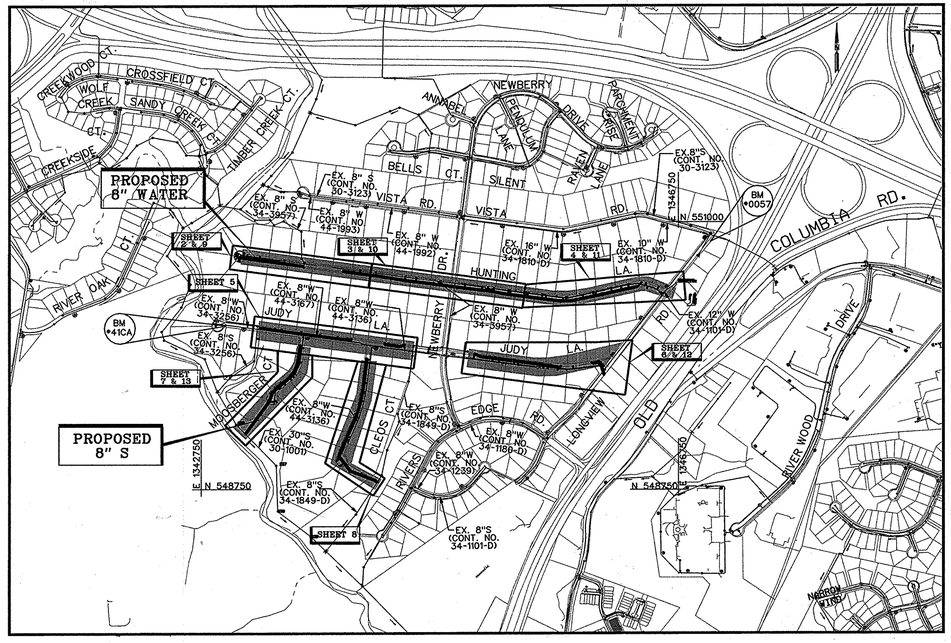
HOLIDAY HILLS / RIVERSIDE ESTATES
WATER AND SEWER
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

GENERAL NOTES

1. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR EXPENSE.
2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON APRIL 2005 BY KCI TECHNOLOGIES, INC.
3. HORIZONTAL AND VERTICAL SURVEY CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 83/91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 0057 & 41CA. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE IRON BARS.
4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
5. CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED. 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 THE BRACING OF ADDITIONAL POLES. ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONEY OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
6. FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
7. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL ▬ AT THE LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
8. 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
   - BG&E (CONSTRUCTION SERVICES).....410-850-4620
   - BG&E (EMERGENCY) 410-685-1400
   - BUREAU OF UTILITIES (DPW).....410-313-4900
   - COLONIAL PIPELINE CO. 410-795-1390
   - MISS UTILITY 1-800-257-7777
   - STATE HIGHWAY ADMINISTRATION 410-531-5533
   - VERIZON. .....1-800-743-0033 / 410-224-9210
9. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
10. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN .
11. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)313-7450 AT LEAST FIVE WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN COUNTY ROADS FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE.
12. ALL DUCTILE IRON PIPES TO BE USED ON THE PUBLIC WATER SYSTEM SHALL BE CLASS 54. DUCTILE IRON FITTINGS SHALL MEET THE REQUIREMENTS OF THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FRO CONSTRUCTION AND SHALL BE EXTERIOR EPOXY COATED IN ACCORDANCE WITH AWWA C116.
13. TOPS OF WATER MAIN SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
14. ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
15. ALL WATER HOUSE CONNECTIONS SHALL BE COPPER MEETING THE REQUIREMENTS OF AND CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. OUTSIDE METER SETTINGS SHALL BE CONSTRUCTED PER STANDARD DETAIL W3.31.
16. FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD DETAIL. ALL FIRE HYDRANT LEADS SHALL BE POLYVINYL CHLORIDE (PVC) PIPE MEETING THE REQUIREMENTS OF AWWA C900 DR18 AND CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV- STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
17. ALL WATER MAINS CONSTRUCTED IN FILL AREAS SHALL BE RESTRAINED DUCTILE IRON PIPE CLASS 54 MEETING THE REQUIREMENTS OF AND CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
18. THE FOLLOWING NOTE IS ADDED TO HOWARD COUNTY STANDARD DETAIL W2.22, BUTTRESSES AND ANCHORAGE'S FOR VERTICAL BENDS. WHEN ANCHORING PVC PIPE, THE STRAPPING IN CONTACT WITH THE PIPE SURFACE SHALL BE 1-INCH WIDE BY ¼-INCH THICK STEEL. THE REMAINING PORTION OF THE STRAP SHALL BE REINFORCING BAR SIZED IN ACCORDANCE WITH THE PERTINENT CHART SHOWN ON THE DETAIL.
19. EXCEPT AS INDICATED ON THE PLANS AND NOTED ABOVE, ALL PUBLIC WATER MAINS SHALL BE POLYVINYLCHLORIDE (PVC) PIPE MEETING THE REQUIREMENTS OF AWWA C900 DR18, PRESSURE CLASS 150 AND THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND ALL SUBSEQUENT AMENDMENTS THERETO.
20. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
21. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
22. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF UTILITIES HOWARD COUNTY, 15 DAYS PRIOR TO WATER MAIN SHUT DOWNS.
23. CONTINUITY TEST STATION SHALL BE PLACED ADJACENT TO EACH FIRE HYDRANT AND ANCHORAGES SHALL BE INSTALLED UNDER WATER VALVES IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATION AND DETAILS.
24. WATER MAINS SHALL BE FILLED WITH WATER AND BROUGHT TO 150PSI FOR 2 HOURS.
25. ALL SEWER MAINS SHALL BE D.I.P. OR PVC UNLESS OTHERWISE NOTED.
26. ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
27. MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
28. MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVER, STANDARD DETAIL G5.52. WHERE WATERTIGHT MANHOLE FRAMES AND COVERS ARE USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON DRAWINGS.
29. HOUSE (S) WITH THE SYMBOL "C.N.S" INDICATES THAT CELLAR CANNOT BE SERVED.
30. THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES, GRADES AND ELEVATION OF THE PROPOSED FACILITIES.



LOCATION MAP
SCALE: 1"= 600'

TYPE OF BUILDING:	RESIDENTIAL
NUMBER OF PARCELS:	
NUMBER OF SEWER HOUSE CONNECTIONS	80
NUMBER OF WATER HOUSE CONNECTIONS:	43
DRAINAGE AREA:	MIDDLE PATUXENT
PRESSURE ZONE:	550
WATER TEST GRADIENT	700
WATER CODE. FOR COUNTY USE ONLY: WATER NO.	E22
SEWER CODE. FOR COUNTY USE ONLY: SEWER NO.	6480000 AND 6581000

HORIZONTAL AND VERTICAL CONTROL BASED ON MARYLAND NAD83(91) (HORIZONTAL) AND NAVD88 (VERTICAL) DATUM. HOWARD COUNTY GEODETIC SURVEY CONTROL NUMBERS:

NO. 0057	
N 550835.21	
E 1347017.69	
ELEV. 398.92	
NO. 41CA	
N 550124.85	
E 1342960.93	
ELEV. 295.31	

PROFESSIONAL CERTIFICATION.
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 15528
EXPIRATION DATE: 9/12/09

LEGEND
- TRAVERSE POINT
- WATER MAIN
- FIRE HYDRANT
- VALVE
- SEWER MAIN
- MANHOLE
- LOD — LIMIT OF DISTURBANCE
- WATER HOUSE CONNECTION
- SEWER HOUSE CONNECTION
- TEST STATION
- DECIDUOUS TREE
- CONIFEROUS TREE
- EXISTING FIRE HYDRANT
- EXISTING VALVE
- EXISTING WATER MAIN
- EXISTING GAS MAIN
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND SERVICE
- BOUNDARY OF WETLAND BUFFER
- BOUNDARY OF WETLAND

INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	HUNTING LANE 8" SEWER PLAN AND PROFILE
3	HUNTING LANE 8" SEWER PLAN AND PROFILE
4	HUNTING LANE 8" SEWER PLAN AND PROFILE
5	JUDY LANE 8" SEWER PLAN AND PROFILE
6	JUDY LANE 8" SEWER PLAN AND PROFILE
7	MOOSBERGER COURT 8" SEWER PLAN AND PROFILE
8	CLEOS COURT 8" SEWER PLAN AND PROFILE
9	HUNTING LANE 8" WATER PLAN AND PROFILE
10	HUNTING LANE 8" WATER PLAN AND PROFILE
11	HUNTING LANE 8" WATER PLAN AND PROFILE
12	JUDY LANE 8" WATER PLAN AND PROFILE
13	MOOSBERGER COURT 8" WATER PLAN AND PROFILE
14	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
15	8" WATER MAIN CORROSION CONTROL LAYOUT
16	CORROSION CONTROL DETAILS 1
17	CORROSION CONTROL DETAILS 2
18	CORROSION CONTROL DETAILS 3

QUANTITIES

	ITEM	UNIT	ESTIMATE	AS-BUILT	MATERIAL SUPPLIER	
1	8" WATER	L.F.	3,944	3,969	DIAMOND PLASTICS	
	8"SEWER (DIP)	L.F.	346	344	ATLANTIC STATES	
130'	8"SEWER (PVC)	L.F.	6,775	6,822	DIAMOND PLASTICS	JM EAGLE
2	FH	EA	7	7	MUELLER COMPANY	
	8" V	EA	3	3	MUELLER COMPANY	
	6" V	EA	7	7	MUELLER COMPANY	
	1 1/2" DRAIN	EA	2	2	FNW	
	4' DIA. STD. MH	EA	37	35	ATLANTIC CONCRETE	
	4' DIA. DROP MH (TYPE B)	EA	2	3	ATLANTIC CONCRETE	
	4' DIA. WT MH	EA	1	#2	ATLANTIC CONCRETE	
	4' DIA. WT BUILDOVER MH	EA	1	1	ATLANTIC CONCRETE	
	4' DIA. WT BUILDOVER MH DROP MH (TYPE B)CONNECTION	EA	1	1	ATLANTIC CONCRETE	
	4' DIA. BUILDOVER MH	EA	1	2	ATLANTIC CONCRETE	
	4' DIA MH RISER > 6'	L.F.	195	153.5	ATLANTIC CONCRETE	
	4' DIA. WT MH RISER > 6'	L.F.	18	16.5	ATLANTIC CONCRETE	
3'	1" WHC	L.F.	1,222	1,460	MUELLER INDUSTRIES	K COPPER CAMBRIDGE
46'	4" SHC(HORIZONTAL)	L.F.	1,991	2,195	DIAMOND PLASTICS	J M EAGLE
20'	4" SHC(VERTICAL)	L.F.	168	503	DIAMOND PLASTICS	JM EAGLE
	NAME OF UTILITY CONTRACTOR: MORONA CONSTRUCTION					CID
			CHECKBOX			
			AS-BUILT DATE: APRIL 22, 2009			MARCH 23, 2016
			SURVEY AND DRAFTING DIVISION			

AS-BUILT
DATE 9-02-2009

PLOTTED: 10:41 PM on Monday, August 27, 2007
BY: Chandra Kanta Division: Environmental Engineering
FILE: M:\2004\01\43464-02\drawings\043464-title.dgn

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 9/4/07	ACT. CHIEF. BUREAU OF ENGINEERING	DATE 8-31-07
CHIEF. BUREAU OF UTILITIES	DATE 9/4/07	CHIEF. UTILITY DESIGN DIVISION WRD	DATE 8-31-07

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
10 NORTH PARK DRIVE, HUNT VALLEY, MD 21030
PHONE: (410) 316-7800
FAX: (410) 316-7817
www.kci.com

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER — No. 15528
8/24/07

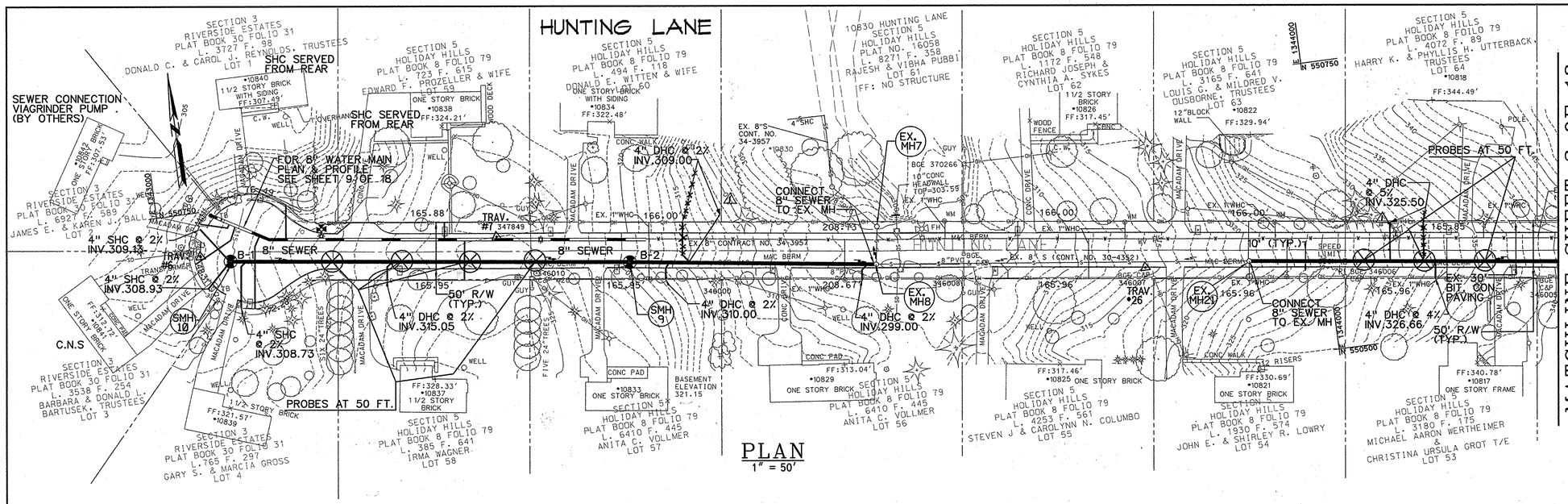
DES: GW				
DRN: CK				
CHK: TW	KFJ	2	AS BUILT	4-8-16
DATE:	LFN	1	AS BUILT	9-2-09
DEC. 06	BY	NO.	REVISION	DATE

TITLE SHEET

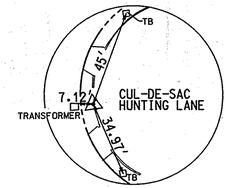
600' SCALE MAP NO. 41 BLOCK NO. 5, 6

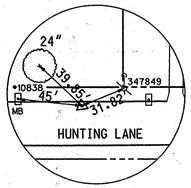
HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

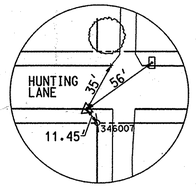
SCALE AS SHOWN
SHEET 1 OF 18



PLAN
1" = 50'







TRAVERSE COORDINATE SCHEDULE			
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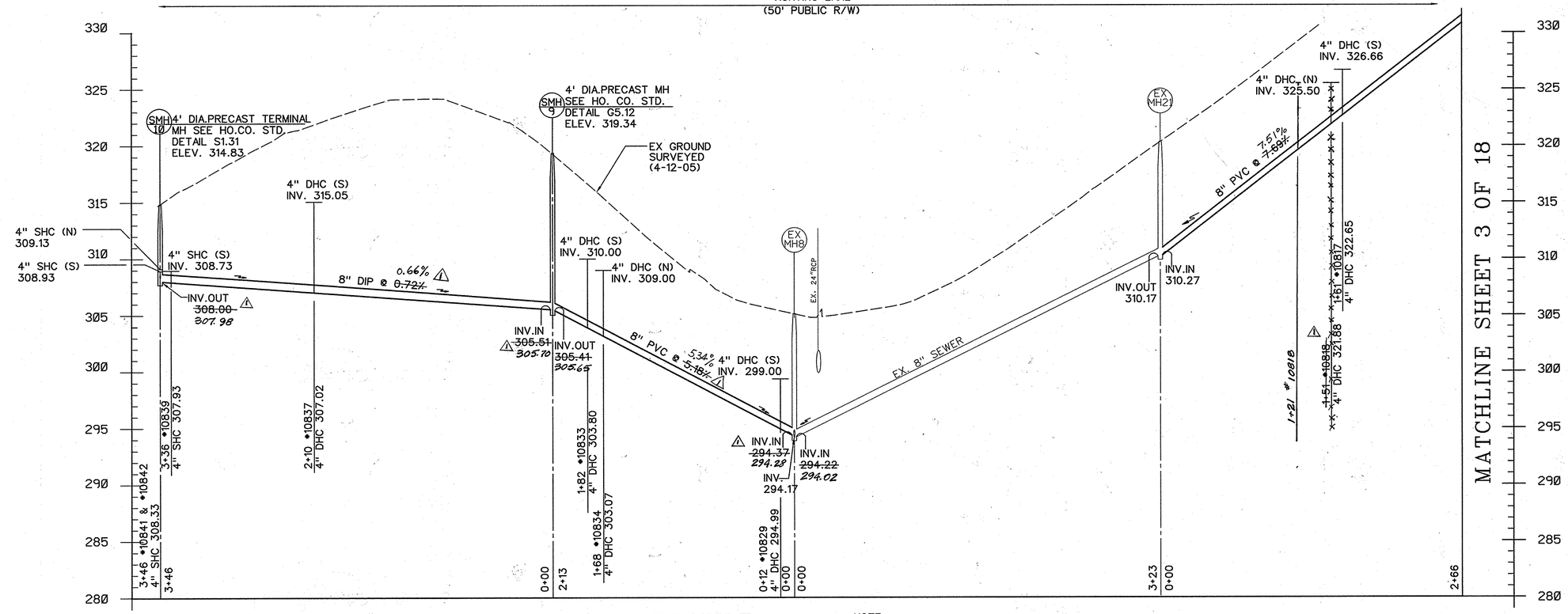
TRAV.#7	550694.58	1343289.54	324.17
TRAV.#26	550592.55	1343843.02	314.07

SANITARY SEWER STAKEOUT COORDINATES SCHEDULE		
NAME	NORTHING	EASTING
SMH 9	550657.29	1343401.03
SMH 10	550704.08	1343058.52

HUNTING LANE
(50' PUBLIC R/W)



PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

NOTE:
MANHOLE COVER TO MEET EXISTING GRADE

AS-BUILT
DATE 9-02-2009

PLOTTED: "01:47 PM on Monday, August 27, 2007"
BY: Chandra Kanta Division: EnvironmentalEngineering
FILE: M:\2004\01043464.02\drawings\C-001SAN.dgn

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 9/4/07	CHIEF, BUREAU OF ENGINEERING	DATE 8-31-07
CHIEF, BUREAU OF UTILITIES	DATE 9/4/07	CHIEF, UTILITY DESIGN DIVISION WRD	DATE 8-31-07

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
10 NORTH PARK DRIVE HUNT VALLEY, MD 21030 PHONE:(410) 316-7800 FAX:(410) 316-7817 www.kci.com

STATE OF MARYLAND PROFESSIONAL ENGINEER 8/28/07

DES: GW
DRN: CK
CHK: TW
DATE: DEC. 06

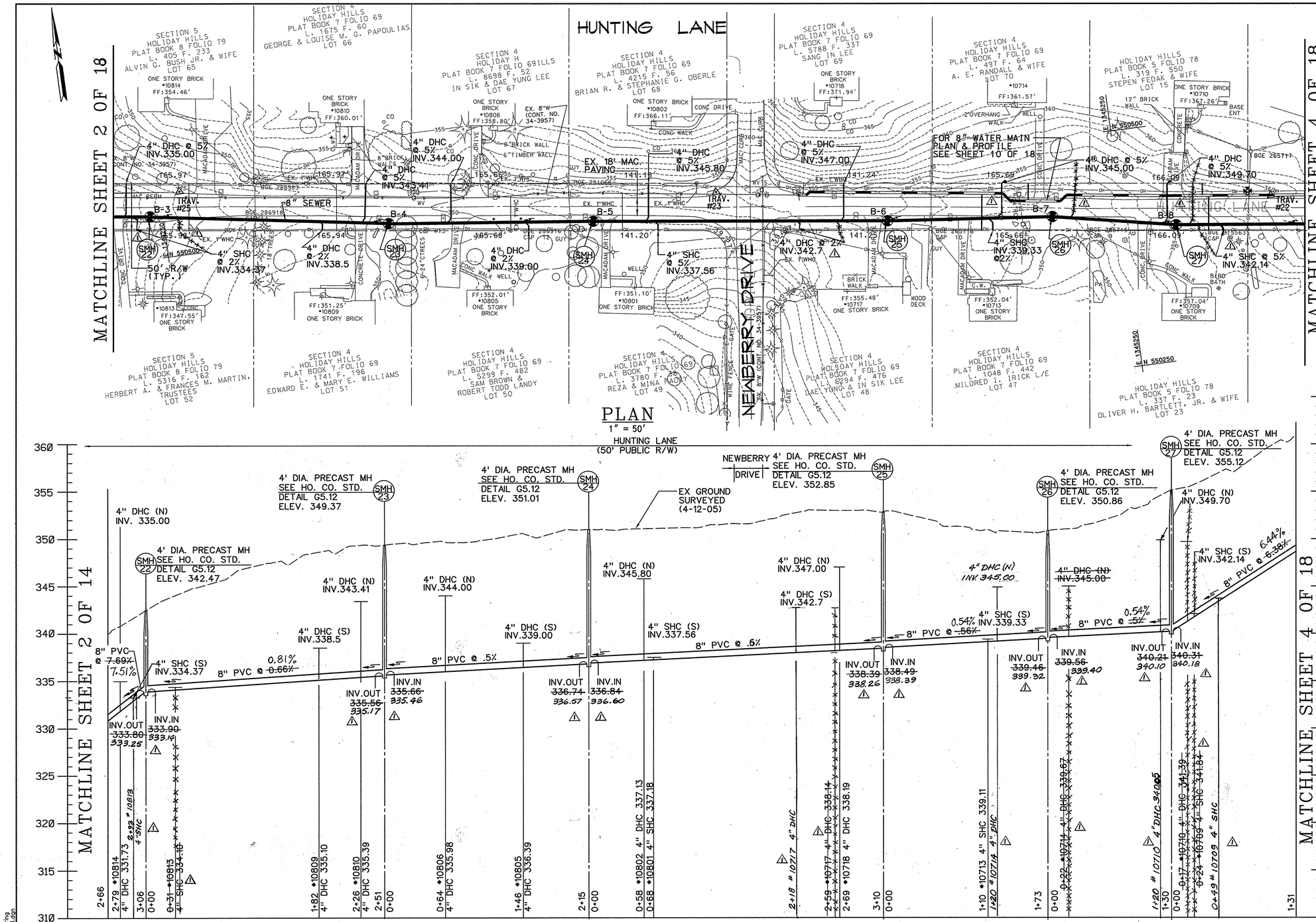
BY	NO.	REVISION	DATE
LFN	1	AS BUILT	9-2-09

HUNTING LANE
8" SEWER
PLAN AND PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

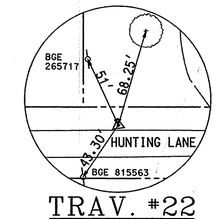
HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 2 OF 18



PLAN
1" = 50'

PROFILE
SCALE: HORIZONTAL 1" = 50'
VERTICAL: 1" = 5'



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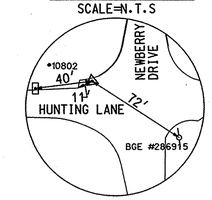

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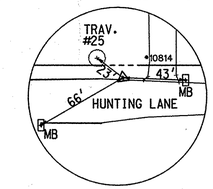

TRAV. #25
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TRAVERSE COORDINATE SCHEDULE

NUMBER	NORTHING	EASTING	ELEVATION
TRAV.#22	550410.52	1345408.06	359.90
TRAV.#23	550491.52	1344829.89	352.57
TRAV.#25	550567.16	1344270.42	344.12

SANITARY SEWER STAKEOUT COORDINATES SCHEDULE

NAME	NORTHING	EASTING
SMH 22	550544.83	1344236.20
SMH 23	550504.14	1344483.93
SMH 24	550478.22	1344697.70
SMH 25	550437.30	1345004.70
SMH 26	550418.70	1345177.32
SMH 27	550392.93	1345305.14

AS-BUILT
DATE 9-02-2009

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BY: Chandra Kanta Division: Environmental Engineering
FILE: M:\2004\01034842\drawings\C-0025AN.dgn

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 9/4/07
CHIEF, BUREAU OF UTILITIES — DATE 9/4/07
CHIEF, BUREAU OF ENGINEERING — DATE 8-31-07
CHIEF, UTILITY DESIGN DIVISION — WRD — DATE 8-31-07

KCI TECHNOLOGIES
Engineers
Planners
Scientists
Construction Managers
10 North Park Drive
Hunt Valley, MD 21030
Phone: (410) 316-7800
Fax: (410) 316-7817
www.kci.com

STATE OF MARYLAND — WILLIAM K. WELLS — No. 13338 — PROFESSIONAL ENGINEER
9/20/07

DES: GW			
DRN: CK			
CHK: TW			
DATE: DEC. 06	LFN	AS BUILT	9209
	BY	NO.	REVISION	DATE

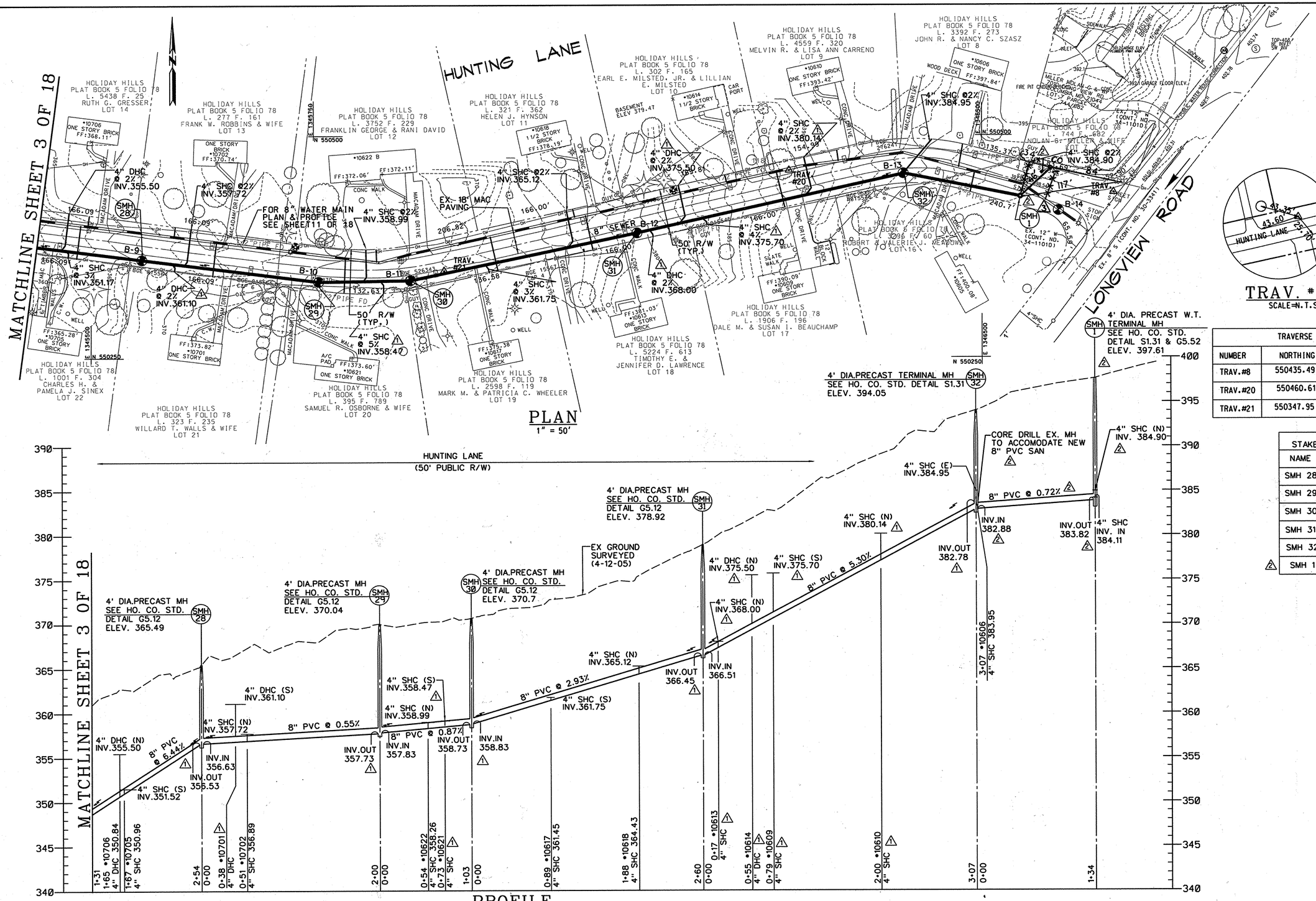
HUNTING LANE
8" SEWER
PLAN AND PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

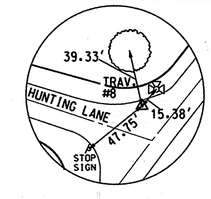
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 3 OF 18



PLAN
1" = 50'

PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



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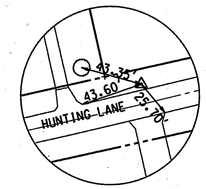

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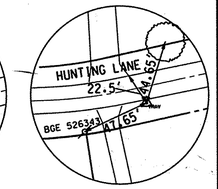

TRAV. #21
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TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV.#8	550435.49	1346647.65	399.74
TRAV.#20	550460.61	1346283.66	388.24
TRAV.#21	550347.95	1345896.32	371.71

SANITARY SEWER STAKEOUT COORDINATES SCHEDULE		
NAME	NORTHING	EASTING
SMH 28	550360.93	1345557.12
SMH 29	550335.78	1345755.20
SMH 30	550337.23	1345858.28
SMH 31	550390.59	1346112.79
SMH 32	550457.15	1346411.83
SMH 1	550431.17	1346543.21

AS-BUILT REPLACEMENT SHEET

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/22/15
CHIEF, BUREAU OF ENGINEERING — DATE 10/14/15
CHIEF, BUREAU OF UTILITIES — DATE 10/21/15
CHIEF, UTILITY DESIGN DIVISION — DATE 10/14/15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
10 NORTH PARK DRIVE, HUNT VALLEY, MD 21030
PHONE: (410) 316-7800 FAX: (410) 316-7817
www.kci.com

STATE OF MARYLAND — GUIHUA WANG — No. 31383 — PROFESSIONAL ENGINEER — 10/18/15

DES: GW
DRN: CK
CHK: TW
DATE: DEC. 06

BY	NO.	REVISION	DATE
KFJ	3	AS-BUILT	4-8-16
KFJ	2	REPLACEMENT SHEET-SEWER SERVICE TO 7010 LONGVIEW RD.	9/14/15
LFN	1	AS - BUILT	9/2/09

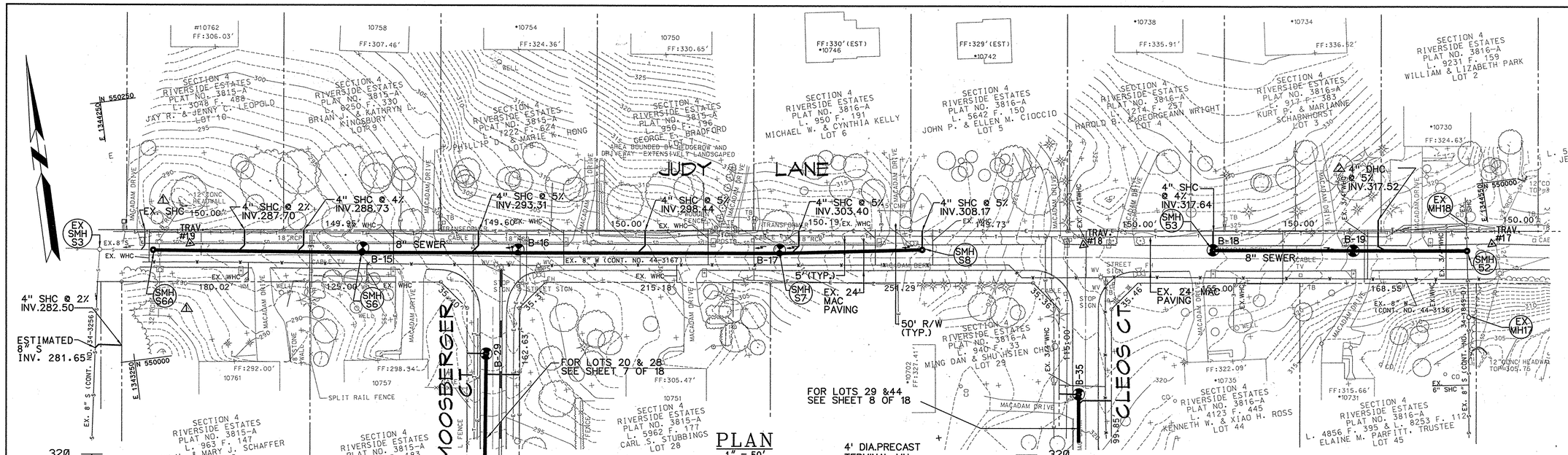
HUNTING LANE
8" SEWER
PLAN AND PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

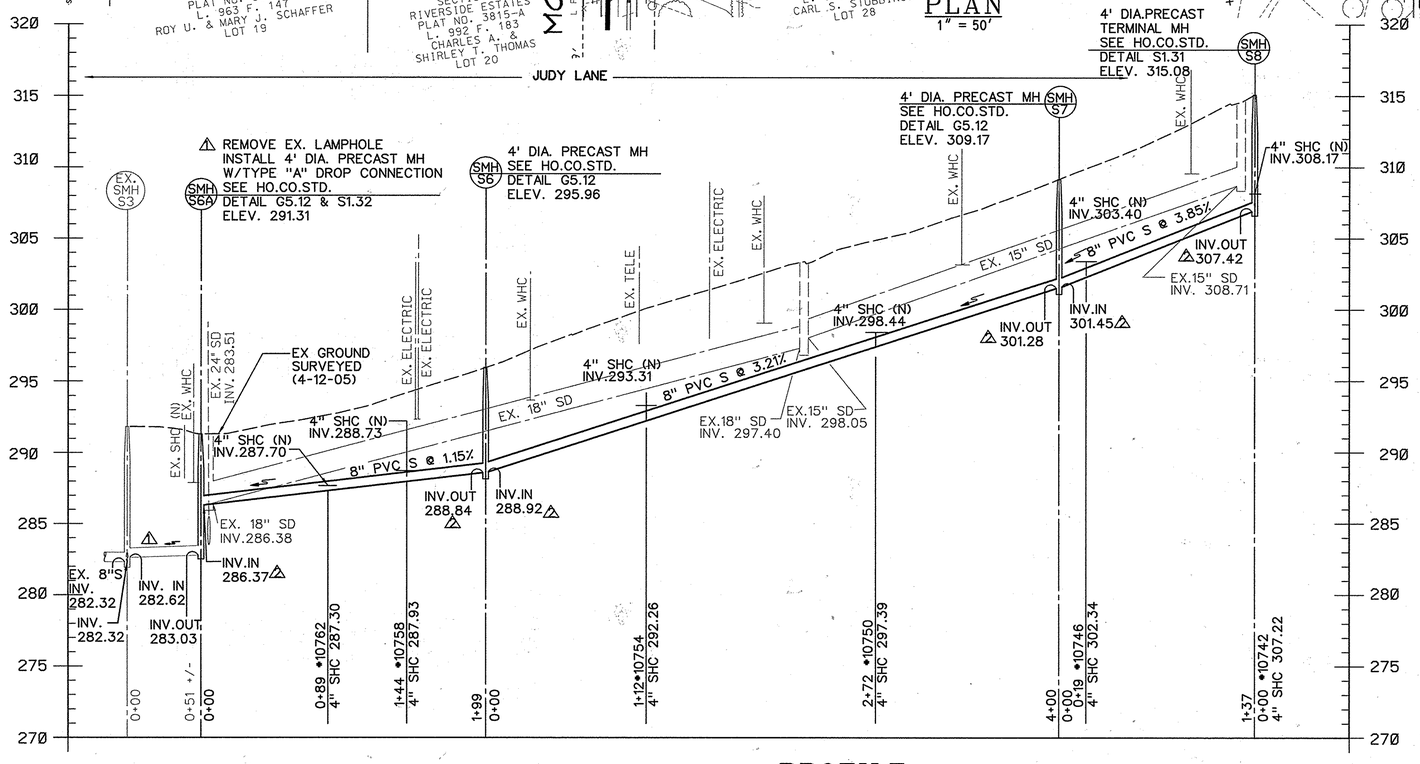
HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 4 OF 18

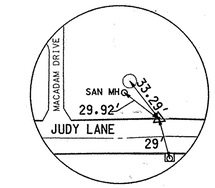
PLOTTED: "08:04 AM on Wednesday, September 16, 2015"
BY: Division
FILE: M:\2004\01043464.02\Drawings\C-0035AN_Replacement.dgn



PLAN
1" = 50'



PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



TRAV. #17
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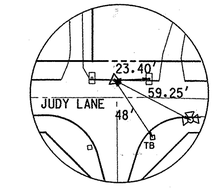

TRAV. #18
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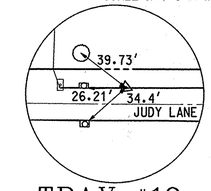
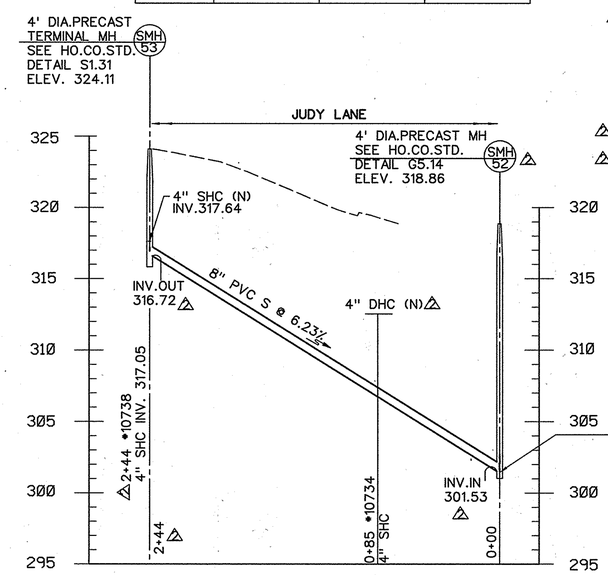


TRAV. #19
SCALE=N.T.S

TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV.#17	549940.67	1344551.24	317.57
TRAV.#18	549991.21	1344164.33	323.45
TRAV.#19	550105.00	1343317.39	292.00

SANITARY SEWER STAKEOUT COORDINATES SCHEDULE		
NAME	NORTHING	EASTING
SMH S6A	550103.42	1343282.02
SMH S6	550074.60	1343479.06
SMH S7	550021.35	1343874.90
SMH S8	550006.67	1344010.79
~~SMH 51~~	~~549965.30~~	~~1344458.46~~
~~SMH 52~~	~~549951.62~~	~~1344419.09~~
SMH 53	549969.62	1344286.32



PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

AS-BUILT
DATE 9-02-09
REPLACEMENT SHEET

PLOTTED: "12:20 PM on Friday, October 23, 2009"
BY: Guihua Wong Division: 0102 Environmental Engineering
FILE: M:\2004\04344.02\drawings\C-004S4A1 - REVISED JULY 29 2008.dgn

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/26/09
CHIEF, BUREAU OF ENGINEERING — DATE 10/27/09
CHIEF, BUREAU OF UTILITIES — DATE 10/28/09
CHIEF, UTILITY DESIGN DIVISION — DATE 10/27/09

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FAX:(410) 316-7817
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STATE OF MARYLAND — GUIHUA WANG — No. 31363 — PROFESSIONAL ENGINEER

DES: GW
DRN: CK
CHK: TW
DATE: DEC. 06

BY	NO.	REVISION	DATE
LFN	2	AS-BUILT	
GW	1	REMOVE LAMPHOLE & INSTALL A NEW SMH	7/08

JUDY LANE
8" SEWER
PLAN AND PROFILE

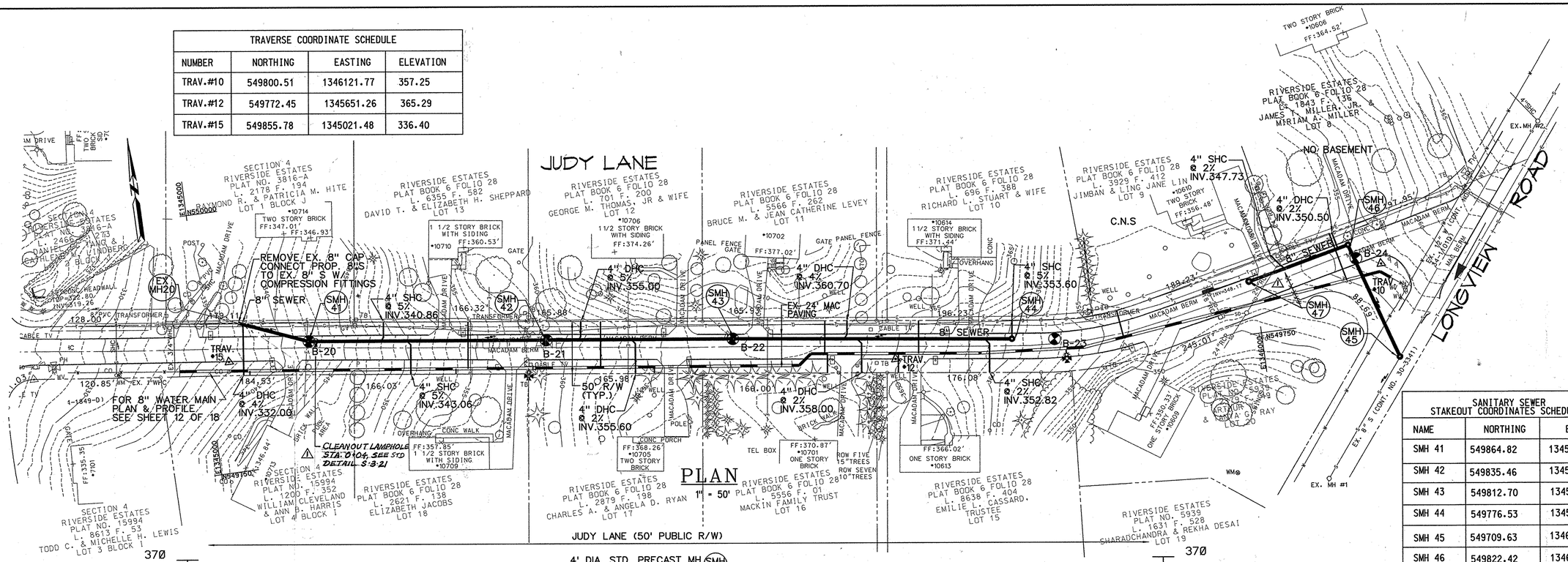
600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

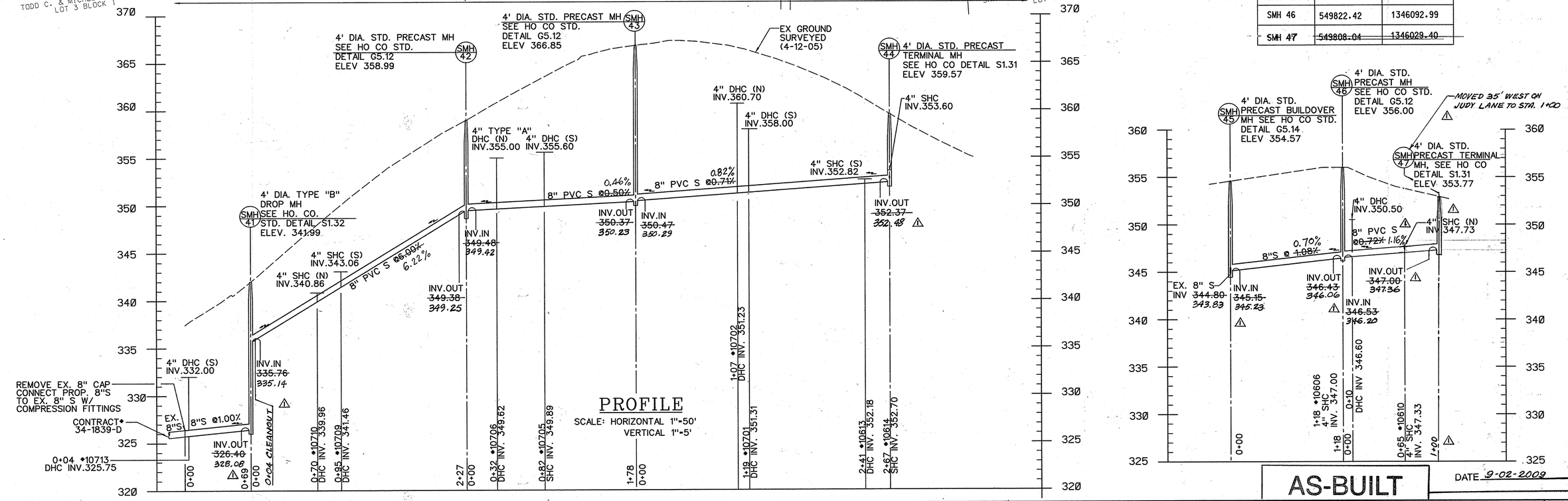
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 5 OF 18

TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV.#10	549800.51	1346121.77	357.25
TRAV.#12	549772.45	1345651.26	365.29
TRAV.#15	549855.78	1345021.48	336.40



SANITARY SEWER STAKEOUT COORDINATES SCHEDULE		
NAME	NORTHING	EASTING
SMH 41	549864.82	1345099.42
SMH 42	549835.46	1345323.71
SMH 43	549812.70	1345500.18
SMH 44	549776.53	1345763.76
SMH 45	549709.63	1346127.52
SMH 46	549822.42	1346092.99
~~SMH 47~~	~~549808.04~~	~~1346029.40~~



AS-BUILT

DATE 9-02-2009

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 9/4/07
CHIEF, BUREAU OF UTILITIES — DATE 9/4/07
CHIEF, BUREAU OF ENGINEERING — DATE 8-31-07
CHIEF, UTILITY DESIGN DIVISION WRD — DATE 8-31-07

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STATE OF MARYLAND — TIMOTHY W. WELLS — No. 35251 — PROFESSIONAL ENGINEER — 9/28/07

DES: GW
DRN: CK
CHK: TW
DATE: DEC. 06

BY	NO.	REVISION	DATE
LFN	1	AS BUILT	9-2-09

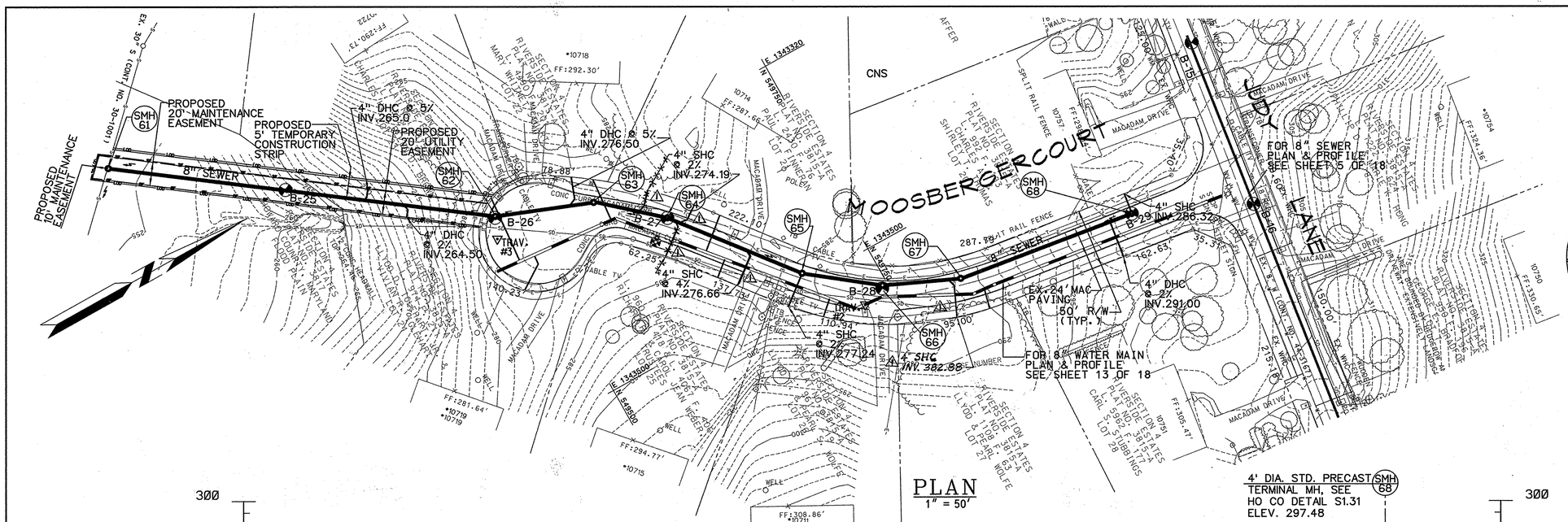
JUDY LANE
8" SEWER
PLAN AND PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

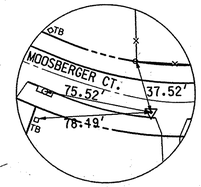
HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 6 OF 18

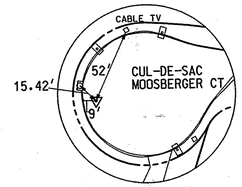
PLOTTED: "01:59 PM, on Monday, August 27, 2007"
BY: Chandra Kanta Division: Environmental Engineering
FILE: M:\2004\01043464.02\Drawings\C-005SAN.dgn



PLAN
1" = 50'

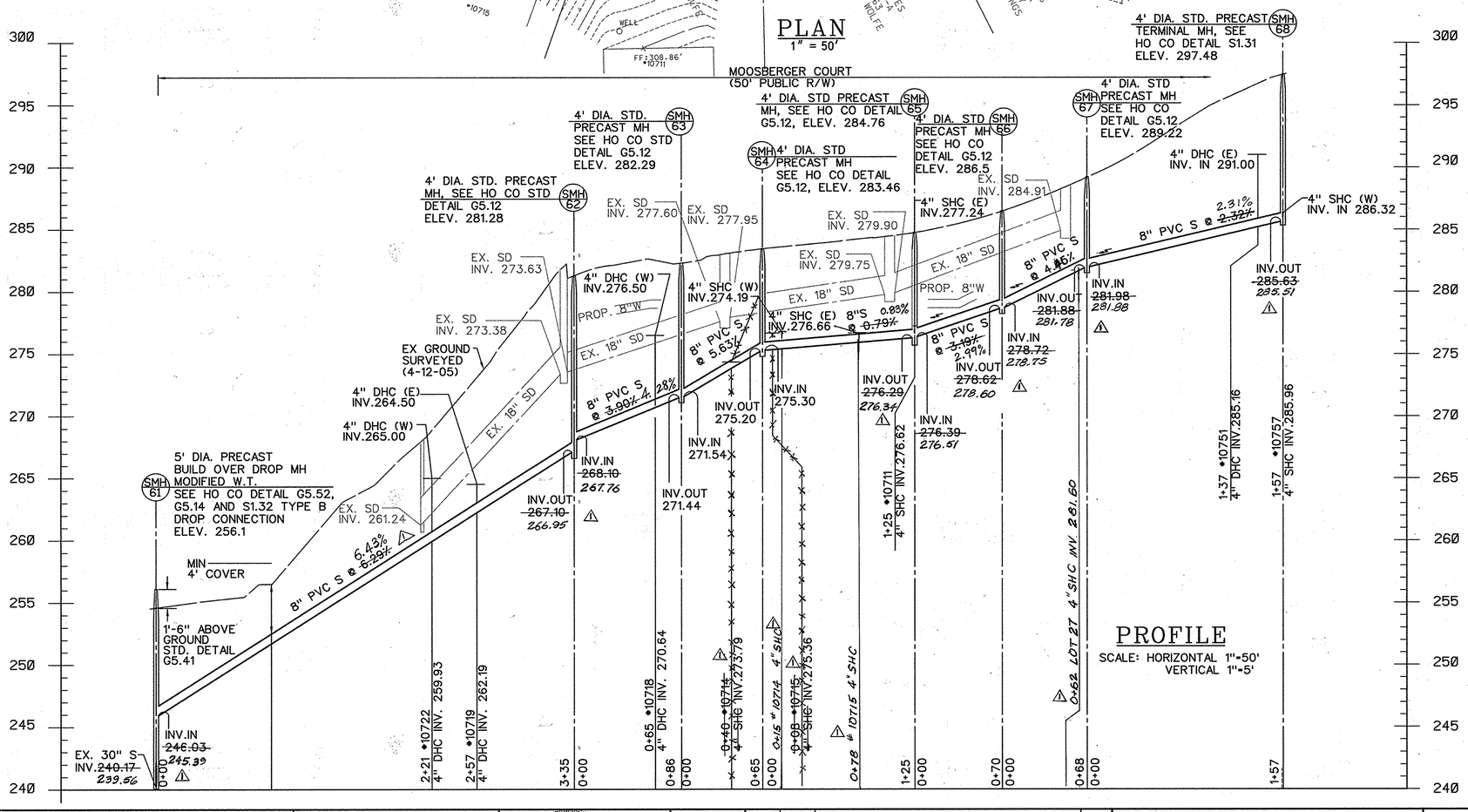


TRAV. #2
SCALE=N.T.S



TRAV. #3
SCALE=N.T.S

TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV.#2	549724.66	1343540.98	285.97
TRAV.#3	549476.78	1343337.49	281.47



PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

SANITARY SEWER STAKEOUT COORDINATES SCHEDULE		
NAME	NORTHING	EASTING
SMH 61	549215.18	1343121.55
SMH 62	549484.74	1343319.62
SMH 63	549564.30	1343350.27
SMH 64	549613.03	1343392.71
SMH 65	549690.65	1343490.95
SMH 66	549744.28	1343535.71
SMH 67	549807.27	1343561.22
SMH 68	549962.57	1343583.96

AS-BUILT
DATE 9-02-2009

PLOTTED "08:49 AM on Tuesday, August 28, 2007"
By: Chong-Ho Choi, Environmental Engineering
FILE NAME: 3004-010-S4841.DGN, Drawing: C:\DGNSAN.dgn

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 9/4/07	Act. CHIEF, BUREAU OF ENGINEERING	DATE 8-31-07
CHIEF, BUREAU OF UTILITIES	DATE 9/4/07	CHIEF, UTILITY DESIGN DIVISION WRD	DATE 8-31-07

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STATE OF MARYLAND — PROFESSIONAL ENGINEER
9/28/07

DES: GW				
DRN: CK				
CHK: TW				
DATE: DEC. 06	BY: LFN	NO. 1	REVISION: AS BUILT	DATE 9-02-09

MOOSBERGER COURT
8" SEWER
PLAN AND PROFILE

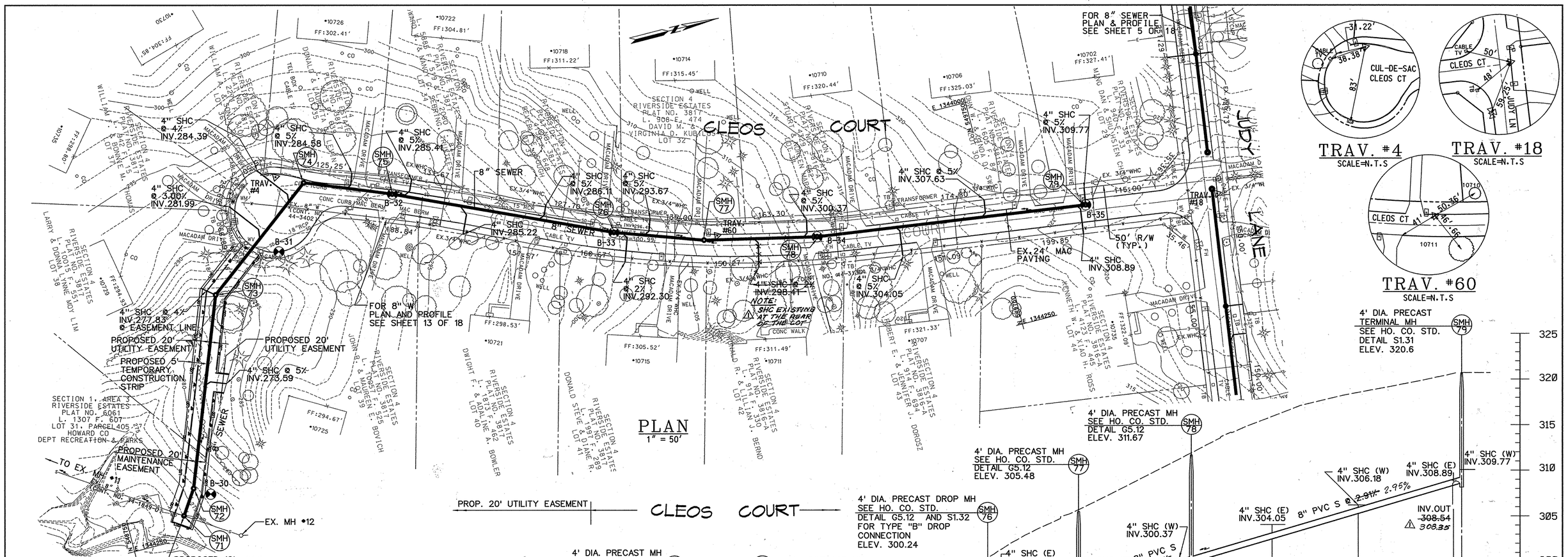
600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 7 OF 18



TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV.#4	549000.86	1343891.13	291.74
TRAV.#18	549991.21	1344164.33	323.45
TRAV.#60	549451.63	1344073.21	306.17

SANITARY SEWER STAKEOUT COORDINATES SCHEDULE		
NUMBER	NORTHING	EASTING
SMH 71	548812.11	1344225.55
SMH 72	548829.76	1344199.23
SMH 73	548905.57	1344000.06
SMH 74	549029.09	1343904.88
SMH 75	549119.61	1343940.96
SMH 76	549343.39	1344041.80
SMH 77	549436.53	1344074.53
SMH 78	549556.92	1344101.66
SMH 79	549849.37	1344140.69

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 9/4/07
CHIEF, BUREAU OF ENGINEERING — DATE 8-31-07
BUREAU OF UTILITIES — DATE 9/4/07
CHIEF UTILITY DESIGN DIVISION — DATE 8-31-07

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PHONE (410) 316-7800 FAX (410) 316-7817
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STATE OF MARYLAND — TIMOTHY W. WILLIAMS — No. 15532 — PROFESSIONAL ENGINEER
8/29/07

DES: GW			
DRN: CK			
CHK: TW			
DATE: DEC. 06	LFN	△	AS BUILT 9-2-09
	BY	NO.	REVISION — DATE

CLEOS COURT
8" SEWER
PLAN AND PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 8 OF 18

PLOTTED: "02:06 PM on Monday, August 27, 2007"
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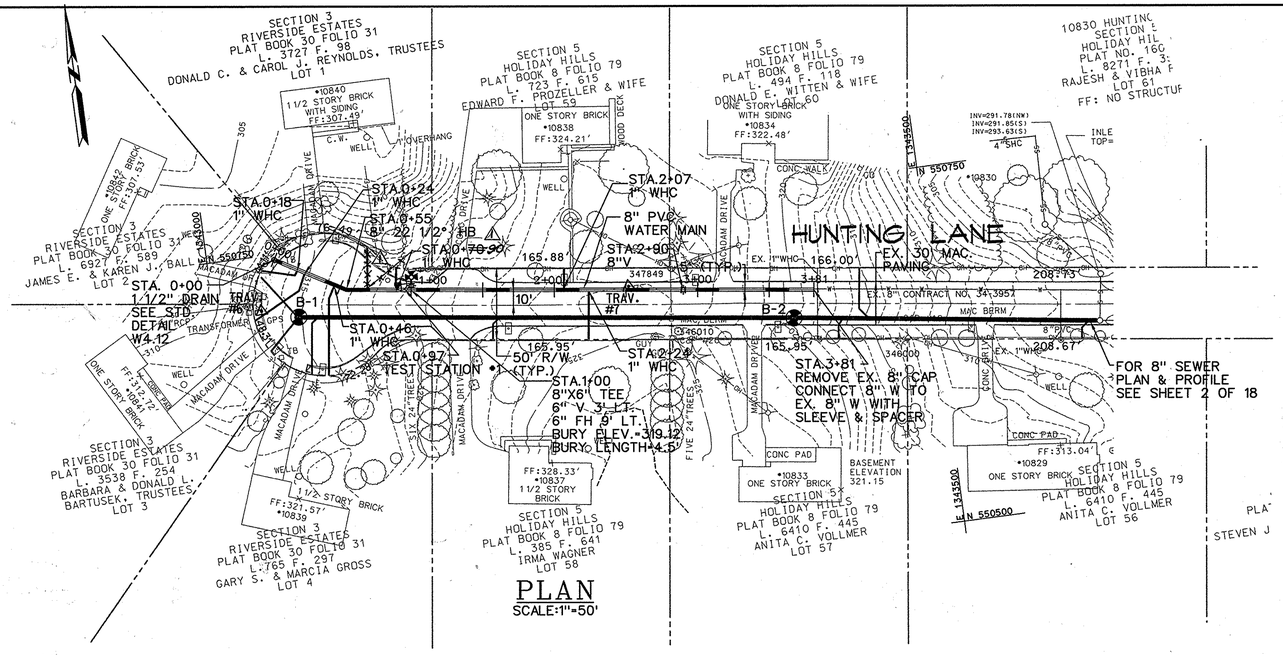
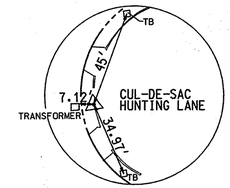


PLAN
SCALE:1"=50'



TRAV. #6
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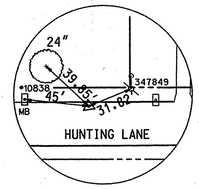


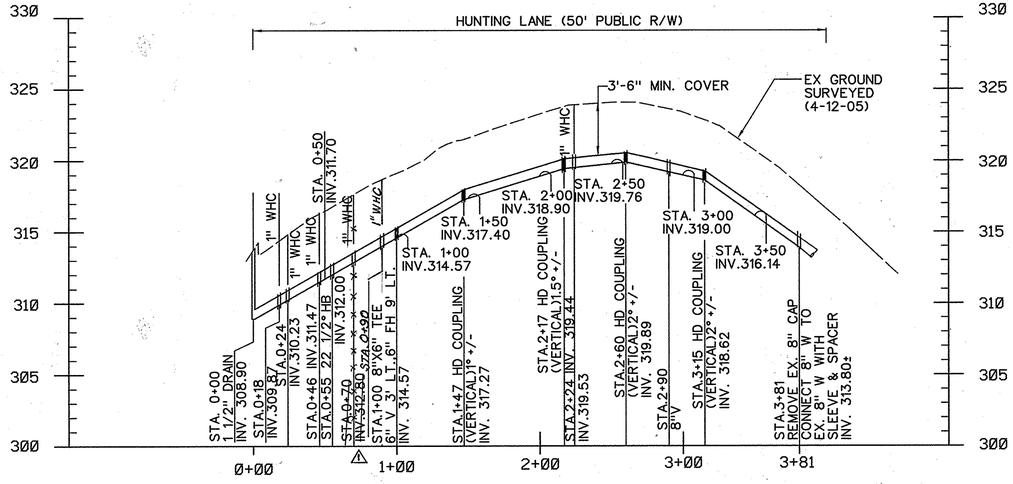
TRAV. #7
SCALE=N.T.S

TRAVERSE COORDINATE SCHEDULE				
NUMBER	DESCRIPTION	NORTHING	EASTING	ELEVATION
TRAV.#6	IRON BAR	550711.71	1343033.34	313.47
TRAV.#7	IRON BAR	550694.58	1343289.54	324.17

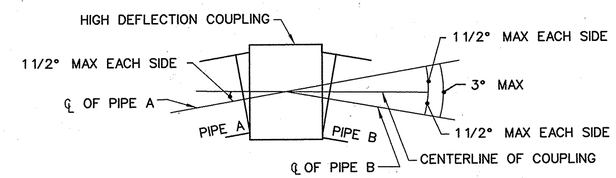
WATER MAIN STAKEOUT COORDINATE SCHEDULE			
STATION	FITTING	NORTHING	EASTING
0+55	22 1/2° HB	550718.52	1343094.15
1+00	8"X6" TEE	550712.48	1343138.82
1+00	6" V 3'RT.	550715.45	1343139.19
1+47	HD (VERTICAL)	550706.42	1343185.64
2+17	HD (VERTICAL)	550696.80	1343254.77
2+60	HD (VERTICAL)	550691.11	1343297.18
2+90	8" V	550687.00	1343327.10
3+15	HD (VERTICAL)	550683.65	1343351.88
3+81	TIE-IN	550674.82	1343417.45

NOTES:

1. THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3° WITH 1.5° ON EACH SIDE.
2. CONTRACTOR SHALL PROVIDE OUTSIDE METER SETTING PER STANDARD DETAIL W3.31 FOR ALL WATER HOUSE CONNECTIONS.
3. CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL IN ACCORDANCE WITH THE REQUIREMENTS OF SHA TRAFFIC CONTROL PLATES MD104.02-02 AND MD 104.02-10.



PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



DETAIL 1.1
HIGH DEFLECTION COUPLING INSTALLATION
FOR HORIZONTAL AND VERTICAL DEFLECTION
NOT TO SCALE

AS-BUILT
DATE 9-02-2009

PLOTTED: "02:10 PM on Monday, August 27, 2007"
BY: Chandra Kanto, Division Environmental Engineering
FILE: M:\2004-0184-Hunting-Lane-Drainage-Improvements\

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HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 9/4/07
CHIEF, BUREAU OF UTILITIES — DATE 9/4/07
CHIEF, BUREAU OF ENGINEERING — DATE 8-31-07
CHIEF, UTILITY DESIGN DIVISION — DATE 8-31-07

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FAX:(410) 316-7817
www.kci.com

STATE OF MARYLAND — PROFESSIONAL ENGINEER — 8/22/07

DES: GW			
DRN: CK			
CHK: TW			
DATE: DEC. 06	BY: LFN	NO. 1	REVISION: AS BUILT — DATE 9-2-09

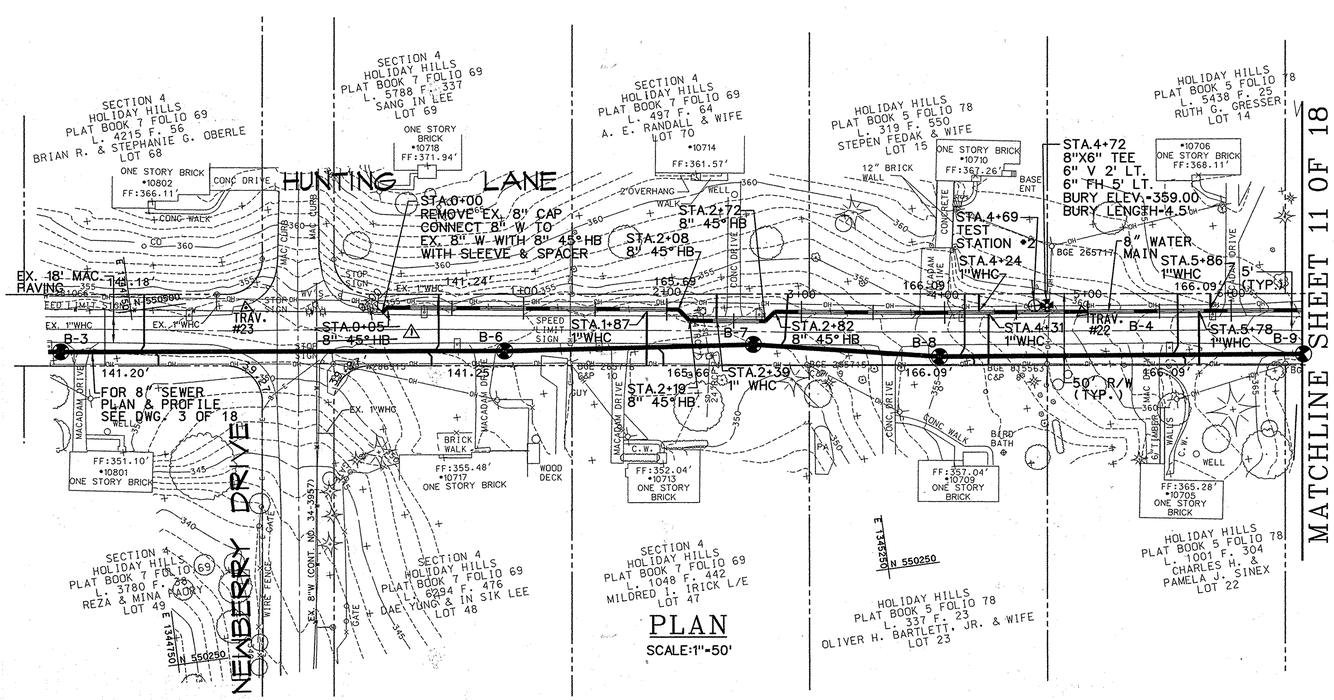
HUNTING LANE
8" WATER MAIN
PLAN AND PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

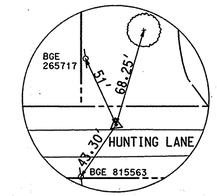
HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

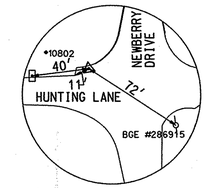
SCALE AS SHOWN
SHEET 9 OF 18



PLAN
SCALE:1"-50'



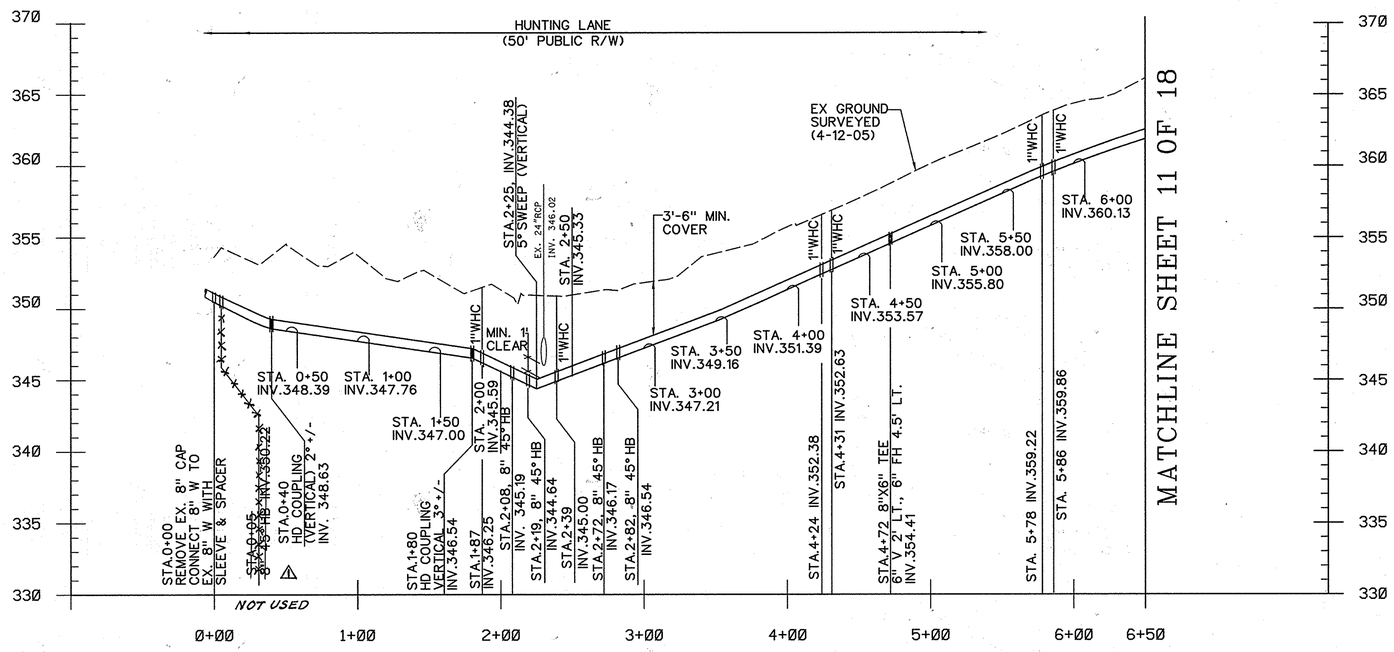
TRAV. #22
SCALE=N.T.S



TRAV. #23
SCALE=N.T.S

TRAVERSE COORDINATE SCHEDULE				
NUMBER	DESCRIPTION	NORTHING	EASTING	ELEVATION
TRAV.#22	IRON BAR	550410.52	1345408.06	359.90
TRAV.#23	IRON BAR	550491.52	1344829.89	352.57

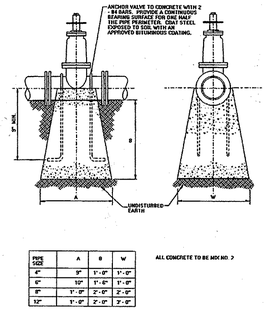
WATER MAIN STAKEOUT COORDINATE SCHEDULE			
STATION	FITTING	NORTHING	EASTING
0+00	TIE-IN	550475.55	1344923.70
⚠ ~~0+05~~	~~8" 45° HB~~	~~550478.41~~	~~1344927.53~~
0+40	HD (VERTICAL)	550473.48	1344962.41
1+80	HD (VERTICAL)	550453.90	1345100.58
2+08	8" 45° HB	550449.91	1345128.97
2+19	8" 45° HB	550441.13	1345135.53
2+25	HD (VERTICAL)	550440.32	1345141.29
2+72	8" 45° HB	550433.72	1345187.87
2+82	8" 45° HB	550439.34	1345195.33
4+72	8"X6" TEE	550413.80	1345383.71
4+72	6" V 2' LT	550415.83	1345384.04



PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

NOTES:

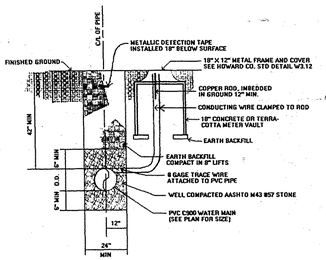
1. THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3° WITH 1.5° ON EACH SIDE. SEE SHEET 9 FOR DETAIL.



PIPE SIZE	A	B	W
4"	9"	1'-0"	1'-0"
6"	10"	1'-0"	1'-0"
8"	1'-0"	2'-0"	2'-0"
12"	1'-6"	2'-0"	2'-0"

ANCHORAGES FOR VALVES WITH PVC PIPE

March 5, 2004



TRENCH FOR PVC PIPE AND CONTINUITY TEST STATION DETAIL

AS-BUILT
DATE 9-02-2009

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 9/4/07
CHIEF, BUREAU OF ENGINEERING — DATE 8-31-07
CHIEF, BUREAU OF UTILITIES — DATE 9/4/07
CHIEF, UTILITY DESIGN DIVISION WRD — DATE 8-31-07

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FAX:(410) 316-7817
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STATE OF MARYLAND — THOMAS R. WHITE — No. 15321 — PROFESSIONAL ENGINEER — 8/20/07

DES: GW			
DRN: CK			
CHK: TW			
DATE: DEC. 06	LFN	⚠	AS BUILT 9-2-09
	BY	NO.	REVISION — DATE

HUNTING LANE
8" WATER MAIN
PLAN AND PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

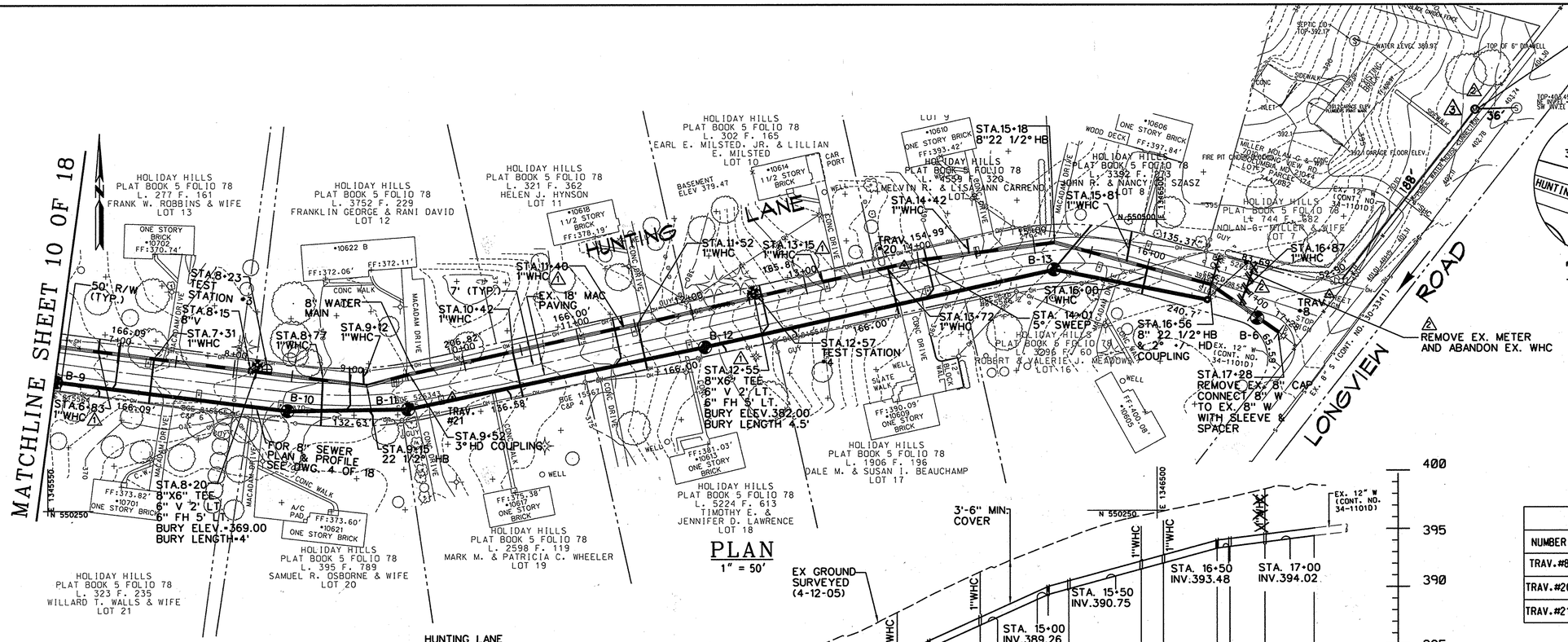
HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 10 OF 18

PLOTTED: "02:15 PM on Monday, August 27, 2007"
PLOT SCALE: 1:1 USER: "Administrator"
FILE: W:\34-3067\01\34-3467-01\Drawings\C-0001.dgn



TRAVERSE COORDINATE SCHEDULE				
NUMBER	DESCRIPTION	NORTHING	EASTING	ELEVATION
TRAV.#8	IRON BAR	550435.49	1346647.65	399.74
TRAV.#20	IRON BAR	550460.61	1346283.66	388.24
TRAV.#21	IRON BAR	550347.95	1345896.32	371.71

WATER MAIN STAKEOUT COORDINATE SCHEDULE			
STATION	FITTING	NORTHING	EASTING
7+00	HD COUPLING (VERTICAL)	550384.91	1345610.38
8+15	8" V	550370.47	1345723.89
8+20	8"X6"TEE	550369.80	1345728.75
8+20	6" V 2' LT.	550369.77	1345728.98
9+15	22 1/2° HB	550357.93	1345823.05
9+52	HD COUPLING (HORIZONTAL))	550367.47	1345859.50
9+80	HD COUPLING (VERTICAL)	550373.37	1345886.84
11+81	HD COUPLING (VERTICAL)	550416.55	1346083.14
12+60	8"X6"TEE	550434.64	1346160.03
12+60	6" V 2' LT.	550435.32	1346159.87
13+98	HD COUPLING (VERTICAL)	550464.39	1346293.76
14+01	5° SWEEP	550465.11	1346296.69
15+00	HD COUPLING (VERTICAL)	550477.97	1346394.84
15+18	22 1/2° HB	550480.27	1346412.43
16+45	HD COUPLING (VERTICAL)	550447.27	1346535.34
16+56	22 1/2° HB	550444.48	1346545.74
17+28	TIE-IN	550403.11	1346604.40
2 N/A	WATER METER	550594.59	1346772.50

NOTE:
1. THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3° WITH 1.5° ON EACH SIDE. SEE SHEET 9 FOR DETAIL.

AS-BUILT REPLACEMENT SHEET

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/12/15
CHIEF, BUREAU OF ENGINEERING — DATE 10/14/15
CHIEF, BUREAU OF UTILITIES — DATE 10/12/15
CHIEF, UTILITY DESIGN DIVISION — DATE 10/14/15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
10 NORTH PARK DRIVE, HUNT VALLEY, MD 21030
PHONE: (410) 316-7800 FAX: (410) 316-7817
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STATE OF MARYLAND GUINHUA WANG No. 31393 PROFESSIONAL ENGINEER — 10/8/15

DES: GW				
DRN: CK	KFJ	4	AS-BUILT	4-8-16
CHK: TW	KFJ	2	REPLACEMENT SHEET - WHC 7010 LONGVIEW RD.	9/11/15
DATE: DEC. 06	LFN	1	AS - BUILT	9/2/09
	BY	NO.	REVISION	DATE

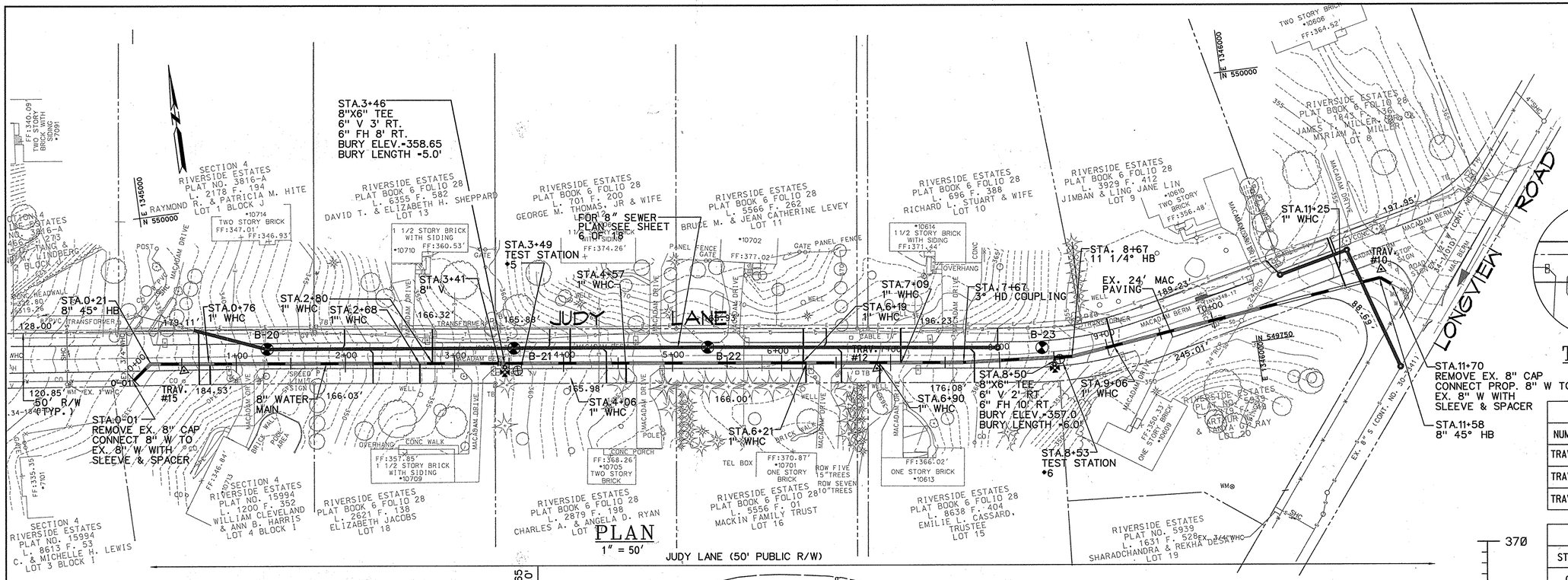
HUNTING LANE
8" WATER MAIN
PLAN AND PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

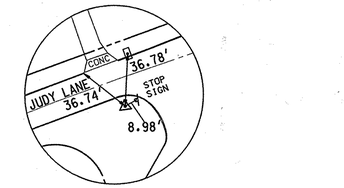
SCALE AS SHOWN
SHEET 11 OF 18

PLOTTED: "08-12 AM on Wednesday, September 16, 2015"
BY: Tim Wang
FILE: M:\2004\01043464.02\Drawings\C-003W_Replacement.dgn



PLAN

1" = 50'



TRAV. #10

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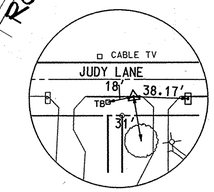

TRAV. #12

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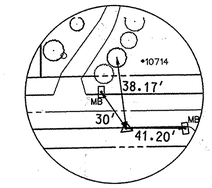


TRAV. #15

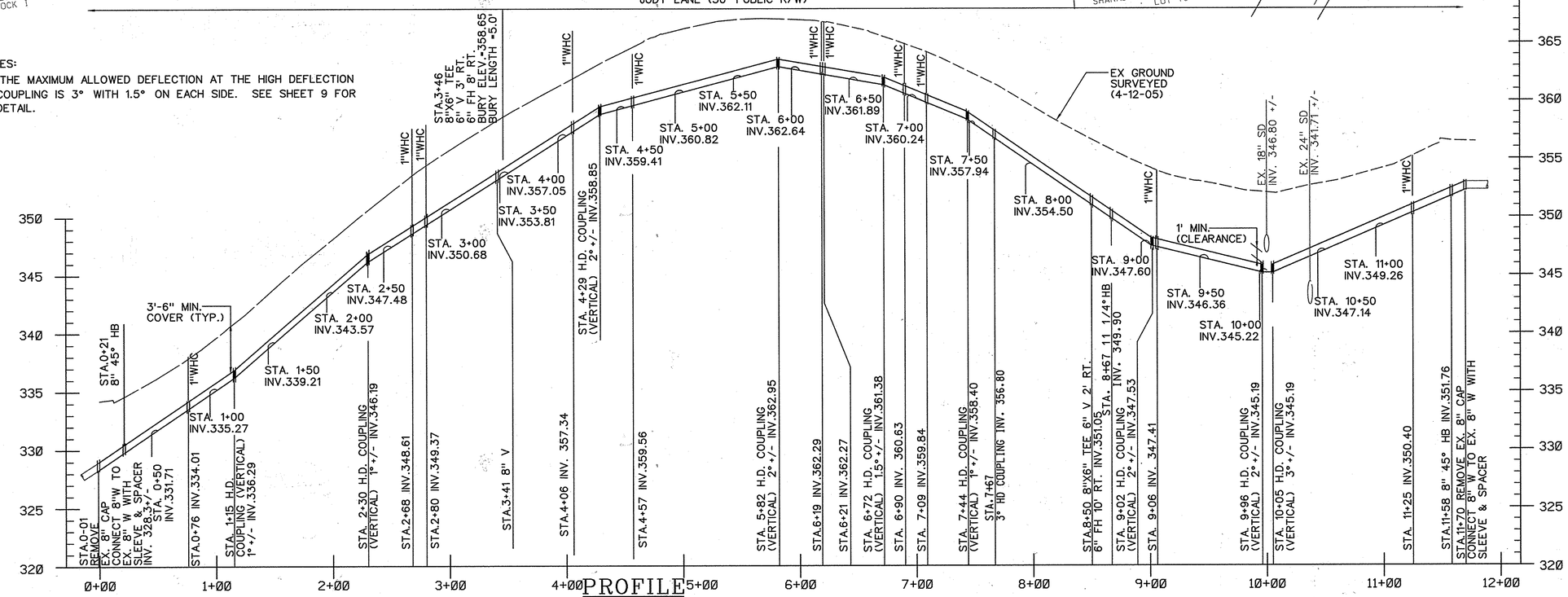
SCALE=N.T.S

TRAVERSE COORDINATE SCHEDULE				
NUMBER	DESCRIPTION	NORTHING	EASTING	ELEVATION
TRAV.#10	IRON BAR	549800.51	1346121.77	357.25
TRAV.#12	IRON BAR	549772.45	1345651.26	365.29
TRAV.#15	IRON BAR	549855.78	1345021.48	336.40

WATER MAIN STAKEOUT COORDINATE SCHEDULE			
STATION	FITTING	NORTHING	EASTING
0-01	TIE-IN	549852.84	1344973.65
0+21	8" 45° HB	549865.82	1344991.54
1+15	HD COUPLING (VERTICAL)	549853.40	1345084.60
2+30	HD COUPLING (VERTICAL)	549838.17	1345198.59
3+46	8"X6" TEE	549822.79	1345313.81
3+46	6" V 3'RT.	549819.30	1345313.34
3+41	8" VALVE	549823.41	1345308.86
4+29	HD COUPLING (VERTICAL)	549811.83	1345395.84
5+82	HD COUPLING (VERTICAL)	549791.58	1345547.49
6+72	HD COUPLING (VERTICAL)	549779.63	1345637.20
7+44	HD COUPLING (VERTICAL)	549770.12	1345708.57
7+67	HD COUPLING (HORIZONTAL)	549767.15	1345730.87
8+50	8"X6" TEE	549760.54	1345813.21
8+50	6" V 2'RT.	549754.36	1345813.60
8+67	11 1/4° HB	549759.20	1345830.33
9+02	HD COUPLING (VERTICAL)	549763.29	1345865.31
9+96	HD COUPLING (VERTICAL)	549776.95	1345957.82
10+05	HD COUPLING (VERTICAL)	549778.91	1345966.60
11+58	45° HB	549793.01	1346119.76
11+70	TIE-IN	549786.20	1346128.83

NOTES:

1. THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3° WITH 1.5° ON EACH SIDE. SEE SHEET 9 FOR DETAIL.



PROFILE

SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

AS-BUILT
DATE 9-02-09
REPLACEMENT SHEET

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/26/09
CHIEF, BUREAU OF ENGINEERING — DATE 10/27/09
CHIEF, BUREAU OF UTILITIES — DATE 10/26/09
CHIEF, UTILITY DESIGN DIVISION — DATE 10/27/09

KCI TECHNOLOGIES
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HUNT VALLEY, MD 21030
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FAX:(410) 316-7817
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STATE OF MARYLAND — GUIHUA WANG — No. 31963 — PROFESSIONAL ENGINEER

DES: GW
DRN: CK
CHK: TW
DATE: DEC. 06

BY	NO.	REVISION	DATE
GW	1	REQUEST FOR INFORMATION	

JUDY LANE
8" WATER MAIN
PLAN AND PROFILE

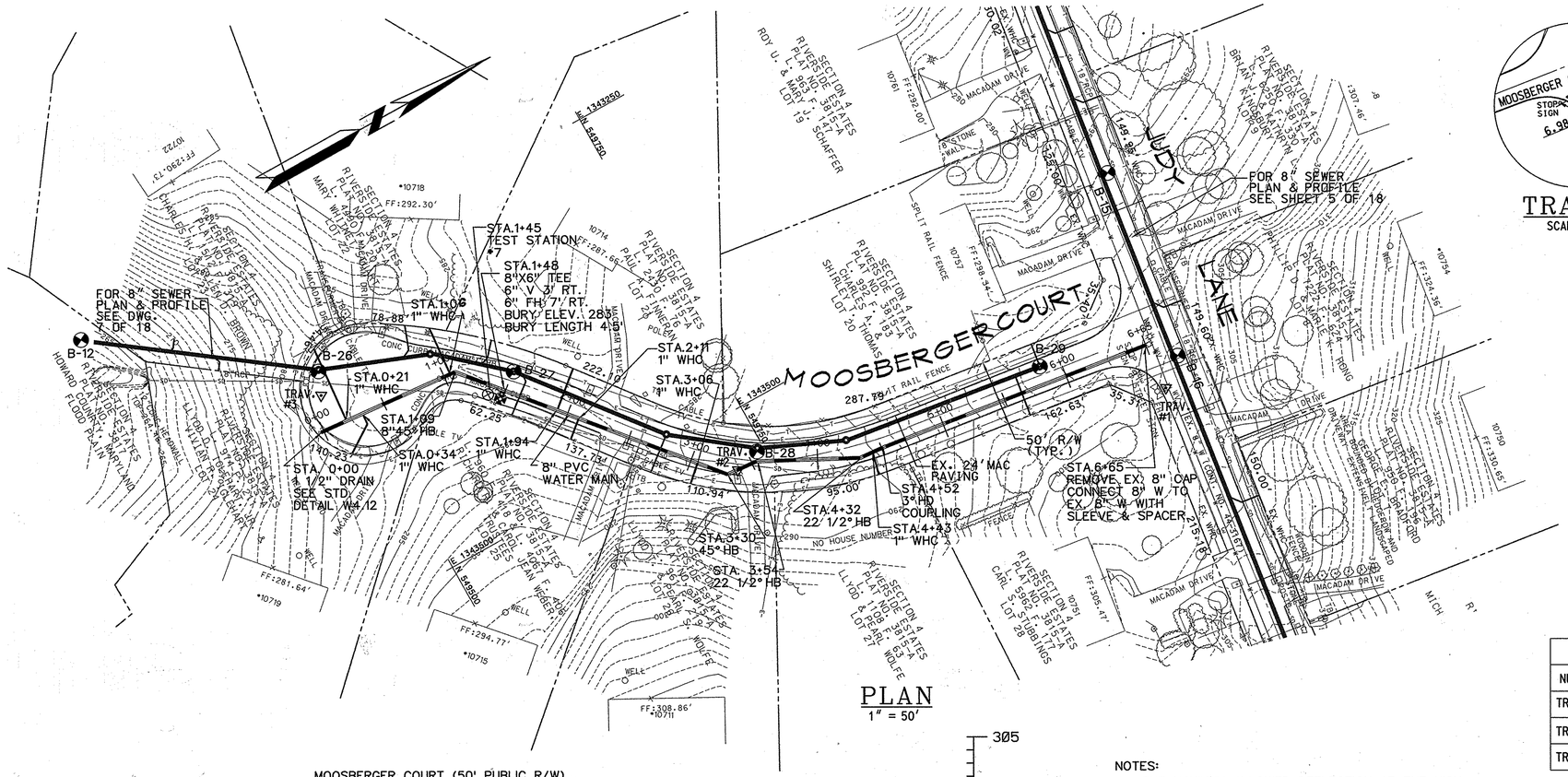
600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

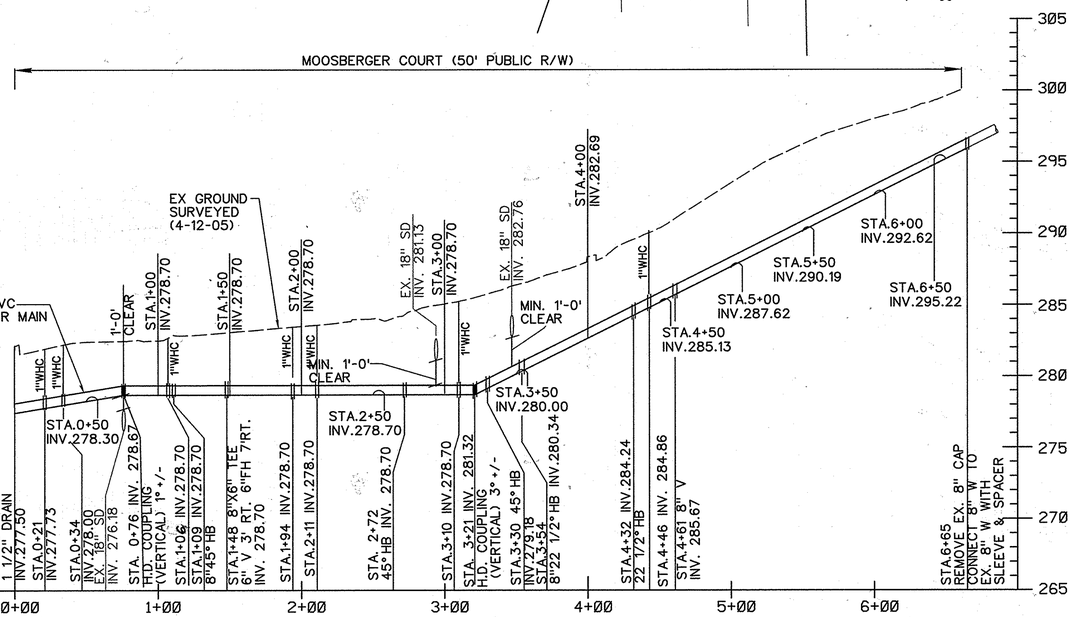
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 12 OF 18

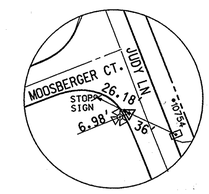
PLOTTED: 12:21 PM on Friday, October 23, 2009
User: Chris Oakley Office: Howard Co. Environmental Engineering
FILE: M:\2034\3034\3464-02\drawings\sheet12-004W Feb 19 2009.dgn



PLAN
1" = 50'



PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



TRAV. #1
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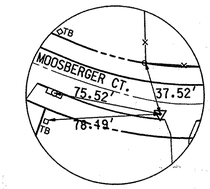

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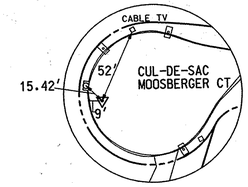


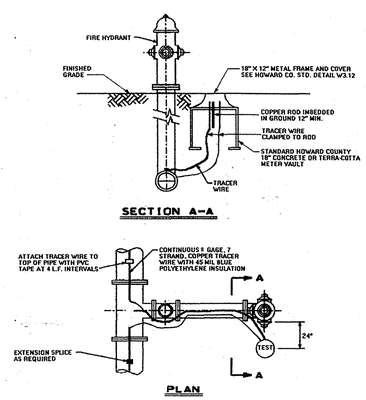
TRAV. #3
SCALE=N.T.S

TRAVERSE COORDINATE SCHEDULE				
NUMBER	DESCRIPTION	NORTHING	EASTING	ELEVATION
TRAV.#1	IRON BAR	550037.93	1343644.73	301.27
TRAV.#2	IRON BAR	549724.66	1343540.98	285.97
TRAV.#3	IRON BAR	549476.78	1343337.49	281.47

NOTES:

1. THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3° WITH 1.5° ON EACH SIDE. SEE SHEET 9 FOR DETAIL.

WATER MAIN STAKEOUT COORDINATE SCHEDULE			
STATION	FITTING	NORTHING	EASTING
0+00	BLOW OFF	549464.04	1343362.05
0+76	HD COUPLING (VERTICAL)	549541.11	1343368.57
1+09	45° HB	549573.91	1343371.34
1+48	TEE	549599.32	1343401.44
1+48	6"V 3'RT.	549596.61	1343403.63
2+72	45° HB	549679.20	1343495.75
3+21	HD COUPLING (VERTICAL)	549710.70	1343533.40
3+30	45° HB	549716.32	1343540.06
3+54	22 1/2° HB	549740.31	1343542.08
4+32	22 1/2° HB	549810.10	1343578.15
4+51	HD COUPLING (HORIZONTAL)	549828.71	1343579.73
6+65	TIE-IN	550040.39	1343608.85



CONTINUITY TEST STATION
AT FIRE HYDRANT

AS-BUILT
DATE 9-02-2009

PLOTTED: "02:25 PM on Monday, August 27, 2007"
FILE: "W:\2004\010\4364\02\Drawings\C-06SW.dgn"

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE	CHIEF, BUREAU OF ENGINEERING	DATE
CHIEF, BUREAU OF UTILITIES	DATE	CHIEF, UTILITY DESIGN DIVISION	DATE

9/4/07 — 9/4/07 — Act. 8-31-07 — 8-31-07 WRD

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
10 NORTH PARK DRIVE, HUNT VALLEY, MD 21030
PHONE (410) 316-7800, FAX (410) 316-7817
www.kci.com

STATE OF MARYLAND — PROFESSIONAL ENGINEER — 9/28/07

DES: GW
DRN: CK
CHK: TW
DATE: DEC. 06

BY	NO.	REVISION	DATE

MOOSBERGER COURT
8" WATER MAIN
PLAN AND PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

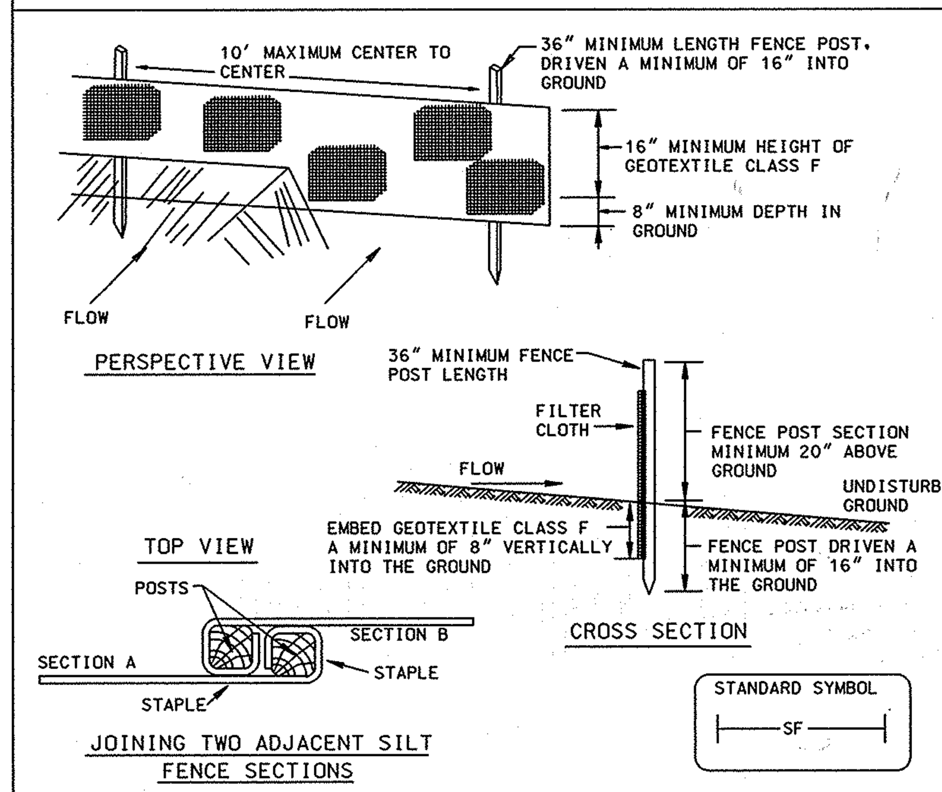
HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 13 OF 18

DETAIL 22 - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

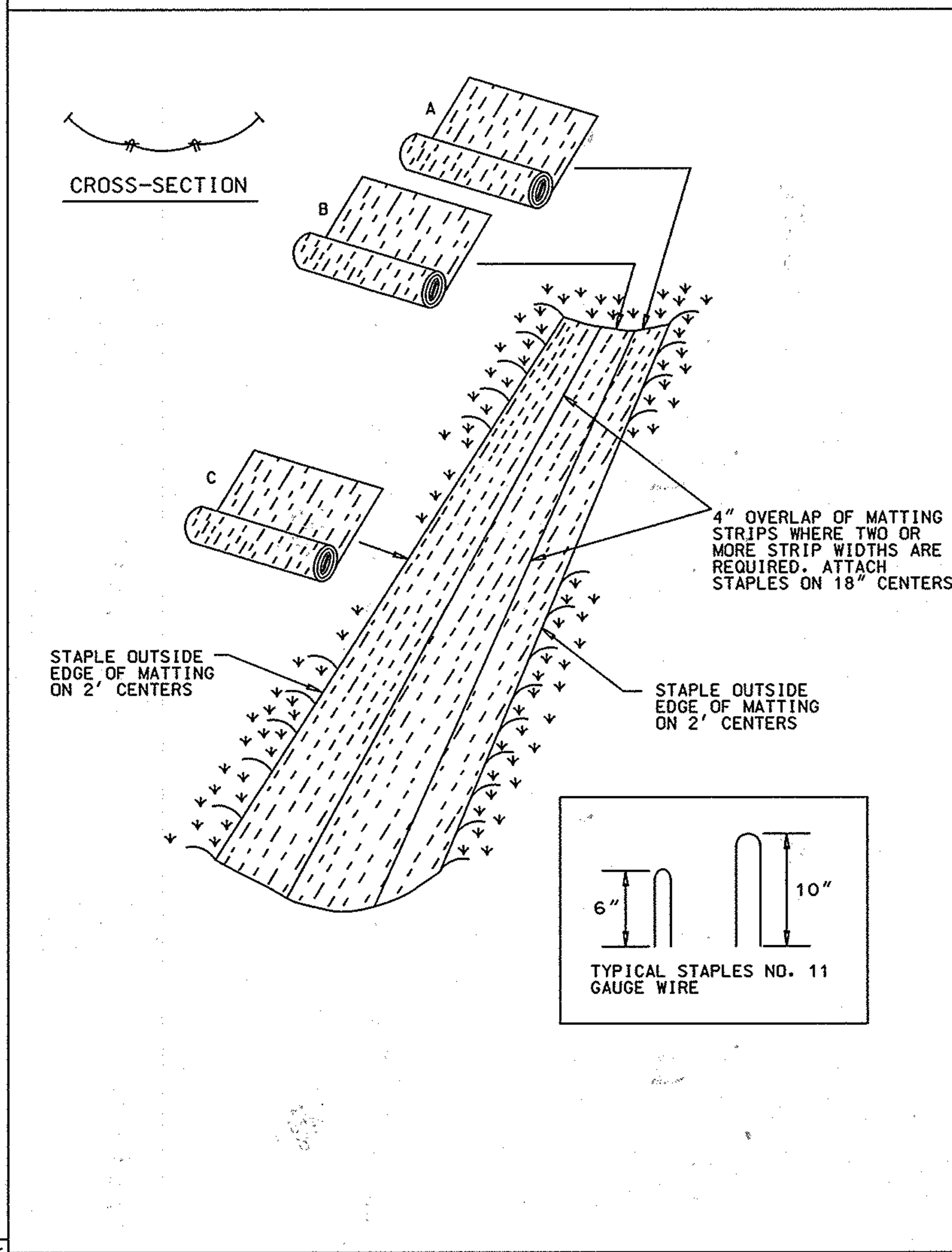
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 - EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".

2. Staple the 4" overlap in the channel center using an 18" spacing between staples.

3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.

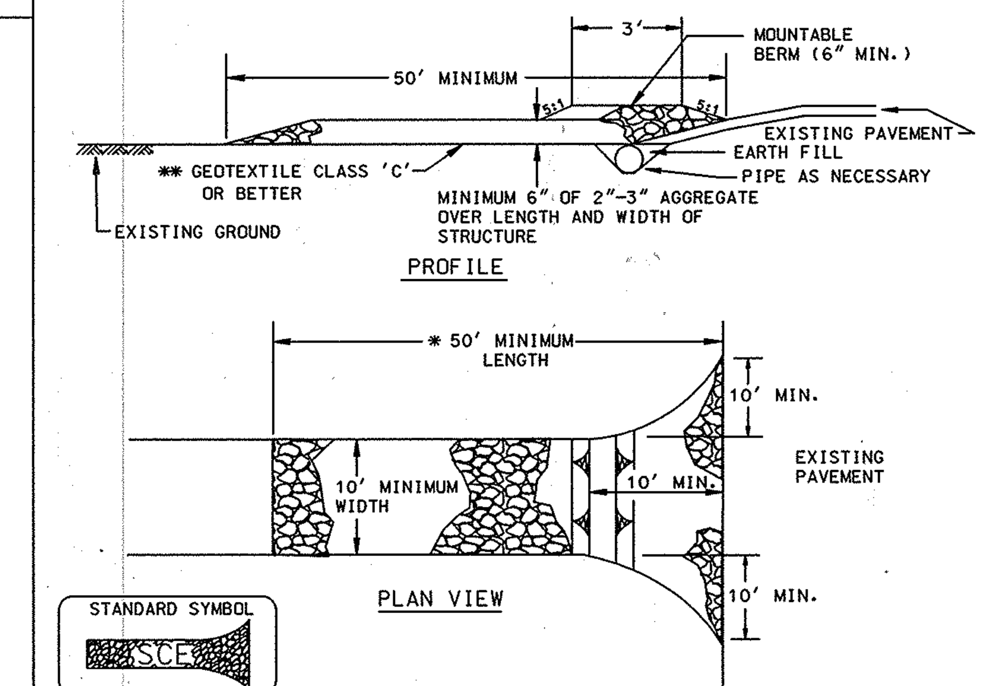
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.

6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length - minimum of 50' (*30' for single residence lot).

2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

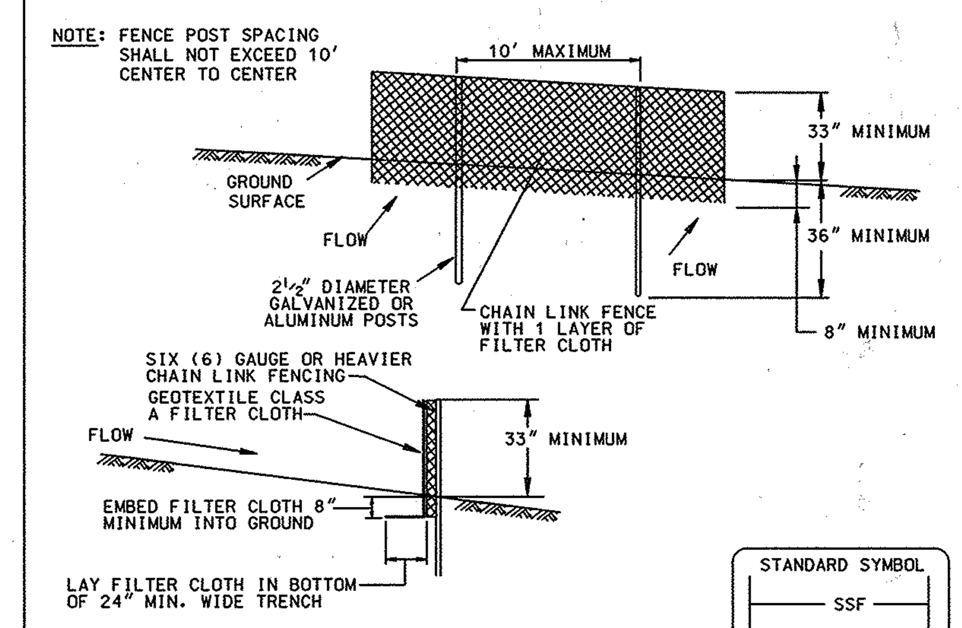
5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE

NOTE: FENCE POST SPACING SHALL NOT EXCEED 10' CENTER TO CENTER



Construction Specifications

1. Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The (SHA) specification for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.

2. The posts do not need to be set in concrete.

3. Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) guage or heavier.

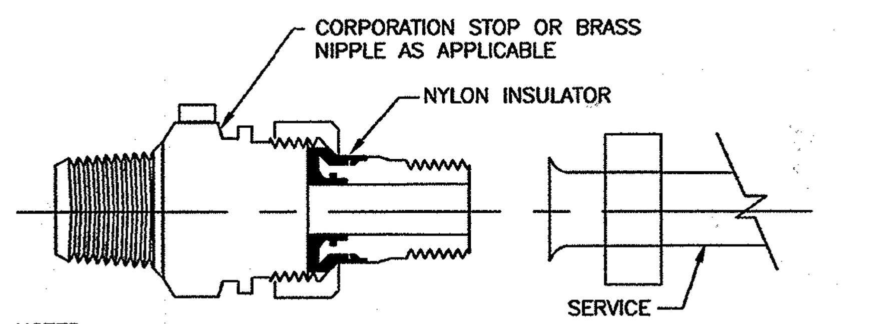
4. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

5. Filter cloth shall be embedded a minimum of 8" into the ground.

6. When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.

7. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	MODIFIED	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



NOTES:

1. INSTALL ELECTRICAL ISOLATION ON ALL SMALL DIAMETER (2" AND LESS) WATER SERVICE CONNECTIONS TO MAIN.
2. COAT EXTERIOR OF SERVICE PIPING IN ACCORDANCE WITH THE SPECIFICATIONS FOR A DISTANCE OF 12 INCHES ON EITHER SIDE OF INSULATOR.

INSULATING CORPORATION

SCALE: NONE

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1) PREFERRED - APPLY 2 TONS PER ACRES DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14LBS/1000 SQ FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ FT.).
2) ACCEPTALBE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT.) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT.) BEFORE SEEDING. HARROW OF DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING - FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT.) FOR ANCHORING.

MAINTENANCE - INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: - APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT.).

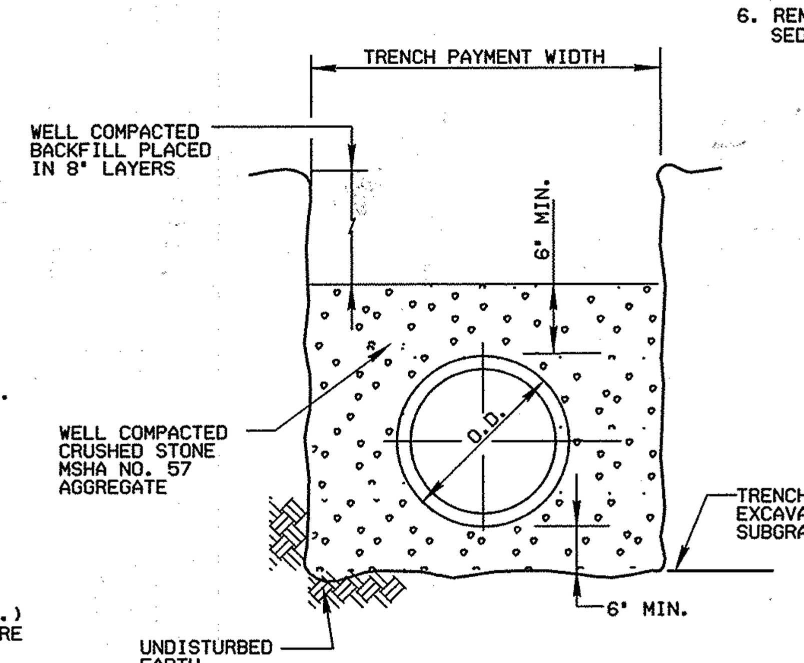
SEEDING: - FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FT OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ FT.) FOR ANCHORING.

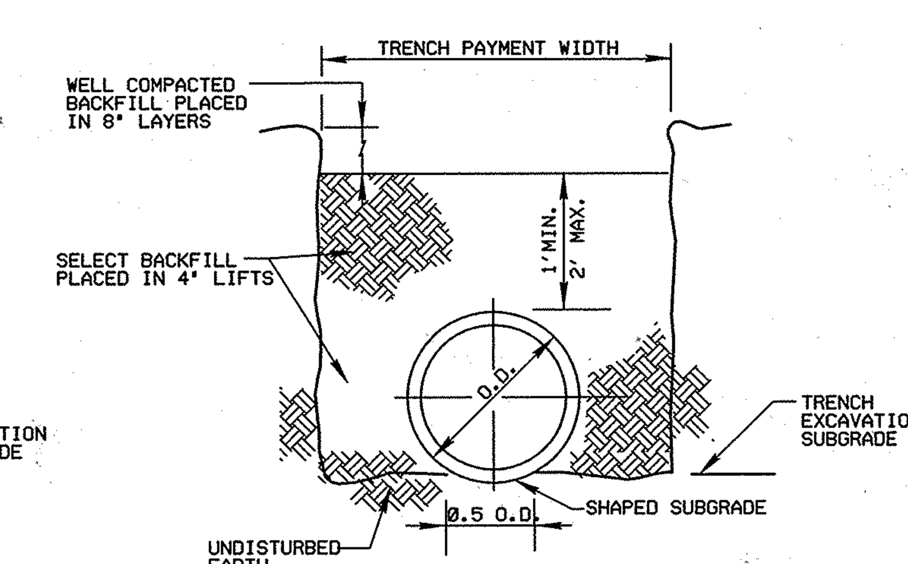
REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.
2. LAYOUT ALIGNMENT AT SITE. (2 DAYS)
3. INSTALL SEDIMENT CONTROL DEVICES AS SHOWN ON PLAN.
4. EXCAVATE DITCH TO THE GRADE SPECIFIED ON THE PROFILE. INSTALL SEWER MAIN AND BACK FILL TRENCH AND STABILIZE IN KIND (45 DAYS) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO 25' OF PIPE LENGTH OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
5. CLEAN UP CONSTRUCTION SITE. (1 DAY)
6. REMOVE SEDIMENT CONTROL DEVICES AFTER PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR. (1 DAY)



DETAIL *
TRENCH FOR PVC PIPE AND HIGH DENSITY POLYETHYLENE PIPE
NO SCALE



DETAIL
TRENCH IN EARTH *
NO SCALE

* BASED ON HOWARD COUNTY STANDARD DETAIL G2.01

STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1855).
2. ALL VEGETIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT 'MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL', AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COPLETED WITHIN:
   A) 7 CALENDER DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1,
   B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. I, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL (SEC. G20.0) FOR PERMANENT SEEDINGS, SOD, TEMPORARY SEEDING AND MULCHING. TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	N/A	ACRES
AREA DISTURBED	1.05	ACRES
AREA TO BE ROOFED OR PAVED	0.93	ACRES
AREA TO BE VEGATATIVELY STABILIZED	0.12	ACRES
TOTAL CUT	N/A	CU. YDS.
TOTAL FILL	N/A	CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A	

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF THE DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
12. CONTRACTOR SHALL PLACE EXCAVATED MATERIALS ON UPHILL SIDE OF TRENCH AND PLACE SILT FENCE ON DOWNHILL SIDE OF TRENCH.

AS-BUILT
DATE 9-02-2009

BEST MANAGEMENT PRACTICE (BMP) NOTES

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100 YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100 YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLANDS BUFFERS, WATERWAYS, OR THE 100 YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT MODIFICATION OF THE 100 YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100 YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.) AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:

   USE I WATERS: IN STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAYS.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

DEVELOPER'S CERTIFICATION

'I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY 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 PERIODING ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Thomas J. Butler 8/31/07
Act. BUREAU OF ENGINEERING DATE
DEPARTMENT OF PUBLIC WORKS

ENGINEER'S CERTIFICATION

'I/WE 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.

TIMOTHY W WOLFE 9/28/07
DATE
KCI TECHNOLOGIES, INC
10 NORTH PARK DRIVE
HUNT VALLEY, MD 21030

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.

Jim Meyler 9-7-07
U.S. NATURAL RESOURCES CONSERVATION SERVICE DATE

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

John R Robertson 9-7-07
APPROVED DATE
HOWARD S.C.D.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — 9/4/07 DATE	Act. CHIEF, BUREAU OF ENGINEERING — 8-31-07 DATE
CHIEF, BUREAU OF UTILITIES — 9/4/07 DATE	CHIEF, UTILITY DESIGN DIVISION — WRD 8-31-07 DATE

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
10 NORTH PARK DRIVE
HUNT VALLEY, MD 21030
PHONE: (410) 316-7800
FAX: (410) 316-7817
www.kci.com

STATE OF MARYLAND PROFESSIONAL ENGINEER — 9/28/07

DES: GW				
DRN: CK				
CHK: TW				
DATE: DEC. 06	BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES WATER & SEWER MAIN EXTENSIONS

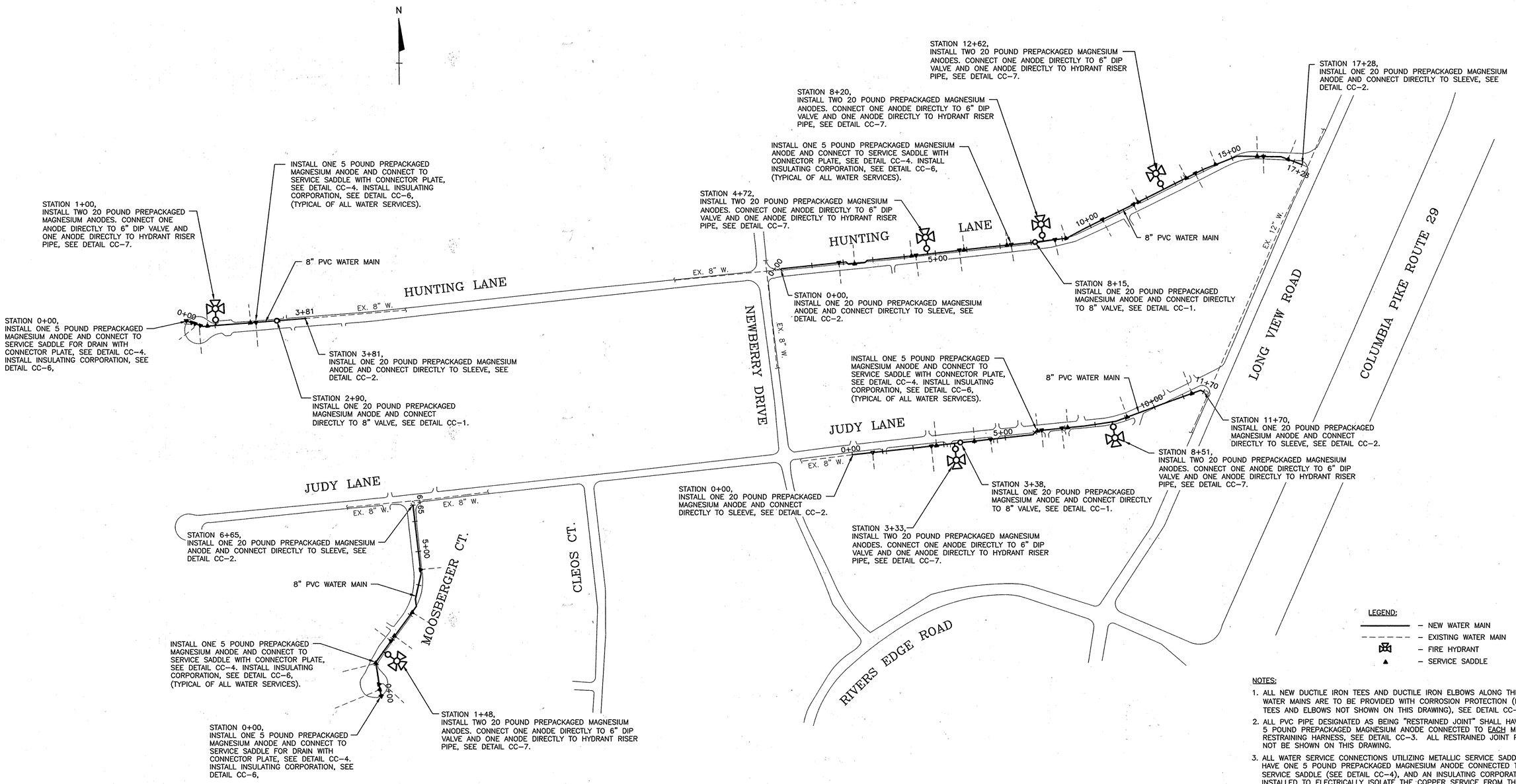
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 14 OF 18

PLOTTED: "02:26 PM on Monday, August 27, 2007"
BY: Chandra Kanta Division: Environmental Engineering
FILE: M:\2004\01043464.02\drawings\SED.dgn



CORROSION CONTROL LAYOUT

SCALE: NONE

LEGEND:

- NEW WATER MAIN
- EXISTING WATER MAIN
- FIRE HYDRANT
- SERVICE SADDLE

NOTES:

1. ALL NEW DUCTILE IRON TEES AND DUCTILE IRON ELBOWS ALONG THE PVC WATER MAINS ARE TO BE PROVIDED WITH CORROSION PROTECTION (DUCTILE IRON TEES AND ELBOWS NOT SHOWN ON THIS DRAWING), SEE DETAIL CC-2.
2. ALL PVC PIPE DESIGNATED AS BEING "RESTRAINED JOINT" SHALL HAVE ONE 5 POUND PREPACKAGED MAGNESIUM ANODE CONNECTED TO EACH METALLIC RESTRAINING HARNESS, SEE DETAIL CC-3. ALL RESTRAINED JOINT PIPE MAY NOT BE SHOWN ON THIS DRAWING.
3. ALL WATER SERVICE CONNECTIONS UTILIZING METALLIC SERVICE SADDLES SHALL HAVE ONE 5 POUND PREPACKAGED MAGNESIUM ANODE CONNECTED TO THE SERVICE SADDLE (SEE DETAIL CC-4), AND AN INSULATING CORPORATION INSTALLED TO ELECTRICALLY ISOLATE THE COPPER SERVICE FROM THE SERVICE SADDLE (SEE DETAIL CC-6). ALL WATER SERVICES MAY NOT BE SHOWN ON THIS DRAWING.
4. DO NOT THERMITE WELD TO PVC PIPE.

THIS DRAWING IS NOT APPLICABLE FOR USE AS STANDARD CORROSION CONTROL PROCEDURES FOR OTHER PROJECTS DUE TO VARIABLE CONDITIONS AT OTHER SITES. NEITHER THIS DESIGN NOR ANY PART THEREOF MAY BE DUPLICATED IN ANY WAY FOR OTHER PROJECTS OR MODIFIED IN ANY WAY FOR THIS OR OTHER PROJECTS, EXCEPT BY WRITEN AGREEMENT WITH RUSSELL CORROSION CONSULTANTS, INC.

AS-BUILT
DATE 9-02-2009

STATE OF MARYLAND MICHAEL J. SEELIG No. 17092 PROFESSIONAL ENGINEER

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	9/4/07 DATE	CHIEF, BUREAU OF ENGINEERING	8-31-07 DATE
CHIEF, BUREAU OF UTILITIES	9/4/07 DATE	CHIEF, UTILITY DESIGN DIVISION WRB	8-31-07 DATE

KCI TECHNOLOGIES
ENGINEERS
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10 NORTH PARK DRIVE
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PHONE (410) 316-7800
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www.kci.com

RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

DES: MJS				
DRN: JCS/DJD				
CHK: MJS				
DATE: AUG. 07	BY	NO.	REVISION	DATE

8" WATER MAIN
CORROSION CONTROL
LAYOUT

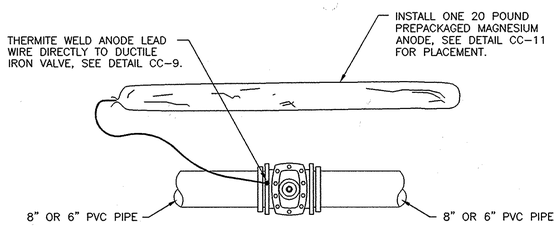
600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE NONE

SHEET 15 OF 18

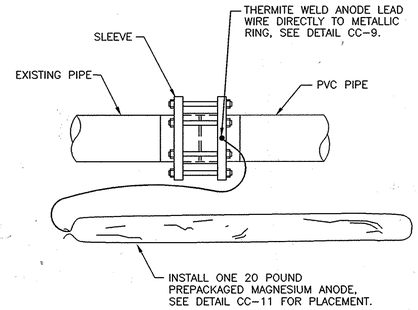


NOTES:

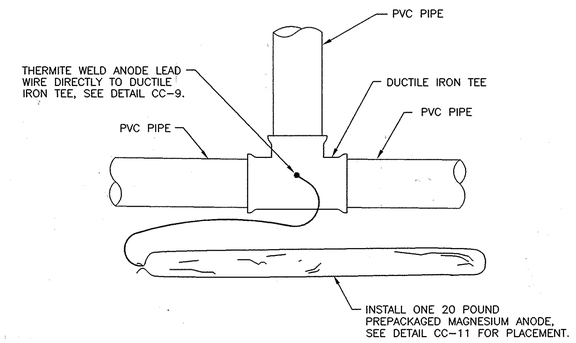
1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-11.
2. DO NOT THERMITE WELD TO PVC PIPE.

CC-1: CORROSION PROTECTION OF DUCTILE IRON VALVE (8" AND 6")

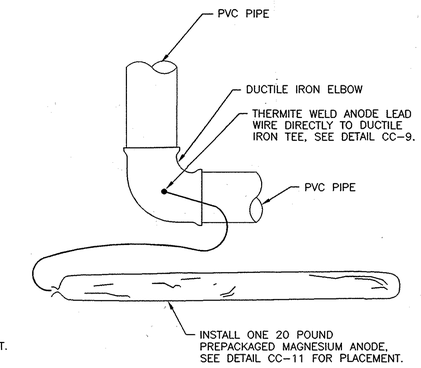
SCALE: NONE



SLEEVE



TEE



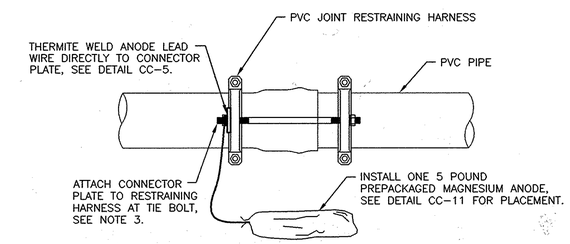
ELBOW

NOTES:

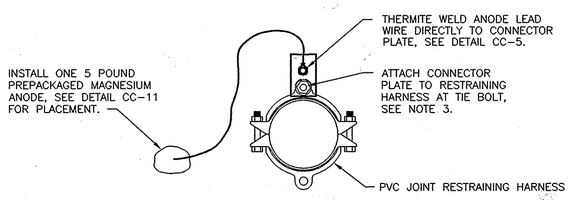
1. ANODES REQUIRED ONLY IF TEE, OR ELBOW IS DUCTILE IRON.
2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-11.
3. DO NOT THERMITE WELD TO PVC PIPE.

CC-2: CORROSION PROTECTION OF DUCTILE IRON FITTINGS

SCALE: NONE



PLAN VIEW



SECTION VIEW

NOTES:

1. CONNECTOR PLATE TO BE THERMITE WELDED TO ANODE LEAD WIRE PRIOR TO ATTACHING CONNECTOR PLATE TO RESTRAINING HARNESS.
2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-11.
3. REMOVE COATING FROM RESTRAINING HARNESS WHERE CONNECTOR PLATE IS TO BE MOUNTED. REMOVE COATING IMMEDIATELY PRIOR TO ATTACHING THE CONNECTOR PLATE.
4. DO NOT THERMITE WELD TO PVC PIPE.

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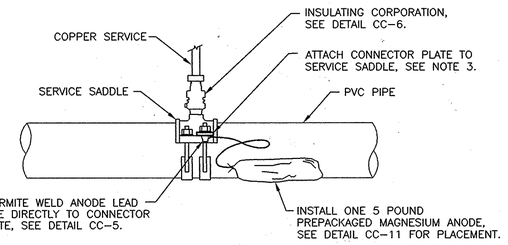
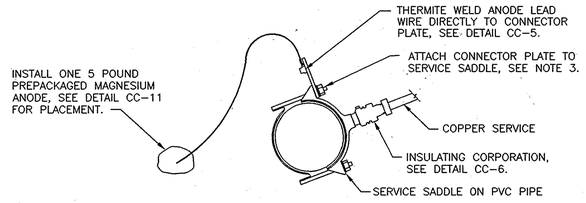
CC-3: CORROSION PROTECTION OF RESTRAINING HARNESS

SCALE: NONE



PLAN VIEW



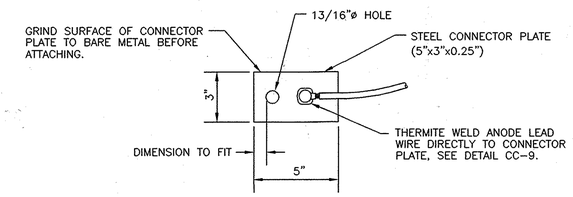
SECTION VIEW

NOTES:

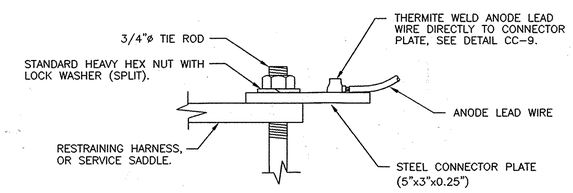
1. CONNECTOR PLATE TO BE THERMITE WELDED TO ANODE LEAD WIRE PRIOR TO ATTACHING CONNECTOR PLATE TO SERVICE SADDLE.
2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-11.
3. REMOVE COATING FROM SERVICE SADDLE WHERE CONNECTOR PLATE IS TO BE MOUNTED. REMOVE COATING IMMEDIATELY PRIOR TO ATTACHING THE CONNECTOR PLATE.
4. DO NOT THERMITE WELD TO PVC PIPE.

CC-4: CORROSION PROTECTION OF SERVICE SADDLE

SCALE: NONE



PLAN VIEW



SIDE VIEW

AS-BUILT
DATE 9-02-2009

NOTES:

1. CONNECTOR PLATE TO BE THERMITE WELDED TO ANODE LEAD WIRE PRIOR TO ATTACHING CONNECTOR PLATE TO RESTRAINING HARNESS, OR SERVICE SADDLE.
2. THERMITE WELDS SHALL BE COATED WITH A PREFABRICATED ONE PIECE PLASTIC CAP FILLED WITH ELASTOMERIC MATERIAL, ROYSTON HANDY-CAP OR APPROVED EQUAL.

CC-5: CONNECTION PLATE DETAIL

SCALE: NONE

STATE OF MARYLAND — MICHAEL J. SZYMANSKI — No. 22721 — PROFESSIONAL ENGINEER — AUG 17 2009

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 9/4/07
CHIEF, BUREAU OF UTILITIES — DATE 9/4/07
ACT. CHIEF, BUREAU OF ENGINEERING — DATE 8-31-07
CHIEF, UTILITY DESIGN DIVISION — WRD — DATE 8-31-07

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
10 NORTH PARK DRIVE, HUNT VALLEY, MD 21030
PHONE: (410) 316-7800
FAX: (410) 316-7817
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RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

DES: MJS
DRN: JCS/DJD
CHK: MJS
DATE: AUG. 07

BY	NO.	REVISION	DATE

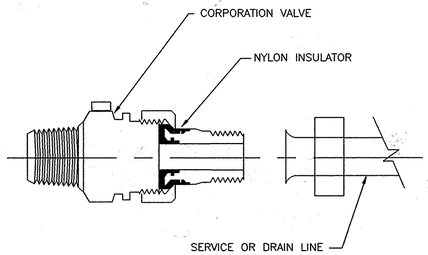
CORROSION CONTROL DETAILS 1

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE NONE

SHEET 16 OF 18

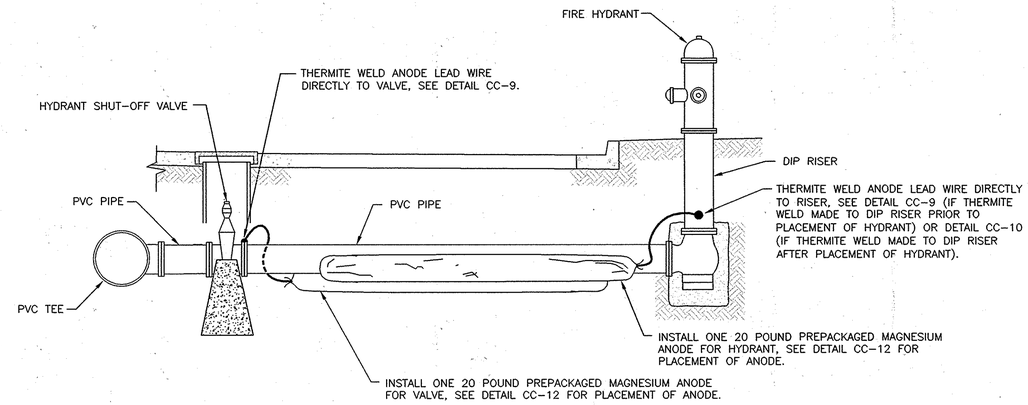


NOTES:

1. INSTALL ELECTRICAL ISOLATION ON ALL WATER SERVICE AND DRAIN LINE CONNECTIONS TO MAIN.
2. COAT EXTERIOR OF CORPORATION STOP, AND SERVICE PIPING AND/OR DRAIN LINE FOR A DISTANCE OF 12 INCHES WITH MASTIC COATING (ROYSTON ROSKOTE R28). MASTIC COATING TO BE MINIMUM OF 20 MILS IN THICKNESS.
3. INSULATED CORPORATION NOT REQUIRED FOR PLASTIC SERVICES.

CC–6: INSULATING CORPORATION

SCALE: NONE

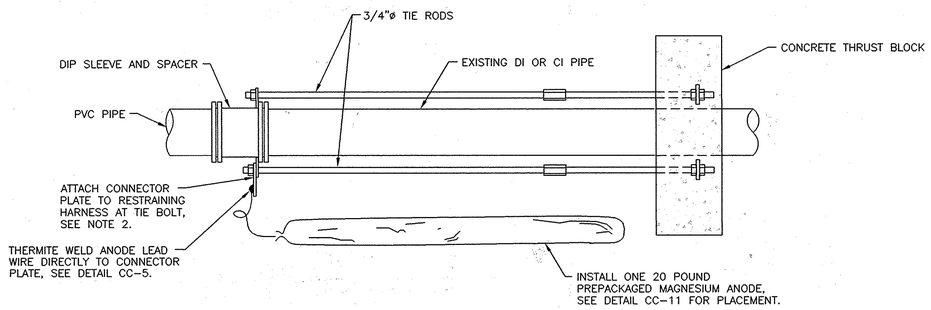


NOTES:

1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC–12.
2. DO NOT THERMITE WELD TO PVC PIPE.

CC–7: CORROSION PROTECTION AT FIRE HYDRANT

SCALE: NONE

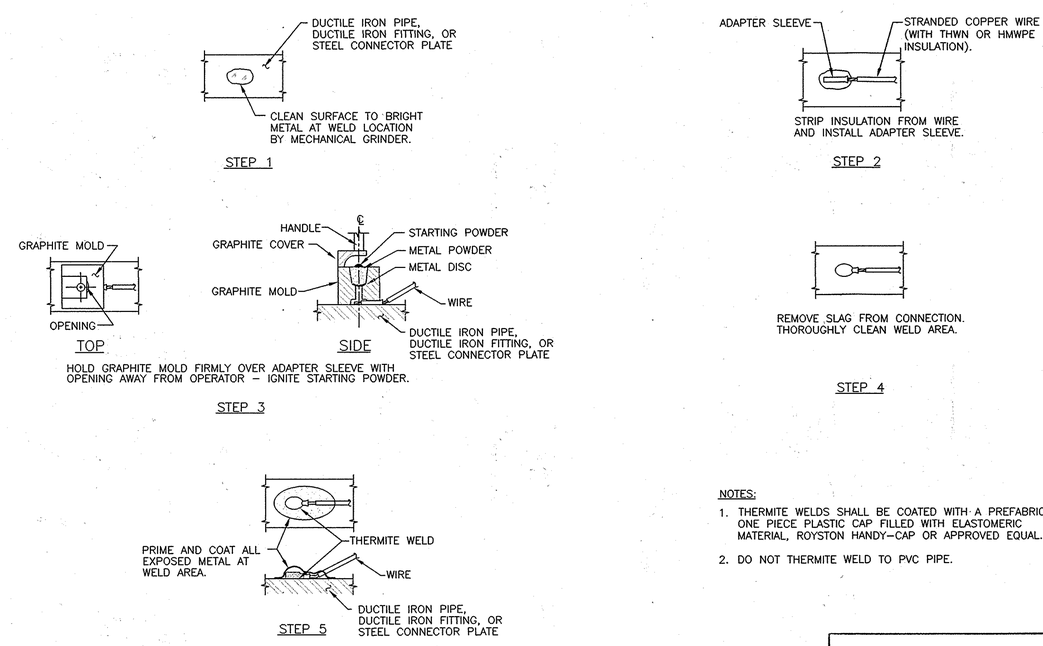


NOTES:

1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC–11.
2. REMOVE COATING FROM RESTRAINING HARNESS WHERE CONNECTOR PLATE IS TO BE MOUNTED. REMOVE COATING IMMEDIATELY PRIOR TO ATTACHING THE CONNECTOR PLATE.
3. DO NOT THERMITE WELD TO PVC PIPE.

CC–8: CORROSION PROTECTION AT IN–LINE THRUST BLOCK

SCALE: NONE



NOTES:

1. THERMITE WELDS SHALL BE COATED WITH A PREFABRICATED ONE PIECE PLASTIC CAP FILLED WITH ELASTOMERIC MATERIAL, ROYSTON HANDY–CAP OR APPROVED EQUAL.
2. DO NOT THERMITE WELD TO PVC PIPE.

CC–9: TYPICAL THERMITE WELD

SCALE: NONE

AS-BUILT
DATE 9-02-2009

STATE OF MARYLAND — MICHAEL J. SHEEHY — No. 27193 — PROFESSIONAL ENGINEER

THIS DRAWING IS NOT APPLICABLE FOR USE AS STANDARD CORROSION CONTROL PROCEDURES FOR OTHER PROJECTS DUE TO VARIABLE CONDITIONS AT OTHER SITES. NEITHER THIS DESIGN NOR ANY PART THEREOF MAY BE DUPLICATED IN ANY WAY FOR OTHER PROJECTS OR MODIFIED IN ANY WAY FOR THIS OR OTHER PROJECTS, EXCEPT BY WRITTEN AGREEMENT WITH RUSSELL CORROSION CONSULTANTS, INC.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	9/4/07 DATE	CHIEF, BUREAU OF ENGINEERING	8-31-07 DATE
CHIEF, BUREAU OF UTILITIES	9/4/07 DATE	CHIEF, UTILITY DESIGN DIVISION WRD	8-31-07 DATE

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RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

DES: MJS				
DRN: JCS/DJD				
CHK: MJS				
DATE: AUG. 07	BY	NO.	REVISION	DATE

CORROSION CONTROL DETAILS 2

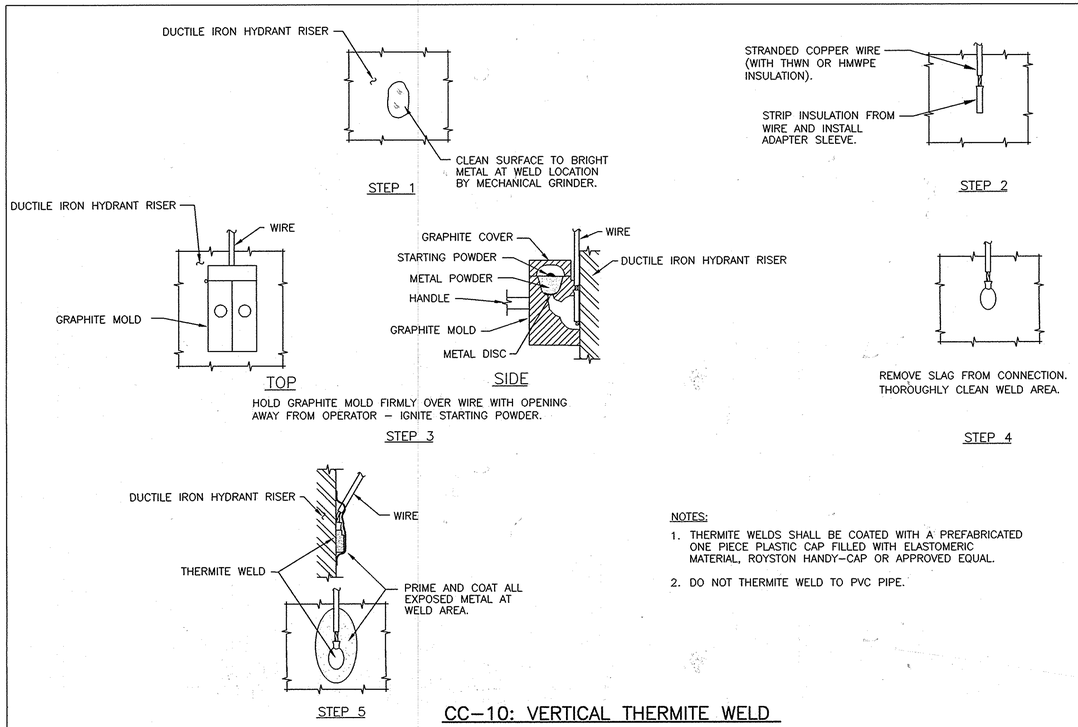
600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S–6251
CONTRACT No. 34–4350

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE NONE

SHEET 17 OF 18

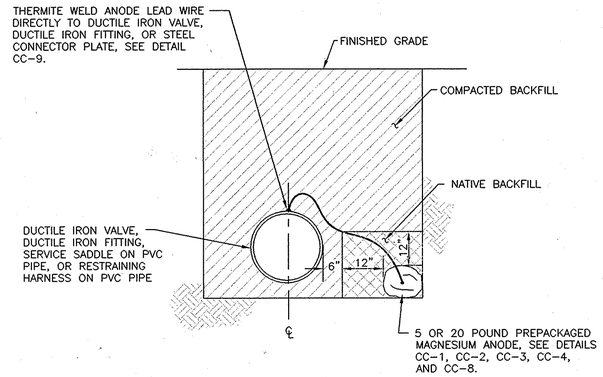


NOTES:

1. THERMITE WELDS SHALL BE COATED WITH A PREFABRICATED ONE PIECE PLASTIC CAP FILLED WITH ELASTOMERIC MATERIAL, ROYSTON HANDY-CAP OR APPROVED EQUAL.
2. DO NOT THERMITE WELD TO PVC PIPE.

CC-10: VERTICAL THERMITE WELD

NOT TO SCALE

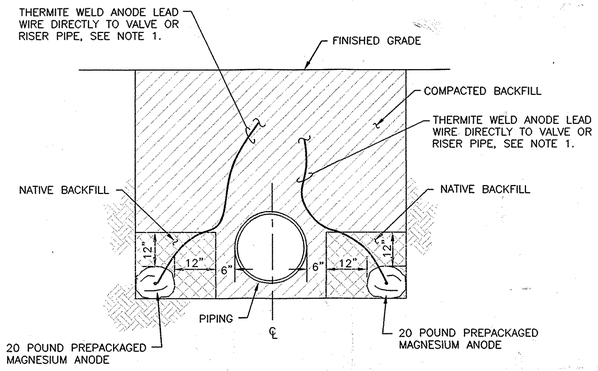


NOTES:

1. INSTALL ANODE IN NATIVE SOIL. DO NOT BACKFILL ANODE WITH SAND OR STONE.
2. DO NOT THERMITE WELD TO PVC PIPE.

CC-11: SINGLE ANODE PLACEMENT

SCALE: NONE



NOTES:

1. WHEN INSTALLING ANODES AT HYDRANTS, ATTACH ONE ANODE LEAD TO SHUT-OFF VALVE, AND ONE ANODE LEAD TO HYDRANT RISER PIPING, SEE DETAIL CC-7.
2. INSTALL ANODES A MINIMUM OF 12 INCHES FROM PIPE.
3. BACKFILL ANODES WITH NATIVE SOIL FOR A MINIMUM OF 12 INCHES ON ALL SIDES. DO NOT BACKFILL ANODES WITH SAND OR STONE.
4. DO NOT THERMITE WELD TO PVC PIPE.

CC-12: DOUBLE ANODE PLACEMENT

SCALE: NONE

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AS-BUILT
DATE 9-02-2009

STATE OF MARYLAND MICHAEL J. BERLING No. 17099 PROFESSIONAL ENGINEER

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 9/4/07
CHIEF, BUREAU OF UTILITIES — DATE 9/4/07
ACT. CHIEF, BUREAU OF ENGINEERING — DATE 8-31-07
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BY	NO.	REVISION	DATE

CORROSION CONTROL DETAILS 3

600' SCALE MAP NO. 41 BLOCK NO. 5, 6

HOLIDAY HILLS / RIVERSIDE ESTATES
WATER & SEWER MAIN EXTENSIONS
CAPITAL PROJECT No. S-6251
CONTRACT No. 34-4350

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

SCALE NONE

SHEET 18 OF 18