

QUANTITIES				
ITEM	ESTIMATED	AS-BUILT		SUPPLIER
		QUANTITIES	TYPE	
1-1/2" L.P.S.*	397 L.F.	397 L.F.	SDR-11	FLYNN & W. PLASTIC
2" L.P.S.*	1,049 L.F.	1,049 L.F.	SDR-11	FLYNN & W. PLASTIC
3" L.P.S.*	7,793 L.F.	7,793 L.F.	SDR-11	FLYNN & W. PLASTIC
1/8 H.B.	3 EACH	2 EACH		CENTRAL PLASTIC
1/16 H.B.	3 EACH	2 EACH		CENTRAL PLASTIC
1/32 H.B.	1 EACH	1 EACH		CENTRAL PLASTIC
3"x2" H.P.P. TEE	1 EACH	1 EACH	SDR-11	CENTRAL PLASTIC
2"x1-1/2" TEE	3 EACH	3 EACH		CENTRAL PLASTIC
3"x1-1/2" TEE	3 EACH	5 EACH		CENTRAL PLASTIC
3"x2" REDUCER	1 EACH	1 EACH	SDR-11	CENTRAL PLASTIC
AIR RELIEF VALVE	3 EACH	3 EACH	BRASS BALL	MUELLER CO.
3" PLUG & BUTTRESS	4 EACH	2 EACH	PVC	MULTI FITTINGS
SDMPLEX GRINDER PUMP	3 EACH	4 EACH		E OUE
DUPLEX GRINDER PUMP	10 EACH	9 EACH		E OUE
IN-LINE FLUSHING CONN.	8 EACH	8 EACH		
CONTINUITY TEST STATION	21 EACH	24 EACH	CONCRETE	HOBAE CONCRETE
TERMINAL FLUSHING CONN.	2 EACH	2 EACH		

NAME OF UTILITY CONTRACTOR: UTILITIES UNLIMITED, INC.
 SURVEY & DRAFTING DIVISION AS-BUILT DATE: 3/18/2013
 *L.P.S. DENOTES LOW PRESSURE SEWER
 SUPPLIER: FERGUSON WATERWORKS

NOTE:
 ISSUANCE OF A HOWARD COUNTY SEPTIC SYSTEM INSTALLATION PERMIT IS SUBJECT TO REVIEW AND APPROVAL BY MARYLAND DEPARTMENT OF THE ENVIRONMENT. CHANGES TO THIS PLAN DOES NOT GUARANTEE LOT YIELD OR CONFIGURATION. CHANGES TO LOT YIELD, LOT CONFIGURATION, WELL, POOL LOCATIONS OR SHARED SEPTIC SYSTEM DESIGN BASED ON MARYLAND DEPARTMENT OF THE ENVIRONMENT'S REVIEWS OF THE GROUNDWATER APPROPRIATIONS PERMIT AND STATE CONSTRUCTION PERMIT OF THE SHARED SEPTIC SYSTEM WILL REQUIRE CHANGES TO THIS PLAN THAT ARE SUBJECT TO NORMAL HEALTH DEPARTMENT REVIEW TIMES.

DEVELOPER'S CERTIFICATION
 I 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.

M. Jeremy Rutter 1/3/08
 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. Koedel 01-03-08
 SIGNATURE OF ENGINEER DATE

GP-07-078

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

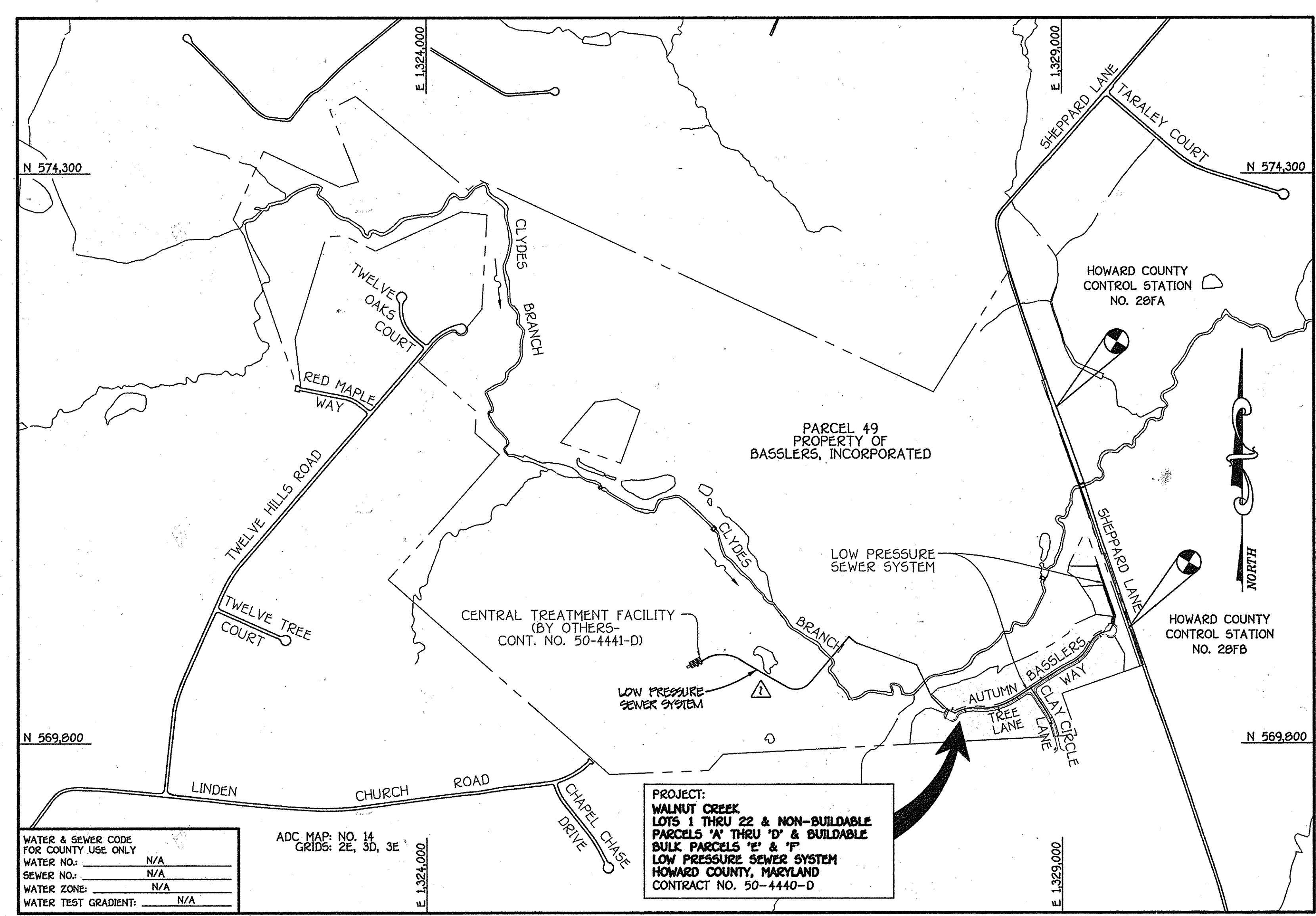
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: *John L. Robinson* 1/14/08
 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 F-07-078, AND AS SHOWN ON THESE PLANS.

M. Jeremy Rutter 1/3/08
 SIGNATURE OF DEVELOPER DATE

APPROVED FOR PUBLIC SEWERAGE COLLECTION SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT
B. Wilson for Peter Buleonson, M.D. 1/25/2008
 HOWARD COUNTY HEALTH OFFICER DATE



WATER & SEWER CODE FOR COUNTY USE ONLY	N/A
WATER NO.	N/A
SEWER NO.	N/A
WATER ZONE	N/A
WATER TEST GRADIENT	N/A

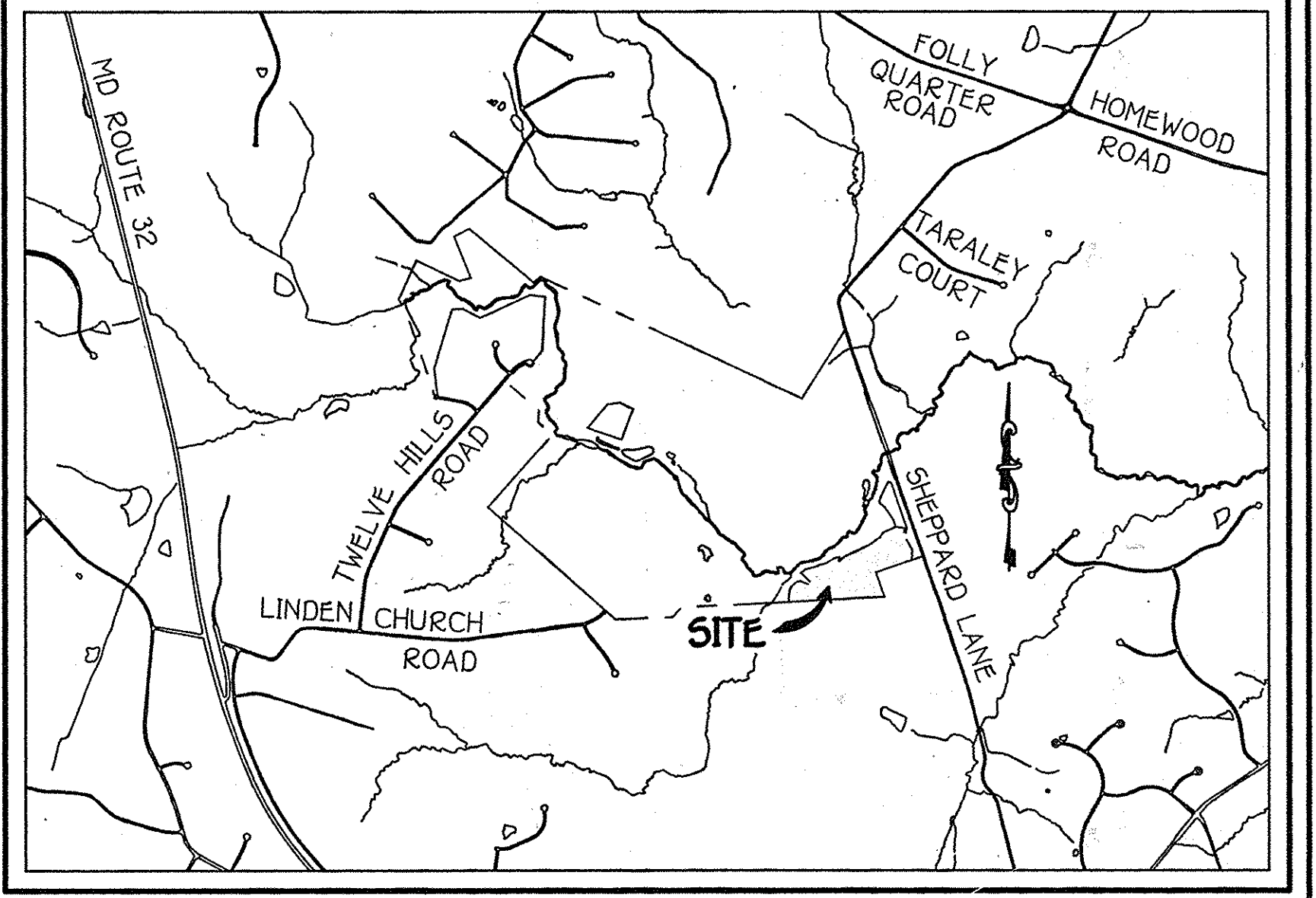
ADC MAP NO. 14
 GRIDS: 2E, 3D, 3E

VICINITY MAP
 SCALE: 1" = 600'

TYPE OF BUILDING:	RESIDENTIAL: SINGLE FAMILY DETACHED
NUMBER OF LOTS:	22
NO. OF WATER HOUSE CONNECTIONS:	0 - PRIVATE ON-LOT WELLS
NO. OF SEWER HOUSE CONNECTIONS:	22
SEWER SHED:	N/A
TREATMENT PLANT:	COMMUNITY SHARED CENTRAL TREATMENT FACILITY & SHARED SEPTIC DISPOSAL FACILITY ON NON-BUILDABLE BULK PARCEL 'B'

PROJECT: WALNUT CREEK LOTS 1 THRU 22 & NON-BUILDABLE PARCELS 'A' THRU 'D' & BUILDABLE BULK PARCELS 'E' & 'F'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 50-4440-D

CONTRACT NO. 50-4440-D
WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-'D' & BUILDABLE BULK PARCELS 'E' & 'F'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND



LOCATION MAP
 SCALE: 1" = 2000'

GENERAL NOTES

- 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 JULY, 2005 BY FISHER, COLLINS & CARTER, INC.
- HORIZONTAL AND VERTICAL CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/91' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 28FA & NO. 28FB. SEE THIS SHEET FOR BENCHMARK INFORMATION.
- 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 (S) 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 1-800-252-4133
 BGE (CONSTRUCTION SERVICES) 410-250-4620
 BGE (EMERGENCY) 410-695-1400
 BUREAU OF UTILITIES 410-313-4900
 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 TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE CONSTRUCTION OF THE MAIN.
- 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
 1. WATER SERVICE TO ALL BUILDABLE LOTS SHALL BE PROVIDED BY INDIVIDUAL PRIVATE ON-SITE WELLS.

- PART III: SEWER**
- LOW PRESSURE SEWER MAINS SHALL BE HDPE, SDR 11.
 - A TOTAL OF TWENTY-TWO (22) LOTS ARE CONNECTED TO THE LOW PRESSURE SEWER SYSTEM.
 - ALL RESIDENTIAL DWELLINGS ON THE LOTS CONNECTED TO THE LOW PRESSURE SEWER SYSTEM ARE LIMITED TO A MAXIMUM OF FIVE (5) BEDROOMS.
 - TRACER WIRE SHALL BE PROVIDED OVER ALL LOW PRESSURE SEWER MAINS. TRACER WIRE SHALL BE OVERLAPPING, INSULATED #6 AND FIRMLY CONNECTED AND ENCAPSULATED.
 - REFERENCE THE DETAILS ON SHEET 10 OF 13 FOR NOTES, REQUIREMENTS & SPECIFICATIONS REGARDING THE GRINDER PUMP & HOUSING & THE ASSOCIATED GRINDER PUMP CONTROL PANEL.
 - THE CONSTRUCTION PLANS FOR THE COMMUNITY SHARED CENTRAL TREATMENT FACILITY & SHARED SEPTIC DISPOSAL FACILITY ARE BEING PREPARED BY OTHERS UNDER CONT. NO. 50-4441-D.
 - ALL LATERALS BETWEEN THE GRINDER PUMP UNITS AND THE LOW PRESSURE SEWER MAINS SHALL BE 1.5" DIAMETER.

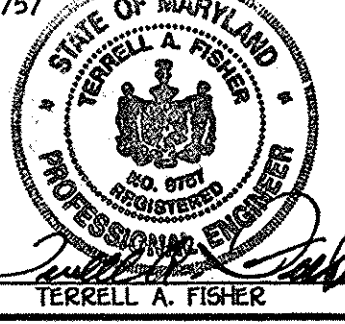
BENCHMARK INFORMATION
 B.M.#1 - HOWARD COUNTY CONTROL STATION #28FA NAD '83 (LOCATED ALONG THE EAST SIDE OF SHEPPARD LANE, APPROX. 4' OFF EDGE OF PAVING BETWEEN CAP POLES 52 & 53)
 N 572,455.65
 E 1,329,957.66
 ELEVATION = 348.296
 B.M.#2 - HOWARD COUNTY CONTROL STATION #28FB NAD '83 (LOCATED ALONG THE WEST SIDE OF SHEPPARD LANE, AT THE ENTRANCE TO THE BASSLER PROPERTY)
 N 570,710.839
 E 1,329,924.63
 ELEVATION = 385.804

DEVELOPER
 WALNUT CREEK VENTURES, L.L.C.
 15950 NORTH AVENUE
 P.O. BOX 492
 LISBON, MD 21765
 CONTRACT NO. 50-4440-D
 WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-'D' & BUILDABLE BULK PARCELS 'E' & 'F'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
Shah C. Goss 1/16/08
 CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
1/16/08
 DEVELOPMENT ENGINEER DIVISION DATE

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL FREE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2025



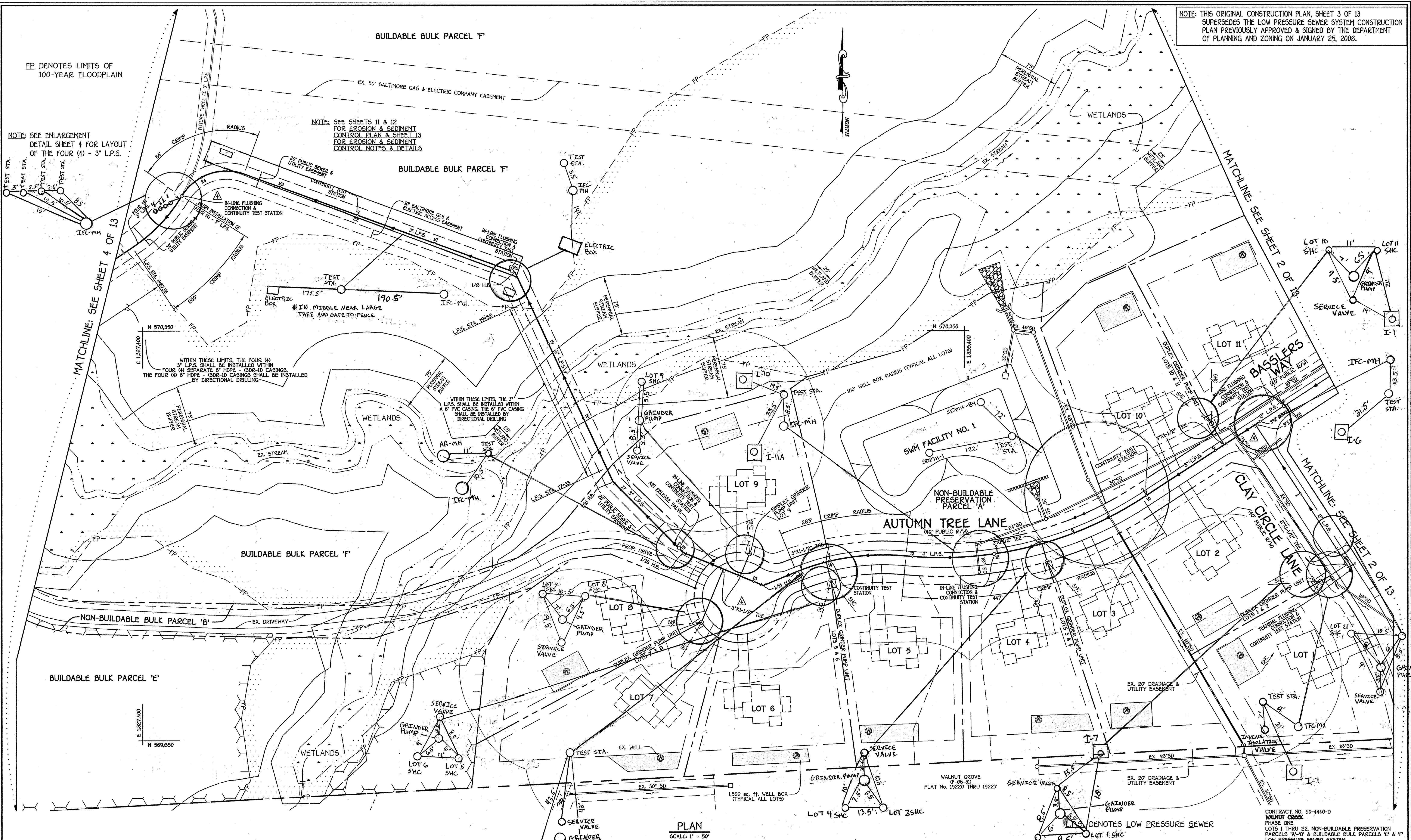
DESIGNED BY:	B.C.R.	10/1/05
DRAWN BY:	B.C.R.	4/2/14
CHECKED BY:	P.W.K.	5/7/08
DATE:	JANUARY, 2008	5/7/08

LOW PRESSURE SEWER SYSTEM
 TITLE SHEET
 600' SCALE MAP NO. 28 BLOCK NO. 4,5,10,11,12,13,14
 F.C.C. WORK ORDER NO. 4201-3001
 FILE NAME: LOW PRESSURE SEWER SYSTEM BASE TITLE

WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-'D' & BUILDABLE BULK PARCELS 'E' & 'F'
 CONTRACT NO. 50-4440-D
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE AS SHOWN
 SHEET 1 OF 13

I:\2004\0401\Wing\BASSLER - EQUIVALENT SKETCH PRELIMINARY PLAN\0401-3001 - Phase 1 - Sewer Base Plan (Lots 22).dwg, 1/17/2008 8:54:12 AM

NOTE: THIS ORIGINAL CONSTRUCTION PLAN, SHEET 3 OF 13 SUPERSEDES THE LOW PRESSURE SEWER SYSTEM CONSTRUCTION PLAN PREVIOUSLY APPROVED & SIGNED BY THE DEPARTMENT OF PLANNING AND ZONING ON JANUARY 25, 2008.

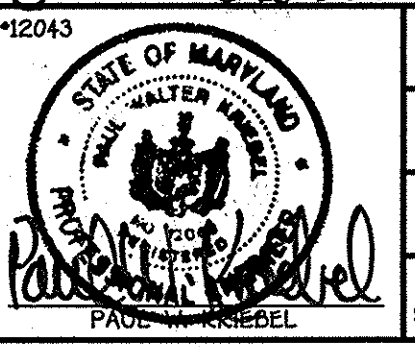


PLAN
SCALE: 1" = 50'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Steve C. Green
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
Michael J. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
BELLGATE CITY, MARYLAND 21044
(410) 481-2995



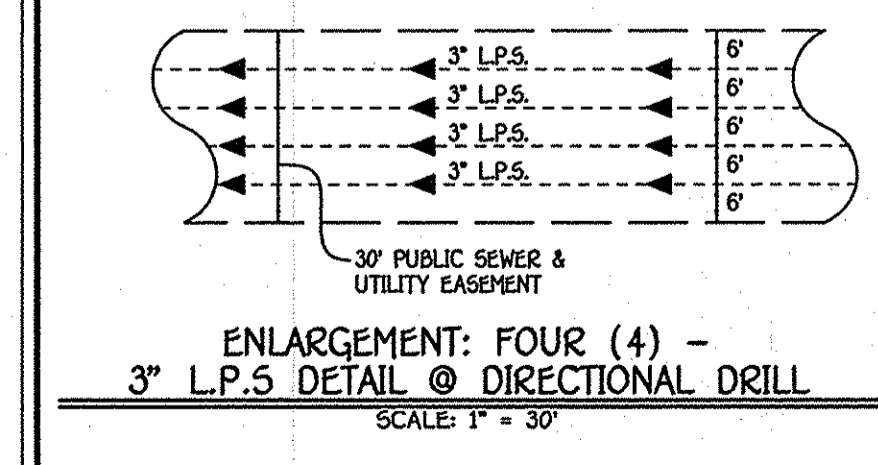
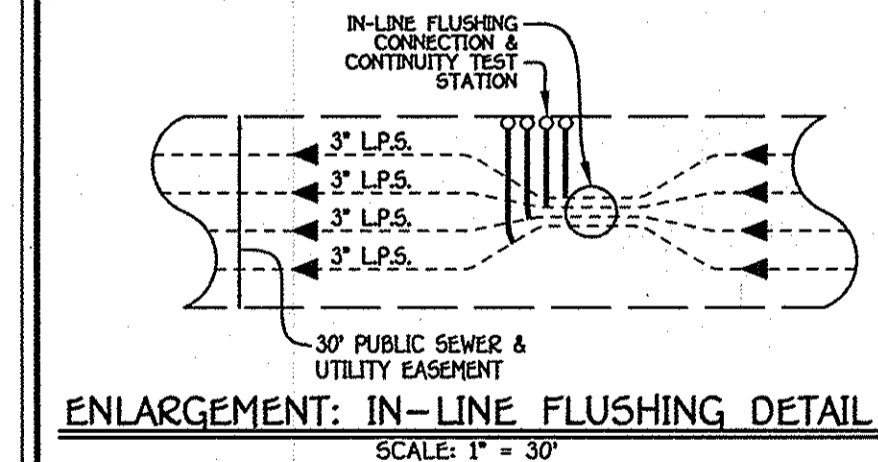
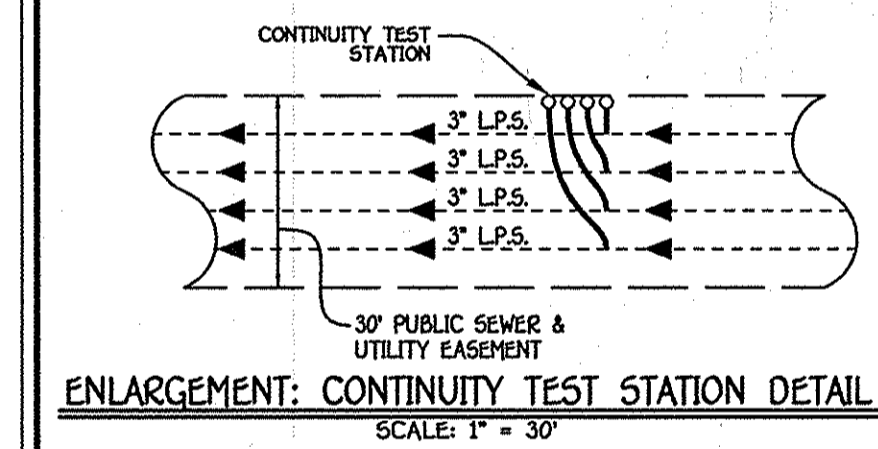
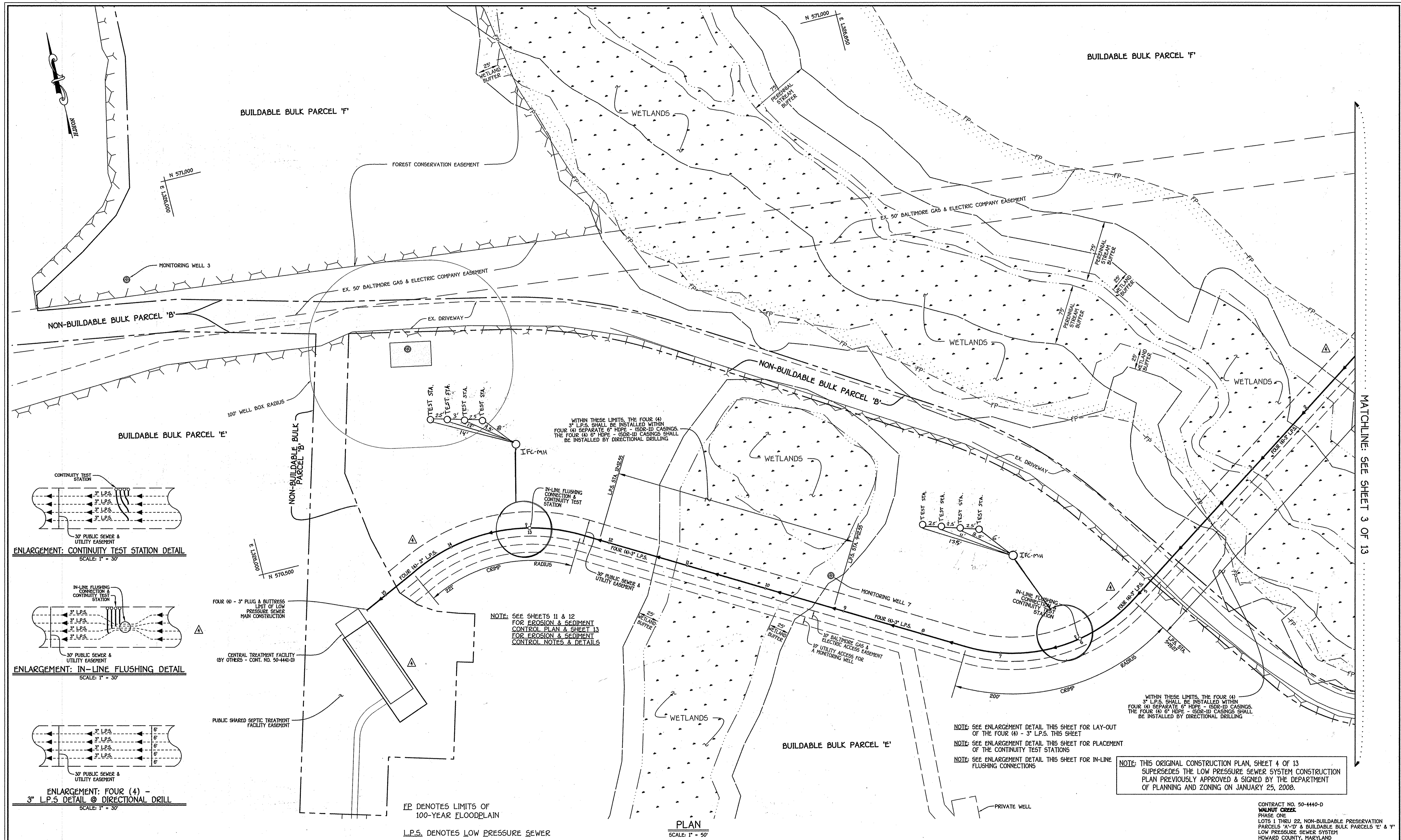
DESIGNED BY:	B.C.R.
DRAWN BY:	B.C.R.
CHECKED BY:	P.W.K.
DATE:	SEPTEMBER, 2012
BY:	NO.

LOW PRESSURE SEWER SYSTEM PLAN	
600' SCALE MAP NO.	20
BLOCK NO.	4, 5, 10, 11, 12, 17, 18, 19
F.C.C. WORK ORDER NO.	4001-3001
FILE NAME:	LOW PRESSURE SEWER SYSTEM BASE PLAN

WALNUT CREEK
PHASE ONE
LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F'
CONTRACT NO. 50-4440-D
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 3 OF 13

I:\2004\04001\04001\PHASE ONE FINALS\04001-3001 Phase 1 Sewer Base Plan (Lot 22)\redline 3 - June 2012.dwg (NEW) Plan Sheet 3, 9/19/2012 2:41:58 PM, 1:1



WITHIN THESE LIMITS, THE FOUR (4) 3\"/>

NOTE: SEE SHEETS 11 & 12 FOR EROSION & SEDIMENT CONTROL PLAN & SHEET 13 FOR EROSION & SEDIMENT CONTROL NOTES & DETAILS.

NOTE: SEE ENLARGEMENT DETAIL THIS SHEET FOR LAY-OUT OF THE FOUR (4) - 3\"/>

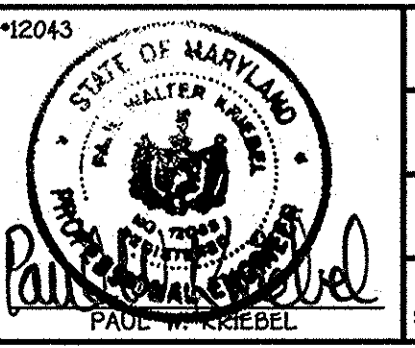
NOTE: THIS ORIGINAL CONSTRUCTION PLAN, SHEET 4 OF 13 SUPERSEDES THE LOW PRESSURE SEWER SYSTEM CONSTRUCTION PLAN PREVIOUSLY APPROVED & SIGNED BY THE DEPARTMENT OF PLANNING AND ZONING ON JANUARY 25, 2006.

CONTRACT NO. 50-4440-D
 WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Chief, Bureau of Utilities: *Silvia C. Chen*
 DATE: 10/11/12

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
 Chief, Development Engineering Division: *Michael J. ...*
 DATE: 10/11/12

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLETTT CITY, MARYLAND 21744
 (410) 461-2955

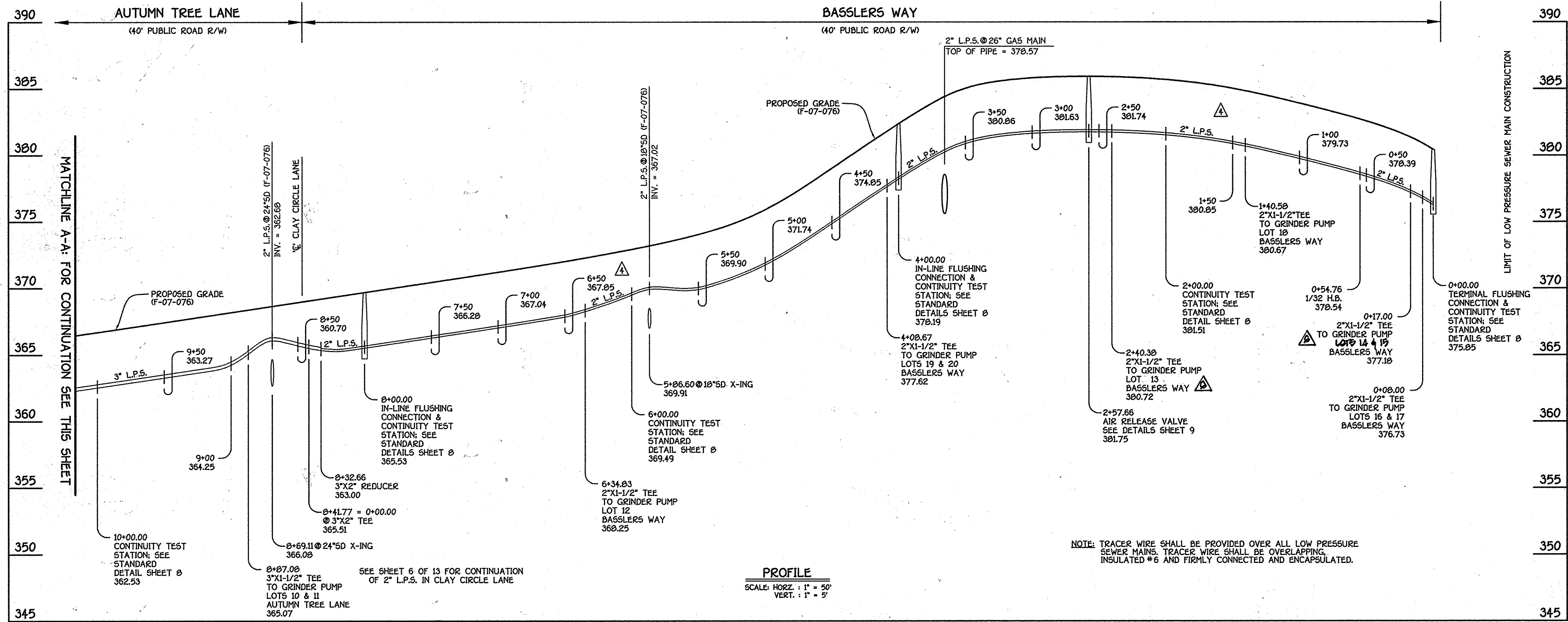


DESIGNED BY:	B.C.R.	
DRAWN BY:	B.C.R.	
CHECKED BY:	K.C.I.	AS BULLET
P.W.K.		
DATE:	9-19-12	
REVISION:		
DATE:	SEPTEMBER, 2012	

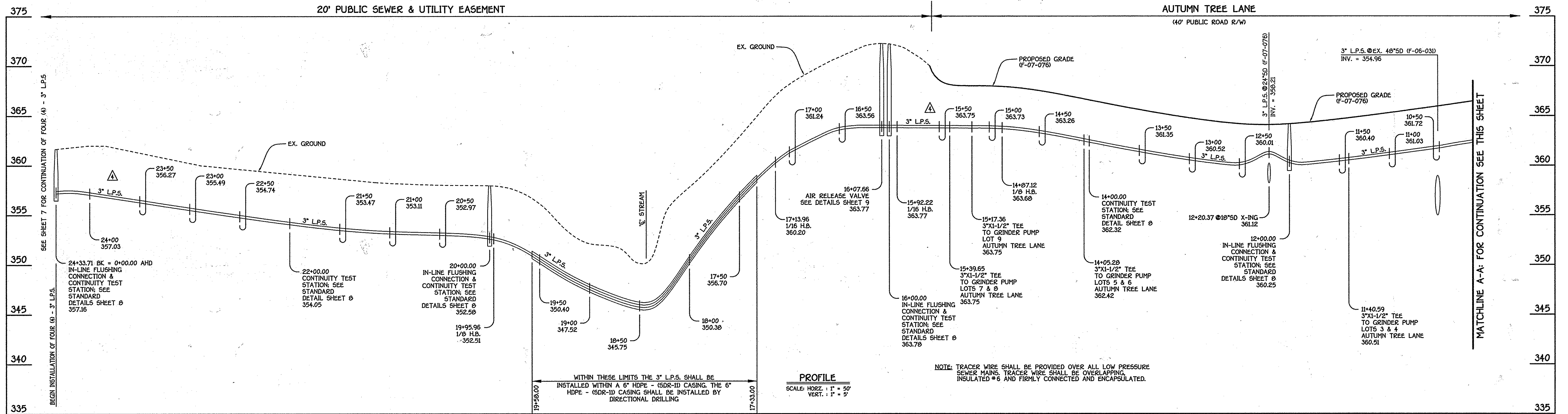
LOW PRESSURE SEWER SYSTEM PLAN	
600' SCALE MAP NO. 29	BLOCK NO. 4, 5, 10, 11, 12, 17, 18, 19
F.C.C. WORK ORDER NO. 4001-3001	
FILE NAME:	LOW PRESSURE SEWER SYSTEM BASE PLAN

SCALE AS SHOWN
 SHEET 4 OF 13

I:\2004\1001\1001\PHASE ONE FINALS\04001-3001 Phase 1 Sewer Base Plan (Log 22)\redline 3 - June 2012.dwg (NEW) Plan Sheet 4, 9/19/2012 2:41:57 PM, 1:1



LOW PRESSURE SEWER MAIN: BASSLERS WAY & AUTUMN TREE LANE



LOW PRESSURE SEWER MAIN: AUTUMN TREE LANE & TO CENTRAL TREATMENT FACILITY

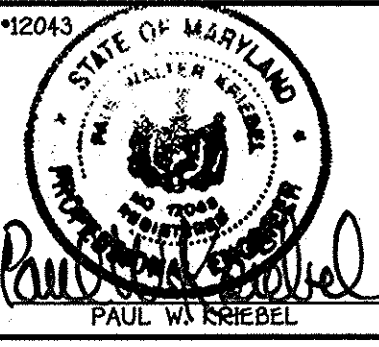
NOTE: THIS ORIGINAL CONSTRUCTION PLAN, SHEET 5 OF 13 SUPERSEDES THE LOW PRESSURE SEWER SYSTEM CONSTRUCTION PLAN PREVIOUSLY APPROVED & SIGNED BY THE DEPARTMENT OF PLANNING AND ZONING ON JANUARY 25, 2008.

CONTRACT NO. 50-4440-D
WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Chief, Bureau of Utilities
 10/16/12

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
 Chief, Development Engineering Division
 10/16/12

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2955



DESIGNED BY: B.C.R.
 DRAWN BY: B.C.R.
 CHECKED BY: P.W.K.
 DATE: SEPTEMBER, 2012
 PROJECT: BASSLERS WAY GRINDER PUMP UNIT TO WORK
 DATE: 10/16/12

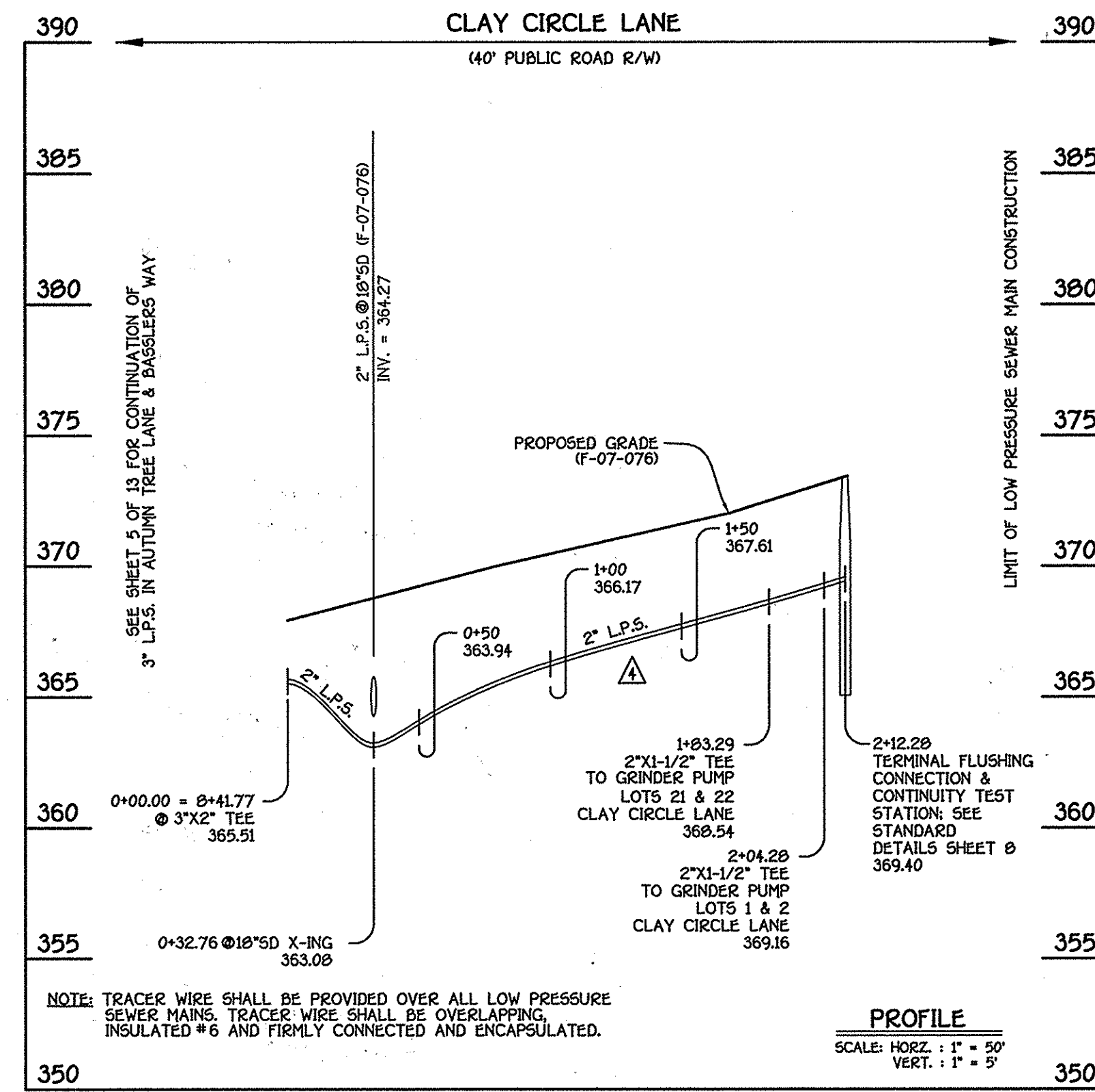
LOW PRESSURE SEWER SYSTEM
 PROFILES
 600' SCALE MAP NO. 28 BLOCK NO. 4, 5, 10, 11, 12, 17, 18, 19
 F.C.C. WORK ORDER NO. 4001-3001
 FILE NAME: LOW PRESSURE SEWER SYSTEM BASE PROFILE

SCALE AS SHOWN
 SHEET 5 OF 13

WALNUT CREEK HOWARD COUNTY, MARYLAND
CONTRACT # 50-4440-D - SEWER

QUANTITIES
AS-BUILT

DESCRIPTION OF MATERIAL	QUANTITY	MANUFACTURER
3" IN-LINE FLUSHING CONNECTION		
3" SCH80 PVC X SDR11 HDPE PIPE ADPT	8 EA	POLYCAM
3" 1/2" SCH80 PVC TEE 5X5X5	12 EA	CHARLOTTE PIPE
3" SCH80 PVC UNION 5X5	4 EA	CHARLOTTE PIPE
1-1/2" SCH80 PVC 5X1/2" ADPT	12 EA	CHARLOTTE PIPE
1-1/2" EP NUG 6000# BALL VALVE	12 EA	FNW
PL3300S 56304 LINK SEALS	24 EA	KLI PIPELINE SYSTEMS
4-WAY 3" IN-LINE FLUSHING CONNECTION		
3" SCH80 X SDR11 HDPE PIPE ADPT	16 EA	POLYCAM
3" 1-1/2" SCH80 PVC TEE 5X5X5	24 EA	CHARLOTTE PIPE
3" SCH80 PVC UNION 5X5	8 EA	CHARLOTTE PIPE
1-1/2" SCH80 PVC 5X1/2" ADPT	24 EA	CHARLOTTE PIPE
1-1/2" EP NUG 6000# BALL VALVE	24 EA	FNW
PL3300S 56304 LINK SEALS	12 EA	KLI PIPELINE SYSTEMS
AIR RELEASE VALVE 3" OFF 3" SDR11 HDPE		
3/4" IPS SDR11 HDPE HOT TAP PIPE SADDLE	1 EA	IPEX
2" SDR11 HDPE SDR11 HDPE PIPE ADPT	1 EA	POLYCAM
2" BR20232 BRASS BALL VALVE FITTING	1 EA	MUELLER CO
2" DUK BODY AIR/VALE VALVE W/BACKWASH	1 EA	VALMATIC



LOW PRESSURE SEWER MAIN: CLAY CIRCLE LANE

LOW PRESSURE SEWER MAIN TABULATION CHART

L.P.S. STA.	APPURTENANCE	NORTHING	EASTING	RIM ELEVATION
LOW PRESSURE SEWER MAIN: CLAY CIRCLE LANE				
0+00.00	3" X 2" TEE	570235.00	1328753.46	
1+03.29	2" X 1-1/2" TEE	570081.44	1328853.52	
2+04.20	2" X 1 1/2" TEE	570063.84	1328864.99	
2+12.20	TERMINAL FLUSHING CONN. & CONTINUITY TEST STATION	570057.14	1328869.35	373.40

LOW PRESSURE SEWER MAIN TABULATION CHART

L.P.S. STA.	APPURTENANCE	NORTHING	EASTING	RIM ELEVATION
LOW PRESSURE SEWER MAIN: BAGGLERS WAY, AUTUMN TREE LANE & TO CENTRAL TREATMENT FACILITY				
0+00.00	TERMINAL FLUSHING CONN. & CONTINUITY TEST STATION	570717.66	1329422.45	380.40 *
0+08.00	2" X 1-1/2" TEE	570713.75	1329415.47	380.40 **
0+17.00	2" X 1-1/2" TEE	570709.34	1329407.63	
0+54.76	1/32 H.B.	570690.85	1329374.70	
1+18.39	PC (CRIMP RADIUS 153')	570670.87	1329314.30	
1+40.58	2" X 1-1/2" TEE	570662.60	1329293.72	386.00 **
2+00.00	CONTINUITY TEST STATION	570626.92	1329246.67	
2+35.16	PT (CRIMP RADIUS 153')	570598.22	1329226.49	
2+40.30	2" X 1-1/2" TEE	570593.64	1329224.00	
2+57.66	AIR RELEASE VALVE	570578.46	1329215.74	
2+80.83	PC (CRIMP RADIUS 297')	570558.10	1329204.68	
4+00.00	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	570467.46	1329128.54	382.35 *
4+08.67	2" X 1-1/2" TEE	570462.16	1329121.68	382.10 **
4+72.65	PRC (CRIMP RADIUS 297')	570429.63	1329066.73	
4+72.65	PRC (CRIMP RADIUS 703')	570429.63	1329066.73	
5+78.48	PT (CRIMP RADIUS 703')	570378.73	1328974.05	
6+00.00	CONTINUITY TEST STATION	570366.39	1328956.03	372.10 **
6+34.83	2" X 1-1/2" TEE	570347.97	1328926.85	
8+00.00	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	570257.80	1328788.46	369.70 *
8+32.66	3" X 2" REDUCER	570239.97	1328761.10	369.80 **
8+41.77	3" X 2" TEE	570235.00	1328753.46	
8+87.08	2" X 1-1/2" TEE	570210.26	1328715.50	
10+00.00	CONTINUITY TEST STATION	570148.62	1328620.89	366.20 **
10+06.15	PC (CRIMP RADIUS 447')	570145.26	1328615.74	
11+40.59	3" X 1-1/2" TEE	570089.78	1328493.84	
12+00.00	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	570077.39	1328435.78	364.17 *
13+07.47	PRC (CRIMP RADIUS 447')	570074.86	1328328.60	364.95 **
13+07.47	PRC (CRIMP RADIUS 283')	570074.86	1328328.60	
14+00.00	CONTINUITY TEST STATION	570068.70	1328236.68	366.25 **
14+05.28	3" X 1-1/2" TEE	570067.45	1328231.55	
14+43.58	PT (CRIMP RADIUS 283')	570055.53	1328195.19	
14+87.12	1/8 H.B.	570038.86	1328154.97	
15+17.36	3" X 1-1/2" TEE	570050.43	1328127.02	
15+39.65	3" X 1-1/2" TEE	570058.96	1328106.43	
15+92.22	1/16 H.B.	570079.07	1328057.86	
16+00.00	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	570084.60	1328052.39	372.20 *
16+07.66	AIR RELEASE VALVE	570090.05	1328047.00	372.20 **
17+13.96	1/16 H.B.	570165.64	1327972.26	
19+95.96	1/8 H.B.	570421.33	1327853.33	
20+00.00	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	570422.71	1327849.53	358.10 *
22+00.00	CONTINUITY TEST STATION	570491.30	1327661.66	358.10 **
23+46.79	PC (CRIMP RADIUS 64')	570541.63	1327523.77	359.75 **
24+33.71	PRC (CRIMP RADIUS 64')	570514.84	1327448.01	
24+33.71	PRC (CRIMP RADIUS 200')	570514.84	1327448.01	
24+33.71	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	570514.84	1327448.01	361.66 *
				361.66 **

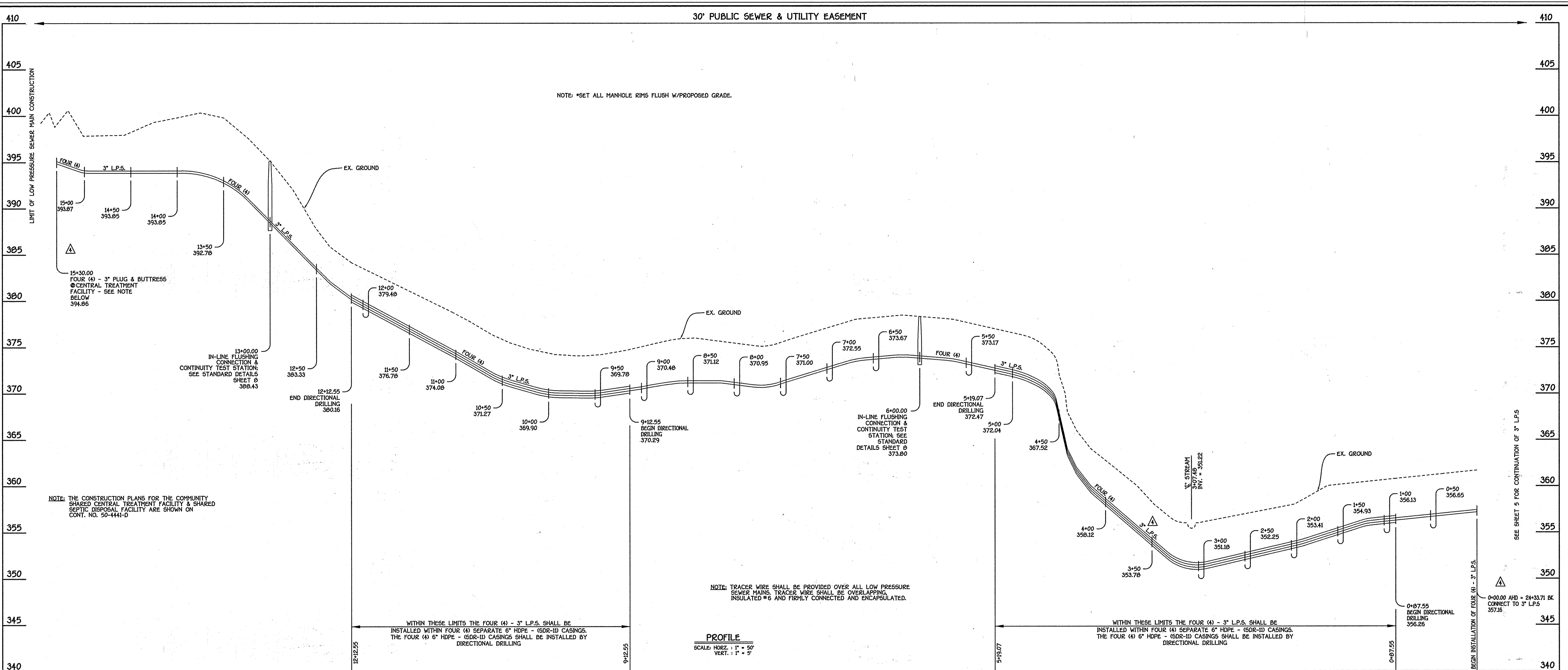
NOTE: SET ALL MANHOLE RIMS FLUSH W/EXISTING OR PROPOSED GRADE, AS APPLICABLE.
* DENOTES IN-LINE FLUSHING CONNECTION RIM ELEVATION
** DENOTES CONTINUITY TEST STATION RIM ELEVATION

NOTE: THIS ORIGINAL CONSTRUCTION PLAN, SHEET 6 OF 13 SUPERSEDES THE LOW PRESSURE SEWER SYSTEM CONSTRUCTION PLAN PREVIOUSLY APPROVED & SIGNED BY THE DEPARTMENT OF PLANNING AND ZONING ON JANUARY 25, 2008.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Chief, Bureau of Utilities: <i>Silvia Clemen</i> 10/15/12 DATE	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND Chief, Development Engineering Division: <i>Paul W. Kriebel</i> 10/15/12 DATE	FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE ELLSWORTH CITY, MARYLAND 21042 (410) 461-2995	DESIGNED BY: B.C.R. DRAWN BY: B.C.R. CHECKED BY: P.W.K. DATE: SEPTEMBER, 2012	LOW PRESSURE SEWER SYSTEM PROFILE & CHARTS 600' SCALE MAP NO. 28 BLOCK NO. 4, 5, 10, 11, 12, 17 & 18 F.C.C. WORK ORDER NO. 4001-3001 FILE NAME: LOW PRESSURE SEWER SYSTEM BASE PROFILE	WALNUT CREEK PHASE ONE LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F' CONTRACT NO. 50-4440-D FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 6 OF 13
---	---	--	--	--	--	---------------------------------

I:\2014\04\01\PHASE ONE FINALS\0401-3001 Phase 1 Sewer Base Plan (Lot 22)\Profile 3 - June 2012.dwg, (NEW) Profile Sheet 6, 9/18/2012 2:46:50 PM, 11

NOTE: *SET ALL MANHOLE RIMS FLUSH W/PROPOSED GRADE.



NOTE: THE CONSTRUCTION PLANS FOR THE COMMUNITY SHARED CENTRAL TREATMENT FACILITY & SHARED SEPTIC DISPOSAL FACILITY ARE SHOWN ON CONT. NO. 50-444-D

NOTE: TRACER WIRE SHALL BE PROVIDED OVER ALL LOW PRESSURE SEWER MAINS. TRACER WIRE SHALL BE OVERLAPPING, INSULATED #6 AND FIRMLY CONNECTED AND ENCAPSULATED.

WITHIN THESE LIMITS THE FOUR (4) - 3" L.P.S. SHALL BE INSTALLED WITHIN FOUR (4) SEPARATE 6" HDPE - (60R-ID) CASINGS. THE FOUR (4) 6" HDPE - (60R-ID) CASINGS SHALL BE INSTALLED BY DIRECTIONAL DRILLING

WITHIN THESE LIMITS THE FOUR (4) - 3" L.P.S. SHALL BE INSTALLED WITHIN FOUR (4) SEPARATE 6" HDPE - (60R-ID) CASINGS. THE FOUR (4) 6" HDPE - (60R-ID) CASINGS SHALL BE INSTALLED BY DIRECTIONAL DRILLING

FOUR (4) - 3" LOW PRESSURE SEWER MAINS: TO CENTRAL TREATMENT FACILITY

L.P.S. STA.	APPURTENANCE	NORTHING	EASTING	RIM ELEVATION
FOUR (4) - 3" LOW PRESSURE SEWER MAINS: TO CENTRAL TREATMENT FACILITY				
0+00.00	BEGIN DIRECTIONAL DRILL	570914.84	1327448.01	
5+19.07	END DIRECTIONAL DRILL	570211.86	1327029.52	
5+19.07	PC (CRIMP RADIUS 200')	570211.86	1327029.52	
6+00.00	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	570181.47	1326955.11	378.33 * 378.18 **
7+42.56	PT (CRIMP RADIUS 200')	570205.20	1326817.59	
9+12.55	BEGIN DIRECTIONAL DRILL	570290.74	1326670.69	
12+12.55	END DIRECTIONAL DRILL	570441.70	1326411.44	
12+36.05	PC (CRIMP RADIUS 221')	570453.52	1326391.13	
13+00.00	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	570476.74	1326331.79	395.16 * 395.16 **
14+56.96	PT (CRIMP RADIUS 221')	570457.39	1326179.31	
15+30.00	(4) - 3" PLUG & BUTTRESSES	570426.39	1326113.18	

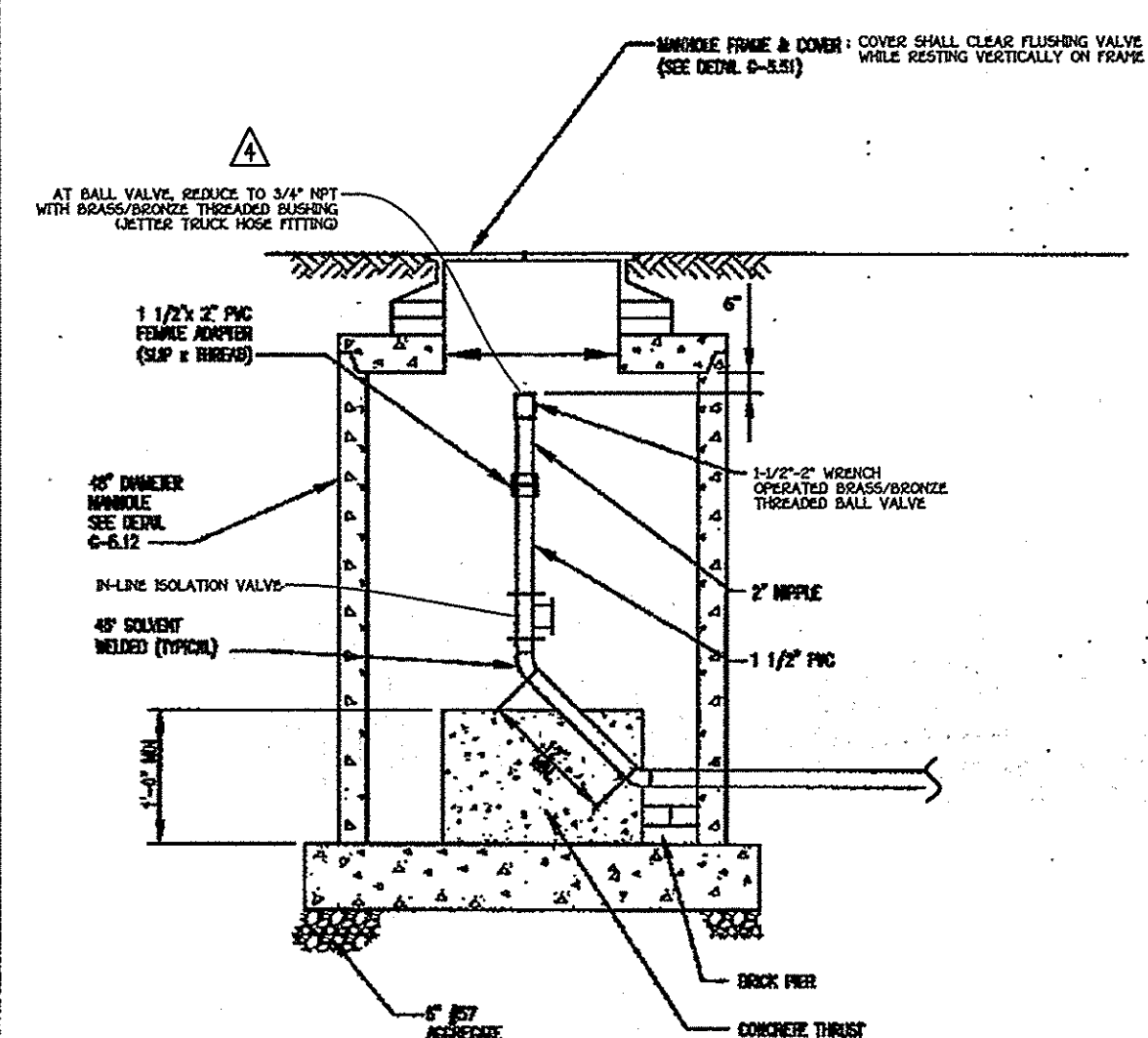
NOTE: SET ALL MANHOLE RIMS FLUSH W/EXISTING OR PROPOSED GRADE, AS APPLICABLE.
 * DENOTES IN-LINE FLUSHING CONNECTION RIM ELEVATION
 ** DENOTES CONTINUITY TEST STATION RIM ELEVATION

NOTE: THIS ORIGINAL CONSTRUCTION PLAN, SHEET 7 OF 13 SUPERSEDES THE LOW PRESSURE SEWER SYSTEM CONSTRUCTION PLAN PREVIOUSLY APPROVED & SIGNED BY THE DEPARTMENT OF PLANNING AND ZONING ON JANUARY 25, 2008.

CONTRACT NO. 50-4440-D
WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>Steve C. Green</i> CHIEF, BUREAU OF UTILITIES 10/15/12 DATE	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND <i>Mark ...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/11/12 DATE	FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MARYLAND 21114 (410) 461-2000	DESIGNED BY: B.C.R. DRAWN BY: B.C.R. CHECKED BY: P.W.K. DATE: SEPTEMBER, 2012	120143 STATE OF MARYLAND PAUL W. SCHUBEL	LOW PRESSURE SEWER SYSTEM PROFILE & CHART 600' SCALE MAP NO. 28 BLOCK NO. 4,5,10,11,12,17&18 F.C.C. WORK ORDER NO. 4001-3001 FILE NAME: LOW PRESSURE SEWER SYSTEM BASE PROFILE	WALNUT CREEK PHASE ONE LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F' CONTRACT NO. 50-4440-D FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 7 OF 13
---	---	---	--	--	--	---	---------------------------------

NOTES:
 1. 5 = 3000 PSI 28 DAYS
 2. DO NOT ENCASE JOINTS

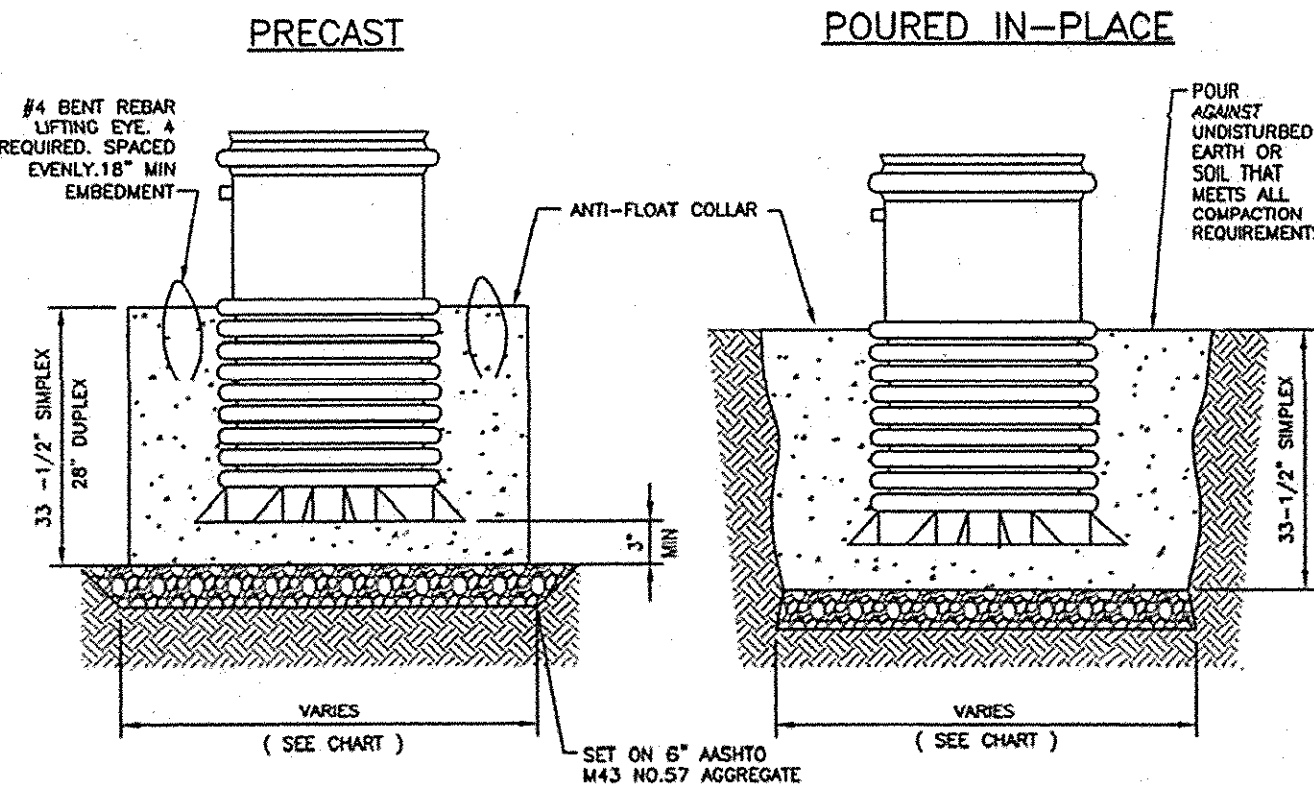


Howard County, Maryland Department of Public Works Approved: <i>[Signature]</i> 5/7/2007 Chief, Bureau of Engineering	Terminal Flushing Connection County Owned Grinder Pump	Detail E-1.03
---	--	------------------

ENVIRONMENT ONE MODEL #	STATION VOLUME	CONCRETE VOLUME	BALLAST WEIGHT	PRE-CAST DIA AT 33-1/2" IN HEIGHT
2010-58	17.6 FT ³	9.8 FT ³ (.36 CY)	1500 LBS (1473 LBS)	ø 36 IN
2010-74	22.7 FT ³	13.2 FT ³ (.48 CY)	2000 LBS (1985 LBS)	ø 39-3/8 IN
2010-93	28.6 FT ³	17.3 FT ³ (.63 CY)	2600 LBS (2590 LBS)	ø 42-1/2 IN
2010-124	36.6 FT ³	24.3 FT ³ (.90 CY)	3700 LBS (3642 LBS)	ø 47-1/2 IN
2010-129	40.0 FT ³	25.1 FT ³ (.93 CY)	3600 LBS (3750 LBS)	ø 48 IN
2010-158	49.5 FT ³	31.8 FT ³ (1.17 CY)	4800 LBS (4732 LBS)	ø 52-1/2 IN
2010-160	49.9 FT ³	31.8 FT ³ (1.18 CY)	4800 LBS (4773 LBS)	ø 52-1/2 IN

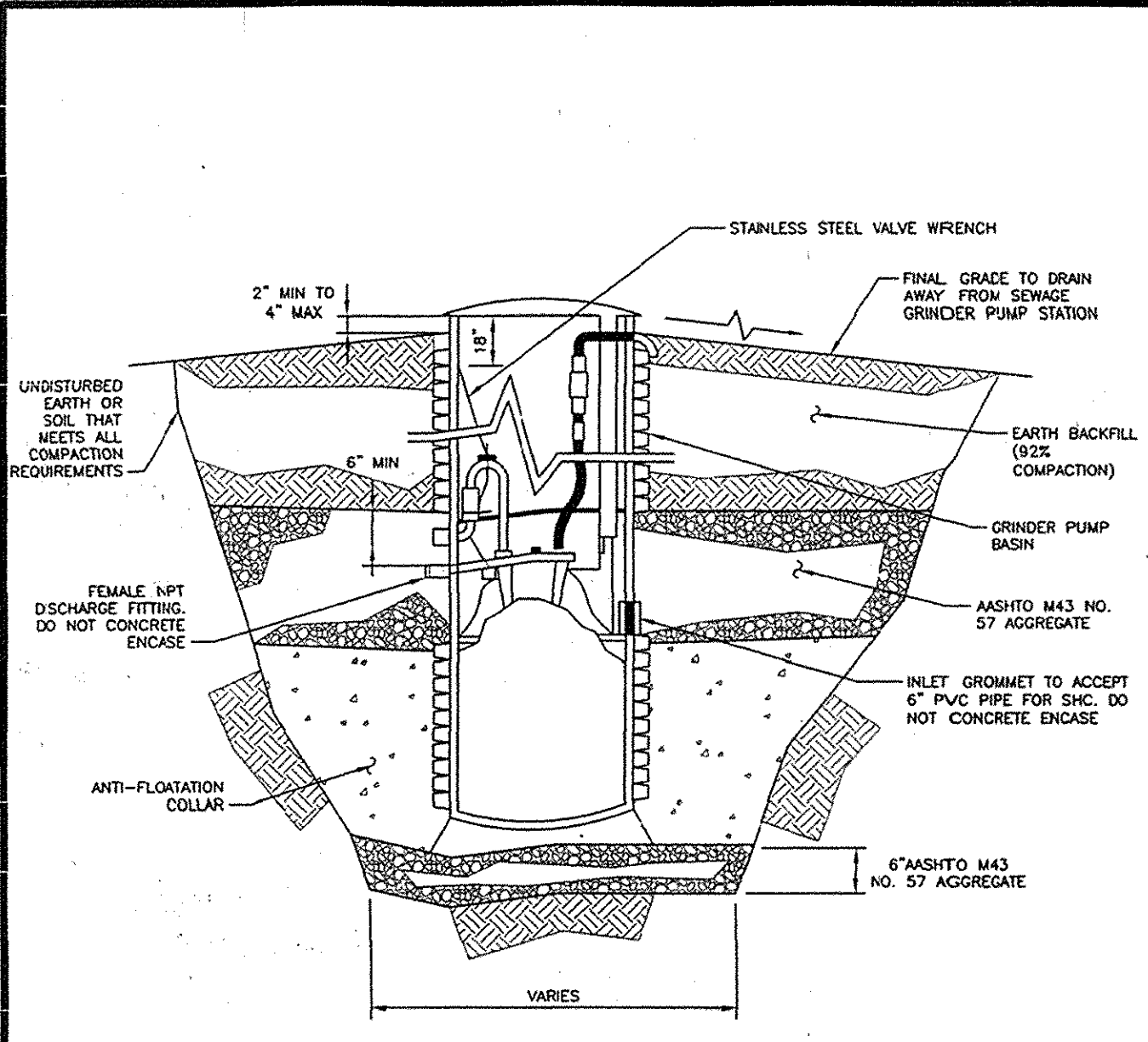
ENVIRONMENT ONE MODEL #	STATION VOLUME	CONCRETE VOLUME	BALLAST WEIGHT	PRE-CAST DIA AT 28 IN HEIGHT
2014-85	47.5 FT ³	28.8 FT ³ (1.0 CY)	4300 LBS (4285 LBS)	ø 57-3/8 IN
2014-93	49.6 FT ³	29.9 FT ³ (1.1 CY)	4500 LBS (4494 LBS)	ø 58-3/8 IN
2014-129	61.0 FT ³	37.6 FT ³ (1.4 CY)	5700 LBS (5646 LBS)	ø 63-3/8 IN
2014-160	71.0 FT ³	44.4 FT ³ (1.6 CY)	5700 LBS (6664 LBS)	ø 67-3/8 IN

* - OR APPROVED EQUAL



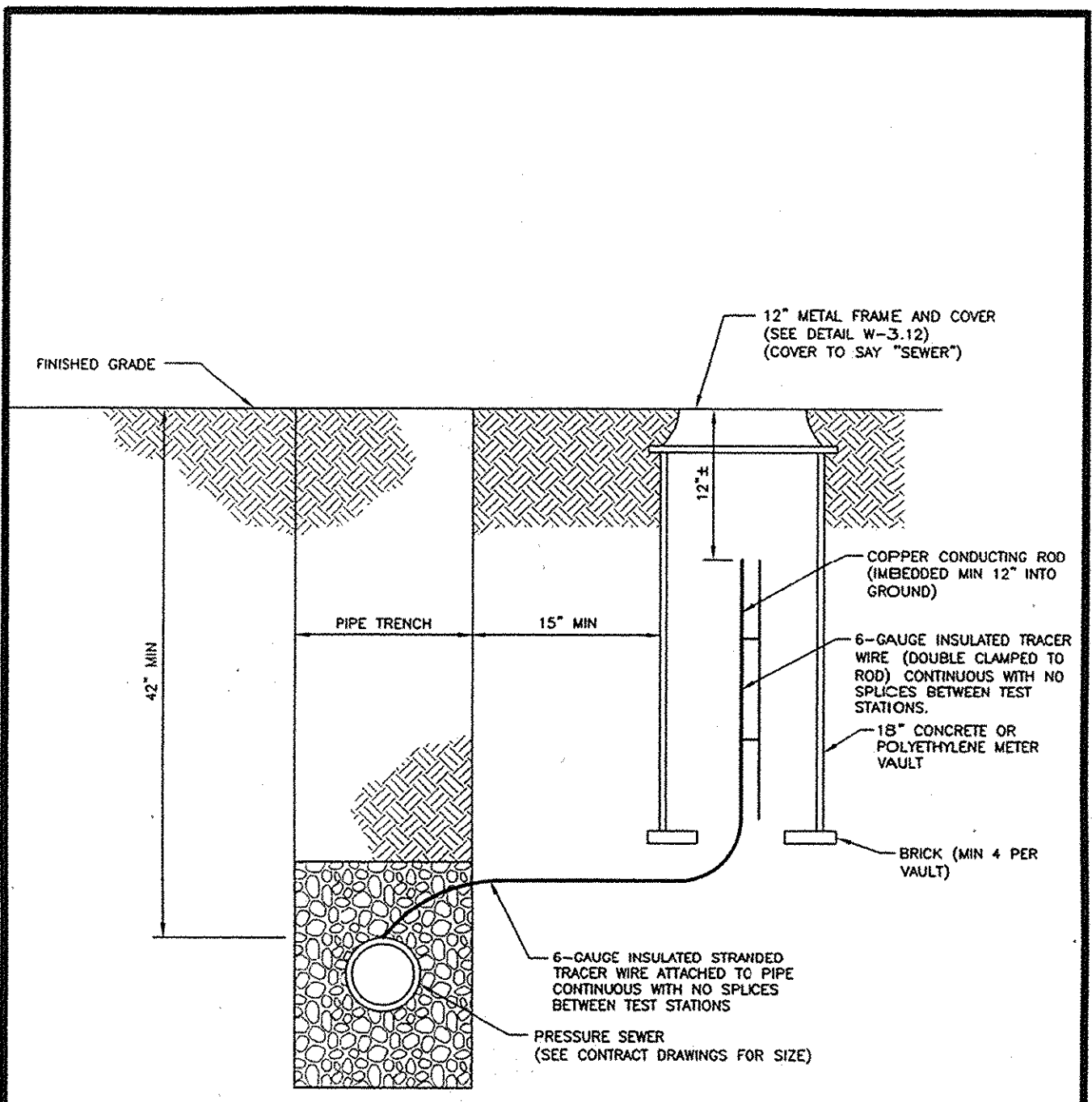
NOTES:
 1. INSTALL PLUMB - PROVIDE TEMPORARY BRACING TO MAINTAIN POSITIONING DURING CONCRETE PLACEMENT.
 2. ALL CONCRETE TO BE MIX NO. 1 AND SHALL CURE 24 HOURS PRIOR TO BACKFILL.
 3. SEE E-2.02 FOR COMPACTION.

Howard County, Maryland Department of Public Works Approved: <i>[Signature]</i> 5/7/2007 Chief, Bureau of Engineering	Anti-Floatation Collar County Owned Grinder Pump	Detail E-2.01
---	---	------------------



NOTES:
 1. SIMPLEX PUMP SHOWN. DUPLEX PUMP BACKFILL IS THE SAME.
 2. INSTALL PLUMB. PROVIDE TEMPORARY BRACING TO MAINTAIN POSITIONING DURING BACKFILL.
 3. SEE E-2.01 FOR ANTI-FLOATATION COLLAR DETAILS.
 4. CONCRETE SHALL CURE A MINIMUM OF 24 HOURS PRIOR TO BACKFILL.

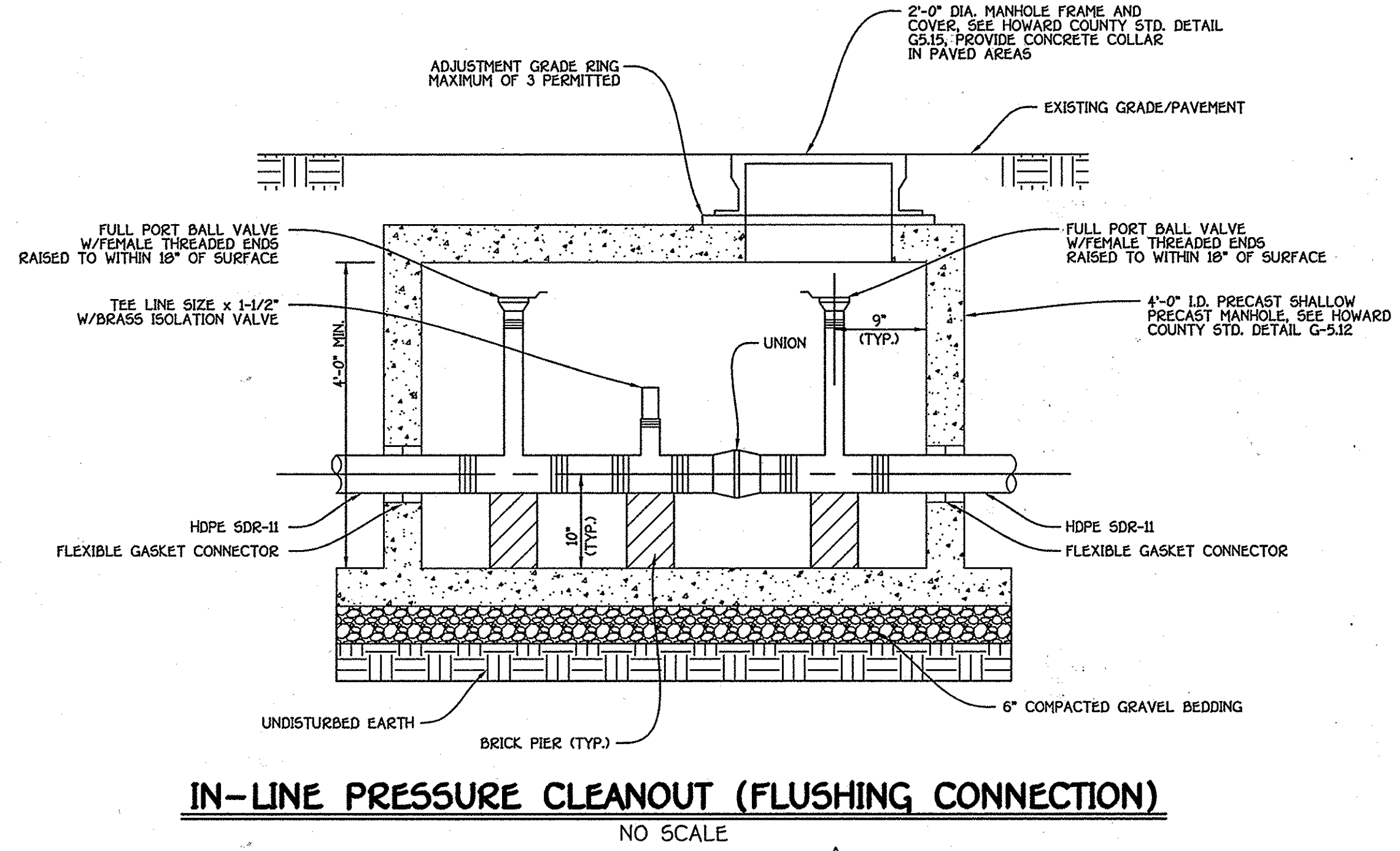
Howard County, Maryland Department of Public Works Approved: <i>[Signature]</i> 5/7/2007 Chief, Bureau of Engineering	Backfill County Owned Grinder Pump	Detail E-2.02
---	---------------------------------------	------------------



NOTES:
 1. FOR LOCATIONS ALONG PRESSURE SEWER ALIGNMENT, SEE CONTRACT DRAWINGS.

Howard County, Maryland Department of Public Works Approved: <i>[Signature]</i> 5/7/2007 Chief, Bureau of Engineering	PRESSURE SEWER Tracer Wire, Conducting Rod & Vault	Detail S-4.18
---	--	------------------

NOTE: THIS ORIGINAL CONSTRUCTION PLAN, SHEET 8 OF 13 SUPERSEDES THE LOW PRESSURE SEWER SYSTEM CONSTRUCTION PLAN PREVIOUSLY APPROVED & SIGNED BY THE DEPARTMENT OF PLANNING AND ZONING ON JANUARY 25, 2008.



IN-LINE PRESSURE CLEANOUT (FLUSHING CONNECTION)
 NO SCALE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Approved: <i>[Signature]</i> 10/16/12 CHIEF, BUREAU OF UTILITIES	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND Approved: <i>[Signature]</i> 10/16/12 CHIEF, DEVELOPMENT ENGINEERING DIVISION
---	---

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTONAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PKE
 BELLGATE CITY, MARYLAND 20842
 (410) 461-2925

PAUL W. REBEDEL

DESIGNED BY: B.C.R.
 DRAWN BY: B.C.R.
 CHECKED BY: P.W.K.
 DATE: 9-19-12
 REVISION: REVISE DETAILS BASED ON BUREAU OF UTILITIES COMMENTS

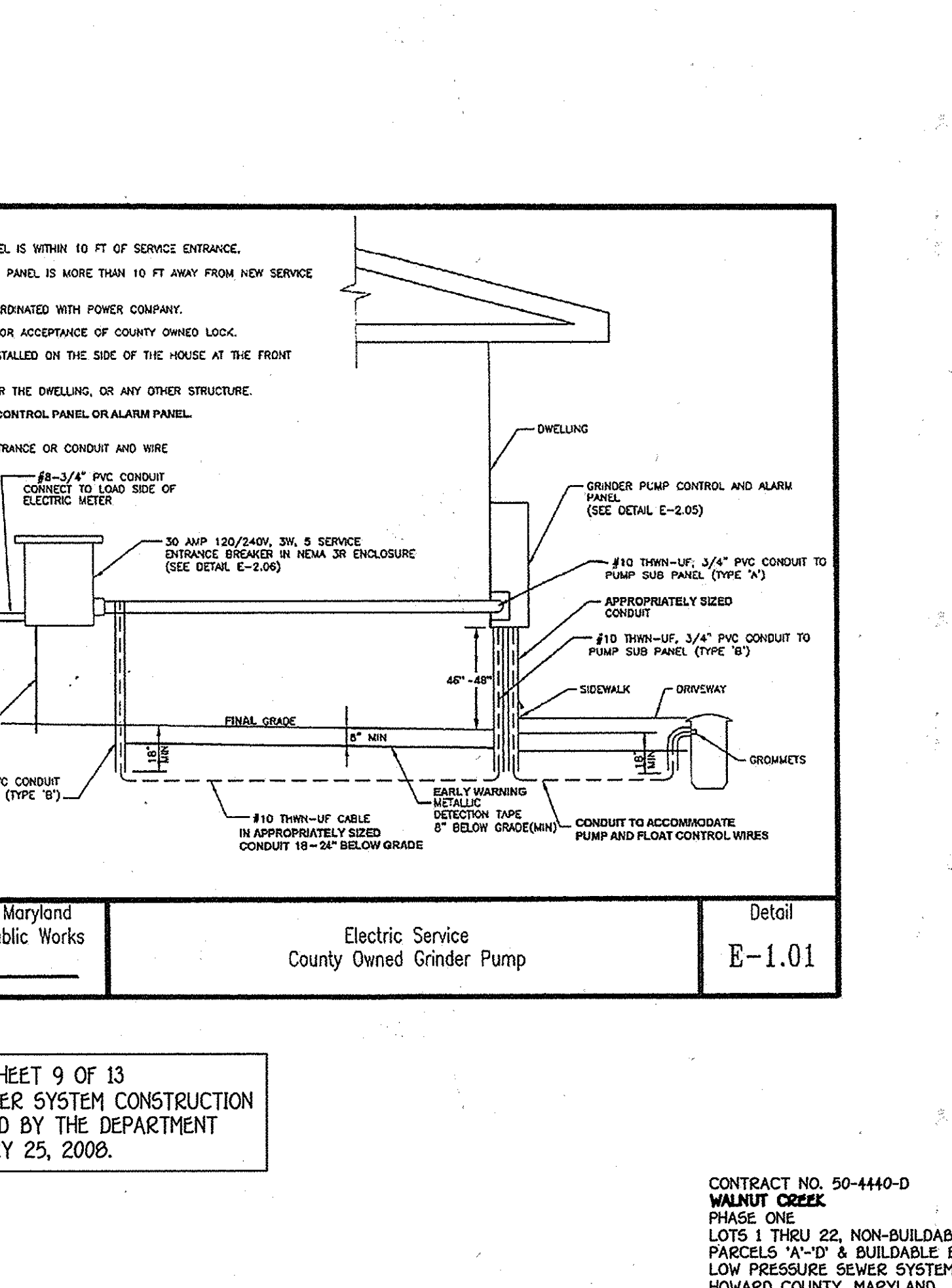
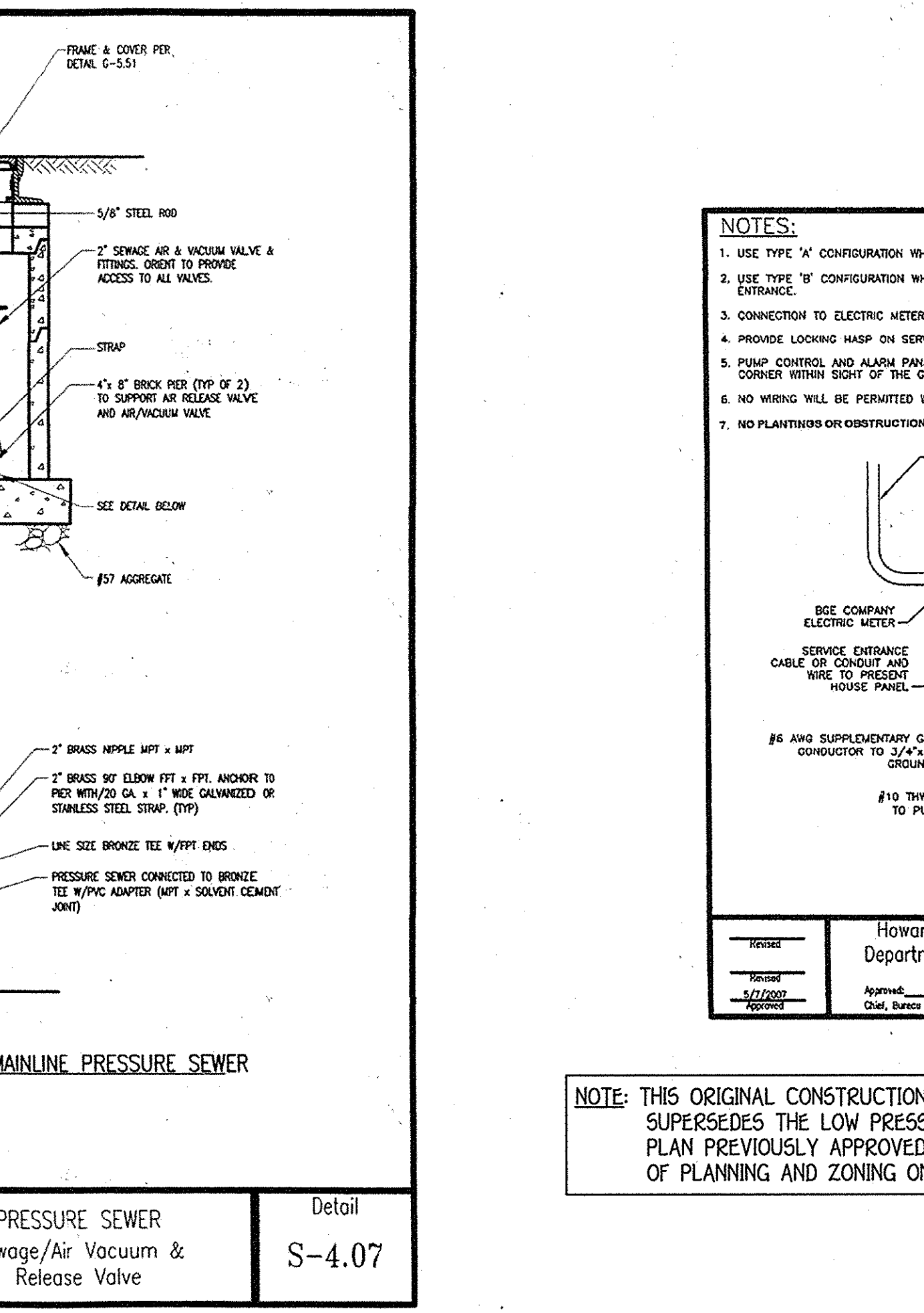
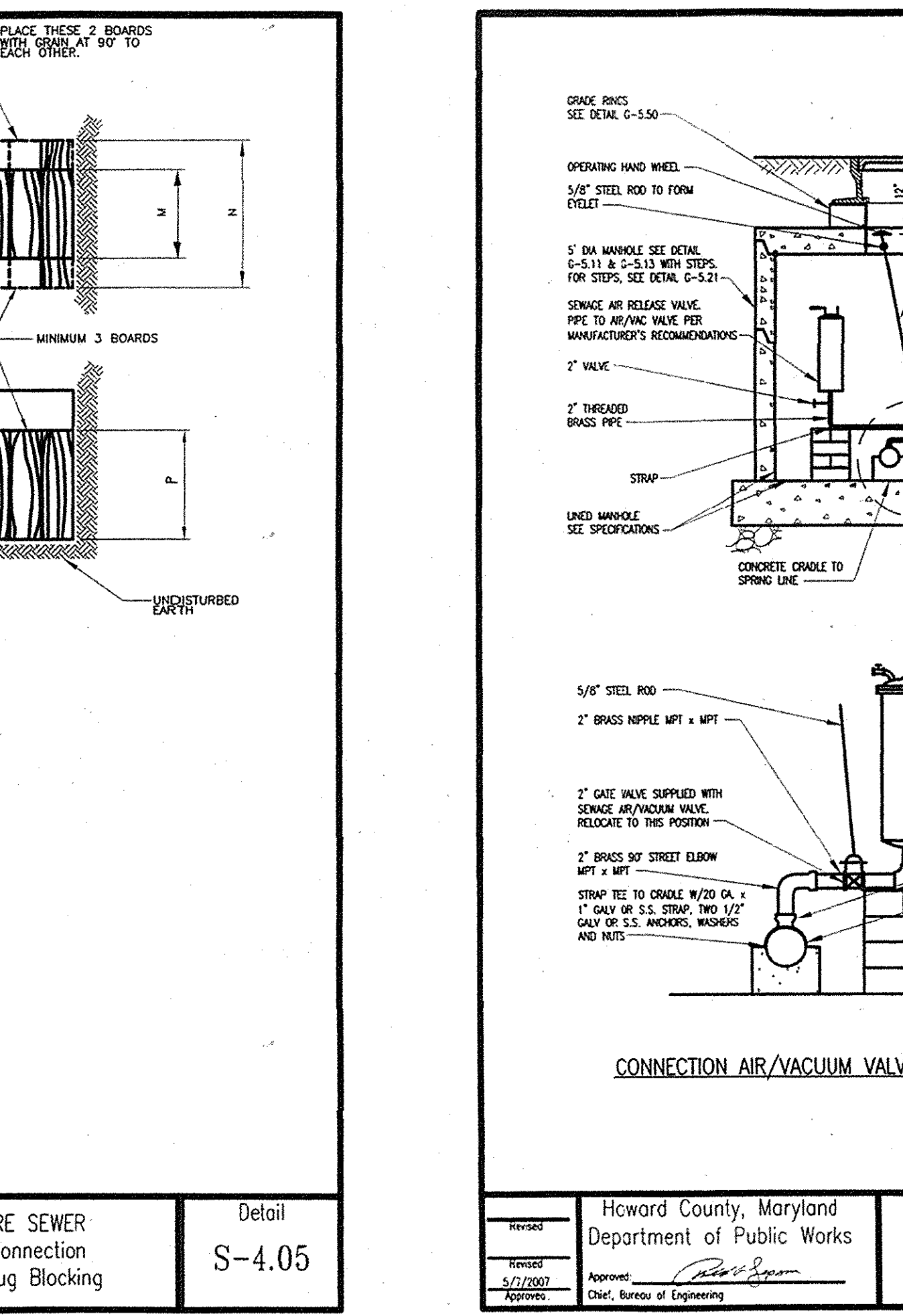
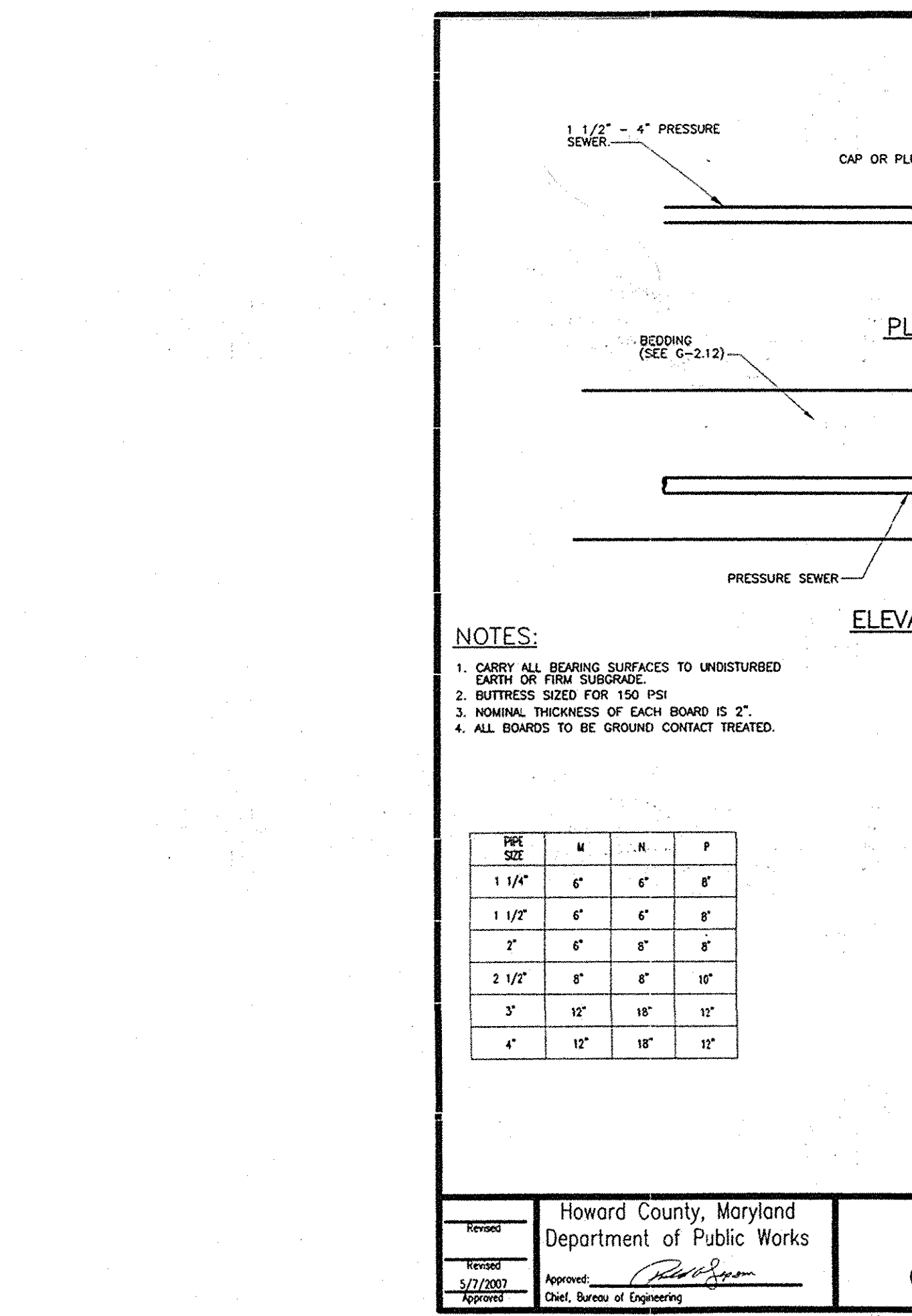
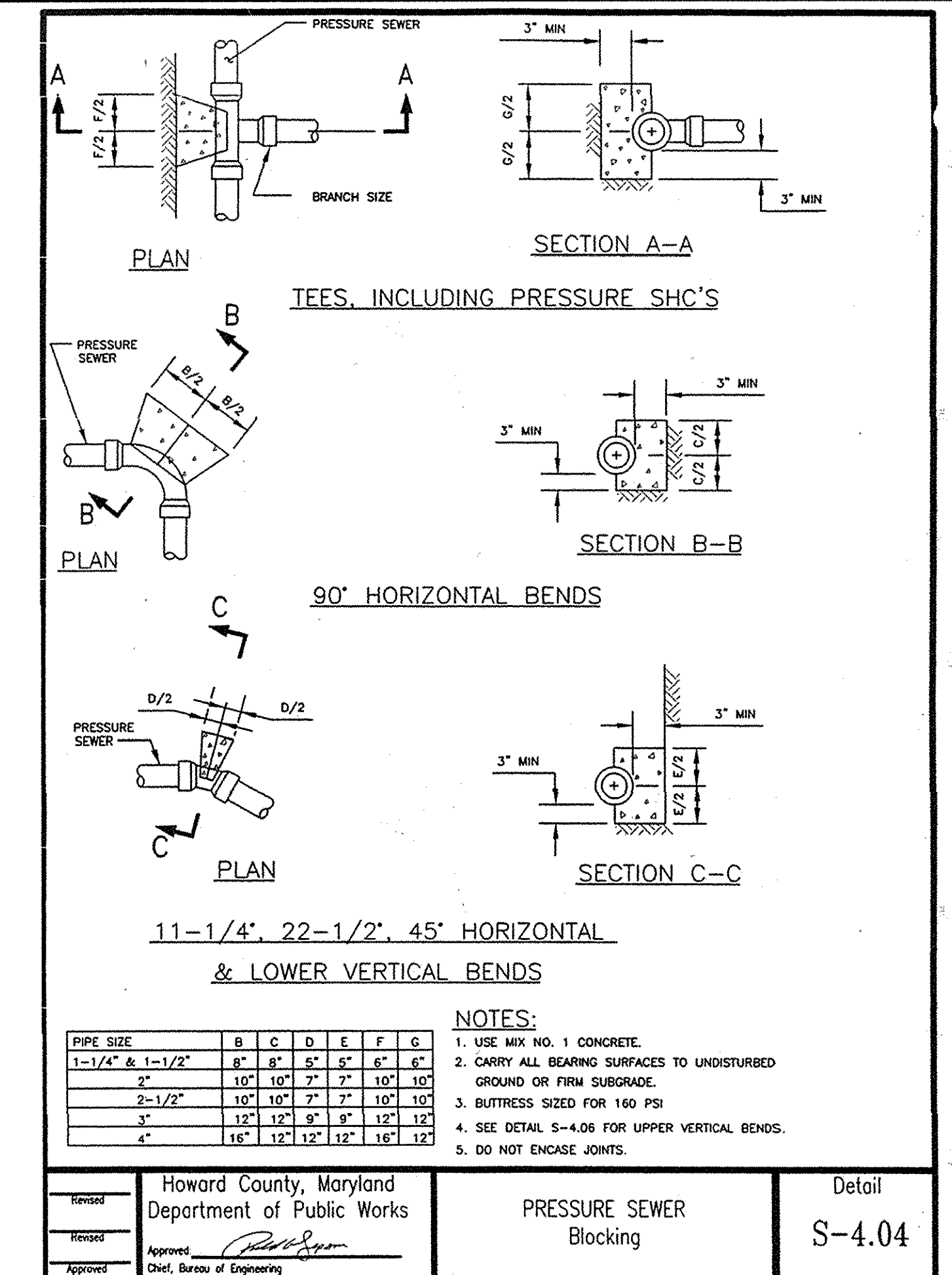
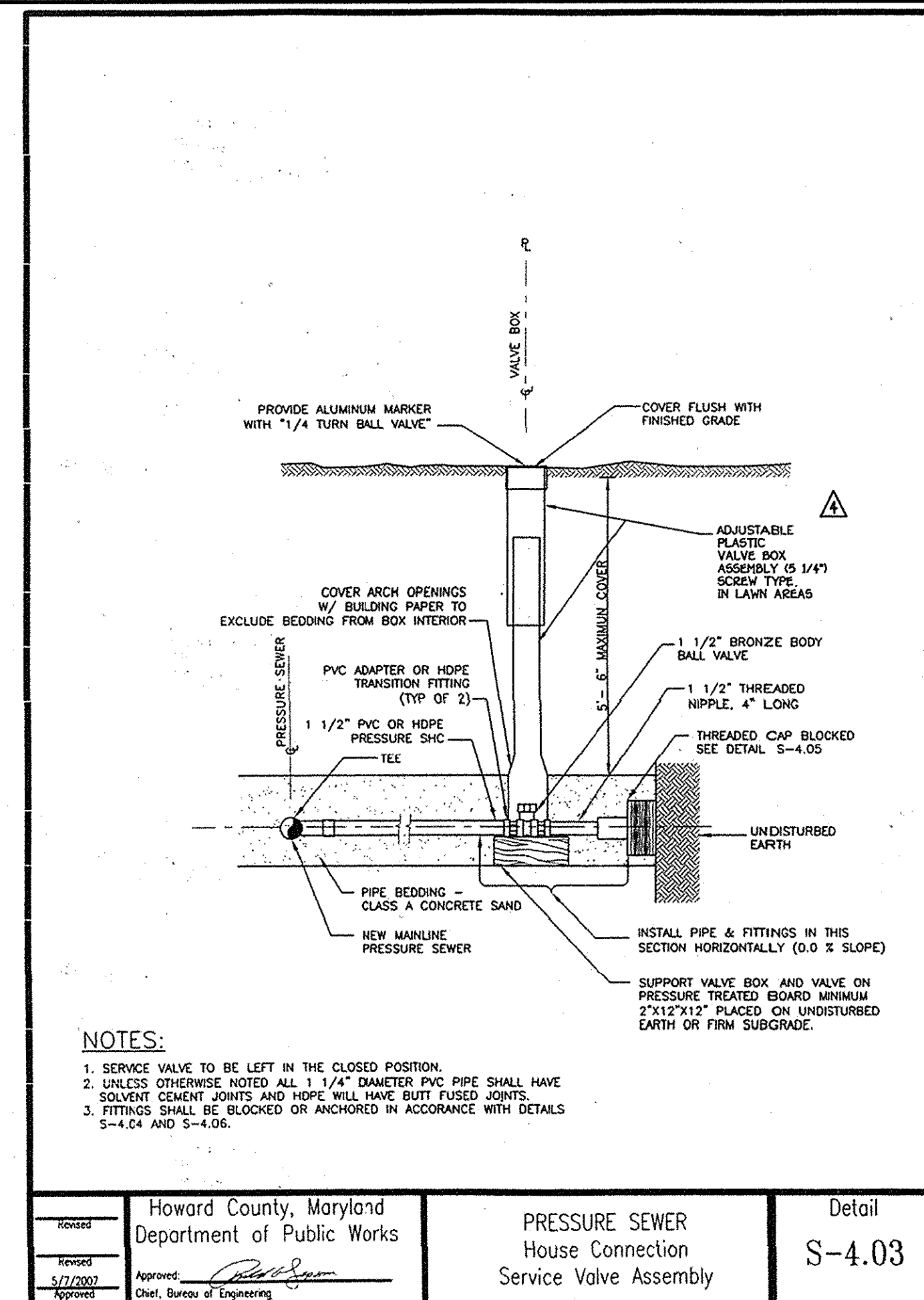
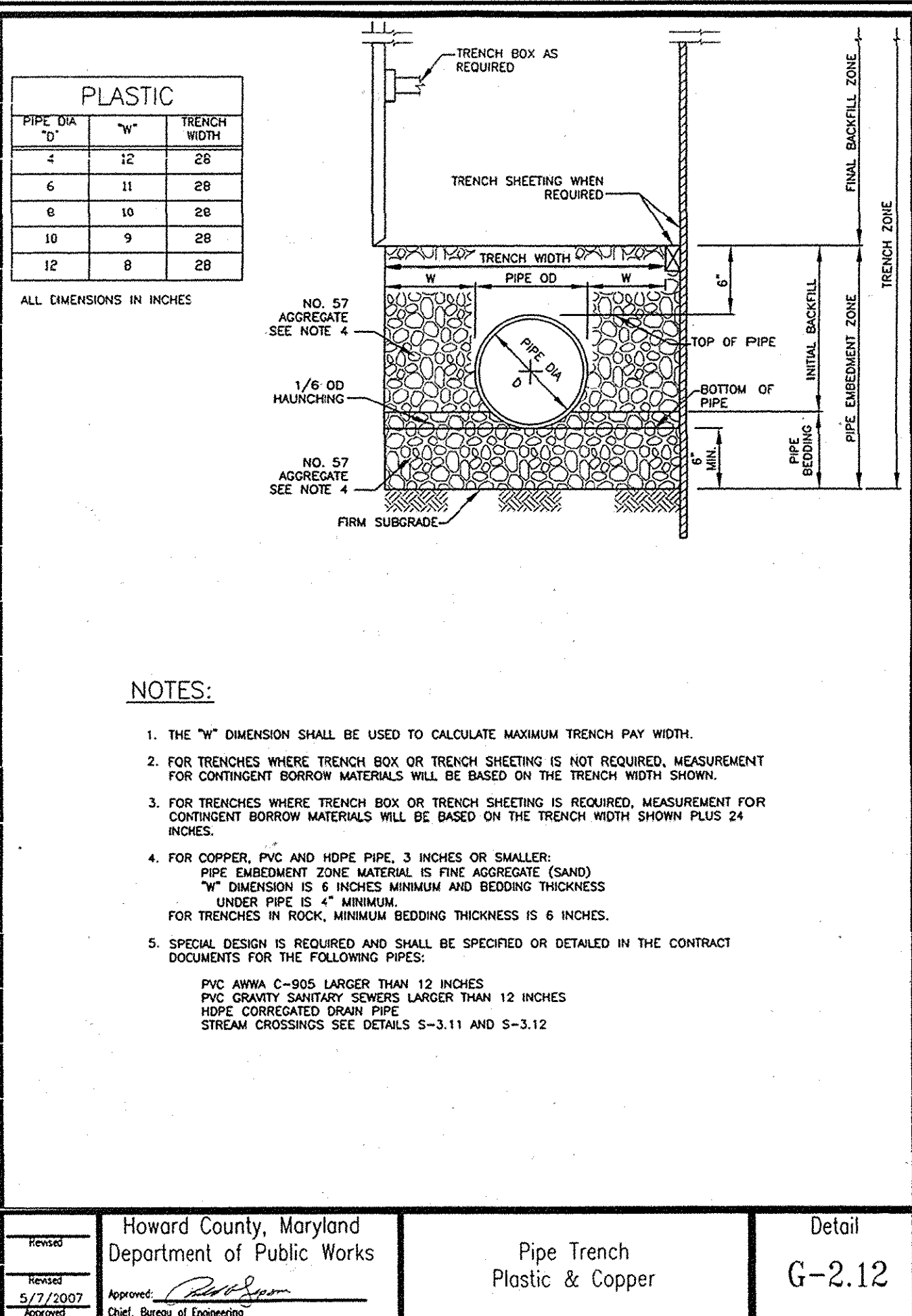
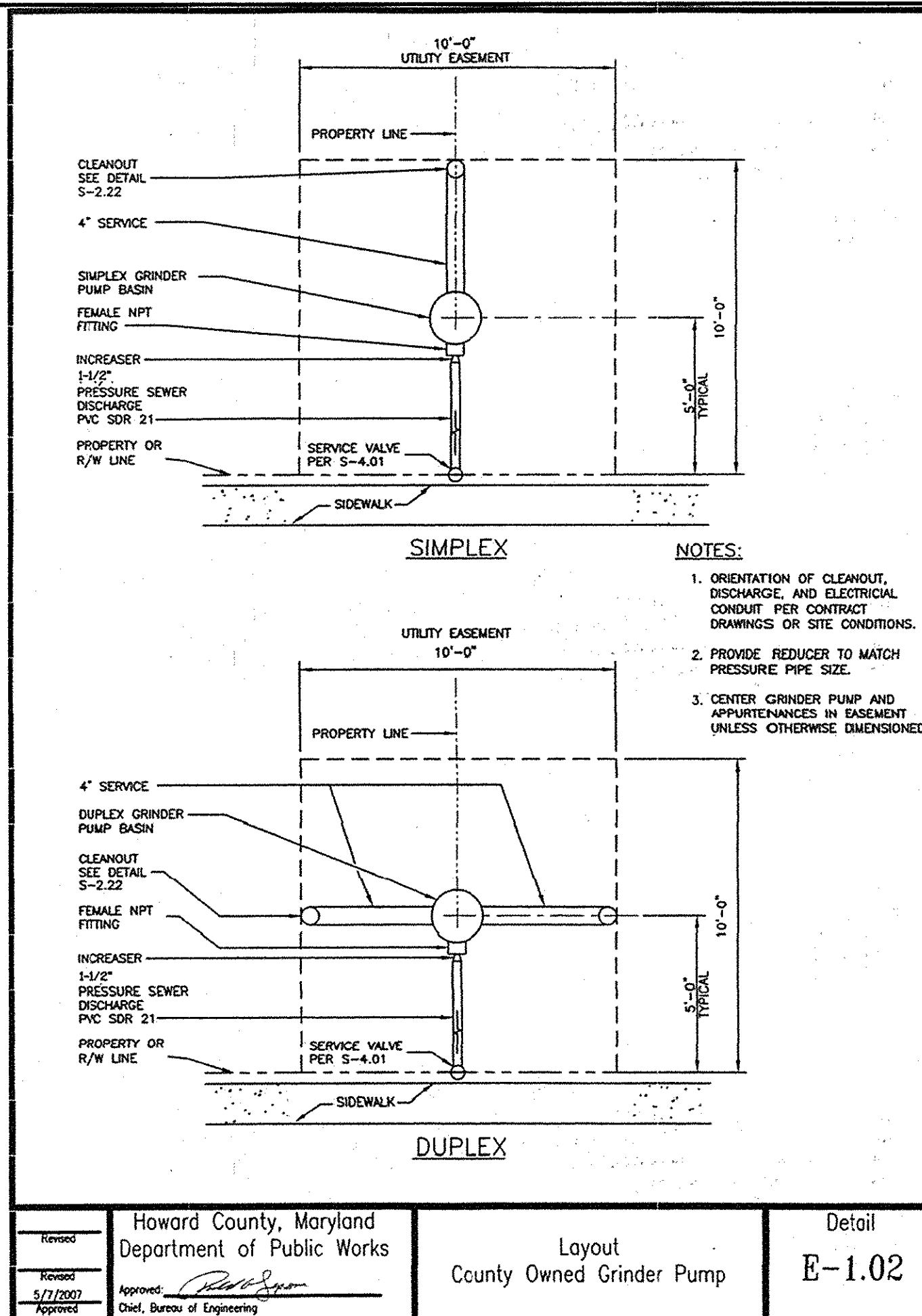
LOW PRESSURE SEWER SYSTEM DETAILS

600' SCALE MAP NO. 28 BLOCK NO. 4,5,10,11,12,17,18,19
 F.C.C. WORK ORDER NO. 4001-3001
 FILE NAME: LOW PRESSURE SEWER SYSTEM BASE DETAILS

CONTRACT NO. 50-4440-D
 WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND

SCALE A5 SHOWN
 SHEET 8 OF 13

I:\2014\04001\04001\PHASE ONE FINALS\04001-3001 Phase 1 Sewer Base Plan (Log 22)\04001.dwg, (NEW) Detail Sheet 8, 9/20/2012 1:39:20 PM, 1:1



WALNUT CREEK LOW PRESSURE SYSTEM DESIGN
PUBLIC LPSS DESIGN REQUIREMENTS

A. PRELIMINARY ANALYSIS DATED 05 JULY 12:

WAS OPTIMIZED FOR MINIMUM PIPE SIZE PRESSURE LIMITS. THIS FINAL ANALYSIS IS OPTIMIZED FOR SYSTEM PRESSURE VIA PIPE DIAMETER CHANGES TO COMPLY WITH MARYLAND DEPARTMENT OF THE ENVIRONMENT'S PRE-DESIGN MEETING (20 APRIL 06) REQUEST FOR PIPELINE PRESSURES LESS THAN 90-PSIG.

SUMMARY FLOW DESIGN PARAMETERS

B. SEWAGE FLOW DESIGN PARAMETERS

WASTEWATER DESIGN FLOW RATE = 750 GPD/Lot. BASED ON MARYLAND DEPARTMENT OF THE ENVIRONMENT WMA'S MEMORANDUM - "WASTEWATER FLOWS FOR USE IN DESIGNING ON-SITE SEWAGE SYSTEMS", 30 OCT 1990. MAXIMUM DAILY FLOW = (5-BEDROOM HOUSE) X (50-GPD/BEDROOM).

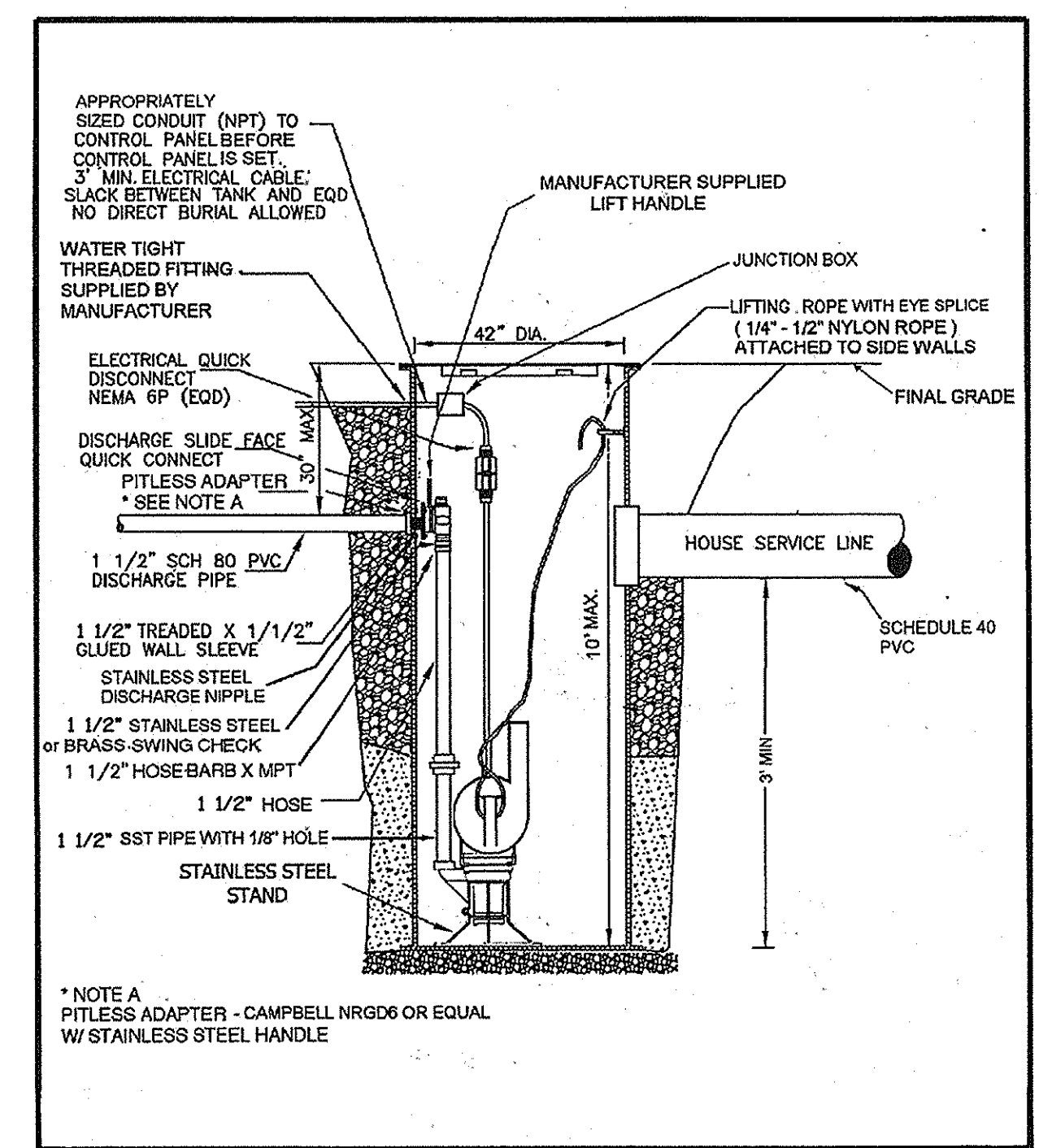
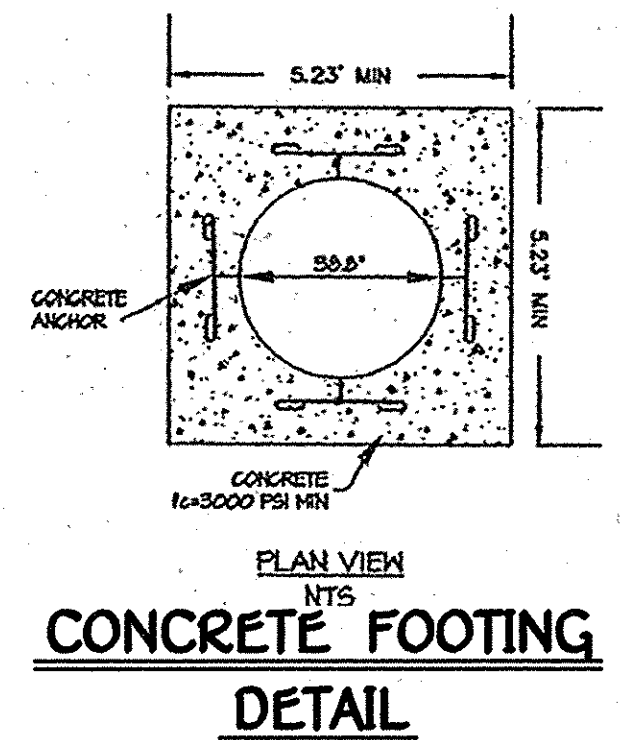
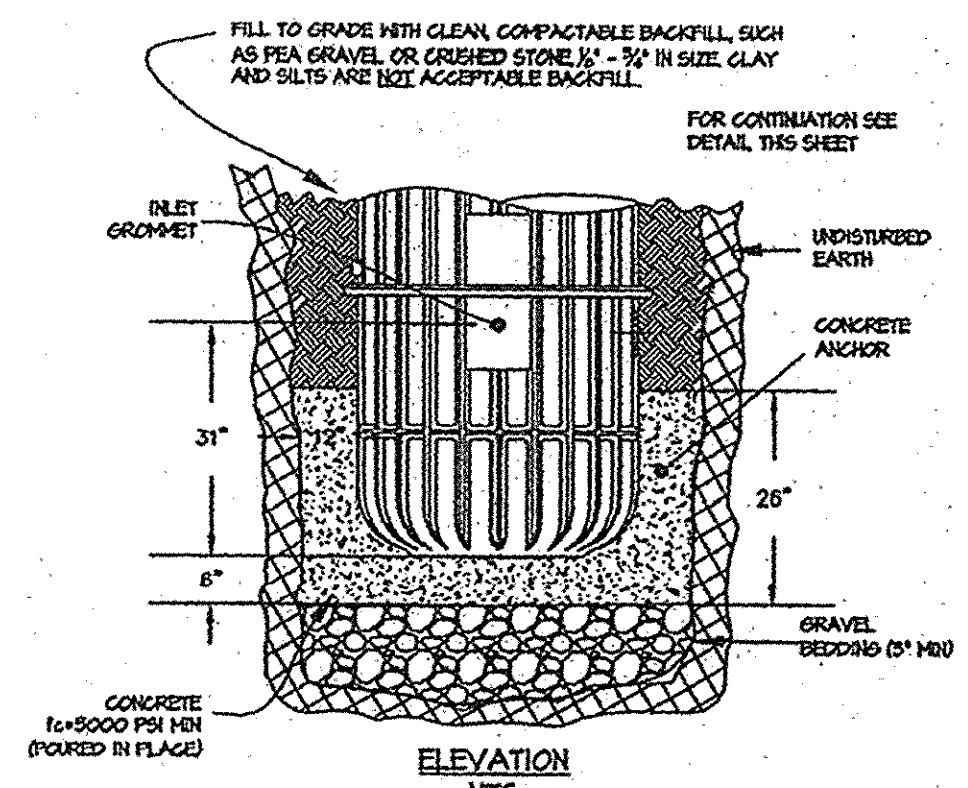
C. GRINDER PUMP STATION DESIGN PARAMETERS

ALL DISCHARGE PIPING: 1 1/2" DIA. SDR-11 HDPE; DUPLEX STATION COMBINES FLOW INTO SINGLE OUTLET.

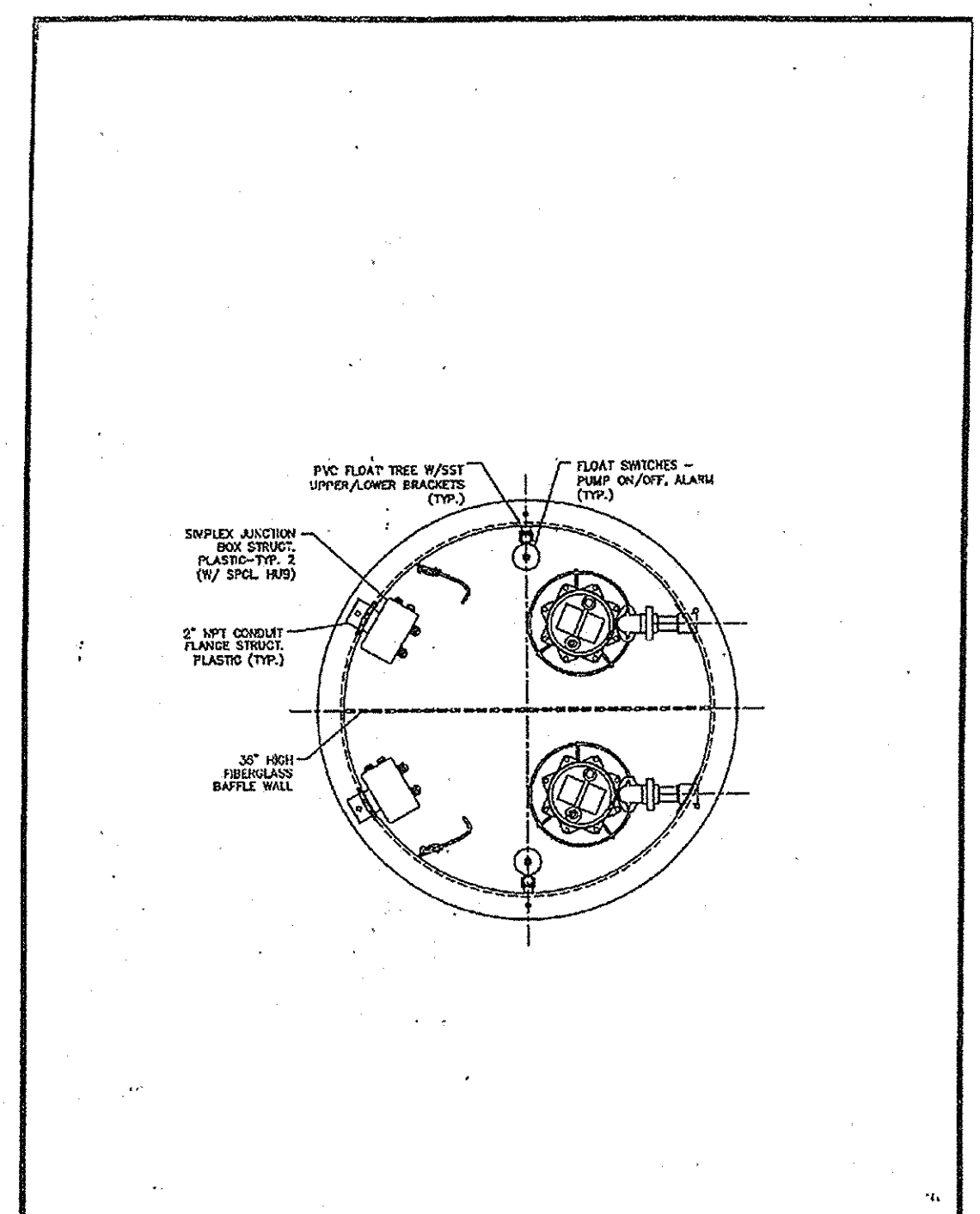
D. LOW PRESSURE PIPING SYSTEM DESIGN PARAMETERS

PIPE C VALUE = 140 REFERENCE: HOWARD COUNTY DESIGN MANUAL - VOLUME II, CHAPTER 8 ALTERNATE SEWER SYSTEMS, SECTION 8.2 PUBLIC LOW PRESSURE SEWER SYSTEMS AND ROBERT K. BRINLEY, R. DOUGLAS OLIVESTAD, STEVEN M. WILKINSON, "DESIGN MANUAL FOR PRESSURE SEWER SYSTEMS", PEABODY BARNES 651 NORTH MAIN STREET, MANSFIELD, OHIO 44902, PAGE 6-7, SECTION 6.5.4. HAZEN-WILLIAMS FLOW COEFFICIENT.

MAXIMUM FLUID VELOCITY = 6.0 FPS. MINIMUM FLUID VELOCITY = 2.0 FEET PER SECOND (FPS). PIPING DESIGN NOTES: INSTALL CLEAN OUT (FLUSHING STATIONS) ON PIPES EVERY 200-LF. INSTALL CABLE TEST STATIONS EVERY 200-LF.



Howard County, Maryland Department of Public Works	GRINDER PUMP DETAILS	Detail
APRIL, 2007		



Howard County, Maryland Department of Public Works	DUPLEX PLAN VIEW COUNTY OWNED GRINDER PUMP	Detail
---	--	--------

PREPARED BY: NATHAN FUHRMAN

WALNUT CREEK LOW PRESSURE SYSTEM DESIGN
PHASE 1, LOTS 1-22

JULY 5, 2012

ZONE NUMBER	CONNECTS TO ZONE	NUMBER OF PUMPS IN ZONE	ACCUM PUMPS IN ZONE	GAL/DAY PER CORE	MAX FLOW PER CORE	MAX SPM	MAX FLOW (GPM)	PIPE SIZE (INCHES)	MAX VELOCITY (FPS)	LENGTH OF MAIN THIS ZONE	FRICTION LOSS FACTOR (FT/100FT)	FRICTION LOSS THIS ZONE	ACCUMULATED FRICTION LOSS (FEET)	MAX MAIN ELEVATION	MINIMUM PUMP ELEVATION	STATIC HEAD (FEET)	TOTAL DYNAMIC HEAD (FT)
THIS SPREADSHEET WAS CALCULATED USING PIPE DIAMETERS FOR: HDPE, SDR-11																	
FRICITION LOSS CALCULATIONS WERE BASED ON A CONSTANT FOR INSIDE ROUGHNESS OF 140																	
1.00	2.00	3	3	750.00	11.00	2	22.00	2.00	2.30	140.50	1.35	1.90	56.62	394.32	369.50	24.82	81.44
2.00	5.00	6	9	750.00	11.00	3	33.00	2.00	3.57	709.42	2.06	20.31	54.72	394.32	361.27	33.05	87.77
3.00	4.00	2	2	750.00	11.00	2	22.00	2.00	2.30	20.99	1.35	0.39	40.05	394.32	359.95	34.37	74.42
4.00	5.00	2	4	750.00	11.00	3	33.00	2.00	3.57	183.29	2.06	5.25	39.66	394.32	359.27	35.05	74.41
5.00	6.00	4	17	750.00	11.00	4	44.00	3.00	2.19	555.20	0.74	4.10	34.41	394.32	353.35	40.97	75.30
6.00	7.00	5	22	750.00	11.00	5	55.00	3.00	2.74	134.37	1.12	1.50	30.31	394.32	356.09	38.23	68.54
7.00	7.00	0	22	200.00	11.00	5	55.00	3.00	2.74	2,501.00	1.12	20.01	20.01	394.32	357.16	37.16	65.97

PREPARED BY: NATHAN FUHRMAN

WALNUT CREEK LOW PRESSURE SYSTEM DESIGN
PHASE 1, LOTS 1-22

JULY 5, 2012

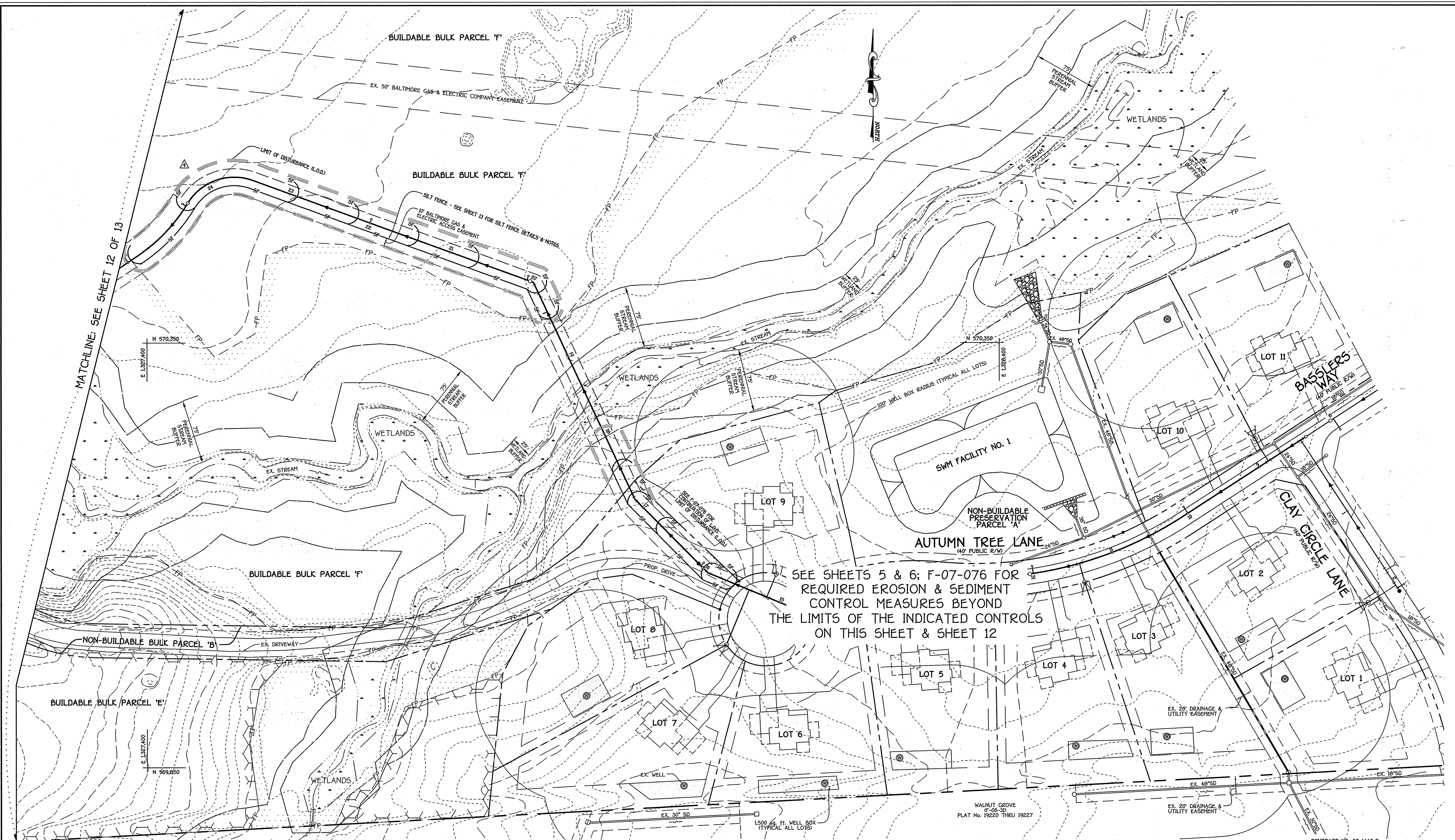
ZONE NUMBER	CONNECTS TO ZONE	ACCUMULATED TOTAL OF PUMPS THIS ZONE	EXISTING PIPE SIZE	GAL PER 100 LINEAL FEET	LENGTH OF ZONE	CAPACITY OF ZONE	AVERAGE DAILY FLOW	AVERAGE FLUID CHANGES PER DAY	AVERAGE RETENTION TIME (HR)	ACCUMULATED RETENTION TIME (HR)
THIS SPREADSHEET WAS CALCULATED USING PIPE DIAMETERS FOR: HDPE, SDR-11										
1.00	2.00	3	2.00	15.40	140.50	21.65	2,250	103.91	0.23	2.29
2.00	5.00	9	2.00	15.40	709.42	109.27	6,750	61.77	0.39	2.06
3.00	4.00	2	2.00	15.40	20.99	4.47	1,500	335.92	0.07	1.97
4.00	5.00	4	2.00	15.40	183.29	28.23	3,000	106.26	0.23	1.90
5.00	6.00	17	3.00	33.47	555.20	105.83	12,750	60.61	0.35	1.67
6.00	7.00	22	3.00	33.47	134.37	44.97	16,500	366.92	0.07	1.32
7.00	7.00	22	3.00	33.47	2,501.00	863.77	16,500	19.10	1.26	1.26

NOTE: THIS ORIGINAL CONSTRUCTION PLAN, SHEET 10 OF 13 SUPERSEDES THE LOW PRESSURE SEWER SYSTEM CONSTRUCTION PLAN PREVIOUSLY APPROVED & SIGNED BY THE DEPARTMENT OF PLANNING AND ZONING ON JANUARY 25, 2008.

CONTRACT NO. 50-4440-D
WALNUT CREEK
PHASE ONE
LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F'
LOW PRESSURE SEWER SYSTEM
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF, BUREAU OF UTILITIES	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND CHIEF, DEVELOPMENT ENGINEERING DIVISION	 FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE ELLSWORTH CITY, MARYLAND 21042 (410) 461 - 2995	 DESIGNED BY: B.C.R. DRAWN BY: B.C.R. CHECKED BY: P.W.K. DATE: SEPTEMBER, 2012	BCR REVISION DATE	LOW PRESSURE SEWER SYSTEM DETAILS 600' SCALE MAP NO. 20 BLOCK NO. 4.5.10.11.12.17&18 F.C.C. WORK ORDER NO. 4001-3001 FILE NAME: LOW PRESSURE SEWER SYSTEM BASE DETAILS	WALNUT CREEK PHASE ONE LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F' CONTRACT NO. 50-4440-D FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 10 OF 13
---	---	--	--	-------------------------	--	--	----------------------------------

I:\2004\04001\Phase One Final\04001-3001 Phase 1 Sewer Base Plan (Lot 22) (sheet 3 - June 2012).dwg (REV) Detail Sheet 10, 9/19/2012 2:35:09 PM, 1:1



NOTE: THIS ORIGINAL CONSTRUCTION PLAN, SHEET 11 OF 13 SUPERSEDES THE LOW PRESSURE SEWER SYSTEM CONSTRUCTION PLAN PREVIOUSLY APPROVED & SIGNED BY THE DEPARTMENT OF PLANNING AND ZONING ON JANUARY 25, 2008.

EROSION & SEDIMENT CONTROL PLAN / EX. CONDITIONS PLAN

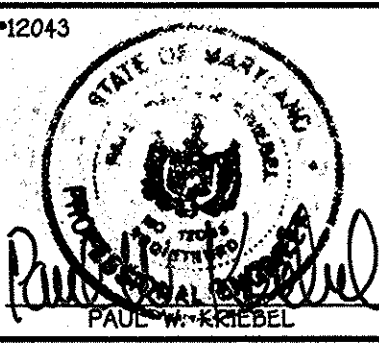
SCALE: 1" = 50'

CONTRACT NO. 50-4440-D
WALNUT CREEK
PHASE ONE
LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F'
LOW PRESSURE SEWER SYSTEM
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Silvan C. Green
CHIEF, BUREAU OF UTILITIES
10/16/12 DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
Michael J. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION
10/16/12 DATE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
BELLGATE CITY, MARYLAND 20814
(410) 461-2855



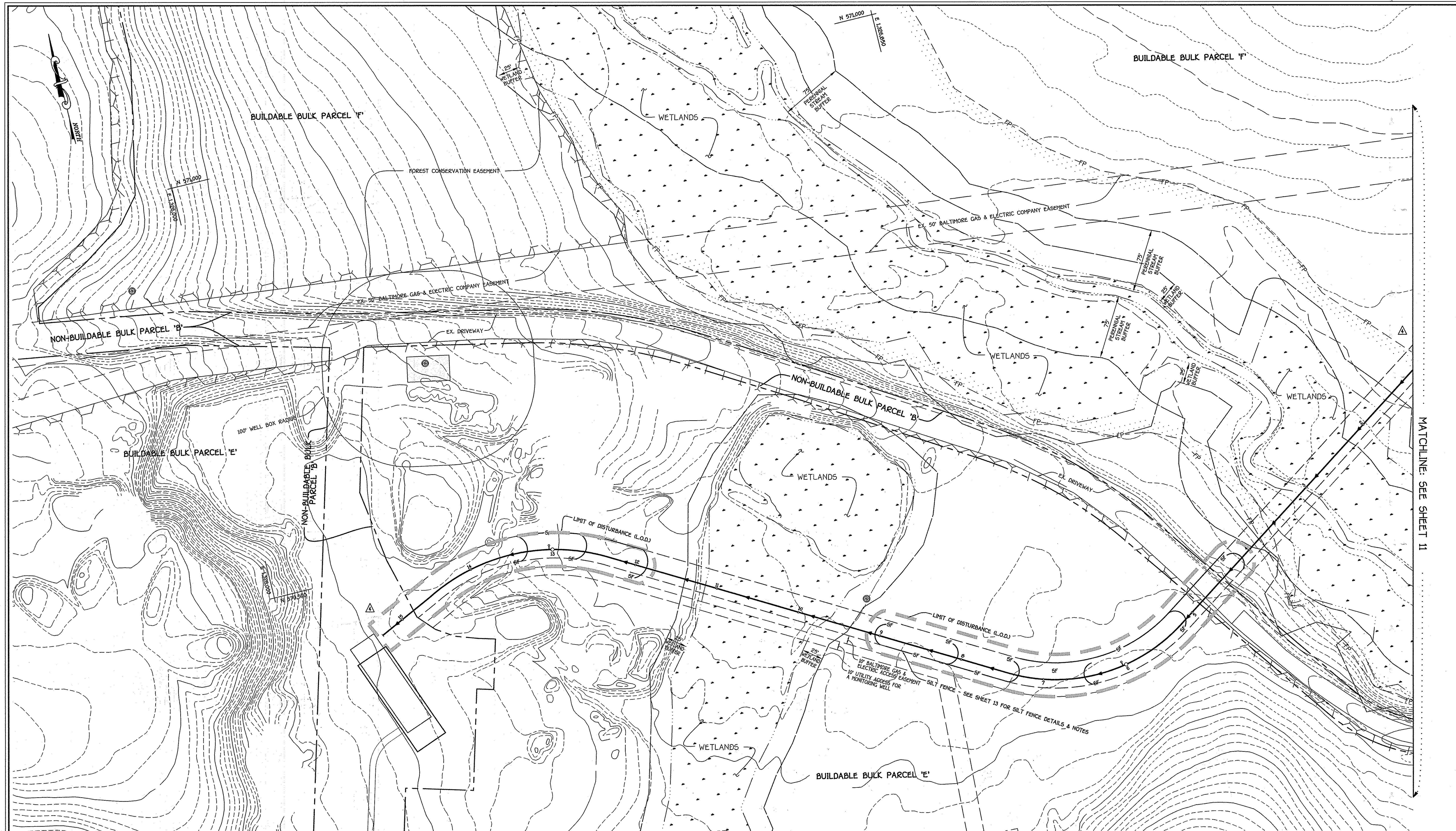
DESIGNED BY:	B.C.R.		
DRAWN BY:	B.C.R.		
CHECKED BY:	P.W.K.		
DATE:	SEPTEMBER, 2012	BY:	NO.
REVISION	REVISE ALIGNMENT OF LOW PRESSURE SEWER	DATE:	9-19-12

EROSION & SEDIMENT CONTROL PLAN	
600' SCALE MAP NO.	28 BLOCK NO. 4, 5, 10, 11, 12, 17, 21, 22
F.C.C. WORK ORDER NO.	4001-3001
FILE NAME:	LOW PRESSURE SEWER SYSTEM BASE PLAN

WALNUT CREEK
PHASE ONE
LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F'
CONTRACT NO. 50-4440-D
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE
AS
SHOWN
SHEET
11 OF 13

I:\2014\0401\0401\PHASE ONE FINALS\0401-3001 Phase 1 Sewer Base Plan (Lot 22)\(redline 3 - June 2012).dwg (NEW) SED SHEET 11, 9/19/2012 2:35:59 PM, 1:11



MATCHLINE: SEE SHEET 11

NOTE: THIS ORIGINAL CONSTRUCTION PLAN, SHEET 12 OF 13 SUPERSEDES THE LOW PRESSURE SEWER SYSTEM CONSTRUCTION PLAN PREVIOUSLY APPROVED & SIGNED BY THE DEPARTMENT OF PLANNING AND ZONING ON JANUARY 25, 2008.

EROSION & SEDIMENT CONTROL PLAN / EX. CONDITIONS PLAN
SCALE: 1" = 50'

CONTRACT NO. 50-4440-D
WALNUT CREEK
PHASE ONE
LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F'
LOW PRESSURE SEWER SYSTEM
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Simon C. Green
CHIEF, BUREAU OF UTILITIES

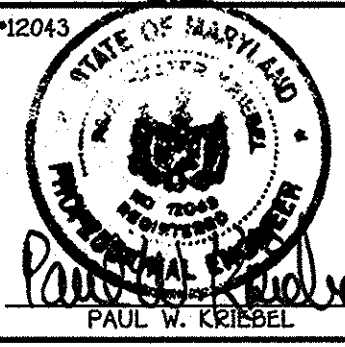
10/15/12
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Paul W. Kriebel
CHIEF, DEVELOPMENT ENGINEERING DIVISION

10/11/12
DATE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
BELLGATE CITY, MARYLAND 21114
410 461 - 2995



DESIGNED BY:	B.C.R.				
DRAWN BY:	B.C.R.				
CHECKED BY:	P.W.K.				
DATE:	SEPTEMBER, 2012	BCR	△	REVISE NUMBER OF LOW PRESSURE SEWERS	9-19-12
BY:	NO.			REVISION	DATE

EROSION & SEDIMENT CONTROL PLAN	
600' SCALE MAP NO. 28	BLOCK NO. 4, 5, 10, 11, 12, 17, 21, 22
F.C.C. WORK ORDER NO. 4001-3001	
FILE NAME: LOW PRESSURE SEWER SYSTEM BASE PLAN	

WALNUT CREEK
PHASE ONE
LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F'
CONTRACT NO. 50-4440-D
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE
AS
SHOWN

SHEET
12 OF 13

I:\2014\04\01\04\PHASE ONE FINALS\04001-3001 Phase 1 Sewer Base Plan (Lot 22)\04001-3001 Phase 1 Sewer Base Plan (Lot 22)\04001-3001 Phase 1 Sewer Base Plan (Lot 22).dwg (REV) SED SHEET 12, 9/19/2012 2:33:09 PM, 1:11

**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 LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUN-OFF TO DOWNSTREAM AREAS, AND IMPROVING WILDLIFE HABITAT AND VISUAL RESOURCES.

CONDITIONS WHERE PRACTICE APPLIES

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

EFFECTS ON WATER QUALITY AND QUANTITY

PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. VEGETATION OVER TIME WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH. VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITH THE ROOT ZONE.

SEDIMENT CONTROL DEVICES MUST REMAIN IN PLACE DURING GRADING, 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 EXCAVATION AND SEDIMENT CONTROL STRUCTURES EITHER TEMPORARY OR PERMANENT SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.
 - ii. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.
 - iii. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.
 - B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
 - i. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSIS.
 - ii. FERTILIZERS SHALL BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE OF THE PRODUCE.
 - iii. LIME MATERIALS SHALL BE GROUND LIME OR BURNED LIME WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 95-100% WILL PASS THROUGH A #200 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 RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS GREATER THAN 3:0 SHOULD BE TRACKED LEAVING THE SURFACE AND REGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 - ii. PERMANENT SEEDING
 - a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:
 1. SOIL PH SHALL BE BETWEEN 6.0 AND 7.0.
 2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
 3. THE SOIL SHALL CONTAIN LESS THAN 40% SAND, BUT ENOUGH FINE GRAINED MATERIAL (30% SILT PLUS CLAY) TO PROVIDE A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERPENTINA LESPEDEZAS IS TO BE PLANTED, THEN A SANDY SOIL (30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 4. SOIL SHALL CONTAIN 1% MINIMUM ORGANIC MATTER BY WEIGHT.
 5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATION FOR TOPSOIL.
 - b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN EITHER SOILED OR OTHERWISE LOOSENED TO A DEPTH OF 3-5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.
 - c. APPLY SOIL AMENDMENTS AS PER SOIL TESTS OR AS INCLUDED ON THE PLANS.
 - d. MIX SOIL AMENDMENTS INTO THE TOP 3-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED AND APPLICATION, WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDING.

- D. SEED SPECIFICATION
 - i. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.
 - ii. SEED TAGS SHALL BE MAINTAINED AND MUST BE AVAILABLE TYPE AND RATE OF SEED USED.
 - iii. INOCULATION - THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75°-80° F. CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
- E. METHODS OF SEEDING
 - i. HYDROSEEDING - APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER). BROADCAST OR DROP SEEDER, OR A CULTPACKER 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 PHOSPHOROUS; 200 LBS./AC; K2O POTASSIUM, 200 LBS./AC.
 - b. LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE, UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING. NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE 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 265 OR 286. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - iii. DRILL OR CULTPACKER SEEDING - MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - a. CULTPACKER 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 FIRM AFTER PLANTING.
 - b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

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

- NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED. MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
- i. IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.
 - ii. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL 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.
 - H. SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD:
 - i. A MULCH ANCHORING TOOL IS AS TRACTOR DRIVEN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 60 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 CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD BE APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS-SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70 PETROSET, TERRA TAX II, TERRA TACK, AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.
 - iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4' TO 15' FEET WIDE AND 300 TO 3,000 FEET LONG.

- I. INCREMENTAL STABILIZATION - CUT SLOPES
 - i. ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15'.
 - a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.
 - b. PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.
 - c. PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
 - d. PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS NECESSARY.
- J. INCREMENTAL STABILIZATION OF EMBANKMENTS - FILL SLOPES
 - i. EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.
 - ii. SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15', OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
 - iii. AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER TO A SEDIMENT TRAPPING DEVICE.
 - iv. CONSTRUCTION SEQUENCE: REFER TO FIGURE 4 (BELOW):
 - a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5, UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
 - b. PLACE PHASE 1 EMBANKMENT, DRESS, AND STABILIZE.
 - c. PLACE PHASE 2 EMBANKMENT, DRESS, AND STABILIZE.
 - d. PLACE FINAL PHASE EMBANKMENT, DRESS, AND STABILIZE.

SECTION 2 - TEMPORARY SEEDING

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

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

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

SECTION 3 - PERMANENT SEEDING

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

- A. SEED MIXTURES - PERMANENT SEEDING
 - i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SUCH AS SHOVELS, STREAMBANKS, OR DUNES OR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-ARCS TECHNICAL FIELD OFFICE GUIDE, SECTION 442 - CRITICAL AREA PLANTING, FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTION IV 500 V TURFGRASS.
 - ii. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.
 - iii. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY URATION FERTILIZER (45-0-0) AT 3 1/2 LBS/1000 SQ. FT. (0.85/AC), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

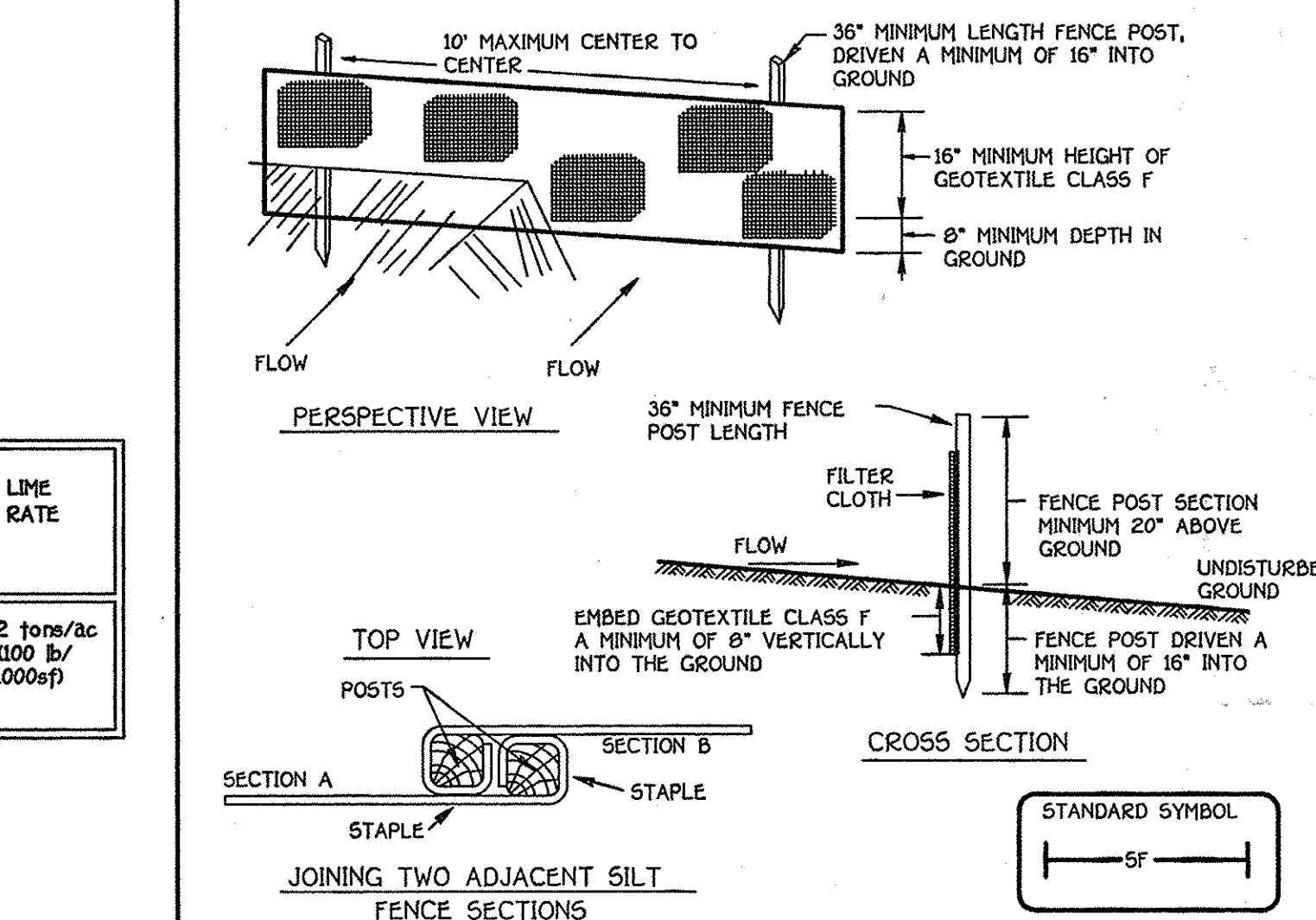
SEED MIXTURE (HARDINESS ZONE - 6b -) FROM TABLE 25						FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20		
3	TALL FESCUE (25%)	125	3/1 - 5/15,	1" - 2"	90 lb/ac	175 lb/ac	175 lb/ac	2 tons/ac	
	PERENNIAL RYE GRASS (10%)	15	8/15 - 10/15	1" - 2"	4 lb/1000sf	4 lb/1000sf	4 lb/1000sf		
10	TALL FESCUE (100%)	120	3/1 - 5/15,	1" - 2"	90 lb/ac	175 lb/ac	175 lb/ac	2 tons/ac	
	HARD FESCUE (20%)	30	8/15 - 10/15	1" - 2"	4 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 (313-1055).
- 2. ALL VEGETATIVE STABILIZATION 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. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:0, BY 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 3. 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.
- 4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOIL SEC. 54, TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 6. SITE ANALYSIS:
 - TOTAL AREA OF SITE: 431.845 ACRES (FROM RECORD PLAT)
 - AREA DISTURBED: 0.862 ACRES
 - AREA TO BE ROOPEL OR PAVED: 0.000 ACRES
 - AREA TO BE VEGETATIVELY STABILIZED: 0.862 ACRES
 - TOTAL CUTS: N/A; LOW PRESSURE SEWER SYSTEM INSTALLATION ONLY
 - OFFSITE WASTE/BORROW AREA LOCATION: N/A; CU, YDS.
- 7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY OR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- 8. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 9. 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.
- 10. TRENCHEFS FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THE THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

**SECTION 21 :
STANDARD AND SPECIFICATIONS FOR TOPSOIL**

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



CONSTRUCTIONS SPECIFICATIONS

1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 15" 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 100 POUND PER LINEAL 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

SEQUENCE OF CONSTRUCTION

1. OBTAIN THE REQUIRED GRADING PERMIT.
2. NOTIFY MISS UTILITY 48 HOURS BEFORE ANY WORK (0-800-257-7777). NOTIFY HOWARD COUNTY CONSTRUCTION/INSPECTION DIVISION 24 HOURS BEFORE STARTING ANY WORK (410-313-9710).
3. INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AS INDICATED ON SHEETS 11 & 12.
4. CLEAR AND GRUB AS NECESSARY, ONLY AS REQUIRED FOR EXCAVATION AND INSTALLATION OF THE LOW PRESSURE SEWER SYSTEM, ONLY WITHIN THE DESIGNATED SEWER AND UTILITY EASEMENTS.
5. NOTE: THE LENGTH OF OPEN LOW PRESSURE SEWER SYSTEM TRENCH SHALL BE LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH WILL BE BACKFILLED AND STABILIZED WITHIN ONE (1) WORKING DAY, WHICHEVER IS SHORTER.
6. CONSTRUCT THE LOW PRESSURE SEWER SYSTEM.
7. STABILIZE SEED AND MULCH ALL DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES SHOWN ON THIS SHEET.
8. FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS, AND AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES.

DEVELOPER'S CERTIFICATION

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

Signature of Developer: *M. Dennis Ritten* DATE: 1/2/08

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 COUNTY CONSERVATION DISTRICT.

Signature of Engineer: *Paul W. Keidel* DATE: 01-02-08

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p>Chief: <i>Sheldon C. Green</i> DATE: 1/15/08</p>	<p>DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND</p> <p>Chief: DEVELOPMENT ENGINEERING DIVISION DATE: 1/2/08</p>	<p>FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTRAL SQUARE OFFICE PARK - 10772 MILITARY NATIONAL PIKE ELICOTT CITY, MARYLAND 21042 (410) 461-1200</p> <p>TERRELL A. FISHER</p>	<p>DESIGNED BY: B.C.R. DRAWN BY: B.C.R. CHECKED BY: P.W.K. DATE: JANUARY, 2008</p>	<p>EROSION & SEDIMENT CONTROL NOTES & DETAILS</p> <p>60' SCALE MAP NO. 22 BLOCK NO. 4, 5, 10, 11, 12, 17, 19 F.C.C. WORK ORDER NO. 4001-3001</p> <p>FILE NAME: LOW PRESSURE SEWER SYSTEM BASE PLAN</p>	<p>WALNUT CREEK PHASE ONE LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A'-D' & BUILDABLE BULK PARCELS 'E' & 'F' CONTRACT NO. 50-4440-D FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> <p>SCALE AS SHOWN SHEET 13 OF 13</p>
--	---	--	--	---	---