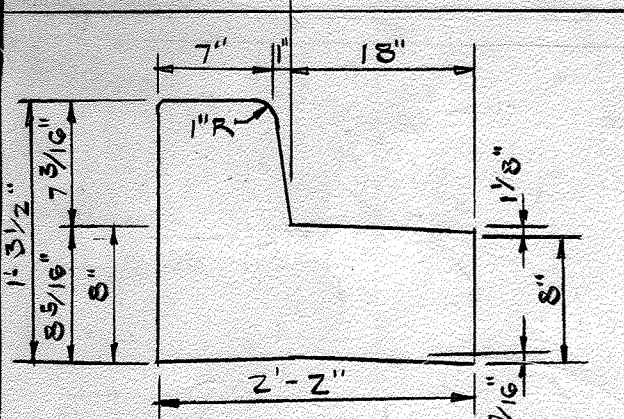


HOWARD CO STANDARDS  
 CURB & GUTTER SEE R-3.01  
 SIDEWALKS SEE R-3.05  
 PAVING SEE R-2.01



DETAIL - REVERSE CONC. C & G.

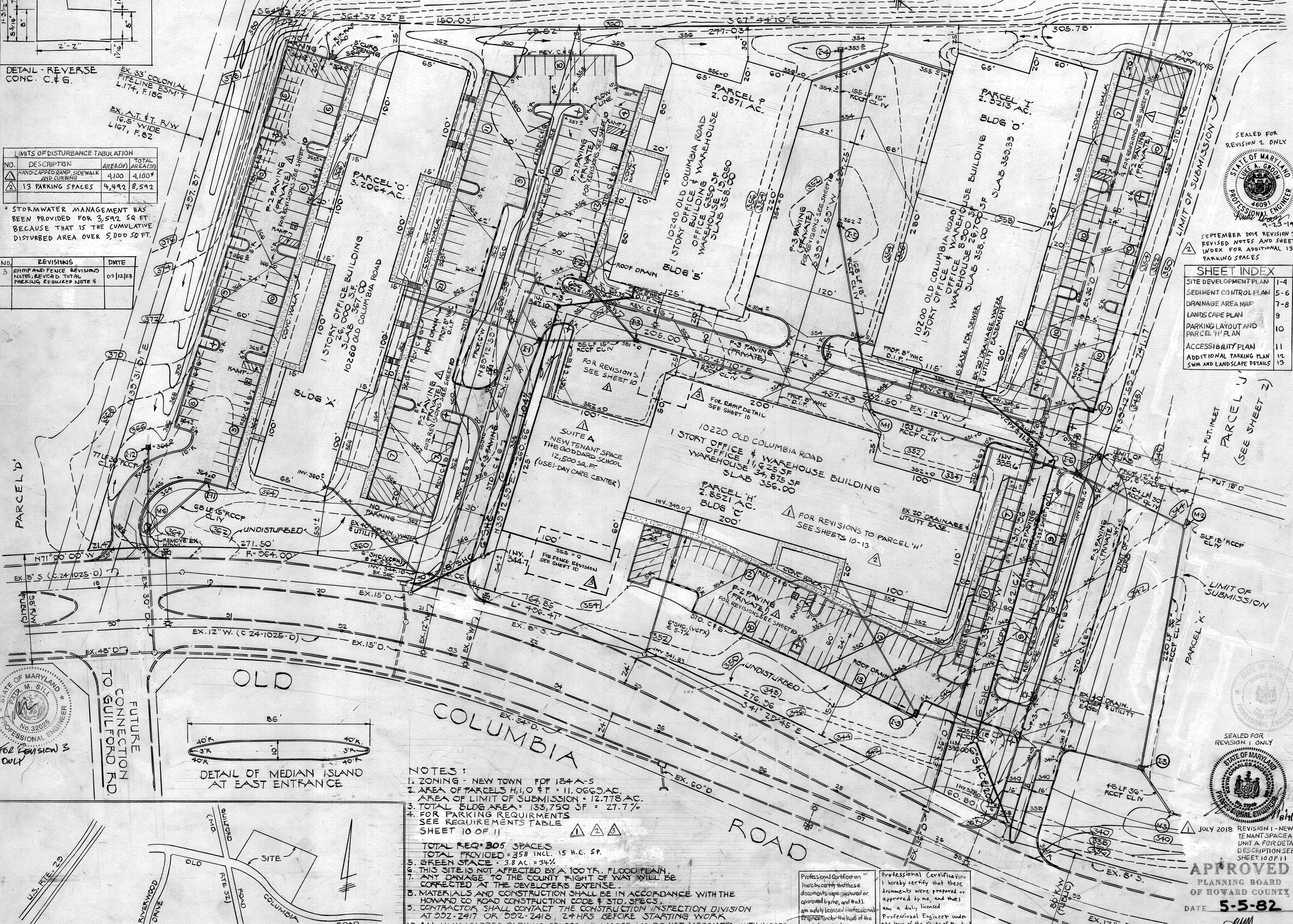
EX. 33 COLONIAL PIPELINE ESMIT L174, F.186  
 EX. AT ET. R/W 16.6' WIDE L167, F.82

NO.	DESCRIPTION	AREA(SF)	TOTAL AREA(SF)
1	HANDICAPPED SIDEWALK AND CURBING	4,100	4,100
2	13 PARKING SPACES	4,492	8,592

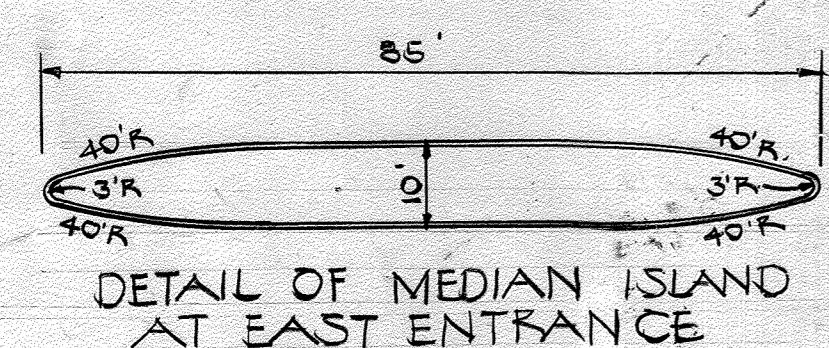
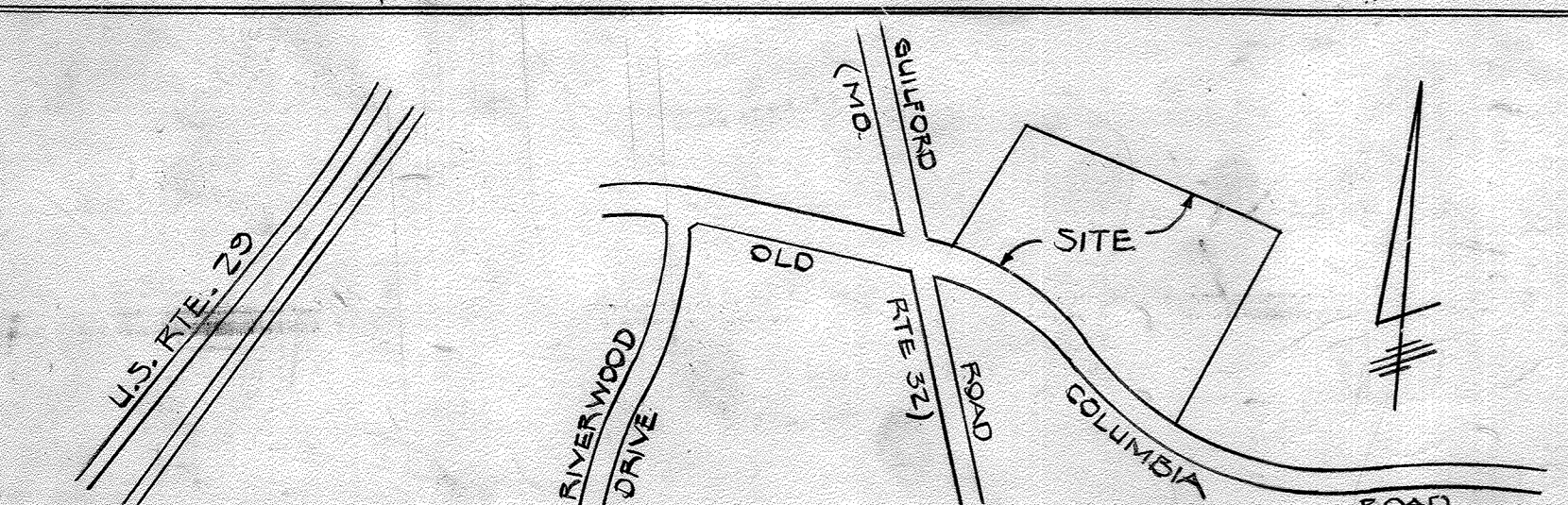
\* STORMWATER MANAGEMENT HAS BEEN PROVIDED FOR 3,592 SF BECAUSE THAT IS THE CUMULATIVE DISTURBED AREA OVER 5,000 SF FT.

NO.	REVISIONS	DATE
3	RAMP AND FENCE REVISIONS NOTES, REVISED TOTAL PARKING, REVISION NOTE 4	07/12/23

STATE HIGHWAY ADMINISTRATION 528-377  
 SEE SHA PLAT NOS. 37737 & 37738  
 VEHICULAR INGRESS & EGRESS IS RESTRICTED



FOR REVISION 3 ONLY



- NOTES:
- ZONING - NEW TOWN FPP 184-A-5
  - AREA OF PARCELS H, I, O & P = 11.0663 AC.
  - AREA OF LIMIT OF SUBMISSION = 12.778 AC.
  - TOTAL BLDG AREA = 133,750 SF = 27.7%
  - FOR PARKING REQUIREMENTS SEE REQUIREMENTS TABLE SHEET 10 OF 11
  - TOTAL REQ. = 305 SPACES
  - TOTAL PROVIDED = 358 INCL. 15 H.C. SP.
  - GREEN SPACE = 3.8 AC. = 34%
  - THIS SITE IS NOT AFFECTED BY A 100 YR. FLOOD PLAIN.
  - ANY DAMAGE TO THE COUNTY RIGHT OF WAY WILL BE CORRECTED AT THE DEVELOPER'S EXTENSE.
  - MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE HOWARD CO ROAD CONSTRUCTION CODE & STD. SPECS.
  - CONTRACTOR SHALL CONTACT THE CONSTRUCTION INSPECTION DIVISION AT 502-2417 OR 502-2418, 24 HRS BEFORE STARTING WORK.
  - ALL HANDICAPPED PARKING SPACES AND ACCESS AISLES NOT ASSOCIATED WITH #10220 OLD COLUMBIA RD BUILDING, PARCEL H, HAVE BEEN SHOWN FOR ILLUSTRATIVE PURPOSES AND DO NOT NECESSARILY COMPLY WITH CURRENT ACCESSIBILITY CODE. SEE SHEET 10 FOR PARKING LAYOUT.
  - NO EXISTING TREES WILL BE IMPACTED BY CONSTRUCTION OF THE FENCE OR BOLLARDS PER REVISION 3.

Professional Certification  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland. License No. 72016 Exp. Date 5/14/24

Professional Certification  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland. License No. 46091 Exp. Date 5/14/24

SHEET INDEX

SITE DEVELOPMENT PLAN	1-4
SEDIMENT CONTROL PLAN	5-6
DRAINAGE AREA MAP	7-8
LANDSCAPE PLAN	9
PARKING LAYOUT AND PARCEL H PLAN	10
ACCESSIBILITY PLAN	11
ADDITIONAL PARKING PLAN SWM AND LANDSCAPE DETAILS	12-13

SEPTEMBER 2019 REVISION 2 - REVISED NOTES AND SHEET INDEX FOR ADDITIONAL 13 PARKING SPACES

APPROVED PLANNING BOARD OF HOWARD COUNTY  
 DATE 5-5-82

APPROVED PLANNING BOARD OF HOWARD COUNTY  
 DATE 5-5-82

AS-BUILT 12-22-2023  
 NO AS-BUILT INFO. IN THIS SHEET

HUDKINS ASSOCIATES, INC.  
 101 SHELL BUILDING  
 200 E. JOPPA ROAD  
 TOWSON MD. 21204

APPROVED FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS HOWARD COUNTY HEALTH DEPT.  
 June M. Boyd, MD, PE, P.E.W. 6-8-82  
 COUNTY HEALTH DEPT. OFFICER'S DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION & SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 Robert W. Ziehm 6-2-82  
 HOWARD S.D. DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.  
 James M. Adams 6-2-82  
 U.S. SOIL CONSERVATION SERVICE DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING  
 Thomas J. Harris 6-9-82  
 DIRECTOR DATE  
 Chief: Division Land Development and Zoning Administration

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAINAGE SYSTEMS & PUBLIC ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 James M. Adams 6-4-82  
 DIRECTOR DATE  
 Chief: Bureau of Engineering

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. ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT. OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT & EROSION BEFORE BEGINNING THE PROJECT.  
 Signature: [Signature] DATE: [Date]

ENGINEER  
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION.  
 Signature: [Signature] DATE: [Date]

DEVELOPER  
 M.O.R. XIV ASSOCIATES  
 SUITE 2100 CHARLES CENTER SOUTH  
 36 S. CHARLES ST.  
 BALTO. MD. 21201

ARCHITECT  
 NICHOLS/GOULD ARCHITECTS  
 1111 N. HUNTER STREET  
 BALTO., MD 21202

OWNER  
 OEKOS MANAGEMENT CORP.  
 8300 GUILFORD ROAD, SUITE C  
 COLUMBIA, MD 21046

PARCELS H, I, O & P  
 SECTION I, AREA I  
 RIVERS CORPORATE PARK  
 PLAT NOS.  
 ELECT. DIST. 6 HOWARD CO., MD.

SITE DEVELOPMENT PLAN  
 SHEET NO. 1 OF 13  
 DATE 1-13-82  
 REVISED 6-18-82  
 7-6-82  
 SCALE: 1" = 40'  
 SDP-82-76 G185



HUDKINS ASSOCIATES INC.  
101 SHELL BUILDING  
200 E. JOPPA ROAD  
TOWSON MD. 21204

APPROVED FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPT.  
*[Signature]* 6-9-82  
COUNTY HEALTH DEPT. OFFICER DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION & SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*[Signature]* 6-2-82  
HOWARD S.C.D. 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]* 6-2-82  
U.S. SOIL CONSERVATION SERVICE DATE

APPROVED BY HOWARD COUNTY OFFICE OF PLANNING AND ZONING  
*[Signature]* 6-9-82  
DIRECTOR DATE  
*[Signature]* 6-9-82  
CHIEF, DIVISION LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAINAGE SYSTEMS & PUBLIC ROADS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 6-4-82  
DIRECTOR DATE  
*[Signature]* 6-4-82  
CHIEF, BUREAU OF ENGINEERING DATE

DEVELOPER  
I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT, POND CONSTRUCTION AND EROSION AND SEDIMENT CONTROL. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE MADE UNLESS AUTHORIZED BY THE HOWARD SOIL CONSERVATION DISTRICT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION. ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT. OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT & EROSION BEFORE BEGINNING THE PROJECT.  
*[Signature]* 10/1/82  
SIGNATURE DATE

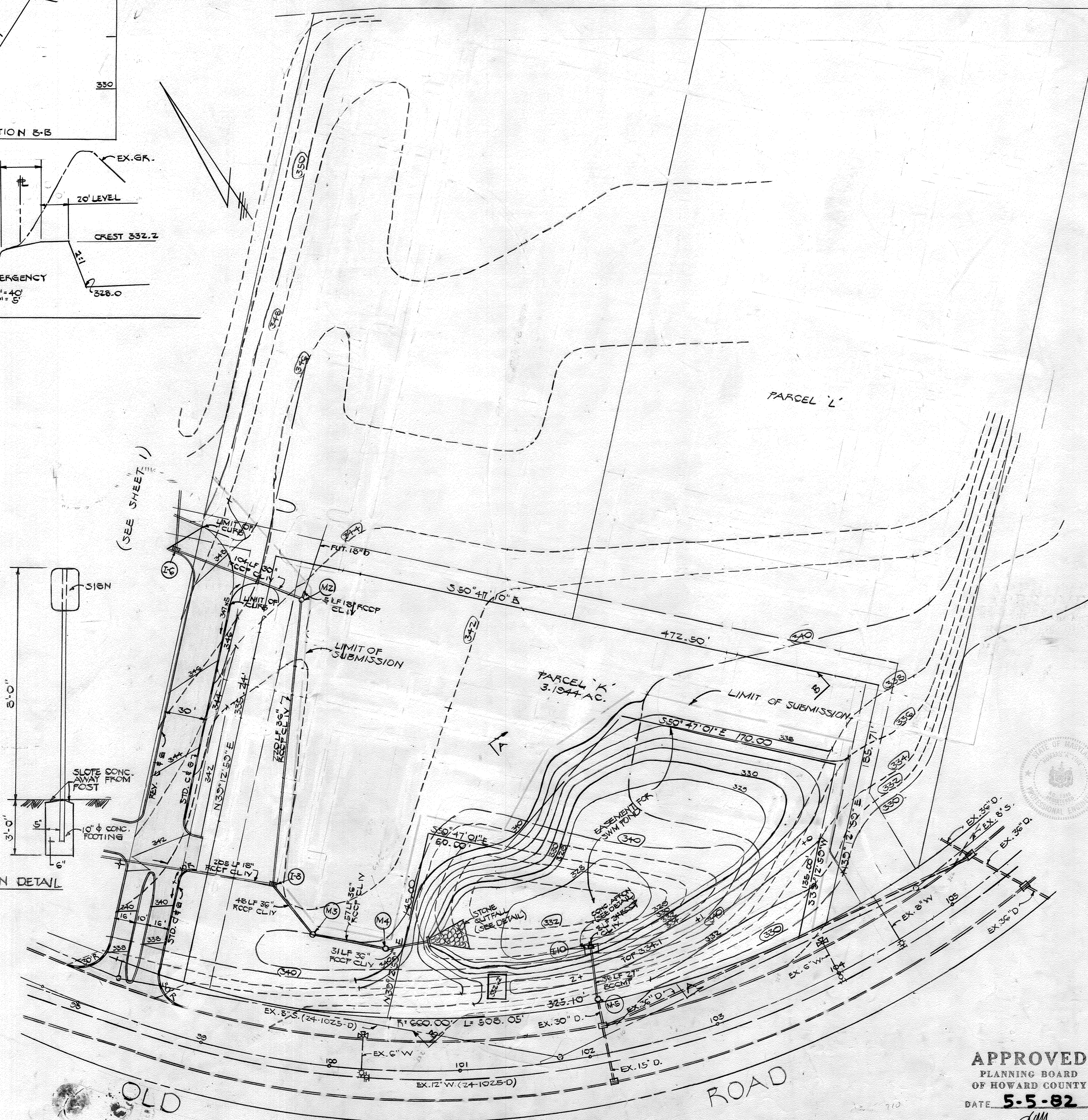
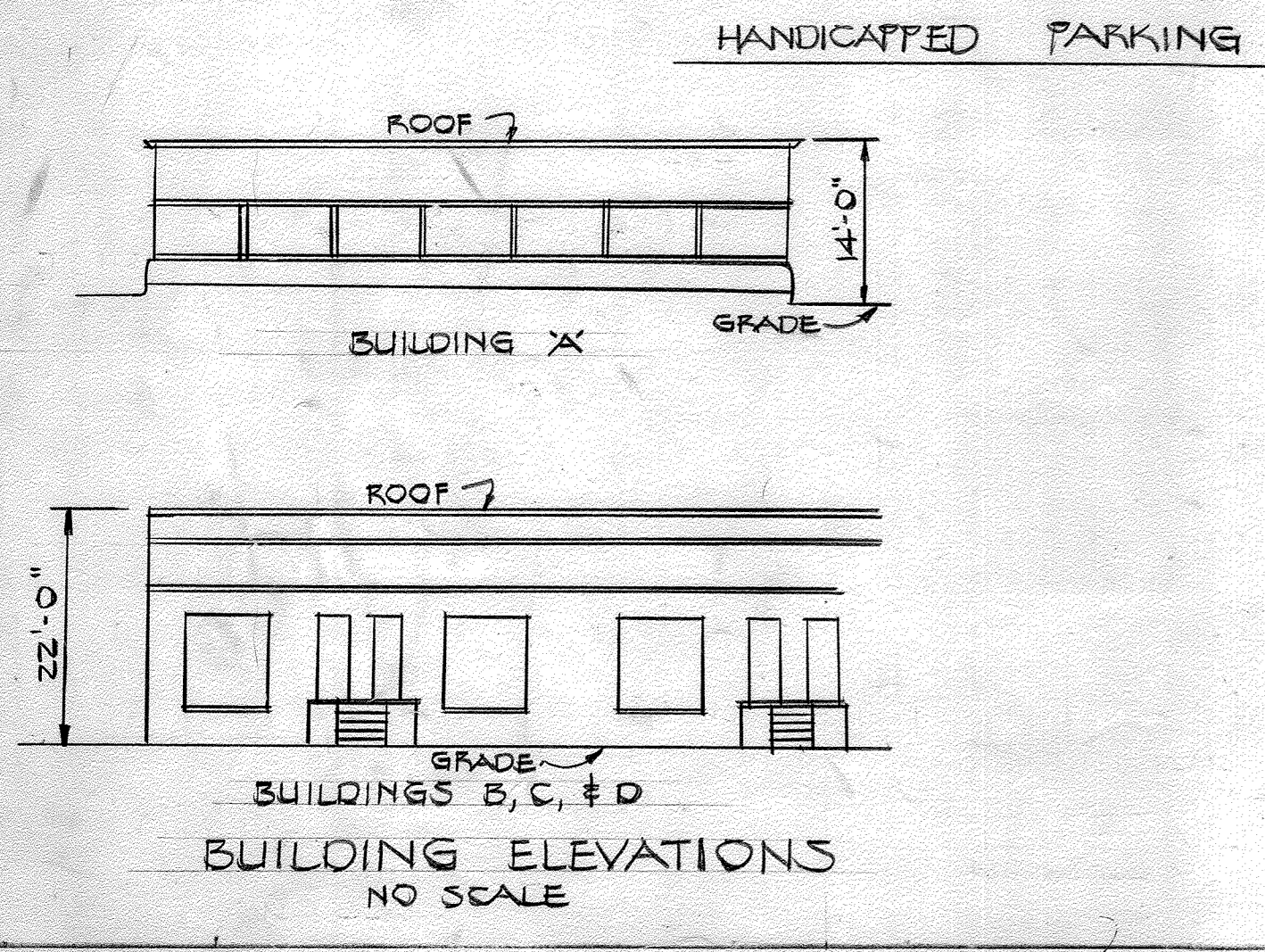
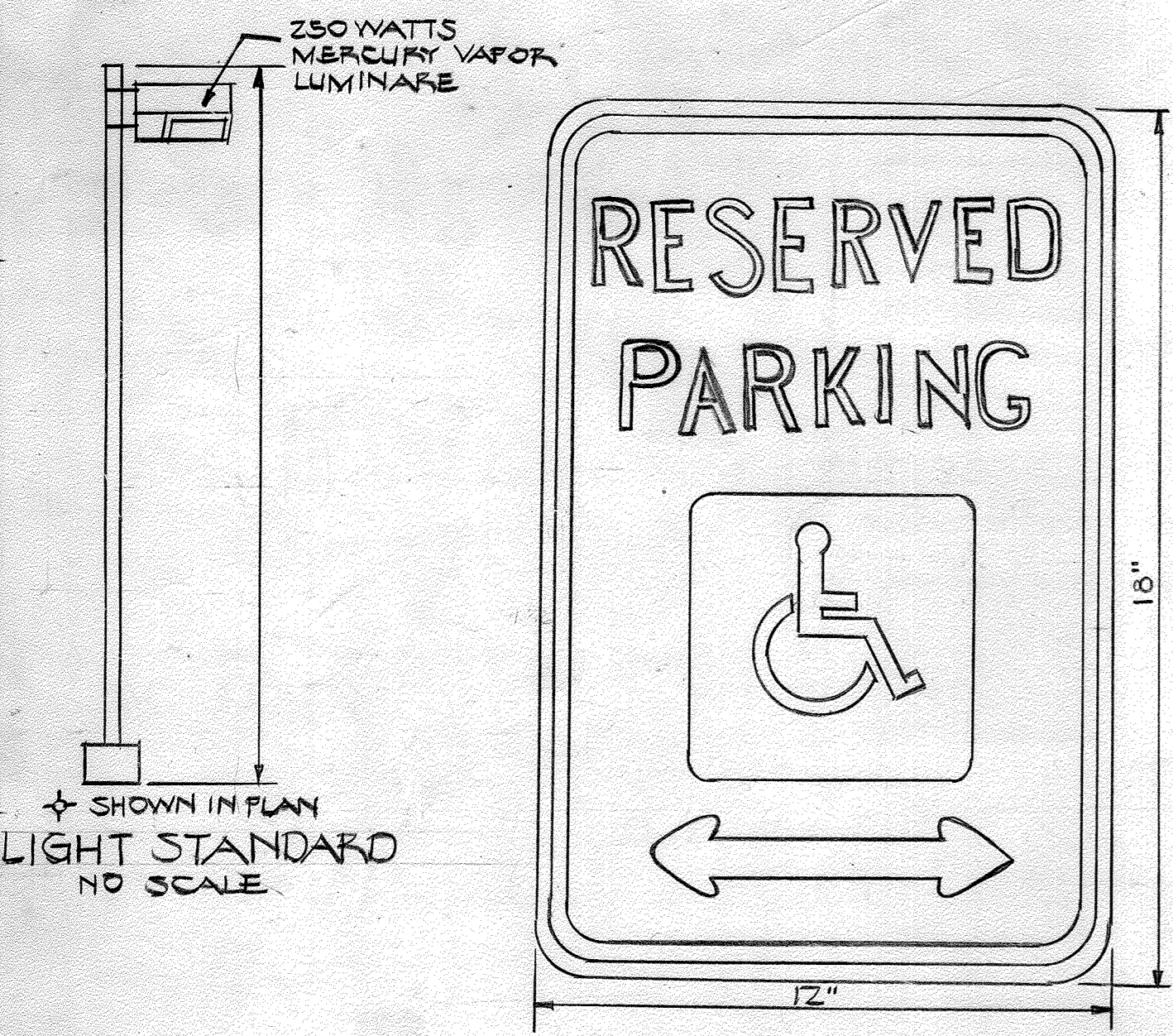
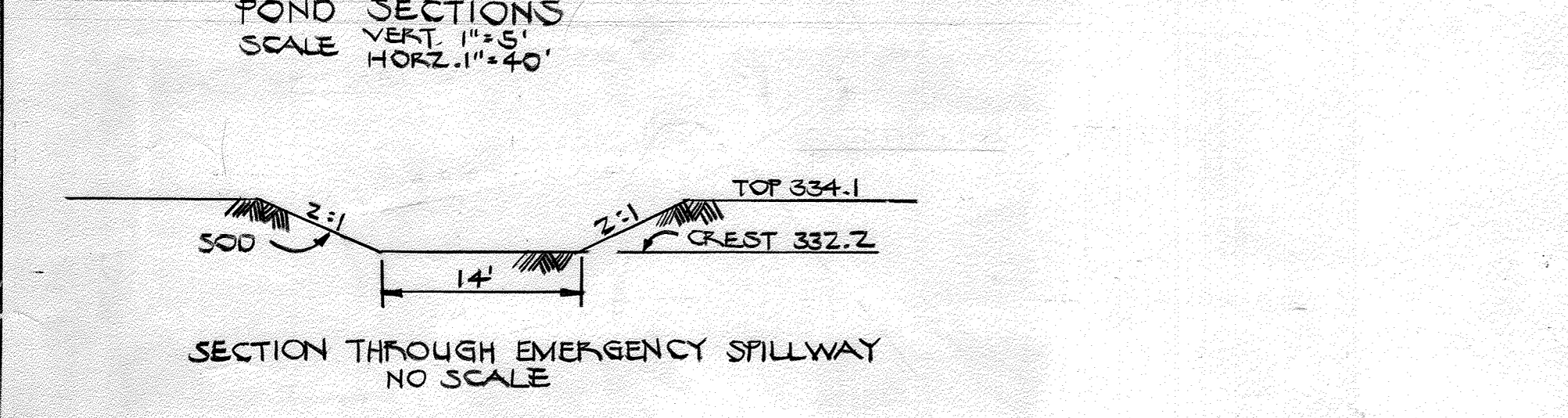
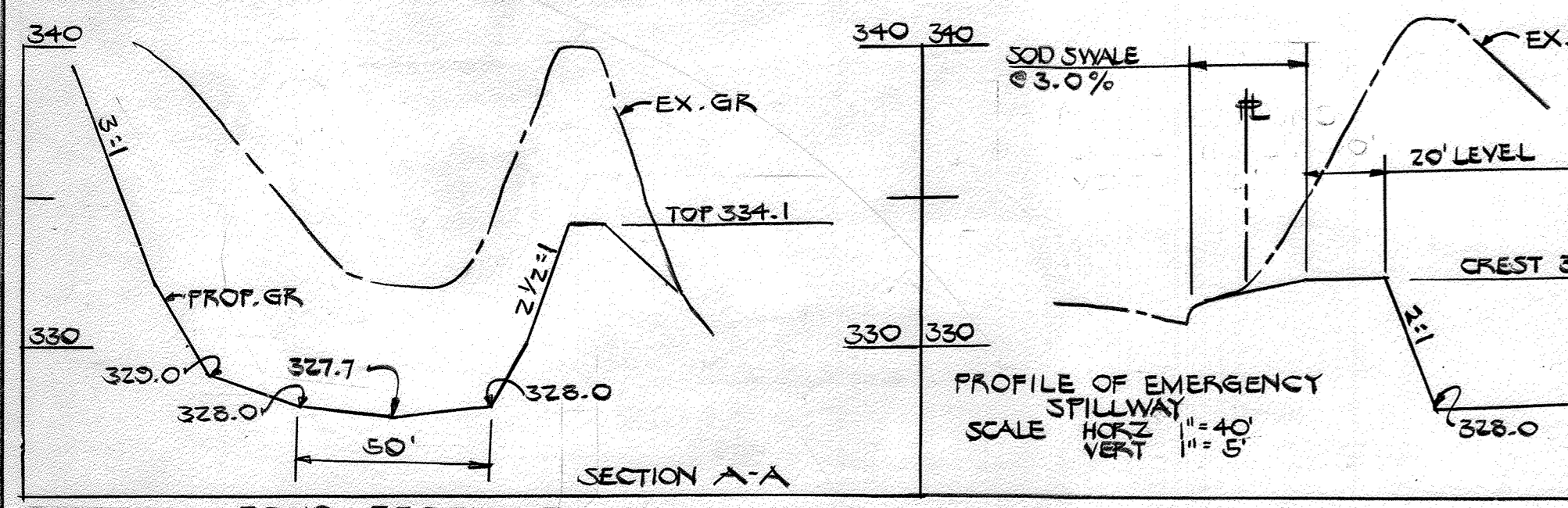
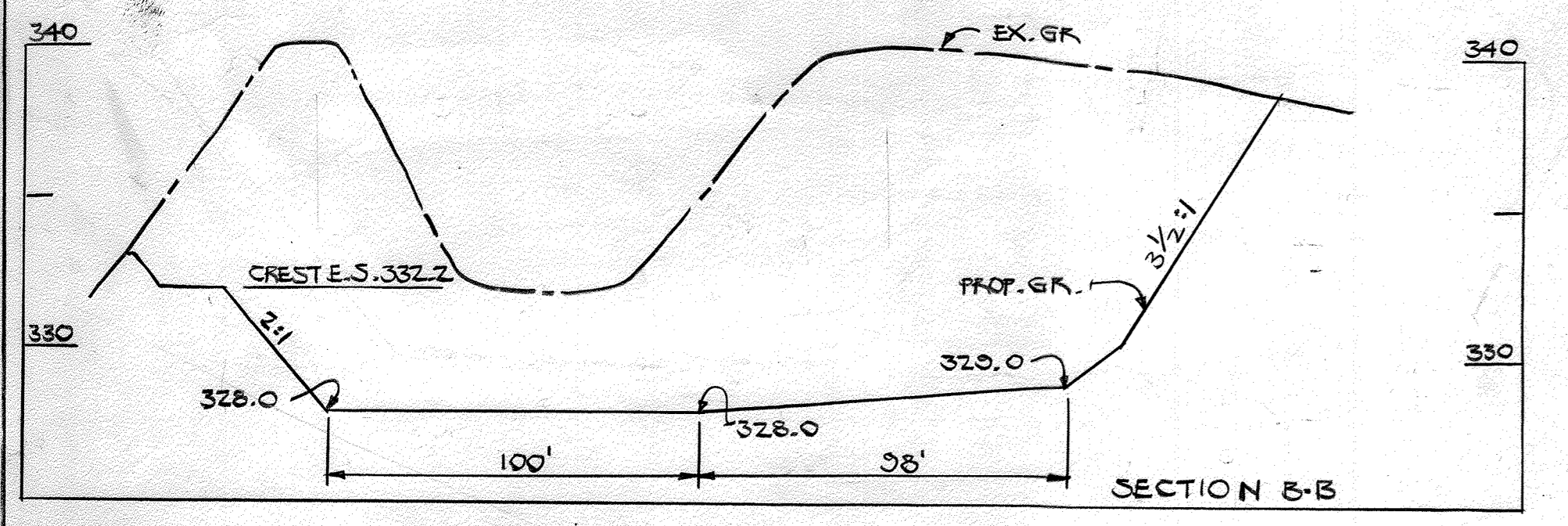
ENGINEER  
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION.  
*[Signature]* 10/13/82  
SIGNATURE DATE

DEVELOPER  
M.O.F. XIV ASSOCIATES  
SUITE 2100 CHARLES CENTER SOUTH  
36 S CHARLES ST.  
BALTO. MD. 21201  
ARCHITECT  
NICHOLS / GOULD ARCHITECTS  
1111 N. HUNTER STREET  
BALTO., MD 21202

OWNER  
DEKOS MANAGEMENT CORP.  
8300 GULFORD ROAD, SUITE C  
COLUMBIA, MD 21046

PARCELS H, I, O & P  
SECTION 1, AREA 1  
RIVERS CORPORATE PARK  
PLAT NOS.  
ELECT. DIST. 6 HOWARD CO., MD.

SITE DEVELOPMENT PLAN  
SHEET NO. 2 OF 13  
DATE 1-13-82  
REVISED



APPROVED  
PLANNING BOARD  
OF HOWARD COUNTY  
DATE 5-5-82  
*[Signature]*

SEPTEMBER 2019 REVISION 2 - REVISED SHEET TOTAL AND OWNER

AS-BUILT 12-22-2023  
NO AS-BUILT INFO IN THIS SH.



APPROVED FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS HOWARD COUNTY HEALTH DEPT.

*James M. Boyd, M.D., P.E.* 6-8-82  
COUNTY HEALTH DEPT. OFFICER DATE

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

*Robert W. Ziehm* 6-2-82  
HOWARD S.C.P. DATE

PLAN NO. \_\_\_\_\_  
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. Boyd, M.D., P.E.* 6-2-82  
U.S. SOIL CONSERVATION SERVICE DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

*Donald J. Harris* 6-9-82  
DIRECTOR DATE

*John M. Hurd* 6-9-82  
CHIEF, DIVISION LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAINAGE SYSTEMS & PUBLIC ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*James M. Boyd, M.D., P.E.* 6-4-82  
DIRECTOR DATE

*William S. Reed* 6-4-82  
CHIEF, BUREAU OF ENGINEERING DATE

**DEVELOPER**  
I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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. ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT. OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT & EROSION BEFORE BEGINNING THE PROJECT.

*John M. Hurd* 6-4-82  
SIGNATURE DATE

**ENGINEER**  
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION.

*Howard H. Harris, P.E. #1345* Jan 13, 1982  
SIGNATURE DATE

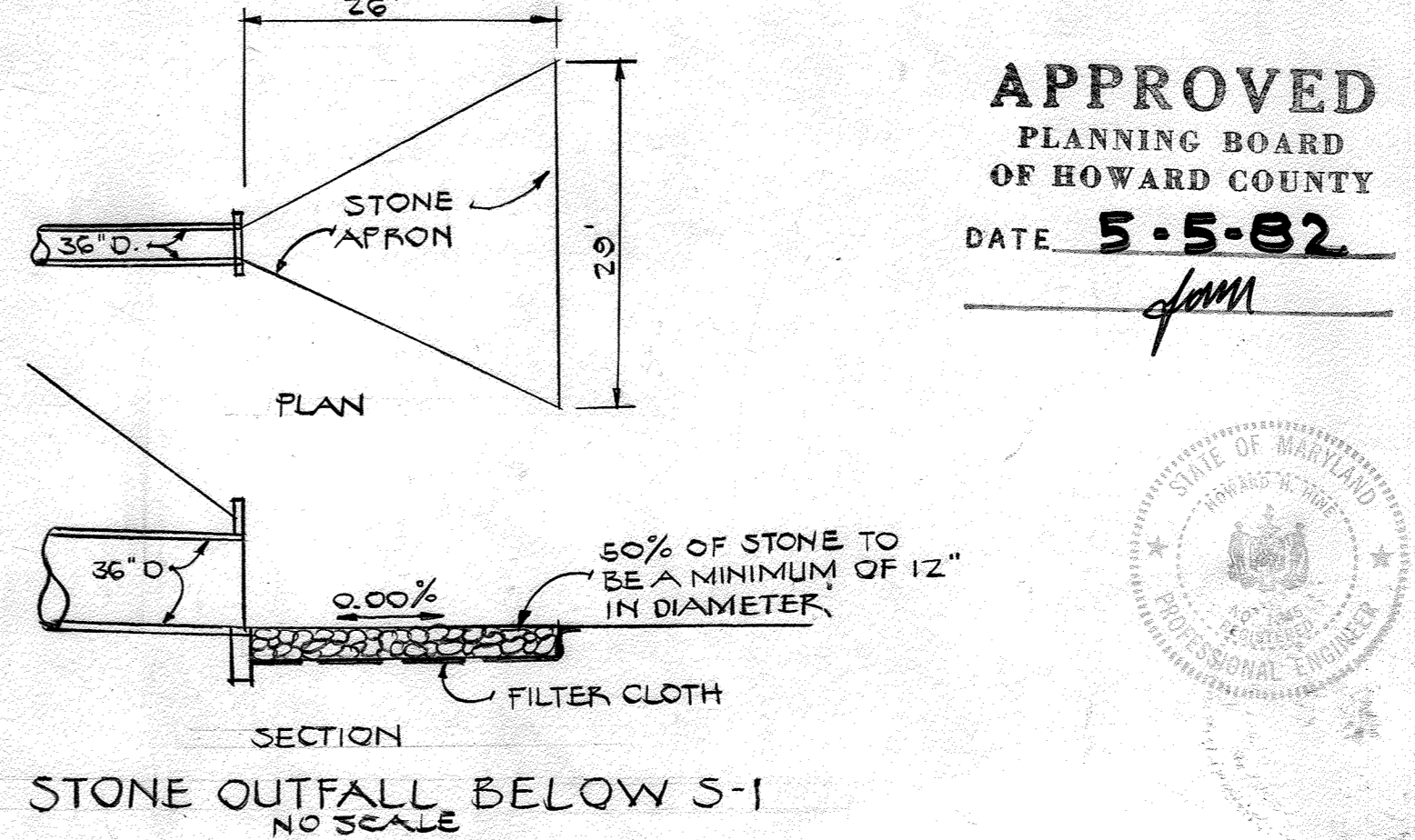
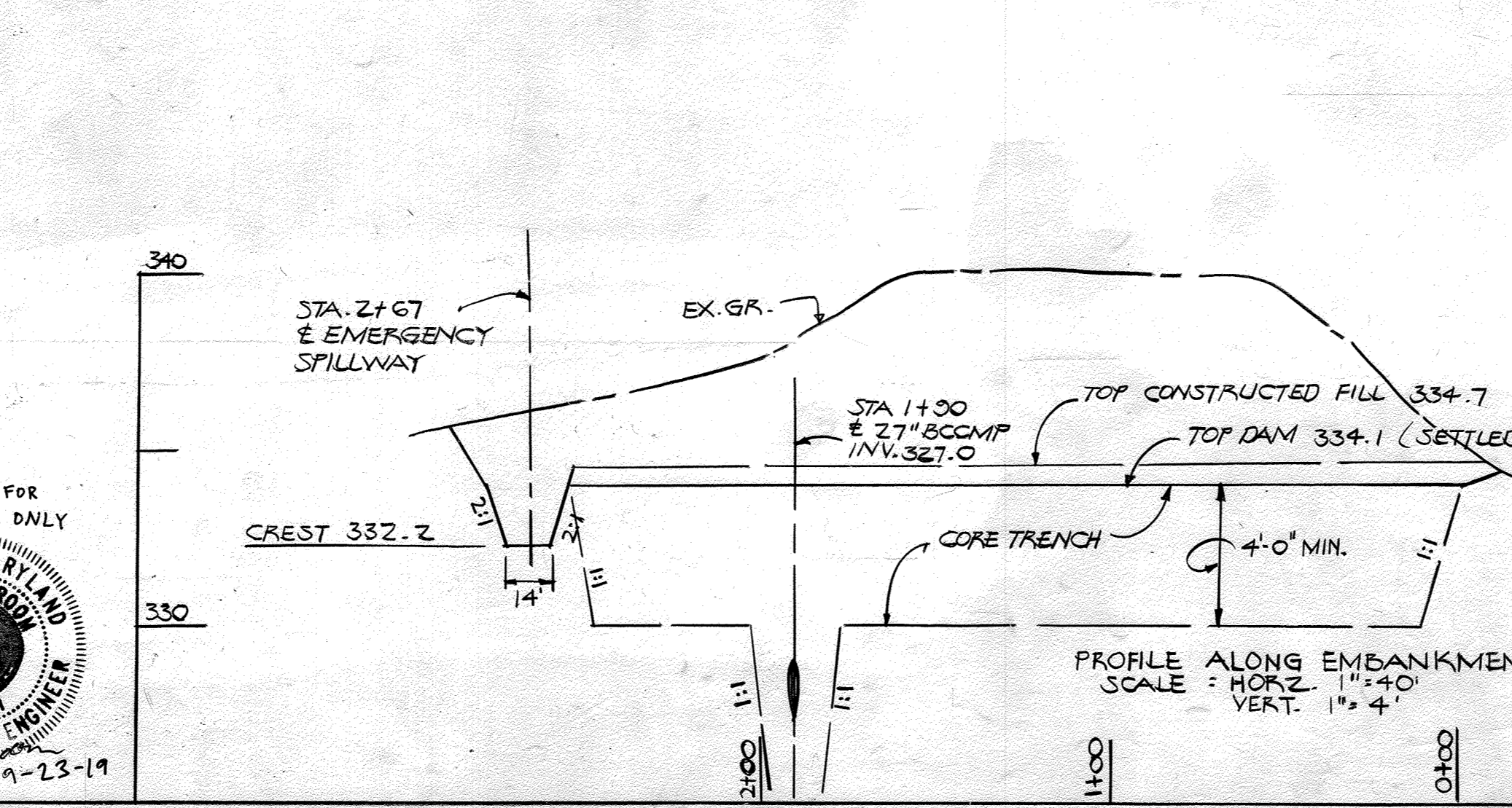
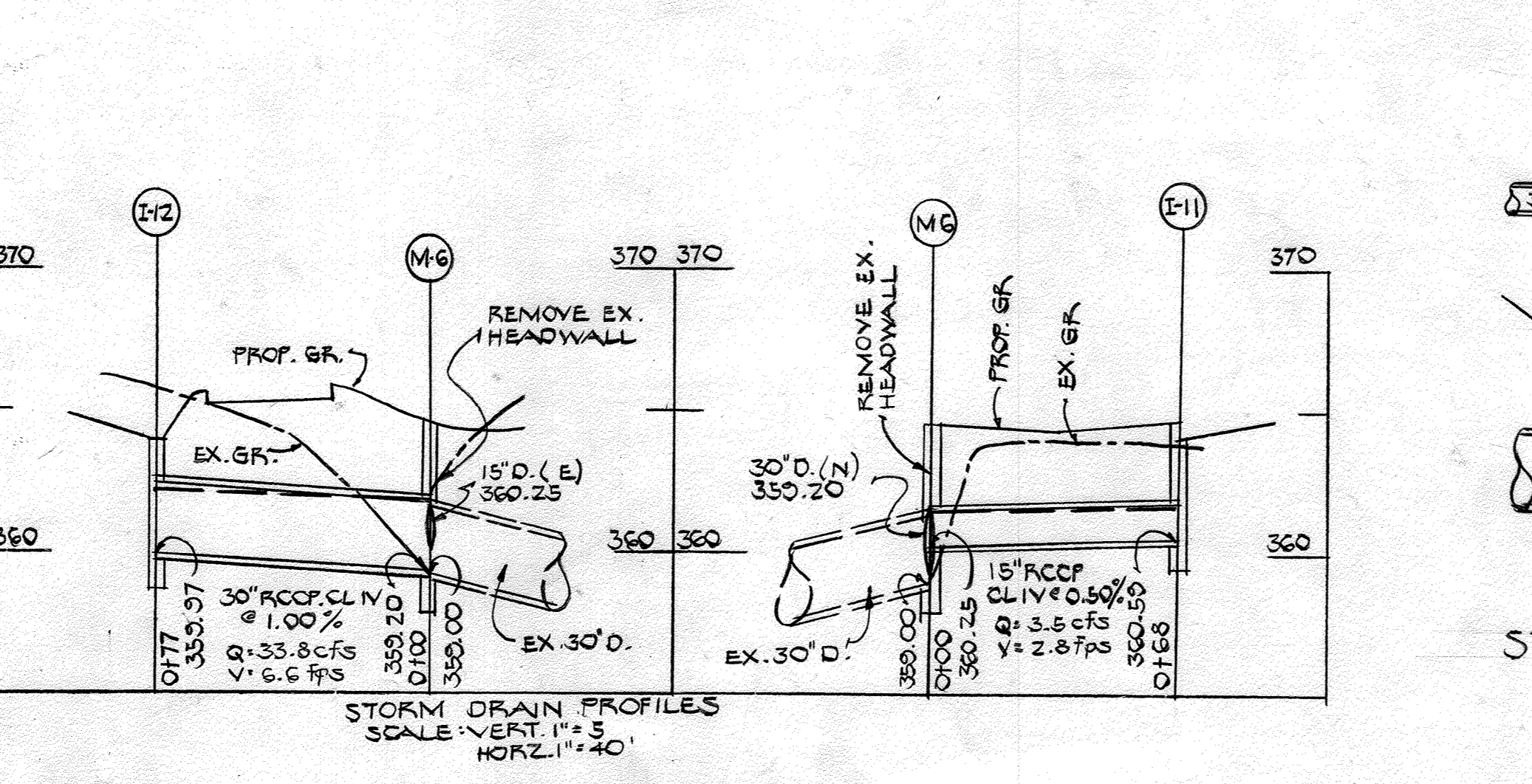
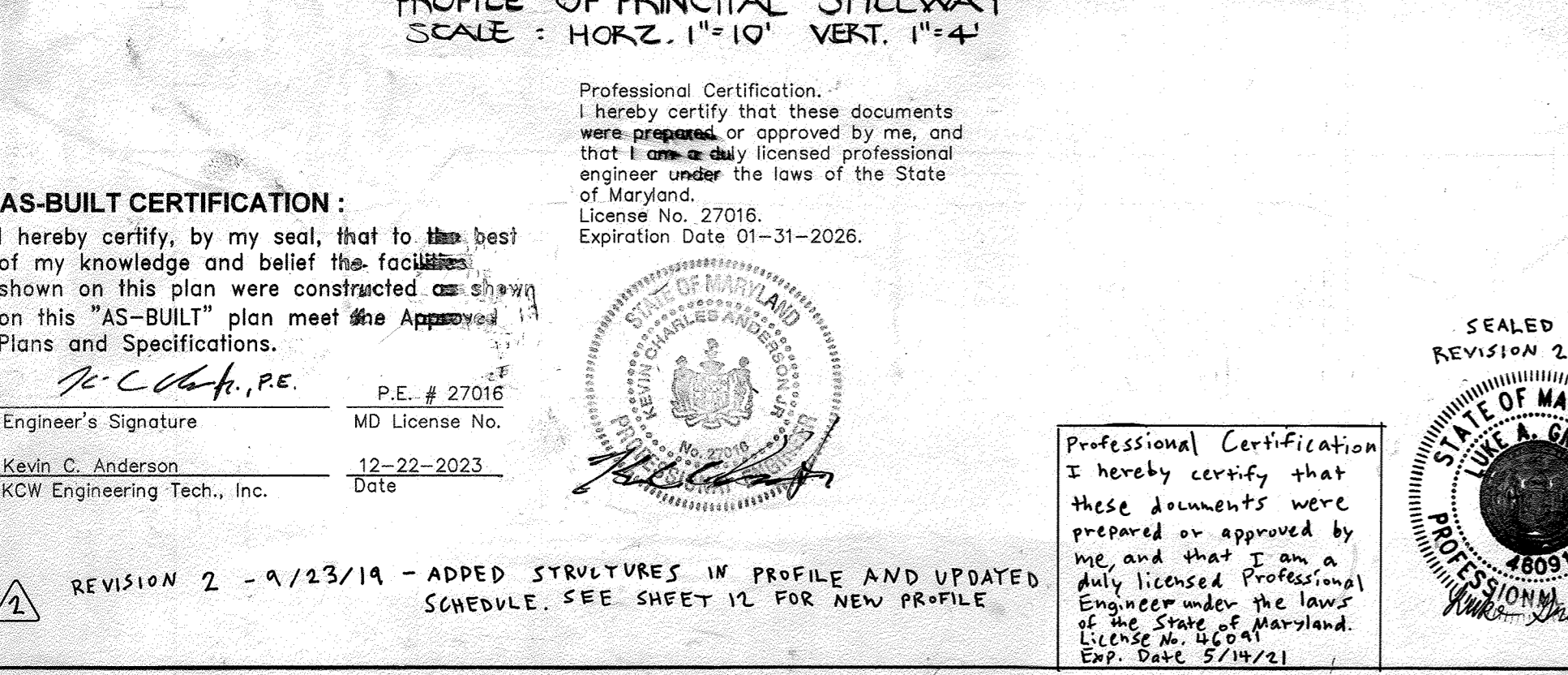
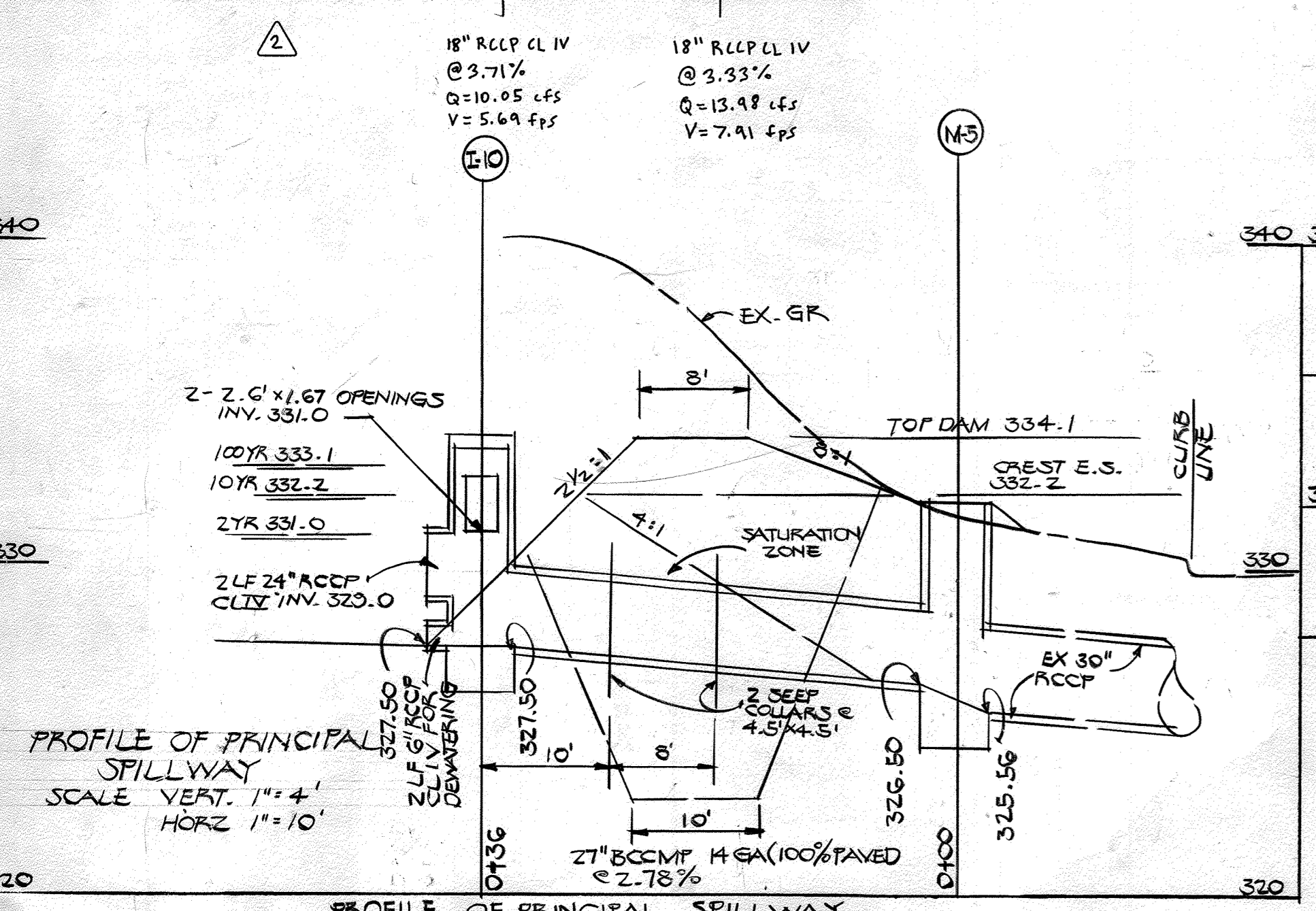
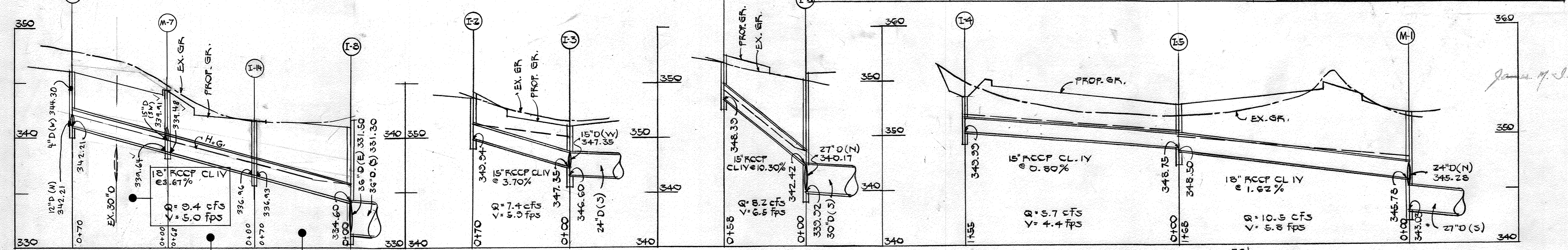
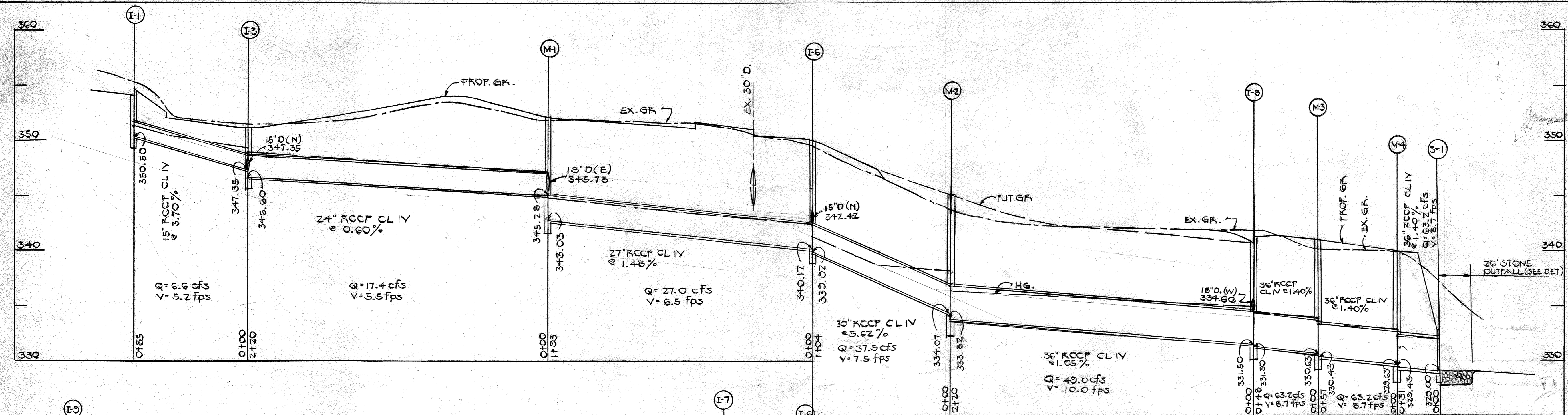
**DEVELOPER**  
M.O.R. XIV ASSOCIATES  
SUITE 2100 CHARLES CENTER SOUTH  
36 S. CHARLES ST.  
BALTO MD 21201

**ARCHITECT**  
NICHOLS/GOULD ARCHITECTS  
1111 N. HUNTER STREET  
BALTO, MD. 21202

**OWNER**  
DEKOS MANAGEMENT CORP.  
8300 GUILFORD ROAD, SUITE C  
COLUMBIA, MD 21046

PARCELS H, I, O & P  
SECTION 1, AREA 1  
RIVERS CORPORATE PARK  
PLAT NOS.  
ELECT. DIST. 6 HOWARD CO., MD.

**SITE DEVELOPMENT PLAN**  
SHEET NO. 3 OF 13  
DATE 1-13-82  
REVISED



NOTE: I-13 TOP IS TOP OF CURB AT CENTER OF STRUCTURE

STRUCTURE SCHEDULE					
NO	TYPE	INV. IN	INV. OUT	TOP	REMARKS
I-1	DBLE'S COMB	-	350.50	354.60	SD 4-34
I-2	'S' COMB	-	349.54	354.10	SD 4-32
I-3	'S'	347.35	346.60	351.00	SD 4-22
I-4	'S'	-	349.80	353.50	SD 4-32
I-5	'S'	-	348.75	348.50	SD "
I-6	'S' COMB	342.42	335.52	350.60	"
I-7	'S' COMB	-	345.30	352.40	"
I-8	'S' COMB	334.60	331.30	341.20	"
I-9	'S'	344.30	342.21	346.60	SD D-4-24
I-10	MDD - 'S'	SEE DETAIL	327.50	334.00	SEE DETAIL
I-11	'S' COMB.	-	360.50	364.60	SD 4-32
I-12	DBLE 'S'	-	350.87	364.00	SD 4-23
I-13	A-5	-	340.11	344.61	SD D-4-02
I-14	'S' COMB.	336.96	336.93	341.61	SD D-4-22
M-1	A1 MANHOLE	345.78	343.03	352.00	S.D. 3-01
M-2	A1 MANHOLE	334.02	335.82	343.80	S.D. 3-01
M-3	A1 MANHOLE	330.03	330.46	341.00	S.D. 3-01
M-4	A1 MANHOLE	329.63	329.43	340.00	S.D. 3-01
M-5	B MANHOLE	327.00	325.56	332.00	S.D. 3-03
M-6	B MANHOLE	320.25	350.00	364.50	S.D. 3-03
M-7	5" MANHOLE	334.91	334.48	344.40	SD 6-513+5.14
S-1	C ENDWALL	-	329.00	335.00	S.D. 5-21

**AS-BUILT CERTIFICATION:**  
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this plan were constructed as shown on this "AS-BUILT" plan meet the Approved Plans and Specifications.

*Kevin C. Anderson* 12-22-2023  
Engineer's Signature Date  
KCW Engineering Tech., Inc.

Professional Certification:  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 45041  
Expiration Date 01-31-2026.

SEAL FOR REVISION 2 ONLY  
STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
9-23-19



SOIL CONSERVATION SERVICE  
MARYLAND  
CONSTRUCTION SPECIFICATIONS  
FOR  
PONDS

These specifications are appropriate to ponds within the scope of the Standard for practice 378.

I. SITE PREPARATION

Areas under the borrow areas, embankment, and structural works shall be cleared, grubbed and the topsoil stripped to remove all trees, vegetation, roots or other objectionable material. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas covered by the pond or reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface.

All cleared and grubbed material shall be disposed of outside the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

II. EARTH FILL

Material

The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, over-size stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.

Placement

Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of the embankment.

Compaction

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

Cutoff Trench

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

III. STRUCTURAL BACKFILL

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

IV. PIPE CONDUITS

A. 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 watertight coupling bands. Any bituminous 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 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 continuously welded seams or have lock seams which are caulked, during fabrication, with a neoprene bead.

- Connections - All connections 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.
- 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.
- Laying pipe - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.
- Backfilling shall conform to structural backfill as shown above.
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

B. Reinforced Concrete Pipe

1. Materials - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. Approved equivalents are AMWA Specification C-300, 301, and 302.

2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its diameter with a minimum thickness of 3", or as shown on the drawings.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.

4. Backfilling shall conform to structural backfill as shown above.

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

C. For pipes of other materials, specific specifications shall be 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 objectionable substances.

c. Sand - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a one-quarter inch sieve. Limestone sand shall not be used.

d. Coarse Aggregate - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches.

e. Reinforcing Steel - The reinforcing steel shall be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specification A-615.

2. Design Mix - The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U. S. gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.

3. Mixing - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the speed of rotation of the mixer and of the introduction of the materials, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

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 may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed from the surface of the concrete.

5. Reinforcing Steel - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.

6. Consolidating - Concrete shall be consolidated with internal type-mechanical vibrators. Vibration shall be supplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.

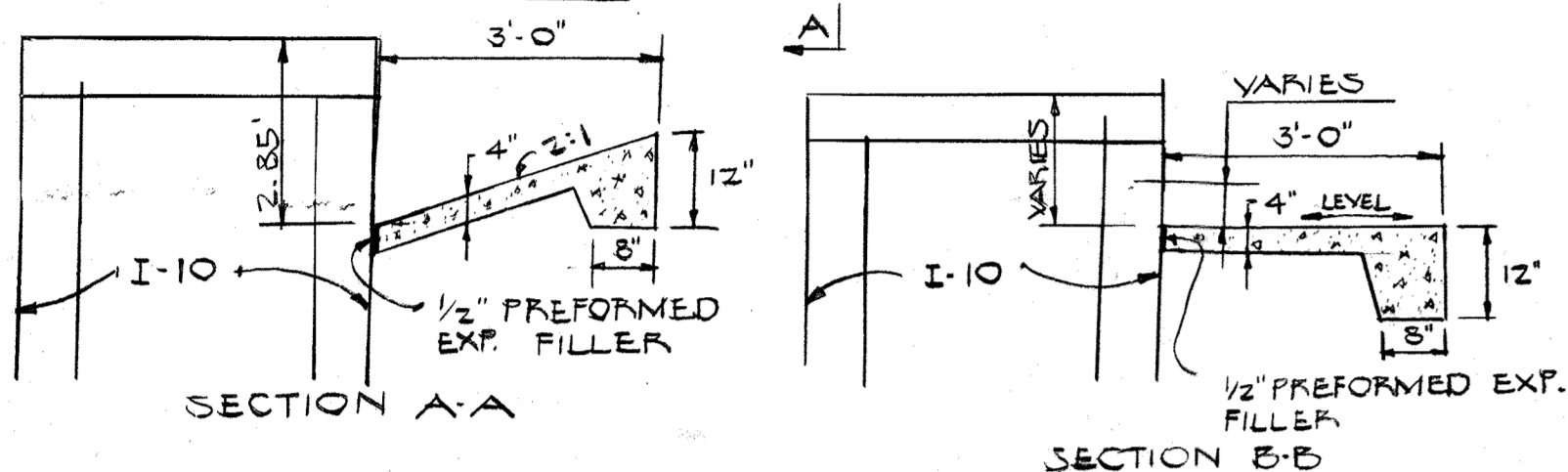
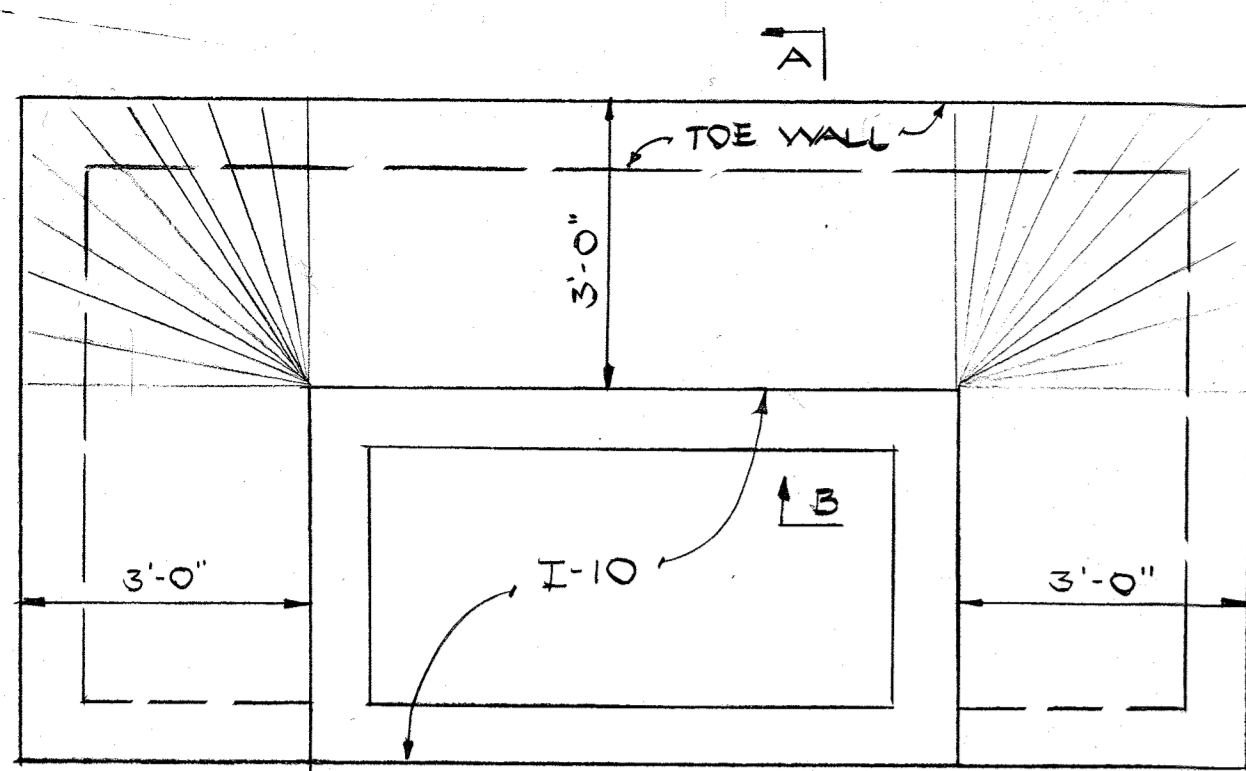
7. Finishing - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be reamed and completely filled with dry-patching mortar.

8. Protection and Curing - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.

9. Placing Temperature - Concrete may not be placed at temperatures below 37° F with the temperature falling, or 34° with the temperature rising.

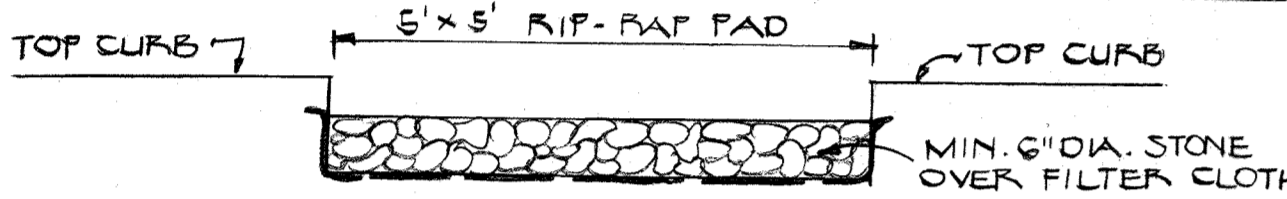
VI. STABILIZATION

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

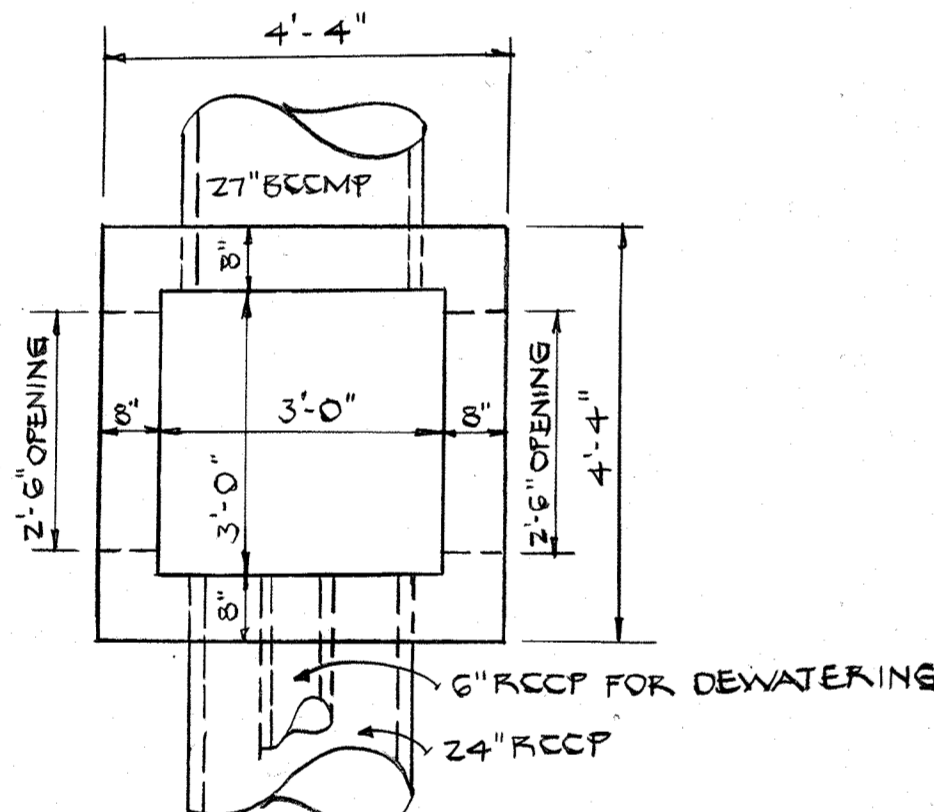


DETAIL - CONC. APRON AT I-10

SCALE 1" = 2'-0"

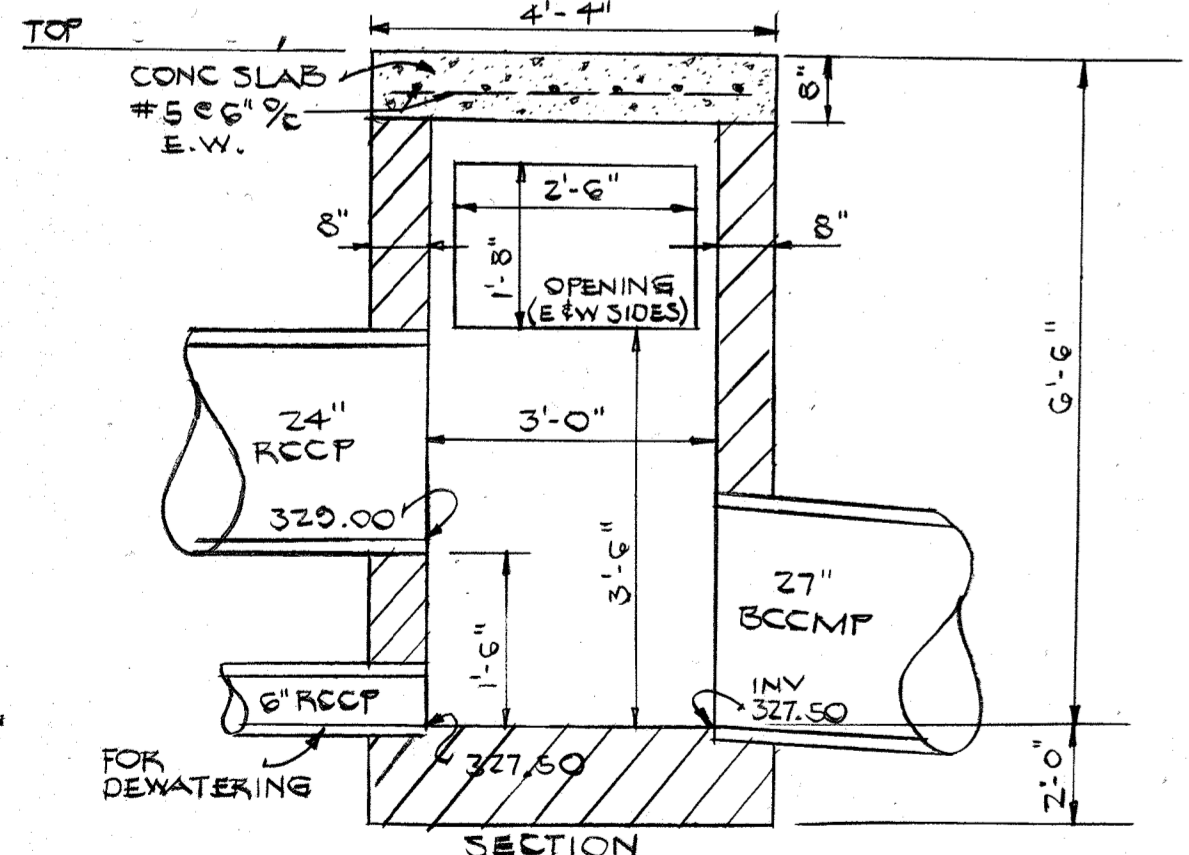


RIP-RAP PAD @ WEST PARKING LOT



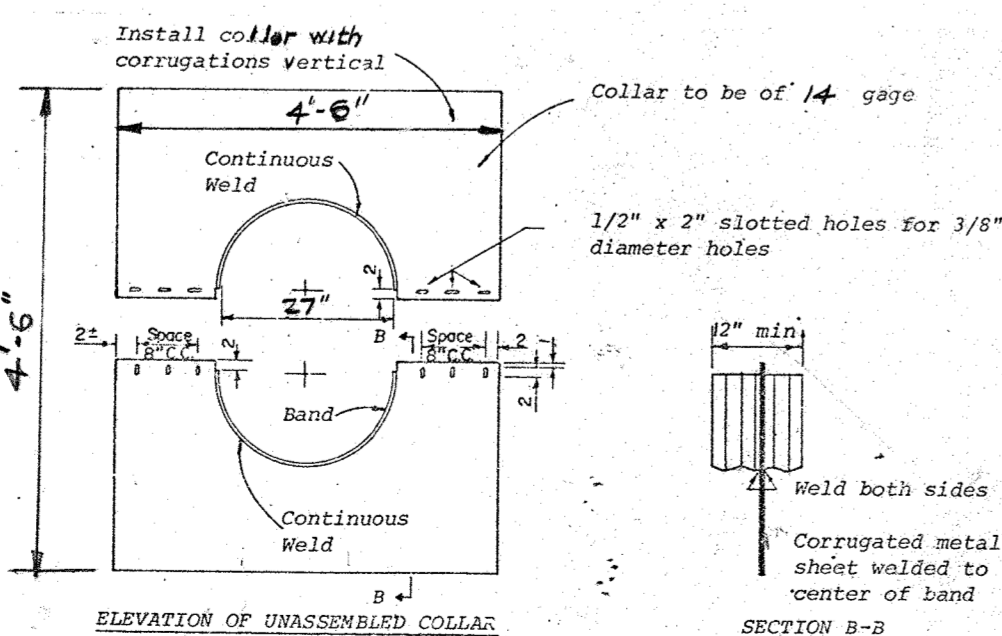
PLAN BELOW SLAB

SCALE 1" = 2'-0"



DETAIL OF I-10

SCALE: 1" = 2'-0"



ELEVATION OF UNASSEMBLED COLLAR

SECTION B-B

NOTES FOR COLLARS:

- All materials to be in accordance with construction and construction material specifications.
- When specified on the plans, coating of collars shall be in accordance with construction and construction material specifications.

- Unassembled collars shall be marked by painting or tagging to identify matching pairs.
- The lap between the two half sections and between the pipe and connecting band shall be caulked with asphalt mastic at time of installation.
- Each collar shall be furnished with two 1/2" diameter rods with standard tank lugs for connecting collars to pipe.

DETAILS OF CORRUGATED METAL ANTI-SEEP COLLAR

APPROVED  
PLANNING BOARD  
OF HOWARD COUNTY  
DATE 5-5-82

AS-BUILT 12-22-2023  
NO AS-BUILT INFORMATION  
IN THIS SHEET

SDP-82-76

SEPTEMBER 2019 - REVISION 2  
REVISED SHEET TOTAL AND OWNER

HUDKINS ASSOCIATES, INC.  
101 SHELL BLDG.  
200 E. JOPPA ROAD  
TOWSON, MARYLAND 21204

APPROVED FOR PUBLIC WATER & PUBLIC  
SEWERAGE SYSTEMS. HOWARD COUNTY HEALTH DEPT.  
*James M. Boyd, M.D., P.E., P.H.* 6-8-82  
COUNTY HEALTH DEPT. OFFICER DATE

THESE PLANS FOR SMALL POND CONSTRUCTION,  
SOIL EROSION & SEDIMENT CONTROL MEET THE  
REQUIREMENTS OF THE HOWARD SOIL CONSERVATION  
DISTRICT.  
*Robert W. Ziehm* 6-2-82  
HOWARD S.C.D. DATE

PLAN No.  
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. Boyd, M.D., P.E., P.H.* 6-2-82  
U.S. SOIL CONSERVATION SERVICE DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING  
AND ZONING.  
*Thomas J. Amigh* 6-9-82  
DIRECTOR DATE  
*John M. Muehlen* 6-9-82  
CHIEF, DIVISION LAND DEVELOPMENT  
AND ZONING ADMINISTRATION DATE

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE  
& STORM DRAINAGE SYSTEMS & PUBLIC ROADS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*James M. Boyd, M.D., P.E., P.H.* 6/10/82  
DIRECTOR DATE  
*William E. Ray* 6-4-82  
CHIEF, BUREAU OF ENGINEERING DATE

DEVELOPER  
I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION  
WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOP-  
MENT, 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. ALL RESPONSIBLE  
PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT  
WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT.  
OF NATURAL RESOURCES APPROVED TRAINING PROGRAM  
FOR THE CONTROL OF SEDIMENT & EROSION BEFORE  
BEGINNING THE PROJECT.  
*Robert W. Ziehm* 1/13/82  
SIGNATURE DATE

ENGINEER  
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION,  
SOIL 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 H. Haine* 5/27/82  
SIGNATURE DATE

DEVELOPER  
M.O.R. XIV ASSOCIATES  
SUITE 2100 CHARLES CENTER SOUTH  
36 S. CHARLES ST.  
BALTO. MD 21201

ARCHITECT  
NICHOLS/GOULD ARCHITECTS  
1111 N. HUNTER STREET  
BALTO., MD 21202

OWNER  
OEROS MANAGEMENT CORP.  
8300 GUILFORD ROAD, SUITE C  
COLUMBIA, MD 21046

PARCELS H, I, O & P  
SECTION I, AREA I  
RIVERS CORPORATE PARK  
PLAT NOS.  
ELECT. DIST. 6 HOWARD CO, MD.

SITE  
DEVELOPMENT  
PLAN  
SCALE:  
SDP-82-76

SHEET No. 4 OF 13  
DATE 1-13-82  
REVISED

DATE 5-5-82

DATE 1-13-82

DATE 5-5-82

DATE 1-13-82

DATE 5-5-82

DATE 1-13-82

DATE 5-5-82

DATE 1-13-82

DATE 5-5-82

DATE 1-13-82

DATE 5-5-82

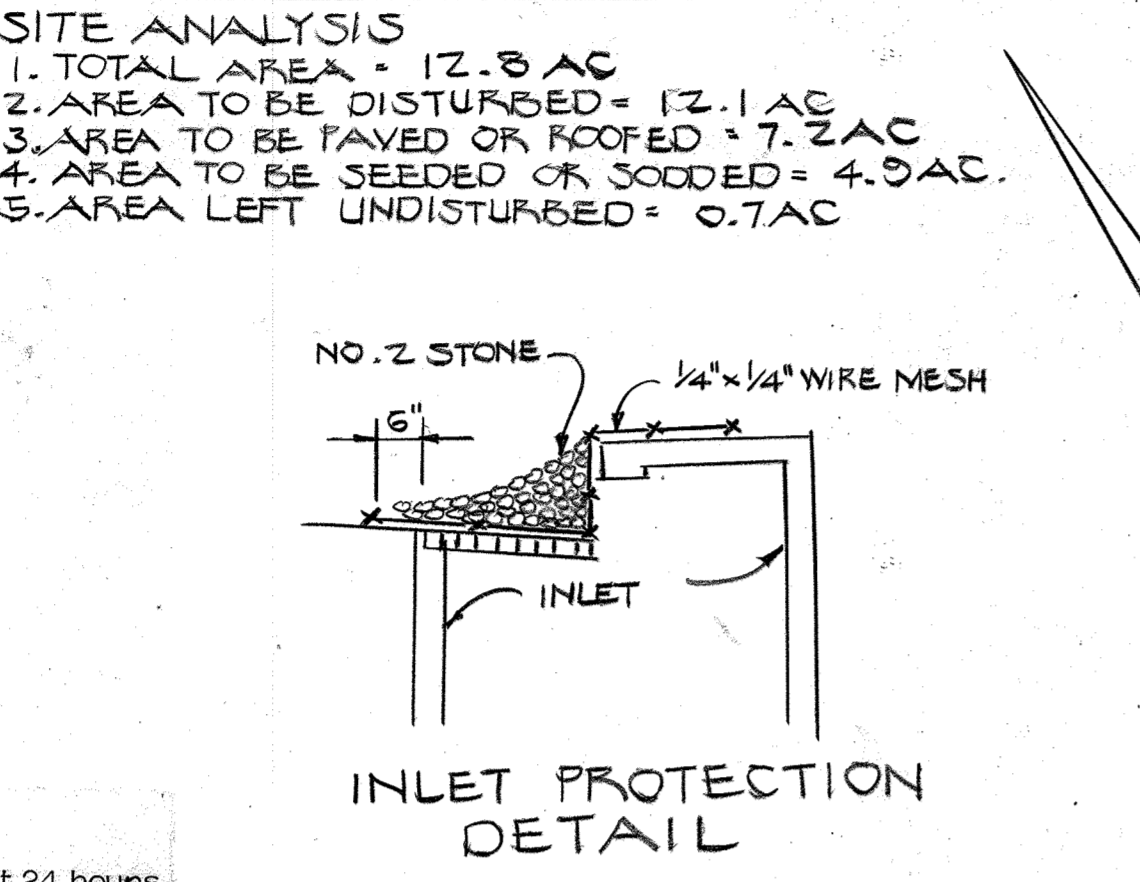
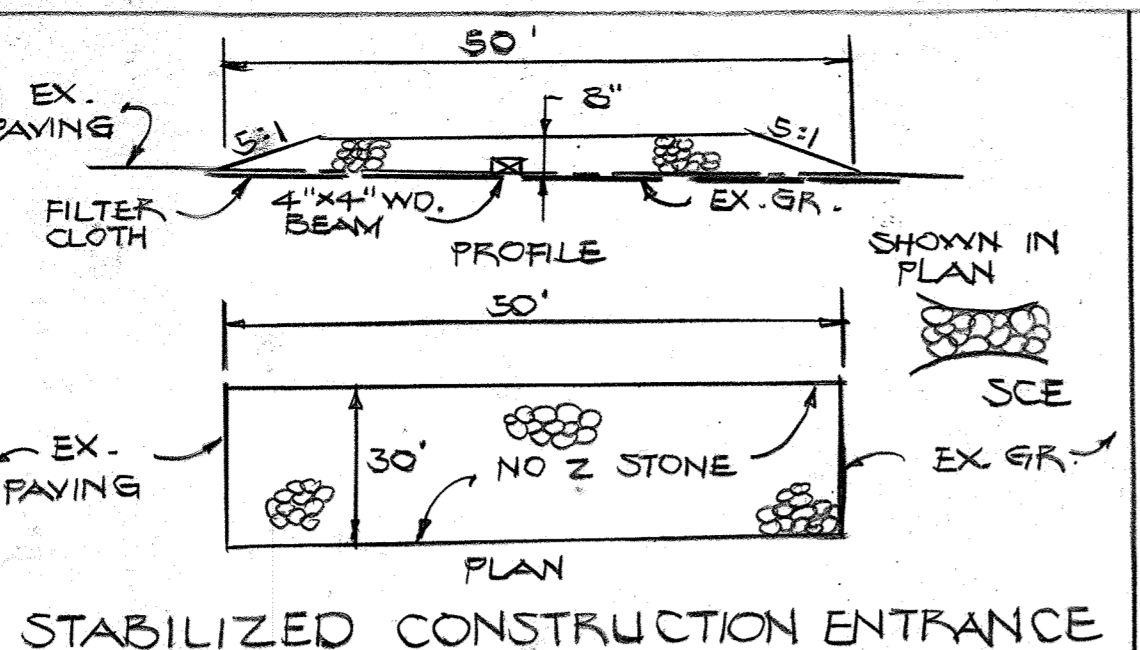
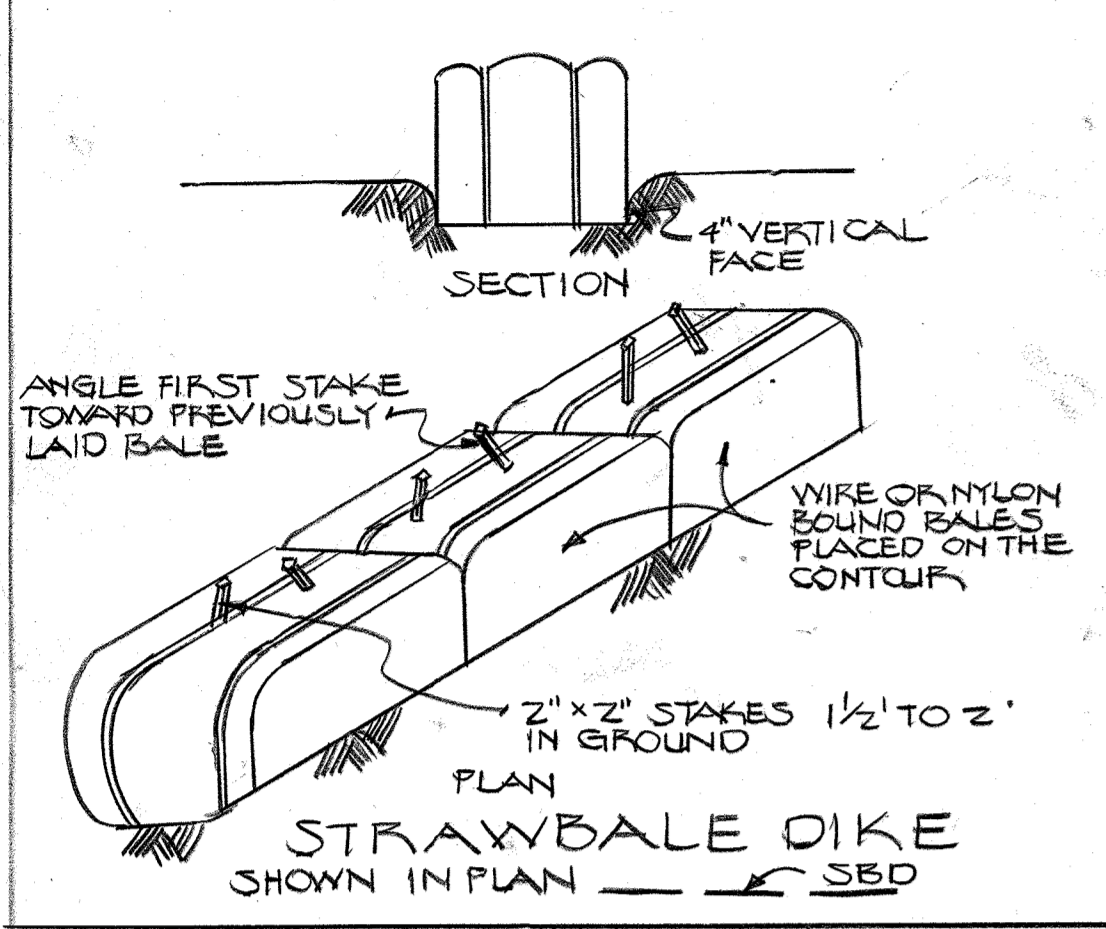
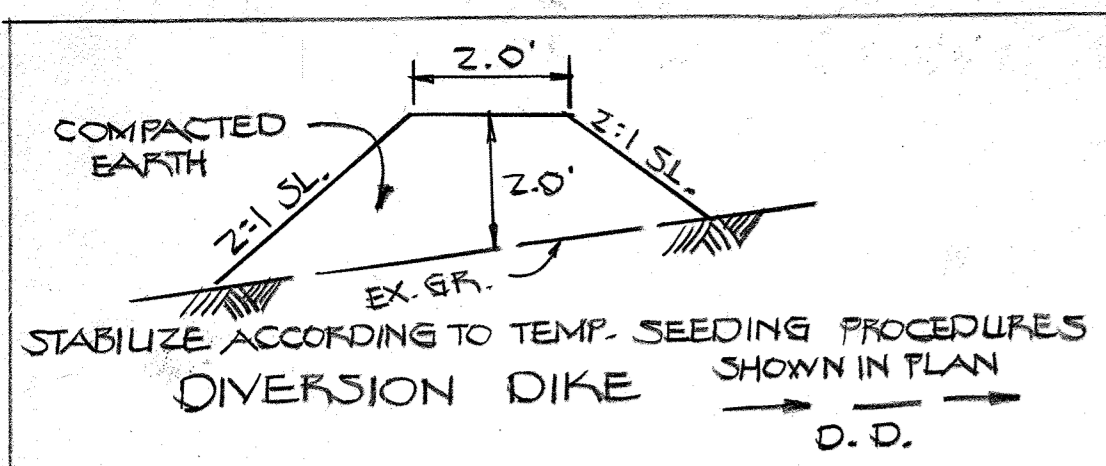
DATE 1-13-82

DATE 5-5-82









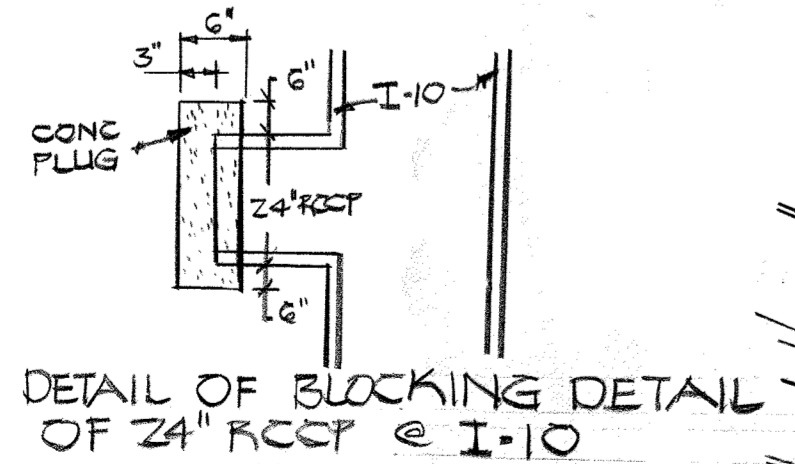
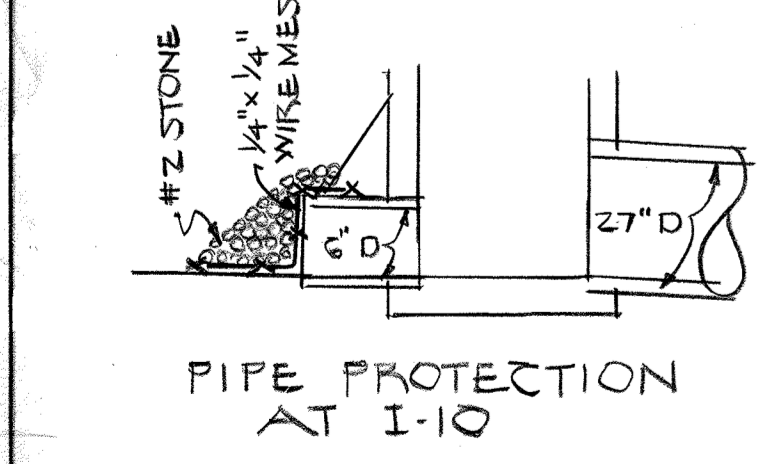
**SITE ANALYSIS**  
 1. TOTAL AREA = 12.8 AC  
 2. AREA TO BE DISTURBED = 12.1 AC  
 3. AREA TO BE PAVED OR ROOFED = 7.2 AC  
 4. AREA TO BE SEEDED OR SOODED = 4.9 AC  
 5. AREA LEFT UNDISTURBED = 0.7 AC

- NOTES:**
1. Notify the Howard County Bureau of Inspection & Permits @ least 24 hours before starting work.
  2. All sediment control devices are to remain in place until permission for removal has been obtained from the Howard County Bureau of Inspection and permits.
  3. Structural Measures such as berms, dikes, traps, basins, etc. will be installed & stabilized according to the plan prior to any disturbance of the existing surface of the site.
  4. On site inspection and maintenance of all sediment control measures including cleanout of traps and berms & proper establishment of all planned vegetative measures will be the responsibility of the developer or his representative on the site on a continuing day to day basis.
  5. All construction will be done in accordance with the standards and specifications for soil erosion & sediment control in developing areas.

- PERMANENT SEEDING PROCEDURES**
1. Apply 90 lbs./1000 S.F. of limestone
  2. Apply fertilizer @ rate of 25 lbs. of 10-10-10 per 1000 S.F. depending on soil tests.
  3. Harrow or disc fertilizer & limestone into soil to a depth of 3 inches.
  4. Seed with KY 31 tall fescue at rate of 5 lbs./1000 S.F. or other SCS approved plan.
  5. Mulch with small grain straw 1.5 to 2.0 tons per acre (70#-90#)/1000 S.F.
  6. Anchor mulch with sprayed asphalt @ rate of 1 gal./S.Y.
  7. No slope shall exceed 2:1.

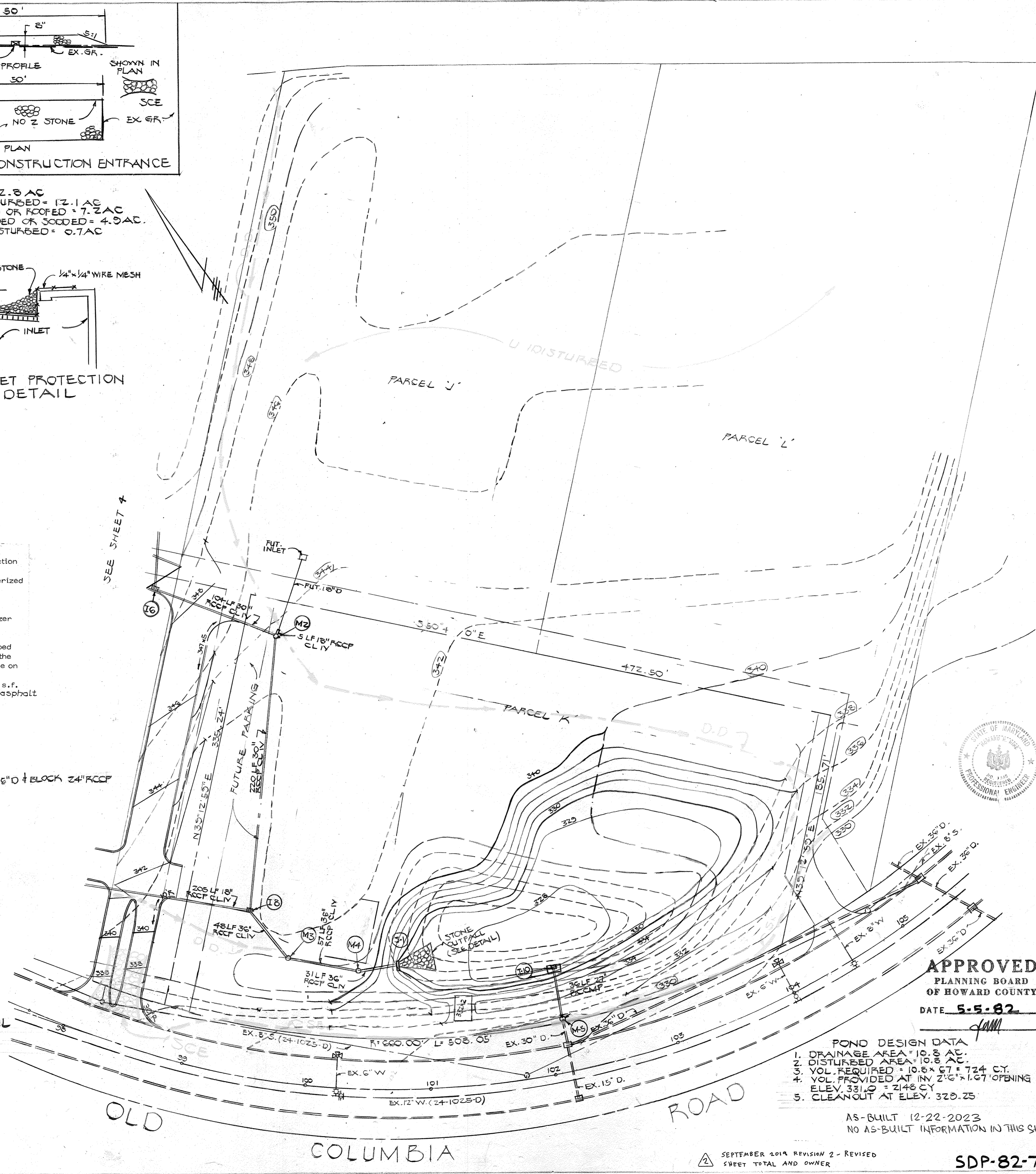
- TEMPORARY SEEDING NOTES:**
1. Seed immediately upon construction with 1lb. rye grass per 1000 s.f.
  2. Apply 46 lbs./1000 s.f. of pulverized dolomitic limestone and 115 lbs. to 18.4 lbs./1000 s.f. of 10x10x10 or equivalent fertilizer.
  3. Harrow or disc lime and fertilizer into the soil to a depth of at least 3 inch continue tillage until a reasonably uniform fine firm seedbed has been prepared on sloping land the final harrowing or discing should be on the contour.
  4. Mulch with straw @ 75 lbs./1000 s.f.
  5. Anchor mulch with sprayed asphalt @ rate of 0.1 gal./s.f.

- SEQUENCE OF CONSTRUCTION**
1. OBTAIN GRADING PERMIT
  2. NOTIFY HOWARD CO. DEPT. OF PERMITS & LICENCES
  3. CLEAR & GRUB AREAS OF SEDIMENT CONTROL DEVICES
  4. INSTALL SEDIMENT CONTROL DEVICES
  5. EXCAVATE STORM WATER MANAGEMENT POND
  6. CONSTRUCT STORM DRAIN FOR POND OUTFALL. PROVIDE PROTECTION FOR 8" O.D. BLOCK 24" RCCP
  7. INSTALL STORM DRAINS
  8. ROUGH GRADE SITE
  9. PROCEED WITH BUILDING & UTILITY CONSTRUCTION.
  10. PLACE SUB-BASE MATERIAL ON ALL AREAS TO BE PAVED
  11. PAVE PARKING AREAS AND STABILIZE REMAINING AREAS ACCORDING TO PERMANENT SEEDING PROCEDURES
  12. FLUSH STORM DRAINS
  13. PUMP STANDING WATER IN POND THROUGH I-10.
  14. REMOVE MUCK TO RESTORE POND TO DESIGN DIMENSIONS. SPREAD SOIL AND STABILIZE IMMEDIATELY.
  15. INSTALL STONE OUTFALL
  16. COMPLETE POND CONSTRUCTION AS PER SHEETS 1, 2 AND 3
  17. REMOVE REMAINING SEDIMENT CONTROL DEVICES & STABILIZE THOSE AREAS.



**VEGETATIVE COVER OPTIONS**

Feb. 1 to May	1. Sod 2. Seed & Mulch
May 1 to Aug. 15	1. Sod 2. Mulch, anchor, tool then seed during next seed period.
Aug. 15 to Nov. 1	1. Sod 2. Seed & Mulch
Nov. 1 to Feb. 1	1. Sod-delay until next period if ground is frozen 2. Mulch, anchor, tool then seed during next seed period.



**POND DESIGN DATA**

1. DRAINAGE AREA = 10.8 AC
2. DISTURBED AREA = 10.8 AC
3. VOL. REQUIRED = 10.8 x 67 = 724 CY
4. VOL. PROVIDED AT INV 210' x 1.67 OPENING ELEV. 331.0 = 2148 CY
5. CLEANOUT AT ELEV. 320.25

AS-BUILT 12-22-2023  
 NO AS-BUILT INFORMATION IN THIS SHEET

SEPTEMBER 2019 REVISION 2 - REVISED SHEET TOTAL AND OWNER

SDP-82-76

HUDKINS ASSOCIATES INC.  
 101 SHELL BUILDING  
 200 E. JOPPA ROAD  
 TOWSON MD. 21204

APPROVED FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS. HOWARD COUNTY HEALTH DEPT.  
 County Health Dept. Officer *[Signature]* 6-8-82 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION & SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 Howard S. J.D. 6-2-82 DATE  
 PLAN No

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL STANDARDS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.  
 U.S. SOIL CONSERVATION SERVICE 6-2-82 DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING.  
 Director *[Signature]* 6-9-82 DATE  
 Chief: Division Land Development and Zoning Administration 6-9-82 DATE

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAINAGE SYSTEMS & PUBLIC ROADS  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Director *[Signature]* 6-4-82 DATE  
 Chief, Bureau of Engineering *[Signature]* 6-4-82 DATE

**DEVELOPER**  
 I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT, POND CONSTRUCTION AND EROSION AND SEDIMENT CONTROL. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE MADE UNLESS AUTHORIZED BY THE HOWARD SOIL CONSERVATION DISTRICT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION. ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT. OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT & EROSION BEFORE BEGINNING THE PROJECT.  
 Signature *[Signature]* 1/13/82 DATE

**ENGINEER**  
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION, AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION.  
 Signature *[Signature]* PE#1395 Jan 13, 1982 DATE

**DEVELOPER**  
 M.O.F. XIY ASSOCIATES  
 SUITE 2100 CHARLES CENTER SOUTH  
 36 S. CHARLES ST.  
 BALTO. MD. 21201

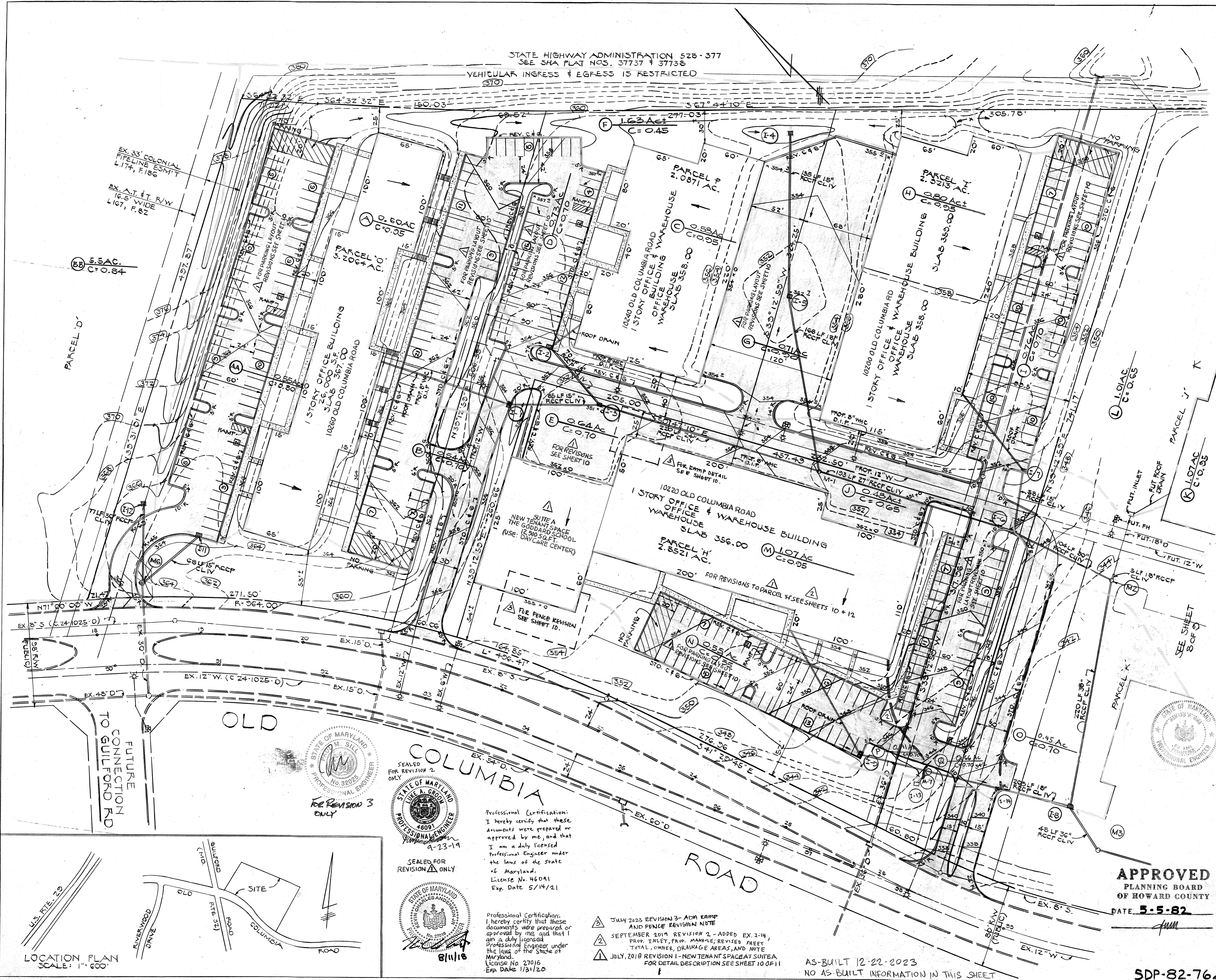
**ARCHITECT**  
 NICHOLS / GOULD ARCHITECTS  
 1111 N. HUNTER STREET  
 BALTO., MD 21202

**OWNER**  
 OEROS MANAGEMENT CORP.  
 8300 GUILFORD ROAD, SUITE C  
 COLUMBIA, MD 21046

PARCELS H, I, O & P  
 SECTION 1, AREA 1  
 RIVERS CORPORATE PARK  
 PLAT NOS.  
 ELECT. DIST. 6 HOWARD CO., MD.

**SEDIMENT CONTROL PLAN**  
 SHEET NO 6 OF 13  
 DATE 1-13-82  
 REVISED  
 SCALE: 1"=40'  
 SDP-82-76





HUDKINS ASSOCIATES, INC.  
101 SHELL BUILDING  
200 E. JOFFA ROAD  
TOWSON MD. 21204

APPROVED FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS HOWARD COUNTY HEALTH DEPT.  
*James M. Reed, M.D. Dr. P.E.* 6-8-82  
COUNTY HEALTH DEPT. OFFICER DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION & SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*Robert W. Ziehm* 6-2-82  
HOWARD S.C.D. DATE

PLAN NO.  
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. Reed* 6-2-82  
U.S. SOIL CONSERVATION SERVICE DATE

APPROVED HOWARD COUNTY OFFICE OF PLANNING AND ZONING  
*Thomas J. Hanft* 6-9-82  
DIRECTOR DATE  
*John M. Mullaney* 6-9-82  
CHIEF, DIVISION LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAINAGE SYSTEMS & PUBLIC ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*James M. Reed* 6-1-82  
DIRECTOR DATE

*William S. Ray* 6-4-82  
CHIEF, BUREAU OF ENGINEERING DATE

DEVELOPER  
I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT, POND CONSTRUCTION AND EROSION AND SEDIMENT CONTROL. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS AS ARE DEEMED NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE MADE UNLESS AUTHORIZED BY THE HOWARD SOIL CONSERVATION DISTRICT.  
I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION. ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT. OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT EROSION BEFORE BEGINNING THE PROJECT.  
*Robert W. Ziehm* 1/13/82  
SIGNATURE DATE

ENGINEER  
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION, AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION.  
*Howard H. Hill, PE#1395* Jan 13, 1982  
SIGNATURE DATE

DEVELOPER  
M.O.R. XIY ASSOCIATES  
SUITE 2100 CHARLES CENTER SOUTH  
36 S. CHARLES ST.  
BALTO. MD. 21201

ARCHITECT  
NICHOLS/GOULD ARCHITECTS  
1111 N. HUNTER STREET  
BALTO., MD 21202

OWNER  
OEROS MANAGEMENT CORP.  
8300 GUILFORD ROAD, SUITE C  
COLUMBIA, MARYLAND 21046

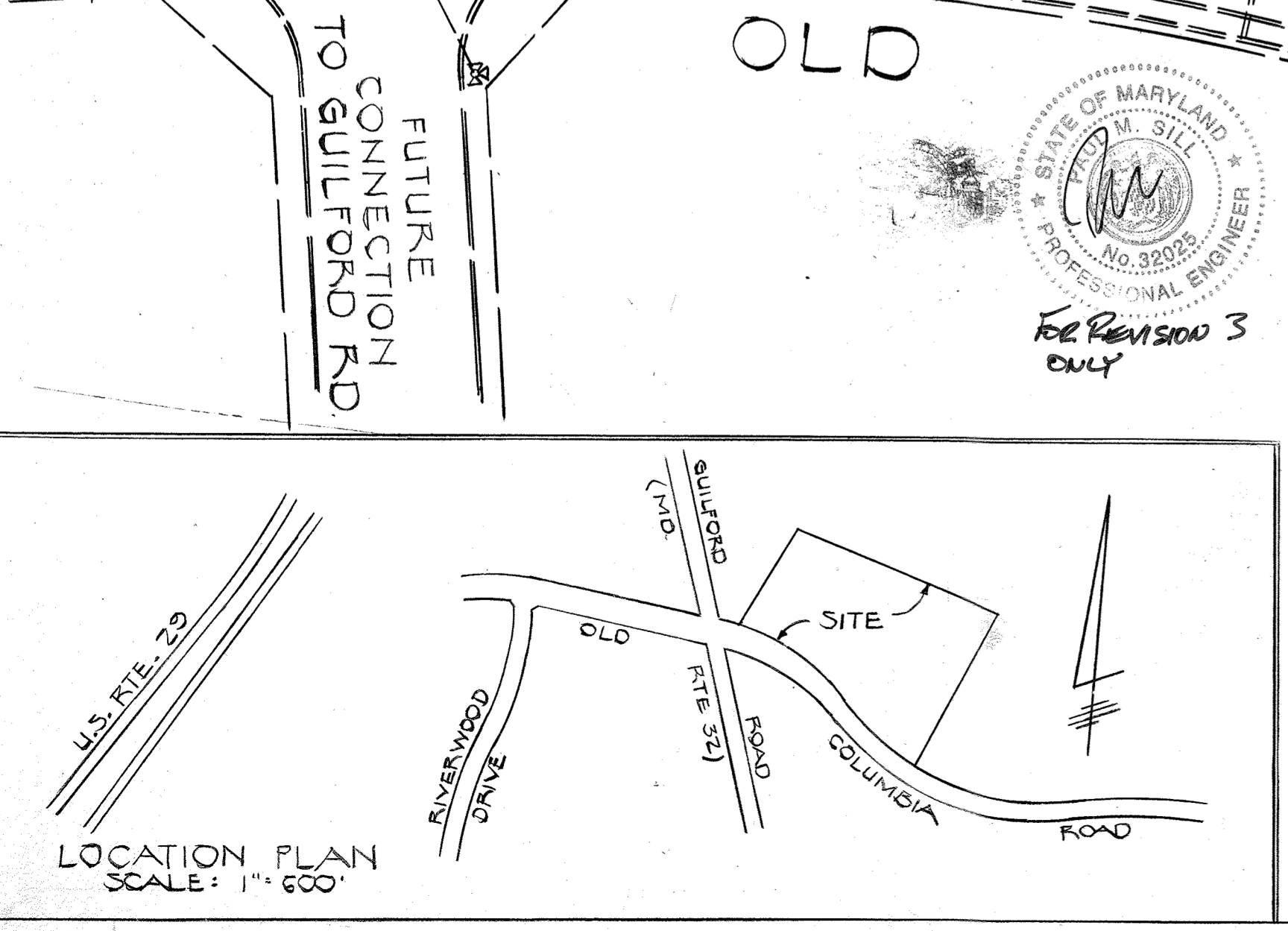
PARCELS H, I, O & P  
SECTION 1, AREA 1  
RIVERS CORPORATE PARK  
PLAT NOS.  
ELECT. DIST. 6 HOWARD CO., MD.

DRAINAGE AREA MAP  
SHEET NO. 7 OF 13  
DATE 1-13-82 REVISED  
SCALE: 1"=40'  
SDP-82-76c  
GIBS

STATE HIGHWAY ADMINISTRATION 528-377  
SEE SHA PLAT NOS. 37737 & 37738  
VEHICULAR INGRESS & EGRESS IS RESTRICTED

EX. 33' COLONIAL PIPELINE ESMIT L174, F.186  
EX. A.T. & T. R/W 16.5' WIDE L167, F.82

5.5 AC. C=0.84



STATE OF MARYLAND  
M. SILL  
PROFESSIONAL ENGINEER  
NO. 33225  
9-23-14  
FOR REVISIONS 3 ONLY

STATE OF MARYLAND  
S. GROWN  
PROFESSIONAL ENGINEER  
4691  
9-23-14  
SEALED FOR REVISION ONLY

STATE OF MARYLAND  
S. GROWN  
PROFESSIONAL ENGINEER  
NO. 27016  
8/11/18  
SEALED FOR REVISION ONLY

Professional Certification:  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland.  
License No. 46041  
Exp. Date 5/14/21

Professional Certification:  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland.  
License No. 27016  
Exp. Date 1/31/20

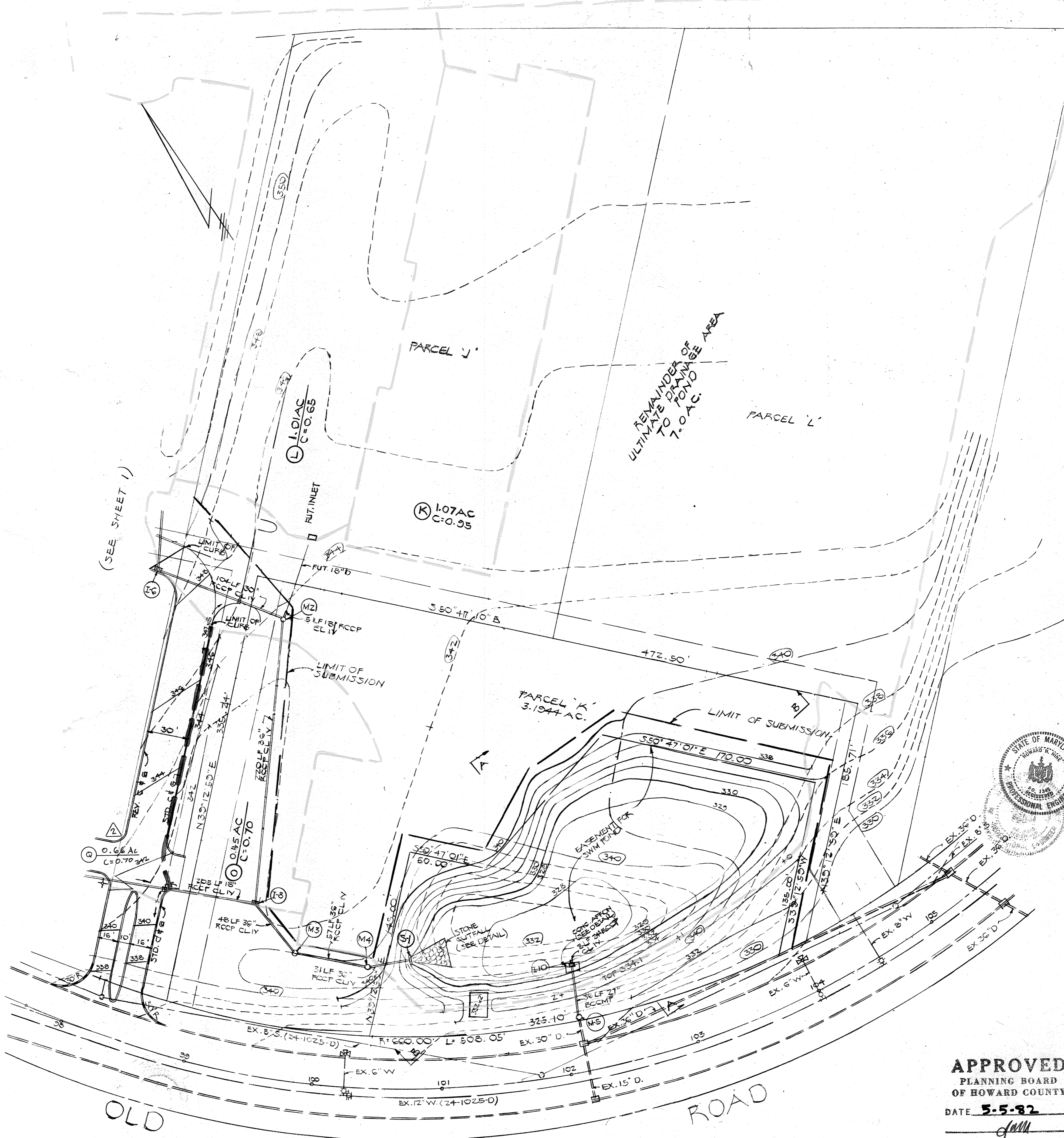
- ▲ JULY 2023 REVISION 3 - ADD RAMP AND FENCE REVISION NITE
- ▲ SEPTEMBER 2014 REVISION 2 - ADDED EX. 1-14, PROP. INLET, PROP. MANHOLE, REVISED SHEET TOTAL, OWNER, DRAINAGE AREAS AND NOTE
- ▲ JULY, 2018 REVISION 1 - NEW TENANT SPACE AT SUITE A FOR DETAIL DESCRIPTION SEE SHEET 10 OF 11

AS-BUILT 12-22-2023  
NO AS-BUILT INFORMATION IN THIS SHEET

APPROVED  
PLANNING BOARD  
OF HOWARD COUNTY  
DATE 5-5-82

SDP-82-76.





HUDKINS ASSOCIATES INC.  
101 SHELL BUILDING  
200 E. JOPPA ROAD  
TOWSON MD. 21204

APPROVED FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPT.  
*James M. DeWitt* 6-2-82  
 COUNTY HEALTH DEPT. OFFICER DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION & SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*Robert W. Ziehm* 6-2-82  
 HOWARD S.D. DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.  
*James M. DeWitt* 6-2-82  
 U.S. SOIL CONSERVATION SERVICE DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING.  
*Thomas H. Harris* 6-9-82  
 DIRECTOR DATE  
*John W. Muschman* 6-9-82  
 CHIEF: DIVISION LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAINAGE SYSTEMS & PUBLIC ROADS  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*James M. DeWitt* 6-4-82  
 DIRECTOR DATE  
*William E. Reilly* 6-4-82  
 CHIEF, BUREAU OF ENGINEERING DATE

DEVELOPER  
 I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT, POND CONSTRUCTION AND EROSION AND SEDIMENT CONTROL. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS AS ARE DEEMED NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE 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. ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT. OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT & EROSION BEFORE BEGINNING THE PROJECT.  
*Paul B. Otto* 1/13/82  
 SIGNATURE DATE

ENGINEER  
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION, AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION.  
*Howard H. Haine* 5/27/82  
 SIGNATURE DATE

DEVELOPER  
 M.O.F. XIY ASSOCIATES  
 SUITE 2100 CHARLES CENTER SOUTH  
 36 S. CHARLES ST.  
 BALTO. MD. 21201

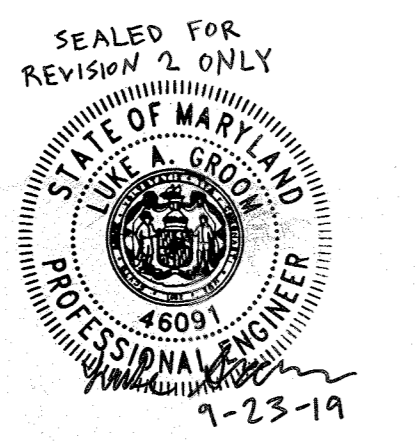
ARCHITECT  
 NICHOLS / GOULD ARCHITECTS  
 1111 N. HUNTER STREET  
 BALTO., MD 21202

OWNER  
 OERKS MANAGEMENT CORP.  
 8300 GUILFORD ROAD, SUITE 2  
 COLUMBIA, MARYLAND 21046

PARCELS H, I, O & P  
 SECTION 1, AREA 1  
 RIVERS CORPORATE PARK  
 PLAT NOS.  
 ELECT. DIST. 6 HOWARD CO., MD.

DRAINAGE AREA MAP  
 SHEET NO. 8 OF 13  
 DATE 1-13-82 REVISED

APPROVED  
 PLANNING BOARD  
 OF HOWARD COUNTY  
 DATE 5-5-82  
*gall*



Professional Certification:  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland.  
 License No. 46091  
 Exp. Date 5/19/21

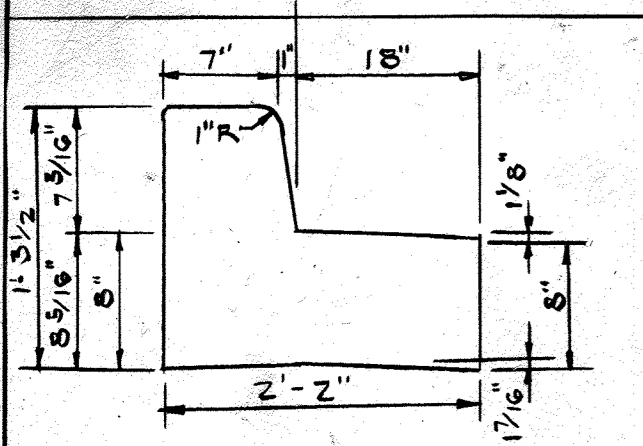
SEPTEMBER 2019 REVISION 2 - REVISED SHEET  
 TOTAL, OWNER, AND DRAINAGE AREA

AS-BUILT 12-22-2023  
 NO AS-BUILT INFORMATION ON THIS SHEET

SDP-82-766 6185



HOWARD CO STANDARDS  
 CURB & GUTTER SEE R-3.01  
 SIDEWALKS SEE R-3.05  
 PAVING SEE R-2.01



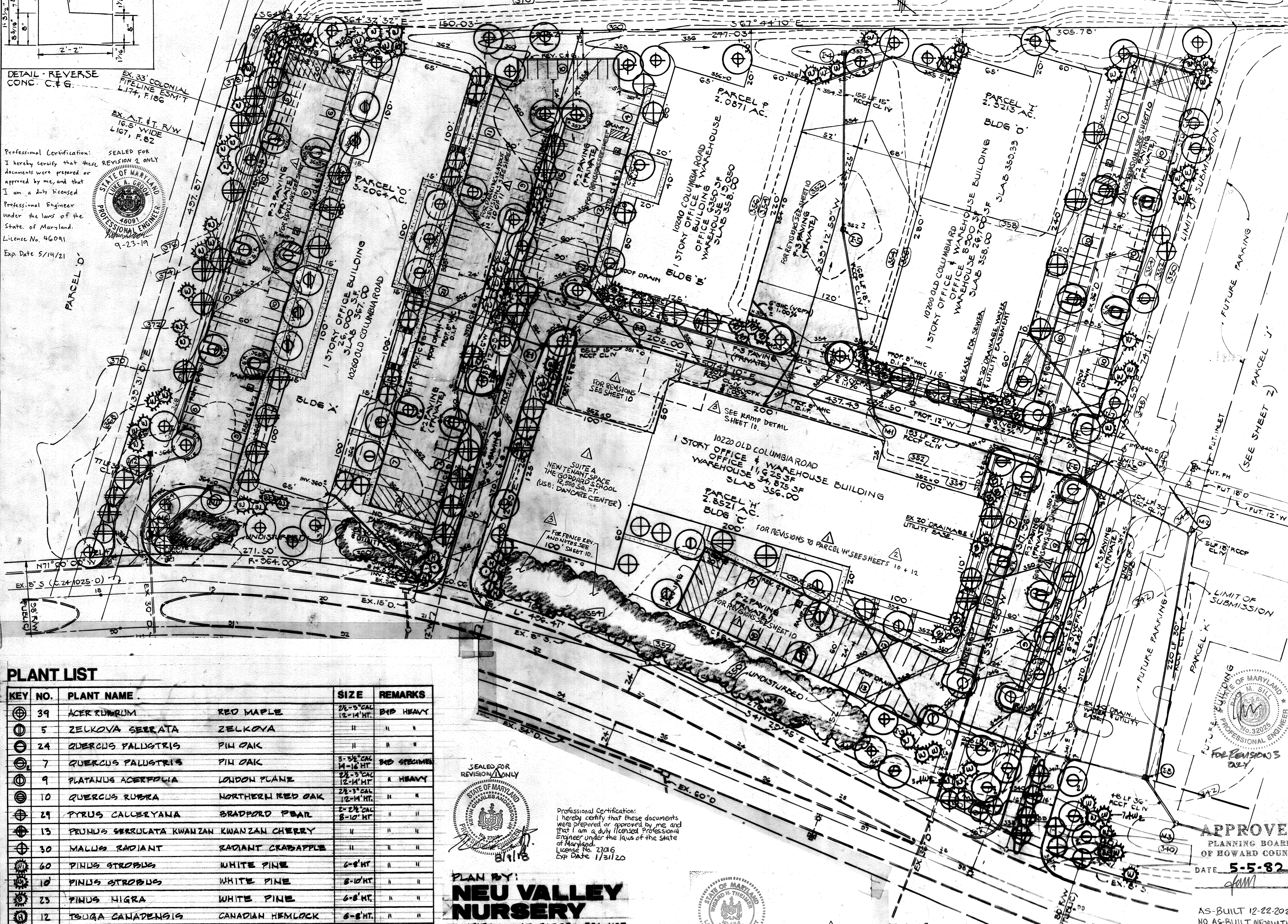
EX. 33' COLONIAL PIPELINE ESMIT L-174, F.186  
 EX. AT & T R/W 16.5' WIDE L-167, F.82

Professional Certification:  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland. License No. 46091 Exp. Date 5/14/21



Exp. Date 5/14/21

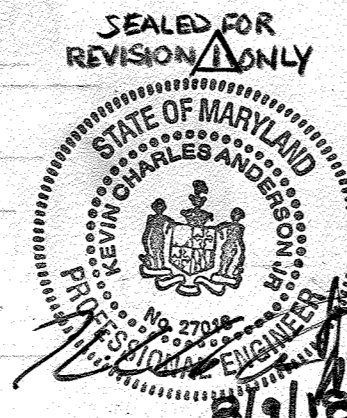
STATE HIGHWAY ADMINISTRATION 528-377  
 SEE SHA PLAT NOS. 37737 & 37738  
 VEHICULAR INGRESS & EGRESS IS RESTRICTED



**PLANT LIST**

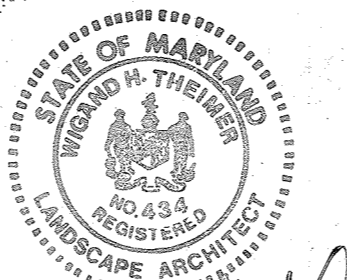
KEY NO.	PLANT NAME	SIZE	REMARKS
39	ACER RUBRUM RED MAPLE	24-5" CAL 12-14' HT.	BYP HEAVY
5	ZELKOYA SEBRATA ZELKOYA	" "	" "
24	QUERCUS PALUSTRIS PIN OAK	" "	" "
7	QUERCUS PALUSTRIS PIN OAK	8-5 1/2" CAL 14-16' HT.	BYP SPECIMEN
9	PLATANUS ACERFOLIA LONDON PLANE	24-5" CAL 12-14' HT.	" HEAVY
10	QUERCUS RUBRA NORTHERN RED OAK	28-3" CAL 12-14' HT.	" "
29	PRUNUS CALLERYANA BRADFORD PEAR	2-2 1/2" CAL 8-10' HT.	" "
13	PRUNUS SERRULATA KWANZAN KWANZAN CHERRY	" "	" "
30	MALUS RADIANT RADIANT CRABAPPLE	" "	" "
60	PINUS STROBUS WHITE PINE	6-8' HT.	" "
10	PINUS STROBUS WHITE PINE	8-10' HT.	" "
23	PINUS NIGRA WHITE PINE	6-8' HT.	" "
12	TSUGA CANADENSIS CANADIAN HEMLOCK	6-8' HT.	" "
9	PRUNUS CALLERYANA BRADFORD PEAR	2-2 1/2" CAL 8-10' HT.	BYP SPECIMEN

NOTE: ALL PLANTING TO BE IN ACCORD WITH H.R.C. COLUMBIA PLANTING SPECIFICATIONS LATEST EDITION



Professional Certification:  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland. License No. 27016 Exp. Date 11/31/20

PLAN BY:  
**NEU VALLEY NURSERY**  
 SUKRIEGE, MD. 21227 746-4195



July 2023 - REVISION 3  
 ADA RAMP & FENCE REV. NOTE  
 SEPTEMBER 2019 REVISION 2 - REVISED SHEET TOTAL, OWNER, AND NOTE

HUDKINS ASSOCIATES, INC.  
 101 SHELL BUILDING  
 200 E. JOFFA ROAD  
 TOWSON MD. 21204

APPROVED FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS HOWARD COUNTY HEALTH DEPT.  
 COUNTY HEALTH DEPT. OFFICER DATE

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

PLAN NO.  
 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.  
 J.S. SOIL CONSERVATION SERVICE DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING  
 DIRECTOR DATE  
 CHIEF: DIVISION LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAINAGE SYSTEMS & PUBLIC ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 DIRECTOR DATE  
 CHIEF: BUREAU OF ENGINEERING DATE

DEVELOPER  
 I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT, POND CONSTRUCTION AND EROSION AND SEDIMENT CONTROL. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE MADE UNLESS AUTHORIZED BY THE HOWARD SOIL CONSERVATION DISTRICT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION. ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION OF THIS PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT. OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT & EROSION BEFORE BEGINNING THE PROJECT.  
 SIGNATURE DATE

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

DEVELOPER:  
 M.O.R. XIV ASSOCIATES  
 SUITE 2100 CHARLES CENTER SOUTH  
 36 S. CHARLES ST.  
 BALTO. MD. 21201

ARCHITECT  
 NICHOLS/GOULD ARCHITECTS  
 1111 N. HUNTER STREET  
 BALTO., MD. 21202

OWNER  
 DEKOS MANAGEMENT CORP.  
 8300 GUILFORD ROAD, SUITE C  
 COLUMBIA, MARYLAND 21046

PARCELS H, I, O & P  
 SECTION 1, AREA 1  
 RIVERS CORPORATE PARK  
 PLAT NOS.  
 ELECT. DIST. 6 HOWARD CO, MD.

LANDSCAPE PLANTING PLAN  
 SCALE: 1"=40'  
 SHEET NO. 9 OF 13  
 DATE 1-13-82  
 REVISED

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE 5-5-82

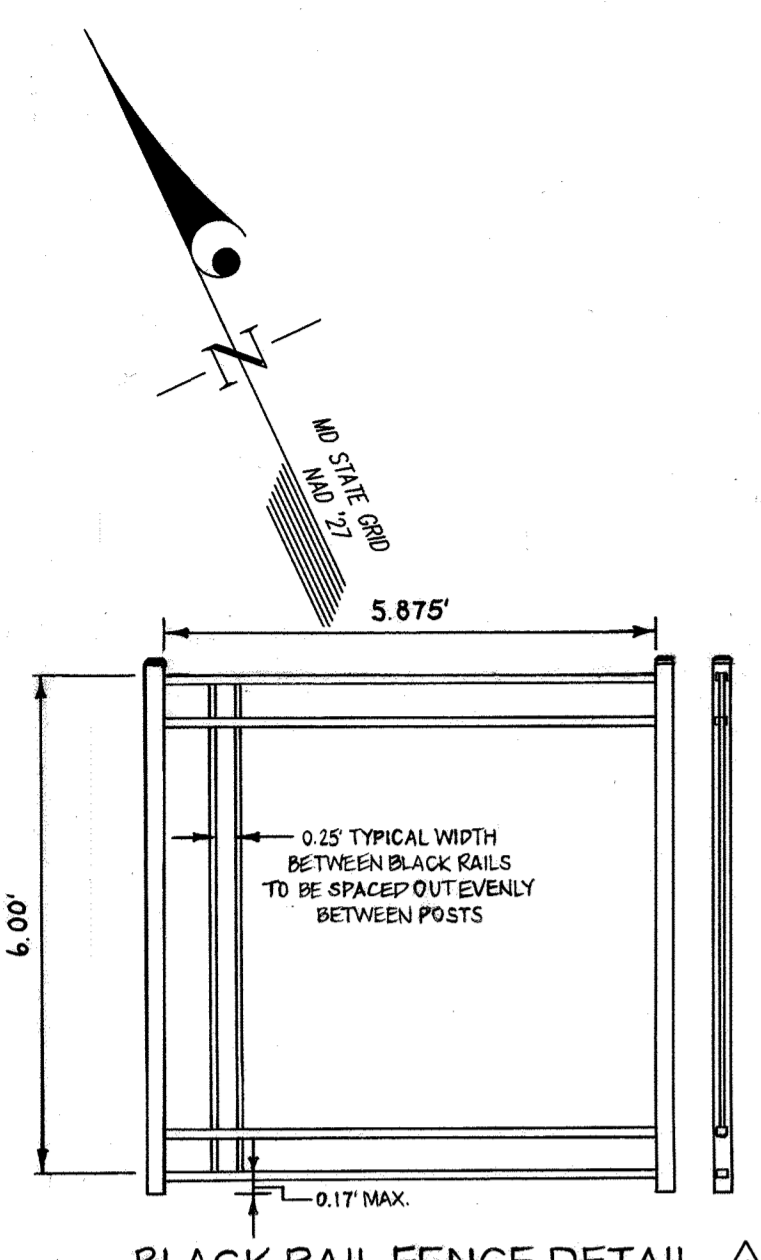
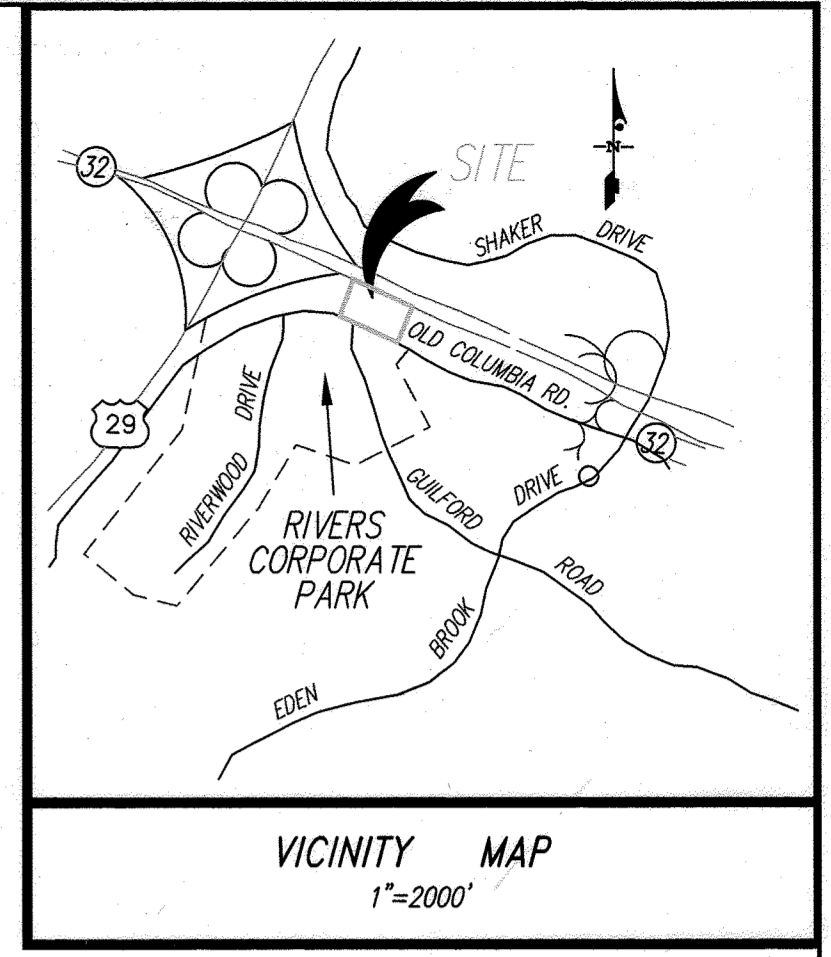
AS-BUILT 12-22-2023  
 NO AS-BUILT INFORMATION ON THIS SHEET

SDP-82-76c

SDP-82-76c

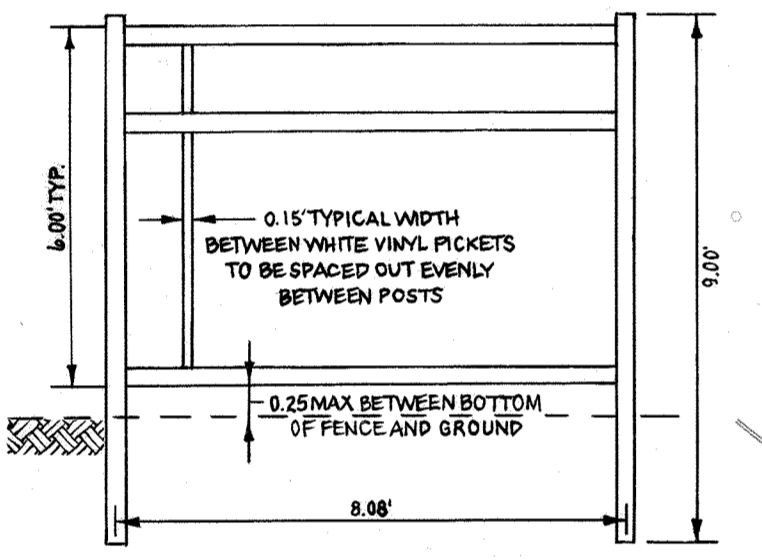


STATE HIGHWAY ADMINISTRATION  
L 526 F. 577  
SHA PLATS 377, 37 & 38  
VEHICULAR WEIGHT AND GROSS IS RESTRICTED  
( FOP PHASE 184-A-II )  
PLAT NOS. 5078 & 5079 TITLE ITEM 21  
6" CHAIN LINK FENCE



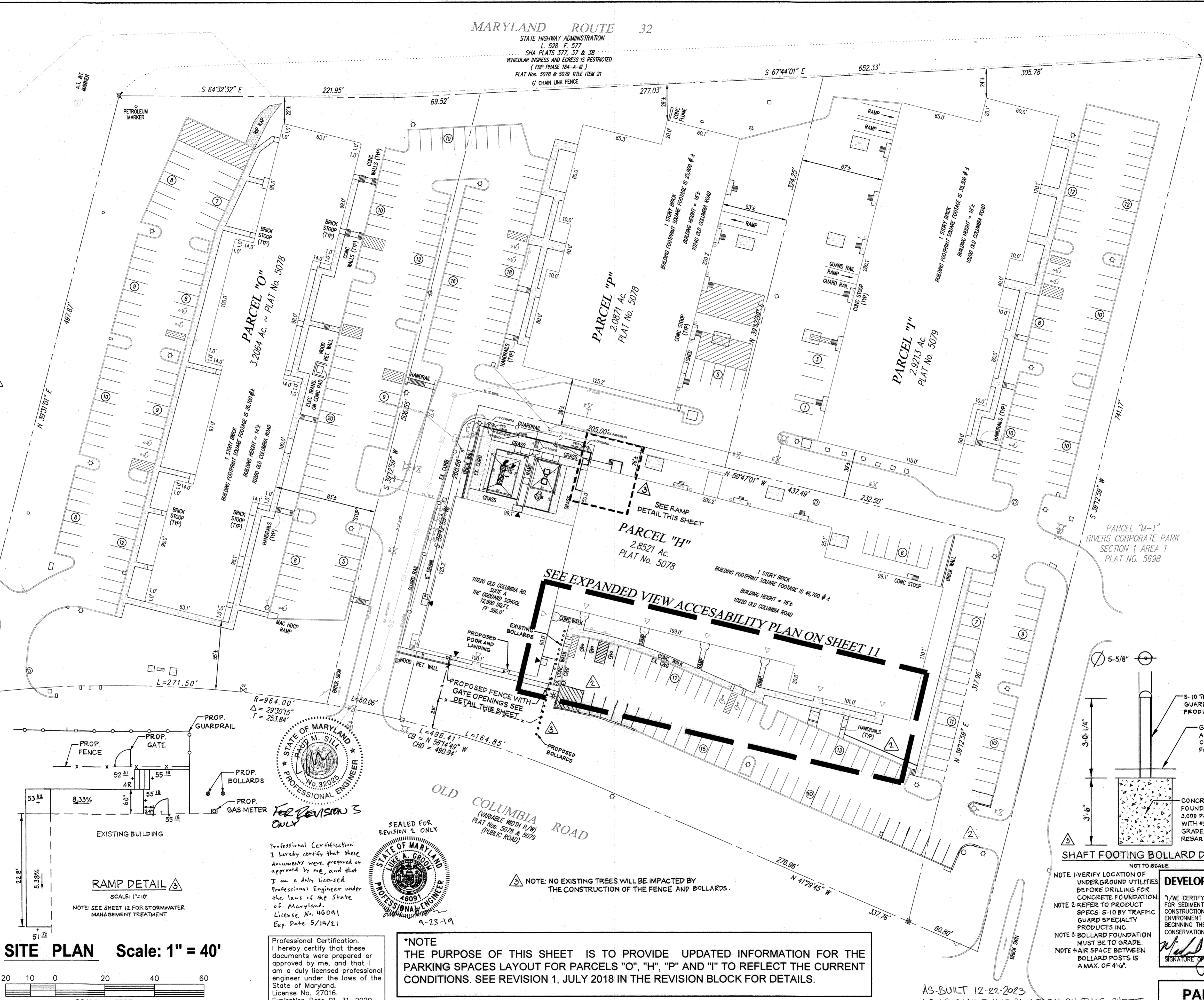
BLACK RAIL FENCE DETAIL

NOTE 1: FENCE TO BE ULTRA ALUMINUM 200 4 RAIL 3 PICKET SPACING COMMERCIAL GRADE OR EQUAL  
NOTE 2: BLACK FENCE DETAIL TO BE INSTALLED AT THE FRONT OF THE PROPERTY.  
PARCEL "O"  
RIVERS CORPORATE PARK  
SECTION 1 AREA 1  
PLAT NO. 5078



WHITE VINYL FENCE DETAIL

NOTE 1: FENCE - CERTAINTED, BUFFTECH PRINCETON SPEC. SEE ARCHITECT DRAWINGS FOR DETAIL.  
NOTE 2: WHITE VINYL FENCE DETAIL TO BE INSTALLED AT THE REAR OF THE BUILDING.



**PARKING REQUIRED**

10200, 10220, 10240, & 10260  
OLD COLUMBIA ROAD

TENANT	BLDG #	USE	S.F.	PARKING RMTS PER FDP-184-A-5 & §133.0 ZONING CODE)	REQ'D P.S.
HUMPHREY CONSTRUCTION	10200	OFFICE FLEX	28,465	2 PS / 1,000 SF	57
QUANTUM CONSULTING	10200	OFFICE	6,805	2 PS / 1,000 SF	14
ONE MILL	10220	OFFICE	6,805	2 PS / 1,000 SF	14
FORTEC MEDICAL	10220	OFFICE FLEX	5,630	2 PS / 1,000 SF	12
MECHANICAL SYSTEMS	10220	OFFICE FLEX	5,895	2 PS / 1,000 SF	12
HUMPHREY MANAGEMENT	10220	OFFICE	10,930	2 PS / 1,000 SF	22
GODDARD SCHOOL	10220	DAY CARE CENTER	12,500	3 PS / 1,000 SF	38
GODDARD SCHOOL	10220	DAY CARE CENTER	4,740	3 PS / 1,000 SF	15
ELECTRO RENT CORP.	10240	OFFICE FLEX	14,970	2 PS / 1,000 SF	30
VACANT	10240	OFFICE FLEX	4,655	2 PS / 1,000 SF	10
MEDIFOCUS	10240	OFFICE FLEX	6,180	2 PS / 1,000 SF	13
DACCO SCI	10260	OFFICE	2,530	2 PS / 1,000 SF	6
SALVERE HEALTH	10260	ATHLETIC CENTER	1,440	10 PS / 1,000 SF	15
EUROTECH	10260	OFFICE	17,030	2 PS / 1,000 SF	35
LANDTECH ASSOCIATES	10260	OFFICE	2,540	2 PS / 1,000 SF	6
MS ENGINEERS	10260	OFFICE	1,790	2 PS / 1,000 SF	4
ALLAN HOMES	10260	OFFICE	845	2 PS / 1,000 SF	2
<b>TOTAL PARKING SPACES REQUIRED</b>					<b>300</b>

SUMMARY OF FINDINGS FOR TRAFFIC ANALYSIS: THE TRAFFIC STUDY WAS PREPARED BY M&S GROUP INC. AND WAS APPROVED BY THE HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING DEVELOPMENT ENGINEERING DIVISION ON JULY 11, 2013.

BASED ON THE DATA AND ANALYSIS PRESENTED IN THE TRAFFIC STUDY IT WAS DETERMINED THAT THE PROPOSED GODDARD SCHOOL OF COLUMBIA EXPANSION CAN BE ADEQUATELY ACCOMMODATED BY THE SURROUNDING AREA ROAD SYSTEM.

PLAN NUMBER: THE REPORT WAS SUBMITTED UNDER: 59P-02-079C

KEY/AREA INTERSECTIONS IDENTIFIED FOR THE STUDY: OLD COLUMBIA ROAD @ GUILFORD ROAD; OLD COLUMBIA ROAD @ ENTRANCE WEST; OLD COLUMBIA ROAD @ ENTRANCE EAST; OLD COLUMBIA ROAD @ SHAKER DRIVE/EDEN BROOK DRIVE, AND EDEN BROOK DRIVE @ GUILFORD ROAD

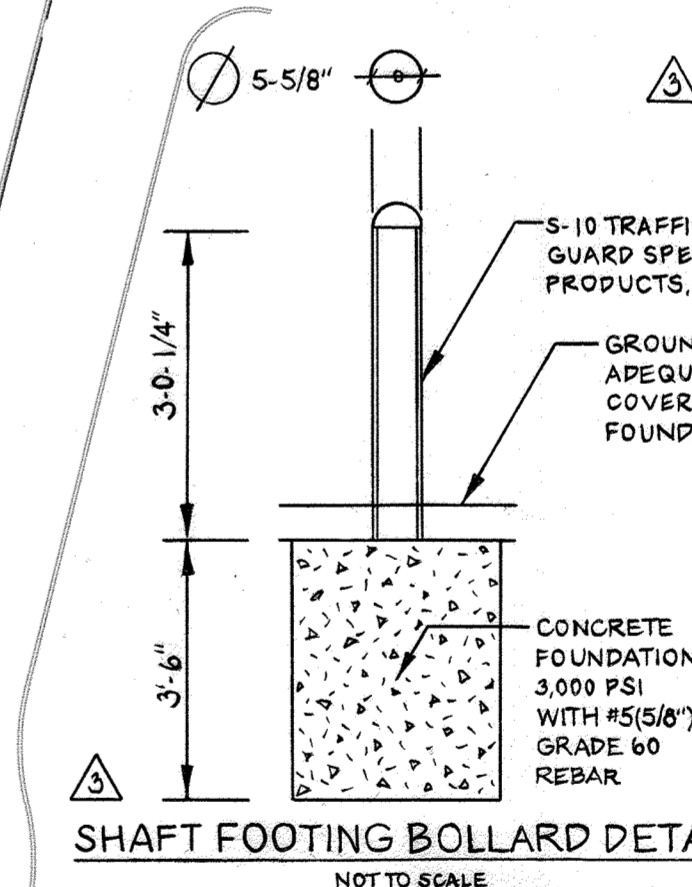
JURISDICTION OVER THE KEY/AREA INTERSECTIONS: HOWARD COUNTY

KEY INTERSECTION VOLUME COUNT COLLECTED ON: MAY 23, 24, AND 28, 2013.

KEY INTERSECTION COUNT WHERE COLLECTED WHILE: HOWARD COUNTY PUBLIC SCHOOL 2013-2014 WAS IN SESSION

DESIGN YEAR LEVEL-OF-SERVICE AT ALL OF THE KEY/AREA INTERSECTION: AM PEAK HOUR "A"; PM PEAK HOUR "A"

MITIGATION REQUIREMENT: MITIGATION MEASURES ARE NOT REQUIRED FOR THIS STUDY



SHAFT FOOTING BOLLARD DETAIL

NOTE 1: VERIFY LOCATION OF UNDERGROUND UTILITIES BEFORE DRILLING FOR CONCRETE FOUNDATION.  
NOTE 2: REFER TO PRODUCT SPECS: S-10 BY TRAFFIC GUARD SPECIALTY PRODUCTS INC.  
NOTE 3: BOLLARD FOUNDATION MUST BE TO GRADE.  
NOTE 4: AIR SPACE BETWEEN BOLLARD POSTS IS A MAX. OF 4'-0".

**DEVELOPER'S CERTIFICATE:**

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

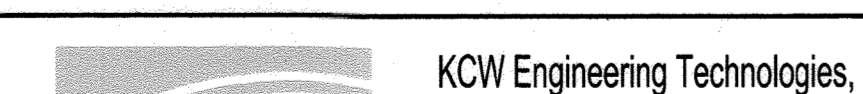
Signature of Property Owner / Agent: *Michael James*  
Print Name of Property Owner / Agent: MICHAEL JAMES  
Date: 8/15/18

**SITE PLAN Scale: 1" = 40'**



RAMP DETAIL

NOTE: SEE SHEET 12 FOR STORMWATER MANAGEMENT TREATMENT



APPROVED: DEPARTMENT OF PLANNING AND ZONING

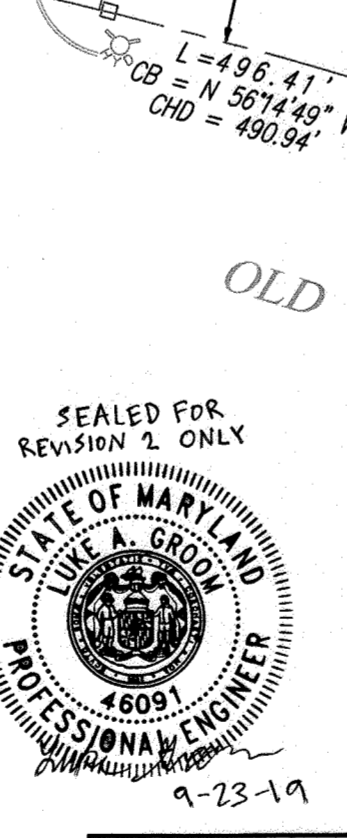
*Chad Chubb* 8-15-18  
Chief, Development Engineering Division f Date

*Kevin D. ...* 8-22-18  
Chief, Division of Land Development 05 Date

*Val ...* 8-22-18  
Director Date

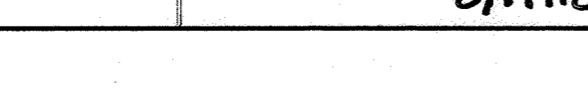
Professional Certification:  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. H60A1  
Exp. Date 5/14/21

Professional Certification:  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 27016  
Expiration Date 01-31-2020.



\*NOTE THE PURPOSE OF THIS SHEET IS TO PROVIDE UPDATED INFORMATION FOR THE PARKING SPACES LAYOUT FOR PARCELS "O", "H", "P" AND "I" TO REFLECT THE CURRENT CONDITIONS. SEE REVISION 1, JULY 2018 IN THE REVISION BLOCK FOR DETAILS.

KCW Engineering Technologies, Inc.  
810 Landmark Drive, Suite 215  
Glen Burnie, MD 21061  
Phone: 410.768.7700  
Fax: 410.768.0200  
www.kcw-et.com



**DEVELOPER:**  
Oeok Management Corp.  
8300 Guilford Road, Suite C  
Columbia, MD 21046  
Attn.: Mike Janes  
410.740-5057

**REVISIONS**

DATE	DESCRIPTION
JULY 2018	NEW TENANT SPACE AT UNIT A. NEW USE: DAYCARE CENTER. THE GODDARD SCHOOL (12,500 SQ. FT.), FENCE ENCLOSED OUTDOOR PLAY AREA. 2 NEW BUILDING EGRESS DOORS. CONSTRUCTION OF ACCESSIBLE RAMP TO PLAY AREA. ACCESSIBILITY IMPROVEMENTS. UPDATE SITE PLAN TO REFLECT CURRENT EXISTING CONDITIONS AND USES INCLUDING NUMBER OF PARKING SPACES.
SEPT. 2019	REMOVED CURB TO ADD PARKING, RELOCATED ONE LIGHT, AND ADDED STAIRWELL TO REPRESENT FIELD CONDITIONS.
JUNE 2023	REVISE THE PARKING REQUIRED CHART FOR THE VACANT UNIT AT BUILDING 1013, WHICH WILL NOW BE OCCUPIED BY THE GODDARD SCHOOL. ADD THE ADA RAMP IMPROVEMENTS AT THE BACK OF THE BUILDING FOR THE NEW AREA OF GODDARD SCHOOL. ADD ADA RAMP PLAN VIEW. ADDED FENCE TO THE FRONT OF THE BUILDING GRASS AREA. BOTH FENCE DETAILS AND BOLLARD DETAILS ADDED. TRAFFIC NOTE ADDED.

KCW J.O.: 2180251  
SCALE: 1" = 40'  
DESIGNED: KCA  
DRAWN: KCW  
CHECKED: KCA  
DATE: AUGUST 1, 2018  
DRAWING NO. 10 of 13

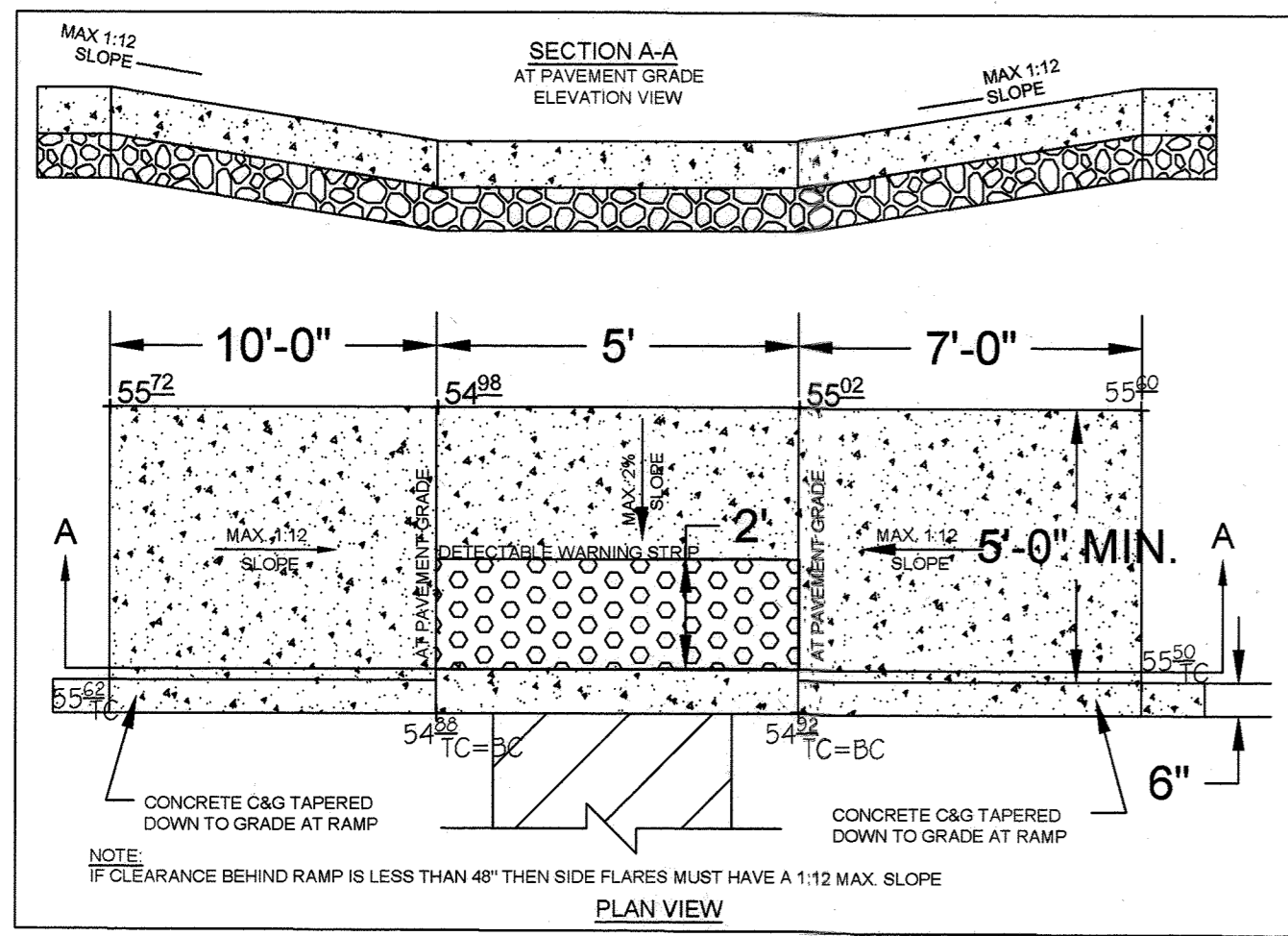
**PARKING LAYOUT AND PARCEL "H" PLAN**

PARCELS H, I, O & P  
SECTION I, AREA I  
RIVERS CORPORATE PARK  
PLAT NOS. 5075-5080

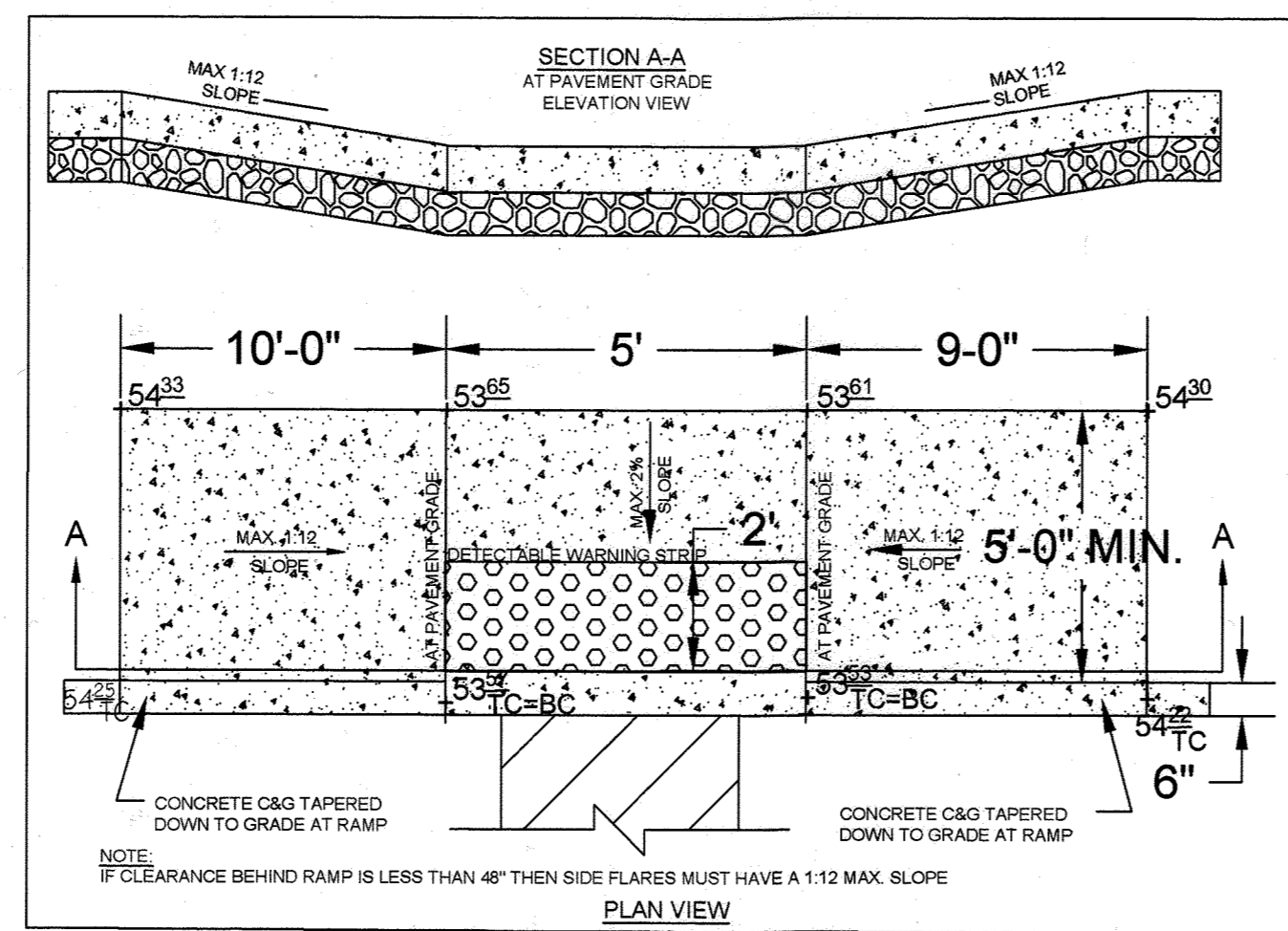
TAX MAP 42, PARCEL 29  
LIBER 5385, FOLIO 602

ZONING: NEW TOWN ELECTION DISTRICT - 6  
HOWARD COUNTY, MARYLAND

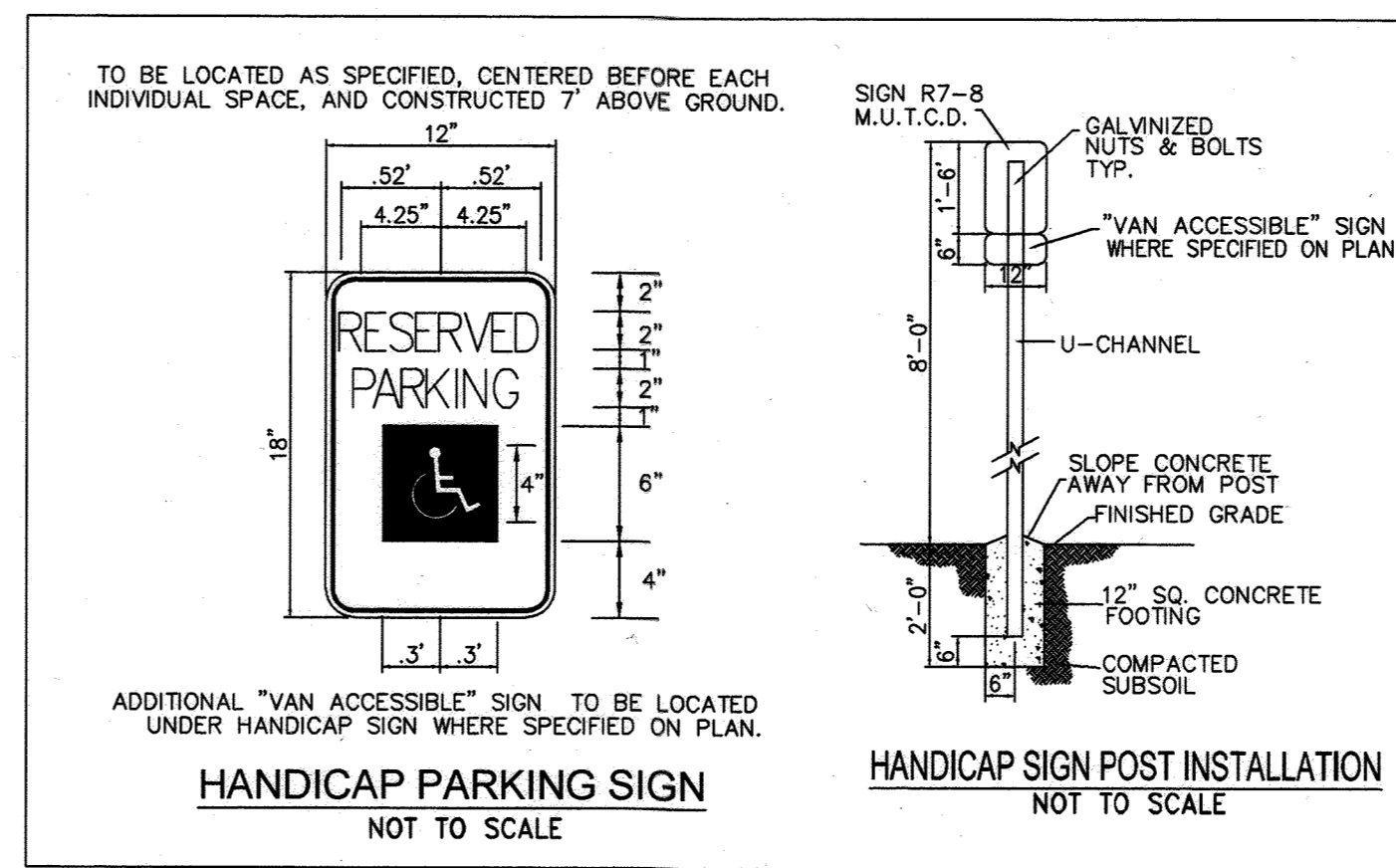




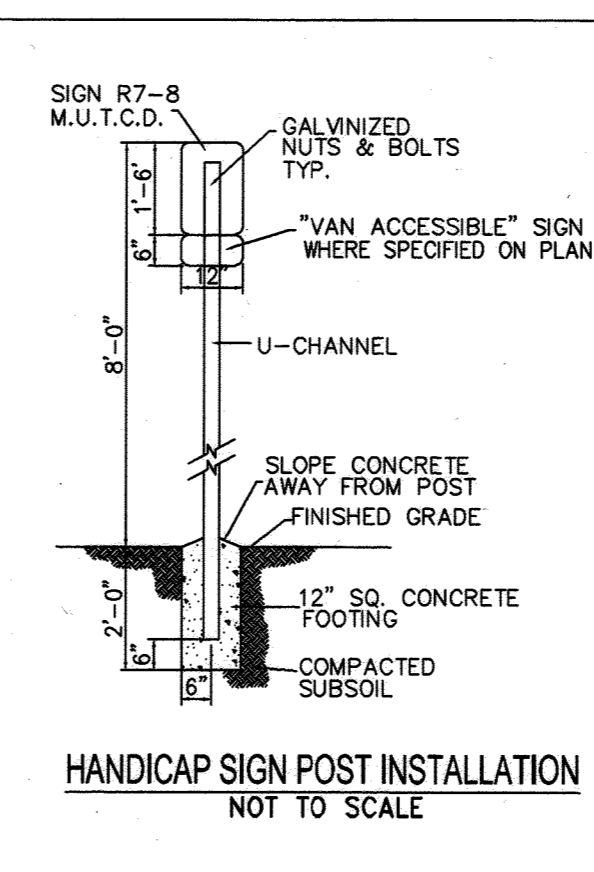
PEDESTRIAN RAMP#1 DETAIL



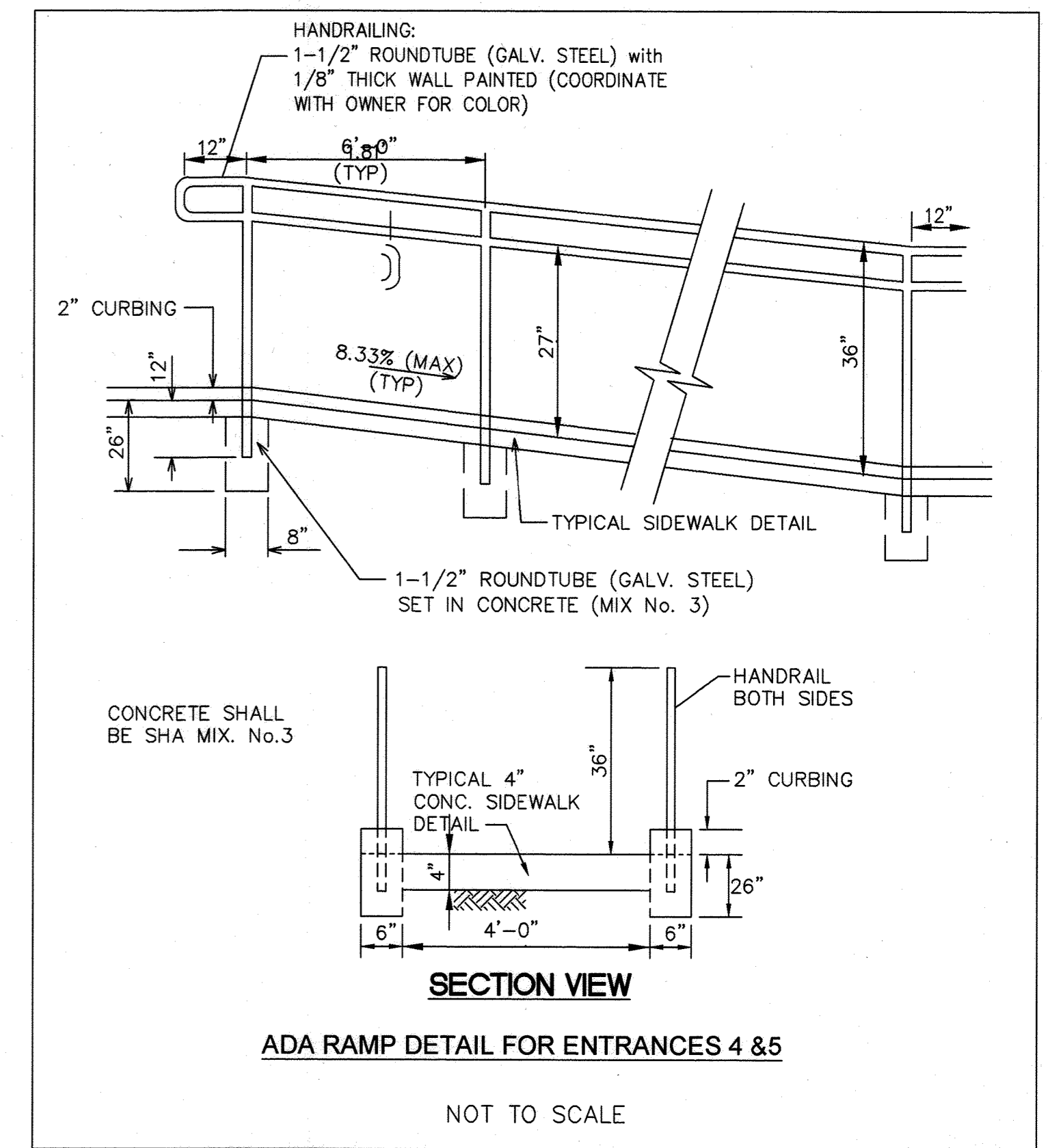
PEDESTRIAN RAMP#2 DETAIL



HANDICAP PARKING SIGN NOT TO SCALE

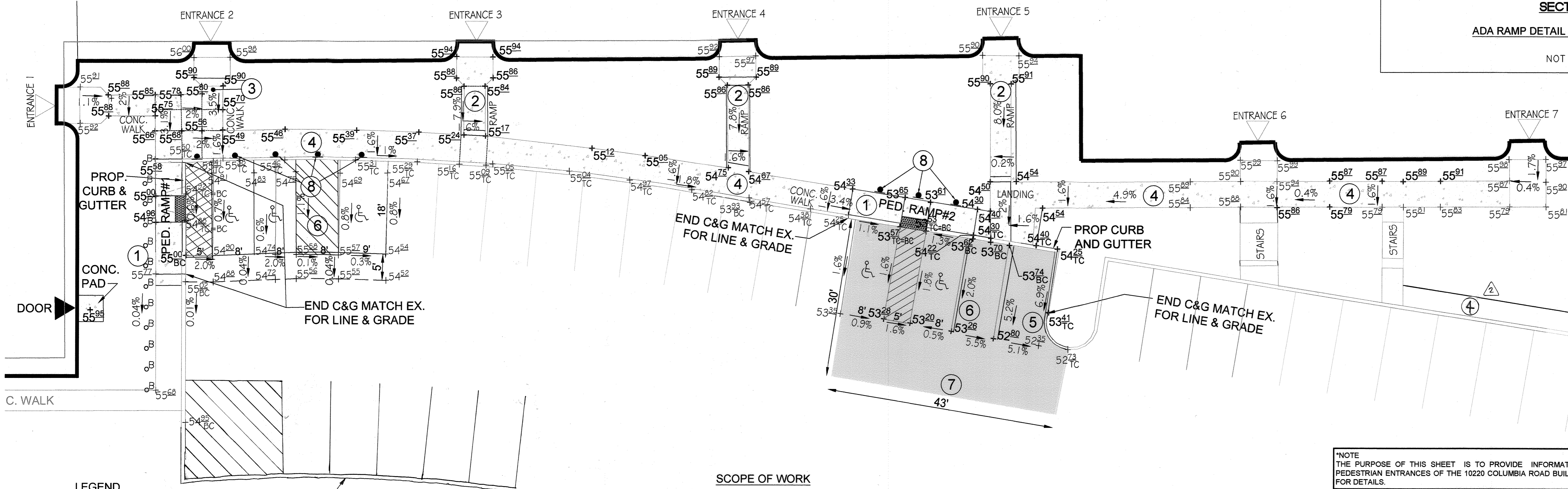


HANDICAP SIGN POST INSTALLATION NOT TO SCALE



SECTION VIEW ADA RAMP DETAIL FOR ENTRANCES 4 & 5

NOT TO SCALE

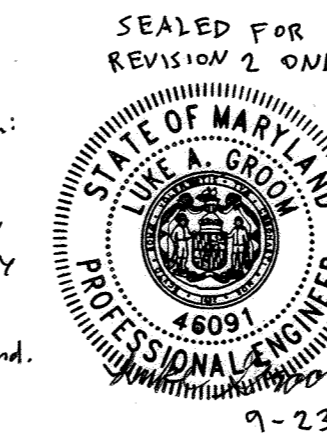


- LEGEND**
- 54<sup>22</sup> EX. SPOT EL.
  - 55<sup>46</sup> PROP. SPOT EL.
  - ▭ PROP. CONC. WALK
  - ▭ MILL & OVERLAY PAVEMENT

**SCOPE OF WORK**

- 1 INSTALL PEDESTRIAN RAMPS #1 & #2 PER MODIFIED HOWARD COUNTY STD R-4.06 - R-4.07
- 2 INSTALL 5 FT WIDE ADA COMPLIANT RAMPS AT ENTRANCE #S 3, 4 AND 5
- 3 INSTALL 4 FT. WIDE LEAD WALKS AT ENTRANCE #S 1 AND 2
- 4 INSTALL 5 FT. WIDE SIDE WALK PER HOWARD COUNTY STD R-3.05
- 5 INSTALL CURB AND GUTTER PER HOWARD COUNTY STD R-3.01
- 6 RESTRIPE PARKING FOR HANDICAP SPACING AS SHOWN
- 7 MILL & OVERLAY 1250± SQ.FT OF THE EXISTING PARKING PAVING AND INSTALL PAVING SECTION PER HOWARD COUNTY STD R-2.01
- 8 INSTALL CODE COMPLIANT HANDICAPPED PARKING SIGNAGE

Professional Certification:  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 46091  
Exp. Date 5/14/21



\*NOTE THE PURPOSE OF THIS SHEET IS TO PROVIDE INFORMATION FOR THE ADA COMPLIANT REVISED GRADING TO ALL PEDESTRIAN ENTRANCES OF THE 10220 COLUMBIA ROAD BUILDING. SEE REVISION A, JULY 2018 IN THE REVISION BLOCK FOR DETAILS.

\*NOTE CONTRACTOR TO CHECK FORM WORK WITH SMART LEVEL WITH COUNTY INSPECTOR

**DEVELOPER'S CERTIFICATE:**

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

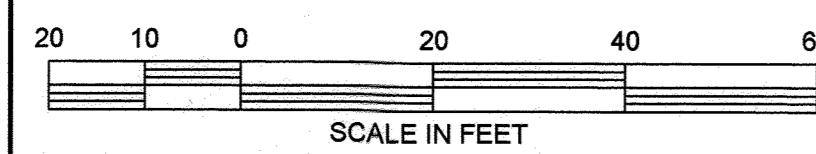
Signature of Property Owner / Agent: *Michael James*  
Signature of Professional Engineer / Agent: *Mike Janes*  
Date: 8/13/18

APPROVED: DEPARTMENT OF PLANNING AND ZONING

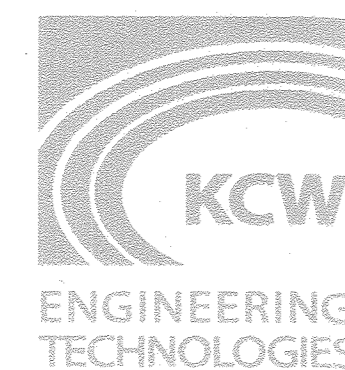
*Chad Clark* 8-15-18  
Chief, Development Engineering Division Date

*Kurt Seiwert* 8-22-18  
Chief, Division of Land Development Date

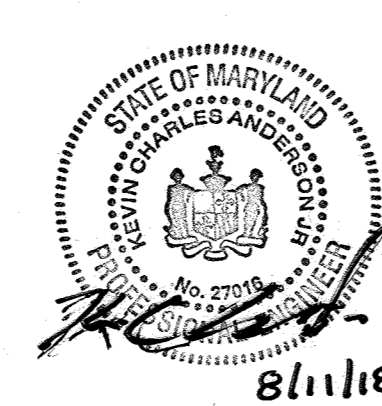
*Valerie J. J. J.* 8-22-18  
Director Date



SITE PLAN Scale: 1" = 10'



KCW Engineering Technologies, Inc.  
810 Landmark Drive, Suite 215  
Glen Burnie, MD 21061  
Phone: 410.768.7700  
Fax: 410.768.0200  
www.kcw-et.com



**DEVELOPER:**

**Oeok Management Corp.**  
8300 Guilford Road, Suite C  
Columbia, MD 21046  
Attn: Mike Janes  
410.740-5057

**REVISIONS**

DATE	DESCRIPTION
1 JULY, 2018	NEW TENANT SPACE AT UNIT A, NEW USE: DAYCARE CENTER - THE GODDARD SCHOOL (12,500 SQ.FT.), FENCE ENCLOSED OUTDOOR PLAY AREA, 2 NEW BUILDING EGRESS DOORS, CONSTRUCTION OF ACCESSIBLE RAMP TO PLAY AREA, ACCESSIBILITY IMPROVEMENTS, UPDATE SITE PLAN TO REFLECT CURRENT EXISTING CONDITIONS AND USES INCLUDING NUMBER OF PARKING SPACES
2 SEPT., 2019	REVISED CURB AND ADDED AS-BUILT SIDEWALK

KCW J.O.: 2180251  
SCALE: 1" = 10'  
DESIGNED: KCA  
DRAWN: KCW  
CHECKED: KCA  
DATE: AUGUST 1, 2018  
DRAWING NO. 11 of 13

**ACCESSABILITY PLAN**

PARCELS H, I, O & P  
SECTION I, AREA I  
RIVERS CORPORATE PARK  
PLAT NOS. 5075-5080

TAX MAP 42, PARCEL 29  
LIBER 5385, FOLIO 602  
ZONING: NEW TOWN  
ELECTION DISTRICT - 6  
HOWARD COUNTY, MARYLAND

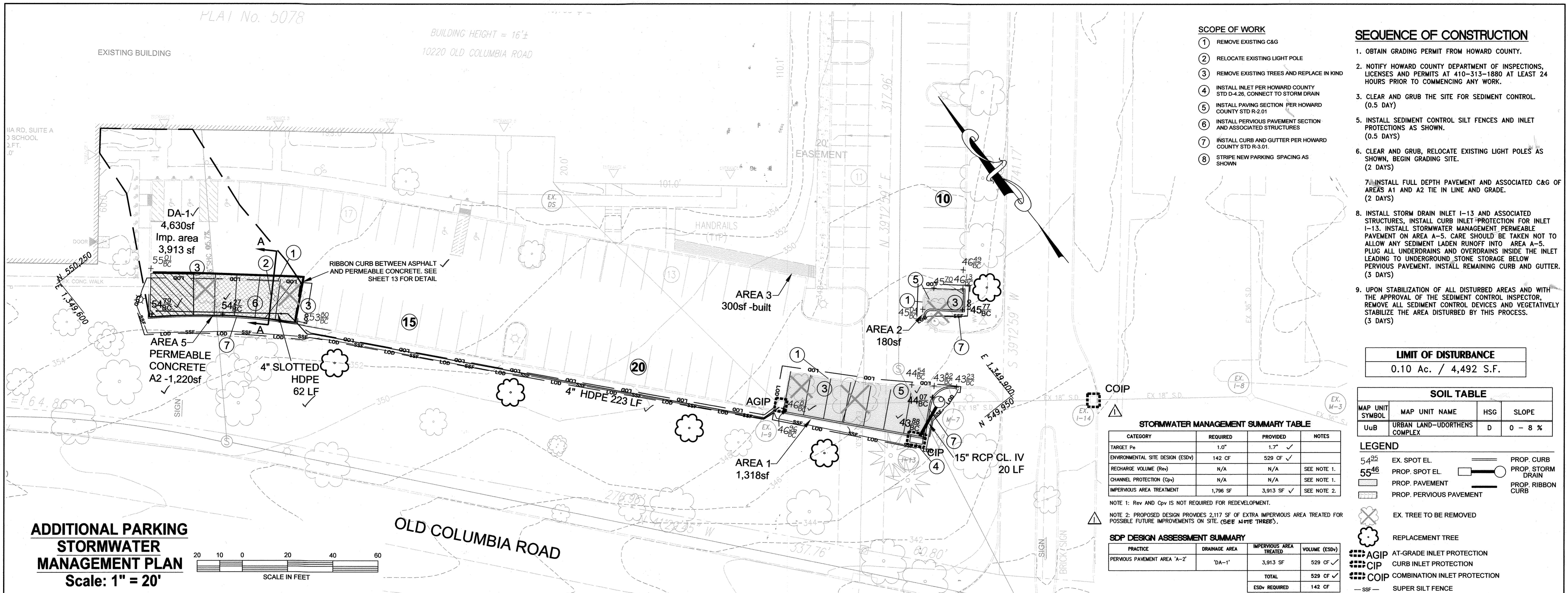
SDP-82-76c



PLA1 No. 5078

BUILDING HEIGHT = 16'±  
10220 OLD COLUMBIA ROAD

EXISTING BUILDING



- SCOPE OF WORK**
- REMOVE EXISTING C&G
  - RELOCATE EXISTING LIGHT POLE
  - REMOVE EXISTING TREES AND REPLACE IN KIND
  - INSTALL INLET PER HOWARD COUNTY STD D-4.26, CONNECT TO STORM DRAIN
  - INSTALL PAVING SECTION PER HOWARD COUNTY STD R-2.01
  - INSTALL PERVIOUS PAVEMENT SECTION AND ASSOCIATED STRUCTURES
  - INSTALL CURB AND GUTTER PER HOWARD COUNTY STD R-3.01
  - STRIP NEW PARKING SPACING AS SHOWN

- SEQUENCE OF CONSTRUCTION**
- OBTAIN GRADING PERMIT FROM HOWARD COUNTY.
  - NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT 410-313-1880 AT LEAST 24 HOURS PRIOR TO COMMENCING ANY WORK.
  - CLEAR AND GRUB THE SITE FOR SEDIMENT CONTROL. (0.5 DAY)
  - INSTALL SEDIMENT CONTROL SILT FENCES AND INLET PROTECTIONS AS SHOWN. (0.5 DAYS)
  - CLEAR AND GRUB, RELOCATE EXISTING LIGHT POLES AS SHOWN, BEGIN GRADING SITE. (2 DAYS)
  - INSTALL FULL DEPTH PAVEMENT AND ASSOCIATED C&G OF AREAS A1 AND A2 TIE IN LINE AND GRADE. (2 DAYS)
  - INSTALL STORM DRAIN INLET I-13 AND ASSOCIATED STRUCTURES, INSTALL CURB INLET PROTECTION FOR INLET I-13, INSTALL STORMWATER MANAGEMENT PERVIOUS PAVEMENT ON AREA A-5. CARE SHOULD BE TAKEN NOT TO ALLOW ANY SEDIMENT LADEN RUNOFF INTO AREA A-5. PLUG ALL UNDERDRAINS AND OVERDRAINS INSIDE THE INLET LEADING TO UNDERGROUND STONE STORAGE BELOW PERVIOUS PAVEMENT. INSTALL REMAINING CURB AND GUTTER. (3 DAYS)
  - UPON STABILIZATION OF ALL DISTURBED AREAS AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT CONTROL DEVICES AND VEGETATIVELY STABILIZE THE AREA DISTURBED BY THIS PROCESS. (3 DAYS)

**LIMIT OF DISTURBANCE**  
0.10 Ac. / 4,492 S.F.

**SOIL TABLE**

MAP UNIT SYMBOL	MAP UNIT NAME	HSG	SLOPE
UoB	URBAN LAND-UDORTHENS COMPLEX	D	0 - 8 %

**STORMWATER MANAGEMENT SUMMARY TABLE**

CATEGORY	REQUIRED	PROVIDED	NOTES
TARGET P <sub>e</sub>	1.0"	1.7" ✓	
ENVIRONMENTAL SITE DESIGN (ESDv)	142 CF	529 CF ✓	
RECHARGE VOLUME (Rev)	N/A	N/A	SEE NOTE 1.
CHANNEL PROTECTION (Cp)	N/A	N/A	SEE NOTE 1.
IMPERVIOUS AREA TREATMENT	1,796 SF	3,913 SF ✓	SEE NOTE 2.

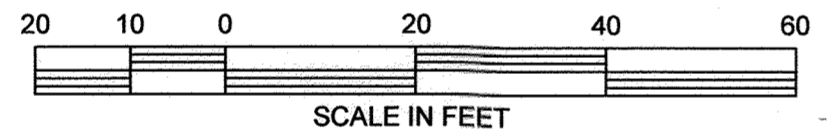
NOTE 1: Rev AND Cp IS NOT REQUIRED FOR REDEVELOPMENT.  
NOTE 2: PROPOSED DESIGN PROVIDES 2,117 SF OF EXTRA IMPERVIOUS AREA TREATED FOR POSSIBLE FUTURE IMPROVEMENTS ON SITE. (SEE NOTE THREE).

**SDP DESIGN ASSESSMENT SUMMARY**

PRACTICE	DRAINAGE AREA	IMPERVIOUS AREA TREATED	VOLUME (ESDv)
PERVIOUS PAVEMENT AREA 'A-2'	'DA-1'	3,913 SF	529 CF ✓
<b>TOTAL</b>		<b>529 CF</b>	<b>529 CF ✓</b>
<b>ESDv REQUIRED</b>		<b>142 CF</b>	

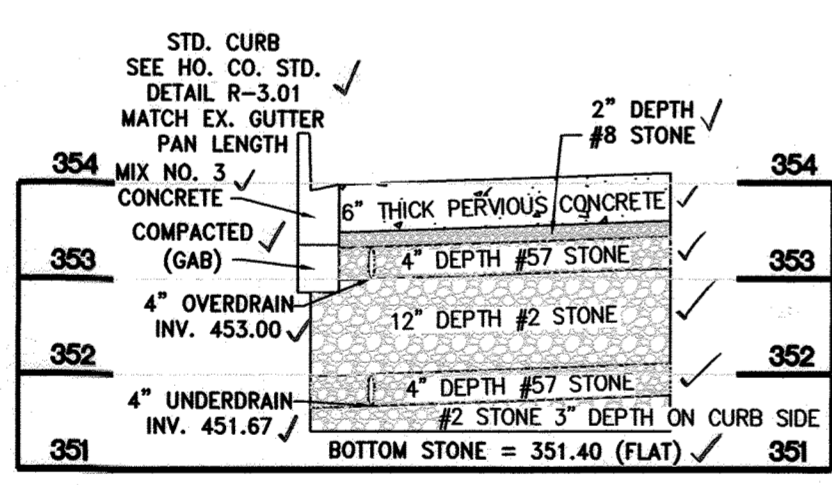
NOTE 3: THE PROPOSED RAMP AT THE REAR OF THE BUILDING AND THE 3'x3' CONCRETE PAD AT THE FRONT OF THE BUILDING, HAS A SITE ESDv REQUIREMENT OF 26CF, WHICH WILL BE TREATED WITH THE EXCESS ESDv TREATED, SEE SHEET 10 FOR THESE IMPROVEMENTS. THE REMAINING ESDv IS 503CF, WHICH CAN BE USED FOR FUTURE IMPROVEMENTS ON SITE.

**ADDITIONAL PARKING STORMWATER MANAGEMENT PLAN**  
Scale: 1" = 20'



**SWM INFORMATION CHART**

PARCEL	ADDRESS	PERVIOUS PAVEMENT 'A-2' (NUMBER)	MAINTENANCE
H	10220 OLD COLUMBIA ROAD	A-2 (1)	PRIVATE



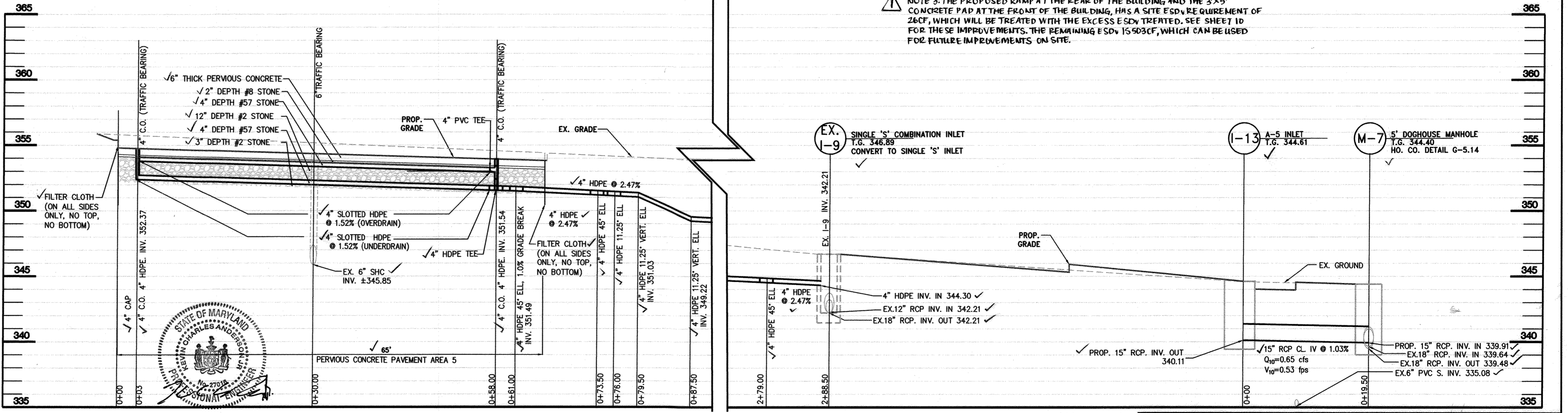
**PERMEABLE PAVEMENT SECTION A-A**  
SCALE: 1"=10' (Horiz.)  
1"= 2' (Vert.)

NOTE: ELEVATIONS CHANGE BASED ON STATION OF SECTION. ELEVATIONS SHOWN BASED ON SECTION AT STATION 0+52.75 AS SHOWN IN PLAN VIEW. SEE PROFILE FOR ELEVATIONS AT OTHER STATIONS.

**REPLACEMENT PLANT LIST**

KEY NO.	PLANT NAME	SIZE	REMARKS
5	ACER RUBRUM REDPOINT RED MAPLE	2.5-3" CAL. 4.5' HT	B & B

NOTES:  
1. REPLACEMENT PLANTINGS MAY BE INTERCHANGED WITH APPROVED EQUAL PER HOWARD COUNTY LANDSCAPE MANUAL.  
2. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REPLACEMENT LANDSCAPING HAS BEEN POSTED AS PART OF THE GRADING PERMIT IN THE AMOUNT OF \$1,500.00 FOR 5 SHADE TREES.



**PERMEABLE PAVING AND STORM DRAIN PROFILE**  
SCALE: 1"=10' (Horiz.)  
1"= 5' (Vert.)

PURPOSE NOTE:  
THIS SHEET WAS ADDED TO REFLECT CHANGES TO THE SITE FOR REVISION 2.

**DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE**  
I/We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Landscape Manual. I/We further certify that upon completion a Letter of Landscape Installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

**DEVELOPER'S CERTIFICATE:**  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

**APPROVED DEPARTMENT OF PLANNING AND ZONING**  
Date: 3-70-20  
Date: 4-11-2020  
Date: 4-3-2020

**KCW Engineering Technologies, Inc.**  
810 Landmark Drive, Suite 215  
Glen Burnie, MD 21061  
Phone: 410.768.7700  
Fax: 410.768.0200  
www.kcw-et.com

Professional Certification.  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 46091.  
Expiration Date 05-14-2021.

**STATE OF MARYLAND PROFESSIONAL ENGINEER**  
No. 32023  
Date: 9-24-19

**AS-BUILT CERTIFICATION:**  
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this plan were constructed as shown on this "AS-BUILT" plan meet the Approved Plans and Specifications.

**Professional Engineer**  
Kevin C. Anderson  
KCW Engineering Tech., Inc.  
P.E. # 27016  
MD License No.  
12-22-2023  
Date

**DEVELOPER:**  
**Oekos Management Corp.**  
8300 Guilford Road, Suite C  
Columbia, MD 21046  
Attn.: Mike Janes  
410.740-5057

**REVISIONS**

DATE	DESCRIPTION
12-22-2023	AS-BUILT
July 2023	REVISE THE STORMWATER MANAGEMENT SUMMARY TABLE & NOTES

KCW J.O.: 2180251  
SCALE: AS SHOWN  
DESIGNED: LAG  
DRAWN: KCW  
CHECKED: LAG  
DATE: SEPTEMBER, 2019  
DRAWING NO.  
**12 of 13**

**REVISED SITE DEVELOPMENT PLAN - ADDITIONAL PARKING PLAN**

**PARCELS H,I,O & P SECTION 1, AREA 1 RIVERS CORPORATE PARK REVISION #2**  
10220 OLD COLUMBIA ROAD  
COLUMBIA, MARYLAND

ZONING: NEW TOWN  
ELECTION DISTRICT - 6  
HOWARD COUNTY, MARYLAND

TAX MAP 42, PARCEL 29  
LIBER 5385, FOLIO 602

SDP-82-076



**B.4.B Specifications for Permeable Pavements**

These specifications include information on acceptable materials for typical applications and are not exclusive or limiting. The designer is responsible for developing detailed specifications for individual projects and specific conditions.

**Permeable Concrete Specifications**

**Design Thickness** - Permeable concrete applications shall be designed so that the thickness of the concrete slab shall support the traffic and vehicle types that will be carried. Applications may be designed using either standard pavement procedures (e.g., AASHTO, ACI 325.9R, ACI 330R) or using structural values derived from flexible pavement design procedures.

**Mix & Installation** - Traditional Portland cements (ASTM C 150, C 1157) may be used in permeable concrete applications. Phosphorus admixtures may also be used. Materials should be tested (e.g., trial batching) prior to construction so that critical properties (e.g., setting time, rate of strength development, porosity, permeability) can be determined.

**Aggregate** - Permeable concrete contains a limited fine aggregate content. Commonly used gradations include ASTM C 33 No. 67 (¾ in. to No. 4), No. 8 (¾ in. to No. 16) and No. 89 (¾ in. to No. 50) sieves. Single-sized aggregate (up to 1 inch) may also be used.

**Water Content** - Water-to-cement ratios between 0.27 and 0.30 are used routinely with proper inclusion of chemical admixtures. Water quality should meet ACI 308. As a general rule, potable water should be used although recycled concrete production water meeting ASTM C 94 or AASHTO M 157 may also be used.

**Admixtures** - Chemical admixtures (e.g., retarders or hydration stabilizers) are used to obtain special properties in permeable concrete. Use of admixtures should meet ASTM C 494 (chemical admixtures) and ASTM C 260 (air entraining admixtures) and closely follow manufacturer's recommendations.

**Base Course** - The base course shall be AASHTO No. 3 or 4 course aggregate with an assumed open pore space of 30% (n = 0.30).

**Filter Cloth** - Shall be Mirafix-180N or approved equal.

**Impermeable Liner** - Liner thickness shall be 30 mil (ASTM-D4813). A geotextile fabric should be used to protect the liner from puncture.

**Underdrain pipes** should meet the following criteria:

- Distribution Pipe - Should be 8" diameter, slotted rigid HDPE pipe (AASHTO M252, Type S) in a gravel layer.
- Underdrain Pipe - Should be 6" diameter, slotted rigid HDPE pipe (AASHTO M252, Type S) in a gravel layer.
- Overdrain Pipe - Should be 4" diameter, slotted rigid HDPE pipe (AASHTO M252, Type S) in a gravel layer.
- Perforations - If perforated pipe is used, perforations should be ¾" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a ¾" (No. 4 or 4x4) galvanized hardware cloth.

**Construction Criteria:**

The following items should be addressed during construction of projects with permeable pavement:

**Erosion and Sediment Control:** Final grading for installation should not take place until the surrounding site is stabilized. If this cannot be accomplished, runoff from disturbed areas shall be diverted around proposed pavement locations.

**Soil Compaction:** Sub soils shall not be compacted. Construction should be performed with lightweight, wide tracked equipment to minimize compaction. Excavated materials should be placed in a contained area.

**Distribution Systems:** Overdrains, underdrains, and distribution pipes shall be checked to ensure that both the material and perforations meet specifications. The upstream ends of pipes should be capped prior to installation. All distribution pipes used should be installed free along the bed bottom.

**Subbase Installation:** Subbase aggregate shall be clean and free of fines. The subbase shall be placed in lifts and lightly rolled according to the specifications.

**Inspection:**

Regular inspections shall be made during the following stages of construction:

- During excavation to subgrade.
- During placement and backfill of any drainage or distribution system(s).
- During placement of the crushed stone subbase material.
- During placement of the surface material.
- Upon completion of final grading and establishment of permanent stabilization.

**Maintenance Criteria:**

The following procedures should be considered essential for maintaining permeable pavement systems:

Pavements should be used only where regular maintenance can be performed. Maintenance agreements should clearly specify how to conduct routine tasks to ensure long-term performance.

Pavement surfaces should be swept and vacuumed to reduce sediment accumulation and ensure continued surface porosity. Sweeping should be performed at least twice annually with a commercial cleaning unit. Washing systems and compressed air units should not be used to perform surface cleaning.

Drainage pipes, inlets, stone edge drains, and other structures within or draining to the subbase should be cleaned out at regular intervals.

Trucks and other heavy vehicles can grind dirt and grit into the porous surfaces, leading to clogging and premature failure. These vehicles should be prevented from tracking and spilling material onto the pavement.

Deicers should be used in moderation. When used, deicers should be non-toxic and organic and can be applied either as calcium magnesium acetate or as pretreated salt. Snow plowing should be done carefully with blades set one-inch higher than normal. Plowed snow piles and snowmelt should not be directed to permeable pavement.

**CONSTRUCTION SPECIFICATIONS**

**1. INTRODUCTION**

THESE SPECIFICATIONS PROVIDE TECHNICAL INFORMATION ON PERVIOUS CONCRETE APPLICATION, DESIGN METHODS, MATERIALS, PROPERTIES, MIXTURE PROPORTIONING, CONSTRUCTION METHODS, TESTING, AND INSPECTION.

THE TERM "PERVIOUS CONCRETE" DESCRIBES A ZERO-SLUMP, OPEN-GRADED MATERIAL CONSISTING OF PORTLAND CEMENT, COARSE AGGREGATE, LITTLE OR NO FINE AGGREGATE, ADMIXTURES, AND WATER. THE COMBINATION OF THESE INGREDIENTS WILL PRODUCE A HARDENED MATERIAL WITH CONNECTED PORES, RANGING IN SIZE FROM 0.08 TO 0.32 IN. THAT ALLOW WATER TO PASS THROUGH EASILY. THE VOID CONTENT SHALL BE A MINIMUM OF 15% WITH A MINIMUM COMPRESSIVE STRENGTHS OF 3,000 PSI. THE ORAINAGE RATE OF PERVIOUS CONCRETE PAVEMENT WILL VARY WITH AGGREGATE SIZE AND DENSITY OF THE MIXTURE, BUT WILL GENERALLY FALL INTO THE RANGE OF 2 TO 18 GAL/MIN/FT<sup>2</sup>.

**2. AGGREGATES**

AGGREGATE GRADINGS USED IN PERVIOUS CONCRETE SHALL BE EITHER SINGLE-SIZED COARSE AGGREGATE OR GRADING BETWEEN ¾ AND 3/8 INCH. ROUNDED AND CRUSHED AGGREGATES, BOTH NORMAL AND LIGHTWEIGHT, ARE ACCEPTABLE. THE AGGREGATE USED SHOULD MEET REQUIREMENTS OF ASTM D 448 AND C 33. FINE AGGREGATES SHALL NOT BE USED IN PERVIOUS CONCRETE MIXTURES.

**3. CEMENTITIOUS MATERIALS**

PORTLAND CEMENT CONFORMING TO ASTM C 150, C 595, OR C 1157 IS USED AS THE MAIN BINDER. FLY ASH, SLAG CEMENT, AND SILICA FUME SHOULD MEET THE REQUIREMENTS OF ASTM C 618, C 989, AND C 1240, RESPECTIVELY.

**4. ADMIXTURES**

ADMIXTURES SHOULD MEET THE REQUIREMENTS OF ASTM C 494. WATER-REDUCING ADMIXTURES (HIGH-RANGE OR MEDIUM-RANGE) ARE USED DEPENDING ON THE W/C. RETARDING ADMIXTURES ARE USED TO STABILIZE AND CONTROL CEMENT HYDRATION.

**5. PERCOLATION RATE**

THE PERCOLATION RATE OF PERVIOUS CONCRETE IS DIRECTLY RELATED TO THE AIR VOID CONTENT. A MINIMUM VOID CONTENT OF 15% IS REQUIRED.

**6. PROPORTIONS OF CONSTITUENT MATERIALS**

PORTLAND CEMENT TYPE 1/11	LB-DRY/YD3	600
COARSE AGGREGATE, PEA GRAVEL	LB-SS/DYD3	2740
WATER	LB/YD3	145
WATER-REDUCING ADMIXTURE	OZ/100LB CEMENT	5.0
VISCOSITY MODIFYING ADMIXTURE	OZ/100LB CEMENT	6.0
SET STABILIZING ADMIXTURE	OZ/100LB CEMENT	6.0

**7. DESIGN PROPERTIES**

RATIO WATER/CEMENT	BY WEIGHT	0.24
RATIO AGGREGATE/CEMENT	BY WEIGHT	4.5
VOID CONTENT	PERCENT BY COLUMN	19
PLASTIC UNIT WEIGH	POUNDS PER CUBIC FOOT	129.1
WATER STORAGE	INCHES PER INCH DEPTH OF PAVEMENT	0.19
WATER PERCOLATION	GALLONS PER SQUARE FOOT-MINUTE	2.1
FLEXURAL STRENGTH	POUNDS-FORCE PER SQUARE INCH	460

**8. SUBGRADE PREPARATION AND LAYOUT**

THE TOP 4 IN OF THE SUBGRADE SHALL BE COMPOSED OF GRANULAR OR GRAVELLY MATERIAL WITH NO MORE THAN A MODERATE AMOUNT (10%) OF SILT OR CLAY. THE SUBGRADE SHALL NOT BE MUDDY, SATURATED, OR FROZEN WHEN PLACEMENT BEGINS. THE SUBGRADE SOILS SHALL BE MOISTENED BEFORE CONCRETE PLACEMENT. FAILURE TO PROVIDE A MOIST SUB-BASE WILL RESULT IN A REDUCTION IN STRENGTH OF THE PAVEMENT AND CAN LEAD TO A PREMATURE PAVEMENT FAILURE. TO ENSURE UNIFORM COMPACTION, WHEEL RUTS SHOULD BE RAKED AND RE-COMPACTED BEFORE CONCRETE PLACEMENT OPERATIONS. IF THE SUBGRADE SOIL PROPERTIES REQUIRE THAT AN AGGREGATE RECHARGE BED BE INCORPORATED INTO THE DRAINAGE DESIGN OF THE SITE, IT SHALL BE PLACED ON THE PREPARED SUBGRADE, COMPACTED, AND TRIMMED TO THE PROPER ELEVATIONS.

**9. CONSTRUCTION**

CONSTRUCTION OF PERVIOUS CONCRETE SHALL BE ACCOMPLISHED BY A CERTIFIED CONTRACTOR, A TECHNICIAN CERTIFIED BY THE NATIONAL READY MIX ASSOCIATION (NRM) TO INSTALL PERVIOUS CONCRETE SHALL BE ON SITE OVERSEEING INSTALLATION DURING ALL PERVIOUS CONCRETE ACTIVITIES TO VERIFY THAT THE PERVIOUS CONCRETE IS BEING INSTALLED IN ACCORDANCE WITH PROJECT PLANS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE ACCEPTED METHODS OF INSTALLING PERVIOUS CONCRETE AS ESTABLISHED BY THE NRM AND THE AMERICAN CONCRETE INSTITUTE (ACI). A RECONSTRUCTION CONFERENCE AND CONSTRUCTION OF TEST SECTIONS ARE RECOMMENDED TO ADDRESS ISSUES SUCH AS:

- DETERMINING THE CONSTRUCTION SEQUENCE;
- ARRANGING FOR A REALISTIC DELIVERY RATE OF CONCRETE;
- ARRANGING FOR ADEQUATE ACCESS TO THE PROJECT SITE FOR THE CONCRETE TRUCKS;
- SELECTING THE OPTIMUM EQUIPMENT FOR THE SIZE OF THE PROJECT;
- COORDINATING TESTING AND INSPECTION;
- DEMONSTRATING THAT THE PROPOSED MIXTURE PROPORTIONS PERFORM AS EXPECTED; AND
- VERIFYING THAT THE PERVIOUS CONCRETE CONTRACTOR IS ADEQUATELY QUALIFIED.

**10. PLACEMENT**

PLACEMENT OF PERVIOUS CONCRETE NEEDS TO BE COMPLETED AS QUICKLY AS POSSIBLE. PERVIOUS CONCRETE HAS LITTLE EXCESS WATER IN THE MIXTURE. DRYING OF THE CEMENT PASTE CAN LEAD TO A RAVELING FAILURE OF THE PAVEMENT SURFACE; THEREFORE, RAPID PLACEMENT OF THE PAVEMENT IS ESSENTIAL.

**11. FORM CONSTRUCTION**

FORMS SHALL BE MADE OF WOOD, PLASTIC, OR STEEL AND SHOULD BE THE DEPTH OF THE PAVEMENT. FORMS SHALL BE OF SUFFICIENT STRENGTH AND STABILITY TO SUPPORT MECHANICAL EQUIPMENT. THE SUBGRADE UNDER THE FORMS SHALL BE COMPACTED IN ACCORDANCE WITH THE GEOTECH'S RECOMMENDATIONS AND CUT TO GRADE TO SUPPORT SCREED AND ROLLER EQUIPMENT USED.

**12. CONCRETE DISTRIBUTION**

CONCRETE SHOULD BE DEPOSITED AS CLOSE TO ITS FINAL POSITION AS PRACTICAL FOR PLACEMENTS THAT MIXERS CANNOT REACH, OR WHERE THE SUBGRADE DISTURBANCE IS TO BE MINIMIZED. A CONVEYOR MAY BE USED. PERVIOUS CONCRETE MIXTURES ARE TYPICALLY HARSH (ZERO SLUMP). PUMPING IS NOT RECOMMENDED. AFTER DEPOSITING CONCRETE IT SHOULD BE CUT TO A ROUGH ELEVATION WITH A RAKE OR SIMILAR HAND TOOL. PERVIOUS CONCRETE ALONG THE FORMS SHOULD BE COMPACTED BY HAND TAMP TO ENSURE THAT THE EDGES MAINTAIN STRUCTURAL INTEGRITY AFTER THE FORMS ARE REMOVED AND THE CONCRETE IS PUT INTO SERVICE DURING COMPACTION OF THE CONCRETE. THE OUTSIDE EDGE OF THE TAMPER SHOULD BE KEPT ON THE FORM TO ENSURE THAT THE CONCRETE IS NOT COMPACTED BELOW THE FORM ELEVATION.

- CARE SHOULD BE TAKEN TO MINIMIZE:
- PULLING OR SHOVELING OF FRESH CONCRETE INTO FINAL POSITION;
- FILLING VOIDS IN THE CONCRETE;

- CONTAMINATING THE PERVIOUS CONCRETE WITH DELETERIOUS MATERIAL; AND
- WALKING IN THE PERVIOUS CONCRETE; RISER STRIPS

RISER STRIPS SHALL BE PLACED ON TOP OF THE FORMS FOR INITIAL STRIKE-OFF. THESE STRIPS VARY FROM ¼ TO ¾ IN. THICK, DEPENDING ON THE NECESSARY THICKNESS OF THE PAVEMENT SECTION, THE AGGREGATE USED IN THE PERVIOUS CONCRETE, AND THE CONTRACTOR'S PLACEMENT METHODS.

**14. STRIKE-OFF METHODS AND EQUIPMENT**

STRIKE-OFF METHODS WILL VARY DEPENDING ON THE SIZE OF THE PLACEMENT, FOR SMALL JOBS, SUCH AS DRIVEWAYS, OR FOR TIGHT AREAS, A HAND-HELD STRAIGHTEDGE OR JITTERBUG SCREED IS ACCEPTABLE. FOR LARGER JOBS, THE USE OF AN A-FRAME VIBRATING SCREED IS RECOMMENDED. IT IS IMPORTANT TO STRIKE-OFF THE CONCRETE AS QUICKLY AS POSSIBLE; THUS, HANDWORK IS NOT RECOMMENDED DUE TO ITS LACK OF SPEED.

**15. MISCELLANEOUS TOOLS**

TRADITIONAL CONCRETE FINISHING TOOLS SUCH AS EDDGES AND COME-ALONG MAY BE USED TO FACILITATE PROPER PLACEMENT OF PERVIOUS CONCRETE. BULL FLOATS SHOULD NOT BE USED.

**16. USING PAVEMENT AS A FORM**

SPECIAL CARE WILL BE TAKEN WHEN PLACING A PERVIOUS CONCRETE SECTION NEXT TO AN EARLIER PLACEMENT FROM THE SAME DAY TO PREVENT DAMAGE TO THE EARLIER SECTION, WHEREAS THIS PROCEDURE IS NOT TYPICALLY RECOMMENDED, IT MAY BE NECESSARY IN SOME APPLICATIONS.

- CAREFULLY PEEL BACK THE CURING SHEET COVERING THE EARLIER PLACEMENT TO JUST REVEAL THE INSIDE EDGE OF THE FORM. CARE SHOULD BE TAKEN TO KEEP THE EARLIER PERVIOUS CONCRETE COMPLETELY COVERED;
- PLACE SHEETS OF PLYWOOD OR ORIENTED STRAND BOARD (OSB) (¾ IN 1) 0 MM OR THICKER AS REQUIRED) ON TOP OF THE CURING SHEET, ALONG THE EDGE OF THE EARLIER PERVIOUS PLACEMENT;
- REMOVE FROM THE FORM BOARD, EXPOSING THE FRESH EDGE OF THE EARLIER PLACEMENT;
- PLACE PERVIOUS CONCRETE UP TO THIS EDGE;
- STRIKE OFF THE FRESHLY PLACED PERVIOUS CONCRETE WITH THE SCREED RIDING ON THE PLYWOOD OR OSB;
- CONTINUE WITH CONSOLIDATION AS USUAL; AND
- COVER THE PERVIOUS CONCRETE AS SOON AS POSSIBLE.

**17. CONSOLIDATION**

IMMEDIATELY AFTER STRIKE-OFF THE FIRST RISER STRIPS ARE REMOVED ON EACH FORM AND THE CONCRETE IS COMPACTED TO THE FORM'S ELEVATION WITH A WEIGHTED ROLLER. A HAND TAMP MAY BE USED ALONG THE EDGES TO FACILITATE COMPACTION ALONG THE FORMS. THE ROLLER IS USED TO COMPACT THE CONCRETE TO CREATE A STRONG CEMENT PASTE BOND BETWEEN AGGREGATE PARTICLES AND TO PROVIDE AN ACCEPTABLE SURFACE SMOOTHNESS. THE ROLLER SHOULD BE OF ADEQUATE WIDTH TO RIDE ON THE FORMS AND SHOULD PROVIDE A MINIMUM OF 10 PSI VERTICAL FORCE.

**18. CONTRACTION**

CONTRACTION JOINTS SHOULD BE INSTALLED AS INDICATED BY THE CERTIFIED TECHNICIAN. THEY SHALL HAVE A DEPTH OF 1/3 TO 1/2 OF THE THICKNESS OF THE PAVEMENT. JOINTS SHALL BE INSTALLED IN THE FRESH CONCRETE. A SPECIALLY DESIGNED ROLLING JOINTER WITH A BLADE THAT IS AT LEAST 1/4" (PREFERABLY 1/2") THICKNESS OF THE SLAB AND WITH ENOUGH WEIGHT TO FORCE THE BLADE TO CLEANLY CUT THE JOINT SHALL BE USED. IN PLACEMENTS WITH WIDE LANE WIDTHS, A LONGITUDINAL JOINT MAY BE CUT WITH THE COMPACTING ROLLER.

**19. CURING AND PROTECTION**

THE OPEN PORE STRUCTURE OF PERVIOUS CONCRETE MAKES CURING PARTICULARLY IMPORTANT.

THE COVER MATERIAL SHALL BE A CLEAR, 6 MIL OR THICKER POLYETHYLENE SHEET OF SUFFICIENT DIMENSION TO BE ABLE TO COVER THE ENTIRE WIDTH OF A LANE ALONG A REASONABLE DISTANCE. WOVEN MATERIALS, SUCH AS BURLAP AND GEOTEXTILE FABRIC AND WAX-BASED CURING COMPOUNDS SHALL NOT BE USED.

STRIKE-OFF, COMPACTION, AND CURING OPERATIONS SHALL BE KEPT AS CLOSE TOGETHER AS POSSIBLE TO PREVENT DRYING OF THE TOP SURFACE OF THE PERVIOUS CONCRETE. FOLLOWING THE PLACEMENT PROCESS, AS SOON AS THE STRIKE-OFF OPERATION HAS MOVED ON TO A NEW RISER STRIP, THE USED RISER STRIPS SHOULD BE REMOVED AND THE COMPACTION OPERATIONS SHOULD BEGIN. WHEN ADVERSE AMBIENT WEATHER CONDITIONS EXIST, SUCH AS HIGH TEMPERATURE, HIGH WIND, OR LOW HUMIDITY, AN EVAPORATION RETARDANT SHOULD BE LIGHTLY SPRAYED ON THE SURFACE FOLLOWING STRIKE-OFF OPERATIONS AND BEFORE COMPACTION. CURING SHOULD BEGIN WITHIN 20 MINUTES AFTER THE FINAL COMPACTION OPERATIONS. BEFORE COVERING IF THE CONCRETE HAS LOST ITS "SHEEN" IT SHOULD BE LIGHTLY MISTED WITH WATER.

THE POLYETHYLENE COVER SHALL OVERLAP ALL EXPOSED SURFACES SO THAT IT MAY BE SECURED IN PLACE. REINFORCING BAR, LUMBER, OR CONCRETE BLOCKS MAY BE USED TO SECURE THE POLYETHYLENE COVER TO PREVENT IT FROM BEING BLOWN OFF. DIRT, SAND, OR OTHER GRANULAR MATERIAL SHALL NOT BE USED, AS THEY MAY WASH AWAY OR INTO THE PORES OF THE CONCRETE UPON REMOVAL. IF WOOD FORMS ARE USED, THE RISER STRIPS MAY BE USED TO SECURE THE SHEETS IN PLACE. ALL EDGES OF PAVEMENT SHALL BE COVERED PROPERLY.

FOR PROPER CURING, THE PAVEMENT SHALL REMAIN COVERED FOR 7 DAYS FOR STRAIGHT CEMENT CONCRETE MIXTURES AND 10 DAYS FOR CONCRETE MIXTURES THAT INCORPORATE SUPPLEMENTARY CEMENTITIOUS MATERIALS. STRIPPING SHOULD BE APPLIED ONLY AFTER THE CURING PERIOD HAS PASSED. NO TRAFFIC SHALL BE ALLOWED ON THE PAVEMENT DURING CURING. THE GENERAL CONTRACTOR SHALL TAKE MEASURES TO PREVENT DAMAGE TO THE PAVEMENT DUE TO ABUSE FROM CONSTRUCTION OPERATIONS. SPECIFICALLY, THE GENERAL CONTRACTOR SHALL PROHIBIT REMOVAL OF THE CURING MATERIAL AND PREVENT ANY TRAFFIC FROM TRAVELING ON THE PERVIOUS CONCRETE PAVEMENT. ADDITIONALLY, THE GENERAL CONTRACTOR SHALL NOT ALLOW STORAGE OF BUILDING AND LANDSCAPING MATERIALS ON THE PAVEMENT SURFACE AS THESE MATERIALS CAN CLOG THE PORES OR OTHERWISE DAMAGE PERVIOUS PAVEMENTS.

COLD WEATHER PROTECTION - COLD WEATHER MEASURES SHALL BE USED TO PROTECT THE PERVIOUS CONCRETE FROM FREEZING WHILE MAINTAINING MOISTURE FOR THE TIME NECESSARY TO ACHIEVE THE DESIRED PHYSICAL PROPERTIES. CURING BLANKETS WORK SUFFICIENTLY TO SERVE BOTH PURPOSES.

HOT WEATHER PROTECTION - IN HOT WEATHER, TRANSPORTING, PLACING, AND COMPACTING SHALL BE DONE AS QUICKLY AS POSSIBLE. EVAPORATION RETARDANT MAY BE APPLIED TO THE SURFACE OF THE CONCRETE FOLLOWING THE STRIKE-OFF PROCESS TO RETARD THE LOSS OF MOISTURE ON THE SURFACE. AFTER CONSOLIDATION AND BEFORE PLACING THE POLYETHYLENE, THE SURFACE MAY BE LIGHTLY MISTED WITH WATER OR AN EVAPORATION RETARDANT IF THE SURFACE APPEARS TO BE LOSING ITS SHEEN APPEARANCE.

**20. REPAIRING PERVIOUS CONCRETE PAVEMENTS GRINDING**

HIGH SPOTS CAN BE GROUND WITH A WEIGHTED GRINDER. THE GRINDER WILL CUT THROUGH AND EXPOSE THE AGGREGATE IN GROUND AREAS, HOWEVER, CHANGING THE APPEARANCE OF THE PAVEMENT.

**Holes or Low Spots**

SMALL HOLES (LOW SPOTS) SHALL BE PATCHED WITH AN AGGREGATE EPOXY BLEND TO MATCH THE APPEARANCE OF THE PAVEMENT SURFACE. THE AGGREGATE SHALL BE COATED WITH WET CEMENT AND CURED BEFORE PATCHING. LARGE HOLES SHALL BE PATCHED WITH PERVIOUS CONCRETE OF THE SAME MIXTURE PROPORTIONS AS THE ORIGINAL SURFACE. WHEN PATCHING, IT IS HIGHLY UNLIKELY THAT THE COLOR OF THE PATCH WILL MATCH THE ORIGINAL SURFACE MATERIAL.

EPOXY BONDING AGENTS MAY BE USED TO ENSURE PROPER BONDING BETWEEN THE OLD AND NEW SURFACES.

**UTILITY CUTS**

IN THE EVENT THAT A SECTION OF PERVIOUS CONCRETE IS CUT, A FULL DEPTH REPAIR SHALL BE PERFORMED. THIS WOULD INCLUDE REMOVING A SQUARE SECTION THE WIDTH OF A PLACED PLANE SUCH THAT THE NEW MATERIAL WOULD BE LARGE ENOUGH TO MAINTAIN ITS STRUCTURAL INTEGRITY

**UNDERLOADING.**

MAINTENANCE THERE ARE TWO COMMONLY ACCEPTED MAINTENANCE METHODS TO MAINTAIN PERVIOUS CONCRETE, POWER VACU MING AND PRESSURE WASHING. THE MOST EFFECTIVE SCHEME, HOWEVER, IS TO COMBINE THE TWO TECHNIQUES. POWER VACUUM AFTER PRESSURE WASHING. DURING PRESSURE WASHING CARE SHOULD BE TAKEN NOT TO USE TOO MUCH PRESSURE, AS THIS WILL DAMAGE THE PERVIOUS CONCRETE. A SMALL SECTION OF THE PAVEMENT SHOULD BE PRESSURE WASHED USING VARYING WATER PRESSURES TO DETERMINE THE APPROPRIATE PRESSURE FOR THE GIVEN PAVEMENT.

**21. MAINTENANCE**

A SUGGESTED MAINTENANCE SCHEDULE IS AS FOLLOWS:

ACTIVITY	SCHEDULE
• ENSURE THAT PAVING AREA IS CLEAN OF DEBRIS	MONTHLY
• ENSURE THAT THE AREA IS CLEAR OF SEDIMENTS	AS NEEDED
• SEED BARE UPLAND AREAS	TWICE ANNUALLY
• PRESSURE WASH/VACUUM SWEEP SURFACE	ANNUALLY
• INSPECT THE SURFACE FOR DETERIORATION OR SPALLING	

**22. PRECONSTRUCTION INSPECTION AND TESTING**

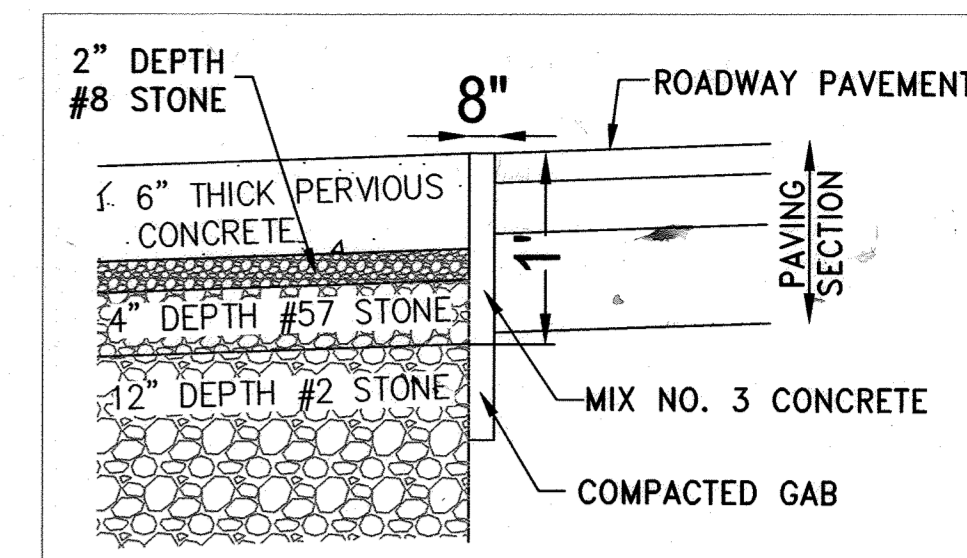
DETERMINING THE PERMEABILITY OF THE SUBGRADE AND SOIL ANALYSIS ARE IMPORTANT IN THE DESIGN AND CONSTRUCTION OF THE PROJECT. BASIC TESTS OF THE PROPERTIES OF THE SUBGRADE SHALL INCLUDE A PARTICLE SIZE ANALYSIS (ASTM D 422), SOIL CLASSIFICATION (ASTM D 2487), AND STANDARD PROCTOR (ASTM D 998). A DOUBLE RING INFILTROMETER (ASTM D 3385) OR OTHER SUITABLE TEST SHALL BE PERFORMED TO ADEQUATELY TEST THE PERMEABILITY. FOR SMALL PROJECTS, THESE TESTS ARE NOT NECESSARY IF OTHER BORINGS AND/OR INFILTRATIONS TESTS HAVE BEEN CONDUCTED AND IN COMBINATION WITH EXPERIENCE WITH THE LOCAL SOILS IF OTHER BORINGS OR INFILTRATION TESTS HAVE BEEN DONE IN THE FACILITY, ESPECIALLY IF THE DESIGNER HAS PREVIOUS EXPERIENCE WITH SIMILAR LOCAL SOILS.

NORMAL TESTING PROCEDURES FOR DENSITY (COMPACTION) IN ACCORDANCE WITH A STANDARD ASTM TEST PROCEDURE SHOULD BE PERFORMED WITHOUT MODIFICATION BEFORE CONCRETE PLACEMENT AS PART OF A NORMAL QUALITY CONTROL PLAN.

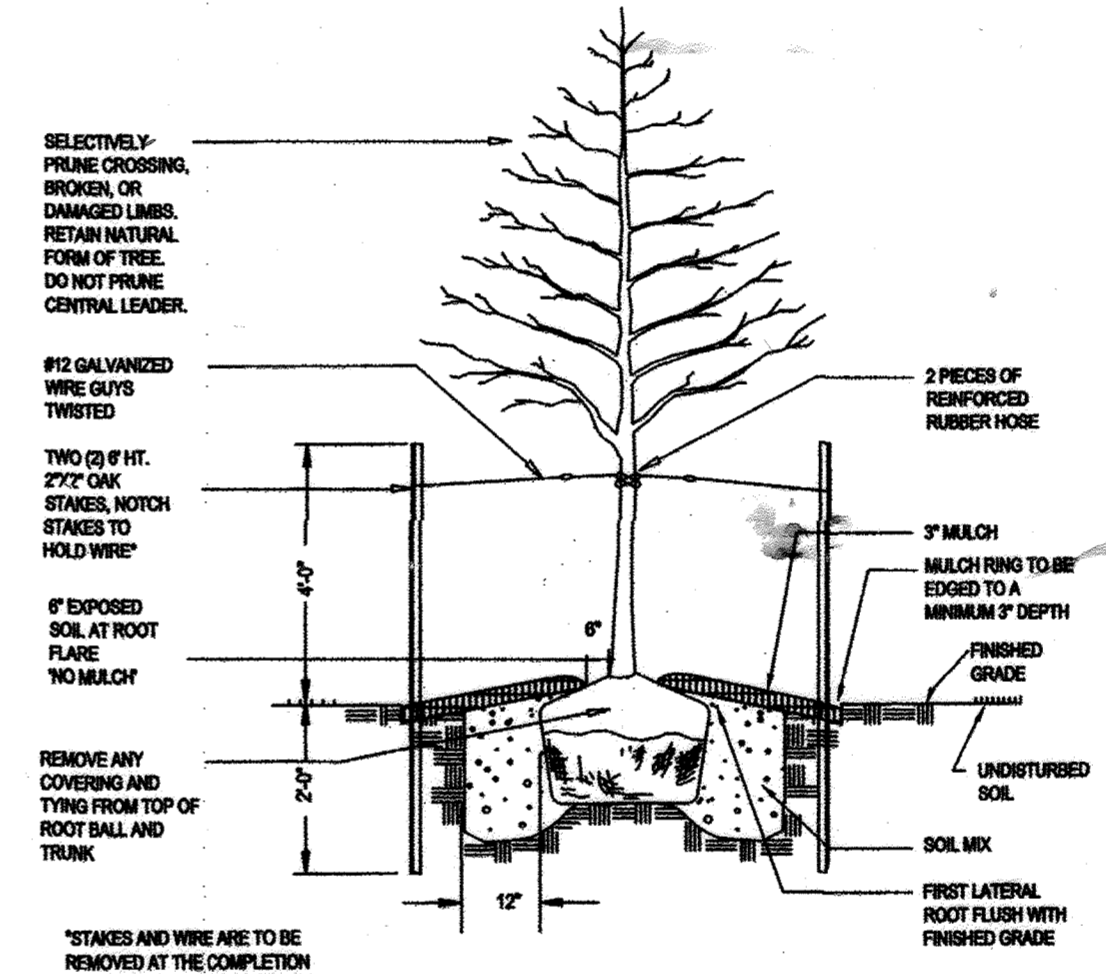
DURING CONSTRUCTION: FOR EACH DAYS PLACEMENT, OR WHEN VISUAL INSPECTION INDICATES A CHANGE IN APPEARANCE OF THE FRESH MIXTURE, AT LEAST ONE TEST SHOULD BE CONDUCTED TO VERIFY THE DENSITY OF THE MATERIAL. THE TEST OF THE MIXTURE SHOULD BE CONDUCTED IN ACCORDANCE WITH ASTM C 172 AND C 29. ACCEPTANCE SHOULD BE ON A VALUE OF 1.5 LB/FT<sup>3</sup> (80 KG/M<sup>3</sup>) OF THE DESIGN UNIT WEIGHT.

AFTER CONSTRUCTION: THE LEVEL OF COMPACTION OF THE FRESH MIXTURE CAN HAVE AN IMPACT ON THE LIFE AND PERMEABILITY OF THE FINISHED PRODUCT. CORING OF THREE SAMPLES OF THE PAVEMENT WILL RESULT IN ACCEPTANCE SAMPLES FOR THICKNESS, VOID CONTENT, AND UNIT WEIGHT. CORE SAMPLES SHOULD BE OBTAINED IN ACCORDANCE WITH ASTM C 42 AND TESTED AT 28 DAYS OF AGE.

FOR ADDITIONAL INFORMATION INCLUDING REFERENCES SEE PERVIOUS CONCRETE, REPORTED BY ACI COMMITTEE 552. ACI 522R-10.



**RIBBON CURB DETAIL**  
SCALE: 1"=10' (Horiz.)  
1"= 2' (Vert.)



**PLANTING DETAIL FOR DECIDUOUS AND EVERGREEN TREES\* - 1-4" CALIPER**  
SCALE NONE

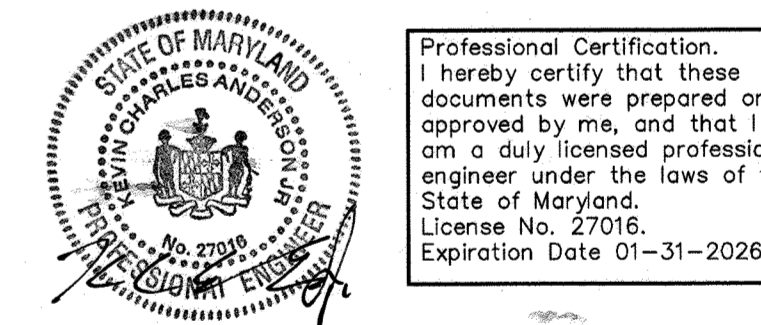
**STANDARD HOWARD COUNTY OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)**

- a. The Owner shall periodically sweep (or vacuum porous concrete pavement) the pavement surfaces to reduce sediment accumulation and ensure continued surface porosity. Sweeping should be performed at least twice annually with a commercial cleaning unit. Washing or compressed air units should not be used to perform surface cleaning.
- b. The Owner shall periodically clean drainage pipes, inlets, stone edge drains and other structures within or draining to the subbase.
- c. The Owner shall use deicers in moderation. Deicers should be non-toxic and be applied either as calcium magnesium acetate or as pretreated salt.
- d. The Owner shall ensure snow plowing is performed carefully with blades set one-inch above the surface. Plowed snow piles and snowmelt should not be directed to permeable pavement.

**AS-BUILT CERTIFICATION:**

I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this plan were constructed as shown on this "AS-BUILT" plan meet the Approved Plans and Specifications.

*Kevin C. Anderson* P.E. # 27016  
MD License No. 12-22-2023  
KCW Engineering Tech., Inc. Date



**DEVELOPER'S CERTIFICATE:**

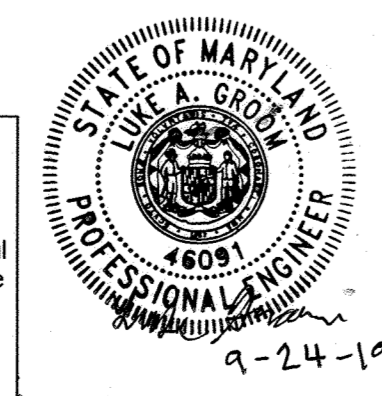
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Michael James* SIGNATURE OF PROPERTY OWNER / AGENT  
*Michael James* PRINT NAME OF PROPERTY OWNER / AGENT  
10/16/23 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Chief, Development Engineering Division* 3.30.20 Date  
*Chief, Division of Land Development* 4/1/2020 Date  
*Director* 4-3-2020 Date

KCW Engineering Technologies, Inc.  
810 Landmark Drive, Suite 215  
Glen Burnie, MD 21061  
Phone: 410.768.7700  
Fax: 410.768.0200  
www.kcw-et.com

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 46091. Expiration Date 05-14-2021.



**DEVELOPER:**  
**Oekos Management Corp.**  
8300 Guilford Road, Suite C  
Columbia, MD 21046  
Attn.: Mike Janes  
410.740-5057

REVISIONS	
DATE	DESCRIPTION
12-22-2023	AS-BUILT

PURPOSE NOTE: THIS SHEET WAS ADDED TO REFLECT CHANGES TO THE SITE FOR REVISION 2.

KCW J.O.: 2180251  
SCALE: AS SHOWN  
DESIGNED: LAG  
DRAWN: KCW  
CHECKED: LAG  
DATE: SEPTEMBER, 2019  
DRAWING NO. 13 of 13

**REVISED SITE DEVELOPMENT PLAN - SWM AND LANDSCAPE DETAILS**

**PARCELS H,I,O & P SECTION 1, AREA 1 RIVERS CORPORATE PARK**  
REVISION #2  
10220 OLD COLUMBIA ROAD  
COLUMBIA, MARYLAND  
ZONING: NEW TOWN ELECTION DISTRICT - 6 HOWARD COUNTY, MARYLAND  
TAX MAP 42, PARCEL 29 LIBER 5385, FOLIO 602  
SDP