

CONTRACT NO. 50-4459-D

MAPLEWOOD FARMS

(HENRY PROPERTY)

**LOTS 1-6, BUILDABLE PRESERVATION PARCEL "A"
AND NON-BUILDABLE PRESERVATION PARCEL "B"**

WASTEWATER TREATMENT SYSTEM

LIBER 2820 - FOLIO 150 & LIBER 6321 - FOLIO 590

HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

TYPE OF BUILDING	RESIDENTIAL
NUMBER OF UNITS	7 (6 NEW; 1 EXISTING)
NUMBER OF S.H.C.'s	7 (6 NEW; 1 EXISTING) (THERE WILL BE A WELL ON EACH INDIVIDUAL LOT)
NUMBER OF W.H.C.'s	N/A
DRAINAGE AREA	N/A
TREATMENT PLANT	SHARED SEPTIC FIELD ON PRESERVATION PARCEL "C"

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 IN NOV. 2002 BY GLW PA.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:

THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS.

VERTICAL CONTROLS ARE BASED UPON NAVD '29.

- 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. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF 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 DRAWING, 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.
- 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 ON THESE PLANS:

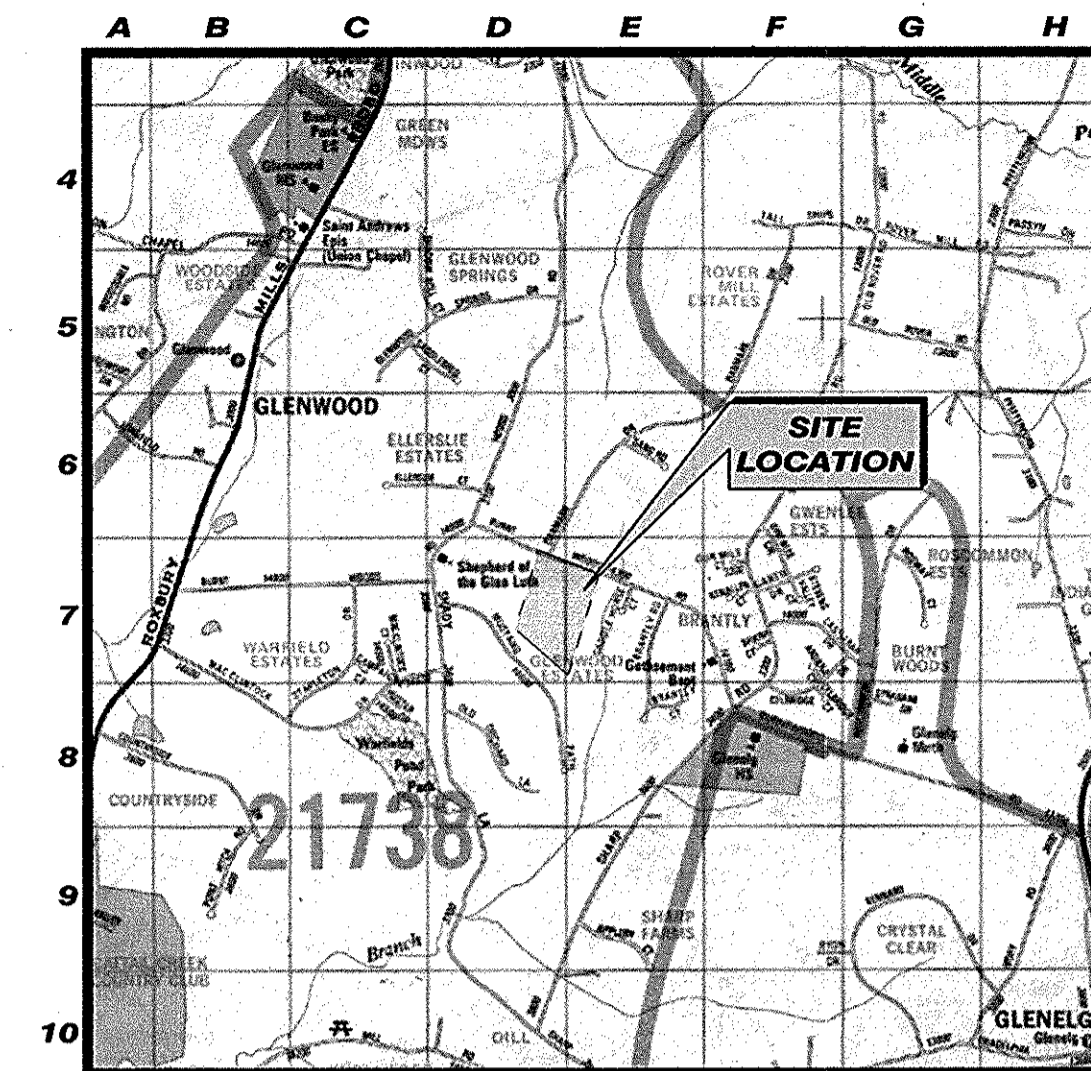
AT&T	1-800-252-1133
BGE (CONTRACTOR SERVICES)	410-850-4620
BGE (UNDER GROUND DAMAGE CONTROL)	410-685-1400
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO.	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033 / 410-224-9210
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION AREA STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR 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 18.114(a) OF THE HOWARD COUNTY CODE.

PART II - WATER

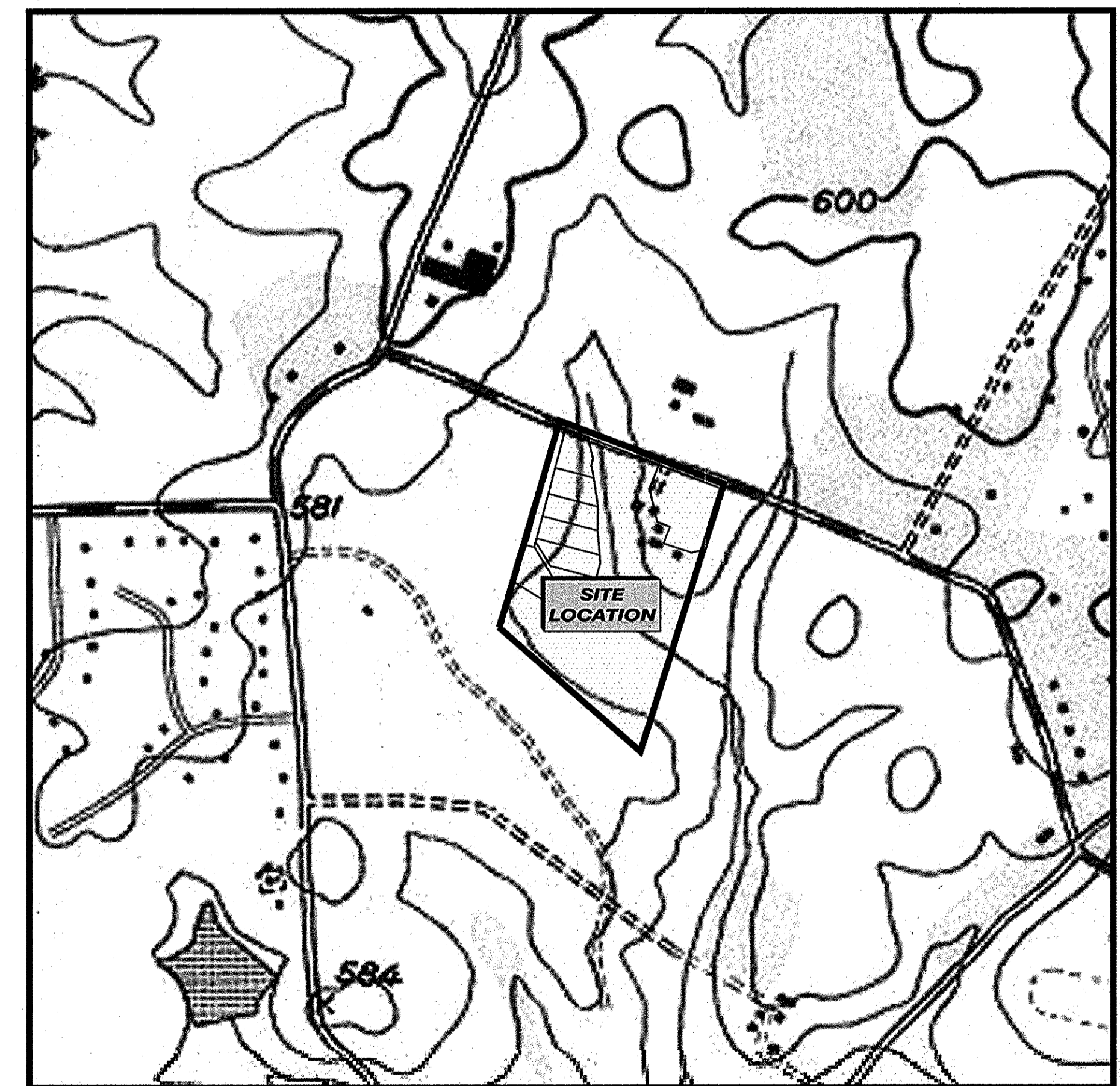
- ALL WATER ON THIS SITE IS TO BE PROVIDED BY PRIVATE WELLS LOCATED ON INDIVIDUAL LOTS.

PART III - SEWER

- ALL LOW PRESSURE SEWER MAINS SHALL BE IN ACCORDANCE WITH CONTRACT NO. 50-4458-D.
- ALL TANKS, DRAINFIELD TRENCHES, AND DISTRIBUTION PIPE LOCATIONS SHALL BE STAKED OUT IN THE LOCATION SHOWN.
- ALL VALVE BOXES/VAULTS SHALL BE FINISHED AT THE SURFACE WITH FRAME AND GRAVEL.
- HOWARD COUNTY BUREAU OF UTILITIES IS RESPONSIBLE FOR TREATMENT SYSTEM, LOW PRESSURE COLLECTION PIPING, GRINDER PUMP STATIONS AND CLEANOUT; HOMEOWNER IS RESPONSIBLE FOR RESIDENTIAL CONNECTION TO CLEANOUT (INLET SIDE) AND ELECTRICAL SERVICE.



LOCATION MAP
SCALE: 1" = 1/2 MILE



VICINITY MAP
SCALE IN FEET

SHT NO.	SHT ID	DESCRIPTION
1	G001	Title Sheet
2	G002	General Design Site Plan & PFD
3	G003	Existing Site Conditions
4	G004	P & ID -Treatment System
5	G005	Drainfield Design Information
6	C001	Site Plan
7	C002	Trench Sections and Details
8	M001	Settling and Pumping Tank Sections
9	M002	System Details

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
3W X 4H DRAINFIELD TRENCHES	2,578 L.F.			
2" PVC LATERALS	2,578 L.F.		SCHEDULE 40	P.V.C.
2" PVC RETURN LINES	2,228 L.F.		SCHEDULE 40	P.V.C.
4" PVC WASTE MAINS	765 L.F.		SCHEDULE 40	P.V.C.
2,000 GALLON SETTLING TANKS	3		CONCRETE	BARYLON
2,500 GALLON PUMP TANKS	2		CONCRETE	MAYER BROS.
2,500 GALLON SETTLING TANK	1		CONCRETE	BARYLON

NAME OF UTILITY CONTRACTOR: WATFIELDS

DEVELOPER'S CERTIFICATION

I HEREBY, CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE IN ACCORDING TO THIS PLAN AND SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 HOCO DESIGN MANUAL SPECIFICATIONS AND DRAWINGS FOR SEDIMENT AND EROSION CONTROL (S&EC). ALL RESPONSIBLE CONSTRUCTION PERSONNEL WILL HAVE AN MDE S&EC TRAINING CERTIFICATE. I AUTHORIZE PERIODIC ON-SITE INSPECTION BY HOCO S.C.D.

Handwritten Signature 8/13/07
SIGNATURE OF DEVELOPER DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

Handwritten Signature 9/13/07
U.S.D.A. NATURAL RES. CONSERV. SERVICE DATE

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

Handwritten Signature 9/13/09
HOWARD S.C.D. DATE

HEALTH DEPARTMENT
HOWARD COUNTY, MARYLAND
REVIEWED AND APPROVED

Handwritten Signature 8/24/07
WELL AND SEPTIC PROGRAM DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Handwritten Signature 9-7-07
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Handwritten Signature 9/18/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

SAIC
From Science to Solutions
1129 Business Parkway South; Suite 10
Westminster, Maryland 21157
(410) 876-0280

MAPLEWOOD FARMS
LOTS 1-6, BUILDABLE PRESERVATION PARCEL "A"
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LIBER 2820 FOLIO 150 & LIBER 6321 FOLIO 590
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT No. 4
CONTRACT No. 50-4459-D






Verify Scale
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

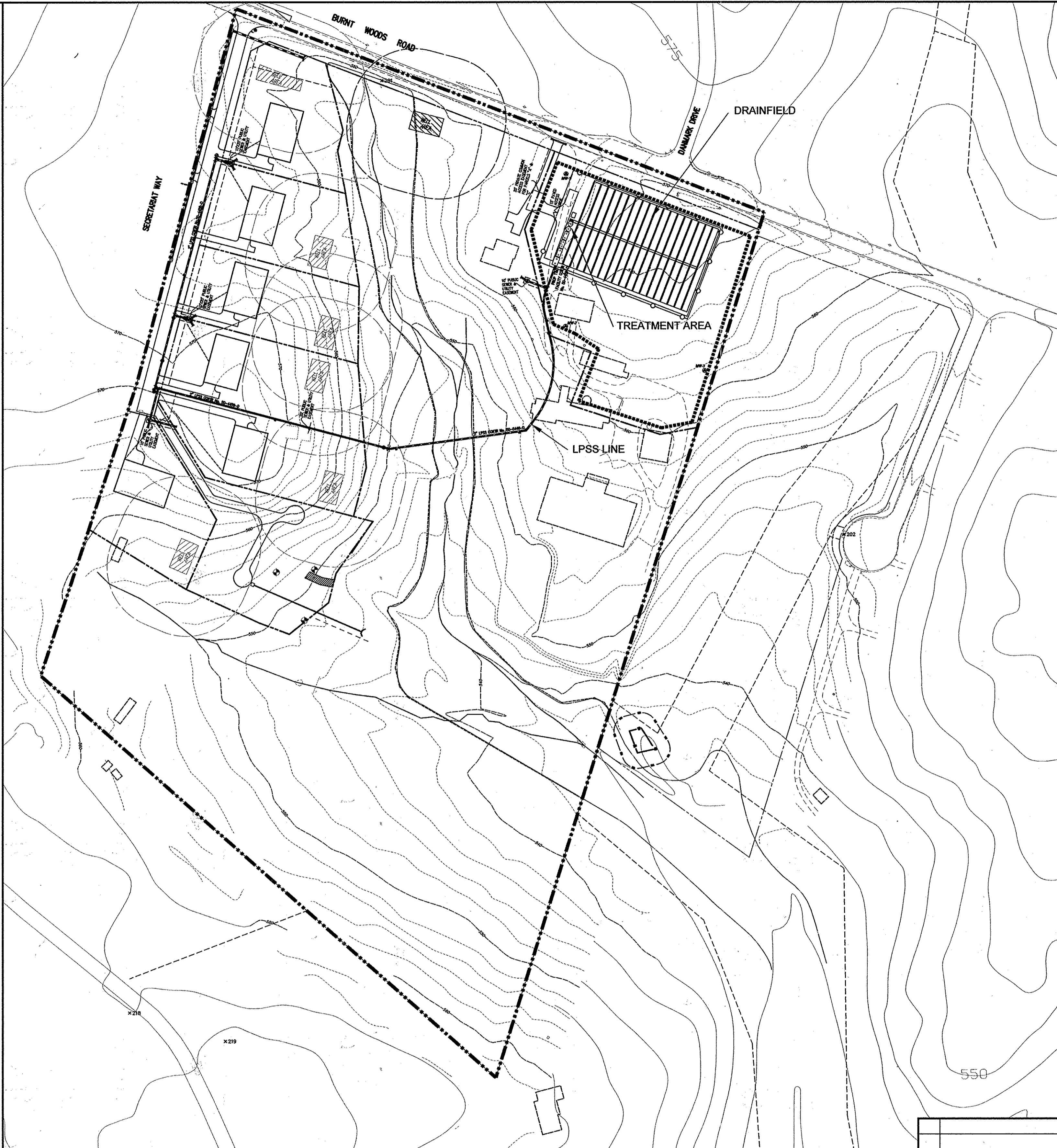
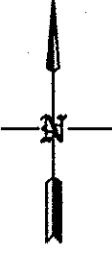


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4	FINAL DESIGN (MYLAR SUBMITTAL)	06/13/07	MDS	MDH
3	CONSTRUCTION PLANS	05/15/07	MDS	MDH
2	FINAL DESIGN SUBMITTAL	03/30/07	MDS	MDH
1	PRELIMINARY DESIGN SUBMITTAL	10/26/06	MDS	MDH
0	CONCEPT SUBMITTAL	06/14/05	MDS	MDH

HENRY PROPERTY
HOWARD COUNTY, MARYLAND
WASTEWATER TREATMENT SYSTEM
TITLE SHEET
sheet no. G001
1 of 9
AS NOTED
9232-G01.dwg
01-1633-00-9232-000
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LEGEND

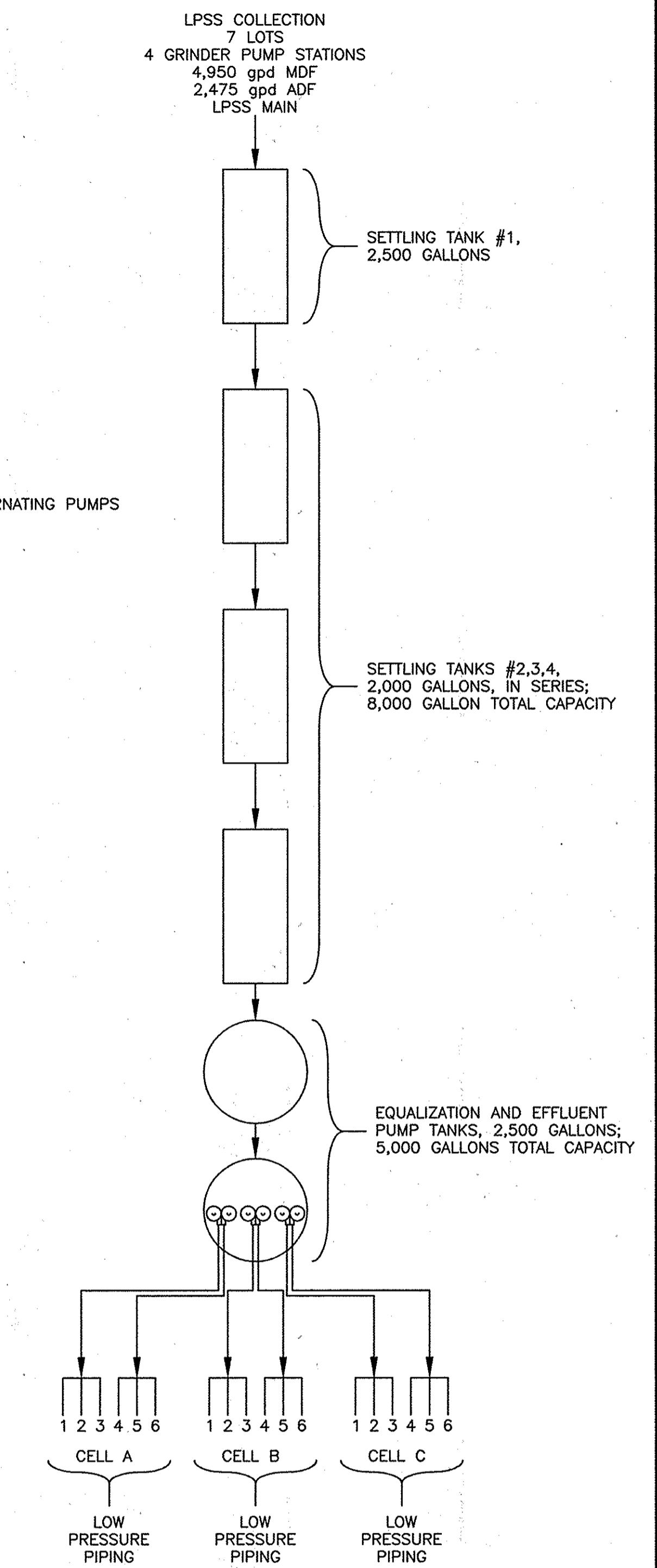
-  DRAINFIELD TRENCH (3' WIDE)
-  APPROVED DRAINFIELD AREA
-  GRINDER PUMP STATION
-  LOW PRESSURE SEWAGE SYSTEM COLLECTION LINE
-  WELL ENVELOPE



GENERAL DESIGN PLAN



KEY



- MDF = MAXIMUM DAILY FLOW
- ADF = AVERAGE DAILY FLOW
- gpd = GALLONS PER DAY
- LPSS = LOW PRESSURE SEWER SYSTEM

PROCESS FLOW DIAGRAM

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael A. ...
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION

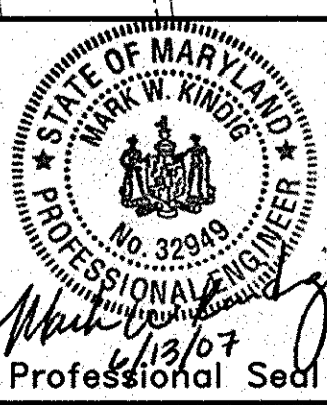
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HOWARD COUNTY, MARYLAND
ELECTION DISTRICT No. 4
CONTRACT No. 50-4459-D

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Client: **HENRY PROPERTY**
HOWARD COUNTY, MARYLAND

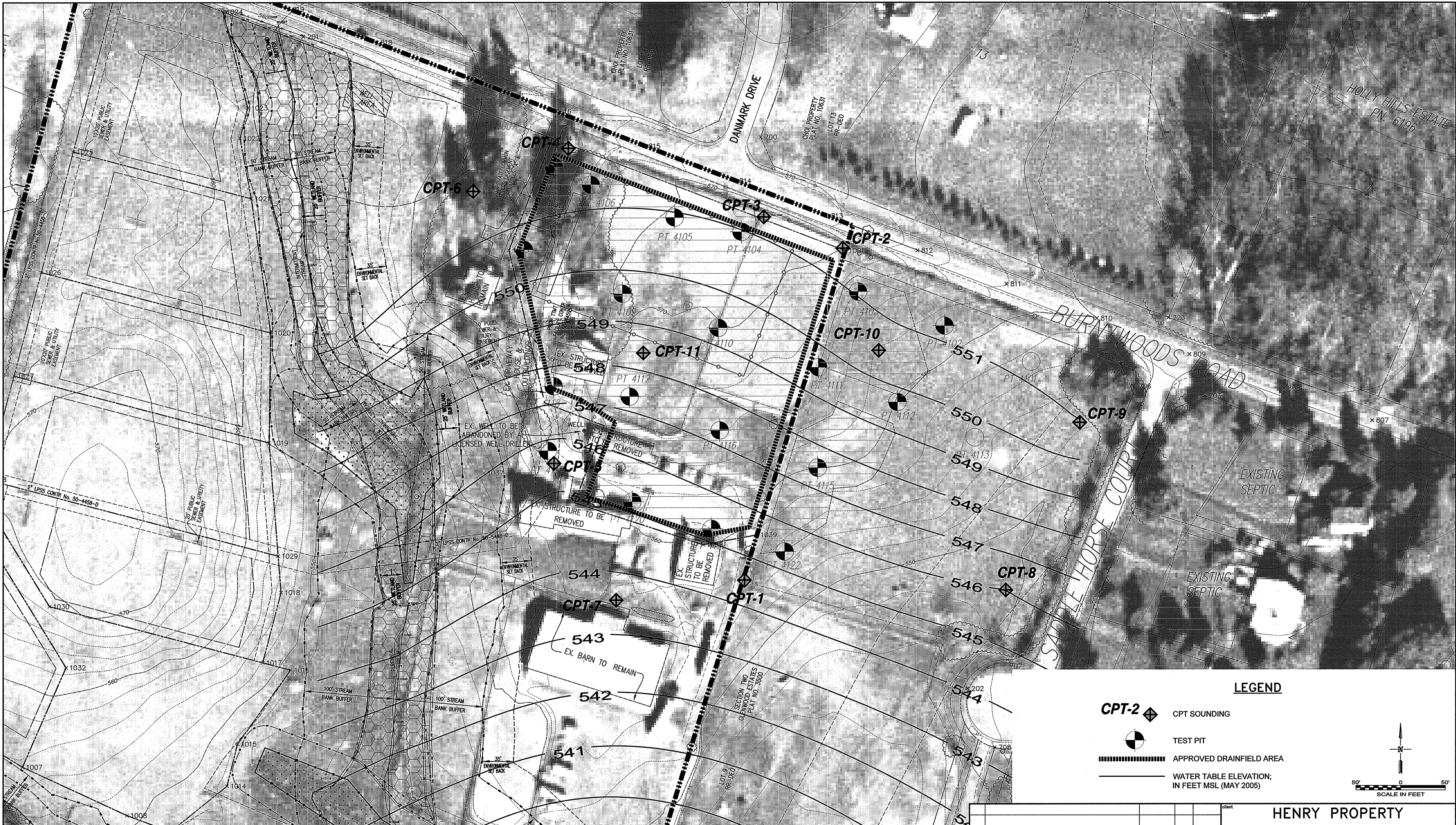
Project: **WASTEWATER TREATMENT SYSTEM GENERAL DESIGN PLAN & AND PFD**

Sheet No: **G002** of 9

Scale: **AS NOTED**

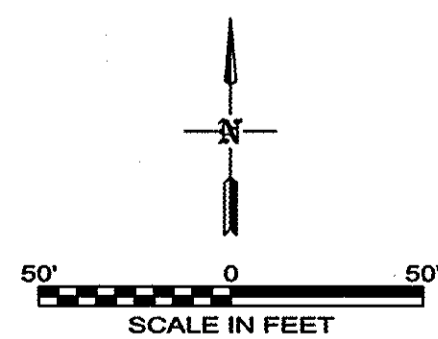
Job No: **01-1633-00-9232-000**

SAIC From Science to Solutions



LEGEND

- CPT SOUNDING
- TEST PIT
- APPROVED DRAINFIELD AREA
- WATER TABLE ELEVATION; IN FEET MSL (MAY 2005)



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Nickolas Samiuel
CHIEF, BUREAU OF UTILITIES

9-7-07
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

W. H. H. H.
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE

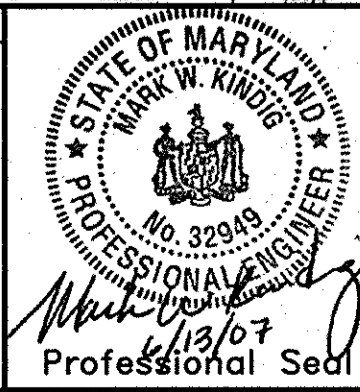
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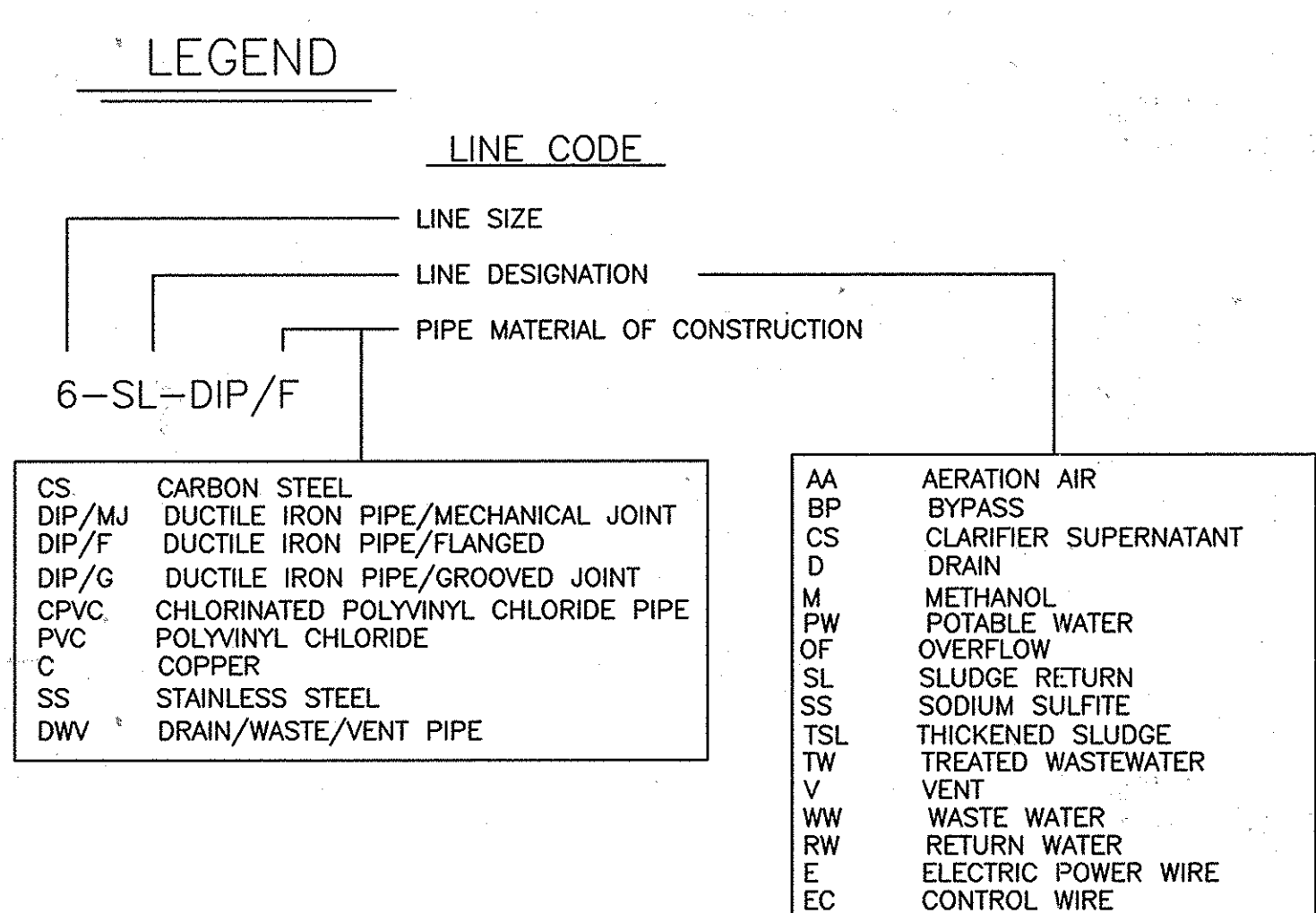
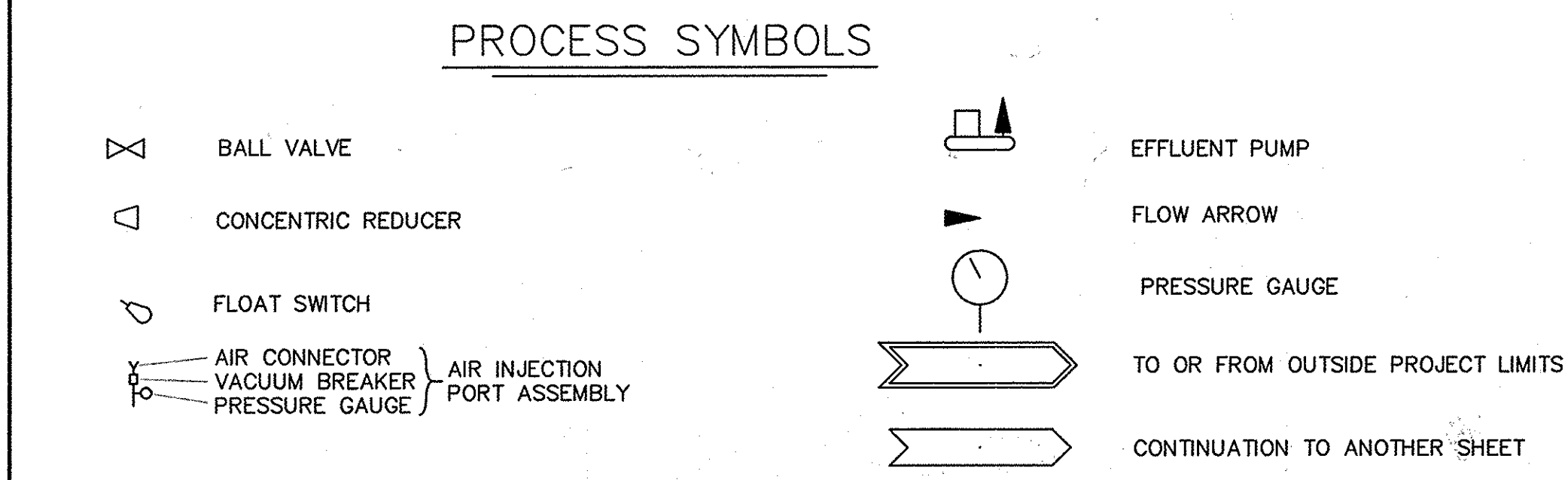
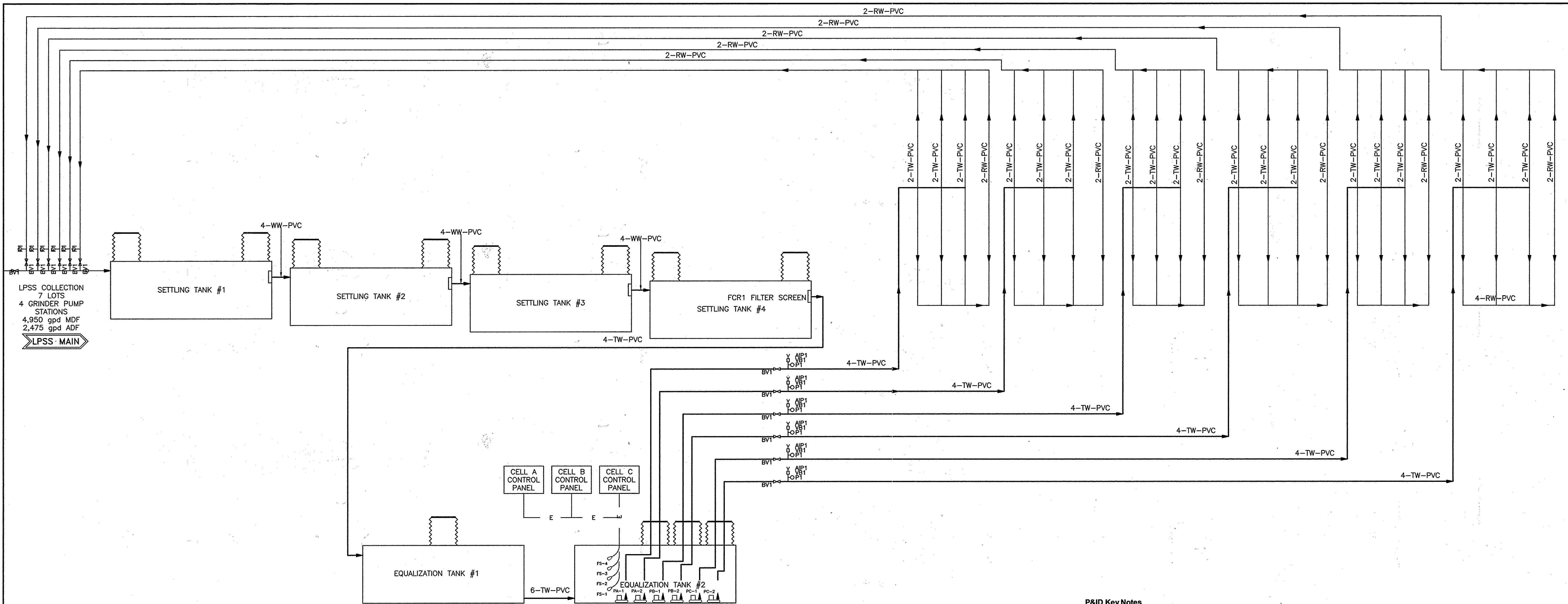
Client: **HENRY PROPERTY**
HOWARD COUNTY, MARYLAND

Project: **WASTEWATER TREATMENT SYSTEM**
EXISTING SITE CONDITIONS

Sheet No. **G003**
3 of 9

Drawn: MDS, Struct: N/A, Date: 8/15/2007, Scale: AS NOTED, File No. 9232-G03.dwg
Checked: MRK, Mech: N/A, Job No. 01-1633-00-9232-000
Designed: MDH, Elec: N/A
Civil: N/A, 92/96: MWA

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P&ID Key Notes

symbol	description	size	notes	materials	count
AIP1	air injection port	3/4"	MPT chicago type	steel	6
BV1	ball valve (curb stop type)	2"	pressure and return lines	brass	13
P1	pressure gauge	1/4"	0-30 psi / snubber	brass	12
PA1,2	cell A pumps	2"	Grundfos SE100	synthetic	2
PB1,2	cell B pumps	2"	Grundfos SE100	synthetic	2
PC1,2	cell C pumps	2"	Grundfos SE100	synthetic	2
VB1	vacuum breaker	3/4"	spring check valve	brass	6
FS1	float switch - pump off		mechanical-type	polyethylene	3
FS2	float switch - pump on		mechanical-type	polyethylene	3
FS3	float switch - high level		mechanical-type	polyethylene	3
CP	control panel		SJE Rhombus Model 122	NEMA 4X	3
FSCR1	filter screen	6000 gpd	Zabel A100 12x36VC	synthetic	1
ST1	settling tank	2500 gal	with (2) 24" dia manholes	concrete	1
ST	settling tank	2000 gal	with (2) 24" dia manholes	concrete	3
EQT	equalization tank	2500 gal	with (3) 24" dia manholes	concrete	2

NOTE: ALL PUMPS CONTROLLED BY SINGLE FLOAT TREE IN DUPLEX MODE.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael A. ...
CHIEF, BUREAU OF UTILITIES DATE 9-7-07

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 9/16/07

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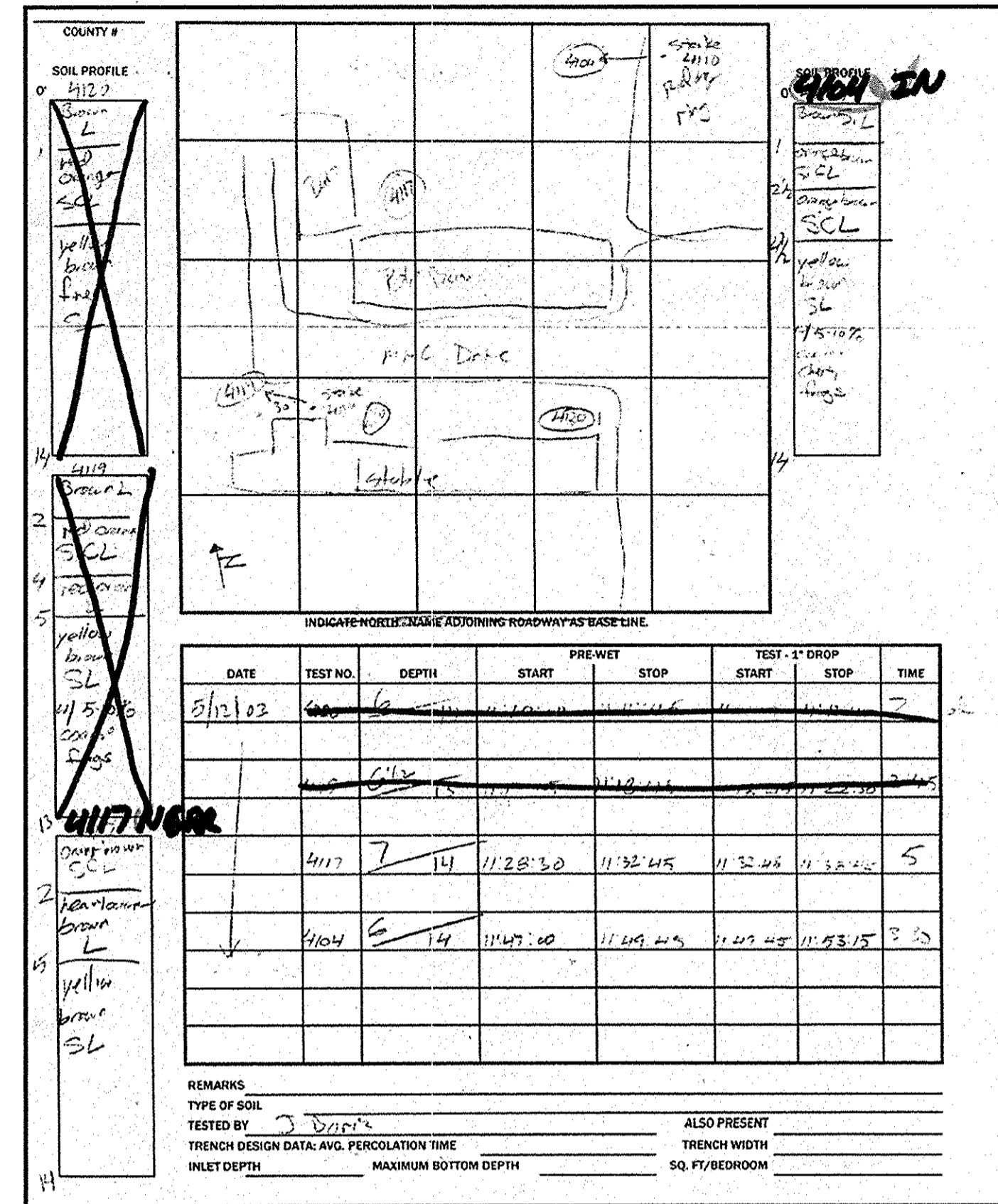
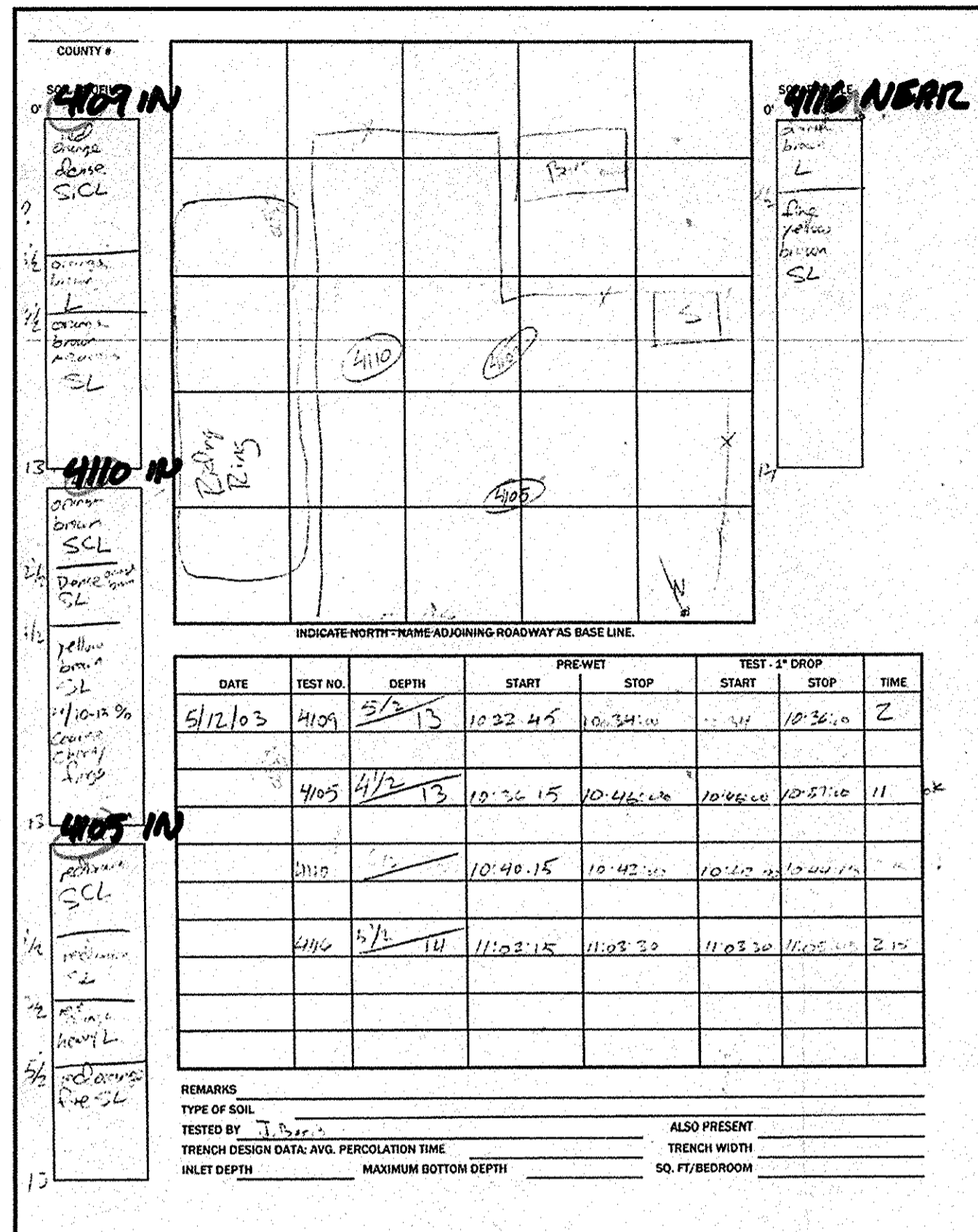
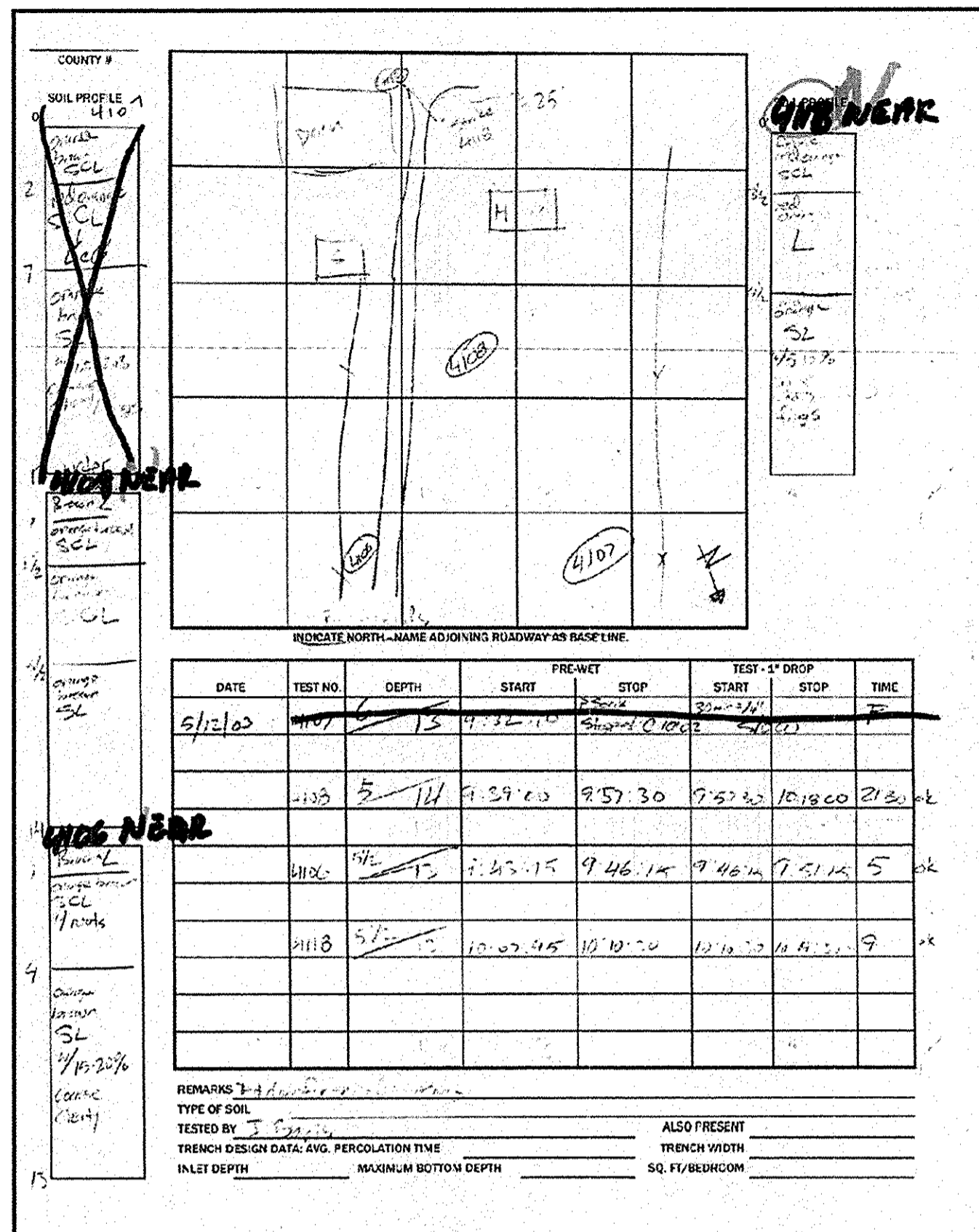
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				revisions					

sheet no.		G004	
4 of 9			
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date		8/15/2007	
scale		AS NOTED	
file no.		9232-G04.dwg	
job no.		01-1633-00-9232-000	
date		8/15/2007	
scale		AS NOTED	
designer		MDH	
check		N/A	
plotted		N/A	
drawn		N/A	
struct		N/A	
date		8/15/2007	
scale		AS NOTED	
file no.		9232-G04.dwg	
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designer		MDH	
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plotted		N/A	
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date		8/15/2007	
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job no.		01-1633-00-9232-000	
date		8/15/2007	
scale		AS NOTED	
designer		MDH	
check			

TEST PIT LOGS



Design Calculations		Design input	Calculations
Capacity requirements			
	new lots served	6	
	bedrooms per home	5	maximum daily flow (MDF) in gpd 4,950
	existing lots served	1	average daily flow (ADF) in gpd 2,475
	bedrooms per home	3	maximum daily flow in gpm
	use rate/bedroom in gpd	150	average daily flow in gpm 3.4
Drainfield requirements			
	application rate in gpd/ft ²	0.8	standard trench length in feet 2,063
	trench width in feet	3	deep trench conversion factor 42%
	trench gravel depth in feet	4.0	deep trench length for MDF in feet 859
			total trench length for 300% capacity 2,578
	number of trenches	18	individual trench length in feet 143.2
	trench spacing center to center in feet	12	minimum area required in sq ft 30,938
Tanks and capacities			
	#1 settling tank size in gallons	2500	req'd capacity in gals (1000+250*5*6) 8,500
	#2, 3, & 4 settling tank size in gallons	2,000	design settling capacity in gallons 8,500
	equalization/pump tank size in gallons	2,500	min. pump tank capacity in gals (ADF) 2,475
	number of equalization tanks in series	2	total equalization capacity in gallons 5,000
Distribution and piping			
	number of cells for 50/50/50 ops	3	
	dual alternating pump sets per cell	1	total number of pumps 6
	trenches served by each pump	3	laterals served by each pump 6
	lateral length served by pump in feet	411	
	2" dia lateral ID in inches (SDR 26 PVC)	2.193	volume of laterals served in gallons 80.6
	max. feed main length in feet	218	
	4" dia main ID in inches (SDR 26 PVC)	4.154	max. feed main volume in gallons 153.5
Static hydraulic profile			
	ground elevation at tank #1 in msl	567.5	tank #1 effluent elev in msl 563.75
	tank #1 influent pipe elevation in msl	564.00	tank #2 effluent elev in msl 563.50
	fall between settling tanks in feet	0.25	tank #3 effluent elev in msl 563.25
	pump/equalization tank inlet depth in feet	8.0	tank #4 effluent elev in msl 563.00
	pump setting above bottom elev in feet	0.75	bottom of pump/equalization tank in msl 555.00
	lateral elevations in msl	565.50	pump intake elev. in msl 555.75
	min. design pressure at laterals in feet	2.5	max. static lift in feet 12.3
Dosing volumes, flows, and pressures			
	lateral flow rate (per pump) in gpm	115	feed main loss in feet 1.8
	friction (C) factor for PVC	130	max. total dynamic head (TDH) in feet 17.0
	misc. losses in feet	3	main velocity in feet/sec 2.72
			min. dose: 5x lateral + 1x main vol. in gals 555
	est. run time setting in minutes	5	min. run time in minutes 4.8
	cells in simultaneous operation	2	total dose volume in gallons 1147
	total pump tank volume in gal/inch	53.9	avg. # doses per day 2.16
			float spacing for dose in inches 21.3

Test Pit Evaluations										
Test pit field data							Design data			
perc site ID	ground elev	total depth	clayey soils	perc'd beam	perc rate in minutes	water	in/out of drainfield	test pit elevation	design trench depth	min. trench bottom elev
4104	571	14	4.5	6	3:30	none	in	557	10	561.0
4105	570.2	13	3.5	4.5	11	none	in	557.2	9	561.2
4109	570.2	13	4.5	5.5	2	none	in	557.2	9	561.2
4110	569.8	13	4.5	6.5	2:15	none	in	556.8	9	560.8
4106	566	13	4	5.5	5	none	near	553		562.0
4108	567	14	5.5	5	21:30	none	near	553		561.5
4116	566	14	2.5	5.5	2:15	none	near	552		563.5
4117	566.5	14	5	7	5	none	near	552.5		561.5
4118	564	13	3.5	5.5	9	none	near	551		560.5
4101		13	2	ND		9.5	out			
4102		14	1	6	27		out			
4103	566	13.5	1	5	6:15		out			
4107	563	13	2	6		12	out			
4111	566.5	14	2.5	6	2		out			
4112		12		5.5	5		out			
4113		10	2.5?			8	out			
4114		14	3	6	14	13	out			
4115	560	13	2.5	5.5	2:45		out			
4119	564.5	13	4	6.5	3:45		out			
4120	562	14	1	6	2		out			
4121	560.5	14		ND	2:00?		out			
4122	557	14	2	5			out			
4107A		14	1			13	out			

Trench and lateral design											
cell	trench test pits	trench bottom elev	lateral pipe elev	trench length	orifice dia.	orifice flow	number of orifices	orifice spacing	trench flow	lateral length	
A	1	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
A	2	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
A	3	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
A	4	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
A	5	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
A	6	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
B	1	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
B	2	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
B	3	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
B	4	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
B	5	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
B	6	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
C	1	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
C	2	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
C	3	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
C	4	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
C	5	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	
C	6	561.25	565.50	143.2	5/16	1.82	21	6.82	38.2	68.2	

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Michael A. Swainville 9-7-07
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
9/10/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION

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AND NON-BUILDABLE PRESERVATION PARCEL "B"
LIBER 2820 FOLIO 150 & LIBER 6321 FOLIO 590
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT No. 4
CONTRACT No. 50-4459-D

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1	PRELIMINARY DESIGN SUBMITTAL	10/26/06	MDS	MDH
0	CONCEPT SUBMITTAL	06/14/05	MDS	MDH

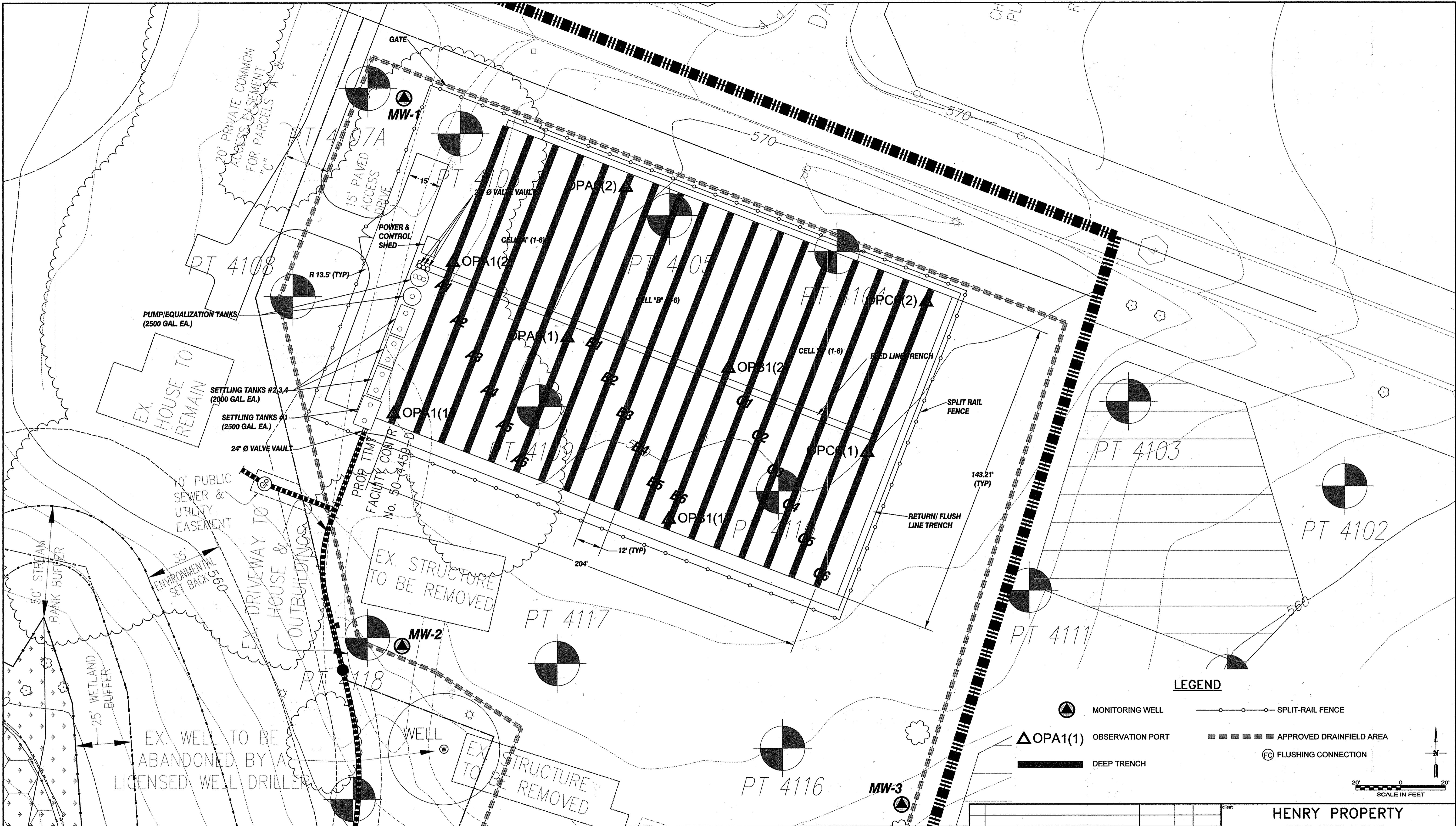
client
HENRY PROPERTY
HOWARD COUNTY, MARYLAND

sheet no. **G005**
5 of 9

WASTEWATER TREATMENT SYSTEM DRAINFIELD DESIGN INFORMATION

drawn MDS struct N/A date 8/15/2007 AS NOTED file no. 9232-G05.dwg
checked MRK mech N/A job no. 01-1633-00-9232-000
designed MDH elec N/A
civil N/A cc/sc MWK

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LEGEND

- MONITORING WELL
- OBSERVATION PORT
- DEEP TRENCH
- SPLIT-RAIL FENCE
- APPROVED DRAINFIELD AREA
- FLUSHING CONNECTION



DEPARTMENT OF
PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Nicholas A. Suvainello
CHIEF, BUREAU OF UTILITIES

9-7-07 DATE

DEPARTMENT OF
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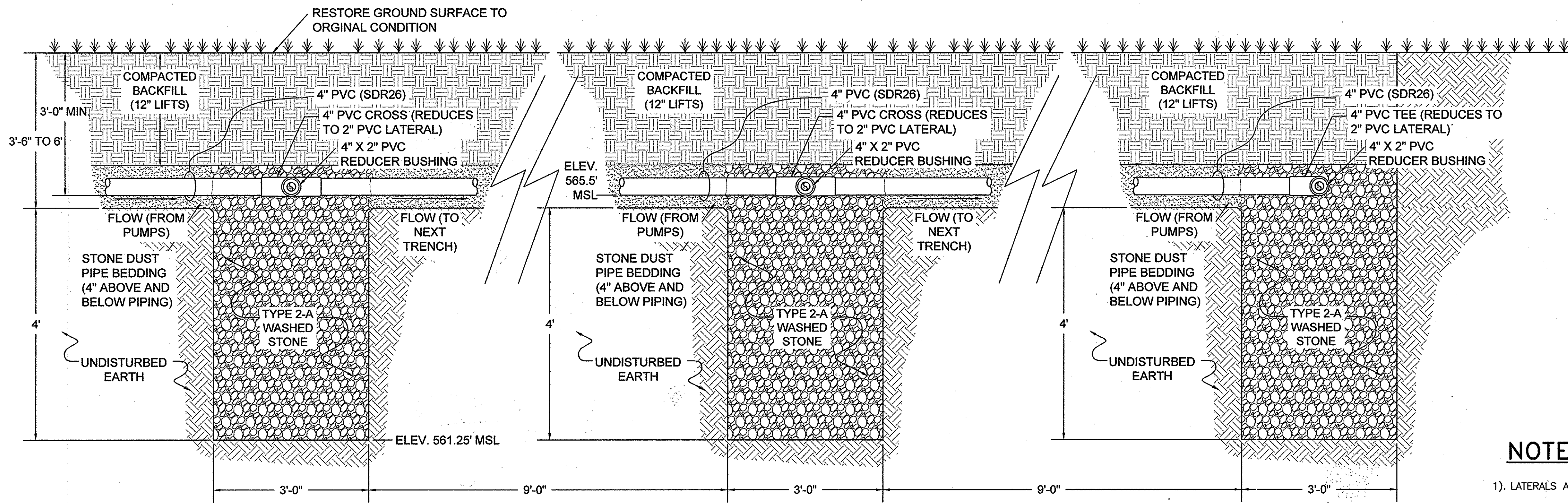
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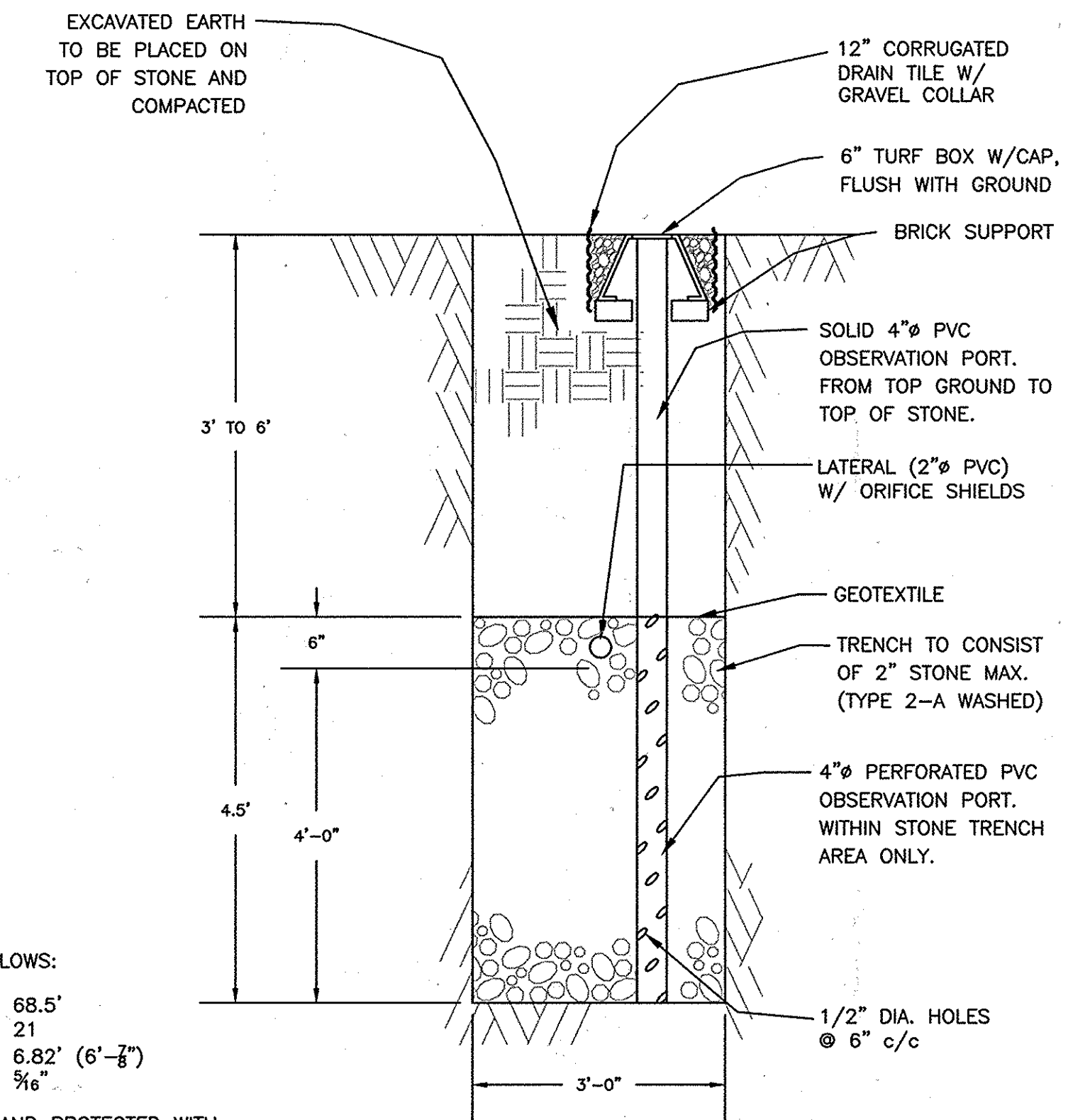
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1	PRELIMINARY DESIGN SUBMITTAL	10/26/06	MDS	MDH	
0	CONCEPT SUBMITTAL	06/14/05	MDS	MDH	

client		HENRY PROPERTY	
		HOWARD COUNTY, MARYLAND	
title		WASTEWATER TREATMENT SYSTEM SITE PLAN	
sheet no.		C001	
6 of 9			
drawn	MDS	struct.	N/A
checked	MRK	mech.	N/A
designed	MDH	elec.	N/A
civil	N/A	gov/rc	MWK
date	08/15/2007	scale	AS NOTED
file no.	9232-C01.dwg	job no.	01-1633-00-9232-000



FEED LINE/DEEP TRENCH PROFILE (TYP)

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TYPICAL OBSERVATION PORT

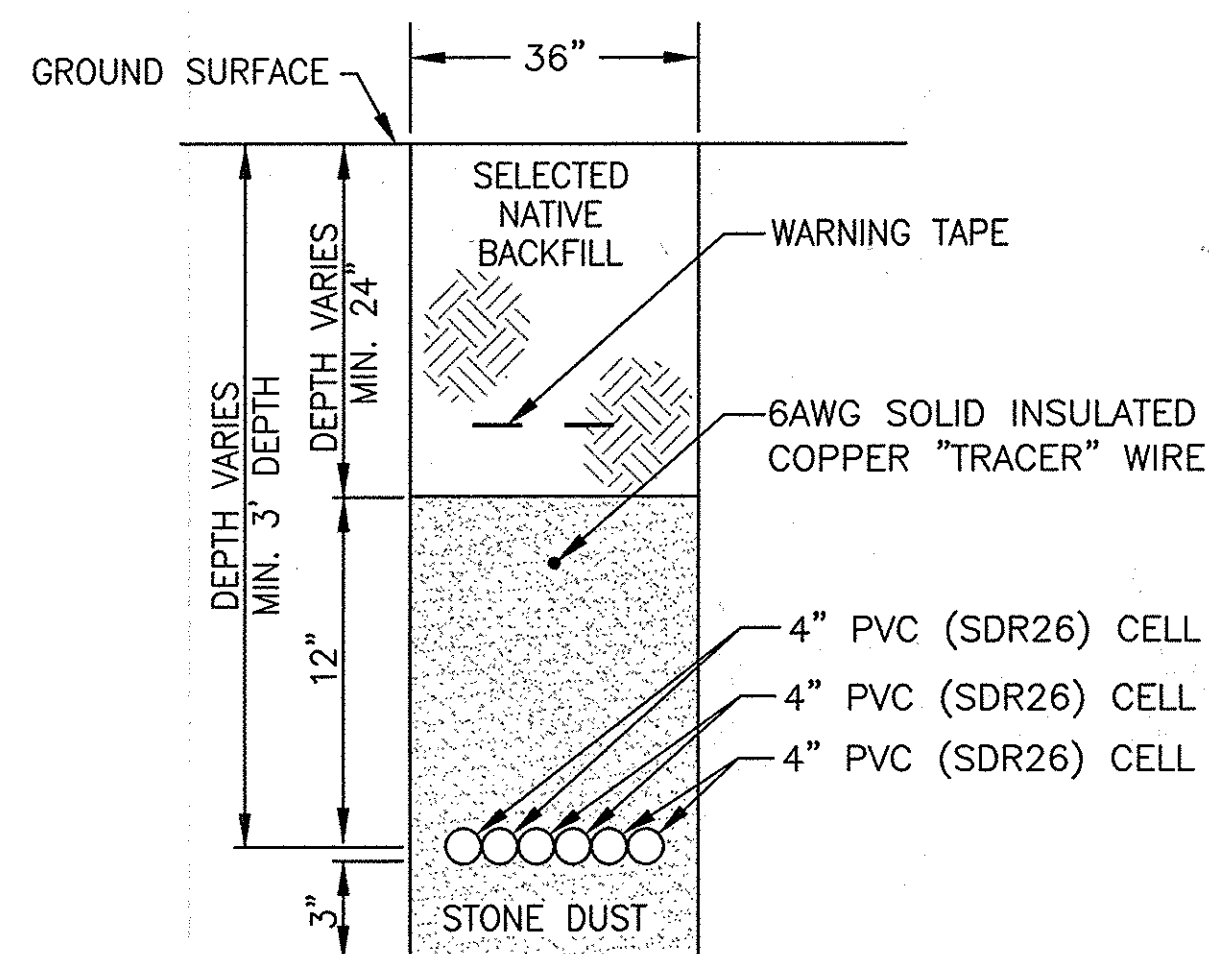
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NOTES:

1). Laterals are to be as follows:

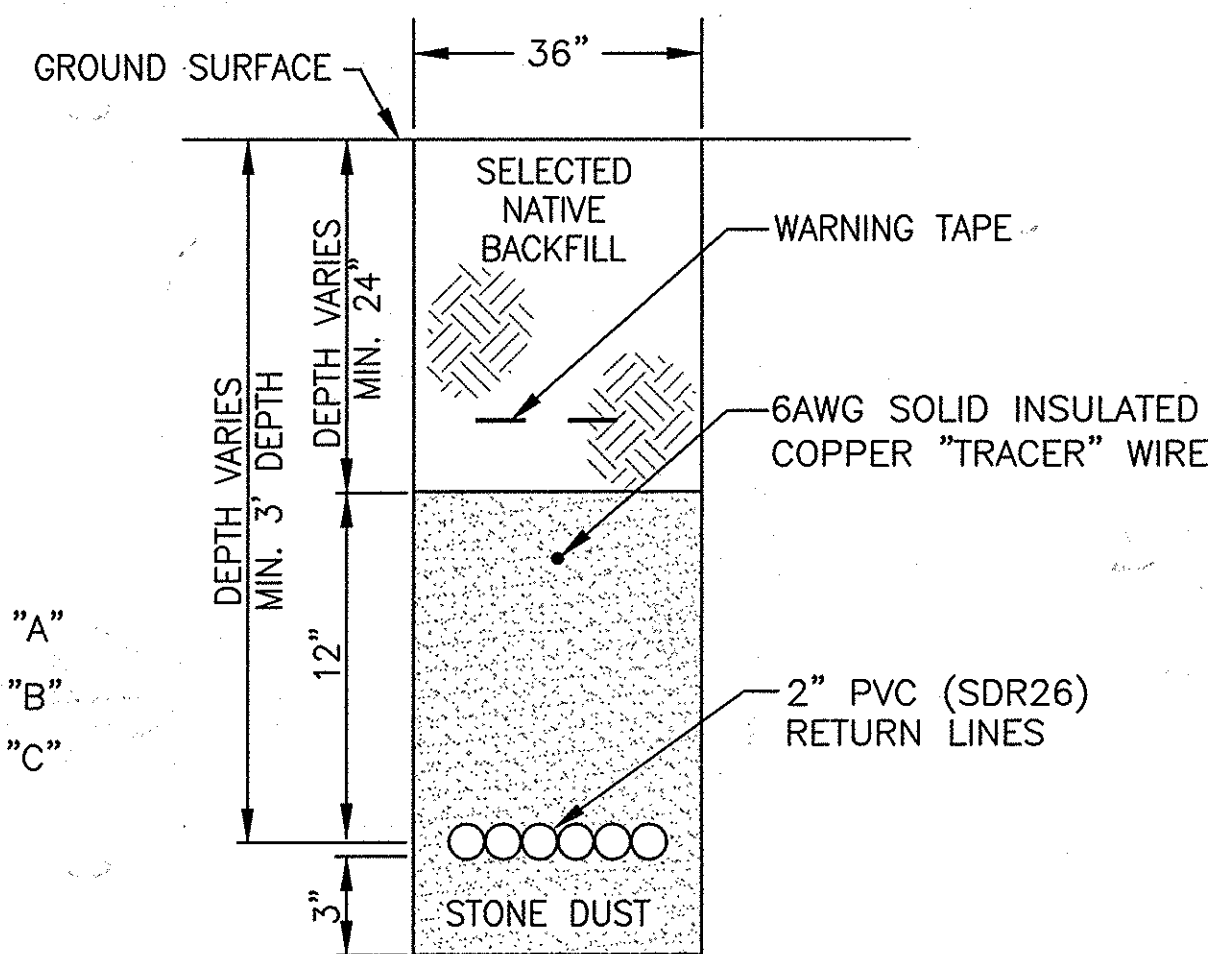
LATERAL LENGTH	: 68.5'
HOLES / LATERAL	: 21
HOLE SPACING	: 6.82' (6'-8")
HOLE DIAMETER	: 5/8"

2). ALL HOLES ARE FACE DOWN AND PROTECTED WITH ORIFICE DIFFUSER (SEE DETAIL THIS SHEET)



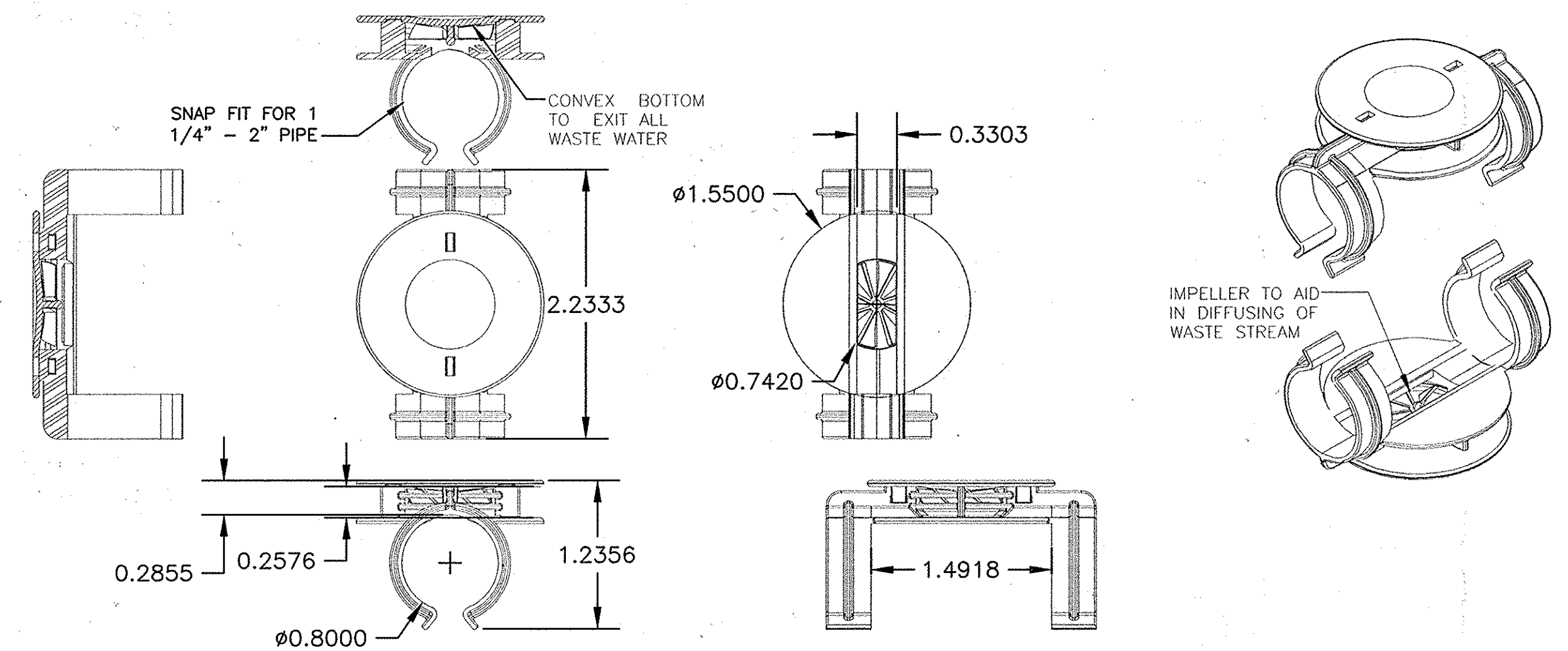
FEED LINE TRENCH SECTION (TYP.)

NOT TO SCALE



RETURN LINE TRENCH SECTION (TYP.)

NOT TO SCALE



POLYLOK ORIFICE DIFFUSER 2"

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HOWARD COUNTY, MARYLAND



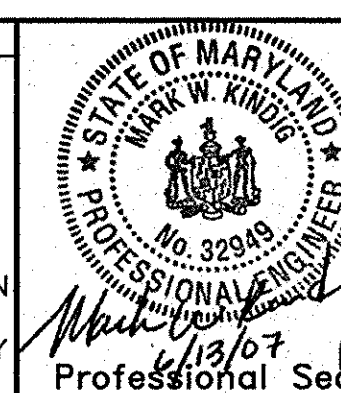
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0	CONCEPT SUBMITTAL	06/14/05	MDS	MDH

HENRY PROPERTY

HOWARD COUNTY, MARYLAND

WASTEWATER TREATMENT SYSTEM TRENCH SECTIONS AND DETAILS

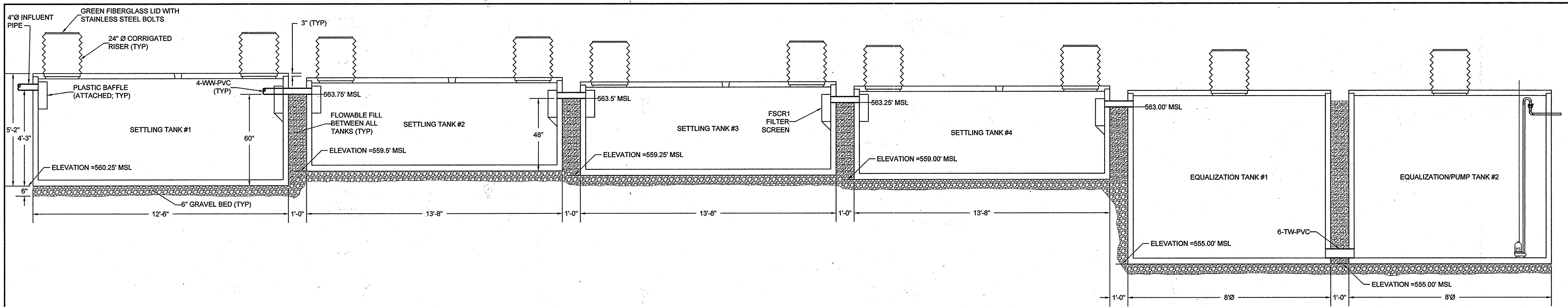
sheet no. C002
7 of 9

file no. 9232-C02.dwg
job no. 01-1633-00-9232-000

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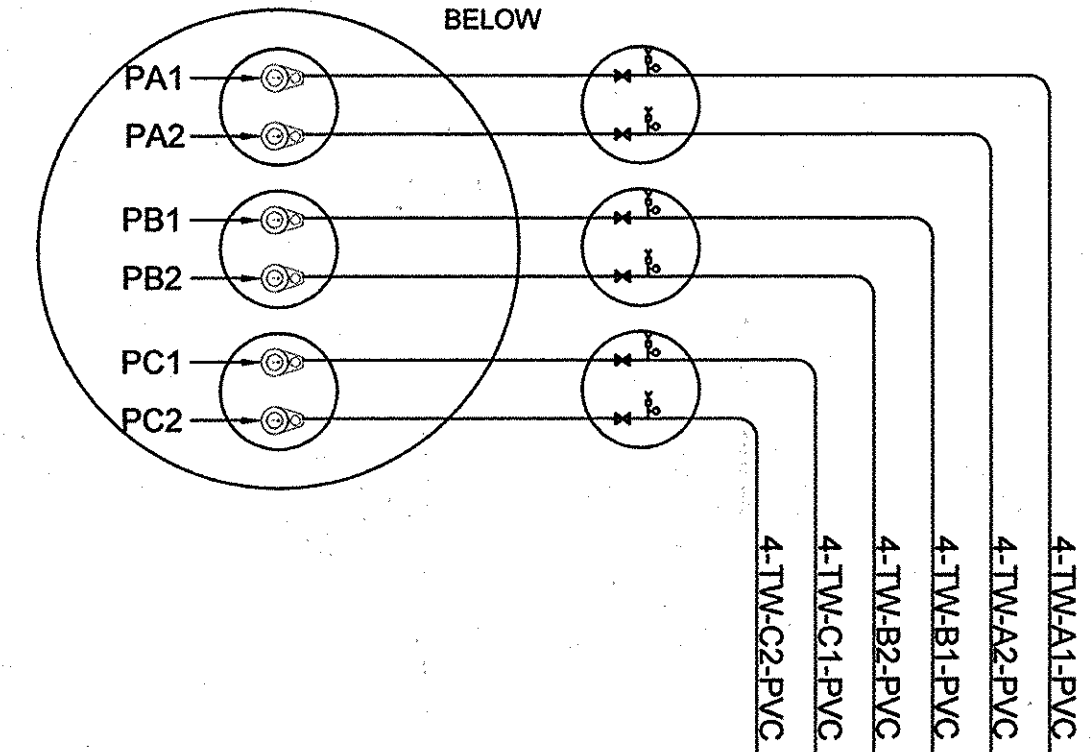
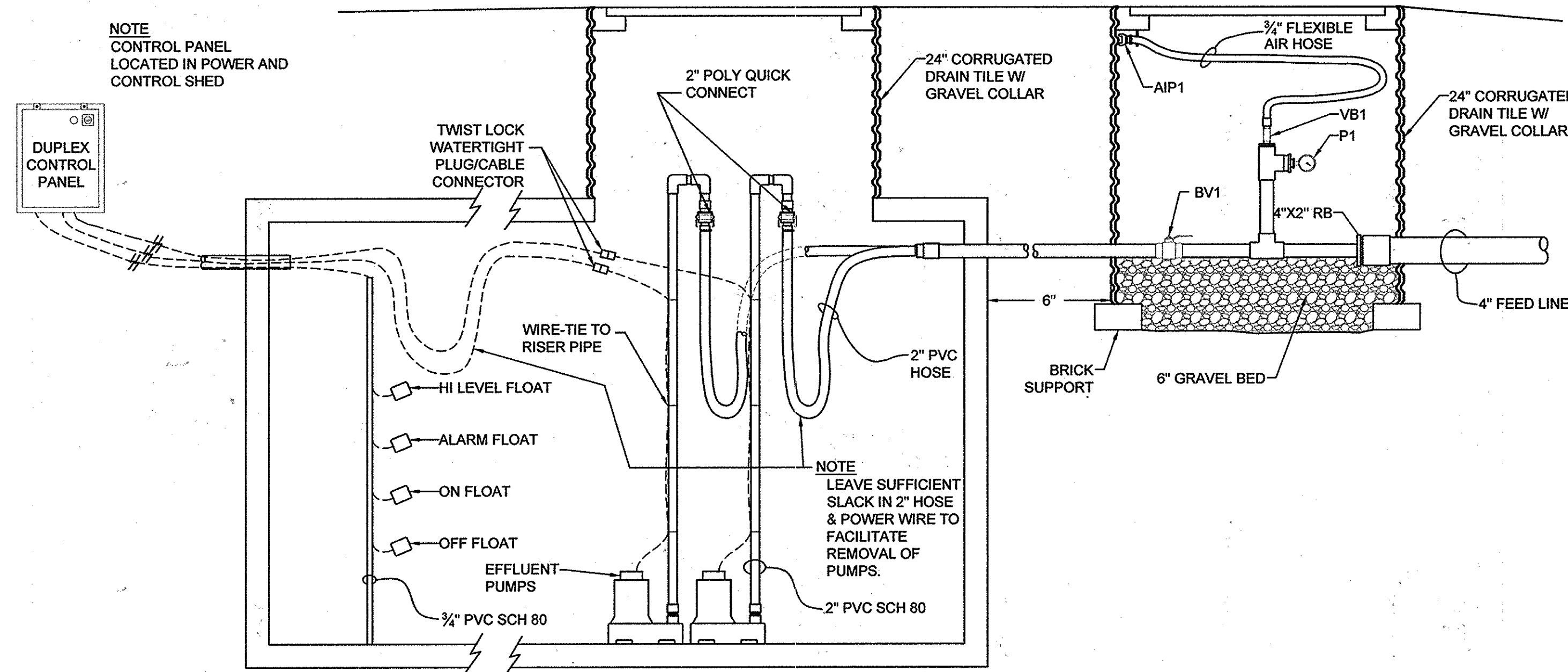
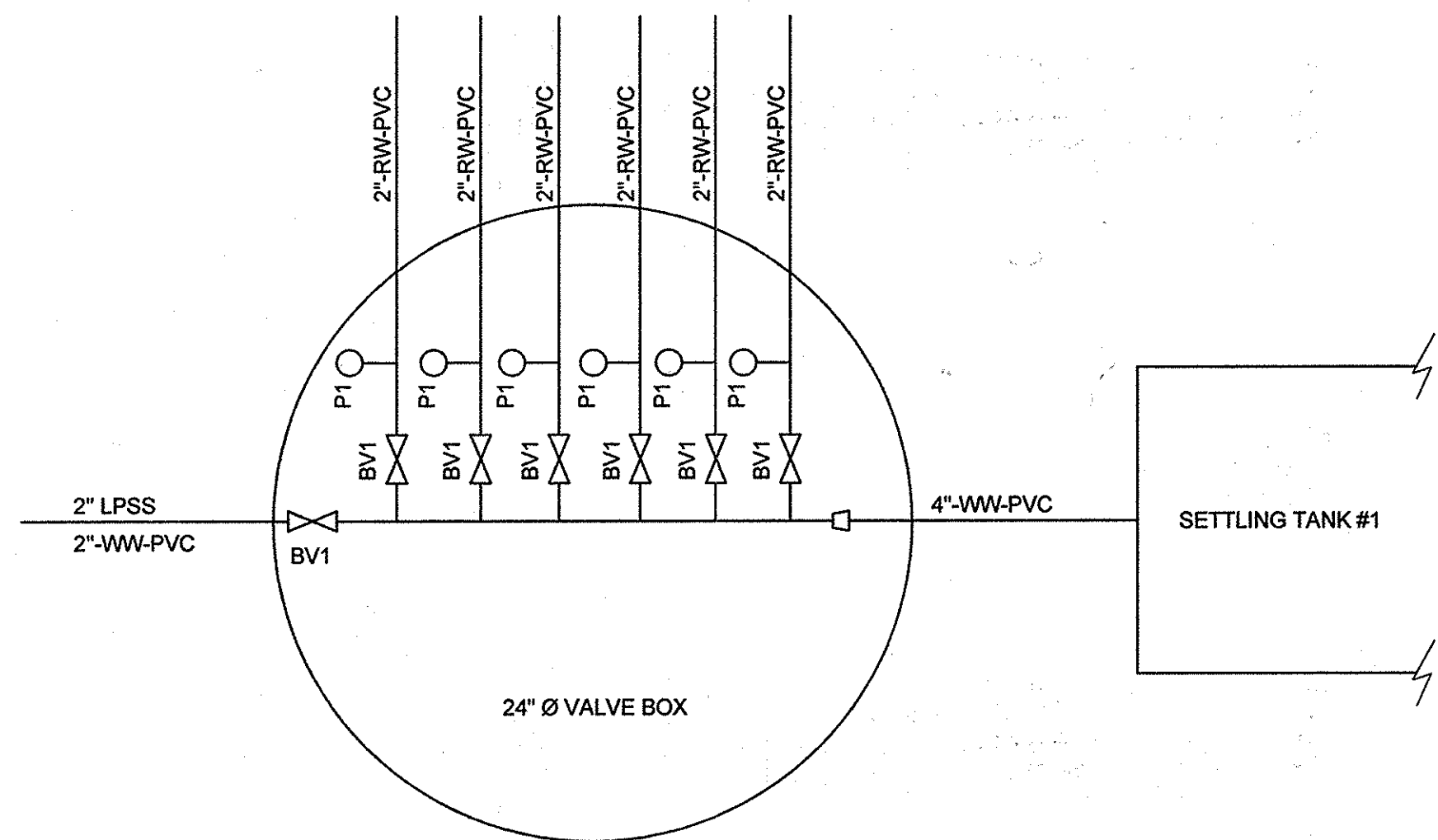
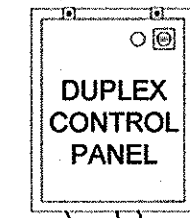
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NOTE
PUMP RISERS MUST BE
ACCESSIBLE FROM
GROUND SURFACE

NOTE
SEE TRANSFER PUMP
INSTALLATION DETAIL
BELOW

NOTE
CONTROL PANEL
LOCATED IN POWER AND
CONTROL SHED



TRANSFER PUMP INSTALLATION DETAIL

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A100-12x36-VC



This A100 Series Filter is used for residential or light commercial applications of up to 6000 gallons of flow per day. The NEW Versa-Case with built in reducer/adaptor, central support system and new easy grip handle accepts 4" or 6" SCH 40 outlet pipe.

NOTES:

1. PROVIDE A MINIMUM 6" BASE COMPACTED GRAVEL BENEATH TANKS.
2. FLOWABLE FILL TO BE POURED BETWEEN TANKS.
3. ALL TANKS TO BE BURIED AT A NOMINAL DEPTH OF 30" BELOW GROUND SURFACE.
4. CONNECTION BETWEEN EQUALIZATION TANKS MUST BE SEALED WITH HYDRAULIC CEMENT.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael A. Suscainello
CHIEF, BUREAU OF UTILITIES
DATE: 9-7-07

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

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CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 9/13/07

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1	PRELIMINARY DESIGN SUBMITTAL	10/26/06	MDS	MDH
0	CONCEPT SUBMITTAL	06/14/05	MDS	MDH

client: **HENRY PROPERTY**
HOWARD COUNTY, MARYLAND

sheet no. **M001** of 9

**WASTEWATER TREATMENT SYSTEM
SETTLING AND PUMPING
TANK SECTIONS**

drawn: MDS struct: N/A date: 8/15/2007 scale: AS NOTED file no. 9232-M01.dwg
checked: MRK mech: N/A job no. 01-1633-00-9232-000
designed: MDH elec: N/A
civil: N/A reg/rc: MWR

SAIC
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Company name: SAIC
Created by: M Hauler
Phone:
Fax:
Date: 15Aug07

GRUNDFOS

SE 100
Product name: SE 100
Product number: 5700394510292
EAN number: 5700394510292

Technical
Max flow: 161 US gpm
Head max: 33.4 ft
Type of impeller: Vortex
Maximum particle size: 2 ft
Approvals on materials: UL, CSA, IEC, ISO 9001 Annex A
Curve tolerance: ISO 9001 Annex A

Materials
Housing: 1125 HS / Polypropylene
Impeller: Nylon R6111

Installation
Pump outlet: 2" NPT
Net dry wt: 5
Installation: vertical

Labels
Liquid temperature range: 32 - 104 °F

Electrical data
Power input - PH: 2280 W
Main frequency: 60 Hz
Rated voltage: 115/200 V
Rated speed: 3316 rpm
Motor protection: Thermal protect
Terminal block: 70-1

Others
Sales region: Num 09

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Company name: SAIC
Created by: M Hauler
Phone:
Fax:
Date: 15Aug07

GRUNDFOS

96001634 SE 100

116V MODEL ONLY

2" NPT
11.58"
9.81"
17.31"
9.81"

28 lbs are (9mm) unless otherwise presented.

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TRANSFER PUMP

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MODEL 122 Control Panel

Single phase duplex alternating pump control with override. The Model 122 control panel is designed to alternately control two 120, 208, or 240 VAC single phase pumps in water and sewage installations. The alternating action equalizes pump wear. In addition to the alternating pump control, this system provides override control should either pump fail. If an alarm condition occurs, an alarm switch activates the audio/visual alarm system. Common applications include pump chambers, sump pump basins, irrigation systems and lift stations.

PANEL COMPONENTS

- Enclosure measures 10 X 10 X 6 inches (25.4 X 25.4 X 15.24 cm). Choice of NEMA 1 (steel for indoor use), or NEMA 4X (stainless steel for outdoor use). Note: Options selected may increase enclosure size and change component layout.
- Magnetic Motor Contactors control pumps by switching electrical lines.
- HOA Switches for manual pump control (mounted on circuit board).
- Control Circuit Board provides pump control and alternation.
- Green pump Run Indicator Lights (mounted on circuit board).
- Circuit Breakers (optional) provide pump disconnect and branch circuit protection.
- Ground Lugs
- Float Status Indicator Lights (mounted on circuit board).
- Control and Alarm Power Indicator Lights (r mounted on circuit board).
- Auxiliary Alarm Contact, form C (mounted on circuit board).

NOTE: Schematic is located inside the panel on enclosure cover.

STANDARD ALARM PACKAGE

- Red Alarm Beacon provides 360° visual check of alarm condition. Note: NEMA 1 style utilizes a door mounted in enclosure in lieu of a beacon.
- Alarm Horn provides audio warning of alarm condition (83 to 85 decibel rating). Note: NEMA 1 style utilizes a normally mounted buzzer in lieu of horn.
- Exterior Alarm Test/Normal/Silence Switch a lever horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once a alarm condition is cleared.
- Horn Silence Relay (mounted on circuit board). Note: other options available.

FEATURES

- Entire control system (panel and switches) is UL listed to meet and/or exceed industry safety standards.
- Dual safety certification for the United States and Canada.
- Standard package includes three 20' Sensor Float control switches.
- Complete with step-by-step installation instructions.
- Three-year limited warranty.

SIEMENS RHOMBUS
PO Box 1708 Detroit Lakes, MN 56502
1-888-DIAL-SJE • 1-218-847-1317
email: sje@siemrhombus.com
www.sjerhombus.com

CONTROL PANEL

NOT TO SCALE

MODEL 122

ALARM PACKAGE
0 = select options or no alarm package
1 = alarm package (includes test/normal/silence switch, fuse, red light, horn)

ENCLOSURE RATING
1 = Indoor, NEMA 1 (metal)
W = Weatherproof, NEMA 4X (engineered thermoplastic)

STARTING DEVICE
0 = magnetic motor contractor 120/208/240V
3 = magnetic motor contractor 120V only

PUMP FULL LOAD AMPS
0 = 0-7 FLA
1 = 15-20 FLA
2 = 15-20 FLA
3 = 20-30 FLA

PUMP DISCONNECTS
0 = no pump disconnect
4 = circuit breaker 120V (select STARTING DEVICE option 3 above)
120/208/240V (select STARTING DEVICE option 1 above)

FLOAT SWITCH APPLICATION
H or L = pump down on pump up
X = no floats

OPTIONS Listed below

ENCLOSURE UPGRADE
If you selected one or more of the options, one or more options, a one-time enclosure upgrade fee would apply.

If additional features are required, call the factory for a quote on an engineered custom control panel.

code description

1A Red beacon only / no audio	10P Lighting estator
1C Horn only / no visual	110 Select circuit breaker
1D Horn only / no visual	111 Anti-condensation heater
1E Manual alarm reset	112 NEMA 1 alarm panel
1F Main disconnect (entry style, mounted through door, non-locked)	113 NEMA 4X alarm panel
1G Low level cutoff	114 Main disconnect (entry style, mounted through door, non-locked)
1H Red level indicator & alarm	115 20-30 FLA (total of both pumps)
1I Red level indicator & alarm	116 20-30 FLA (total of both pumps)
1J Red level indicator & alarm	117 30' cord in lieu of 20' (per float)
1K Red level indicator & alarm	118 30' cord in lieu of 20' (per float)
1L Red level indicator & alarm	119 30' cord in lieu of 20' (per float)
1M Red level indicator & alarm	120 30' cord in lieu of 20' (per float)
1N Red level indicator & alarm	121 30' cord in lieu of 20' (per float)
1O Red level indicator & alarm	122 30' cord in lieu of 20' (per float)
1P Red level indicator & alarm	123 30' cord in lieu of 20' (per float)
1Q Red level indicator & alarm	124 30' cord in lieu of 20' (per float)
1R Red level indicator & alarm	125 30' cord in lieu of 20' (per float)
1S Red level indicator & alarm	126 30' cord in lieu of 20' (per float)
1T Red level indicator & alarm	127 30' cord in lieu of 20' (per float)
1U Red level indicator & alarm	128 30' cord in lieu of 20' (per float)
1V Red level indicator & alarm	129 30' cord in lieu of 20' (per float)
1W Red level indicator & alarm	130 30' cord in lieu of 20' (per float)
1X Red level indicator & alarm	131 30' cord in lieu of 20' (per float)
1Y Red level indicator & alarm	132 30' cord in lieu of 20' (per float)
1Z Red level indicator & alarm	133 30' cord in lieu of 20' (per float)

code description

10P Lighting estator	110 Select circuit breaker
110 Select circuit breaker	111 Anti-condensation heater
111 Anti-condensation heater	112 NEMA 1 alarm panel
112 NEMA 1 alarm panel	113 NEMA 4X alarm panel
113 NEMA 4X alarm panel	114 Main disconnect (entry style, mounted through door, non-locked)
114 Main disconnect (entry style, mounted through door, non-locked)	115 20-30 FLA (total of both pumps)
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code description

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