

QUANTITIES				
ITEM	ESTIMATED	QUANTITIES	AS-BUILT	SUPPLIER
1-1/2" L.P.S.	761 L.F.	642 L.F.	PVC	LB WATER SERVICES
2" L.P.S.	1,212 L.F.	1,512 L.F.	PVC	
3" L.P.S.	1,228 L.F.	1,227 L.F.	PVC	
1-1/2"x1-1/2" TEE	1 EACH	1	PVC	
2"x1-1/2" TEE	9 EACH	10	PVC	
3"x1-1/2" TEE	8 EACH	8	PVC	
3"x3" TEE	1 EACH	1	PVC	
3"x2" TEE	1 EACH	1	PVC	
2"x1-1/2" REDUCER	3 EACH	3	PVC	
3"x2" REDUCER	2 EACH	2	PVC	
3" ISOLATION VALVE	1 EACH	1	METAL	
2" ISOLATION VALVE	1 EACH	1	METAL	
TERMINAL FLUSHING CONNECTION	3 EACH	3	METAL	
IN-LINE FLUSHING CONNECTION	4 EACH	4	METAL	
CONTINUITY TEST STATION	14 EACH	14	CONCRETE WITH CAST IRON LID	
DUPLEX GRINDER PUMP	15 EACH	14	METAL	
SIMPLEX GRINDER PUMP	5 EACH	5	METAL	
AIR RELEASE VALVE & VAULT	3 EACH	3	METAL	

NAME OF UTILITY CONTRACTOR: UTILITIES UNLIMITED, INC.
 SURVEY & DRAFTING DIVISION AS-BUILT DATE: 6-3-15

BENCHMARK INFORMATION

B.M.#1 - HOWARD COUNTY CONTROL STATION #28FA - HORIZONTAL - NAD '83
 (LOCATED ALONG THE EAST SIDE OF SHEPPARD LANE, APPROX. 4' OFF EDGE OF PAVING BETWEEN CURB POLES 52 & 53)
 N 572,456.6838
 E 1,328,957.6379
 ELEVATION = 348.234 - VERTICAL - (NAVD '88)

B.M.#2 - HOWARD COUNTY CONTROL STATION #28FD - HORIZONTAL - NAD '83
 (LOCATED ALONG THE WEST SIDE OF SHEPPARD LANE, AT THE ENTRANCE TO THE BASSELER PROPERTY)
 N 570,895.9746
 E 1,329,461.3295
 ELEVATION = 381.909 - VERTICAL - (NAVD '88)

DEVELOPER'S CERTIFICATION

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

Paul W. Kriebel, FOR:
BASSELER VENTURE, LLC 02-08-13
 SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATION

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

Paul W. Kriebel, FOR:
BASSELER VENTURE, LLC 02/08/13
 SIGNATURE OF ENGINEER DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY DESIGN MANUAL - VOLUME IV: STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND AS SHOWN ON THE ROAD CONSTRUCTION PLAN, F-13-026.

Paul W. Kriebel, FOR:
BASSELER VENTURE, LLC 02-08-13
 SIGNATURE OF DEVELOPER DATE

F-13-026

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

APPROVED:
 John P. Roberts, 2/23/13
 HOWARD SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

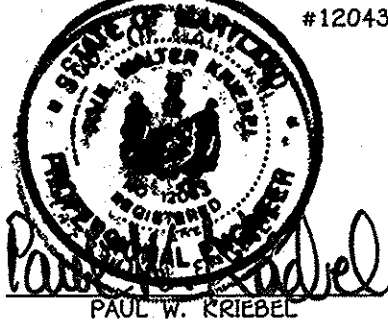
2/13/13
 DATE

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND

2/13
 DATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 12043 EXPIRATION DATE 5/7/16/14.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALDWIN NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2995



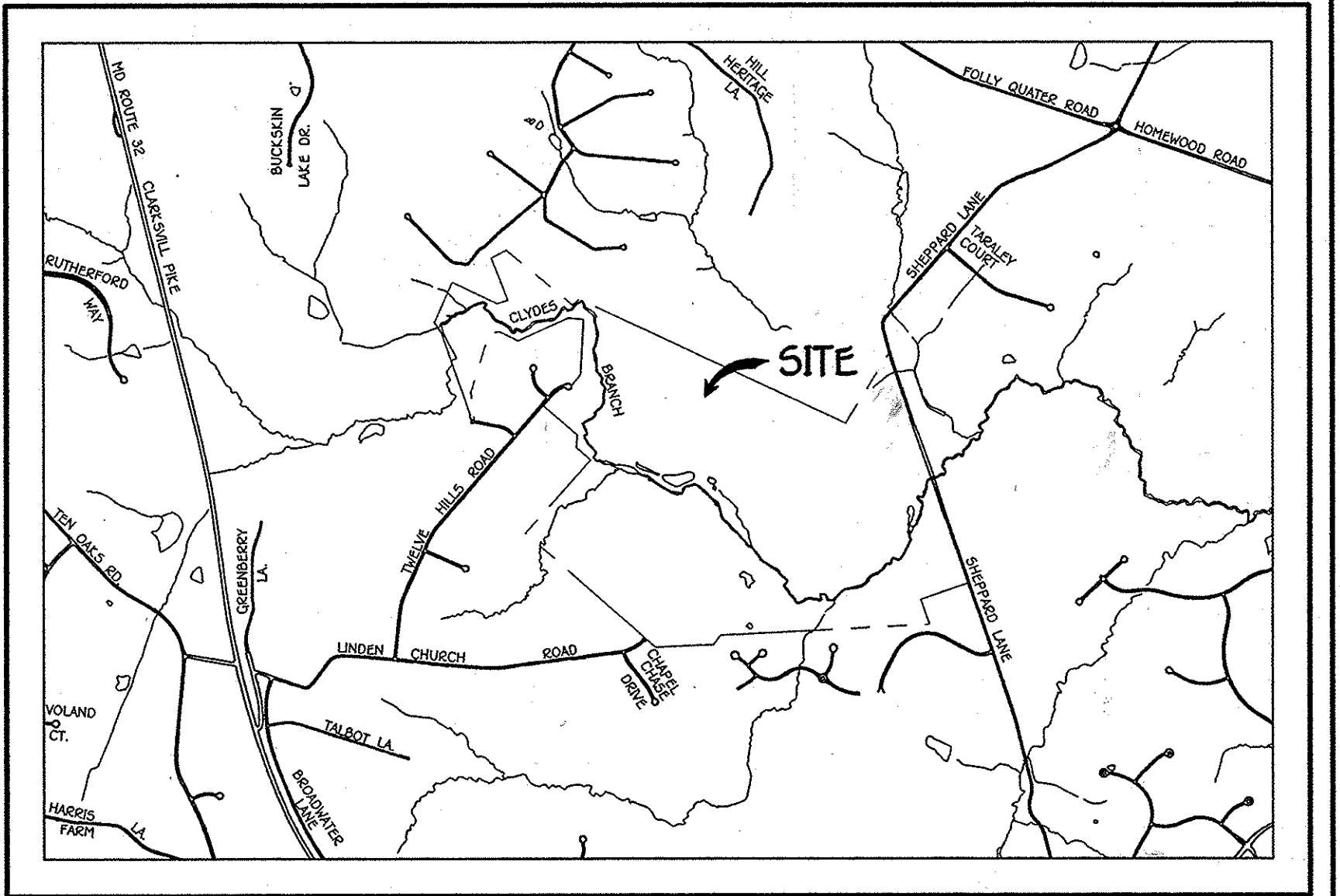
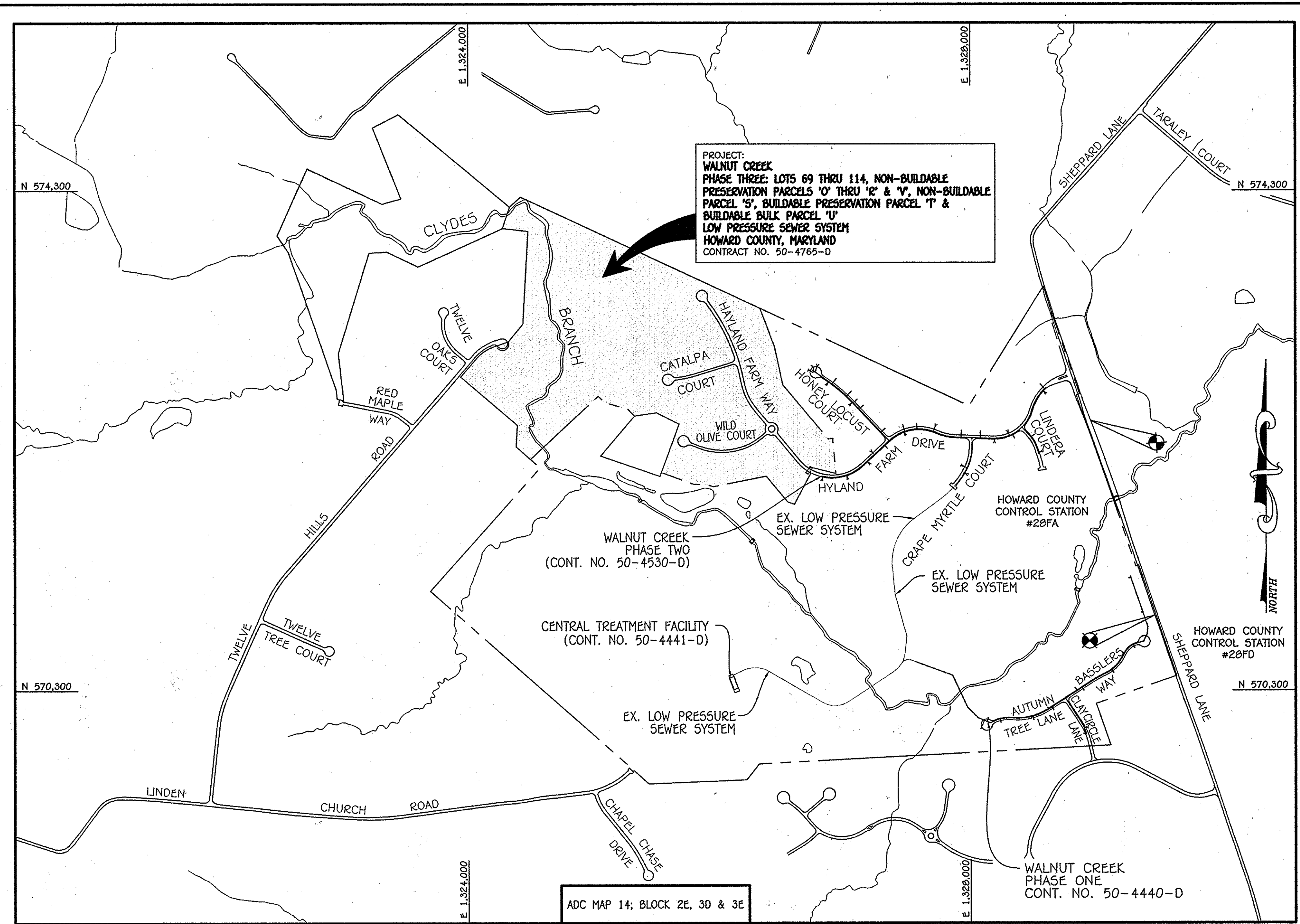
DESIGNED BY: B.C.R.
 DRAWN BY: B.C.R.
 CHECKED BY: P.W.K.
 DATE: FEBRUARY, 2013 BY NO. KCI 1
 AS-BUILT REVISION

LOW PRESSURE SEWER SYSTEM
 TITLE SHEET

600' SCALE MAP NO. 28 BLOCK NO. 43.10.11.12.17&18
 F.C.C. WORK ORDER NO. 04001-3004
 FILE NAME: LOW PRESSURE SEWER SYSTEM TITLE SHEET

WALNUT CREEK
 PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'I' & BUILDABLE BULK PARCEL 'U'
 LOW PRESSURE SEWER SYSTEM
 CONTRACT NO. 50-4765-D
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 1 OF 8



GENERAL NOTES

PART A

- 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 SURVEY CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/91' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 28FA & NO. 28FD.
- ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF THE ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL VOLUME IV: STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB SITE.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL @ AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T	1-800-252-1133
BGE (CONTRACTOR SERVICES)	410-637-8713
BGE (EMERGENCY)	410-689-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO.	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-9533
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.
- 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 #8 AND FIRMLY CONNECTED AND ENCAPSULATED.
- REFERENCE THE DETAILS ON SHEET 6, 7 & 8 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 WERE PREPARED BY OTHERS UNDER CONT. NO. 50-4441-D.
- ALL LATERSALS BETWEEN THE GRINDER PUMP UNITS AND THE LOW PRESSURE SEWER MAINS SHALL BE 1.50" DIAMETER.
- A NOTE SHALL BE PLACED ON THE PLOT PLAN ACCOMPANYING THE BUILDING PERMIT ON THOSE LOTS IN WHICH THE HOUSE SITS AT A LOWER ELEVATION THAN THE GRINDER PUMP UNIT. THE NOTE SHALL READ "GRAVITY SEWER SERVICE NOT AVAILABLE. EJECTOR PUMP INSIDE THE HOUSE IS REQUIRED."

PART B: WATER MAIN GENERAL NOTES

PART C: SEWER MAIN GENERAL NOTES

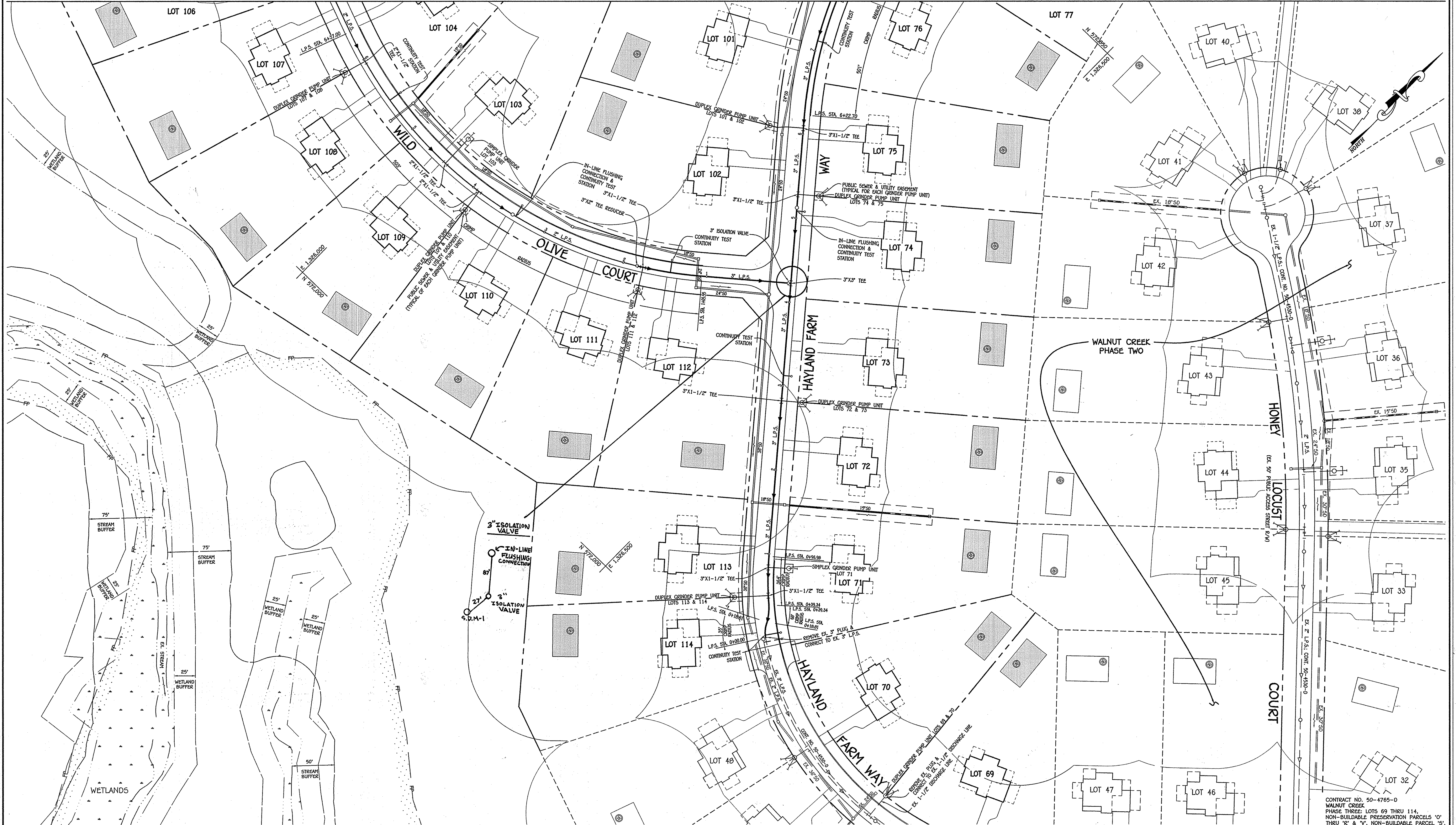
- LOW PRESSURE SEWER MAINS SHALL BE HDPE, SDR-11.
- A TOTAL OF THIRTY-FIVE (35) LOTS ARE CONNECTED TO THE LOW PRESSURE SEWER SYSTEM.
- ALL RESIDENTIAL DWELLINGS ON THE LOTS CONNECTED TO THE LOW PRESSURE SEWER SYSTEM ARE LIMITED TO A MAXIMUM OF FIVE (5) BEDROOMS.
- TRACER WIRE SHALL BE PROVIDED OVER ALL LOW PRESSURE SEWER MAINS. TRACER WIRE SHALL BE OVERLAPPING, INSULATED #8 AND FIRMLY CONNECTED AND ENCAPSULATED.
- REFERENCE THE DETAILS ON SHEET 6, 7 & 8 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 WERE PREPARED BY OTHERS UNDER CONT. NO. 50-4441-D.
- ALL LATERSALS BETWEEN THE GRINDER PUMP UNITS AND THE LOW PRESSURE SEWER MAINS SHALL BE 1.50" DIAMETER.
- A NOTE SHALL BE PLACED ON THE PLOT PLAN ACCOMPANYING THE BUILDING PERMIT ON THOSE LOTS IN WHICH THE HOUSE SITS AT A LOWER ELEVATION THAN THE GRINDER PUMP UNIT. THE NOTE SHALL READ "GRAVITY SEWER SERVICE NOT AVAILABLE. EJECTOR PUMP INSIDE THE HOUSE IS REQUIRED."

CONTRACT NO. 50-4765-D
WALNUT CREEK
 PHASE THREE: LOTS 69 THRU 114,
 NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'R' & 'V'
 NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'I'
 AND BUILDABLE BULK PARCEL 'U'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND

MATCHLINE: SEE SHEET 3

MATCHLINE: SEE SHEET 3

MATCHLINE: SEE SHEET 3



PLAN
SCALE: 1" = 50'

CONTRACT NO. 50-4765-D
 WALNUT CREEK
 PHASE THREE: LOTS 69 THRU 114,
 NON-BUILDABLE PRESERVATION PARCELS 'O'
 THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S',
 BUILDABLE PRESERVATION PARCEL 'T' &
 BUILDABLE BULK PARCEL 'U'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

John C. ...
 CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND

...
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

3/4/13
 DATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
 PREPARED OR APPROVED BY ME, AND THAT I AM A
 DULY LICENSED PROFESSIONAL ENGINEER UNDER THE
 LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 12043 EXPIRATION DATE 5/7/16/14.

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

CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELIOTT CITY, MARYLAND 21042
 (410) 461-2895



DESIGNED BY :	B.C.R.
DRAWN BY :	B.C.R.
CHECKED BY :	P.W.K.
DATE :	FEBRUARY, 2013
BY NO. :	KC1 1
REVISION :	AS-BUILT
DATE :	6-11-15

LOW PRESSURE SEWER SYSTEM PLAN

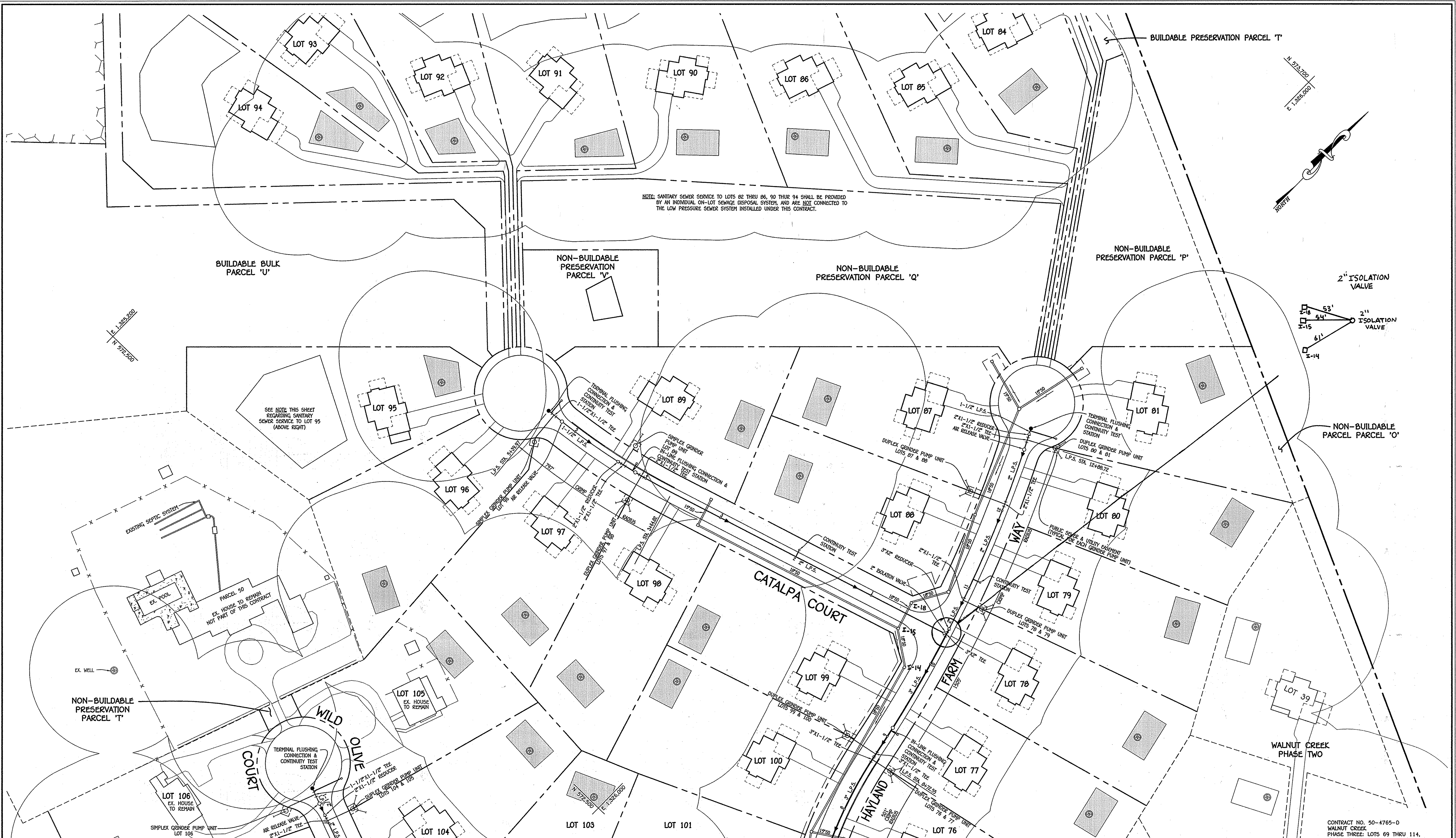
600' SCALE MAP NO. 28 BLOCK NO. 43,10,11,12,17&18
 F.C.C. WORK ORDER NO. 04001-3004
 FILE NAME : LOW PRESSURE SEWER SYSTEM SHEET

WALNUT CREEK
 PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION
 PARCELS 'O' THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S',
 BUILDABLE PRESERVATION PARCEL 'T' &
 BUILDABLE BULK PARCEL 'U'
 LOW PRESSURE SEWER SYSTEM
 CONTRACT NO. 50-4765-D
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE
 AS
 SHOWN

SHEET
 2 OF 8

I:\2004\04001\04001.dwg, PHASE THREE, FINAL'S\04001-3004 Phase 3 Sewer Main Contract Plan.dwg, Plan Sheet 2, 2/6/2013 10:09:34 AM



NOTE: SANITARY SEWER SERVICE TO LOTS 82 THRU 86, 90 THRU 94 SHALL BE PROVIDED BY AN INDIVIDUAL ON-LOT SEWAGE DISPOSAL SYSTEM, AND ARE NOT CONNECTED TO THE LOW PRESSURE SEWER SYSTEM INSTALLED UNDER THIS CONTRACT.

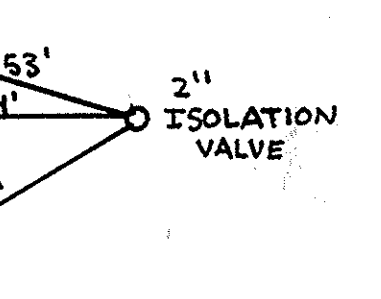
BUILDABLE BULK PARCEL 'U'

NON-BUILDABLE PRESERVATION PARCEL 'V'

NON-BUILDABLE PRESERVATION PARCEL 'Q'

NON-BUILDABLE PRESERVATION PARCEL 'P'

2" ISOLATION VALVE



NON-BUILDABLE PARCEL 'O'

SEE NOTE THIS SHEET REGARDING SANITARY SEWER SERVICE TO LOT 95 (ABOVE RIGHT)

EXISTING SEPTIC SYSTEM

EX. HOUSE TO REMAIN NOT PART OF THIS CONTRACT

EX. WELL

NON-BUILDABLE PRESERVATION PARCEL 'T'

TERMINAL FLUSHING CONNECTION & CONTINUITY TEST STATION

SIMPLEX GENSER PUMP UNIT LOT 106

MATCHLINE: SEE SHEET 2

MATCHLINE: SEE SHEET 2

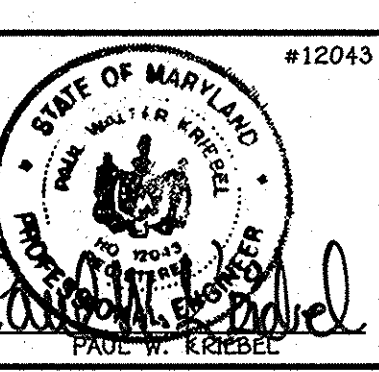
MATCHLINE: SEE SHEET 2

PLAN SCALE: 1" = 50'

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND
<i>Ellen C. Gorman</i> CHIEF, BUREAU OF UTILITIES DATE: 2/11/13	<i>Matthew G. ...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 2/14/13

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 12043 EXPIRATION DATE IS 7/16/14.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL FREE
BILLCOTT CITY, MARYLAND 21042
(410) 461-2292



DESIGNED BY:	B.C.R.
DRAWN BY:	B.C.R.
CHECKED BY:	P.W.K.
DATE:	6-1-13
BY NO.:	...

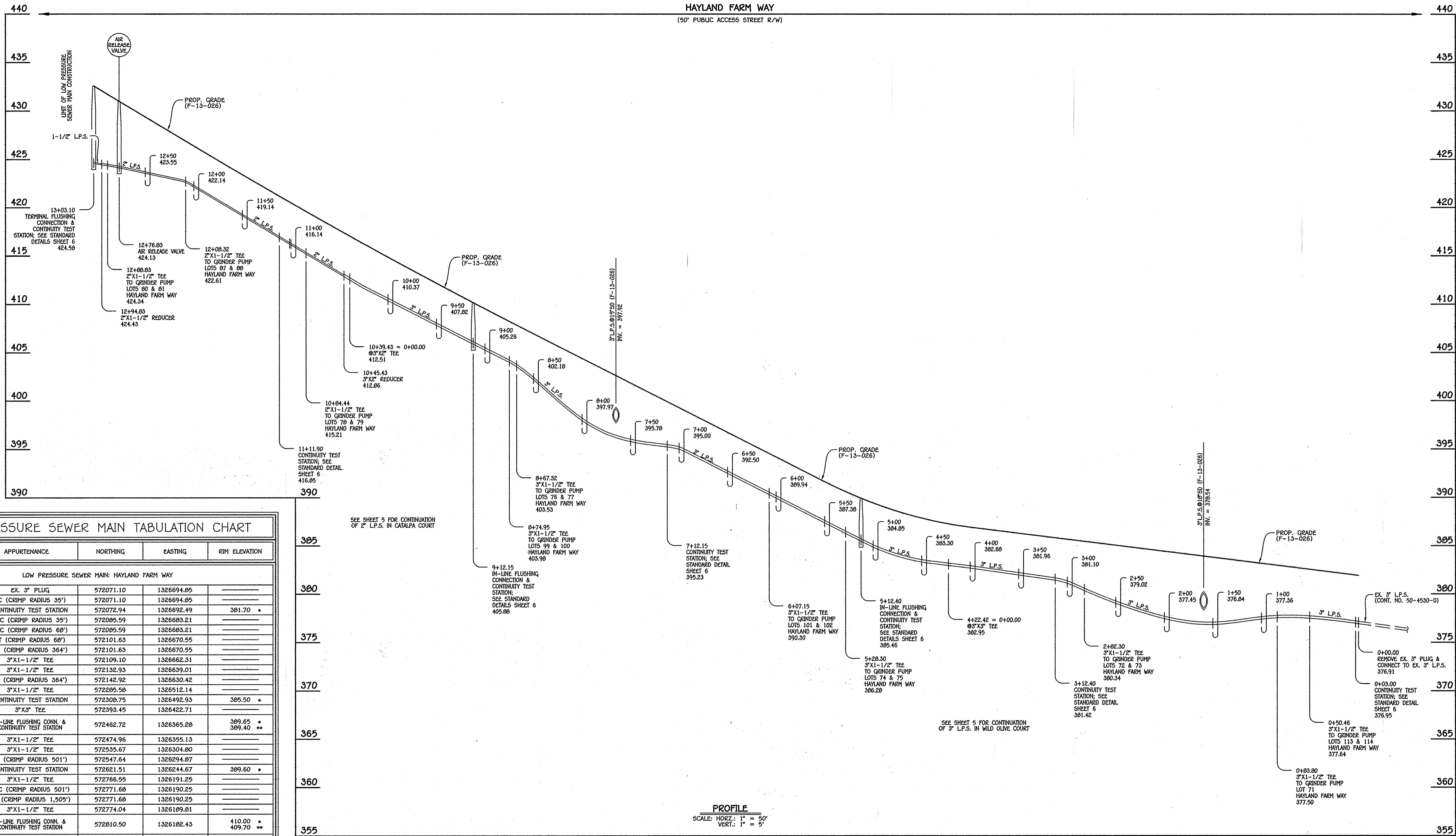
AS-BUILT REVISION

LOW PRESSURE SEWER SYSTEM PLAN

600' SCALE MAP NO. 28	BLOCK NO. 45.10.11.12.17&19
F.C.C. WORK ORDER NO. 04001-3004	DATE: 6-11-15
FILE NAME: LOW PRESSURE SEWER SYSTEM SHEET	

WALNUT CREEK
PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'T' & BUILDABLE BULK PARCEL 'U'
LOW PRESSURE SEWER SYSTEM
CONTRACT NO. 50-4765-D
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET: 3 OF 8



LOW PRESSURE SEWER MAIN TABULATION CHART

L.P.S. STA.	APPURTENANCE	NORTHING	EASTING	RIM ELEVATION
LOW PRESSURE SEWER MAIN: HAYLAND FARM WAY				
0+00.00	EX. 3" PLUG	572071.10	1326694.85	
0+00.00	PC (CRIMP RADIUS 35')	572071.10	1326694.85	
0+03.00	CONTINUITY TEST STATION	572072.94	1326692.49	381.70 *
0+18.81	PRC (CRIMP RADIUS 35')	572085.59	1326683.21	
0+18.81	PRC (CRIMP RADIUS 68')	572085.59	1326683.21	
0+39.34	PT (CRIMP RADIUS 68')	572101.63	1326670.55	
0+39.34	PC (CRIMP RADIUS 364')	572101.63	1326670.55	
0+50.46	3"X1-1/2" TEE	572109.10	1326662.31	
0+83.80	3"X1-1/2" TEE	572132.93	1326659.01	
0+96.98	PT (CRIMP RADIUS 364')	572142.92	1326630.42	
2+82.30	3"X1-1/2" TEE	572285.58	1326512.14	
3+12.40	CONTINUITY TEST STATION	572308.75	1326492.93	385.50 *
4+22.42	3"X3" TEE	572393.45	1326422.71	
5+12.40	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	572462.72	1326365.28	389.65 *
5+28.30	3"X1-1/2" TEE	572474.96	1326355.13	389.40 **
6+07.15	3"X1-1/2" TEE	572535.67	1326304.80	
6+22.70	PT (CRIMP RADIUS 501')	572547.64	1326294.87	
7+12.15	CONTINUITY TEST STATION	572621.51	1326244.67	389.60 *
8+67.32	3"X1-1/2" TEE	572766.55	1326191.25	
8+72.55	PRC (CRIMP RADIUS 501')	572771.68	1326190.25	
8+72.55	PC (CRIMP RADIUS 1,505')	572771.68	1326190.25	
8+74.95	3"X1-1/2" TEE	572774.04	1326189.81	
9+12.15	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	572810.50	1326182.43	410.00 *
10+39.43	3"X2" TEE	572933.65	1326150.42	409.70 **
10+45.43	3"X2" REDUCER	572939.38	1326148.65	
10+84.44	2"X1-1/2" TEE	572976.49	1326136.63	
11+11.90	CONTINUITY TEST STATION	573003.42	1326127.58	420.20 *
12+08.32	2"X1-1/2" TEE	573092.06	1326092.11	
12+76.83	AIR RELEASE VALVE	573154.29	1326063.45	431.00
12+88.72	PT (CRIMP RADIUS 1,505')	573164.95	1326058.20	
12+88.83	2"X1-1/2" TEE	573165.05	1326058.15	
12+94.83	2"X1-1/2" REDUCER	573170.37	1326055.38	
13+03.10	TERMINAL FLUSHING CONN. & CONTINUITY TEST STATION	573177.76	1326051.65	432.50 *
				432.25 **

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

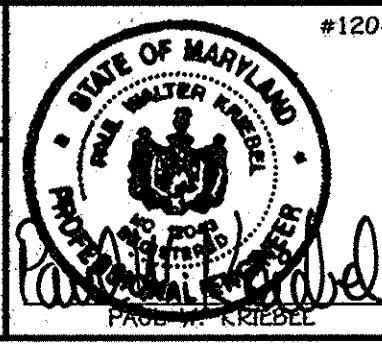
3", 2" & 1-1/2" LOW PRESSURE SEWER MAIN: HAYLAND FARM WAY

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

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Chief, Bureau of Utilities
 2/13/13

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
 Chief, Development Engineering Division
 3/4/13

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 12043 EXPIRATION DATE 5/7/18/14.
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALDORNE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2895



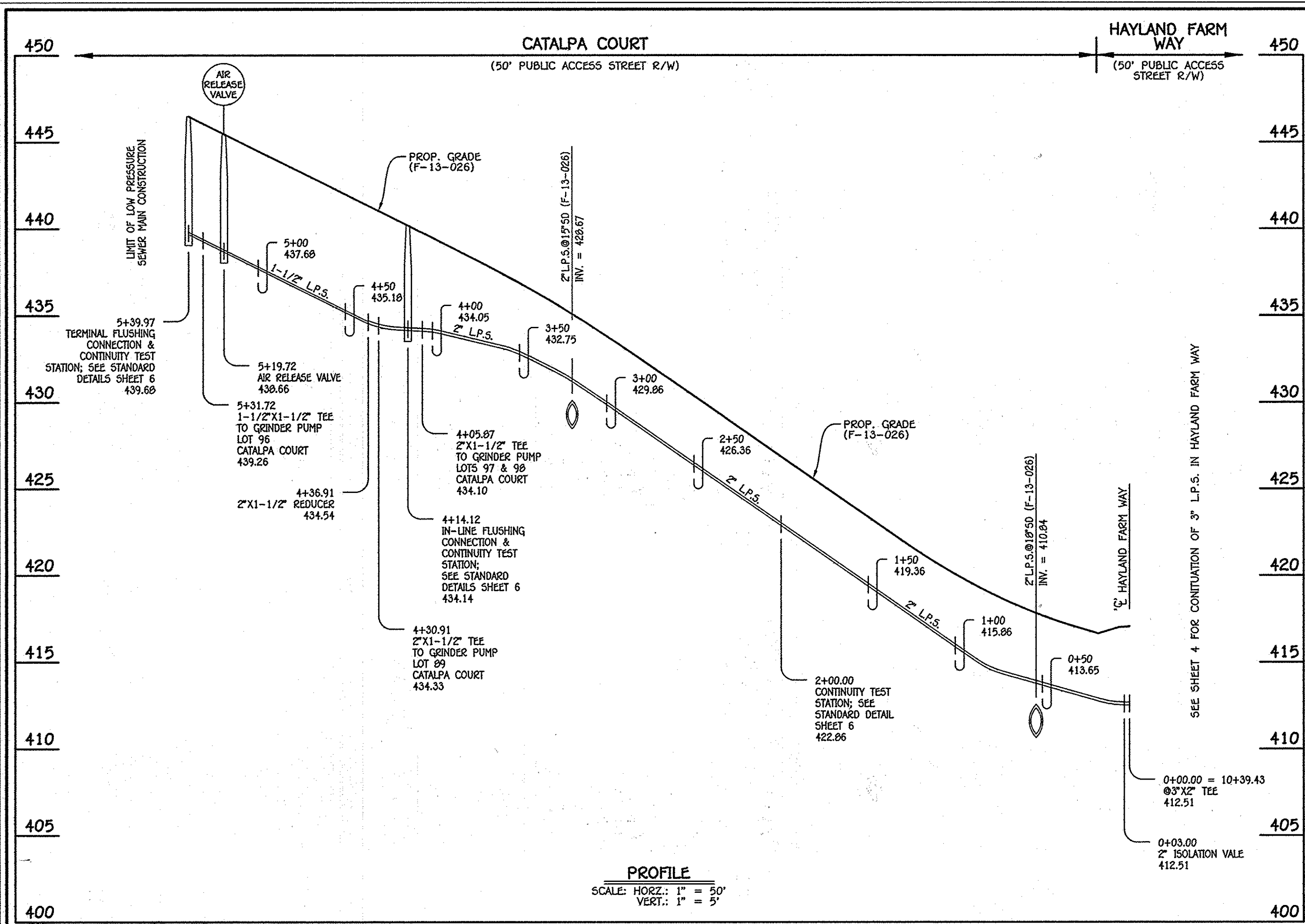
DESIGNED BY: B.C.R.
 DRAWN BY: B.C.R.
 CHECKED BY: P.W.K.
 DATE: FEBRUARY, 2013

LOW PRESSURE SEWER SYSTEM PROFILE & CHART
 600' SCALE MAP NO. 28 BLOCK NO. 43,10,11,12,17&18
 F.C.C. WORK ORDER NO. 04001-3004
 FILE NAME: LOW PRESSURE SEWER SYSTEM SHEET

WALNUT CREEK
 PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'T' & BUILDABLE BULK PARCEL 'U'
 LOW PRESSURE SEWER SYSTEM
 CONTRACT NO. 50-4765-D
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 4 OF 8

I:\2004\04001\PHASE THREE FINALS\04001-3004 Phase 3 Sewer Main Contract Plan.dwg, Profile Sheet 4, 2/14/2013 2:26:03 PM



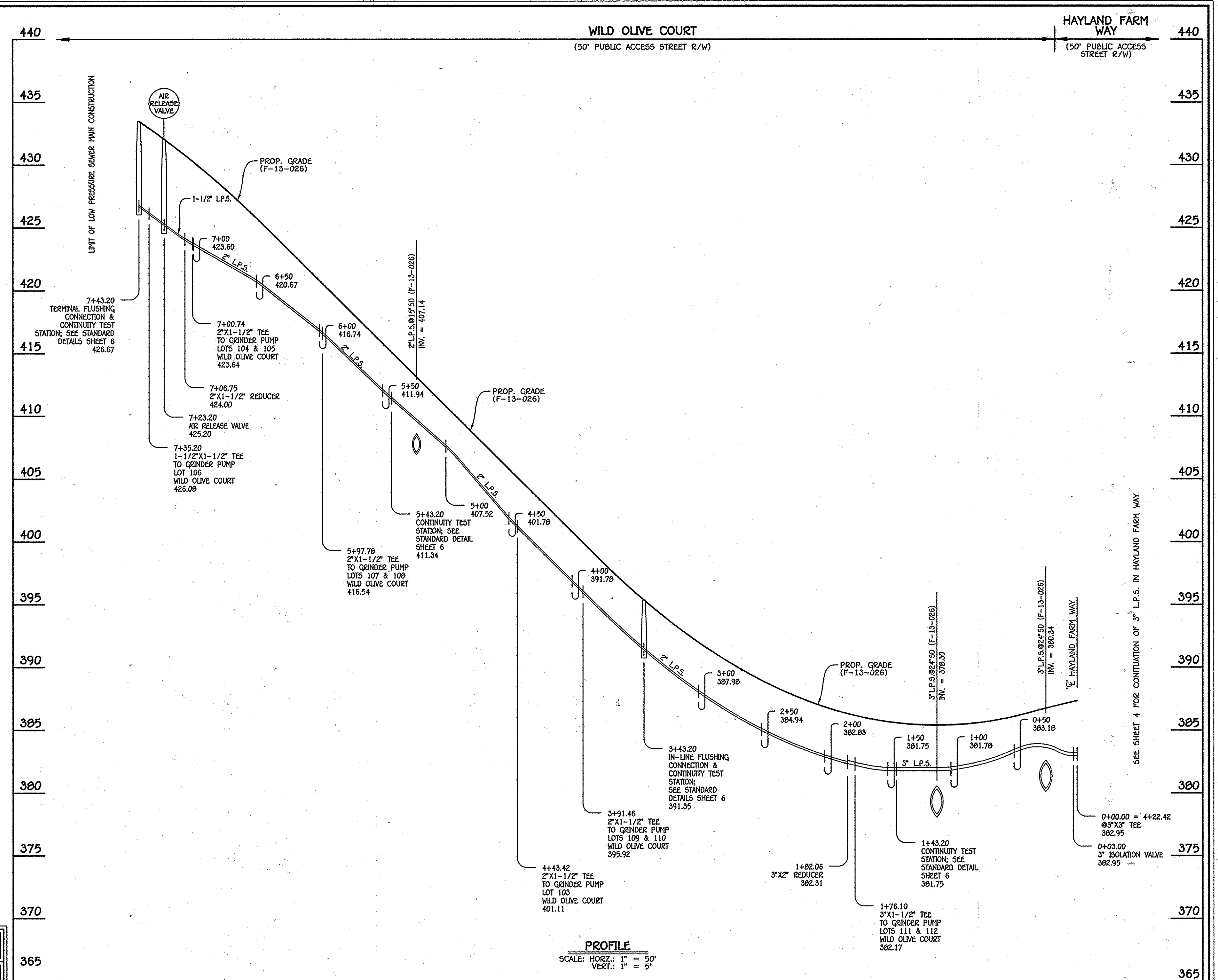
2" & 1-1/2" LOW PRESSURE SEWER MAIN: CATALPA COURT

L.P.S. STA.	APPURTENANCE	NORTHING	EASTING	RIM ELEVATION
LOW PRESSURE SEWER MAIN: CATALPA COURT				
0+00.00	3"X2" TEE	572933.65	1326150.42	
0+03.00	2" ISOLATION VALVE	572932.77	1326147.55	
2+00.00	CONTINUITY TEST STATION	572875.57	1325999.03	426.30 *
3+64.82	PC (CRIMP RADIUS 797')	572827.72	1325801.31	
4+05.07	2"X1-1/2" TEE	572816.81	1325761.74	
4+14.12	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	572814.87	1325753.73	440.00 * 439.90 **
4+30.91	2"X1-1/2" TEE	572811.17	1325737.35	
4+36.91	2"X1-1/2" REDUCER	572809.94	1325731.48	
5+19.72	AIR RELEASE VALVE	572797.39	1325649.68	445.46
5+31.72	1-1/2"X1-1/2" TEE	572796.27	1325637.71	
5+39.98	PT (CRIMP RADIUS 797')	572795.61	1325629.49	
5+39.97	TERMINAL FLUSHING CONN. & CONTINUITY TEST STATION	572795.61	1325629.49	446.40 * 446.10 **

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

L.P.S. STA.	APPURTENANCE	NORTHING	EASTING	RIM ELEVATION
LOW PRESSURE SEWER MAIN: WILD OLIVE COURT				
0+00.00	3"X3" TEE	572393.45	1326422.71	
0+03.00	3" ISOLATION VALVE	572391.54	1326420.40	
1+05.55	PC (CRIMP RADIUS 503')	572325.08	1326341.45	
1+43.20	CONTINUITY TEST STATION	572303.16	1326311.59	385.35 *
1+76.10	3"X1-1/2" TEE	572285.02	1326284.20	
1+82.06	3"X2" REDUCER	572281.91	1326279.07	
3+43.20	IN-LINE FLUSHING CONN. & CONTINUITY TEST STATION	572222.40	1326130.06	395.10 * 394.80 **
3+91.46	2"X1-1/2" TEE	572214.16	1326082.53	
4+43.42	2"X1-1/2" TEE	572210.41	1326030.79	
5+43.20	CONTINUITY TEST STATION	572218.24	1325931.42	414.00 *
5+97.78	2"X1-1/2" TEE	572230.79	1325878.33	
6+37.00	PT (CRIMP RADIUS 503')	572243.31	1325841.20	
7+00.74	2"X1-1/2" TEE	572266.03	1325781.62	
7+06.75	2"X1-1/2" REDUCER	572268.17	1325776.01	
7+23.20	AIR RELEASE VALVE	572274.04	1325760.63	432.05
7+35.20	1-1/2"X1-1/2" TEE	572278.31	1325749.42	
7+43.20	TERMINAL FLUSHING CONN. & CONTINUITY TEST STATION	572281.15	1325741.94	433.30 * 432.00 **

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



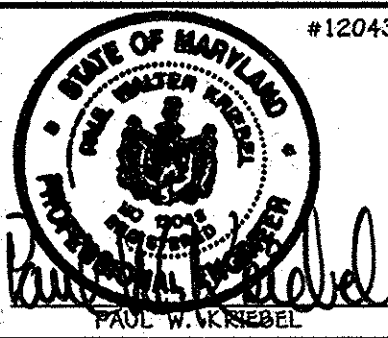
3", 2" & 1-1/2" LOW PRESSURE SEWER MAIN: WILD OLIVE COURT

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Chief, Bureau of Utilities

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
 Chief, Development Engineering Division

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 12043 EXPIRATION DATE IS 7/16/14.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2255



DESIGNED BY: B.C.R.
 DRAWN BY: B.C.R.
 CHECKED BY: P.W.K.
 DATE: FEBRUARY, 2013

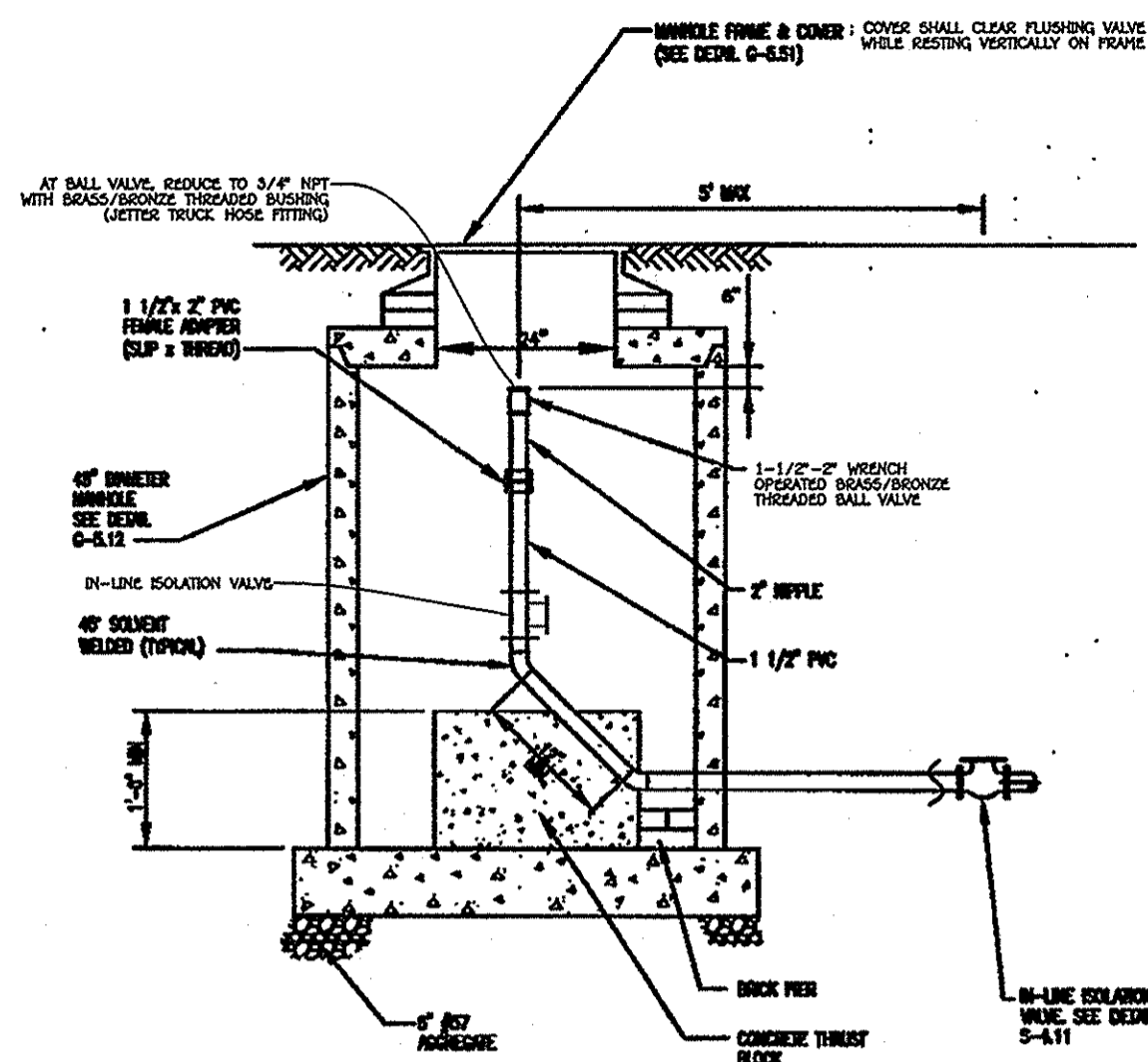
LOW PRESSURE SEWER SYSTEM
 PROFILES & CHARTS
 600' SCALE MAP NO. 28 BLOCK NO. 43.10.11.12.17&18
 F.C.C. WORK ORDER NO. 04001-3004
 FILE NAME: LOW PRESSURE SEWER SYSTEM SHEET

WALNUT CREEK
 PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'T' & BUILDABLE BULK PARCEL 'U'
 LOW PRESSURE SEWER SYSTEM
 CONTRACT NO. 50-4765-D
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 5 OF 8

CONTRACT NO. 50-4765-D
 WALNUT CREEK
 PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'T' & BUILDABLE BULK PARCEL 'U'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND

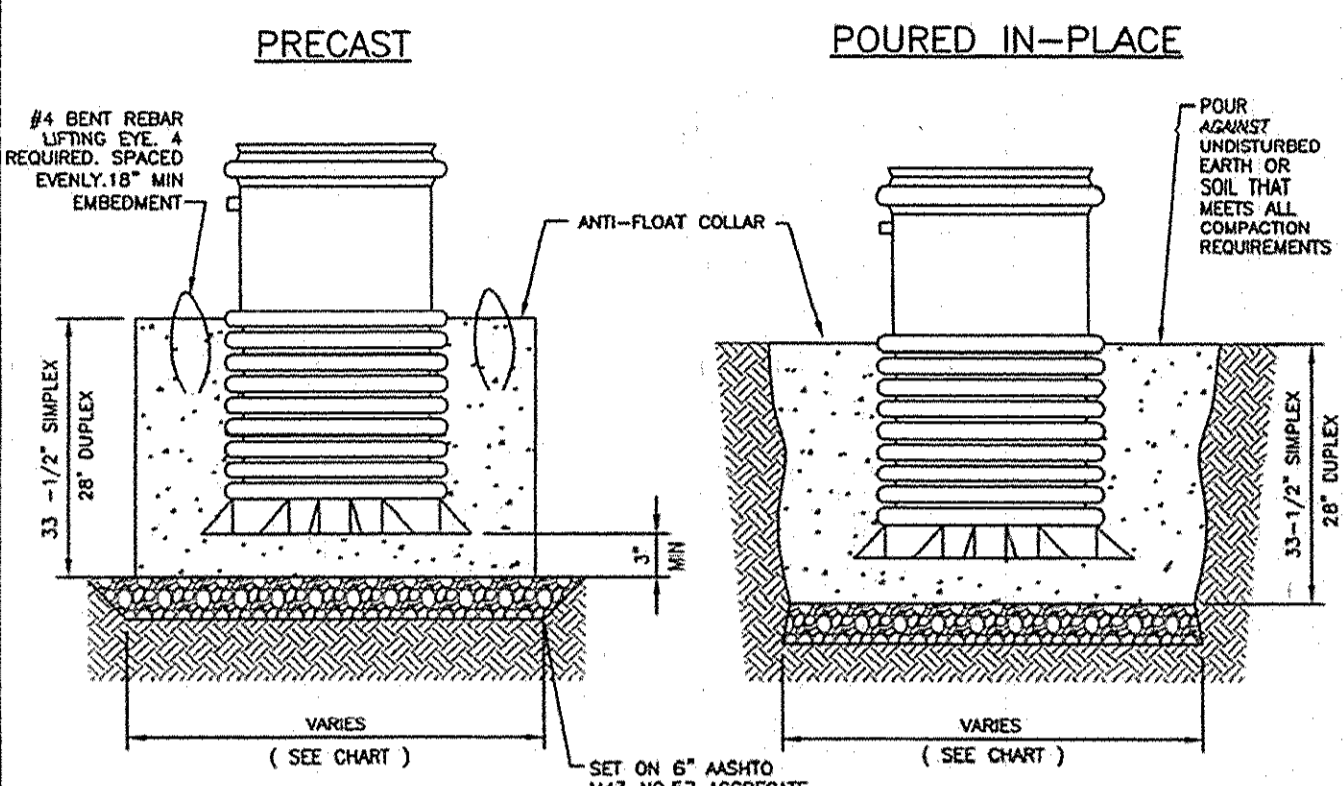
NOTES:
 1. 6" x 36" PRE-CAST DIPS
 2. DO NOT ENGAGE JOINTS



Howard County, Maryland Department of Public Works	Terminal Flushing Connection County Owned Grinder Pump	Detail E-1.03
---	--	------------------

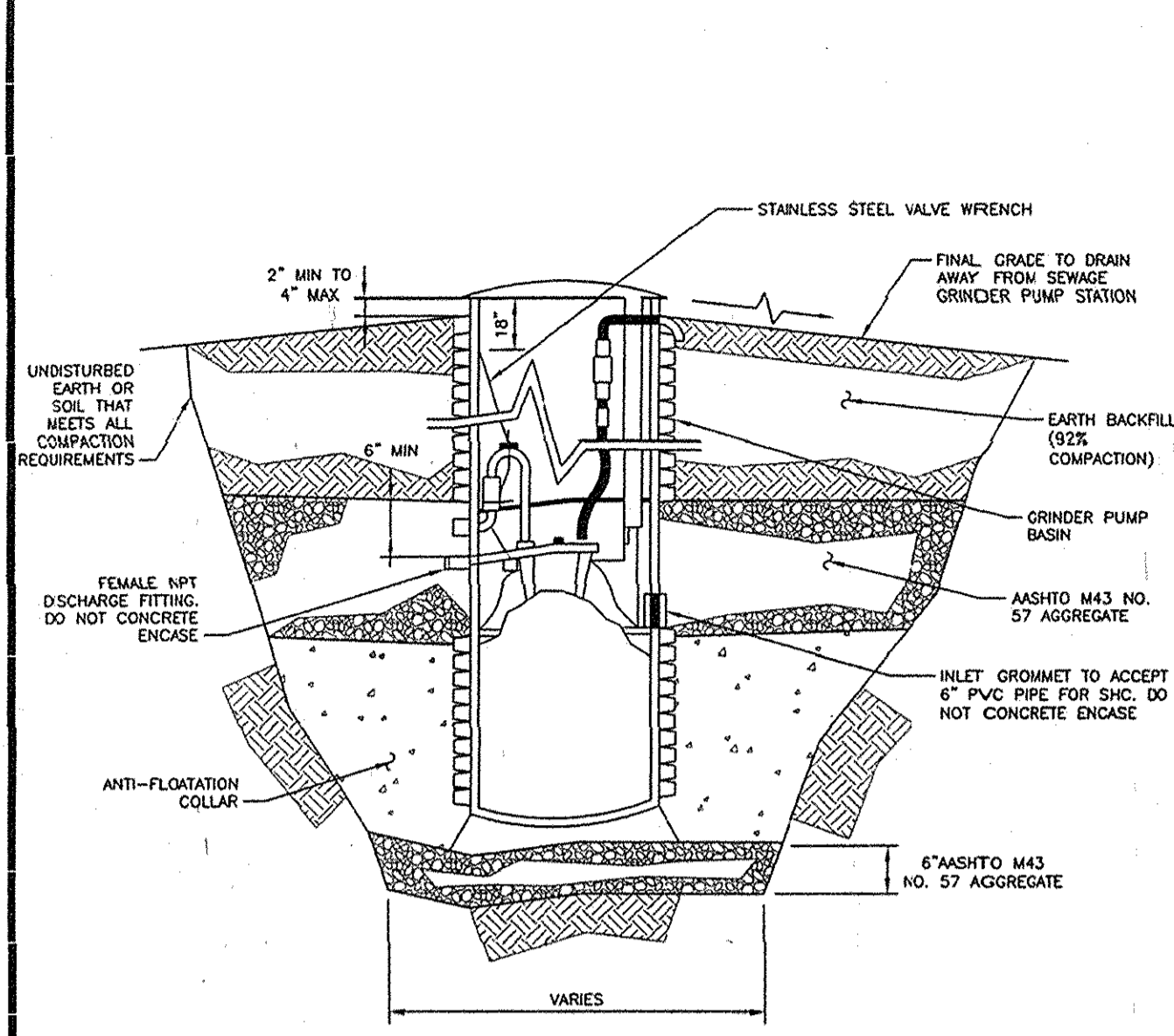
ENVIRONMENT ONE MODEL #	STATION VOLUME	CONCRETE VOLUME	BALLAST WEIGHT	PRE-CAST DIA AT 28 IN HEIGHT
2010-58	17.6 FT ³	9.8 FT ³ (.36 CY)	1500 LBS (1473 LBS)	ø 36 IN
2010-74	22.7 FT ³	13.2 FT ³ (.48 CY)	2000 LBS (1985 LBS)	ø 39-1/2 IN
2010-93	28.6 FT ³	17.3 FT ³ (.63 CY)	2600 LBS (2590 LBS)	ø 42-1/2 IN
2010-124	38.6 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)	3800 LBS (3750 LBS)	ø 48 IN
2010-158	49.5 FT ³	31.6 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	28.6 FT ³ (1.0 CY)	4300 LBS (4285 LBS)	ø 57-1/2 IN
2014-93	49.6 FT ³	29.9 FT ³ (1.1 CY)	4500 LBS (4494 LBS)	ø 58-1/2 IN
2014-129	61.0 FT ³	37.6 FT ³ (1.4 CY)	5700 LBS (5646 LBS)	ø 63-1/2 IN
2014-160	71.0 FT ³	44.4 FT ³ (1.6 CY)	5700 LBS (6664 LBS)	ø 67-1/2 IN



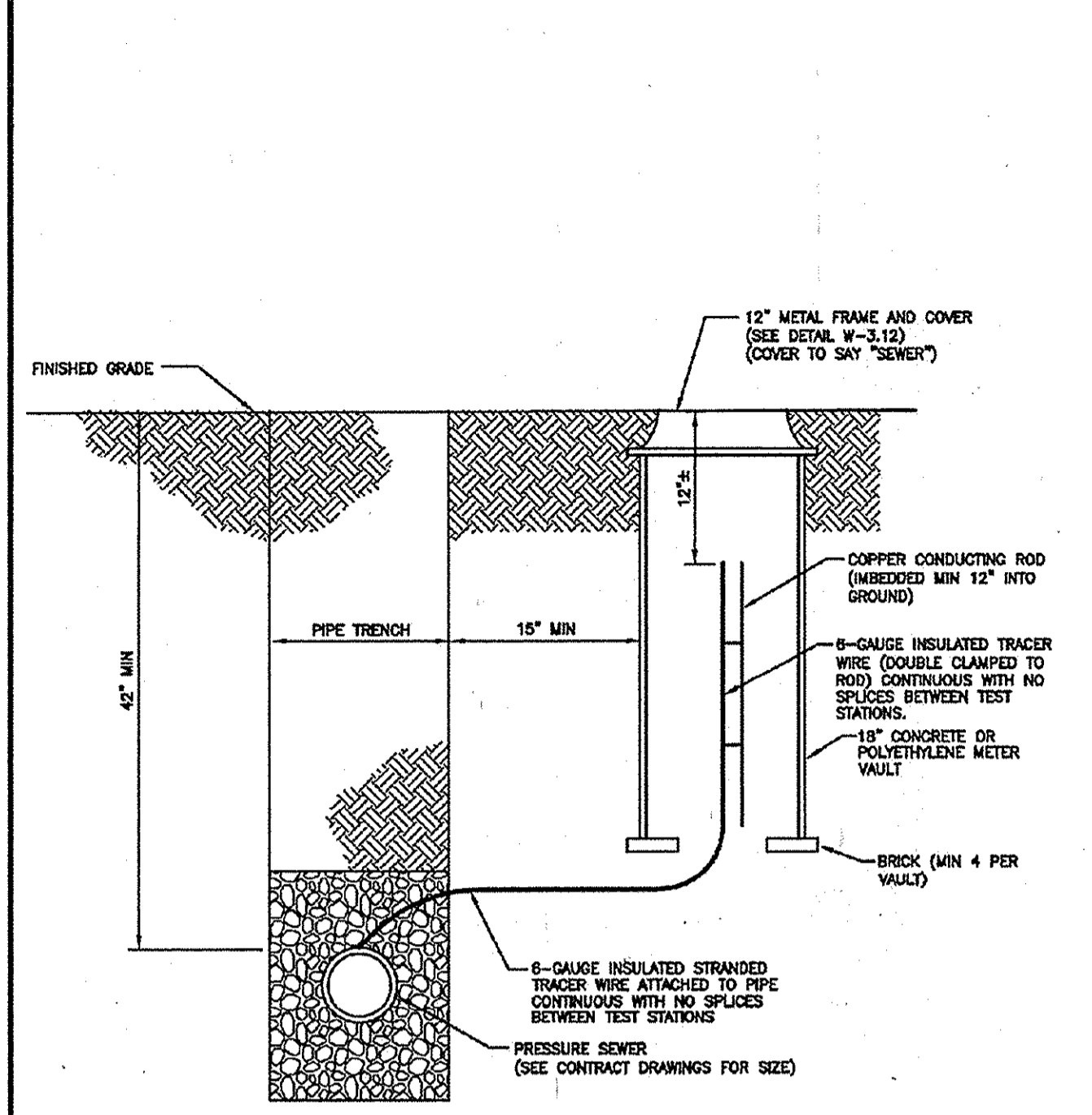
NOTES:
 1. INSTALL PLUMB - PROVIDE TEMPORARY BRACING TO MAINTAIN POSITIONING DURING CONCRETE PLACEMENT.
 2. ALL CONCRETE TO BE MIX NO. 1 AND SHALL CURE 24 HOURS PRIOR TO BACKFILL.
 3. SEE E-2.02 FOR COMPACTION.

Howard County, Maryland Department of Public Works	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	Backfill County Owned Grinder Pump	Detail E-2.02
---	---------------------------------------	------------------

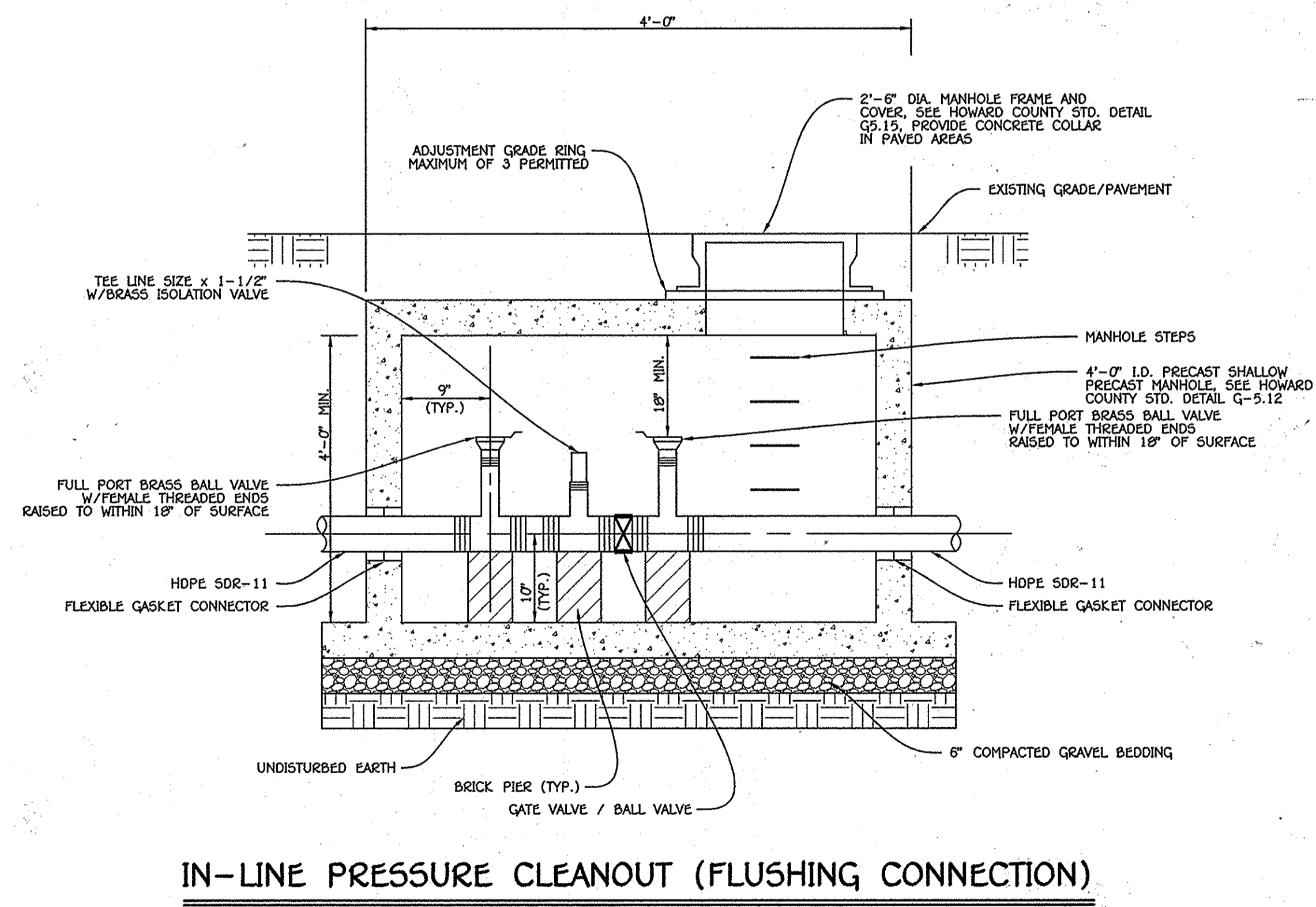


NOTES:
 1. FOR LOCATIONS ALONG PRESSURE SEWER ALIGNMENT, SEE C-8.21.
 2. SEE C-8.21 FOR OTHER CONTINUITY TEST STATION INFORMATION.
 3. NO SPLICES BETWEEN TEST STATIONS, UNLESS APPROVED BY HOWARD COUNTY. LATERAL SPLICES APPROVED BY THE COUNTY SHALL CONSIST OF A BRASS COMPRESSION NUT, WATERPROOF BRACKER, AND UNDERGROUND ELECTRICAL TAPE. EXTENSION SPLICES SHALL BE MADE USING A CRIMP CONNECTOR AND SHRINK TUBING.

Howard County, Maryland Department of Public Works	Pressure Sewer Tracer Wire, Conducting Rod & Vault	Detail S-4.18
---	--	------------------

PROJECT: WALNUT CREEK
 SUBJECT: SEWER AS-BUILT

LOT	SHC	← MAIN TO CURB STOP
97 + 98	30'	TS 41' CS 88' I-16
99 + 100	36'	CS 57' TS 106' I-14
101 + 102	36'	TS 117' CS 14' I-12
103		CS 35' I-6 I-7 75' CS
104 + 105		TS 39' CS ARV 39' CS
106		TS 73' CS ARV 35' CS
107 + 108		CS 79' I-8 CS 68' TS
109 + 110		I-6 48' CS CS 66' TS
111 + 112	26'	I-5 107' CS CS 78' I-4



IN-LINE PRESSURE CLEANOUT (FLUSHING CONNECTION)
 NO SCALE

PROJECT: WALNUT CREEK
 SUBJECT: SEWER AS-BUILT

LOTS	SHC	← MAIN TO CURB STOP
113 + 114	35'	CS 28' I-1 CS 123' I-10

SYMBOLS
 CS - CURB STOP
 TS - TEST STATION
 I-1 TO T-22 - STORMDRAIN INLET
 M-1 TO M-3 - STORMDRAIN MANHOLES
 ARV - AIR RELEASE VALVE
 IV - ISOLATION VALVE

CONTRACT NO. 50-4765-D
 WALNUT CREEK
 PHASE THREE: LOTS 69 THRU 114,
 NON-BUILDABLE PRESERVATION PARCELS 'O'
 THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S',
 BUILDABLE PRESERVATION PARCEL 'T' &
 BUILDABLE BULK PARCEL 'U'
 LOW PRESSURE SEWER SYSTEM
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND
---	--

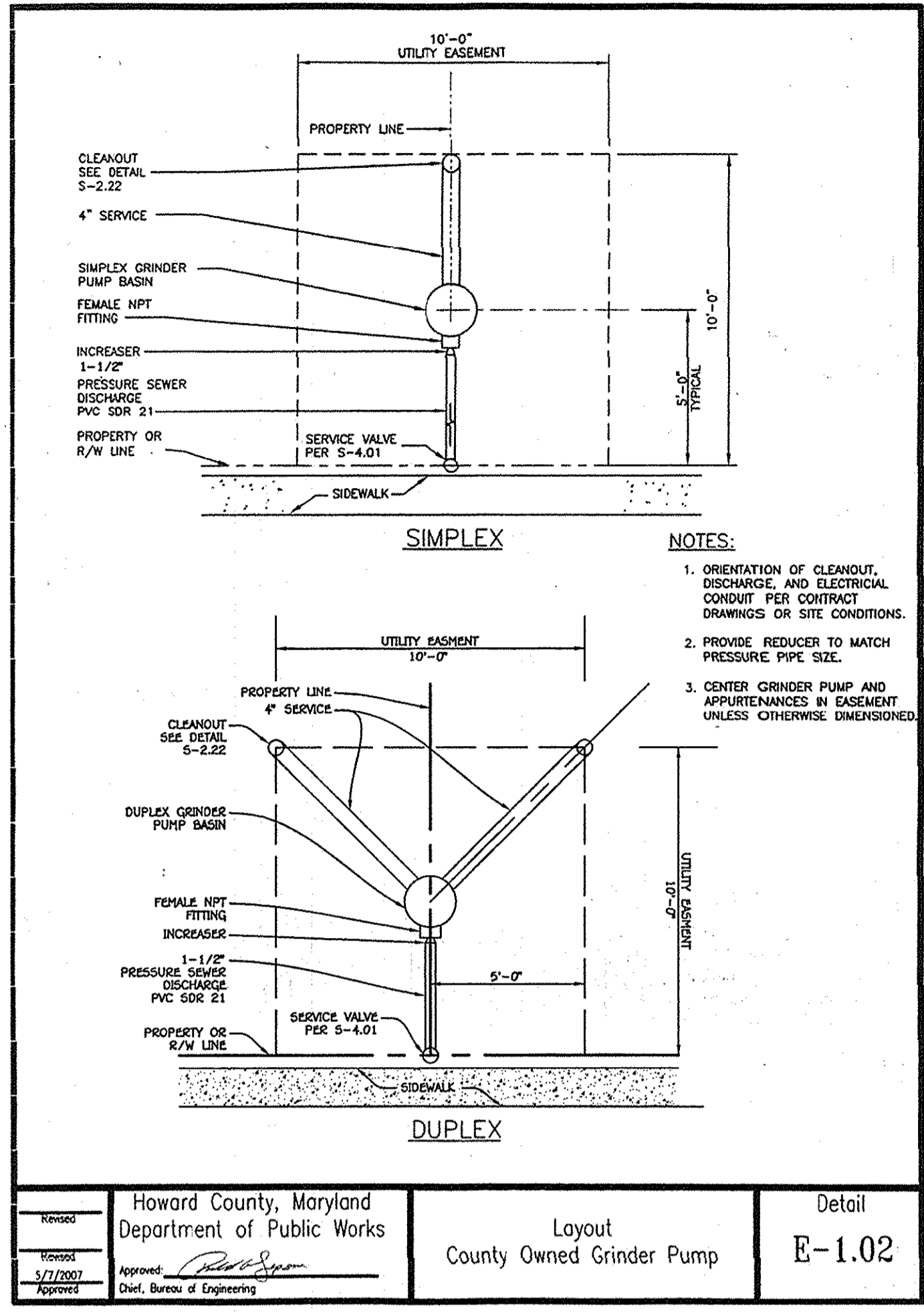
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 12043 EXPIRATION DATE 5/16/14.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 SUITE 200, BALTIMORE, MARYLAND 21286
 (410) 461-2895

DESIGNED BY: B.C.R.	DRAWN BY: B.C.R.	CHECKED BY: P.W.K.	DATE: FEBRUARY, 2013
------------------------	---------------------	-----------------------	-------------------------

LOW PRESSURE SEWER SYSTEM DETAILS	600' SCALE MAP NO. 28 BLOCK NO. 4.5, 10.11, 12, 17 & 18 F.C.C. WORK ORDER NO. 04001-3004
--------------------------------------	--

WALNUT CREEK PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'T' & BUILDABLE BULK PARCEL 'U'	SCALE AS SHOWN
LOW PRESSURE SEWER SYSTEM CONTRACT NO. 50-4765-D FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SHEET 6 OF 8

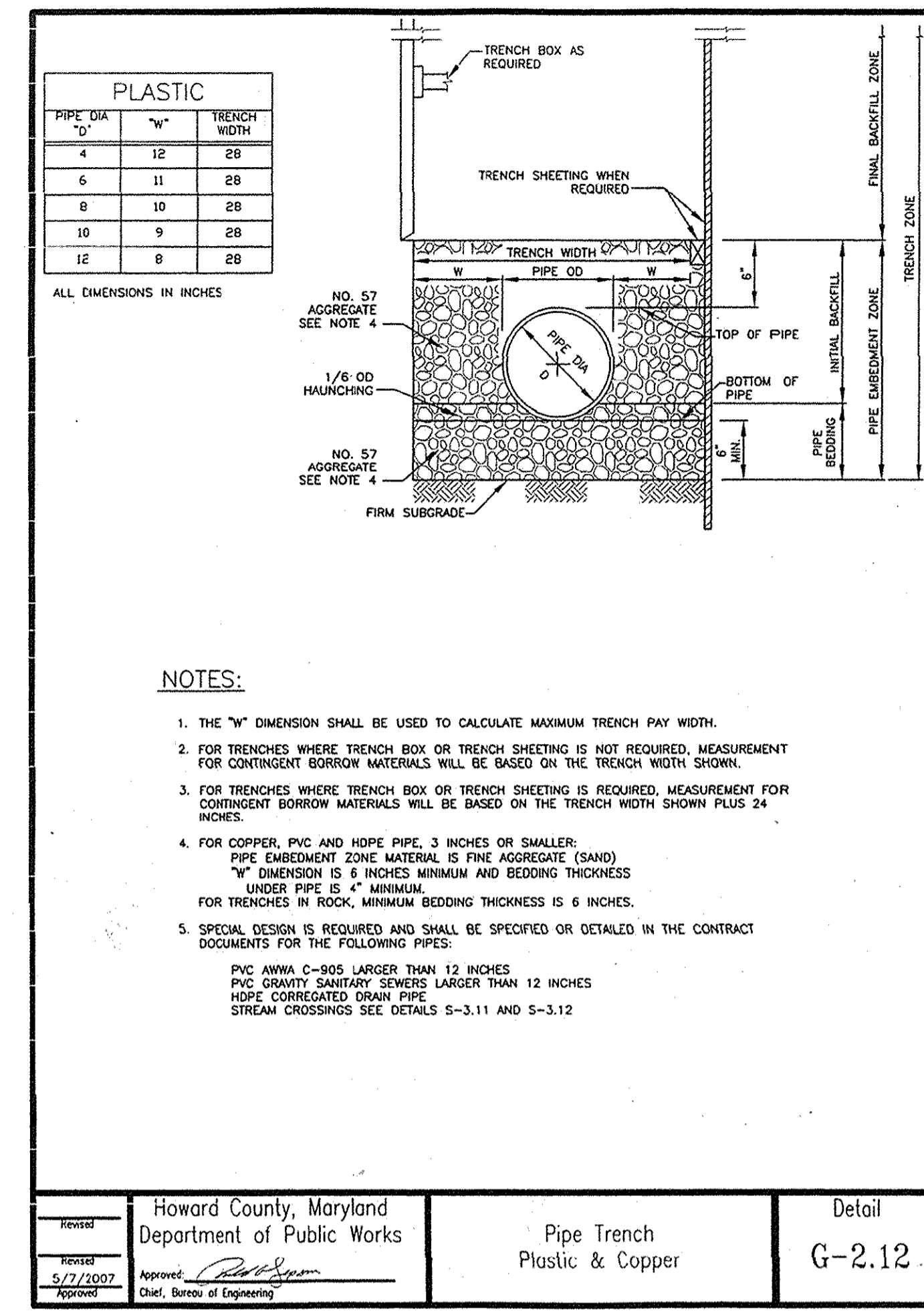


Howard County, Maryland
Department of Public Works

Layout
County Owned Grinder Pump

Detail
E-1.02

Approved: [Signature]
5/7/2007
Chief, Bureau of Engineering

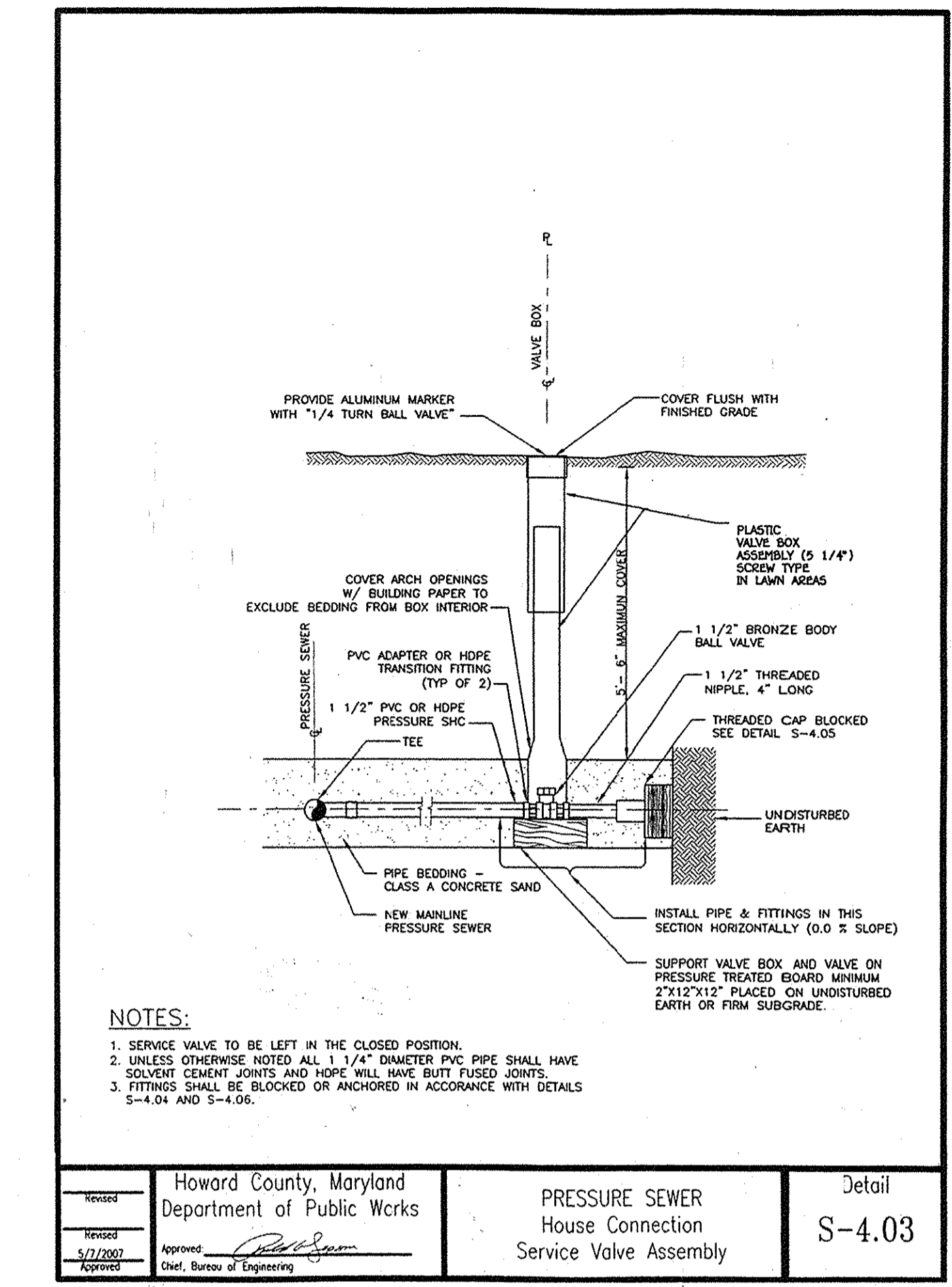


Howard County, Maryland
Department of Public Works

Pipe Trench
Plastic & Copper

Detail
G-2.12

Approved: [Signature]
5/7/2007
Chief, Bureau of Engineering

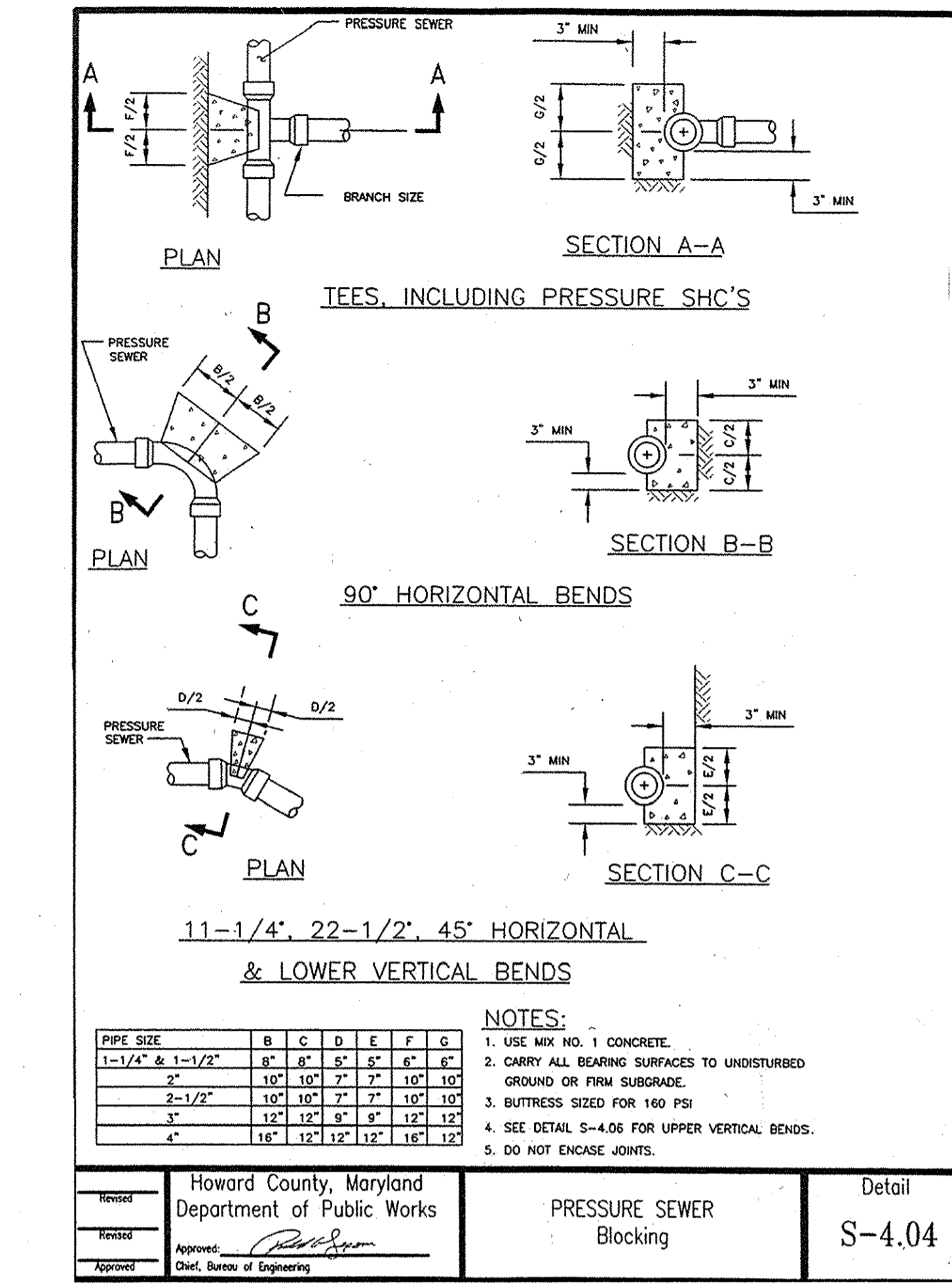


Howard County, Maryland
Department of Public Works

PRESSURE SEWER
House Connection
Service Valve Assembly

Detail
S-4.03

Approved: [Signature]
5/7/2007
Chief, Bureau of Engineering

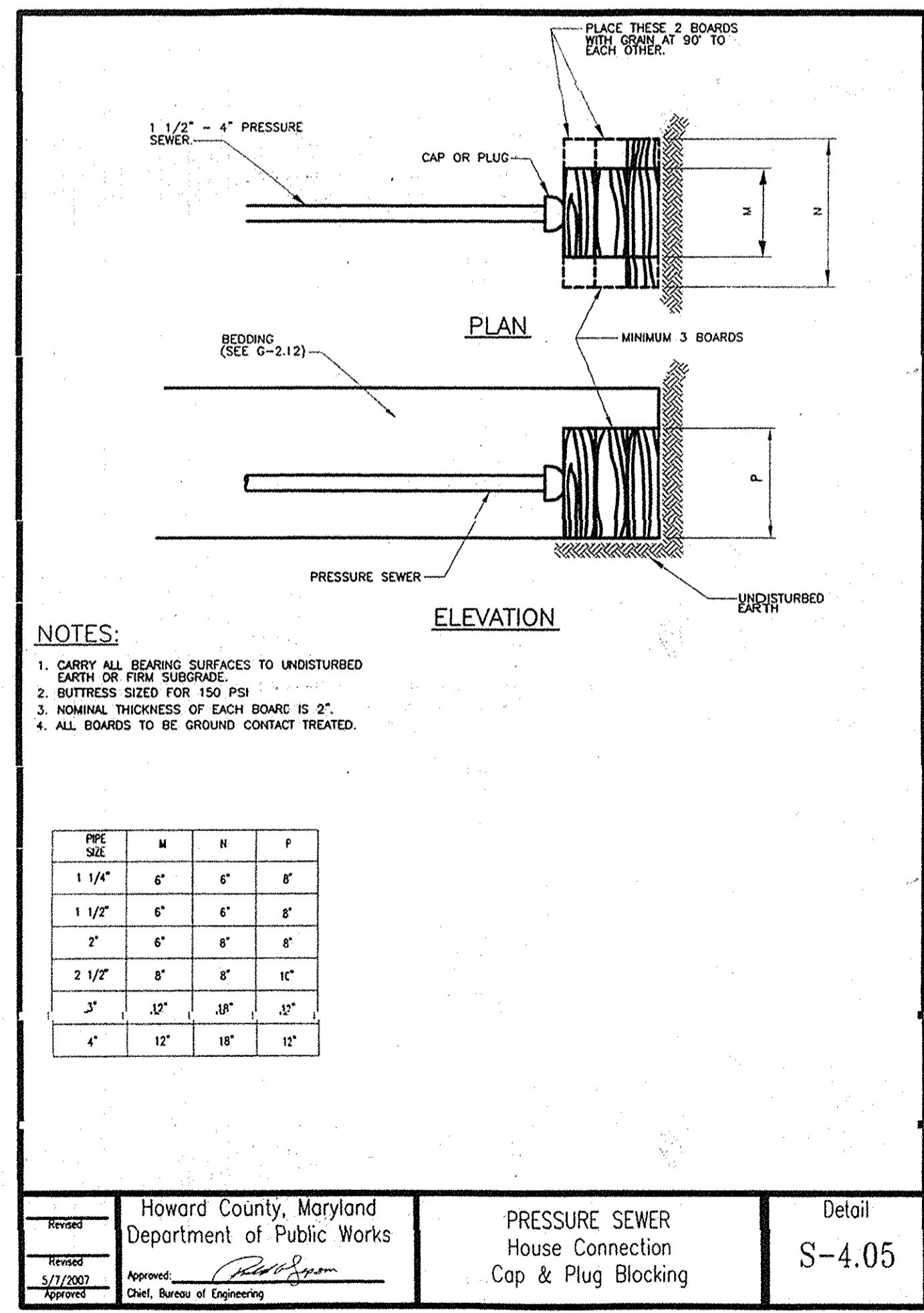


Howard County, Maryland
Department of Public Works

PRESSURE SEWER
Blocking

Detail
S-4.04

Approved: [Signature]
5/7/2007
Chief, Bureau of Engineering

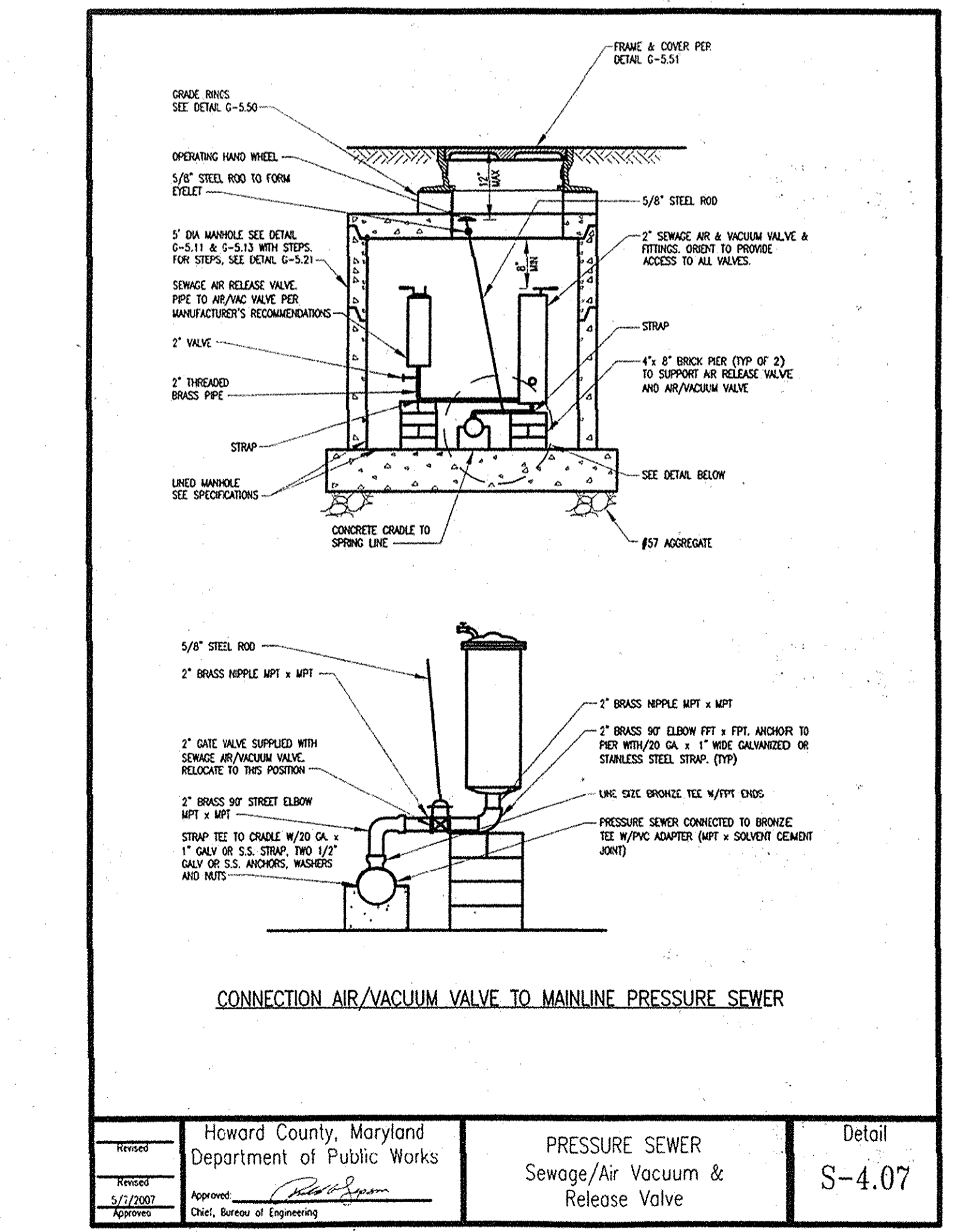


Howard County, Maryland
Department of Public Works

PRESSURE SEWER
House Connection
Cap & Plug Blocking

Detail
S-4.05

Approved: [Signature]
5/7/2007
Chief, Bureau of Engineering

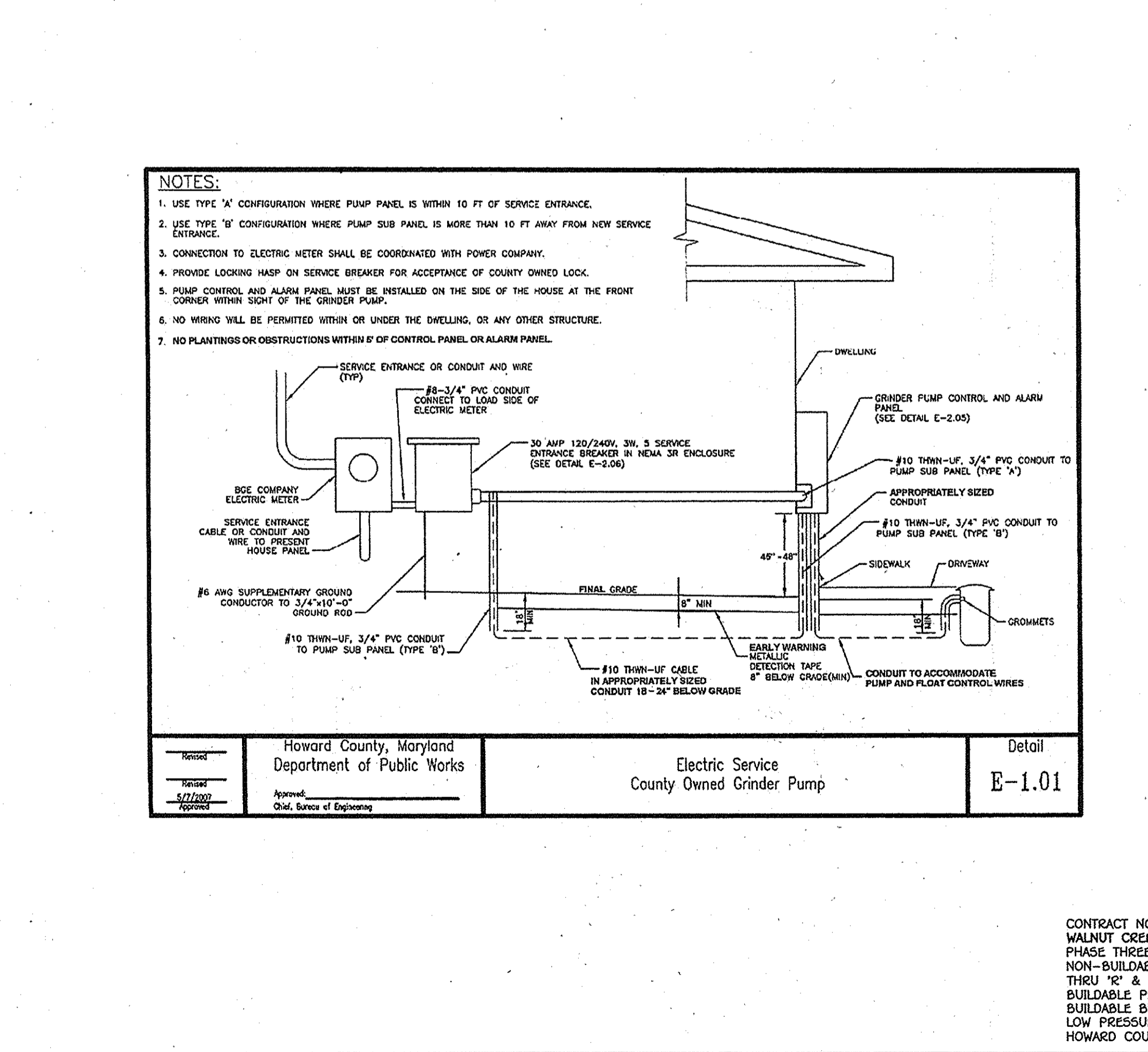


Howard County, Maryland
Department of Public Works

PRESSURE SEWER
Sewage/Air Vacuum &
Release Valve

Detail
S-4.07

Approved: [Signature]
5/7/2007
Chief, Bureau of Engineering



Howard County, Maryland
Department of Public Works

Electric Service
County Owned Grinder Pump

Detail
E-1.01

Approved: [Signature]
5/7/2007
Chief, Bureau of Engineering

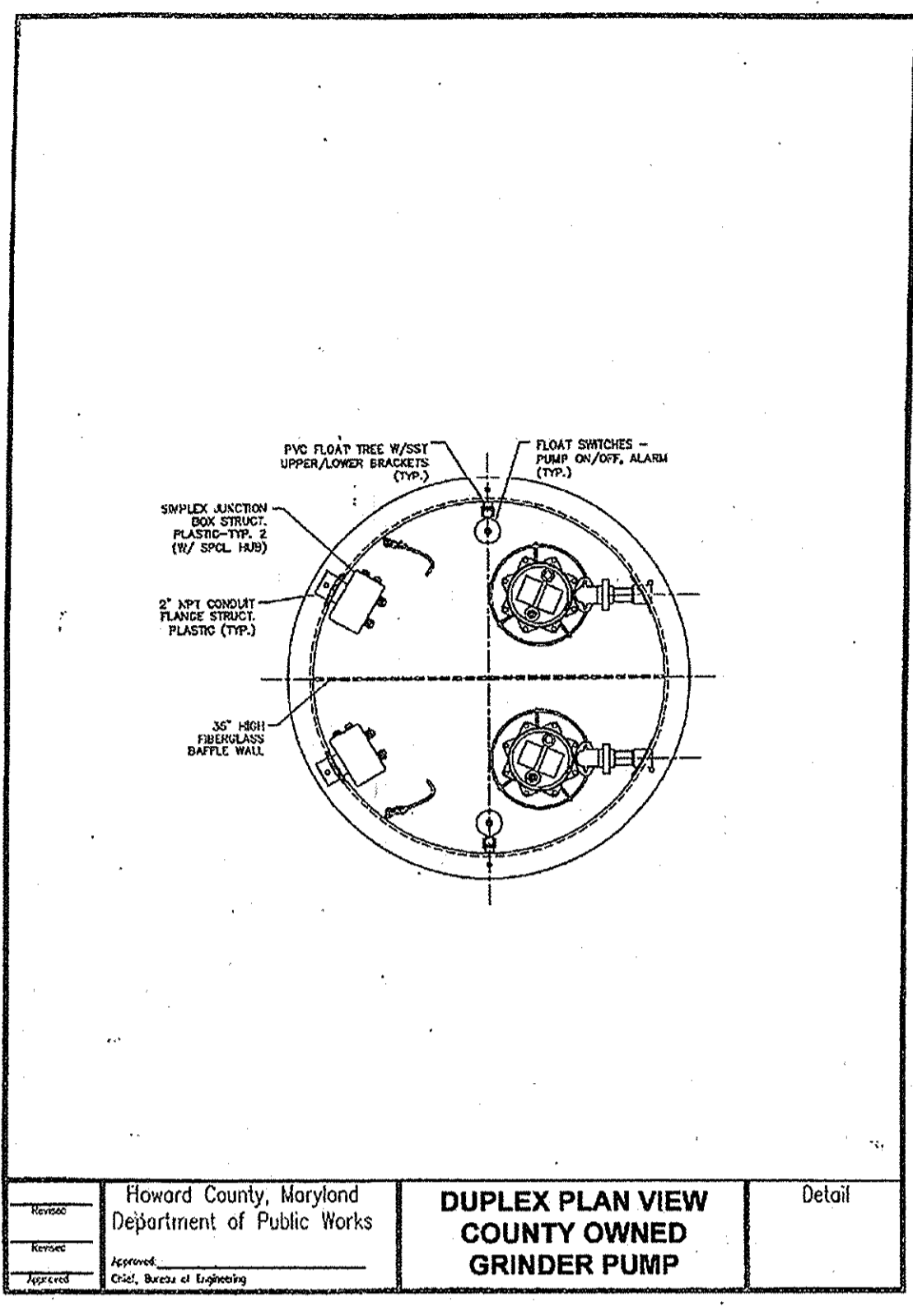
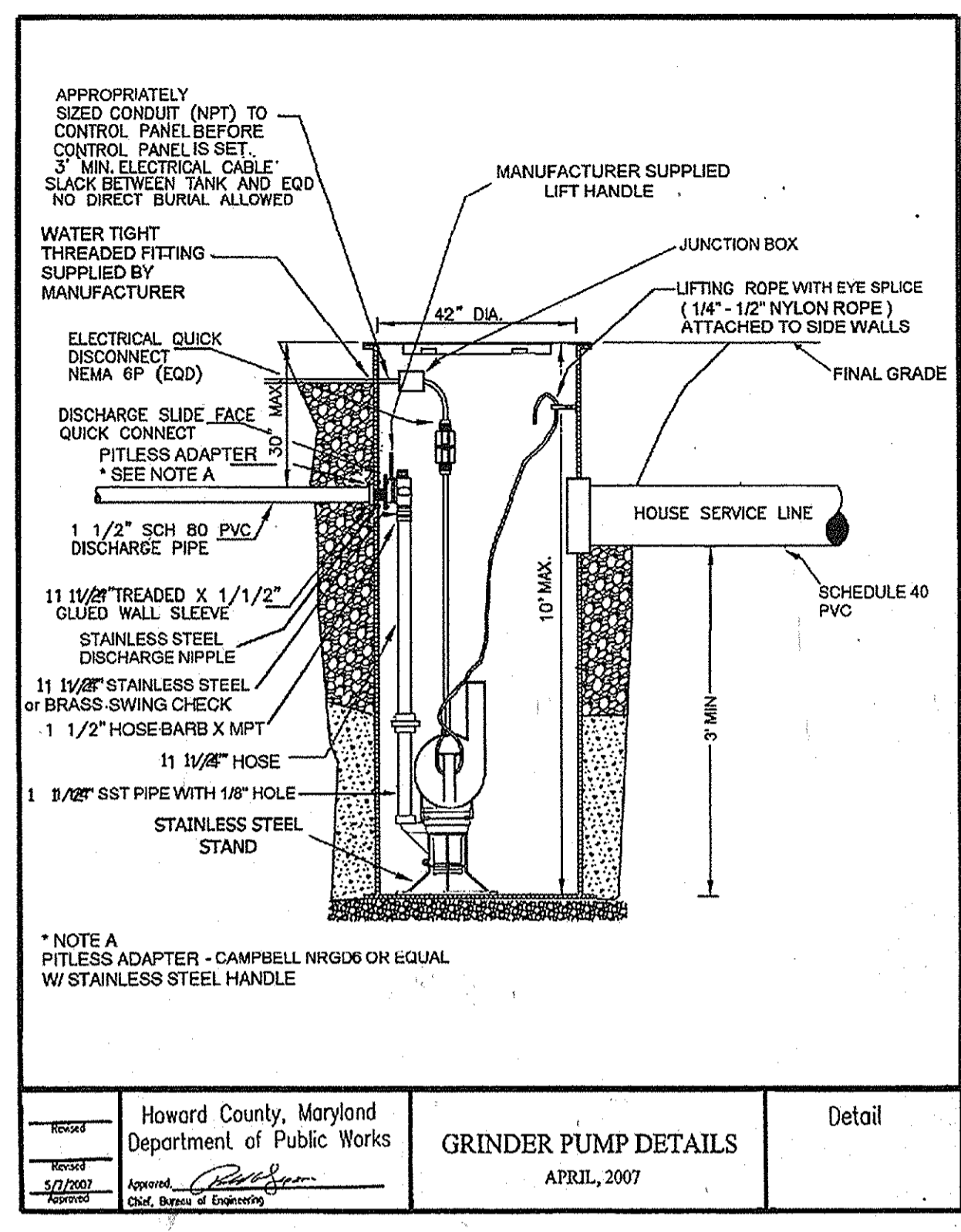
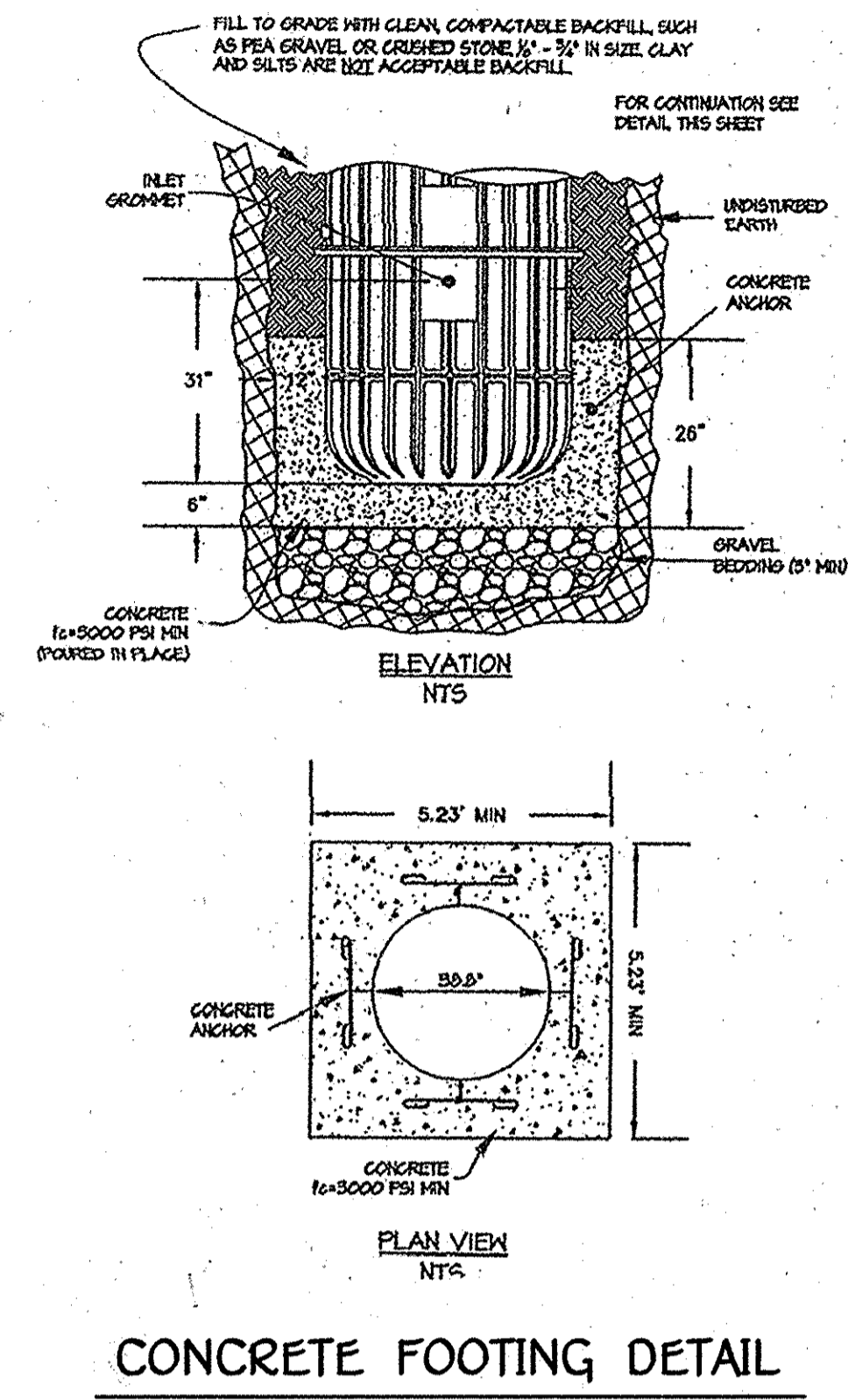
I:\2004\04001\dwg\PHASE THREE FINALS\04001-3004 Phase 3 Sewer Main Contract Pldm.dwg, Detail Sheet 7, 2/16/2010 10:23:31 AM

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>Silva Clean</i> CHIEF, BUREAU OF UTILITIES</p> <p>DATE: 2/16/13</p>	<p>DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND</p> <p><i>[Signature]</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION</p> <p>DATE: M.G.</p>	<p>I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 12043 EXPIRATION DATE IS 7/16/14.</p> <p>FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTRAL SQUARE OFFICE PARK - 10272 BALDWIN NATIONAL PIKE ELLSWORTH CITY, MARYLAND 21042 (410) 461-2952</p> <p><i>[Signature]</i> PAUL W. KETZEL</p>	<p>#12043</p> <p>DESIGNED BY: B.C.R.</p> <p>DRAWN BY: B.C.R.</p> <p>CHECKED BY: P.W.K.</p> <p>DATE: FEBRUARY, 2013</p>	<p>LOW PRESSURE SEWER SYSTEM DETAILS</p> <p>600' SCALE MAP NO. 28 BLOCK NO. 45,10,11,12,17&18 F.C.C. WORK ORDER NO. 04001-3004</p> <p>FILE NAME: LOW PRESSURE SEWER SYSTEM SHEET</p>	<p>WALNUT CREEK PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'T' & BUILDABLE BULK PARCEL 'U' LOW PRESSURE SEWER SYSTEM CONTRACT NO. 50-4765-D FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> <p>SCALE AS SHOWN</p> <p>SHEET 7 OF 8</p>
---	--	--	--	--	--

CONTRACT NO. 50-4765-D
WALNUT CREEK
PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'R' & 'V', NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'T' & BUILDABLE BULK PARCEL 'U'
LOW PRESSURE SEWER SYSTEM
HOWARD COUNTY, MARYLAND

PROJECT: WALNUT CREEK
SUBJECT: SEWER AS-BUILT

LOTS	SH C	← MAIN TO CURB STOP	
71	20'	I-1 — 73' — 65'	I-2 — 88' — CS
72 + 73	21'	I-2 — 131 — CS	TS — 33' — CS
74 + 75	20'	M-1 — 129 — CS	TS — 23' — CB
76 + 77	20'	I-2-1 — 97 — CS	TS — 43' — CS
78 + 79	22'	M-2 — 42' — CS	TS — 31' — CS
80 + 81	30'	M-3 — 58 — CS	TS — 12 — CS
87 + 88	38'	I-2-2 — 27' — CS	M-3 — 79' — CS
89	23'	CS — 19 — TS	CS — 110 — I-17
96	36'	TS — 55 — CS	CS — 38 — ARV



PREPARED BY: NATHAN FUHRMAN
DATE: 12/17/12

PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS
WALNUT CREEK LOW PRESSURE SYSTEM DESIGN
PHASE THREE, LOTS 69-81, 92-94 & 96-114

ZONE NUMBER	CONNECTS TO ZONE	NUMBER OF PUMPS IN ZONE	ACCUM PUMPS IN ZONE	GAL/DAY PER CORE	MAX FLOW PER CORE	MAX SIM OPS	MAX FLOW (GPH)	PIPE SIZE (INCHES)	MAX VELOCITY (FPS)	LENGTH OF MAIN THIS ZONE	FRIC LOSS FACTOR (FT/100FT)	FRIC 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: HOPE, SDR-11																	
FRIC LOSS CALCULATIONS WERE BASED ON A CONSTANT FOR INSIDE ROUGHNESS OF 140																	
1	2.00	2	2	750	11.00	2	22.00	2.00	2.38	80.51	1.35	1.09	95.11	427.47	421.97	5.50	100.61
2	6.00	4	6	750	11.00	3	33.00	2.00	3.57	168.89	2.86	4.83	94.02	415.21	409.71	5.50	99.52
3	4.00	1	1	750	11.00	1	11.00	1.50	1.86	100.81	1.11	1.12	102.27	442.05	436.55	5.50	107.77
4	5.00	1	2	750	11.00	2	22.00	2.00	2.38	25.04	1.35	0.34	101.15	436.91	431.41	5.50	106.65
5	6.00	2	4	750	11.00	3	33.00	2.00	3.57	405.87	2.86	11.62	100.81	435.64	430.14	5.50	106.31
6	11.00	8	18	750	11.00	4	44.00	3.00	2.19	617.01	0.74	4.56	89.19	394.32	380.78	13.54	102.73
7	8.00	1	1	750	11.00	1	11.00	1.50	1.86	34.46	1.11	0.38	99.71	428.92	423.42	5.50	105.21
8	9.00	2	3	750	11.00	2	22.00	2.00	2.38	102.96	1.35	1.39	99.33	426.29	420.79	5.50	104.83
9	10.00	5	8	750	11.00	3	33.00	2.00	3.57	419.68	2.86	12.01	97.94	395.92	390.42	5.50	103.44
10	11.00	2	10	750	11.00	4	44.00	3.00	2.19	176.10	0.74	1.30	85.93	394.32	376.67	17.65	103.58
11	12.00	2	30	750	11.00	5	55.00	3.00	2.74	338.62	1.12	3.78	84.63	394.32	375.48	18.84	103.47
12	13.00	3	33	750	11.00	6	66.00	3.00	3.29	33.34	1.56	0.52	80.85	394.32	372.62	21.70	102.55
13	13.00	0	33	200	11.00	6	66.00	3.00	3.29	5,133.54	1.56	80.33	80.33	394.32	372.14	22.18	102.51

PREPARED BY: NATHAN FUHRMAN
DATE: 12/17/12

PRESSURE SEWER - ACCUMULATED RETENTION TIME (HR)
WALNUT CREEK LOW PRESSURE SYSTEM DESIGN
PHASE THREE, LOTS 69-81, 92-94 & 96-114

ZONE NUMBER	CONNECTS TO ZONE	ACCUMULATED TOTAL OF PUMPS THIS ZONE	EXISTING PIPE SIZE	LINAL PER 100 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: HOPE, SDR-11										
1	2.00	2	2	15.40	80.51	12.40	1,500	120.96	0.20	2.50
2	6.00	6	2	15.40	168.89	26.01	4,500	172.98	0.14	2.30
3	4.00	1	1.50	9.95	100.81	9.93	750	75.51	0.32	3.04
4	5.00	2	2.00	15.40	25.04	3.86	1,500	388.92	0.06	2.73
5	6.00	4	2.00	15.40	405.87	62.52	3,000	47.99	0.50	2.66
6	11.00	18	3.00	33.47	617.01	206.49	13,500	65.38	0.37	2.16
7	8.00	1	1.50	9.85	34.46	3.40	750	220.89	0.11	2.52
8	9.00	3	2.00	15.40	102.96	15.86	2,250	141.88	0.17	2.41
9	10.00	8	2.00	15.40	419.68	64.64	6,000	92.82	0.26	2.24
10	11.00	10	3.00	33.47	176.10	58.93	7,500	127.26	0.19	1.99
11	12.00	30	3.00	33.47	338.62	113.32	22,500	198.55	0.12	1.80
12	13.00	33	3.00	33.47	33.34	11.16	24,750	2,218.20	0.01	1.68
13	13.00	33	3.00	33.47	5,133.54	1,718.01	24,750	14.41	1.67	1.67

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Chief, Bureau of Utilities Nathan Fuhrman DATE: 2/4/13	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND Chief, Development Engineering Division DATE: 2/4/13	I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 12043 EXPIRATION DATE IS 7/16/14. FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE SUITE 200, CLARKSVILLE, MARYLAND 21022 (410) 461-2895	#12043 DESIGNED BY: B.C.R. DRAWN BY: B.C.R. CHECKED BY: P.W.K. DATE: FEBRUARY, 2013 BY NO.	LOW PRESSURE SEWER SYSTEM DETAILS 600' SCALE MAP NO. 28 BLOCK NO. 4.5.10.11.12.17&18 F.C.C. WORK ORDER NO. 04001-3004 FILE NAME: LOW PRESSURE SEWER SYSTEM SHEET	WALNUT CREEK PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'Q' & 'V', NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'T' & BUILDABLE BULK PARCEL 'U' LOW PRESSURE SEWER SYSTEM CONTRACT NO. 50-4765-D FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 8 OF 8
---	---	--	---	---	--	--------------------------------

CONTRACT NO. 50-4765-D
WALNUT CREEK
PHASE THREE: LOTS 69 THRU 114, NON-BUILDABLE PRESERVATION PARCELS 'O' THRU 'Q' & 'V', NON-BUILDABLE PARCEL 'S', BUILDABLE PRESERVATION PARCEL 'T' & BUILDABLE BULK PARCEL 'U'
LOW PRESSURE SEWER SYSTEM
HOWARD COUNTY, MARYLAND

I:\2004\04001\Wg\PHASE THREE FINALS\04001-3004 Phase 3 Sewer Main Contract Plan.dwg, Detail Sheet 8, 2/6/2013 10:35:00 AM