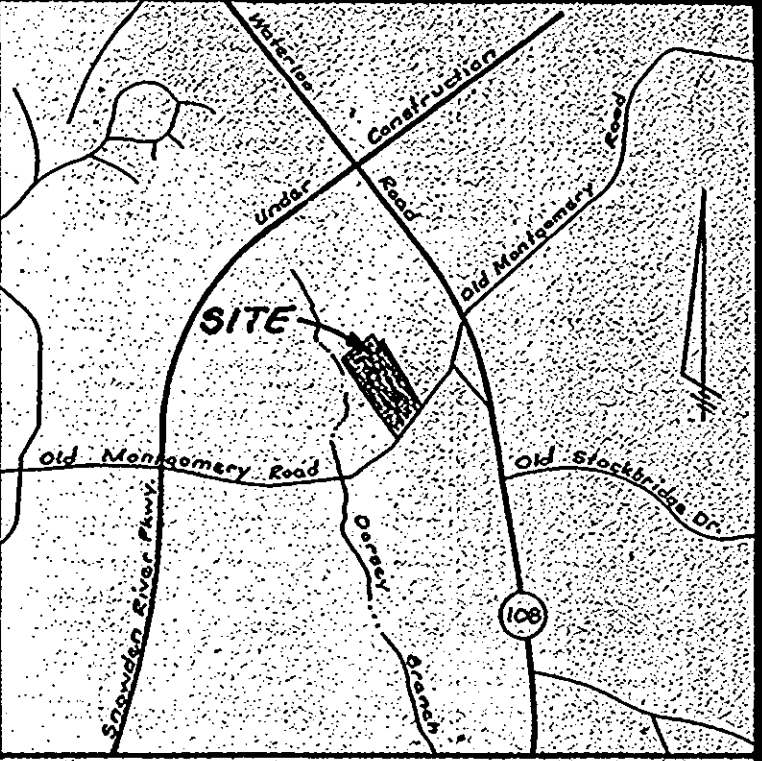


INDEX OF DRAWINGS

- C-1 - SITE DEVELOPMENT PLAN
- C-2 - SOIL EROSION AND SEDIMENT CONTROL PLAN
- C-3 - PAVING AND STORM DRAINAGE PLAN
- C-4 - SEWER AND WATER PLAN
- C-5 - SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
- C-6 - STORM DRAIN PROFILE
- C-7 - STORMWATER MANAGEMENT SPECIFICATIONS AND DETAILS
- C-8 - PLANTING PLAN
- C-9 - SITE DETAILS
- C-10 - SITE DETAILS
- C-11 - REVISED SITE DEVELOPMENT PLAN
- C-12 - REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN
- C-13 - REVISED PAVING AND STORM DRAINAGE PLAN
- C-14 - REVISED SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
- C-15 - STORM DRAIN PROFILES
- C-16 - STORM WATER MANAGEMENT PLAN
- C-17 - REVISED PLANTING PLAN
- C-18 - SITE DETAILS



SITE ANALYSIS

Total Site Area: 434,573 sq. ft. = 9.99 Ac.
 Ex. Zoning: NT Single Family, Low Density
 Prop. Uses: Business = 18,600 sq. ft.
 Assembly = 1,360 sq. ft.
 Storage = 0,000 sq. ft.
 Total # Employees = Ex. 32
 Prop. 32

* Required Parking Spaces: Ex. parking required: 132% = 22 spaces
 Prop. parking required: 33% = 22 spaces
 Total parking required: 22 spaces (5HC)

Total Parking Spaces Provided: 132 Spaces (5 Handicap)
 Ex. Building Coverage: 17,800 sq. ft.
 Prop. Building Coverage: 21,400 sq. ft.
 Total Building Coverage: 39,200 sq. ft. = 0.1%
 Total Open Space: 268,753 sq. ft. = 61.8%
 Final Development Plan: Phase G3

LEGEND

- Ex. Contour: 380
- Prop. Contour: 380
- Ex. Evergreen Tree
- Ex. Deciduous Tree
- Ex. Light Pole
- Ex. Fence
- Ex. Woods Line
- Construction Gasoline: 15% - 25% Steep Slope
- 20% Steep Slope
- Prop. Light Fixture
- Prop. Handicap Sign

SEE SHEET C-11 FOR REVISED 'SITE DEVELOPMENT PLAN'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Planning Director: *[Signature]* Date: 12/15/92
 Chief, Division of Community Planning and Land Development: *[Signature]* Date: 12/15/92

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.
 County Health Officer: *[Signature]* Date: 7/1/92

APPROVED: FOR PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 Director: *[Signature]* Date: 1/16/93
 Chief, Bureau of Engineering: *[Signature]* Date: 7/8/92

GENERAL NOTES

1. The Boundary & Topography Information shown hereon were prepared by The Howard County Department of Public Works.
2. The Building dimensions shown hereon are approximate, for exact building dimensions see architectural plans prepared by John Brunnett, Architect, P.A.
3. Handicapped access to the proposed building shall be via the front entrance on the eastern side of the building.

Note H.C. Parking changes see approved sketch

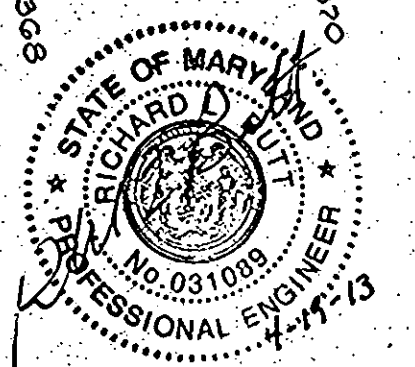
See As Built survey

Lot No.	Address Chart
P549	8250 Old Montgomery Road

Subdiv. Name	Sec./Acre	Lot/Parcel
Howard County Bureau of Utilities Office Facility		P549
Plot # on L/P	Block #	Zone
	788	210
Water Code	788	6
E07		355,000

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 31084 EXPIRATION DATE: 11-21-14

NOTE: NEW SEAL & SIGNATURE ARE APPLICABLE ONLY TO REVISIONS.



OWNER / DEVELOPER
 HOWARD COUNTY
 3450 COURT HOUSE DRIVE
 LICOTT CITY, MARYLAND 21045

BOYD & DOWGIALLO, P.A.
 ENGINEERS SURVEYORS PLANNERS
 405 HEADQUARTERS DRIVE
 SUITES 7 & 8
 MILLERSVILLE, MARYLAND 21108
 (410) 987-2500

JOHN BRUNETT, ARCHITECT, P.A.
 2205 ST. PAUL STREET
 BALTIMORE, MARYLAND 21218
 (410) 235-7506

OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES
 SDP#93-01, FORMERLY SDP#73-93

SITE DEVELOPMENT PLAN
 PREVIOUSLY APPROVED UNDER PROJ. GC0113
 ELECTION DISTRICT # 6 HOWARD COUNTY, MARYLAND
 CENSUS TRACT # 6066 02

PLAT BOOK 18, FOLIO 88
 TAX MAP 37, BLOCKS 7 & 8, PARCEL 549
 WATER CODE E07, SEWER CODE 355000

PROJECT NUMBER: W-8173
 DATE: APRIL 1992
 SCALE: 1" = 40'
 REVISIONS: DATE:
 ADD NOTES: FEBRUARY 25, 2013
 REV. 5117 NO.

SHEET NUMBER 1 OF 18
C-1

I hereby certify that all development and/or construction will be done according to these plans and that any necessary 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 will provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

Vanessa... 7/13/92
3144 Date

By the Engineer:
"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

Danny G. Boyd 10/21/92
Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for soil erosion and sediment control.

James W. Miller 12-2-92
Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Robert Z... 12/1/92
Date

LEGEND

- Ex. Contour
- Prop. Contour
- Ex. Woods Line
- Silt Fence
- Earth Dike
- Limit of Disturbance
- Stabilized Construction Entrance
- Chain Link Fence
- Prop. Retaining Wall
- Sediment Basin Baffle

SEE SHEET C-12 FOR REVISED "SOIL EROSION & SEDIMENT CONTROL PLAN"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Anna... 12/15/92
Date
Anna... 1/15/92
Date
Chief, Division of Community Planning and Land Development

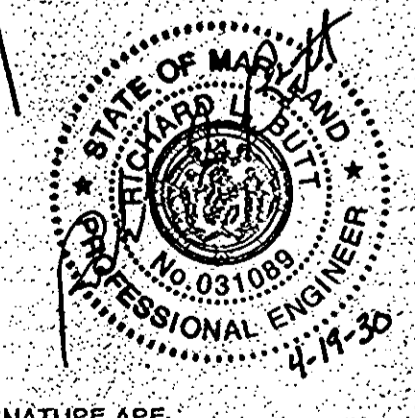
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS: HOWARD COUNTY HEALTH DEPARTMENT.

John... 7-16-92
Date
County Health Officer

APPROVED: FOR PUBLIC ROADS: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

Russell... 7/16/92
Date
Director, Acting

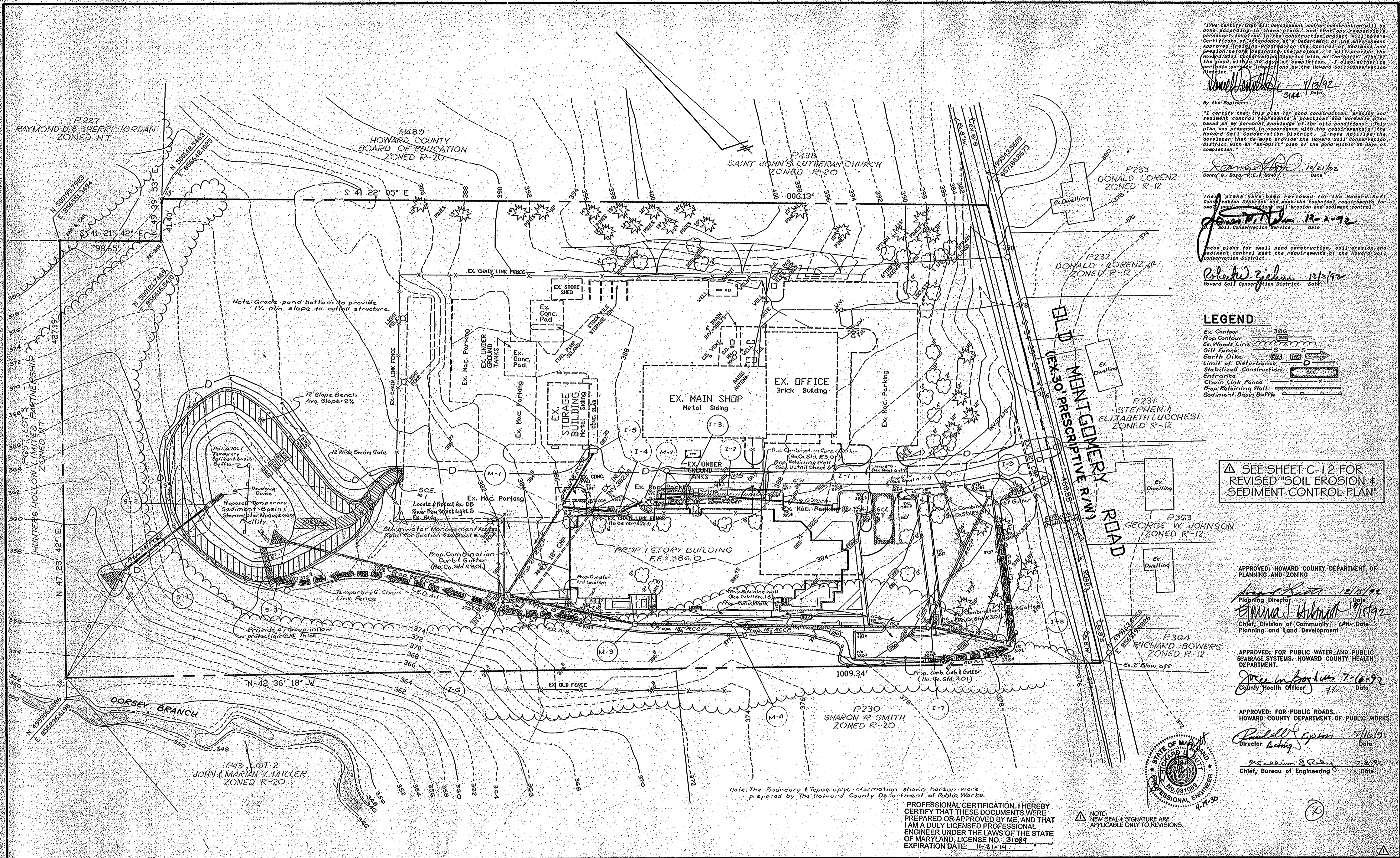
James... 7-8-92
Date
Chief, Bureau of Engineering



Note: The Boundary & Topographic information shown hereon were prepared by The Howard County Department of Public Works.

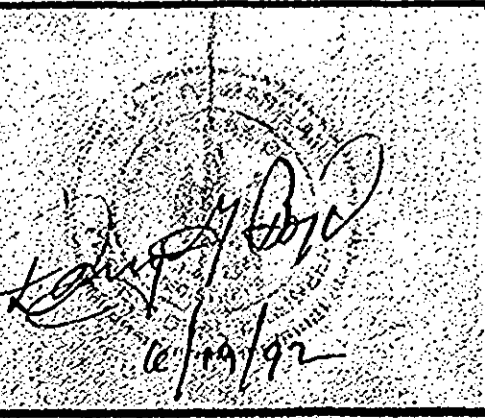
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 31089. EXPIRATION DATE: 11-21-14

NOTE: NEW SEAL & SIGNATURE ARE APPLICABLE ONLY TO REVISIONS.



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(410) 235-7506

OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES
SDP #93-01, FORMERLY SDP#73-95

SOIL EROSION AND SEDIMENT CONTROL PLAN
PREVIOUSLY APPROVED UNDER PROJ. GC0113
ELECTION DISTRICT # 6 HOWARD COUNTY, MARYLAND
CENSUS TRACT #6066.02

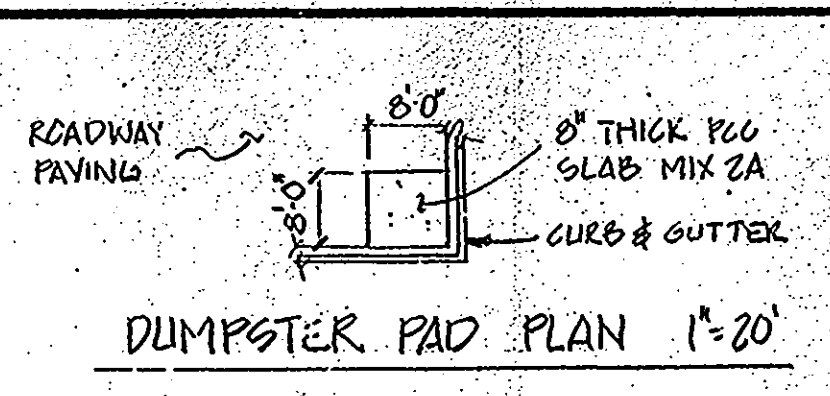
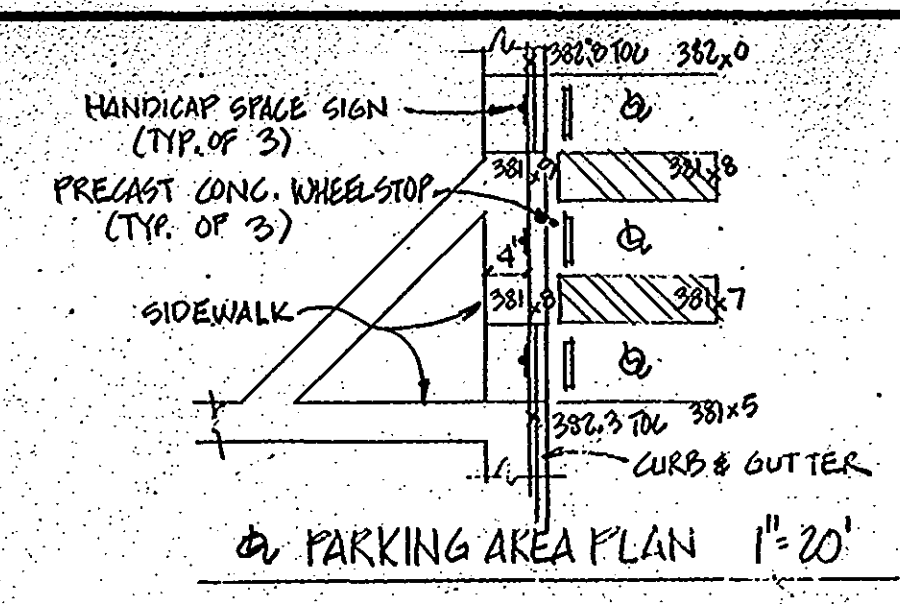
PLAT BOOK 18, FOLIO 88
TAX MAP 37, BLOCKS 7 & 8, PARCEL 549
WATER CODE E07, SEWER CODE 355000

PROJECT NUMBER: W-8173
DATE: APRIL 1992
REVISIONS: DATE:
ADD NOTE: FEBRUARY 25, 2013
REV. SHT. NO.

SHEET NUMBER 2 OF 10
C-2
J.O. 426

Boring #	Soil	Depth (ft)	Remarks
Boring #1	SC (Pass. Fill)	Elev. 320.4	
Boring #2	SC (Pass. Fill)	Elev. 320.7	
Boring #3	SC (Pass. Fill)	Elev. 320.6	
Boring #4	CL	Elev. 322.4	
Boring #5	CL	Elev. 321.9	
Boring #6	ML	Elev. 325.7	
Boring #7	ML	Elev. 325.6	

BORING RESULTS
Not To Scale
P-227
RAYMOND D. & SHERRI JORDAN
ZONED R-12



STRUCTURE SCHEDULE					
No.	Type	Inv. In	Inv. Out	Top Elev.	Remarks
I-1	5' Gully	382.00	385.0	385.0	S.D. 4.32
I-2	Yard	381.40	380.0	385.0	S.D. 4.14
I-3	Yard	380.75	378.0	385.0	S.D. 4.14
I-4	Ditch	377.80	377.80	385.5	S.D. 4.23
I-5	Ditch	375.80	375.80	385.5	S.D. 4.23
I-6	5' Gully	374.40	368.21	381.5	S.D. 4.32
I-7	5' Gully	373.80	373.80	380.2	S.D. 4.32
I-8	5' Gully	374.75	374.75	378.4	S.D. 4.32
I-9	5' Gully	375.50	375.50	378.7	S.D. 4.32
M-1	Shallow	377.00	376.50	381.0	G. 6.05
M-2	Shallow	378.70	378.20	381.0	G. 6.05
M-3	Shallow	371.23	370.78	388.0	G. 6.01
M-4	Shallow	378.42	371.92	380.5	G. 6.05
S-1	Shallow	389.00	389.00	389.0	S.D. 4.31
S-2	Shallow	386.60	386.60	386.60	See Detail Sheet T-17
S-3	Shallow	386.00	386.00	386.00	S.D. 4.31

See opp page

LEGEND

- Ex. Contour: ---
- Prop. Contour: - - -
- Ex. Woods Line: ~~~~~
- Chain Link Fence: -X-X-X-
- Prop. Retaining Wall: - - -
- Drainage Area Limit: - - -
- Boring Location: (Symbol)
- New Roadway Paving: (Symbol)
- New Sidewalk Paving: (Symbol)
- New Comb Curb & Gutter: (Symbol)

SOIL LEGEND

- EV-C = Evesboro Loamy Sand
- S1B2 = Sassafras Loam
- S1C2 = Sassafras Loam
- CD3 = Chillum Fairfax loam
- ENB2 = Elainora loam
- MCE = Montalto & Relay Soils

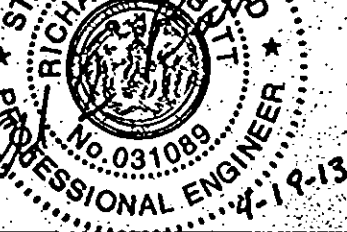
SEE SHEET C-13 FOR
REVISED "PAVING &
STORM DRAINAGE PLAN"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
James H. Brown 12/15/92
 Planning Director
Thomas H. Brown 12/15/92
 Chief, Division of Community Planning and Land Development
 APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS: HOWARD COUNTY HEALTH DEPARTMENT.
James H. Brown 7-16-92
 County Health Officer
 APPROVED: FOR PUBLIC ROADS: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
Paul J. Brown 7/16/92
 Director
James H. Brown 7-8-92
 Chief, Bureau of Engineering

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31089, EXPIRATION DATE: 11-21-14

Typical Paving Section
 1 1/2" Bituminous Conc. Surface Course
 5" Bituminous Conc. Base Course
 6" Crusher Run Gravel

Typical Sidewalk Section
 5" Portland Cement Conc., Mx 2A



NOTE: NEW SEAL & SIGNATURE ARE APPLICABLE ONLY TO REVISIONS.

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 2205 ST. PAUL STREET
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 (410) 235-7506

OFFICE AND SHOP FACILITY
 HOWARD COUNTY BUREAU OF UTILITIES
 SDP# 93-01, FORMERLY SDP# 75-05

PAVING AND STORM DRAINAGE PLAN
 PREVIOUSLY APPROVED UNDER PROJ. GC0113
 ELECTION DISTRICT # 6 HOWARD COUNTY, MARYLAND
 CENSUS TRACT 6066.02

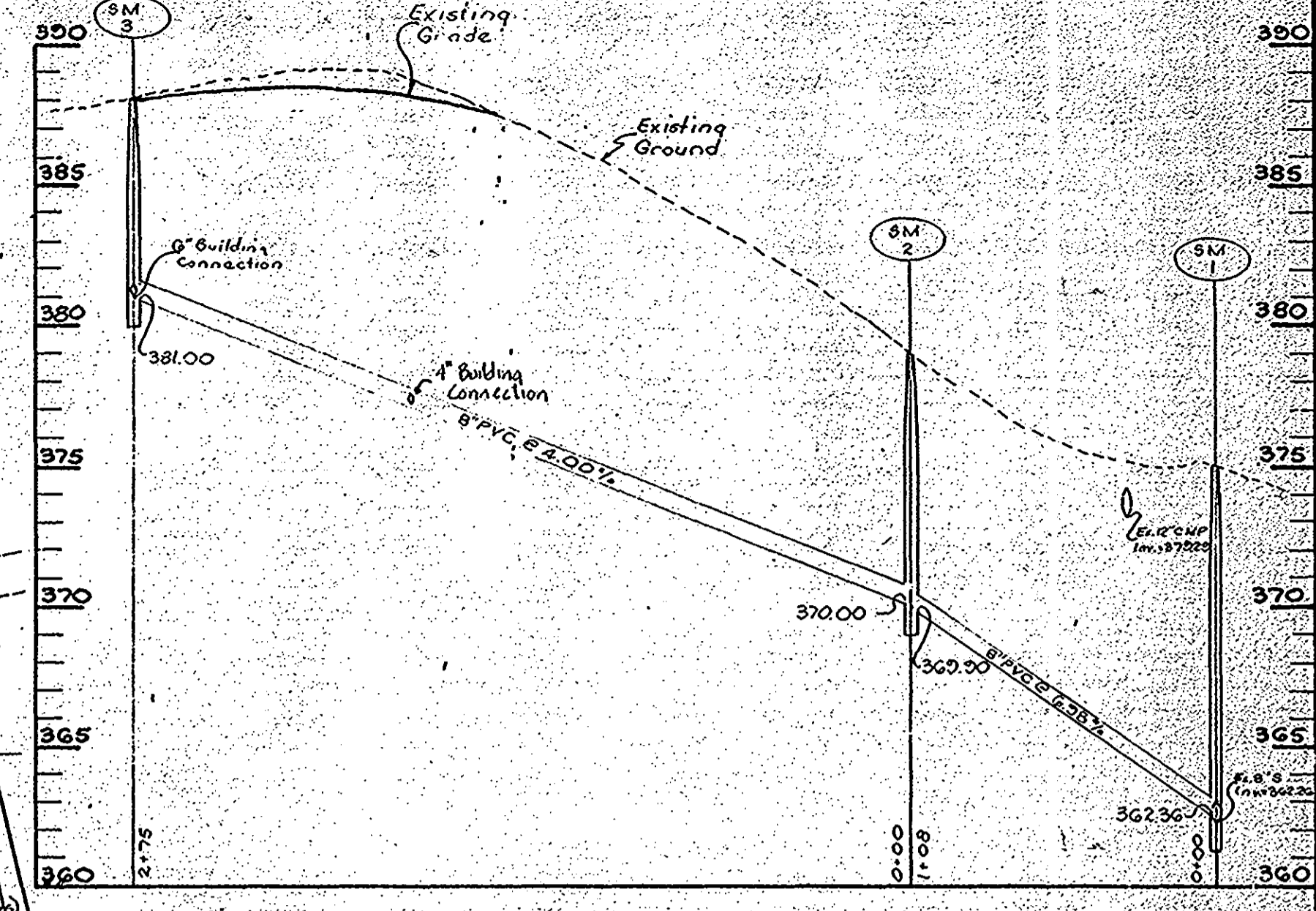
PROJECT NUMBER: W-8173
 DATE: APRIL 1992
 SCALE: 1"=40'
 REVISIONS: _____ DATE: _____
 ADD NOTE REV. SHEET NO. FEBRUARY 25, 2013
 SHEET NUMBER: 3 OF 8
 C-3
 U.C. 49C

SEWER MANHOLE SCHEDULE			
No.	North	East	Remarks
MH-1	499,339.28	857,041.00	C.S. II
MH-2	499,339.47	856,964.81	C.S. II
MH-3	499,601.05	856,783.18	C.S. II

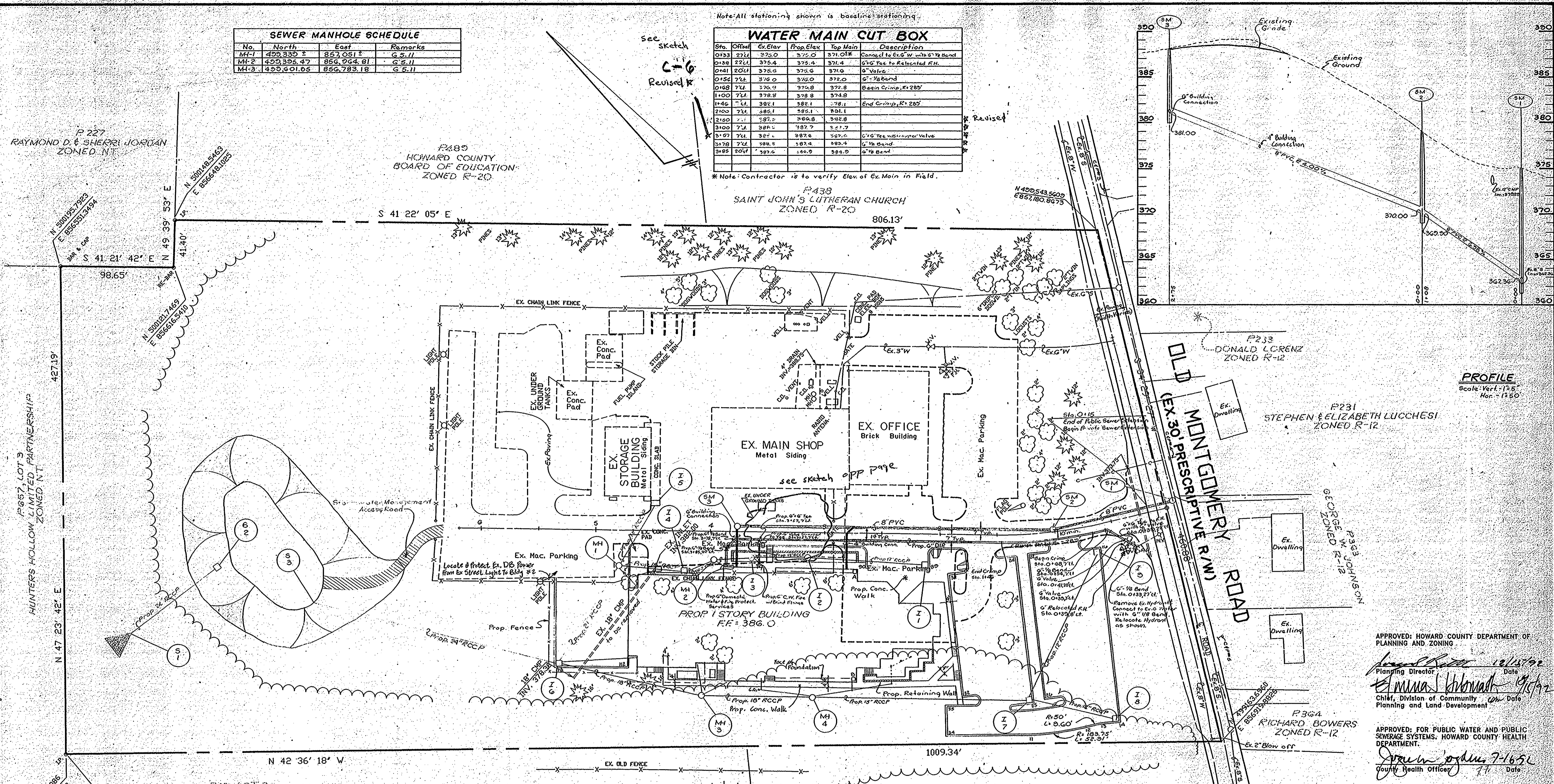
Note: All stationing shown is baseline stationing.

WATER MAIN CUT BOX					
Sta.	Offset	Ex. Elev.	Prop. Elev.	Top Main	Description
0+33	27.6	375.0	375.0	371.0	Connected to Ex. G.W. with 6" 1/2 Band
0+38	27.6	375.4	375.4	371.4	6" G. Tee to Relocated FH.
0+41	20.6	375.6	375.6	371.6	6" Valve
0+52	7.4	376.0	376.0	372.0	6" 1/2 Band
0+68	7.4	376.0	376.0	372.8	Basin Crimp, R=285'
1+00	7.4	376.8	376.8	374.8	Basin Crimp, R=285'
1+46	7.4	381.9	381.9	378.9	End Crimp, R=285'
2+00	7.4	385.1	385.1	381.1	6" 1/2 Band
2+10	7.4	387.2	387.2	383.2	6" 1/2 Band
3+00	7.4	388.4	388.4	384.4	6" 1/2 Band
3+07	7.4	387.4	387.4	383.4	6" G. Tee with 6" 1/2 Valve
3+78	7.4	388.5	388.5	384.5	6" 1/2 Band
3+85	20.6	387.6	387.6	383.6	6" 1/2 Band

* Note: Contractor is to verify Elev. of Ex. Main in Field.



PROFILE
Scale: Vert. = 1" = 5'
Hor. = 1" = 50'



BASELINE DATA			
Station	North	East	Remarks
0+00.00	499,339.28	857,041.00	Begin
0+38.74	499,339.26	856,991.92	P.C.
1+34.29	499,418.67	856,935.09	P.T.
6+22.67	499,785.29	856,812.58	End

BASELINE CURVE DATA
From P.C. Sta. 0+38.74 to P.T. Sta. 1+34.29
R = 282.36'
C = 75.55'
Δ = 15° 19' 46"
T = 38.00'
Chd. N 49° 00' 04" W 75.32'

STORM DRAIN DATA			
No.	North	East	Remarks
S-1	499,935.09	856,354.00	Structure
S-2	499,915.00	856,455.00	Structure
S-3	499,835.00	856,480.00	Structure
I-1	499,453.18	856,864.77	Corner Inlet @ Flow Line
I-2	499,341.98	856,793.71	Grate
I-3	499,375.02	856,770.65	Grate
I-4	499,618.95	856,719.52	Grate
I-5	-	-	Abut. Ex. curb & conc. slab
I-6	499,642.91	856,578.21	Corner Inlet @ Flow Line
I-7	499,598.31	856,535.87	Corner Inlet @ Flow Line
I-8	499,242.80	856,372.07	Corner Inlet @ Flow Line
I-9	499,356.69	856,375.12	Corner Inlet @ Flow Line
M-1	499,601.81	856,681.45	Manhole
M-2	499,600.38	856,741.94	Manhole
M-3	499,520.82	856,649.61	Manhole
M-4	499,453.24	856,709.05	Manhole

* Note: See Sheet 3 of 7 for Std. Detail Numbers.

CURB DATA			
Point	North	East	Remarks
11	499,391.79	856,813.17	
12	499,358.51	856,854.06	
13	499,252.82	856,861.78	
14	499,242.80	856,872.94	
15	499,356.69	856,875.12	
22	499,397.50	856,931.12	
24	499,404.33	856,922.92	
25	499,398.31	856,832.87	
26	499,303.71	856,846.98	
31	499,436.95	856,870.68	
32	499,358.05	856,799.89	
34	499,344.40	856,764.78	
35	499,361.33	856,783.19	
88	499,445.18	856,864.77	
90	499,493.72	856,829.10	
112	499,596.36	856,619.16	
113	499,642.91	856,578.21	

* Note: Above coordinates are to flow line of curb.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31089, EXPIRATION DATE: 11-21-14.

BUILDING DATA			
Point	North	East	Remarks
A	499,502.08	856,820.58	€ of Column I-11
B	499,436.03	856,745.50	€ of Column I-6

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Planning Director: *[Signature]* Date: 11/15/92
 Chief, Division of Community Planning and Land Development: *[Signature]* Date: 9/15/92

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS. HOWARD COUNTY HEALTH DEPARTMENT.
 County Health Officer: *[Signature]* Date: 7-16-92

APPROVED: FOR PUBLIC ROADS. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 Director: *[Signature]* Date: 11/16/92
 Chief, Bureau of Engineering: *[Signature]* Date: 7-8-92



OWNER/DEVELOPER:
 HOWARD COUNTY
 3450 COURT HOUSE DRIVE
 ELLICOTT CITY, MARYLAND 21045

BOYD & DOWGIALLO, P.A.
 ENGINEERS SURVEYORS PLANNERS
 405 HEADQUARTERS DRIVE
 SUITES 7 & 8
 MILLERSVILLE, MARYLAND 21108
 (410) 987-2500

[Signature]
 6/19/92

JOHN BRUNETT, ARCHITECT, P.A.
 2205 ST. PAUL STREET
 BALTIMORE, MARYLAND 21218
 (410) 235-7506

PROJECT NUMBER: W-8173
 DATE: APRIL, 1992
 SCALE: 1" = 40'
 REVISIONS: _____ DATE: _____
 ADD NOTE: FEBRUARY 25, 1993
 REV. SHT. NO. _____

OFFICE AND SHOP FACILITY
 HOWARD COUNTY BUREAU OF UTILITIES
 SDP#93-01, FORMERLY SDP#73-95

SEWER AND WATER PLAN
 PLAT BOOK 18, FOLIO 88
 TAX MAP 37, BLOCKS 7 & 8, PARCEL 549
 WATER CODE E07, SEWER CODE 355000

SHEET NUMBER: 4 OF 8
 C-4
 1/0/96

**HOWARD COUNTY CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL RULES**

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction, (800-34501).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in accordance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
3. Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within 14 calendar days for all disturbed areas, and within 30 days for all disturbed areas on steep slopes or in riparian areas. The minimum depth shall be four feet, but wide enough to permit operation of excavation and compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for embankment. The trench shall be dewatered during the backfilling/compaction operations.
4. All sediment traps/basins shall 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 1985 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51), and (Sec. 51) Temporary seeding (Sec. 52) and mulching (Sec. 52). Temporary stabilization with such alone can only be done when recommended seeding rates 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**
 (a) Total Area of Site: 10.00 Acres
 (b) Area to be graded or paved: 5.00 Acres
 (c) Area to be vegetatively stabilized: 1.45 Acres
 (d) Total Cut: 50.00 Cu. Yds.
 (e) Total Fill: 20.00 Cu. Yds.
 (f) Offsite water/collection location: _____
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 control 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 or grading inspection. Approval may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which can be back filled and stabilized within one working day, whichever is shorter.

**HOWARD COUNTY CONSERVATION DISTRICT
TEMPORARY SEEDING RULES**

Apply to graded or cleared areas not subject to immediate further disturbance above a permanent installed vegetative cover is needed.

Seeded Preparation: Loosen upper three inches of soil by raking, diking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: In lieu of soil test recommendations, use one of the following seed mixes:

1. **Option A:** Apply 2 tons per acre dolomitic limestone (82 lbs/1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harvest or disk into upper three inches of soil. At the end of the season, apply 400 lbs per acre urea/ammonia fertilizer (9 lbs/1000 sq. ft.).
2. **Option B:** Apply 2 tons per acre dolomitic limestone (82 lbs/1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harvest or disk into the upper three inches of soil.

Seeding: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 150 lbs per acre (3.5 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) - 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) - use seed Option (2) with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulch: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unwashed small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 200 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 ft. or higher, use 340 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

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

TEMPORARY SEEDING RULES

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

Seeded Preparation: Loosen upper three inches of soil by raking, diking or other acceptable means before seeding, if not previously loosened.

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

Seeding: For periods March 1 thru April 30 and from August 15 thru October 15, seed with 1 1/2 bushel per acre of annual ryegrass (3.2 lbs/1000 sq. ft.). For the period May 1 thru August 14, seed with 1 lb per acre of weeping lovegrass (2.7 lbs/1000 sq. ft.). For the period November 15 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use seed.

Mulch: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unwashed small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 200 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 ft. or higher, use 340 gal per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1985 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional control and methods not covered.

CONSTRUCTION POND MAINTENANCE REQUIREMENTS

1. **Inspection Schedule:**
Drainage systems must be inspected in a routine basis to ensure that they are functioning properly. Inspections can be made in a continuous basis but should always be conducted following major storms.
2. **Turf Maintenance:**
Grasses of the fescue family are recommended for seeding, primarily due to their adaptability to dry soils, drought resistance, hardiness, and ability to withstand heavy inundations. The use of fescues will also permit long intervals between mowings. Mowing twice a year, once in June and again in September, is generally satisfactory. Fertilization with 10-0-4 ratio fertilizer at a rate of 300 lbs. per acre (11 lbs. per 1,000 sq. ft.) may be required the second year after seeding.

CONSTRUCTION SPECIFICATIONS

Site Preparation:
Areas under the embankment shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots or other objectionable material. In order to facilitate clean-out and restoration, the pool area (measured at the top of the pipe spillway) will be cleared of all brush, trees, and other objectionable materials.

Cut-off Trench:
A cut-off trench shall be excavated along the centerline of earth fill embankments. The minimum depth shall be two feet. The cut-off trench shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be four feet, but wide enough to permit operation of excavation and compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for embankment. The trench shall be dewatered during the backfilling/compaction operations.

Brosion and Pollution Control:
Construction operations shall be carried out in such a manner that erosion and water pollution will be minimized. State and local laws shall be complied with concerning pollution abatement.

Safety:
State and local requirements shall be met concerning fencing and signs, warning the public of hazards of soft sediment and floodwater.

Maintenance:
1. Repair all damages caused by soil erosion and construction equipment at or before the end of each working day.
2. Sediment shall be removed from the basin when it reaches the specified distance below the top of the riser. This sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the embankment, adjacent to a stream or flood plain.

Final Disposal:
When temporary structures have served their intended purpose and the contributing drainage area has been properly stabilized, the embankment and resulting sediment deposits are to be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will often dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the basin material and stripped sediments must be removed, safely disposed of, and backfilled with a structural fill. When the basin area is to remain open space the pond may be pumped dry, graded and back filled.

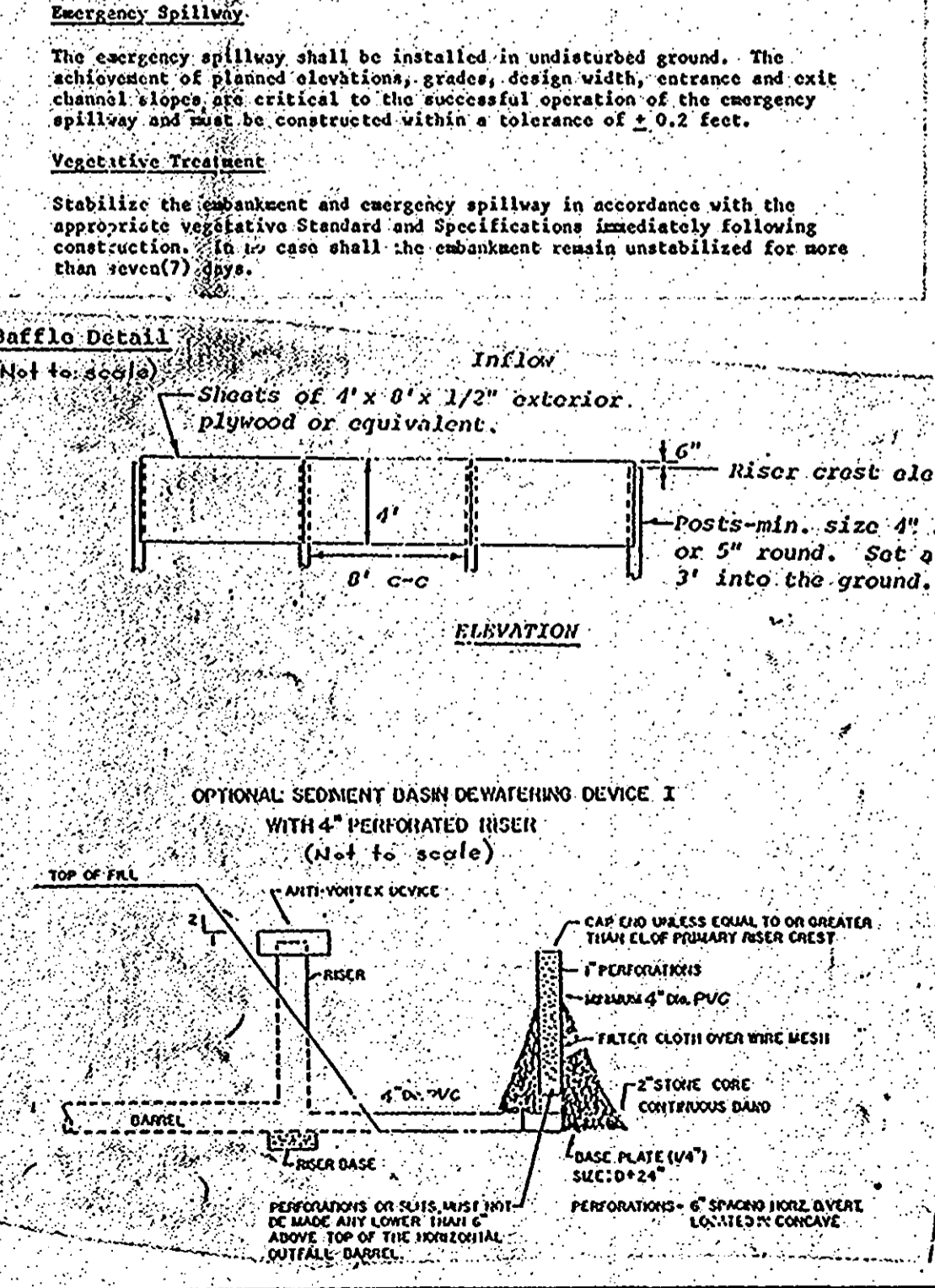
Embarkment:
The fill material shall be taken from approved areas shown on the plans. It shall be clean mineral soil free of roots, woody vegetation, overlarge stones, rocks, or other objectionable material. Relatively pervious materials such as sand or gravel (Unified Soil Classes GW, GP, SM & SP) shall not be placed in the embankment. Areas on which fill is to be placed shall be scarified prior to placement of fill. The fill material shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Fill material shall be placed six-inch to eight-inch thick contiguous layers over the entire length of the fill. Compaction shall be obtained by raking and hauling the construction equipment over the fill so that the entire surface of each layer of the fill is traversed by at least one wheel or tread track of the equipment or by the use of a compactor. The embankment shall be constructed to an elevation 10 percent higher than the design height to allow for settlement.

Pipe Spillways:
The riser shall be securely attached to the barrel or barrel stub by welding the full circumference making a watertight structural connection. The barrel stub must be attached to the riser at the same percent (angle) of grade as the outlet conduit. The connection between the riser and the riser base shall be watertight. All connections between barrel sections must be achieved by approved watertight band assemblies. (See page 18.22 for details.) The barrel and riser shall be placed on a firm, smooth foundation of impervious soil. Pervious materials such as sand, gravel, or crushed stone shall not be used as backfill around the pipe or anti-seep collars. The fill material around the pipe spillway shall be placed in four inch layers and compacted under and around the pipe to at least the same density as the adjacent embankment.

A minimum depth of two feet of hand compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment. Steel base plates on risers shall have at least 2-1/2 feet of compacted earth, stone or gravel placed over it to prevent flotation.

Emergency Spillway:
The emergency spillway shall be installed in undisturbed ground. The achievement of planned elevations, grades, design width, entrance and exit channel layout, etc. is critical to the successful operation of the emergency spillway and must be constructed within a tolerance of ± 0.2 feet.

Vegetative Treatment:
Stabilize the embankment and emergency spillway in accordance with the appropriate vegetative Standard and Specification immediately following construction. The soil shall remain until the embankment remains unstabilized for more than seven(7) days.



U.S. Department of Agriculture
Soil Conservation Service
POND SUMMARY SHEET

RD-ENG-14
(Rev. 10-87)
References:
SCS-ND-178

Project Name: Howard County Dept. of Public Works
Address: 3480 Courthouse Plaza
City: Ellicott City
State: Md. Zip: 21033

Drainage Area: 4.88 acres
Surface Area: 4.88 acres
Normal Depth: 6.0 ft.

HAZARD CLASS: ① D C

OTHER INFORMATION:
Name: Howard County Dept. of Public Works TYPE OF POND: Excavated
 Embankment
 Both

PURPOSE OF POND (check all that apply):
 Stormwater Mgmt. - Wet Water Supply/Irrigation
 Stormwater Mgmt. - Dry Livestock Wildlife/Fish
 Infiltration Flood Control Fire Control
 Sediment Control Recreation Other

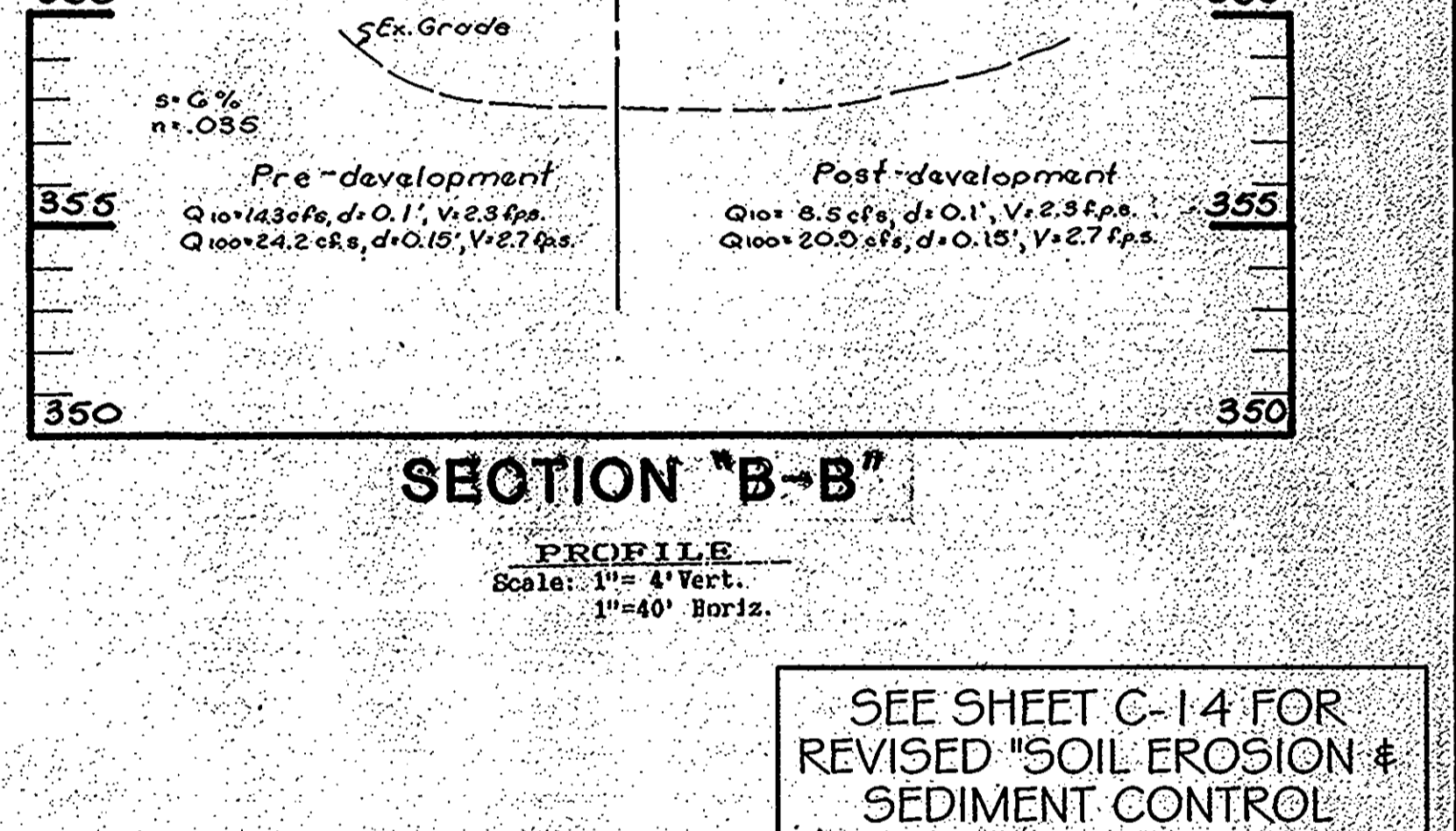
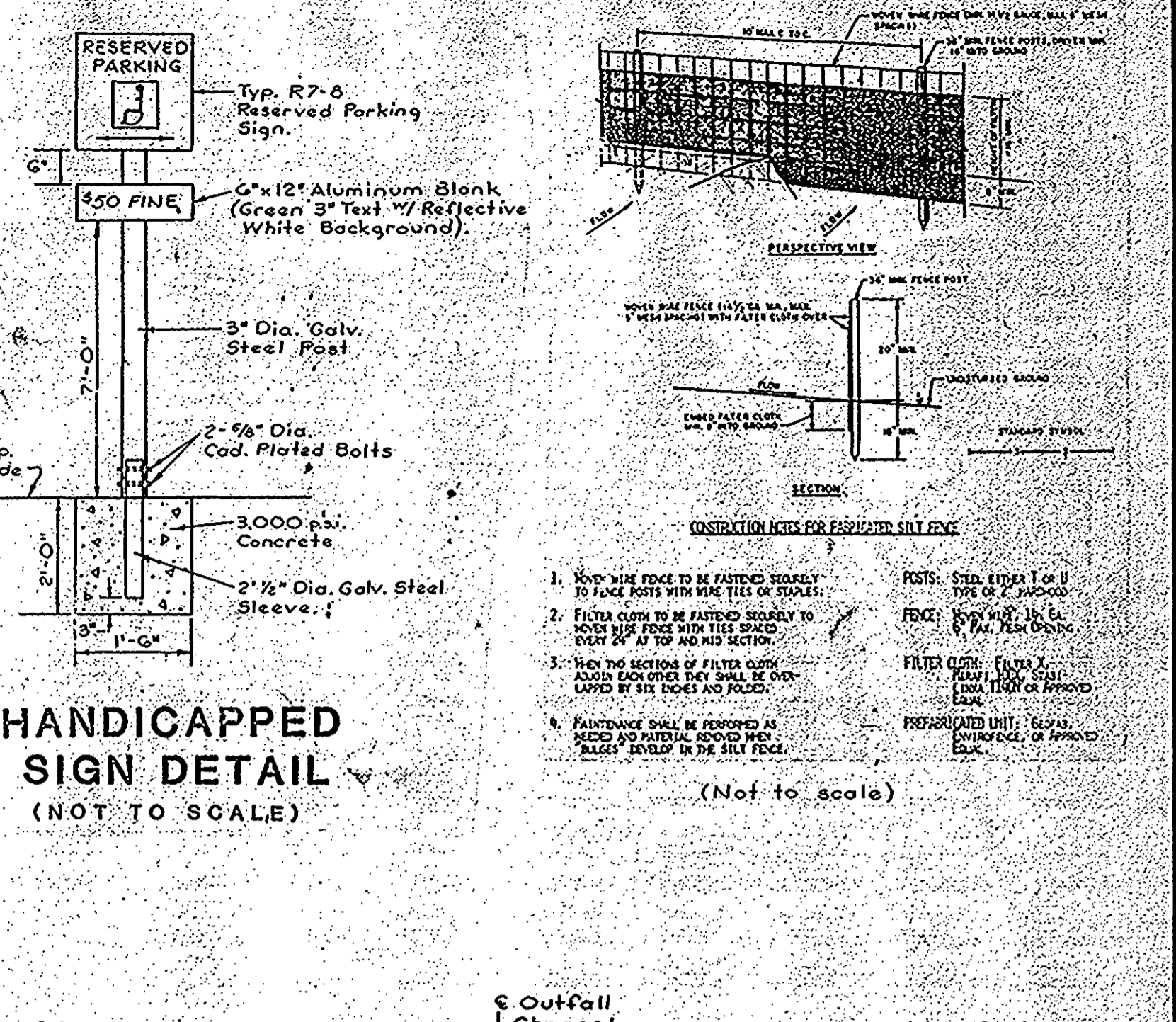
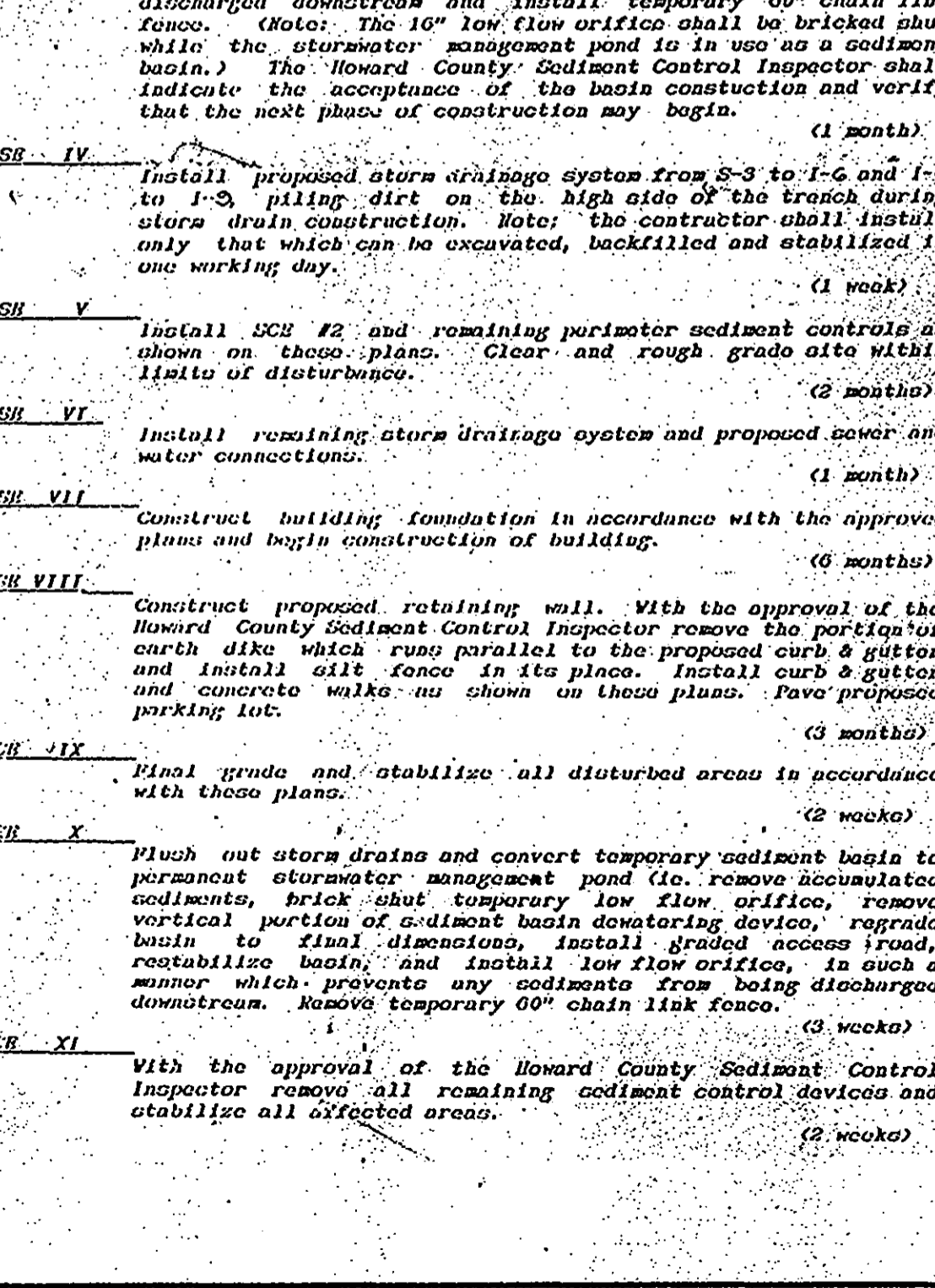
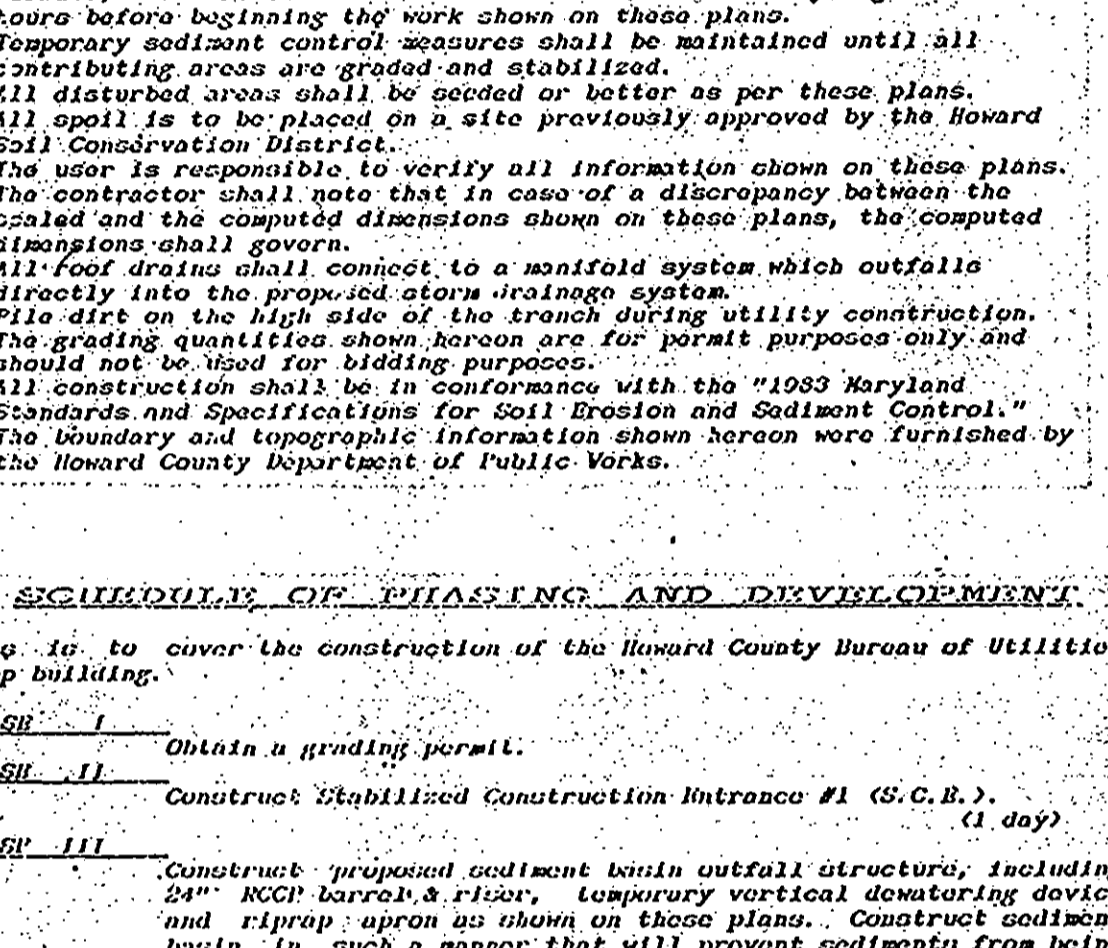
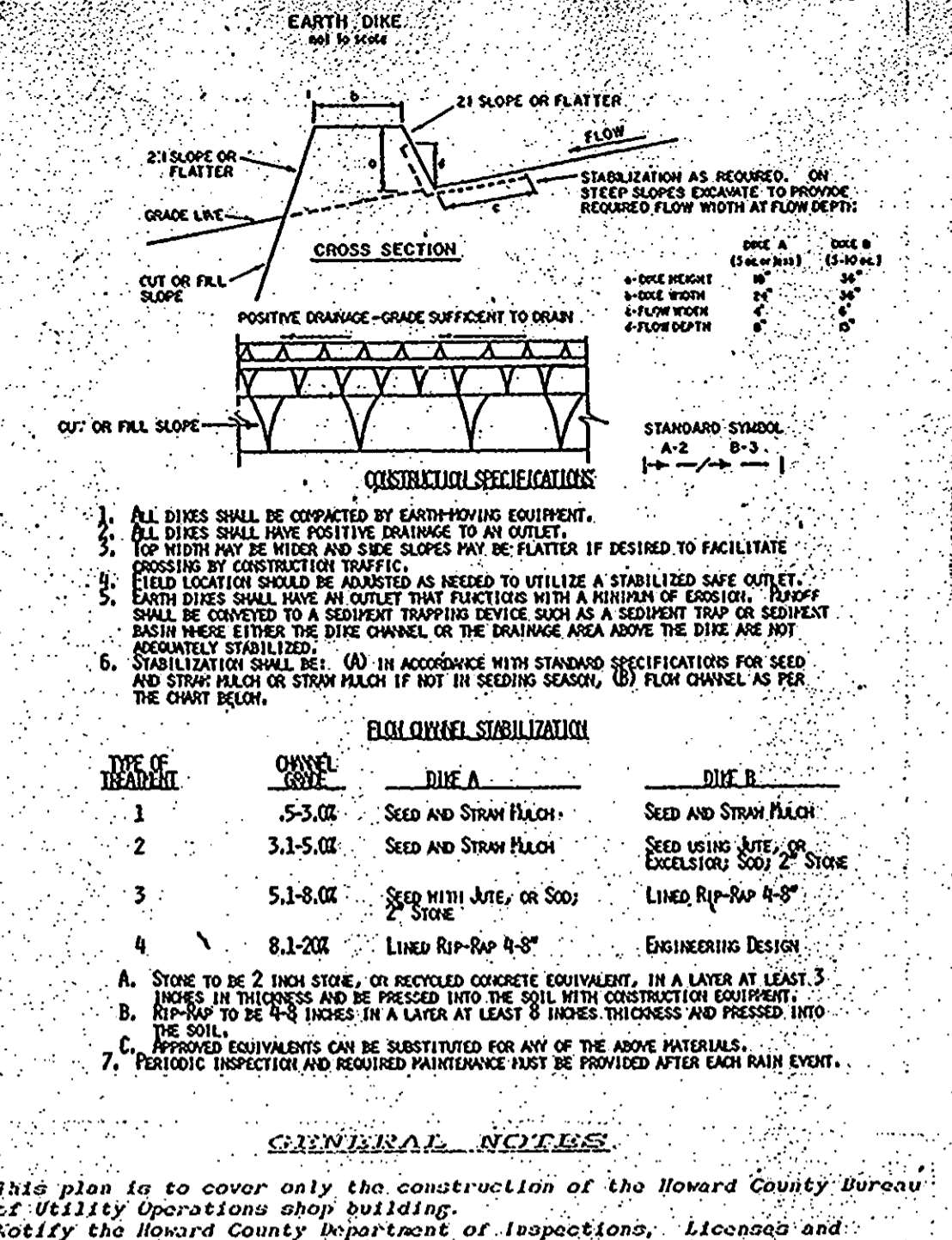
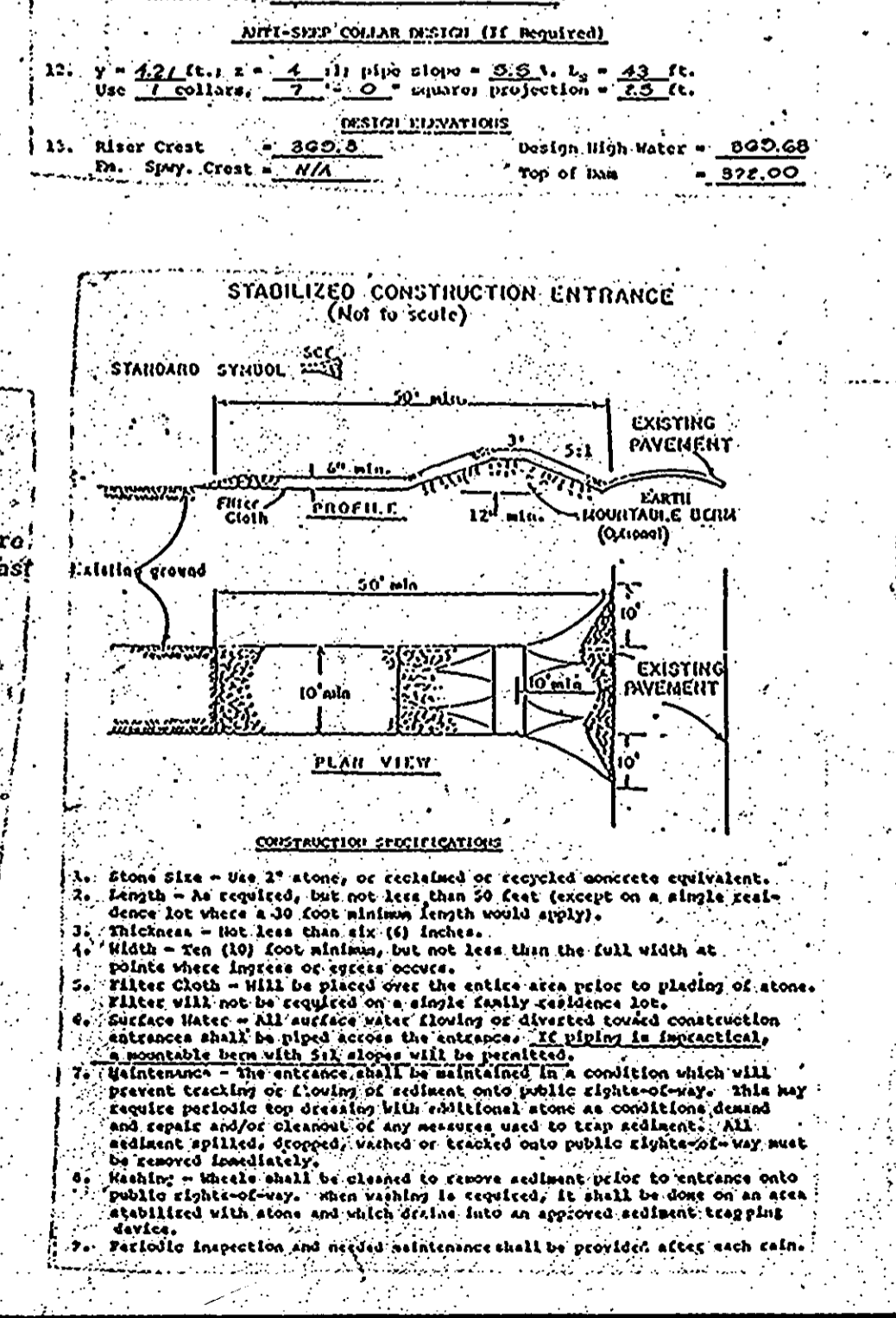
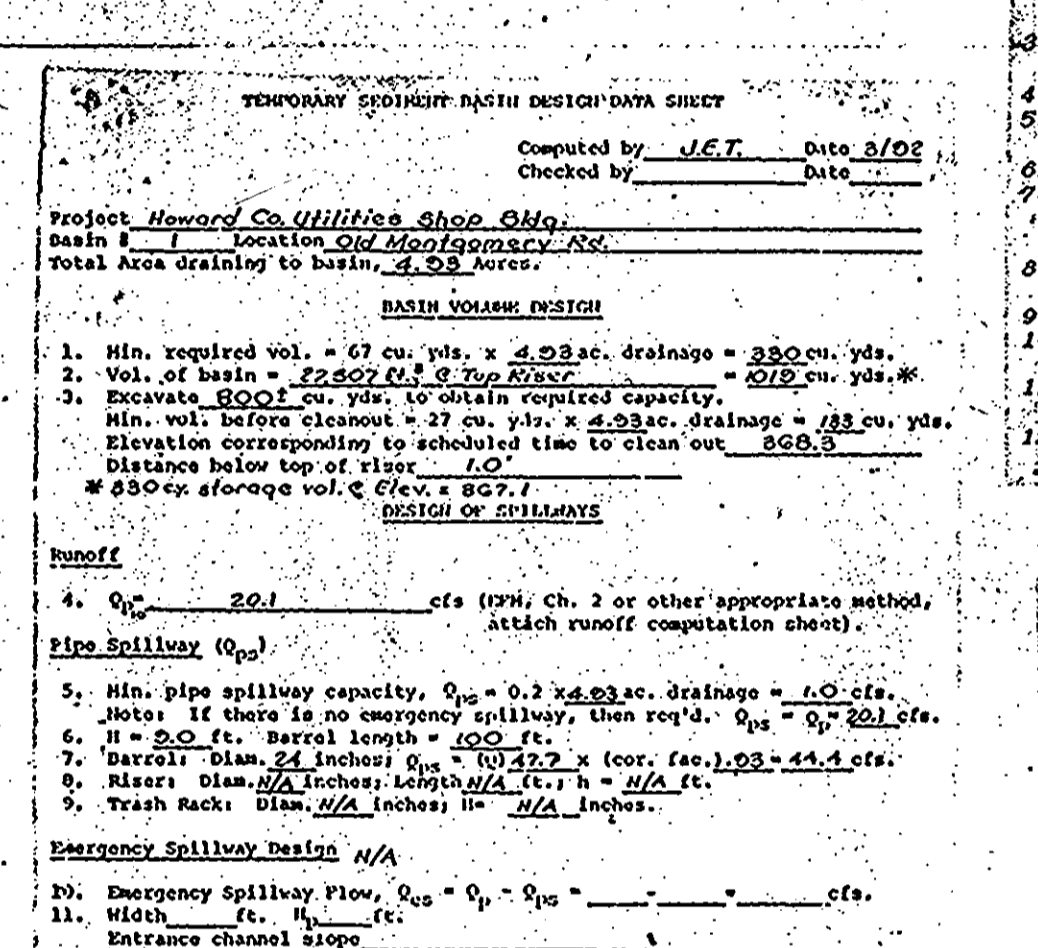
EMPHASIS: Storage at DWH 0.56 ac-ft
 Max. Fill Height: 1 ft.
 Normal Pool Elev: 828.84 ft.
 Side Slopes: U.S. 1 1
 Top Width: 6 ft. D.S. 3 11

PRINCIPAL SPILLWAY:
Diameter: 24 inches Capacity: 34 CFS
Type: 0 BCPH 0 Alum 0 RCP 0 PVC 0 Other (Specify) _____

EMERGENCY SPILLWAY: N/A Design Storm Frequency: _____ yr
Crest Elev: _____ ft Capacity: _____ CFS
Bottom Width: _____ ft Max. Water Elev: _____ ft
Side Slopes: _____ Velocity: _____ ft/sec
Spillway Protection: Grass Riprap Gabions Other _____

DISTANCES BELOW POND TO PROPERTY LINE: 100 ft.
Public Road: 740 ft.

Soil Conservation District (Name) Howard
SCS District Conservationist (Sign) _____
Date _____



SEE SHEET C-14 FOR REVISED "SOIL EROSION & SEDIMENT CONTROL" NOTES & DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Date: 12/15/92
Planning Director: _____
Chief, Division of Community Planning and Land Development: _____

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.
Date: 7/16/92
County Health Officer: _____

APPROVED: FOR PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Date: 7/16/92
Director: _____

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31087, EXPIRATION DATE: 11-21-14

NOTE: NEW SEAL & SIGNATURE ARE APPLICABLE ONLY TO REVISIONS.

STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER
J. H. 17

OWNER/DEVELOPER
HOWARD COUNTY
3450 COURT HOUSE DRIVE
ELICOTT CITY, MARYLAND 21045

BOYD & DOWGIALLO, P.A.
ENGINEERS/SURVEYORS/PLANNERS
405 HEADQUARTERS DRIVE
SUITES 7 & 8
MILLERSVILLE, MARYLAND 21108
(410) 987-2500

JOHN BRUNETT, ARCHITECT, P.A.
2205 ST. PAUL STREET
BALTIMORE, MARYLAND 21218
(410) 235-7506

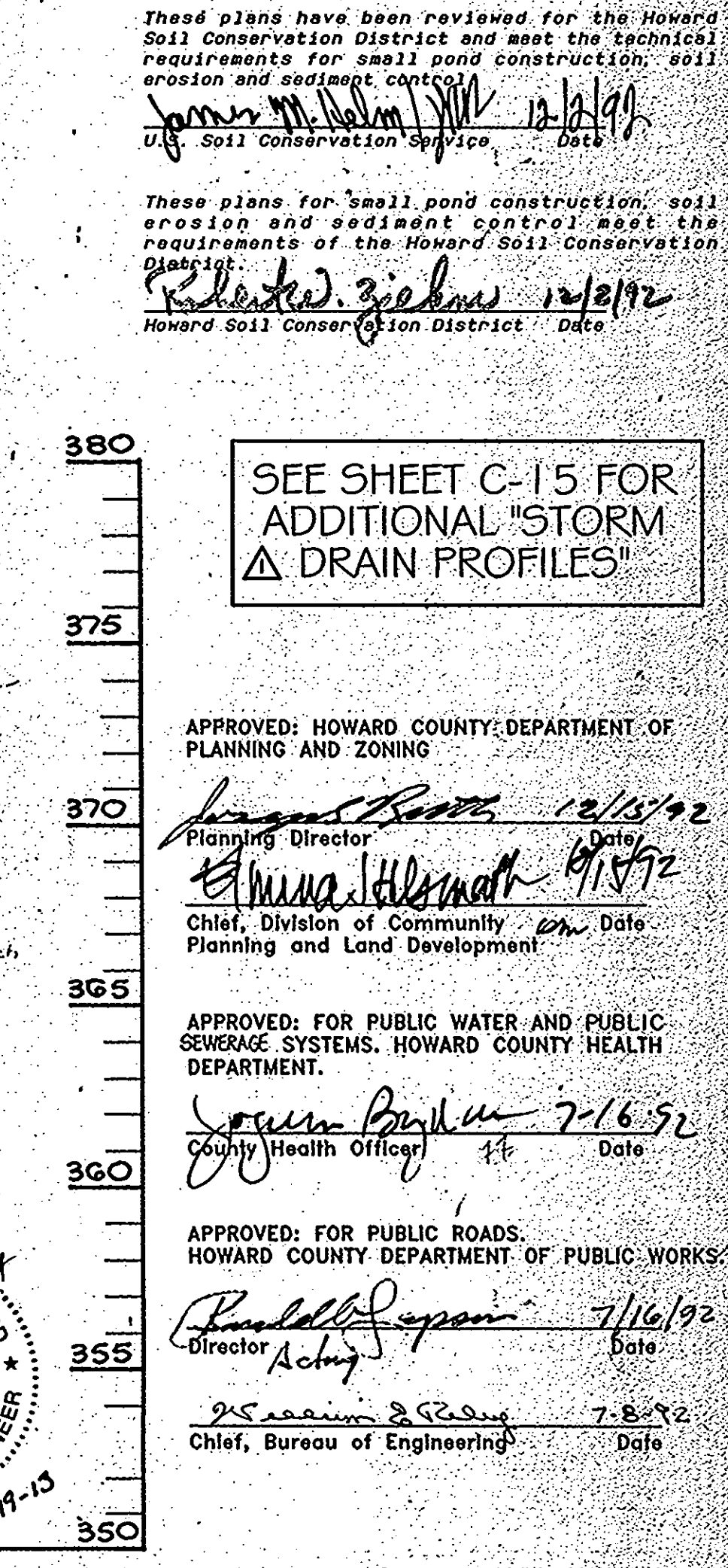
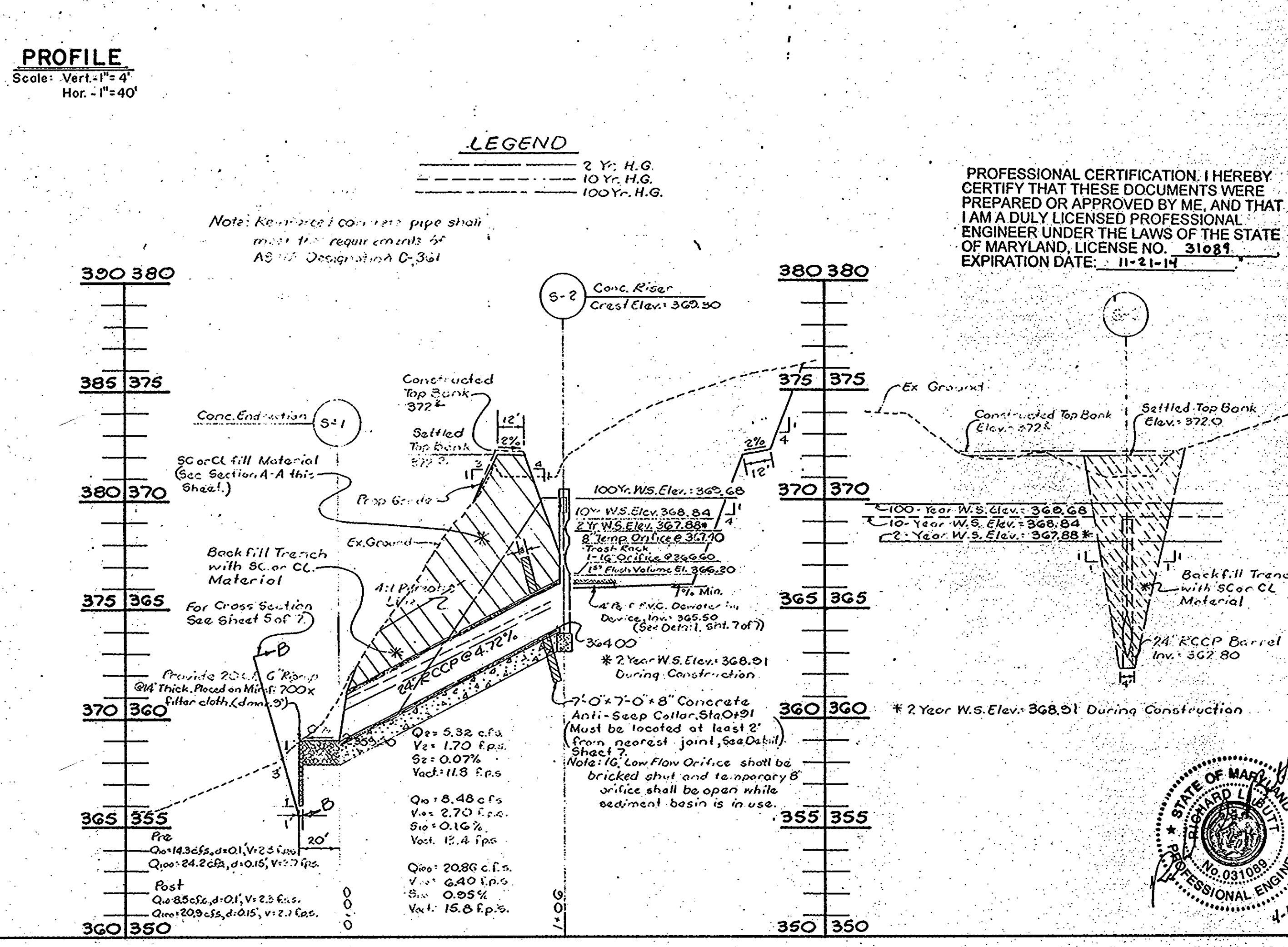
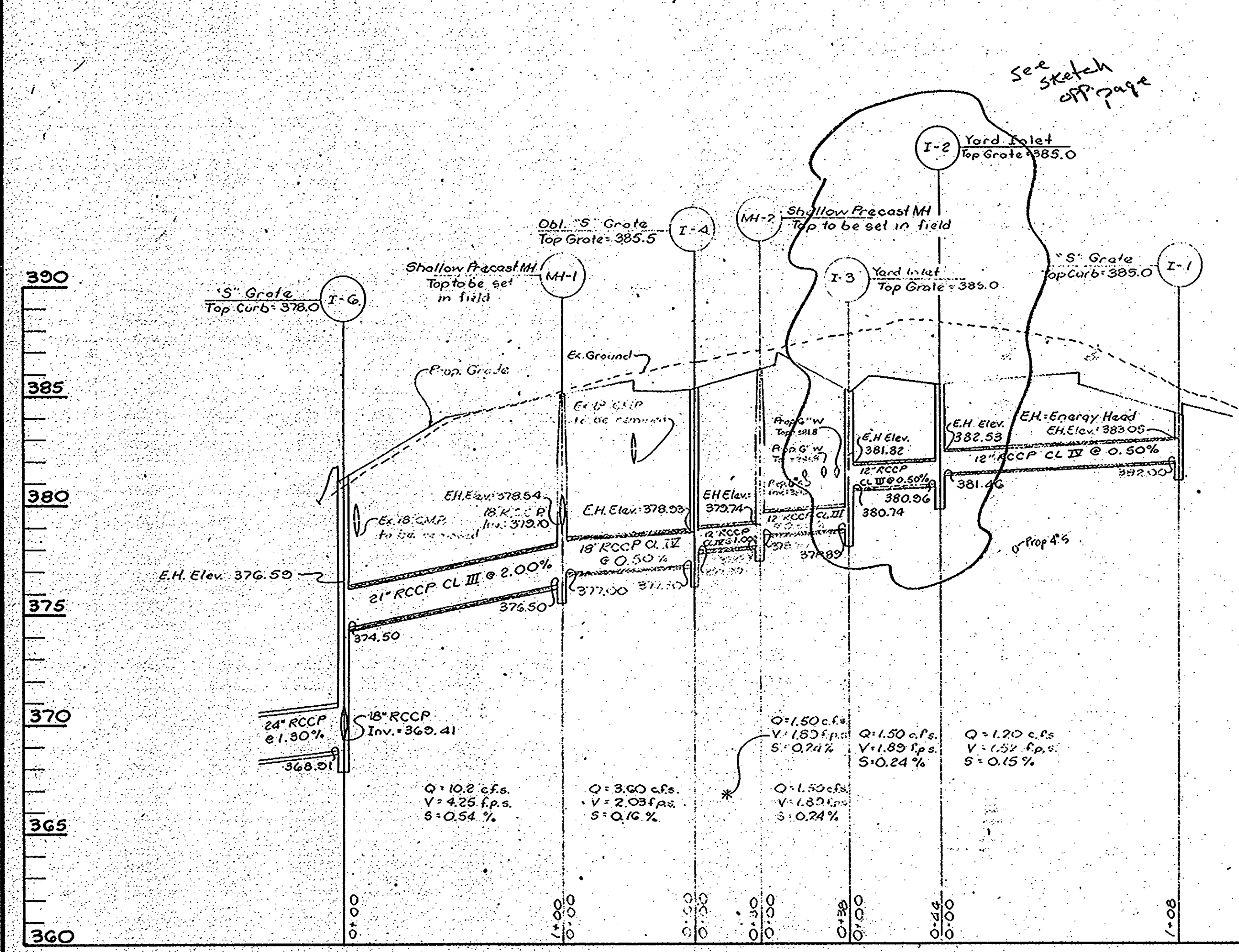
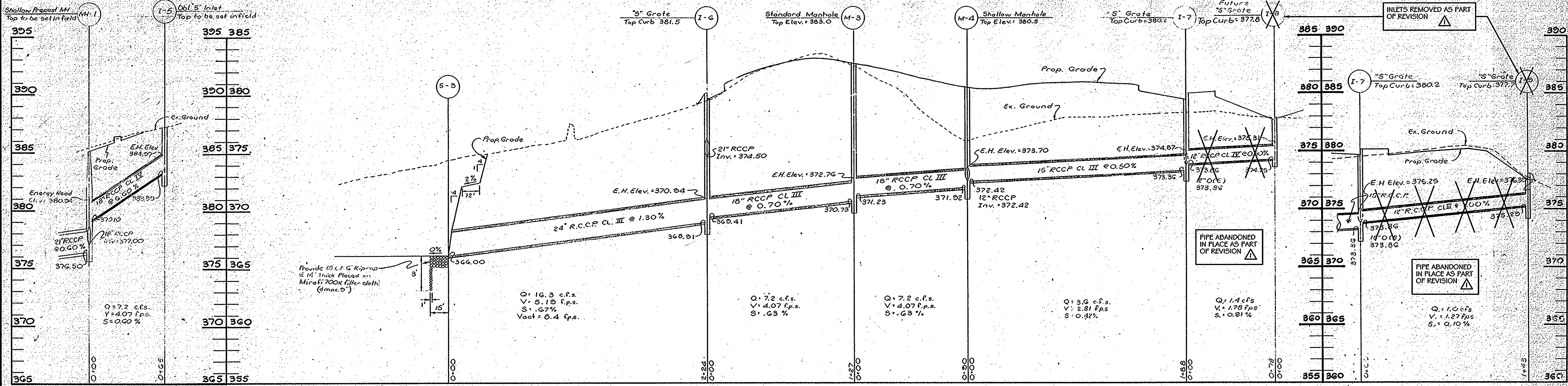
OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES
SDP# 93-01, FORMERLY SDP# 73-95

SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
PREVIOUSLY APPROVED UNDER PROJ. #CO113
ELECTION DISTRICT # 6 HOWARD COUNTY, MARYLAND
CENSUS TRACT # 6066.02

PROJECT NUMBER: W-8173
DATE: APRIL, 1992
SCALE: AS SHOWN
REVISIONS: _____ DATE: _____
ADD NOTE: FEBRUARY 27, 1993
REV. SHIT-NO.

PLAT BOOK 18, FOLIO 88
TAX MAP 37, BLOCKS 7 & 8, PARCEL 549
WATER CODE E07, SEWER CODE 355000

SHEET NUMBER: 5 OF 10
C-5
J.O. 426
SDP# 93-01



PROFILE THROUGH PRINCIPLE SPILLWAY SECTION A-A

<p>OWNER / DEVELOPER HOWARD COUNTY 3450 COURT HOUSE DRIVE ELLICOTT CITY, MARYLAND 21045</p>	<p>BOYD & DOWGIALLO, P.A. ENGINEERS SURVEYORS PLANNERS 405 HEADQUARTERS DRIVE SUITES 7 & 8 MILLERSVILLE, MARYLAND 21108 (410) 987-2500</p>	<p>JOHN BRUNETT, ARCHITECT, P.A. 2205 ST. PAUL STREET BALTIMORE, MARYLAND 21218 (410) 235-7506</p>	<p>OFFICE AND SHOP FACILITY HOWARD COUNTY BUREAU OF UTILITIES SDP # 93-01, FORMERLY SDP # 73-95</p> <p>STORM DRAIN PROFILE PREVIOUSLY APPROVED UNDER PROJ. # C00113 ELECTION DISTRICT # 6 HOWARD COUNTY, MARYLAND CENSUS TRACT # 6066.02</p> <p>PLAT BOOK 18, FOLIO 88 TAX MAP 37, BLOCKS 7 & 8, PARCEL 549 WATER CODE E07, SEWER CODE 355000</p>	<p>PROJECT NUMBER: W-8173 DATE: APRIL, 1992 SCALE: AS SHOWN REVISIONS: DATE: ADD NOTE REV. SHT. NO. FEBRUARY 25, 1913</p> <p>SHEET NUMBER: 6 OF 18</p> <p>C-6</p>
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SOIL CONSERVATION SERVICE
MARYLAND
CONSTRUCTION SPECIFICATIONS
FOR
PONDS

These specifications are appropriate to all ponds within the scope of the standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

I. 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 pond or 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' 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.

II. EARTH FILL

Material

The fill material shall be taken from approved designated borrow area or 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 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of 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 sheepfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required density of compaction can 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 a 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.

Cutoff Trench

Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be as shown on the drawings, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

STRUCTURAL BACKFILL

Backfill material 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 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 twenty-four inches or greater over the structure or pipe.

IV. PIPE CONDUITS

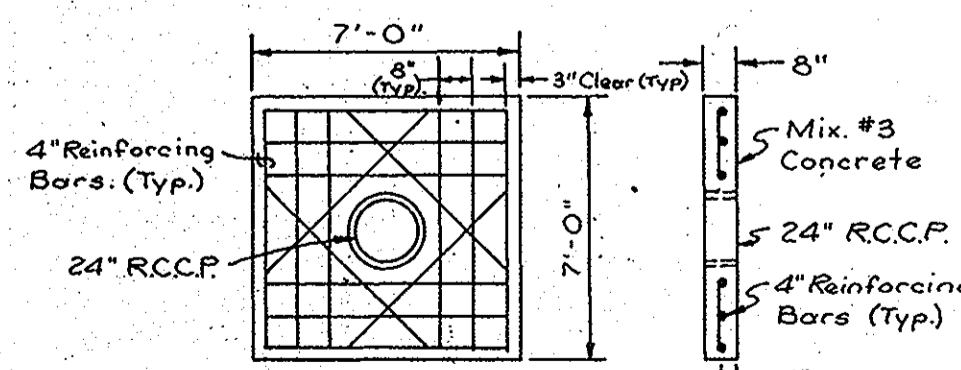
All pipes shall be circular in cross section.

A. Corrugated Metal Pipe

1. Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Nexon, Plast-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

Materials - (Aluminum Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274-791 with watertight coupling bands or flanges.



Anti-Seep Collar
(Not to Scale)

Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled on adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 48" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 3/8" thick closed cell circular neoprene gasket; and a 12" wide hugger type band with O-ring gaskets having a minimum diameter of 1 1/2" greater than the corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24". Helically corrugated pipe shall have either continuously welded seams or have lock seams.

4. 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.

5. Backfilling shall conform to "Structure Backfill."

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

B. 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", 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.

C. 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.

V. 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.

VI. 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 1/3 the greatest dimension of the fragment.

VII. 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 cylinders 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.

VIII. CARE OF WATER DURING CONSTRUCTION

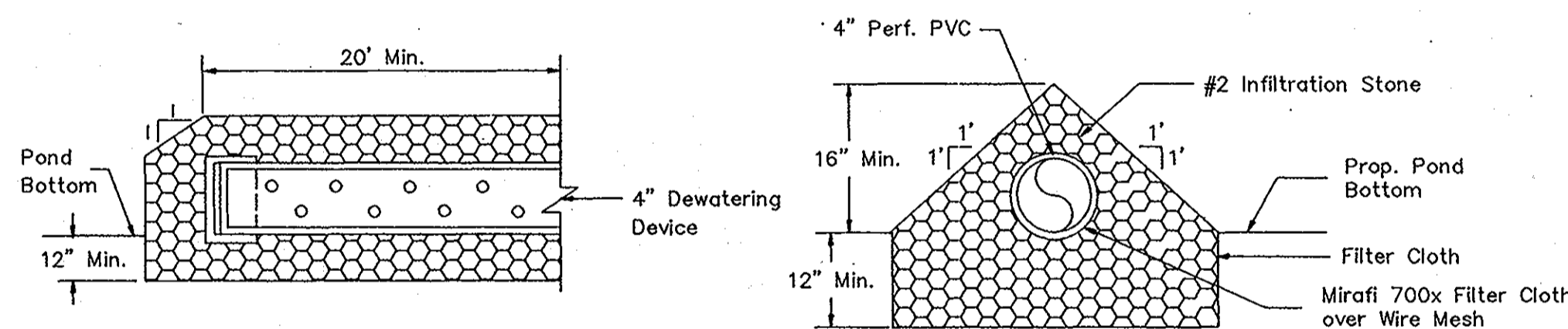
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also 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 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.

IX. STABILIZATION

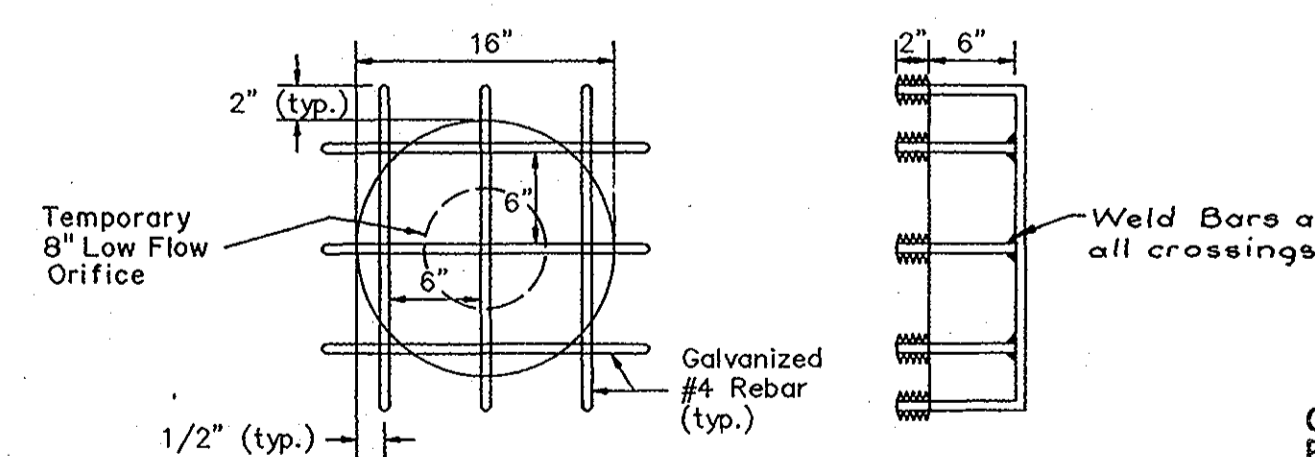
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service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

X. EROSION AND SEDIMENT CONTROL

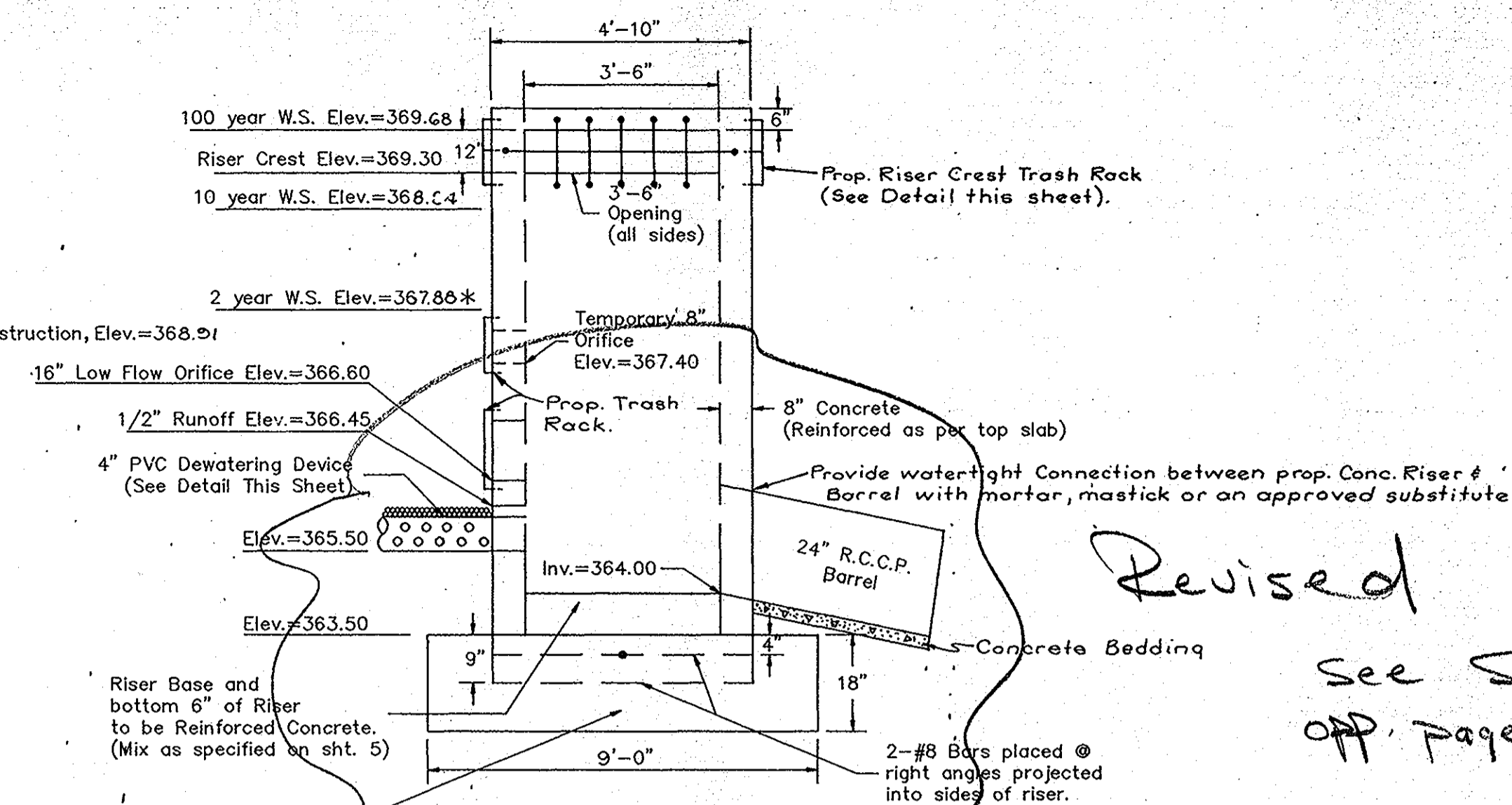
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction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



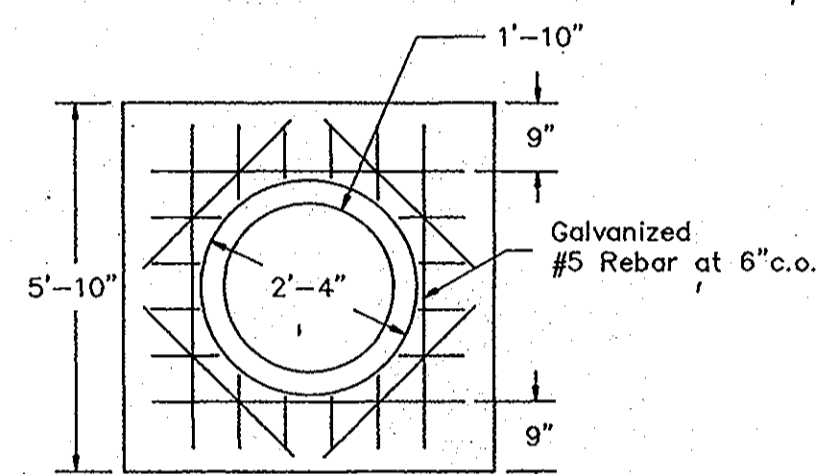
Dewatering Device Detail
Not To Scale



Low Flow Orifice Trash Rack Detail
Not To Scale

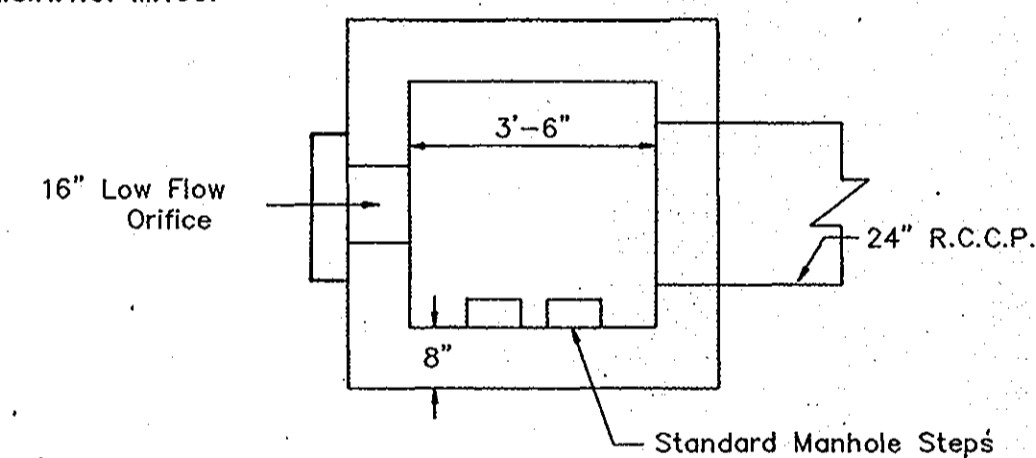


Riser Base Detail
Not to Scale

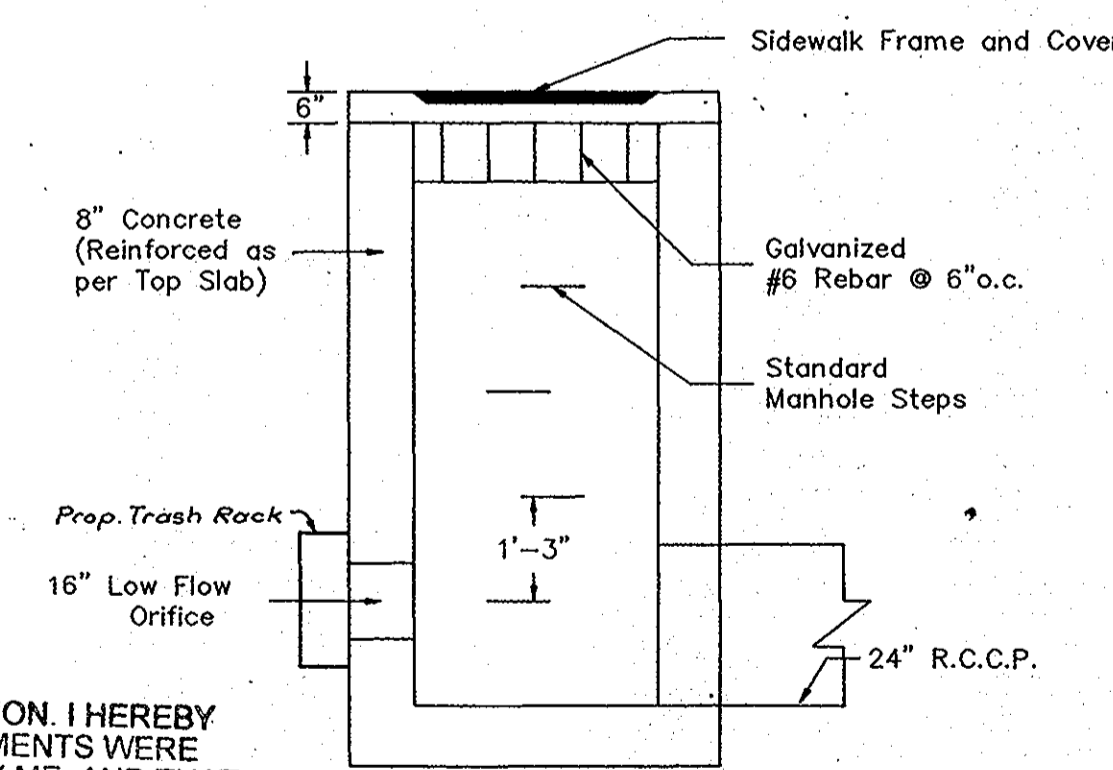


Slab

Note: 1. Apply Damproofing to all exterior surfaces.
2. Precast Inlet shall meet the requirements of A.A.S.H.T.O. M.199.



Plan Below Slab



Section

Modified Type "D" Inlet Detail
Not To Scale

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31083. EXPIRATION DATE: 11-21-14

These plans have been revised for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
John D. Tolson 12-29-92
S. Soil Conservation Service Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
Robert D. Ziehm 12/29/92
Howard Soil Conservation District Date

SEE SHEET C-16 FOR "ADDITIONAL STORMWATER MANAGEMENT PLANS"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

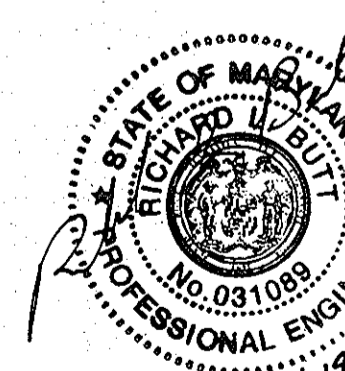
James H. Hester 12/15/92
Planning Director Date
John W. Hester 12/15/92
Chief, Division of Community Planning and Land Development Date

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS. HOWARD COUNTY HEALTH DEPARTMENT.

John W. Hester 7-16-92
County Health Officer Date

APPROVED: FOR PUBLIC ROADS. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Donald S. Sorenson 7/16/92
Director Acting Date
K. Casanova 7-8-92
Chief, Bureau of Engineering Date



NOTE: NEW SEAL & SIGNATURE ARE APPLICABLE ONLY TO REVISIONS.

OWNER/DEVELOPER
HOWARD COUNTY
3450 COURT HOUSE DRIVE
ELLCOTT CITY, MARYLAND 21045

BOYD & DOWGIALLO, P.A.
ENGINEERS SURVEYORS PLANNERS
405 HEADQUARTERS DRIVE
SUITES 7 & 8
MILLERSVILLE, MARYLAND 21108
(410) 987-2500

JOHN BRUNETT, ARCHITECT, P.A.
2205 ST. PAUL STREET
BALTIMORE, MARYLAND 21218
(410) 235-7506

OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES
SDP #93-01, FORMERLY SDP #73-95

STORMWATER MANAGEMENT SPECIFICATION & DETAILS
PREVIOUSLY APPROVED UNDER PROJ. GC0113 PLAT BOOK 18, FOLIO 88
ELECTION DISTRICT # 6 HOWARD COUNTY, MARYLAND TAX MAP 37, BLOCKS 7 & 8, PARCEL 549
CENSUS TRACT # 6066.02 WATER CODE E07, SEWER CODE 355000

PROJECT NUMBER: W-8173
DATE: APRIL, 1992
SCALE: NONE
REVISIONS: DATE:
ADD NOTE REV. SHT. NO. FEBRUARY 25, 2013

SHEET NUMBER: 7 OF 10

C-7

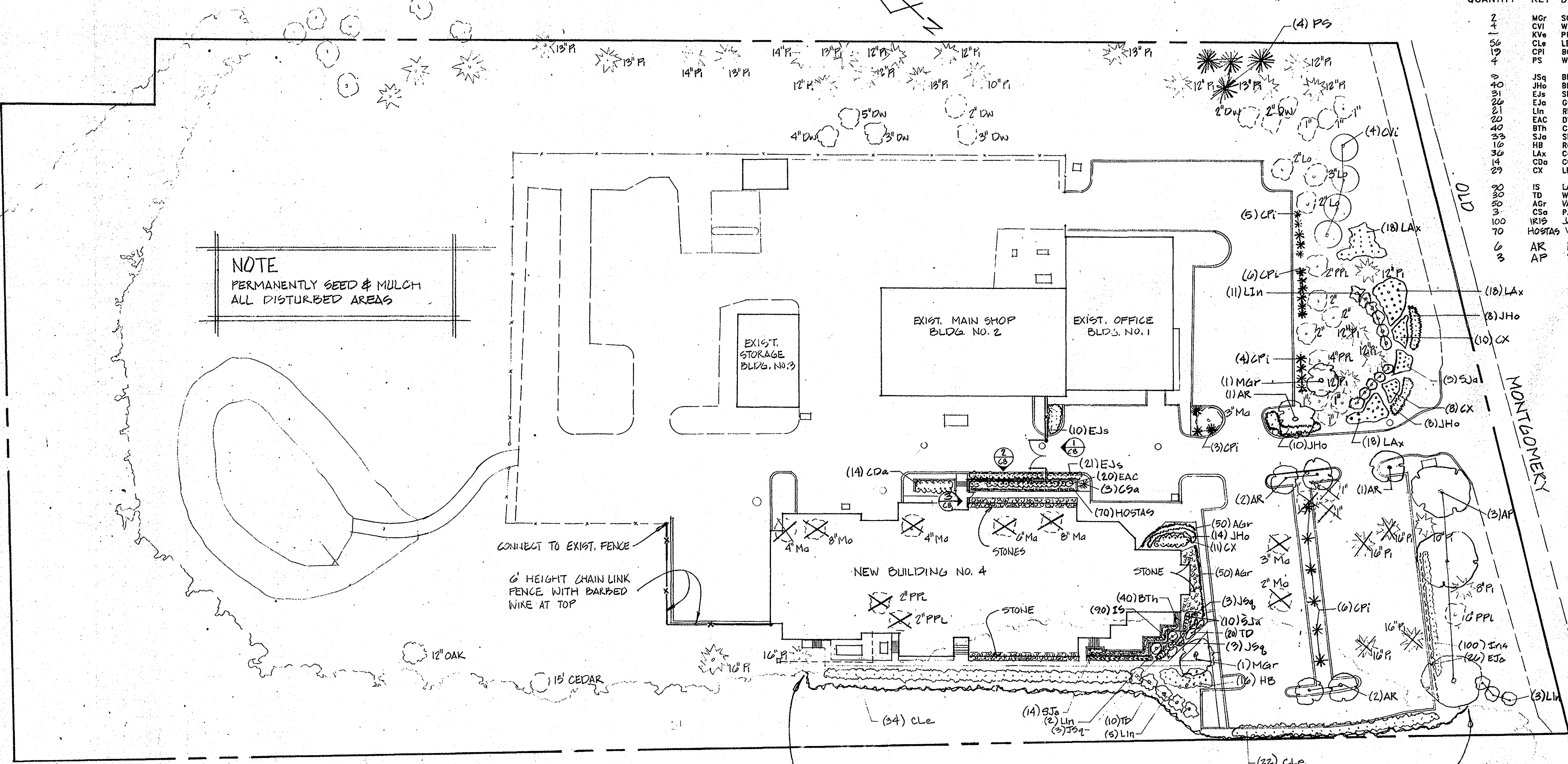
J.O. 496

SDP 93-01

PLANT SCHEDULE

QUANTITY	KEY	DESCRIPTION	SIZE	NAME
2	MGR	SOUTHERN MAGNOLIA	8'-10" B&B	MAGNOLIA GRANDIFLORA
4	CVI	WINTER KING HAWTHORN	8'-10" B&B	CRATAEGUS VIRIDIS 'WINTER KING'
56	KVE	PURPLE PLUM	4'-5" B&B	KRAUTER VESUVIUS
19	CLP	LEYLAND CYPRESS	4'-5" B&B	CUPRESSOCYPARIS LEYLANDII
4	CP	BOULEVARD CYPRESS	3'-4" 2 GAL	CHAMAECYPARIS PISIFERA
4	PS	WHITE PINE	4'-5" B&B	PINUS STROBUS
8	JSq	BLUE STAR JUNIPER	16"-24" SPREAD	JUNIPERUS SOGATAMATA 'BLUE STAR'
8	JHo	BLUE CHIP JUNIPER	16"-24" SPREAD	JUNIPERUS HORIZONTALIS 'BLUE CHIP'
21	EJs	SILVER KING EUONYMUS	3'-4" 3 GAL	EUONYMUS JAPONICA 'SILVER KING'
21	EJo	GOLDEN EUONYMUS	3'-4" 3 GAL	EUONYMUS JAPONICA 'AUROO MARGINATA'
21	Lin	RED CRAWF MYRTLE	4'-5" B&B	LAGERSTROMIA INDICA
20	EAC	DWARF BURNING BUSH	2'-3" 2 GAL	EUONYMUS ALATUS COMPACTUS
20	BTH	CRIMSON PYGMY BARBERY	12" 2 GAL	BERBERIS THUNBERGII VAR. ATROPURPUREA
20	SJo	SHIROBANA SPIREA	16" 2 GAL	SPIRAEA JAP. 'SHIROBANA'
10	HB	ROSE OF SHARON	3'-4" 3 GAL	HIBISCUS SYRIACUS CULTIVARS
36	LAX	COAST LEUCOTHOE	16" 2 GAL	LEUCOTHOE AXILARIS
29	CDa	CORAL BEAUTY COTONEASTER	16" 2 GAL	COTONEASTER DAMMERI 'CORAL BEAUTY'
10	CX	LENA'S BROOM	3' 5 GAL	CYTISUS X 'LENA'
20	IS	LAVENDER COTON ICANA	6" POT	ICANA 'SANTOLINA'
20	TD	WHITE SEA LAVENDER	6" POT	TATARICA DUMOSA
50	AGR	VARIEGATED SWEET FLAG GRASS	1 GAL	ACORUS GRAMINEUS 'VARIEGATUS'
3	CSa	PAMPAS GRASS	3 GAL	CORTADERIA SALLONIA
100	IRIS	JAPANESE IRIS	EA,	EA,
70	HOSTAS	VARIEGATED HOSTAS	6" POT	EA,
6	AR	BOWHALL RED MAPLE	10'-12" B&B	ACER RUBRUM 'BOWHALL'
3	AP	NORWAY MAPLE	10'-12" B&B	ACER PLATANOIDES 'CRIMSON KING'

NOTE
PERMANENTLY SEED & MULCH
ALL DISTURBED AREAS



LEGEND

- EXIST. WOODLAND LIMITS
- NEW WOODLAND LIMITS (LIMITS OF CLEARING)
- EXIST. TREE TO BE REMOVED
- EXIST. MAPLE
- EXIST. LOCUST
- EXIST. PINE
- EXIST. DOGWOOD
- EXIST. PURPLE PLUM
- PROPERTY LINE
- EXIST. FENCE
- NEW CHAIN LINK FENCE
- NEW ORNAMENTAL FENCE
- LANDSCAPE STONES
- 6" RIP RAP

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 12/15/92
Planning Director Date
[Signature] 10/15/92
Chief, Division of Community Planning and Land Development Date

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS. HOWARD COUNTY HEALTH DEPARTMENT.

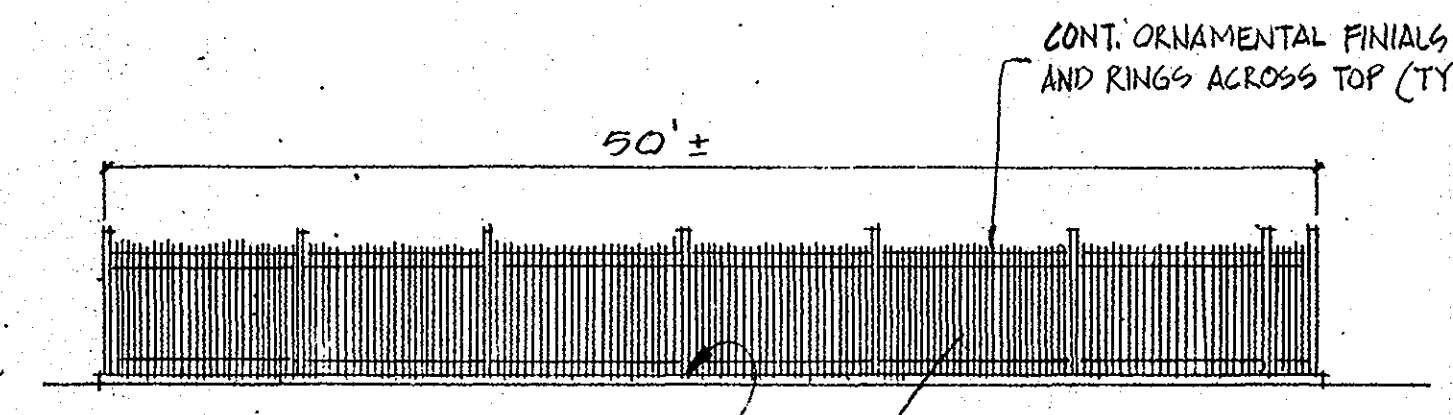
[Signature] 12/3/92
County Health Officer Date

APPROVED: FOR PUBLIC ROADS. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

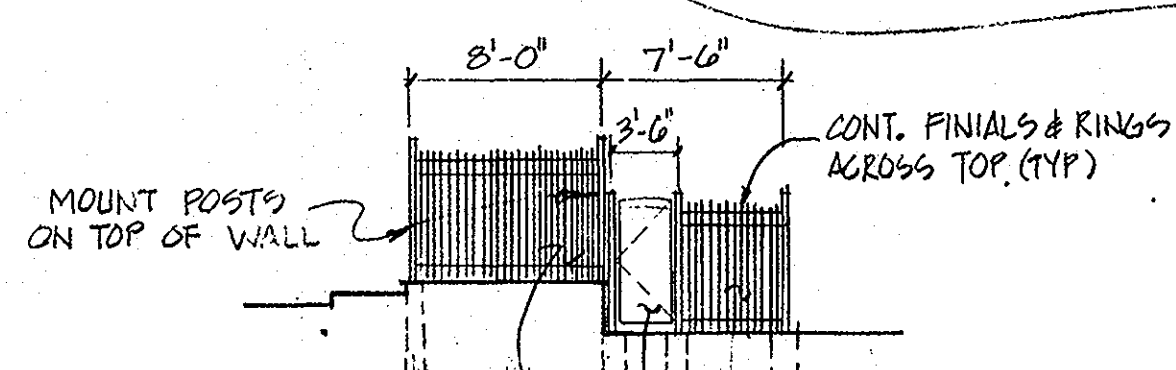
[Signature] 11/30/92
Director Date
[Signature] 11-24-92
Chief, Bureau of Engineering Date

NOTE:
NEW SEAL & SIGNATURE ARE APPLICABLE ONLY TO REVISIONS.

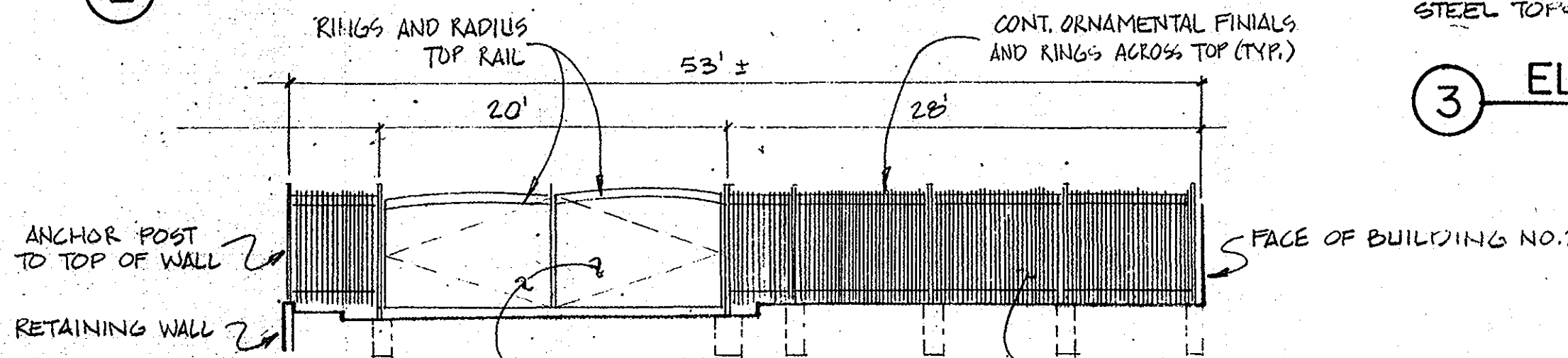
PLANTING & FENCE PLAN 1"=40'



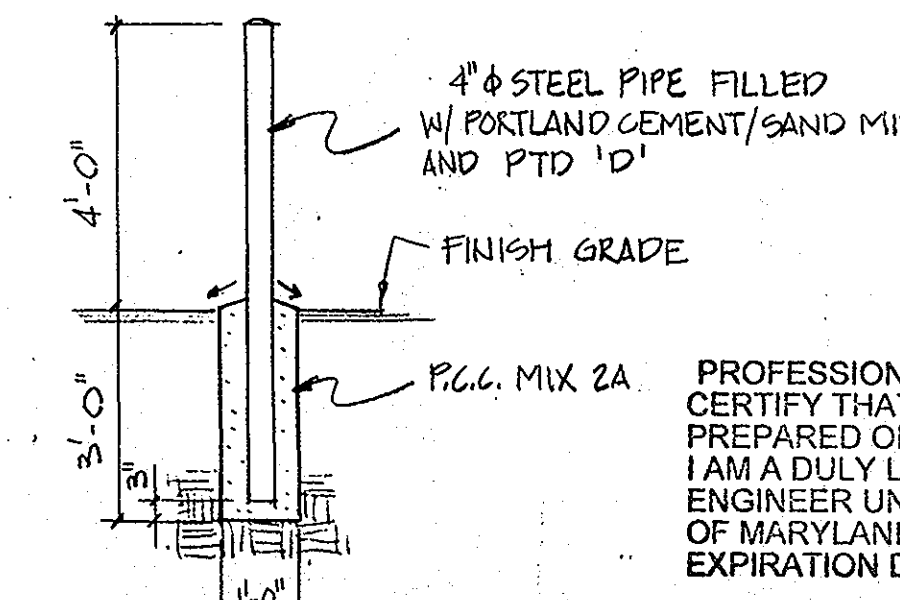
2 ELEVATION N.T.S.



3 ELEVATION N.T.S.



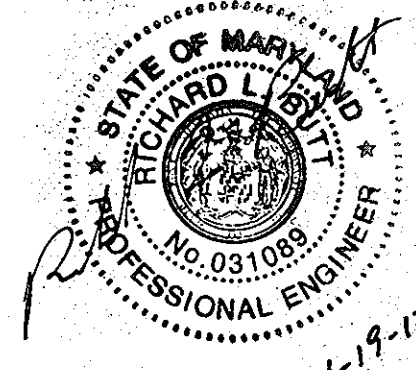
1 ELEVATION N.T.E.



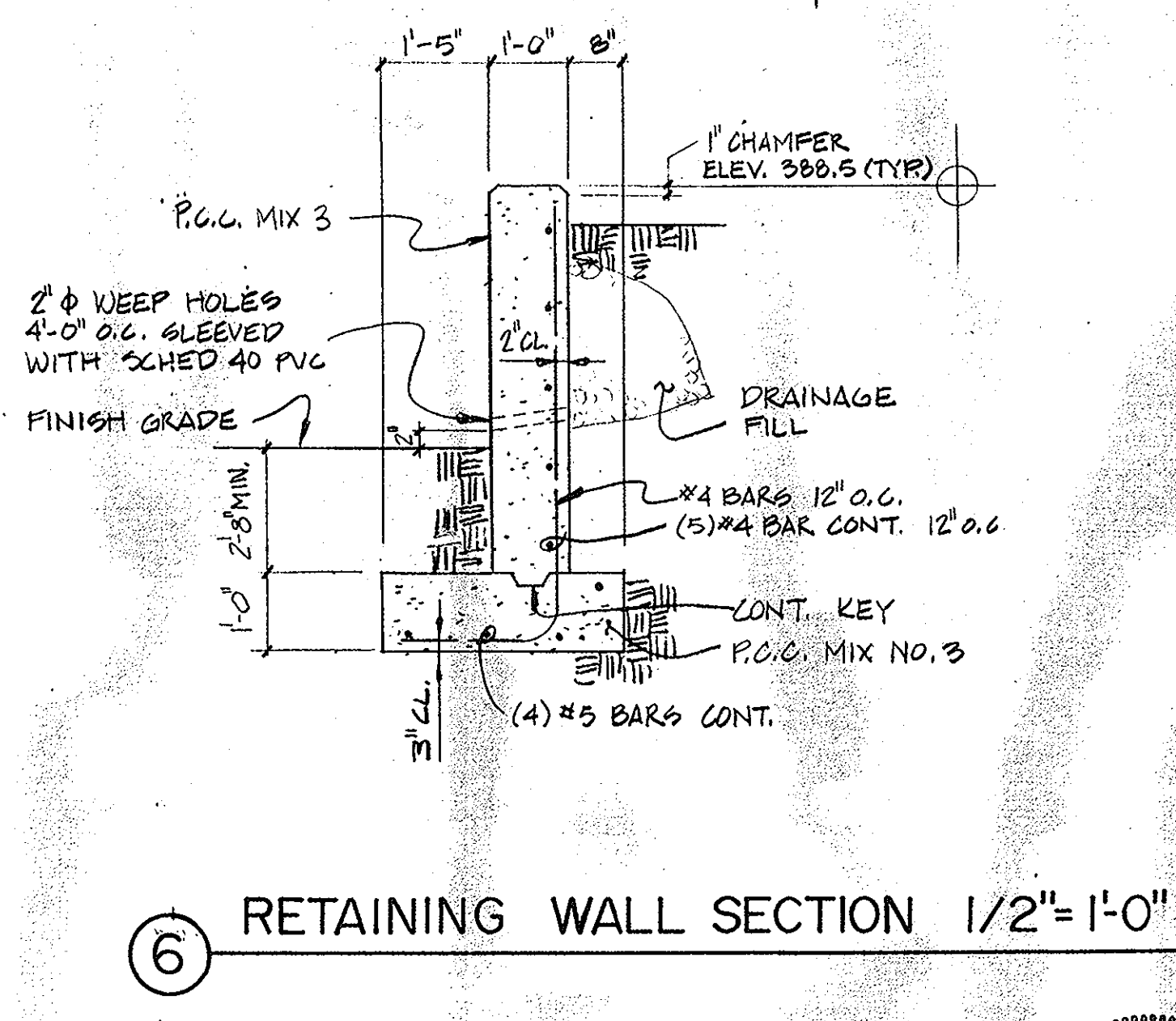
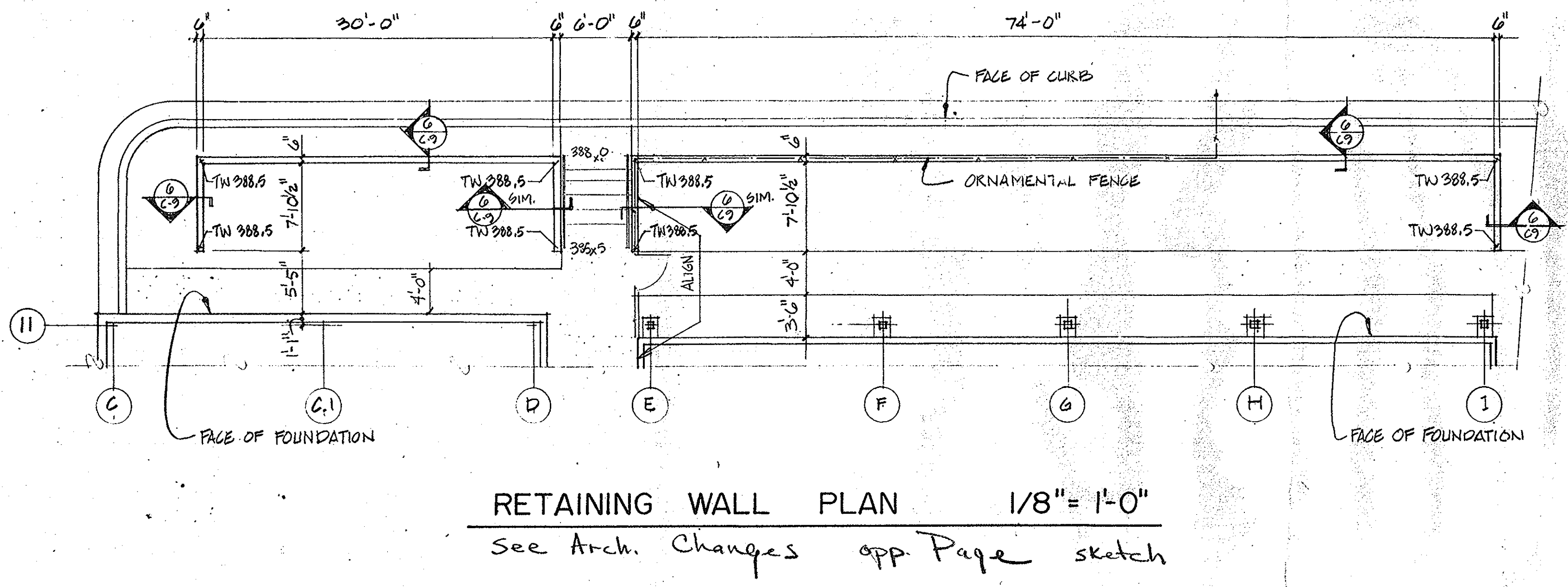
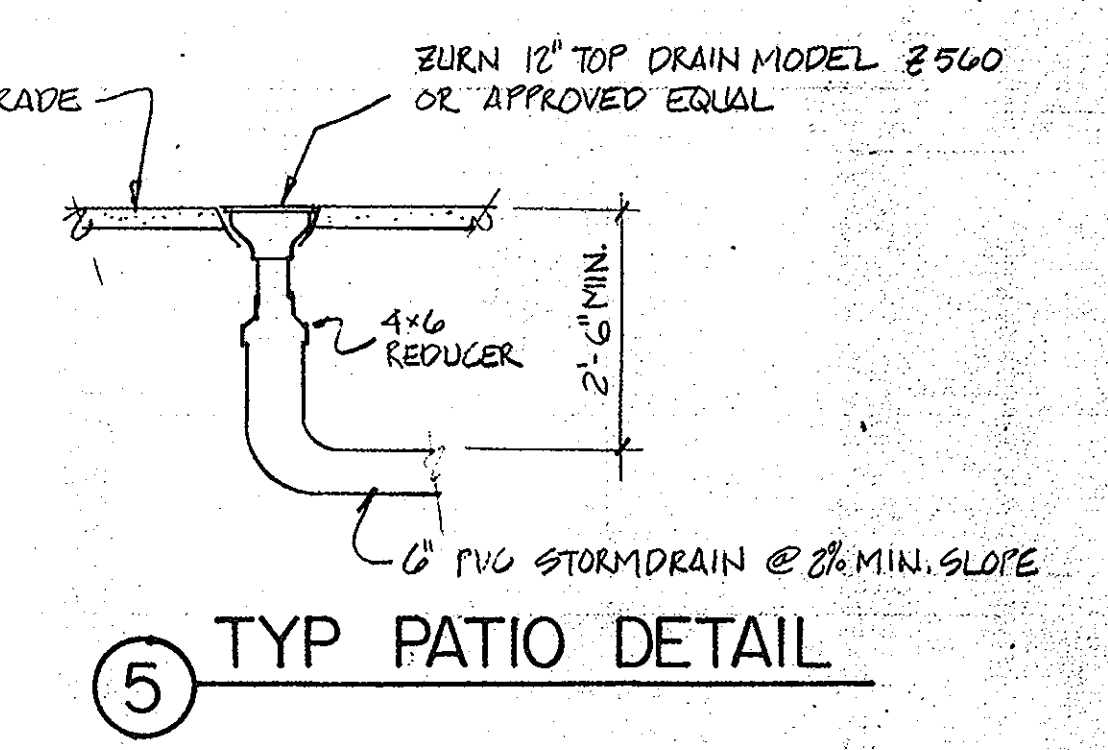
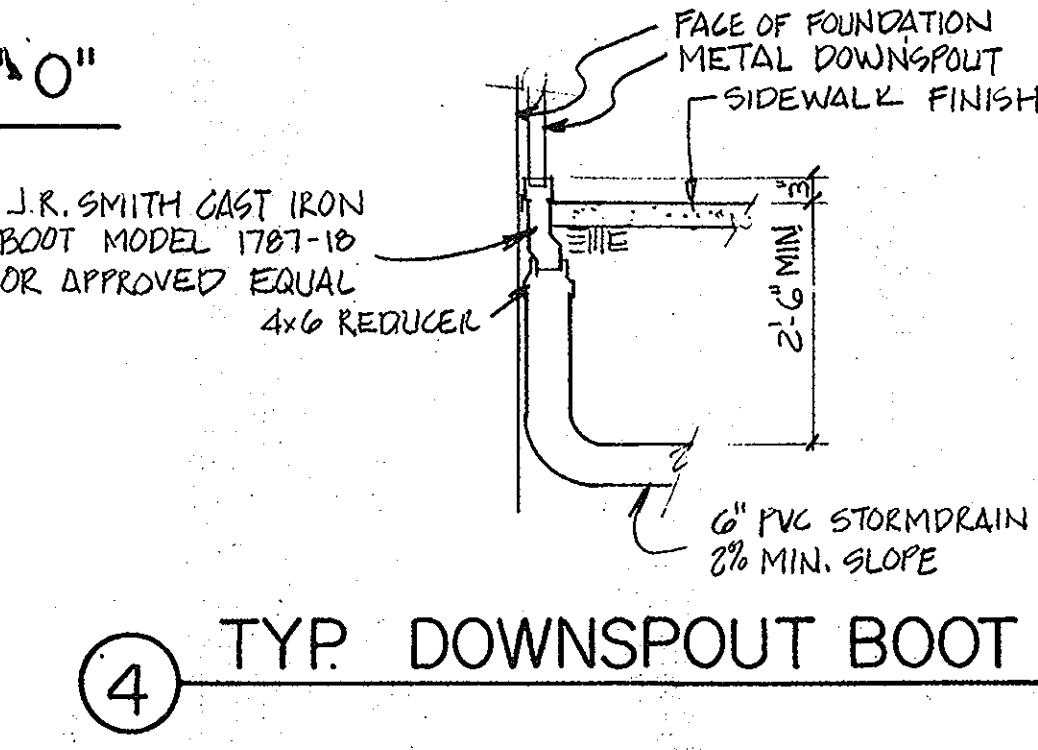
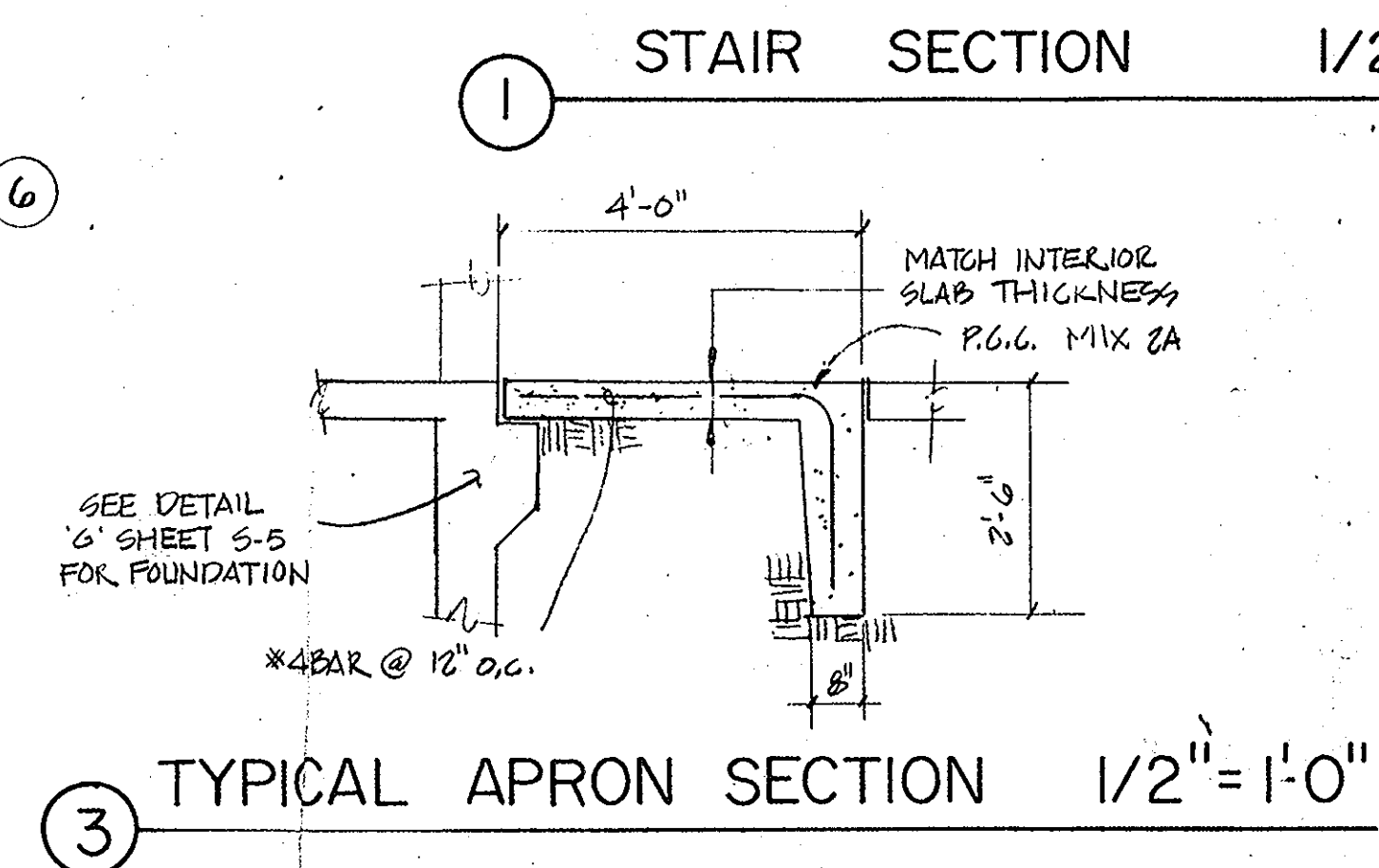
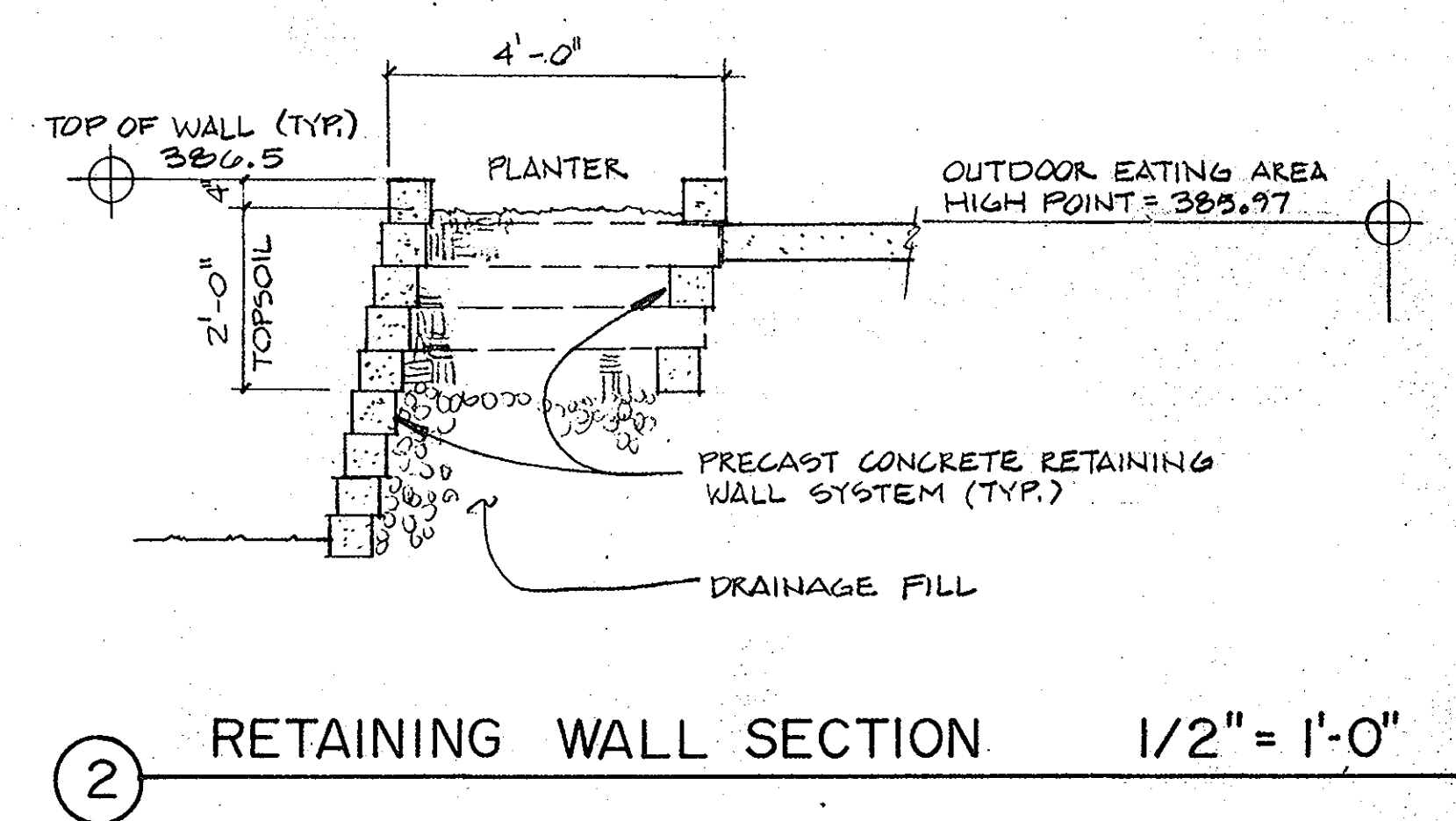
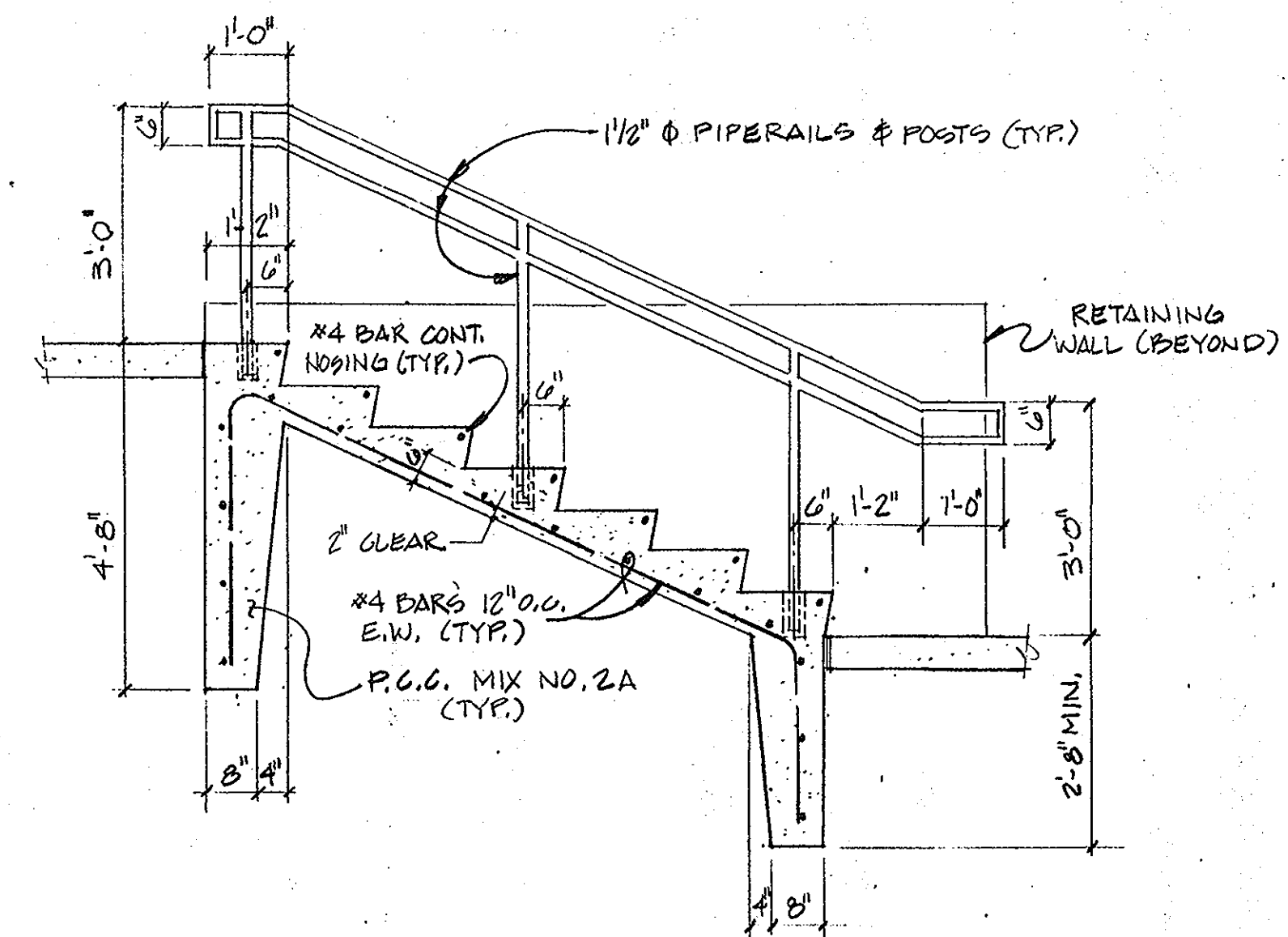
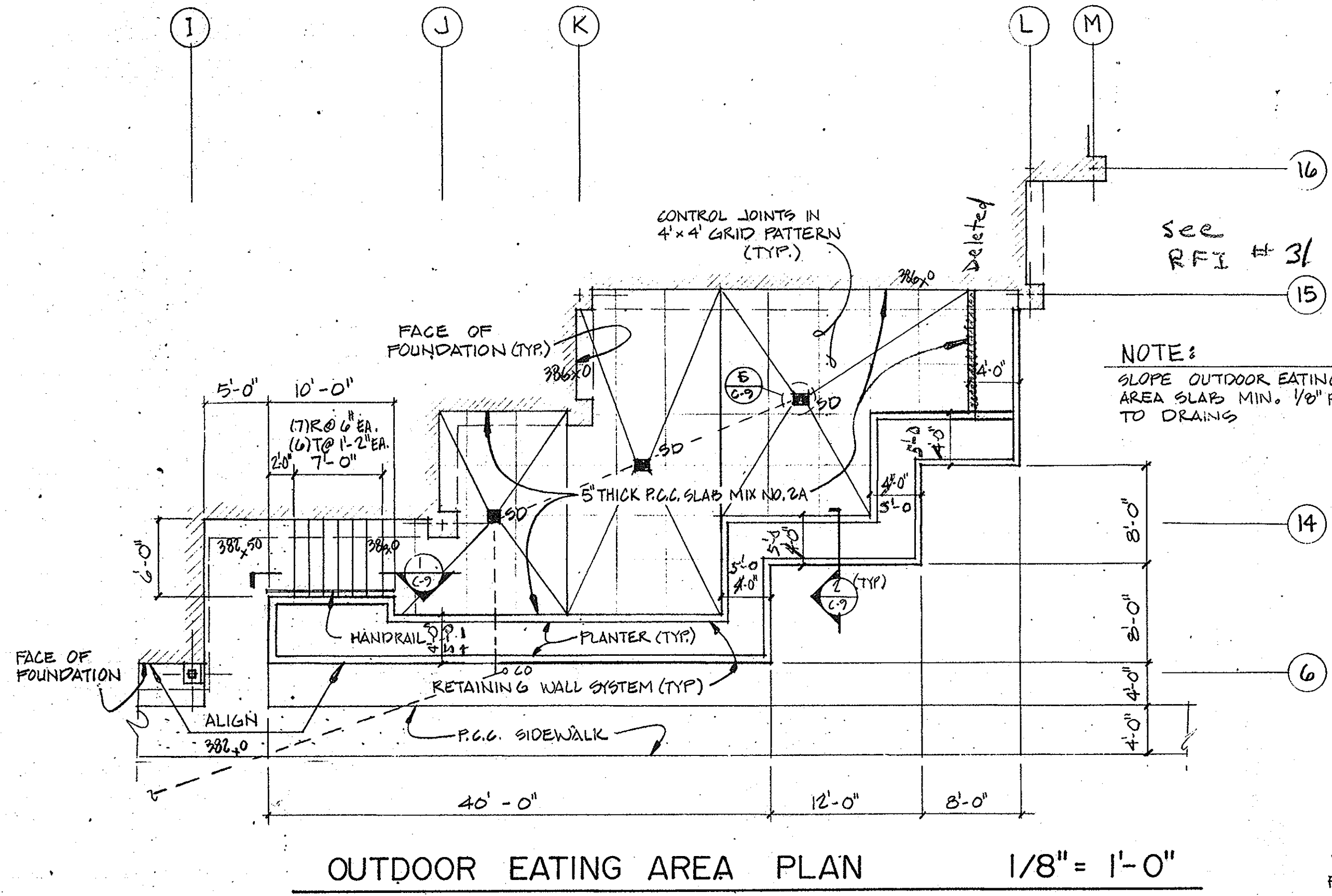
4 PIPE BOLLARD DETAIL N.T.S.

SEE SHEET C-17 FOR REVISED "LANDSCAPING PLAN"

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31087, EXPIRATION DATE: 11-21-14



 JOHN BRUNETT, ARCHITECT, P.A. 2205 ST. PAUL STREET BALTIMORE, MARYLAND 21218	OFFICE AND SHOP FACILITY HOWARD COUNTY BUREAU OF UTILITIES	PROJECT NUMBER: W-8173 DATE: _____ SCALE: _____ REVISIONS: _____ DATE: _____ REV. SHT. NO. 1 FEBRUARY 25, 2013	SHEET NUMBER 8 OF 18 C-8
PLANTING PLAN			



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

James D. ... 12/11/92 Date
Planning Director

Anna ... 12/11/92 Date
Chief, Division of Community Planning and Land Development

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS. HOWARD COUNTY HEALTH DEPARTMENT.

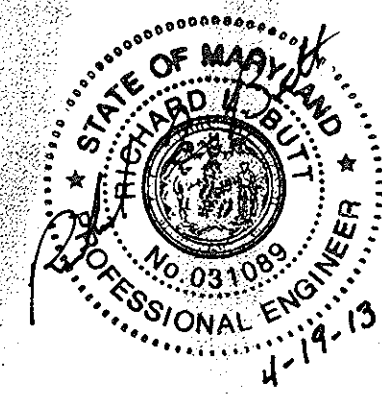
James M. ... 12/3/92 Date
County Health Officer

APPROVED: FOR PUBLIC ROADS. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

James ... 11/30/92 Date
Director

William ... 11-24-92 Date
Chief, Bureau of Engineering

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 31089 EXPIRATION DATE: 11-21-14



NOTE: NEW SEAL & SIGNATURE ARE APPLICABLE ONLY TO REVISIONS.

John Brunnett

JOHN BRUNETT, ARCHITECT, P.A.
2205 ST. PAUL STREET
BALTIMORE, MARYLAND 21218

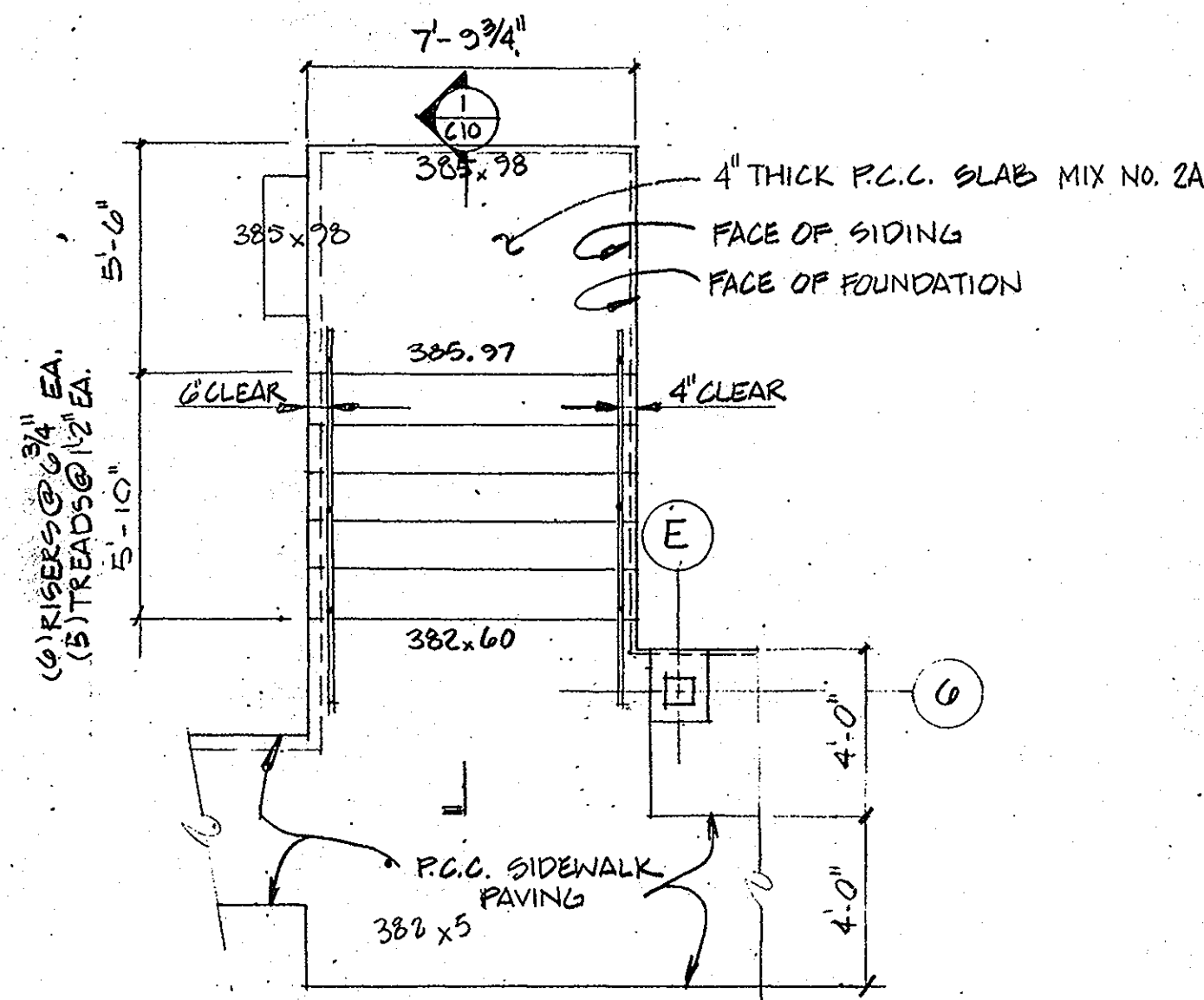
OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES

SITE DETAILS

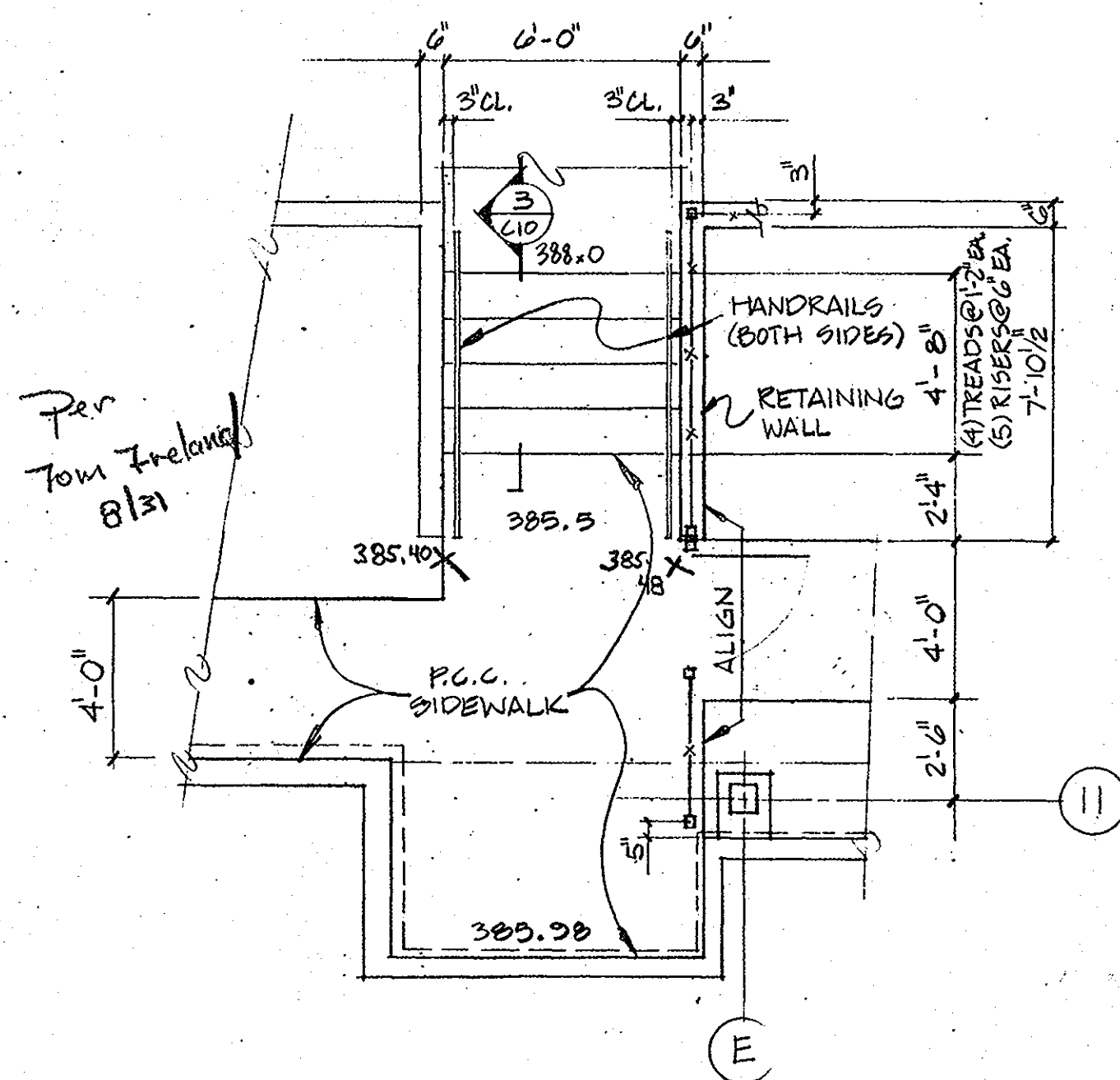
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DATE: SCALE: REVISIONS: DATE: REV. SHT. NO. FEBRUARY 25, 2013

SHEET NUMBER 9 OF 10

C-9



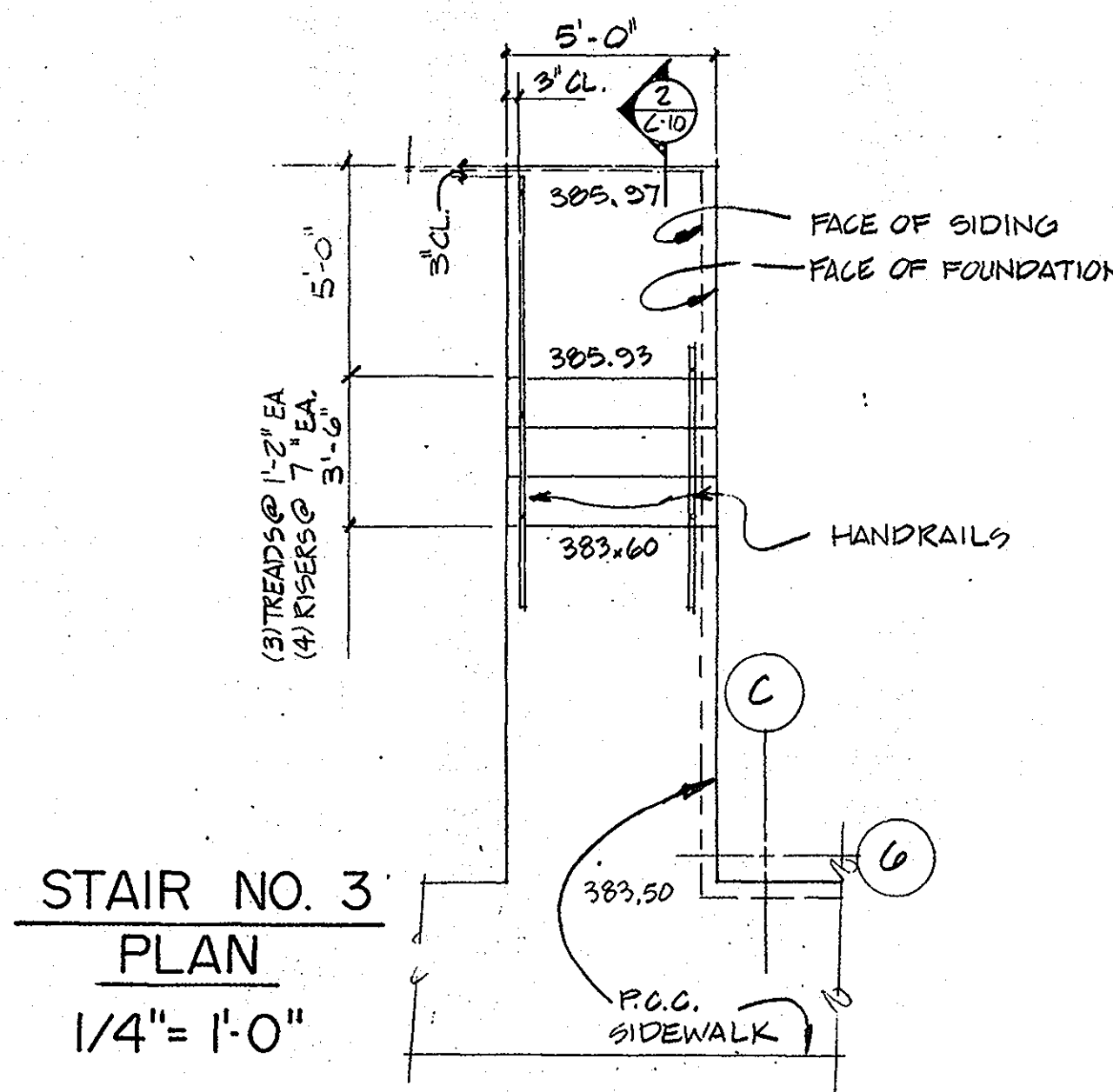
STAIR NO. 1 PLAN 1/4" = 1'-0"



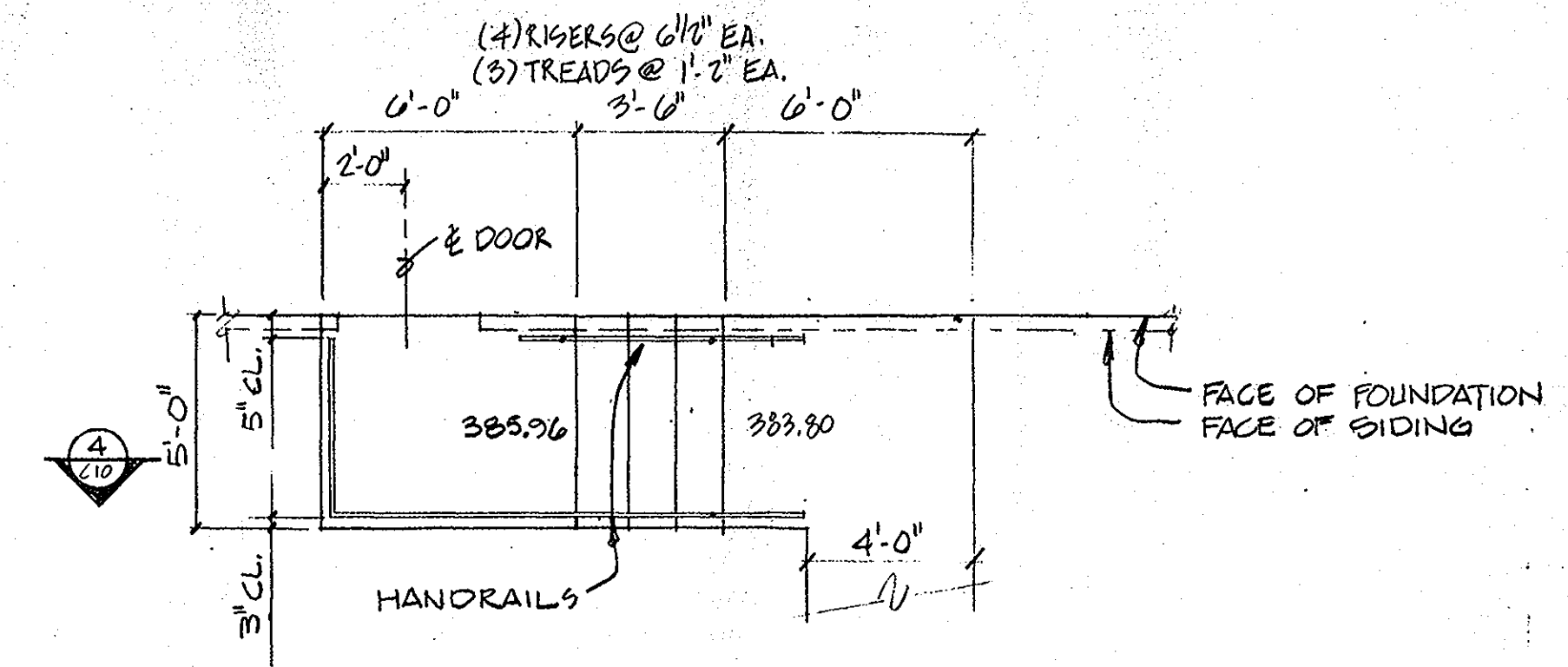
STAIR NO. 2 PLAN 1/4" = 1'-0"

Per Tom Ireland 8/13

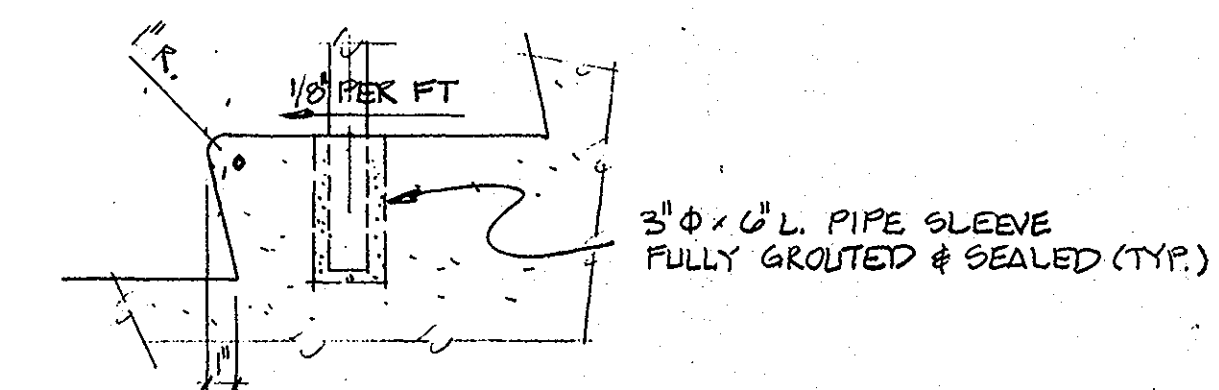
PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31089 EXPIRATION DATE: 11-21-14



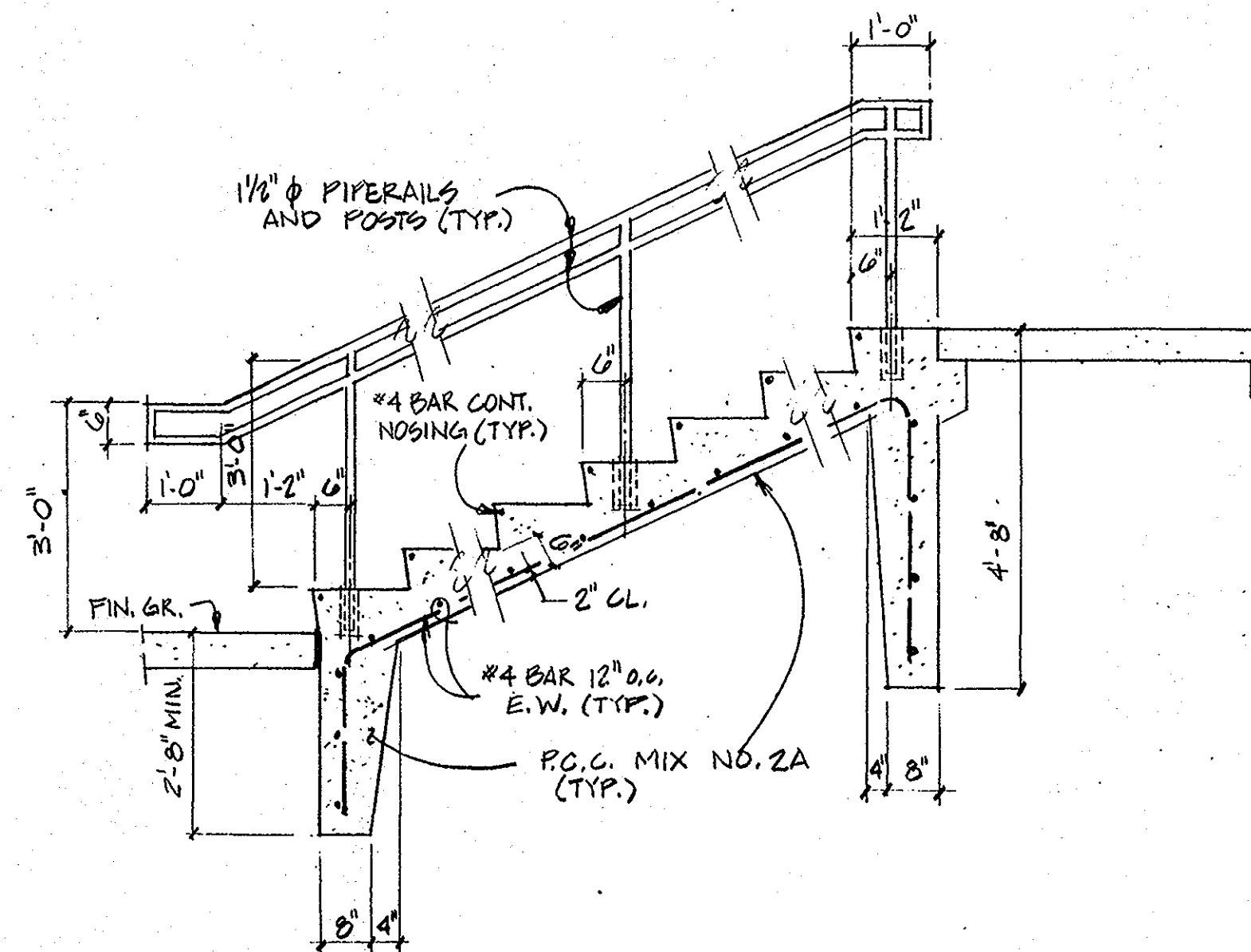
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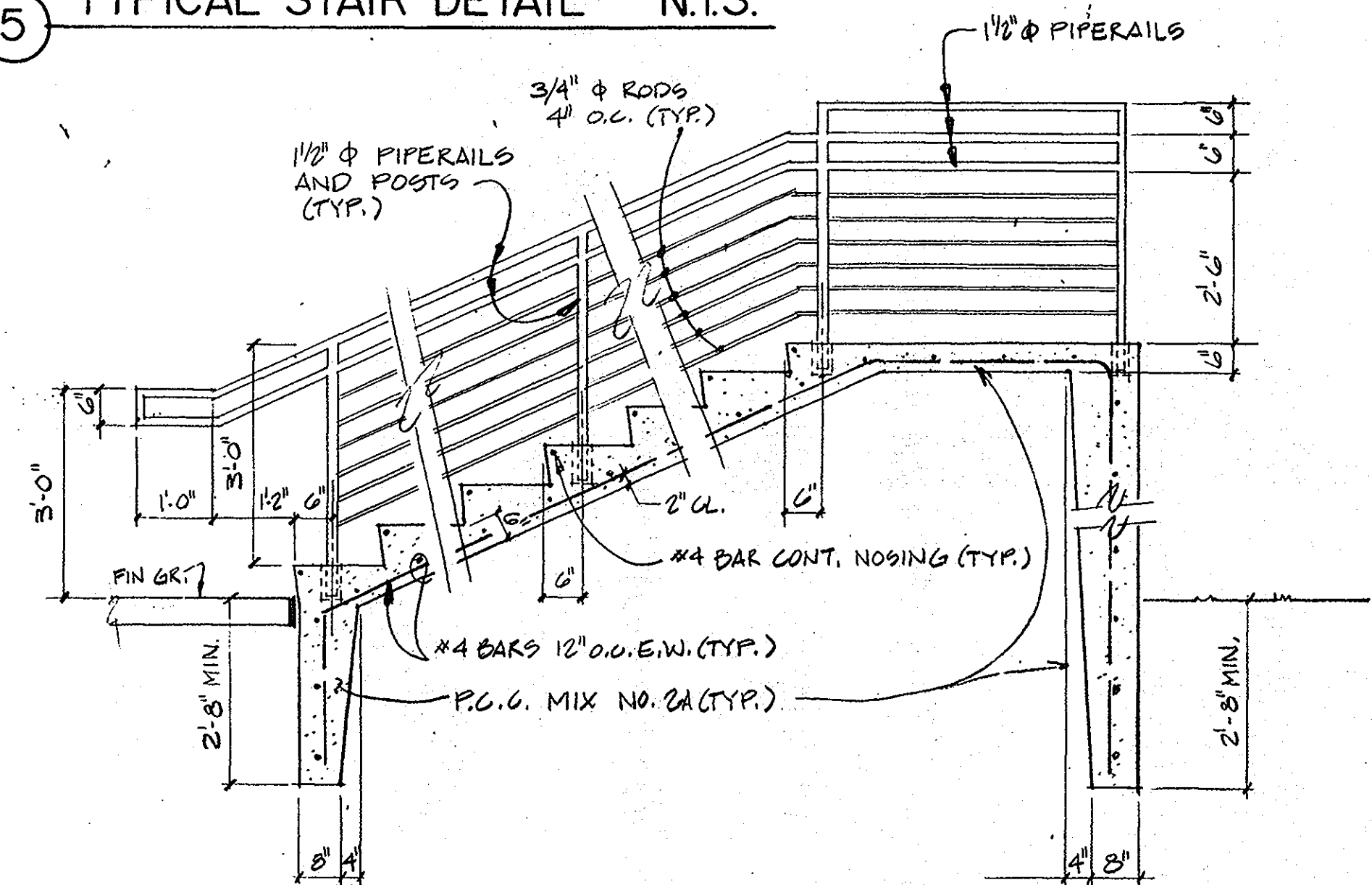
STAIR NO. 4 PLAN 1/4" = 1'-0"



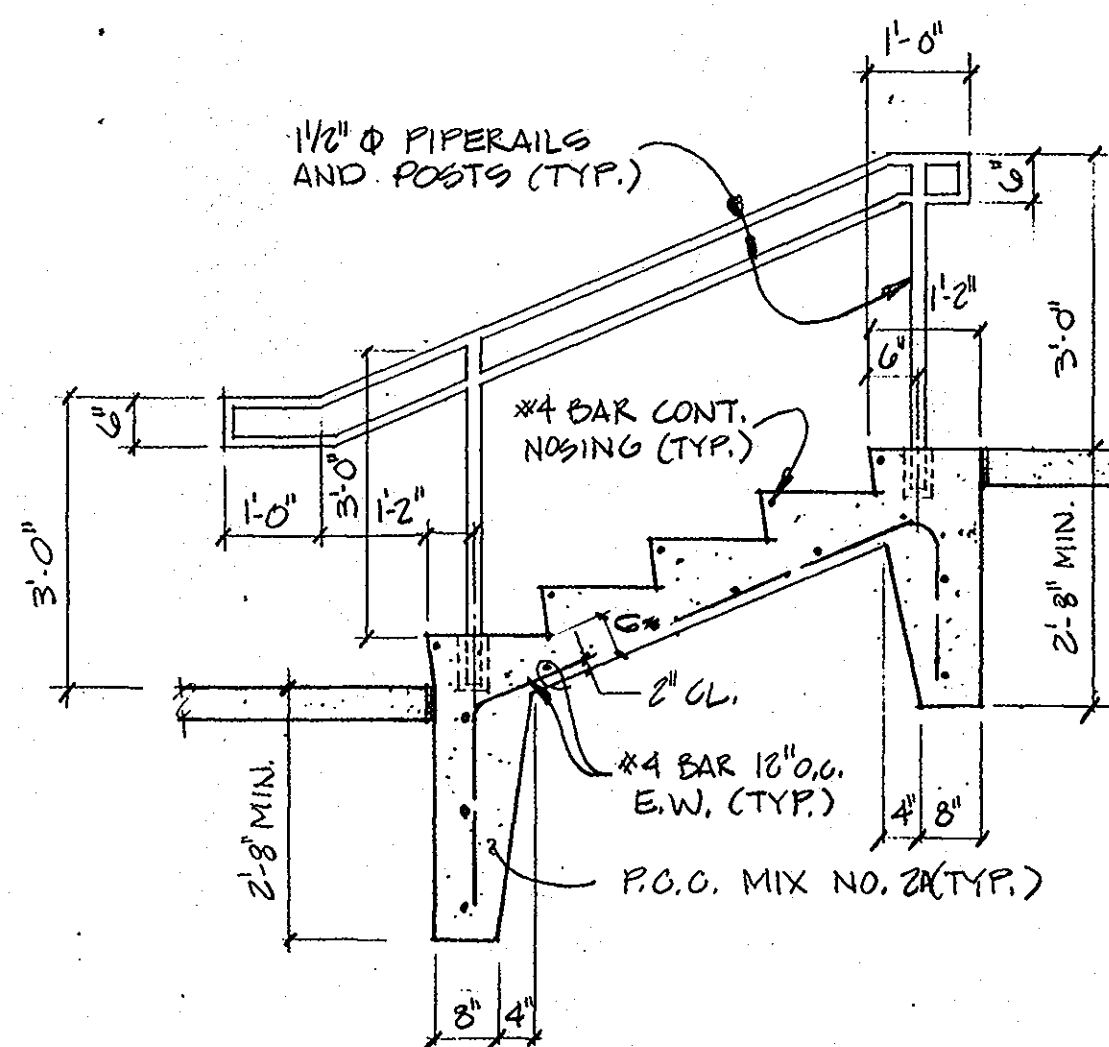
5 TYPICAL STAIR DETAIL N.T.S.



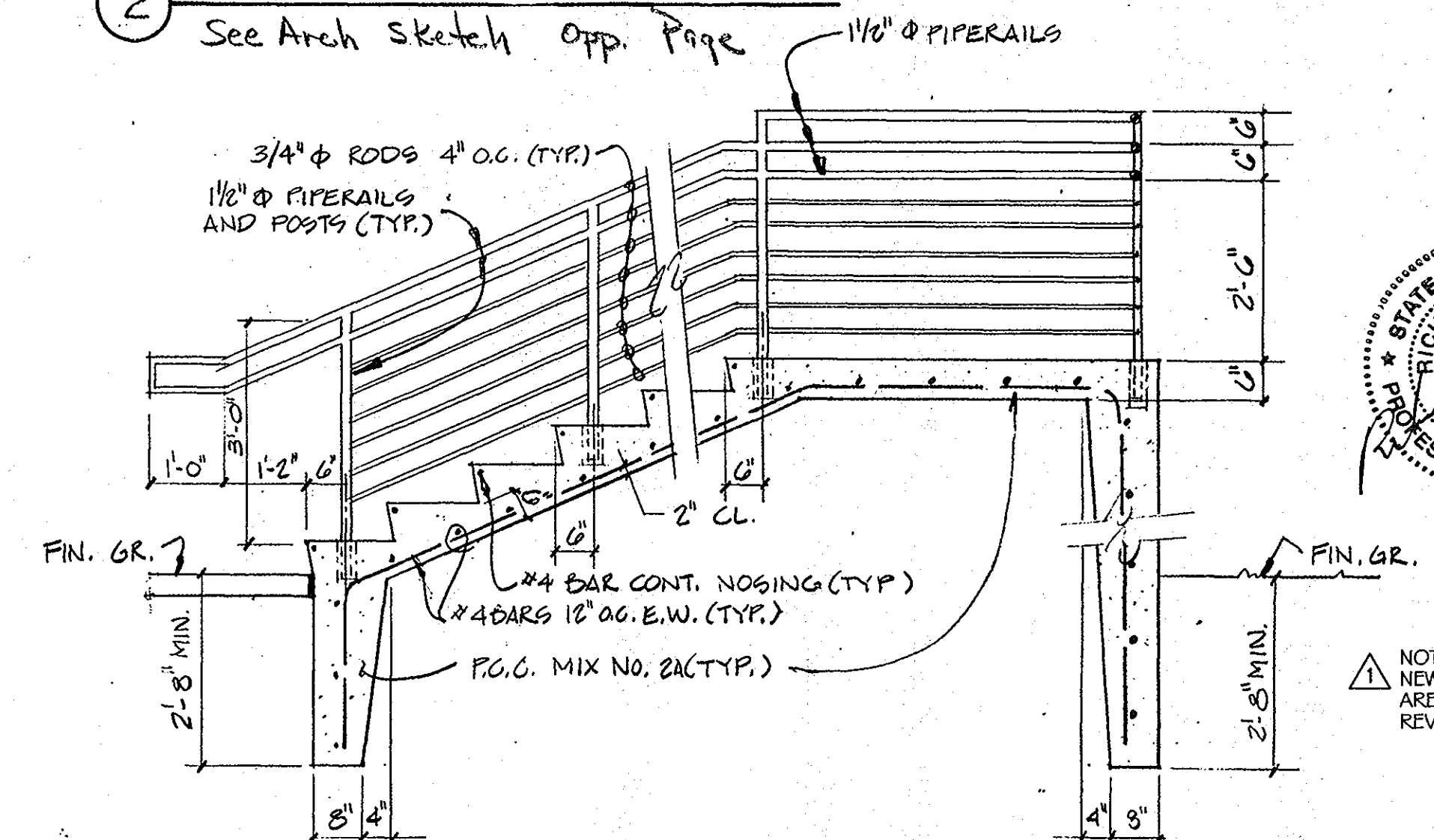
1 STAIR SECTION 1/2" = 1'-0"



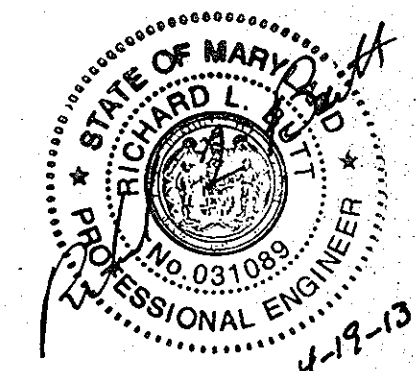
2 STAIR SECTION 1/2" = 1'-0"
See Arch Sketch opp. Page



3 STAIR SECTION 1/2" = 1'-0"



4 STAIR SECTION 1/2" = 1'-0"
See Arch Sketch opp. Page



NOTE: NEW SEAL & SIGNATURE ARE APPLICABLE ONLY TO REVISIONS.

JOHN BRUNETT, ARCHITECT, P.A.
2205 ST. PAUL STREET
BALTIMORE, MARYLAND 21218

OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES

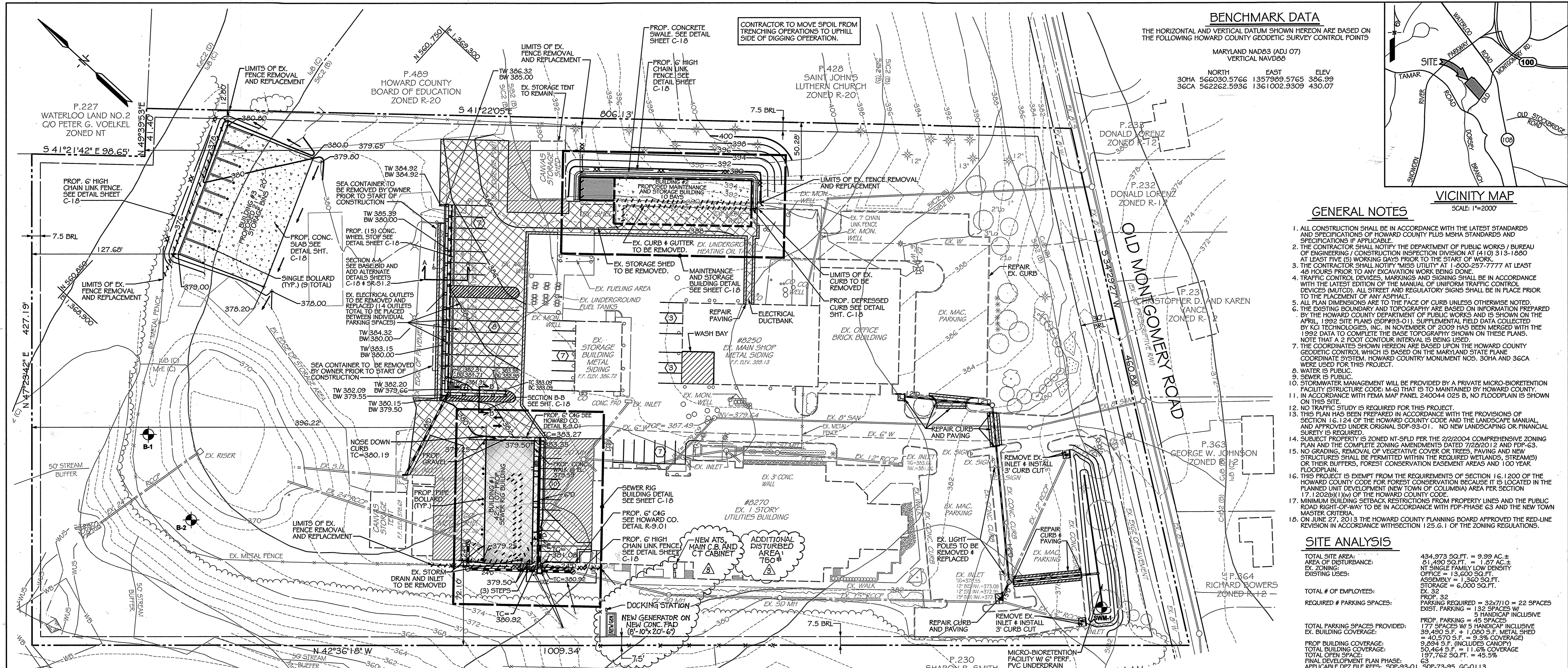
SITE DETAILS

PROJECT NUMBER: W-8173
DATE:
SCALE:
REVISIONS: DATE:
ADD NOTE REV. SHT. NO. FEBRUARY 25, 2013

SHEET NUMBER 10 OF 18

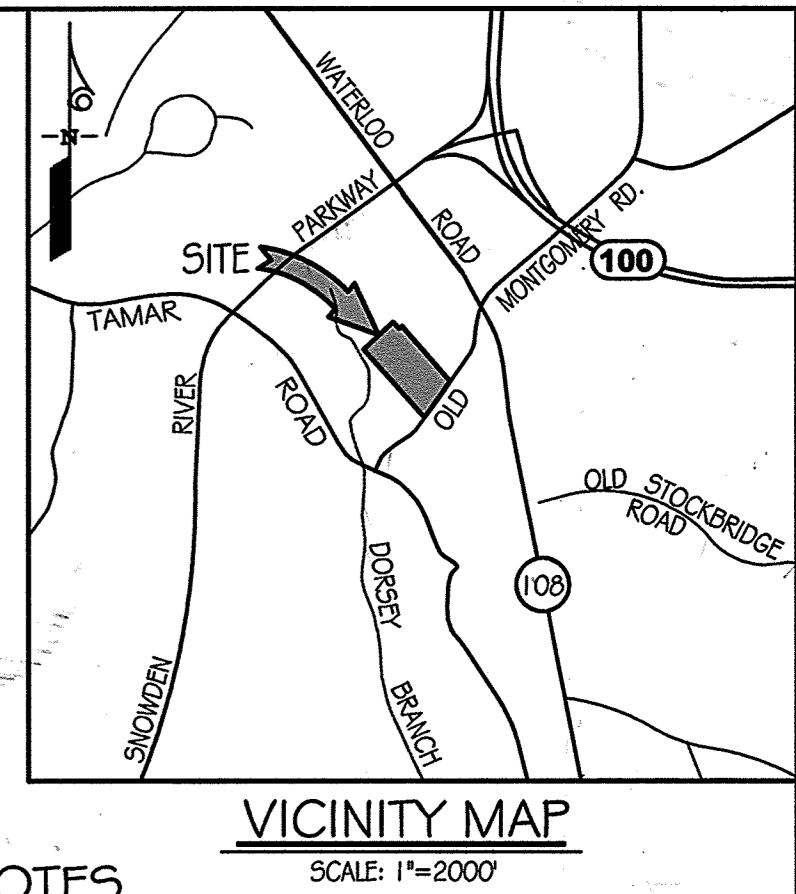
C-10

C-10



BENCHMARK DATA
THE HORIZONTAL AND VERTICAL DATUM SHOWN HEREON ARE BASED ON THE FOLLOWING HOWARD COUNTY GEODETIC SURVEY CONTROL POINTS

MARYLAND NAD83 (ADJ 07)		VERTICAL NAVD88
NORTH	EAST	ELEV
30HA 566030.5766	1357989.5765	386.99
36CA 562262.5936	1361002.9309	430.07



- GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
 - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
 - THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
 - TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
 - ALL PLAN DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
 - THE EXISTING BOUNDARY AND TOPOGRAPHY ARE BASED ON INFORMATION PREPARED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND IS SHOWN ON THE APRIL, 1992 SITE PLANS (SDP#93-01). SUPPLEMENTAL FIELD DATA COLLECTED BY KCI TECHNOLOGIES, INC. IN NOVEMBER OF 2009 HAS BEEN MERGED WITH THE 1992 DATA TO COMPLETE THE BASE TOPOGRAPHY SHOWN ON THESE PLANS. NOTE THAT A 2 FOOT CONTOUR INTERVAL IS BEING USED.
 - THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 30HA AND 36CA WERE USED FOR THIS PROJECT.
 - WATER IS PUBLIC.
 - SEWER IS PUBLIC.
 - STORMWATER MANAGEMENT WILL BE PROVIDED BY A PRIVATE MICRO-BIORETENTION FACILITY (STRUCTURE CODE: M-6) THAT IS TO MAINTAINED BY HOWARD COUNTY.
 - IN ACCORDANCE WITH FEMA MAP PANEL 240044 025 B, NO FLOODPLAIN IS SHOWN ON THIS SITE.
 - NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
 - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL AND APPROVED UNDER ORIGINAL SDP-93-01. NO NEW LANDSCAPING OR FINANCIAL SURETY IS REQUIRED.
 - SUBJECT PROPERTY IS ZONED NT-SF1D PER THE 2/2/2004 COMPREHENSIVE ZONING PLAN AND THE COMPLETE ZONING AMENDMENTS DATED 7/28/2012 AND FDP-63.
 - NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN.
 - THIS PROJECT IS EXEMPT FROM THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BECAUSE IT IS LOCATED IN THE PLANNED UNIT DEVELOPMENT (NEW TOWN OF COLUMBIA) AREA PER SECTION 17.1202(B) (1) OF THE HOWARD COUNTY CODE.
 - MINIMUM BUILDING SETBACK RESTRICTIONS FROM PROPERTY LINES AND THE PUBLIC ROAD RIGHT-OF-WAY TO BE IN ACCORDANCE WITH FDP-PHASE 63 AND THE NEW TOWN MASTER PLAN.
 - ON JUNE 27, 2013 THE HOWARD COUNTY PLANNING BOARD APPROVED THE RED-LINE REVISION IN ACCORDANCE WITH SECTION 125.6.1 OF THE ZONING REGULATIONS.

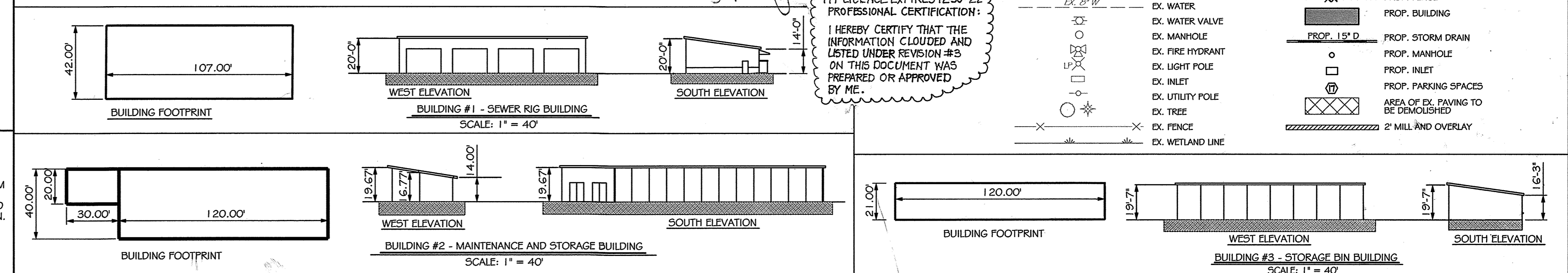
SITE ANALYSIS

TOTAL SITE AREA:	434,973 SQ.FT. = 9.99 AC.±
AREA OF DISTURBANCE:	81,490 SQ.FT. = 1.87 AC.±
EX. ZONING:	NT SINGLE FAMILY LOW DENSITY
EXISTING USES:	OFFICE = 13,600 SQ.FT. ASSEMBLY = 1,360 SQ.FT. STORAGE = 6,000 SQ.FT.
TOTAL # OF EMPLOYEES:	EX. 32
REQUIRED # PARKING SPACES:	PROF. REQUIRED = 32/710 = 22 SPACES DIST. PARKING = 132 SPACES 5 HANDICAP INCLUSIVE
TOTAL PARKING SPACES PROVIDED:	PROF. PARKING = 45 SPACES 177 SPACES W/5 HANDICAP INCLUSIVE
EX. BUILDING COVERAGE:	39,490 S.F. + 1,080 S.F. METAL SHED = 40,570 S.F. = 9.3% COVERAGE
PROF. BUILDING COVERAGE:	9,894 S.F. INCLUDES CANOPY = 50,464 S.F. = 11.6% COVERAGE
TOTAL BUILDING COVERAGE:	197,762 SQ.FT. = 45.5%
TOTAL OPEN SPACE:	63%
FINAL DEVELOPMENT PLAN PHASE:	SDP-93-01, SDP-73-95, GC-0113.
APPLICABLE DPZ FILE REF#:	SDP-93-01, SDP-73-95, GC-0113.

LEGEND

370	EX. INDEX CONTOUR	WB	WETLAND BUFFER
369	EX. INTERMEDIATE CONTOUR	WUS	WETLAND STREAM EDGE
---	PROPERTY LINE	SIC2 (B)	SOILS LINE
---	EX. CURB AND GUTTER	SIB2 (B)	SOILS LINE
---	EX. STORM DRAIN	---	LIMIT OF DISTURBANCE
---	EX. SANITARY SEWER	---	PROP. CONTOUR
---	EX. WOODS LINE	---	PROP. CURB AND GUTTER
---	EX. WATER	---	PROP. FENCE
---	EX. WATER VALVE	---	PROP. BUILDING
---	EX. MANHOLE	---	PROP. STORM DRAIN
---	EX. FIRE HYDRANT	---	PROP. MANHOLE
---	EX. LIGHT POLE	---	PROP. INLET
---	EX. INLET	---	PROP. PARKING SPACES
---	EX. UTILITY POLE	---	AREA OF EX. PAVING TO BE DEMOLISHED
---	EX. TREE	---	2' MILL AND OVERLAY
---	EX. FENCE	---	
---	EX. WETLAND LINE	---	

SITE DEVELOPMENT PLAN
SCALE: 1"=40'



MY LICENSE EXPIRES 12-30-22
PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THE INFORMATION CLOUD AND LISTED UNDER REVISION #3 ON THIS DOCUMENT WAS PREPARED OR APPROVED BY ME.

BY THE ENGINEER:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HDSPH MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.*

Richard L. Butt (RICHARD L. BUTT) 11-11-14
SIGNATURE OF ENGINEER (PRINT NAME NEXT TO SIGNATURE) DATE

BY THE DEVELOPER:
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.*

John & Mariah V. Miller 11/13/14
SIGNATURE OF DEVELOPER (PRINT NAME NEXT TO SIGNATURE) DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad E. Clark 11-20-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kristen A. DeLoach 11-20-14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mark A. Wynn 11/21/14
DIRECTOR DATE

REVISIONS

DATE	BY	DESCRIPTION
2/25/13	C.T.B.	REPLACEMENT SHEET FOR REV. A SHEET C-1
10/27/14	C.T.B.	REPLACEMENT SHEET FOR REV. B SHEET C-1
12-10-2020	S.J.M.	NEW GENERATOR AND SUPPORTING ELEC. EQUIP.

PROFESSIONAL CERTIFICATION.
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31089 EXPIRATION DATE: 11/21/14.

KCI TECHNOLOGIES
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818



OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES
SDP # 93-01, FORMERLY SDP # 73-95

REVISED SITE DEVELOPMENT PLAN

PREVIOUSLY APPROVED UNDER PROJ. GC 0113
ELECTION DISTRICT # 6 HOWARD COUNTY, MARYLAND
CENSUS TRACT # 606602

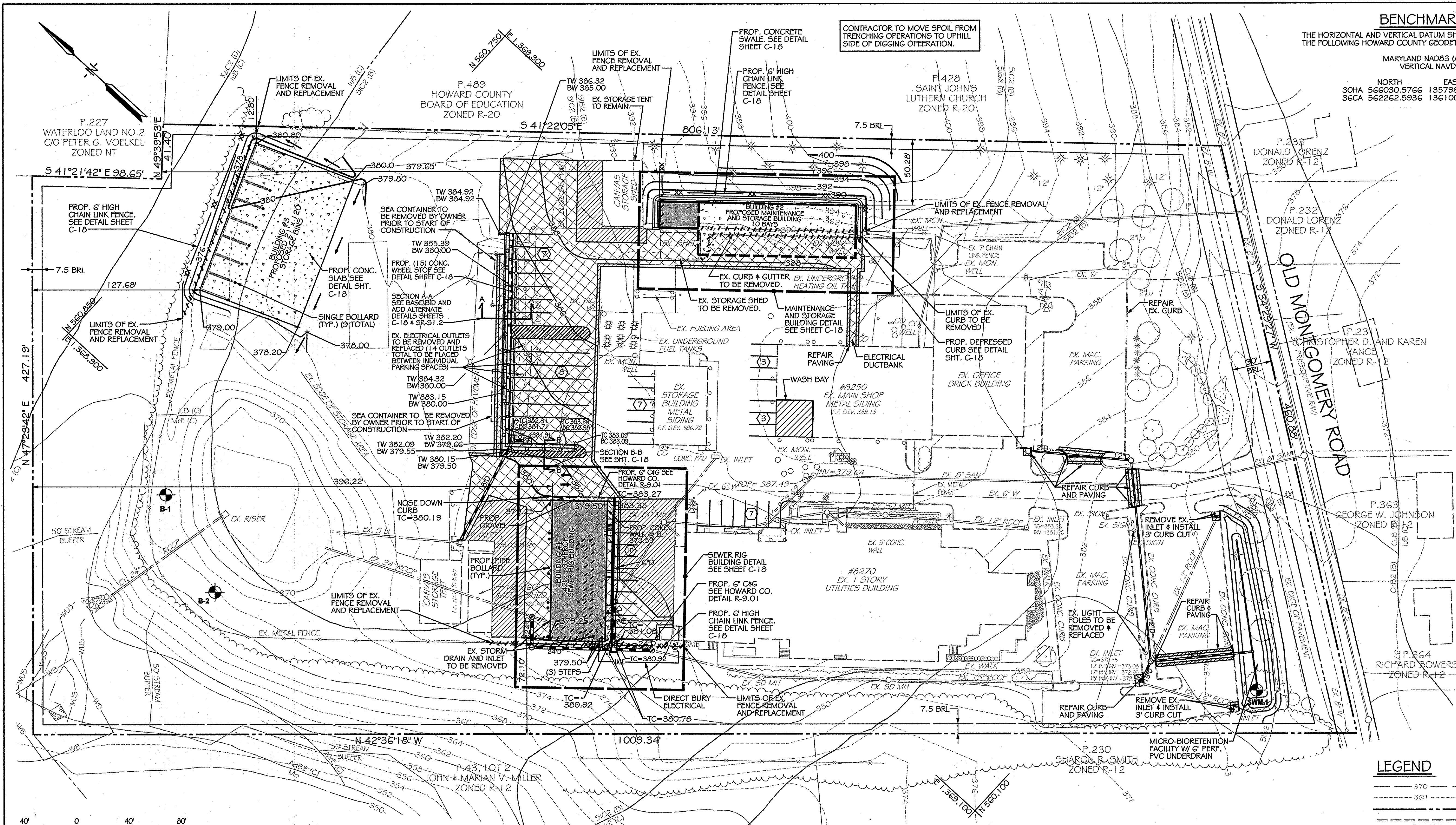
PLAT BOOK 18, FOLIO 88
TAX MAP 37, BLOCKS 7 & 8, PARCEL 549
WATER CODE E07, SEWER CODE 355009

KCI PROJECT NO: 01071378.18
DATE: MARCH 3, 2014
SCALE: 1"=40'

SHEET NUMBER 11 OF 51

C-11

PLOTTED: 11:05 AM on Monday, November 10, 2014
FILE NAME: 20071007137818B_Visuals\Fac_Development_Plan

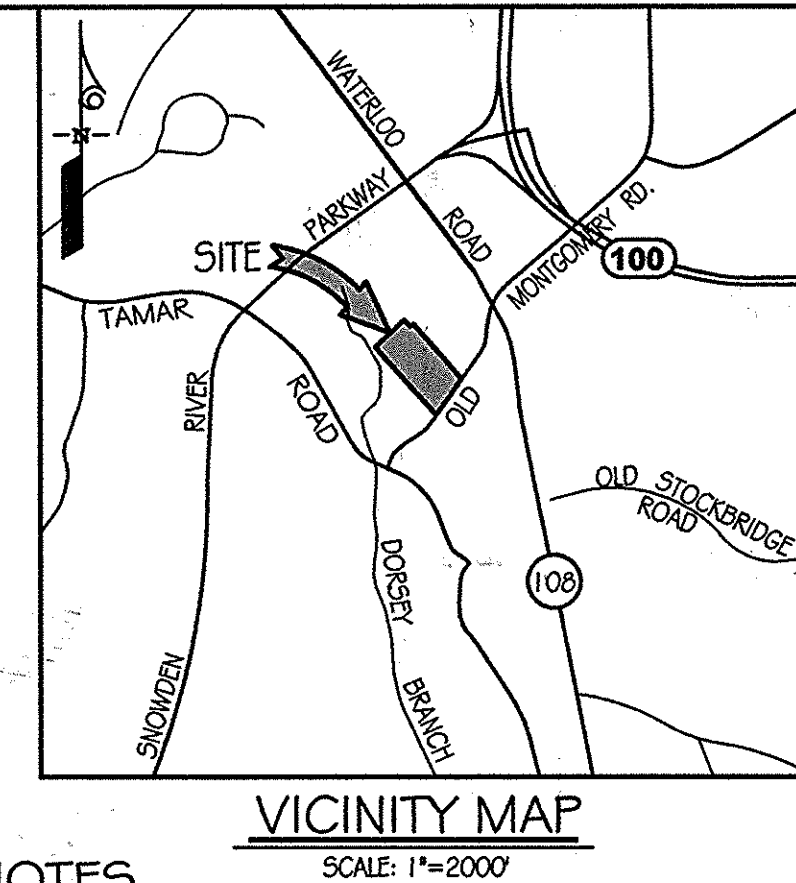


BENCHMARK DATA

THE HORIZONTAL AND VERTICAL DATUM SHOWN HEREON ARE BASED ON THE FOLLOWING HOWARD COUNTY GEODETIC SURVEY CONTROL POINTS

MARYLAND NAD83 (ADJ 07)

NORTH	EAST	ELEV
30HA 566080.5766	1357989.5765	386.99
36CA 562262.5936	1361002.9309	430.07



- GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
 - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
 - THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
 - TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
 - ALL PLAN DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
 - THE EXISTING BOUNDARY AND TOPOGRAPHY ARE BASED ON INFORMATION PREPARED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND IS SHOWN ON THE APRIL, 1992 SITE PLANS (SDP#93-01). SUPPLEMENTAL FIELD DATA COLLECTED BY KCI TECHNOLOGIES, INC. IN NOVEMBER OF 2009 HAS BEEN MERGED WITH THE 1992 DATA TO COMPLETE THE BASE TOPOGRAPHY SHOWN ON THESE PLANS. NOTE THAT A 2 FOOT CONTOUR INTERVAL IS BEING USED.
 - THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 30HA AND 36CA WERE USED FOR THIS PROJECT.
 - WATER IS PUBLIC.
 - SEWER IS PUBLIC.
 - STORMWATER MANAGEMENT WILL BE PROVIDED BY A PRIVATE MICRO-BIORETENTION FACILITY (STRUCTURE CODE: M-6) THAT IS TO BE MAINTAINED BY HOWARD COUNTY.
 - IN ACCORDANCE WITH FEMA MAP PANEL 240044 025 B, NO FLOODPLAIN IS SHOWN ON THIS SITE.
 - NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
 - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL, AND APPROVED UNDER ORIGINAL SDP-93-01. NO NEW LANDSCAPING OR FINANCIAL SURETY IS REQUIRED.
 - SUBJECT PROPERTY IS ZONED NT-SFLD PER THE 2/22/2004 COMPREHENSIVE ZONING PLAN AND THE COMPLETE ZONING AMENDMENTS DATED 7/23/2012 AND FDF-63.
 - NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN.
 - THIS PROJECT IS EXEMPT FROM THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BECAUSE IT IS LOCATED IN THE PLANNED UNIT DEVELOPMENT (NEW TOWN OF COLUMBIA) AREA PER SECTION 17.1202(b)(1)(v) OF THE HOWARD COUNTY CODE.
 - MINIMUM BUILDING SETBACK RESTRICTIONS FROM PROPERTY LINES AND THE PUBLIC ROAD RIGHT-OF-WAY TO BE IN ACCORDANCE WITH FDF-PHASE 63 AND THE NEW TOWN MASTER CRITERIA.
 - ON JUNE 27, 2013 THE HOWARD COUNTY PLANNING BOARD APPROVED THE RED-LINE REVISION IN ACCORDANCE WITH SECTION 125.6.1 OF THE ZONING REGULATIONS.

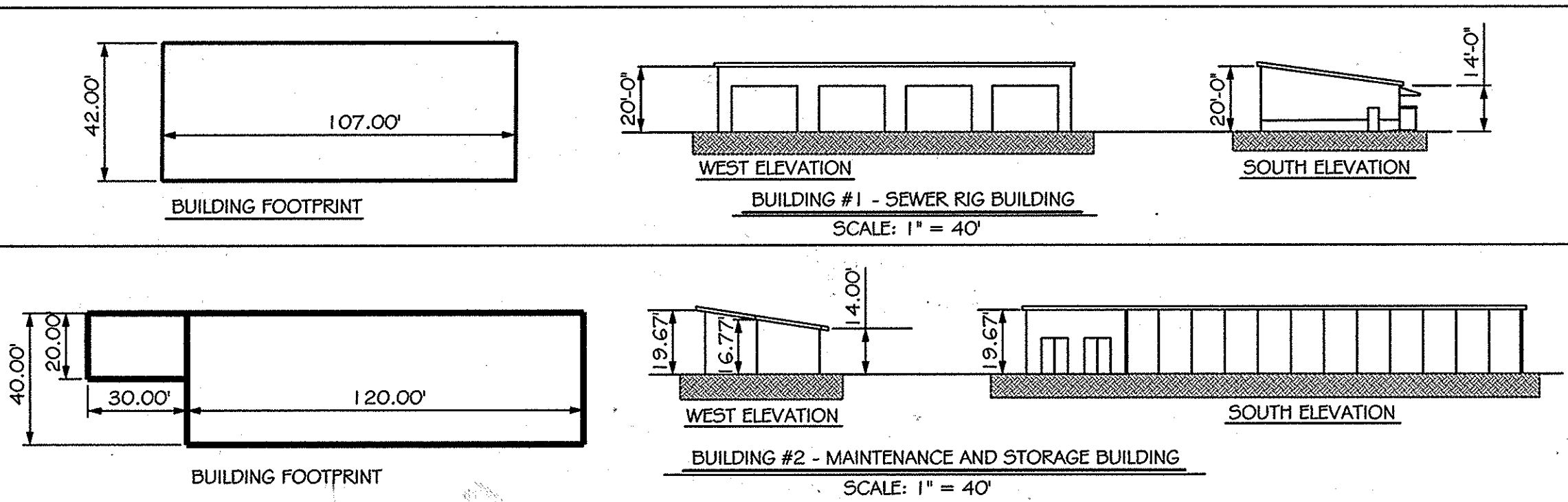
SITE ANALYSIS

TOTAL SITE AREA:	434,973 SQ.FT. = 9.99 AC. ±
AREA OF DISTURBANCE:	81,490 SQ.FT. = 1.87 AC. ±
EX. ZONING:	NT SINGLE FAMILY LOW DENSITY OFFICE = 13,600 SQ.FT.
EXISTING USES:	ASSEMBLY = 1,360 SQ.FT. STORAGE = 6,000 SQ.FT.
TOTAL # OF EMPLOYEES:	PROP. 32 EXIST. PARKING = 132 SPACES W/ 5 HANDICAP INCLUSIVE
REQUIRED # PARKING SPACES:	PROP. PARKING REQUIRED = 3247/10 = 22 SPACES EXIST. PARKING = 132 SPACES W/ 5 HANDICAP INCLUSIVE
TOTAL PARKING SPACES PROVIDED:	PROP. PARKING = 45 SPACES EXIST. BUILDING COVERAGE = 39,480 S.F. + 1,080 S.F. METAL SHED = 40,570 S.F. = 9.3% COVERAGE
PROP. BUILDING COVERAGE:	9,894 S.F. (INCLUDES CANOPY) = 2.3% COVERAGE
TOTAL BUILDING COVERAGE:	50,464 S.F. = 11.6% COVERAGE
TOTAL OPEN SPACE:	197,762 SQ.FT. = 45.5% COVERAGE
FINAL DEVELOPMENT PLAN PHASE:	63
APPLICABLE DPZ FILE REFS:	SDP-93-01, SDP-73-95, GC-0113.

LEGEND

370	EX. INDEX CONTOUR	WB	WETLAND BUFFER
360	EX. INTERMEDIATE CONTOUR	WUS	WETLAND STREAM EDGE
---	PROPERTY LINE	SIC2 (B)	SOILS LINE
---	EX. CURB AND GUTTER	SIB2 (B)	SOILS LINE
---	EX. STORM DRAIN	---	LIMIT OF DISTURBANCE
---	EX. SANITARY SEWER	---	PROP. CONTOUR
---	EX. WOODS LINE	---	PROP. CURB AND GUTTER
---	EX. WATER	---	PROP. FENCE
---	EX. WATER VALVE	---	PROP. BUILDING
---	EX. MANHOLE	---	PROP. STORM DRAIN
---	EX. FIRE HYDRANT	---	PROP. MANHOLE
---	EX. LIGHT POLE	---	PROP. INLET
---	EX. INLET	---	PROP. PARKING SPACES
---	EX. UTILITY POLE	---	AREA OF EX. PAVING TO BE DEMOLISHED
---	EX. TREE	---	2' MILL AND OVERLAY
---	EX. FENCE	---	
---	EX. WETLAND LINE	---	

SITE DEVELOPMENT PLAN
SCALE: 1"=40'



BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Richard L. Butt (RICHARD L. BUTT)
SIGNATURE OF ENGINEER (PRINT NAME NEXT TO SIGNATURE) 11-11-14 DATE

BY THE DEVELOPER:

WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Daniel L. Davis
SIGNATURE OF DEVELOPER (PRINT NAME NEXT TO SIGNATURE) 11/13/14 DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS:

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION 11-20-14 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT 11-20-14 DATE

DIRECTOR 11/21/14 DATE

REVISIONS

DATE	BY	DESCRIPTION
2/25/13	C.T.B.	REPLACEMENT SHEET FOR REV. A SHEET C-1
10/27/14	C.T.B.	REPLACEMENT SHEET FOR REV. A SHEET C-1

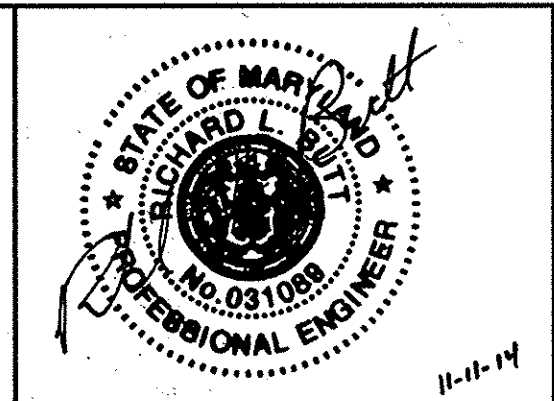
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KCI TECHNOLOGIES

ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818



OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES

SDP # 93-01, FORMERLY SDP # 73-95

REVISED SITE DEVELOPMENT PLAN

PREVIOUSLY APPROVED UNDER PROJ. GC 0113
ELECTION DISTRICT # 6 HOWARD COUNTY, MARYLAND
CENSUS TRACT # 606602

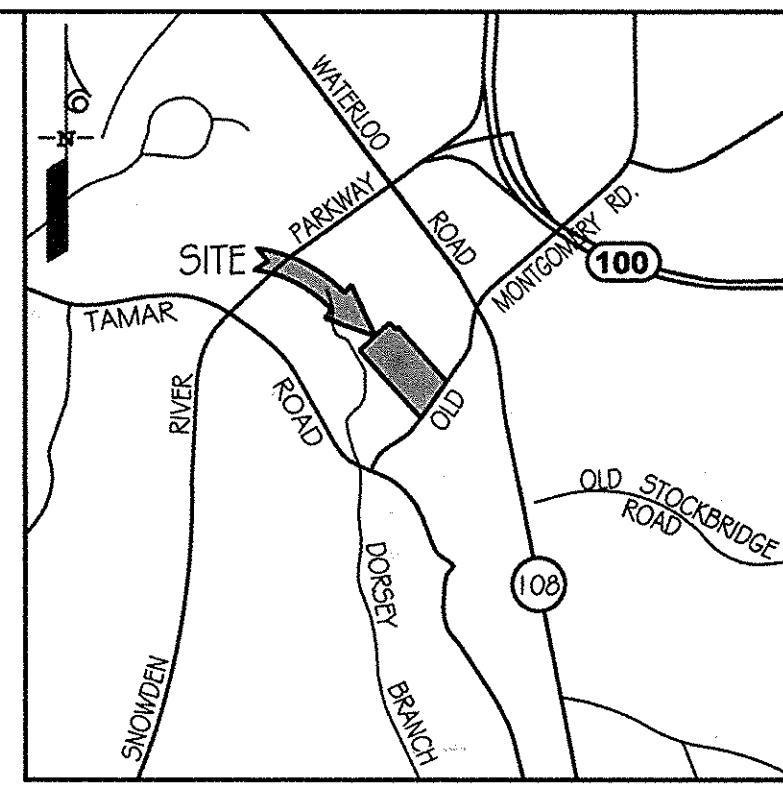
PLAT BOOK 18, FOLIO 88
TAX MAP 37, BLOCKS 7 & 8, PARCEL 549
WATER CODE E07, SEWER CODE 355000

KCI PROJECT NO: 01071378.18
DATE: MARCH 3, 2014
SCALE: 1"=40'

SHEET NUMBER 11 OF 51

C-11

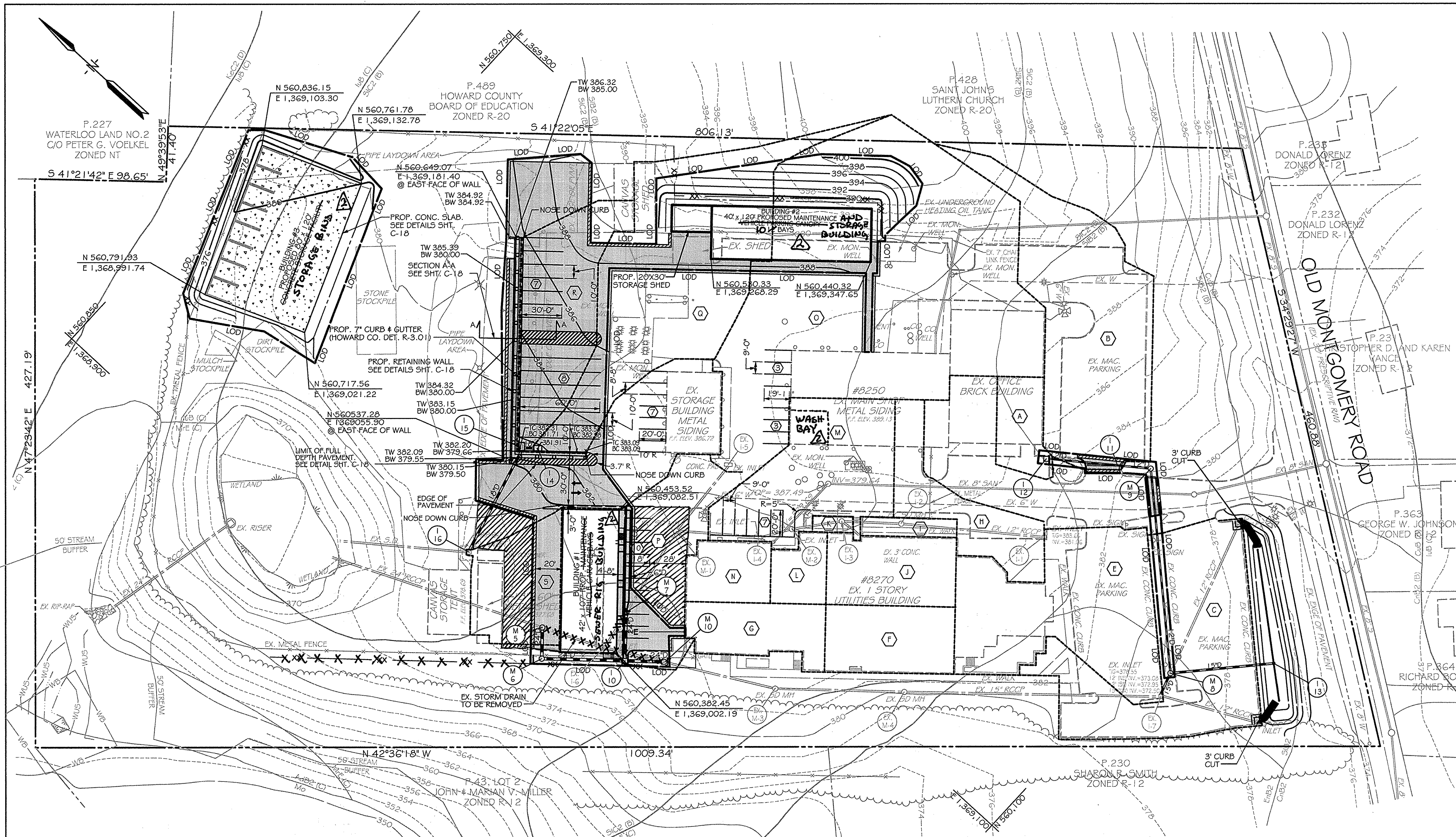
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BY: Chad Blythe, Division: Public Land Develop. Emp.
FILE: \\KCI\007\021089\021089\Drawings\021089_Site_Development_Plan



SOIL UNIT	SOIL NAME / DESCRIPTION	HYDROLOGIC SOIL GROUP
A2B2	ALDINO SILT LOAM, 3%-8% PERCENT SLOPES, MODERATELY ERODED	C
ChB2	CHILLUM-FAIRFAX LOAMS, 1%-5% SLOPE, MODERATELY ERODED	B
CuB	COMUS SILT LOAM, LOCAL ALLUVIUM, 3%-8% SLOPES	B
EnB2	ELSNBORO LOAMY SAND, 3%-8% SLOPES, MODERATELY ERODED	B
IuB	IUKA LOAM, LOCAL ALLUVIUM, 1%-5% SLOPES	C
KeC2	KELLY SILT LOAM, 8%-15% SLOPES, MODERATELY ERODED	D
Mo	MIXED ALLUVIAL, MIXED ALLUVIAL LAND	--
MtE	MONTALTO & RELAY SOILS, 15%-45% SLOPES	C/B
SIB2	SASSAFRAS LOAM, 1%-5% SLOPES, MODERATELY ERODED	B
SIC2	SASSAFRAS LOAM, 5%-10% SLOPES, MODERATELY ERODED	B

NOTE: A GEOTECHNICAL REPORT HAS BEEN PREPARED FOR THIS PROJECT BY KCI TECHNOLOGIES, INC. THIS REPORT IS FOR INFORMATIONAL PURPOSES ONLY AND SHOULD NOT BE CONSIDERED AS PART OF THE CONTRACT DOCUMENTS. THE OPINIONS AND CONCLUSIONS OF KCI REPRESENT OUR INTERPRETATION OF THE SUBSURFACE CONDITIONS AND THE PLANNED CONSTRUCTION AT THE TIME OF THE REPORT PREPARATION. THE DATA IN THIS REPORT MAY NOT BE ADEQUATE FOR CONTRACTORS ESTIMATING PURPOSES.

--- 370 ---	EX. INDEX CONTOUR
--- 369 ---	EX. INTERMEDIATE CONTOUR
---	PROPERTY LINE
---	EX. CURB AND GUTTER
---	EX. STORM DRAIN
---	EX. SANITARY SEWER
---	EX. WOODS LINE
---	EX. WATER
---	EX. WATER VALVE
---	EX. MANHOLE
---	EX. FIRE HYDRANT
---	EX. LIGHT POLE
---	EX. INLET
---	EX. UTILITY POLE
---	EX. TREE
---	EX. FENCE
---	WETLAND BUFFER
---	WETLAND STREAM EDGE
---	WETLAND LINE
---	PROP. CONTOUR
---	PROP. CONCRETE WALK
---	PROP. CURB AND GUTTER
---	PROP. FENCE
---	PROP. STORM DRAIN
---	PROP. MANHOLE
---	PROP. INLET
---	PROP. PARKING SPACES
---	PROP. FULL DEPTH PAVEMENT
---	LIMIT OF DISTURBANCE
---	2" MILL & OVERLAY
---	DRAINAGE AREAS (SEE SHEET 15 FOR AREA INFO.)



APPROVED PLANNING BOARD of HOWARD COUNTY
DATE: 6/27/13

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
B. Niran for Mauro Roszman 6/10/2013
COUNTY HEALTH OFFICER
DATE: 6/10/2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING
K. DeLoach 5/22/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION &
DATE: 5/22/2013

K. DeLoach 6/28/13
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 6/28/2013

W. A. Lege 7/1/13
DIRECTOR
DATE: 7/1/2013

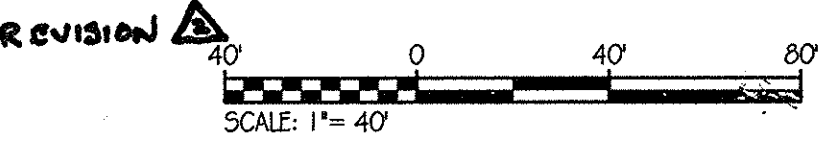
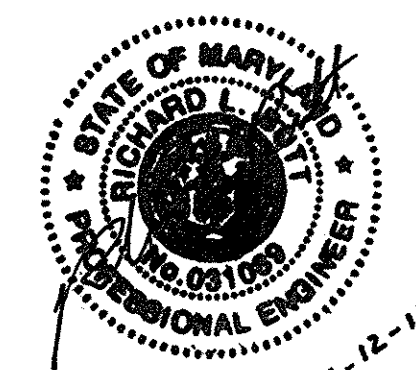
BY THE ENGINEER:
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R. J. Butt 4-19-13
SIGNATURE OF ENGINEER (PRINT NAME NEXT TO SIGNATURE) DATE

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M. Dinsmore, Keri Dinsmore 4/30/13
SIGNATURE OF DEVELOPER (PRINT NAME NEXT TO SIGNATURE) DATE

PAVING AND STORM DRAINAGE PLAN
SCALE: 1"=40'



NO.	TYPE	INV. IN	INV. OUT	TOP ELEV.	NORTHING	EASTING	REMARKS
I-10	3' COMBO	371.50+ 368.19	368.05	380.25	N 560,373.68	E 1,369,002.22	HOWARD CO. D-4.32
I-11	TRENCH DRAIN	-	-	-	N 560,200.60	E 1,369,360.27	SEE DETAIL SHEET C-6A
I-12	3' INLET	-	380.00	385.05	N 560,241.88	E 1,369,329.08	HOWARD CO. D-4.22
I-13	15' IN-LINE INLET	373.42	373.42	377.00	N 560,013.71	E 1,369,330.06	15' NYLOPLAST INLET OR APPROVED EQUAL
I-14	3' COMBO	-	378.62	381.91	N 560,529.97	E 1,369,075.59	HOWARD CO. D-4.32
I-15	3' COMBO	377.76	377.66	381.71	N 560,541.17	E 1,369,067.13	HOWARD CO. D-4.32
M-5	4' DIA. MH	367.55	367.47	378.85+/-	N 560,436.33	E 1,368,978.65	HOWARD CO. G-5.12
M-6	4' DIA. MH	367.77	367.67	377.85+/-	N 560,420.82	E 1,368,961.12	HOWARD CO. G-5.12
M-7	4' DIA. MH	374.17	373.05	381.32+/-	N 560,397.58	E 1,369,029.55	HOWARD CO. G-5.12
M-8	4' DIA. MH	373.29+/- 374.25	373.25+/-	379.65+/-	N 560,065.77	E 1,369,272.15	HOWARD CO. G-5.12
M-9	4' DIA. MH	377.25	376.25	381.30+/-	N 560,180.60	E 1,369,375.38	HOWARD CO. G-5.12
M-10	4' DIA. MH	368.38	368.28	381.26+/-	N 560,351.62	E 1,369,021.42	HOWARD CO. G-5.12

OWNER / DEVELOPER
HOWARD COUNTY
3450 COURT HOUSE DRIVE
ELLCOTT CITY, MD 21043
(410) 313-3000

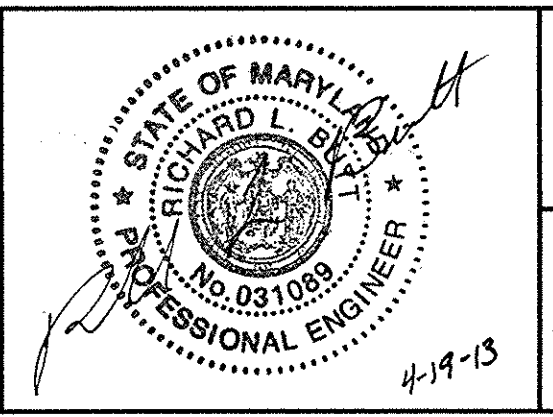
DATE	BY	DESCRIPTION
2/25/13	C.T.B.	REPLACEMENT SHEET FOR REV. A SHEET C-3
11/10/14	KCI	REVISION

PROFESSIONAL CERTIFICATION
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ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI TECHNOLOGIES

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818



OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES
SDP # 93-01, FORMERLY SDP # 73-95

REVISED PAVING AND STORM DRAINAGE PLAN

PREVIOUSLY APPROVED UNDER PROJ. GC 0113
ELECTION DISTRICT # 6 HOWARD COUNTY, MARYLAND
CENSUS TRACT # 606602

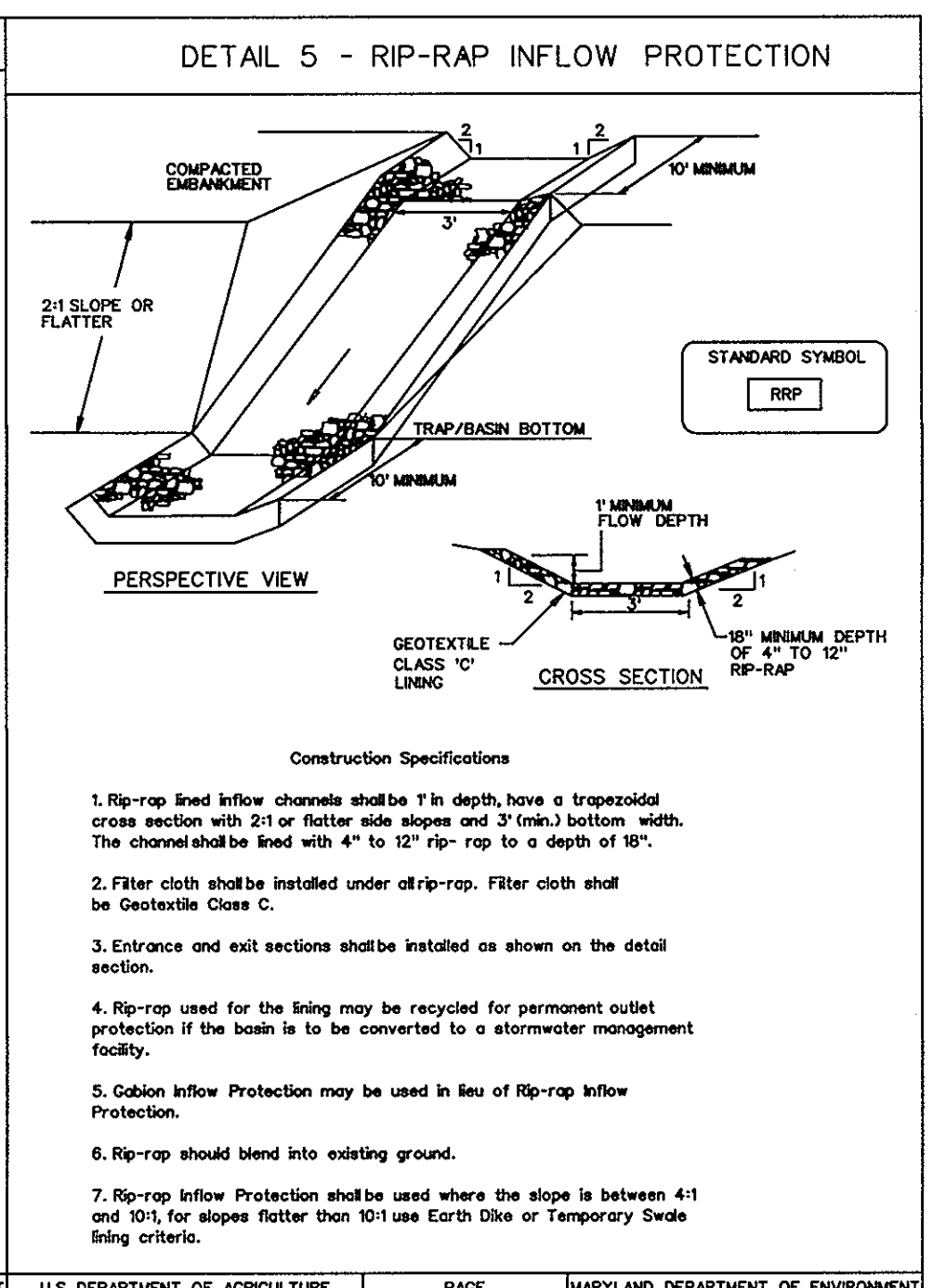
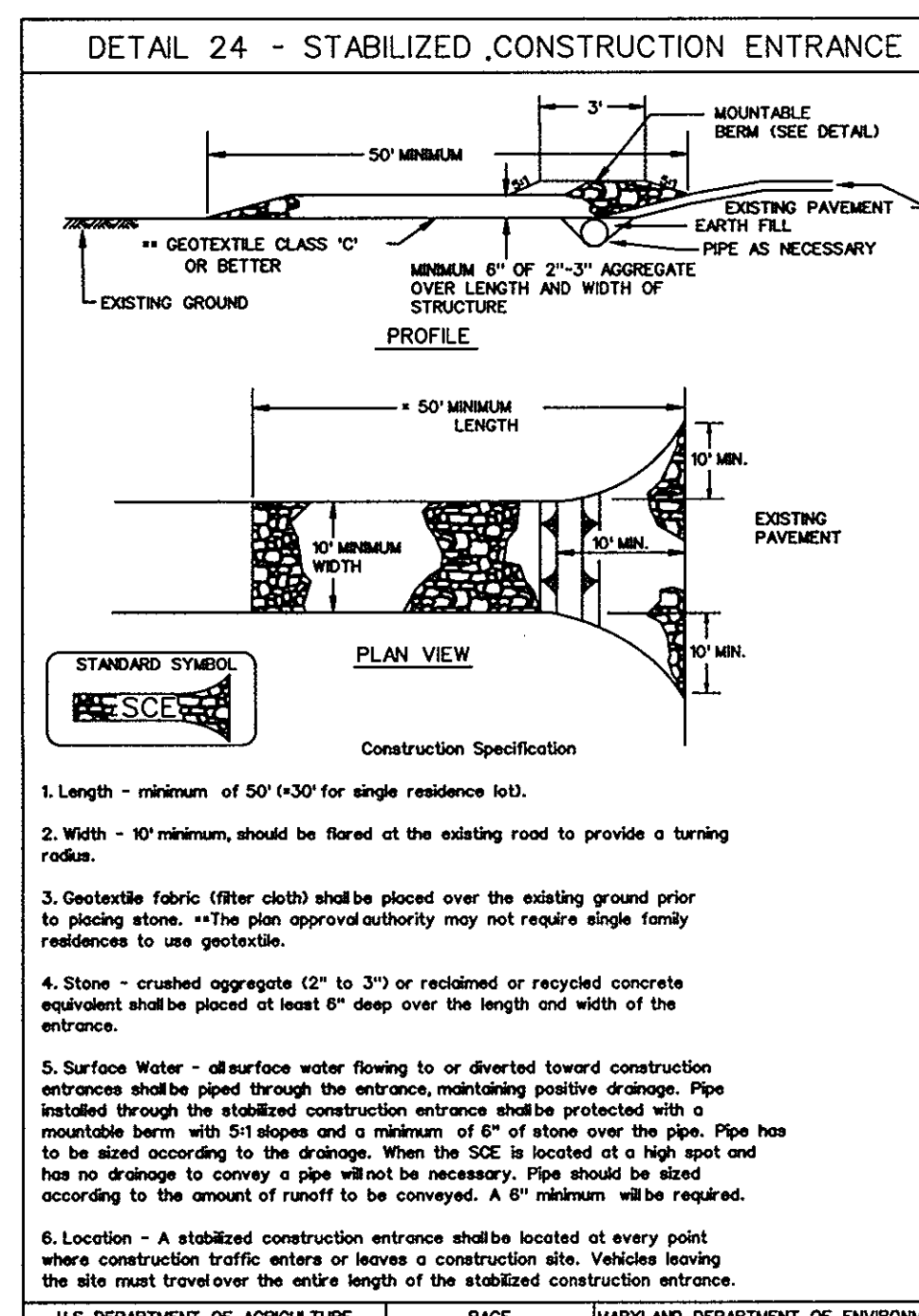
PLAT BOOK 18, FOLIO 88
TAX MAP 37, BLOCKS 7 & 8, PARCEL 549
WATER CODE E07, SEWER CODE 355000

KCI PROJECT NO: 01071378.18
DATE: FEBRUARY 25, 2013
SCALE: 1" = 40'

SHEET NUMBER 13 OF 18

C-13

SDP-93-01



20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Section I - Vegetative Stabilization Methods and Materials

A. Site Preparation

- Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
- Perform all grading operations at night angles to the slope. Final grading and shaping is not usually necessary for temporary seedings.
- Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)

- Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Construction of berms, waterways, or sediment control basins or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
- Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and manufacturer of the product.
- Lime materials shall be ground limestone hydrate or hard lime that may be substituted with dolomite that contains at least 50% total calcium (based on dry weight basis). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 30 - 100% will pass through a #20 mesh sieve. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.

C. Seeding Preparation

- Temporary Seeding**
 - Seeding preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or ripper mounted on construction equipment. After the soil is loosened it should be rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 1:1) should be tracked leaving the surface an irregular condition with ridges running parallel to the contour of the slope.
 - Apply fertilizer and lime as prescribed on the plans.
 - Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.
- Permanent Seeding**
 - Minimum soil conditions required for permanent vegetative establishment:
 - Soil pH shall be between 6.0 and 7.0
 - Sulfate salts shall be less than 500 parts per million (ppm).
 - Soil shall contain less than 10% clay but exceed the ground material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if loess or siltstone topsoils are to be planted; then a sandy soil (> 30% silt plus clay) would be acceptable.
 - Soil shall contain 1.5% minimum organic matter by weight.
 - Soil must contain sufficient pore space to permit adequate root penetration.
 - If these conditions cannot be met by soil on site, adding topsoil is required in accordance with Section 21.0 Standard and Specifications for Topsoil.
 - Areas previously graded in conformance with the drainage shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 - 5" to permit rooting of the topsoil to the surface area and to create horizontal erosion check sites to prevent topsoil from sliding down a slope. Apply soil amendments as per soil test or as indicated on the plans.
 - Mix soil amendments into the top 3 - 5" of topsoil by disking or other suitable means. Lame areas should be rolled to smooth the surface, remove large rocks and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loose topsoil surface with disking with a heavy chain or other equipment to roughen the surface. Slope slopes (steeper than 1:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3" of soil should be loose and friable. Seeded ground should not be necessary on newly disturbed areas.

E. Methods of Seeding

- Hydroseeding:** Apply seed uniformly with hydroseeder (bary includes seed and fertilizer), broadcast or strip seeding, or a seed spreader.
- Fertilizer:** If being applied at the time of seeding, the application rate amount will not exceed the following: nitrogen, maximum of 120 lbs. per acre total of soluble nitrogen; P2O5 (phosphorus): 200 lbs/acre; K2O (potassium): 200 lbs/acre.
- Line:** use only ground aggregate such as shales, streambeds, or dunes or for special purposes such as a wildlife or wildlife treatment measure. Lines shall be placed on the plans. Additional planting specifications for exceptional sites such as streambeds, streambeds, or dunes or for special purposes such as a wildlife or wildlife treatment measure shall be included in the notes to the plans. (See Section 34.2 - Critical Area Planting. For special line maintenance areas, see Section IV and V of the plans.)
- For sites having disturbed areas over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written on the plans.**
- For areas requiring line seed performance, apply random fertilizer (R-C-Q) at 1/2 lb. per 100 sq. ft. (150 lbs/acre), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.**

F. Mulch Specifications (In order of preference)

- Straw shall consist of thoroughly threshed wheat, rice or oat straw, reasonably bright in color, and shall not be moldy, matted, caked, decayed, or excessively dried and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
- Wood Cullage Fiber Mulch (WCFM)
- WCWM shall consist of specially prepared wood cullage processed into a uniform fibrous physical state.
- WCWM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly applied mulch.
- WCWM, including dye, shall contain no application or growth inhibiting factors.
- WCWM materials shall be manufactured and processed in such a manner that the wood cullage fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall have a fiber-like spread over an application, being moisture absorption and permeable properties and shall cover and hold grass seeds in contact with the soil without inhibiting the growth of the grass seedlings.
- WCWM material shall contain no elements or compounds at concentrations that will be phytotoxic.
- WCWM must conform to the following requirements: fiber length to approximately 10 mm, diameter approximately 1 mm, pH range of 4.0 to 6.5, ash content of 1.0% maximum and water content of 100% minimum.

Note: Only sterile straw mulch should be used in areas where one species of grass is specified.

G. Mowing Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

- If grading is completed outside of the seeding season, mulch shall be applied as prescribed in the section and maintained until the seeding season starts and seeding can be performed in accordance with these specifications.
- When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform depth and depth so that the surface, remove large rocks and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loose topsoil surface with disking with a heavy chain or other equipment to roughen the surface. Slope slopes (steeper than 1:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3" of soil should be loose and friable. Seeded ground should not be necessary on newly disturbed areas.

H. Seeding

- All seed must meet the requirements of the Maryland Seed Law. All seed shall be subject to retesting by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on the job.
- Note:** Seed lots shall be made available to the inspector to verify type and rate of seed used. Incubate the incubators for testing before use in the seedbed. Seed lots shall be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Incubate seed in soil later than the date indicated on the container. Add fresh incubants as directed on package. Use four times the recommended rate when hydroseeding.
- It is very important to keep noxious as cool as possible until use. Temperatures above 75-80°F can weaken bacteria and make the incubants less effective.

I. Incremental Stabilization of Erosion - G&S Slopes

- All soil slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
- Excavate and stabilize all temporary waterways, side ditches, or berms that will be used to convey runoff from the excavation.
- Perform phase 1 excavation, dress, and stabilize.

PERMANENT SEEDING SUMMARY

Seed Mixture (Per Hardness Zone - ZA)	Application Rate (lb/acre)		Seeding Dates	Seeding Depth	Fertilizer Rate (lb/100-10)			Line Rate
	No.	Species			N	P2O5	K2O	
1	1	Tall Fescue (95%) Perennial Ryegrass (10%) Blue Grass (5%)	125 15 10	3/15-3/15 3/15-3/15 3/15-3/15	30 lbs (12-8)	175 lbs (48-18)	175 lbs (48-18)	2 tons/acre (1000-1000)
2	1	Perennial Ryegrass (95%) Tall Fescue (5%)	110	3/15-3/15	30 lbs (12-8)	175 lbs (48-18)	175 lbs (48-18)	2 tons/acre (1000-1000)
3	1	Perennial Ryegrass (95%) Tall Fescue (5%)	110	3/15-3/15	30 lbs (12-8)	175 lbs (48-18)	175 lbs (48-18)	2 tons/acre (1000-1000)
4	1	Perennial Ryegrass (95%) Tall Fescue (5%)	110	3/15-3/15	30 lbs (12-8)	175 lbs (48-18)	175 lbs (48-18)	2 tons/acre (1000-1000)
5	1	Perennial Ryegrass (95%) Tall Fescue (5%)	110	3/15-3/15	30 lbs (12-8)	175 lbs (48-18)	175 lbs (48-18)	2 tons/acre (1000-1000)
6	1	Perennial Ryegrass (95%) Tall Fescue (5%)	110	3/15-3/15	30 lbs (12-8)	175 lbs (48-18)	175 lbs (48-18)	2 tons/acre (1000-1000)
7	1	Perennial Ryegrass (95%) Tall Fescue (5%)	110	3/15-3/15	30 lbs (12-8)	175 lbs (48-18)	175 lbs (48-18)	2 tons/acre (1000-1000)
8	1	Perennial Ryegrass (95%) Tall Fescue (5%)	110	3/15-3/15	30 lbs (12-8)	175 lbs (48-18)	175 lbs (48-18)	2 tons/acre (1000-1000)
9	1	Perennial Ryegrass (95%) Tall Fescue (5%)	110	3/15-3/15	30 lbs (12-8)	175 lbs (48-18)	175 lbs (48-18)	2 tons/acre (1000-1000)

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION
Topsoil: Topsoil over a prepared subsoil prior to establishment of permanent vegetation.

PURPOSE
To provide a suitable soil medium for permanent vegetation. Soil of concern here has low nutrient content, low pH, relative low to high, and low organic matter content.

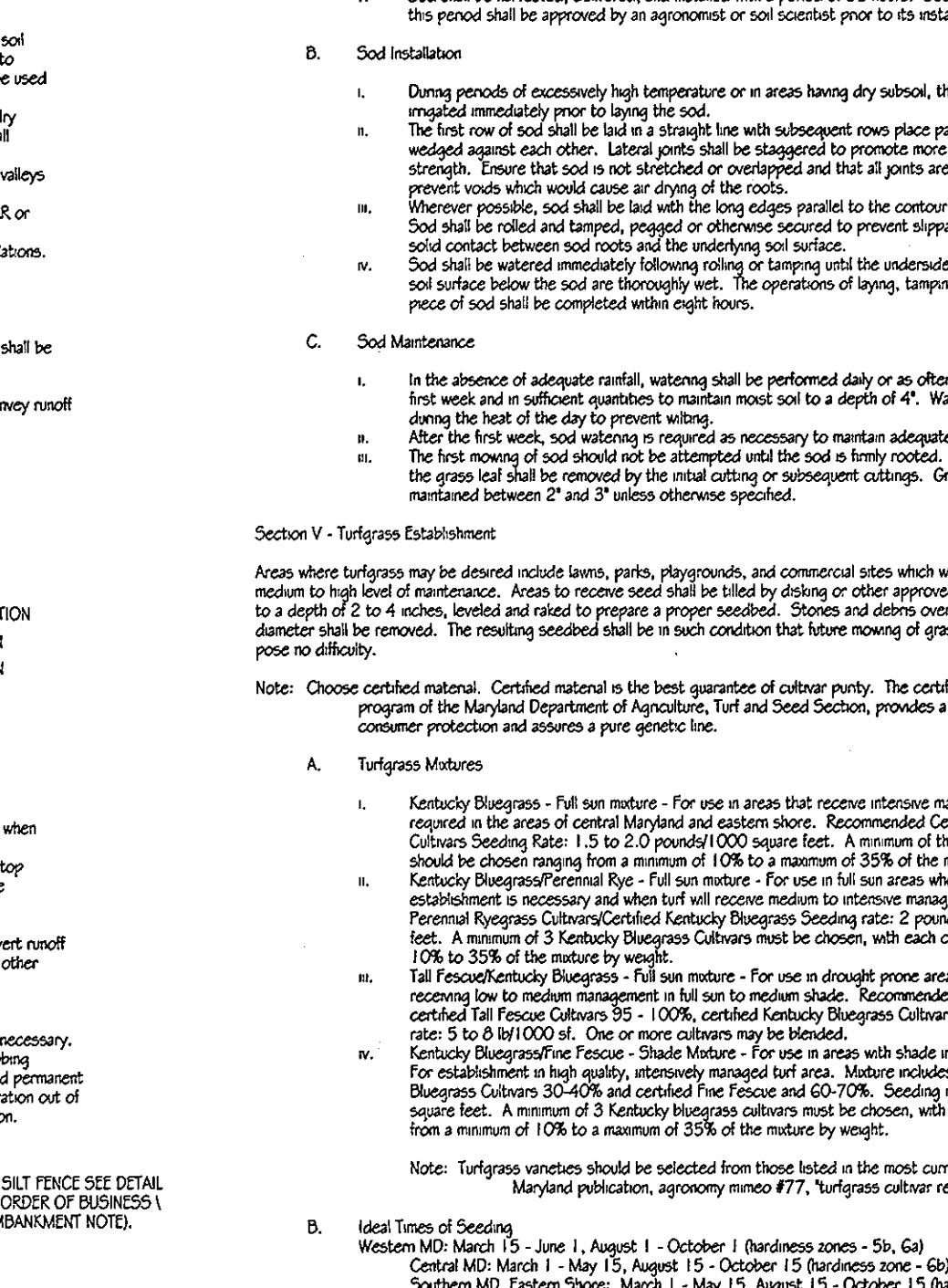
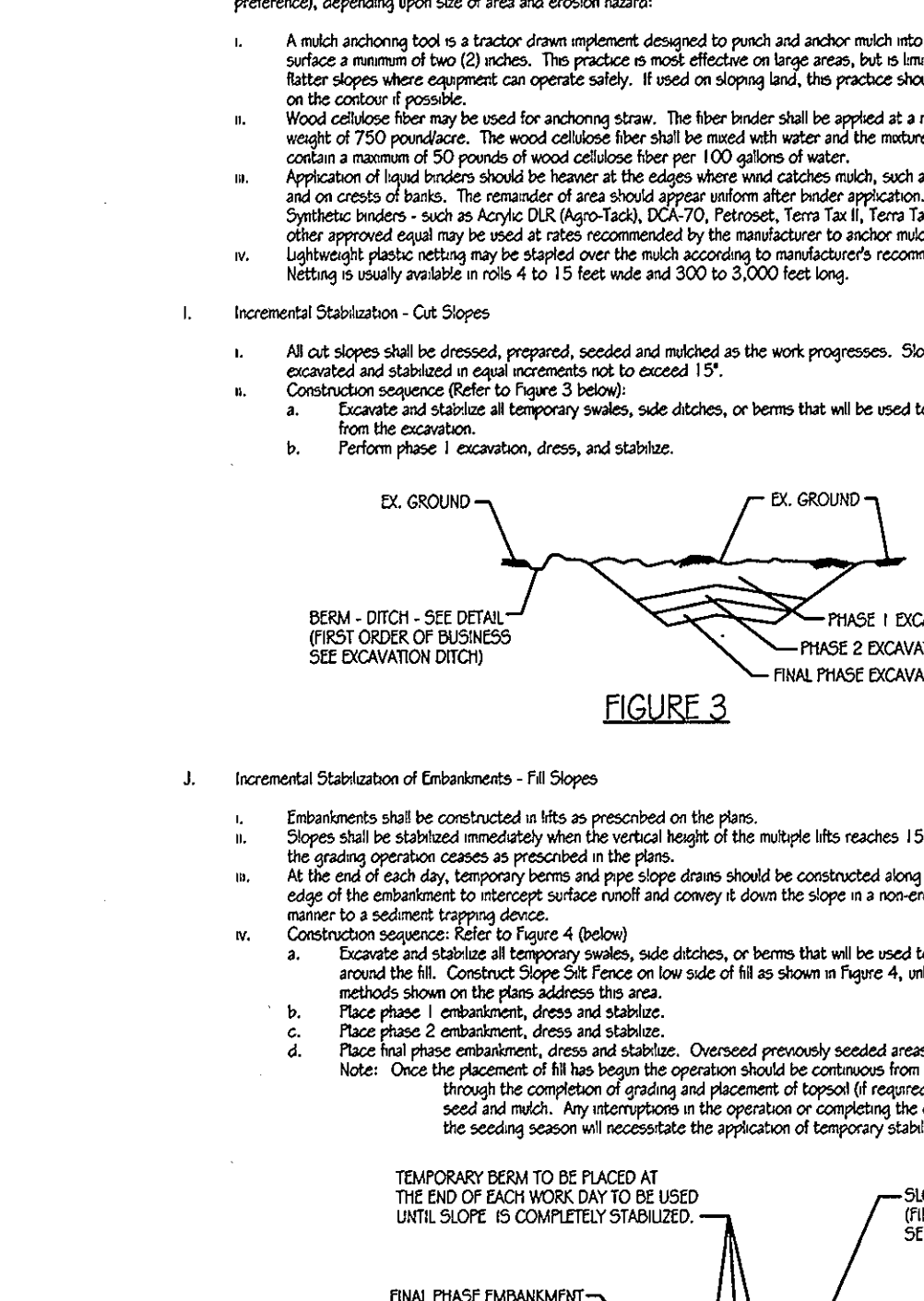
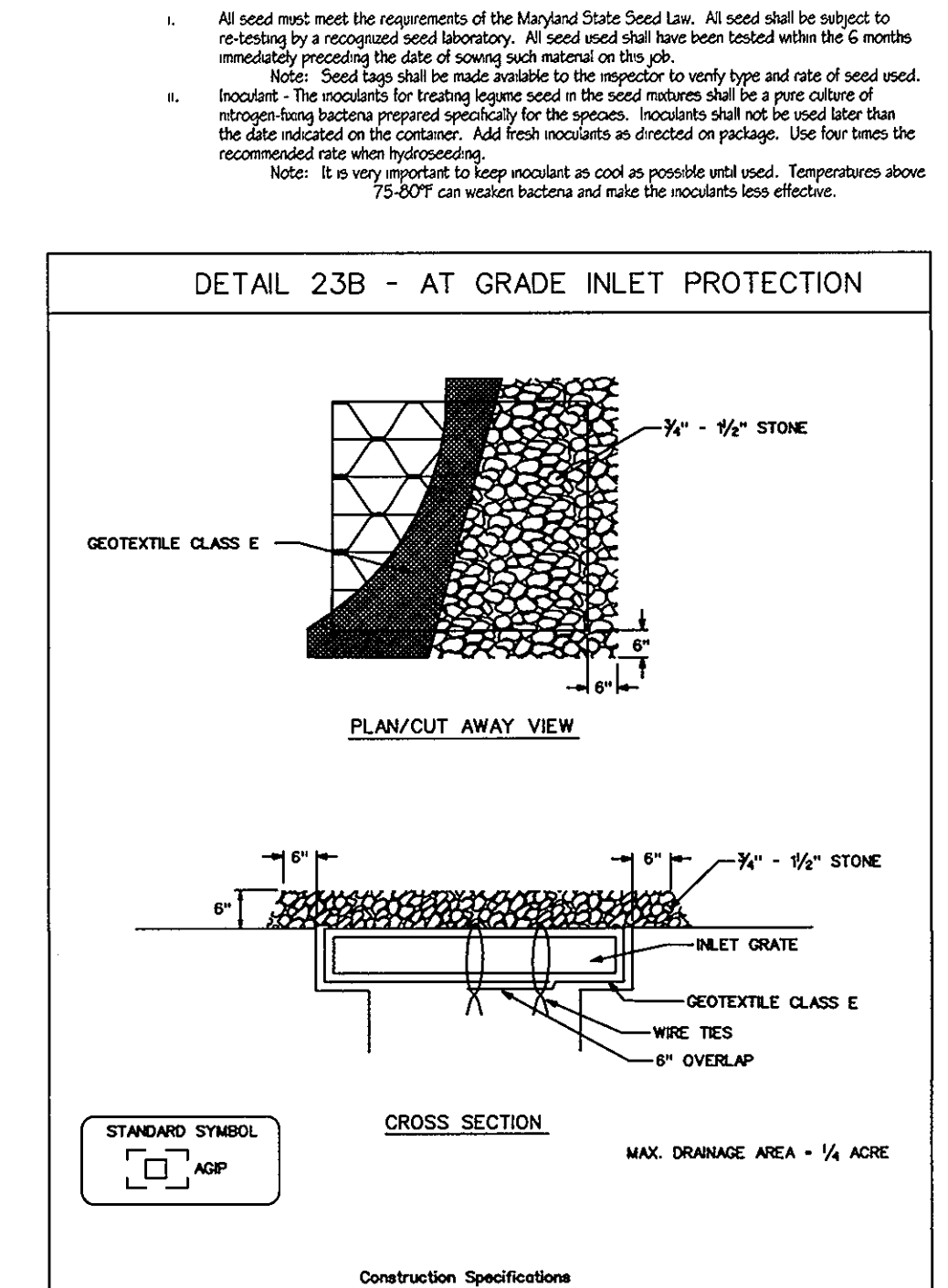
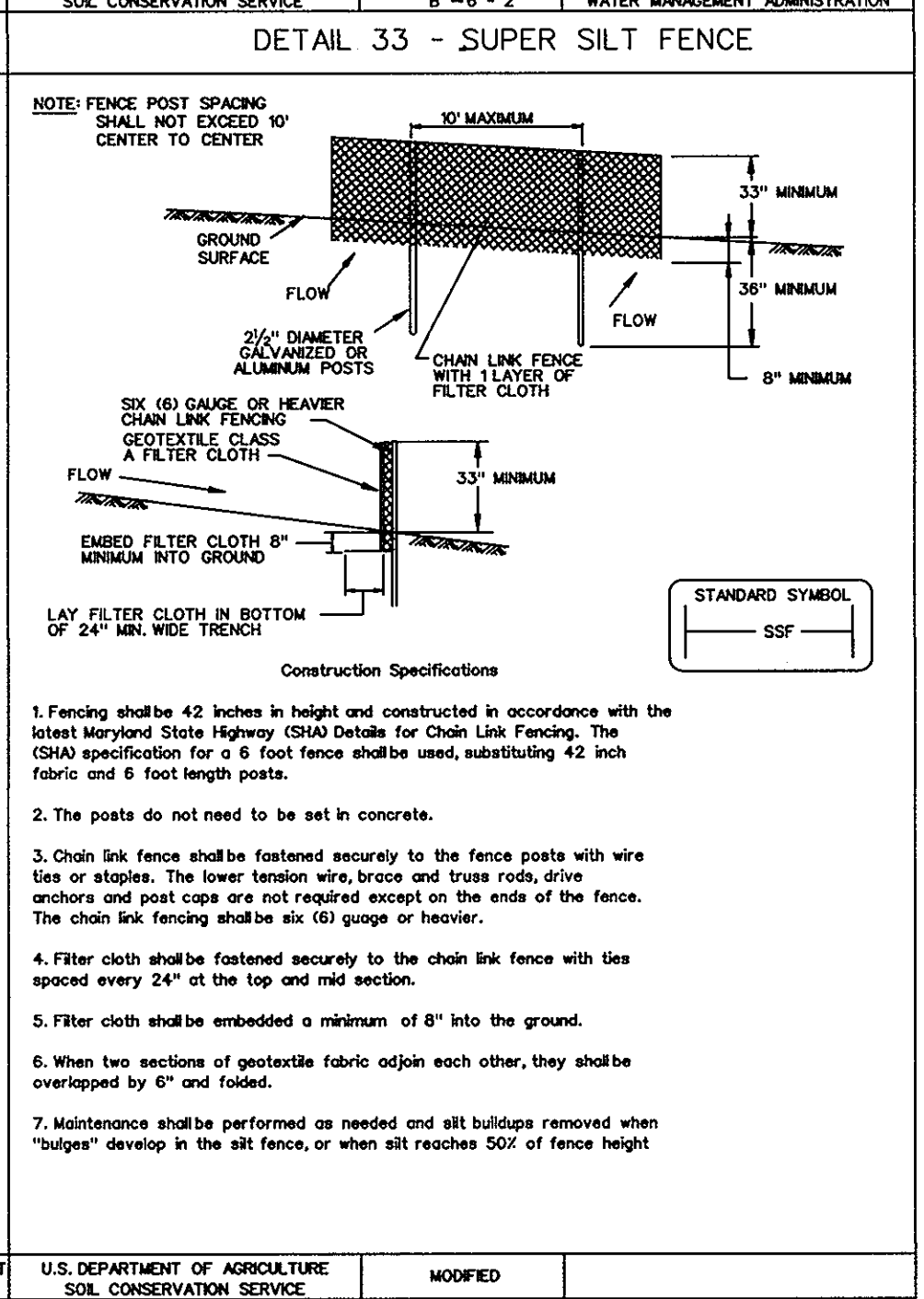
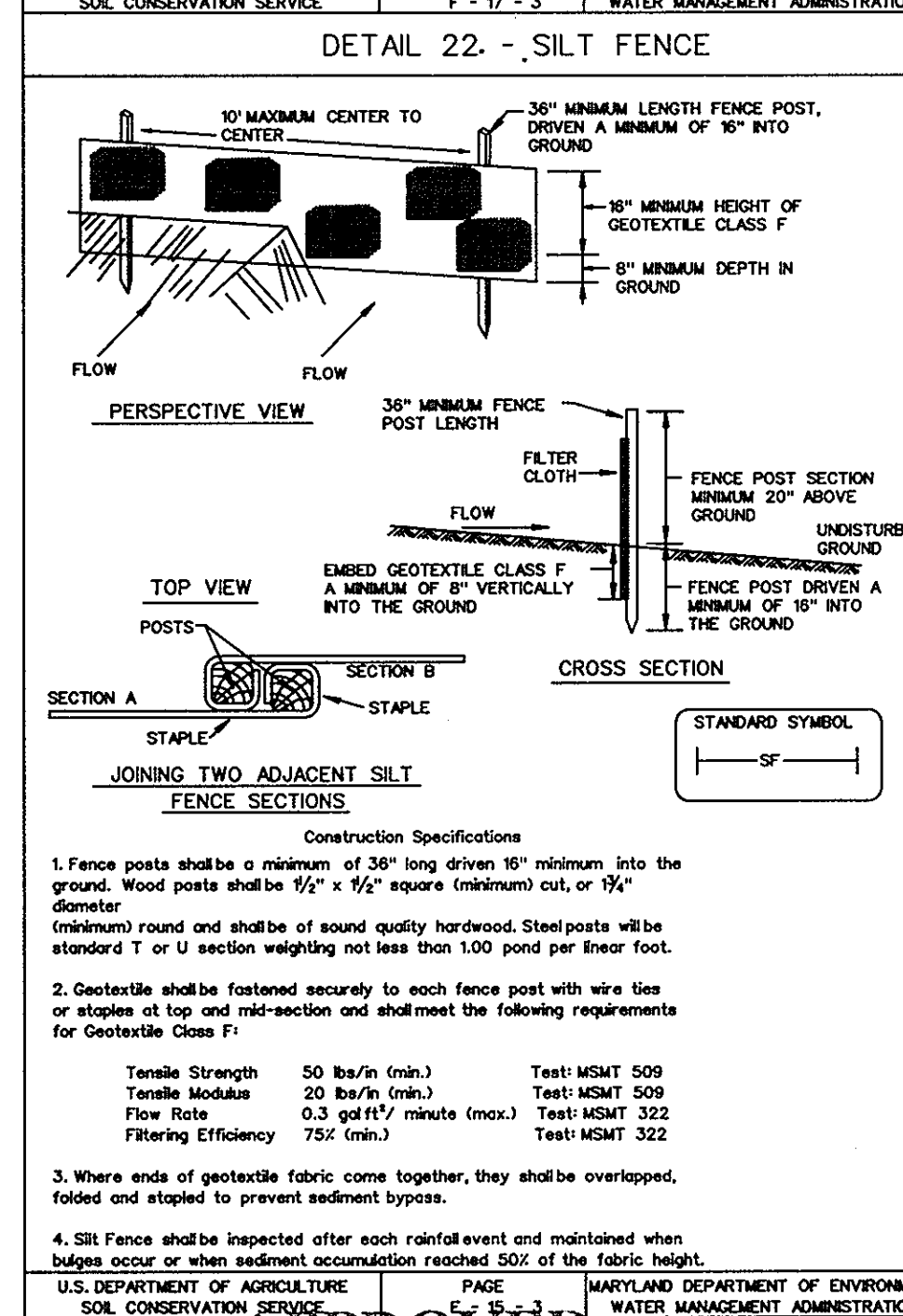
CONDITIONS WHERE PRACTICE APPLIES

- The practice is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil is not adequate to produce vegetative growth.
 - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish combining supplies of moisture and plant nutrients.
 - The original soil to be vegetated contains natural toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
- For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

- Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in the above section. The use of topsoil to be salvaged for a given site type can be found in the reclamation soil profile section of the Soil Survey published by USDA in cooperation with Maryland Agricultural Experiment Station.
- Topsoil Specifications - Soil to be used as topsoil must meet the following:
 - Topsoil shall be clean, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an approved soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textures and shall contain less than 5% by volume of cinders, shales, slag, coarse fragments, gravel, shells, rocks, trash, or other materials larger than 1/2" in diameter.
 - Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsrass, nodules, poison ivy, thistle, or others as specified.
 - Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-6 tons/acre (200-400 pounds per 1,000 square feet) prior to placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following paragraphs.
- For areas having disturbed areas over 5 acres:
 - On soil testing (Topsoil Specifications), obtain test results detailing fertilizer and soil amendments based on the test results. Fertilizer and soil amendments shall be applied at the rate of 1/2 lb. per 100 sq. ft. (150 lbs/acre) in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.
 - Topsoil shall be placed between 6.0 and 7.5". The tested soil must be at least 6.0" deep, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
 - Organic content of topsoil shall be not less than 1.5% by weight.
 - Topsoil having available soil cation greater than 500 parts per million shall not be used.
 - No soil or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (18 days) until to permit development of rhizobium fixating bacteria.
 - Topsoil substitutes and amendments, as recommended by a qualified soil scientist, shall be used in accordance with the appropriate approval authority, may be used in lieu of natural topsoil.
- Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
- Topsoil Application:
 - When topsoil, maintain needed erosion and sediment control products such as diversion, Grade Stabilization Structures, Earth Dikes, Slope Side Fence and Sediment Traps and Berms.
 - Grades on the areas to be topsoiled, which have been previously established, shall be maintained about 4" of higher and slightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that seedbeds or ridges on the soil surface with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
 - Topsoil shall not be placed while the topsoil or subsoil is in a moist or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be determined by proper grading and seedbed preparation.
- Alternate for Permanent Seeding - Instead of applying the full amount of lime and commercial fertilizer, compressed sludge may be applied as specified below:
 - Compressed Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be limited to provide phosphorus and nitrogen having available areas under 5 acres.
 - Compressed sludge shall contain at least 4% of phosphorus, 1.5 percent potassium, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to the sludge to meet the requirements for use.
 - Compressed sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - Compressed sludge shall be amended with a potassium fertilizer applied at the rate of 8 lb/1,000 square feet, and 1/2 lb. of normal urea fertilizer rate.

References: Guidelines Specifications, Soil Preparation and Seeding MDVA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institute, Revised 1973.



Section II - Temporary Seeding

Vegetation - annual grass or grass used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed Mixtures - Temporary Seeding

- Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardness Zone (from Figure 5) and enter them in the Temporary Seeding Summary below, along with application rates, seeding dates and seeding depths. If the Summary is not put on the plans and completed, then Table 26 must be put on the plans and completed.
- For sites having soil test performed, the rates shown on the table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

B. Methods of Seeding

- Hydroseeding: Apply seed uniformly with hydroseeder (bary includes seed and fertilizer), broadcast or strip seeding, or a seed spreader.
- Fertilizer: If being applied at the time of seeding, the application rate amount will not exceed the following: nitrogen, maximum of 120 lbs. per acre total of soluble nitrogen; P2O5 (phosphorus): 200 lbs/acre; K2O (potassium): 200 lbs/acre.
- Line: use only ground aggregate such as shales, streambeds, or dunes or for special purposes such as a wildlife or wildlife treatment measure. Lines shall be placed on the plans. Additional planting specifications for exceptional sites such as streambeds, streambeds, or dunes or for special purposes such as a wildlife or wildlife treatment measure shall be included in the notes to the plans. (See Section 34.2 - Critical Area Planting. For special line maintenance areas, see Section IV and V of the plans.)
- For sites having disturbed areas over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written on the plans.
- For areas requiring line seed performance, apply random fertilizer (R-C-Q) at 1/2 lb. per 100 sq. ft. (150 lbs/acre), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

C. Mowing Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

- If grading is completed outside of the seeding season, mulch shall be applied as prescribed in the section and maintained until the seeding season starts and seeding can be performed in accordance with these specifications.
- When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform depth and depth so that the surface, remove large rocks and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loose topsoil surface with disking with a heavy chain or other equipment to roughen the surface. Slope slopes (steeper than 1:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3" of soil should be loose and friable. Seeded ground should not be necessary on newly disturbed areas.

D. Seeding

- All seed must meet the requirements of the Maryland Seed Law. All seed shall be subject to retesting by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on the job.
- Note:** Seed lots shall be made available to the inspector to verify type and rate of seed used. Incubate the incubators for testing before use in the seedbed. Seed lots shall be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Incubate seed in soil later than the date indicated on the container. Add fresh incubants as directed on package. Use four times the recommended rate when hydroseeding.
- It is very important to keep noxious as cool as possible until use. Temperatures above 75-80°F can weaken bacteria and make the incubants less effective.

E. Incremental Stabilization of Erosion - G&S Slopes

- All soil slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
- Excavate and stabilize all temporary waterways, side ditches, or berms that will be used to convey runoff from the excavation.
- Perform phase 1 excavation, dress, and stabilize.

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE: 6/27/13

THESE PLANS FOR SMALL CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Blanton 5/24/13
HOWARD S.C.D. DATE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.

William M. Roostman 6/10/2013
COUNTY HEALTH OFFICER DATE
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

William M. Roostman 5/26/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kristen L. Lewis 6/6/13
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Paula A. Leigh 7/1/13
DIRECTOR DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

RH 2 Bitt 4-19-13
SIGNATURE OF ENGINEER (PRINT NAME NEXT TO SIGNATURE) DATE

BY THE DEVELOPER:

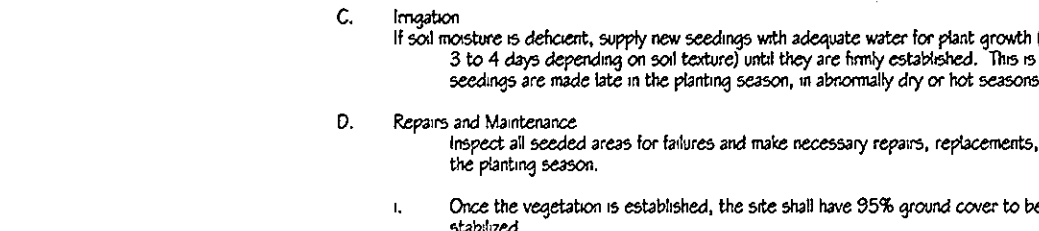
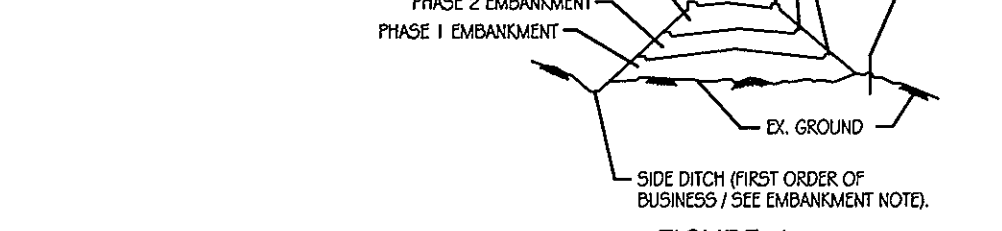
"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Kerri Dinwiddie 4/30/13
SIGNATURE OF DEVELOPER (PRINT NAME NEXT TO SIGNATURE) DATE

CONSTRUCTION SPECIFICATIONS

- Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
- Place 3/4" to 1/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 5 - 46 - 5A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



Section II - Temporary Seeding

Vegetation - annual grass or grass used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed Mixtures - Temporary Seeding

- Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardness Zone (from Figure 5) and enter them in the Temporary Seeding Summary below, along with application rates, seeding dates and seeding depths. If the Summary is not put on the plans and completed, then Table 26 must be put on the plans.
- For sites having soil test performed, the rates shown on the table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

B. Methods of Seeding

- Hydroseeding: Apply seed uniformly with hydroseeder (bary includes seed and fertilizer), broadcast or strip seeding, or a seed spreader.
- Fertilizer: If being applied at the time of seeding, the application rate amount will not exceed the following: nitrogen, maximum of 120 lbs. per acre total of soluble nitrogen; P2O5 (phosphorus): 200 lbs/acre; K2O (potassium): 200 lbs/acre.
- Line: use only ground aggregate such as shales, streambeds, or dunes or for special purposes such as a wildlife or wildlife treatment measure. Lines shall be placed on the plans. Additional planting specifications for exceptional sites such as streambeds, streambeds, or dunes or for special purposes such as a wildlife or wildlife treatment measure shall be included in the notes to the plans. (See Section 34.2 - Critical Area Planting. For special line maintenance areas, see Section IV and V of the plans.)
- For sites having disturbed areas over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written on the plans.
- For areas requiring line seed performance, apply random fertilizer (R-C-Q) at 1/2 lb. per 100 sq. ft. (150 lbs/acre), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

C. Mowing Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

- If grading is completed outside of the seeding season, mulch shall be applied as prescribed in the section and maintained until the seeding season starts and seeding can be performed in accordance with these specifications.
- When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform depth and depth so that the surface, remove large rocks and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loose topsoil surface with disking with a heavy chain or other equipment to roughen the surface. Slope slopes (steeper than 1:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3" of soil should be loose and friable. Seeded ground should not be necessary on newly disturbed areas.

D. Seeding

- All seed must meet the requirements of the Maryland Seed Law. All seed shall be subject to retesting by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on the job.
- Note:** Seed lots shall be made available to the inspector to verify type and rate of seed used. Incubate the incubators for testing before use in the seedbed. Seed lots shall be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Incubate seed in soil later than the date indicated on the container. Add fresh incubants as directed on package. Use four times the recommended rate when hydroseeding.
- It is very important to keep noxious as cool as possible until use. Temperatures above 75-80°F can weaken bacteria and make the incubants less effective.

E. Incremental Stabilization of Erosion - G&S Slopes

- All soil slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
- Excavate and stabilize all temporary waterways, side ditches, or berms that will be used to convey runoff from the excavation.
- Perform phase 1 excavation, dress, and stabilize.

OWNER / DEVELOPER
HOWARD COUNTY
3450 COURT HOUSE DRIVE
ELICOTT CITY, MD 21043
(410) 313-3000

REVISIONS		
DATE	BY	DESCRIPTION
2/25/13	C.T.B.	REPLACEMENT SHEET FOR REV. A SHEET C-5

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31089 EXPIRATION DATE: 11/21/14.

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

936 RIDGEBROOK ROAD
SHARPS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

TEMPORARY SEEDING SUMMARY

Seed Mixture (Per Hardness Zone - ZA)	Application Rate (lb/acre)		Seeding Dates	Seeding Depth	Fertilizer Rate (lb/100-10)			Line Rate
	No.	Species			N	P2O5	K2O	
1	1	Barley	122	3/1-4/1	12-2"	600 lbs (15-1000)	2 tons/acre (1000-1000)	
2	1	Rye	50	3/1-4/1	12"	600 lbs (15-1000)	2 tons/acre (1000-1000)	
3	1	Mix and Fertilizer	150	2/1-1/30	1"	600 lbs (15-1000)	2 tons/acre (1000-1000)	

INLET PROTECTION NOTES

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:

- 1" ANY INLET OUTFALLING DIRECTLY INTO A SEDIMENT TRAPPING DEVICE.
2. INLETS ON PRIVATE OR PUBLIC PAVED ROADWAYS OPEN TO THE PUBLIC.

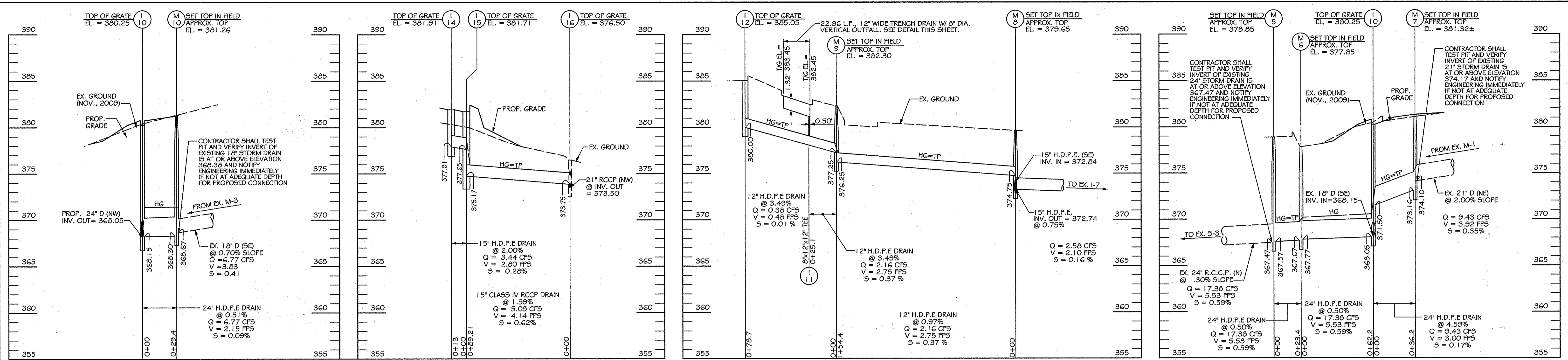
ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL, PAGE E-11 (OR AS AMENDED). THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

* STORM DRAIN TO BE FLUSHED PRIOR TO TRAPPING DEVICE REMOVAL.

UTILITY NOTES

1. CONTRACTOR SHALL OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY SILT FENCE SHALL BE PLACED BELOW (DOWN SLOPE OF) THE TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON THE UPHILL SIDE OF THE TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
4. CONTRACTOR TO ENSURE PROPER SAFETY PRE CAUTIONS FOR TRAFFIC ARE TAKEN WHEN IN AREAS OF PARKING AND AUTOMOBILE TRAVEL AREAS.

NOTE:
SEE SHEET C-12 FOR SEQUENCE OF CONSTRUCTION AND SEDIMENT CONTROL NOTES



NOTE: 1. EXISTING INVERT INFORMATION IS TAKEN FROM DESIGN DATA FROM SDP-93-01 SHEETS C-3 AND C-6 AND SUPPLEMENTED WITH FIELD DATA COLLECTED BY KCI TECHNOLOGIES IN NOVEMBER, 2009.

2. GRATE ELEVATION IS AT GEOMETRIC CENTER OF STRUCTURE.

NOTE: EXISTING INVERT INFORMATION IS TAKEN FROM DESIGN DATA FROM SDP-93-01 SHEETS C-3 AND C-6 AND SUPPLEMENTED WITH FIELD DATA COLLECTED BY KCI TECHNOLOGIES IN NOVEMBER, 2009.

NOTE: EXISTING INVERT INFORMATION IS TAKEN FROM DESIGN DATA FROM SDP-93-01 SHEETS C-3 AND C-6 AND SUPPLEMENTED WITH FIELD DATA COLLECTED BY KCI TECHNOLOGIES IN NOVEMBER, 2009.

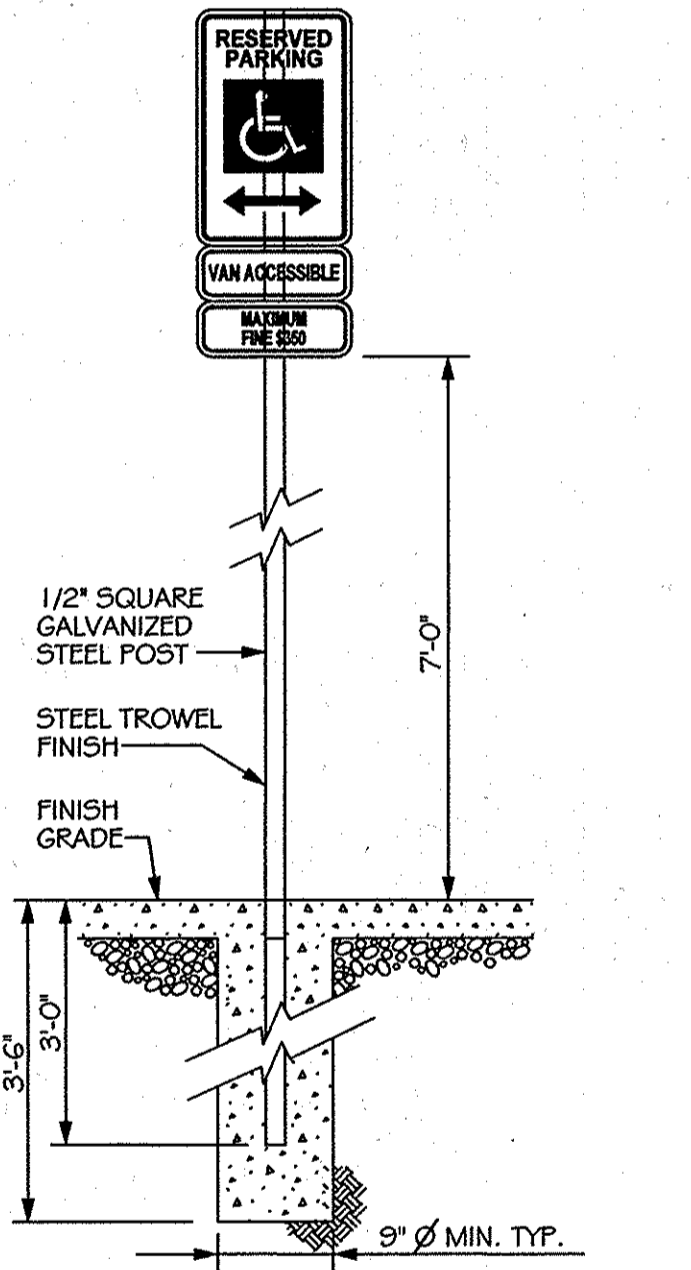
NOTE: EXISTING INVERT INFORMATION IS TAKEN FROM DESIGN DATA FROM SDP-93-01 SHEETS C-3 AND C-6 AND SUPPLEMENTED WITH FIELD DATA COLLECTED BY KCI TECHNOLOGIES IN NOVEMBER, 2009.

STORM DRAIN PROFILES
SCALE: HORIZ: 1"=40'
VERT: 1"=5'

STORM DRAIN PROFILES
SCALE: HORIZ: 1"=40'
VERT: 1"=5'

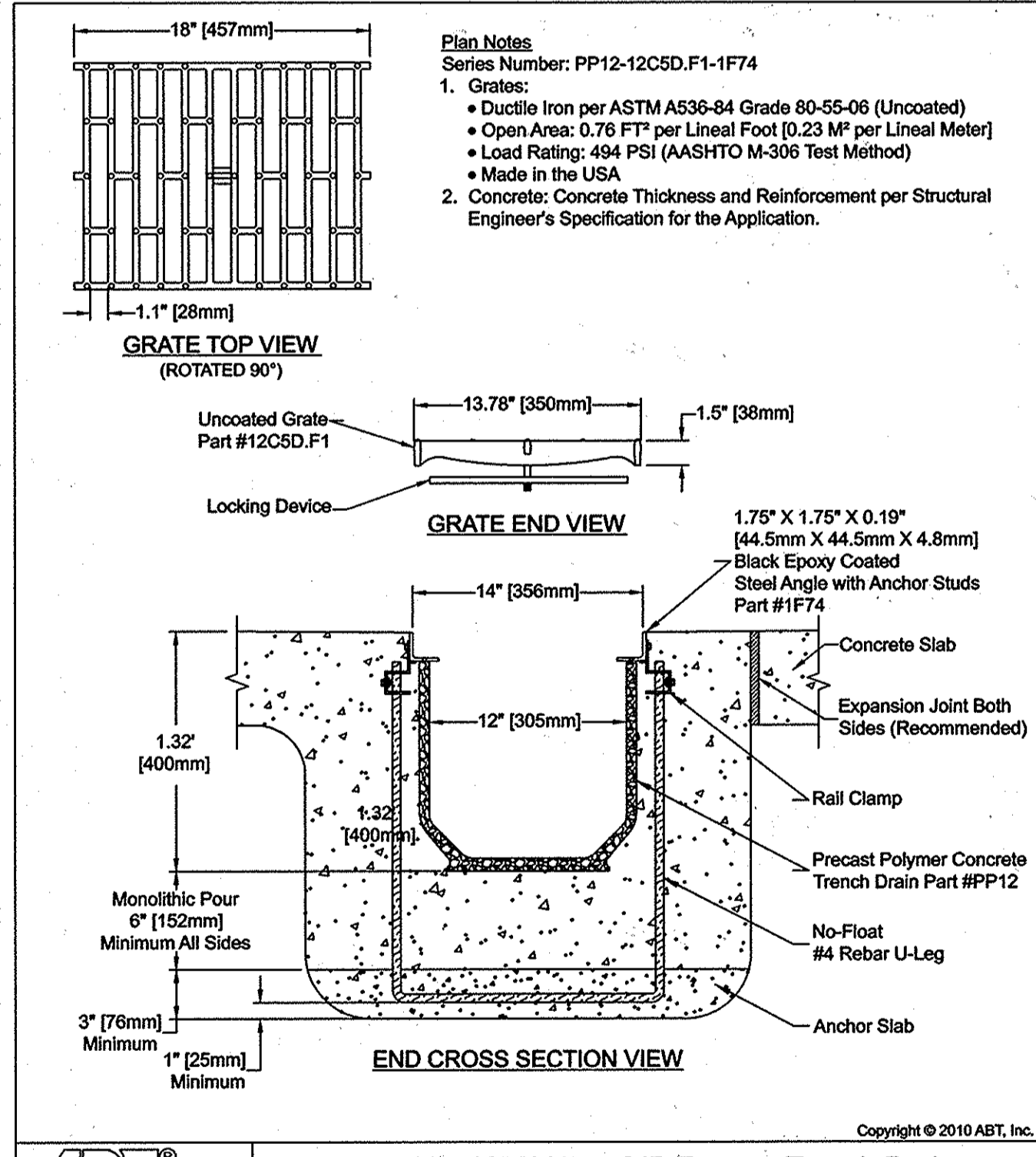
STORM DRAIN PROFILES
SCALE: HORIZ: 1"=40'
VERT: 1"=5'

STORM DRAIN PROFILES
SCALE: HORIZ: 1"=40'
VERT: 1"=5'



BY THE ENGINEER:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

BY THE DEVELOPER:
WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.



AREA	LOCATION	ACRES				RUNOFF				PIPE				REMARKS		
		FROM	TO	SUB	TOTAL	"C"	"CA"	Σ CA	TIME CONC. (10 YR.)	"I" (C.F.S)	"Q" (C.F.S)	FRICT. SLOPE	SIZE		VEL.	LGTH.
A	I-12	I-12	0.06	0.06	0.74	0.044	0.044	5.00	8.50	0.38	0.01	12"	0.48	55'	1.91	n=0.013
B	I-11	I-11	0.39	0.45	0.61	0.238	0.238	5.00	8.50	2.02	0.37	12"	2.75	25'	0.15	n=0.013
A-B	I-11	M-9	0.45	0.45	-	-	0.222	6.91	7.64	2.16	0.37	12"	2.75	15'	0.23	n=0.013
A-B	M-9	M-8	0.45	0.45	-	-	0.282	6.91	7.64	2.16	0.37	12"	2.75	15'	0.23	n=0.013
C	I-13	M-8	0.35	0.35	0.20	0.070	0.070	5.00	8.50	0.60	0.00	15"	0.48	78'	2.68	n=0.013
C	I-13	M-8	0.35	0.35	0.20	0.070	0.070	5.00	8.50	0.60	0.16	15"	2.10	21'	0.17	n=0.013
E	I-7	I-7	0.32	0.32	0.82	0.262	0.262	5.00	8.50	2.23	0.81	15"	4.75	191'	0.67	n=0.013
A-E	I-7	M-4	0.11	1.12	0.86	0.095	0.800	7.65	7.28	5.82	0.11	18"	3.63	86'	0.37	n=0.013
F	M-4	M-3	0.11	1.23	0.86	0.095	0.800	7.65	7.28	5.82	0.11	18"	3.63	86'	0.37	n=0.013
A-F	M-4	M-3	0.11	1.23	0.86	0.095	0.800	7.65	7.28	5.82	0.11	18"	3.63	86'	0.37	n=0.013
G	M-3	M-3	0.10	0.10	0.86	0.086	0.086	5.00	8.50	0.73	0.41	18"	3.63	86'	0.37	n=0.013
A-G	M-3	M-10	1.33	1.33	0.86	0.206	0.961	8.97	6.90	6.77	0.09	24"	2.15	29'	0.22	n=0.013
A-G	M-10	I-10	1.33	1.33	0.86	0.206	0.961	8.97	6.90	6.77	0.09	24"	2.15	29'	0.22	n=0.013
H	I-1	I-1	0.13	0.13	0.81	0.105	0.105	5.00	8.50	0.90	0.06	12"	1.14	105'	1.54	n=0.013
I	I-2	I-2	0.02	0.02	0.51	0.010	0.010	5.00	8.50	0.09	0.06	12"	1.15	44'	0.64	n=0.013
H-I	I-2	I-3	0.15	0.15	0.86	0.095	0.116	6.54	7.80	0.90	0.06	12"	1.15	44'	0.64	n=0.013
J	I-3	I-3	0.11	0.11	0.86	0.095	0.095	5.00	8.50	0.80	0.06	12"	1.15	44'	0.64	n=0.013
K	I-3	I-3	0.01	0.01	0.51	0.005	0.005	5.00	8.50	0.04	0.06	12"	1.15	44'	0.64	n=0.013
H-K	I-3	M-2	0.27	0.27	0.86	0.043	0.215	7.17	7.52	1.62	0.21	12"	2.06	38'	0.31	n=0.013
L	M-2	M-2	0.05	0.05	0.86	0.043	0.043	5.00	8.50	0.37	0.29	12"	2.43	25'	0.17	n=0.013
H-L	M-2	I-4	0.32	0.32	0.86	0.206	0.258	7.48	7.40	1.91	0.29	12"	2.43	25'	0.17	n=0.013
M	I-4	I-4	0.24	0.24	0.86	0.206	0.206	5.00	8.50	1.75	0.29	12"	2.43	25'	0.17	n=0.013
H-M	M-1	M-1	0.07	0.56	0.86	0.060	0.470	7.65	7.32	3.44	0.11	18"	1.95	62'	0.53	n=0.013
N	M-1	M-1	0.07	0.07	0.86	0.060	0.060	5.00	8.50	0.51	0.11	18"	1.95	62'	0.53	n=0.013
O	I-5	I-5	0.93	0.93	0.85	0.791	0.791	5.00	8.50	6.72	0.41	18"	3.80	63'	0.28	n=0.013
O	I-5	M-1	0.93	0.93	0.85	0.791	0.791	5.00	8.50	6.72	0.41	18"	3.80	63'	0.28	n=0.013
H-O	M-1	M-7	1.56	1.56	0.86	0.206	1.321	8.18	7.14	8.47	0.35	21"	3.92	67'	0.23	n=0.013
H-O	M-7	I-10	1.56	1.56	0.86	0.206	1.321	8.18	7.14	8.47	0.35	21"	3.92	67'	0.23	n=0.013
P	I-10	I-10	0.31	0.31	0.92	0.285	0.285	5.00	8.50	2.42	0.28	15"	4.10	85'	0.34	n=0.013
A-P	I-10	M-6	3.20	3.20	0.86	0.206	2.587	9.57	6.72	17.38	0.59	24"	5.53	62'	0.19	n=0.013
A-P	M-6	M-5	3.20	3.20	0.86	0.206	2.587	9.57	6.72	17.38	0.59	24"	5.53	62'	0.19	n=0.013
A-P	M-5	I-3	3.20	3.20	0.86	0.206	2.587	9.57	6.72	17.38	0.59	24"	5.53	62'	0.19	n=0.013
Q	I-14	I-14	0.46	0.46	0.88	0.405	0.405	5.00	8.50	3.44	0.28	15"	2.80	8'	0.05	n=0.013
Q	I-14	I-15	0.46	0.46	0.88	0.405	0.405	5.00	8.50	3.44	0.28	15"	2.80	8'	0.05	n=0.013
R	I-15	I-15	0.21	0.21	0.92	0.193	0.193	5.00	8.50	1.64	0.28	15"	4.10	85'	0.34	n=0.013
Q-R	I-15	I-16	0.13	0.67	0.92	0.120	0.598	5.05	8.50	5.08	0.62	15"	4.10	85'	0.34	n=0.013
S	I-16	I-16	0.13	0.13	0.92	0.120	0.120	5.00	8.50	1.02	0.28	15"	4.10	85'	0.34	n=0.013
Q-S	I-16	S-4	0.67	0.67	0.88	0.405	0.718	5.34	8.35	5.99	0.33	18"	3.39	96'	0.47	n=0.013

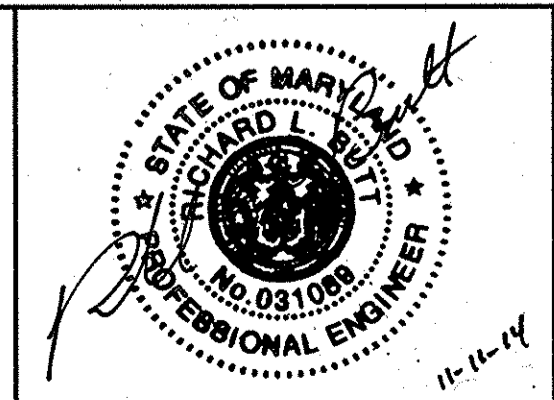
OWNER / DEVELOPER
HOWARD COUNTY
3450 COURT HOUSE DRIVE,
ELLCOTT CITY, MD 21043
(410) 313-3000

DATE	BY	DESCRIPTION
2/25/13	C.T.B.	ADDITIONAL STORM DRAIN PROFILES REV. A
10/27/14	C.T.B.	REPLACEMENT SHEET FOR REV. A SHEET C-11

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31089 EXPIRATION DATE: 11/21/14.

KCI TECHNOLOGIES
936 RIDGEBROOK ROAD
SHARPS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS



OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES
SDP # 93-01, FORMERLY SDP # 73-95

STORM DRAIN PROFILES

PREVIOUSLY APPROVED UNDER PROJ. GC 0113
ELECTION DISTRICT # C HOWARD COUNTY, MARYLAND
CENSUS TRACT # 606602

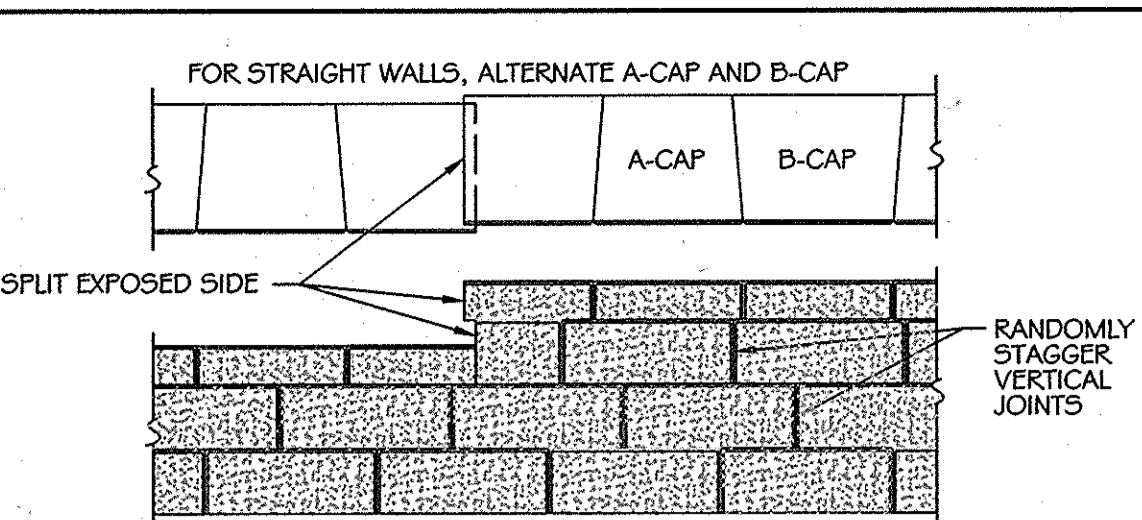
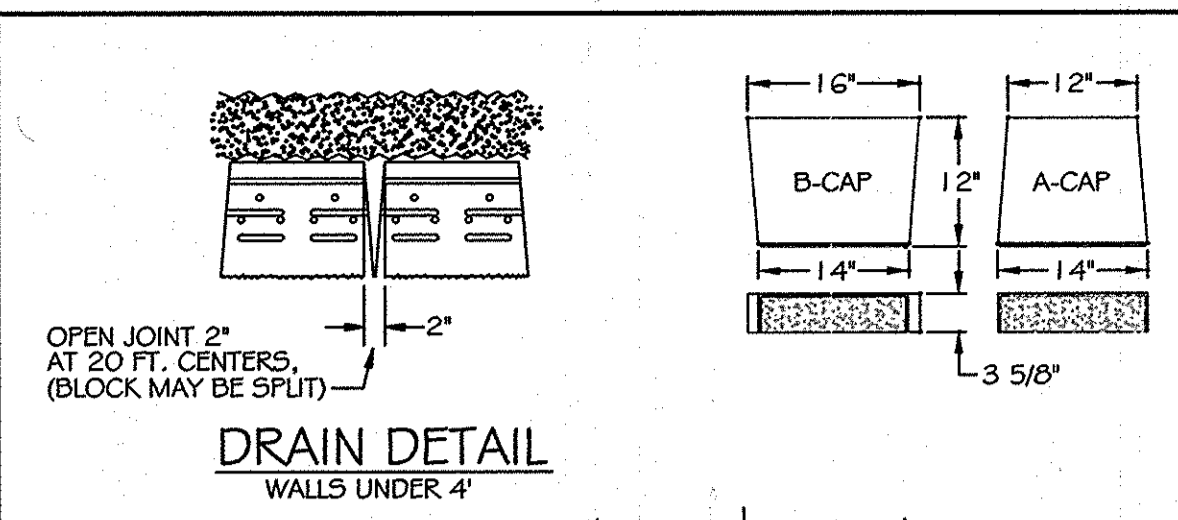
PLAT BOOK 18, FOLIO 85
TAX MAP 37, BLOCKS 7 & 8, PARCEL 549
WATER CODE E07, SEWER CODE 355000

KCI PROJECT NO: 01071378.18
DATE: MARCH 3, 2014
SCALE: AS SHOWN

SHEET NUMBER 15 OF 51

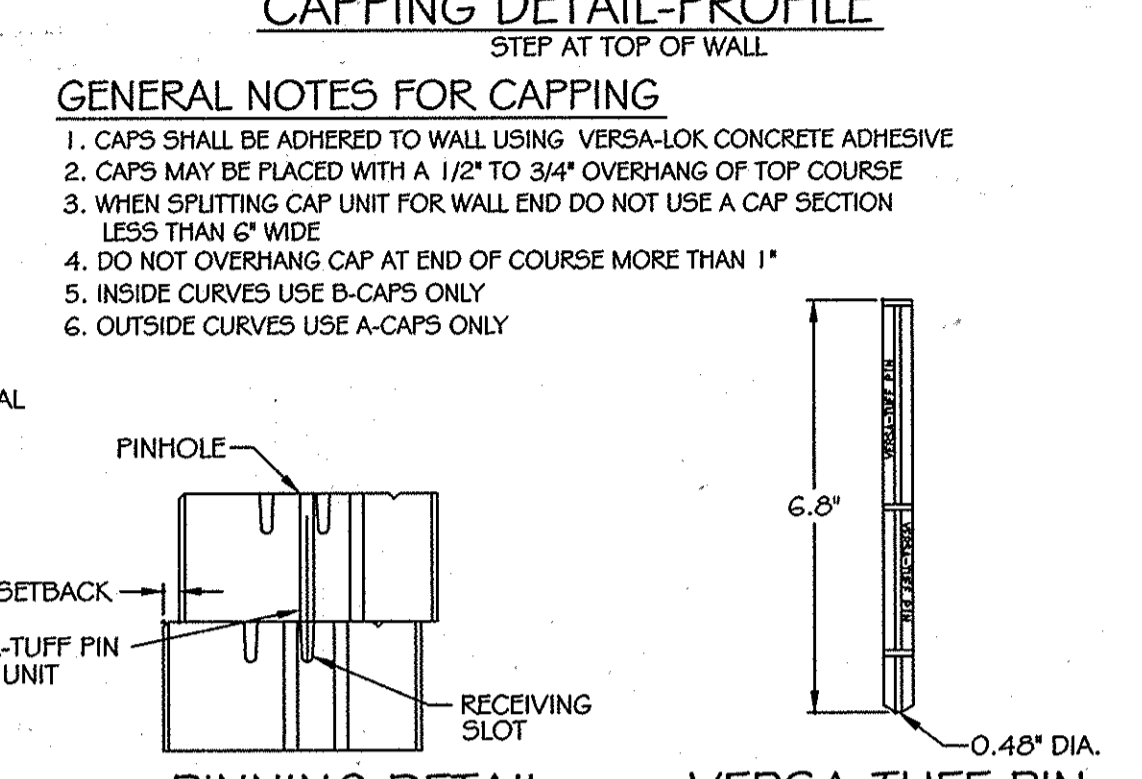
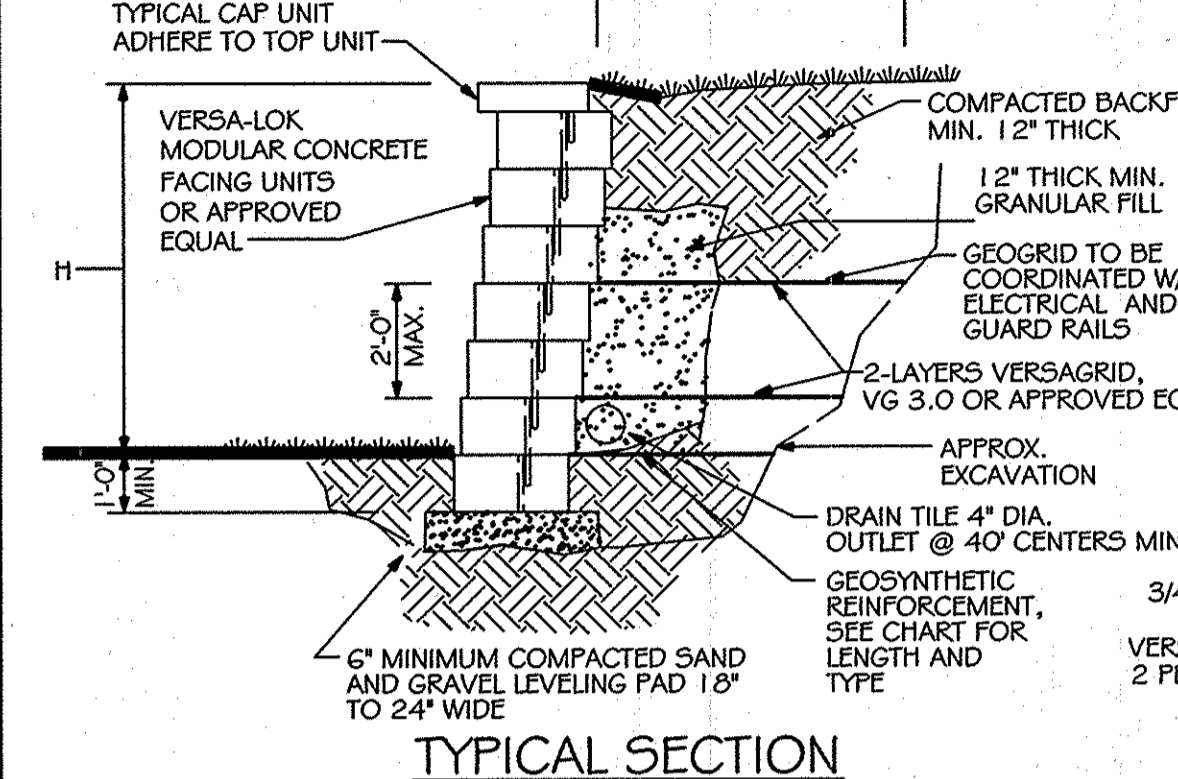
C-15

SDP-93-01



VERSA-LOK RETAINING WALL GENERAL NOTES

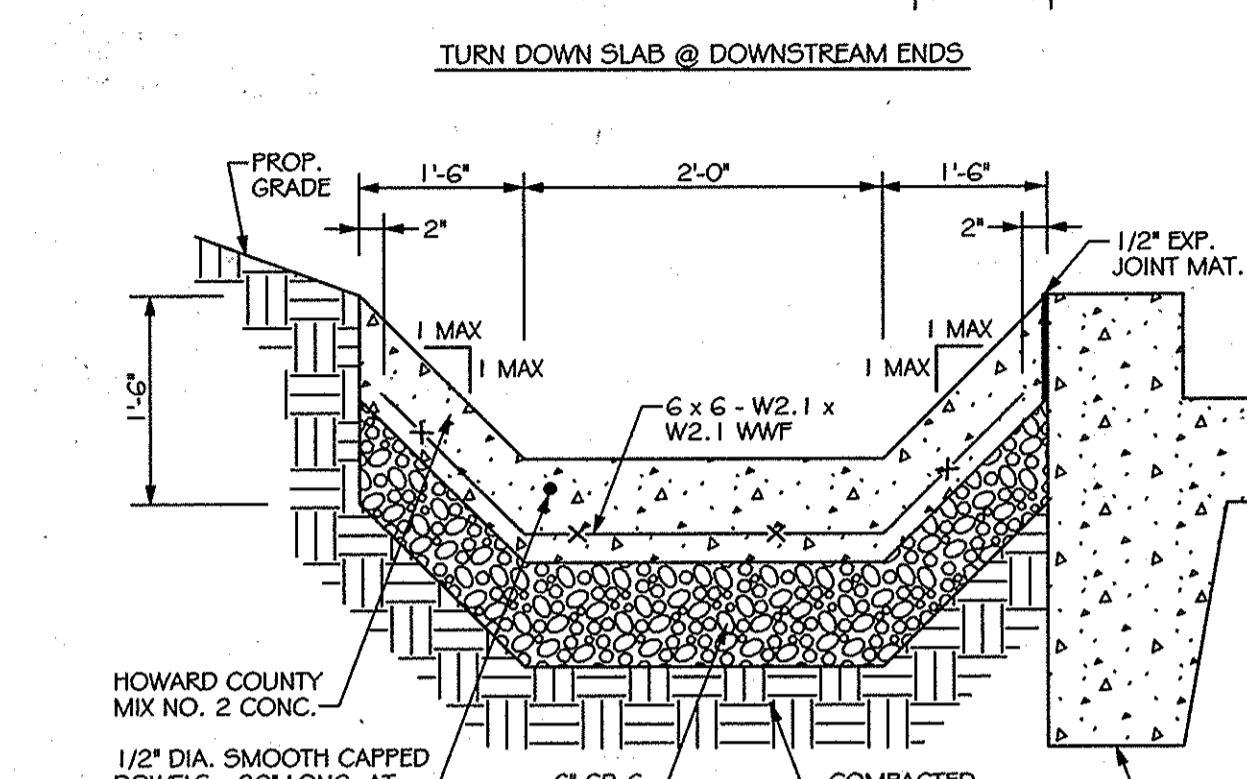
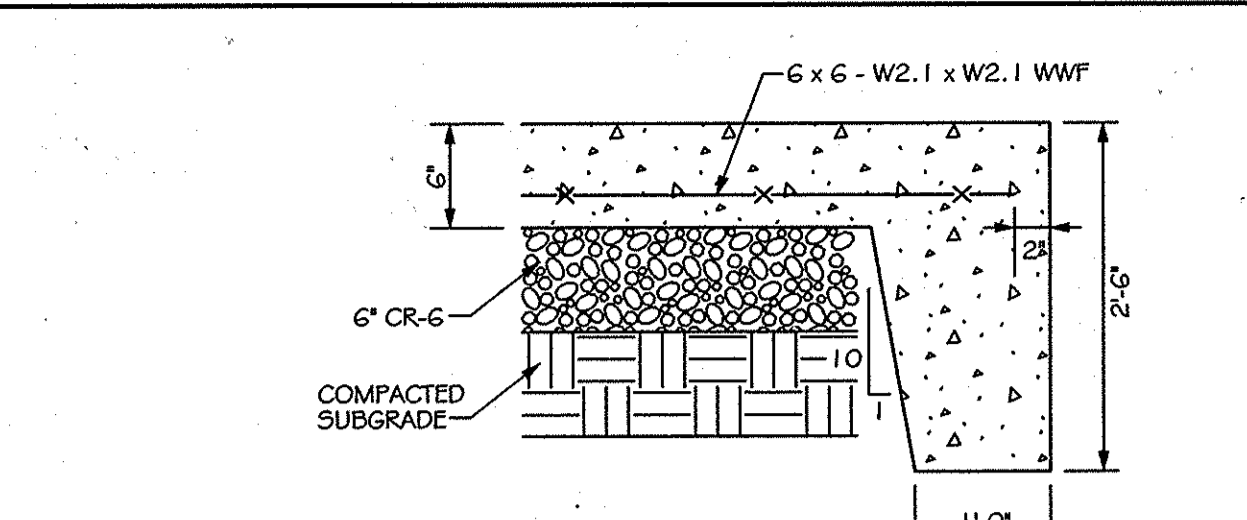
- STRIP VEGETATION AND ORGANIC SOIL FROM WALL ALIGNMENT.
- BENCH CUT ALL EXCAVATED SLOPES.
- DO NOT OVER EXCAVATE UNLESS DIRECTED BY SITE SOILS ENGINEER TO REMOVE UNSUITABLE SOIL.
- SITE SOILS ENGINEER SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT PER THE DESIGN STANDARDS AND PARAMETERS.
- LEVELING PAD SHALL CONSIST OF COMPACTED COARSE SAND OR CRUSHED GRAVEL, 6" THICK MIN.
- CONTRACTOR MAY OPT FOR A LEAN CONCRETE PAD. CONCRETE PAD SHALL BE UNREINFORCED, 3" THICK MAXIMUM.
- MINIMUM EMBEDMENT OF WALL BELOW FINISHED GRADE SHALL BE 6" FOR WALL HEIGHTS UNDER 4 FT. AND 12" FOR WALLS OVER 4 FT. UNLESS SHOWN DIFFERENTLY.
- FOR UNITS TO BE EMBEDDED, COMPACT FILL IN FRONT OF UNITS AT THE SAME TIME FILL BEHIND UNITS IS COMPACTED.
- DRAINAGE AGGREGATE SHALL BE INSTALLED DIRECTLY BEHIND THE WALL WITHIN 12" OF THE TOP OF THE WALL. DRAINAGE AGGREGATE SHALL NOT EXTEND BELOW FINAL GRADE IN FRONT OF WALL.
- COMPACTION SHALL BE TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY (ASTM D-698).
- COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. THE MINIMUM NUMBER OF TESTS SHALL BE DETERMINED BY THE SITE SOILS ENGINEER.
- COMPACTION WITHIN 3 FT. OF WALL SHALL BE LIMITED TO HAND OPERATED EQUIPMENT.
- SEE ELEVATION DRAWINGS FOR GEOSYNTHETIC TYPE, LENGTH AND LOCATION REQUIRED.
- CONTRACTOR SHALL DIRECT SURFACE RUNOFF TO AVOID DAMAGING WALL WHILE UNDER CONSTRUCTION.
- ANY SURFACE DRAINAGE FEATURES, FINISHED GRADING, PAVEMENT, OR TURF SHALL BE INSTALLED IMMEDIATELY AFTER WALL IS COMPLETED.
- FOLLOW APPLICABLE PROVISIONS OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.
- THE MODULAR CONCRETE RETAINING WALL SHALL BE "VERSA-LOK RETAINING WALL SYSTEMS" AS SUPPLIED BY: BINKLEY & CRENSHAW, ROUTE 72 NORTH, EAST PETERSBURG, VA. 17520 (717) 568-0441 OR APPROVED EQUAL.
- COLOR: TO BE SELECTED BY OWNER FROM MANUFACTURER OPTIONS.



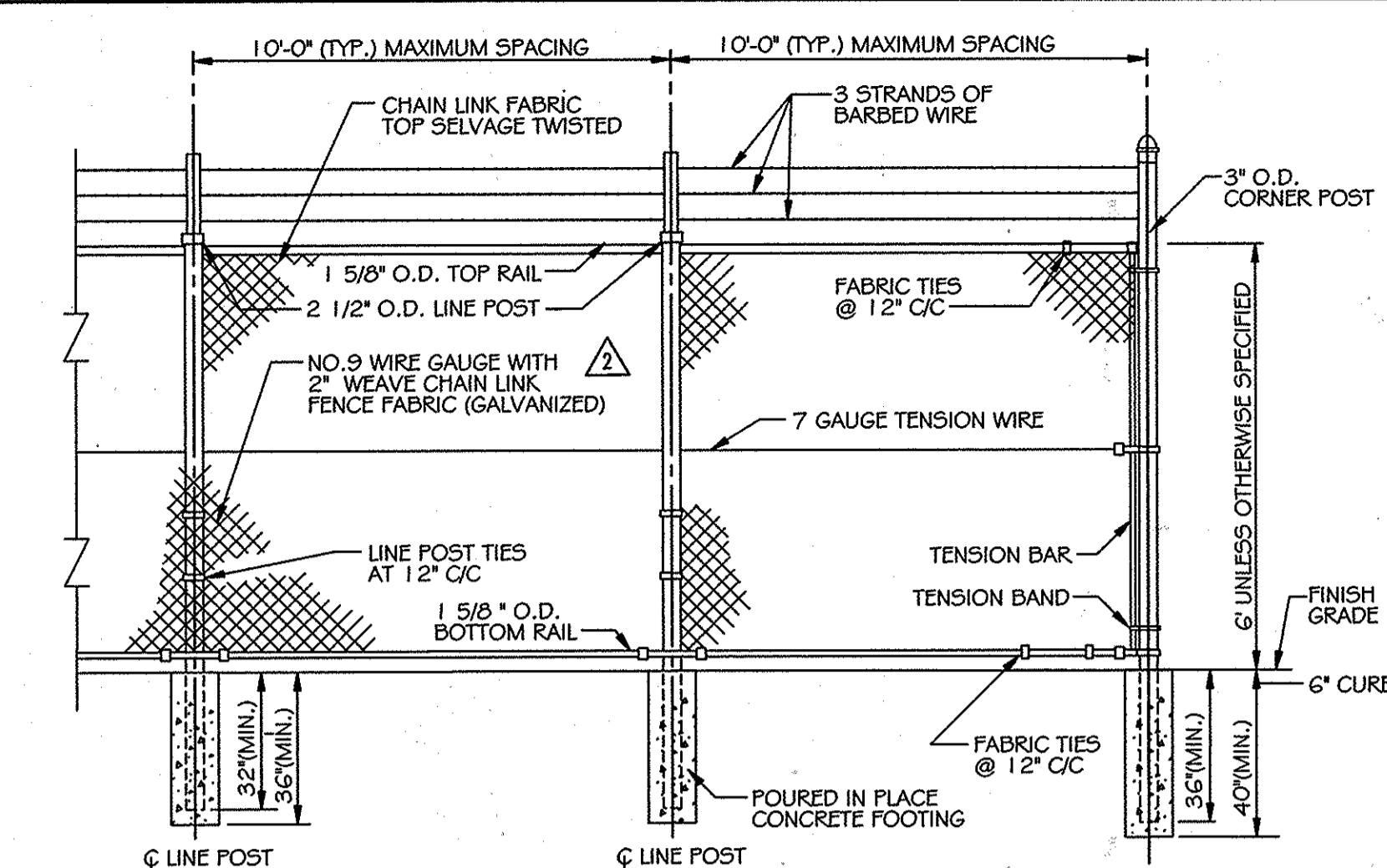
GEOSYNTHETIC FIBER REQUIREMENTS			
H (HEIGHT)	LAYERS	L (LENGTH)	VERSAGRID
5'-0"	2	4'-6"	VG 3.0
4'-0"	2	3'-6"	VG 3.0

NOTE: THESE DETAILS AND NOTES ARE PROVIDED FOR BIDDING PURPOSES ONLY. ALL INFORMATION IS TAKEN FROM VERSA-LOK LITERATURE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INTERACT WITH THE WALL MANUFACTURER AS NECESSARY TO ENSURE THE STRUCTURAL INTEGRITY OF THE WALL AND APPURTENANT CONSTRUCTION (E.G., SUBGRADE PREPARATION, DRAIN TILE, BACKFILL, ETC.)

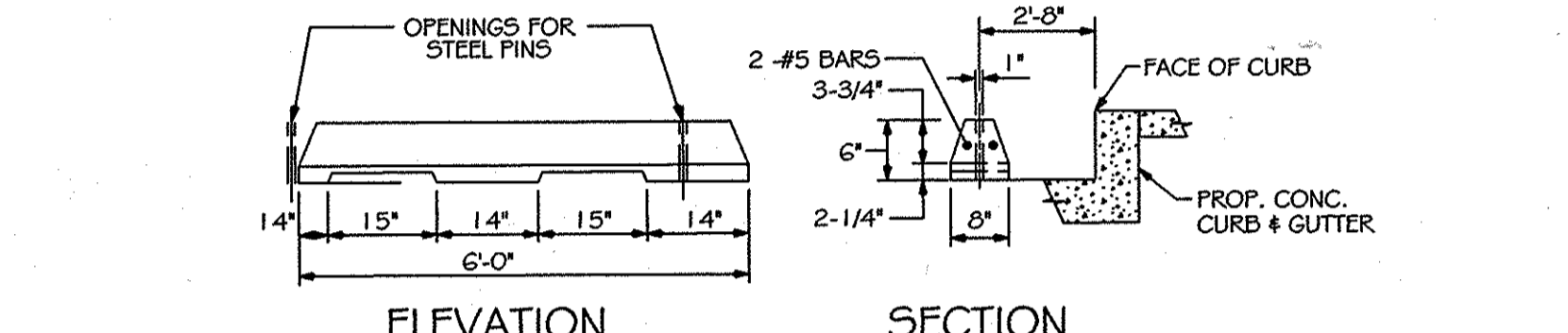
MODULAR CONCRETE UNIT RETAINING WALL (REINFORCED)
NOT TO SCALE



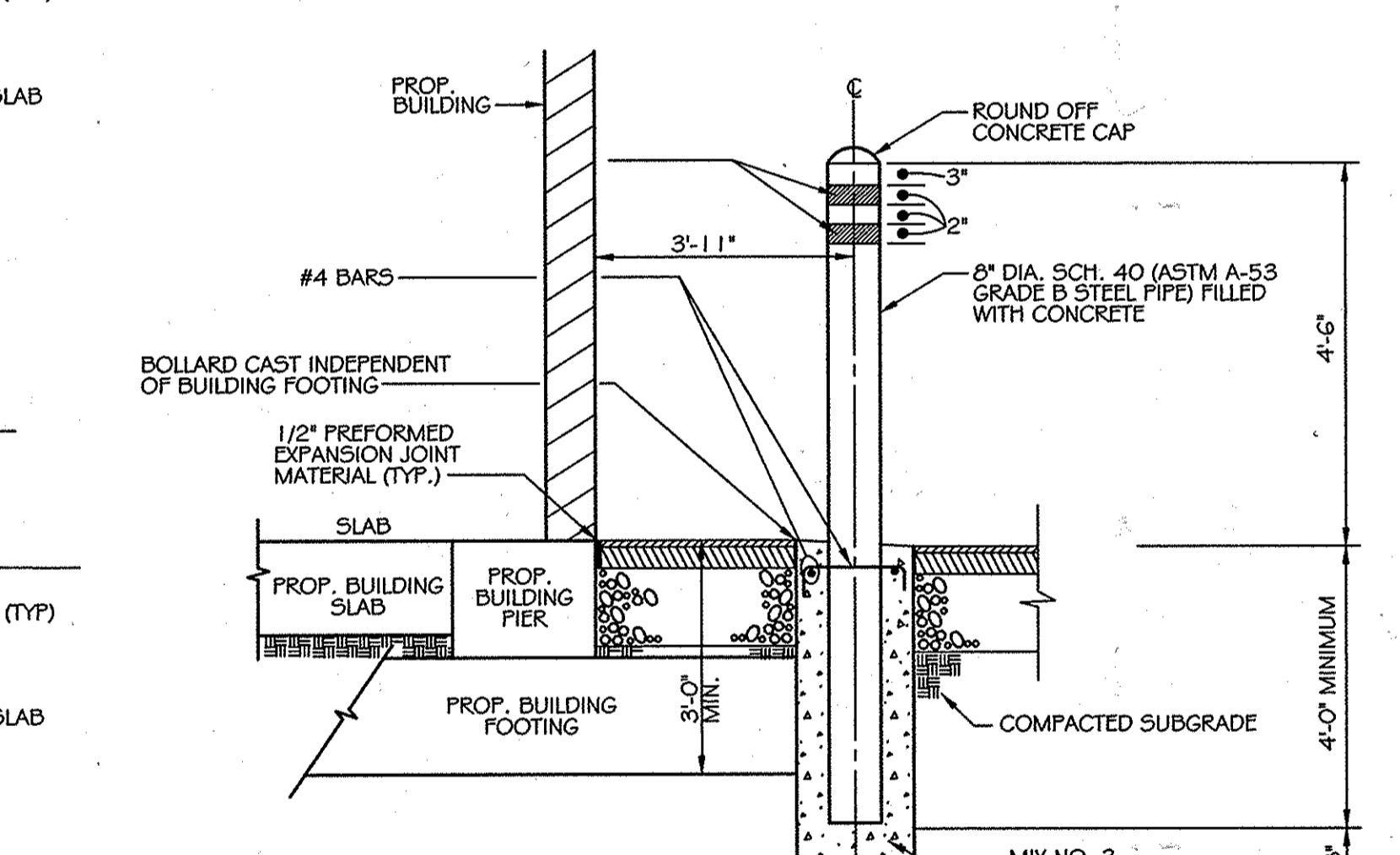
CONCRETE FLUME DETAIL
NOT TO SCALE



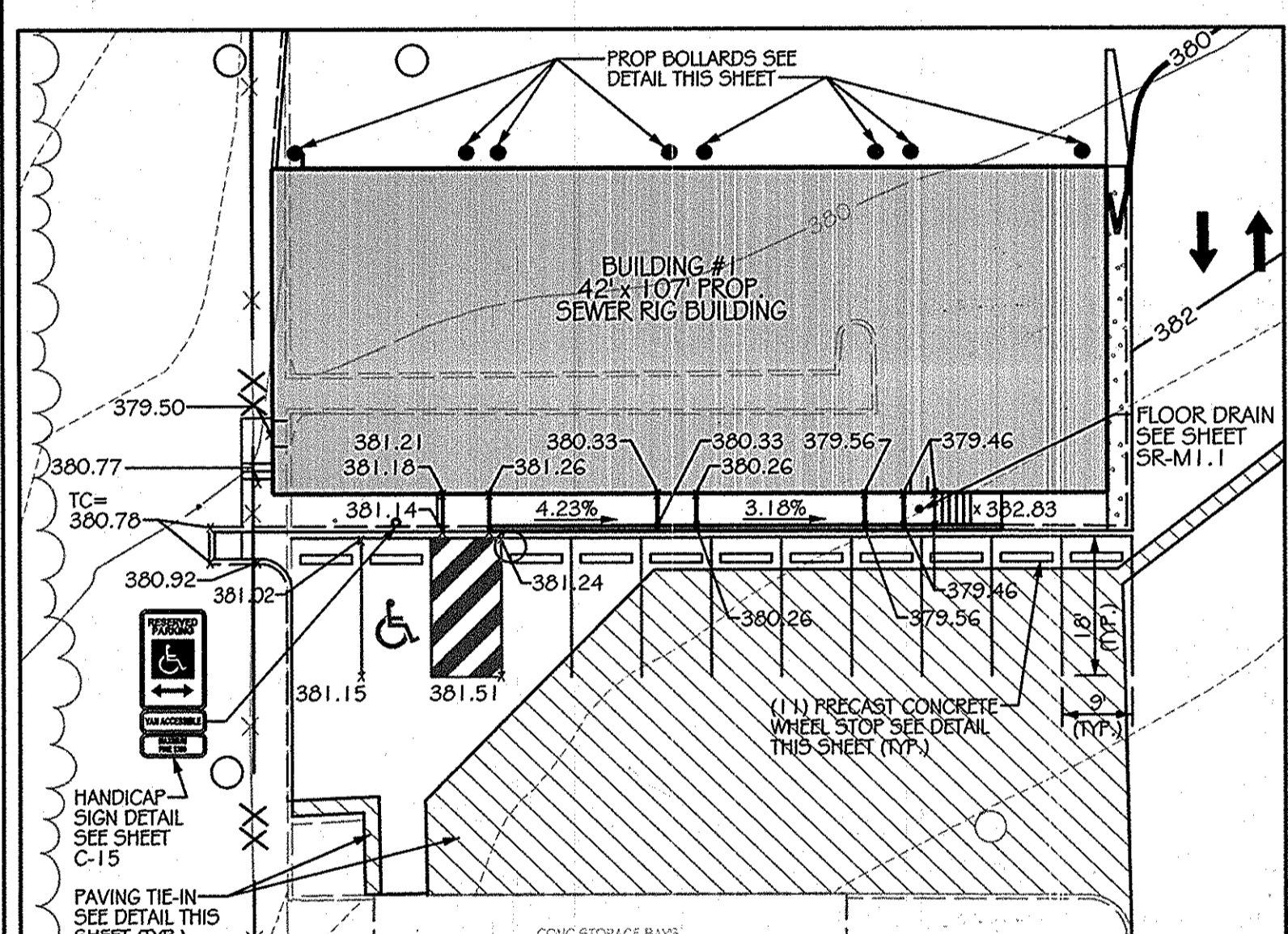
FENCE DETAIL
NOT TO SCALE



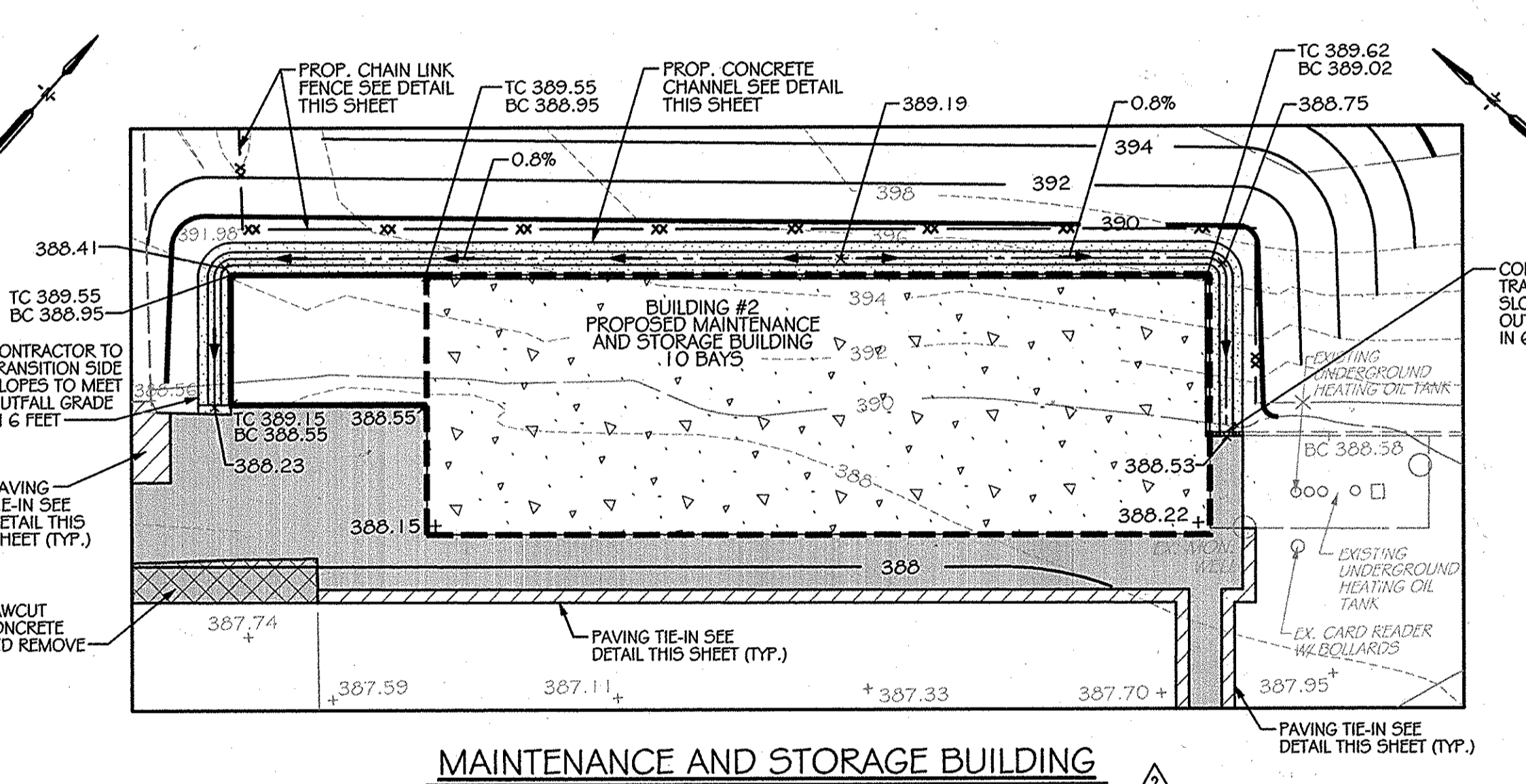
PRECAST CONCRETE WHEEL STOP
NOT TO SCALE



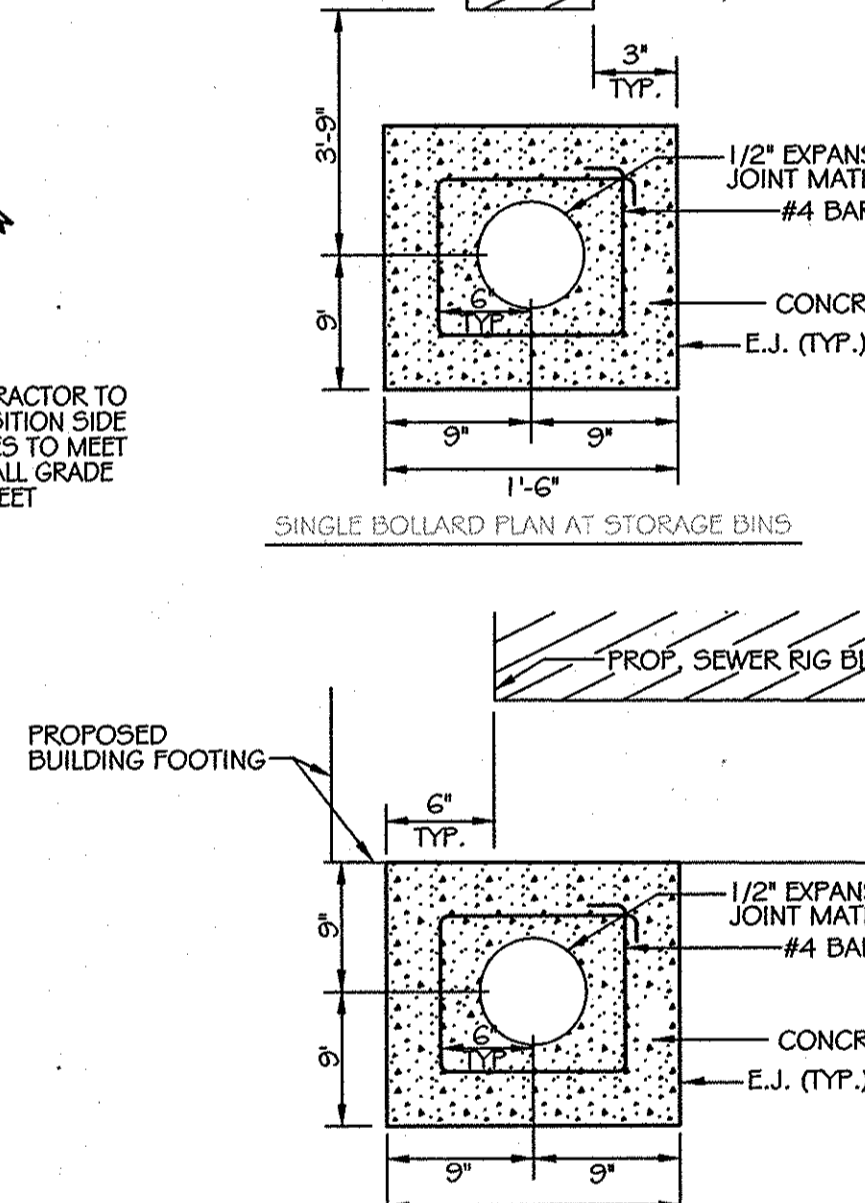
HEAVY DUTY PIPE BOLLARD DETAIL
NOT TO SCALE



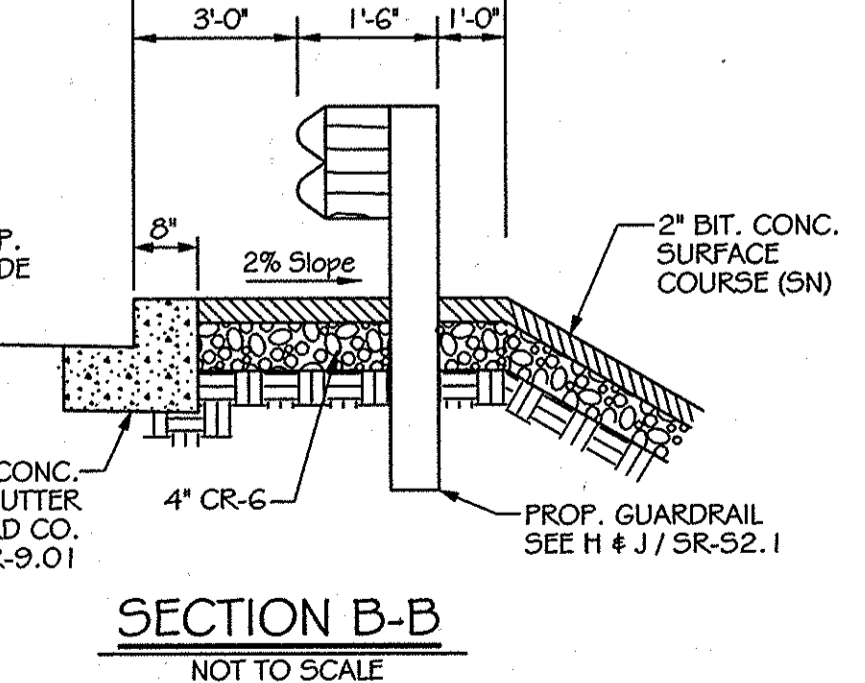
SEWER RIG BUILDING
SCALE: 1" = 20'



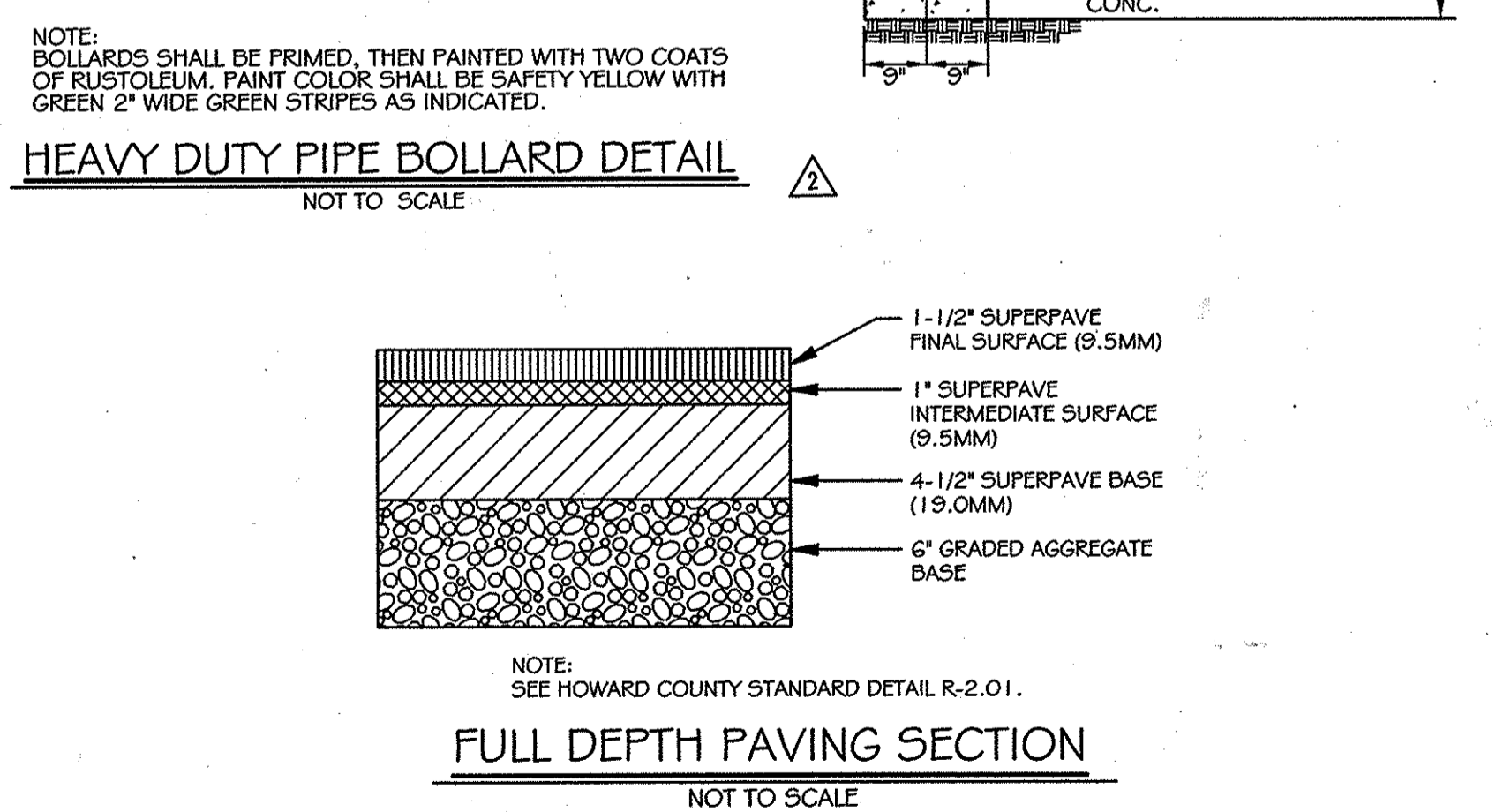
MAINTENANCE AND STORAGE BUILDING
SCALE: 1" = 20'



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE



FULL DEPTH PAVING SECTION
NOT TO SCALE

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT

DIRECTOR

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

R. J. Burt (Signature)
SIGNATURE OF ENGINEER (PRINT NAME NEXT TO SIGNATURE)

11-11-14
DATE

BY THE DEVELOPER:

I HAVE CERTIFIED THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Daniel L. Davis (Signature)
SIGNATURE OF DEVELOPER (PRINT NAME NEXT TO SIGNATURE)

11/13/14
DATE

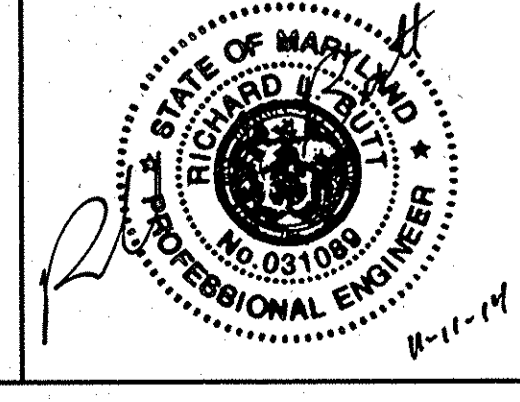
REVISIONS		
DATE	BY	DESCRIPTION
2/25/13	C.T.B.	ADDITIONAL DETAIL SHEET AS PART OF REV. A
10/27/14	C.T.B.	REPLACEMENT SHEET FOR REV. A SHEET C-18

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31089 EXPIRATION DATE: 11/21/14.

KCI TECHNOLOGIES

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818



OFFICE AND SHOP FACILITY
HOWARD COUNTY BUREAU OF UTILITIES

SDP # 93-01, FORMERLY SDP # 73-95

SITE DETAILS

PREVIOUSLY APPROVED UNDER PROJ. GC 0113
ELECTION DISTRICT # 6 HOWARD COUNTY, MARYLAND
CENSUS TRACT # 606602

FLAT BOOK 18, FOLIO 89
TAX MAP 37, BLOCKS 7 & 8, PARCEL 549
WATER CODE E07, SEWER CODE 355000

KCI PROJECT NO: 01071378.18
DATE: MARCH 3, 2014
SCALE: AS SHOWN

SHEET NUMBER 18 OF 51

C-18

PLOTTED: 11/27 AM on Monday, November 10, 2014
BY: C:\Users\p086 Land Develop Emp
FILE: C:\Users\p086 Land Develop Emp\Drawings\For Construction_Sht. 3-5-2014.dwg
Drawing: C:\B.Revised