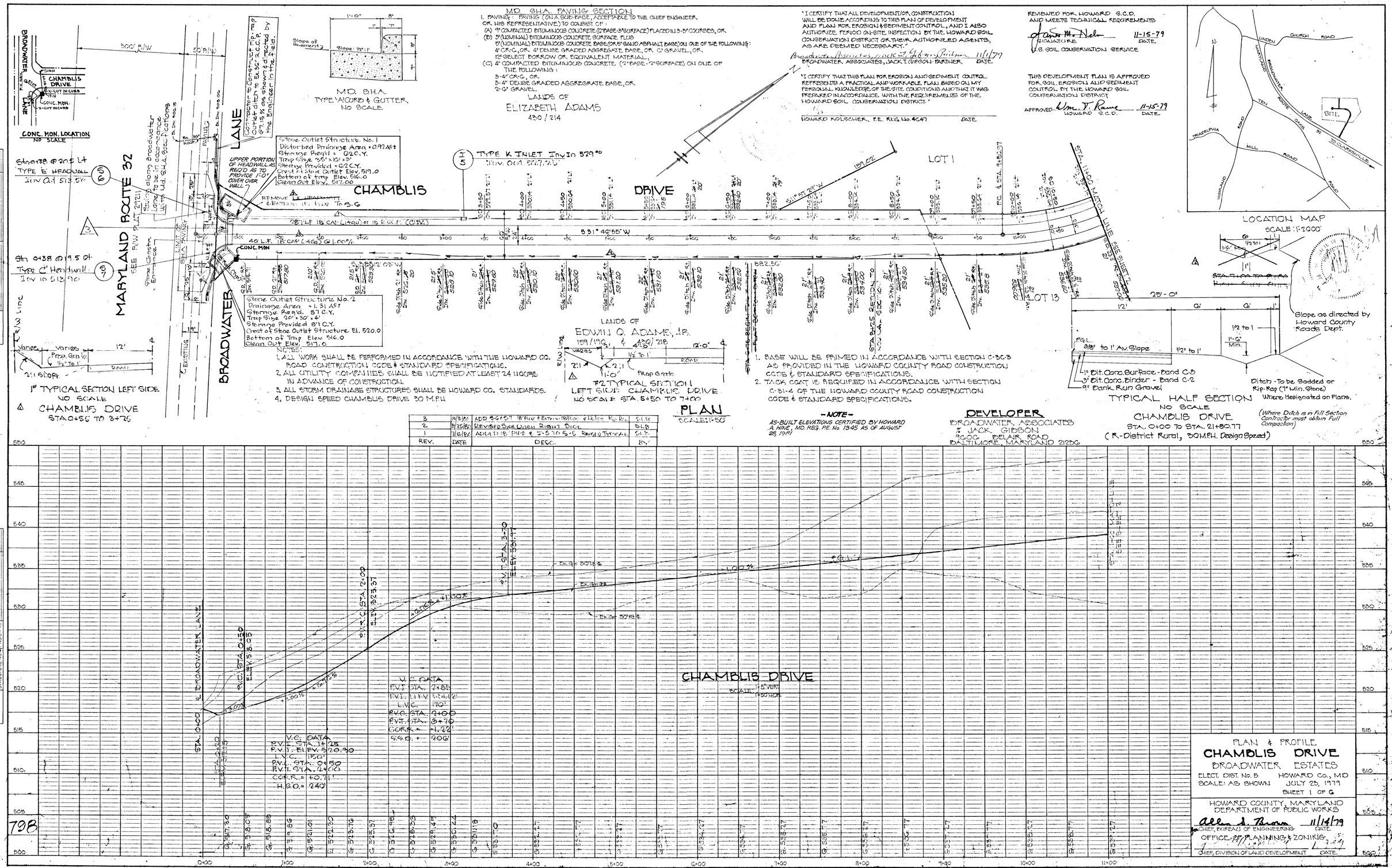
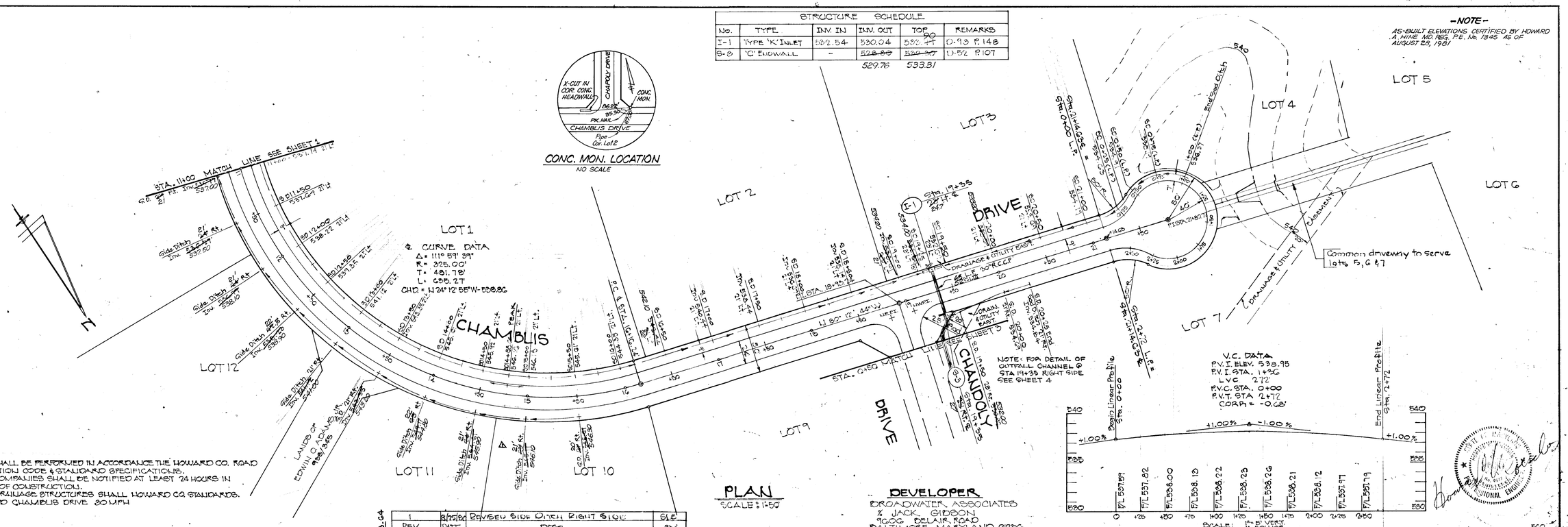

MD. SHA PAVING SECTION
1. PAVING: PAVING (ON A SUB-BASE, ACCEPTABLE TO THE CHIEF ENGINEER, OR HIS REPRESENTATIVE) TO CONSIST OF:
(A) 9" COMPACTED BITUMINOUS CONCRETE (7" BASE-2" SURFACE) PLACED IN 3-3" COURSES, OR,
(B) 3" (MINIMUM) BITUMINOUS CONCRETE SURFACE PLUS
5" (MINIMUM) BITUMINOUS CONCRETE BASE, OR 6" SAND ASPHALT BASE, ON ONE OF THE FOLLOWING:
4" CR-G, OR, 4" DENSE GRADED AGGREGATE BASE, OR, 6" GRAVEL, OR,
12" SELECT BORROW OR, EQUIVALENT MATERIAL,
(C) 4" COMPACTED BITUMINOUS CONCRETE. (2" BASE-2" SURFACE) ON ONE OF THE FOLLOWING:
3-4" CR-G, OR,
8-4" DENSE GRADED AGGREGATE BASE, OR,
2-6" GRAVEL
"I CERTIFY THAT ALL DEVELOPMENT OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION & SEDIMENT CONTROL, AND I ALSO AUTHORIZE PERIOD ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."
BROADWATER ASSOCIATES, JACK T. GIBSON PARTNER 11/1/79
BROADWATER, ASSOCIATES, JACK T. GIBSON PARTNER DATE
"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
HOWARD KOLSCHER, P.E. REG. No. 4647 DATE
REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS
SIGNATURE 11-15-79 DATE
U.S. SOIL CONSERVATION SERVICE
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
APPROVED Wm. T. Rowe 11-15-79
HOWARD S.C.D. DATE
LOCATION MAP
SCALE 1" = 2000'
CONC. MON. LOCATION
NO SCALE
BROADWATER ROAD
CHAMBLIS DRIVE
CONC. MON.
MARYLAND ROUTE 32
BROADWATER LANE
CHAMBLIS DRIVE
LOT 1
LOT 13
LANDS OF ELIZABETH ADAMS 430/214
LANDS OF EDWIN O. ADAMS, JR.
TYPICAL HALF SECTION
NO SCALE
CHAMBLIS DRIVE
STA. 0+00 TO STA. 21+80.77
(R-District Rural, 30 M.P.H. Design Speed)
Ditch - To be Sedded or Rip-Rap (7" Min. Stone) Where designated on Plans.
(Where Ditch is in Fill Section Contractor must obtain Full Compaction)
Slope as directed by Howard County Roads Dept.
1" TYPICAL SECTION LEFT SIDE
NO SCALE
CHAMBLIS DRIVE
STA 0+55 TO 3+75
#2 TYPICAL SECTION
LEFT SIDE CHAMBLIS DRIVE
NO SCALE STA. 5+50 TO 7+00
PLAN
SCALE 1" = 50'
-NOTE-
AS-BUILT ELEVATIONS CERTIFIED BY HOWARD A. HINE, MD. REG. P.E. No. 1345 AS OF AUGUST 28, 1981
DEVELOPER
BROADWATER ASSOCIATES
% JACK GIBSON
9000 BELAIR ROAD
BALTIMORE, MARYLAND 21236
Stone Outlet Structure No. 1
Disturbed Drainage Area = 0.92 Ac±
Storage Req'd = 0.2 C.Y.
Trap Size 25' x 10' x 3'
Storage Provided = 0.2 C.Y.
Crest of Stone Outlet Elev. 519.0
Bottom of Trap Elev. 516.0
Clean Out Elev. 517.00
Stone Outlet Structure No. 2
Drainage Area = 1.31 Ac±
Storage Req'd. 0.7 C.Y.
Trap Size 20' x 30' x 4'
Storage Provided 0.9 C.Y.
Crest of Stone Outlet Structure El. 520.0
Bottom of Trap Elev. 516.0
Clean Out Elev. 517.0
NOTES:
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD CO. ROAD CONSTRUCTION CODE & STANDARD SPECIFICATIONS.
2. ALL UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF CONSTRUCTION.
3. ALL STORM DRAINAGE STRUCTURES SHALL BE HOWARD CO. STANDARDS.
4. DESIGN SPEED CHAMBLIS DRIVE 30 M.P.H.
1. BASE WILL BE PRIMED IN ACCORDANCE WITH SECTION C-3C-3 AS PROVIDED IN THE HOWARD COUNTY ROAD CONSTRUCTION CODE & STANDARD SPECIFICATIONS.
2. TACK COAT IS REQUIRED IN ACCORDANCE WITH SECTION C-31-4 OF THE HOWARD COUNTY ROAD CONSTRUCTION CODE & STANDARD SPECIFICATIONS.
CHAMBLIS DRIVE
SCALE: 1" = 5' VERT. 1" = 50' HOR.
V.C. DATA
P.V.I. STA. 1+25
P.V.I. EL EV. 520.30
L.V.C. 150'
P.V.C. STA. 0+50
P.V.T. STA. 2+00
CORR. = +0.71'
H.S.D. = 240'
V.C. DATA
P.V.I. STA. 2+85
P.V.I. ELEV. 524.12
L.V.C. 170'
P.V.C. STA. 2+00
P.V.T. STA. 3+70
CORR. = -1.22'
S.S.D. = 206'
PLAN & PROFILE
CHAMBLIS DRIVE
BROADWATER ESTATES
ELECT. DIST. No. 5 HOWARD CO., MD
SCALE: AS SHOWN JULY 23, 1979
SHEET 1 OF 6
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
11/14/79
CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
AS-BUILT FEB 4, 1983
PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.
798

STRUCTURE SCHEDULE					
No.	TYPE	INV. IN	INV. OUT	TOP	REMARKS
I-1	TYPE 'K' INLET	532.54	530.04	532.~~77~~ 90	D-93 P. 148
8-8	'C' ENDWALL	–	~~528.85~~ 529.76	~~530.40~~ 533.31	D-52 P. 107

-NOTE-

AS-BUILT ELEVATIONS CERTIFIED BY HOWARD A. HINE MD. REG. P.E. No. 13445 AS OF AUGUST 28, 1981



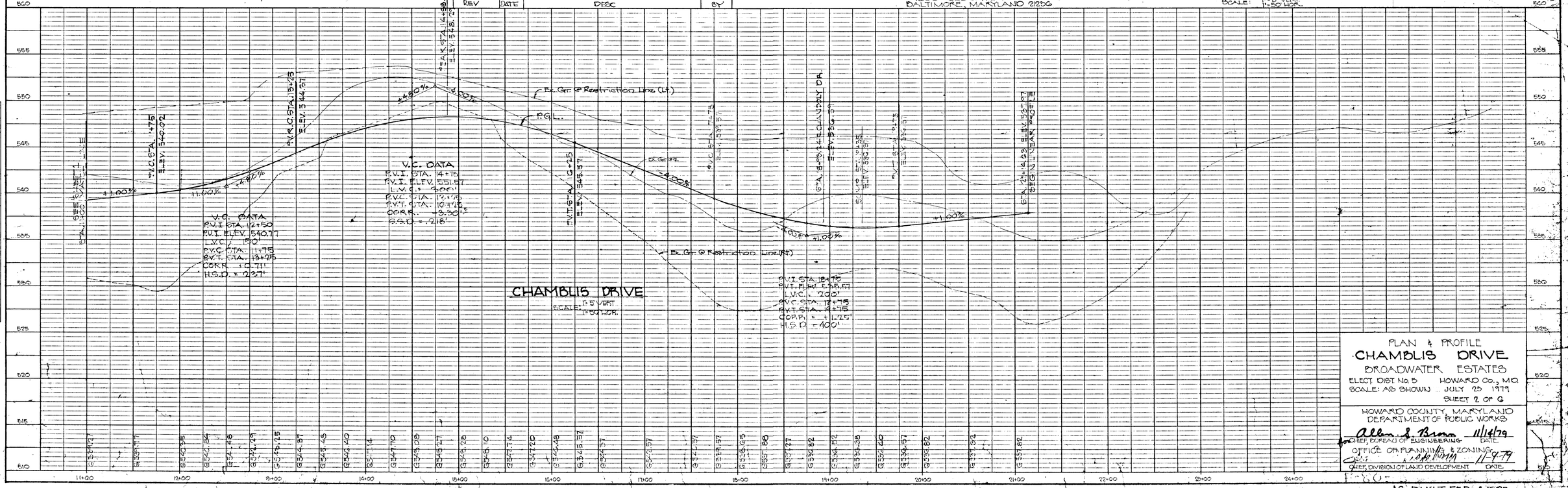
NOTES:
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE THE HOWARD CO. ROAD CONSTRUCTION CODE & STANDARD SPECIFICATIONS.
2. ALL UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF CONSTRUCTION.
3. ALL STORM DRAINAGE STRUCTURES SHALL HOWARD CO STANDARDS.
4. DESIGN SPEED CHAMBLIS DRIVE 30 MPH

CONC. MON. LOCATION
NO SCALE

PLAN
SCALE: 1"=50'

DEVELOPER
BROADWATER ASSOCIATES
% JACK GIBSON
9000 DELAIR ROAD
BALTIMORE, MARYLAND 21236

REV	DATE	DESC	BY
1	8/30/80	REVISED SIDE DITCH RIGHT SIDE	SLE



PLAN & PROFILE
CHAMBLIS DRIVE
BROADWATER ESTATES
ELECT DIST No. 5 HOWARD Co., MD
SCALE: AS SHOWN JULY 25 1979
SHEET 2 OF 6

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Allen J. Brown 11/14/79
for CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING & ZONING
11-9-79
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

AS-BUILT FEB. 4, 1983

PLAN: SURVEYED, PLOTTED, ALIGNMENT CHECKED, ALL OF ABV. CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE: SURVEYED, PLOTTED, GRADES CHECKED, & PROFILE, STRUCTURE NOTAT'NS CHKD, NOTE BOOK, NO., BY, DATE

798

K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

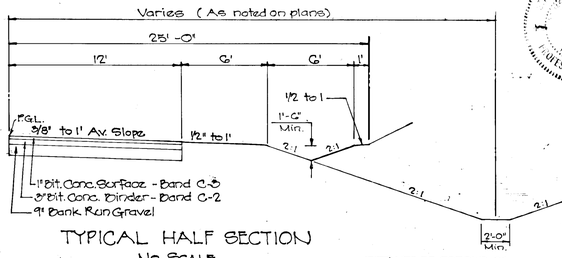
STRUCTURE SCHEDULE					
No.	TYPE	INV. IN	INV. OUT	TOP	REMARKS
S-1	'C' ENDWALL	- -	511.~~40~~68	515.~~40~~74	D-52 P. 107
S-2	'C' ENDWALL	~~511.71~~ 512.81	-	~~515.71~~ 517.02	D-52 P. 107

"I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL, AND I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

Broadwater Associates, Jack T. Gibson, Partner 11/1/79
BROADWATER ASSOCIATES - JACK T. GIBSON, PARTNER — DATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL & WORKABLE PLAN BASED ON MY KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

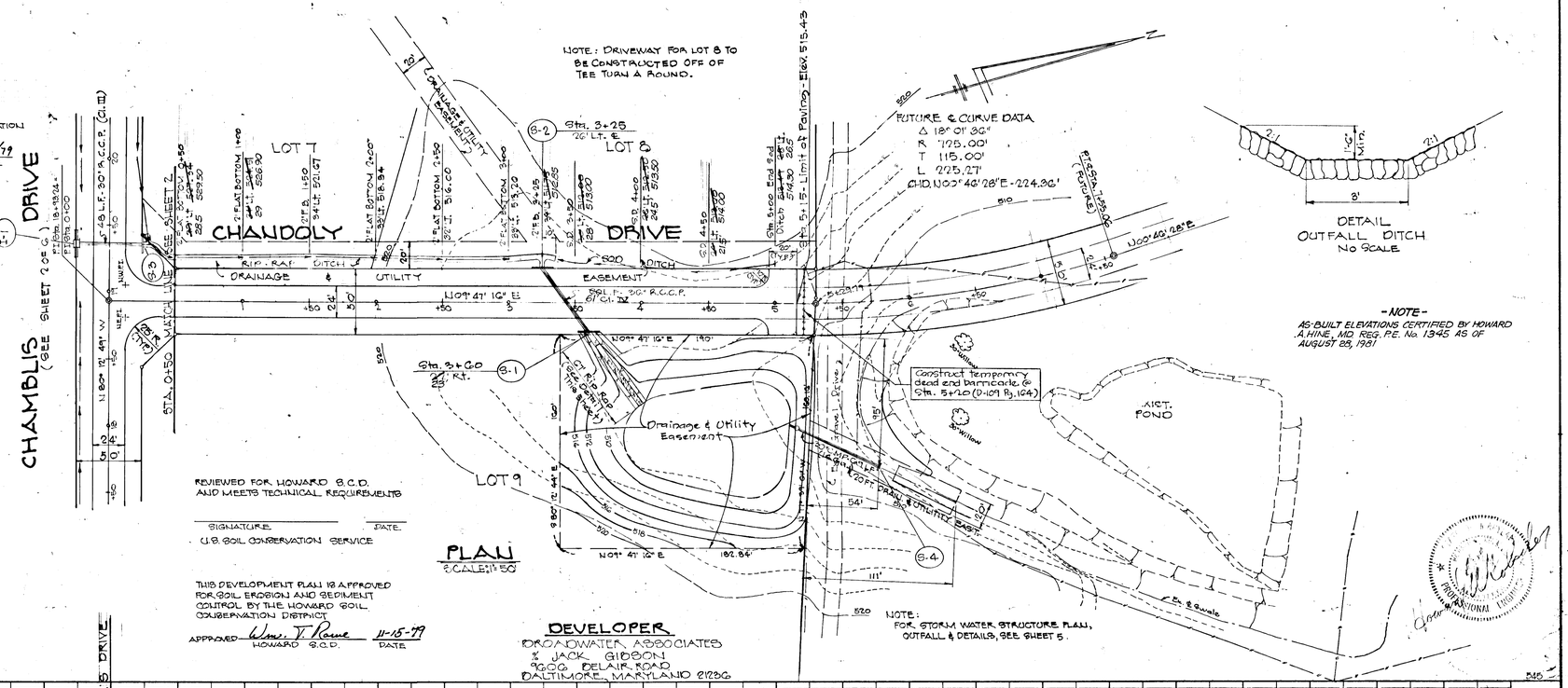
11/1/79
HOWARD KOLBCHER, P.E. REG. No. 4047 — DATE



TYPICAL HALF SECTION
No SCALE
CHANDOLY DRIVE
STA. 0+00 TO STA. 5+15
(R-District Rural; 30 MPH Design Speed)

DITCH TO BE SODDED, OR RIP-RAP (7" MIN. STONE) WHERE DESIGNATED ON PLANS

NOTES:
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD Co. ROAD CONSTRUCTION CODE & STANDARD SPECIFICATIONS.
2. ALL UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF CONSTRUCTION.
3. ALL STORM DRAINAGE STRUCTURES SHALL BE HOWARD Co. STANDARDS.
4. DESIGN SPEED; CHANDOLY DRIVE 30 M.P.H.



REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS

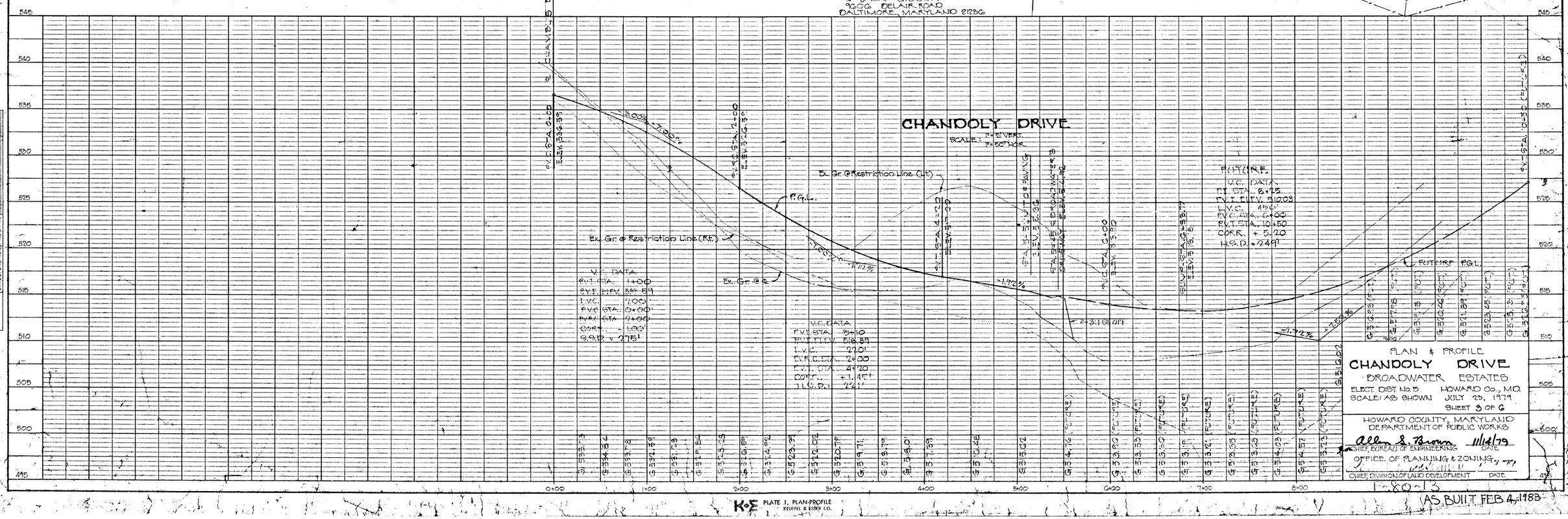
SIGNATURE — DATE
U.S. SOIL CONSERVATION SERVICE

PLAN
SCALE: 1" = 50'

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

APPROVED Wm. T. Rowe 11-15-79
HOWARD S.C.D. — DATE

DEVELOPER
BROADWATER ASSOCIATES
% JACK GIBSON
9600 BELAIR ROAD
BALTIMORE, MARYLAND 21236



PLAN & PROFILE
CHANDOLY DRIVE
BROADWATER ESTATES
ELECT. DIST. No. 5 — HOWARD Co., MD.
SCALE: AS SHOWN — JULY 23, 1979
SHEET 3 OF 6

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Allen E. Brown 11/14/79
CHIEF, BUREAU OF ENGINEERING — DATE
OFFICE OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

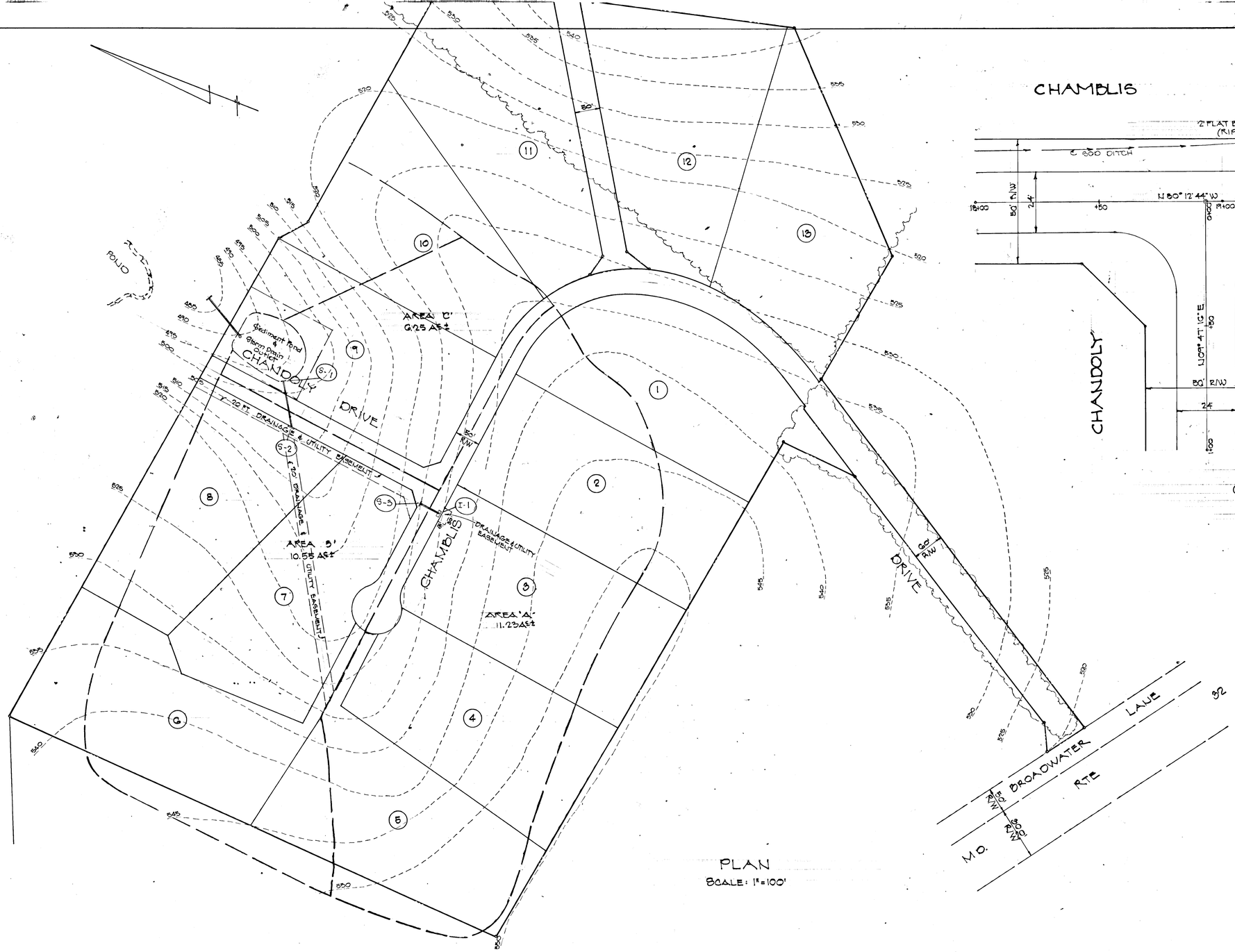
1-80-13

(AS BUILT FEB 4, 1983)

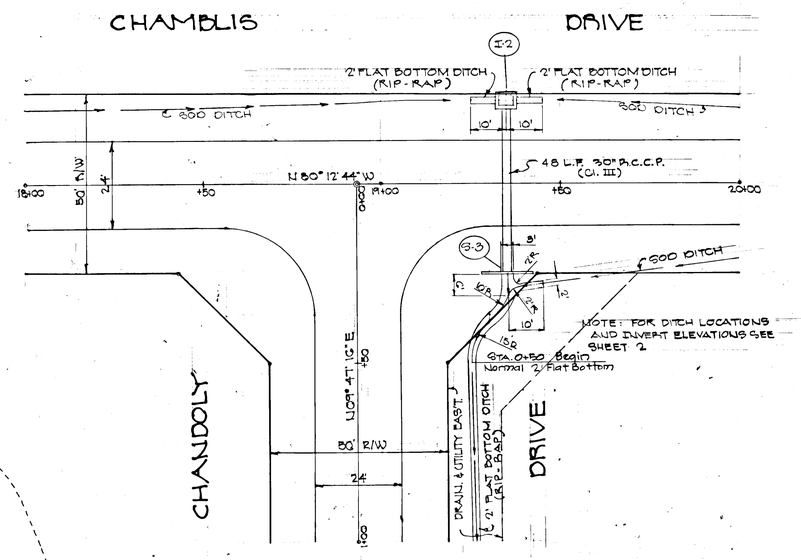
PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.

PLAN: SURVEYED, PLOTTED, ALIGNMENT, F.C. BY, CHECKED, DATE, BY
NOTE BOOK NO.
PROFILE: SURVEYED, PLOTTED, GRADES CHECKED, DATE, BY, STRUCTURE NOTES CHKD
NOTE BOOK NO.

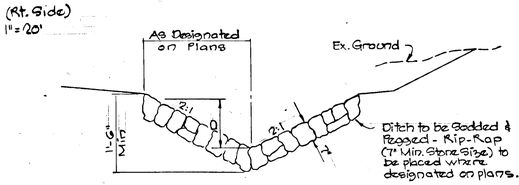
708



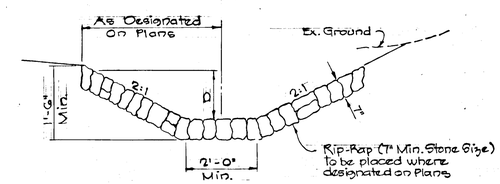
PLAN
SCALE: 1"=100'



DETAIL
OUTFALL CHANNEL
STA. 19+35 (Rt. Side)
SCALE: 1"=20'



TYPICAL DETAIL
SIDE DITCH
No Scale



TYPICAL DETAIL
2' FLAT BOTTOM DITCH
No Scale

STATE OF MARYLAND
HOWARD W. HOWARD
REGISTERED PROFESSIONAL ENGINEER

-NOTE-
AS-BUILT ELEVATIONS CERTIFIED BY HOWARD A. WINE, MD. REG. P.E. No. 13945 AS OF AUGUST 23, 1981

ENGINEERS
HOPKINS ASSOCIATES INC.
ENGINEERS, SURVEYORS AND LANDSCAPE ARCHITECTS
100 NORTH MAIN STREET
BEL AIR, MARYLAND 21014
838-0888 879-8117

DEVELOPER
BROADWATER ASSOCIATES
% JACK GIBSON
9006 BELAIR ROAD
BALTIMORE, MARYLAND 21236

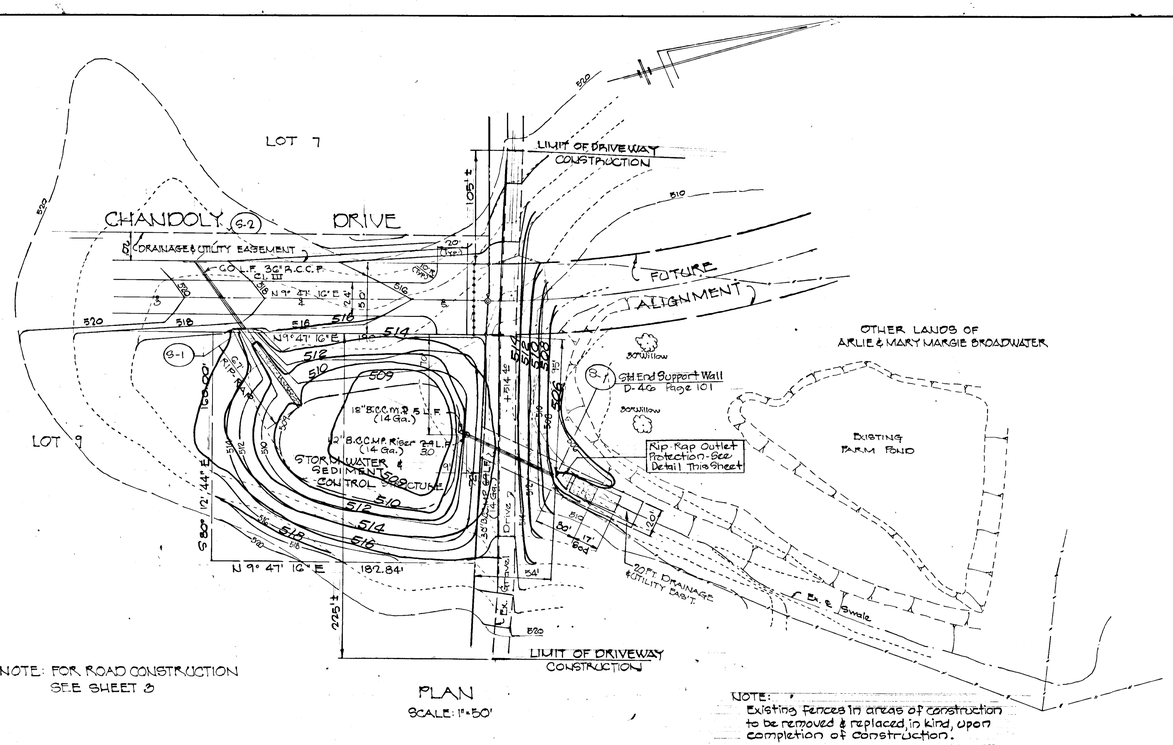
OWNER
ARLIE BROADWATER
5438 BROADWATER LANE
CLARKSVILLE, MARYLAND 21029

708

DRAINAGE MAP
BROADWATER ESTATES
ELECT. DIST. No. 5 HOWARD Co. MD.
SCALE: AS SHOWN JULY 24, 1979
SHEET 4 OF 6

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Allan S. Brown 11/14/79
CHIEF BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING & ZONING 11-9-79
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

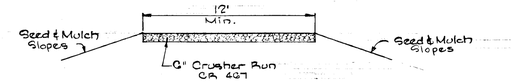
1-8071 AS-BUILT FEB. 4, 1984



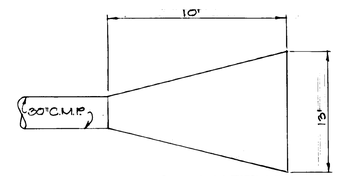
NOTE: FOR ROAD CONSTRUCTION SEE SHEET 3

PLAN
SCALE: 1"=50'

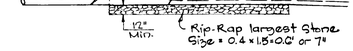
NOTE:
Existing Fences in areas of construction to be removed & replaced, in kind, upon completion of construction.



TYPICAL SECTION
DRIVEWAY REHABILITATION
NO SCALE



PLAN VIEW



DETAIL
OUTLET PROTECTION
NO SCALE

TEMPORARY SEEDING PROCEDURES

1. Seed immediately upon construction with rye grass 11#/1000 S.F.
2. Apply 46#/1000 S.F. of pulverized dolomitic limestone & 11# to 18#/1000 S.F. of 10-10-10 or equivalent fertilizer.
3. Harrow and disc lime & fertilizer into soil to a depth of at least 3 inches, continue tillage until a reasonably fine, firm seedbed has been prepared, on sloping land the final harrowing should be on the contour.
4. Mulch with straw at 75#/1000 S.F.

VEGATIVE COVER OPTIONS

FEB. 1 TO MAY 1	1. Sod 2. Seed & Mulch
MAY 1 TO AUG. 15	1. Sod 2. Mulch, Anchor Tool, then seed during next seeding period.
AUG. 15 TO NOV. 1	1. Sod 2. Seed & Mulch
NOV. 1 TO FEB. 1	1. Sod, Delay until next period if frozen. 2. Mulch, Anchor tool, then seed during next seeding period.

PERMANENT SEEDING & SODDING PROCEDURES

1. Place Topsoil in disturbed areas to a depth of 2 inches.
2. Apply 50 lbs/1000 S.F. of limestone.
3. Apply fertilizers at rate of 25 lb of 10-10-10 per 1000 S.F. depending on soil tests.
4. Harrow or disc fertilizer into soil to a depth of 3 inches.
5. Seed with Kentucky 31 tall fescue at rate of 50 lbs./1000 S.F. (if done during permitted season, otherwise use sod.)
6. Mulch with small grain straw @ 1.5 to 2.0 tons/acre (75-90 lbs/1000 S.F.)
7. Anchor mulch with sprayed asphalt at 0.1 gal./sq. yds.
8. Place approved or certified Kentucky 31 sod and anchor in critical areas as required.
9. Water sodded areas as required till firmly established.

Any disturbed earth left idle for periods exceeding 30 days shall be seeded and mulched or cover options provided according to temporary stabilization procedures.

All references to U.S.D.A.S.C. Manual apply to Stds. & Specs. for Soil & Erosion Control in Developing Areas. All work on these plans must be built in accordance with manual.

SEDIMENT CONTROL NOTES

1. Developer to stabilize disturbed areas with permanent seeding specifications according to Rg. 51.01 of the Std. & Specifications for Soil erosion in developing areas.
2. Structure measures such as berms, dikes, traps, basins etc. will be installed and stabilized according to this plan prior to any other grading, clearing or disturbance of the existing surface of the site, except when clearing is reqd. to install structures.
3. On site inspection and maintenance of all sediment control measures including cleanout of sediment traps and berms and proper establishment of all planned vegative measures will be the responsibility of the developer on the site on a continuing day to day basis.

"I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT, POND CONSTRUCTION AND EROSION & 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."

Broadwater Associates, Jack T. Gibson, Partner 11/1/79
BROADWATER ASSOCIATES - JACK T. GIBSON, PARTNER DATE

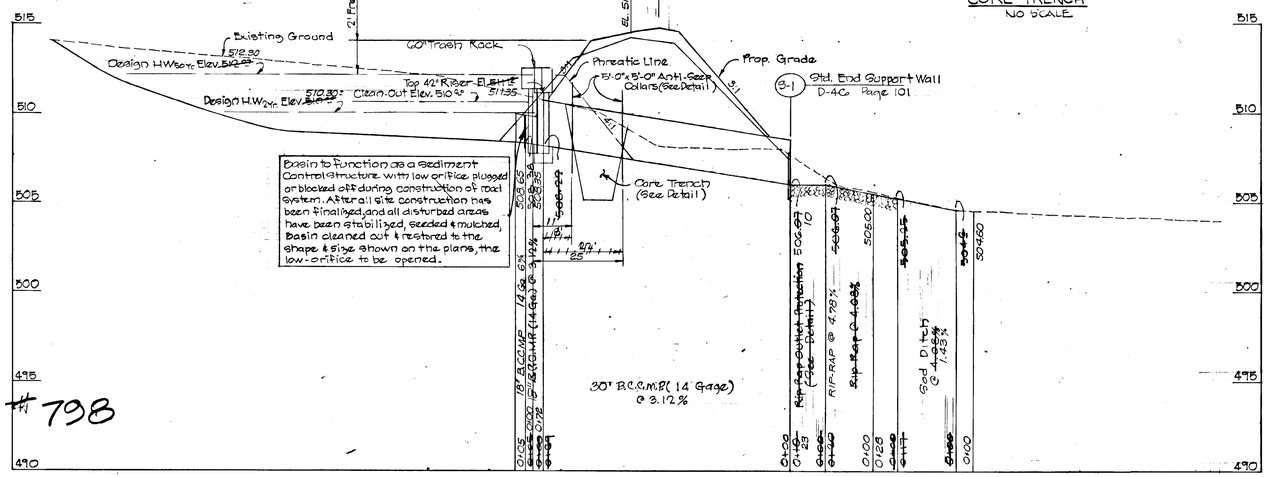
NOTES:
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD Co. ROAD CONSTRUCTION CODE & STANDARD SPECIFICATIONS.
2. ALL UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF CONSTRUCTION.
3. ALL STORM DRAINAGE STRUCTURES SHALL BE HOWARD Co. STANDARDS.

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. Nelson 11-15-79
U.S. SOIL CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION & SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED *Wm T. Rowe* 11-15-79
HOWARD S.C.D. DATE
F 80-13
PLAN NUMBER



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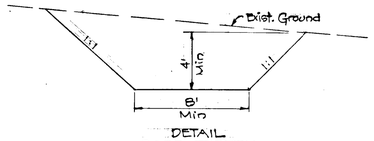


DETAIL
CORE TRENCH
NO SCALE

SEQUENCE OF CONSTRUCTION

1. Notify Howard County Bureau of Inspections and Permits at least 48 hours before starting and work.
2. Clear and grub roadways and sediment control areas.
3. Place sediment control devices and stabilize.
4. Rough grade roadways.
5. Grade roads, stabilize slopes, construct drainage structures, protect inlets with straw bales until site is stabilized, place subgrade material.
6. Complete road Construction.
7. At end of each working day, all sediment control devices will be inspected and left in an operational condition.
8. Remove temporary sediment control devices after obtaining approval by the Howard Soil Conservation District.

NOTE:
I HEREBY GRANT PERMISSION TO BROADWATER ASSOCIATES TO INSTALL THE STORM DRAINAGE SYSTEM AND APPURTENANCES AND TO PERFORM THE GRADING OPERATIONS ON MY PROPERTY AS SHOWN ON THIS PLAN; AND ALSO, GRANT ACCESS TO SAID DRAINAGE FACILITIES, AS MAY BE REQUIRED, FOR THE PURPOSE OF MAINTENANCE AND REPAIR.

Arlie W. Broadwater 9-17-79
OWNER DATE

Mary Margie Broadwater 9-17-79
OWNER DATE

DEVELOPERS CERTIFICATION:
I HEREBY CERTIFY THAT ALL WORK WILL BE COMPLETED PER GRANT TO THIS PLAN.
Broadwater Associates
Jack T. Gibson, Partner 9/19/79
OWNER DATE

"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."

Howard W. Kolscher 9/19/79
HOWARD W. KOLSCHER, P.E. REG. No. 4647 DATE

-NOTE-
AS-BUILT ELEVATIONS CERTIFIED BY HOWARD A. HINE, MD. REG. P.E. No. 13345 AS OF AUGUST 28, 1981

STATE OF MARYLAND — HOWARD A. HINE — No. 13345 — PROFESSIONAL ENGINEER

SEDIMENT CONTROL POND
&
STORM WATER STRUCTURE
BROADWATER ESTATES
ELECT. DIST No. 5 HOWARD Co. MD.
SCALE: AS SHOWN JULY 24, 1979
SHEET 5 OF 6

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Allen S. Brown 11/14/79
CHIEF BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING & ZONING
[illegible] 11/14/79
CHIEF DIVISION OF LAND DEVELOPMENT DATE

AS-BUILT 2/4/83

SITE PREPARATIONS

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 OBJECTIONAL 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 OBJECTIONAL MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH 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.

EARTH FILL

MATERIAL
THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED AREA OR AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, OVER-SIZE STONES, FROZEN OR OTHER OBJECTIONAL 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 DOWNSTREET 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 EARTH 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 SUCH THAT THE REQUIRED DEGREE OF COMPACTION CAN BE OBTAINED WITH THE EQUIPMENT USED. ALL COMPACTION TO BE 95%.

CUT-OFF TRENCH
WHERE SPECIFIED, A CUT OFF TRENCH SHALL BE EXCAVATED ALONG OR PARALLEL TO THE CENTER-LINE 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 CUT OFF TRENCH SHALL BE THE MOST IMPERVIOUS MATERIAL AVAILABLE AND SHALL BE COMPACTED WITH EQUIPMENT OR ROLLERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

STABILIZATION
ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SOIL 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.

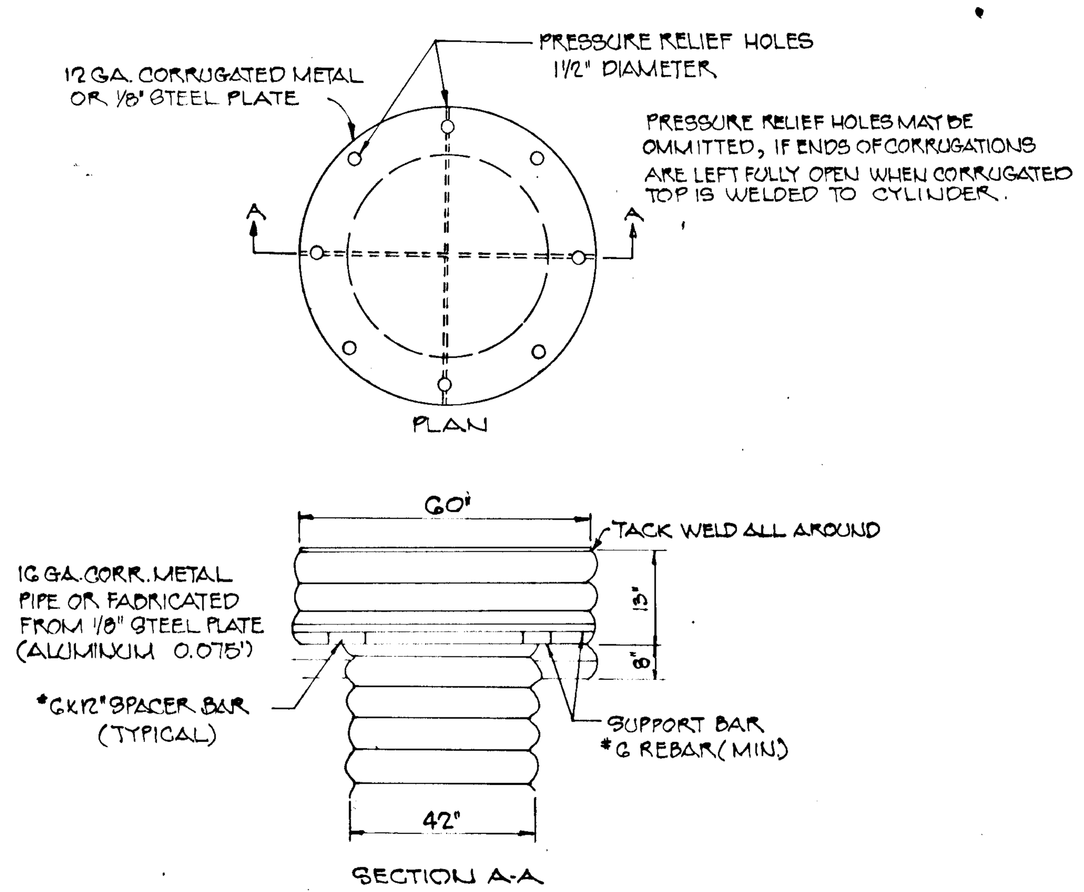
PIPE CONDUITS

A. 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 A.A.S.H.T.O. SPECIFICATIONS M-190 TYPE A WITH WATERTIGHT COUPLING BANDS. ANY BITUMINOUS COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND.
(ALUMINUM PIPE) THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. SPECIFICATIONS M-196 OR M-211 WITH WATERTIGHT COUPLING BANDS. 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. 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 LESS THAN 9 AND GREATER THAN 4. HELICALLY CORRUGATED PIPE IN ADDITION TO THE REQUIREMENTS ABOVE SHALL HAVE EITHER CONTINOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WHICH ARE CAULKED, DURING FABRICATION, WITH NEOPRANE BEAD.
2. CONNECTIONS- ALL CONECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. 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 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.

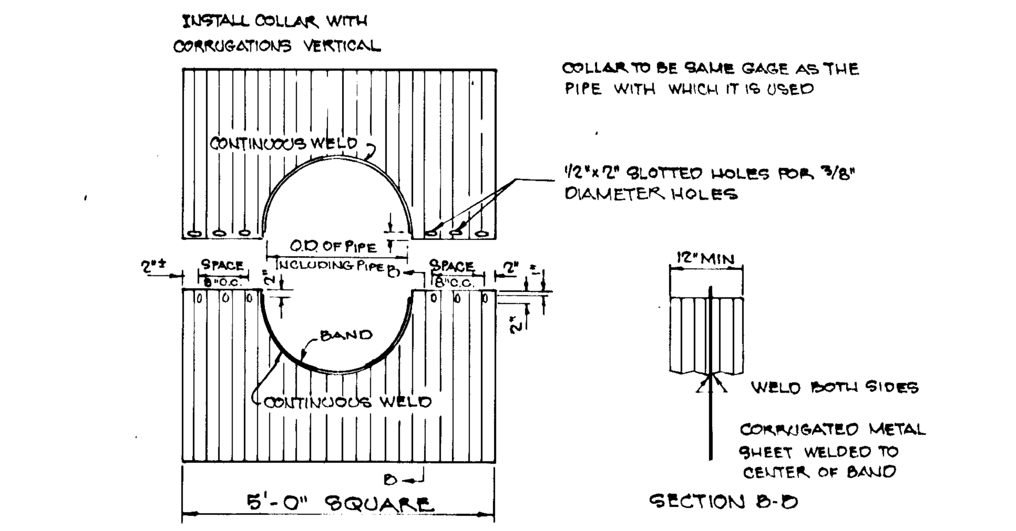
CONCRETE

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 OJECTIONAL SUBSTANCES.
   - C. SAND - THE SAND USED IN CONCRETE SHALL BE CLEAN, HARD, STRONG AND DURABLE, AND SHALL BE GRADED WITH 100 PERCENT PASSING A ONE-QUARTER INCH SIEVE. LIMESTONE SAND SHALL NOT BE USED.
   - D. COURSE AGGREGATE - THE COURSE AGGREGATE SHALL BE CLEAN, HARD, STRONG, DURABLE, AND FREE FROM CLAY OR DIRT. IT SHALL BE WELL GRADED WITH A MAXIMUM SIZE OF ONE AND ONE-HALF (1-½") INCHES.
   - E. REINFORCING STEEL - THE REINFORCING STEEL SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE BILLET STEEL OR RAIL STEEL CONFORMING TO A.S.T.M. SPECIFICATION A-615.
2. DESIGN MIX
   THE CONCRETE SHALL BE MIXED IN THE FOLLOWING PROPORTIONS, MEASURED BY WEIGHT. THE WATER-CEMENT RATIO SHALL BE 5-½ TO 6 U.S. GALLONS OF WATER PER 94 POUND BAG OF CEMENT. THE PROPORTION OF MATERIALS FOR THE TRIAL MIX SHALL BE 1:2:3½. 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 CHANGING OPERATIONS. EXCESSIVE OVER MIXING 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.
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. THE INSIDE OF FORMS SHALL BE OILED WITH A NON-STAINING MINERAL OIL OR THOROUGHLY WETTED BEFORE CONCRETE IS PLACED. FORMS MAYBE 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 CONSOLADATED 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 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. 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 DEGREES F. WITH THE TEMPERATURE FALLING, OR 34 DEGREES WITH THE TEMPERATURE RISING.



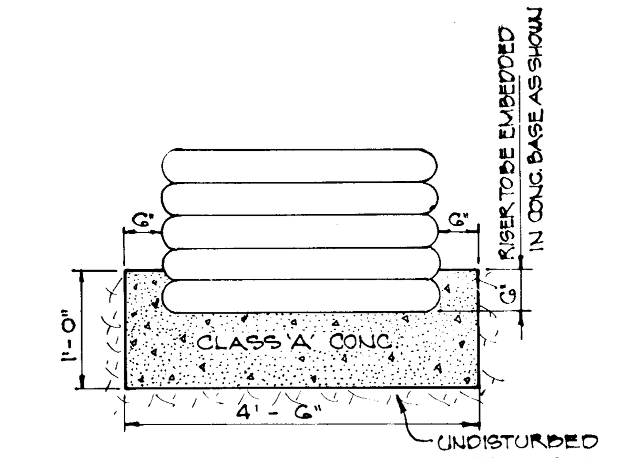
1. THE CYLINDER MUST BE FIRMLY FASTENED TO THE TOP OF THE RISER.
2. SUPPORT BARS ARE WELDED TO THE TOP OF THE RISER OR ATTACHED BY STRAPS BOLTED TO TOP RISER.

DETAIL TRASH RACK & ANTI-VORTEX DEVICE
NO SCALE

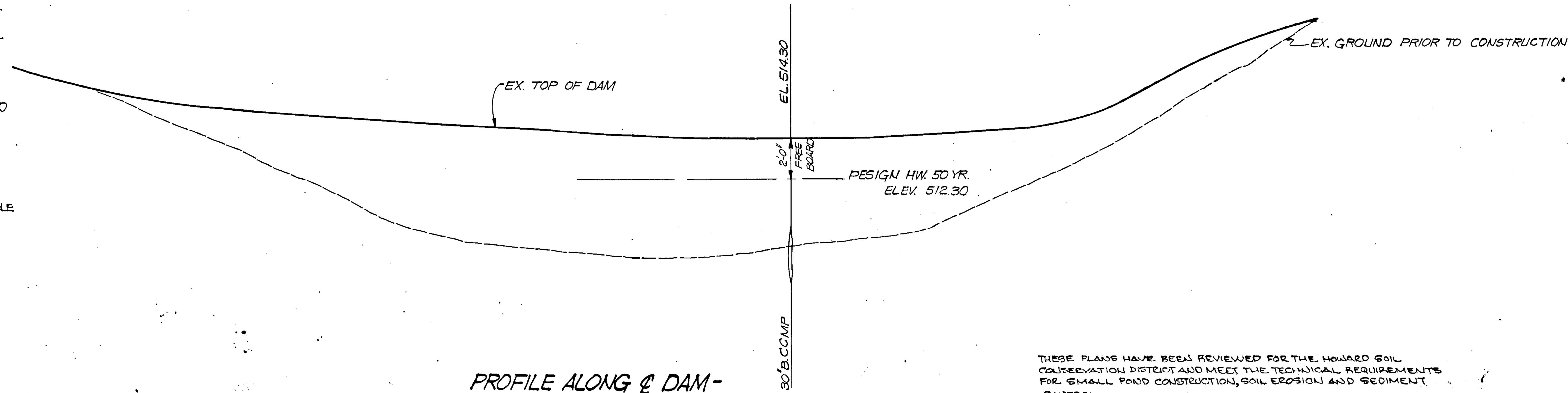


NOTES FOR COLLARS:
1. ALL MATERIALS TO BE IN ACCORDANCE WITH CONSTRUCTION AND CONSTRUCTION MATERIAL SPECIFICATIONS.
2. WHEN SPECIFIED ON THE PLANS, COATING OF COLLARS SHALL BE IN ACCORDANCE WITH CONSTRUCTION AND CONSTRUCTION MATERIAL SPECIFICATIONS.
3. UNASSEMBLED COLLARS SHALL BE MARKED BY PAINTING OR TAGGING TO IDENTIFY MATCHING PAIRS.
4. THE LAP BETWEEN THE TWO HALF SECTIONS AND BETWEEN THE PIPE AND CONNECTING BAND SHALL BE CAULKED WITH ASPHALT MASTIC AT TIME OF INSTALLATION.
5. EACH COLLAR SHALL BE FURNISHED WITH TWO ½" DIAMETER RODS WITH STANDARD TANK LUGS FOR CONNECTING COLLARS TO PIPE.

DETAILS OF CORRUGATED METAL ANTI-SEEP COLLARS
NO SCALE



DETAIL CONCRETE BASE
NO SCALE



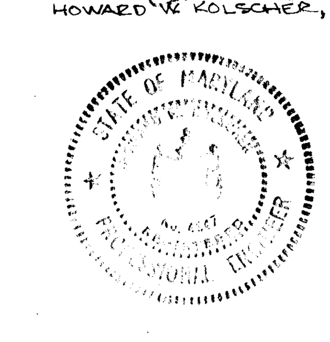
PROFILE ALONG ℄ DAM - BROADWATER ESTATES
SCALE: HOR. 1"=20' VERT. 1"=4'

"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."

Broadwater Associates, Jack T. Gibson, Partner — 11/1/79
BROADWATER ASSOCIATES - JACK T. GIBSON, PARTNER — DATE

"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."

[signature] — 11/1/79
HOWARD W. KOLSCHER, P.E. REG. No. 4647



- NOTE -
AS-BUILT ELEVATIONS CERTIFIED BY HOWARD H. HINE, MD. REG. P.E. No. 1345 AS OF AUGUST 28, 1981

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. Nelson — 11-15-79
U.S. SOIL CONSERVATION SERVICE — DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD CONSERVATION DISTRICT.

APPROVED William T. Rawe — 11-15-79
HOWARD S.C.D. — DATE

F-80-13
PLAN NUMBER

SPECIFICATIONS & DETAILS
SEDIMENT CONTROL BASIN
BROADWATER ESTATES
ELECT. DIST. No. 5 HOWARD Co. MD.
SCALE: AS SHOWN AUGUST 30, 1979
SHEET 6 OF 6
HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
for Allen S. Brown 11/14/79 — CHIEF, BUREAU OF ENGINEERING — DATE
OFFICE OF PLANNING & ZONING
11 8 79 — CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

AS-BUILT FEB 4, 1983

#798