

TAYLOR FARM

SECTION THREE PHASE TWO

ROADS, STORMWATER MANAGEMENT AND STORM DRAIN CONSTRUCTION PLANS

GENERAL NOTES

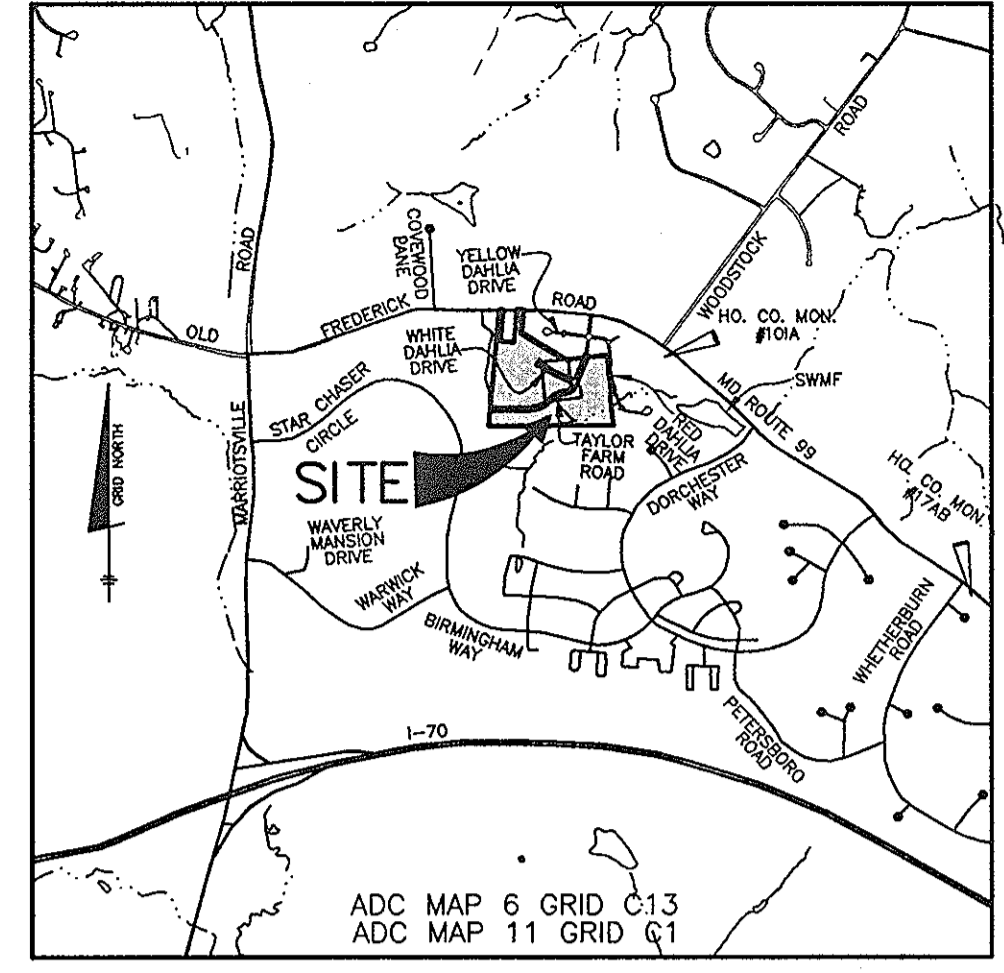
- 1.) THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- 2.) THE EXISTING TOPOGRAPHY SHOWN ON-SITE IS BASED ON A FIELD SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. IN FEBRUARY, 2003. EXISTING TOPOGRAPHY SHOWN ON ADJACENT TAYLOR FARM SUBDIVISIONS WAS TAKEN FROM SDP-99-132 AND SDP-01-157.
- 3.) THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 1012 AND 16C3 WERE USED FOR THIS PROJECT.
- 4.) WATER IS PUBLIC. THE CONTRACT NUMBER IS 14-4395-D. THE DRAINAGE AREA IS PATAPSCO.
- 5.) SEWER IS PUBLIC. THE CONTRACT NUMBER IS 14-4395-D. THE DRAINAGE AREA IS PATAPSCO.
- 6.) STORMWATER MANAGEMENT QUALITY AND QUANTITY CONTROL IS PROVIDED WITHIN THE EXISTING FACILITY CONSTRUCTED UNDER F-95-174 (GTW'S WAVERLY WOODS SECTION 4, AREA 2).
- 7.) EXISTING UTILITIES ARE BASED ON CONTRACT DRAWINGS AND FIELD SURVEYED LOCATIONS.
- 8.) THE FLOODPLAIN STUDY WAS PERFORMED UNDER F-89-235. THE LIMITS SHOWN ON THESE PLANS WERE TAKEN FROM PLAT #9221.
- 9.) THE WETLANDS DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. IN FEBRUARY, 2003.
- 10.) THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP, INC. IN MAY, 2003 AND APPROVED ON FEBRUARY 20, 2004 AS PART OF S-03-019. THE REPORT INDICATED THAT MITIGATION WOULD BE NEEDED AT THE INTERSECTION OF MARYTOWNE ROAD AND ROUTE 99. A MITIGATION PLAN FOR THAT AREA WAS SUBMITTED ON 9-1-06 AS F-07-32 FOR GTW'S WAVERLY WOODS. THIS MITIGATION PLAN FULFILLS THE REQUIREMENTS OF THE MITIGATION NEEDED FOR THIS PLAN.
- 11.) A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT. THE 65 DBA NOISE CONTOUR LINE SHOWN ON THE PLANS WAS TAKEN FROM F-98-141. IT IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY, 1992 AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65 DBA NOISE EXPOSURE. THE 65 DBA NOISE LINE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.
- 12.) THE GEOTECHNICAL REPORT WAS PREPARED BY HILLIS CARNES ENGINEERING ASSOCIATES, INC. IN SEPTEMBER, 2006.
- 13.) THE SUBJECT PROPERTY IS ZONED R-20 PER THE 2-2-2004 COMPREHENSIVE ZONING PLAN AND THE "COMP LITE" ZONING AMENDMENTS EFFECTIVE 7-28-2006.
- 14.) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS SITE.
- 15.) NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS, 100-YEAR FLOODPLAIN OR 25% OR GREATER STEEP SLOPES THAT ARE AT LEAST 20,000 S.F. OF CONTIGUOUS AREA EXCEPT FOR THE DISTURBANCES TO THE STREAM BUFFER AT THE TAYLOR FARM ROAD CROSSING. THE PROPOSED STREAM CROSSING HAS BEEN DETERMINED BY THE DEPARTMENT OF PLANNING AND ZONING TO BE "NECESSARY" IN ACCORDANCE WITH SECTION 18.116.C.1(i).
- 16.) BOUNDARY IS BASED ON A FIELD RUN MONUMENTED SUBURBAN BOUNDARY SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. IN FEBRUARY, 2003.
- 17.) FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. IN FEBRUARY, 2003.
- 18.) THIS PROJECT WAS INCORPORATED INTO THE METROPOLITAN DISTRICT ON 11-6-2006 LIBER/FOLD REFERENCES 10121/264 AND 10121/272.
- 19.) THIS PROJECT IS SUBJECT TO THE FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL NO. 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL NO. 50-2001. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE BUILDING OR GRADING PERMIT APPLICATION.
- 20.) THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
- 21.) DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - A) WIDTH - 12' (14' SERVING MORE THAN ONE RESIDENCE).
 - B) SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING.
 - C) GEOMETRY - MAX. 15% GRADE, MAX. 10% GRADE CHANGE & MIN. 45' TURNING RADIUS.
 - D) STRUCTURES/CULVERTS/BRIDGES - CAPABLE OF SUPPORTING 25 GROSS TONS (42.5 LOAD)
 - E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
 - F) STRUCTURE CLEARANCES - MINIMUM 12 FEET.
 - G) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- 22.) LANDSCAPING FOR THIS SUBDIVISION IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED WITH THIS SUBMITTAL IN ACCORDANCE WITH SECTION 18.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$20,850.00 (\$19,200.00 FOR 64 SHADE TREES, \$1,650.00 FOR 11 EVERGREENS).
- 23.) THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 18.1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- 24.) THE TOTAL FOREST CONSERVATION OBLIGATION AMOUNT OF 3.14 ACRES SHALL BE MET BY THE RETENTION OF 1.87 AC. OF NET TRACT AREA WITHIN A FOREST CONSERVATION EASEMENT (1.76 AC. ON-SITE AND 0.11 AC. CREDITED FROM FCE #1 IN TAYLOR FARM SECT. 3 PHASE 1, F-05-182) AND THE ON-SITE AFForestation OF 1.27 AC. WITHIN A FOREST CONSERVATION EASEMENT. FINANCIAL SURETY FOR THE REQUIRED FOREST CONSERVATION HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$42,993.72 (\$15,333.12 FOR RETENTION OF 76,685.6 S.F. OF FOREST AND \$27,660.6 FOR THE PLANTING OF 55,321.2 S.F. OF FOREST). SURETY FOR THE 0.11 AC. OF RETENTION IN FCE #1 HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR F-05-182.
- 25.) FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ALONG THE PIPESTEM LOT DRIVEWAY.
- 26.) THERE IS AN EXISTING DWELLING LOCATED ON LOT 62 TO REMAIN. NO NEW BUILDINGS, EXTENSIONS OR ADDITIONS TO THE EXISTING DWELLING IS TO BE CONSTRUCTED AT A DISTANCE LESS THAN THE ZONING REGULATIONS REQUIRE.
- 27.) RESERVATION OF PUBLIC UTILITY AND FOREST CONSERVATION EASEMENTS
 DEVELOPER RESERVES UNTO ITSELF, ITS SUCCESSORS AND ASSIGNS, ALL EASEMENTS SHOWN ON THIS PLAN FOR WATER, SEWER, STORM DRAINAGE, OTHER PUBLIC UTILITIES AND FOREST CONSERVATION (DESIGNATED AS "FOREST CONSERVATION AREA"), LOCATED IN, ON, OVER AND THROUGH LOTS 58-59, 63-66, 68-97 AND OPEN SPACE LOTS 98-100. ANY CONVEYANCES OF THE AFORESAID LOTS/PARCELS SHALL BE SUBJECT TO THE EASEMENTS HEREIN RESERVED, WHETHER OR NOT EXPRESSLY STATED IN THE DEED(S) CONVEYING SAID LOTS/PARCELS. DEVELOPER SHALL EXECUTE AND DELIVER DEEDS FOR THE EASEMENTS HEREIN RESERVED TO HOWARD COUNTY WITH A METES AND BOUNDS DESCRIPTION OF THE FOREST CONSERVATION AREA. UPON COMPLETION OF THE PUBLIC UTILITIES AND THEIR ACCEPTANCE BY HOWARD COUNTY, AND IN THE CASE OF THE FOREST CONSERVATION EASEMENT(S), UPON COMPLETION OF THE DEVELOPER'S OBLIGATION UNDER THE FOREST CONSERVATION INSTALLATION AND MAINTENANCE AGREEMENT EXECUTED BY THE DEVELOPER AND THE COUNTY, AND THE RELEASE OF DEVELOPER'S SURETY POSTED WITH SAID AGREEMENT, THE COUNTY SHALL ACCEPT THE EASEMENTS AND RECORD THE DEED(S) OF EASEMENT IN THE LAND RECORDS OF HOWARD COUNTY.
- 28.) WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND PUBLIC SEWER ALLOCATIONS WILL BE GRANTED AT THE TIME OF THE ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- 29.) THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- 30.) THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 31.) TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO PLACEMENT OF ANY ASPHALT.
- 32.) STREET LIGHT PLACEMENT AND TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME II (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". A MINIMUM SPACING OF 20 FEET SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
- 33.) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL PERFORATED SQUARE TUBE SLEEVE (12 GAUGE)-3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.



BENCH MARKS NAD'83 HORIZONTAL

HO. CO. #10A
CONCRETE MONUMENT AT SOUTHEAST CORNER
OF WOODSTOCK ROAD AND MD ROUTE 99 20.5'
FROM CL OF ROUTE 99.
N 500995.112' E 1345340.402'
ELEV. 442.707'

HO. CO. #17AB
CONCRETE MONUMENT AT SOUTHEAST CORNER
OF WETHERBURN ROAD AND MD ROUTE 99 18'
FROM BRICK WALL
N 598435.251' E 1348615.251'
ELEV. 509.178'



SITE ANALYSIS DATA CHART

GENERAL SITE DATA

- 1.) PRESENT ZONING: R-20
- 2.) APPLICABLE DPZ FILE REFERENCES: F-89-235, F-99-125, S-03-19
P-04-16, F-05-182, P-06-007
- 3.) PROPOSED USE OF SITE: RESIDENTIAL (SFD)
- 4.) PROPOSED WATER AND SEWER SYSTEMS: PUBLIC

AREA TABULATION

- 1.) GROSS TRACT AREA: 23.30 AC ±
- 2.) AREA WITHIN 100-YEAR FLOODPLAIN: 2.37 AC ±
- 3.) TOTAL AREA OF 25% OR GREATER STEEP SLOPES: 0.00 AC ±
- 4.) NET TRACT AREA: 20.93 AC ±
- 5.) TOTAL NUMBER OF LOTS ALLOWED PER ZONING: N/A
- 6.) TOTAL NUMBER OF RESIDENTIAL UNITS/LOTS PROPOSED ON THIS SUBMISSION: 41
- 7.) AREA OF BUILDABLE LOTS: 11,942 AC.
 AREA OF OPEN SPACE LOTS: 9,454 AC.
 AREA OF BULK PARCEL 'A': 0.36 AC.
 AREA OF PUBLIC RIGHT-OF-WAY: 1.55 AC.

OPEN SPACE DATA

- 1.) MINIMUM RESIDENTIAL LOT SIZE SELECTED: 12,000 S.F.
- 2.) OPEN SPACE REQUIRED (40% OF 23.93 AC): 9,582 AC
- 3.) OPEN SPACE PROVIDED (41.0%): 8,814 AC **
 NON-CREDITED (LESS THAN 35' IN WIDTH): 0.024 AC
 CREDITED: 8,814 AC
- 4.) AREA OF RECREATION OPEN SPACE REQUIRED: 42 UNITS X 200 SF/UNIT = 8,400 SF.***
- 5.) AREA OF RECREATION OPEN SPACE PROVIDED: 8,884 S.F.

* 23.93± AC. IS THE TOTAL TRACT ACREAGE OF SECTION 3 (PHASES 1 AND 2).

** 9.45 AC. CREATED IN SECTION 3 PHASE 2 AND 0.36 AC. CREATED IN SECTION 3 PHASE 1 (F-05-182) WHICH IS CREDITED TOWARD THE OPEN SPACE OBLIGATION FOR SECTION 3 PHASE 2.

*** RECREATIONAL OPEN SPACE OBLIGATION INCLUDES THE ONE LOT CREATED UNDER F-05-182 (EXISTING LOT 55).

NO.	DATE	REVISION

BENCHMARK

ENGINEERS • LAND SURVEYORS • PLANNERS

ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE • SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-6844
 WWW.BEI-CIVILENGINEERING.COM

<p>OWNER/DEVELOPER:</p> <p>FRIENDLY FARMS LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244</p>	<p>PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A RESUBMISSION OF LOT 54 TAYLOR FARM SECTION THREE, PHASE ONE (F-05-182) AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)</p> <p>LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309 TAX MAP: 16 GRID: 5 ZONED: R-20 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> <p>TITLE: TITLE SHEET</p> <p>DATE: AUGUST, 2007 PROJECT NO. 1585</p> <p>DESIGN: DBT DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 1 OF 22</p>
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SHEET INDEX	
NO.	TITLE
1	TITLE SHEET
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3	ROAD PROFILES AND DETAILS
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5	GRADING, SEDIMENT AND EROSION CONTROL PLAN
6	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
7	STORM DRAIN DRAINAGE AREA MAP
8	STORM DRAIN DRAINAGE AREA MAP
9	STORM DRAIN DRAINAGE AREA MAP FOR CON/SPAN BRIDGE
10	STORM DRAIN PROFILES
11	LANDSCAPE AND STREET TREE PLAN
12	LANDSCAPE AND STREET TREE PLAN
13	FOREST CONSERVATION PLAN
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15	CON/SPAN BRIDGE TITLE SHEET AND GENERAL NOTES
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20	CON/SPAN BRIDGE SECTION & DETAILS
21	CON/SPAN BRIDGE SPECIFICATIONS
22	CON/SPAN BRIDGE SPECIFICATIONS

APPROVED: DEPARTMENT OF PUBLIC WORKS

William T. McMillan 9-7-07
 CHIEF, BUREAU OF HIGHWAYS HS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cecilia Hanna 9/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT CRN DATE

Michael J. Moran 9/20/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



PLAN VIEW
SCALE: 1" = 50'

CENTERLINE CONTROL DATA				
STREET NAME	STATION	NORTH	EAST	
TAYLOR FARM ROAD	BEGIN=4+45.49	600873.1137	1344436.6995	
	PC=4+53.05	600865.6100	1344435.7726	
	PT=4+79.95	600839.6764	1344428.9459	
	PC=7+72.78	600569.0470	1344317.1055	
	PT=8+80.25	600507.7822	1344235.0838	
	PC=9+09.49	600504.7424	1344206.0058	
	PT=10+38.34	600452.3767	1344090.7014	
	PC=11+21.48	600395.8055	1344029.7860	
	PT=13+07.51	600328.9958	1343860.7419	
	END=15+19.92	600328.0783	1343648.3339	
	WHITE DAHLIA DRIVE	BEGIN=0+00	600610.0859	1344334.0653
		PC=1+30.31	600659.8538	1344213.6380
END=4+51.17		600818.5826	1343935.1633	

CENTER LINE CURVE DATA						
STREET NAME	STATION	RADIUS	LENGTH	DELTA	TANGENT	CHORD
TAYLOR FARM ROAD	STA. 4+53.05 TO 4+79.95	100.00'	26.90'	15°24'41"	13.53'	51°44'52"W 26.82'
	STA. 7+72.78 TO 8+80.25	100.00'	107.47'	61°34'43"	59.59'	55°14'34"W 102.38'
	STA. 9+09.49 TO 10+38.34	200.00'	128.86'	36°54'52"	66.75'	58°34'29"W 126.64'
WHITE DAHLIA DRIVE	STA. 11+21.48 TO 13+07.51	250.00'	186.03'	42°38'06"	97.56'	56°28'06"W 181.77'
	STA. 1+30.31 TO 2+45.66	750.00'	115.35'	8°48'44"	57.79'	N63°08'26"W 115.24'

STREET LIGHT SCHEDULE		
SYMBOL	LOCATION	DESCRIPTION
☆	TAYLOR FARM ROAD	100 watt HPS VAPOR PREMIERE COLONIAL POST TOP MOUNTED ON A 14" BLACK FIBERGLASS POLE
☆	WHITE DAHLIA DRIVE	CL STA. 4+50 OFFSET 8' LEFT

MAT DETAILS
SEE PLACEMENT GUIDELINES BELOW

NOTES

- THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 TO 8 INCHES FROM THE FACE OF CURB.
- FOR DESIGN APPLICATIONS DETECTABLE WARNING SHALL BE PLACED SUCH THAT THE DOWNS CLOSEST TO THE BACK OF CURB ARE NO LESS THAN 0.5' AND NO MORE THAN 3.0' FROM THE BACK OF CURB. TRUNCATED DOME SURFACES SHALL BE FABRICATED TO PROVIDE FULL DOWNS ONLY.
- DETECTABLE WARNING SURFACES SHALL BE PAID FOR IN ACCORDANCE WITH SECTION 615 OF THE SPECIFICATIONS.
- DETECTABLE WARNING SURFACES ARE REQUIRED AT STREET CROSSINGS & SIGNALIZED INTERSECTIONS.

APPROVED: *W. G. M. M.* (Seal)
APPROVED: *S. H. H.* (Seal)
APPROVED: *S. H. H.* (Seal)

Standard No. MD 655.40

LEGEND

- EXISTING FOREST
- EXISTING HEDGEROW, SCATTERED TREES & BRUSH
- EXISTING 100-YR FLOODPLAIN
- EXISTING STREAM
- EXISTING STREAM BANK
- EXISTING WETLANDS
- FOREST CONSERVATION EASEMENT
- PROPOSED UTILITY AND ACCESS EASEMENTS
- EXISTING UTILITY AND ACCESS EASEMENTS
- PROPOSED TREE MAINTENANCE EASEMENTS

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
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Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21443, Expiration Date: 12-31-2008.

W. G. M. M. (Seal) 8/21/07

OWNER/DEVELOPER: FRIENDLY FARMS LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO
 LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A RESUBDIVISION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)

LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309
 ZONE: 18 GRID: 5 ZONED: R-20
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

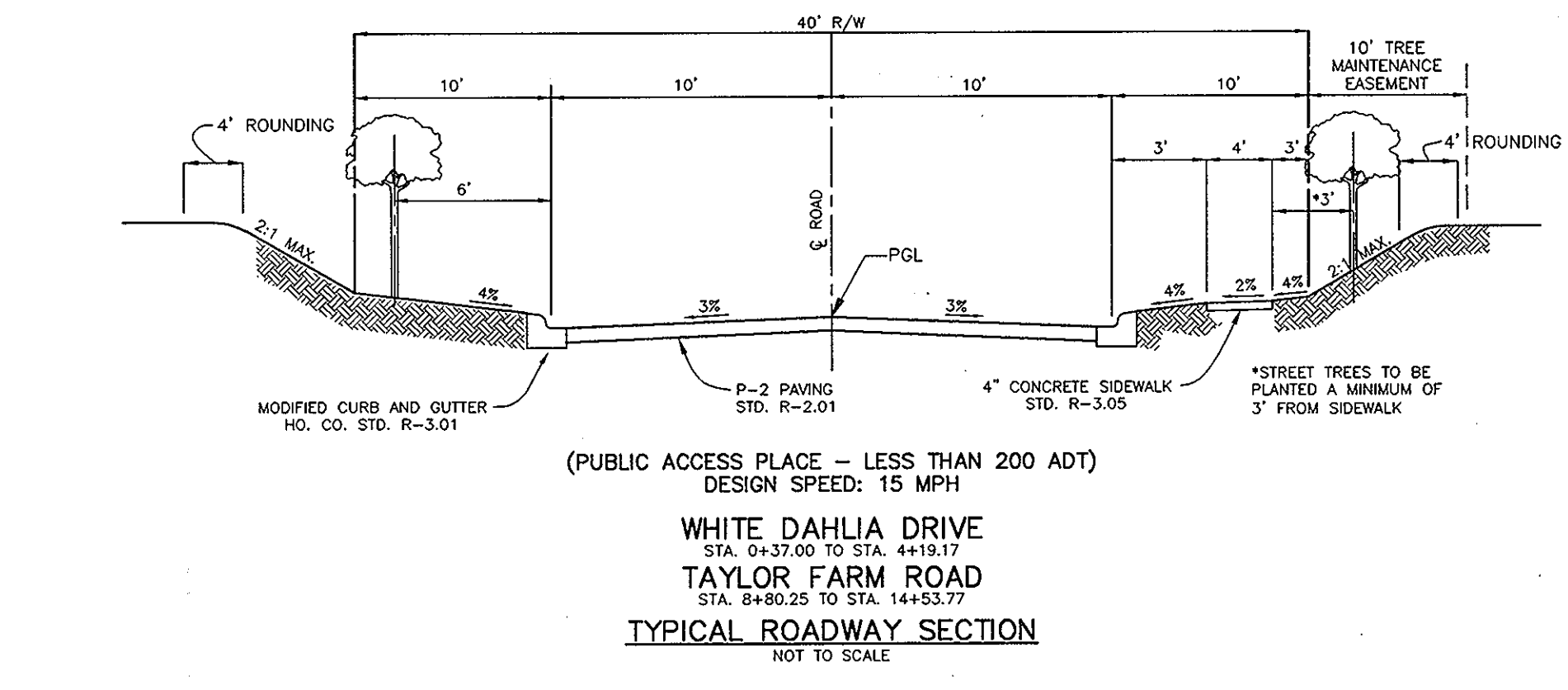
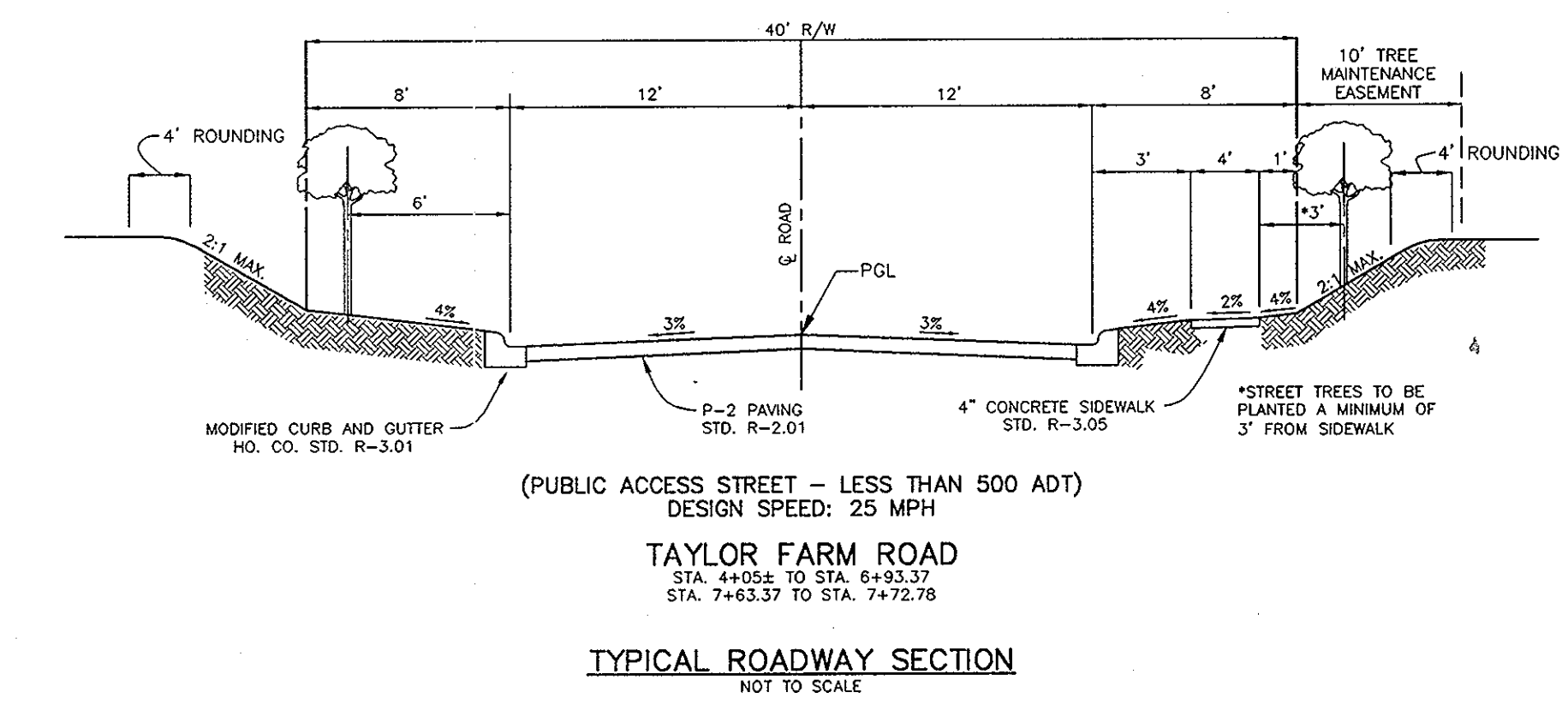
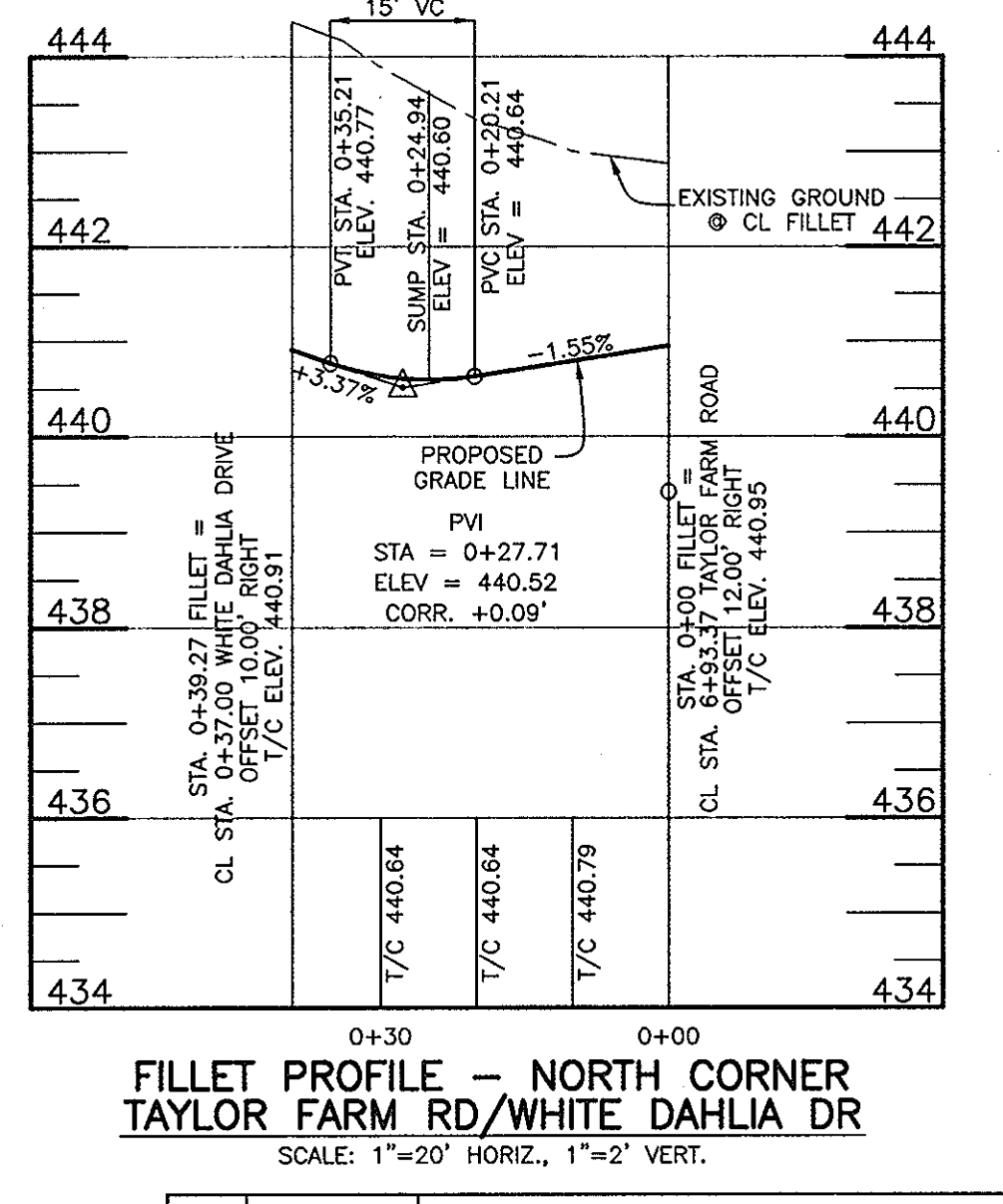
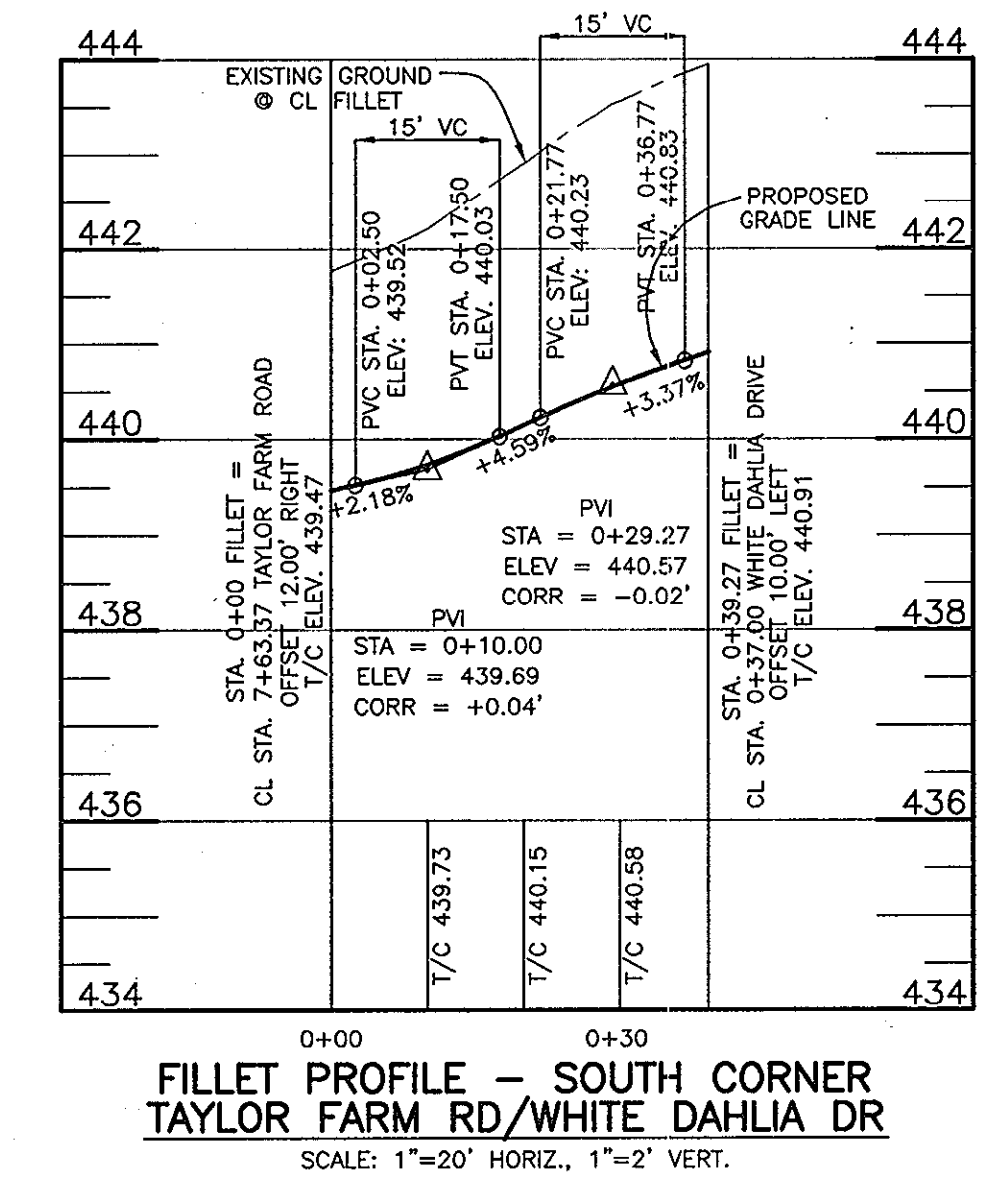
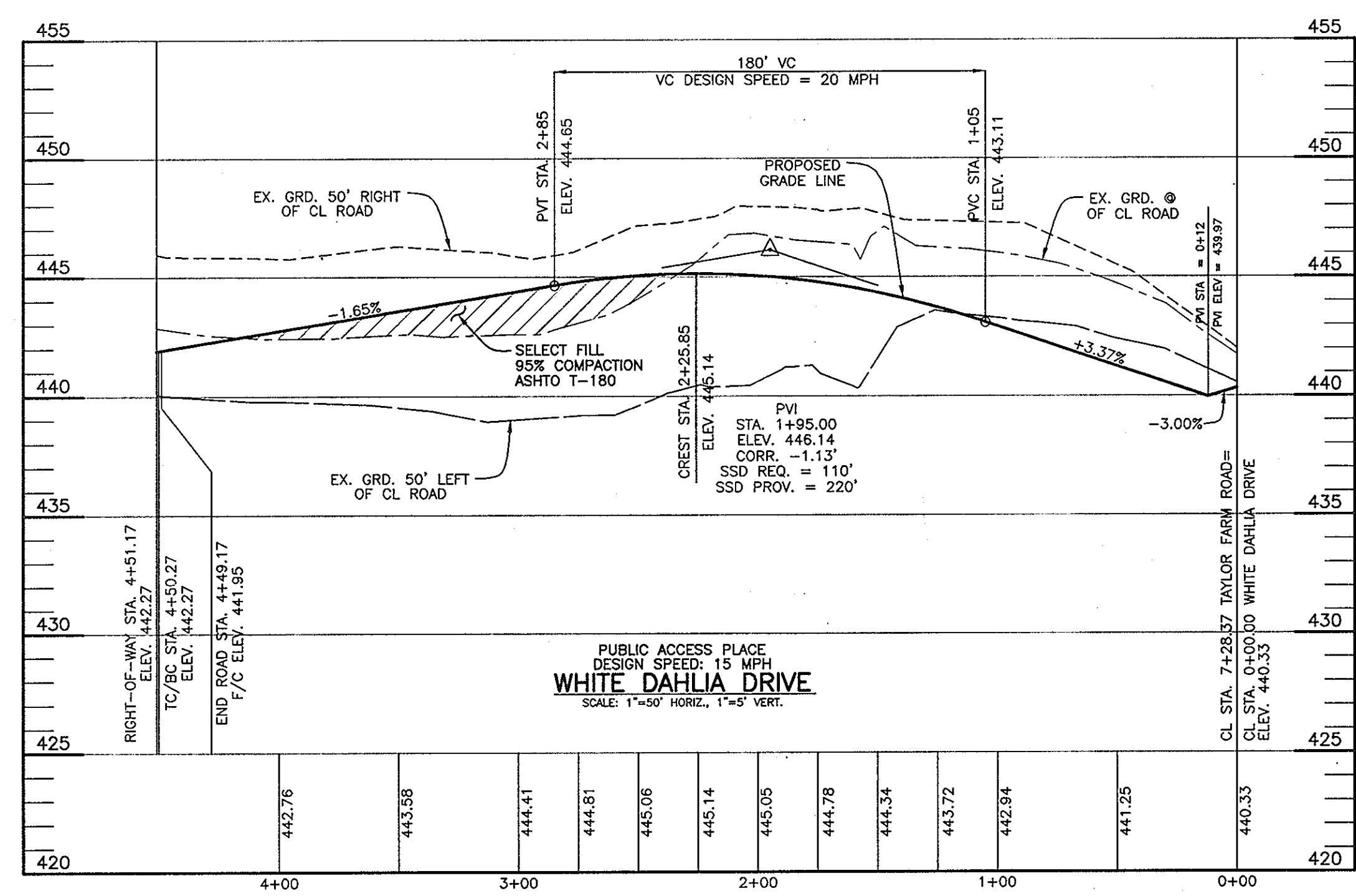
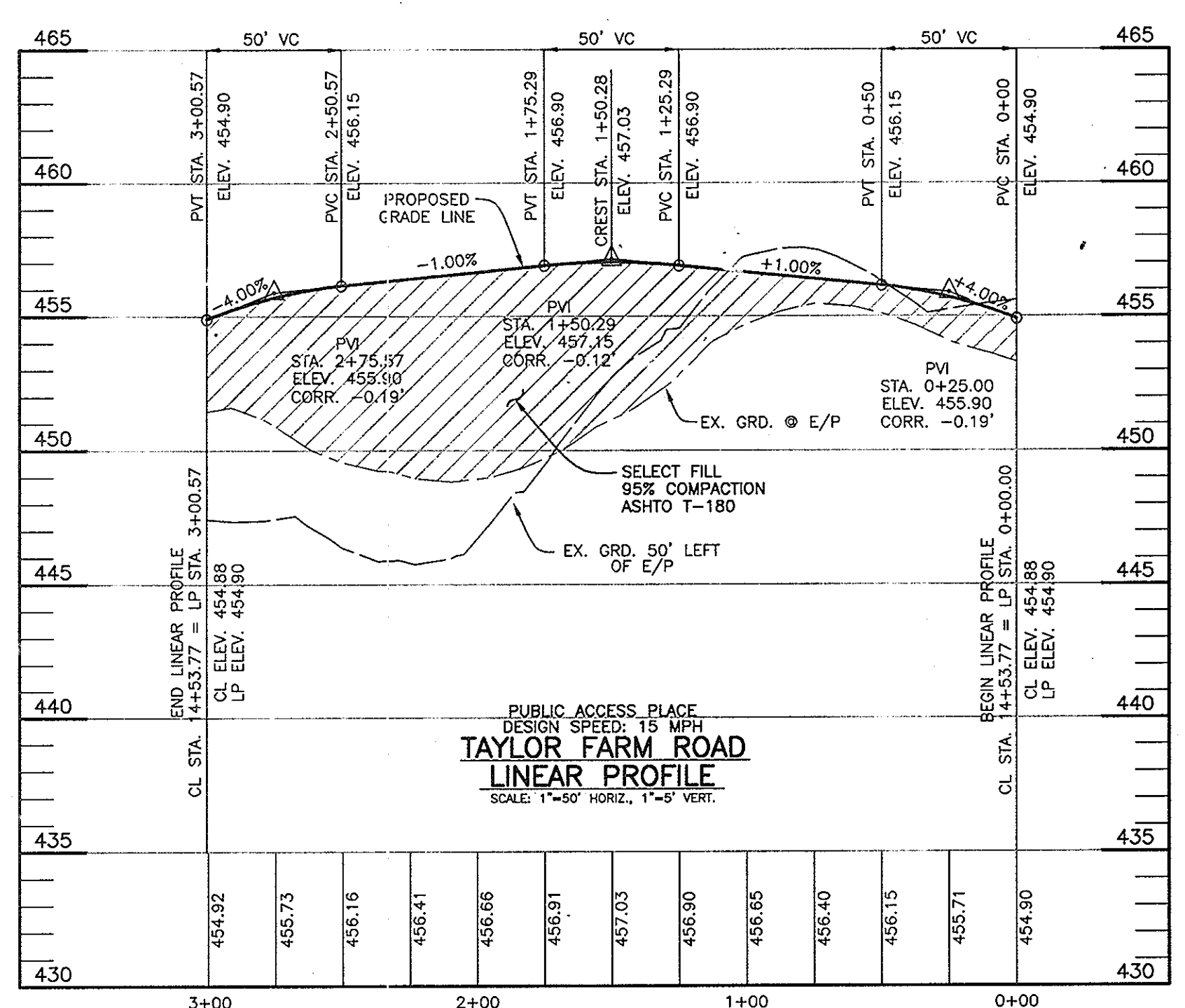
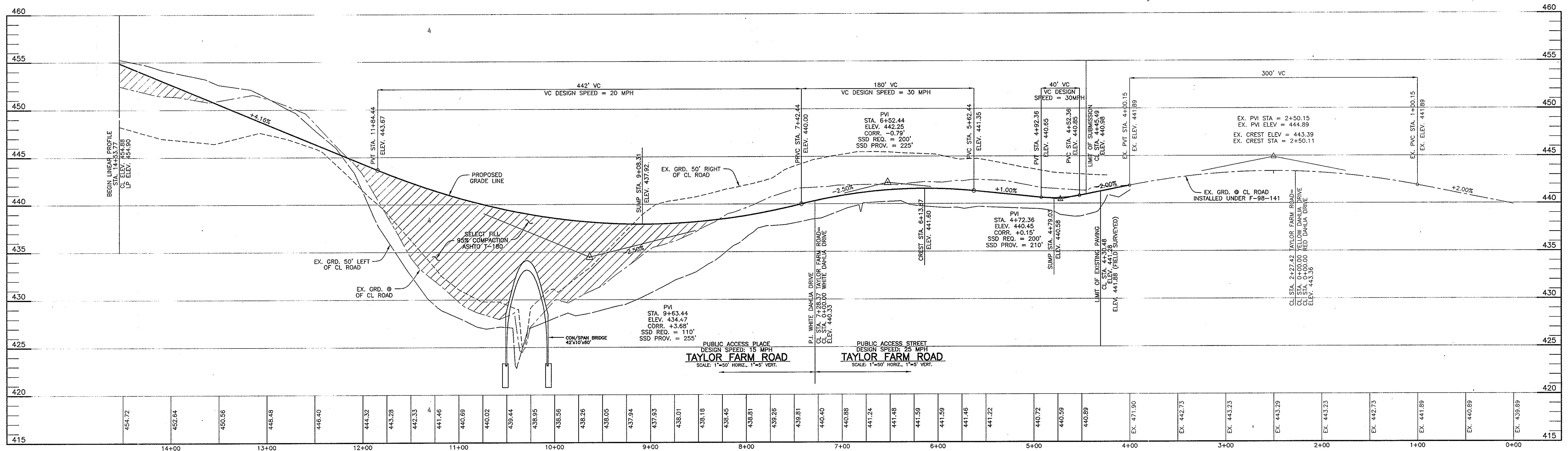
TITLE: ROAD PLAN

DATE: AUGUST, 2007 **PROJECT NO.:** 1585
DESIGN: DBT **DRAFT:** DBT **CHECK:** DAM **SCALE:** AS SHOWN **SHEET** 2 **OF** 22

APPROVED: DEPARTMENT OF PUBLIC WORKS
W. G. M. M. 9-7-07
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
S. H. H. 9/15/07
 CHIEF, DIVISION OF LAND DEVELOPMENT

W. G. M. M. 9/12/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



APPROVED: DEPARTMENT OF PUBLIC WORKS
W. Z. ... 7-20-07
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy ... 9/15/07
 CHIEF, DIVISION OF LAND DEVELOPMENT
... 7/24/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
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 8480 BALTIMORE NATIONAL PIKE • SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-6844
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OWNER/DEVELOPER: FRIENDLY FARMS LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO
 LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A'
 A RESUBDIVISION OF LOT 44 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)

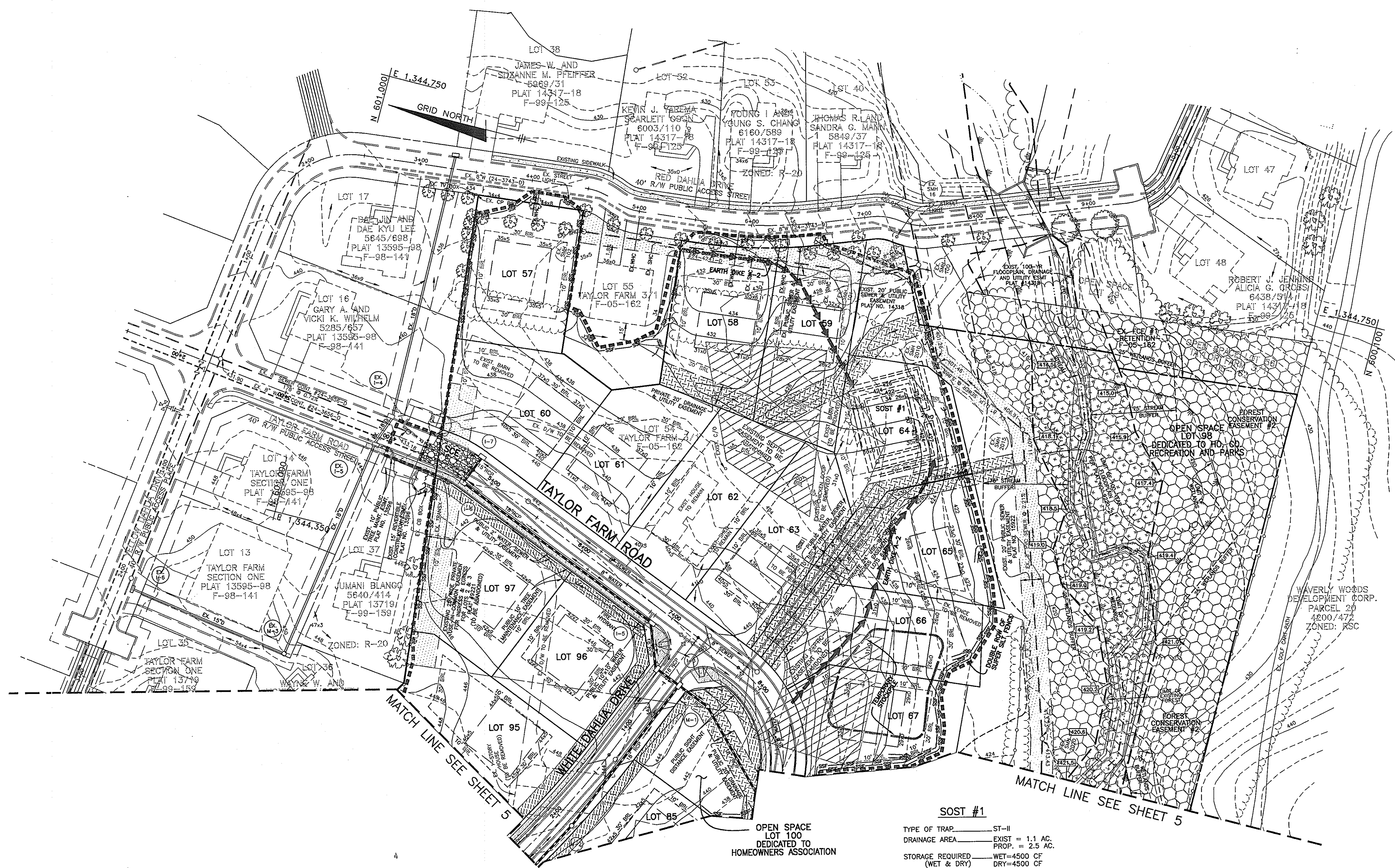
LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309
 TAX MAP: 16 GRID: 5 ZONED: R-20
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: ROAD PROFILES

DATE: JULY, 2007 PROJECT NO. 1585
 DESIGN: DBT DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 3 OF 22

LEGEND

- EXISTING CONTOURS
- EXISTING FOREST
- EXISTING HEDGEROW, SCATTERED TREES & BRUSH
- EXISTING 100-YR FLOODPLAIN
- EXISTING STREAM
- EXISTING STREAM BANK
- EXISTING WETLANDS
- FOREST CONSERVATION EASEMENT RETENTION
- PROPOSED UTILITY AND ACCESS EASEMENTS
- EXISTING UTILITY AND ACCESS EASEMENTS
- PROPOSED TREE MAINTENANCE EASEMENTS
- EARTH DIKE
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- TEMP SED. TRAP CONTOURS
- HOUSE PAD



PLAN VIEW
SCALE: 1" = 50'

SOST #1

TYPE OF TRAP	ST-II
DRAINAGE AREA	EXIST = 1.1 AC. PROP. = 2.5 AC.
STORAGE REQUIRED	WET=4500 CF (WET & DRY) DRY=4500 CF
STORAGE PROVIDED	WET=6780 CF ELEV=424.00 (WET & DRY) DRY=6632 CF ELEV=426.00
WEIR LENGTH	10'
EMBANKMENT ELEV.	427.00 (4' WIDE)
WEIR CREST ELEV.	426.00
CLEANOUT ELEV.	422.15
BOTTOM ELEV.	421.00
BOTTOM DIMENSIONS	34'

OPEN SPACE
LOT 100
DEDICATED TO
HOMEOWNERS ASSOCIATION

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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.

Donald M. Mason 8/21/07
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

DEVELOPER'S CERTIFICATE

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Steve K. Breeden 8/21/07 *James R. Schulte* 8/21/07
STEVEN K. BREEDEN DATE JAMES R. SCHULTE DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

Jim Muzey 8/21/07
USA - NATURAL RESOURCES CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John P. Blanton 8/21/07
HOWARD SCD DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

William F. Mulla 9-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamstra 9/15/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Donald M. Mason 9/12/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS

8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CVLENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21443, Expiration Date: 12-31-2008.

Donald M. Mason 8/21/07

OWNER/DEVELOPER: FRIENDLY FARMS LLC
P.O. BOX 417
ELLCOTT CITY, MARYLAND 21041
410-465-4244

PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO
LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A'
A RESUBDIVISION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)

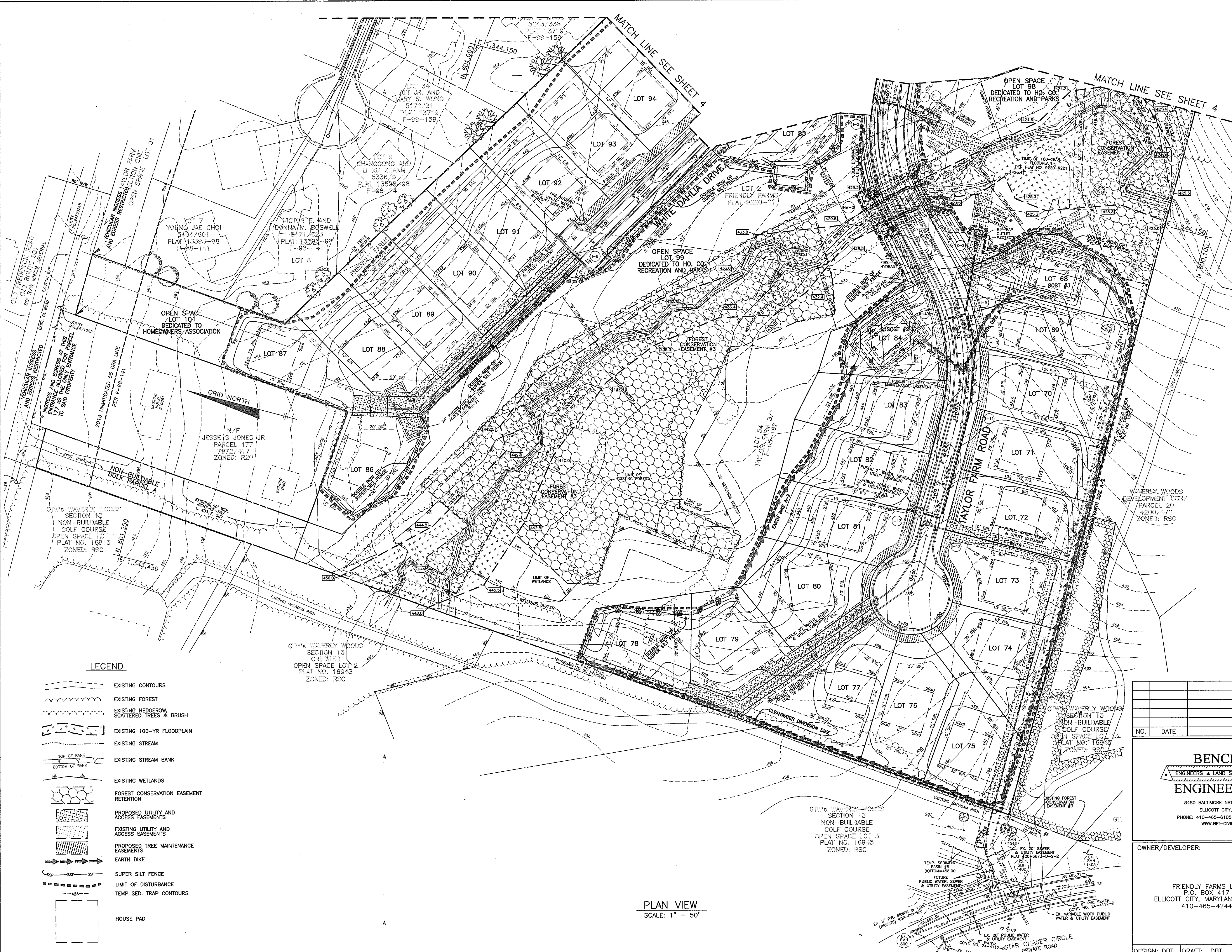
LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309
TAX MAP: 16 GRID: 5 ZONED: R-20
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT & EROSION CONTROL PLAN

DATE: AUGUST, 2007 PROJECT NO. 1585

SCALE: AS SHOWN SHEET 4 OF 22

NOTE:
LOT 55 IS OWNED BY FRIENDLY FARM LLC WHICH IS THE SAME OWNER AS THIS PROJECT. NO LETTER OF PERMISSION FOR GRADING IS REQUIRED.



SOST #2

TYPE OF TRAP	ST-II
DRAINAGE AREA	EXIST = 0.6 AC. PROP. = 2.0 AC.
STORAGE REQUIRED (WET & DRY)	WET=3600 CF DRY=3600 CF
STORAGE PROVIDED (WET & DRY)	WET=5288 CF ELEV=436.00 DRY=5444 CF ELEV=438.00
WEIR LENGTH	10'
EMBANKMENT ELEV.	439.00 (4' WIDE)
WEIR CREST ELEV.	438.00
CLEANOUT ELEV.	434.20
BOTTOM ELEV.	433.00
BOTTOM DIMENSIONS	50'

SOST #3

TYPE OF TRAP	ST-II
DRAINAGE AREA	EXIST = 1.5 AC. PROP. = 2.3 AC.
STORAGE REQUIRED (WET & DRY)	WET=4140 CF DRY=4140 CF
STORAGE PROVIDED (WET & DRY)	WET=6780 CF ELEV=428.00 DRY=6632 CF ELEV=430.00
WEIR LENGTH	10'
EMBANKMENT ELEV.	431.00 (4' WIDE)
WEIR CREST ELEV.	430.00
CLEANOUT ELEV.	426.08
BOTTOM ELEV.	425.00
BOTTOM DIMENSIONS	34'

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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.

Donald Mason 8/21/07
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Steven K. Breeden 8/21/07 DATE
James R. Schulte 8/21/07 DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

Jim Meyer 8/29/07 DATE
USDA - NATURAL RESOURCES CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Donald Mason 8/29/07 DATE
HOWARD SCD

APPROVED: DEPARTMENT OF PUBLIC WORKS

Walter J. Mahall 9-7-07 DATE
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Wendy Hamer 9/15/07 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT

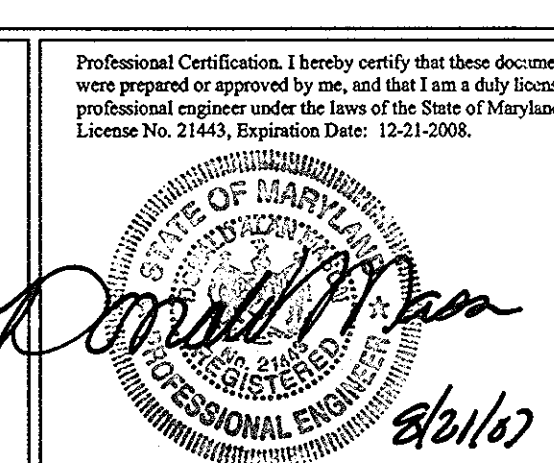
Donald Mason 9/12/07 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION

LEGEND

- EXISTING CONTOURS
- EXISTING FOREST
- EXISTING HEDGEROW, SCATTERED TREES & BRUSH
- EXISTING 100-YR FLOODPLAIN
- EXISTING STREAM
- EXISTING STREAM BANK
- EXISTING WETLANDS
- FOREST CONSERVATION EASEMENT RETENTION
- PROPOSED UTILITY AND ACCESS EASEMENTS
- EXISTING UTILITY AND ACCESS EASEMENTS
- PROPOSED TREE MAINTENANCE EASEMENTS
- EARTH DIKE
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- TEMP. SED. TRAP CONTOURS
- HOUSE PAD

PLAN VIEW
SCALE: 1" = 50'

NO.		DATE		REVISION	
<p align="center">BENCHMARK ENGINEERING, INC.</p> <p align="center">ENGINEERS • LAND SURVEYORS • PLANNERS</p> <p align="center">8480 BALTIMORE NATIONAL PIKE • SUITE 418 ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644 WWW.BE-CVLENGINEERING.COM</p>					
OWNER/DEVELOPER:			PROJECT:		
FRIENDLY FARMS LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244			TAYLOR FARM SECTION THREE, PHASE TWO LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A RESUBDIVISION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)		
DESIGN: DBT			DATE: AUGUST, 2007		
DRAFT: DBT			PROJECT NO. 1585		
CHECK: DAM			SCALE: AS SHOWN		
			SHEET 5 OF 22		



SEDIMENT CONTROL NOTES

TOPSOIL SPECIFICATIONS

30.0 DUST CONTROL

- 1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1850).

- 1. Topsoil salvaged from the existing site may be used provided that it meets that standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type shall be as found in the representative soil profile section in the Soil Survey published by USDA-SSS in cooperation with Maryland Agricultural Experiment Station.

Table with 2 columns: Item, Value. Includes TOTAL AREA OF SITE (23.3 ACRES), AREA DISTURBED (13.9 ACRES), AREA TO BE ROOFED OR PAVED (4.4 ACRES), etc.

- III. For sites having disturbed areas under 5 acres: 1. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

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

- IV. For sites having disturbed areas over 5 acres: 1. On soil meeting topsoil specifications, obtain test results indicating fertilizer and lime amendments required to bring the soil into compliance with the following:

- 11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

- V. Topsoil Application 1. When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, earth dikes, slope silt fence and sediment traps and basins.

TEMPORARY SEEDBED PREPARATIONS

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

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

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 216 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

PERMANENT SEEDBED PREPARATIONS

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

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

SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 1 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (2 LBS/1000 SQ FT) FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (07 LBS/1000 SQ FT) FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 216 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

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

- VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

- a. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

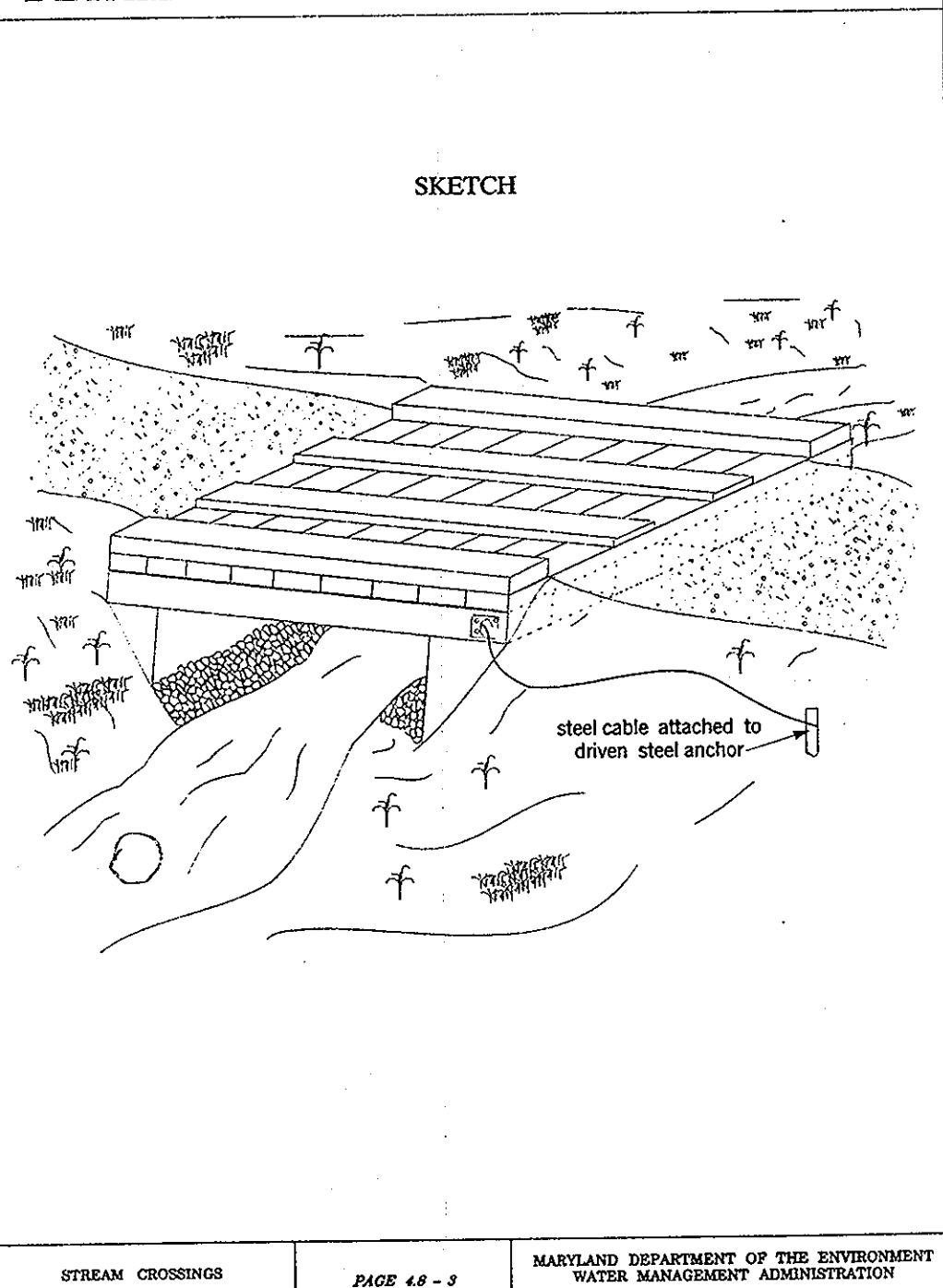
- iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal time application rate.

References: Guidelines Specifications, Soil Preparation and Soddling, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institute, Revised 1973.

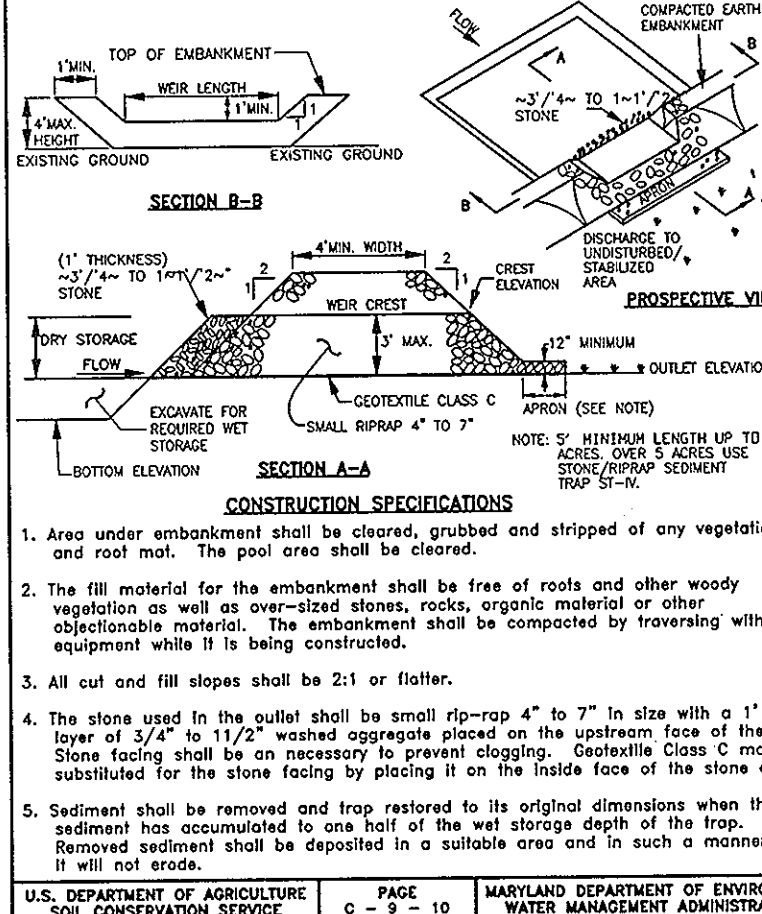
- 1. Controlling dust blowing and movement on construction sites and roads. Purpose: To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.

- 1. Permanent Vegetation - See standards for permanent vegetation cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.

Maryland's Guidelines To Waterway Construction DETAIL 4.8: TEMPORARY ACCESS BRIDGE



DETAIL 9 - STONE OUTLET SEDIMENT TRAP - ST II



STONE OUTLET SEDIMENT TRAP - ST II

- 6. The structure shall be inspected periodically and after each rain and repairs made as needed.

Table with 4 columns: U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, PAGE, MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION, PAGE.

MGCWC 4.8: TEMPORARY ACCESS BRIDGE

Temporary stream crossing intended for minimum corridor disturbance

- DESCRIPTION: A temporary access bridge is a stream crossing made of wood, metal, or other materials designed to limit the amount of disturbance to the stream banks and bed.

- MATERIAL SPECIFICATIONS: 1. Stringers: Stringers should either be logs, sawn timber, prestressed concrete beams, metal beams, or other approved materials.

- CONSTRUCTION SEQUENCE: All erosion and sediment control devices, including stream diversions, should be implemented as the first order of business according to a plan approved by the WMA or local authority.

- 1. Abutments should be placed parallel to, and on, stable banks such that the structure is at or above bankfull depth to prevent the entrapment of floating materials and debris.

Table with 4 columns: STREAM CROSSINGS, PAGE, MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION, PAGE.

MGCWC 4.8: TEMPORARY ACCESS BRIDGE

Temporary stream crossing intended for minimum corridor disturbance

- 7. All areas disturbed during installation should be stabilized within 14 calendar days in accordance with a revegetation plan approved by the WMA.

- CONSTRUCTION SEQUENCE: All erosion and sediment control devices, including stream diversions, should be implemented as the first order of business according to a plan approved by the WMA or local authority.

- 1. Abutments should be placed parallel to, and on, stable banks such that the structure is at or above bankfull depth to prevent the entrapment of floating materials and debris.

Table with 4 columns: STREAM CROSSINGS, PAGE, MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION, PAGE.

SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT. (DAY 1)
- 2. INSTALL STABILIZED CONSTRUCTION ENTRANCE, TEMPORARY ACCESS BRIDGE, TREE PROTECTION FENCES, SUPER SILT FENCES, AND TEMPORARY CLEANWATER DIVERSION DIKES. (DAY 2-12)

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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: Donald A. Mason, P.E. # 21443 DATE: 6/28/07

DEVELOPER'S CERTIFICATE

I HAVE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: James R. Moxley III DATE: 6/28/07

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

Signature: Steven K. Breeden DATE: 7/17/07

Signature: John L. Robinson DATE: 7/17/07

APPROVED: DEPARTMENT OF PUBLIC WORKS

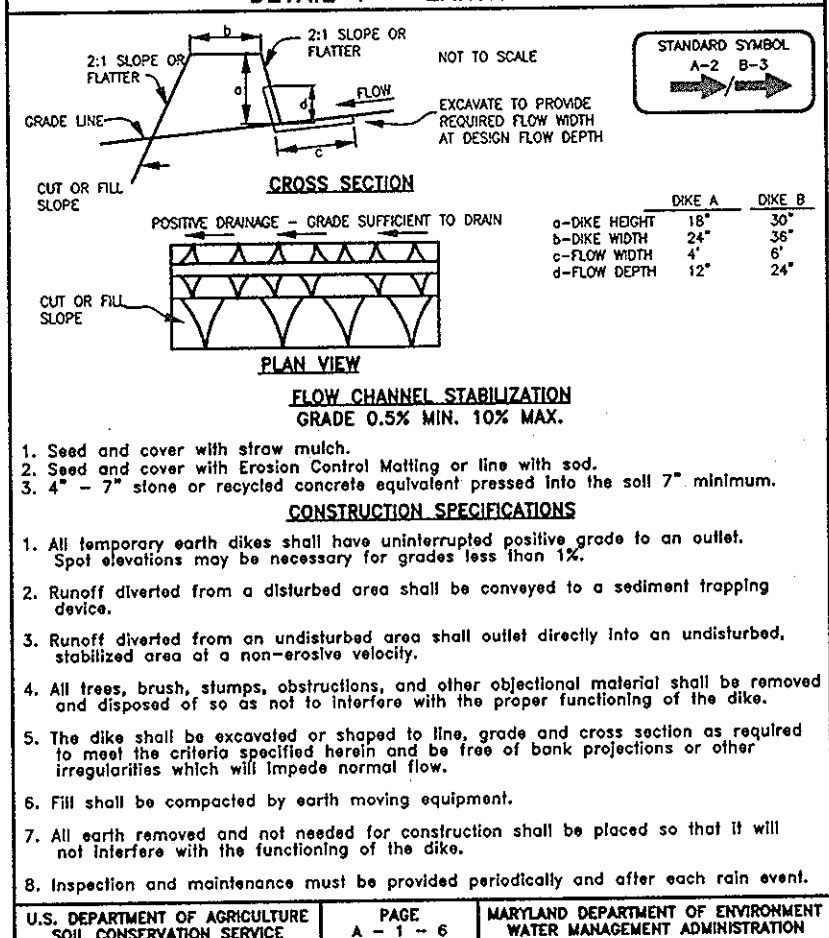
Signature: William S. Marshall DATE: 7-20-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING

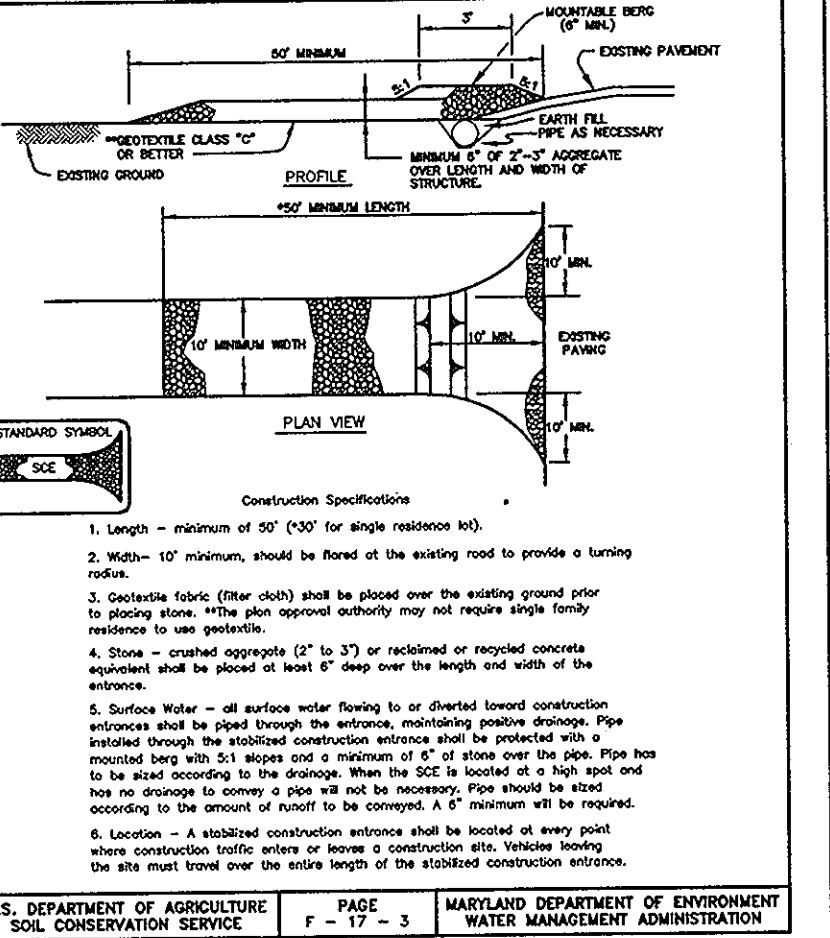
Signature: Cindy Stambaugh DATE: 7/18/07

Signature: Chris Peterson DATE: 7/24/07

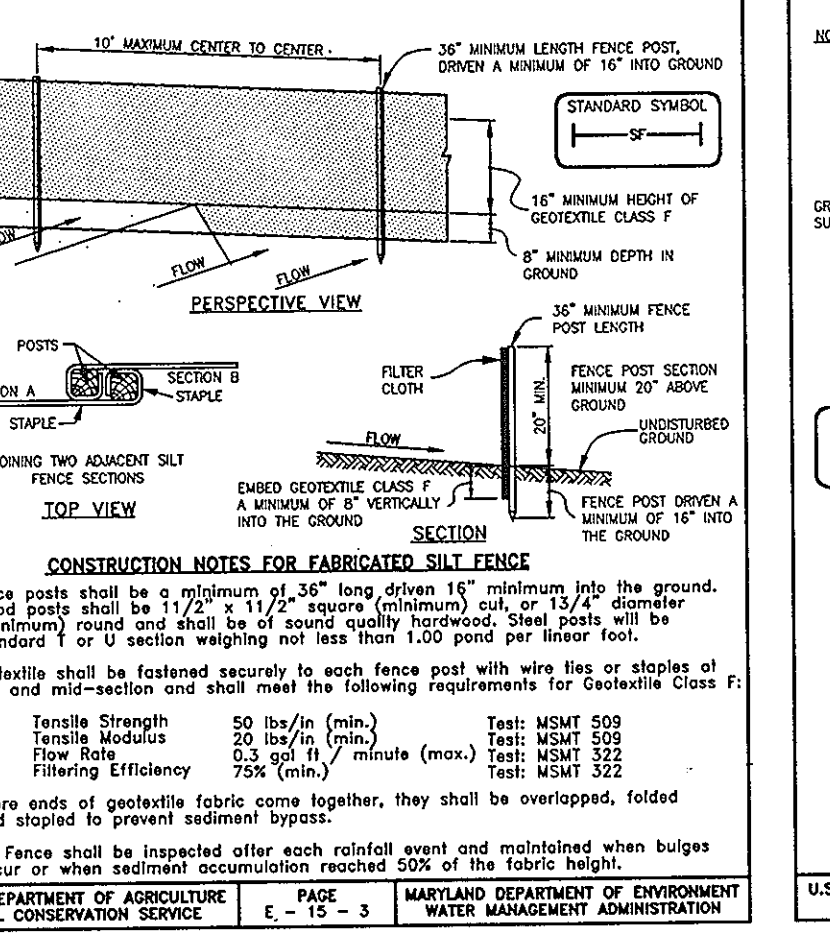
DETAIL 1 - EARTH DIKE



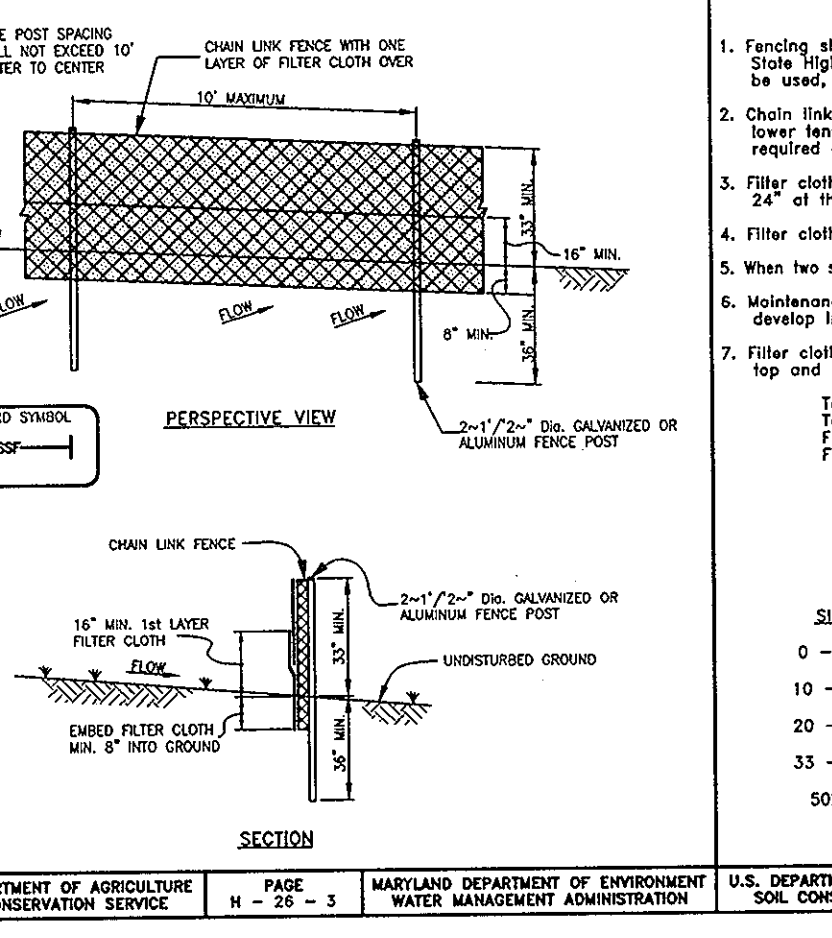
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



DETAIL 22 - SILT FENCE



DETAIL 33 - SUPER SILT FENCE

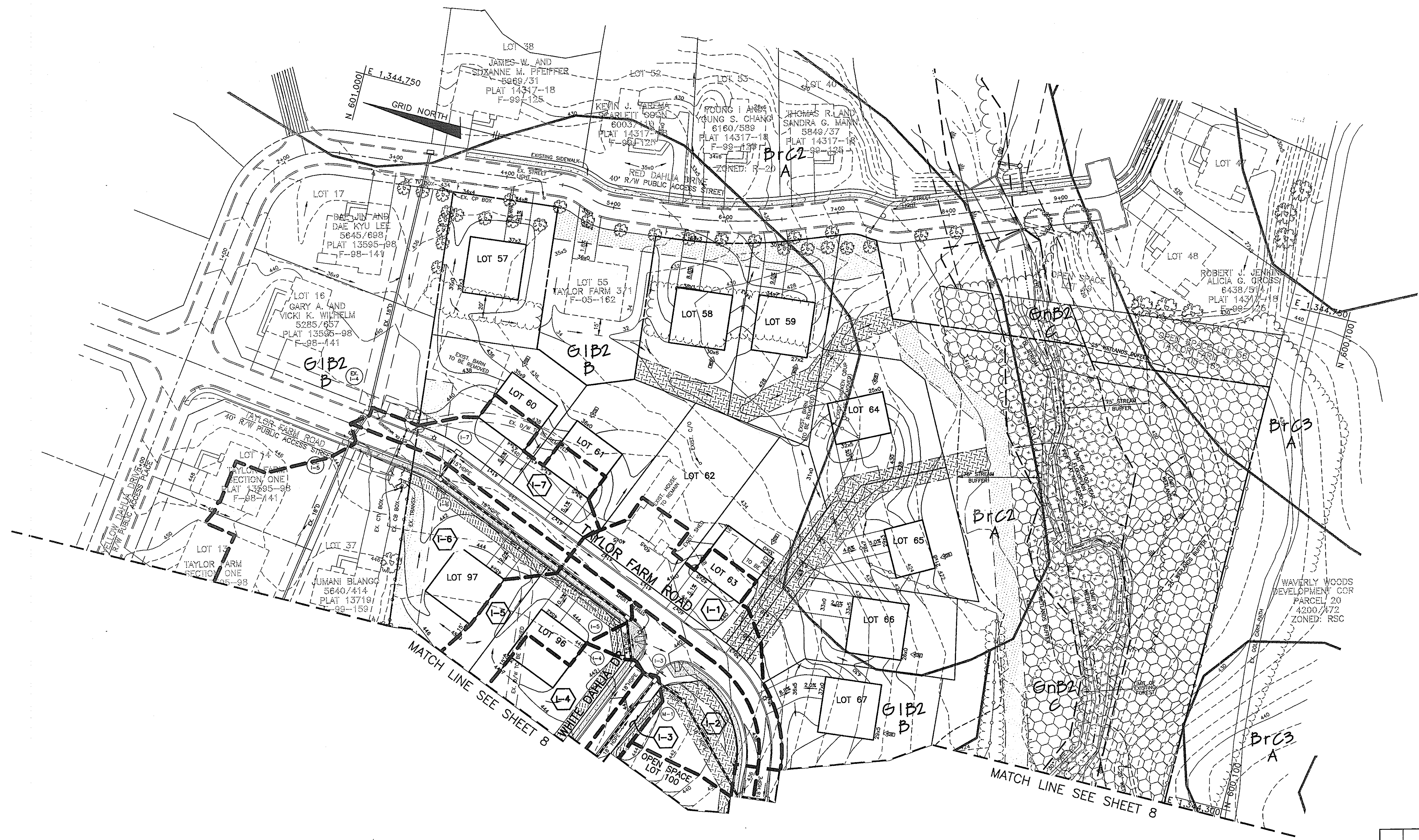


SUPER SILT FENCE

- CONSTRUCTION SPECIFICATIONS: 1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Safety Plan for Chain Link Fencing.

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS logo and contact information.

Table with 2 columns: OWNER/DEVELOPER, PROJECT. Includes Taylor Farm Section Three, Phase Two.



LEGEND

- EXISTING CONTOURS
- EXISTING FOREST
- EXISTING HEDGEROW, SCATTERED TREES & BRUSH
- EXISTING 100-YR FLOODPLAIN
- EXISTING STREAM
- EXISTING STREAM BANK
- EXISTING WETLANDS
- PROPOSED UTILITY AND ACCESS EASEMENTS
- EXISTING UTILITY AND ACCESS EASEMENTS
- PROPOSED TREE MAINTENANCE EASEMENTS
- FOREST CONSERVATION EASEMENT
- SOILS DELINEATION LINE
- SOILS TYPE
- DRAINAGE AREA DIVIDE
- DRAINAGE AREA DESIGNATION

PLAN VIEW
SCALE: 1" = 50'

STORM DRAIN DATA					
INLET NO.	AREA (AC)	'C' FACTOR	SOIL CLASS	ZONING	% IMPERVIOUS
I-1	0.48	0.45	B,C	RC-20	50.0
I-2	0.40	0.60	B,C	RC-20	63.5
I-3	0.10	0.51	B	RC-20	50.0
I-4	0.37	0.43	B	RC-20	53.1
I-5	0.41	0.35	B	RC-20	44.0
I-6	1.80	0.30	B	RC-20	35.2
I-7	0.26	0.40	B	RC-20	46.5
I-8	1.09	0.40	B	RC-20	49.9
I-9	0.20	0.43	B	RC-20	53.5
I-10	0.36	0.46	B	RC-20	56.9
I-11	0.61	0.35	B	RC-20	44.1
I-12	1.12	0.31	B	RC-20	35.9
I-13	0.30	0.50	B,C	RC-20	60.7

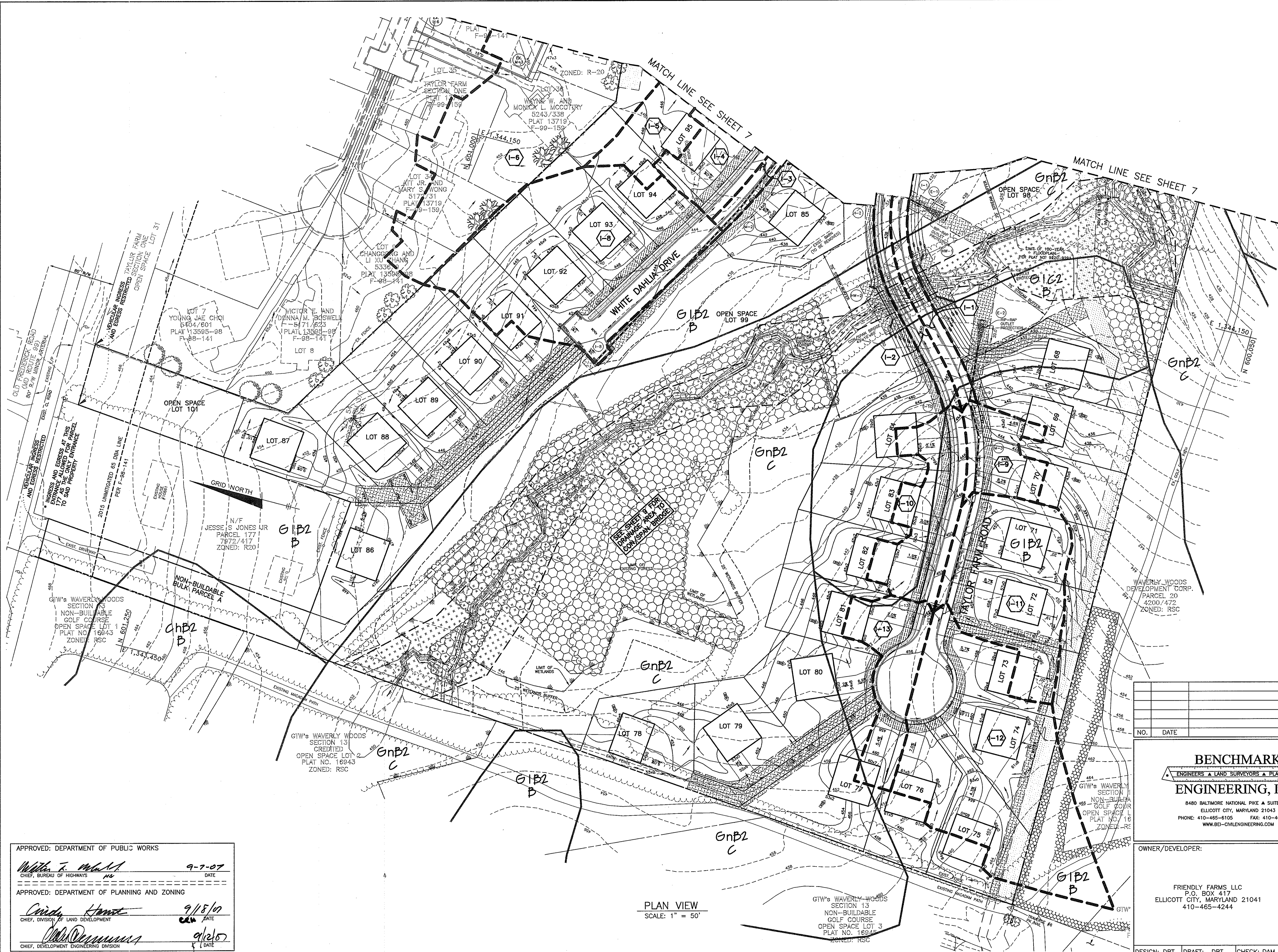
NO.		DATE		REVISION	
<p>BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC.</p> <p>8480 BALTIMORE NATIONAL PIKE & SUITE 418 ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644 WWW.BEI-CIVILENGINEERING.COM</p>			<p>Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21464, Expiration Date: 12-31-2008.</p>		
<p>OWNER/DEVELOPER: FRIENDLY FARMS LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244</p>			<p>PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A RESUBDIVISION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)</p> <p>LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309 TAX MAP: 16 GRID: 5 ZONED: R-20 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> <p>TITLE: STORM DRAIN DRAINAGE AREA MAP</p> <p>DATE: AUGUST, 2007 PROJECT NO. 1585</p> <p>DESIGN: DBT DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 7 OF 22</p>		

GRADES SHOWN ON THIS PLAN REPRESENT ULTIMATE GRADING.

APPROVED: DEPARTMENT OF PUBLIC WORKS
William S. Cantello 9-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
David H. Hunt 9/15/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John P. ... 9/16/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



- LEGEND**
- EXISTING CONTOURS
 - EXISTING FOREST
 - EXISTING HEDGEROW SCATTERED TREES & BRUSH
 - EXISTING 100-YR FLOODPLAIN
 - EXISTING STREAM
 - EXISTING STREAM BANK
 - EXISTING WETLANDS
 - PROPOSED UTILITY AND ACCESS EASEMENTS
 - EXISTING UTILITY AND ACCESS EASEMENTS
 - PROPOSED TREE MAINTENANCE EASEMENTS
 - FOREST CONSERVATION EASEMENT
 - SOILS DELINEATION LINE
 - SOILS TYPE
 - DRAINAGE AREA DIVIDE
 - DRAINAGE AREA DESIGNATION

GRADES SHOWN ON THIS PLAN REPRESENT ULTIMATE GRADING.

NO.	DATE	REVISION

BENCHMARK
ENGINEERS • LAND SURVEYORS • PLANNERS

ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE • SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CVLENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 31443, Expiration Date: 12-31-2008.

[Signature]
8/21/07

OWNER/DEVELOPER:	PROJECT:
FRIENDLY FARMS LLC P.O. BOX 417 ELLCOTT CITY, MARYLAND 21041 410-465-4244	TAYLOR FARM SECTION THREE, PHASE TWO LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A RESUBDIVISION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)
DESIGN: DBT	LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309 TAX MAP: 16 GRID: 5 ZONED: R-20 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DRAFT: DBT	TITLE: STORM DRAIN DRAINAGE AREA MAP
CHECK: DAM	DATE: AUGUST, 2007 PROJECT NO. 1585
SCALE: AS SHOWN	SHEET 8 OF 22

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature] 9-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

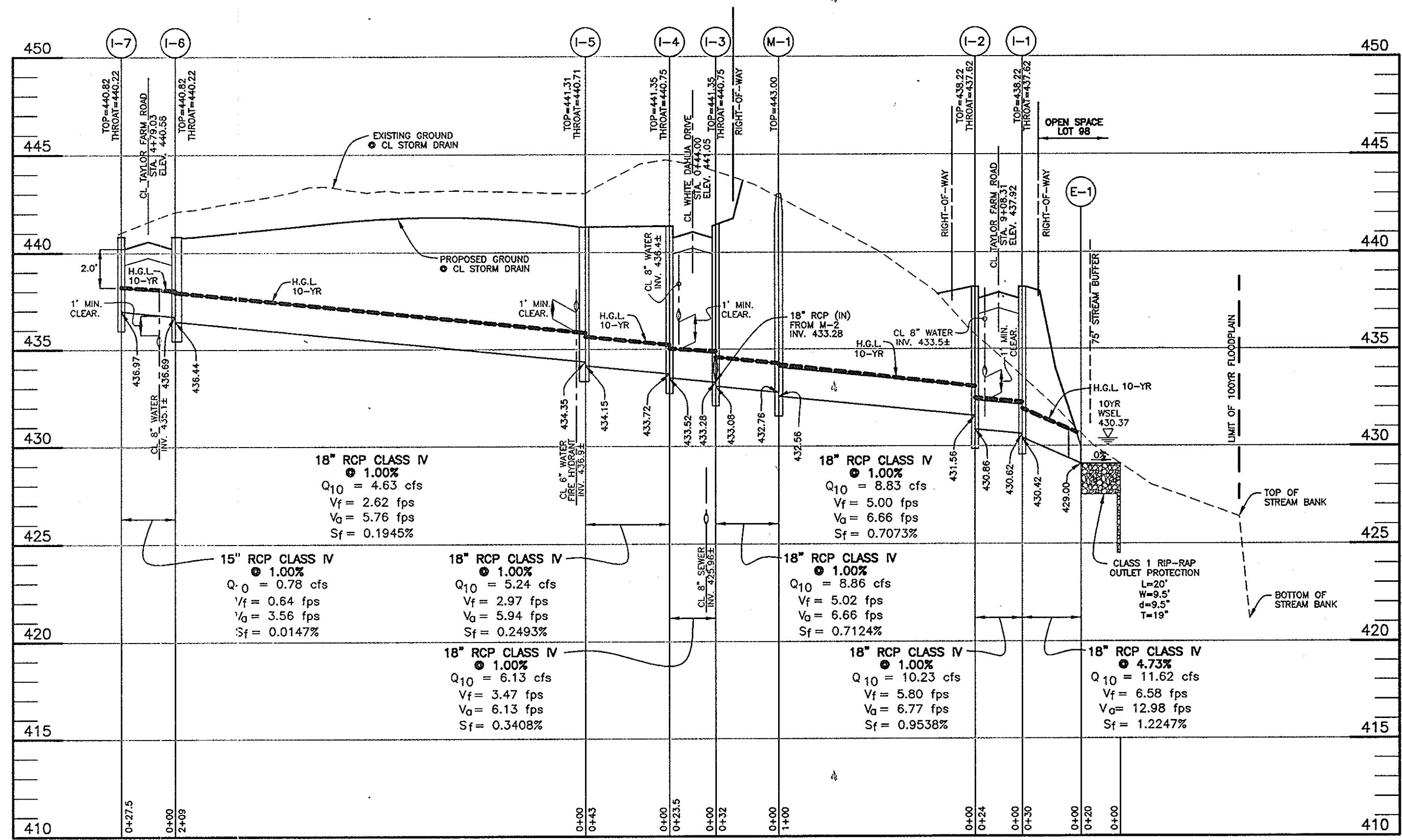
APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 9/18/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

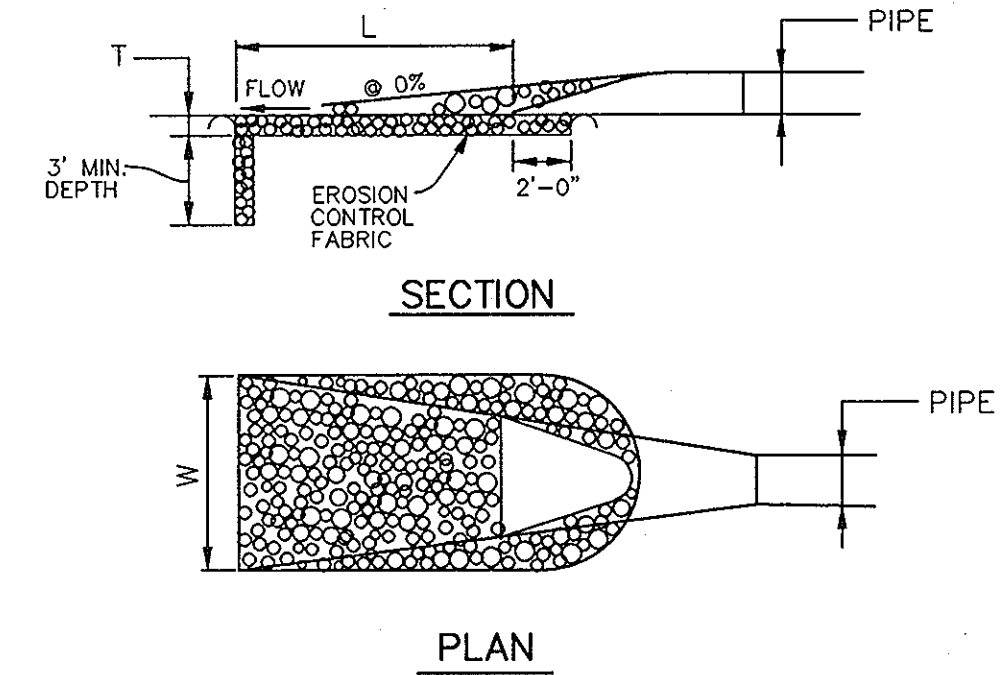
[Signature] 9/25/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

PLAN VIEW
SCALE: 1" = 50'

GIW's WAVERLY WOODS SECTION 13 NON-BUILDABLE GOLF COURSE OPEN SPACE LOT 3 PLAT NO. 16845 ZONED: RSC



- CONSTRUCTION SPECIFICATIONS**
- THE SUBGRADE FOR THE FILTER, RIP-RAP, 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 RIP-RAP OR FILTER.
 - GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
 - STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL 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 THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
 - THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

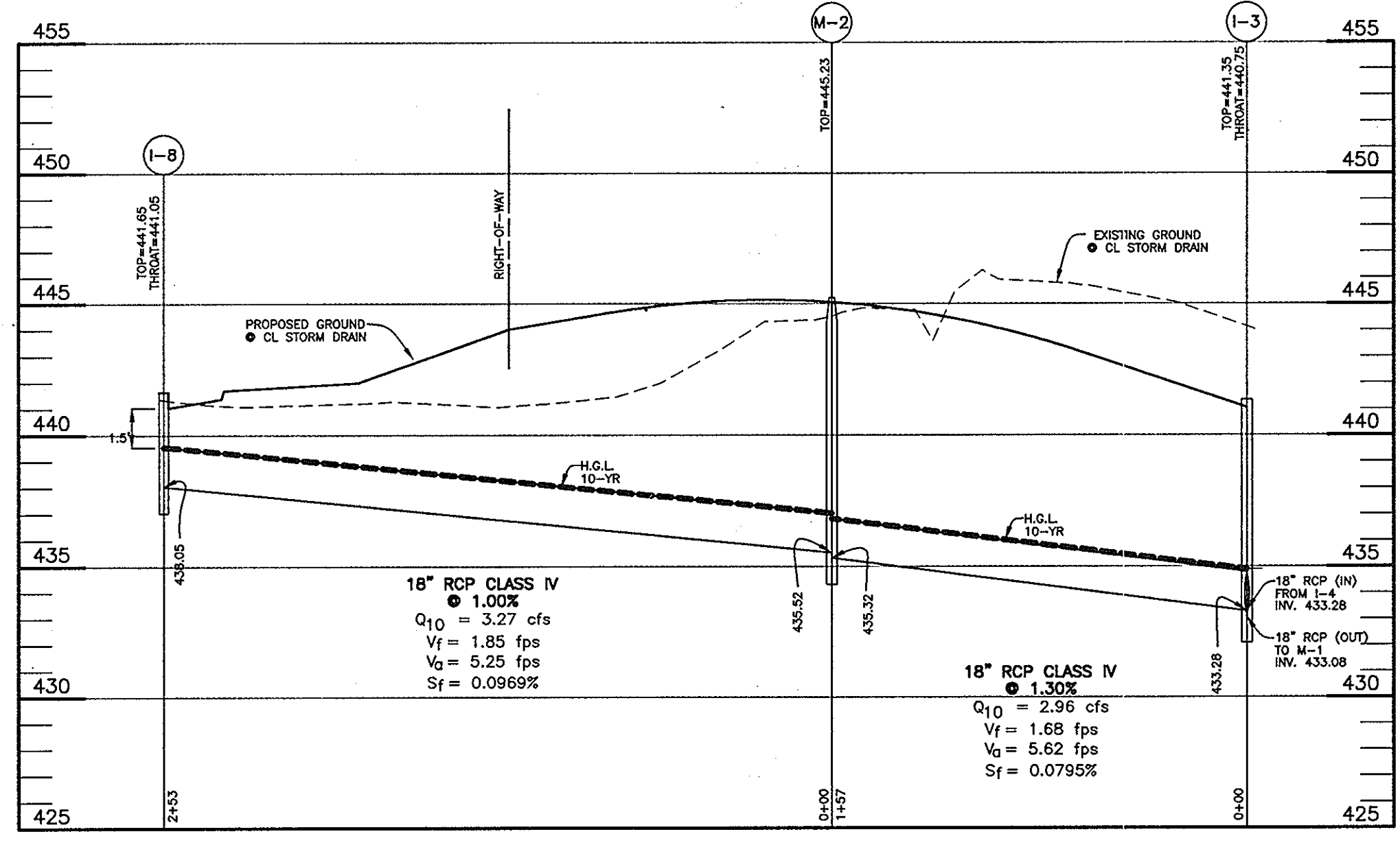
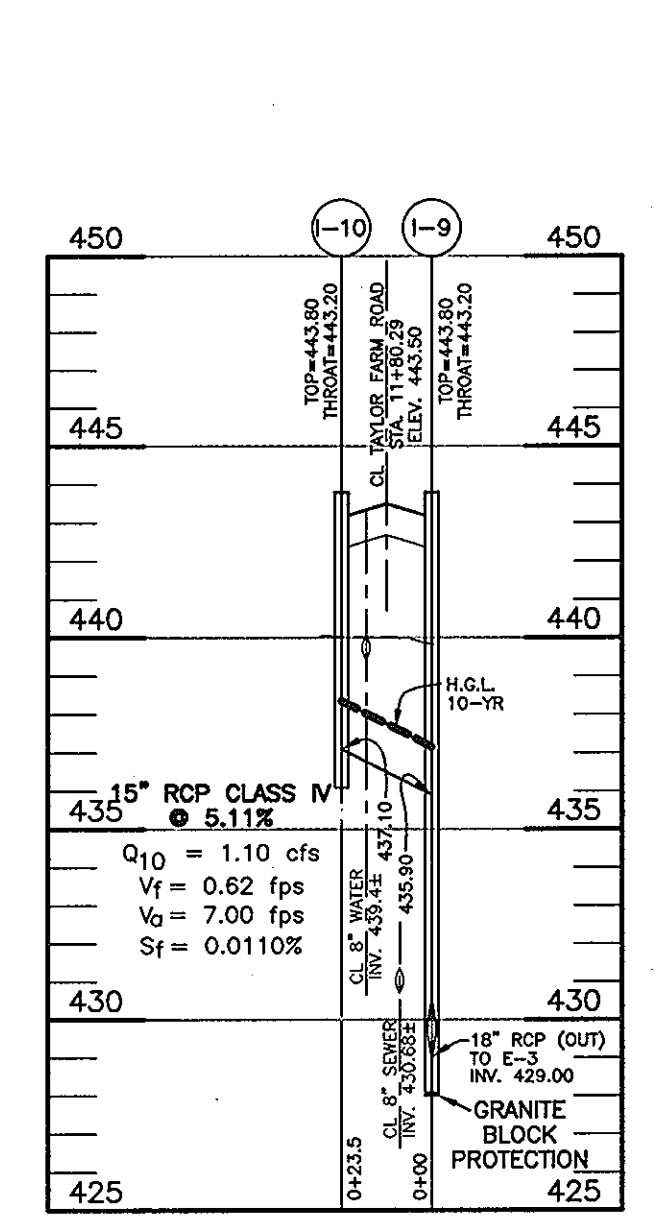
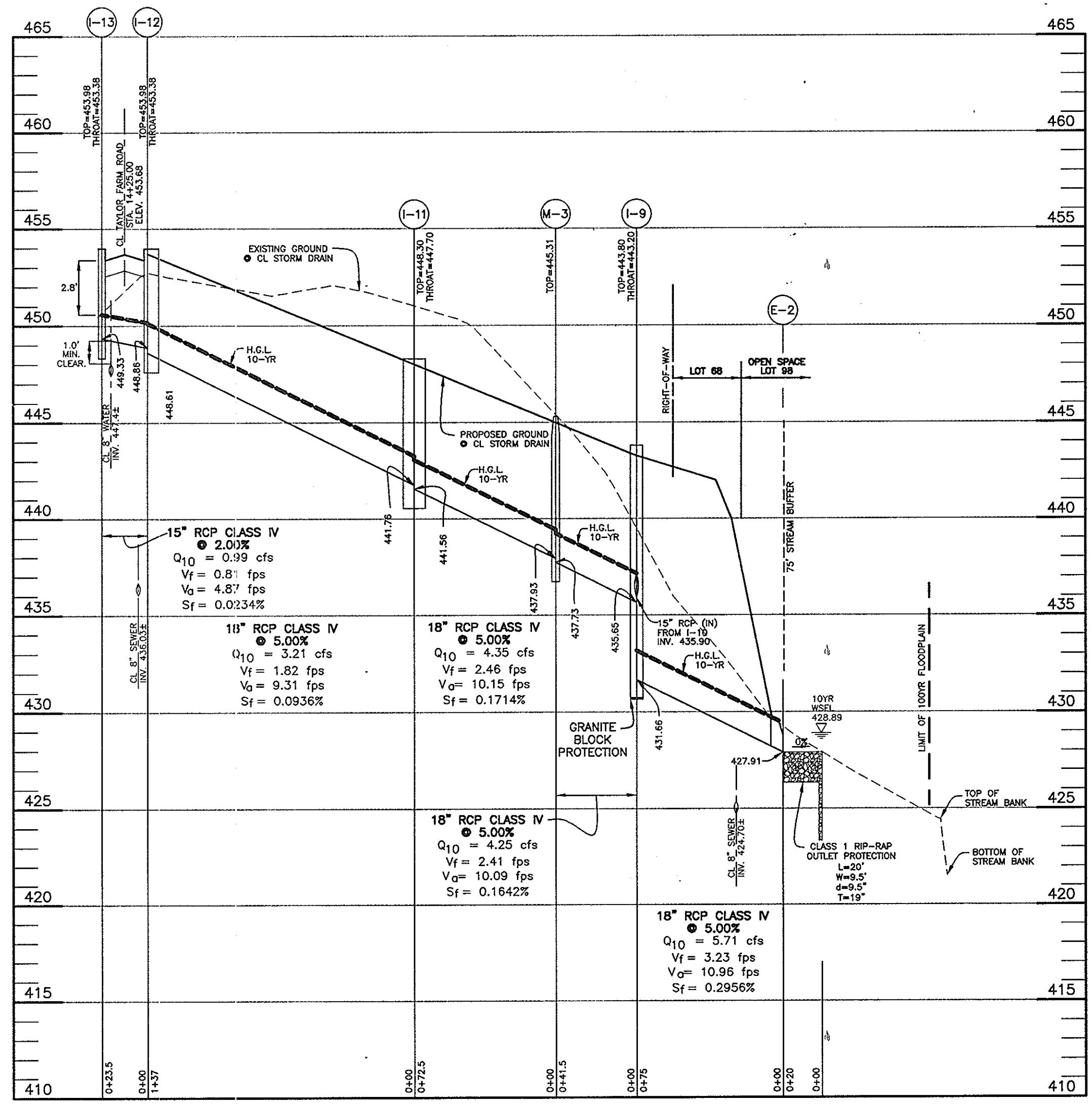


STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
E-1	9.5"	20'	9.5'	19"	I
E-2	9.5"	20'	9.5'	19"	I

OUTLET PROTECTION DETAIL
NOT TO SCALE

STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	PIPE INV. IN	PIPE INV. OUT	TOP ELEV.	HO. CO. STD.
E-1	18" CONC. END SECT.	N 600463.6275 E 1344201.6810	NA	429.00	NA	SD - 5.51
E-2	18" CONC. END SECT.	N 600360.2715 E 1344063.7619	NA	427.91	NA	SD - 5.51
I-1	A-5	CL STA. 9+08.31 OFFSET 10.43' LEFT TAYLOR FARM ROAD	430.62	430.42	438.22	SD - 4.01
I-2	A-5	CL STA. 9+08.31 OFFSET 10.43' RIGHT TAYLOR FARM ROAD	431.56	430.86	438.22	SD - 4.01
I-3	A-5	CL STA. 0+44.00 OFFSET 10.43' LEFT WHITE DAHLIA DRIVE	433.28	433.08	441.35	SD - 4.01
I-4	A-5	CL STA. 0+44.00 OFFSET 10.43' RIGHT WHITE DAHLIA DRIVE	433.72	433.52	441.35	SD - 4.01
I-5	A-5	CL STA. 6+88.00 OFFSET 12.43' RIGHT TAYLOR FARM ROAD	434.35	434.15	441.31	SD - 4.01
I-6	A-5	CL STA. 4+79.03 OFFSET 12.47' RIGHT TAYLOR FARM ROAD	436.69	436.44	440.82	SD - 4.01
I-7	A-5	CL STA. 4+79.03 OFFSET 12.40' LEFT TAYLOR FARM ROAD	NA	436.97	440.82	SD - 4.01
I-8	A-5	CL STA. 4+49.17 OFFSET 26.83' LEFT WHITE DAHLIA DRIVE	NA	438.05	441.65	SD - 4.01
I-9	A-5	CL STA. 11+80.29 OFFSET 10.41' LEFT TAYLOR FARM ROAD	435.90 (15') 435.95 (18')	431.66	443.80	SD - 4.01
I-10	A-5	CL STA. 11+80.29 OFFSET 10.45' RIGHT TAYLOR FARM ROAD	NA	437.10	443.80	SD - 4.01
I-11	A-10	CL STA. 12+88.49 OFFSET 10.37' LEFT TAYLOR FARM ROAD	441.76	441.56	448.30	SD - 4.02
I-12	A-10	CL STA. 14+25.00 OFFSET 10.43' RIGHT TAYLOR FARM ROAD	448.86	448.61	453.98	SD - 4.02
I-13	A-5	CL STA. 14+25.00 OFFSET 10.43' LEFT TAYLOR FARM ROAD	NA	449.33	453.98	SD - 4.01
M-1	4'-0" MANHOLE	CL STA. 0+44.00 OFFSET 43.75' LEFT WHITE DAHLIA DRIVE	432.76	432.56	443.00	G - 5.12
M-2	4'-0" MANHOLE	CL STA. 1+99.46 OFFSET 15.00' LEFT WHITE DAHLIA DRIVE	435.52	435.32	445.23	G - 5.12
M-3	4'-0" MANHOLE	CL STA. 12+19.58 OFFSET 15.00' LEFT TAYLOR FARM ROAD	437.93	437.73	445.31	G - 5.12
HW-1	SEE SHEETS 14-20	CL STA. 10+29.25 OFFSET 30.00' LEFT TAYLOR FARM ROAD	NA	NA	432.25	NA
HW-2	SEE SHEETS 14-20	CL STA. 10+29.25 OFFSET 30.00' RIGHT TAYLOR FARM ROAD	NA	NA	432.25	NA

- STRUCTURE ELEVATION AND LOCATION FOR MANHOLES IS AT THE TOP / CENTER OF RIM.
 - STRUCTURE ELEVATION AND LOCATION FOR INLETS IS AT THE FRONT MIDPOINT OF THE INLET.
 - STRUCTURE ELEVATION AND LOCATION FOR HEADWALLS IS AT THE MIDPOINT OF THE FRONT OF STRUCTURE.
 - STRUCTURE ELEVATION AND LOCATION FOR ENDSECTIONS IS AT THE MIDPOINT OF THE END OF STRUCTURE.
 - PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.
- | PIPE SCHEDULE | | |
|-----------------------|---------|--------------------------|
| PIPE SIZE | LENGTH | TYPE |
| 15" | 74.5' | RCCP CLASS IV |
| 18" | 1197.5' | RCCP CLASS IV |
| 42' span x 10' height | 60' | ASTM C150 TYPE 1, 2 OR 3 |



APPROVED: DEPARTMENT OF PUBLIC WORKS
W. J. ...
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 7-20-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy ...
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 9/15/07

...
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 7/24/07

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 8480 BALTIMORE NATIONAL PIKE • SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-6644
 WWW.BEI-CIVILENGINEERING.COM

OWNER/DEVELOPER: FRIENDLY FARMS LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO
 LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A'
 A RESUBDIVISION OF LOT 84 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)

LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309
 TAX MAP: 18 GRID: 5 ZONED: R-20
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES

DATE: JULY, 2007 PROJECT NO. 1585

DESIGN: DBT DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 10 OF 22



- LANDSCAPE NOTES:**
- TREES SHOULD BE PLANTED A MINIMUM OF 6 FEET FROM THE EDGE OF PAVING AND MUST BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.
 - TREES MUST BE PLANTED A MINIMUM OF 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.
 - SEE TREE PLANTING DETAIL - THIS SHEET.
 - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
 - AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWIT LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE 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 RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.
 - THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, 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.
 - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$20,850.00. (\$19,200.00 FOR 64 SHADE TREES, \$1,650.00 FOR 11 EVERGREENS)
 - TREE HEIGHTS AT MATURITY SHALL BE 25 FEET MAXIMUM WITHIN THE "GREEN ZONE". TREE HEIGHTS AT MATURITY SHALL BE 40 FEET MAXIMUM WITHIN THE "YELLOW ZONE". IF TREES ARE TO BE PLANTED ON BERMS THE TREE HEIGHTS SHALL BE REDUCED BY THE HEIGHT OF THE BERM AS MEASURED ABOVE MEAN GROUND ELEVATION OF THE UTILITY POLE LINE.

PUBLIC STREET TREE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
	56	ACER RUBRUM (October Glory Red Maple)	2 1/2" - 3" cal.	STREET TREES TO BE PROVIDED BY THE DEVELOPER
	19	TILIA CORDATA (Greenspire Littleleaf Linden)	2 1/2" - 3" cal.	

LANDSCAPE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
	49	ACER SACCHARUM (Green Mountain Sugar Maple)	2-1/2" - 3" cal.	SHADE TREES ALONG PERIMETER TO BE PROVIDED BY THE DEVELOPER
	35	PINUS STROBUS (Eastern White Pine)	6' - 8' ht.	EVERGREEN TREES ALONG PERIMETER TO BE PROVIDED BY THE DEVELOPER
	6	ILEX OPACA (American Holly)	5' - 6' ht.	

STREET TREE SCHEDULE			
ROAD NAME	PERIMETER	TREES REQ.	TREES PROV.
TAYLOR FARM ROAD	2235'	56	56
WHITE DAHLIA DRIVE	744'	19	19
TOTAL		75	75

SCHEDULE A PERIMETER LANDSCAPE EDGE							
CATEGORY	ADJ. TO PERIMETER PROPERTY (1)	ADJ. TO PERIMETER PROPERTY (2)	ADJ. TO PERIMETER PROPERTY (3)	ADJ. TO ROADS (4)	ADJ. TO PERIMETER PROPERTY (5)	ADJ. TO ROADS (6)	ADJ. TO ROADS (7)
LANDSCAPE TYPE	A	A	A	B	B	B	B
	1:60 (SHADE)	1:60 (SHADE)	1:60 (SHADE)	1:50 (SHADE) 1:40 (EVERGREEN)	1:50 (SHADE) 1:40 (EVERGREEN)	1:50 (SHADE) 1:50 (SHADE)	1:50 (SHADE) 1:50 (SHADE)
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	211'	2577'	532'	75'	970'	193'	128'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	YES* 1098'	NO	NO	NO	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED	211'	1479'	532'	75'	970'	193'	128'
SHADE TREES	4	25	9	2	17	4	3
EVERGREEN TREES	-	-	-	2	-	5	4
OTHER TREES (2-1 SUBSTITUTE)	-	-	-	-	-	-	-
SHRUBS	-	-	-	-	-	-	-
NUMBER OF PLANTS PROVIDED	0	25	0	0	17	4	3
SHADE TREES	8**	-	0	6**	-	5	4
EVERGREEN TREES	-	-	18**	-	-	-	4
OTHER TREES (2-1 SUBSTITUTE)	-	-	-	-	-	-	-
SHRUBS	-	-	-	-	-	-	-

*EXISTING WOODS 20' OR GREATER IN WIDTH
**EVERGREEN TREES SUBSTITUTED AT A 2:1 RATIO

PLAN VIEW
SCALE: 1" = 50'

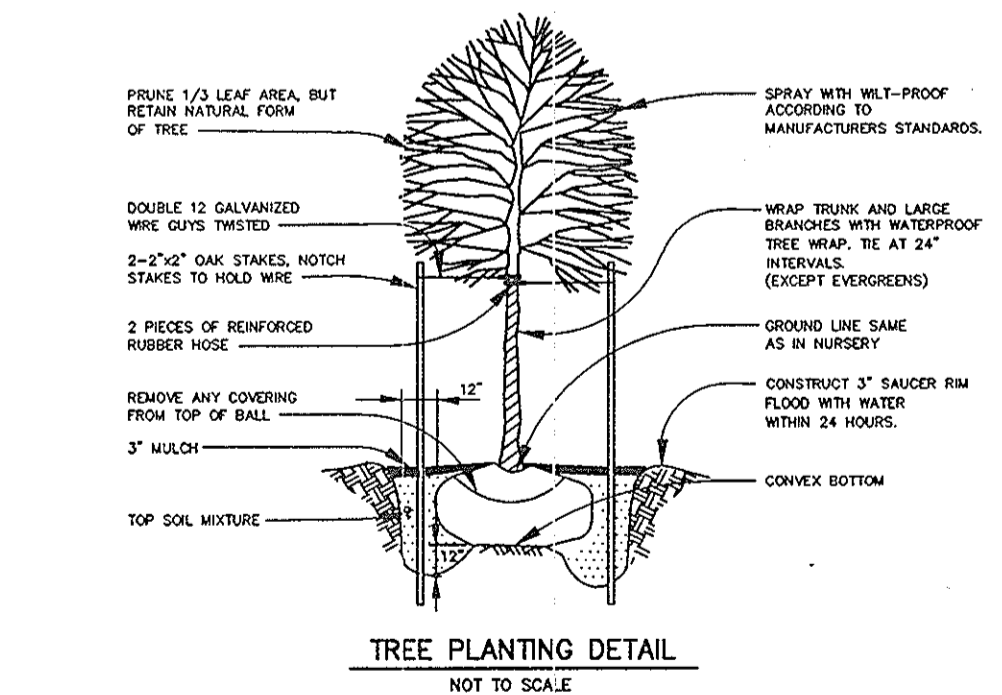
LEGEND

- EXISTING FOREST
- EXISTING HEDGEROW, SCATTERED TREES & BRUSH
- EXISTING 100-YR FLOODPLAIN
- EXISTING STREAM
- EXISTING STREAM BANK
- EXISTING WETLANDS
- FOREST CONSERVATION EASEMENT
- PROPOSED UTILITY AND ACCESS EASEMENTS
- EXISTING UTILITY AND ACCESS EASEMENTS
- PROPOSED TREE MAINTENANCE EASEMENTS
- PERIMETER LANDSCAPE EDGE
- LENGTH OF CREDIT FOR EXISTING WOODS 20' OR GREATER

DEVELOPER'S/BUILDER'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 OF 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.

Stu 8/21/07 DATE *James R. Schulte* 8/21/07 DATE
STEVEN K. BREEDEN DATE JAMES R. SCHULTE DATE

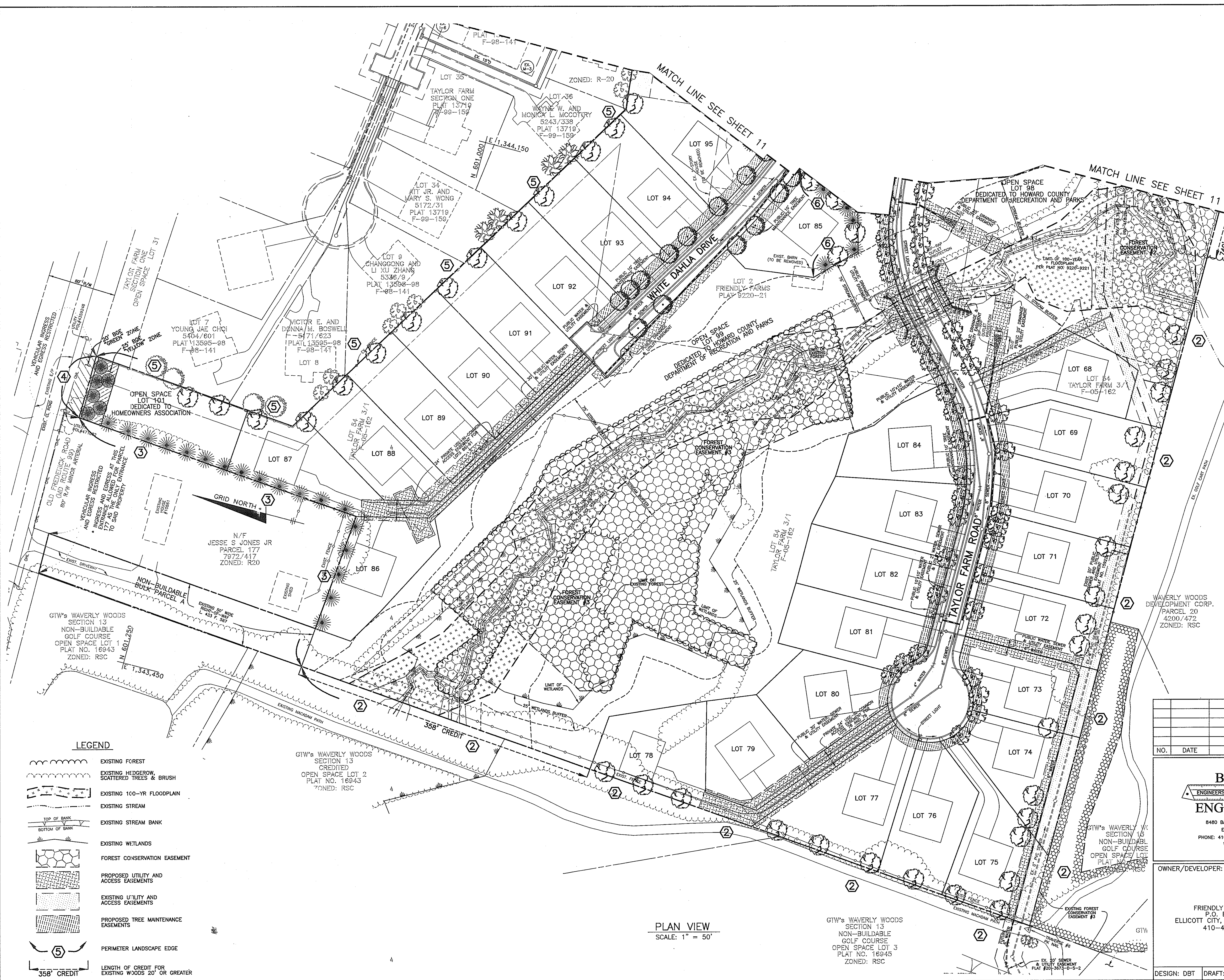


APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter Z... 9-7-07 DATE
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy... 9/15/07 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT

W... 9/26/07 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.		DATE	REVISION
<p align="center">BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC.</p> <p align="center">8480 BALTIMORE NATIONAL PIKE SUITE 418 ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644 WWW.BEI-CIVILENGINEERING.COM</p>			
OWNER/DEVELOPER:		PROJECT:	
FRIENDLY FARMS LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244		SECTION THREE, PHASE TWO LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A RESUBDIVISION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)	
LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309 TAX MAP: 16 GRID: 5 ZONED: R-20 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND		TITLE: PERIMETER LANDSCAPE AND STREET TREE PLAN	
DATE: AUGUST, 2007		PROJECT NO. 1585	
DESIGN: DBT	DRAFT: DBT	CHECK: DAM	SCALE: AS SHOWN SHEET 11 OF 22



DEVELOPER'S/BUILDER'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 OF 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.

SK 8/24/07 *JRS* 8/24/07
 STEVEN K. BREEDEN DATE JAMES R. SCHULTE DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

W. J. M... 9-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamer 9/15/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 9/12/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

- LEGEND**
- EXISTING FOREST
 - EXISTING HEDGEROW, SCATTERED TREES & BRUSH
 - EXISTING 100-YR FLOODPLAIN
 - EXISTING STREAM
 - EXISTING STREAM BANK
 - EXISTING WETLANDS
 - FOREST CONSERVATION EASEMENT
 - PROPOSED UTILITY AND ACCESS EASEMENTS
 - EXISTING UTILITY AND ACCESS EASEMENTS
 - PROPOSED TREE MAINTENANCE EASEMENTS
 - PERIMETER LANDSCAPE EDGE
 - LENGTH OF CREDIT FOR EXISTING WOODS 20' OR GREATER

PLAN VIEW
 SCALE: 1" = 50'

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 8480 BALTIMORE NATIONAL PIKE • SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-6644
 WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21443, Expiration Date: 12-31-2008.

[Signature] 8/24/07
 PROFESSIONAL ENGINEER

OWNER/DEVELOPER: FRIENDLY FARMS LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

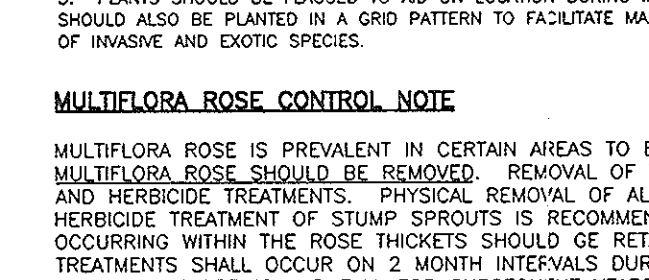
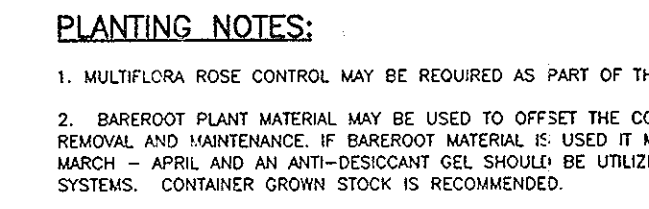
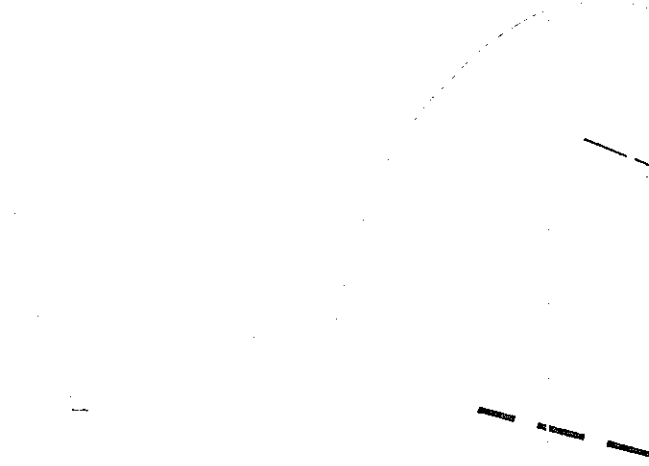
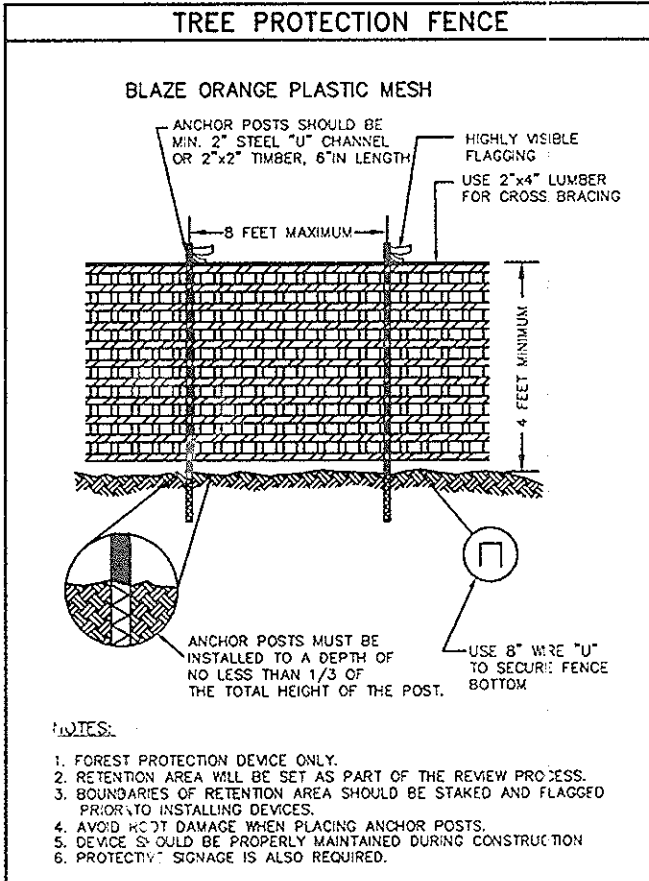
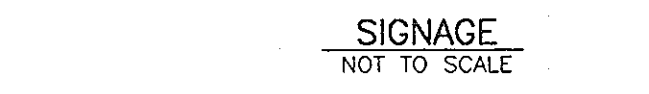
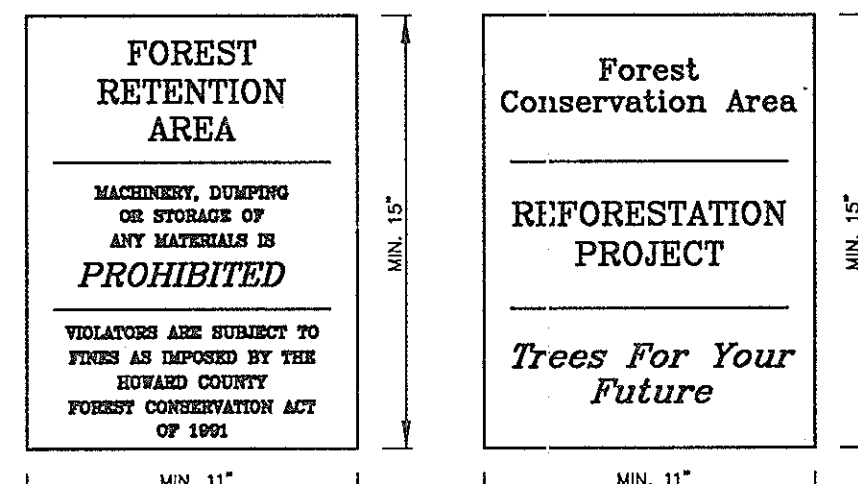
PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO
 LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A'
 A RESUBDIVISION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)

LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309
 TAX MAP: 15 GRID: 5 ZONED: R-20
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

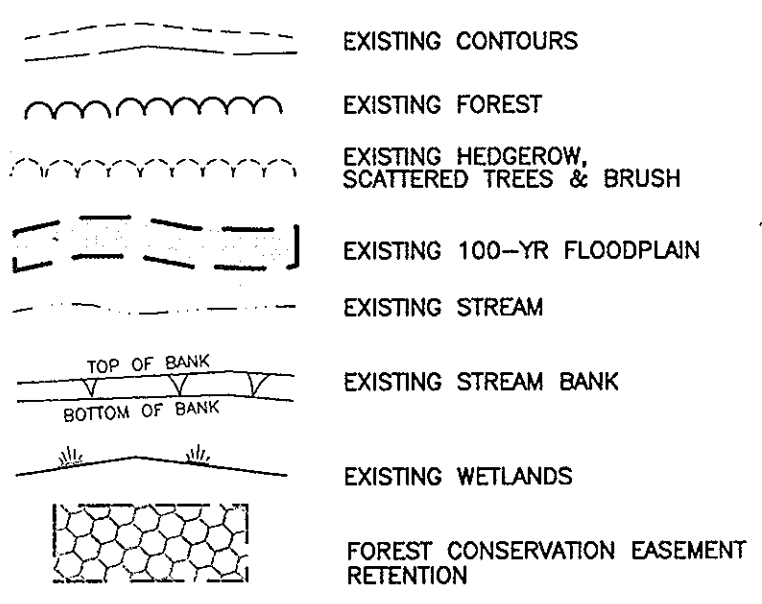
TITLE: PERIMETER LANDSCAPE AND STREET TREE PLAN

DATE: AUGUST, 2007 PROJECT NO. 1585
 SCALE: AS SHOWN SHEET 12 OF 22

DESIGN: DBT DRAFT: DBT CHECK: DAM



LEGEND



FOREST CONSERVATION WORKSHEET
 VERSION 1.0

NET TRACT AREA:

A. Total tract area	23.30
B. Area within 100 year floodplain	2.37
C. Area to remain in agricultural production	0.00
D. Net tract area	20.93

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)
 Input the number "1" under the appropriate land use zoning and limit to only one entry.

ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	1	0	0

E. Afforestation Threshold 15% x D = 3.14
 F. Conservation Threshold 20% x D = 4.19

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain)	1.87
H. Area of forest above afforestation threshold	0.00
I. Area of forest above conservation threshold	0.00

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation	0.00
K. Clearing permitted without mitigation	0.00

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared	0.00
M. Total area of forest to be retained	1.87

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold	0.00
P. Reforestation for clearing below conservation threshold	0.00
Q. Credit for retention above conservation threshold	0.00
R. Total reforestation required	0.00
S. Total afforestation required	1.27
T. Total reforestation and afforestation required	1.27

* 1.76 AC. ON SITE AND 0.11 AC. CREDITED IN FCE #1 IN TAYLOR FARM SECT. 3 PHASE 1 (F-05-162).



FCE ACREAGE CHART

EASEMENT	AREA IN HIGH PRIORITY BUFFERS	RETENTION CREDITED	RETENTION NON-CREDITED (IN FLOODPLAIN)	PLANTING	TOTAL EASEMENT AREA
2	1.95 AC.	0.77 AC.	0.45 AC.	0.87 AC.	2.09 AC.
3	2.11 AC.	0.99 AC.	0.73 AC.	0.40 AC.	2.12 AC.
TOTALS	4.06 AC.	1.76 AC.	1.18 AC.	1.27 AC.	4.21 AC.

PLAN VIEW
 SCALE: 1" = 50'

FOREST CONSERVATION NOTES:

- ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
- THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16-1200 OF THE HOWARD COUNTY CODE. FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENTS; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
- NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
- TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.
- PERMANENT SIGNAGE SHALL BE PLACED 50'-100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.
- PORTIONS OF THE SITE OCCURRING WITHIN THE 100-YEAR FLOODPLAIN ARE NOT INCLUDED AS PART OF THE NET TRACT AREA OF THE SITE. AREAS OF FLOODPLAIN FOREST OCCURRING WITHIN THE LIMITS OF A FOREST CONSERVATION EASEMENT WILL BE PROTECTED BY THE EASEMENT RESTRICTIONS BUT HAVE NOT BEEN CREDITED TOWARD THE PROJECTS FCA OBLIGATIONS.
- THE TOTAL FOREST CONSERVATION OBLIGATION AMOUNT OF 3.14 ACRES SHALL BE MET BY THE RETENTION OF 1.87 AC. OF NET TRACT AREA FOREST WITHIN A FOREST CONSERVATION EASEMENT (1.76 AC. ON-SITE AND 0.11 AC. CREDITED FROM FCE #1 IN TAYLOR FARM SECT. 3 PHASE 1, F-05-162) AND THE ON-SITE AFFORESTATION OF 1.27 AC. WITHIN A FOREST CONSERVATION EASEMENT. FINANCIAL SURETY FOR THE REQUIRED FOREST CONSERVATION HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$42,993.72 (\$15,333.12 FOR RETENTION OF 76,665.6 S.F. OF FOREST AND \$27,660.6 FOR THE PLANTING OF 55,321.2 S.F. OF FOREST). SURETY FOR THE 0.11 AC. OF RETENTION IN FCE #1 HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR F-05-162.
- THE FOREST CONSERVATION WATERSHED FOR THIS PROJECT IS THE PATAPSCO RIVER LOWER BRANCH #2130906.
- THERE ARE NO RARE, THREATENED OR ENDANGERED SPECIES LOCATED ON THIS SITE. THERE ARE NO SPECIMEN OR CHAMPION TREES LOCATED ON THIS SITE. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO HISTORIC STRUCTURES LOCATED ON THIS SITE.
- THE PROTECTIVE SIGNAGE SHALL STAY ON-SITE IN PERPETUITY.

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 8480 BALTIMORE NATIONAL PIKE A SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-8105 FAX: 410-465-8644
 WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 21443, Expiration Date: 12-31-2008.

Donald P. ...
 PROFESSIONAL ENGINEER
 8/26/07

OWNER/DEVELOPER:
 FRIENDLY FARMS LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

PROJECT:
 TAYLOR FARM SECTION THREE, PHASE TWO
 LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A RESUBDIVISION OF LOT #4 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)

LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309
 ZONED: R-20
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE:
 FOREST CONSERVATION PLAN

DATE: AUGUST, 2007 **PROJECT NO.:** 1585
SCALE: AS SHOWN **SHEET** 13 **OF** 22

DESIGN: DBT **DRAFT:** DBT **CHECK:** DAM

FOR BEARINGS AND DISTANCES OF THE FOREST CONSERVATION EASEMENTS SEE RECORDED PLAT.



LEGEND

- EXISTING CONTOURS
- EXISTING FOREST
- EXISTING HEDGEROW, SCATTERED TREES & BRUSH
- EXISTING 100-YR FLOODPLAIN
- EXISTING STREAM
- TOP OF BANK
- BOTTOM OF BANK
- EXISTING WETLANDS
- FOREST CONSERVATION EASEMENT RETENTION

NO.	DATE	REVISION

BENCHMARK
ENGINEERS • LAND SURVEYORS • PLANNERS

ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE • SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CMLENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21443, Expiration Date: 12-31-2006.

APPROVED: DEPARTMENT OF PUBLIC WORKS
With a mark 9-7-07
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Harris 9/15/07
CHIEF, DIVISION OF LAND DEVELOPMENT

John ... 9/16/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION

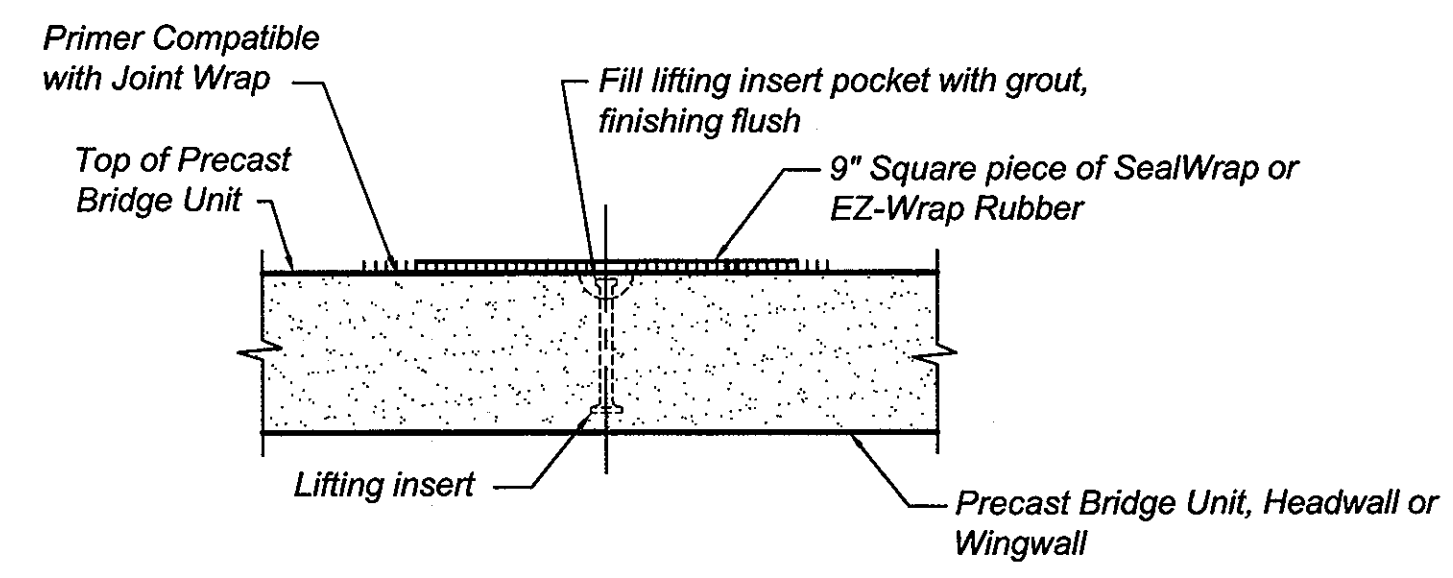
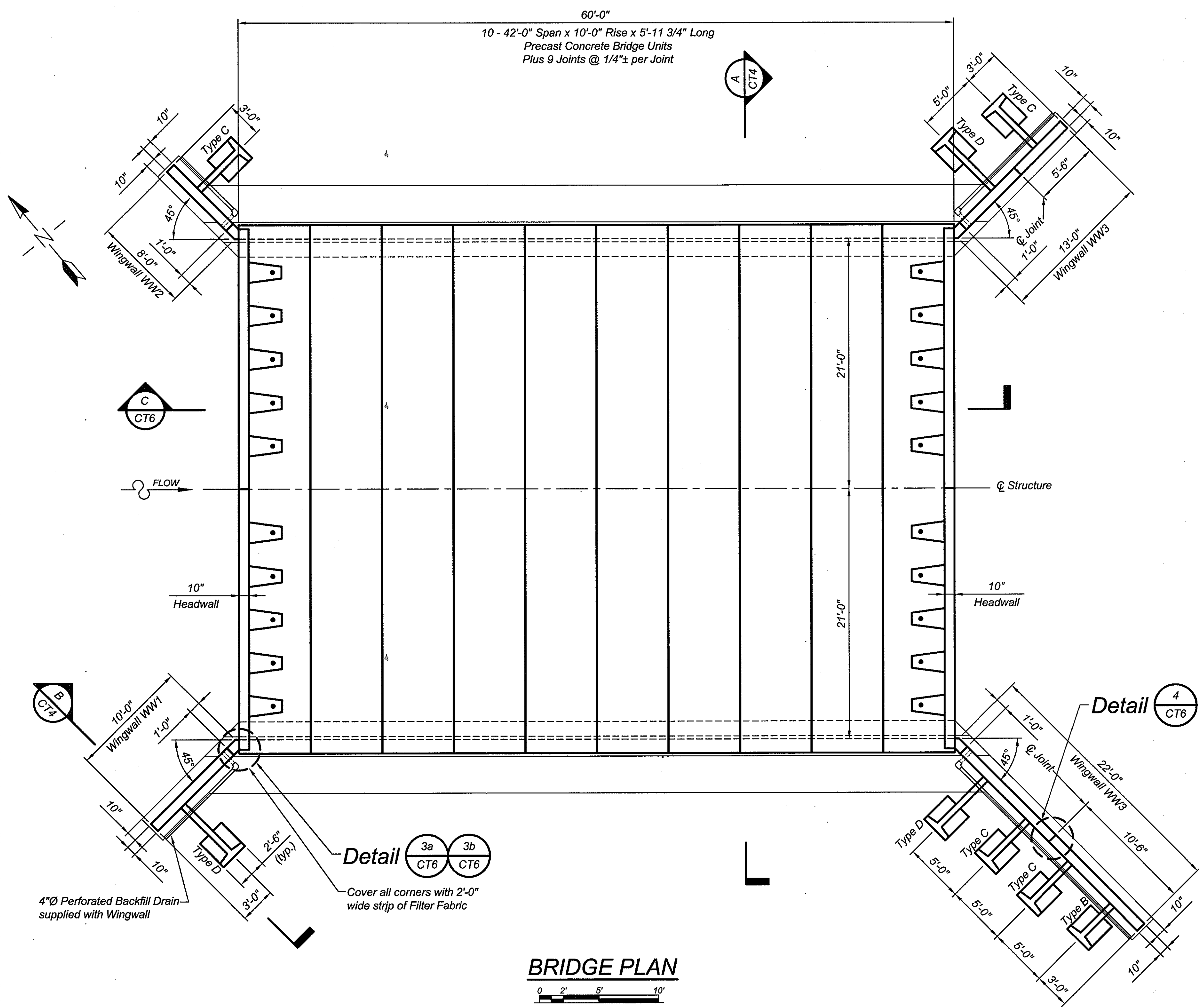
FOR BEARINGS AND DISTANCES OF THE FOREST CONSERVATION EASEMENTS SEE RECORDED PLAT.

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. Box 5056 0260 And. MD 21057 (410) 592-6752

PLAN VIEW
SCALE: 1" = 50'

GTW's WAVERLY WOODS SECTION 13 NON-BUILDABLE GOLF COURSE OPEN SPACE LOT 3 PLAT NO. 16843 ZONED: RSC

OWNER/DEVELOPER: FRIENDLY FARMS LLC P.O. BOX 417 ELLCOTT CITY, MARYLAND 21043 410-465-4244	PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A RESUBDIVISION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 9220-9227)
TITLE: FOREST CONSERVATION PLAN	LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309 TAX MAP: 16 GRID: 5 ZONED: R-20 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: AUGUST, 2007 PROJECT NO. 1585	SCALE: AS SHOWN SHEET 14 OF 22
DESIGN: DBT DRAFT: DBT CHECK: DAM	



LIFTING INSERTS

TYPICAL LIFT POINT SEALING DETAIL
not to scale

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter Z. Maltz 7-20-07
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Quincy Hanna 9/15/07
CHIEF, DIVISION OF LAND DEVELOPMENT

Mark ... 7/24/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION



NO.	DATE	REVISION

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ENGINEERS • LAND SURVEYORS • PLANNERS
8480 BALTIMORE NATIONAL PIKE • SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CVLENGINEERING.COM

OWNER/DEVELOPER: FRIENDLY FARMS LLC P.O. BOX 417 ELLCOTT CITY, MARYLAND 21041 410-465-4244	PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A REBUNDING OF LOT 84 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAN NO. 220-4227)
DESIGN: DRAFT: CHECK:	LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 300 TAX MAP: 16 GRID: 5 ZONED: R-20 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JULY, 2007	PROJECT NO. 1585
SCALE: AS SHOWN	SHEET 16 OF 22

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Company:
CONTECH BRIDGE SOLUTIONS INC.

8430 University Executive Park Drive
Suite 695
Charlotte, North Carolina 28262

704-548-8420
704-548-8586 fax
800-526-3999

Sheet Title:
BRIDGE PLAN & DETAIL

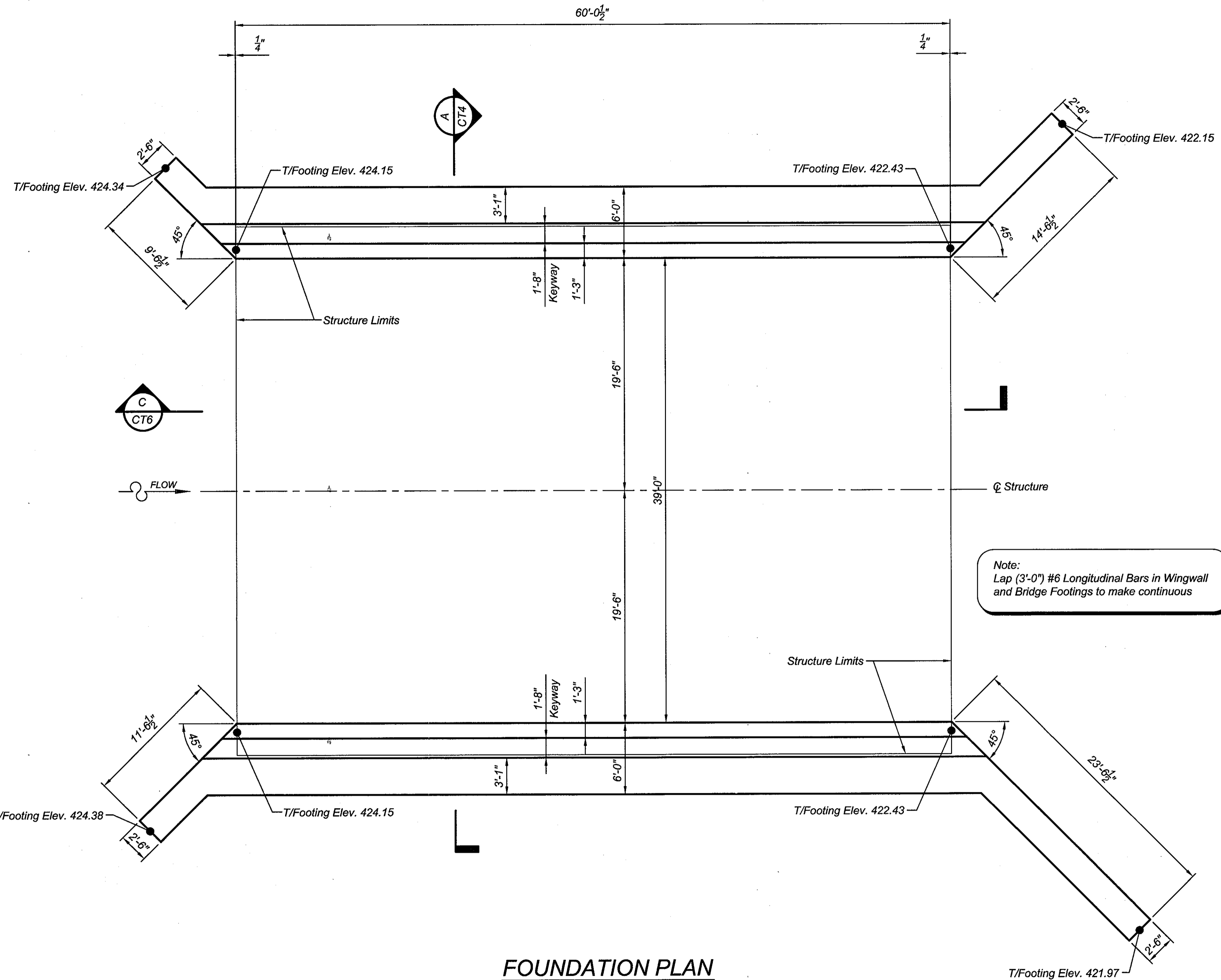
Project Status:
APPROVED FOR CONSTRUCTION

Designed MRP
Drawn RPU
Checked LNM
Date 4/12/07

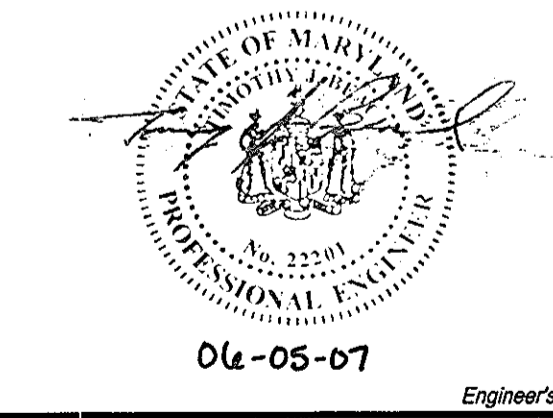
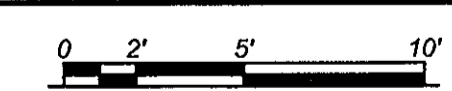
Project No. 15086
Sheet No. CT2

HOWARD COUNTY MARYLAND

TAYLOR FARM SECTION THREE, PHASE TWO



FOUNDATION PLAN



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

Project Name: Taylor Farm Sublot 2
Location: Howard County, Maryland

Date: 8/15/06
Soil Depth: 30 ft
Pipe Size: 2 in
Boring Method: HSA
Date Completed: 8/15/06

DEPTH (Feet)	SOIL DESCRIPTION	WATER TABLE (Feet)	SPR BLOW COUNT	SPR BLOW RATE (blows/ft)
0-12	Dark gray, silty, medium dense sand with some gravel (S1)	10-12	10	0.83
12-18	Light brown, silty, medium dense sand with some gravel (S2)	12-14	12	0.83
18-24	Light brown, silty, medium dense sand with some gravel (S3)	18-20	14	0.83
24-30	Light brown, silty, medium dense sand with some gravel (S4)	24-26	16	0.83

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

Project Name: Taylor Farm Sublot 2
Location: Howard County, Maryland

Date: 8/15/06
Soil Depth: 30 ft
Pipe Size: 2 in
Boring Method: HSA
Date Completed: 8/15/06

DEPTH (Feet)	SOIL DESCRIPTION	WATER TABLE (Feet)	SPR BLOW COUNT	SPR BLOW RATE (blows/ft)
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12-18	Light brown, silty, medium dense sand with some gravel (S2)	12-14	12	0.83
18-24	Light brown, silty, medium dense sand with some gravel (S3)	18-20	14	0.83
24-30	Light brown, silty, medium dense sand with some gravel (S4)	24-26	16	0.83

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

Project Name: Taylor Farm Sublot 2
Location: Howard County, Maryland

Date: 8/15/06
Soil Depth: 30 ft
Pipe Size: 2 in
Boring Method: HSA
Date Completed: 8/15/06

DEPTH (Feet)	SOIL DESCRIPTION	WATER TABLE (Feet)	SPR BLOW COUNT	SPR BLOW RATE (blows/ft)
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24-30	Light brown, silty, medium dense sand with some gravel (S4)	24-26	16	0.83

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter Z. ... 7-20-07
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy ... 9/18/07
 CHIEF, DIVISION OF LAND DEVELOPMENT

... 7/24/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-6644
 WWW.BE-CIVILENGINEERING.COM

OWNER/DEVELOPER: FRIENDLY FARMS LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO
 LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A'
 A REBUNDING OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 8220-8227)

LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309
 TAX MAP: 16 GRID: 5 ZONED: R-20
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: CON/SPAN BRIDGE FOUNDATION PLAN

DATE: JULY, 2007 PROJECT NO. 1585

DESIGN: DRAFT: CHECK: SCALE: AS SHOWN SHEET 17 OF 22

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Company: **CONTECH BRIDGE SOLUTIONS INC.**

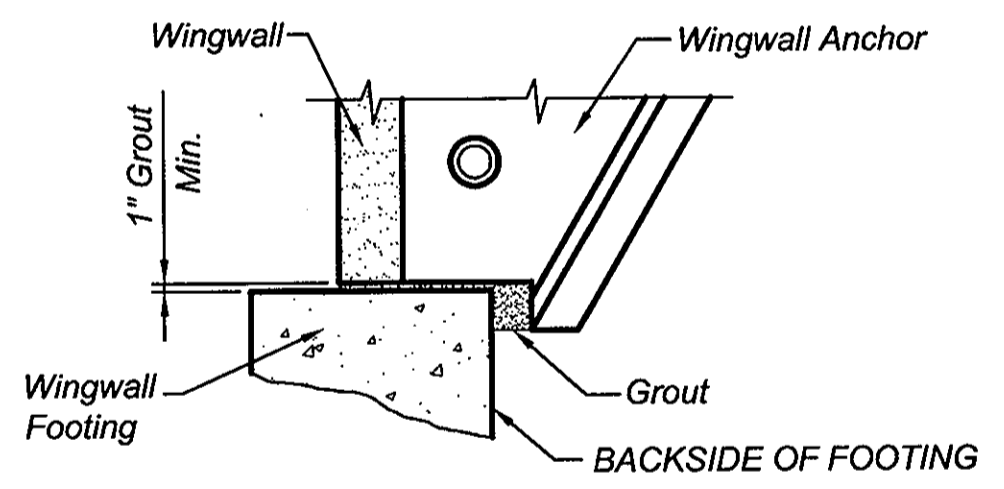
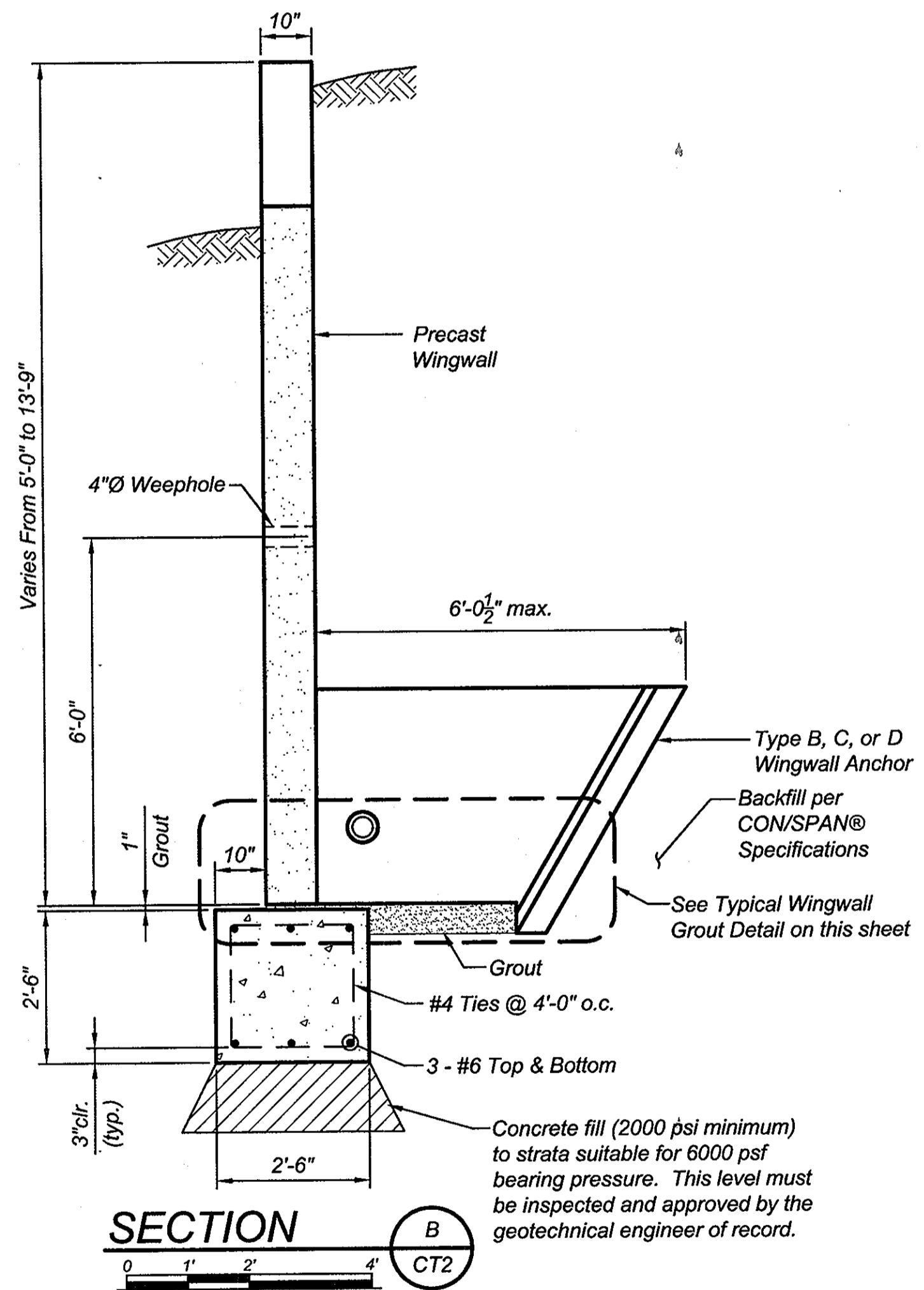
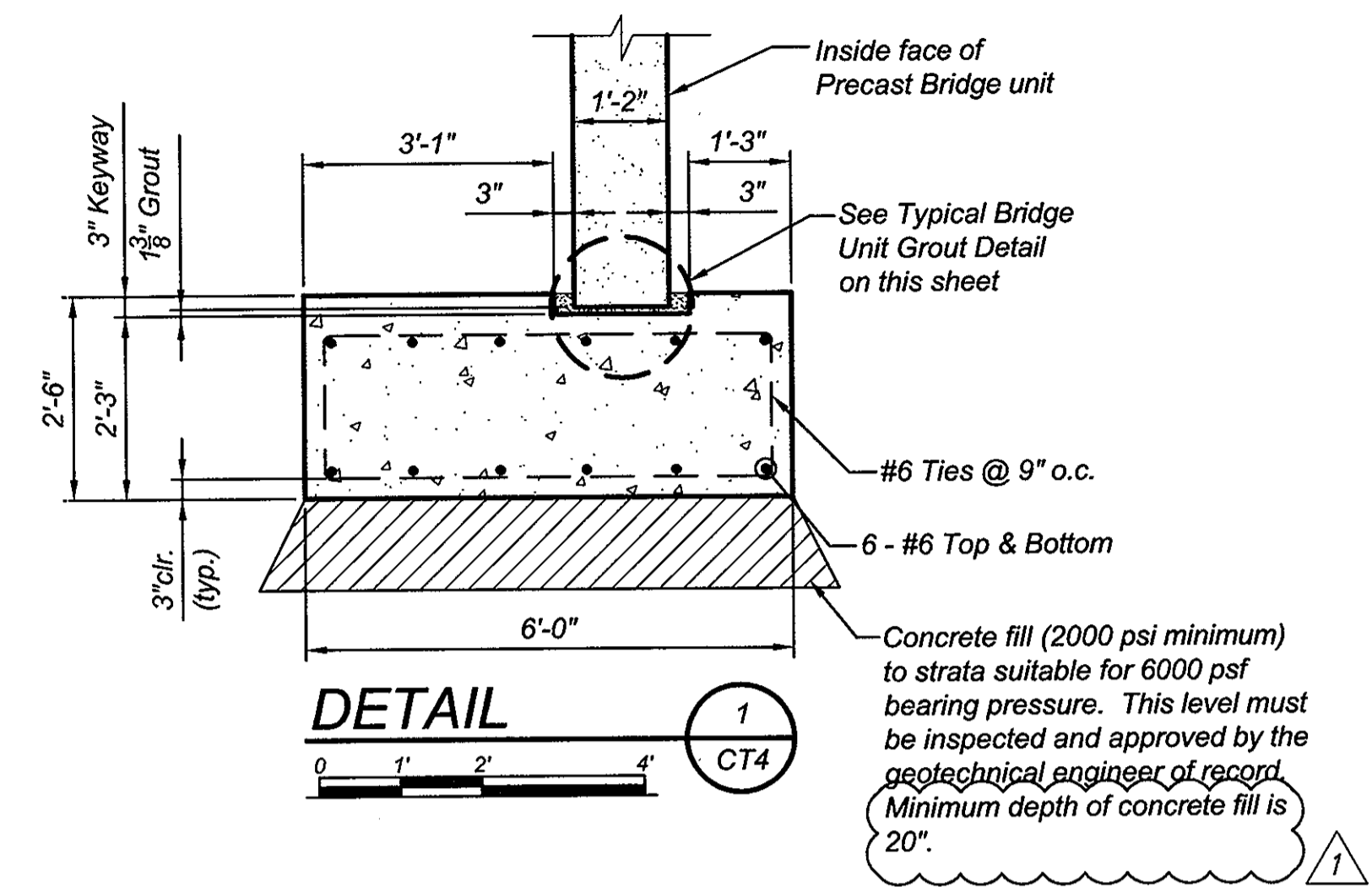
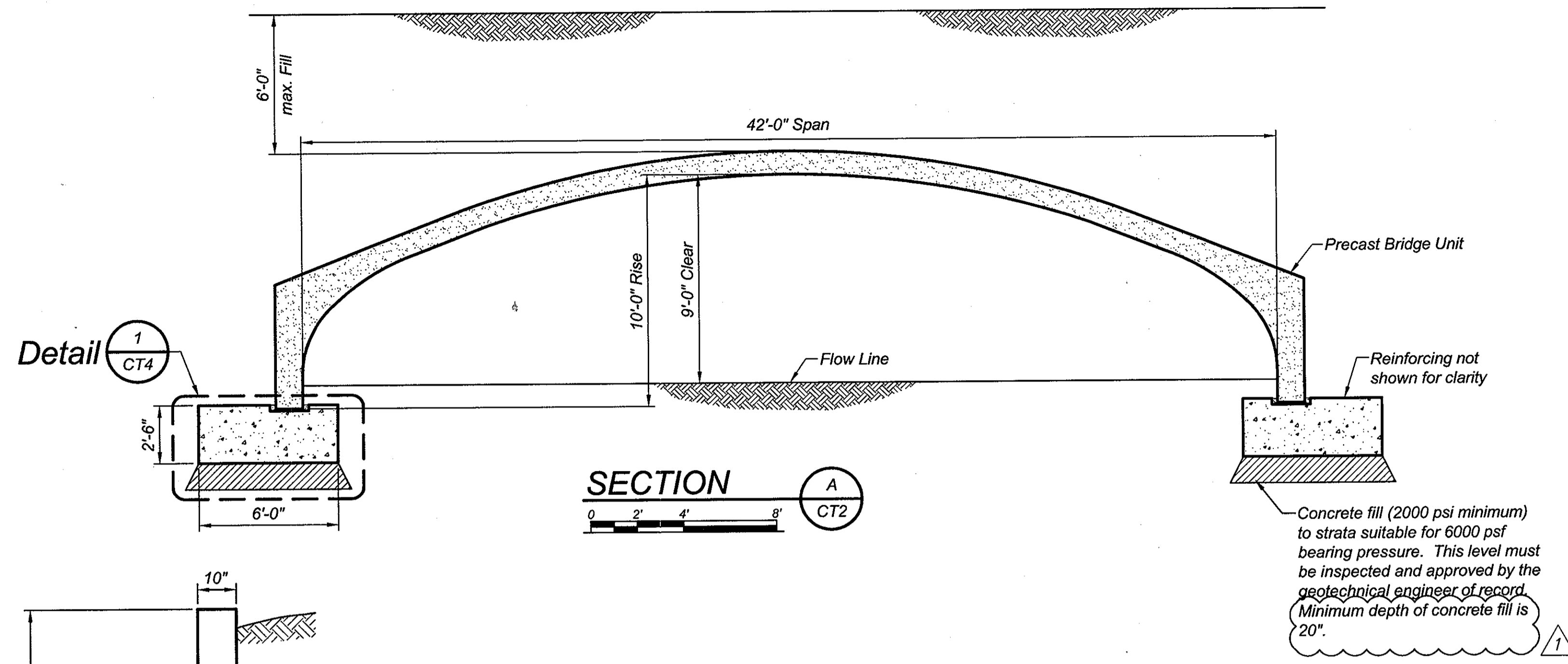
8430 University Executive Park Drive Suite 695
 Charlotte, North Carolina 28262

704-548-8420
 704-548-8586 fax
 800-526-3999

Project Status: **APPROVED FOR CONSTRUCTION**

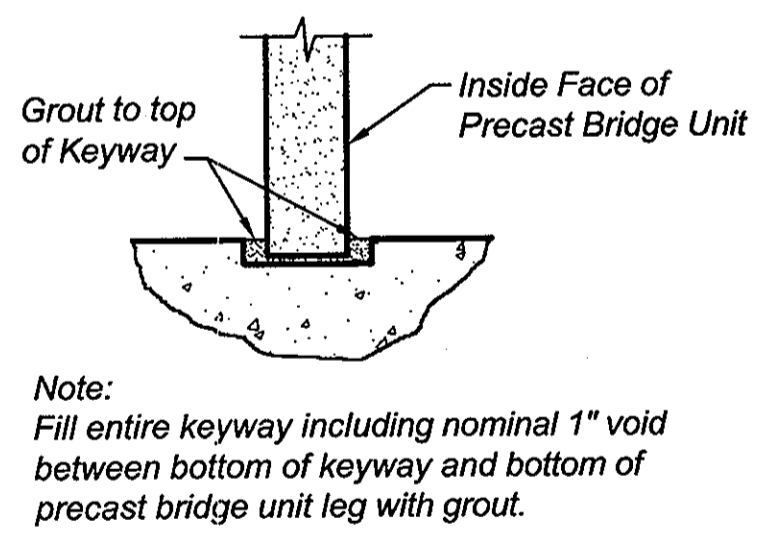
Designed: MRP Project No. 15086
 Drawn: RPU
 Checked: LNM Sheet No. CT3
 Date: 4/12/07

FOUNDATION PLAN
 TAYLOR FARM SECTION THREE, PHASE TWO
 HOWARD COUNTY MARYLAND



- Notes:
- Minimum 1" Grout under wingwall leg & anchor stem.
 - Area between wingwall footing and wingwall anchor shall be grouted solid before backfill.
 - FORM BACKSIDE OF FOOTING TO DIMENSIONS SHOWN ON FOUNDATION PLAN.

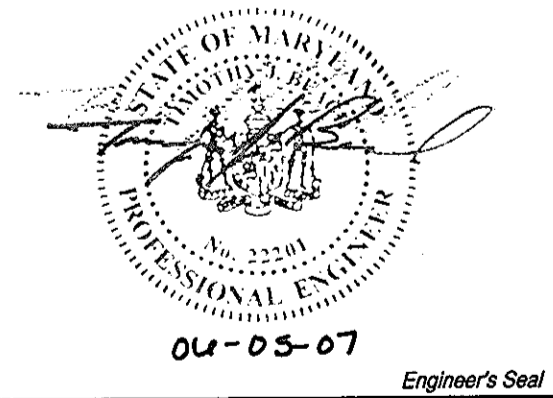
TYPICAL WINGWALL GROUT DETAIL
not to scale



TYPICAL BRIDGE UNIT GROUT DETAIL
not to scale

APPROVED: DEPARTMENT OF PUBLIC WORKS
William F. Marshall 7-20-07
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Harant 9/18/07
 CHIEF, DIVISION OF LAND DEVELOPMENT
Chris Deussen 7/24/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DATE	REVISION
1	5/14/07	Minimum depth of concrete fill specification per engineer's comments



BENCHMARK
 ENGINEERS • LAND SURVEYORS • PLANNERS
ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE • SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-6644
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 Charlotte, North Carolina 28262
 704-548-8420
 704-548-8586 fax
 800-526-3999

Sheet Title: **FOOTING SECTION & DETAILS**

Project Status: **APPROVED: FOR CONSTRUCTION**

Howard County, Maryland

TAYLOR FARM SECTION THREE, PHASE TWO

Designed: MRP
 Drawn: RPV
 Checked: LNM
 Date: 4/12/07

Project No.: 15086
 Sheet No.: CT4

OWNER/DEVELOPER: FRIENDLY FARMS LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

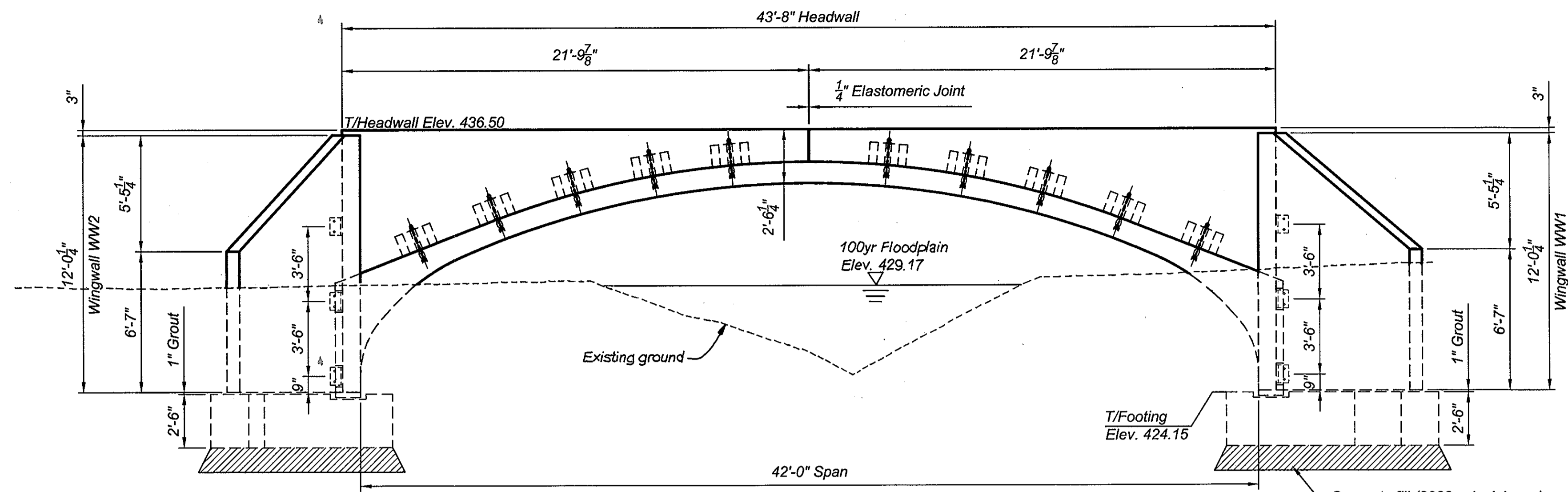
PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO
 LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A RESUBDIVISION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 2229-0227)

LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309
 TAX MAP: 16 GRID: 5 ZONED: R-20
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

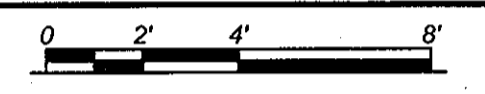
TITLE: CON/SPAN BRIDGE FOOTING SECTION & DETAILS

DATE: JULY, 2007 PROJECT NO. 1585

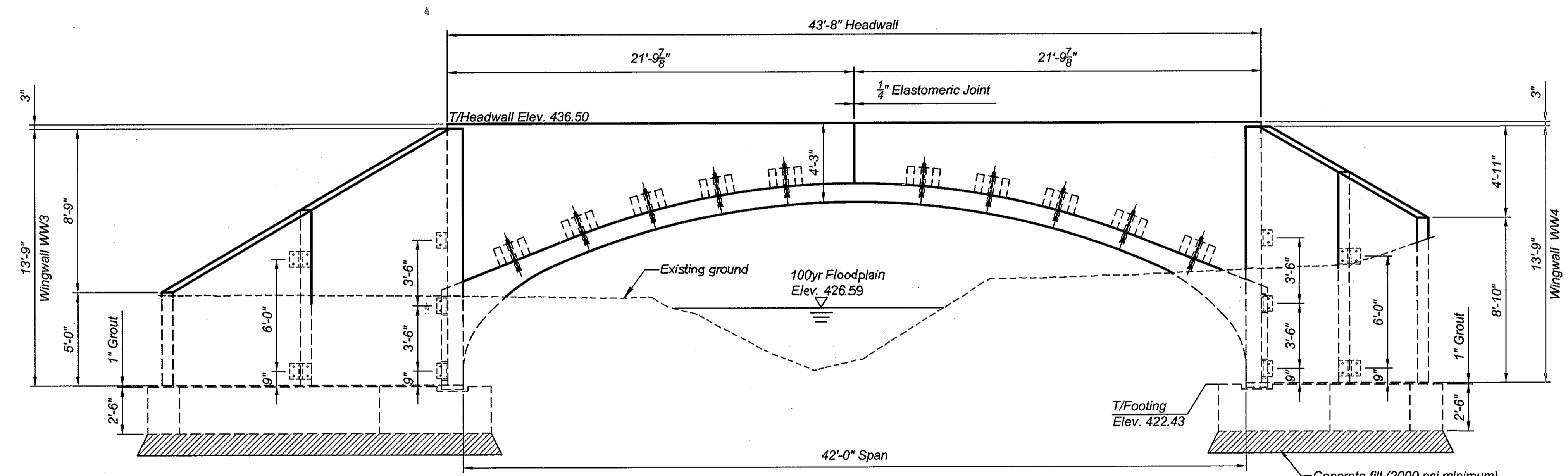
DESIGN: DRAFT: CHECK: SCALE: AS SHOWN SHEET 18 OF 22



UPSTREAM ELEVATION



Concrete fill (2000 psi minimum) to strata suitable for 6000 psf bearing pressure. This level must be inspected and approved by the geotechnical engineer of record. Minimum depth of concrete fill is 20".



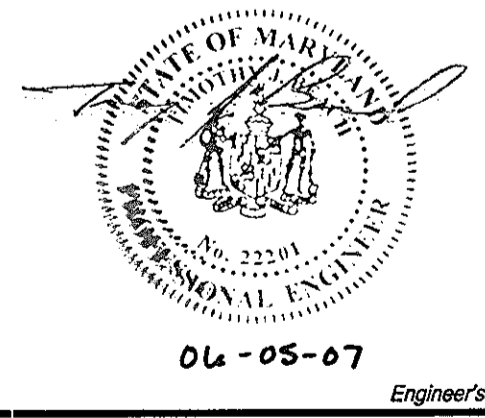
DOWNSTREAM ELEVATION



Concrete fill (2000 psi minimum) to strata suitable for 6000 psf bearing pressure. This level must be inspected and approved by the geotechnical engineer of record. Minimum depth of concrete fill is 20".

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter R. M... 7-20-07
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Andy Hamer 9/15/07
 CHIEF, DIVISION OF LAND DEVELOPMENT
Chris... 7/24/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DATE	REVISION
1	5/14/07	Minimum depth of concrete fill specification per engineer's comments



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 8430 University Executive Park Drive
 Suite 695
 Charlotte, North Carolina 28262
 704-548-8420
 704-548-8586 fax
 800-526-3999

Sheet Title:
ELEVATIONS
 HOWARD COUNTY MARYLAND
TAYLOR FARM SECTION THREE, PHASE TWO
 Project Status:
APPROVED: FOR CONSTRUCTION
 Designed: MRP
 Drawn: RPU
 Checked: LNM
 Date: 4/12/07
 Project No.: 15086
 Sheet No.: CT5

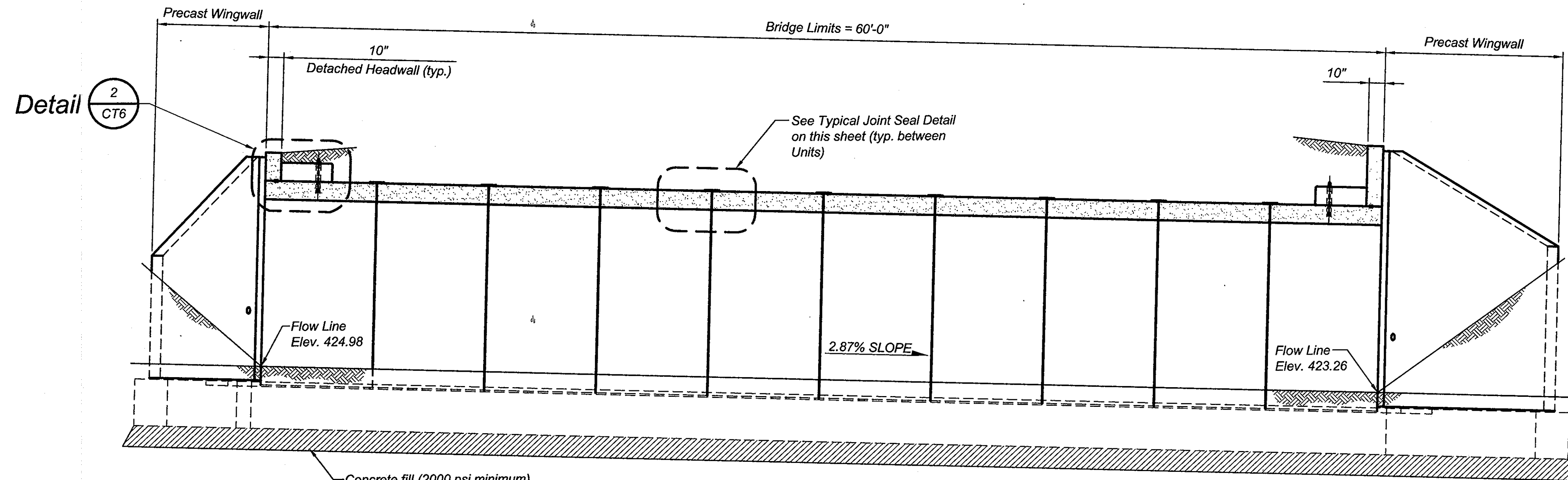
OWNER/DEVELOPER:
FRIENDLY FARMS LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

PROJECT:
TAYLOR FARM SECTION THREE, PHASE TWO
 LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A'
 A REBUDGETING OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 0220-0527)

LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309
 TAX MAP: 18 GRID: 5 ZONED: R-20
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE:
CON/SPAN BRIDGE ELEVATIONS

DATE: JULY, 2007 PROJECT NO. 1585
 SCALE: AS SHOWN SHEET 19 OF 22

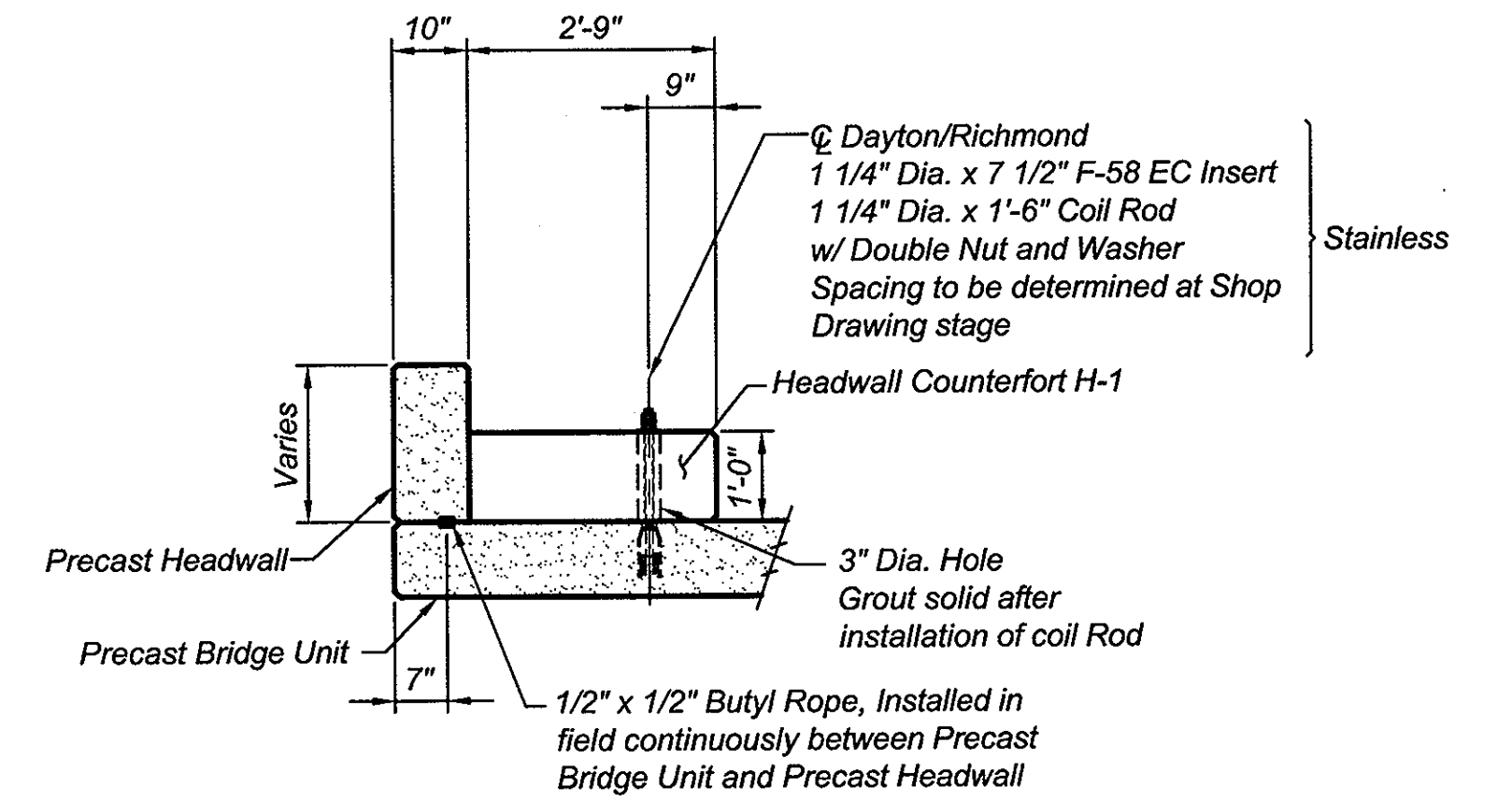


Detail 2
CT6

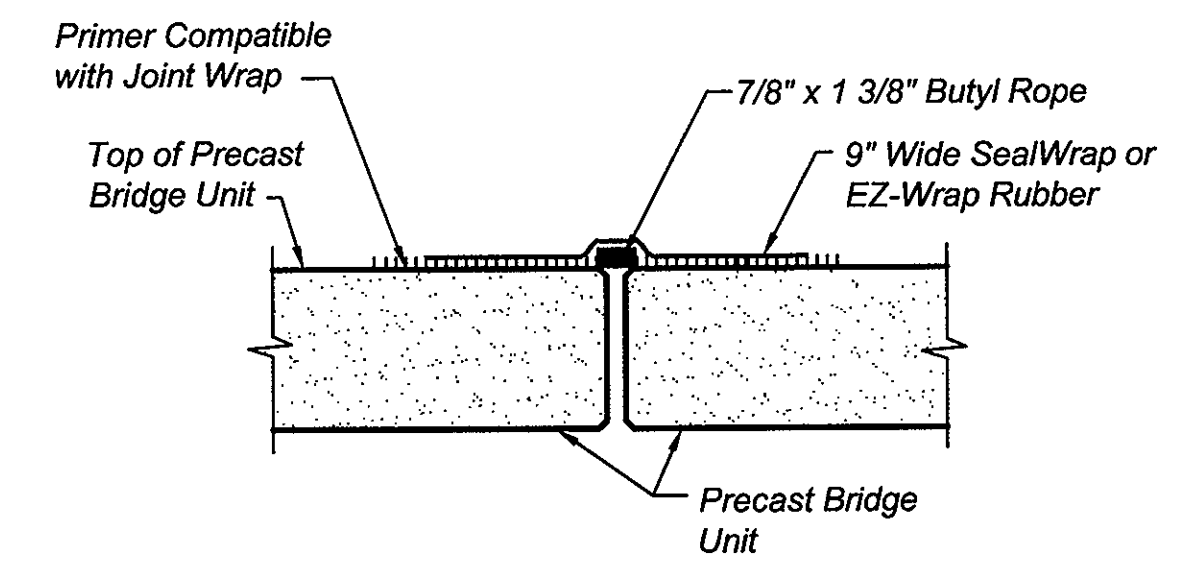
Concrete fill (2000 psi minimum) to strata suitable for 6000 psf bearing pressure. This level must be inspected and approved by the geotechnical engineer of record. Minimum depth of concrete fill is 20\"/>

SECTION C
CT2

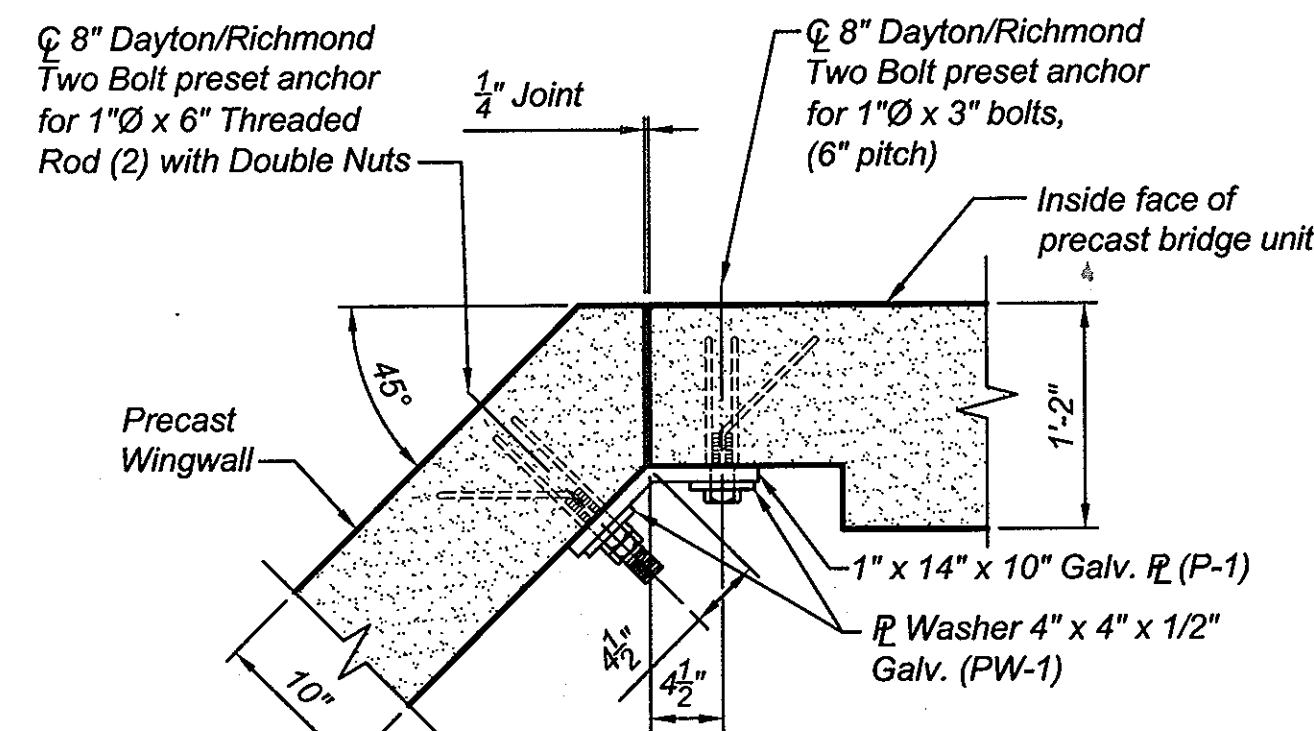
*Note:
Foundation Slope to be continuous through Wingwall Footings



DETAIL 2
CT6

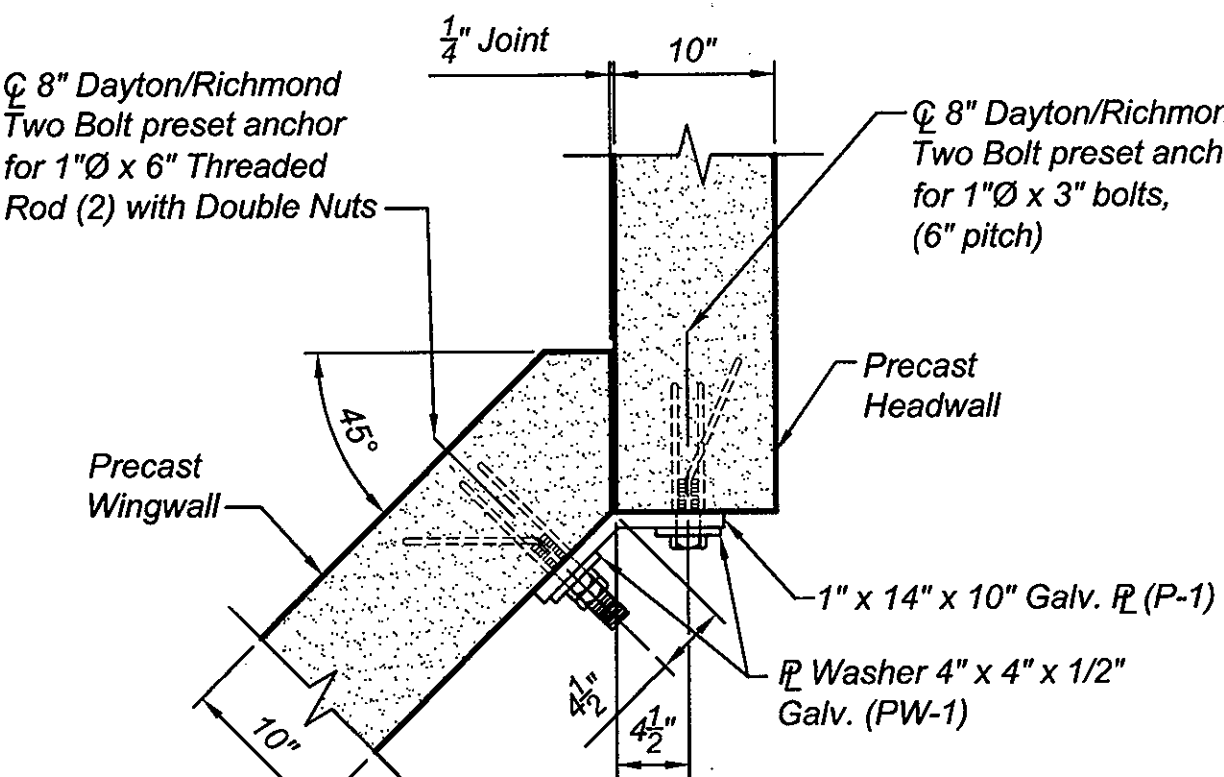


TYPICAL JOINT SEAL DETAIL
not to scale



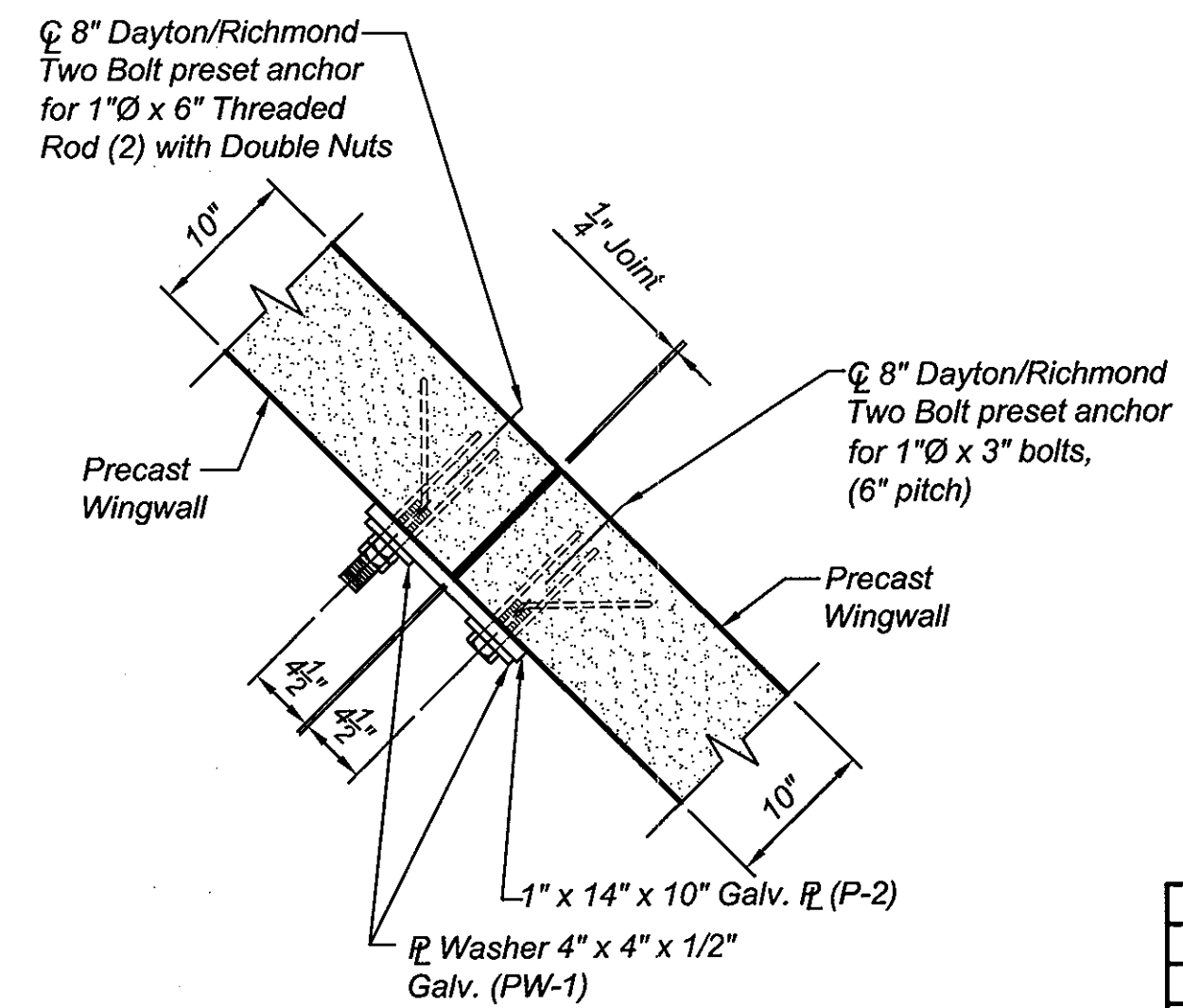
Note:
Connection P's (P-1) must be positioned with small Ø holes toward precast bridge unit

DETAIL @ Unit Leg 3a
CT2



Note:
Connection P's (P-1) must be positioned with small Ø holes toward precast headwall

DETAIL @ Headwall 3b
CT2



DETAIL 4
CT2

APPROVED: DEPARTMENT OF PUBLIC WORKS	
<i>W. J. ...</i>	7-20-07
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>W. J. ...</i>	9/18/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>W. J. ...</i>	2/24/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE

NO.	DATE	REVISION
1	5/14/07	Minimum depth of concrete fill specification per engineer's comments

BENCHMARK ENGINEERING, INC.
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OWNER/DEVELOPER: FRIENDLY FARMS LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244	PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A' A REBARRICATION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FREEDLY FARMS (PLAT NO. 8220-6227)
DESIGN: _____	DRAFT: _____
CHECK: _____	SCALE: AS SHOWN
DATE: JULY, 2007	PROJECT NO. 1585
	SHEET 20 OF 22

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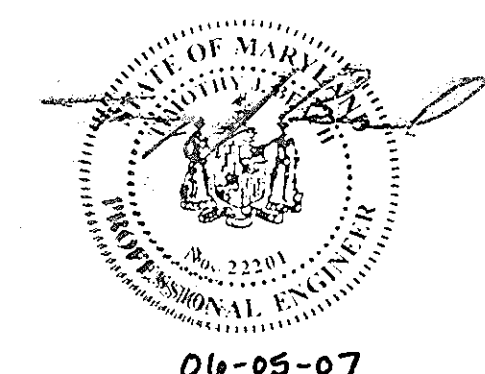
If discrepancies between the supplied information and actual field conditions are encountered as site work progresses, these discrepancies must be reported to CONTECH Bridge Solutions Inc., immediately for re-evaluation of the design. CONTECH Bridge Solutions Inc. accepts no liability for designs based on inaccurate information supplied by others.

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SECTION & DETAILS
HOWARD COUNTY MARYLAND
TAYLOR FARM SECTION THREE, PHASE TWO

APPROVED: FOR CONSTRUCTION
Project No. 15086
Designed MRP
Drawn RPU
Checked LNM
Date 4/12/07
Sheet No. CT6



CONTECH Bridge Solutions Inc. - System
CONSPAN BRIDGE SYSTEMS

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS

1. DESCRIPTION

This work shall consist of constructing a CON/SPAN® bridge in accordance with these specifications and in reasonably close conformity with the lines, grades, design and dimensions shown on the plans or as established by the Engineer. In situations where two or more specifications apply to this work, the most stringent requirements shall govern.

2. TYPES

Precast reinforced concrete CON/SPAN® bridge units manufactured in accordance with this specification shall be designated by span and rise. Precast reinforced concrete CON/SPAN® wingwalls and headwalls manufactured in accordance with this specification shall be designated by length, height, and deflection angle.

3. MATERIALS - CONCRETE

The concrete for the culverts shall be air-entrained when installed in areas subject to freeze-thaw conditions, composed of portland cement, fine and coarse aggregates, admixtures and water. Air-entrained concrete shall contain 6 ± 2 percent air. The air entraining admixture shall conform to AASHTO M154.

- 3.1 Portland Cement - Shall conform to the requirements of ASTM Specifications C150-Type I, Type II, or Type III cement.
- 3.2 Coarse Aggregate - Shall consist of stone having a maximum size of 1 inch. Aggregate shall meet requirements for ASTM C33.
- 3.3 Water Reducing Admixture - The manufacturer may submit for approval by the Engineer, a water-reducing admixture for the purpose of increasing workability and reducing the water requirement for the concrete.
- 3.4 Calcium Chloride - The addition to the mix of calcium chloride or admixtures containing calcium chloride will not be permitted.

4. MATERIALS - STEEL REINFORCEMENT AND HARDWARE

All reinforcing steel for the culverts shall be fabricated and placed in accordance with the detailed shop drawings submitted by the manufacturer.

- 4.1 Steel Reinforcement - Reinforcement shall consist of welded wire fabric conforming to ASTM Specification A 185 or A 497, or deformed billet steel bars conforming to ASTM Specification A 615, Grade 60. Longitudinal distribution reinforcement may consist of welded wire fabric or deformed billet-steel bars.
- 4.2 Hardware: Bolts and threaded rods for wingwall connections shall conform to ASTM A 307. Nuts shall conform to AASHTO M 292 (ASTM A 194) Grade 2H. All bolts, threaded rods and nuts used in wingwall connections shall be mechanically zinc coated in accordance with ASTM B 695 Class 50.

Structural Steel for wingwall connection plates and plate washers shall conform to AASHTO M 270 (ASTM A 709) Grade 36 and shall be hot dip galvanized as per AASHTO M 111 (ASTM A 123).

Inserts for wingwalls shall be 1" diameter Two-Bolt Preset Wingwall Anchors as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700.

Ferrule Loop Inserts shall be F-64 Ferrule Loop Inserts as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700.

Hook Bolts used in attached headwall connections shall be ASTM A 307.

Inserts for detached headwall connections shall be AISI Type 304 stainless steel, F-58 Expanded Coil inserts as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700. Coil rods and nuts used in headwall connections shall be AISI Type 304 stainless steel. Washers used in headwall connections shall be either AISI Type 304 stainless steel plate washers or AASHTO M 270 (ASTM A 709) Grade 36 plate washers hot dip galvanized as per AASHTO M 111 (ASTM A 123).

Reinforcing bar splices shall be made using the Dowel Bar Splicer System as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700, and shall consist of the Dowel Bar Splicer (DB-SAE) and Dowel-In (DI).

5. MANUFACTURE

- 5.1 Mixture - The aggregates, cement and water shall be proportioned and mixed in a batch mixer to produce a homogeneous concrete meeting the strength requirements of this specification. The proportion of portland cement in the mixture shall not be less than 564 pounds (6 sacks) per cubic yard of concrete.
- 5.2 Curing - The precast concrete culvert units shall be cured for a sufficient length of time so that the concrete will develop the specified compressive strength in 28 days or less. Any one of the following methods of curing or combinations thereof shall be used:
 - 5.2.1 Steam Curing - The culverts may be low pressure, steam cured by a system that will maintain a moist atmosphere.
 - 5.2.2 Water Curing - The culverts may be water cured by any method that will keep the sections moist.
 - 5.2.3 Membrane Curing - A sealing membrane conforming to the requirements of ASTM Specification C 309 may be applied and shall be left intact until the required concrete compressive strength is attained. The concrete temperature at the time of application shall be within ± 10 degrees F of the atmospheric temperature. All surfaces shall be kept moist prior to the application of the compounds and shall be damp when the compound is applied.
- 5.3 Forms - The forms used in manufacture shall be sufficiently rigid and accurate to maintain the culvert dimensions within the permissible variations given in Section 7 of these specifications. All casting surfaces shall be of a smooth material.
- 5.4 Handling - Handling devices or hoists shall be permitted in each culvert for the purpose of handling and setting.
- 5.5 Storage - The precast elements shall be stored in such a manner to prevent cracking or damage. The units shall not be moved until the concrete compressive strength has reached a minimum of 2500 psi, and they shall not be stored in an upright position until the concrete compressive strength is a minimum of 4,000 psi.

6. DESIGN

- 6.1 The precast element dimension and reinforcement details shall be as prescribed in the plan and the shop drawings provided by the manufacturer, subject to the provisions of Section 7, below. The minimum concrete compressive strength shall be as shown on the shop drawings. The minimum steel yield strength shall be 60,000 psi, unless otherwise noted on the shop drawings.
- 6.2 The precast elements are designed in accordance with the "Standard Specifications for Highway Bridges" 17th Edition, adopted by the American Association of State Highway and Transportation Officials, 2002. A minimum of one foot of cover above the crown of the bridge units is required in the installed condition. (Unless noted otherwise on the shop drawings and designed accordingly.)
- 6.3 Placement of Reinforcement in Precast Bridge Units - The cover of concrete over the outside circumferential reinforcement shall be 2 inches minimum. The cover of concrete over the inside circumferential reinforcement shall be 1 1/2 inches minimum, unless otherwise noted on the shop drawings. The clear distance of the end circumferential wires shall not be less than one inch nor more than two inches from the ends of each section. Reinforcement shall be assembled utilizing single or multiple layers of welded wire fabric (not to exceed 3 layers), supplemented with a single layer of deformed billet-steel bars, when necessary. Welded wire fabric shall be composed of circumferential and longitudinal wires meeting the spacing requirements of 6.6, below, and shall contain sufficient longitudinal wires extending through the bridge unit to maintain the shape and position of the reinforcement. Longitudinal distribution reinforcement may be welded wire fabric or deformed billet-steel bars and shall meet the spacing requirements of 6.6, below. The ends of the longitudinal distribution reinforcement shall be not more than 3 inches and not less than 1 1/2 inches from the ends of the bridge unit.
- 6.4 Placement of Reinforcement for Precast Wingwalls and Headwalls - The cover of concrete over the longitudinal and transverse reinforcement shall be 2 inches minimum. The clear distance from the end of each precast element to the end transverse reinforcing steel shall not be less than one inch nor more than two inches. Reinforcement shall be assembled utilizing a single layer of welded wire fabric, or a single layer of deformed billet-steel bars. Welded wire fabric shall be composed of transverse and longitudinal wires meeting the spacing requirements of 6.7, below, and shall contain sufficient longitudinal wires extending through the element to maintain the shape and position of the reinforcement. Longitudinal reinforcement may be welded wire fabric or deformed billet-steel bars and shall meet the spacing requirements of 6.7, below. The ends of the longitudinal reinforcement shall be not more than 3 inches and not less than 1 1/2 inches from the ends of the walls.
- 6.5 Bending of Reinforcement for Precast Bridge Units - The outside and inside circumferential reinforcing steel for the corners of the bridge shall be bent to such an angle that is approximately equal to the configuration of the bridge's outside corner.

- 6.6 Laps, Welds, and Spacing for Precast Bridge Units - Tension splices in the circumferential reinforcement shall be made by lapping. Laps may be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.2 and 8.32.6. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.1 and 8.32.5. The overlap of welded wire fabric shall be measured between the outer most longitudinal wires of each fabric sheet. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 8.25. For splices other than tension splices, the overlap shall be a minimum of 12" for welded wire fabric or deformed billet-steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be not less than 2 inches nor more than 4 inches. The spacing center to center of the longitudinal wires shall not be more than 8 inches. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 16 inches.
- 6.7 Laps, Welds, and Spacing for Precast Wingwalls and Headwalls - Splices in the reinforcement shall be made by lapping. Laps may be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.2 and 8.32.6. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.1 and 8.32.5. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 8.25. The spacing center-to-center of the wires in a wire fabric sheet shall be not less than 2 inches nor more than 8 inches.

7. PERMISSIBLE VARIATIONS

7.1 Bridge Units

- 7.1.1 Internal Dimensions - The internal dimension shall vary not more than 1% from the design dimensions nor more than 1-1/2 inches whichever is less. The haunch dimensions shall vary not more than 3/4 inch from the design dimension.
 - 7.1.2 Slab and Wall Thickness - The slab and wall thickness shall not be less than that shown in the design by more than 1/4 inch. A thickness more than that required in the design shall not be cause for rejection.
 - 7.1.3 Length of Opposite Surfaces - Variations in laying lengths of two opposite surfaces of the bridge unit shall not be more than 1/2 inch in any section, except where beveled ends for laying of curves are specified by the purchaser.
 - 7.1.4 Length of Section - The underrun in length of a section shall not be more than 1/2 inch in any bridge unit.
 - 7.1.5 Position of Reinforcement - The maximum variation in position of the reinforcement shall be ± 1/2 inch. In no case shall the cover over the reinforcement be less than 1 1/2 inches for the outside circumferential steel or be less than 1 inch for the inside circumferential steel as measured to the external or internal surface of the bridge. These tolerances or cover requirements do not apply to mating surfaces of the joints.
 - 7.1.6 Area of Reinforcement - The areas of steel reinforcement shall be the design steel areas as shown in the manufacturer's shop drawings. Steel areas greater than those required shall not be cause for rejection. The permissible variation in diameter of any reinforcement shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcement.
- ### 7.2 Wingwalls and Headwalls
- 7.2.1 Wall Thickness - The wall thickness shall not vary from that shown in the design by more than 1/2 inch.
 - 7.2.2 Length/Height of Wall sections - The length and height of the wall shall not vary from that shown in the design by more than 1/2 inch.
 - 7.2.3 Position of Reinforcement - The maximum variation in the position of the reinforcement shall be ± 1/2 inch. In no case shall the cover over the reinforcement be less than 1 1/2 inches.
 - 7.2.4 Size of Reinforcement - The permissible variation in diameter of any reinforcing shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcing. Steel area greater than that required shall not be cause for rejection.

8. TESTING AND INSPECTION

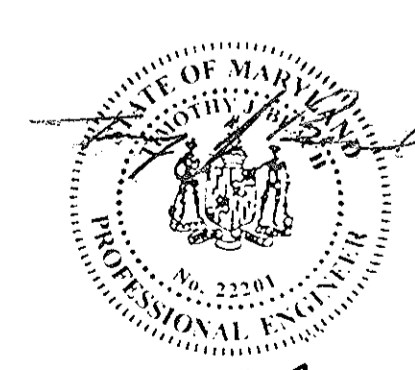
- 8.1 Type of Test Specimen - Concrete compressive strength shall be determined from compression tests made on cylinders or cores. For cylinder testing, a minimum of 4 cylinders shall be taken during each production run. For core testing, one core shall be cut from each of 3 precast elements selected at random from each production group. A production group shall be defined as 15 or fewer bridge units (of a particular size), wingwalls or headwalls in a continuous production run. For each continuous production run, each production group or fraction thereof shall be considered separately for the purpose of testing and acceptance. A production run shall be considered continuous if not interrupted for more than 3 consecutive days.
- 8.2 Compression Testing - Cylinders shall be made and tested as prescribed by the ASTM C 39 Specification. Cores shall be obtained and tested for compressive strength in accordance with the provisions of the ASTM C497 Specification.
- 8.3 Acceptability of Cylinder Tests - When the average compressive strength of all cylinders tested is equal to or greater than the design compressive strength, and not more than 10% of the cylinders tested have a compressive strength less than the design concrete strength, and no cylinder tested has a compressive strength less than 80% of the design compressive strength, then the lot shall be accepted. When the compressive strength of the cylinders tested does not conform to this acceptance criteria, the acceptability of the lot may be determined as described in section 8.4, below.
- 8.4 Acceptability of Core Tests - The compressive strength of the concrete in each production group as defined in 8.1 is acceptable when the average core test strength is equal to or greater than the design concrete strength. When the compressive strength of the core tested is less than the design concrete strength, the precast element from which that core was taken may be re-cored. When the compressive strength of the re-core is equal to or greater than the design concrete strength, the compressive strength of the concrete in that production group is acceptable.
 - 8.4.1 When the compressive strength of any re-core is less than the design concrete strength, the precast element from which that core was taken shall be rejected. Two precast elements from the remainder of the group shall be selected at random and one core shall be taken from each. If the compressive strength of both cores is equal to or greater than the design concrete strength, the compressive strength of the remainder of that group is acceptable. If the compressive strength of either of the two cores tested is less than the design concrete strength, the remainder of the group shall be rejected or, at the option of the manufacturer, each precast element of the remainder of the group shall be cored and accepted individually, and any of these elements that have cores with less than the design concrete strength shall be rejected.
 - 8.4.2 Plugging Core Holes - The core holes shall be plugged and sealed by the manufacturer in a manner such that the elements will meet all of the test requirements of this specification. Precast elements so sealed shall be considered satisfactory for use.
 - 8.4.3 Test Equipment - Every manufacturer furnishing culverts under this specification shall furnish all facilities and personnel necessary to carryout the test required.

9. JOINTS

The bridge units shall be produced with flat butt ends. The ends of the bridge units shall be such that when the sections are laid together they will make a continuous line of with a smooth interior free of appreciable irregularities, all compatible with the permissible variations in Section 7, above. The joint width shall not exceed 3/4 inches.

10. WORKMANSHIP AND FINISH

The bridge units, wingwalls, and headwalls shall be substantially free of fractures. The ends of the bridge units shall be normal to the walls and centerline of the bridge section, within the limits of the variations given in section 7, above, except where beveled ends are specified. The faces of the wingwalls and headwalls shall be parallel to each other, within the limits of variations given in section 7, above. The surface of the precast elements shall be a smooth steel form or troweled surface. Trapped air pockets causing surface defects shall be considered as part of a smooth, steel form finish.



APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 7-20-07
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 9/12/07
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 7/24/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DATE	REVISION

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OWNER/DEVELOPER: FRIENDLY FARMS LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO
 LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A'
 A RECONFIGURATION OF LOT 54 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAN NO. 220-0227)

LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 309
 TAX MAP: 16 GRID: 5 ZONED: R-20
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: CON/SPAN BRIDGE SPECIFICATIONS

DATE: JULY, 2007 PROJECT NO. 1585
 SCALE: AS SHOWN SHEET 21 OF 22

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Sheet Title: SPECIFICATIONS

Project Status: APPROVED FOR CONSTRUCTION

Designed: MRP Project No. 15086
 Drawn: RPU
 Checked: LNM Sheet No. CT7
 Date: 4/12/07

HOWARD COUNTY MARYLAND

TAYLOR FARM SECTION THREE, PHASE TWO

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS (CONT'D)

15. CONSTRUCTION REQUIREMENTS

- 15.1 Footings - The bridge units and wingwalls shall be installed on either precast or cast-in-place concrete footings. The design size and elevation of the footings shall be as determined by the Engineer. A three inch deep keyway shall be formed in the top surface of the bridge footing three inches clear of the inside and outside faces of the bridge units, unless specified otherwise on the plans. No keyway is required in the wingwall footings, unless otherwise specified on the plans. The footings shall be given a smooth float finish and shall reach a compressive strength of 2,000 psi before placement of the bridge and wingwall elements. The completed footing surface shall be constructed in accordance with grades shown on the plans. When tested with a 10 foot straight edge, the surface shall not vary more than 1/4 inch in 10 feet. If a precast concrete footing is used, the contractor shall prepare a 4 inch thick base layer of compacted granular material the full width of the footing prior to placing the precast footing.
- 15.2 Placement of the Bridge Units, Wingwalls and Headwalls - The bridge units, wingwalls and headwalls shall be placed as shown on the Engineer's plan drawings. Special care shall be taken in setting the elements to the true line and grade. The bridge units and wingwalls shall be set on 6" x 6" masonite or steel shims. A minimum gap of 1/2 inch shall be provided between the footing and the bottom of the bridge's vertical legs or the wingwall. The gap shall be filled with cement grout. (Portland cement and water or cement mortar composed of Portland cement, sand and water) with a minimum 28-day compressive strength of 3000 psi. If units have been set with temporary ties (cables, bars, etc.) grout must attain a minimum compressive strength of 1500 psi before ties may be removed.

- 15.3 External Protection of Joints - The butt joint made by two adjoining bridge units shall be covered with a 7/8" x 1 3/8" preformed bituminous joint sealant and a minimum of a 9 inch wide joint wrap. The surface shall be free of dirt before applying the joint material. A primer compatible with the joint wrap to be used shall be applied for a minimum width of nine inches on each side of the joint. The external wrap shall be either EZ-WRAP RUBBER by PRESS-SEAL GASKET CORPORATION, SEAL WRAP by MAR MAC MANUFACTURING CO. INC. or approved equal. The joint shall be covered continuously from the bottom of one bridge section leg, across the top of the arch and to the opposite bridge section leg. Any laps that result in the joint wrap shall be a minimum of six inches long with the overlap running downhill.

In addition to the joints between bridge units, the joint between the end bridge unit and the headwall shall also be sealed as described above. If precast wingwalls are used, the joint between the end bridge unit and the wingwall shall be sealed with a 2'-0" strip of filter fabric. Also, if lift holes are formed in the arch units, they shall be primed and covered with a 9" x 9" square of joint wrap.

During the backfilling operation, care shall be taken to keep the joint wrap in its proper location over the joint.

- 15.4 Backfill - Backfill shall be considered as all replaced excavation and new embankment adjacent to the CON/SPAN® bridge units, wingwalls, and headwalls. The project construction and material specifications which include the specifications for excavation for structures and roadway excavation and embankment construction, shall apply except as modified in this section.

No backfill shall be placed against any structural elements until they have been approved by the Engineer.

Backfill against a waterproofed surface shall be placed carefully to avoid damage to the waterproofing material.

Mechanical tampers or approved compacting equipment shall be used to compact all backfill and embankment immediately adjacent to each side and over the top of each bridge unit until it is covered to a minimum depth of one foot, unless the design fill height is less than 1'-0". The backfill within the Critical Backfill Zone (shown in the diagrams below) shall be placed in lifts of eight inches or less (loose depth). Heavy compaction equipment shall not be operated in this area or over the bridge until it is covered to a depth of one foot, unless the design fill height is less than 1'-0".

Lightweight dozers and graders may be operated over bridge units having one foot of compacted cover, but heavy earth moving equipment (larger than a D-4 Dozer weighing in excess of 12 tons and having track pressures of eight psi or greater) shall require two feet of cover unless the design cover is less than two feet. In no case shall equipment operating in excess of the design load (HS20 or HS25) be permitted over the bridge units unless approved by CON/SPAN®.

Any additional fill and subsequent excavation required to provide this minimum cover shall be made at no additional cost to the project.

As a precaution against introducing unbalanced stresses in the bridge, when placing backfill at no time shall the difference between the heights of fill on opposite sides of the bridge exceed 24".

Backfill in front of wingwalls shall be carried to ground lines shown in the plans.

For fill heights over 12 feet, no backfilling may begin until a backfill compaction testing plan has been coordinated with and approved by CON/SPAN® Bridge Systems. Cost of the backfill compaction testing shall be included in the cost of the precast units. This included cost applies only to projects with fill heights over 12 feet (as measured from top crown of arch to finished grade).

16. QUALITY ASSURANCE

The Precaster shall demonstrate adherence to the standards set forth in the NPCA Quality Control Manual. The Precaster shall meet either Section 16.1 or 16.2.

- 16.1 Certification: The Precaster shall be certified by the Precast/Prestressed Concrete Institute Plant Certification Program or the National Precast Concrete Association's Plant Certification Program prior to and during production of the products covered by this specification.

- 16.2 Qualifications, Testing and Inspection

16.2.1 The Precaster shall have been in the business of producing precast concrete products similar to those specified for a minimum of three years. He shall maintain a permanent quality control department or retain an independent testing agency on a continuing basis. The agency shall issue a report, certified by a licensed engineer, detailing the ability of the Precaster to produce quality products consistent with industry standards.

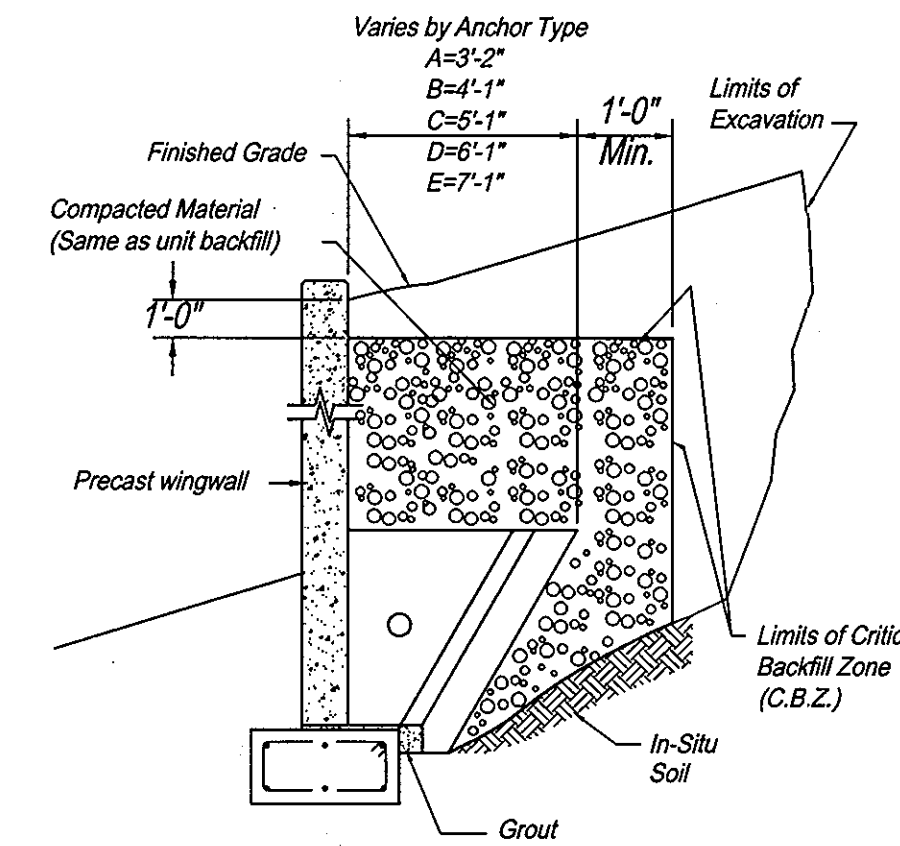
16.2.2 The Precaster shall show that the following tests are performed in accordance with the ASTM standards indicated. Tests shall be performed for each 150 cubic yards of concrete placed, but not less frequently than once per production run, as defined in §8 of these specifications.

16.2.2.1 Air Content: C231 or C173

16.2.2.2 Compressive Strength: C39, C497

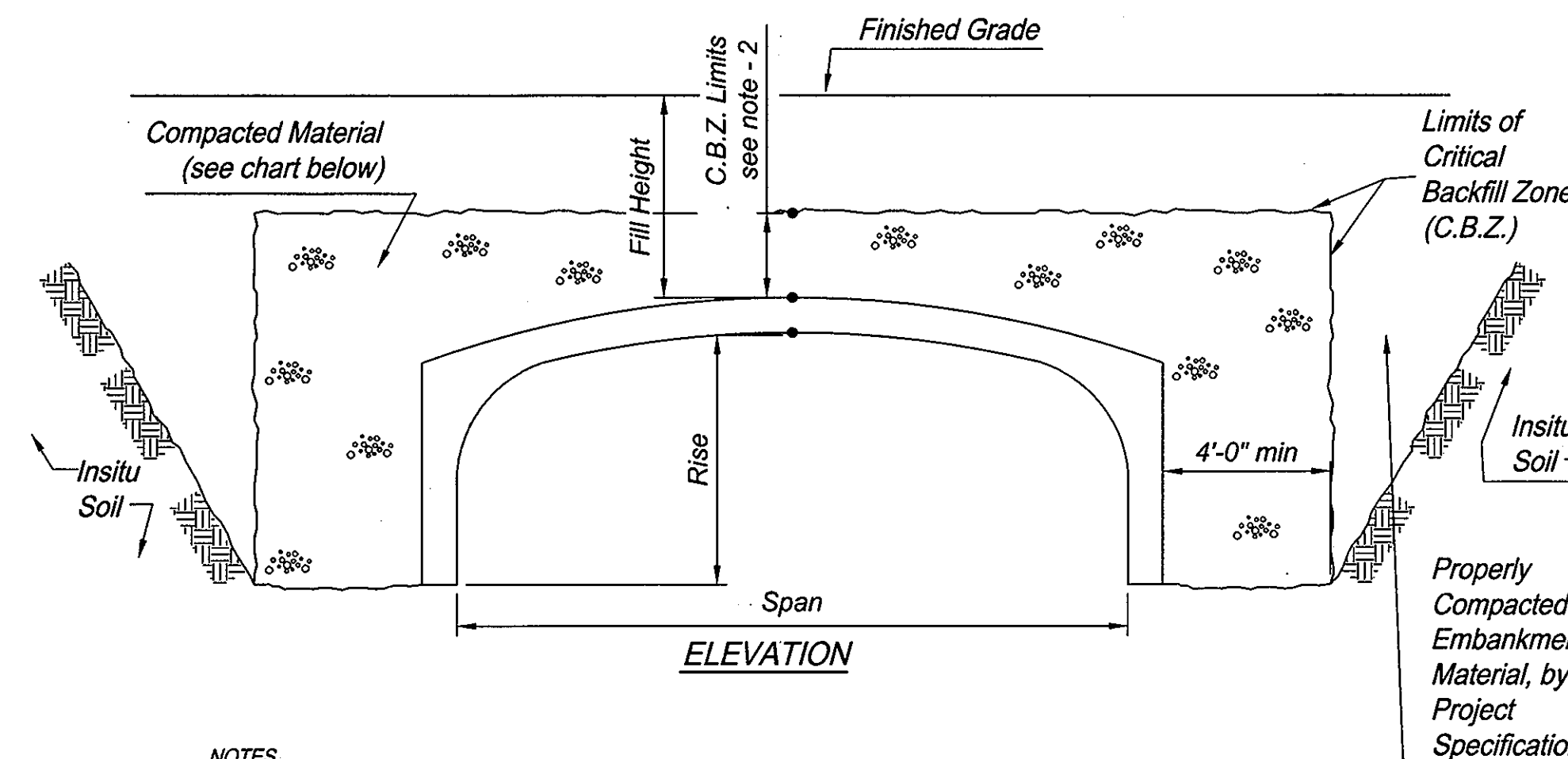
16.2.3 The Precaster shall provide documentation demonstrating compliance with this section to CON/SPAN® Bridge Systems at regular intervals or upon request.

16.2.4 The Owner may place an inspector in the plant when the products covered by this specification are being manufactured.



WINGWALL BACKFILL REQUIREMENTS

Group Classification	BACKFILL DESCRIPTION (AASHTO M 145-91)						A-4
	A-1-a	A-1-b	A-3	A-2-4	A-2-5	A-2-6	
Sieve Analysis, Percent Passing (100% Passing 3" Sieve)							
No. 10	50 max.						
No. 40	30 max.	50 max.	51 min.				
No. 200	15 max.	25 max.	10 max.	35 max.	35 max.	35 max.	36 max.
Characteristics of Fraction Passing							
No. 40							
Liquid Limit				40 max.	41 min.	40 max.	41 min.
Plasticity Index	6 max.	N.P.		10 max.	10 max.	11 min.	11 min.
Usual Types of Significant Constituent Materials	Stone Fragments, Gravel & Sand		Fine Sand	Silty or Clayey Gravel and Sand		Silty Soils	
General Rating as Subgrade				Excellent to Good		Fair to Poor	



NOTES

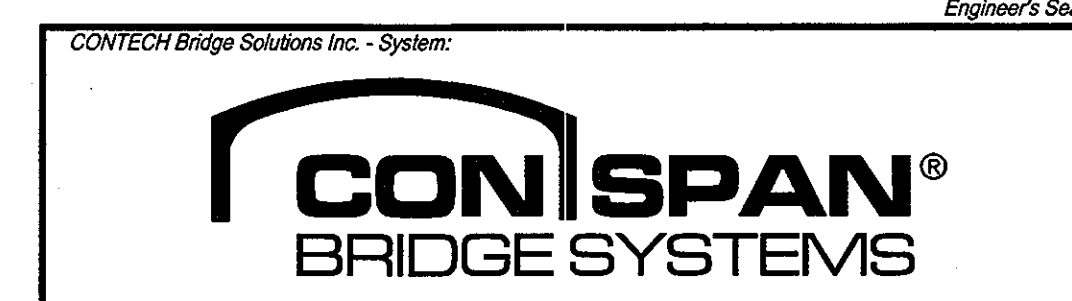
- SEE CON/SPAN® SPECIFICATIONS SECTION 15.4 FOR BACKFILL SPECIFICATIONS.
- FOR FILL HEIGHTS GREATER THAN 2'-0", C.B.Z. LIMIT SHALL BE 2'-0" ABOVE ARCH CROWN. FOR FILL HEIGHTS LESS THAN 2'-0", THE FINISHED GRADE SHALL BE THE BOUNDARY LINE FOR THE C.B.Z.
- BACKFILLING OPERATIONS WITHIN THE C.B.Z. SHALL BE PERFORMED IN LIFTS OF 8" OR LESS (LOOSE DEPTH).
- MAXIMUM DRY DENSITY SHALL BE DETERMINED BY AASHTO T-99 OR OTHER APPROVED METHODS.
- BACKFILL SHALL BE COMPACTED IN LAYERS UNTIL THE DENSITY IS NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY.

SPAN	FILL HEIGHT	ACCEPTABLE MATERIAL INSIDE C.B.Z.	ACCEPTABLE MATERIAL OUTSIDE C.B.Z.
≤ 24'-0"	≥ 12'-0"	A1, A3	**
≤ 24'-0"	< 12'-0"	A1, A2, A3, A4	**
> 24'-0"	ALL	A1, A3	**

** EMBANKMENT MATERIAL PER PROJECT SPECIFICATIONS

BACKFILL REQUIREMENTS

REVISED 9/3/03 SPEC4.DWG
 REVISED 1/15/02 SPEC4.DWG
 REVISED 6/12/01 SPEC3.DWG
 REVISED 7/21/00 SPEC3.DWG
 REVISED 7/14/97 SPEC1.DWG
 REVISED 4/4/96 SPEC1.DWG
 REVISED 3/5/96 SPEC1.DWG
 REVISED 11/14/94 SPEC1.DWG
 REVISED 5/25/94 SPEC1.DWG
 REVISED 9/10/93 SPEC1.DWG



APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 7-20-07
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 9/15/07
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 7/24/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 8480 BALTIMORE NATIONAL PIKE • SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-8105 FAX: 410-465-8644
 WWW.BEI-CVLENGINEERING.COM

OWNER/DEVELOPER: FRIENDLY FARMS LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

PROJECT: TAYLOR FARM SECTION THREE, PHASE TWO
 LOTS 57 THROUGH 101 AND NON-BUILDABLE BULK PARCEL 'A'
 A REVISION OF LOT 89 TAYLOR FARM SECTION THREE AND LOT 2 OF FRIENDLY FARMS (PLAT NO. 2002-0227)

LOCATION: TAX MAP: 10 GRID: 23 PARCEL: 308
 TAX MAP: 16 GRID: 5 ZONED: R-20
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: CON/SPAN BRIDGE SPECIFICATIONS

DATE: JULY, 2007 PROJECT NO. 1585

SCALE: AS SHOWN SHEET 22 OF 22

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Sheet Title: SPECIFICATIONS

Project Status: APPROVED FOR CONSTRUCTION

Designd MRP Project No. 15086

Drawn RPU

Checked LNM Sheet No. CT8

Date 4/12/07

HOWARD COUNTY MARYLAND

TAYLOR FARM SECTION THREE, PHASE TWO