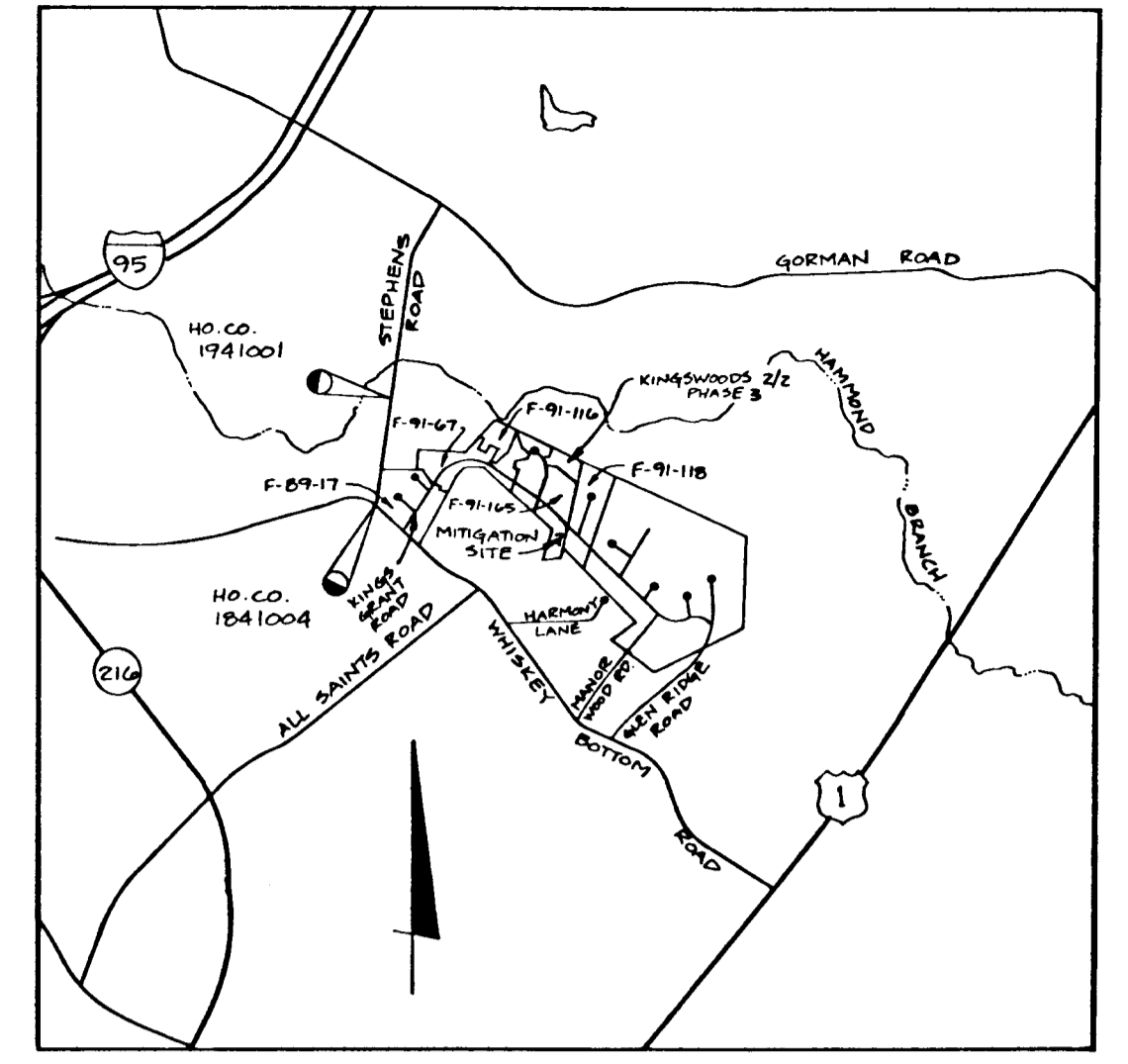
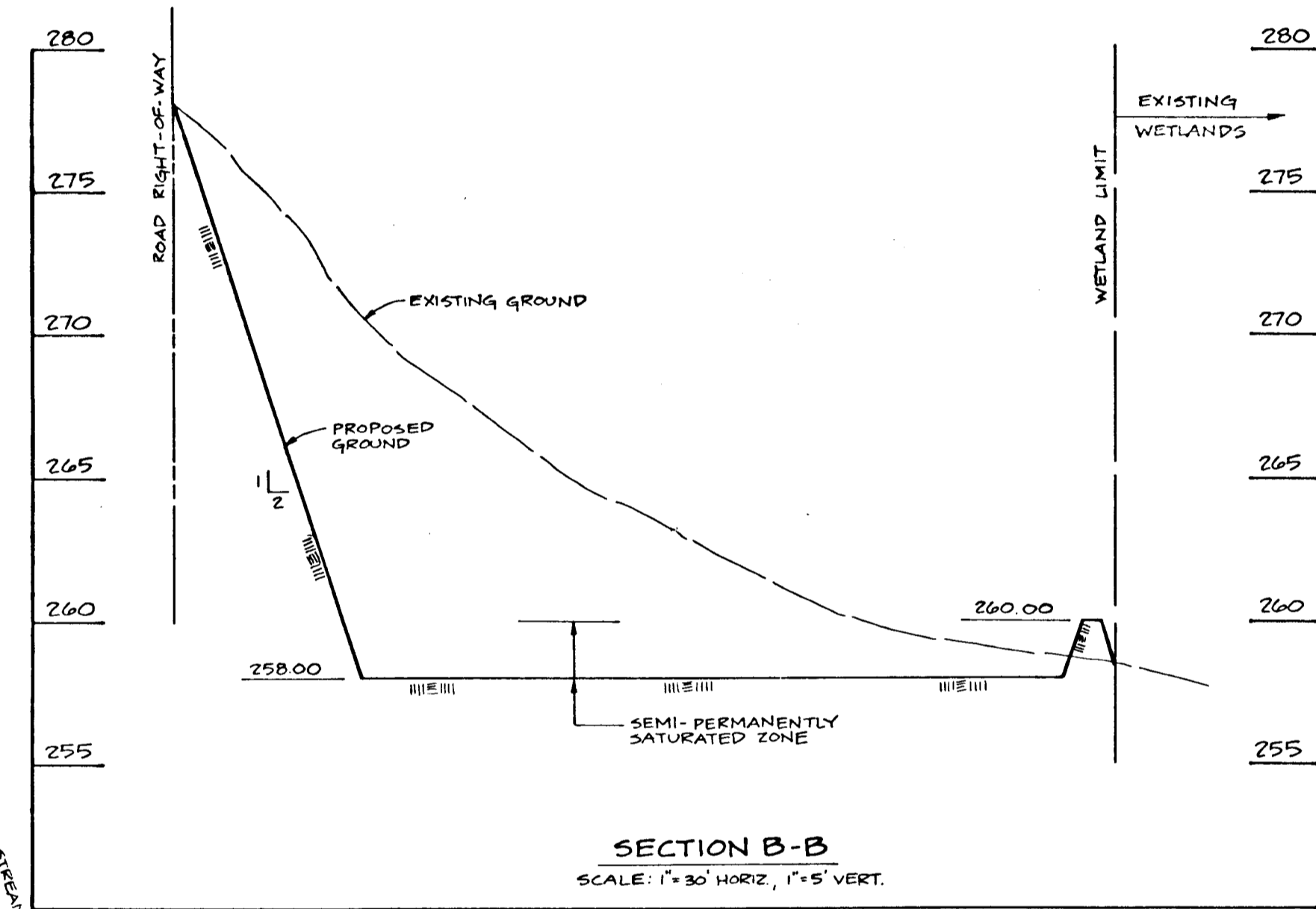
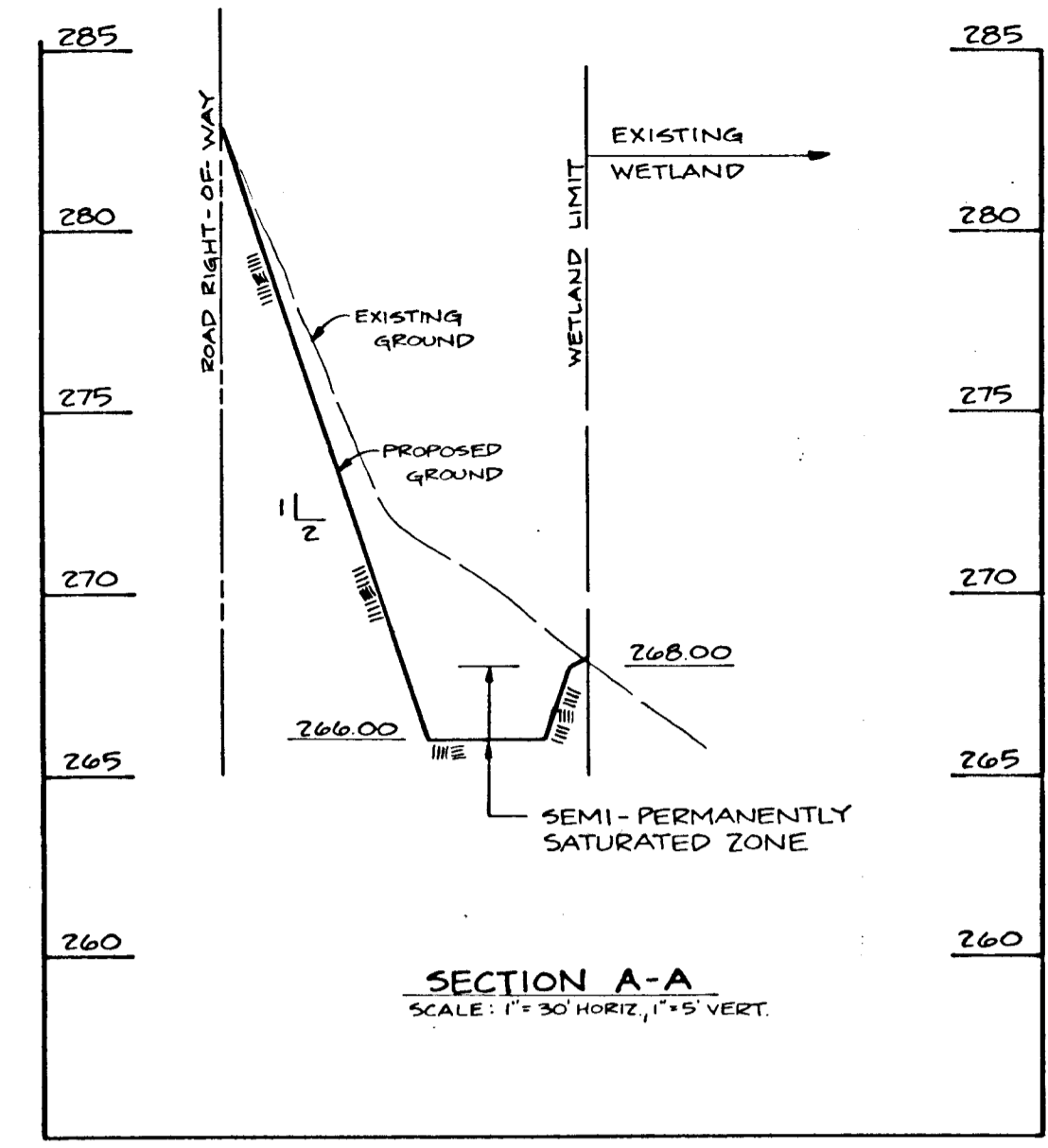


PLAN
SCALE: 1" = 30'

- LEGEND**
- FORESTED WETLAND ENHANCEMENT - 0.30 AC.
 - FORESTED UPLAND ENHANCEMENT - 0.20 AC.
 - EXISTING CONTOURS
 - PROPOSED CONTOURS



- GENERAL NOTES**
- Project goal is to create approximately 0.30 acre of forested wetland and 0.20 acre of upland forest enhancement in accordance with the mitigation conditions required by the Maryland Department of the Environment Water Quality Certification # 89-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 or 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 Leonardtown 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.
 - AN ADDITIONAL 0.2 ACRE OF WETLAND MITIGATION SHALL BE PROVIDED OFFSITE (WOODBROOK) AS PART OF THE MITIGATION PROJECT ASSOCIATED WITH THE WILLOWOOD 3/1 WATER QUALITY CERTIFICATION # 93-WQ-0076.

SEDIMENT AND EROSION CONTROL NOTE

SILT FENCE AND TREE PROTECTION FENCE SHALL BE PLACED AT THE LIMIT OF EXISTING WETLAND ADJACENT TO CONSTRUCTION AREA.

SUPPLEMENTAL INFORMATION

NO	DATE	REVISION

TSA GROUP, INC.
 planning • architecture • engineering
 8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-0105

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. Hozley, Jr. 10/20/93
 James R. Hozley, 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. Elofraga 10/20/93
 John M. Elofraga, P.E. #16891 Date

Reviewed by Howard Soil Conservation District and meets Technical Requirements. _____ Date

U.S. Soil Conservation Service _____ Date

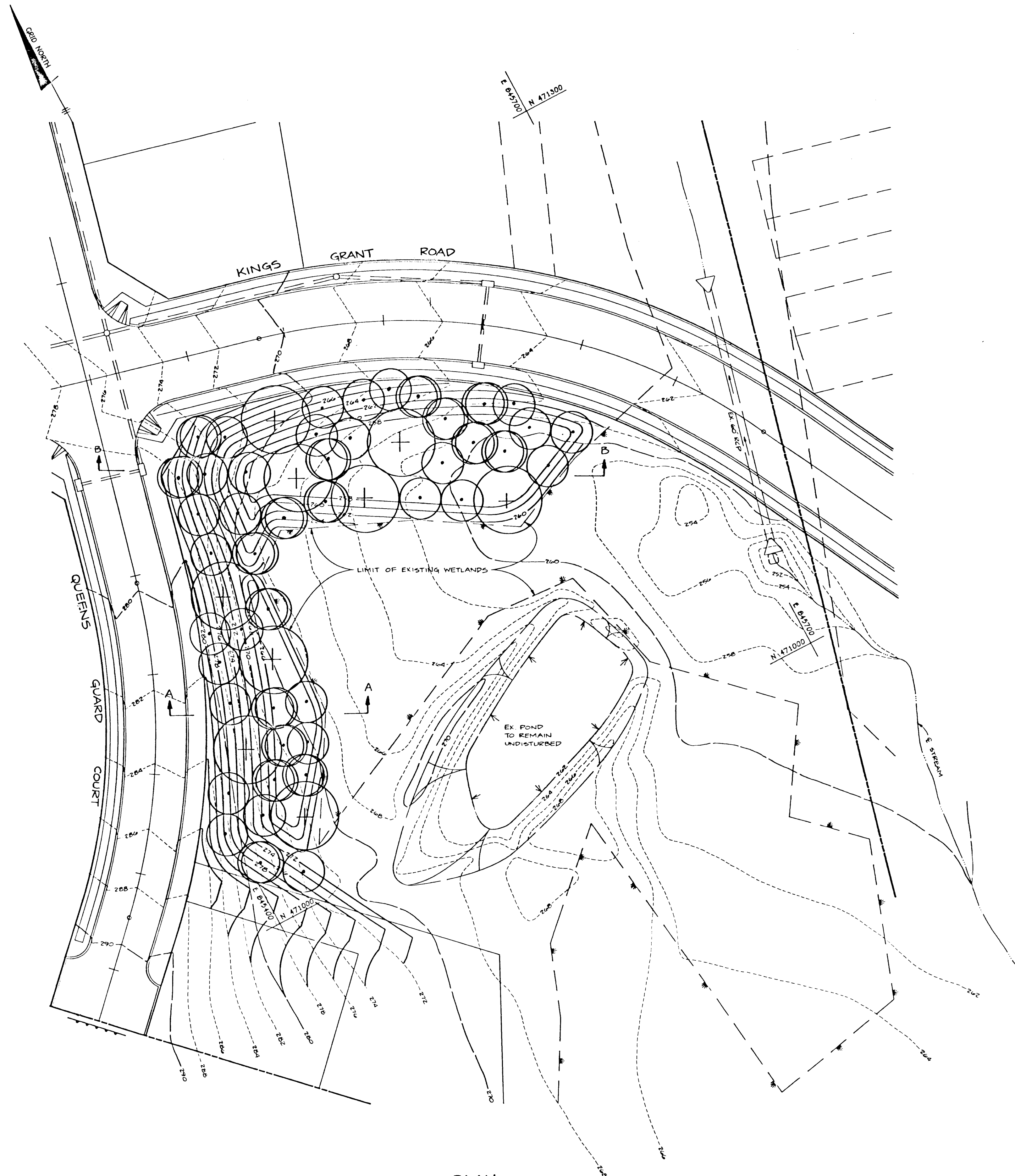
This Development Plan is approved for soil erosion and sediment control by the Howard Soil Conservation District. _____ Date

Howard Soil Conservation District _____ Date

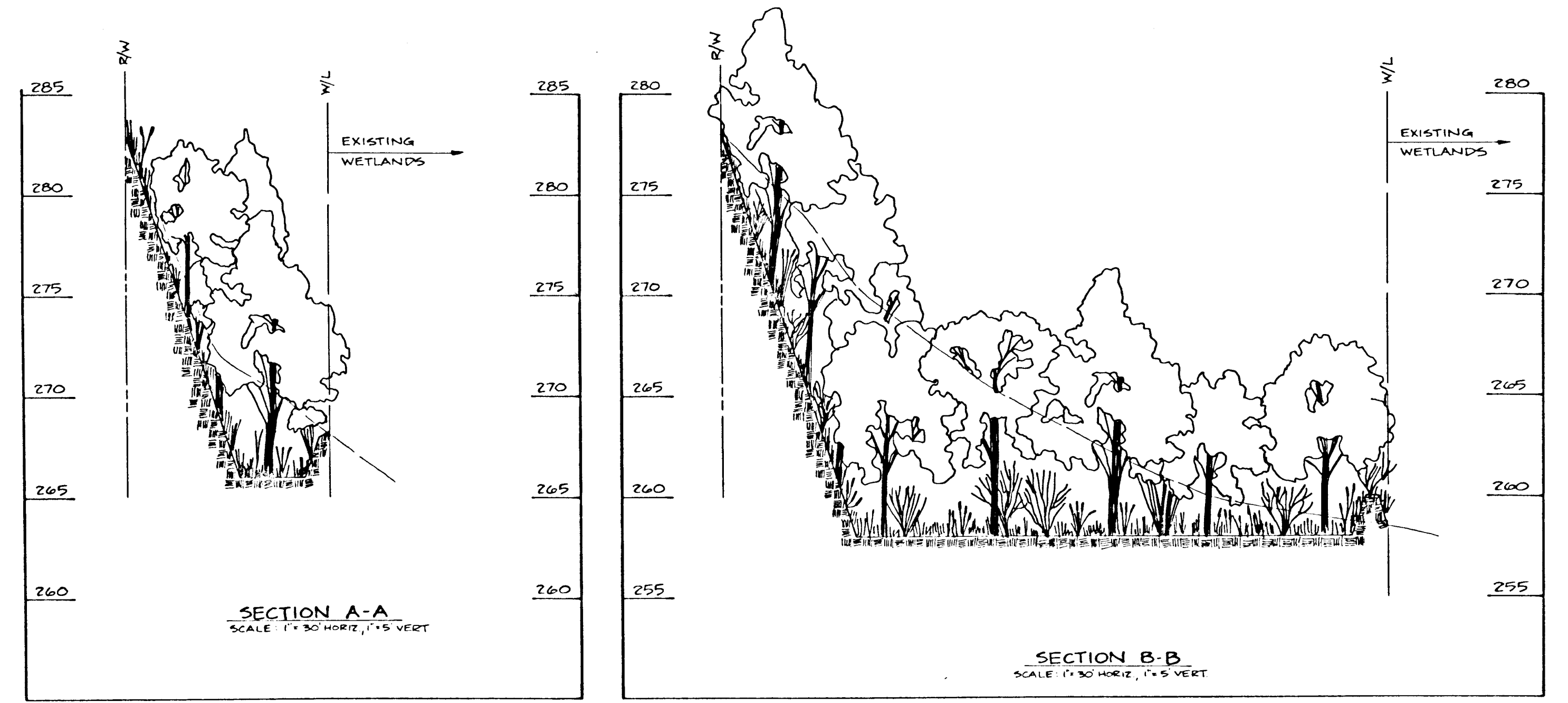
Approved: Howard County Department of Planning and Zoning.
Gina Lunnans 10/20/93
 Chief, Division of Land Development and Research Date

APPROVED PLAN REVISION
 SCD *John W. Ollig*
 SCS *J.C. Wolf* 10/17/93
 Technical Review

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21043 (410) 465-4244	PROJECT: KINGS WOODS SECTION 2, AREA 2, PHASE 3 F-91-165
LOCATION: TAX MAP 47 6 th ELECTION DISTRICT HOWARD COUNTY, MD	TITLE: WETLAND MITIGATION PLAN GRADING PLAN 89-WQ-0163
DATE: JANUARY 26, 1993 JULY 22, 1993	PROJECT NO.: 0084
DES: JME DRN: DBT	SCALE: AS SHOWN DRAWING 1 OF 3



PLAN
SCALE: 1" = 30'



PLANTING LEGEND

- AMERICAN SYCAMORE
- RED MAPLE
- SWEET GUM

PLANT LIST

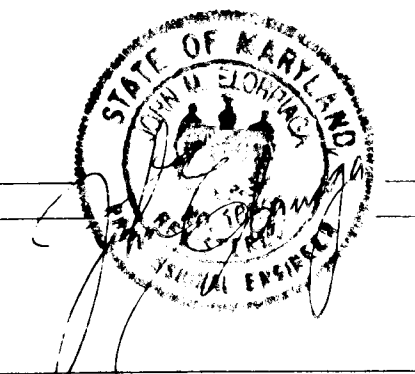
SEE	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	DELIVERED AS	QUANTITY	INDICATOR
TREE PLANT LIST							
.....	Acer Robur	Red Maple	6'-8'	15' o.c.	B & B	20	PAC
	Liquidambar styraciflua	Sweetgum	6'-8'	15' o.c.	B & B	17	PAC
	Platanus Occidentalis	American Sycamore	6'-8'	15' o.c.	B & B	9	PACB
SHRUB PLANT LIST							
.....	Thuja occidentalis	Arborvitae	2'-3'	10' o.c.	Pots or B & B	50	PAC
	Cornus Amomum	Silky Dogwood	2'-3'	10' o.c.	Pots or B & B	30	PAC
	Alnus Incana	Smooth Alder	2'-3'	10' o.c.	Pots or B & B	30	PACW
WETLAND STABILIZATION GRASS MIX							
.....	Agrostis Alba	Beardgrass	Seed			25	PACB
	Agrostis Scirpifera	Creeping Dogstongue	Mixture	40 lbs. ac.		25	20 lbs. PACB
	Panicum Flageoletii	Saltgrass				25	PAC
	Phalaris Arundinacea	Reed Canarygrass				25	PACB

NOTE:
CONTRACTOR SHALL PLANT SHRUBS IN A MANNER TO PROMOTE A NATURAL SETTING.

SUPPLEMENTAL INFORMATION

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering
8400 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-8100



Approved: Howard County Department of Planning and Zoning.
Gina J. Summary 10/20/93
Chief, Division of Land Development and Research Date

OWNER/DEVELOPER: SECURITY DEVELOPMENT CORP. P.O. BOX 417 ELlicOTT CITY, MARYLAND 21043 (410) 465-4244	PROJECT: KINGS WOODS SECTION 2, AREA 2, PHASE 3 F-91-165
LOCATION: TAX MAP 47 6 th ELECTION DISTRICT HOWARD COUNTY, MD	TITLE: WETLAND MITIGATION PLAN 89-WQ-0163
DATE: JANUARY 26, 1993 JULY 22, 1993	PROJECT NO. 0084
DES: JME DRN: DBT	SCALE: AS SHOWN DRAWING 2 OF 3

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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:

- 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.
- 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.
- 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.
- 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.
- The planting locations are approximate and may be varied upon the approval of TSA Group, Inc. provided the relative ratios are maintained.**
- 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 unrotting 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.

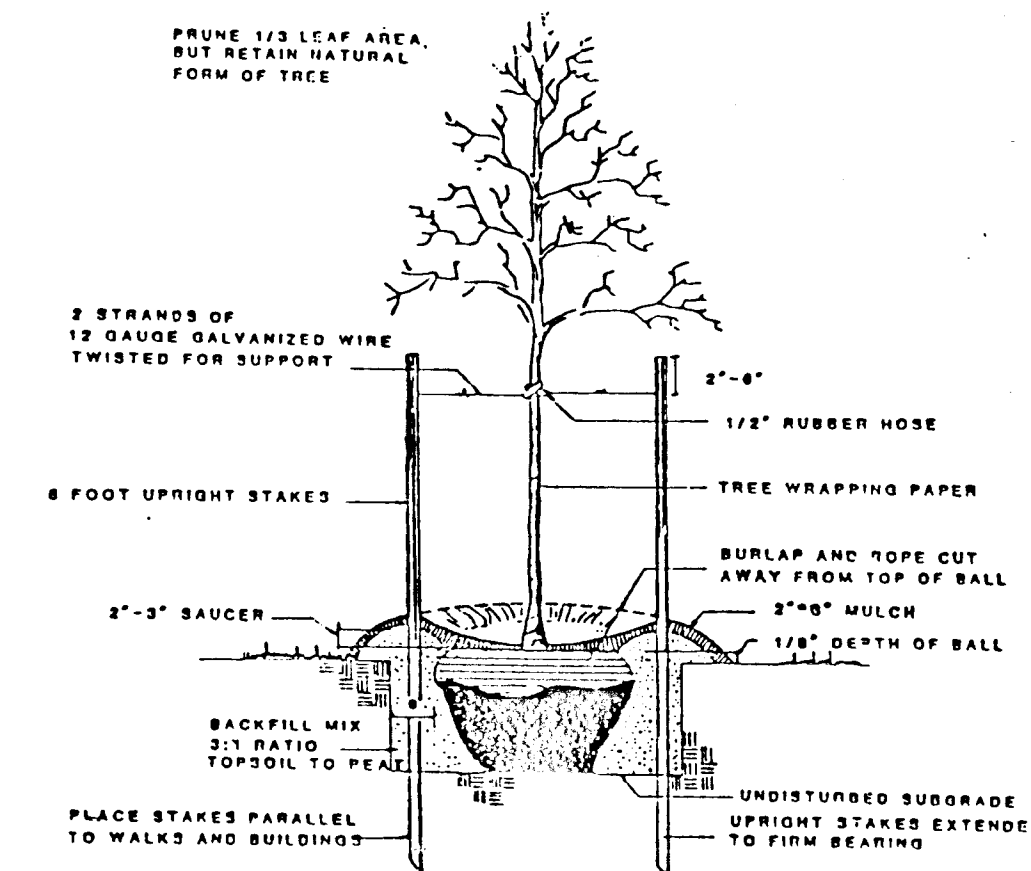
Seeding: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs./1000 sq. ft.) of Kentucky 31 tall fescue. And for the period May 1 thru July 31, seed with 60 lbs. Kentucky 31 per acre and 2 lbs. per acre (.05 lbs./1000 sq. ft.) of weeping lovegrass. 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.

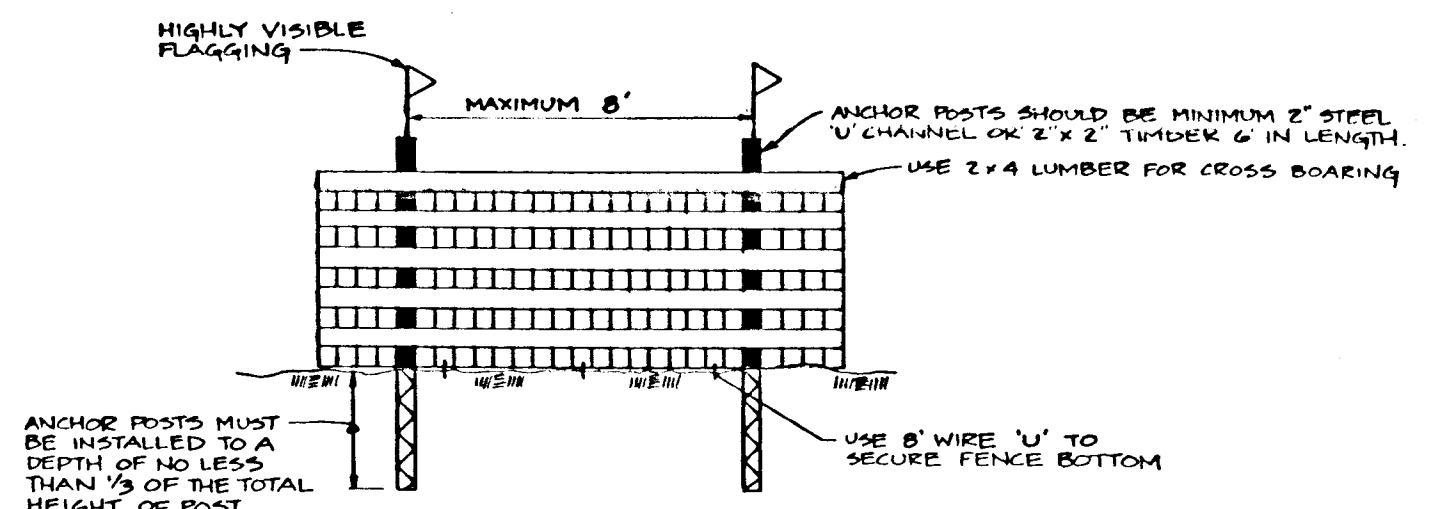
Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseedings.

RECOMMENDED MANAGEMENT APPROACH FOR WETLAND ENHANCEMENT AREA

1. Wetland area shall be periodically monitored for altered hydrological 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.

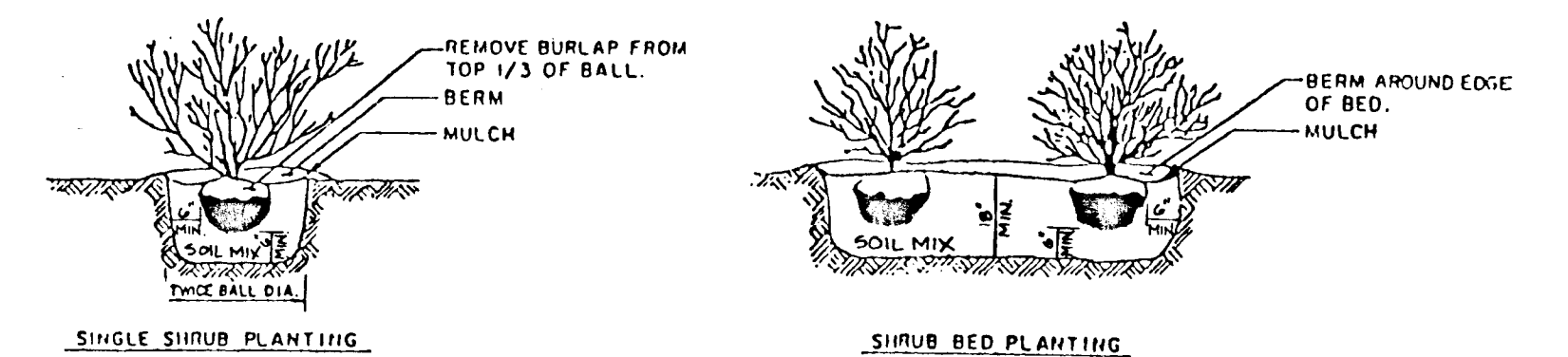


TREE PLANTING DETAIL
NOT TO SCALE

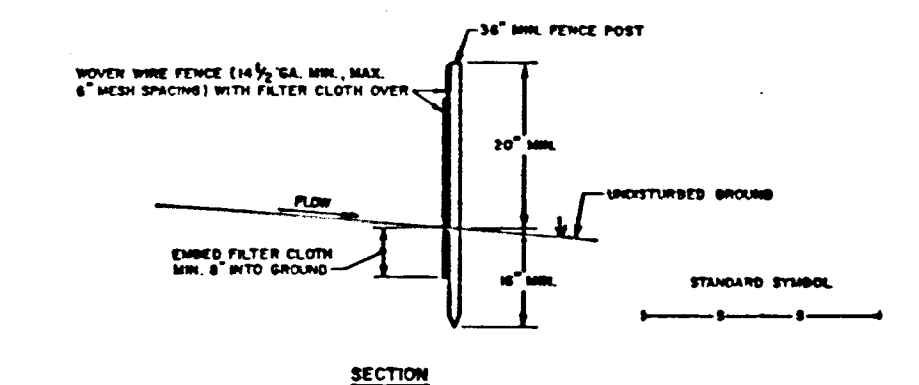
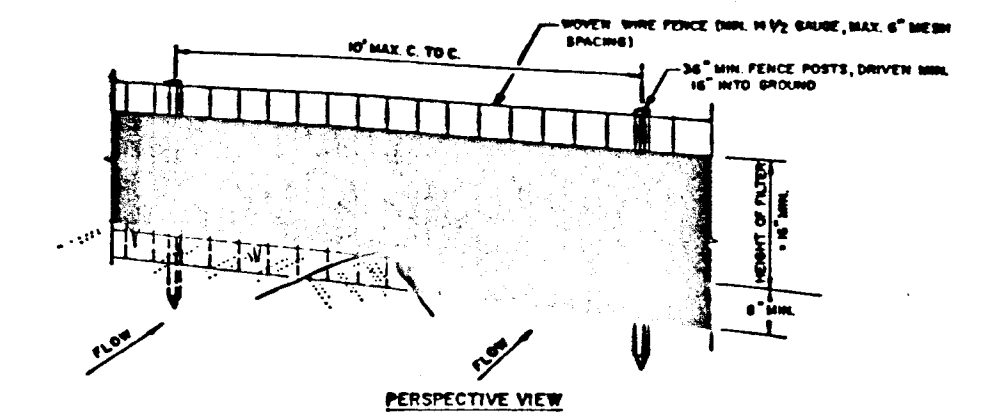


1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLATION.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCE
NOT TO SCALE



SHRUB PLANTING DETAIL
NO SCALE



CONSTRUCTION NOTES FOR PREFABRICATED SILT FENCE

1. MONOWIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
 2. FILTER CLOTH TO BE FASTENED SECURELY TO MONOWIRE FENCE WITH TIES SPACED EVERY 6" AT TOP AND MID SECTION.
 3. WHEN THE SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
 4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BALLES DEVELOP IN THE SILT FENCE.
- POSTS: STEEL EITHER T OR U TYPE OR 2" WOODEN
FENCE: MONOWIRE, 1/8" GAL. 6" MAX. PESH OPENING
FILTER CLOTH: FILTER #1, 100% STABILIZED LINER THICK OR APPROVED EQUAL
PREFABRICATED UNIT: GEOTAB, ENVIRONMENTAL, OR APPROVED EQUAL.

SILT FENCE
NOT TO SCALE

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. Moxley, Jr. 8-3-93
James R. Moxley, 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 M. Elarraga 8/24/93
John M. Elarraga, P.E. #16891

Reviewed by Howard Soil Conservation District and meets Technical Requirements.
U.S. Soil Conservation Service _____ Date _____

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

Approved: Howard County Department of Planning and Zoning.
Gum Jovanovic 10/24/93
Chief, Division of Land Development and Research Date

APPROVED PLAN REVISION
SCD _____
SCS _____
Technical Review 10/16/93

SUPPLEMENTAL INFORMATION

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-8108

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

PROJECT: **KINGS WOODS**
SECTION 2, AREA 2, PHASE 3
F-91-165

LOCATION: TAX MAP 47
6th ELECTION DISTRICT
HOWARD COUNTY, MD

TITLE: **WETLAND MITIGATION PLAN**
NOTES AND DETAILS
89-WQ-0163

DATE: JANUARY 26, 1993
JULY 22, 1993

PROJECT NO. 0084

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

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