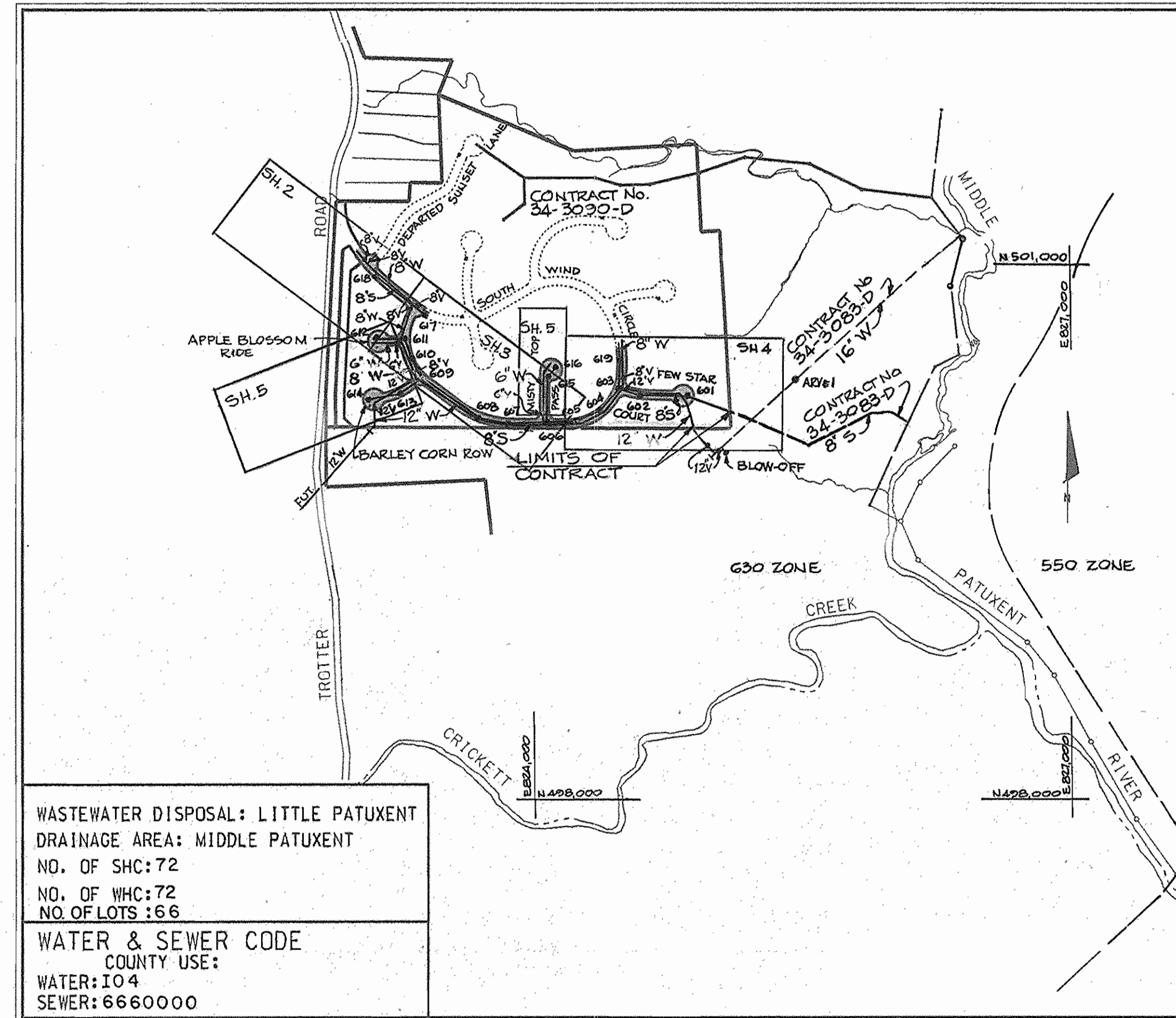


QUANTITIES			
ITEM	BID	AS-BUILT	MATERIAL/SUPPLIER
8" SEWER	3370 LF	3223 L.F.	CHARLOTTE
8" DIP SEWER	250 LF	252 L.F.	GRIFFIN
SEWER MANHOLES	19	19	ATLANTIC CONC.
DROP CONN @ MH	2	2	CHARLOTTE
4" S.H.C.	2120 LF	2282 L.F.	PVC CHARLOTTE D.P. GRIFFIN
4" S.H. DROP CONN.	50 Y.F.	43.0 K.F.	" "
6" S.H.C.	50 LF	52.0 L.F.	CHARLOTTE
12" WATER	2330 LF	2333 L.F.	GRIFFIN
8" WATER	1230 LF	1220 L.F.	" "
6" WATER	550 LF	653 L.F.	" "
2" AIR RELEASE V.	1	1	
FIRE HYDRANT	7	7	KENNEDY
12" V.	3	3	M&H
8" V.	6	6	2 M&H 1 KENNEDY
6" V (EXCEPT FH)	2	2	KENNEDY
3/4" W.H.C.	1400 LF	1840 L.F.	CAMBRIDGE LEE
1" W.H.C.	570 LF	528.5 L.F.	" "

* M&H VALVES ARE NOTED ON DRAWING



WASTEWATER DISPOSAL: LITTLE PATUXENT
DRAINAGE AREA: MIDDLE PATUXENT
NO. OF SHC: 72
NO. OF W.H.C.: 72
NO. OF LOTS: 66

WATER & SEWER CODE
COUNTY USE:
WATER: IO 4
SEWER: 6660000

VICINITY MAP

SCALE: 1" = 600'

CONTRACT NO. 34-3084-D
VILLAGE OF RIVER HILL
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

GENERAL NOTES

- APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SUPPLY. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
- ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES.
- ALL VERTICAL CONTROLS ARE BASED ON U.S.G.S. DATUM.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 6". CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED.
- FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS USED HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 1990 ADDENDUM, THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL [] AT THE LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE VERIFIED BY THE CONTRACTOR TO HIS OWN SATISFACTION. ANY DAMAGE TO EXISTING FACILITIES DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
 - STATE HIGHWAY ADMINISTRATION - 531-5533
 - BALTIMORE GAS AND ELECTRIC CO. - CONTRACTOR SERVICES - 850-4620
 - BALTIMORE GAS AND ELECTRIC CO. - UNDERGROUND DAMAGE CONTROL - 859-9004
 - BALTIMORE GAS AND ELECTRIC CO. - TROUBLE SHOOTING - 298-9001
 - MISS UTILITY - 1-800-257-7777
 - COLONIAL PIPELINE CO. - 795-1390/C&P TELEPHONE CO. - 1-800-257-7777
 - BUREAU OF UTILITIES HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 313-4900
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO A MAXIMUM EXTENT. TREES AND SHRUBS, LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION.
- ALL WATER MAINS TO BE D.I.P. CLASS 52 UNLESS OTHERWISE NOTED.
- ALL D.I.P. FITTINGS SHALL BE IN ACCORDANCE WITH AWWA SPECIFICATIONS C-158 DUCTILE IRON COMPACT FITTINGS, 3-INCH THROUGH 12-INCH FOR WATER AND OTHER LIQUIDS.
- TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3'-1/2' COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED AND ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE STRAPPED AND BUTTRESSED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS. SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- ALL WATER HOUSE CONNECTIONS SHALL BE FOR INSIDE METER SETTINGS, UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS.
- ALL W.H.C.'S SHALL BE 3/4" UNLESS OTHERWISE NOTED.
- ALL SEWER MAINS TO BE D.I.P. OR P.V.C. UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL SEWER MAINS WITHIN 2'-0" OF EXTERIOR MANHOLE WALL.
- ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVERS, STANDARD DETAIL G5-52. WHERE WATERTIGHT MANHOLE FRAME AND COVER IS USED SET TOP OF FRAME 1.5' ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON DRAWINGS.
- STRAW BALE DIKE AND SILT FENCE ARE INTERCHANGEABLE.
- FOR MANHOLES IN OPEN SPACE OR OUTFALL, SET TOP OF FRAME 1.5' ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON DRAWINGS.
- SEWER HOUSE CONNECTIONS SHALL BE 4" PIPE, EXCEPT WHERE OTHERWISE SHOWN.

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENT
James M. [Signature] 4/12/91
U.S. SOIL CONSERVATION SERVICE

This Development plan is approved for Soil Erosion and Sediment Control by the Howard County Conservation District APPROVED
[Signature] 4/10/91
HOWARD S.C.D.

Sediment Control Measures for this Contract will be implemented in accordance with Section 219 of the Standard Specifications, and as per road construction plans F-91-91

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
[Signature] 4-16-91
DIRECTOR OF PUBLIC WORKS - DATE
[Signature] 4-8-91
CHIEF-BUREAU OF UTILITIES - DATE

WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS
2315 ST. PAUL ST.
BALTIMORE, MARYLAND
[Signature]
James A. [Signature]

DES: E.J.M.	
DRN: E.J.M.	
CHK: R.B.N.	
DATE: 10-24-90	

VICINITY MAP AND GENERAL NOTES
600' SCALE MAP NO. 35

COLUMBIA VILLAGE OF RIVER HILL SECTION 1 AREA 3 PHASE II ELECTION DISTRICT NO. 5 CONTRACT NO. 34-3084-D

SCALE AS SHOWN
SHEET 1 OF 2

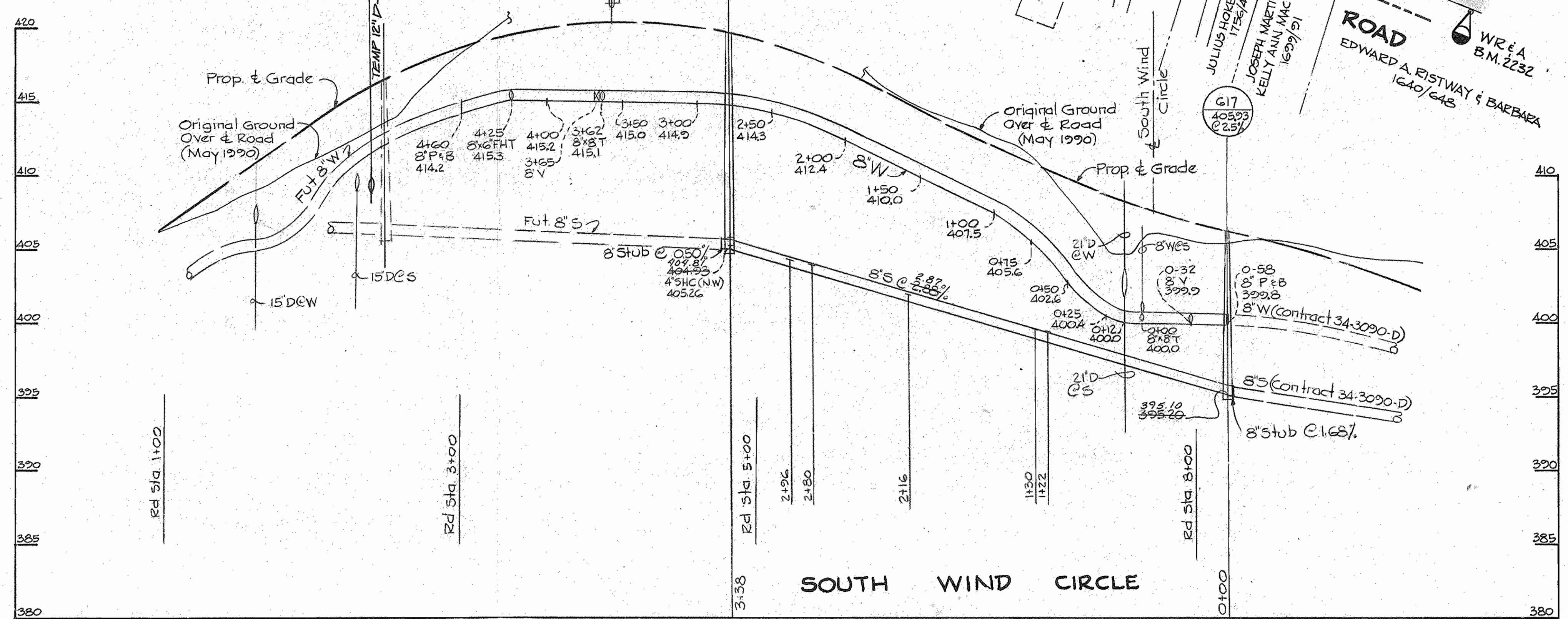
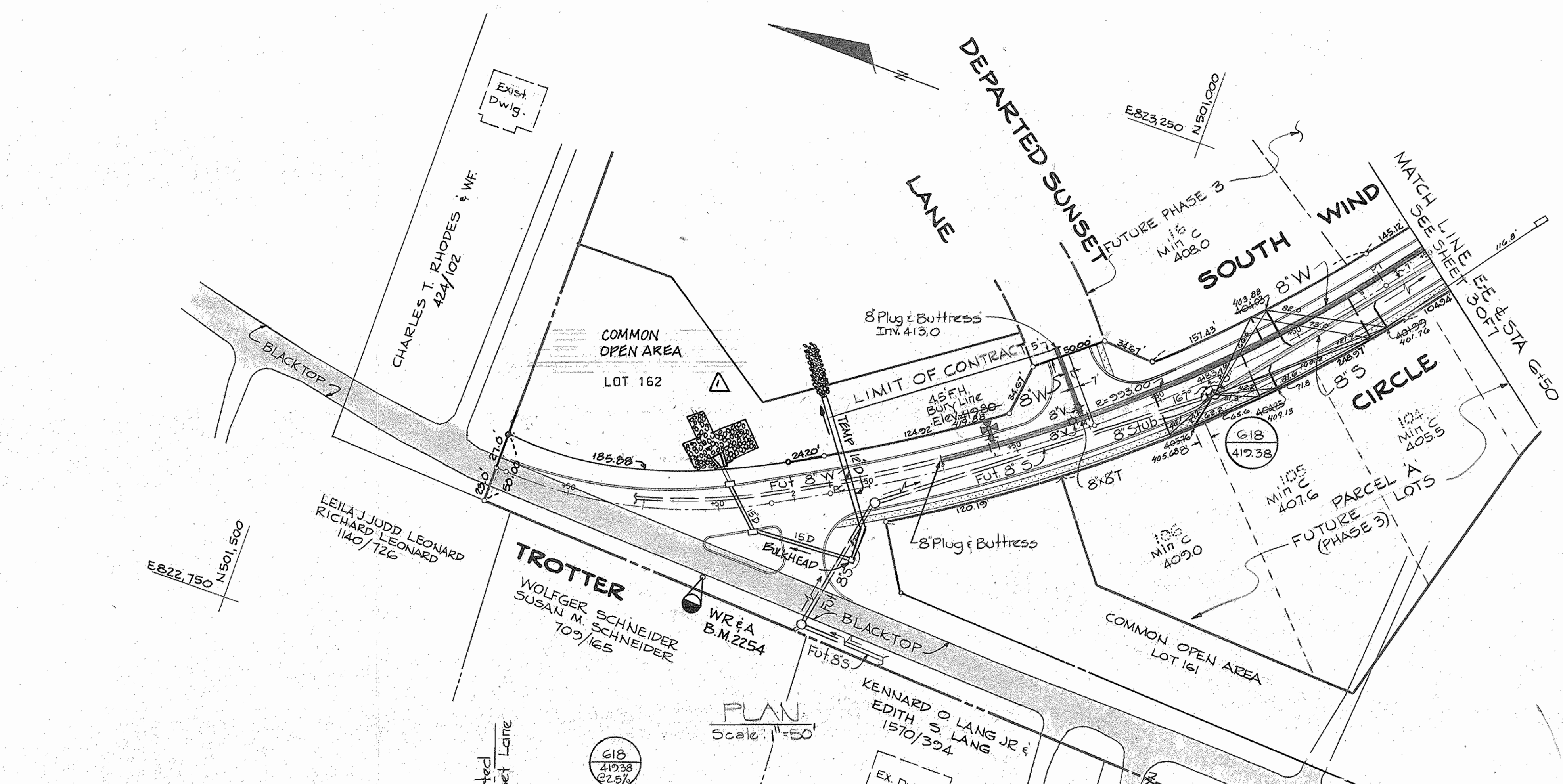
AS-BUILT COMPLETED 11-13-91

BENCH MARKS

WR&A No. M2254 Elev. 409.00
Cap And Rebar At West Side Edge of Trotter Road Approx. 175 Feet South of Existing Driveway (Rhodes Property)

WR&A No. M2232 Elev. 430.43
Cap And Rebar At West Side Edge of Trotter Road Approx. 28 Feet From G & E Power Pole No. 170221

NOTE:
Sewer, Water Mains And Services On South Wind Circle Between Rd. Sta. 4400 And 8+21 Will Be Placed In Service With Contract No 34-3090-D



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

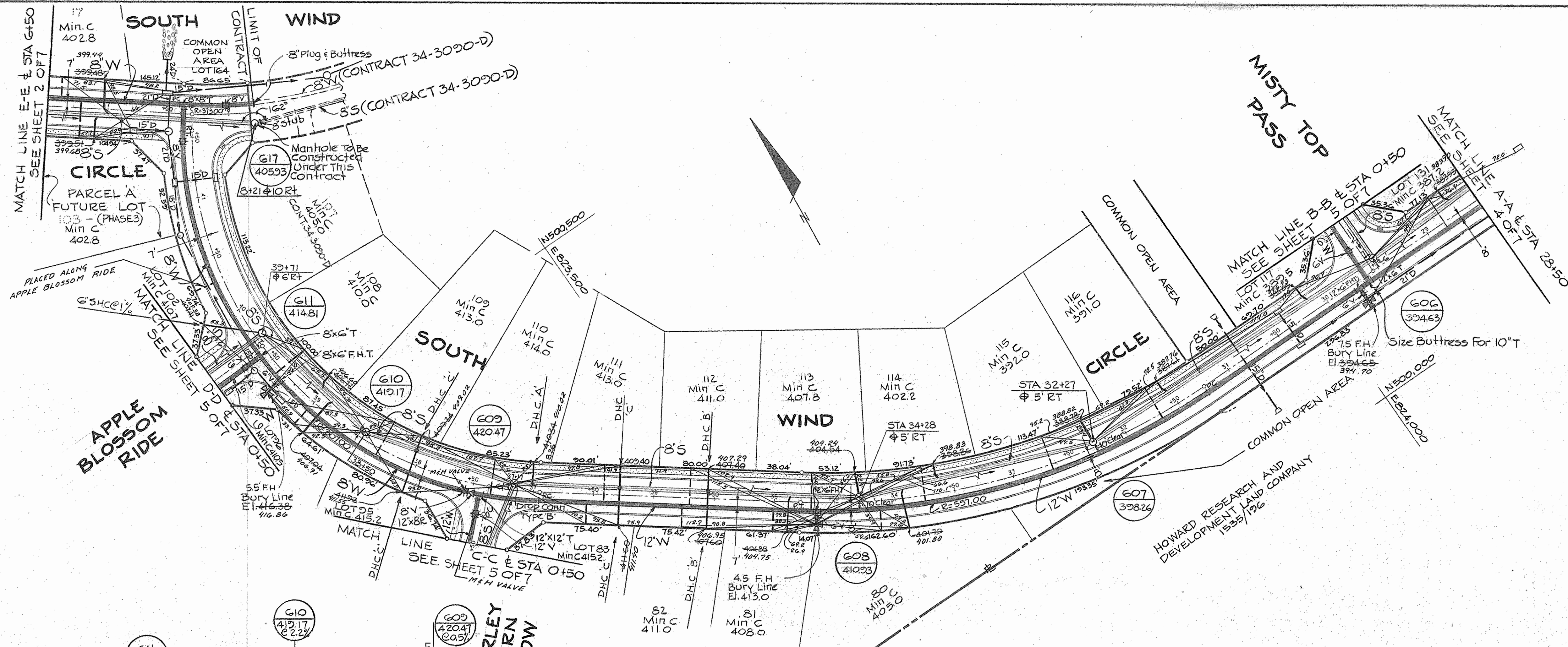
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Acting DIRECTOR OF PUBLIC WORKS - DATE 4/17/91
Robert Beiser 4-8-91
CHIEF-BUREAU OF UTILITIES - DATE
CHIEF-LAND DEVELOPMENT DIVISION - DATE

WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS
2315 ST. PAUL ST.
BALTIMORE, MARYLAND

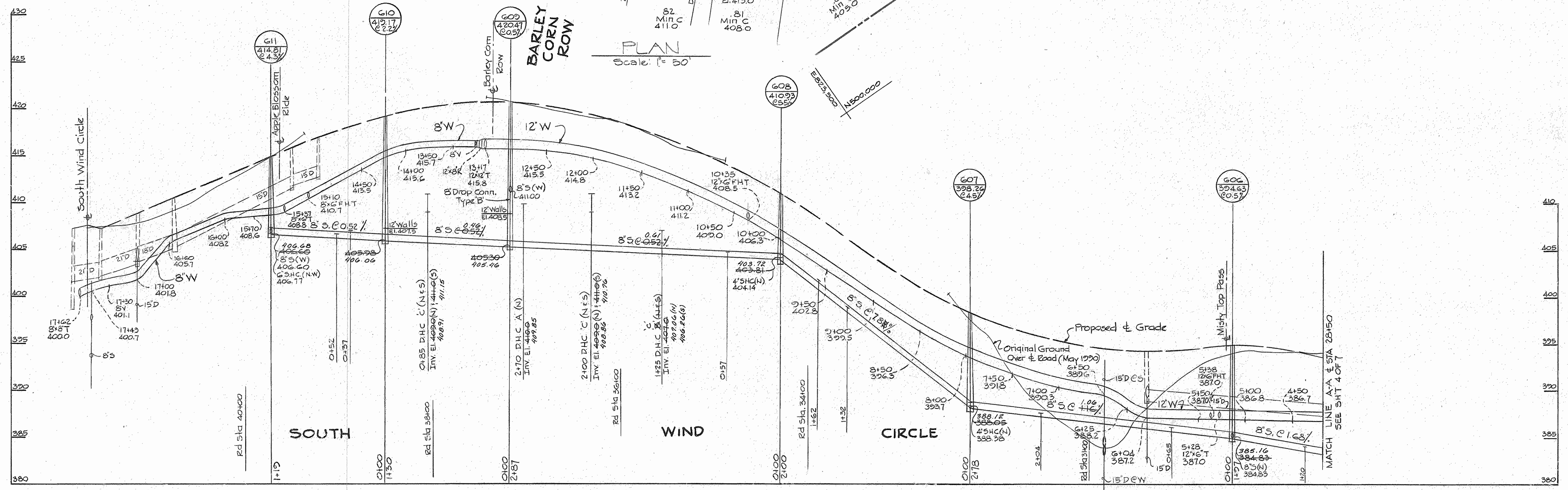
DES: E. J. M.	
DRN: E. J. M.	
CHK: R. B. H.	
DATE: 10-24-90	
BY: [Signature]	NO. []
REVISION	DATE
REV: EAST R/W Line at Trotter Rd	8/16/91
REV: SP Inside Lot 164 Add 12' Top	8/16/91

PLAN AND PROFILE OF WATER AND SEWER MAINS

COLUMBIA VILLAGE OF RIVER HILL
SECTION 1 AREA 3 PH. II
ELECTION DISTRICT NO. 5
CONTRACT NO. 34-3084-D



PLAN
Scale: 1" = 50'



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

35-500-824
35-500-825.5

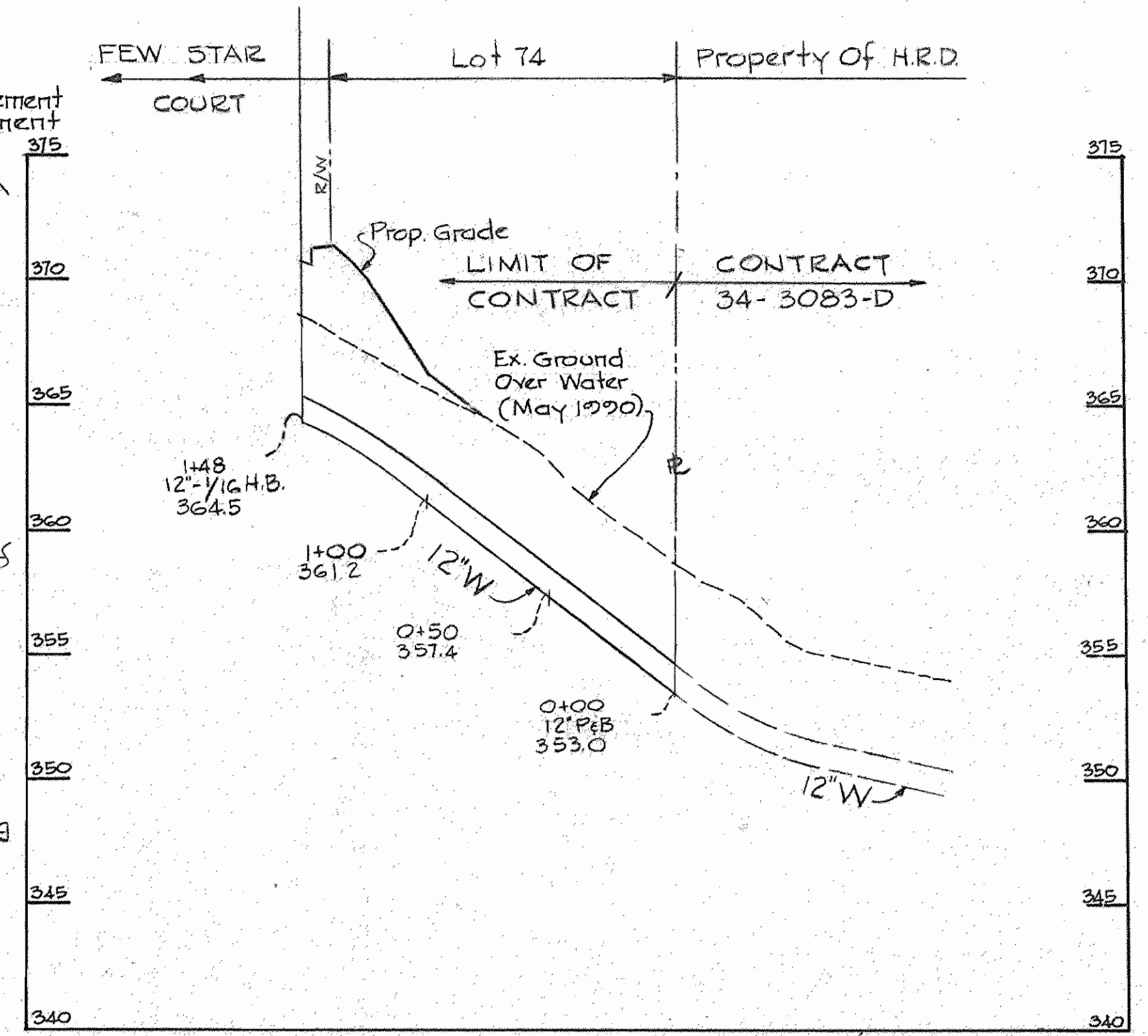
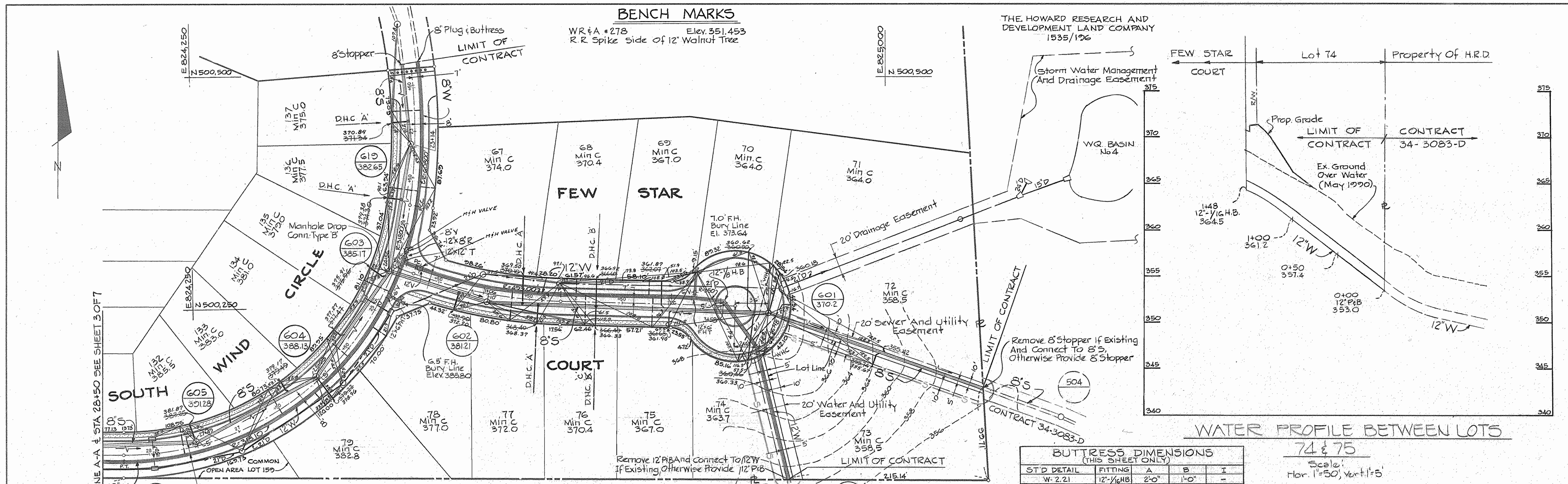
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Donald J. ...
 Acting Director of Public Works - DATE 4/17/91
Robert W. ...
 Chief - Bureau of Utilities - DATE 4-8-91
...
 Chief - Land Development Division - DATE

WHITMAN, REQUARDT
AND ASSOCIATES
ENGINEERS
James A. ...
 2315 ST. PAUL ST.
BALTIMORE, MARYLAND
James A. ...

DES: E.J.M.			
DWN: E.J.M.			
CHK: R.B.N.			
DATE: 10-24-90	EJM	1	REV. Elev. As Shown At Sta 15+37, 15+70, 5+281 5+36
BY	NO.	REVISION	DATE

PLAN AND PROFILE OF
WATER AND SEWER MAINS

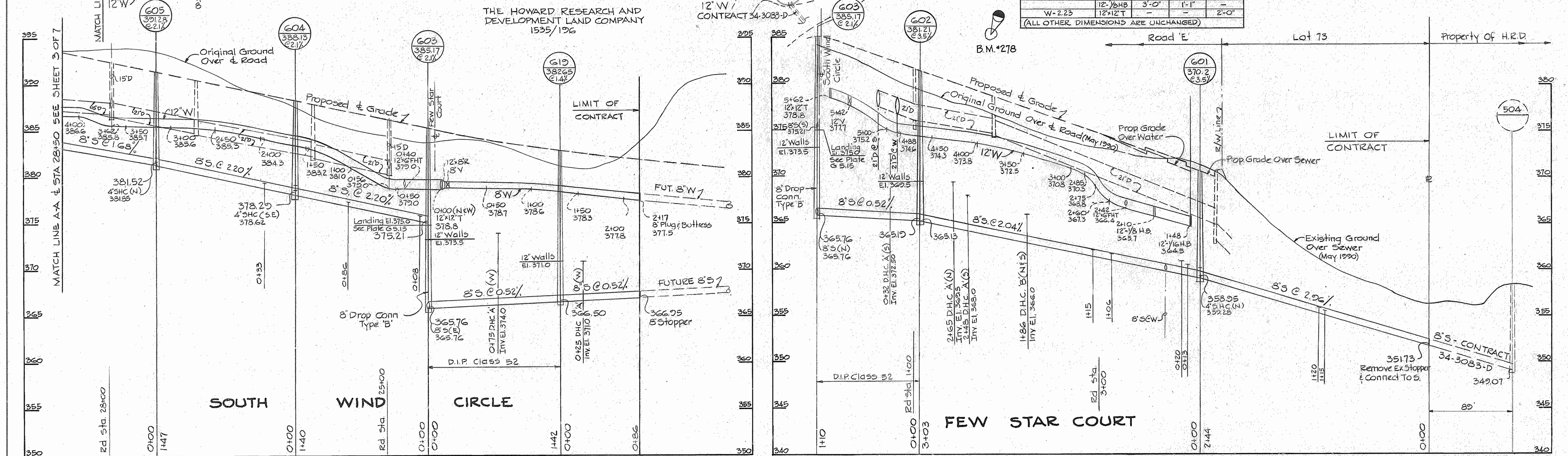
COLUMBIA
VILLAGE OF RIVER HILL
SECTION 1 AREA 3 PH. II
ELECTION DISTRICT NO. 5
CONTRACT NO. 34-3084-D
 SCALE AS SHOWN
 SHEET 3 OF 7
 AS-BUILT
 COMPLETED 11-13-91
 3-27-91



BUTRESS DIMENSIONS (THIS SHEET ONLY)

STD DETAIL	FITTING	A	B	I
W-2.21	12"-1/4" H.B.	2'-0"	1'-0"	-
W-2.23	12"-1/2" H.B.	3'-0"	1'-1"	-
	12"-1/2" T	-	-	2'-0"

(ALL OTHER DIMENSIONS ARE UNCHANGED)



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

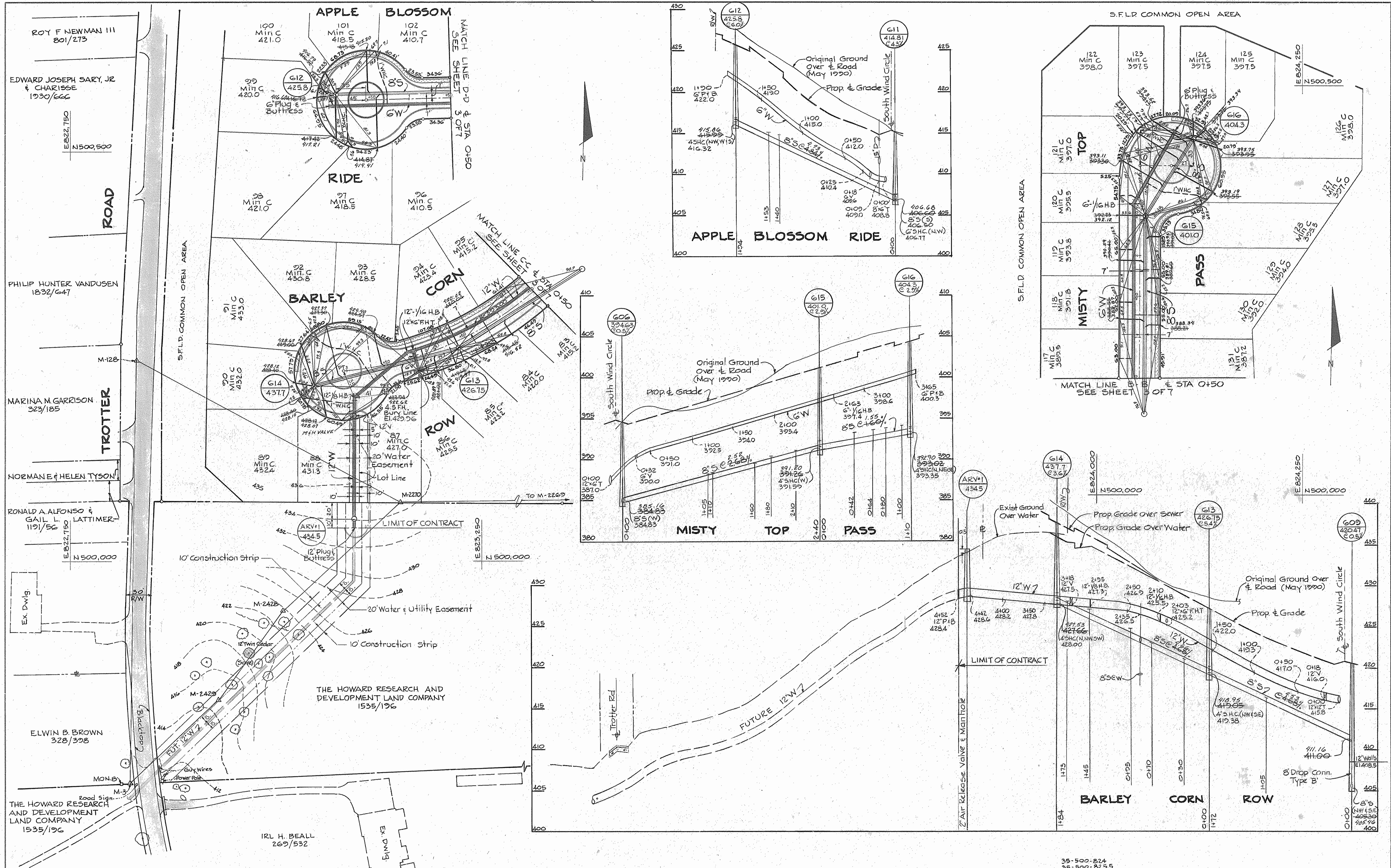
PROFILE
Scale: Hor. 1"=50' Vert. 1"=5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
4/17/91
4-8-91

WHITMAN, REQUARDT
AND ASSOCIATES
ENGINEERS
2315 ST. PAUL ST.
BALTIMORE, MARYLAND

DES: E. J. M.			
DRN: E. J. M.			
CHK: R. B. J.			
DATE: 10-24-90	BY: NO.	REVISION	DATE

COLUMBIA
VILLAGE OF RIVER HILL
SECTION 1 AREA 3 PH. II
ELECTION DISTRICT NO. 5
CONTRACT NO. 34-3084-D
SCALE AS SHOWN
SHEET 4 OF 7



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Richard J. Spang 4/17/91
 Acting Director of Public Works - DATE

Robert J. Seaman 4-8-91
 Chief-Bureau of Utilities - DATE

James A. Quinn 4-16-91
 Chief-Bureau of Engineering - DATE

John M. Quinn
 Chief-Land Development Division - DATE

WHITMAN, REQUARDT
 AND ASSOCIATES
 ENGINEERS

2315 ST. PAUL ST.
 BALTIMORE, MARYLAND

James A. Quinn

DES: E. J. M.	
DRN: E. J. M.	
CHK: R. B. J.	
DATE: 10-24-90	
BY: NO.	
REVISION	
DATE	

PLAN AND PROFILE OF
 WATER AND SEWER MAINS

600' SCALE MAP NO. 35

BLOCK NO.

COLUMBIA
 VILLAGE OF RIVER HILL
 SECTION 1 AREA 3 PH. II
 ELECTION DISTRICT NO. 5
 CONTRACT NO. 34-3084-D

AS BUILT
 COMPLETED 11-13-91

SHEET
 5 OF 7

35-500-824
 35-500-825.5

STRAW BALE DIKE

STANDARD SYMBOL
SBD

CONSTRUCTION SPECIFICATIONS

- BALES SHALL BE PLACED AT THE TOE OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
- EACH BALE SHALL BE SPACED IN THE SOIL A MINIMUM OF (4) INCHES, AND PLACED SO THE BINDINGS ARE HORIZONTAL.
- BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
- INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPED STORM FLOW OR DRAINAGE.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND

STRAW BALE DIKE

STANDARD DRAWING
SBD-1

Straw Bale Dike or Berm

PLAN VIEW

SECTION AA

SECTION BB

1. Description
The work shall consist of the construction of a dewatering basin for the purpose of receiving sediment-laden water pumped from a construction site to allow filtration before the water re-enters the waterway.

II. Material Specifications

- Riprap: Riprap shall consist of 4-8 inch washed stone or gravel.
- Filter Fabric: The filter cloth shall be a woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydrocarbons, mildew, and rot resistant. No. 6 stone (ASHTO 57) may be used on the inner-face for filtering instead of fabric.
- Strawbales: Strawbales shall meet the criteria as specified in the Maryland Standards and Specifications for Soil Erosion and Sediment Control.

III. Construction Requirements

- The contractor shall install all sediment and erosion control devices as the first order of business.
- Excavated materials shall be stored such that sediments are prevented from entering the waterway; i.e., sediment perimeter controls may be necessary.
- Excavated subsoil and topsoil shall be kept separate and replaced to their natural order.
- Any dewatering of the construction area shall be filtered through a dewatering basin prior to entering the waterway.
- The dewatering basin shall be excavated to a minimum depth of 3 feet.
- Once the dewatering basin becomes filled to 1/2 of the excavated depth, accumulated sediment shall be removed and disposed of in a 500 approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the MRA.
- Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal. All ground contours shall be returned to their original condition unless specifically approved otherwise by the Administration.

Approved On: 1-24-92
1/24/92
Chief, Waterway Permits

WPD 1.1

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND

Dewatering Basins

STANDARD DRAWING
ED-1

EARTH DIKE

not to scale

CROSS SECTION

CONSTRUCTION SPECIFICATIONS

FLY CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSTOR; SOG; 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOG; 2" STONE	LINED RIP-RAP 4-8"
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.

B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.

C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.

7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND

EARTH DIKE

STANDARD DRAWING
ED-1

RIP-RAP DETAIL WPD 3.1

Notes:

- Erosion Control Fabric shall be Poly-Filter-X as manufactured by Carthage Mills, Inc., Erosion Control Division, 124 West 66th Street, Cincinnati, Ohio; Laurel Erosion Control Cloth as manufactured by Laurel Plastics Inc., Madison, Missouri approved equal.
- Rip-Rap shall be placed 6' each side & sewer or as shown. Any disturbance to stream banks beyond these limits shall be protected with Rip-Rap at Contractor expense.
- Gabions may be used in lieu of Rip-Rap.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND

EARTH DIKE

STANDARD DRAWING
ED-1

SILT FENCE

PERSPECTIVE VIEW

SECTION

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
- FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND

SILT FENCE

STANDARD DRAWING
SF-1

STABILIZED CONSTRUCTION ENTRANCE

not to scale

PROFILE

PLAN VIEW

CONSTRUCTION SPECIFICATIONS

- Stone Size - Use 2" stone, or reclaimed or recycled concrete equivalent.
- Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
- Thickness - Not less than six (6) inches.
- Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
- Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
- Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
- Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
- Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
- Periodic inspection and needed maintenance shall be provided after each rain.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
College Park, Md.

STABILIZED CONSTRUCTION ENTRANCE

Standard Drawing
SCE-1

SEQUENCE OF CONSTRUCTION: UTILITY CROSSING

- OBTAIN ALL REQUIRED PERMITS, APPROVALS, LICENSES FROM THE APPROPRIATE AGENCIES.
- NOTIFY THE ENFORCEMENT DIVISION AT LEAST FIVE DAYS PRIOR TO INITIATION OF CONSTRUCTION AND FIVE DAYS AFTER WORK ENDS. THE ANNAPOLIS OFFICE IS (301) 974-2641. NOTIFY HOWARD COUNTY S.C.S. CONTROL INSPECTORS (301) 465-3180.
- INSTALL PERIMETER CONTROLS CONSISTING OF STRAW BALE DIKES AND/OR SILT FENCING.
- INSTALL THE UTILITY APPROACHES TO THE STREAM.
- DIVERT THE STREAM (REFERENCE WPD 2.1 OR 2.3).
- DEWATER THE CONSTRUCTION AREA. ALL DEWATERING DISCHARGES SHALL BE DIVERTED TO A DEWATERING BASIN AS PER WPD 1.1 BEFORE RE-ENTERING THE STREAM.
- STABILIZE THE DISTURBED BANKS USING FILTER FABRIC AND RIPRAP OR GABIONS. RIPRAP MUST BE SIZED AND INSTALLED AS PER WPD 3.1.
- REMOVE THE DIVERSION FROM UPSTREAM TO DOWNSTREAM.
- STABILIZE ALL DISTURBED AREAS.
- NOTIFY S.C.S. INSPECTOR.
- REMOVE PERIMETER CONTROLS.

NOTES:

A. PROVIDE STABILIZED CONSTRUCTION ENTRANCE AT ALL ACCESS POINTS TO PAVED ROADS.

B. SEE PERMITS BOUND IN SPECIFICATIONS AS FOLLOWS:

WRA _____

COE _____

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND

Culvert Pipe with Access Road

Approved On: 1/24/92
1/24/92
Chief, Waterway Permits

WPD 2.1

TEMPORARY ACCESS CULVERT

AGGREGATE FILL

AGGREGATE FILL

AGGREGATE FILL

CONSTRUCTION SPECIFICATIONS

- Restrictions** - 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 non-trout waterways.
- Culvert Strength** - All culverts shall be strong enough to support their cross sectional area under maximum expected loads.
- 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 waterway channel or without major approach fills. If a channel width exceeds 3 feet, additional pipes may be used until the cross sectional area of the pipes is greater than 60 percent of the cross sectional area of the existing channel. The minimum size culvert that may be used is a 12" diameter pipe.
- Culvert Length** - The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe of the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.
- Filter Cloth** - Filter cloth shall be placed on the streambed and streambanks prior to placement of the pipe culvert(s) and aggregate. The filter cloth shall cover the streambed 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.
- Culvert Placement** - The invert elevation of the culvert shall be installed on the natural streambed grade to minimize interference with fish migration (free passage of fish).
- 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 fill material used in the construction of the temporary access culvert crossings shall conform with the aggregate requirements cited in Section I.E. 1. above.
- 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."

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND

Culvert Pipe with Access Road

Approved On: 1/24/92
1/24/92
Chief, Waterway Permits

WPD 2.1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

4/17/91
DIRECTOR OF PUBLIC WORKS - DATE

4/8-91
CHIEF - BUREAU OF UTILITIES - DATE

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
2315 ST. PAUL ST.
BALTIMORE, MARYLAND

4/16-91
CHIEF - BUREAU OF ENGINEERING - DATE

4/15/91
CHIEF - UTILITY DESIGN DIVISION - DATE

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND

STATE OF MARYLAND
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY

DES. R.B.A.
DRU. R.A.F.
AK. R.S.N.
DATE 10-24-90

BY NO. _____ REVISION _____ DATE _____

600' SCALE MAP NO. _____ BLOCK NO. _____

SEDIMENT CONTROL DETAILS

COLUMBIA VILLAGE OF RIVER HILL
SECTION 1 AREA 3 PH. II
ELECTION DISTRICT NO. 5
CONTRACT NO. 34-3084-D

SCALE AS SHOWN
SHEET 6 OF 7

3-27-91

TEMPORARY ACCESS CULVERT

AGGREGATE FILL

AGGREGATE FILL

AGGREGATE FILL

CONSTRUCTION SPECIFICATIONS

- Restrictions** - 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 non-trout waterways.
- Culvert Strength** - All culverts shall be strong enough to support their cross sectional area under maximum expected loads.
- 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 waterway channel or without major approach fills. If a channel width exceeds 3 feet, additional pipes may be used until the cross sectional area of the pipes is greater than 60 percent of the cross sectional area of the existing channel. The minimum size culvert that may be used is a 12" diameter pipe.
- Culvert Length** - The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe of the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.
- Filter Cloth** - Filter cloth shall be placed on the streambed and streambanks prior to placement of the pipe culvert(s) and aggregate. The filter cloth shall cover the streambed 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.
- Culvert Placement** - The invert elevation of the culvert shall be installed on the natural streambed grade to minimize interference with fish migration (free passage of fish).
- 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 fill material used in the construction of the temporary access culvert crossings shall conform with the aggregate requirements cited in Section I.E. 1. above.
- 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."

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND

Culvert Pipe with Access Road

Approved On: 1/24/92
1/24/92
Chief, Waterway Permits

WPD 2.1

1. Description
This work shall consist of protecting slopes and channels from erosion with coverings of stone in accordance with the plans and specifications shown on this drawing.

II. Material Specifications

1. Bedding:

A. Bank run gravel shall meet the following requirements:

U.S. Standard sieve size	% less than
100	2 1/2
80	1
40 - 100	1 1/2
35 - 70	No. 10
20 - 50	No. 40
5 - 20	No. 200

B. Geotextile filter fabric shall meet the following requirements:

Tensile Strength	200 lbs.
Burst Strength	350 lbs.
Puncture Strength	70 lbs.
Permeability	40 cm/sec
Elongation at Failure	10%
Minimum Lap Length	24 in.

2. Riprap:
The maximum weight of stone shall be based upon the bankfull stream channel velocity, using the given chart. The gradation of the stone shall be as indicated.

III. Construction Requirements

- The contractor shall install all sediment and erosion control devices as a first order of business.
- Provisions must be made to anchor the riprap at the stream bed so as to provide protection against undermining. If this cannot be accomplished by extending the top trench as indicated in Cross Section, an alternative method of protection must receive prior written approval of the Administration.
- Excavation for riprap shall be made in reasonably close conformity with the existing stream slope and bed.
- A filter bedding is required under all riprap. Bedding material shall consist of either a bank run gravel or a geotextile filter fabric meeting the specifications of 11.10 above.
- The placement of riprap shall begin with the toe. The larger stones shall be placed in the toe and along the outside edges of the limits of the slope and channel protection. The riprap shall be placed with suitable equipment in such a manner as to produce a reasonably graded mass of stones with zero drop height. The placing of stones that cause extensive segregation is not allowed.
- Any excavation voids existing along the edges of the completed slope and channel protection shall be backfilled.
- All disturbed areas shall be permanently stabilized in accordance with an approved sediment and erosion control plan.

1. Description
This work shall consist of installing erosion control devices in and adjacent to temporary stream construction such as utility crossings.

II. Construction Requirements

- All erosion and sediment control devices shall be installed as the first order of work.
- The contractor shall insure that a continuous perimeter control barrier is in place so as to minimize pollutants entering the water.
- Excavated topsoil and subsoil shall be kept separate and replaced in their natural order. All excavated materials shall be placed on the upland side of the excavation.
- All construction shall take place during stream low flows. The length of construction time shall be limited to a maximum of 5 days for each crossing.
- All utility crossings shall be placed at least three feet beneath the stream bed unless an alternative section is specifically approved by the Administration.
- The contractor may elect to construct the utility crossing in two stages. In this case, a WPA approved flow barrier may be constructed to keep the construction area dry.
- Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspection authority approves their removal.

PLAN VIEW

KEY

- (---) Mainline
- (---) Flow Barrier
- (---) Sediment Control

Alternatives

SECTION AA

SECTION BB

WATER RESOURCES ADMINISTRATION | Riprap | Approved On 1/24/86 | WPD 3.1
Robert J. Design
 Chief, Waterway Permits

PERMANENT SEEDING
APPLIES TO GRADED OR CLEARED AREA NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT, LONG-LIVED VEGETATIVE COVER IS NEEDED.

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

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

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

SEEDING - FOR THE PERIODS MARCH 1 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 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 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS/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 TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

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

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

SEEDBED PREPARATION: LOOSEN UPPER THREE (3) INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) AND ONE TON PER ACRE OR 46 LBS/1000 SQ FT OF DOLOMITIC LIMESTONE.

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT OR HIGHER, USE 348 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 TEMPORARY SEEDING SPECIFICATIONS NOT COVERED.

WATER RESOURCES ADMINISTRATION | Utility Crossing | Approved On 1/24/86 | WPD 5.1
Robert J. Design
 Chief, Waterway Permits

SEDIMENT CONTROL NOTES

A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTION AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION. (192-2457)

ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 90 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES GREATER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52) TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

SITE ANALYSIS:

TOTAL AREA OF SITE	ACRES
AREA DISTURBED	0.28 ACRES*
AREA TO BE ROOFED OR PAVED	ACRES
AREA TO BE VEGETATIVELY STABILIZED	ACRES
TOTAL CUT	CU. YDS.
TOTAL FILL	CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	

ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY HOWARD COUNTY DPW SEDIMENT CONTROL INSPECTOR.

ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

NOTE:
* SITE ANALYSIS IS FOR DISTURBED AREAS BEYOND THESE PROTECTED BY THE ROAD CONSTRUCTION.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Robert J. Design 4/17/81
 Acting Director of Public Works - DATE

Robert J. Design 4-8-91
 Chief - Bureau of Utilities - DATE

William B. Pines 4-16-81
 Chief - Bureau of Engineering - DATE

William B. Pines 4/15/84
 Chief - Land Development Division - DATE

WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS
2315 ST. PAUL ST. BALTIMORE, MARYLAND

Approved On 1/24/86
James A. Harrell
 Professional Engineer

DESIGNER	DATE	BY	NO.	REVISION	DATE

SEDIMENT CONTROL DETAILS

COLUMBIA VILLAGE OF RIVER HILL SECTION I AREA 3 PH. II ELECTION DISTRICT NO. 5 CONTRACT NO. 34-3084-D

SCALE SHEET 7 OF 7