**CONSTRUCTION SEQUENCE**

- OBTAIN GRADING PERMIT.
- CONSTRUCT STONE CONSTRUCTION ENTRANCE AS SHOWN ON PLAN.
- CONSTRUCT STORM WATER MANAGEMENT POND AND STABILIZE USING TEMPORARY SEEDING.
- THE 9" DIAMETER ORIFICE SHALL BE BLOCKED IN ACCORDANCE WITH THE DETAIL ON THIS SHEET. THE ORIFICE SHALL REMAIN BLOCKED UNTIL SUCH TIME WHEN THE SEDIMENT BASIN TRANSITIONS TO FUNCTION AS A STORM WATER MANAGEMENT POND.
- CONSTRUCT CHANNEL ALONG REAR OF LOTS 11-21 AND STABILIZE WITH PERMANENT SEEDING.
- GRADE ROADS TO SUBGRADE STABILIZING SLOPE AREAS BETWEEN EXISTING GROUND AND BACK OF CURB USING PERMANENT SEEDING.
- CONSTRUCT STORM DRAIN SYSTEM.
- INSTALL STONE FILTER INLET PROTECTION DEVICES AT INLETS I-1 AND I-2.
- CONSTRUCT CONCRETE CURB AND LAY BASE COURSE.
- UPON STABILIZATION OF GRADED AREAS, INLETS SHALL BE OPENED AND ALL ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE STORM DRAIN SYSTEM.
- DURING CONSTRUCTION, SEDIMENT SHALL BE REMOVED FROM THE STORM WATER MANAGEMENT POND WHEN THE CLEANOUT ELEVATION 259.20 HAS BEEN REACHED.
- DURING CONSTRUCTION AND AFTER EACH RAINFALL, THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON.
- REMOVE STONE CONSTRUCTION ENTRANCE.
- CLEAN BASE COURSE, APPLY TACK COAT TO BASE COURSE, LAY SURFACE COURSE AND INSTALL CONCRETE SIDEWALK. STABILIZE ALL SHOULDERS USING PERMANENT SEEDING.
- THE SEDIMENT BASIN SHALL BE DETAILED BY PUMPING.
- THE SEDIMENT FROM THE STORM WATER MANAGEMENT POND SHALL BE PLACED ALONG THE FILL SLOPE AT HUMMINGBIRD COURT.
- THE STORM WATER MANAGEMENT POND SHALL BE GRADED IN ACCORDANCE WITH SHEET ONE AND STABILIZED IN ACCORDANCE WITH THE PERMANENT SEEDING SPECIFICATIONS IN THE SEDIMENT CONTROL NOTES. INSTALL RIP RAP APRON.
- ALL DISTURBED AREAS SHALL BE GRADED AND STABILIZED BY PERMANENT SEEDING.

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  
 U.S. SOIL CONSERVATION SERVICE      DATE 2-6-84  
 THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 APPROVED: Robert Zehner      DATE 2-6-84  
 DISTRICT HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 CHIEF, BUREAU OF ENGINEERING      DATE  
 APPROVED: OFFICE OF PLANNING AND ZONING  
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION      DATE 2-6-84

**SEDIMENT CONTROL NOTES**

- SPECIFICATIONS FOR THE SEDIMENT CONTROL DETAILS INCLUDED IN THE U.S.D.A. SOIL CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS.
- THE DEVELOPER SHALL NOTIFY THE HOWARD COUNTY OFFICE OF INSPECTION AND PERMITS AT LEAST 24 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION SHOWN HEREON (992-2433).
- SEDIMENT CONTROL STRUCTURES TO BE CONSTRUCTED PRIOR TO ANY ON-SITE GRADING OR DISTURBANCE TO ANY EXISTING SURFACE MATERIAL, AND ARE TO BE STABILIZED AS SOON AS CONSTRUCTED.
- ALL SEDIMENT CONTROL STRUCTURES TO REMAIN IN PLACE UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY OFFICE OF INSPECTION AND PERMITS (992-2433).
- ALL GRADED AREAS NOT TO BE SODDED SHALL BE STABILIZED BY SEEDING AND MULCHING IN ACCORDANCE WITH THE FOLLOWING:
  - SITE PREPARATION
    - HARROW OR DISC IN AREAS PROPOSED TO BE SEEDING THE FOLLOWING MATERIALS
      - PULVERIZED LIMESTONE AT 2 TONS/ACRE.
      - COMMERCIAL FERTILIZER 10-10-10 AT 3/4 TONS/ACRE.
      - SUPER PHOSPHATE AT 600 LBS./ACRE.
    - SEEDING
      - SOW THE FOLLOWING SEED MIXTURE AT THE RATE OF 200 LBS./ACRE WITH A MECHANICAL SPREADER
        - TEMPORARY: ITALIAN OR PERENNIAL RYE GRASS.
        - PERMANENT: 40% MARION BLUE GRASS, 40% DAKOTA BLUE GRASS AND 20% PENN LAWN CREEPING FESCUE.
      - THE SEEDING AREA SHALL THEN BE RAKED WITH A YORK RATE (A MINIMUM OF 2 PASSES) COVERED AND COMPACTED WITH CULTIPACKER OR OTHER APPROVED METHOD.
    - MULCHING
      - SEEDING AREAS SHALL BE UNIFORMLY MULCHED IMMEDIATELY AFTER SEEDING WITH UNWEATHERED SMALL GRAIN STRAW AT THE RATE OF 1 1/2-2 TONS/ACRE.
      - TIE MULCH DOWN WITH LIQUID ASPHALT AT 0.1 GAL./S.Y. OR EMULSIFIED ASPHALT AT 0.04 GAL./S.Y. OR MULCH NETTING.
- A GRADING PLAN MUST BE DEVELOPED BY THE BUILDER AND APPROVED BEFORE BEGINNING CONSTRUCTION OF DWELLINGS.

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