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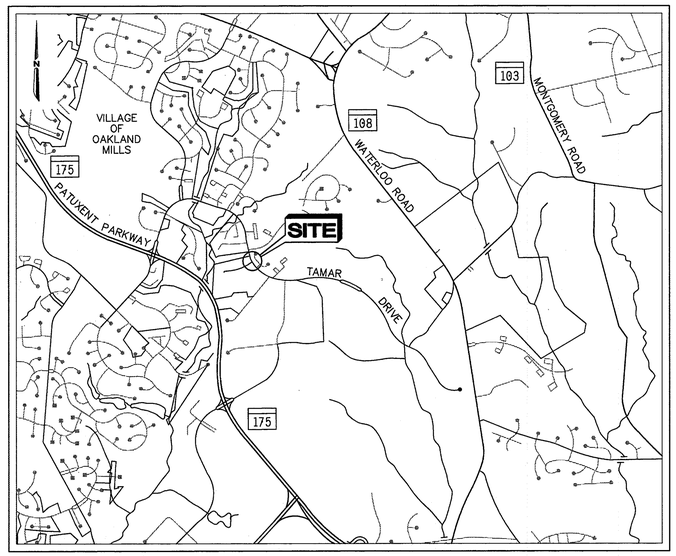
4	SEDIMENT AND EROSION CONTROL PLAN
5–6	SEDIMENT AND EROSION CONTROL DETAILS
7	SIGNAL PLAN
8	SIGNING AND MARKING PLAN
9	TRAFFIC CONTROL PLAN AND TYPICAL SECTION



LOCATION MAP
SCALE 1" = 2000'

GENERAL NOTES

1. ALL INFORMATION AND DETAILS ON THESE DRAWINGS SHALL BE AS DIRECTED BY THE HOWARD COUNTY ENGINEER.
2. ALL STATIONING AND DIMENSIONING ARE TO BE FIELD VERIFIED BY THE CONTRACTOR.
3. STORM DRAINAGE SLOPES ARE TO BE AS DIRECTED BY HOWARD COUNTY ENGINEER UNLESS OTHERWISE SHOWN ON PLANS.
4. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.

   MISS UTILITY 1–800–257–7777
   Baltimore Gas & Electric Company – Electric Distribution
   MDSHA INSPECTION DIVISION

   THE CONTRACTOR SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION OF ENGINEERING FOR VERIFICATION AND/OR INFORMATION REGARDING:
   A. PROPOSED/EXISTING RIGHT–OF–WAY.
   B. UTILITY RELOCATION.
   C. MAINTENANCE OF TRAFFIC DURING CONSTRUCTION.
   D. EROSION/SEDIMENT CONTROL CERTIFICATION AND PERMIT
   E. HORIZONTAL/VERTICAL SURVEY CONTROL.
   F. GRADING PERMIT
5. SEE HOWARD COUNTY STANDARD DETAILS NO'S G–1.01 & G–1.02 FOR STANDARD SYMBOLS.
6. MAINTENANCE OF TRAFFIC ALONG TAMAR ROAD AND CLOUDLEAP COURT SHALL BE HANDLED BY SHA STANDARD MD–104.38–02 – RIGHT LANE CLOSURE AND SHA STANDARD MD–104.11–02 – SHOULDER WORK, OVERNIGHT USE, WHEN TRAFFIC CONTROL PLAN NOT IN USE.
7. A STAGING AND STOCKPILE AREA WILL BE DETERMINED BY CONTRACTOR AND APPROVED BY HOWARD COUNTY ENGINEER.
8. LIMITS OF CUT AND FILL ARE BASED SOLELY ON FIELD INVESTIGATIONS AND AND APPROXIMATIONS. NO SURVEY OR CROSS SECTION DATA HAS BEEN DEVELOPED.
9. NO GUARANTEE IS MADE TO THE ACCURACY OF THESE PLANS AS THEY HAVE BEEN DEVELOPED FROM "AS–BUILTS" DRAWINGS AND OTHER OFFICE DATA. THE COORDINATES DEVELOPED FOR THIS BASELINE GEOMETRY HAVE NOT BEEN FIELD SURVEYED AND CANNOT BE RELIED UPON AS PRECISE. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ACCURATE COODINATE GEOMETRY TO MEET THE EXISTING FIELD CONDITIONS, AND THE INTENT OF THESE DRAWINGS.
10. UTILIES SHOWN ARE BASED ON MISSUTILIY FIELD MARKINGS.

CAPITAL PROJECT NO. J–4164

Tamar Drive at Cloudleap Court "ROAD WIDENING"

HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
U.S. Natural Resources Conservation Service — Date 8/10/99
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Howard Soil Conservation District — Date 8/10/99

C991AZ01

APPROVED: FOR STORM DRAINAGE SYSTEMS AND PUBLIC ROADS. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT. — DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS — DATE 8/12/99
CHIEF, BUREAU OF ENGINEERING — DATE 8/12/99
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION — DATE 8/12/99
CHIEF, BUREAU OF HIGHWAYS — DATE 8/17/99

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96–309–055

BOARD OF PROFESSIONAL ENGINEERS No. 23505 FREDERICK A. CROWTHER STATE OF MARYLAND 7/27/99

DES: F.A.C.	
DRN: J.N.W.	
CHK: F.A.C.	
DATE: 7/99	

BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J–4164
600' SCALE MAP NO. _____ DATE: _____

TITLE SHEET
Tamar Drive at Cloudleap Court

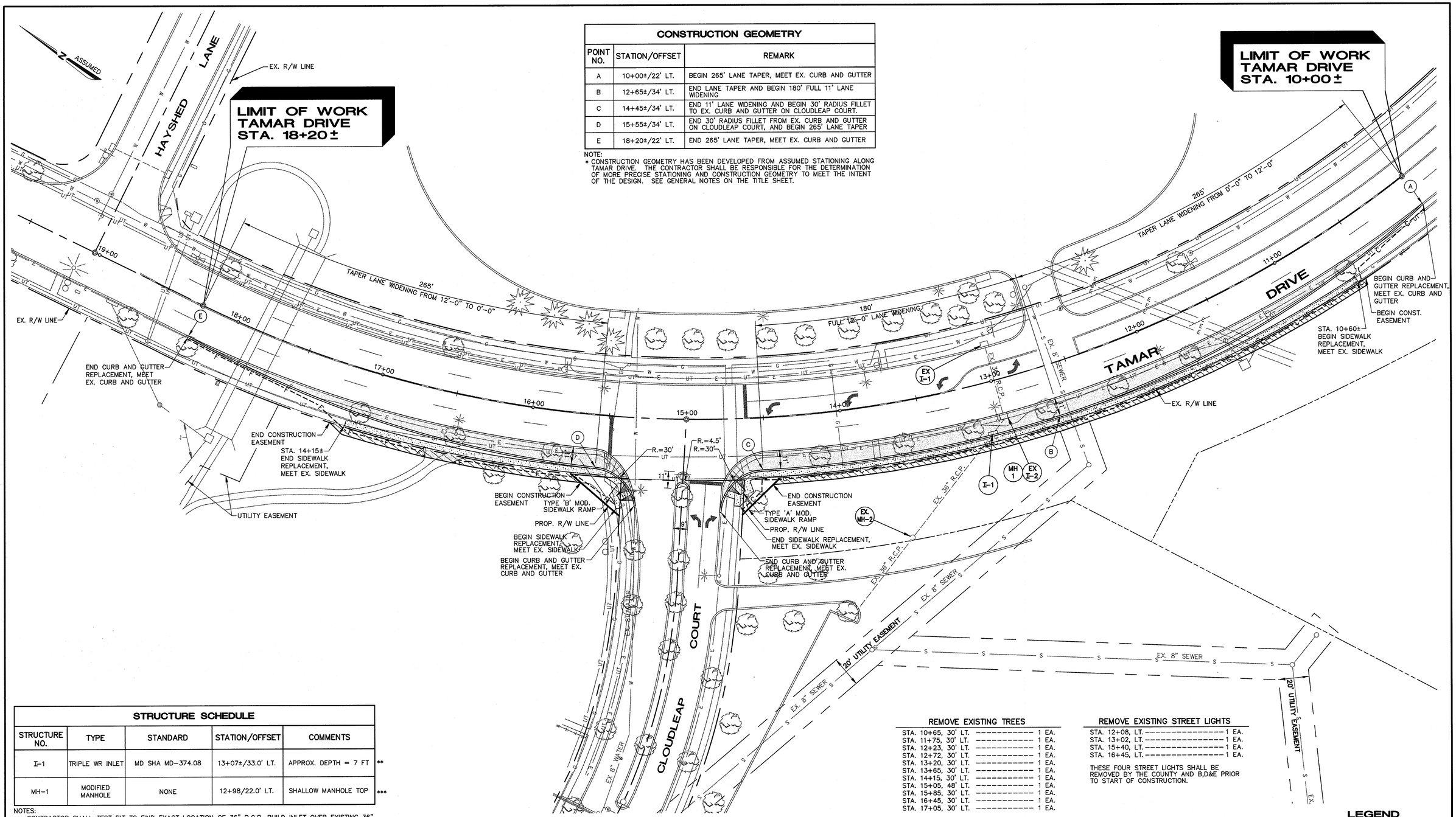
SCALE AS SHOWN

SHEET 1 OF 9

CONSTRUCTION GEOMETRY

POINT NO.	STATION/OFFSET	REMARK
A	10+00±/22' LT.	BEGIN 265' LANE TAPER, MEET EX. CURB AND GUTTER
B	12+65±/34' LT.	END LANE TAPER AND BEGIN 180' FULL 11' LANE WIDENING
C	14+45±/34' LT.	END 11' LANE WIDENING AND BEGIN 30' RADIUS FILLET TO EX. CURB AND GUTTER ON CLOUDLEAP COURT.
D	15+55±/34' LT.	END 30' RADIUS FILLET FROM EX. CURB AND GUTTER ON CLOUDLEAP COURT, AND BEGIN 265' LANE TAPER
E	18+20±/22' LT.	END 265' LANE TAPER, MEET EX. CURB AND GUTTER

NOTE:
* CONSTRUCTION GEOMETRY HAS BEEN DEVELOPED FROM ASSUMED STATIONING ALONG TAMAR DRIVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETERMINATION OF MORE PRECISE STATIONING AND CONSTRUCTION GEOMETRY TO MEET THE INTENT OF THE DESIGN. SEE GENERAL NOTES ON THE TITLE SHEET.



STRUCTURE SCHEDULE

STRUCTURE NO.	TYPE	STANDARD	STATION/OFFSET	COMMENTS	
I-1	TRIPLE WR INLET	MD SHA MD-374.08	13+07±/33.0' LT.	APPROX. DEPTH = 7 FT	**
MH-1	MODIFIED MANHOLE	NONE	12+98/22.0' LT.	SHALLOW MANHOLE TOP	***

NOTES:
** CONTRACTOR SHALL TEST PIT TO FIND EXACT LOCATION OF 36" R.C.P. BUILD INLET OVER EXISTING 36" R.C.P., AND TRIM R.C.P. TO NEW INLET WALLS AS DIRECTED BY THE HOWARD COUNTY ENGINEER.
*** REMOVE EXISTING TOP SLAB AND INLET THROAT. ADJUST EXISTING WALLS AS REQUIRED TO INSTALL MANHOLE TOP SLAB, FRAME AND COVER. SEE DETAIL ON SHEET 3.

PLAN
SCALE: 1" = 30'

NOTE:
SEE SHEET 7 FOR RELOCATION OF EXISTING SIGNALIZATION STRUCTURES.

REMOVE EXISTING TREES

STA. 10+65, 30' LT. ---------- 1 EA.
STA. 11+75, 30' LT. ---------- 1 EA.
STA. 12+23, 30' LT. ---------- 1 EA.
STA. 12+72, 30' LT. ---------- 1 EA.
STA. 13+20, 30' LT. ---------- 1 EA.
STA. 13+65, 30' LT. ---------- 1 EA.
STA. 14+15, 30' LT. ---------- 1 EA.
STA. 15+05, 48' LT. ---------- 1 EA.
STA. 15+85, 30' LT. ---------- 1 EA.
STA. 16+45, 30' LT. ---------- 1 EA.
STA. 17+05, 30' LT. ---------- 1 EA.

PRIOR TO REMOVING ANY TREES, THE COUNTY AND THE CONTRACTOR SHALL MEET WITH THE ABUTTING PROPERTY OWNER(S) TO DETERMINE IF ANY TREES CAN BE RELOCATED AND IN WHAT LOCATION. TREE RELOCATION SHALL BE PAID UNDER AN ITEM IN THE CONTRACT FOR JAPANESE ZELKOLVA OR OTHER COUNTY-APPROVED SPECIES. NO NEW TREE SHALL BE LOCATED WITHIN 20' OF A RELOCTED STREET LIGHT.

REMOVE EXISTING STREET LIGHTS

STA. 12+08, LT. ---------- 1 EA.
STA. 13+02, LT. ---------- 1 EA.
STA. 15+40, LT. ---------- 1 EA.
STA. 16+45, LT. ---------- 1 EA.

THESE FOUR STREET LIGHTS SHALL BE REMOVED BY THE COUNTY AND B,D&E PRIOR TO START OF CONSTRUCTION.

LEGEND

- FULL DEPTH CONSTRUCTION
- CONSTRUCTION EASEMENT
- --C-- TOP OF CUT
- --F-- LIMIT OF FILL

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 8/12/99
CHIEF, BUREAU OF ENGINEERING — DATE 8/12/99
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION — DATE 8/16/99
CHIEF, BUREAU OF HIGHWAYS — DATE 8/17/99

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96-309-055

BOARD OF PROFESSIONAL ENGINEERS — No. 23501 — PATRICK A. CARTON — STATE OF MARYLAND — 7/27/99

DES: F.A.C.
DRN: J.N.W.
CHK: F.A.C.
DATE: 7/99

BY	NO.	REVISION	DATE

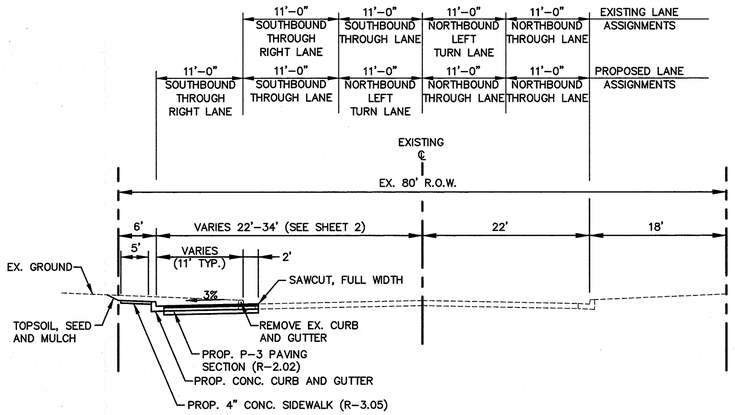
CAPITAL PROJECT NO.
J-4164
600' SCALE MAP NO. _____ DATE: _____

PLAN
Tamar Drive at Cloudleap Court

SCALE AS SHOWN

SHEET 2 OF 9

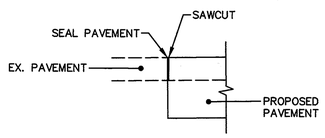
Myler 7/27/99



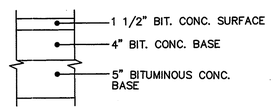
TAMAR DRIVE TYPICAL SECTION
NOT TO SCALE

NOTES:
1. WHEN SIDEWALK DOES NOT ABUT CURB REDUCE WIDTH FROM 5'-0" TO 4'-0".
2. WHERE NEW SIDEWALK ABUTS EXISTING SIDEWALK PLACE EXPANSION JOINT MATERIAL ALONG FACE OF EXISTING SLAB BEFORE FINAL CONCRETE POUR.

SIDEWALK DETAIL
NOT TO SCALE

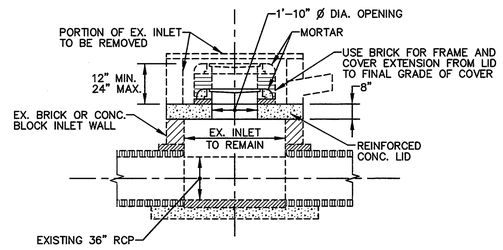


TYPICAL PAVEMENT JOIN
NOT TO SCALE



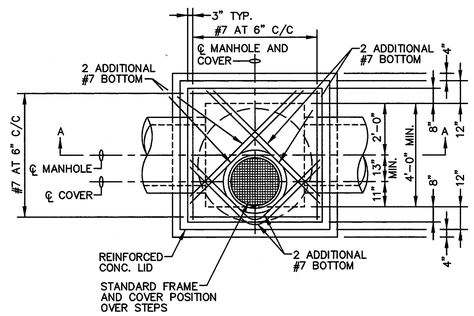
P-3 PAVING SECTION
NOT TO SCALE

NOTE: MANHOLE FRAME AND COVER TO BE LOCATED OVER STEPS. SEE PLANS FOR TOP ELEVATION.



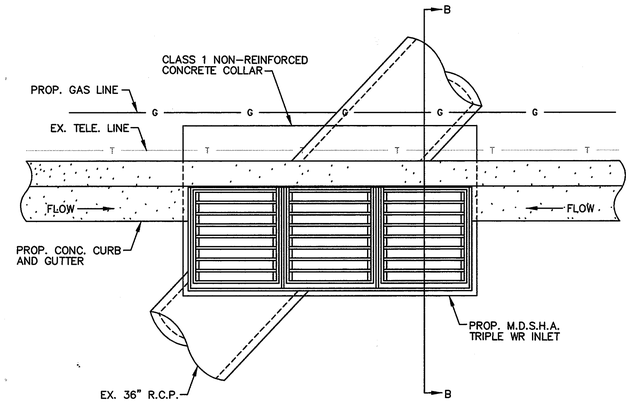
1. USE SOLID MASONRY (BRICK OR CONCRETE BLOCK) OR POURED CONCRETE FOR WALLS AS REQUIRED.
2. PARGE OUTSIDE WALLS AS REQUIRED.
3. MORTAR SHALL CONFORM TO A.S.T.M. SPECIFICATION C270 TYPES M OR S.
4. REFER TO MARYLAND STATE HIGHWAY ADMINISTRATION FOR MATERIALS AND METHODS OF CONSTRUCTION.
5. f'c = 3,500 P.S.I. AT 28 DAYS.

SECTION A-A
NOT TO SCALE

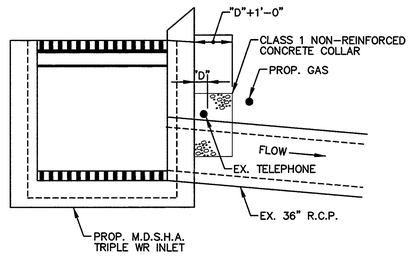


PLAN
NOT TO SCALE

MH-1, MANHOLE DETAIL
NOT TO SCALE



PLAN
NOT TO SCALE



SECTION B-B
NOT TO SCALE

TRIPLE WR INLET DETAIL
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 8/12/99
CHIEF, BUREAU OF ENGINEERING — DATE 8/12/99
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION — DATE 8/12/99
CHIEF, BUREAU OF HIGHWAYS — DATE 8/17/99

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96-309-055

BOARD OF PROFESSIONAL ENGINEERS — No. 23512 — PATRICK A. CARLSON — STATE OF MARYLAND — 7/27/99

DES: F.A.C.
DRN: J.N.W.
CHK: F.A.C.
DATE: 7/99

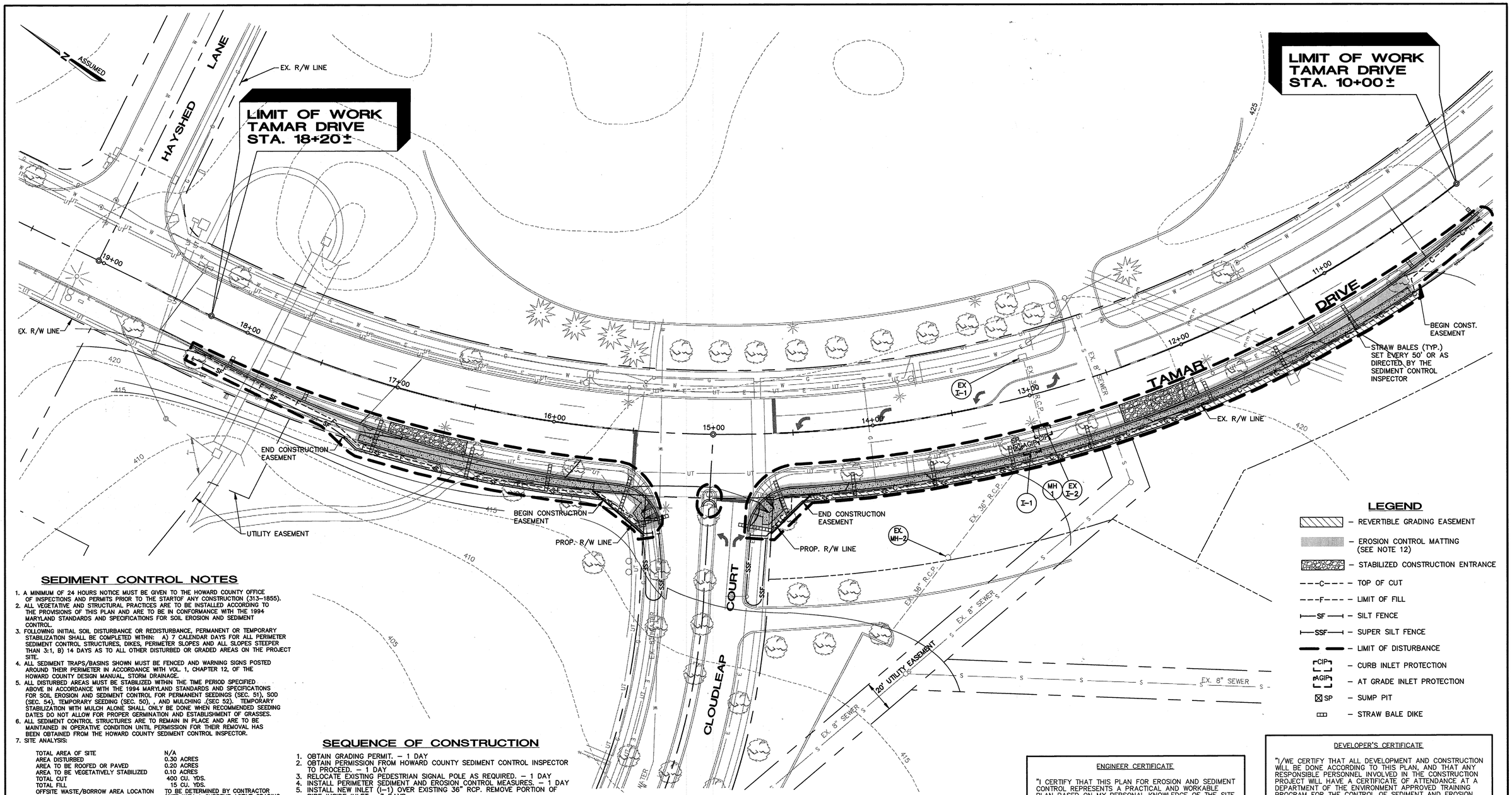
BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J-4164
600' SCALE MAP NO. _____ DATE: _____

TYPICAL SECTION AND DETAILS
Tamar Drive at Cloudleap Court

SCALE AS SHOWN
SHEET 3 OF 9

mylar 7/27/99



PLAN
SCALE: 1" = 30'

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS PRIOR TO THE STARTOF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), , AND MULCHING (SEC 52). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	N/A
AREA DISTURBED	0.30 ACRES
AREA TO BE ROOFED OR PAVED	0.20 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.10 ACRES
TOTAL CUT	400 CU. YDS.
TOTAL FILL	15 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	TO BE DETERMINED BY CONTRACTOR (SITE WITH A CURRENT ACTIVE GRADING PERMIT)

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. PLACE STABILIZED CONSTRUCTION ENTRANCE WHERE DIRECTED BY THE COUNTY. USE STABILIZED CONSTRUCTION ENTRANCE AS STAGING AREA WHENEVER PRACTICAL.
12. PLACE EROSION CONTROL MATTING IN AREA DISTURBED FOR CURB AND GUTTER AND SIDEWALK RAMPS. THE SEDIMENT CONTROL INSPECTOR MAY INCLUDE OTHER AREAS.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. – 1 DAY
2. OBTAIN PERMISSION FROM HOWARD COUNTY SEDIMENT CONTROL INSPECTOR TO PROCEED. – 1 DAY
3. RELOCATE EXISTING PEDESTRIAN SIGNAL POLE AS REQUIRED. – 1 DAY
4. INSTALL PERIMETER SEDIMENT AND EROSION CONTROL MEASURES. – 1 DAY
5. INSTALL NEW INLET (I-1) OVER EXISTING 36" RCP. REMOVE PORTION OF PIPE INSIDE INLET.– 3 DAYS
6. INSTALL CURB INLET PROTECTION ON NEW INLET (I-1). – 1 DAY
7. REMOVE OR RELOCATE EXISTING TREES AS REQUIRED. – 2 DAYS
8. RELOCATE LIGHT POLES. – 3 DAYS
9. REMOVE EXISTING CURB AND GUTTER TO THE LIMITS SHOWN ON THE PLANS AND EXCAVATE FOR THE INSTALLATION OF THE NEW LANE WIDENING, CURB AND GUTTER, AND SIDEWALK. STABILIZE THE ROADWAY WITH DGAB MATERIAL. INSTALL TEMPORARY SEED AND MULCH TO ALL SLOPE AREAS THAT ARE DISTURBED. – 5 DAYS
10. MODIFY EXISTING INLET TO CREATE MANHOLE (MH-1). – 2 DAYS
11. INSTALL TRIPLE WR INLET. 2 DAYS
12. INSTALL NEW CURB AND GUTTER AND SIDEWALK. – 5 DAYS
13. INSTALL BITUMINOUS CONCRETE BASE COURSES. – 2 DAYS
14. PERMANENTLY STABILIZE ALL DISTURBED AREAS. – 1 DAY
15. PLACE BITUMINOUS CONCRETE SURFACE COURSE. – 1 DAY
16. REMOVE SEDIMENT CONTROL DEVICES WITH THE APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. – 1 DAY

LEGEND

- REVERTIBLE GRADING EASEMENT
- EROSION CONTROL MATTING (SEE NOTE 12)
- STABILIZED CONSTRUCTION ENTRANCE
- ---C--- TOP OF CUT
- ---F--- LIMIT OF FILL
- SF SILT FENCE
- SSF SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- CIP CURB INLET PROTECTION
- AGIP AT GRADE INLET PROTECTION
- SP SUMP PIT
- STRAW BALE DIKE

ENGINEER CERTIFICATE

"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."

Frederick A. Carman
Frederick A. Carman — 7/22/99
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

DEVELOPER'S CERTIFICATE

"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."

Ronald P. Lepson — 8/12/99
SIGNATURE OF DEVELOPER — DATE
PRINT NAME BELOW SIGNATURE

FOR SEDIMENT & EROSION CONTROL ONLY

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS	8/12/99 DATE	CHIEF, BUREAU OF ENGINEERING	8/12/99 DATE
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION	8/12/99 DATE	CHIEF, BUREAU OF HIGHWAYS	8/17/99 DATE

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96-309-055

BOARD OF PROFESSIONAL ENGINEERS No. 23505 FREDERICK A. CARMAN STATE OF MARYLAND 7/23/99

DES: F.A.C.
DRN: J.N.W.
CHK: F.A.C.
DATE: 7/99

BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J-4164

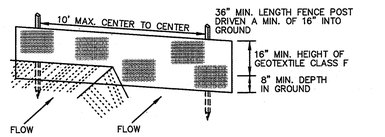
600' SCALE MAP NO. _____ DATE: _____

SEDIMENT AND EROSION CONTROL PLAN
Tamar Drive at Cloudleap Court

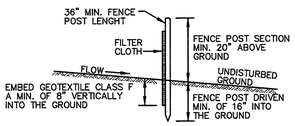
SCALE AS SHOWN

SHEET 4 OF 9

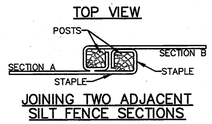
DETAIL 22 – SILT FENCE



PERSPECTIVE VIEW



CROSS SECTION



JOINING TWO ADJACENT SILT FENCE SECTIONS

STANDARD SYMBOL

SF

Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" X 1 1/2" square (minimum) cut or 1 3/4" diameter (minimum) round and shall bee of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

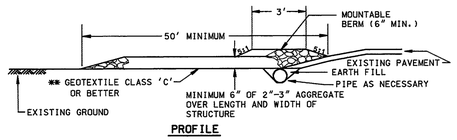
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow rate	0.3 gal ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of Geotextile fabric come together. They shall be overlapped, folded and stapled to prevent sediment bypass.

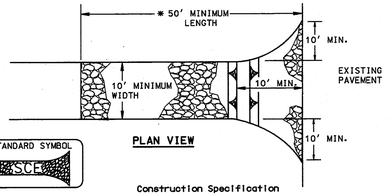
4. Silt fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



PROFILE



PLAN VIEW

STANDARD SYMBOL

SCE

Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or 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 according 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 according to the amount of runoff to be conveyed. A 6" minimum will be required.

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.

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SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

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STABILIZED CONSTRUCTION ENTRANCE

Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone – crushed aggregate (2" to 3"), or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or 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 according 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 according to the amount of runoff to be conveyed. A 6" minimum will be required.

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.

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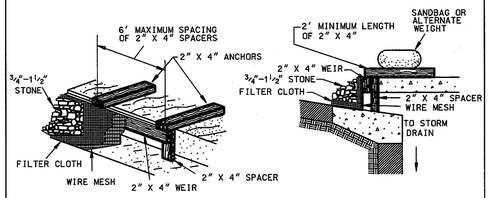
DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



MAX. DRAINAGE AREA = 1/4 ACRE

STANDARD SYMBOL

CIP

Construction Specifications

1. 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.

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

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

4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

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

6. Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

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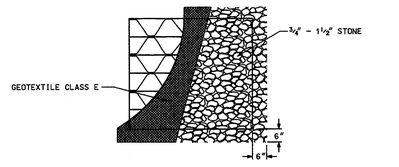
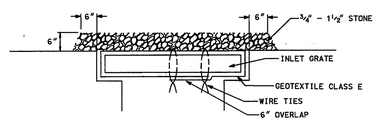
DETAIL 23B – AT GRADE INLET PROTECTION



PLAN/CUT AWAY VIEW



CROSS SECTION

STANDARD SYMBOL

AGIP

MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.

2. Place 3/4" to 1 1/2" stone, 4"–6" thick on the grate to secure the fabric and provide additional filtration.

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STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition and Purpose

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 a low moisture content, low nutrient levels, low pH, 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 enough 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 that appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from 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:

i. 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 texture subsoils and shall contain less than 5% by volume of cinders, stone, 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.

III. For sites having disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

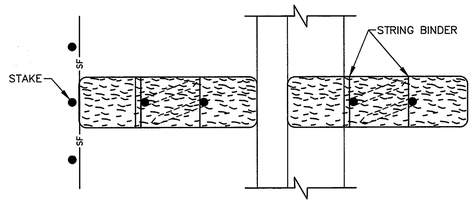
V. Topsoil Application

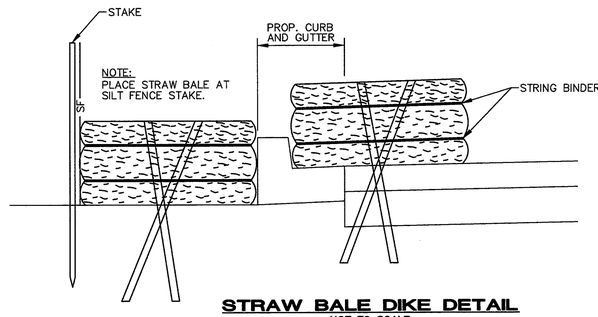
i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

ii. 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 disturbed in a 4" – 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be preformed 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.

iv. 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.





STRAW BALE DIKE DETAIL

NOT TO SCALE

FOR SEDIMENT & EROSION CONTROL ONLY

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 8/12/99
CHIEF, BUREAU OF ENGINEERING — DATE 8/12/99
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION — DATE 8/12/99
CHIEF, BUREAU OF HIGHWAYS — DATE 8/17/99

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96-309-055

BOARD OF PROFESSIONAL ENGINEERS No. 23505 FREDERICK A. CARLSON STATE OF MARYLAND 7/27/99

DES: F.A.C.
DRN: J.N.W.
CHK: F.A.C.
DATE: 7/99

BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J–4164
600' SCALE MAP NO. _____ DATE: _____

SEDIMENT AND EROSION CONTROL DETAILS
Tamar Drive at Cloudleap Court

SCALE AS SHOWN

SHEET 5 OF 9

Mylar 7/27/99

Section I – Vegetative Stabilization Methods and Materials

A. Site Preparation
   i. 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 necessary for temporary seeding.
   iii. Schedule required soil tests to determine soil amendment composition and application rates for site having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)
   i. 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 acres. 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 trademark and warrantee of the producer.
   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 fineness 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 Preparation
   i. Temporary Seeding
      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 harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not e rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 3:1) 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. Permanent Seeding
      a. Minimum soil conditions required for permanent vegetative establishment:
         1. Soil pH shall be between 6.0 and 7.0.
         2. Soluble salts shall be less than 500 parts per million (ppm).
         3. The soil shall contain less than 40% clay but enough fine grained material (>30% split plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or sericia lespedeza is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
         4. Soil shall contain 1.5% minimum organic matter by weight.
         5. Soil must contain sufficient pore space to permit adequat root penetration.
         6. 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 horizontal erosion check slots to prevent topsoil from sliding down a slope.
      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 mans. 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 soil 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 soil 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.

D. Seed Specifications
   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. Inoculant 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.

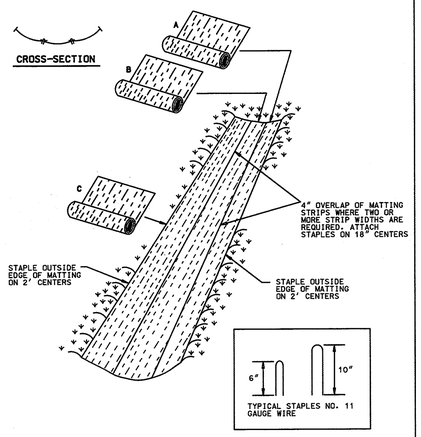
E. Methods of Seeding
   i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder.
      a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; 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 tons are applied by hydroseeding at any one time. Do 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. Dry Seeding: This includes use of conventional drop 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. Cultipacking 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 applied 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 oat straw, reasonably bright in color, and 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. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      c. WCFM, including dy, shall contain no germination or growth inhibiting factors.
      d. WCFM 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 seedings.
      e. WCFM material shall contain no elements or compounds at concentration levels that will be phyto–toxic.
      f. WCFM 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.
   i. 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 accordance with these specifications.
   ii. When straw mulch is used, it shall be spread over all seeded 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 is 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 drawing implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. The 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 should be used on the contour if possible.
   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 e 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 appear to e uniform after binder application. Synthetic binders – such as Acrylic DLR (Agro–Tack), DCA–70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.

DETAIL 30 – EROSION CONTROL MATTING



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EROSION CONTROL MATTING

Construction Specifications

1. Key–in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross–section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".

2. Staple the 4" overlap in the channel center using an 18" spacing between staples.

3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.

5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.

6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed–in.

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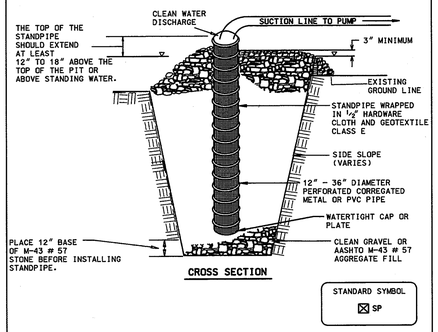
DETAIL 20B – SUMP PIT



Construction Specifications

1. Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter.

2. The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. Then wrapping with ½" hardware cloth and Geotextile Class E. The perforations shall be ½" x 6" slits or 1" diameter holes.

3. A base of filter material consisting of clean gravel or #57 stone should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with the same filter material.

4. The standpipe should extend 12" to 18" above the lip of the pit or the riser crest elevation (basin dewatering only) and the filter material should extend 3" minimum above the anticipated standing water elevation.

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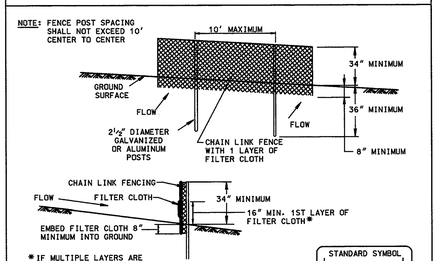
DETAIL 33 – SUPER SILT FENCE

NOTE: FENCE POST SPACING SHALL NOT EXCEED 10' CENTER TO CENTER



* IF MULTIPLE LAYERS ARE REQUIRED TO ATTAIN 42"

STANDARD SYMBOL
SSF

Construction Specifications

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 posts.

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

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

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

5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 – 10%	0 – 10:1	Unlimited	Unlimited
10 – 20%	10:1 – 5:1	200 feet	1,500 feet
20 – 33%	5:1 – 3:1	100 feet	1,000 feet
33 – 50%	3:1 – 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 8/12/99
CHIEF, BUREAU OF ENGINEERING — DATE 8/12/99
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION — DATE 8/16/99
CHIEF, BUREAU OF HIGHWAYS — DATE 8/17/99

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96–309–055

BOARD OF PROFESSIONAL ENGINEERS — No. 23508 — PATRICK A. CARLSON — STATE OF MARYLAND — 7/27/99

FOR SEDIMENT & EROSION CONTROL ONLY

DES: F.A.C.
DRN: J.N.W.
CHK: F.A.C.
DATE: 7/99

BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J–4164
600' SCALE MAP NO. _____ DATE: _____

SEDIMENT AND EROSION CONTROL DETAILS
Tamar Drive at Cloudleap Court

SCALE AS SHOWN

SHEET 6 OF 9

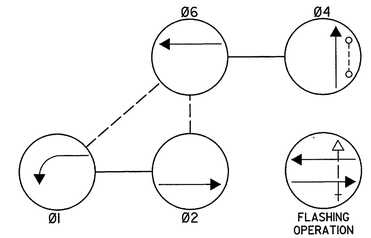
MY/bo 7/27/99

CONSTRUCTION DETAILS

A. RELOCATE EXISTING MAST ARM MOUNTED SIGNAL HEAD TO SHOWN LOCATION ON MAST ARM.
B. RELOCATE EXISTING MAST ARM MOUNTED SIGN TO SHOWN LOCATION ON MAST ARM.
C. INSTALL 6'x40' QUADRUPOLE TYPE VEHICLE LOOP DETECTOR (2-4-2 TURNS).
D. INSTALL 6'x6' VEHICLE LOOP DETECTOR (3 TURNS).
E. INSTALL 2-INCH GALVANIZED STEEL ELECTRICAL CONDUIT (TRENCHED).
F. INSTALL 1-INCH GALVANIZED STEEL ELECTRICAL CONDUIT LOOP DETECTOR SLEEVE.
G. USE EXISTING CONTROLLER.
H. USE EXISTING CONDUIT.
J. USE EXISTING HANDBOX.
K. RELOCATE EXISTING PEDESTAL POLE, PEDESTRIAN SIGNAL HEAD, SIGN AND PUSHBUTTON ON NEW FOUNDATION. INCLUDE GROUND ROD AND ONE 2' GALVANIZED ELBOW IN FOUNDATION. USE EXISTING 2 CONDUCTOR AND 3 CONDUCTOR CABLES.
L. REMOVE EXISTING PEDESTAL POLE FOUNDATION.
M. SPLICE TO EXISTING WIRING.
P. ABANDON EXISTING LOOP DETECTOR AND LEAD IN CABLE.

PHASE AND SEQUENCE DIAGRAM		SIGNAL HEADS 1	2	3	4	5	6	7	8	9
	PHASE 1+6	G ←G	G ←G	G	R	R	R	R	✋	✋
	PHASE 1+6 CHANGE	G ←Y	G ←Y	G	R	R	R	R	✋	✋
	PHASE 2+6	G	G	G	G	G	R	R	✋	✋
	PHASE 2+6 CHANGE	Y	Y	Y	Y	Y	R	R	✋	✋
	PHASE 4	R	R	R	R	R	G	G	🚶	🚶
	PED. CLEAR	R	R	R	R	R	G	G	✋	✋
	PHASE 4 CHANGE	R	R	R	R	R	Y	Y	✋	✋
	FLASH OPER.	FL Y	FL Y	FL Y	FL Y	FL Y	FL R	FL R	DARK	DARK

NEMA PHASING



PHASING NOTES:
1. PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY
2. PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY

LEGEND

PROPOSED	EXISTING
MAST ARM	
STEEL POLE	
TRAFFIC SIGNAL HEAD	
PEDESTRIAN SIGNAL HEAD	
SIGN	
STREET LIGHT	
HANDBOX	
CONDUIT	
LOOP DETECTOR	
CONTROLLER	
CONTROLLER WITH PAD	
WOOD POLE	
FIRE HYDRANT	
MANHOLE	
W.V. WATER VALVE	W.V.
G.V. GAS VALVE	C.V.

SIGNS

10 — LEFT TURN YIELD ON GREEN — R10-12, 30"x36"

11 — ONLY | ONLY — R3-5(MOD), 42"x36"

UTILITY LEGEND

G — G	GAS MAIN
W — W	WATER MAIN
S — S	SEWER MAIN
D — D	STORM DRAIN
TV — TV	CABLE TELEVISION
E — E	ELECTRIC CABLES
T — T	TELEPHONE CABLES
A — A	AERIAL CABLES

NOTES:
1. ALL PAVEMENT MARKING ARE TO BE INSTALLED OR REMOVED BY THE CONTRACTOR OF THE ROADWAY WIDENING CONTRACT.
2. ALL POLE AND DETECTOR LOCATIONS TO BE VERIFIED BY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS PERSONNEL BEFORE INSTALLATION BY CONTRACTOR.

WIRING DIAGRAM

WIRING LEGEND

A = 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
LW = LOOP WIRE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 8/12/99
CHIEF, BUREAU OF ENGINEERING — DATE
CHIEF, TRAFFIC ENGINEERING DIVISION — DATE
CHIEF, BUREAU OF HIGHWAYS — DATE

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96-309-055

BOARD OF PROFESSIONAL ENGINEERS — No. 23506 — FREDERICK A. CARVIN — STATE OF MARYLAND — 7/27/99

DES: M.J.G.	
DRN: M.J.G.	
CHK: C.S.C.	
DATE: 7/99	

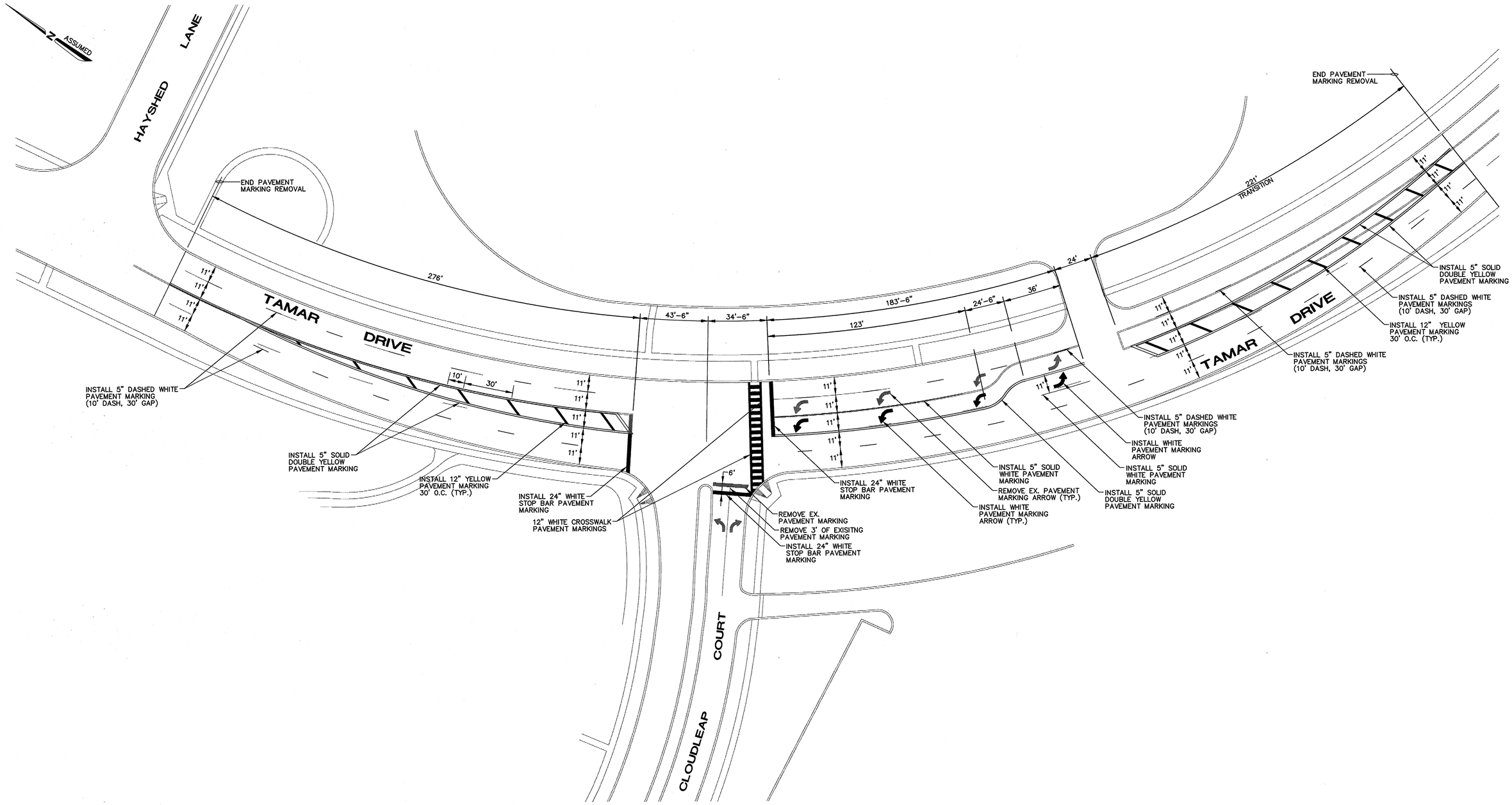
BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J-4164
600' SCALE MAP NO. _____ DATE: _____

SIGNAL PLAN
Tamar Drive at Cloudleap Court

SCALE AS SHOWN

SHEET 7 OF 9



PLAN
SCALE: 1" = 30'

NOTES:

1. BAG OR COVER ALL EXISTING TRAFFIC SIGNS IN CONFLICT WITH TEMPORARY TRAFFIC CONTROL. UNCOVER WHEN DIRECTED BY THE COUNTY.
2. RELOCATE OR REMOVE, STORE AND RESET EXISTING SIGNS AS SHOWN ON THE SIGNAL PLAN (SHEET 7) OR AS DIRECTED BY THE COUNTY.
3. WHEN THE NEW PAVEMENT SURFACE COURSE IS COMPLETE REMOVE ALL EXISTING STRIPING WITHIN THE LIMITS SHOWN ON THIS PLAN OR AS DIRECTED BY THE COUNTY AND REPLACE WITH NEW STRIPING. IF POSSIBLE ALL STRIPING WORK SHOULD BE DONE IN ONE DAY. IF STRIPING WORK CANNOT BE COMPLETED IN ONE DAY, THE PLACEMENT OF NEW STRIPING AT THE END OF THE WORK DAY SHALL NOT CONFLICT WITH EXISTING STRIPING.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 8/12/99
CHIEF, BUREAU OF ENGINEERING — DATE 8/12/99
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION — DATE 8/16/99
CHIEF, BUREAU OF HIGHWAYS — DATE 8/19/99

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96-309-055

BOARD OF PROFESSIONAL ENGINEERS No. 23564 — STATE OF MARYLAND — 7/27/99

DES: F.A.C.
DRN: J.N.W.
CHK: F.A.C.
DATE: 7/99

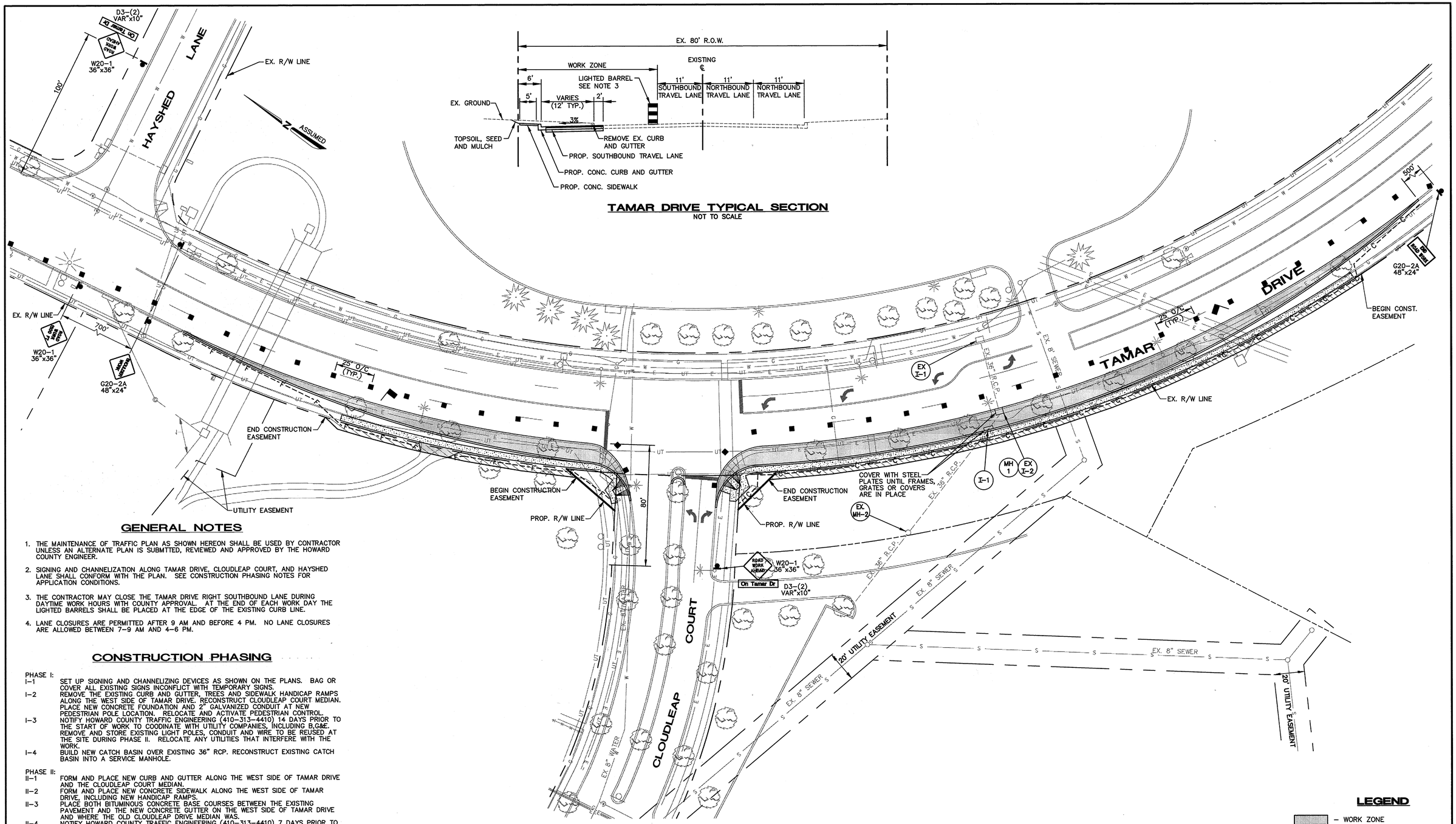
BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J-4164
600' SCALE MAP NO. _____ DATE: _____

SIGNING AND MARKING PLAN
Tamar Drive at Cloudleap Court

SCALE AS SHOWN

SHEET 8 OF 9



PLAN
SCALE: 1" = 30'

GENERAL NOTES

1. THE MAINTENANCE OF TRAFFIC PLAN AS SHOWN HEREON SHALL BE USED BY CONTRACTOR UNLESS AN ALTERNATE PLAN IS SUBMITTED, REVIEWED AND APPROVED BY THE HOWARD COUNTY ENGINEER.
2. SIGNING AND CHANNELIZATION ALONG TAMAR DRIVE, CLOUDLEAP COURT, AND HAYSHED LANE SHALL CONFORM WITH THE PLAN. SEE CONSTRUCTION PHASING NOTES FOR APPLICATION CONDITIONS.
3. THE CONTRACTOR MAY CLOSE THE TAMAR DRIVE RIGHT SOUTHBOUND LANE DURING DAYTIME WORK HOURS WITH COUNTY APPROVAL. AT THE END OF EACH WORK DAY THE LIGHTED BARRELS SHALL BE PLACED AT THE EDGE OF THE EXISTING CURB LINE.
4. LANE CLOSURES ARE PERMITTED AFTER 9 AM AND BEFORE 4 PM. NO LANE CLOSURES ARE ALLOWED BETWEEN 7-9 AM AND 4-6 PM.

CONSTRUCTION PHASING

PHASE I:

I-1 SET UP SIGNING AND CHANNELIZING DEVICES AS SHOWN ON THE PLANS. BAG OR COVER ALL EXISTING SIGNS INCONFLICT WITH TEMPORARY SIGNS.

I-2 REMOVE THE EXISTING CURB AND GUTTER, TREES AND SIDEWALK HANDICAP RAMPS ALONG THE WEST SIDE OF TAMAR DRIVE. RECONSTRUCT CLOUDLEAP COURT MEDIAN. PLACE NEW CONCRETE FOUNDATION AND 2" GALVANIZED CONDUIT AT NEW PEDESTRIAN POLE LOCATION. RELOCATE AND ACTIVATE PEDESTRIAN CONTROL.

I-3 NOTIFY HOWARD COUNTY TRAFFIC ENGINEERING (410-313-4410) 14 DAYS PRIOR TO THE START OF WORK TO COODINATE WITH UTILITY COMPANIES, INCLUDING B,G&E. REMOVE AND STORE EXISTING LIGHT POLES, CONDUIT AND WIRE TO BE REUSED AT THE SITE DURING PHASE II. RELOCATE ANY UTILITIES THAT INTERFERE WITH THE WORK.

I-4 BUILD NEW CATCH BASIN OVER EXISTING 36" RCP. RECONSTRUCT EXISTING CATCH BASIN INTO A SERVICE MANHOLE.

PHASE II:

II-1 FORM AND PLACE NEW CURB AND GUTTER ALONG THE WEST SIDE OF TAMAR DRIVE AND THE CLOUDLEAP COURT MEDIAN.

II-2 FORM AND PLACE NEW CONCRETE SIDEWALK ALONG THE WEST SIDE OF TAMAR DRIVE, INCLUDING NEW HANDICAP RAMPS.

II-3 PLACE BOTH BITUMINOUS CONCRETE BASE COURSES BETWEEN THE EXISTING PAVEMENT AND THE NEW CONCRETE GUTTER ON THE WEST SIDE OF TAMAR DRIVE AND WHERE THE OLD CLOUDLEAP DRIVE MEDIAN WAS.

II-4 NOTIFY HOWARD COUNTY TRAFFIC ENGINEERING (410-313-4410) 7 DAYS PRIOR TO RELOCATING LIGHTPOLES, TRAFFIC SIGNAL EQUIPMENT AND SIGNS.

II-5 PLACE BITUMINOUS CONCRETE SURFACE COURSE OVER THE NEW BASE COURSES.

II-6 REMOVE AND REPLACE THE EXISTING PAVEMENT STRIPING TO THE NEW CONFIGURATION.

II-7 PLACE THE FINAL TOPSOIL AND SEED ON EXPOSED GROUND NOT COVERED BY PAVING, CURB AND GUTTER OR SIDEWALKS.

II-8 REMOVE TEMPORARY TRAFFIC CONTRCOL DEVICES AND EROSION CONTROL DEVICES.

LEGEND

- WORK ZONE
- CHANNELIZATION DEVICE
- SIGN WITH SUPPORT
- FLAGGER WITH STOP/SLOW PADDLE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS — DATE 8/12/99
CHIEF, BUREAU OF ENGINEERING — DATE 8/12/99
CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DIVISION — DATE 8/12/99
CHIEF, BUREAU OF HIGHWAYS — DATE 8/12/99

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96-309-055

BOARD OF PROFESSIONAL ENGINEERS No. 23805 PATRICK A. CRIVIAN STATE OF MARYLAND
7/27/99

DES: F.A.C.
DRN: J.N.W.
CHK: F.A.C.
DATE: 7/99

BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J-4164
600' SCALE MAP NO. _____ DATE: _____

TRAFFIC CONTROL PLAN AND TYPICAL SECTION
Tamar Drive at Cloudleap Court

SCALE AS SHOWN

SHEET 9 OF 9

Mylar 7/27/99