THE JOHNS HOPKINS UNIVERSITY

APPLIED PHYSICS LABORATORY BUILDING 20: DISTRICT UTILITY PLANT

GENERAL NOTES

- ACCESS TO THE CONSTRUCTION AREA THROUGH THE SECURE AREA OF THE APPLIED PHYSICS LABORATORY (WITHIN THE FENCED ENCLOSURE) MUST BE ARRANGED IN ADVANCE BY CONTACTING THE PROGRAM MANAGER, JEFFERY ANDERSON (443) 778-5960.
- SECURITY MUST BE MAINTAINED WITHIN THE EXISTING FENCED AREA. ALL REQUIRED FENCE CONSTRUCTION AND RELOCATION SHALL BE BY JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LAB (JHU-APL). HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH JHU-APL AS TO WHEN SUCH WORK IS REQUIRED.
- THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTION DIVISION 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT 410-313-1880.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY SPECIFICATIONS AND DETAILS FOR CONSTRUCTION PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE SUBJECT PROPERTY IS ZONED PEC PER THE OCTOBER 18, 1993 COMPREHENSIVE ZONING PLAN.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAM(S) OR THEIR REQUIRED BUFFERS AND FOREST CONSERVATION EASEMENTS.
- THIS PLAN HAS BEEN PREPARED IN ACCORANCE WITH THE PROVISIONS OF SECTION 16,124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. NO LANDSCAPE PLANTINGS ARE REQUIRED FOR THIS PLAN SINCE NO PROPOSED IMPROVEMENTS ARE ADJACENT TO A PUBLIC ROAD OR ADJOINING PROPERTIES.
- THIS PROJECT COMPLIES WITH THE REQUIRMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION AS APPROVED UNDER F-02-40.
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- 10. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- . WATER IS PUBLIC (HOWARD COUNTY). WATER MAINS ON PROPERTY ARE PRIVATELY OWNED AND MAINTAINED.
- SEWER IS PUBLIC (HOWARD COUNTY)
- 13. THERE ARE NO WETLANDS OR FLOODPLAIN WITHIN THE LIMITS. OF THIS PLAN SUBMISSION.
- 14. THE COORDINATES SHOWN HEREON ARE BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM (NAD 83).
- 15. ELEVATIONS SHOWN ARE BASED ON NAVD 88. AERIAL SURVEYS OF JHU-APL WERE PERFORMED BY WHITMAN REQUARDT AND ASSOCIATES LLP (WRA) IN NOVEMBER 1998. FIELD SURVEYS OF THE SITE WERE PERFORMED BY WRA IN JANUARY 2001. ADDITIONAL UTILITY INFORMATION WAS PROVIDED BY JHU-APL AND MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPIC AND UTILITY INFORMATION.
- 16. THE CONTRACTOR SHALL CONTACT THE PROGRAM MANAGER, MR. JEFFERY ANDERSON (443) 778-5960 AND THE PROJECT MANAGER, MR. TIMOTHY MORRIS (443) 778-6361, AT LEAST 5 WORKING DAYS PRIOR TO COMMENCING ANY WORK OR SHUTTING DOWN ANY UTILITIES.
- 17. APPROXIMATE LOCATION AND INVERTS OF EXISTING UTILITIES ARE SHOWN, THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN AN UNINTERRUPTED SERVICE. CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND CROSSINGS WELL IN ADVANCE OF CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- 18. ALL SITE UTILITIES ARE THE PROPERTY OF JHU-APL. JHU-APL WILL APPROXIMATELY LOCATE HORIZONTAL LOCATIONS OF ALL ACTIVE UTILITIES FOR THE CONTRACTOR.
- 19. DUE TO THE PROXIMITY OF LIVE UNDERGROUND UTILITIES, THE OWNER AND WHITMAN. REQUARDT & ASSOCIATES ARE NOT RESPONSIBLE FOR ANY DAMAGE OR INJURY SUSTAINED DURING CONSTRUCTION BY ANY PERSON, VEHICLES OR EQUIPMENT USED ON OR ADJACENT TO THE SITE. THE CONTRACTOR IS ULTIMATELY REPSONSIBLE FOR THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES BY TEST PIT OR OTHER MEANS OF INVESTIGATION APPROVED BY THE OWNER BEFORE THE EXCAVATION BEGINS. UTILITY PROFILES ON THESE PLANS ARE BASED ON DRAWINGS AND RECORDS PROVIDED BY JHU-APL. CONTRACTOR SHALL CONFIRM ACTUAL DEPTH AND PREPARE REVISED PROFILES IF REQUIRED BY CONFLICTS. THE OWNER SHALL APPROVE ALL REVISIONS BEFORE THE START OF THE UTILITY'S CONSTRUCTION.
- HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING 12/24/02 Amali

- TRENCH AND INSTALLATION OF NEW UTILITES SHALL BE SCHEDULED SO THAT ALL TRENCHES WILL BE BACKFILLED AT THE END OF EACH DAY. NO OPEN TRENCHES WILL BE ALLOWED AT THE END OF EACH WORK DAY. TRENCH AREAS SHALL BE MULCHED AND TEMPORARILY SEEDED IN NON-PAVED AREAS AND TRAFFIC BEARING SURFACES SHALL BE INSTALLED IN PAVED AREAS.
- 21. THE CONTRACTOR SHALL SHUT DOWN AND TIE-IN TO THE FXISTING UTILITIES AFTER NORMAL WORKING HOURS AT JHU-APL. WORK SHALL BE SCHEDULED ACCORDINGLY. NORMAL WORKING HOURS ARE 8:30 AM TO 5:00 PML MONDAY
- 22. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS
- 23. ALL WATER MAINS SHALL BE DUCTILE IRON PIPE CLASS 52. ALL NEW WATER MAIN TAPS SHALL BE WE TAPS THAT WILL NOT CAUSE THE INTERRUPTION OF WATER SERVICE AT
- 24. ALL SEWER MAINS SHALL BE P.V.C. UNLESS OTHERWISE NOTED (HOWARD COUNTY SCHEDULE 35 PVC).
- 25. TOP OF ALL WATER MAINS SHALL HAVE A MINIMUM ϕ F 3-1/2 FEET OF COVER UNLESS OTHERWISE NOTED.
- 26. FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE STRAPPED AND BUTTRESSED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS. SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1003 OF THE STANDARD SPECIFICATIONS.
- 27. FOR UTILITY CROSSINGS, CLEAR ALL UTILITIES BY A MINIMUM OF 1 FOOT. CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED.
- 28. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM. COORDINATE WITH THE OWNER AS NECESSARY.
- 29. THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL STORM DRAIN AND SANITARY MAINS WITHIN 2'-0" OF THE EXTERIOR
- 30. STORMWATER MANAGEMENT PONDS ON THE SITE SHALL BE PRIVATELY OWNED AND MAINTAINED. (F-02-40)
- 31. THE CONTRACTOR SHALL PERMANENTLY STABILIZE AND SEED ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED.
- 32. ALL DRIVEWAYS ARE PRIVATELY OWNED AND MAINTAINED
- 33. THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS SO AS NOT TO DAMAGE EXISTING ADJACENT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER. UNLESS NOTED OTHERWISE.
- 34. ACCESS TO ALL EXISTING FACILITIES SHALL BE MAINTAINED AT ALL TIMES.
- 35. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNER OF ANY DEVIATION FROM THESE PLANS PRIOR TO ANY CHANGES. ANY DEVIATION FROM THEISE PLANS WITHOUT WRITTEN AUTHORIZATION BY THE OWNER WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 36. SURFACED STREETS AND PARKING AREAS SHALL BE MAINTAINED IN A CLEAN CONDITION. MUD AND DUST FREE AT ALL TIMES. ADEQUATE MEANS SHALL BE PROVIDED TO CLEAN TRUCKS AND OTHER EQUIPMENT USING EXISTING SURFACED STREETS AND PARKING AREAS.
- 37. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO MINIMIZE DAMAGE TO EXISTING TREES DURING CONSTRUCTION.
- 38. EXISTING SIGNS, GUARDRAILS AND OTHER MINOR SITE FEATURES IN THE OF PROPOSED CONSTRUCTION, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
- 39. SEE DETAIL SHEETS FOR OTHER ITEMS THAT APPLY TO THIS PROJECT.

SITE ANALYSIS DATA

TOTAL PROJECT AREA: 361 ACRES AREA OF PLAN SUBMISSION: 2.2 ACRES LIMIT OF DISTURBED AREA: 2.2 ACRES PRESENT ZONING: PEC

PROPOSED USES FOR STRUCTURE: CENTRAL UTILITY BUILDING FLOOR SPACE PER USE: 15,410 SF PARKING TABULATION

EXISTING PARKING SPACES = 3,853 TOTAL SPACES REQUIRED = 2,953 (MAX. EMPLOYEE 3,937 X 0.75) MAXIMUM NUMBER OF EMPLOYEES PROPOSED = 3.937 (SDP-02-140) NUMBER OF EMPLOYEES PROPOSED = 3718 - 3800 MAXIMUM NUMBER OF EMPLOYEES FOR BUILDING 20: 5 PROPOSED OPEN SPACE ON SITE, ACRES: 1.23 AC, 58% OF SITE AREA BUILDING COVERAGE OF SITE: 0.35 ACRES, 16.5% OF SITE AREA APPLICABLE DPZ FILE REFERENCES: SDP-02-088, SDP-02-140 S-01-12, WP-01-80, F-02-40

COORDINATE SYSTEM (NAD 83/91) AND ARE DERIVED FROM THE FOLLOWING JOHNS HOPKINS UNIVERSITY CONTROL STATIONS

544836.5300 1340825.3542 550256.5002 1342325.2642 549478.7005 1341170.4345 548107.0328 1341025.0830 1339217.4439 544825.8093

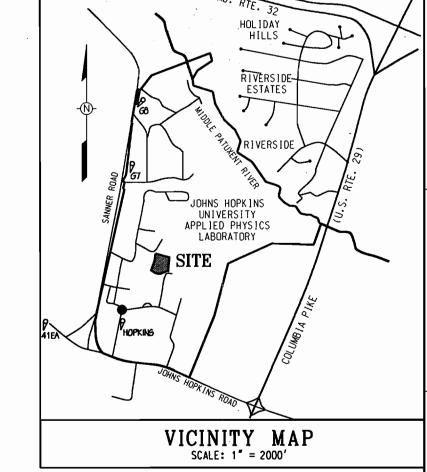
CONTACT FOR OWNER: JEFFEREY A. ANDERSON

 $\mathbb{Z}[S\Gamma]$

LOCATION PLAN

SCALE: 1" = 500'

JOHNS HOPKINS ROAD





ADDRESS CHART

11100 JOHNS HOPKINS ROAD PERMIT INFORMATION CHART SUBDIVISION NAME

J.H.U. APPLIED PHYSICS LAB PARCEL 1 PLAT | or UBER/FOUO GRD | MDR 15429-15433 16 PHONE: 443-778-5960 FAX: 443-778-5980

DESCRIPTION ---- 400 ---- 401.00 TOP/BOTTOM OF CURB SPOT ELEVATIONS 2" GAS UNDERGROUND ELECTRIC UNDERGROUND TELEPHONE ---I F---**-(D)** MANHOLE/INLET TREE LINE BUILDINGS CURB AND GUTTER **BITUMINOUS PAVING** CONCRETE PAVING CLEAN OUT - -X- -- - -X- - X-

> SHEET INDEX G-1 COVER SHEET

C-1 SURVEY/DEMOLITION PLAN C-2 GRADING/PAVING PLAN C-3 UTILITY PLAN C-4 ROAD PROFILES C-5 STORM DRAIN PROFILES C-6 UTILITY PROFILES

C-7 DETAILS AND SECTIONS C-8 EROSION/SEDIMENT CONTROL PLAN C-9 EROSION/SEDIMENT CONTROL NOTES/DETAILS C-10 EROSION/SEDIMENT CONTROL NOTES C-11 DRAINAGÉ AREA PLAN

LOT/PARCEL # STREET ADDRESS

DISTRICT UTILITY PLANT

REVISIONS

HOPKINS UNIVERSITY

APPLIED PHYSICS

LABORATORY

JOHNS HOPKINS ROAD

LAUREL MARYLAND 20723-6099

BUILDING 20:

PLANT PACILITIES
THIEF ENGINEER
SODE COMPLIANCE

600 Baltimore Avenue 410.296.6500 Fax 410.296.3156

Henry Adams, Inc.

PEOPLE ARCHITECTURE $\mathbb{C} \mathbb{S} \mathbb{D}$ Cochran, Stephenson, & Donkervoet, Inc. THE WAREHOUSE @ CAMDEN YARDS

323 West Camden St, #700, Baltimore, MD 21201

Mincin Patel Miland Inc. 6511 Harford Road Baltimore, MD 21214

Whitman, Requardt and Associates, LLP 801 South Caroline Street Baltimore, MD 21231

TAX MAP 41, PARCEL 1 **ELECTION DISTRICT NO. 5** HOWARD COUNTY, MARYLAND

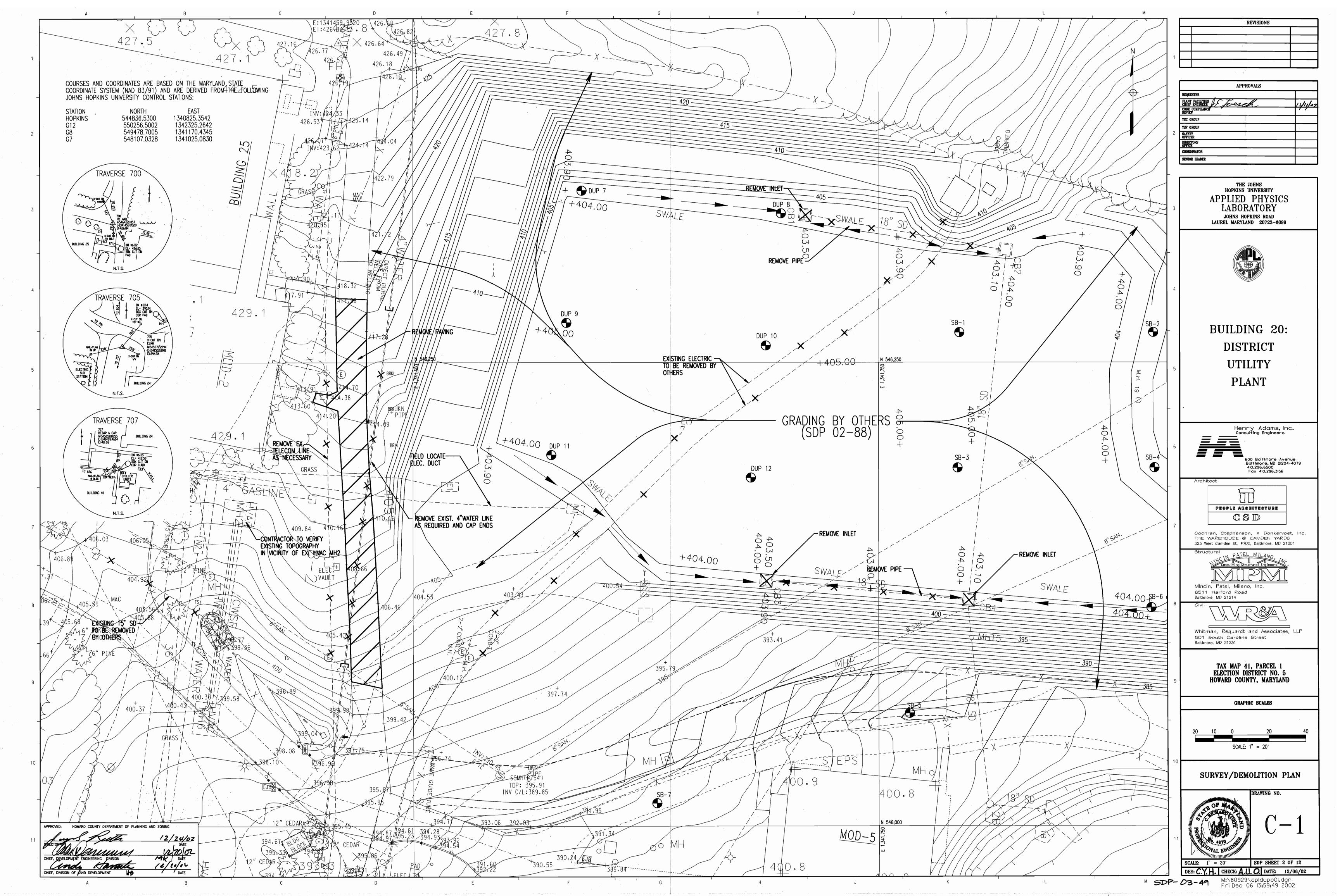
COVER SHEET

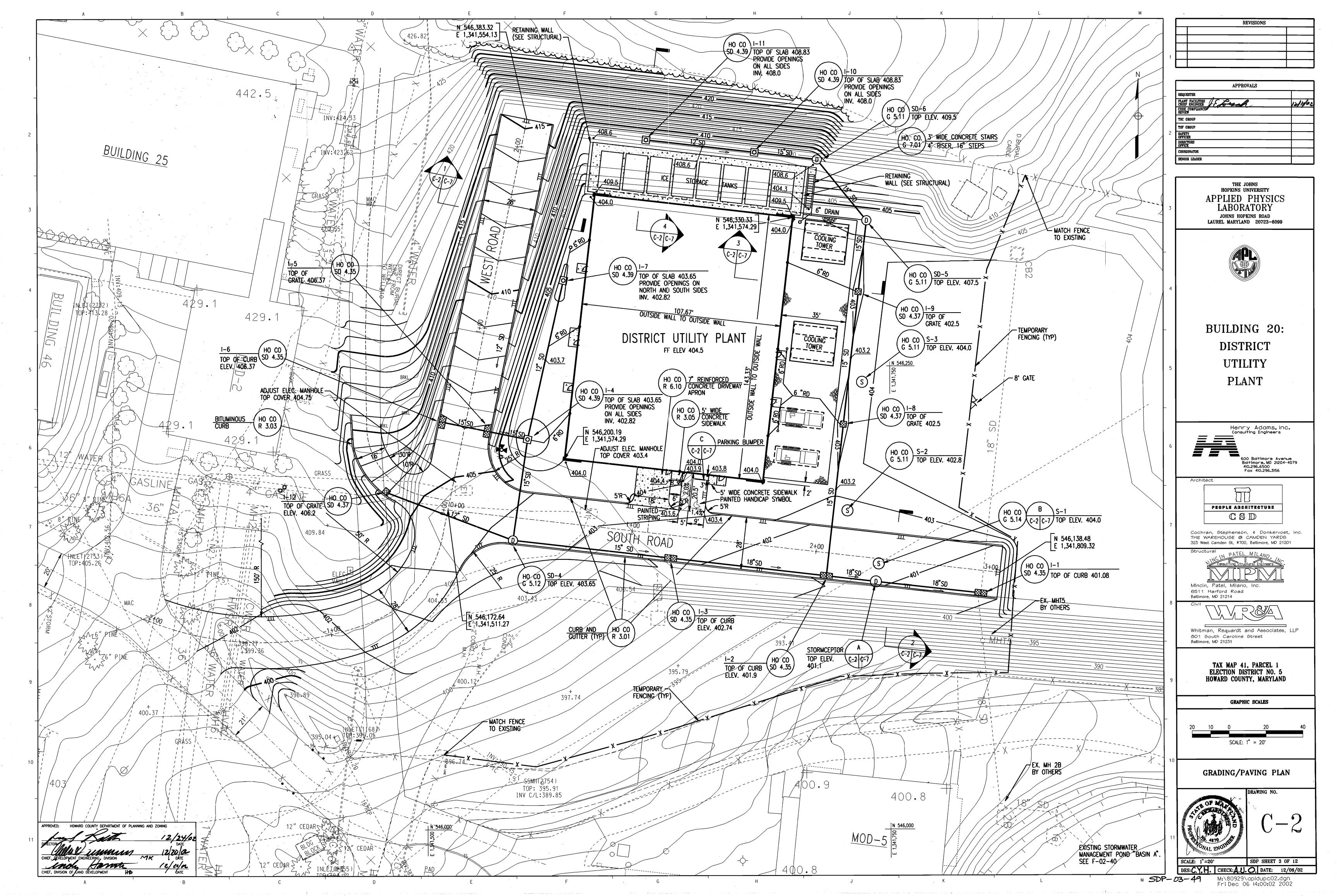
DRAWING NO.

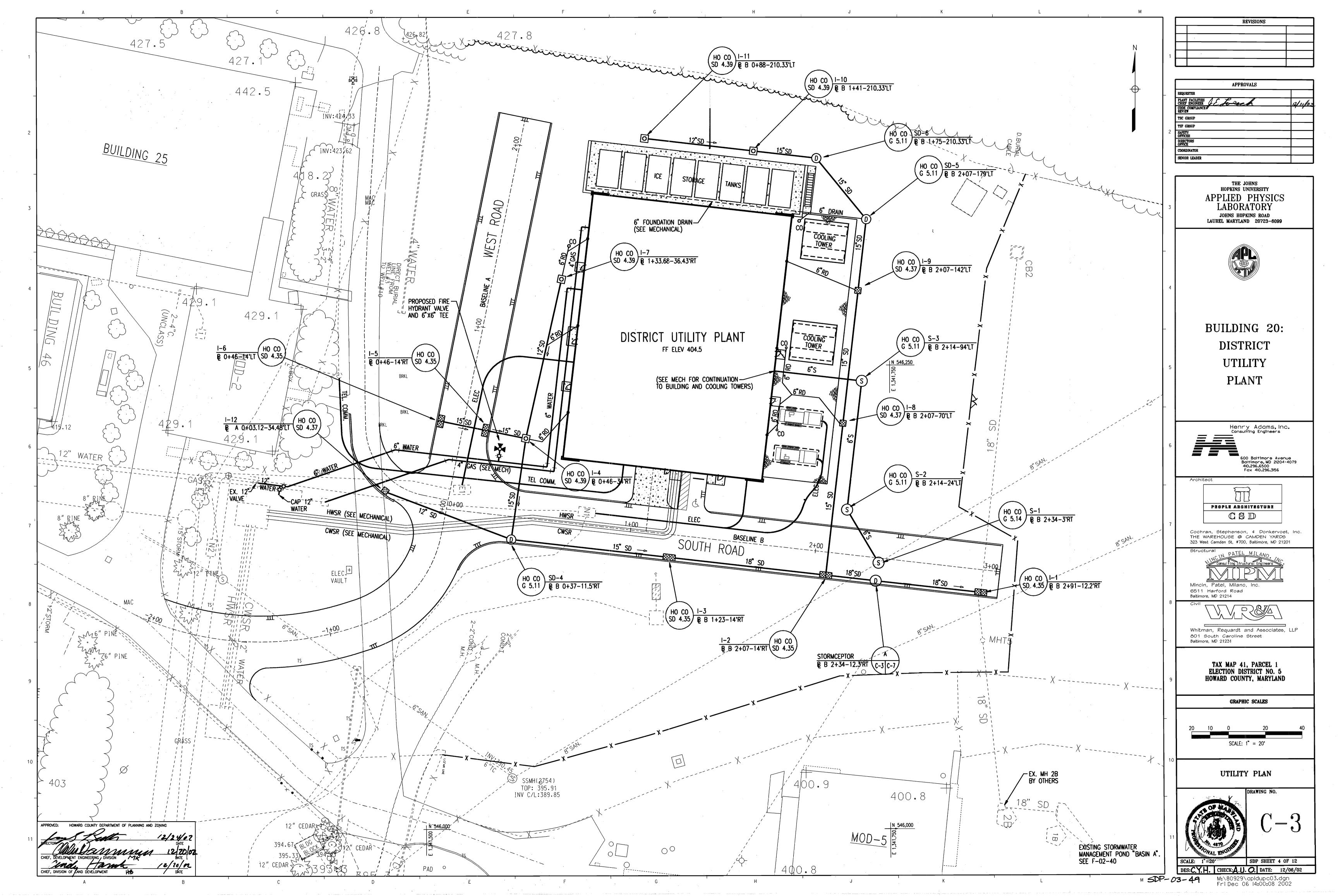


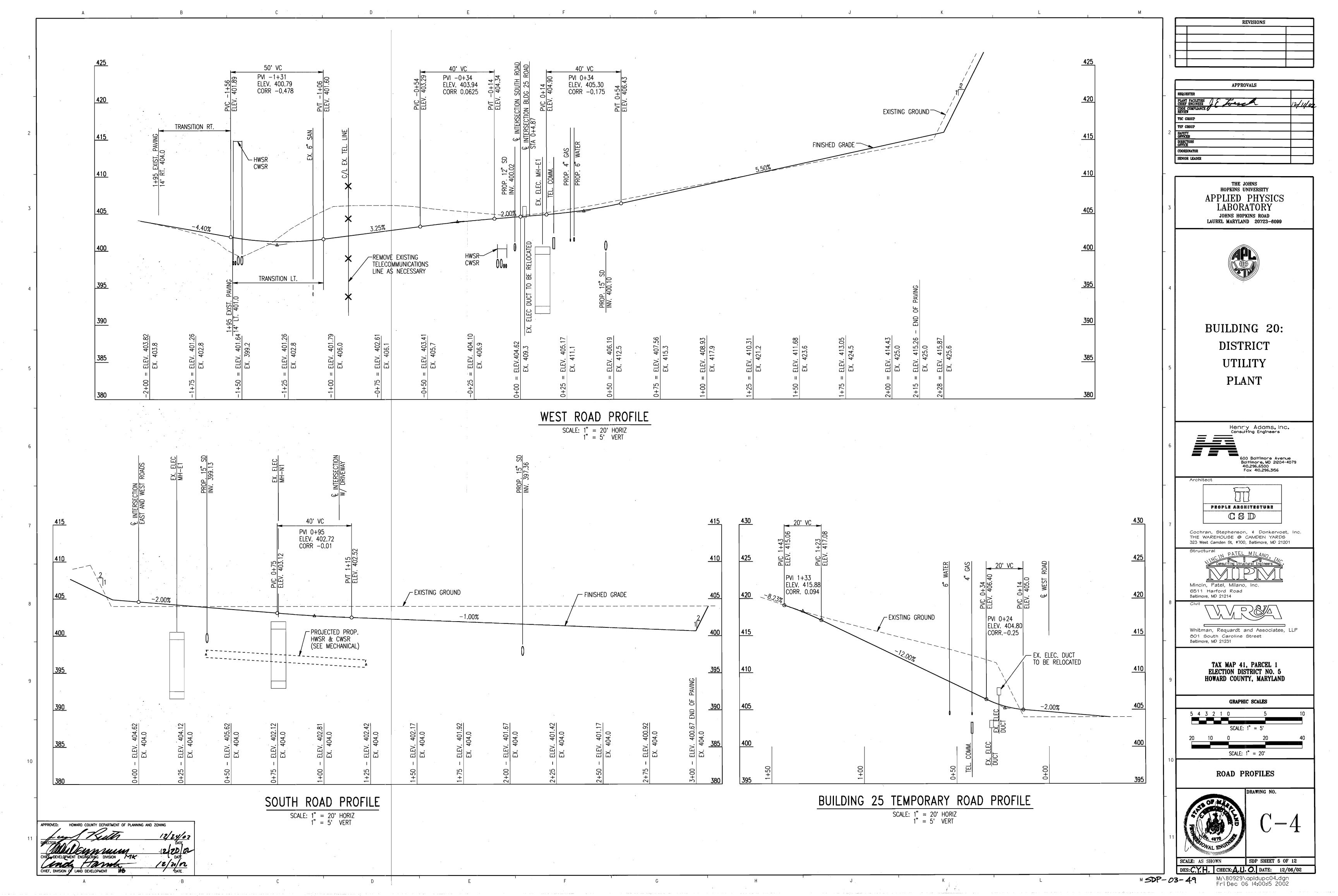
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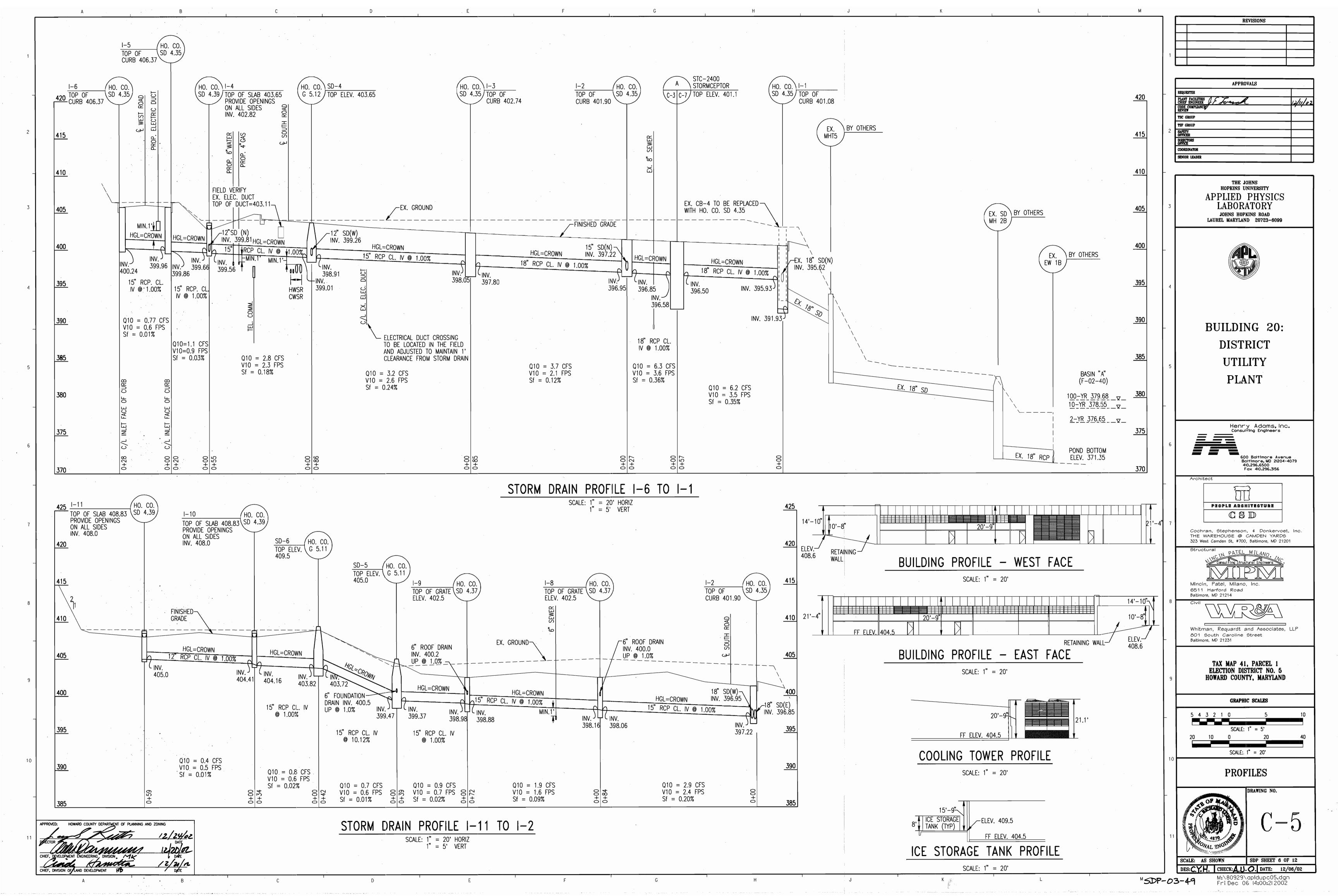
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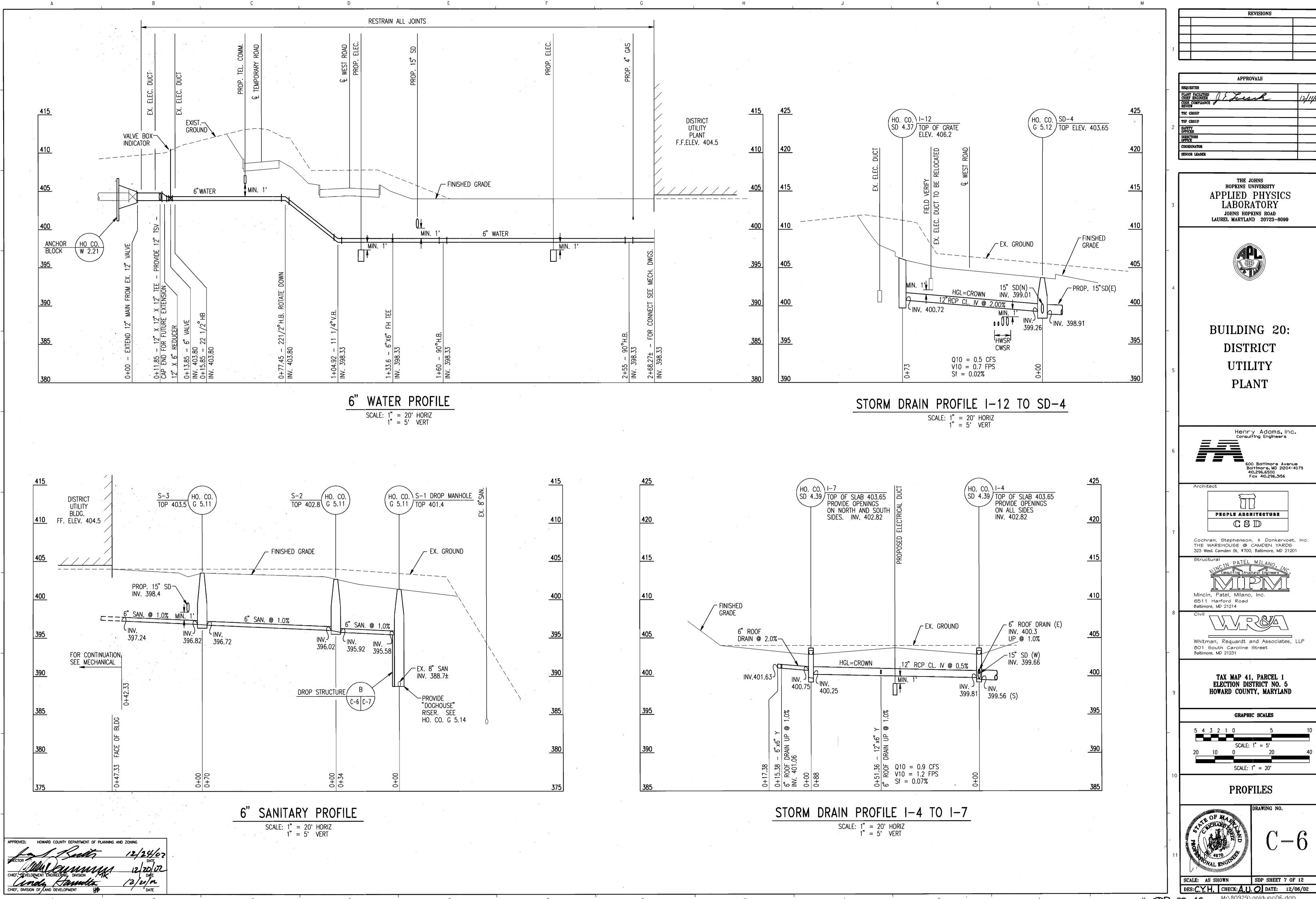






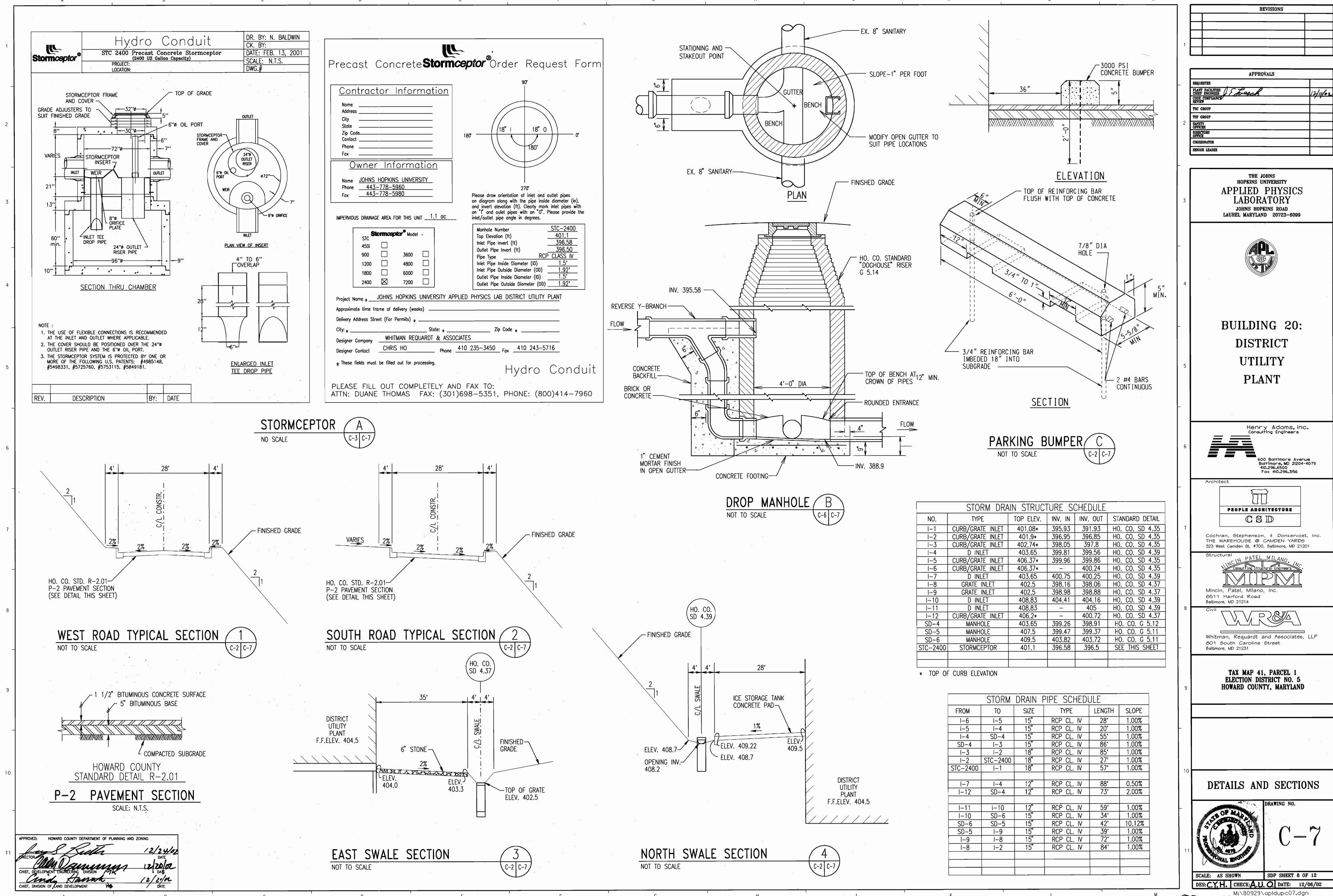




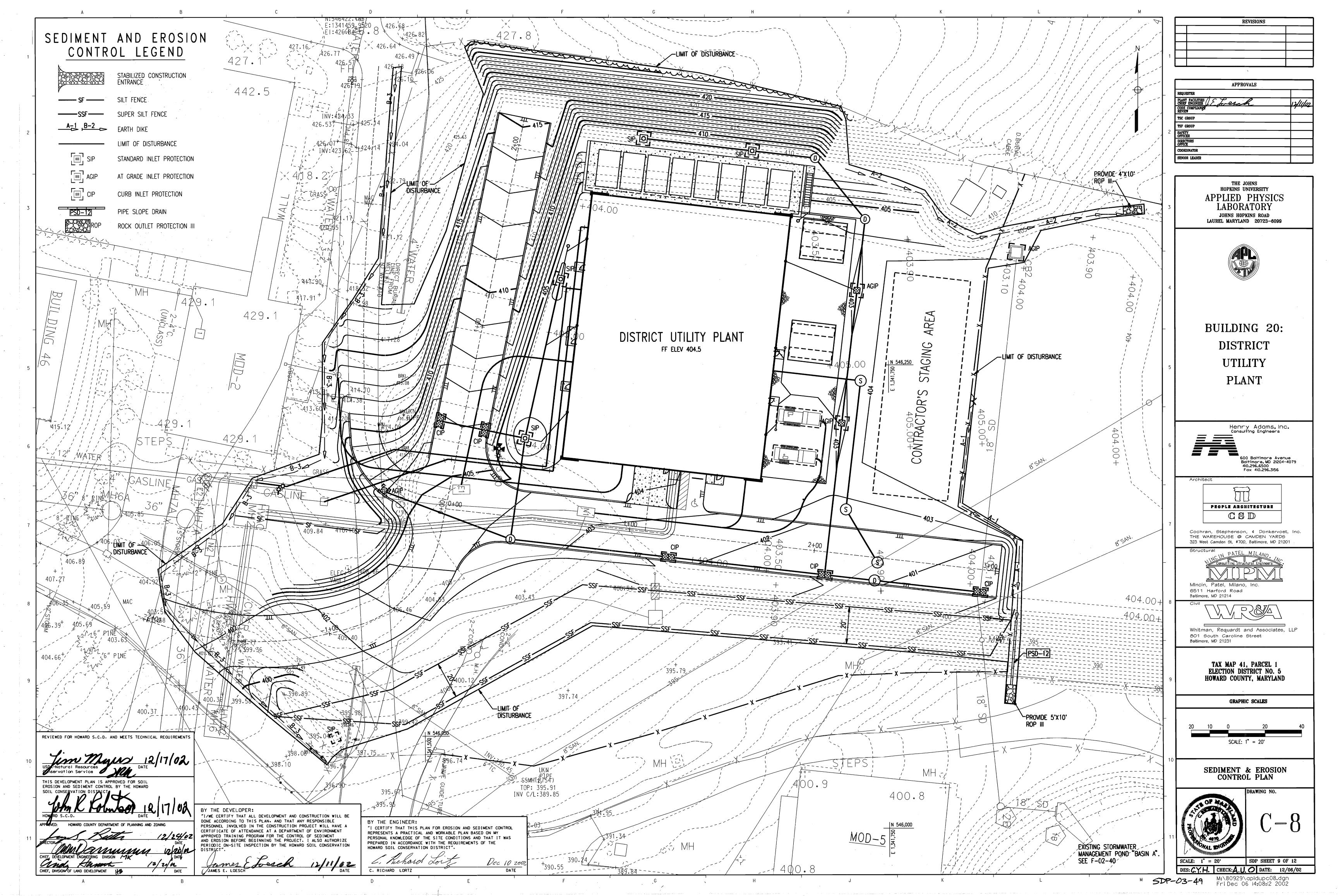


APPROVALS	
REQUESTER	
PLANT FACILITIES CHIEF ENGINEER CODE COMPLIANCE REVIEW	12/11/0
TSC GROUP	
TSF GROUP	
SAPETY OFFICER	
DIRECTORS OFFICE	
COORDINATOR	
SENIOR LEADER	

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21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT. LOW NUTRIENT LEVELS, LOW DH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

- CONDITIONS WHERE PRACTICE APPLIES I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
- a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
- b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGHT TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
- c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
- d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

- TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
- II. TOPSOIL SPECIFICATIONS SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
 - ii. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - iii. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
- II. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
 - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

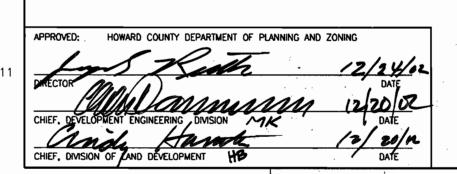
V. TOPSOIL APPLICATION

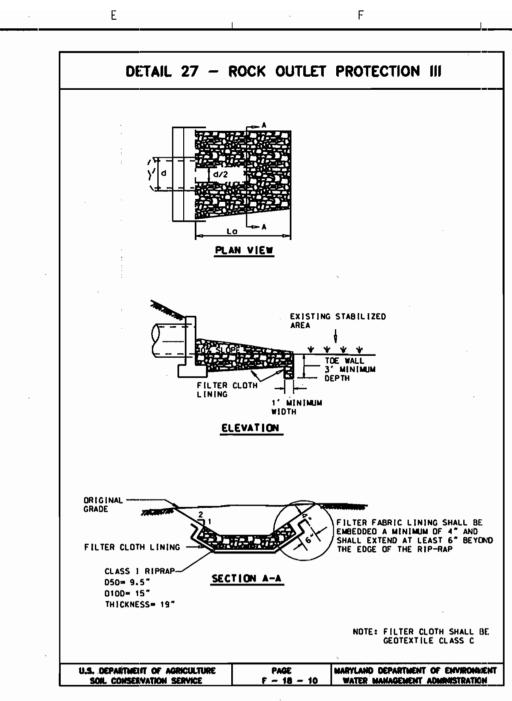
- WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SUPER SILT FENCE AND SEDIMENT TRAPS AND BASINS.
- GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" - 8" HIGHER IN ELEVATION.
- iii. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.
- VI. ALTERNATIVE FOR PERMANENT SEEDING INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:
 - COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - a. COMPOSTED SLUDGE SHALL BE SUPPLIED BY. OR ORIGINATE FROM. A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
 - b. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A Ph OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIRMENTS
 - c. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
 - ii. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED 4 LB./1.000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATIONS RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING MD-VA. PUB. #1. COOPERATIVE EXTENSION SERVICE UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES.

SEQUENCE OF CONSTRUCTION

- 1) NOTIFY THE SEDIMENT CONTROL INSPECTION OFFICE 24 HOURS PRIOR TO CONSTRUCTION
- 2) CLEAR AND GRUB AS NECESSARY TO INSTALL PERIMETER SEDIMENT CONTROL DEVICES. INSTALL SILT FENCE AND EARTH DIKE. INSTALL STABILIZED CONSTRUCTION ENTRANCE AS REQUIRED BY THE SEDIMENT CONTROL INSPECTOR.
- 3) PERFORM GRADING OF SITE. EXCESS SPOIL MATERIAL SHALL BE TRANSPORTED TO THE SITE DESIGNATED BY THE OWNER. THE STOCKPILE AREA SHALL HAVE AN APPROVED AND ACTIVE EROSION AND SEDIMENT CONTROL PLAN.
- 4) INSTALL STORM DRAIN AND UTILITIES. UPON COMPLETION OF STORM DRAIN INLETS, IMMEDIATELY INSTALL INLET PROTECTION.
- BEGIN BUILDING CONSTRUCTION.
- COMPLETE UTLITY AND BUILDING CONSTRUCTION.
- 7) STABLIZE SITE WITH PAVING AND PERMANENT STABILIZATION.
- 8) UPON APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL





DETAIL 4 - PIPE SLOPE DRAIN

STANDARO SYMBOL

PSD ~ 12

NOTE: PIPE SIZE DESIGNATION IS: PSD 12 = PIPE SLOPE ORAIN WITH A 12" DIAMETER PIPE.

Maximum Drainag

Area (Acres)

0.5

ACRES

ACRES

ACRES

CU. YDS.

HEIGHT - PIPE DIAMETER X 2 (MAX 4')

Table 6 Design Criteria for Pipe Slope Drain

Diameter (D) in

PSD-18

PS0-24 (2)

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

ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN

3) FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR

TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR

SLOPES GREATER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR

FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF

7) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED. IF DEEMED NECESSARY

8) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF

ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING

10) FOR ALL UTILITY CONSTRUCTION, LIMIT DAILY TRENCHING, INSTALLATION AND

THEINSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION

OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH

INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL

BY HOWARD COUNTY DPW SEDIMENT CONTROL INSPECTOR.

9) STABILIZE ALL 2:1 SLOPES WITH EROSION CONTROL MATTING.

CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR

CONSTRUCTION, (410-313-2437)

SOIL EROSION AND SEDIMENT CONTROL.

GRADED AREAS ON THE PROJECT SITE.

AREA TO BE ROOFED OR PAVED

BY THE INSPECTION AGENCY IS MADE.

AREA TO BE VEGETATIVELY STABILIZED

5) SITE ANALYSIS:

TOTAL AREA OF SITE

AREA DISTURBED

TOTAL CUT

TOTAL FILL

DISTURBANCE.

1. The subgrade for the filter, rip-rap, or applied shall be prepared to the required lines and grades. Any fill required In the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material. 2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter. tearing. Any damage other than on occasional small hale shall be repaired by placing another piece of geotextile over the demoged part or by completely replacing the georextile. All overlaps whether for repairs or for joining two pieces of peotextile shall be a minimum of one foot.

ROCK OUTLET PROTECTION

4. Stone for the rip-rop or gobion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rop that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rop shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the

existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE* PIPE SLOPE DRAIN EXIST, EARTH FILE ** GEOTEXTILE CLASS 'C'~ ---- PIPE AS NECESSAR MINIMUM 6" OF 2"-3" AGGREGATE OVER LENGTH AND WIDTH OF STRUCTURE OR BETTER 2. The top of the earth dike over the injet pipe shall be of least 2 times the pipe diameter measured at the invert of the EXISTING GROUND PROF ILE 3. Flexible tubing is preferred. However, corrugated metal pine or equivalent PVC pipe can be used. All connections pipe with a watertight connection. Filter cloth shall be placed under the inlet of the pipe slope drain and shall extend out 5' from the inlet. The filter cloth shall be The Pipe Slope Orain shall be securely anchored to the slope by stoking of the grammets provided. Spacing for anchors shall be as provided by manufacturer's specification. In no case shall less than two (2) anchors be provided-equally spaced along the length of pipe. These details should

STANDARD SYMBOL

SESSEE SESSEE

FILTER CLOTH -

MAX. DRAINAGE

AREA = 1/4 ACRE

WIRE MESH-

Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2") as shown on the standard drawing.

The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

6. Form the ½" x ½" wire mesh and the filter cloth to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 2" stone over the wire mesh and filter cloth in such a manner to prevent water from entering the inlet under or around the filter cloth.

Geotextile fabric (fliter cloth) shall be placed over the existing ground prior

to placing stone. The plan approval authority may not require single family

4. Stone - crushed aggregate (2" to 3") or rectalmed or recycled concrete

equivalent shall be placed at least 6" deep over the length and width of the

5. Surface Water - all surface water flowing to ar diverted toward construction

entrances shall be piped through the entrance- maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a

mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has

to be sized occording to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized

6. Location - A stabilized construction entrance shall be located at every point

where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

DETAIL 1 - EARTH DIKE

9 70

PLAN VIEW

2. Seed and cover with Erasian Control Matting or line with sod.

. All temporary earth dikes shall have uninterrupted positive

2. Runoff diverted from a disturbed area shall be conveyed to a sediment

Runoff diverted from an undisturbed area shall autlet directly into an

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections

7. All earth removed and not needed for construction shall be placed so that

BY THE DEVELOPER:

4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper

3. 4" - 7" etone or resysted concrete equivolent pressed into

EXCAVATE TO PROVIDE

a-DIKE HEIGHT 18"

d-FLOW DEPTH 12"

P-DIKE MIDTH

C-FLOW WIDTH

REDUIRED FLOW WIDTH AT DESIGN FLOW DEPTH

DIKE A DIKE B

STANDARD SYMBOL

A-2 B-3

---/---

U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SOIL CONSERVATION SERVICE F - 17 - 3 WATER MANAGEMENT ADMINISTRATION

Place a continuous piece of approved filter cloth (40-80 sieve) of the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

Securely nail the 2" x 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 6' apart).

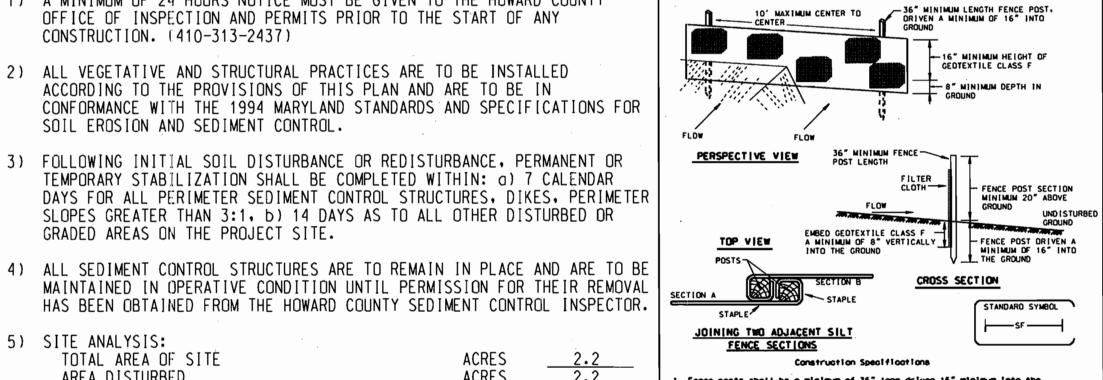
6. The soil around and under the pipe and end section shall be

t shall outlet into a sediment trop or basin. If this is no possible then the slope drain will discharge into a stable privatence that leads to a sediment trap or basin. When discharging into a trap or basin the PSD shall discharge at the same elevation as the wet pool elevation. The discharge from the PSD must be as for away from the sediment control

9. When the droinage area is stabilized, the PSD shall discharge anto a stabilized area at a non-erosive velocity.

10. Inspection and any required maintenance shall be performed 11. The inlet must be kept open at all times

DETAIL 22 - SILT FENCE



Tensile Strength 50 Iba/in (min.) Tensile Modulus 0.3 gal ft 2/ minute (max.) Tests MSMT 3

4. Stit Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment occumulation reached 50% of the fabric height. U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

BY THE ENGINEER:

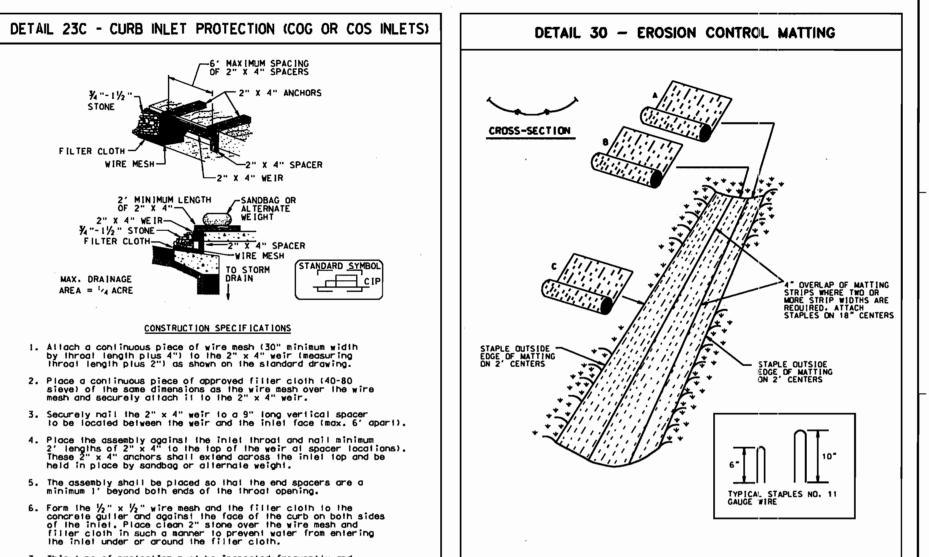
1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter standard T ar U section weighting not less than 1.00 pond per linear foot . Geotextile shall be fastened securely to each fence post with wire ties or stoples at top and mid-section and shall meet the following requirement 6) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY 3. Where ends of geotextile fabric come together, they shall be overlapped.

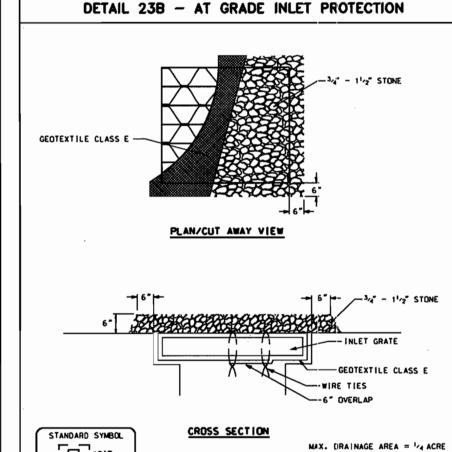
"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT".

CUT OR FILL SLOPE ----

DONE ACCORDING TO THIS PLAN. AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT 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".

"1/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE

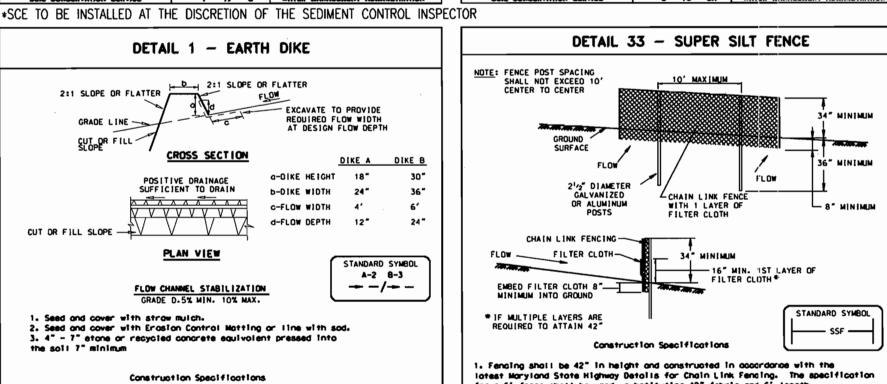




[AGIP

Construction Specifications 1. Lift grate and wrap with Geotextile Class E to completely cover all openings. . Place "4" to 11-2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

MARYLAND DEPARTMENT OF ENVIRONMEN E - 16 - SA WATER WANAGEMENT ADMINISTRATION



1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6" fence shall be used, substituting 42" fabric and 6" length . Chain link fence shall be fastened securely to the fence costs with wire ties.

3. Filter gloth shall be fastened securely to the chain link fence with ties spaces every 24" at the top and mid section.

. Filter cloth shall be embedded a minimum of 8" into the ground.

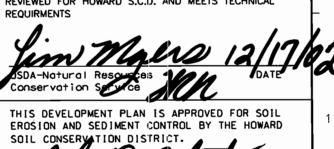
. When two sections of filter cloth adjoin each other, they shall be overlapped 6. Maintenance shall be performed as needed and slit buildups removed when "buiges develop in the slit fence- or when slit reaches 50% of fence height 7. Filter cloth shall be fastened securely to each fence post with wire ties or stoples of top and mid section and shall meet the following requirements for

Tensile Strength Filtering Efficiency 75% (min.) U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

Geotextile Closs FI

H - 28 - 3 WATER HANAGEMENT ADMINISTRATION REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL

Test: MSMT 32



APPROVALS

REVISIONS

PLANT FACILITIES DE Toresch TSF GROUP

> THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY JOHNS HOPKINS ROAD LAUREL MARYLAND 20723-6099



BUILDING 20: DISTRICT **UTILITY PLANT**



PEOPLE ARCHITECTURE $\mathbb{C}\mathbb{S}\mathbb{D}$

Cochran, Stephenson, & Donkervoet, Inc. THE WAREHOUSE @ CAMDEN YARDS 323 West Camden St, #700, Baltimore, MD 21201

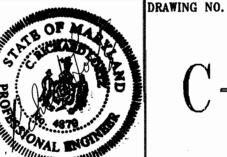


Whitman, Requardt and Associates, LLP 801 South Caroline Street Baltimore, MD 21231

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

TAX MAP 41, PARCEL 1

EROSION & SEDIMENT CONTROL NOTES & DETAILS



BACKFILLING TO THAT WHICH CAN BE COMPLETED IN A DAY. EXCAVATED MATERIAL SHALL BE PLACED UPGRADE OF THE TRENCH AND POSTIVE DRAINAGE SHALL BE MAINTAINED AROUND THE WORK AREA. ALL UTILITY SITE WORK SHALL BE STABILIZED AT THE END OF EACH WORK DAY.

. RICHARD LORTZ

ATE STALE: AS SHOWN SDP SHEET 10 OF 12

ES: C.Y.H. CHECK: A.U. O. DATE: 12/06/02

M:\80929\apIdupc09.dgn Fri Dec 06 14:00:59 2002

20.0 STANDARDS AND SPECIFICATIONS

VEGETATIVE STABILIZATION

Definition

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

Vegetative Stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas, and improving wildlife habitat and visual resources. Conditions Where Practice Applies

This practice shall be used on denuded areas as specified on the plans and may be used on highly eradible or critically erading areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary soil stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and far Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

Effects on Water Quality and Quantity

Planting vegetation in disturbed oreas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Sediment control devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

Section 1 - Vegetative Stabilization Methods and Materials

- install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
- ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually

iii. Schedule required soil tests to determine soil amendment composition and application rates for sites

- having disturbed area over 5 acres. B. Soil Amendments (Fertilizer and Lime Specifications)
- Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 ocres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
- ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trodemark and warrantee
- iii.Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such finness that at least 50% will pass through a #100 mesh sieve and 98 100% will pass through a #20 mesh sieve.
- iv. Incorporate lime and fertilizer into the top 3 5" of soil by disking or other suitable means.

C. Seedbed Preporation

- a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc horrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 3:11 should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
- b. Apply fertilizer and lime as prescribed on the plans.
- C. Incorporate lime and fertilizer into the top 3 5" of soil by disking or other suitable means.

ii. Permonent Seeding

- Minimum soil conditions required for permanent vegetative establishment:
- Soil pH shall be between 6.0 and 7.0
 Soluble saits shall be less than 500 parts per million (ppm).
 The soil shall contain less than 40% clay but enough fine grained material (\$\psi\$ 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if ovegrass or serecta lespedeza is to be planted, then a sandy soil (# 30% stilt plus clay) would be acceptable.
- I shall contain 1.5% minimum organic matter by weight. Soil must contain sufficient pore space to permit adequate root penetration.

 If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
- b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 5" to permit bonding of the topsoil to the surface area and to create harizontal erasion check slots to prevent topsail from sliding
- c. Apply soil amendments as per soil test or as included on the plans.
- d. Mix soil amendments into the top 3 5" of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation. loosen surface sail by dragging with a heavy chain or other equipment to roughen the surface
 Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the sail in an irregular
 condition with ridges running parallel to the contour of the slope. The top 1 - 3" of soil should
 be loose and friable. seedbed loosening may not be necessary on newly disturbed areas.

- i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.
- Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
- ii. Inoculant The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 80°F. can weaken bacteria and make the inoculant less effective.

E. Methods of Seeding

- i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
 - a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous): 200 lbs/ac; K20 (potassium): 200 lbs/ac.
 - b. Lime use only ground agricultural limestone. (Up to 3 tons per acre may be applied by hydroseeding. Normally, not more than 2 tans are applied by hydroseeding at any one time.

 On not use burnt or hydrated lime when hydroseeding.
 - c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.

ii. Ory Seeding: This includes use of conventional drap or broadcast spreaders.

- a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
- b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

iii.Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

- a. Cultipacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
- b. Where practical, seed should be opplied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (In order of preference)

i. Straw shall consist of thoroughly threshed wheat, rye or out straw, reasonably bright in colorand shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.

ii. Wood Cellulose Fiber Mulch (WCFM)

- a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
- b. NCFN shall be dyed green or contain a green dye in the package that will provide on appropriate color to facilitate visual inspect on of the uniformly spread slurry.
- c. INCFN. including dye. shall contain no germination or growth inhibiting factors.
- d. NCFN materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seed in a
- e. MCFM material shall contain no elements or compounds at concentration levels that will
- f. NCFNI must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

- G. Mulching Seeded Areas Mulch shall be applied to all seeded areas immediately after seeding.
- If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in
- ii. When straw mulch is used, it shall be spread over all seedbed areas at the rate of 2 tons/acre.

 Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool s to be used the rate should be increased to 2.5 tons/acre.
- iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1.500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.
- H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
- i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice
- ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
- iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. The remainder of area should be appear uniform after binder application. Synthetic binders such as Acrylic DLR (Agro-Tock), DCA-70, Petroset, Terra Tax II. Terra Tack R or other approved equal may be used at rates recommended by the manufacturer
- iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

1. Incremental Stabilization - Cut Slopes

- i. All cut slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
- ii. Construction sequence (Refer to Figure 4 below):
- a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
- b. Perform phase 1 excavation, dress, and stabilize.
- c. Perform phase 2 excavation, dress, and stabilize. Overseed phase 1 areas
- d. Perform final phase excavation, dress, and stabilize. Dverseed previously seeded areas as necessary
- Note: Once excavation has begun the operation should be continuous from grubbing through the campletian of grading and placement of tapsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will

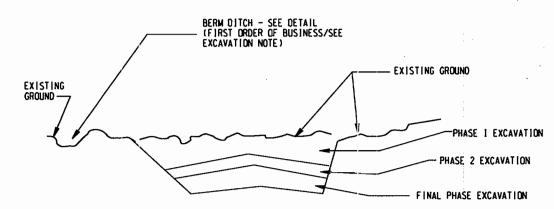


Figure 4 Incremental Stabilization - Cut

J. Incremental Stabilization of Embankments - File Slopes

- Embankments shall be constructed in lifts as prescribed on the plans.
- Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches $15^\prime \cdot$ or when the grading operation ceases as prescribed in the plans.
- iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.
- iv. Construction sequence: Refer to Figure 5 (below).
- a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoif around the fill. Construct Slope Silt Fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.
- b. Place phase 1 embankment, dress and stabilize.
- c. Place phase 2 embankment, dress and stabilize
- d. Place final phase embankment, dress and stabilize. Dverseed previously seeded areas as
- Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate

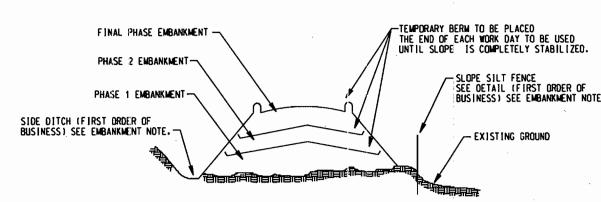


Figure 5. Incremental Stabilization - Fill

Section || - Temporary Seeding

Vegetation - annual gross or grain used to provide cover on disturbed areas for up to 12 months. For longer

A. Seed Mixtures - Temporary Seeding

- Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporory Seeding Summary below, along with application rates, seeding dates and seeding depths. If this Summary is not put on the plans and completed, then Table 26 must be put on the plans.
- ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for

TEMPORARY SEEDING SUMMARY

SEED MIXTURE HARDINESS ZONE 7A FROM TABLE 26			FERTILIZER RATE	LIME RATE		
NO.	SPECIES	APPLICATION RATE(Ib/gc)	SEEDING DATES	SEEDING DEPTHS	(10-10-10)	
3	ANNUAL RYEGRASS	140	3/1 - 4/30 5/1 - 8/14	1/4"-1/2"		_
	WEEPING LOVEGRASS	150	5/1 - 8/14	. 1*	600 lb/ac (15 lb/1000 sf)	1 tons/ac (46 lb/1000 sf)

Section III: Permanent Seeding

Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.

A. Seed Mixtures - Permanent Seeding

- i. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Section IV Sod
- ii. For sites having disturbed area over 5 acres, the rates shown on this table shall be deleted and the
- iii. For areas receiving low maintenance, apply wreaform fertilizer (46-0-0) at 3½bs/1000 sq.ft. (150 lbs/ac.), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

PERMANENT SEEDING SUMMARY

Seed Mixture (For Hordiness Zone 7A) (From Table 25)				Fertilizer Rate	Lime		
NO.	Species	Application Rate (1b/ac)	Seeding Dates	Seeding Depths	(10-10-10)	Rate	
1 .	TALL FESCUE	60	3/1 - 4/30 8/1 - 10/15	1/2*			
2	TALL FESCUE 85% WEEPING LOVEGRASS 15%	60	5/1 - 7/31	1/2*	1.000 lbs/oc	2 tons/ac (100 lb/ 1000 sf)	
6	TALL FESCUE	60	10/16- 2/28	1/2*			

Table 24 Maintenance fertilization for Permanent Seedings Use Soil Test Results or Rates Shown Below

Туре	lb/ac	Ib/1000 sf	Time	Mowing
10-10-10 or	500	11.5	Yearly or as needed. Fall	Not closer than 3" if occasional mowing is desired.
0-20-0	400	9.2	Spring, the year following establishment	Do not mow crownvetch
			thereafter	
50-10-10	500	11.5	Fall the year following establishment and every 4–5 years thereafter	Not required, no closer than 4" in the fall after seed has matured.
5-10-10	500	11.5	Spring, the year following establishment and every 3-4 years thereafter	Not required, not closer than 4" in fall after seed has matured.
20-10-10	250 100	5.8	September, 30 days later December, May 20, June 30, if needed	Mow no claser than 2" for red fescue and K. bluegrass 3" for fescue.
	10-10-10 or 30-10-10 0-20-0 50-10-10	10-10-10 500 or 30-10-10 400 0-20-0 400 50-10-10 500 5-10-10 500	10-10-10	10-10-10 or 30-10-10 400 9.2 0-20-0 400 9.2 Spring, the year following establishment and every 4-5 years thereafter 50-10-10 500 11.5 Fall the year following establishment and every 4-5 years thereafter 5-10-10 500 11.5 Spring, the year following establishment and every 4-5 years thereafter 20-10-10 250 5.8 September, 30 days later December, May 20, June 30, incompleted.

BY THE ENGINEER:

HOWARD SOIL CONSERVATION DISTRICT".

Section IV - Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

- i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and
- ii. Sod shall be machine cut at a uniform soil thickness of $^{3}y_{4}^{\prime\prime\prime}$, plus or minus! $_{4}^{\prime\prime\prime}$, at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod
- shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.
- iii.Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- iv. Sod shall not be horvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- . Sod shall be horvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agranomist or soil scientist prior to its installation.
- During periods of excessively high temperature or in oreas having dry subsoil. the subsoil shall be lightly irrigated immediately prior to laying the sod.
- ii. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
- iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged at otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots
- iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

i. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.

- ii. After the first week, sod watering is required as necessary to maintain adequate moisture content.
- iii. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

SECTION IV - TURFGRASS ESTABLISHMENT

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methods to a depth of 2 to 4 inches, leveled and raked to prepare a proper seedbed. Stones and debris over 1/2 inches in diameter shall be removed. The resulting seedbed shall be in such condition that

NOTE: Chaose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture. Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

- i. Kentucky Bluegrass Full sun mixture For use in areas that receive intensive management Irrigation required in the areas of central Maryland and eastern share. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds/1000 square feet. A minimum of three bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35%
- ii. Kentucky Bluegrass/Perennial Rye Full sun mixture For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding rate: 2 pounds mixture/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.
- iii Tall Fescue/Kentucky Bluegrass Full sun mixture For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: certified Tall Fescue Cultivars 95 100% certified Kentucky Bluegrass Cultivars 0 5%. seeding rate: 5 to 8 lb/1000 sf. One or more cultivars may be blended.
- iv. Kentucky Bluegrass/Fine Fescue Shode Mixture For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includest certified Kentucky Bluegrass Cultivars 30-40% and certified Fine Fescue and 60-70%. Seeding rate: 1½ 3 lbs/1000 square feet. A minimum of 3 Kentucky bluegrass cultivars must be chosen, with each cultivar ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.

NOTE: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication. Agronomy Mimeo #77. "Turfgrass Cultivar Recommendations for Maryland".

B. Ideal times of seeding Western MD: _ March 15 - June 1. August 1 - October 1

Central MD: March 1 - May 15 - October 15

Southern MD. Eastern Shore: March 1 - May 15. August 15 - October 15

C. Irrigation

If sail moisture is deficient, supply new seedings with adequate water for plant growth (1/2" - 1" every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

0. Repair and Maintenance

BY THE DEVELOPER:

DISTRICT"

Inspect all seeded areas for failures and make necessary repairs. replacements, and reseedings within the planting season.

Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized. If the stand provides less than 40% ground coverage, reestablish follows original lime, fertilizer, seedbed preparation and seeding recommendation

- iii. If the stand provides between 40% and 94% ground coverage. fertilizing using half of the rates originally applied may be sees
- iv. Maintenance fertilizer rates for permanent seedings are stem in Table 24
 For lawns and other medium to high maintenance turfgrass deas, refer to
 the University of Maryland publication "Lawn Care in Mary and"

REVISIONS

APPROVALS	
REQUESTER	
PLANT FACILITIES CHIEF ENGINEER CODE COMPLIANCE REVIEW	12/11/
TSC GROUP	
TSF GROUP	
SAPETY OPPICER	
DIRECTORS OFFICE	
COORDINATOR	
SENIOR LEADER	

THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS JOHNS HOPKINS ROAD LAUREL MARYLAND 20723-6099



BUILDING 20:



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Baltimore, MD 21214

Whitman, Requardt and Associates, LLP

TAX MAP 41, PARCEL 1 **ELECTION DISTRICT NO. 5** HOWARD COUNTY, MARYLAND

EROSION & SEDIMENT

CONTROL NOTES

DRAWING NO.

SCALE: AS SHOWN SDP SHEET 11 OF 12 DES: C.Y.H. CHECK: A.U. Q. DATE: 12/06/02

- Richard Lost C. RICHARD LORTZ

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL

PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE

REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY

Dec. 10 2002

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION W DONE ACCORDING TO THIS PLAN. AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL H CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONM APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT

AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHO PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERV

SDP-03-49

REVIEWED FOR HOWARD S.C.D. AND MEETS THE

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

TECHNICAL REQUIREMENTS

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Fri Dec 06 14:03:30 2002

