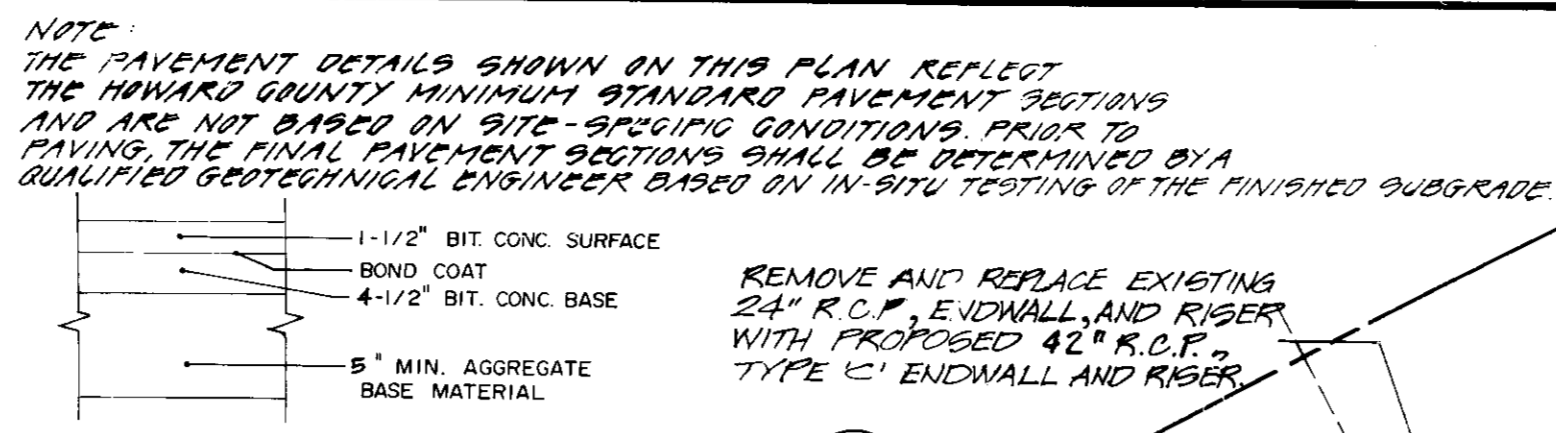
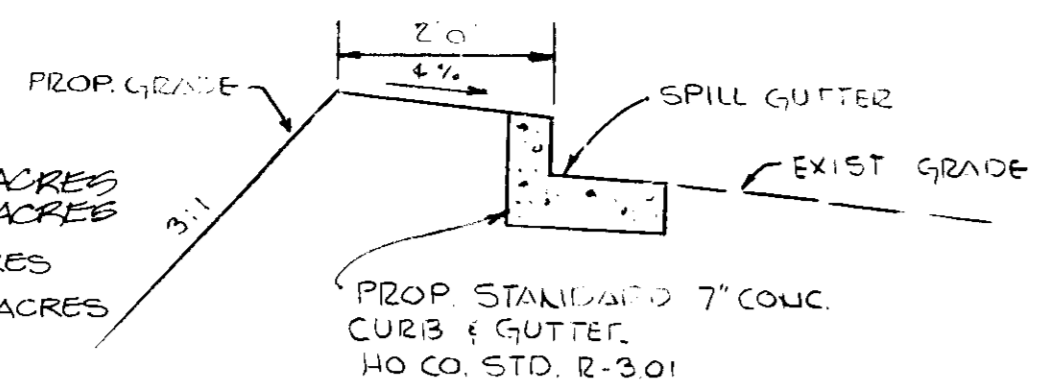
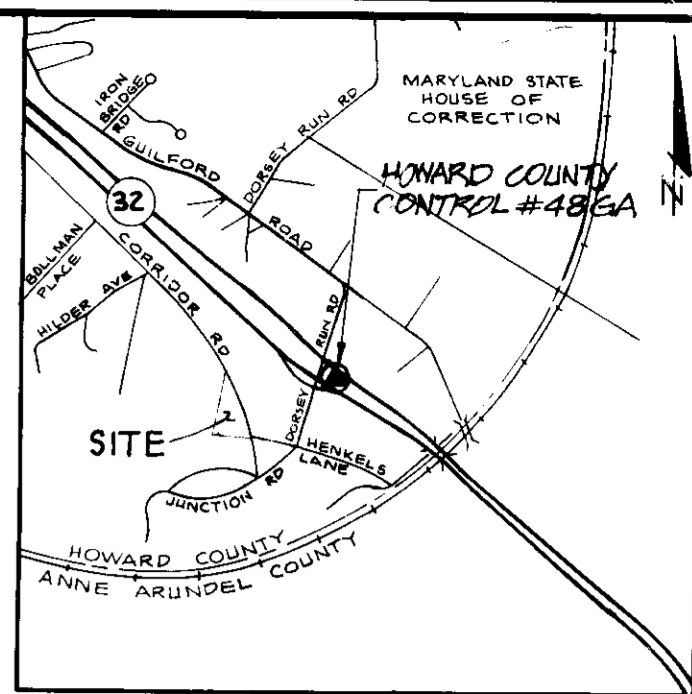


**SITE ANALYSIS**  
 AREA OF PARCEL: 2.9 ACRES  
 PRESENT ZONING: M-2  
 PAVED PARKING LOT AREA:  
 EXISTING 1.8 ACRES 62% OF 2.9 ACRES  
 PROPOSED 2.8 ACRES 82% OF 2.9 ACRES  
 EXISTING BUILDING: .9 ACRES 7% OF 2.9 ACRES  
 PROPOSED BUILDING: .03 ACRES 1% OF 2.9 ACRES



**INLET SEDIMENT TRAP (AT I-1)**  
 TYPE: ST-111  
 EX. D.A. = 0.49 AC ±  
 PROP. D.A. = 0.90 AC ±  
 STORAGE REQ. = 1020 C.F.  
 STORAGE PROV. = 1086 C.F.  
 OUTLET ELEV. = 216.5  
 TOP ELEV. = 216.0  
 CLEANOUT ELEV. = 214.6  
 BOTTOM ELEV. = 210.75  
 TOP DIMENSIONS = 85.5 x 12.5  
 BOTTOM DIMENSIONS = 80 x 10  
 SIDE SLOPES = 1:1



**STRUCTURE SCHEDULE**

NO	TYPE	TOP EL.	INV. IN	INV. OUT	REMARKS
1-1	PRECAST SINGLE WR INLET	215.50	N/A	212.50	HO. CO. STD DETAIL SD 4.37
5-1	RISER STRUCTURE	212.33	207.78	207.78	SEE SHEET 2 OF 5
HW-1	TYPE 'C' ENDWALL	N/A	207.50	207.50	HO. CO. STD DETAIL ED-1E-21

**PIPE SCHEDULE**

SIZE	TYPE	LENGTH
15"	RCP CL IV	52'
42"	RCP ASTM C-900 A-25	34'

**LEGEND**

- 210- EXISTING CONTOUR
- 215- PROPOSED CONTOUR
- LOD- LIMIT OF DISTURBANCE
- S- SILT FENCE
- SCE- STABILIZED CONSTRUCTION ENTRANCE
- S-CH- PROPOSED 6" CHAIN LINK FENCE (FOR DETAILS SEE PENSKER FENCE SPECIFICATIONS)
- W- EXISTING WOODS TO REMAIN
- 2YR. 100YR. 100YR. 2, 10, & 100 YR. POOL LINES
- DRAINAGE BOUNDARY (S.W.M.)
- TIME OF CONCENTRATION
- SD- STORM DRAIN DRAINAGE BOUNDARY
- EARTH DIKE

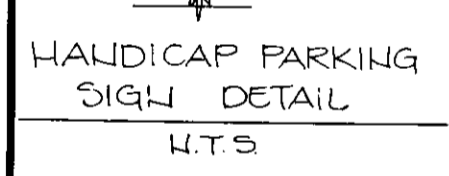
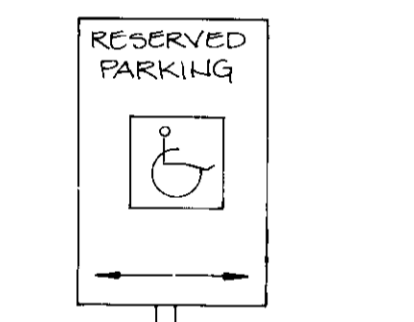
**SHEET INDEX**

SHEET NUMBER	SHEET DESCRIPTION
1	PLAN
2	SEDIMENT CONTROL DETAILS
3	STORM WATER MANAGEMENT DETAILS
4	STORM WATER MANAGEMENT DETAILS
5	LANDSCAPE PLAN

**STORM WATER MANAGEMENT SUMMARY TABLE**  
 DRAINAGE AREA = 2.50 AC

ALLOWABLE RELEASE RATE	2 YR	10 YR	100 YR
INFLOW RATE	2.77	8.64	NONE
DISCHARGE RATE	2.4	6.9	17.9
DESIGN HIGH WATER ELEV.	210.09	211.19	211.24
STORAGE AT D.H.W. ELEV.	0.20 AF	0.35 AF	0.45 AF

DRAINAGE AREA = 0.68 AC  
 25% IMPERVIOUS  
 C FACTOR = 0.85  
 SOIL TYPE B&B2 BELTSVILLE SILT LOAM



EXISTING WOODS TO REMAIN

PROPOSED P-3 PAVING

PROPOSED 6" CHAIN LINK FENCE

PROPOSED 6" CHAIN LINK FENCE

PROPOSED 6" CHAIN LINK FENCE

PROPOSED 6" CHAIN LINK FENCE

PROPOSED 6" CHAIN LINK FENCE

PROPOSED 6" CHAIN LINK FENCE

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PROPOSED 6" CHAIN LINK FENCE

PROPOSED 6" CHAIN LINK FENCE

PROPOSED 6" CHAIN LINK FENCE

**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 DISTRICT THAT THE ENGINEER IS A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A 24-HOUR NOTICE OF THE PLAN WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 Signature: *John E. Harms, Jr.* 3/30/94  
 DATE

**DEVELOPER'S CERTIFICATE**  
 I 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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL EMPLOY A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A 24-HOUR NOTICE OF THE PLAN WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 Signature: \_\_\_\_\_ 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.  
 Signature: *Patricia Engler* 6/24/94  
 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.  
 Signature: *Robert Zielinski* 4/7/94  
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Signature: *John L. Vos* 4/15/94  
 DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE STORM DRAINAGE SYSTEMS AND PUBLIC ROADS  
 Signature: *John L. Vos* 4/15/94  
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE STORM DRAINAGE SYSTEMS AND PUBLIC ROADS  
 Signature: *John L. Vos* 4/15/94  
 DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE STORM DRAINAGE SYSTEMS AND PUBLIC ROADS  
 Signature: *John L. Vos* 4/15/94  
 CHIEF, BUREAU OF ENGINEERING DATE

**COUNTY HEALTH OFFICER**

SUBDIVISION NAME	SECTION/AREA	PARCEL NUMBER
PT JSKE	N/A	174

PLAT: S/L/F L 1891 F 050E  
 BLOCK NO. 13-14  
 ZONE M-2  
 TAX/ZONE 48  
 ELECT. DIST. 6  
 CENSUS TR. 6069 02

WATER CODE C 04  
 SEWER CODE 4020000

**SITE DEVELOPMENT PLAN**  
**PENSKER**  
 PARKING LOT EXPANSION  
 FOR TRUCK PARKING

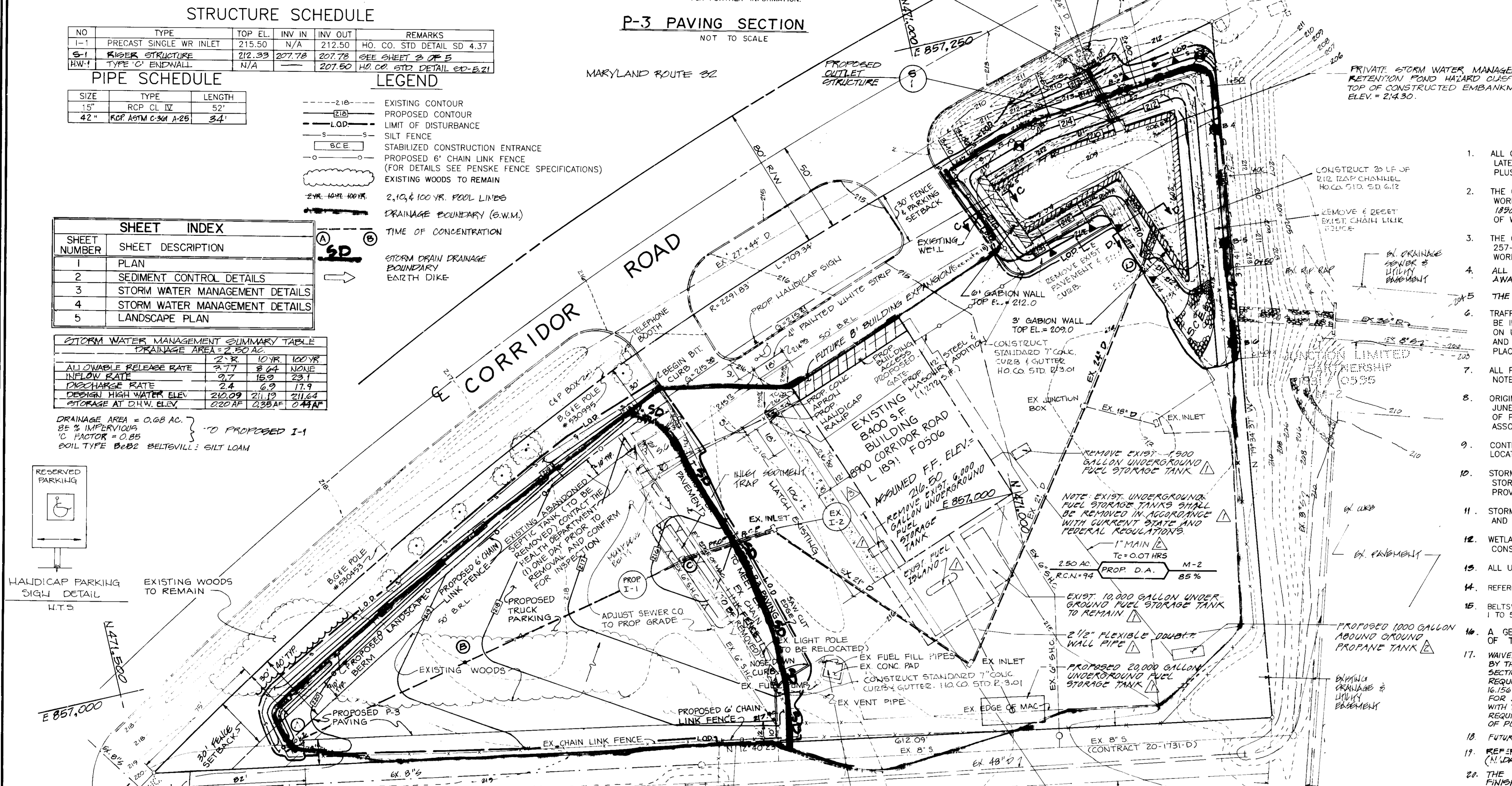
TAX MAP 48 PARCEL 174  
 6 TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**JOHN E. HARMS, JR. AND ASSOCIATES, INC.**  
 CONSULTING ENGINEERS - PLANNERS - SURVEYORS

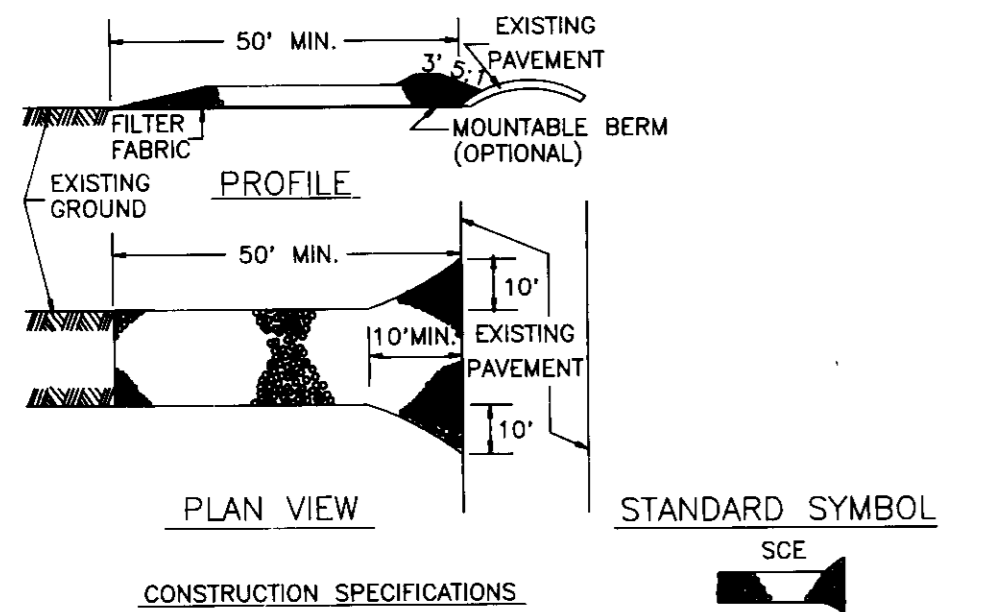
90 RITCHIE HIGHWAY PASADENA, MARYLAND 21122 76 BOX 5 (410) 647-6000

DESIGNED BY: R.H.V.  
 DRAWN BY: D.G.H.  
 CHECKED BY: S.M.E.  
 DATE: MARCH 31, 1994  
 SCALE: 1" = 30'  
 W.D. NO.: 45-92-005A

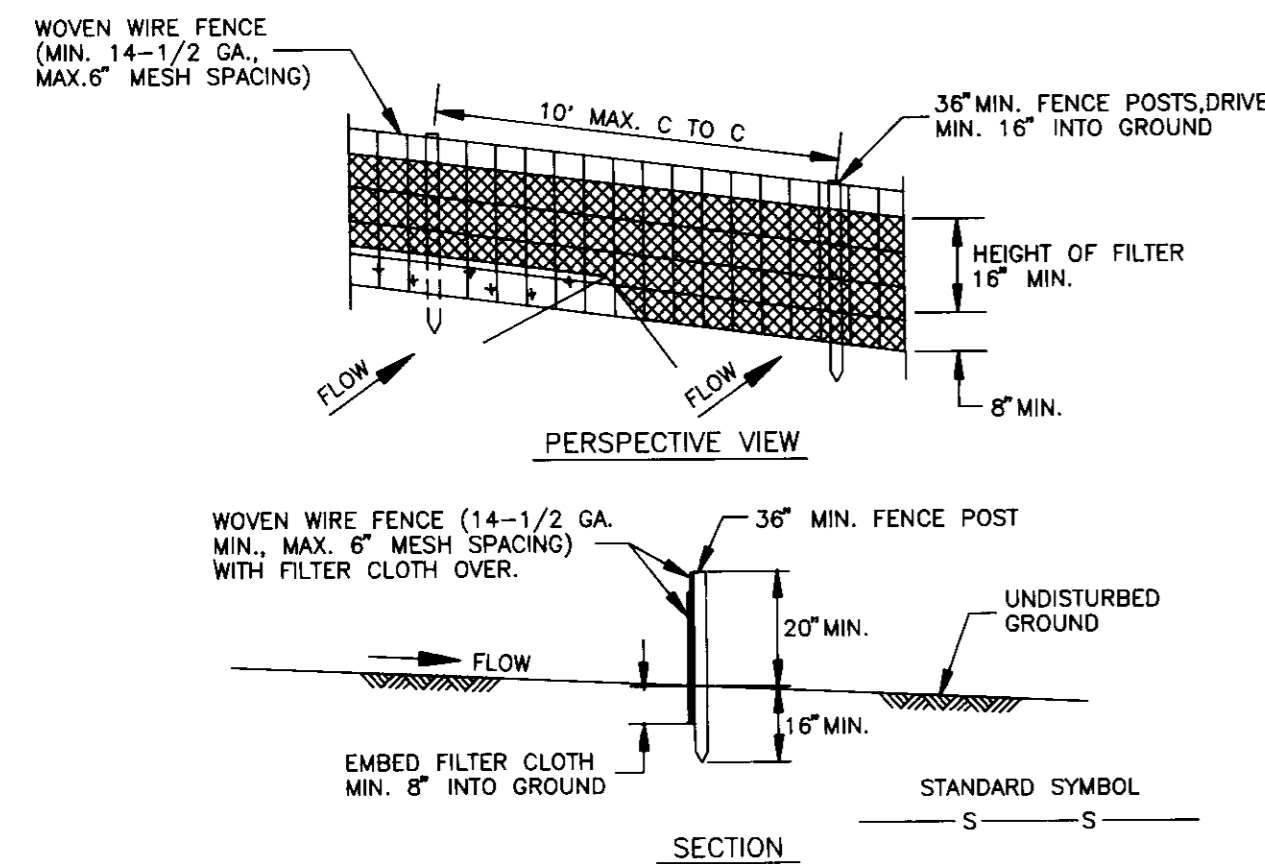
1 SHEET OF 5



- GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
  - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF CONSTRUCTION INSPECTION AT (410) 313 1850 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
  - THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
  - ALL EXTERIOR LIGHTING FIXTURES SHALL BE DIRECTED AWAY FROM CORRIDOR ROAD.
  - THE PROPOSED PARKING EXPANSION IS FOR TRUCK PARKING ONLY.
  - TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
  - ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
  - ORIGINAL SURVEY PERFORMED BY THE J.E. CLARK CO. IN JUNE, 1982. TOPOGRAPHY SUPPLEMENTED AND UPDATED IN AREA OF PROPOSED CONSTRUCTION BY JOHN E. HARMS, JR. AND ASSOCIATES, INC. IN JULY, 1992 AND SEPTEMBER 1993.
  - CONTRACTOR TO PERFORM TESTS PITS AS REQUIRED TO VERIFY LOCATION OF EXISTING UTILITIES.
  - STORMWATER MANAGEMENT QUANTITY CONTROL PROVIDED BY EXISTING STORMWATER MANAGEMENT POND. STORMWATER MANAGEMENT QUALITY PROVIDED BY EXISTING STORMWATER MANAGEMENT POND.
  - STORMWATER MANAGEMENT FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED.
  - WETLANDS ARE NOT PRESENT IN THE VICINITY OF PROPOSED CONSTRUCTION.
  - ALL UTILITIES WERE LOCATED FROM EXISTING RECORD DRAWINGS.
  - REFERENCE SDP 82-114 FOR EXISTING FACILITIES.
  - BELTSVILLE SILT LOAM (B&B2) IS THE PREDOMINANT SOIL TYPE WITH 1 TO 5 PERCENT SLOPES.
  - A GEOTECHNICAL ENGINEER SHALL SUPERVISE THE RECONSTRUCTION OF THE POND EMBANKMENT.
  - WAIVER PETITION NO. WVP-94-25 WAS APPROVED ON NOVEMBER 5, 1993 BY THE HOWARD COUNTY PLANNING DIRECTOR. THIS GRANTS A WAIVER TO SECTION 16.156(F)(2) TO PERMIT A 45 DAY EXTENSION TO SUBMIT THE REQUESTED REVISED LANDSCAPE PLAN (BY DECEMBER 20, 1993) AND SECTION 16.156(K) TO PERMIT A 180 DAY EXTENSION TO SUBMIT THE ORIGINAL DRAWINGS FOR SIGNATURE APPROVAL (BY MAY 4, 1994), SUBJECT TO COMPLIANCE WITH THE FOLLOWING CONDITION: FIFTY PERCENT (50%) OF THE REQUIRED ENGINEERING REVIEW FEE SHALL BE PAID TO THE DEPARTMENT OF PUBLIC WORKS PRIOR TO THE REVISED PLAN SUBMISSION TO THEM.
  - FUTURE EXPANSION SHOWN ON BUILDING 19 NOT PART OF THIS PLAN.
  - REFER TO HOWARD COUNTY ZONING CONTROL #48 GA. (MUR 83) AT CORNER FROM ROAD AND RTE 32.
  - THE PROPOSED GRADES SHOWN HEREON ARE FROM AN ASSUMED FINISHED FLOOR ELEVATION OF (216.50), AS SHOWN ON THE LEGISLATIVE TRANSPORTATION SITE PLAN (ELP 82-114) BY J.E. CLARK CO.



- CONSTRUCTION SPECIFICATIONS**
- STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
  - LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENT LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
  - THICKNESS - NOT LESS THAN SIX (6) INCHES.
  - WIDTH - TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINT WHERE INGRESS AND EGRESS OCCURS.
  - FILTER CLOTH - WILL BE PLACED OVER ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON A SINGLE FAMILY LOT.
  - SURFACE WATER - ALL SURFACE WATER FLOW IN OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
  - MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
  - WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE INTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
  - PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.



**SILT FENCE DETAILS**  
NOT TO SCALE

**CONSTRUCTION NOTES FOR FABRICATED SILT FENCE**

- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
  - FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP & MID SECTION.
  - WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
  - MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
- POSTS: STEEL EITHER 1 OR U TYPE OR 2" HARDWOOD.  
FENCE: WOVEN WIRE, MIN. 14-1/2 GA., 6" MAX. MESH OPENING.  
FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.  
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

**TEMPORARY SEEDING**

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

**Seedbed preparation:** Loosen upper three inches of soil by raking, discing, or other acceptable means before seeding, if not previously loosened.

**Soil Amendments:** Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq. ft.).

**Seeding:** For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs./1000 sq. ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs./1000 sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well-anchored straw mulch, and seed as soon as possible in the spring, or use sod.

**Mulching:** Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal./1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gal. per acre (8 gal./1000 sq. ft.) for anchoring.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

**SEDIMENT CONTROL NOTES**

- All Grading Permits shall be obtained prior to the starting of any Grading work.
- A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction (992-2437).
- All vegetation and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: (a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes, and all slopes greater than 3:1, (b) 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, Storm Drainage, of the Howard County Design Manual.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50), and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis
 

Total area of site R/W and easements	2.9 acres
Area disturbed	0.94 acres
Area to be roofed or paved	0.58 acres
Area to be vegetatively stabilized	0.36 acres
Total cut	850 cu. yds.
Total fill	600 cu. yds.

 To be determined by contractor, with pre-approval of the Sediment Control Inspector.
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- See Sheet No. 3 for additional Sediment and Erosion Control Notes and Details.

**OPERATION AND MAINTENANCE SCHEDULE OF PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITY WET DETENTION POND**

- ROUTINE MAINTENANCE**
- FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
  - TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE AREAS SHOULD BE MOWED AS NEEDED.
  - DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
  - VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
- NON-ROUTINE MAINTENANCE**
- STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RIBBER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
  - EQUIPMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE CAPACITY OF THE POND. THE EQUIPMENT SHOULD BE REMOVED WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

**PERMANENT SEEDING NOTES**

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent, long-lived vegetative cover is needed.

**Seedbed Preparation:** Loosen upper 3 inches of soil by raking, discing, or other acceptable means before seeding, if not previously loosened.

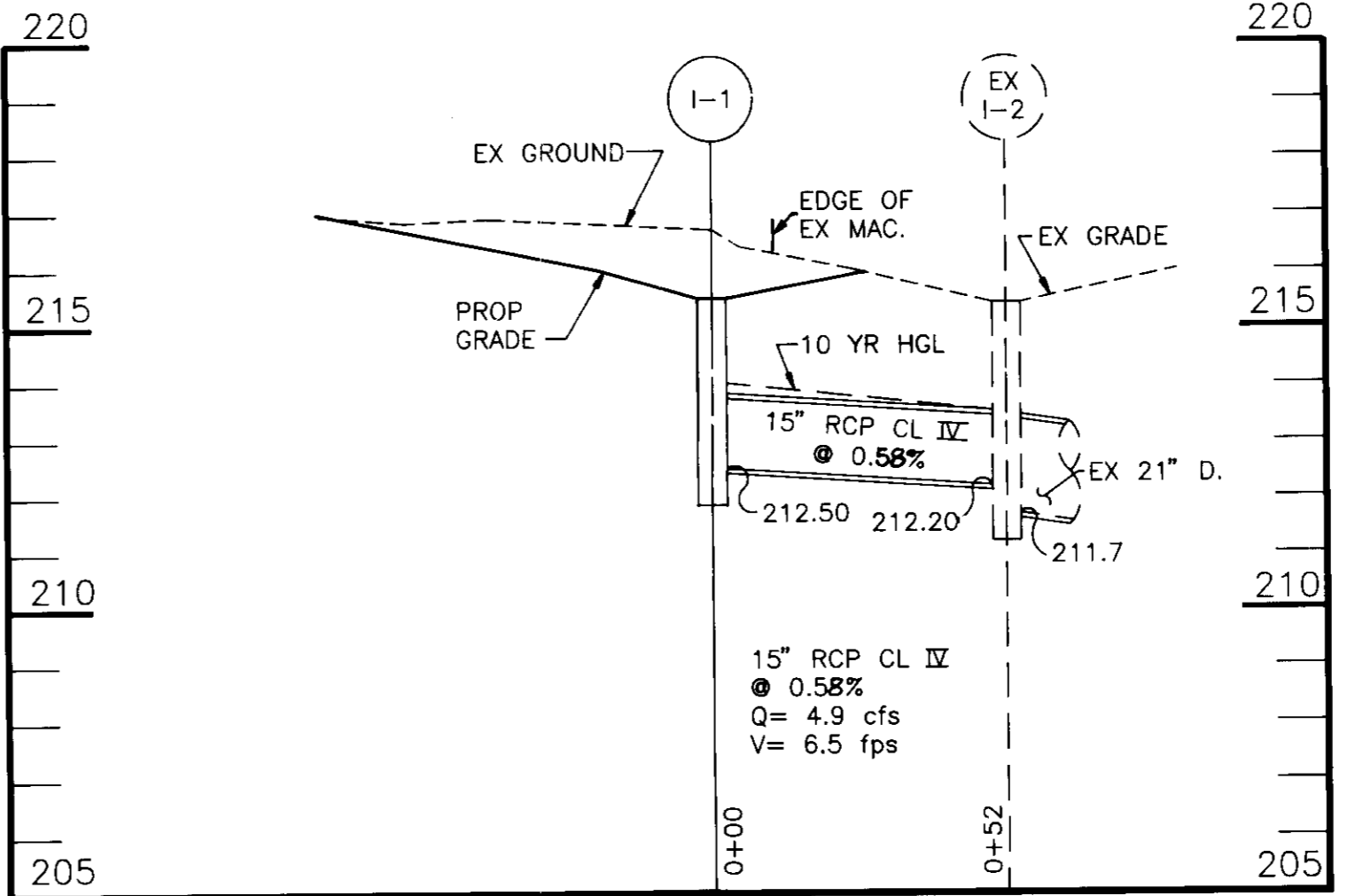
**Soil Amendments:** Use one of the following schedules:

- Preferred-** Apply 2 tons per acre dolomitic limestone (92 lbs./1000 sq. ft.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq. ft.) before seeding. Harrow or disc into upper 3 inches of soil. At time of seeding apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs./1000 sq. ft.).
- Acceptable-** Apply 2 tons per acre dolomitic limestone (92 lbs./1000sq. ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs./1000 sq. ft.) before seeding. Harrow or disc into upper three inches of soil.

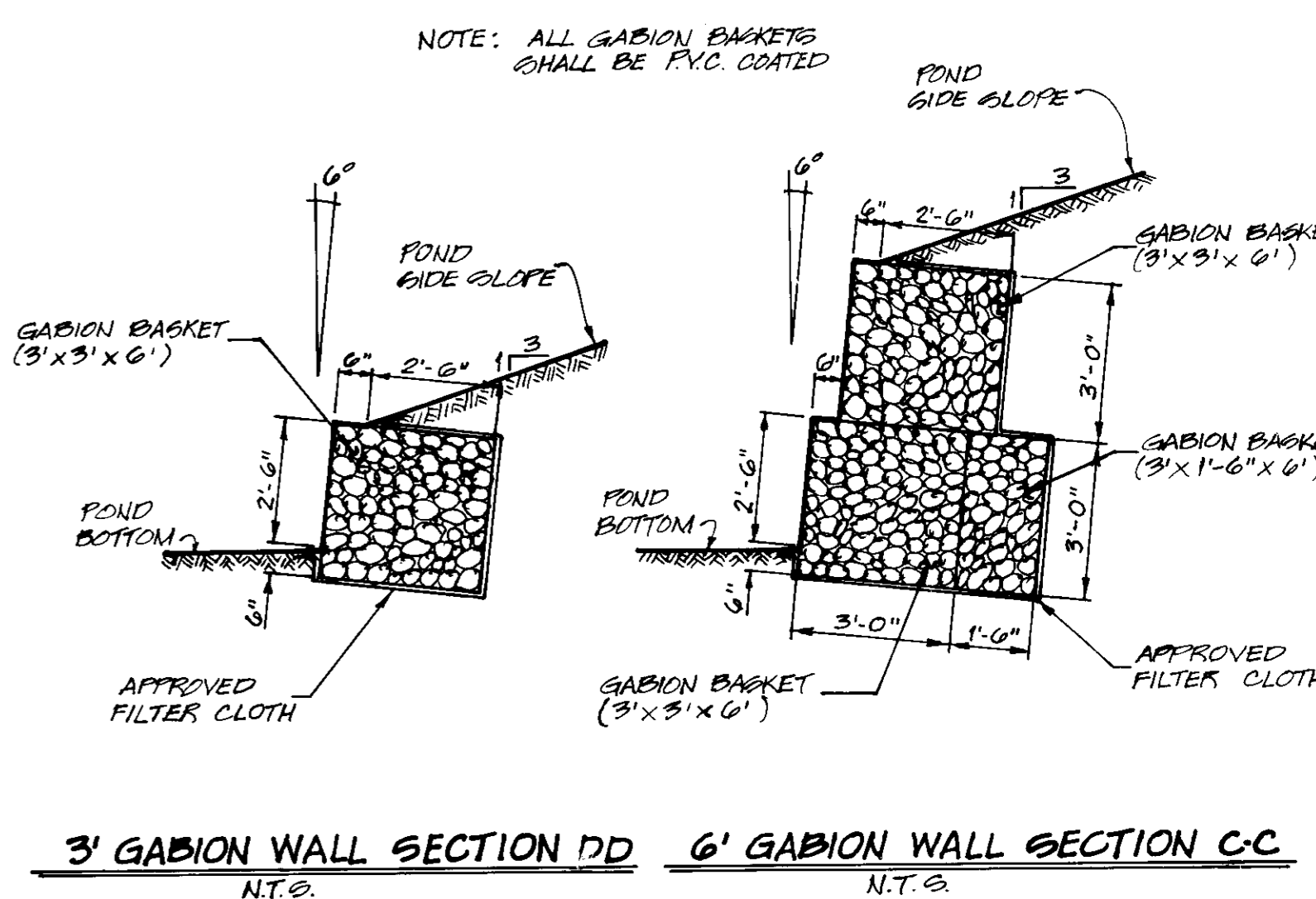
**Seeding:** For the periods March 1 thru April 30 and August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs./1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. of Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (.05 lbs./1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by Option 1- 2 tons per acre of well-anchored straw mulch, and seed as soon as possible in the spring. Option 2- Use sod. Option 3- Seed with 60 lbs. per acre Kentucky 31 Tall Fescue, and mulch with 2 tons per acre well anchored straw.

**Mulching:** Apply 1 1/2 to 2 tons per acre (70-90 lbs./1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal./1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal./1000 sq. ft.) for anchoring.

**Maintenance:** Inspect all seeded areas, and make needed repairs, replacements, and reseeds.



**STORM DRAIN PROFILE**  
SCALE: VERT. 1"=3', HORIZ. 1"=30'



**3' GABION WALL SECTION DD 6' GABION WALL SECTION CC**  
N.T.S.

**PENSKE Truck Leasing**

OWNER / DEVELOPER  
PENSKE TRUCK LEASING  
ROUTE 10 GREEN HILLS P.O. BOX 563  
READING, PENNSYLVANIA 19603-0563  
TELEPHONE: (215) 775-6383

**SITE DEVELOPMENT PLAN**  
**PENSKE**  
**PARKING LOT EXPANSION**  
**FOR TRUCK PARKING**

TAX MAP 48 PARCEL 174  
6 TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**JOHN E. HARMS, JR. AND ASSOCIATES, INC.**  
CONSULTING ENGINEERS - PLANNERS - SURVEYORS

90 GOVERNOR RITCHIE HIGHWAY PASADENA, MARYLAND 21122 P.O. BOX 5 (410) 647-6000

**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 COUNTY DEPARTMENT OF PLANNING AND ZONING. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

*Robert J. Harms, Jr.* 3/30/94  
SIGNATURE OF ENGINEER DATE

**DEVELOPER'S CERTIFICATE**

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSON INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENTION AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING FACILITY FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

*Robert J. Harms, Jr.* 4/7/94  
SIGNATURE OF DEVELOPER 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.

*Robert J. Harms, Jr.* 4/7/94  
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 J. Harms, Jr.* 4/7/94  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*James J. Harms, Jr.* 4/15/94  
DIRECTOR DATE

*Uma Surmann* 4/15/94  
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*James J. Harms, Jr.* 4/22/94  
DIRECTOR DATE

*Robert J. Harms, Jr.* 4/22/94  
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS

HOWARD COUNTY HEALTH DEPARTMENT

N/A # DATE

COUNTY HEALTH OFFICER

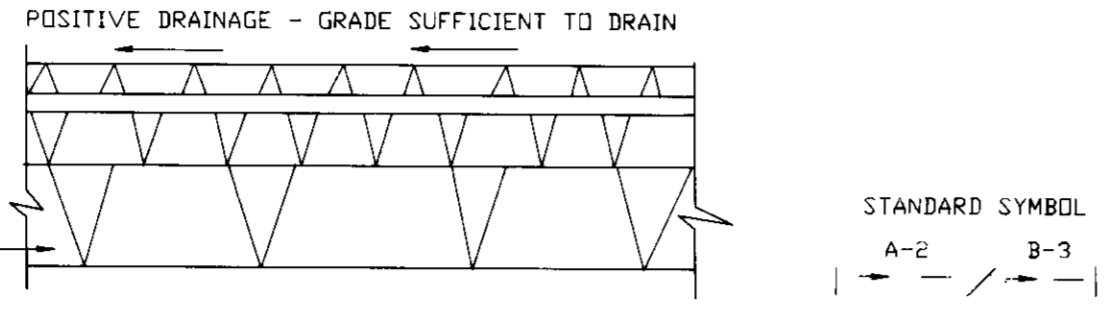
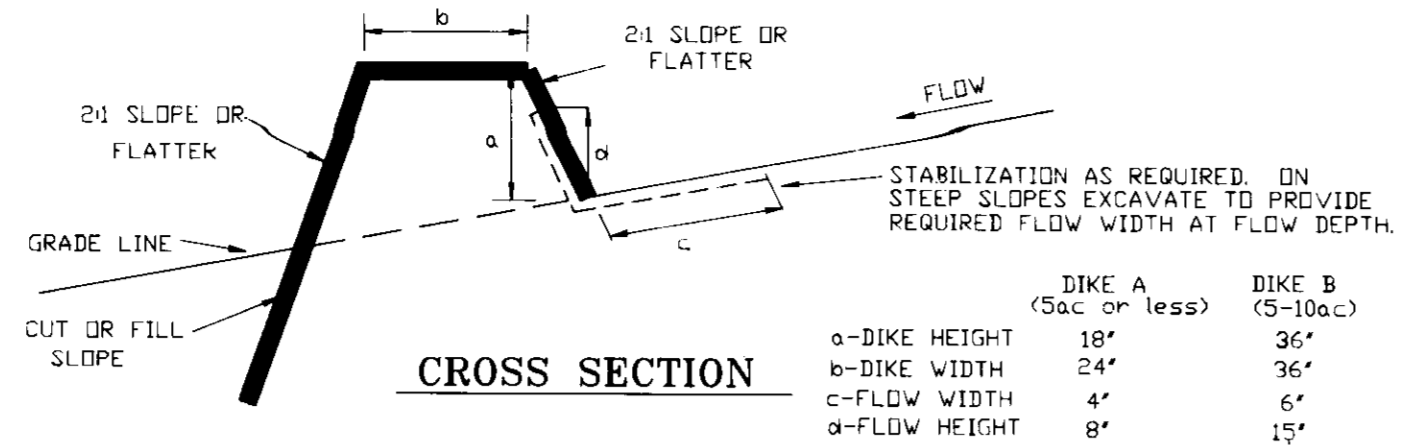
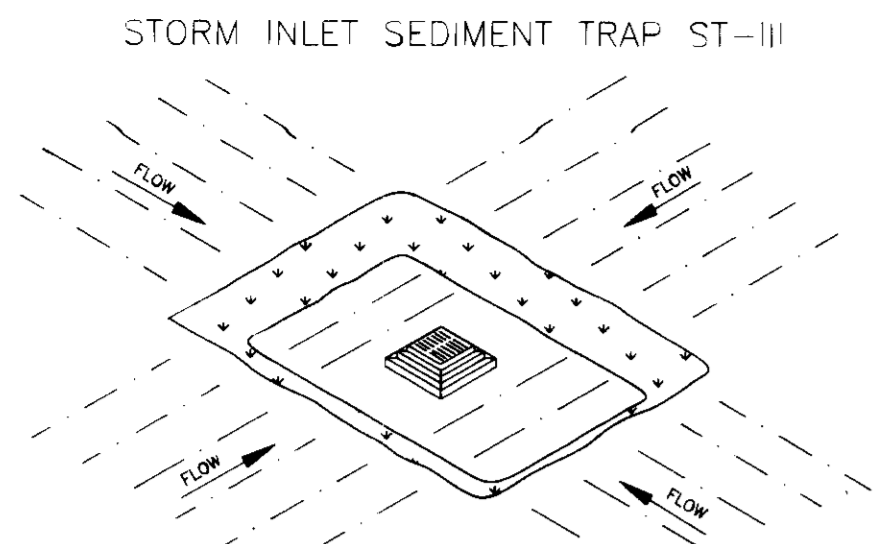
SUBDIVISION NAME	SECTION/AREA	PARCEL NUMBER
PENSKE	N/A	174

PLAT # L/F	BLOCK NO.	ZONE	TAX/ZONE	ELECT. DIST.	CENSUS TR.
L 1891 F 0506	13-14	M-2	48	6 TH	6069.02

WATER CODE C04 SEWER CODE 4020000

DESIGN BY: RHY  
DRAWN BY: DGH  
CHECKED BY: R.H.F.  
DATE: MARCH 31, 1994  
SCALE: AS SHOWN  
W.O. NO.: 45-92-005A

2 SHEET OF 5



CONSTRUCTION SPECIFICATIONS

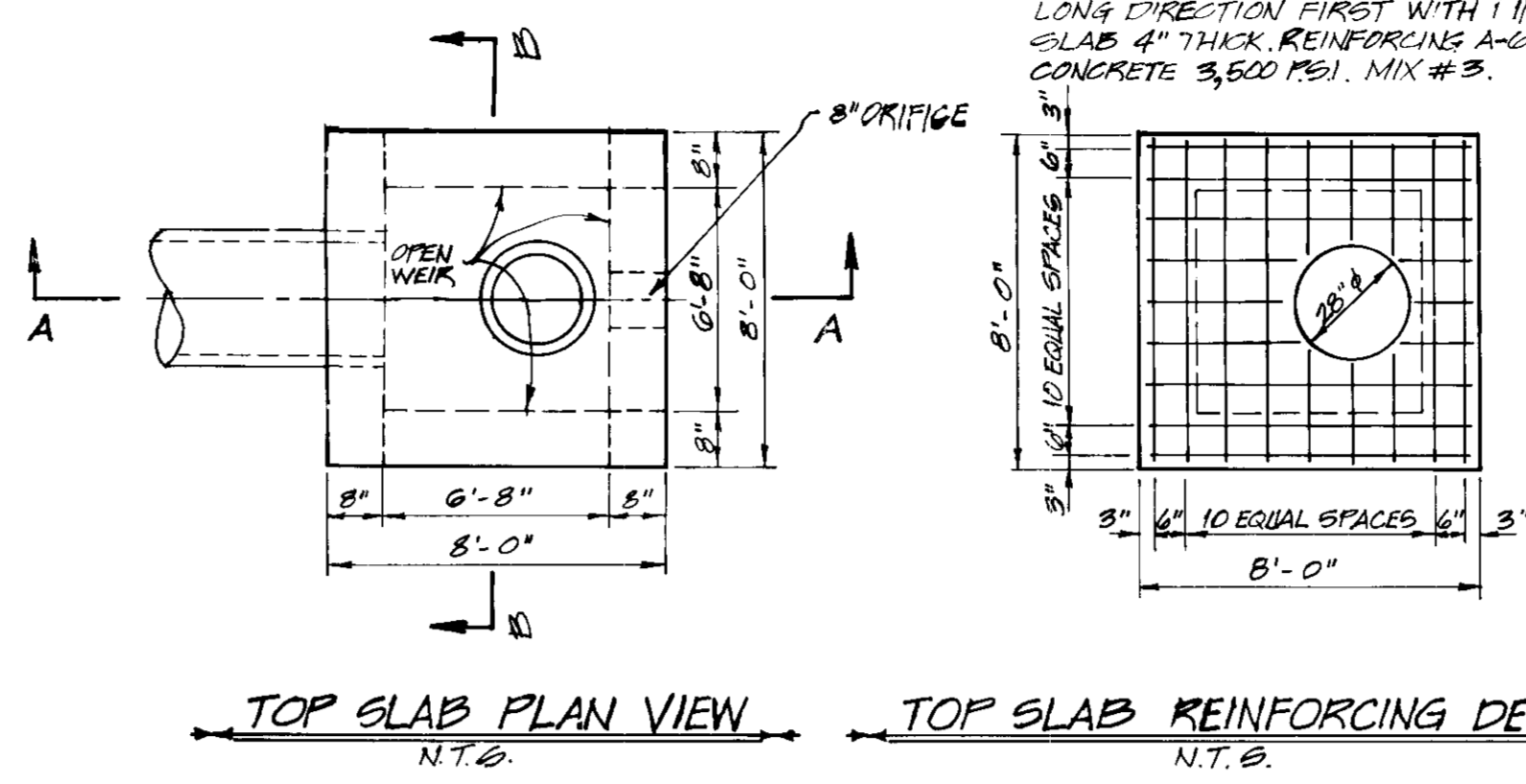
- ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
- ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
- TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
- FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
- EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
- DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.

FLOW CHANNEL STABILIZATION

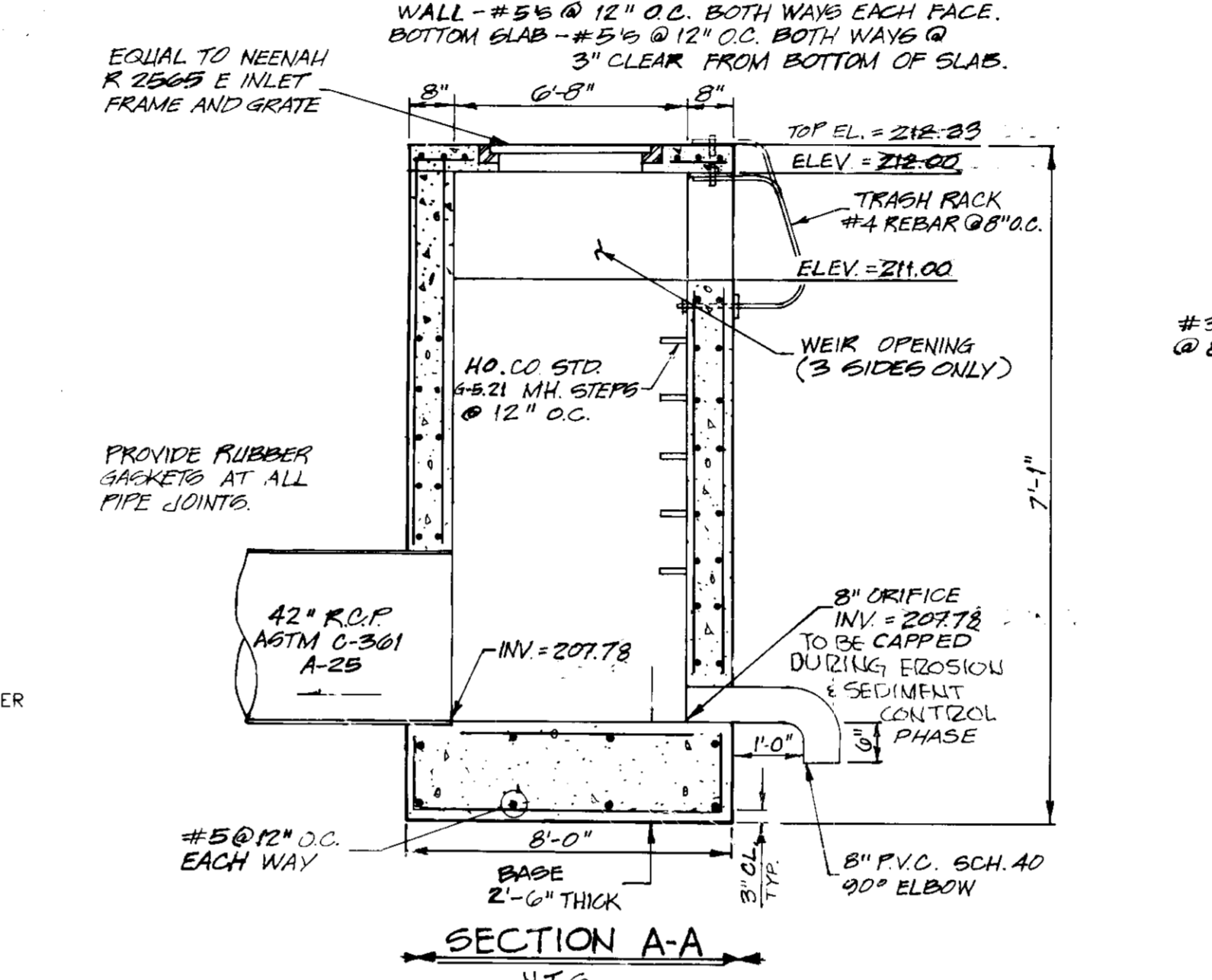
TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
3	5.1-8.0%	SEED WITH SOIL STABILIZATION MATTING, OR SOD	SEED WITH SOIL STABILIZATION MATTING, OR SOD
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

- RIIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
- SUBSTITUTION FOR ANY OF THE ABOVE MATERIALS MAY BE CONSIDERED BUT MUST BE APPROVED BY THE ENGINEER.
- STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON; (B) FLOW CHANNEL AS PER THE CHART ABOVE.
- PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

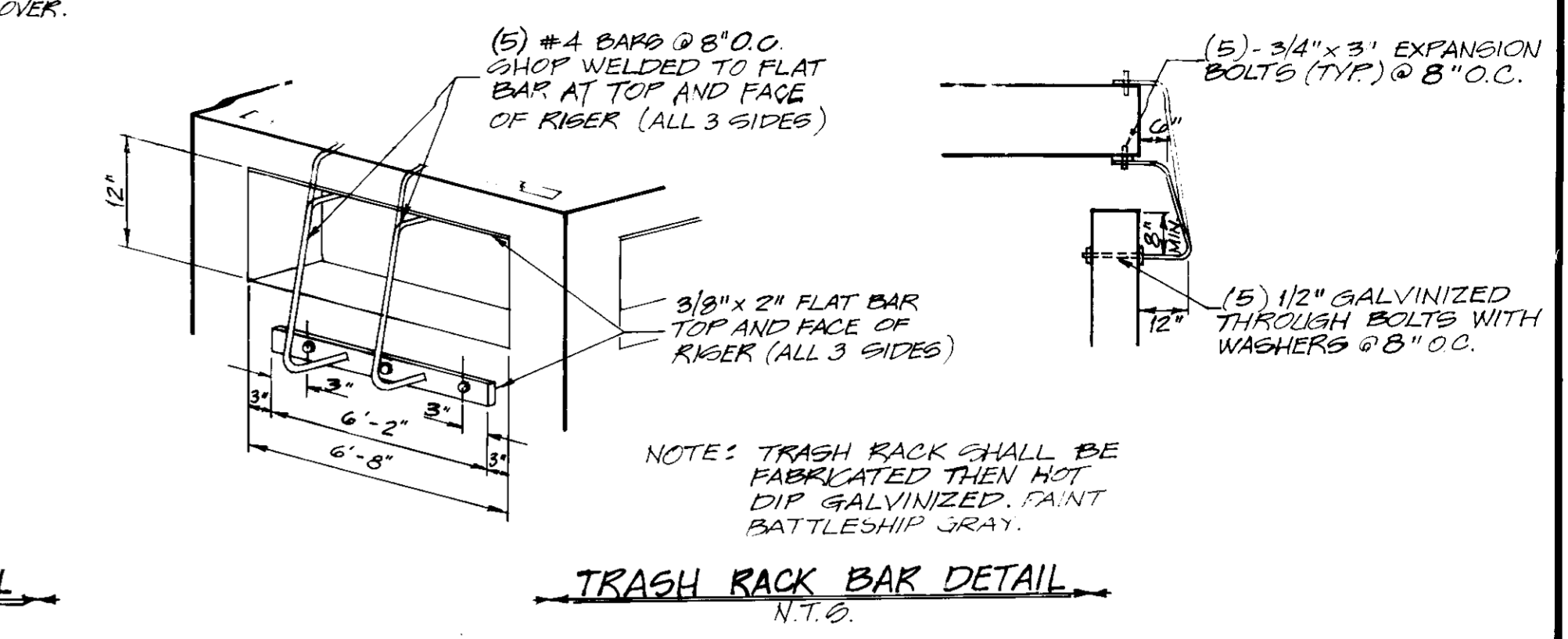
EARTH DIKE N.T.S.



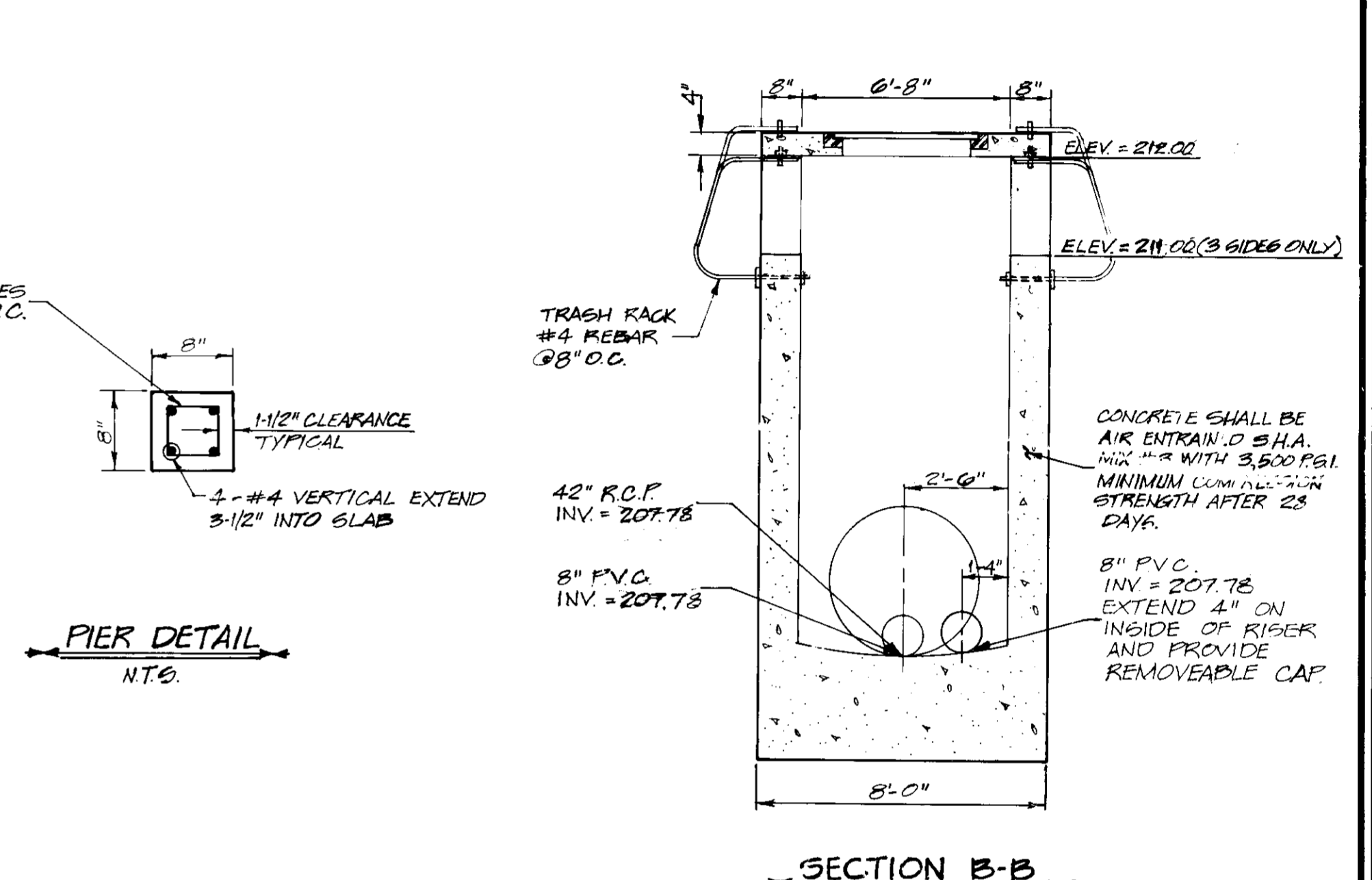
REINFORCING STEEL NOTES:  
TOP SLAB - SEE DETAIL  
PIER - SEE DETAIL  
WALL - #5 @ 12" O.C. BOTH WAYS EACH FACE.  
BOTTOM SLAB - #5 @ 12" O.C. BOTH WAYS @ 3" CLEAR FROM BOTTOM OF SLAB.



SECTION A-A N.T.S.



TRASH RACK BAR DETAIL N.T.S.

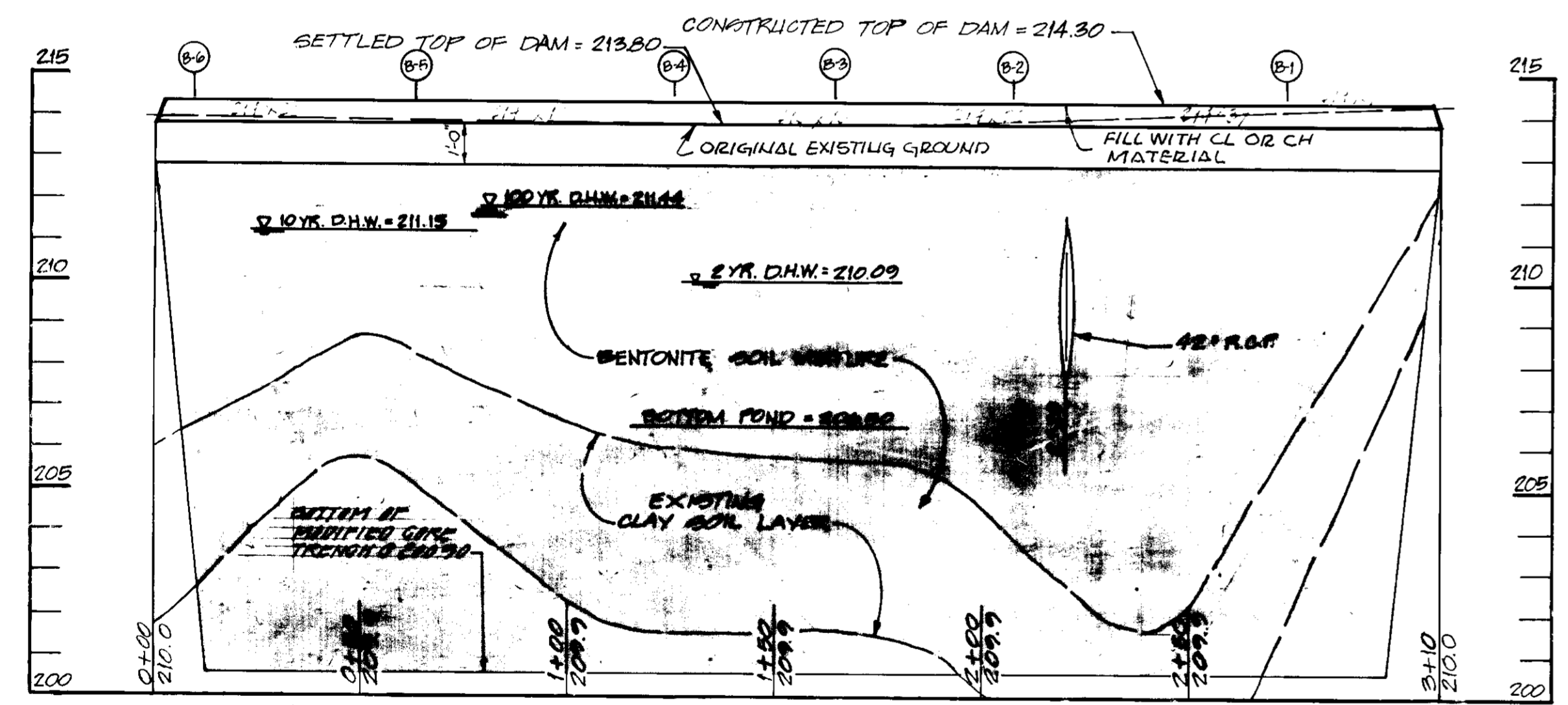


PIER DETAIL N.T.S.

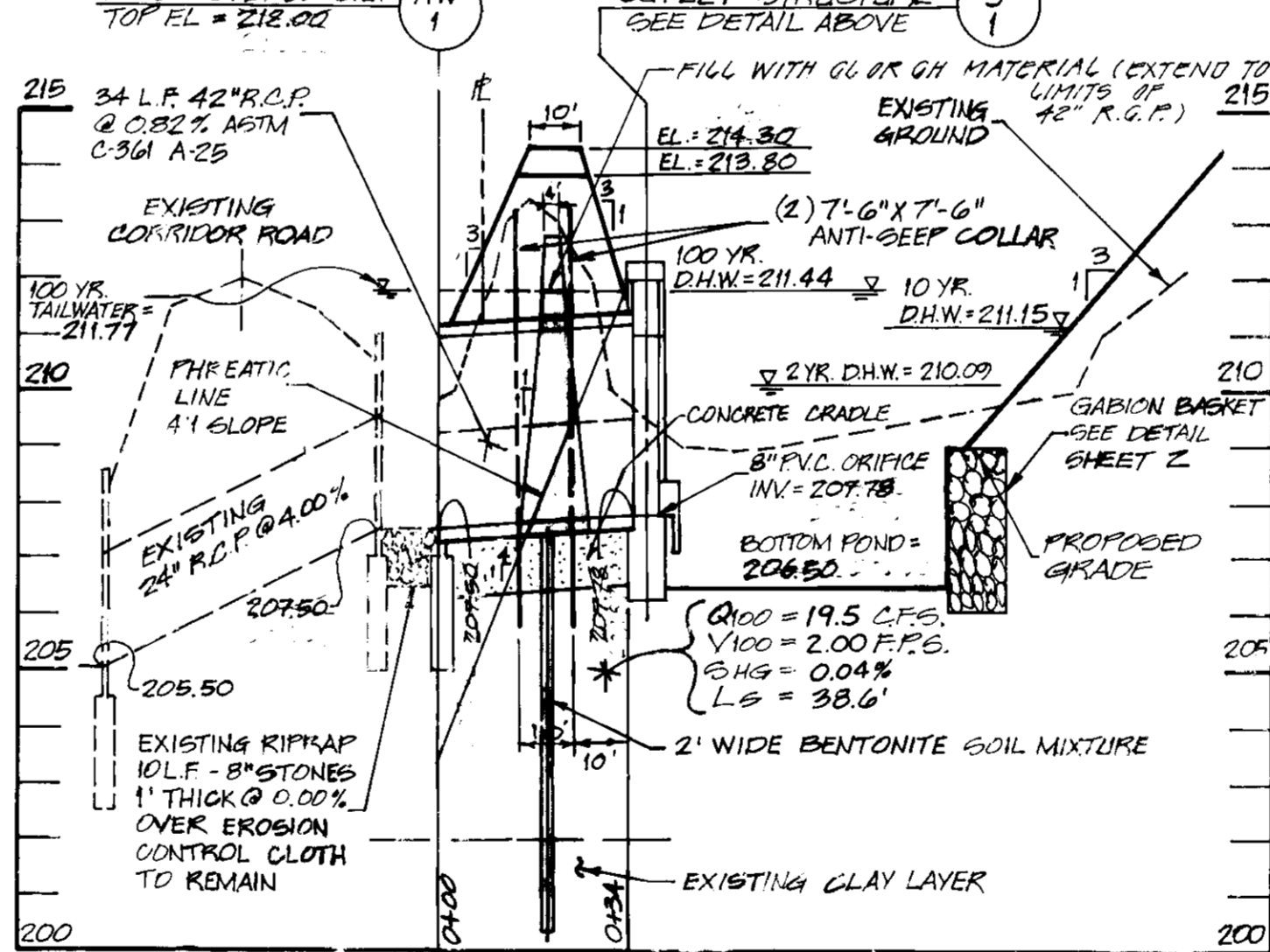
STORMWATER MANAGEMENT OUTLET STRUCTURE N.T.S.

BENTONITE / SOIL MIXTURE SPECIFICATION

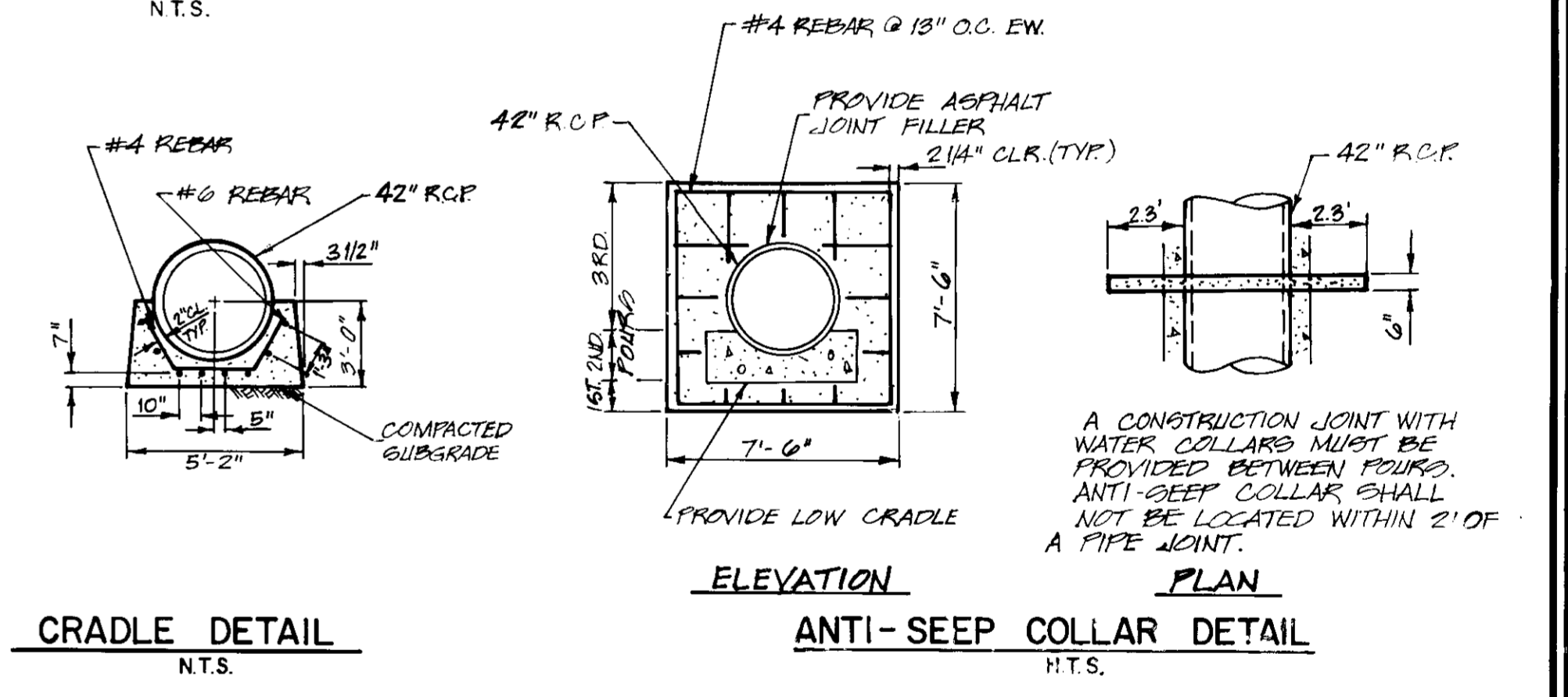
The core trench/wall shall consist of a mixture of site soil as considered in the excavation profile, bentonite clay, and sufficient water to produce a plasticity product of thick slurry consistency when freshly mixed. The cement and bentonite shall be added in the trench in approximately equal parts by volume to the soil. The slurry shall be placed in the trench in a plastic, relatively impervious product upon setting of the mixture. If necessary, due to a lack of water in the ground, a sufficient amount of water shall be added during mixing to produce the required slurry consistency. Mixing shall occur in a single process to the full depth prior to the initiation of setting of the concrete. The material shall be freshly mixed and placed in the trench in a plastic, relatively impervious product upon setting of the mixture. If necessary, due to a lack of water in the ground, a sufficient amount of water shall be added during mixing to produce the required slurry consistency. The contractor shall supply means acceptable to the Geotechnical Engineer for verifying that the bentonite slurry will meet the specifications of the mixing process with respect to producing the desired impermeability of the core trench/wall.



PROFILE ALONG CENTER LINE OF DAM SCALE: HORIZ.: 1" = 30' VERT.: 1" = 3'



CROSS SECTION OF DAM THROUGH PRINCIPAL SPILLWAY SCALE: HORIZ.: 1" = 30' VERT.: 1" = 3'



CRADLE DETAIL N.T.S.

ANTI-SEEP COLLAR DETAIL N.T.S.

**ENGINEERS CERTIFICATE**  
I CERTIFY THAT THIS PLAN AND ALL CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT. I HAVE INFORMED THE DEVELOPER THAT HE, SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO OVERSEE THE CONSTRUCTION AND PROVIDE THE HOWARD COUNTY CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.  
*Robert J. Harms, Jr.* 3/30/94  
SIGNATURE OF ENGINEER DATE

**DEVELOPER'S CERTIFICATE**  
I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE THE CONSTRUCTION AND PROVIDE THE HOWARD COUNTY CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD COUNTY CONSERVATION DISTRICT.  
*Robert J. Harms, Jr.*  
SIGNATURE OF DEVELOPER 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.  
*Robert J. Harms, Jr.* 4/1/94  
U. S. SOIL CONSERVATION SERVICE DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Robert J. Harms, Jr.* 4/15/94  
DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS  
HOWARD COUNTY HEALTH DEPARTMENT  
*Robert J. Harms, Jr.*  
COUNTY HEALTH OFFICER DATE

**PENSKE Truck Leasing**  
OWNER / DEVELOPER  
PENSKE TRUCK LEASING  
ROUTE 10 GREEN HILLS P.O. BOX 563  
READING, PENNSYLVANIA 19603-0563  
TELEPHONE: (215) 775-6383

**SITE DEVELOPMENT PLAN**  
PENSKE  
PARKING LOT EXPANSION  
FOR TRUCK PARKING  
TAX MAP 48 P/O PARCEL 33  
E TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**JOHN E. HARMS, JR. AND ASSOCIATES, INC.**  
CONSULTING ENGINEERS - PLANNERS - SURVEYORS  
90 GOVERNOR RITCHIE HIGHWAY P.O. BOX 5  
PASADENA, MARYLAND 21122 (410) 647-6000

DESIGN BY: R.J.H.  
DRAWN BY: J.L.G.  
CHECKED BY: R.M.F.  
DATE: MARCH 31, 1994  
SCALE: AS SHOWN  
W.O. NO.: 45-92-005A

3 SHEET OF 5

STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

I. SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL, ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1.

AREAS TO BE COVERED BY THE 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. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 50 FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOP SOIL 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 AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, SC, CH, OR CL. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

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 PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION (DOES NOT APPLY TO MODIFIED CUT-OFF TRENCH)

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. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHERE A MINIMUM REQUIRED DENSITY IS SPECIFIED, IT SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN ±2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99.

CUTOFF TRENCH (SEE SHEET 3 FOR MODIFIED CUT-OFF TRENCH SPECIFICATIONS)

THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE COVERED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

III. STRUCTURAL BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES 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 MANUALLY DIRECTED 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 EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

IV. PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

A. CORRUGATED METAL PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

1. MATERIALS - (STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL BE GALVANIZED AND FULLY BITUMINOUS COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A WITH WATER TIGHT COUPLING BANDS. ANY BITUMINOUS COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. STEEL PIPES WITH POLYMERIC COATING SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THE FOLLOWING COATINGS OR AN APPROVED EQUAL MAY BE USED: NEXON, PLASTICOTE, BLAC-KLAD, AND BETH-CU-LOY. COATED CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M-245 AND M-246.

MATERIALS - (ALUMINUM COATED STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATER TIGHT COUPLING BANDS OR FLANGES. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND.

MATERIALS - (ALUMINUM PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATER TIGHT COUPLING BANDS OR FLANGES. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATER TIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATER TIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATER TIGHT.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BAND WIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24" IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE, A 12" WIDE STANDARD LAP TIE BAND WITH 12" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12" WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2" GREATER THAN THE CORRUGATION DEPTH. PIPES 24" IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24" LONG ANNULAR CORRUGATED BAND USING RODS AND LUGS. A 12" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED ON THE END OF EACH PIPE FOR A TOTAL OF 24".

4. 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.

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. REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM DESIGNATION C-361.
2. BEDDING - ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN 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 OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 3 INCHES, OR AS SHOWN ON THE DRAWINGS.
4. 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. THE FIRST JOINT MUST BE LOCATED WITHIN 2 FEET FROM THE RISER.

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.

VI. POLYVINYL CHLORIDE (PVC) PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR POLYVINYL CHLORIDE (PVC) PIPE:

1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241.
2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATER TIGHT.
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. BACKFILLING SHALL CONFORM TO STRUCTURAL BACKFILL AS SHOWN ABOVE.
5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

VII. CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 608, MIX NO. 3.

VIII. ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 905.

THE RIPRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE RIPRAP IN PLACE SHALL BE HOMOGENEOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. FILTER CLOTH SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 919.12.

IX. CARE OF WATER DURING CONSTRUCTION

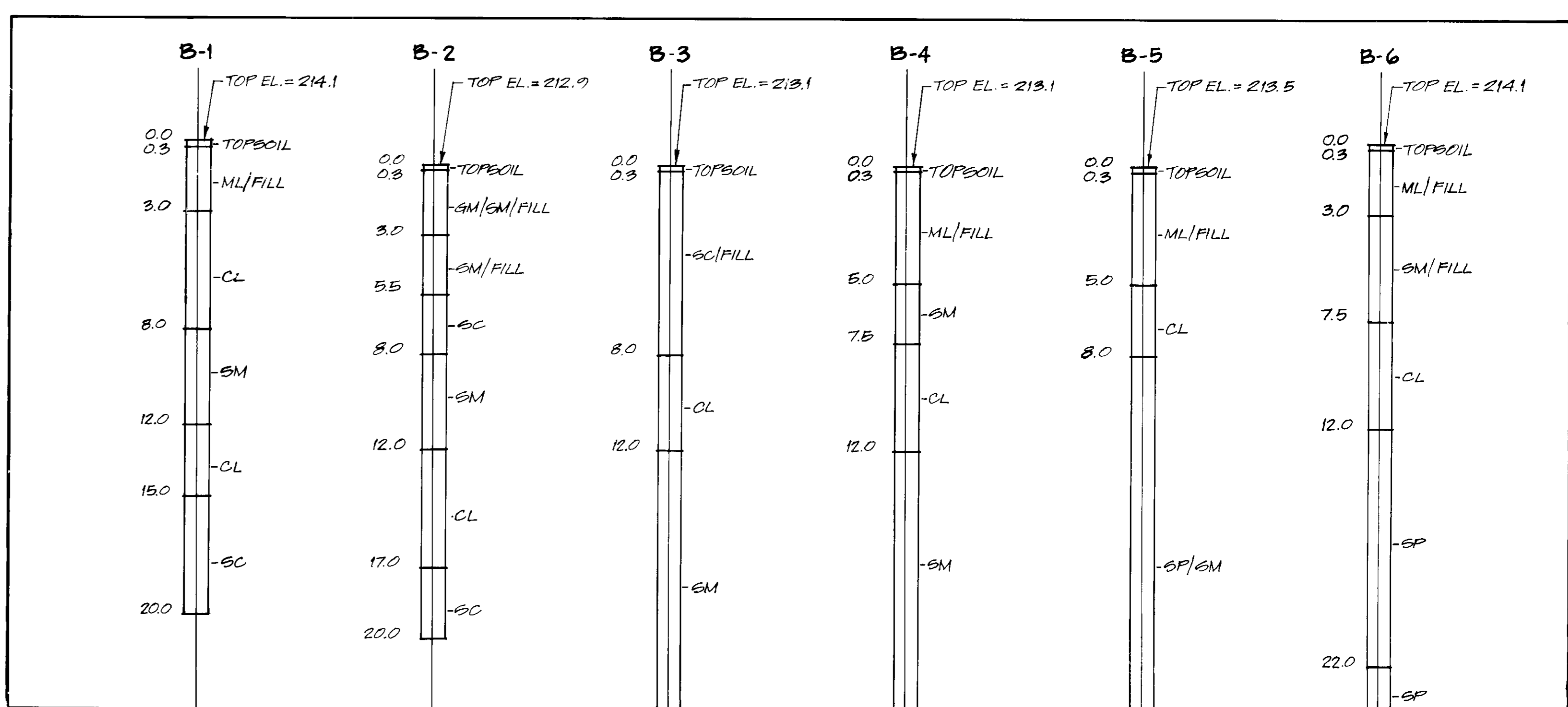
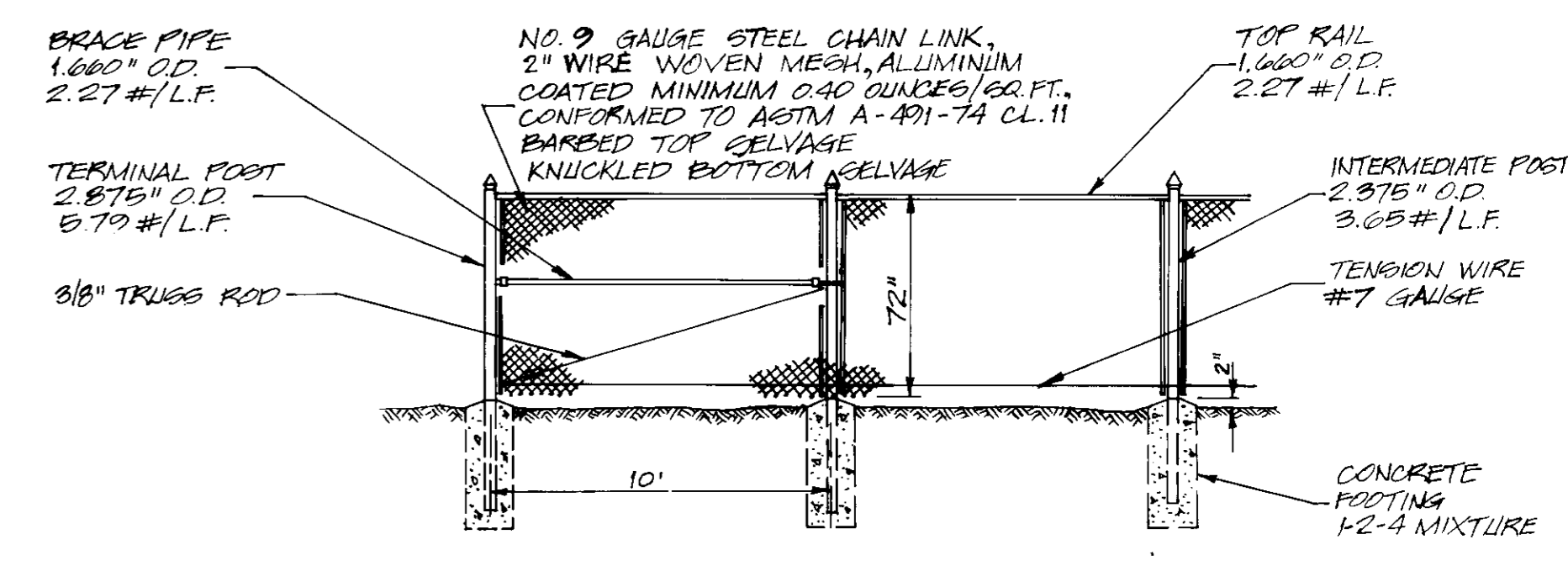
ALL WORK ON THE PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM THE VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM OF EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER TO PUMPS FROM WHICH THE WATER SHALL BE PUMPED.

X. 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, LIMING, FERTILIZING AND MULCHING (IF REQUIRED) IN ACCORDANCE WITH THE MARYLAND SOIL CONSERVATION SERVICE AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

XI. EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES TO BE EMPLOYED DURING THE CONSTRUCTION PROCESS.



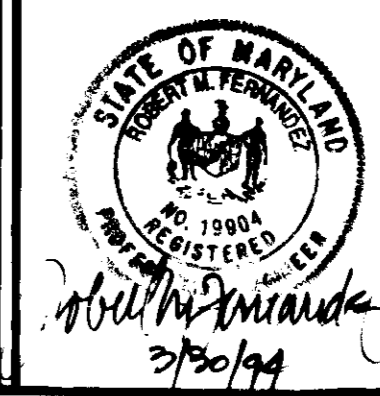
PERFORMED BY ENGINEERING CONSULTING SERVICES, INC. ON AUGUST 9 & 10, 1993 USING A HOLLOW STEM ALIGER.

BORING LOG NTS.

**PENSKE**  
Truck Leasing  
OWNER / DEVELOPER  
PENSKE TRUCK LEASING  
ROUTE 10 GREEN HILLS  
READING, PENNSYLVANIA 19603-0563  
TELEPHONE: (215) 775-6383

**SITE DEVELOPMENT PLAN**  
**PENSKE**  
PARKING LOT EXPANSION  
FOR TRUCK PARKING  
TAX MAP 48 P/O PARCEL 33  
6 TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**JOHN E. HARMS, JR. AND ASSOCIATES, INC.**  
CONSULTING ENGINEERS - PLANNERS - SURVEYORS  
90 GOVERNOR RITCHIE HIGHWAY PASADENA, MARYLAND 21122 P.O. BOX 5 (410) 647-6000



DESIGN BY: R.J.N.  
DRAWN BY: J.L.G.  
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4 SHEET OF 5

**ENGINEERS 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 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE AS-BUILT PLANS OF THE POND WITHIN 30 DAYS OF COMPLETION.  
*Robert J. N...* 3/30/94  
SIGNATURE OF ENGINEER DATE

**DEVELOPER'S CERTIFICATE**  
I/WE 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 ATTENTION AT THE DEPARTMENT OF THE ENVIRONMENT AND AGENCY VISITATION PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE AS-BUILT PLANS OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE AUTHORIZE THE ENGINEER TO MAKE ANY CORRECTIONS TO THE ORIGINAL SOIL CONSERVATION DISTRICT.  
*Robert J. N...* 4/7/94  
SIGNATURE OF DEVELOPER 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.  
*Robert J. N...* 4/7/94  
U.S. SOIL CONSERVATION SERVICE DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*John Summary* 4/15/94  
DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Robert J. N...* 4/8/94  
DIRECTOR DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS  
HOWARD COUNTY HEALTH DEPARTMENT  
N/A N/A

COUNTY HEALTH OFFICER		DATE
SUBDIVISION NAME	SECTION/AREA	PARCEL NUMBER
PENSKE	N/A	174
PLAT NO.	BLOCK NO.	ZONE
13-14	M-2	48
ELECT. DIST.	CENSUS TR.	
6 TH	6069.02	
WATER CODE	SEWER CODE	
C04	4020000	

