CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY THAT THE FOLLOWING ELECTRONIC RECORDS ARE TRUE AND ACCURATE REPRODUCTIONS OF THE ORIGINAL RECORDS OF JAMES CITY COUNTY GENERAL SERVICES DEPARTMENT- STORMWATER DIVISION; WERE SCANNED IN THE REGULAR COURSE OF BUSINESS PURSUANT TO GUIDELINES ESTABLISHED BY THE LIBRARY OF VIRGINIA AND ARCHIVES; AND HAVE BEEN VERIFIED IN THE CUSTODY OF THE INDIVIDUAL LISTED BELOW.

BMP NUMBER: **MC002**

DATE VERIFIED: **September 7, 2012**

QUALITY ASSURANCE TECHNICIAN: **Leah Hardenbergh**

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA

Stormwater Division

MEMORANDUM

DATE: March 12, 2010

TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services

FROM: Tina Cantwell, Stormwater

PO: 270712

RE: Files Approved for Scanning

General File ID or BMP ID: WC002

PIN: 1240100016B

Subdivision, Tract, Business or Owner Name (if known): Daniels, Bruce E

Property Description: Daniel's Welding and Fabrication

Site Address: 8005 Hankins Industrial Park Road

(For internal use only) **Box** 13 **Drawer:** 8

Agreements: (in file as of scan date) **N** **Book or Doc#:** **Page:**

Comments

SP-123-89

DANIELS WELDING AND FABRICATION SERVICE

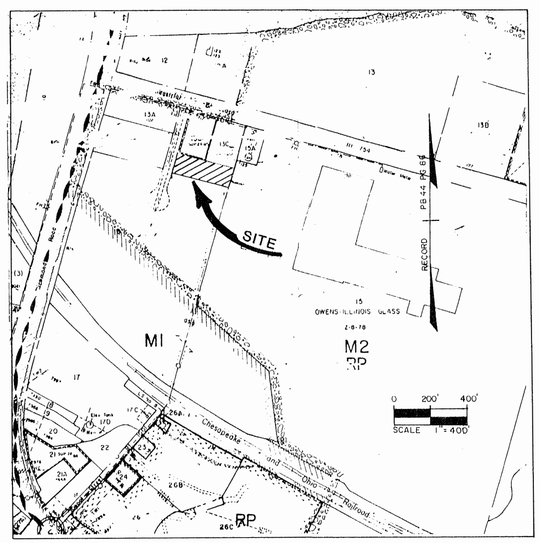
BRUCE E. DANIELS OWNER / DEVELOPER
114 OLD STAGE ROAD
TOANO, VA 23168

NOV 1989 RECEIVED PLANNING DEPARTMENT

COUNTY OF JAMES CITY
FINAL SITE PLAN

Rec		
AP		DATE
Fire	GSW/MAF	10/18/89
Health	GSM/MAF	10/19/89
Hghy	GDE/MAF	11/30/89
Plan		1/2/90
Pub	DEC	1/2/90
Zone		1/24/90
JCSA	MTG/MAF	11/22/89
Other		
Other		

ALL CONSTRUCTION OR LAND DEVELOPMENT ACTIVITIES SHALL BE SUBJECT TO THE REQUIREMENTS OF THE CHESAPEAKE BAY PRESERVATION AREA DESIGNATION AND MANAGEMENT REGULATIONS (VR-173-02-01) AND ANY LOCAL ORDINANCES ADOPTED PURSUANT THERETO. THESE REGULATIONS AND ORDINANCES MAY PLACE ADDITIONAL REQUIREMENTS ON LOTS RECORDED AFTER SEPTEMBER 30, 1989, AND MAY LIMIT DEVELOPMENT OF LOTS. OWNERS SHOULD FAMILIARIZE THEMSELVES WITH THE REGULATIONS AND ORDINANCES AND ARE ENCOURAGED TO CONTACT THE JAMES CITY COUNTY DIRECTOR OF CODE COMPLIANCE FOR MORE INFORMATION.



INDEX TO DRAWINGS

A4481-1 TITLE SHEET
A4481-2 SITE PLAN
A4481-3 DRAINAGE GRADING AND EROSION CONTROL PLAN
A4481-4 DETAILS AND NOTES

L. V. WOODSON & ASSOCIATES, INC.
ENGINEERS, SURVEYORS & PLANNERS
105 BACON AVENUE
WILLIAMSBURG, VIRGINIA 23185

DANIELS WELDING AND FABRICATION SERVICE
TITLE SHEET
BRUCE E. DANIELS OWNER/DEVELOPER
JAMES CITY COUNTY VIRGINIA

COMMONWEALTH OF VIRGINIA
L. V. WOODSON
CERTIFICATE No. 3122
CERTIFIED PROFESSIONAL ENGINEER

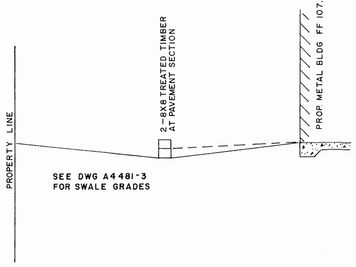
No.	DATE	REVISION / COMMENT / NOTE	BY
1	11/6/89	Revised Per County Comments 11/8/89	BDN

Designed LVW	Drawn BDN
Scale	Date 10-11-89
Project No. A 4481	
Drawing No. A4481-1	

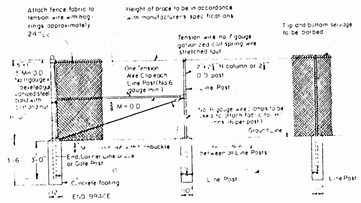
SP-123-89

WC002_DANIELS_WELDING_&_FABRICATION - 003

TYPICAL SECTION
PROPOSED SWALE



CHAIN LINK FENCE DETAIL



LANDSCAPE SCHEDULE

MARK	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
A	QUERCUS ALBA	WHITE OAK	8' HEIGHT	B/B
B	ACER RUBRUM 'AUTUM FLAME'	RED MAPLE	8' HEIGHT	B/B
C	CAMILLIA SASANQUA MINE-NO-YUKI	WHITE CAMELLIS	18"-24" HEIGHT	C/C 3'OC
D	JUNIPERUS CONFERTA	SHORE JUNIPER	12"-18" HEIGHT	C/C 3'OC

UNLESS NOTED OTHERWISE, ALL DISTURBED AREAS ARE TO RECEIVE 4" OF TOPSOIL, FREE OF ROOTS, TIMBER AND DEBRIS. LIME, FERTILIZER, SEED AND MULCH ARE AS FOLLOWS:

LIME @ 65 LBS. PER 1000 SF.

FERTILIZE WITH 10-10-10 @ 25 LBS. PER 1000 SF.

SEED @ 40 LBS. PER 1000 SF. WITH 50% KENTUCKY 31 FESCUE, 20% ANNUAL RYE & 30% SERICA LESPEDEZA.

MULCH WITH STRAW @ 70 LBS. PER 1000 SF.

SEDIMENT & EROSION CONTROL

1. SEE DRAWING A 4481-4 FOR SEDIMENT & EROSION CONTROL NOTES AND DETAILS.
2. ALL DRAINAGE FROM THIS SITE WILL ULTIMATELY ENTER THE DETENTION BASIN/ SEDIMENT BASIN AT THE WEST END OF HANKINS INDUSTRIAL PARK ROAD PREVIOUSLY APPROVED BY JAMES CITY COUNTY.

SITE SUMMARY

PARCEL IS ZONED M-2 TAX MAP 12.4 PARCEL 1-16B

AREA OF SITE IS 1.0044 ACRES -	43750 SF = 100%
AREA OF PROPOSED & FUTURE BLDG. -	8000 SF = 18.3%
AREA OF PAVEMENT -	26,088 SF = 59.6%
GREEN AREA -	9662 SF = 22.1%

PARKING REQUIRED:

1 PER EMPLOYEE PER SHIFT x 6 EMPLOYEES = 6

1 PER 200 SF OF RETAIL AREA x 1000 SF = 5

TOTAL REQUIRED INCLUDING HANDICAP = 11

PARKING PROVIDED: 13 - 9' x 18' SPACES + 1 - 13' x 18' = 14

SITE SERVED BY PUBLIC WATER & SEWER

SOLID WASTE DISPOSAL BY CONTRACT

LEGEND

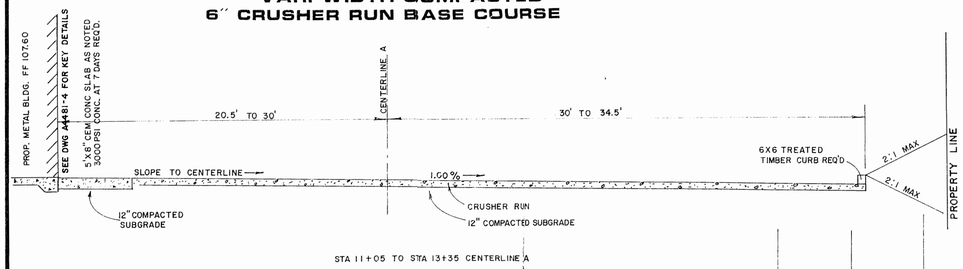
105.0	DENOTES EXISTING ELEVATION & CONTOUR
105.0	DENOTES PROPOSED ELEVATION & CONTOUR
✦	DENOTES 150 WATTS MOUNTED ON 30'H/6' ARM

GENERAL NOTES

1. ALL WATER & SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH JAMES CITY SERVICE AUTHORITY SPECIFICATIONS & STANDARDS.
2. ALL ROADWAY & DRAINAGE CONSTRUCTION SHALL BE IN ACCORDANCE WITH VIRGINIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS & STANDARDS.
3. ALL CONCRETE REQUIRED SHALL BE TYPE III AND DEVELOPE 3000 PSI IN SEVEN DAYS.
4. OVERHEAD TELEPHONE CABLE IS TO BE REMOVED BY OTHERS AS DIRECTED BY THE OWNER.

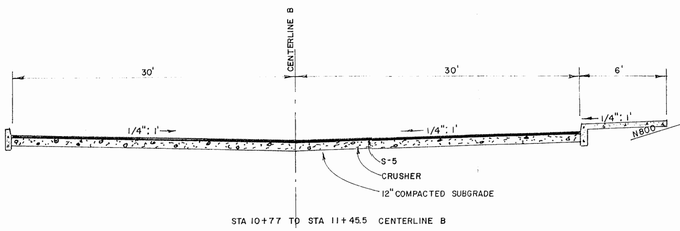
NOTE: STORAGE OF EQUIPMENT AND/OR SUPPLIES WILL BE TOTALLY CONTAINED WITHIN THE BUILDING(S) ONLY.

TYPICAL SECTION
VAR. WIDTH COMPACTED
6" CRUSHER RUN BASE COURSE



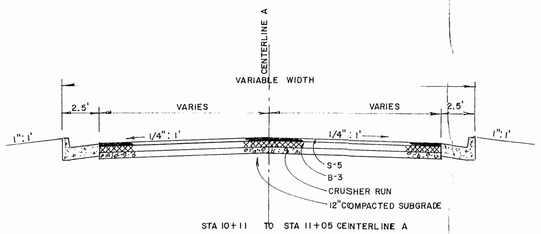
STA 11+05 TO STA 13+35 CENTERLINE A

TYPICAL SECTION
6" X 60' COMPACTED BASE COURSE
& 2" X 60' BIT. CONC. SURFACE COURSE S-5
W/ 6" CEM. CONC. CURB STD CG-2 LT & RT
& 5.5' X 4" CEM. CONC. WALK RT OF CENTERLINE

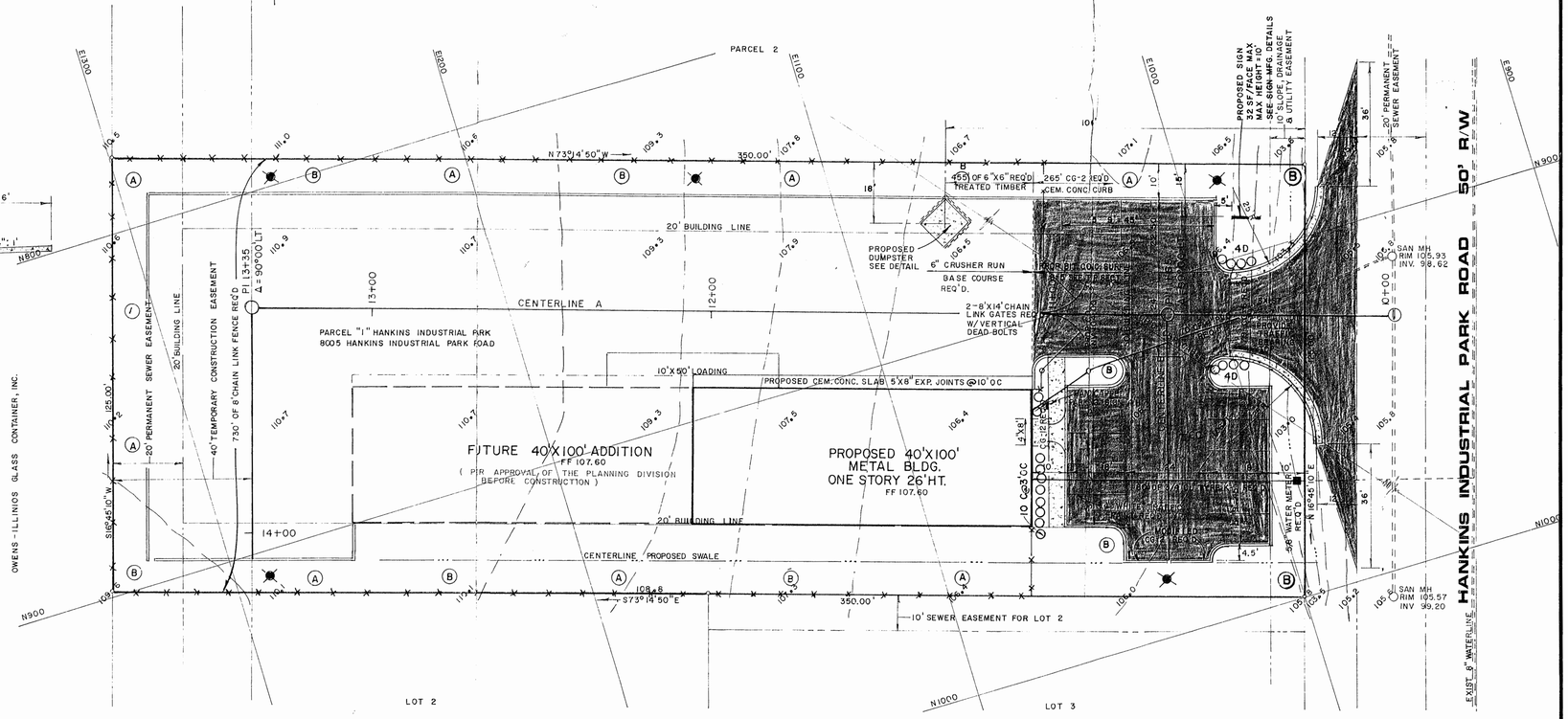


STA 10+77 TO STA 11+45.5 CENTERLINE B

TYPICAL SECTION
4" X VAR. WIDTH CRUSHER RUN SUBBASE COURSE
4" X VAR. WIDTH BIT. CONC. BASE COURSE B-3
2" X VAR. WIDTH BIT. CONC. SURFACE COURSE S-5
W/ CEM. CONC. CURB & GUTTER CG-6 LT. & RT.



STA 10+11 TO STA 11+05 CENTERLINE A



GRAPHIC SCALE 1" = 20'

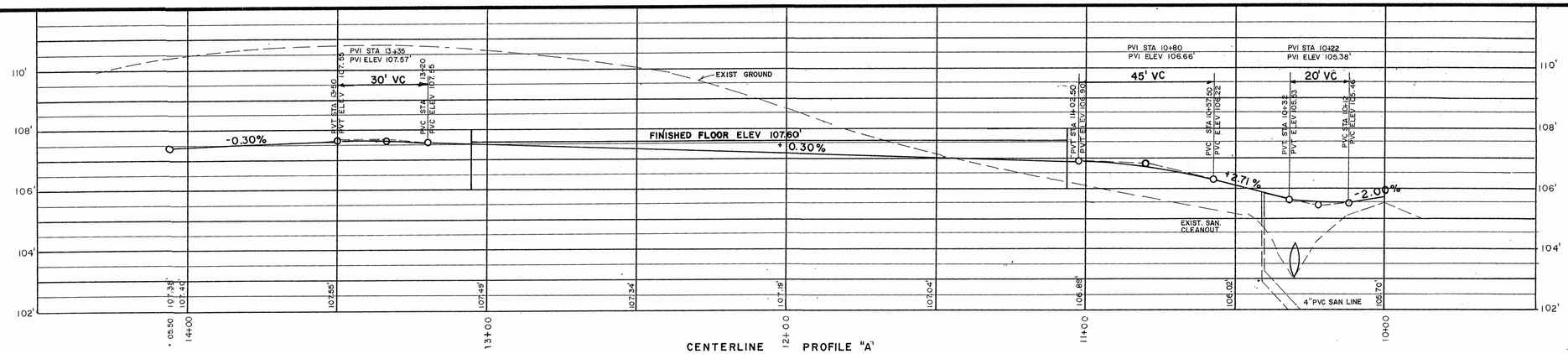
L. V. WOODSON & ASSOCIATES, INC.
ENGINEERS, SURVEYORS & PLANNERS
105 BACON AVENUE
WILLIAMSBURG, VIRGINIA 23185

DANIELS WELDING AND FABRICATION SERVICE
SITE PLAN
BRUCE E. DANIELS OWNER / DEVELOPER
JAMES CITY COUNTY VIRGINIA

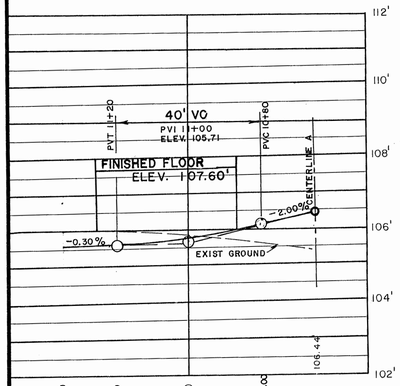
COMMONWEALTH OF VIRGINIA
L. V. WOODSON
CERTIFICATE No. 3122
CERTIFIED PROFESSIONAL ENGINEER

No.	DATE	REVISION / COMMENT / NOTE	BY
1	11/16/89	Revised Per County Comments 11/16/89	DAR

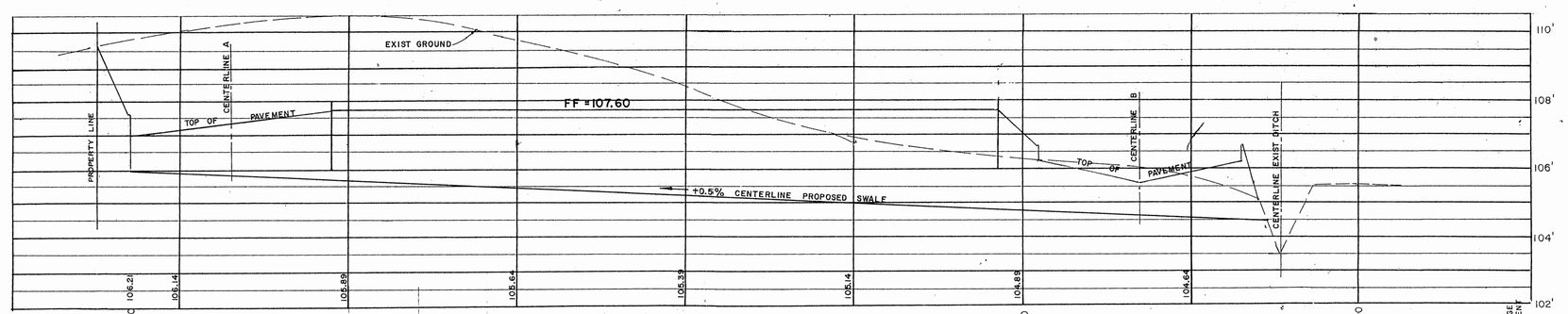
Designed LVW	Drawn DAR
Scale 1"=20'	Date 9-20-89
Project No. A4481	
Drawing No. A4481-2	



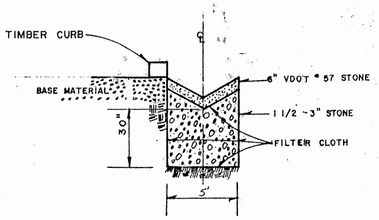
CENTERLINE PROFILE "A"
SCALE HORZ. 1"=20'
VERT. 1"=2'



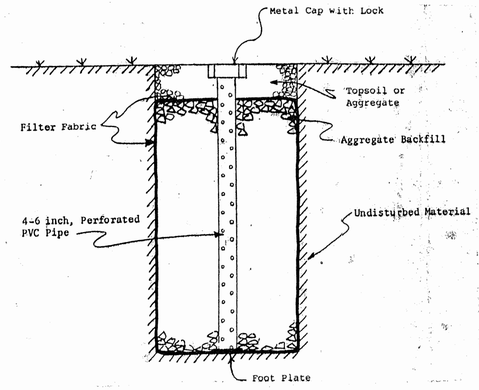
CENTERLINE PROFILE "B"
SCALE HORZ. 1"=20'
VERT. 1"=2'



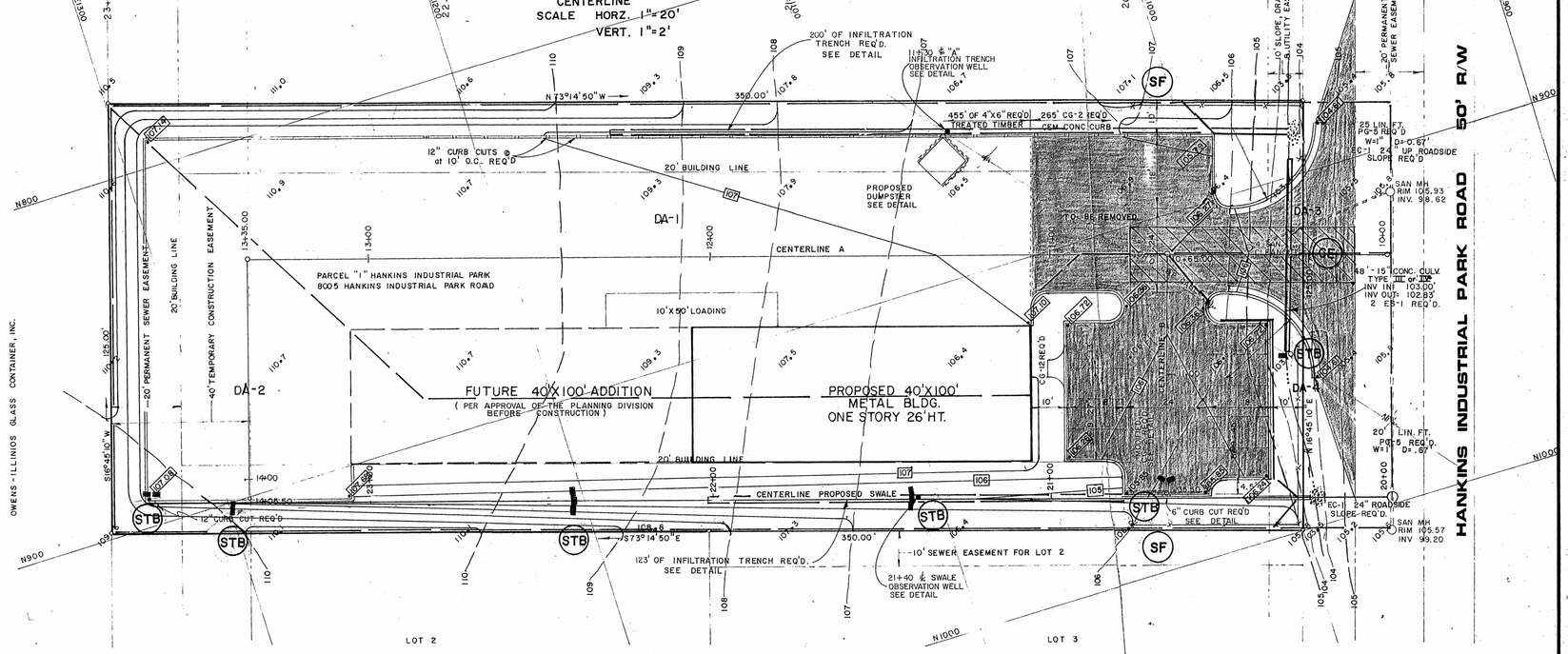
PROPOSED SWALE CENTERLINE
SCALE HORZ. 1"=20'
VERT. 1"=2'



INFILTRATION TRENCH



OBSERVATION WELL



NOTE**
THE INFILTRATION TRENCHES SHALL NOT BE CONSTRUCTED UNTIL THE DISTURBED AREAS DRAINING TO THE TRENCHES IS STABILIZED.

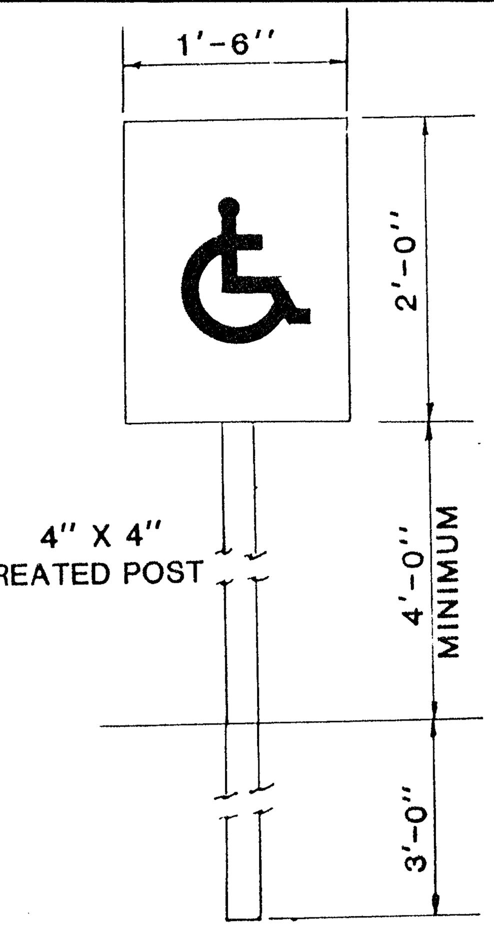
L. V. WOODSON & ASSOCIATES, INC.
ENGINEERS, SURVEYORS & PLANNERS
105 BACON AVENUE
WILLIAMSBURG, VIRGINIA 23185

DANIEL'S WELDING AND FABRICATION SERVICE
DRAINAGE, GRADING AND EROSION CONTROL PLAN
BRUCE E. DANIELS OWNER / DEVELOPER
JAMES CITY COUNTY, VIRGINIA

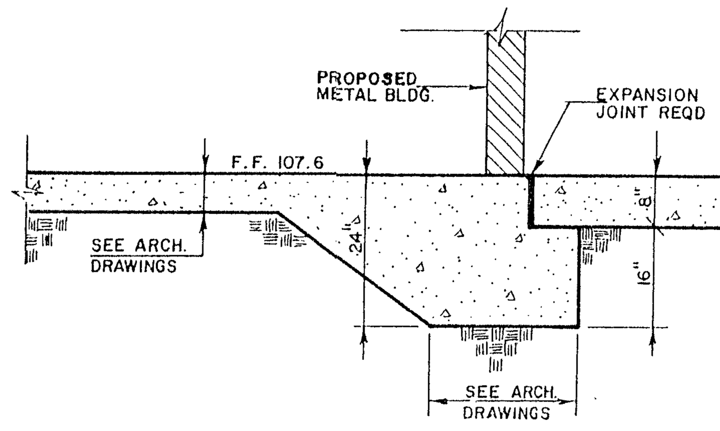
No.	DATE	REVISION / COMMENT / NOTE	BY
2	12/5/89	REVISED PER COUNTY COMMENTS	DAR
1	11/14/89	PER COUNTY COMMENTS 11/14/89	DAR

Designed LVW	Drawn DAR
Scale 1"=20'	Date 9-20-89
Project No. A4481	
Drawing No. A4481-3	

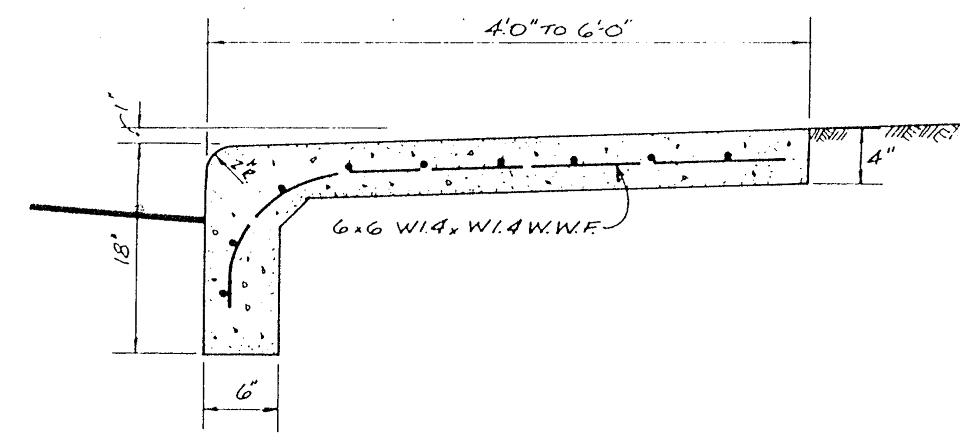
WC002_DANIELS_WELDING_&_FABRICATION - 005



HANDICAPPED PARKING SIGN

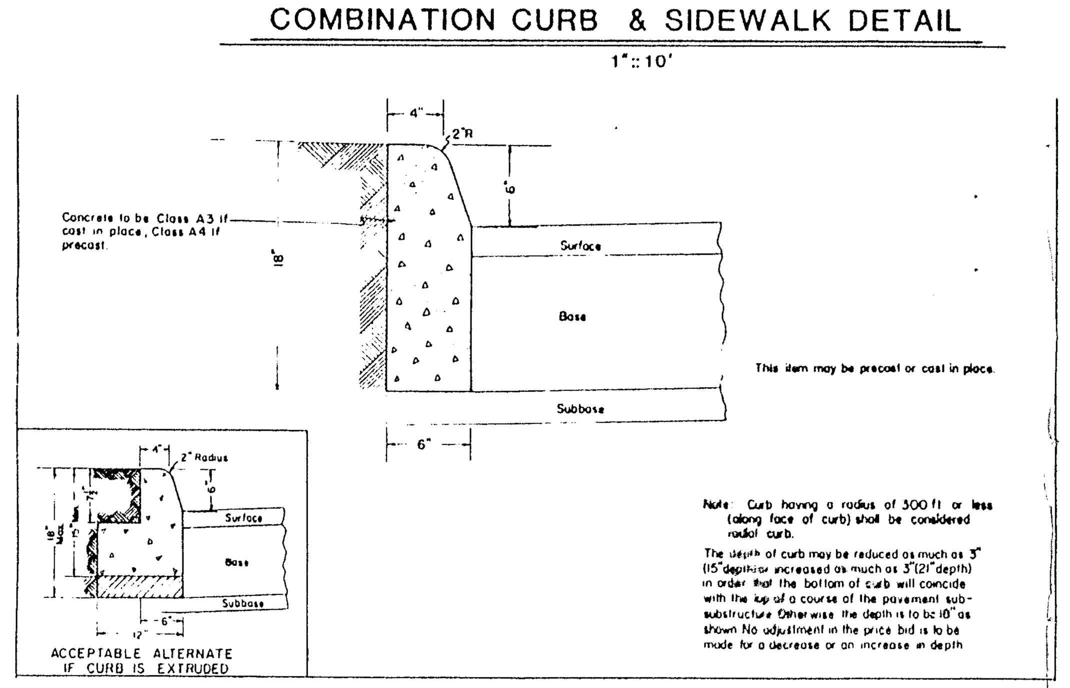


BUILDING FOOTING DETAIL

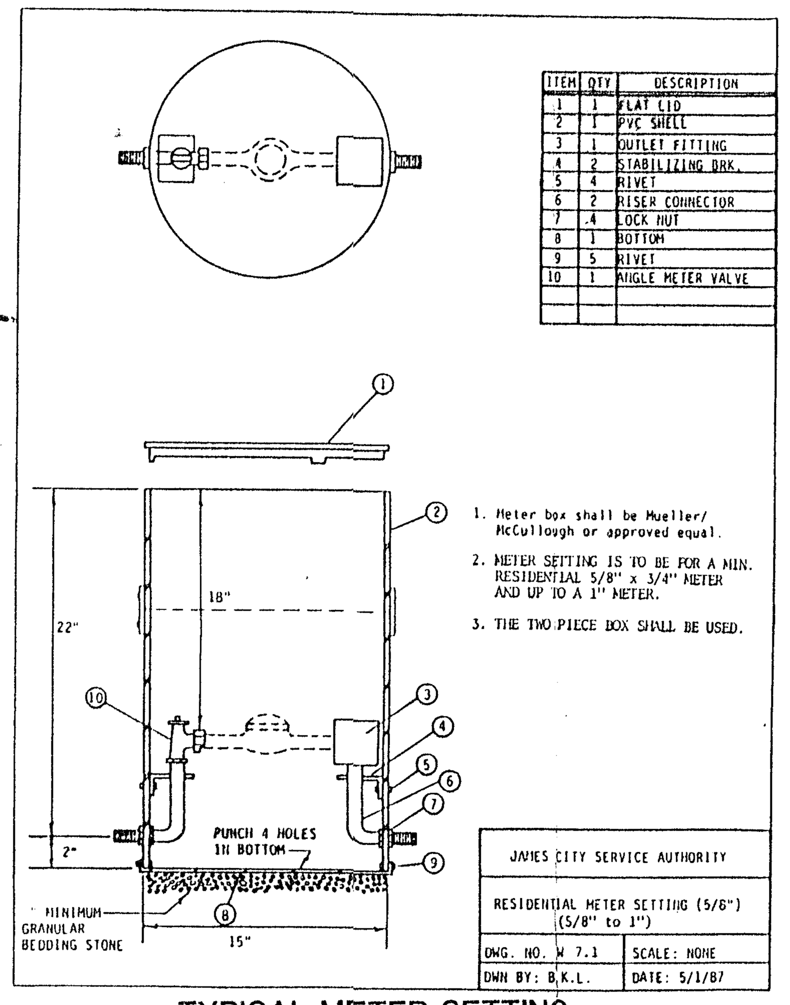


COMBINATION CURB & SIDEWALK DETAIL

1"::10'

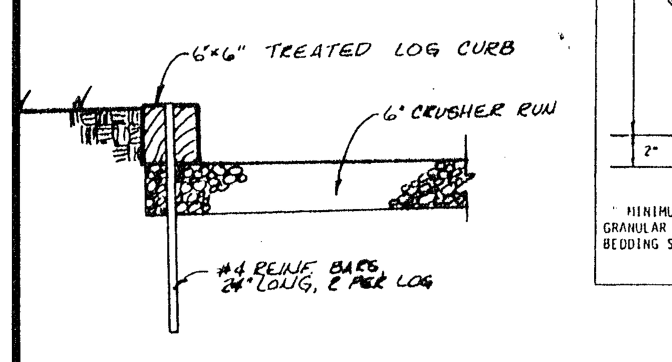


STANDARD 6" CURB (CG-2)



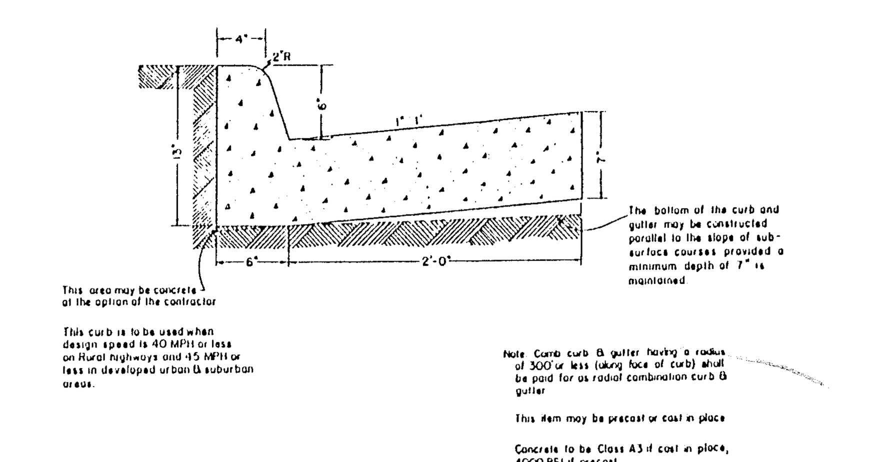
ITEM	QTY	DESCRIPTION
1	1	FLAT LID
2	1	PVC SHELL
3	1	OUTLET FITTING
4	2	STABILIZING BRK.
5	4	RIVET
6	2	RISER CONNECTOR
7	4	LOCK NUT
8	1	BOTTOM
9	5	RIVET
10	1	ANGLE METER VALVE

TYPICAL METER SETTING

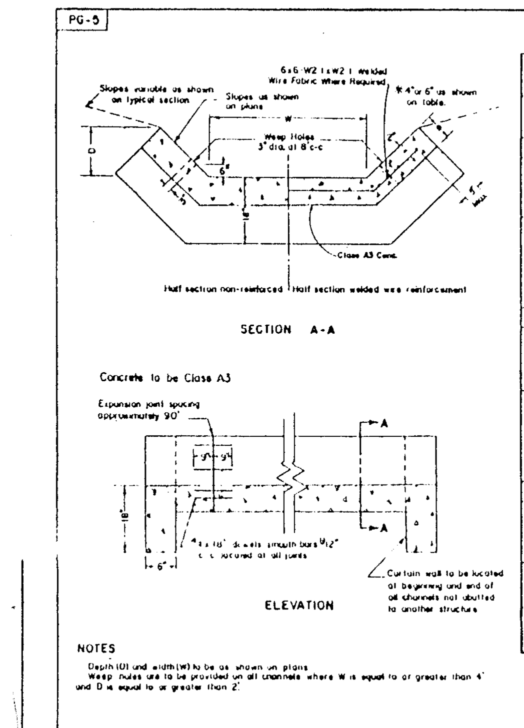


TIMBER CURB DETAIL

NOT TO SCALE



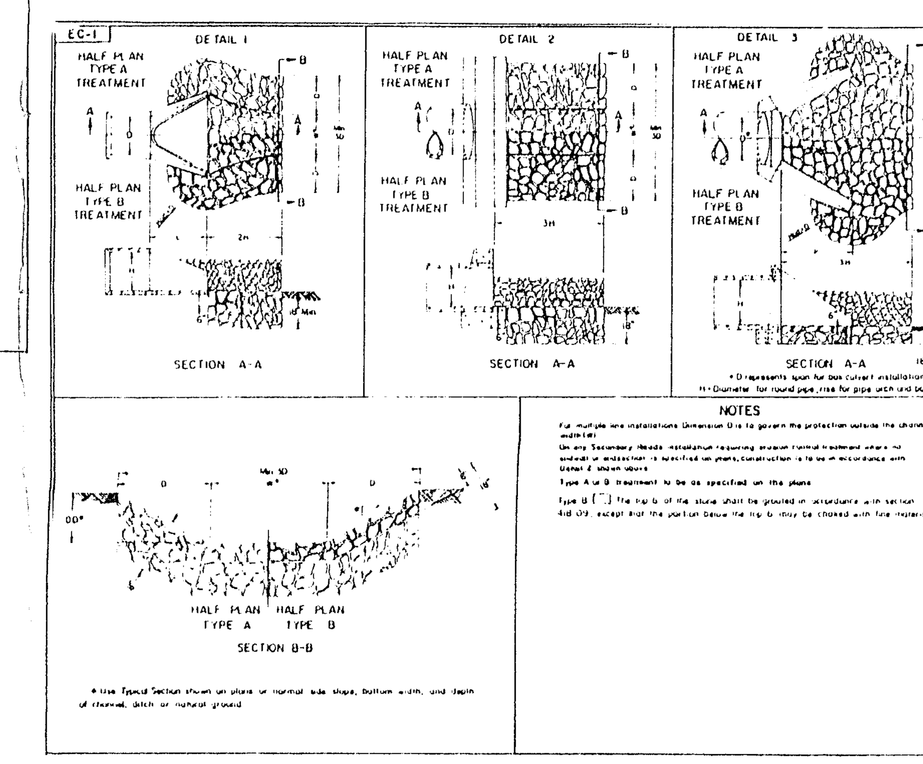
COMBINATION 6" CURB & GUTTER (CG-6)



SQ. YDS PER LIN. FT. OF PAVED CHANNEL

CONCRETE THICKNESS	D	W 1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
1:1 SIDE SLOPES											
4"	1'	0.425	0.536	0.648	0.759	0.870	0.981	1.092	1.203	1.314	1.425
	2'	0.740	0.851	0.962	1.073	1.184	1.295	1.406	1.517	1.629	1.740
	3'	1.054	1.165	1.276	1.387	1.498	1.609	1.721	1.832	1.943	2.054
	4'	[illegible]	1.479	1.590	1.702	1.813	1.924	2.035	2.146	2.257	2.368
6"	5'	1.682	1.794	1.905	2.016	2.127	2.238	2.349	2.460	2.571	2.682
	6'	1.997	2.108	2.219	2.330	2.441	2.552	2.663	2.774	2.886	2.997
	7'	2.311	2.422	2.533	2.644	2.755	2.866	2.977	3.089	3.200	3.311
	8'	2.625	2.736	2.848	2.959	3.070	3.181	3.292	3.403	3.514	3.625
	9'	2.940	3.051	3.162	3.273	3.384	3.495	3.606	3.717	3.828	3.939
	10'	3.254	3.365	3.476	3.587	3.698	3.809	3.920	4.032	4.143	4.254
1½:1 SIDE SLOPES											
4"	1'	0.512	0.623	0.734	0.845	0.956	1.067	1.178	1.290	1.401	1.512
	2'	0.912	1.023	1.135	1.246	1.357	1.468	1.579	1.690	1.801	1.912
	3'	1.313	1.424	1.535	1.646	1.757	1.869	1.980	2.091	2.202	2.313
	4'	1.714	1.825	1.936	2.047	2.158	2.269	2.380	2.491	2.602	2.714
6"	5'	2.114	2.225	2.336	2.448	2.559	2.670	2.781	2.892	3.003	3.114
	6'	2.515	2.626	2.737	2.848	2.959	3.070	3.181	3.293	3.404	3.515
	7'	2.915	3.027	3.138	3.249	3.360	3.471	3.582	3.693	3.804	3.915
	8'	3.316	3.427	3.538	3.649	3.760	3.872	3.983	4.094	4.205	4.316
	9'	3.717	3.828	3.939	4.050	4.161	4.272	4.383	4.494	4.606	4.717
	10'	4.117	4.228	4.340	4.451	4.562	4.673	4.784	4.895	5.006	5.117
2:1 SIDE SLOPES											
4"	1'	0.608	0.719	0.830	0.941	1.052	1.164	1.275	1.386	1.497	1.608
	2'	1.105	1.216	1.327	1.438	1.549	1.660	1.772	1.883	1.994	2.105
	3'	1.602	1.713	1.824	1.935	2.046	2.157	2.268	2.380	2.491	2.602
	4'	[illegible]	2.210	2.321	2.432	2.543	2.654	2.765	2.876	2.988	3.099
6"	5'	[illegible]	2.707	2.818	2.929	3.040	3.151	3.262	3.373	3.495	3.596
	6'	3.093	3.204	3.315	3.426	3.537	3.648	3.759	3.870	3.981	4.093
	7'	3.589	3.701	3.812	3.923	4.034	4.145	4.256	4.367	4.478	4.589
	8'	4.086	4.197	4.309	4.420	4.531	4.642	4.753	4.864	4.975	5.086
	9'	4.583	4.694	4.805	4.917	5.028	5.139	5.250	5.361	5.472	5.583
	10'	5.080	5.191	5.302	5.413	5.525	5.636	5.747	5.858	5.969	6.080

PAVED GUTTER (PG-5)



EROSION CONTROL STONE (EC-1)

EROSION & SEDIMENT CONTROL NOTES

The purpose of the erosion control measures shown on these plans shall be to preclude the transport of all waterborne sediments resulting from construction activities from entering onto adjacent properties or State waters. If field inspection reveals the inadequacy of the plan to confine sediment to the project site, appropriate modifications will be made to correct any plan deficiencies.

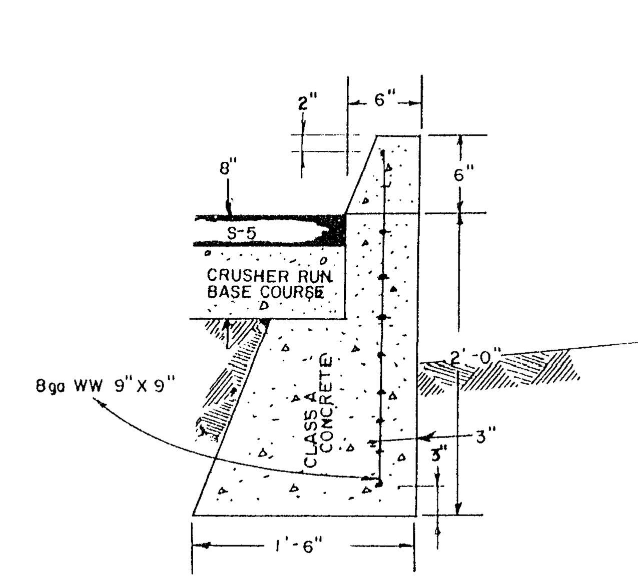
1. All erosion and sediment control measures shall be installed and maintained in accordance with the "Virginia Erosion and Sediment Control Handbook". The contractor shall be thoroughly familiar with all applicable measures contained therein which may be pertinent to this project.
2. All points of construction ingress and egress shall be protected by a temporary construction entrance to prevent tracking of mud onto public right-of-ways. An entrance permit from VDOT is required prior to any construction activities within State right-of-ways.
3. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment on-site must be constructed as a first step in grading and be made functional before upslope land disturbance takes place. Earthen structures such as dams, dikes, and diversions must be seeded and mulched within 15 days of installation. An on-site pre-construction meeting will be held between the Office of Code Compliance and the contractor to identify those measures to be initially installed.
4. Maintenance of all erosion and sediment control measures shall be accomplished in accordance with the "Virginia Erosion and Sediment Control Handbook". Maintenance will include the repair of measures damaged by any subcontractor including those of the public utility companies. At the pre-construction meeting, the contractor will supply Code Compliance with the name of the individual who will be responsible for ensuring maintenance of installed measures on a daily basis.
5. Surface flows over cut and fill slopes shall be controlled by either redirecting flows from transversing the slopes or by installing mechanical devices to safely lower water downslope without causing erosion. A temporary fill diversion (Std. & Spec. 1.16) shall be installed prior to the end of each working day.
6. Sediment control measures may require minor field adjustments at time of construction to insure their intended purpose is accomplished. Office of Code Compliance approval will be required for other deviations from the approved plans.
7. The contractor shall strip and pile topsoil at the locations shown on this plan or as directed by the engineer. Silt fence shall be placed at the toe of the stockpile after stripping of topsoil is complete.
8. The contractor shall complete drainage facilities within 30 days following completion of rough grading at any point within the project. The installation of drainage facilities shall take precedence over all underground utilities. Outfall ditches from drainage structures shall be stabilized immediately after construction of same. This includes installation of erosion control stone where required. Any drainage outfalls required for a street must be completed before street grading begins.
9. Permanent or temporary soil stabilization must be applied to all denuded areas within 15 days after final grade is reached on any portion of the site. Soil stabilization must also be applied to denuded areas which may not be at final grade but will remain dormant (undisturbed) for longer than 30 days. Soil stabilization measures include vegetative establishment, mulching and the early application of gravel base material on areas to be paved.
10. No more than 300' of sanitary sewer, storm sewer, or waterlines are to be open at one time. Following installation of any portion of these items, all disturbed areas are to be immediately stabilized (i.e., the same day).
11. If disturbed area stabilization is to be accomplished during the months of December, January, or February, stabilization shall consist of mulching in accordance with Specification 1.75. Seeding will then take place as soon as the season permits.
12. The term Seeding, Final Vegetative Cover or Stabilization, on this plan shall mean the successful germination and establishment of a stable grass cover from a properly prepared seedbed containing the specified amounts of seed, lime, and fertilizer in accordance with Specification 1.66, Permanent Seeding. Irrigation shall be required as necessary to ensure establishment of grass cover.
13. All slopes steeper than 3:1 shall require the use of erosion control blankets such as excelsior blankets to aid in the establishment of a vegetative cover. Installation shall be in accordance with Specification 1.75, Mulching and Manufacturer's Instructions.
14. Inlet protection in accordance with Specification 1.08 shall be provided for all storm drain inlets as soon as practical following construction of same.
15. Temporary liners, such as polyethylene sheets, shall be provided for all paved ditches until the permanent concrete liner is installed.
16. Paved ditches shall be required wherever erosion is evident. Particular attention shall be paid to those areas where grades exceed 3%.
17. Temporary erosion control measures are not to be removed until all disturbed areas are stabilized. After stabilization is complete, all measures shall be removed within 30 days. Trapped sediment shall be spread and seeded.
18. Off-site waste or borrow areas shall be approved by the Office of Code Compliance prior to the import of any borrow or export of any waste to or from the project site.
19. All paved and/or piped outfalls will be constructed before road grading and utility installation begins.

JCSA SEWER NOTES

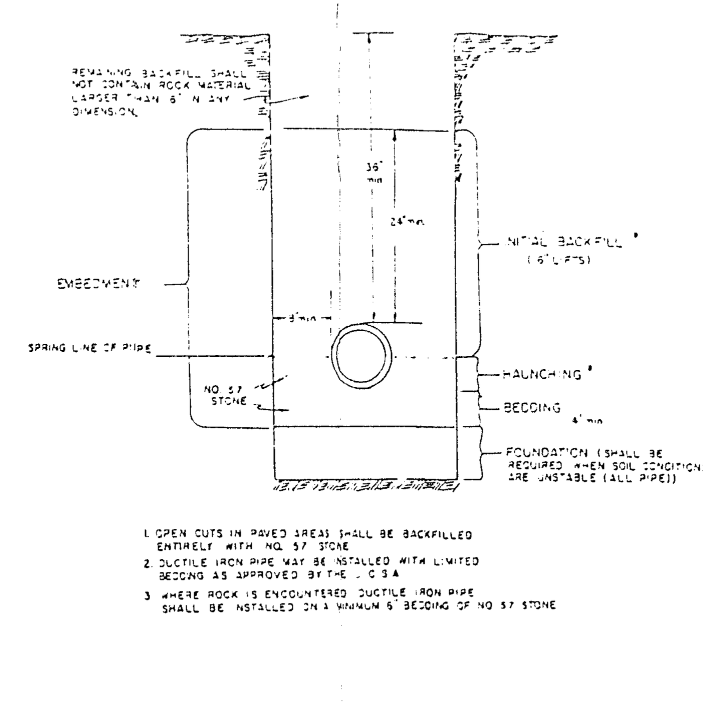
1. All components of the sanitary sewer system shall be installed and tested in accordance with the latest edition of the James City Service Authority Standards and Specifications for Sanitary Sewer Systems and the Virginia Sewerage Regulations.
2. The developer's representative shall submit a list of materials for approval to the James City Service Authority prior to commencement of construction.
3. Sewer lines shall be installed after rough grading and prior to placement of base material.
4. All approved Erosion and Sediment Control requirements shall be observed during sewer line construction.
5. All sewers shall be mirrored and pressure tested in accordance with James City Service Authority standards.
6. After testing is complete and all components of the sewer system are acceptable to the James City Service Authority, as-built drawings shall be submitted to the Service Authority. No wastewater flow shall be allowed to enter the sanitary sewer system until as-built drawings are received and checked for accuracy by the James City Service Authority. Any discrepancies noted, during the as-built inspection, shall be corrected by the developer's representatives within 30 days.
7. Routine periodic inspections during construction will be provided by the James City Service Authority. These inspections do not relieve the developer from his obligation and responsibility for constructing a sanitary sewer system in strict accordance with the standards and specifications of the James City Service Authority.
8. Any changes to the final plans shall be approved by the James City Service Authority and shall be accurately indicated on the as-built drawings
9. All lots shall be provided with sewer service connections. The connections shall be extended from the main to the property line or easement line, and shall terminate with a wye, fitting, plug and clean out with removable plug extending six inches above finished grade.
10. The developer is required to submit sewer data sheets and shall acquire a certificate to construct prior to commencement of construction.
11. Any required easements, permits and approvals shall be acquired by the developer prior to commencement of sanitary sewer construction.
12. The sewer main contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He shall erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safety and protection. He shall also notify "Miss Utility" prior to performing any underground excavation.

JCSA WATER NOTES

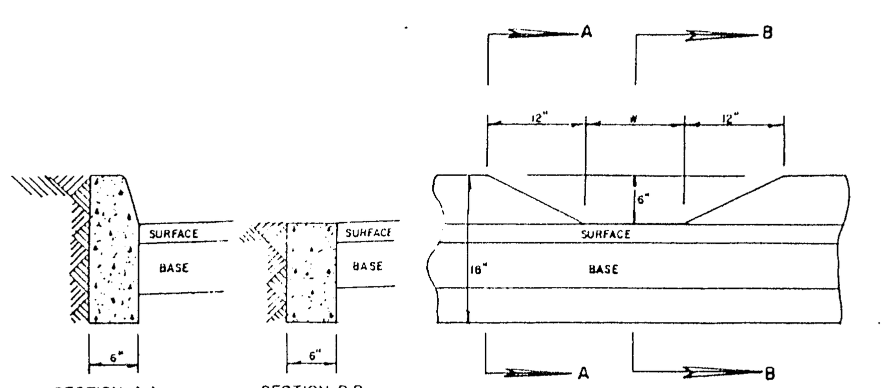
1. All components of the water distribution system shall be installed and tested in accordance with the latest edition of the James City Service Authority Standards and Specifications for Water Distribution Systems and the Virginia Waterworks Regulations.
2. The developer's representative shall submit a list of materials for approval to the James City Service Authority prior to commencement of construction.
3. Water mains shall be installed after rough grading and prior to placement of base material.
4. All approved Erosion and Sediment Control requirements shall be observed during water main construction.
5. All water mains shall be disinfected and pressure tested, and satisfactory bacteriological samples obtained, in accordance with James City Service Authority standards.
6. After testing is complete and all components of the water system are acceptable to the James City Service Authority, as-built drawings shall be submitted to the Service Authority. No water meters will be installed until as-built drawings are received and checked for accuracy by the James City Service Authority. Any discrepancies noted during the as-built inspection shall be corrected by the developer's representatives within 30 days.
7. Routine periodic inspections during construction will be provided by the James City Service Authority. These inspections do not relieve the developer from his obligation and responsibility for constructing a water distribution system in strict accordance with the Standards and Specifications of the James City Service Authority.
8. Any changes to the final plans shall be approved by the James City Service Authority and shall be accurately indicated on the as-built drawings.
9. All lots shall be provided with water service connections. The connections shall be extended from the main to the property line or easement line, and shall terminate with a yoke in a meter box set at final finished grade. Meters for all lots (units) shall be furnished by the developer and installed by the JCSA.
10. The developer is required to submit water data sheets and shall acquire a certificate to construct prior to commencement of construction.
11. Any required easements, permits and approvals shall be acquired by the
12. The water main contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He shall erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safety and protection. He shall also notify "Miss Utility" prior to performing any underground excavation.



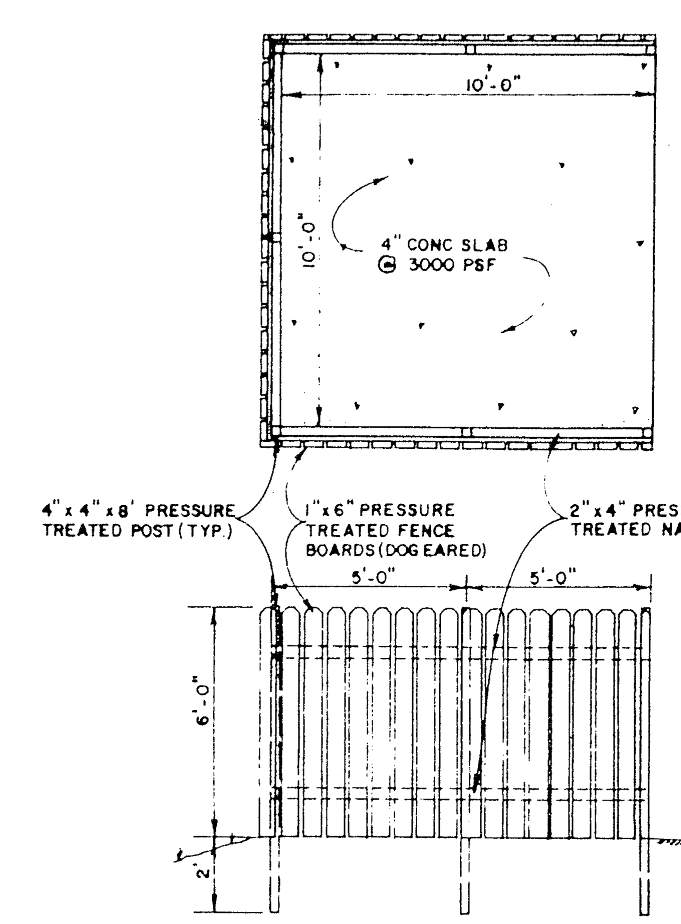
MODIFIED CG-2 CURB



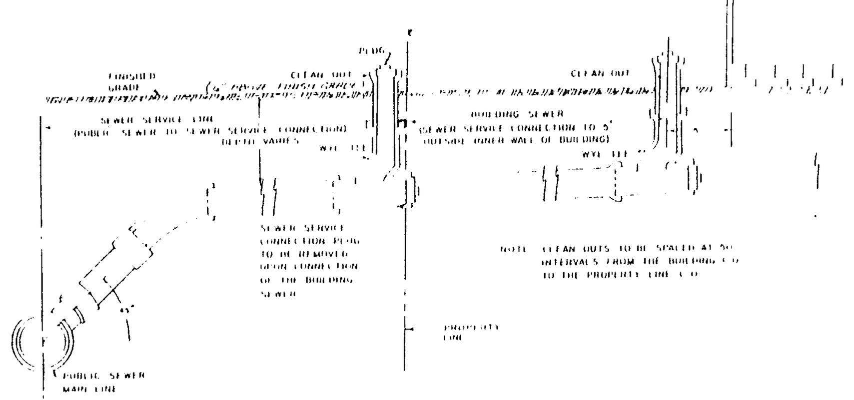
SEWER TRENCH INSTALLATION



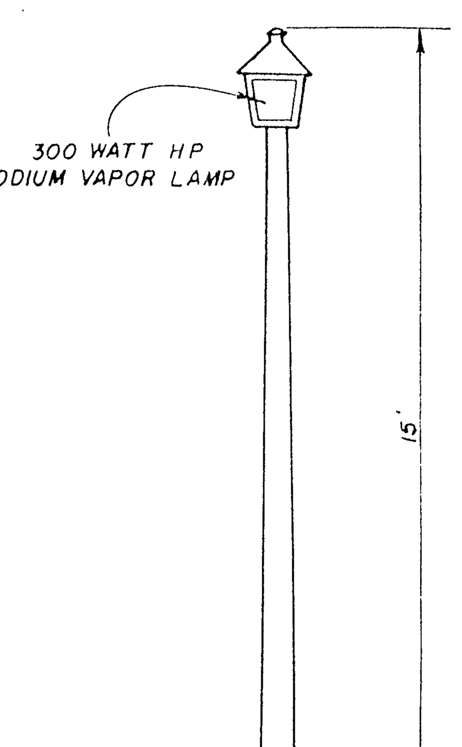
TYPICAL CURB CUT FOR DRAINAGE



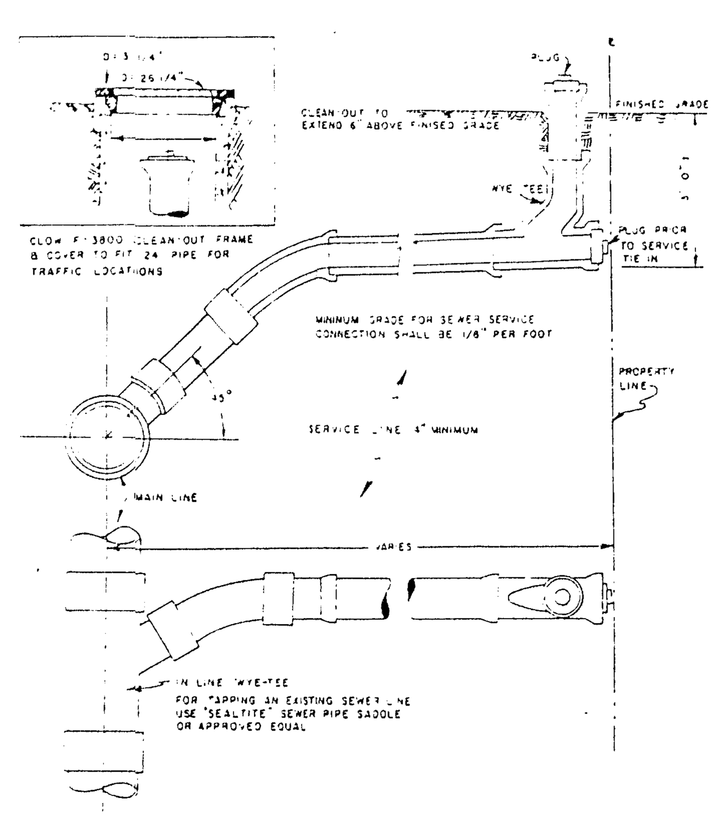
DUMPSTER PAD FENCE DETAIL



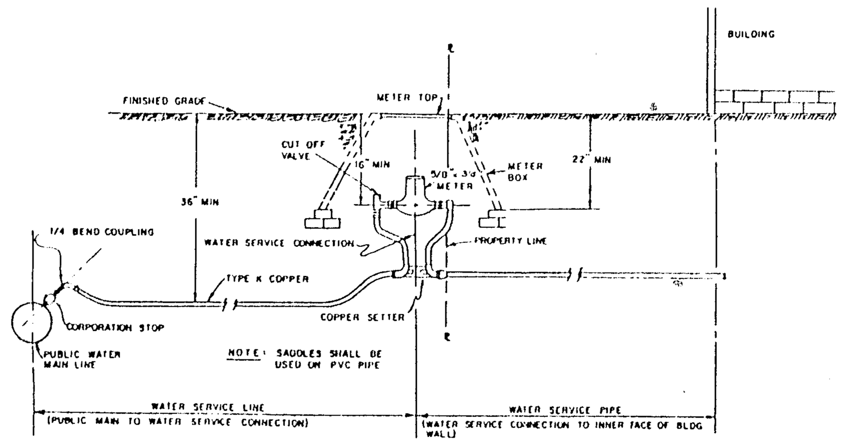
TYPICAL SEWER SERVICE



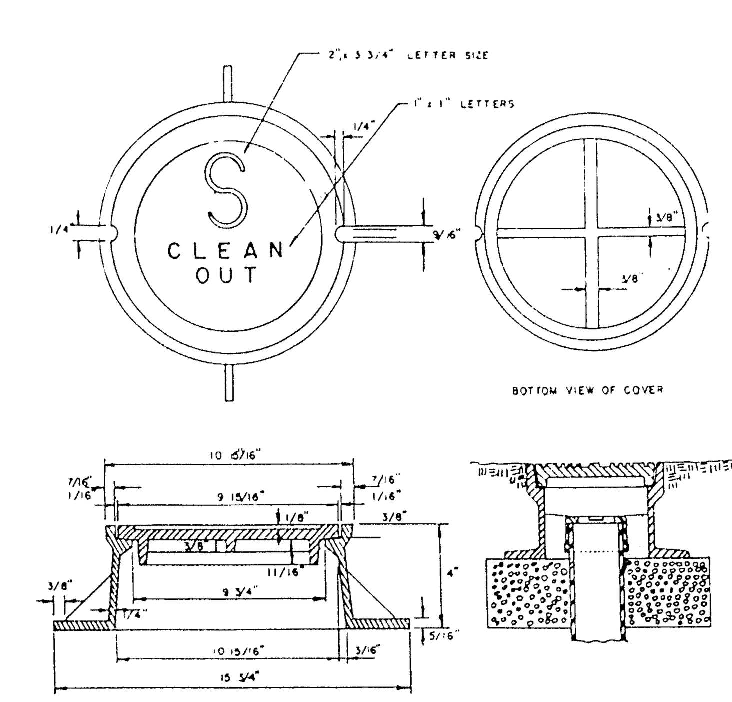
YARD LIGHT DETAIL



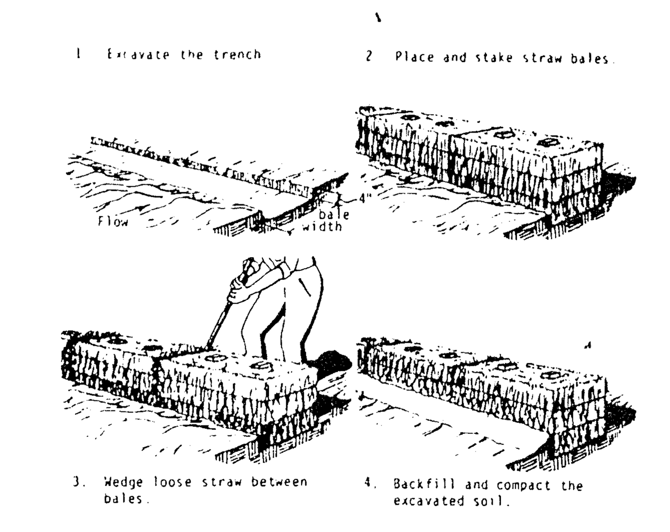
TYPICAL SEWER LATERAL CONNECTION



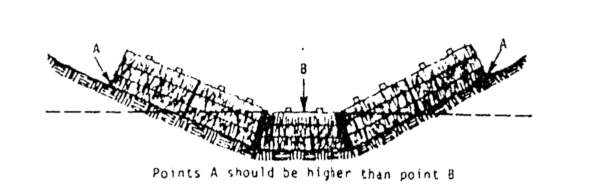
TYPICAL WATER SERVICE



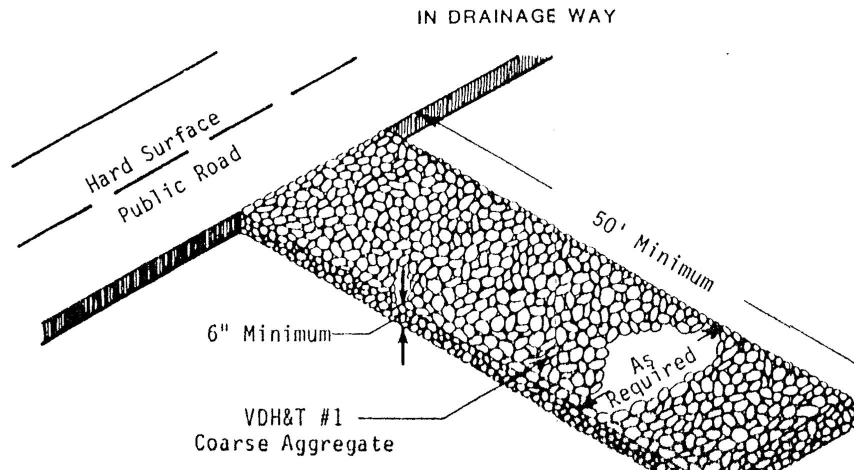
CLEANOUT COVER ASSEMBLY



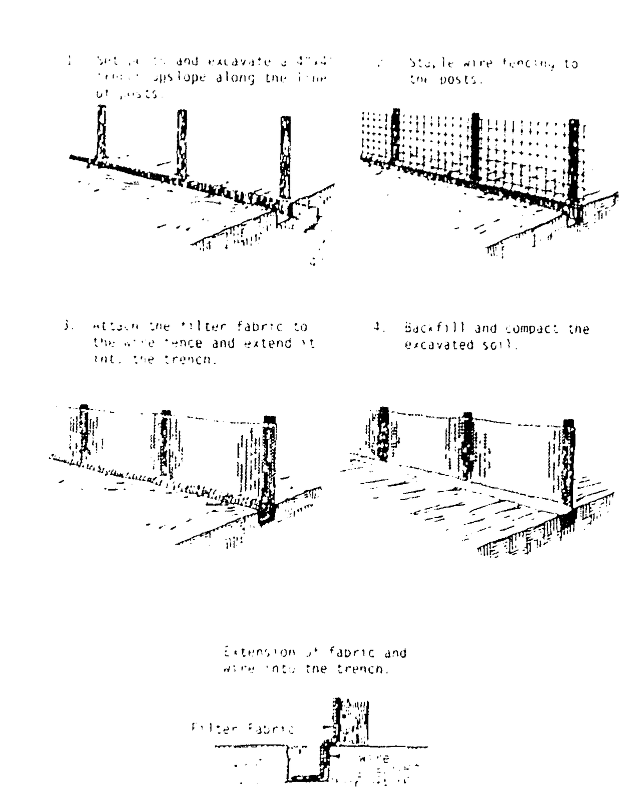
CONSTRUCTION OF STRAW BALE BARRIER



PROPER PLACEMENT OF STRAW BALE BARRIER IN DRAINAGE WAY



TYPICAL GRAVEL CONSTRUCTION ENTRANCE



SILT FENCE CONSTRUCTION

EROSION CONTROL LEGEND

- CE — TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
- STB — STRAW BALE BARRIER
- SF — SILT FENCE
- IP — STORM DRAIN INLET PROTECTION
- ST — TEMPORARY SEDIMENT TRAP
- PF — PAVED FLUME
- OP — OUTLET PROTECTION
- RR — RIPRAP
- CD — CHECK DAM

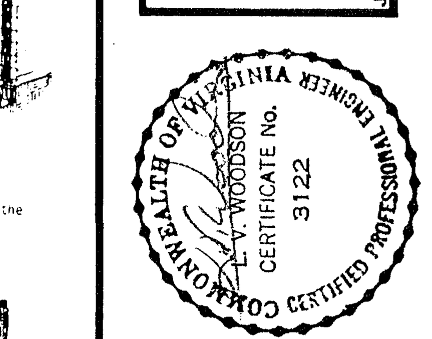
L. V. WOODSON & ASSOCIATES, INC.
ENGINEERS, SURVEYORS & PLANNERS
105 BACON AVENUE
WILLIAMSBURG, VIRGINIA 23185

DANIELS WELDING AND FABRICATION SERVICE

DETAILS AND NOTES

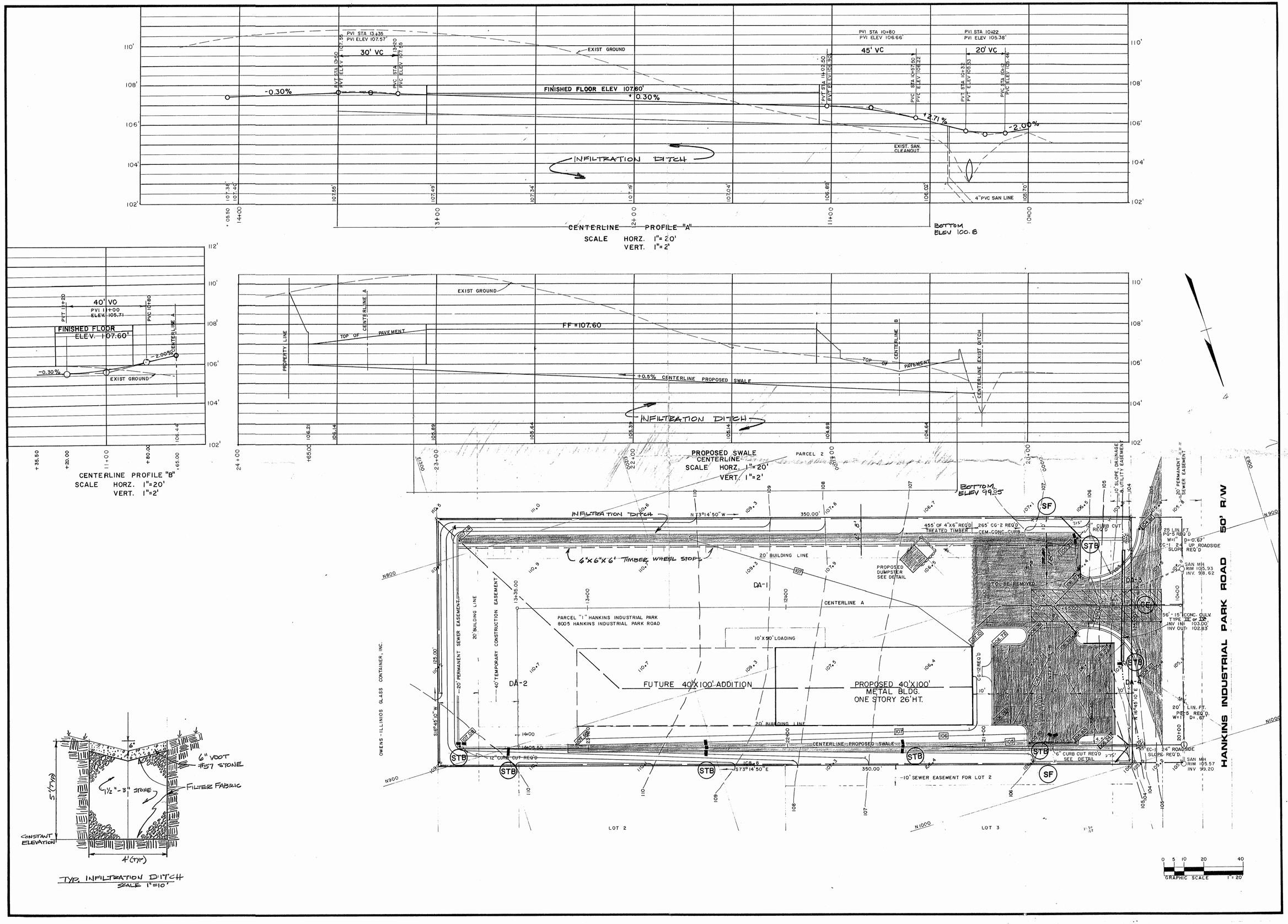
BRUCE E. DANIELS OWNER/DEVELOPER

JAMES CITY COUNTY VIRGINIA



No.	DATE	REVISION / COMMENT / NOTE	BY
1	11/16/89	Revised Per County Comments 11/8/89	BDN

Designed LVW	Drawn BDN
Scale 1"::20'	Date 9-20-89
Project No.	
Drawing No. A4481-4	



L. V. WOODSON & ASSOCIATES, INC.
ENGINEERS, SURVEYORS & PLANNERS
105 BACON AVENUE
WILLIAMSBURG, VIRGINIA 23185

DANIEL'S WELDING AND FABRICATION SERVICE
DRAINAGE, GRADING AND EROSION CONTROL PLAN
BRUCE E. DANIELS OWNER / DEVELOPER
JAMES CITY COUNTY VIRGINIA

No.	DATE	REVISION / COMMENT / NOTE	BY

Designed LVW	Drawn DAR
Scale 1"=20'	Date 9-20-89
Project No. A4481	
Drawing No. A4481-3	

WC002_DANIELS_WELDING_&_FABRICATION - 007

DANIELS WELDING & FABRICATION SERVICE

OCT 1989
RECEIVED
PLANNING DEPARTMENT

RUN-OFF ANALYSIS

FOR

RESERVOIR PROTECTION OVERLAY DISTRICT

COMMONWEALTH OF VIRGINIA
L. V. WOODSON
CERTIFICATE No.
3122
CERTIFIED PROFESSIONAL ENGINEER

L. V. WOODSON & ASSOCIATES, INC.
ENGINEERS, SURVEYORS & PLANNERS
105 BACON AVENUE
WILLIAMSBURG, VIRGINIA 23185

RUNOFF ANALYSIS RESERVOIR PROTECTION ZONE
DANIELS WELDING & FABRICATION
SPECIAL USE PERMIT
HANKIN'S INDUSTRIAL PARK
JAMES CITY COUNTY, VA.
OCTOBER 31, 1989

INTRODUCTION

The following runoff analysis is prepared based on The James City County Design Manual for Run-Off Analysis Reservoir Protection Overlay District. Storm water analysis for the site is furnished as a seperate document.

DISCUSSION

The proposed site is on (1) acre in area (125' x 350') and is located in Hankins Industrial Park at 8005 Hankins Industrial Park Road. It is zoned M-2. This area was under cultivation for many years, however it has not been used for agricultural purpose for seven years and a natural vegetated cover has developed. There are no trees or other woody plants on the site. Presently the rear of the site is at elevation 110 and it slopes toward Hankins Industrial Park Road at approximately 1%. After development the site will slope to both sides and gently to the front at 0.3%. The storm runoff will be carried to the front in open swales underlain by an infiltration ditch which will store the first 1 inch of runoff to improve and protect the water quality of the runoff. The soils at this site have been classified as Kempsville Emporia fine sand and Slagle fine sandy loam by USDA Soil Conservation Service. The entire area is underlain by a coarse sand which will receive the infiltration from the infiltration ditches.

METHODOLOGY

The "RATIONAL METHOD" was used to determine peak runoff rates. Storage values are based on the difference in predevelopment and post development runoff rates. Loading volumes for sediment and phosphorus were determined based on James City County Design Manual for Run-Off Analysis.

POLLUTION AND RUNOFF CONTROL

Infiltration ditches underneath the drainage swales will be constructed to contain the first 1" of runoff or the difference between the predevelopment-post development runoff for the 2 year storm, whichever is greater. A sediment and erosion control plan is submitted with the site plan which will protect the water quality during construction.

RUNOFF 1ST 1 INCH

DA-1 + DA-3 = 21,325 # ∴ V = (21,325)(1/12) = 1777 FT³

DA-2 + DA-3 = 17,585 # ∴ V = (17,585)(1/12) = 1465 FT³

DETENTION VOLUME SEE DWG A4481-3

DA-1 + DA-3 = 19,075 # + 2250 # = 21,325 # = 0.49 Ac

DA-2 + DA-4 = 14,675 # + 2910 # = 17,585 # = 0.41 Ac

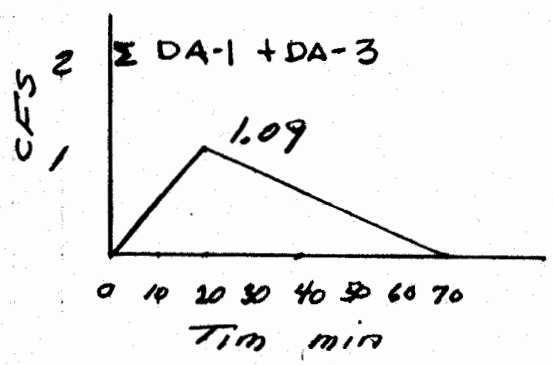
Predevelopment: C = 0.3 I_2 = 3.4 IN/HR T_c = 20 min

∴ DA-1 + DA-3 Q_2 = (0.49)(.3)(3.4) = 0.50 CFS
DA-2 + DA-4 Q_2 = (0.41)(.3)(3.4) = 0.42 CFS

Post Development: C = 0.95 I_2 = 3.4 IN/HR
DA-1 + DA-3 Q_2 = (0.49)(.95)(3.4) = 1.59 CFS
DA-2 + DA-4 Q_2 = (0.41)(.95)(3.4) = 1.32 CFS

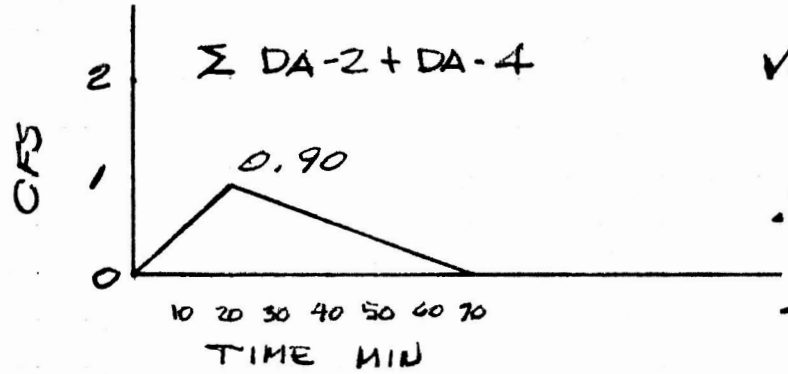
∴ ΔQ_2 DA-1 + DA-3 = 1.59 - 0.50 = 1.09 CFS

ΔQ_2 DA-2 + DA-4 = 1.32 - 0.42 = 0.90 CFS



Vol = ½(1.09)(20×60) + ½(1.09)(50×60)
= 654 + 1635 = 2289 FT³

∴ 2289 FT³ > 1777 FT³
∴ STORE 2289 FT³

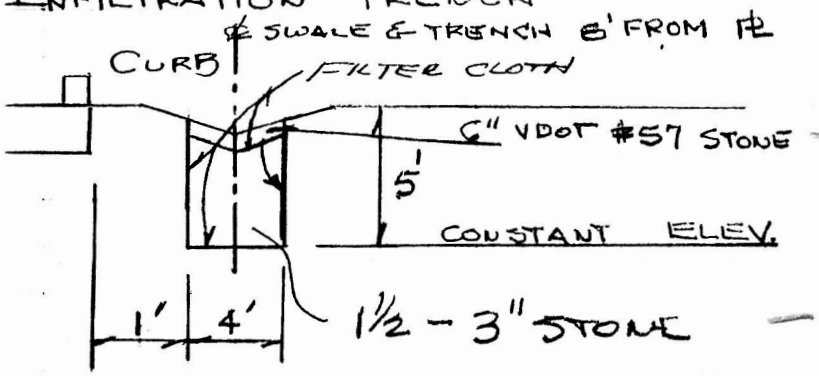


$Vol = \frac{1}{2}(.9)(20 \times 60) + \frac{1}{2}(.9)(50 \times 60) =$
$= 640 + 1350 = 1990\ FT^3$

$\therefore\ 1990 FT^3 > 1465 FT^3$

$\therefore$ STORE $1990 FT^3$

INFILTRATION TRENCH



1½" - same stone as used below -

move location

VOIDS RATIO 1½-3" STONE = 0.40

$\therefore$ STORAGE / FT = $(4.5' \times 4' \times 1')(.4) = 7.2\ FT^3/FT$

$\therefore$ STORAGE DITCH DA-1 + DA-3 = $2289 FT^3 / 7.2 FT^3/FT = 318'$

STORAGE DITCH DA-2 + DA-4 = $1990 FT^3 / 7.2 FT^3/FT = 277'$

NON-POINT POLLUTION EVALUATION

SEDIMENT:

PREDEVELOPMENT TABLE 2-1, IDLE LAND, SANDY LOAM
ANNUAL LOADING RATE = 0.01 TON/YR/ACRE
∴ DA-1 + DA-3 LOADING = (0.01)(0.49 AC) = 0.005 TON/YR

DA-1 + DA-3

POST DEVELOPMENT TABLE 2-1, HIGH IMPERVIOUSNESS, SANDY LOAM
ANNUAL LOADING RATE = 0.19 TON/YR/ACRE
∴ DA-1 - DA-3 LOADING = (0.19)(0.49 AC) = 0.093 TON/YR

∴ Δ LOADING = (0.093 - 0.005)(2000#)/100#/FT³ = 1.76 FT³/YR
STORED IN SWALE DA-1 + DA-3

PREDEVELOPMENT TABLE 2-1, IDLE LAND, SANDY LOAM
ANNUAL LOADING RATE = 0.01 TON/YR/AC
∴ DA-2 + DA-4 LOADING = (0.01)(0.41 AC) = 0.004 TON/YR

A-2 + A-4

POST DEVELOPMENT TABLE 2-1, HIGH IMPERVIOUSNESS, SANDY LOAM
ANNUAL LOADING RATE = 0.19 TON/YR/AC
∴ DA-2 + DA-4 LOADING = (0.19)(0.41 AC) = 0.078 TON/YR

∴ Δ LOADING = (.078 - .004)(2000)/100#/FT³ = 1.48 FT³/YR
STORED IN SWALE DA-2 + DA-4

PHOSPHORUS

PREDEVELOPMENT TABLE 2-2, IDLE LAND, SANDY LOAM
ANNUAL LOADING RATE = 0.10 lbs/YR/AC
∴ DA-1 + DA-3 LOADING = (0.10)(0.49 AC) = 0.049 lbs/YR

A-1 + A-3

POST DEVELOPMENT TABLE 2-2, HIGH IMPERVIOUSNESS, SANDY LOAM
ANNUAL LOADING RATE = 1.3 lbs/YR/AC.

∴ Δ LOADING = 1.3 - 0.049 = 1.25 lbs/YR
STORED IN INFILTRATION DITCH.

PHOSPHORUS CONT'D

PREDEVELOPMENT TABLE 2-2, IDLE LAND, SANDY LOAM
ANNUAL LOADING RATE = 0.10 lbs/YR/AC
∴ DA-2 + DA-4 LOADING = (0.10)(0.41 AC) = 0.041 lbs/YR

POST DEVELOPMENT TABLE 2-2, HIGH IMPERVIOUSNESS, SANDY LOAM
ANNUAL LOADING RATE = 1.3 lbs/YR/AC.
∴ DA-2 + DA-4 LOADING = (1.3)(0.41) = 0.533 lbs/YR

∴ Δ LOADING = 0.533 - 0.041 = 0.492 lbs/YR
STORED IN INFILTRATION DITCH.

1. Move trenches away from pavement @ least 10'
2. Change stone size on top to same as other stone
3. Soil test to verify infil rate is @ least

JO A4481
RPOL INFILTRATION TRENCH

DA-1 + DA-3
@ W = 6'

$$2563 + \left(\frac{1.13}{12}\right)(6)(200) - \left(\frac{16.8}{12}\right)\left(\frac{70}{60}\right)(6 \times 200)$$

$2563 + 113 - 1960 = 716\ FT^3$

∴ Total Vol @ .4 voids = $716\ FT^3 / .4 = 1790\ FT^3$

∴ Depth = $1700\ FT^3 / 6' \times 200' = 1.49\ FT$

@ W = 5'

$$2563 + \left(\frac{1.13}{12}\right)(5)(200) - \left(\frac{16.8}{12}\right)\left(\frac{70}{60}\right)(5 \times 200)$$

$2563 + 94 - 1633 = 1024\ FT^3$

∴ Total Vol @ .4 voids = $1024 / .4 = 2560\ FT^3$

∴ Depth = $2560 / 5 \times 200 = 2.56'$

DA2 + DA-4
@ W = 5'

$2153 + 94 - 1633 = 614\ FT^3$

∴ Total Vol @ .4 voids = $614 / .4 = 1535\ FT^3$

∴ @ W = 5' & D = 2.5
L = $1535\ FT^3 / 5' \times 2.5' = 122.8'$

WC 002

TRANSMITTAL

DATE: 2-5-90

TO: CODE COMPLIANCE, Darryl Cook
REAL ESTATE ASSESSMENTS*
VDOT

UCSA
HEALTH
FIRE

FROM: Mike Freda, Planner

SUBJECT: Case Number SP-123-89

Title Daniels Welding and Fabrication Service

ITEMS ATTACHED:

Approved site plan for your files
*Case file

RECEIVED 2-6-90

INSTRUCTIONS:

*Forward case file to Records Management

Return required by * 2-12-90

AGENCY'S COMMENTS:

L. V. WOODSON & ASSOCIATES, INC.
ENGINEERS, SURVEYORS & PLANNERS
105 BACON AVENUE
WILLIAMSBURG, VIRGINIA 23185

December 27, 1989

Mr. Michael A. Freda, Planner
James City County
101 Mounts Bay Road
Williamsburg, Va. 23185

RE: JO A4481, Daniels Welding and Fabrication Service, Case No. SP-123-89

Dear Mr. Freda:

Attcahed is a copy of the calculations showing the volumes of the infiltration trenches to be as outlined in your letter of December 21, 1989. Also attcahed are nine copies of the drawing A4481-3 with the revised cross section shown.

If you have any questions please call me.

very truly

L.V.Woodson PE

cc: Mr. Bruce Daniels

804-229-2472 Office ***804-565-2628 Residence***

Date Record Created:

Created By:

WS_BMPNO: WC002

Print Form

PRINTED ON:
Friday, March 12, 2010
12:14:16 PM

WATERSHED	WC
BMP ID NO	002
PLAN NO	SP-123-89
TAX PARCEL	(12-4)(1-16B)
PIN NO	12401000016B
CONSTRUCTION DATE	2/5/1990
PROJECT NAME	Daniels Welding & Fabrication
FACILITY LOCATION	8005 Hankins Industrial Park Road
CITY-STATE	Toano, VA
CURRENT OWNER	Bruce E. Daniels
OWNER ADDRESS	114 Old Stage Road
OWNER ADDRESS 2	
CITY-STATE-ZIP CODE	Toano, VA 23168
OWNER PHONE	
MAINT AGREEMENT	Yes
EMERG ACTION PLAN	No

Get Last BMP No

Return to Menu

MAINTENANCE PLAN	No	CTRL STRUC DESC	
SITE AREA acre	1	CTRL STRUC SIZE inches	
LAND USE	COMM	OTLT BARRL DESC	
old BMP TYP	Infiltration	OTLT BARRL SIZE inch	0
JCC BMP CODE	C3 Infiltration Basin .5		
POINT VALUE	9	EMERG SPILLWAY	No
		DESIGN HW ELEV	
		PERM POOL ELEV	
SVC DRAIN AREA acres	1	2-YR OUTFLOW cfs	
		10-YR OUTFLOW cfs	
		REC DRAWING	No
SERVICE AREA DESCRI	WAT QUAL = 0.035 AC FT		
IMPERV AREA acres		CONSTR CERTIF	No
RECV STREAM	WARE CK. TRIB		
EXT DET-WQ-CTRL	No	LAST INSP DATE	11/29/2001
WTR QUAL VOL acre-ft	0.04	INTERNAL RATING	4
CHAN PROT CTRL	No		
CHAN PROT VOL acre-ft	0.09	MISC/COMMENTS	
SW/FLOOD CONTROL	No		
GEOTECH REPORT	No		

Inspected by:

Additional Comments: