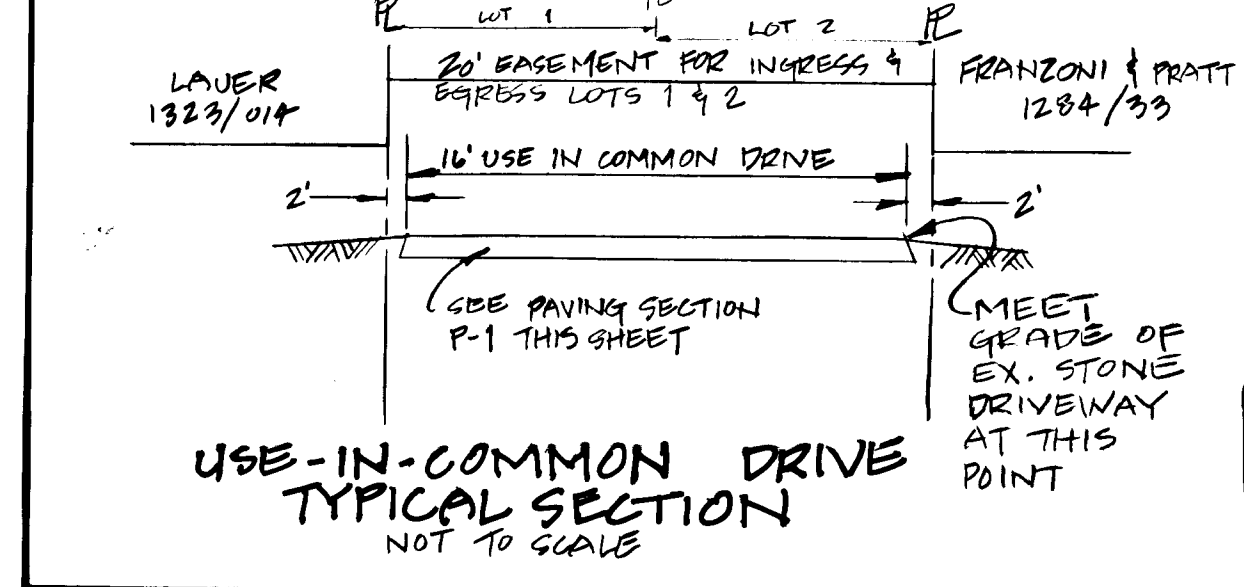
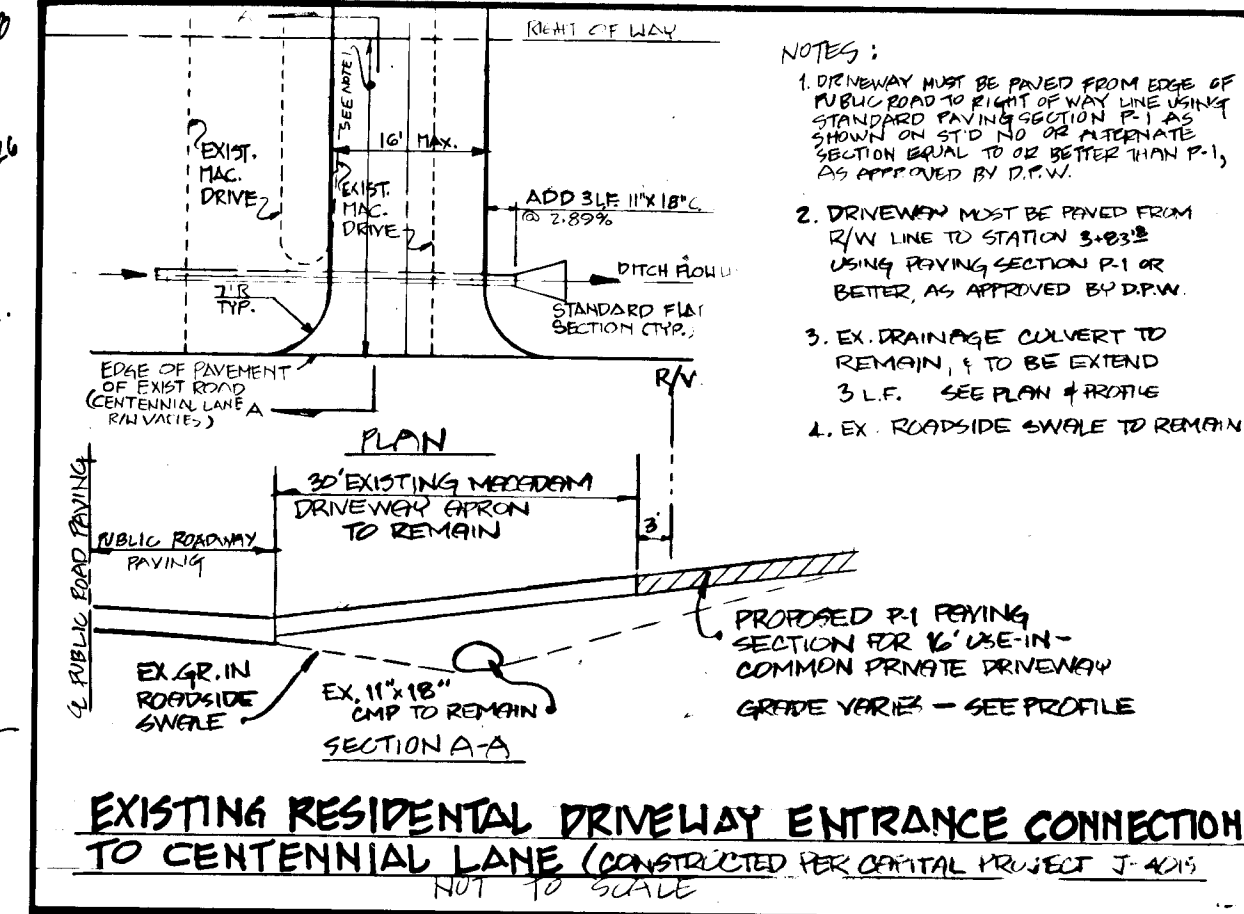
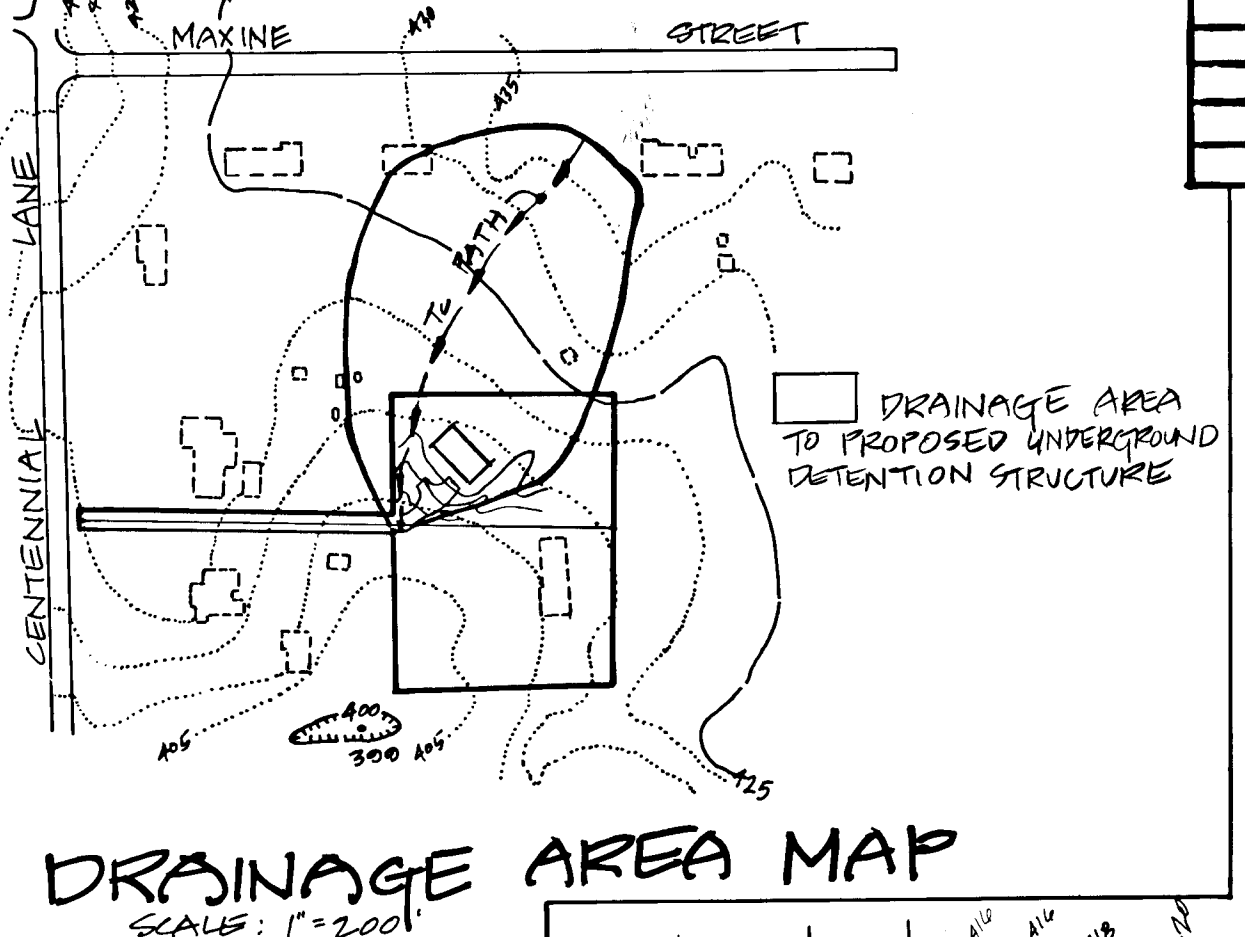
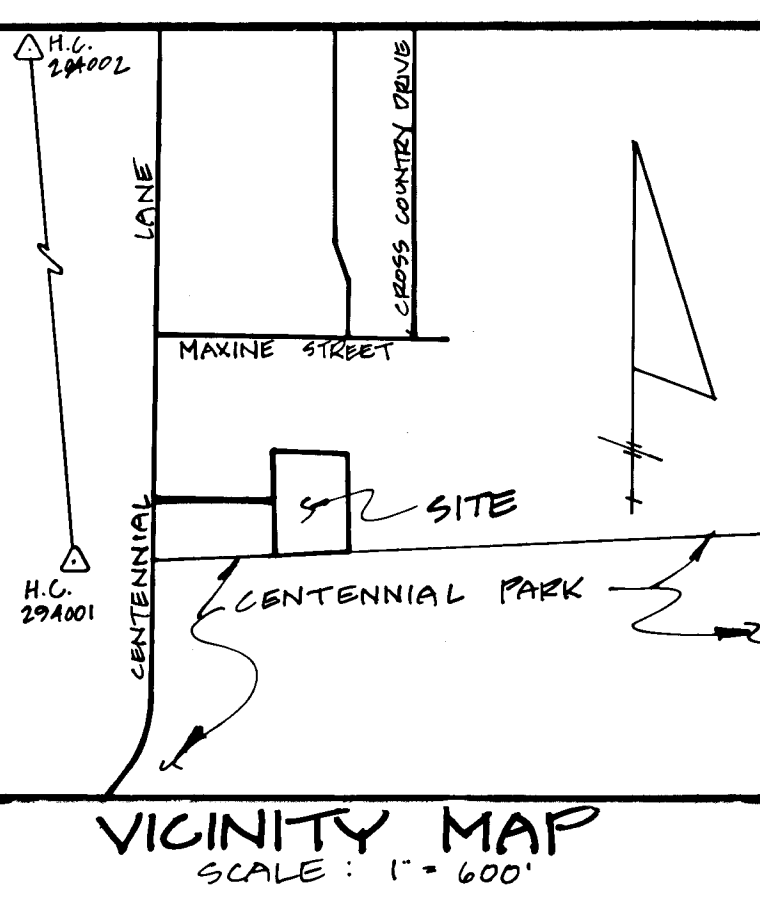
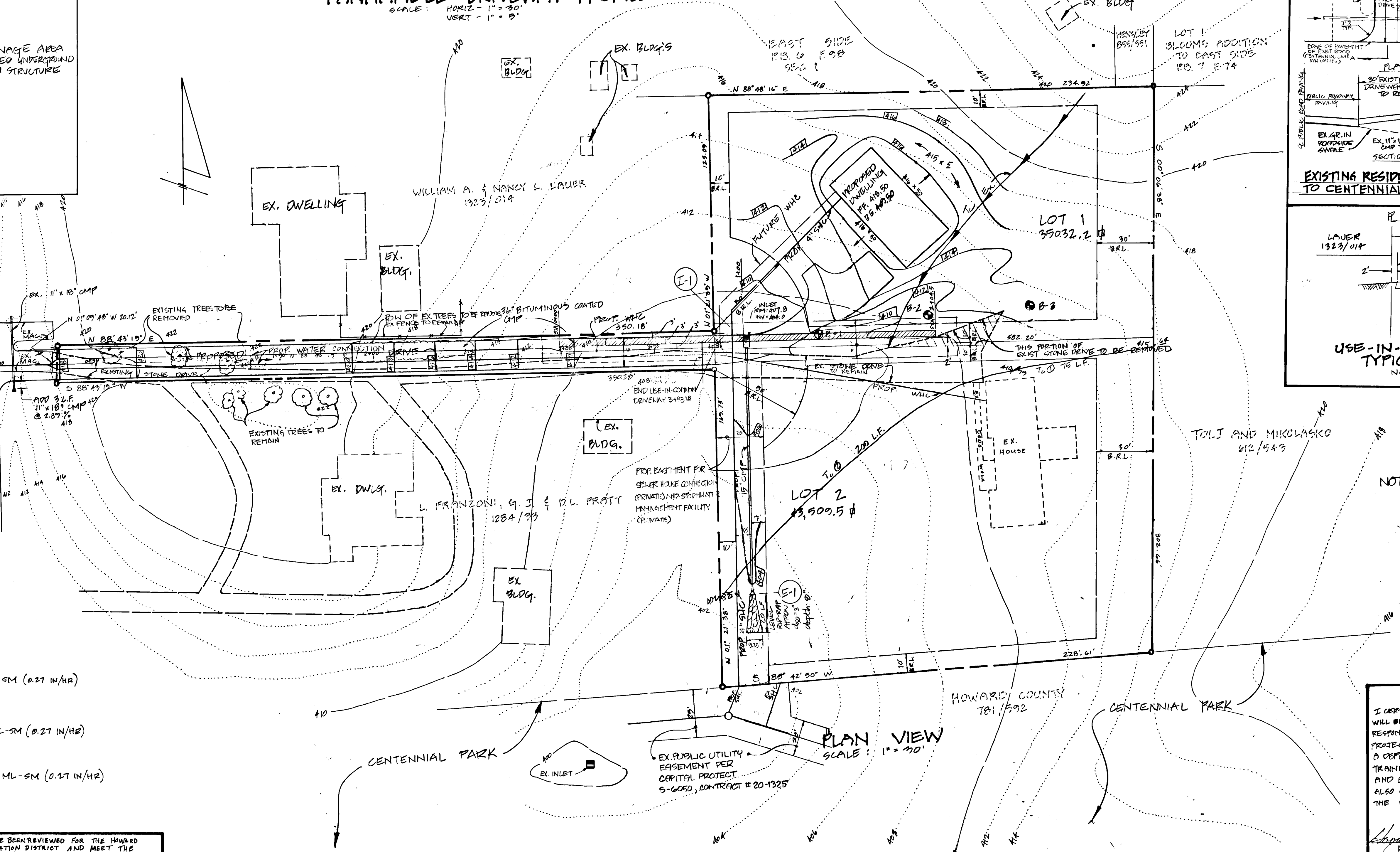


SECTION NUMBER	ROAD AND STREET CLASSIFICATION	PAYMENT MATERIALS
P-1	PARKING AREAS AND TRAVELWAYS; APARTMENTS AND COMMERCIAL-INDUSTRIAL ZONES WITH NO HEAVY TRUCKS.	GRANULAR BASE ALTERNATE
		FULL DEPTH BIT. CONC. ALTERNATE



CENTENNIAL LANE
R/W VARIES (15'-60')



SOIL BORING TEST DATA

BORING B-1
0'-1' TOPSOIL
1'-3' SILTY CLAY LOAM ML-CL
3'-4' SILTY LOAM/SANDY LOAM ML-SM (0.27 IN/HR)
4' GROUNDWATER

BORING B-2
0'-1' TOPSOIL
1'-2' SILTY CLAY LOAM ML-CL
2'-5' SILTY LOAM/SANDY LOAM ML-SM (0.27 IN/HR)
5' WATER

BORING B-3
0'-1' TOPSOIL
1'-2 1/2' SILTY CLAY LOAM ML-CL
2 1/2'-4' SILTY LOAM/SANDY LOAM ML-SM (0.27 IN/HR)
4' WATER

NOTE: THIS PLAN IS FOR A PRIVATE DRIVEWAY & A PRIVATE STORMWATER MANAGEMENT FACILITY, WHICH WILL BE OWNED & MAINTAINED BY THE OWNERS OF LOTS 1 & 2.

DEVELOPER'S CERTIFICATE
I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Shane La Halle
NAME
7-2-89
DATE

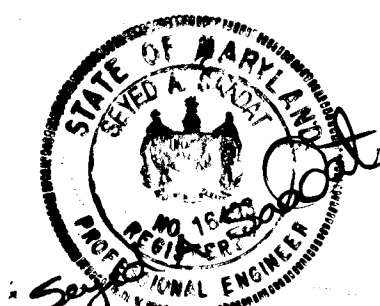
APPROVED: HOWARD COUNTY DEPT OF PLANNING & ZONING
David J. Paule 7/21/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS
John M. Starn 8/21/90
CHIEF, BUREAU OF ENGINEERING

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Shane La Halle 8/23/90
HOWARD SOIL CONSERVATION DISTRICT

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITES 106-7
ELLICOTT CITY, MARYLAND 21043
(301) 401-9563



DESIGNED	DRAWN	CHECKED	DATE
SAS	SLM	CSS	1/23/90
BY NO. REDESIGN S.W.M. FACILITY			DATE
			1/23/90

OWNER:
HARRY LEE HOLLIDAY, JR.
MARINE I. HOLLIDAY
4609 CENTENNIAL LANE
ELLICOTT CITY, MD 21043

DEVELOPER:
ROBERT BOWERS
2021 SOUTHVIEW ROAD
ELLICOTT CITY, MD 21043

**DRIVEWAY CONSTRUCTION PLAN
HOLLIDAY PROPERTY**
2nd ELECTION DISTRICT
HOWARD COUNTY, MD
TAX MAP 90, ZONING MAP 30

SCALE: AS SHOWN
SHEET 1 OF 3

1560

F-89-115

PERMANENT SEEDING NOTES

SEEDBED PREPARATION: LOOSEN UPPER 3 INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: USE ONE OF THE FOLLOWING SCHEDULES:

- 1) PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQUARE FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ. FT.) BEFORE SEEDING. HARRON OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (91 LBS./1000 SQ. FT.).

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 10, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS./1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (.05 LBS./1000 SQ. FT.) OF WEEDING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ. FT.) OF UNCOMPTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL 210 GALLONS PER ACRE (5 GAL./1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8:1 OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL./1000 SQ. FT.) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDBED AREAS AND MAKE NEEDED REPAIRS DISCING OR OTHER RESEEDING.

TEMPORARY SEEDING NOTES

SEEDBED PREPARATION: LOOSEN UPPER 3 INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS./PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ. FT.).

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 LBS. PER ACRE OF ANNUAL RYE (1.2 LBS./1000 SQ. FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEDING LOVEGRASS (.07 LBS./1000 SQ. FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ. FT.) OF UNCOMPTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL 210 GALLONS PER ACRE (5 GAL./1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8:1 OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL./1000 SQ. FT.) FOR ANCHORING.

PERMANENT SEEDING

ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:

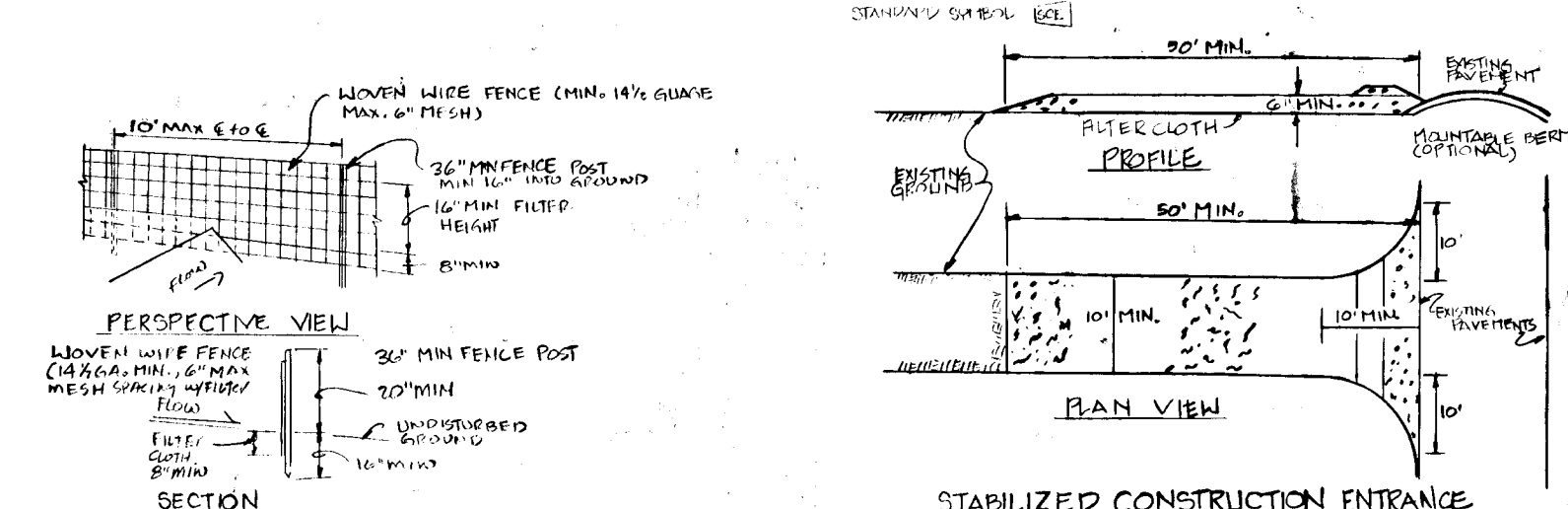
SEEDBED PREPARATION: LOOSEN UPPER 3 INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE AND 600 LBS./ACRE 10-10-10 FERTILIZER. HARRON OR DISC LIMB AND FERTILIZER INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS./ACRE OF 30-0-0 UREAFORM FERTILIZER AND 500 LBS./ACRE OF 10-20-20 FERTILIZER.

SEDIMENT CONTROL NOTES

- 1) A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTION AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION. (992-2437)
- 2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1993 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
- 3) FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SWALES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- 5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1993 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 81) SOD (SEC. 8A), TEMPORARY SEEDING (SEC. 82) AND MULCHING (SEC. 82). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN COMMENCED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

Table with 2 columns: Description and Value. Includes: TOTAL AREA OF SITE (1.0031 ACRES), AREA DISTURBED (0.7160 ACRES), AREA TO BE GRADED OR PAVED (0.1407 ACRES), AREA TO BE VEGETATIVELY STABILIZED (0.5753 ACRES), TOTAL CUT (100 CU. YDS.), TOTAL FILL OFFSITE WASTE/BORROW AREA LOCATION (10.2 CU. YDS.).



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE: 1. LOWEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POST WITH WIRE TIES OR STAPLES. 2. FILTER CLOTH TO BE FASTENED SECURELY TO LOWEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. 3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND BOLDED. 4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN SILT FENCE. POST: STEEL EITHER "T" OR "U" TYPE OR 2" HARDWOOD. FENCE: LOWEN WIRE, 14GA. 6" MAX. MESH OPENING. FILTER CLOTH: FILTER #1, 15" WIDE, 15' LONG, STABILIZED WITHIN 24 HOURS OF APPROVED EQUAL.

- 1. STONE SIZE - USE #30MESH, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- 2. LENGTH AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH MAY APPLY).
- 3. THICKNESS - NOT LESS THAN 6 INCHES.
- 4. WIDTH - TEN (10) FEET MIN. BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INCREASES OR DECREASES OCCUR.
- 5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
- 6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE FILTERED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A TYPICAL 6:1 SLOPE WITH 5:1 SLOPES SHALL BE PERMITTED.
- 7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS PLAN REQUIRES PERIODIC INSPECTION AND MAINTENANCE OF THE ENTRANCE. CONDITIONS PERIODIC AND REPAIR AND/or CLEAN OUT ANY NEARBY TO BEAR SEDIMENT. ALL SEDIMENT SPILLS, DRIPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- 8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO EXITING ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP/DRIVEWAY.
- 9. PEOPLE PROTECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

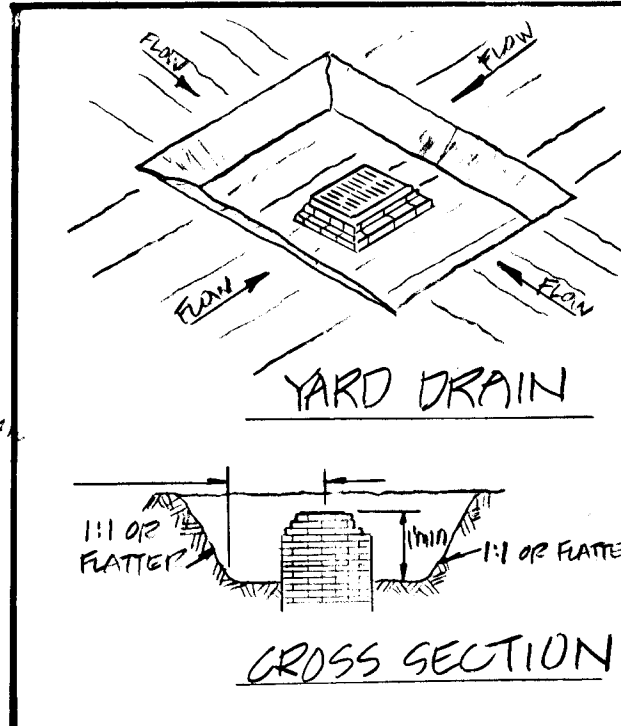
SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT.
- 2. CONTRACTOR MUST SUBMIT WRITTEN NOTIFICATION 72 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY TO THE HOWARD COUNTY SEDIMENT CONTROL SECTION STATING: A. WHEN CONTRACTOR INTENDS TO BEGIN CONSTRUCTION, B. CONTRACTORS TENTATIVE CLOSING DATE.
- 3. INSTALL SILT FENCE, PD/S, # STABILIZED CONSTRUCTION ENTRANCE, WITH WASHING TRAP.
- 4. INSTALL SIG TO LOTS 1 & 2 THROUGH AREA TO BE DISTURBED.
- 5. INSTALL 36" BUMP, I-1, 15" CMP, AND E-1.
- 6. CONSTRUCT 60" TRAP #1 AROUND I-1.
- 7. GRADE SITE. APPLY TEMPORARY STABILIZATION.
- 8. CONSTRUCT USE-IN-COMMUN DRIVEWAY.
- 9. FINE GRADE WHERE NECESSARY.
- 10. STABILIZE DISTURBED AREAS.
- 11. PROVIDE EROSION PROTECTION FOR ALL SWALES BY SEEDING AND MULCHING.
- 12. REMOVE SEDIMENT CONTROLS WITH PRIOR WRITTEN APPROVAL FROM THE HOWARD COUNTY SEDIMENT INSPECTOR WHEN STABILIZATION IS EVIDENT AT PROTECT SITE.

CONSTRUCTION SPECIFICATIONS

- 1. SEDIMENT SHALL BE REMOVED AND THE TRAP PROVIDED TO ITS ORIGINAL DIMENSIONS WITH THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVAL OF SEDIMENT SHALL BE DONE IN A MANNER THAT DOES NOT DISTURB THE TRAP OR THE AREA THAT IT WILL NOT GRADE.
- 2. THE VOLUME OF SEDIMENT STORAGE SHALL BE 1000 CUBIC FEET PER POUND OF UNDESIRABLE DRAINAGE.
- 3. THE STRUCTURE SHALL BE INCREASED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
- 4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION SHALL BE MINIMIZED.
- 5. THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE CONSTRUCTION DISTURBED AREA HAS BEEN PERMANENTLY STABILIZED.
- 6. ALL CUT SLOPES SHALL BE 1:1 OR FLATTER.

STORM INLET SEDIMENT TRAP



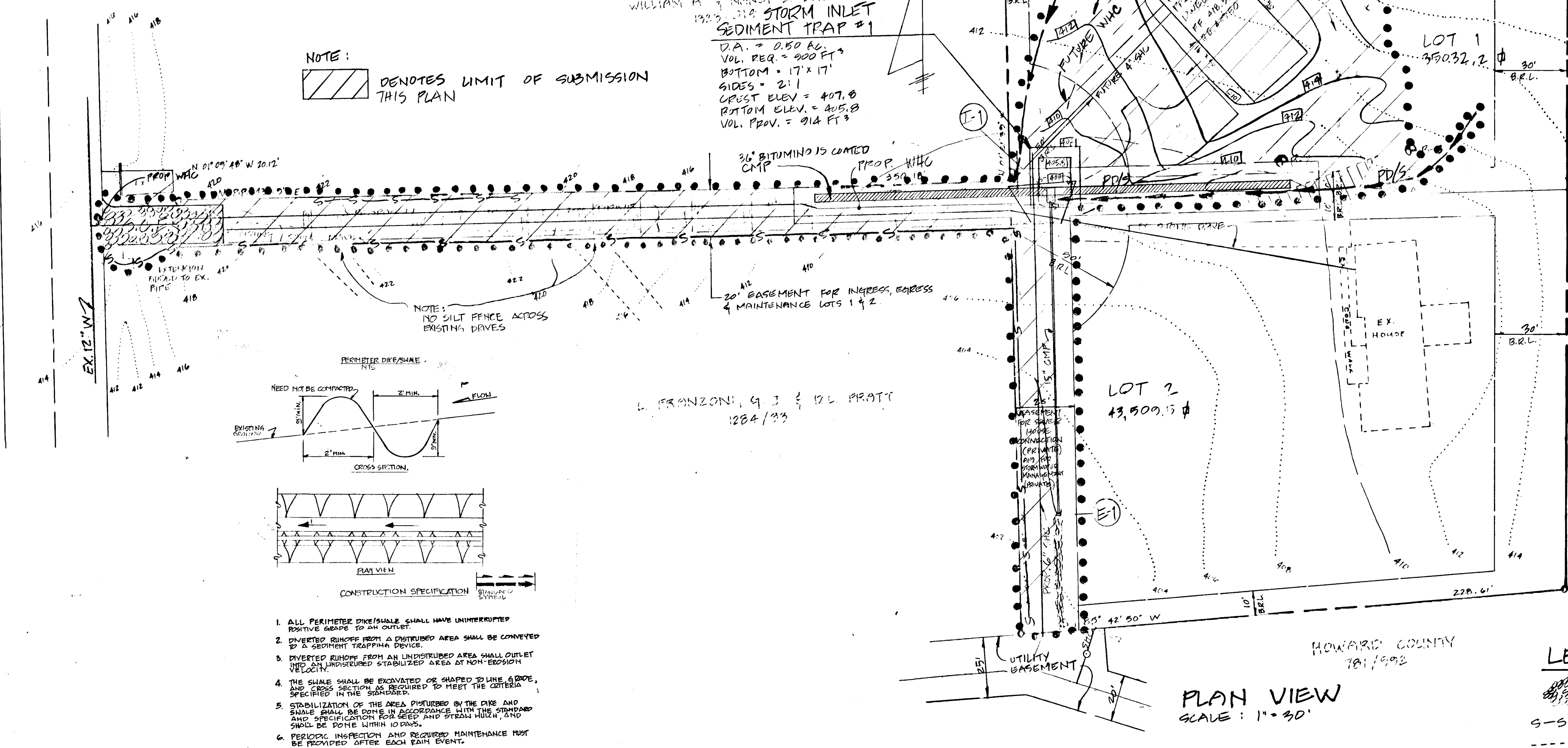
I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: Happy Lee Holliday, 7-3-89

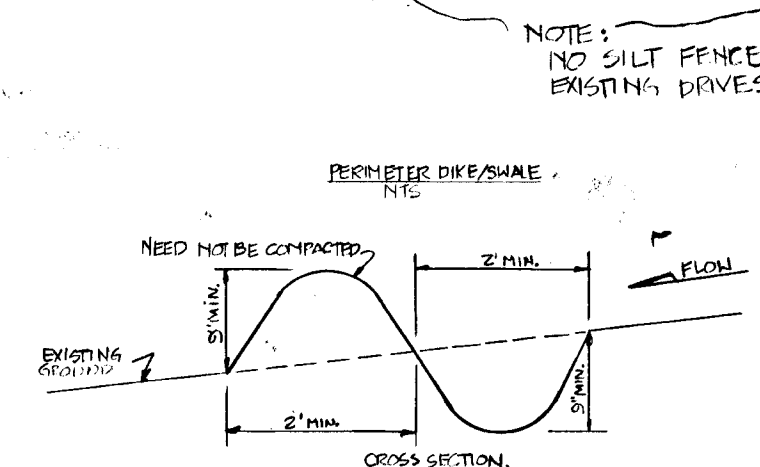
CONSULTANT'S CERTIFICATION: I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

Signature: Seyyed A. Saadati, 10/24/89

CENTENNIAL LANE R/W VARIES (75'-80')



NOTE: DENOTES LIMIT OF SUBMISSION THIS PLAN



- 1. ALL PERIMETER DIKE/SWALE SHALL HAVE UNINTERRUPTED POSITIVE GRADES TO AN OUTLET.
- 2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVERTED TO A SEDIMENT TRAPPING DEVICE.
- 3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET TO UNDISTURBED STABILIZED AREA AT OR NEAR SOURCE.
- 4. THE SHALE SHALL BE EXCAVATED OR SHAPED TO MEET THE SPECIFICATIONS IN THE SCHEDULES.
- 5. STABILIZATION OF THE AREA DISTURBED BY THE DIKE AND SWALE SHALL BE DONE IN ACCORDANCE WITH THE STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND SHALL BE DONE WITHIN 10 DAYS.
- 6. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- SILT FENCE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- BUILDING RESTRICTION LINE
- LIMIT OF DISTURBANCE
- PERIMETER DIKE/SWALE

APPROVED: HOWARD COUNTY DEPT OF PLANNING & ZONING. Includes signatures and dates for various officials.

SHANAPFINGER & LANE, 8726 TOWN & COUNTRY BLVD, SUITES 100-7, ELLICOTT CITY, MARYLAND 21043. Includes phone number (301) 401-9503.

DESIGNED BY: SAS, DRAWN BY: SLM, CHECKED BY: GSS, DATE: 1/23/90. REDESIGN SWM SYSTEM REVISION.

HAPPY LEE HOLLIDAY, JR., 1821 SOUTHVIEW ROAD, ELLICOTT CITY, MD 21043.

EROSION AND SEDIMENT CONTROL PLAN, HOLLIDAY PROPERTY, 2ND ELECTION DISTRICT, HOWARD COUNTY, MD. SCALE: AS SHOWN, SHEET 2 OF 3.

1560

I. SITE PREPARATION

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the 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 and below the limits of the dam and reservoir as directed by the Engineer 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, oversize stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.

Placement

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

Compaction

The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction can be obtained with the equipment used.

Where a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that density and is to be certified by the Engineer.

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 as shown on the drawings, 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 the pipe equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe unless there is a compacted fill of twenty-four inches or greater over the structure or pipe.

IV. PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

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-150 TYPE A WITH WATER-TIGHT COUPLING BANDS. ANY BITUMINOUS COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND.

STEEL PIPES WITH POLYMER COATING SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (0.01 INCH) ON BOTH SIDES OF THE PIPE. THE POLYMER COATING IS COMMERCIALLY AVAILABLE, HEAVY, PLASTIC, COLE, BLACK-KLAD, AND BENTONITE-CLAY COATED CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M-150 AND M-246.

2. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY UNDERGIRT THE DRAIN PIPE OR BARREL CONNECTION TO THE RIDGE SHALL BE WELDED ALL AROUND WHEN THE PIPE AND COUPLING BANDS OR FLANGES SHALL BE USED AT ALL JOINTS. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATER-TIGHT. DIPLE BANDS ARE NOT CONSIDERED WATER-TIGHT.

3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPRING OR OTHER UNDESIRABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE SAND COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. LAINING PIPE - THE PIPE SHALL BE PLACED WITH INSIDE CIRCUMFERENTIAL LAPS POINTING DOWNSTREAM AND WITH THE LONGITUDINAL LAPS UPSTREAM.

5. BACKFILLING SHALL CONFORM TO STRUCTURAL BACKFILL AS SHOWN ABOVE.

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC) SHALL BE SHOWN ON THE DRAWINGS.

V. CONCRETE

1. Materials

a. Cement - Normal Portland cement shall conform to the latest ASTM Specification C-150.

b. Water - The water used in concrete shall be clean, free from oil, acids, salts, 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 No. 40 sieve and 5 percent retained on a No. 20 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 1:1:2-1/2. 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 herein.

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 implemented by spacing 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 enter 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.

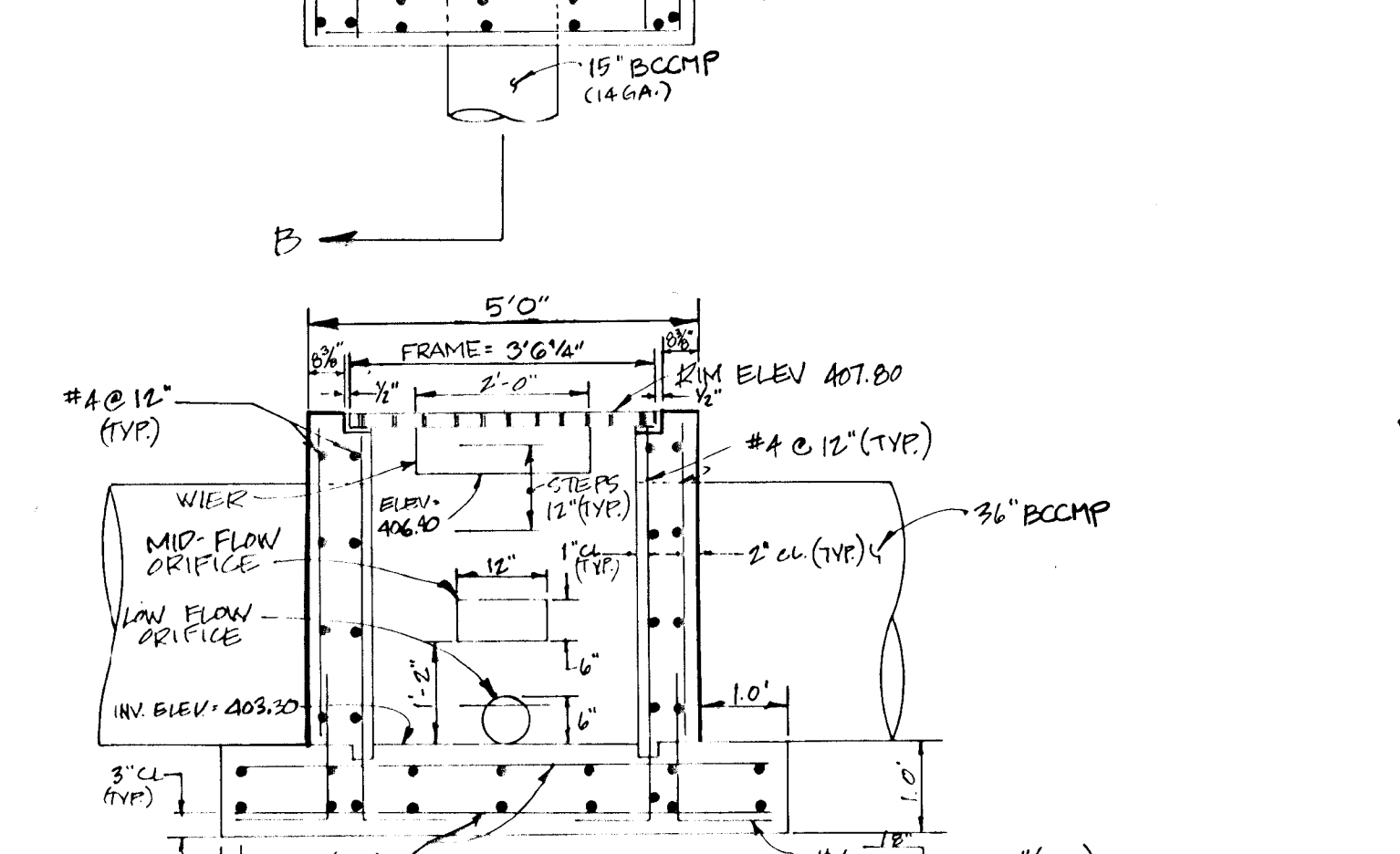
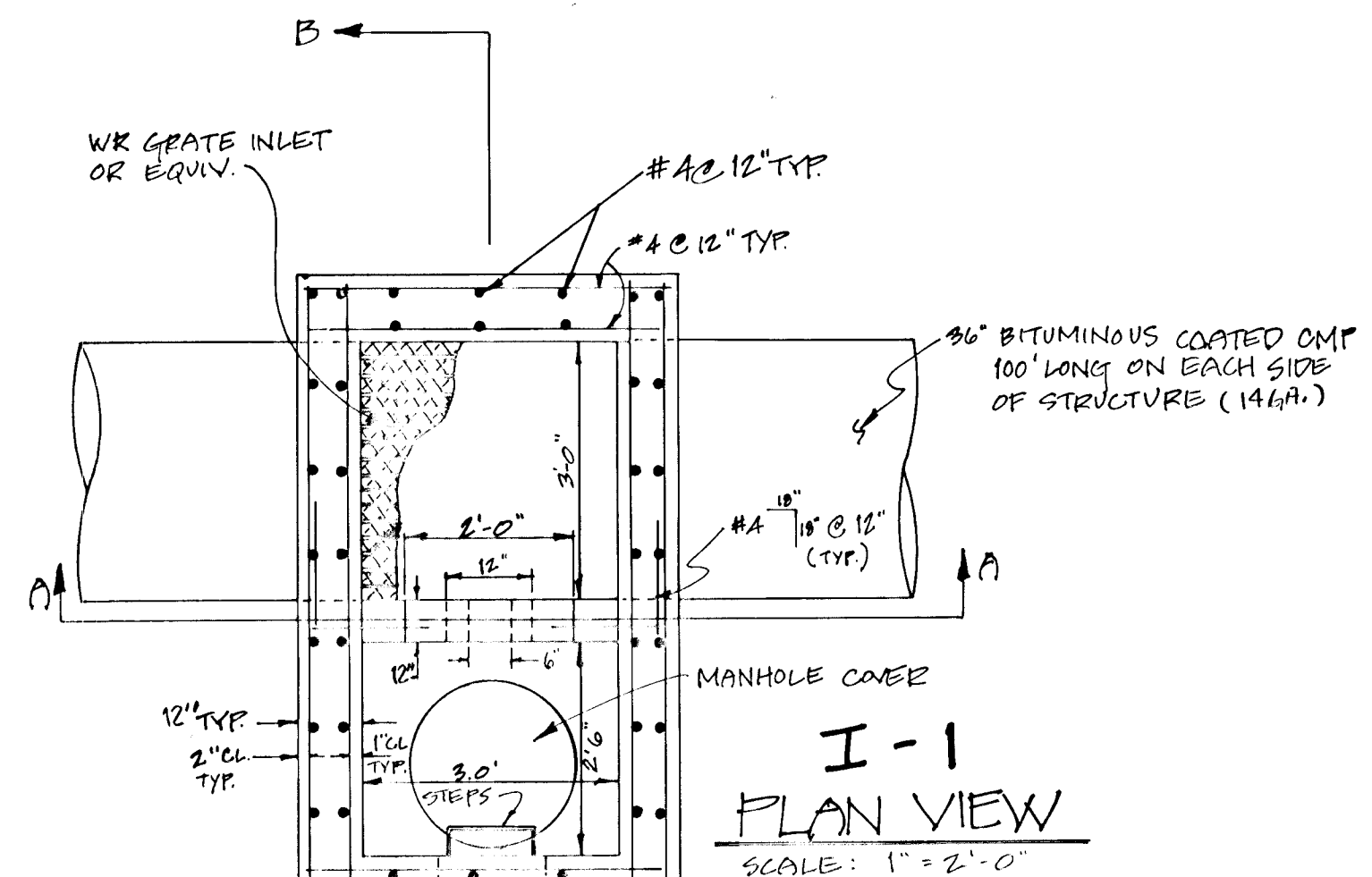
9. Placing Temperature - Concrete may not be placed at temperatures below 37° F with the temperature falling, or 36° with the temperature rising.

VI. STABILIZATION

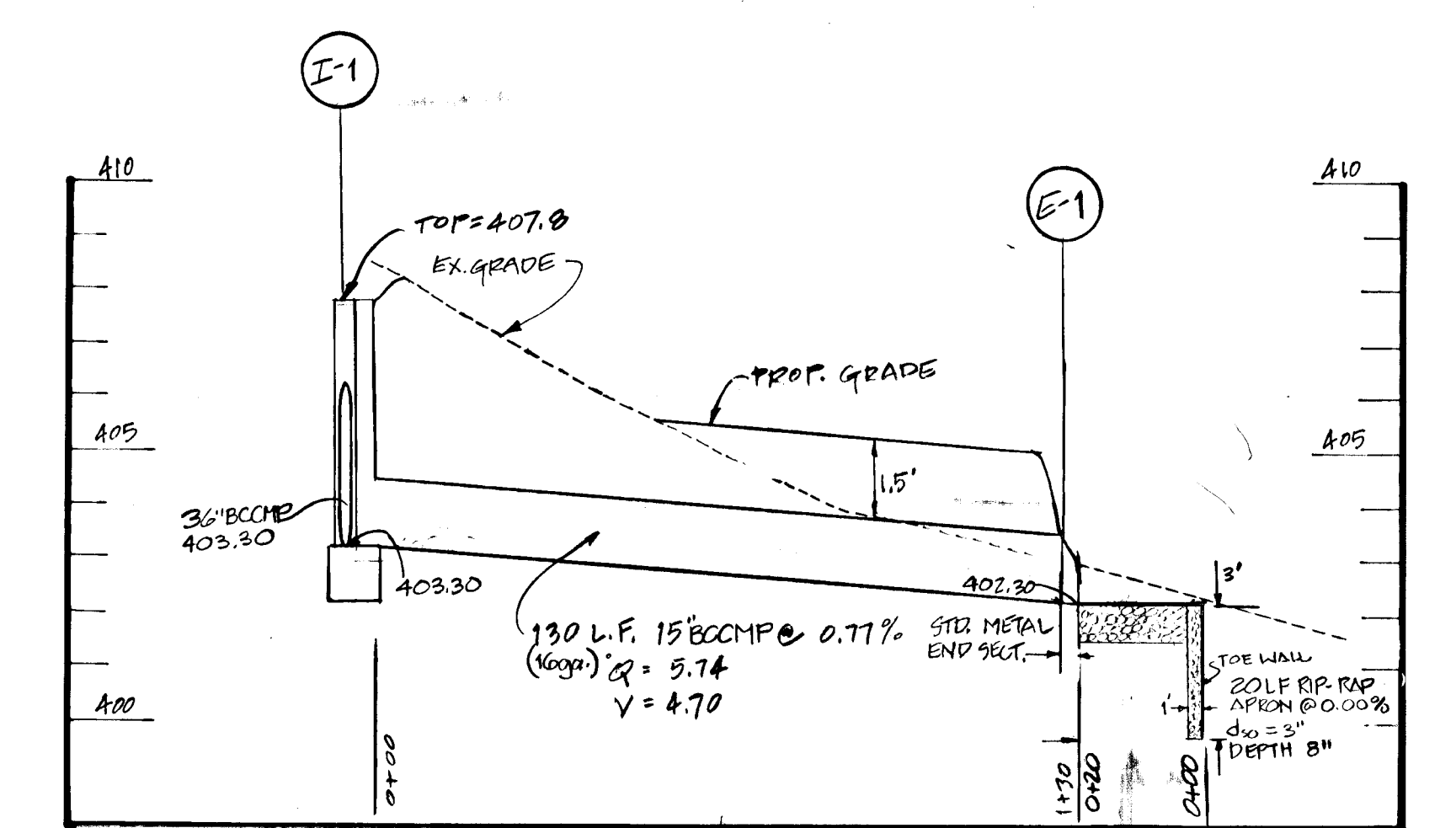
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surface of the embankment, rocky, spilt and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications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

VII. EROSION AND SEDIMENT CONTROL

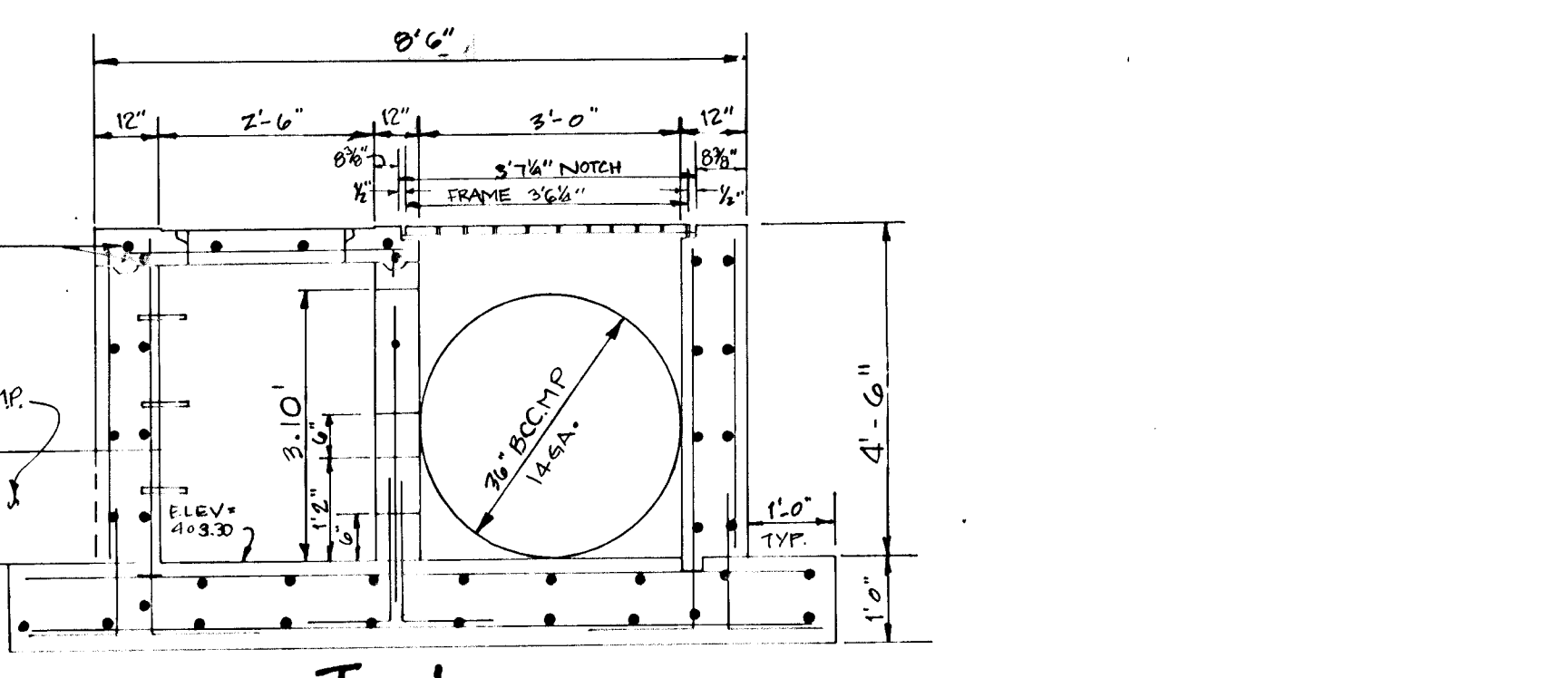
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.



I-1 SECTION A-A
SCALE: NOT TO SCALE

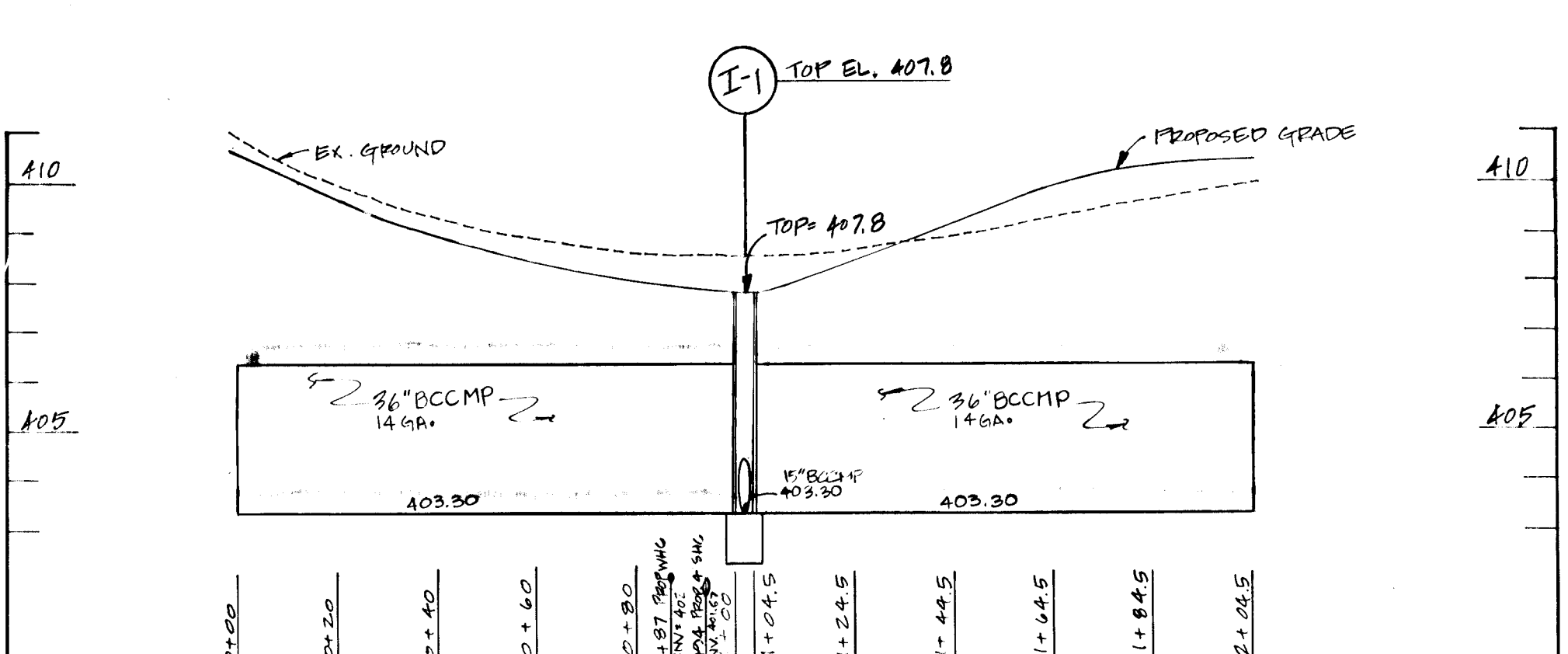


PIPE PROFILE
SCALE: HORIZ - 1\"/>



I-1 SECTION B-B
SCALE: NOT TO SCALE

STORMWATER MANAGEMENT DETENTION STRUCTURE DETAILS



SWM DETENTION STRUCTURE PROFILE
SCALE: HORIZ - 1\"/>

STRUCTURE SCHEDULE					
NO.	TYPE	INV. IN	INV. OUT	TOP ELEV.	REMARKS
I-1	STORMWATER MANAGEMENT INLET	403.30	403.30	407.8	NONE
E-1	METAL END SECT.		402.30		60-5.61

PIPE SCHEDULE		
DIAMETER	TYPE	QTY
36"	BCCMP	200 L.F.
15"	BCCMP	130 L.F.

DEVELOPER'S CERTIFICATE
I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Harry L. Holliday, Jr. 5-8-90
NAME DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING. DATE: 3/2/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS. DATE: 3/2/90
CHIEF, BUREAU OF ENGINEERING

THESE PLANS HAVE BEEN REVIEWED BY THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

DATE: 3/2/90

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 106 & 107
ELLICOTT CITY, MARYLAND 21043
(301) 461-0563

DESIGNED BY	DRAWN BY	CHECKED BY	DATE
SAS	SLM	EGS	1/23/90

OWNER:
HARRY LEE HOLLIDAY, JR.
2001 LANTANA ROAD
ELLICOTT CITY, MD 21043

DEVELOPER:
ROBERT BOWERS
2001 LANTANA ROAD
ELLICOTT CITY, MD 21043

OWNER'S CONSTRUCTION PLAN
HOLLIDAY PROPERTY

SCALE: AS SHOWN
SHEET 3 OF 3