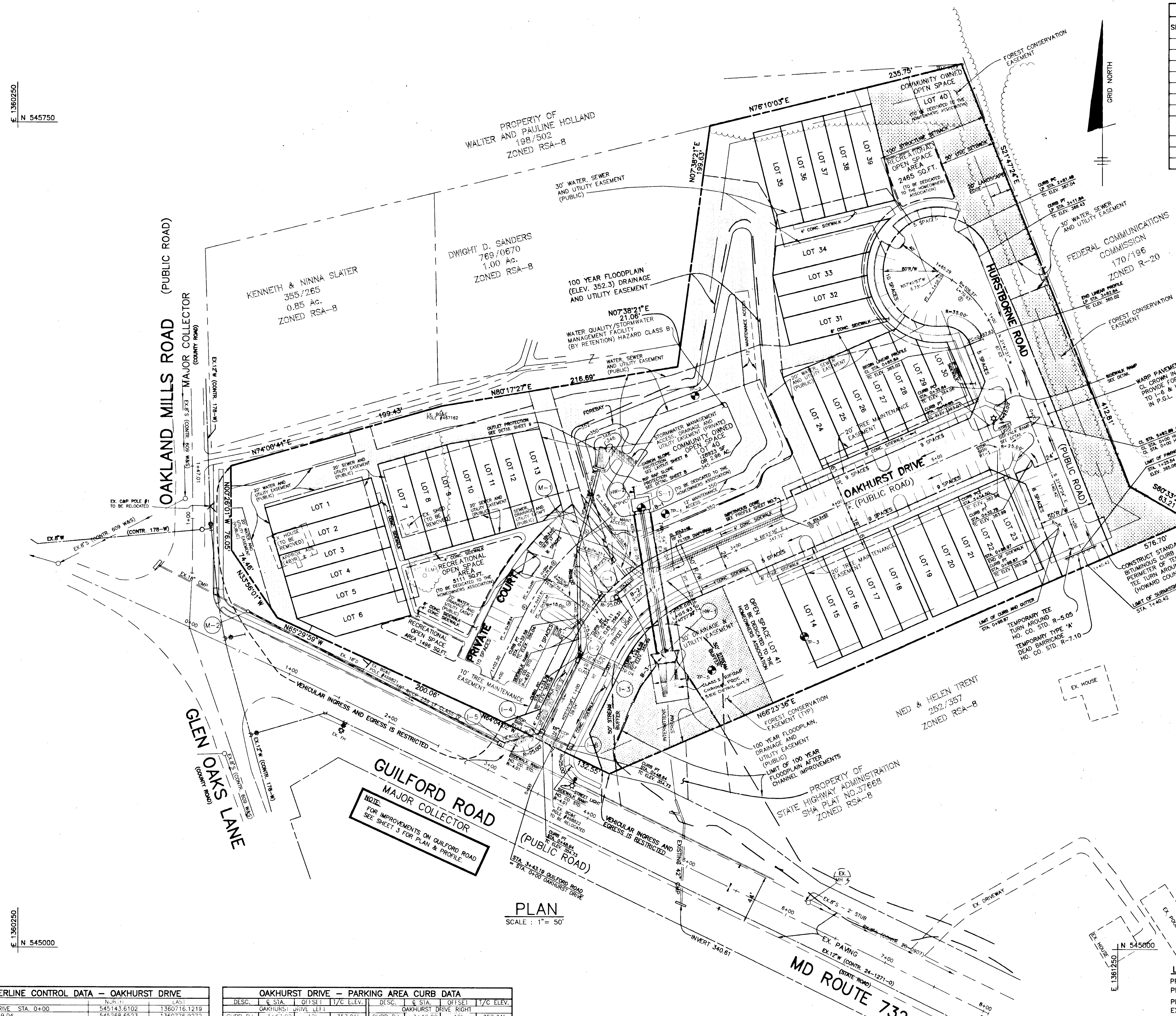


PLAN
SCALE : 1"= 50'

SHEET INDEX

SHEET NO.	TITLE
1	ROAD PLAN
2	ROAD PROFILES AND TYPICAL SECTIONS
3	ROAD PLAN & PROFILES OF GUILFORD ROAD
4	GRADING/SEDIMENT CONTROL PLAN
5	SEDIMENT CONTROL NOTES AND DETAILS
6	DRAINAGE AREA MAP
7	STORMWATER MANAGEMENT NOTES & DETAILS
8	STORMWATER MANAGEMENT NOTES & DETAILS, STORMDRAIN PROFILE
9	LANDSCAPE PLAN NOTES & DETAILS
10	FOREST CONSERVATION PLAN
11	FOREST CONSERVATION NOTES & DETAILS

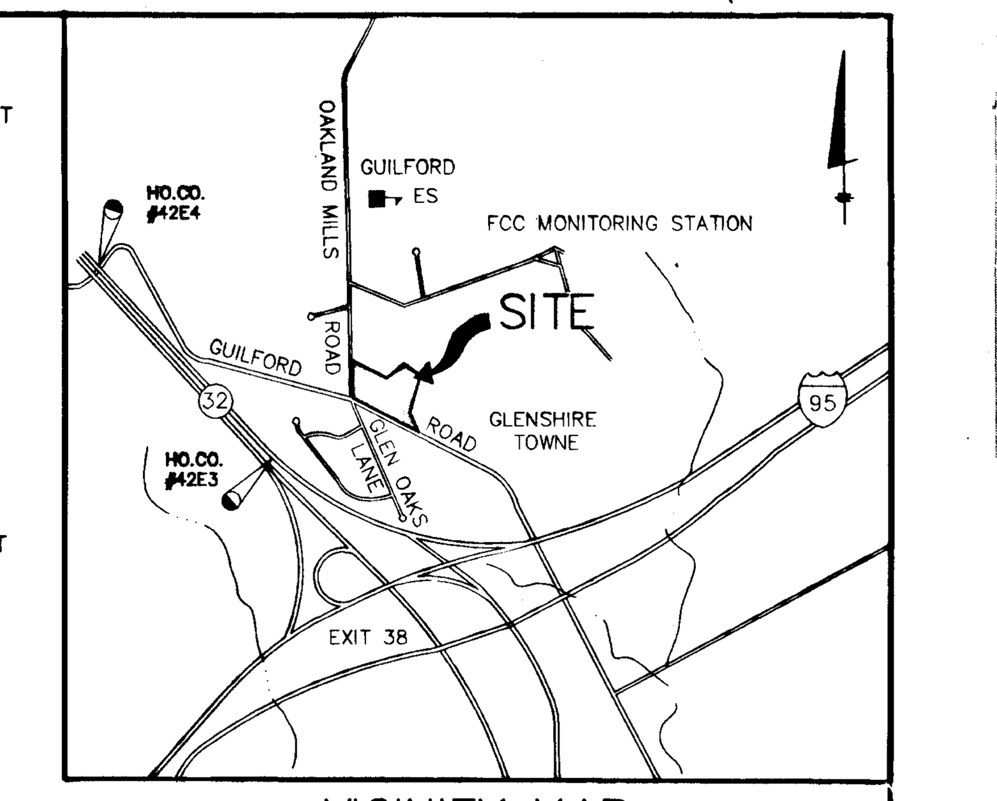
BENCH MARKS (NAD 83)

HO.CO. #42E3
CONC. MONUMENT 13' OFF OF LEFT SHOULDER ON WEST BOUND ROUTE 32, 54.2' NORTH/WEST OF EXISTING CUT IN BRIDGE WALL
N 546528.8416(FT) E 1357894.375(FT)
N 166582.3241(M) E 413887.0332

HO.CO. #42E4
CONC. MONUMENT IN GRASS MEDIAN WEST BOUND MD ROUTE 32, 20.1' OFF OF LEFT SHOULDER 107.5' EAST OF STORMDRAIN INLET
N 544851.1973(FT) E 1359466.401(FT)
N 166070.9771(M) E 414366.1877(M)

BENCH MARKS (NAD 27)

HO.CO. #2241013 ELEV. 306.556'
CONC. MONUMENT 13' OFF OF LEFT SHOULDER ON WEST BOUND ROUTE 32, 54.2' NORTH/WEST OF EXISTING CUT IN BRIDGE WALL
N 485780.00 E 845476.00



VICINITY MAP
SCALE : 1'=2000'

GENERAL NOTES CONTINUED...

25. WP-96-49 on January 17, 1995, the Planning Director approved the request to waive section 16.116 (a)(2)(i) to allow grading or removal of vegetation within 50 feet of an intermittent stream. Approval is subject to the following condition:
    Grading and removal of vegetation shall be only to the extent necessary for the construction of the swm facility.

GENERAL NOTES

1. All construction shall be in accordance with the latest standards and specifications of Howard County, plus MSHA standards and specifications, if applicable.
2. The contractor shall notify the Department of Public Works Construction Inspection Division at (410) 313-1880 at least (five) 5 working days prior to the start of work.
3. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work.
4. Project Background:
   Location: Tax Map 42 + Parcel 69
   Zoning: RSA-8
   Total Tract Area: 6.48 Ac.
   Number of Proposed Lots: 39 Buildable and 2 Open Space Lots

   Date Preliminary Plan Approved: August 30, 1996
   DPZ Reference #: S-94-20, P-95-28, WP-96-49
5. Traffic control devices, markings and signing shall be in accordance with the most current edition of the Manual on Uniform Traffic Control Devices (MUTCD) and Maryland Department of Transportation Temporary Traffic Control Standards. All street and regulatory signs shall be in place prior to the placement of any asphalt.
6. Topography taken from field run survey performed by TSA Group Inc., dated: September 1993 and August 1994, supplemented by 200' scale county topographic maps. Contour interval is 2 feet.
7. Howard County monuments 42E3 and 42E4 were used for horizontal datum.
8. Water and Sewer for this subdivision is public. Drainage area is Little Patuxent. Contract No. 24-3585-D.
9. Stormwater Management (Quantity and Quality) for this subdivision is provided by a retention facility. Vegetated buffers shall provide water quality treatment for any unmanaged areas.
10. Floodplain Study was provided by TSA GROUP, INC. for this project. Approved on August 14, 1996.
11. Forest Conservation Plan prepared by MA DIRKS & CO. INC. dated October 7, 1993. 0.8 Acres of Afforestation required, provided on site.
12. Traffic Study compiled by Lee Cunningham & Associates, Inc. September 1993.
13. Geotechnical Report compiled by Hillis Carnes Engineering Assoc., February 1996 and April 1997.
14. Unless noted as "private" all easements are public.
15. The Forest Conservation Easement has been established to fulfill the requirements of Section 16.1200 of the Howard County Code; Forest Conservation Act. No clearing, grading or construction is permitted within the Forest Conservation easement; Forest management practices as defined in the deed of Forest Conservation easement are allowed.
16. The stormwater facility shown on these plans will be owned and maintained by the homeowners association.
17. The existing utilities shown reflect information obtained from as built drawings. and /or field run survey by TSA Group, Inc. It shall be the contractors responsibility to verify the locations and elevations of the existing lines.
18. Section 128.A.1.C. of the Zoning Regulations for the purpose of deck construction up to 10 feet within front and rear setbacks does apply to the 50 foot project boundary setbacks referenced from adjacent properties and external public roads.
19. The public road access of Oakhurst Drive at Guildford Road is temporary in nature, and will be closed and removed upon the development and connection of an internal roadway system through the adjacent Trent Property.
20. Street light placement and type of fixture and pole selected shall be in accordance with the Howard County Design manual, Volume III (1993) and as modified by the the "Guidelines for Street Lights in Residential Developments (June 1993)", which determined lateral and longitudinal placement.
21. All road fills shall be compacted to 95% as determined by AASHTO T-180.
22. All sidewalks and sidewalk ramps shall be in conformance with current ADA criteria.
23. Wetland delineation compiled by M.A. Dirks, Inc. 10/7/93. No wetlands exist on site.
24. No clearing, grading or construction is permitted within stream buffers or forest conservation areas except for the work associated with the Oakhurst Drive crossing and stormwater management facility as presented on these plans.

WP-96-49

On January 17, 1995 the Planning Board Director approved the request to waive section 16.116 (a)(2)(i) to allow grading or removal of vegetation within 50 feet of an intermittent stream. Approval is subject to the following condition.

1.) Grading and removal of vegetation shall be only to the extent necessary for construction of the S.W.M. Facility.

PARKING TABULATION

NUMBER OF UNITS	39
NUMBER OF PARKING SPACES REQUIRED (2.3 PER UNIT)	90
NUMBER OF PARKING SPACES PROVIDED	93

NOTE:

1.) ALL CURB RADII ARE TO BE 5' UNLESS OTHERWISE NOTED.
2.) ANY POWER POLE RELOCATION, MANHOLE, FIRE HYDRANT OR SIGN ADJUSTMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR (TO BE COORDINATED WITH THE APPLICABLE UTILITY COMPANY).

STORMWATER MANAGEMENT FACILITY OPERATIONS AND MAINTENANCE SCHEDULE

ROUTINE MAINTENANCE

1. Facility shall be inspected annually and after major storms. Inspections should be performed during wet weather to determine if the pond is functioning properly.
2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side of slopes and maintenance access should be mowed as needed.
3. Debris and litter shall be removed during regular mowing operations and as needed.
4. Visible signs of erosion in the pond as well as riprap outlet area shall be repaired as soon as it is noticed.

NON-ROUTINE MAINTENANCE

1. Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components should be inspected during routine maintenance operations.
2. Sediment should be removed from the pond no later than when the capacity of the pond is half full of sediment, when deemed necessary for aesthetic reasons, or when deemed neccessary by the Howard County's Department of Public Works.

CENTERLINE CONTROL DATA – OAKHURST DRIVE

STATION	NORTH	EAST
OAKHURST DRIVE STA. 0+00	545143.6102	1360716.1219
PC STA. 1+39.04	545268.6523	1360776.9272
PT STA. 2+44.97	545340.2497	1360851.1302
STA. 5+92.69 OAKHURST DR.= 0+00 HURSTBOURNE RD.	545479.7496	1361170.3795

CENTERLINE CONTROL DATA–HURSTBOURNE ROAD SOUTH

STATION	NORTH	EAST
STA. 0+00 HURSTBOURNE ROAD	545479.7496	1361170.3795
LIMIT OF SUBMISSION STA. 1+40.42	545349.3629	1361222.5038

CENTERLINE CONTROL DATA–HURSTBOURNE ROAD NORTH

STATION	NORTH	EAST
STA. 0+00 HURSBOURNE ROAD	545479.7496	1361170.3795
PC STA. 0+87.63	545561.1141	1361137.8495
PT STA. 1+58.56	545612.8869	1361091.2929
END CL STA. 1+65.29	545616.4843	1361085.6063

CENTERLINE CONTROL DATA–PRIVATE COURT ENTRANCE

STATION	NORTH	EAST
STA. 0+00 ENTRANCE = 1+63.98 OAKHURST DRIVE	545290.0723	1360789.6432
PC STA. 0+41.44	545315.0039	1360756.5391
PT STA. 0+51.61	545321.0353	1360748.3589
STA. 0+75.68 ENTRANCE = PC STA. 0+00 PRIVATE COURT	545335.1258	1360728.8363

CENTERLINE CONTROL DATA – PRIVATE COURT SOUTH

STATION	NORTH	EAST
PC STA. 0+00	545335.1258	1360728.8363
PT STA. 0+38.94	545301.7439	1360708.8765
END CL STA. 1+02.30	545244.7672	1360681.1699

CENTERLINE CONTROL DATA – PRIVATE COURT NORTH

STATION	NORTH	EAST
PC STA. 0+00	545335.1258	1360728.8363
PCC STA. 0+52.40	545373.6894	1360764.1382
END CL PT STA. 0+68.78	545383.9506	1360776.9020

OAKHURST DRIVE – PARKING AREA CURB DATA

DESC.	℄ STA.	OFFSET	T/C ELEV.	DESC.	℄ STA.	OFFSET	T/C ELEV.
OAKHURST DRIVE LEFT				OAKHURST DRIVE RIGHT			
CURB P.I.	3+67.02	12'	357.91'	CURB P.I.	3+10.02	12'	357.34'
CURB P.I.	3+67.02	30'	358.45'	CURB P.I.	3+10.02	30'	357.88'
CURB P.I.	4+48.02	12'	359.45'	CURB P.I.	3+55.02	12'	357.79'
CURB P.I.	4+48.02	30'	359.99'	CURB P.I.	3+55.02	30'	358.33'
CURB P.I.	4+60.02	12'	359.80'	CURB P.I.	3+67.02	12'	357.92'
CURB P.I.	4+60.02	30'	360.34'	CURB P.I.	3+67.02	30'	358.46'
CURB P.I.	5+41.02	12'	362.50'	CURB P.I.	4+48.02	12'	359.45'
CURB P.I.	5+41.02	30'	363.04'	CURB P.I.	4+48.02	30'	359.99'
				CURB P.I.	4+60.02	12'	359.80'
				CURB P.I.	4+60.02	30'	360.34'
				CURB P.I.	5+41.02	12'	362.50'
				CURB P.I.	5+41.02	30'	363.04'

HURSTBORNE ROAD – PARKING AREA CURB DATA

DESC.	℄ STA.	OFFSET	T/C ELEV.	DESC.	℄ STA.	OFFSET	T/C ELEV.
HURSTBORNE ROAD (NORTH) LEFT				HURSTBORNE ROAD (SOUTH) RIGHT			
CURB P.I.	0+40.84	12'	364.13'	CURB P.I.	0+38.86	12'	364.10'
CURB P.I.	0+40.84	30'	364.67'	CURB P.I.	0+38.86	30'	364.64'
CURB P.I.	0+85.84	12.41'	365.01'	CURB P.I.	0+92.97	12'	365.16'
CURB P.I.	0+85.84	30'	365.55'	CURB P.I.	0+92.97	30'	365.70'
LP CURB P.I.	1+28.96	0'	365.88'				
LP CURB P.I.	1+28.96	18'	366.42'				
LP CURB P.I.	2+19.04	0'	367.44'				
LP CURB P.I.	2+19.04	18'	367.98'				
LP CURB P.I.	2+31.26	0'	367.49'				
LP CURB P.I.	2+31.26	18'	368.03'				
LP CURB P.I.	2+76.26	0'	367.14'				
LP CURB P.I.	2+76.26	18'	367.68'				

CURVE TABLE

CURVE	RADIUS	ARC	DELTA	TANGENT	BEARING	CHORD
①	150.00'	105.93'	40°27'39"	55.28'	N46°09'47"E	103.74'
②	106.37'	70.93'	38°12'30"	36.64'	N41°57'48"W	69.63'
③	500.00'	10.16'	01°09'53"	5.08'	N53°35'52"W	10.16'
④	225.67'	38.94'	09°53'14"	19.52'	S30°52'34"W	38.89'
⑤	225.67'	52.40'	13°18'14"	26.32'	N42°28'18"E	52.28'
⑥	225.67'	16.38'	04°09'32"	8.19'	N51°12'11"E	16.38'

STREET LIGHT SCHEDULE

SYMBOL	LOCATION	TYPE
●☼	STA. 3+70 GUILFORD ROAD 30' LEFT	150 WATT HPS VAPOR PENDANT FIXTURE (CUTOFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM.
☼	STA. 1+90 16' LEFT STA. 5+64 16' LEFT OAKHURST DRIVE	100 WATT HPS TRADITIONAIRE POST TOP MOUNTED ON 14' BLACK FIBERGLASS POLE.

LEGEND

PROPOSED CURB & GUTTER
PROPOSED SIDEWALK
PROPOSED CONTOUR — 560
EXISTING GRADE
PROPOSED STORM DRAIN — 15"D
EXISTING TREE LINE
FOREST CONSERVATION EASEMENT
PROPOSED STREET LIGHT
EXISTING SEWER LINE
EXISTING WATER MAIN

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-6105

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Ozenko — 6-10-97
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Richard Blood — 6/12/97
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

6/11/97
CHIEF, DEVELOPMENT ENGINEERING DIVISION — VJC — DATE

OWNER:
HARRY AND HELEN KNISLEY
9513 GUILFORD ROAD
COLUMBIA, MARYLAND 21046

DEVELOPER:
SDC GROUP INC.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
(410) 465-4244

DES: GWF DRN: JR

PROJECT:
OAKHURST
(FORMERLY KNISLEY PROPERTY)
SECTION 1 – AREA 1 LOTS 1-41

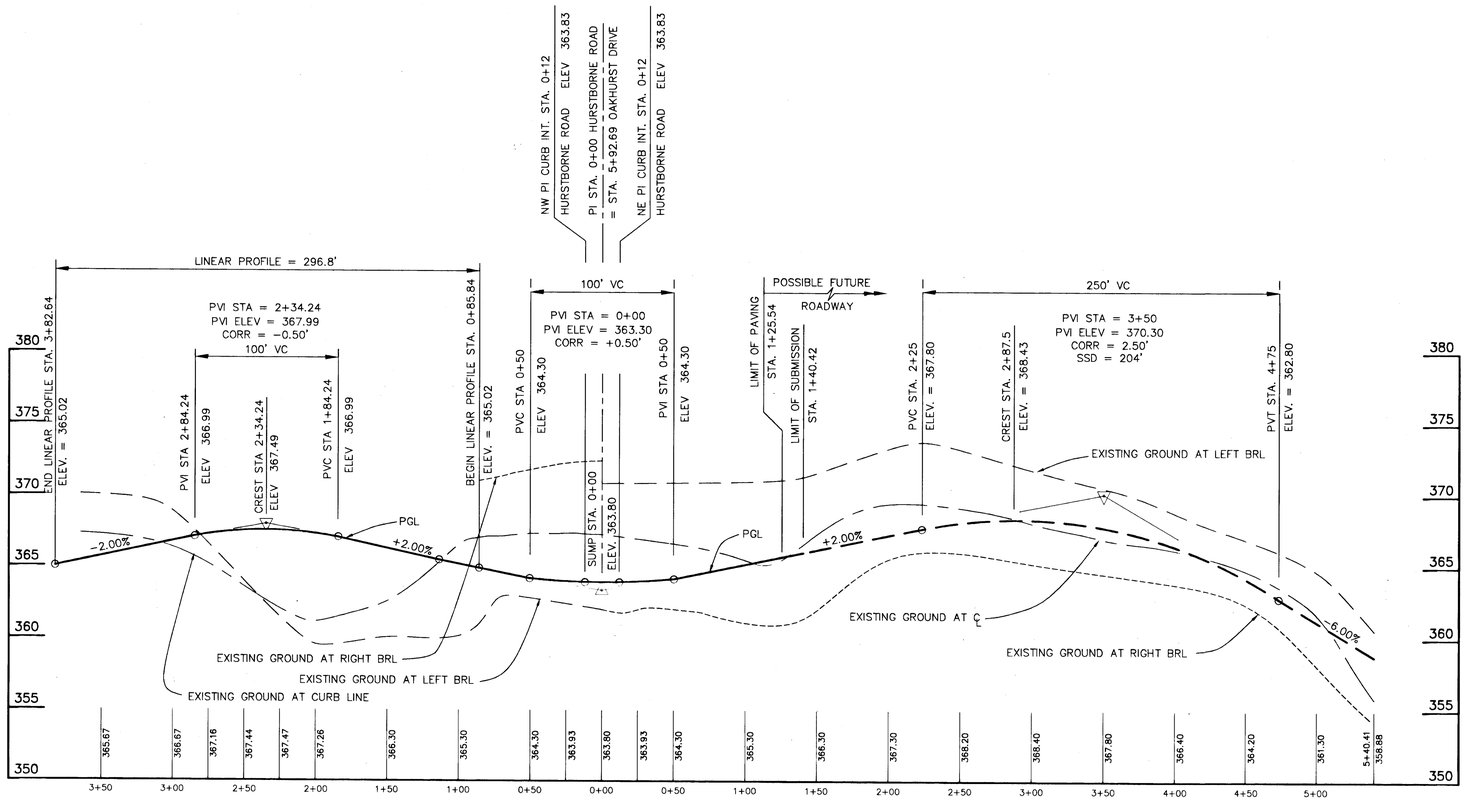
LOCATION:
TAX MAP 42 – PARCEL 69
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE:
ROAD PLAN
S-94-20, P-95-28, WP-96-49

DATE: SEPTEMBER 29, 1996 / MAY 22, 1997 — PROJECT NO. 0527
SCALE: AS SHOWN — DRAWING 1 OF 11

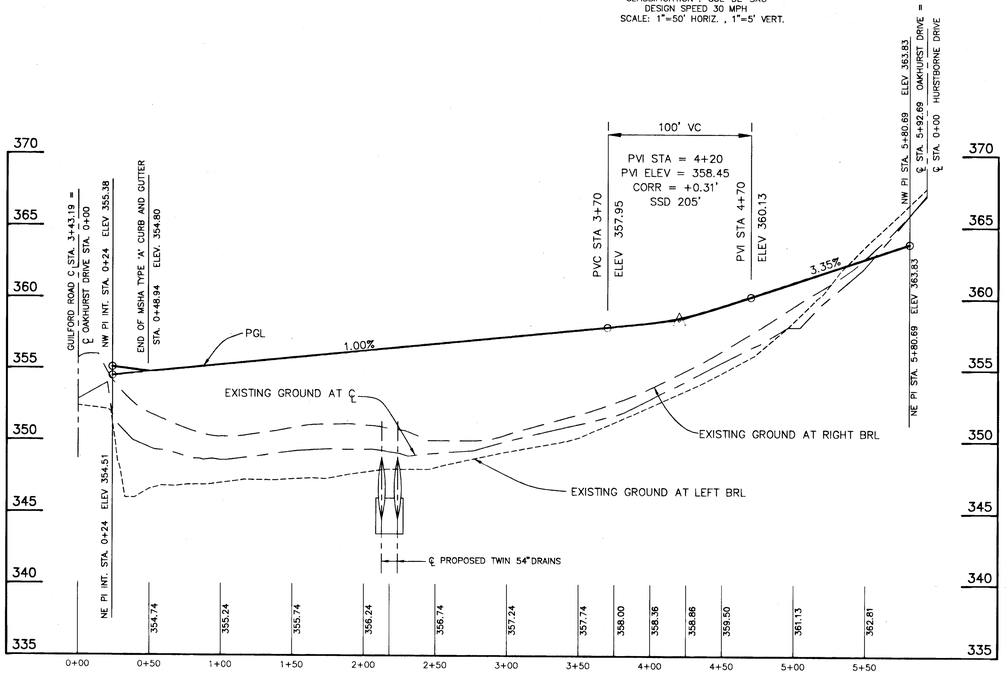
F-97-107

Acad Dwg: 7021S1



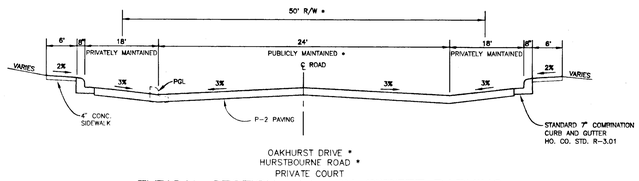
HURSTBORNE DRIVE PROFILE

CLASSIFICATION : CUL-DE-SAC
DESIGN SPEED 30 MPH
SCALE: 1"=50' HORIZ. , 1"=5' VERT.



OAKHURST DRIVE PROFILE

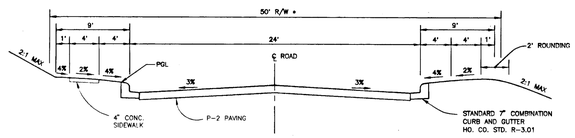
CLASSIFICATION : LOCAL ROAD
DESIGN SPEED 30 MPH
SCALE: 1"=50' HORIZ. , 1"=5' VERT.



OAKHURST DRIVE ±
HURSTBOURNE ROAD ±
PRIVATE COURT

TYPICAL SECTION WITH ON STREET PARKING

NOT TO SCALE



OAKHURST DRIVE ±
HURSTBORNE ROAD ±
PRIVATE COURT

TYPICAL SECTION

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-10-97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/12/97

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/11/97

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
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OWNER:
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COLUMBIA, MARYLAND 21046

DEVELOPER:
SDC GROUP INC.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
(410) 465-4244

DES: GWF | DRN: JR

PROJECT: **OAKHURST**
(FORMERLY KNISLEY PROPERTY)
SECTION 1 – AREA 1 LOTS 1-41

LOCATION:
TAX MAP 42 BLOCK 17 – PARCEL 69
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: ROAD PROFILES AND TYPICAL SECTIONS

S-94-20, P-95-28, WP-96-49

DATE: SEPTEMBER 29, 1996 / MAY 22, 1997

PROJECT NO. 0527

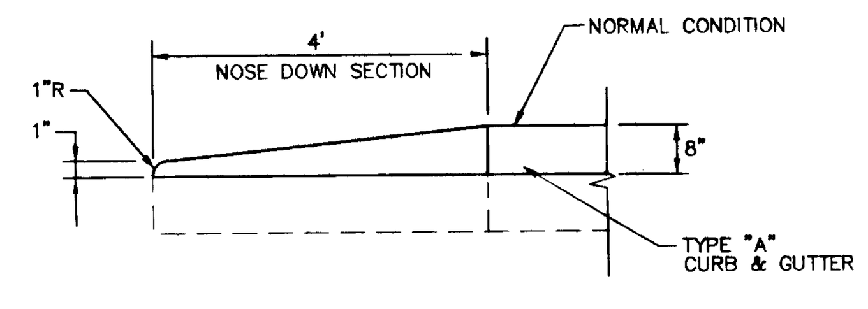
SCALE: AS SHOWN

DRAWING 2 OF 11

F-97-107

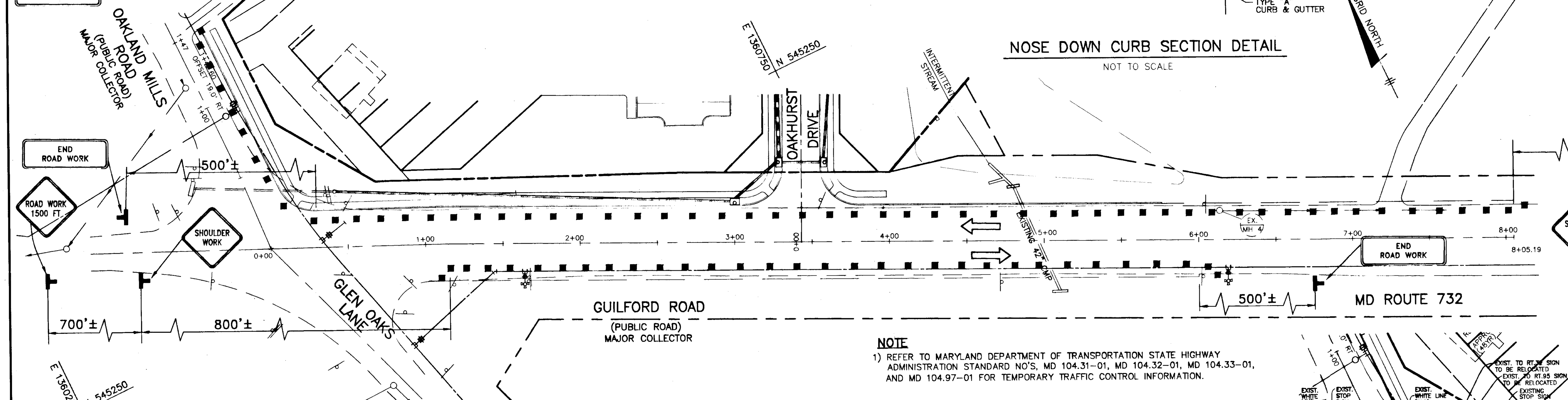
Acad Dwg: 7041S2

CENTERLINE CONTROL DATA – GUILFORD ROAD		
STATION	NORTH	EAST
STA. 0+00 = INTERSECTION AT OAKLAND MILLS ROAD	545290.6447	1360406.0481
STA. 1+11.79	545244.3169	1360507.7921
STA. 3+43.19 GUILDFORD ROAD = 0+00 OAKHURST DRIVE	544936.5484	1361143.7614
STA 4+07.80	545115.4889	1360774.2911
STA 8+06.13 = LIMIT OF WORK	544941.8621	1361132.7899
STA 8+18.32 = END OF SUBMISSION	544936.5484	1361143.7614



NOSE DOWN CURB SECTION DETAIL

NOT TO SCALE

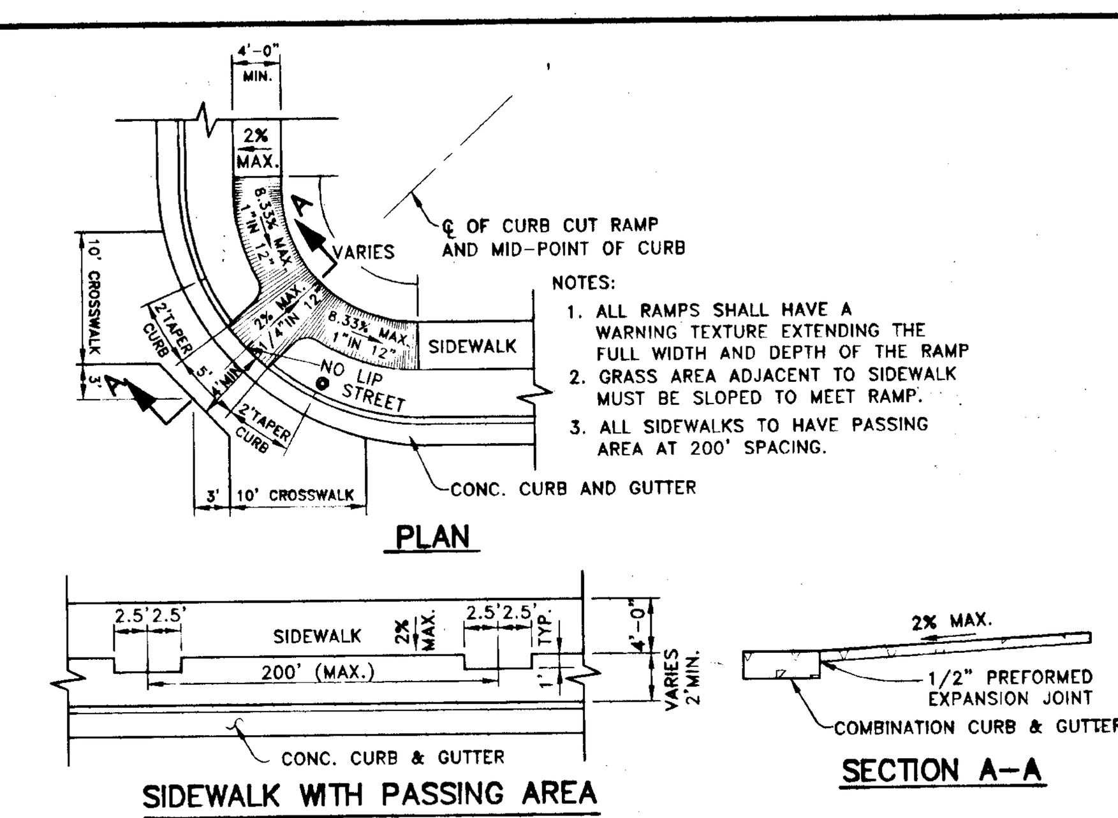


NOTE

1) REFER TO MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD NO'S, MD 104.31–01, MD 104.32–01, MD 104.33–01, AND MD 104.97–01 FOR TEMPORARY TRAFFIC CONTROL INFORMATION.

GUILFORD ROAD TRAFFIC CONTROL PLAN

SCALE : 1"=50'



NOTES:
1. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP
2. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.
3. ALL SIDEWALKS TO HAVE PASSING AREA AT 200' SPACING.

PLAN

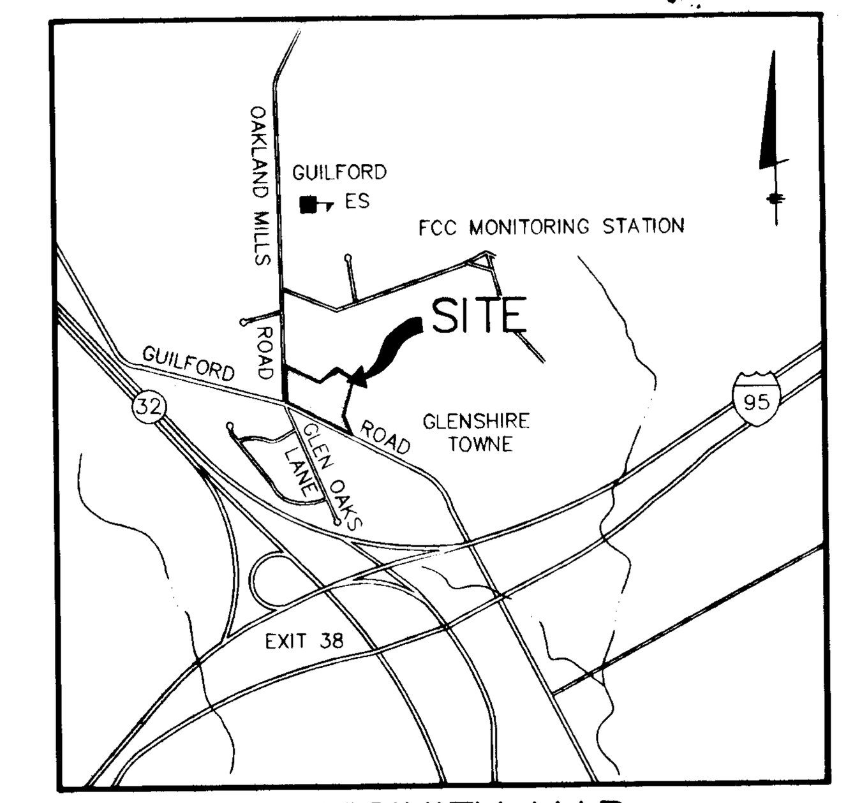
SIDEWALK WITH PASSING AREA

SECTION A–A

SIDEWALK RAMP TYPE A

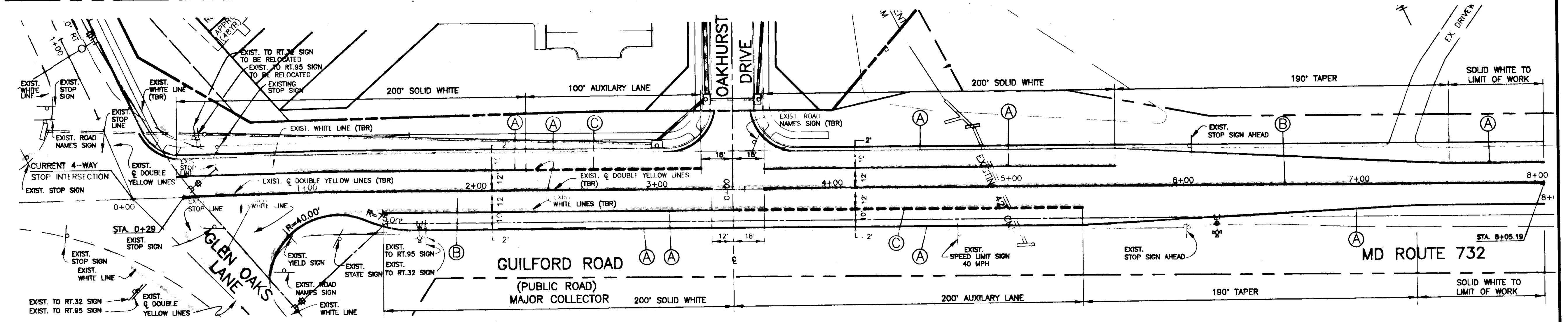
HOWARD COUNTY STANDARD DETAIL R–4.01

NO SCALE



VICINITY MAP

SCALE : 1'=2000'



GUILFORD ROAD STRIPING PLAN

SCALE : 1"=50'

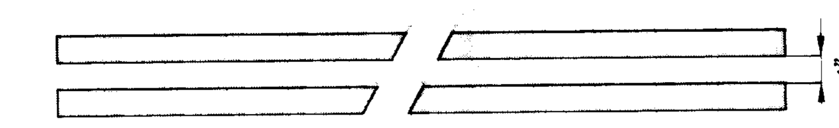
NOTE: TBR STANDS FOR TO BE REMOVED.

PAVEMENT MARKING NOTES

1) ALL PAVEMENT MARKINGS TO BE APPLIED USING 'SETFAST PREMIUM ALKYD TRAFFIC PAINT WITH GLASS BEADS BY SHERWIN WILLIAMS OR APPROVED EQUAL.
2) ALL WORK SHALL BE IN ACCORDANCE WITH MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (1988 EDITION)
3) EXISTING PAVEMENT MARKINGS THAT ARE IN CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS FOR THIS CONTRACT WILL BE REMOVED BY THE CONTRACTOR BY SLURRY SEAL IN ACCORDANCE WITH SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS(1993), SECTION 507.02.

LEGEND

- Ⓐ – PAVEMENT LINES – 5" WHITE SOLID, SINGLE LINE
- Ⓑ – PAVEMENT LINES – 5" YELLOW SOLID, DOUBLE LINE
- Ⓒ – PAVEMENT LINES – 5" WHITE, 2' LENGTH, 6' SPACE



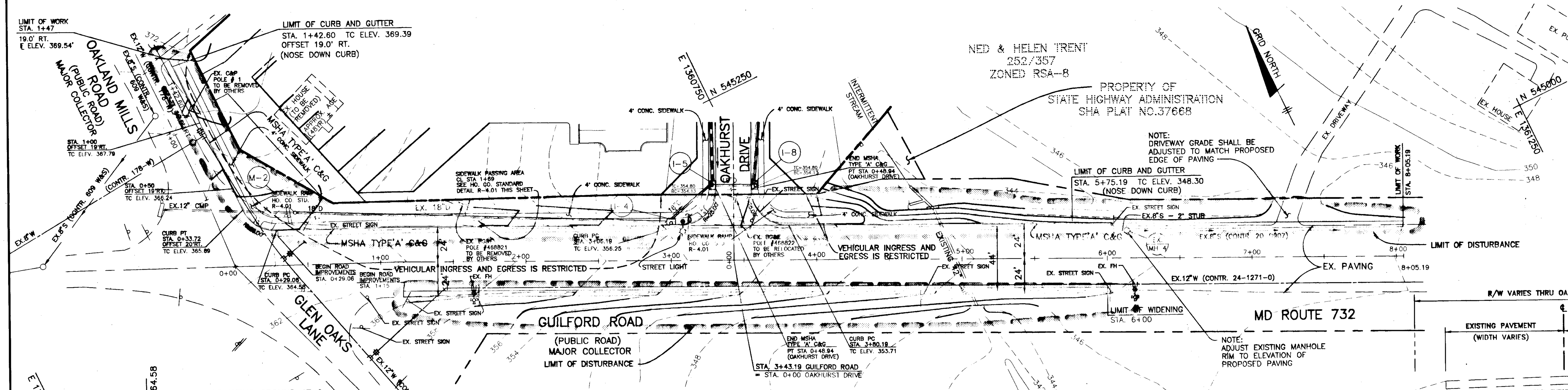
Ⓑ – 2 X 5" SOLID YELLOW LINE

TYPICAL SPACING LONGITUDINAL PAVEMENT LINES

NO SCALE

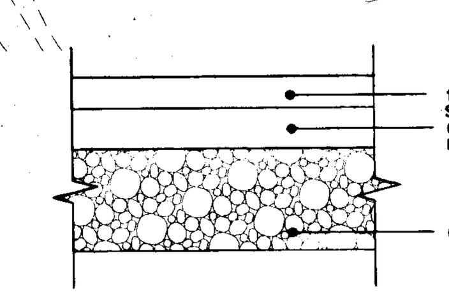
LEGEND

- EXISTING TREE LINE
- EXISTING SEWER LINE
- EXISTING WATER MAIN
- PROPOSED CONTOUR
- EXISTING GRADE
- PROPOSED STORM DRAIN
- PROPOSED CURB & GUTTER
- PROPOSED ROAD WIDENING



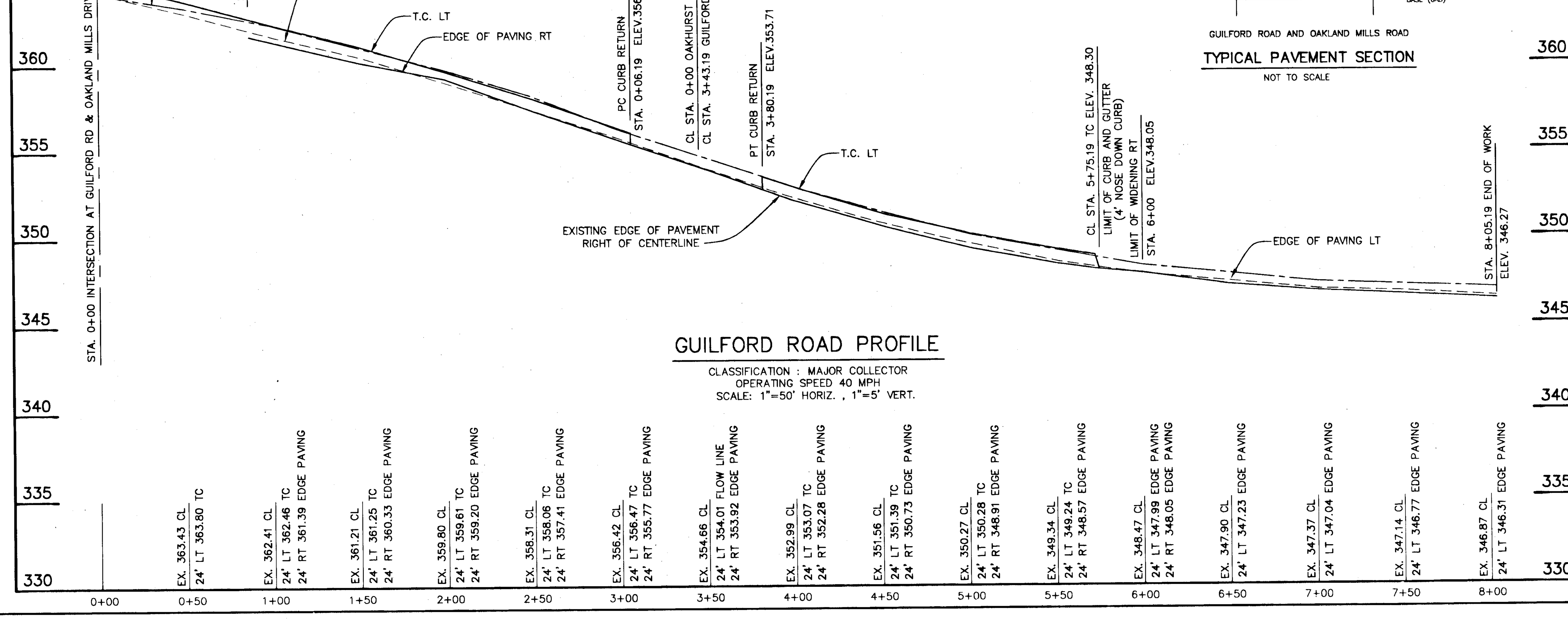
GUILFORD ROAD PLAN

SCALE : 1"=50'



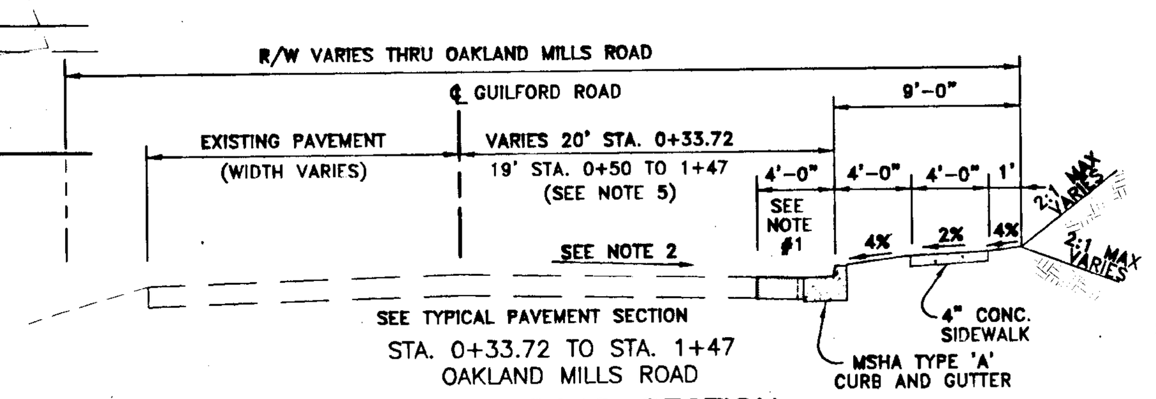
TYPICAL PAVEMENT SECTION

NOT TO SCALE



GUILFORD ROAD PROFILE

CLASSIFICATION : MAJOR COLLECTOR
OPERATING SPEED 40 MPH
SCALE: 1"=50' HORIZ. , 1"=5' VERT.



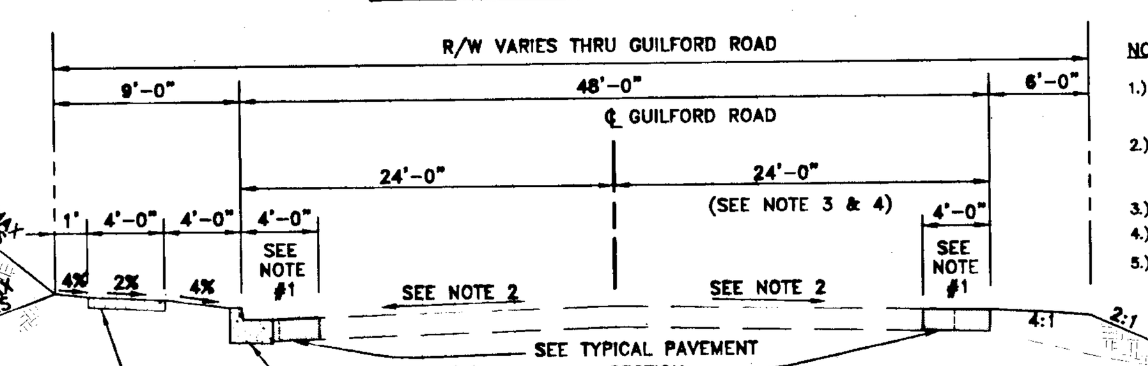
SEE TYPICAL PAVEMENT SECTION

STA. 0+33.72 TO STA. 1+47
OAKLAND MILLS ROAD

TYPICAL ROAD SECTION

GENERAL NOTE:

1.) ALL SLOPES TO BE VEGETATIVELY STABILIZED WITH SEED AND MULCH AS PER SHA SPECS.

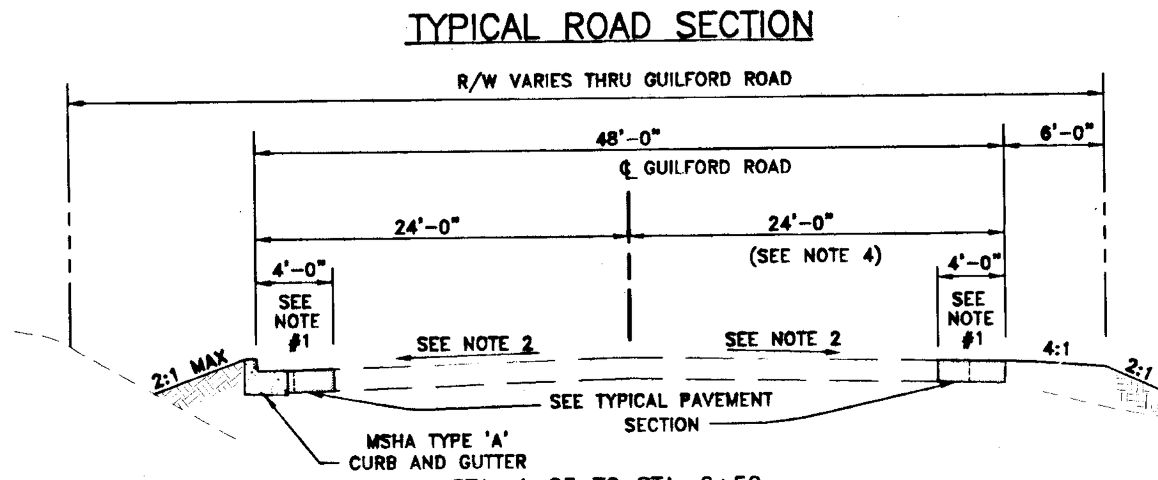


STA. 0+29.06 TO STA. 4+25
GUILFORD ROAD

TYPICAL ROAD SECTION

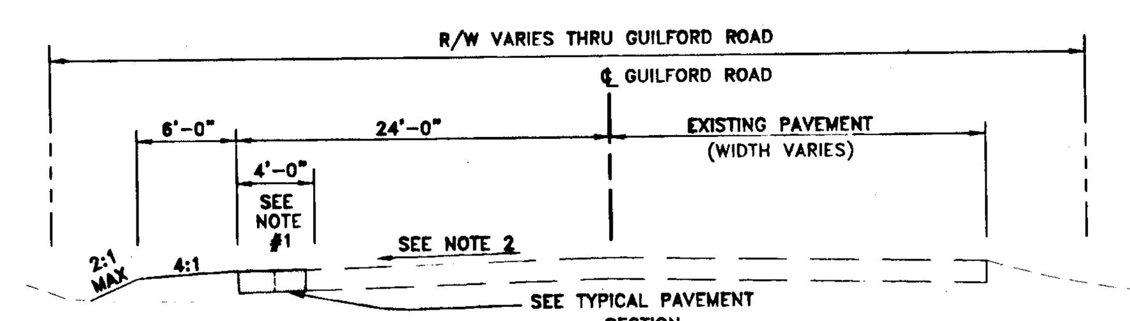
NOTES:

1.) SAW CUT AND REMOVE EXISTING PAVEMENT TO ALLOW FOR MINIMUM OF 4' WIDE STRIP.
2.) CROSS SLOPE VARIES. CONTINUE EXISTING CROSS THRU WIDENING WIDTH. SLOPE NOT TO EXCEED 3%.
3.) BEGIN 24' WIDENING STA. 1+15 (RT.)
4.) END RIGHT SIDE WIDENING AT STA. 6+00
5.) END CURB & GUTTER STA. 1+42.60. CONTINUE 15' BITUMIOUS PAVEMENT WIDENING TO STA. 1+47.



STA. 4+25 TO STA. 6+50
GUILFORD ROAD

TYPICAL ROAD SECTION



STA. 6+50 TO STA. 8+05.19
GUILFORD ROAD

TYPICAL ROAD SECTION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

~~CHIEF, TRAFFIC ENGINEERING~~ ~~DATE~~

CHIEF, BUREAU OF HIGHWAYS — 6-10-97 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 6/12/97 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6/11/97 DATE

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-6105

OWNER:
HARRY AND HELEN KNISLEY
9513 GUILFORD ROAD
COLUMBIA, MARYLAND 21046

DEVELOPER:
SDC GROUP INC.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
(410) 465–4244

DES: DAM — DRN: JR

PROJECT: **OAKHURST**
(FORMERLY KNISLEY PROPERTY)
SECTION 1 – AREA 1 LOTS 1–41

LOCATION:
TAX MAP 42 – PARCEL 69
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: PLAN AND PROFILE OF GUILFORD ROAD MD ROUTE 732 AND STRIPING PLAN

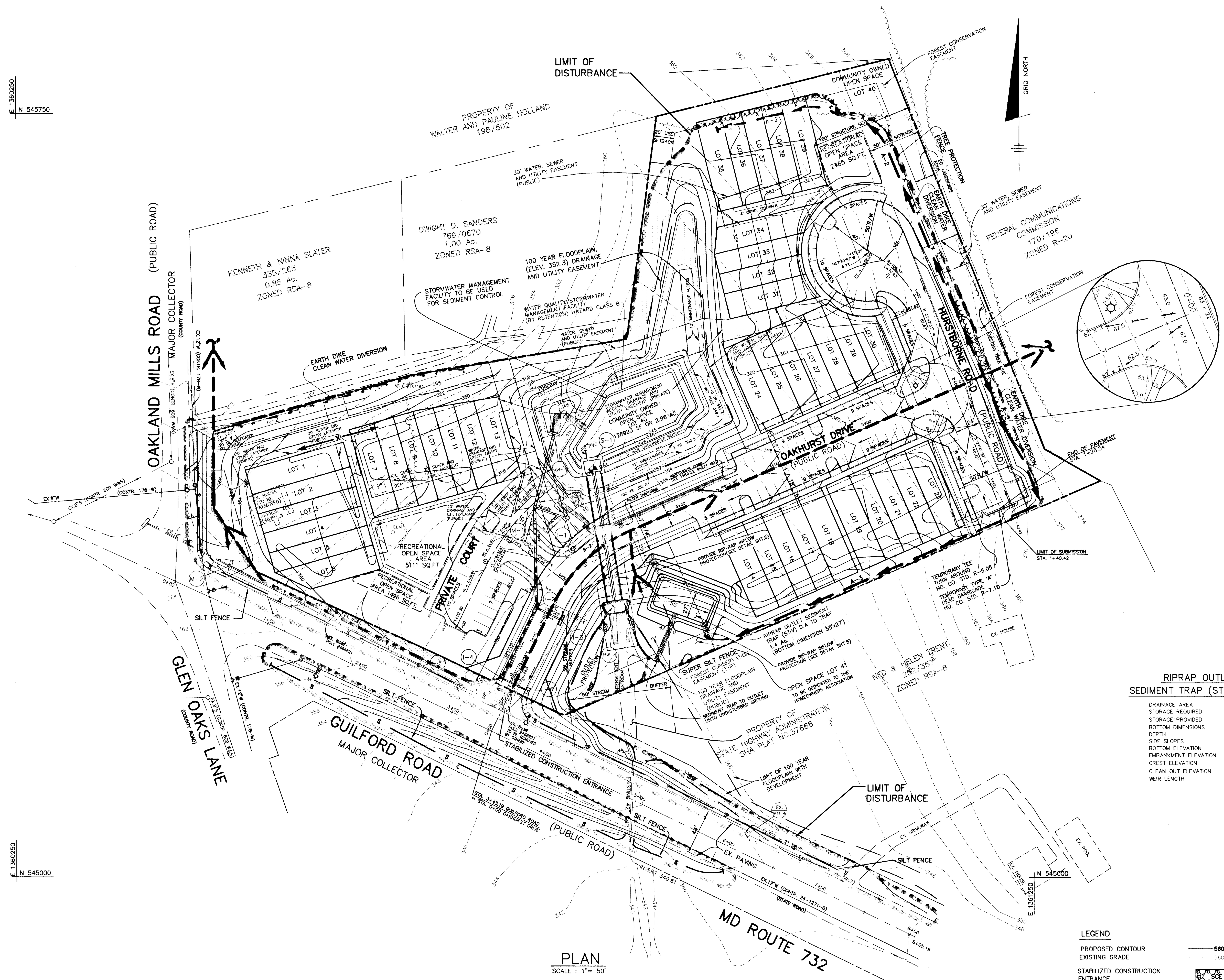
WP–96–49, S–94–20, P–95–28

DATE: SEPTEMBER 29, 1996 / MAY 22, 1997 — PROJECT NO. 0527

SCALE: AS SHOWN — DRAWING 3 OF 11

F–97–107

Plotted: A... 29, 1997
Acad Dwg: 7021S3



POND SUMMARY TABLE			
DRAINAGE AREA TO FACILITY 41.43 Ac.			
	2YR	10YR	100YR
ALLOWABLE RELEASE RATE	41.52 cfs	105.34 cfs	184.80 cfs
COMPUTED INFLOW	46.46 cfs	108.70 cfs	-------
DISCHARGE FROM FACILITY	39.01 cfs	99.38 cfs	183.60 cfs
DISCHARGE FROM SITE	41.00 cfs	105.19 cfs	186.39 cfs
PROP. WATER SURFACE ELEV.	350.5	351.4	352.0
STORAGE IN FACILITY HAZARD CLASS 'B'	0.47 AF	0.60 AF	1.19 AF

STORMWATER MANAGEMENT FACILITY SEQUENCE OF CONSTUCTION

(NOTE: THIS SEQUENCE TO BE PHASED WITH NO. 4 OF SEQUENCE OF CONSTRUCTION AT RIGHT)

1. BEGIN EXCAVATION FOR STORMWATER MANAGEMENT FACILITY POOL AREA. INSTALL 24" CMP DIVERSION PIPE (OR APPROVED EQUAL) TO DIVERT STREAM FLOW AWAY FROM PRINCIPAL SPILLWAY WORK AREA TO CREATE A DRY WORKING ENVIRONMENT.
2. CONSTRUCT CUT-OFF TRENCH AND FILTER DIAPHRAM BELOW CONCRETE CRADLE (REFER TO NOTES UNDER TYPICAL EMBANKMENT SECTION ON SHEET NO. 7).
3. CONSTRUCT CONCRETE CRADLE, PRINCIPAL SPILLWAY AND APRON.
4. REDIRECT STREAM FLOW TO PRINCIPAL SPILLWAY STRUCTURE. REMOVE DIVERSION PIPE INSTALLED UNDER SEQUENCE NO. 1.
5. PROCEED WITH CORE, FILTER DIAPHRAM AND EMBANKMENT CONSTRUCTION

NOTE: FOR DETAILS RELATED TO STREAM CONSTRUCTION REFER TO MARYLAND'S GUIDELINES TO WATER WAY CONSTRUCTION, BY MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER RESOURCES ADMINISTRATION.

SEQUENCE OF CONSTRUCTION

DAY 1	1)	OBTAIN GRADING PERMIT.
DAY 2	2)	INSTALL STABILIZED CONSTRUCTION ENTRANCE
DAY 3-12	3)	INSTALL SILT FENCE, SUPER SILT FENCE, EARTH DIKE, SEDIMENT TRAP AND TREE PROTECTION FENCE.
DAY 13-30	4)	CONSTRUCT STORMWATER MANAGEMENT FACILITY. MASS GRADE SITE AND STABILIZE ACCORDING TO TEMPORARY SEEDBED NOTES.
DAY 31-60	5)	CONSTRUCT WATER LINE, SANITARY SEWER LINE AND STORM DRAIN SYSTEM.
DAY 61-62	6)	AFTER STABILIZATION AND WITH APPROVAL OF HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS SEDIMENT CONTROL INSPECTOR, REMOVE TEMPORARY STREAM DIVERSION.
DAY 63-82	7)	CONSTRUCT CURB AND GUTTER, PAVEMENT AND SIDEWALK.
DAY 83-92	8)	UPON APPROVAL OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS SEDIMENT CONTROL INSPECTOR REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE ANY REMAINING DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDBED NOTES.

STORMWATER MANAGEMENT FACILITY SEDIMENT CONTROL DATA

STORMWATER MANAGEMENT FACILITY WILL BE UTILIZED FOR SEDIMENT CONTROL DURING GRADING OPERATIONS.

DRAINAGE AREA	4.4 Ac.
STORAGE REQUIRED (3600 cf x 4.4 Ac.)	15,840 cf
STORAGE PROVIDED (STORAGE PROVIDE TO FIRST WEIR OPENING ELEV. 349.10)	31,581 cf
BOTTOM ELEVATION	345.0
CREST ELEVATION	349.1
CLEAN OUT ELEVATION	347.1
DISTANCE FROM TOP OF RELEASE STUCTURE TO C.O. ELEVATION	6.9'

RIPRAP OUTLET SEDIMENT TRAP (ST IV)DATA

DRAINAGE AREA	1.4 Ac.
STORAGE REQUIRED	5040 cf
STORAGE PROVIDED	5040 cf
BOTTOM DIMENSIONS	55'x27'
DEPTH	2.5'
SIDE SLOPES	2:1
BOTTOM ELEVATION	345.0
EMBANKMENT ELEVATION	349.0
CREST ELEVATION	347.5
CLEAN OUT ELEVATION	346.3
WEIR LENGTH	4.5'

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 — DEVELOPER: 4/24/97 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."
Donald Mason — ENGINEER: 4/29/97 DATE:

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Cheryl Simmons — NATURAL RESOURCES CONSERVATION SERVICE 6/2/97 DATE:

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
John R. Robertson — HOWARD SOIL CONSERVATION DISTRICT 6/2/97 DATE:

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Dancke — CHIEF, BUREAU OF HIGHWAYS — 6-10-97 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Richard Blood — CHIEF, DIVISION OF LAND DEVELOPMENT — 6/12/97 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION — VJC — 6/11/97 DATE

NO	DATE	REVISION

LEGEND

- PROPOSED CONTOUR — 560
- EXISTING GRADE — 560
- STABILIZED CONSTRUCTION ENTRANCE — SCE
- SILT FENCE — S
- SUPER SILT FENCE — SSF
- LIMIT OF DISTURBANCE
- ON SITE DRAINAGE DIVIDE FOR SEDIMENT CONTROL FACILITIES
- EARTH DIKE
- TREE PROTECTION FENCE — X
- EXISTING TREE LINE
- PROPOSED TREE LINE
- BORING LOCATION — B-2

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-6105

OWNER: HARRY AND HELEN KNISLEY, 9513 GUILFORD ROAD, COLUMBIA, MARYLAND 21046

DEVELOPER: SDC GROUP INC., P.O. BOX 417, ELLICOTT CITY, MARYLAND 21041, (410) 465-4244

PROJECT: **OAKHURST** (FORMERLY KNISLEY PROPERTY) SECTION 1 - AREA 1 LOTS 1-41

LOCATION: TAX MAP 42 - PARCEL 69, 6th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: **GRADING AND SEDIMENT CONTROL PLAN**
S-94-20, P-95-28, WP-96-49

DATE: SEPTEMBER 29, 1996 / MAY 22, 1997 — PROJECT NO. 0527

DES: GWF — DRN: JR — SCALE: AS SHOWN — DRAWING 4 OF 11

F-97--107

Acad Dwg: 702654

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION.

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 AND REVISIONS THERETO.

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 GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 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 CAN 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	6.48	ACRES
AREA DISTURBED (on site)	6.11	ACRES
AREA DISTURBED (Guilford Road)	0.89	ACRES
TOTAL AREA DISTURBED	7.00	ACRES
AREA TO BE ROOFED OR PAVED	1.09	ACRES
AREA TO BE VEGETATIVELY STABILIZED	5.91	ACRES
TOTAL CUT	10442	CU YDS
TOTAL FILL	20339	CU YDS
OFFSITE BORROW	11589	CU YDS

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 SEDIMENT CONTROL 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. TRENCHES FOR THE CONSTRUCTION OF UTILITIES ARE LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

TEMPORARY SEEDBED PREPARATION

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

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

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

SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH 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 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

PERMANENT SEEDBED PREPARATION

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

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ON OF THE FOLLOWING SCHEDULES:

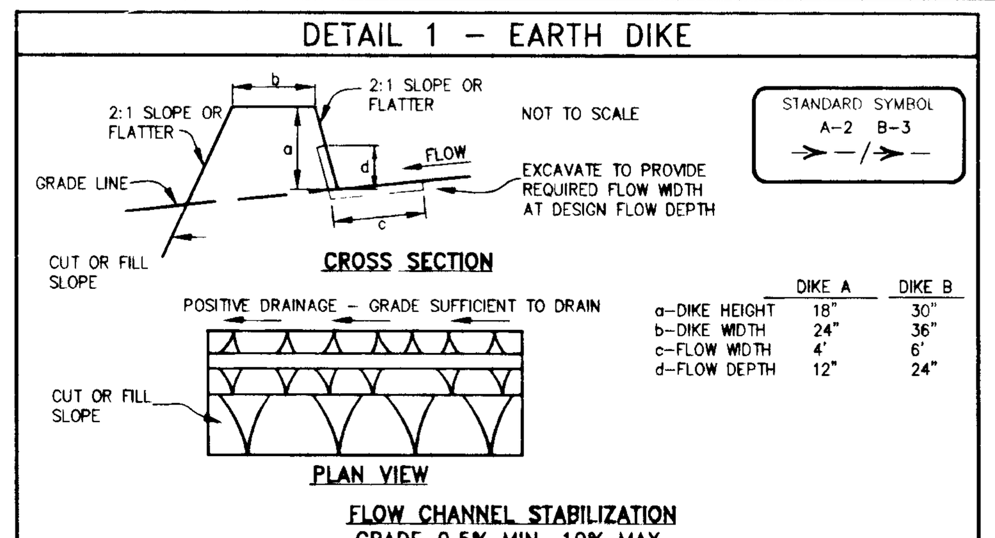
1. PREFERRED – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0- UREAFORM FERTILIZER (9 LBS/1000 SQ FT).
2. ACCEPTABLE – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH 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 PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF 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 IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

DETAIL 1 – EARTH DIKE



	DIKE A	DIKE B
a–DIKE HEIGHT	18"	30"
b–DIKE WIDTH	24"	36"
c–FLOW WIDTH	4'	6'
d–FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

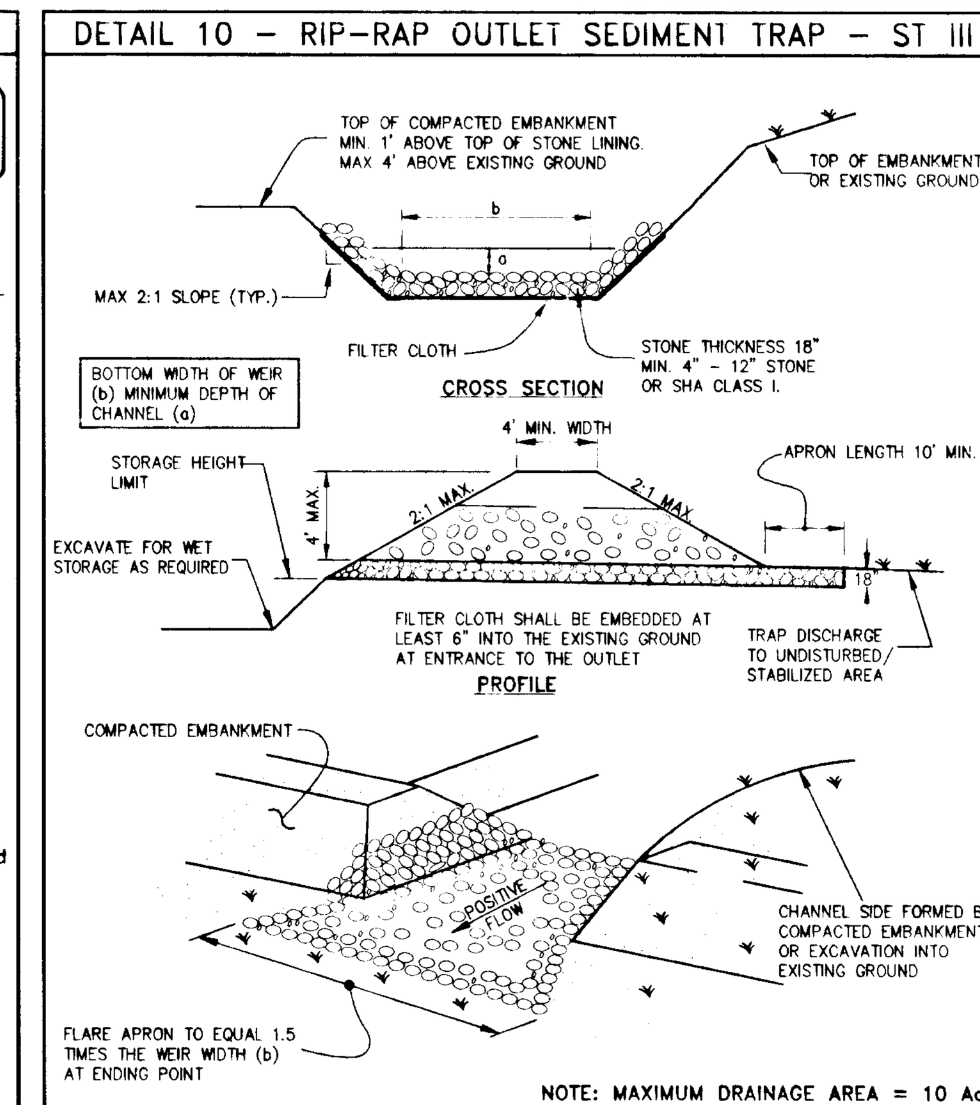
1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

CONSTRUCTION SPECIFICATIONS

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A – 1 – 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 10 – RIP-RAP OUTLET SEDIMENT TRAP – ST III



NOTE: MAXIMUM DRAINAGE AREA = 10 Ac.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 9 – 13	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

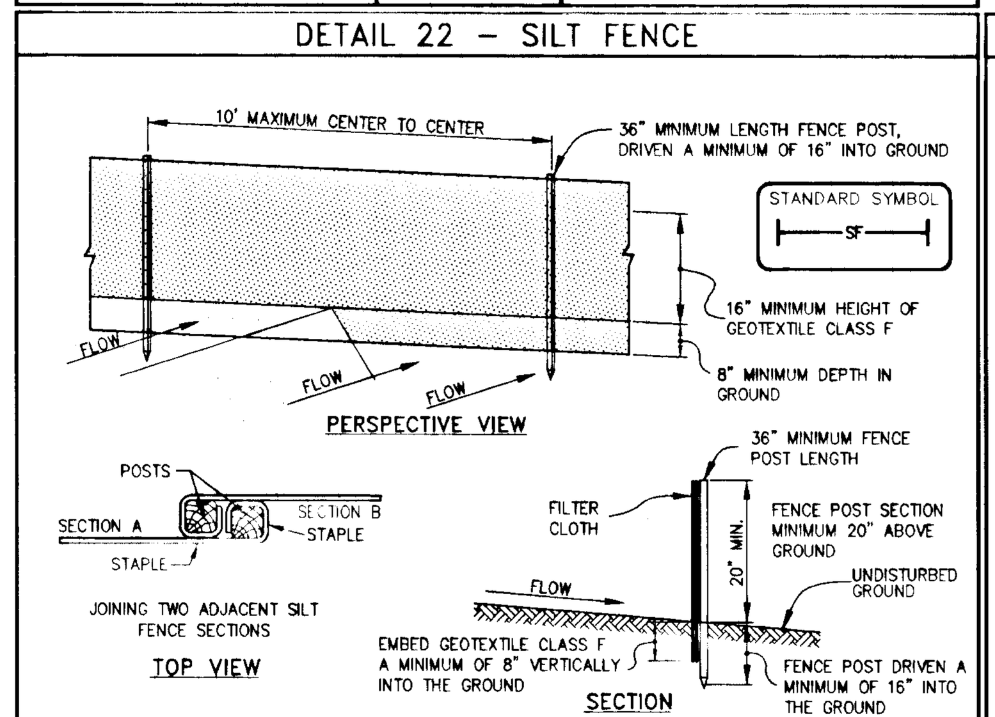
RIP-RAP OUTLET SEDIMENT TRAP – ST III

CONSTRUCTION SPECIFICATIONS

1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be 4', measured at centerline of embankment.
3. All cut and fill slopes shall be 2:1 or flatter.
4. Elevation of the top of any dike directing water into trap must equal or exceed the height of trap embankment.
5. Storage area provided shall be figured by computing the volume measured from top of excavation. (For storage requirements see Table 10).
6. Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Section of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shall be embedded at least 6" into existing ground at entrance of outlet channel.
7. Stone used in the outlet channel shall be 4" – 12" placed 18" thick.
8. Outlet – An outlet shall be provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel. Protection against scour at the discharge end shall be provided as necessary.
9. Outlet channel must have positive drainage from the trap.
10. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/4 of the wet storage depth of the trap (1350 cf/ac). Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
11. The structure shall be inspected periodically after each rain and repaired as needed.
12. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
13. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 9 – 13A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 – SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

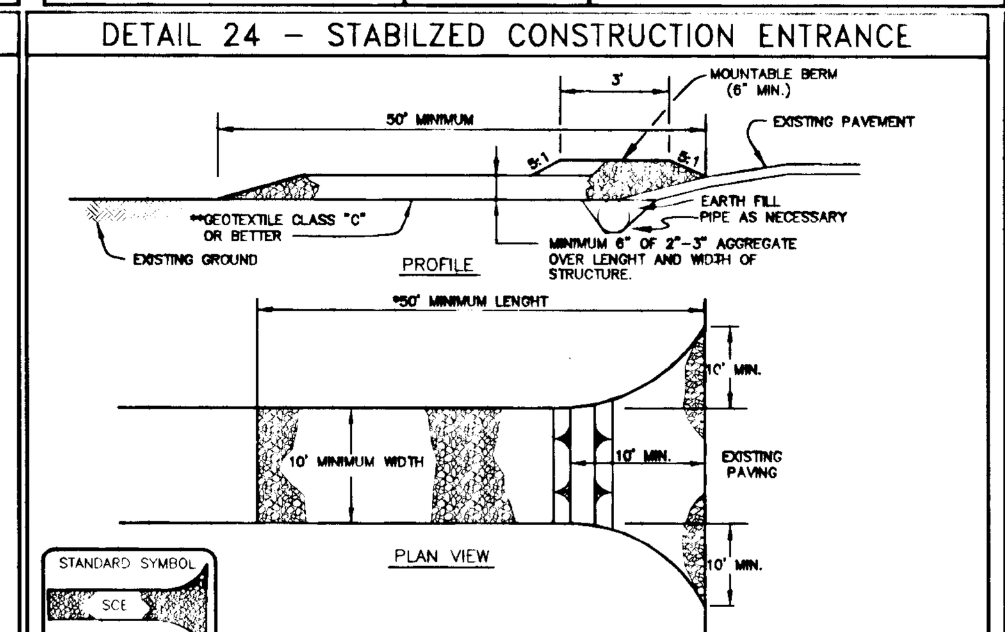
1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pond per linear foot.
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 ft / 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 – STABILZED CONSTRUCTION ENTRANCE

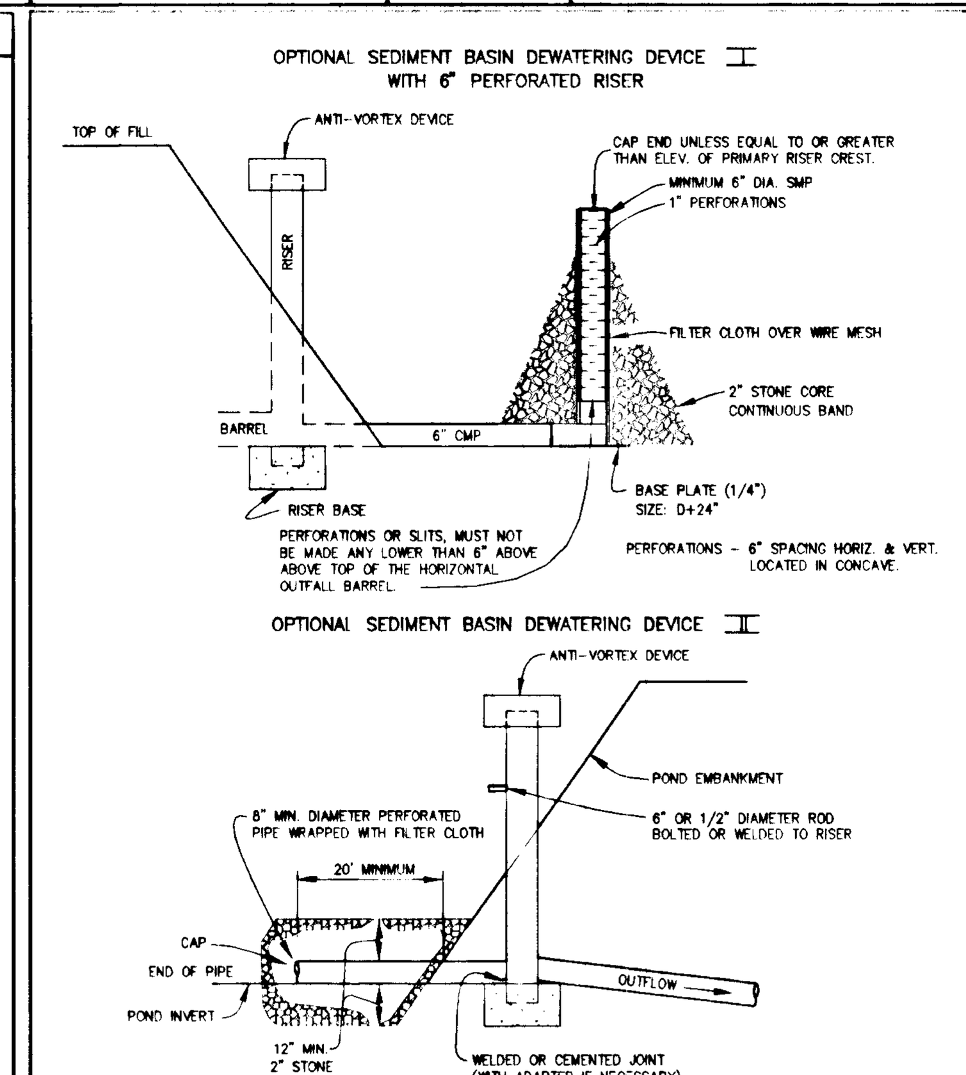


Construction Specifications

1. Lenght – minimum of 50' (*30' for single residence lot).
2. Width– 10' minimum, should be flared at the existing raod 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 residence to use geotextile.
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed atleast 6" deep over the lenght 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 mounted 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 lenght of the stabilized construction entrance.

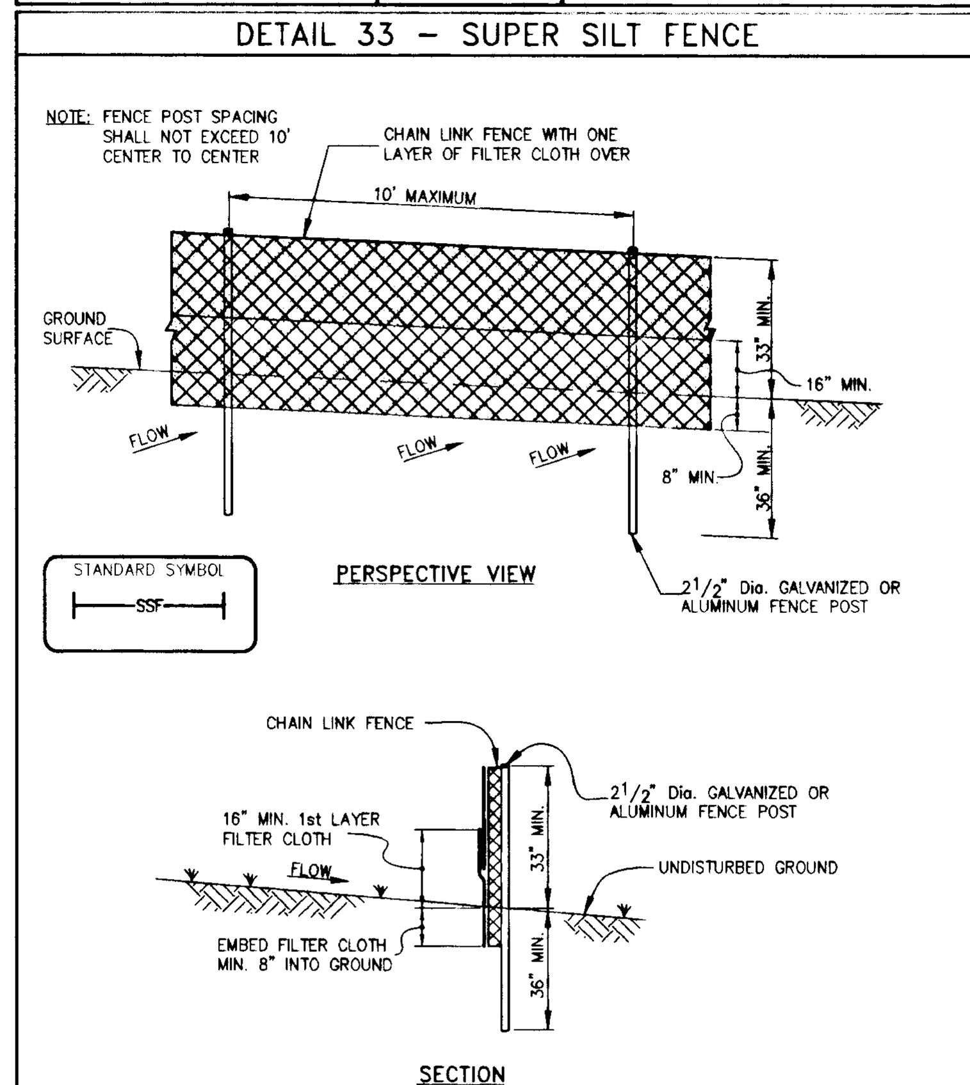
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

OPTIONAL SEDIMENT BASIN DEWATERING DEVICE I WITH 6" PERFORATED RISER



US DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	OPTIONAL SEDIMENT BASIN DEWATERING DEVICES	STANDARD DRAWING SB

DETAIL 33 – SUPER SILT FENCE



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H – 26 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SUPER SILT FENCE

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:

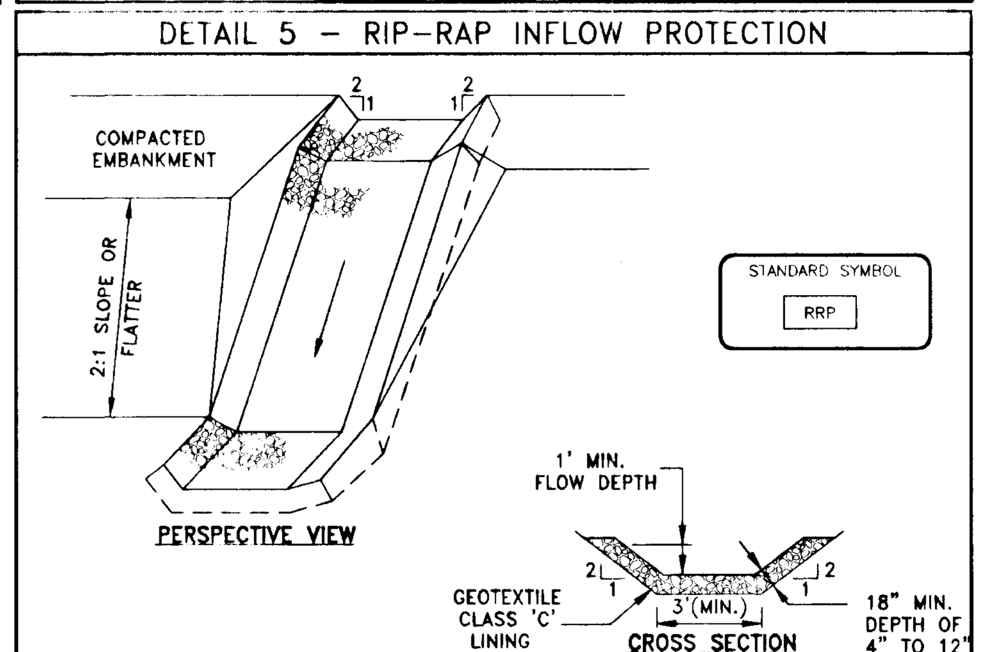
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 26 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

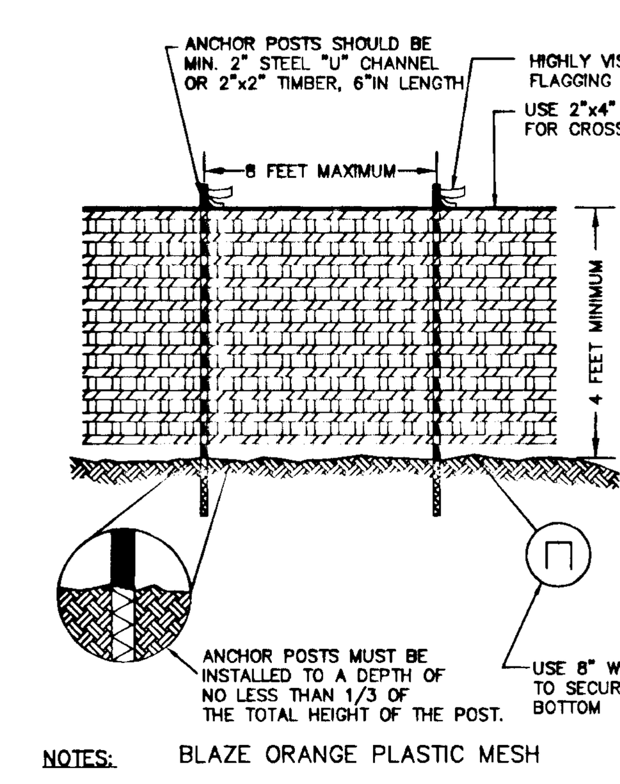
DETAIL 5 – RIP-RAP INFLOW PROTECTION



CONSTRUCTION SPECIFICATIONS

1. All lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip-rap to a depth of 18".
2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
3. Entrance and exit sections shall be installed as shown on the detail section.
4. Rip-Rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion Inflow Protection may be used in lieu of Rip-Rap Inflow Protection.
6. Rip-Rap should blend into existing ground.
7. Rip-Rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B – 6 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



NOTES: BLAZE ORANGE PLASTIC MESH

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 FLAGGED PRIOR TO INSTALLING DEVICES.
4. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
5. DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION
6. PROTECTIVE SIGNAGE IS ALSO REQUIRED.

TEMPORARY TREE PROTECTION 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."
DEVELOPER: James R Moxley Jr. DATE: 4/29/97

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."
ENGINEER: Donald Mason DATE: 4/29/97

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
NATURAL RESOURCES CONSERVATION SERVICE DATE: 6/2/97

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
HOWARD SOIL CONSERVATION DISTRICT DATE: 6/6/97

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Doncke
CHIEF, BUREAU OF HIGHWAYS HS DATE 6-10-97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Richard Blood
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 6/12/97

CHIEF, DEVELOPMENT ENGINEERING DIVISION VJC DATE 6/11/97

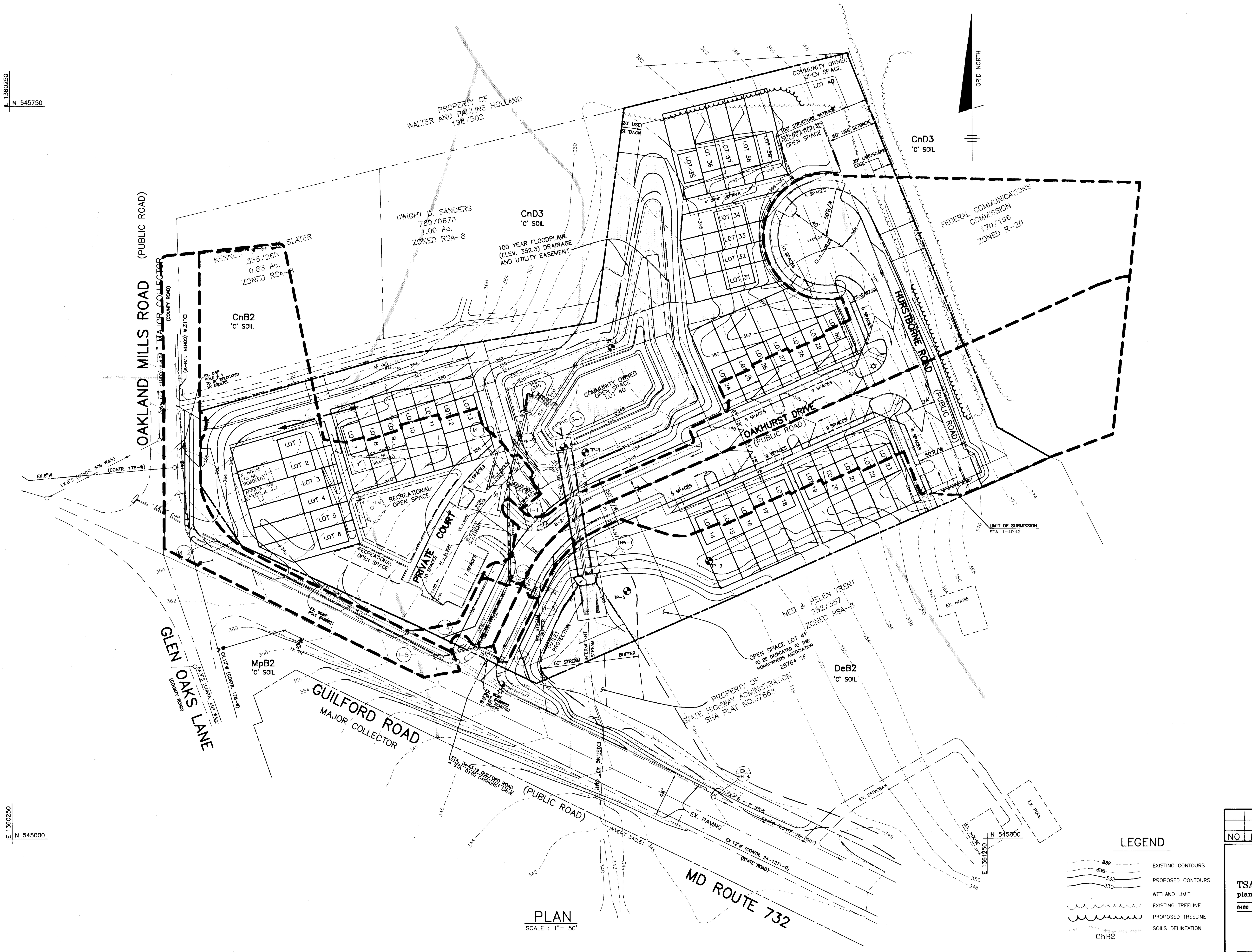
NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-6105

OWNER: HARRY AND HELEN KNISLEY, 9513 GUILFORD ROAD, COLUMBIA, MARYLAND 21046	PROJECT: OAKHURST (FORMERLY KNISLEY PROPERTY) SECTION 1 – AREA 1 LOTS 1-41
	LOCATION: TAX MAP 42 – PARCEL 69, 6th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
DEVELOPER: SDC GROUP INC., P.O. BOX 417, ELLICOTT CITY, MARYLAND 21041, (410) 465-4244	TITLE: SEDIMENT CONTROL NOTES AND DETAILS; S-94-20, P-95-28, WP-96-49
	DATE: SEPTEMBER 29, 1996; MAY 22, 1997 — PROJECT NO. 0527
DES: GWF — DRN: JR	SCALE: AS SHOWN — DRAWING 5 OF 11

F-97-107

Acad Dwg: 702555



PLAN

SCALE : 1"= 50'

SOILS LEGEND

MAP SYMBOL	SOIL TYPE	SOIL CLASSIFICATION
CnB2	C	CHILLUM-FAIRFAX LOAMS, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED
CnD3	C	CHILLUM-FAIRFAX LOAMS, 5 TO 15 PERCENT SLOPES, MODERATELY ERODED
DeB2	C	DELANCO SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MpB2	C	MONTALTO SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED

STORMWATER RUNOFF DATA

STRUCTURE	D.A.(Ac.)	C	%IMPERVIOUS	T.C.(min.)	I_2(in/hr)	I_{10}(in/hr)	Q_2 (cfs)	Q_{10} (cfs)
I-1 (SUMP)	1.65	0.37	47	13.4	---	5.7	---	3.48
I-2	1.68	0.45	48	18.5	3.4	4.93	2.53	3.73
I-3	1.24	0.46	58	18.4	3.4	4.94	1.94	2.82
I-4	0.13	0.51	47	10.0	4.5	6.6	0.30	0.44
I-5	0.50	0.62	64	10.0	4.5	6.6	1.40	2.05
I-6	0.05	0.75	83	10.0	4.5	6.6	0.17	0.25
EX.12" CMP CULVERT	3.43	0.49	46	17.0	3.5	5.2	5.88	8.74

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	STANDARD NO.
I-1	A-5	N 545353.1224 E 1360789.9435	----	18" 349.99	353.70	HO. CO. STD SD-4.01
I-2	A-10	1+29 14' LT. N 545265.1485 E 1360760.0253	15" 349.88 30" 348.63	30" 348.43	355.53	HO. CO. STD SD-4.02
I-3	A-10	1+29 14' RT. N 545253.1948 E 1360784.6073	----	15" 352.09	355.53	HO. CO. STD SD-4.02
I-4	A-5	0+51.5 14' LT. N 545196.2025 E 1360725.7582	15" 350.27 18" 350.02	30" 349.02	354.76	HO. CO. STD SD-4.01
I-5	COG 20	3+24 24' LT. GUILFORD ROAD	18" 350.80	18" 350.60	356.47	MD SHA STD MD-374.51
I-6	A-5	0+51.5 14' RT. N 545183.6666 E 1360751.5412	----	15" 351.32	354.76	HO. CO. STD SD-4.01
M-1	STD. MH	N 545364.0465 E 1360758.7756	18" 348.93 30" 347.93	30" 347.73	353.89	HO. CO. STD G-5.12
M-2	SHALLOW MH	N 545305.7772 E 1360459.3045	18" 360.92 ±	18" 359.90	364.40	MD SHA STD MD-383.00
HW-2	TYPE "C" ENDWALL	N 545435.8208 E 1360777.7353	----	30" 346.00	----	HO. CO. STD SD-5.21
HW-1	SPECIAL DESIGN	N 545269.2352 E 1360837.6061	----	(2) 54" 344.24	----	SEE DETAIL SHT 7 OF 11
S-1	RELEASE STRUCTURE	N 545404.4623 E 1360815.5739	6" 344.98	(2) 54" 344.93	353.95	SEE DETAIL SHT 7 OF 12

NOTES:

1.) PRECAST STRUCTURES MEETING HS-25 LOADING MAY BE USED
2.) LOCATION AND ELEVATIONS GIVEN TO CENTER OF STRUCTURE
● FACE OF CURB.
3.) STATIONS AND OFFSETS FROM OAKHURST DRIVE UNLESS OTHERWISE NOTED.

NOTE:
GRADES SHOWN ON THIS PLAN REFLECT ULTIMATE GRADING WITH BUILDINGS PRESENT. DRAINAGE AREAS REFLECT THIS ULTIMATE GRADING CONDITION.

LEGEND

- EXISTING CONTOURS (332, 330)
- PROPOSED CONTOURS (332, 330)
- WETLAND LIMIT
- EXISTING TREELINE
- PROPOSED TREELINE
- SOILS DELINEATION (ChB2)

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-6105

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-10-97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/12/97
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/11/97

OWNER:
HARRY AND HELEN KNISLEY
9513 GUILFORD ROAD
COLUMBIA, MARYLAND 21046

DEVELOPER:
SDC GROUP INC.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
(410) 465-4244

DES: GWF — DRN: JR

PROJECT: **OAKHURST**
(FORMERLY KNISLEY PROPERTY)
SECTION 1 – AREA 1 LOTS 1-41

LOCATION:
TAX MAP 42 – PARCEL 69
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **DRAINAGE AREA MAP**

S-94-20, P-95-28, WP-96-49

DATE: SEPTEMBER 29, 1996 / MAY 22, 1997 — PROJECT NO. 0527

SCALE: AS SHOWN — DRAWING 6 OF 11

F-97-107

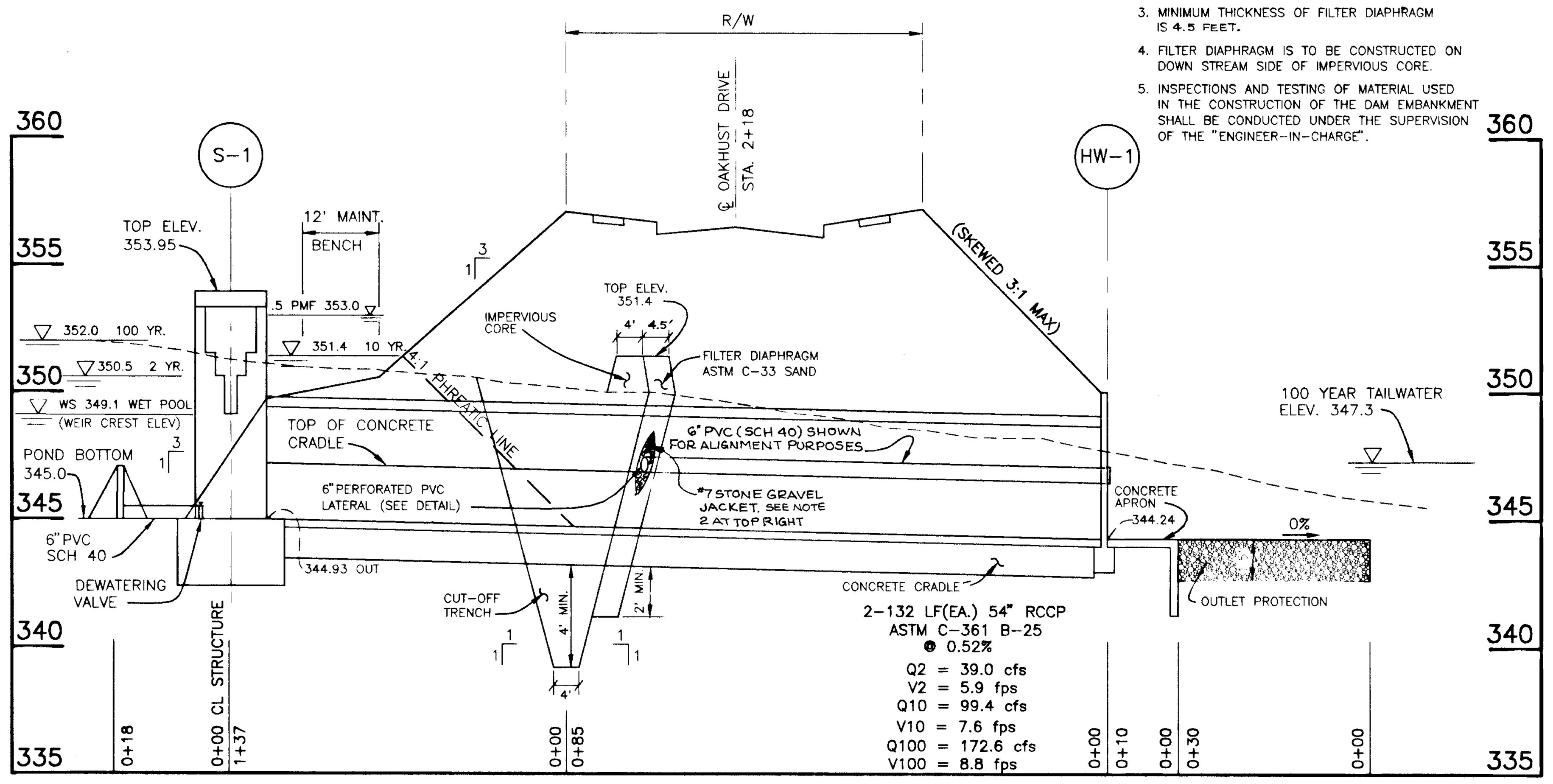
Plotted: APRIL 22, 1997
Acad Dwg: 7028S6

NOTES:

1. ALL PIPES IN STORM WATER MANAGEMENT EMBANKMENT SHALL HAVE RESTRAINING JOINTS.
2. ALL PIPES CROSSING THROUGH THE DAM SHALL HAVE FILTER DIAPHRAGMS ON DOWNSTREAM SIDE OF IMPERVIOUS CORE.
3. ALL UTILITY LINES NOT PART OF THIS CONTRACT, OR #24-3585-D, (i.e. ELECTRIC, GAS, ETC.) SHALL BE ENCASED IN FLOWABLE FILL (MIN. 1 FOOT ALL AROUND) – 500 PSI MIN. STRENGTH AND MAX. PERMEABILITY OF 8×10^{-6} CM/SEC.
4. NO GRAVEL IS IS ALLOWED UNDER ANY UTILITY LINE WITHIN THE LIMIT OF THE DAM CL OF ROAD STA. 1+75 TO 3+50.
5. THE PLACEMENT OF UTILITIES WITHIN THE EMBANKMENT IS TO BE SEQUENCED WITH THE CONSTRUCTION OF THE EMBANKMENT RATHER THAN BY TRENCHING.
6. NO TREE PLANTING IS ALLOWED IN THE EMBANKMENT, OAKHURST DRIVE CL STA. 1+75 TO 3+50. NO TREES ARE ALLOWED WITHIN 25 FEET OF THE EMBANKMENT.

NOTES:

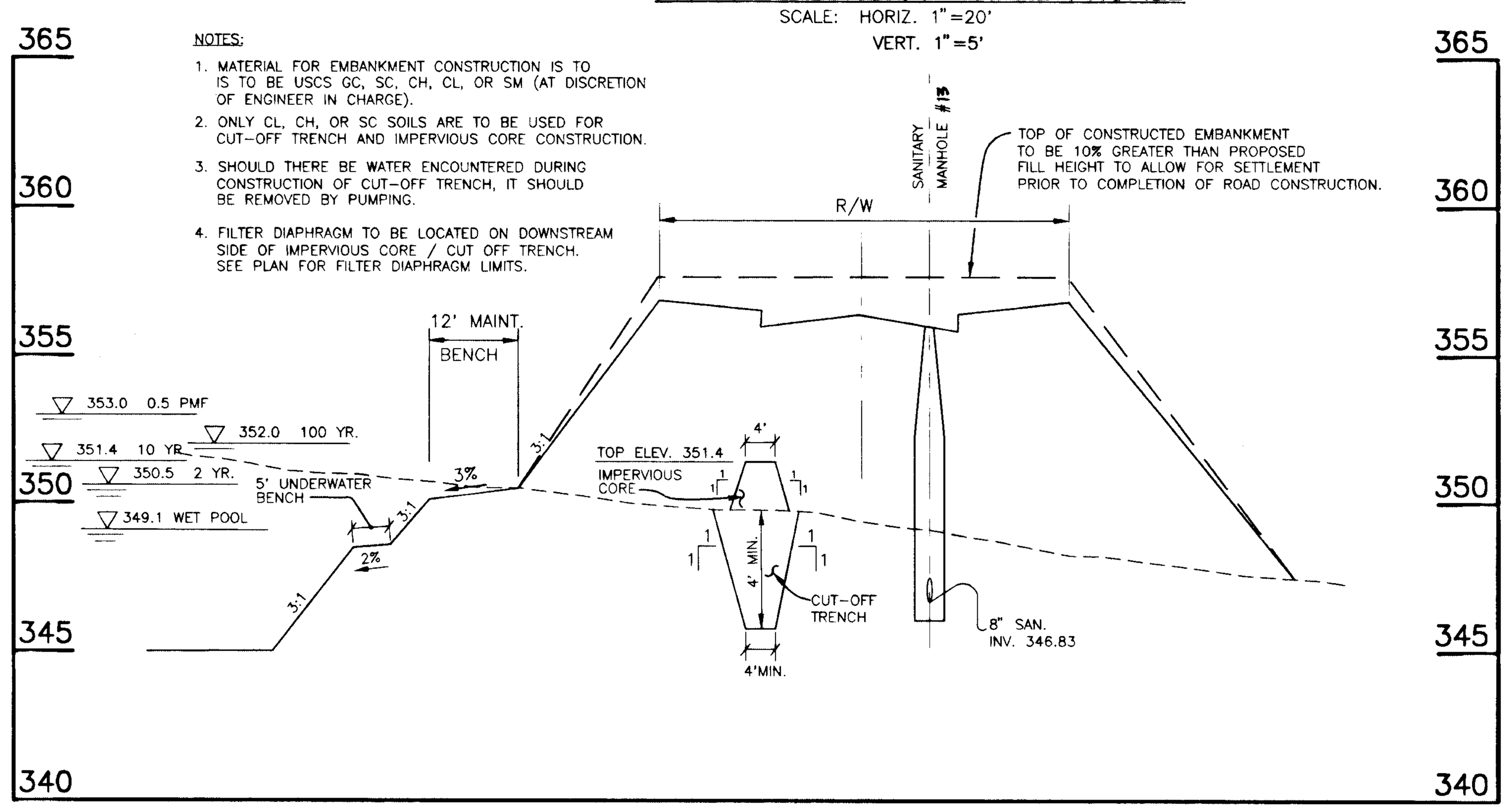
1. AN ARTICULATED JOINT IS REQUIRED BETWEEN THE RISER AND BARREL CONNECTION.
2. 54" PIPES SHALL HAVE STEEL JOINT RINGS PER DNR REQUIREMENT.
3. MINIMUM THICKNESS OF FILTER DIAPHRAGM IS 4.5 FEET.
4. FILTER DIAPHRAGM IS TO BE CONSTRUCTED ON DOWN STREAM SIDE OF IMPERVIOUS CORE.
5. INSPECTIONS AND TESTING OF MATERIAL USED IN THE CONSTRUCTION OF THE DAM EMBANKMENT SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE "ENGINEER-IN-CHARGE".



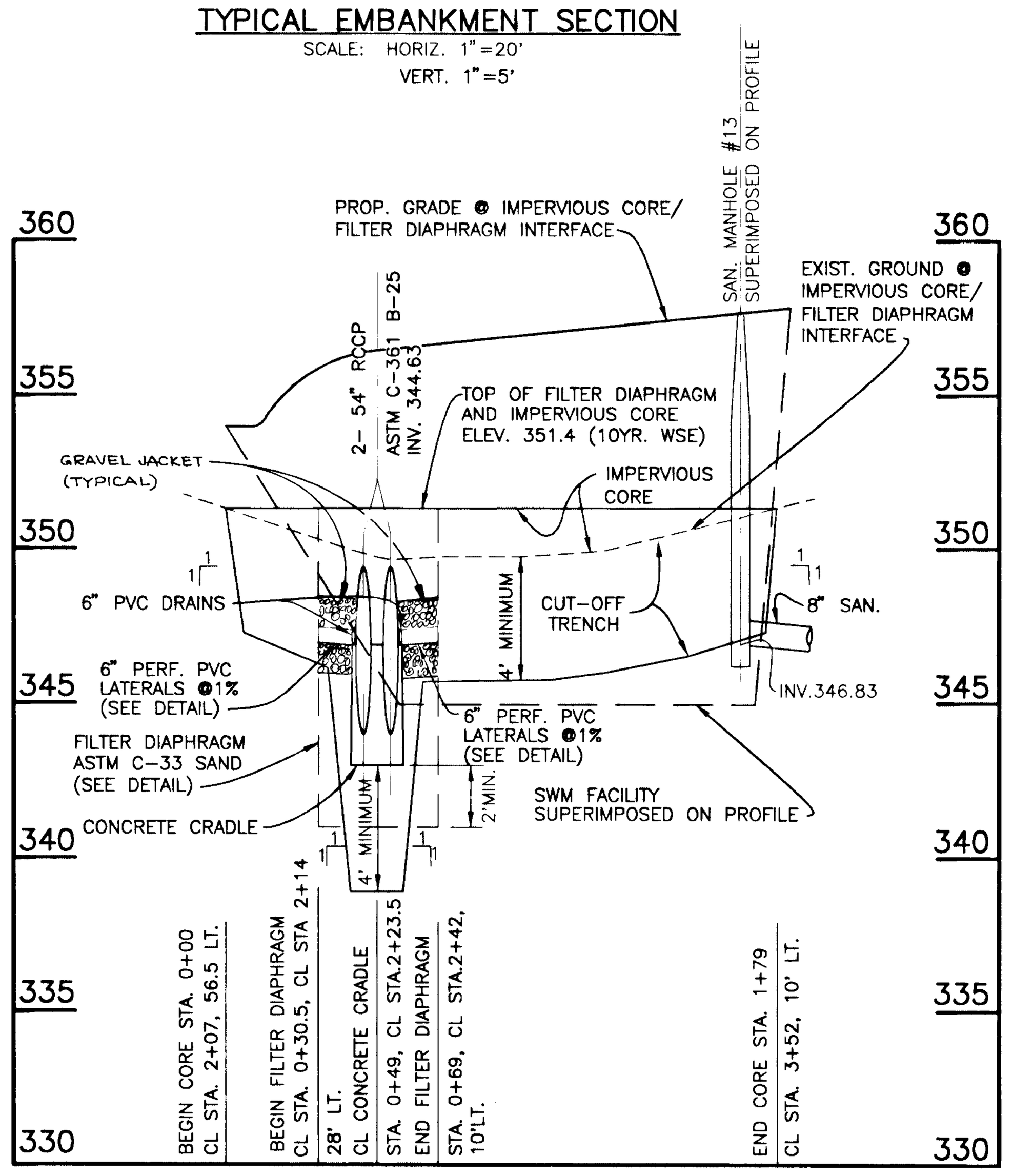
PROFILE ALONG PRINCIPAL PROFILE
SCALE: HORIZ. 1"=20'
VERT. 1"=5'

NOTES:

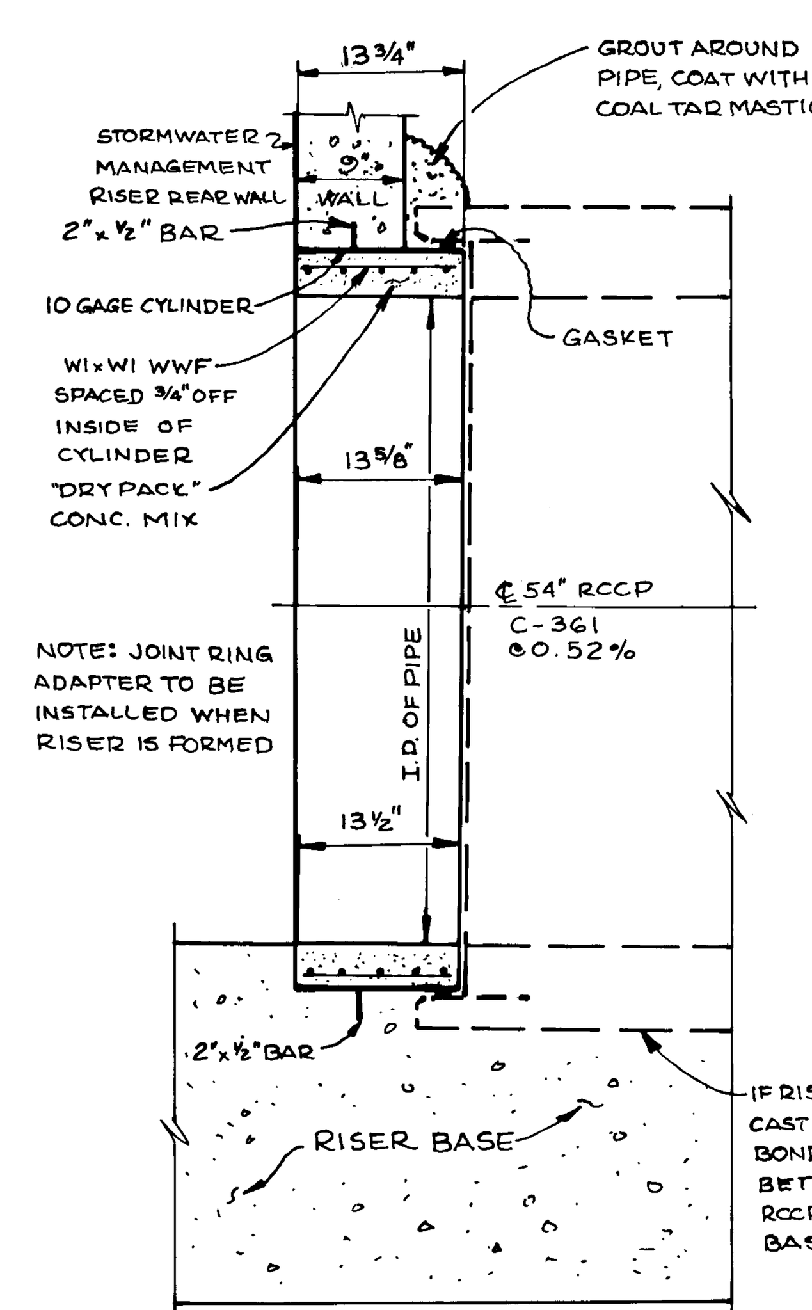
1. MATERIAL FOR EMBANKMENT CONSTRUCTION IS TO IS TO BE USCS GC, SC, CH, CL, OR SM (AT DISCRETION OF ENGINEER IN CHARGE).
2. ONLY CL, CH, OR SC SOILS ARE TO BE USED FOR CUT-OFF TRENCH AND IMPERVIOUS CORE CONSTRUCTION.
3. SHOULD THERE BE WATER ENCOUNTERED DURING CONSTRUCTION OF CUT-OFF TRENCH, IT SHOULD BE REMOVED BY PUMPING.
4. FILTER DIAPHRAGM TO BE LOCATED ON DOWNSTREAM SIDE OF IMPERVIOUS CORE / CUT OFF TRENCH. SEE PLAN FOR FILTER DIAPHRAGM LIMITS.



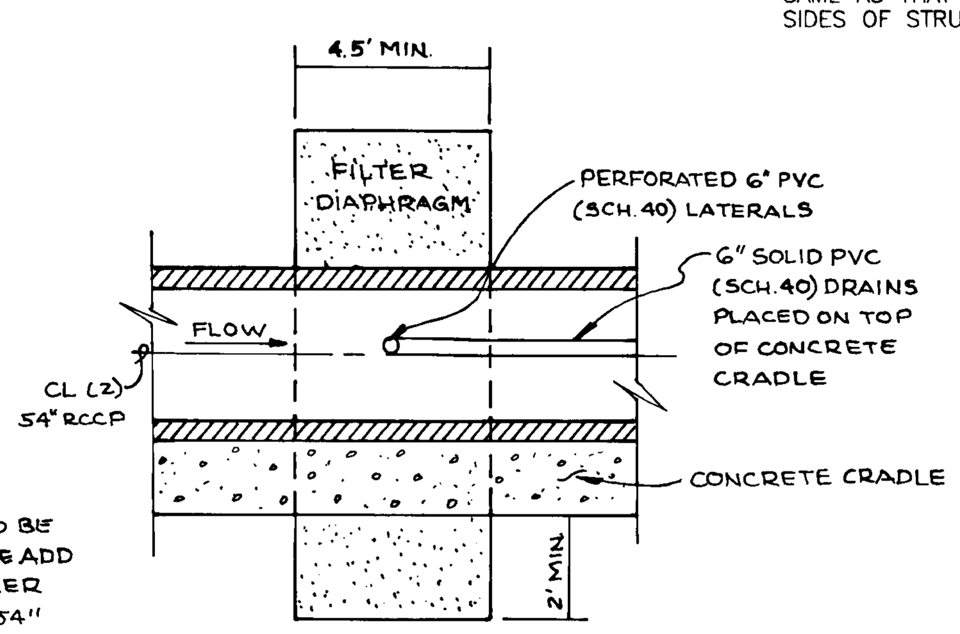
TYPICAL EMBANKMENT SECTION
SCALE: HORIZ. 1"=20'
VERT. 1"=5'



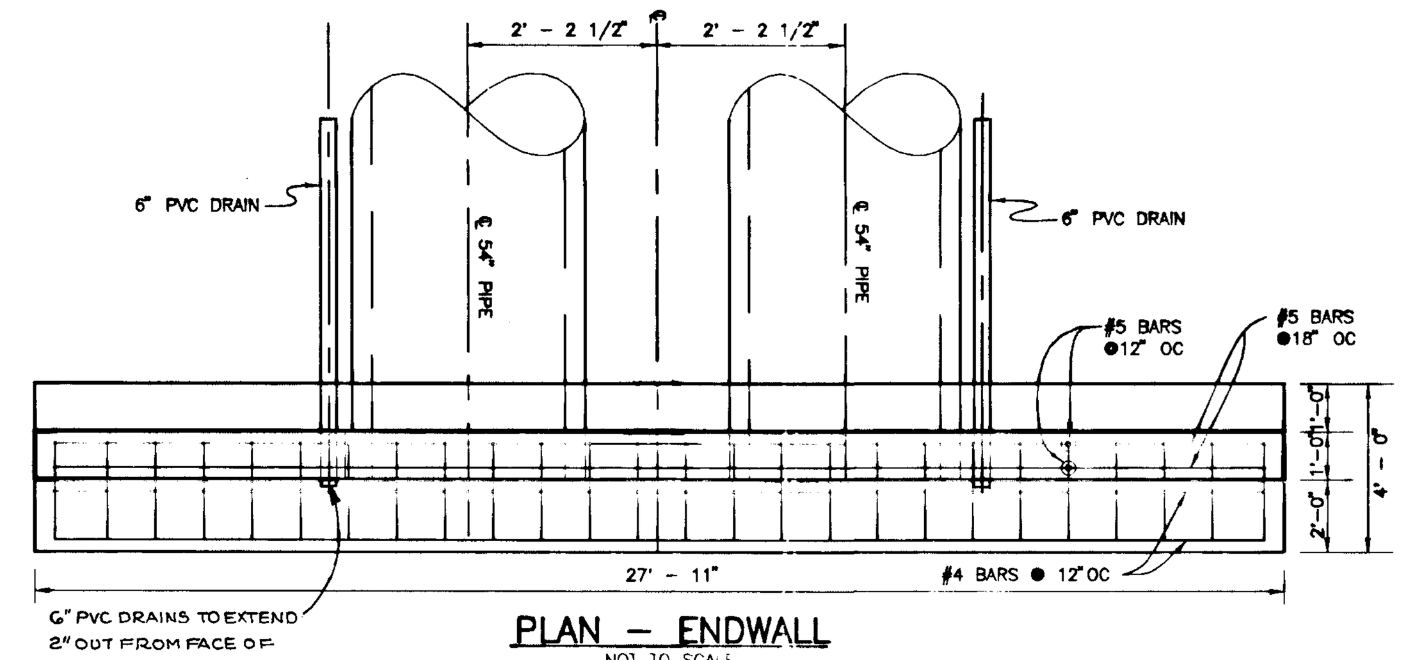
PROFILE ALONG ℄ EMBANKMENT
SCALE: HORIZ. 1"=50'
VERT. 1"=5'



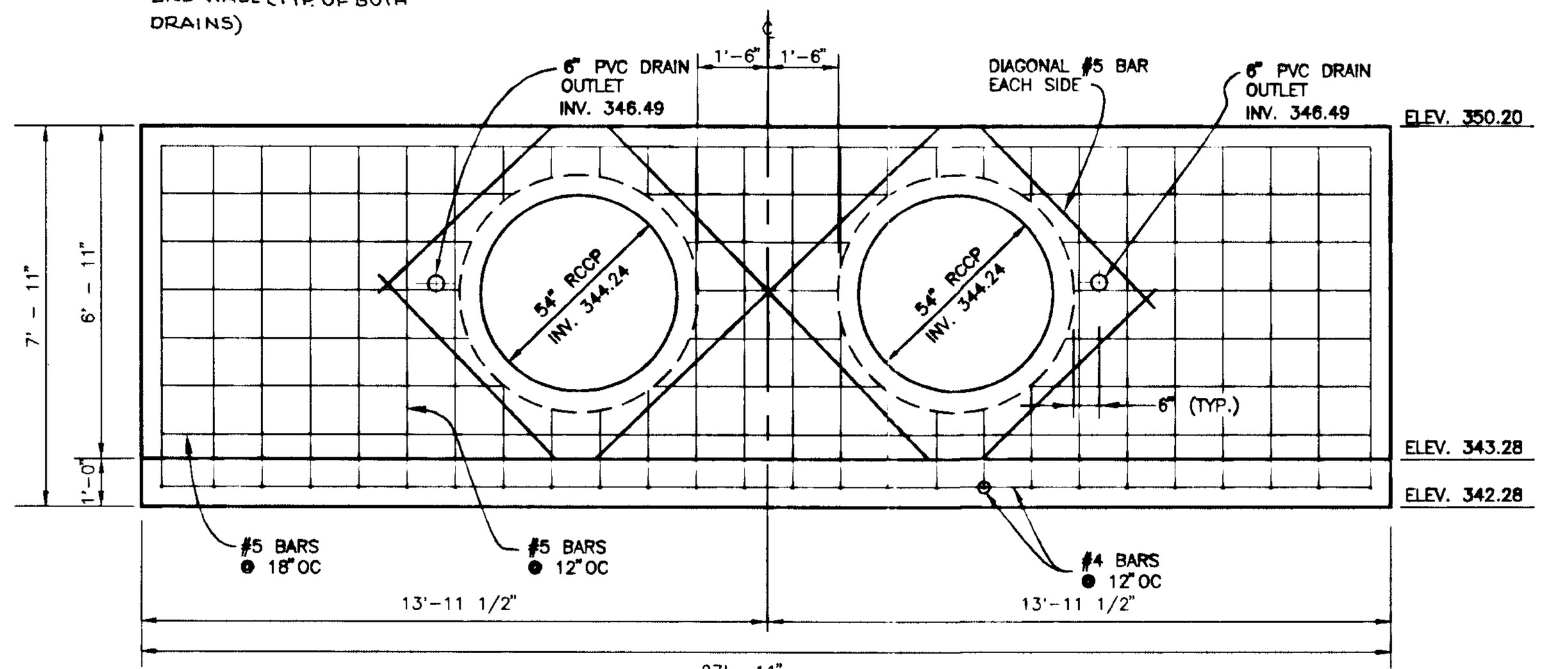
RISER/BARREL JOINT DETAIL
NOT TO SCALE



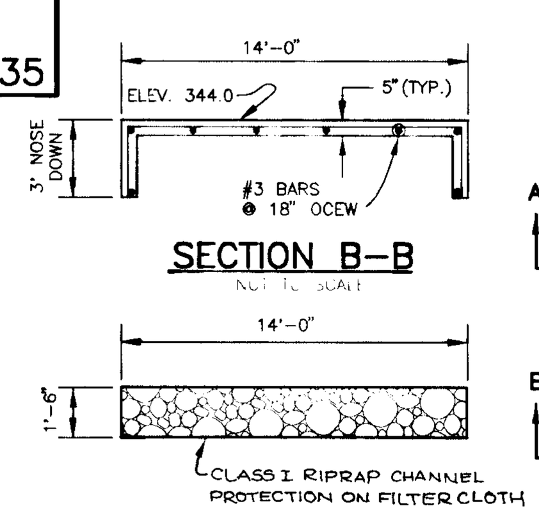
TYPICAL SECTION AT FILTER DIAPHRAGM
NOT TO SCALE



PLAN – ENDWALL
NOT TO SCALE

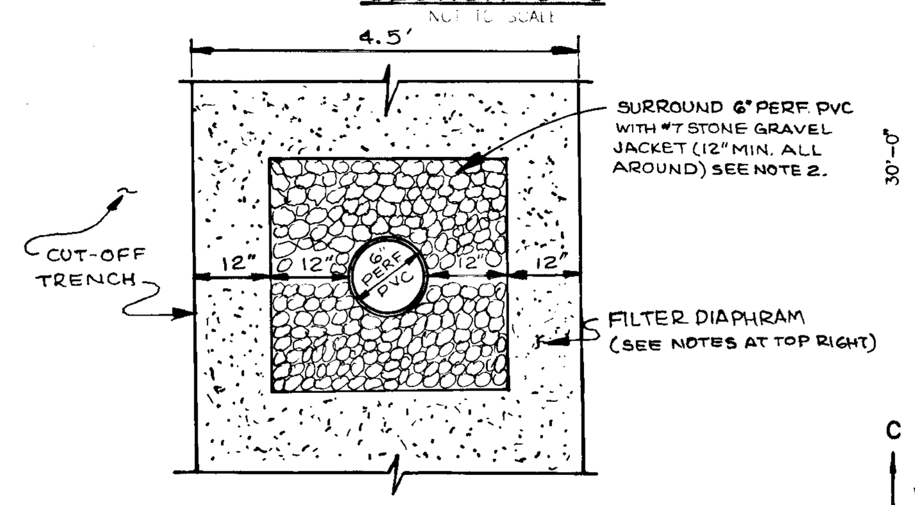


ELEVATION

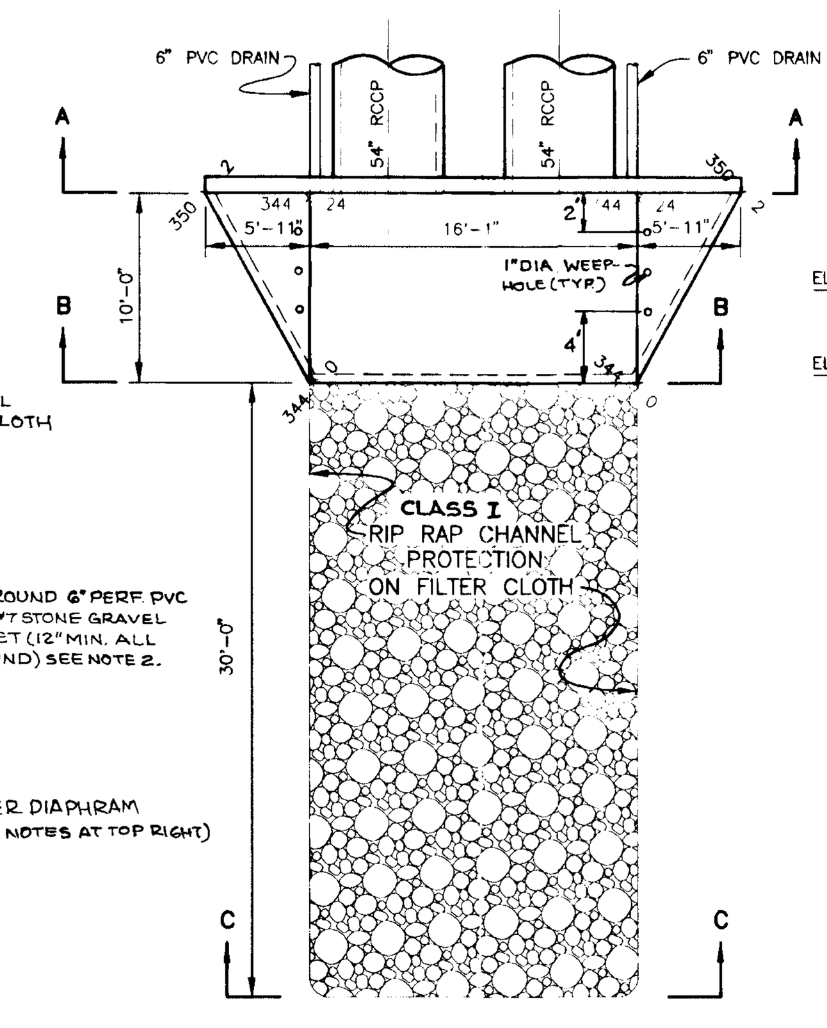


SECTION B–B

SECTION C–C



PVC LATERAL DETAIL
NOT TO SCALE



CONCRETE APRON @ HEADWALL DETAIL
NOT TO SCALE

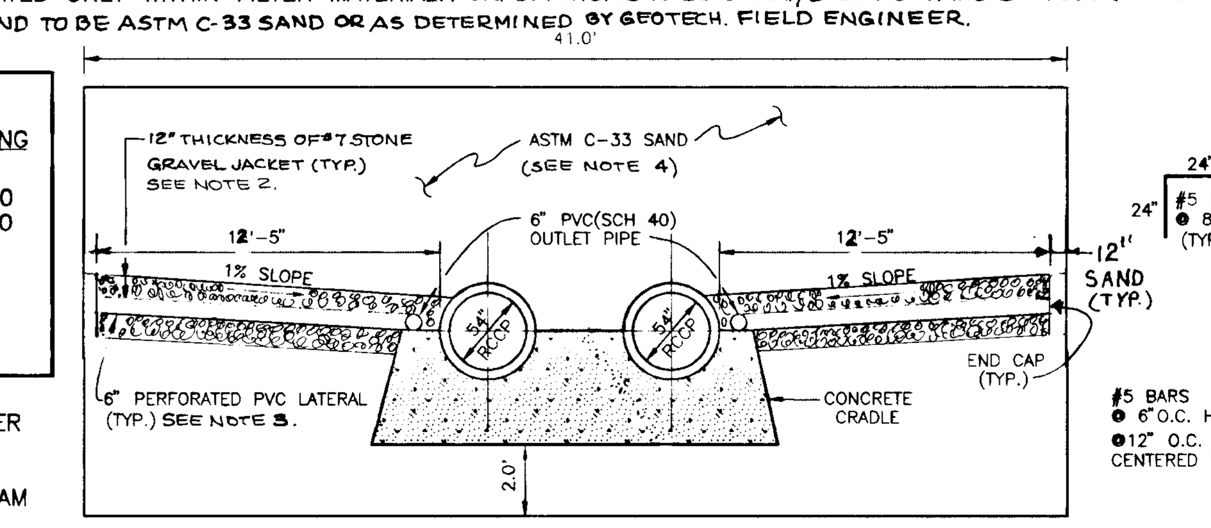
NOTES:

1. FILTER DIAPHRAGM SHALL BE BUILT ALONG EMBANKMENT TO LIMITS SHOWN ON PLAN AND PROFILE. COMPACTION OF FILTER MATERIAL SHALL BE ACCOMPLISHED BY SPRAYING EACH LIFT WITH WATER. LIFTS TO BE 12" MAXIMUM. DO NOT COVER PERFORATED SECTION OF PVC PIPE WITH FLOWABLE FILL.
2. ALL PIPE WITHIN THE FILTER MATERIAL SHALL BE WRAPPED WITH 12"–#7 STONE OR AS DETERMINED BY FIELD ENGINEER.
3. PIPE TO BE PERFORATED ONLY WITHIN FILTER MATERIAL. PERFORATIONS TO BE ½" DIA., 8"C.C. @ 4 AND 8 O'CLOCK POSITIONS.
4. FILTER DIAPHRAGM SAND TO BE ASTM C-33 SAND OR AS DETERMINED BY GEOTECH. FIELD ENGINEER.

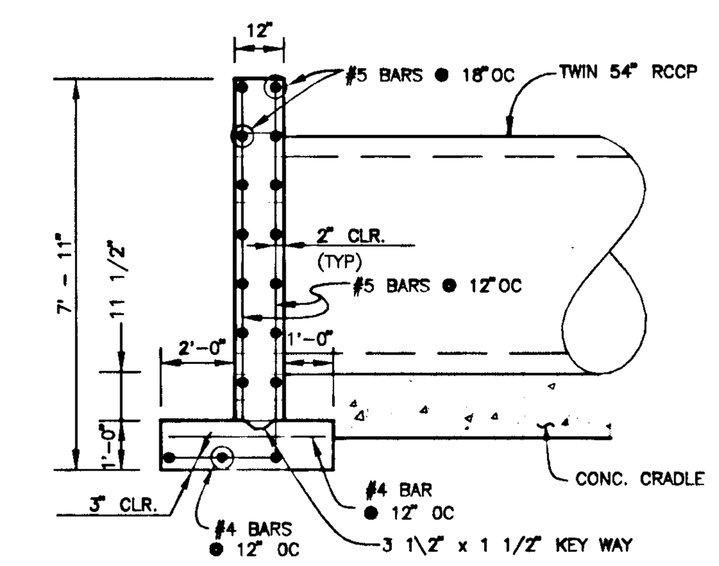
FILTER DIAPHRAGM GRADATION

SIEVE SIZE	MM	% PASSING
3/8 IN.	9.50	100
NO. 4	4.75	90–100
NO. 10	2.00	70–100
NO. 20	0.850	50–85
NO. 50	0.300	25–50
NO. 100	0.150	8–30
NO. 140	0.106	0–15
NO. 200	0.075	0–5

NOTES:
1.) MINIMUM THICKNESS OF FILTER DIAPHRAGM IS 4.5'
2.) FILTER DIAPHRAGM IS TO BE CONSTRUCTED ON DOWNSTREAM SIDE OF IMPERVIOUS CORE.



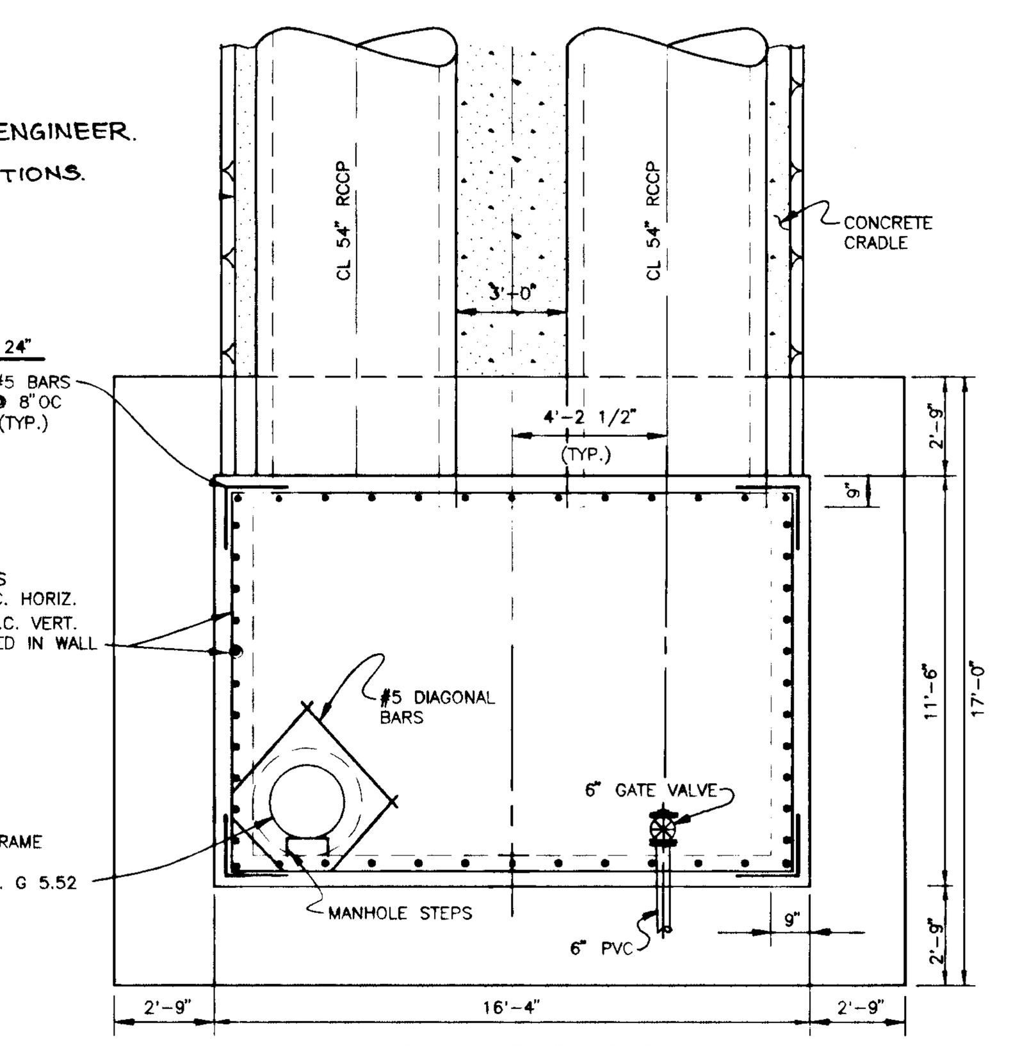
ELEVATION AT FILTER DIAPHRAGM
NOT TO SCALE



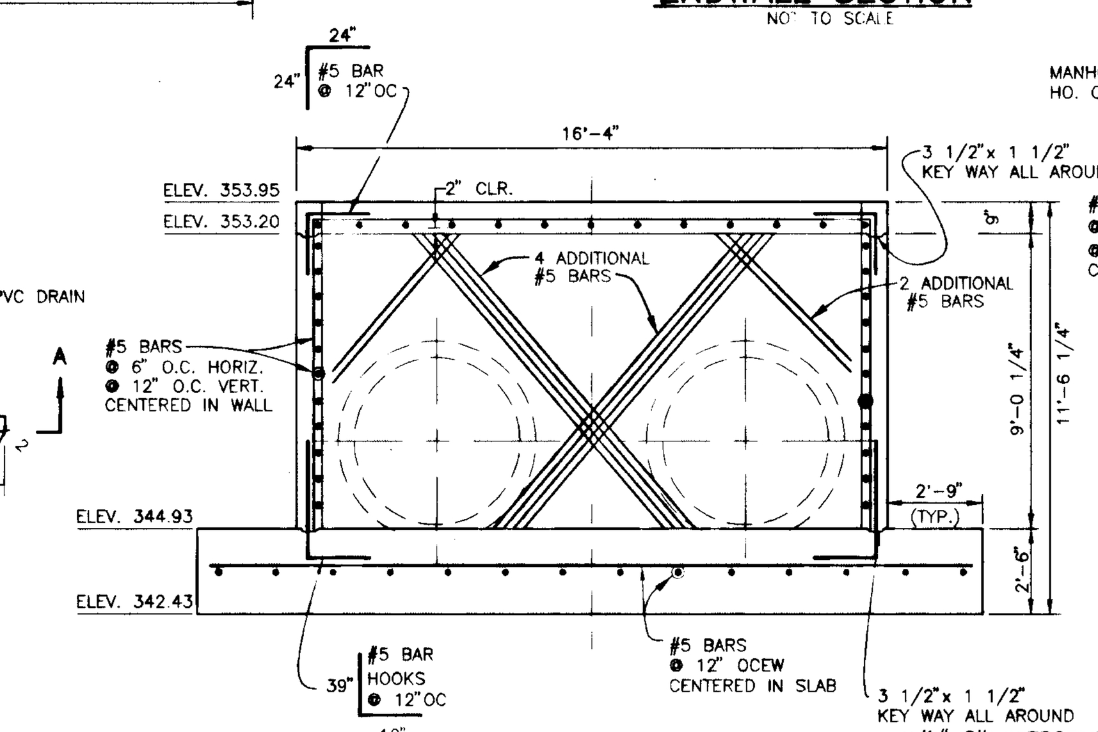
ENDWALL SECTION
NOT TO SCALE

NOTES

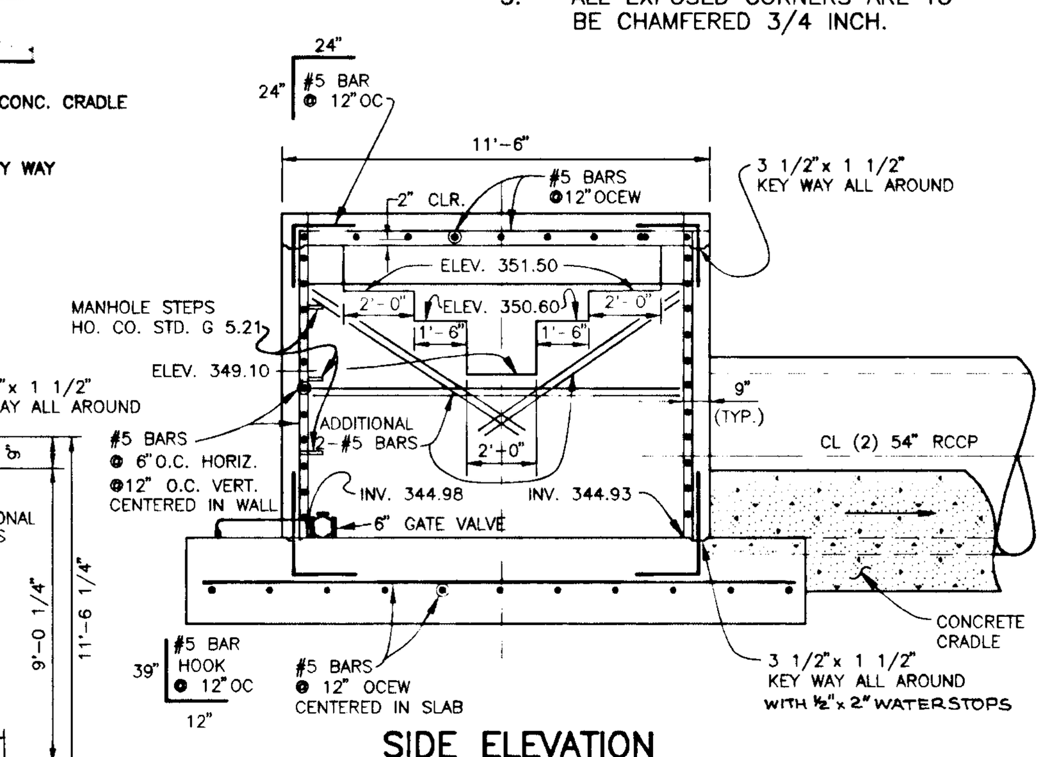
1. – ALL CONCRETE SHALL BE MIX NO.3
2. – ALL REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENT OF ASTM A615 GRADE 60.
3. – ALL EXPOSED CORNERS ARE TO BE CHAMFERED 3/4 INCH.



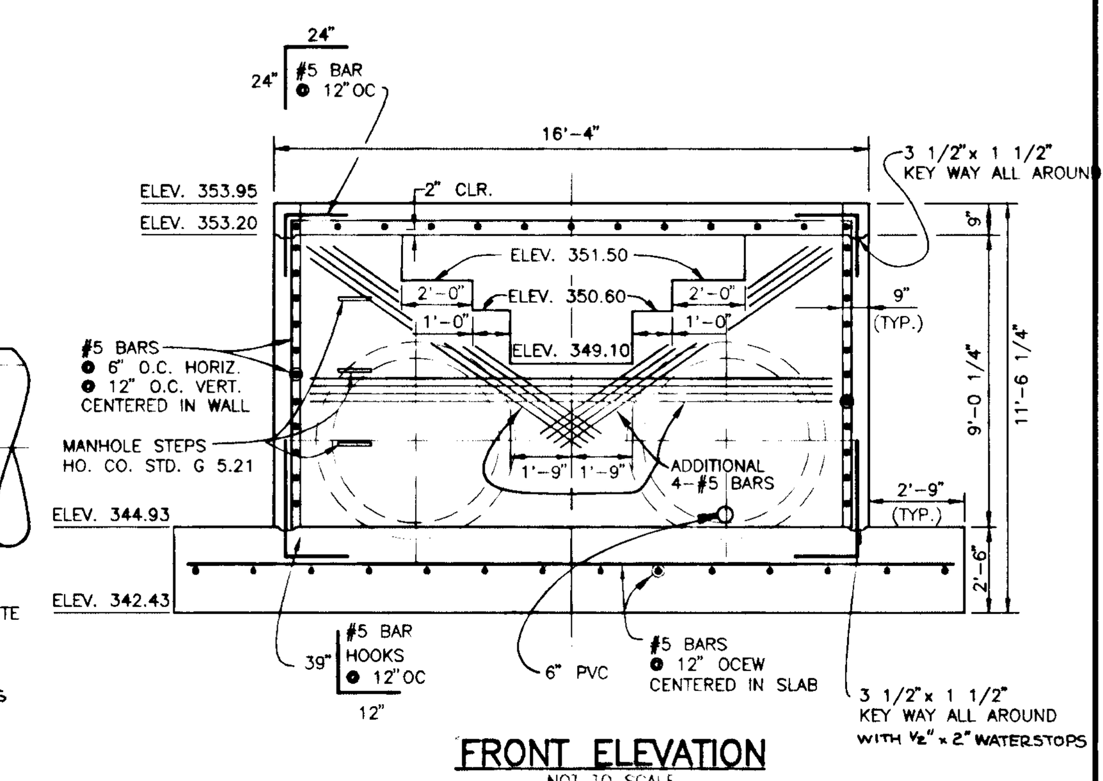
PLAN ELEVATION
NOT TO SCALE



REAR ELEVATION
NOT TO SCALE

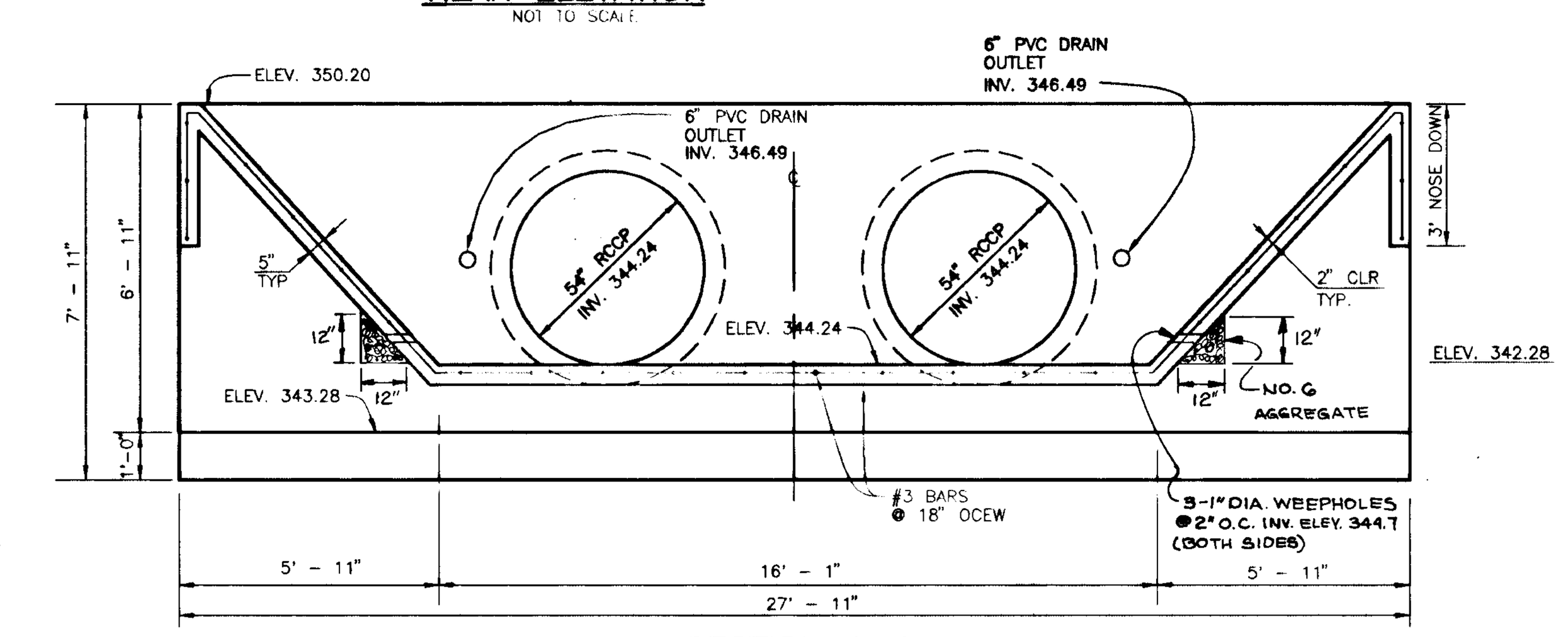


SIDE ELEVATION
TYPICAL BOTH SIDES
NOT TO SCALE

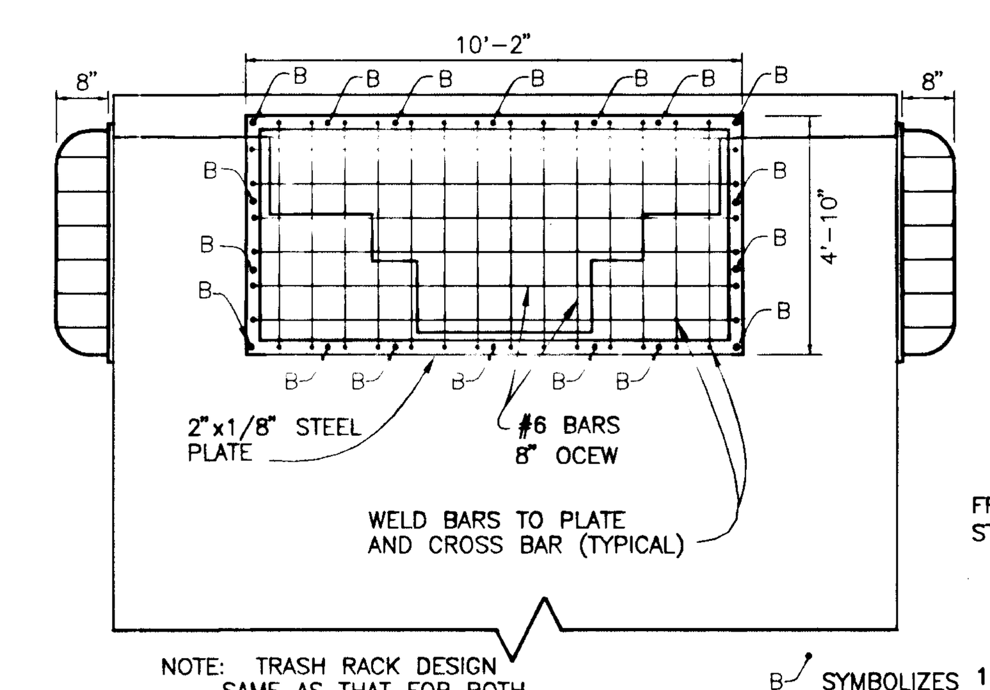


FRONT ELEVATION
NOT TO SCALE

RELEASE STRUCTURE DETAIL

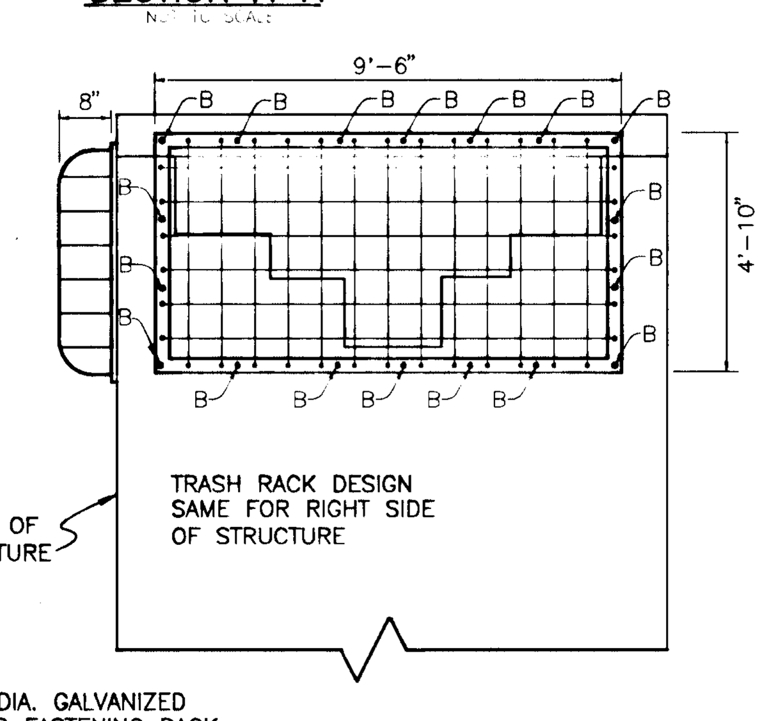


SECTION A–A



NOTE: TRASH RACK DESIGN SAME AS THAT FOR BOTH SIDES OF STRUCTURE.

FRONT VIEW



B SYMBOLIZES 1/2" DIA. GALVANIZED ANCHOR BOLTS FOR FASTENING RACK TO STRUCTURE. LOCATE AS SHOWN. (BOLTS TO BE REMOVABLE)

LEFT SIDE VIEW

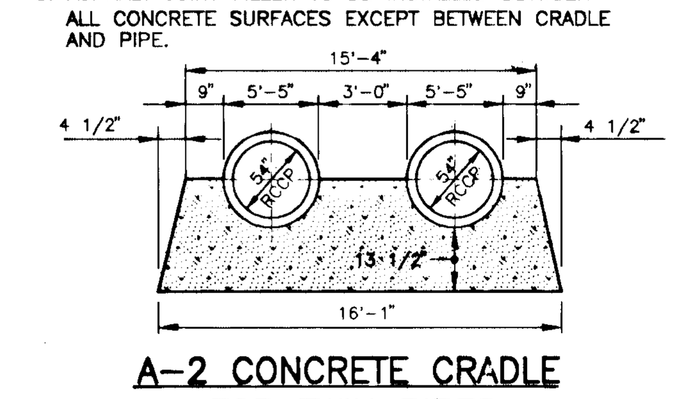
NOTES

1. – RACK TO BE GALVANIZED AFTER FABRICATION. PAINT TRASH RACK BATTLESHIP GRAY.
2. – TRASH RACK SHALL BE CENTERED OVER WEIR OPENING.

TRASH RACK DETAIL
SCALE: AS SHOWN

NOTES:

1. POUR CONCRETE TO UNDISTURBED EARTH. REMOVE SHEETING BEFORE POURING CONCRETE OR LEAVE LOWER PORTION OF SHEETING IN PLACE
2. CONCRETE CRADLE TO BE PLACED FOR ENTIRE LENGTH OF 54" PIPE.
3. ASPHALT JOINT FILLER TO BE INSTALLED BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN CRADLE AND PIPE.



A-2 CONCRETE CRADLE FOR TWIN PIPES
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Dancke — 6-10-97
CHIEF, BUREAU OF HIGHWAYS — DATE

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."
DEVELOPER: James R Moxley — DATE: 4/28/97

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."
ENGINEER: Donald Mason — DATE: 4/29/97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/11/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/12/97

DIRECTOR — DATE

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
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OWNER:
HARRY AND HELEN KNISLEY
9513 GUILFORD ROAD
COLUMBIA, MARYLAND 21046

DEVELOPER:
SDC GROUP INC.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
(410) 465-4244

PROJECT: OAKHURST
(FORMERLY KNISLEY PROPERTY)
SECTION 1 – AREA 1 LOTS 1-41

LOCATION: TAX MAP 42 – PARCEL 69
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT NOTES AND DETAILS

S-94-20, P-95-28, WP-96-49

DATE: SEPTEMBER 29, 1996 / MAY 22, 1997 — PROJECT NO. 0527

DES: GWF — DRN: JR — SCALE: AS SHOWN — DRAWING 7 OF 11

F-97-107

Acad Dwg: 702457

STORMWATER MANAGEMENT NOTES

Site Preparation

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

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

Material – The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers and are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction – The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within +/- 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

Cut Off Trench – The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Pipe Conduits

All pipes shall be circular in cross section.

Reinforced Concrete Pipe – All of the following criteria shall apply for reinforced concrete pipe:

1. Materials – Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA Specification C-302.
2. Bedding – All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.
4. Backfilling shall conform to "Structure Backfill".
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Polyvinyl Chloride (PVC) Pipe – All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
2. Joints and connections to anti-seep collars shall be completely watertight.
3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. Backfilling shall conform to "Structure Backfill."
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 608, Mix No. 3.

Rock Riprap

All rock shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. The rock fragments shall be angular to subrounded in shape. The least dimension of an individual rock fragment shall be not less than one third the greatest dimension of the fragment.

The rock shall have the following properties:

1. Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
2. Absorption not more than three percent.
3. Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for soundness shall be performed according to ASTM C 88.

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

Care of Water during Construction

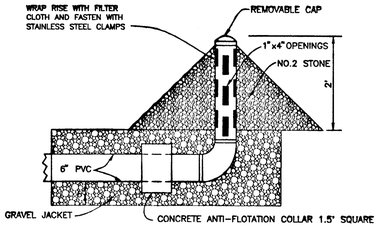
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

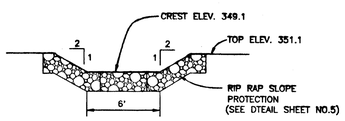
Erosion and Sediment Control

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



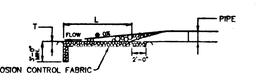
6" DEWATERING PIPE DETAIL

NO SCALE



PROFILE THROUGH FOREBAY STONE WEIR

NOT TO SCALE



STRUCTURE	d-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)
HW-2	0.75'	20.0'	11.5'	1.50'
* HW-1	0.75'	30.0'	14.0'	1.50'

* SEE CONCRETE APRON @ HEADWALL DETAIL (SHEET NO.7)

OUTLET PROTECTION DETAIL

NOT TO SCALE

TP-1

SOIL DESCRIPTION color, moisture, density, size, proportion	STRA. DEPTH	DEPTH (FT.)	BORING & SAMPLING NOTES
SURFACE (elevation 346.0±)		0.0	6"± TOPSOIL
Brownish tan wet clayey SILT, Trace to some decomposed rock fragments (ML/MH)	5.0		WATER AT 2.0'
Orange brown and greyish tan moist clayey silt and decomposed rock fragments (ML)	8.0	5	
		10	
		15	
		20	

TP-2

SOIL DESCRIPTION color, moisture, density, size, proportion	STRA. DEPTH	DEPTH (FT.)	BORING & SAMPLING NOTES
SURFACE (elevation 352.0±)		0.0	4"± TOPSOIL
Greyish tan moist to wet sandy SILT, some clay and gravel (ML)	1.0		PERCHED WATER TABLE AT 2.5'
Orange brown and tan wet clayey sand and gravel, trace greyish silty clay seams (SC/SM)	4.5		WATER BEARING SILTY SANDS AND GRAVELS
Orange brown and dark brown wet sandy silt and decomposed rock (ML)	6.0	5	STREAM 15' NORTH FROM TP-2
Orange brown and greyish tan silty clay and decomposed fragments (CL)	8.0		BECAUSE ONLY LITTLE WATER WAS GETTING INTO HOLE PROCEEDED WITH INFILTRATION TEST AT 6.0'
Grey moist sandy silt and little decomposed rock fragments (ML)	10.0	10	
Test Pit terminated		15	
		20	

TP-3

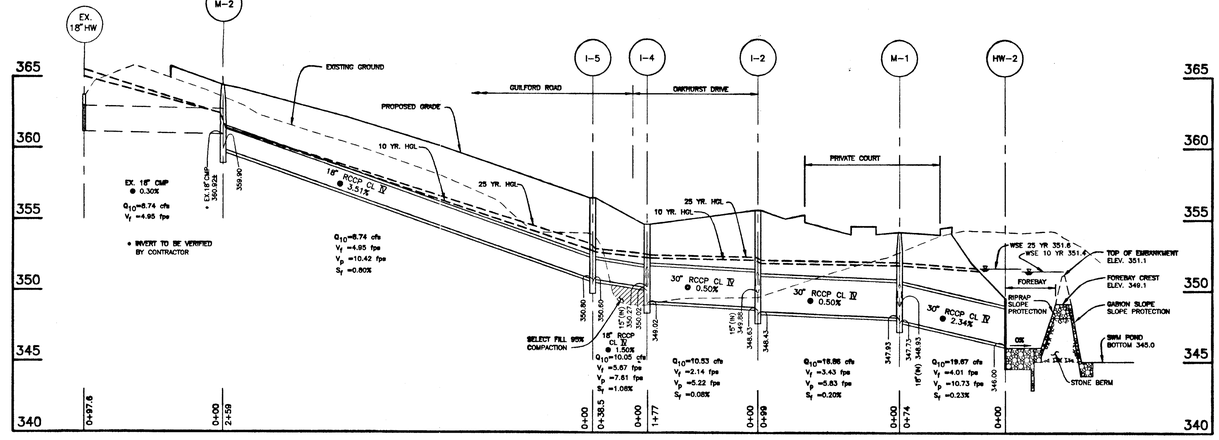
SOIL DESCRIPTION color, moisture, density, size, proportion	STRA. DEPTH	DEPTH (FT.)	BORING & SAMPLING NOTES
SURFACE (elevation 349.0±)		0.0	6"± TOPSOIL
Tan moist to wet clayey Silt and decomposed rock (ML)	1.5		WATER AT 3.5'
Tan and clayey very wet silty clay, some decomposed rock fragments (CL)	3.0		TEST DEPTH AT 5.0'
Greyish tan very wet to saturated silty clay, trace fine sand and gravel	5.0		NO FILTRATION TEST RUN
Test Pit terminated		5	
		10	
		15	
		20	

TP-5

SOIL DESCRIPTION color, moisture, density, size, proportion	STRA. DEPTH	DEPTH (FT.)	BORING & SAMPLING NOTES
SURFACE (elevation 347.0±)		0.0	6"± TOPSOIL
Brown tan wet to saturated clayey silt some decomposed rock fragments (ML)	2.5		WATER AT ELEVATION 2.5'
Brown tan saturated sandy silt and decomposed rock (ML/SM)	3.0		BOTTOM OF POND AT 344.0
Greyish moist to wet silty clay (CL)	5.0	5	INFILTRATION TEST NOT RUN TO WATER IN PIT AT TEST DEPTH
Test Pit terminated		10	
		15	
		20	

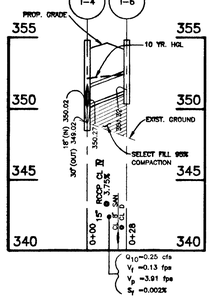
SOIL BORING LOGS

NOT TO SCALE



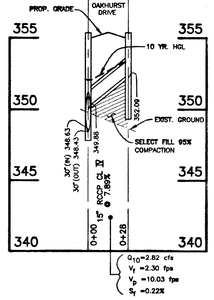
STORM DRAIN PROFILE

SCALE : 1"=50' HORIZ.
1"=5' VERT.



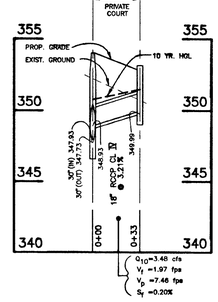
STORM DRAIN PROFILE

SCALE : 1"=50' HORIZ.
1"=5' VERT.



STORM DRAIN PROFILE

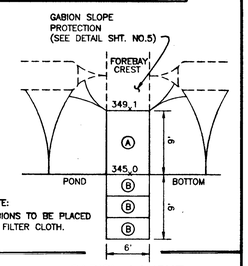
SCALE : 1"=50' HORIZ.
1"=5' VERT.



STORM DRAIN PROFILE

SCALE : 1"=50' HORIZ.
1"=5' VERT.

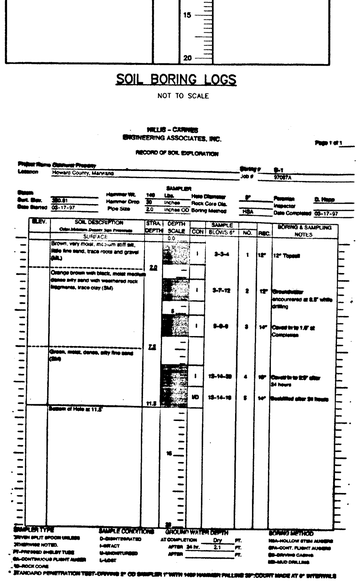
GABION SCHEDULE				
NO.	LENGTH	WIDTH	THICKNESS	NO. REQUIRED
(A)	9'	6'	1'	1
(B)	3'	6'	1'	3



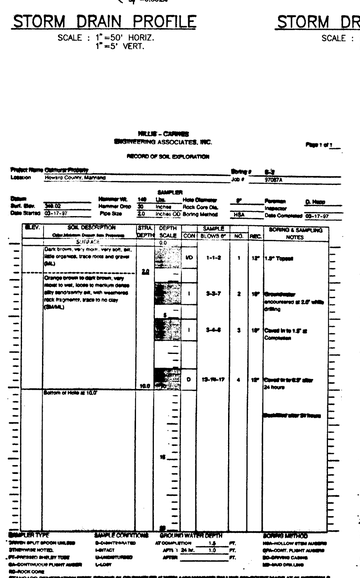
NOTE:
GABIONS TO BE PLACED ON FILTER CLOTH.

GABION LAYOUT

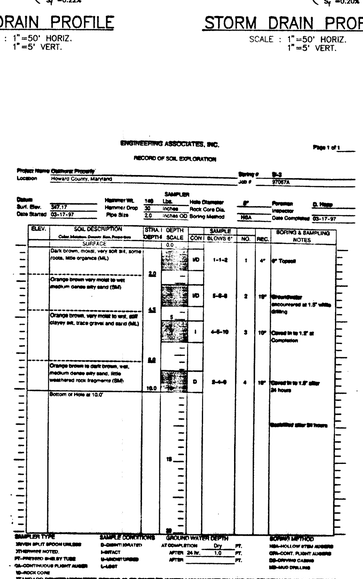
N.T.S.



B-1



B-2



B-3

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE: 6-10-97

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."

DEVELOPER: James R. Knisley Jr. — DATE: 4/29/97

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."

ENGINEER: Donald Mason — DATE: 4/29/97

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

NATURAL RESOURCES CONSERVATION SERVICE — DATE: 6/2/97

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

HOWARD SOIL CONSERVATION DISTRICT — DATE: 6/2/97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 6/11/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 6/12/97

~~DIRECTOR~~ — ~~DATE:~~

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-6105
Donald Mason

OWNER:
HARRY AND HELEN KNISLEY
9513 GUILFORD ROAD
COLUMBIA, MARYLAND 21046

DEVELOPER:
SDC GROUP INC.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
(410) 465-4244

PROJECT: OAKHURST
(FORMERLY KNISLEY PROPERTY)
SECTION 1 – AREA 1 LOTS 1-41

LOCATION:
TAX MAP 42 – PARCEL 69
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT NOTES AND DETAILS
STORM DRAIN PROFILES

S-94-20
P-95-28
WP-96-49

DATE: SEPTEMBER 29, 1996; MAY 22, 1997

PROJECT NO. 0527

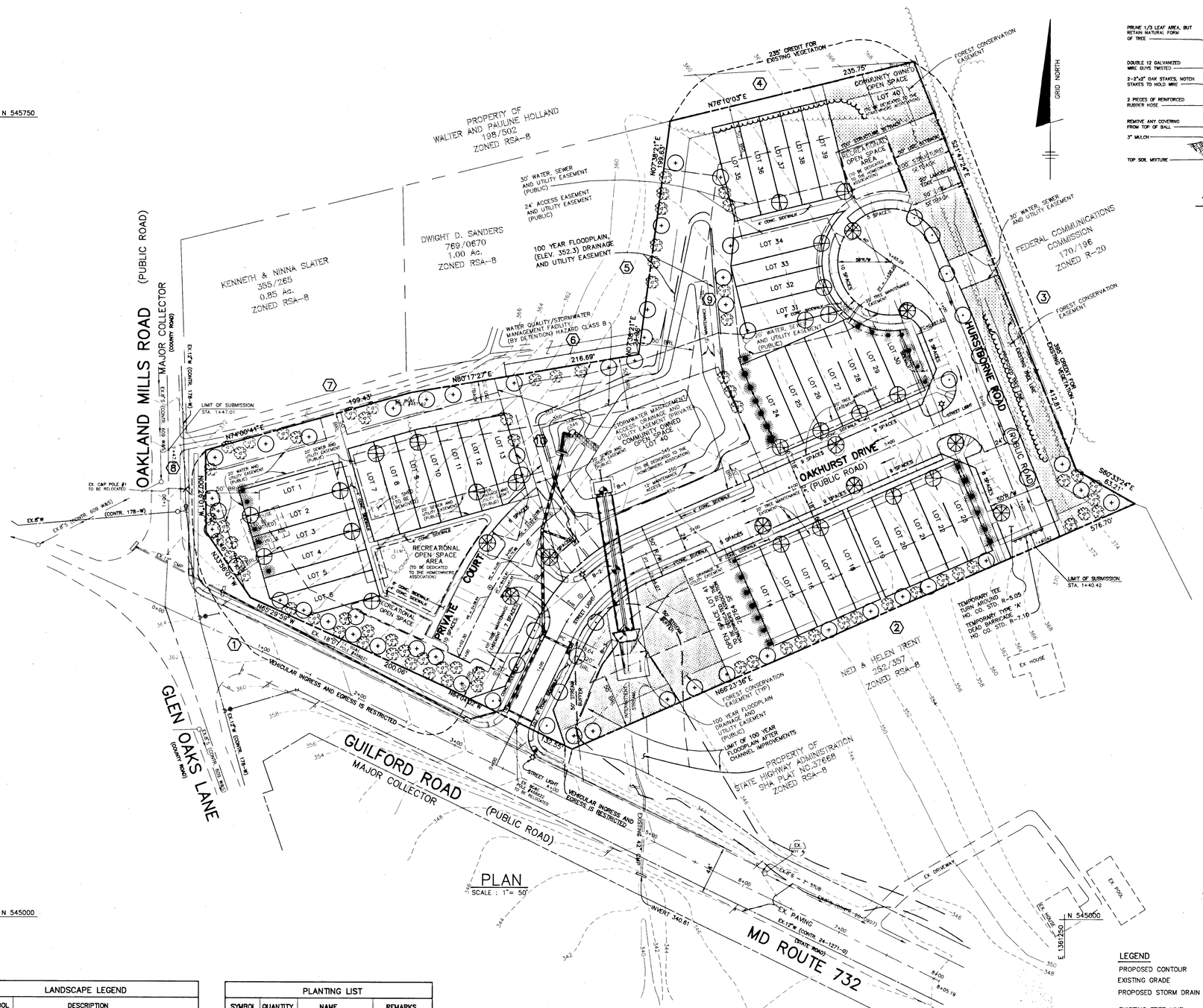
DES: GWF DRN: JR

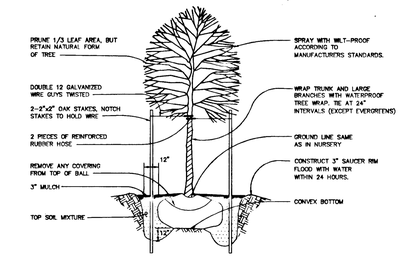
SCALE: AS SHOWN

DRAWING 8 OF 11

F-97-107

Plotted: APRIL 29, 1997
Acad Dwg: 7024S8





TREE PLANTING DETAIL

NOT TO SCALE

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS		ADJACENT TO PERIMETER PROPERTIES			
	① C	② C	③ B	③ C	④ B	⑦ B
LANDSCAPE TYPE						
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	330'	150	577	476	235	290
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	*YES 395'	*YES 235'	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED						
SHADE TREES	9	4	12	2	0	6
EVERGREEN TREES	17	8	15	4	0	8
OTHER TREES (2:1 SUBSTITUTE)	—	—	—	—	—	—
SHRUBS	—	—	—	—	—	—
NUMBER OF PLANTS PROVIDED						
SHADE TREES	9	4	12	2	0	6
EVERGREEN TREES	17	8	15	4	0	8
OTHER TREES (2:1 SUBSTITUTE)	—	—	—	—	—	—
SHRUBS (10:1 SUBSTITUTE)	—	—	—	—	—	—
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)						

* – EXISTING TREES TO REMAIN

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

	OAKHURST DRIVE 41	HURSTBORNE ROAD 26	PRIVATE COURT 26
NUMBER OF PARKING SPACES			
NUMBER OF ISLANDS/TREES REQUIRED (1 PU/10 SPACES)	4	3	3
NUMBER OF ISLANDS/TREES PROVIDED			
SHADE TREES	4	3	3
OTHER TREES (2:1 SUBSTITUTE)			

SCHEDULE C
RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING

NUMBER OF DWELLING UNITS	39
NUMBER OF TREES REQUIRED (1:DU SFA: 1:3 DU APTS)	39
NUMBER OF TREES PROVIDED	
SHADE TREES	23
* OTHER TREES (2:1 SUBSTITUTE)	32

* – EVERGREEN TREES

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING (TYPE 'B')

LINEAR FEET OF PERIMETER	⑤ 221	⑥ 130	⑤ 260	⑫ 72
NUMBER OF TREES REQUIRED				
SHADE TREES	4	3	5	2
EVERGREEN TREES	6	3	7	2
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	NO	NO	NO
NUMBER OF TREES PROVIDED				
SHADE TREES	4	3	5	2
EVERGREEN TREES	6	3	7	2
OTHER TREES (2:1 SUBSTITUTE)				

LANDSCAPING NOTES

1. PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS.
2. THE BUILDER SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL INTERNAL LANDSCAPING TO BE SHOWN ON THE SITE DEVELOPMENT PLAN.
3. THE DEVELOPER SHALL BE RESPONSIBLE FOR THE STREET TREES, STORM WATER MANAGEMENT POND PLANTING, AND THE PRESERVATION OF THE PERIMETER VEGETATION AS SHOWN ON THESE PLANS.
4. OAKHURST DRIVE IS TO SERVE AS A STORM WATER MANAGEMENT POND EMBANKMENT. NO STREET TREES OR RELATED SWM LANDSCAPING SHALL BE PERMITTED ALONG OAKHURST DRIVE STA. 1+75 TO 3+50 AS WELL AS WITHIN 25' OF EMBANKMENT.

NOTE:

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPING MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPE TREES IN THE AMOUNT OF $11,700.00 MUST BE POSTED AS PART OF THE DEVELOPERS AGREEMENT.

LANDSCAPE LEGEND

SYMBOL	DESCRIPTION
⊙	STREET TREES TO BE PROVIDED BY THE DEVELOPER TO BE INCORPORATED ON FINAL PLANS.(16)
⊕	SHADE TREES ALONG PERIMETER AND STORMWATER MANAGEMENT TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.(47)
❁	EVERGREEN TREES ALONG PERIMETER AND STORMWATER MANAGEMENT AREA TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.(70)
⊛	SHADE TREES TO MEET INTERNAL LANDSCAPE REQUIREMENTS TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON SITE FINAL PLANS.(10)
⊕	SHADE TREES TO MEET INTERNAL LANDSCAPE REQUIREMENTS TO BE PROVIDED BY THE BUILDER AND INCORPORATED ON SITE DEVELOPMENT PLAN.(23)
✺	EVERGREEN TREES TO MEET INTERNAL LANDSCAPE REQUIREMENTS TO BE PROVIDED BY THE BUILDER AND INCORPORATED ON SITE DEVELOPMENT PLAN.(32)

PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
⊙	AS SHOWN ON PLANS	SPECIMEN TREE	
⊙	16 ON PLANS	QUERCUS RUBRA (Northern Red Oak)	2 1/2" MIN. CAL. B&B FULL HEAD
⊕ ⊛	80	ACER RUBRA (Red Maple)	2 1/2" MIN. CAL. B&B FULL HEAD
❁ ✺	102	PINUS THUNBERGINA (Japenese Black Pine)	5'-6' ht. UNSHEARED

NOTE:

1. TREES SHOULD BE PLANTED A MINIMUM OF 4 FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.
2. A MINIMUM DISTANCE OF 20 FEET SHALL BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND ANY STREET LIGHTS.
3. TREES MUST BE PLANTED A MINIMUM OF 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.
4. SEE TREE PLANTING DETAIL – THIS SHEET.

LEGEND

PROPOSED CONTOUR	560
EXISTING GRADE	560
PROPOSED STORM DRAIN	15"D
EXISTING TREE LINE	
PROPOSED TREE LINE	
FOREST CONSERVATION EASEMENT	

NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-8105

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-10-97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/10/97

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/11/97

OWNER:
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COLUMBIA, MARYLAND 21046

DEVELOPER:
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DES: GWF DRN: JR

PROJECT: OAKHURST
(FORMERLY KNISLEY PROPERTY)
SECTION 1 – AREA 1 LOTS 1-43

LOCATION: TAX MAP 42 – PARCEL 69
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE PLAN

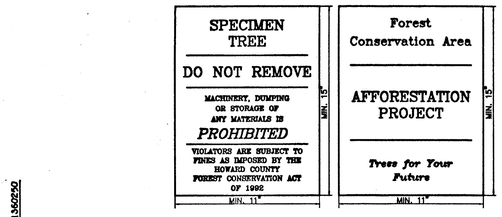
S-94-20, P-95-28, WP-96-49

DATE: SEPTEMBER 29, 1996; MAY 22, 1997 — PROJECT NO. 0527

SCALE: AS SHOWN — DRAWING 9 OF 11

F-97-107

Acad Dwg: 7053S9/0800



SIGNAGE

PLAN
SCALE : 1"= 50'

SOILS CLASSIFICATION

CnB2 – Chillum–Fairfax loams, 1 to 5 percent slopes, moderately eroded 'B' soil.
CnD3 – Chillum–Fairfax loams, 5 to 15 percent slopes, severely eroded 'B' soil.
DeB2 – Delanco silt loam, 3 to 8 percent slopes, moderately eroded 'C' soil.
MpB2 – Montalto silt loam, 3 to 8 percent slopes, moderately eroded 'C' soil.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-10-97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/12/97
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/11/97

FOREST PROTECTION PROCEDURES – Preconstruction phase

1.) The edge of woods to be protected will be marked (signs posted) in the field per the area of forest conservation easement shown in the approved site development plan prior to the start of construction activity. All areas within protective easement are to be considered "Off Limits" to any construction activities. The signs shall be installed at the outside edge of forested areas and specimen trees to be retained and should be combined with sediment control devices when possible.

2.) Construction activities expressly prohibited within the preservation areas are:

- Placing or stockpiling backfill or top soil in protected areas.
- Felling trees into protected areas.
- Driving construction equipment into or through protected areas.
- Burning in or in close to proximity to protected areas.
- Stocking or storing supplies of any kind.
- Concrete wash-off areas.
- Conducting trenching operations.
- Grading beyond the limits of disturbance.
- Parking vehicles or construction equipment.
- Siting and construction of: Utility lines, Access Road, Impervious surfaces, Stormwater Management devices, Staging areas

3.) The general contractor shall affix signs at 25'minimum intervals indicating that these areas are "Forest Conservation Area" (see Figure "Signage"). The general contractor shall take great care to assure the restricted areas are not violated and that root systems are protected from smothering, flooding, excessive wetting from dewatering operations, off-site run-off, spillage, and drainage solutions containing hazardous materials to tree roots.

4.) The general contractor shall be responsible for any tree damaged or destroyed within the preservation areas whether caused by the contractor, his agents, employees, sub-contractors, or licensees.

5.) Foot traffic shall be kept to a minimum in the protective areas.

6.) All trees which are not to be preserved within fifty feet of any tree preservation areas are to be removed in a manner that will not damage those trees that are designated for preservation. It is highly recommended that tree stumps within this fifty foot area be ground out with a stump grinding machine to minimize damage.

7.) The general contractor shall designate a "wash out" area on-site for concrete trucks which will not drain toward a protected area.

8.) A pre-construction meeting shall be held with local authorities before any disturbance has taken place on site.

FOREST PROTECTION PROCEDURES – Construction phase

Forest and tree conditions should be monitored during construction and corrective measures taken when appropriate.

The following shall be monitored:

a.) Soil Compaction
b.) Root injury – prune and monitor; consider crown reduction.
c.) Limb injury – prune and monitor.
d.) Flooded conditions – drain and monitor; correct problem.
e.) Drought conditions – water and monitor; correct problem.
f.) Other stress signs – determine reason, correct, and monitor.

SITE DATA TABULATION

1.) GROSS AREA	6.48 AC.±
2.) FLOODPLAIN / STEEP SLOPES	0.70 AC.±
3.) NET AREA	5.78 AC.±
4.) ZONING	RSA-8

LEGEND

ABANDONED FIELD	AF
HEDGE ROW	H
LAWN	L
EXISTING TREE LINE	
PROPOSED TREE LINE	
PROPOSED CONTOUR	560
EXISTING GRADE	560
LIMIT OF DISTURBANCE	

NO	DATE	REVISION

TSA GROUP, INC.
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8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-6105

Mary A. Dircks
M.A. DIRCKS & CO., INC.
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OWNER:
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9513 GUILFORD ROAD
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DEVELOPER:
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P.O. BOX 417
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(410) 465-4244

PROJECT: **OAKHURST**
(FORMERLY KNISLEY PROPERTY)
SECTION 1 – AREA 1 LOTS 1-42

LOCATION: TAX MAP 42 – PARCEL 69
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FOREST CONSERVATION PLAN
S-94-20, P-95-28, WP-96-49

DATE: DECEMBER 17, 1996 / MAY 22, 1997
PROJECT NO. 0527

DES: DAM DRN: JR
SCALE: AS SHOWN
DRAWING 10 OF 11

F-97-107

FOREST PROTECTION PROCEDURES - Post-Construction Phase

The following measures shall be taken:

1.) Corrective measures if damages were incurred due to negligence:

a.) Stress reduction

b.) Removal of dead or dying trees. This may be done only if trees pose an immediate safety hazard

2.) Removal of temporary structures:

a.) No burial of discarded materials will occur on-site within the conservation area.

b.) No open burning within 100 feet of a wooded area.

c.) All temporary forest protection structures will be removed after construction.

d.) Remove temporary roads by removing stone or broadcasting mulch; pre-construction elevation should be maintained.

e.) Aerate compacted soil.

f.) Replant disturbed sites with trees, shrubs and/or herbaceous plants.

g.) Retain signs for conservation areas or specimen trees.

h.) A County official shall inspect the entire site.

3.) Future protection measures:

a.) Howard County and the developer shall arrange for the dedication of an appropriate forest conservation easement at a later date.

FOREST PROTECTION PROCEDURES - Preconstruction Phase

Stress Reduction and Protection of Specimen Trees Isolated from Forest Retention Areas and General Forest Retention Areas (As They May Apply)

Isolated specimen trees that are to be preserved will be examined to determine if stress reduction techniques are needed. Protective measures and their evaluation criteria are provided on this plan only if they are employed herein.

Root Pruning

Evaluation Criteria

Will the critical root zone be affected by construction activities such as grade changes, digging for foundations and roads or ucility installation?

Design Considerations

a.) Prune prior to construction as shown on the plan (see Figure "Root Pruning Detail.")
b.) Prune root with a clean cut using proper pruning equipment such as a vibratory knife.
c.) Exact location of pruning trench should be identified, and immediately back-filled to cover exposed roots after pruning with soil removed other topsoil, peat moss, or other suitable material or with other high organic soil.
d.) For trees over 15" in diameter, root pruning may be done up to one year in advance of construction.
e.) Tree(s) will be monitored for signs of stress

Crown Reduction or Pruning

Evaluation Criteria

Has the root system been significantly reduced (>30%) or are there dead, damaged, or diseased limbs?

Design Considerations

a.) Reduce only at specified times of the year:
Flowering trees - only after flowering and before bud set
Non-Flowering trees - in late winter, early spring or mid summer
b.) No more than 1/3 of the crown should be removed at one time using acceptable pruning methods (see Figure "Crown Reduction Detail.")
c.) Monitor for signs of stress

Watering

Evaluation Criteria

Will construction activities alter the hydrology of the site? Has or will root pruning occur?

Design Considerations

a.) Water only as necessary
b.) Monitor for signs of stress (see Figure "Tree Planting and Maintenance Calendar")

Fertilizing

Evaluation Criteria

Is or will the tree(s) be under stressful conditions? Has or will root pruning occur?

Design Considerations

a.) Use low nitrogen and slow release fertilizers.
b.) Apply in late fall or early spring (see Figure "Tree Planting and Maintenance and Calendar")
c.) For small trees (<3" in diameter), use broadcast method.
d.) For larger trees (>3" in diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
e.) Do not apply fertilizer any closer than 3' from tree trunk for pressurized injection method.
f.) Monitor for signs of stress.

Delineation of the Critical Root Zone

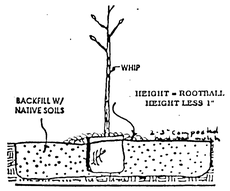
Calculation of the CRZ for Isolated Specimen Trees:

1.5 feet of protective radius per inch of DBH

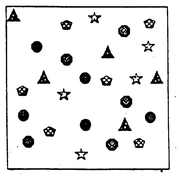
41 " Elm = 61.5'

Protection of the Critical Root Zone

Upon determining the CRZ, blaze orange protective fencing (see Figure "Protective Fencing") shall be erected one foot from the limits of the CRZ so as to completely surround the tree or trees to be protected. No disturbance, storage, parking, or alteration of drainage of any kind shall be permitted within the CRZ Protective Area except prior allowable root pruning. Signs designating a specimen tree protective area shall be placed atop the protective fencing at a minimum interval of 25 feet (see Figure "Signage"). No signs are to be attached to the specimen tree itself.



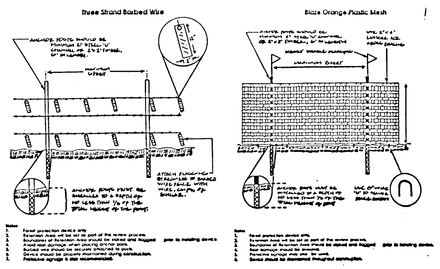
WIDTH = AUGERED HOLE 18" MINIMUM
PLANTING FIELD DETAIL

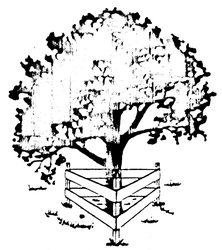


- SYCAMORE/OAK
- TULIP POPLAR
- RED MAPLE
- DOGWOOD
- GREEN ASH

TO BE PLANTED IN RANDOM DISTRIBUTION PATTERN

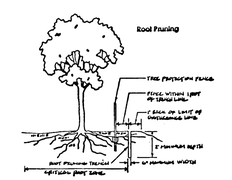
RANDOM PLANTING DETAIL

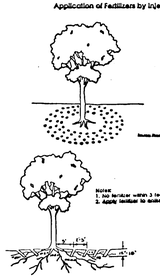


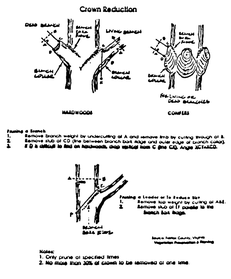


Triangular Board Fence

PROTECTIVE FENCING







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Mary A. Dircks

PLANTING SPECIFICATIONS AND NOTES

I. SITE PREPARATION AND SOILS

1.) Disturbance of soils should be limited to the Planting Field for each plant. Planting hole will be a minimum 18" auger hole, dug to the depth of the root ball. As shown on the detail view, a Planting Field of 18 " diameter is recommended.

2.) In areas of steep slopes or erodible soils, soil disturbance will be limited to the Planting Field which is equal to the 18" diameter auger hole.

3.) Soil mix for all plants shall be native soil with no soil amendments, unless a soils analysis determines that soil amendments are required (disturbed sites). Natural amendments, such as organic mulch or leaf mold compost, are preferred.

II. PLANT STORAGE AND INSPECTION

1.) For container grown nursery stock, planting should occur within two weeks after delivery to site.

2.) Planting stock should be inspected prior to planting. Plants not conforming to standard nurseryman specifications for size, form, and vigor, roots, trunk wounds, insects and disease should be replaced.

III. SOIL AMENDMENTS

1.) Amendments are not recommended in the planting field as studies have shown that roots will be encouraged to stay within the amended soils.

IV. PLANT INSTALLATION

1.) Container grown stock should be removed from the container and roots gently loosened from the soil. If the roots encircle the root ball, substitution is required. J-shaped or kinked root systems should also be rejected. ROOTS MAY NOT BE TRIMMED ON SITE.

2.) The Planting Field should be prepared as specified (see detail). Stock must be planted in random pattern (see detail). Native dug soils should be used to backfill Planting Field. Set plant material no more than 1 " above existing ground and no lower than existing ground. Gently pack native soil around plant to eliminate all air pockets. After whip and container installation, rake soils evenly over the Planting Field and cover hole with three inches of composted hardwood mulch. Water to settle soil and provide moisture, as needed.

3.) Prune whips to encourage branching. Container stock will be pruned to eliminate broken and dead branches.

4.) Newly planted trees may need watering depending on weather conditions. During the next two years watering may be required during summer and dry months. Any watering should consider for recent rainfall patterns.

5.) Staking of stock is not required, if preferred stock type used.

6.) Side dressing fertilization 1 year after planting may be warranted.

V. MAINTENANCE SCHEDULE

1.) Landscaper should conduct an inspection at the following intervals: 6 months after planting, 1 year after planting and 2 years after planting. The purpose of inspection is to evaluate survival rate with reference to the survival required at the end of the two year period (75% minimum).

Regular visits during the first growing season (yr 1) are to assess the success of the plantings and determine if supplemental watering or other actions are necessary. Early spring visits will determine winter kill and autumn visits will determine summer kill.

2.) Assess tree mortality of planting stock, remove and replace any dead or diseased plantings for the first 2 growing seasons.

3.) Volunteer seeding of native, local and endemic vegetation is to be expected. Do not discourage this effort unless it is negatively effecting the planted stock.

4.) Landscaper shall remove or control aggressive, noxious, invasive species (i.e. Multiflora Rose, Japanese Honeysuckle, and all herbaceous vegetation) within a 3-foot radius surrounding the planted woody nursery stock for 2 years after planting.

5.) The landscaper shall be responsible to remove down and dead material that is smothering planting stock. Naturally occurring material that is not affecting planted stock shall not be removed.

6.) Mowing is one of the most effective means to control exotic and/or invasive species. No mowing shall occur during the wildlife nesting period of early April through mid-July. The landscaper is responsible for mowing and/or weed wacking and/or applying herbicide around planting stock, if needed for 2 growing seasons after planting.

PLANT LIST

QTY	SPECIES	INDICATOR STATUS	SIZE
Open Space lot 40 (outside of existing tree line):			
14	Viburnum dentatum Arrowwood	FACW	whip/container
14	Acer rubrum Red maple	FAC	whip
	Mixed oaks (2 different species required)		
28	Quercus alba	FACU	whip
	palustris	FAC	
	rubra	FACU	
	prinus	UPL	
14	Cornus florida	FACU	Whip/container
Open Space lot 41:			
6	Acer rubrum Red maple	FAC	2" caliper
	Mixed oaks (3 different species required)		
18	Quercus alba	FACU	2" caliper
	palustris	FAC	
	rubra	FACU	
	prinus	UPL	
6	Cornus florida	FACU	2" caliper

*NOTES:

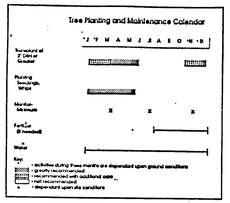
0.8 ACRES AFFORESTATION REQUIRED.

PLANTING NOTES

1.) Planting stock should be 3' to 4' whips and 1 1/2 to 2 gallon container stock at a minimum. 2" caliper trees to be planted in open space lot 43.

2.) Only composted mulch may be used.

3.) Whips should be planted an average of 11 ft on center. (see random planting detail) 2" caliper trees to be planted at 20' x 20' individual spacing.



The planting and care of trees is most successful when coordinated with the local climatic conditions. The calendar summarizes some of the recommended time frames for basic reforestation and stress reduction activities.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-10-97

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DES: DAM DRN: JR

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DRAWING 11 OF 11

6-21-97