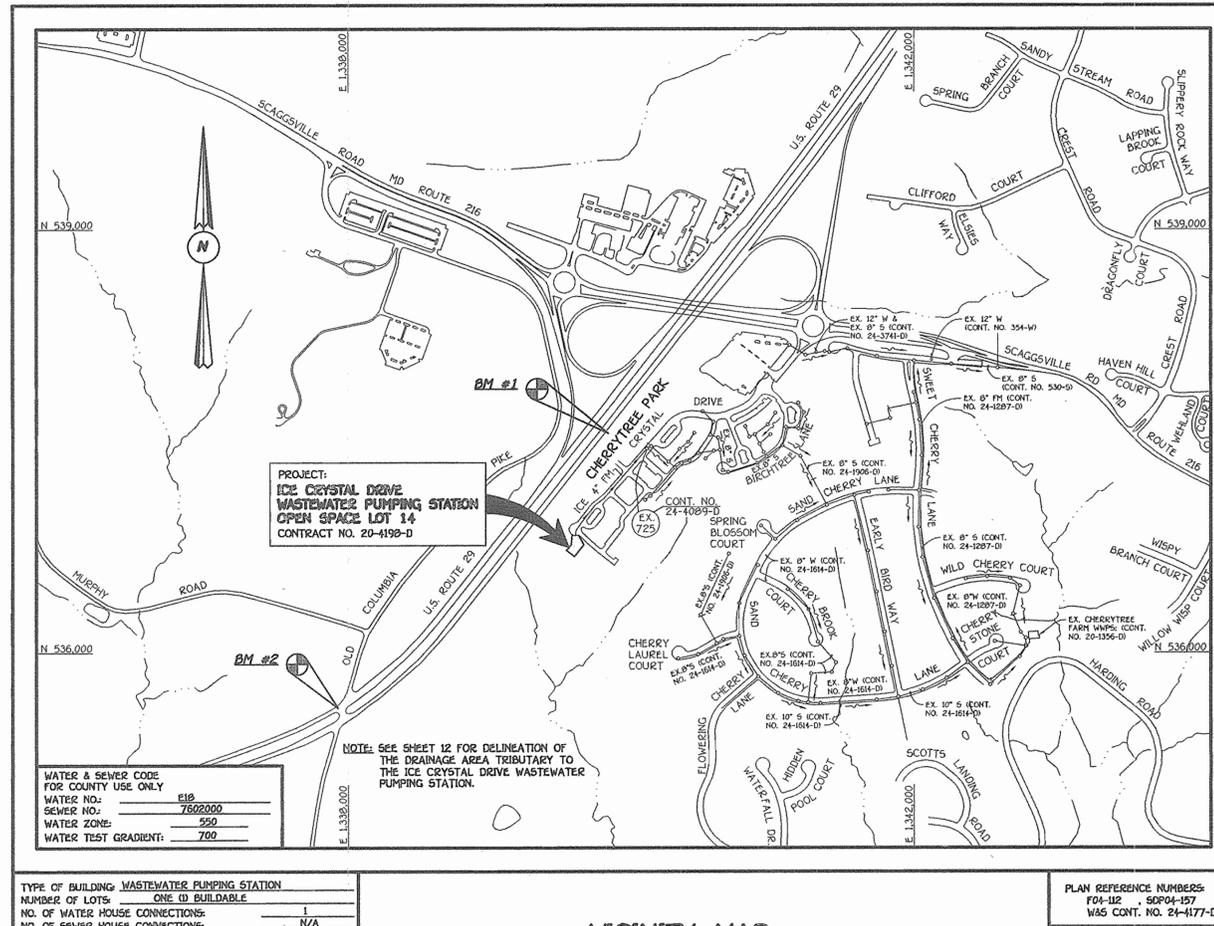


QUANTITIES				
ITEM	ESTIMATED	QUANTITIES	AS-BUILT	SUPPLIER
PUMPING STATION COMPLETE-IN-PLACE	1 EACH			
8" SEWER	51 L.F.			
MANHOLES	1 EACH			
4" FORCE MAIN (CL 53 DLP)	89 L.F.			
1" WATER	66 L.F.			
TELEPHONE LINE & CONDUIT	67 L.F.			
ELECTRIC LINE & CONDUIT	71 L.F.			
NAME OF UTILITY CONTRACTOR:				
SURVEY & DRAFTING DIVISION AS-BUILT DATE:				

INDEX OF DRAWINGS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SITE PLAN
3	PUMPING STATION PLAN & BUILDING ELEVATION VIEWS
4	PUMPING STATION WET WELL: PLAN & SECTIONAL ELEVATION VIEWS
5	STRUCTURAL/ARCHITECTURAL: SECTIONS & DETAILS
6	PROFILES: SEWER MAIN & FORCE MAIN
7	ACCESS DRIVEWAY SECTION & MISCELLANEOUS DETAILS
8	ODOR CONTROL SYSTEM & MISCELLANEOUS DETAILS
9	ODOR CONTROL SYSTEM: PAVILION DETAILS
10	LANDSCAPE PLAN, NOTES, DETAILS & SOILS MAP
11	SEDIMENT CONTROL NOTES & DETAILS
12	DRAINAGE AREA MAP, SYSTEM CURVE & BORING LOGS
13	MECHANICAL & ELECTRICAL: PUMPING STATION PLAN, LEGEND & DETAILS
14	MECHANICAL & ELECTRICAL: ELEVATIONS & DIAGRAMS
15	MECHANICAL & ELECTRICAL: SCHEDULES & DIAGRAMS

* THE FOLLOWING SHEETS WERE ADDED DURING "AS-BUILT" PREPARATION:

2A	"AS-BUILT" CONDITIONS
3A	PUMPING STATION ORIENTATION PLAN



TYPE OF BUILDING:	WASTEWATER PUMPING STATION
NUMBER OF LOTS:	ONE (1) BUILDABLE
NO. OF WATER HOUSE CONNECTIONS:	N/A
NO. OF SEWER HOUSE CONNECTIONS:	N/A
DRAINAGE AREA:	LITTLE PATUXENT
TREATMENT PLANT:	LITTLE PATUXENT WATER RECLAMATION PLANT VIA THE CHERRYTREE FARM WASTEWATER PUMPING STATION

PLAN REFERENCE NUMBERS:	F04-112, S0904-157, WAS CONT. NO. 24-1177-D
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VICINITY MAP
SCALE: 1"=500'

GENERAL NOTES

- PART I
- 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.
 - TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON OR ABOUT AUGUST, 1990 BY FISHER, COLLINS & CARTER, INC.
 - HORIZONTAL AND VERTICAL CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 83/81 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 465A & NO. 465B. SEE THIS SHEET FOR BENCHMARK INFORMATION. ALL VERTICAL CONTROLS ARE BASED ON NAVD 80. VERTICAL CONTROLS ARE BASED ON TRAVELER'S POINT NO. 7005, AN IRON PIPE SET ON THE NORTH SIDE OF THE FUTURE CUL-DE-SAC OF ICE CRYSTAL DRIVE, ELEV. 391.0.
 - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
 - 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 THE 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.
 - 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.
 - 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.
 - 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 (CONTRACTOR SERVICES) 410-850-4620
 - BUREAU OF UTILITIES 410-313-9900
 - COLONIAL PIPELINE CO. 410-795-1590
 - MISS UTILITY 1-800-257-7777
 - STATE HIGHWAY ADMINISTRATION 410-531-5533
 - VERIZON 1-800-743-0033/410-224-9210
 - 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.
 - CONTRACTOR SHALL REMOVE 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.
 - 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 10.114(d) OF THE HOWARD COUNTY CODE.

- PART II: WATER
- ALL WATER MAINS SHALL BE D.I.P. CLASS 52 UNLESS OTHERWISE NOTED.
 - TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
 - VALVES ADJACENT TO TREES SHALL BE STRAPPED TO TREES.
 - ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
 - FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE 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.
 - THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.

- PART III: SEWER
- ALL SEWER MAINS SHALL BE D.I.P. OR P.V.C. UNLESS OTHERWISE NOTED.
 - ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
 - FORCE MAINS SHALL BE CLASS 53 D.I.P. OR STEEL PIPE AS INDICATED ON THE PLANS.
 - MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
 - MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVER, STANDARD DETAIL C6.82. THESE WATERTIGHT FRAME AND COVERS ARE USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
 - HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT THE CELLAR CANNOT BE SERVED.

BENCHMARK INFORMATION	
BM #1 - HOWARD COUNTY CONTROL STATION 465A	N 537.545.840 E 1,339,849.050 ELEV. = 426.423
BM #2 - HOWARD COUNTY CONTROL STATION 465B	N 535,610.715 E 1,337,927.633 ELEV. = 410.062

CONTRACT NO. 20-4198-D

ICE CRYSTAL DRIVE

WASTEWATER PUMPING STATION

HOWARD COUNTY, MARYLAND

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. Reichel FOR:
CHERRYTREE II, LLC 03/07/05
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. Reichel 03-07-05
SIGNATURE OF ENGINEER DATE

GP05-46
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
Jim Murray 3/14/05
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY HOWARD SOIL CONSERVATION DISTRICT.
APPROVED: *John R. Robertson* 3/14/05
HOWARD SOIL CONSERVATION DISTRICT DATE
SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY DESIGN MANUAL & STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS AND AS SHOWN ON THESE PLANS.
Paul W. Reichel FOR:
CHERRYTREE II, LLC 03/07/05
SIGNATURE OF DEVELOPER DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Ruth Benjamin 3-18-05
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
William D. ... 3/20/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE, OFFICE PARK - 10272 BALTIMORE NATIONAL FREE
ELICOTT CITY, MARYLAND 21042
(410) 461-2050

STATE OF MARYLAND
TERRELL A. FISHER
PROFESSIONAL ENGINEER
NO. 10,000
EXPIRES 12/31/2008

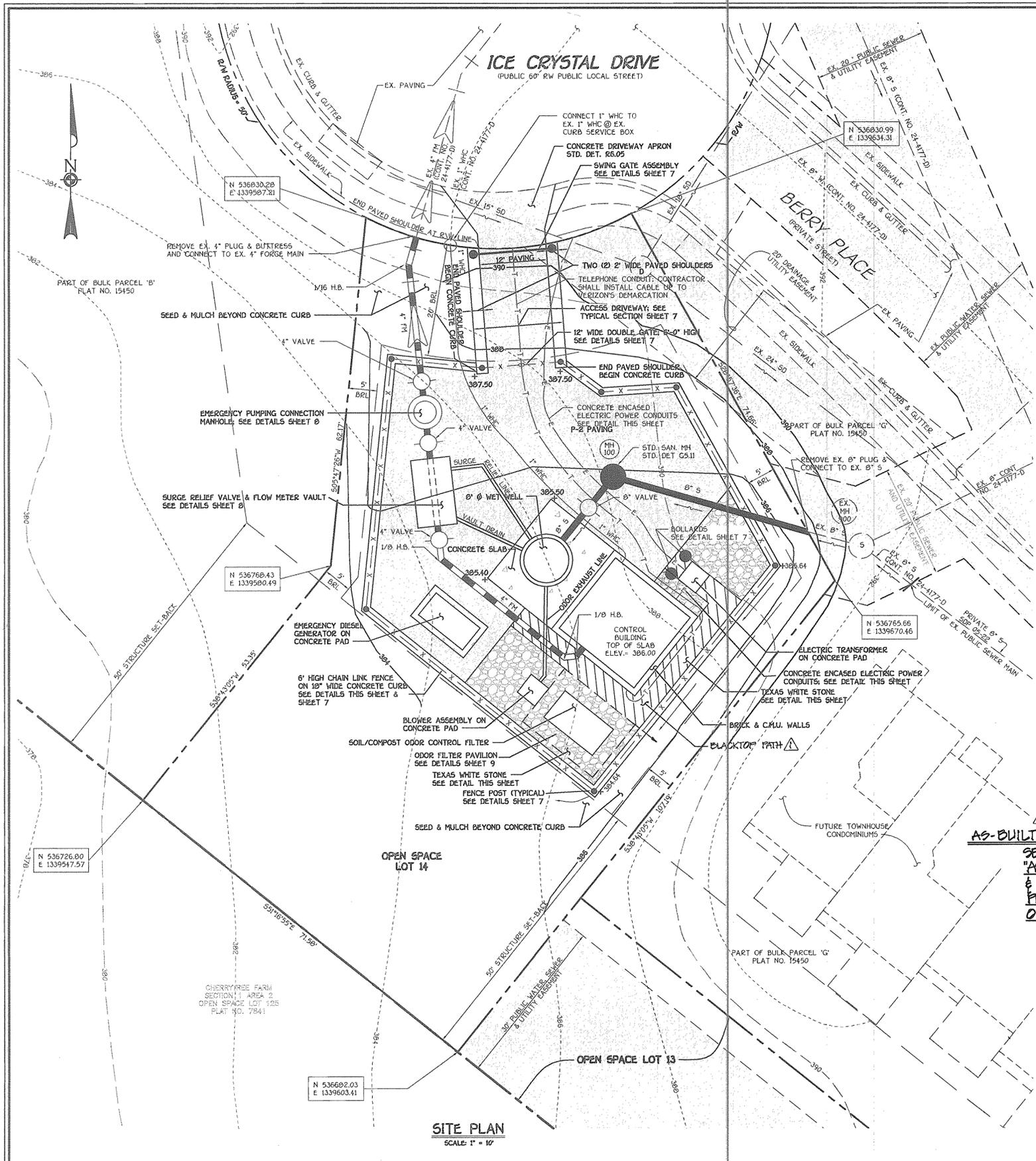
DESIGNED BY:	P.W.K.
DRAWN BY:	D.Y.B.
CHECKED BY:	P.W.K.
DATE:	FEBRUARY, 2005
BY NO.	
REVISION	
DATE	
FILE NAME:	30765 FINAL PUMPING STATION TITLE SHEET

TITLE SHEET
600' SCALE MAP NO. 46 BLOCK NO. 10
F.C.C. WORK ORDER NO. 30765

ICE CRYSTAL DRIVE
WASTEWATER PUMPING STATION
CONTRACT NO. 20-4198-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 1 of 15

AS-BUILT: 01/08

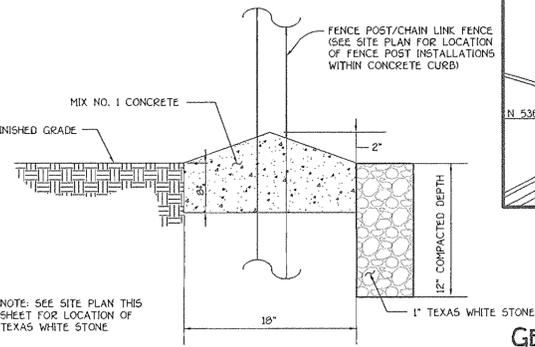


SITE PLAN
SCALE: 1" = 10'

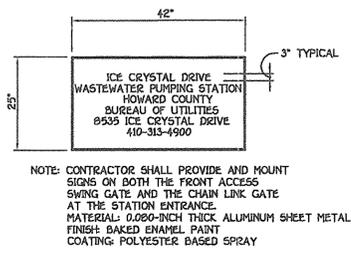
HOWARD COUNTY GEODETIC CONTROL INFORMATION/BENCHMARKS
 B.M. #1 - HOWARD COUNTY CONTROL STATION 468A
 N 537,945.940
 E 1,339,849.050
 ELEV. = 426.423'
 B.M. #2 - HOWARD COUNTY CONTROL STATION 4683
 N 539,610.715
 E 1,337,927.633
 ELEV. = 410.062'

ADDRESS CHART

LOT NO.	ADDRESS
O.S. LOT 14	8535 ICE CRYSTAL DRIVE



CURB/TEXAS WHITE STONE DETAIL
NO SCALE



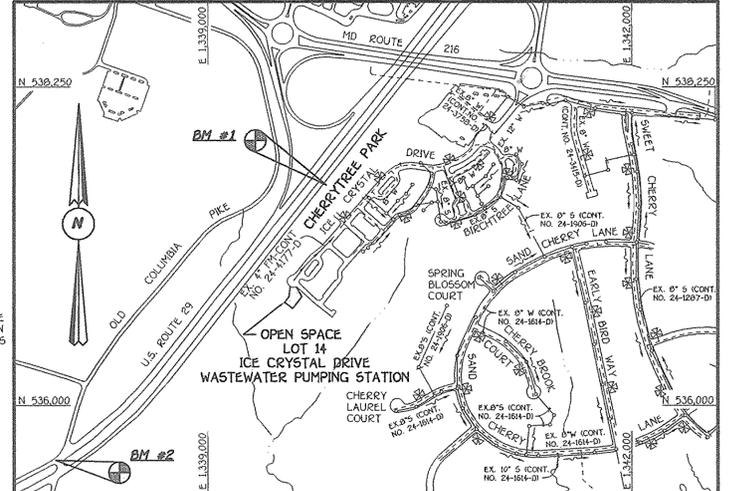
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AS-BUILT NOTE:
SEE SHEET 2A FOR "AS-BUILT" CONDITIONS & SHEET 3A FOR PUMPING STATION ORIENTATION PLAN



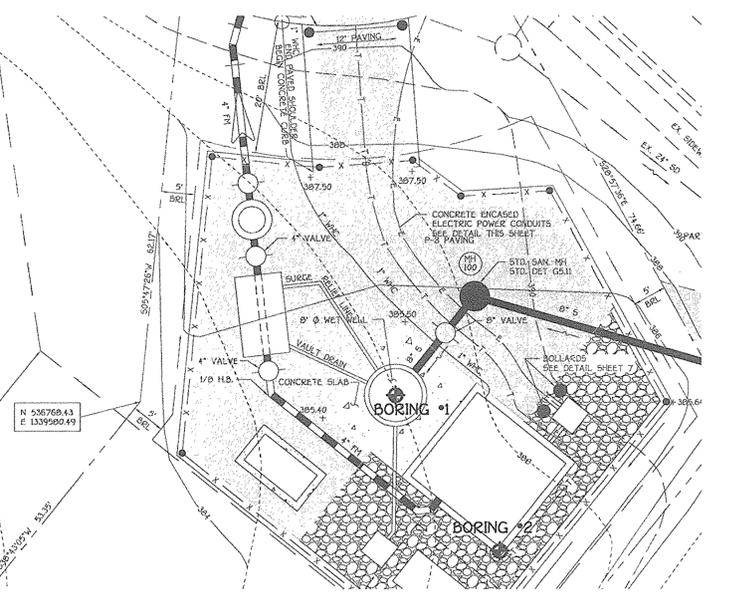
LEGEND

+ 386.00	PROPOSED SPOT ELEVATION
- - - - -	EXISTING CONTOUR
- - - - -	PROPOSED CONTOUR
[Pattern]	PROPOSED PAVING
[Pattern]	TEXAS WHITE STONE



VICINITY MAP
SCALE: 1" = 600'

- GENERAL NOTES:**
- SUBJECT PROPERTY IS LOCATED ON TAX MAP NO. 46
 - PRESENT ZONING IS MHD-6
 - TOTAL AREA OF PROPERTY: 9,806.805 SQ. FT.
 - PROPERTY REFERENCE: PLAT NO. 17109
 - PARKING DATA:
 - A. INTENDED USE OF STRUCTURE: WASTEWATER PUMPING STATION (GOVERNMENT USE)
 - B. NUMBER OF SPACES REQUIRED: 2
 - C. NUMBER OF SPACES PROVIDED: 2
 - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / DIVISION OF CONSTRUCTION INSPECTION AT 410-313-1890 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
 - THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR ANY EXCAVATION WORK.
 - SEE SHEET 3 FOR SCHEMATIC BUILDING PROFILES.
 - STORM WATER MANAGEMENT AND STREET TREES FOR THIS PROJECT WERE PROVIDED UNDER F01-114.
 - ALL EXTERIOR LIGHTING OF THE PUMPING STATION STRUCTURE WILL BE DIRECTED DOWNWARD IN COMPLIANCE WITH SECTION 134 OF THE ZONING REGULATIONS.
 - ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY.
 - ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - THE EXISTING TOPOGRAPHY FOR CHERRYTREE PARK, PHASE III SUBDIVISION PLANS IS BASED ON AN AERIAL SURVEY PREPARED BY WINGS AERIAL MAPPING COMPANY, INC. & SUPPLEMENTED WITH FIELD - RUN TOPOGRAPHY.
 - THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE COORDINATE SYSTEM, HOWARD COUNTY MONUMENT NOS. 468A AND 4683.
 - EXISTING PUBLIC UTILITIES ARE BASED ON HOWARD COUNTY PUBLIC WATER AND SEWER CONTRACT NO. 24-4177-D, CHERRYTREE PARK, PHASE III.
 - NO FLOODPLAIN EXISTS ON SITE.
 - NO WETLANDS EXISTS ON SITE.
 - REFERENCE PREVIOUS DPZ FILE NOS. F01-114, F03-44, F03-153, & ZB CASE 973B.
 - ALL SEDIMENT AND EROSION CONTROLS SHOWN SHALL REMAIN UNTIL PUMPING STATION CONSTRUCTION IS COMPLETED, AND THE REMOVAL OF THE CONTROLS IS APPROVED BY THE SOIL AND EROSION CONTROL INSPECTOR.
 - FOREST CONSERVATION OBLIGATIONS HAVE BEEN ADDRESSED UNDER F01-112.
 - OPEN SPACE LOT 14 SHALL BE DEDICATED IN FEE SIMPLE TO HOWARD COUNTY FOR THE PURPOSE OF A WASTEWATER PUMPING STATION.



SOIL BORING LOCATION PLAN
NOT TO SCALE

OWNER/DEVELOPER
 CHERRYTREE II, LLC
 10230 NEW HAMPSHIRE AVENUE
 SUITE 300
 SILVER SPRING, MD. 20903

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 DATE: 3-18-05

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
 DATE: 3/20/05

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PKWY.
 ELLICOTT CITY, MARYLAND 21117
 410-410-2855

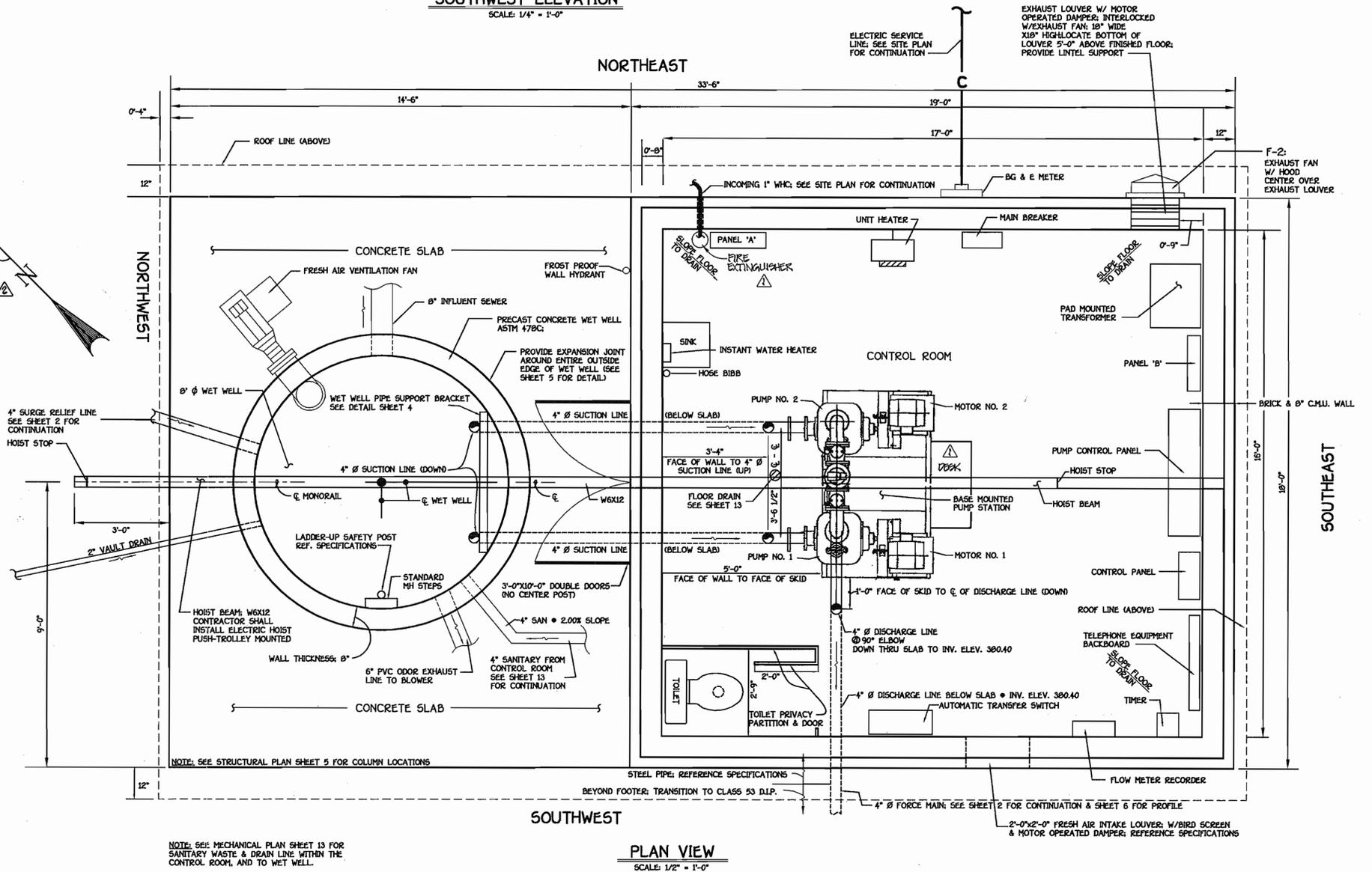
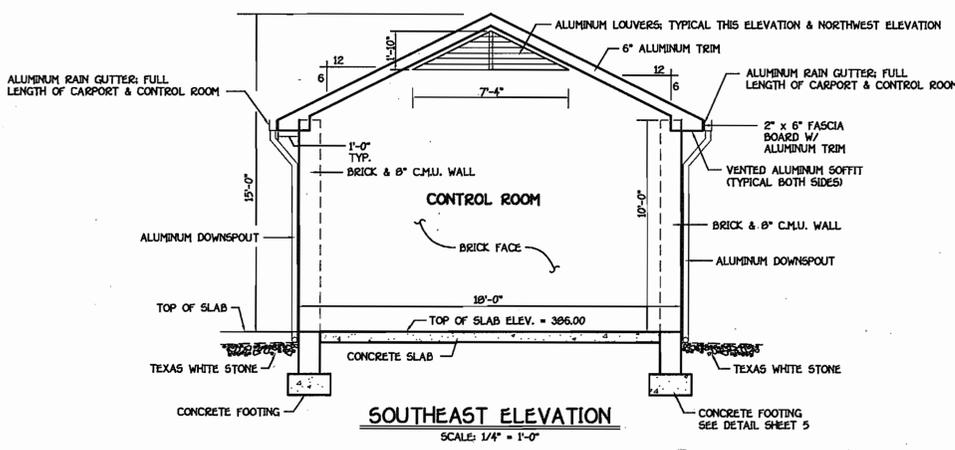
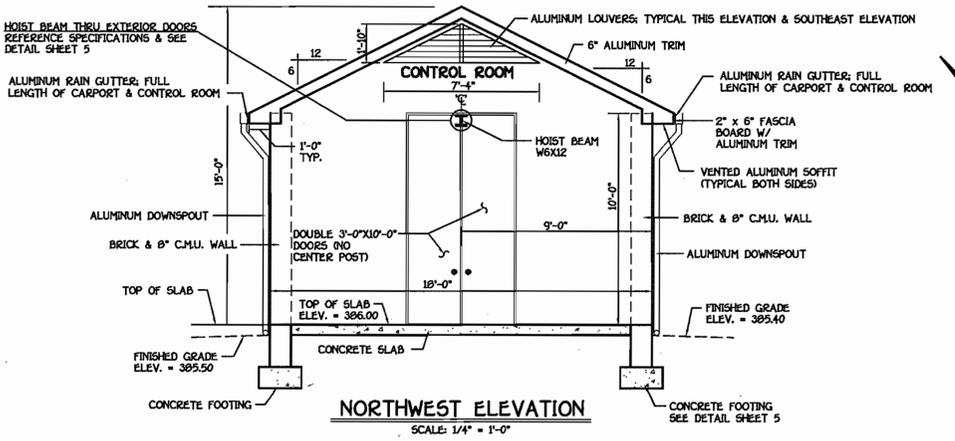
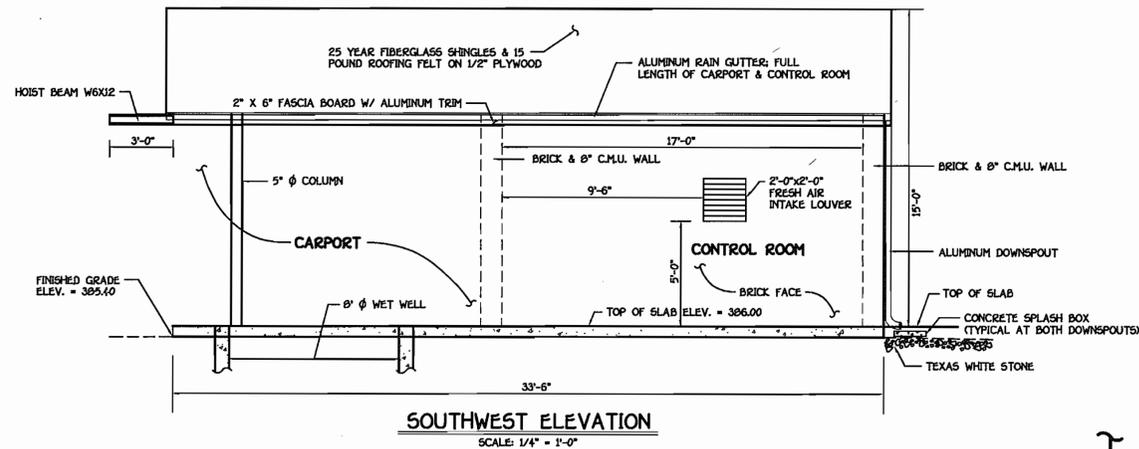
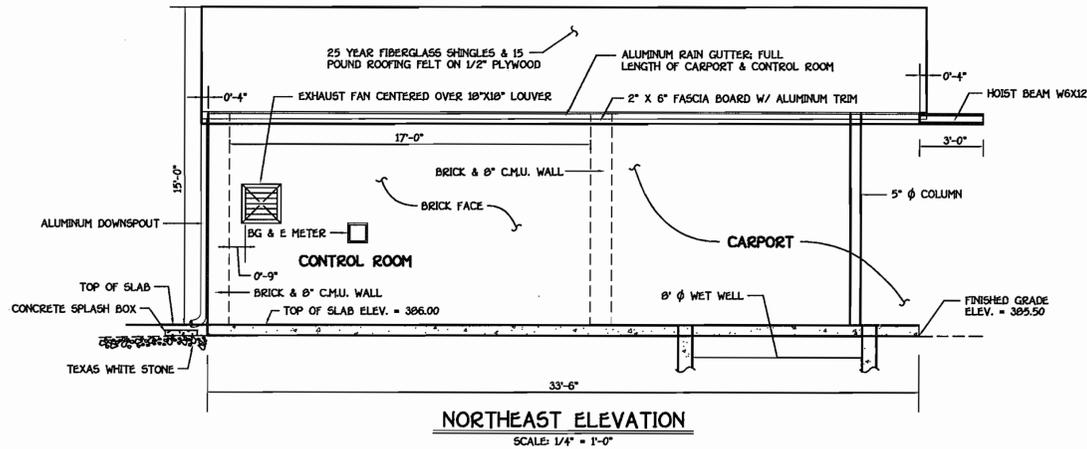
STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 TERRELL A. FISHER

DESIGNED BY:	DATE:
P.W.K.	FEBRUARY, 2005
DRAWN BY:	DATE:
D.Y.B.	
CHECKED BY:	DATE:
P.W.K.	
DATE:	BY:
3/9/08	NO.

PUMPING STATION SITE PLAN
 600' SCALE MAP NO. 46 BLOCK NO. 10
 F.C.C. WORK ORDER NO. 30766
 FILE NAME: FINAL PUMP STATION PLAN SHT. 2

ICE CRYSTAL DRIVE WASTEWATER PUMPING STATION
 CONTRACT NO. 20-4198-D
 SIXTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE AS SHOWN
 SHEET 2 OF 15

AS-BUILT: 01/00



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Robert Williams
3-18-05
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Michael D. Williams
3/20/05
DATE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

10077 BALTIMORE NATIONAL PIKE
ELLIOTT CITY, MARYLAND 20622
410-861-2955



DESIGNED BY: P.W.K.
DRAWN BY: D.Y.S.
CHECKED BY: P.W.K.
DATE: FEBRUARY, 2005

REVISIONS:
1/19/08
2/19/08

PUMPING STATION PLAN & BUILDING ELEVATION VIEWS

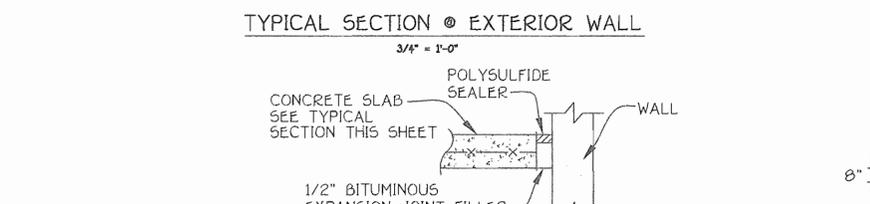
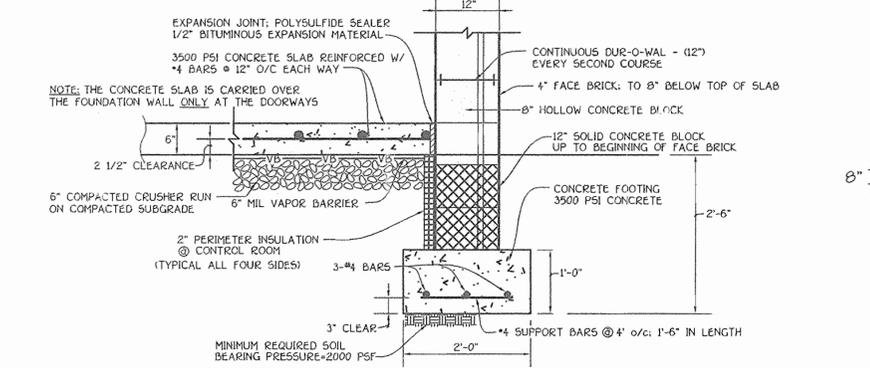
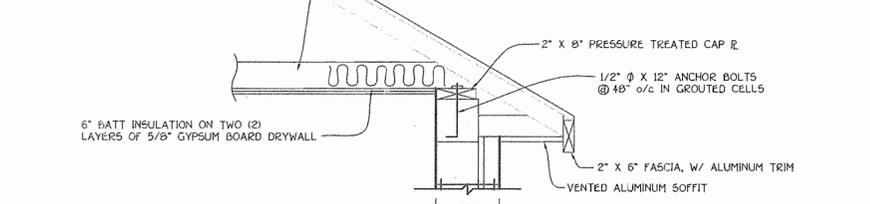
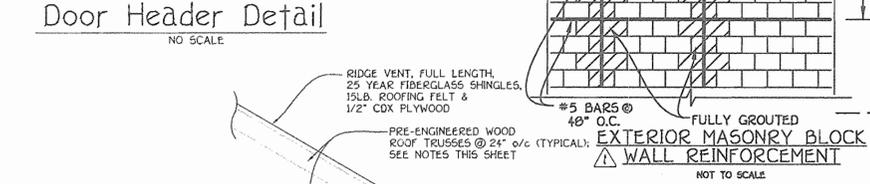
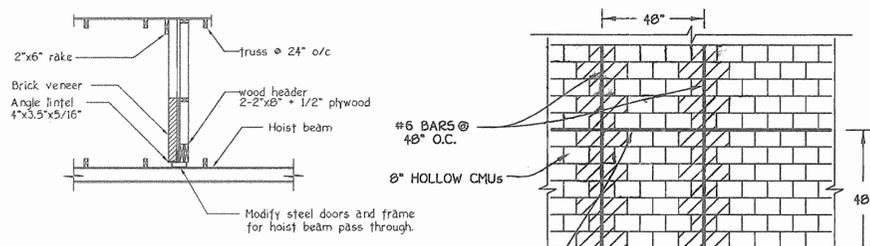
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FILE NAME: FINAL PLAN & BUILDING ELEV. SH. 3

ICE CRYSTAL DRIVE
WASTEWATER PUMPING STATION

CONTRACT NO. 20-4198-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 3 of 15

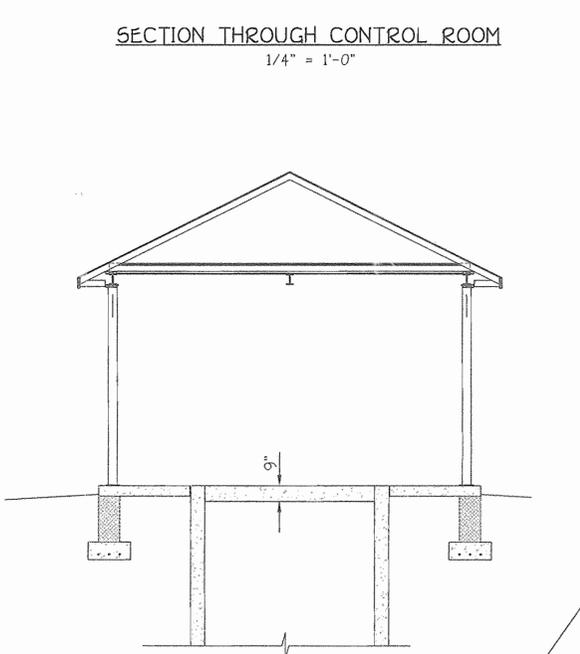
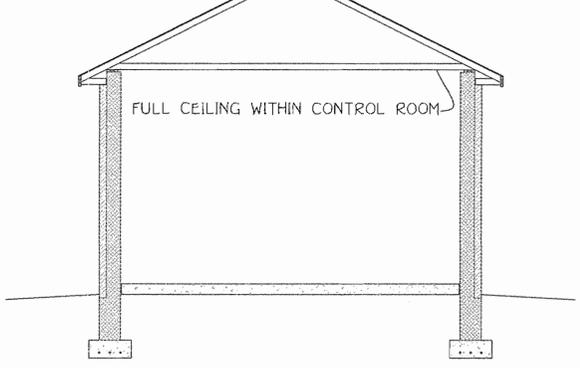
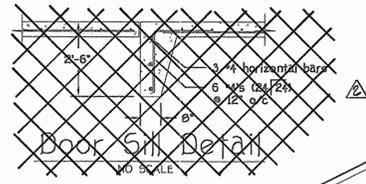
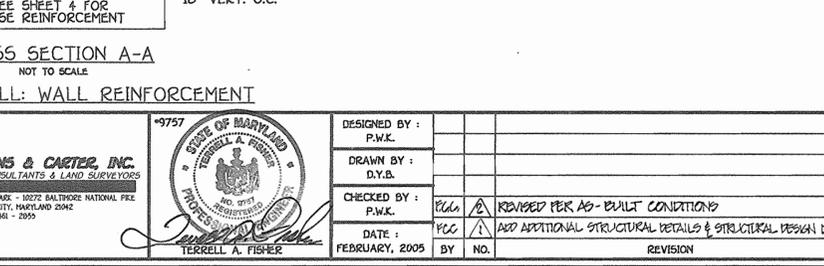
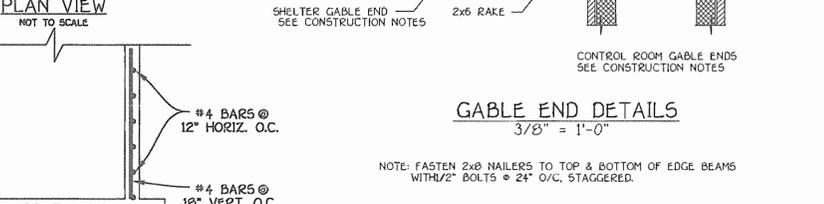
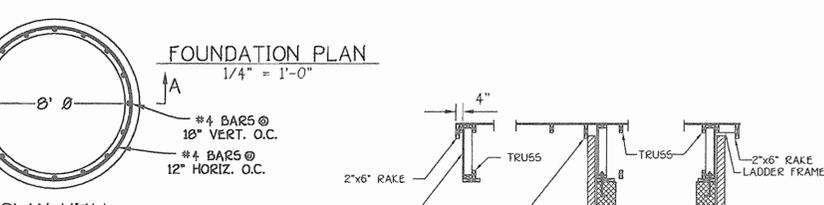
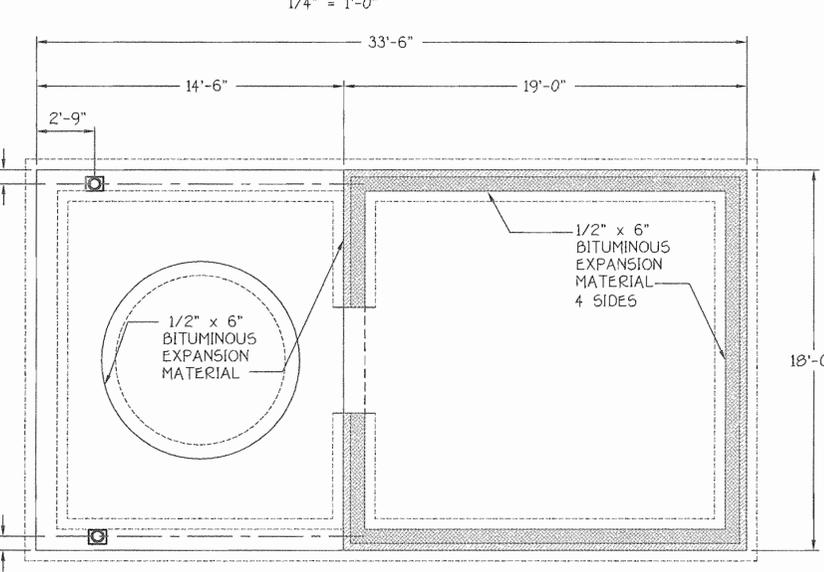
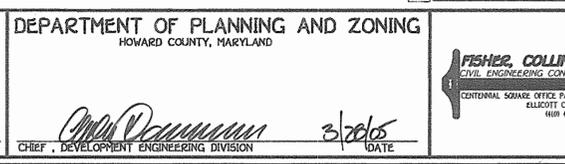
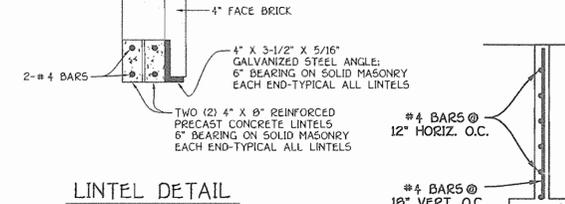
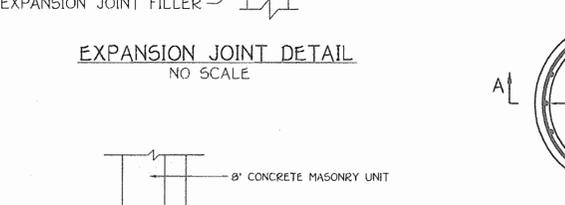
AS-BUILT: 01/08



STRUCTURAL DESIGN DATABASE*

1. Floor live load 125 psf
2. Roof live load 30 psf
3. Roof snow load
 - Ground snow load, P_g 25 psf
 - Flat roof snow load, P_f N/A
 - Snow exposure factor, C_e 0.9
 - Snow load importance factor, I_s 1.10
 - Thermal factor, C_t 1.20
4. Wind load
 - Basic wind speed(3 second gust) miles per hour(mph) 90m/hr
 - Wind load importance factor, I_w, and building category 1.15
 - Wind exposure factor C 1.21
 - Applicable internal pressure coefficient -Components and cladding Non
5. Earthquake design data:
 - Seismic importance factor, I_e 1.25
 - Seismic use group II
 - Mapped spectral response accelerations S_s 0.157g
 - S₁ 0.083g
 - Site class D
 - Spectral response coefficients S_{ds} 0.953g
 - S_{d1} 10.023g
 - Seismic design category B
 - Basic seismic-force-resisting system bearing walls V-CW
 - Design base shear V 15.56k
 - Seismic response coefficients, C_s 1.5
 - Response modification factor, R 1.5
 - Analysis procedure used International Building Code

*This information is based on the International Building Code



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 10 GA. GALVANIZED HOLD-DOWN CLIPS SUCH AS SIMPSON H3
2"x6" 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 @ 10" 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)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" 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.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

R. L. Benjamin
3-18-05
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Chris DeMunn
3/20/05
DATE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK, 10275 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21042
(410) 461-2055

STATE OF MARYLAND
TERRELL A. FISHER

DESIGNED BY:	P.W.K.	DATE:	FEBRUARY, 2005
DRAWN BY:	D.Y.B.	BY:	NO.
CHECKED BY:	P.W.K.	DATE:	1/9/08
DATE:	1/9/05	REVISION:	ADD ADDITIONAL STRUCTURAL DETAILS & STRUCTURAL DESIGN DATABASE

ARCHITECTURAL/STRUCTURAL SECTIONS & DETAILS

600' SCALE MAP NO. 46 BLOCK NO. 10
F.C.C. WORK ORDER NO. 30765

FILE NAME: ARCHITECTURAL/STRUCTURAL SECTIONS & DETAILS SHIT 5

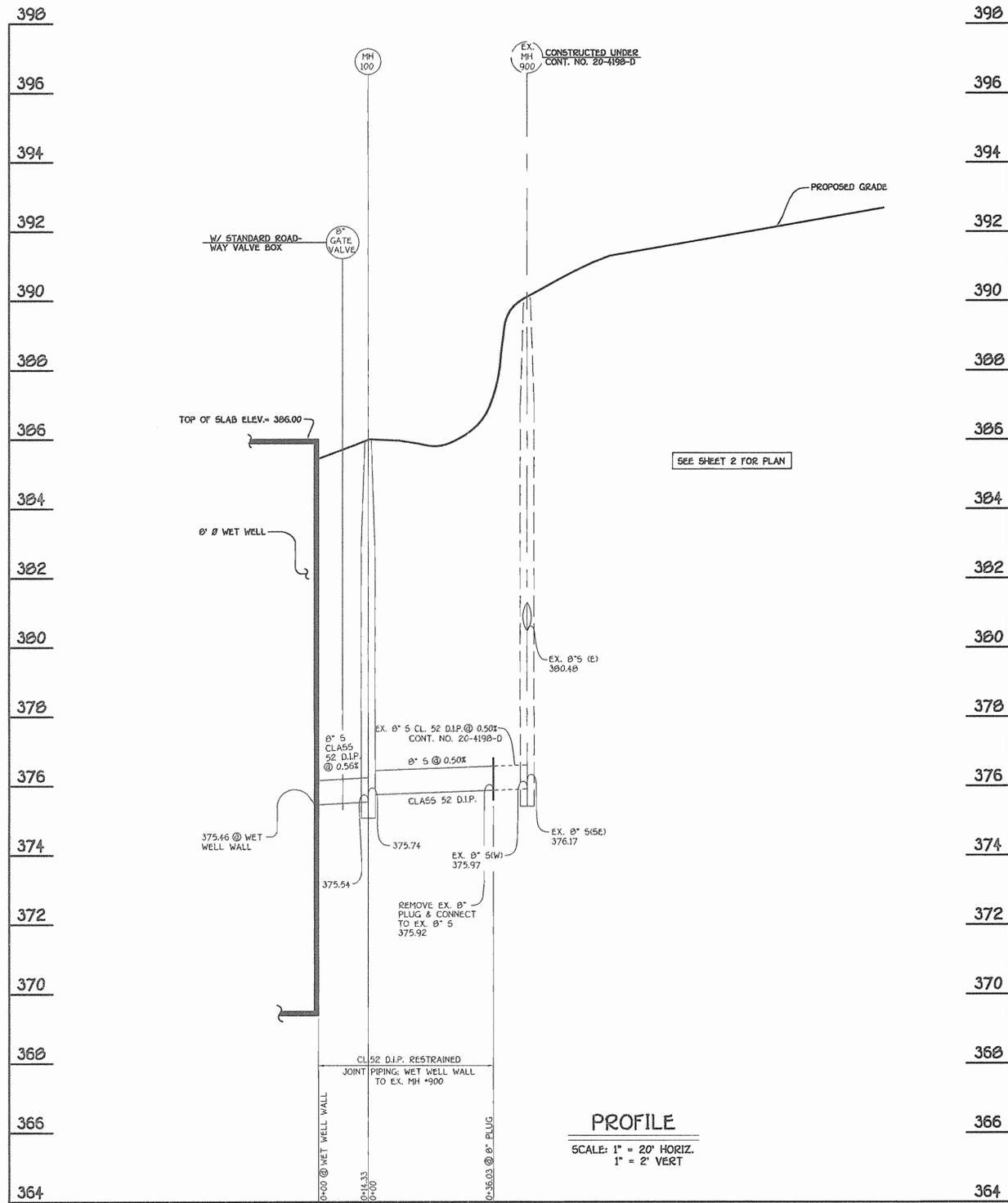
ICE CRYSTAL DRIVE
WASTEWATER PUMPING STATION
CONTRACT NO. 20-4198-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 5 of 15

AS-BUILT: 01/08

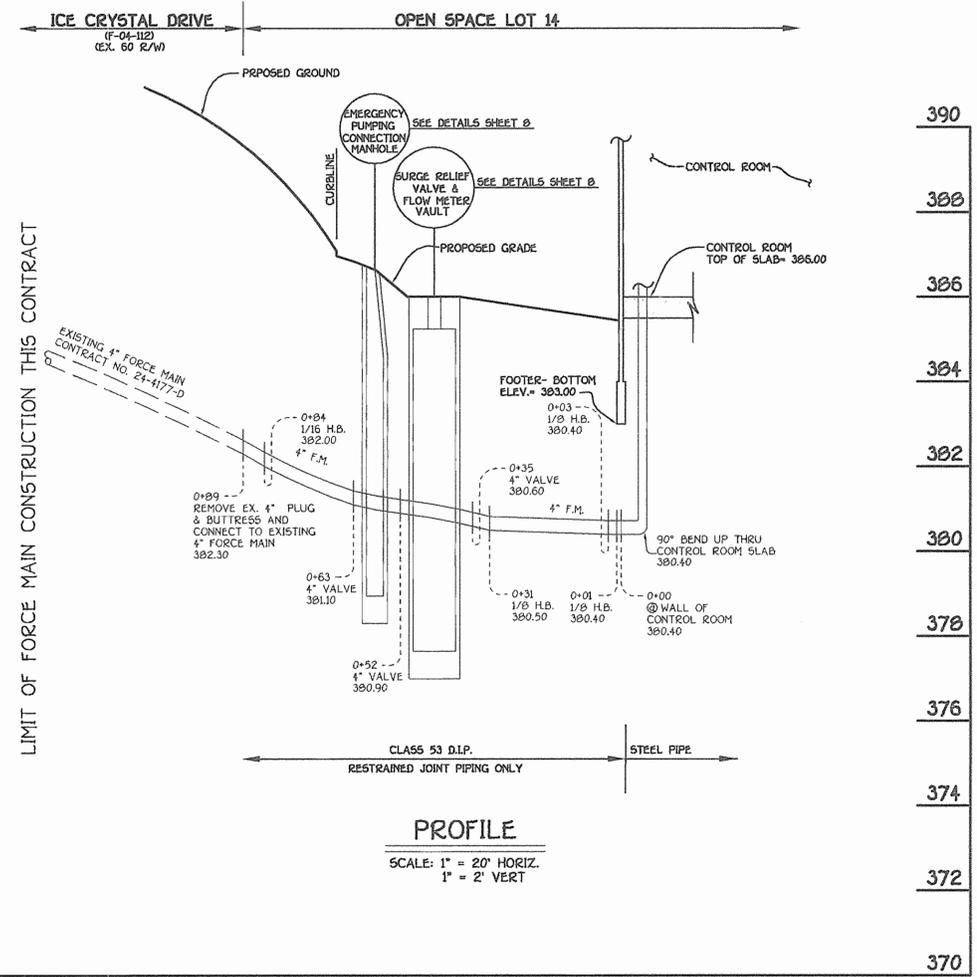
OPEN SPACE LOT 14
TO BE DEDICATED TO
HOWARD COUNTY, MARYLAND

BULK PARCEL G-1
PROPERTY OF
CHERRYTREE II, LLC



8" SEWER MAIN

PROFILE
SCALE: 1" = 20' HORIZ.
1" = 2' VERT



4" FORCE MAIN

PROFILE
SCALE: 1" = 20' HORIZ.
1" = 2' VERT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Ralph Benim 3-18-05
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
Mike Donnan 3/20/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
(410) 461-2355



DESIGNED BY: P.W.K.
DRAWN BY: D.Y.B.
CHECKED BY: P.W.K.
DATE: FEBRUARY, 2005

PROFILES:
SEWER MAIN & FORCE MAIN
600' SCALE MAP NO. 46 BLOCK NO. 10
F.C.C. WORK ORDER NO. 30766
DATE: FILE NAME: 30766 SEWER & FORCE MAINS PROFILES SHIT 6

ICE CRYSTAL DRIVE
WASTEWATER PUMPING STATION
CONTRACT NO. 20-4198-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 6 OF 15

AS-BUILT = 01/08

K:\Drawings\30635 Cherrytree Park\WASTSEW\Trunks\Pump Station\30766 Sewer & Force Mains Profiles SHIT 6.dwg, 3/7/2005, 1:30:05 PM

STAKE-OUT TABLE

Ø" SEWER MAIN

ITEM	NORTHING	EASTING
Ø" GATE VALVE	543803.84	1342568.26
MH 100	543809.68	1342564.40
EX. Ø" PLUG	543839.60	1342584.34

4" FORCE MAIN

ITEM	NORTHING	EASTING
Ø EX. 4" PLUG & BUTTRESS	543809.42	1342513.21
1/8 H.B.	543886.66	1342517.44
4" VALVE	543882.49	1342537.85
EMERGENCY PUMPING CONN. MH	543881.39	1342543.25
4" VALVE	543880.29	1342548.64
4" SURGE RELIEF VALVE & FLOW METER VAULT	543878.54	1342557.25
4" VALVE	543876.84	1342565.58
1/8 H.B.	543876.14	1342568.99
1/8 H.B.	543893.06	1342594.57
1/8 H.B.	543895.44	1342594.99

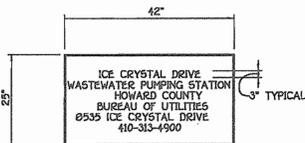
P-2 Paving/Texas Stone Demarcation Coordinate Table

POINT	NORTHING	EASTING
A	536747.62	1339604.73
B	536760.88	1339615.36
C	536765.54	1339638.32
D	536781.93	1339651.45

Fence Post Coordinate Table

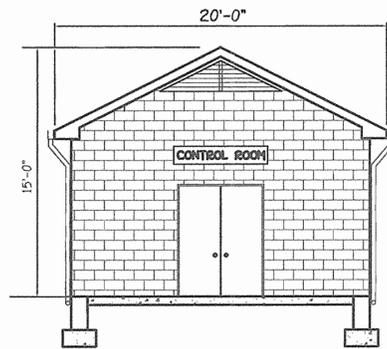
POINT	NORTHING	EASTING
FP1	536804.58	1339621.73
FP2	536799.23	1339628.97
FP3	536800.05	1339642.28
FP4	536768.37	1339659.81
FP5	536728.27	1339627.66
FP6	536760.72	1339587.19
FP7	536805.15	1339591.69
FP8	536803.52	1339607.77

FP DENOTES FENCE POST

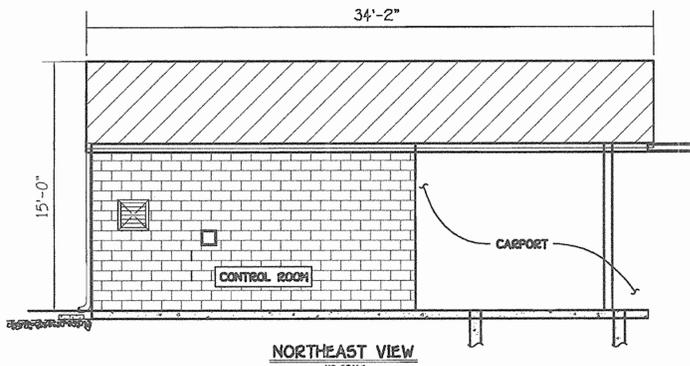


NOTE: CONTRACTOR SHALL PROVIDE AND MOUNT SIGNS ON BOTH THE FRONT ACCESS SWING GATE AND THE CHAIN LINK GATE AT THE STATION ENTRANCE. MATERIAL: 0.090-INCH THICK ALUMINUM SHEET METAL FINISH: BAKED ENAMEL PAINT COATING: POLYESTER BASED SPRAY

SIGN DETAIL
NOT TO SCALE

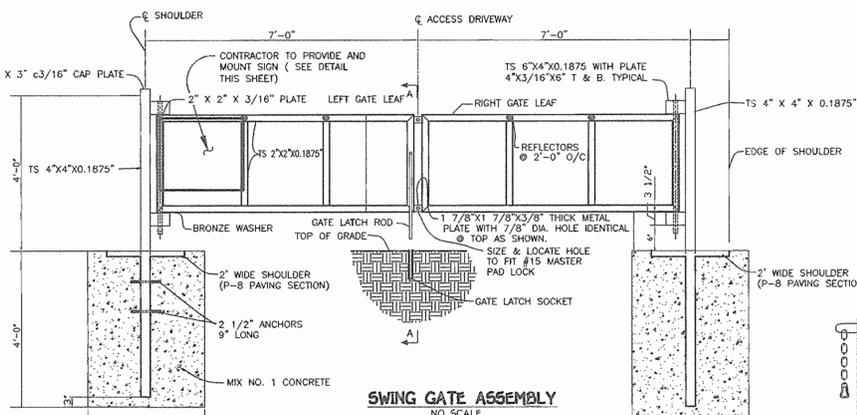


NORTHWEST VIEW
NO SCALE



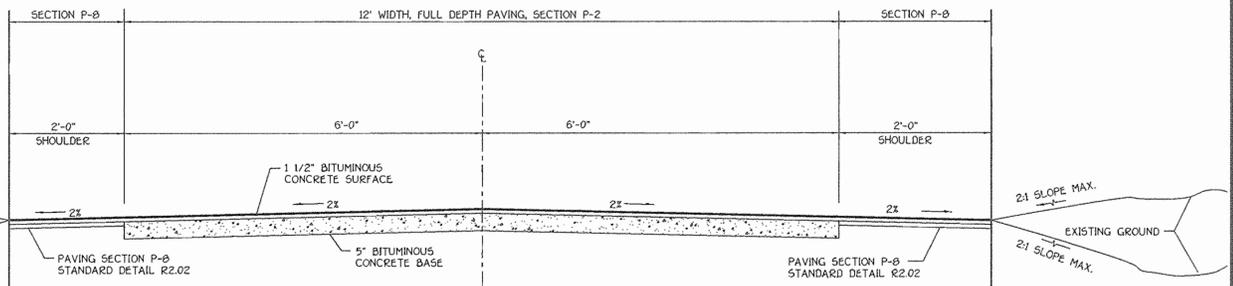
NORTHEAST VIEW
NO SCALE

SCHEMATIC BUILDING PROFILES
NO SCALE

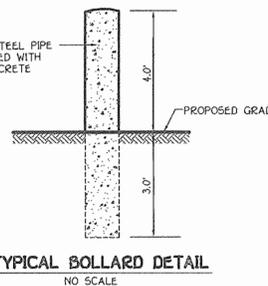


SWING GATE ASSEMBLY
NO SCALE

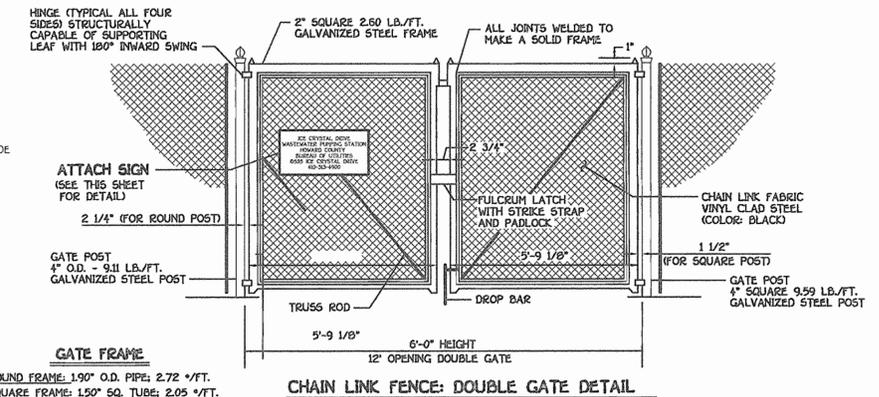
SECTION A-A
NO SCALE



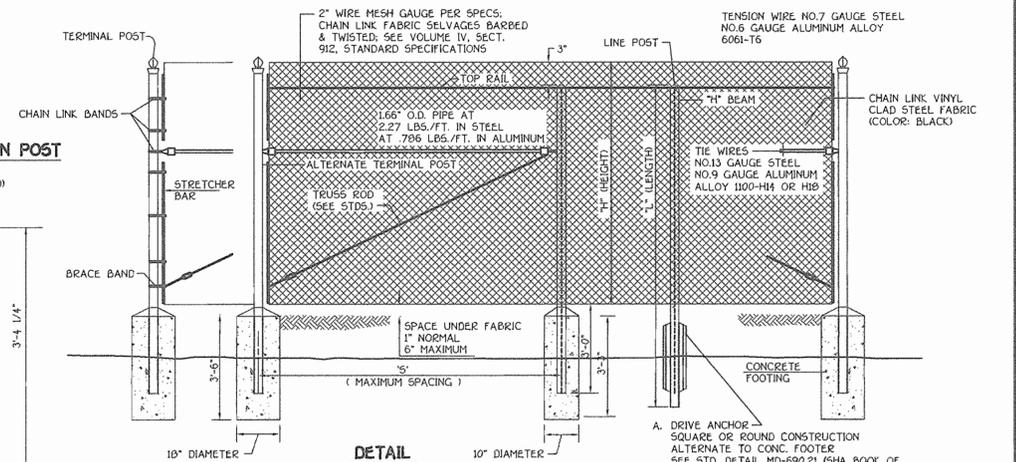
ACCESS DRIVEWAY - TYPICAL SECTION
NO SCALE



TYPICAL BOLLARD DETAIL
NO SCALE

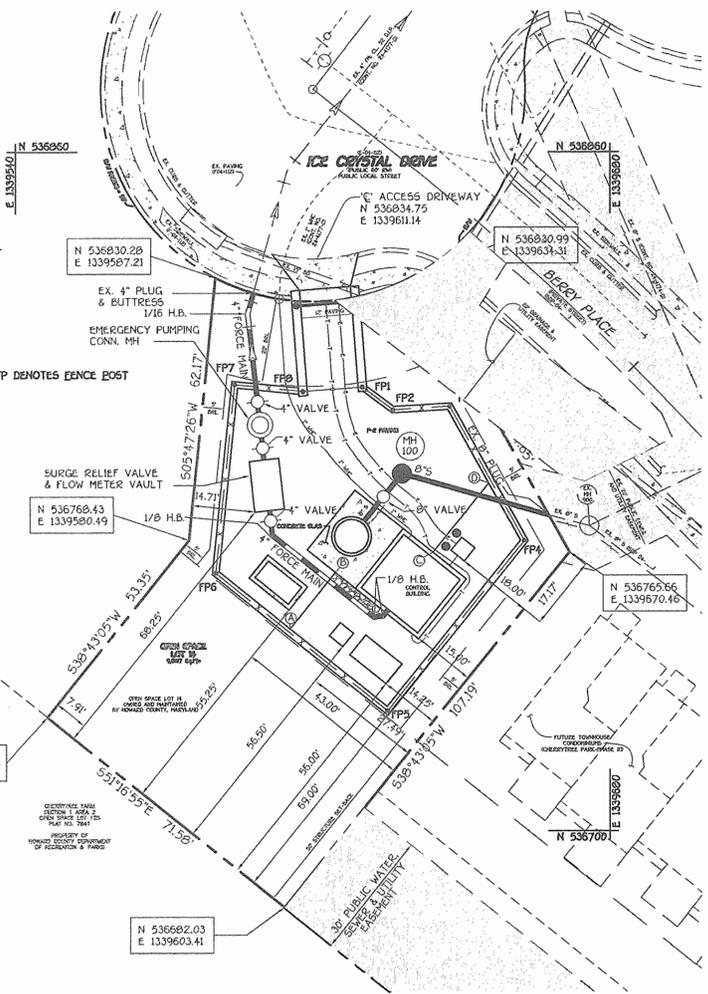


CHAIN LINK FENCE: DOUBLE GATE DETAIL
NO SCALE



DETAIL
CHAIN LINK FENCE
NO SCALE

4" HEIGHT OF FENCE	6'-0"
5" POST SPACING MAX.	10'-0"
4" LENGTH OF H BEAM	8'-0" 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.



STAKE-OUT PLAN

SCALE: 1" = 20'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
CLEMENTS CITY, MARYLAND 20746
(410) 402 - 2255



DESIGNED BY: P.W.K.
DRAWN BY: D.Y.B.
CHECKED BY: P.W.K.
DATE: FEBRUARY, 2005

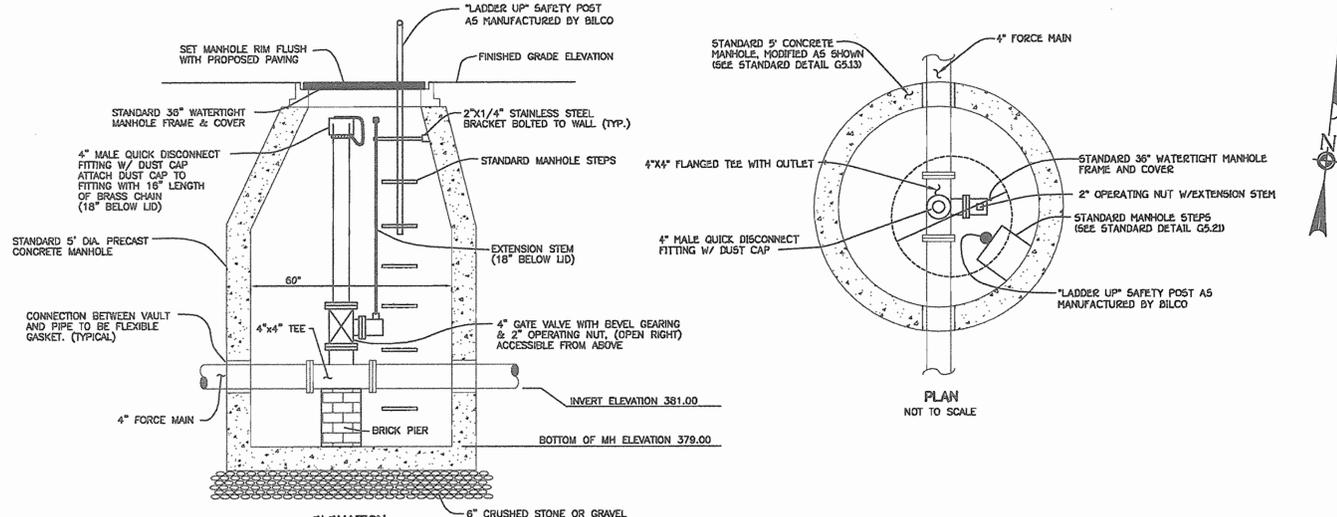
ACCESS DRIVEWAY SECTION & MISCELLANEOUS DETAILS

600' SCALE MAP NO. 46 BLOCK NO. 10
F.C.C. WORK ORDER NO. 30785

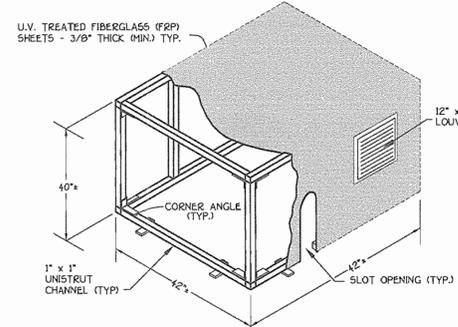
ICE CRYSTAL DRIVE
WASTEWATER PUMPING STATION
CONTRACT NO. 20-4198-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 7 OF 15

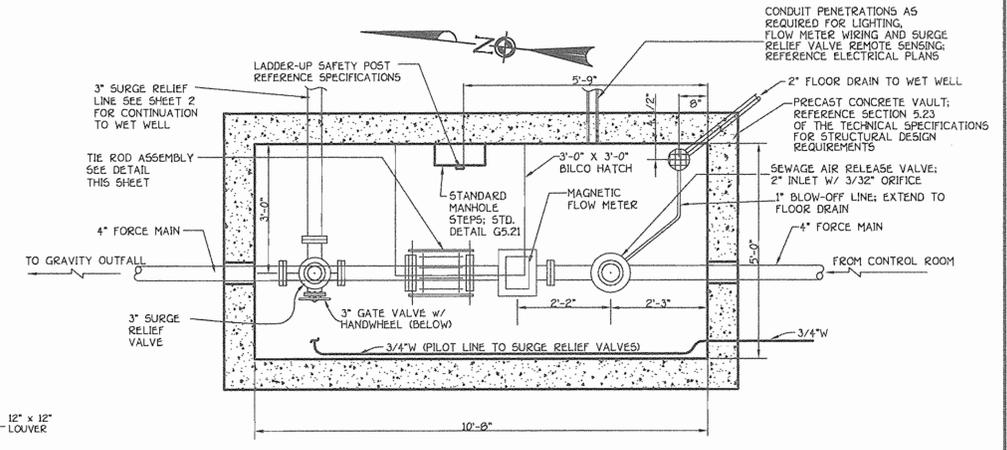
AS-BUILT: 01/00



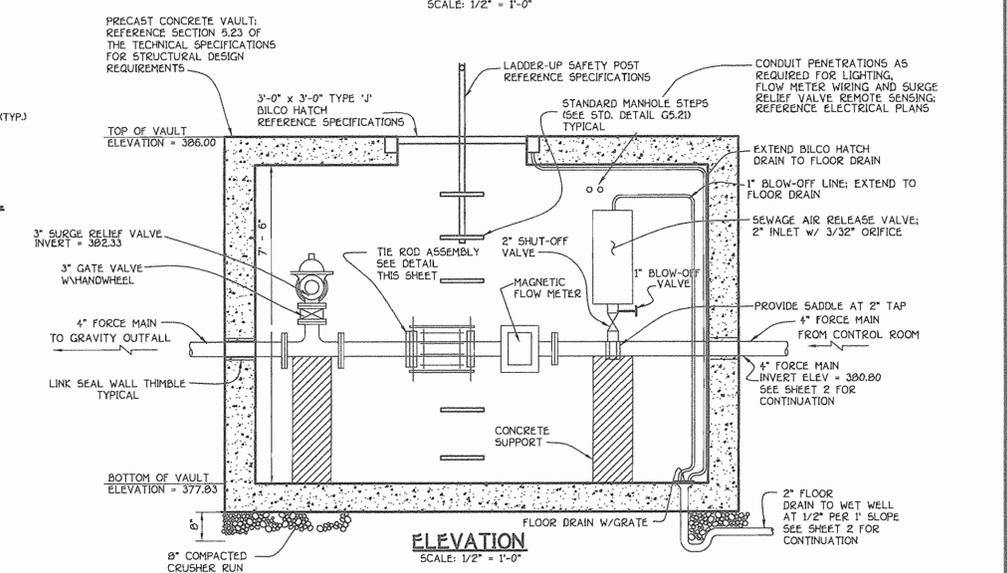
EMERGENCY PUMPING CONNECTION MANHOLE
NOT TO SCALE



F-3 BLOWER ENCLOSURE DETAIL
NOT TO SCALE

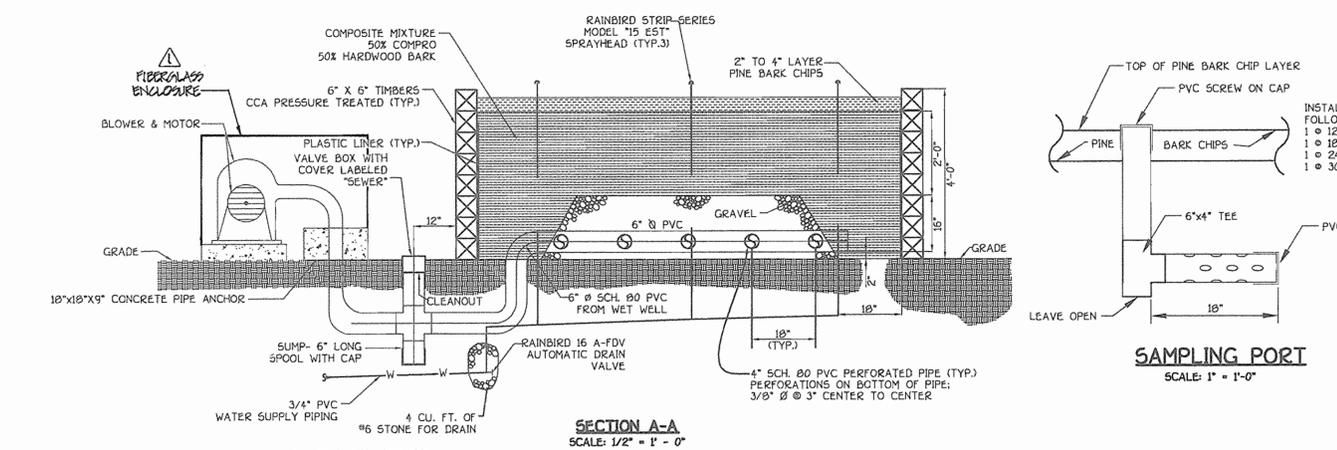


PLAN
SCALE: 1/2" = 1'-0"

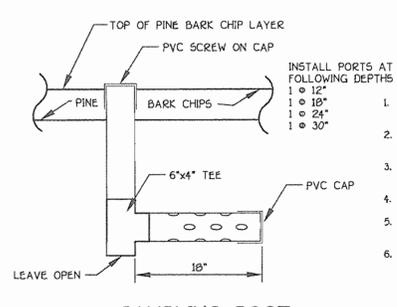


ELEVATION
SCALE: 1/2" = 1'-0"

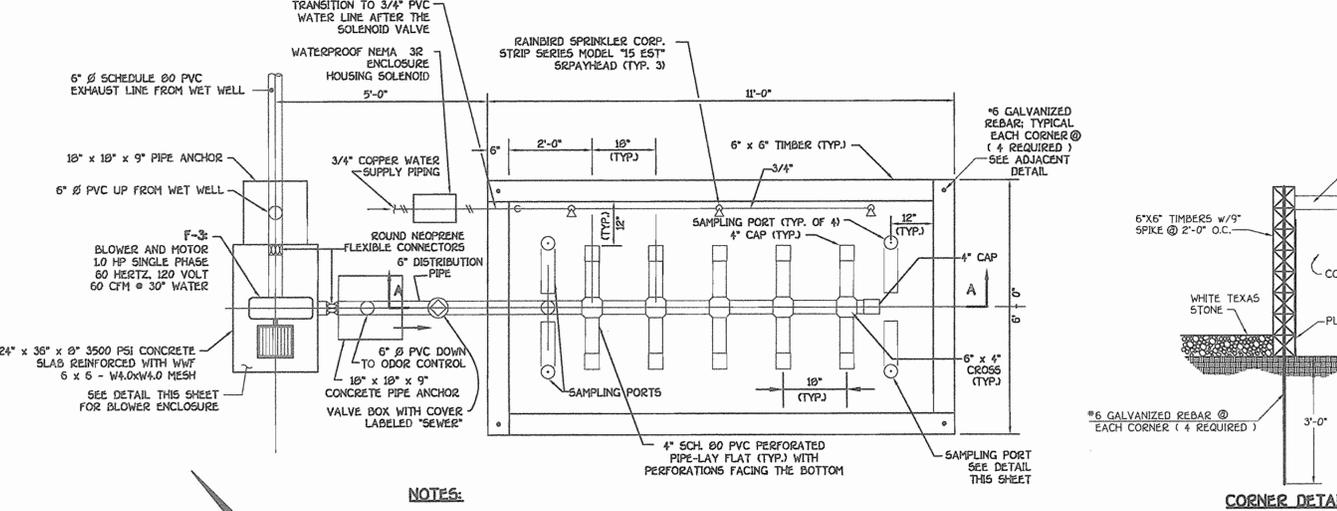
SURGE RELIEF VALVE & FLOW METER VAULT



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



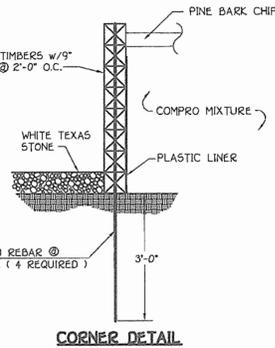
SAMPLING PORT
SCALE: 1" = 1'-0"



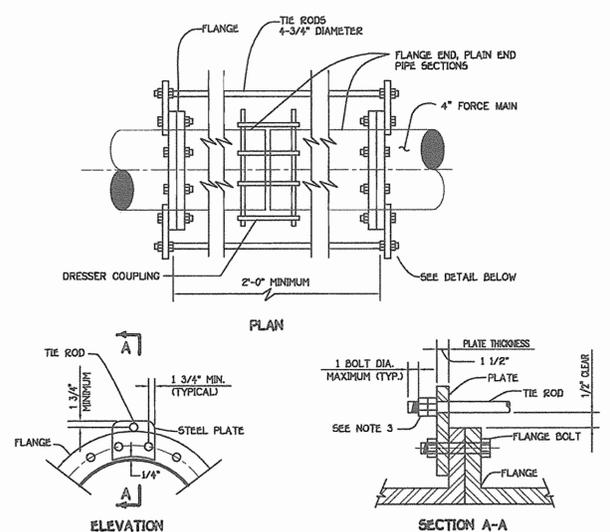
ODOR CONTROL SYSTEM
SCALE: 1/2" = 1'-0"

NOTES:

1. PROVIDE MINIMUM 10" 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 M160, MARINE GRADE, TREATED WITH CHROMIATED COPPER ARSENATE (CCA) AT A RATE OF 2.5 LBS. PER CU. FT. OF WOOD AND SHALL MEET AASHTO M133.



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



TIE ROD ASSEMBLY
NOT TO SCALE

NOTES:

1. THE BOLDS SHALL CONFORM TO ASTM A-308 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.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND



DESIGNED BY:	P.W.K.
DRAWN BY:	D.Y.B.
CHECKED BY:	P.W.K.
DATE:	FEBRUARY, 2005
BY:	NO.

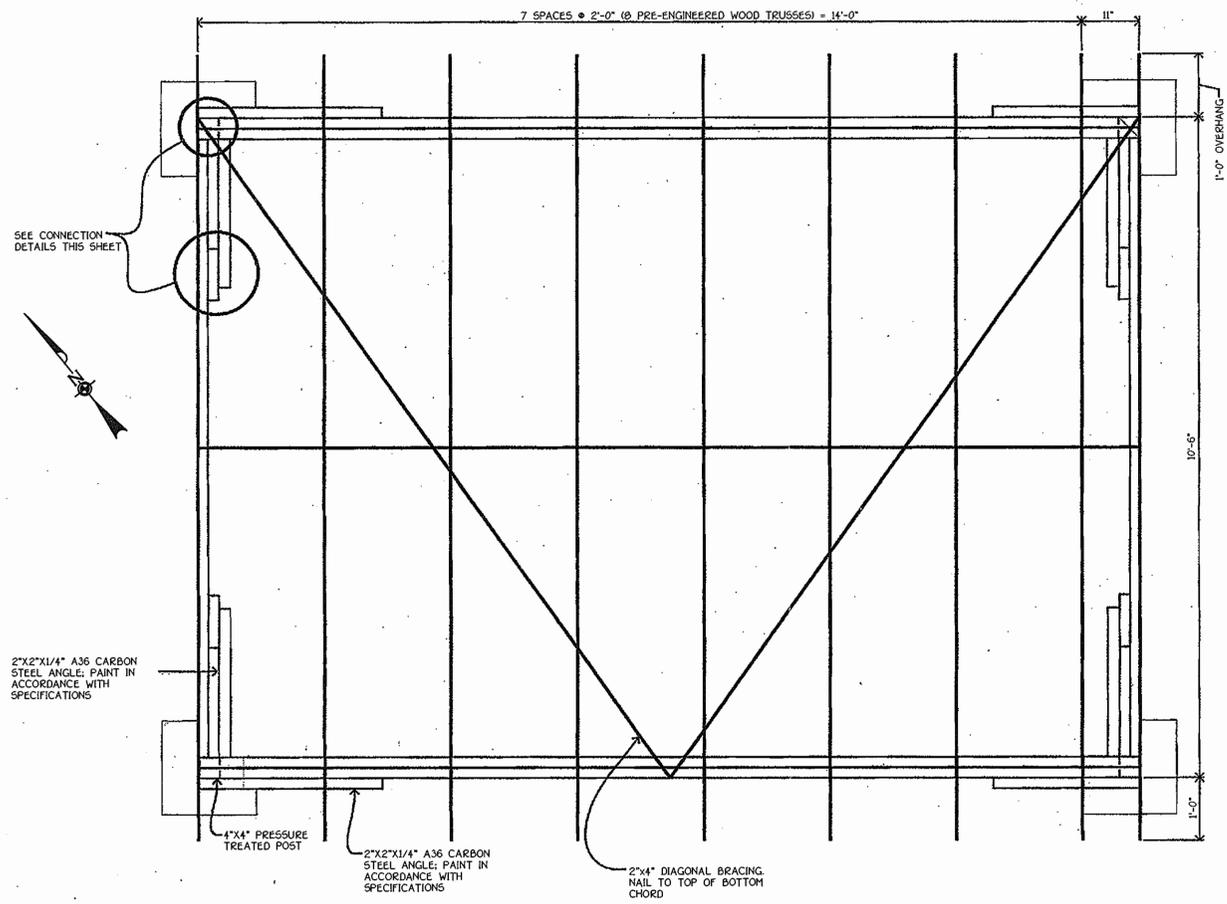
60' SCALE MAP NO.	46	BLOCK NO.	10
F.C.C. WORK ORDER NO.	30765	DATE:	1/9/06
FILE NAME:	ODOR CONTROL SYSTEM MISCELLANEOUS DETAILS SHT 8		

**ICE CRYSTAL DRIVE
WASTEWATER PUMPING STATION**
CONTRACT NO. 20-4198-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 8 OF 15

AS-BUILT: 01/06

K:\Drawings\330658\Cherry\Ice Crystal Drive\Wastewater Pumping Station\Detail\8.dwg, 3/7/2005 13:14:15 PM



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

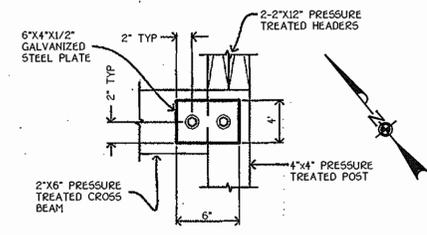
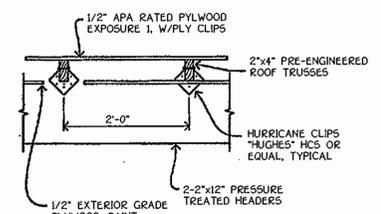
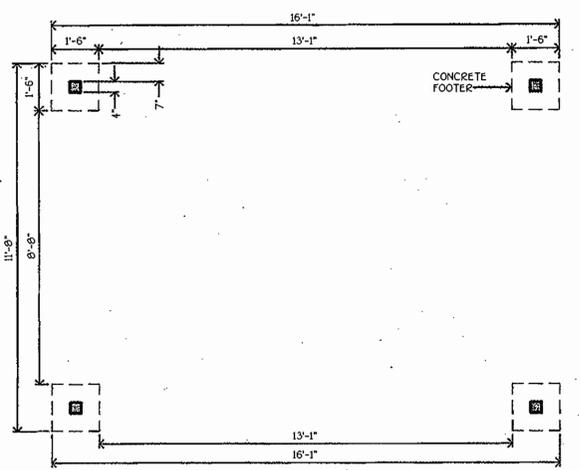


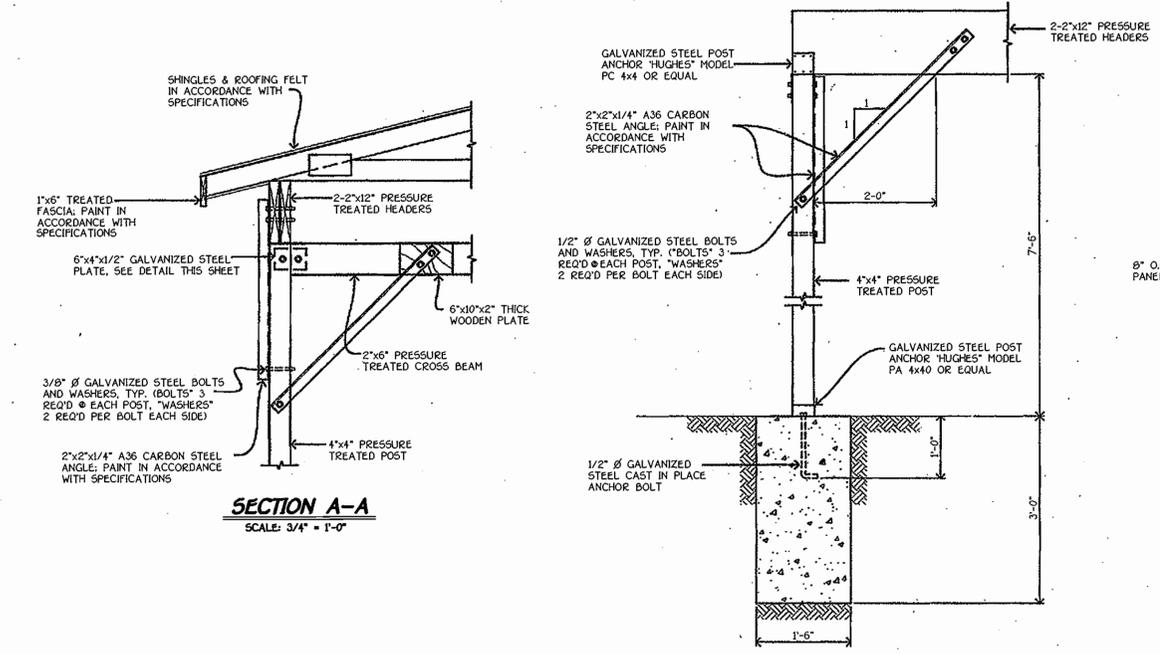
PLATE DETAIL
SCALE: 1 1/2" = 1'-0"



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

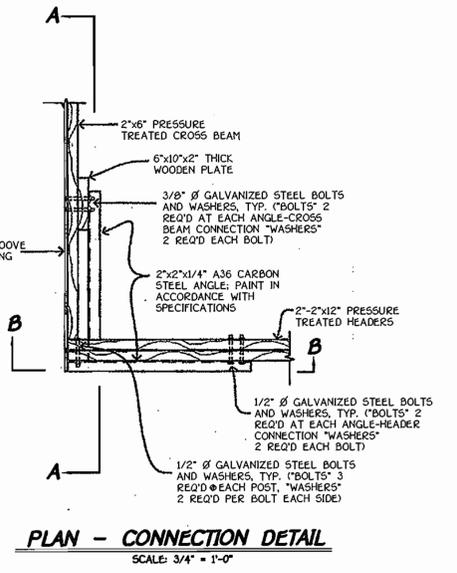


FOUNDATION PLAN
SCALE: 3/8" = 1'-0"

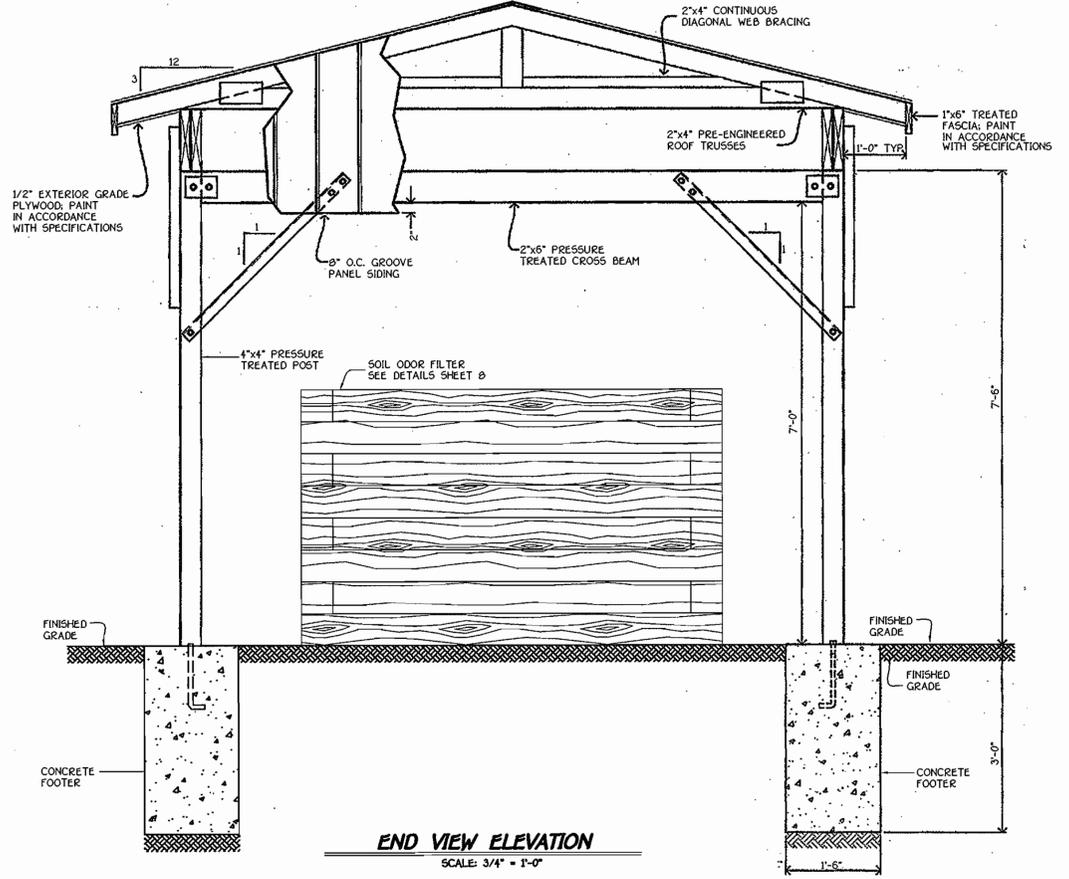


SECTION A-A
SCALE: 3/4" = 1'-0"

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



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



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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

R. L. Berman 3-18-05
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Michael J. ... 3/20/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

10772 BALTIMORE NATIONAL FREE
ELICOTT CITY, MARYLAND 21042
(410) 461-2855

STATE OF MARYLAND
TERRELL A. FISHER
PROFESSIONAL ENGINEER

DESIGNED BY: P.W.X.
DRAWN BY: T.P.F.
CHECKED BY: P.W.X.
DATE: FEBRUARY, 2005

ODOR CONTROL SYSTEM:
PAVILION DETAILS

60' SCALE MAP NO. 46 BLOCK NO. 10
F.C.C. WORK ORDER NO. 30766

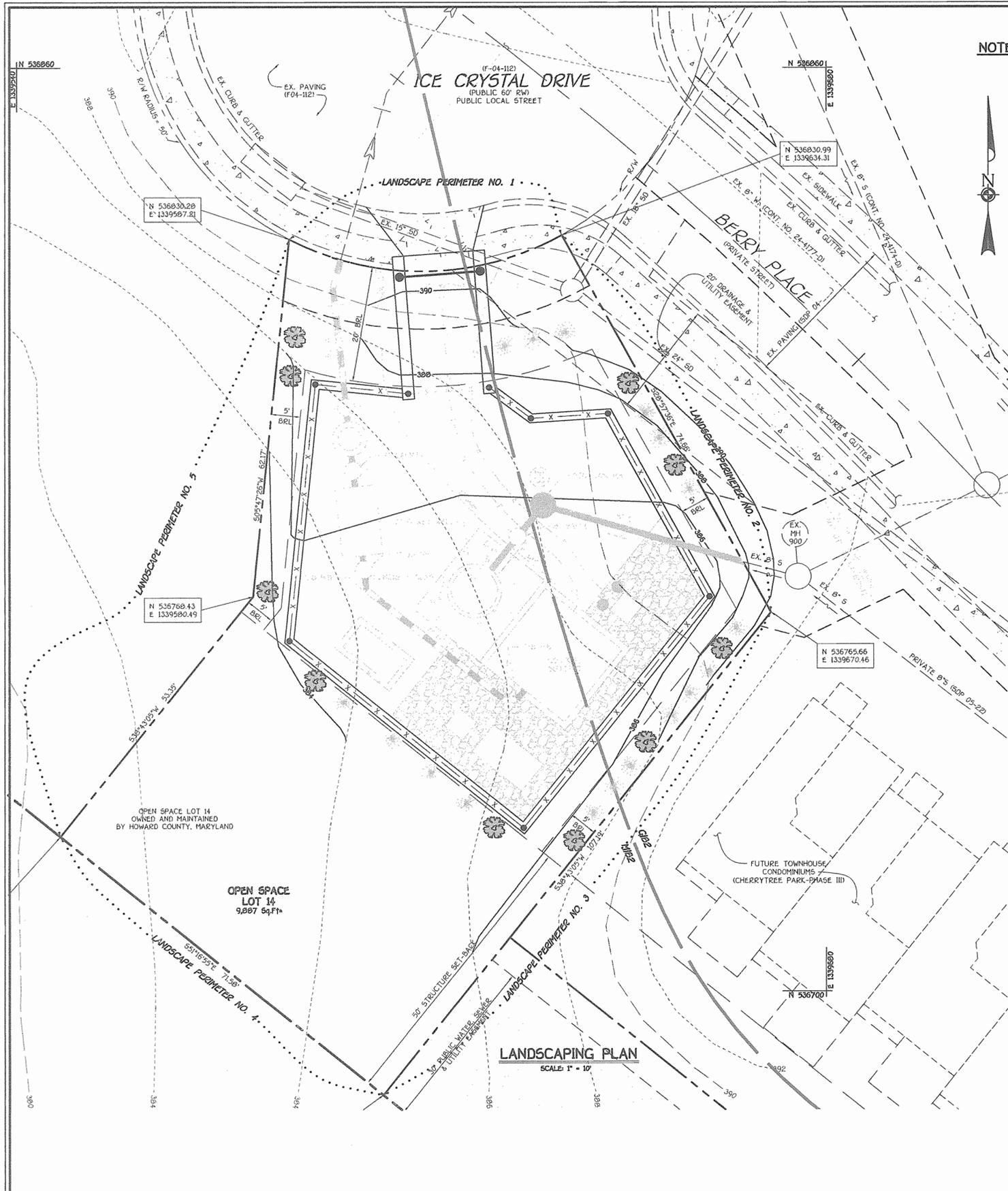
FILE NAME: FINAL PAVILION DETAIL_SHT 9

**ICE CRYSTAL DRIVE
WASTEWATER PUMPING STATION**

CONTRACT NO. 20-4198-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 9 OF 15

AS-BUILT: 01/08



NOTE: THIS PLAN IS INTENDED FOR LANDSCAPE USE ONLY. REFERENCE OTHER PLAN SHEETS FOR BUILDING LAY-OUT, UTILITIES, GRADING AND SEDIMENT CONTROL.

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.

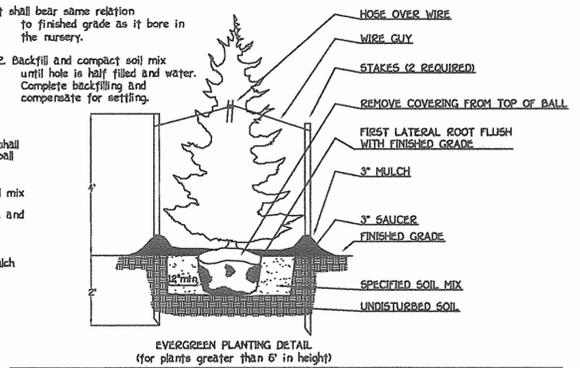
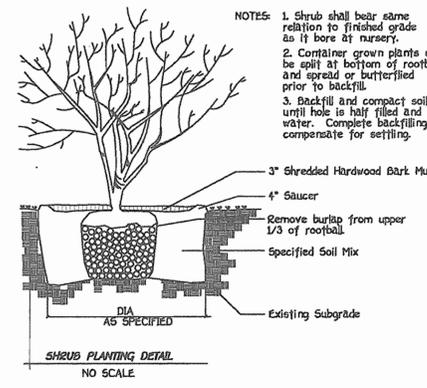
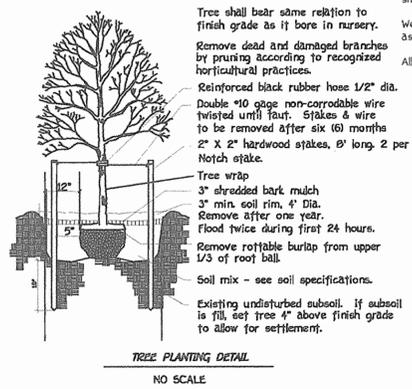
All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans.

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.



SOILS LEGEND

SOIL	NAME	CLASS
GIB2	Glenelg loam, 3 to 8 percent slopes, moderately eroded	B
MIB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B

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

SCHEDULE A PERIMETER LANDSCAPE EDGE

PERIMETER	No. 1	No. 2	No. 3	No. 4	No. 5
CATEGORY	Adjacent to Public Roadway	Adjacent to Residential Perimeter Properties	Adjacent to Residential Perimeter Properties	Adjacent to Residential Perimeter Properties	Adjacent to Commercial Perimeter Properties
LANDSCAPE TYPE	B	C	C	C	A
LINEAR FEET OF PERIMETER	49.05 L.F.	74.66 L.F.	107.19 L.F.	71.56 L.F.	62.17 L.F. = 115.52 L.F.
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE IF NEEDED)	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED	3	6	9	6	2
SHADE TREES	49.05' x 1.50' = 1	74.66' x 1.40' = 2	107.19' x 1.40' = 3	71.56' x 1.40' = 2	115.52' x 1.60' = 2
EVERGREEN TREES	49.05' x 1.40' = 2	74.66' x 1.20' = 4	107.19' x 1.20' = 6	71.56' x 1.20' = 4	-
NUMBER OF PLANTS PROVIDED	3	6	9	6	2
SHADE TREES	1	2	3	2	2
EVERGREEN TREES	2	4	6	4	0
SHRUBS	0	0	0	0	0
OTHER TREES (± SUBSTITUTION)	-	-	-	-	-

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 YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

R. W. Reid FOR: CHERRYTREE II, LLC 03-01-05
 Signature of Developer Date

LANDSCAPING PLANT LIST

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

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. ALTERNATIVE LANDSCAPING HAS BEEN PROVIDED ALONG PERIMETER NO.3 TO ESTABLISH AN ADDITIONAL SCREEN FOR THE PROPOSED RESIDENTIAL UNITS.

C. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE GRADING PERMIT IN THE AMOUNT OF \$500.00 (10 SHADE TREES @ 3000.00/TREE) AND (6 EVERGREEN TREES @ 450.00/TREE).

D. 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.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND R. W. Reid CHIEF, BUREAU OF UTILITIES DATE: 3-19-05	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND [Signature] CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 3/20/05	FISHER, COLLINS & CARTER, INC. CIVIL, ENGINEERING CONSULTANTS & LAND SURVEYORS CENTENNIAL SQUARE, OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE ELLSWORTH CITY, MARYLAND 21042 (410) 461-2255	STATE OF MARYLAND PROFESSIONAL ENGINEER TERRILL A. FISHER NO. 9757	DESIGNED BY: P.W.K. DRAWN BY: D.Y.B. CHECKED BY: P.W.K. DATE: FEBRUARY, 2005	LANDSCAPING PLAN, NOTES, DETAILS AND SOILS MAP 600' SCALE MAP NO. 46 BLOCK NO. 10 F.C.C. WORK ORDER NO. 30766 FILE NAME: FINAL LANDSCAPING PLAN VIEW AND NOTES SH1 10	CONTRACT NO. 20-4198-D ICE CRYSTAL DRIVE WASTEWATER PUMPING STATION HOWARD COUNTY, MARYLAND SCALE AS SHOWN SHEET 10 OF 15
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AS-BUILT: 01/06

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 STABILIZED 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 ERODIBLE 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 DICES, 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, TRANSPARATION, 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, SEEDING 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 OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.
 - ii. PERFORM ALL GRADING 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 AREAS OVER 5 ACRES.
- B. SOIL AMENDMENTS (PER LIME 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 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. FERTILIZER SHALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADEMARK AND WARRANT.
 - iii. LIME MATERIALS SHALL BE GROUND LIME OR BURNED LIME. LIME MAY BE SUBSTITUTED WHICH CONTAINS AT LEAST 50% TOTAL OXIDES OF CALCIUM AND MAGNESIUM OXIDES. LIMESTONES SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 90-100% 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. SEEDING PREPARATION
 - i. TEMPORARY SEEDING
 - a. SEEDING 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 RIPRAPS FOLLOED BY 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% 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.
 - ii. PERMANENT SEEDING
 - a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:
 1. SOIL PH SHALL BE BETWEEN 6.0 AND 7.0.
 2. SOIL SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
 3. THE SOIL SHALL CONTAIN LESS THAN 4% CLAY, BUT ENOUGH FINE GRAINED MATERIAL 0.075 SILT PLUS CLAY TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SEBECIA LESPEDEZAS IS TO BE PLANTED, THEN A SANDY SOIL (43% 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 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 ROLLED TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDING, PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3%) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1-3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDING 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 TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.
 - ii. SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.
 - iii. INOCULANT - 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°-90° 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 SEEDING, OR A CULTIPACKER SEEDER.
 - 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 (PHOSPHORUS): 200 LBS/AC; K2O (POTASSIUM): 200 LBS/AC.
 - b. LIME - USE ONLY GROUND AGRICULTURAL LIME, 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 BURNED 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 26B OR 26C. THE SEEDING 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. CULTIPACKER SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDING MUST BE FROM AFTER PLANTING. SEEDING MUST BE PERFORMED AT LEAST 1/4 INCH OF SOIL COVERING.
 - 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 (WCM) SHALL BE:
 - a. WCM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - b. WCM 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. WCM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - d. WCM 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 ADJUTANTS. 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. WCM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
- f. WCM 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 15% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.

- G. NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
- H. 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 1500 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.

- I. 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 A 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 BAYS. THE REMAINDER SHOULD BE APPLIED UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70 PETROSECT, TERRA TACK AIR, OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.
 - iv. LIGHTWEIGHT PLASTIC TYPING MAY BE STARTLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN 4' TO 12' FEET WIDE AND 300 TO 3000 FEET LONG.
- J. 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'.
 - a. CONSTRUCTION SEQUENCE (REFER TO FIGURE 3 BELOW):
 1. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.
 2. PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.
 3. PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
 4. PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS NECESSARY.
 - b. ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD PROCEED THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL OF REQUIRED QUANTITY AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OF COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.
 - ii. INCREMENTAL STABILIZATION OF EMBANKMENTS - FILL SLOPES
 1. EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.
 2. 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.
 3. AT THE END OF EACH DAY, TEMPORARY BERMS AND 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.
 - iii. 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 SOLE 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 NECESSARY.

- NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD PROCEED THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL OF REQUIRED QUANTITY AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OF COMPLETING THE OPERATION OUT 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 HARDNESS ZONE FROM FIGURE 5B 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 ON THE TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN.

SEED MIXTURE (HARDNESS ZONE - 6B) FROM TABLE 26				FERTILIZER RATE	LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	
1	BARLEY	122	3/1 - 5/15	1" - 2"	2 tons/ac
	OATS	122	8/15 - 10/15	1" - 2"	2 tons/ac
	RYE	140	8/15 - 10/15	1" - 2"	2 tons/ac

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 HARDNESS ZONE FROM FIGURE 5B 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 AREAS SUCH AS SWALES, STREAMBEDS, OR DICES OR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-SCS TECHNICAL FIELD OFFICE GUIDE, SECTION 02 - CRITICAL AREA PLANTING, FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS 500 V THROUGH 500 Y.
- ii. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES, THE RATES SHOWN ON THE TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.
- iii. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY USE-FOR FERTILIZER (65-0-0) AT 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 (HARDNESS ZONE - 6B) FROM TABLE 25				FERTILIZER RATE (00-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K2O
3	TALL FESCUE (95%)	125	3/1 - 5/15	1" - 2"	90 lb/ac	175 lb/ac	175 lb/ac
	PERENNIAL RYE GRASS (10%)	15	8/15 - 10/15	1" - 2"	(2.0 lb/1000sf)	(4 lb/1000sf)	(4 lb/1000sf)
	KENTUCKY BLUEGRASS (5%)	10					
10	TALL FESCUE (90%)	120	3/1 - 5/15	1" - 2"	90 lb/ac	175 lb/ac	175 lb/ac
	HARD FESCUE (20%)	30	8/15 - 10/15	1" - 2"	(2.0 lb/1000sf)	(4 lb/1000sf)	(4 lb/1000sf)

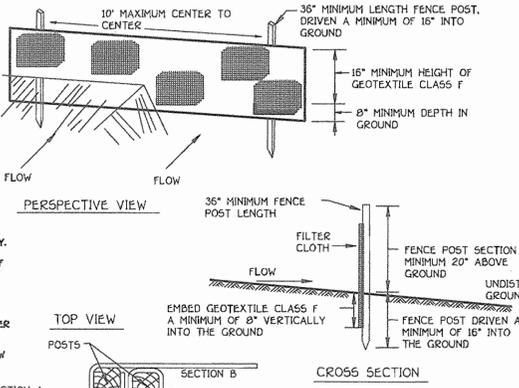
SEDIMENT CONTROL NOTES

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 (MS-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 THEREOF.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 30 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DICES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, BY 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. 20), SOIL (SEC. 5A), 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	0.227 ACRES
AREA DISTURBED	0.150 ACRES
AREA TO BE REGRADED OR PAVED	0.132 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.018 ACRES
TOTAL CUT	PUMPING STATION CONSTRUCTION ONLY
OFFSITE WASTE/BORROW AREA LOCATION	NONE N/A CL. YDS.
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF 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.

SEQUENCE OF CONSTRUCTION

1. OBTAIN THE REQUIRED GRADING PERMIT (60 DAYS)
2. NOTIFY MISS UTILITY 48 HOURS BEFORE ANY WORK (4-800-257-7777). NOTIFY HOWARD COUNTY CONSTRUCTION/INSPECTION DIVISION FIVE (5) DAYS BEFORE STARTING ANY WORK (410-203-1870). (1 DAY) INSPECT AND REPAIR IF NECESSARY THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AND STABILIZED CONSTRUCTION ENTRANCE AS INDICATED ON THIS SHEET.
3. CONSTRUCT PUMPING STATION AND UTILITIES (6 MONTHS)
4. CONSTRUCT ACCESS DRIVEWAY (1 MONTH)
5. FINE GRADE PERIMETER AREAS AROUND PARKING LOT AND ACCESS DRIVEWAY. STABILIZE WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH (3 DAYS)
6. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE OF THE SEDIMENT AND EROSION CONTROL DEVICES SHOWN HEREON, AFTER EACH RAINFALL AND ON A DAILY BASIS (1 DAY)
7. REMOVE SEDIMENT FROM ROADWAY AS REQUIRED (1 DAY)
8. STABILIZE ALL REMAINING DISTURBED AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH (3 DAYS)
9. FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS, AND AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE REMAINING DISTURBED AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH (3 DAYS)



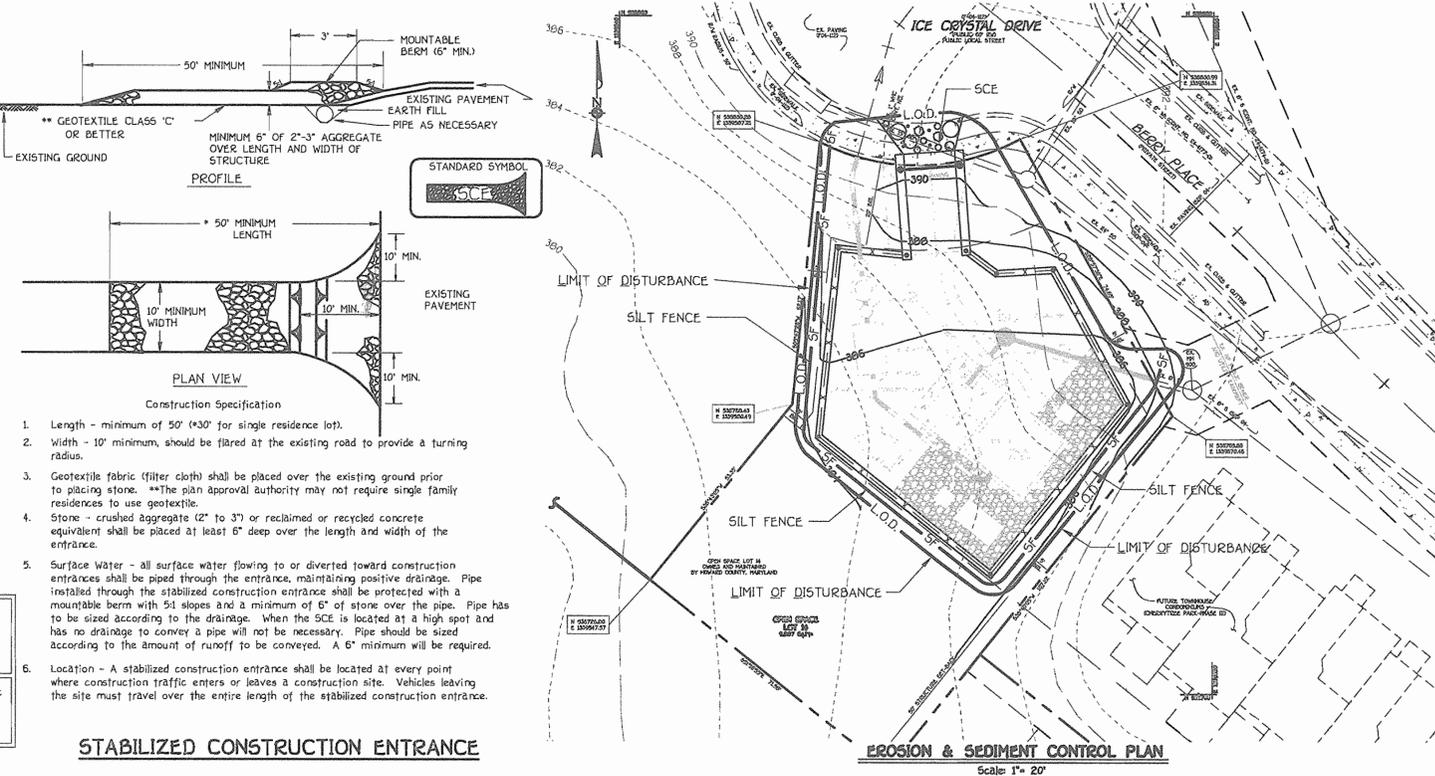
SECTION 21 : STANDARD AND SPECIFICATIONS FOR TOPSOIL

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.
 - b. TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING SUBSOILS.
 - c. TOPSOIL SHALL CONTAIN LESS THAN 5% BY VOLUME OF CHOKES, GRAVEL, STICKS, ROOTS, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
 - d. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 6" LAYER AND LIGHTLY COMPACTED.
4. APPLICATION:
 - a. TOPSOIL SHALL BE APPLIED TO THE DISTURBED AREAS AS SPECIFIED IN "STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION".
 - b. TOPSOIL SHALL NOT BE PLACED DURING FROZEN, MUDDY, OR EXCESSIVELY WET CONDITIONS.

1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1 1/2" X 1 1/2" SQUARE (MINIMUM) CUT, OR 1 3/4" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD "T" OR "U" SECTION WEIGHING 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)	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



STABILIZED CONSTRUCTION ENTRANCE

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.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

DESIGNED BY:
P.W.K.

DRAWN BY:
D.Y.S.

CHECKED BY:
P.W.K.

DATE:
FEBRUARY, 2005

BY NO. _____

REVISION _____

DATE _____

SEDIMENT CONTROL PLAN,
NOTES & DETAILS

600' SCALE MAP NO. 46 BLOCK NO. 10

F.C.C. WORK ORDER NO. 30766

FILE NAME: FINAL SEDIMENT CONTROL NOTES & DETAILS_SHT 10

ICE CRYSTAL DRIVE
WASTEWATER PUMPING STATION

CONTRACT NO. 20-4198-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 11 OF 15

AS-BUILT: 01/00

PROJECT: Ice Crystal Drive Pump Station
 PROJECT NO: 040099
 PROJECT LOCATION: Howard County, Maryland
 DATE STARTED: February 15, 2004
 DATE COMPLETED: February 15, 2004
 DRILLING CONTRACTOR: GTA
 DRILLER: TC/KC
 DRILLING METHOD: HSA
 SAMPLING METHOD: Split Spoon

WATER LEVEL: 8.3 8.3
 DATE: 2/15/04 2/16/03
 CAVED (ft): 8.3 8.3
 GROUND SURFACE ELEVATION: 382.0
 DATUM: Survey
 EQUIPMENT: CME 45
 LOGGED BY: TC/KC
 CHECKED BY: SCR

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (ft)	SAMPLE BLOWBYS (ft)	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	8	4-5-9	10	382.0	0	ML	Brown to red-brown, moist, medium-dense, micaceous Clay SILT and SAND.	Muddy area.
2	2.5	12	5-6-6	12				AASHTO: A-4	Water encountered at 25.5 feet.
3	5.0	12	9-7-7	14					
4	8.5	10	7-9-9	18			SM	Brown, moist, medium-dense, micaceous SAND and SILT.	
5	13.5	16	10-9-0	19			SM	Brown, moist, medium-dense, micaceous coarse to fine SAND, some Silt.	
6	18.5	8	12-8-12	21				AASHTO: A-2-4	
7	23.5	8	8-6-10	18			SW SM	Dark-brown, moist, medium-dense to dense, micaceous coarse to fine SAND, little Silt, trace Rock Fragments.	
8	28.5	9	9-12-10	31				AASHTO: A-1-b	
Bottom of Hole at 30.0 Feet.									

BORING NO. B-01

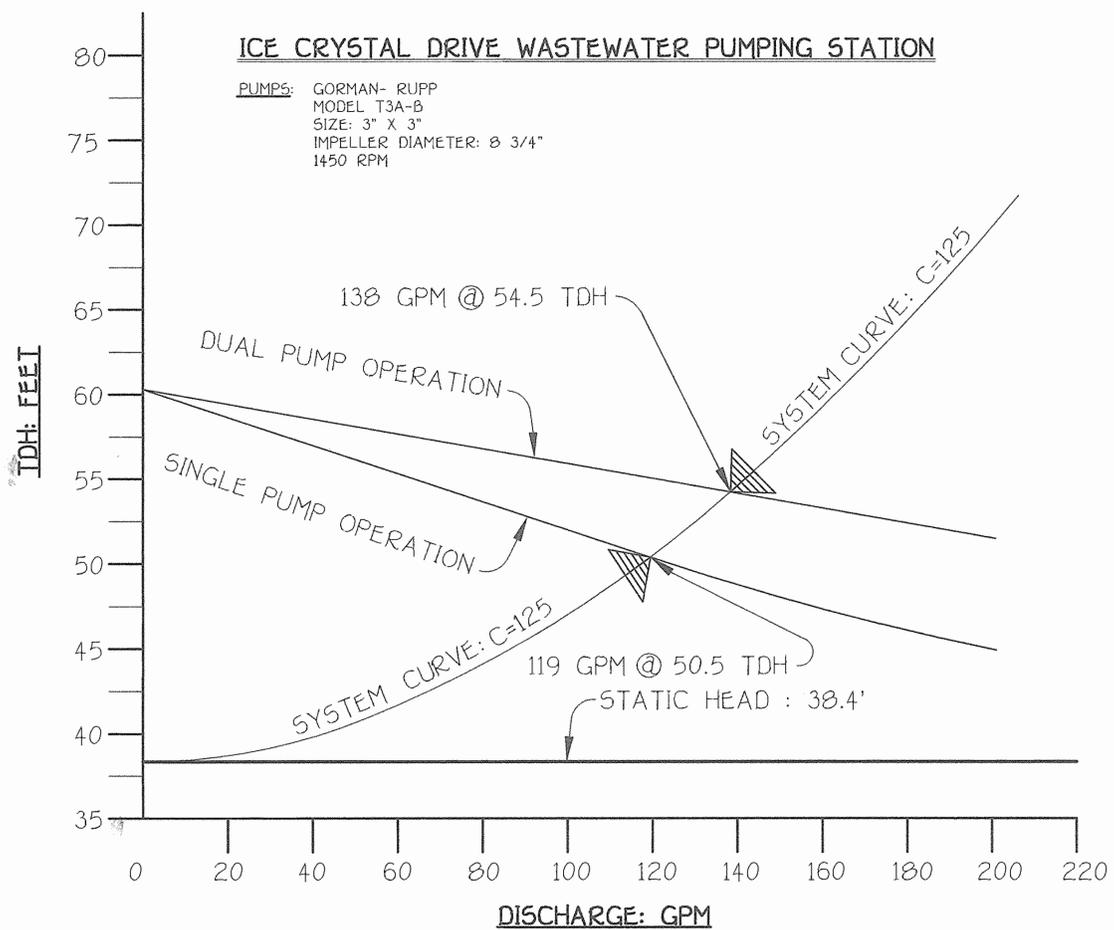
PROJECT: Ice Crystal Drive Pump Station
 PROJECT NO: 040099
 PROJECT LOCATION: Howard County, Maryland
 DATE STARTED: February 15, 2004
 DATE COMPLETED: February 15, 2004
 DRILLING CONTRACTOR: GTA
 DRILLER: TC/KC
 DRILLING METHOD: HSA
 SAMPLING METHOD: Split Spoon

WATER LEVEL: Dry Dry
 DATE: 2/15/04 2/16/03
 CAVED (ft): 5.5 5.5
 GROUND SURFACE ELEVATION: 385.1
 DATUM: Survey
 EQUIPMENT: CME 45
 LOGGED BY: TC/KC
 CHECKED BY: SCR

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (ft)	SAMPLE BLOWBYS (ft)	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	18	6-5-4	9	385.1	0	ML	Gray-brown to red-brown, moist, medium-stiff, Clay SILT, some Sand.	Topsoil: 4 in.
2	2.5	10	7-6-5	11	383.1		SM	AASHTO: A-7-5 Brown, moist, medium-dense, micaceous coarse to fine SAND, some Silt.	Water not encountered while drilling.
3	5.0	18	4-5-5	10				AASHTO: A-4 / A-2-4	
4	8.5	18	4-5-8	11					
5	13.5	18	5-6-7	13					
6	18.5	14	7-7-8	15	385.1				
Bottom of Hole at 20.0 Feet.									

BORING NO. B-02

NOTE: SEE SOIL BORING LOCATION PLAN SHEET 2



SYSTEM CURVE

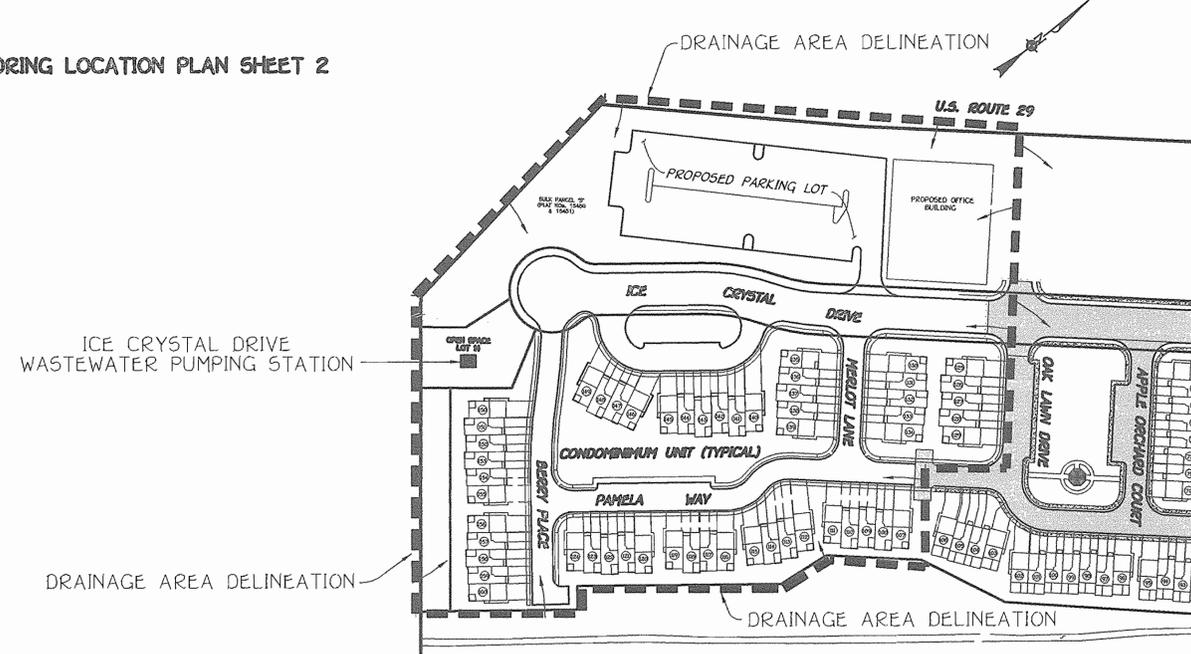
RESIDENTIAL FLOW
 54 TOWNHOUSE CONDOMINIUMS @ 2.6 PERSONS/D.U. = 140.4 PERSONS
 141 PERSONS
 141 persons @ 72 gpcpd = 10,152 gallons per day
 PEAK: 10,152 GPD X 4 = 40,608 gallons per day
 INFILTRATION: 141 persons @ 40 gpcpd = 5,640 gallons per day

COMMERCIAL FLOW
 2.7 ACRES @ 1,000 gallons per acre/day = 2,700 gallons per day
 PEAK: 2,700 GPD X 2 = 5,400 gallons per day

DESIGN FLOW = 40,608 GPD + 5,640 GPD + 5,400 GPD = 51,648 GPD
 35.9 GPM

DESIGN FLOW: 35.9 GPM

DESIGN CRITERIA/DESIGN FLOW



DRAINAGE AREA MAP
 SCALE: 1" = 100'

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/18/05 CHIEF, BUREAU OF UTILITIES	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND DATE: 3/28/05 CHIEF, DEVELOPMENT-ENGINEERING DIVISION	FISHER, COLLINS & CARTER, INC. CIVIL, ENGINEERING CONSULTANTS & LAND SURVEYORS CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE ELLSWORTH CITY, MARYLAND 20622 (410) 401 - 2255	9757 STATE OF MARYLAND PROFESSIONAL ENGINEER TERRELL A. FISHER	DESIGNED BY: P.W.K. DRAWN BY: D.Y.B. CHECKED BY: P.W.K. DATE: FEBRUARY, 2005	DRAINAGE AREA MAP, SYSTEM CURVE & BORING LOGS 600' SCALE MAP NO. 46 BLOCK NO. 10 F.C.C. WORK ORDER NO. 30766 DATE: _____ BY: _____ NO. _____ REVISION _____ DATE: _____ FILE NAME: FINAL PUMPING STATION DETAILS SHT 12	CONTRACT NO. 20-4198-D ICE CRYSTAL DRIVE WASTEWATER PUMPING STATION HOWARD COUNTY, MARYLAND SCALE AS SHOWN SHEET 12 OF 15
--	--	--	---	---	---	--

AS-BUILT: 01/00

MECHANICAL & ELECTRICAL LEGEND

SYMBOL	ABBREV	DESCRIPTION
---	CW	COLD WATER; DOMESTIC
---	HW	HOT WATER; DOMESTIC
---	SAN	SANITARY
---	V	SANITARY VENT
---	D-	FLOOR DRAIN
WH, HB	WH, HB	WALL HYDRANT WITH VACUUM BREAKER OR HOSE BIBB WITH VACUUM BREAKER
□		LIGHTING FIXTURE - FLUORESCENT - TYPE AS INDICATED
○		LIGHTING FIXTURE - WALL MOUNTED - TYPE AS INDICATED
S, S _{WP}		SWITCH - SINGLE POLE, WEATHER PROOF - MOUNTING HEIGHT 4'-0"
□		DUPLEX RECEPTACLE - 20A, 125V - MOUNTING HEIGHT 18" UNLESS NOTED OTHERWISE
□		GFI RECEPTACLE - 20A, 125V - MOUNTING HEIGHT 18" UNLESS NOTED OTHERWISE
□		JUNCTION BOX - SIZE PER NEC OR AS INDICATED
---		CONDUIT - IN OR ON CEILING OR WALLS
---		CONDUIT - IN OR UNDER FLOOR
→		HOMERUN TO PANEL - NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS AND NUMBER OF CROSSLINES INDICATES NUMBER OF #12 CONDUCTORS - WHERE NO CROSSLINES APPEAR 2#12 CONDUCTORS ARE IMPLIED
□		MANUAL MOTOR STARTER - MOUNTING HEIGHT 4'-0" - TYPE AND RATING AS REQUIRED
□		CONTROL DEVICE - TYPE AS NOTED
Ⓜ		MOTOR - HORSEPOWER AS NOTED
Ⓣ		THERMOSTAT - TYPE AS NOTED
Ⓡ		RELAY - DESIGNATION AS NOTED
Ⓛ		INDICATOR LIGHT, COLOR AS INDICATED
ETM		ELAPSED TIME METER
0-10		TIME DELAY RELAY, ADJUSTABLE RANGE AS INDICATED
P1 SEC		TIME DELAYED CONTACTS; TO=TIMED OPEN, TC=TIMED CLOSED
P1 TDR		TIME DELAYED CONTACTS; TO=TIMED OPEN, TC=TIMED CLOSED
LS		LIMIT SWITCH
□		PANELBOARD - MOUNTING HEIGHT 6'-6" TO TOP
□		TRANSFORMER - DRY TYPE - FLOOR MOUNTED

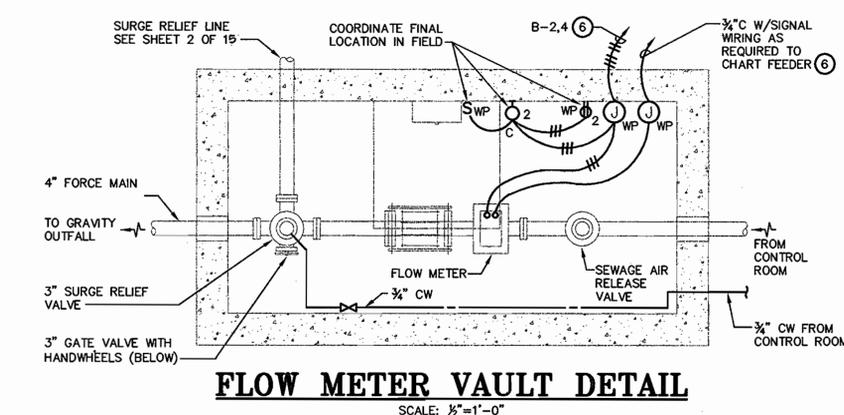
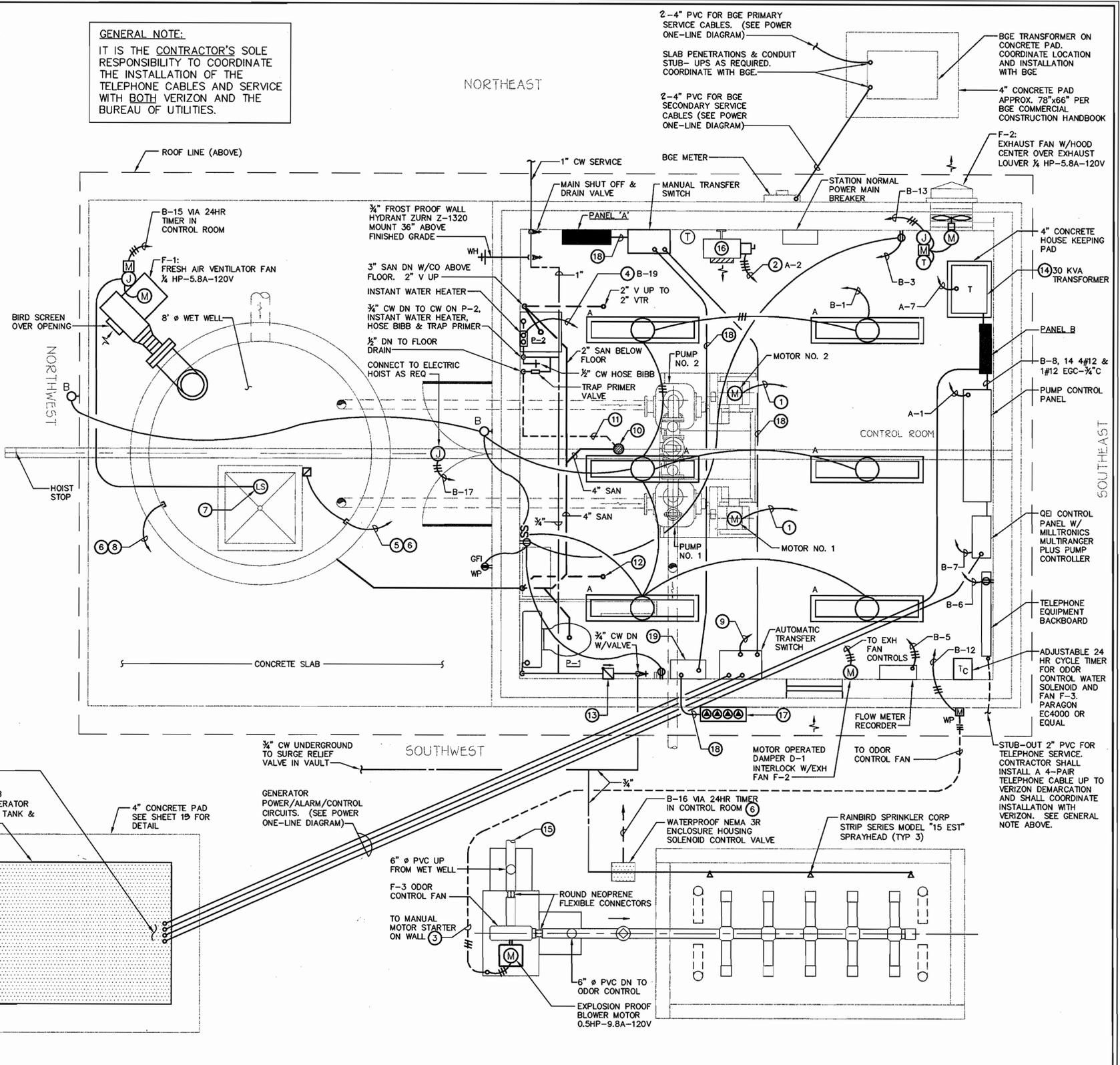
DRAWING NOTES: (APPLY TO THIS DRAWING ONLY)

- 7 1/2 HP MOTOR 11.0A-480V-3Ø EACH. EXTEND 3#12 (POWER), 2#12 (OVER TEMP), AND 1#12 EGC-1/2" TO PUMP CONTROL PANEL.
- 3#8 & 1#8 EGC-3/4" C.
- 2#12 & 1#12 EGC-3/4" C.
- 2#8 & 1#10 EGC-1" C.
- ADJUSTABLE CABLE SUSPENDED SUBMERSIBLE LEVEL TRANSDUCER/TRANSMITTER WITHIN WET WELL (US FILTER CONTROL SYSTEMS A1000, MODEL 157GSC) EXTEND 3/4" C. WITH SIGNAL WIRING AS REQUIRED TO LEVEL CONTROLLER IN CONTROL ROOM.
- PROVIDE CONDUIT SEAL BEFORE TERMINATION IN CONTROL ROOM.
- PROVIDE HEAVY DUTY LIMIT SWITCH ON HATCH TO BY-PASS TIMER CONTROL WHEN HATCH IS OPENED.
- EXTEND 1 1/2" C. FROM WET WELL TO QEI CONTROL PANEL FOR FLOAT CABLES (3).
- 2#14 -3/4" C. TO QEI CONTROL PANEL (ALL POWER LOST).
- 4" FD W/TRAP PRIMER
- 1/2" TRAP PRIMER LINE BELOW FLR
- 2" VENT UP TO 2" VENT THRU ROOF.
- WATTS 909 SERIES BACKFLOW PREVENTER SHALL BE INSTALLED AT NOT LESS THAN 12 INCHES ABOVE THE FINISHED FLOOR AND A MAXIMUM OF 60 INCHES ABOVE THE FINISHED FLOOR. 12 INCHES MINIMUM CLEARANCE IS REQUIRED AROUND THE BACKFLOW PREVENTER FOR SERVICING.
- MOUNT ON 4" HIGH CONCRETE PAD. MINIMUM 3" BEYOND ALL SIDES OF TRANSFORMER.
- 6" ODOR EXHAUST LINE FROM WET WELL. FOR CONTINUATION SEE SHEET 2 OF 14.
- ELECTRIC UNIT HEATER 15KW-18.0A-480V-3Ø.
- POWER RECEPTACLES FOR BACK-UP EMERGENCY GENERATOR. HUBBELL MODEL #HBL4001T-400A SINGLE POLE MALE RECEPTACLE ONE EACH IN RED, BLACK, BLUE & GREEN, IN A NEMA 4X HINGED COVER, WIRE TROUGH ENCLOSURE AS MANUFACTURED BY HOFFMAN.
- FOR WIRE SIZE SEE "POWER ONE-LINE DIAGRAM" ON SHEET 14.
- 150A-3P-480V ECB-NEMA 1 ENCLOSURE.

GENERAL NOTE:
IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COORDINATE THE INSTALLATION OF THE TELEPHONE CABLES AND SERVICE WITH BOTH VERIZON AND THE BUREAU OF UTILITIES.

MECHANICAL & ELECTRICAL ABBREVIATIONS

ABBREV	DESCRIPTION	ABBREV	DESCRIPTION
Ø OR DIA	DIAMETER	KW	KILO-WATTS
AVG	AVERAGE	KVA	KILO-VOLT AMPERES
AIC	AMPERES INTERRUPTING CAPACITY	NTS	NOT TO SCALE
BKR	BREAKER	PNL	PANEL
C	CONDUIT	P	POLE
CKT	CIRCUIT	PH	PHASE
DIA	DIAMETER	V/PH/Hz	VOLTS/PHASE/HERTZ
ECB	ENCLOSED CIRCUIT BREAKER	V	VOLTS
EGC	EQUIPMENT GROUNDING CONDUCTOR	VTR	VENT THRU ROOF
FD	FLOOR DRAIN	W/O	WITH OUT
GRD	GROUND	W	WIRE
		WP	WEATHERPROOF



SLAB PENETRATIONS AND CONDUIT STUB-UPS AS REQUIRED

DIESEL GENERATOR ON CONCRETE SLAB (COORDINATE REQUIREMENTS WITH GENERATOR MANUFACTURER) WITH SUB BASE FUEL TANK & WEATHER/SOUND SHIELD HOUSING

FLOOR PLAN MECHANICAL & ELECTRICAL

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

EFL ENGINEERS, LLC
Mechanical • Electrical • Fire Protection
The Professional Engineering Center
8000 National Road, Suite 100, Maryland 21286-0700
(410) 668-3000 Fax (410) 668-8001
www.effl.com

GRAPHIC SCALE
1/2" = 1'-0"
0 1' 2' 3' 4' 5' 6'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3-18-05
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
3/20/05
DATE

FISHER, COLLINS & CARTER, INC.
CIVIL, ENGINEERING, CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 18272 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21117
410 461-2000

STATE OF MARYLAND
TERRELL A. FEJER
PROFESSIONAL ENGINEER

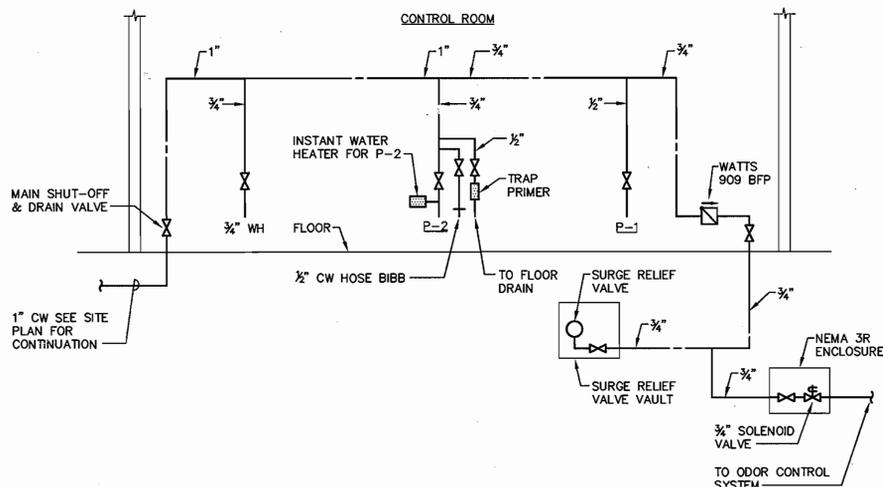
DESIGNED BY: D.A.T.
DRAWN BY: P.J.P.
CHECKED BY: E.A.H.
DATE: FEBRUARY, 2005
BY NO. REVISION

MECHANICAL & ELECTRICAL
PUMPING STATION PLAN
LEGEND & DETAILS
600' SCALE MAP NO. 46 BLOCK NO. 10
F.C.C. WORK ORDER NO. 30766

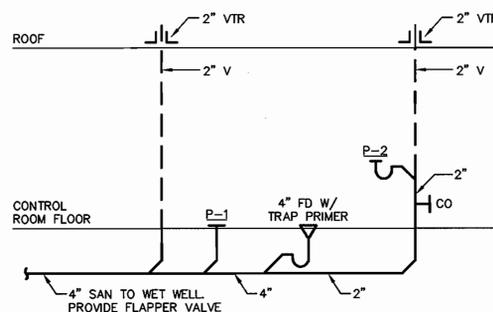
ICE CRYSTAL DRIVE
WASTEWATER PUMPING STATION
CONTRACT NO. 20-4198-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE
AS SHOWN
SHEET
13 of 15

AS-BUILT: 01/08



WATER SUPPLY RISER DIAGRAM
NO SCALE



SANITARY RISER DIAGRAM
NO SCALE

WIRING PANEL SCHEDULE 'A'										
277/480 VOLTS - 3 PHASE - 4 WIRE - SURFACE MOUNTED										
CKT NO.	DESCRIPTION	CKT POLE	BKR AMP	AMPERES/PHASE			CKT NO.	DESCRIPTION	CKT POLE	BKR AMP
				A φ	B φ	C φ				
1	PUMP STATION CONTROL PNL	3	50	22.0	18.0		2	UNIT HEATER	3	30
3							4			
5							6			
7	TRANSFORMER	3	50	36.0			8	SPACE & BUS	3	
9							10			
11							12			
13	SPACE & BUS	3					14	SPACE & BUS	3	
15							16			
17							18			
19	SPACE & BUS	3					20	SPACE & BUS	3	
21							22			
23							24			
25	SPACE & BUS	3					26	SPACE & BUS	3	
27							28			
29							30			
TOTALS				58.0	18.0	58.0	18.0			
				A= 76.0	B= 76.0	C= 76.0				

MAIN BREAKER 225 AMPERE FRAME - 3 POLE CALIB 150 AMPERES - BOTTOM
MINIMUM AIC RATING = 14000 AMPERES SYMMETRICAL
CONNECTED LOAD 63.16 KVA

WIRING PANEL SCHEDULE 'B'											
120/208 VOLTS - 3 PHASE - 4 WIRE - SURFACE MOUNTED											
CKT NO.	DESCRIPTION	CKT POLE	BKR AMP	AMPERES/PHASE			CKT NO.	DESCRIPTION	CKT POLE	BKR AMP	
				A φ	B φ	C φ					
1	LIGHTS	1	20	5.5	5.0		2*	VALVE VAULT MISC	1	20	
3	RECEPTACLES	1	20		6.0	5.0	4*	FLOW METER	1	20	
5	CHART RECORDER	1	20			5.0	5.0	5	TELEPHONE BOARD	1	20
7	RTU CONTROL PANEL	1	20	10.0	5.0		8	CONTROL PANEL MISC	1	20	
9	BATTERY CHARGER	1	20		10.0		10	SPARE	1	20	
11	JACKET WATER HEATER	1	20				12	ODOR CONTROL FAN	1	20	
13	PUMP ROOM EXHAUST	1	20	5.8	5.0		14	PUMP CONTROL PANEL	1	20	
15	WET WELL EXHAUST	1	20		5.8	5.0	16	SOLENOID CONTROL PANEL	1	20	
17	ELECTRIC HOIST	1	20			12.5		18	SPARE	1	20
19	INSTANT WATER HEATER	2	50	40			20	SPARE	1	20	
21					40		22	SPARE	1	20	
23	SPARE	1	20				24	SPARE	1	20	
25	SPARE	1	20				26	SPARE	1	20	
27	SPARE	1	20				28	SPARE	1	20	
29	SPARE	1	20				30	SPARE	1	20	
TOTALS				61.3	15.0	61.8	10.0	30.0	14.8		
				A= 76.3	B= 71.8	C= 44.8					

* GFCI TYPE CIRCUIT BREAKER
MAIN BREAKER 100 AMPERE FRAME - 3 POLE CALIB 100 AMPERES - BOTTOM
MINIMUM AIC RATING = 10000 AMPERES SYMMETRICAL
CONNECTED LOAD 23.15 KVA

LIGHTING FIXTURE SCHEDULE		
TYPE	DESCRIPTION	MANUFACTURER (OR EQUAL)
A	WRAPAROUND 2 LAMP ENCLOSED AND GASKETED FLUORESCENT WITH FIBER-GLASS HOUSING AND HIGH IMPACT ACRYLIC LENS.	LITHONIA: # DM-2-32-AR-120-GEB
B	POLYCARBONATE SECURITY LIGHT WITH 70 WATT HIGH PRESSURE SODIUM LAMP.	FAIL-SAFE: # HPGC-HE-70H-120V-BLK
C	WALL MOUNTED ENCLOSED AND GASKETED INCANDESCENT WITH 100 WATT LAMP, GLOBE AND GUARD.	CROUSE HINDS: # VXHBF25GP

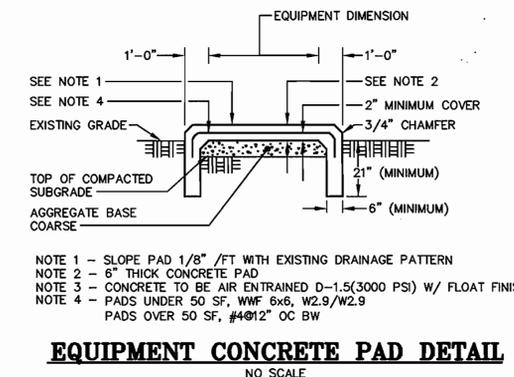
PLUMBING FIXTURE SCHEDULE							
UNIT NO.	FIXTURE	CW	HW	WASTE	VENT	NOTES	MANUFACTURER & MODEL NO.
P-1	WATER CLOSET	1/2"	-	4"	-	-	-
P-2	SERVICE SINK	1/2"	1/2"	3"	2"	-	-
-	FLOOR DRAIN W/TRAP PRIMER CONN	-	-	4"	-	-	ZURN 2B-415-BB-AR-P
-	TRAP PRIMER	1/2"	-	-	-	-	PR-500-PRIME RITE

NOTES:
1. HANDICAP
2. FLOOR OUTLET
3. WALL MTD.
4. CARRIER
5. COUNTERTOP

EXHAUST FAN SCHEDULE								
UNIT NO.	SERVICE	CFM	FAN RPM	S.P. (IN W.G.)	TYPE/DRIVE	ELECTRICAL HP-V/PH/Hz	NOTES	MANUFACTURER & MODEL NO.
F-1	WETWELL VENTILATION	500	1140	.55	DD	1/4 - 120/1/60	8, 9, 11	CHAMPION 5/8 FC
F-2	CONTROL ROOM VENTILATION	500	1474	.45	DD	1/4 - 120/1/60	6, 8, 9, 11, 12, 13	PENN BREEZEWAY P12RA
F-3	ODOR CONTROL	100	3450	6.0	DD	1/2 - 120/1/60	8, 9, 11	CHAMPION 1B

TYPES/DRIVES:
RV - ROOF VENTILATOR CAB - CABINET VD - VARIABLE DRIVE
IL - IN-LINE CENTRIFUGAL SP - SPECIAL
US - UTILITY SET DD - DIRECT DRIVE
PR - PROPELLER BD - BELT DRIVE

NOTES:
1. PREFAB. CURB
2. BUILT-UP CURB
3. BIRD SCREEN
4. INSECT SCREEN
5. LOUVER
6. BACKDRAFT DAMPER
7. MOTORIZED DAMPER
8. DISCONNECT
9. CORR. PROTECT. COAT.
10. UL 762 (GREASE)
11. EXPLOSION PROOF
12. THERMOSTATICALLY CONTROLLED
13. SPEED CONTROLLER



EQUIPMENT CONCRETE PAD DETAIL
NO SCALE

EBL ENGINEERS, LLC
Mechanical • Electrical • Fire Protection
The Professional Engineering Center
8000 Federal Road, Baltimore, Maryland 21244-0701
(410) 588-8000 Fax (410) 588-8001
e-mail: ebll@engineers.com

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Ralph Berman
CHIEF, BUREAU OF UTILITIES
DATE: 3-18-05

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
William C. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 3/20/05

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SERVICE OFFICE: 11222 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21042
(410) 482-2000

STATE OF MARYLAND
TERRELL A. FISHER
REGISTERED PROFESSIONAL ENGINEER
NO. 8757

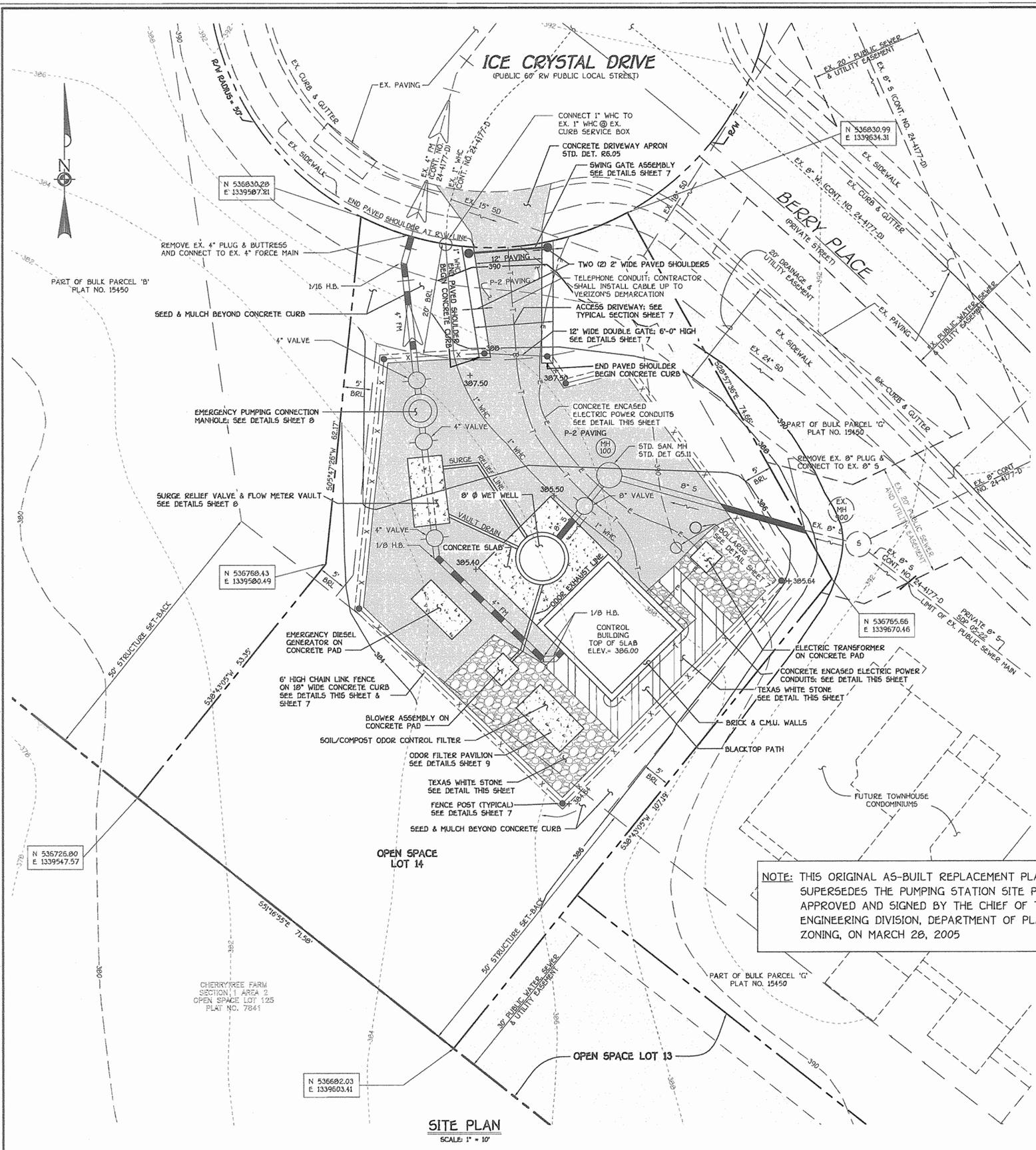
DESIGNED BY: D.A.T.
DRAWN BY: P.J.P.
CHECKED BY: E.A.H.
DATE: FEBRUARY, 2005
BY NO. _____ DATE _____
REVISION _____

MECHANICAL & ELECTRICAL SCHEDULES & DIAGRAMS
600' SCALE MAP NO. 46 BLOCK NO. 10
F.C.C. WORK ORDER NO. 30766
FILE NAME: _____

ICE CRYSTAL DRIVE WASTEWATER PUMPING STATION
CONTRACT NO. 20-4198-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE AS SHOWN
SHEET 15 OF 15

AS-BUILT: 01/00

G:\Projects\EBL\2004\04072\EBL.dwg, 3/1/2005, 11:32:10 AM, pblour.de



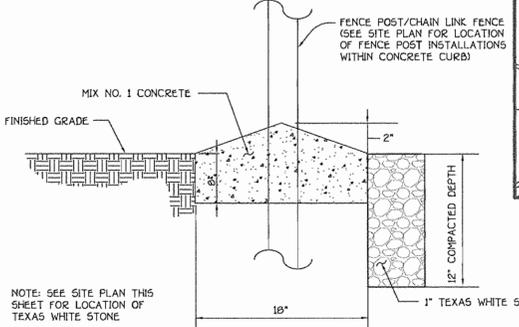
SITE PLAN
SCALE: 1" = 10'

NOTE: THIS ORIGINAL AS-BUILT REPLACEMENT PLAN, SHEET 2 OF 15, SUPERSEDES THE PUMPING STATION SITE PLAN PREVIOUSLY APPROVED AND SIGNED BY THE CHIEF OF THE DEVELOPMENT ENGINEERING DIVISION, DEPARTMENT OF PLANNING AND ZONING, ON MARCH 28, 2005

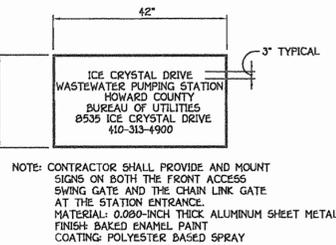
HOWARD COUNTY GEODETIC CONTROL INFORMATION/BENCHMARKS
 B.M. #1 - HOWARD COUNTY CONTROL STATION 468A
 N 537,945.840
 E 1,339,849.050
 ELEV. = 426.423'
 B.M. #2 - HOWARD COUNTY CONTROL STATION 46E3
 N 535,610.715
 E 1,337,927.633
 ELEV. = 410.062'

ADDRESS CHART

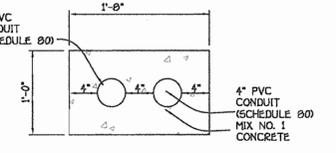
LOT NO.	ADDRESS
O.S. LOT 14	8535 ICE CRYSTAL DRIVE



CURB/TEXAS WHITE STONE DETAIL
NO SCALE



SIGN DETAIL
NO SCALE

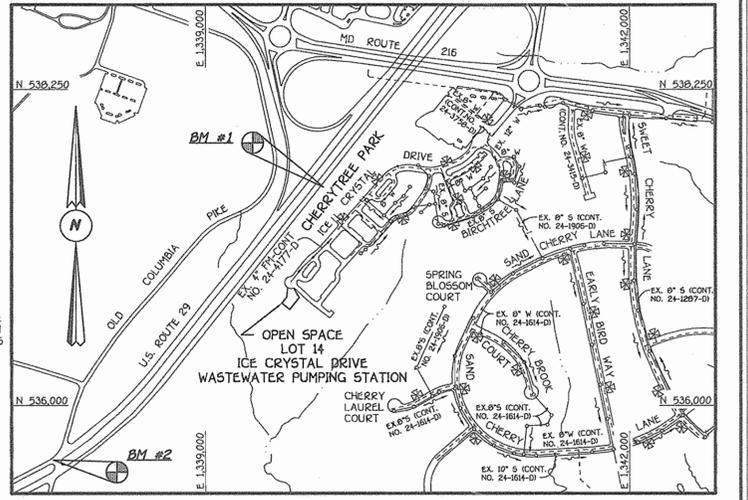


ELECTRICAL CONDUITS ENCASEMENT DETAIL
NO SCALE

LEGEND

(Symbol: Dashed line)	PROPOSED SPOT ELEVATION
(Symbol: Dotted line)	EXISTING CONTOUR
(Symbol: Solid line)	PROPOSED CONTOUR
(Symbol: Stippled pattern)	PROPOSED PAVING
(Symbol: Cross-hatched pattern)	TEXAS WHITE STONE
(Symbol: Diagonal hatched pattern)	BLACKTOP PATH

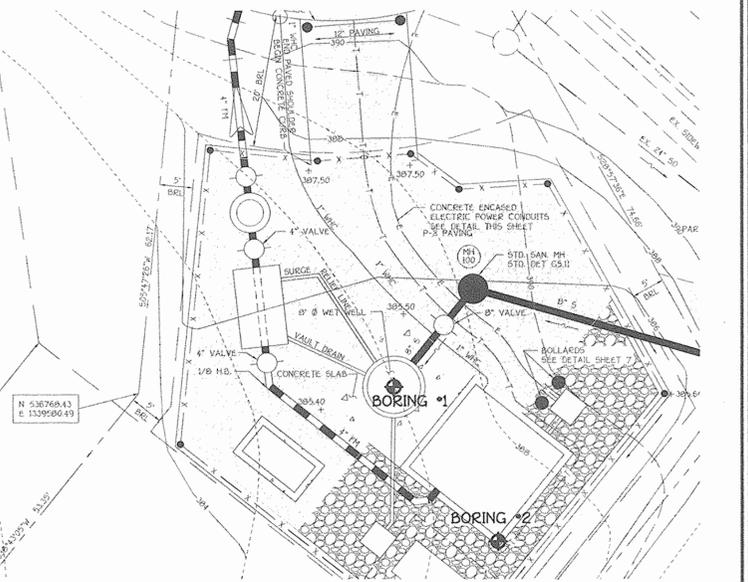
OWNER/DEVELOPER
 CHERRYTREE II, LLC
 10230 NEW HAMPSHIRE AVENUE
 SUITE 300
 SILVER SPRING, MD, 20903



VICINITY MAP
SCALE: 1" = 600'

GENERAL NOTES:

- SUBJECT PROPERTY IS LOCATED ON TAX MAP NO. 46
- PRESENT ZONING IS MXD-5
- TOTAL AREA OF PROPERTY: 9,006.805 SQ. FT.
- PROPERTY REFERENCE: PLAT NO. 17108
- PARKING DATA:
 - INTENDED USE OF STRUCTURE: WASTEWATER PUMPING STATION (GOVERNMENT USE)
 - NUMBER OF SPACES REQUIRED: 2
 - NUMBER OF SPACES PROVIDED: 2
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/ DIVISION OF CONSTRUCTION INSPECTION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "THIS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR ANY EXCAVATION WORK.
- SEE SHEET 3 FOR SCHEMATIC BUILDING PROFILES.
- STORM WATER MANAGEMENT AND STREET TREES FOR THIS PROJECT WERE PROVIDED UNDER FOI-114.
- ALL EXTERIOR LIGHTING OF THE PUMPING STATION STRUCTURE WILL BE DIRECTED DOWNWARD IN COMPLIANCE WITH SECTION 134 OF THE ZONING REGULATIONS.
- ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE EXISTING TOPOGRAPHY FOR CHERRYTREE PARK, PHASE III SUBDIVISION PLANS IS BASED ON AN AERIAL SURVEY PREPARED BY WINGS AERIAL MAPPING COMPANY, INC. & SUPPLEMENTED WITH FIELD - RUN TOPOGRAPHY.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE COORDINATE SYSTEM, HOWARD COUNTY MONUMENT NOS. 468A AND 46E3
- EXISTING PUBLIC UTILITIES ARE BASED ON HOWARD COUNTY PUBLIC WATER AND SEWER CONTRACT NO. 24-4177-D, CHERRYTREE PARK, PHASE III.
- NO FLOODPLAIN EXISTS ON SITE.
- NO WETLANDS EXISTS ON SITE.
- REFERENCE PREVIOUS DPE FILE NOS. FOI-114, F03-44, F03-153, & 2B CASE 9730.
- ALL SEDIMENT AND EROSION CONTROLS SHOWN SHALL REMAIN UNTIL PUMPING STATION CONSTRUCTION IS COMPLETED, AND THE REMOVAL OF THE CONTROLS IS APPROVED BY THE SOIL AND EROSION CONTROL INSPECTOR.
- FOREST CONSERVATION OBLIGATIONS HAVE BEEN ADDRESSED UNDER FOI-112.
- OPEN SPACE LOT 14 SHALL BE DEDICATED IN FEE SIMPLE TO HOWARD COUNTY FOR THE PURPOSE OF A WASTEWATER PUMPING STATION.



SOIL BORING LOCATION PLAN
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 DATE: 2/16/08
 CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
 DATE: 2/16/08
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PEX
 ELLICOTT CITY, MARYLAND 21142
 410-461-1255



DESIGNED BY: P.W.K.
 DRAWN BY: D.Y.B.
 CHECKED BY: P.W.K.
 DATE: JANUARY, 2008
 REVISION

PUMPING STATION
 SITE PLAN
 600' SCALE MAP NO. 46 BLOCK NO. 10
 F.C.C. WORK ORDER NO. 30765
 DATE: FILE NAME: FINAL PUMP STATION PLAN SHT 2

**ICE CRYSTAL DRIVE
 WASTEWATER PUMPING STATION**
 CONTRACT NO. 20-4198-D
 SIXTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE AS SHOWN
 SHEET 2 OF 15

AS-BUILT REPLACEMENT PLAN: 01/00