QUANTITIES

ITEM	ESTIMATED	AS-BUILT QUANTITIES	AS-BUILT TYPE	AS-BUILT SUPPLIER
8"S	263 L.F.			
MANHOLE	3 EACH			
6" FORCE MAIN	48 L.F.			
1" WHC	18 L.F.			
1/8 H.B.	1 EACH			
1/32 H.B.	1 EACH			
8" VALVE	1 EACH			
6" VALVE	3 EACH			
EMERGENCY PUMPING CONNECTION MANHOLE	1 EACH			
SOIL/COMPOST ODOR CONTROL FILTER	1 EACH			
EMERGENCY DIESEL GENERATOR	1 EACH			
ODOR FILTER PAVILION	1 EACH			
TRANSFORMER	1 EACH			
WET WELL	1 EACH			
PUMP STATION	1 EACH			
NAME OF UTILITY CONTRACTOR:				
SURVEY & DRAFTING DIVISION AS-BUILT DATE:				

SHEET INDEX

DEVELOPER'S CERTIFICATION

" I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE 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 OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

Paul W. Kaiebel, FOR:

AUTUMN DEVELOPMENT CORPORATION — 05-26-11

SIGNATURE OF DEVELOPER — DATE

ENGINEER'S CERTIFICATION

" I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Paul W. Kaiebel — 05/26/11

SIGNATURE OF ENGINEER — DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY DESIGN MANUAL - VOLUME IV: STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND AS SHOWN ON THESE PLANS.

Paul W. Kaiebel, FOR:

AUTUMN DEVELOPMENT CORPORATION — 05-26-11

SIGNATURE OF DEVELOPER — DATE

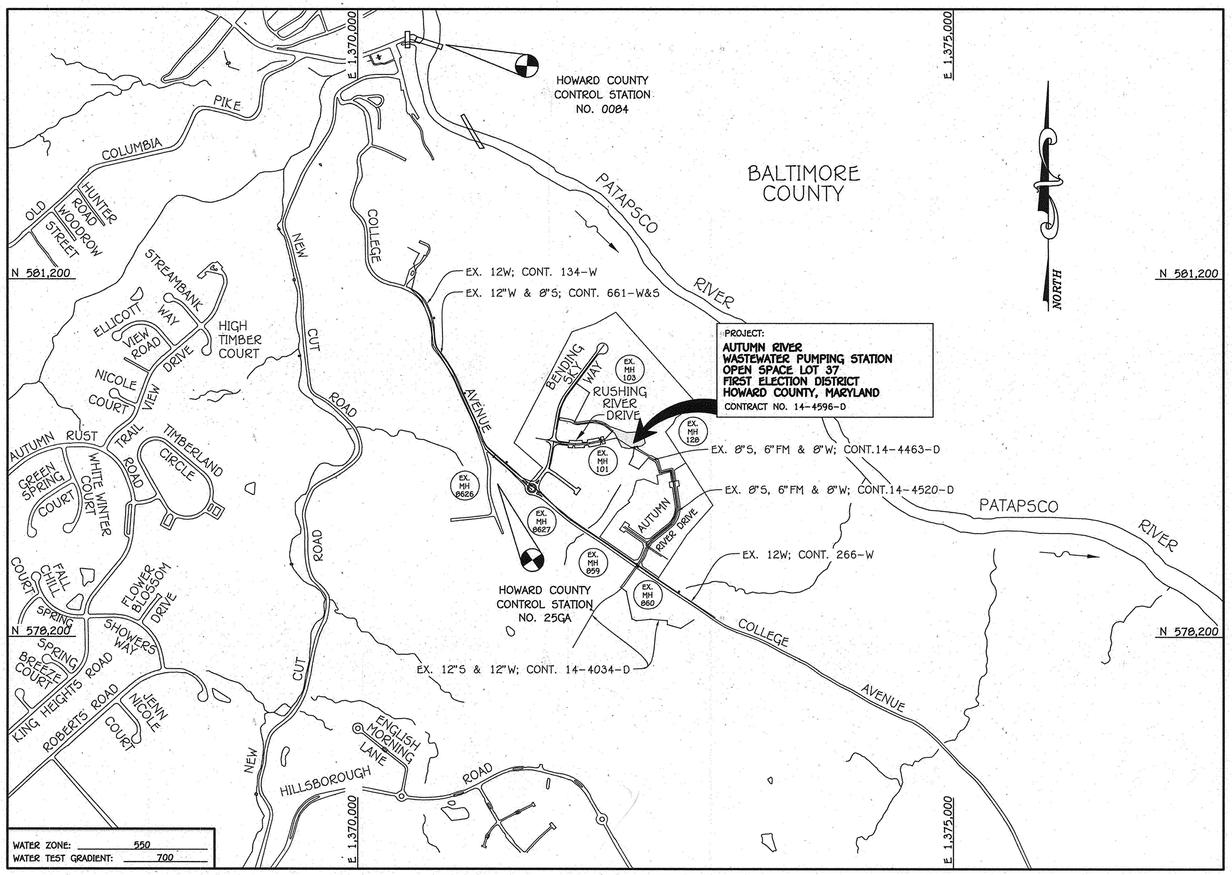
SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE ROAD, STORM DRAIN & STORMWATER MANAGEMENT CONSTRUCTION PLANS FOR AUTUMN RIVER, PHASE II, F-09-021 & SHEETS 20 & 21 OF THIS CONTRACT.

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

APPROVED:

John R. Robertson — 6/14/11

HOWARD SOIL CONSERVATION DISTRICT — DATE



PROJECT:
AUTUMN RIVER
WASTEWATER PUMPING STATION
OPEN SPACE LOT 37
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 14-4596-D

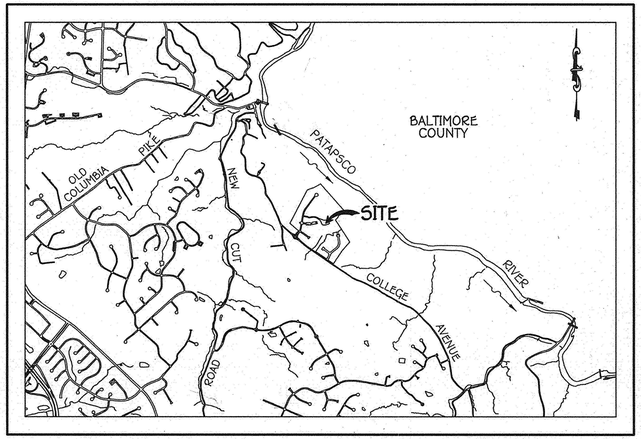
WATER ZONE: 550
WATER TEST GRADIENT: 700

TYPE OF BUILDING: WASTEWATER PUMPING STATION
NUMBER OF PARCELS: ONE (1) BUILDABLE
NO. OF WATER HOUSE CONNECTIONS: 1
NO. OF SEWER HOUSE CONNECTIONS: 1
SEWER SHED: PATAPSCO
TREATMENT PLANT: PATAPSCO WASTEWATER TREATMENT PLANT; CITY OF BALTIMORE

PLAN REFERENCE NUMBERS:
SDP-10-014
F-09-021

VICINITY MAP

SCALE: 1" = 600'



LOCATION MAP

SCALE: 1" = 2000'

BENCHMARK INFORMATION

B.M.#1 - HOWARD COUNTY CONTROL STATION #0084 - HORIZONTAL - NAD '83)
(LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF FREDERICK ROAD AND OELLA AVENUE, APPROX. 8.5' OFF THE EDGE OF PAVING)
N 583,158.7615
E 1,370,739.9782
ELEVATION = 124.912 - VERTICAL - (NAVD '88)

B.M.#2 - HOWARD COUNTY CONTROL STATION #25GA - HORIZONTAL - (NAD '83)
(LOCATED ON THE GROUNDS OF TAYLOR MANOR HOSPITAL, APPROX. 40' OFF THE EDGE OF PAVING, SOUTH OF COLLEGE AVENUE)
N 579,483.573
E 1,371,171.800
ELEVATION = 381.942 - VERTICAL - (NAVD '88)

GENERAL NOTES

PART A

1. APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN JUNE, 2007 BY ROBERT H. VOGEL ENGINEERING INC.
3. HORIZONTAL AND VERTICAL SURVEY CONTROLS:
   THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/91' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 0084 & NO. 25GA.
   ALL VERTICAL CONTROLS ARE AS INDICATED IN THE BENCHMARK INFORMATION. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS.
4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
5. CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN EVENT THE CONTRACTOR'S WORK REQUIRES BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF THE ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
6. FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB SITE.
7. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL ⊕ AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
8. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T	1-800-252-1133
BGE (CONSTRUCTION SERVICES)	410-637-8713
BGE (EMERGENCY)	410-685-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033

9. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
10. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE CONSTRUCTION OF THE MAIN.
11. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)-313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(a) OF THE HOWARD COUNTY CODE.

PART B: WATER MAIN GENERAL NOTES

1. ALL WATER MAINS SHALL BE AWWA PVC C900 UNLESS OTHERWISE NOTED.
2. TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
3. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
4. ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
5. FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
6. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
7. FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 FOR PVC PRESSURE PIPE SHALL BE SUBMITTED WITH THE PIPE MATERIAL CERTIFICATIONS OR SHOP DRAWINGS PRIOR TO APPROVAL OF THE MATERIAL FOR USE. THE TEST RECORDS SHALL BE FOR THE PIPE TO BE INSTALLED UNDER THIS CONTRACT. ALL PVC PIPE SHALL CONTAIN MARKINGS TO ALLOW CROSS REFERENCING OF THE PIPE SUPPLIED TO THE TEST RECORDS RECEIVED.
8. UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, SEVENTEEN (17) POUND SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL VALVES AND METALLIC FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSES. ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL FITTINGS AND SADDLES USED WITH PVC MAINS. ALL "TEES" USED WITH PVC MAINS SHALL BE DUCTILE IRON.
9. THE WASTEWATER PUMPING STATION SHALL HAVE A 1" WATER HOUSE CONNECTION WITH A 3/4" OUTSIDE METER SETTING; STD. DET. W-3.27.

PART C: SEWER MAIN GENERAL NOTES

1. ALL SEWER MAINS SHALL BE D.I.P. OR P.V.C. AS SPECIFIED ON PLANS.
2. ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
3. FORCE MAINS SHALL BE CLASS 54 D.I.P.
4. MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
5. MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVER, STANDARD DETAIL G5.52. WHERE WATERTIGHT MANHOLE FRAMES AND COVERS ARE USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
6. HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT CELLAR CANNOT BE SERVED.

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
OPEN SPACE LOT 37
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DRIVE
SUITE 102
ELLICOTT CITY, MARYLAND 21042

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
OPEN SPACE LOT 37
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/16/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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. 12043 EXPIRATION DATE IS 7/16/12.

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

#12043 — STATE OF MARYLAND — PAUL WALTER KIEBEL — REGISTERED PROFESSIONAL ENGINEER
PAUL W. KIEBEL

DESIGNED BY : B.C.R.
DRAWN BY : B.C.R.
CHECKED BY : P.W.K.
DATE : MAY, 2011

BY	NO.	REVISION	DATE
FCC	2A	ADD NEW SHEET 2A; PLAN: "AS BUILT" CONDITIONS	3/11/13

TITLE SHEET

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION TITLE SHEET

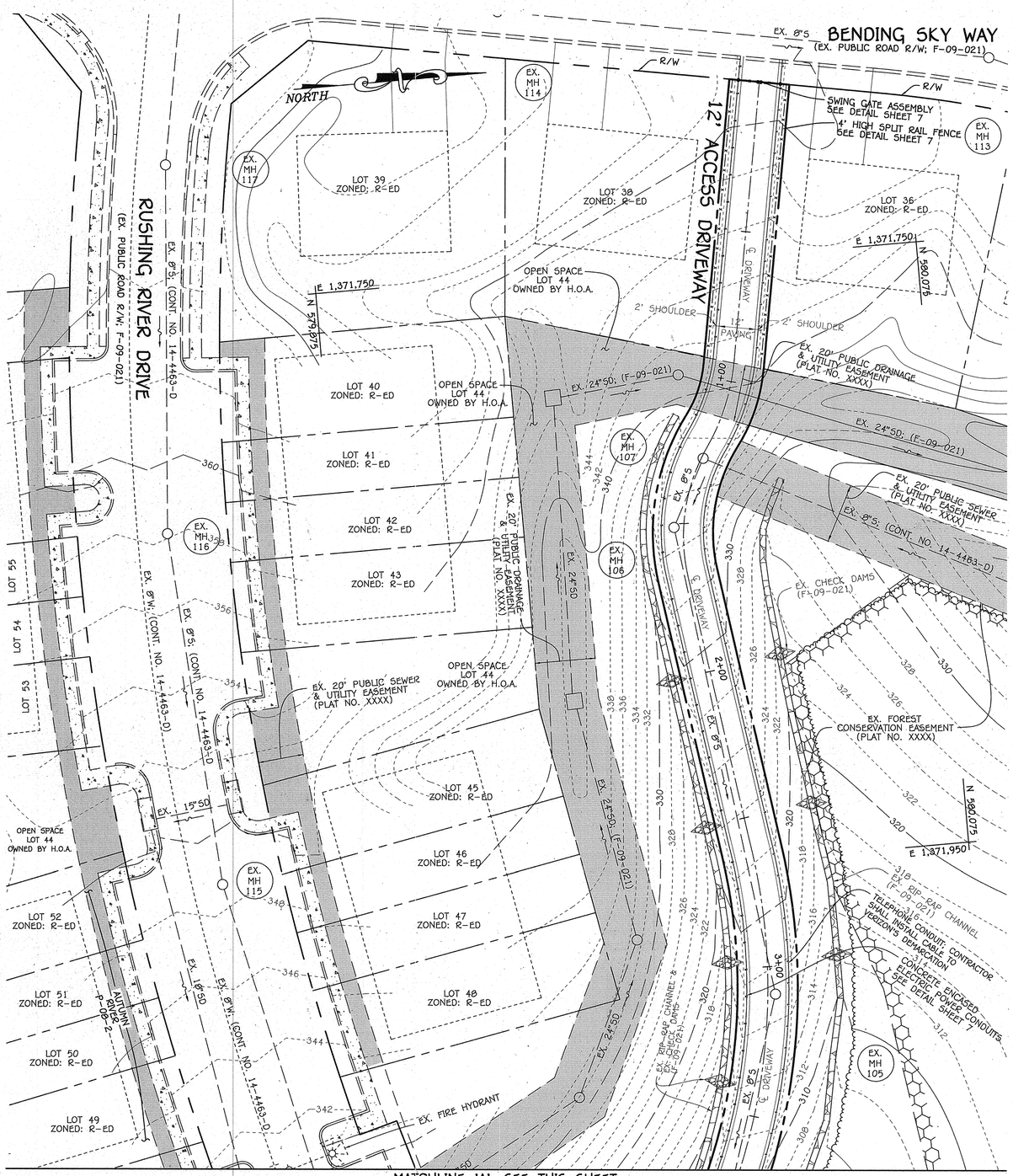
AUTUMN RIVER
WASTEWATER PUMPING STATION
CONTRACT NO. 14-4596-D
OPEN SPACE LOT 37
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 1 OF 21

AS BUILT: 03/13

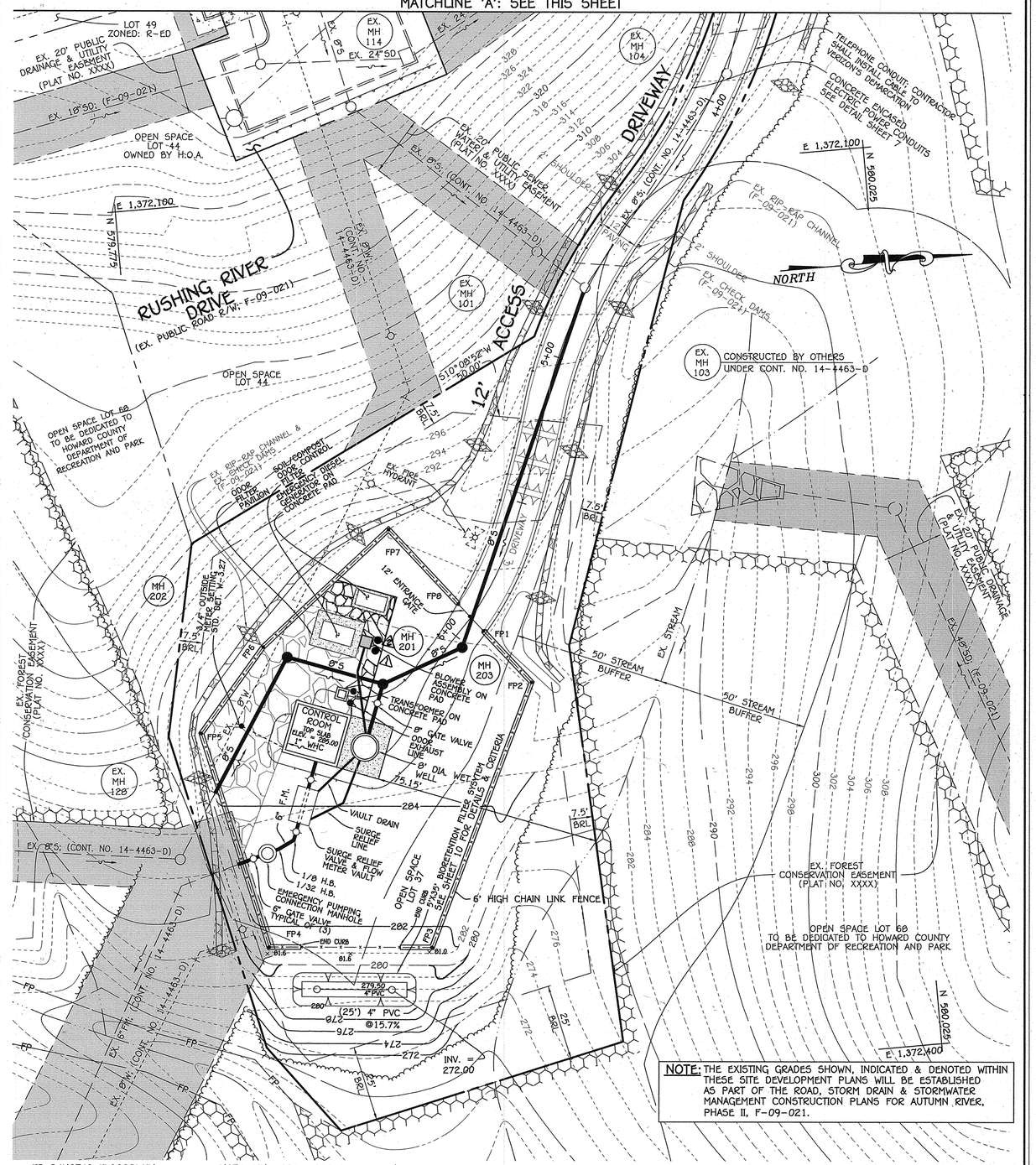
K:\Drawings 3\30627 Autumn River\dwg\30627-Public ARWWPS Plan.dwg, 9/26/2011 8:37:41 AM



MATCHLINE 'A': SEE THIS SHEET

PLAN

SCALE: 1" = 20'



NOTE: THE EXISTING GRADES SHOWN, INDICATED & DENOTED WITHIN THESE SITE DEVELOPMENT PLANS WILL BE ESTABLISHED AS PART OF THE ROAD, STORM DRAIN & STORMWATER MANAGEMENT CONSTRUCTION PLANS FOR AUTUMN RIVER, PHASE II, F-09-021.

FP DENOTES FLOODPLAIN

NOTE: MH #201, #202 & #203 SHALL BE 6'-0" INSIDE DIAMETER

PLAN

SCALE: 1" = 20'

DENOTES TEXAS WHITE STONE

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES — DATE 6/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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. 12043 EXPIRATION DATE IS 7/16/12.

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

STATE OF MARYLAND — PAUL WALTER KRIEBEL — NO. 12043 — REGISTERED PROFESSIONAL ENGINEER
PAUL W. KRIEBEL

DESIGNED BY : B.C.R.
DRAWN BY : B.C.R.
CHECKED BY : P.W.K.
DATE : MAY, 2011

BY	NO.	REVISION	DATE
FCC	2	ADD BOLLARDS IN FRONT OF DOOR CONTROL BLOWER	9/11/13
FCC	1	INDICATE LIMITS OF TEXAS WHITE STONE (AS BUILT)	3/11/13

SITE PLAN

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION PLAN

AUTUMN RIVER WASTEWATER PUMPING STATION

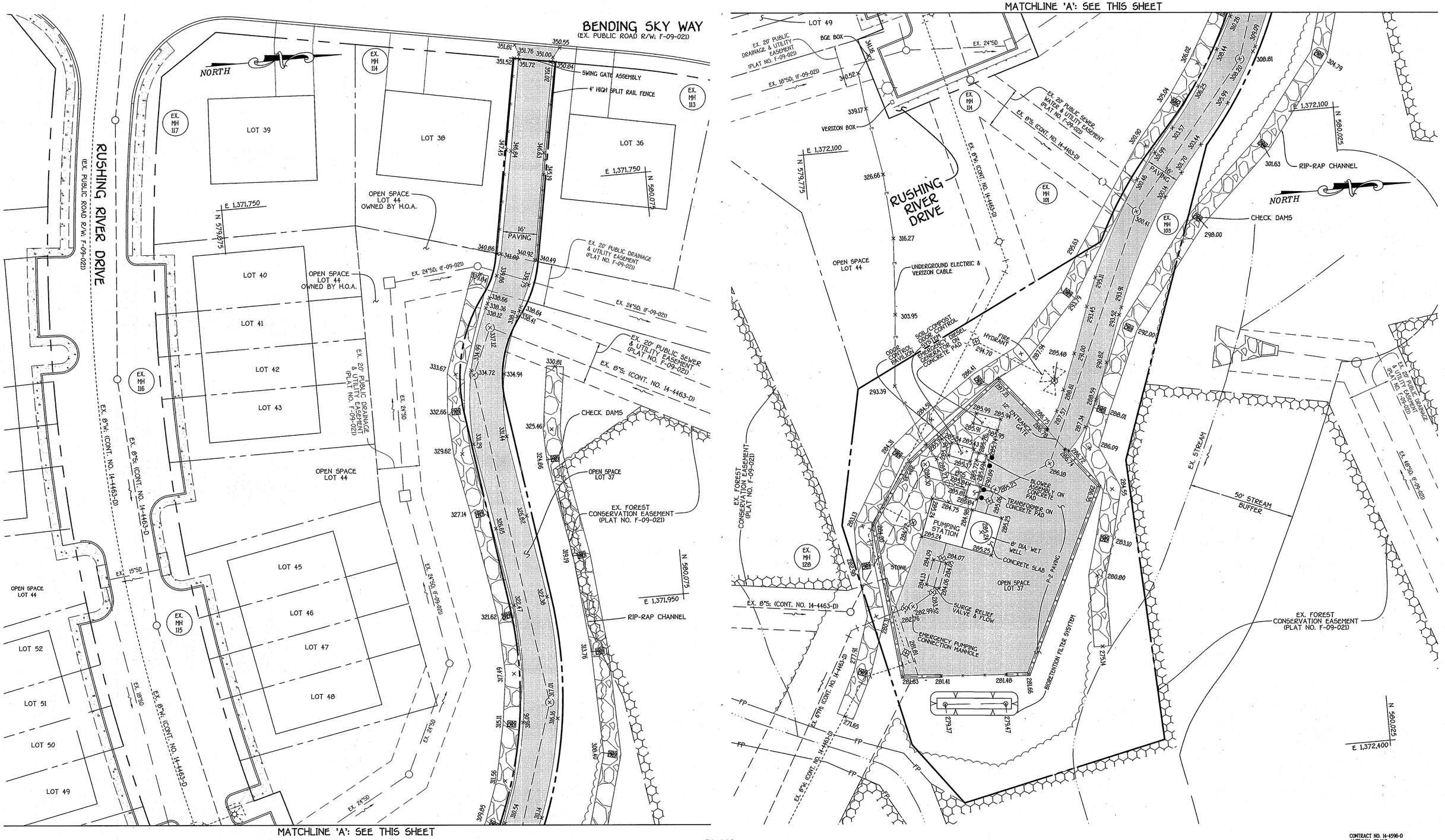
CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 2 OF 21

AS BUILT: 09/13

K:\Drawings 3\30627 Autumn River\dwg\30627-Public AR\WPS Plan.dwg, 5/20/2011 2:29:53 PM



PLAN

SCALE: 1" = 20'

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES — DATE 3/22/13

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/20/13

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. 12043 EXPIRATION DATE IS 7/15/14.

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

*12043
PAUL W. KRIEBEL

DESIGNED BY :	BY	NO.	REVISION	DATE
B.C.R.				
DRAWN BY : B.C.R.				
CHECKED BY : P.W.K.				
DATE : MARCH, 2013				

"AS-BUILT" CONDITIONS PLAN

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION

AUTUMN RIVER WASTEWATER PUMPING STATION

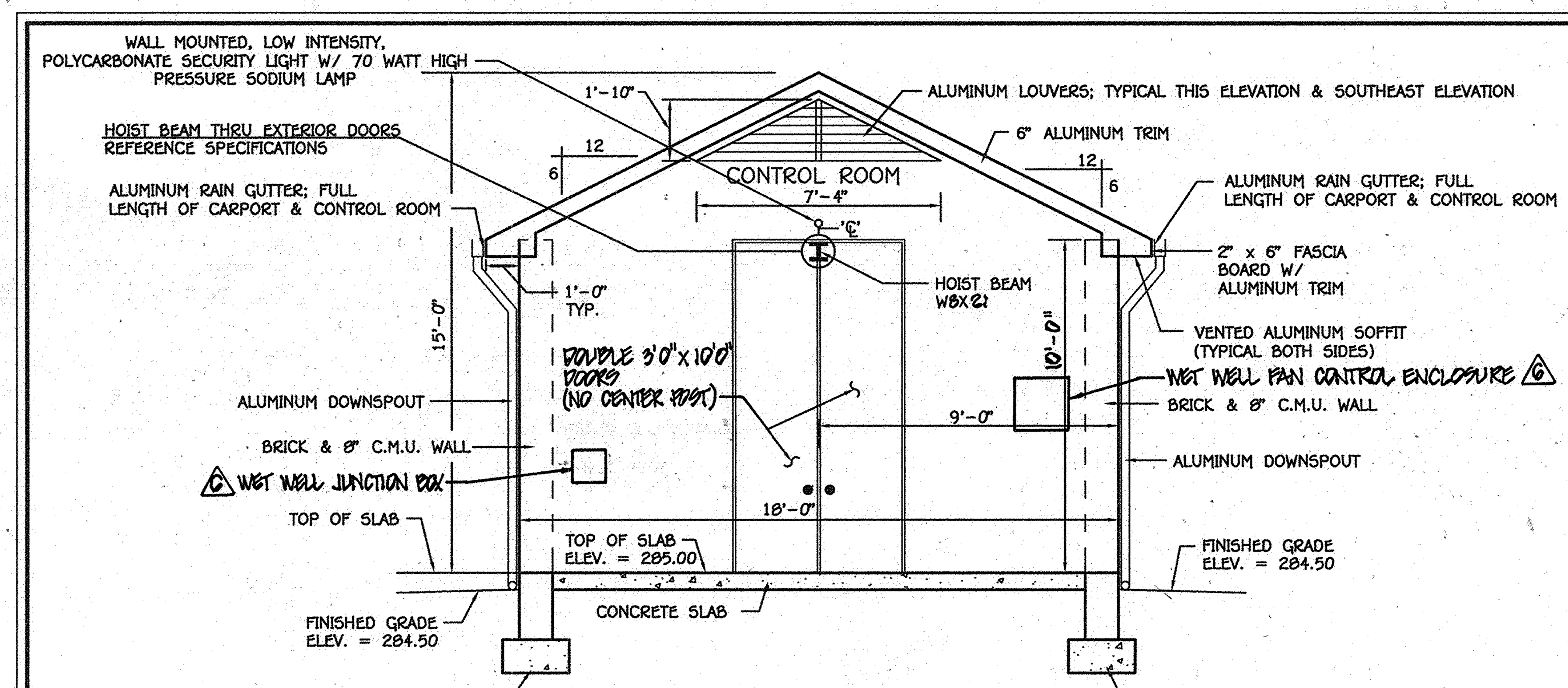
CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

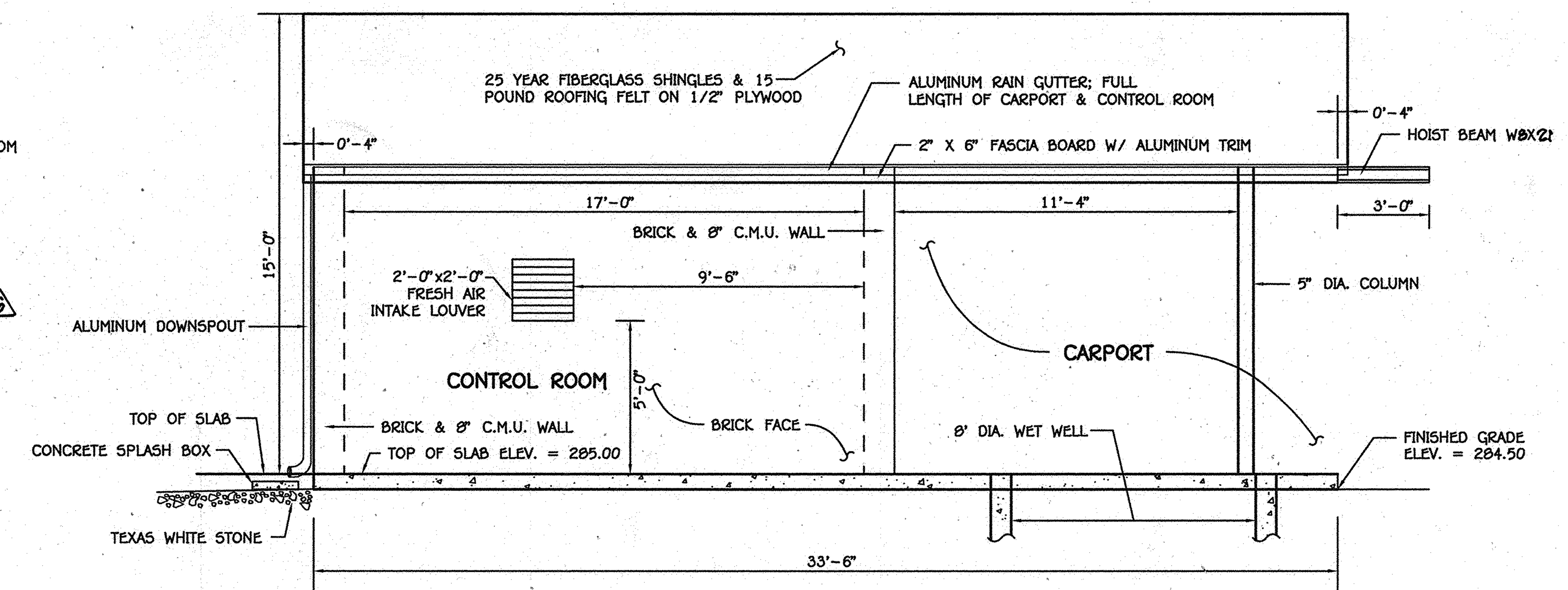
SHEET 2A OF 21

AS BUILT: 03/13

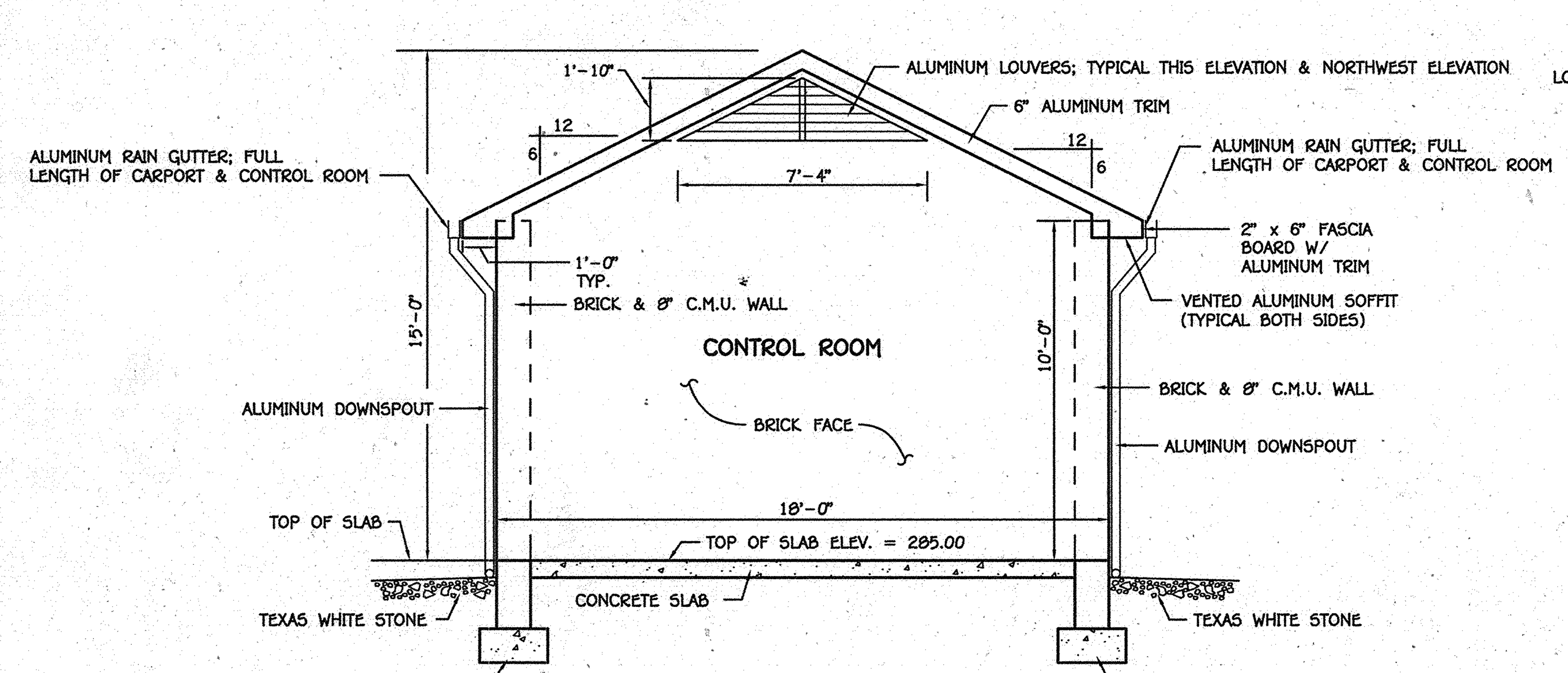
K:\Drawings 3\30627 Autumn River\dwg\30627 Current As-Built- Pump Station - (March 2013).dwg, Layout1, 3/12/2013 12:28:41 PM, 1:1



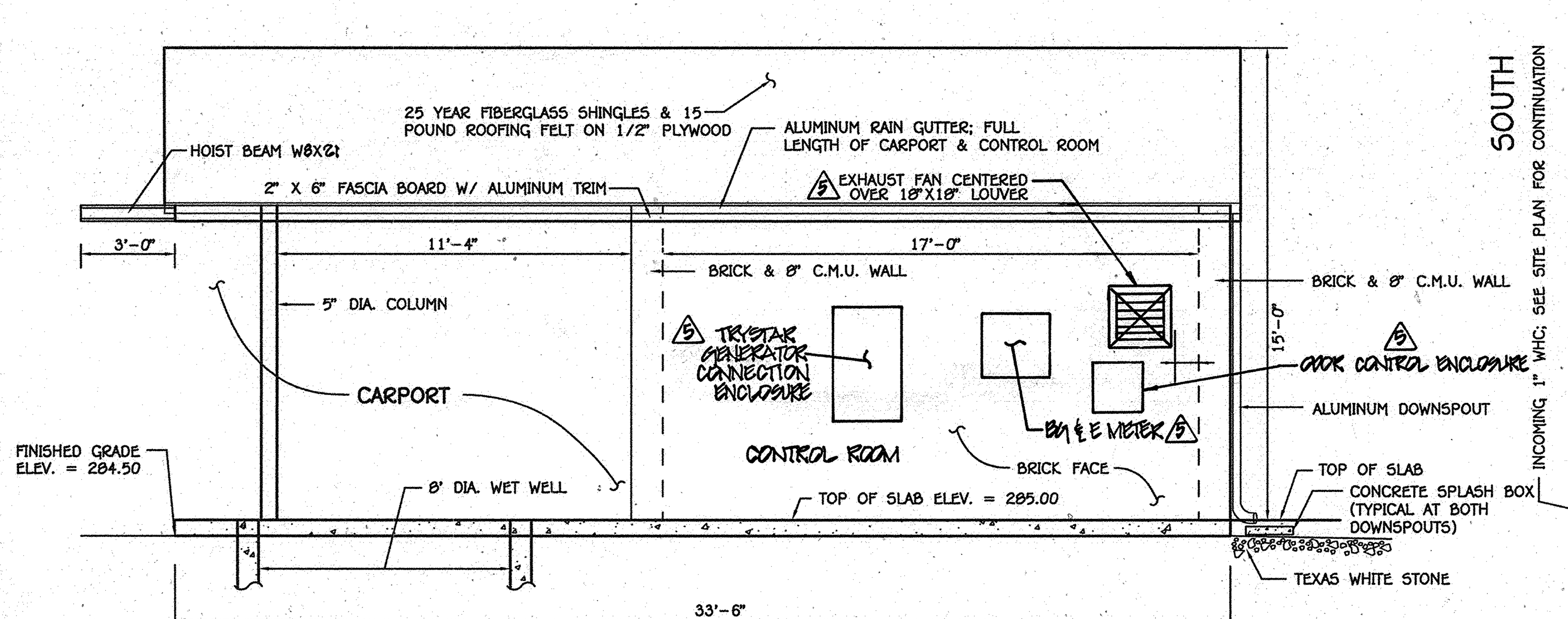
NORTH ELEVATION
SCALE: ¼" = 1'-0"



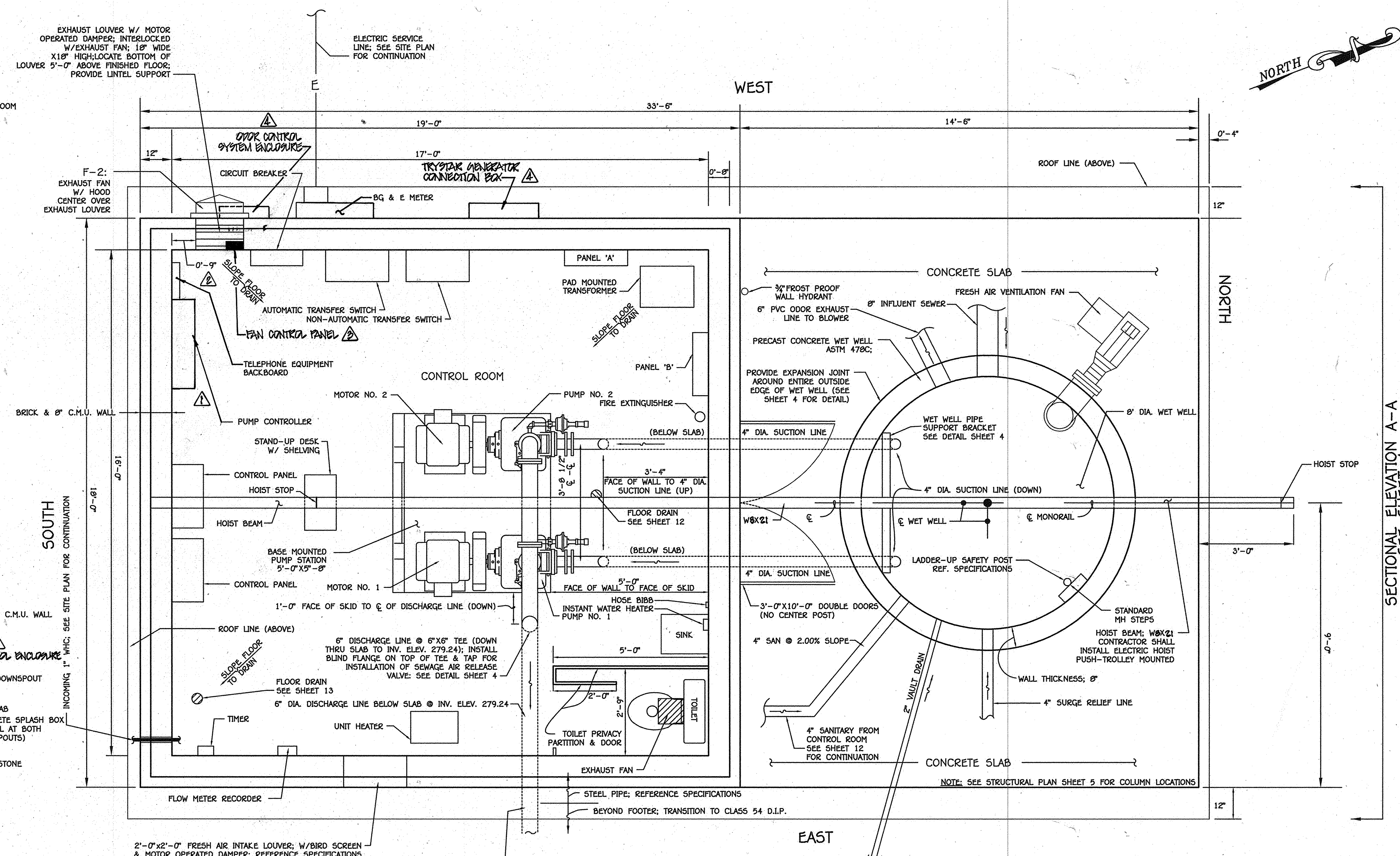
EAST ELEVATION
SCALE: ¼" = 1'-0"



SOUTH ELEVATION
SCALE: ¼" = 1'-0"



WEST ELEVATION
SCALE: ¼" = 1'-0"



PLAN VIEW
SCALE: ½" = 1'-0"

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND
[illegible] 6/1/11 CHIEF, BUREAU OF UTILITIES — DATE	[illegible] 6/23/11 M.C. CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

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. 12043 EXPIRATION DATE IS 7/16/12.

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

#12043
STATE OF MARYLAND — PAUL WALTER KINEBEL — NO 12043 — PROFESSIONAL ENGINEER
PAUL W. KINEBEL

	BY	NO.	REVISION	DATE
DESIGNED BY : B.C.R.	FCC	6	INDICATE & DENOTE LOCATION OF "AS BUILT" APPURTENANCES : NORTH ELEV.	3/11/13
	FCC	5	INDICATE & DENOTE LOCATION OF "AS BUILT" APPURTENANCES : WEST ELEV.	3/11/13
DRAWN BY : B.C.R.	FCC	4	INDICATE & DENOTE "AS BUILT" APPURTENANCES ON WEST WALL	3/11/13
	FCC	3	INDICATE & DENOTE "AS BUILT" LOCATION OF FAN CONTROL PANEL	3/11/13
CHECKED BY : P.W.K.	FCC	2	INDICATE "AS BUILT" LOCATION OF TELEPHONE EQUIPMENT BACK BOARD	3/11/13
DATE : MAY, 2011	FCC	1	INDICATE & DENOTE "AS BUILT" LOCATION OF PUMP CONTROLLER	3/11/13

PUMPING STATION
ELEVATIONAL VIEWS

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION ELEVATIONAL VIEWS

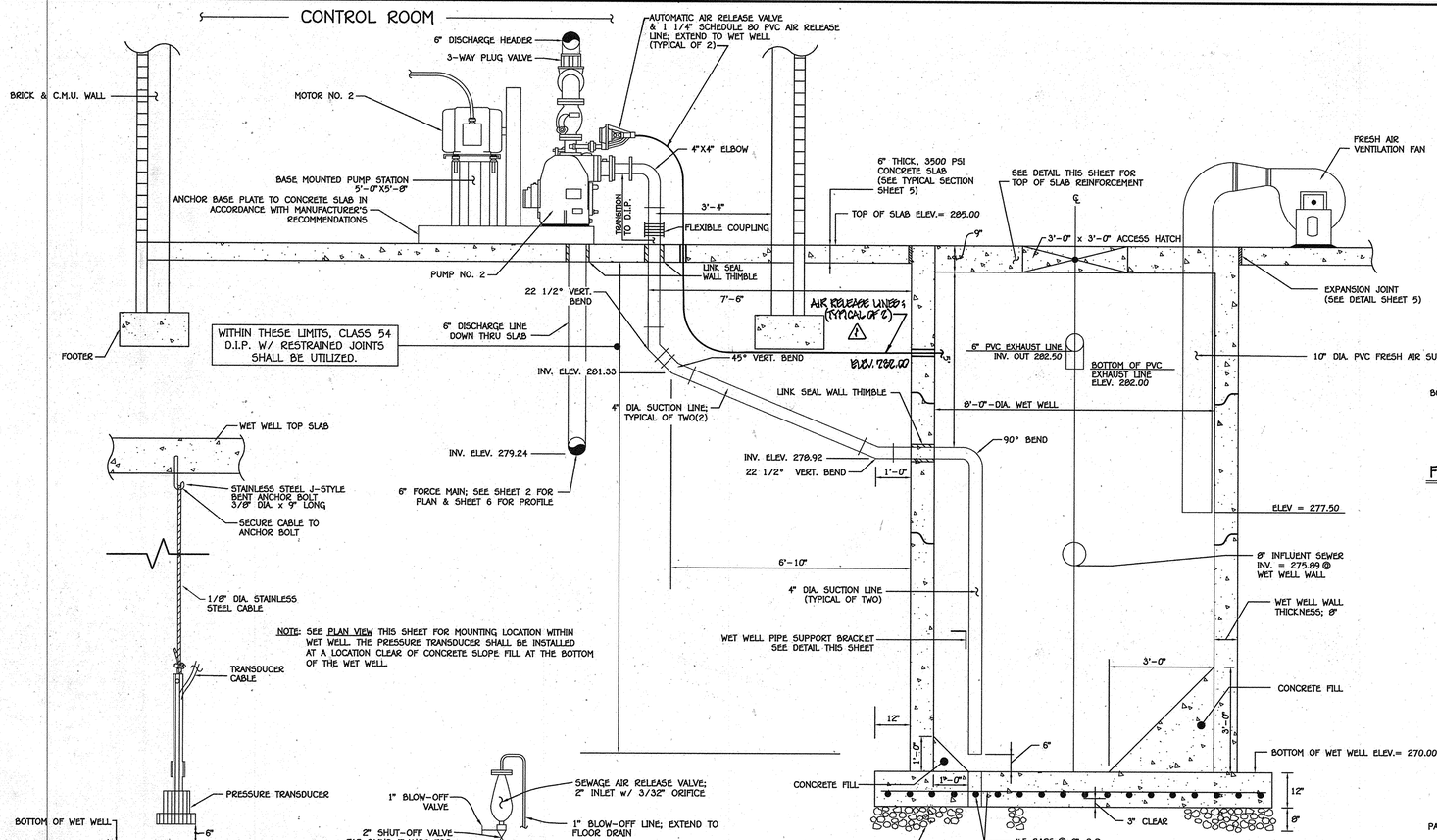
AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 3 OF 21

AS BUILT: 03/13



LEVEL SENSOR MOUNTING DETAIL
NO SCALE

DETAIL: SEWAGE AIR RELIEF VALVE @ DISCHARGE HEADER
NO SCALE

DETAIL: WET WELL PIPE SUPPORT BRACKET
NOT TO SCALE

NOTES:
1. ALL BRACES, BRACKETS, HARDWARE AND ANCHOR BOLTS SHALL BE STAINLESS STEEL.

KEYWAY DETAIL
NOT TO SCALE

SECTIONAL ELEVATION: WET WELL TO CONTROL ROOM
SCALE: ½" = 1'-0"

FLOAT POLE ATTACHMENT DETAIL
NOT TO SCALE

HIGH LEVEL ALARM =	275.00
LAG PUMP ON =	274.50
LEAD PUMP ON =	274.00
LAG PUMP OFF =	273.50
LEAD PUMP OFF =	273.00
LOW LEVEL ALARM =	272.50

SECTIONAL ELEVATION A-A
SCALE: ½" = 1'-0"

WET WELL JOINT DETAIL
NOT TO SCALE

PLAN VIEW
SCALE: ½" = 1'-0"

PLAN VIEW: TOP SLAB RESTEEL
SCALE: ½" = 1'-0"

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/6/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11 M.G.

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. 12043 EXPIRATION DATE IS 7/16/12.

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

#12043
STATE OF MARYLAND — PAUL WALTER KRIEBEL — PROFESSIONAL ENGINEER
PAUL W. KRIEBEL

DESIGNED BY : B.C.R.
DRAWN BY : B.C.R.
CHECKED BY : P.W.K.
DATE : MAY, 2011

BY	NO.	REVISION	DATE
FCC	1	INDICATE & DENOTE AIR RELEASE LINES ; VALVE TO WET WELL	9/11/13

WET WELL: PLAN & SECTIONAL ELEVATION VIEWS

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION ELEVATIONAL VIEWS

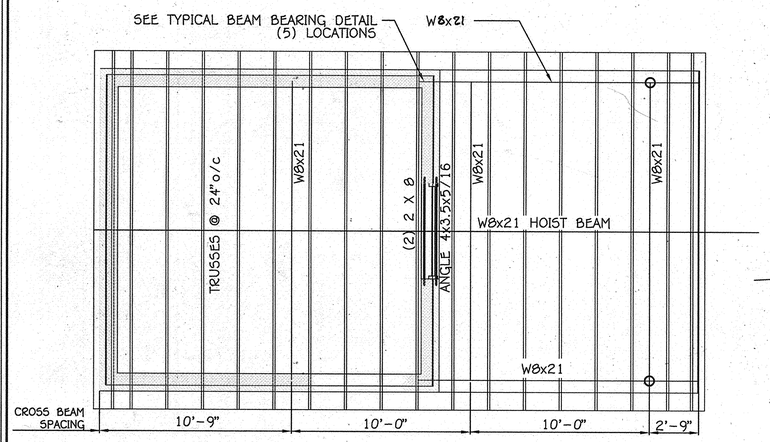
AUTUMN RIVER WASTEWATER PUMPING STATION
CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

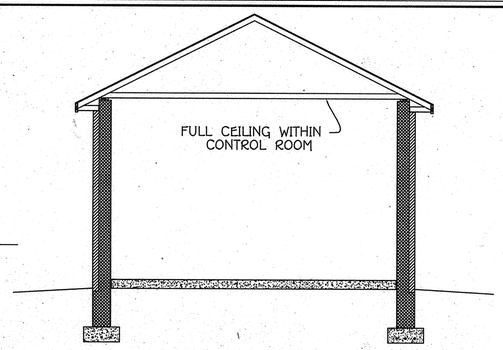
SHEET 4 OF 21

AS BUILT: 03/13

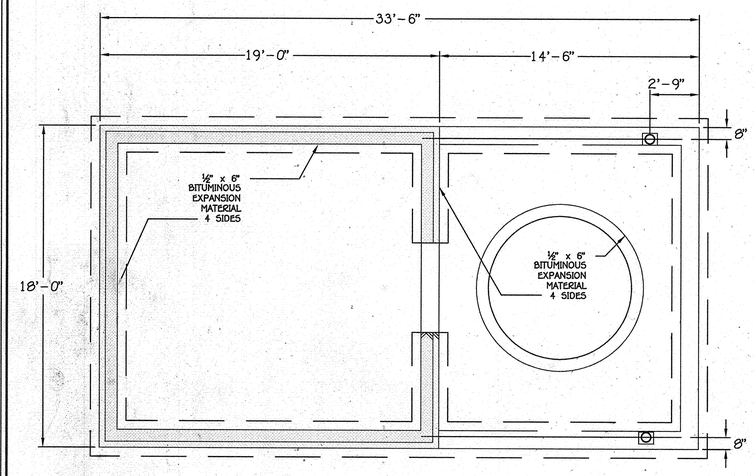
K:\Drawings 3\30627 Autumn River\dwg\30627-Public ARWWPS Plan.dwg, 5/20/2011 2:33:07 PM



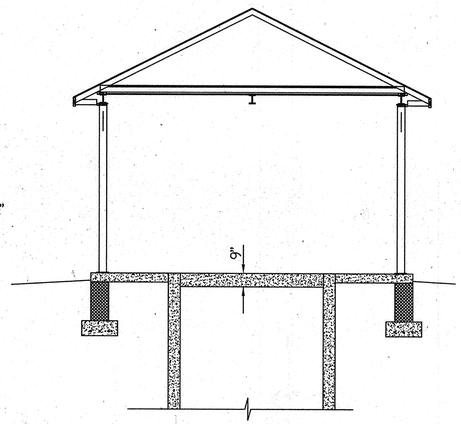
ROOF FRAMING PLAN
1/4" = 1'-0"



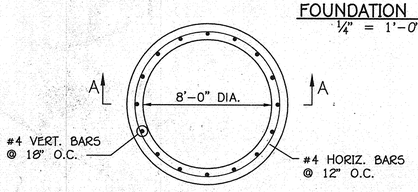
SECTION THROUGH CONTROL ROOM
1/4" = 1'-0"



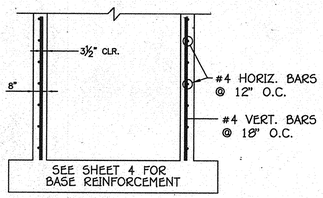
FOUNDATION PLAN
1/4" = 1'-0"



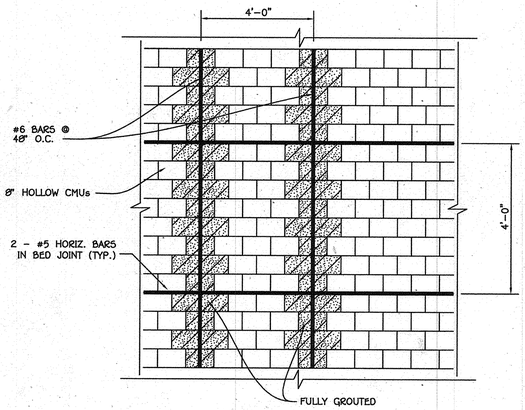
SECTION THROUGH CAR PORT
1/4" = 1'-0"



PLAN VIEW
NOT TO SCALE



CROSS SECTION A-A
NOT TO SCALE



EXTERIOR MASONRY BLOCK WALL REINFORCEMENT
NOT TO SCALE

8' DIA. WET WELL: WALL REINFORCEMENT

CONSTRUCTION NOTES:

ROOF:
25 YEAR FIBERGLASS SHINGLES
15# ROOFING PAPER
1/2" CDX PLYWOOD SHEATHING
PRE-ENGINEERED WOOD TRUSSES @ 24" O/C
WITH SOFFIT RETURNS, (WEBS NOT SHOWN)
DESIGN LIVE LOAD = 30 PSF
DEAD LOAD = 15 PSF

FASTEN EACH TRUSS TO PLATES WITH
18 GA. GALVANIZED HOLD-DOWN CLIPS
SUCH AS SIMPSON H3

2"x8" FASCIA AND RAKES W/ALUMINUM WRAP
VENTED ALUMINUM SOFFITS
CONTINUOUS ALUMINUM GUTTERS AND DOWNSPOUTS.

CONTROL ROOM GABLE ENDS:
BRICK VENEER
15LB ROOFING PAPER
1/2" CDX PLYWOOD
2"x4" STUDS @ 16" O/C
ATTACH VENEER TO STUDS WITH
GALVANIZED TIES PER CODE.

SHELTER GABLE END:
ALUMINUM SIDING
15LB ROOFING PAPER
1/2" CDX PLYWOOD SHEATHING
2"x4" STUDS @ 16" O/C

CONTROL ROOM WALLS:
2"x8" CAP PLATE
W/ 1/2"x 12" ANCHOR BOLTS
@ 48" O/C AND 12" FROM ENDS

FACE BRICK OVER 8" CMU BLOCK BACK-UP
W/ TRUSS TYPE JOINT REINFORCING @ 16" O/C
OR OTHER VENEER TIES PER CODE

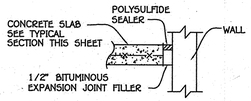
AT LOUVER AND FAN INSTALL (2)4"x8" PRECAST
CONCRETE LINTELS AND (1) ANGLE LINTEL 4"x3.5"x5/16"
WITH 6" BEARING EACH END
SEE DETAIL THIS SHEET

SHELTER STEEL:
ASTM A36 FABRICATED PER AISC
PRIMED AND PAINTED WITH 2 COATS 'RUSTOLEUM'
WRAP EDGE BEAMS WITH ALUMINUM,
INSIDE FACE AND BOTTOM NAILER OF EACH BEAM.

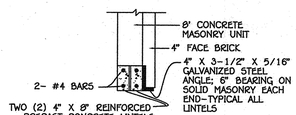
SLAB ON GRADE:
6" CONCRETE SLAB REINFORCED WITH
#4 BARS @ 12" O/C EACH WAY
WITH 2-1/2" CLEARANCE TO
6 MIL VAPOR BARRIER ON
6" COMPACTED CRUSHER RUN
1/2" CHAMFER AT SLAB EDGES

FOOTING:
12" x 24" CONTINUOUS CONCRETE FOOTING
REINFORCED WITH 3 #4 BARS, CONTINUOUS.
WITH 3" CLEARANCE TO EARTH
FOOTINGS TO BEAR ON UNDISTURBED EARTH
OR COMPACTED FILL WITH AN ALLOWABLE
BEARING CAPACITY OF 2000 PSF.

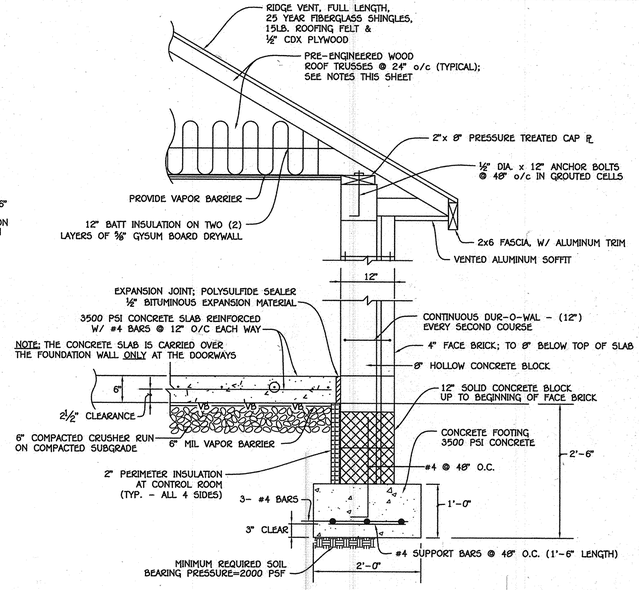
GROUT FOR FILLING CMU SHALL BE 3500 PSI
PEA GRAVEL CONCRETE MIX



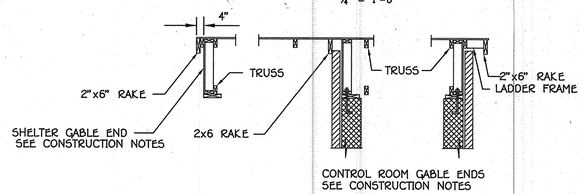
EXPANSION JOINT DETAIL
NO SCALE



LINTEL DETAIL
NO SCALE

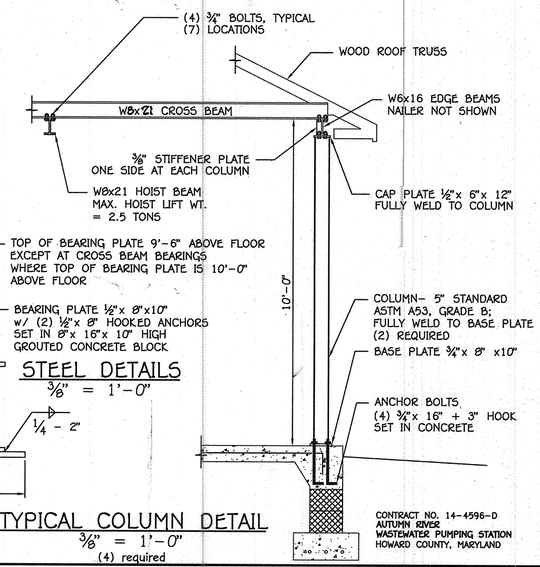


TYPICAL SECTION @ EXTERIOR WALL
3/4" = 1'-0"

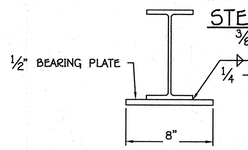


GABLE END DETAILS
3/8" = 1'-0"

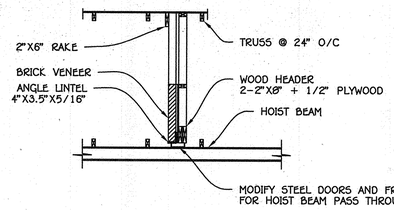
NOTE: FASTEN 2x8 NAILERS TO TOP & BOTTOM OF EDGE BEAMS WITH ½" BOLTS @ 24" O.C, STAGGERED.



STEEL DETAILS
3/8" = 1'-0"



TYPICAL COLUMN DETAIL
3/8" = 1'-0"
(4) required



DOOR HEADER DETAIL
NO SCALE

STRUCTURAL DESIGN DATABASE*
Based on the International Building Code, 2009 edition

1. Floor live load	125 psf
2. Roof live load	30 psf
3. Roof snow load	
-Ground snow load, Pg	25 psf
-Flat roof snow load, Pf	N/A
-Snow exposure factor, Ce	0.9
-Snow load importance factor, Is	1.10
-Thermal factor, Ct	1.20
4. Wind load	
-Basic wind speed(3 second gust) miles per hour	90 MPH
-Wind load importance factor, Iw, and building category	1.15 C
-Wind exposure factor	C
-Applicable internal pressure coefficient	1.21
-Components and cladding	Non
5. Earthquake design data:	
-Seismic importance factor, Ie	1.25
-Seismic use group	II
-Mapped spectral response accelerations	
Ss	18.7%g
S1	6.3%g
-Site class	D
-Spectral response coefficients	
Sds	0.13g
Sd1	0.08g
-Seismic design category	B
-Basic seismic-force-resisting system-	bearing walls
-Design base shear	V=CsW = 14 kips
-Seismic response coefficients, Cs	0.11
-Response modification factor, R	1.5
-Analysis procedure used	IBC 2009, ASCE 7

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/6/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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. 17262 EXPIRATION DATE IS 7/24/13.

BRUDIS & ASSOCIATES, INC.
CONSULTING ENGINEERS
9240 Rumsey Road, Suite C
Columbia, Maryland 21045
Phone 410-884-3607
www.brudis.com

STATE OF MARYLAND — TIMOTHY EUGENE MCSHANE — #17262 — REGISTERED PROFESSIONAL ENGINEER — 7/23/11
TIM MCSHANE

DESIGNED BY :	T.E.M.
DRAWN BY :	D.T.
CHECKED BY :	T.E.M.
DATE :	MAY, 2011

BY	NO.	REVISION	DATE

ARCHITECTURAL/STRUCTURAL SECTIONS & DETAILS

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION DETAILS

AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 5 OF 21

AS BUILT: 03/13

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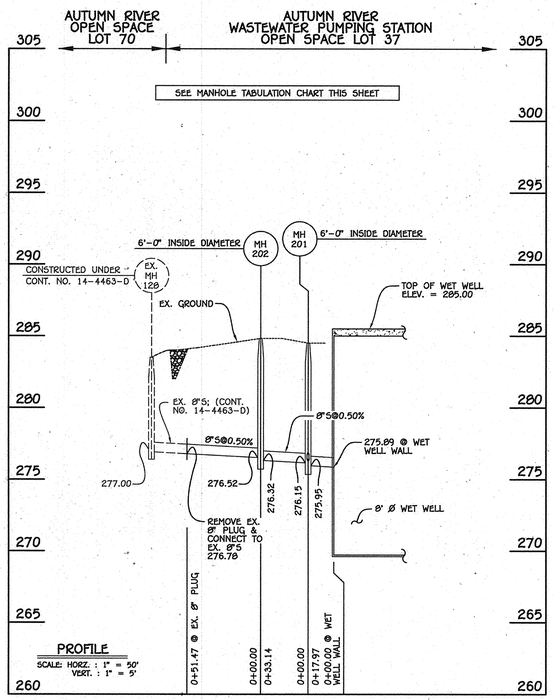
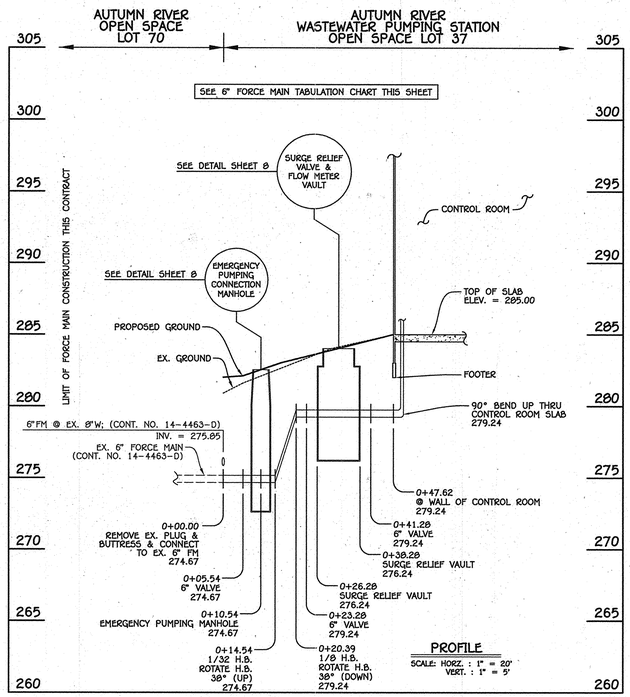
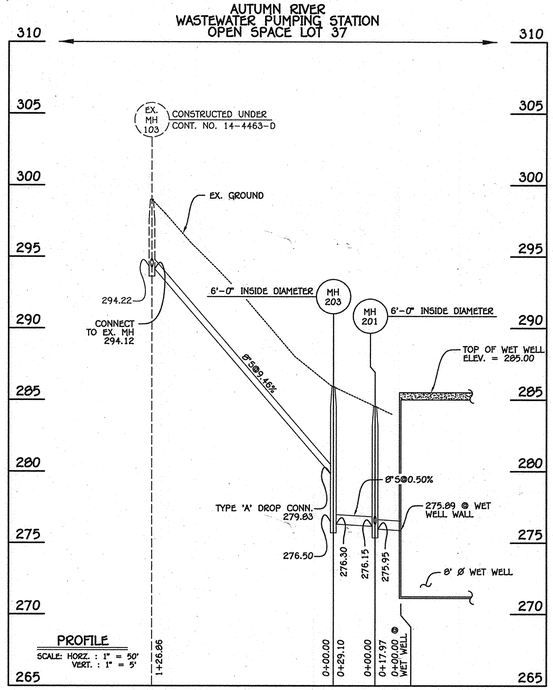


8" SEWER MAIN: TO WET WELL



6" FORCE MAIN



8" SEWER MAIN: TO WET WELL

MANHOLE TABULATION CHART

NO.	NORTHING	EASTING	RIM ELEVATION
MH 201	579850.18	1372264.51	284.50
MH 202	579819.19	1372252.75	284.80

NOTE: SET MH RIMS FLUSH W/PROPOSED GRADE.

6" FORCE MAIN TABULATION CHART

W.M. STA.	APPURTENANCE	NORTHING	EASTING
6" FORCE MAIN: TO CONROL ROOM			
0+00.00	REMOVE EX. 6" PLUG & CONNECT TO EX. 6" FM	579796.76	1372320.22
0+05.54	6" VALVE	579802.10	1372318.74
0+10.54	EMERGENCY PUMPING MANHOLE	579806.92	1372317.41
0+14.54	1/32 H.B.	579810.77	1372316.34
0+20.39	1/8 H.B.	579816.05	1372313.81
0+23.28	6" VALVE	579817.07	1372311.10
0+26.28	@ SURGE RELIEF VAULT WALL	579818.14	1372308.29
0+38.28	@ SURGE RELIEF VAULT WALL	579822.40	1372297.08
0+41.28	6" VALVE	579823.46	1372294.27
0+47.62	@ CONTROL ROOM	579825.71	1372288.35

MANHOLE TABULATION CHART

NO.	NORTHING	EASTING	RIM ELEVATION
MH 201	579850.18	1372264.51	284.50
MH 203	579877.54	1372254.59	286.00

NOTE: SET MH RIMS FLUSH W/PROPOSED GRADE.

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/6/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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. 12043 EXPIRATION DATE IS 7/16/12.

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

STATE OF MARYLAND — PAUL WALTER KRIEBEL — #12043 — REGISTERED PROFESSIONAL ENGINEER
PAUL W. KRIEBEL

DESIGNED BY :	B.C.R.
DRAWN BY :	B.C.R.
CHECKED BY :	P.W.K.
DATE :	MAY, 2011

BY	NO.	REVISION	DATE

SEWER MAIN & FORCE MAIN PROFILES

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION PROFILES

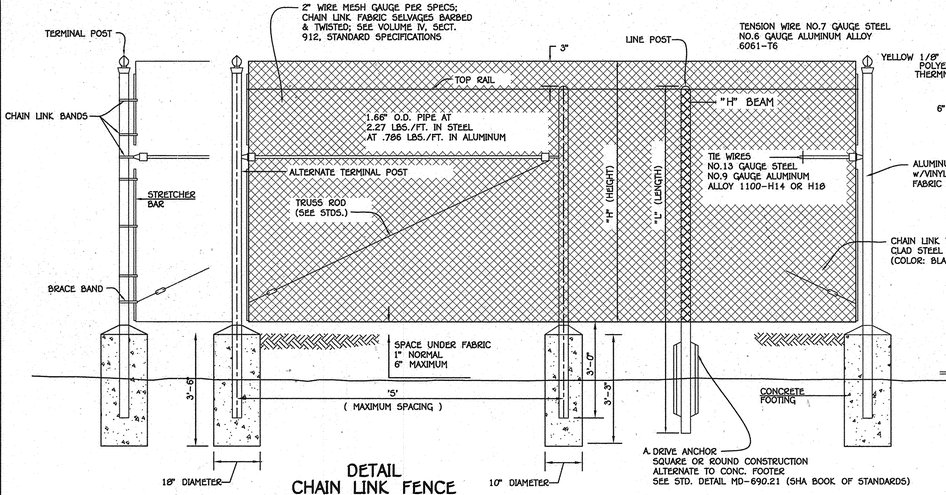
AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

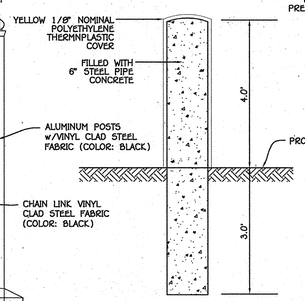
SHEET 6 OF 21

AS BUILT: 05/13



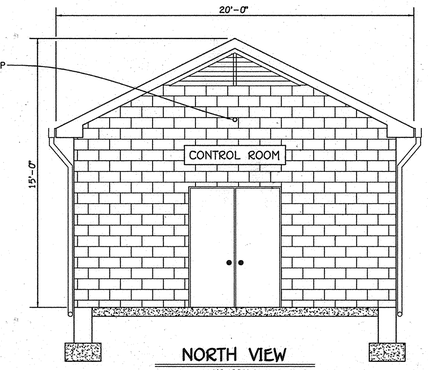
DETAIL CHAIN LINK FENCE

NO SCALE



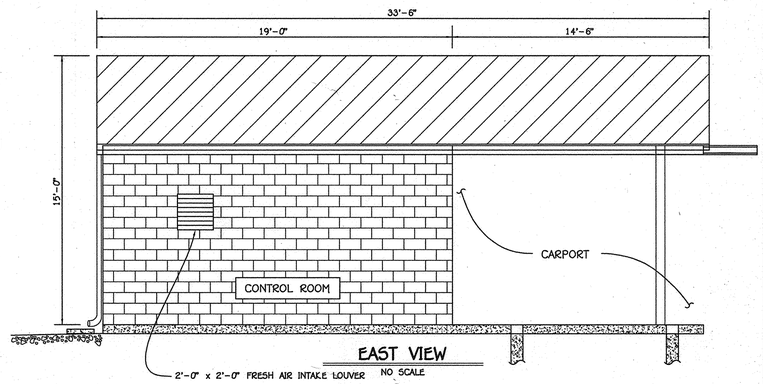
TYPICAL BOLLARD DETAIL

NO SCALE



NORTH VIEW

NO SCALE



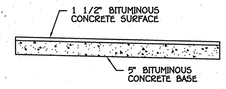
EAST VIEW

NO SCALE

SCHEMATIC BUILDING PROFILES

Fence Post Coordinate Table		
POINT	NORTHING	EASTING
FP1	579885.06	1372249.74
FP2	579889.53	1372268.18
FP3	579858.82	1372353.32
FP4	579804.76	1372348.50
FP5	579780.45	1372275.69
FP6	579811.49	1372248.71
FP7	579859.86	1372210.76
FP8	579877.51	1372240.10

FP DENOTES FENCE POST

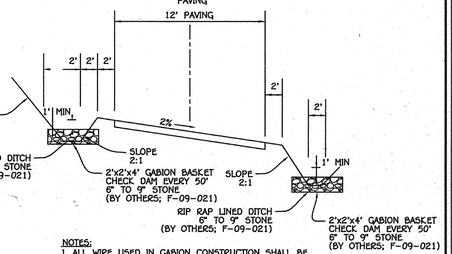


NOTE: PAVING SECTION SHOWN IS HOWARD COUNTY SECTION P-2; DETAIL: R-2.01 FOR THE ACCESS DRIVEWAY & SECTION P-8, STANDARD DETAIL R-2.02 FOR THE SHOULDERS.

NOTE: PAVING FOR PARKING AREAS AT PUMPING STATION & TURN AROUND AREAS SAME AS TYPICAL SECTION FOR ACCESS DRIVEWAY; SECTION P-2.

PAVING SECTION: ACCESS DRIVEWAY & PUMPING STATION SITE

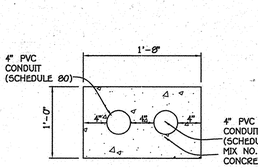
NO SCALE



NOTES:
1. ALL WIRE USED IN GABION CONSTRUCTION SHALL BE GALVANIZED AND PLASTIC COATED.
2. FILTER CLOTH SHALL BE PLACED WHEREVER GABIONS COME INTO CONTACT WITH SOIL.
3. STONE FILL SHALL CONSIST OF HARD, DURABLE, CLEAN STONE 4"-8" IN DIAMETER.
4. CONSTRUCTION MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
5. INCREASE THE CHECK DAM LENGTH AS NEEDED TO ENSURE TO ENSURE BOTH ENDS OF THE CHECK DAM ARE EMBEDED INTO THE SIDE SLOPES OF THE EMBANKMENT A MINIMUM OF 1'.

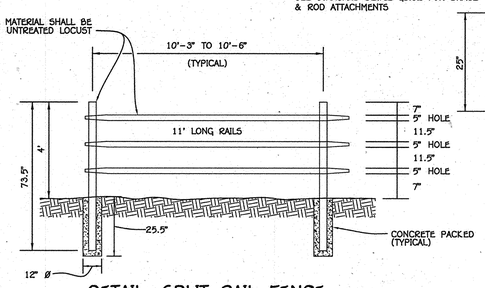
ACCESS DRIVEWAY - TYPICAL SECTION

NO SCALE



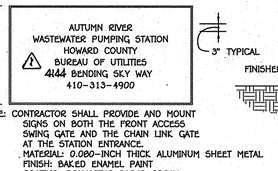
ELECTRICAL CONDUITS ENCASEMENT DETAIL

NO SCALE



DETAIL: SPLIT RAIL FENCE

NO SCALE

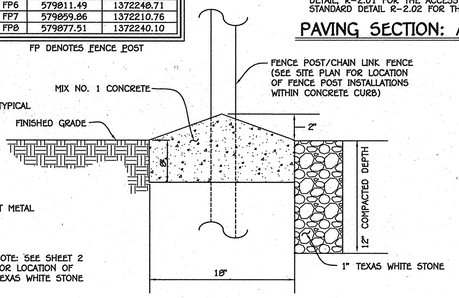


NOTE: CONTRACTOR SHALL PROVIDE AND MOUNT SIGNS ON BOTH THE FRONT ACCESS SWING GATE AND THE CHAIN LINK GATE AT THE STATION ENTRANCE.
MATERIAL: 0.080-INCH THICK ALUMINUM SHEET METAL
FINISH: BAKED ENAMEL PAINT
COATING: POLYESTER BASED SPRAY

SIGN DETAIL

NO SCALE

NOTE: SEE SHEET 2 FOR LOCATION OF TEXAS WHITE STONE

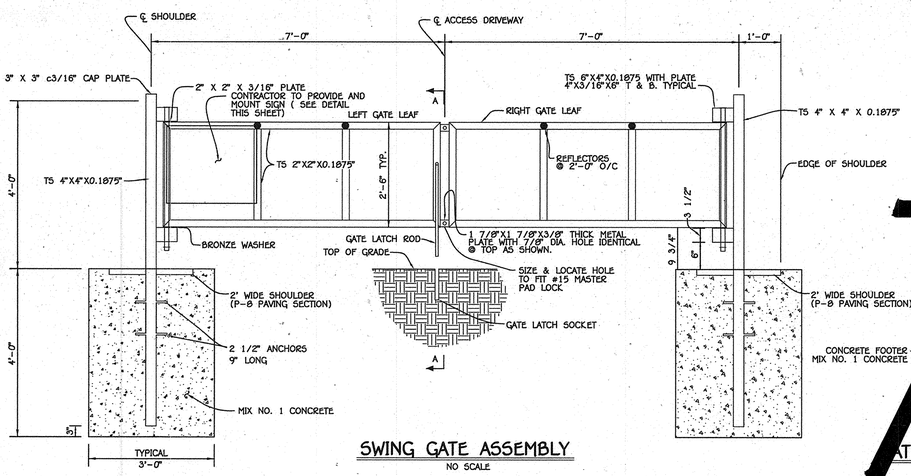


CURB/TEXAS WHITE STONE DETAIL

NO SCALE

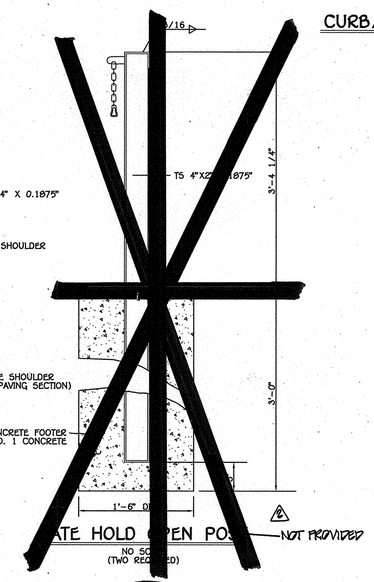
CHAIN LINK FENCE: DIMENSIONS & WEIGHTS

"H" HEIGHT OF FENCE	6'-0"
"S" POST SPACING MAX.	10'-0"
"L" LENGTH OF H BEAM	8'-8" MIN.
H BEAM STEEL	2.25" X 1.95" AT 4.10 LBS./FT.
H BEAM ALUMINUM	2.25" X 1.95" AT 1.25 LBS./FT.
TERM. POST STEEL	2.875" O.D. AT 5.79 LBS./FT.
TERM. POST ALUMINUM	2.875" O.D. AT 2.00 LBS./FT.
ALT. TERM. POST STEEL	2.50" SQ. AT 5.70 LBS./FT.
ALT. TERM. POST ALUMINUM	3.00" SQ. AT 2.00 LBS./FT.



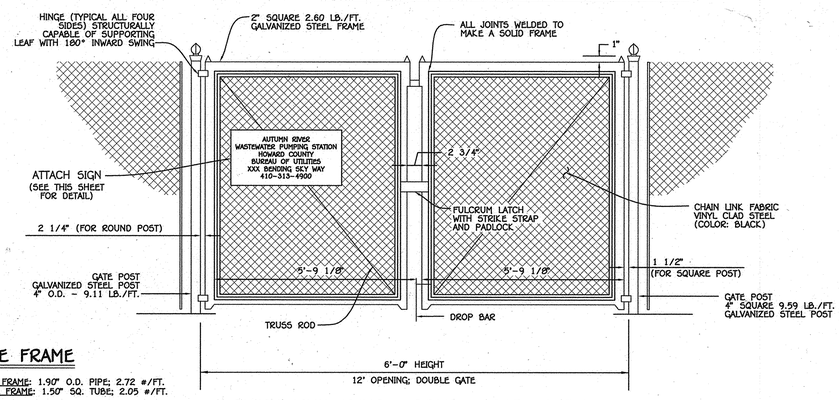
SWING GATE ASSEMBLY

NO SCALE



GATE HOLD OPEN POST

NO SCALE (TWO REQUIRED)

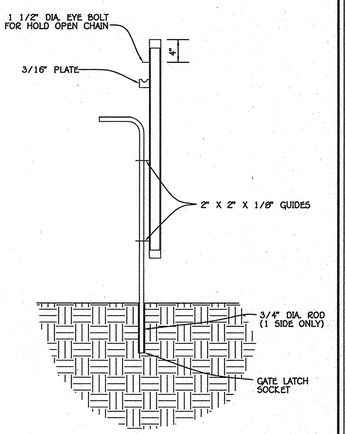


GATE FRAME

ROUND FRAME: 1.90" O.D. PIPE; 2.72 #/FT.
SQUARE FRAME: 1.50" SQ. TUBE; 2.05 #/FT.

CHAIN LINK FENCE: DOUBLE GATE DETAIL

NO SCALE



SECTION A-A

NO SCALE

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/6/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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. 12043 EXPIRATION DATE IS 7/16/12.

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

STATE OF MARYLAND — PAUL WALTER KRIEBEL — No. 12043 — PROFESSIONAL ENGINEER
PAUL W. KRIEBEL

DESIGNED BY : B.C.R.
DRAWN BY : B.C.R.
CHECKED BY : P.W.K.
DATE : MAY, 2011

BY	NO.	REVISION	DATE
FCC	2	INDICATE & DENOTE DELETION OF GATE HOLD OPEN POST: NOT PROVIDED	3/11/13
FCC	1	INDICATE PERMANENT STREET ADDRESS OF AUTUMN RIVER WWPS	3/11/13

ACCESS DRIVEWAY SECTION & MISCELLANEOUS DETAILS

600' SCALE MAP NO. 22 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION DETAILS

AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 7 OF 21

AS BUILT: 03/13

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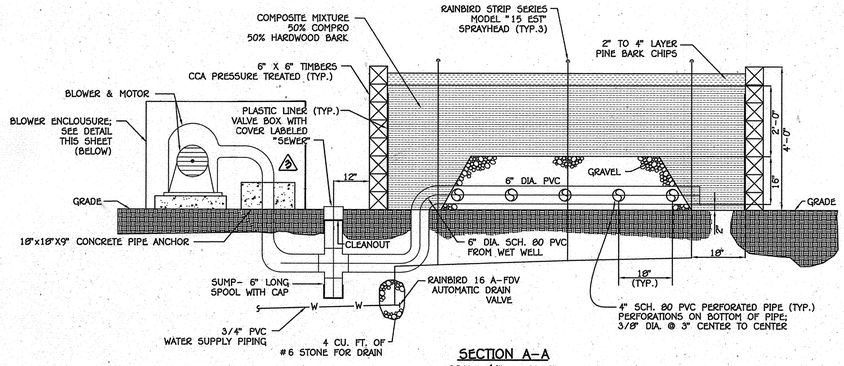
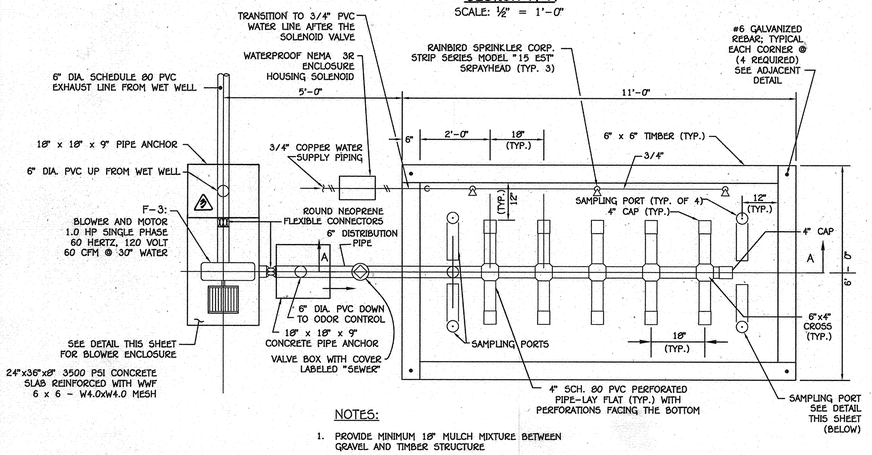


SECTION A-A

SCALE: ½" = 1'-0"

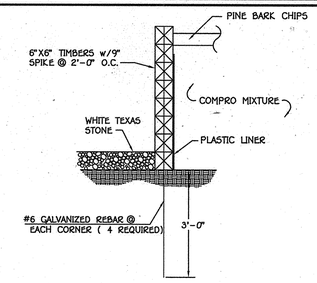


NOTES:

1. PROVIDE MINIMUM 18" MULCH MIXTURE BETWEEN GRAVEL AND TIMBER STRUCTURE
2. CONTAIN GRAVEL DURING PLACEMENT WITH TEMPORARY FRAMEWORK. REMOVE TEMPORARY FRAMEWORK AFTER COMPOSITE MIXTURE IS IN PLACE AROUND GRAVEL.
3. 6"x 6" TIMBERS SHALL MEET AASHTO M168. MARINE GRADE, TREATED WITH CHROMATED COPPER ARSENATE (CCA) AT A RATE OF 2.5 LBS. PER CU. FT. OF WOOD AND SHALL MEET AASHTO M133.

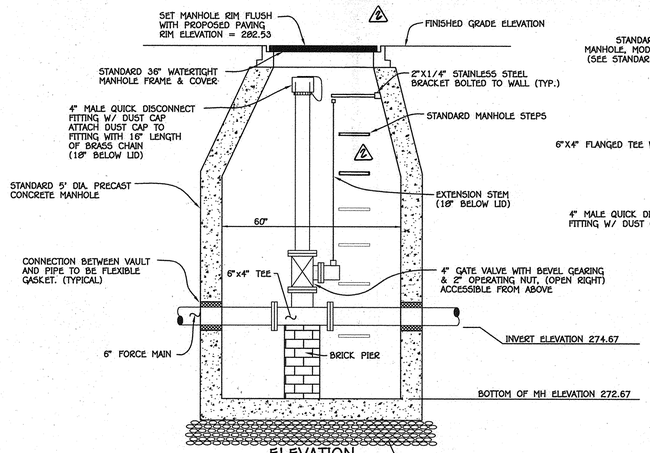
ODOR CONTROL SYSTEM

SCALE: ½" = 1'-0"



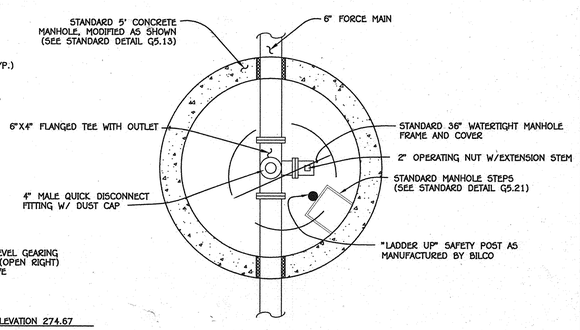
CORNER DETAIL - ODOR CONTROL SYSTEM

SCALE: ½" = 1'-0"



ELEVATION

SCALE: ½" = 1'-0"

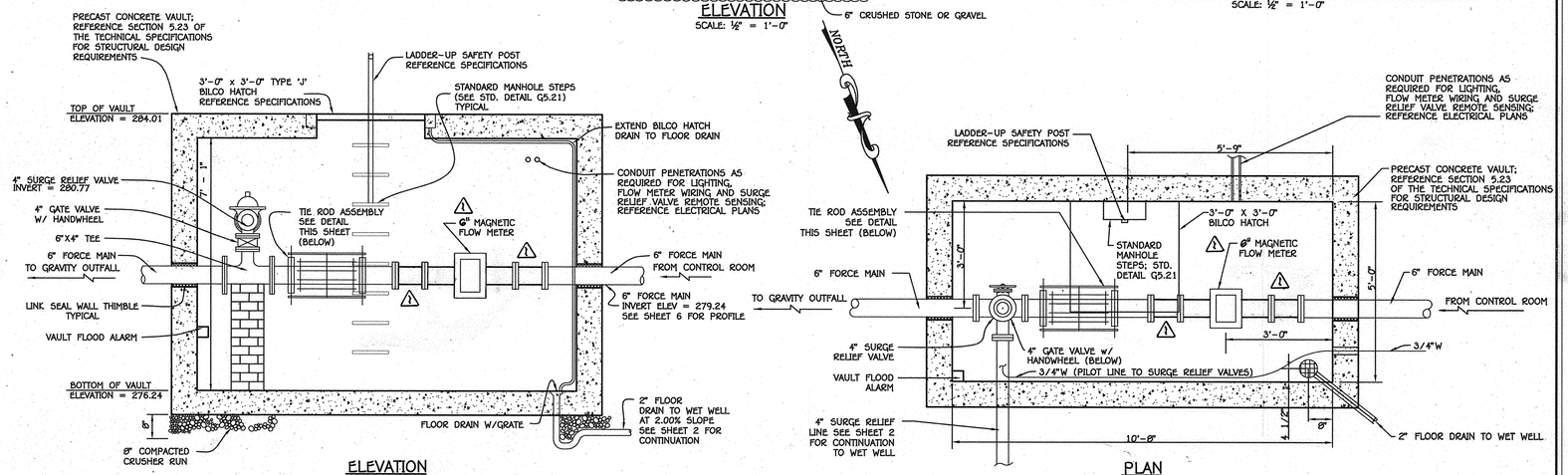


PLAN

NOT TO SCALE

EMERGENCY PUMPING CONNECTION MANHOLE

SCALE: ½" = 1'-0"



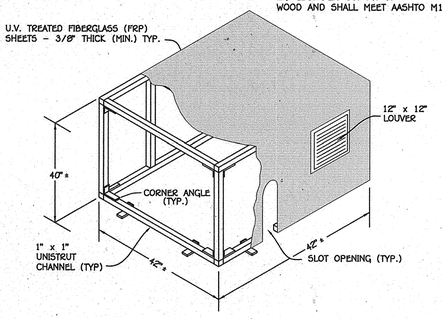
ELEVATION

SCALE: ½" = 1'-0"

PLAN

SCALE: ½" = 1'-0"

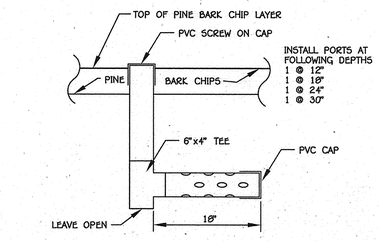
SURGE RELIEF VALVE & FLOW METER VAULT



F-3 BLOWER ENCLOSURE DETAIL

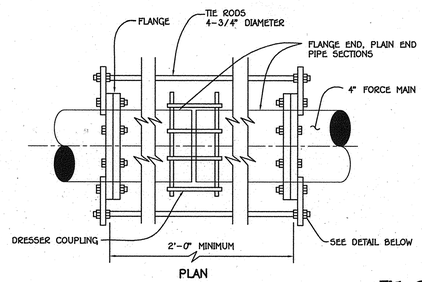
NOT TO SCALE

1. ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE DIMENSIONS WITH BLOWER MANUFACTURER.
2. PROVIDE ADDITIONAL UNISTRUT AS REQUIRED FOR LOUVER SUPPORT AND RIGIDITY OF ENCLOSURE.
3. FIBERGLASS (FRP) SHEETS SHALL COVER ENTIRE STRUCTURE AND SHALL BE BOLTED TO UNISTRUT AS REQUIRED.
4. PROVIDE ADDITIONAL OPENINGS FOR PIPE PENETRATIONS AS REQUIRED.
5. STRUCTURE SHALL HAVE CORNER ANGLES (TWO PER SIDE) FOR BOLTING DOWN TO CONCRETE PAD.
6. ENCLOSURE SHALL HAVE 1/2" THICK U.L. APPROVED DUCT LINER GLUED TO INSIDE FACE OF FRP PANELS.

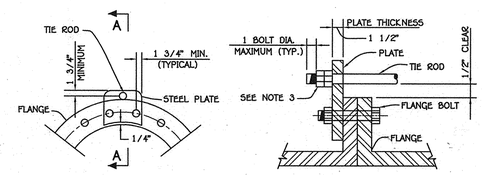


SAMPLING PORT - ODOR CONTROL SYSTEM

SCALE: 1" = 1'-0"



PLAN



ELEVATION

SECTION A-A

TIE ROD ASSEMBLY

NOT TO SCALE

NOTES

1. TIE RODS SHALL CONFORM TO ASTM A-588 SPECIFICATIONS.
2. STEEL PLATE SHALL CONFORM TO ASTM A-36 SPECIFICATIONS.
3. INSIDE NUT TO BE HAND TIGHT AND TWO NUTS SHALL BE TIGHTENED AGAINST EACH OTHER.
4. WHEN THE STRAPPING ASSEMBLY IS LOCATED NEAR THE FLANGED VALVE, PROVIDE A FLANGED SPOOL PIECE (ONE FOOT MINIMUM LENGTH) BETWEEN THE VALVE AND ASSEMBLY IN ORDER TO AVOID STRAPPING DIRECTLY TO THE VALVE.

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES — DATE 6/1/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND — PAUL WALTER KRIEBEL — 12043 — REGISTERED PROFESSIONAL ENGINEER
PAUL W. KRIEBEL

DESIGNED BY :	B.C.R.
DRAWN BY :	B.C.R.
CHECKED BY :	P.W.K.
DATE :	MAY, 2011

BY	NO.	REVISION	DATE
FCC	3	INDICATE "AS BUILT" DIMENSIONS OF ODOR CONTROL BLOWER ENCLOSURE	3/1/13
FCC	2	INDICATE DELETION OF LADDER-UP SAFETY POST - NOT PROVIDED	3/1/13
FCC	1	INDICATE DELETION OF 6"x4" REDUCERS/REVISE FLOW METER TO 6"	3/1/13

ODOR CONTROL SYSTEM & MISCELLANEOUS DETAILS

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION DETAILS

AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 8 OF 21

AS BUILT: 03/13

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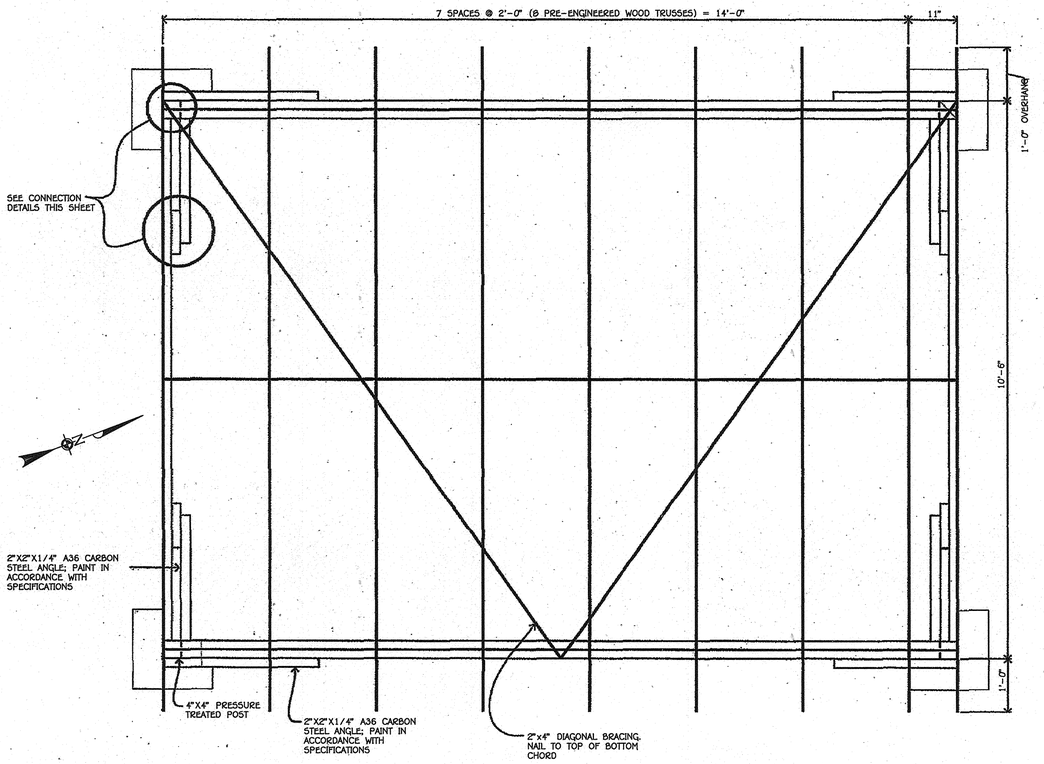


ROOF FRAMING PLAN
SCALE: 3/4" = 1'-0"

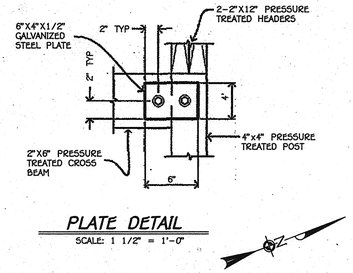
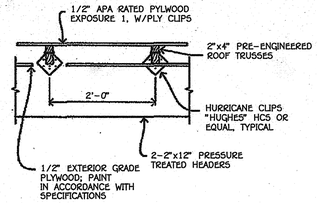
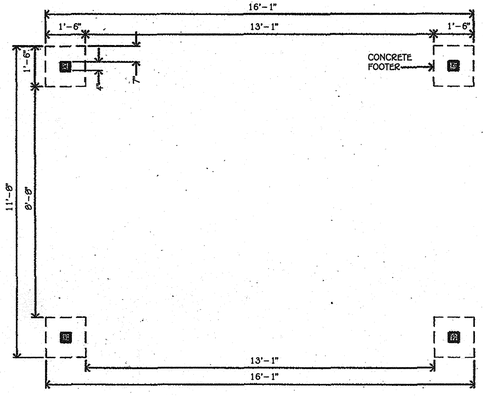


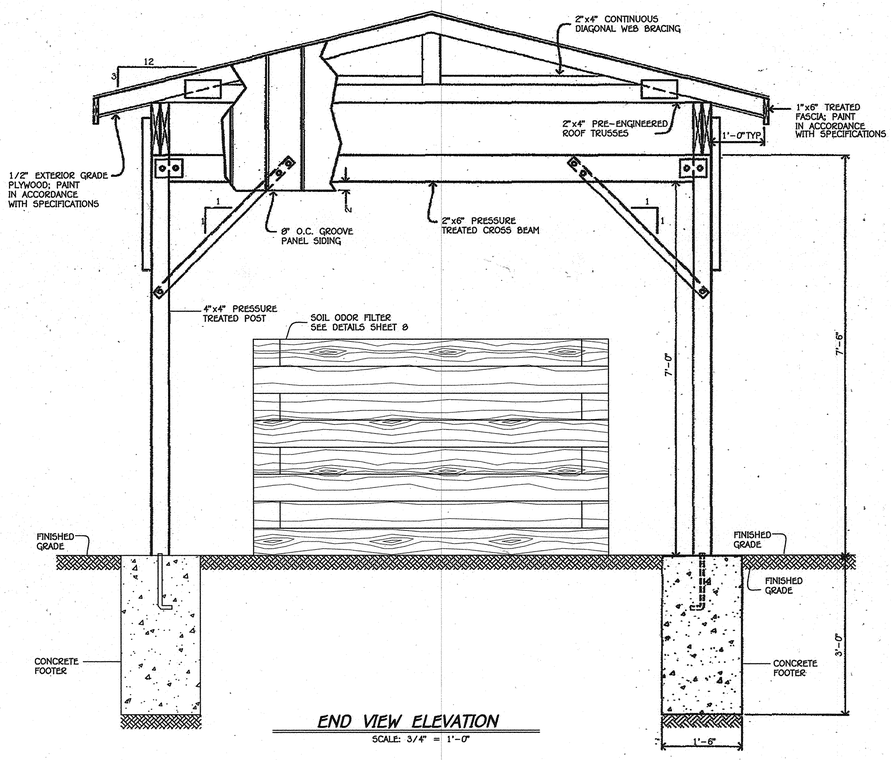
PLATE DETAIL
SCALE: 1 1/2" = 1'-0"



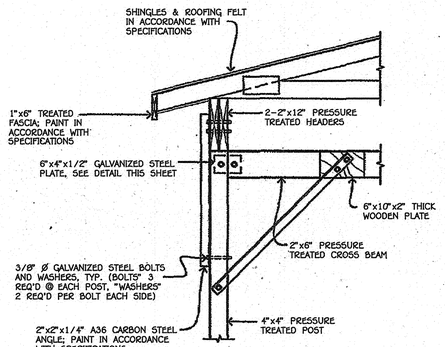
HEADER TRUSSES CONNECTION
SCALE: 3/4" = 1'-0"



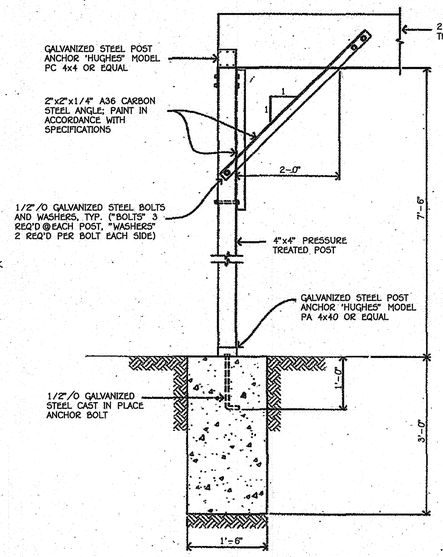
FOUNDATION PLAN
SCALE: 3/8" = 1'-0"



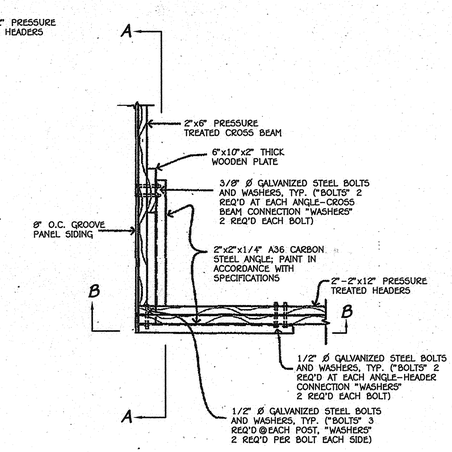
END VIEW ELEVATION
SCALE: 3/4" = 1'-0"



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



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



PLAN - CONNECTION DETAIL
SCALE: 3/4" = 1'-0"

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/6/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

#12043
STATE OF MARYLAND — PAUL WALTER KRIEBEL — EXPIRES 07/16/2012 — PROFESSIONAL ENGINEER
PAUL W. KRIEBEL

DESIGNED BY :	BY	NO.	REVISION	DATE
B.C.R.				
DRAWN BY : B.C.R.				
CHECKED BY : P.W.K.				
DATE : MAY, 2011				

ODOR CONTROL SYSTEM:
PAVILLION DETAILS

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION DETAILS

AUTUMN RIVER WASTEWATER PUMPING STATION
CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 9 OF 21

AS BUILT: 03/13

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INFILTRATION AND FILTER SYSTEM CONSTRUCTION SPECIFICATIONS

INFILTRATION AND FILTER SYSTEMS EITHER TAKE ADVANTAGE OF EXISTING PERMEABLE SOILS OR CREATE A PERMEABLE MEDIUM SUCH AS SAND FOR WC. AND RE V. IN SOME INSTANCES WHERE PERMEABILITY IS GREAT, THESE FACILITIES MAY BE USED FOR OP AS WELL. THE MOST COMMON SYSTEMS INCLUDE INFILTRATION TRENCHES, INFILTRATION BASINS, SAND FILTERS, AND ORGANIC FILTERS.
WHEN PROPERLY PLANTED, VEGETATION WILL THRIVE AND ENHANCE THE FUNCTIONING OF THESE SYSTEMS. FOR EXAMPLE, PRE-TREATMENT BUFFERS WILL TRAP SEDIMENTS THAT OFTEN ARE BOUND WITH PHOSPHOROUS AND METALS. VEGETATION PLANTED IN THE FACILITY WILL AID IN NUTRIENT UPTAKE AND WATER STORAGE. ADDITIONALLY, PLANT ROOTS WILL PROVIDE ARTERIES FOR STORMWATER TO PERMEATE SOIL FOR GROUNDWATER RECHARGE. FINALLY, SUCCESSFUL PLANTINGS PROVIDE AESTHETIC VALUE AND WILDLIFE HABITAT MAKING THESE FACILITIES MORE DESIRABLE TO THE PUBLIC.

DESIGN CONSTRAINTS:

> PLANTING BUFFER STRIPS OF AT LEAST 20 FEET WILL CAUSE SEDIMENTS TO SETTLE OUT BEFORE REACHING THE FACILITY, THEREBY REDUCING THE POSSIBILITY OF CLOGGING.
> DETERMINE AREAS THAT WILL BE SATURATED WITH WATER AND WATER TABLE DEPTH SO THAT APPROPRIATE PLANTS MAY BE SELECTED (HYDROLOGY WILL BE SIMILAR TO BIORETENTION FACILITIES, SEE FIGURE A.5 AND TABLE A.4 FOR PLANTING MATERIAL GUIDANCE).
> PLANTS KNOWN TO SEND DOWN DEEP TAPROOTS SHOULD BE AVOIDED IN SYSTEMS WHERE FILTER FABRIC IS USED AS PART OF FACILITY DESIGN.
> TEST SOIL CONDITIONS TO DETERMINE IF SOIL AMENDMENTS ARE NECESSARY.
> PLANTS SHALL BE LOCATED SO THAT ACCESS IS POSSIBLE FOR STRUCTURE MAINTENANCE.
> STABILIZE HEAVY FLOW AREAS WITH EROSION CONTROL MATS OR SOD.
> TEMPORARILY DIVERT FLOWS FROM SEEDED AREAS UNTIL VEGETATION IS ESTABLISHED.
> SEE TABLE A.5 FOR ADDITIONAL DESIGN CONSIDERATIONS.

BIO-RETENTION SOIL BED CHARACTERISTICS

THE CHARACTERISTICS OF THE SOIL FOR THE BIORETENTION FACILITY ARE PERHAPS AS IMPORTANT AS THE FACILITY LOCATION, SIZE, AND TREATMENT VOLUME. THE SOIL MUST BE PERMEABLE ENOUGH TO ALLOW RUNOFF TO FILTER THROUGH THE MEDIA, WHILE HAVING CHARACTERISTICS SUITABLE TO PROMOTE AND SUSTAIN A ROBUST VEGETATIVE COVER CROP. IN ADDITION, MUCH OF THE NUTRIENT POLLUTANT UPTAKE (NITROGEN AND PHOSPHORUS) IS ACCOMPLISHED THROUGH ABSORPTION AND MICROBIAL ACTIVITY WITHIN THE SOIL PROFILE. THEREFORE, SOILS MUST BALANCE THEIR CHEMICAL AND PHYSICAL PROPERTIES TO SUPPORT BIOTIC COMMUNITIES ABOVE AND BELOW GROUND.
THE PLANTING SOIL SHOULD BE A SANDY LOAM, LOAMY SAND, LOAM (USDA), OR A LOAM/SAND MIX (SHOULD CONTAIN A MINIMUM 35 TO 60% SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 25% BY VOLUME (ENVIRONMENTAL QUALITY RESOURCES (EQR), 1996; ENGINEERING TECHNOLOGY INC. AND BIOHABITATS, INC. (ETAB), 1993). SOILS SHOULD FALL WITHIN THE SM, ML, SC CLASSIFICATIONS OR THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5" / HR) IS REQUIRED (A CONSERVATIVE VALUE OF 0.5 FEET PER DAY IS USED FOR DESIGN). THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. BRUSH OR SEEDS FROM NOXIOUS WEEDS (E.G., JOHNSON GRASS, MUGWORT, NUTSEDGE, AND CANADA THISTLE OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.) SHOULD NOT BE PRESENT IN THE SOILS.
PLACEMENT OF THE PLANTING SOIL SHOULD BE IN 12 TO 18 LIFTS THAT ARE LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET OR TRAVERSED BY DOZER TRACKS). THE SPECIFIC CHARACTERISTICS ARE PRESENTED IN TABLE A.3.
TABLE A.3 PLANTING SOIL CHARACTERISTICS

PARAMETER	VALUE
PH RANGE	5.2 TO 7.00
ORGANIC MATTER	1.5 TO 4.0% (BY WEIGHT)
MAGNESIUM	35 LBS. PER ACRE, MINIMUM
PHOSPHORUS (PHOSPHATE - P2O5)	75 LBS. PER ACRE, MINIMUM
POTASSIUM (POTASH -1(K2O)	85 LBS. PER ACRE, MINIMUM
SOLUBLE SALTS	500 PPM
CLAY	10 TO 25 %
SILT	30 TO 55 %
SAND	35 TO 60%

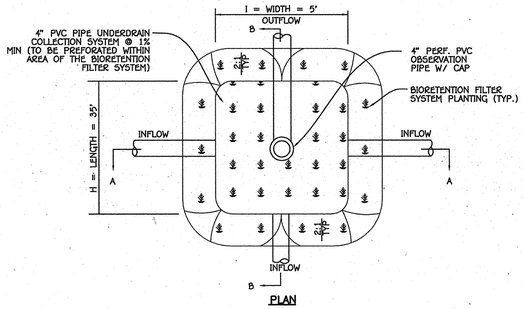
MULCH LAYER

THE MULCH LAYER PLAYS AN IMPORTANT ROLE IN THE PERFORMANCE OF THE BIORETENTION SYSTEM. THE MULCH LAYER HELPS MAINTAIN SOIL MOISTURE AND AVOIDS SURFACE SEALING, WHICH REDUCES PERMEABILITY. MULCH HELPS PREVENT EROSION, AND PROVIDES A MICROENVIRONMENT SUITABLE FOR SOIL BIOTA AT THE MULCH/SOIL INTERFACE. IT ALSO SERVES AS A PRETREATMENT LAYER, TRAPPING THE FINER SEDIMENTS, WHICH REMAIN SUSPENDED AFTER THE PRIMARY PRETREATMENT.

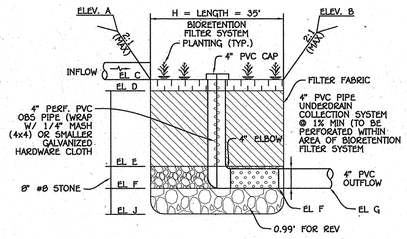
THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS, SUCH AS WEED SEEDS, SOIL, ROOTS, ETC. THE MULCH SHOULD BE APPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.

PLANTING GUIDANCE

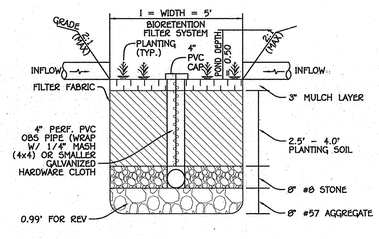
PLANT MATERIAL SELECTION SHOULD BE BASED ON THE GOAL OF SIMULATING A TERRESTRIAL FORESTED COMMUNITY OF NATIVE SPECIES. BIORETENTION SIMULATES AN UPLAND-SPECIES ECOSYSTEM. THE COMMUNITY SHOULD BE DOMINATED BY TREES, BUT HAVE A DISTINCT COMMUNITY OF UNDERSTORY TREES, SHRUBS AND HERBACEOUS MATERIALS. BY CREATING A DIVERSE, DENSE PLANT COVER, A BIORETENTION FACILITY WILL BE ABLE TO TREAT STORMWATER RUNOFF AND WITHSTAND URBAN STRESSES FROM INSECTS, DISEASE, DROUGHT, TEMPERATURE, WIND, AND EXPOSURE.
THE PROPER SELECTION AND INSTALLATION OF PLANT MATERIALS IS KEY TO A SUCCESSFUL SYSTEM. THERE ARE ESSENTIALLY THREE ZONES WITHIN A BIORETENTION FACILITY (FIGURE A.5). THE LOWEST ELEVATION SUPPORTS PLANT SPECIES ADAPTED TO STANDING AND FLUCTUATING WATER LEVELS. THE MIDDLE ELEVATION SUPPORTS PLANTS THAT LIKE DRIER SOIL CONDITIONS, BUT CAN STILL TOLERATE OCCASIONAL INUNDATION BY WATER. THE OUTER EDGE
IS THE HIGHEST ELEVATION AND GENERALLY SUPPORTS PLANTS ADAPTED TO DRYER CONDITIONS. A SAMPLE OF APPROPRIATE PLANT MATERIALS FOR BIORETENTION FACILITIES ARE INCLUDED IN TABLE A.4. THE LAYOUT OF PLANT MATERIAL SHOULD BE FLEXIBLE, BUT SHOULD FOLLOW THE GENERAL PRINCIPALS DESCRIBED IN TABLE A.5. THE OBJECTIVE IS TO HAVE A SYSTEM, WHICH RESEMBLES A RANDOM, AND NATURAL PLANT LAYOUT, WHILE MAINTAINING OPTIMAL CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. FOR A MORE EXTENSIVE BIORETENTION PLAN, CONSULT ETAB, 1993 OR CLAYTOR AND SCHUELER, 1997.



PLAN



SECTION B-B



SECTION A-A

BIO-RETENTION FILTER SYSTEM DETAIL

NO SCALE

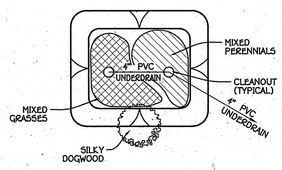
MIXED PERENNIALS*
CUT-LEAF CONEFLOWER
CARDINAL FLOWER
TRADUSCANT ASTER

MIXED GRASSES*
TUFTED FOXTAIL
BROOM SEDGE
SWITCH GRASS

SILKY DOGWOOD

*SEE PLANT MATERIAL CHARTS FOR QUANTITIES AND SPACING

NOTES:
PLANT MATERIAL MUST COVER AT LEAST 50% OF THE SURFACE AREA OF THE RAINGARDEN



BIO-RETENTION FILTER PLANTING DETAIL

NO SCALE

BIO-RETENTION FILTER PLANT MATERIAL

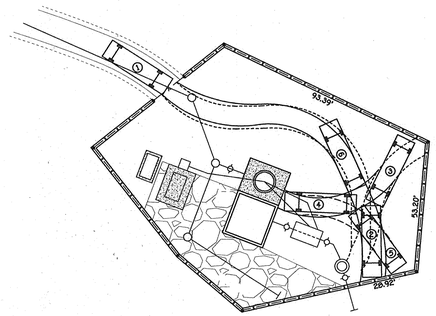
QUANTITY	NAME	MAXIMUM SPACING (FT.)
45	MIXED PERENNIALS	1 FT.
45	MIXED GRASSES	1 FT.
1	SILKY DOGWOOD	PLANT AWAY FROM INFLOW LOCATION

BIO-RETENTION FILTER DATA

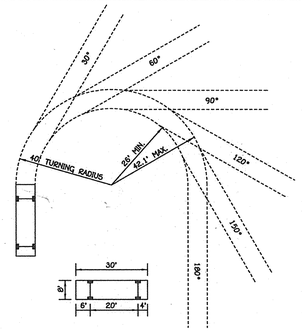
BIORETENTION FILTER	A	B	C	D	E	F	G	H	I	J
1	280.00	280.00	279.25	276.75	276.08	275.09	272.00	35'	5'	0.99'

PRIVATE BIO-RETENTION FILTER OPERATION & MAINTENANCE SCHEDULE

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



VACUUM TRUCK TURNING MOVEMENT



MINIMUM TURNING PATH FOR P/T DESIGN VEHICLE

DETAIL: VACUUM TRUCK TURNING DETAILS

SCALE: 1" = 30'

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/6/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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. 12043 EXPIRATION DATE IS 7/16/12.

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

#12043 — STATE OF MARYLAND — PAUL WALTER WIMBERLY — PROFESSIONAL ENGINEER

DESIGNED BY : B.C.R.
DRAWN BY : B.C.R.
CHECKED BY : P.W.K.
DATE : MAY, 2011

BY	NO.	REVISION	DATE

BIO-RETENTION DETAILS & TURNING PATH DETAILS

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION DETAILS

AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 10 OF 21

AS BUILT: 03/13

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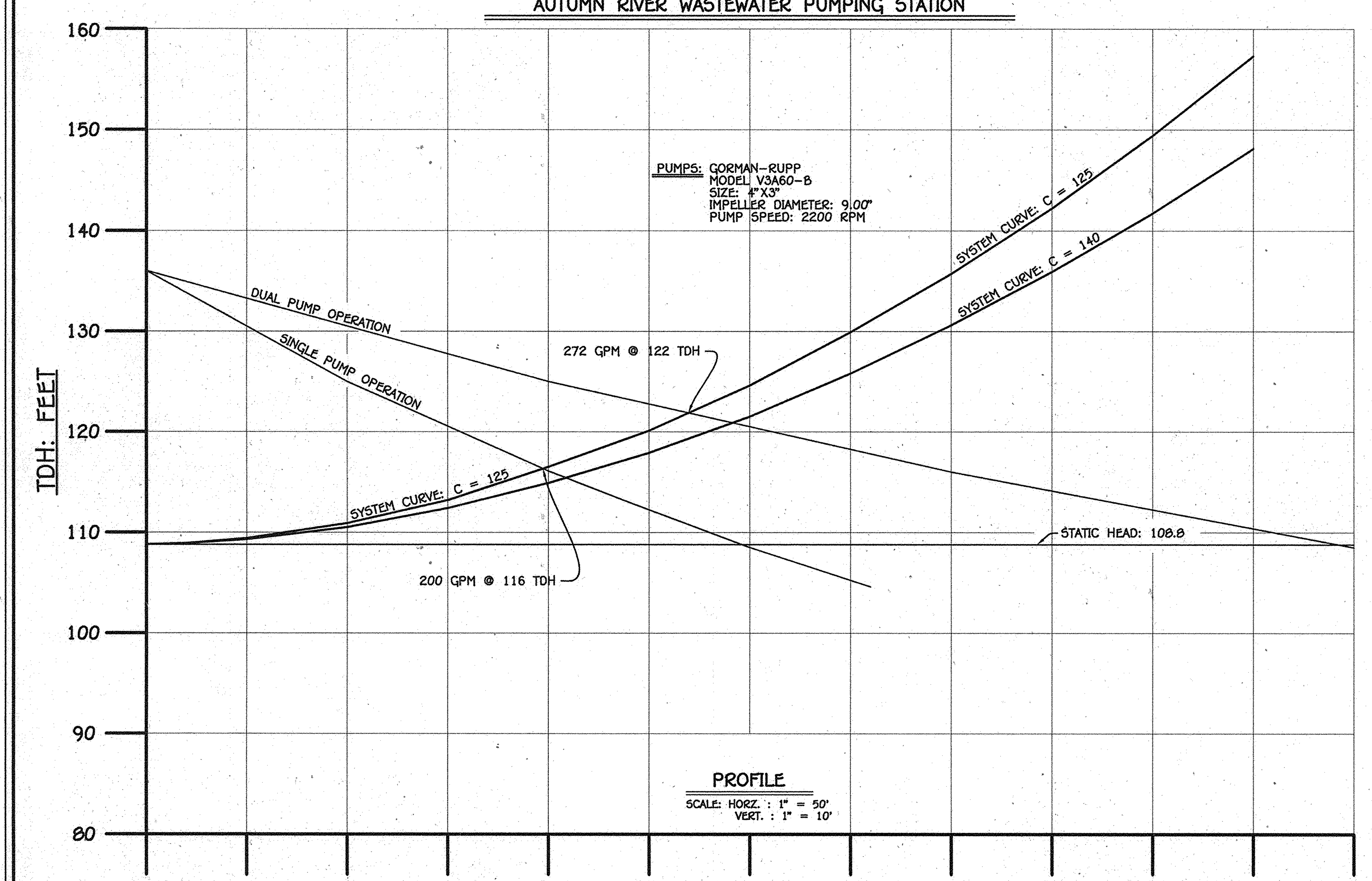
AUTUMN RIVER WASTEWATER PUMPING STATION



DISCHARGE: GPM

SYSTEM CURVE

RESIDENTIAL FLOW

82 SINGLE FAMILY DETACHED DWELLINGS @ 3.15 PERSONS / D.U. = 258.30 PERSONS
15 TOWNHOMES @ 2.6 PERSONS / D.U. = 39 PERSONS
= 297.30 PERSONS
SAY 298 PERSONS

282 persons @ 72 gpcpd = 21,456 gallons per day
PEAK: 21,456 GPD X 4 = 85,824 gallons per day
INFILTRATION: 298 persons @ 40 gpcpd = 11,920 gallons per day

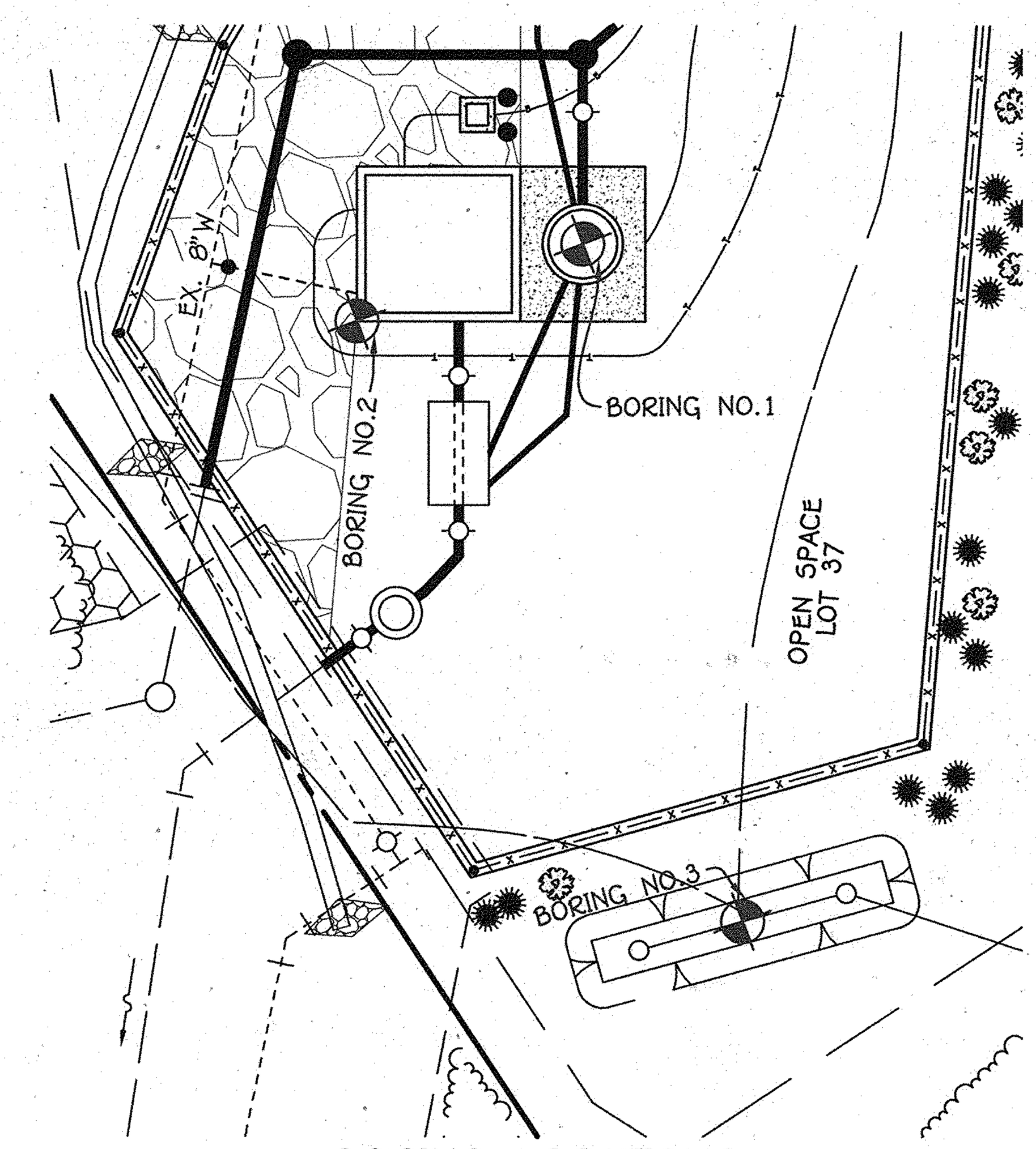
DESIGN FLOW = PEAK FLOW + INFILTRATION
DESIGN FLOW = 85,824 GPD + 11,920 GPD = 97,744 GPD
= 67.9 GPM
SAY 68 GPM

COMMERCIAL FLOW

NO COMMERCIAL FLOW; 0 GPM
DESIGN FLOW = RESIDENTIAL FLOW + COMMERCIAL FLOW
DESIGN FLOW = 68 GPM + 0 GPM

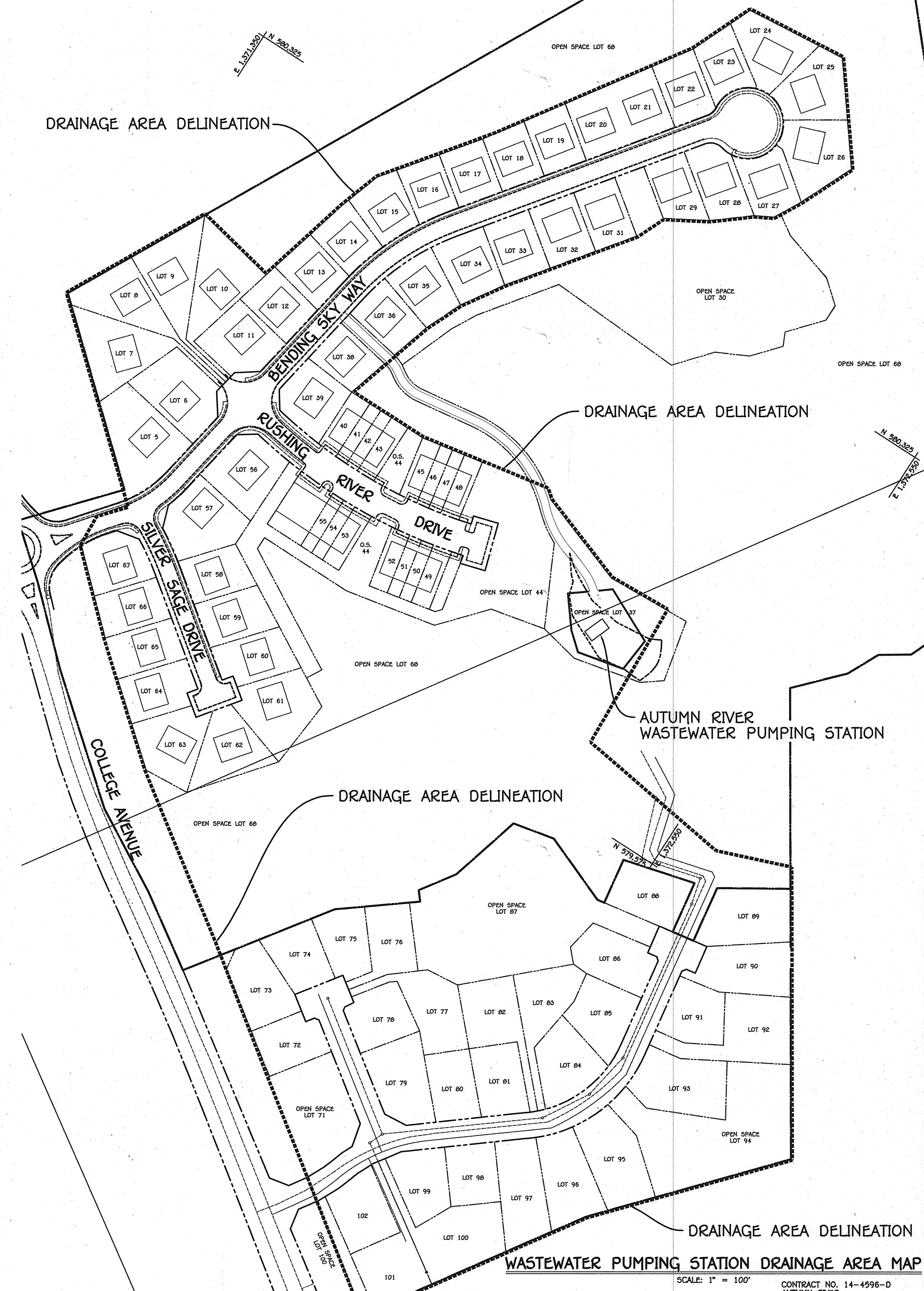
DESIGN FLOW : 68 GPM

DESIGN FLOW TABULATION



BORING LOCATIONS

SCALE: 1" = 20'
NOTE: SEE BORING LOGS THIS SHEET (BELOW)



WASTEWATER PUMPING STATION DRAINAGE AREA MAP

SCALE: 1" = 100'

CONTRACT NO. 14–4596–D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

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

Project Name: Autumn River WWPS — Boring No. B-1
Location: Howard County, Maryland — Job #: 10460A
Datum — Hammer Wt. 140 lbs. — SAMPLER Hole Diameter — Foreman J. Parnell
Surf. Elev. 288.29 Ft. — Hammer Drop 30 in. — Rock Core Diameter — Inspector
Date Started 9/22/10 — Pipe Size 2 in. — Boring Method HSA — Date Completed 9/22/10

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, dry, medium dense fine sandy silt (ML)	Topsoil: 5"	10"	3-4-20	24
Brown, dry, very dense fine sandy silt with rock fragments (ML) Decomposed Rock	No groundwater encountered while drilling	11"	25-50/5"	75+
Brown, dry, very dense rock fragments with sandy silt (ML) Decomposed Rock		5"	50/5"	100+
Bottom of Boring at 8.5 ft.		2"	50/5"	100+

GROUND WATER AT COMPLETION Dry ft. — CAVE IN DEPTH 8.0 ft.

SOIL BORING LOG #1

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

Project Name: Autumn River WWPS — Boring No. B-2
Location: Howard County, Maryland — Job #: 10460A
Hammer Wt. 140 lbs. — Foreman J. Parnell
Surf. Elev. 287.35 Ft. — Hammer Drop 30 in.
Date Started 9/22/10 — Pipe Size 2 in. — Boring Method HSA — Date Completed 9/22/10

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, medium dense fine sandy silt (ML)	Topsoil: 5"	10"	4-5-6	11
	No groundwater encountered while drilling	12"	6-12-17	29
		10"	4-6-10	16
Brown and greenish brown, moist, medium dense to dense sandy silt, with mica (ML)		18"	8-9-10	19
		16"	6-6-12	18
Bottom of Boring at 20 ft		18"	18-21-25	46

GROUND WATER AT COMPLETION Dry ft. — CAVE IN DEPTH 13.5 ft.

SOIL BORING LOG #2

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

Project Name: Autumn River WWPS — Boring No. B-3
Location: Howard County, Maryland — Job #: 10460A
Hammer Wt. 140 lbs. — Foreman J. Parnell
Surf. Elev. 273.79 Ft. — Hammer Drop 30 in.
Date Started 9/22/10 — Pipe Size 2 in. — Boring Method HSA — Date Completed 9/22/10

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Light brown, dry, loose fine sandy silt, trace roots (ML)	Topsoil: 4"	7"	4-5-5	10
Brown, dry, dense rock fragments with sandy silt (ML)	No groundwater encountered while drilling	2"	17-15-15	30
		16"	31-23-18	41
Brown, dry, very dense rock fragments with sandy silt (ML) Decomposed Rock Bottom of Boring at 8.9 ft		3"	50/3"	100+

GROUND WATER AT COMPLETION Dry ft. — CAVE IN DEPTH 9.25 ft.

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

SOIL BORING LOG #3

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
[illegible] 6/7/11
CHIEF, BUREAU OF UTILITIES — DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
[illegible] 6/23/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE M.L.

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. 12043 EXPIRATION DATE IS 7/16/12.

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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

#12043
STATE OF MARYLAND — PAUL WALTER KRIEBEL — NO. 12043 REGISTERED — PROFESSIONAL ENGINEER
[illegible]
PAUL W. KRIEBEL

DESIGNED BY : B.C.R.
DRAWN BY : B.C.R.
CHECKED BY : P.W.K.
DATE : MAY, 2011

BY	NO.	REVISION	DATE

WWPS DRAINAGE AREA MAP, SYSTEM CURVE & SOIL BORING LOGS

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION DA MAP

AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14–4596–D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 11 OF 21

AS BUILT: 03/13

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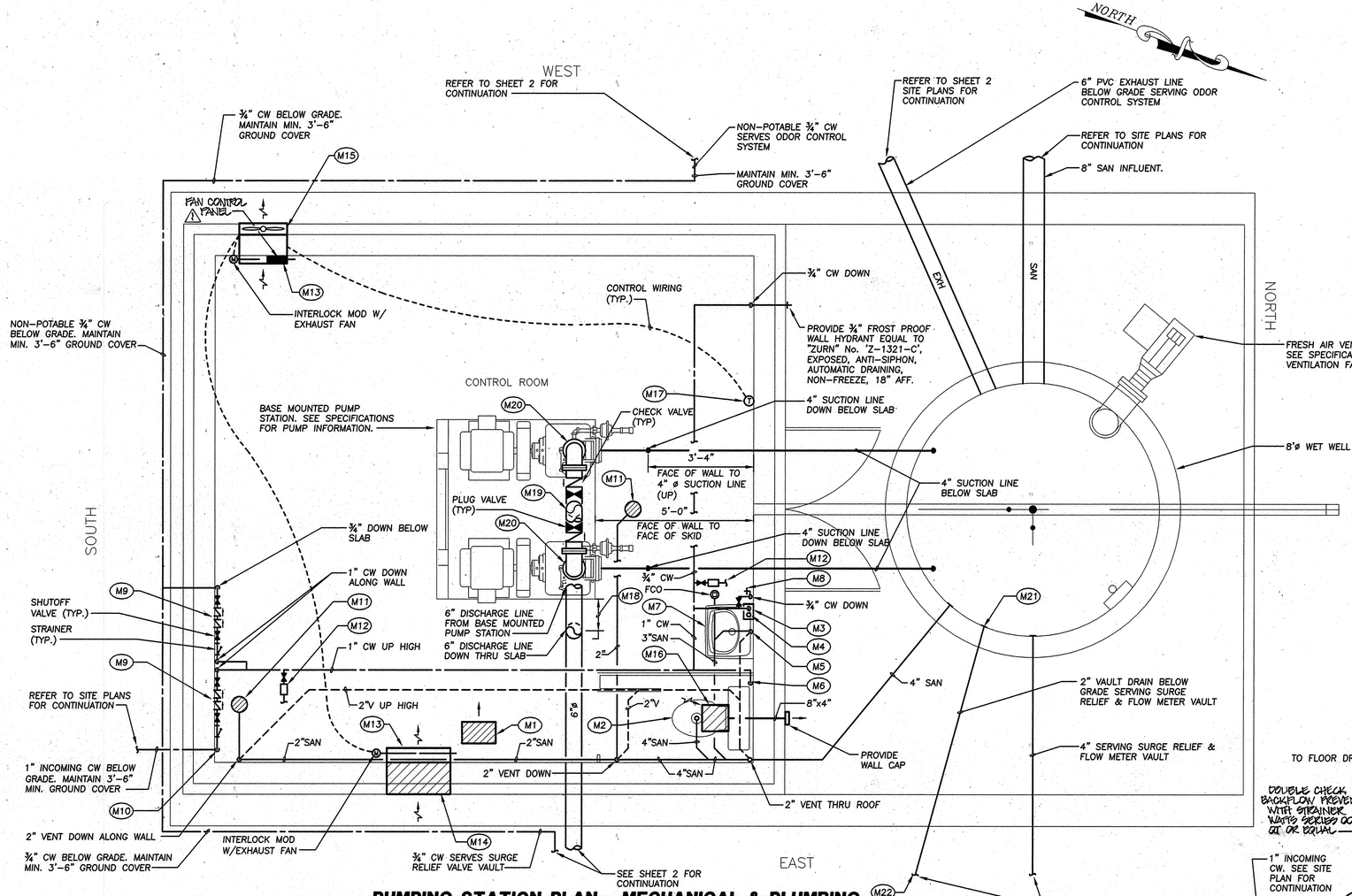
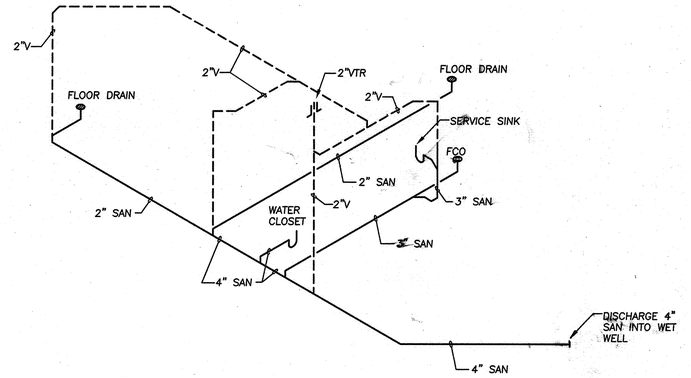


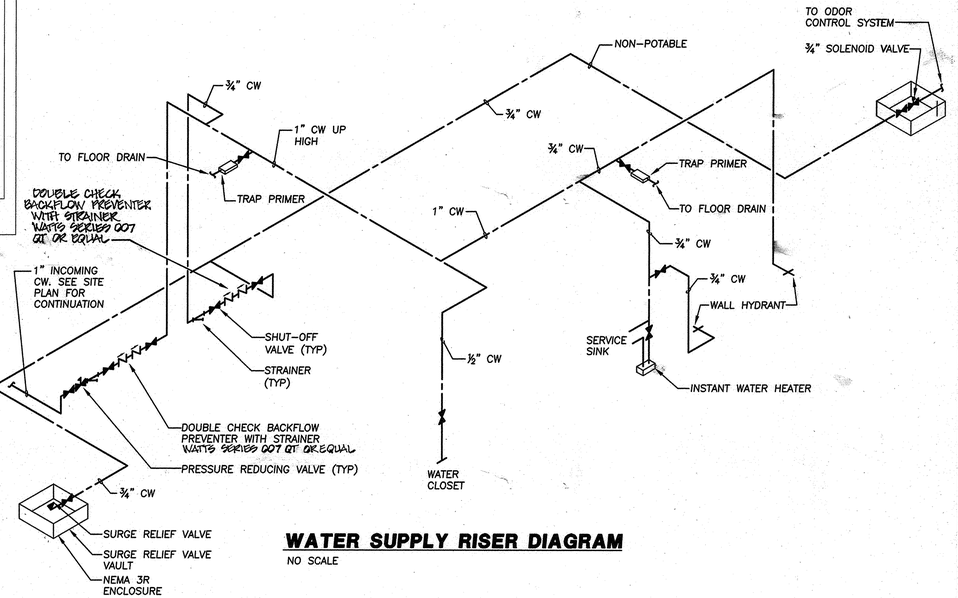
PUMPING STATION PLAN - MECHANICAL & PLUMBING

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



SANITARY RISER DIAGRAM

NO SCALE



WATER SUPPLY RISER DIAGRAM

NO SCALE

GENERAL NOTES:

1. ALL SANITARY INDICATED ON PLAN IS BELOW SLAB, UNLESS INDICATED OTHERWISE.

PLAN NOTES:

(M1) PROVIDE UNIT HEATER 15KW, 480W, 3-PHASE. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

(M2) PROVIDE WATER CLOSET EQUAL TO "CRANE" No.'3792/GALAXY ELITE', ELONGATED TYPE WITH OPEN FRONT SEAT, SUPPLY TUBING, STRAIGHT STOPS WITH KEY AND MOUNTING HARDWARE.

(M3) PROVIDE INSTANTANEOUS WATER HEATER EQUAL TO "CHRONOMITE" NO. 'SR-40', 1.0 GPM, 57°F TEMPERATURE RISE, 8.3KW, 40.0 AMPS, 208-1ø-60, SIDE CONNECTION, HIGH TEMP LIMIT SWITCH. PROVIDE 1.0 GPM FLOW RESTRICTING AERATOR.

(M4) ½" CW DOWN TO INSTANTANEOUS WATER HEATER, ½" HW UP FROM INSTANTANEOUS WATER HEATER TO SERVICE SINK.

(M5) 2" VENT DOWN, 3" SANITARY UP SERVING SERVICE SINK.

(M6) ½" CW DOWN TO SERVE WATER CLOSET.

(M7) PROVIDE SERVICE SINK EQUAL TO "ELKAY" NO.'ESS2520C' DESIGNED FOR HEAVY DUTY INDUSTRIAL USE AND SHALL BE MADE OF WELDED 14 GAUGE TYPE 304 STAINLESS STEEL WITH SATIN FINISH. SERVICE SINK SHALL BE WALL MOUNTED WITH COVED CORNERS AND ROLLED RIM, SHALL HAVE 12-INCH HIGH BACKSPLASH, AND SHALL BE EQUIPPED WITH CHROME PLATED RIGID SPOUT MIXING FAUCET WITH INTEGRAL VACUUM BREAKER. SPOUT SHALL HAVE A PAIL HOOK, WALL BRACE, ¾" HOSE THREAD OUTLET AND OMNI MODEL A 810 AERATOR. SERVICE SINK SHALL BE 25-INCH x 19-½-INCH OVERALL WITH 22-INCH LONG x 16-INCH WIDE x 12-INCH DEEP BOWL, CAST IRON P-TRAP, 3-INCH WASTE OUTLET, STRAINER, CLEAN-OUT PLUG, WALL HANGERS AND BRACKETS.

(M8) PROVIDE HOSE BIBB EQUAL TO "NIBCO" SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

(M9) PROVIDE DOUBLE CHECKVALVE BACKFLOW PREVENTER EQUAL TO "WATTS" No. '007QT'. FURNISH WITH TEE HANDLES AND STRAINER, ALL BRONZE CONSTRUCTION.

(M10) 1" CW DOWN THRU SLAB.

(M11) PROVIDE HEAVY DUTY FLOOR DRAIN EQUAL TO "ZURN" No. 'Z-507', POLISHED BRONZE GRATE TOP, BOTTOM OUTLET, TRAP PRIMER CONNECTION, CAST-IRON BODY.

(M12) PROVIDE TRAP PRIMER DEVICE EQUAL TO "PRECISION PLUMBING PRODUCTS" No. 'PR-500'. ROUTE ½" CW OUTLET DOWN WALL, BELOW SLAB TO FLOOR DRAIN.

(M13) PROVIDE DUCTED, OPEN ENDED PLENUM FULL SIZE OF LOUVER OPENING. PROVIDE MESH SCREEN ON OPEN-END OF PLENUM.

(M14) PROVIDE MAKE-UP LOUVER. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

(M15) PROVIDE SIDEWALL MOUNTED EXHAUST FAN EQUAL TO "PENN" No. 'P12RA', SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

(M16) PROVIDE EXHAUST FAN EQUAL TO "GREENHECK" No. 'SP-A110', 75 CFM, 0.25" W.G., 899 FRPM, 49 WATTS, 120-1ø-60. SWITCH CONTROLLED. PROVIDE HOOD WALL CAP W/RECTANGULAR CONNECTION 'WC-10x3', ISOLATION KIT, SPEED CONTROL, BACKDRAFT DAMPER, SUPPORTS.

(M17) PROVIDE ELECTRONIC PROGRAMMABLE THERMOSTAT TO SERVE EXHAUST FAN. UPON TEMPERATURE RISE ABOVE SETPOINT, SIDEWALL MOUNTED EXHAUST FAN SHALL ENERGIZE, MOD INSTALLED AT MAKE-UP AIR LOUVER AND MOD INSTALLED AT SIDEWALL MOUNTED EXHAUST FAN SHALL MODULATE TO FULLY OPEN POSITION. UPON TEMPERATURE DROP BELOW SETPOINT, SIDEWALL MOUNTED EXHAUST FAN SHALL DE-ENERGIZE, MOD INSTALLED AT MAKE-UP AIR LOUVER AND MOD INSTALLED AT SIDEWALL MOUNTED EXHAUST FAN SHALL MODULATE TO FULLY CLOSED POSITION.

(M18) 1'-0" OFF FACE OF SKID TO CENTERLINE OF DISCHARGE LINE.

(M19) 6" DISCHARGE LINE DOWN TO DISCHARGE HEADER.

(M20) DISCHARGE LINE DOWN TO OUTLET OF PUMP.

(M21) PROVIDE 3" ZURN Z1091 BACKWATER VALVE IN FACE OF WALL. PROVIDE ECCENTRIC INCREASER FROM PIPE TO VALVE.

(M22) PROVIDE 2" VENT ON LINE JUST PAST TRAP AT VAULT. EXTEND VENT 12" ABOVE GRADE, TERMINATED IN GOOSENECK. PROVIDE 6" THICK PROTECTIVE CONCRETE BLOCK AT GRADE.

STATE OF MARYLAND — PAUL WALTER KRIEBEL — No. 22131 — PROFESSIONAL ENGINEER
05-24-11

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland *, License No.* 22131 *, Expiration Date:* 10-13-2012 *."*

MAY 2011

SRBR
Siegel, Rutherford, Bradstock, & Ridgway, Inc.
CONSULTING ENGINEERS
757 Frederick Road Suite 300 - Catonsville, Maryland 21228
Phone: 410/869-7282 - Fax: 410/869-7362

SRBR No: 10152

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/7/11

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HOWARD COUNTY, MARYLAND
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#12043 — STATE OF MARYLAND — PAUL WALTER KRIEBEL — No. 12043 — PROFESSIONAL ENGINEER
PAUL W. KRIEBEL

DESIGNED BY : B.C.R.
DRAWN BY : B.C.R.
CHECKED BY : P.W.K.
DATE : MAY, 2011

BY	NO.	REVISION	DATE
FCC	1	INDICATE & DELETE "AS BUILT" LOCATION OF FAN CONTROL PANEL	3/1/13

PUMPING STATION PLAN - MECHANICAL & PLUMBING

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION

AUTUMN RIVER
WASTEWATER PUMPING STATION
CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 12 OF 21

AS BUILT: 03/13

ELECTRICAL SYMBOL LIST

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE – STANDARD, 125 VOLT. 18" A.F.F.
	DUPLEX RECEPTACLE – STANDARD, 125 VOLT. 44" A.F.F.
	DUPLEX RECEPTACLE – GFI PROTECTED, 125 VOLT. 44" A.F.F. AT KITCHEN COUNTER AND BATHROOM VANITY, OTHERWISE AT 18" A.F.F.
EWC	ELECTRIC WATER COOLER – PROVIDE DEDICATED CIRCUIT WITH GFCI PROTECTION. (VERIFY ELECTRICAL REQUIREMENTS AND MOUNTING HEIGHTS PRIOR TO ROUGH-IN)
	DUPLEX RECEPTACLE – WP AND GFI PROTECTED, 125 VOLT. 18" A.F.F.
IG	DUPLEX RECEPTACLE – ISOLATED GROUND, 125 VOLT. 18" A.F.F. ORANGE FINISH.
	DUPLEX RECEPTACLE – PC/COMMUNICATION, 125 VOLT. 18" A.F.F. GRAY FINISH. (PROVIDE WITH DEDICATED NEUTRAL PER CIRCUIT)
	QUAD OUTLET; ONE STANDARD 125 VOLT DUPLEX RECEPTACLE & ONE 125 VOLT PC DUPLEX RECEPTACLE; MOUNTING HEIGHT AS NOTED
	QUAD OUTLET; TWO 125 VOLT DUPLEX RECEPTACLES; MOUNTING HEIGHT AS NOTED
	SIMPLEX RECEPTACLE – SPECIAL PURPOSE, VERIFY CONFIGURATION. 18" A.F.F.
	FLOOR BOX (WITH DUPLEX RECEPTACLE SHOWN). DEVICE TYPE SHALL BE AS INDICATED ON THE DRAWINGS. FLUSH IN FLOOR.
C	DUPLEX RECEPTACLE, 125 VOLT. FLUSH IN CEILING.
	VOICE OUTLET. 18" A.F.F.
	DATA OUTLET. 18" A.F.F.
	COMBINATION VOICE/DATA OUTLET. 18" A.F.F. RING AND STRING ONLY.
	FLOOR BOX DATA OUTLET. FLUSH IN FLOOR
	FLOOR BOX COMBINATION VOICE/DATA OUTLET. FLUSH IN FLOOR
	TELEVISION OUTLET – MATV/CATV SYSTEM. 18" A.F.F. RING AND STRING ONLY.
J, JH	JUNCTION OR PULL BOX – CEILING, WALL MOUNTED. SIZE PER N.E.C. UNLESS NOTED OTHERWISE.
	MULTI-OUTLET RACEWAY – SIMPLEX OUTLETS 12" ON CENTER UNLESS NOTED OTHERWISE. MOUNT ABOVE COUNTER .
$, $2, $3, $4, $*	SWITCH – SINGLE POLE, DOUBLE POLE, THREE WAY, FOUR WAY, SUPERSCRIPT DENOTES OUTLETS CONTROLLED. 44" A.F.F.
$K, $P, $M	SWITCH – KEY OPERATED, PILOT LIGHT, MOTOR RATED
$R	SWITCH – REO-STAT FOR FAN CONTROL
C	CONTACTOR: SEE PLANS FOR SPECIFICATIONS
T	MANUAL THERMAL MOTOR STARTER. SIZE OVERLOAD AS REQUIRED.
TC	TIME CLOCK
	MOTOR CONNECTION. SEE SCHEDULE FOR HP RATING UNLESS NOTED OTHERWISE.
	CONTROL EQUIPMENT
P	PHOTOCELL – CIRCUIT CONTROLLED AS INDICATED ON PLANS.
	WIRING UP
	WIRING DOWN
	WIRING CONCEALED ABOVE CEILING OR IN WALL (2 CONDUCTORS + EQUIPMENT GROUND MINIMUM UNLESS NOTED OTHERWISE).
	WIRING BELOW GRADE OR BELOW FINISHED SLAB (0" C. – 2#10 + 1#10 EQUIPMENT GROUND MINIMUM UNLESS NOTED OTHERWISE).
	WIRING: NEUTRAL (OVERSIZED TICK), 2 PHASE CONDUCTORS
	WIRING: INSULATED EQUIPMENT GROUND CONDUCTOR
	WIRING: INSULATED ISOLATED GROUND (I.G.) CONDUCTOR
	WIRING: INSULATED REDUNDANT GROUND (PER HEALTH FACILITY REQUIREMENTS)
	HOMERUN TO PANEL (SOURCE PANEL & CIRCUIT NUMBERS, AS INDICATED)
	FLEXIBLE WIRING: CONDUCTORS TO MATCH SUPPLY CIRCUIT
	ELECTRICAL PANEL: 120/208 VOLT – SURFACE, RECESSED MOUNTED
	ELECTRICAL PANEL: 277/480 VOLT – SURFACE, RECESSED MOUNTED
1	PLAN NOTE – REFER TO NOTES ON DRAWING.
	EQUIPMENT CONNECTION NOTE – SEE SCHEDULE.
NL	SYMBOL INDICATES 24 HOUR LIGHT (NIGHT LIGHT)

POWER DISTRIBUTION SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
3/225	INDICATES 3 POLE/PHASE, 225A TRIP (FRAME RATING FOR SWITCH)		FSS
2/100	INDICATES 1 POLE/PHASE, 100A TRIP (FRAME RATING FOR SWITCH)		NFSS
			CFSS
60F	INDICATES 60A FUSE RATING	M	METER
	FUSED SWITCH		GROUNDING ELECTRODE
	CIRCUIT BREAKER		STEP DOWN TRANSFORMER
	MOTOR CONNECTION – 3 PHASE		
	MOTOR CONNECTION – 1 PHASE		

FEEDER LEGEND

DESIGNATION	DESCRIPTION
X SETS	QTY. OF PARALLEL SETS (1 SET IF BLANK)
3#XXX	WIRE SIZE IN AWG.
1#XXX N	NEUTRAL SIZE
1#XX G	EQUIPMENT GROUND
1#XX IG	ISOLATED GROUND
X"C	CONDUIT SIZE

EXISTING CONDITIONS

DESIGNATION	DESCRIPTION
S	PHANTOM DEVICES TO BE REMOVED
(N)	NEW EQUIPMENT
(E)	EXISTING EQUIPMENT TO REMAIN
(R)	EXISTING EQUIPMENT RELOCATED
(X)	EXISTING EQUIPMENT TO BE REMOVED

NOTE: ALL EQUIPMENT SHOWN IS NEW U.N.O.

ABBREVIATIONS

DESIGNATION	DESCRIPTION
A.F.F.	ABOVE FINISHED FLOOR (TO CENTERLINE UNO)
C	CONDUIT
C/B	CIRCUIT BREAKER
CFSS	COMBINATION FUSED STARTER SWITCH
ECB	ENCLOSED CIRCUIT BREAKER
EWC	ELECTRIC WATER COOLER (VERIFY MTD.)
G	EQUIPMENT GROUND
GFP	GROUND FAULT INTERRUPTER C/B
GFI	GROUND FAULT CIRCUIT INTERRUPTER
FSS	FUSED SAFETY SWITCH
IG	ISOLATED GROUND
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
NFSS	NON-FUSED SAFETY SWITCH
NL	NIGHTLIGHT (24 HOUR OPERATION)
PC	PC/COMMUNICATION OUTLET
S-1	SECTION #1 OF 2 SECTION PANEL (PROVIDE PANEL WITH FEED THRU LUGS)
S-2	SECTION #2 OF 2 SECTION PANEL (COMMON COVER FOR SECTION 1 & 2)
SHUNT	SHUNT TRIP CIRCUIT BREAKER
SP	SURGE SUPPRESSOR
SN	SUPER NEUTRAL
TG	TRANSFORMER GROUND
UNO	UNLESS NOTED OTHERWISE
WP	WEATHERPROOF (NEMA 3R UNO)

INTERIOR LIGHTING FIXTURE SCHEDULE

MARK	FIXTURE DESCRIPTION			REMARKS	VOLT	MOUNTING	LAMPS		MANUFACTURER	TYPICAL LOCATION
	ILLUM.	TYPE	DIFFUSER				QTY	TYPE		
A	FLUOR.	1X4'	ACRYLIC	FIBERGLASS HOUSING, HIGH IMPACT ACRYLIC LENS. ENCLOSED AND GASKETED.	120	SURFACE	2	F32 T8	LITHONIA #DM SERIES	CONTROL ROOM

INTERIOR LIGHTING NOTES:

1. ALL T8 & COMPACT FLUORESCENT FIXTURES TO BE FURNISHED WITH ELECTRONIC BALLAST. PROVIDE MULTI-BALLASTS AND CONNECT FOR DUAL LEVEL LIGHTING WHERE INDICATED ON THE PLANS.
2. ALL T8 & COMPACT FLUORESCENT LAMPS TO BE 4100 K, 80 COLOR RENDERING INDEX + U.N.O.

EXTERIOR LIGHTING FIXTURE SCHEDULE

MARK	FIXTURE DESCRIPTION			REMARKS	VOLT	MOUNTING	LAMPS		MANUFACTURER	TYPICAL LOCATION
	ILLUM.	TYPE	DIFFUSER				QTY	TYPE		
B	FLUOR.	WALL LIGHT	CLEAR LENS	MEDIUM TRAPEZOIDAL CUTOFF WALL PACK, PROVIDE INTEGRAL PHOTOCELL CONTROL & EMERGENCY BALLAST.	120	SURFACE	2	42W CFL	DECO #D444 SERIES	WET WELL
C	FLUOR.	WALL LIGHT	CLEAR PRISMATIC	PROVIDE AS WALL MOUNT WITH GLOBE AND GUARD.	120	SURFACE	2	42W CFL	RABB #VXBR SERIES	FLOW METER VAULT

EXTERIOR LIGHTING NOTES:

1. VERIFY BASE OF LAMP WITH FIXTURE SUPPLIER.
2. ALL T8 & COMPACT FLUORESCENT LAMPS TO BE 4100 K, 80 COLOR RENDERING INDEX + U.N.O.

GENERAL FIXTURE NOTES:

1. FIXTURE MARK IS TYPICAL FOR ALL FIXTURES OF THE SAME SYMBOL TYPE WITHIN THE SAME ROOM OR AREA U.N.O.
2. FIXTURE CATALOG # ESTABLISHES THE MANUFACTURER'S SERIES # – COMPLETE CATALOG # SHALL BE DETERMINED BY THE SCHEDULE DESCRIPTION, PLAN NOTES AND THE SPECIFICATIONS.

PLUMBING SYMBOLS & ABBREVIATIONS LIST

SAN	SANITARY, S.
	VENTPIPE, V.
	COLD WATER, CW
HW	HOT WATER
	CHECK VALVE
	BALANCING VALVE
	UNION
	SHUTOFF VALVE
	STRAINER
	PRESSURE REDUCING VALVE
	BACKFLOW PREVENTER
	GLOBE VALVE
	PIPING FLOW DIRECTION
C.O.	CLEAN-OUT
F.C.O.	C.O. FLUSH WITH FINISHED FLOOR
W.H.	WALL HYDRANT
A.F.F.	ABOVE FINISH FLOOR
TYP	TYPICAL
GPM	GALLONS PER MINUTE
A	PLAN NOTE REFERENCE SYMBOL
	PIPE UP
	PIPE DOWN
	PIPE CAP
	BOTTOM CONNECTION
	PIPE ANCHOR
	LINE BREAK

MECHANICAL SYMBOLS & ABBREVIATIONS LIST

D R	DUCT DROP DUCT RISE
M	A.T.C. DAMPER (MOTOR OPERATED) SUPPLY AIR DEVICE. ARROWS INDICATE DIRECTION OF AIRFLOW MANUAL VOLUME DAMPER – M.V.D.
S.D.	SMOKE DAMPER, S.D.
F.D. F.D./S.D.	FIRE DAMPER, F.D. COMBINATION FIRE/SMOKE DAMPER
	CONICAL TEE (SPIN-IN TYPE)
	BRANCH DUCT WITH 45° CLINCH COLLAR CONNECTION TO MAIN TRUNK DUCT
	RECTANGULAR TURN W/ TURNING VANES
	FLEXIBLE ROUND DUCT
	RIGID ROUND DUCT
EXH	EXHAUST PIPING SERVING ODOR EXHAUST SYSTEM
T	THERMOSTAT
A.F.L.	ACTIVE FINNED LENGTH
A.H.U.	AIR HANDLING UNIT
A.P.	ACCESS PANEL
C.F.M.	CUBIC FEET PER MINUTE
F.C.	FLEXIBLE CONNECTION
F.T.R.	FINNED TUBE RADIATION
O.A.	OUTSIDE AIR
O.E.D.	OPEN END DUCT
R.A.	RETURN AIR
A	PLAN NOTE REFERENCE SYMBOL
	PIPE UP
	PIPE DOWN
	PIPE CAP
	BOTTOM CONNECTION
	LINE BREAK

STATE OF MARYLAND – CHARLES WILLIAM RICE – No. 22131 – PROFESSIONAL ENGINEER

05-24-11

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland , License No. 22131 , Expiration Date: 10-13-2012 ."

MAY 2011

SRBR

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757 Frederick Road Suite 300 – Catonsville, Maryland 21228
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SRBR No: 10152

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/1/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11 N.C.

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. 12043 EXPIRATION DATE IS 7/16/12.

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

STATE OF MARYLAND – PAUL WINTER WIESEL – #12043 – PROFESSIONAL ENGINEER

PAUL W. WIESEL — #12043 — DATE

DESIGNED BY :	B.C.R.
DRAWN BY :	B.C.R.
CHECKED BY :	P.W.K.
DATE :	MAY, 2011

BY	NO.	REVISION	DATE

MEP LEGENDS & SCHEDULES

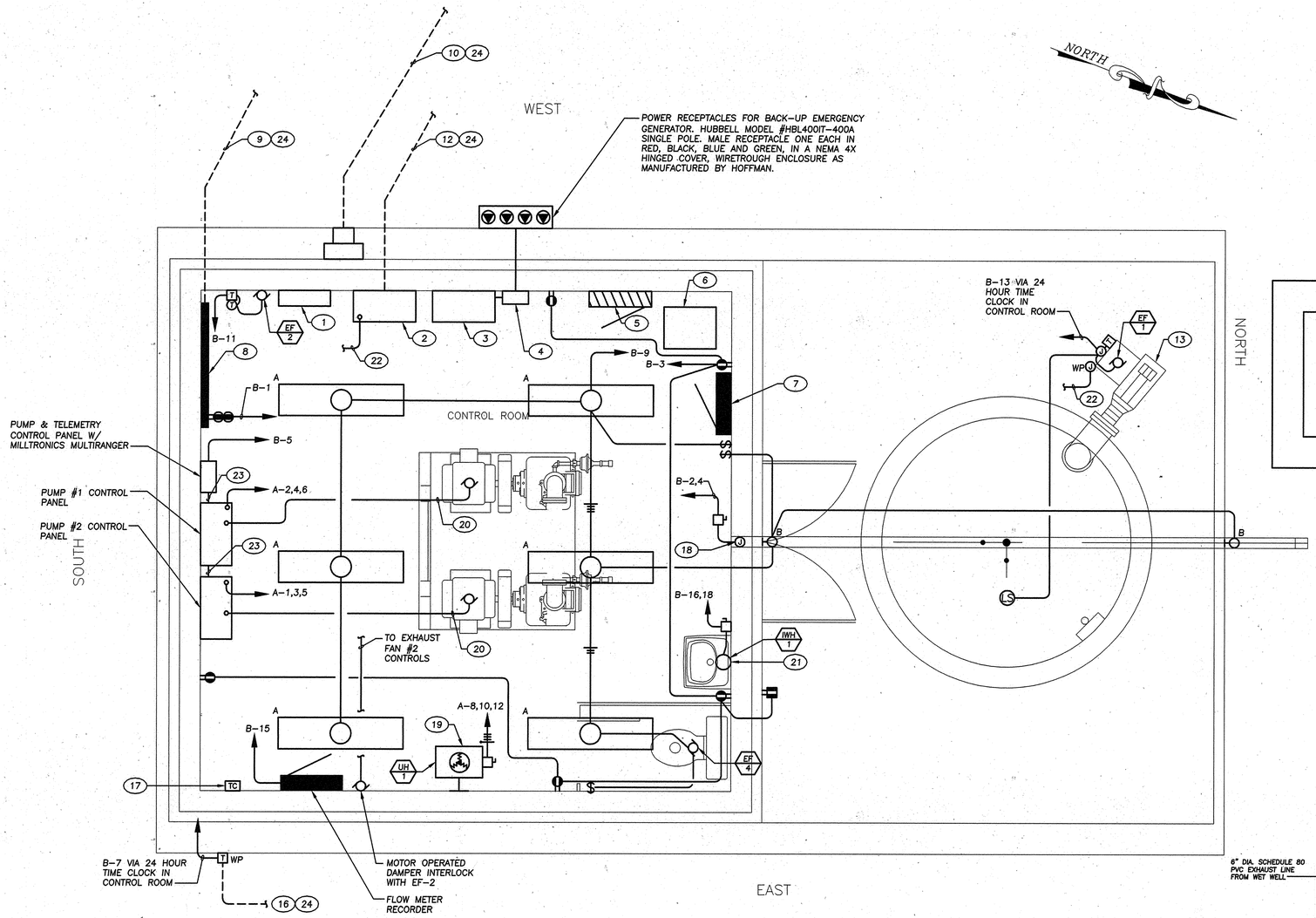
600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION

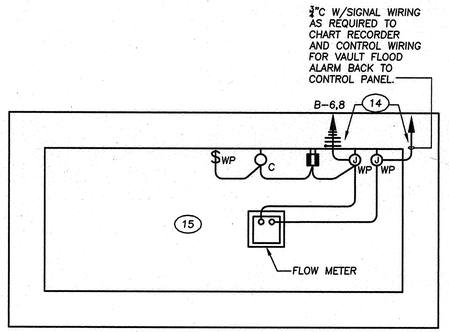
AUTUMN RIVER
WASTEWATER PUMPING STATION
CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

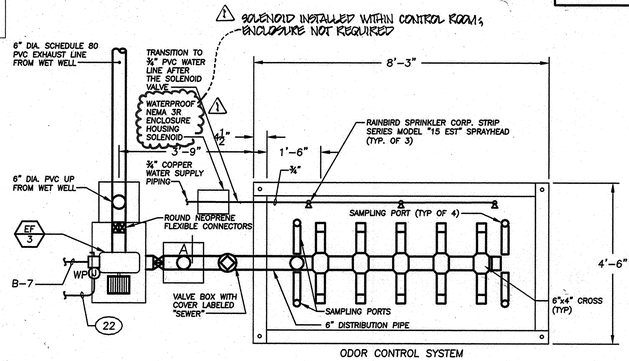
SHEET 13 OF 21

AS BUILT: 03/13





SURGE RELIEF VALVE & FLOW METER VAULT.



ODOR CONTROL SYSTEM

PLAN NOTES:

1. 3P 200A ENCLOSED CIRCUIT BREAKER; SERVICE ENTRANCE RATED.
2. AUTOMATIC TRANSFER SWITCH.
3. NON-AUTOMATC TRANSFER SWITCH.
4. 3-POLE, 150 AMP ENCLOSED CIRCUIT BREAKER.
5. PANEL 'A' 277-480V 3P-4W
6. 30 KVA TRANSFORMER 480-120/208V 3P-4W
7. PANEL 'B' 120-208V 3P-4W
8. PHONE BOARD PER PHONE COMPANY STANDARDS.
9. 2-4" PVC FOR VERIZON USE. CONDUIT TO TERMINATE 20' OUTSIDE OF BUILDING. CONTRACTOR TO COORDINATE WITH VERIZON.
10. INCOMING BGE SERVICE; REFER TO RISER AND SITE PLAN FOR TRANSFORMER PAD LOCATION AND DETAILS ON DRAWINGS 16 AND 19 FOR ADDITIONAL REQUIREMENTS.
11. NOT USED.
12. CONDUITS AND WIRING TO GENERATOR; REFER TO SITE PLAN FOR LOCATION OF GENERATOR & DETAILS ON DRAWING 16.
13. FRESH AIR VENTILATOR.
14. PROVIDE WEATHER PROOF CONDUIT SEALS ON PENETRATIONS MANUFACTURED BY OZ GEDNEY, LINK SEAL OR EQUAL.
15. FLOW METER VAULT; ELECTRICAL REQUIREMENTS ARE AS SHOWN. SEE MECHANICAL AND SITE DRAWINGS FOR LOCATION.
16. MAKE CONNECTIONS AND INSTALL BRANCH CIRCUITRY TO ODOR CONTROL FAN (EF-3) AND SOLENOID CONTROL VALVE. SEE MECHANICAL AND SITE DRAWINGS FOR LOCATIONS.
17. 2 POLE SINGLE THROW 24 HOUR TIME CLOCK FOR ODOR CONTROL WATER SOLENOID, FAN EF-3 AND EF-1.
    ⚠2 IDEC CORP., RTE SERIES
18. MAKE ELECTRICAL CONNECTIONS TO OVERHEAD RAIL LIFT MOTOR AS REQUIRED. CONFIRM POWER REQUIREMENTS AND LOCATION WITH LIFT CONTRACTOR PRIOR TO ROUGH IN.
19. ELECTRIC UNIT HEATER 15KW-18A-3P-480V. CONFIRM LOCATION WITH MECHANICAL DRAWINGS. PROVIDE FUSE RATINGS AND TYPE AS REQUIRED BY MANUFACTURE.
20. MAKE CONNECTIONS AS REQUIRED TO 25HP MOTOR. COORDINATE REQUIRMENTS AND CONTROL WIRING WITH MECHANICAL CONTRACTOR.
21. MAKE CONNECTIONS TO INSTANT HOT WATER HEATER. CONFIRM LOCATION AND POWER REQUIRMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH IN. PROVIDE "WATER HEATER DISCONNECT" LABEL ON SAFETY SWITCH.
22. ¾" CONDUIT & CONTROL WIRING AS REQUIRED TO CONTROL PANEL.
23. PROVIDE ¾" CONDUIT BETWEEN CONTROL PANEL AND PUMP CONTROL PANEL 1 ALSO BETWEEN CONTROL PANEL AND PUMP CONTROL PANEL 2.
24. SEE SHEET 2 FOR CONTINIUATION AND ADDITIONAL INFORMATION.

PUMPING STATION PLAN - ELECTRICAL

SCALE: 1/2" = 1'-0" 0 6" 1' 2' 4'

GENERAL NOTES:

1. CONTRACTOR SHALL FULLY COORDINATE THE INSTALLATION (EXACT LOCATIONS OF EQUIPMENT AND CONDUIT TURN UPS) AND SCHEDULING OF VERIZION AND BGE SCOPE OF WORK.
2. DIV (16) IS TO PROVIDE ALL CONTROL WIRING FROM CONTROL PANEL TO MOTORS AND ALL OTHER CONTROLS AS REQUIRED. FIELD COORDINATE REQUIRMENTS WITH MECHANICAL CONTRACTOR & EQUIPMENT SUBMITTALS.
3. PROVIDE AND INSTALL LINK/WP CONDUIT SEALS ON ANY AND ALL PENETRATIONS INTO VAULTS.
4. ALL CONDUIT & WIRING SHALL BE RUN OVERHEAD AND NOT LESS THAN 24" A.F.F. WHERE WIRING ENTERS THE BUILDING UNDERGROUND EXPLOSION PROOF SEAL OFF'S WILL BE USED.

STATE OF MARYLAND · RICHARD WILLIAM RIDGWAY · No. 22131 · PROFESSIONAL ENGINEER
05-24-11

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland *, License No.* 22131 *, Expiration Date:* 10-13-2012 *."*

MAY 2011

SRBR
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Phone: 410/869-7282 – Fax: 410/869-7362
SRBR No: 10152

CONTRACT NO. 14-4596-D
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WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/1/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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#12043 · STATE OF MARYLAND · PAUL WALTER KRIEBEL · PROFESSIONAL ENGINEER

DESIGNED BY :	B.C.R.
DRAWN BY :	B.C.R.
CHECKED BY :	P.W.K.
DATE :	MAY, 2011

BY	NO.	REVISION	DATE
FCC	⚠2	INDICATE "AS BUILT" SUPPLIER OF TIME CLOCK	3/11/13
FCC	⚠1	INDICATE & DENOTE "AS BUILT CONDITIONS	3/11/13

PUMPING STATION PLAN – ELECTRICAL

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION

AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 14 OF 21

AS BUILT: 03/13

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

MARK	SERVING	VOLT	PH	LOAD	PROVISIONS AT UNIT DEVICE	PROVISIONS AT UNIT FRAME	CONTROL	NOTES
UNIT HEATER								
UH 1	CONTROL ROOM	480	3	15KW–18.0A	FSS	30	ATC	1,3
EXHAUST FANS								
EF 1	WET WELL VENTILATION	120	1	½ HP 500CFM	TMS–WP	–	TC	1,2,3,4
EF 2	CONTROL ROOM VENTILATION	120	1	½ HP 500CFM	TMS–WP	–	ATC	1,3,5
EF 3	ODOR CONTROL	120	1	½ HP 100CFM	TMS–WP	–	TC	1,2,3,4
EF 4	BATHROOM	120	1	1.0A	–	–	WS	1
INSTANTANEOUS WATER HEATER								
IWH 1	CONTROL ROOM	208	1	8.3 KW	FSS	60	ATC	1,3

NOTES

1. EQUIPMENT INDICATED ABOVE IS FURNISHED & INSTALLED UNDER ANOTHER DIVISION OF THE WORK. DIVISION 16 TO MAKE ELECTRICAL PROVISIONS AS INDICATED.
2. ALL EXTERIOR SWITCHES AND SAFETY SWITCHES TO BE NEMA 3R TYPE.
3. FUSE OR PROVIDE OVERLOADS PER MANUFACTURER'S RECOMMENDATIONS.
4. CONNECTIONS AND ENCLOSURE SHALL BE EXPLOSION PROOF.
5. PROVIDE CONTROL WIRING AND INTERFACE WITH MOTOR OPERATED DAMPER WITH EF–2. COORDINATE REQUIREMENTS WITH MECHANICAL CONTRACTOR.

EQUIPMENT MARK

RTU 1 — EQUIPMENT TYPE / EQUIPMENT NUMBER

ATC – AUTOMATIC TEMPERATURE CONTROL (DIVISION 15)
CFS – COMBINATION FUSED STARTER SAFETY SWITCH
FSS – FUSED SAFETY SWITCH
NFSS – NON FUSED SAFETY SWITCH
MTS – MOTOR RATED TOGGLE SWITCH
TC – TIME CLOCK
TMS – THERMAL MANUAL MOTOR STARTER
TSD – TOGGLE SWITCH DISCONNECT
WP – WEATHERPROOF
WS – WALL SWITCH

PANEL A (N)

VOLTAGE: 277 / 480 — A.I.C.: 14k
PHASE, WIRE: 3 PH , 4 W — 200 AMP MAIN C/B — MOUNTED: SURFACE

CKT	SERVING	C/B P	C/B TRIP	WIRE QTY	WIRE AWG	KVA	PH	KVA	WIRE QTY	WIRE AWG	C/B P	C/B TRIP	SERVING	CKT
1	CONTROL ROOM PUMP 2	3	70	3	4	9.4	A	9.4	3	4	3	70	CONTROL ROOM PUMP 1	2
3						9.4	B	9.4						4
5						9.4	C	9.4						6
7	30KVA TRANSFORMER	3	50	3	6	11.0	A	5.0	3	10	3	30	UNIT HEATER	8
9						11.0	B	5.0						10
11						11.0	C	5.0						12
13	SPARE	1	20				A						BUSSED SPACE	14
15	SPARE	1	20				B						BUSSED SPACE	16
17	SPARE	1	20				C						BUSSED SPACE	18
19	SPARE	1	20				A						BUSSED SPACE	20
21	SPARE	1	20				B						BUSSED SPACE	22
23	SPARE	1	20				C						BUSSED SPACE	24
25	BUSSED SPACE						A						BUSSED SPACE	26
27	BUSSED SPACE						B						BUSSED SPACE	28
29	BUSSED SPACE						C						BUSSED SPACE	30
31	BUSSED SPACE						A						BUSSED SPACE	32
33	BUSSED SPACE						B						BUSSED SPACE	34
35	BUSSED SPACE						C						BUSSED SPACE	36
37	BUSSED SPACE						A						BUSSED SPACE	38
39	BUSSED SPACE						B						BUSSED SPACE	40
41	BUSSED SPACE						C						BUSSED SPACE	42

TOTAL DEMAND KVA (PER PHASE): A: 24.4 B: 24.4 C: 24.4 DESIGN KVA: 73 DESIGN AMPS: 88

NOTES:

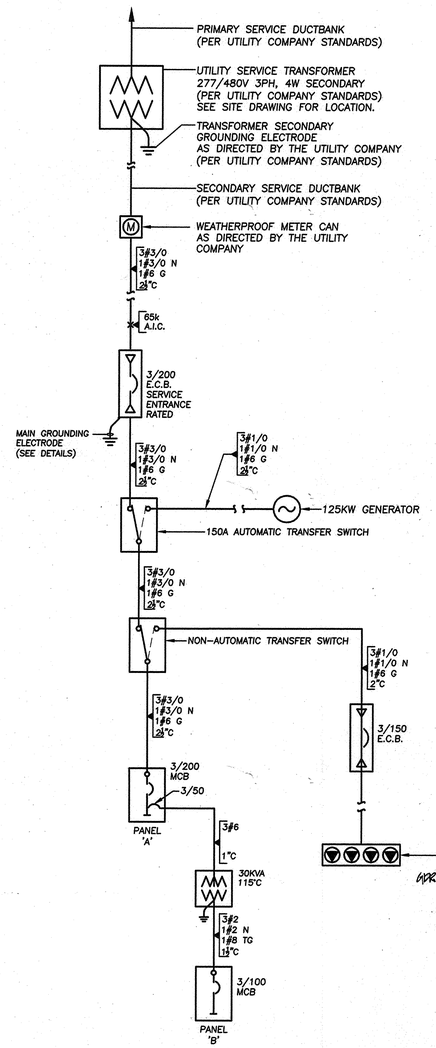
PANEL B (N)

VOLTAGE: 120 / 208 — A.I.C.: 10k
PHASE, WIRE: 3 PH , 4 W — 100 AMP MAIN C/B — MOUNTED: SURFACE

CKT	SERVING	C/B P	C/B TRIP	WIRE QTY	WIRE AWG	KVA	PH	KVA	WIRE QTY	WIRE AWG	C/B P	C/B TRIP	SERVING	CKT
1	PHONE BOARD RECEP	1	20	2	12	1.0	A	1.2	2	12	2	20	ELECTRIC HOIST	2
3	RECEPTACLES	1	20	2	12	1.0	B	1.2						4
5	TELEMETRY CTRL. PANEL	1	20	2	12	1.0	C	0.5	2	12	1	20	FM VAULT RECP & LIGHT	6
7	EF-3 & CONTROL VALVE	1	20	2	12	1.2	A	0.3	2	12	1	20	FLOW METER (1)	8
9	LIGHTING/EF-4	1	20	2	12	0.6	B	1.5	2	12	1	20	BATTERY CHARGER	10
11	EF-2	1	20	2	12	0.7	C	1.1	2	12	2	20	BLOCK HEATER	12
13	EF-1	1	20	2	12	0.7	A	1.1						14
15	FLOW METER RECORDER	1	20	2	12	1.0	B	4.2	2	6	2	50	INSTANT WATER HEATER	16
17	SPARE	1	20				C	4.2						18
19	SPARE	1	20				A						BUSSED SPACE	20
21	SPARE	1	20				B						BUSSED SPACE	22
23	SPARE	1	20				C						BUSSED SPACE	24
25	SPARE	1	20				A						BUSSED SPACE	26
27	BUSSED SPACE						B						BUSSED SPACE	28
29	BUSSED SPACE						C						BUSSED SPACE	30
31	BUSSED SPACE						A						BUSSED SPACE	32
33	BUSSED SPACE						B						BUSSED SPACE	34
35	BUSSED SPACE						C						BUSSED SPACE	36
37	BUSSED SPACE						A						BUSSED SPACE	38
39	BUSSED SPACE						B						BUSSED SPACE	40
41	BUSSED SPACE						C						BUSSED SPACE	42

TOTAL DEMAND KVA (PER PHASE): A: 3.6 B: 6.5 C: 4.9 DESIGN KVA: 20 DESIGN AMPS: 54

NOTES:
(1) PROVIDE GFCI BREAKER.



POWER DISTRIBUTION DIAGRAM

NO SCALE

NOTES:
1. EQUIPMENT IMMEDIATELY DOWN STREAM OF FAULT CURRENT A.I.C. RATING DESIGNATION SHALL BE BRACED FOR THE RATING INDICATED. BRANCH MAINS SHALL BE U.L. SERIES RATED OR CURRENT LIMITING TYPE FUSES TO REDUCE DOWN STREAM FAULT CURRENT TO 10k A.I.C. OR LESS (SUBMIT SHOP DRAWINGS OF RATED EQUIPMENT).

STATE OF MARYLAND — CHRISTOPHER WILLIAM RIDGWAY — No. 22131 — PROFESSIONAL ENGINEER
05-24-11

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MAY 2011

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WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/21/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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ELLICOTT CITY, MARYLAND 21042
(410) 461 – 2855

STATE OF MARYLAND — PAUL WALTER KRIEBEL — #12043 — PROFESSIONAL ENGINEER
PAUL W. KRIEBEL

DESIGNED BY :	B.C.R.
DRAWN BY :	B.C.R.
CHECKED BY :	P.W.K.
DATE :	MAY, 2011

BY	NO.	REVISION	DATE
PDC	1	INDICATE & DENOTE "AS BUILT" SUPPLIER & ENCLOSURE TYPE	9/11/13

ELECTRICAL ONE LINE & PANEL/EQUIPMENT SCHEDULES

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30827
FILE NAME : WASTEWATER PUMPING STATION

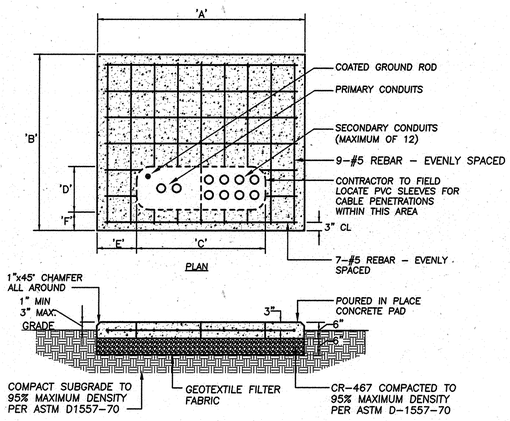
AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14–4596–D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 15 OF 21

AS BUILT: 03/13



TRANSFORMER PAD DETAIL

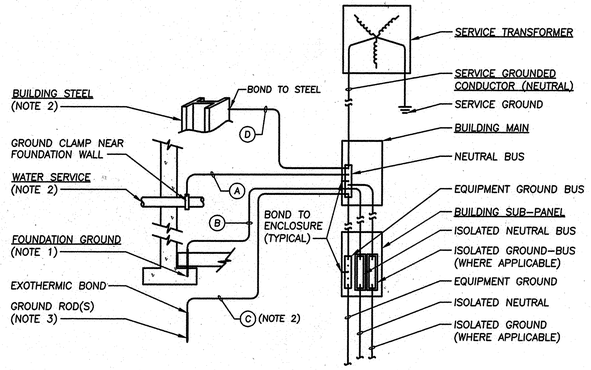
NO SCALE

TRANSFORMER PAD DIMENSIONS						
RATING	A	B	C	D	E	F
75-500 KVA	76"	66"	50"	18"	14"	6"
750-2500 KVA	100"	84"	65"	18"	25"	8"

NOTES:
1. VERIFY PAD REQUIREMENTS W/LOCAL UTILITY COMPANY.
2. PROVIDE SUMP WHERE REQUIRED BY UTILITY COMPANY.

GENERAL NOTES:

1. DETAILS SHOWN ON THIS PLAN ARE INTENDED FOR REFERENCE, & GENERAL CONFORMANCE TO UTILITY COMPANY REQUIREMENTS.
2. UTILITY SERVICE WORK & MATERIALS USED TO BE IN STRICT ACCORDANCE WITH UTILITY COMPANY.
3. CONTRACTOR SHALL INSTALL SYSTEM BASED ON THE FINAL UTILITY COMPANY ENGINEERING DRAWINGS.



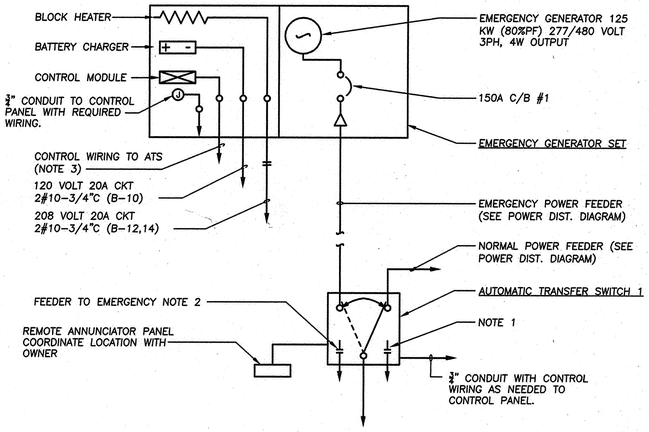
MAIN GROUNDING ELECTRODE DETAIL

NO SCALE

GROUNDING NOTES:
1. CONCRETE ENCASED ELECTRODE (SEE DETAIL).
2. IF CONTINUOUS METALLIC WATER PIPE OR BUILDING STEEL IS NOT AVAILABLE THEN GROUND ROD ELECTRODE SHALL BE FULL SIZE.
3. ADDITIONAL RODS SHALL BE ADDED AS NEEDED FOR TOTAL RESISTANCE OF 25 OHMS OR LESS.

GROUND CONDUCTOR TABLE				
SERVICE SIZE	A	B	C	D
~~100A~~	~~#8~~	~~#4~~	~~#6~~	~~#8~~
200A	#4	#4	#6	#4
~~400A~~	~~#1/0~~	~~#4~~	~~#6~~	~~#1/0~~
~~600A~~	~~#2/0~~	~~#4~~	~~#6~~	~~#2/0~~
~~OVER 600A~~	~~#3/0~~	~~#4~~	~~#6~~	~~#3/0~~

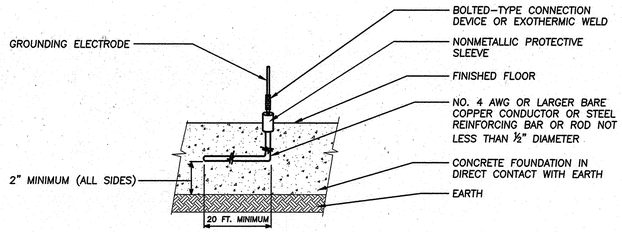
NOTES:
1. THE ABOVE CHART GIVES MINIMUM COPPER GROUND SIZES.



EMERGENCY POWER SYSTEM SINGLE LINE DIAGRAM

NO SCALE

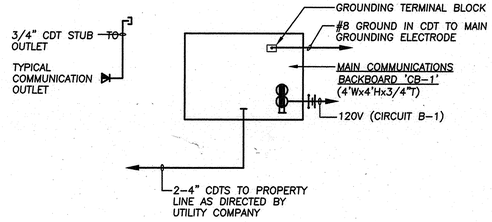
GENERATOR NOTES:
1. NORMAL POWER AUXILIARY CONTACTS: 1 N.O. AND 1 N.C.
2. EMERGENCY POWER AUXILIARY CONTACTS: 1 N.O. AND 1 N.C.
3. CONTROL WIRING SHALL BE RAN IN A SEPARATE CONDUIT (3/4" MINIMUM).
4. GENERATOR SIZED FOR LEAD, LAG SITUATION WITH 2-25HP MOTORS. CONTROLS SHALL BE PROVIDED TO PREVENT BOTH MOTORS FROM STARTING AT THE SAME TIME.



CONCRETE ENCASED ELECTRODE

NO SCALE

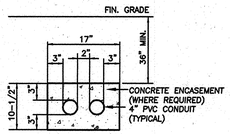
ELECTRODE NOTES:
1. CONCRETE ENCASED ELECTRODE SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 250-50 (2) (C).



COMMUNICATION RACEWAY DIAGRAM

NO SCALE

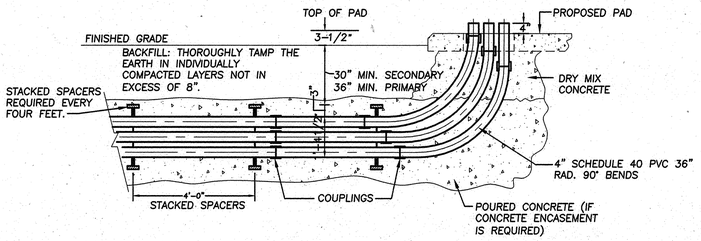
NOTES:
1. BACKBOARD SHALL BE FIRE TREATED PLYWOOD PAINTED MATTE WHITE.
2. PROVIDE 3/4" CONDUIT TO FIRE ALARM PANEL, SECURITY PANEL, ATC PANEL & ELEVATOR MACHINE ROOM (WHERE APPLICABLE).



2 WAY PRIMARY/SECONDARY DUCTBANK DETAIL

NO SCALE

DUCTBANK NOTES:
1. PROVIDE DUCTBANK SPACERS EVERY 48" MINIMUM.
2. PROVIDE TEMPORARY ANCHORING TO PREVENT CONDUITS FROM FLOATING DURING POUR.
3. 2-WAY & 3-WAY DUCTBANKS REQUIRE CONCRETE ENCASEMENT ONLY AT 90 DEGREE BENDS, AT TRANSFORMER & BELOW PARKING LOTS/ROADWAYS.



TURNING CONDUITS INTO TRANSFORMER PADS

NO SCALE

STATE OF MARYLAND — CHARLES WILLIAM RIDGWAY — No. 22131 — PROFESSIONAL ENGINEER

05-24-11

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland *, License No.* 22131 *, Expiration Date:* 10-13-2012 *."*

MAY 2011

SRBR
Siegel, Rutherford, Bradstock, & Ridgway, Inc.
CONSULTING ENGINEERS
757 Frederick Road Suite 300 - Catonsville, Maryland 21228
Phone: 410/869-7282 - Fax: 410/869-7362
SRBR No: 10152

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/7/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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. 12043 EXPIRATION DATE IS 7/16/12.

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

#12043 — STATE OF MARYLAND — PAUL WALTER KIEBEL — PROFESSIONAL ENGINEER
PAUL W. KIEBEL

DESIGNED BY : B.C.R.				
DRAWN BY : B.C.R.				
CHECKED BY : P.W.K.				
DATE : MAY, 2011	BY	NO.	REVISION	DATE

ELECTRICAL DETAILS & DIAGRAMS

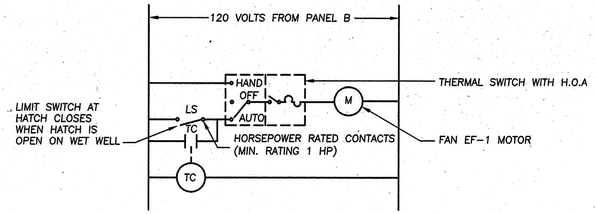
600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION

AUTUMN RIVER
WASTEWATER PUMPING STATION
CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

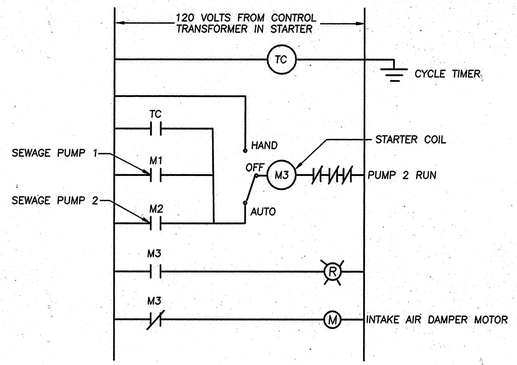
SCALE AS SHOWN

SHEET 16 OF 21

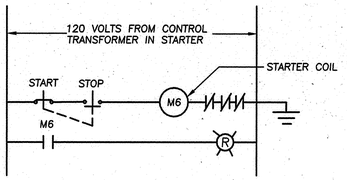
AS BUILT: 03/13



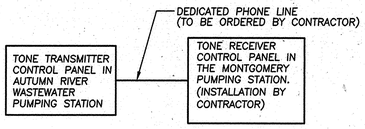
EXHAUST FAN EF-1
CONTROL SCHEMATIC - WET WELL
NO SCALE



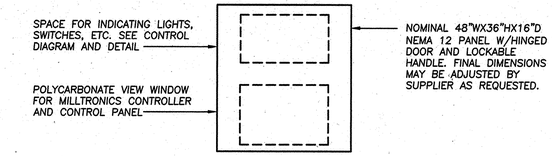
EXHAUST FAN EF-2
CONTROL SCHEMATIC - PUMP ROOM
NO SCALE



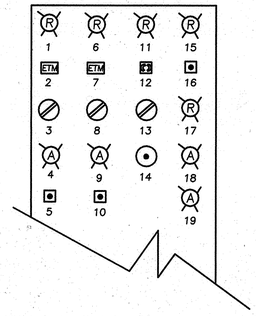
EXHAUST FAN EF-3
CONTROL SCHEMATIC - ODOR CONTROL
NO SCALE



TELEMETRY TRANSMITTER/
RECEIVER SCHEMATIC
NO SCALE



FRONT VIEW - CONTROL PANEL CABINET
NO SCALE



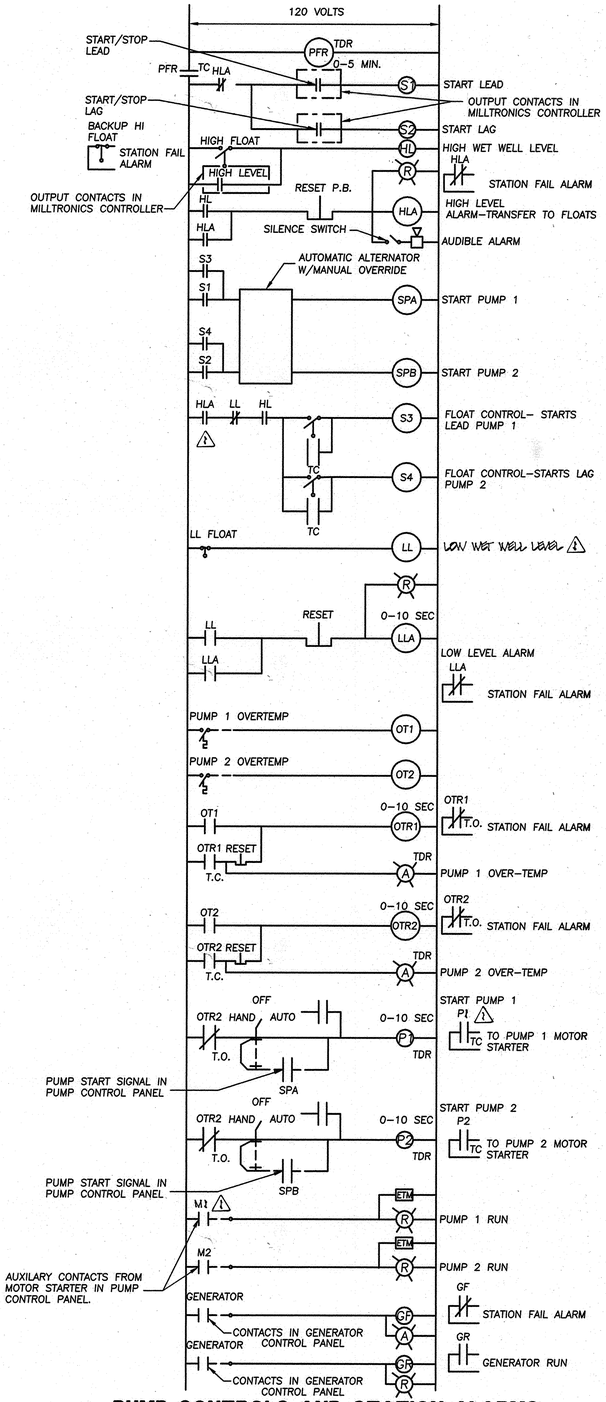
CONTROL PANEL DOOR LAYOUT
NO SCALE

LEGEND

1. PUMP 1 RUN
2. PUMP 1 RUN TIME
3. PUMP 1 H-O-A
4. PUMP 1 OVER-TEMP
5. PUMP 1 OVER-TEMP RESET
6. PUMP 2 RUN
7. PUMP 2 RUN TIME
8. PUMP 2 H-O-A
9. PUMP 2 OVER-TEMP
10. PUMP 2 OVER-TEMP RESET
11. HIGH LEVEL ALARM-TRANSFER TO FLOATS
12. HIGH LEVEL ALARM-AUDIBLE
13. HIGH LEVEL ALARM-SILENCE SWITCH (ENABLE/SILENCE)
14. HIGH LEVEL ALARM RESET
15. LOW LEVEL ALARM
16. LOW LEVEL ALARM RESET
17. GENERATOR RUN
18. GENERATOR FAIL
19. VAULT FLOOD ALARM

TELEMETRY ALARMS DIAGRAM
NO SCALE

NOTE: TELEMETRY SYSTEM POWER IS TO BE SUPPLIED FROM PANEL B.



PUMP CONTROLS AND STATION ALARMS
NO SCALE (RTU CONTROL PANEL)

CONTRACT NO. 14-4596-D
AUTUMN RIVER WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — CHARLES WILLIAM RIDDIX — No. 22131 — PROFESSIONAL ENGINEER

05-24-11

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland *, License No.* 22131 *, Expiration Date:* 10-13-2012 *."*

MAY 2011

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/9/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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. 12043 EXPIRATION DATE IS 7/16/12.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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STATE OF MARYLAND — PAUL WALTER KRIEBEL — #12043 — PROFESSIONAL ENGINEER
PAUL W. KRIEBEL

DESIGNED BY :	B.C.R.
DRAWN BY :	B.C.R.
CHECKED BY :	P.W.K.
DATE :	MAY, 2011

BY	NO.	REVISION	DATE
FCC	1	INDICATE & DENOTE "AS BUILT" CONTROL ALARM CONDITIONS	3/11/13

ELECTRICAL DIAGRAMS

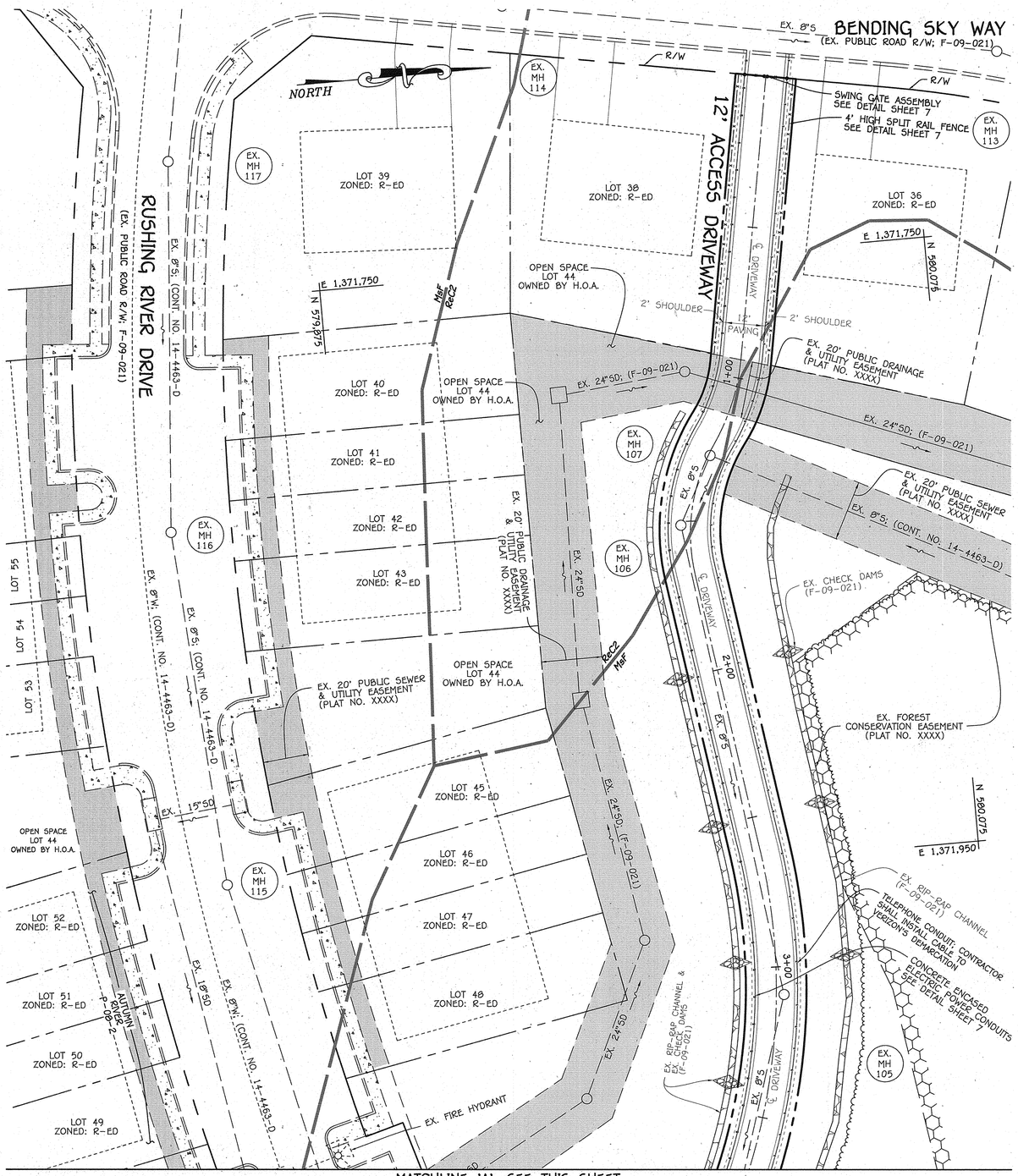
600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION

AUTUMN RIVER WASTEWATER PUMPING STATION
CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 17 OF 21

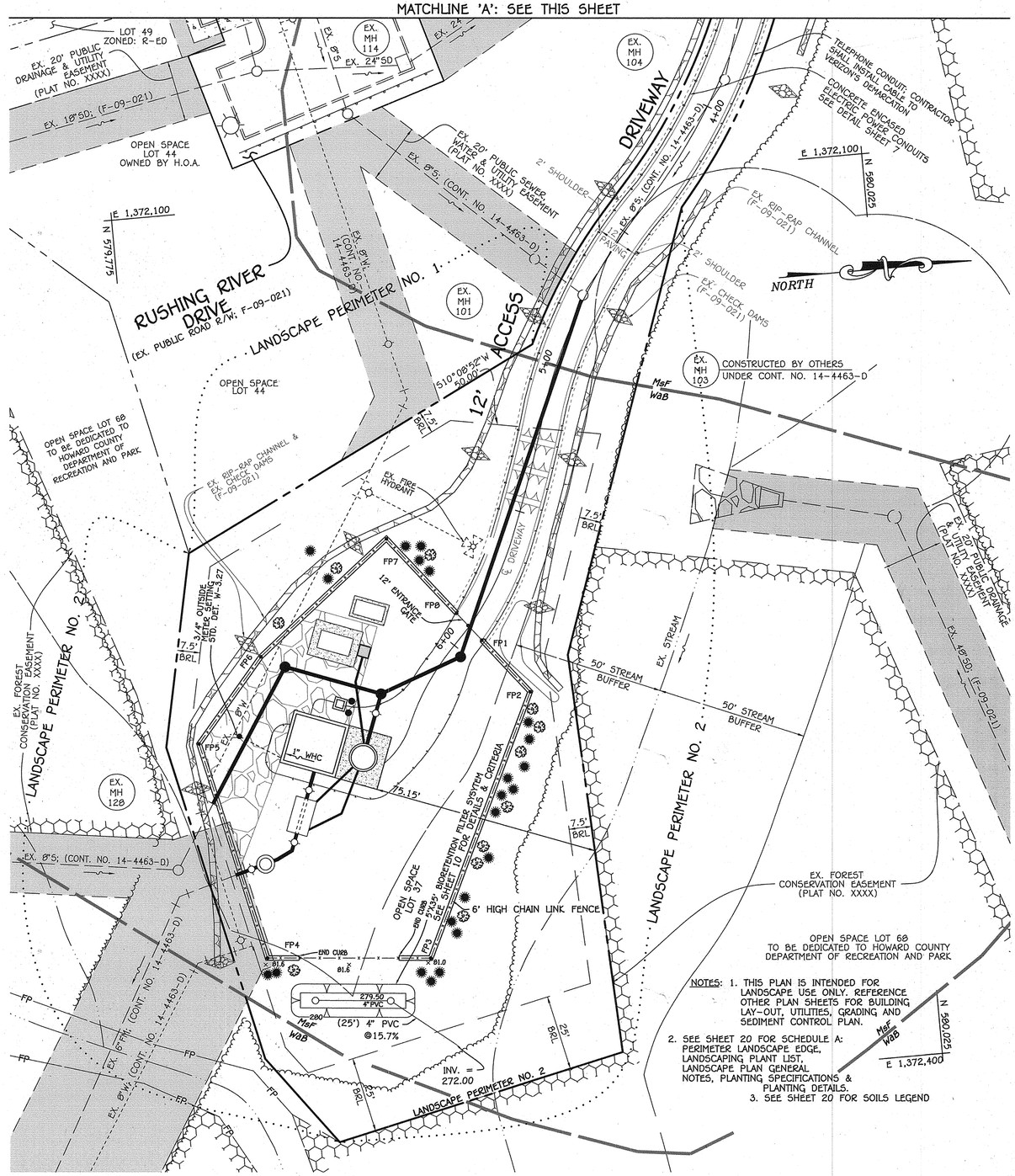
AS BUILT: 03/13



MATCHLINE 'A': SEE THIS SHEET

PLAN

SCALE: 1" = 20'



PLAN

SCALE: 1" = 20'

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES — DATE 6/3/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND — PAUL WALTER KRIEBEL — #12043 — PROFESSIONAL ENGINEER
PAUL W. KRIEBEL

DESIGNED BY :	BY	NO.	REVISION	DATE
B.C.R.				
DRAWN BY : B.C.R.				
CHECKED BY : P.W.K.				
DATE : MAY, 2011				

LANDSCAPING PLAN & SOILS MAP

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION LANDSCAPE PLAN

AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 18 OF 21

AS BUILT: 03/13

K:\Drawings 3\30627 Autumn River\dwg\30627-Public AR\WPS Plan.dwg, 5/20/2011 2:43:04 PM

PLANTING SPECIFICATIONS

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

ALL PLANT MATERIAL UNLESS OTHERWISE SPECIFIED, SHALL BE NURSERY GROWN, UNIFORMLY BRANCHED, HAVE A VIGOROUS ROOT SYSTEM, AND SHALL CONFORM TO THE SPECIES, SIZE, ROOT AND SHAPE SHOWN ON THE PLANT LIST AND THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS. PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS, FREE FROM DEFECTS, DECAY, DISFIGURING ROOTS, SUN SCALD INJURIES, ABRASIONS OF THE BARK, PLANT DISEASE, INSECT PEST EGGS, BORERS AND ALL FORMS OF INSECT INFESTATIONS OR OBJECTIONABLE DISFIGUREMENTS. PLANT MATERIAL THAT IS WEAK OR WHICH HAS BEEN CUT BACK FROM LARGER GRADES TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED. TREES WITH FORKED LEADERS WILL NOT BE ACCEPTED. ALL PLANTS SHALL BE FRESHLY DUG; NO HEALED-IN PLANTS FROM COLD STORAGE WILL BE ACCEPTED.

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

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

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

PROTECTION OF EXISTING VEGETATION TO REMAIN SHALL BE PROVIDED IN ACCORDANCE WITH THE APPROVED FOREST CONSERVATION PLAN.

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

BID SHALL BE BASED ON ACTUAL SITE CONDITIONS. NO EXTRA PAYMENT SHALL BE MADE FOR WORK ARISING FROM SITE CONDITIONS DIFFERING FROM THOSE INDICATED ON DRAWINGS AND SPECIFICATIONS PLANT QUANTITIES ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. IF DISCREPANCIES EXIST BETWEEN QUANTITIES SHOWN ON PLAN AND THOSE SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE PLAN TAKE PRECEDENCE.

ALL SHRUBS SHALL BE PLANTED IN CONTINUOUS TRENCHES OR PREPARED PLANTING BEDS AND MULCHED WITH COMPOSTED HARDWOOD MULCH AS DETAILS AND SPECIFIED EXCEPT WHERE NOTED ON PLANS. POSITIVE DRAINAGE SHALL BE MAINTAINED IN PLANTING BEDS (2 PERCENT SLOPE).

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

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

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

LANDSCAPE PLAN GENERAL NOTES

A. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE & LANDSCAPE MANUAL.

B. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE GRADING PERMIT IN THE AMOUNT OF $6,600.00 (11 SHADE TREES @ 300.00/TREE) AND (22 EVERGREEN TREES @ $150/TREE).

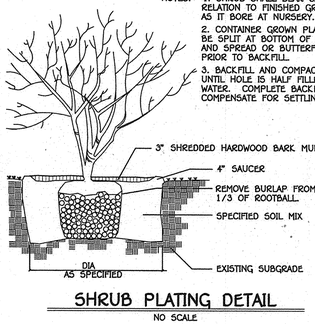
C. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.

SCHEDULE A PERIMETER LANDSCAPE EDGE

PERIMETER	No. 1	No. 2
CATEGORY	Adjacent to Residential Perimeter Properties	Adjacent to Residential Perimeter Properties
LANDSCAPE TYPE	C	C
LINEAR FEET OF PERIMETER	133.54 L.F.	595.67 L.F.
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	YES 268.71 L.F. (FCE)
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE IF NEEDED)	NO	NO
NUMBER OF PLANTS REQUIRED	9	24
SHADE TREES EVERGREEN TREES	133.54'@1:40' = 3 133.54'@1:20' = 6	326.96'@1:40' = 8 326.96'@1:20' = 16
NUMBER OF PLANTS PROVIDED	9	24
SHADE TREES EVERGREEN TREES SHRUBS	3 6 0	8 16 0
OTHER TREES (2:1 SUBSTITUTION)	–	–

LANDSCAPING PLANT LIST

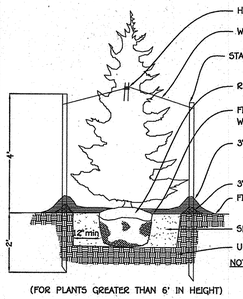
QTY.	KEY	NAME	SIZE
11		ACER RUBRUM RED MAPLE	2-1/2" - 3" CAL
22		PICEA ABIES NORWAY SPRUCE	6' - 8' HT



NOTES:
1. SHRUB SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE AT NURSERY.
2. CONTAINER GROWN PLANTS SHALL BE SPLIT AT BOTTOM OF ROOTBALL AND SPREAD OR BUTTERFLIED PRIOR TO BACKFILL.
3. BACKFILL AND COMPACT SOIL MIX UNTIL HOLE IS HALF FILLED AND WATER. COMPLETE BACKFILLING AND COMPENSATE FOR SETTLING.

SHRUB PLATING DETAIL
NO SCALE

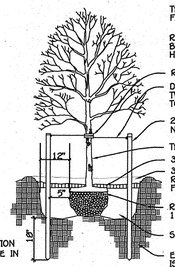
NOTE: SEE SHEET 4 FOR LANDSCAPE PLAN



(FOR PLANTS GREATER THAN 6' IN HEIGHT)

NOTES:
1. PLANT SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE IN THE NURSERY.
2. BACKFILL AND COMPACT SOIL MIX UNTIL HOLE IS HALF FILLED AND WATER. COMPLETE BACKFILLING AND COMPENSATE FOR SETTLING.

EVERGREEN PLANTING DETAIL
NO SCALE



TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE IN NURSERY.
REMOVE DEAD AND DAMAGED BRANCHES BY PRUNING ACCORDING TO RECOGNIZED HORTICULTURAL PRACTICES.
REINFORCED BLACK RUBBER HOSE 1/2" DIA.
DOUBLE #10 GAGE NON-CORRODABLE WIRE TWISTED UNTIL TAUT. STAKES & WIRE TO BE REMOVED AFTER SIX (6) MONTHS
2" X 2" HARDWOOD STAKES, 8' LONG, 2 PER TREE. NOTCH STAKE.
TREE WRAP
3" SHREDDED BARK MULCH
3" MIN. SOIL RIM, 4' DIA. REMOVE AFTER ONE YEAR. FLOOD TWICE DURING FIRST 24 HOURS.
REMOVE ROTTABLE BURLAP FROM UPPER 1/3 OF ROOT BALL.
SOIL MIX – SEE SOIL SPECIFICATIONS.
EXISTING UNDISTURBED SUBSOIL. IF SUBSOIL IS FILL, SET TREE 4" ABOVE FINISH GRADE TO ALLOW FOR SETTLEMENT.

TREE PLANTING DETAIL
NO SCALE

SOILS LEGEND

SOIL	NAME	CLASS
ReC2	Relay silt loam, 3 to 15 percent slopes, moderately eroded	B
MaF	Montalto and Relay, very stony silt loams, 25 to 60 percent slopes	B
**WaB	Watchung silt loam, 3 to 8 percent slopes	D

NOTES:
* HYDRIC SOILS AND/OR CONTAINS HYDRIC INCLUSIONS
** MAY CONTAIN HYDRIC INCLUSIONS
† GENERALLY ONLY WITHIN 100-YEAR FLOODPLAIN AREAS

LEVEL SPREADER CRITERIA

FOR IMPERVIOUS SURFACE RUNOFF APPLICATIONS:
THE CAPACITY FOR THE LEVEL SPREADER IS DETERMINED IN THE DESIGN OF THE FILTER STRIP TO WHICH IT DISCHARGES.

THE SPREADER SHALL RUN LINEARLY ALONG THE ENTIRE WIDTH OF THE FILTER STRIP TO WHICH IT DISCHARGES. IN MOST CASES, THE SPREADER WILL BE THE SAME WIDTH AS THE CONTRIBUTING IMPERVIOUS SURFACE. THE ENDS OF THE SPREADER SHALL BE TIED INTO HIGHER GROUND TO PREVENT FLOW AROUND THE SPREADER.
THE MINIMUM DEPTH SHALL BE 6 INCHES AND THE MINIMUM WIDTH SHALL BE 6 FEET FOR THE LOWER SIDE SLOPE. SIDE SLOPES SHALL BE 2:1 (HORIZONTAL TO VERTICAL) OR FLATTER.

THE GRADE OF THE SPREADER SHALL BE 0%.

THE OUTLET DISCHARGE AREA MUST BE GENERALLY SMOOTH AND WELL VEGETATED WITH A MAXIMUM SLOPE OF 10%.

FOR ALL APPLICATIONS:
THE SPREADER LIP SHALL BE CONSTRUCTED TO A UNIFORM HEIGHT AND ZERO GRADE OVER THE LENGTH OF THE SPREADER. FOR DESIGN FLOWS OF 4 CFS OR GREATER, A RIGID LIP OF NON-ERODIBLE MATERIAL, SUCH AS PRESSURE-TREATED TIMBERS OR CONCRETE CURBING, SHALL BE USED. FOR FLOWS LESS THAN 4 CFS, A VEGETATED LIP MAY BE USED. THE SPREADER LIP SHALL BE CONSTRUCTED ON UNDISTURBED SOIL.

WHEN USING A VEGETATED LIP IT SHALL BE PROTECTED WITH AN EROSION CONTROL BLANKET TO PREVENT EROSION AND ALLOW THE VEGETATION TO BECOME ESTABLISHED. THE BLANKET SHALL BE A MINIMUM OF 4 FEET WIDE EXTENDING A MINIMUM OF 1 FOOT DOWNSTREAM OVER THE LEVEL LIP. THE BLANKET SHALL BE SECURED WITH HEAVY-DUTY STAPLES AND THE DOWNSTREAM AND UPSTREAM EDGES SHALL BE BURIED AT LEAST 6 INCHES DEEP IN A VERTICAL TRENCH.

WHEN USING A RIGID LIP IT SHALL BE ENTRENCHED AT LEAST 4 INCHES BELOW EXISTING GROUND AND SECURELY ANCHORED TO PREVENT DISPLACEMENT. AN APRON OF CLASS 1 RIP-RAP SHALL BE PLACED TO THE TOP OF THE RIGID LIP AND EXTEND DOWNSLOPE AT LEAST 3 FEET. A FILTER FABRIC SHALL BE PLACED UNDER THE COARSE AGGREGATE.

IMMEDIATELY AFTER LEVEL SPREADER CONSTRUCTION, SEED AND MULCH THE ENTIRE DISTURBED AREA OF THE SPREADER IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

CONSIDERATIONS
THE LEVEL SPREADER IS A RELATIVELY LOW-COST STRUCTURE TO:

1. DISPERSE IMPERVIOUS SURFACE RUNOFF UNIFORMLY TO A FILTER STRIP OR
2. RELEASE SMALL VOLUMES OF CONCENTRATED FLOW FROM DIVERSIONS WHEN CONDITIONS ARE SUITABLE.

TO ACCOMPLISH THESE PURPOSES, PARTICULAR CARE MUST BE TAKEN TO CONSTRUCT THE SPREADER LIP COMPLETELY LEVEL. ANY DEPRESSIONS IN THE LIP WILL CONCENTRATE THE FLOW, RESULTING IN A LOSS OF POLLUTANT FILTERING EFFECTIVENESS AND/OR EROSION. EVALUATE THE OUTLET SYSTEM TO BE SURE THAT FLOW DOES NOT CONCENTRATE BELOW THE OUTLET.

FOR FILTER STRIP APPLICATIONS, THE DETERMINATION OF WHETHER A LEVEL SPREADER IS NEEDED SHOULD BE BASED ON HOW THE RUNOFF IS ENTERING THE FILTER STRIP. IF THE RUNOFF IS CONCENTRATED BY CURB CUTS, AND PARTICULARLY IF A LARGE AREA OF IMPERVIOUS SURFACE DRAINS TO ONE POINT, A LEVEL SPREADER IS ESSENTIAL TO ACHIEVE EFFECTIVE POLLUTANT REMOVAL IN THE FILTER STRIP. A LEVEL SPREADER ALSO IS IMPORTANT IF THE FILTER STRIP IS RELATIVELY STEEP IN ORDER TO AVOID EROSION FROM CONCENTRATED RUNOFF DISCHARGE. IF THE RUNOFF IS EVENLY DISTRIBUTED OVER THE WIDTH OF THE IMPERVIOUS SURFACE (E.G., A CURBLESS, EVEN-SLOPED ROAD OR PARKING LOT), A LEVEL SPREADER MAY NOT BE NECESSARY.

WHEN THE LEVEL SPREADER IS USED AS AN OUTLET FOR TEMPORARY OR PERMANENT DIVERSIONS AND DIVERSION DIKES, RUNOFF CONTAINING HIGH SEDIMENT LOADS MUST BE TREATED IN AN APPROVED SEDIMENT TRAPPING DEVICE.

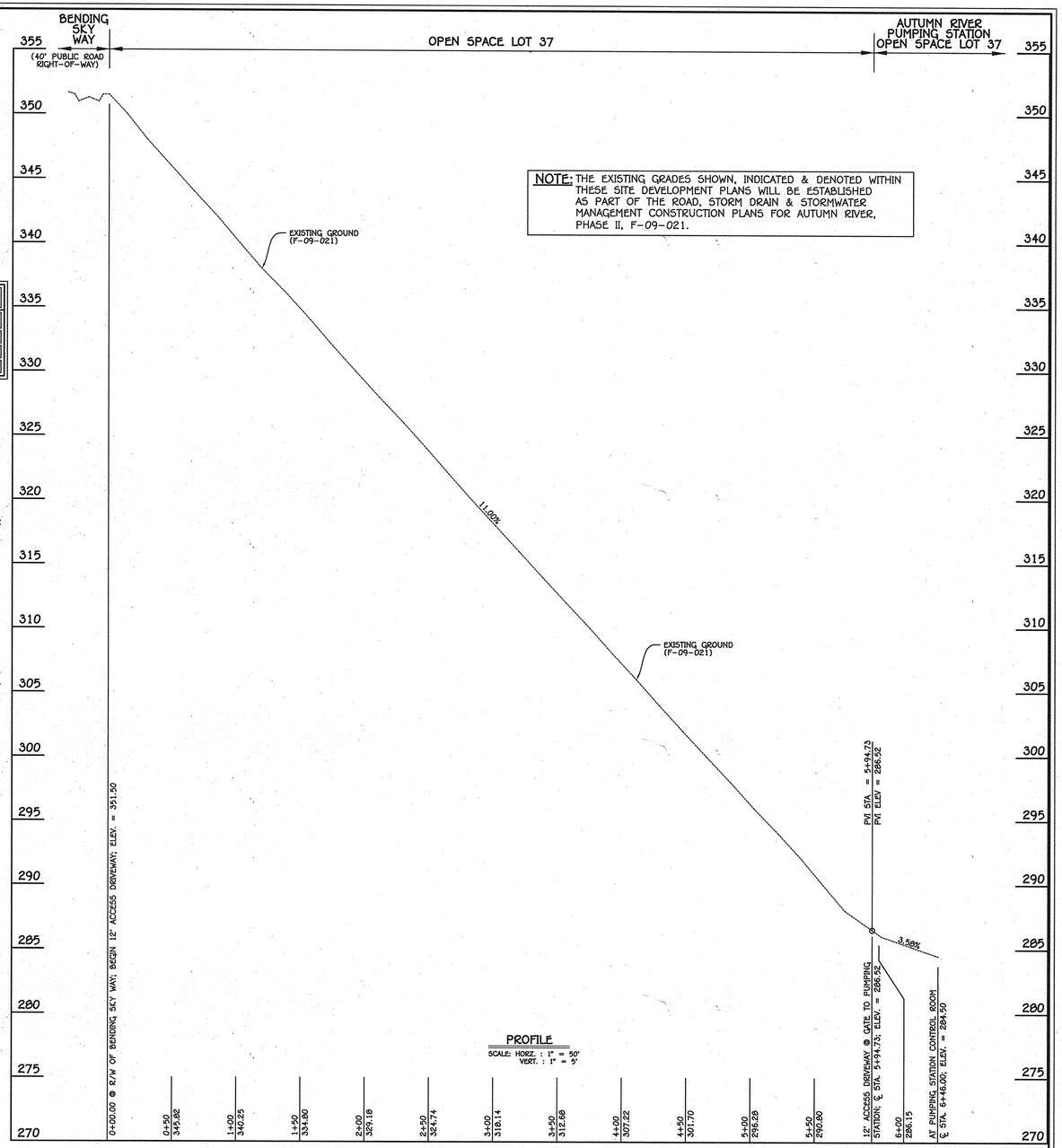
OPERATION AND MAINTENANCE
INSPECT LEVEL SPREADERS AFTER EVERY RAINFALL UNTIL VEGETATION IS ESTABLISHED, AND PROMPTLY MAKE NEEDED REPAIRS. AFTER THE AREA HAS BEEN STABILIZED, MAKE PERIODIC INSPECTIONS AND MAINTAIN VEGETATION IN A HEALTHY, VIGOROUS CONDITION.

VERIFY THAT THE LEVEL SPREADER IS DISTRIBUTING FLOW EVENLY. IF PROBLEMS ARE NOTED, MAKE APPROPRIATE MODIFICATIONS TO ENSURE EVEN FLOW DISTRIBUTION.

DEVELOPER'S LANDSCAPE 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 LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Signature Of Developer _____ Date _____



NOTE: THE EXISTING GRADES SHOWN, INDICATED & DENOTED WITHIN THESE SITE DEVELOPMENT PLANS WILL BE ESTABLISHED AS PART OF THE ROAD, STORM DRAIN & STORMWATER MANAGEMENT CONSTRUCTION PLANS FOR AUTUMN RIVER, PHASE II, F-09-021.

PROFILE
SCALE: HORZ. : 1" = 50'
VERT. : 1" = 5'

12' ACCESS DRIVEWAY: BENDING SKY WAY TO THE AUTUMN RIVER PUMPING STATION

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/21/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/11

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. 12043 EXPIRATION DATE IS 7/16/12.

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

#12043
STATE OF MARYLAND — PAUL WALTER KNEBEL — PROFESSIONAL ENGINEER
PAUL W. KNEBEL

DESIGNED BY :	B.C.R.
DRAWN BY :	B.C.R.
CHECKED BY :	P.W.K.
DATE :	MAY, 2011

BY	NO.	REVISION	DATE

LANDSCAPING PLAN: NOTES, DETAILS & ACCESS DRIVEWAY PROFILE

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION LANDSCAPING NOTES

AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 19 OF 21

AS BUILT: 03/13

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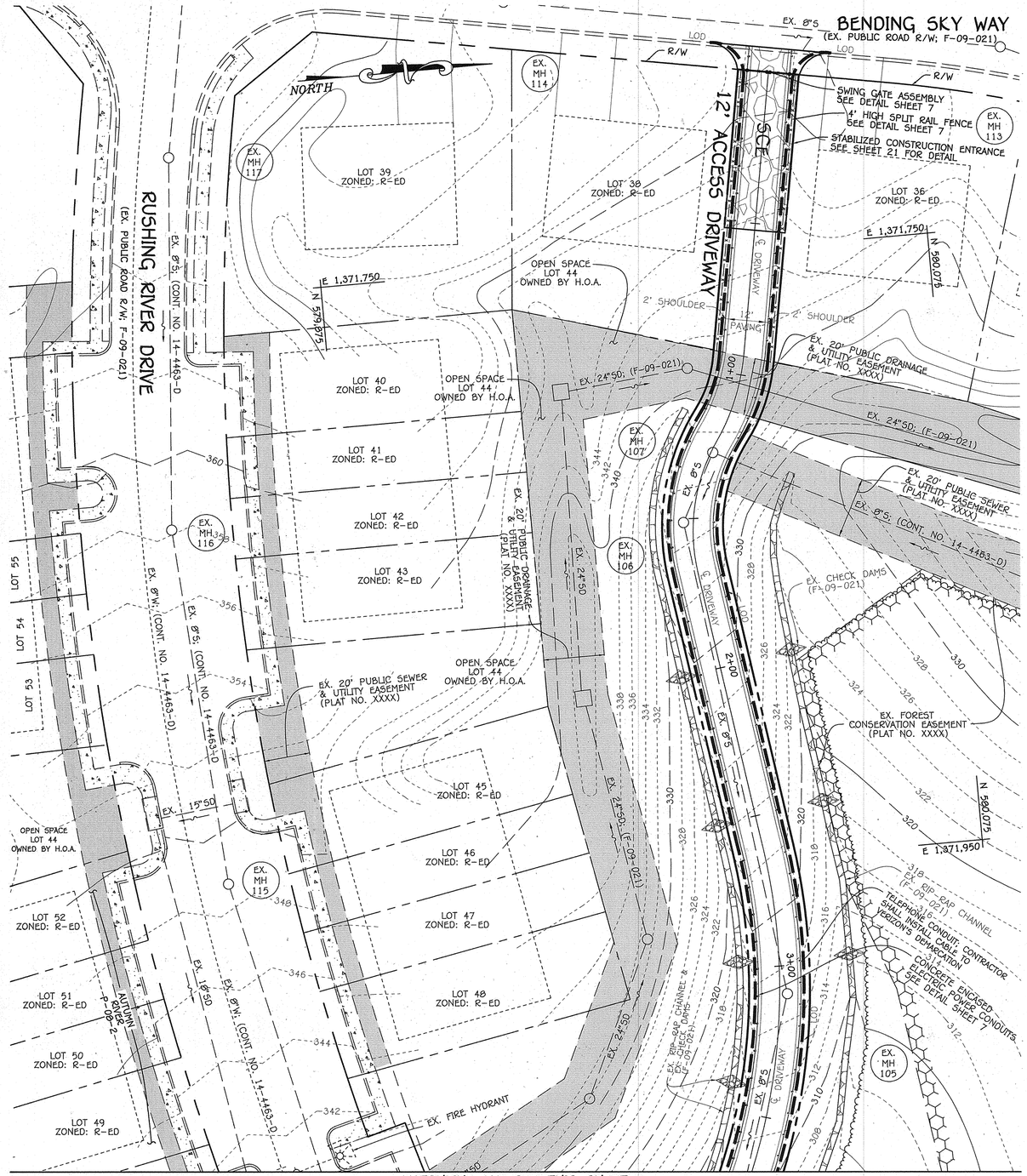
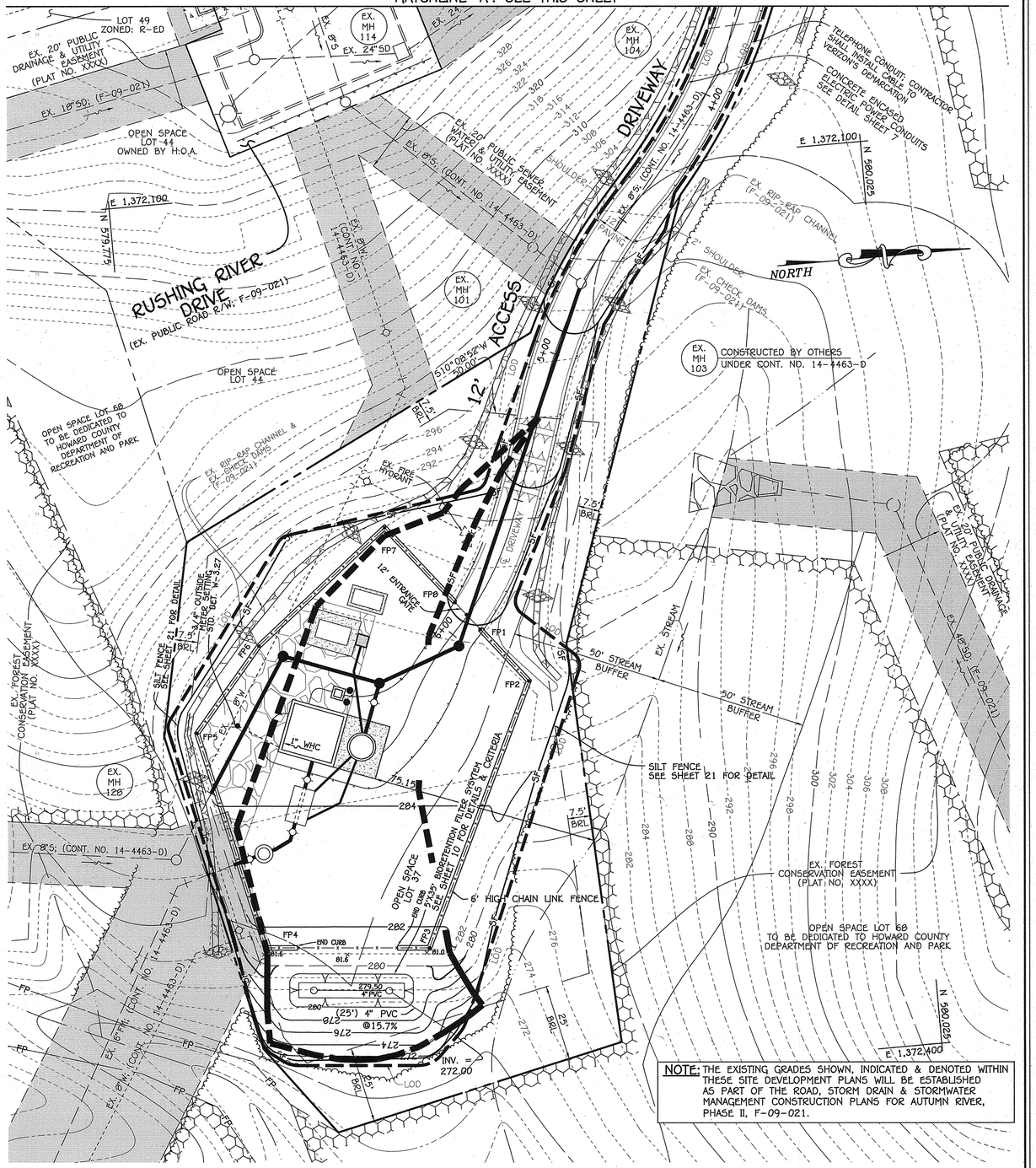


MATCHLINE 'A': SEE THIS SHEET

PLAN

SCALE: 1" = 20'



PLAN

SCALE: 1" = 20'

LEGEND

LIMITS OF DISTURBANCE (LOD)

DRAINAGE AREA DELINEATION TO BIORETENTION FACILITY

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES — DATE 6/21/11

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/23/11

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. 12043 EXPIRATION DATE IS 7/16/12.

FISHER, COLLINS & CARTER, INC.
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STATE OF MARYLAND — PAUL WALTER PINSEL — PROFESSIONAL ENGINEER
PAUL W. PINSEL

DESIGNED BY :	BY	NO.	REVISION	DATE
B.C.R.				
DRAWN BY : B.C.R.				
CHECKED BY : P.W.K.				
DATE : MAY, 2011				

SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 25 BLOCK NO. 14

F.C.C. WORK ORDER NO. 30627

FILE NAME : WASTEWATER PUMPING STATION SEDIMENT PLAN

AUTUMN RIVER WASTEWATER PUMPING STATION

CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 20 OF 21

AS BUILT: 03/13

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SECTION 20 :
STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

USING VEGETATION AS COVER FOR BARREN SOIL TO PROTECT IT FROM FORCES THAT CAUSE EROSION.

PURPOSE

VEGETATIVE STABILIZATION SPECIFICATIONS ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZEDG. WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUN-OFF TO DOWNSTREAM AREAS, AND IMPROVING WILDLIFE HABITAT AND VISUAL RESOURCES.

CONDITIONS WHERE PRACTICE APPLIES

THIS PRACTICE SHALL BE USED ON DENUDED AREAS AS SPECIFIED ON THE PLANS AND MAY BE USED ON HIGHLY ERODIBLE OR CRITICALLY ERODING AREAS. THIS SPECIFICATION IS DIVIDED INTO TEMPORARY SEEDING, TO QUICKLY ESTABLISH VEGETATIVE COVER FOR SHORT DURATION (UP TO ONE YEAR), AND PERMANENT SEEDING, FOR LONG TERM VEGETATIVE COVER. EXAMPLES OF APPLICABLE AREAS FOR TEMPORARY SEEDING ARE TEMPORARY SOIL STOCKPILES, CLEARED AREAS BEING LEFT IDLE BETWEEN CONSTRUCTION PHASES, EARTH DIKES, ETC. AND FOR PERMANENT SEEDING ARE LAWNS, DAMS, CUT AND FILL SLOPES AND OTHER AREAS AT FINAL GRADE, FORMER STOCKPILE AND STAGING AREAS, ETC.

EFFECTS ON WATER QUALITY AND QUANTITY

PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. VEGETATION, OVER TIME, WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH.
VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS.
PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITH THE ROOT ZONE.
SEDIMENT CONTROL DEVICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING AND VEGETATIVE ESTABLISHMENT TO PREVENT LARGE QUANTITIES OF SEDIMENT AND ASSOCIATED CHEMICALS AND NUTRIENTS FROM WASHING INTO SURFACE WATERS

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. SITE PREPARATION
- i. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OF PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.
- ii. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.
- iii. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.

B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
- i. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
- ii. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADEMARK AND WARRANTEE OF THE PRODUCER.
- iii. LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A *100 MESH SIEVE AND 98-100% WILL PASS THROUGH A *20 MESH SIEVE.
- iv. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

C. SEEDBED PREPARATION
- i. TEMPORARY SEEDING
  - a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3" TO 5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
  - b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
  - c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- ii. PERMANENT SEEDING
  - a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:
    1. SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.
    2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
    3. THE SOIL SHALL CONTAIN LESS THAN 40CLAY, BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERECIA LESPEDEZAS IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
    4. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
    5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
    6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATION FOR TOPSOIL.
  - b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3-5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.
  - c. APPLY SOIL AMENDMENTS AS PER SOIL TESTS OR AS INCLUDED ON THE PLANS.
  - d. MIX SOIL AMENDMENTS INTO THE TOP 3-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED AND APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED, PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1-3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.

D. SEED SPECIFICATIONS
- i. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.
- ii. INOCULATION - THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75°-80° F. CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHODS OF SEEDING
- i. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER). BROADCAST OR DROP SEEDED, OR A CULTIPACKER SEDER.
  - a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN; MAXIMUM OF 100 LBS. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS); 200 LBS/AC; K20 (POTASSIUM): 200 LBS/AC.
  - b. LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE, (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
  - c. SEED AND FERTILIZER SHALL BE MIXED ON SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.
- ii. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS
  - a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES OR TABLES 265 OR 266. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
  - b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- iii. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
  - a. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
  - b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)
- i. STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE OR OAT STRAW, REASONABLE BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.
- ii. WOOD CELLULOSE FIBER MULCH (WCFM)
  - a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
  - b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
  - c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
  - d. WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
  - e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTOL-TOXIC.
  - f. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10 MM., DIAMETER APPROXIMATELY 1 MM., pH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
- i. IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.
- ii. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS/ACRE.
- iii. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

H. SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD:
- i. A MULCH ANCHORING TOOL IS AS TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.
- ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 POUNDS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
- iii. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND CREST OF BANKS. THE REMAINDER OF AREA SHOULD BE APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS-SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70 PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.
- iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4' TO 15' FEET WIDE AND 300 TO 3,000 FEET LONG.

I. INCREMENTAL STABILIZATION - CUT SLOPES
- i. ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15'.
- ii. CONSTRUCTION SEQUENCE (REFER TO FIGURE 3 BELOW):
  - a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.
  - b. PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.
  - c. PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
  - d. PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OF COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

J. INCREMENTAL STABILIZATION OF EMBANKMENTS - FILL SLOPES
- i. EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.
- ii. SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15", OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
- iii. AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER TO A SEDIMENT TRAPPING DEVICE.
- iv. CONSTRUCTION SEQUENCE: REFER TO FIGURE 4 (BELOW):
  - a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5, UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
  - b. PLACE PHASE 1 EMBANKMENT, DRESS, AND STABILIZE.
  - c. PLACE PHASE 2 EMBANKMENT, DRESS, AND STABILIZE.
  - d. PLACE FINAL PHASE EMBANKMENT, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECCESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF AND PLACEMENT OF TOPSOIL (IF REQUIRED) GRADING AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION UOT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

SECTION 2 - TEMPORARY SEEDING

VEGETATION - ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON THE DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

A. SEED MIXTURES - TEMPORARY SEEDING
- i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 26 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLANS AND COMPLETED, THEN TABLE 26 MUST BE PUT ON THE PLANS.
- ii. FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THE TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

SEED MIXTURE (HARDINESS ZONE 6b) FROM TABLE 26					FERTILIZER RATE (10-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
1	BARLEY OATS RYE	122 96 140	3/1 - 5/15, 8/15 - 10/15	1" - 2" 1" - 2" 1" - 2"	600 lb/ac (15 lb/1000sf)	2 tons/ac (100 lb/1000sf)

SECTION 3 - PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

A. SEED MIXTURES - PERMANENT SEEDING
- i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SUCH AS SHORELINES, STREAMBANKS, OR DUNES OR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-SCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING. FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS IV SOD V TURFGRASS.
- ii. FOR SITES HAVING DISTURBED AREA OVER 5 AREAS, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.
- iii. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3 1/2 LBS/1000 SQ. FT. (LBS./AC.), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

SEED MIXTURE (HARDINESS ZONE 6b) FROM TABLE 25					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
3	TALL FESCUE (85%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	1" - 2"	90 lb/ac (2.0 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)		2 tons/ac (100 lb/ 1000sf)
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15, 8/15 - 10/15	1" - 2"				

SECTION 3 - PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

A. SEED MIXTURES - PERMANENT SEEDING
- i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SUCH AS SHORELINES, STREAMBANKS, OR DUNES OR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-SCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING. FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS IV SOD V TURFGRASS.
- ii. FOR SITES HAVING DISTURBED AREA OVER 5 AREAS, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.
- iii. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3 1/2 LBS/1000 SQ. FT. (LBS./AC.), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

SEED MIXTURE (HARDINESS ZONE 6b) FROM TABLE 25					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
3	TALL FESCUE (85%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	1" - 2"	90 lb/ac (2.0 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	2 tons/ac (100 lb/ 1000sf)
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15, 8/15 - 10/15	1" - 2"				

SEDIMENT CONTROL NOTES

1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3) FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN; a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52), TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6) ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7) SITE ANALYSIS:

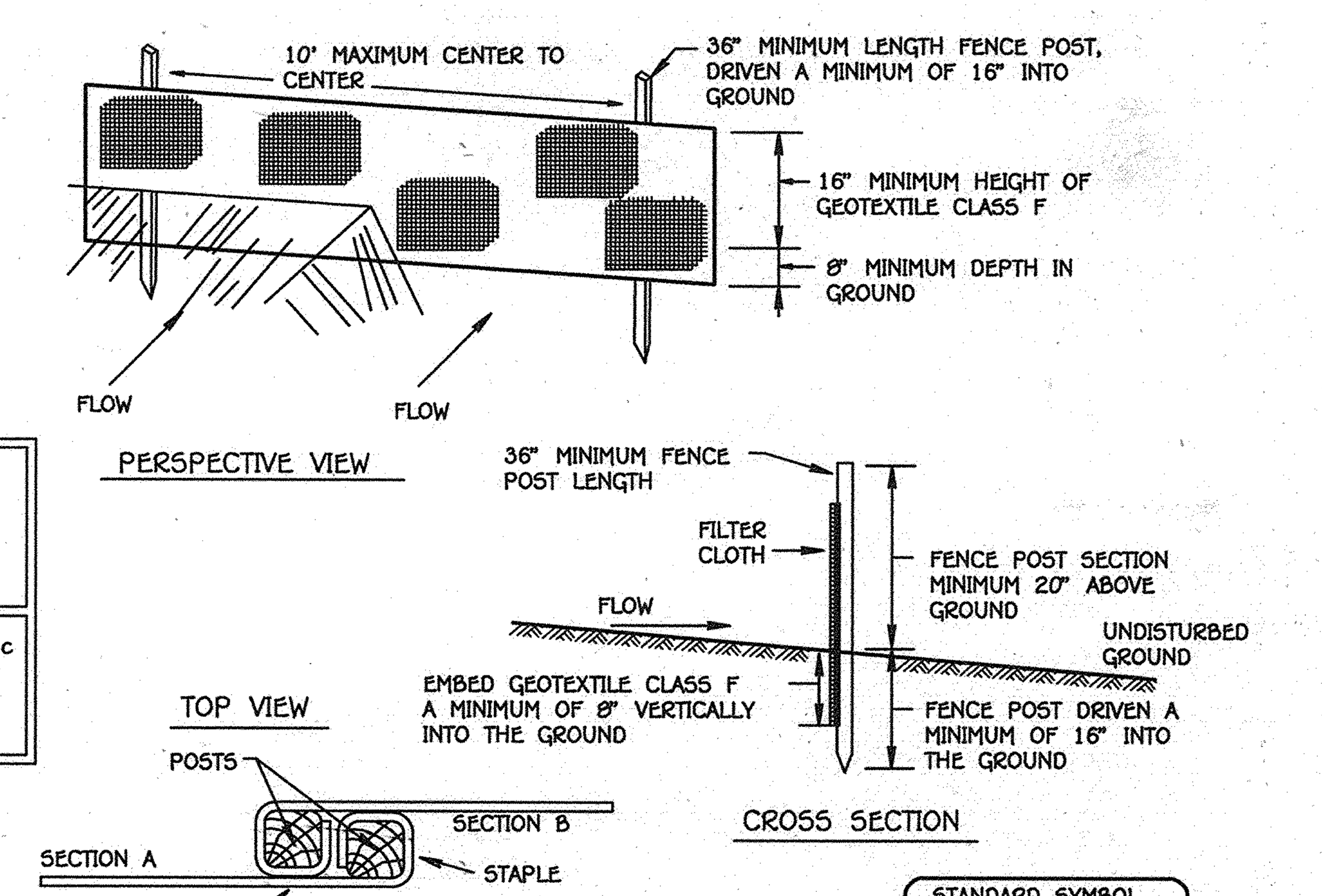
   TOTAL AREA OF SITE . . . . 0.910 ACRES (FROM RECORD PLAT)
   AREA DISTURBED . . . . 0.910 ACRES
   AREA TO BE ROOFED OR PAVED . . . . 0.370 ACRES
   AREA TO BE VEGETATIVELY STABILIZED . . . . 0.540 ACRES
   TOTAL CUT
   TOTAL FILL > N/A
   OFFSITE WASTE/BORROW AREA LOCATION N/A CU. YDS.
8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR CONSTRUCTION OF THE WASTEWATER PUMPING STATION, ACCESS DRIVEWAY & UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THE THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

SECTION 21 :
STANDARD AND SPECIFICATIONS FOR TOPSOIL

1) DEFINITION: PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.
2) PURPOSE: TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.
3) SPECIFICATIONS:
   A. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND.
   B. TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING SUBSOILS.
   C. TOPSOIL SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1.5" IN DIAMETER.
4) APPLICATION:
   A. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"- 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4" ; AVOID SURFACE IRREGULARITIES.
   B. PLACE TOPSOIL AND APPLY SOIL AMENDMENTS AS SPECIFIED IN "STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION".
   C. TOPSOIL SHALL NOT BE PLACED DURING FROZEN, MUDDY, OR EXCESSIVELY WET CONDITIONS.

SEQUENCE OF CONSTRUCTION

1. OBTAIN THE REQUIRED GRADING PERMIT.
2. NOTIFY MISS UTILITY 48 HOURS BEFORE ANY WORK (1-800-257-7777). NOTIFY HOWARD COUNTY CONSTRUCTION/INSPECTION DIVISION 24 HOURS BEFORE STARTING ANY WORK ((410)313-1870).
3. INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AS INDICATED ON SHEET 6.
4. CLEAR AND GRUB AS NECESSARY, ONLY AS REQUIRED FOR CONSTRUCTION OF THE WASTEWATER PUMPING STATION, ACCESS DRIVEWAY & UTILITIES.
5. NOTE: THE LENGTH OF OPEN UTILITY TRENCH SHALL BE LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH WILL BE BACKFILLED AND STABILIZED WITHIN ONE (1) WORKING DAY, WHICHEVER IS SHORTER.
6. CONSTRUCT THE WASTEWATER PUMPING STATION, ACCESS DRIVEWAY & UTILITIES.
7. STABILIZE SEED AND MULCH ALL DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES SHOWN ON THIS SHEET.
8. FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS, AND AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES.



JOINING TWO ADJACENT SILT FENCE SECTIONS

CONSTRUCTIONS SPECIFICATIONS

1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 11/2" X 11/2" SQUARE (MINIMUM) CUT, OR 13/4" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD 'T' OR 'U' SECTION WEIGHTING NOT LESS THAN 1.00 POUND PER LINEAR FOOT.

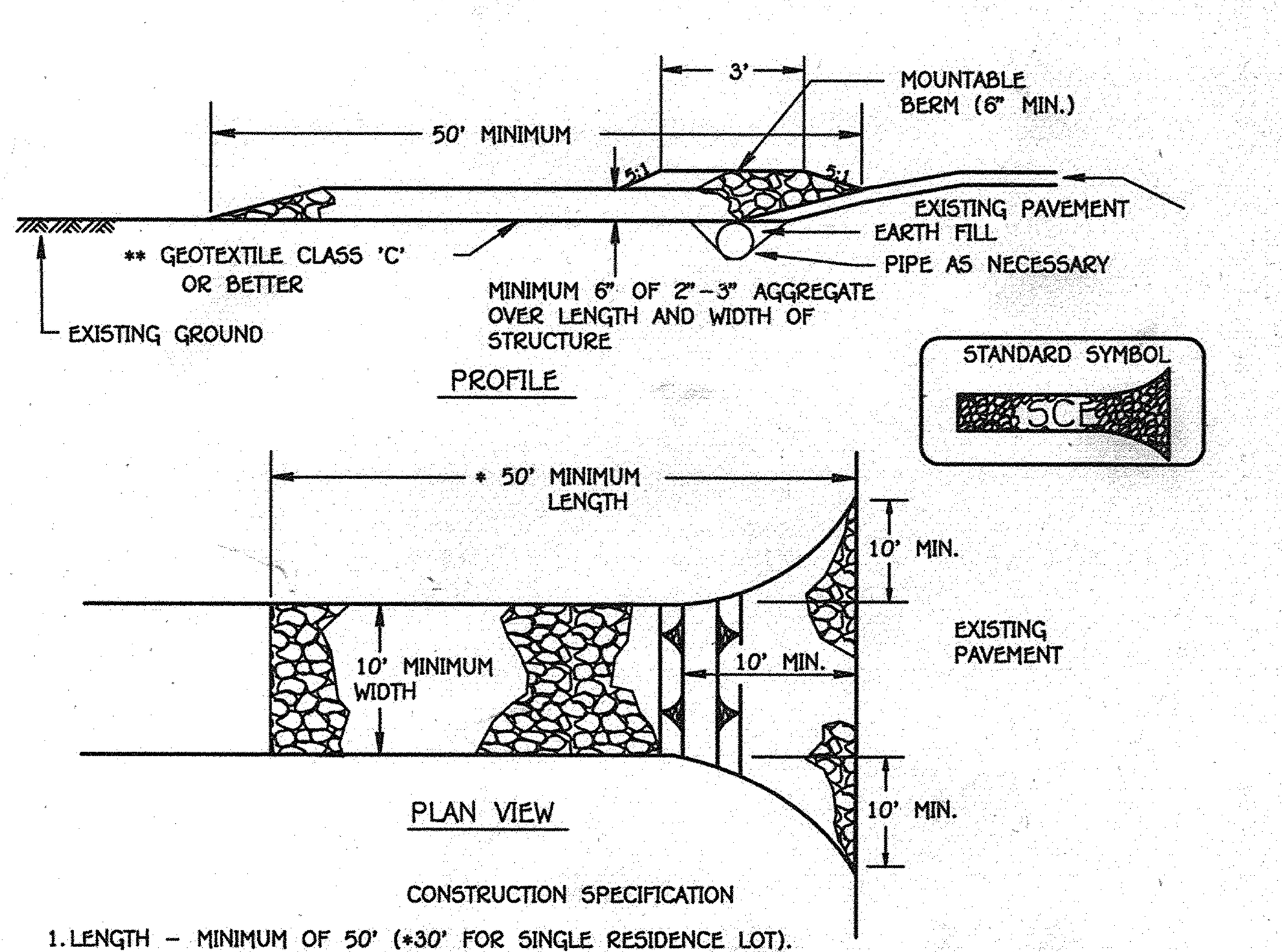
2. GEOTEXTILE SHALL FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP OR MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS 'F':

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL. FT. / MINUTE (MAX.)²	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.

4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% OF THE FABRIC HEIGHT.

SILT FENCE



CONSTRUCTION SPECIFICATION

1. LENGTH - MINIMUM OF 50' (*30' FOR SINGLE RESIDENCE LOT).
2. WIDTH - 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
3. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. **THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
4. STONE - CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.
5. SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM WILL BE REQUIRED.
6. LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

STABILIZED CONSTRUCTION ENTRANCE

DEVELOPER'S CERTIFICATION

I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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 OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

Paul W. Kriebel, FOR:
AUTUMN DEVELOPMENT CORPORATION 05/26/11
SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Paul W. Kriebel 05-26-11
SIGNATURE OF ENGINEER DATE

CONTRACT NO. 14-4596-D
AUTUMN RIVER
WASTEWATER PUMPING STATION
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES 6/7/11 DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION 6/23/11 DATE M.G.

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. 12043 EXPIRATION DATE IS 7/16/12.

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

STATE OF MARYLAND — PAUL WALTER KRIEBEL — NO 12043 — REGISTERED — PROFESSIONAL ENGINEER #12043
PAUL W. KRIEBEL

DESIGNED BY : B.C.R.				
DRAWN BY : B.C.R.				
CHECKED BY : P.W.K.				
DATE : MAY, 2011	BY	NO.	REVISION	DATE

SEDIMENT CONTROL PLAN:
NOTES & DETAILS

600' SCALE MAP NO. 25 BLOCK NO. 14
F.C.C. WORK ORDER NO. 30627
FILE NAME : WASTEWATER PUMPING STATION SEDIMENT DETAILS

AUTUMN RIVER
WASTEWATER PUMPING STATION
CONTRACT NO. 14-4596-D
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 21 OF 21

AS BUILT: 03/13

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