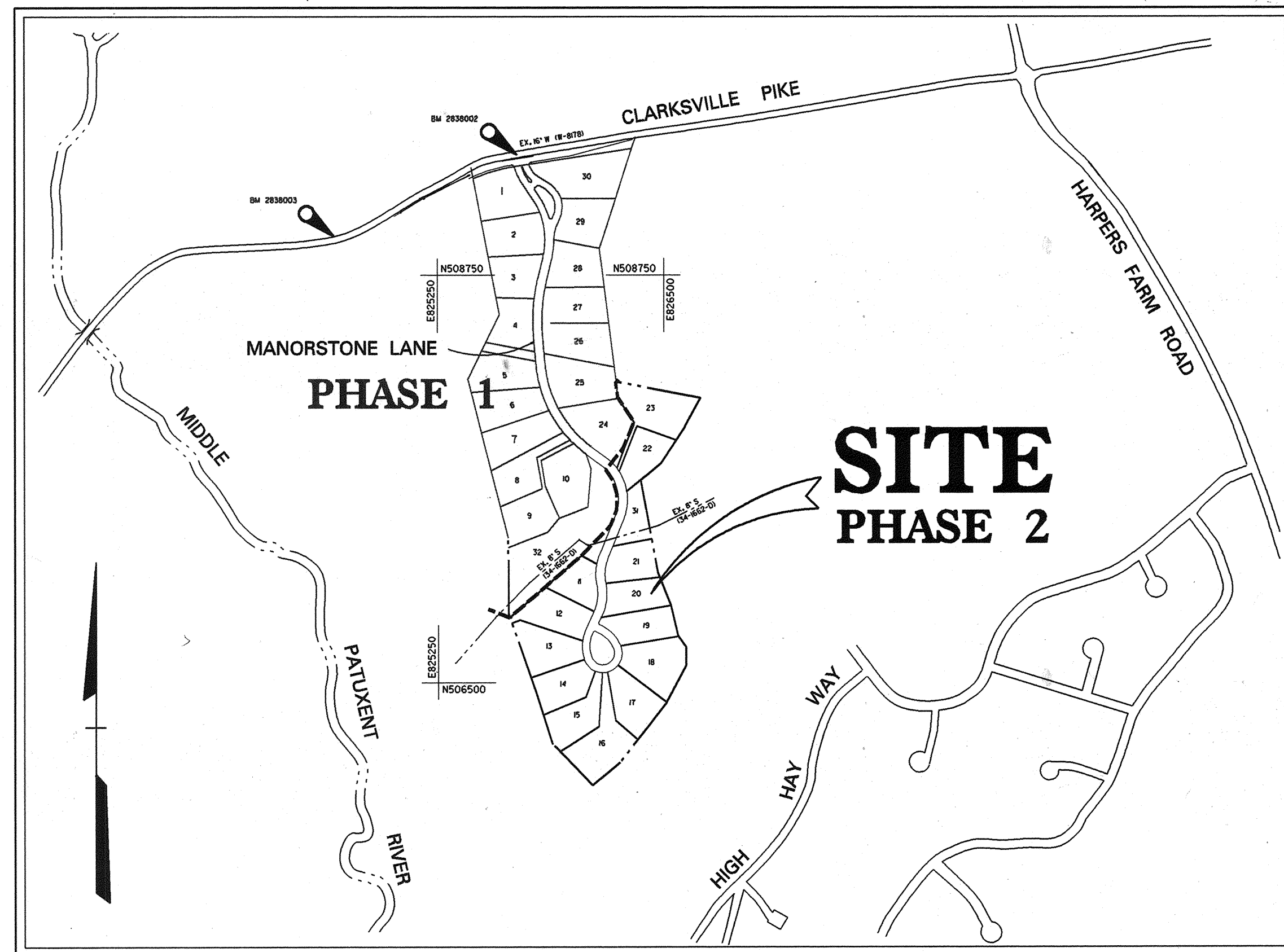


VILLAGE OF HARPER'S CHOICE

SECTION 5, AREA 9, PHASE 2

HOWARD COUNTY, MARYLAND



PLAN VIEW
SCALE: 1" = 600'

BENCHMARK
DESCRIPTION
STATION 2838003
¾" REINFORCING ROD, 0.5' BELOW SURFACE
N 50916.632, E 824630.474
ELEV. 367.204'

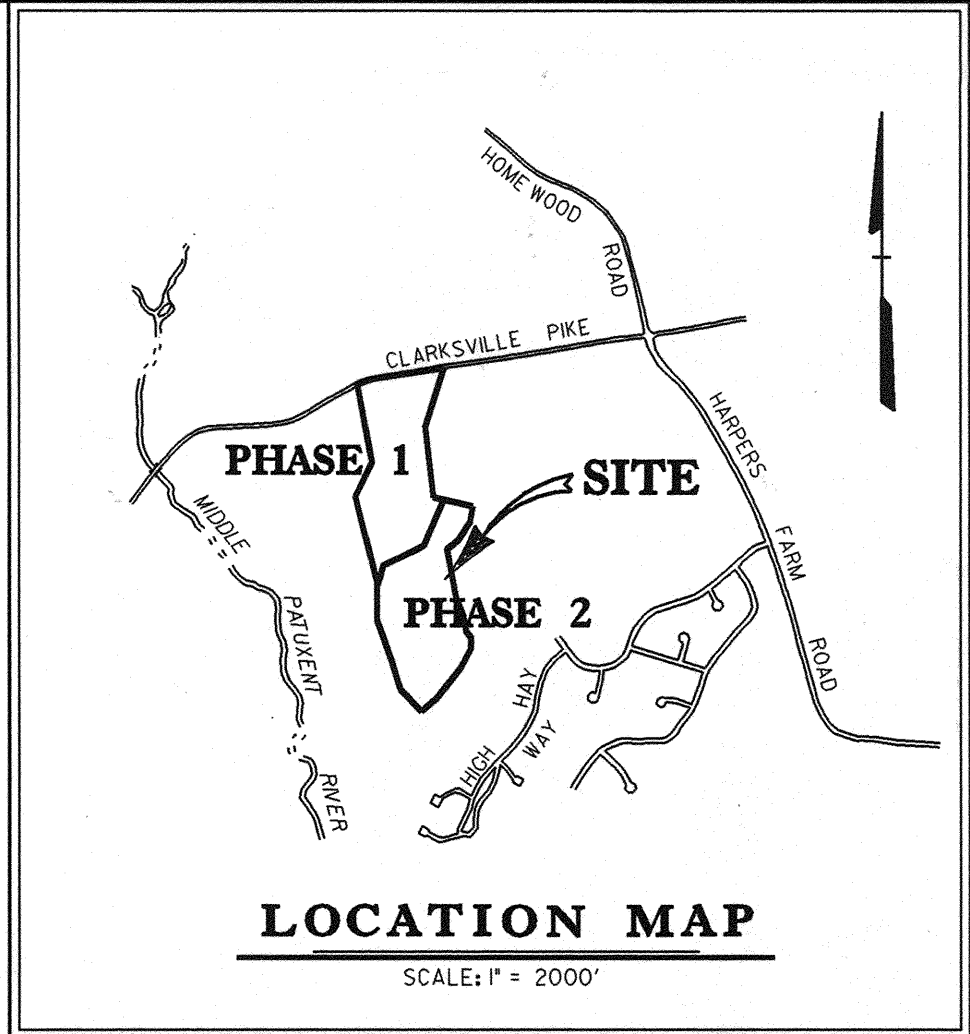
BENCHMARK
DESCRIPTION
STATION 2838002
CONCRETE MONUMENT, 0.8' BELOW SURFACE
N 509424.356, E 825625.556
ELEV. 434.527'

INDEX OF DRAWINGS

| SHEET NO. | DESCRIPTION |
|-----------|---|
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| 2 of 19 | ROAD CONSTRUCTION PLAN |
| 3 of 19 | ROAD CONSTRUCTION PLAN |
| 4 of 19 | ROAD CONSTRUCTION DETAILS & STORM DRAIN PROFILES |
| 5 of 19 | STORM DRAIN DRAINAGE AREA MAP |
| 6 of 19 | WATER QUALITY BASIN PLANTING PLAN |
| 7 of 19 | SEDIMENT & EROSION CONTROL PLAN |
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| 9 of 19 | SEDIMENT & EROSION CONTROL PLAN DETAILS |
| 10 of 19 | STRUCTURAL PLATE ARCH PLAN AND PROFILE |
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| 13 of 19 | STRUCTURAL PLATE ARCH SOUTH ABUTMENT FOOTING DETAIL |
| 14 of 19 | STRUCTURAL PLATE ARCH SECTIONS AND DETAILS I |
| 15 of 19 | STRUCTURAL PLATE ARCH SECTIONS AND DETAILS II |
| 16 of 19 | STRUCTURAL PLATE ARCH PILASTER DETAILS |
| 17 of 19 | C.S. PIPE ARCH PLAN AND ELEVATIONS |
| 18 of 19 | C.S. PIPE ARCH SECTIONS AND DETAILS |
| 19 of 19 | MISCELLANEOUS DETAILS |

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 CONSTRUCTION INSPECTION AT (301) 313-1880 AT LEAST FIVE (5) WORKING DAY 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.
- PROJECT BACKGROUND
TOTAL TRACT AREA 61.301 ACRES
NUMBER OF LOTS PHASE 2 - 13 LOTS SINGLE FAMILY
PRELIMINARY EQUIVALENT SKETCH PLAN AND COMPREHENSIVE SKETCH PLAN APPROVAL DATE 1-30-93, SP-92-21
THE PROPERTY IS LOCATED WITHIN THE HOWARD COUNTY METROPOLITAN DISTRICT.
EXISTING ZONING IS NEW TOWN PER 10-18-93 COMPREHENSIVE ZONING.
HARPER'S CHOICE PHASE I, F-93-141,
PHASE I FDP 194-A.
- WAIVERS
WP-92-218 WAIVER OF LENGTH OF CUL-DE-SAC, AND ROADWAY SECTION, APPROVED 8-5-92.
WP-94-20 WAIVER FOR WATER QUALITY STRUCTURES WITHIN 100 YEAR FLOOD PLAIN AND STREAM BUFFER.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- TOPOGRAPHY SHOWN HEREON IS TAKEN FROM AERIAL MAPS DATED 1963, PREPARED FOR HOWARD RESEARCH AND DEVELOPMENT, BY MAPS, INC. AND AS UPDATED BY FIELD TOPOGRAPHICS SURVEY PREPARED BY DAFT, MCCUNE, WALKER 1992 AND 1993.
- HOWARD COUNTY GEODETIC CONTROL STATION NO. 2838002 ELEVATION 434.527 FEET
HORIZONTAL: SECOND ORDER CLASS II
VERTICAL: SECOND ORDER, 1929 GENERAL ADJUSTMENT DATUM
- LIGHT POLES AND FIXTURES FOR STREET LIGHTS SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III, ROADS AND BRIDGES.
- WATER AND SEWER IS PUBLIC.
DRAINAGE AREA: MIDDLE PATUXENT
- STORMWATER MANAGEMENT QUANTITY CONTROL IS TO BE PROVIDED BY VILLAGE OF RIVER HILL, SECTION 2, AREA I, 13 LOTS COVERED.
- FLOODPLAIN STUDY PREPARED BY DAFT, MCCUNE & WALKER, DATED 5-1993.
- WETLANDS EVALUATION PREPARED BY EXPLORATION RESEARCH, INC., DATED 3-1992.
- TRAFFIC STUDY PREPARED BY WELLS & ASSOCIATES, DATED 6-8-1992.
- NOISE STUDY PREPARED BY HOWARD RESEARCH & DEVELOPMENT CORPORATION DATED 4-16-93.
- GEOTECHNICAL REPORT PREPARED BY ROBERT BALTER & ASSOCIATES, DATED 11-17-1992.
- EXISTING UTILITIES WERE TAKEN FROM APPROVED PLANS AND FIELD VERIFICATION.
- MARYLAND DEPARTMENT OF NATURAL RESOURCES LETTER OF 12-II-92 (TRACKING NO. 199360655) STATES THAT PROJECT QUALIFIES FOR A LETTER OF AUTHORIZATION.
PROJECT IS AUTHORIZED UNDER U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT (MWP #14).



AS-BUILT

Scott Shanaberger 11/30/95
SCOTT SHANABERGER
PROF. L.S. # 10847
DATE

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLCOTT CITY, MARYLAND 21043

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

James J. Linn 6/20/94
CHIEF, BUREAU OF HIGHWAYS DATE

Paul J. Linn 6/20/94
CHIEF, BUREAU OF ENGINEERING DATE

Michael Linn 6/20/94
CHIEF, LAND DEVELOPMENT DIVISION DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Anna J. Linn 6/20/94
CHIEF, LAND DEVELOPMENT AND RESEARCH DATE

| Date | No. | Revision Description |
|------|-----|----------------------|
| | | |

HARPER'S CHOICE

OWNER / DEVELOPER

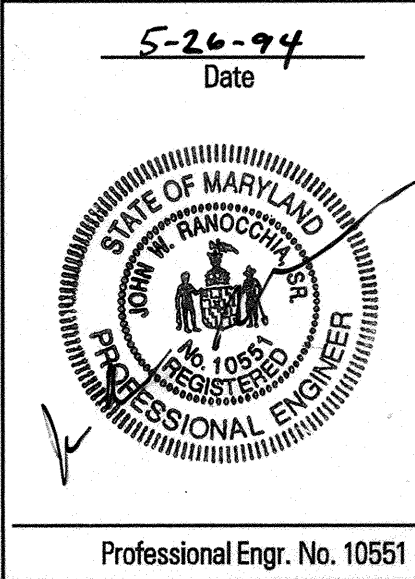
THE HOWARD RESEARCH & DEVELOPMENT CORP.
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
300 East Pennsylvania Avenue
Towson, Maryland 21286
410 290 3333
FAX: 296-4705

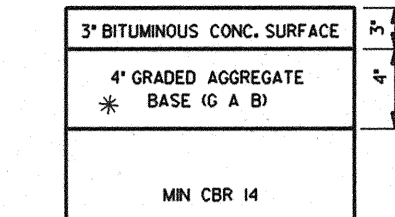
AREA SECTION 5, AREA 9, PHASE 2
TAX MAP 29 PARCEL 126
8th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE COVER SHEET

| | | | | | |
|--------|-----|----------|----------|-----------|-------|
| Des By | RTP | Scale | AS SHOWN | Proj. No. | 92023 |
| Drn By | RTP | Date | Nov 93 | 1 OF 19 | |
| Chk By | JWR | Approved | | | |

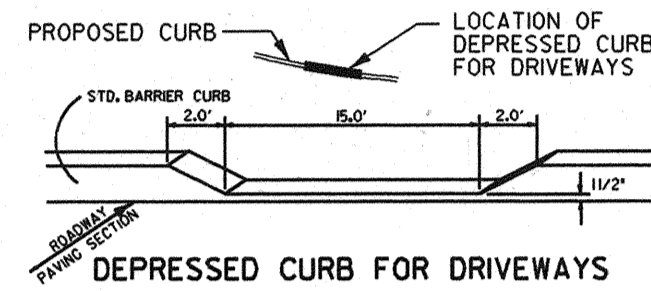


| CENTERLINE CURVE DATA | | | | | |
|-----------------------|------------|---------|---------|---------|-----------------------|
| CURVE NO. | DELTA | RADIUS | LENGTH | TANGENT | CHORD |
| 1 | 075°30'00" | 262.76' | 346.25' | 203.45' | S 15°45'00" E 321.74' |
| 2 | 033°00'00" | 270.07' | 155.55' | 80.00' | S 05°30'00" W 153.41' |

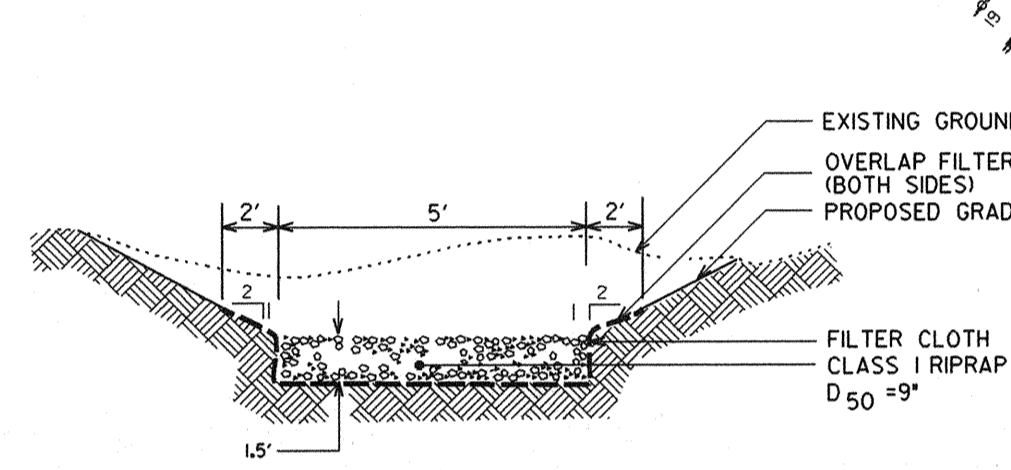


PAVING SECTION (PUBLIC ROADS)
NO SCALE

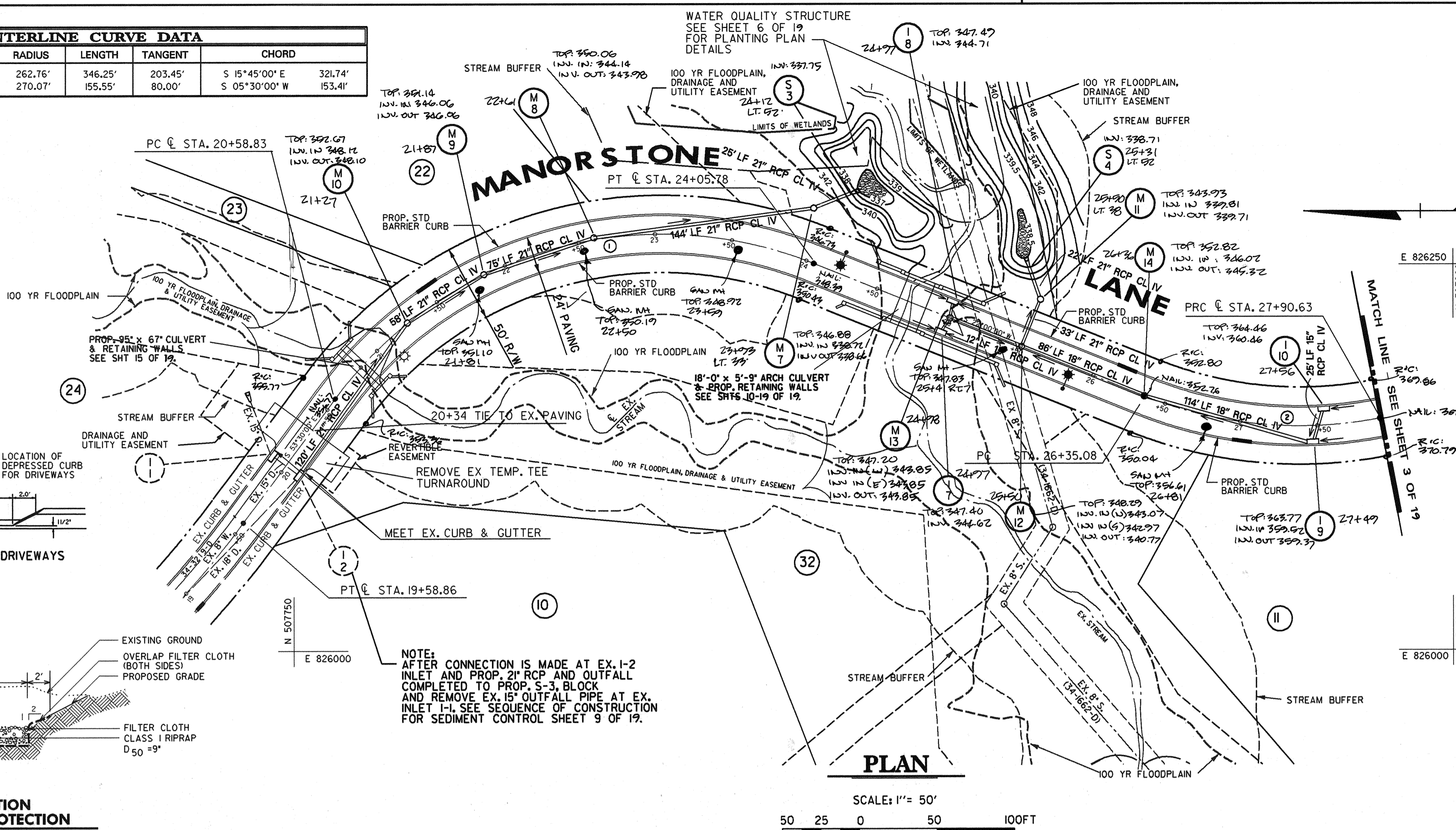
* NOTE: FOR CBR VALUES BETWEEN 8 AND 14 INCREASE GAB TO EX. FOR CBR VALUES LESS THAN 8, USE HOWARD COUNTY STD. P-2 SECTION.



DEPRESSED CURB FOR DRIVEWAYS

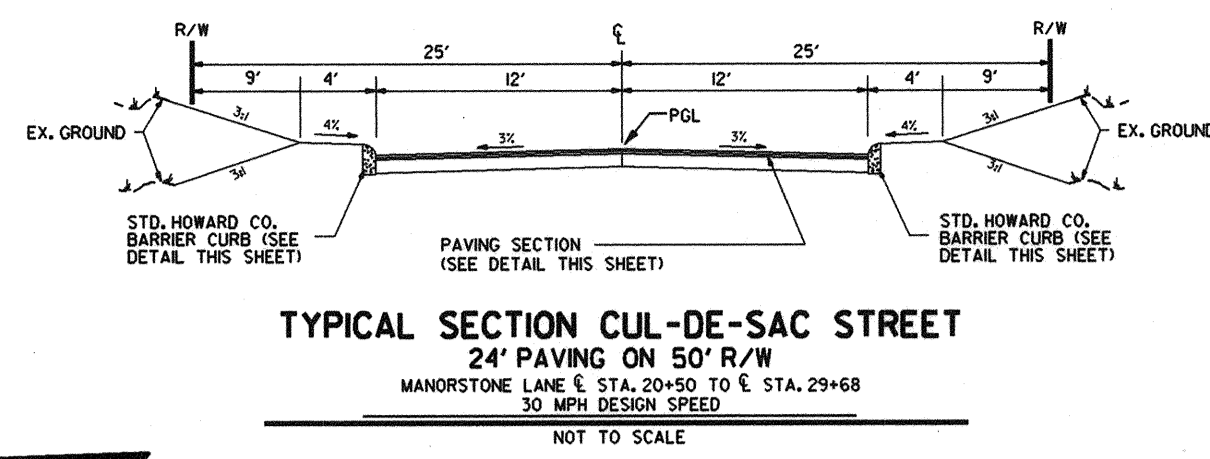


TYPICAL SECTION RIPRAP OUTLET PROTECTION
NOT TO SCALE

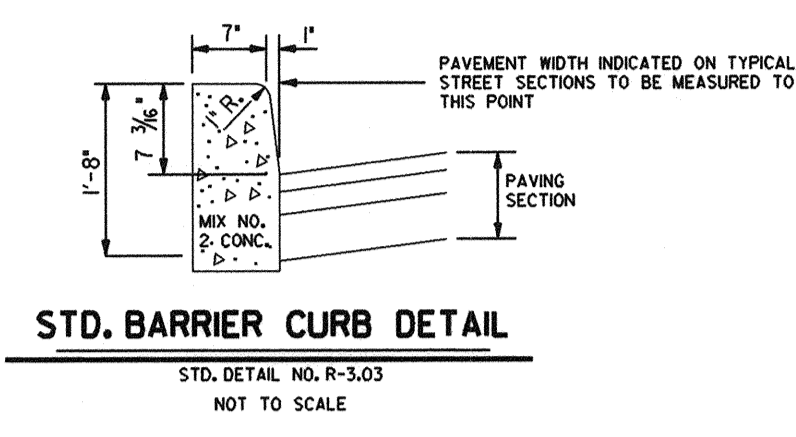


PLAN

SCALE: 1" = 50'
50 25 0 50 100 FT



TYPICAL SECTION CUL-DE-SAC STREET
24" PAVING ON 50" R/W
MANORSTONE LANE STA. 20+40 TO STA. 29+68
30 MPH DESIGN SPEED
NOT TO SCALE



STD. BARRIER CURB DETAIL
STD. DETAIL NO. R-303
NOT TO SCALE

STREET LIGHT LEGEND

100 WATT HIGH PRESSURE SODIUM VAPOR MODERN POST-TOP FIXTURE (BRONZE) MOUNTED ON A 1 1/2" BRONZE FIBERGLASS POLE. POST TOP FIXTURES SHALL BE SET BACK 2' TO 4' FROM FACE OF CURB.

LOCATIONS:
MANORSTONE LANE STA. 23+00 14.0' LEFT
MANORSTONE LANE STA. 24+30 14.0' LEFT
MANORSTONE LANE STA. 25+45 14.0' LEFT
MANORSTONE LANE STA. 26+50 14.0' LEFT

NO TREE SHALL BE LOCATED WITHIN 20' OF A STREET LIGHT.

5-26-94
Date

Professional Engr. No. 10851

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
James A. Lewis
CHIEF, BUREAU OF HIGHWAYS
DATE: 6/20/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
C. J. ...
CHIEF, LAND DEVELOPMENT DIVISION
DATE: 6/20/94

HARPER'S CHOICE
OWNER / DEVELOPER

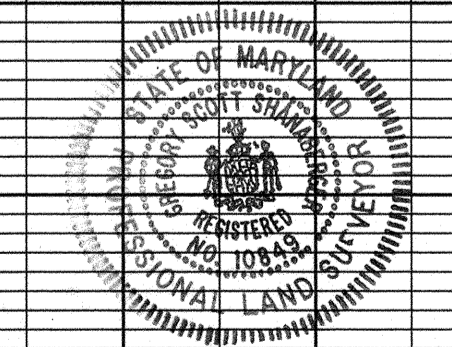
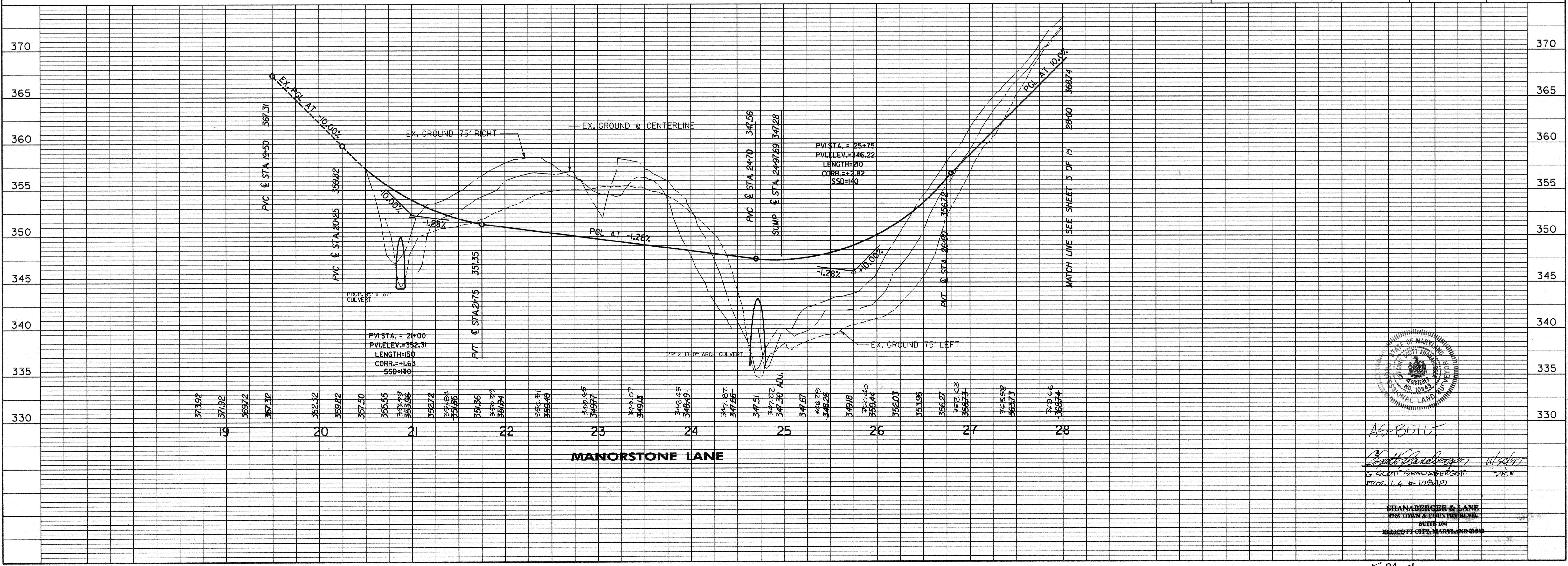
THE HOWARD RESEARCH & DEVELOPMENT CORP.
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

AREA: SECTION 5 AREA 9 PHASE 2
TAX MAP 29 PARCEL 126
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

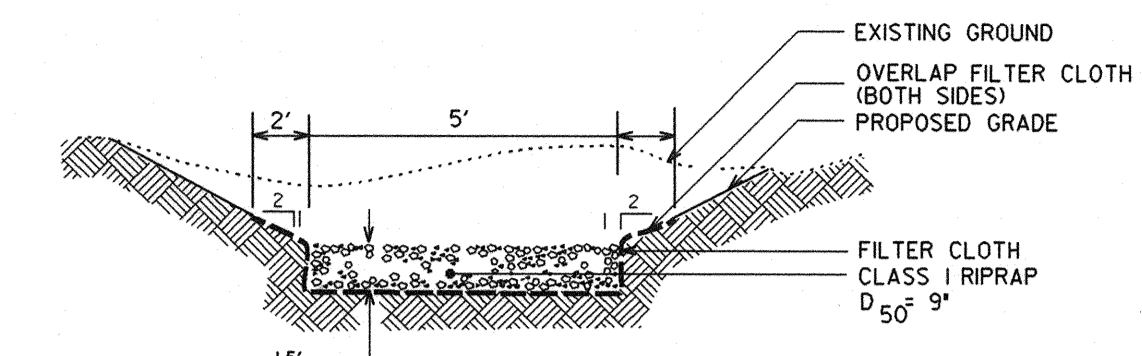
TITLE: ROAD CONSTRUCTION PLANS
STA. 20+50 TO PT. STA. 27+90.63

| | | | | | |
|--------|-----|----------|----------|-----------|-------|
| Des By | JWR | Scale | AS SHOWN | Proj. No. | 92023 |
| Dim By | RTP | Date | Nov 1993 | 2 OF 19 | |
| Chk By | JWR | Approved | | | |

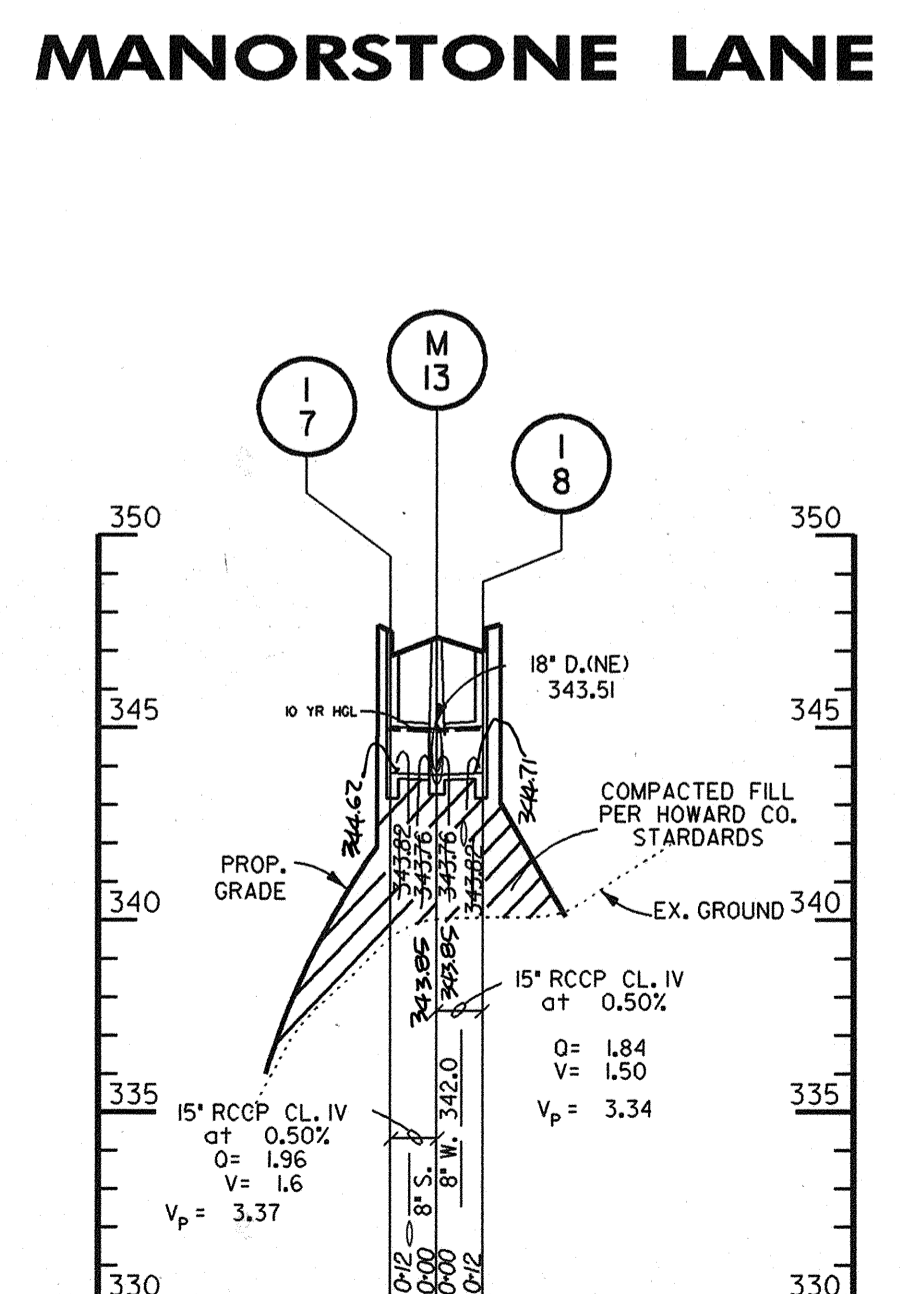
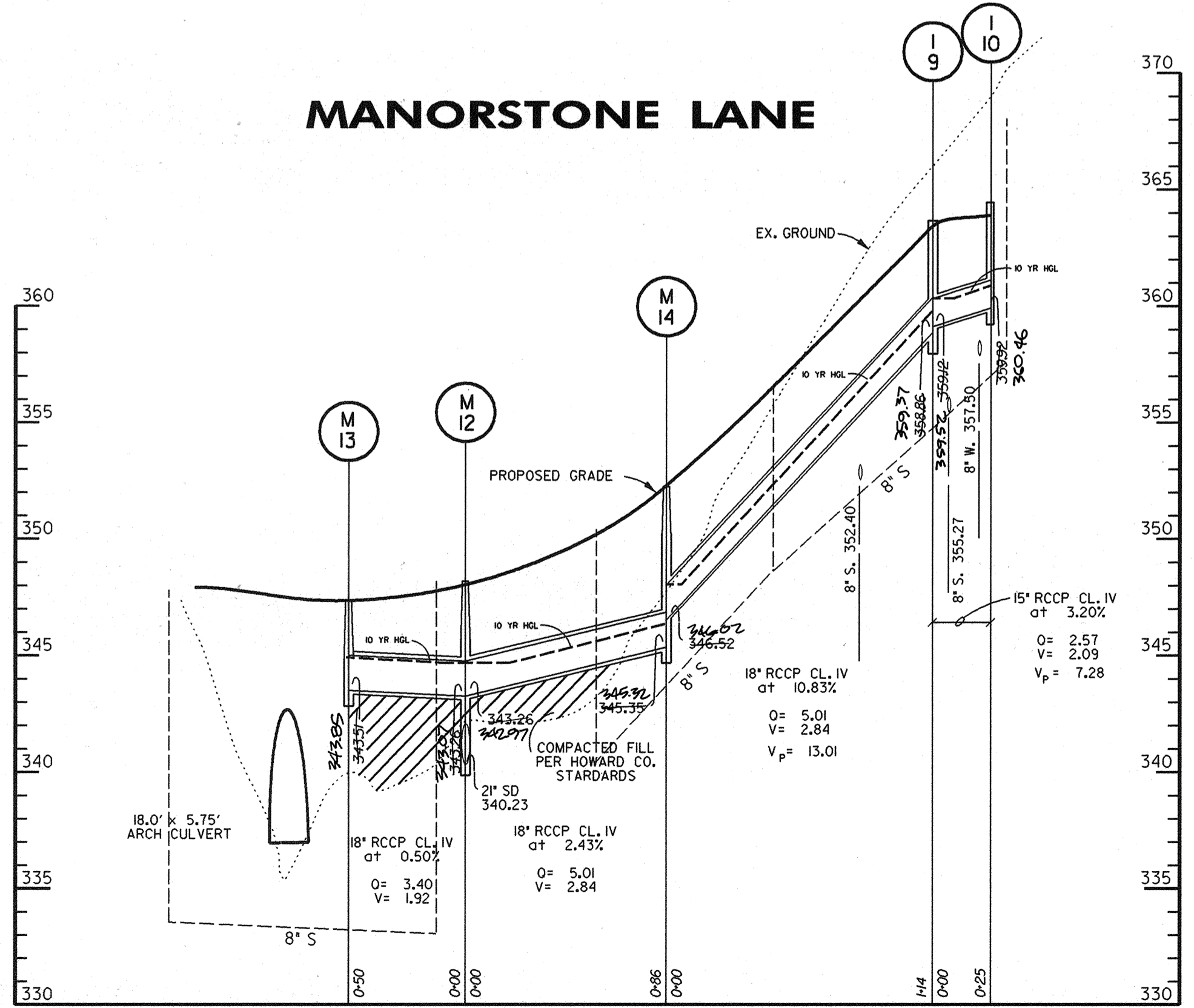
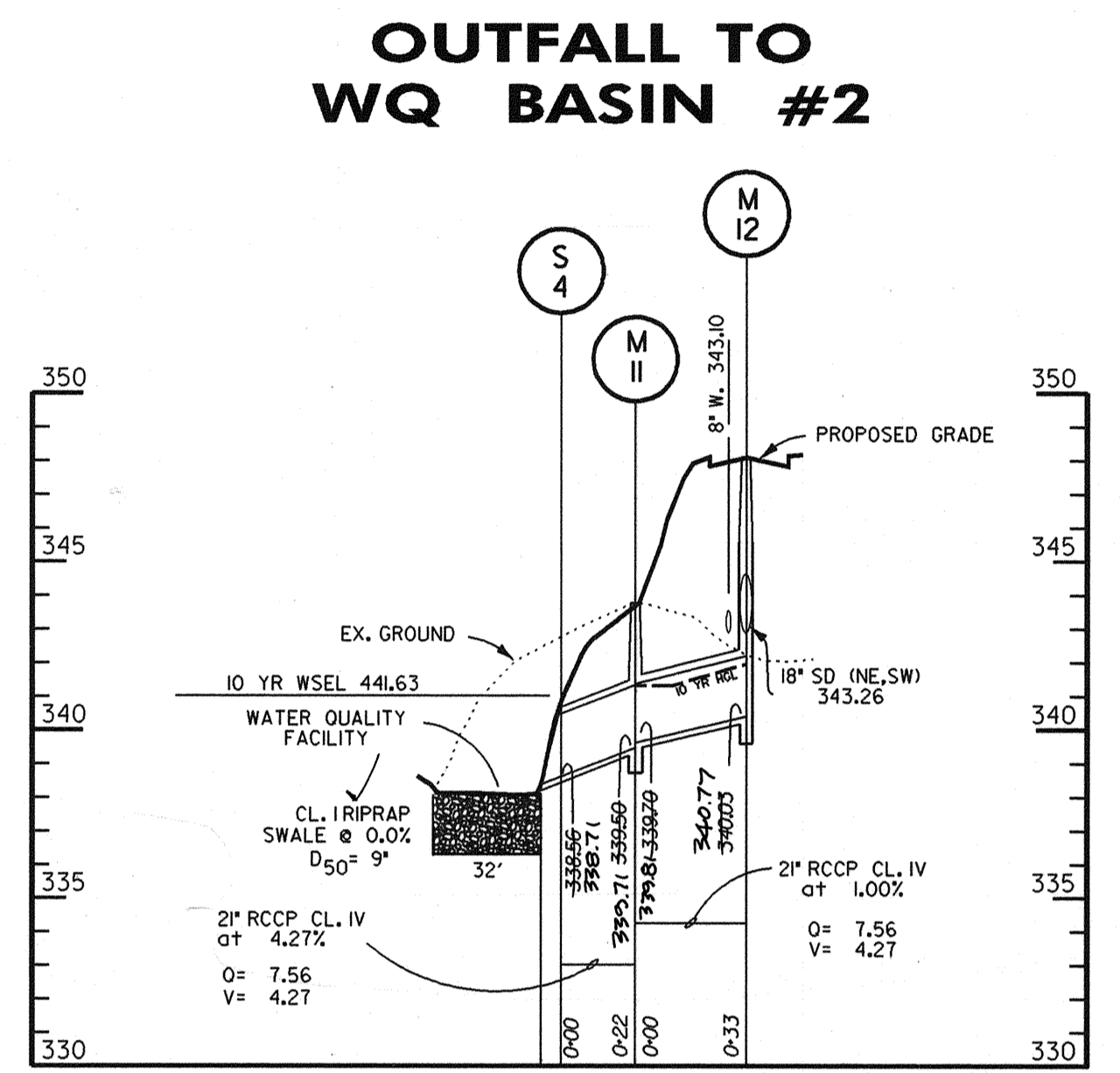
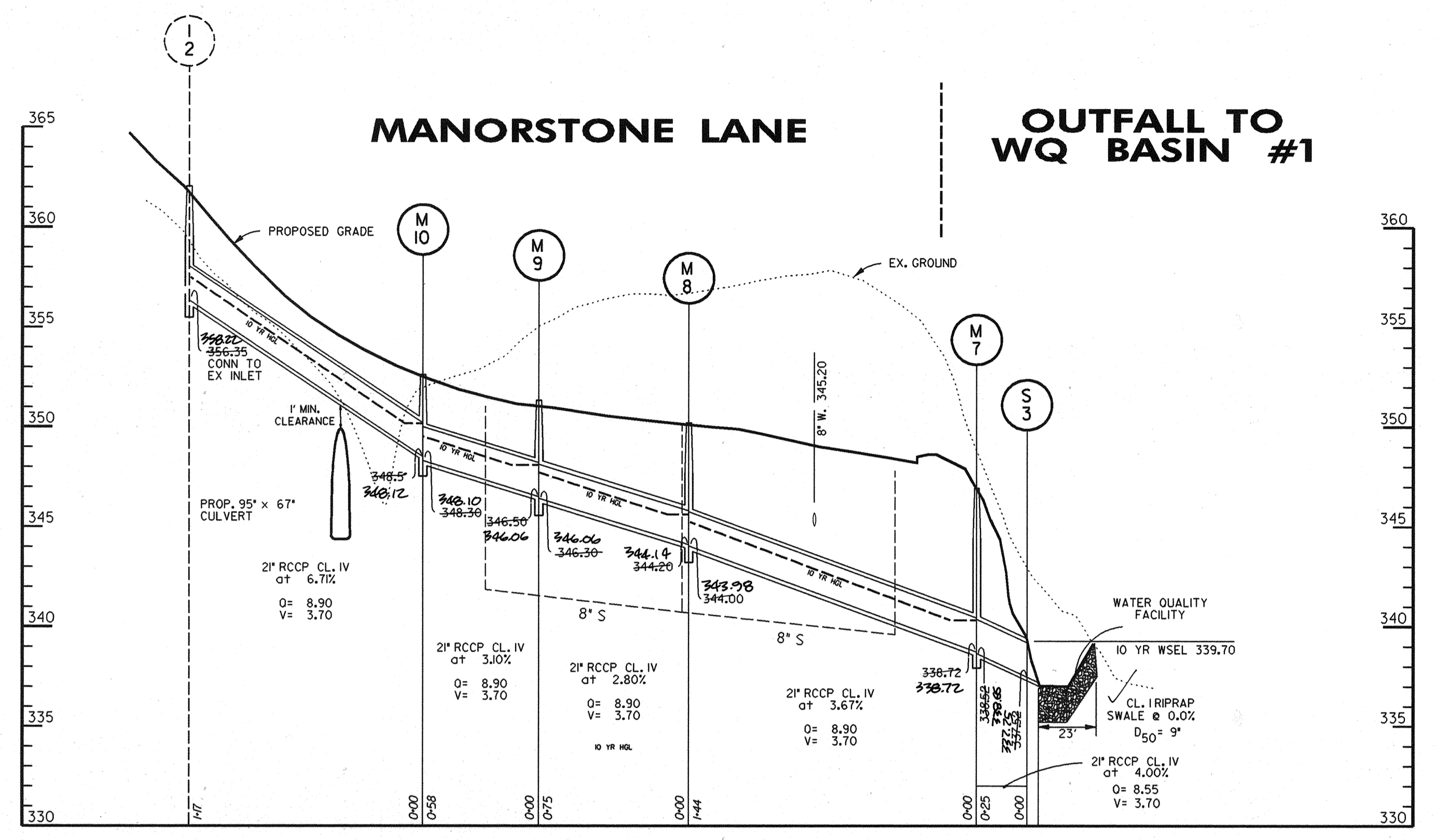


AS-BUILT
G. Scott Shandberg
DATE: 6/20/94

SHANBERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
BELLGATE CITY, MARYLAND 21040



TYPICAL SECTION
RIPRAP OUTLET PROTECTION
NOT TO SCALE



MANHOLE SCHEDULE

| NO. | TYPE | INV. OUT | TOP ELEV. | DETAIL NO. | LOCATION |
|-----|-----------------|----------|-----------|--------------|-----------------------|
| 7 | 4.0' STD MH | 340.12 | 347.20 | HO CO G 5.01 | CL STA 23+95.0 33' LT |
| 8 | 4.0' STD MH | 344.00 | 350.28 | HO CO G 5.01 | CL STA 22+50 2' LT |
| 9 | 4.0' STD MH | 346.38 | 352.34 | HO CO G 5.01 | CL STA 21+76.0 ON CL |
| 10 | 4.0' STD MH | 348.38 | 352.63 | HO CO G 5.01 | CL STA 21+27.0 ON CL |
| 11 | 4.0' STD MH | 339.58 | 343.78 | HO CO G 5.01 | CL STA 20+50.0 33' LT |
| 12 | 4.0' STD MH | 340.03 | 348.88 | HO CO G 5.01 | CL STA 25+50.0 ON CL |
| 13 | 4.0' SHALLOW MH | 343.68 | 347.36 | HO CO G 5.05 | CL STA 25+00.0 ON CL |
| 14 | 4.0' STD MH | 345.28 | 352.47 | HO CO G 5.01 | CL STA 26+35.5 ON CL |

SEE PLAN VIEW FOR AS-BUILT LOCATIONS

INLET SCHEDULE

| NO. | TYPE | INV. OUT | TOP ELEV. | DETAIL NO. | LOCATION |
|-----|-----------|----------|-----------|---------------|-------------------------|
| 7 | 'S' COMB. | 343.82 | 347.28 | HO CO SD 4.32 | CL STA 24+97.69 12.0' L |
| 8 | 'S' COMB. | 343.82 | 347.28 | HO CO SD 4.32 | CL STA 24+97.28 12.0' R |
| 9 | 'S' COMB. | 358.86 | 363.43 | HO CO SD 4.32 | CL STA 27+47 12.0' R |
| 10 | 'S' COMB. | 359.92 | 364.23 | HO CO SD 4.32 | CL STA 27+55 12.0' L |

* TOP ELEV. IS $\frac{1}{2}$ OF HEADPIECE.

STRUCTURE SCHEDULE

| NO. | TYPE | INV. OUT | TOP ELEV. | DETAIL NO. | LOCATION |
|-----|-------------------|----------|-----------|---------------|-----------------------|
| 3 | CONC. END SECTION | --- | --- | HO CO SD 5.51 | CL STA 24+11.0 51' LT |
| 4 | CONC. END SECTION | --- | --- | HO CO SD 5.51 | CL STA 25+44.0 43' LT |

STORM DRAIN PROFILES
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



AS-BUILT
U. SCOTT SHANABERGER
PROF. LG. # 108849
SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLCOTT CITY, MARYLAND 21043

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
[Signature] 6/16/94
CHIEF, BUREAU OF HIGHWAYS
[Signature] 6/20/94
CHIEF, BUREAU OF ENGINEERING
[Signature] 6/20/94
CHIEF, LAND DEVELOPMENT DIVISION

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
[Signature] 6/21/94
CHIEF, LAND DEVELOPMENT AND RESEARCH

| Date | No. | Revision Description |
|------|-----|----------------------|
| | | |

HARPER'S CHOICE
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286
410 296 8338
Fax 296-4706

AREA SECTION 5 AREA 9 PHASE 2
TAX MAP 29 PARCEL 126
5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE ROAD CONSTRUCTION DETAILS
STORM DRAIN PROFILES

Des By RTP Scale AS SHOWN Proj. No. 92023
Dwn By RTP Date Nov 93 4 OF 19
Chk By JWR Approved

5-26-94
Date

Professional Engr. No. 10551

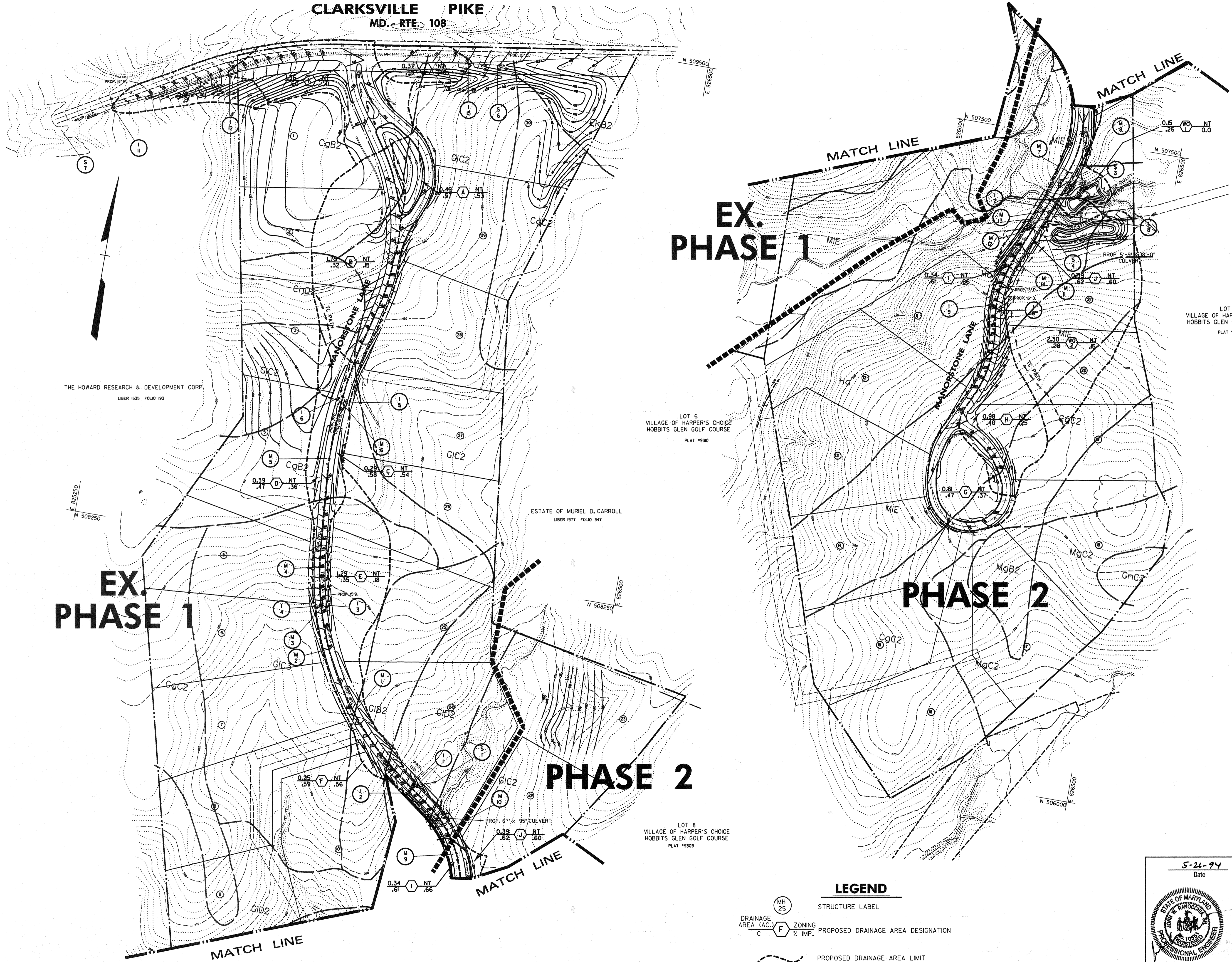
CLARKSVILLE PIKE
MD. RTE. 108

EX. PHASE 1

PHASE 2

EX. PHASE 1

PHASE 2



THE HOWARD RESEARCH & DEVELOPMENT CORP.
LIBER 1535 FOLIO 193

LOT 6
VILLAGE OF HARPER'S CHOICE
HOBBITS GLEN GOLF COURSE
PLAT #930

ESTATE OF MURIEL D. CARROLL
LIBER 1977 FOLIO 347

LOT 8
VILLAGE OF HARPER'S CHOICE
HOBBITS GLEN GOLF COURSE
PLAT #930

LOT 8
VILLAGE OF HARPER'S CHOICE
HOBBITS GLEN GOLF COURSE
PLAT #930

- LEGEND**
- STRUCTURE LABEL
 - PROPOSED DRAINAGE AREA LIMIT
 - PROPOSED DRAINAGE AREA DESIGNATION

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

James P. ... CHIEF, BUREAU OF HIGHWAYS DATE 6/16/94

Paul W. ... CHIEF, BUREAU OF ENGINEERING DATE 6/20/94

Chris ... CHIEF, LAND DEVELOPMENT DIVISION DATE 6/20/94

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Aime ... CHIEF, LAND DEVELOPMENT AND RESEARCH DATE 6/21/94

| Date | No. | Revision Description |
|------|-----|----------------------|
| | | |

HARPER'S CHOICE
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296-4705

AREA SECTION 5, AREA 9 PHASE 2
TAX MAP 29 PARCEL 126
5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

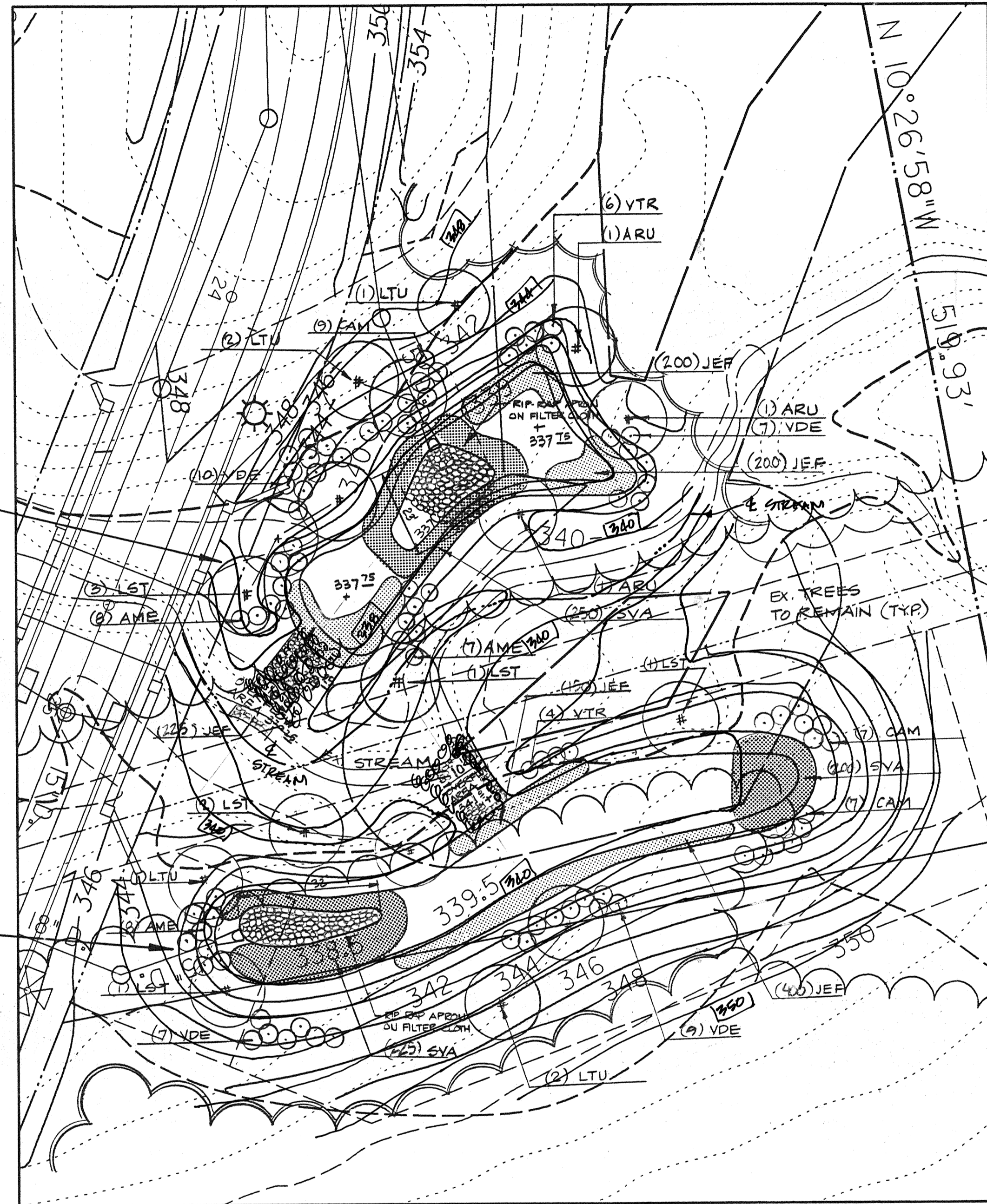
TITLE **STORM DRAINS DRAINAGE AREA MAP**

| | | | | | |
|--------|-----|----------|----------|-----------|-------|
| Des By | RTP | Scale | 1"=100' | Proj. No. | 92023 |
| Dm By | RTP | Date | Nov 1993 | 5 OF 19 | |
| Chk By | JWR | Approved | | | |

5-21-94
Date

Professional Engr. No. 10551

NOTE: PLANTINGS PROPOSED FOR WETLAND MARSH AREA ARE FOR WATER QUALITY ONLY, AND ARE NOT INTENDED TO SATISFY LANDSCAPE REQUIREMENTS.



Basin #1 (2,202 s.f.)
Elevation 339.25
Semi-permanent to Permanent Saturation/Inundation (75-100% of growing season)

OVERFLOW AREAS TO BE RIP-RAP ON FILTER FABRIC. SEE PROFILES THIS SHEET. WEA DETAIL 3.1 ON SHEET 7 OF 19

Basin #2 (3,526 s.f.)
Elevation 341.00
Semi-permanent to Permanent Saturation/Inundation (75-100% of growing season)

PLANT LIST

| KEY | QTY. | COMMON NAME | WETLAND STATUS | RATE | SIZE | COND. | REMARKS | MAX. WATER DEPTH |
|-----|------|---|----------------|-------------|-------------|--------------------|-----------------|---------------------|
| BYA | 425 | Solopus Vellus/Spotted Burdock | ORL | Field | 2 Yr. | 2 1/4" PP 18" O.C. | Wet Cultivation | 0'-1' |
| JEF | 500 | Juncus Effusus Soft Rush | FACW | Slow | 2 Yr. | 2 1/4" PP 12" O.C. | | 0'-1' |
| AME | 8 | Azolla Melanocephala Black Chokeberry | FACW | Medium | 18"-24" | Cont. | Clump | Regular Inundation |
| CAM | 14 | Cornus Amomum Billy Dogwood | FACW | Medium | 18"-24" | Cont. | Clump | Seasonal Inundation |
| VDE | 16 | Viburnum Dentatum American Viburnum | FAC | Field | 18"-24" | Cont. | Clump | Seasonal Inundation |
| VTR | 4 | Viburnum Tricatum American Cranberry Bush | FACW | Medium | 18"-24" | Cont. | Clump | Seasonal Inundation |
| LST | 4 | Lysichiton Blythii Blue Swallowtail | FAC | 1 1/2" Cal. | Cont. | NA | | |
| LTU | 3 | Liliodendron Tulipifera Tulip Poplar | FACU | Field | 1 1/2" Cal. | Cont. | | |

PLANT LIST

| KEY | QTY. | COMMON NAME | WETLAND STATUS | RATE | SIZE | COND. | REMARKS | MAX. WATER DEPTH |
|-----|------|---|----------------|-------------|-------------|--------------------|-----------------|---------------------|
| BYA | 250 | Solopus Vellus/Spotted Burdock | ORL | Field | 2 Yr. | 2 1/4" PP 18" O.C. | Wet Cultivation | 0'-1' |
| JEF | 625 | Juncus Effusus Soft Rush | FACW | Slow | 2 Yr. | 2 1/4" PP 12" O.C. | | 0'-1' |
| AME | 15 | Azolla Melanocephala Black Chokeberry | FACW | Medium | 18"-24" | Cont. | Clump | Regular Inundation |
| CAM | 9 | Cornus Amomum Billy Dogwood | FACW | Medium | 18"-24" | Cont. | Clump | Seasonal Inundation |
| VDE | 17 | Viburnum Dentatum American Viburnum | FAC | Field | 18"-24" | Cont. | Clump | Seasonal Inundation |
| VTR | 6 | Viburnum Tricatum American Cranberry Bush | FACW | Medium | 18"-24" | Cont. | Clump | Seasonal Inundation |
| ARU | 5 | Aster Rubrum Red Maple | FAC | 1 1/2" Cal. | Cont. | | | |
| LST | 4 | Lysichiton Blythii Blue Swallowtail | FAC | 1 1/2" Cal. | Cont. | | | |
| LTU | 3 | Liliodendron Tulipifera Tulip Poplar | FACU | Field | 1 1/2" Cal. | Cont. | | |

Wetland Plants Section 02555

PART 1 GENERAL

- DESCRIPTION: Work consists of all labor, materials, equipment and services necessary for and incidental to the excavation and completion of WETLAND PLANTS as indicated on the Drawings and specified herein.
 - Include:
 - Furnishing of all plant material.
 - Soil preparation, planting operations, mulching.
 - Maintenance and guarantee.
- RELATED WORK IN OTHER SECTIONS
 - Section 0215, FINISH GRADING.
- QUALITY ASSURANCE
 - American Association of Nurserymen (A.A.N.): "American Standard for Nursery Stock" (A.N.S.I. 280.1) as expanded herein.
 - Nomenclature: in accordance with HORTUS II by L. H. Bailey.
 - United States Department of Agriculture: Textural Classification Diagram for Soils.
- STANDARD OF COMPARISON
 - When the Drawings indicate a total quantity of five (5) or more of an individual plant (other than trees or palms) the Contractor shall obtain approval of a statement of comparison prior to delivery on site. Assemble samples of all plants to be evaluated as "standard" at the proposed business location of the Contractor. Notify Owner to schedule an inspection for approval of "standard" and to obtain relevant photographs. Photographs of such "standard" shall be used for comparison of all material subsequently installed on the site.
- SUBMITTALS
 - Source: Notify the Owner, in writing, of source of all material before delivery.
 - Laboratory test analysis of topsoil indicating gradation, organic content and pH.
- DELIVERY, STORAGE AND HANDLING
 - Root stock of the plant material shall be kept moist during transport from the source to the job site and until planted.
 - Transport and handle plants so that foliage, roots, or bolls are protected from frost, sun and winds. Tops or roots of plants allowed to dry out or which have been damaged or disturbed root balls will be cause for rejection.
- DRAWINGS
 - The Contractor shall use quantities of wetland plants noted on the plant list.
- PROJECT CONDITIONS
 - Planting shall commence immediately after final grading of wetland area. All emergent wetland plantings shall be installed between April 15 and June 30 or as directed by the Landscape Architect. Do not plant when ground is frozen. Do not use frozen planting soil at any time.
 - Existing Conditions: Notify Miss Utility (1-589-0100) and all other utility companies and bureaus prior to planting operations. Verify the location of underground utilities.
- DEFINITIONS
 - Start of Planting: Installation of plant material into excavated pits or beds.
 - Payment Release Inspection: Conducted monthly by the Owner or designated representative to verify quantity and quality of plants delivered to the Contractor. Payment release inspection does not waive any requirements of the standard of comparison or initial acceptance dates.
 - Initial Inspection: Conducted at the request of the Contractor and the Owner when 10% or more of all planting and related tasks are complete inspection to be by project landscape architect.
 - Final Acceptance: Occurs when all plant material is in place in accordance with the specifications and approved by the Owner and project landscape architect.
 - Maintenance Period: From start of planting to final acceptance.
 - Guarantee Period: From initial acceptance and continuing for 1 year thereafter, excluding the period from November 1 to April 15.
 - Final Acceptance: Occurs after Contractor has completed all outstanding items, as determined by the Owner, at the end of the maintenance and guarantee period.
- GUARANTEE AND REPLACEMENT
 - All plants in an impaired, dried or dying condition prior to initial acceptance and prior to final acceptance shall be removed and replaced. Replacement material shall be the same size as other unimpaired material containing growth that has occurred since original installation. Methods of installation shall be identical to the original.
 - Replacements shall be made between April 15 and June 30, the season following the initial planting, and shall conform to the planting specifications listed above.
 - The contractor shall notify the Landscape Architect to arrange a site meeting to determine the replacement requirements, at the end of the guarantee period.

- PLANTS
 - Sound, healthy, vigorous, free from plant diseases, insect pests or their eggs.
 - Herbaceous plants for shallow water planting areas shall be wet cultured for a period of no less than one year prior to planting.
 - Plants cut back from larger sizes or pruned prior to delivery will not be accepted.
 - It is anticipated that these plants will need to be obtained from a nursery source. These plant species are normally unavailable from standard landscape nursery sources. The contractor shall obtain these plants from an approved nursery within 150 miles of the project site.
 - Shape and Form: Plant materials shall be symmetrical and typical for the variety and species.
 - Container (Woody and Herbaceous): The soil/root masses shall be thoroughly moist upon delivery to the job site. Any dry and light weight plants shall be rejected. If not planted immediately after being delivered to the job site, the plants shall be stored out of direct exposure to the sun and wind and their root masses maintained moist through periodic watering until the time of planting.
 - Until the removal of the plants from the containers the soil/root masses shall be the size of the specified container size. If the soil/root masses are substantially smaller than the specified container size and loose soil areas on the bottom of the containers, the plants will be rejected, since they have not been grown sufficiently long in the containers to root into the soils contained therein.
 - If in the leaf, the plants shall appear healthy with no leaf spots, leaf damage, leaf discolorations, leaf wilting, or evidence of insects on the leaves.
 - For trees and shrubs, should spiraling primary woody roots exist on the outside of the soil/root mass upon the removal of the plants from the containers, the landscape contractor shall be required to either cut these roots or separate them out from the soil/root masses prior to planting.
 - The container size shall be at least as large as indicated in the specifications or shown in the plant tables/notes. Plants shall not be rejected if supplied in containers larger than specified.
 - Filter or Peat Pot: If not planted immediately after being delivered to the job site, the plants shall be stored out of direct exposure to the sun and wind and their pots and associated root masses maintained moist through periodic watering until the time of planting.
 - The plants shall be well-watered through the sides and bottoms of the pots and firmly contained therein.
 - Should the plants be removed from the pots by holding them from their tops and gently pulling on the pots, the plants shall be rejected.
 - If growing, the plants shall appear healthy with no foliar spots, discolorations, wilting, or other evidence of the presence of disease or insects.
 - The pot size shall be at least as large as indicated in the specifications or shown in the plant tables/notes. Plants shall not be rejected if supplied in pots larger than specified.
 - The number of plants, stems, or culms per pot as specified or shown in the plant tables/notes at least shall be present, on the average, on the plants shall be rejected.
 - Dormant Propagules (Herbaceous): If not planted immediately after being delivered to the job site, the dormant propagules shall be stored out of the direct exposure to the sun and wind and they shall be protected by covering with straw, peat moss, compost, or other suitable material and shall be maintained moist, through periodic watering, until the time of planting.
 - The bolls and shoots associated with the propagules shall have large or be rigid to the touch. If the bolls and/or shoots associated with the propagules are soft or mushy, or appear rotten or decomposed, the plant materials shall be rejected.
 - Rhizome (stolon) sections shall provide a minimum of two shoots per section or Rhizome (stolon) sections containing at least a terminal shoot shall be a minimum of four inches (4") in length in order to ensure sufficient stored energy to support the new growth). Rhizome sections containing shoots that are soft or mushy or otherwise appear rotten shall not be accepted.

Soil/root masses shall contain a terminal shoot and be a minimum of four inches (4") in length in order to ensure sufficient stored energy to support the new growth).

Growing Bare Root Plant (Herbaceous): The plants shall contain new roots that are clean and white in coloration.

If not planted immediately after delivery to the job site, the plants shall be stored out of direct exposure to the sun and wind and the new roots shall be protected by the use of straw, peat moss, compost, or other suitable material and shall be maintained moist, through periodic watering, until the time of planting.

The plants shall appear healthy with no foliar spots, discolorations, wilting, or other evidence of the presence of disease or insects.

Plug (Herbaceous, Woody Seedling, or Rooted Cutting): If not planted immediately after delivery to the job site, the plugs, in their growing units, shall be stored out of direct exposure to the sun and wind and maintained moist, through periodic watering, until the time of planting. If the plugs are not contained in their growing units upon delivery and will not be planted immediately, they should be stored in plastic bags and their root masses shall be protected by the use of straw, peat moss, compost, or other suitable material.

Plugs shall have solid soil/root masses with the soil in place. Roots shall appear clean and white in coloration.

If growing, the plants shall appear healthy with no foliar spots, discoloration, wilting, or other evidence of the presence of disease or insects.

If dormant, new healthy shoots (for herbaceous) shall be apparent or stems (for woody) shall be pliable and exhibit healthy cambium. Plugs (herbaceous) containing stems that are soft or mushy or otherwise appear rotten and plugs (woody) containing brittle stems having unhealthy cambium shall not be accepted.

The soil/root masses associated with the plugs shall be protected from direct exposure to the environment by the use of straw, peat moss, compost, or other suitable material and shall be maintained moist, through periodic watering, until the time of planting.

Plug (Collected, Herbaceous and Woody): Plug (herbaceous) shall be a minimum of five inches (5") square or in diameter and three inches (3") in thickness.

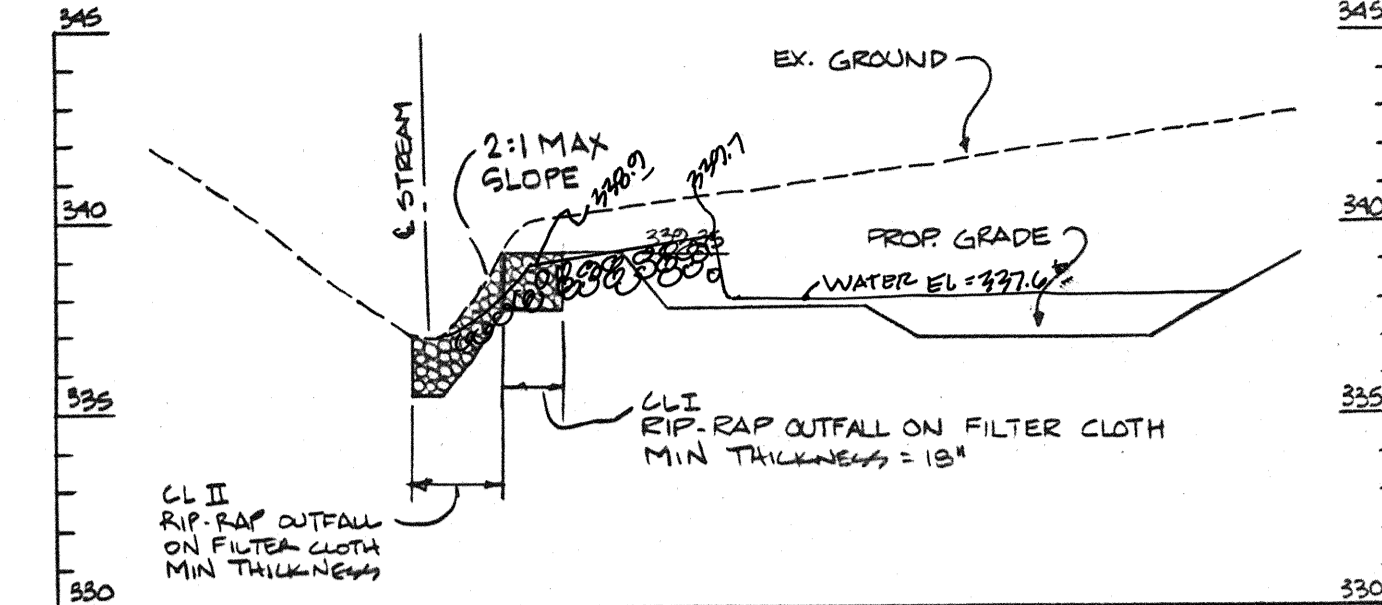
Plugs (Woody, Seedling): Shall have width that are at least to the top of the seedlings and have roots that are at least 10 times the height of the seedlings.

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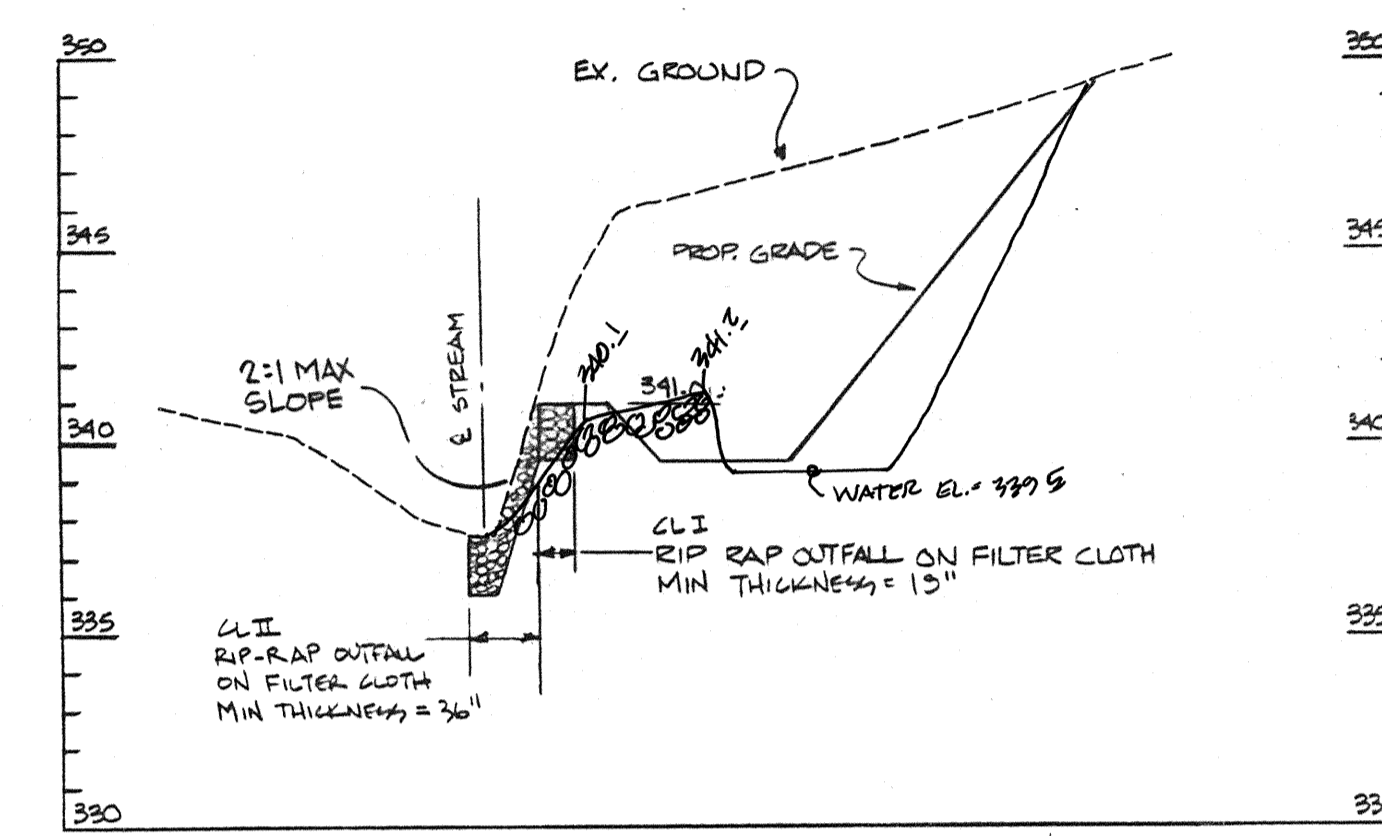
If not planted immediately after delivery to the job site, the plugs shall be stored out of direct exposure to the sun and wind and shall be maintained moist, through periodic watering, until the time of planting.

PART 3 EXECUTION

- PREPARATION
 - Plant Location: As shown on the Drawings, to dimensions if shown, to scale if not dimensioned. Locations subject to review by the Landscape Architect before starting excavation.
 - No plant material shall be installed until the Landscape Architect has approved the final grade of the planting areas.
- EXCAVATION
 - Underexcavated: Excavate and remove surplus materials encountered, without additional cost. Retain only sufficient soil to form soil walls if shown on the details. Disposal shall be off-site.
 - Underground construction, rock or other obstructions too massive to remove: Notify Owner for further direction. Other locations will be selected. Make such excavations without additional compensation.
 - Clay encroachment: Notify Owner for further direction. Payment for this effort will be made in accordance with the Contract provisions affecting changes in the Work.
- PLANTING PROCEDURES
 - Set plants straight and plumb.
 - Plant material shall be planted in existing soil with each planting pit excavated to size sufficient to contain the entire root stock or root mass without crowding.
 - Planting Bed: All vegetative growth shall be removed to a sufficient depth to insure a weed-free bed.
 - Where water is not available on-site, the Contractor shall furnish and install the quantities to complete the Work at no additional cost to the Owner.
 - The planting areas shown on the plan are approximate and may be varied due to field conditions, provided the relative ratios and areas are maintained.
- MAINTENANCE
 - Watering of plant material shall take place at the end of each for fourteen (14) consecutive days after planting has been completed. The watering shall completely saturate the soil and partially saturate the plant material.
 - During maintenance period, on approximately the 1st and 15th of each month, the Contractor shall provide sufficient supervision, equipment, materials and manpower to:
 - Keep all plants in a healthy growing condition by watering, when necessary, removing dead or dying branches, controlling insect infestations, removing sprouts, weeding.
 - Remove and replace dead or damaged plant material. Where replacement is not possible due to season, remove dead material, etc. and level pit until planting is possible.
 - Notify Owner for review of activities prior to initiating maintenance operations each month.



PROFILE OF OUTFALL BASIN #1
HORIZ.: 1" = 20' VERT.: 1" = 5'



PROFILE OF OUTFALL BASIN #2
HORIZ.: 1" = 20' VERT.: 1" = 5'

NOTE: ALL RIP-RAP TO BE DARK NATIVE STONE.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 [Signature] CHIEF, BUREAU OF HIGHWAYS 6/16/94 DATE
 [Signature] CHIEF, BUREAU OF ENGINEERING 6/20/94 DATE
 [Signature] CHIEF, LAND DEVELOPMENT DIVISION 6/20/94 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 [Signature] CHIEF LAND DEVELOPMENT AND RESEARCH 6/21/94 DATE

| Date | No. | Revision Description |
|---------|-----|--|
| 6/16/94 | 1 | OVERFLOW AREA WIDTH AND EMERGENT PLANT QTY AND SPECIES |

HARPER'S CHOICE
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286
410 296 3333 Fax 296 4705

AREA SECTION 5, AREA 9, PHASE 2
TAX MAP 29 PARCEL 128
5TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
BASINS # 1 AND #2 PLANTING PLAN

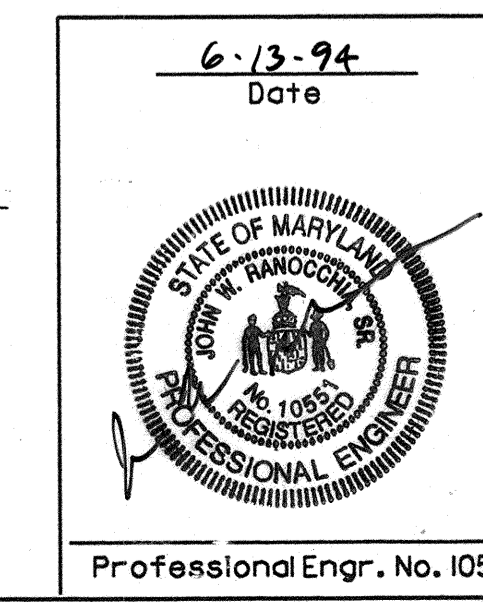
Des By FPB Scale 1" = 20' Proj. No. 92023C
 Drn By Date
 Chk By Approved 6 OF 19



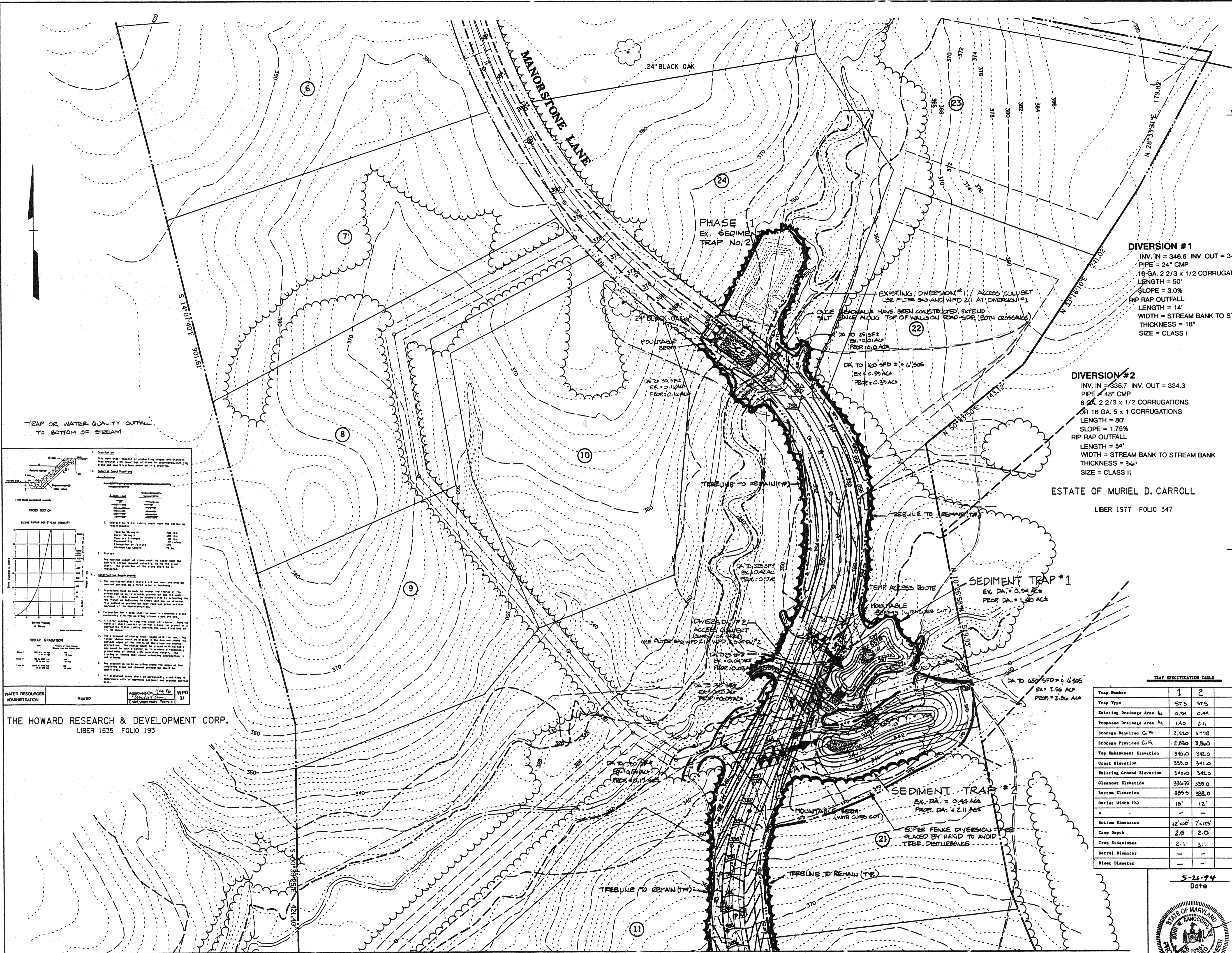
AS-BUILT

[Signature] DATE
 G. SCOTT SHANBERGER
 PROF. L.S. # 10849

SHANBERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLCOTT CITY, MARYLAND 21043



Professional Engr. No. 10551



SEDIMENT CONTROL LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING DRAINAGE AREA
- PROPOSED DRAINAGE AREA
- LIMIT OF DISTURBANCE
- SUPER FENCE DIVERSION
- SILT FENCE
- IP - INLET PROTECTION
- 500 - STONE OUTLET STRUCTURE
- SCS - STABILIZED CONSTRUCTION ENTRANCE
- MOUNTABLE BERM
- TREE LINE TO REMAIN
- EARTH DIKE

DIVERSION #1
 INV. IN = 346.6 INV. OUT = 345.1
 PIPE = 24" CMP
 16 GA. 2 2/3 x 1/2 CORRUGATIONS
 LENGTH = 50'
 SLOPE = 3.0%
 RIP RAP OUTFALL
 LENGTH = 14'
 WIDTH = STREAM BANK TO STREAM BANK
 THICKNESS = 18"
 SIZE = CLASS I

DIVERSION #2
 INV. IN = 335.7 INV. OUT = 334.3
 PIPE = 48" CMP
 8 GA. 2 2/3 x 1/2 CORRUGATIONS
 OR 16 GA. 5 x 1 CORRUGATIONS
 LENGTH = 80'
 SLOPE = 1.75%
 RIP RAP OUTFALL
 LENGTH = 34'
 WIDTH = STREAM BANK TO STREAM BANK
 THICKNESS = 26"
 SIZE = CLASS II

DEVELOPER'S CERTIFICATION:

"I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

Margaret R. Flax 5-26-94
 Date

ENGINEER'S CERTIFICATION:
 "I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

John W. Rauscher, Sr. 5-26-94
 Date

Reviewed for Howard S.C.D. and meets Technical Requirements

J. J. Warfield, JMW 6/16/94
 U.S. Soil Conservation Service Date

This Development Plan is Approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

John R. Robertson 6/16/94
 Howard S.C.D. Date

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

James J. ... 6/16/94
 CHIEF, BUREAU OF HIGHWAYS DATE

Paul H. ... 6/20/94
 CHIEF, BUREAU OF ENGINEERING DATE

John ... 6/20/94
 CHIEF, LAND DEVELOPMENT DIVISION DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

John ... 6/20/94
 CHIEF, LAND DEVELOPMENT AND RESEARCH DATE

| Date No. | Revision Description |
|----------|----------------------|
| | |

HARPER'S CHOICE
 OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CO.
 THE ROUSE COMPANY
 10275 LITTLE PATUXEN PARKWAY
 COLUMBIA, MARYLAND 21044

DMW
 Daft · McCune · Walker, Inc.
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 410.296.3333 Fax 296.4705

AREA SECTION 5 AREA 9 PHASE 2
 TAX MAP 29 PARCEL 128
 8th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

SEDIMENT & EROSION CONTROL

| | | | | | |
|--------|-----|----------|----------|-----------|--------|
| Des By | CRW | Scale | 1" = 50' | Proj. No. | 92023C |
| Drn By | CRW | Date | | | |
| Chk By | JWR | Approved | | | |

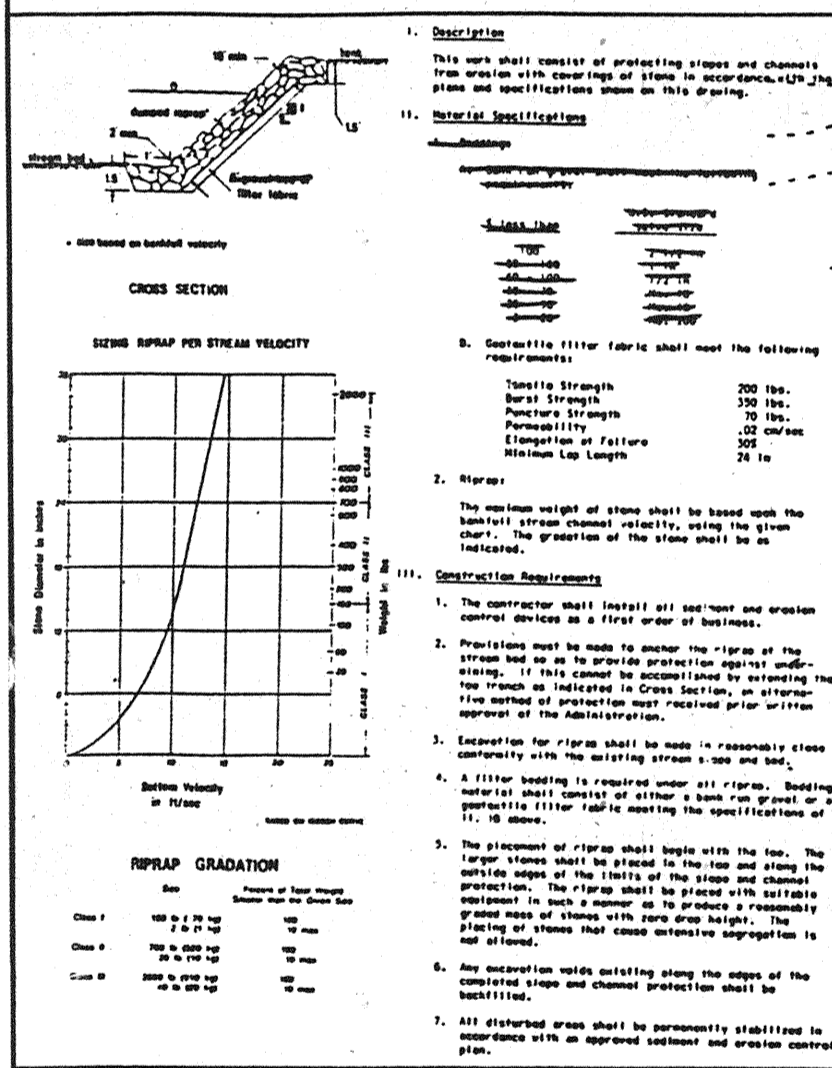
TRAP SPECIFICATION TABLE

| Trap Number | Trap 1 | | Trap 2 |
|------------------------------|----------|------------|---------|
| | 1 | 2 | |
| Trap Type | ST 5 | ST 5 | ST 5 |
| Existing Drainage Area Ac | 0.54 | 0.44 | 0.7 |
| Proposed Drainage Area Ac | 1.40 | 2.11 | 2.4 |
| Storage Required Cu Ft | 2,520 | 3,798 | 4,320 |
| Storage Provided Cu Ft | 2,830 | 3,860 | 4,448 |
| Top Rehabilitation Elevation | 340.0 | 342.0 | 345.0 |
| Crest Elevation | 339.0 | 341.0 | 343.0 |
| Existing Ground Elevation | 340.0 | 342.0 | 344.0 |
| Cleanout Elevation | 336.75 | 339.0 | 341.5 |
| Bottom Elevation | 335.5 | 338.0 | 341.0 |
| Outlet Width (ft) | 18' | 12' | 10' |
| Bottom Dimension | 12' x 6' | 7' x 12.5' | 5' x 5' |
| Trap Depth | 2.5' | 2.0' | 5' |
| Trap Slopes | 2:1 | 3:1 | 2:1 |
| Barrel Diameter | | | |
| Riser Diameter | | | |

5-26-94
 Date



TRAP OR WATER QUALITY OUTFALL TO BOTTOM OF STREAM

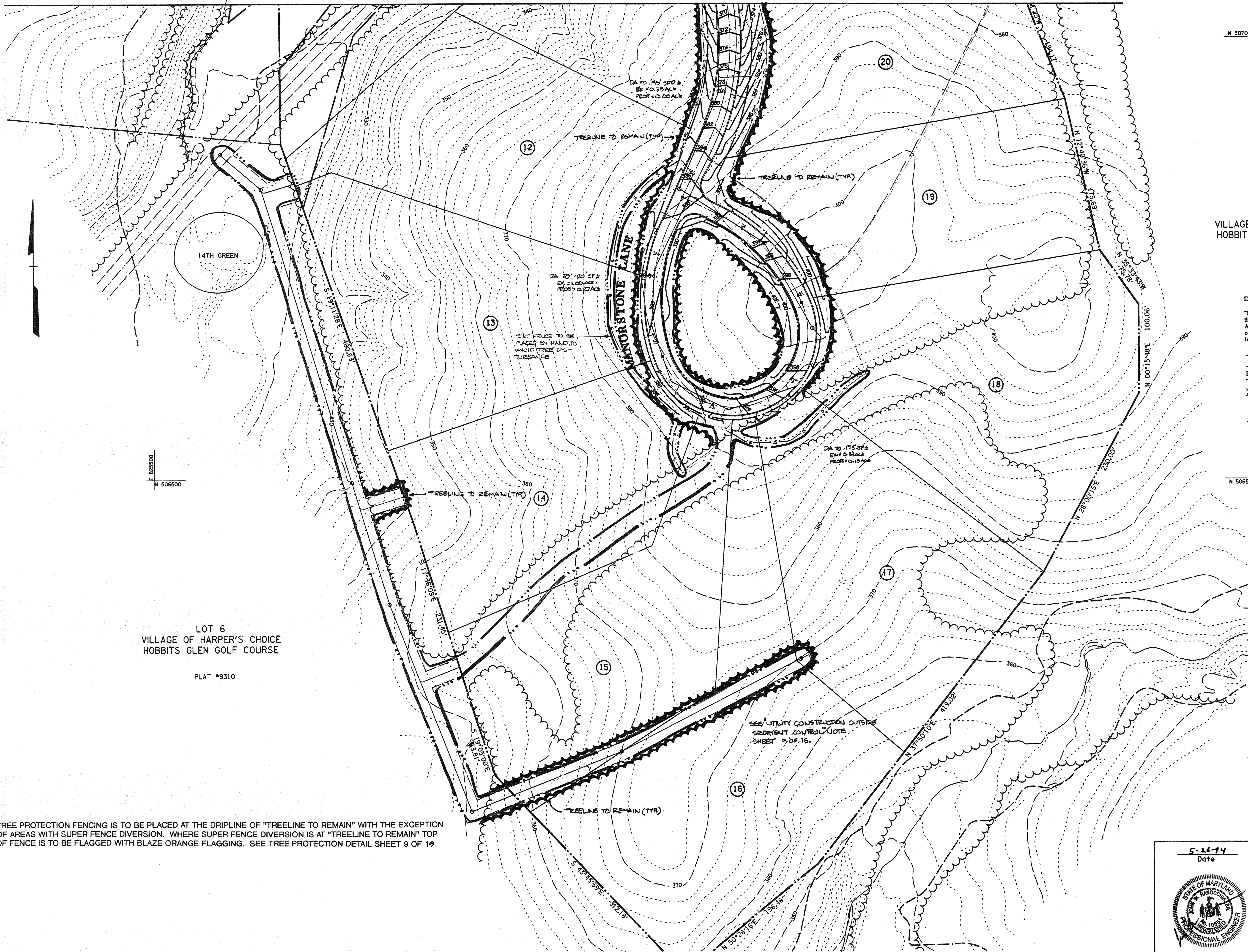


WATER RESOURCES ADMINISTRATION
 Approved On: 6/16/94
 WPD 33

THE HOWARD RESEARCH & DEVELOPMENT CORP.
 LIBER 1535 FOLIO 193

MATCH LINE SEE SHEET 8 OF 19

TREE PROTECTION FENCING IS TO BE PLACED AT THE DRIPLINE OF "TREELINE TO REMAIN" WITH THE EXCEPTION OF AREAS WITH SUPER FENCE DIVERSION. WHERE SUPER FENCE DIVERSION IS AT "TREELINE TO REMAIN" TOP OF FENCE IS TO BE FLAGGED WITH BLAZE ORANGE FLAGGING. SEE TREE PROTECTION DETAIL SHEET 9 OF 19



- SEDIMENT CONTROL LEGEND**
- EXISTING CONTOURS
 - PROPOSED CONTOURS
 - EXISTING DRAINAGE AREA
 - PROPOSED DRAINAGE AREA
 - LIMIT OF DISTURBANCE
 - SUPER FENCE DIVERSION
 - SILT FENCE
 - TREELINE TO REMAIN

LOT 8
VILLAGE OF HARPER'S CHOICE
HOBBITS GLEN GOLF COURSE
PLAT #9309

DEVELOPER'S CERTIFICATION:

"I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

Gregory R. Han 5-26-94
Date

ENGINEER'S CERTIFICATION:

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

John W. Rauscher, Sr. 5-26-94
Date

Reviewed for Howard S.C.D. and meets Technical Requirements

J. A. Warfield, Jr. 6/16/94
J.S. Soil Conservation Service Date

This Development Plan is Approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

John R. Roberts 6/16/94
Howard S.C.D. Date

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

James J. Shaw 6/16/94
CHIEF, BUREAU OF HIGHWAYS DATE

Robert S. Brown 6/20/94
CHIEF, BUREAU OF ENGINEERING DATE

Robert D. ... 6/20/94
CHIEF, LAND DEVELOPMENT DIVISION DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Gina Summerville 6/21/94
CHIEF, LAND DEVELOPMENT AND RESEARCH DATE

| Date | No. | Revision Description |
|------|-----|----------------------|
| | | |

HARPER'S CHOICE
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CO.
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AREA SECTION 5 AREA 9 PHASE 2
TAX MAP 29 PARCEL 128
8th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
SEDIMENT & EROSION CONTROL

| | | | | | |
|--------|-----|----------|----------|-----------|---------|
| Des By | CRW | Scale | 1" = 50' | Proj. No. | 92023C |
| Drn By | CRW | Date | 7-29-93 | | |
| Chk By | JWR | Approved | | | 8 OF 19 |

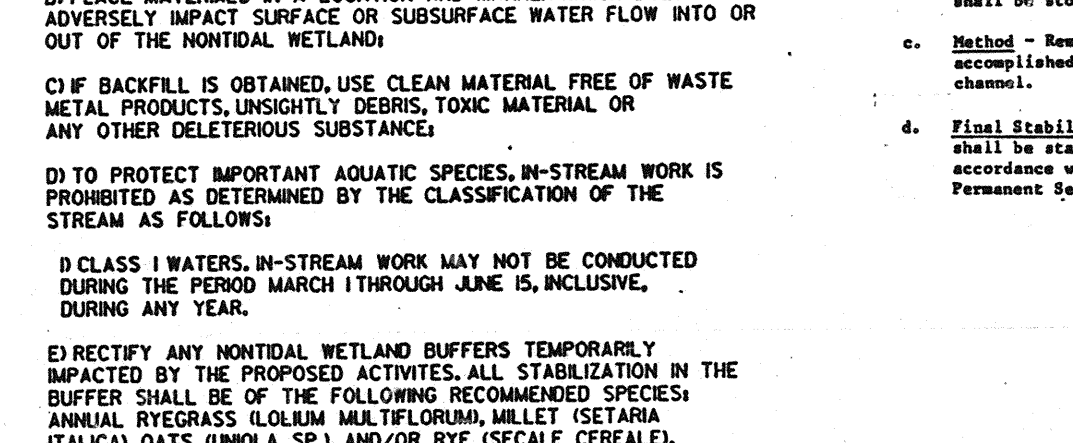
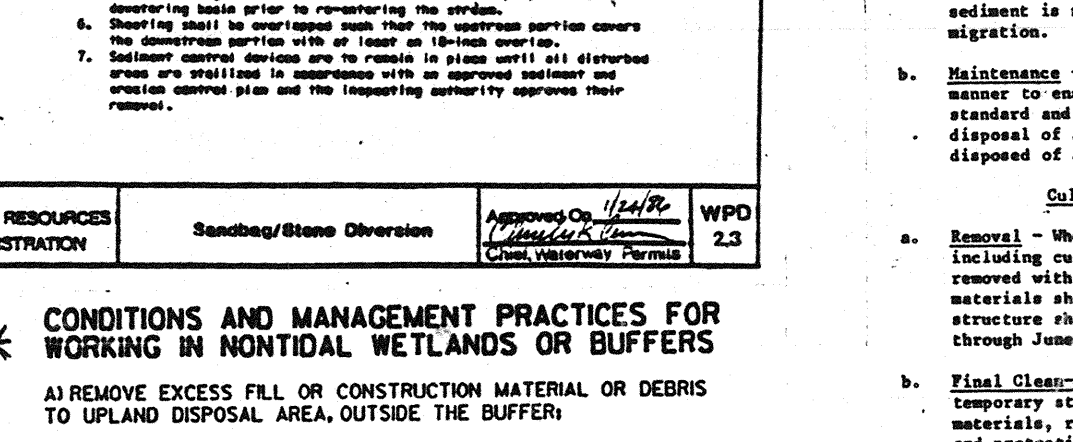
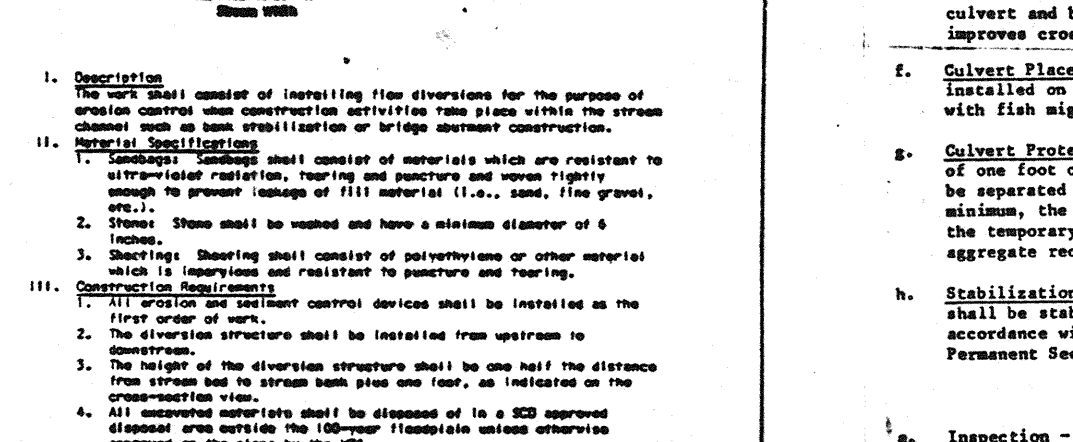
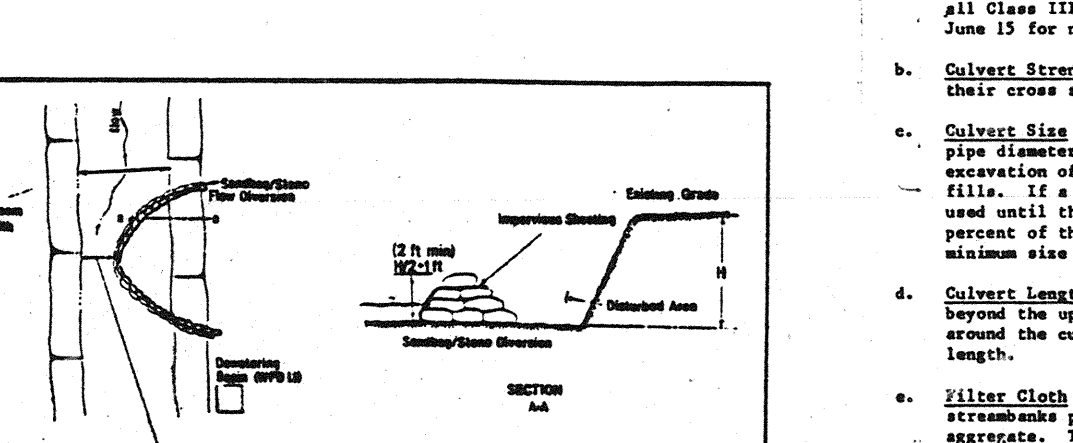
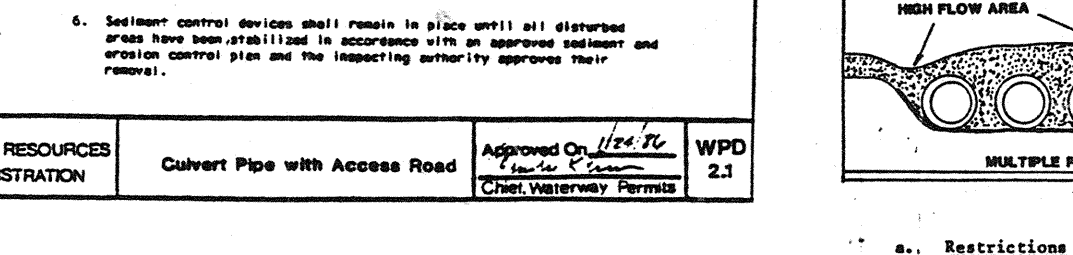
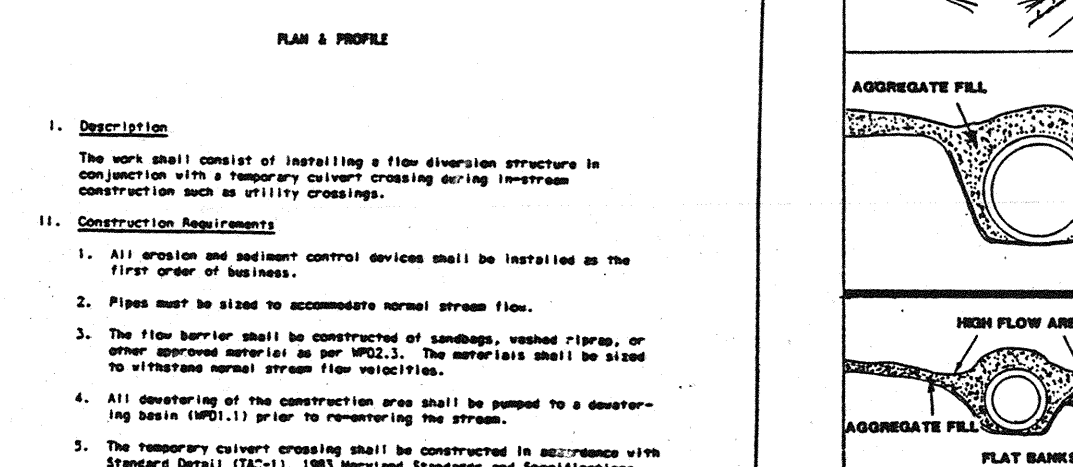
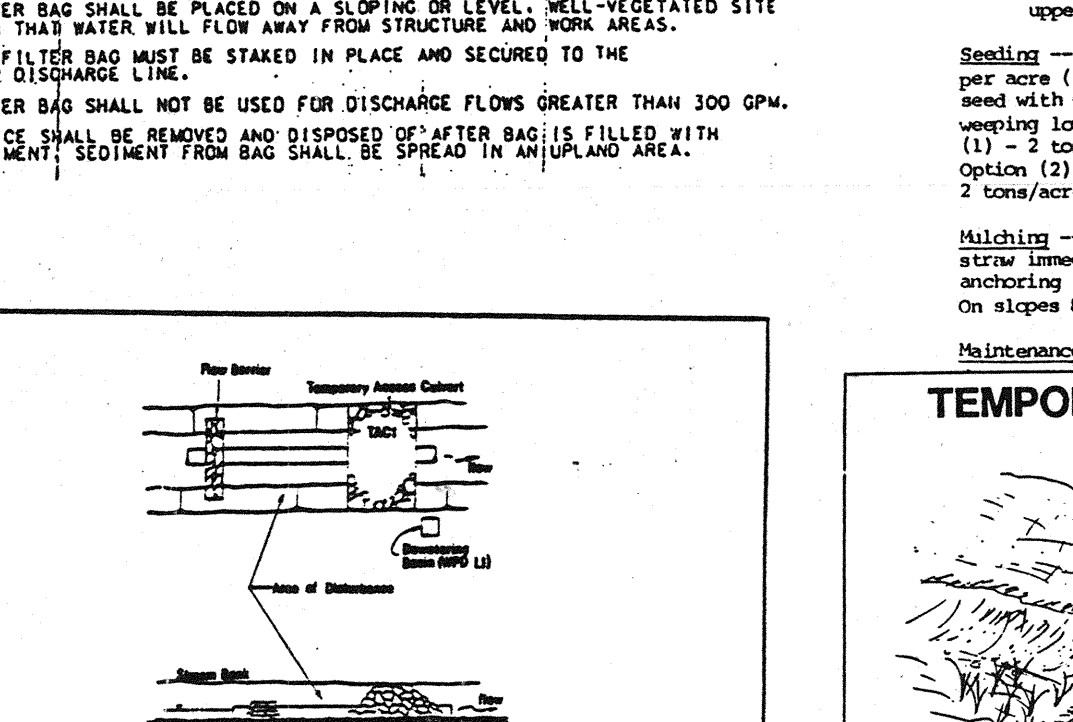
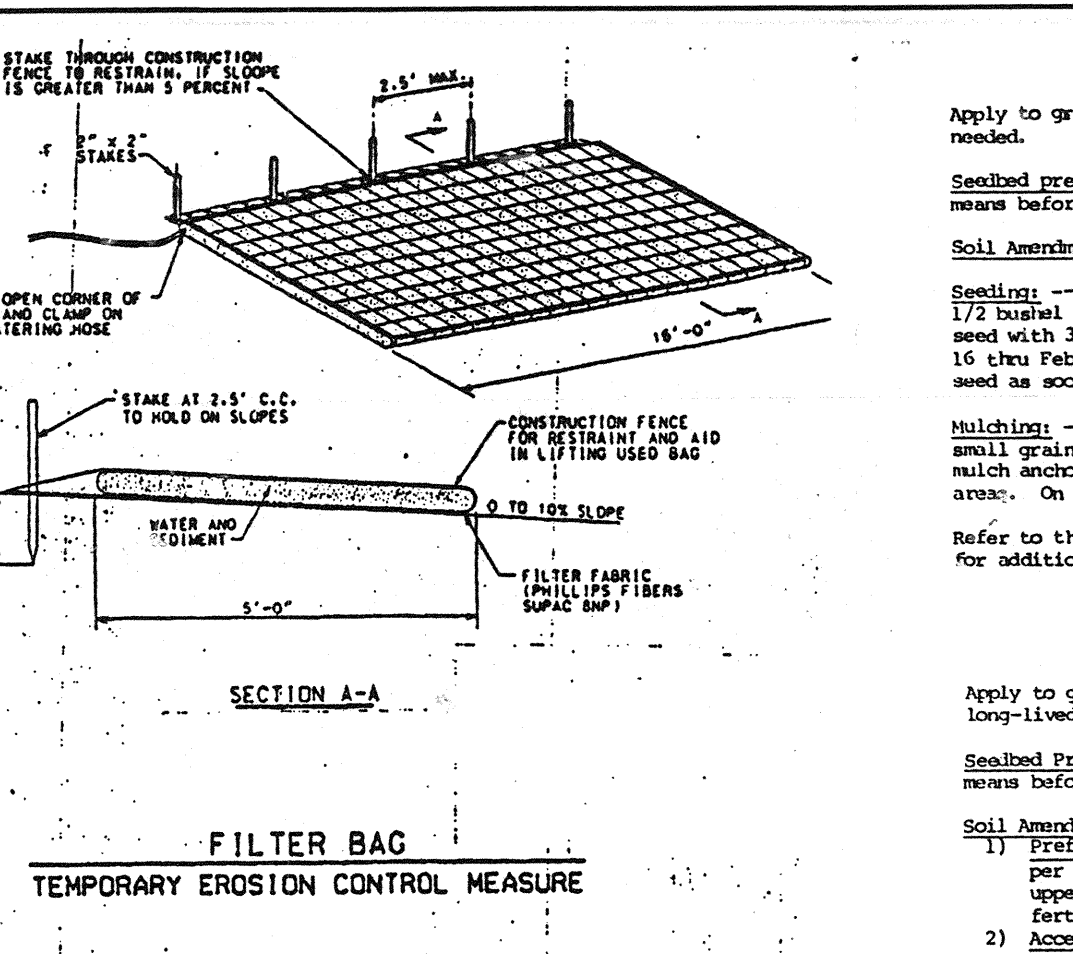
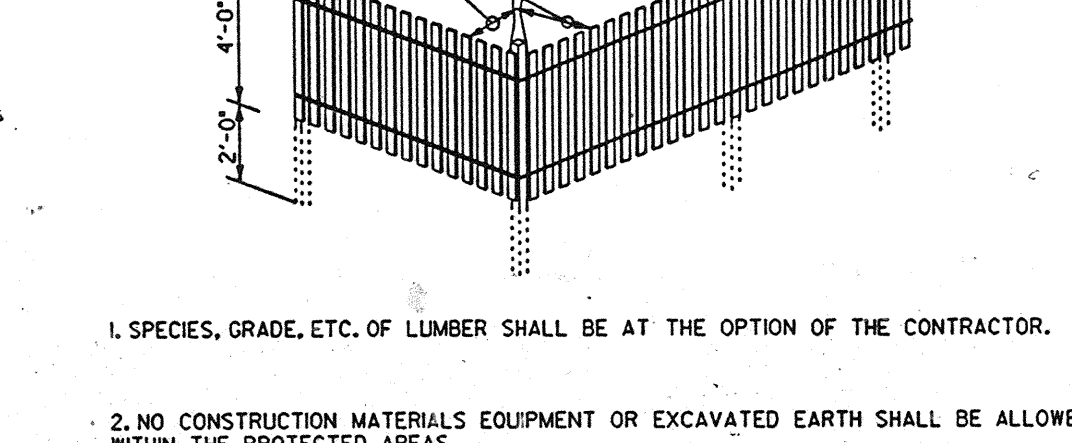
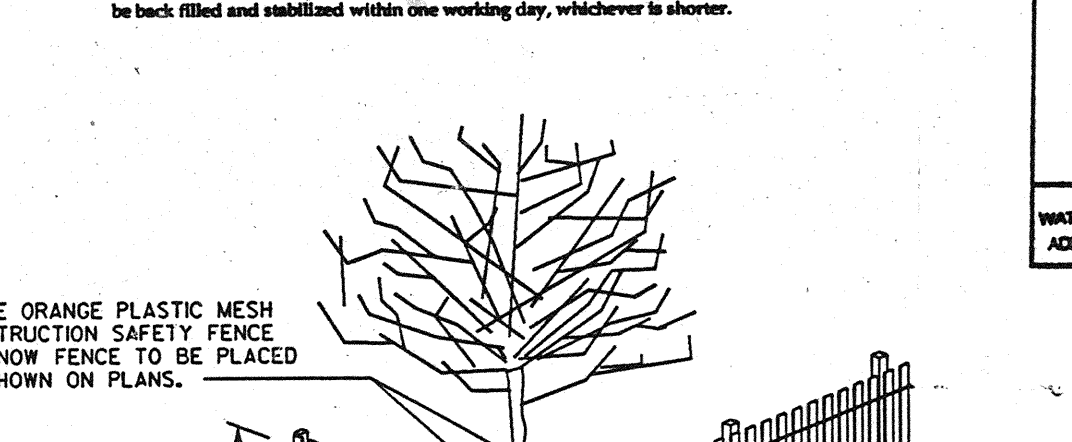
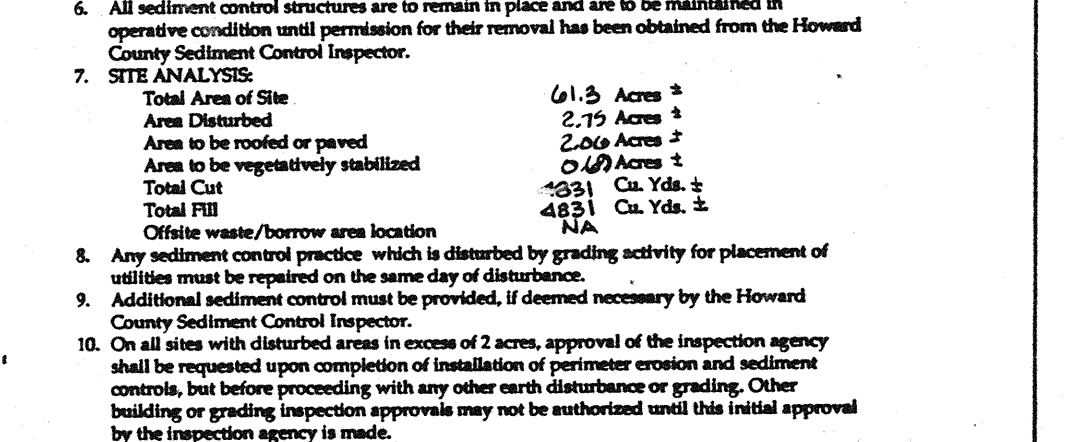
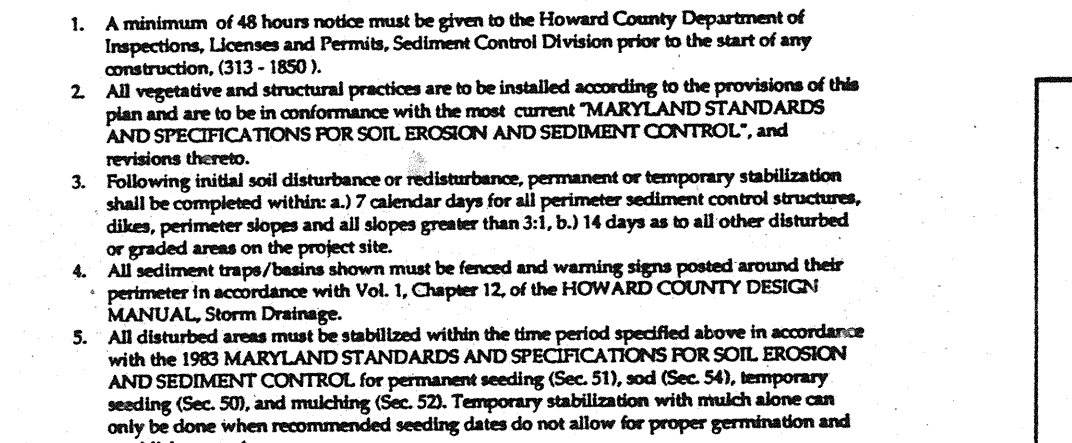
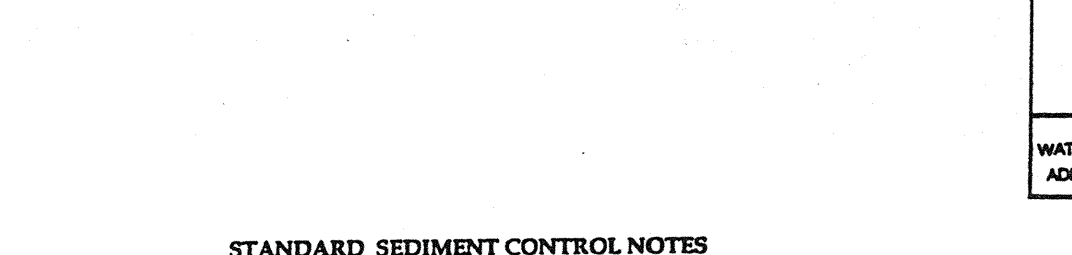
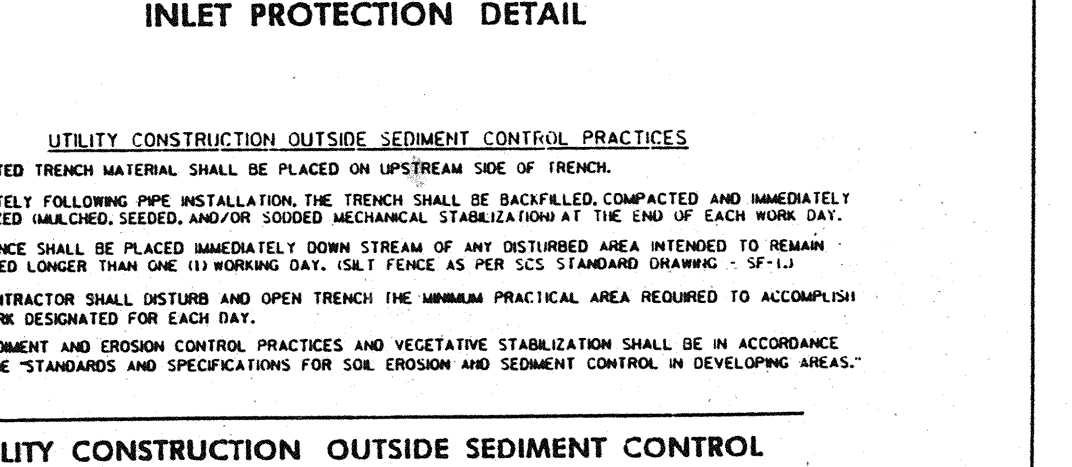
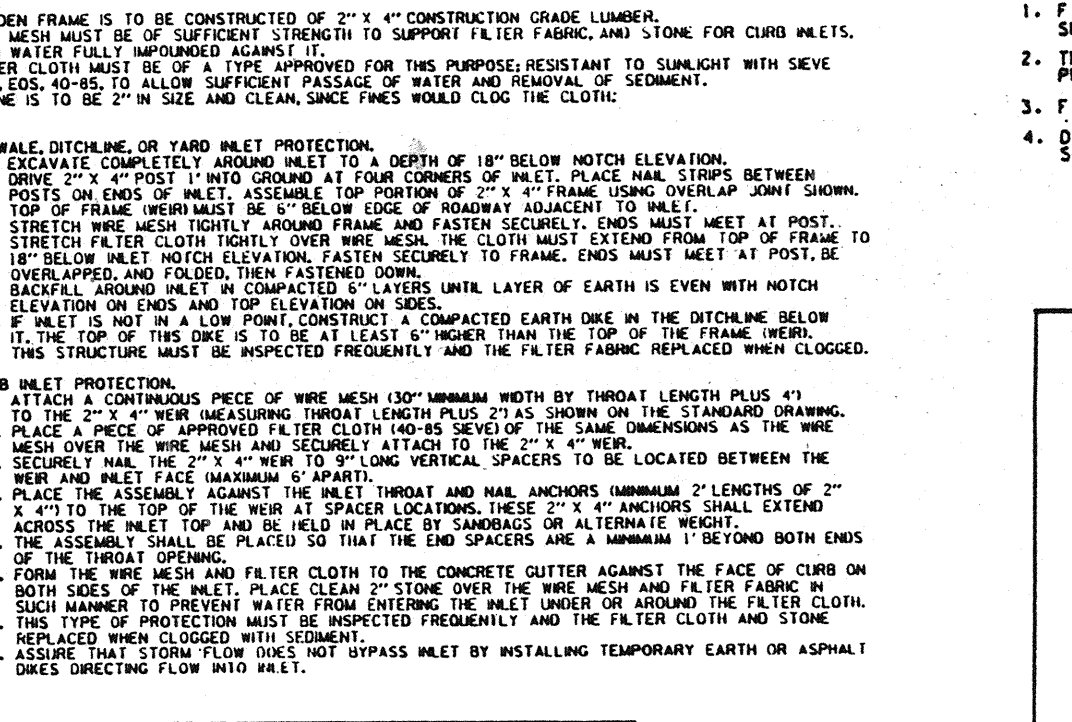
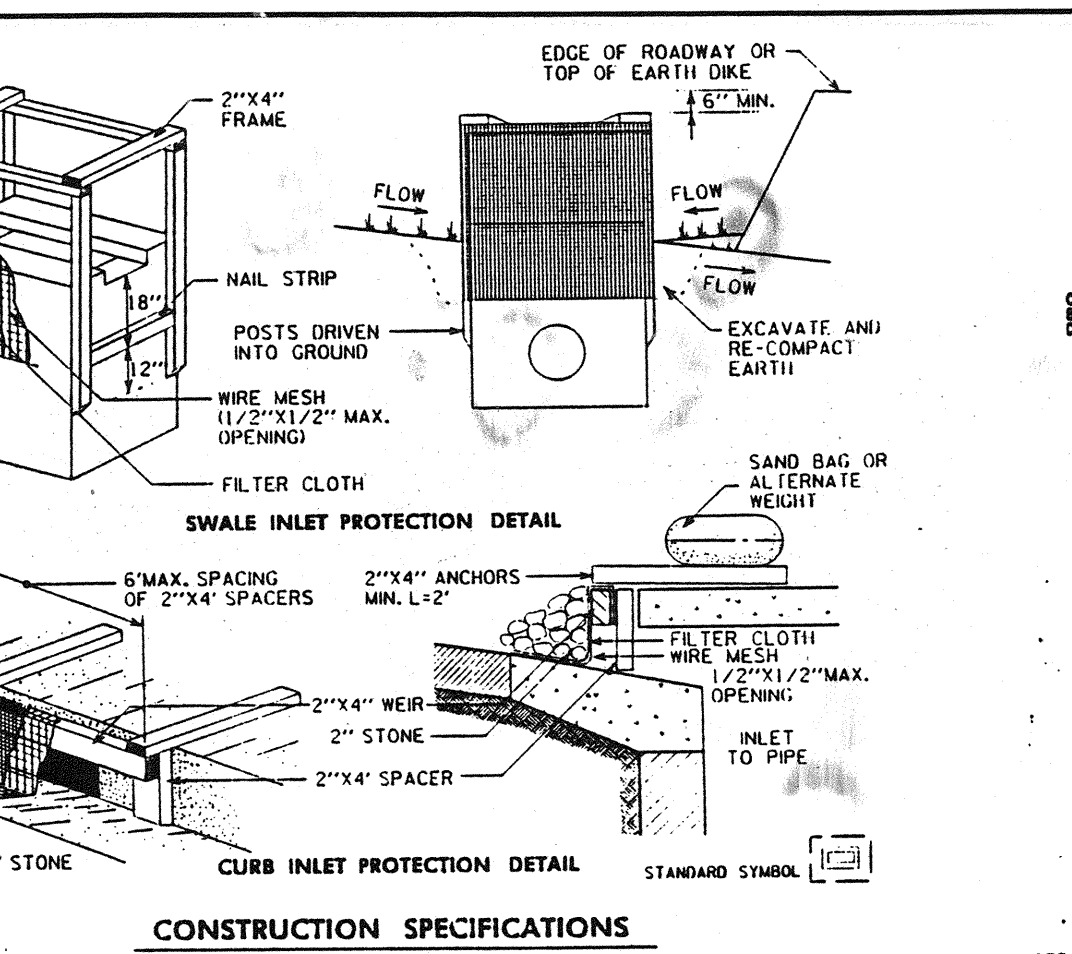
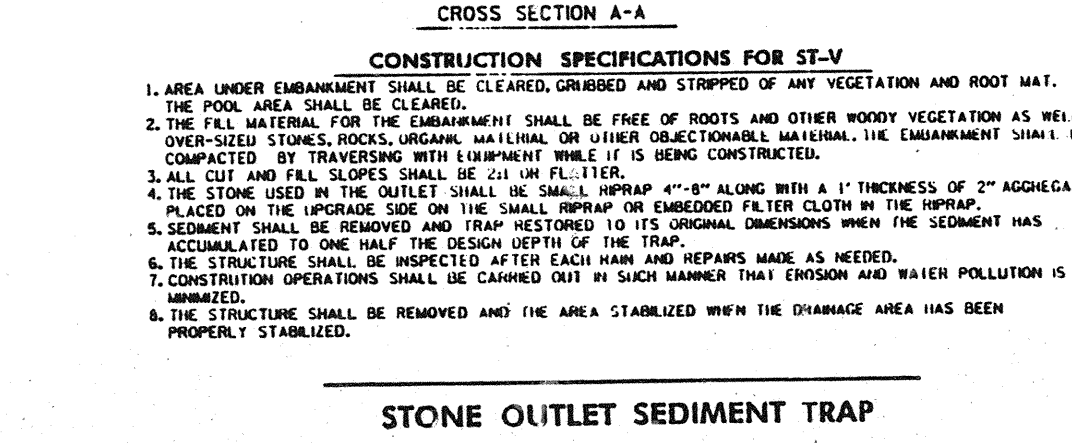
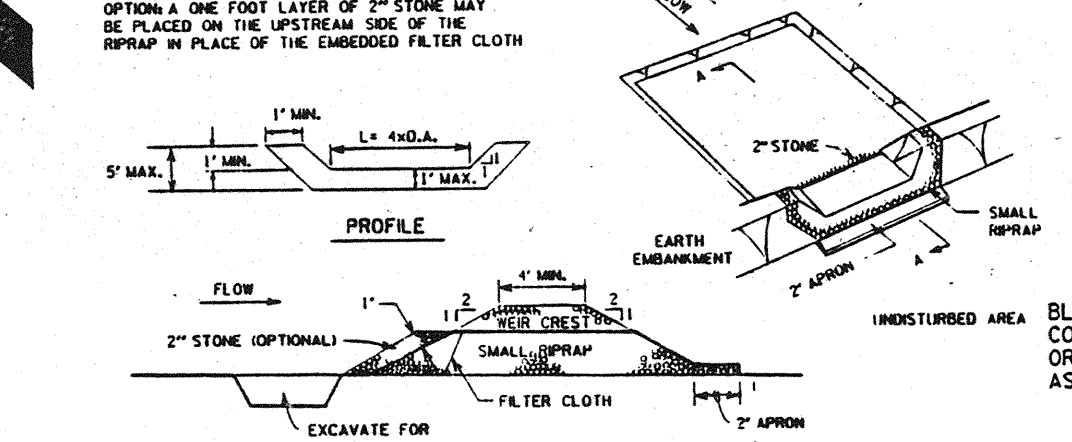
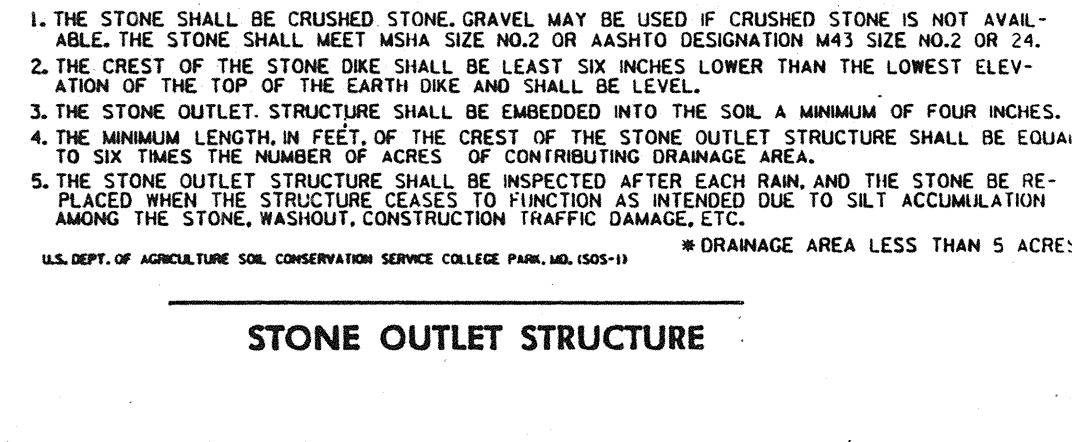
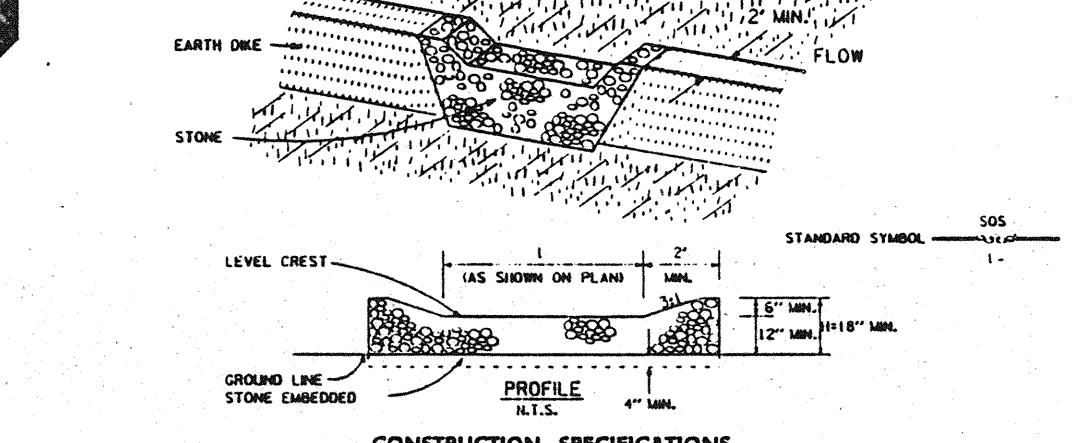
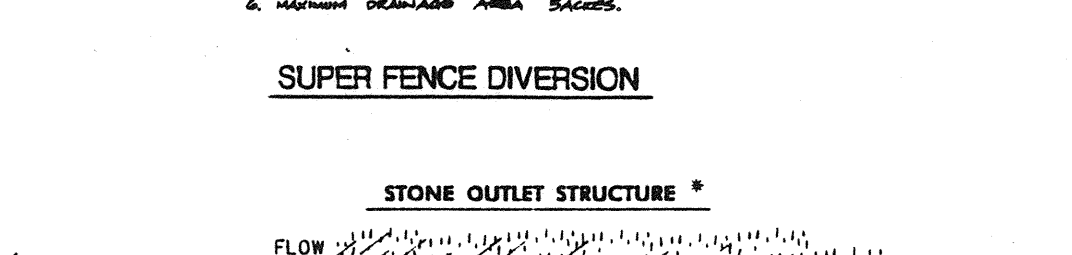
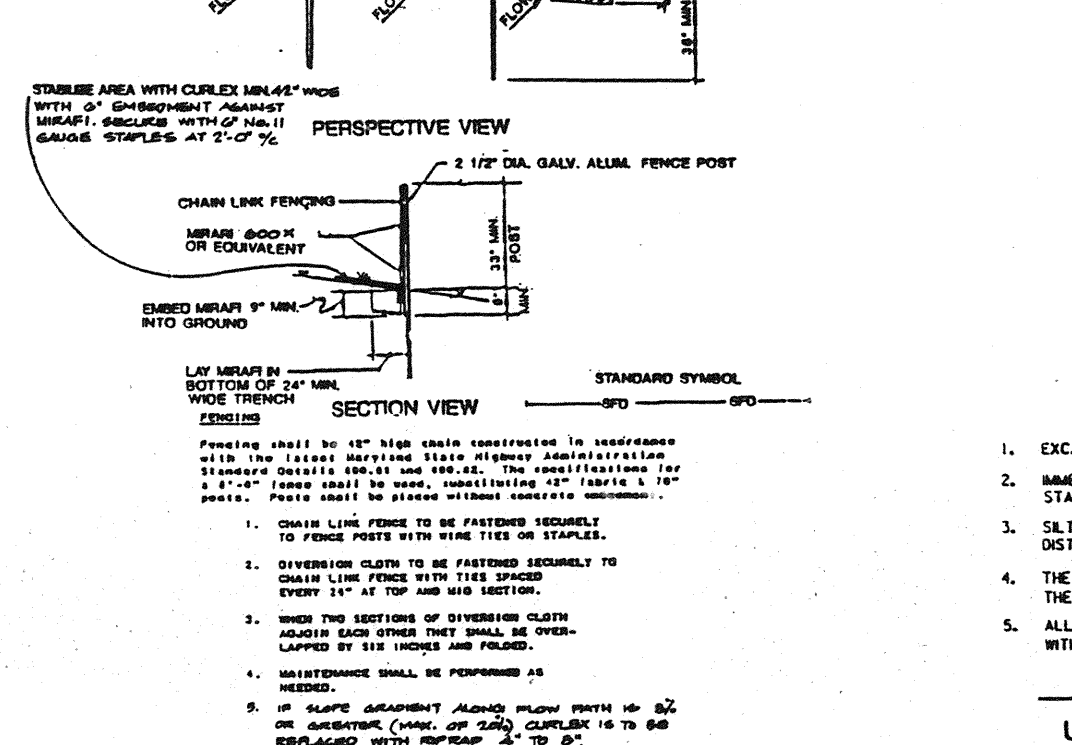
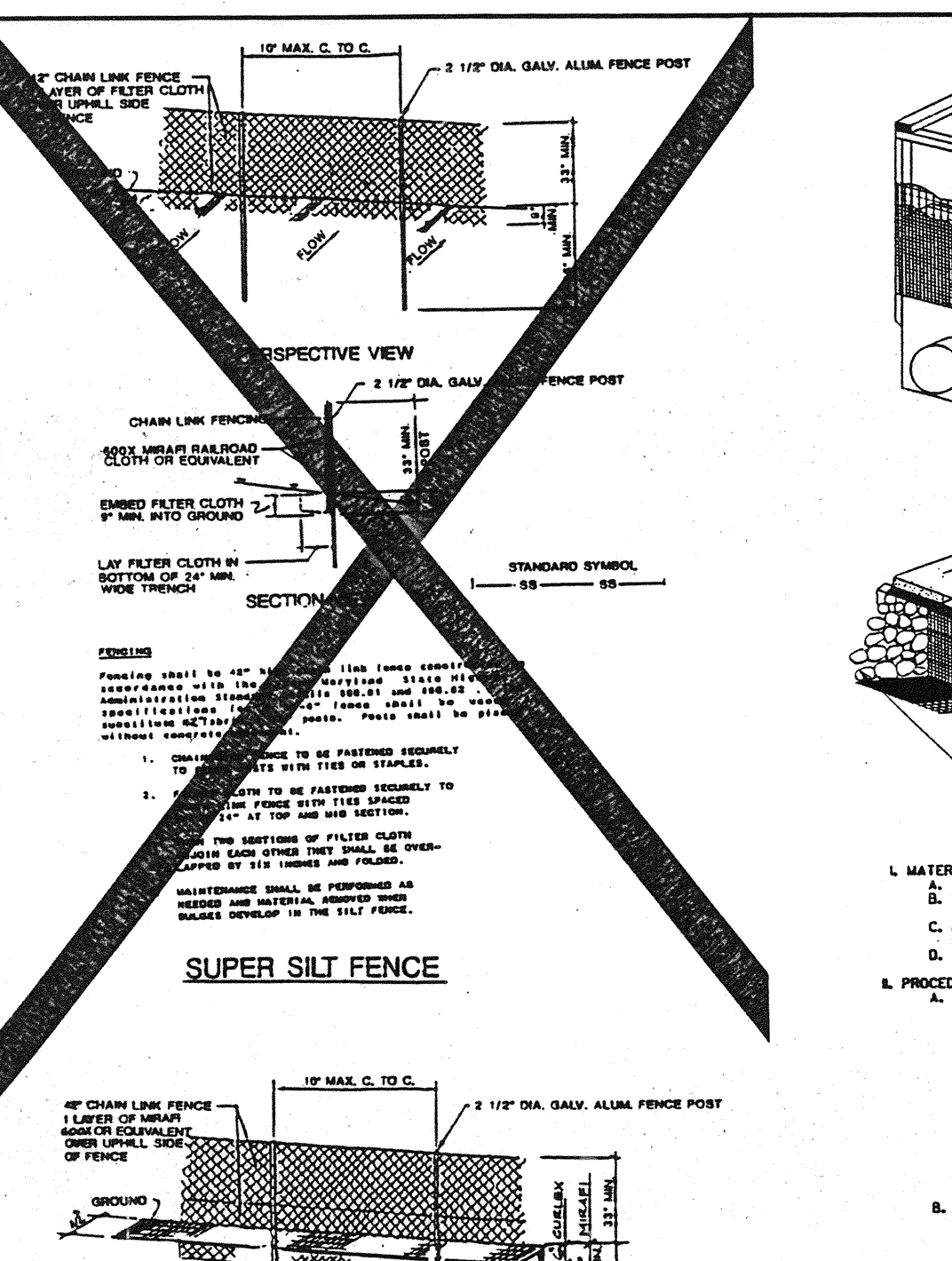
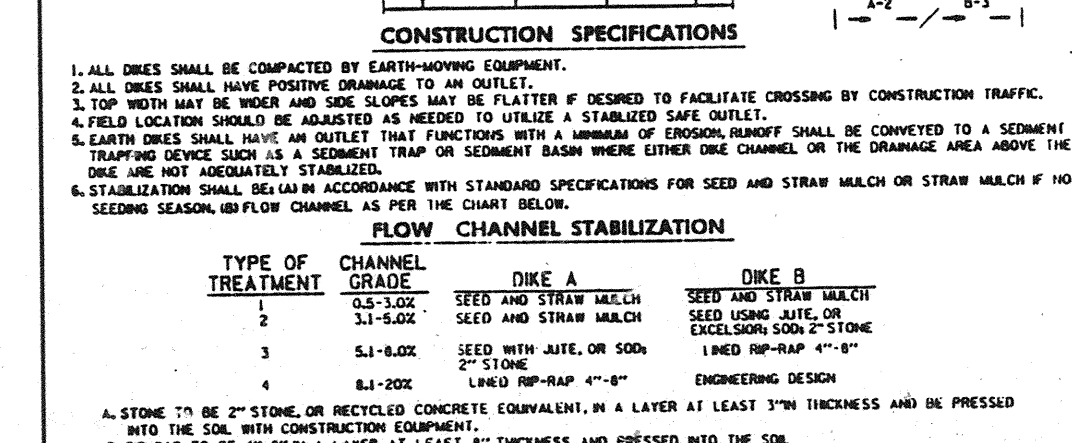
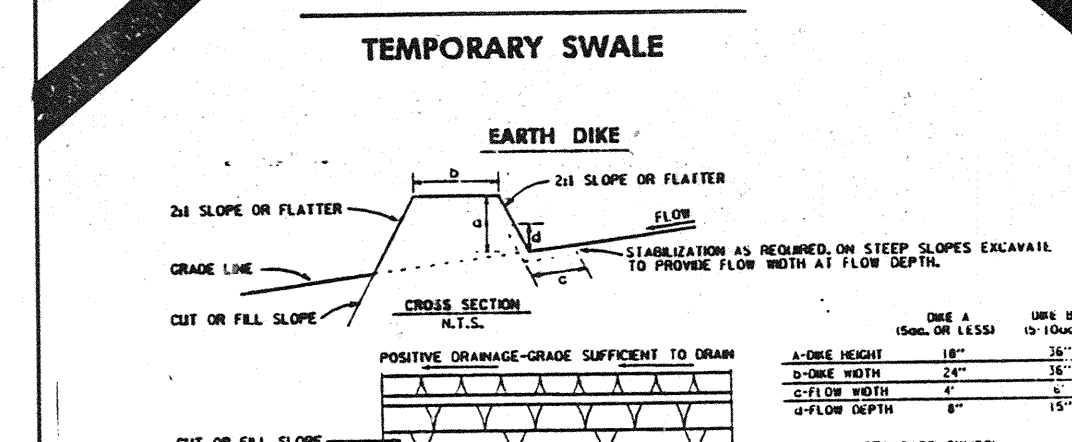
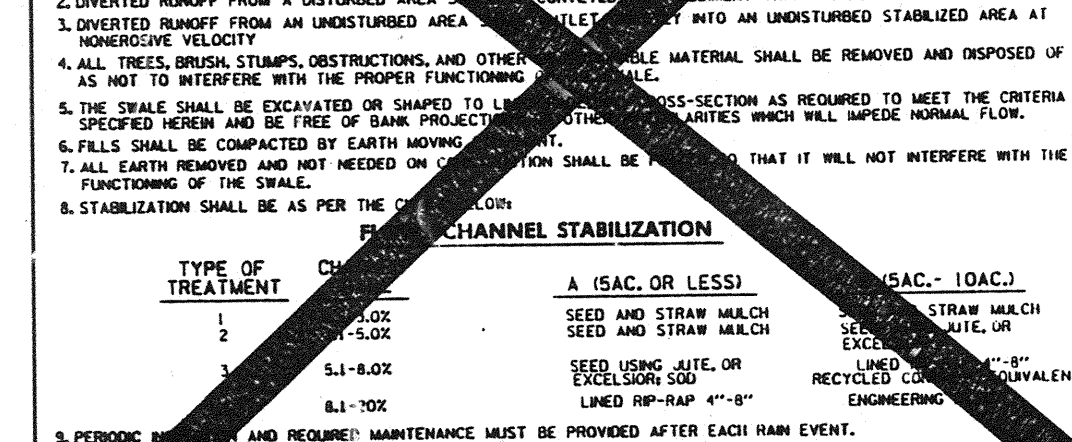
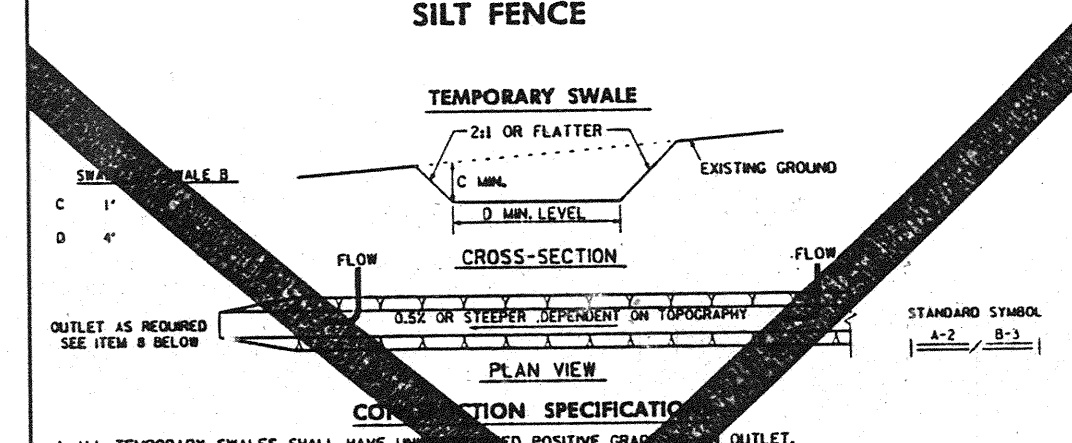
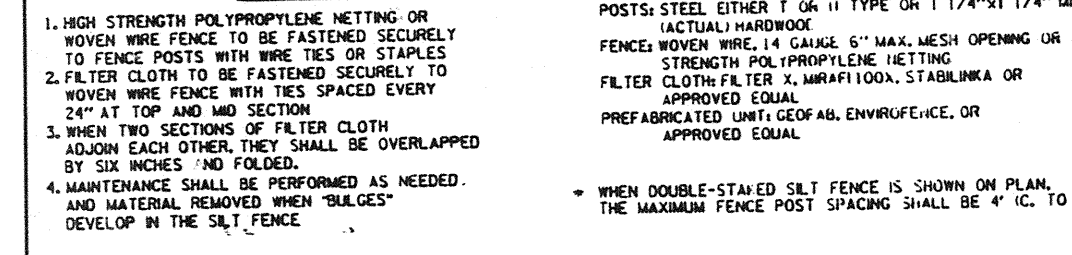
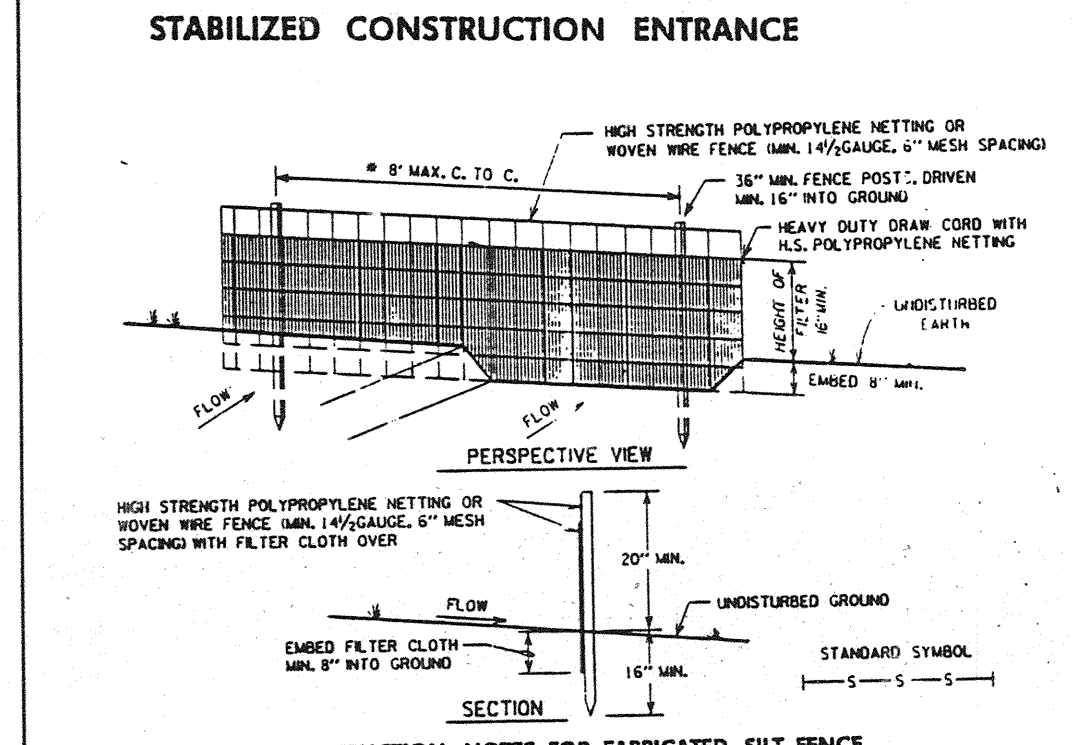
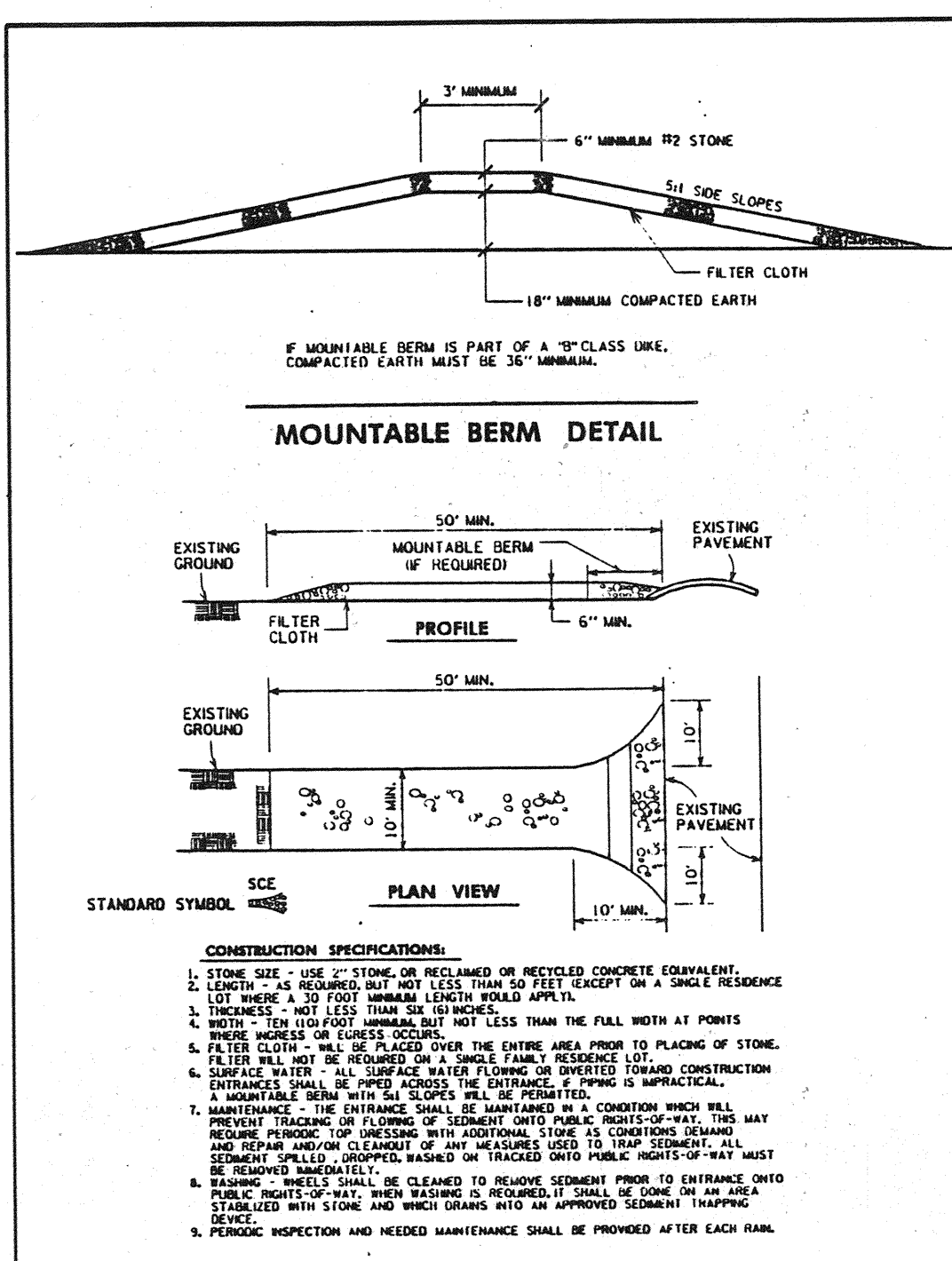
5-26-94
Date

Professional Engr. No. 10551

LOT 6
VILLAGE OF HARPER'S CHOICE
HOBBITS GLEN GOLF COURSE
PLAT #9310

TREE PROTECTION FENCING IS TO BE PLACED AT THE DRIPLINE OF "TREELINE TO REMAIN" WITH THE EXCEPTION OF AREAS WITH SUPER FENCE DIVERSION. WHERE SUPER FENCE DIVERSION IS AT "TREELINE TO REMAIN" TOP OF FENCE IS TO BE FLAGGED WITH BLAZE ORANGE FLAGGING. SEE TREE PROTECTION DETAIL SHEET 9 OF 19

SEE UTILITY CONSTRUCTION OUTSIDE
SEDIMENT CONTROL NOTE
SHEET 9 OF 15.



TEMPORARY SEEDING NOTES

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

Seeded Preparation: Loosen upper three inches of soil by raking, disking 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 2-1/2 bushel per acre of annual ryegrass (3.2 lbs/1000 sq. ft.). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.87 lbs/1000 sq. ft.). For the period November 15 thru February 29, protect sites by applying 2 tons per acre of well-anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tools or 210 gal 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 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

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

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

- 1) Preferred: Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 38-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)
- 2) Acceptable: Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding: For the period 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 2 lbs per acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 29, protect sites by Option (1) - 2 tons per acre of well-anchored straw mulch and seed as soon as possible in the spring. Option (2) - Use sod. Option (3) - Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well-anchored straw.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tools or 210 gal per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet 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 ACCESS CULVERT

CONSTRUCTION SPECIFICATIONS

1. No construction or removal of a temporary access culvert will be permitted between October 1 through April 30 for all Class III and Class IV Trout Waters or between March 15 through June 15 for trout waters.
1. **Culvert Strength:** All culverts shall be strong enough to support the design live load and dead load under maximum expected loading.
2. **Culvert Size:** The size of the culvert pipe shall be the largest pipe diameter that will fit into the existing channel without major excavation of the roadway channel or without additional pipe manholes. If a channel width exceeds 3 feet, additional pipe may be used until the cross sectional area of the pipe is greater than 50 percent of the cross sectional area of the existing channel. The minimum size culvert that may be used is a 12" diameter pipe.
3. **Culvert Length:** The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream limits of the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.
4. **Filter Cloth:** Filter cloth shall be placed on the streambed and streambed aggregate prior to placement of the culvert and extend a minimum six inches and a maximum one foot beyond the end of the culvert and bedding material. Filter cloth reduces settlement and improves crossing stability.
5. **Culvert Placement:** The lowest elevation of the culvert shall be installed on the natural streambed grade to maintain interference with fish migration (free passage of fish).
6. **Culvert Protection:** The culvert(s) shall be covered with a minimum of one foot of aggregate. If multiple culverts are used they shall be separated by at least 12" of compacted aggregate fill. At a minimum, the bedding and a maximum one foot beyond the end of the culvert and bedding material. Filter cloth reduces settlement and improves crossing stability.
7. **Stabilization:** All areas disturbed during culvert installation shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization With Permanent Seeding."

Culvert Maintenance Requirements

1. **Inspection:** Periodic inspection shall be performed to ensure that the culverts, streambed, and streambanks are not damaged, and that the sediment is not entering the stream or blocking fish passage or migration.
2. **Maintenance:** Maintenance shall be performed, as needed in a timely manner to ensure that structures are in compliance with this standard and specifications. This shall include removal and disposal of any trapped sediment or debris. Sediment shall be disposed of and stabilized outside the wetway flow plain.

Culvert Removal and Clean-Up Requirements

1. **General:** When the crossing has served its purpose, all structures including culverts, bedding and filter cloth materials shall be removed within 14 calendar days. In all cases, the culvert materials shall be removed within one year of installation. Structures shall be removed during the mowing season (March 15 through June 15).
2. **Final Cleanup:** Final cleanup shall consist of removal of the temporary structure from the roadway, removal of the construction materials, restoration of original stream channel cross section, and protection of the stream bank from erosion. Removed material shall be stored outside of the wetway flow plain.
3. **Method:** Removal of the structure and clean-up of the area shall be accomplished through construction equipment working in the wetway channel.
4. **Final Stabilization:** All areas disturbed during culvert removal shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization With Permanent Seeding."

CONDITIONS AND MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS OR BUFFERS

1. REMOVE EXCESS FILL OR CONSTRUCTION MATERIAL OR DEBRIS TO UPLAND DISPOSAL AREA, OUTSIDE THE BUFFER.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLAND.
3. IF BACKFILL IS OBTAINED, USE CLEAN MATERIAL, FREE OF WASTE MATERIAL, UNDESIRABLE DEBRIS, TOXIC MATERIAL, OR ANY OTHER DEleterious SUBSTANCE.
4. TO PROTECT IMPORTANT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM AS FOLLOWS:
 - a. CLASS 1 WATERS, IN-STREAM WORK MAY NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE.
 - b. CERTIFY ANY NONTIDAL WETLAND BUFFERS TEMPORARILY IMPACTED BY THE PROPOSED ACTIVITIES. ALL STABILIZATION IN THE BUFFER SHALL BE OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), WHEAT (Triticum aestivum), ITALY RYEGRASS (Lolium perenne), OR RYE (SECALE CEREALE). OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS DIVISION, KENTUCKY 31 TALL FESCUE SHALL NOT BE UTILIZED IN THE WETLAND OR BUFFER. ALL TEMPORARY FILLS SHALL BE REMOVED IN THE ENTIRETY ON OR BEFORE THE COMPLETION OF CONSTRUCTION.
5. NO CONSTRUCTION MATERIALS, EQUIPMENT OR EXCAVATED EARTH SHALL BE ALLOWED WITHIN THE PROTECTED AREAS.
6. SPECIES, GRADE, ETC. OF LUMBER SHALL BE AT THE OPTION OF THE CONTRACTOR.

DEVELOPER'S CERTIFICATION:

"I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

John W. Ramachia, Sr. 5-26-94 Date

ENGINEER'S CERTIFICATION:

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

John R. Robertson 6/16/94 Date

Reviewed for Howard S.C.D. and meets Technical Requirements

John W. Ramachia, Sr. 5-26-94 Date

John R. Robertson 6/16/94 Date

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

James S. New 6/16/94 DATE
CHIEF, BUREAU OF HIGHWAYS

Charles J. Sisson 6/16/94 DATE
CHIEF, BUREAU OF ENGINEERING

Charles J. Sisson 6/16/94 DATE
CHIEF, LAND DEVELOPMENT DIVISION

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

John R. Robertson 6/16/94 DATE
CHIEF, LAND DEVELOPMENT AND RESEARCH

HARPER'S CHOICE

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CO.
THE ROUSE COMPANY
10275 LITTLE PATUXEN PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 286 3333
410 286 4705

SECTION 5 AREA 9 PHASE 2
TAX MAP 28 PARCEL 38
8th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

SEDIMENT CONTROL PLAN
DETAILS

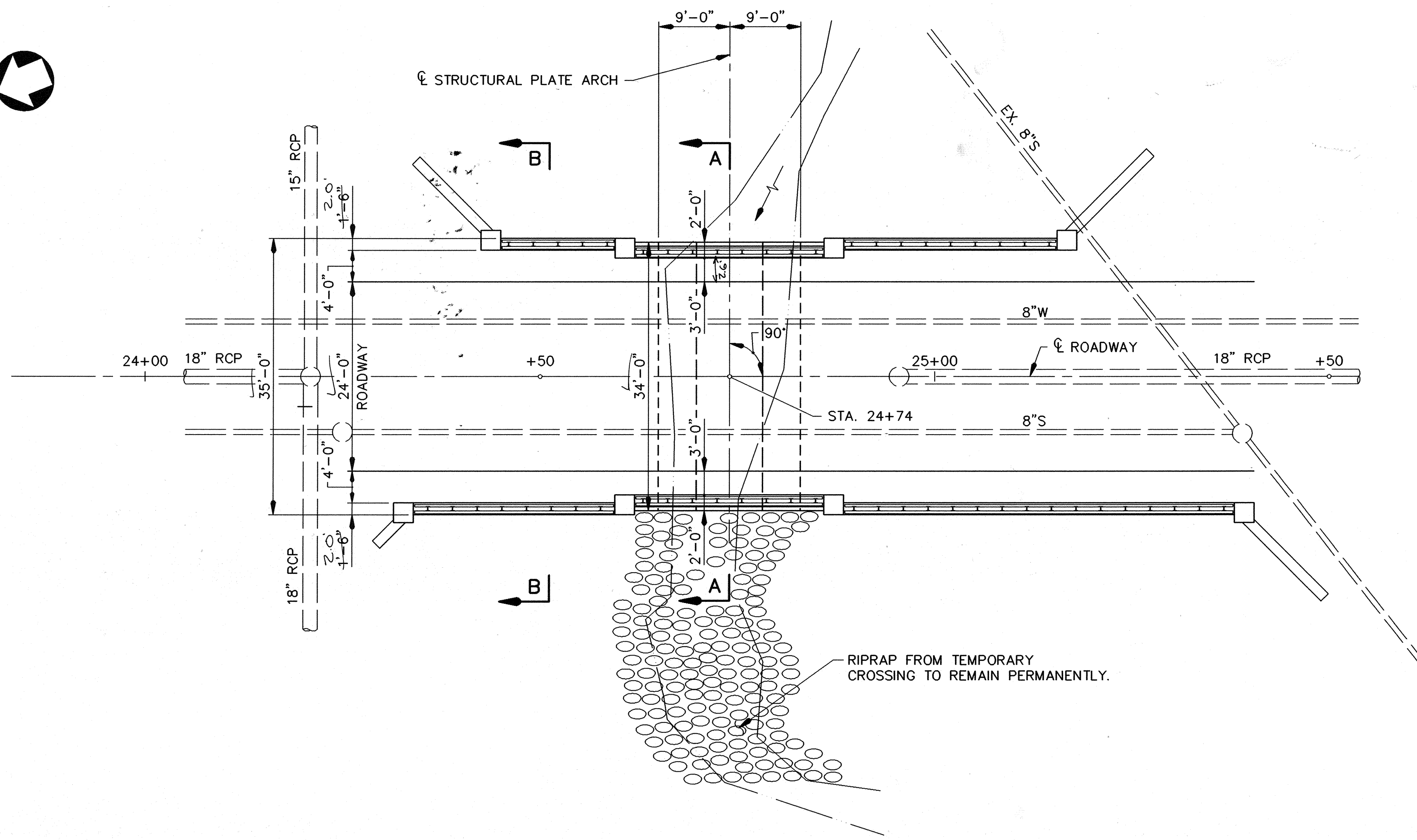
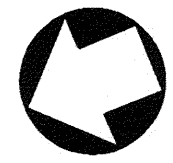
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Drn By CRW Date 7-29-93
Chk By JWE Approved 9 OF 19

Professional Engr. No. 10557

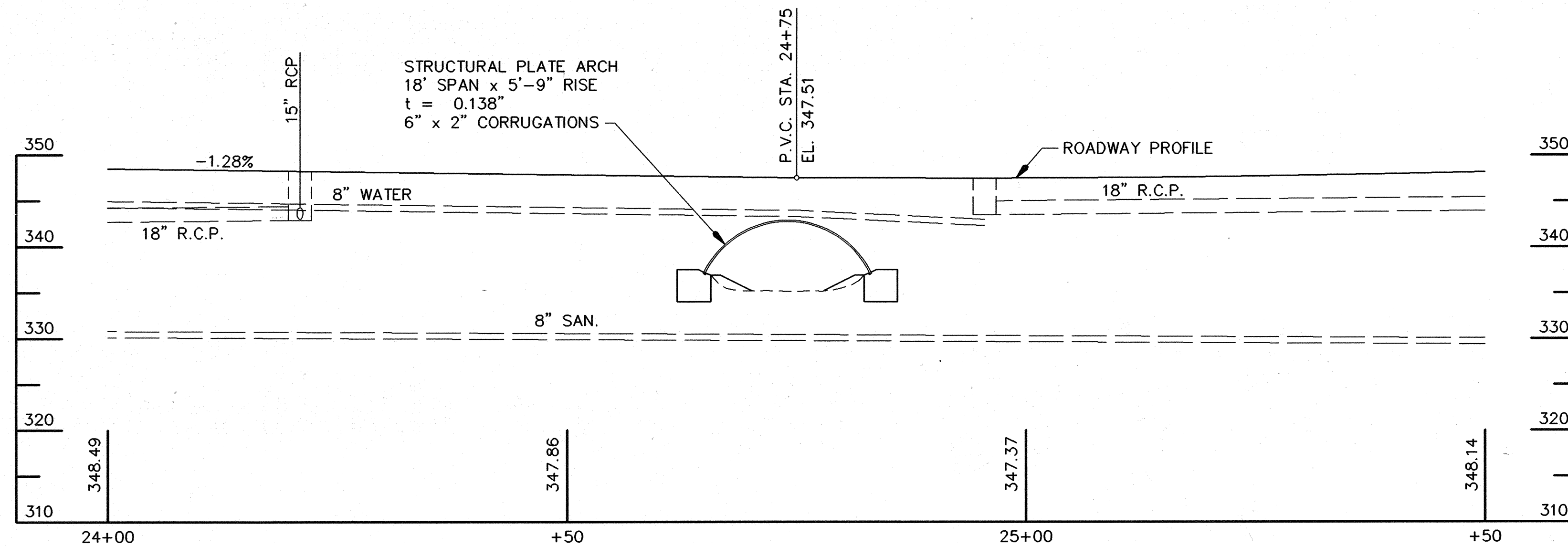
Sequence of Construction

1. Obtain a grading permit.
2. Notify the Howard County Office of Inspection and Permits (313-1855) a minimum of 48 hours prior to the start of any construction.
3. Install tree protection fence.
4. If necessary, repair or replace Stream Diversion No. 1 and Phase I Sediment Trap No. 2. Clear and grub for and install Stream Diversion No. 2. (SEE NOTE D-8)
5. Clear and grub for and install sediment and erosion control measures or devices.
6. Clear and grub for and install sanitary line at stream crossing.
7. Clear and grub remainder of site within limits of disturbance. Install permanent culvert and bottomless arch. Bottomless arch to be constructed around diversion #2. (SEE NOTES B, C, D, E)
8. Mass grade site. As permanent culvert and bottomless arch reach 3 foot minimum cover remove diversions. Repair stream channels as necessary. (SEE NOTES A, B, C, D, E)
9. Stabilize all nonproductive graded surfaces with temporary seeding.
10. Install utilities. Phase I storm drain to remain to and not be connected to the Phase II storm drain.
11. Fine grade all road surfaces. Install curb and gutters. Apply road subbase.
12. Pave road. Fine grade and permanently stabilize all remaining disturbed areas. (SEE NOTE E-8)
13. With the prior permission of the Sediment Control Inspector and the Howard County Sediment Control Division, remove sediment controls. Convert Sediment Traps No. 1 and 2 to water quality facilities per approved plans. Fine grade and stabilize these areas. Remove Phase I Sediment Trap No. 2 and restore area to pre-project conditions. Connect Phase I and Phase II storm drains. (SEE NOTE E-8)

***SEE NOTE F BELOW FOR:**
CONDITIONS AND MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS OR BUFFERS



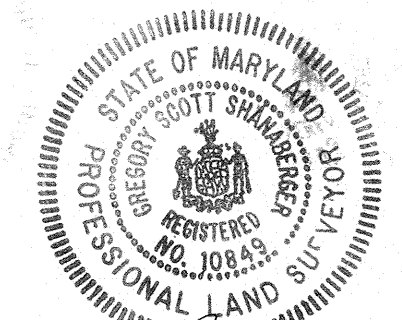
P L A N
SCALE: 1"=10'



P R O F I L E
SCALE: 1"=10'

GENERAL NOTES:

- SPECIFICATIONS:**
- S.H.A. SPECIFICATIONS DATED OCTOBER, 1993.
 - REVISIONS THEREOF AND ADDITIONS THERETO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION.
- A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1992 FOR DESIGN.
- CONCRETE DESIGN: SERVICE LOAD DESIGN METHOD $f_c=1,200$ P.S.I.
- REINFORCING STEEL DESIGN: $f_s=24,000$ P.S.I.
- LOADING:** HS-25
- CONCRETE:** ALL CONCRETE SHALL BE MIX NO. 3 (3,500 P.S.I.).
- REINFORCING STEEL:** REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A615 GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.
- FOR TIES AND STIRRUPS; STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.
- ONLY GRADE 60 CAN BE USED FOR THIS PROJECT.
- KEYS:** ALL KEYS ARE NOMINAL SIZE.
- STRUCTURAL PLATE:** THE PLATES SHALL BE GALVANIZED CORRUGATED STEEL CONFORMING TO THE REQUIREMENTS OF A.A.S.H.T.O. M167. THE LONGITUDINAL AND CIRCUMFERENTIAL SEAMS SHALL BE CONNECTED BY BOLTS. JOINTS SHALL BE STAGGERED SO THAT NO MORE THAN 3 PLATES COME TOGETHER AT ANY ONE POINT.
- COVER FOR PIPES AND/OR PIPE ARCHES:** NO CONSTRUCTION EQUIPMENT SHALL BE PERMITTED TO PASS OVER CULVERT UNTIL A MINIMUM OF 3 FEET OF COMPACTED FILL HAS BEEN PLACED OVER THE CULVERT.



AS BUILTS

G. Scott Shanaberger
G. SCOTT SHANABERGER
PROF. L.S. # 10843
SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLCOTT CITY, MARYLAND 21043

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

Jane A. Shaw 6/16/94
CHIEF, BUREAU OF HIGHWAYS DATE

Paul D. Eason 6/20/94
CHIEF, BUREAU OF ENGINEERING DATE

Bob Dammann 6/20/94
CHIEF, LAND DEVELOPMENT DIVISION DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Gina Juminansky 6/21/94
CHIEF, LAND DEVELOPMENT AND RESEARCH DATE

| DATE | NO. | Revision Description |
|------|-----|----------------------|
| | | |

HARPER'S CHOICE
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE COMPANY
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

WALLACE, MONTGOMERY & ASSOCIATES
ENGINEERS
110 WEST ROAD
TOWSON, MARYLAND 21204

AREA SECTION 5 AREA 9 PHASE 2
TAX MAP 29 PARCEL 126
5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

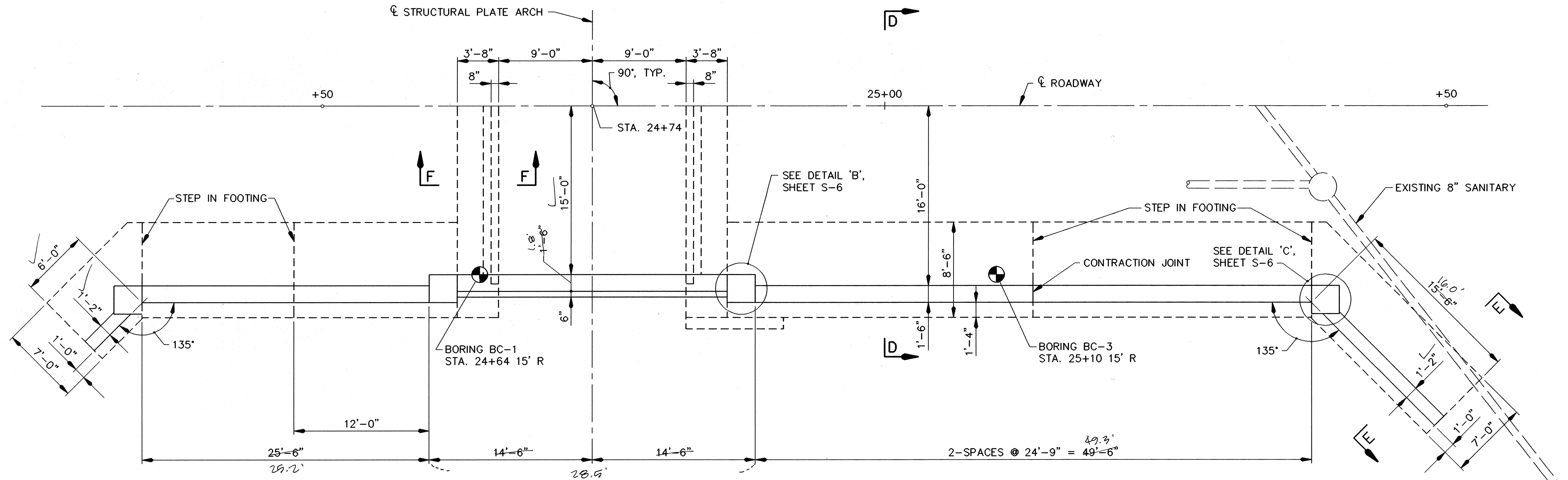
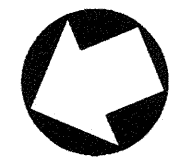
STRUCTURAL PLATE ARCH
PLAN AND PROFILE

Des By: G.C.N. Scale: AS SHOWN Proj. No.: 92023
Dwn By: S.W.S. Date: APR., 1994
Chk By: J.O.M. Approved: 10 OF 19

S-1
6/2/94
Date

James O. Metzger
Professional Engr. No.

NOTE:
SECTIONS A-A AND B-B SHOWN ON SHEET S-4.

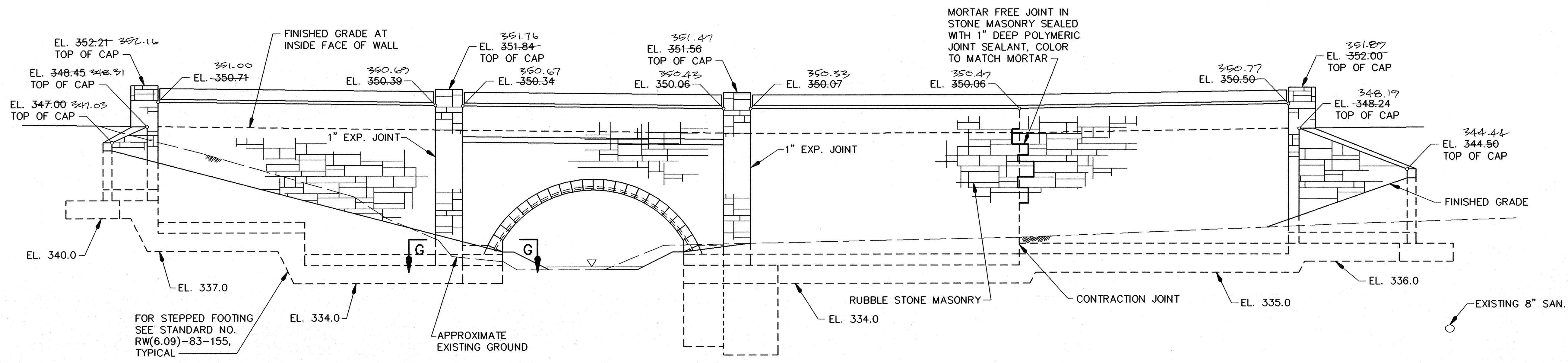


NOTE:
FOR CLARITY CAPS AND RAILING NOT SHOWN.

PARTIAL - PLAN
SCALE: 3/16"=1'-0"



AS-BUILT
Robert J. Harper DATE
6/20/94
HARPER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLCOTT CITY, MARYLAND 21043



NOTE:
FOR CLARITY CAPS NOT SHOWN.

WEST ELEVATION
SCALE: 3/16"=1'-0"

- NOTES:
1. FOR ADDITIONAL FOOTING DETAILS, SEE SHEET S-3A.
 2. SECTIONS D-D, E-E AND F-F SHOWN ON SHEET S-4.
 3. SECTION G-G SHOWN ON SHEET S-5.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
James J. Lee DATE 6/16/94
CHIEF, BUREAU OF HIGHWAYS
Robert J. Harper DATE 6/20/94
CHIEF, BUREAU OF ENGINEERING
Robert J. Harper DATE 6/20/94
CHIEF, LAND DEVELOPMENT DIVISION

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
China Surinany DATE 6/21/94
CHIEF, LAND DEVELOPMENT AND RESEARCH

| DATE | NO. | Revision Description |
|------|-----|----------------------|
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HARPER'S CHOICE
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE COMPANY
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

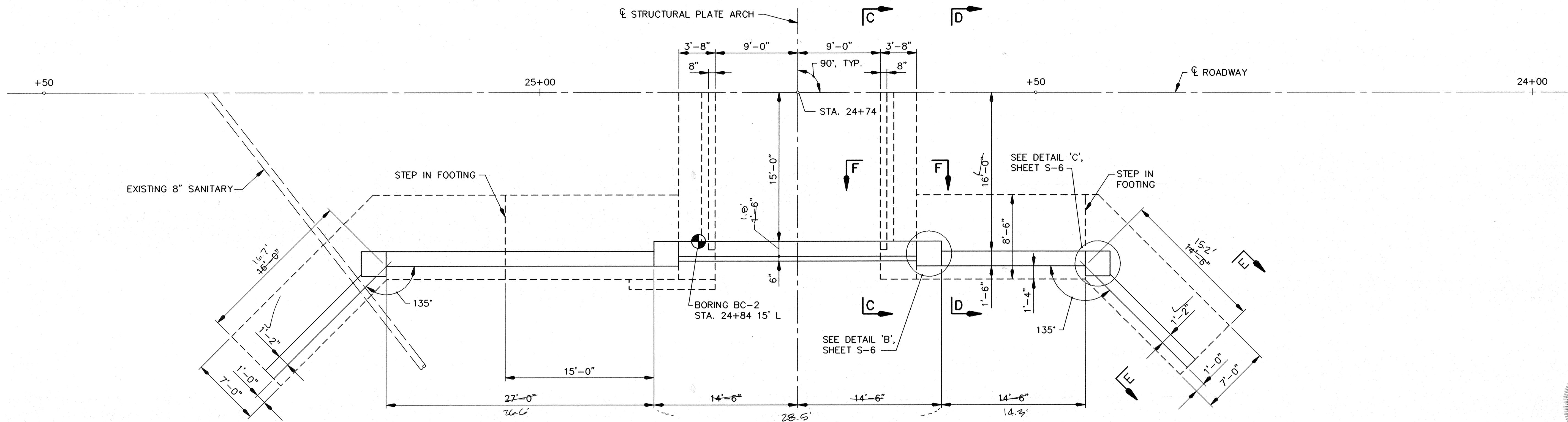
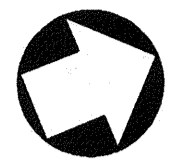
WALLACE, MONTGOMERY & ASSOCIATES
ENGINEERS
110 WEST ROAD
TOWSON, MARYLAND 21204

AREA SECTION 5 AREA 9 PHASE 2
TAX MAP 29 PARCEL 126
5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
STRUCTURAL PLATE ARCH
WEST ELEVATION & PARTIAL PLAN

Des By: G.C.N. Scale: AS SHOWN Proj. No.: 92023
Dwn By: S.W.S. Date: APR., 1994
Chk By: J.O.M. Approved: 11 OF 12

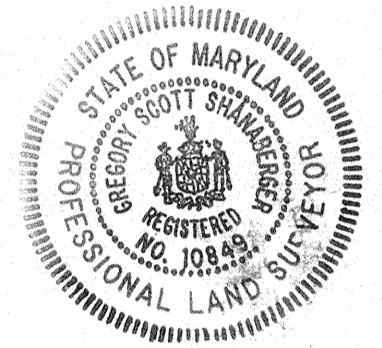
6/2/94
Date
James J. Lee
Professional Engr. No.



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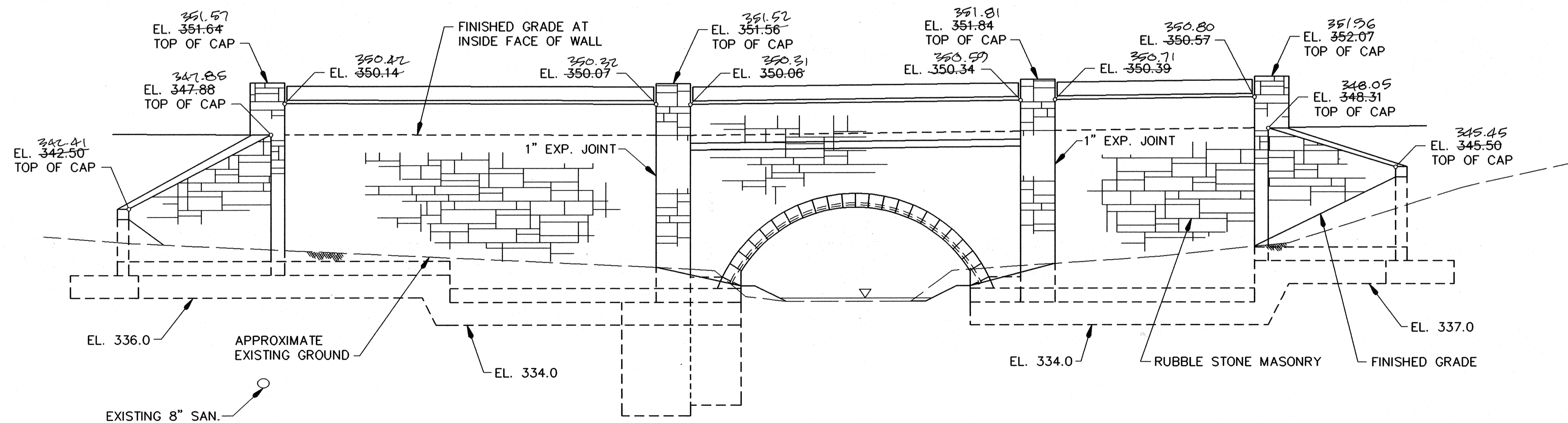
PARTIAL - PLAN

SCALE: 3/16"=1'-0"



AG. BUILT
G. Scott Shanaberg 11/30/95
G. SCOTT SHANABERG
PROF. U.S. # 102843

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLCOTT CITY, MARYLAND 21043



NOTE:
FOR CLARITY CAPS NOT SHOWN.

EAST ELEVATION

SCALE: 3/16"=1'-0"

NOTES:

1. FOR ADDITIONAL FOOTING DETAILS, DEE SHEET S-3A.
2. SECTIONS C-C, D-D, E-E AND F-F SHOWN ON SHEET S-4.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

| | |
|---|------------------------|
| <i>James H. Shaw</i> CHIEF, BUREAU OF HIGHWAYS | <i>6/16/94</i> DATE |
| <i>Robert J. Person</i> CHIEF, BUREAU OF ENGINEERING | <i>6/20/94</i> DATE |
| <i>Chad Deane</i> CHIEF, LAND DEVELOPMENT DIVISION | <i>6/20/94</i> DATE |

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

| | |
|--|------------------------|
| <i>Cynthia Jurimanic</i> CHIEF, LAND DEVELOPMENT AND RESEARCH | <i>6/21/94</i> DATE |
|--|------------------------|

| DATE | NO. | Revision Description |
|------|-----|----------------------|
| | | |

HARPER'S CHOICE
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE COMPANY
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

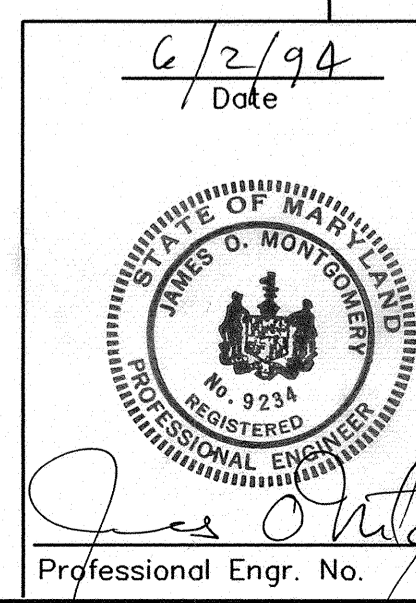
S-3

WALLACE, MONTGOMERY & ASSOCIATES
ENGINEERS
110 WEST ROAD
TOWSON, MARYLAND 21204

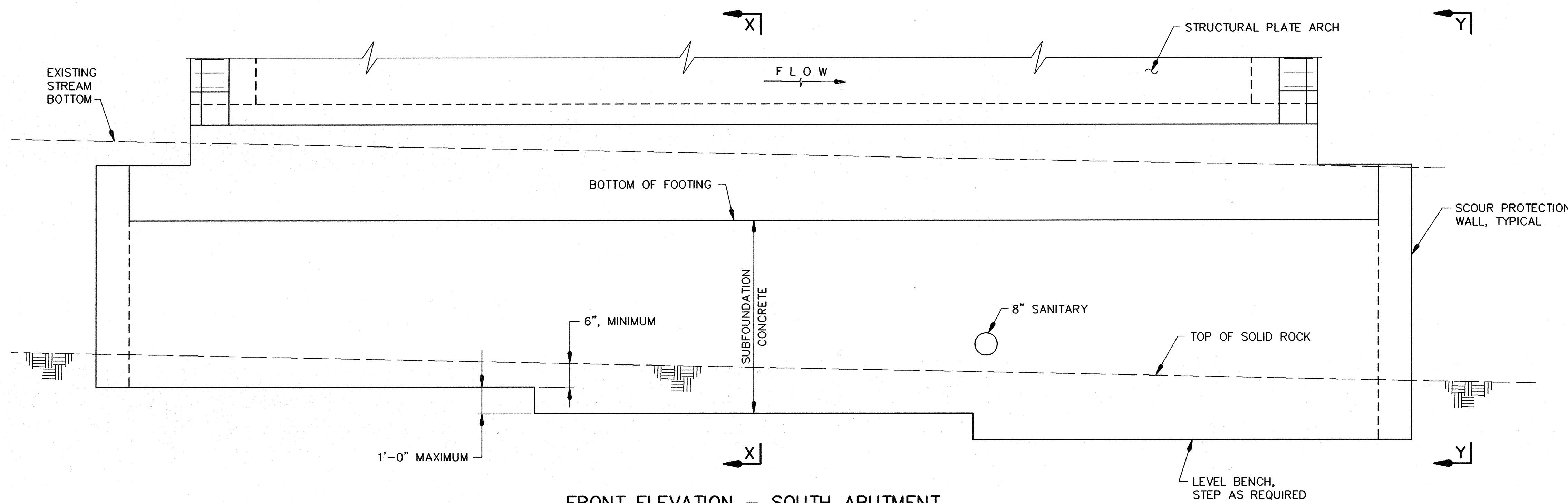
AREA SECTION 5 AREA 9 PHASE 2
TAX MAP 29 PARCEL 126
5TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
STRUCTURAL PLATE ARCH
EAST ELEVATION & PARTIAL PLAN

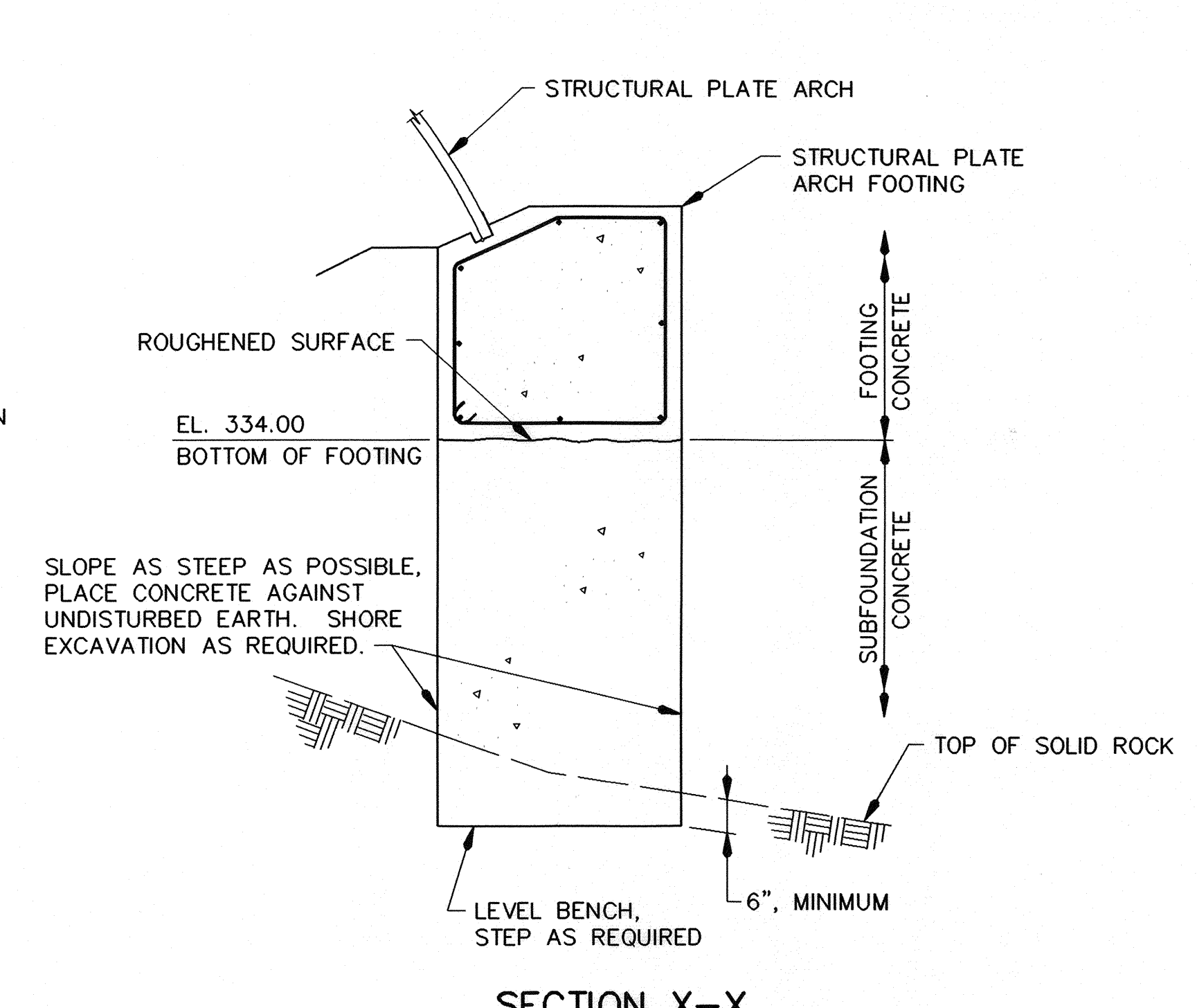
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| Des By: G.C.N. | Scale: AS SHOWN | Proj. No.: 92023 |
| Drn By: S.W.S. | Date: APR., 1994 | |
| Chk By: J.O.M. | Approved: | 12 OF 19 |



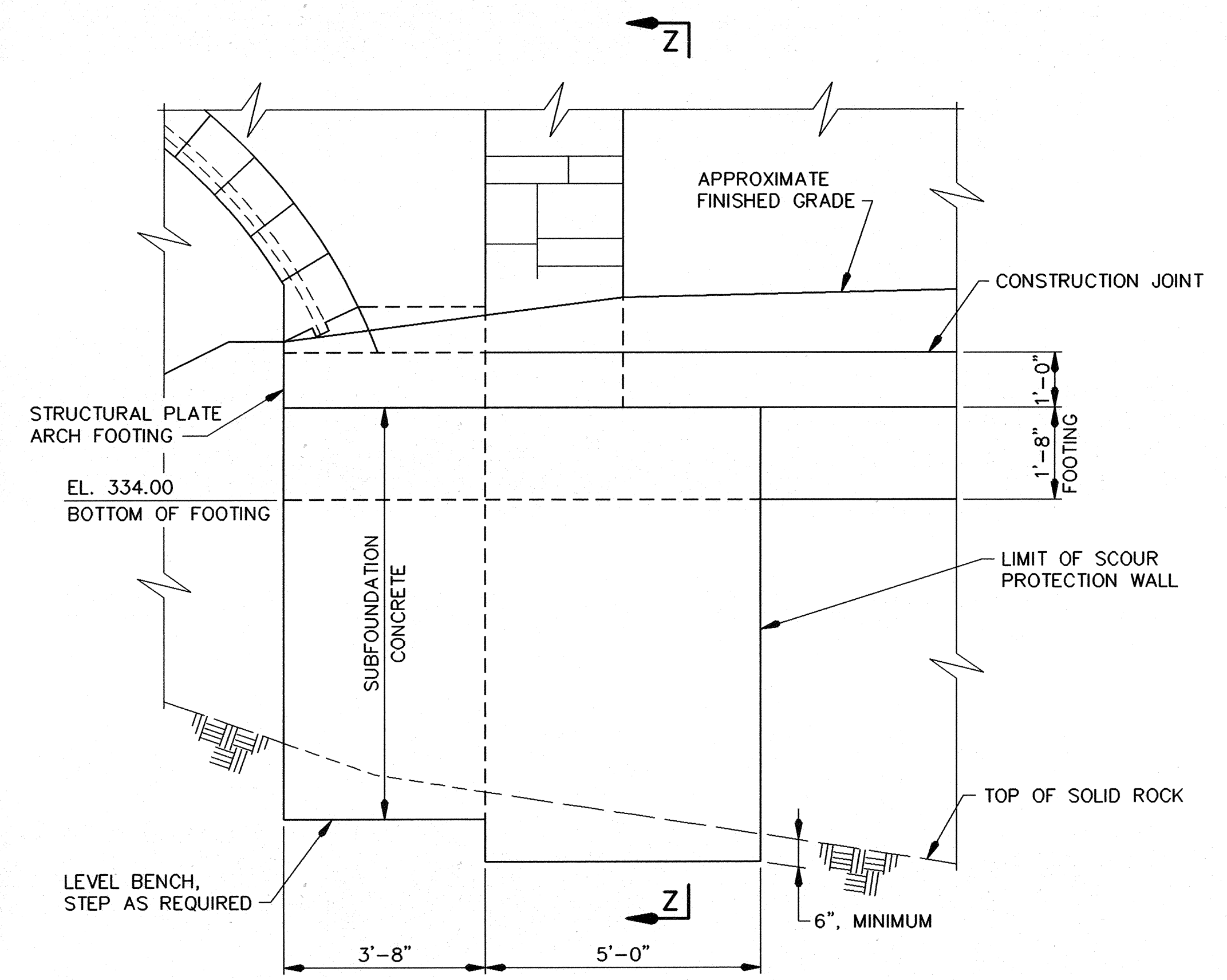
James D. Montgomery
Professional Engr. No.



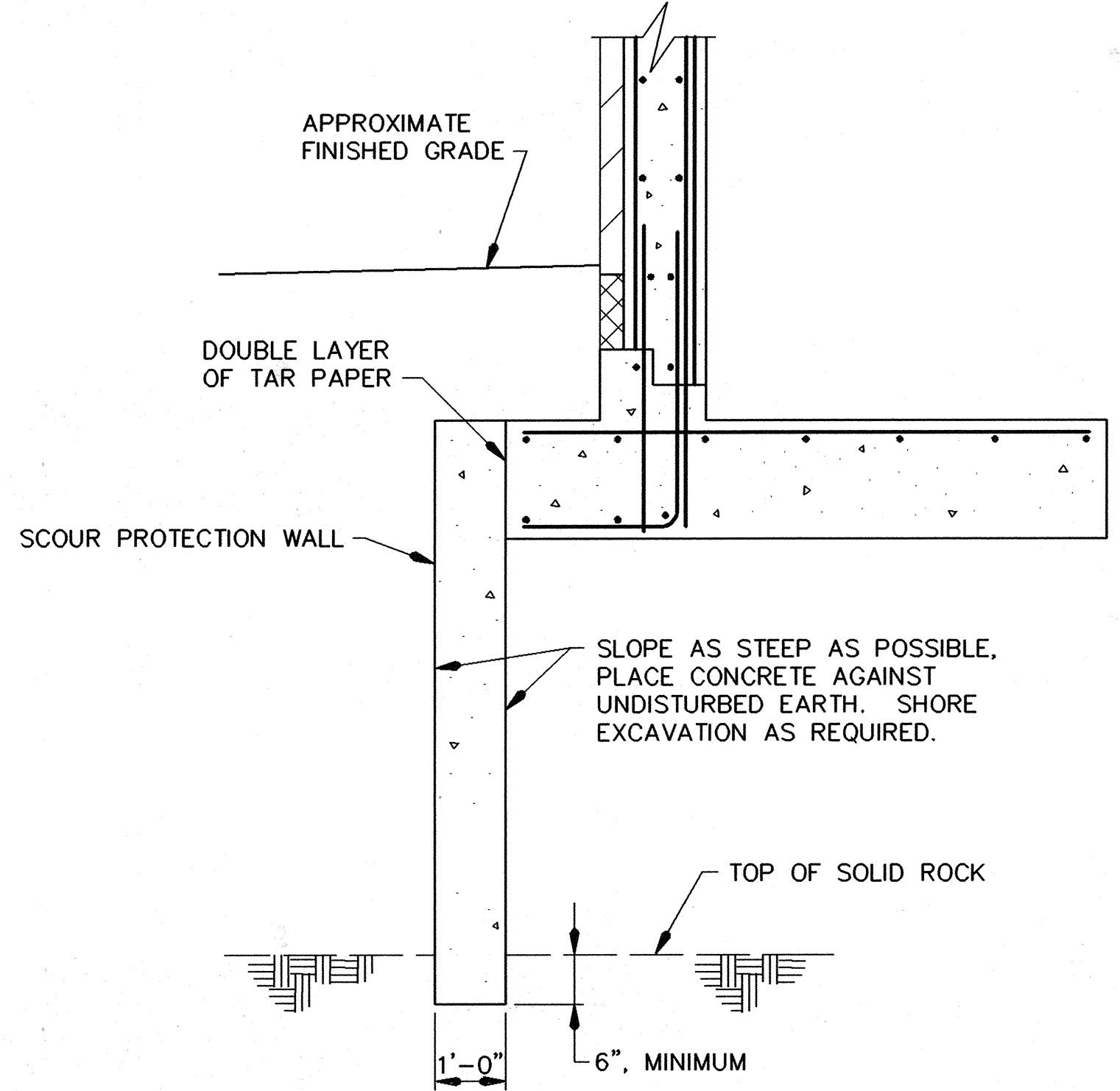
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SCALE: 1/2"=1'-0"



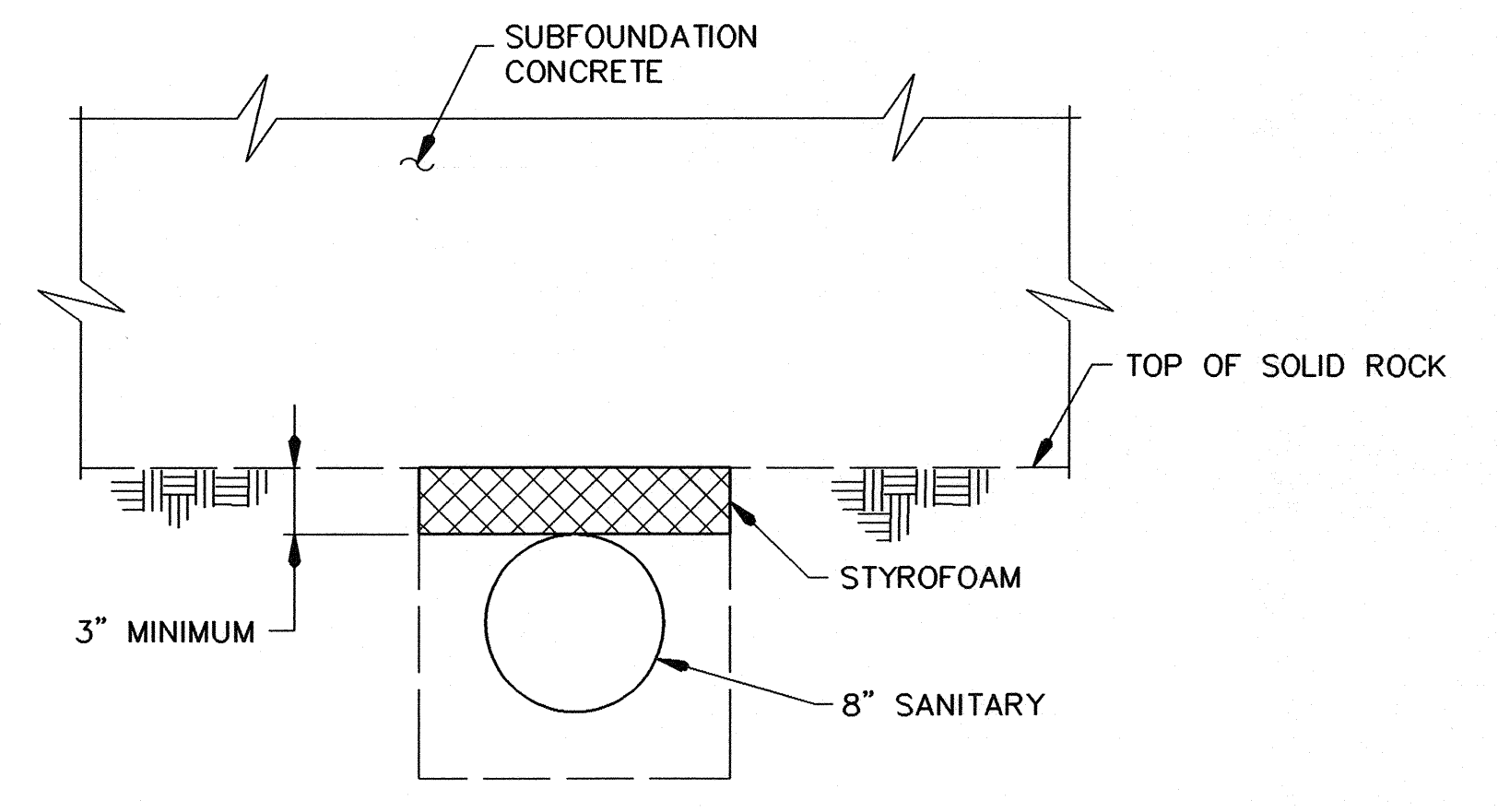
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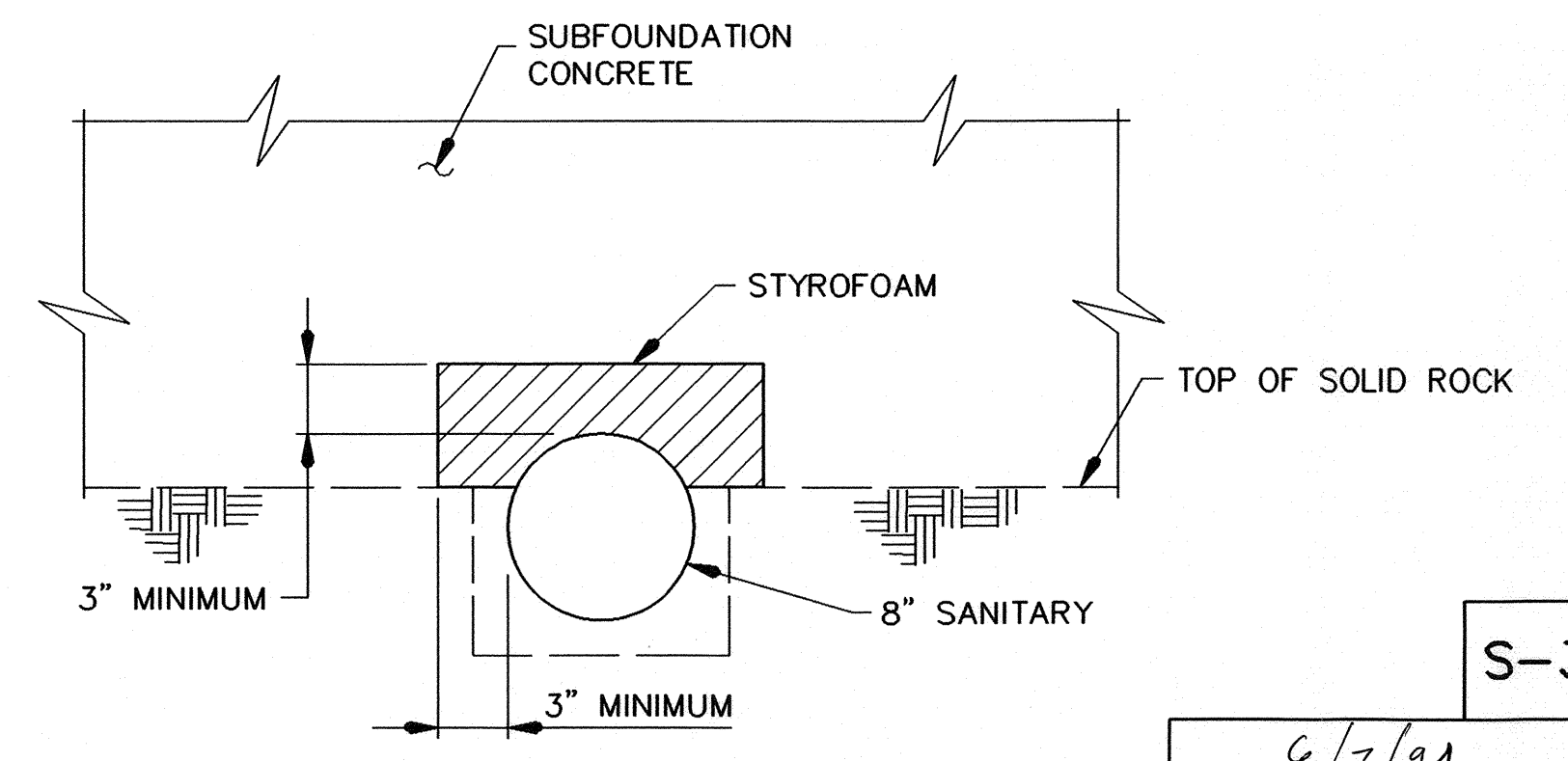
VIEW Y-Y
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SECTION Z-Z
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PIPE BELOW ROCK
SCALE: 1 1/2"=1'-0"

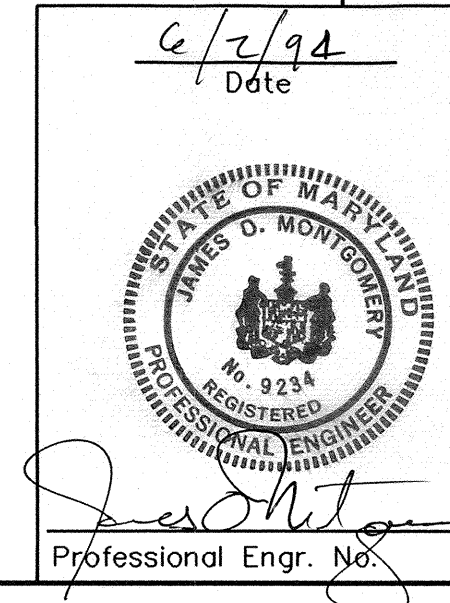


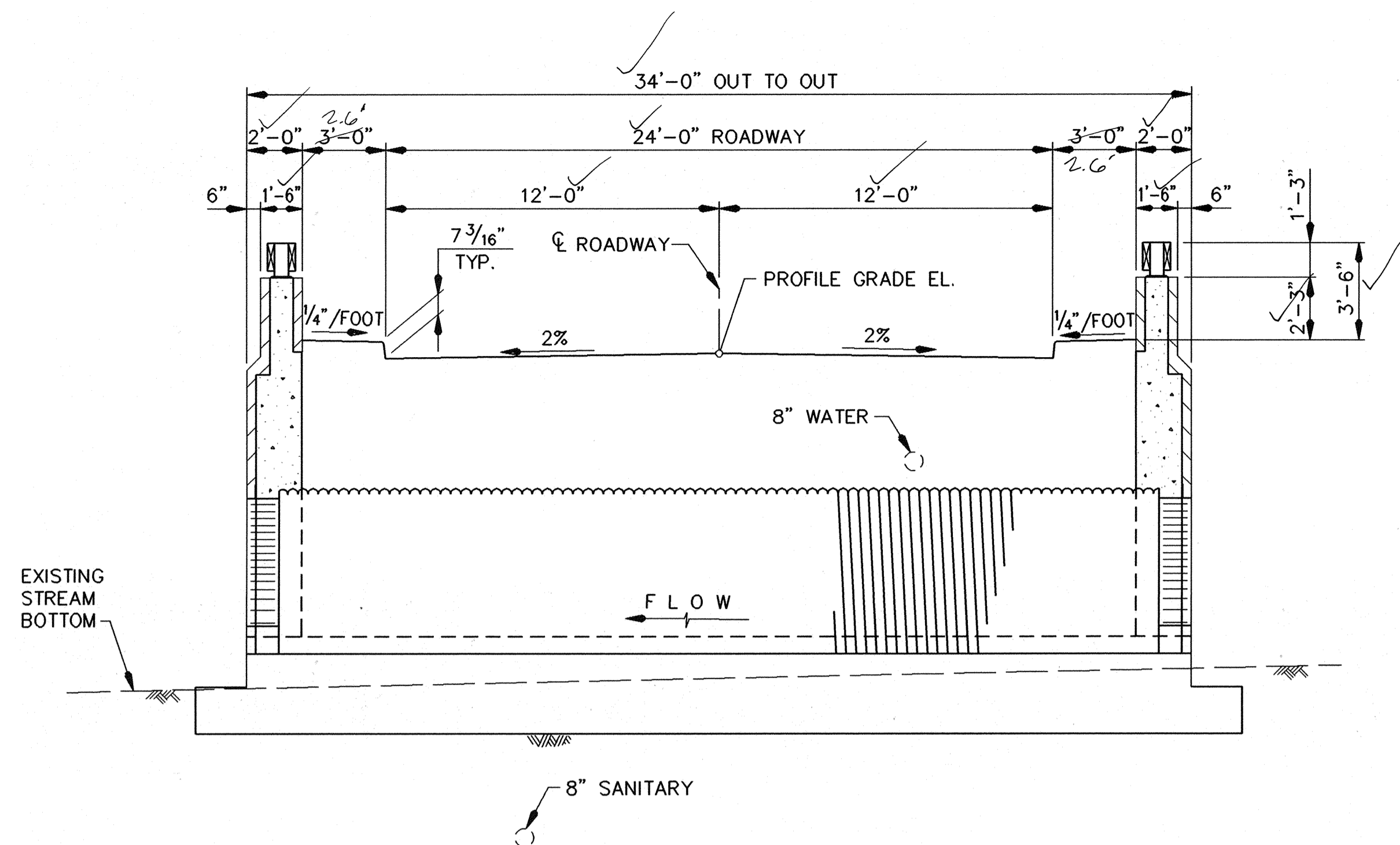
PIPE ABOVE ROCK
SCALE: 1 1/2"=1'-0"

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
James W. S. S. 6/2/94
 CHIEF, BUREAU OF HIGHWAYS DATE
Paul W. S. 6/20/94
 CHIEF, BUREAU OF ENGINEERING DATE
John R. 6/21/94
 CHIEF, LAND DEVELOPMENT DIVISION DATE

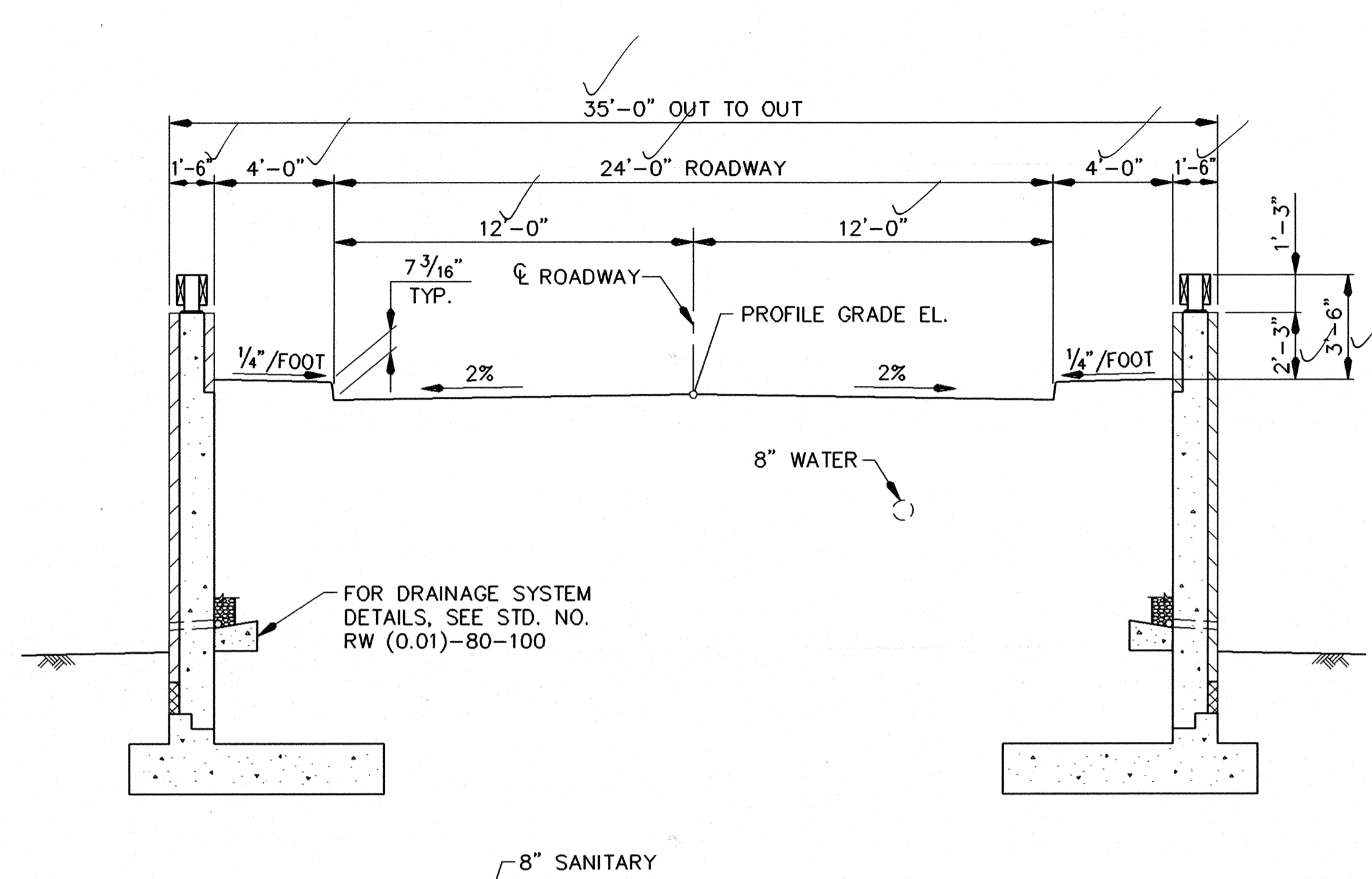
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Aina J. 6/21/94
 CHIEF, LAND DEVELOPMENT AND RESEARCH DATE

| DATE | NO. | Revision Description |
|---|------------------|----------------------|
| | | |
| HARPER'S CHOICE | | |
| OWNER / DEVELOPER | | |
| THE HOWARD RESEARCH & DEVELOPMENT CORP. THE ROUSE COMPANY 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044 | | |
| S-3A | | |
| WALLACE, MONTGOMERY & ASSOCIATES ENGINEERS 110 WEST ROAD TOWSON, MARYLAND 21204 | | |
| AREA SECTION 5 AREA 9 PHASE 2 TAX MAP 29 PARCEL 126 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND | | |
| STRUCTURAL PLATE ARCH SOUTH ABUT. FOOTING DETAILS | | |
| Des By: G.C.N. | Scale: AS SHOWN | Proj. No.: 92023 |
| Drn By: S.W.S. | Date: APR., 1994 | |
| Chk By: J.O.M. | Approved: | 13 OF 19 |

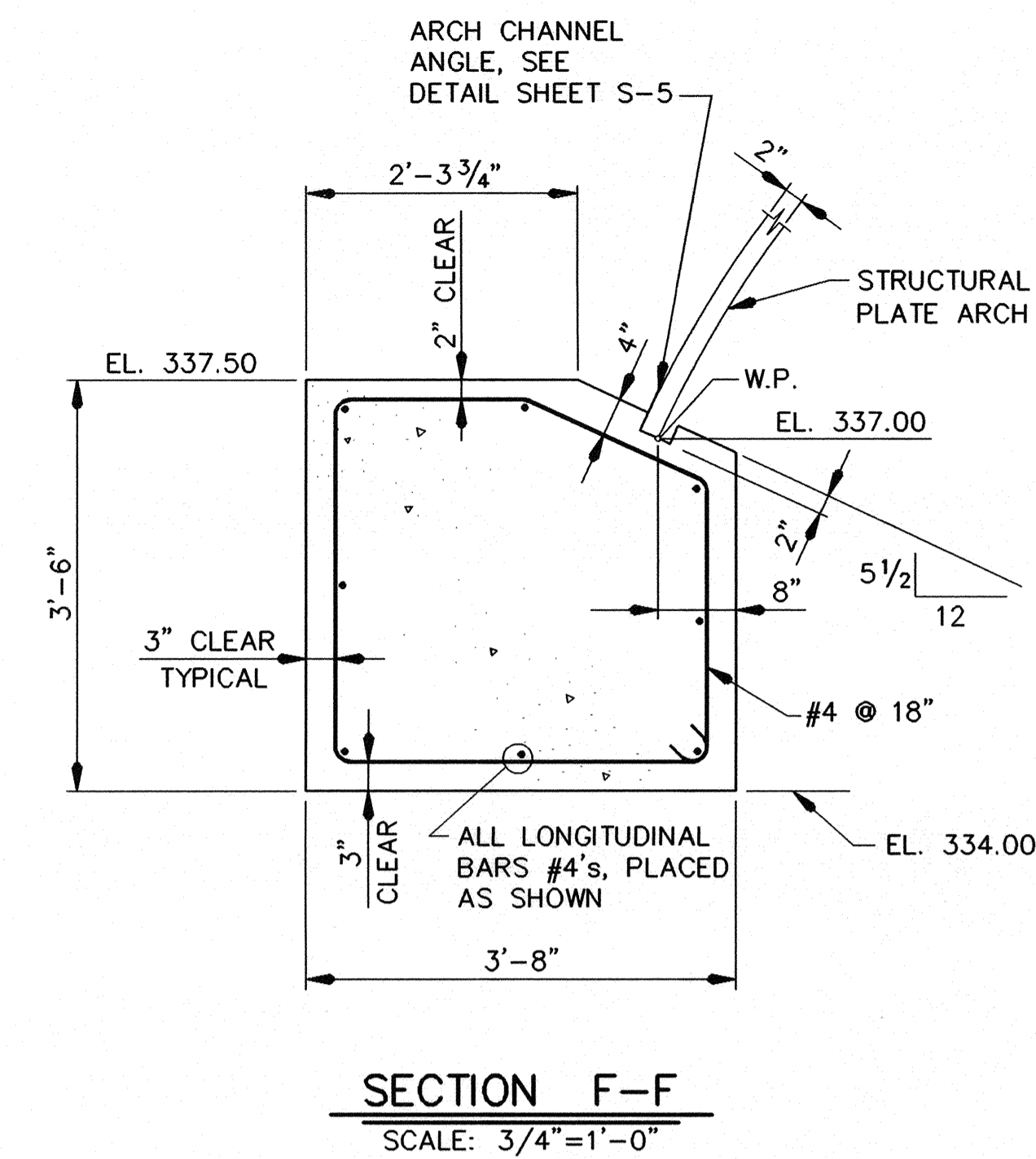




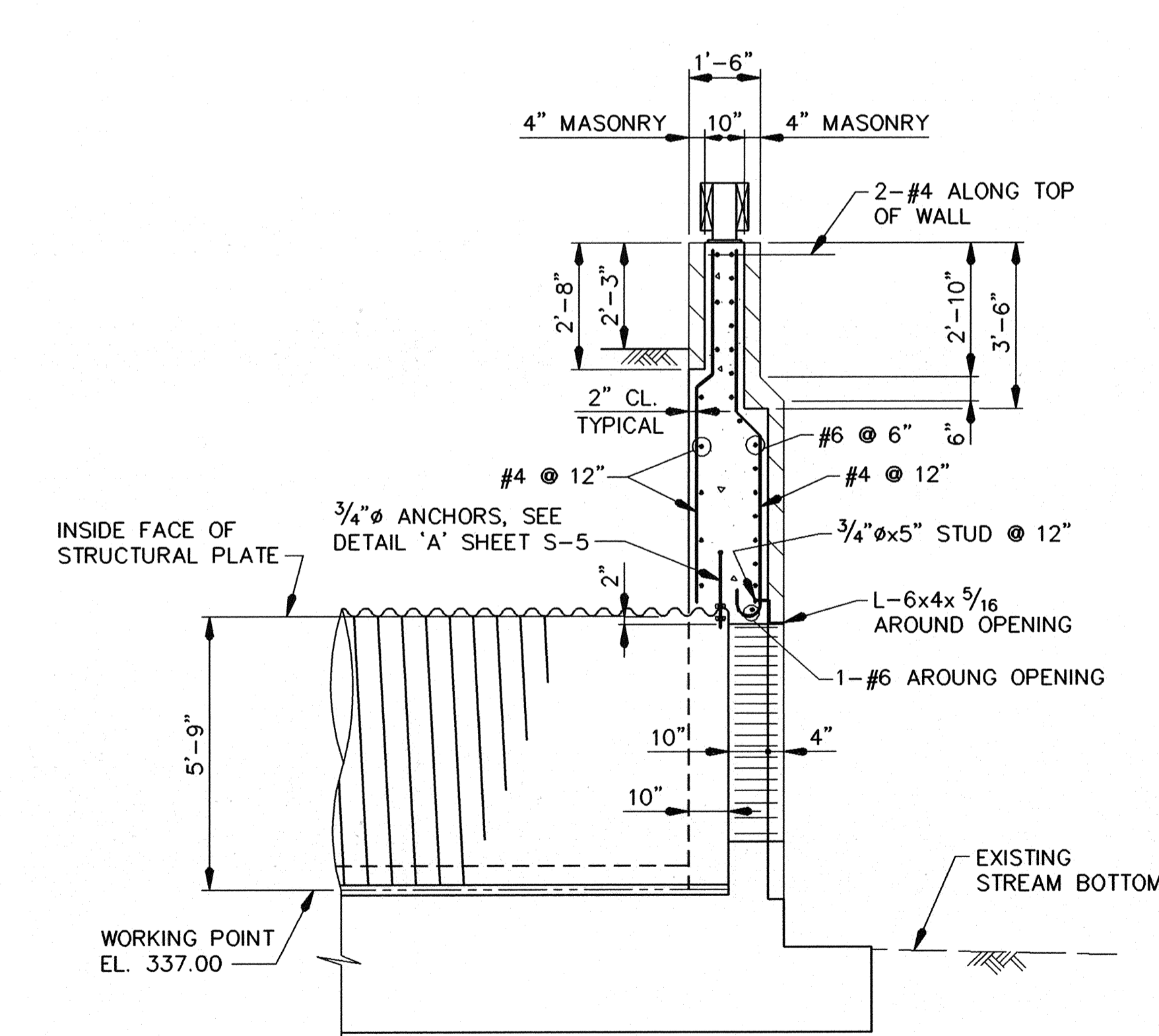
SECTION A-A
SCALE: 1/4"=1'-0"



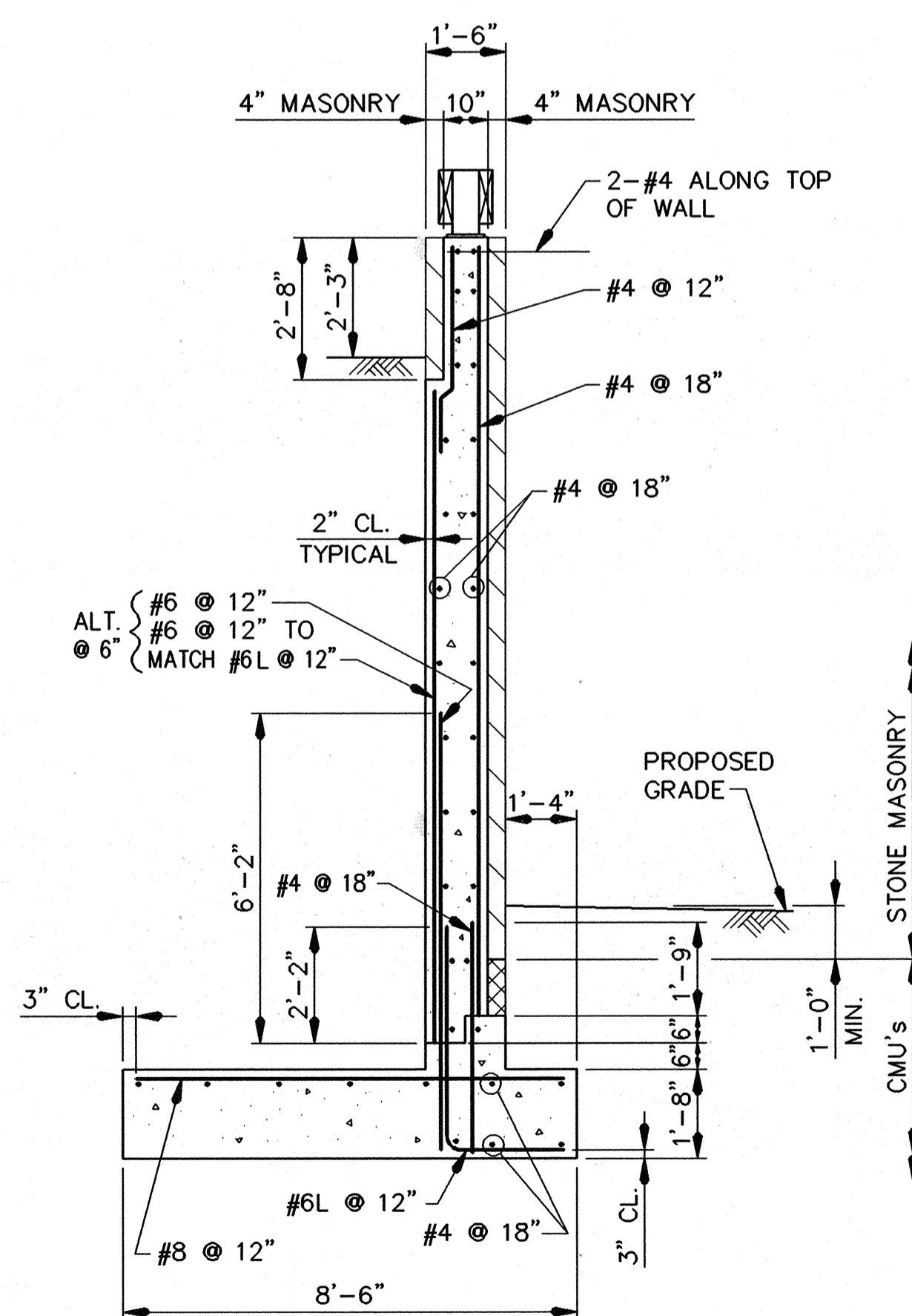
SECTION B-B
SCALE: 1/4"=1'-0"



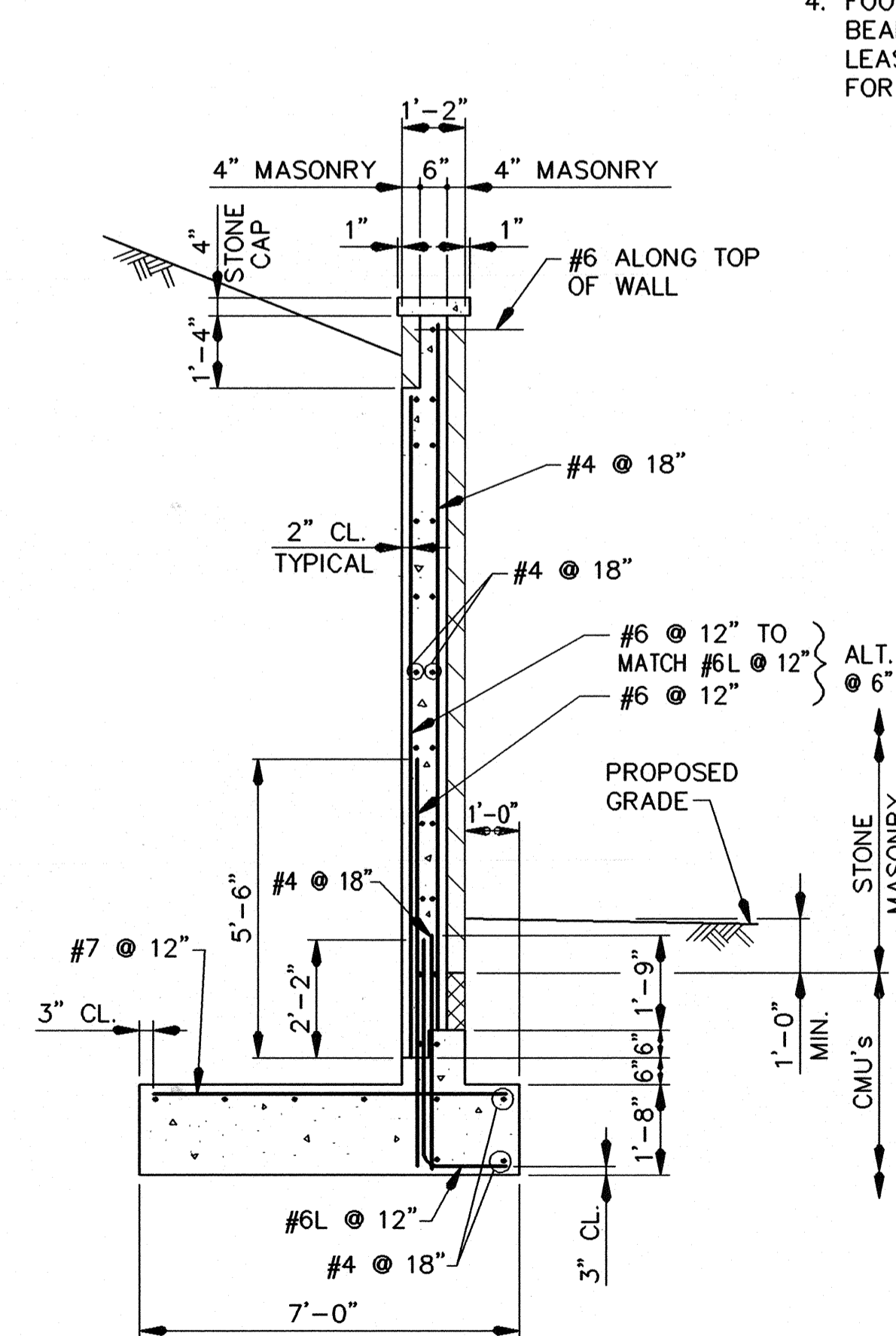
SECTION F-F
SCALE: 3/4"=1'-0"



SECTION C-C
SCALE: 3/8"=1'-0"



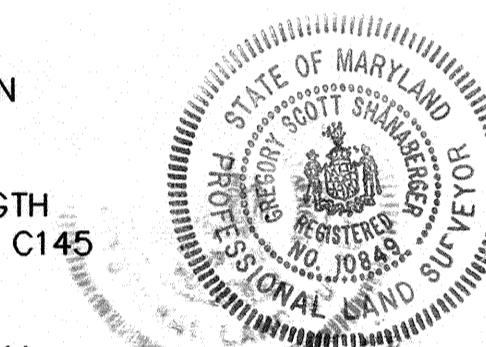
SECTION D-D
SCALE: 3/8"=1'-0"



SECTION E-E
SCALE: 3/8"=1'-0"

NOTES:

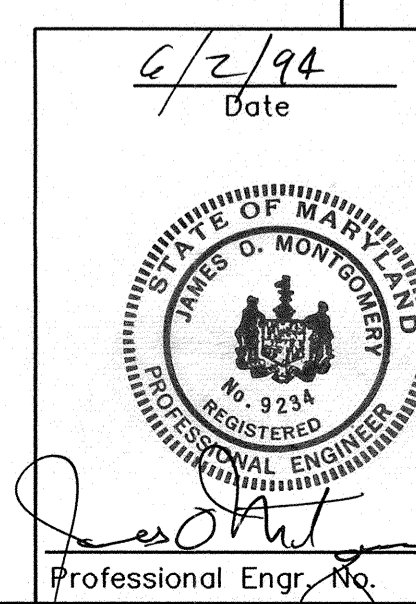
- MORTAR FOR STONE MASONRY VENEER SHALL BE TYPE M IN ACCORDANCE WITH ASTM C270.
- CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM STRENGTH OF 1,500 P.S.I. AND SHALL BE IN ACCORDANCE WITH ASTM C145 FOR SOLID UNITS.
- STONE VENEER SHALL BE ANCHORED TO THE CONCRETE WALL WITH TIES SPACED AT 2' MAXIMUM AND SUPPORTING A MAXIMUM AREA OF 2 SQUARE FEET. ANCHOR TIES MAY BE EITHER #22x1" WIDE METAL STRIPS OR #9 WIRE. ANCHOR TIES MAY BE GALVANIZED OR STAINLESS STEEL.
- FOOTINGS SHALL BE POURED AGAINST UNDISTURBED EARTH. BEARING CAPACITY OF THE FOUNDATION LAYER SHALL BE AT LEAST 3,200 P.S.F. FOR THE WALL FOOTINGS AND 4,400 P.S.F. FOR THE ARCH FOOTINGS.

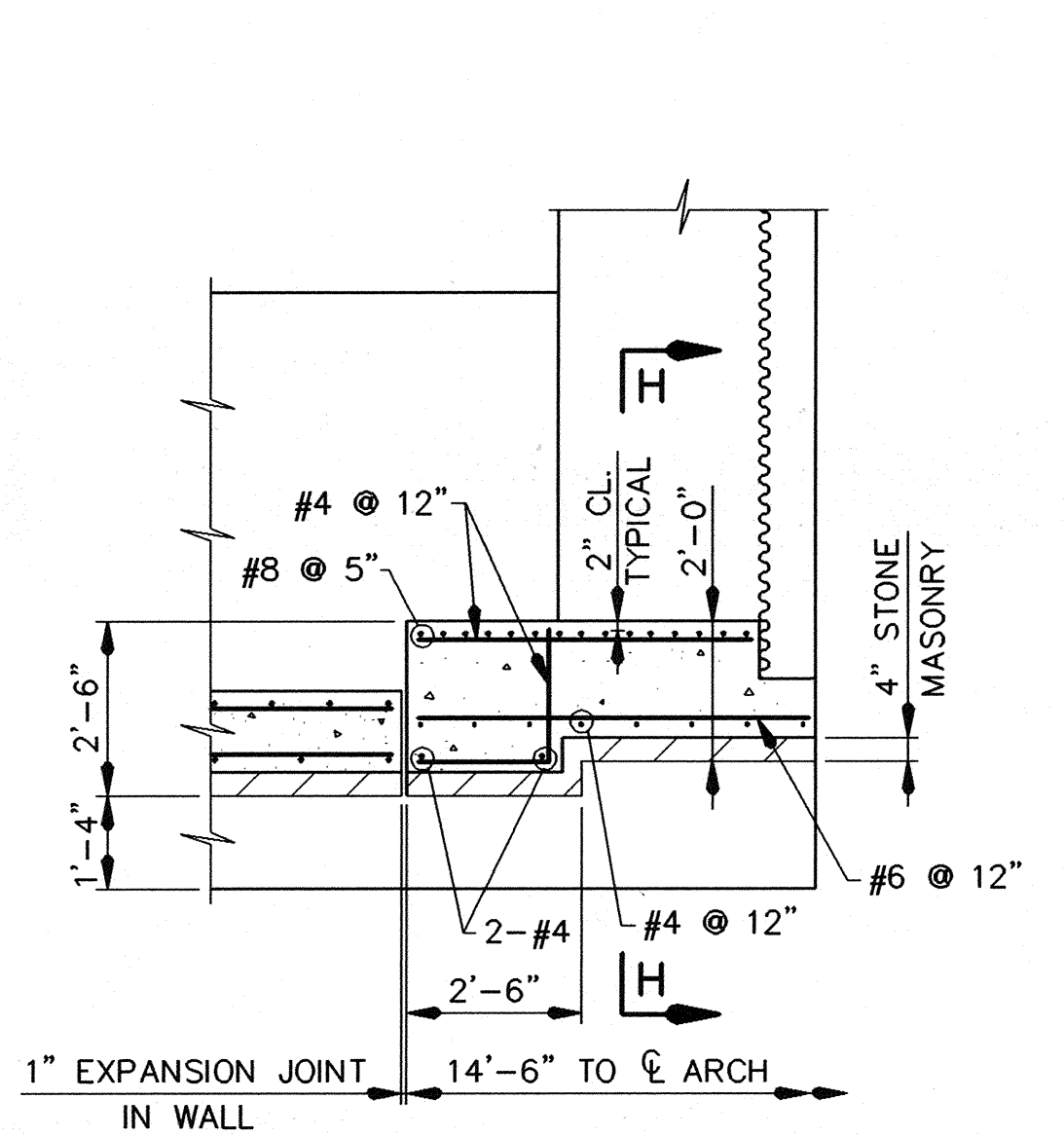


AS-BUILT
Chet Landecker
 CHIEF ENGINEER
 SHANBERGER & LANE
 82200 WOODBURN & COUNTRY BLVD.
 ELICOTT CITY, MARYLAND 21043

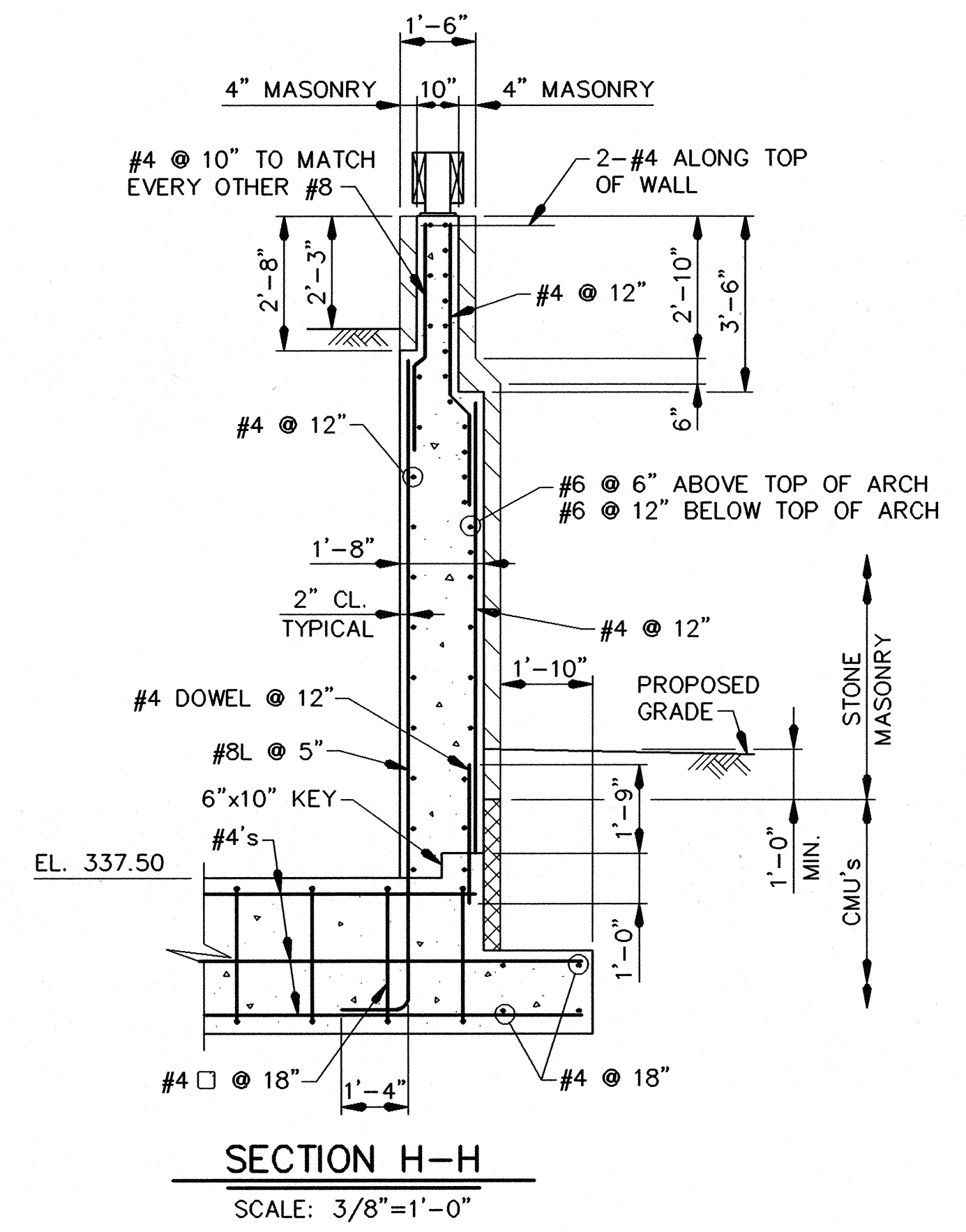
APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
James J. ... 6/16/94
 CHIEF, BUREAU OF HIGHWAYS
Richard ... 6/20/94
 CHIEF, BUREAU OF ENGINEERING
Alan ... 6/21/94
 CHIEF, LAND DEVELOPMENT DIVISION
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Aime ... 6/21/94
 CHIEF, LAND DEVELOPMENT AND RESEARCH

| DATE | NO. | Revision Description |
|---|------------------|----------------------|
| | | |
| HARPER'S CHOICE | | |
| OWNER / DEVELOPER | | |
| THE HOWARD RESEARCH & DEVELOPMENT CORP. THE ROUSE COMPANY 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044 | | |
| S-4 | | |
| WALLACE, MONTGOMERY & ASSOCIATES ENGINEERS 110 WEST ROAD TOWSON, MARYLAND 21204 | | |
| AREA SECTION 5 AREA 9 PHASE 2 TAX MAP 29 PARCEL 126 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND | | |
| STRUCTURAL PLATE ARCH SECTIONS AND DETAILS I | | |
| Des By: G.C.N. | Scale: AS SHOWN | Proj. No.: 92023 |
| Drn By: S.W.S. | Date: APR., 1994 | |
| Chk By: J.O.M. | Approved: | 14 OF 19 |

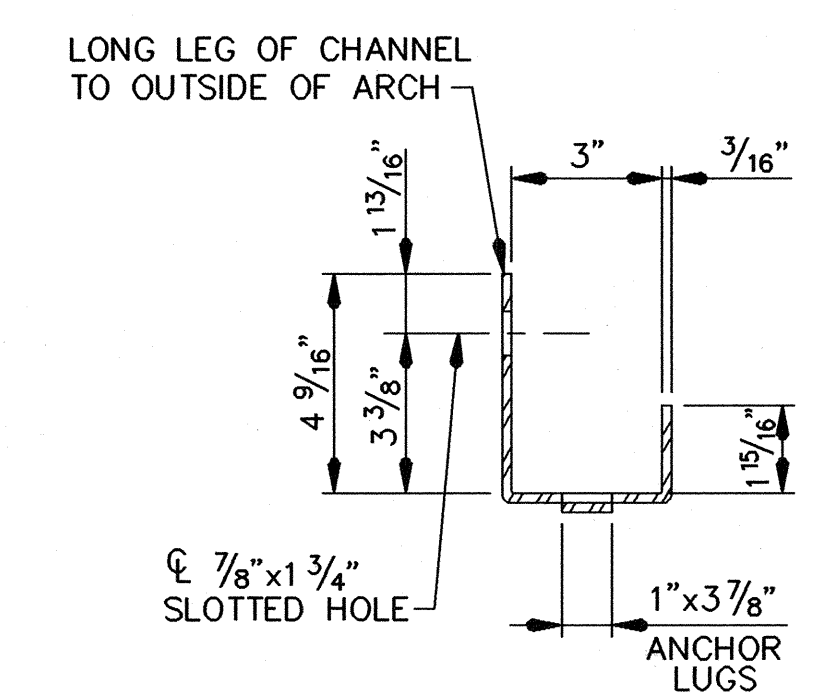




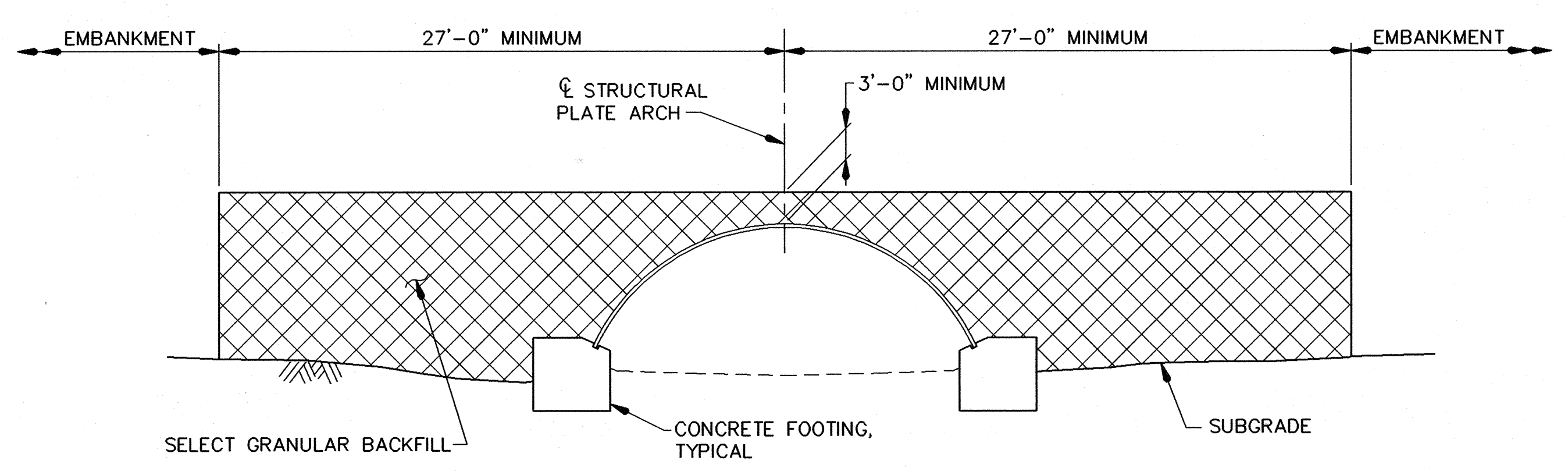
SECTION G-G
SCALE: 3/8"=1'-0"



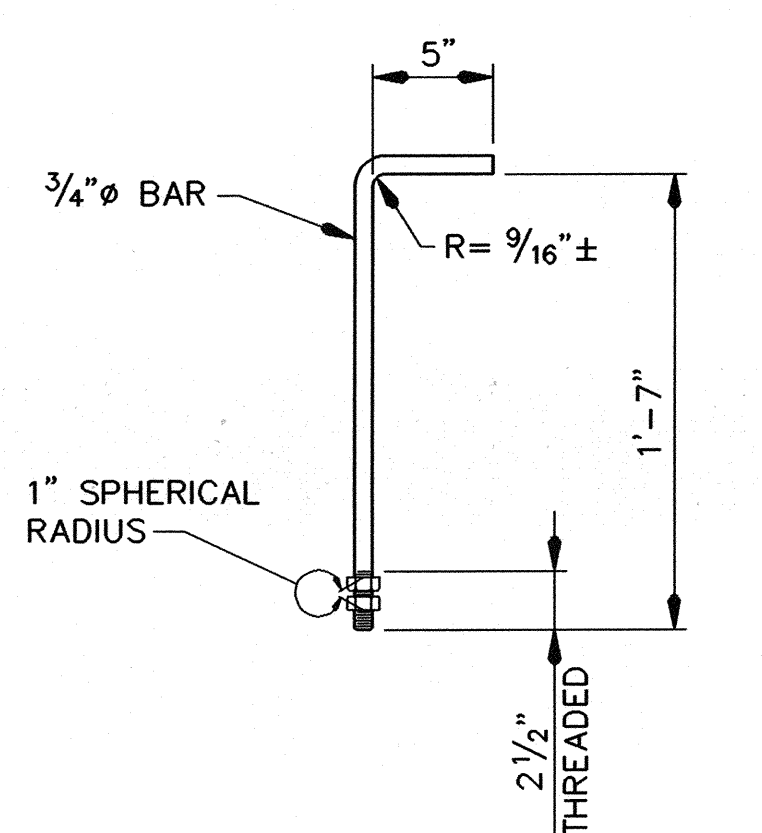
SECTION H-H
SCALE: 3/8"=1'-0"



ARCH CHANNEL ANCHOR
SCALE: 3"=1'-0"

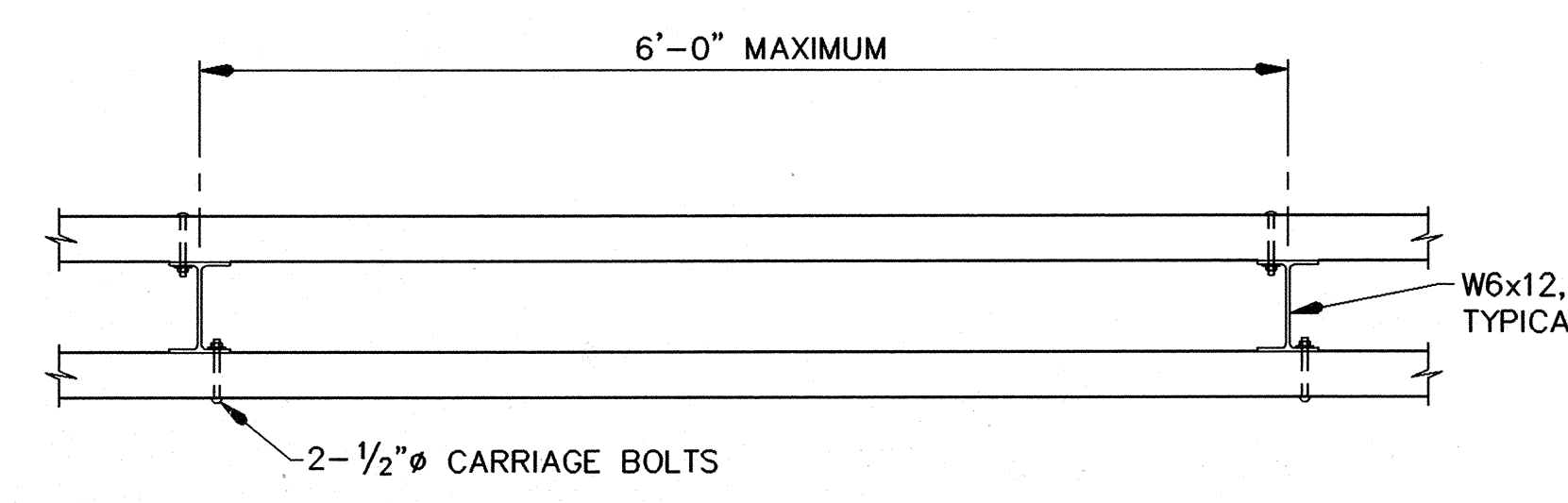


BACKFILL DETAIL
NOT TO SCALE

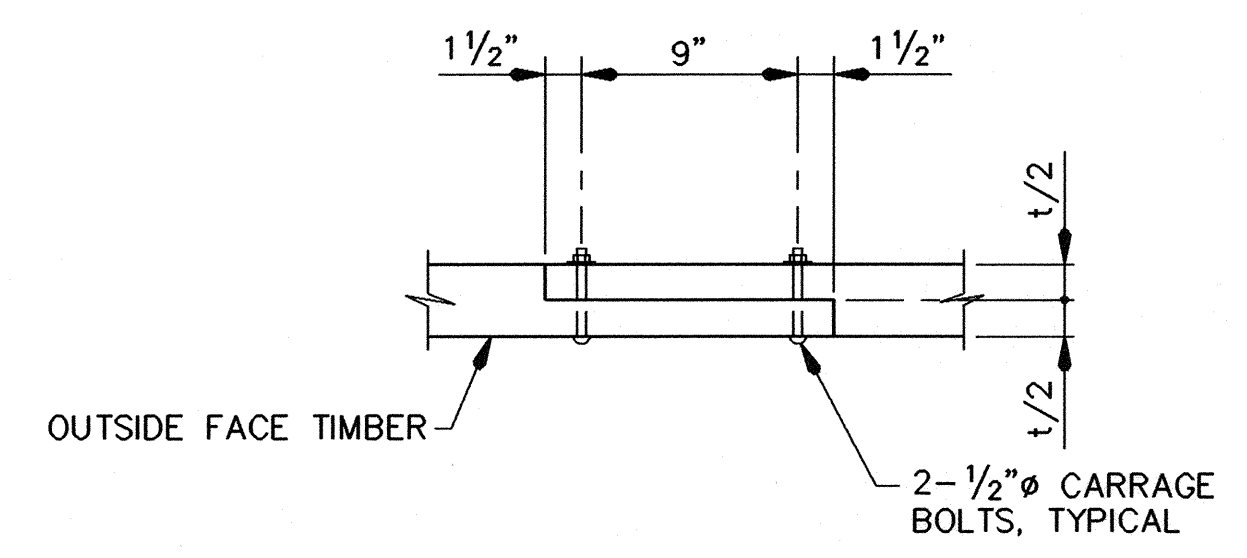


NOTE:
PLACE 3/4" HOOK BOLTS AT 1'-6" AROUND PERIPHERY OF STRUCTURAL PLATE ARCH AT EACH HEADWALL AS SHOWN. BOLTS AND NUTS SHALL BE GALVANIZED AFTER THREADING. THE GALVANIZING ON THE THREAD PORTION SHALL NOT PREVENT TURNING THE NUT BY HAND.

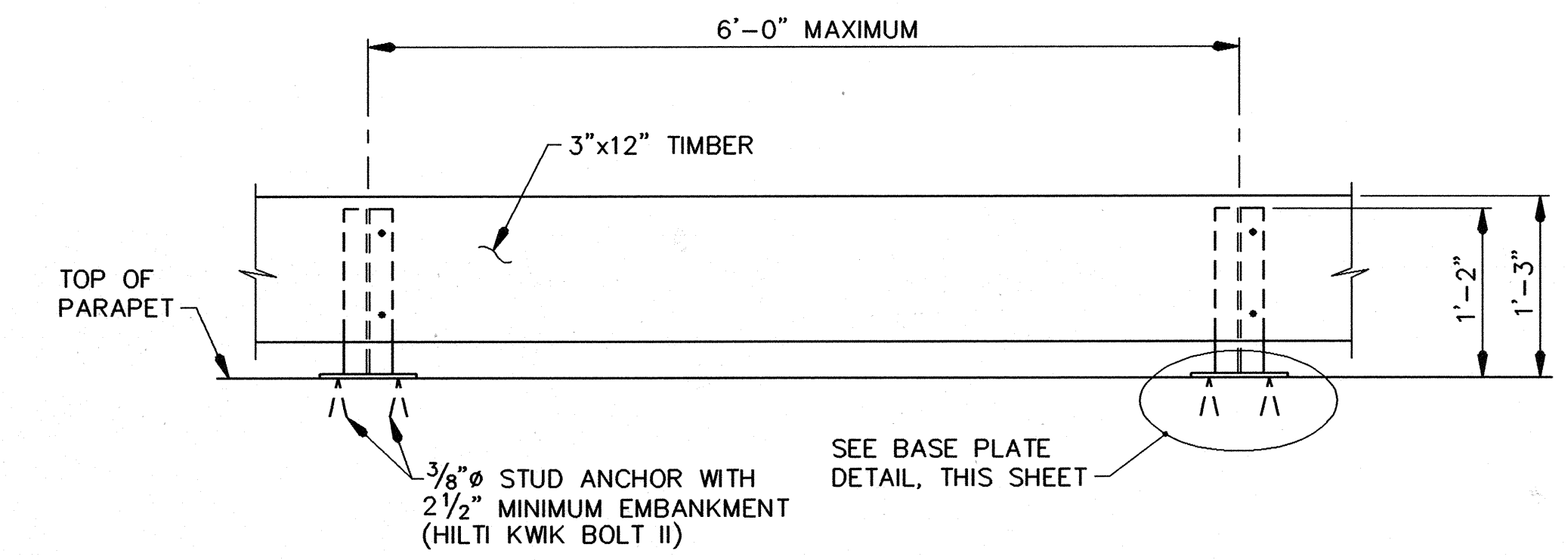
DETAIL 'A'
SCALE: 1 1/2"=1'-0"



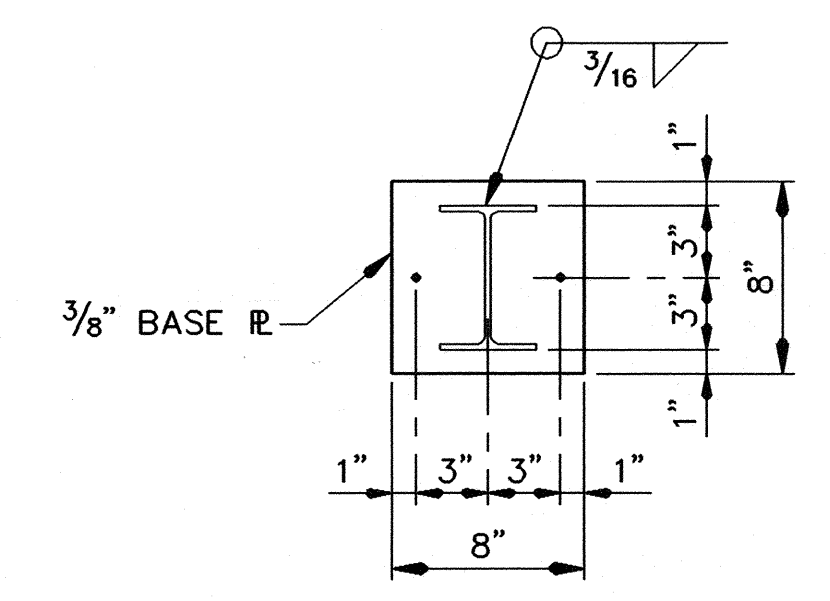
PLAN
SCALE: 1"=1'-0"



SPlice DETAIL
SCALE: 1 1/2"=1'-0"



ELEVATION - 1 STRAND RAIL
SCALE: 1"=1'-0"



BASE PLATE DETAIL
SCALE: 1 1/2"=1'-0"

NOTE:
ALL STRUCTURAL STEEL PLATES AND SHAPES TO BE HOT DIP GALVANIZED AFTER ASSEMBLY. ALL NUTS, BOLTS, WASHERS AND ANCHORS TO BE ZINC PLATED.

RAILING DETAILS

BACKFILL OF ARCH NOTES:

- ALL BACKFILL SHALL BE PLACED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- ALL SELECT GRANULAR FILL TO BE COMPACTED TO 92% PER A.A.S.H.T.O. T-180.
- COMPLETE AND REGULAR MONITORING OF THE ARCH SHAPE AT THE CENTERLINE AND BOTH QUARTER POINTS IN ADDITION TO THE MANUFACTURERS RECOMMENDATIONS IS NECESSARY DURING ALL BACKFILLING OF THE ARCH.
- PREVENT EXCESS DISTORTION OF SHAPE AS NECESSARY BY VARYING COMPACTION METHODS AND EQUIPMENT.
- METHOD OF BACKFILL SHALL BE AS RECOMMENDED BY THE MANUFACTURER. THE MANUFACTURER OF THE CULVERT SHALL PROVIDE INSPECTION OF ALL ARCH BACKFILL TO THE MINIMUM COVER OF 3' OVER THE ARCH. THE INSPECTOR OF MANUFACTURER MUST BE PROPERLY TRAINED IN THE RELATED CONSTRUCTION OPERATIONS.
- CONSTRUCTION TRUCKS AND EQUIPMENT MUST NOT BE ALLOWED OVER THE CULVERT UNTIL A MINIMUM OF 3 FEET OF CONTROLLED BACKFILL HAS BEEN PLACED AND COMPACTED TO 92% PER A.A.S.H.T.O. T-180. AFTER THAT, CONSTRUCTION TRAFFIC MAY BE ALLOWED OVER THE CULVERT PROVIDED THAT VEHICLE WHEEL LOADS WILL NOT CAUSE RUTTING WHICH WILL EFFECTIVELY REDUCE THE BACKFILL DEPTH OVER THE CULVERT.

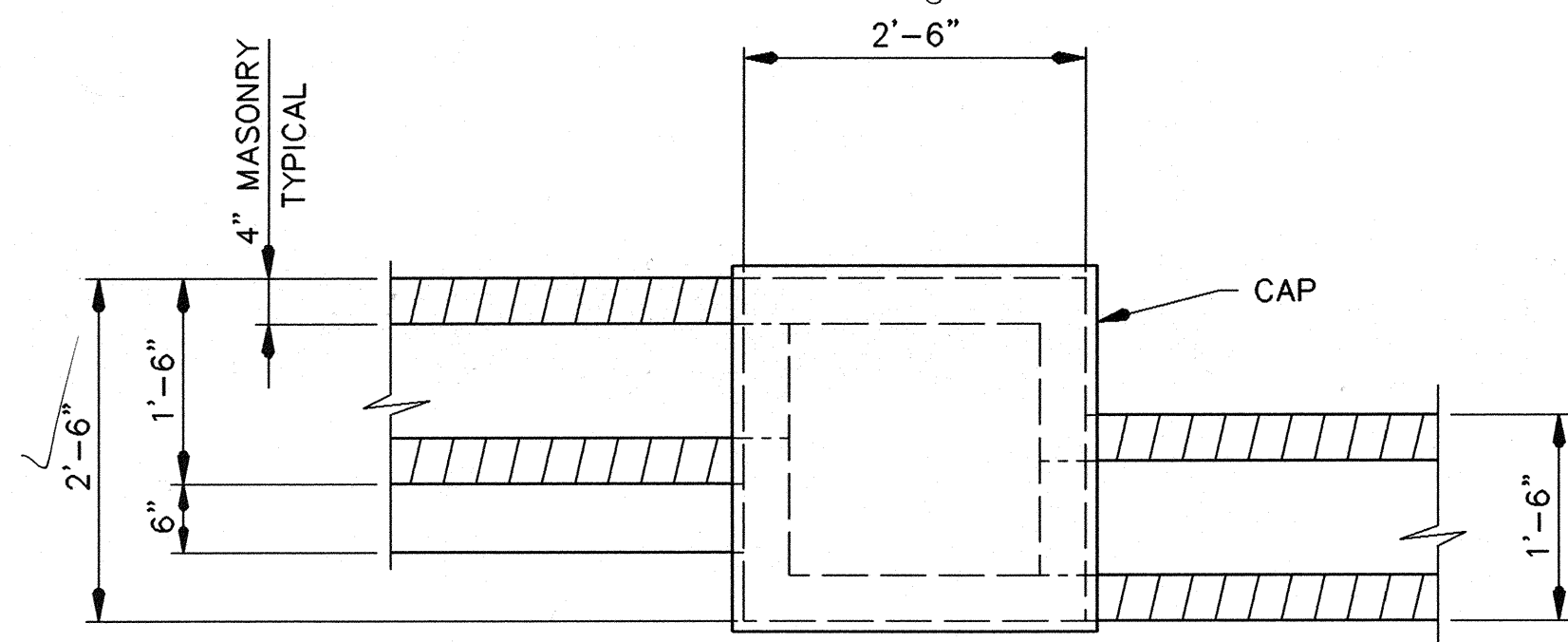
APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
James W. ... 6/20/94
 CHIEF, BUREAU OF HIGHWAYS DATE
Paul W. ... 6/20/94
 CHIEF, BUREAU OF ENGINEERING DATE
John ... 6/20/94
 CHIEF, LAND DEVELOPMENT DIVISION DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
Gina ... 6/21/94
 CHIEF, LAND DEVELOPMENT AND RESEARCH DATE

| DATE | NO. | Revision Description |
|---|---|----------------------|
| | | |
| HARPER'S CHOICE | | |
| OWNER / DEVELOPER | | |
| THE HOWARD RESEARCH & DEVELOPMENT CORP. THE ROUSE COMPANY 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044 | | |
| S-5 | | |
| WALLACE, MONTGOMERY & ASSOCIATES | | |
| ENGINEERS 110 WEST ROAD TOWSON, MARYLAND 21204 | | |
| AREA | SECTION 5 AREA 9 PHASE 2 TAX MAP 28 PARCEL 126 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND | |
| TITLE | STRUCTURAL PLATE ARCH SECTIONS AND DETAILS II | |
| Des By: G.C.N. | Scale: AS SHOWN | Proj. No.: 92023 |
| Drn By: S.W.S. | Date: APR., 1994 | |
| Chk By: J.O.M. | Approved: | 15 OF 19 |

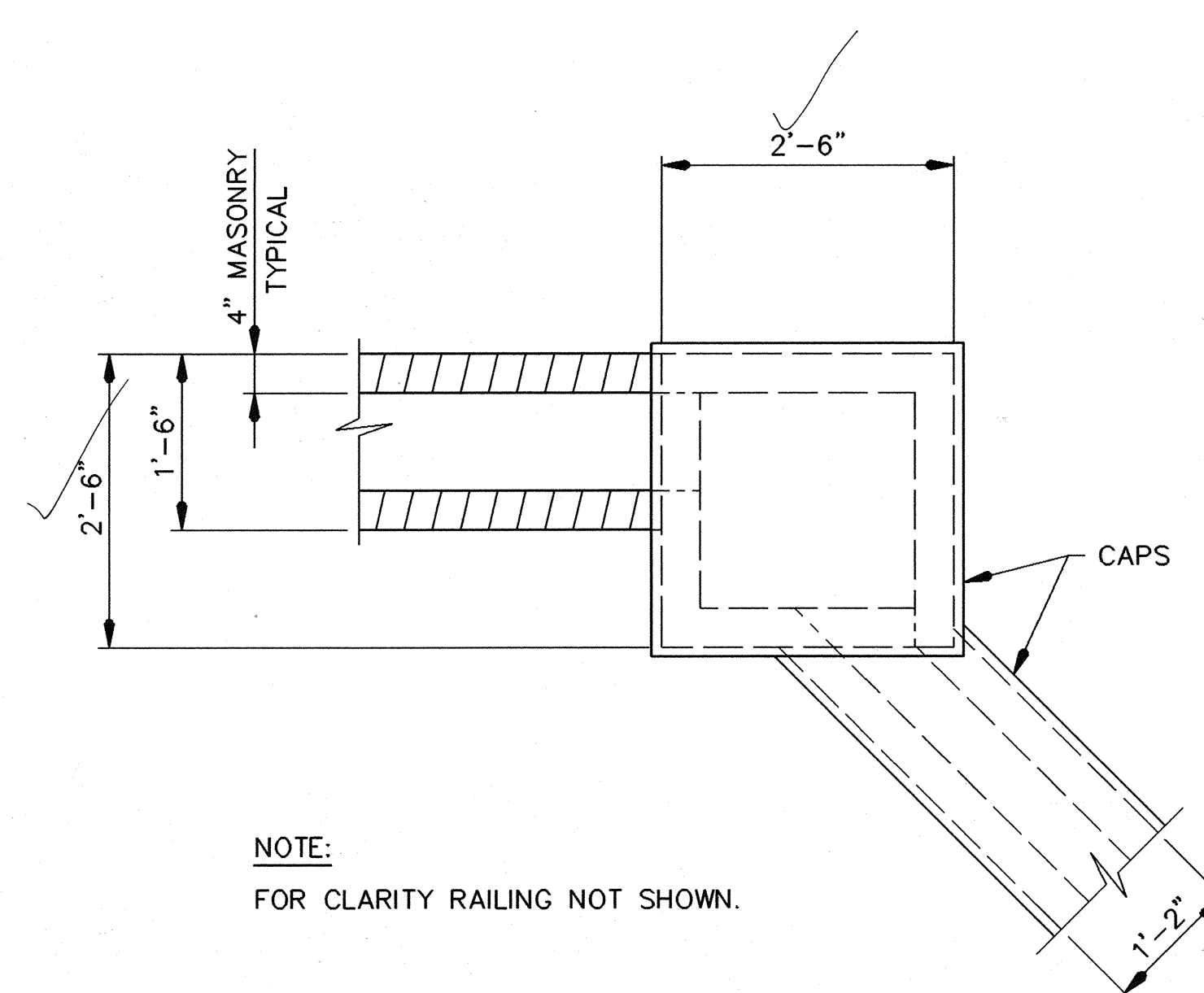
6/21/94
Date

 Professional Engr. No.



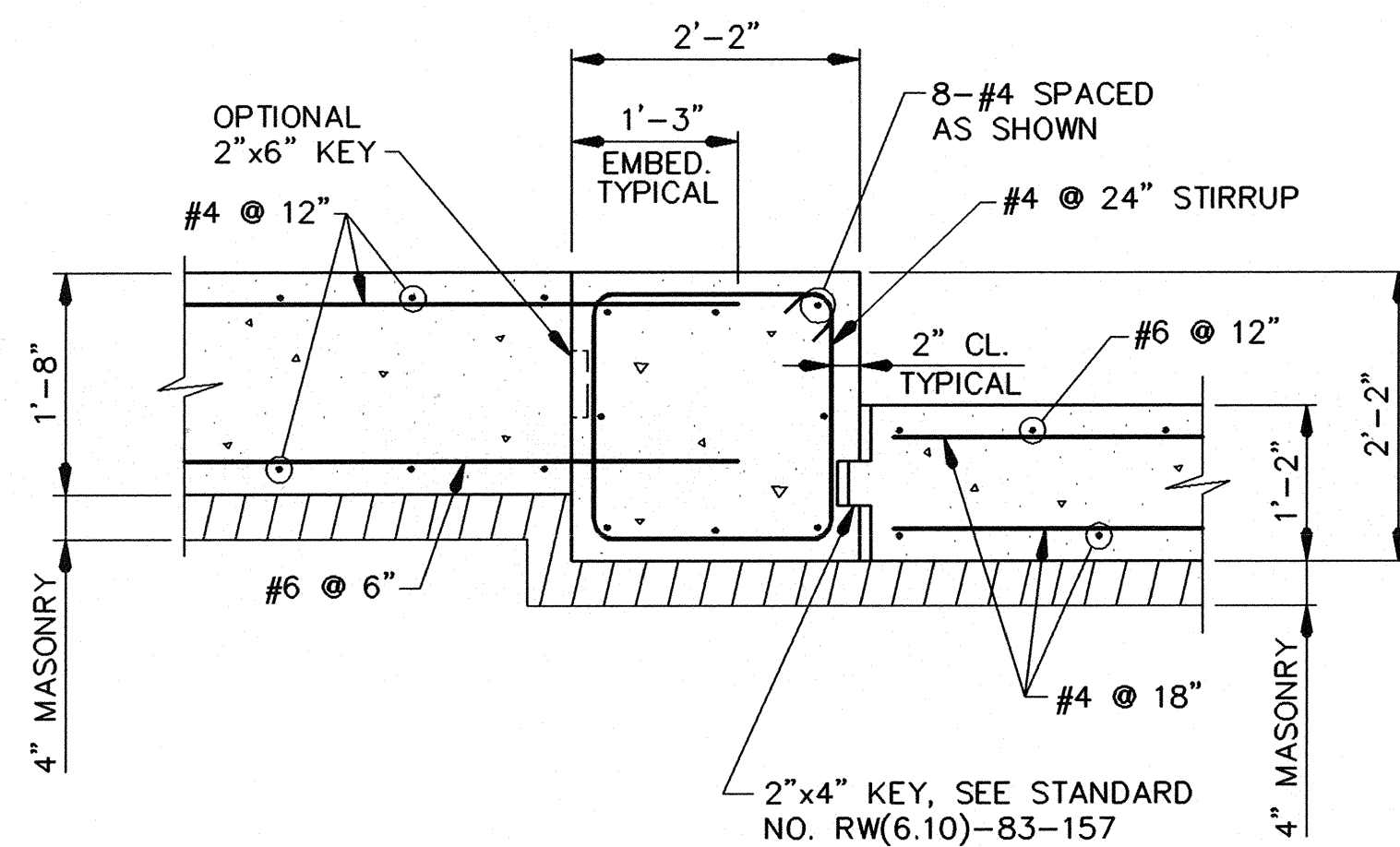
NOTE:
FOR CLARITY RAILING NOT SHOWN.

DETAIL 'B'

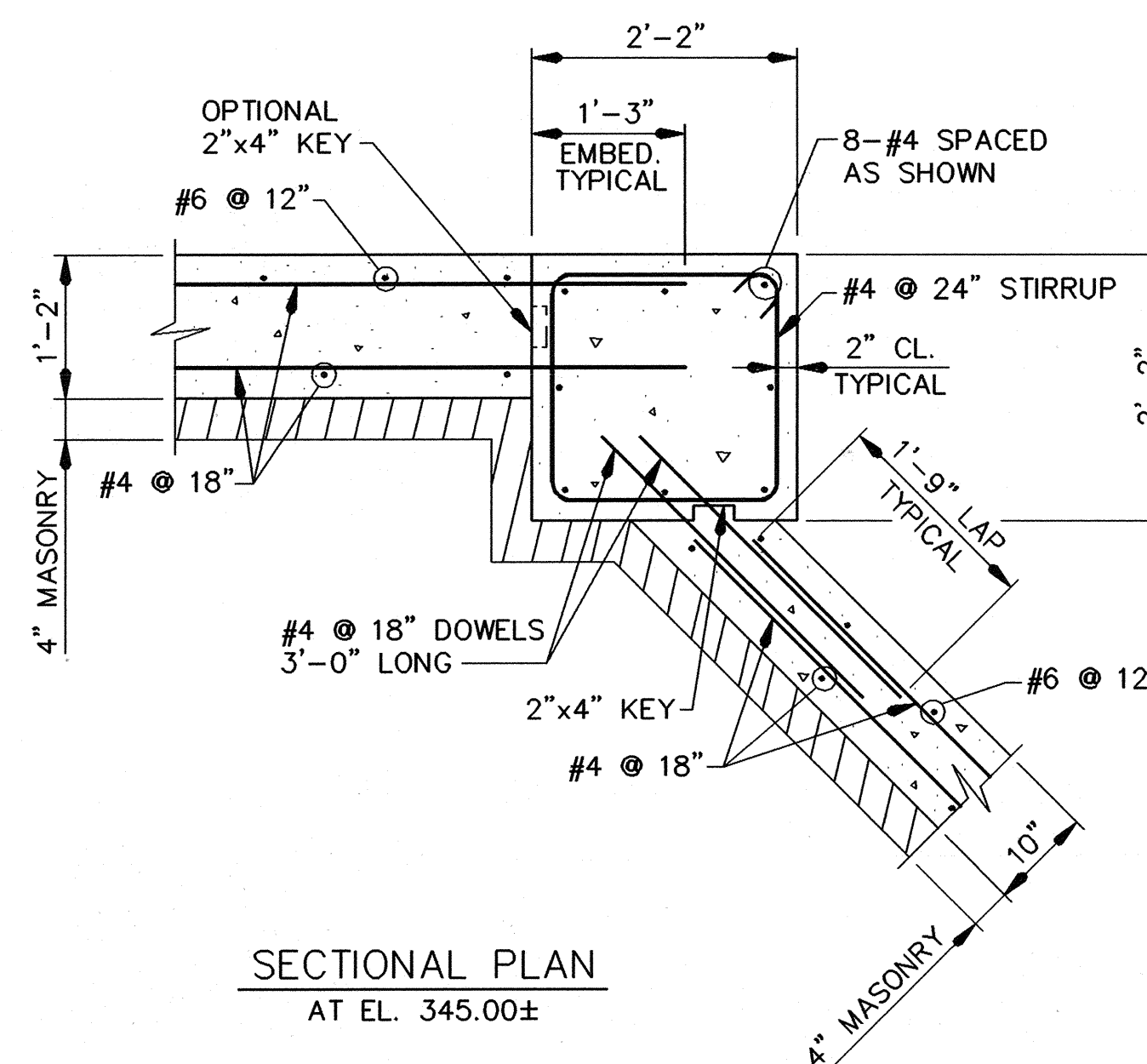


NOTE:
FOR CLARITY RAILING NOT SHOWN.

DETAIL 'C'



SECTIONAL PLAN
AT EL. 345.00±
PILASTER DETAILS
SCALE: 3/4"=1'-0"



SECTIONAL PLAN
AT EL. 345.00±
CORNER PILASTER DETAILS
SCALE: 3/4"=1'-0"

NOTE:
FOR LOCATIONS SEE SHEETS S-2 AND S-3.



AS-BUILT

G. Scott Shanabarger
G. SCOTT SHANABARGER
PROF. L.S. #10229
SHANABARGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 404
ELLICOTT CITY, MARYLAND 21043

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

James P. ... 6/20/94
CHIEF, BUREAU OF HIGHWAYS
Phillip ... 6/20/94
CHIEF, BUREAU OF ENGINEERING
Chris ... 6/20/94
CHIEF, LAND DEVELOPMENT DIVISION

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Anna ... 6/21/94
CHIEF, LAND DEVELOPMENT AND RESEARCH

| DATE | NO. | Revision Description |
|------|-----|----------------------|
| | | |

HARPER'S CHOICE
OWNER / DEVELOPER

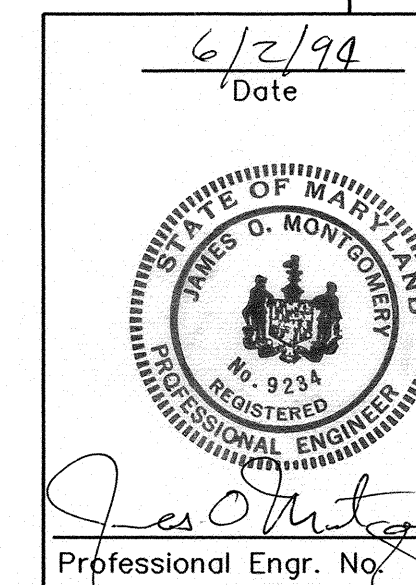
THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE COMPANY
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

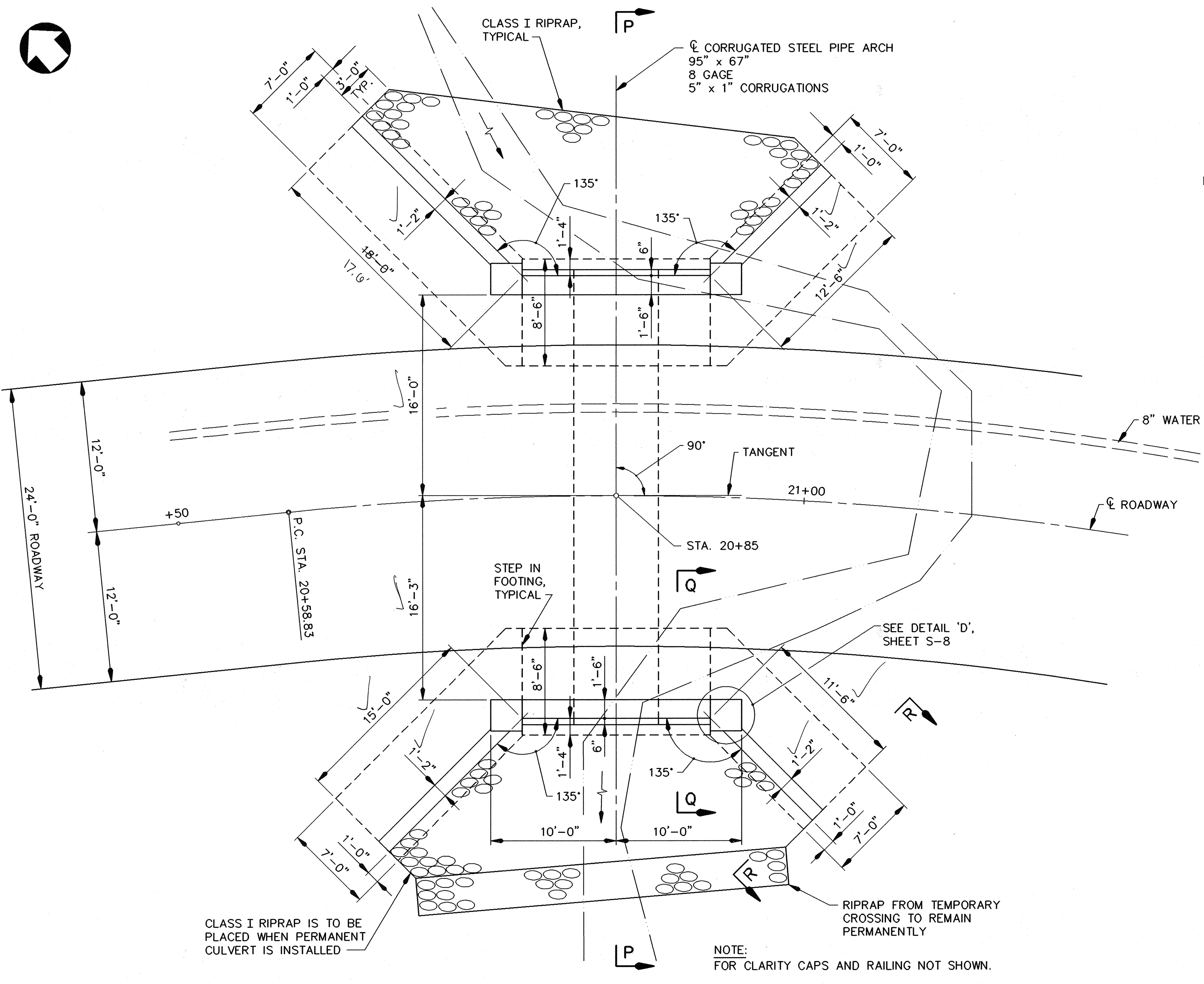
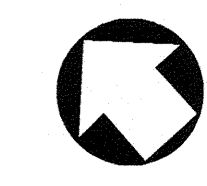
S-6
WALLACE, MONTGOMERY & ASSOCIATES
ENGINEERS
110 WEST ROAD
TOWSON, MARYLAND 21204

AREA
SECTION 5 AREA 9 PHASE 2
TAX MAP 29 PARCEL 126
5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

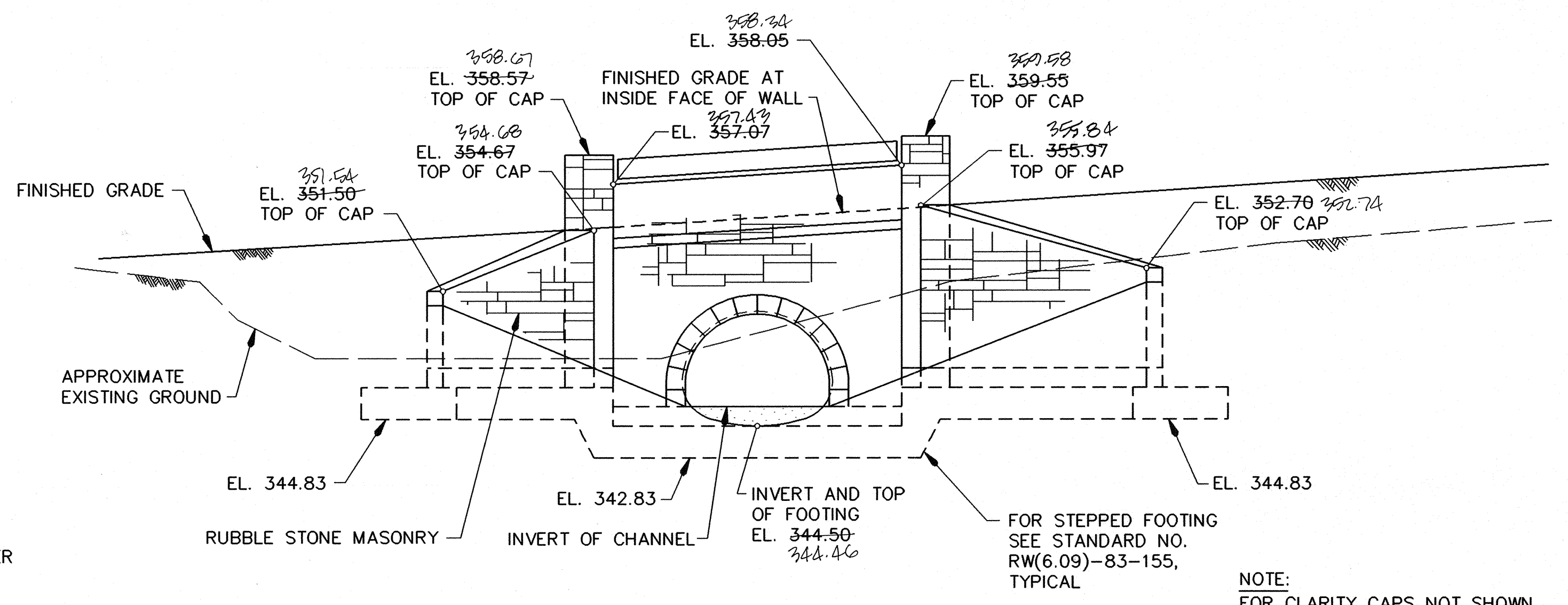
TITLE
**STRUCTURAL PLATE ARCH
PILASTER DETAILS**

Des By: G.C.N. Scale: AS SHOWN Proj. No.: 92023
Dwn By: S.W.S. Date: APR., 1994
Chk By: J.O.M. Approved: 16 OF 19





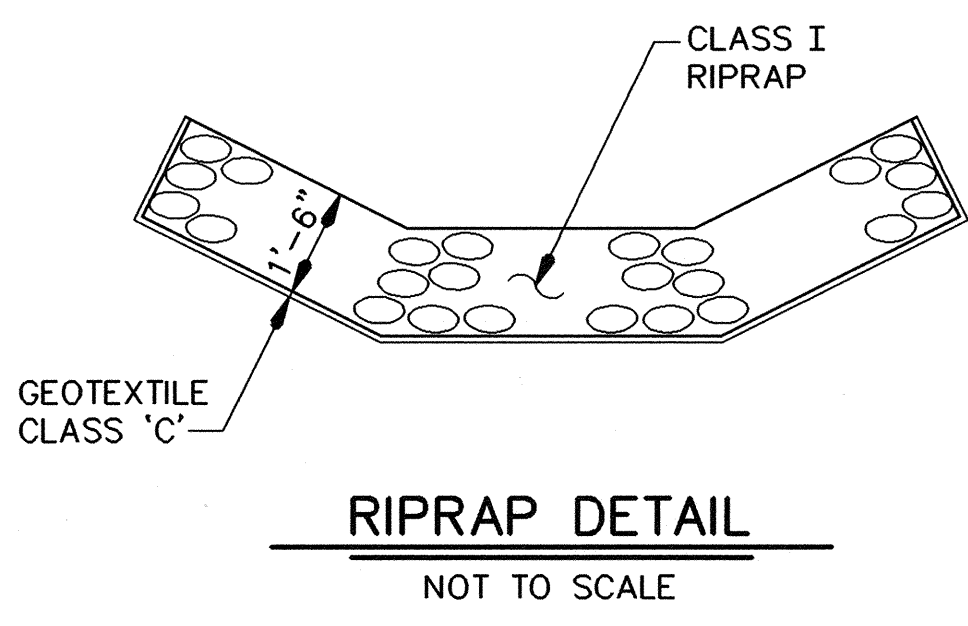
PLAN
SCALE: 3/16"=1'-0"



EAST ELEVATION
SCALE: 3/16"=1'-0"

BACKFILL OF PIPE ARCH NOTES:

1. ALL BACKFILL SHALL BE PLACED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
2. ALL SELECT GRANULAR FILL TO BE COMPACTED TO 92% PER A.A.S.H.T.O. T-180.
3. COMPLETE AND REGULAR MONITORING OF THE ARCH SHAPE AT THE CENTERLINE AND BOTH QUARTER POINTS IN ADDITION TO THE MANUFACTURERS RECOMMENDATIONS IS NECESSARY DURING ALL BACKFILLING OF THE PIPE ARCH.
4. PREVENT EXCESS DISTORTION OF SHAPE AS NECESSARY BY VARYING COMPACTION METHODS AND EQUIPMENT.
5. CONSTRUCTION TRUCKS AND EQUIPMENT MUST NOT BE ALLOWED OVER THE CULVERT UNTIL A MINIMUM OF 3 FEET OF CONTROLLED BACKFILL HAS BEEN PLACED AND COMPACTED TO 92% PER A.A.S.H.T.O. T-180. AFTER THAT, CONSTRUCTION TRAFFIC MAY BE ALLOWED OVER THE CULVERT PROVIDED THAT VEHICLE WHEEL LOADS WILL NOT CAUSE RUTTING WHICH WILL EFFECTIVELY REDUCE THE BACKFILL DEPTH OVER THE CULVERT.



- NOTE:
1. FOR GENERAL NOTES, SEE SHEET S-1.
 2. FOR SECTION P-P, Q-Q AND R-R, SEE SHEET S-8.



AS-BUILT

Shanaberger & Lane
G. W. SHANABERGER
PROF. L.S. #10807
SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLCOTT CITY, MARYLAND 21043

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

James S. Lewis 6/20/94
CHIEF, BUREAU OF HIGHWAYS DATE
Paul D. Peterson 6/20/94
CHIEF, BUREAU OF ENGINEERING DATE
John D. Dawson 6/20/94
CHIEF, LAND DEVELOPMENT DIVISION DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Cynthia Swinnery 6/21/94
CHIEF, LAND DEVELOPMENT AND RESEARCH DATE

| DATE | NO. | Revision Description |
|------|-----|----------------------|
| | | |

HARPER'S CHOICE
OWNER / DEVELOPER

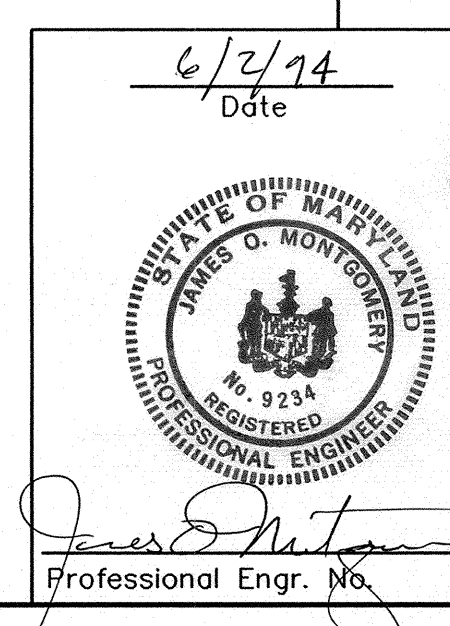
THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE COMPANY
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

WALLACE, MONTGOMERY & ASSOCIATES
ENGINEERS

110 WEST ROAD
TOWSON, MARYLAND 21204
AREA SECTION 5 AREA 9 PHASE 2
TAX MAP 29 PARCEL 126
5TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

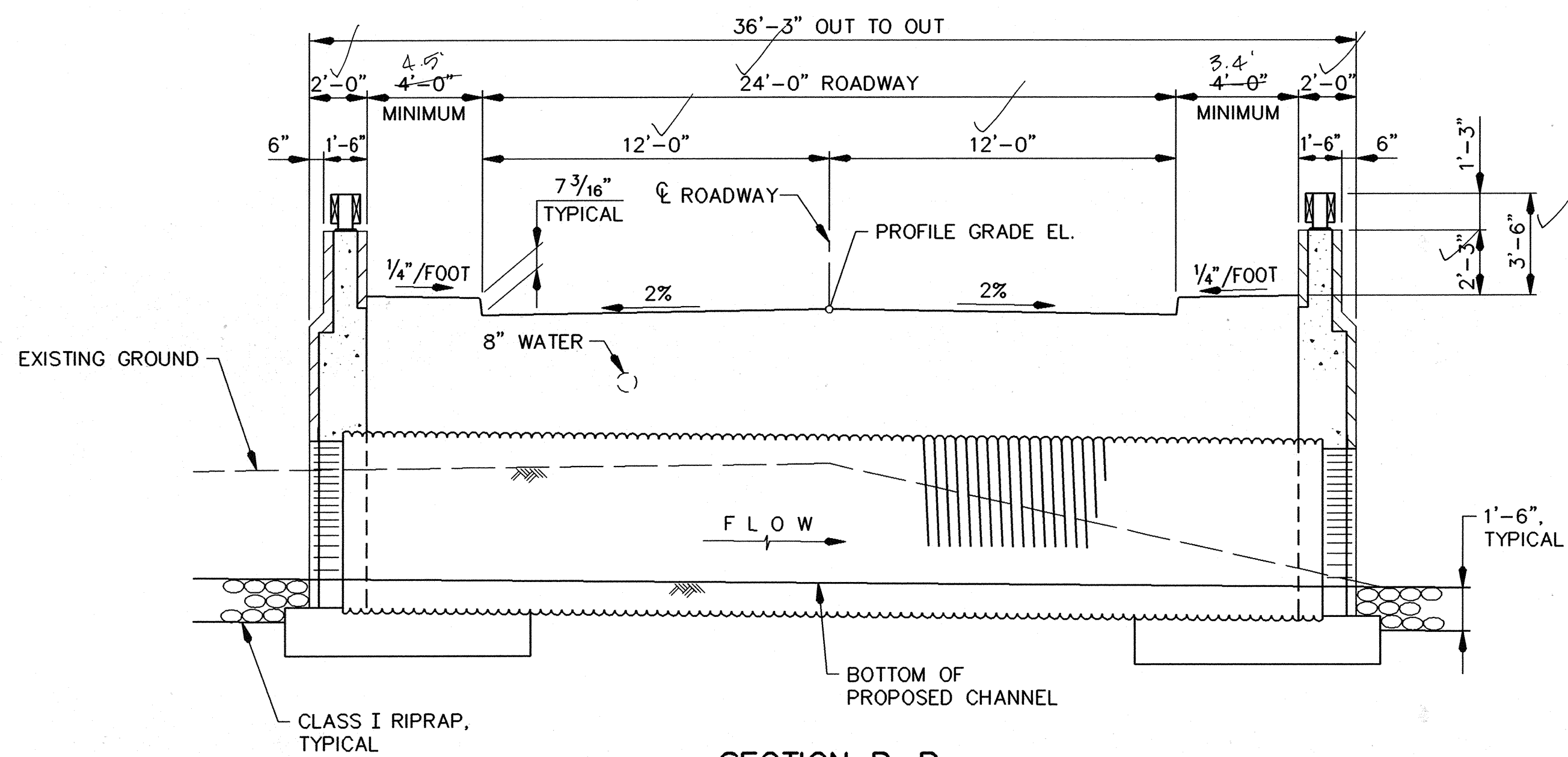
C.S. PIPE ARCH
PLAN AND ELEVATIONS

Des By: G.C.N. Scale: AS SHOWN Proj. No.: 92023
Dwn By: S.W.S. Date: APR., 1994
Ck By: J.O.M. Approved: 17 OF 19



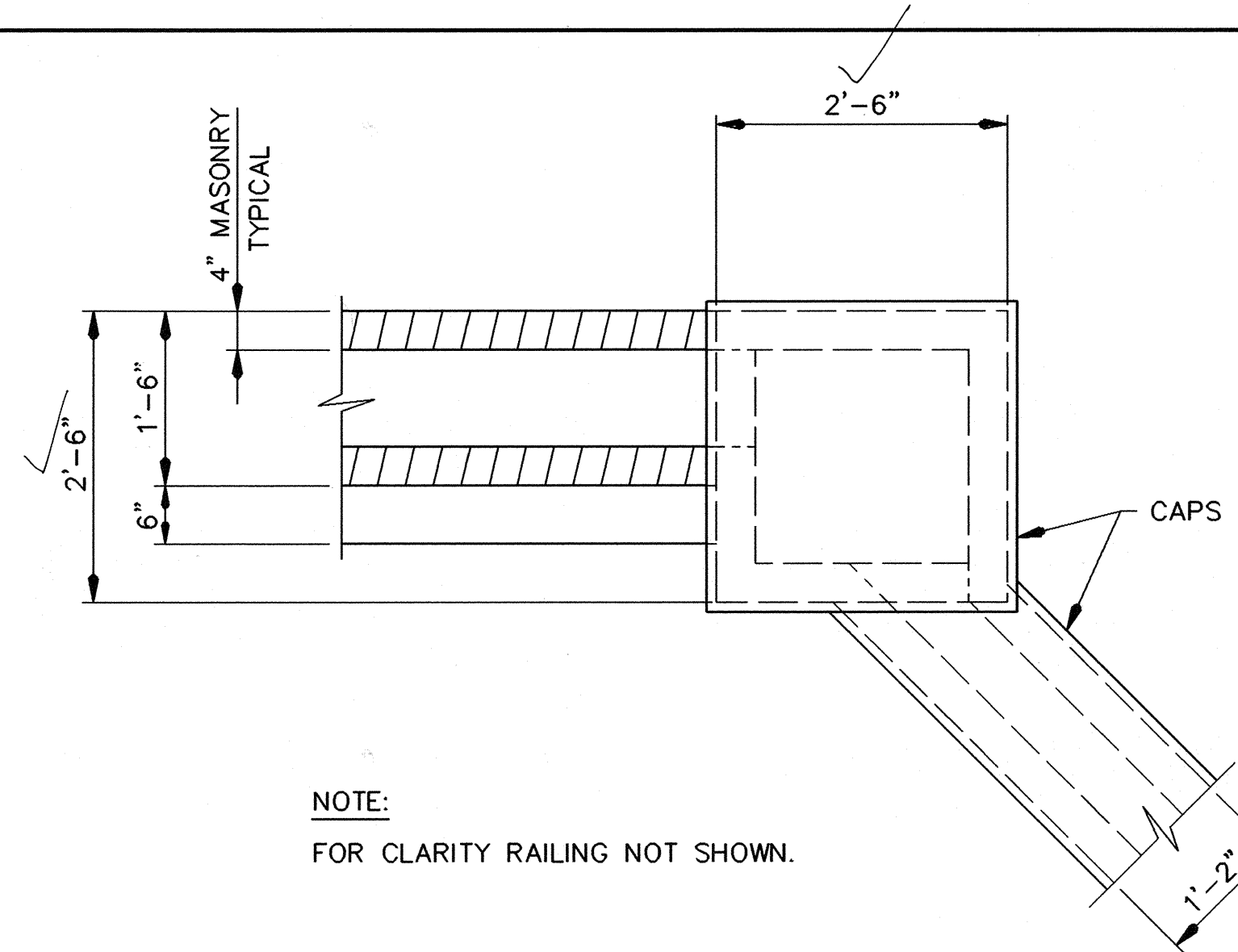
6/2/94
Date
James S. Lewis
Professional Engr. No.

11

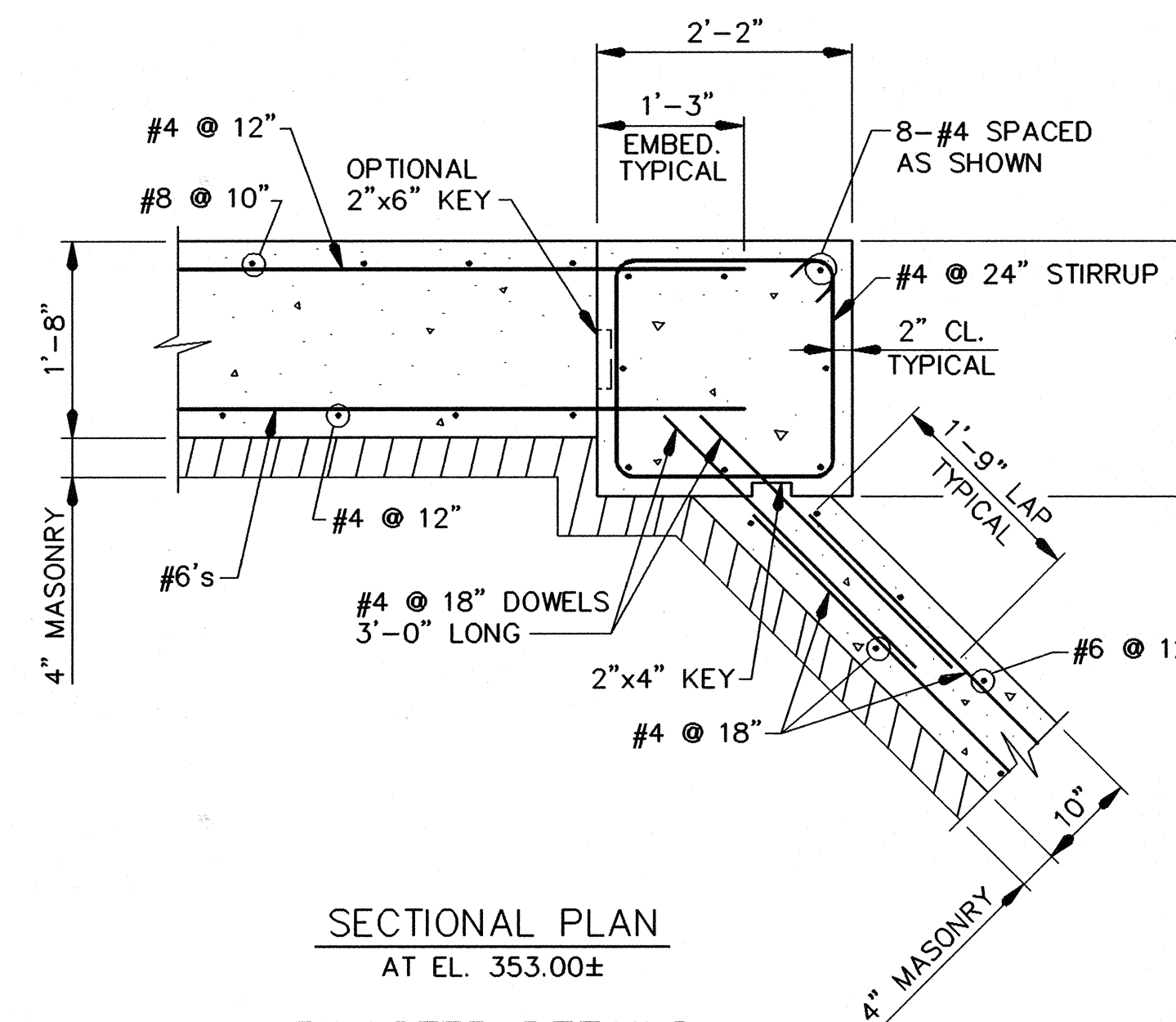


SECTION P-P

SCALE: 1/4"=1'-0"



DETAIL 'D'

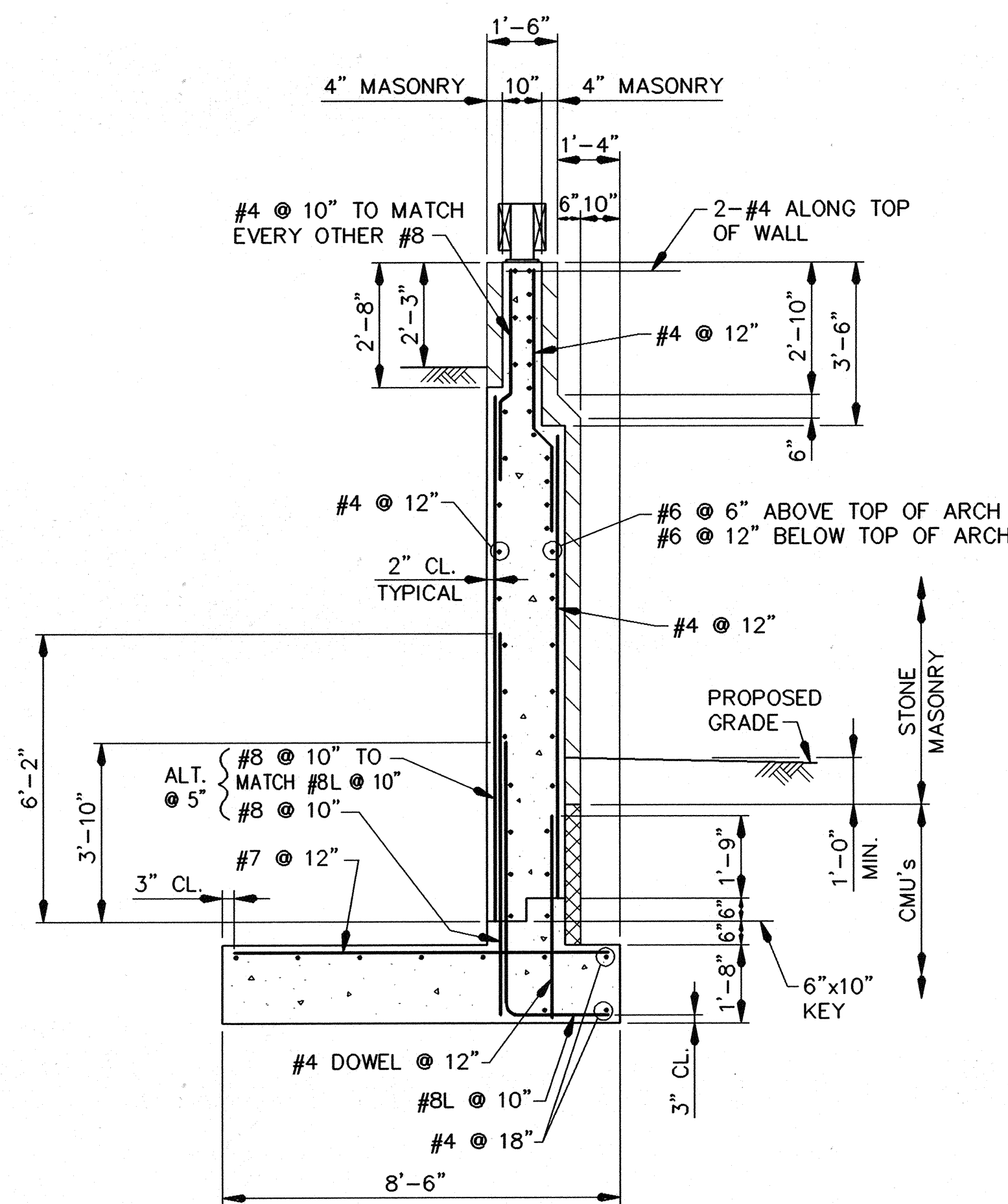


SECTIONAL PLAN

AT EL. 353.00±

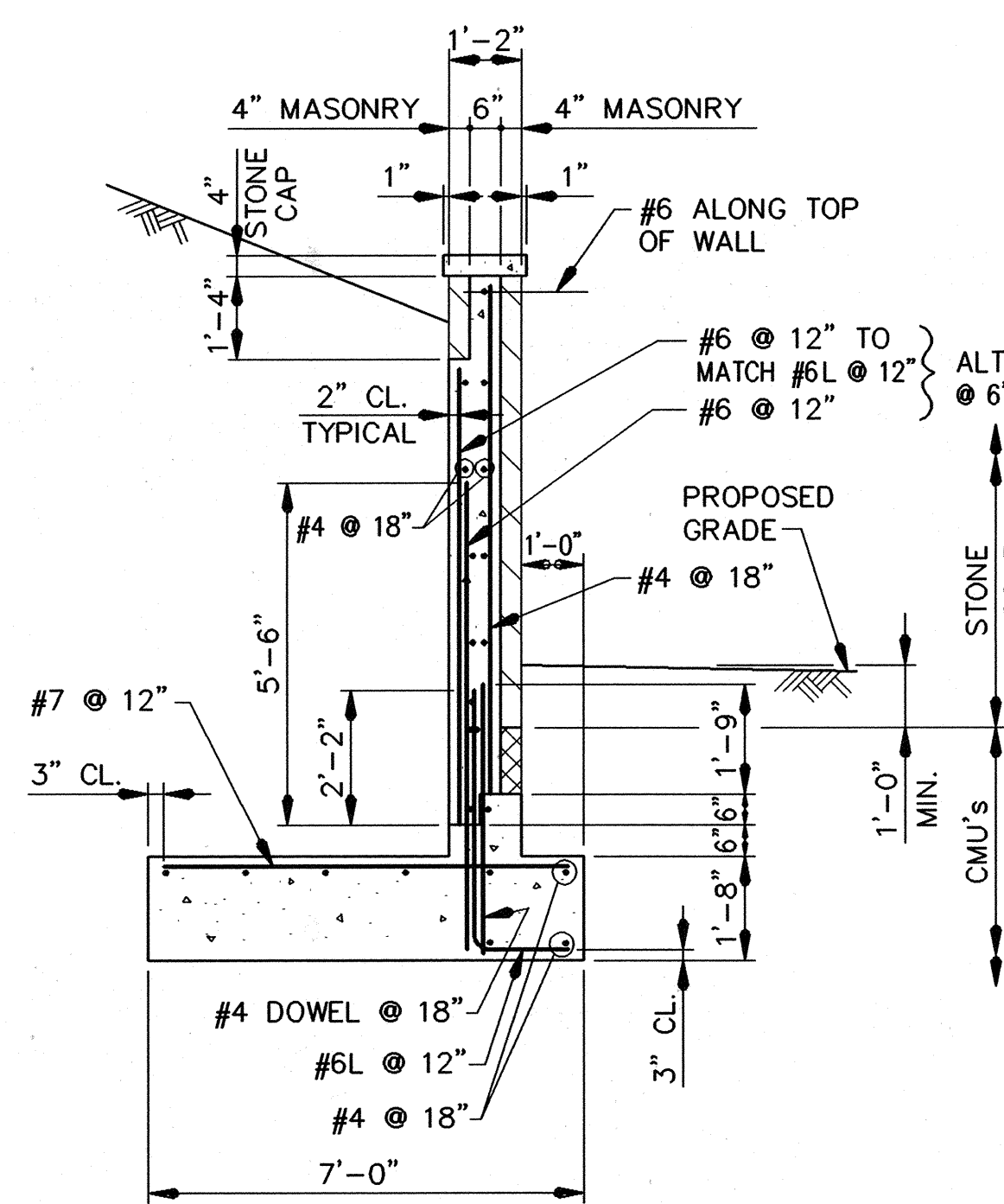
PILASTER DETAILS

SCALE: 3/4"=1'-0"



SECTION Q-Q

SCALE: 3/8"=1'-0"



SECTION R-R

SCALE: 3/8"=1'-0"

- NOTES:
- MORTAR FOR STONE MASONRY VENEER SHALL BE TYPE M IN ACCORDANCE WITH ASTM C270.
 - CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM STRENGTH OF 1,500 P.S.I. AND SHALL BE IN ACCORDANCE WITH ASTM C145 FOR SOLID UNITS.
 - STONE VENEER SHALL BE ANCHORED TO THE CONCRETE WALL WITH TIES SPACED AT 2' MAXIMUM AND SUPPORTING A MAXIMUM AREA OF 2 SQUARE FEET. ANCHOR TIES MAY BE EITHER #22x1" WIDE METAL STRIPS OR #9 WIRE. ANCHOR TIES MAY BE GALVANIZED OR STAINLESS STEEL.
 - FOOTINGS SHALL BE POURED AGAINST UNDISTURBED EARTH. BEARING CAPACITY OF THE FOUNDATION LAYER SHALL BE AT LEAST 3,200 P.S.F. FOR THE WALL FOOTINGS.
 - DIMENSIONS AND DETAILS NOT SHOWN SHALL BE SIMILAR TO THE STRUCTURAL PLATE ARCH.



AS-BUILT
G. Scott Shanaberger 11/24/95
 G. SCOTT SHANABERGER DATE
 PROF. L.S. # 10884
 SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

James P. Shanahan 6/20/94
 CHIEF, BUREAU OF HIGHWAYS DATE
Robert J. Spain 6/20/94
 CHIEF, BUREAU OF ENGINEERING DATE
Bill Daumus 6/20/94
 CHIEF, LAND DEVELOPMENT DIVISION DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Gina Surinny 6/21/94
 CHIEF, LAND DEVELOPMENT AND RESEARCH DATE

| DATE | NO. | Revision Description |
|------|-----|----------------------|
| | | |

HARPER'S CHOICE
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
 THE ROUSE COMPANY
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

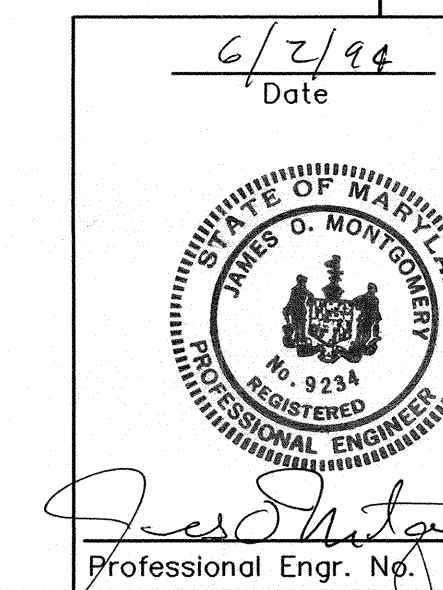
S-8

WALLACE, MONTGOMERY & ASSOCIATES
 ENGINEERS
 110 WEST ROAD
 TOWSON, MARYLAND 21044

AREA SECTION 5 AREA 9 PHASE 2
 TAX MAP 29 PARCEL 126
 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

C.S. PIPE ARCH
SECTIONS AND DETAILS

Des By: G.C.N. Scale: AS SHOWN Proj. No.: 92023
 Dwn By: S.W.S. Date: APR., 1994
 Chk By: J.O.M. Approved: 18 OF 19



6/21/94
 Date
James P. Shanahan
 Professional Engr. No.

| BAR SIZE | * LOCATION CATEGORY | | |
|----------|---------------------|--------|--------|
| | A | B | C |
| #4 | 2'-5" | 1'-9" | 1'-9" |
| #5 | 3'-0" | 2'-2" | 1'-9" |
| #6 | 3'-9" | 2'-7" | 2'-2" |
| #7 | 5'-0" | 3'-7" | 2'-10" |
| #8 | 6'-8" | 4'-8" | 3'-10" |
| #9 | 8'-3" | 5'-10" | 4'-8" |
| #10 | 10'-4" | 7'-5" | 6'-0" |
| #11 | 12'-9" | 9'-2" | 7'-5" |

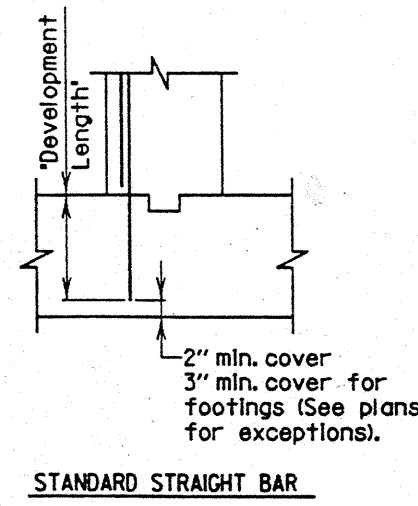
*** LOCATION CATEGORY**

- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as the footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6 inches apart.
- C - All bars not in Category A spaced 6 inches or more apart.

Note:
1. When bar lap is not specified on the plans, the above dimensions shall be used.
2. These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
3. These bar laps only apply where the General Notes indicate Reinforcing Steel Design, fs=24,000 p.s.i.

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| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT |
| DATE: 4/30/91 | BAR LAP DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3 (3500 P.S.I.) CONCRETE NON-EPOXY COATED REINFORCING |
| REVISIONS | |
| DATE: 2-2-90 | |
| DATE: 6-8-90 | |

STANDARD NO. MW(07)-81-127 SHEET 1 OF 3



| BAR SIZE | * LOCATION CATEGORY | | |
|----------|---------------------|-------|-------|
| | A | B | C |
| #4 | 1'-5" | 1'-0" | 1'-0" |
| #5 | 1'-9" | 1'-3" | 1'-0" |
| #6 | 2'-2" | 1'-6" | 1'-3" |
| #7 | 2'-11" | 2'-1" | 1'-8" |
| #8 | 3'-11" | 2'-9" | 2'-3" |
| #9 | 4'-10" | 3'-5" | 2'-9" |
| #10 | 6'-1" | 4'-4" | 3'-5" |
| #11 | 7'-6" | 5'-4" | 4'-4" |

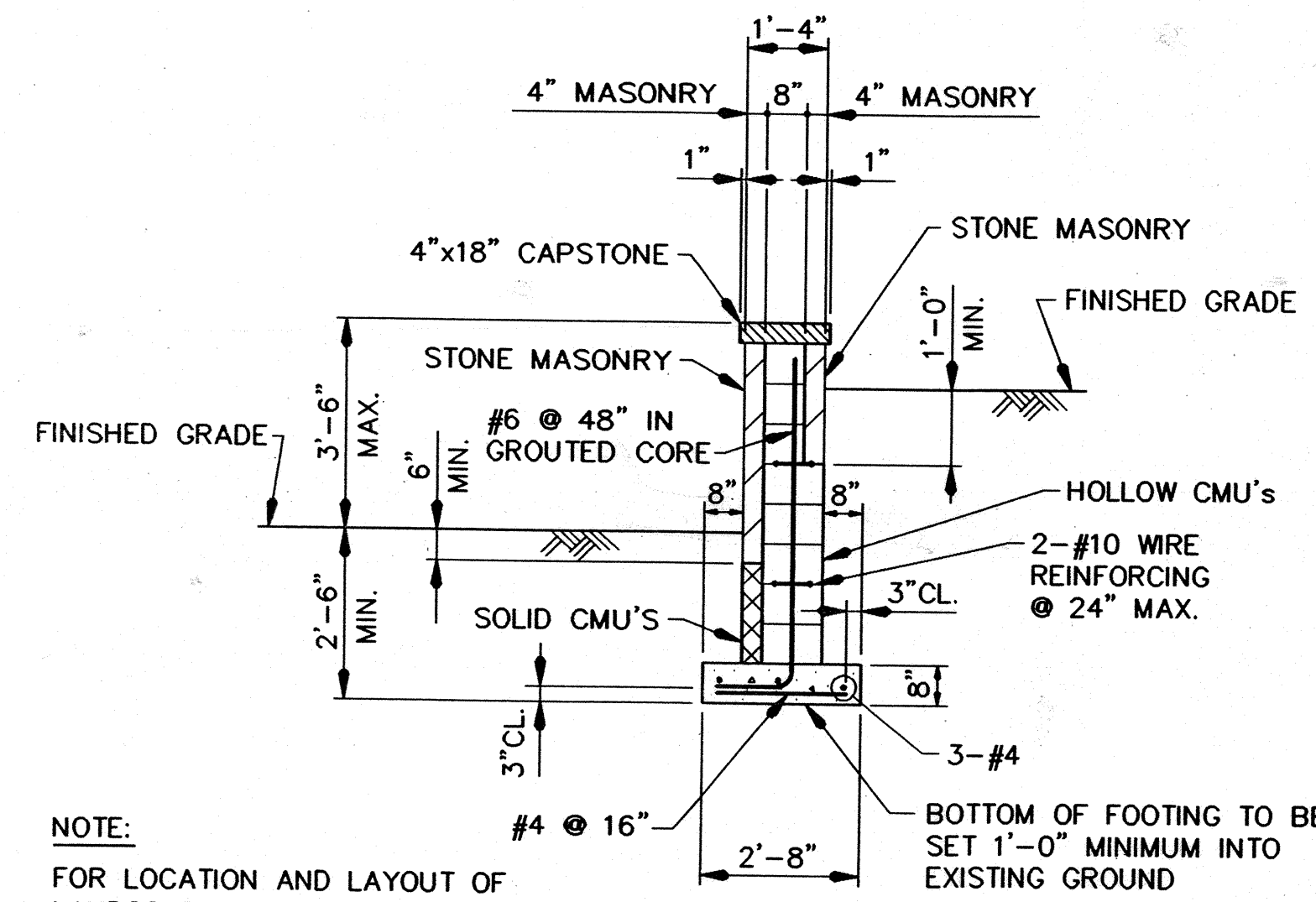
*** LOCATION CATEGORY:**

- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6" apart.
- C - All bars not in Category A spaced 6 inches or more apart with at least 3" clear cover measured in the direction of the spacing.

Note:
1. When development length is not specified on the plans, the above dimensions shall be used.
2. These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
3. These development lengths only apply where the General Notes indicate Reinforcing Steel Design, fs=24,000 p.s.i.
4. If depth of member does not allow bar development length indicated in Categories A, B, and C then hook shall be added to all bars not conforming as per B, C, and F per Std. No. MW(08)-86-178.

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| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT |
| DATE: 2/2/90 | DEVELOPMENT LENGTH DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3 (3500 P.S.I.) CONCRETE NON-EPOXY COATED REINFORCING |
| REVISIONS | |
| DATE: 6-8-90 | |
| DATE: 12-9-93 | |

STANDARD NO. MW(14)-90-214 SHEET 1 OF 3

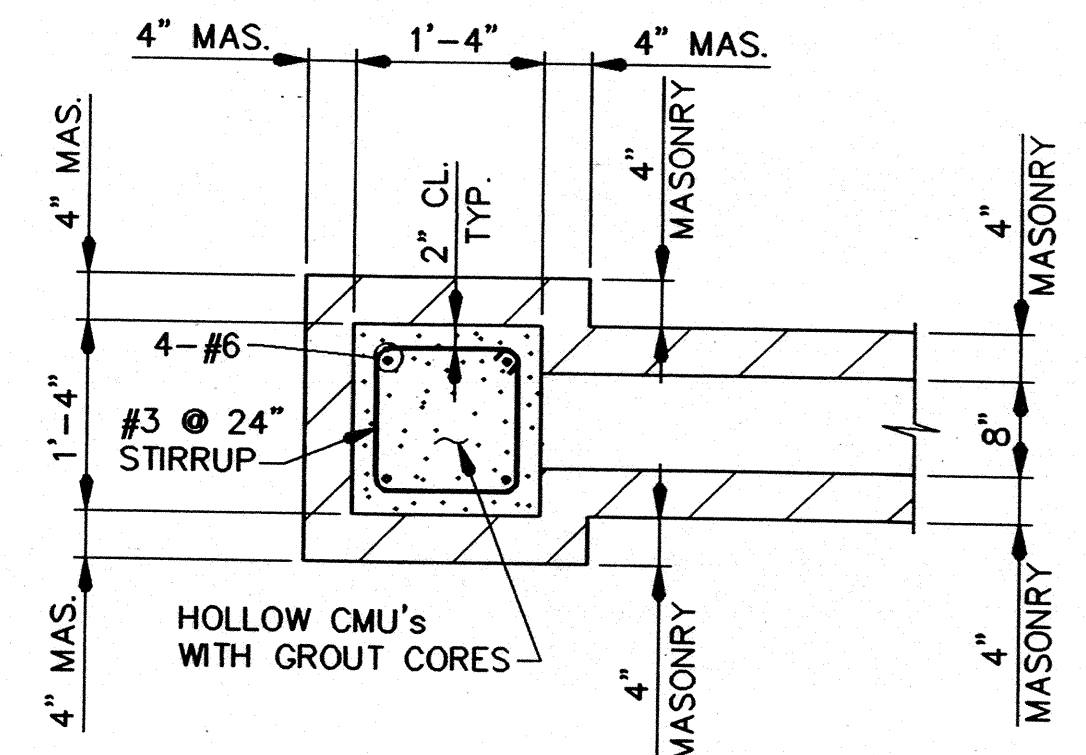


NOTE:
FOR LOCATION AND LAYOUT OF LANDSCAPE WALLS, SEE DRAWING

TYPICAL SECTION
SCALE: 3/8"=1'-0"

NOTES:

- MORTAR SHALL BE TYPE M IN ACCORDANCE WITH ASTM C270.
- CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM STRENGTH OF 1,500 P.S.I. AND SHALL BE IN ACCORDANCE WITH ASTM C90 FOR HOLLOW UNITS AND ASTM C 145 FOR SOLID UNITS.
- CORES CONTAINING REINFORCING STEEL SHALL BE GROUTED SOLID. GROUT SHALL HAVE A MINIMUM STRENGTH OF 2,000 P.S.I.
- PREFABRICATED JOINT REINFORCEMENT SHALL BE TRUSS TYPE AND IN ACCORDANCE WITH ASTM A82.
- STONE VENEER SHALL BE ANCHORED TO CMU WALL WITH TIES SPACED AT 2' MAXIMUM AND SUPPORTING A MAXIMUM AREA OF 2 SQUARE FEET. ANCHOR TIES MAY BE EITHER #2x1" WIDE METAL STRIPS OR #9 WIRE. ANCHOR TIES MAY BE GALVANIZED OR STAINLESS STEEL.
- FOOTINGS SHALL BE POURED AGAINST UNDISTURBED EARTH AT LEAST 1' BELOW EXISTING GROUND. BEARING CAPACITY OF THE FOUNDATION LAYER SHALL BE AT LEAST 2,000 P.S.F.

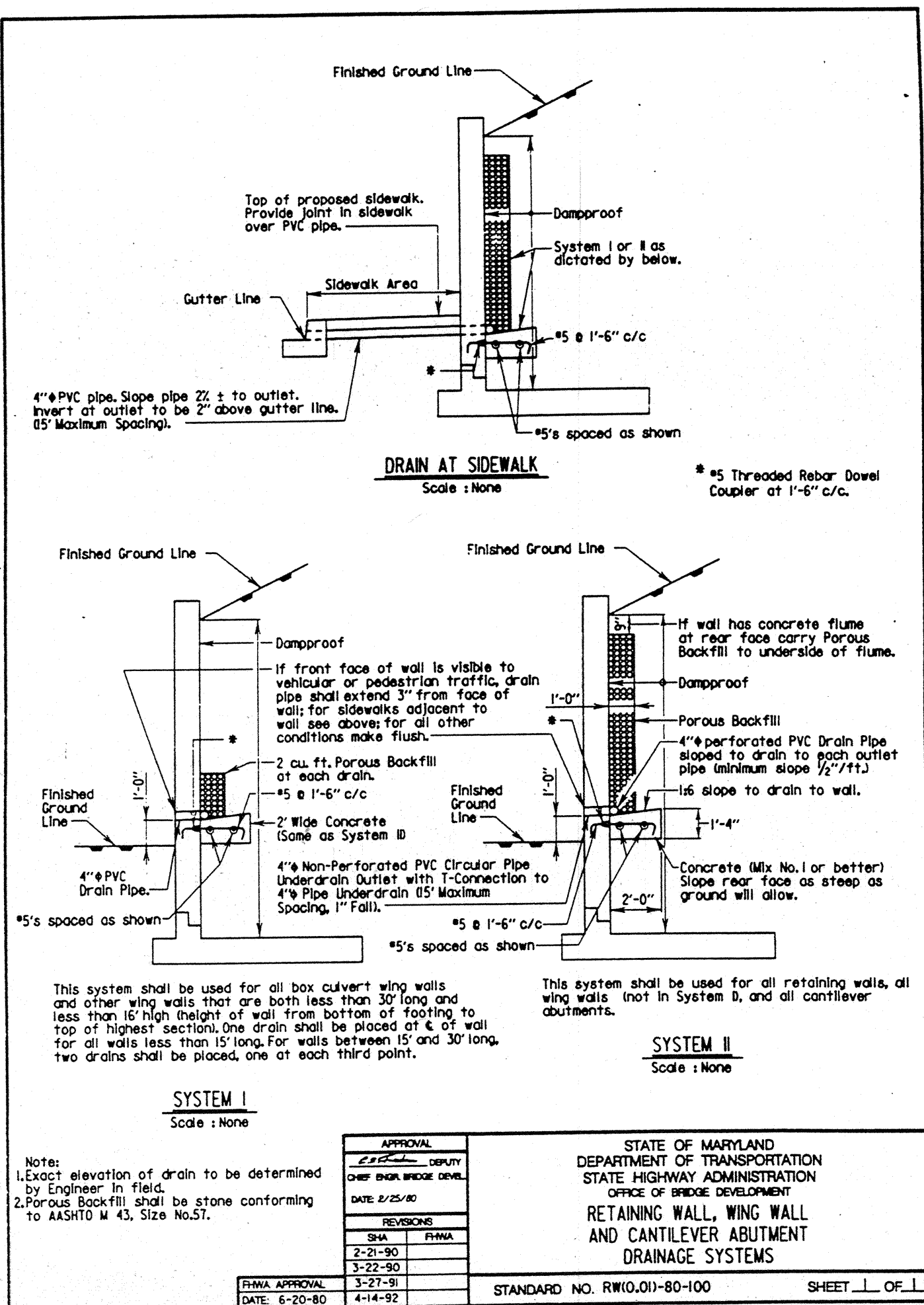


SECTIONAL PLAN OF PILASTER
SCALE: 3/4"=1'-0"

NOTE:

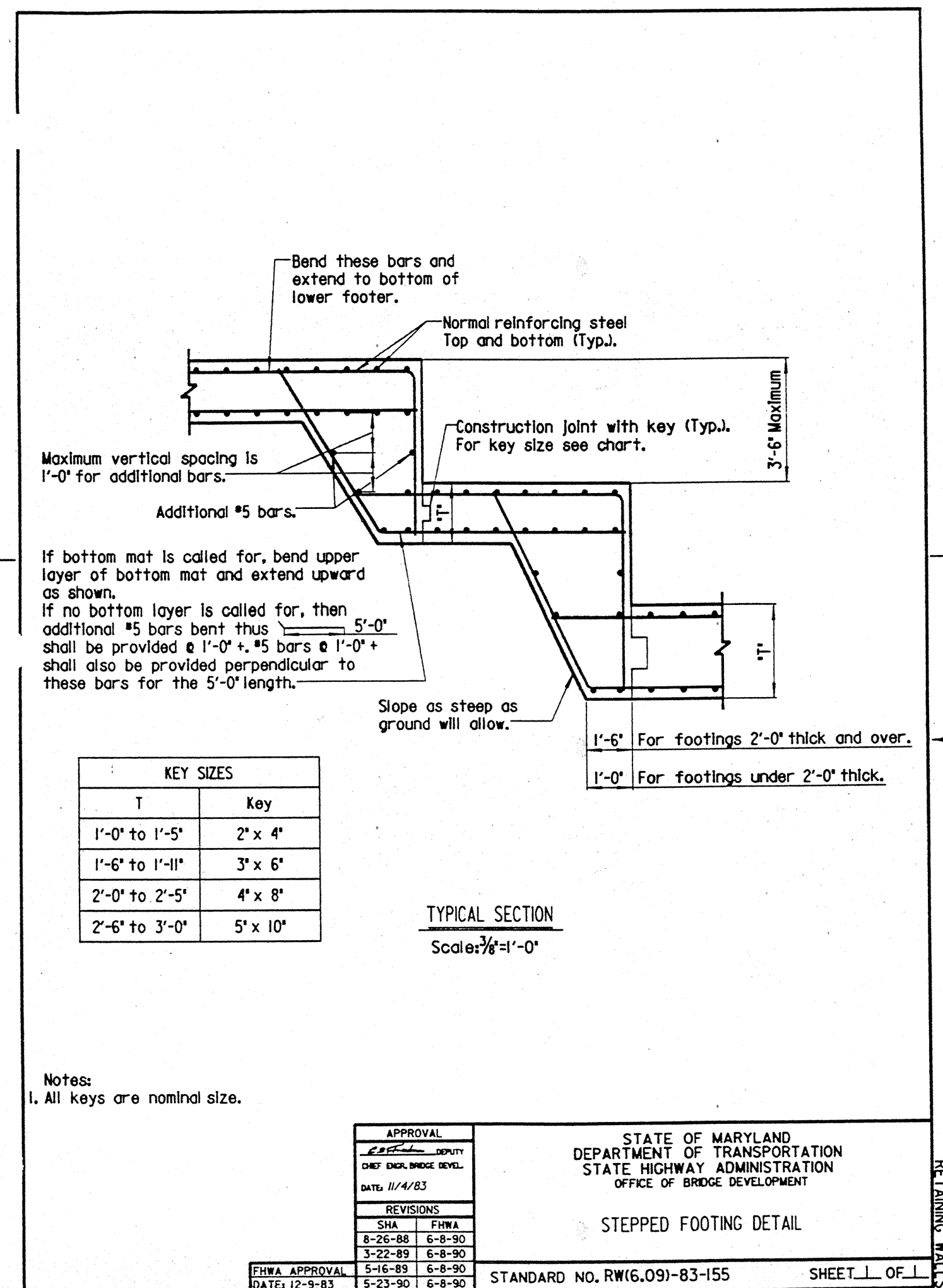
FOR LOCATION OF LANDSCAPE WALL, SEE SHEET 3 OF 18.

LANDSCAPE WALL



| | |
|---------------|---|
| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT |
| DATE: 2/2/90 | RETAINING WALL, WING WALL AND CANTILEVER ABUTMENT DRAINAGE SYSTEMS |
| REVISIONS | |
| DATE: 3-22-90 | |
| DATE: 6-8-90 | |
| DATE: 12-9-93 | |

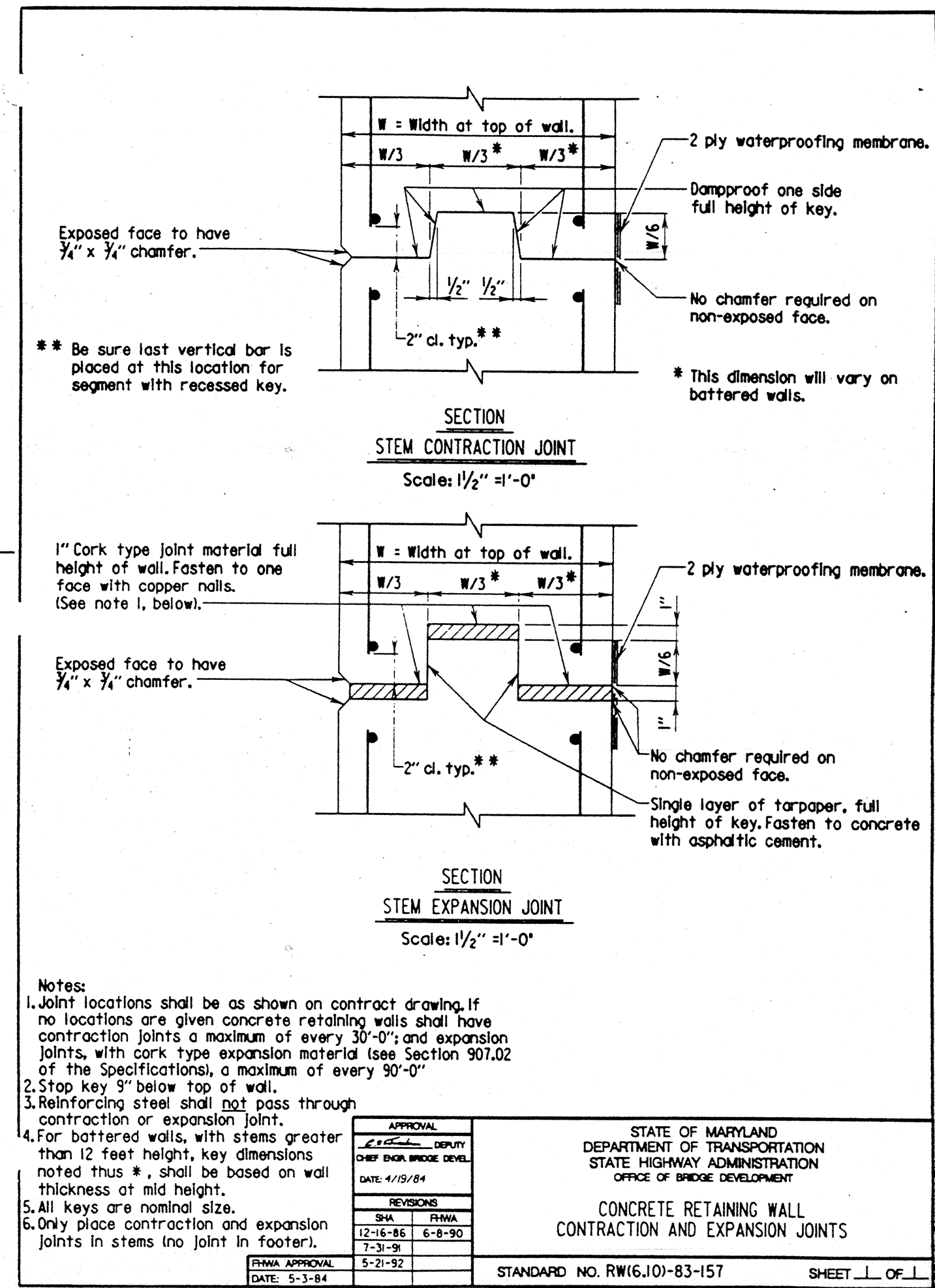
STANDARD NO. RW(01)-80-100 SHEET 1 OF 1



Notes:
1. All keys are nominal size.

| | |
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| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT |
| DATE: 11/4/83 | STEPPED FOOTING DETAIL |
| REVISIONS | |
| DATE: 6-8-90 | |
| DATE: 12-9-93 | |

STANDARD NO. RW(6,09)-83-155 SHEET 1 OF 1



Notes:
1. Joint locations shall be as shown on contract drawing. If no locations are given concrete retaining walls shall have contraction joints at a maximum of every 30'-0" and expansion joints with cork type expansion material (see Section 907.02 of the Specifications), a maximum of every 90'-0".
2. Stop key 3" below top of wall.
3. Reinforcing steel shall not pass through contraction or expansion joint.
4. For battered walls, with stems greater than 12 feet height, key dimensions noted thus #, shall be based on wall thickness at mid height.
5. All keys are nominal size.
6. Only place contraction and expansion joints in stems in footers.

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| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT |
| DATE: 4/19/84 | CONCRETE RETAINING WALL CONTRACTION AND EXPANSION JOINTS |
| REVISIONS | |
| DATE: 12-16-86 | |
| DATE: 6-8-90 | |
| DATE: 5-23-92 | |

STANDARD NO. RW(6,10)-83-157 SHEET 1 OF 1

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
James J. ... 6/20/94
 CHIEF, BUREAU OF HIGHWAYS
Robert ... 6/20/94
 CHIEF, BUREAU OF ENGINEERING
John ... 6/20/94
 CHIEF, LAND DEVELOPMENT DIVISION

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
China ... 6/21/94
 CHIEF, LAND DEVELOPMENT AND RESEARCH

| DATE | NO. | Revision Description |
|------|-----|----------------------|
|------|-----|----------------------|

HARPER'S CHOICE
OWNER / DEVELOPER
 THE HOWARD RESEARCH & DEVELOPMENT CORP.
 THE ROUSE COMPANY
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

WALLACE, MONTGOMERY & ASSOCIATES
 ENGINEERS
 110 WEST ROAD
 TOWSON, MARYLAND 21204

AREA SECTION 5 AREA 9 PHASE 2
 TAX MAP 29 PARCEL 126
 5th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
MISCELLANEOUS DETAILS
 Des By: C.C.N. Scale: AS SHOWN Proj. No.: 92023
 Dwn By: S.W.S. Date: APR., 1994
 Chk By: J.O.M. Approved: 19 OF 19

6/2/94
 Date
 Professional Engr. No. *James S. ...*