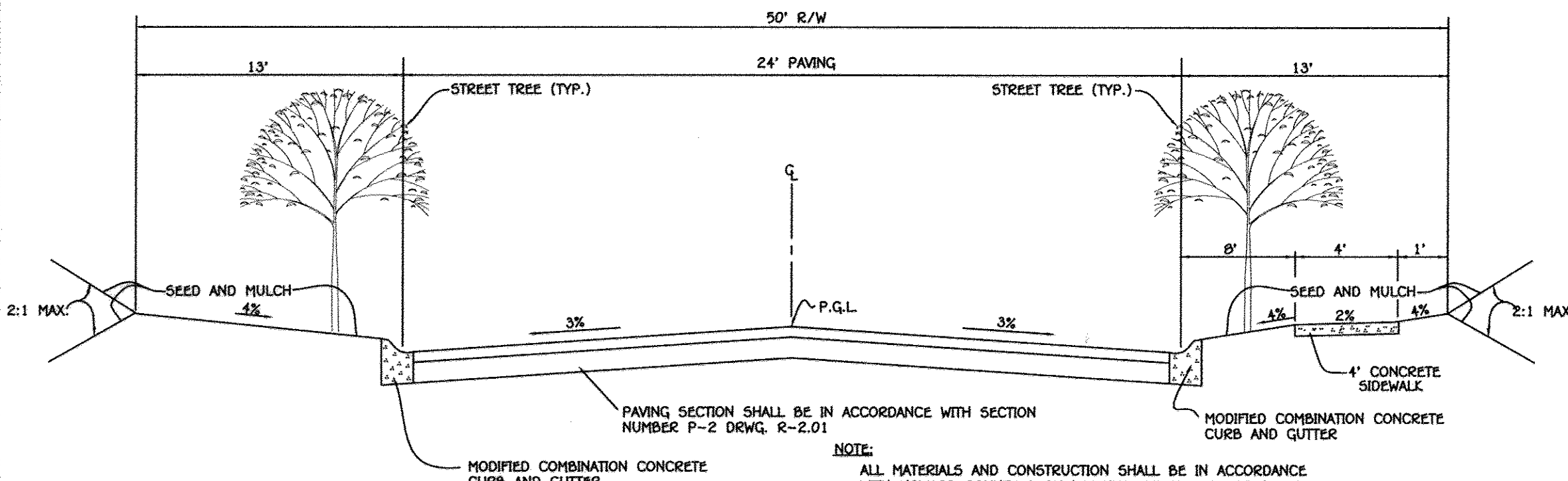
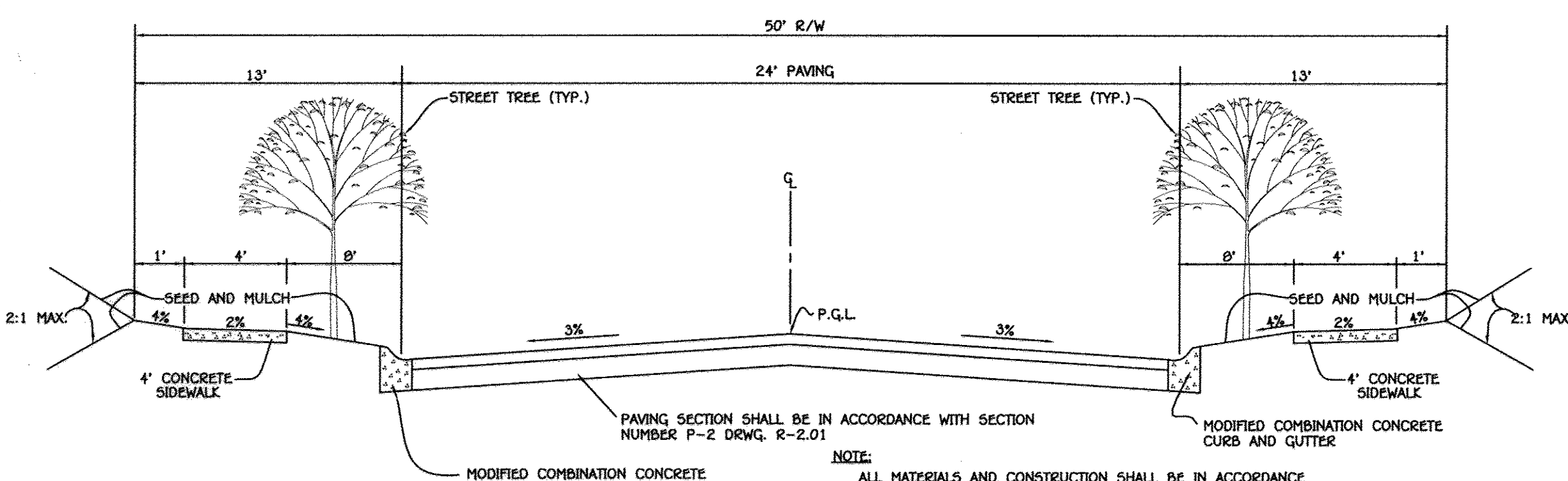


ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	STATION LIMITS	PAVING SECTION	TYPICAL ROADWAY SECTION
FLURIE LANE	PUBLIC ACCESS STREET	25 M.P.H.	R-ED	84.32 TO 174.49	P-2 (1)	1
VINCENTS WAY	PUBLIC ACCESS STREET	25 M.P.H.	R-ED	15+29 TO 25+07	P-2 (1)	2
NORTHROP WAY	PUBLIC ACCESS STREET	25 M.P.H.	R-ED	0+00 TO 2+00	P-2 (1)	3
LILY GARDEN	PUBLIC ACCESS STREET	25 M.P.H.	R-ED	0+00 TO 3+89	P-2 (1)	3

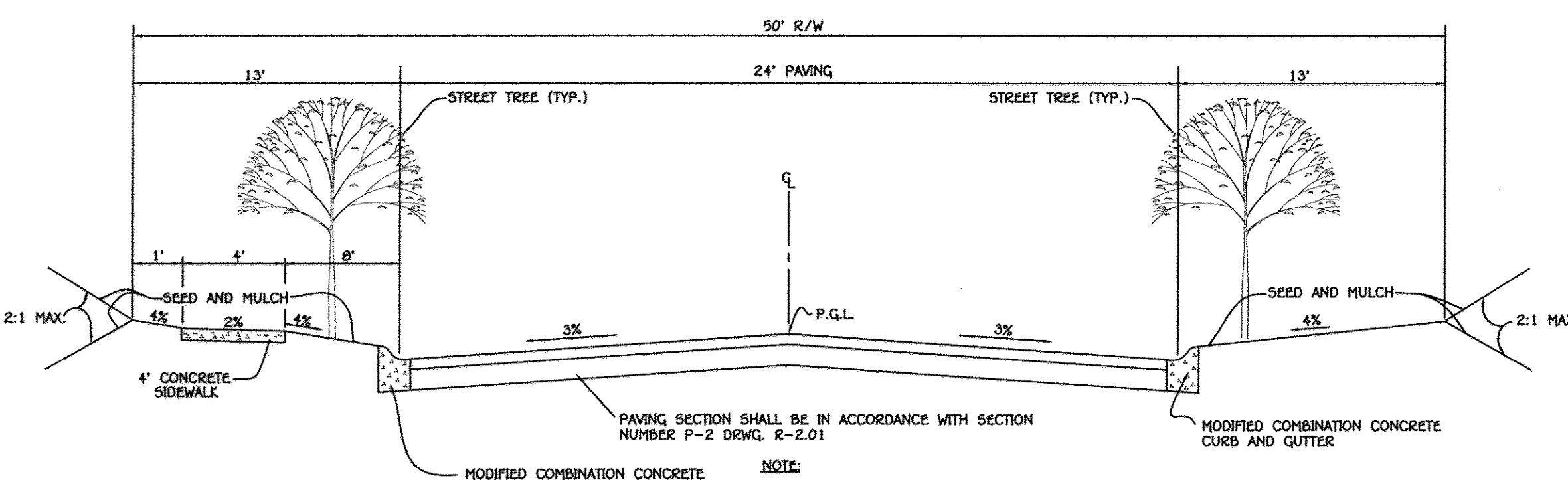
1. SEE DETAIL R-2.01 (AMENDED) THIS SHEET



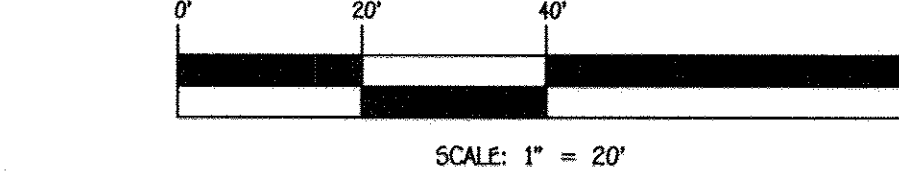
TYPICAL ROADWAY SECTION 1  
PUBLIC ACCESS STREET



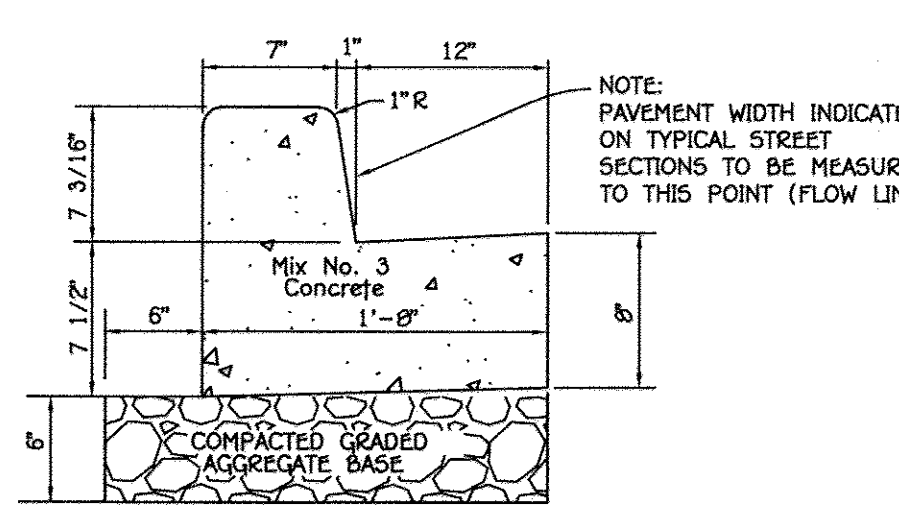
TYPICAL ROADWAY SECTION 2  
PUBLIC ACCESS STREET



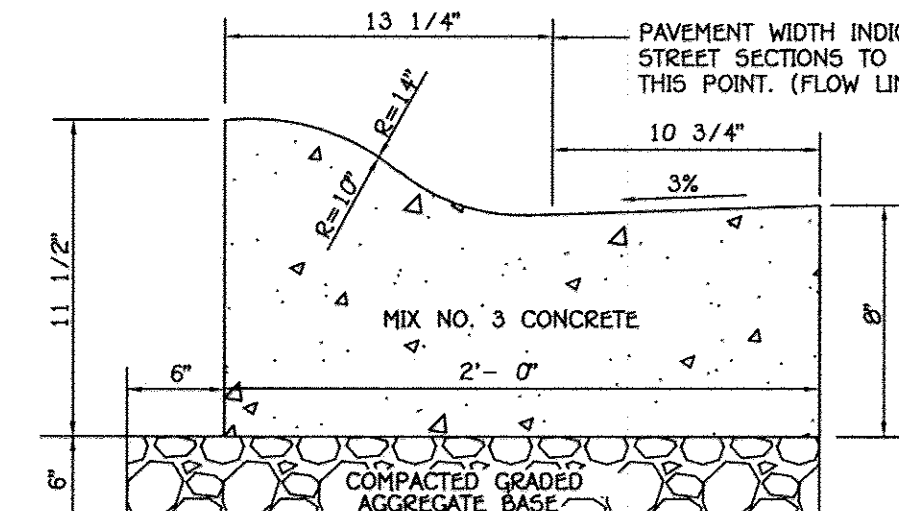
TYPICAL ROADWAY SECTION 3  
PUBLIC ACCESS STREET



SCALE: 1" = 20'

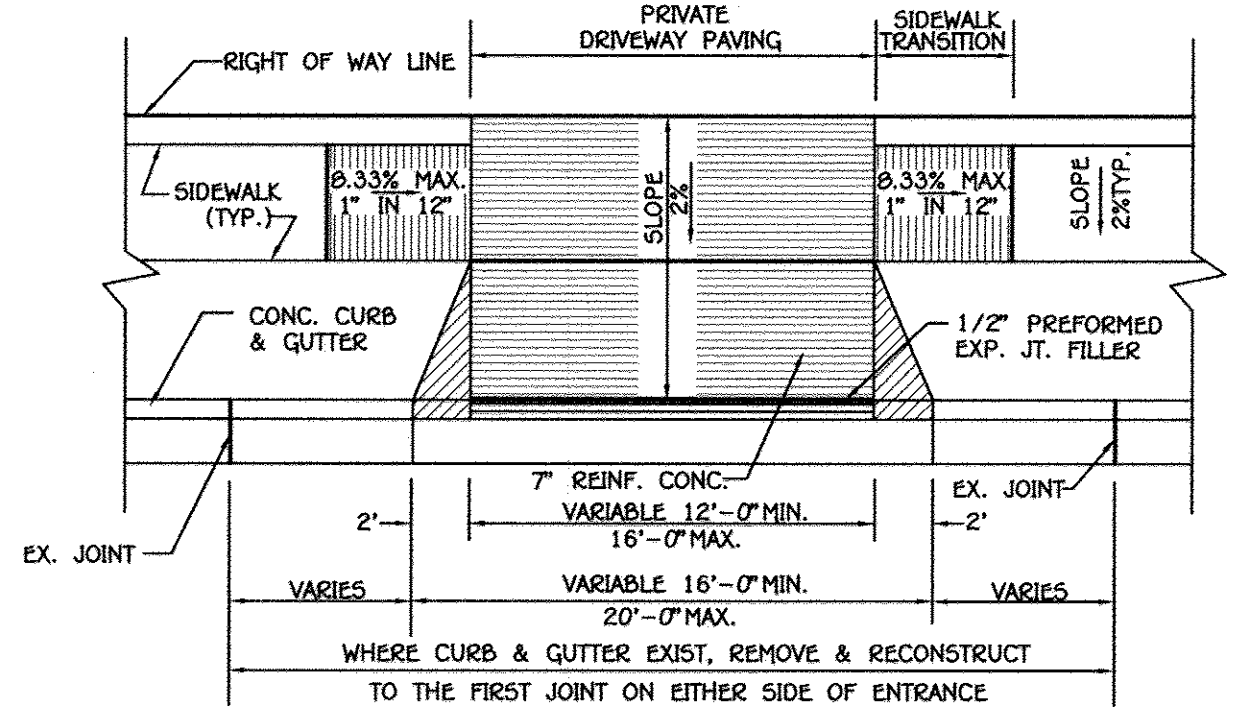


STD. 7" CONC. CURB AND GUTTER

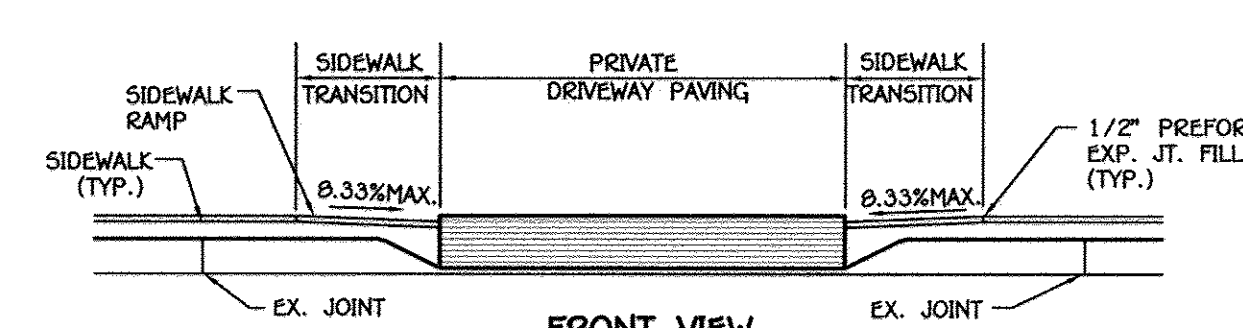


MODIFIED COMBINATION CURB AND GUTTER

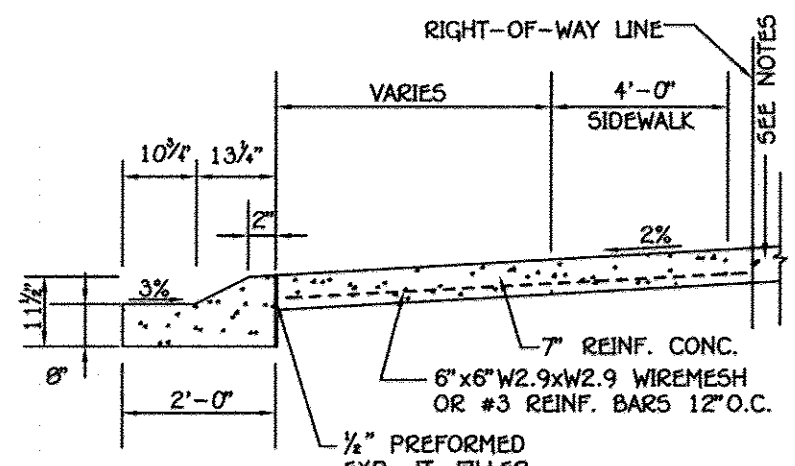
SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5		5 TO <7		≥7	
			MIN HMA WITH GAB	HMA WITH CONSTANT GAB	MIN HMA WITH GAB	HMA WITH CONSTANT GAB	MIN HMA WITH GAB	HMA WITH CONSTANT GAB
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SACS: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL) HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL) GRADED AGGREGATE BASE (GAB)	1.5	1.5	1.5	1.5	1.5	1.5
			3.0	3.0	3.0	4.5	3.0	3.0
			8.0	4.0	3.0	4.0	4.0	4.0



PLAN

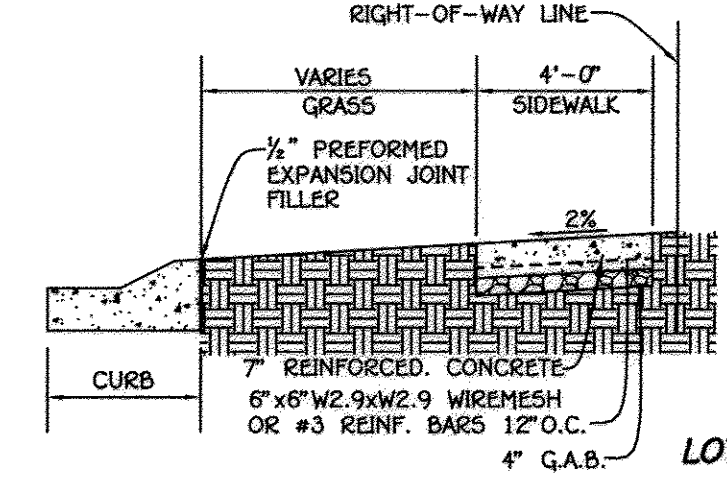


FRONT VIEW

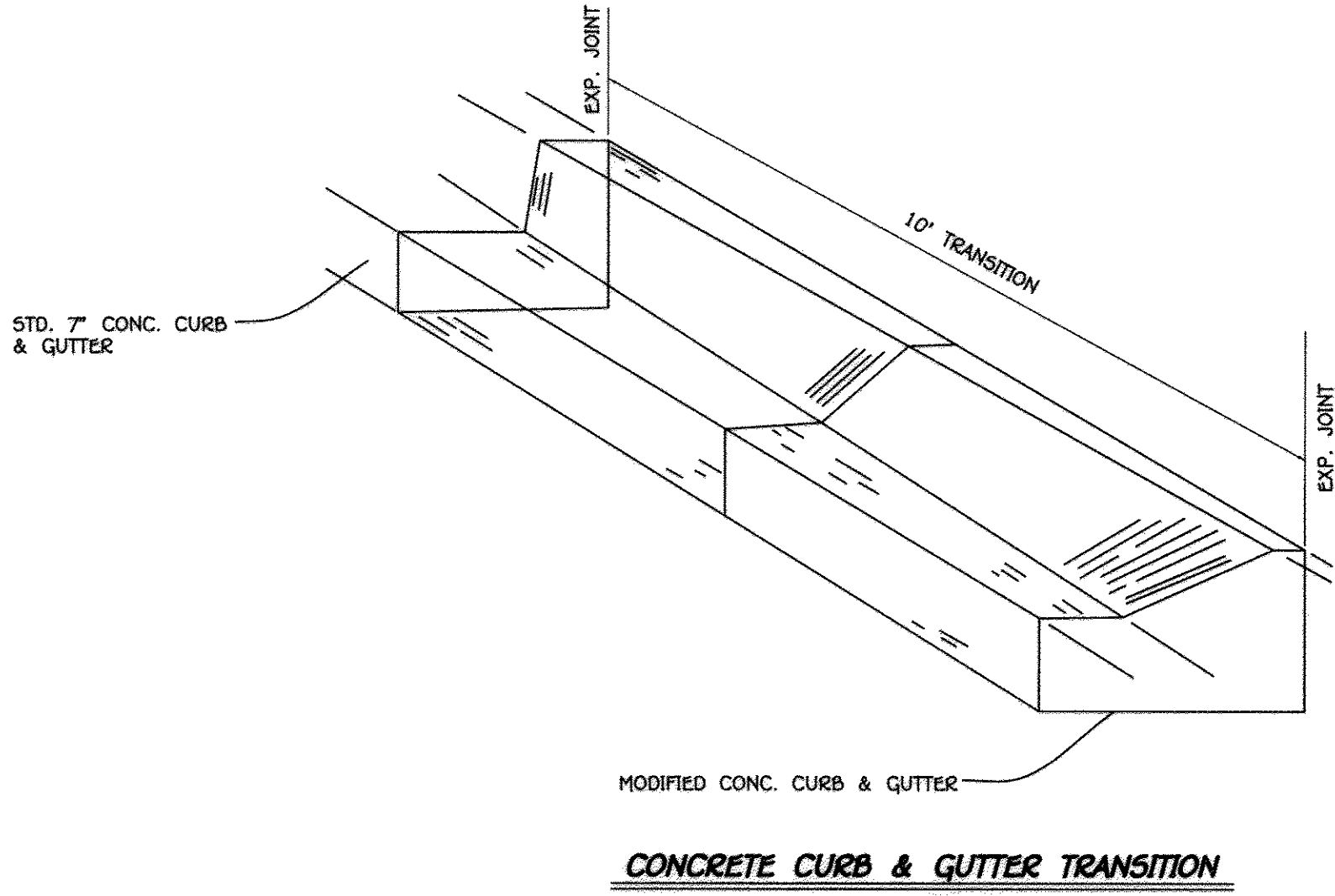


SECTION

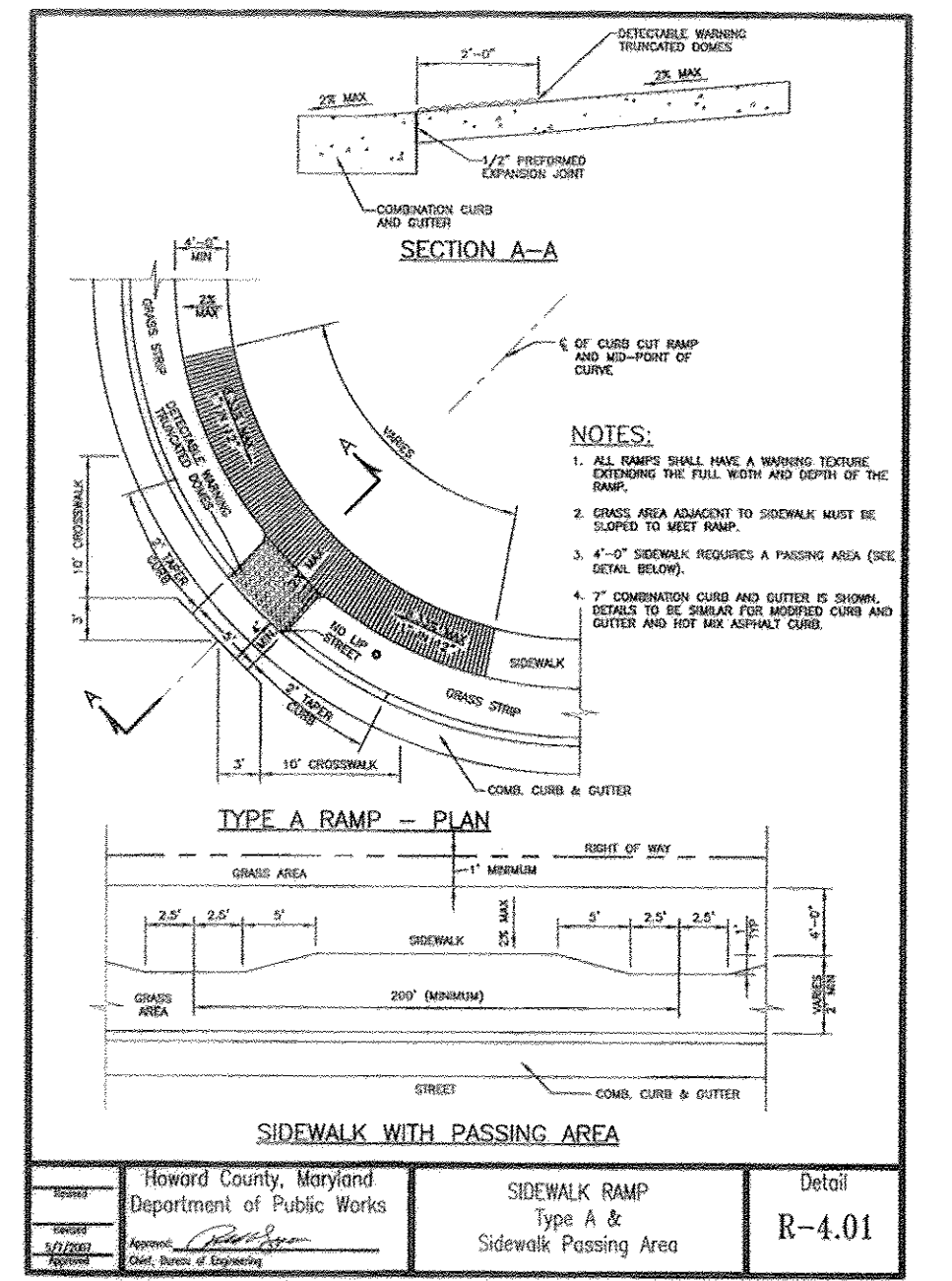
- NOTES
- ALL RAMPS SHALL HAVE TEXTILE WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.
  - PRIVATE DRIVEWAY PAVING (IF CONC. 1/2" PREFORMED EXP. JOINT FILLER IS TO BE PROVIDED AT THE RIGHT OF WAY LINE.)
  - TIE-IN GRADE OF PRIVATE DRIVEWAY SHALL NOT EXCEED 14%.



TRAFFIC BEARING SIDEWALK DETAIL



CONCRETE CURB & GUTTER TRANSITION



SECTION A-A

Howards County, Maryland	SIDEWALK RAMP	Detail
Department of Public Works	Type A &	R-4.01
Approved: [Signature]	Sidewalk Passing Area	
Date: [Date]		

Approved: Department Of Planning And Zoning  
 7. Mark Fox 8-16-17  
 Chief, Division Of Land Development Date

Approved: [Signature] 7-14-17  
 Chief, Development Engineering Division Date

Approved: Howard County Department Of Public Works  
 [Signature] 7/10/2017  
 Chief, Bureau Of Highways Date

NO.	REVISIONS DESCRIPTION	DATE

ROAD PLAN SECTIONS, NOTES AND DETAILS

**ENCLAVE AT RIVER HILL PHASE 2**

LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'

PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110,  
 WP-16-152 PLAT NO.5 24231 - 24244  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 88 & 97

FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 2 OF 29 **F-17-003**

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461 - 2895



**PROFESSIONAL CERTIFICATION**

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/19.

*Frank Manalansan, Jr.* 6/23/17  
 DATE

**RESIDENTIAL DRIVEWAY ENTRANCE CLOSED SECTION W/MODIFIED COMBINATION CURB AND GUTTER AND SIDEWALK**

NOT TO SCALE

**DEVELOPER**  
 BEAZER HOMES, LLC  
 8965 GUILFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (765)-894-0182

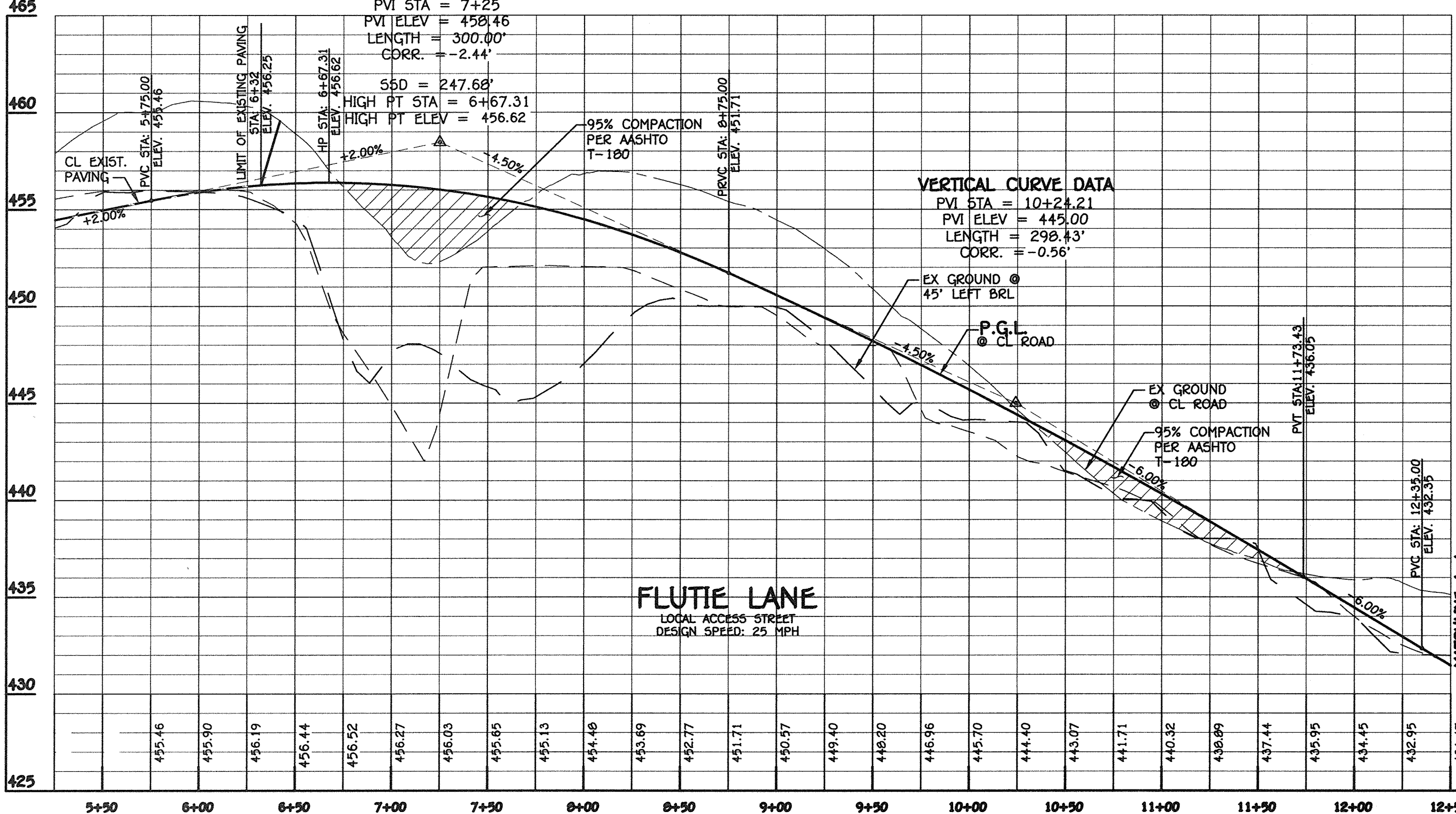
**OWNERS**  
 TERNEY FARMS-CLARKSVILLE, LP.  
 24151 VENTURE BOULEVARD  
 CALABASAS, CALIFORNIA 91302  
 (818)-385-3697



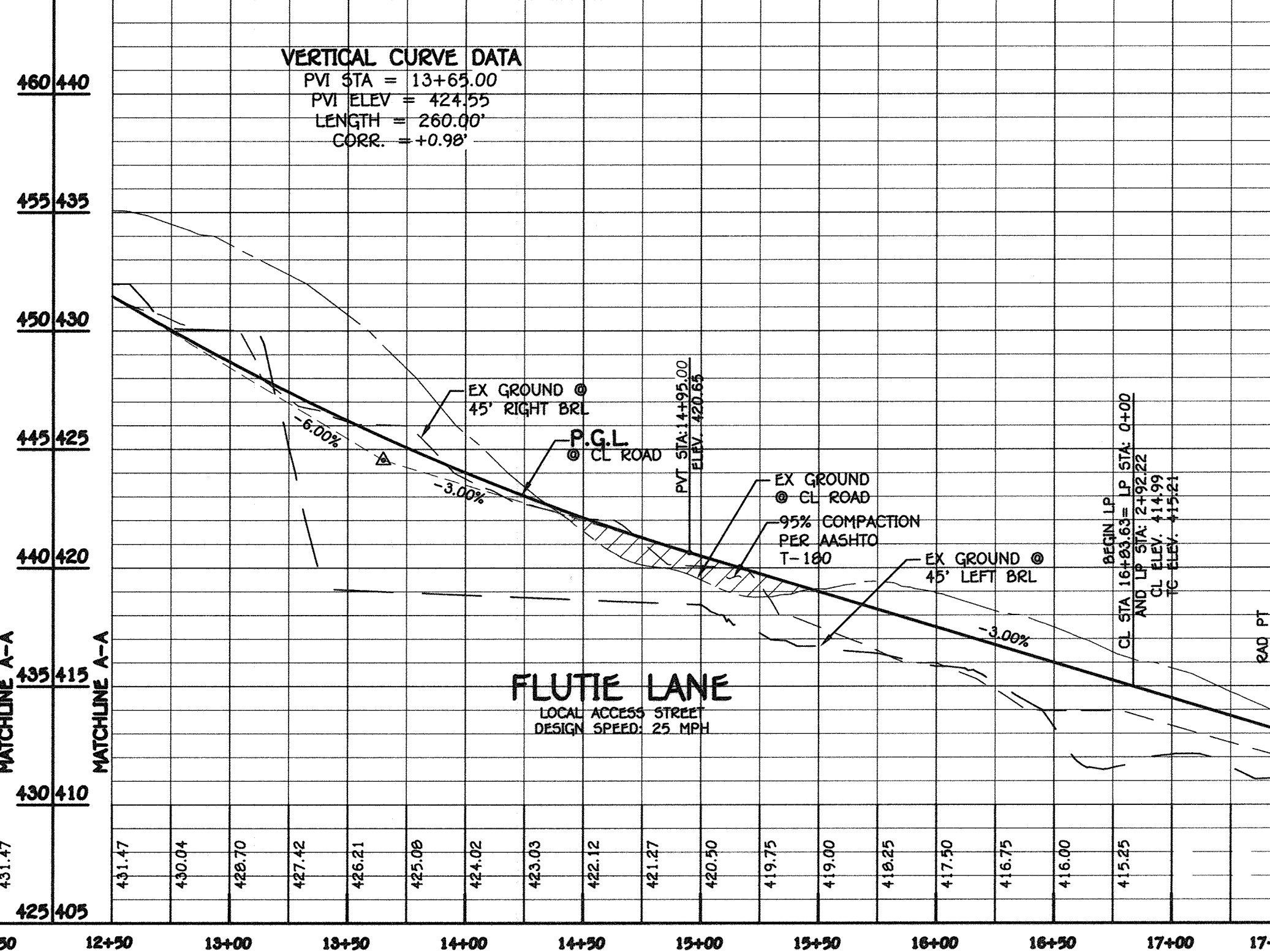
Approved: Department Of Planning And Zoning  
 T. M... 8-16-17  
 Chief, Division Of Land Development  
 Date  
 Approved: Howard County Department Of Public Works  
 Chief, Bureau Of Highways  
 Date  
 REVISIONS  
 NO. DESCRIPTION DATE  
 1 REVISE 9th CURB TO 10th CURB IN QUAD OF THE RELOCATE P&P 4/12/19



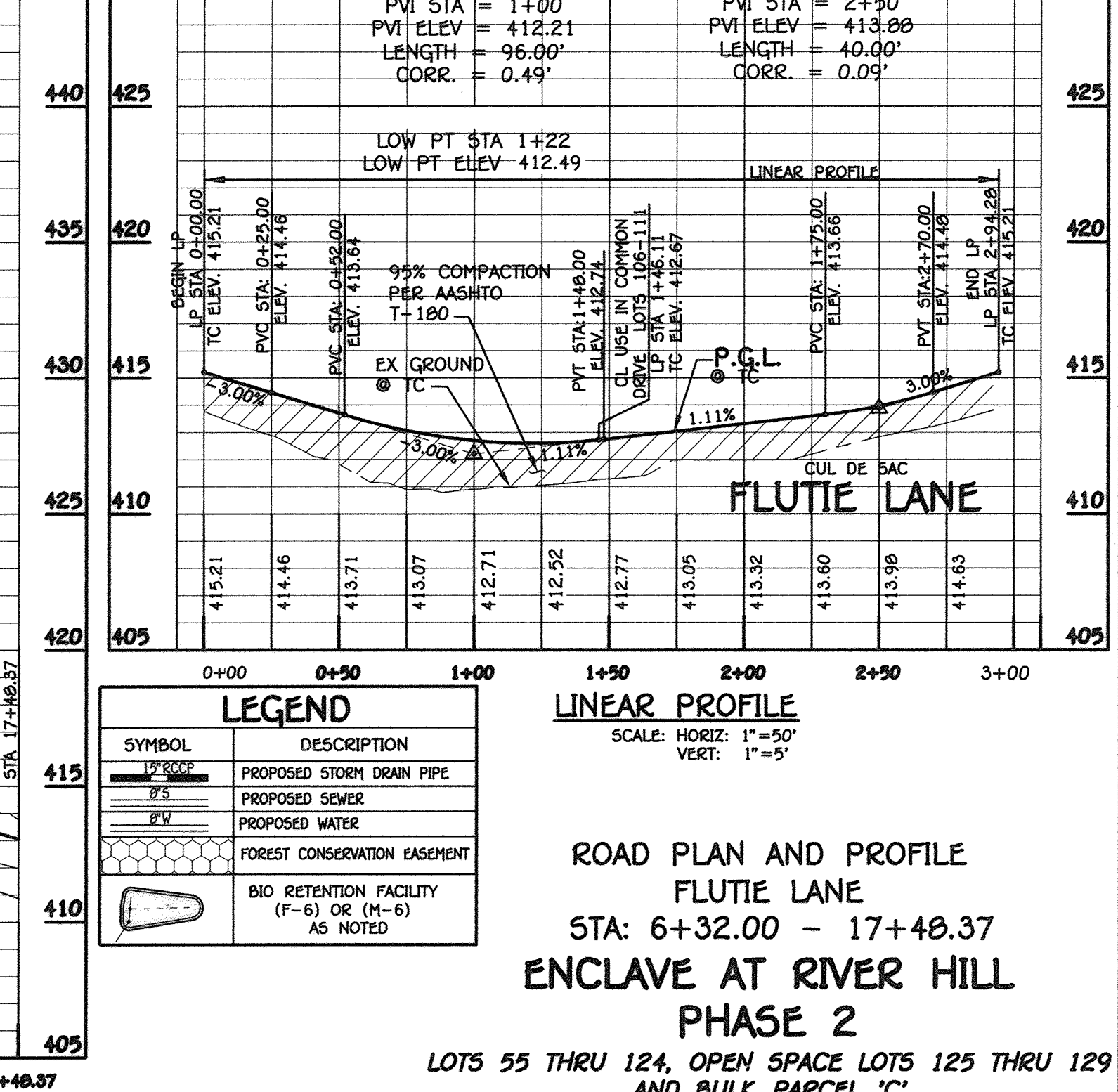
VERTICAL CURVE DATA  
 PVI STA = 7+25  
 PVI ELEV = 458.46  
 LENGTH = 300.00'  
 CORR. = -2.44'  
 SSD = 247.68'  
 HIGH PT STA = 6+57.31  
 HIGH PT ELEV = 456.62



VERTICAL CURVE DATA  
 PVI STA = 10+21.21  
 PVI ELEV = 445.00  
 LENGTH = 298.33'  
 CORR. = -0.56'



VERTICAL CURVE DATA  
 PVI STA = 1+00  
 PVI ELEV = 412.21  
 LENGTH = 96.00'  
 CORR. = 0.49'



LEGEND

SYMBOL	DESCRIPTION
(Symbol)	PROPOSED STORM DRAIN PIPE
(Symbol)	PROPOSED SEWER
(Symbol)	PROPOSED WATER
(Symbol)	FOREST CONSERVATION EASEMENT
(Symbol)	BIO RETENTION FACILITY (F-6) OR (F-6) AS NOTED

LINEAR PROFILE  
 SCALE: HORIZ: 1" = 50'  
 VERT: 1" = 5'

ROAD PLAN AND PROFILE  
 FLUTIE LANE  
 STA: 6+32.00 - 17+40.37  
 ENCLAVE AT RIVER HILL  
 PHASE 2  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129  
 AND BULK PARCEL "C"  
 PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110,  
 WP-16-152 PLAT NO.5 24321- 24244  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 08 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 3 OF 29 F-17-003

FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461 - 2895

PROPOSED ALIGNMENT CURVE TABLE

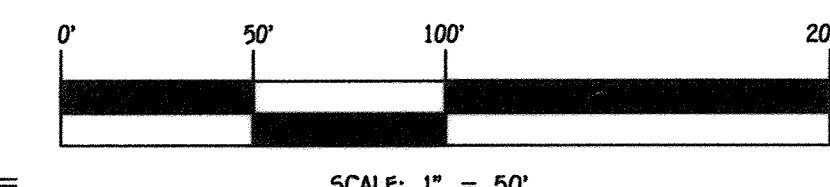
CURVE#	ROAD NAME	CL STATION	RADIUS	LENGTH	DELTA	TANGENT	CHORD
C1	FLUTIE LANE	STA 5+11.90 TO STA 10+55.69	500.00'	544.19'	011°27'33"	517.75'	534°51'45.70"
C2	FLUTIE LANE	STA 10+55.69 TO STA 13+03.83	810.00'	248.14'	007°04'23"	247.17'	512°27'33.02"



PROFESSIONAL CERTIFICATION  
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 Frank Manalansan, II  
 Date: 6/23/17

DEVELOPER  
 BEAZER HOMES, LLC  
 8965 GUILFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (761)-894-0182

OWNERS  
 TIERNEY FARMS-CLARKSVILLE, LP  
 24151 VENTURE BOULEVARD  
 CALABAS, CALIFORNIA 91302  
 (818)-305-3697



I:\2013\3008\dwg\Plan-Profile.dwg P:\Plan-Profile.dwg C:\03\_Road Plan - Profile.dwg 6/28/2017 3:42:39 PM 1:1



CURVE#	ROAD NAME	CL STATION	RADIUS	LENGTH	DELTA	TANGENT	CHORD
C4	VINCENTS WAY	STA 14+10.80 TO STA 17+25.34	850.00'	314.89'	006°44'28"	312.86'	510°36'17.54"E
C5	VINCENTS WAY	STA 23+87.77 TO STA 24+81.70	210.00'	93.93'	027°17'01"	93.15'	53°01'24.78"E
C3	NORTHROP WAY	STA 0+37.13 TO STA 1+18.34	210.00'	81.22'	027°17'01"	80.71'	N73°31'54.48"E

Approved: Department Of Planning And Zoning

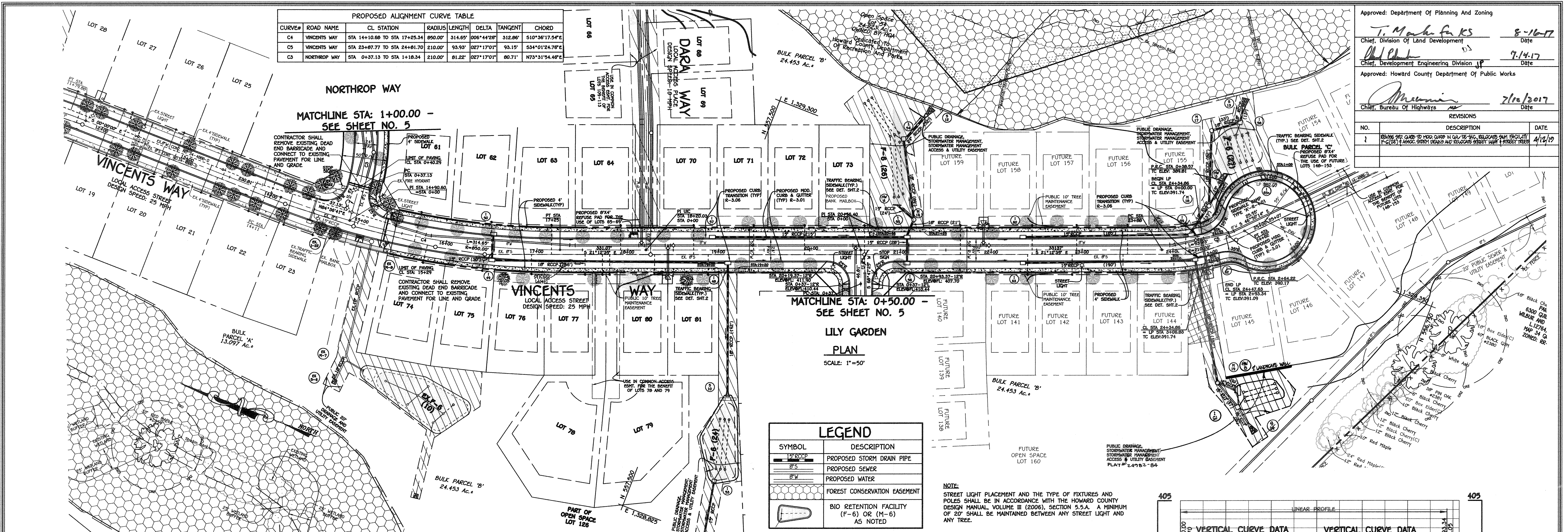
*J. Mark Forks* 8-16-17  
 Chief, Division Of Land Development Date

*W. Clark* 7-14-17  
 Chief, Development Engineering Division Date

Approved: Howard County Department Of Public Works

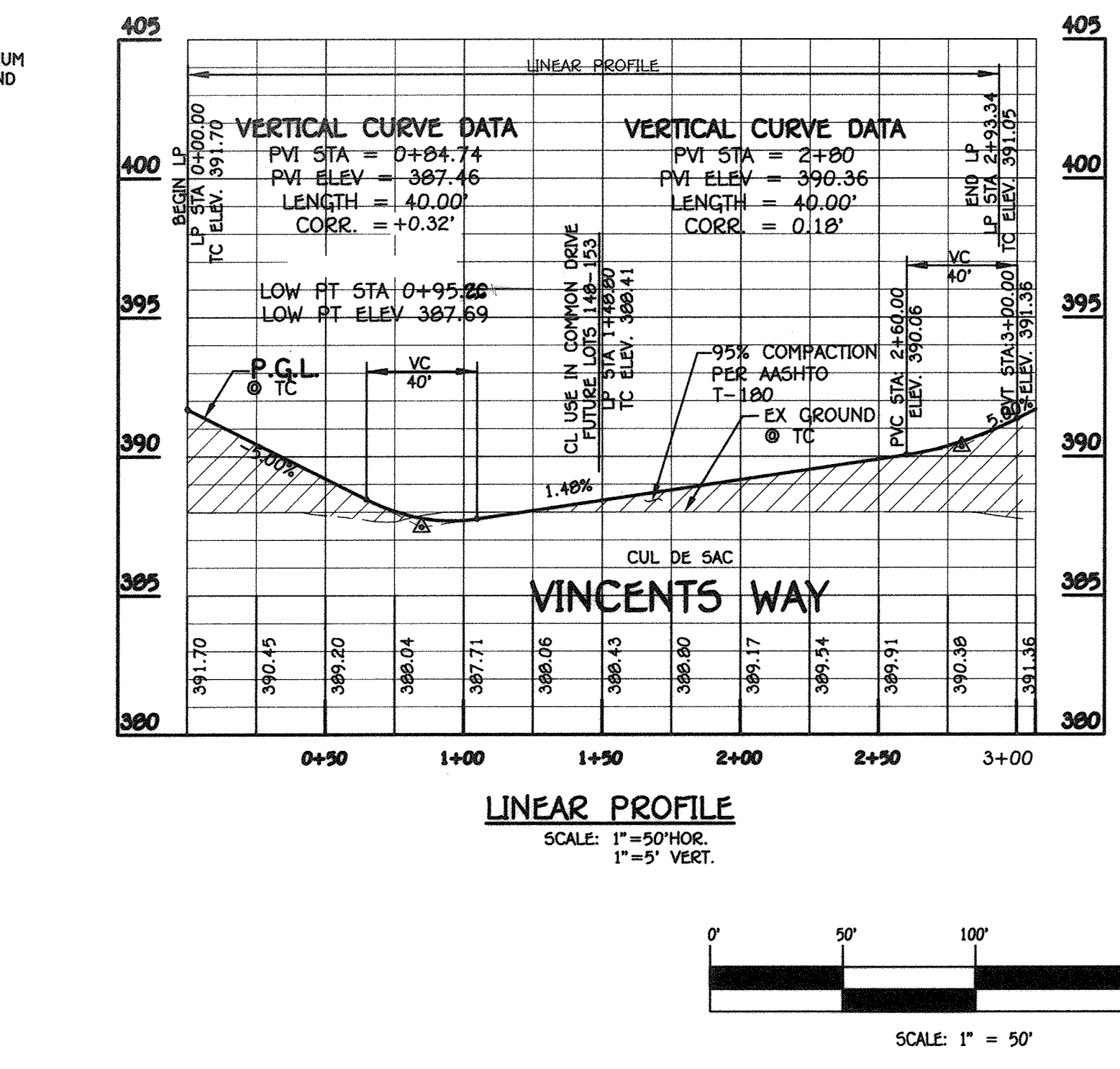
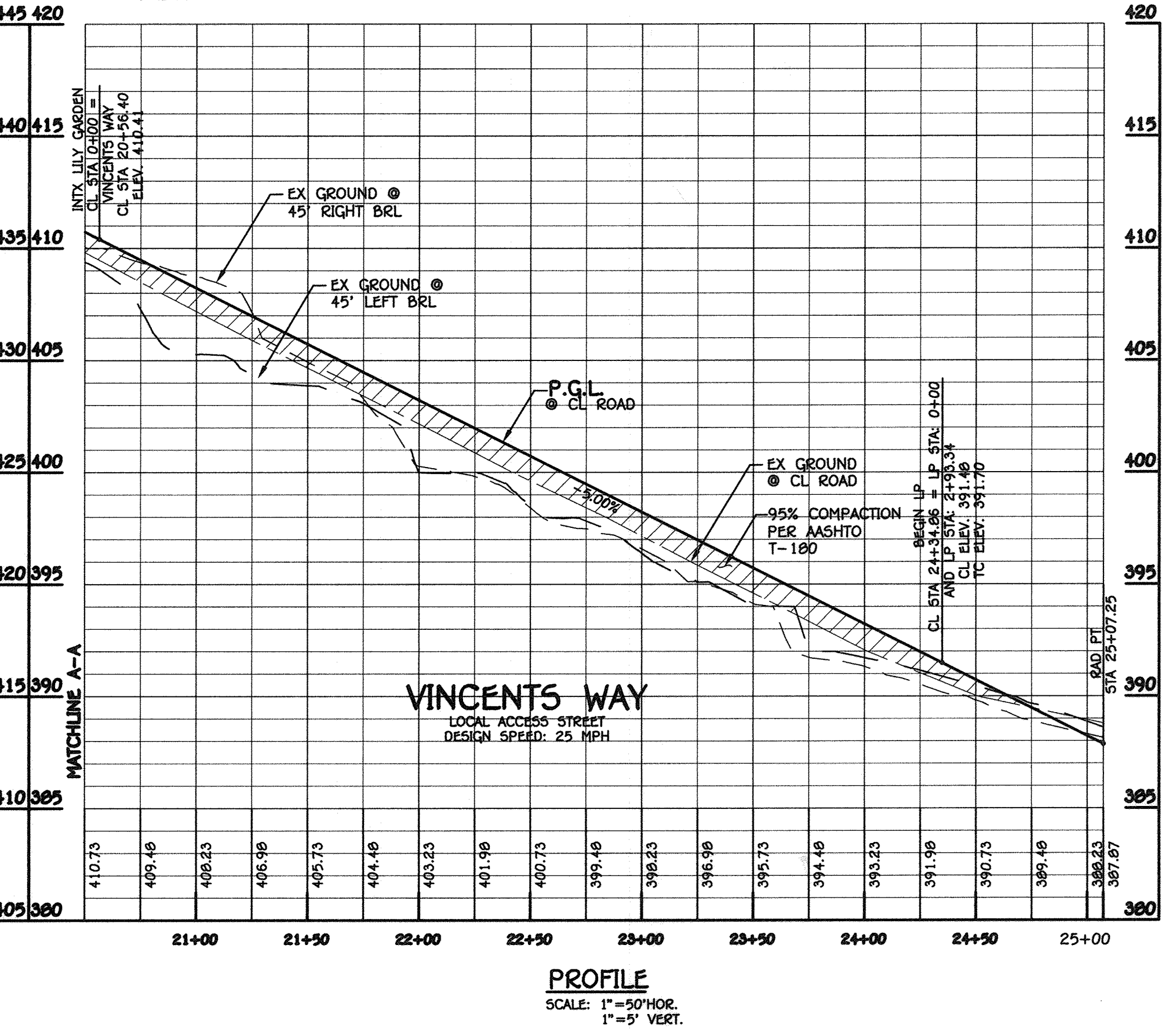
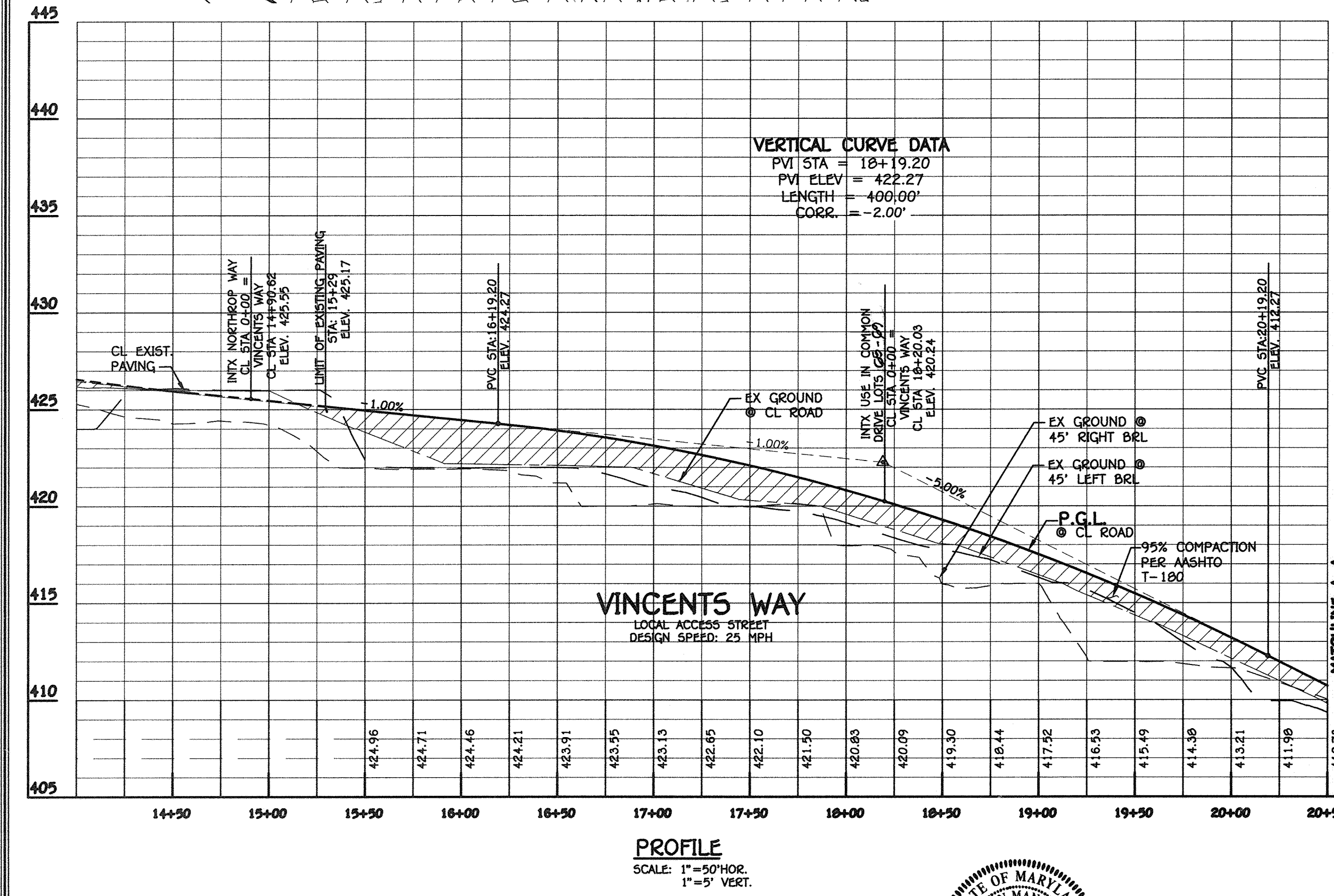
*M. M...* 7/10/2017  
 Chief, Bureau Of Highways Date

NO.	REVISIONS DESCRIPTION	DATE
1	REVISED TO ADD CURB IN QTY 18-240, RELOCATE SIGN FACILITY P-1021, ADD SIGN FACILITY AND RELOCATE STREET LIGHT & STREET TREES	4/10/19



SYMBOL	DESCRIPTION
	PROPOSED STORM DRAIN PIPE
	PROPOSED SEWER
	PROPOSED WATER
	FOREST CONSERVATION EASEMENT
	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED

NOTE:  
 STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.



FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21114  
 (410) 461-2895



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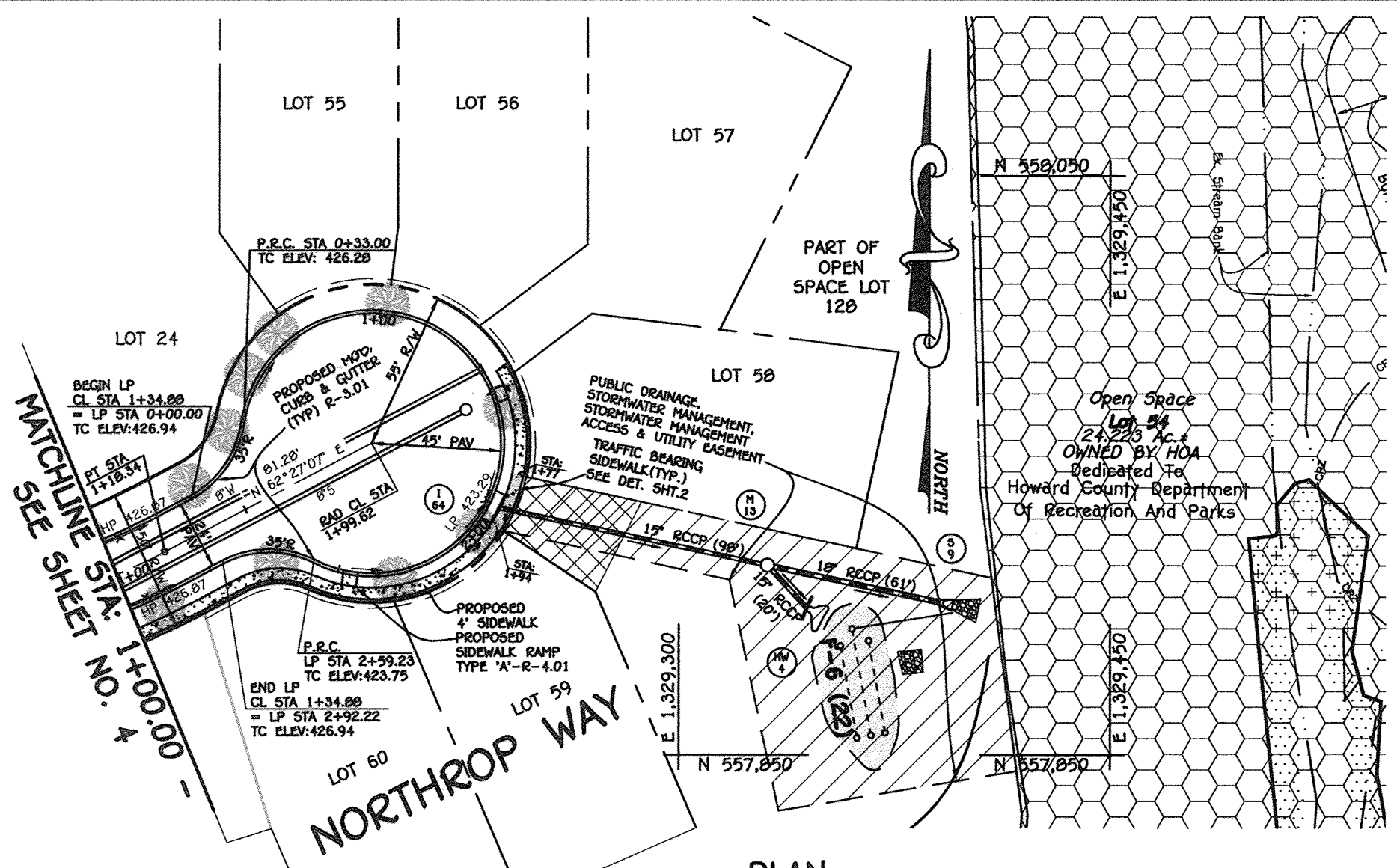
*Frank Mahanlian*  
 FRANK MAHANLIAN, L.S.  
 6/23/17  
 Date

DEVELOPER  
 BEAZER HOMES, LLC  
 8965 GULLFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (765)-894-0182

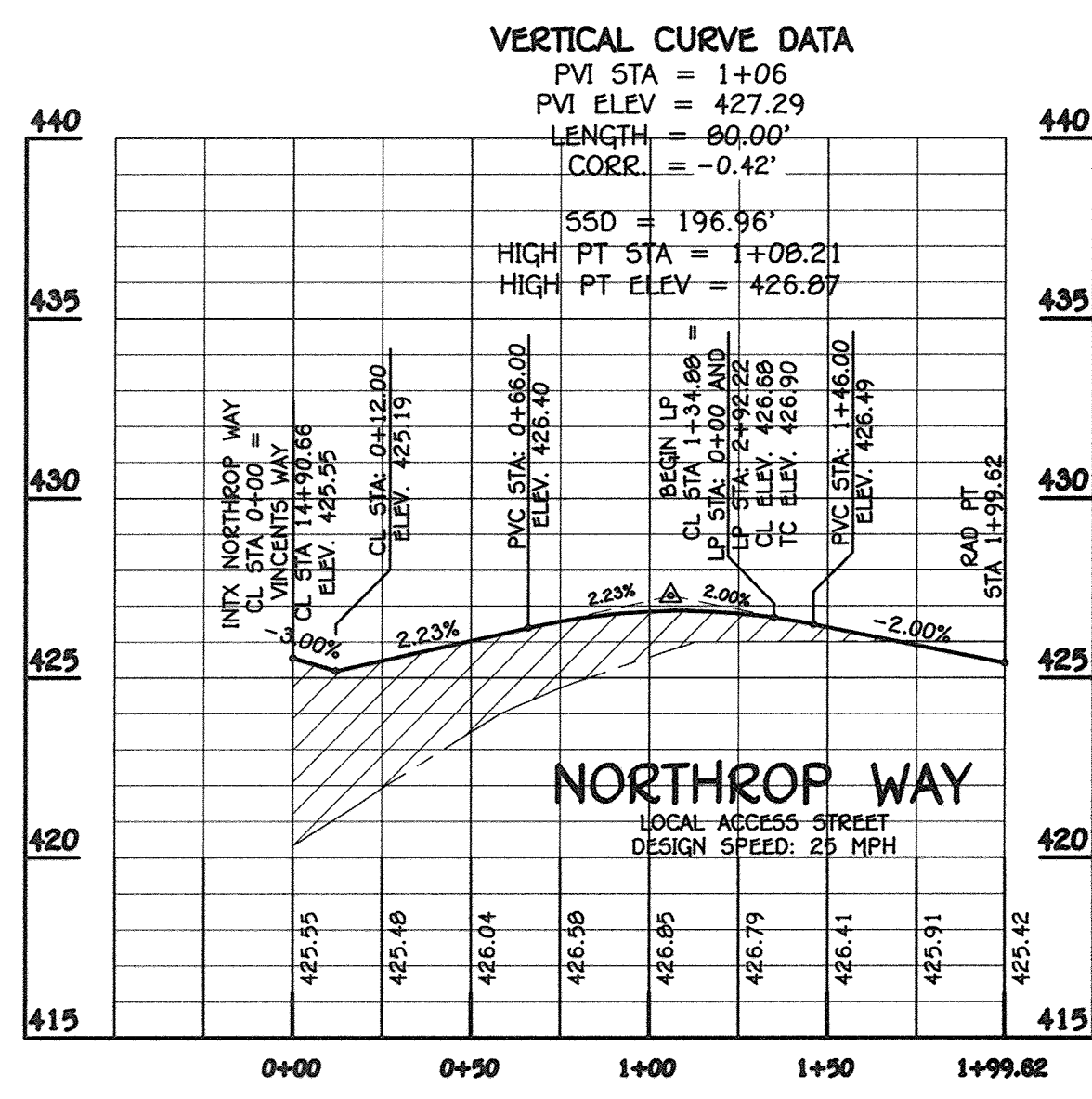
OWNERS  
 TIENEY FARMS-CLARKSVILLE, LP  
 24151 VENTURE BOULEVARD  
 CALABASAS, CALIFORNIA 91302  
 (818)-385-3697

ROAD PLAN AND PROFILE  
 VINCENTS WAY  
 STA: 15+29.00 - 25+07.25  
 ENCLAVE AT RIVER HILL  
 PHASE 2  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129  
 AND BULK PARCEL 'C'  
 PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110,  
 WP-16-152 PLAT NO.5 24321- 24244  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 88 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 4 OF 29 F-17-003

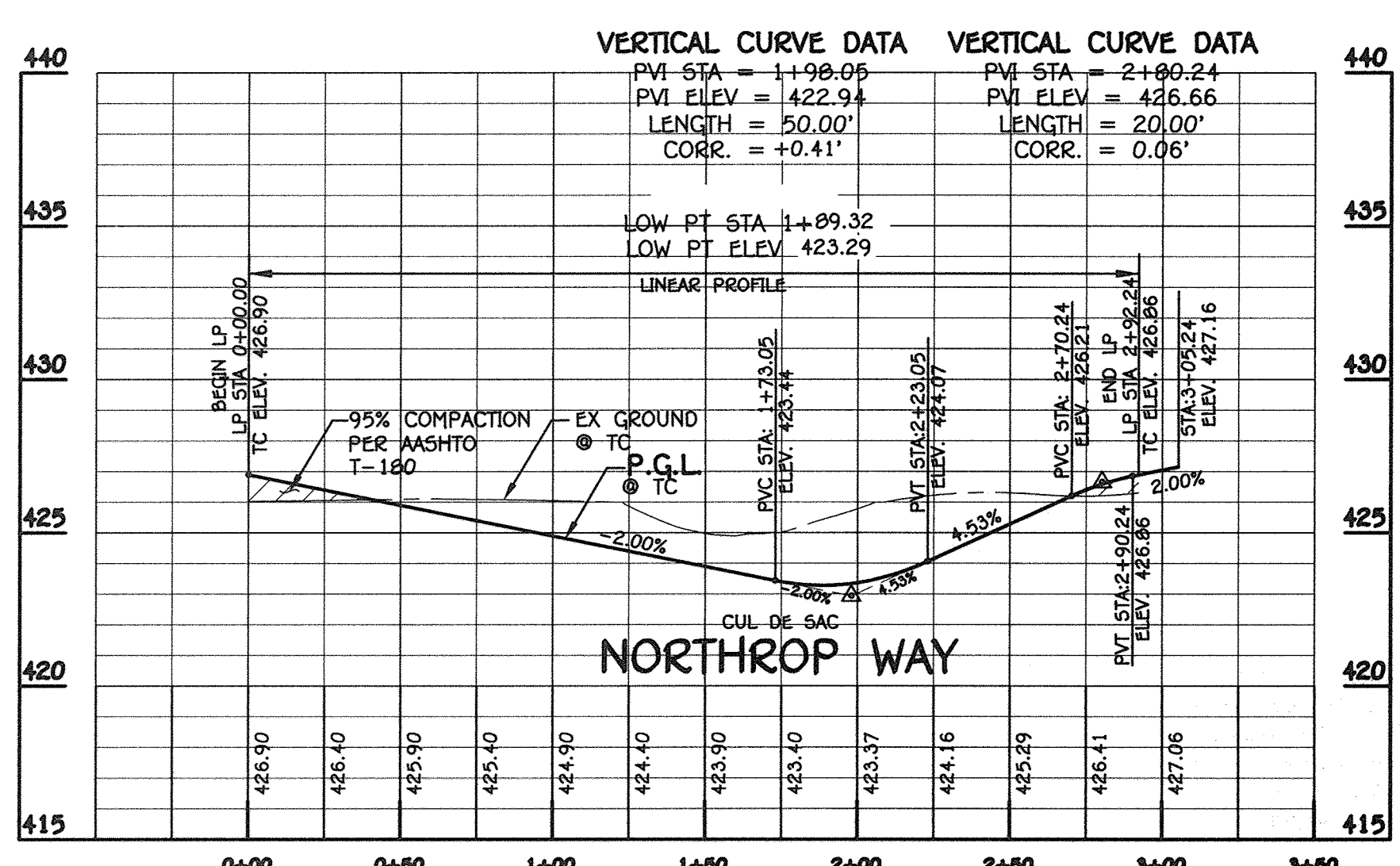




**PLAN**  
SCALE: 1"=50'

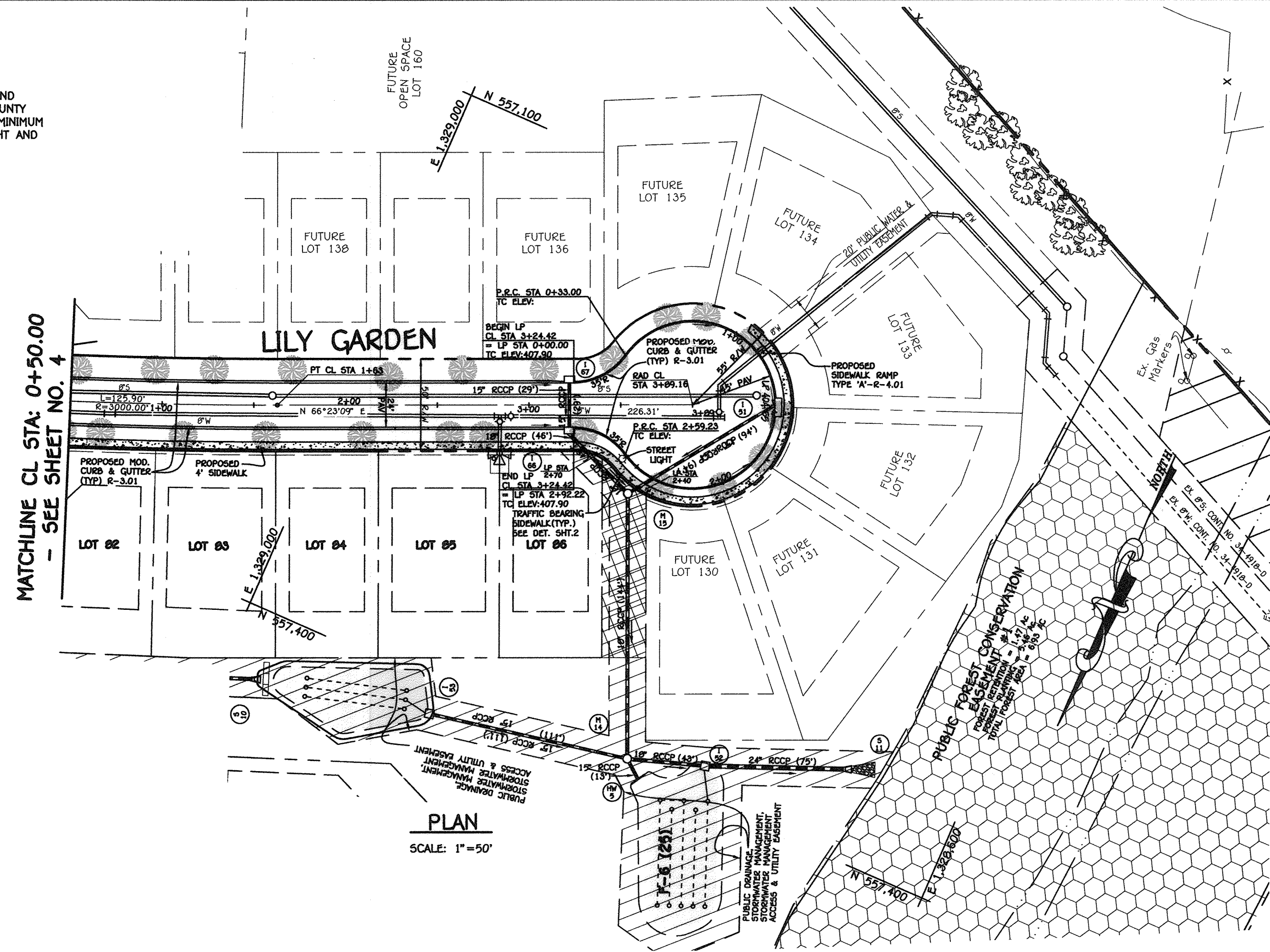


**PROFILE**  
SCALE: 1"=50'HOR.  
1"=5' VERT.

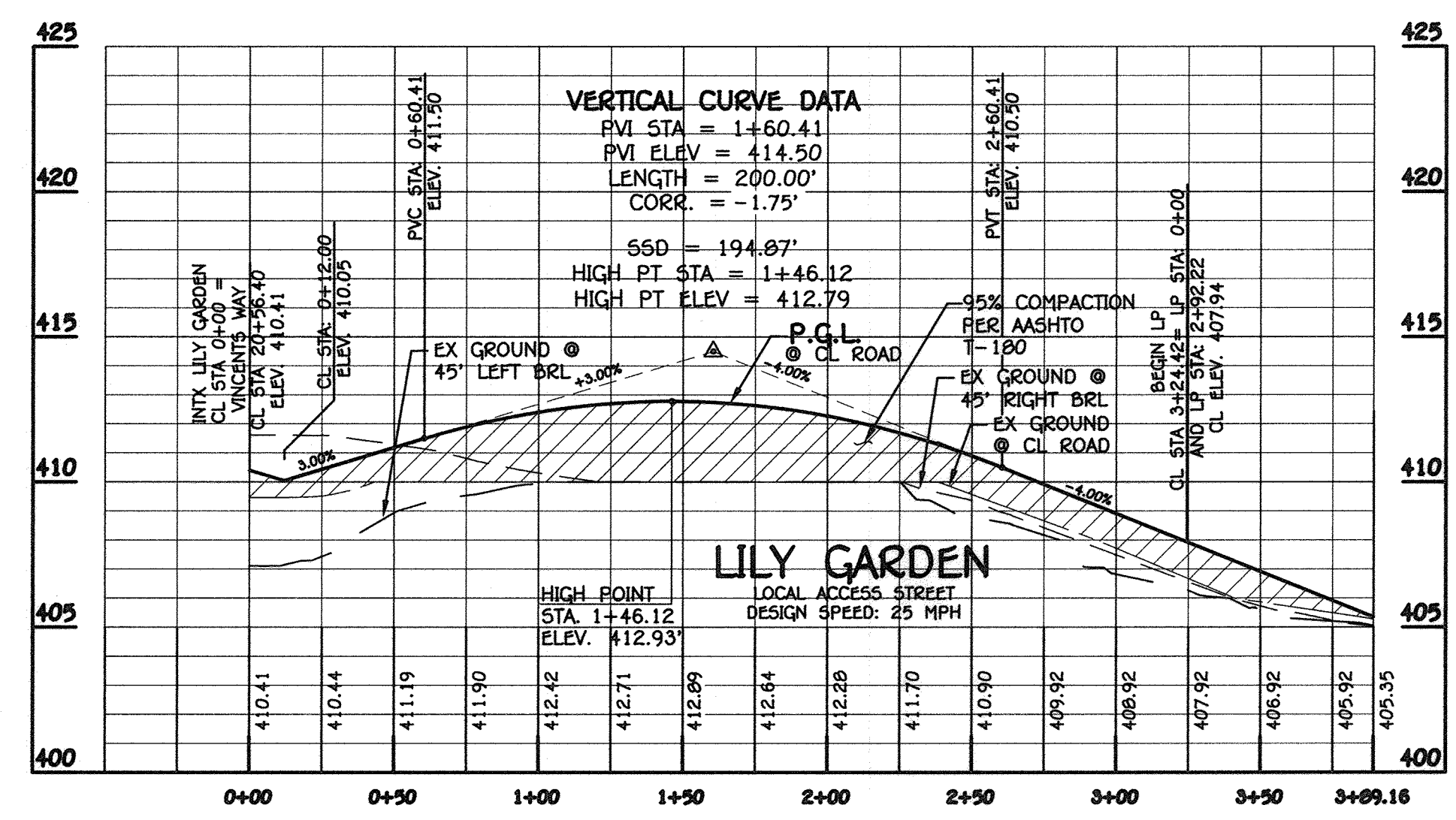


**LINEAR PROFILE**  
SCALE: 1"=50'HOR.  
1"=5' VERT.

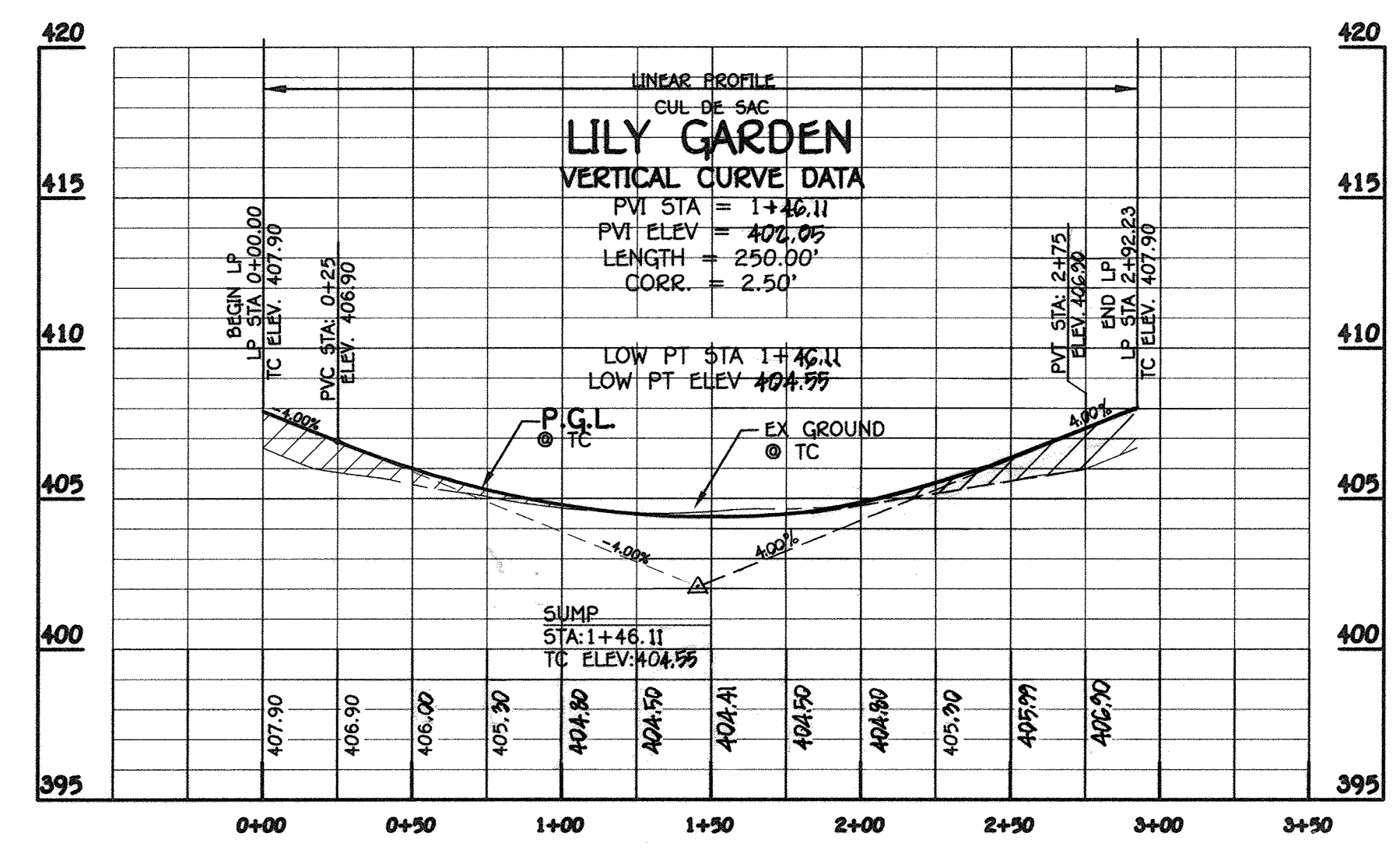
**NOTE:**  
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**PLAN**  
SCALE: 1"=50'



**PROFILE**  
SCALE: 1"=50'HOR.  
1"=5' VERT.



**LINEAR PROFILE**  
SCALE: 1"=50'HOR.  
1"=5' VERT.

Approved: Department Of Planning And Zoning  
 T. Mah Forks 8-16-17  
 Chief, Division Of Land Development Date  
 U. Chisholm 7-14-17  
 Chief, Development Engineering Division Date  
 Approved: Howard County Department Of Public Works  
 M. Meenan 7/10/2017  
 Chief, Bureau Of Highways Date

NO.	REVISIONS	DATE
1	REVISED STD. CURB TO MOD. CURB IN CUL-DE-SAC	4/19/19

**LEGEND**

SYMBOL	DESCRIPTION
12" S.D.P.	PROPOSED STORM DRAIN PIPE
8" S.	PROPOSED SEWER
8" W.	PROPOSED WATER
(Hatched Area)	FOREST CONSERVATION EASEMENT
(Dashed Area)	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED

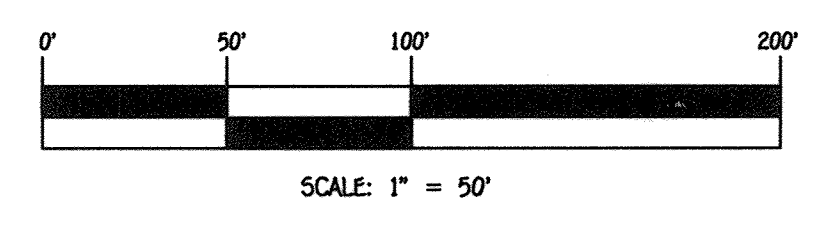
**ROAD PLAN, PROFILE & LINEAR PROFILE**  
**NORTHROP WAY AND LILY GARDEN**  
**ENCLAVE AT RIVER HILL**  
**PHASE 2**  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'  
 PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110, WP-16-152 PLAT NO.5 24321- 24244  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 08 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 5 OF 29 **F-17-003**



**PROFESSIONAL CERTIFICATION**  
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Frank Annalsan, II 4/23/17  
 DATE

**DEVELOPER**  
 BEAZER HOMES, LLC  
 0965 GUILFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (761)-094-0182



**OWNERS**  
 TIERNEY FARMS-CLARKSVILLE, LP  
 24151 VENTURE BOULEVARD  
 CALABASAS, CALIFORNIA 91302  
 (818)-305-3697

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2895

I:\2013\13008\dwg\F Plans Phase 2\Plan-Plan and Profile.dwg, C:\05\_Road Plan - Profile, 6/28/2017 3:44:12 PM, 1:1



SOILS LEGEND			
SOIL	NAME	Kw	CLASS
GbA	Gladstone loam, 0 to 3 percent slopes	0.2	B
GbB	Gladstone loam, 3 to 8 percent slopes	0.2	B
GbC	Gladstone loam, 8 to 15 percent slopes	0.2	B
GnB	Glenville - Baile silt loams, 0 to 8 percent slopes	0.37	C
MAD	Manor loam, 15 to 25 percent slopes	0.24	B

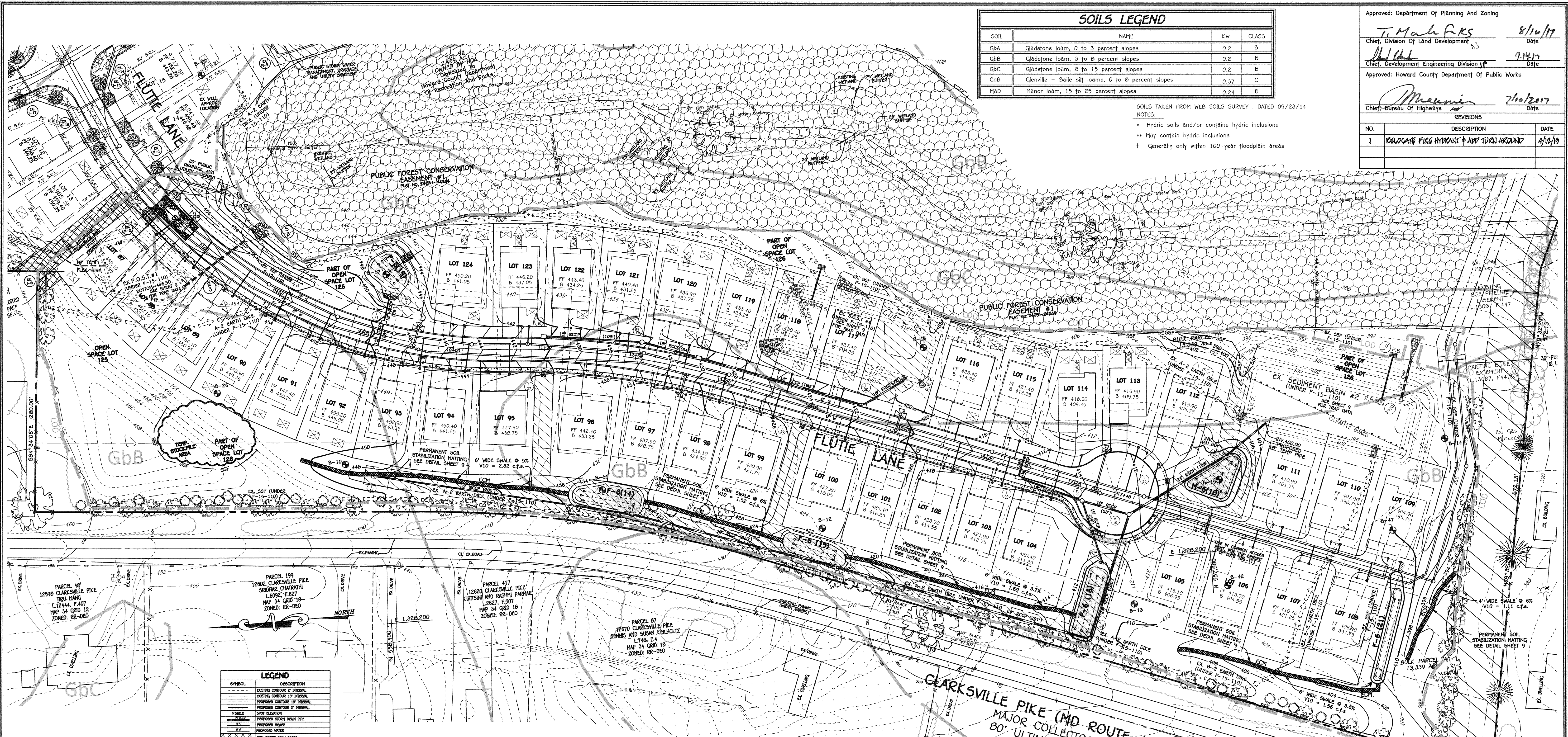
Approved: Department of Planning And Zoning  
*T. Mark FKS* 8/16/17  
 Chief, Division of Land Development Date

*W. J. ...* 7/14/17  
 Chief, Development Engineering Division Date

Approved: Howard County Department Of Public Works  
*M. ...* 7/10/2017  
 Chief, Bureau of Highways Date

REVISIONS		
NO.	DESCRIPTION	DATE
1	RELOCATE FIRE HYDRANT & ADD TURN ARROUND	4/12/19

SOILS TAKEN FROM WEB SOILS SURVEY : DATED 09/23/14  
 NOTES:  
 \* Hydric soils and/or contains hydric inclusions  
 \*\* May contain hydric inclusions  
 † Generally only within 100-year floodplain areas



**PROFESSIONAL CERTIFICATE**  
 I hereby 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.

*Frank M. Manalansan Jr.* 6/23/17  
 Signature of Licensed Professional Date

**DEVELOPER'S CERTIFICATE**  
 I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources 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 or their authorized agents, as are deemed necessary.

*[Signature]* 6/23/17  
 Signature of Developer Date

LEGEND	
[Symbol]	EXISTING CONTOUR OF INTERNAL
[Symbol]	PROPOSED CONTOUR OF INTERNAL
[Symbol]	EXISTING CONTOUR OF EXTERNAL
[Symbol]	PROPOSED CONTOUR OF EXTERNAL
[Symbol]	SPOT ELEVATION
[Symbol]	PROPOSED STORM DRAIN PIPE
[Symbol]	PROPOSED DRAIN
[Symbol]	PROPOSED WEDGE
[Symbol]	NON-CREPT OPEN SPACE
[Symbol]	15-24% SLOPES
[Symbol]	5% OR GREATER SLOPES
[Symbol]	1" SOILS
[Symbol]	2" SOILS
[Symbol]	3" SOILS
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THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

*J. ...* 6/23/17  
 Approved: District Engineer and SCD

**HOUSE CONSTRUCTION NOTES:**

- THIS HOWARD (SCD) STANDARD SEDIMENT CONTROL PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR HOUSE CONSTRUCTION FOR THIS DRAWING.
- HOUSES MAY NOT BE BUILT USING THIS DRAWING.

**CONTRACTOR NOTES:**

- SHOULD THE STOCKPILE EXCEED 15 FT. IN HEIGHT IT MUST BE BENCHED.
- EARTH DIKES CROSSING THE ROADWAYS ARE TO BE CONNECTED TO MACADAM BERMS AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- ANY ROADSIDE SWALE OR DITCH LOCATED IN FILL SHALL BE COMPACTED TO 95% COMPACTION TO AVOID EROSION IN THESE AREAS.
- ALL SEDIMENT CONTROLS INTERRUPTED BY STORM DRAIN INSTALLATION ARE TO BE REPAIRED IMMEDIATELY.
- FOR FINAL GRADING; SEDIMENT BASIN #2 AND SEDIMENT TRAPS 4, 6, 7, 8 & 9, SEE DETAILS SHEET NO. 9.

**LIMIT OF DISTURBANCE- PHASE ONE = 12.32 AC +/-**

**PLAN**  
 SCALE: 1"=50'

**SPECIMEN TREE NOTE:**  
 CONTRACTOR SHALL BE RESPONSIBLE TO PERFORM ADEQUATE PRE-, DURING AND POST CONSTRUCTION PRACTICES AND MEASURES AS DESCRIBED IN APPENDIX G OF THE LATEST HOWARD COUNTY FOREST CONSERVATION MANUAL WHEN WORKING IN THE VICINITY OF THE CRITICAL ROOT ZONE OF THE SPECIMEN TREES IDENTIFIED TO REMAIN WITHIN THIS PROJECT TO ENSURE SURVIVAL OF THE TREES.

**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/19.

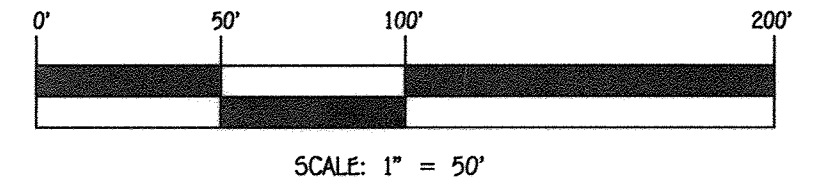
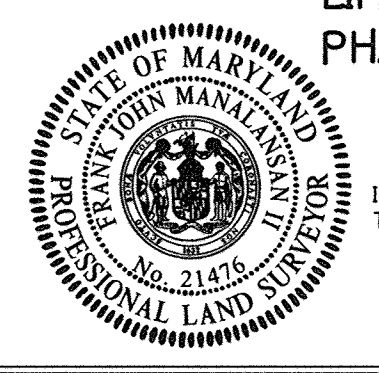
*Frank M. Manalansan Jr.* 6/23/17  
 Signature of Professional Date

**DEVELOPER**  
 BEAZER HOMES, LLC  
 8965 GULFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (765)-894-0182

**OWNERS**  
 TERNEY FARMS-CLARKSVILLE, LP.  
 24151 VENTURE BOULEVARD  
 CALIFORNIA, CALIFORNIA 91302  
 (918)-385-3697

**GRADING, EROSION AND SEDIMENT CONTROL PLAN**  
**LOD-PHASE ONE**  
**ENCLAVE AT RIVER HILL**  
**PHASE 2**  
**LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'**  
 PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110, WP-16-152 PLAT NO.S 24921 - 24944  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 88 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 6 OF 29 F-17-003

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALDWIN NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21046  
 (410) 461-2895









**SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)**

- A. SOIL PREPARATION**
- TEMPORARY STABILIZATION**
    - SEEDING PREPARATION CONSISTS OF LOOSING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS CREEP HARROWS OR CHISEL PLOWS OR SPERSERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
    - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
    - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
  - PERMANENT STABILIZATION**
    - A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL SAMPLES REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
      - A SOIL TEST IN BETWEEN 600 AND 700 FEET
      - SOIL SAMPLES LESS THAN 500 PARTS PER MILLION (PPM).
      - SOIL SAMPLES LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILET PLUS CLAY) TO HOLD TOGETHER A MINIMUM AMOUNT OF MOISTURE. AN EXCEPTION: IF THE SOIL IS HEAVILY SANDY, LESS THAN 10 PERCENT CLAY MAY BE USED. IN THIS CASE, THE SOIL SHOULD BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
    - M SOIL CONTAINS 15 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
    - V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
    - APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED BY ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
    - GRADED AREAS MUST BE MAINTAINED IN A FINE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCAPED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
    - APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
    - IF SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. LIME LAYS AREA TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDING PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRESH. SEEDING LOOSENESS MAY BE UNNECESSARY ON NEARLY DISTURBED AREAS.

- B. TOPSOILING**
- TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF MODERATE HIGH LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW MATERIAL TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRAIN SIZE.
  - TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. THIRTEEN (13) FEET OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USGS.
  - TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES ONLY.
  - A. THE TEXTURE OF THE SOIL SUBSTRATE MUST BE NEARLY AS FAVORABLE TO VEGETATIVE GROWTH AS THE SOIL MATERIALS TO BE PLACED THEREON. IT IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUOUS SUPPLIES OF NUTRIENT AND PLANT NUTRIENTS.
  - B. THE ORIGINAL SOIL TO BE RECOVERED MUST BE PLANT GROWTH.
  - C. THE ORIGINAL SOIL TO BE RECOVERED MUST BE PLANT GROWTH.
  - D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
  - AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
  - TOPSOIL SPECIFICATIONS: TOPSOIL TO BE USED MUST BE THE FOLLOWING CHARACTERISTICS:
    - TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE HEAVILY CONTAMINATED WITH TOXIC SUBSTANCES OR OTHER POLLUTANTS. TOPSOIL MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
    - TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IS A CONDITION THAT MAY OTHERWISE BE DETERMINED TO PROHIBIT GRADING AND SEEDING PREPARATION.

- C. SOIL AMENDMENTS (FERTILIZER & LIME SPECIFICATIONS)**
- SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR FERTILIZER PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSIS.
  - FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LABEL AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
  - LIME MATERIALS MUST BE GROUND LIMESTONE HYDRATED OR BURNED LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROLYZING WHICH CONTAINS AT LEAST 90 PERCENT TOTAL GROSS CALCIUM (CALCIUM PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 90 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 90 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
  - LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
  - WHERE THE SUBSOIL IS EITHER HEAVILY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT A RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

**DUST CONTROL**

- DEFINITION**  
CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.
- PURPOSE**  
TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, LIMIT HAZARDS AND IMPROVE TRAFFIC SAFETY.
- CONDITIONS WHERE PRACTICE APPLIES**  
THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

- SPECIFICATIONS**
- TEMPORARY METHODS**
- MULCHES - SEE STANDARDS FOR TEMPORARY STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.
  - VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.
  - TILLAGE - TO ROUGHEN SURFACE AND BRING CLDS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING BEGINS. BLOWING ON UNGRADED SIDE OF THE SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12' APART, SPRING-TOOTHED HARROWS AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
  - ROUNDOFF - THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPARKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO SHOULD THE SOIL BE ROUGHENED TO THE POINT THAT ROUNDOFF BEGINS TO FLOW.
  - BARBERS - SOIL BOUND FENCES SILT FENCES, SNOW FENCES, BURIAL FENCES, STEEL BALE DICES AND SIMILAR MATERIAL CAN BE USED TO CONTROL SOIL BLOWING, CURBENTS AND SOIL BLOWING. CURRENTS AND SOIL BLOWING BARBERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 FEET THESE MUST BE EFFECTIVE IN:
    6. CALCIUM CHLORIDE - APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.
- PERMANENT METHODS**
- PERMANENT VEGETATION - SEE STANDARDS FOR PERMANENT VEGETATIVE COVER AND PERMANENT STABILIZATION WITH SOIL. EXISTING TREES OR LARGE SHRUBS MAY OFFER VALUABLE PROTECTION IF LEFT IN PLACE.
  - TOPSOILING - COMBING WITH LESS EXPOSURE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.
  - STONE - COVER SURFACE WITH CRUSHED STONE OR CORRAL GRAVEL.

**TEMPORARY SEEDING NOTES (B-4-4)**

- DEFINITION**  
TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.
- PURPOSE**  
TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.
- CONDITIONS WHERE PRACTICE APPLIES**  
EXPOSED SOILS WHERE SOONER COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.
- CRITERIA**
- SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY TABLE ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
  - FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
  - WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH AS PRESCRIBED IN SECTION B-4-3.1.1.8 AND MAINTAIN LIME. THE BEST SEEDING SEASON.

**TEMPORARY SEEDING SUMMARY**

HARDNESS ZONE (FROM FIGURE B.3)	SE	FERTILIZER RATE (10-20-20)	LIME RATE (SEED MIXTURE FROM TABLE B.1)
SPECIES	APPLICATION RATE (LB./AC.)	SEEDING DATE	SEEDING DEPTH
BARLEY	72	3/1 - 5/15	436 LB./AC. (100 LB./1000 SF)
OATS	72	8/15 - 10/15	1" (1000 SF)
RYE	112	1"	1"

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
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ELLSBURG, MD 21110  
(410) 461 - 0895

**PERMANENT SEEDING NOTES (B-4-5)**

- A. SEED MIXTURES**
- GENERAL USE**
    - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OF PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURES, APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
    - ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHOULDER, STREAM BANKS OR SLOPES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN US-DA-HS-100 TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
    - FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE TESTING AGENCY. D. FOR AREAS REQUIRING LOW MAINTENANCE, APPLY USE OF FERTILIZER (40-0-0) AT 3 1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.
  - TURFGRASS MIXTURES**
    - AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A PREMIUM TO HIGH LEVELS OF MAINTENANCE.
    - ENTER SELECTED MIXTURES, APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
    1. KENTUCKY BLUEGRASS: FULL SUN MIXTURE; FOR USE IN AREAS THAT RECEIVE INTENSIVE MAINTENANCE. BROADCAST OR RESEED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    2. TALL FESCUE: FULL SUN MIXTURE; FOR USE IN AREAS THAT RECEIVE INTENSIVE MAINTENANCE. BROADCAST OR RESEED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    3. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE; FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MODERATE TO INTENSIVE MAINTENANCE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    4. TALL FESCUE/BLUEGRASS: FULL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN FULL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    5. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    6. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    7. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    8. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    9. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    10. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    11. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    12. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    13. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    14. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    15. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    16. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
    17. TALL FESCUE/BLUEGRASS: PARTIAL SUN MIXTURE; FOR USE IN BROADLY PRAIRIE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN PARTIAL SUN TO MEDIUM SHADE. RECOMMENDED APPLICATION RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET.
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STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 3 AREA D (CONSTRUCTED UNDER F 15-110)		
DRAINAGE AREA - INITIAL	1.03	ACRES
DRAINAGE AREA - INTERIM	---	ACRES
DRAINAGE AREA - FINAL	4.42	ACRES
TOTAL STORAGE REQUIRED	15,912	CF
TOTAL STORAGE PROVIDED	29,280	CF
WET STORAGE REQUIRED	7,956	CF
WET STORAGE PROVIDED	9,792 @ 420.0	CF
DRY STORAGE REQUIRED (TSWM)	15,246	CF
DRY STORAGE PROVIDED (TSWM)	19,528 @ 423.0	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	420.00	FT
TRAP BOTTOM ELEVATION	418.00	FT
TRAP BOTTOM DIMENSIONS	50 x 86	FT x FT
WEIR LENGTH	30	FT
WEIR CREST (DRY STORAGE) ELEVATION	423.00	FT
CLEANOUT ELEVATION	420.50	FT
TOP OF EMBANKMENT ELEVATION	424.00	FT
SIDE SLOPE	2	HV RATIO
EMBANKMENT TOP WIDTH	4	FT
OUTLET PROTECTION - LENGTH	10	FT
OUTLET PROTECTION - DEPTH	19	IN

STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 7 AREA J (CONSTRUCTED UNDER F 15-110)		
DRAINAGE AREA - INITIAL	4.24	ACRES
DRAINAGE AREA - INTERIM	---	ACRES
DRAINAGE AREA - FINAL	4.43	ACRES
TOTAL STORAGE REQUIRED	15,948	CF
TOTAL STORAGE PROVIDED	32,224	CF
WET STORAGE REQUIRED	7,974	CF
WET STORAGE PROVIDED	7,974	CF
DRY STORAGE REQUIRED	15,948	CF
DRY STORAGE PROVIDED	15,948	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	372.00	FT
TRAP BOTTOM ELEVATION	370.00	FT
TRAP BOTTOM DIMENSIONS	60 x 110	FT x FT
WEIR LENGTH	30	FT
WEIR CREST (DRY STORAGE) ELEVATION	374.75	FT
CLEANOUT ELEVATION	370.50	FT
TOP OF EMBANKMENT ELEVATION	376.00	FT
SIDE SLOPE	2	HV RATIO
EMBANKMENT TOP WIDTH	4	FT
OUTLET PROTECTION - LENGTH	10	FT
OUTLET PROTECTION - DEPTH	19	IN

STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 4 AREA F (CONSTRUCTED UNDER F 15-110)		
DRAINAGE AREA - INITIAL	3.58	ACRES
DRAINAGE AREA - INTERIM	---	ACRES
DRAINAGE AREA - FINAL	2.01	ACRES
TOTAL STORAGE REQUIRED	12,800	CF
TOTAL STORAGE PROVIDED	38,226	CF
WET STORAGE REQUIRED	6,444	CF
WET STORAGE PROVIDED	6,444	CF
DRY STORAGE REQUIRED (TSWM)	12,800	CF
DRY STORAGE PROVIDED (TSWM)	12,800	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	413.20	FT
TRAP BOTTOM ELEVATION	412.00	FT
TRAP BOTTOM DIMENSIONS	50 x 156	FT x FT
WEIR LENGTH	35	FT
WEIR CREST (DRY STORAGE) ELEVATION	419.00	FT
CLEANOUT ELEVATION	412.30	FT
TOP OF EMBANKMENT ELEVATION	416.00	FT
SIDE SLOPE	2	HV RATIO
EMBANKMENT TOP WIDTH	4	FT
OUTLET PROTECTION - LENGTH	10	FT
OUTLET PROTECTION - DEPTH	19	IN

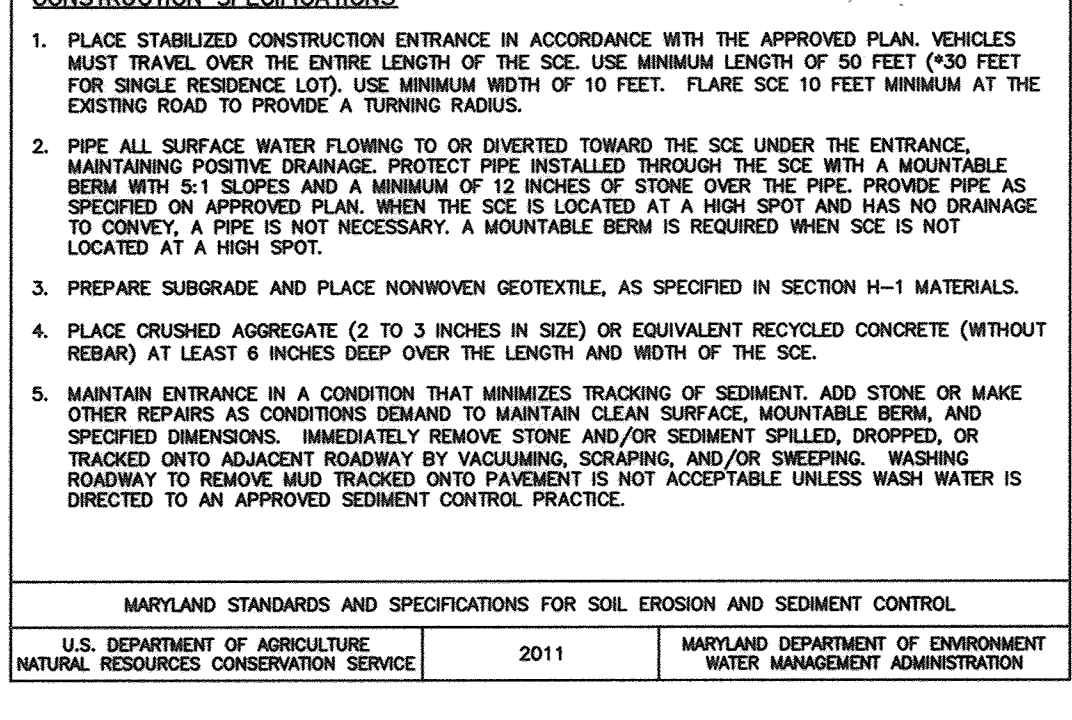
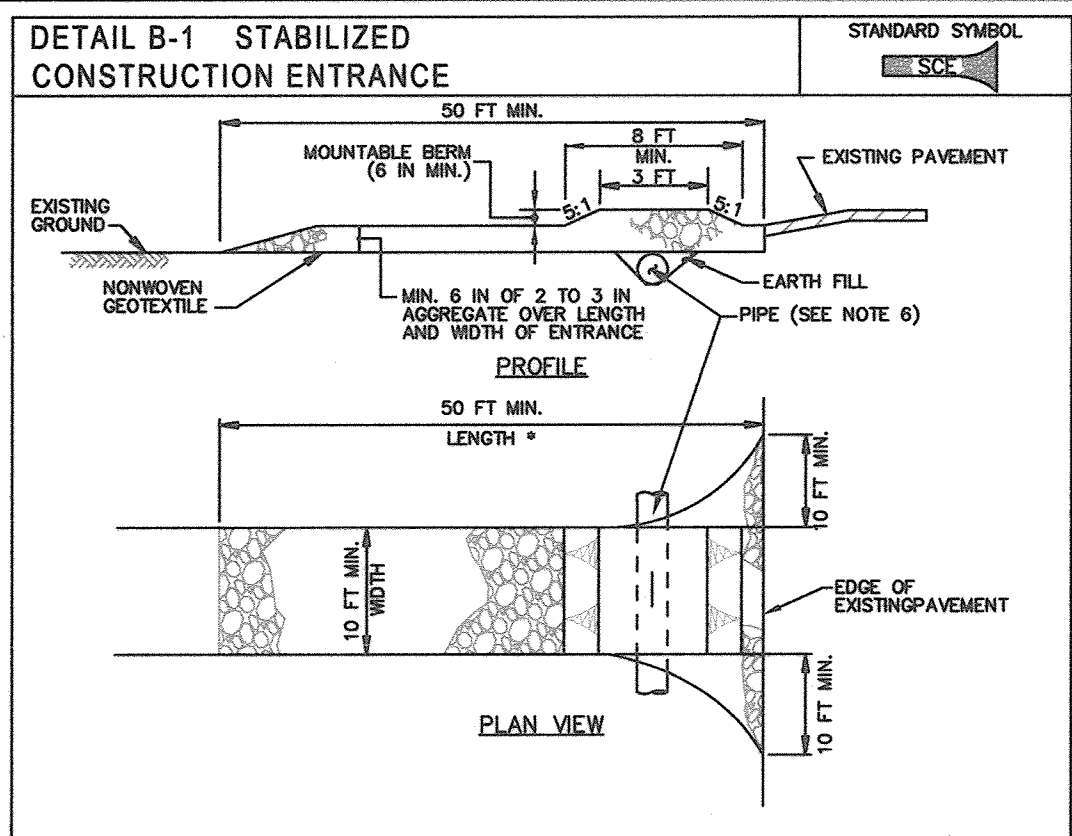
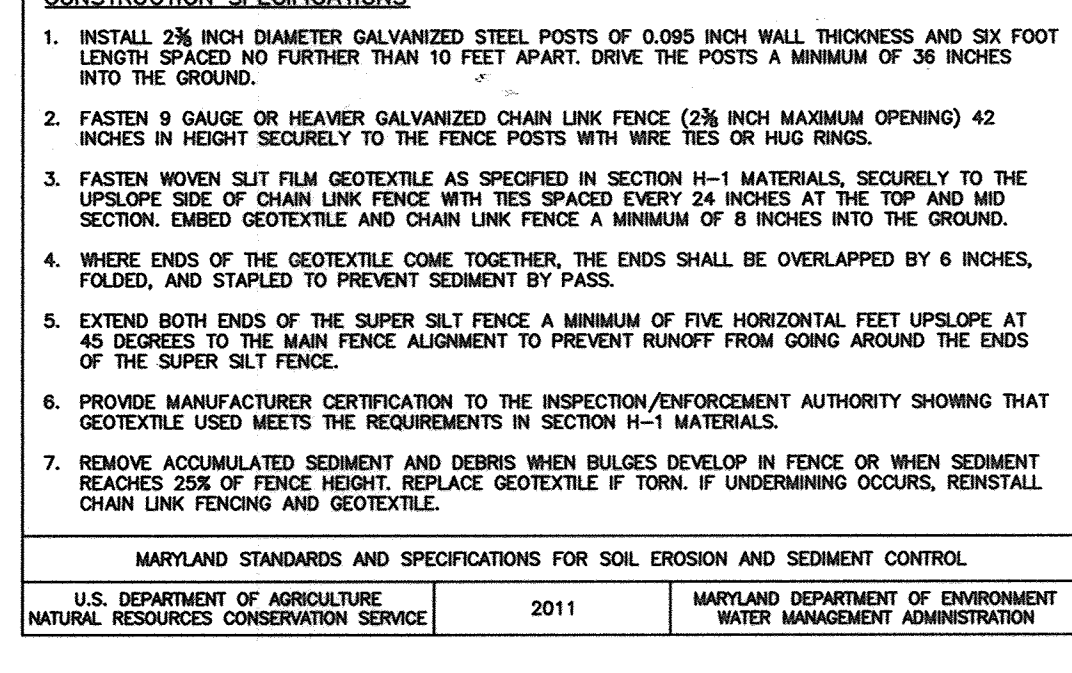
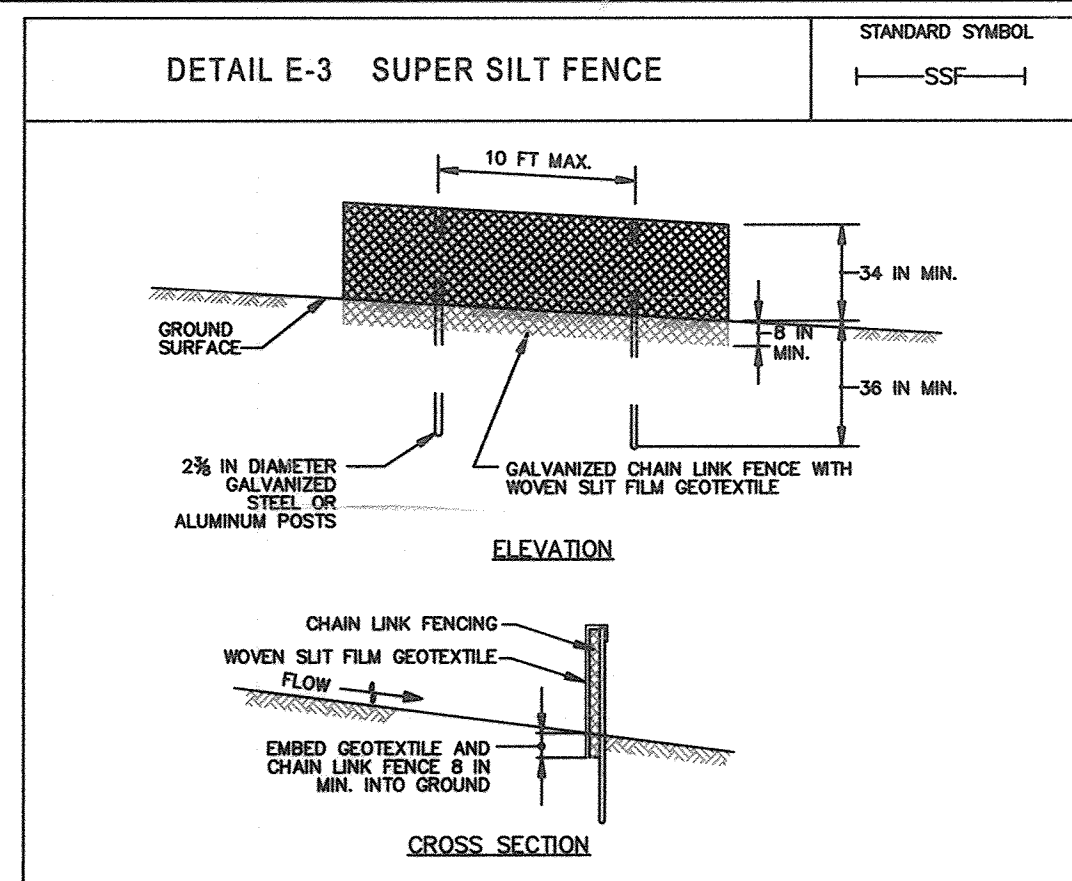
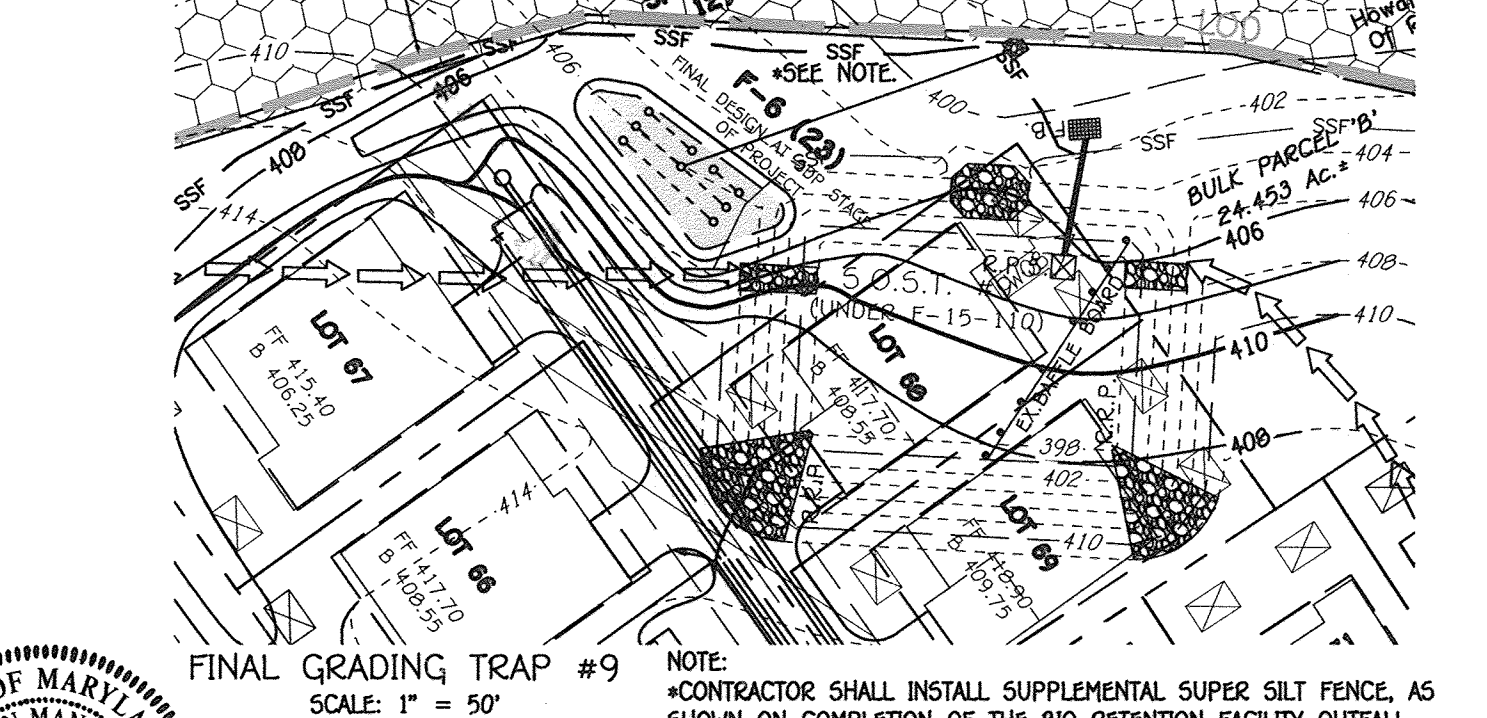
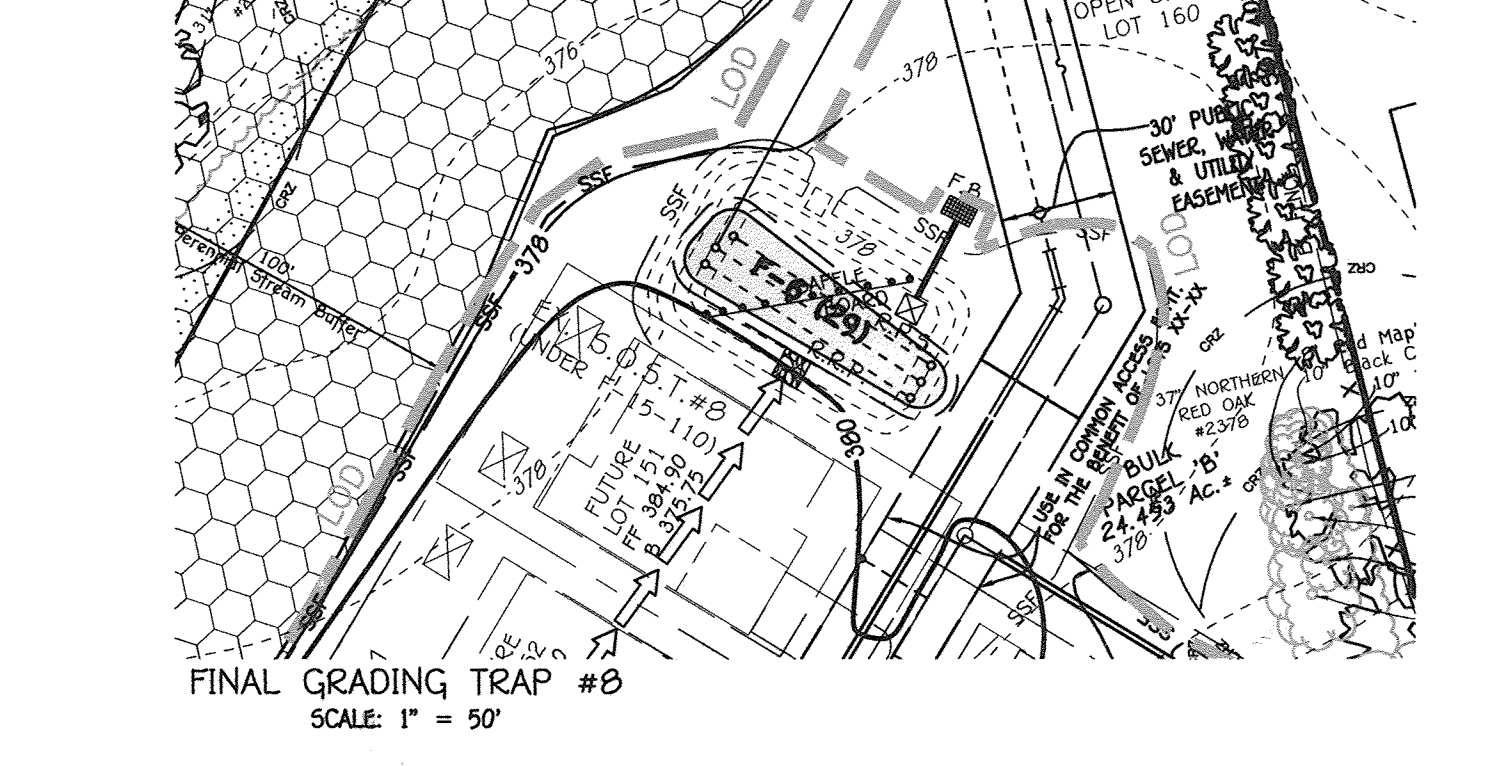
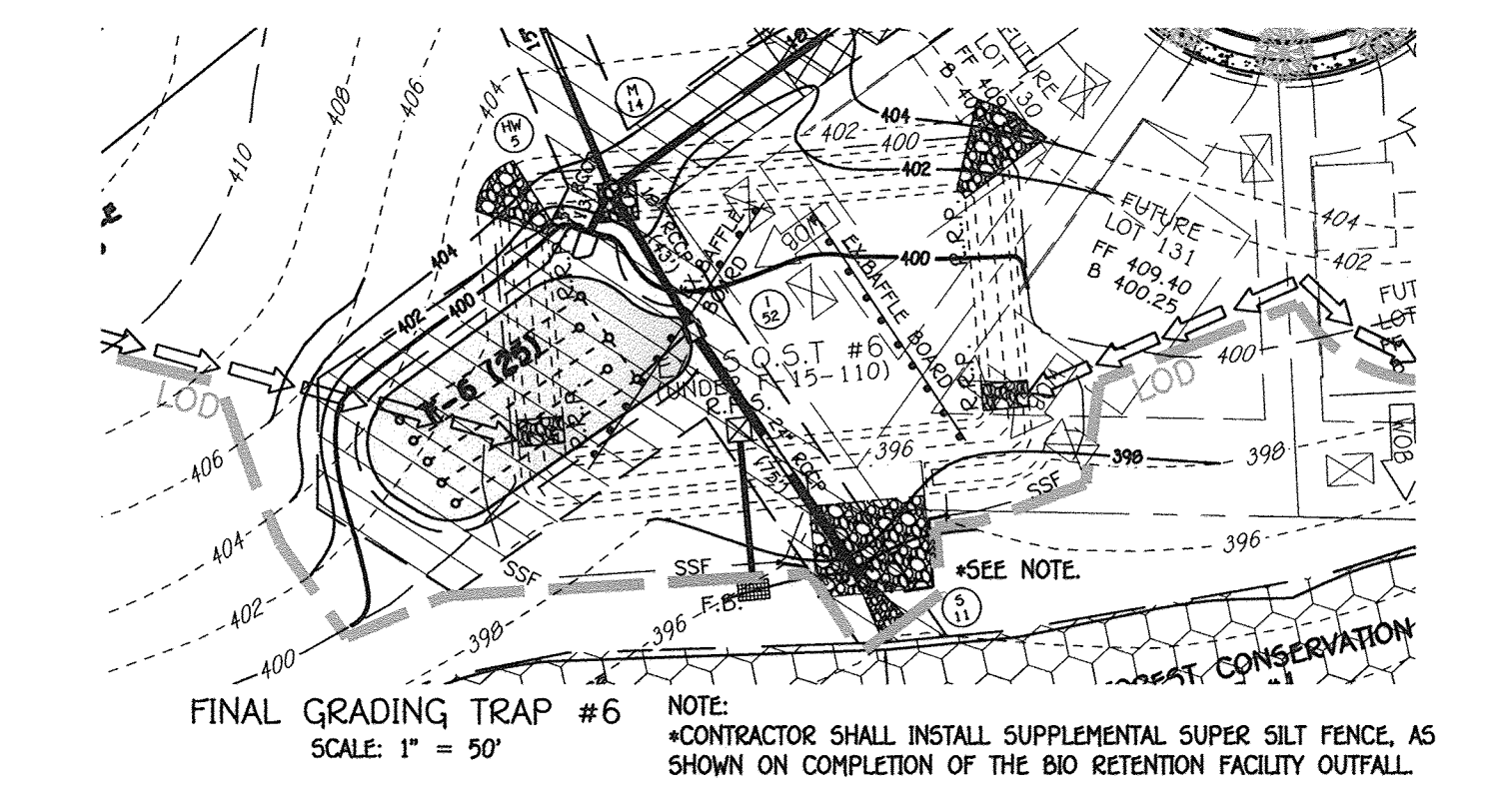
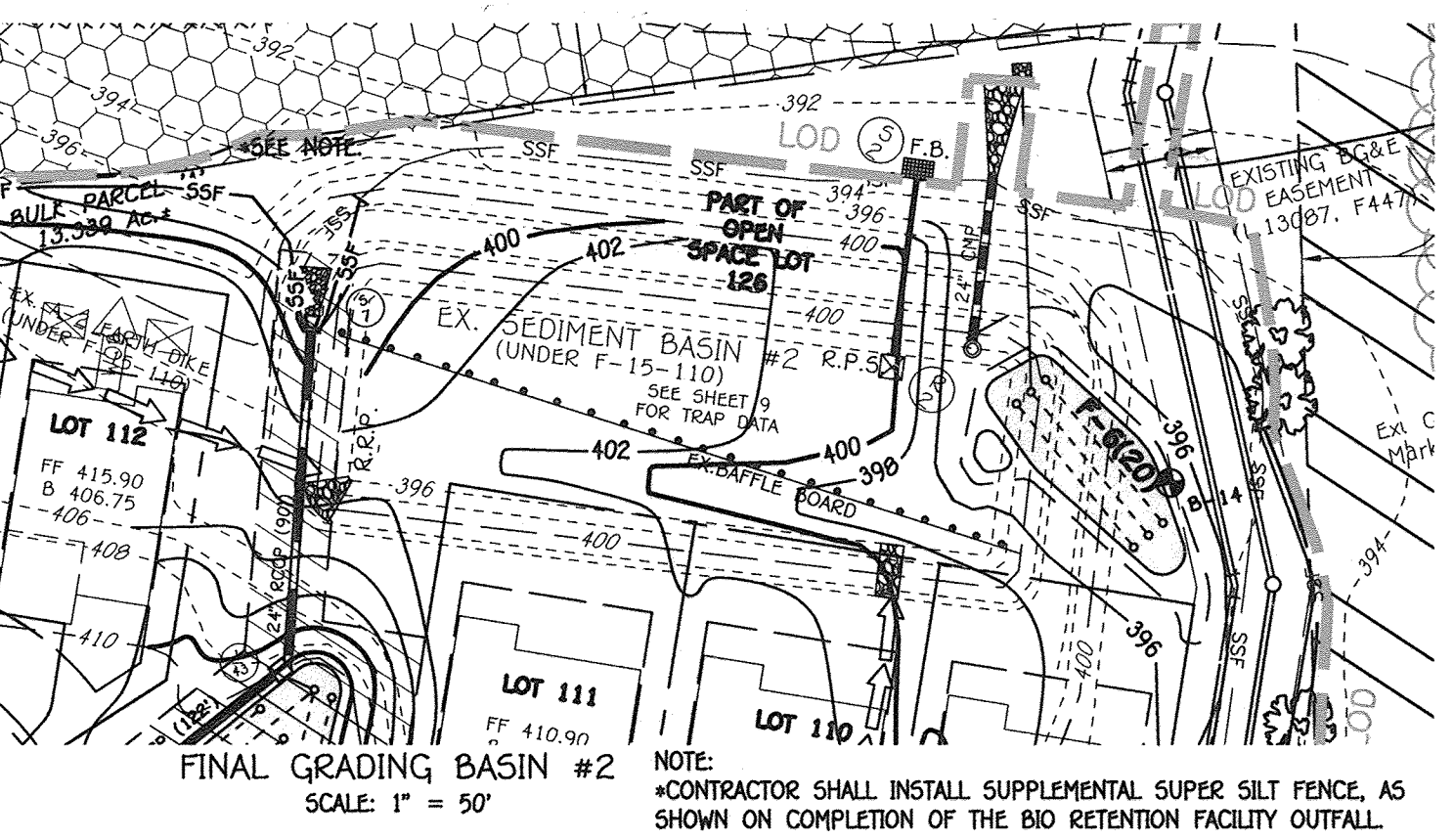
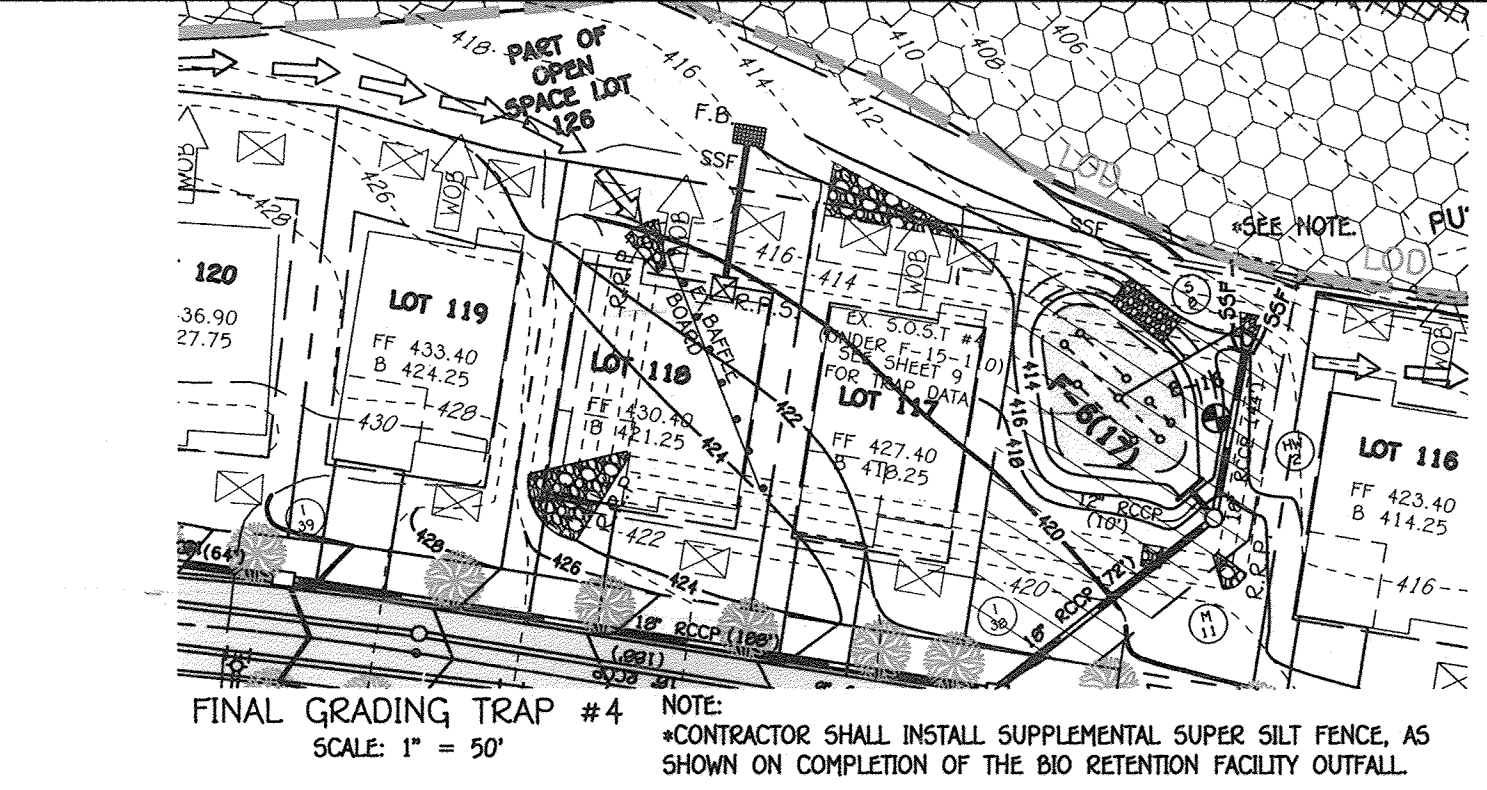
STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 8 AREA K (CONSTRUCTED UNDER F 15-110)		
DRAINAGE AREA - INITIAL	1.02	ACRES
DRAINAGE AREA - INTERIM	---	ACRES
DRAINAGE AREA - FINAL	1.30	ACRES
TOTAL STORAGE REQUIRED	4,680	CF
TOTAL STORAGE PROVIDED	6,306	CF
WET STORAGE REQUIRED	2,340	CF
WET STORAGE PROVIDED	2,340	CF
DRY STORAGE REQUIRED (TSWM)	4,680	CF
DRY STORAGE PROVIDED (TSWM)	4,680 @ 378.40	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	376.80	FT
TRAP BOTTOM ELEVATION	375.80	FT
TRAP BOTTOM DIMENSIONS	28 x 56	FT x FT
WEIR LENGTH	5	FT
WEIR CREST (DRY STORAGE) ELEVATION	377.95	FT
CLEANOUT ELEVATION	376.40	FT
TOP OF EMBANKMENT ELEVATION	379.00	FT
SIDE SLOPE	2	HV RATIO
EMBANKMENT TOP WIDTH	4	FT
OUTLET PROTECTION - LENGTH	10	FT
OUTLET PROTECTION - DEPTH	19	IN

STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 6 AREA I (CONSTRUCTED UNDER F 15-110)		
DRAINAGE AREA - INITIAL	3.43	ACRES
DRAINAGE AREA - INTERIM	---	ACRES
DRAINAGE AREA - FINAL	3.94	ACRES
TOTAL STORAGE REQUIRED	14,184	CF
TOTAL STORAGE PROVIDED	32,224	CF
WET STORAGE REQUIRED	7,092	CF
WET STORAGE PROVIDED	7,092	CF
DRY STORAGE REQUIRED (TSWM)	14,184	CF
DRY STORAGE PROVIDED (TSWM)	14,184	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	395.00	FT
TRAP BOTTOM ELEVATION	393.00	FT
TRAP BOTTOM DIMENSIONS	60 x 110	FT x FT
WEIR LENGTH	16	FT
WEIR CREST (DRY STORAGE) ELEVATION	397.75	FT
CLEANOUT ELEVATION	393.45	FT
TOP OF EMBANKMENT ELEVATION	399.00	FT
SIDE SLOPE	2	HV RATIO
EMBANKMENT TOP WIDTH	4	FT
OUTLET PROTECTION - LENGTH	10	FT
OUTLET PROTECTION - DEPTH	19	IN

STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 9 AREA H (CONSTRUCTED UNDER F 15-110)		
DRAINAGE AREA - INITIAL	3.26	ACRES
DRAINAGE AREA - INTERIM	---	ACRES
DRAINAGE AREA - FINAL	4.36	ACRES
TOTAL STORAGE REQUIRED	15,969	CF
TOTAL STORAGE PROVIDED	20,544	CF
WET STORAGE REQUIRED	7,984	CF
WET STORAGE PROVIDED	9,104	CF
DRY STORAGE REQUIRED (TSWM)	14,310	CF
DRY STORAGE PROVIDED (TSWM)	14,310 @ 401.00	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	400.00	FT
TRAP BOTTOM ELEVATION	398.00	FT
TRAP BOTTOM DIMENSIONS	50 x 80	FT x FT
WEIR LENGTH	12	FT
WEIR CREST (DRY STORAGE) ELEVATION	402.00	FT
CLEANOUT ELEVATION	398.80	FT
TOP OF EMBANKMENT ELEVATION	404.00	FT
SIDE SLOPE	2	HV RATIO
EMBANKMENT TOP WIDTH	6	FT
OUTLET PROTECTION - LENGTH	10	FT
OUTLET PROTECTION - DEPTH	19	IN

PIPE OUTLET SEDIMENT TRAP ST-I, TRAP NO. 1 AREA B (CONSTRUCTED UNDER F 15-110)		
DRAINAGE AREA - INITIAL	---	ACRES
DRAINAGE AREA - INTERIM	---	ACRES
DRAINAGE AREA - FINAL	4.06	ACRES
TOTAL STORAGE REQUIRED	22,021	CF
TOTAL STORAGE PROVIDED	22,806	CF
WET STORAGE REQUIRED	7,308	CF
WET STORAGE PROVIDED	7,308	CF
DRY STORAGE REQUIRED (TSWM=14,713)	7,038	CF
DRY STORAGE PROVIDED	22,021	CF
TRAP BOTTOM ELEVATION	446.50	FT
TRAP BOTTOM DIMENSIONS	80' x 60'	FT x FT
RISER CREST (DRY STORAGE) ELEVATION	451.20	FT
OUTLET (WET STORAGE) ELEVATION	448.40	FT
CLEANOUT ELEVATION	447.50	FT
TOP OF EMBANKMENT ELEVATION	452.00	FT
SIDE SLOPE	2:1	HV RATIO
EMBANKMENT TOP WIDTH	4	FT
PRINCIPAL SPILLWAY MATERIAL (BARREL, RISER, ANTI-SLEEP COLLAR)	METAL	
RISER DIAMETER	36	IN
BARREL DIAMETER	27	IN
TRASH RACK DIAMETER	94	IN
TRASH RACK HEIGHT	2.06	FT
ANTI SLEEP COLLAR	8.25 x 8.25	FT
OUTLET PROTECTION - LENGTH	13	FT
OUTLET PROTECTION - WIDTH	15	FT
OUTLET PROTECTION - DEPTH	19	IN

TEMPORARY SEDIMENT BASIN No. 2 D.A. "E" (CONSTRUCTED UNDER F 15-110)		
INITIAL D.A.	4.98	ACRES
FINAL D.A.	7.00	ACRES
STORAGE REQUIRED		
WET = 1800 x 7.00	12,600	Cu.Ft.
DRY = 1800 x 7.00	12,600	Cu.Ft.
STORAGE PROVIDED		
WET = 12,600 Cu.Ft. @ ELEV. 397.40'		
DRY = 23,522 Cu.Ft. @ ELEV. 398.40' 39,032 Cu.Ft. @ 855' CREST FOR TSWM		
BOTTOM ELEV.	396.00	FT
STORAGE DEPTH	7.10	FT
TOP OF EMBANKMENT (6' wide)	403.10'	CONSTRUCTED
CLEANOUT ELEV.	396.70	FT
RISER CREST ELEV.	399.75	FT
1 YR. OFFICE INV.	396.00	FT
Q1 ext. elev.	0.60	c.f.a.
Q1 prop. = 1.40 c.f.a. @ ELEV. = 398.10'		



Approved: Department Of Planning And Zoning  
 Chief, Division Of Land Development  
 Chief, Development Engineering Division  
 Approved: Howard County Department Of Public Works  
 Chief, Bureau Of Highways

T. Mah... 8-16-17  
 Date  
 7-14-17  
 Date  
 7/10/2017  
 Date

PROFESSIONAL CERTIFICATION  
 I HEREBY 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.

Signature of Developer  
 Date: 6/28/17

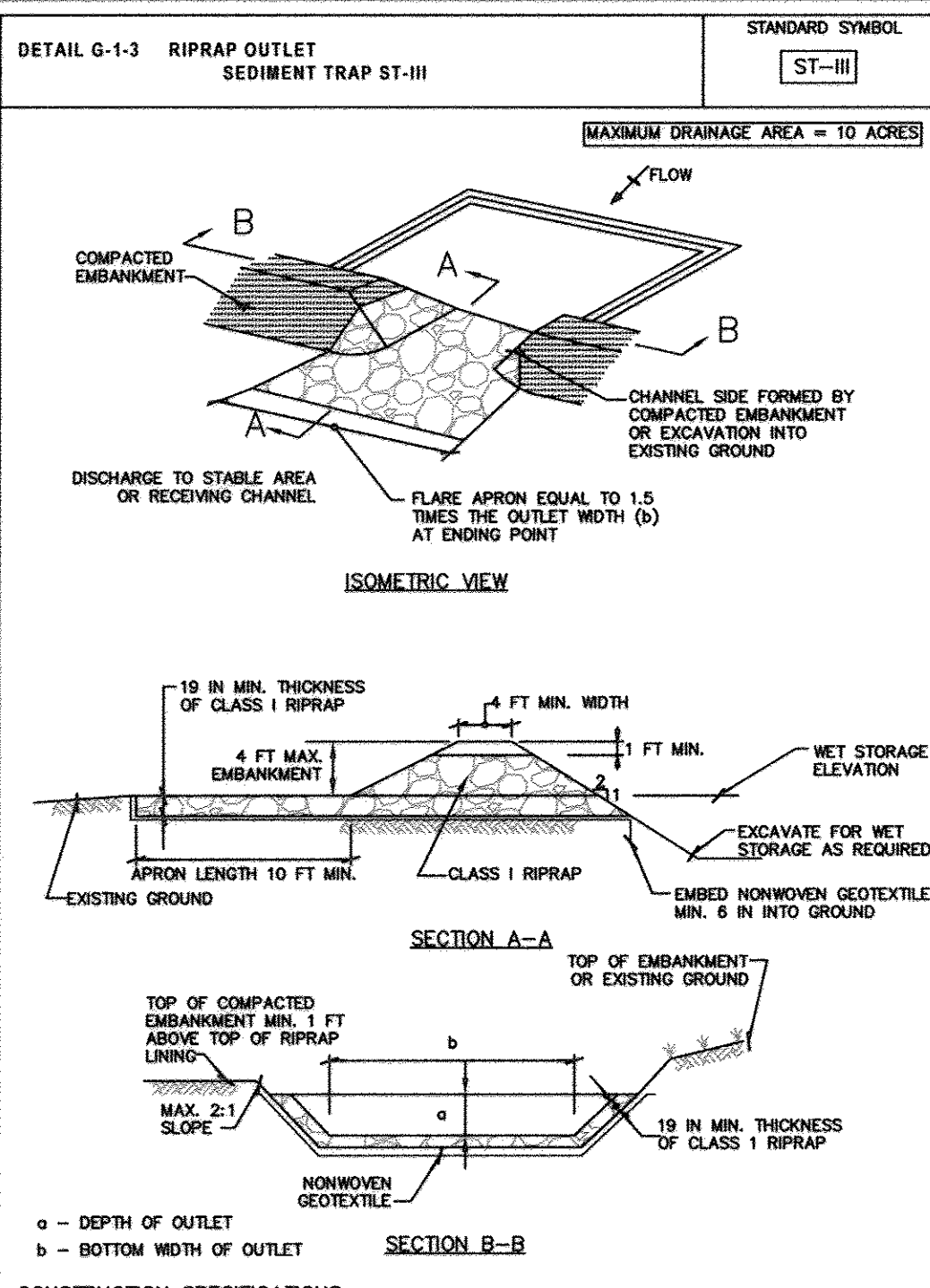
DEVELOPER'S CERTIFICATION  
 I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources 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 Or Their Authorized Agents, As Are Deemed Necessary.

Signature of Developer  
 Date: 6/28/17

NO.	DESCRIPTION	DATE

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 1' INTERVAL
---	EXISTING CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 1' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	SPOT ELEVATION
---	PROPOSED OPEN SPACE
---	PROPOSED WET POND
---	PROPOSED WET POND OPEN SPACE
---	15'-24' SLOPES
---	24' OR GREATER SLOPES
---	9' SLOPES
---	12' SLOPES
---	15' SLOPES
---	18' SLOPES
---	21' SLOPES
---	24' SLOPES
---	27' SLOPES
---	30' SLOPES
---	33' SLOPES
---	36' SLOPES
---	39' SLOPES
---	42' SLOPES
---	45' SLOPES
---	48' SLOPES
---	51' SLOPES
---	54' SLOPES
---	57' SLOPES
---	60' SLOPES
---	63' SLOPES
---	66' SLOPES
---	69' SLOPES
---	72' SLOPES
---	75' SLOPES
---	78' SLOPES
---	81' SLOPES
---	84' SLOPES
---	87' SLOPES
---	90' SLOPES
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---	99' SLOPES
---	102' SLOPES
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---	108' SLOPES
---	111' SLOPES
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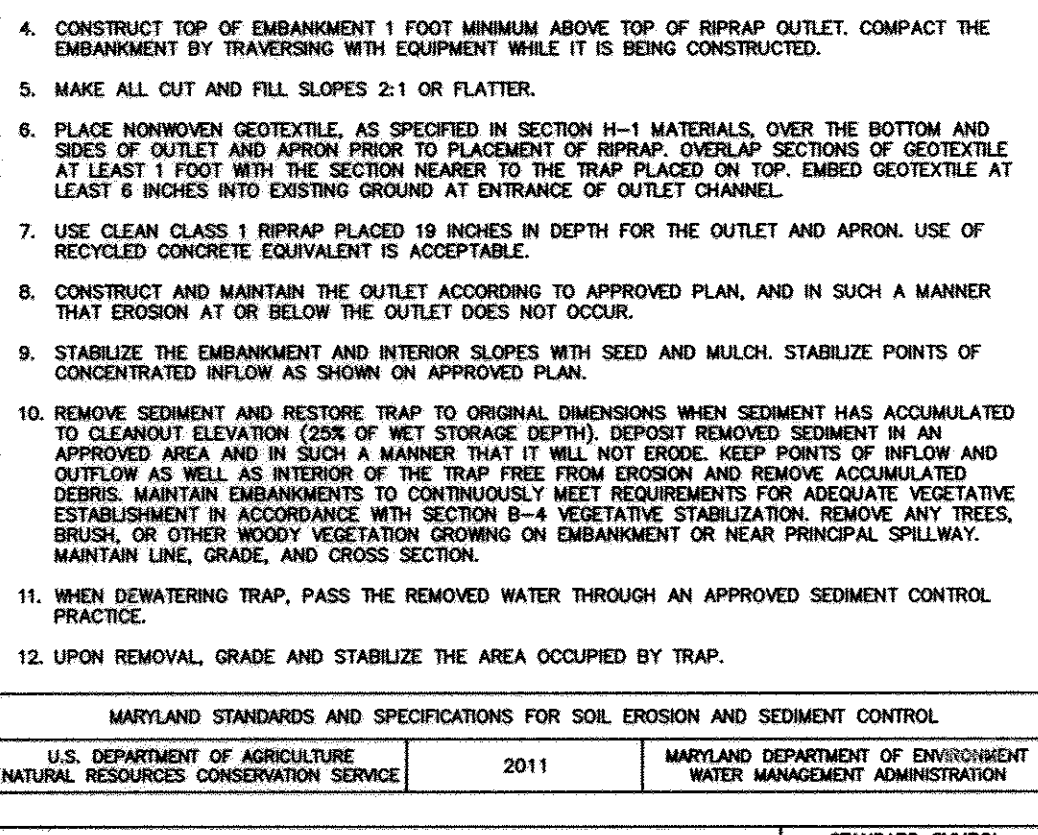




**CONSTRUCTION SPECIFICATIONS**

1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
3. USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
4. CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE TOP OF RIPRAP OUTLET. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
5. MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
6. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE BOTTOM AND SIDES OF OUTLET AND APRON PRIOR TO PLACEMENT OF RIPRAP. OVERLAP SECTIONS OF GEOTEXTILE AT LEAST 1 FOOT WITH THE SECTION NEAREST TO THE TRAP PLACED ON TOP. EMBED GEOTEXTILE AT LEAST 6 INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
7. USE CLEAN CLASS I RIPRAP PLACED 19 INCHES IN DEPTH FOR THE OUTLET AND APRON. USE OF RECYCLED CONCRETE EQUIVALENT IS ACCEPTABLE.
8. CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO APPROVED PLAN, AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
9. STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
10. REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (25% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, SHRUBS, OR OTHER WOOD VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION.
11. WHEN DEWATERING TRAP, PASS THE REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
12. UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

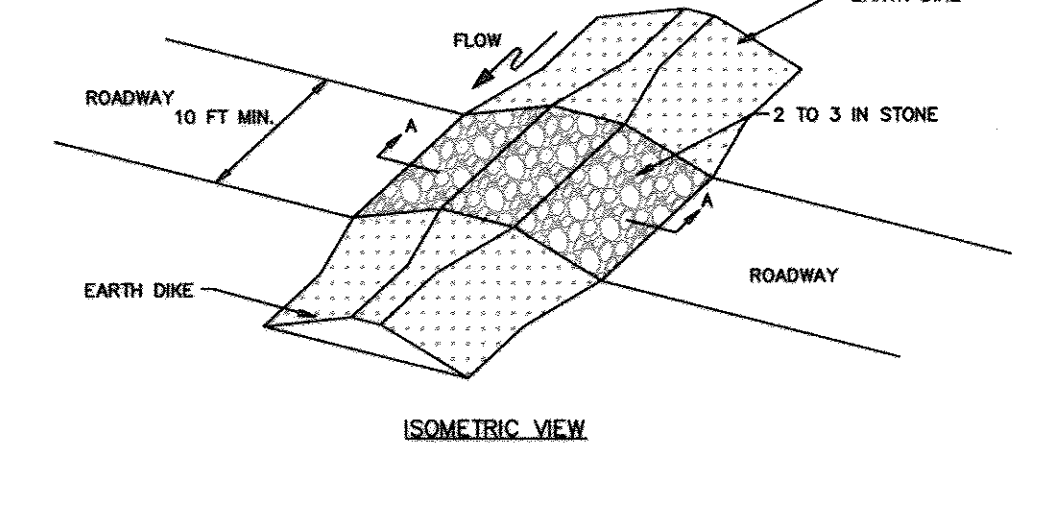
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**CONSTRUCTION SPECIFICATIONS**

1. SET METAL AT 1/2 OF THE DRY STORAGE (WET STORAGE ELEVATION + DRY STORAGE ELEVATION / 2) OR 6 IN BELOW WEIR CREST (OUTLET) WHICHEVER IS LOWER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATER TIGHT SEAL.
3. WRAP EACH PIPE WITH 1/2 INCH GALVANIZED HARDWARE CLOTH, ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH 3/4 TO 1 1/2 INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

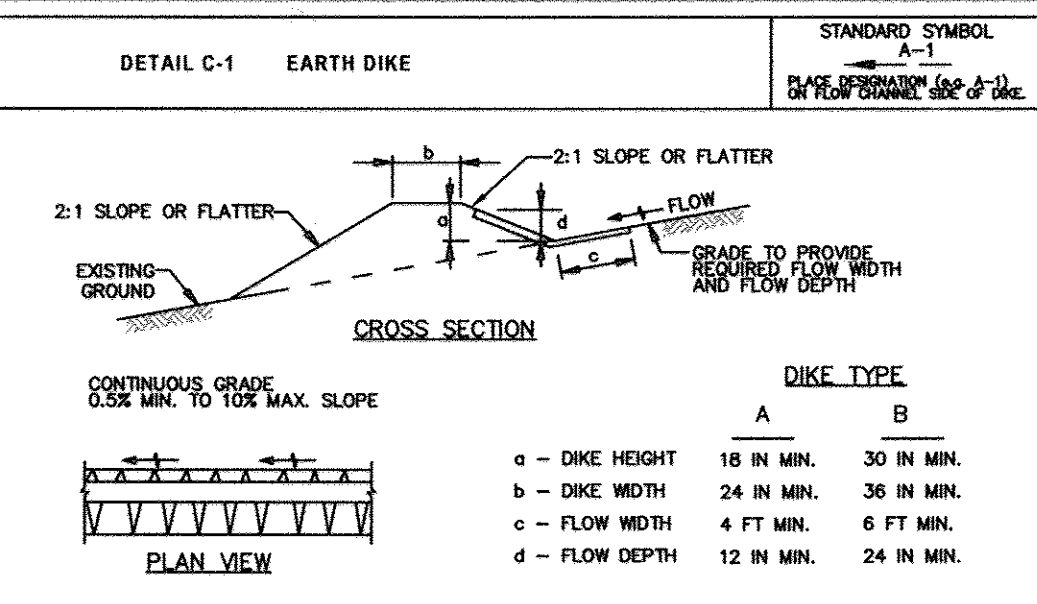
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**CONSTRUCTION SPECIFICATIONS**

1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 8 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
4. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
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**DIKE TYPE**

DIKE TYPE	A	B
d - DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b - DIKE WIDTH	24 IN MIN.	36 IN MIN.
c - FLOW WIDTH	4 FT MIN.	6 FT MIN.
d - FLOW DEPTH	12 IN MIN.	24 IN MIN.

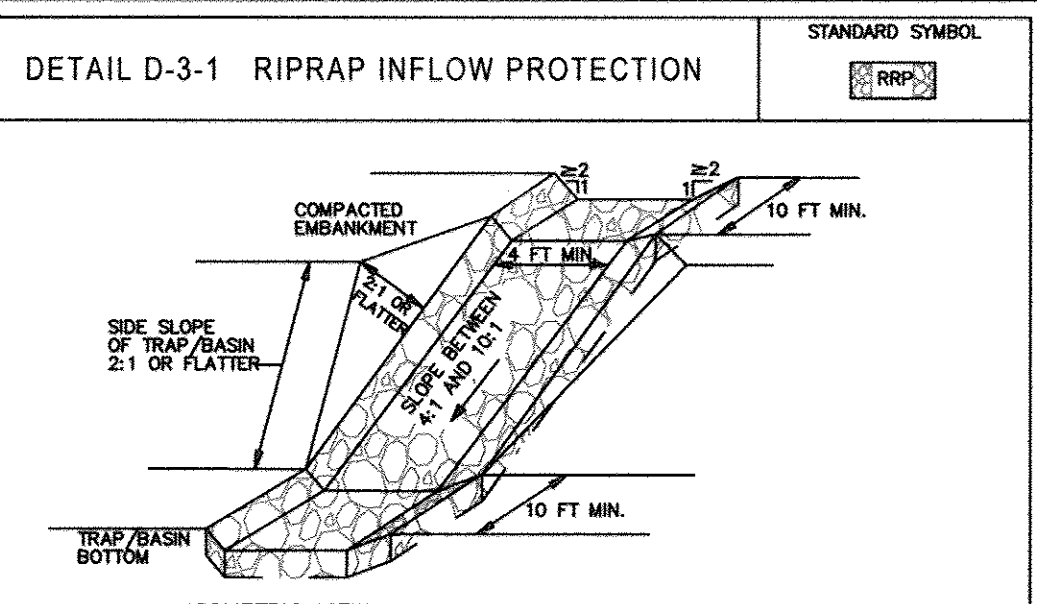
**FLOW CHANNEL STABILIZATION**

- A-1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
- A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOO.
- A-3/B-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL. A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

**CONSTRUCTION SPECIFICATIONS**

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. CONTACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

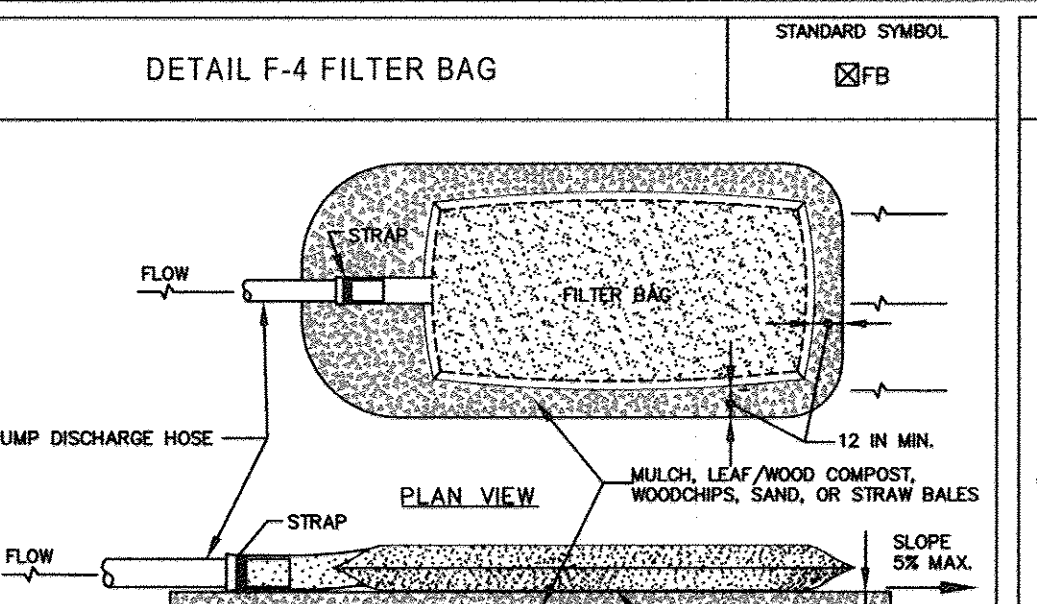
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**CONSTRUCTION SPECIFICATIONS**

1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
2. CONSTRUCT INFLOW CHANNEL WITH CLASS I RIPRAP OR EQUIVALENT RECYCLED CONCRETE LINING TO A MINIMUM DEPTH OF 18 INCHES (2 x Dia) AND A 1 FOOT DEEP FLOW CHANNEL. INFLOW RIPRAP PROTECTION CHANNEL MUST HAVE A TRAPEZOIDAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND A 4 FOOT MINIMUM BOTTOM WIDTH.
3. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
4. BLEND RIPRAP INTO EXISTING GROUND.
5. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

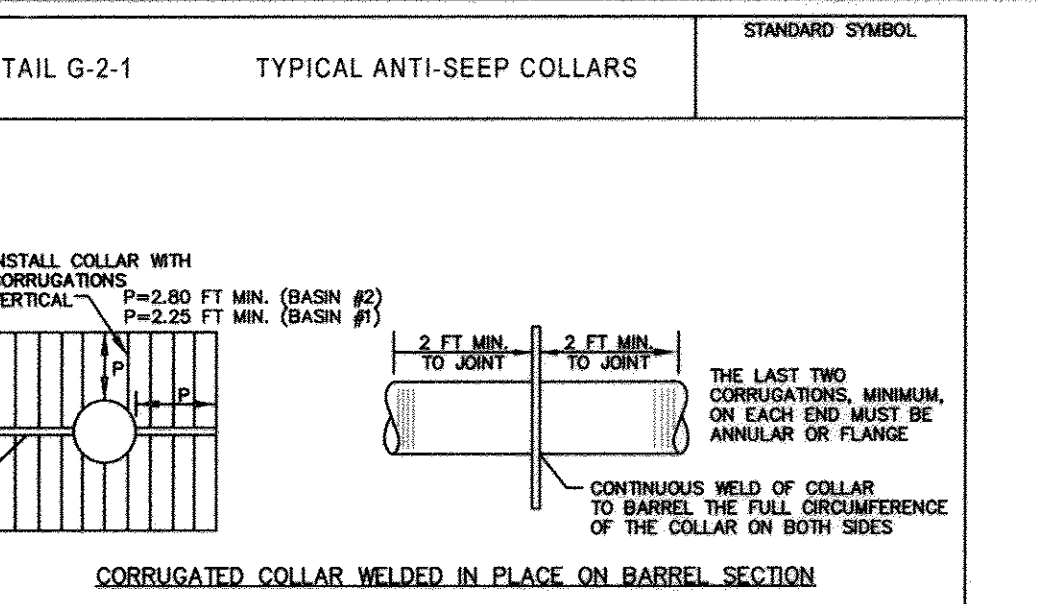
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**CONSTRUCTION SPECIFICATIONS**

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G. MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 2% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MAYV) FOR THE FOLLOWING:

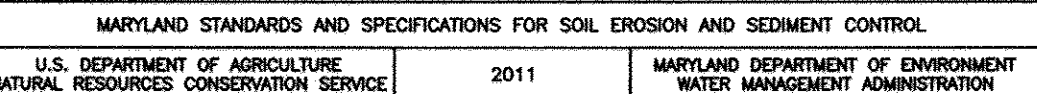
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE 2011



**CONSTRUCTION SPECIFICATIONS**

1. BOTTOM OF CONCRETE BASE TO BE PLACED ON UNDISTURBED, NATURAL GROUND.
2. NO STONE IS ALLOWED UNDER BASE. IF NECESSARY, TO ACHIEVE STABILITY INCREASE DEPTH OF CONCRETE BASE.

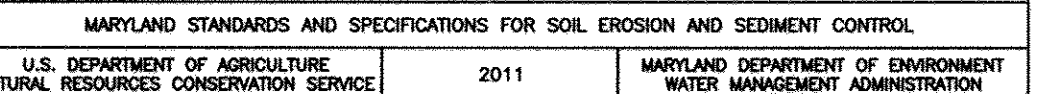
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE 2011



**CONSTRUCTION SPECIFICATIONS**

1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. DO NOT EXTEND PERFORATIONS IN THE DRAW-DOWN DEVICE INTO WET STORAGE.
3. WRAP THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE FIRST WITH 1/2 INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE.
4. AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW-DOWN DEVICE WITH TWO 1 INCH STEEL ANGLES SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW-DOWN DEVICE BY A 1 INCH WIDE GALVANIZED STEEL STRAP OR 12 GAUGE OR HEAVIER WIRE.
5. REMOVE SEDIMENT WHEN IT ACCUMULATES TO CLEANOUT ELEVATION (50% OF THE WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT ERODE. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAIN DOWN WITHIN 10 HOURS.

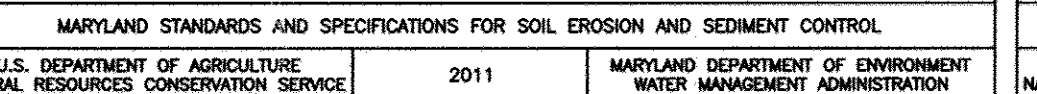
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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE 2011



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U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE 2011



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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE 2011

Approved: Department Of Planning And Zoning  
T. Mark G. KS 8-16-17  
Chief, Division Of Land Development  
Date  
Chief, Development Engineering Division  
Date  
Approved: Howard County Department Of Public Works  
M. M. 7/14/17  
Chief, Bureau Of Highways  
Date

**PROFESSIONAL CERTIFICATE**

I hereby 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.

**DEVELOPER'S CERTIFICATE**

I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources 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 Or Their Authorized Agents, As Are Deemed Necessary.

Signature Of Developer: J. J. 6/9/17  
Date

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

Signature Of District: J. J. 6/28/17  
Date

REVISIONS

NO.	DESCRIPTION	DATE

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE 2011

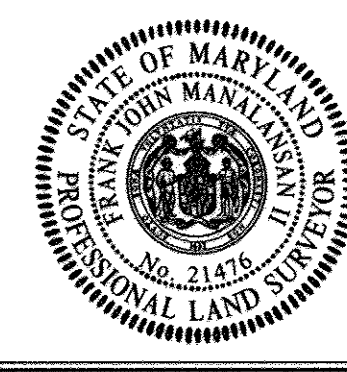


**CONSTRUCTION SPECIFICATIONS**

1. INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 1/2 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR RUS RINGS.
3. FASTEN WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPLOUSE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE 2011

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2895



**PROFESSIONAL CERTIFICATION**

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/19.

Signature: Francis Palanians, No. 21476, Date: 6/23/17

**DEVELOPER**

BEAZER HOMES, LLC  
8965 GULFORD ROAD - SUITE 290  
COLUMBIA, MARYLAND 21046  
(765)-894-0182

**OWNERS**

TIERNY FARMS-CLARKSVILLE, LP.  
24151 VENTURE BOULEVARD  
CALABASAS, CALIFORNIA 91302  
(818)-385-3697

GRADING, EROSION AND SEDIMENT CONTROL NOTES AND DETAILS  
ENCLAVE AT RIVER HILL  
PHASE 2  
LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'  
PREVIOUS HOWARD COUNTY FILES:  
ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110;  
WP-16-152 PLAT NO.5 2021 - 2024  
ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
PARCEL NOS.: 88 & 97  
FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: JUNE, 2017  
SHEET 10 OF 29 F-17-003



**SOILS LEGEND**

SOIL	NAME	Kw	CLASS
GbA	Gladstone loam, 0 to 3 percent slopes	0.2	B
GbB	Gladstone loam, 3 to 8 percent slopes	0.2	B
GbC	Gladstone loam, 8 to 15 percent slopes	0.2	B
GnB	Glenville - Baile silt loams, 0 to 8 percent slopes	0.37	C
MaD	Manor loam, 15 to 25 percent slopes	0.24	B

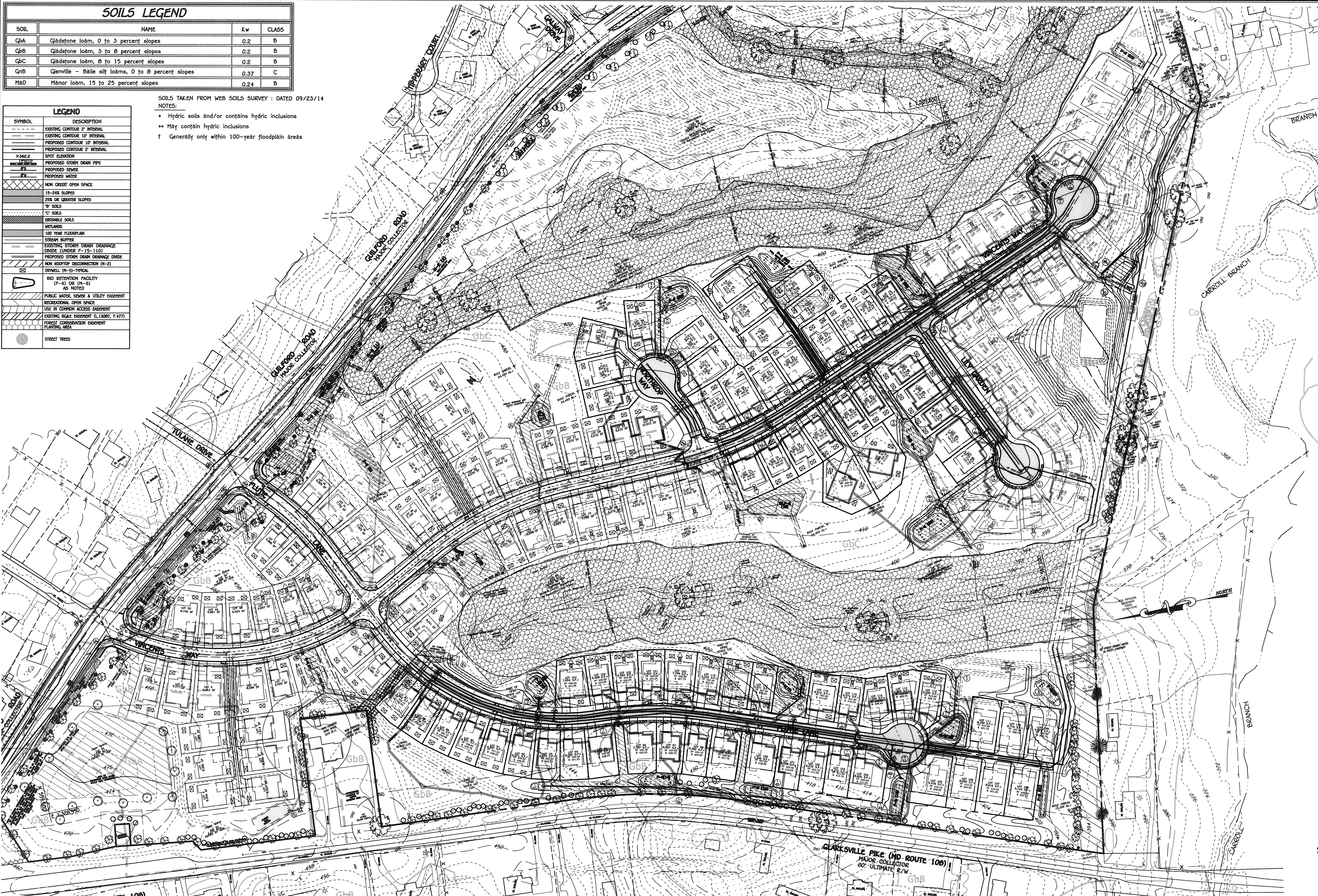
SOILS TAKEN FROM WEB SOILS SURVEY : DATED 09/23/14

**NOTES:**

- Hydric soils and/or contains hydric inclusions
- \*\* May contain hydric inclusions
- † Generally only within 100-year floodplain areas

**LEGEND**

SYMBOL	DESCRIPTION
(Symbol)	EXISTING CONTOUR 2' INTERVAL
(Symbol)	EXISTING CONTOUR 10' INTERVAL
(Symbol)	PROPOSED CONTOUR 2' INTERVAL
(Symbol)	PROPOSED CONTOUR 10' INTERVAL
(Symbol)	PROPOSED STORM DRAIN PIPE
(Symbol)	PROPOSED SEWER
(Symbol)	PROPOSED WATER
(Symbol)	NON CREDIT OPEN SPACE
(Symbol)	15-24% SLOPES
(Symbol)	25% OR GREATER SLOPES
(Symbol)	1" SOILS
(Symbol)	12" SOILS
(Symbol)	ESODABLE SOILS
(Symbol)	WETLANDS
(Symbol)	100 YEAR FLOODPLAIN
(Symbol)	STORM SURVEY
(Symbol)	EXISTING STORM DRAIN DRAINAGE DIVIDE (UNDER F-15-110)
(Symbol)	PROPOSED STORM DRAIN DRAINAGE DIVIDE
(Symbol)	NON SLOOTER DISCONNECTION (N-D)
(Symbol)	DRYWELL (N-5)-TYPICAL
(Symbol)	BIO RETENTION FACILITY (F-6) OR (H-6) AS NOTED
(Symbol)	PUBLIC WATER, SEWER & UTILITY EASEMENT
(Symbol)	RECREATIONAL OPEN SPACE
(Symbol)	USE IN COMMON ACCESS EASEMENT
(Symbol)	EXISTING BULK EASEMENT (L13087, F477)
(Symbol)	FOREST CONSERVATION EASEMENT
(Symbol)	PLANTING AREA
(Symbol)	STREET TREES



Approved: Department Of Planning And Zoning  
*T. Mahr FKS* 8-16-17  
 Chief, Division Of Land Development Date

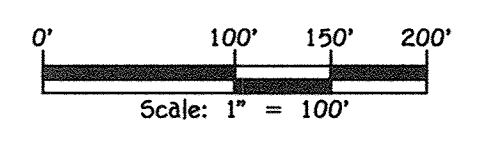
Approved: Howard County Department Of Public Works  
*M. Mevin* 7/10/2017  
 Chief, Bureau Of Highways Date

REVISIONS

NO.	DESCRIPTION	DATE
1	RELOCATE AND REDESIGN FACILITY F-G (88), REVISE VENTURE & MTD AREA 8/17	4/18/19

**DRAINAGE AREA DATA**

STRUCTURE NO.	AREA	'C'	ZONED	% IMP.
1-33	0.63 AC.	.57	R-ED	53%
1-34	0.28 AC.	.54	R-ED	49%
1-35	0.16 AC.	.57	R-ED	52%
1-36	0.36 AC.	.56	R-ED	51%
1-37	0.24 AC.	.59	R-ED	55%
1-38	0.21 AC.	.52	R-ED	46%
1-39	0.19 AC.	.53	R-ED	47%
1-40	0.17 AC.	.51	R-ED	45%
1-41	0.14 AC.	.56	R-ED	51%
1-42	0.31 AC.	.55	R-ED	50%
1-43	0.63 AC.	.61	R-ED	57%
1-44	1.18 AC.	.43	R-ED	39%
1-45	1.04 AC.	.41	R-ED	32%
1-46	1.09 AC.	.43	R-ED	39%
1-47	1.10 AC.	.15	R-ED	0%
1-48	0.30 AC.	.36	R-ED	89%
1-49	0.21 AC.	.56	R-ED	51%
1-50	0.37 AC.	.53	R-ED	47%
1-51	0.52 AC.	.60	R-ED	56%
1-52	2.14 AC.	.41	R-ED	32%
1-53	1.58 AC.	.43	R-ED	39%
1-54	1.13 AC.	.52	R-ED	46%
1-55	0.23 AC.	.61	R-ED	57%
1-56	0.45 AC.	.57	R-ED	53%
1-57	0.23 AC.	.65	R-ED	63%
1-58	0.90 AC.	.54	R-ED	49%
1-59	0.21 AC.	.55	R-ED	50%
1-60	0.12 AC.	.60	R-ED	56%
1-61	0.71 AC.	.47	R-ED	40%
1-62	0.22 AC.	.58	R-ED	54%
1-63	0.13 AC.	.49	R-ED	43%
1-64	0.67 AC.	.51	R-ED	45%
1-65	0.57 AC.	.53	R-ED	47%
1-66	0.17 AC.	.68	R-ED	66%
1-67	0.17 AC.	.57	R-ED	53%



**PLAN**  
SCALE: 1" = 100'



**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/19.  
*Frank Mahalangan, E.*  
 FRANK MAHALANGAN, E. 6/23/17  
 Date

**DEVELOPER**  
 BEAZER HOMES, LLC  
 8965 GUILFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
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**OWNERS**  
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 CALABASAS, CALIFORNIA 91302  
 (818)-369-3697

**STORM DRAIN DRAINAGE AREA MAP AND SOILS MAP ENCLAVE AT RIVER HILL PHASE 2**  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'  
 PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110, WP-16-152 PLAT NO.5 24321- 24244  
 ZONED R-ED TAX MAP NO.: 34 GRID NO.: 18  
 PARCEL NOS.: 88 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 11 OF 29 **F-17-003**

I:\2013\13008\dwg\F Plans Phase 2\Plan Set\13008 Stormdrain DAM.dwg, C-11, Stormdrain DAM, 6/27/2017 7:31:23 PM, 1:1

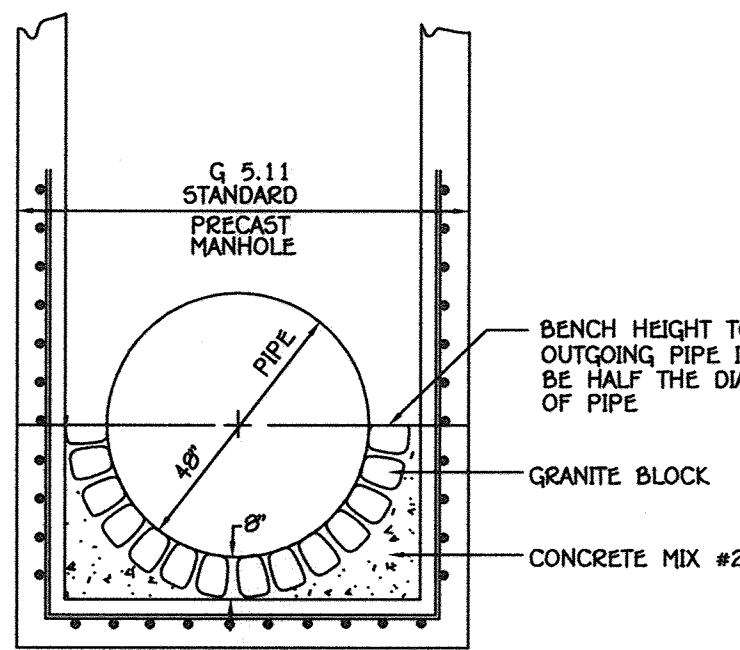


STRUCTURE SCHEDULE							
STRUCTURE NO.	OWNERSHIP AND MAINTENANCE	TOP ELEVATION	INV IN	INV OUT	LOCATION	TYPE	REMARKS
HW-1	PUBLICLY OWNED JOINTLY MAINTAINED	411.00	409.00 (M-9) 15'	-----	N 557619.29 E 1328199.79	TYPE 'C' ENDWALL	D. - 5.21
HW-2	PUBLICLY OWNED JOINTLY MAINTAINED	414.75	413.00 (M-11) 12'	-----	N 557804.80 E 1328432.42	TYPE 'C' ENDWALL	D. - 5.21
HW-3	PUBLICLY OWNED JOINTLY MAINTAINED	447.25	445.00 (I-41) 18'	-----	N 558373.09 E 1328552.02	TYPE 'C' ENDWALL	D. - 5.21
HW-4	PUBLICLY OWNED JOINTLY MAINTAINED	415.00	413.00 (M-13) 15'	-----	N 557900.61 E 1329344.58	TYPE 'C' ENDWALL	D. - 5.21
HW-5	PUBLICLY OWNED JOINTLY MAINTAINED	400.00	398.00 (M-14) 15'	-----	N 557402.84 E 1328767.65	TYPE 'C' ENDWALL	D. - 5.21
HW-6	PUBLICLY OWNED JOINTLY MAINTAINED	403.00	401.00 (M-16) 15'	-----	N 557337.98 E 1329240.66	TYPE 'C' ENDWALL	D. - 5.21
HW-7	PUBLICLY OWNED JOINTLY MAINTAINED	388.00	386.00 (M-18) 15'	-----	N 557011.19 E 1329403.65	TYPE 'C' ENDWALL	D. - 5.21
HW-8	PUBLICLY OWNED JOINTLY MAINTAINED	377.00	375.00 (M-19) 15'	-----	N 556915.48 E 1328282.32	TYPE 'C' ENDWALL	D. - 5.21
* I-33	PUBLIC	411.91	-----	410.98	N 557346.55 E 1328272.77	COG/COS OPENING 10' WIDE	MO-374.68 SEE DETAIL ON THIS SHEET
I-34	PUBLIC	416.31	412.24 (I-35) 15'	411.99 18'	FLUTE LANE CL STA. 16+39.30 14.07' R	A-5 INLET	D. - 4.01
I-35	PUBLIC	416.31	-----	412.52 15'	FLUTE LANE CL STA. 16+39.30 13.92' L	A-5 INLET	D. - 4.01
* I-36	PUBLIC	423.81	-----	422.80	N 557929.74 E 1328305.82	COG/COS OPENING 5' WIDE	MO-374.68 SEE DETAIL ON THIS SHEET
* I-37	PUBLIC	439.95	-----	439.02	N 558209.64 E 1328466.64	COG/COS OPENING 5' WIDE	MO-374.68 SEE DETAIL ON THIS SHEET
I-38	PUBLIC	422.18	417.97 (I-39) 18'	417.72 18'	FLUTE LANE CL STA. 14+54.64 13.92' L	A-5 INLET	D. - 4.01
I-39	PUBLIC	430.47	426.24 (M-12) 18'	425.99 18'	FLUTE LANE CL STA. 12+57.59 13.92' L	A-5 INLET	D. - 4.01
I-40	PUBLIC	440.39	-----	436.41 15'	N 558207.77 E 1328496.36	A-5 INLET	D. - 4.01
I-41	PUBLIC	449.68	445.66 (I-42) 15'	445.41 18'	FLUTE LANE CL STA. 9+18.06 14.04' L	A-5 INLET	D. - 4.01
I-42	PUBLIC	449.68	-----	445.94 15'	FLUTE LANE CL STA. 9+18.06 13.92' R	A-5 INLET	D. - 4.01
** I-43	PUBLICLY OWNED JOINTLY MAINTAINED	410.00	401.52 (M-10) 24' 405.92 (U.D.) 6' 401.00 (TEMP) 24'	396.96 24'	N 557475.96 E 1328301.77	'D' INLET	D. - 4.10
** I-44	PUBLICLY OWNED JOINTLY MAINTAINED	410.00	404.56 (I-45) 24' 409.22 (U.D.) 6'	404.41 24'	N 557639.90 E 1328116.54	'D' INLET	D. - 4.10
** I-45	PUBLICLY OWNED JOINTLY MAINTAINED	420.00	412.40 (I-46) 18' 418.92 (U.D.) 6'	411.90 24'	N 557911.59 E 1328219.50	'D' INLET	D. - 4.10
** I-46	PUBLICLY OWNED JOINTLY MAINTAINED	432.00	427.34 (I-47) 15' 427.92 (U.D.) 6'	427.09 18'	N 558128.16 E 1328295.67	'D' INLET	D. - 4.10
** I-47	PUBLIC	447.00	-----	441.62 15'	N 558405.93 E 1328361.41	'D' INLET	D. - 4.10
I-48	PUBLIC	417.08	412.81 (I-49) 18'	412.56 18'	VINCENIS WAY CL STA. 19+10.13 12.5' R	A-5 INLET	D. - 4.01
I-49	PUBLIC	423.91	419.89 (I-50) 15'	419.64 18'	VINCENIS WAY CL STA. 16+51.48 12.5' R	A-5 INLET	D. - 4.01
I-50	PUBLIC	423.95	-----	420.19 15'	VINCENIS WAY CL STA. 16+50.92 12.5' L	A-5 INLET	D. - 4.01
I-51	PUBLIC	405.15	-----	401.41 15'	LILY GARDEN CL STA. 4+38.08 1.5' R	A-10 INLET	D. - 4.03
* I-52	PUBLICLY OWNED JOINTLY MAINTAINED	399.00	395.31 (M-14) 18' 394.92 (U.D.) 6'	394.81 24'	N 557381.61 E 1328737.02	'D' INLET	D. - 4.10
** I-53	PUBLIC	410.00	405.92 (U.D.) 6'	405.01 15'	N 557415.88 E 1328886.15	'D' INLET	D. - 4.10
** I-54	PUBLICLY OWNED JOINTLY MAINTAINED	402.00	397.88 (M-16) 18' 397.92 (U.D.) 6'	397.38 24'	N 557357.72 E 1329310.65	'D' INLET	D. - 4.10
I-55	PUBLIC	407.83	404.06 (I-57) 15' 404.06 (I-56) 15'	403.81 18'	VINCENIS WAY CL STA. 21+07.27 12.5' L	A-5 INLET	D. - 4.01
I-56	PUBLIC	408.18	-----	404.62 15'	VINCENIS WAY CL STA. 21+07.27 12.5' R	A-5 INLET	D. - 4.01
I-57	PUBLIC	417.77	-----	414.15 15'	VINCENIS WAY CL STA. 18+93.03 12.5' L	A-5 INLET	D. - 4.01
* I-58	PUBLICLY OWNED JOINTLY MAINTAINED	387.00	382.94 (M-17) 18' 382.92 (U.D.) 6'	382.69 18'	N 557018.89 E 1329461.21	'D' INLET	D. - 4.10
I-59	PUBLIC	392.09	388.45 (I-60) 15'	388.20 18'	VINCENIS WAY CL STA. 24+22.36 12' L	A-5 INLET	D. - 4.01
I-60	PUBLIC	401.47	-----	397.70 15'	VINCENIS WAY CL STA. 22+34.90 12.4' L	A-5 INLET	D. - 4.01
** I-61	PUBLICLY OWNED JOINTLY MAINTAINED	376.00	371.14 (M-19) 18' 471.92 (U.D.) 6'	370.89 18'	N 556906.89 E 1329162.19	'D' INLET	D. - 4.10
I-62	PUBLIC	392.10	386.76 (I-63) 15'	386.51 15'	VINCENIS WAY CL STA. 24+22.32 12' R	A-5 INLET	D. - 4.01
I-63	PUBLIC	401.47	-----	397.83 15'	VINCENIS WAY CL STA. 22+34.90 12.5' R	A-5 INLET	D. - 4.01
I-64	PUBLIC	423.87	-----	420.12 15'	N 557935.77 E 1329235.22	A-10 INLET	D. - 4.03
* I-65	PUBLIC	387.62	-----	386.18	N 556973.63 E 1329414.77	COG/COS OPENING 10' WIDE	MO-374.68 SEE DETAIL ON THIS SHEET
I-66	PUBLIC	408.02	403.89 (I-67) 15'	403.64 18'	LILY GARDEN CL STA. 3+21.42 12' R	A-5 INLET	D. - 4.01
I-67	PUBLIC	407.92	-----	404.17 15'	LILY GARDEN CL STA. 3+21.42 12' L	A-5 INLET	D. - 4.01
M-9	PUBLIC	413.84	409.75 (I-34) 18'	409.69 15' 409.50 24'	N 557635.36 E 1328267.31	4' DIA. MANHOLE	Q-5.12
M-10	PUBLIC	412.32	402.99 (I-44) 24' 407.33 (M-9) 18'	402.74 24'	N 557585.48 E 1328248.05	4' DIA. MANHOLE	Q-5.12
M-11	PUBLIC	419.33	414.25 (I-38) 18'	414.00 18' 413.10 12'	N 557800.35 E 1328423.74	4' DIA. MANHOLE	Q-5.12
M-12	PUBLIC	434.37	430.47 (I-40) 15'	430.17 18'	N 558100.88 E 1328481.29	4' DIA. MANHOLE	Q-5.12
M-13	PUBLIC	418.85	414.25 (I-64) 15'	413.20 15' 414.00 18'	N 557915.35 E 1329330.85	4' DIA. MANHOLE	Q-5.12
M-14	PUBLIC	403.80	399.25 (M-15) 18' 399.25 (I-53) 15'	398.06 15' 399.00 18'	N 557395.04 E 1328777.44	4' DIA. MANHOLE	Q-5.12
M-15	PUBLIC	407.00	400.94 (I-51) 15' 400.94 (I-66) 18'	400.69 18'	N 557263.39 E 1328835.00	4' DIA. MANHOLE	Q-5.12
M-16	PUBLIC	407.00	402.25 (I-55) 18'	402.00 18' 401.24 15'	N 557315.06 E 1329232.38	4' DIA. MANHOLE	Q-5.12
M-17	PUBLIC	387.00	383.52 (M-18) 18'	383.27 18'	N 557044.81 E 1329441.48	4' DIA. MANHOLE	Q-5.12
M-18	PUBLIC	391.79	387.25 (I-59) 18'	386.41 15' 387.00 18'	N 557017.72 E 1329363.64	4' DIA. MANHOLE	Q-5.12
M-19	PUBLIC	381.00	376.25 (I-62) 18'	375.27 15' 376.00 18'	N 556938.40 E 1329186.81	4' DIA. MANHOLE	Q-5.12
S-7	PUBLIC	398.14	396.06 (I-43) 24'	396.00	N 557449.49 E 1328387.37	CONC. END SECTION	D-5.51
S-8	PUBLIC	413.67	412.25 (M-11) 18'	412.00	N 557783.34 E 1328464.41	CONC. END SECTION	D-5.51
S-9	PUBLIC	411.78	410.36 (M-13) 18'	410.00	N 557902.63 E 1329390.87	CONC. END SECTION	D-5.51
S-10	PUBLIC	410.57	409.16 (I-48) 18'	409.00	N 557437.41 E 1328982.22	CONC. END SECTION	D-5.51
S-11	PUBLIC	395.98	394.06 (I-52) 24'	394.00	N 557353.10 E 1328667.32	CONC. END SECTION	D-5.51
S-12	PUBLIC	398.98	397.06 (I-54) 24'	397.00	N 557345.24 E 1329340.65	CONC. END SECTION	D-5.51
S-13	PUBLIC	383.98	382.56 (I-58) 18'	382.50	N 557020.87 E 1329474.51	CONC. END SECTION	D-5.51
S-14	PUBLIC	371.98	370.56 (I-61) 18'	370.50	N 556890.80 E 1329157.57	CONC. END SECTION	D-5.51

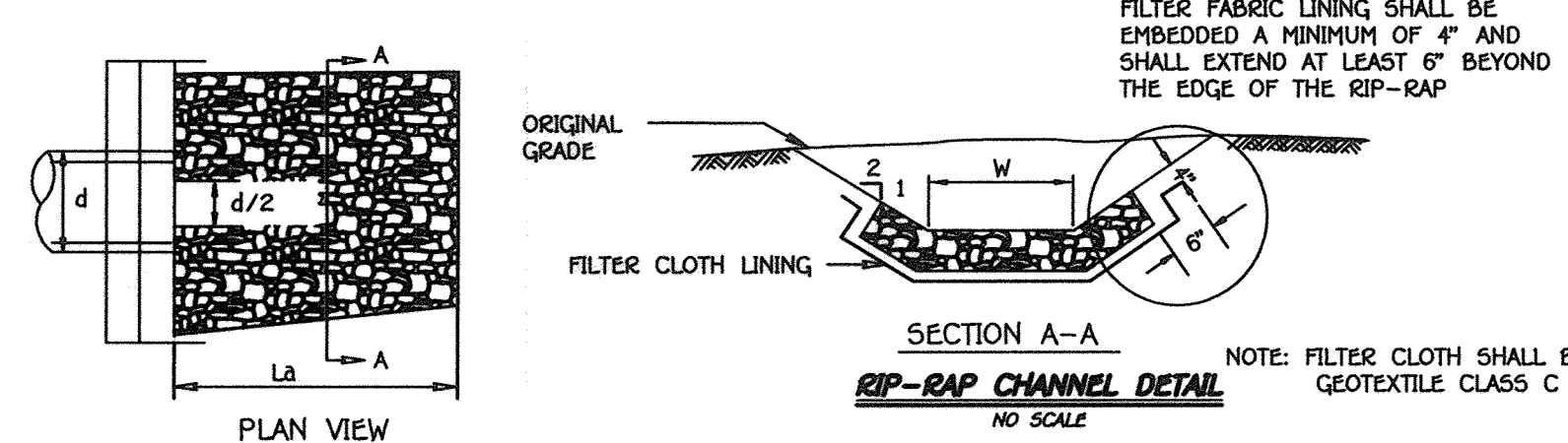
\*\* DENOTES THROAT OPENING  
\* DENOTES COG/COS FLOW THROUGH OPENING. SEE DETAIL THIS SHEET

PIPE SCHEDULE		
SIZE	CLASS	LENGTH
8"	PERFORATED PVC, SCH.40	2544 L.F.
6"	PVC, SCH.40	586 L.F.
15"	RCCP, CL. IV	1,624 L.F.
18"	RCCP, CL. IV	1,924 L.F.
24"	RCCP, CL. IV	752 L.F.

NOTE: RCCP, CL. IV MAY BE SUBSTITUTED WITH HDPE PIPE MATERIAL WHERE DEPTH OF COVER PERMITS.  
\*\* CONTRACTOR MAY SUBSTITUTE 6" DIAMETER SLOTTED HDPE PIPE CLASS II PER AASHTO SPECIFICATIONS (SEE AASHTO-N-1991 10 PIPE) OR EQUIVALENT.

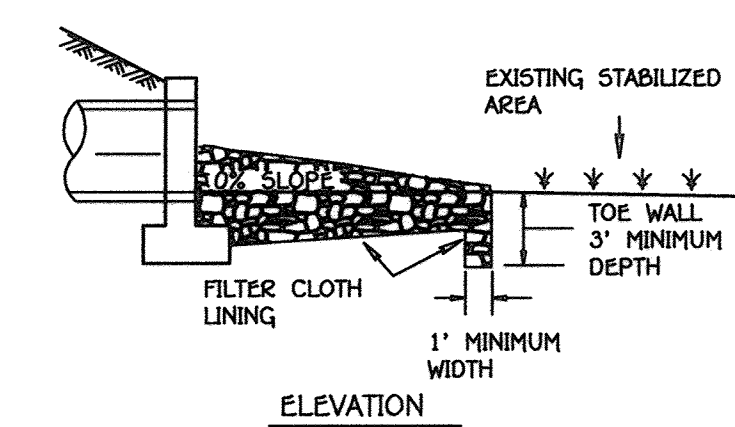


GRANITE BLOCK DETAIL  
NOT TO SCALE



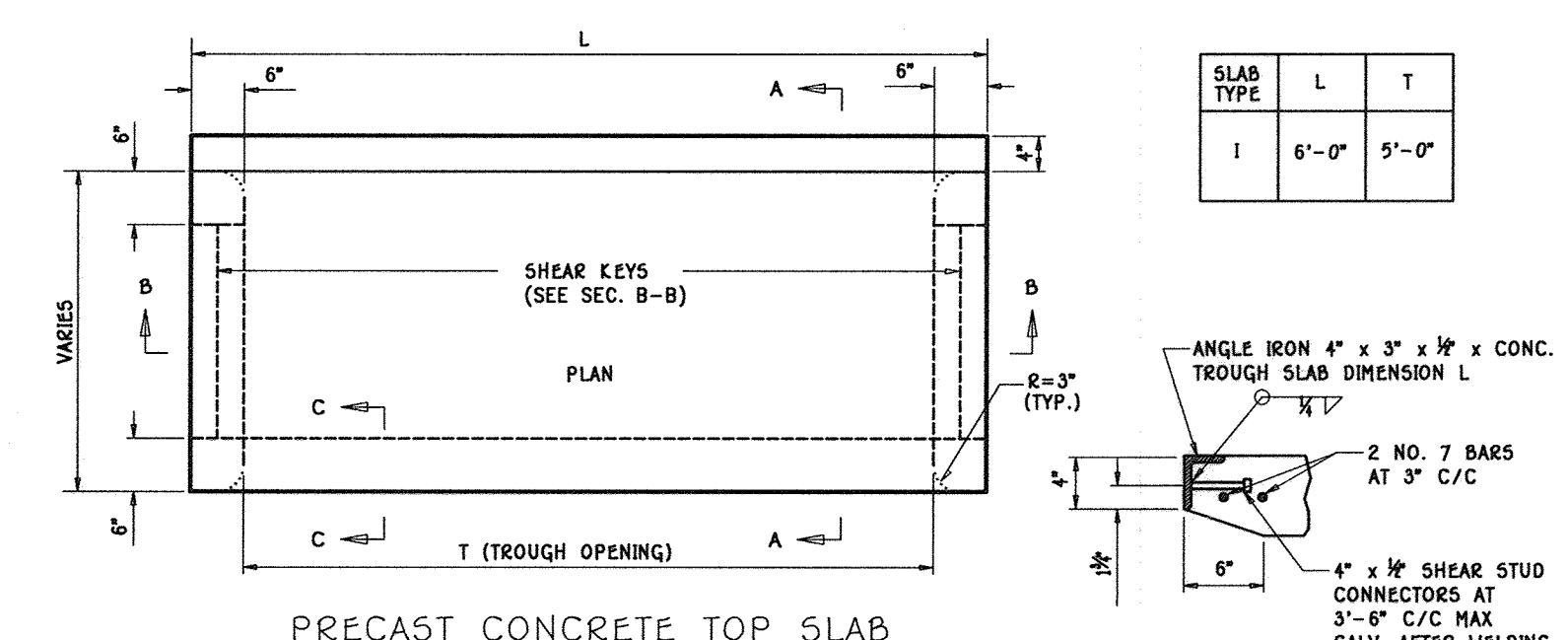
CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

- The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
- Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
- Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

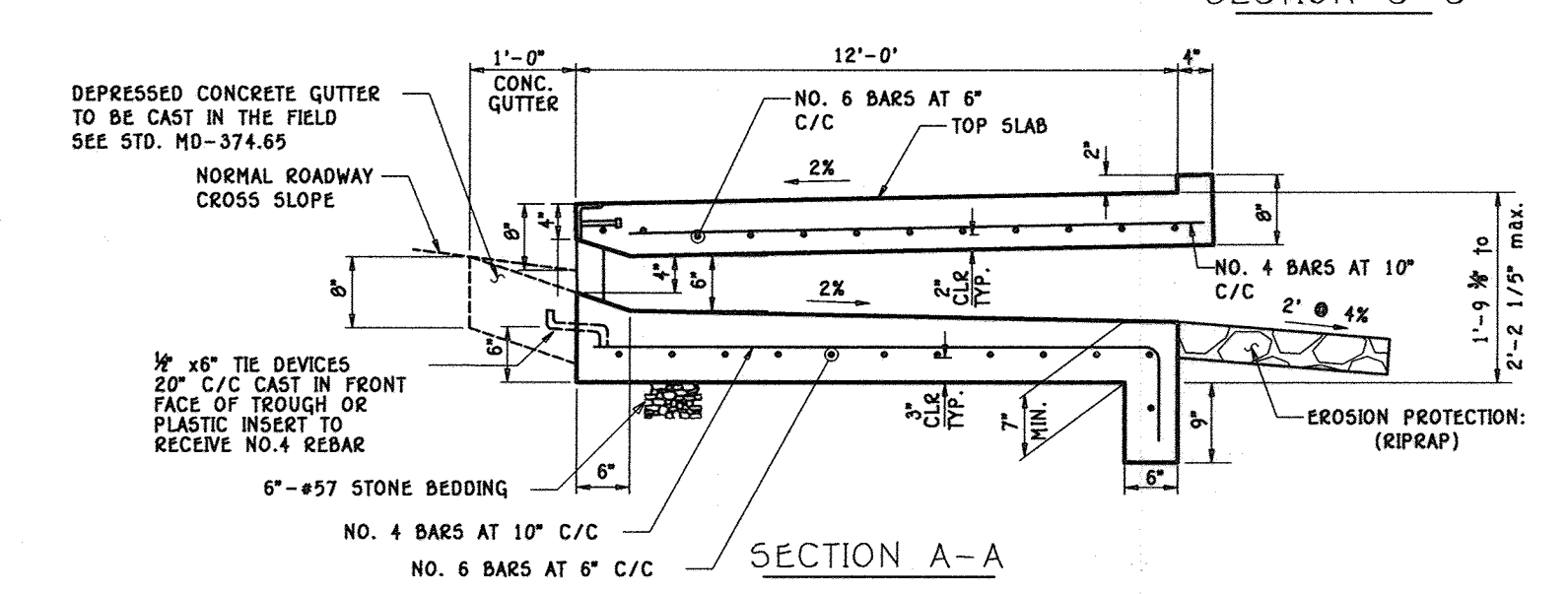


RIP-RAP CHANNEL DESIGN DATA

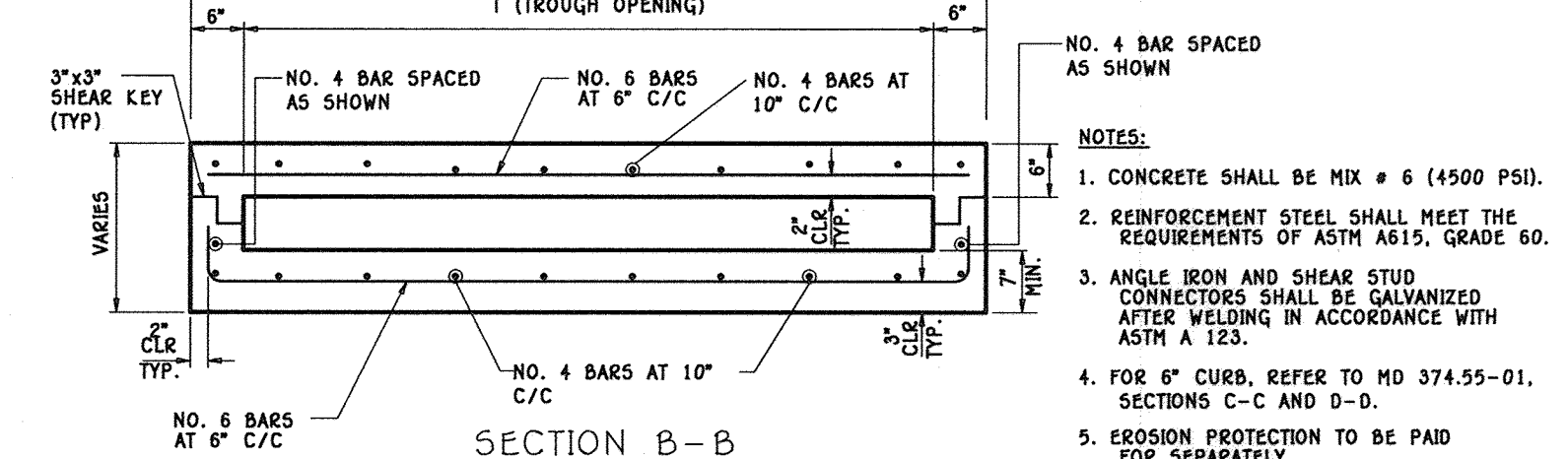
STRUCTURE	AREA (S.F.)	WETTED PERIMETER	R	R 2/3	S	S 1/2	W	d	n	V (f.p.s.)	Q (c.f.m.)	SP-60P SIZE	BLANKET THICKNESS	PIPE SIZE	LA	
S-7	28.03	18.25	1.5359	1.3312	0.005	0.0707	8.5'	2.18	0.04	0.49	13.85	9.5"	15"	19"	24"	16'
S-8	5.59	8.48	0.6591	0.7573	0.005	0.0707	4.5'	0.89	0.04	0.28	1.55	9.5"	15"	19"	18"	5'
S-9	9.33	10.36	0.9003	0.9326	0.005	0.0707	4.5'	0.22	0.04	0.36	3.21	9.5"	15"	19"	18"	5'
S-11	33.57	19.64	1.7093	1.4296	0.005	0.0707	8.5'	2.49	0.04	0.53	17.81	9.5"	15"	19"	24"	16'
S-12	19.62	15.92	1.2324	1.1495	0.005	0.0707	8.5'	1.66	0.04	0.42	8.36	9.5"	15"	19"	24"	10'
S-13	6.25	8.84	0.7070	0.7936	0.005	0.0707	4.5'	0.97	0.04	0.65	4.05	9.5"	15"	19"	18"	10'
S-14	5.11	8.21	0.6224	0.7290	0.005	0.0707	4.5'	0.83	0.04	1.59	3.03	9.5"	15"	19"	18"	10'



PRECAST CONCRETE TOP SLAB



SECTION A-A



SECTION B-B

PRECAST OR CAST-IN-PLACE COG/COS OPENING FOR 8" CURB (5' TROUGH OPENING ONLY)

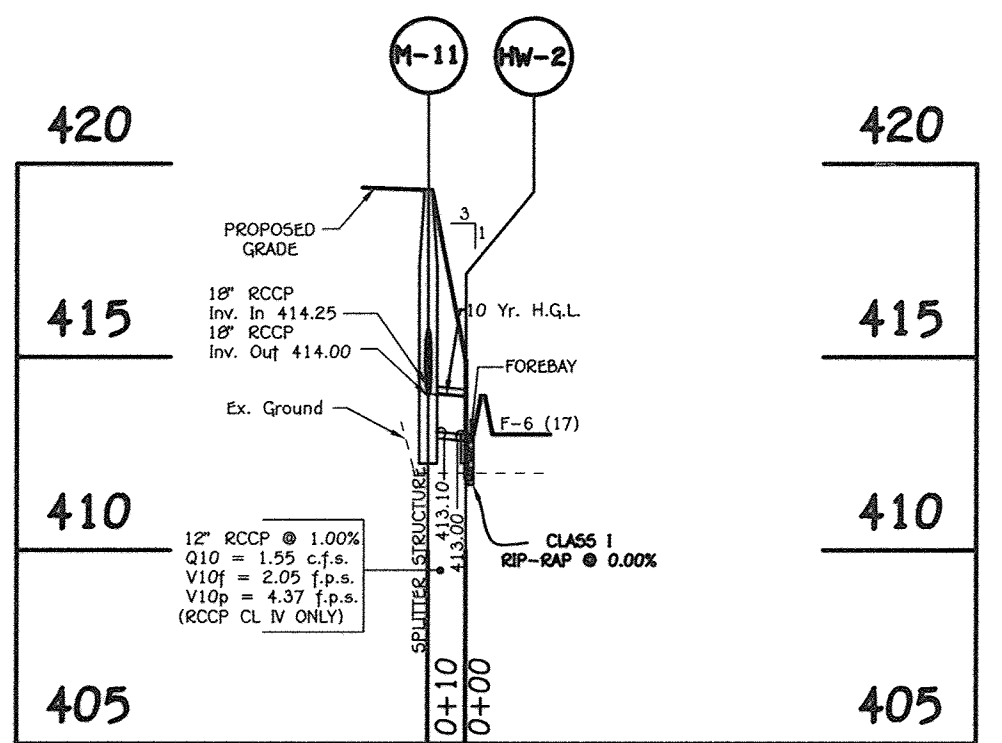
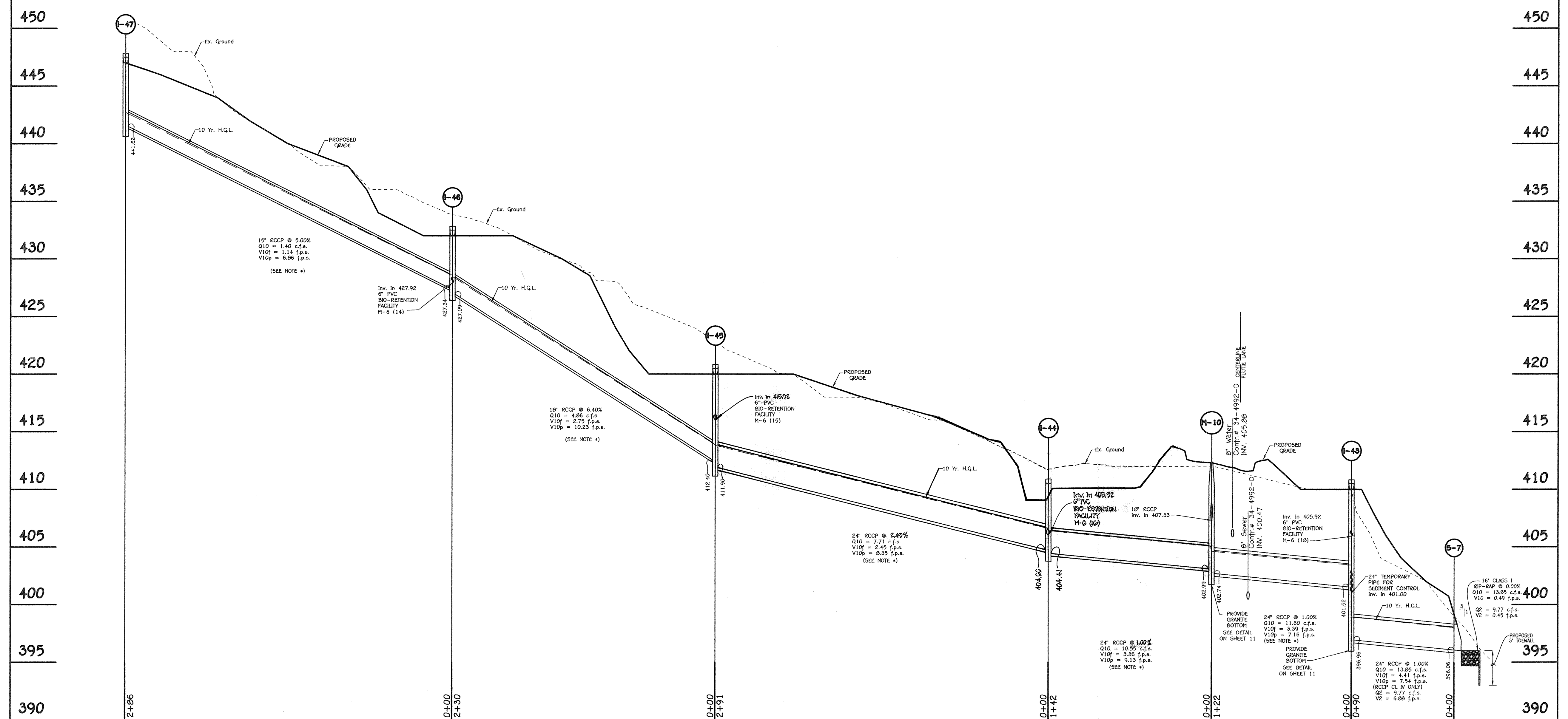
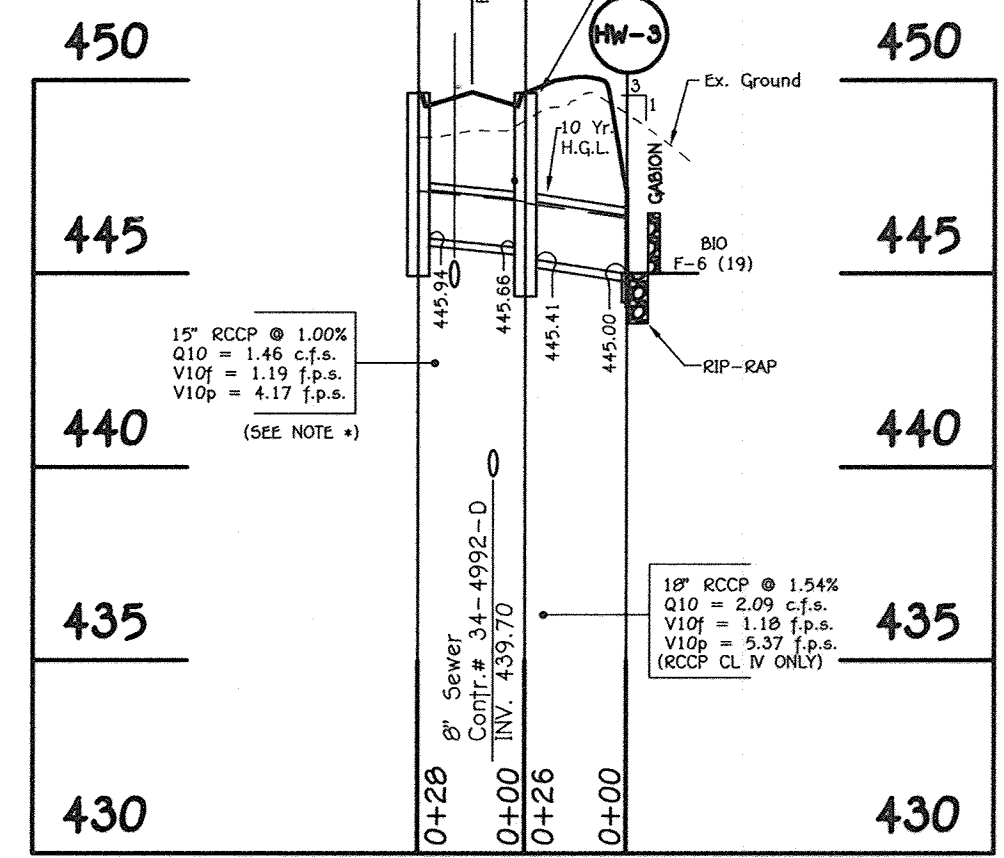
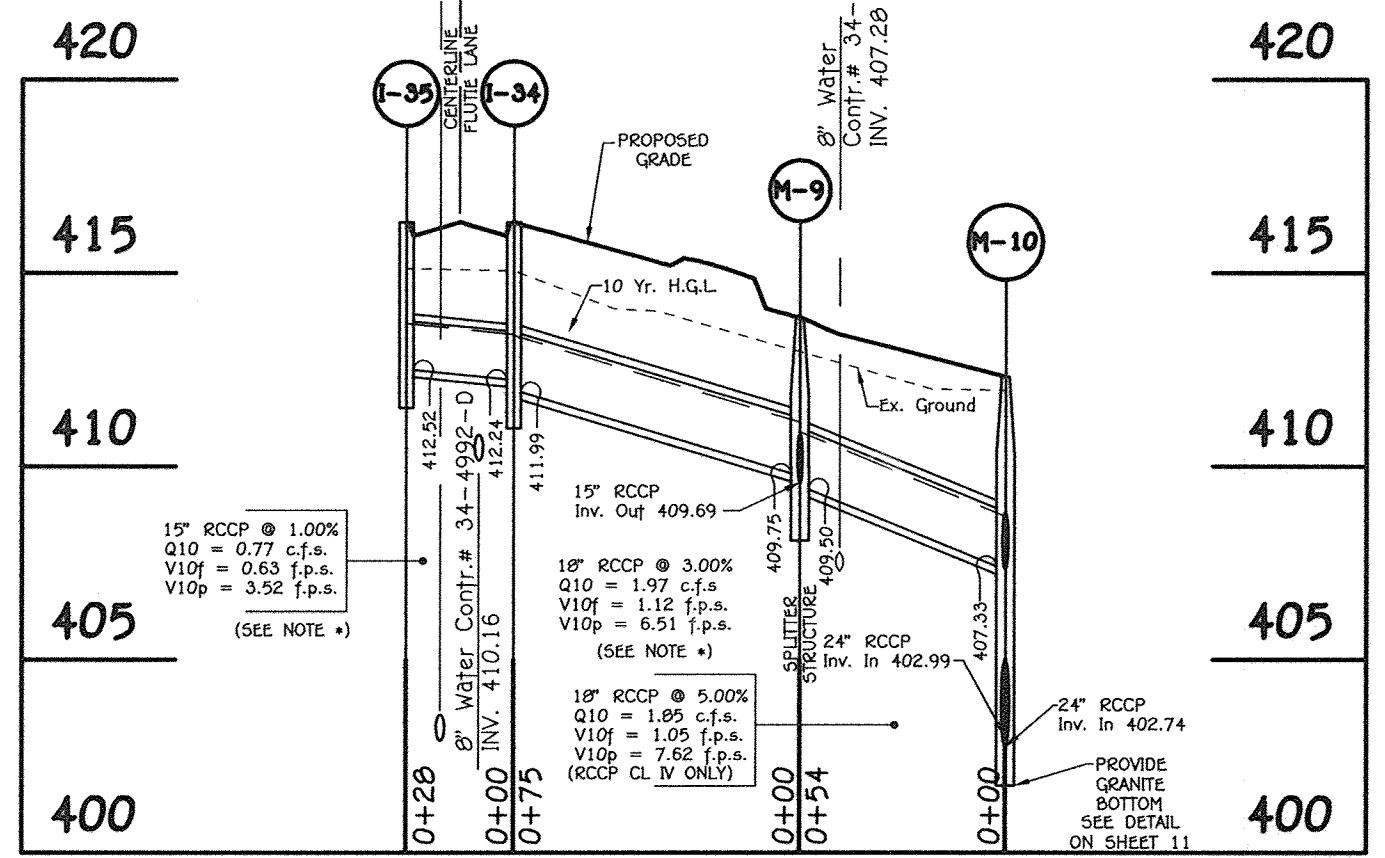
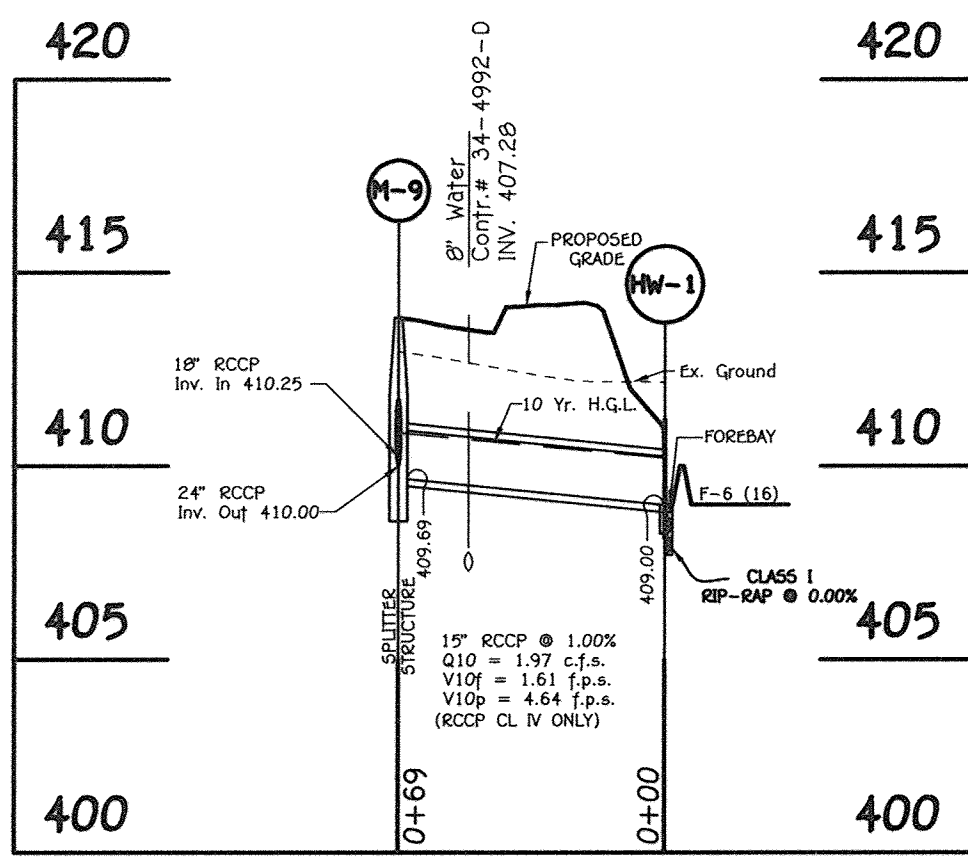
NOTES:  
1. CONCRETE SHALL BE MIX # 6 (4500 PSI).  
2. REINFORCEMENT STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615, GRADE 60.  
3. ANGLE IRON AND SHEAR STUD CONNECTORS SHALL BE GALVANIZED AFTER WELDING IN ACCORDANCE WITH ASTM A 123.  
4. FOR 6" CURB, REFER TO MO 374.55-01, SECTIONS C-C AND D-D.  
5. EROSION PROTECTION TO BE PAID FOR SEPARATELY.



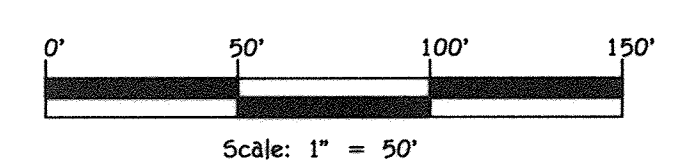
Approved: Department Of Planning And Zoning  
*T. Mah* 8-16-17  
 Chief, Division Of Land Development Date

Approved: Howard County Department Of Public Works  
*M. Meemi* 7/10/2017  
 Chief, Bureau Of Highways Date

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISE STORM DRAIN FROM M-10 TO L-45	4/10/19



NOTE:  
 \* RCCP, CLASS. IV MAY BE SUBSTITUTED WITH HOPE PIPE MATERIAL WHERE DEPTH OF COVER PERMITS.



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2295



**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/19.  
*Frank Haulman, II*  
 4/23/17  
 Date

**DEVELOPER**  
 BEAZER HOMES, LLC  
 8965 GUILFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (765) 894-0182

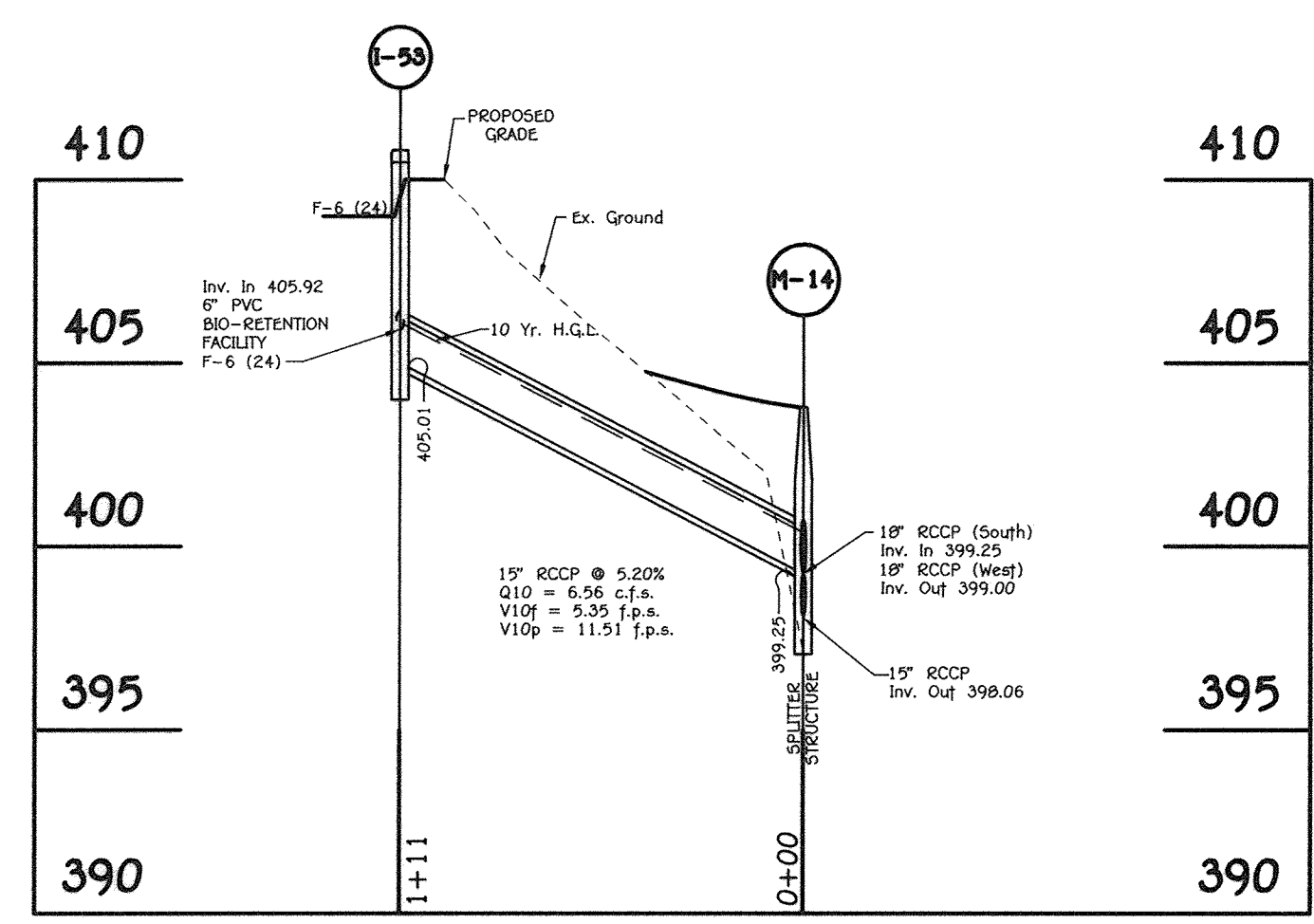
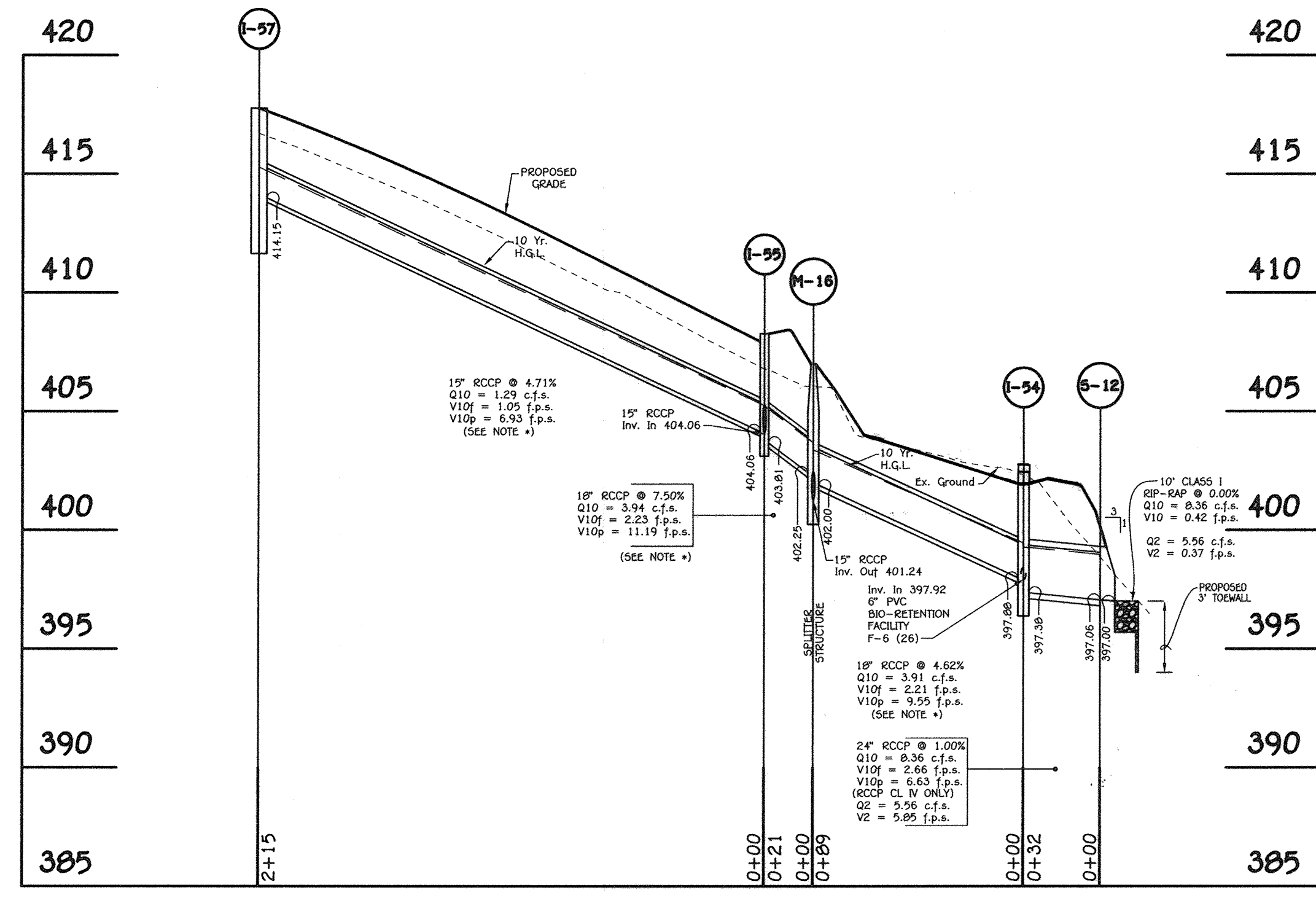
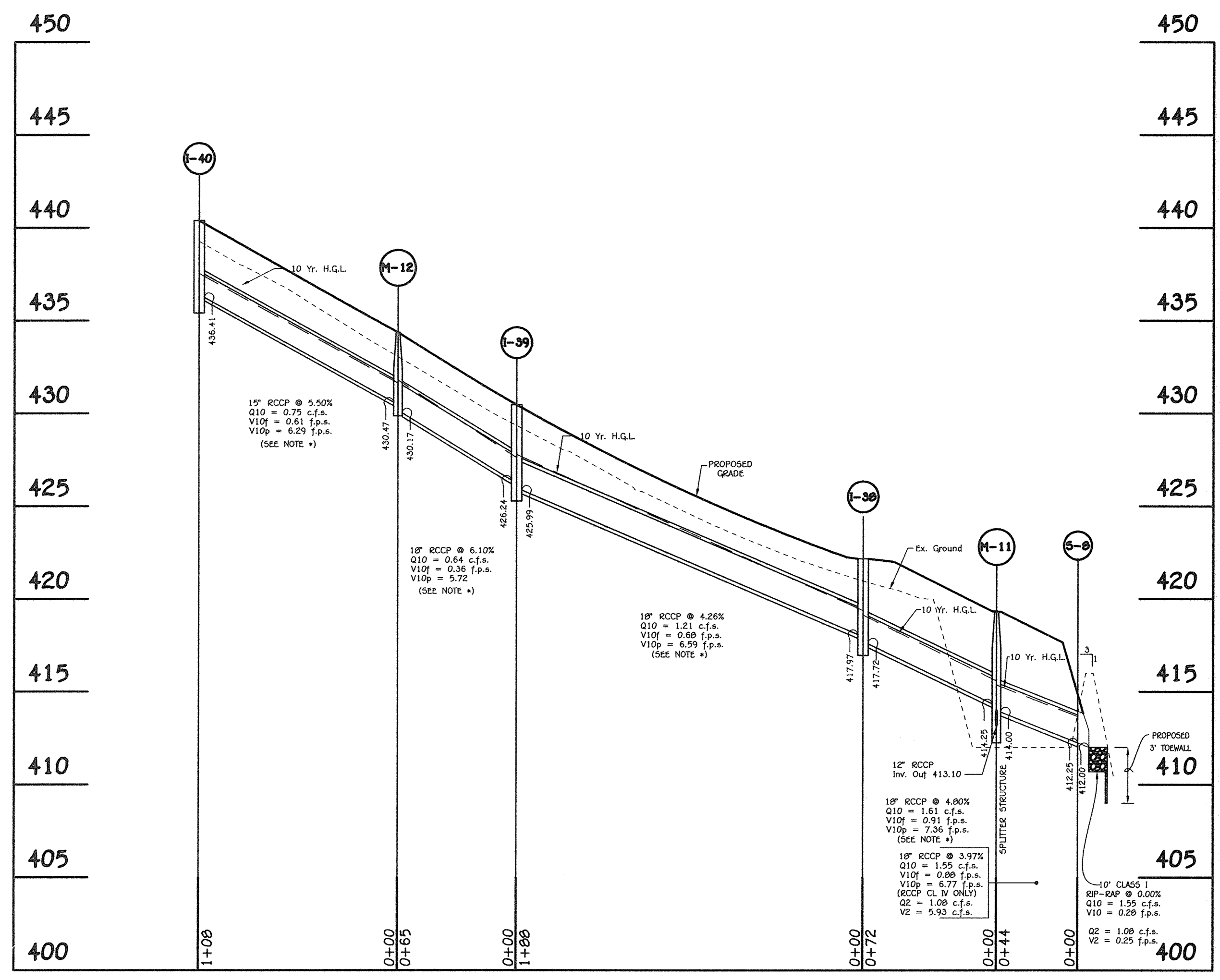
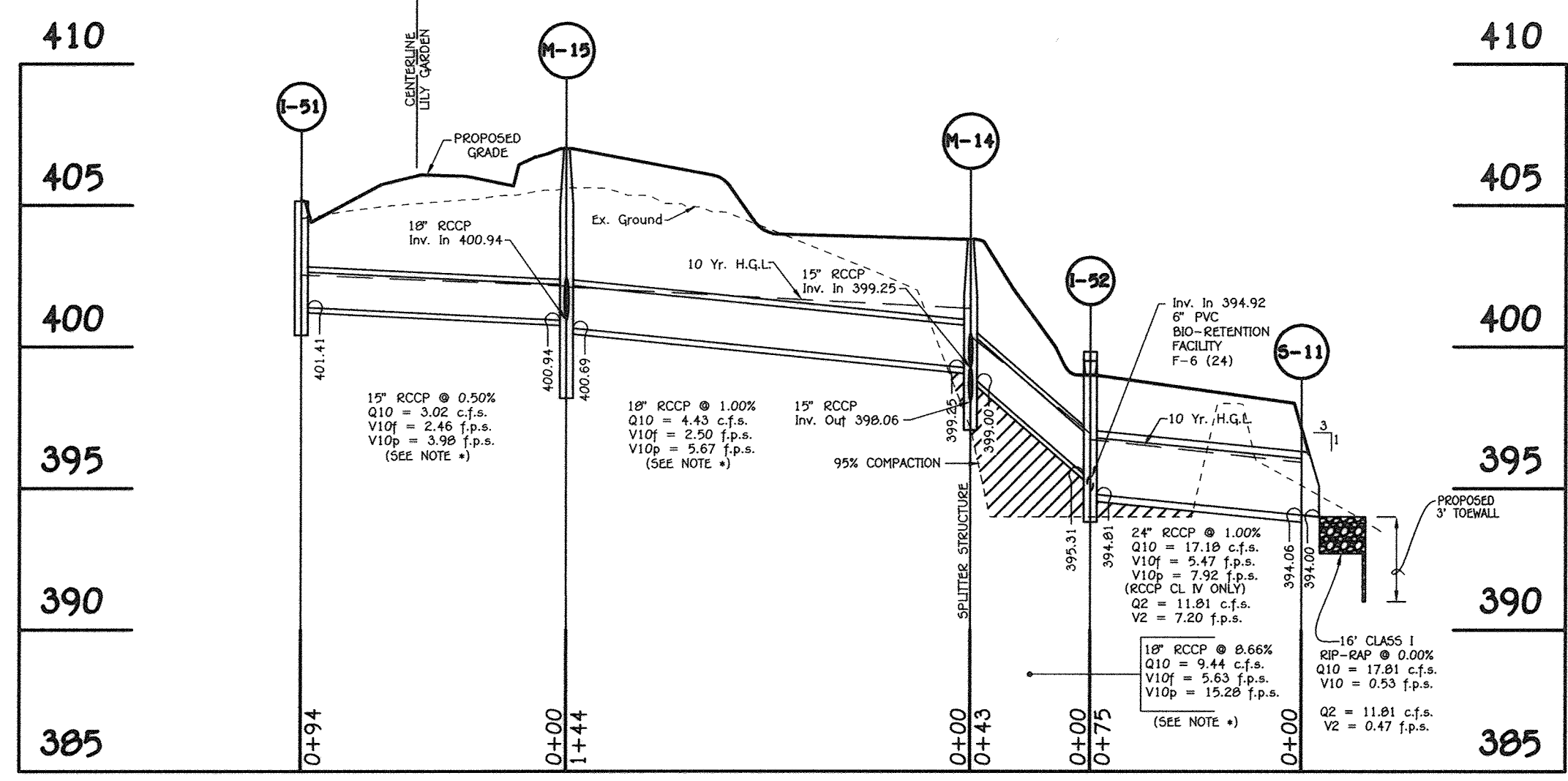
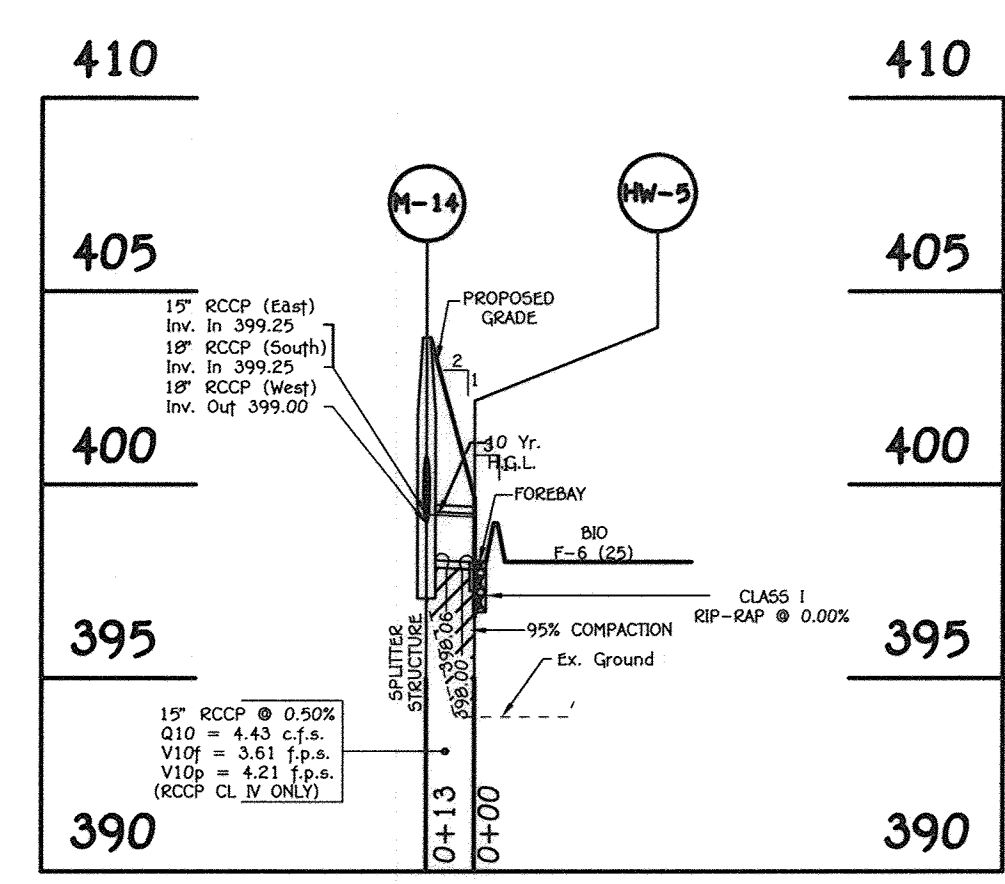
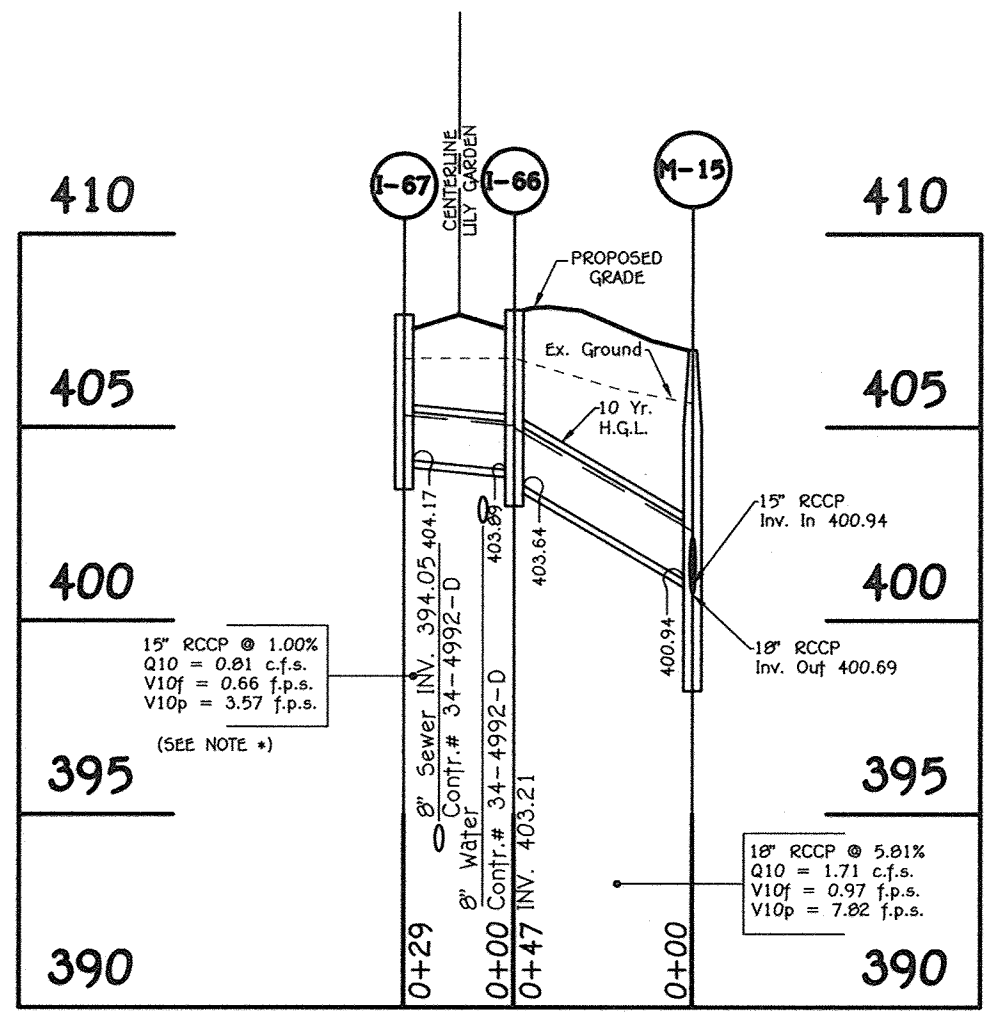
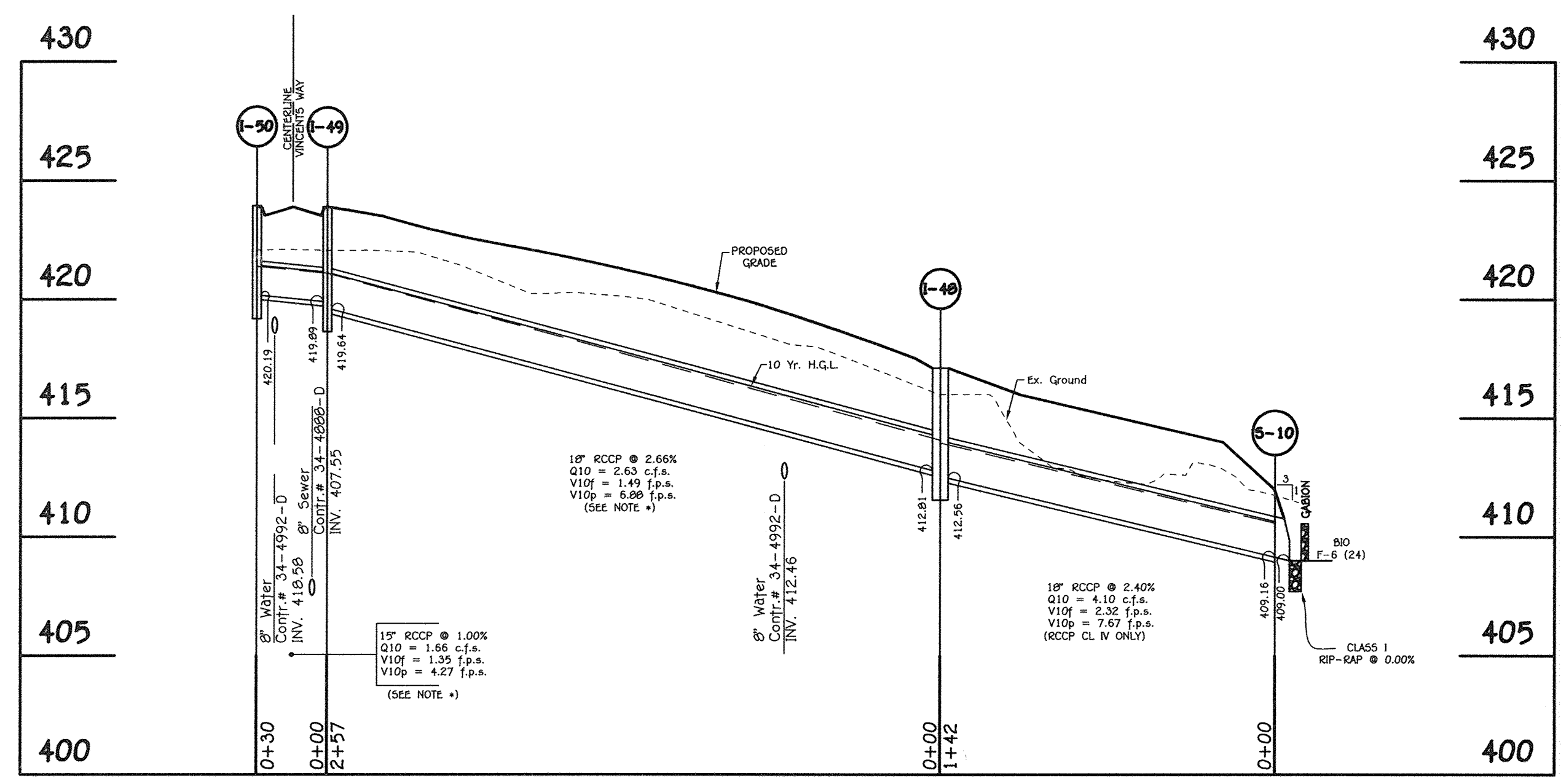
**OWNERS**  
 TIERNEY FARMS-CLARKSVILLE, LP.  
 24151 VENTURE BOULEVARD  
 CALABASAS, CALIFORNIA 91302  
 (818)-395-3697

**STORM DRAIN PROFILES**  
**ENCLAVE AT RIVER HILL**  
**PHASE 2**  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'  
 PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, 5P-05-006, WP-15-069, F-15-110, WP-16-152 PLAT NO.5 24231 - 24244  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 88 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 13 OF 29 **F-17-003**



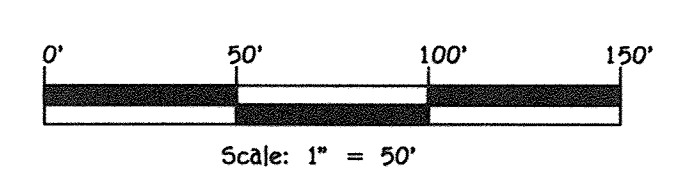
Approved: Department Of Planning And Zoning  
*Ti. Mahler, KS* 8-16-17  
 Chief, Division Of Land Development Date  
*John* 7-14-17  
 Chief, Development Engineering Division Date  
 Approved: Howard County Department Of Public Works  
*M. M...* 7/10/2017  
 Chief, Bureau Of Highways Date

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISE STORMDRAIN INVERT 1-99 AND 1-94	4/10/19



STORM DRAIN PROFILES  
 ENCLAVE AT RIVER HILL  
 PHASE 2  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129  
 AND BULK PARCEL 'C'  
 PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110,  
 WP-16-152 PLAT NO.5 2A231 - 2A244  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 88 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 14 OF 29 F-17-003

NOTE:  
 \* RCCP, CLASS. IV MAY BE SUBSTITUTED WITH HDPE PIPE MATERIAL WHERE DEPTH OF COVER PERMITS.



PROFESSIONAL CERTIFICATION  
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*Frank Mahler, II*  
 FRANK MAHLER, II  
 4/23/17  
 Date

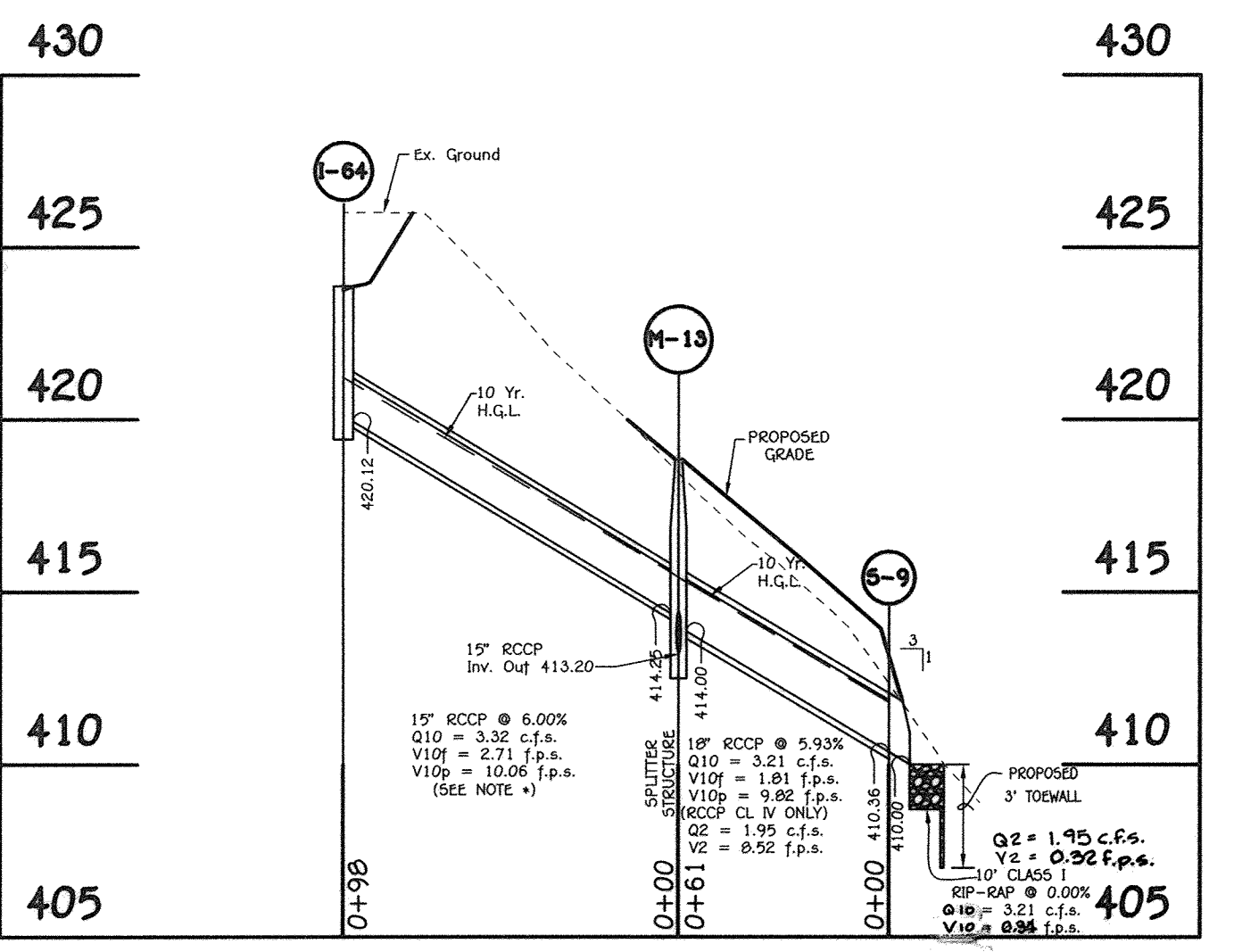
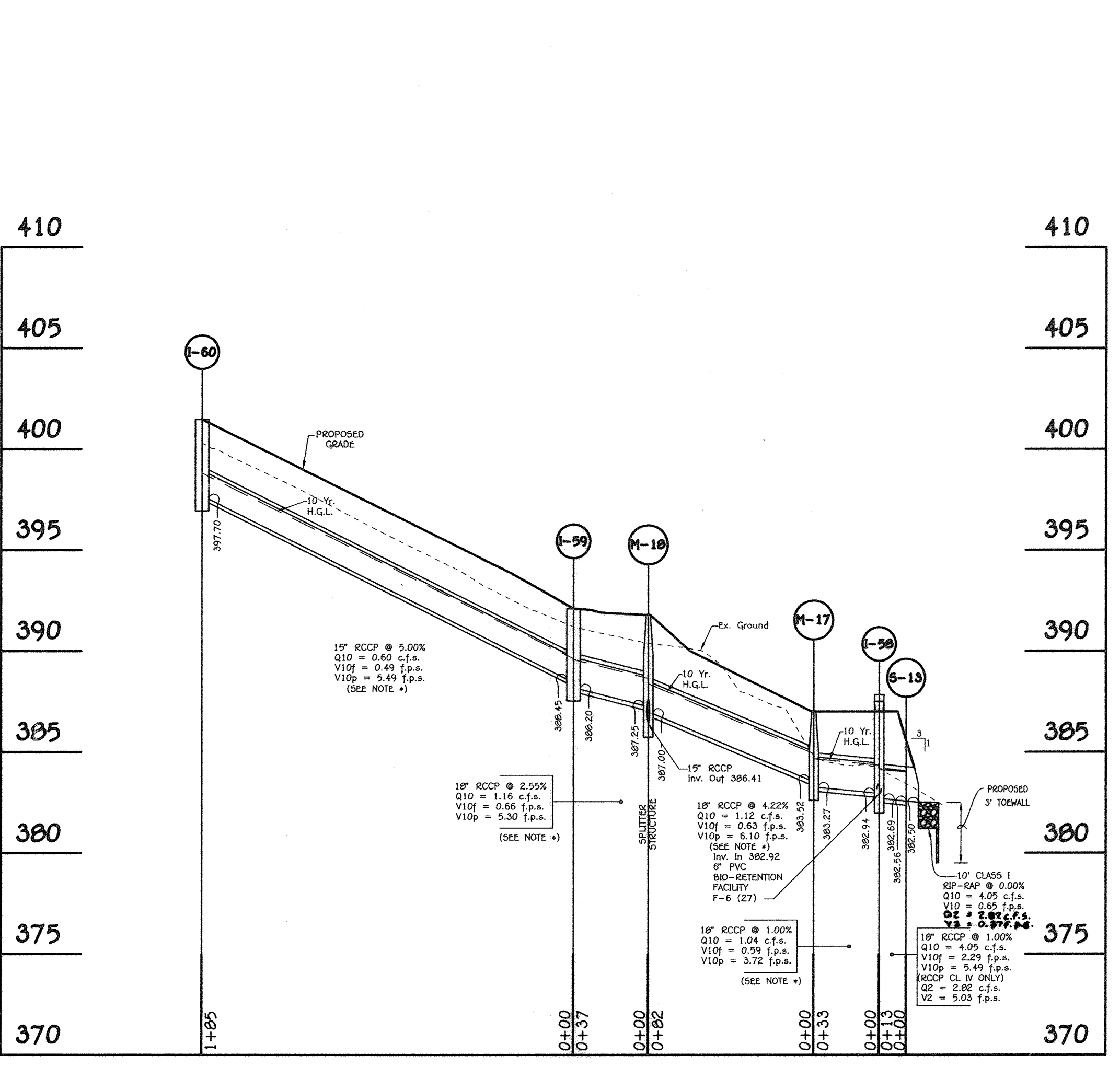
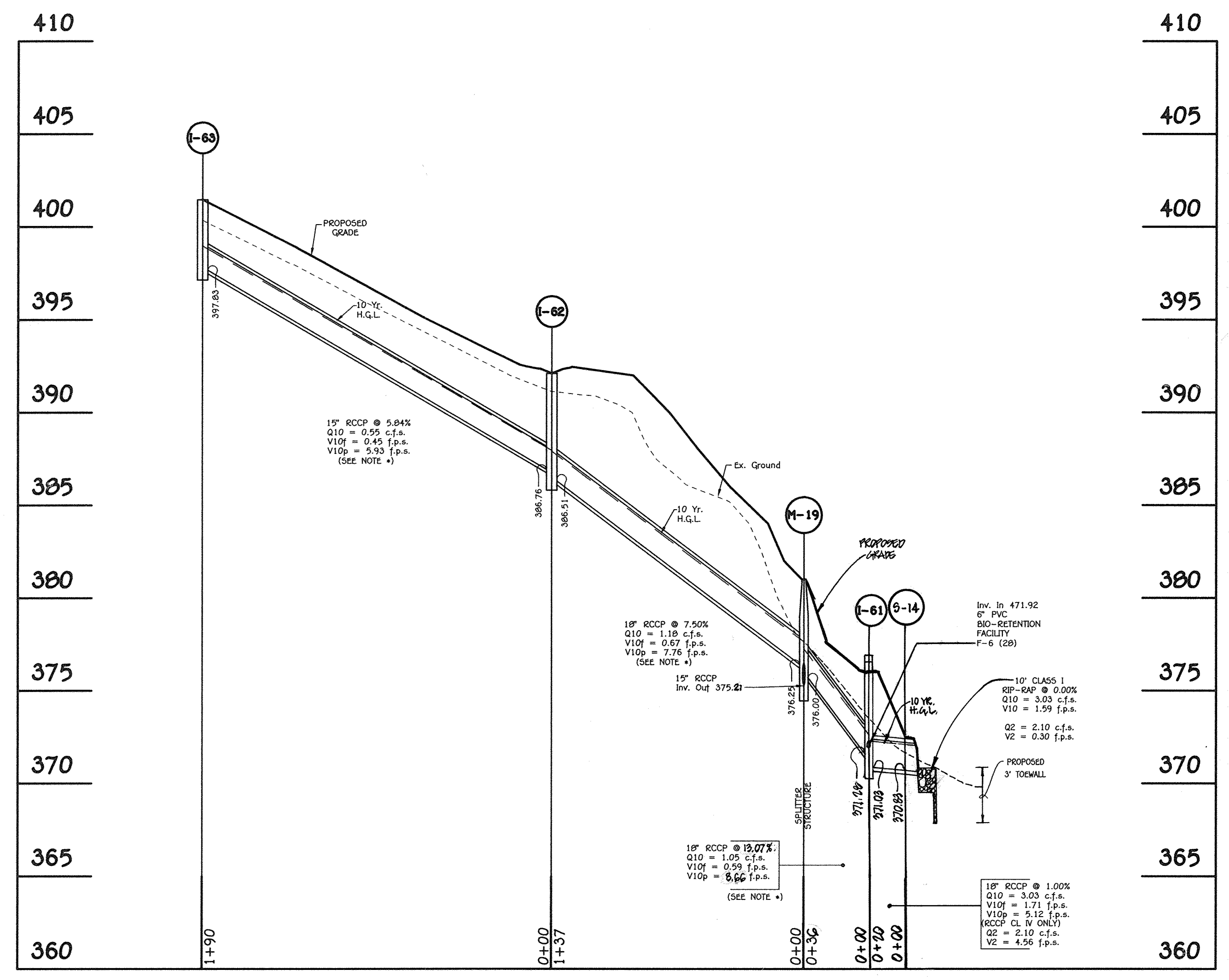
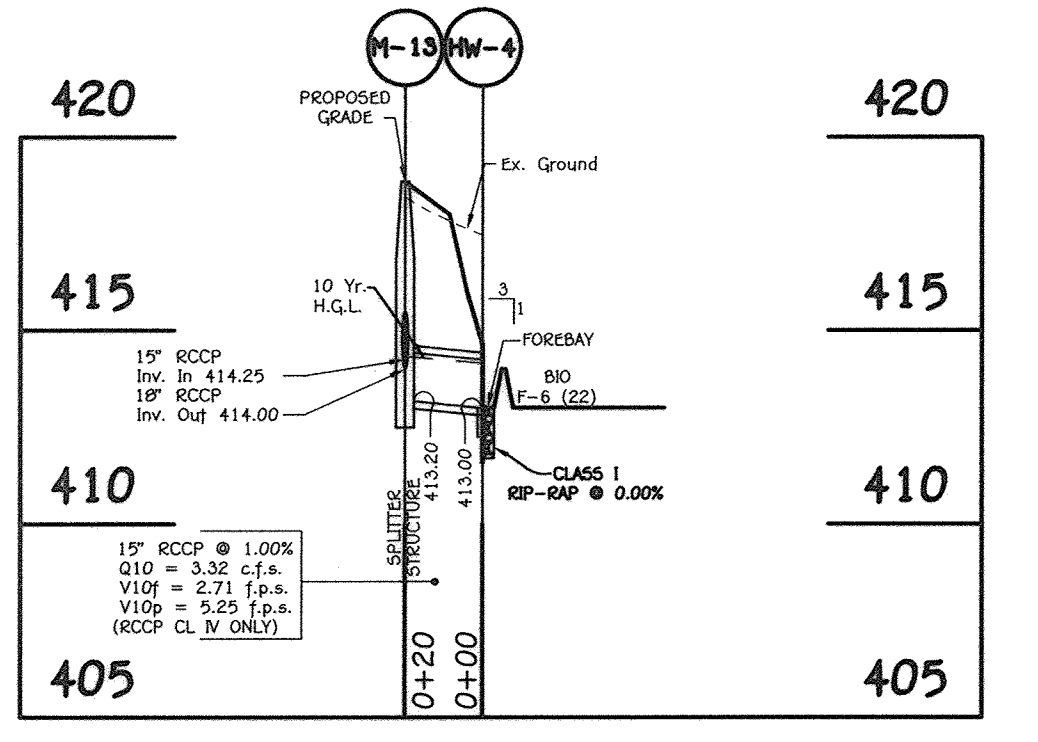
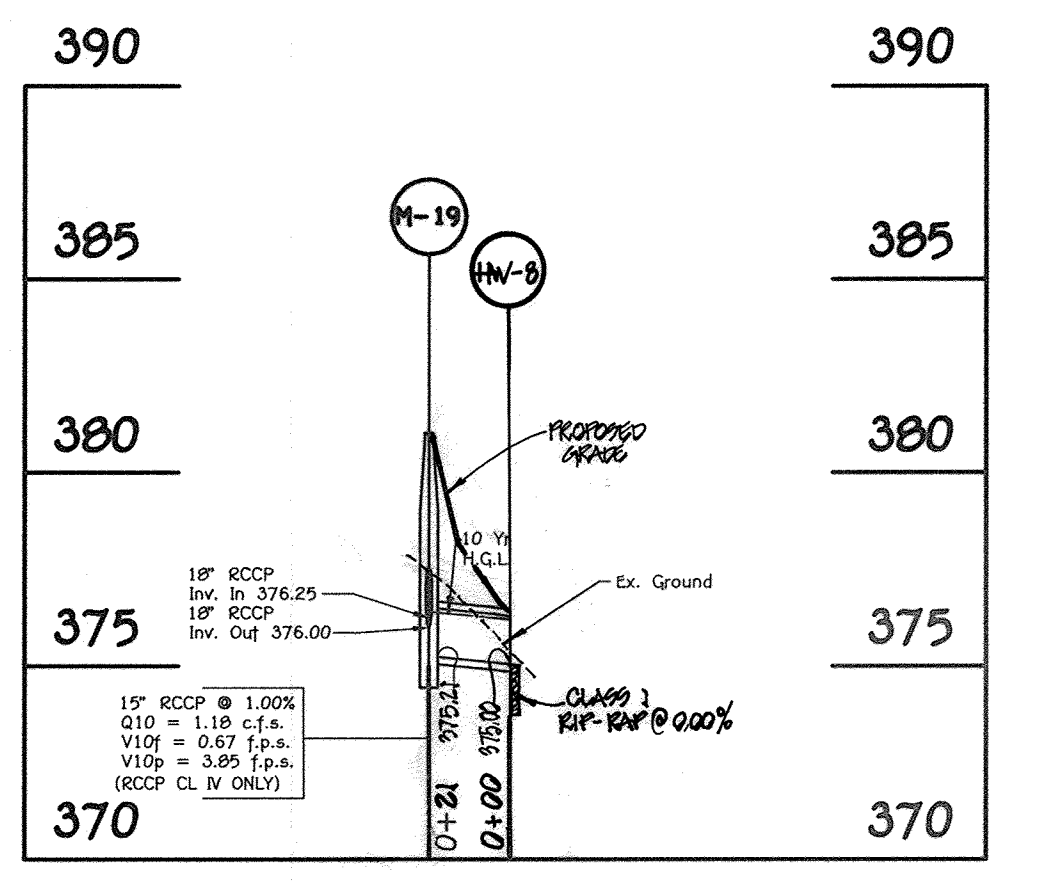
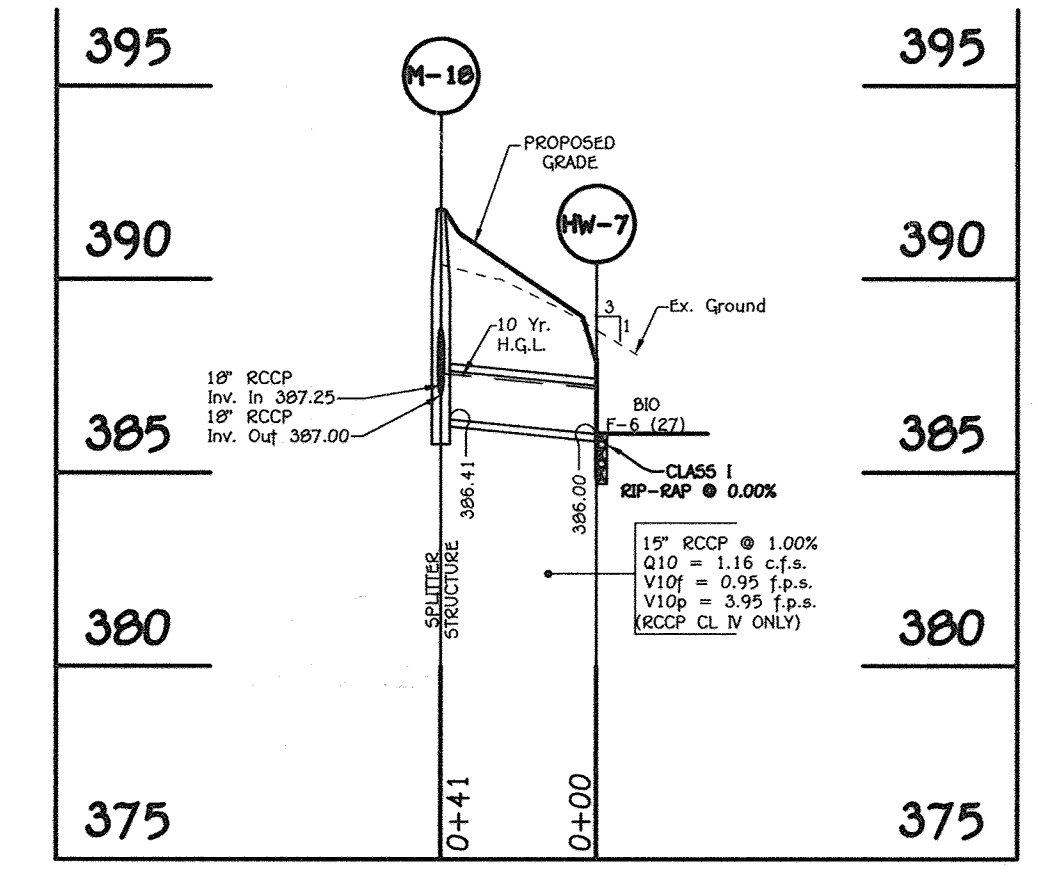
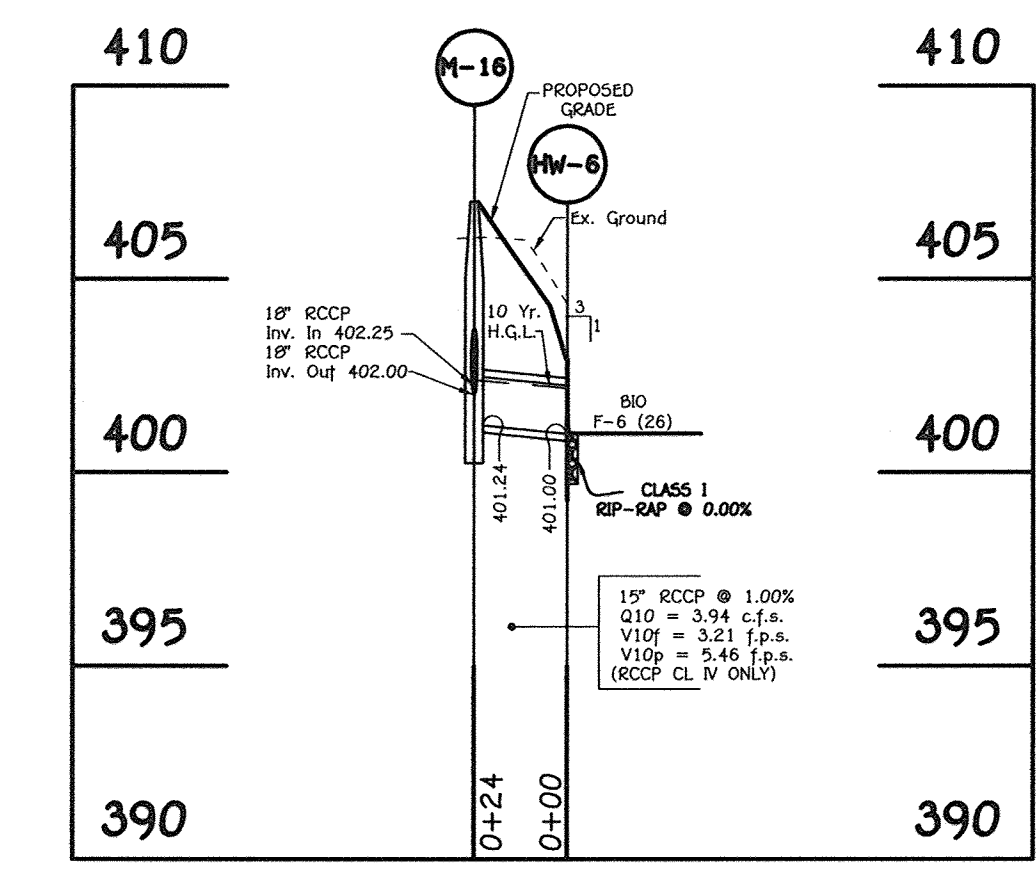
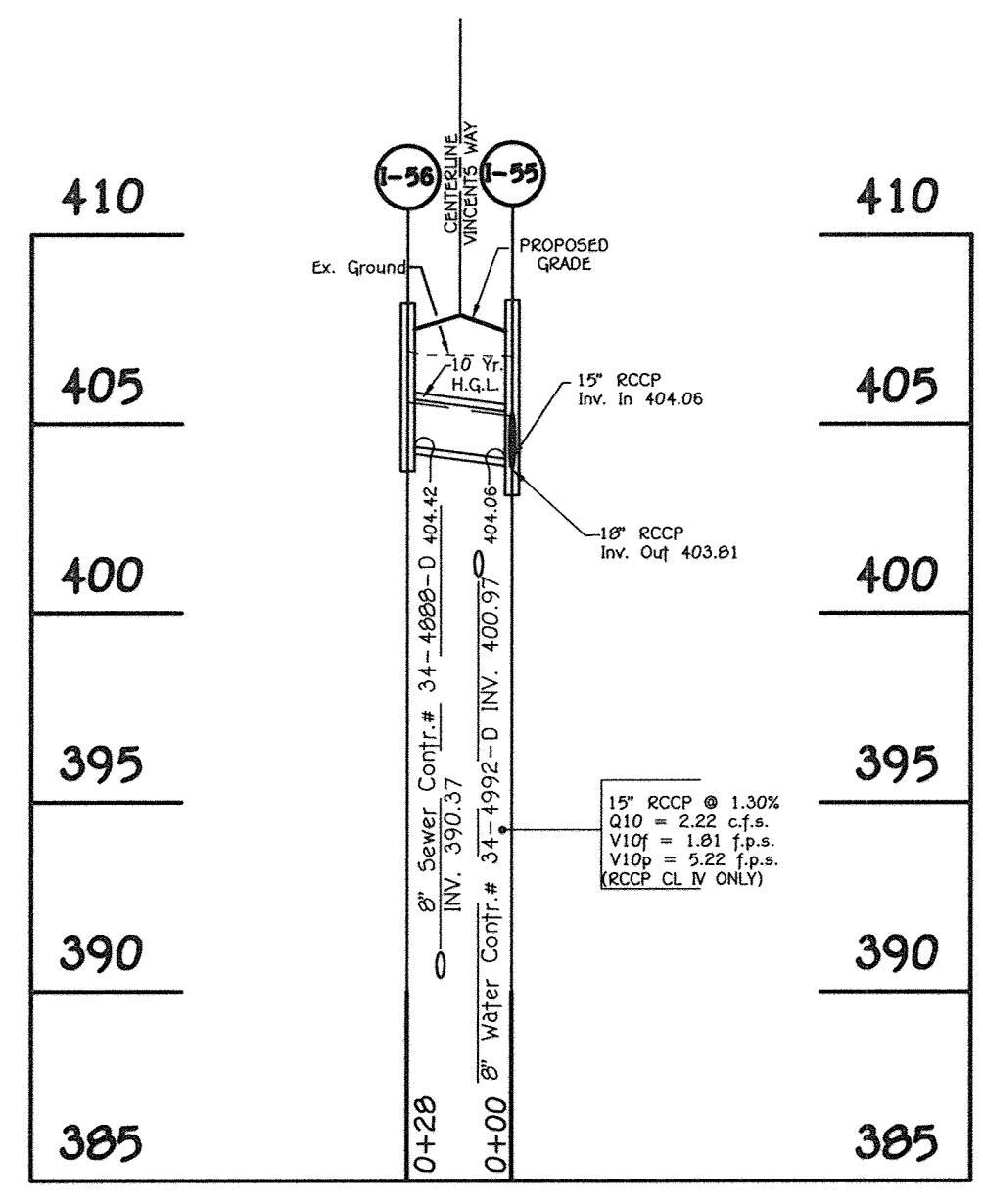
DEVELOPER  
 BEAZER HOMES, LLC  
 8965 GUILFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (765)-894-0182

OWNERS  
 TIERNEY FARMS-CLARKSVILLE, LP.  
 24151 VENTURE BOULEVARD  
 CALABAGAS, CALIFORNIA 91302  
 (918)-395-3697

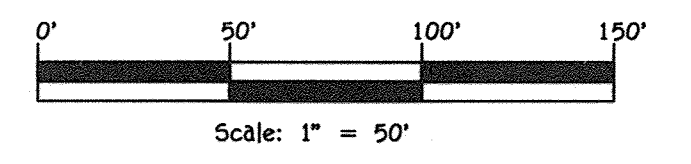
FISHER, COLLINS & CARTER, INC.  
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 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21042  
 (410) 461-2899



Approved: Department Of Planning And Zoning		
<i>J. Mark</i>	8-16-17	
Chief, Division Of Land Development	Date	
<i>John</i>	7.14.17	
Chief, Development Engineering Division	Date	
Approved: Howard County Department Of Public Works		
<i>M. M...</i>	7/10/2017	
Chief, Bureau Of Highways	Date	
REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISION TO M-19 & S-1A TO M-19	4/12/17



NOTE: \* RCCP, CLASS, IV MAY BE SUBSTITUTED WITH HDPE PIPE MATERIAL WHERE DEPTH OF COVER PERMITS.



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*Frank J. Anderson*  
 FRANK J. ANDERSON, L.S.  
 Date: 6/23/17

**DEVELOPER**  
 BEAZER HOMES, LLC  
 8965 GUILFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
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**OWNERS**  
 TIERNEY FARMS-CLARKSVILLE, LP.  
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**STORM DRAIN PROFILES**  
**ENCLAVE AT RIVER HILL**  
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 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 08 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 15 OF 29 **F-17-003**



**Infiltration and Filter System Construction Specifications**

Infiltration and filter systems often take advantage of existing permeable soils or create a permeable medium such as sand for WCI, and Re V. In some instances where permeability is great, these facilities may be used for up as well. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters.

When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorous and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide arteries for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities more desirable to the public.

**Design Constraints:**

- > Planting buffer strips of at least 20 feet will cause sediments to settle out before reaching the facility, thereby reducing the possibility of clogging.
- > Determine areas that will be saturated with water and water table depth so that appropriate plants may be selected (hydrology will be similar to bioretention facilities, see figure A.5 and Table A.4 for planting material guidance).
- > Plants known to send down deep taproots should be avoided in systems where filter fabric is used as part of facility design.
- > Test soil conditions to determine if soil amendments are necessary.
- > Plants shall be located so that access is possible for structure maintenance.
- > Stabilize heavy flow areas with erosion control mats or sod.
- > Temporarily divert flows from seeded areas until vegetation is established.
- > See Table A.5 for additional design considerations.

**Bio-retention**

**Soil Bed Characteristics**

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must balance their chemical and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume) for these soils should be less than 25% by volume (Environmental Quality Resources (EQE), 1996; Engineering Technology Inc. and Biohabitats, Inc. (ETAB), 1993). Soils should fall within the SM, ML, SC classifications of the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds (e.g., Johnson Grass, Mugwort, Nutedge, and Canada Thistle) or other noxious weeds as specified under COMAR 15.08.01.05) should not be present in the soils. Placement of the planting soil should be in 12 to 18 lifts that are loosely compacted (tamped lightly with a backhoe bucket or traversed by dozer tracks). The specific characteristics are presented in Table A.3.

Table A.3 Planting Soil Characteristics

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P2O5)	75 lbs. per acre, minimum
Potassium (potash - K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	10 to 25 %
Silt	30 to 55 %
Sand	35 to 60%

**Mulch Layer**

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability. Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as mulch material.

**Planting Guidance**

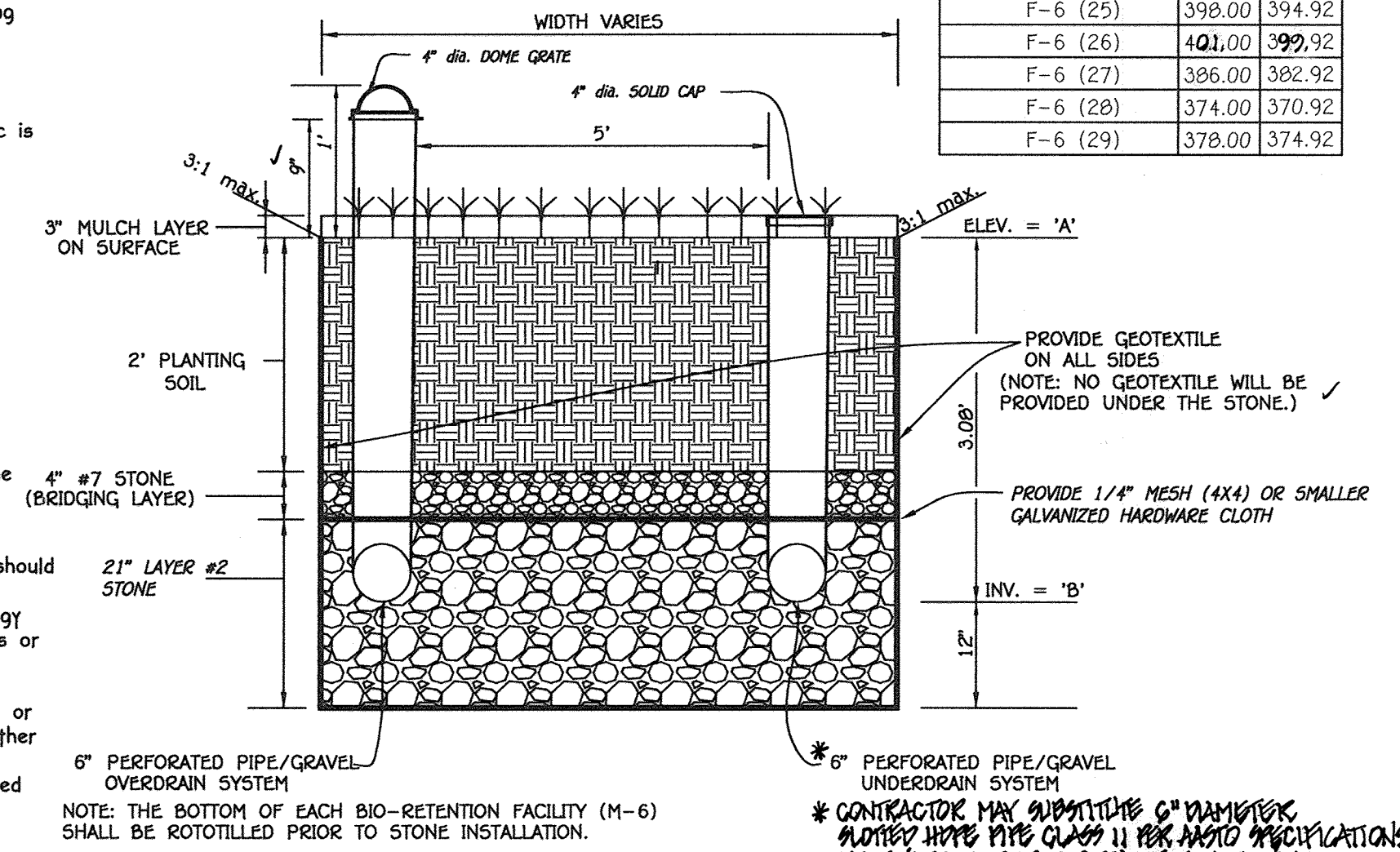
Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bioretention facility will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, wind, and exposure.

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure A.5). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge is the highest elevation and generally supports plants adapted to drier conditions. A sample of appropriate plant materials for bioretention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principals described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bioretention plan, consult ETAB, 1993 or Claytor and Schueler, 1997.

**OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (M-6) AND (F-6)**

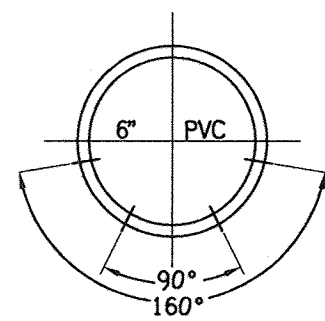
1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDER BEYOND TREATMENT. TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

FACILITY NO.	A	B
F-6 (14)	431.00	427.92
F-6 (15)	419.00	415.92
F-6 (16)	409.00	408.92
F-6 (17)	419.00	409.92
M-6 (18)	409.00	408.92
F-6 (19)	444.00	440.92
F-6 (20)	394.00	394.92
F-6 (21)	398.00	394.92
F-6 (22)	419.00	409.92
F-6 (23)	403.00	400.17
F-6 (24)	409.00	409.92
F-6 (25)	398.00	394.92
F-6 (26)	401.00	399.92
F-6 (27)	386.00	382.92
F-6 (28)	374.00	370.92
F-6 (29)	378.00	374.92



TYPICAL SECTION - BIO-RETENTION FACILITY

NO SCALE



SCH40 PVC PERFORATED UNDERDRAIN PIPE DETAIL FOR HORIZONTAL DRAIN PIPE

NO SCALE

DRAINAGE AREA F-6 (14) BIORETENTION PLANT MATERIAL			
QUANTITY	NAME	MAXIMUM SPACING (FT.)	
129	MIXED PERENNIALS	1 FT.	
55	SHRUBS	2 FT.	
DRAINAGE AREA F-6 (15) MICRO-BIORETENTION PLANT MATERIAL			
115	MIXED PERENNIALS	1 FT.	
49	SHRUBS	2 FT.	
DRAINAGE AREA F-6 (16) BIORETENTION PLANT MATERIAL			
138	MIXED PERENNIALS	1 FT.	
59	SHRUBS	2 FT.	
DRAINAGE AREA F-6 (17) BIORETENTION PLANT MATERIAL			
103	MIXED PERENNIALS	1 FT.	
44	SHRUBS	2 FT.	
DRAINAGE AREA M-6 (18) MICRO-BIORETENTION PLANT MATERIAL			
117	MIXED PERENNIALS	1 FT.	
50	SHRUBS	2 FT.	

DRAINAGE AREA F-6 (19) BIORETENTION PLANT MATERIAL			
QUANTITY	NAME	MAXIMUM SPACING (FT.)	
83	MIXED PERENNIALS	1 FT.	
36	SHRUBS	2 FT.	
DRAINAGE AREA F-6 (24) MICRO-BIORETENTION PLANT MATERIAL			
108	MIXED PERENNIALS	1 FT.	
81	SHRUBS	2 FT.	
DRAINAGE AREA F-6 (25) BIORETENTION PLANT MATERIAL			
253	MIXED PERENNIALS	1 FT.	
109	SHRUBS	2 FT.	
DRAINAGE AREA F-6 (22) BIORETENTION PLANT MATERIAL			
103	MIXED PERENNIALS	1 FT.	
44	SHRUBS	2 FT.	
DRAINAGE AREA F-6 (26) MICRO-BIORETENTION PLANT MATERIAL			
160	MIXED PERENNIALS	1 FT.	
69	SHRUBS	2 FT.	
DRAINAGE AREA F-6 (27) MICRO-BIORETENTION PLANT MATERIAL			
150	MIXED PERENNIALS	1 FT.	
64	SHRUBS	2 FT.	
DRAINAGE AREA F-6 (28) MICRO-BIORETENTION PLANT MATERIAL			
105	MIXED PERENNIALS	1 FT.	
45	SHRUBS	2 FT.	

**B.4.C Specifications for Micro-Bioretention, Rain Gardens, Landscape Infiltration & Infiltration Berms**

1. Material Specifications  
The allowable materials to be used in these practices are detailed in Table B.4.1.
2. Filling Media or Planting Soil  
The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the Micro-bioretention practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet the following criteria:

Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)  
Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (5%), and compost (4%).

Clay Content - Media shall have a clay content of less than 5%.

pH Range should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH. There shall be at least one soil test per project. Each test shall consist of both the spread soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. Compaction  
It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation fees to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary filling operation such as a chisel plow, raper, or subsoiler. These tilling operations are to restructure the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not fill deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material  
Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

5. Plant Installation  
Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/3 of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers, detritus, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill area fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains  
Underdrains should meet the following criteria:  
Pipes - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type P5 28, or ASTM-N-278) in a gravel layer. The preferred material is slotted, 4 rigid pipe (e.g., PVC or HDPE).

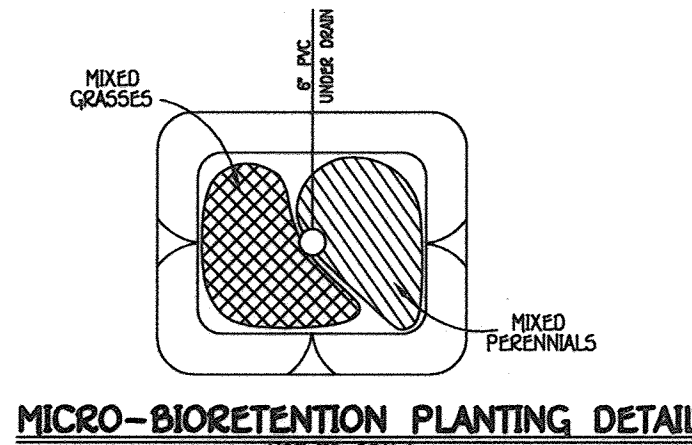
Perforations - If perforated pipe is used, perforations should be 3/8" diameter located 6" on center with a minimum of four holes per pipe. Pipe shall be wrapped with a 1/4" (No. 4) or 4x4 galvanized hardware cloth.

Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.  
The main collector pipe shall be at a minimum 0.5% slope.  
A rigid, non-perforated observation well must be provided (one per every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.

A 4" layer of pea gravel (1/4" to 3/8" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 2".

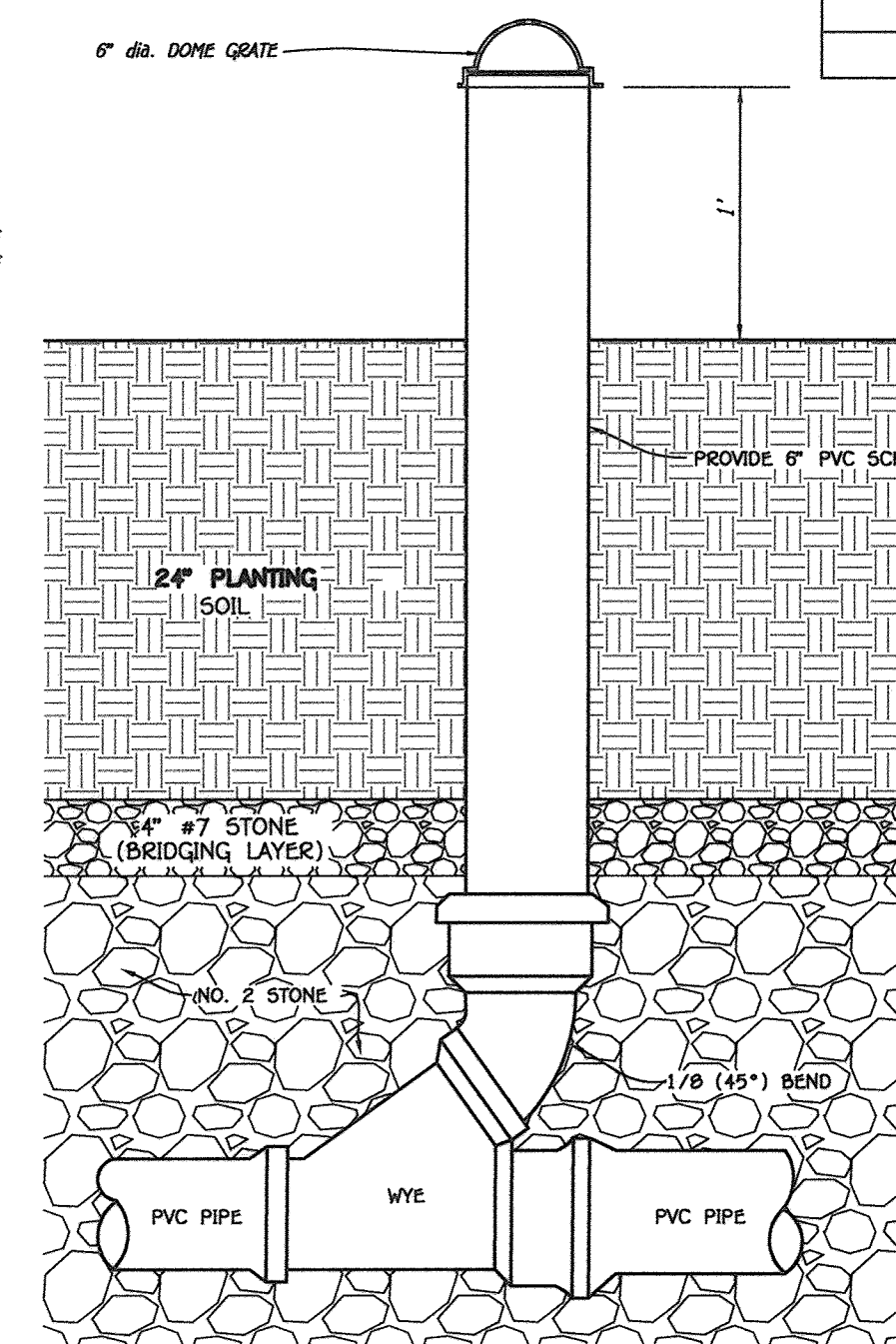
The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous  
These practices may not be constructed until all contributing drainage area has been stabilized.



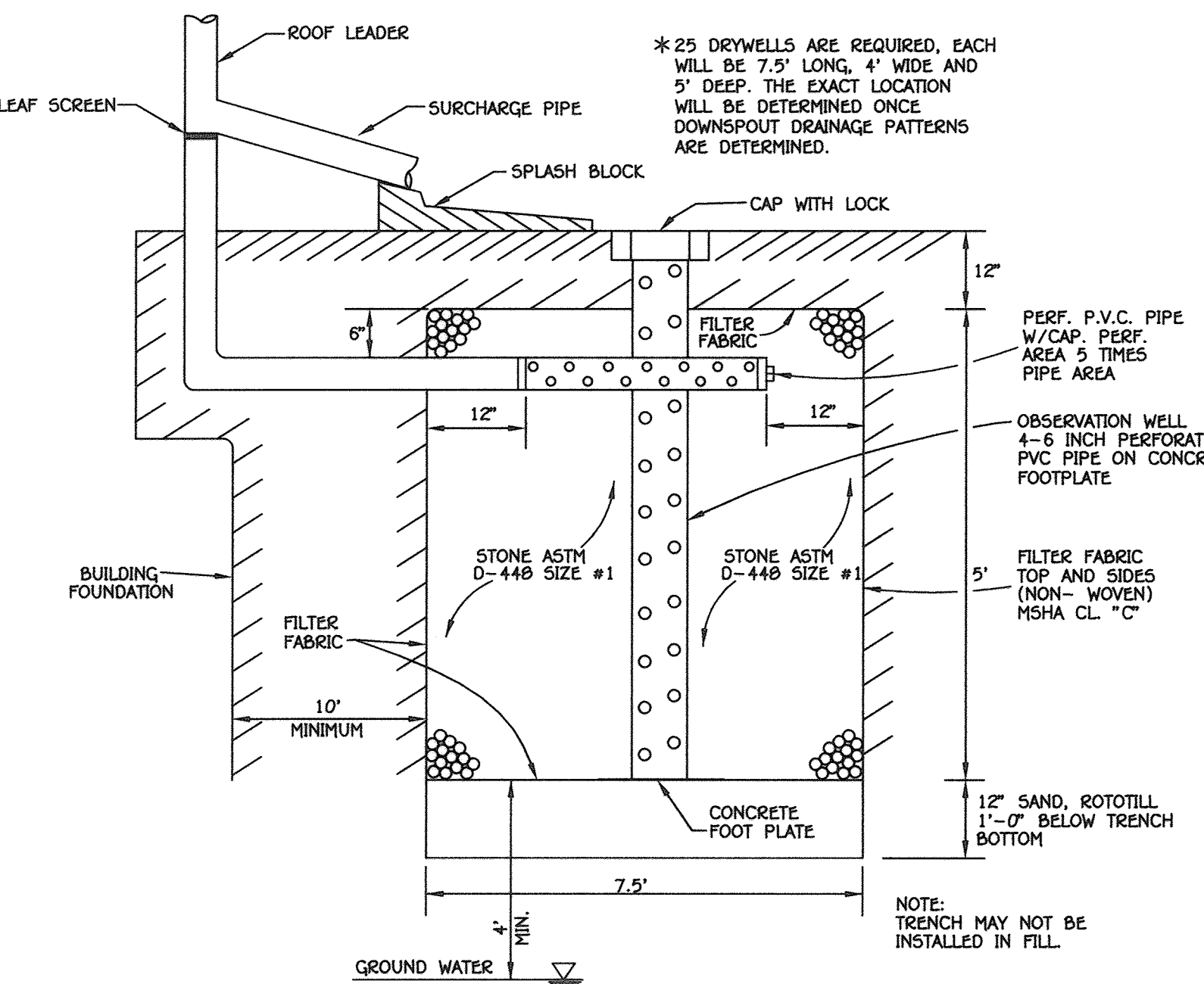
MICRO-BIORETENTION PLANTING DETAIL

NOT TO SCALE



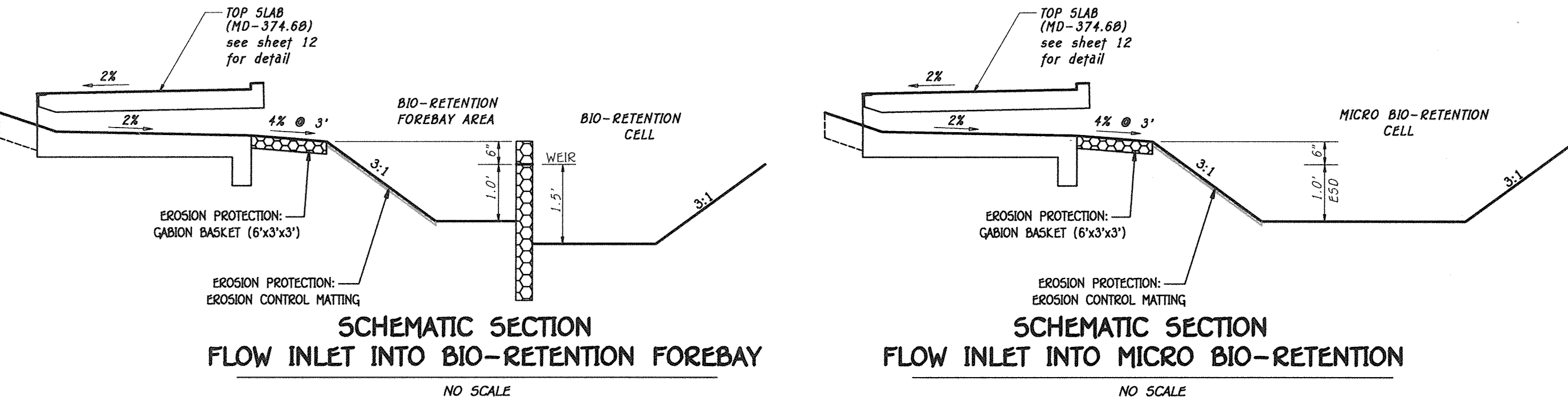
TYPICAL CLEAN-OUT DETAIL

NO SCALE



M-5 DRY WELL DETAIL

NOT TO SCALE



SCHEMATIC SECTION FLOW INLET INTO BIO-RETENTION FOREBAY

NO SCALE

SCHEMATIC SECTION FLOW INLET INTO MICRO-BIO-RETENTION

NO SCALE

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21046  
(410) 461 - 2895



**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/19.  
*Frank M. Ananias*  
FRANK ANANIAS, L.S.  
DATE: 6/28/17

**DEVELOPER**  
BEAZER HOMES, LLC  
8965 GUILFORD ROAD - SUITE 290  
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(765)-894-0182

**OWNERS**  
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24151 VENTURE BOULEVARD  
CALABASAS, CALIFORNIA 91302  
(818)-385-3697

**STORMWATER MANAGEMENT NOTES AND DETAILS**  
**ENCLAVE AT RIVER HILL**  
**PHASE 2**  
LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'  
PREVIOUS HOWARD COUNTY FILES:  
ECP-15-005, PB#409, 5P-05-006, WP-15-069, F-15-110, WP-16-152 PLAT NO.5 24231 - 24244  
ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
PARCEL NOS.: 88 & 97  
FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: JUNE, 2017  
SHEET 16 OF 29 **F-17-003**





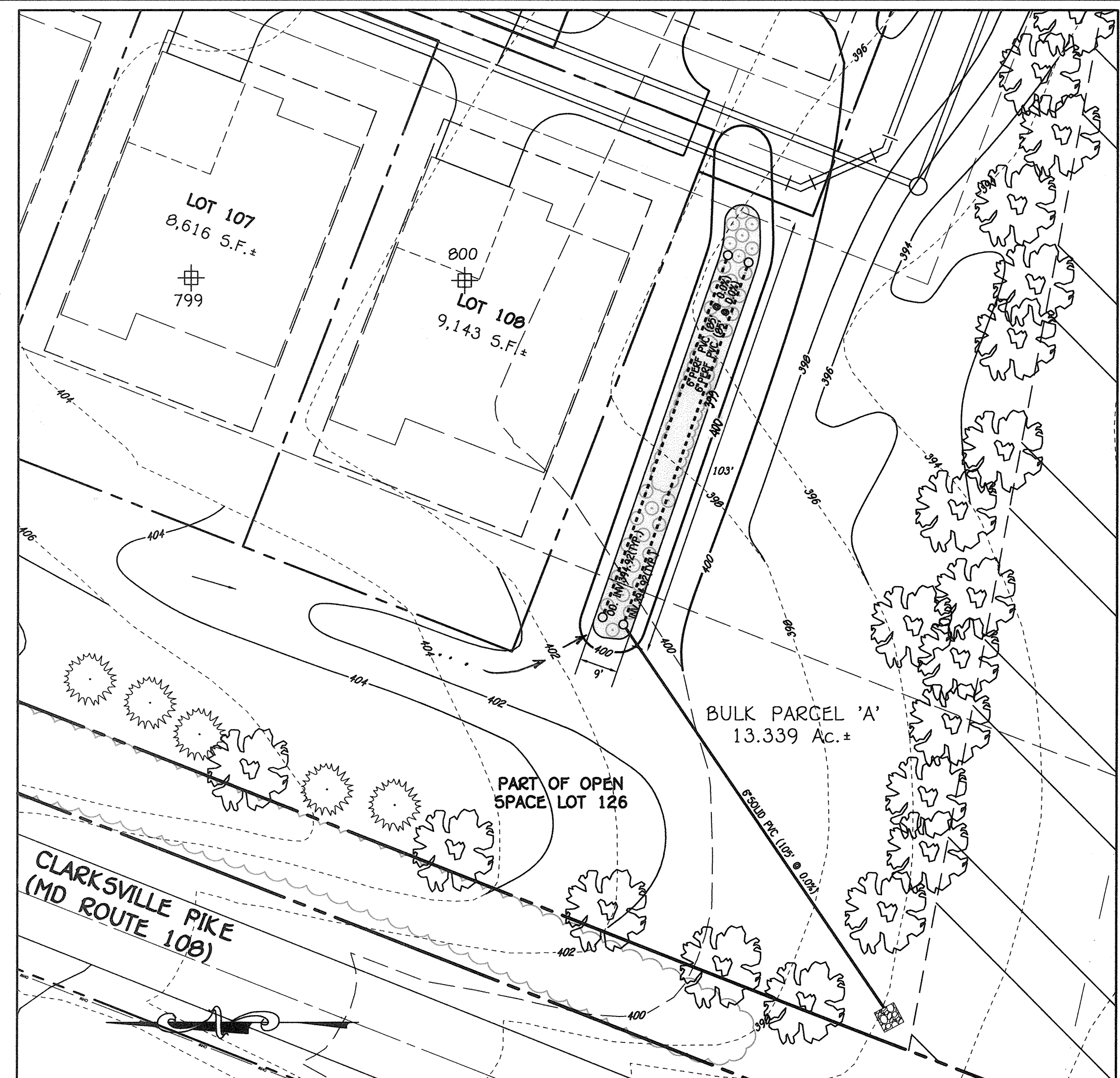






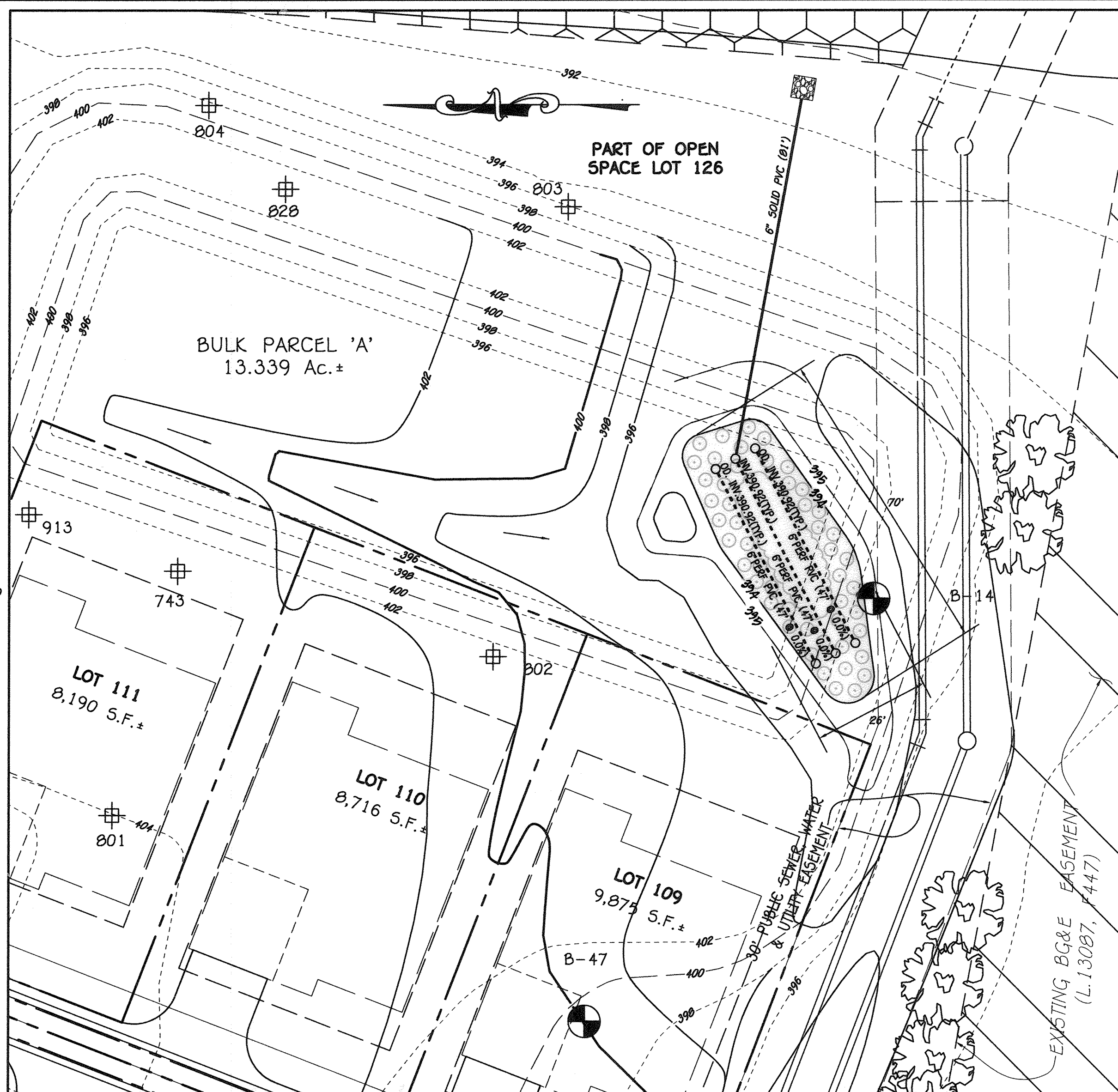
Approved: Department Of Planning And Zoning  
*T. Mahr Fuks* 8-16-17  
 Chief, Division Of Land Development Date  
*W. Hill* 7-19-17  
 Chief, Development Engineering Division Date  
 Approved: Howard County Department Of Public Works  
*M. M...* 7/19/2017  
 Chief, Bureau Of Highways Date

NO.	DESCRIPTION	DATE
1	REVISION	
2	REVISION	4/12/19



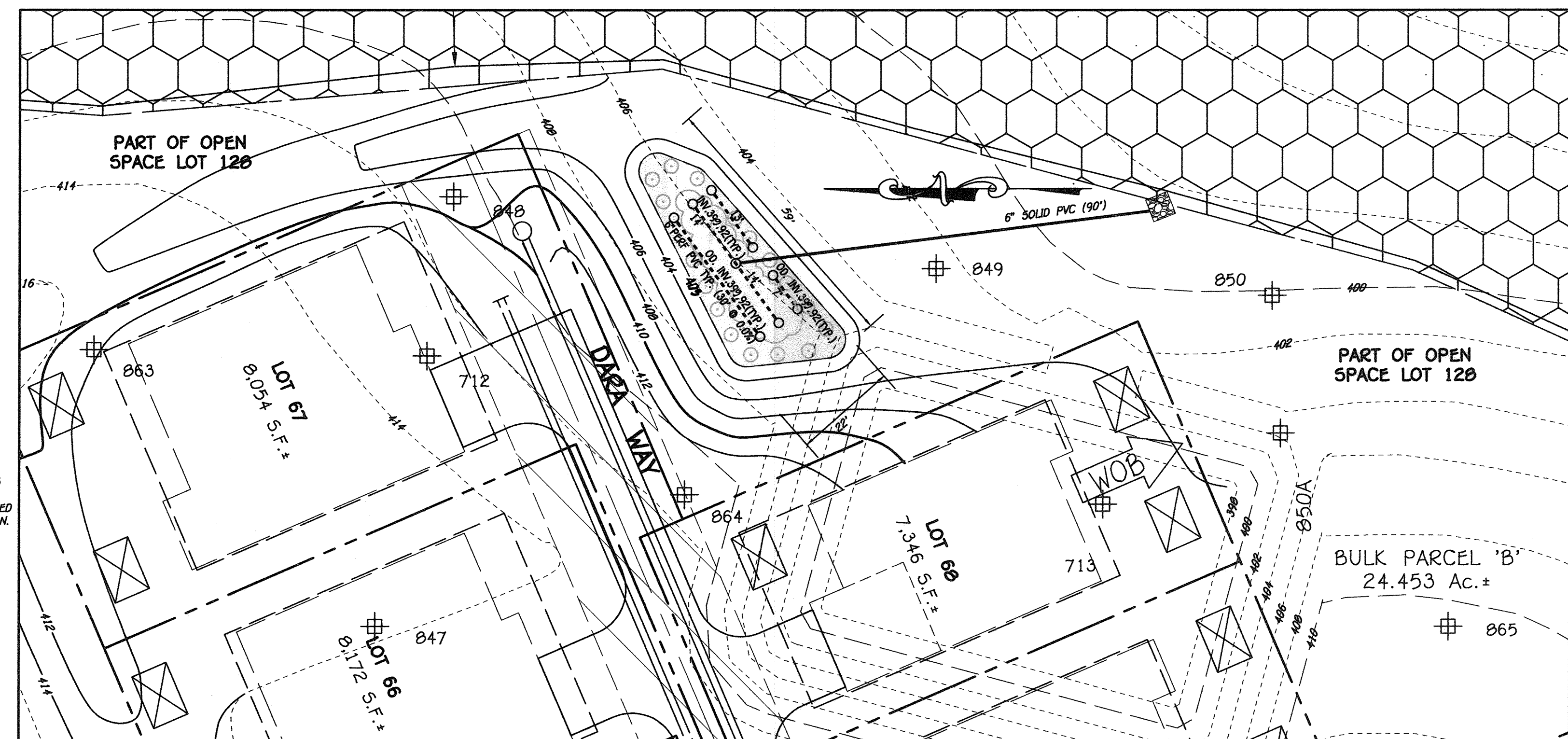
**F-6 (20)**  
 (BIO-RETENTION FACILITY)  
 SCALE: 1" = 20'  
 DRAINAGE AREA: 45,198 Sq.Ft.  
 FILTER AREA: 1,393 Sq.Ft.  
 ELEVATION 394  
 PERIMETER 163'  
 WEIR ELEVATION 395

NOTE:  
 1) STORMWATER MANAGEMENT FACILITY TO BE OWNED AND MAINTAINED BY HOMEOWNERS ASSOCIATION.  
 2) FINAL DESIGN TO BE PROVIDED WITH SITE DEVELOPMENT PLAN.



**F-6 (21)**  
 (BIO-RETENTION FACILITY)  
 SCALE: 1" = 20'  
 DRAINAGE AREA: 39,689 Sq.Ft.  
 FILTER AREA: 896 Sq.Ft.  
 ELEVATION 399  
 PERIMETER 218'  
 WEIR ELEVATION 400

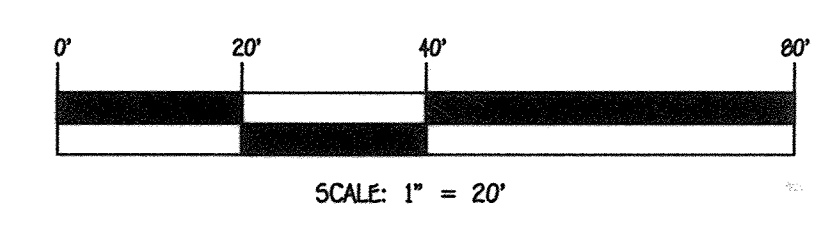
NOTE:  
 1) STORMWATER MANAGEMENT FACILITY TO BE OWNED AND MAINTAINED BY HOMEOWNERS ASSOCIATION.  
 2) FINAL DESIGN TO BE PROVIDED WITH SITE DEVELOPMENT PLAN.



**M-6 (23)**  
 (BIO-RETENTION FACILITY)  
 SCALE: 1" = 20'  
 DRAINAGE AREA: 45,198 Sq.Ft.  
 FILTER AREA: 923 Sq.Ft.  
 ELEVATION 408  
 PERIMETER 137'  
 WEIR ELEVATION 404

NOTE:  
 1) STORMWATER MANAGEMENT FACILITY TO BE OWNED AND MAINTAINED BY HOMEOWNERS ASSOCIATION.  
 2) FINAL DESIGN TO BE PROVIDED WITH SITE DEVELOPMENT PLAN.

LEGEND	
(Symbol)	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
•	SPOT ELEVATION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED SEWER
---	PROPOSED WATER
---	NON CREDIT OPEN SPACE
---	LIMIT OF DISTURBANCE
---	SUPER SILT FENCE
---	SILT FENCE
---	100 YEAR FLOODPLAIN
---	STREAM BUFFER
---	DRYWELL (N-3)-TYPICAL
---	BIO RETENTION FACILITY (F-6) OR (F-2) AS NOTED
---	SPECIMEN TREE (TO BE REMOVED)
---	PUBLIC WATER, SEWER & UTILITY EASEMENT
---	RECREATIONAL OPEN SPACE
---	USE IN COMMON ACCESS EASEMENT
---	EXISTING WALK EASEMENT (L.13087, T.477)
---	FOREST CONSERVATION EASEMENT
---	RETENTION AREA OUTSIDE F.P.
---	FOREST CONSERVATION EASEMENT PLANTING AREA
---	FOREST CONSERVATION EASEMENT NON-RETENTION AREA INSIDE F.P.
---	STREET TREES



STORMWATER MANAGEMENT PLANS  
**ENCLAVE AT RIVER HILL PHASE 2**  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'  
 PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110, WP-16-152 PLAT NO.5 24321- 24244  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 88 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 19 OF 29 **F-17-003**

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10275 BALTIMORE NATIONAL PIKE  
 ELLESTREE CITY, MARYLAND 21042  
 (410) 461 - 2895



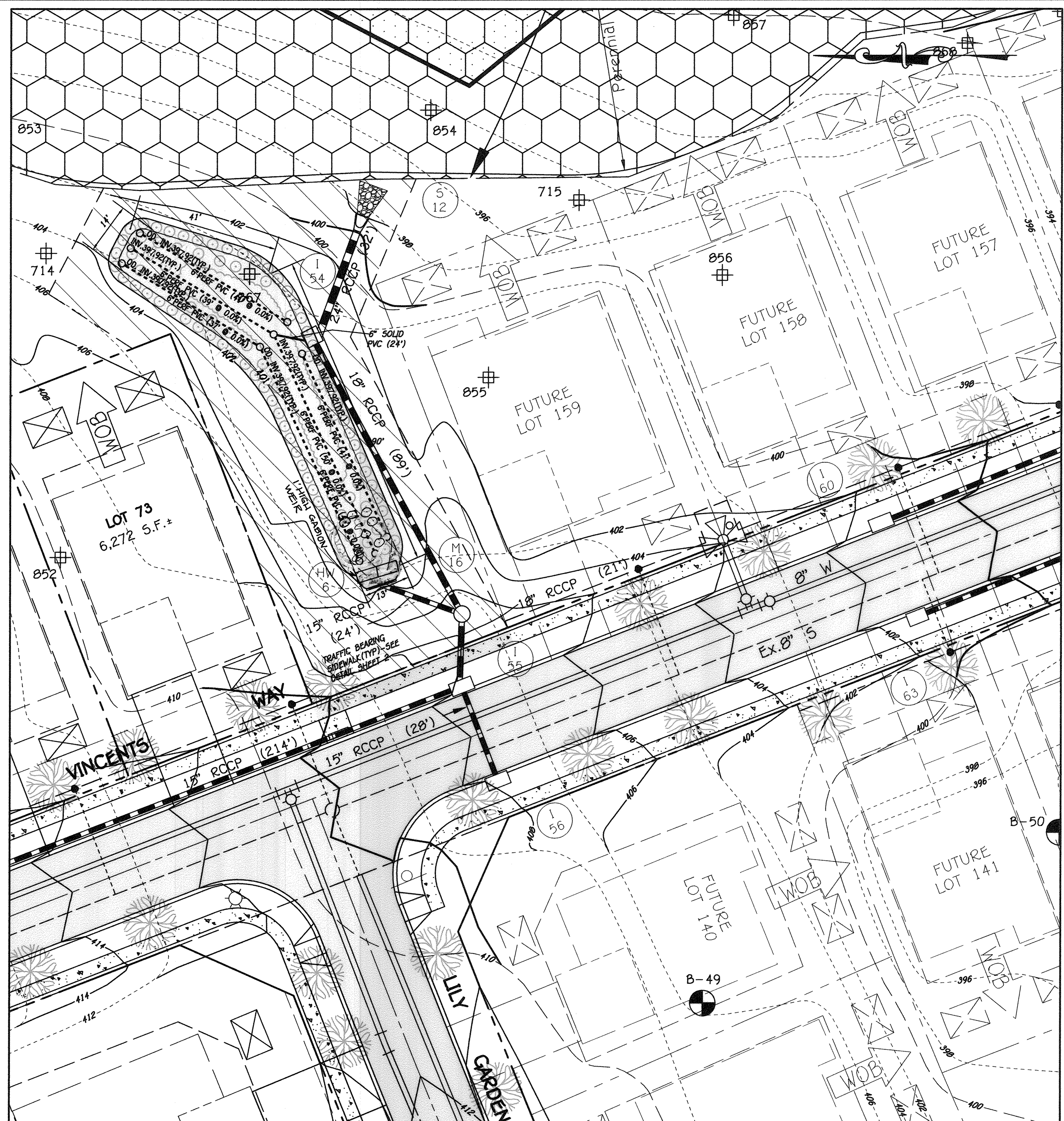
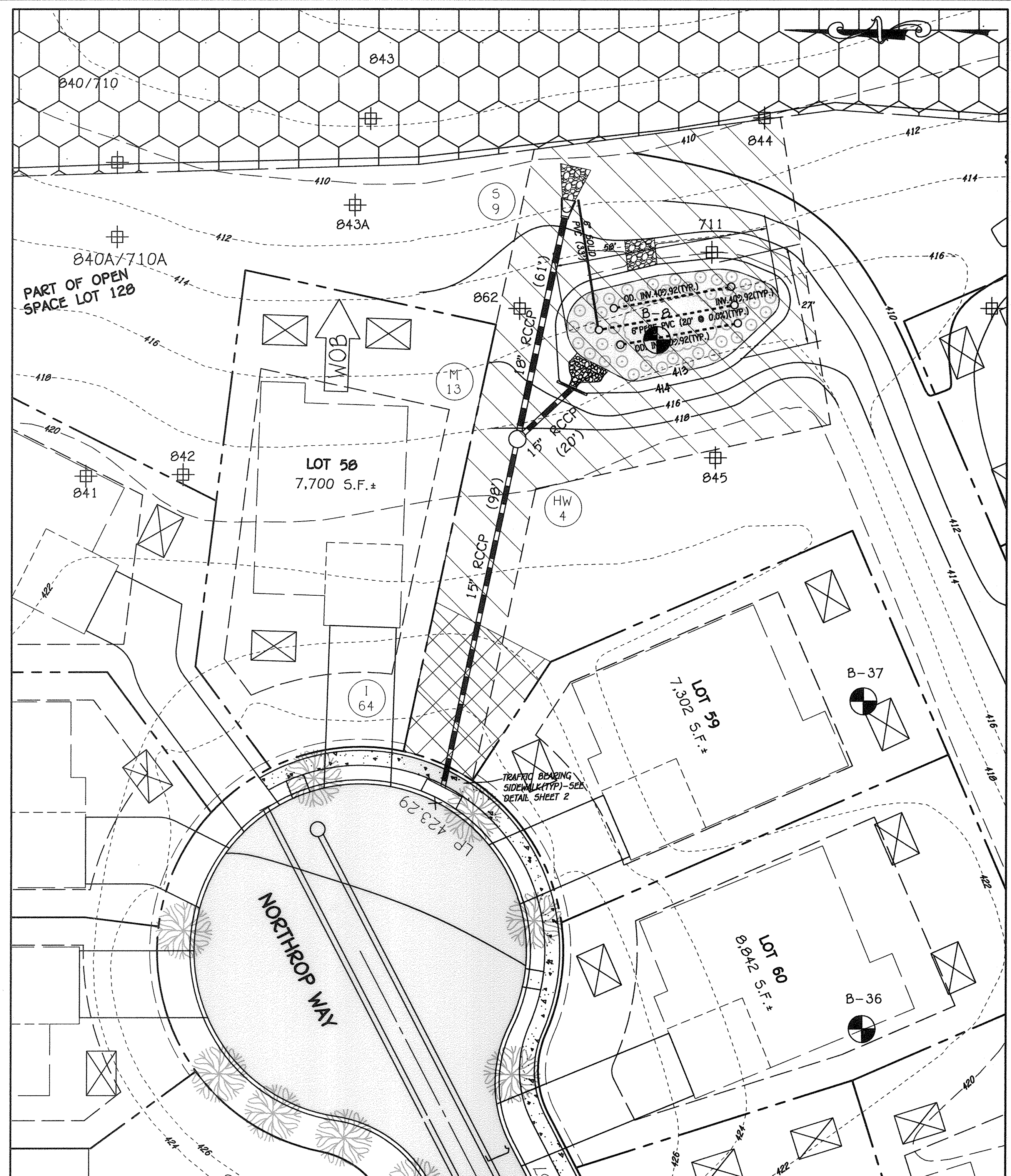
**PROFESSIONAL CERTIFICATION**  
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*Frank Manalansan, I*  
 DATE: 4/23/17

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 (818)-385-3697

130313308.dwg F:\Plan Set\SWM\810 Detail - C-20\_SWM Details.dwg 6/28/2017 1:45:53 PM, 11





Approved: Department Of Planning And Zoning

T. Mah for KS 8-16-17  
 Chief, Division Of Land Development Date

7/14/17  
 Chief, Development Division Date

Approved: Howard County Department Of Public Works

Mearns 7/6/2017  
 Chief, Bureau Of Highways Date

NO.	DESCRIPTION	DATE
1	REVISE BIORETENTION FACILITY ELEVATIONS	4/2/19

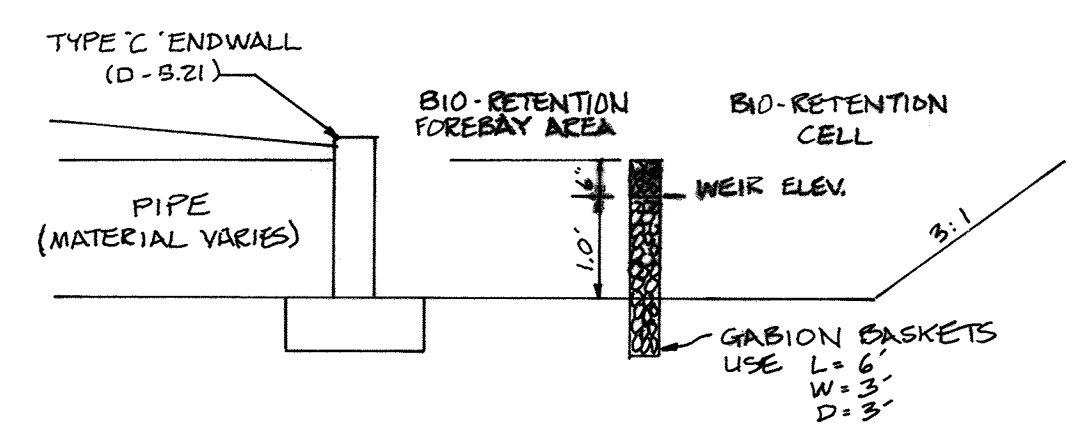
SYMBOL	DESCRIPTION
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---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	SPOT ELEVATION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED SEWER
---	PROPOSED WATER
---	NON CURENT OPEN SPACE
---	LIMIT OF DISTURBANCE
---	SUPER SALT FENCE
---	100 YEAR FLOODPLAIN
---	STREAM BUFFER
---	DREWEELL (N-S)-TYPICAL
---	BIO RETENTION FACILITY (F-6) OR (F-6) AS NOTED
---	SPECIMEN TREE (TO BE REMOVED)
---	PUBLIC WATER, SEWER & UTILITY EASEMENT
---	RECREATIONAL OPEN SPACE
---	USE IN COMMON ACCESS EASEMENT
---	EXISTING NEAR EASEMENT (L13887, T.477)
---	FOREST CONSERVATION EASEMENT
---	RETENTION AREA OUTSIDE F.P.
---	FOREST CONSERVATION EASEMENT PLANTING AREA
---	FOREST CONSERVATION EASEMENT NON-RETENTION AREA, INSIDE F.P.
---	STREET TREES

**F-6 (22)**  
 (BIO-RETENTION FACILITY)  
 SCALE: 1" = 20'  
 DRAINAGE AREA: 39,990 SqFt.  
 FILTER AREA: 1,233 SqFt.  
 ELEVATION 418  
 PERIMETER 140'  
 WEIR ELEVATION 414

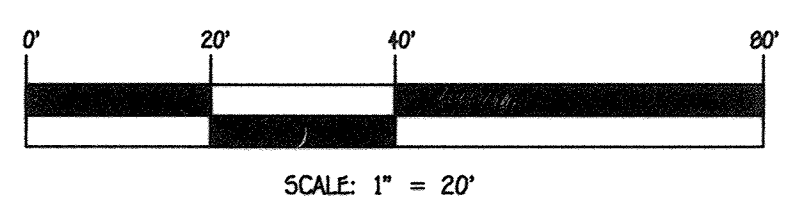
NOTE:  
 1) STORMWATER MANAGEMENT FACILITY TO BE PRIVATELY OWNED AND JOINTLY MAINTAINED.

**F-6 (26)**  
 (BIO-RETENTION FACILITY)  
 SCALE: 1" = 20'  
 DRAINAGE AREA: 49,011 SqFt.  
 FILTER AREA: 2,751 SqFt.  
 ELEVATION 401  
 PERIMETER 285'  
 WEIR ELEVATION 402

NOTE:  
 1) STORMWATER MANAGEMENT FACILITY TO BE PRIVATELY OWNED AND JOINTLY MAINTAINED.



SCHEMATIC SECTION  
 PIPE INLET AT BIO-RETENTION FACILITY  
 NO SCALE  
 \* CONCRETE END SECTION (D-5.51) TO BE UTILIZED ON 3-10



STORMWATER MANAGEMENT PLANS  
**ENCLAVE AT RIVER HILL PHASE 2**  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'  
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 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110, WP-16-152 PLAT NO.5 24321- 24244  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 08 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 20 OF 29 **F-17-003**

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PKC  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2895



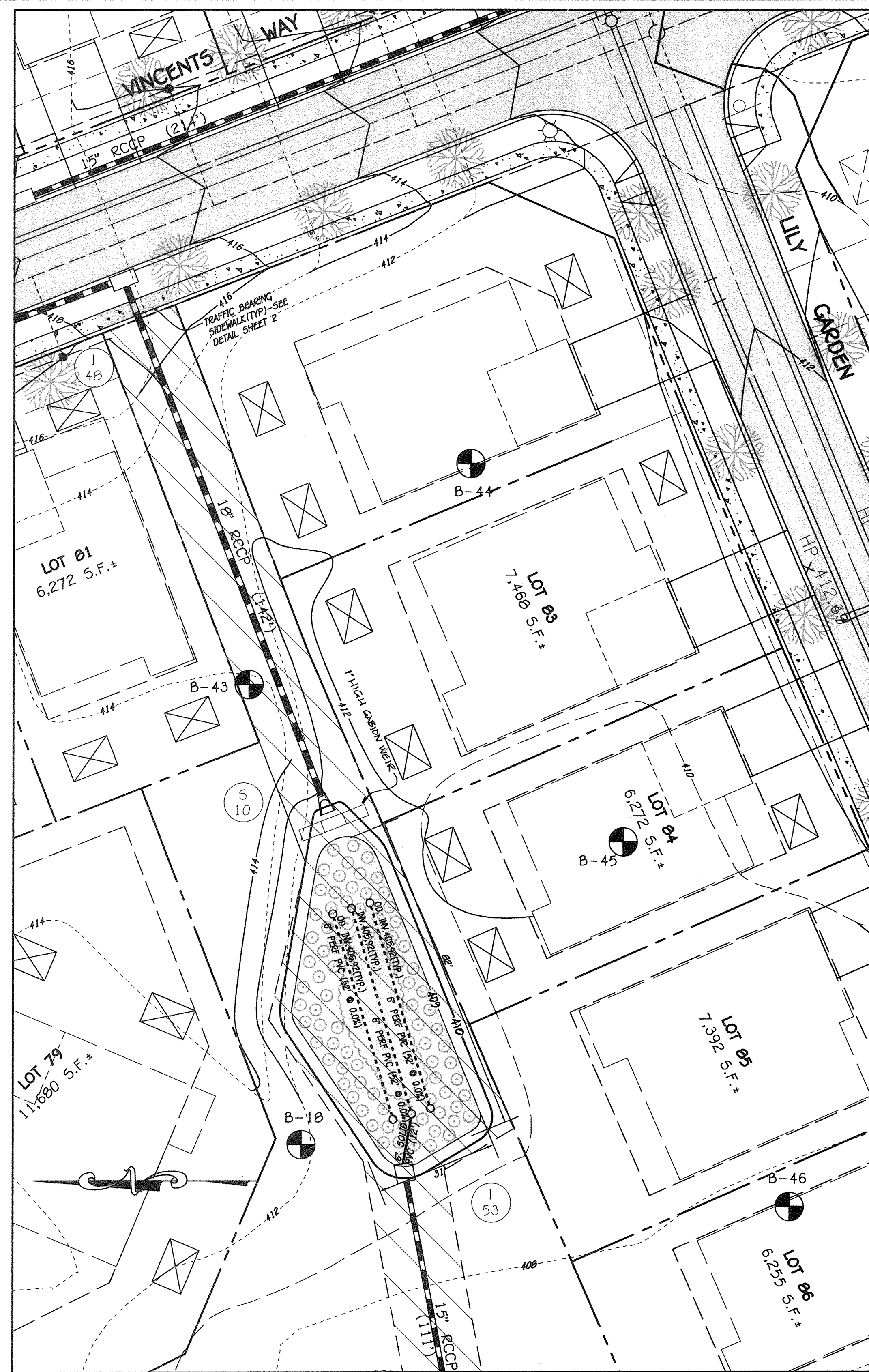
**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/19.  
 Frank Manalansan, L.L.  
 Date: 4/23/17

**DEVELOPER**  
 BEAZER HOMES, LLC  
 8965 QUILFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (765)-894-0182

**OWNERS**  
 TIERNEY FARMS-CLARKSVILLE, LP.  
 24151 VENTURE BOULEVARD  
 CALABASAS, CALIFORNIA 91302  
 (818)-305-3697

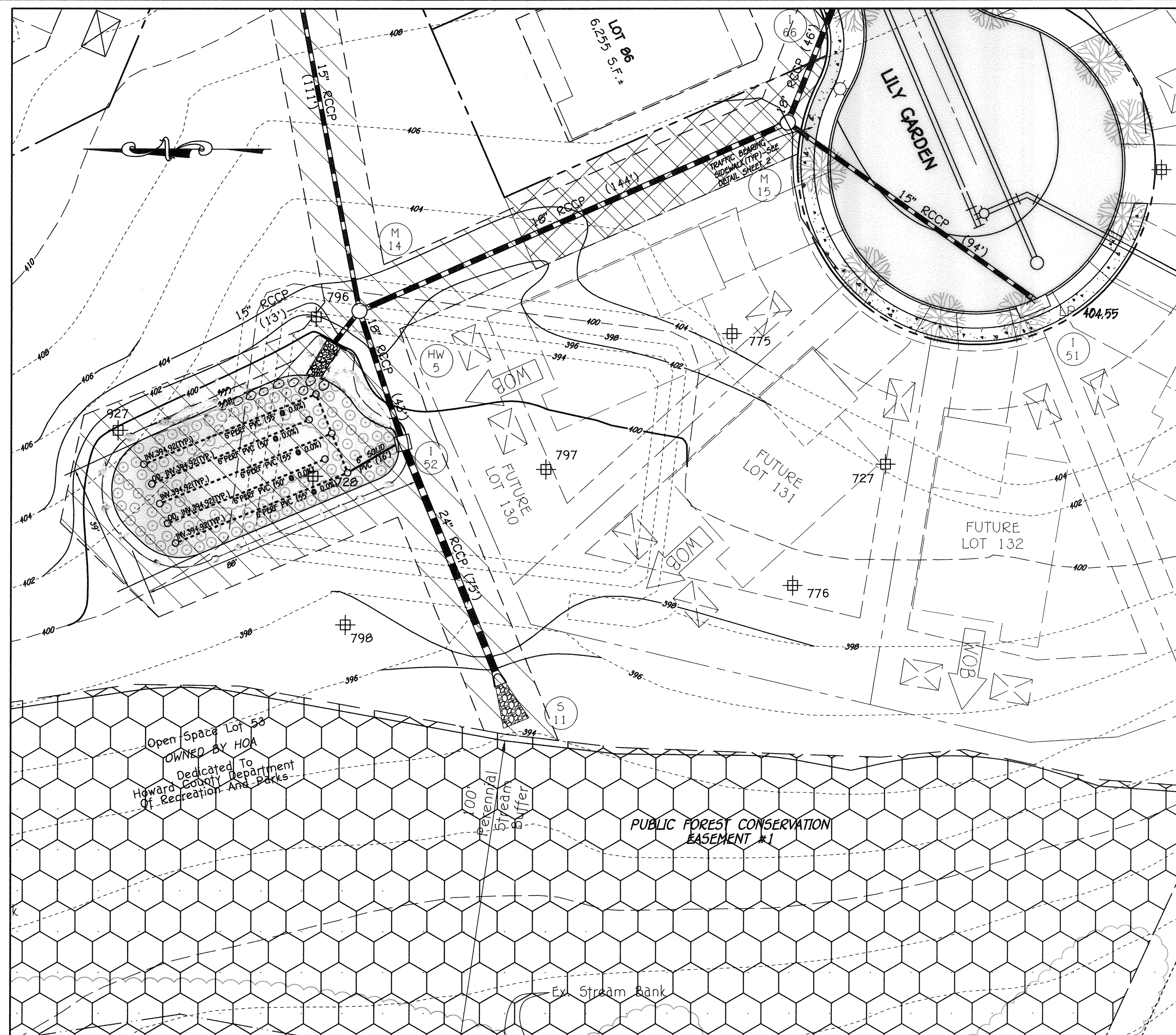
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**F-6 (24)**  
 (BIO-RETENTION FACILITY)  
 SCALE: 1" = 20'  
 DRAINAGE AREA: 68,096 SqFt.  
 FILTER AREA: 2,290 SqFt.  
 ELEVATION 409  
 PERIMETER 203'  
 WEIR ELEVATION 410

NOTE:  
 1) STORMWATER MANAGEMENT FACILITY TO BE PRIVATELY OWNED AND JOINTLY MAINTAINED.



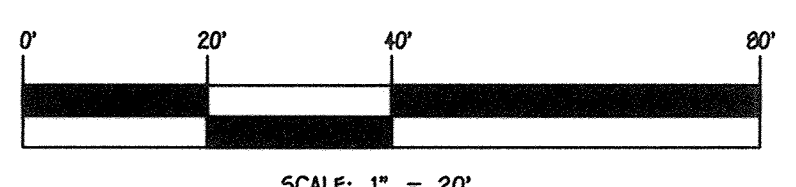
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 (BIO-RETENTION FACILITY)  
 SCALE: 1" = 20'  
 DRAINAGE AREA: 93,219 SqFt.  
 FILTER AREA: 3,038 SqFt.  
 ELEVATION 398  
 PERIMETER 222'  
 WEIR ELEVATION 399

NOTE:  
 1) STORMWATER MANAGEMENT FACILITY TO BE PRIVATELY OWNED AND JOINTLY MAINTAINED.

Approved: Department Of Planning And Zoning  
 T. Mark R. MS 8-16-17  
 Chief, Division Of Land Development Date  
 Chief, Development Engineering Division 7-14-17  
 Approved: Howard County Department Of Public Works  
 Chief, Bureau Of Highways 7/10/2017  
 Date

NO.	DESCRIPTION	DATE
1	RAISE BIORETENTION FACILITY ELEVATION	4/19/19

LEGEND	
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	SPOT ELEVATION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED SEWER
---	PROPOSED WATER
---	NON CREDIT OPEN SPACE
---	LIMIT OF DISTURBANCE
---	SUPER SILT FENCE
---	SILT FENCE
---	100 YEAR FLOODPLAIN
---	STREAM BUFFER
---	DRYWELL (M-5)-TYPICAL
---	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED
---	SPECIMEN TREE (TO BE REMOVED)
---	PUBLIC WATER, SEWER & UTILITY EASEMENT
---	RECREATIONAL OPEN SPACE
---	USE IN COMMON ACCESS EASEMENT
---	EXISTING BULK EASEMENT (L-1000, F-1473)
---	FOREST CONSERVATION EASEMENT RETENTION AREA OUTSIDE F.P.
---	FOREST CONSERVATION EASEMENT PLANTING AREA
---	FOREST CONSERVATION EASEMENT NON-RETENTION AREA INSIDE F.P.
---	STREET TREES



**STORMWATER MANAGEMENT PLANS**  
**ENCLAVE AT RIVER HILL**  
**PHASE 2**  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'  
 PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110, WP-16-152 PLAT NO.S 24321- 24244  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 08 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 21 OF 29 **F-17-003**

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELLETTT CITY, MARYLAND 21042  
 (410) 461 - 2895



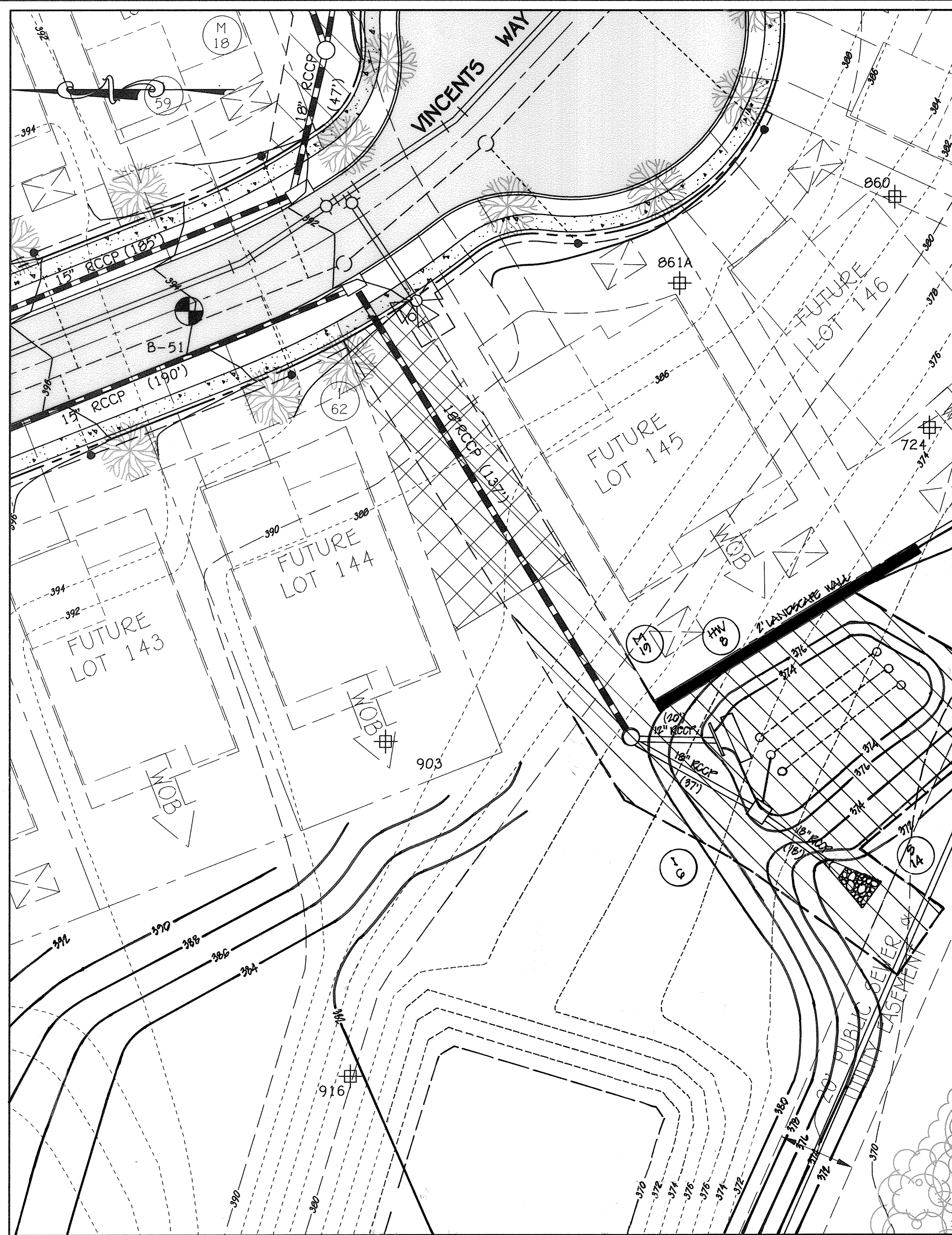
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 Frank Manalansan, I  
 Date: 4/23/17

**DEVELOPER**  
 BEAZER HOMES, LLC  
 8965 GUILFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (765)-894-0182

**OWNERS**  
 TIERNEY FARMS-CLARKSVILLE, LP  
 24151 VENTURE BOULEVARD  
 CALABASAS, CALIFORNIA 91302  
 (818)-385-3697

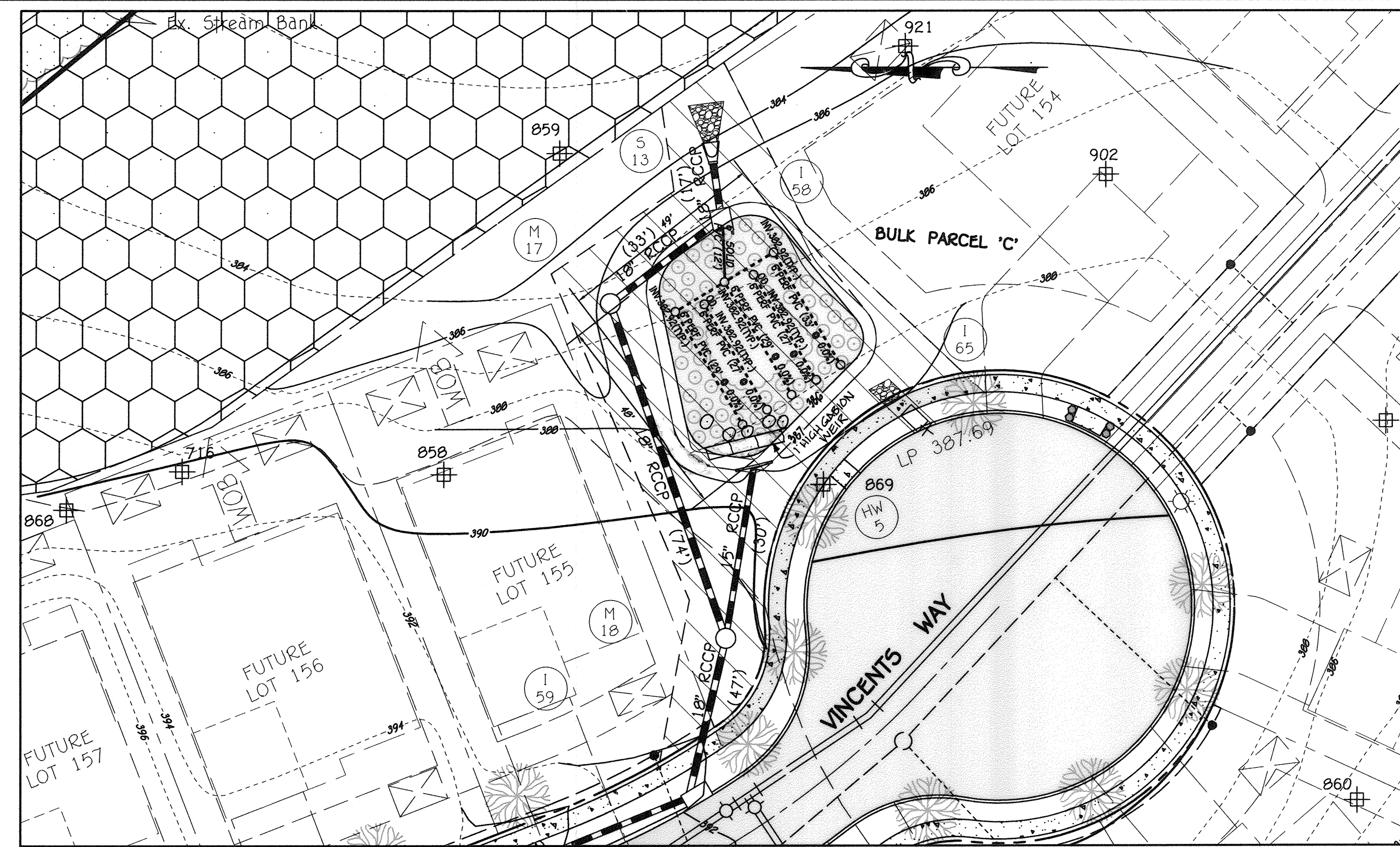
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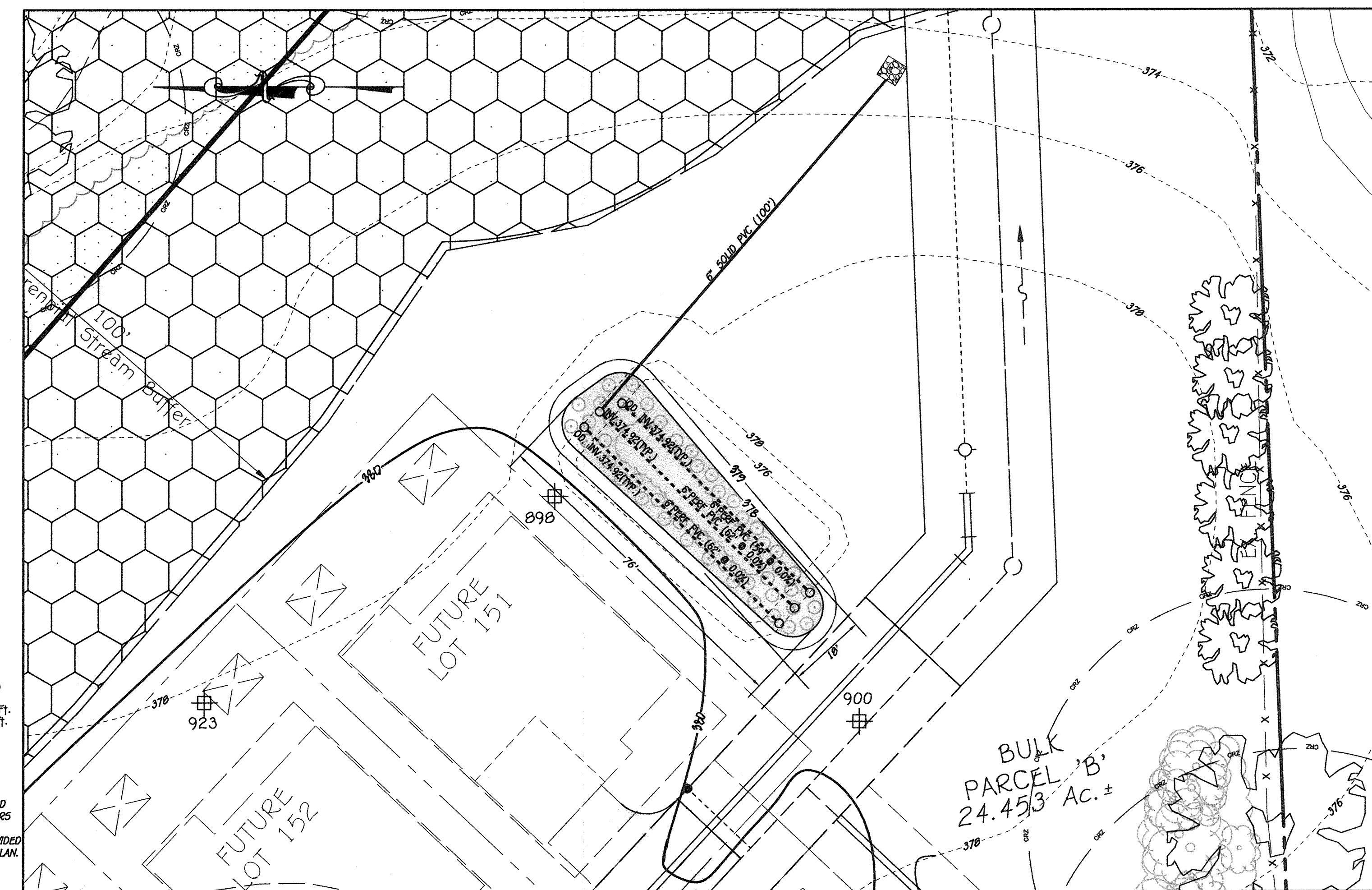
**F-6 (28)**  
 (BIO-RETENTION FACILITY)  
 SCALE: 1" = 20'  
 DRAINAGE AREA: 30,915 SqFt.  
 FILTER AREA: 1,260 SqFt.  
 ELEVATION 374  
 PERIMETER 141'  
 WEIR ELEVATION 375

NOTE:  
 1) STORMWATER MANAGEMENT FACILITY TO BE PRIVATELY OWNED AND JOINTLY MAINTAINED.



**F-6 (29)**  
 (BIO-RETENTION FACILITY)  
 SCALE: 1" = 20'  
 DRAINAGE AREA: 30,090 SqFt.  
 FILTER AREA: 1,319 SqFt.  
 ELEVATION 378  
 PERIMETER 176'  
 WEIR ELEVATION 379

NOTE:  
 1) STORMWATER MANAGEMENT FACILITY TO BE OWNED AND MAINTAINED BY HOMEOWNERS ASSOCIATION.  
 2) FINAL DESIGN TO BE PROVIDED WITH SITE DEVELOPMENT PLAN.



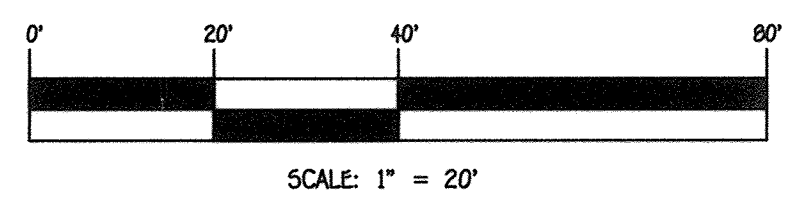
Approved: Department Of Planning And Zoning  
*T. Mahan KS* 8-16-17  
 Chief, Division Of Land Development Date  
*W. Hill* 7-14-17  
 Chief, Development Engineering Division Date  
 Approved: Howard County Department Of Public Works  
*M. M...* 7/6/2017  
 Chief, Bureau Of Highways Date

REVISIONS		
NO.	DESCRIPTION	DATE
1	RELOCATE FROM FACILITY F-6 (28) ADJACENT TO STORMWATER RETENTION SITE GRADINA & ACCY BUSH ARELAND	4/12/19

**F-6 (27)**  
 (BIO-RETENTION FACILITY)  
 SCALE: 1" = 20'  
 DRAINAGE AREA: 39,292 SqFt.  
 FILTER AREA: 1,790 SqFt.  
 ELEVATION 366  
 PERIMETER 161'  
 WEIR ELEVATION 387

NOTE:  
 1) STORMWATER MANAGEMENT FACILITY TO BE PRIVATELY OWNED AND JOINTLY MAINTAINED.

LEGEND	
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	EXIST. ELEVATION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED SEWER
---	PROPOSED WATER
---	NON CREDIT OPEN SPACE
---	LIMIT OF DISTURBANCE
---	SUPPLY SET FENCE
---	5 FT FENCE
---	100 YEAR FLOODPLAIN
---	STREAM BUFFER
---	ORWELL (H-3) TYPICAL
---	BIO RETENTION FACILITY (F-6) OR (F-6) AS NOTED
---	SPECIMEN TREE (TO BE REMOVED)
---	PUBLIC WATER, SEWER & UTILITY EASEMENT
---	RECREATIONAL OPEN SPACE
---	USE BY COMMON ACCESS EASEMENT
---	EXISTING NEAR EASEMENT (L.1307, F.477)
---	FOREST CONSERVATION EASEMENT RETENTION AREA OUTSIDE F.F.
---	FOREST CONSERVATION EASEMENT PLANTING AREA
---	FOREST CONSERVATION EASEMENT NON-RETENTION AREA INSIDE F.F.
---	STREET TREES



**STORMWATER MANAGEMENT PLANS**  
**ENCLAVE AT RIVER HILL**  
**PHASE 2**  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'  
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 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 88 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 22 OF 29 **F-17-003**

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 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELLSWORTH CITY, MARYLAND 21042  
 (410) 461 - 2255



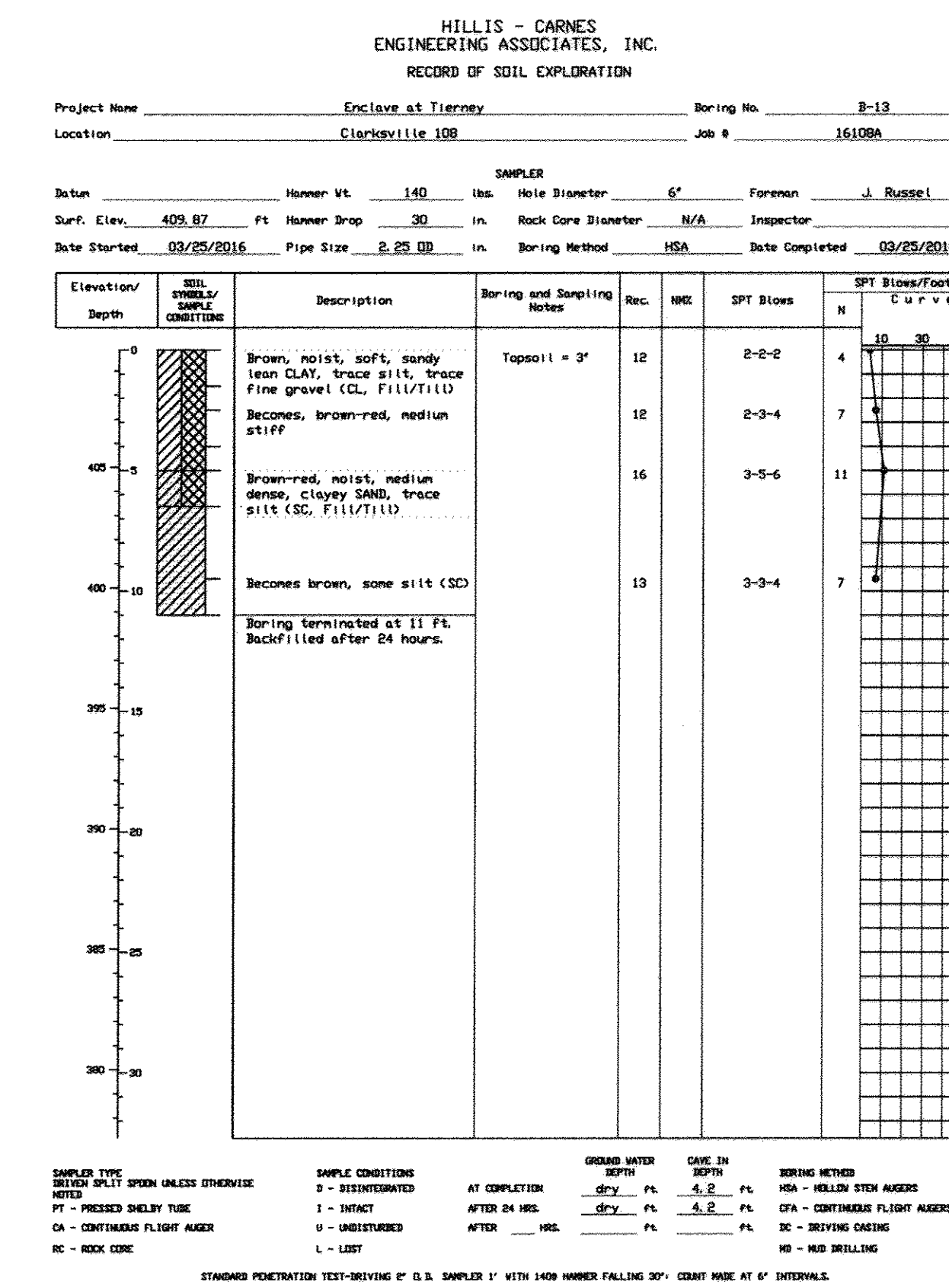
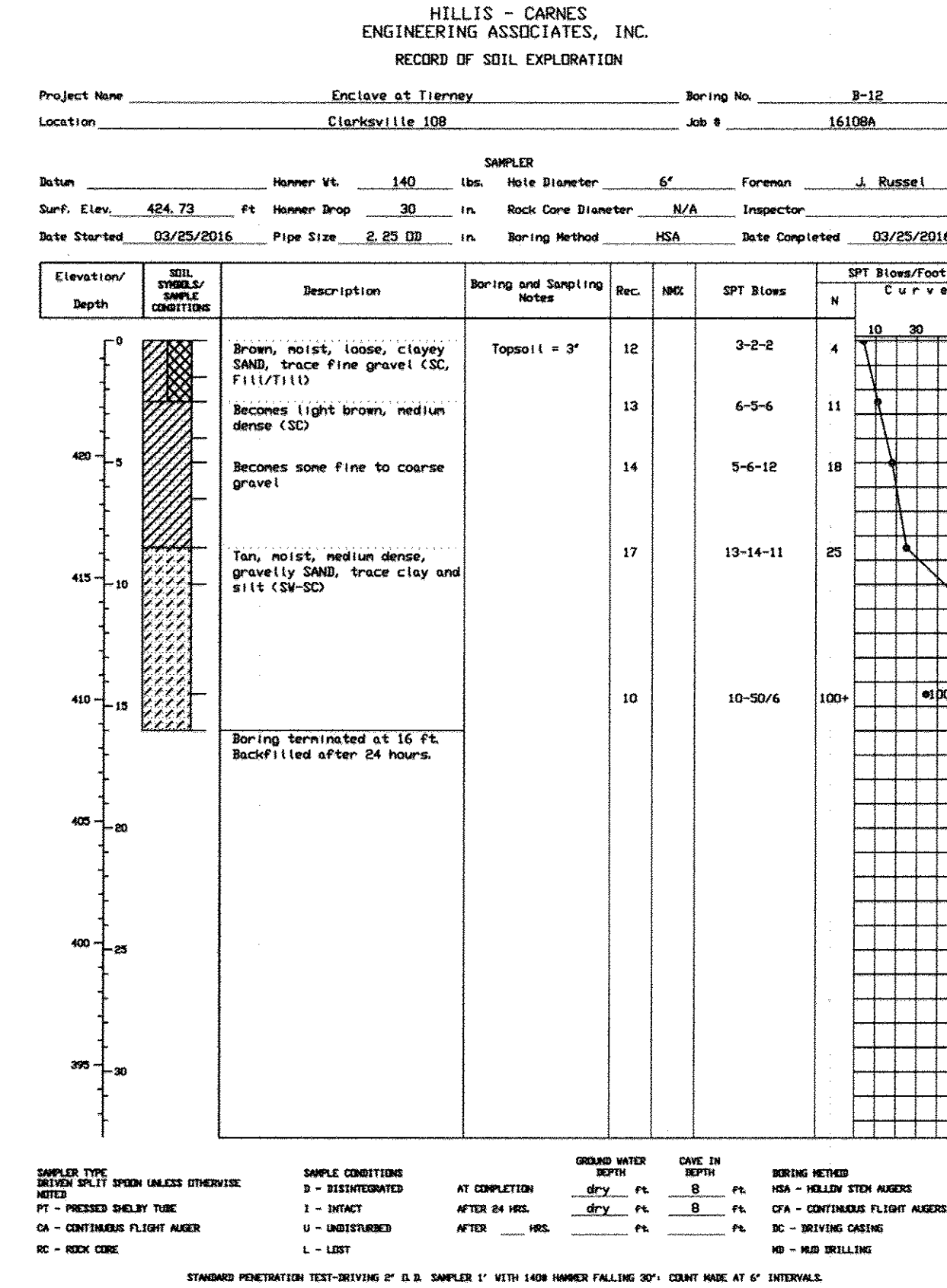
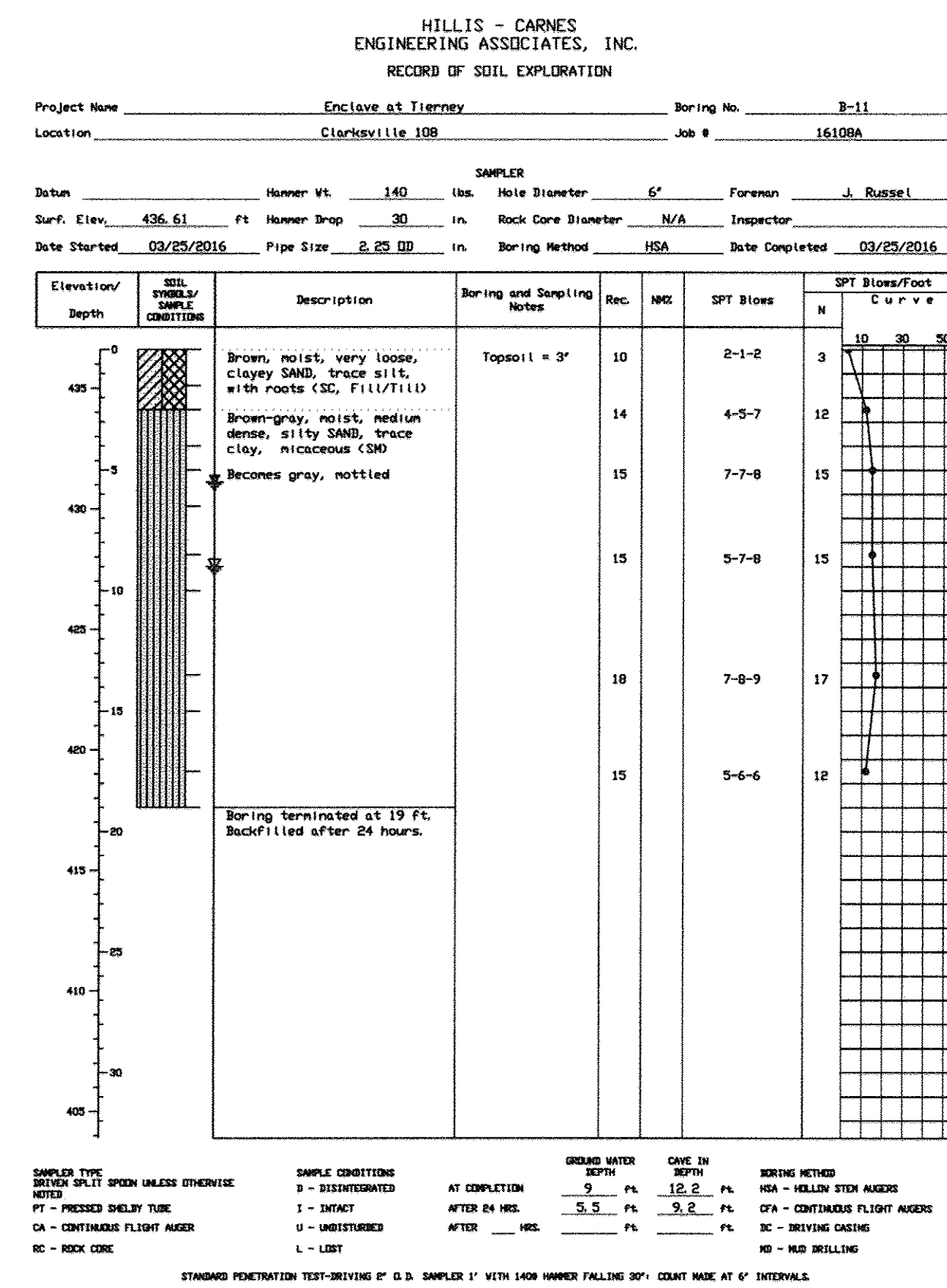
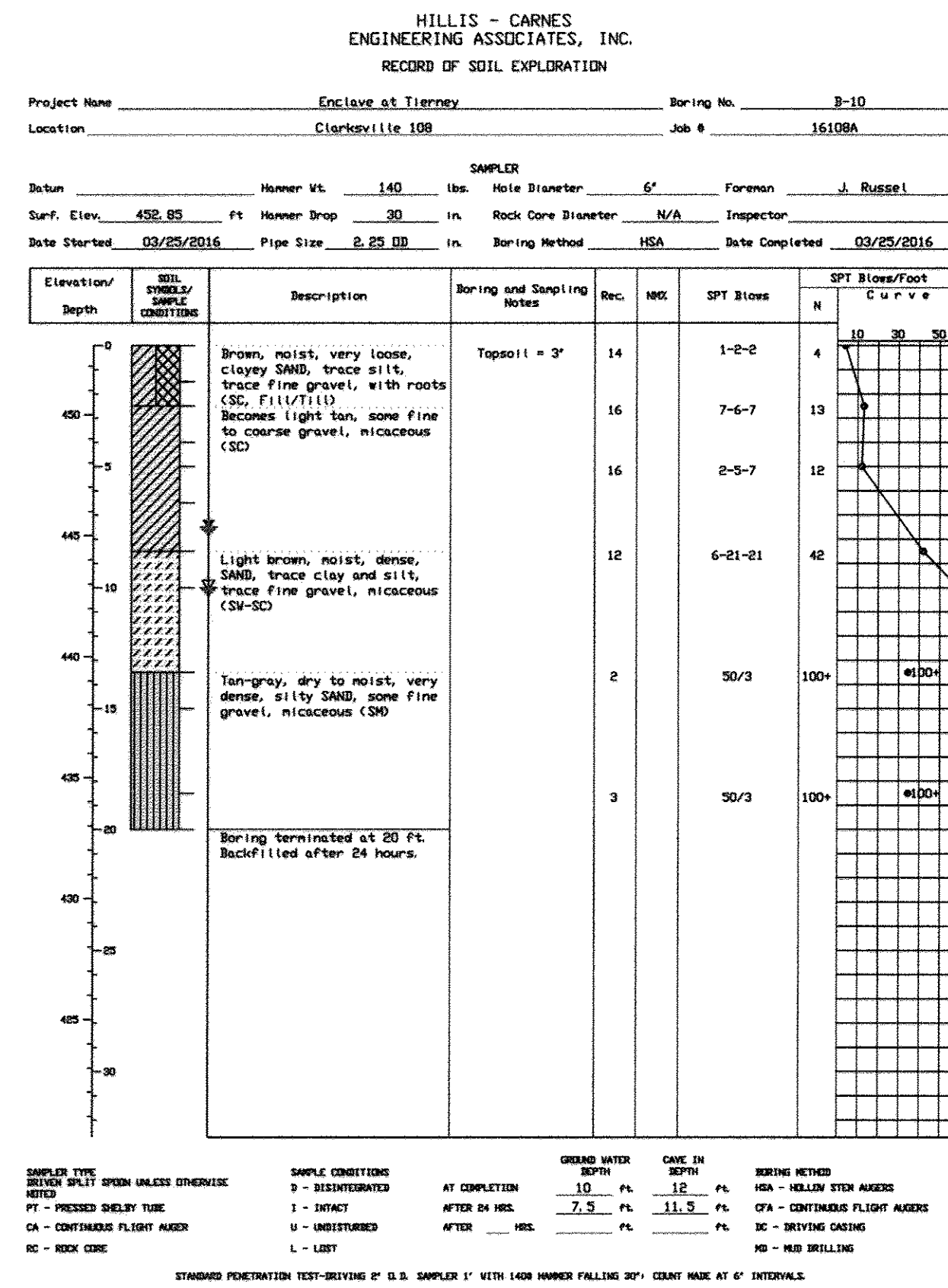
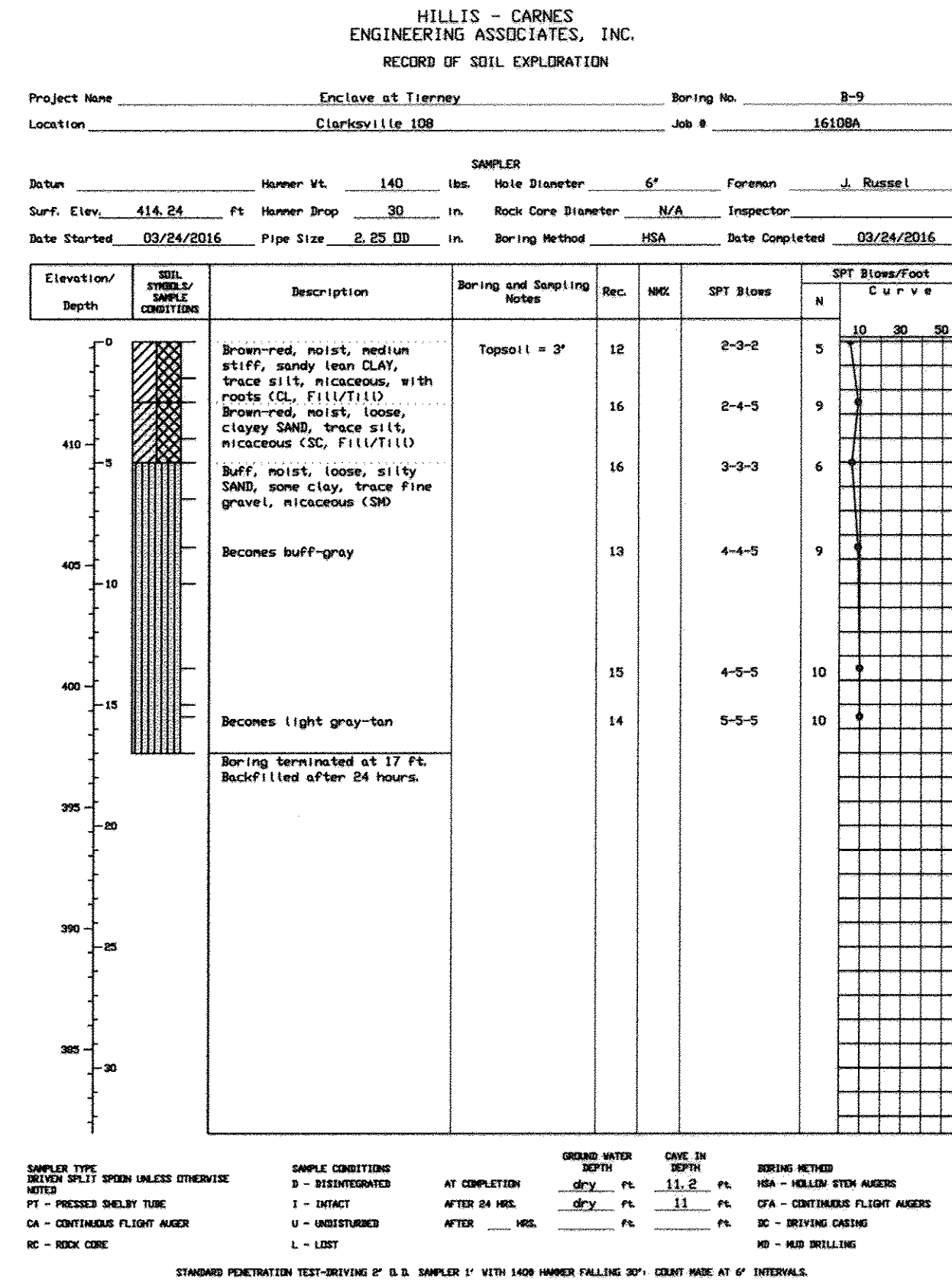
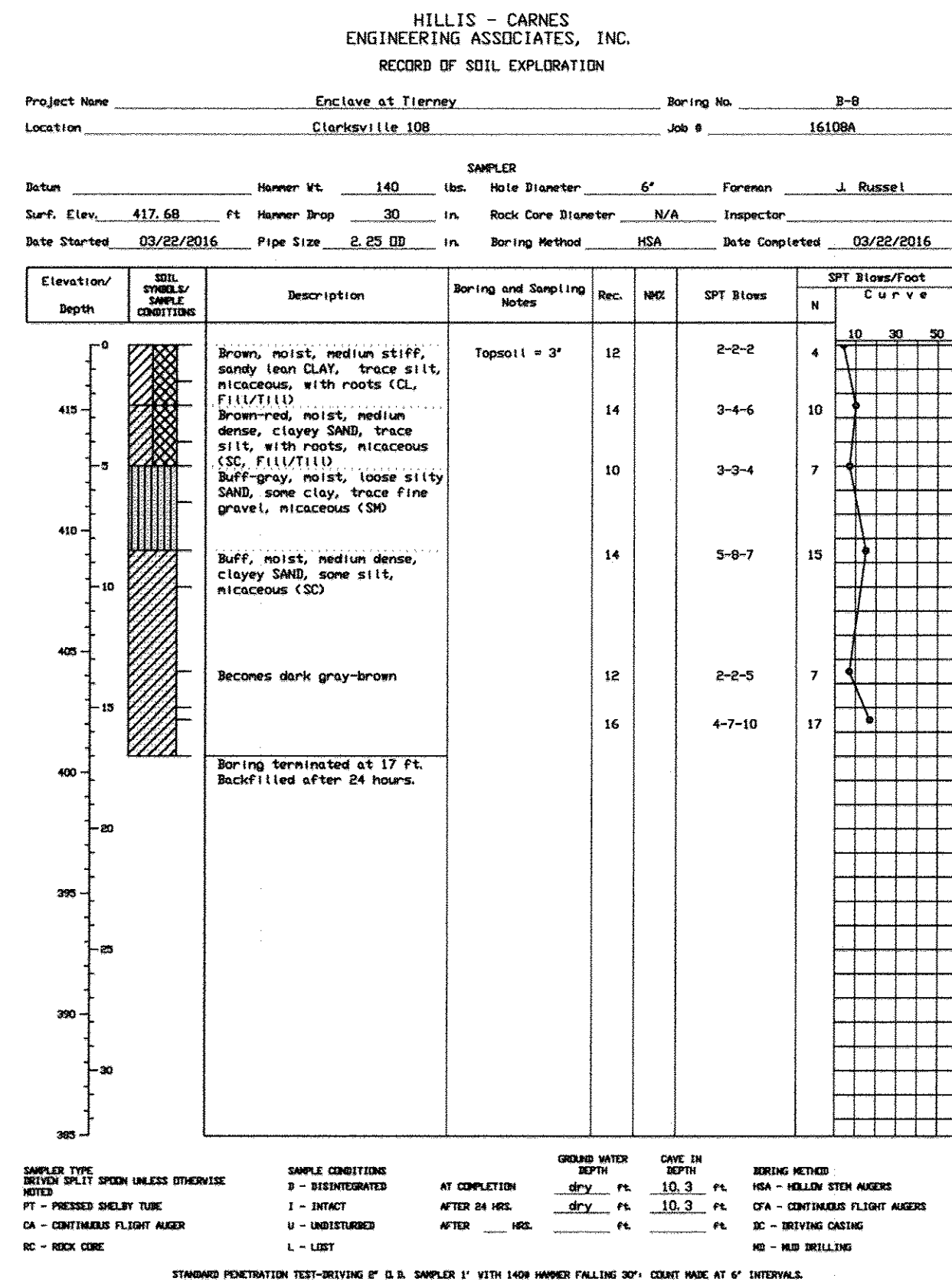
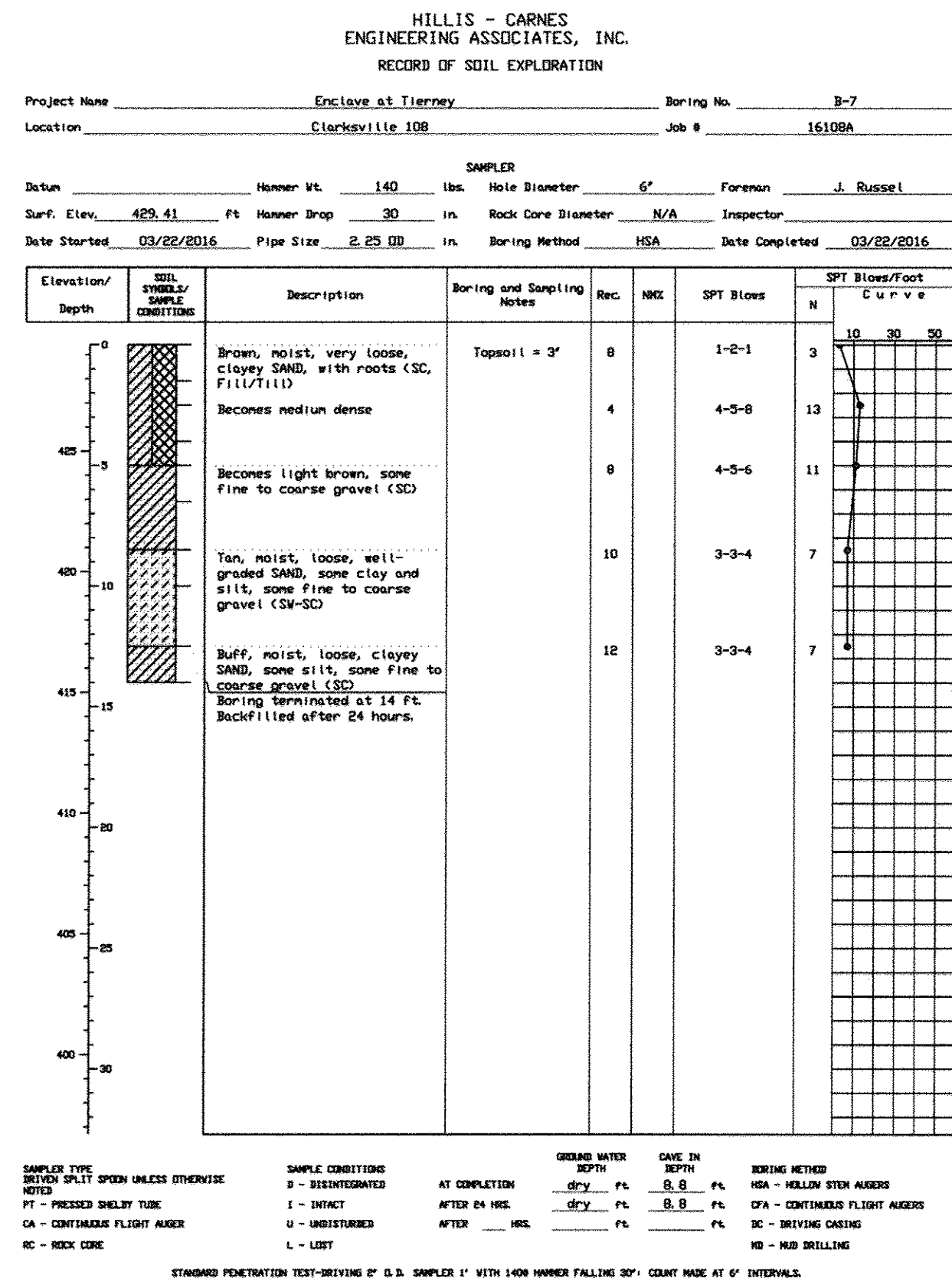
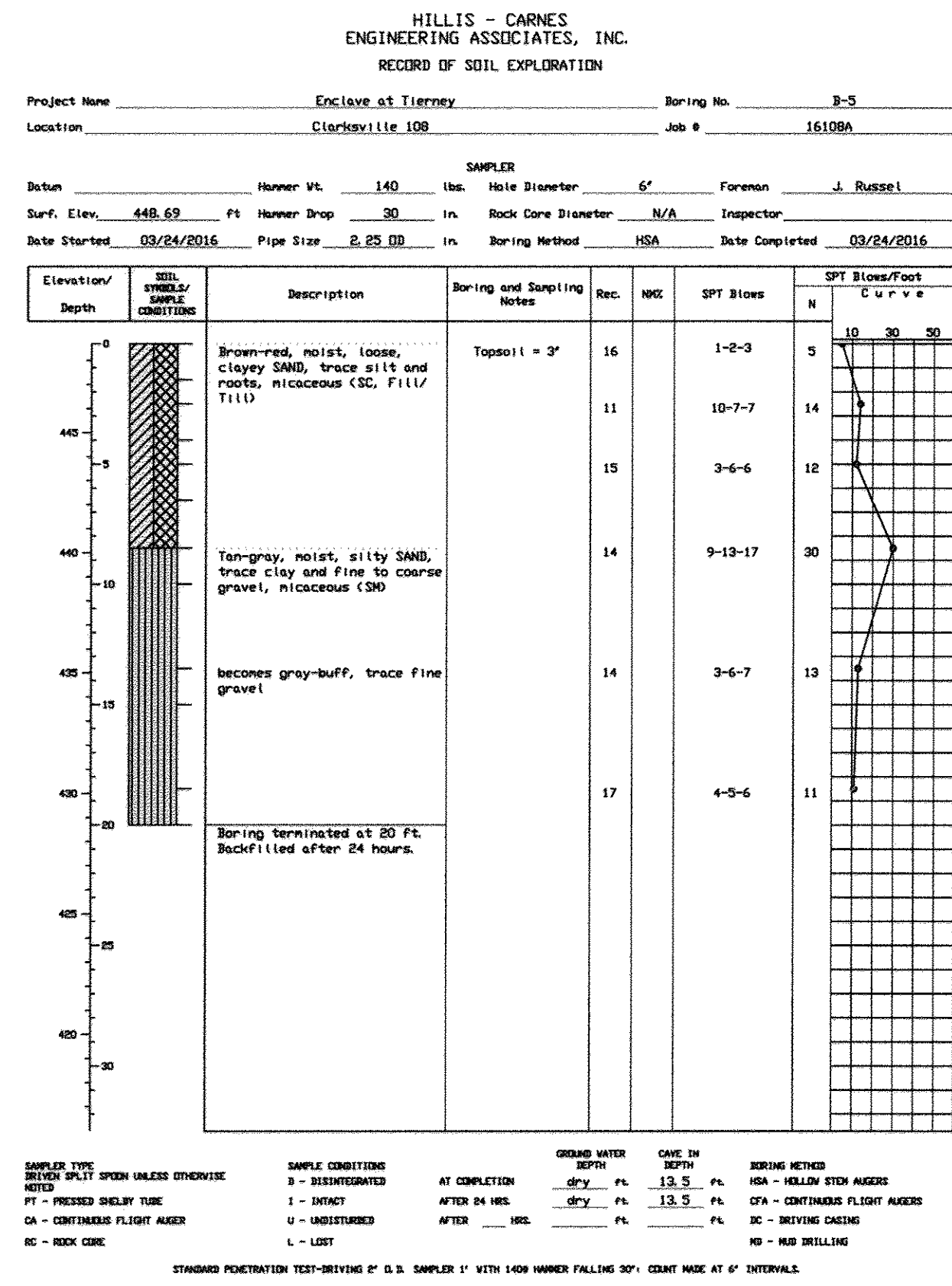
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*Frank J. Malansan*  
 FRANK MALANSAN, E.  
 6/23/17  
 Date

**DEVELOPER**  
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 8965 GUILFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (765)-894-0182

**OWNERS**  
 TIERNEY FARMS-CLARKSVILLE, LP.  
 24151 VENTURE BOULEVARD  
 CALABASAS, CALIFORNIA 91302  
 (818)-385-3697

1:2013133008.dwg F-Plan Phase 2/Plan Sect.13008 F-Plan Set SWM Bio Details, 6/28/2017 1:54:59 PM, 11





Approved: Department Of Planning And Zoning  
 T. Male, Chief, Division Of Land Development, 8-16-17  
 Approved: Howard County Department Of Public Works  
 M. ... Chief, Bureau Of Highways, 7/10/2017

REVISIONS		
NO.	DESCRIPTION	DATE

FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
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 ELICOTT CITY, MARYLAND 21046 (410) 461-2895

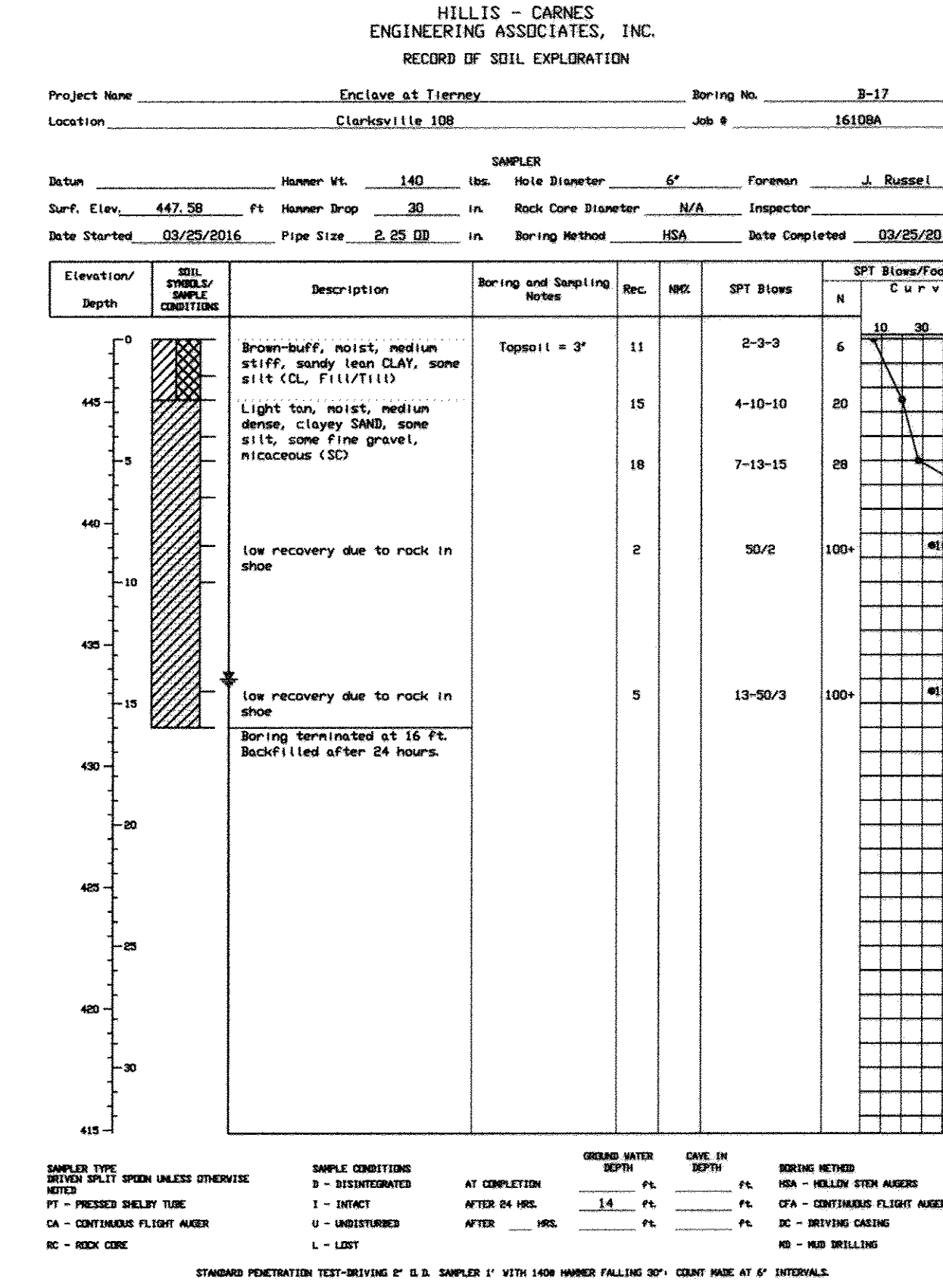
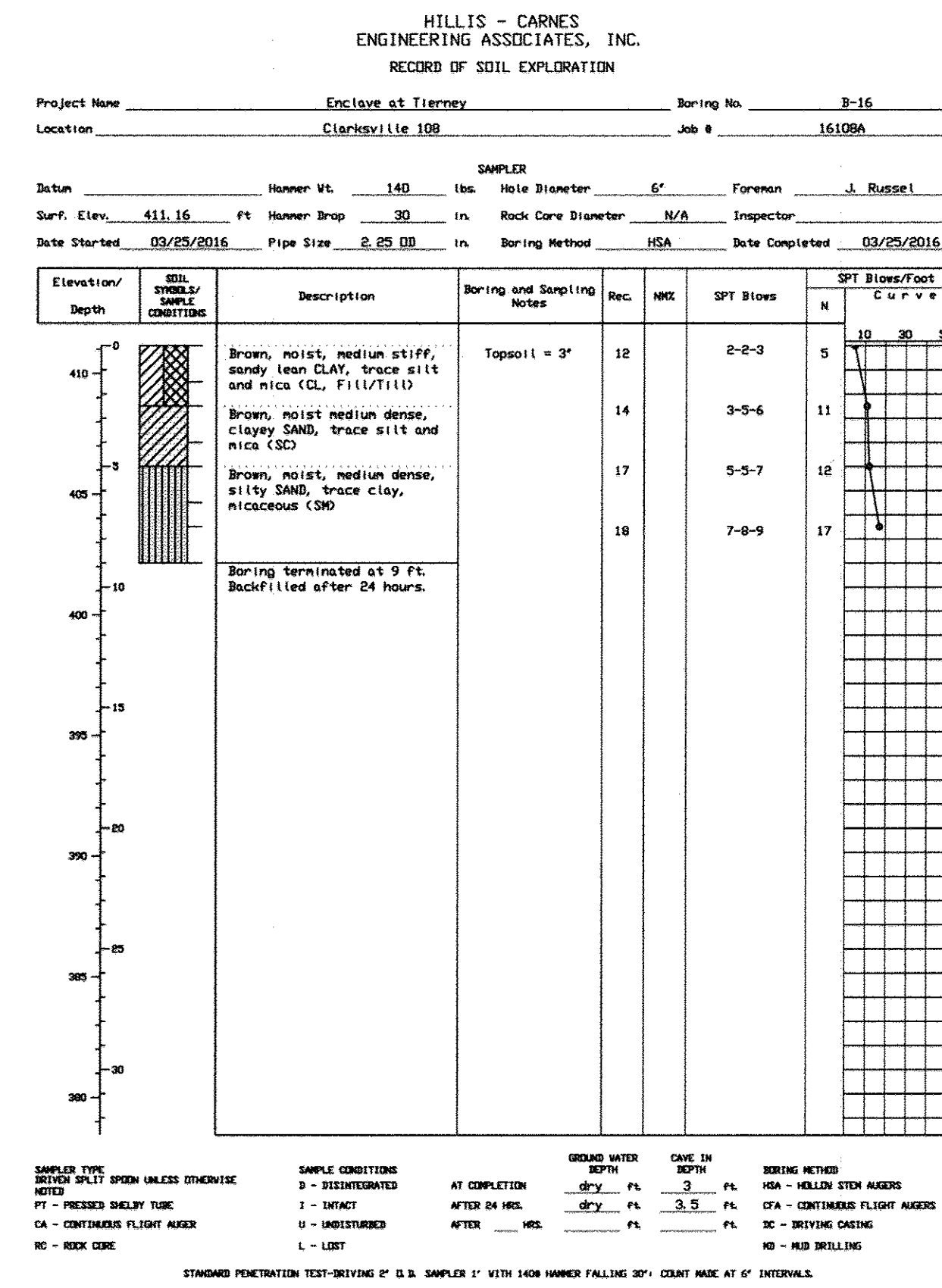
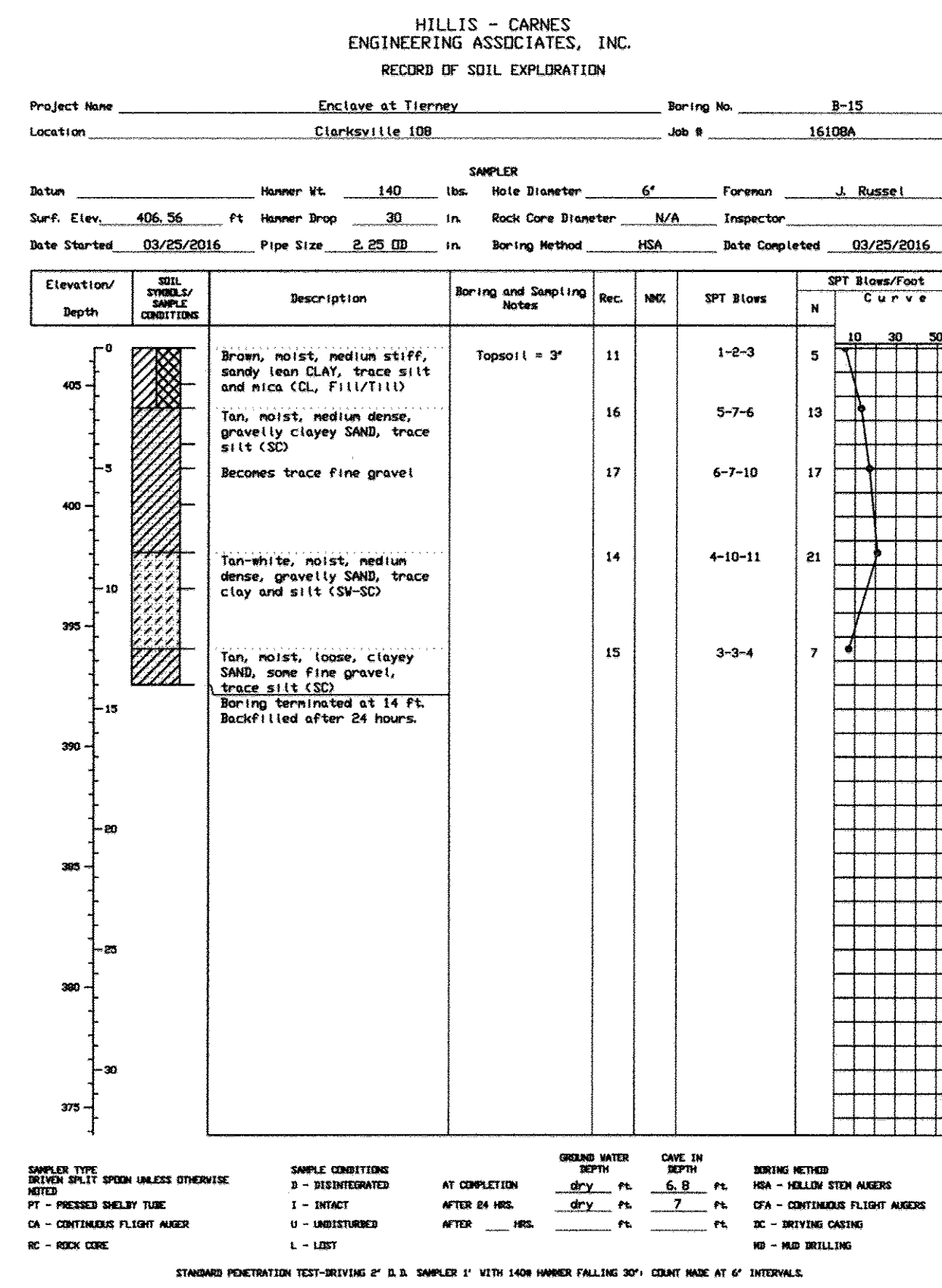
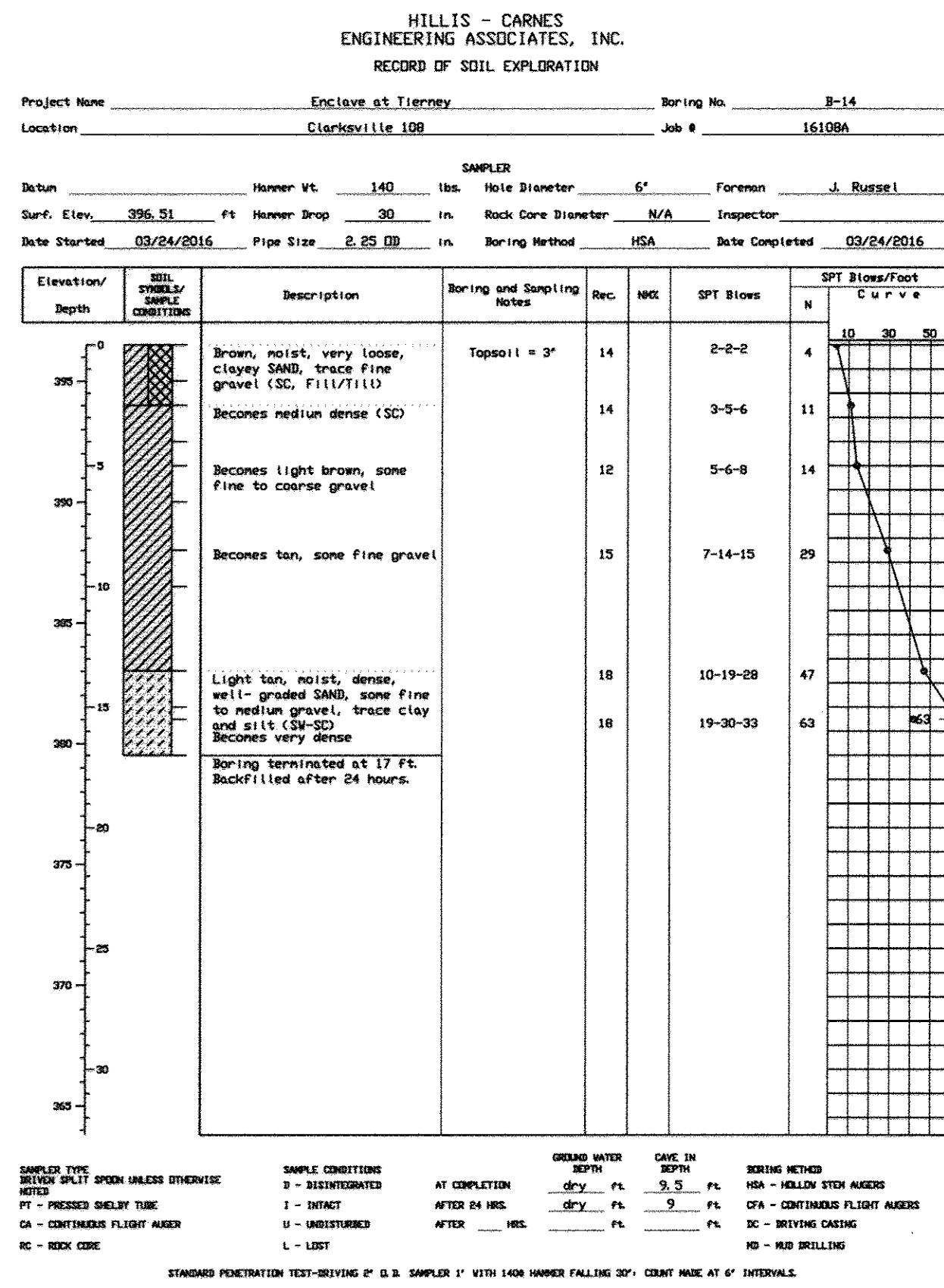
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 CALABASAS, CALIFORNIA 91302 (818)-305-3697

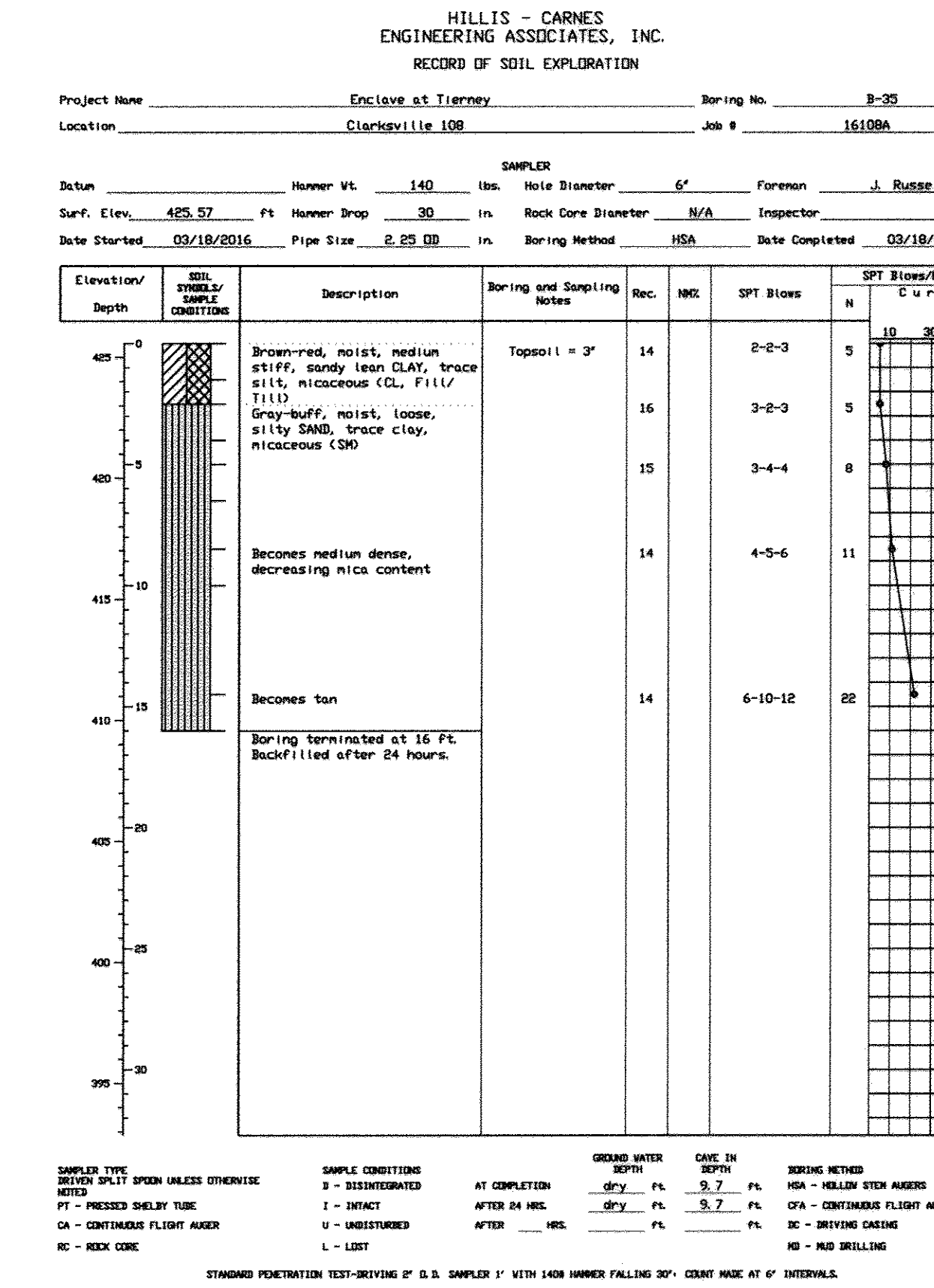
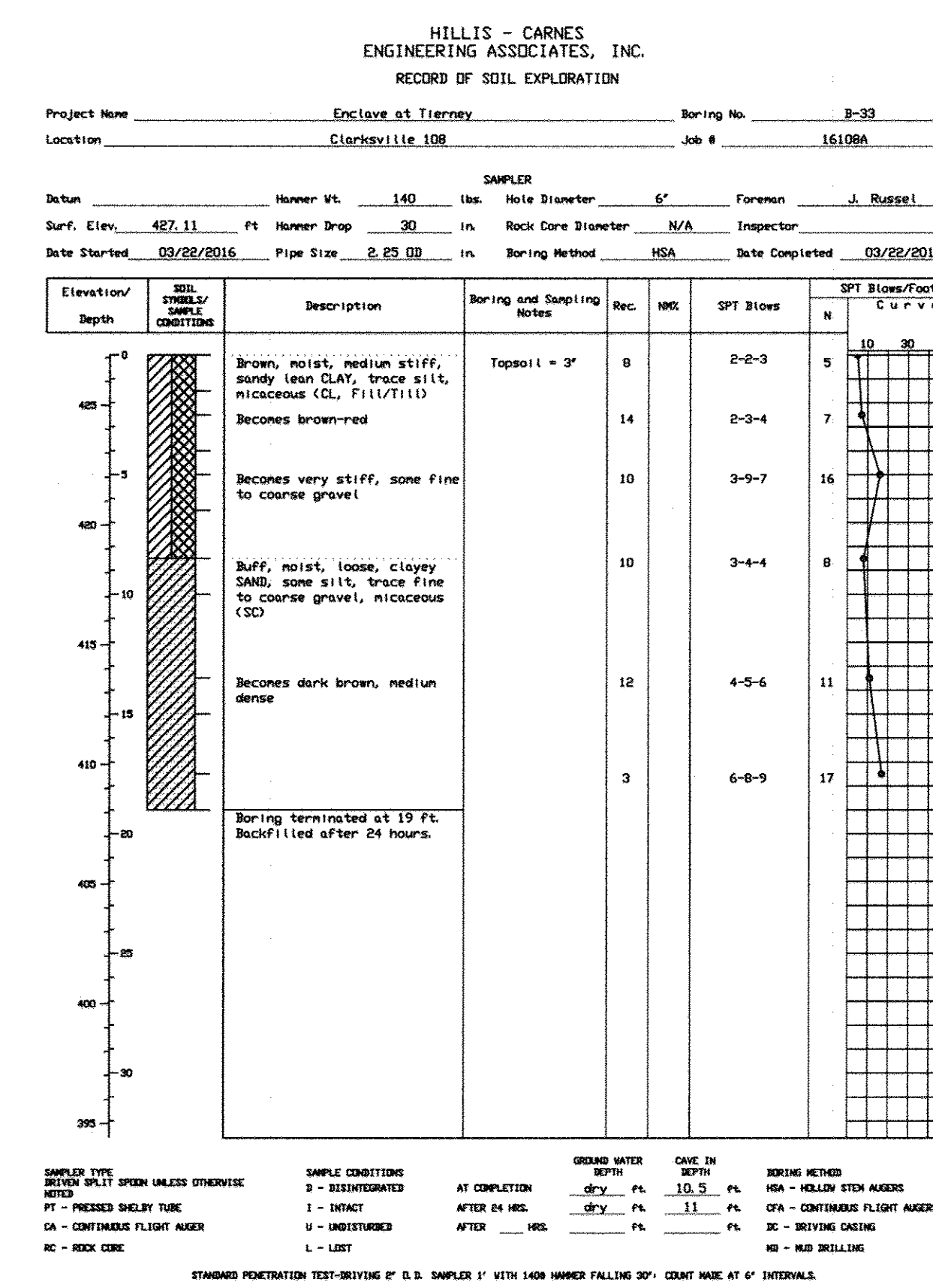
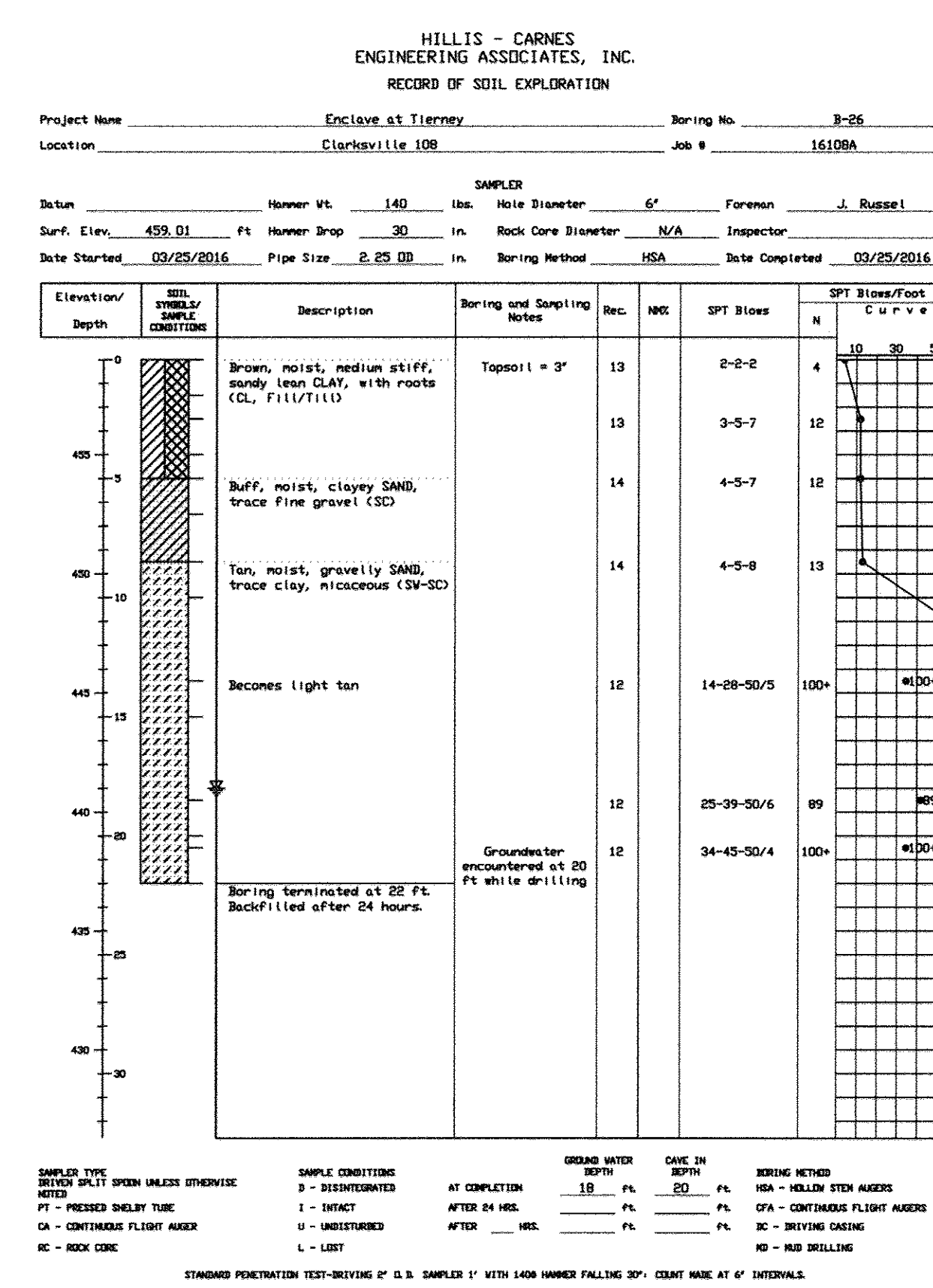
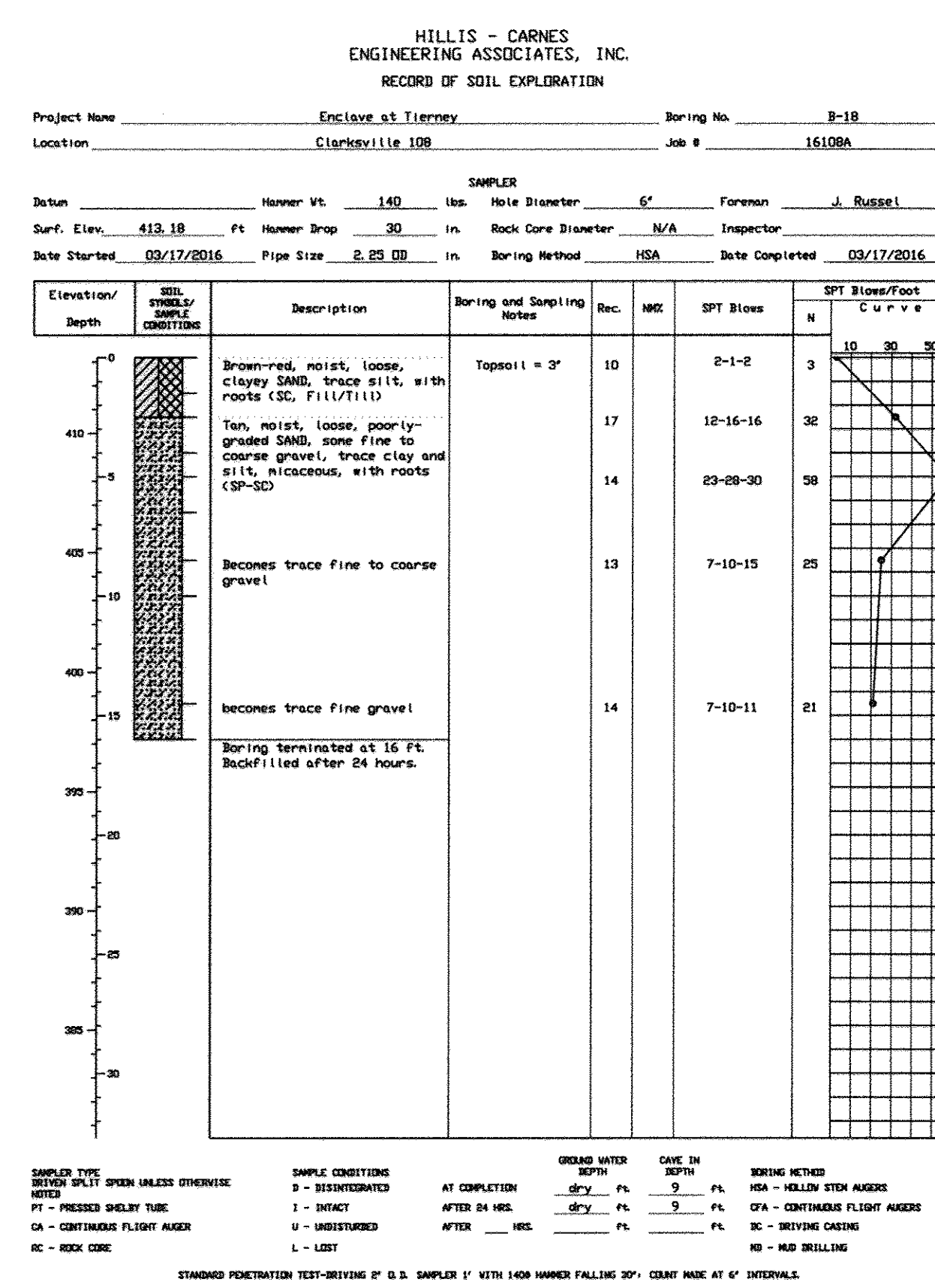
BORING LOGS  
 ENCLAVE AT RIVER HILL PHASE 2  
 LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129 AND BULK PARCEL 'C'  
 PREVIOUS HOWARD COUNTY FILES:  
 ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110, WP-16-152 PLAT NO.5 24231 - 24244  
 ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
 PARCEL NOS.: 88 & 97  
 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: JUNE, 2017  
 SHEET 23 OF 29 F-17-003



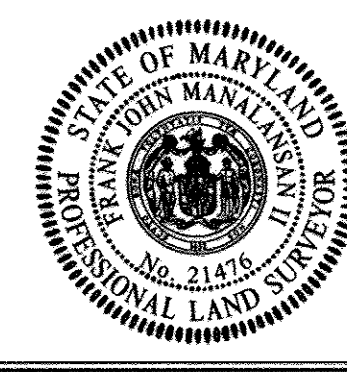


Approved: Department Of Planning And Zoning  
T. Mark RBS 8-16-17  
Chief, Division of Land Development Date  
J. Russell 7-14-17  
Chief, Development Engineering Division Date  
Approved: Howard County Department Of Public Works  
M. Meenan 7/10/2017  
Chief, Bureau Of Highways Date

REVISIONS		
NO.	DESCRIPTION	DATE



BORING LOGS  
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FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: JUNE, 2017  
SHEET 24 OF 29 F-17-003



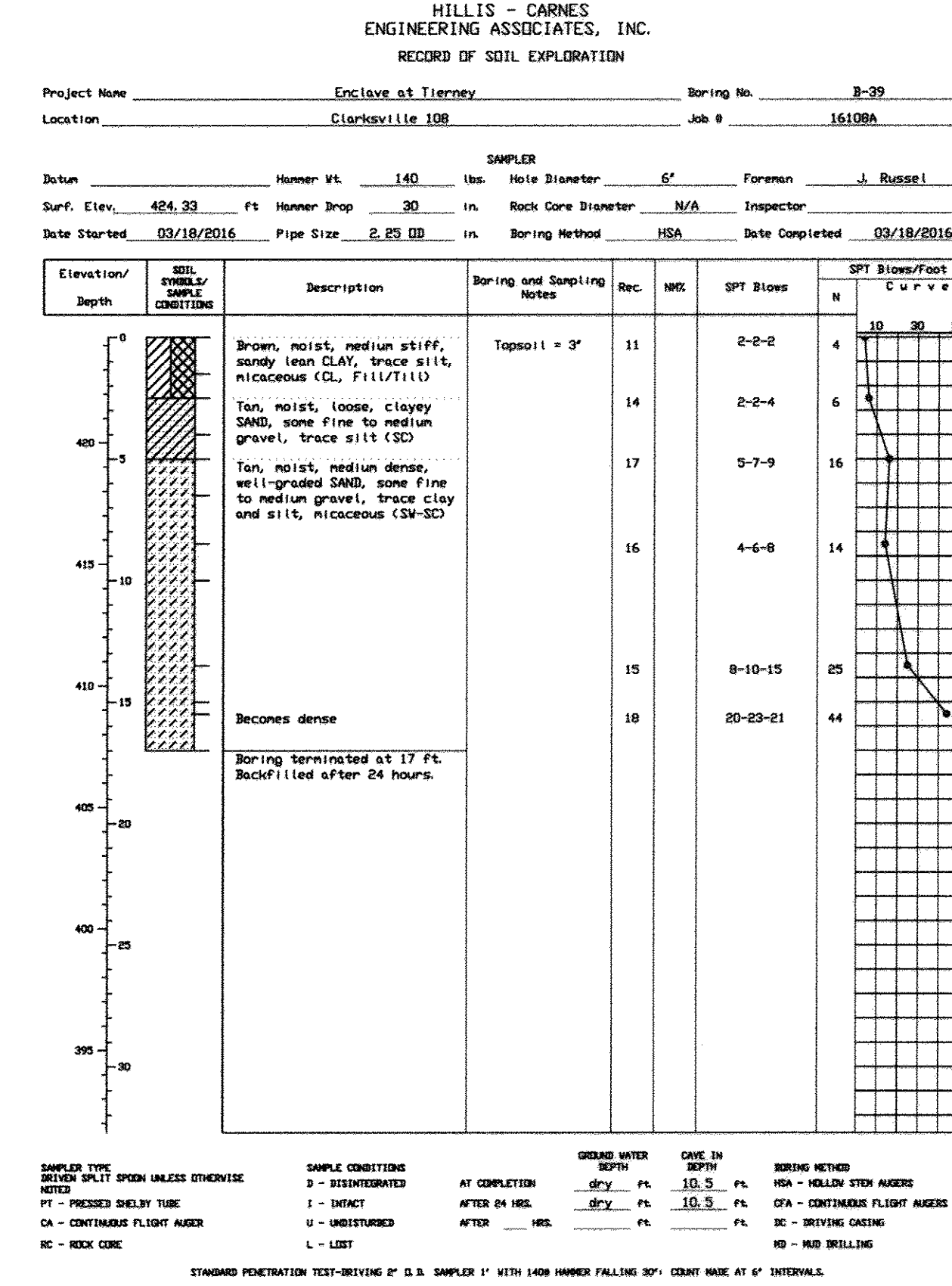
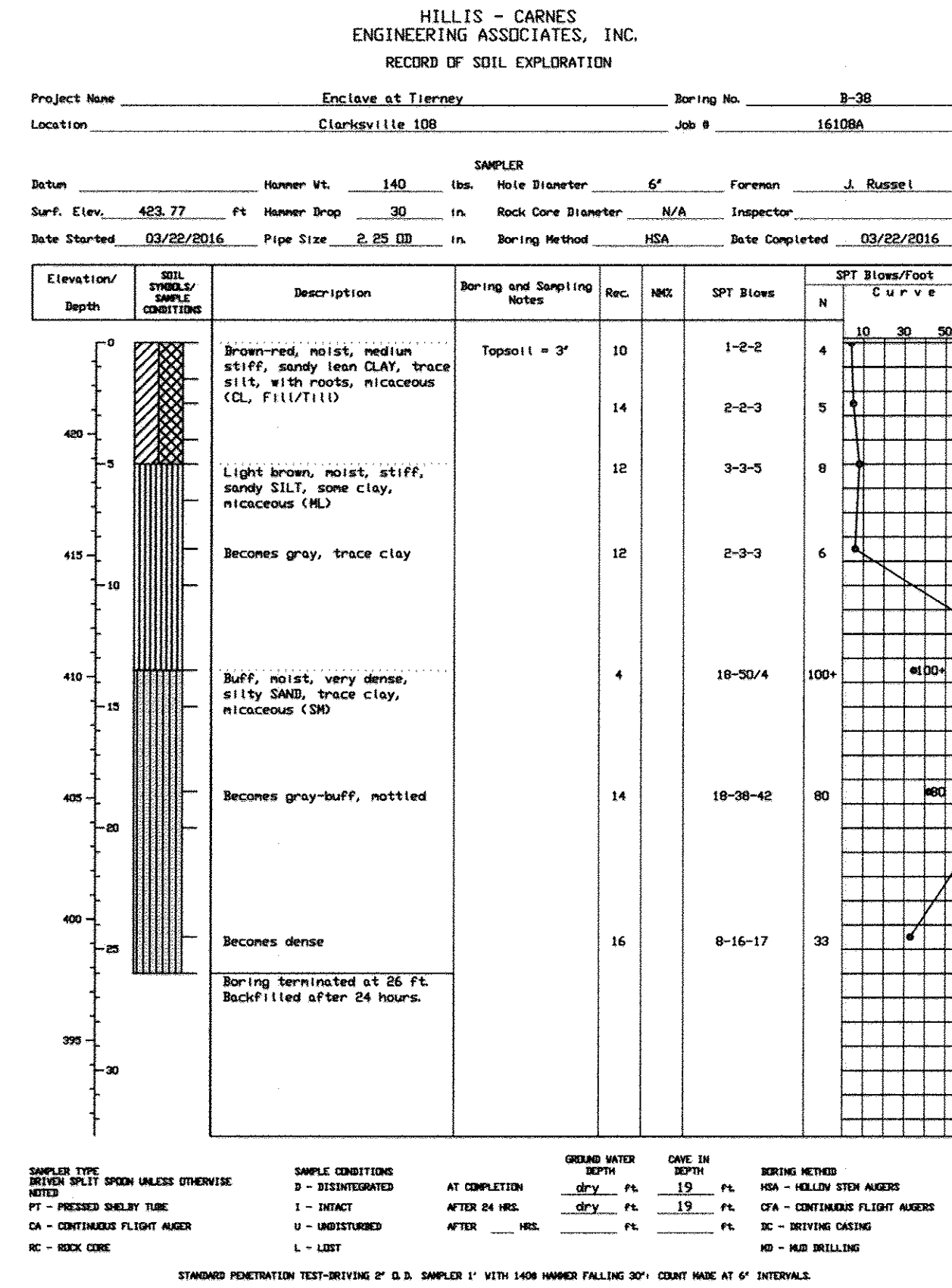
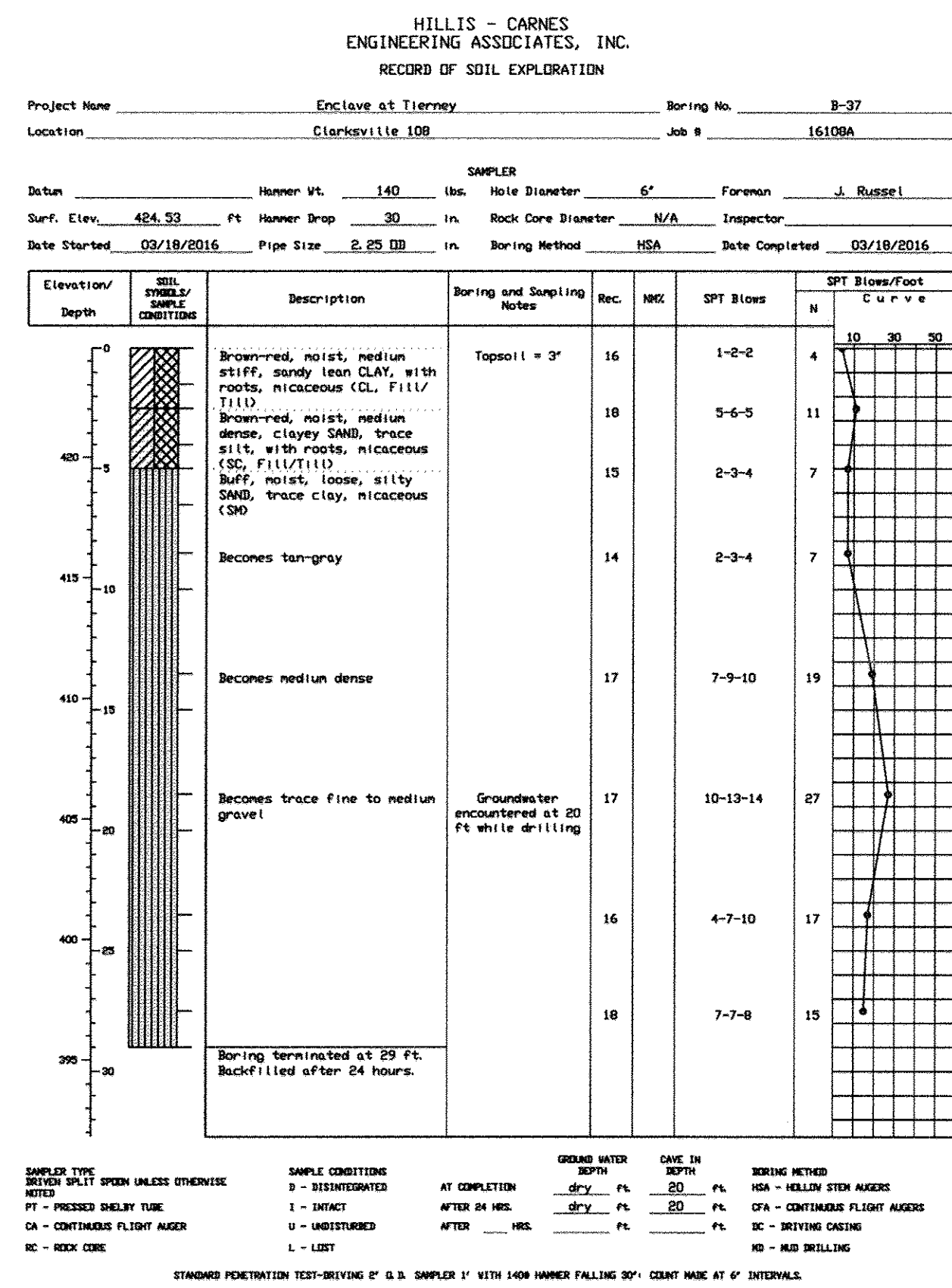
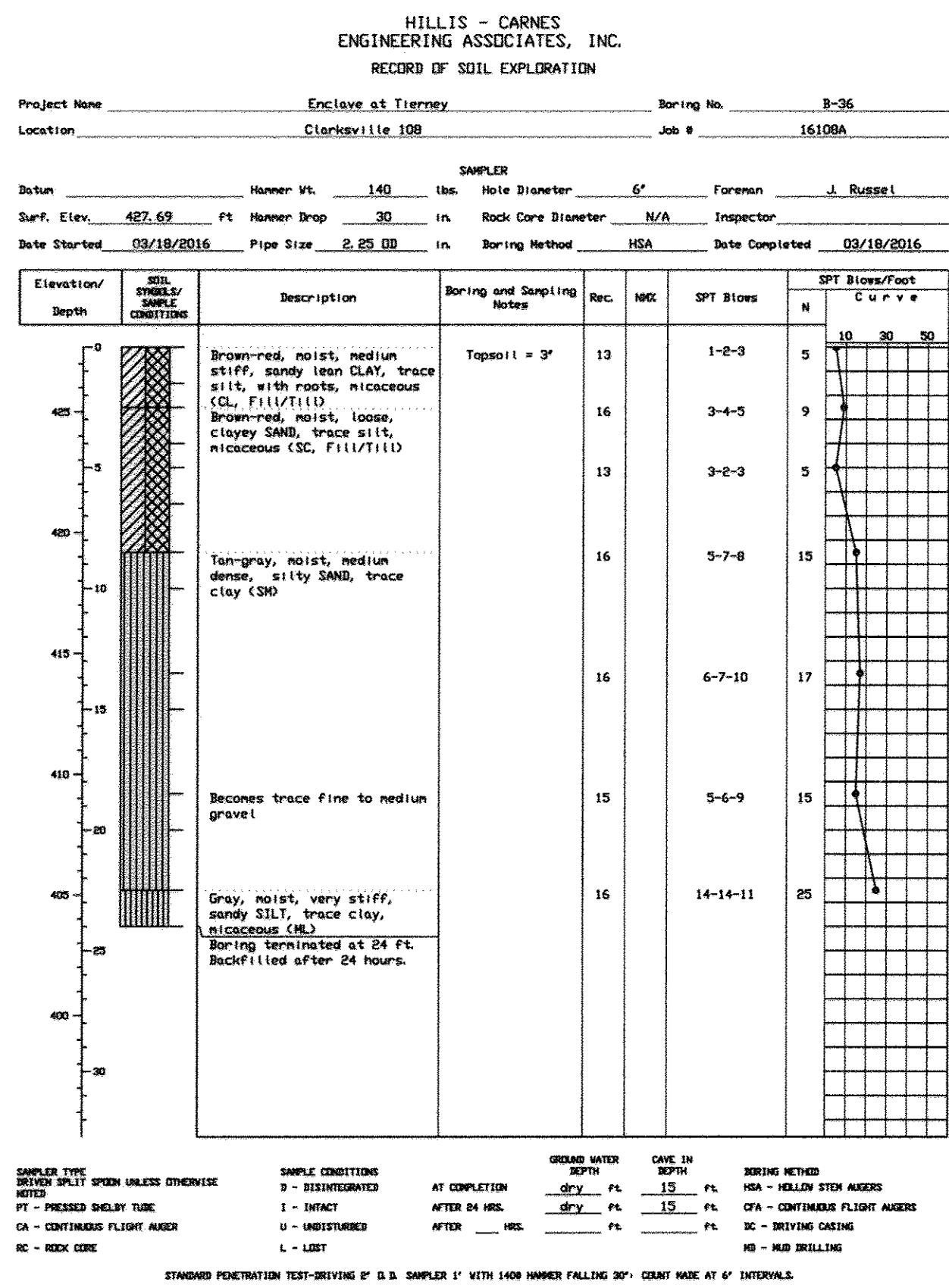
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6/23/17  
DATE

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(765)-894-0182

OWNERS  
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CALABASAS, CALIFORNIA 91302  
(818)-385-3697

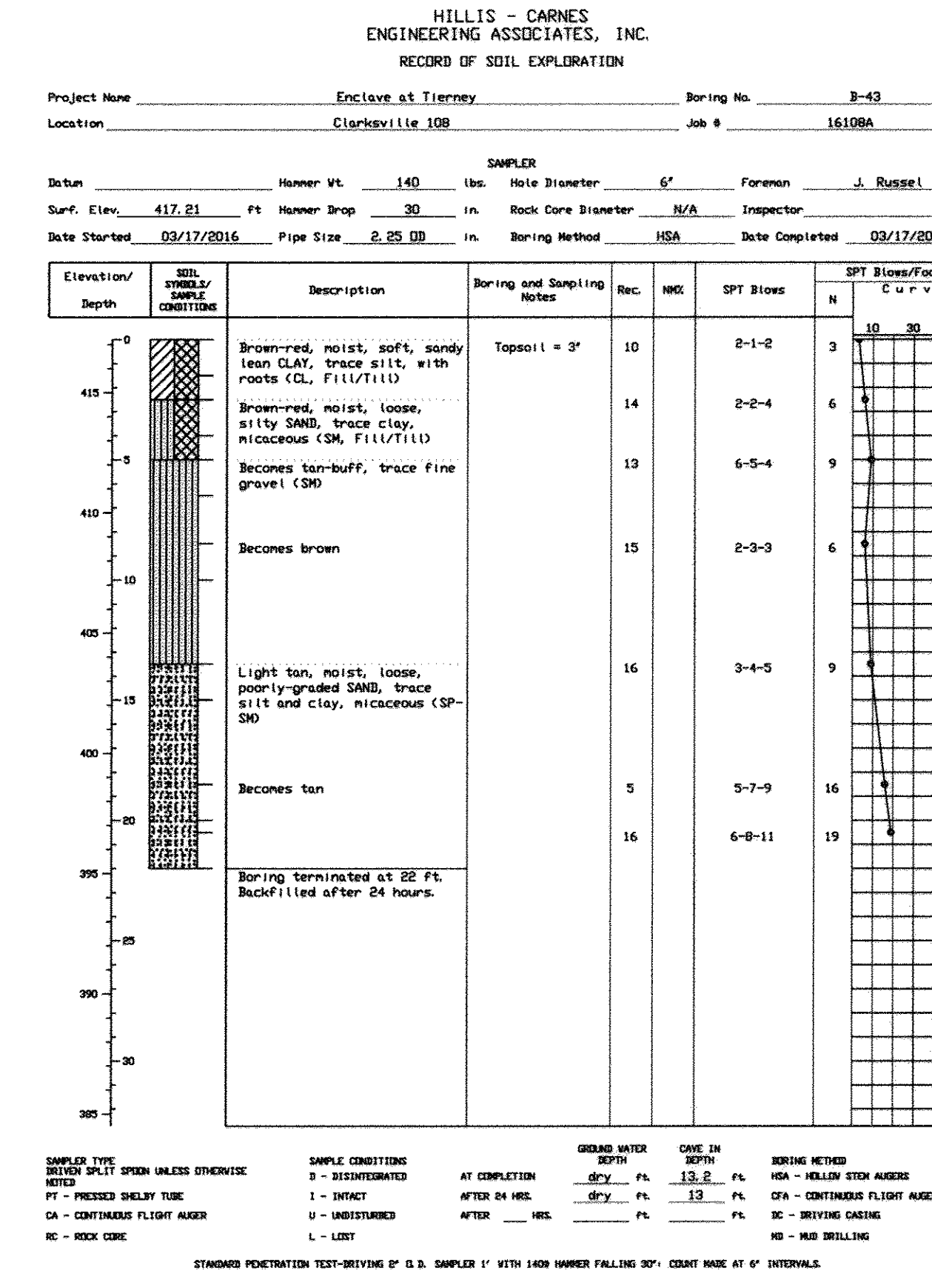
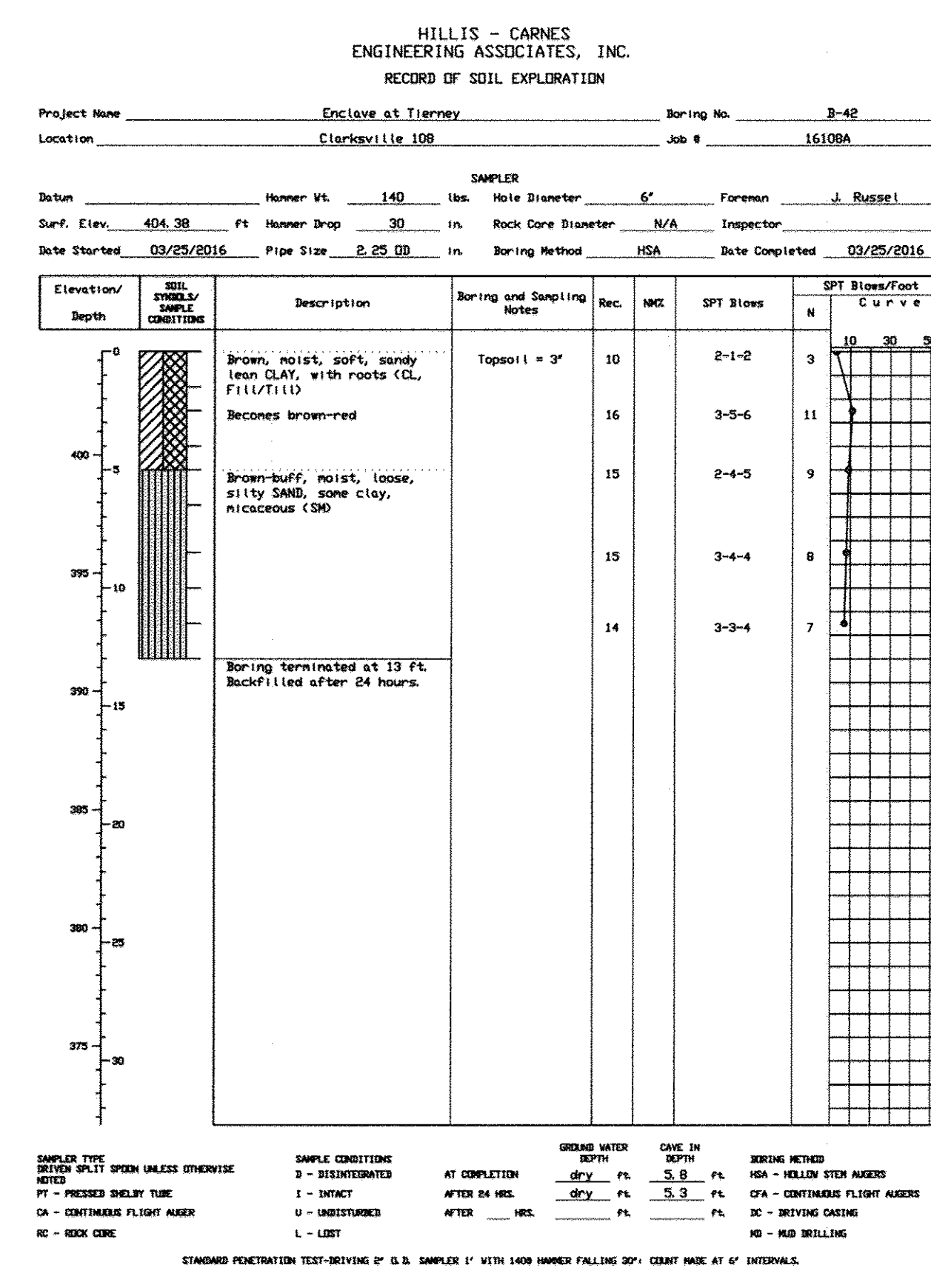
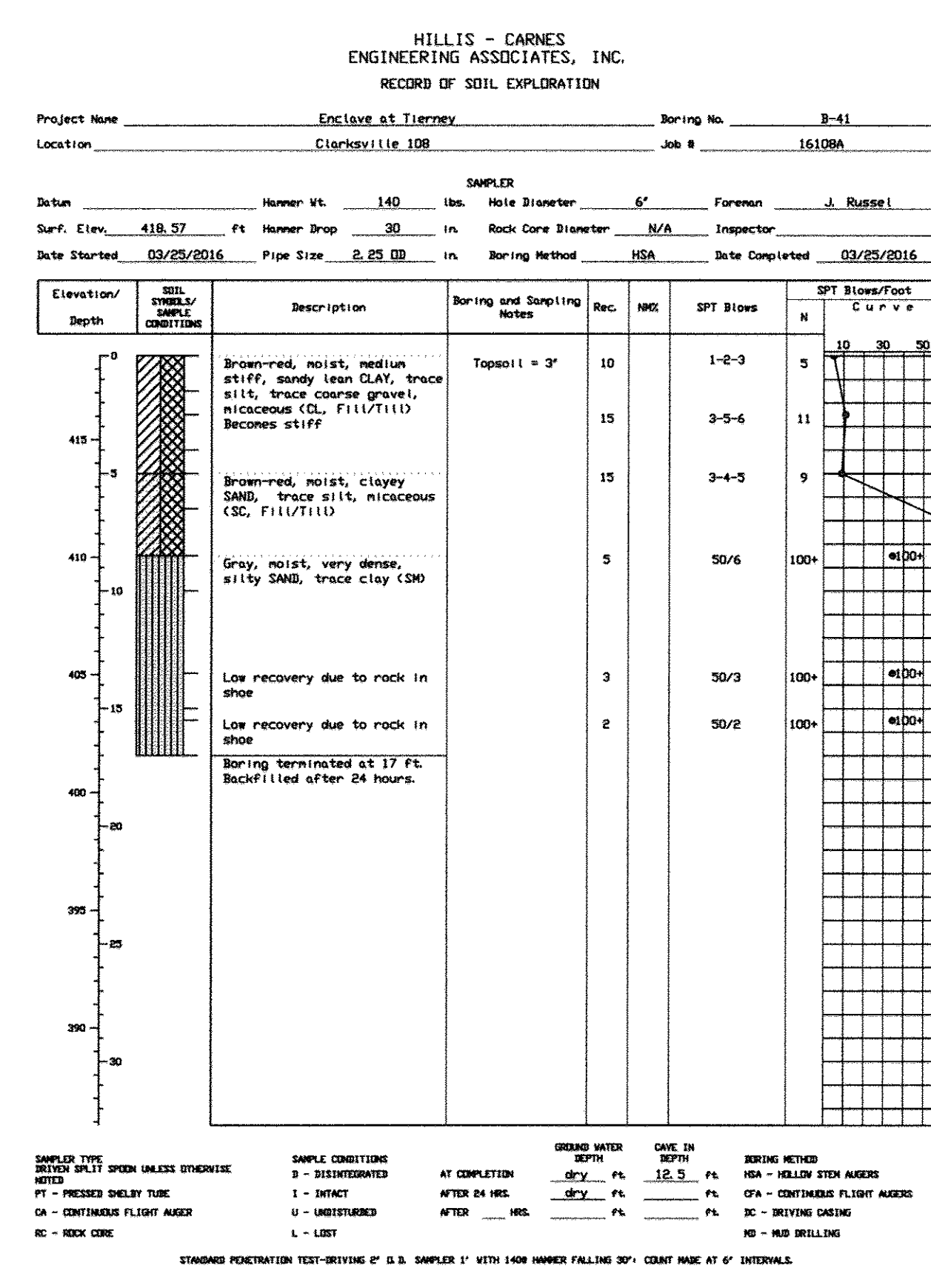
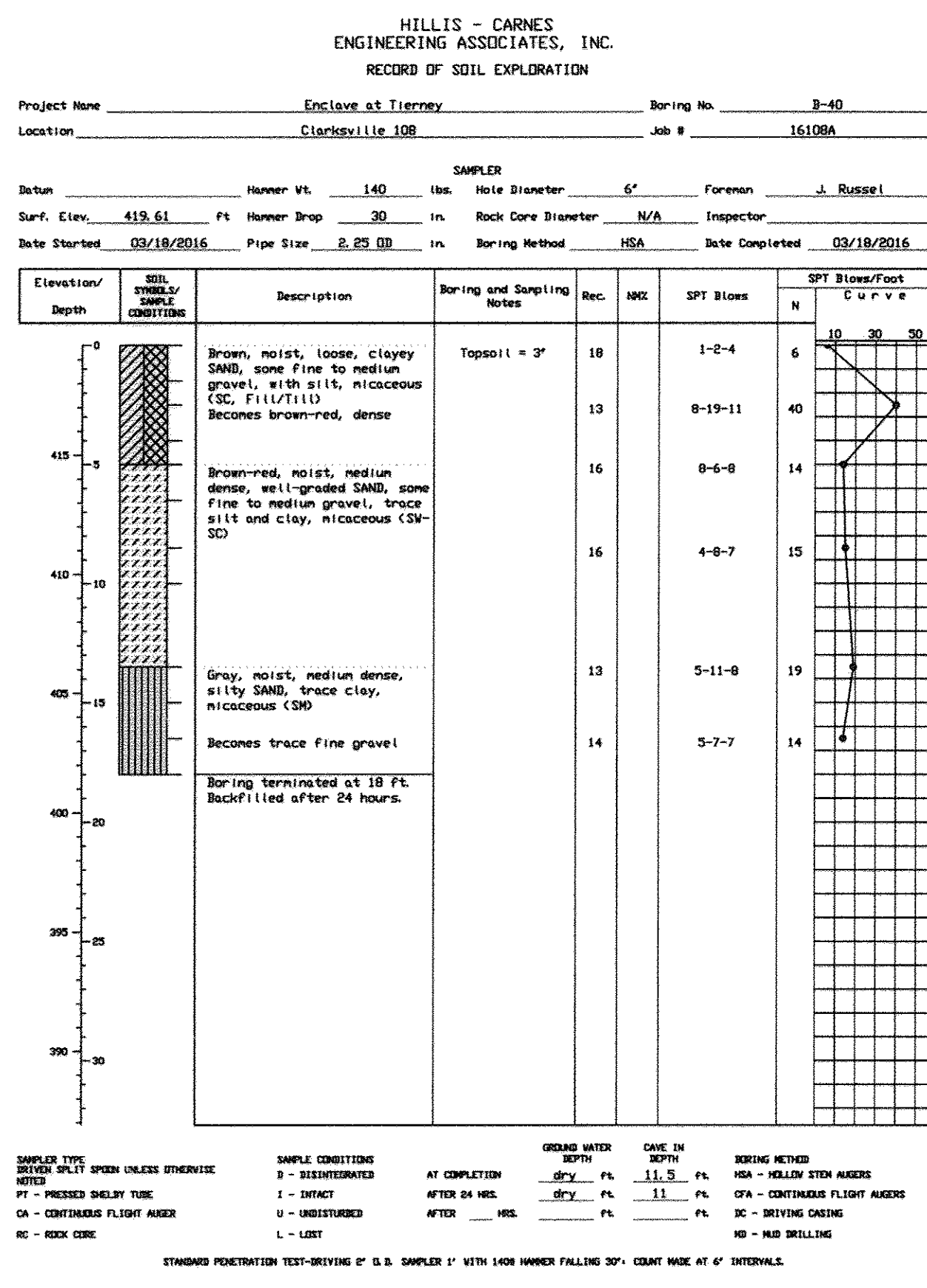
FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10222 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2895





Approved: Department Of Planning And Zoning  
T. Mark GRS 8-16-17  
Chief, Division Of Land Development Date  
7-14-17  
Chief, Development Engineering Division  
Approved: Howard County Department Of Public Works  
7/6/2017  
Chief, Bureau Of Highways Date

REVISIONS		
NO.	DESCRIPTION	DATE



BORING LOGS  
ENCLAVE AT RIVER HILL  
PHASE 2  
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PREVIOUS HOWARD COUNTY FILES:  
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PARCEL NOS.: 88 & 97  
FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: JUNE, 2017  
SHEET 25 OF 29 F-17-003



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Frank M. Mansani  
6/23/17  
Date

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COLUMBIA, MARYLAND 21046  
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OWNERS  
TIERNEY FARMS-CLARKSVILLE, LP.  
24151 VENTURE BOULEVARD  
CALABASAS, CALIFORNIA 91302  
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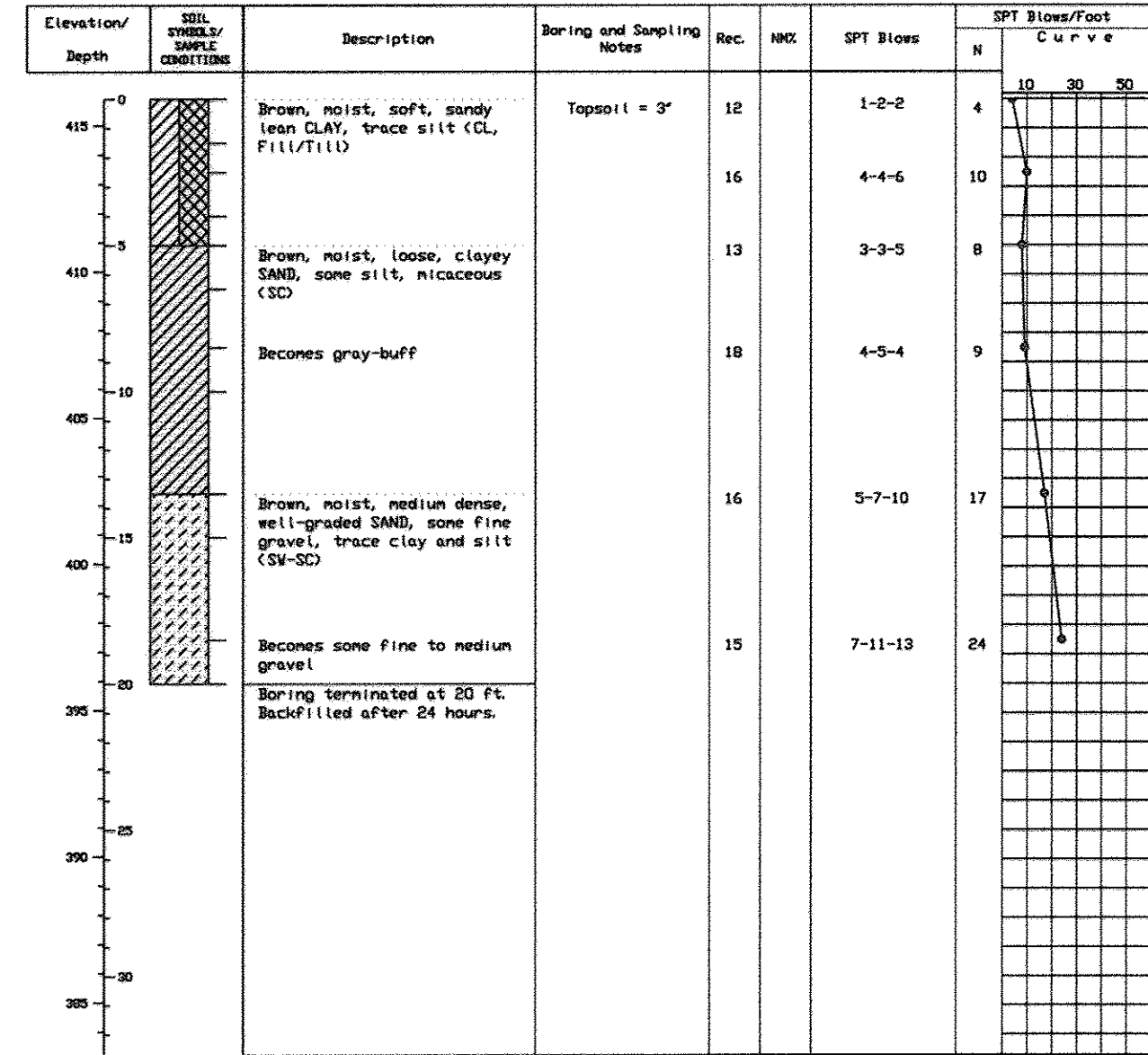
FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL FREE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461 - 2895



HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.  
RECORD OF SOIL EXPLORATION

Project Name: Enclave at Tierney  
Location: Clarksville 108  
Boring No.: B-44  
Job #: 16108A

Sampler: Hammer Vt. 140 lbs. Hole Diameter: 6" Foreman: J. Russell  
Surf. Elev.: 415.9 ft Hammer Drop: 30 in. Rock Core Diameter: N/A Inspector:  
Date Started: 03/17/2016 Pipe Size: 2.25 OD in. Boring Method: HSA Date Completed: 03/17/2016

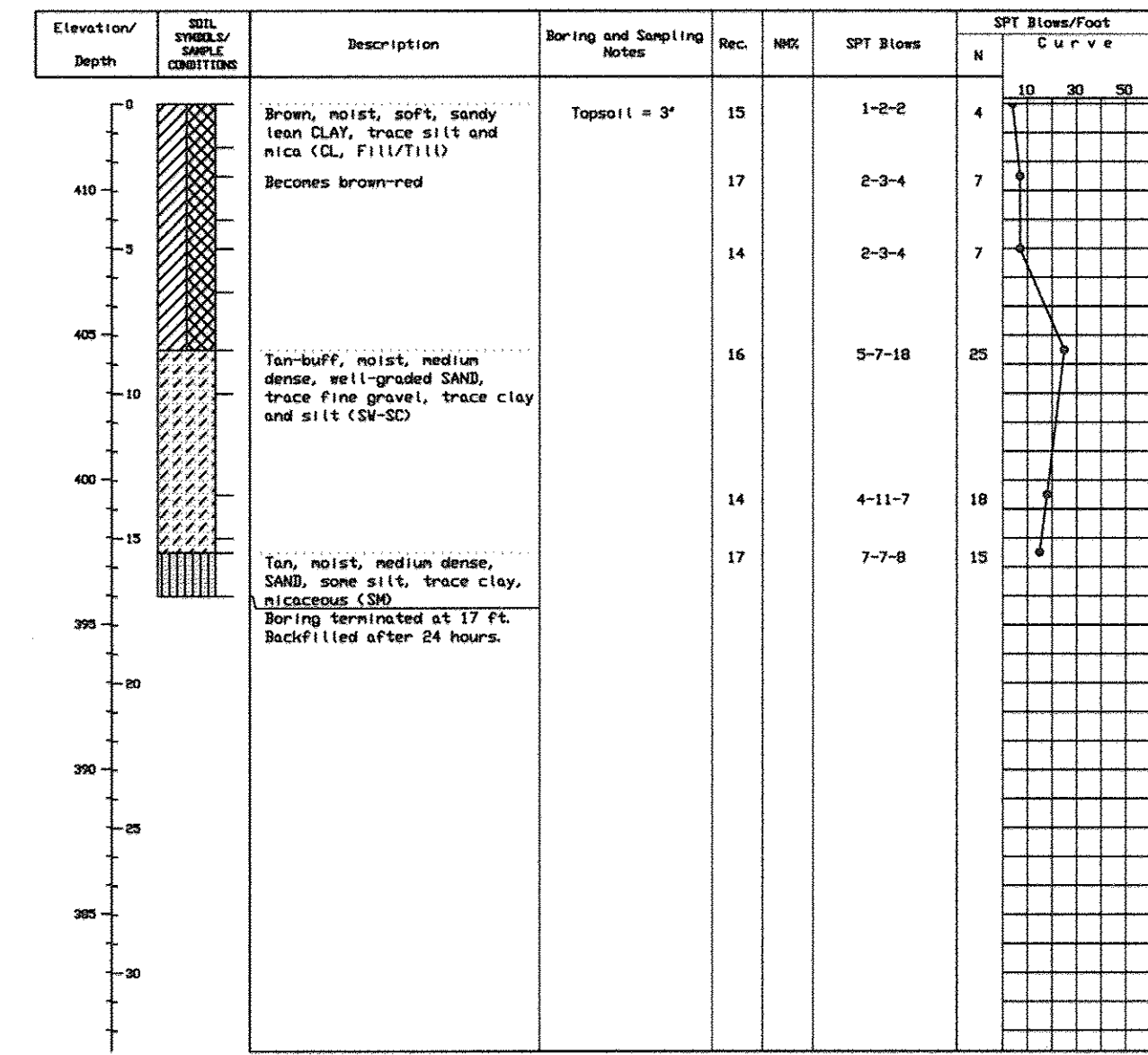


STANDARD PENETRATION TEST-BLOWING 6" O.D. SAMPLER 1" WITH 1400 HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.  
RECORD OF SOIL EXPLORATION

Project Name: Enclave at Tierney  
Location: Clarksville 108  
Boring No.: B-45  
Job #: 16108A

Sampler: Hammer Vt. 140 lbs. Hole Diameter: 6" Foreman: J. Russell  
Surf. Elev.: 418.95 ft Hammer Drop: 30 in. Rock Core Diameter: N/A Inspector:  
Date Started: 03/17/2016 Pipe Size: 2.25 OD in. Boring Method: HSA Date Completed: 03/17/2016

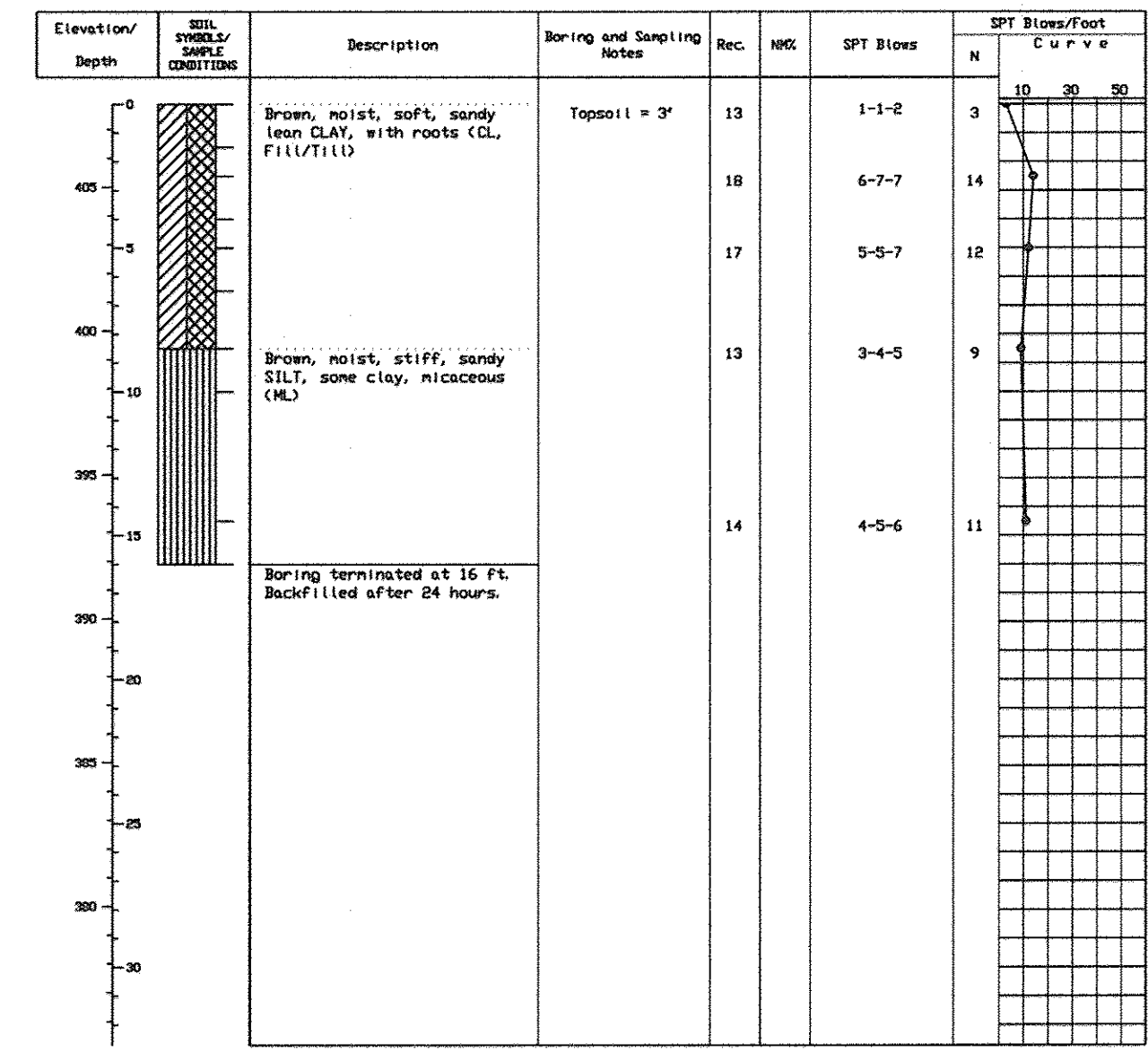


STANDARD PENETRATION TEST-BLOWING 6" O.D. SAMPLER 1" WITH 1400 HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.  
RECORD OF SOIL EXPLORATION

Project Name: Enclave at Tierney  
Location: Clarksville 108  
Boring No.: B-46  
Job #: 16108A

Sampler: Hammer Vt. 140 lbs. Hole Diameter: 6" Foreman: J. Russell  
Surf. Elev.: 407.88 ft Hammer Drop: 30 in. Rock Core Diameter: N/A Inspector:  
Date Started: 03/17/2016 Pipe Size: 2.25 OD in. Boring Method: HSA Date Completed: 03/17/2016

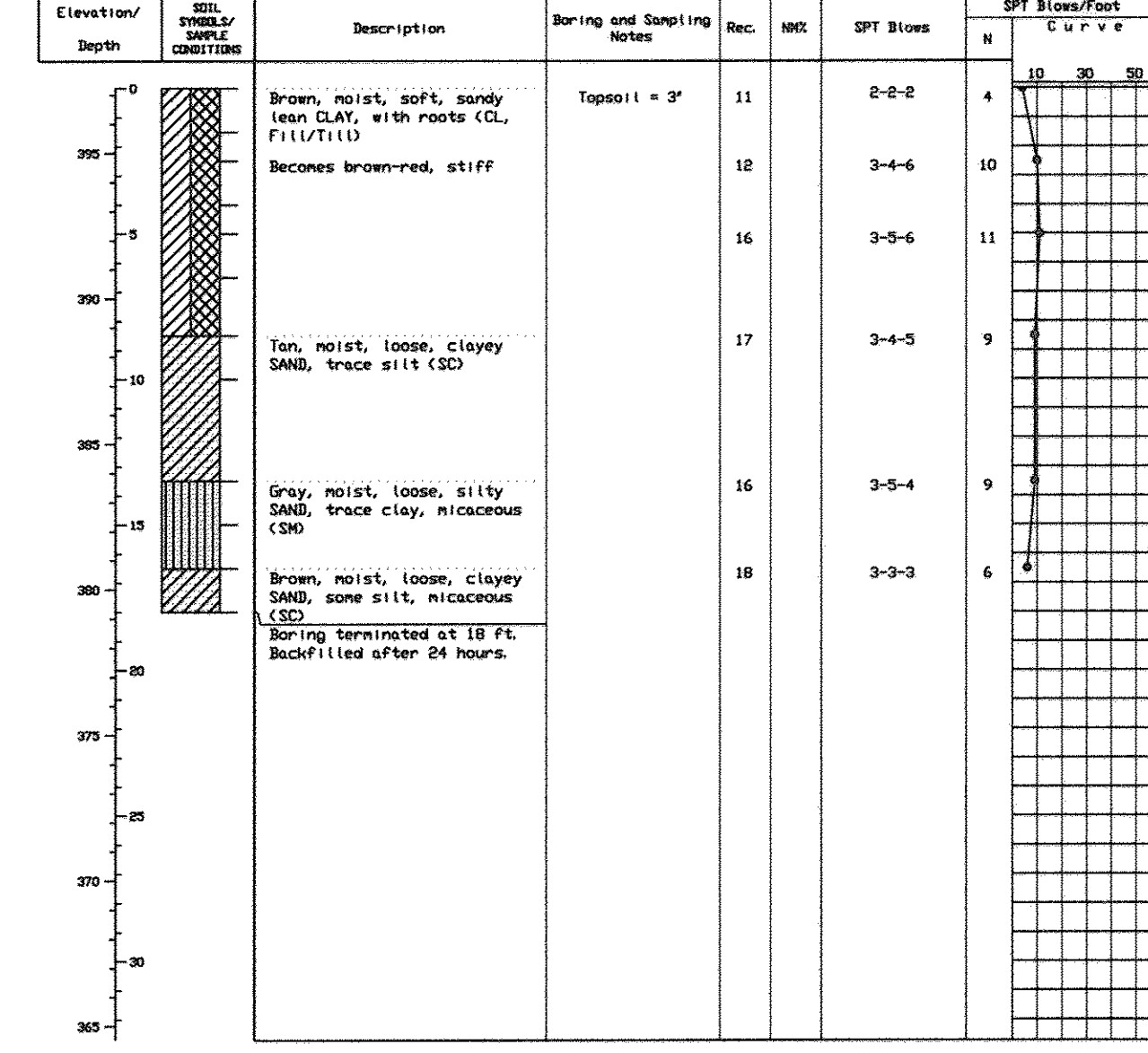


STANDARD PENETRATION TEST-BLOWING 6" O.D. SAMPLER 1" WITH 1400 HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.  
RECORD OF SOIL EXPLORATION

Project Name: Enclave at Tierney  
Location: Clarksville 108  
Boring No.: B-47  
Job #: 16108A

Sampler: Hammer Vt. 140 lbs. Hole Diameter: 6" Foreman: J. Russell  
Surf. Elev.: 397.23 ft Hammer Drop: 30 in. Rock Core Diameter: N/A Inspector:  
Date Started: 03/24/2016 Pipe Size: 2.25 OD in. Boring Method: HSA Date Completed: 03/24/2016



STANDARD PENETRATION TEST-BLOWING 6" O.D. SAMPLER 1" WITH 1400 HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

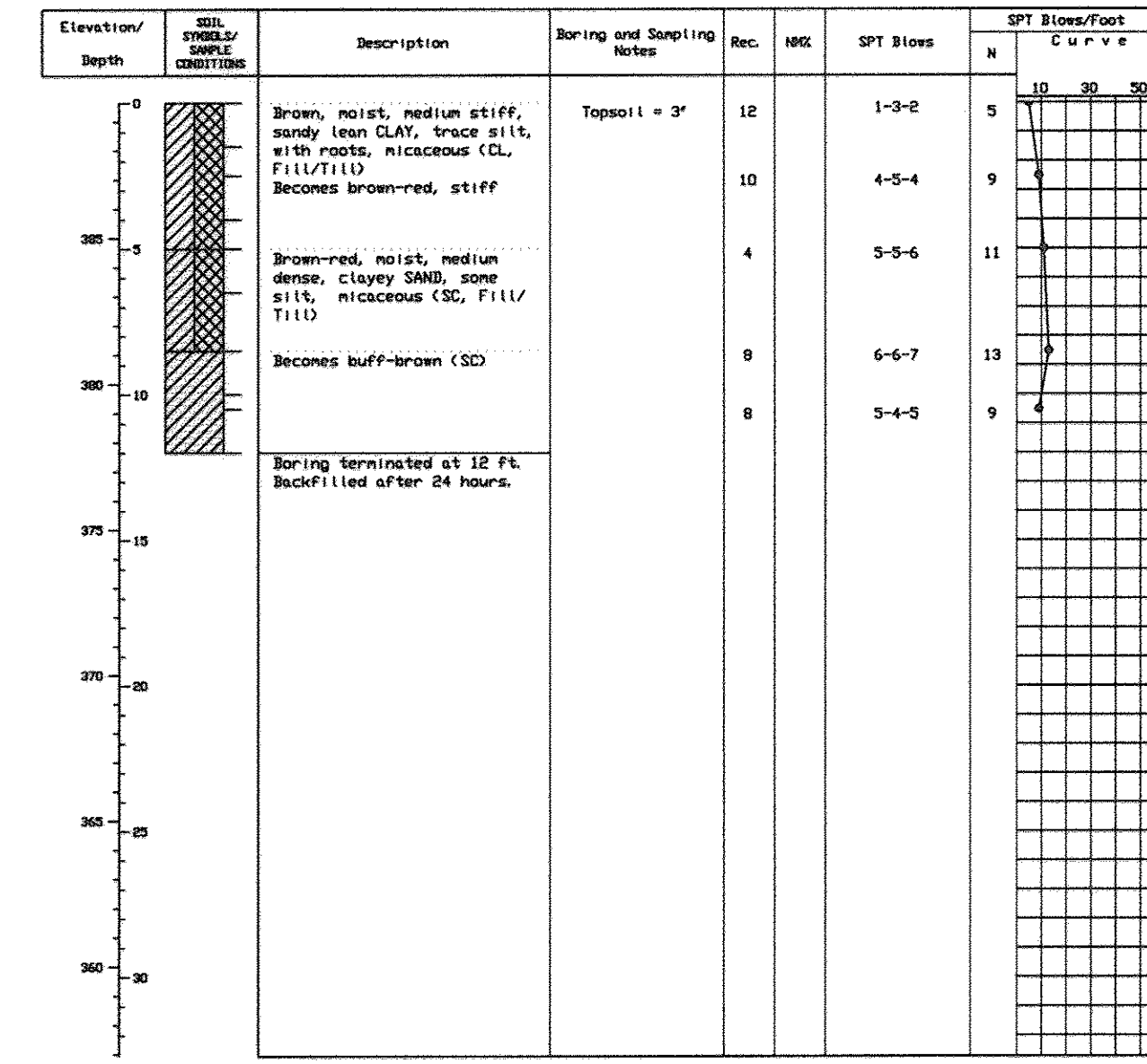
Approved: Department of Planning And Zoning  
T. Mark Farris 8-16-17  
Chief, Division of Land Development Date  
Approved: Howard County Department of Public Works  
M. M... 7/14/17  
Chief, Bureau of Highways Date

REVISIONS		
NO.	DESCRIPTION	DATE

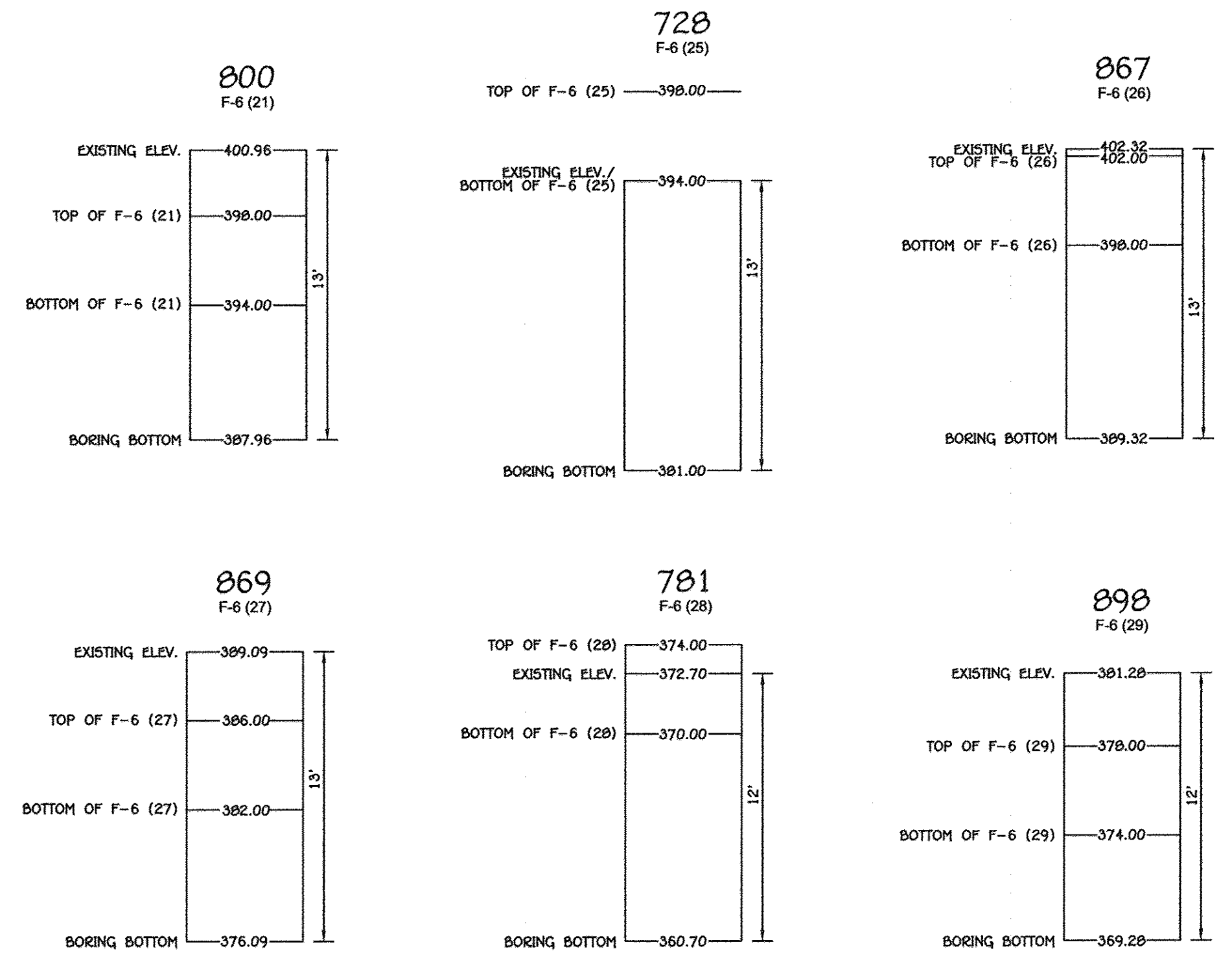
HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.  
RECORD OF SOIL EXPLORATION

Project Name: Enclave at Tierney  
Location: Clarksville 108  
Boring No.: B-51  
Job #: 16108A

Sampler: Hammer Vt. 140 lbs. Hole Diameter: 6" Foreman: J. Russell  
Surf. Elev.: 389.64 ft Hammer Drop: 30 in. Rock Core Diameter: N/A Inspector:  
Date Started: 03/16/2016 Pipe Size: 2.25 OD in. Boring Method: HSA Date Completed: 03/16/2016



STANDARD PENETRATION TEST-BLOWING 6" O.D. SAMPLER 1" WITH 1400 HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.



FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2855



PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/19.  
Frank Manalangan, II 6/23/17  
FRANK MANALANGAN, II Date

DEVELOPER  
BEEZES HOMES, LLC  
8965 GUILFORD ROAD SUITE 290  
COLUMBIA, MARYLAND 21046  
(761)-894-0182

OWNERS  
TIERNEY FARMS-CLARKSVILLE, LP  
24151 VENTURE BOULEVARD  
CALABASAS, CALIFORNIA 91302  
(818)-389-3697

BORING LOGS, AND  
BIO-RETENTION TEST PITS  
ENCLAVE AT RIVER HILL  
PHASE 2  
LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129  
AND BULK PARCEL 'C'  
PREVIOUS HOWARD COUNTY FILES:  
ECP-15-005, PB#409, SP-05-006, WP-15-069, F-15-110,  
WP-16-152 PLAT NO.5 24231 - 24244  
ZONED R-ED TAX MAP NOS.: 34 GRID NO.: 18  
PARCEL NOS.: 88 & 97  
FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: JUNE, 2017  
SHEET 26 OF 29 F-17-003



Approved: Department Of Planning And Zoning		
<i>T. Mah</i> ARS	8-16-17	
Chief, Division Of Land Development	Date	
<i>[Signature]</i>	7-14-17	
Chief, Development Engineering Division	Date	
Approved: Howard County Department Of Public Works		
<i>[Signature]</i>	7/10/2017	
Chief, Bureau Of Highways	Date	
REVISIONS		
NO.	DESCRIPTION	DATE

**NOTES**

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. LANDSCAPE FOR PERIMETER OBLIGATIONS FOR THIS PROJECT WERE PROVIDED UNDER F-15-110. A LANDSCAPE SURETY FOR THIS PHASE (2) IN THE AMOUNT OF \$420,000 BASED ON 14 SHRUBS @ \$30/SHRUB SHALL BE POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPING MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
- THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BENCHES, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

STREET TREE SCHEDULE: PHASE 2		
QTY.	SIZE	COMMENTS
ROW LENGTH = 2040' 2040/40 = 51 51 TREES	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W (Vincent's Way) (Provided 51 Trees)
ROW LENGTH = 2404' 2404/40 = 60 60 TREES	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W (Tuttle Lane) (Provided 60 Trees)
ROW LENGTH = 490' 490/40 = 12 12 TREES	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W (Northrop Way) (Provided 12 Trees)
ROW LENGTH = 870' 870/40 = 22 22 TREES	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W (Lily Garden) (Provided 22 Trees)

STREET TREE PLANT LIST			
QTY.	KEY	NAME	SIZE
145		TILIA CODATA 'GREENSPIRE' (GREENSPIRE LITTLELEAF LINDEN)	2.5"-3" CAL. FULL CROWN, 8.5'

**NOTES**

- WHEN THE DISTANCE BETWEEN THE CURB AND THE SIDEWALK IS LESS THAN 6 FEET, AND WHERE TREES ARE PLANTED CLOSER THAN 3 FEET TO THE SIDEWALK, A BIOLOGIC ROOT INHIBITOR BARRIER OR PHYSICAL CONTAINER BARRIER SHALL BE REQUIRED.
- TREES SHALL BE PLACED A MINIMUM OF 30 FEET FROM ALL SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB, AND BE LOCATED WITH CONSIDERATION OF UNDERGROUND UTILITIES AND STRUCTURES. STREET TREES MAY NOT BE PLANTED WITHIN 5 FEET OF AN OPEN SPACE, ACCESS STRIP, OR 10 FEET OF A DRIVEWAY. TO ADHERE TO THESE REQUIREMENTS EXACT LOCATIONS OF THE STREET TREES WILL BE FIELD LOCATED AT THE TIME OF INSTALLATION.

PRIVATE REFUSE PAD LANDSCAPING			
4' x 8' PAD NUMBER AT USE-IN-COMMON DRIVES:	LOTS 65-69	LOTS 106-111	FUTURE LOTS 147-154
NUMBER OF TREES REQUIRED: SHADE TREES EVERGREEN TREES SHRUBS	---	---	---
NUMBER OF TREES PROVIDED: SHADE TREES EVERGREEN TREES SHRUBS - TAXUS CUSPIDATE 'NANA' DWARF JAPANESE YEW PLANTED 18"-24" APART	4	6	4

LANDSCAPE PLANT LIST			
QTY.	KEY	NAME	SIZE
14		TAXUS CUSPIDATE 'NANA' DWARF JAPANESE YEW	18"-24" SPREAD

1) SEE TRASH RECYCLE PAD DETAILS FOR LANDSCAPE REQUIREMENTS - SHEET 28 AND 29

**PLANTING SPECIFICATIONS**

PLANTS, RELATED MATERIAL, AND OPERATIONS SHALL MEET THE DETAILED DESCRIPTION AS GIVEN ON THE PLANS AND AS DESCRIBED HEREIN.

ALL PLANT MATERIAL, UNLESS OTHERWISE SPECIFIED, SHALL BE NURSERY GROWN, UNIFORMLY BRANCHED, HAVE A WELDED ROOT SYSTEM, AND SHALL CONFORM TO THE SPECIES, SIZE, ROOT AND SHAPE SHOWN ON THE PLANT LIST AND THE AMERICAN ASSOCIATION OF NURSERYMEN (A.A.N.) STANDARDS. PLANT MATERIAL SHALL BE HEALTHY, WIND-RESISTANT, FREE FROM DEFECTS, BROWN, DEFORMING ROOTS, SUN SCALD, BARK, ABRACTIONS OF THE BARK, PLANT DAMAGE, INSECT PESTS, DISEASES AND ALL FORMS OF INSECT INFESTATIONS OR ORACLES-INDUCED DEFOLIATIONS. PLANT MATERIAL THAT IS WALK OR WHICH HAS BEEN CUT BACK FROM LARGE GROWERS TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED. TREES WITH FORCED LEADINGS WILL NOT BE ACCEPTED. ALL PLANTS SHALL BE FREELY DUG, NO HEALED-IN PLANTS FROM COLD STORAGE WILL BE ACCEPTED.

UNLESS OTHERWISE SPECIFIED, ALL GENERAL CONDITIONS, PLANTING OPERATIONS, DETAILS AND PLANTING SPECIFICATIONS SHALL CONFORM TO "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREA" (HEREINAFTER "LANDSCAPE GUIDELINES") APPROVED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF METROPOLITAN WASHINGTON AND THE FUTURE CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, LATEST EDITION, INCLUDING ALL AMENDMENTS.

CONTRACTOR SHALL BE RESPONSIBLE TO GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE IN ACCORDANCE WITH THE APPROPRIATE SECTION OF THE LANDSCAPE GUIDELINES. CONTRACTOR'S ATTENTION IS DIRECTED TO THE MAINTENANCE REQUIREMENTS FOUND WITHIN THE ONE YEAR SPECIFICATIONS INCLUDING WATERING AND REPLACEMENT OF SPECIFIED PLANT MATERIAL.

CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UTILITY COMPANIES, UTILITY CONTRACTORS AND "NEED UTILITY" A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY WORK. CONTRACTOR MAY MAKE MINOR ADJUSTMENTS IN SPACING AND LOCATION OF PLANT MATERIAL TO AVOID CONFLICTS WITH UTILITIES. DAMAGE TO EXISTING STRUCTURE AND UTILITIES SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.

PROTECTION OF EXISTING VEGETATION TO REMAIN SHALL BE ACCOMPLISHED BY THE TEMPORARY INSTALLATION OF A FOUR FOOT HIGH CHAIN FENCE OR BLAZE ORANGE SAFETY FENCE AT THE DEEP LINE.

CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL MATERIAL IN THE PROPER PLANTING SEASON FOR EACH PLANT TYPE. ALL PLANTING IS TO BE COMPLETED WITHIN THE GROWING SEASON OF COMPLETION OF SITE CONSTRUCTION.

BID SHALL BE BASED ON ACTUAL SITE CONDITIONS. NO EXTRA PAYMENT SHALL BE MADE FOR WORK ARISING FROM SITE CONDITIONS DIFFERING FROM THOSE INDICATED ON DRAWINGS AND SPECIFICATIONS.

PLANT QUANTITIES ARE PROVIDED FOR THE CONFORMANCE OF THE CONTRACTOR ONLY. IF DISCREPANCIES EXIST BETWEEN QUANTITIES SHOWN ON PLAN AND THOSE SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE PLAN TAKE PRECEDENCE.

ALL SHRUBS SHALL BE PLANTED IN CONTINUOUS TRENCHES OR PREPARED PLANTING BEDS AND MULCHED WITH COMPOSTED HARDWOOD MULCH AS DETAILS AND SPECIFIED EXCEPT WHERE NOTED ON PLANS.

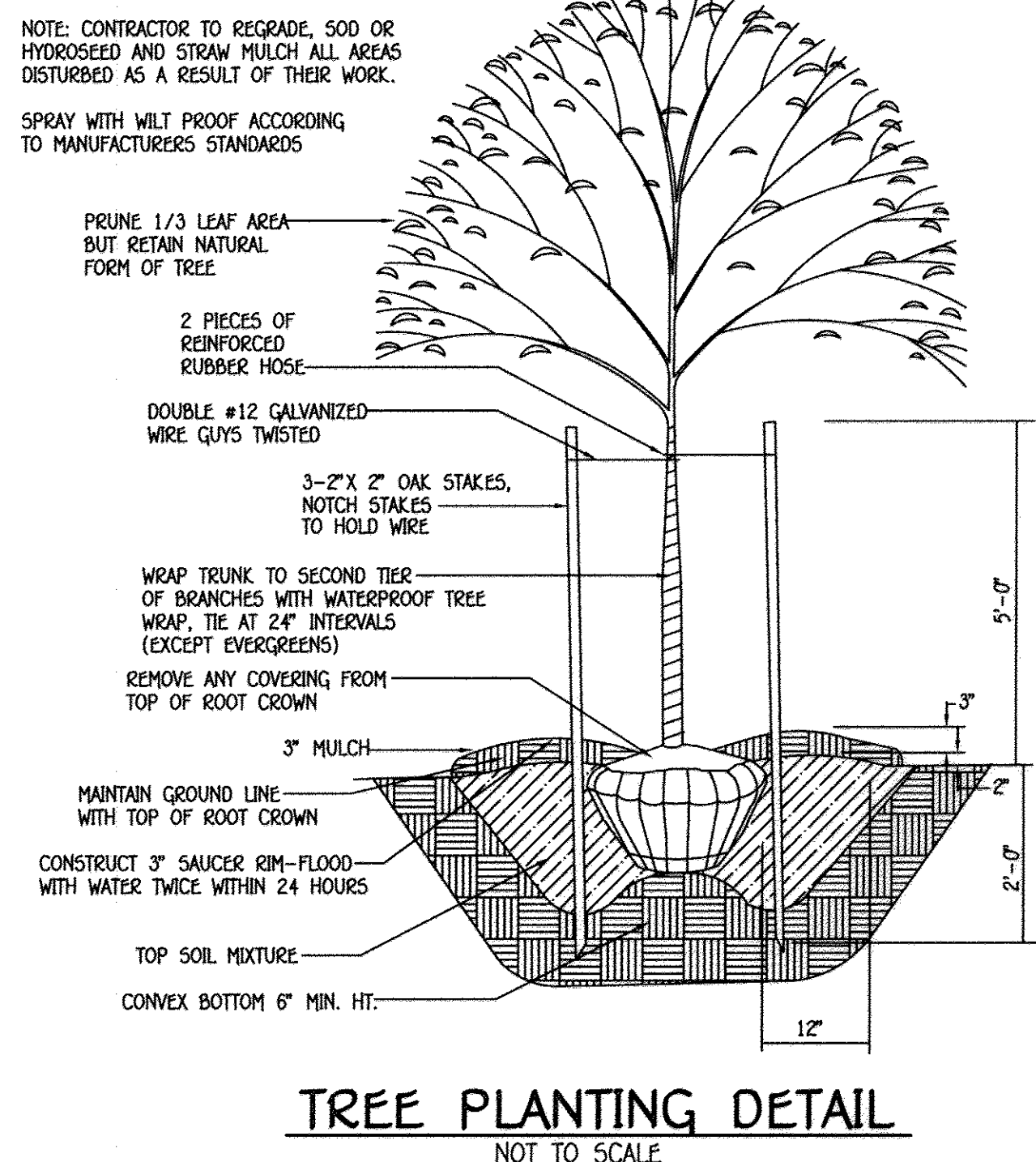
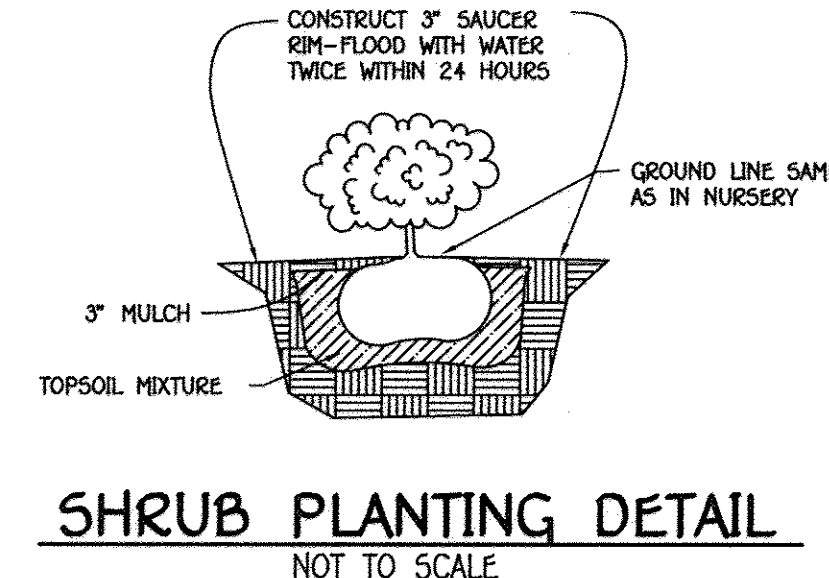
POSTING DRAWING SHALL BE MAINTAINED IN PLANTING BEDS 2 PERCENT SLOPED.

PLANTING MIX SHALL BE AS FOLLOWS: DECIDUOUS PLANTS - TWO PARTS TOPSOIL, ONE PART WELL-SETTLED COM OR HORSE MANURE. ADD 3 LBS. OF STANDARD FERTILIZER PER CUBIC YARD OF PLANTING MIX. EVERGREEN PLANTS - TWO PARTS TOPSOIL, ONE PART HUMUS OR OTHER APPROVED ORGANIC MATERIAL. ADD 3 LBS. OF EVERGREEN (NADIC) FERTILIZER PER CUBIC YARD OF PLANTING MIX. TOPSOIL SHALL CONFORM TO THE LANDSCAPE GUIDELINES.

WEED CONTROL - INCORPORATE A PRE-EMERGENT HERBICIDE INTO THE PLANTING BED FOLLOWING RECOMMENDED RATES ON THE LABEL. CAUTION: BE SURE TO CAREFULLY CHECK THE CHEMICAL USED TO ASSURE ITS ADAPTABILITY TO THE SPECIFIC GROUND COVER TO BE TREATED.

ALL AREAS WITHIN CONTRACT LIMITS DISTURBED DURING OR PRIOR TO CONSTRUCTION NOT DESIGNATED TO RECEIVE PLANTS AND MULCH SHALL BE FINE GRADED AND SEEDED.

THIS PLAN IS INTENDED FOR LANDSCAPE USE ONLY. SEE OTHER PLAN SHEETS FOR MORE INFORMATION ON GRADING, SEEDING CONTROL, LAYOUT, ETC.



STREET TREE  
LANDSCAPING, NOTES  
AND DETAILS  
**ENCLAVE AT RIVER HILL  
PHASE 2**  
LOTS 55 THRU 124, OPEN SPACE LOTS 125 THRU 129  
AND BULK PARCEL 'C'  
PREVIOUS HOWARD COUNTY FILES:  
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FIFTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: JUNE, 2017  
SHEET 27 OF 29 **F-17-003**

**LANDSCAPE DEVELOPER'S CERTIFICATE**

I/we certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I/we further certify that upon completion a letter of landscape installation accompanied by an executed one year guarantee of plant materials will be submitted to the Department of Planning and Zoning.

*[Signature]* Name  
*[Signature]* Date



**PROFESSIONAL CERTIFICATION**

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/19.

*[Signature]* FRANK MULLAN, E.  
Date

**DEVELOPER**

BEAZER HOMES, LLC  
8965 GULFORD ROAD - SUITE 290  
COLUMBIA, MARYLAND 21046  
(765)-894-0182

**OWNERS**

TIERNY FARMS-CLARKSVILLE, LP.  
24151 VENTURE BOULEVARD  
CALABASAS, CALIFORNIA 91302  
(818)-385-3697







