



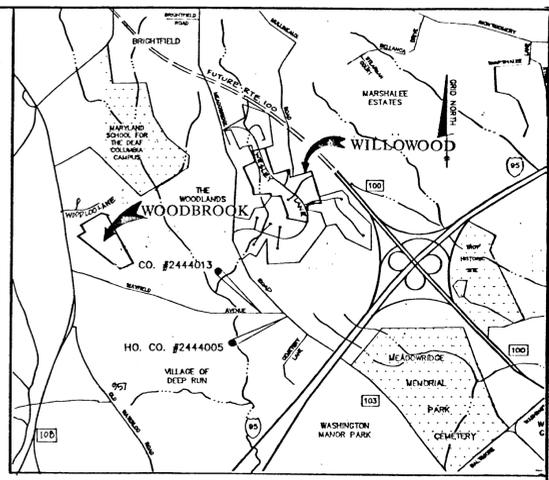
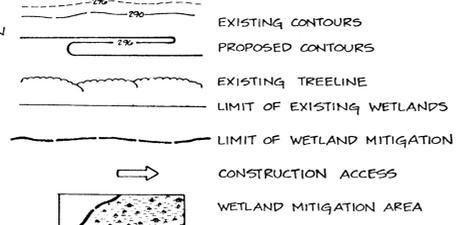
GENERAL NOTES

- Project goal is to create approximately 1.1 acres of forested wetland MITIGATION in accordance with the mitigation conditions required by the Maryland Department of the Environment Water Quality Certification # 93-WQ-0076 FOR WILLOWOOD 3/1 THE ADDITIONAL 0.6 ACRE OF FORESTED WETLAND MITIGATION CREATED IS TO BE CREDITED TO THE PATAPSCO RIDGE WATER QUALITY CERTIFICATION # 93-WQ-0271 AND KINGS WOODS 2/2 WATER QUALITY CERTIFICATION # 87-WQ-0163. PRIMARY OBJECTIVES ARE:
 - Establish a healthy, self-sustaining vegetative cover.
 - Establish self-sustaining hydrological conditions.
 - Enhance and promote wildlife habitat.
- Vegetation proposed in the mitigation area shall have an 85% survival rate after two years. Additional planting may be required to achieve the survival rate. During and immediately following construction of the enhancement area, potential of existing problems shall be identified and corrected as required.
- Wetland Enhancement area survival potential based on following:
 - Wetland plants: Placement of in-kind wetland tolerant species. Proposed planting to promote expansion of existing ecosystem.
 - Hydric Soils: Color and mottle characteristics consistent with Fallington hydric soil classification.
 - Wetland Hydrology: Maintained by groundwater seep, seasonal groundwater saturation and surface runoff.
- Any required state and local authorizations must be obtained prior to construction.

* 0.40 ACRE OF THE WETLAND MITIGATION SHALL BE PROVIDED FOR PATAPSCO RIDGE WQC # 93-WQ-0271 AND 0.20 ACRE FOR KINGS WOODS 2/2 WQC # 87-WQ-0163

5. THE WETLAND MITIGATION IS TO BE DONE ON OPEN SPACE LOT 51 OF THE WOODBROOK SUBDIVISION, F-91-02. THE OPEN SPACE LOT SHALL BE DEDICATED TO THE DEPARTMENT OF RECREATION AND PARKS UPON COMPLETION OF WORK AND EXECUTION OF A RIGHT-OF-ENTRY AGREEMENT BETWEEN SECURITY DEVELOPMENT CORPORATION AND THE DEPARTMENT.

LEGEND



SEDIMENT CONTROL NOTE:
TREE PROTECTION FENCE AND SILT FENCE ARE TO BE PLACED AT THE LIMIT OF EXISTING WETLANDS ADJACENT TO THE CONSTRUCTION AREA.

By the Developer:
I/We certify that all development and construction will be 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 the 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.

James R. Hoxley, Jr. 8-3-93
James R. Hoxley, Jr. - President
Security Development Corporation Date

By the Engineer:
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.

John M. Elorriaga, P.E. 8/3/93
John M. Elorriaga, P.E. #16891 Date

Reviewed by Howard Soil Conservation District and meets Technical Requirements.

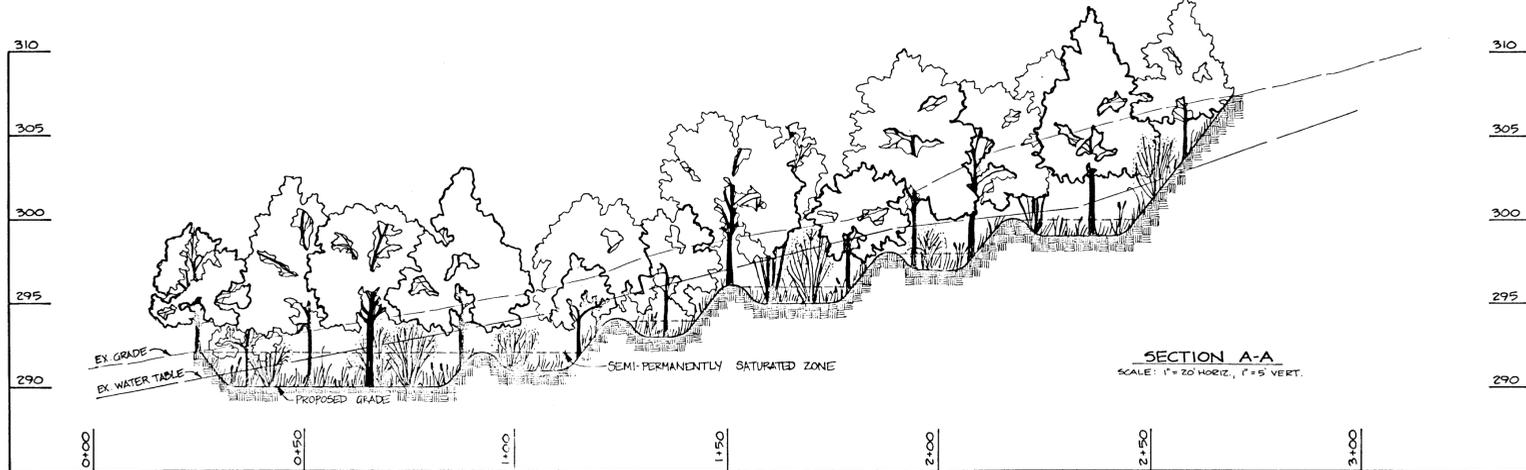
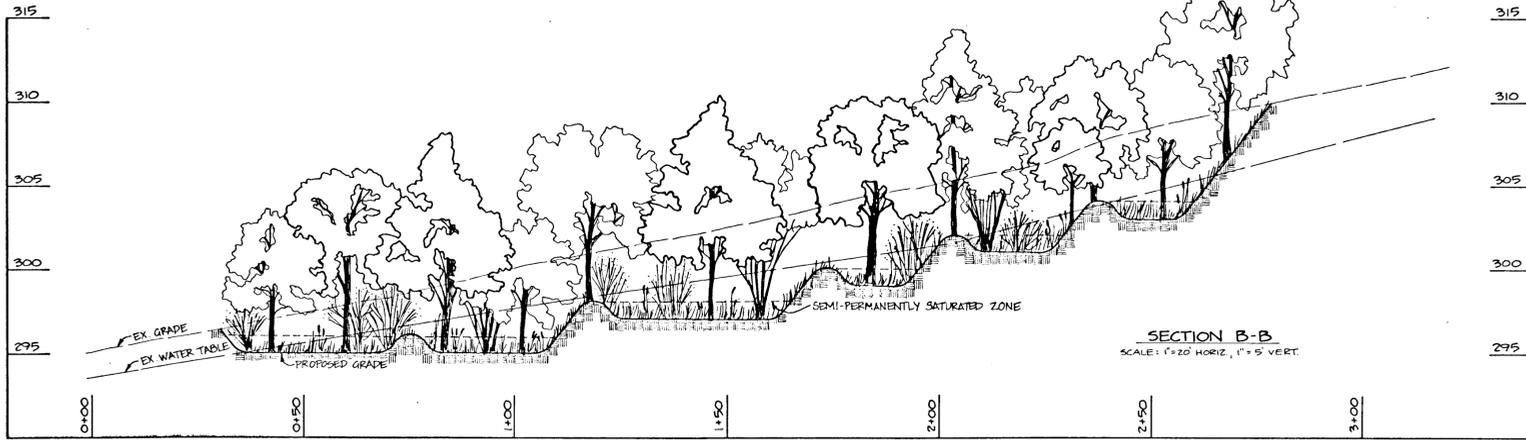
J. H. Waldorf, III 10/5/93
J. H. Waldorf, III
S. Soil Conservation Service Date

This Development Plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

John R. Roberts 10/5/93
Howard Soil Conservation District Date

Approved: Howard County Department of Planning and Zoning.

Gina Summery 10/26/93
Gina Summery
Chief, Division of Land Development and Research Date



TEST PIT DATA

I. Soil Profile Descriptions

- Soil Profile #1 (test pit) / Piezometer #1**
0-0.75 feet, Ap horizon, brown (10YR 4/3) sandy loam, moderate medium crumb, friable.
0.75-1.5 feet, Bt horizon, brownish yellow (10YR 6/8) heavy sandy loam, weak medium subangular blocky, friable.
1.5-2.5 feet, Big horizon, variegated light brownish yellow (10YR 6/4), brownish yellow (10YR 6/8), and light gray (10YR 7/5) sandy clay, moderate fine subangular blocky, firm.
2.5-7 feet, Cg1 horizon, variegated very pale brown (2.5Y 7/3), light gray (10YR 7/2), and light brownish yellow (10YR 6/4) coarse loamy sand interstratified with sandy clay, massive, variably loose to tight.
7-8.5 feet, Cg2 horizon, gray (7.5YR 5/0) cobbly sandy clay loam, massive, firm/very tight.
- Soil Profile #2 (Test Pit) / Piezometer #2**
0-1 feet, Ap horizon, dark brown (10YR 3/3) sandy loam, moderate medium crumb, friable.
1-2 feet, B horizon, olive brown (2.5Y 6/6) with common medium distinct light gray (2.5Y 7/0) mottles, sandy clay loam, massive, somewhat firm.
2-7 feet, Bc1 horizon, variegated brownish yellow (10YR 6/8), strong brown (7.5YR 5/6), light gray (10YR 7/1), and white (4.5Y 8/2) sandy clay, massive, firm.
7-9 feet, C horizon, grayish green (5G 5/2) micaceous silty clay loam to sandy loam saporitic soapstone residuum, moderate fine subangular blocky, somewhat firm.
- Soil Profile #3 (Test Pit) / Piezometer #3**
0-1.5 feet, Ap horizon, very dark brown (10YR 3/3) sandy loam, moderate medium crumb, friable.
1.5-3 feet, Bg horizon, light gray (7.5YR 7/0) sandy clay loam, massive, firm/somewhat fragic.
3-5 feet, Cg1 horizon, white (10YR 8/0) saporitic soapstone residuum and micaceous sandy clay, few coarse distinct brownish yellow (10YR 6/8) mottles, massive, firm.
5-9 feet, Cg2 horizon, variegated white (10YR 8/1) and brownish yellow (10YR 6/8) micaceous saporitic heavy sandy loam soapstone residuum, common coarse distinct manganese coatings, massive, firm.
- Soil Profile #4 (Test Pit) / Piezometer #4**
0-1 feet, Ap horizon, dark brown (10YR 3/3) sandy loam, moderate medium crumb, friable.
1-2.5 feet, Bg horizon, light gray (7.5YR 7/0) sandy clay loam, massive, firm/somewhat fragic.
2.5-5 feet, Cg1 horizon, light gray (10YR 7/1) cobbly micaceous saporitic heavy sandy loam soapstone residuum, common coarse distinct manganese coatings, massive, firm.
5-8.5 feet, Cg2 horizon, variegated white (10YR 8/1) and brownish yellow (10YR 6/8) micaceous saporitic sandy clay soapstone residuum, common coarse distinct manganese coatings, massive, firm.

II. Water Table Depths (feet below ground surface)

| | 4/22/92 | 4/29/92 | 6/9/92 |
|------|---------|---------|--------|
| PZ-1 | 2.6 | 2.8 | 3.5 |
| PZ-2 | 1.8 | 1.8 | 2.0 |
| PZ-3 | 1.0 | 1.3 | 1.3 |
| PZ-4 | 1.7 | 1.9 | 2.2 |

| NO | DATE | REVISION |
|----|------|----------|
| | | |

TSA GROUP, INC.
planning • architecture • engineering
9480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-8105

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21043
(410) 465-4244

PROJECT: WILLOWOOD
SECTION 3 AREA 1
F-92-82A

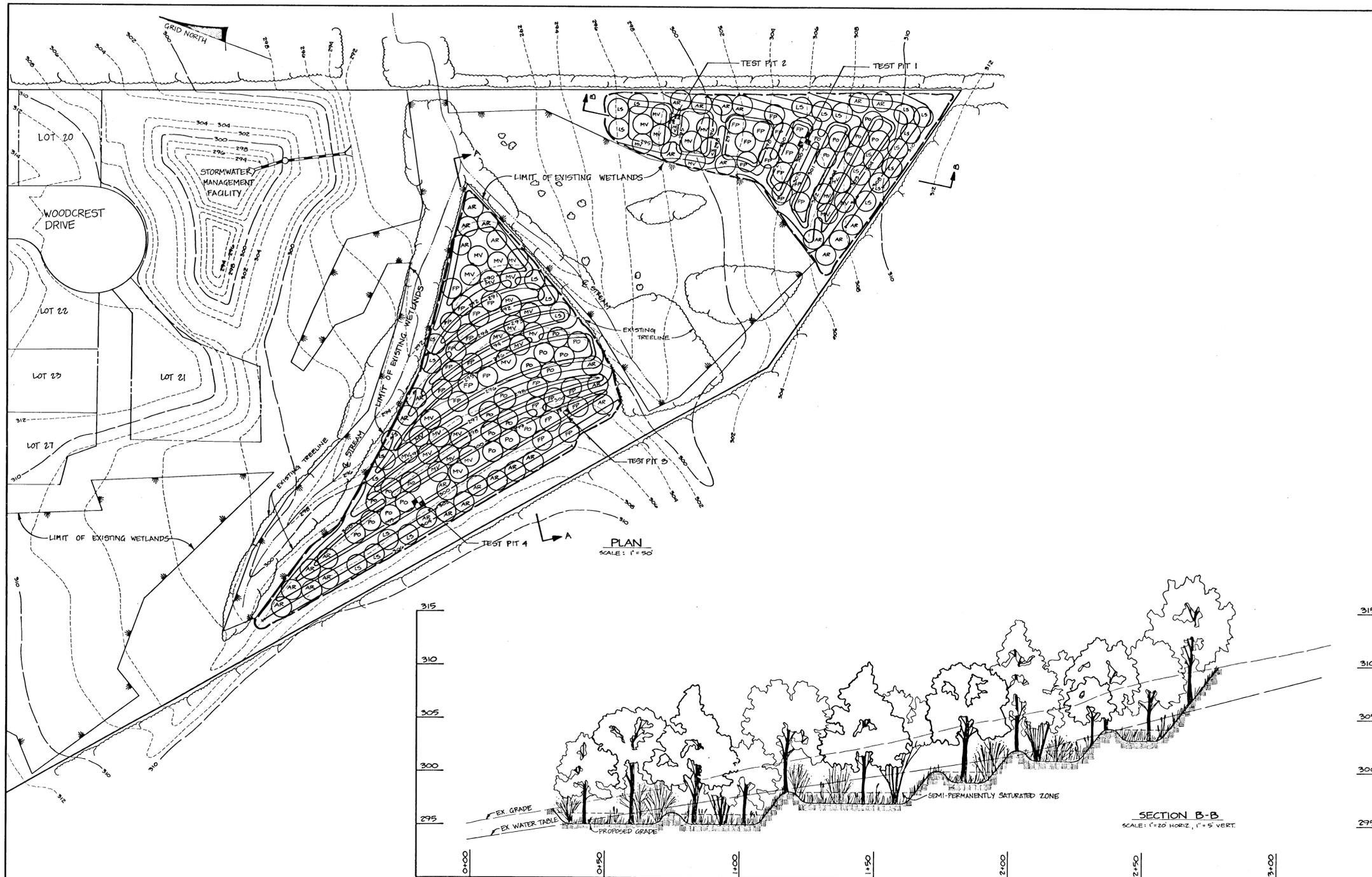
LOCATION: 1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: WETLAND MITIGATION PLAN
GRADING PLAN
93-WQ-0076

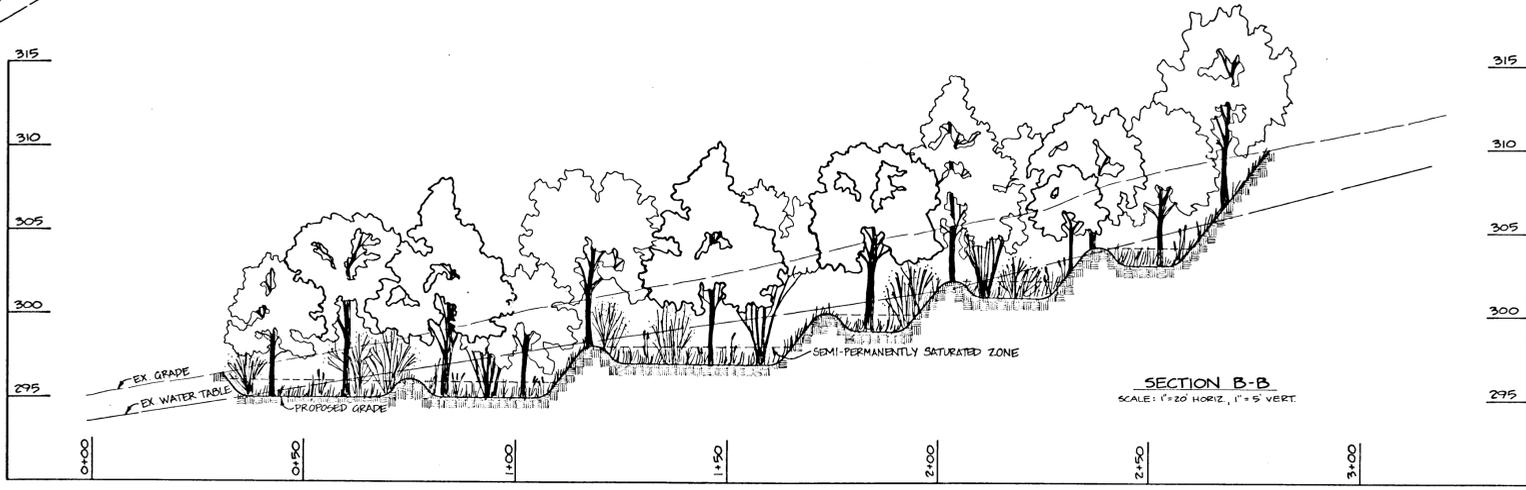
DATE: JULY 30, 1993 PROJECT NO. 0277

DES: JME DRN: DBT SCALE: AS SHOWN DRAWING 1 OF 3

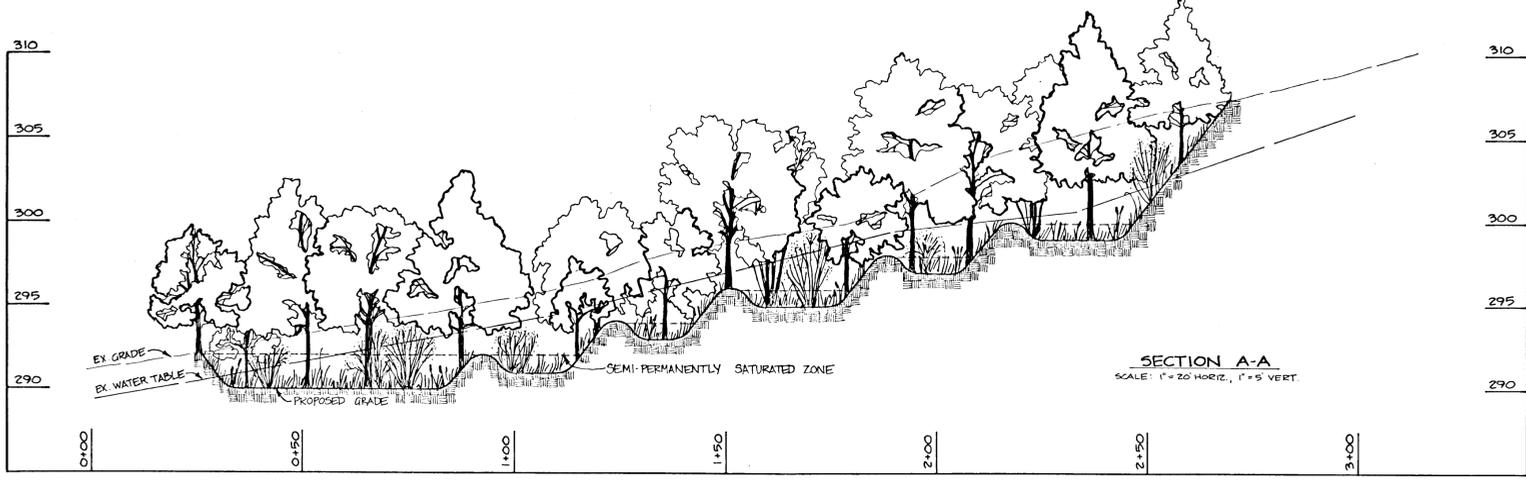
1248



PLAN
SCALE: 1" = 50'



SECTION B-B
SCALE: 1" = 20' HORIZ., 1" = 5' VERT.



SECTION A-A
SCALE: 1" = 20' HORIZ., 1" = 5' VERT.

PLANT LIST

| | POTENTIAL NAME | COMMON NAME | SIZE | SPACING | DELIVERED AS | INDICATOR | QUAN | SYMBOL |
|--------------------------------------|---------------------------------|--------------------|--------------|----------|--------------|-----------|------|--------|
| SEMI-PERMANENT SATURATED ZONE | | | | | | | | |
| TREES | FRAXINUS PENNSYLVANICA | GREEN ASH | 6'-8' | 15' O.C. | B4B | FACW | 33 | FP |
| | MAGNOLIA VIRGINIANA | SWEETBAY | 6'-8' | 15' O.C. | B4B | FACW | 36 | MV |
| | PLATANUS OCCIDENTALIS | AMERICAN Sycamore | 6'-8' | 15' O.C. | B4B | FACW | 27 | PO |
| SHRUBS | SAMBUCUS CANADENSIS | ELDERBERRY | 2'-3' | 10' O.C. | POTS OR B4B | FACW | 80 | |
| SHRUBS | CORNUS AMONUM | SILKY DOGWOOD | 2'-3' | 10' O.C. | POTS OR B4B | FACW | 80 | |
| | ALNUS SERRULATA | SMOOTH ALDER | 2'-3' | 10' O.C. | POTS OR B4B | FACW | 80 | |
| SEASONALLY SATURATED ZONE | | | | | | | | |
| TREES | ACER RUBRUM | RED MAPLE | 6'-8' | 15' O.C. | B4B | FAC | 36 | AR |
| | LIQUIDAMBAR STRYACIFLUA | SWEETGUM | 6'-8' | 15' O.C. | B4B | FAC | 28 | LS |
| SHRUBS | VIBURNUM PENTATUM | ARROWOOD | 2'-3' | 10' O.C. | POTS OR B4B | FAC | 100 | |
| | CORNUS AMONUM | SILKY DOGWOOD | 2'-3' | 10' O.C. | POTS OR B4B | FACW | 30 | |
| GRASSES | WETLAND STABILIZATION GRASS MIX | | | | | | | |
| | AGROSTIS ALBA | REDTOP | SEED MIXTURE | 40lbs/AC | 25% | FACW | | |
| | AGROSTIS STOLONIFERA | CREeping BENTGRASS | " | " | 25% | FACW | | |
| | PANICUM VIRGATUM | SWITCHGRASS | " | " | 25% | FAC | | |
| | PHALARIS ARUNDINACEA | REED CANARYGRASS | " | " | 25% | FACW | | |

SHRUBS ARE TO BE PLACED TO CREATE A NATURAL SETTING.

Approved: Howard County Department of Planning and Zoning.
Gina Jurimany, Chief, Division of Land Development and Research, 10/26/93

SUPPLEMENTAL INFORMATION

| NO | DATE | REVISION |
|--|---------------|---|
| | | |
| <p>TSA GROUP, INC. planning • architecture • engineering 8480 Baltimore National Pike • Ellicott City, Maryland 21040 • (410) 465-8105</p> | | |
| OWNER/DEVELOPER: | | PROJECT: |
| SECURITY DEVELOPMENT CORP. P.O. BOX 417 ELLCOTT CITY, MARYLAND 21043 (410) 465-4244 | | WILLOWOOD SECTION 3 AREA 1 F-92-82A |
| LOCATION: | | TITLE: |
| 1 ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND | | WETLAND MITIGATION PLAN PLANTING PLAN 95-WG-00716 |
| DATE: | JULY 30, 1993 | PROJECT NO. 0277 |
| DES: JME | DRN: DBT | SCALE: AS SHOWN |
| DRAWING 2 OF 3 | | F-92-82A |

1248

CONSTRUCTION SEQUENCE

1. Install tree protection and silt fence.
2. Remove topsoil and stockpile on site.
3. Excavate mitigation area to within six inches (6") below finish grade and replace with topsoil up to finish grade. Stabilize disturbed area.
4. Haul excess material to approved location.
5. Plant mitigation area in accordance with planting plan.
6. Remove silt fence and tree protection fence. Stabilize.

GRADING NOTES

1. All vegetation, trash, and debris not marked in the field or on the plans, within the limits of disturbance, are to be disposed of off site in an approved landfill site.
2. All topsoil and excess cut is to be removed and disposed of off site.
3. Grade tolerance shall be within 0.2 feet.
4. The mitigation area shall be excavated six inches (6") below finished grade and six inches (6") of topsoil shall be uniformly spread to finished elevation. Topsoil shall be free of stone, lumps, plants, roots, and other debris including toxic substances. Topsoil shall have a pH range of 5.0 - 7.0.
5. All final elevations shall be field checked by TSA Group, Inc. prior to the contractor removing equipment from the site.

CONSTRUCTION REQUIREMENTS

The site to be restored as forested wetland shall be graded, planted, and fertilized as shown on the plans and in accordance with these special provisions:

- A. Planting schedule shall conform to the following conditions:
- All trees and shrubs shall be installed between March 15 to May 15 or as directed by TSA Group, Inc. This work shall consist of furnishing and planting trees and shrubs as shown on the plans and/or as directed by the TSA Group, Inc. and all planting operations, care and replacement as necessary to complete the work specified.
- B. Plant Materials:
- 1) Root-stock of the plant material shall be kept moist during transport from the source to the job site and until planted.
 - 2) Plant material shall be planted in the soil with each planting pit excavated to size sufficient to contain the entire root-stock or the entire root-mass without cramping.
 - 3) Fertilize as required.
- C. Planting Bed Preparation:
- The contractor shall prepare the area to be planted by spreading a uniform layer of six inches (6") of topsoil over the excavated area. Planting areas shall be approved by TSA Group, Inc. prior to the installation of the plant material.
- D. Clean-Up:
- Final clean up shall be the responsibility of the contractor and consist of removing all trash and materials incidental to the project, and disposing of them off-site. In addition, the construction procedure shall not damage any areas of existing plants which are to remain.
- E. The planting locations are approximate and may be varied upon the approval of TSA Group, Inc. provided the relative ratios are maintained.
- F. Plant material selections are based upon availability at time of design. If specific plants are unavailable at time of planting, substitute plants conforming to above specifications will be made. All substitute plant materials are subject to the approval of TSA Group, Inc.

TEMPORARY SEEDING NOTES

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

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

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

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

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

PERMANENT SEEDING NOTES

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

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

Soil Amendments: In lieu of soil test recommendations, use on of the following schedules:

- 1) **Preferred** - Apply 2 tons per acres dolomitic limestone (92 lbs./1000 square foot) and 500 lbs. per acre 10-10-10 fertilizer (14 three-inches of soil). At time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs./1000 sq. ft.).
- 2) **Acceptable** - Apply 2 tons per acre dolomitic limestone (92 lbs./1000 sq. ft.) before seeding. Harrow or disc into upper three-inches of soil.

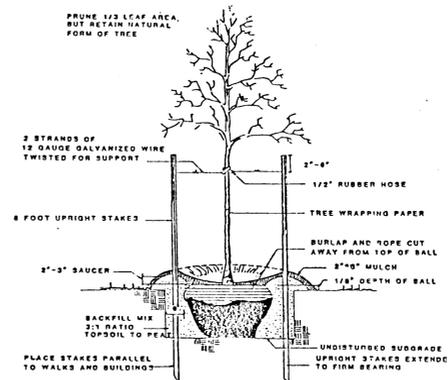
Seeding: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs./1000 ft.) of Kentucky 31 tall fescue. And for the period May 1 thru July 31, seed with 60 lbs. Kentucky 31 per acre and 2 lbs. per acre (.05 lbs./1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) use sod. Option (3) seed with 60 lbs./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 unrotted small grain straw immediately after seeding. Anchor mulch gallons per acre (5 gal/1000 sq. ft.) or emulsified asphalt on flat gal/1000 sq. ft.) for anchoring.

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

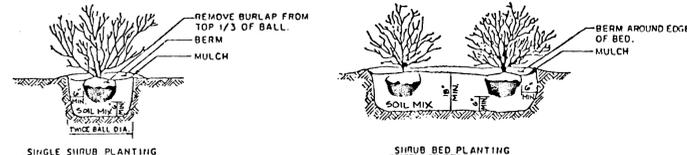
RECOMMENDED MANAGEMENT APPROACH FOR WETLAND ENHANCEMENT AREA

1. Wetland area shall be periodically monitored for altered hydrologic conditions, invasive plant species, transition of wetland species to upland plants, and cultural impacts such as human disturbance, filling, non-point and point source pollution. Management techniques recommended to stabilize unnatural ecological successions include:
 - a) Altering the hydrological regime.
 - b) Removing undesirable plant species.
 - c) Restricting or discouraging destructive human interaction.
2. Vegetation demonstrating immediate stress or dieback shall be replaced. Soil and climate factors should be analyzed in relation to plant growth. The following management techniques shall be utilized:
 - a) Replace plant species with similar vegetation.
 - b) Add soil amendments to enhance survivability.
 - c) Replace plant species with specified alternative.
 - d) Prune plant species to establish desired growth characteristics and enhance survivability.



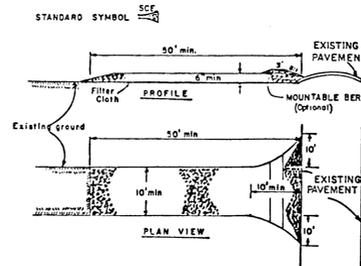
TREE PLANTING DETAIL

NOT TO SCALE



SHRUB PLANTING DETAIL

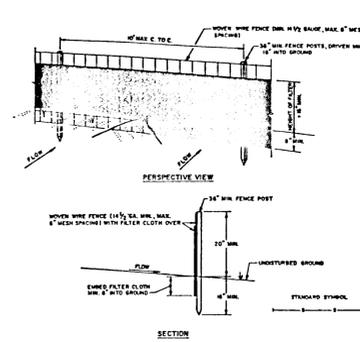
NO SCALE



1. Stone Size - One (1) stone, or recycled 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 would apply).
3. Thickness - Not less than six (6) inches.
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress of grass occurs.
5. Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with six (6) slope will be permitted.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and rapid and/or cleanup of any measures used to trap sediment. All sediment applied, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing - Washing shall be cleaned to remove sediment prior to entrance 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 trapping device.
9. Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

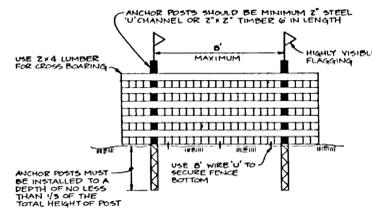


- CONSTRUCTION NOTES FOR FABRICATED SILT FENCE**
1. MONY WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
 2. FILTER CLOTH TO BE FASTENED SECURELY TO MONY WIRE FENCE WITH TIES SPACED EVERY 2' AT TOP AND MID SECTION.
 3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX (6) INCHES AND FASTENED.
 4. MAINTENANCE SHALL BE PROVIDED AS WELLS AND MATERIAL REMOVED WHEN "MUDS" DEVELOP IN THE SILT FENCE.
- POSTS:** STEEL EITHER T OR U TYPE #2 UNCOATED
FENCE: MONY WIRE, 1/2 GAL. 6\"/>

FILTER CLOTH: FILTER #1, MEAT #100, STAINLESS STEEL OR APPROVED EQUAL.
PREFABRICATED UNITS: GEOWEBS, ENVIROSCREEN, OR APPROVED EQUAL.

SILT FENCE

NOT TO SCALE



1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLATION.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCE

NO SCALE

By the Developer:

"I certify that all development and construction will be 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 the 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."

James R. Hoxley, Jr. 8-3-93
 James R. Hoxley, Jr. - President
 Security Development Corporation

By the Engineer:

"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."

John H. Elorriaga 8/2/93
 John H. Elorriaga, P.E./ #16891
 Date

Reviewed by Howard Soil Conservation District and meets Technical Requirements.

J. H. Wafar 10/5/93
 J. H. Wafar
 Howard Soil Conservation District

This Development Plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

John H. Elorriaga 10/5/93
 John H. Elorriaga
 Howard Soil Conservation District

Approved, Howard County Department of Planning and Zoning.

Gina Summari 10/26/93
 Gina Summari
 Chief, Division of Land Development and Research

SUPPLEMENTAL INFORMATION

| | | |
|--|------|--|
| NO | DATE | REVISION |
| | | |
| <p>TSA GROUP, INC. planning • architecture • engineering 8480 Baltimore National Pike • Millcott City, Maryland 21045 • (410) 465-6105</p> | | |
| <p>OWNER / DEVELOPER:</p> <p>SECURITY DEVELOPMENT CORP. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21043 (410) 465-4244</p> | | <p>PROJECT:</p> <p>WILLOWOOD SECTION 3 AREA 1 F-92-82A</p> <p>LOCATION:</p> <p>#4 ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> <p>TITLE:</p> <p>WETLAND MITIGATION PLAN NOTES AND DETAILS 92-WG-0076</p> <p>DATE: JULY 30, 1993 PROJECT NO. 0277</p> <p>DES: JME DRN: DBT SCALE: AS SHOWN DRAWING 3 OF 3</p> |



1048