HICKORY HAVEN AND SAMARY FOREST SANITARY SEWER

60% DESIGN SUBMITTAL

GOOCHLAND COUNTY, VIRGINIA

SITE DATA

OWNER/OPERATOR
GOOCHLAND COUNTY
1800 SANDY HOOK ROAD
P.O. BOX 119
GOOCHLAND, VA 23063
CONTACT: WAYNE STEPHENS, P.E.
PHONE: (804) 556-5835
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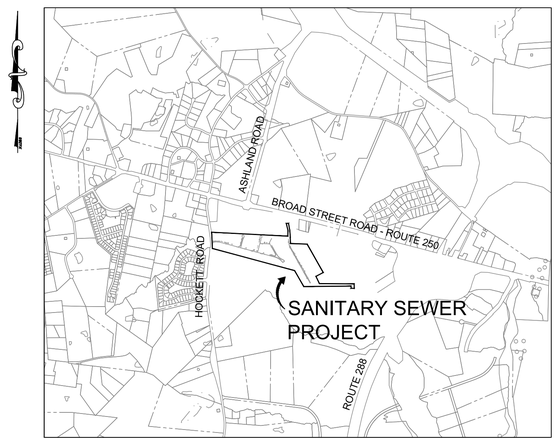
EMAIL: WSTEPHENS@CO.GOOCHLAND.VA.US

ENGINEER
TIMMONS GROUP
1001 BOULDERS PARKWAY, SUITE 300
RICHMOND, VA 23225
CONTACT: BRUCE STRICKLAND, P.E.
PHONE: (804) 200-6389
FAX: (804) 560-1438
EMAIL: BRUCE.STRICKLAND@TIMMONS.COM



VICINITY MAP

SCALE: 1" = 2,000'

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GOOCHLAND COUNTY

MAY 14, 2019

NOTE: A VSMP REGISTRATION STATEMENT IS NOT REQUIRED FOR THIS LINEAR DEVELOPMENT PROJECT IN ACCORDANCE WITH DEQ GUIDANCE MEMO NO. 15-2003. ADDITIONALLY, THIS PROJECT ACHIEVES COMPLIANCE WITH PART IIB OF VSMP TECHNICAL CRITERIA BY A NEGLIGIBLE INCREASE IN IMPERVIOUSNESS AND NEGLIGIBLE CHANGE IN WATER QUALITY/QUANTITY.

MISS UTILITY OF VIRGINIA

THE CONTRACTOR SHALL CALL "MISS UTILITY" 48 HOURS PRIOR TO THE START OF EXCAVATION. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT THE ENGINEER IMMEDIATELY IF THE LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLAN. IF THERE APPEARS TO BE A CONFLICT, AND/OR UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON PLAN. THE DEVELOPER SHALL BE RESPONSIBLE FOR THE RELOCATION OF ANY UTILITY WITHIN THE EXISTING AND/OR RIGHT-OF-WAY REQUIRED BY THE DEVELOPMENT. CONTACT MISS UTILITY OF VIRGINIA: 1-800-552-7001 (TOLL FREE) OR DIALL 811.

60% PLAN SUBMISSION
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1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE

DATE 5-14-2019
DRAWN BY J. CARTER
DESIGNED BY J. CARTER
CHECKED BY B. STRICKLAND
SCALE AS SHOWN

TIMMONS GROUP

HICKORY HAVEN & SAMARY FOREST SANITARY SEWER
DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA
COVER SHEET

JOB NO. 42792
SHEET NO. C-1

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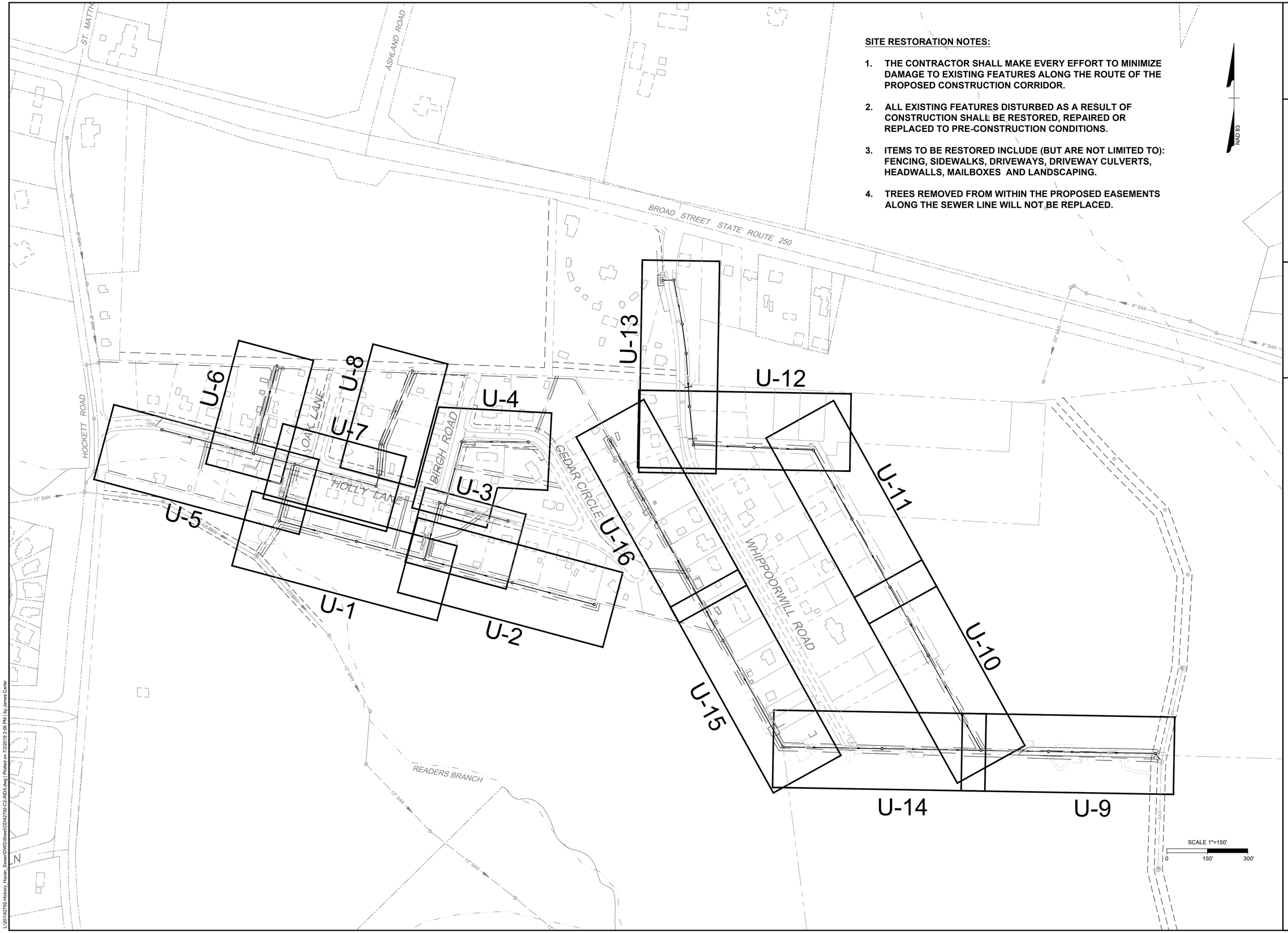
L:\20142792-Hickory_Haven_Sewer\DWG\Sheet\CD42792-C1-COVR.dwg | Plotted on 7/2/2019 2:06 PM | by James Carter

SITE RESTORATION NOTES:

1. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO MINIMIZE DAMAGE TO EXISTING FEATURES ALONG THE ROUTE OF THE PROPOSED CONSTRUCTION CORRIDOR.
2. ALL EXISTING FEATURES DISTURBED AS A RESULT OF CONSTRUCTION SHALL BE RESTORED, REPAIRED OR REPLACED TO PRE-CONSTRUCTION CONDITIONS.
3. ITEMS TO BE RESTORED INCLUDE (BUT ARE NOT LIMITED TO): FENCING, SIDEWALKS, DRIVEWAYS, DRIVEWAY CULVERTS, HEADWALLS, MAILBOXES AND LANDSCAPING.
4. TREES REMOVED FROM WITHIN THE PROPOSED EASEMENTS ALONG THE SEWER LINE WILL NOT BE REPLACED.



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REVISION	DESCRIPTION	DATE
-		-

DATE 5-14-2019
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DESIGNED BY J. CARTER
CHECKED BY B. STRICKLAND
SCALE 1" = 150'

TIMMONS GROUP

HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

SHEET INDEX

JOB NO. 42792

SHEET NO. C-2

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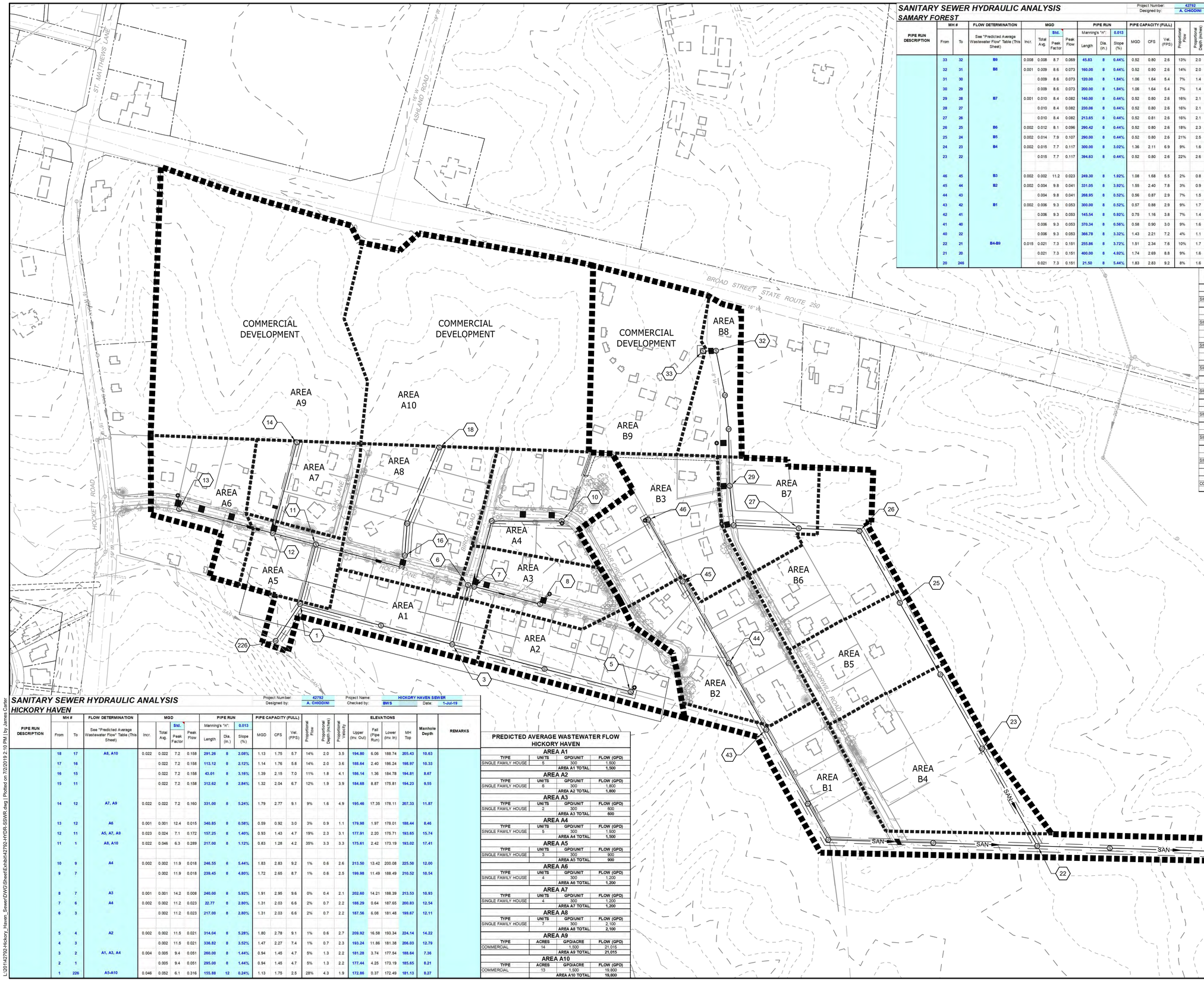

SANITARY SEWER HYDRAULIC ANALYSIS
SAMARY FOREST

Project Number: 42792 | Project Name: HICKORY HAVEN SEWER
Designed by: A. CHIODINI | Checked by: BWS | Date: 1-Jul-19

PIPE RUN DESCRIPTION	MH # From	MH # To	FLOW DETERMINATION: See "Predicted Average Wastewater Flow" Table (This Sheet)	MGD: Incr.	MGD: Total Avg.	MGD: Std. Peak Factor	MGD: Peak Flow	PIPE RUN: Manning's "n": 0.013 Length	PIPE RUN: Dia. (in.)	PIPE RUN: Slope (%)	PIPE CAPACITY (FULL): MGD	PIPE CAPACITY (FULL): CFS	PIPE CAPACITY (FULL): Vel. (FPS)	Proportional Flow	Proportional Depth (Inches)	Proportional Velocity	ELEVATIONS: Upper (Inv. Out)	ELEVATIONS: Fall (Pipe Run)	ELEVATIONS: Lower (Inv. In)	ELEVATIONS: MH Top	Manhole Depth	REMARKS
	33	32	B9	0.008	0.008	8.7	0.069	45.83	8	0.44%	0.52	0.80	2.6	13%	2.0	1.6	209.05	0.20	208.85	222.10	13.05	
	32	31	B8	0.001	0.009	8.6	0.073	160.00	8	0.44%	0.52	0.80	2.6	14%	2.0	1.6	208.75	0.70	208.05	220.60	11.85	
	31	30			0.009	8.6	0.073	120.00	8	1.84%	1.06	1.64	5.4	7%	1.4	2.7	207.95	2.21	205.74	218.49	10.54	
	30	29			0.009	8.6	0.073	200.00	8	1.84%	1.06	1.64	5.4	7%	1.4	2.7	205.64	3.68	201.96	216.65	11.01	
	29	28	B7	0.001	0.010	8.4	0.082	140.00	8	0.44%	0.52	0.80	2.6	16%	2.1	1.7	201.86	0.62	201.24	214.87	13.01	
	28	27			0.010	8.4	0.082	230.06	8	0.44%	0.52	0.80	2.6	16%	2.1	1.7	201.14	1.01	200.13	213.04	11.90	
	27	26			0.010	8.4	0.082	213.65	8	0.44%	0.52	0.81	2.6	16%	2.1	1.7	200.03	0.95	199.08	207.51	7.48	
	26	25	B6	0.002	0.012	8.1	0.096	290.42	8	0.44%	0.52	0.80	2.6	18%	2.3	1.8	198.98	1.28	197.70	205.76	6.78	
	25	24	B5	0.002	0.014	7.9	0.107	290.00	8	0.44%	0.52	0.80	2.6	21%	2.5	1.8	197.60	1.27	196.33	206.16	8.56	
	24	23	B4	0.002	0.015	7.7	0.117	300.00	8	3.02%	1.36	2.11	6.9	9%	1.6	3.7	196.23	9.07	187.16	206.61	10.38	
	23	22			0.015	7.7	0.117	394.63	8	0.44%	0.52	0.80	2.6	22%	2.6	1.9	187.06	1.74	185.32	197.82	10.76	
	46	45	B3	0.002	0.002	11.2	0.023	249.30	8	1.92%	1.08	1.68	5.5	2%	0.8	1.9	222.30	4.78	217.52	229.86	7.56	
	45	44	B2	0.002	0.004	9.8	0.041	331.05	8	3.92%	1.55	2.40	7.8	3%	0.9	3.0	217.42	12.97	204.45	224.77	7.35	
	44	43			0.004	9.8	0.041	268.95	8	0.52%	0.56	0.87	2.9	7%	1.5	1.5	204.35	1.40	202.95	212.09	7.74	
	43	42	B1	0.002	0.006	9.3	0.053	300.00	8	0.52%	0.57	0.88	2.9	9%	1.7	1.6	202.85	1.57	201.28	213.63	10.78	
	42	41			0.006	9.3	0.053	145.54	8	0.92%	0.75	1.16	3.8	7%	1.4	1.9	201.18	1.34	199.84	208.22	7.04	
	41	40			0.006	9.3	0.053	370.34	8	0.56%	0.58	0.90	3.0	9%	1.6	1.6	199.74	2.06	197.68	206.39	6.65	
	40	22			0.006	9.3	0.053	366.78	8	3.32%	1.43	2.21	7.2	4%	1.1	3.0	197.58	12.16	185.42	205.84	8.26	
	22	21	B4-B9	0.015	0.021	7.3	0.151	255.86	8	3.72%	1.51	2.34	7.6	10%	1.7	4.3	185.22	9.52	175.70	195.08	9.86	
	21	20			0.021	7.3	0.151	400.00	8	4.92%	1.74	2.69	8.8	9%	1.6	4.7	175.60	19.70	155.90	185.26	9.66	
	20	246			0.021	7.3	0.151	21.50	8	5.44%	1.83	2.83	9.2	8%	1.6	4.9	155.80	1.17	154.63	166.83	11.03	

PREDICTED AVERAGE WASTEWATER FLOW
SAMARY FOREST

TYPE	UNITS	GPD/UNIT	FLOW (GPD)
AREA B1			
SINGLE FAMILY HOUSE	5	300	1,500
		AREA B1 TOTAL	1,500
AREA B2			
SINGLE FAMILY HOUSE	7	300	2,100
		AREA B2 TOTAL	2,100
AREA B3			
SINGLE FAMILY HOUSE	7	300	2,100
		AREA B3 TOTAL	2,100
AREA B4			
SINGLE FAMILY HOUSE	5	300	1,500
		AREA B4 TOTAL	1,500
AREA B5			
SINGLE FAMILY HOUSE	6	300	1,800
		AREA B5 TOTAL	1,800
AREA B6			
SINGLE FAMILY HOUSE	7	300	2,100
		AREA B6 TOTAL	2,100
AREA B7			
SINGLE FAMILY HOUSE	4	300	1,200
		AREA B7 TOTAL	1,200
AREA B8			
SINGLE FAMILY HOUSE	2	300	600
		AREA B8 TOTAL	600
AREA B9			
TYPE	ACRES	GPD/ACRE	FLOW (GPD)
COMMERCIAL	5	1,500	7,920
		AREA B9 TOTAL	7,920

SANITARY SEWER HYDRAULIC ANALYSIS
HICKORY HAVEN

Project Number: 42792 | Project Name: HICKORY HAVEN SEWER
Designed by: A. CHIODINI | Checked by: BWS | Date: 1-Jul-19

PIPE RUN DESCRIPTION	MH # From	MH # To	FLOW DETERMINATION: See "Predicted Average Wastewater Flow" Table (This Sheet)	MGD: Incr.	MGD: Total Avg.	MGD: Std. Peak Factor	MGD: Peak Flow	PIPE RUN: Manning's "n": 0.013 Length	PIPE RUN: Dia. (in.)	PIPE RUN: Slope (%)	PIPE CAPACITY (FULL): MGD	PIPE CAPACITY (FULL): CFS	PIPE CAPACITY (FULL): Vel. (FPS)	Proportional Flow	Proportional Depth (Inches)	Proportional Velocity	ELEVATIONS: Upper (Inv. Out)	ELEVATIONS: Fall (Pipe Run)	ELEVATIONS: Lower (Inv. In)	ELEVATIONS: MH Top	Manhole Depth	REMARKS
	18	17	A8, A10	0.022	0.022	7.2	0.158	291.26	8	2.08%	1.13	1.75	5.7	14%	2.0	3.5	194.80	6.06	188.74	205.43	10.63	
	17	16			0.022	7.2	0.158	113.12	8	2.12%	1.14	1.76	5.8	14%	2.0	3.6	188.64	2.40	186.24	198.97	10.33	
	16	15			0.022	7.2	0.158	43.01	8	3.16%	1.39	2.15	7.0	11%	1.8	4.1	186.14	1.36	184.78	194.81	8.67	
	15	11			0.022	7.2	0.158	312.62	8	2.84%	1.32	2.04	6.7	12%	1.9	3.9	184.68	8.87	175.81	194.23	9.55	
	14	12	A7, A9	0.022	0.022	7.2	0.160	331.00	8	5.24%	1.79	2.77	9.1	9%	1.6	4.9	195.46	17.35	178.11	207.33	11.87	
	13	12	A6	0.001	0.001	12.4	0.015	340.85	8	0.58%	0.59	0.92	3.0	3%	0.9	1.1	179.98	1.97	178.01	188.44	8.46	
	12	11	A5, A7, A9	0.023	0.024	7.1	0.172	157.25	8	1.40%	0.93	1.43	4.7	19%	2.3	3.1	177.91	2.20	175.71	193.65	15.74	
	11	1	A8, A10	0.022	0.046	6.3	0.289	217.00	8	1.12%	0.83	1.28	4.2	35%	3.3	3.3	175.61	2.42	173.19	193.02	17.41	
	10	9	A4	0.002	0.002	11.9	0.018	246.55	8	5.44%	1.83	2.83	9.2	1%	0.6	2.6	213.50	13.42	200.08	225.50	12.00	
	9	7			0.002	11.9	0.018	239.45	8	4.80%	1.72	2.65	8.7	1%	0.6	2.5	199.98	11.49	188.49	210.52	10.54	
	8	7	A3	0.001	0.001	14.2	0.008	240.00	8	5.92%	1.91	2.95	9.6	0%	0.4	2.1	202.60	14.21	188.39	213.53	10.93	
	7	6	A4	0.002	0.002	11.2	0.023	22.77	8	2.80%	1.31	2.03	6.6	2%	0.7	2.2	188.29	0.64	187.65	200.83	12.54	
	6	3			0.002	11.2	0.023	217.00	8	2.80%	1.31	2.03	6.6	2%	0.7	2.2	187.56	6.08	181.48	199.67	12.11	
	5	4	A2	0.002	0.002	11.5	0.021	314.04	8	5.28%	1.80	2.78	9.1	1%	0.6	2.7	209.92	16.58	193.34	224.14	14.22	
	4	3			0.002	11.5	0.021	336.82	8	3.52%	1.47	2.27	7.4	1%	0.7	2.3	193.24	11.86	181.38	206.03	12.79	
	3	2	A1, A3, A4	0.004	0.005	9.4	0.051	260.00	8	1.44%	0.94	1.45	4.7	5%	1.3	2.2	181.28	3.74	177.54	188.64	7.36	
	2	1			0.005	9.4	0.051	295.00	8	1.44%	0.94	1.45	4.7	5%	1.3	2.2	177.44	4.25	173.19	185.65	8.21	
	1	226	A5-A10	0.046	0.052	6.1	0.316	155.88	12	0.24%	1.13	1.75	2.5	28%	4.3	1.9	172.86	0.37	172.49	181.13	8.27	

PREDICTED AVERAGE WASTEWATER FLOW
HICKORY HAVEN

TYPE	UNITS	GPD/UNIT	FLOW (GPD)
AREA A1			
SINGLE FAMILY HOUSE	5	300	1,500
		AREA A1 TOTAL	1,500
AREA A2			
SINGLE FAMILY HOUSE	6	300	1,800
		AREA A2 TOTAL	1,800
AREA A3			
SINGLE FAMILY HOUSE	2	300	600
		AREA A3 TOTAL	600
AREA A4			
SINGLE FAMILY HOUSE	5	300	1,500
		AREA A4 TOTAL	1,500
AREA A5			
SINGLE FAMILY HOUSE	3	300	900
		AREA A5 TOTAL	900
AREA A6			
SINGLE FAMILY HOUSE	4	300	1,200
		AREA A6 TOTAL	1,200
AREA A7			
SINGLE FAMILY HOUSE	4	300	1,200
		AREA A7 TOTAL	1,200
AREA A8			
SINGLE FAMILY HOUSE	7	300	2,100
		AREA A8 TOTAL	2,100
AREA A9			
TYPE	ACRES	GPD/ACRE	FLOW (GPD)
COMMERCIAL	14	1,500	21,015
		AREA A9 TOTAL	21,015
AREA A10			
TYPE	ACRES	GPD/ACRE	FLOW (GPD)
COMMERCIAL	13	1,500	19,800
		AREA A10 TOTAL	19,800

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TIMMONS GROUP

HICKORY HAVEN & SAMARY FOREST SANITARY SEWER
DISTRICT 4- GOOCHLAND COUNTY - VA
SANITARY SEWER HYDRAULIC ANALYSIS

JOB NO. 42792
SHEET NO. C-3

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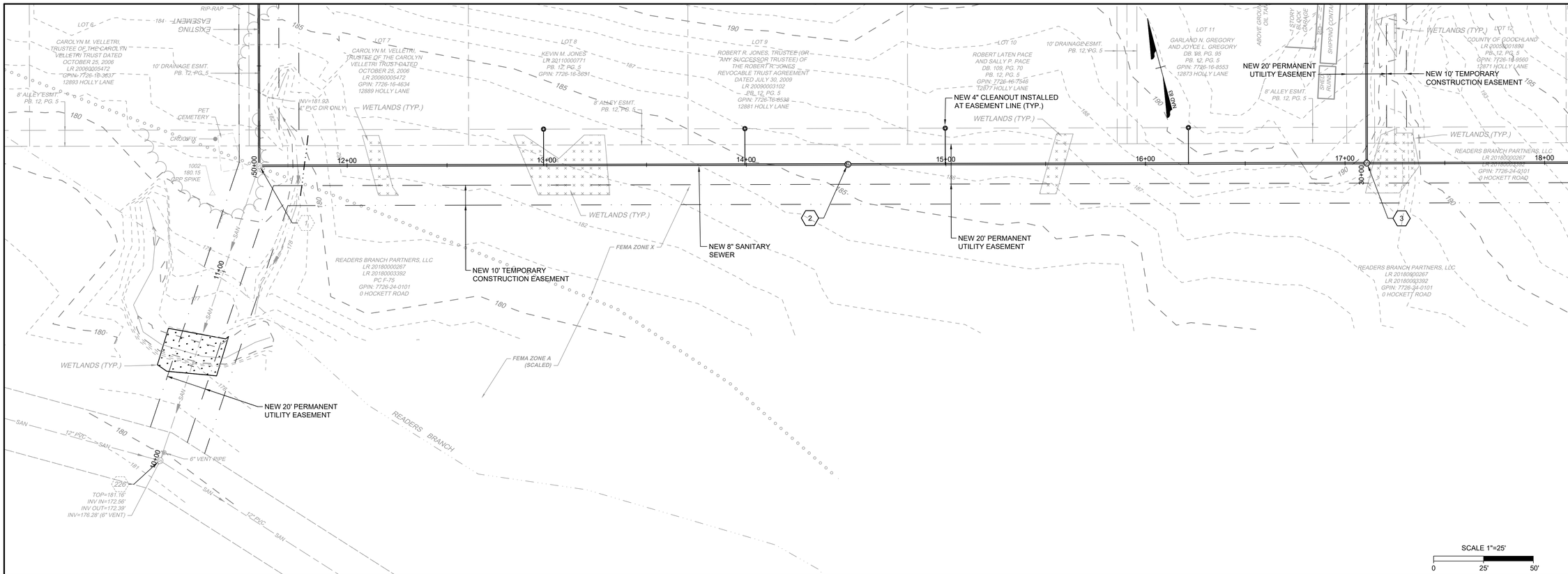

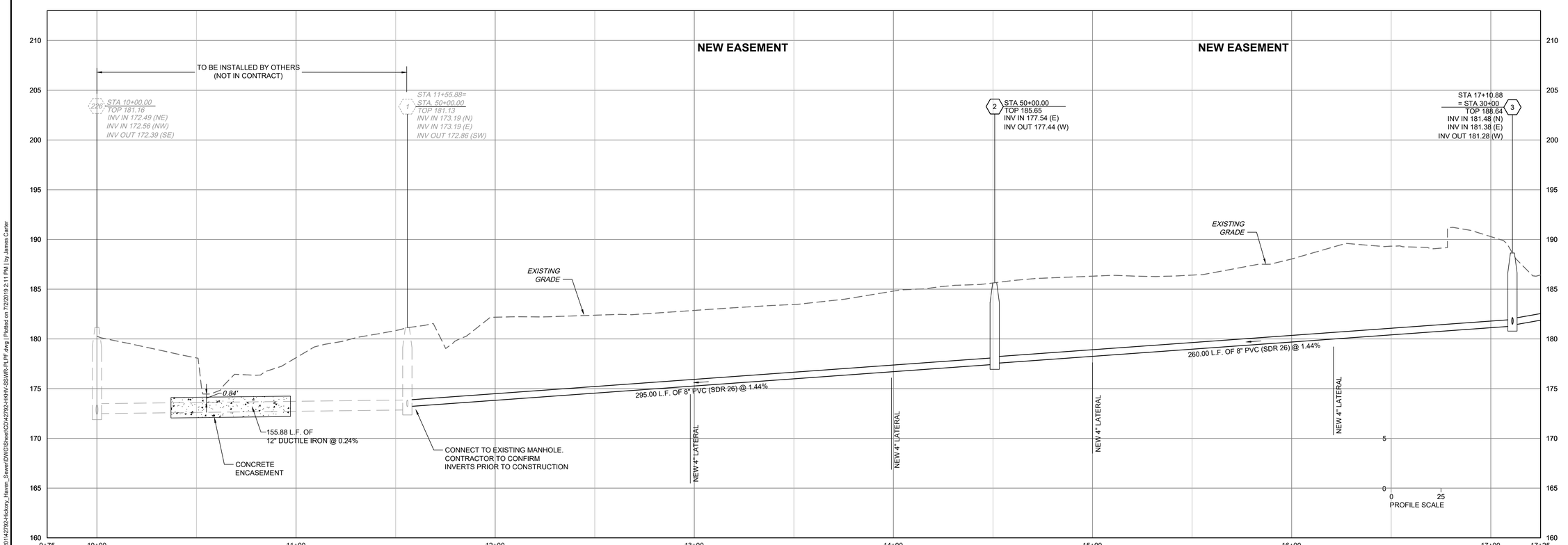

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SCALE	H: 1"= 25' V: 1" = 5'

TIMMONS GROUP

HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

HICKORY HAVEN PLAN AND PROFILE

JOB NO.	42792
SHEET NO.	U-1

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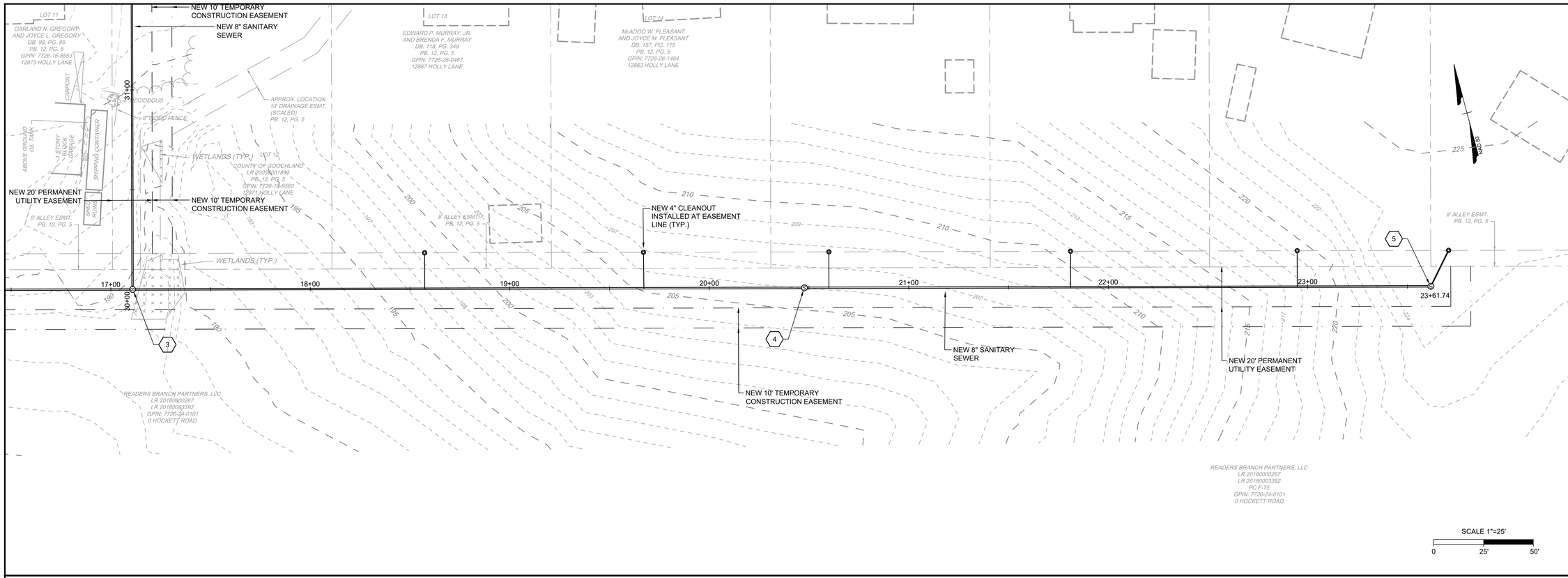

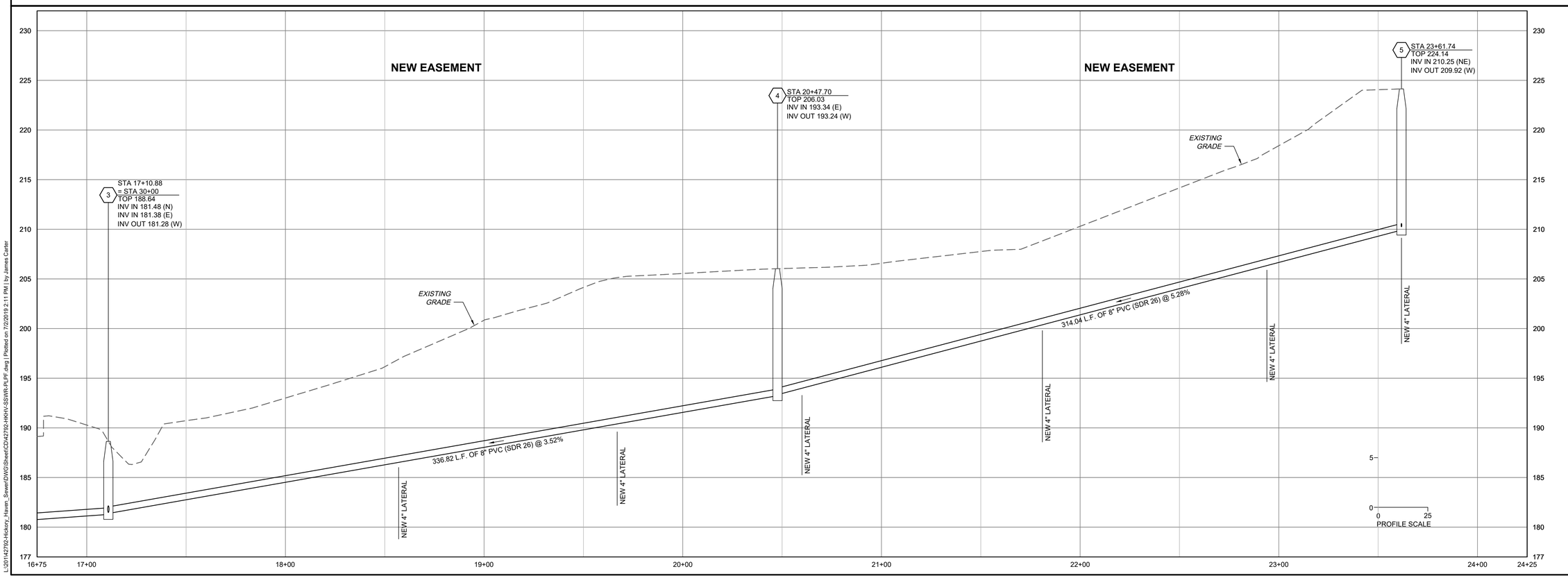

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SCALE	H: 1"= 25' V: 1" = 5'

HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

HICKORY HAVEN PLAN AND PROFILE

JOB NO.	42792
SHEET NO.	U-2

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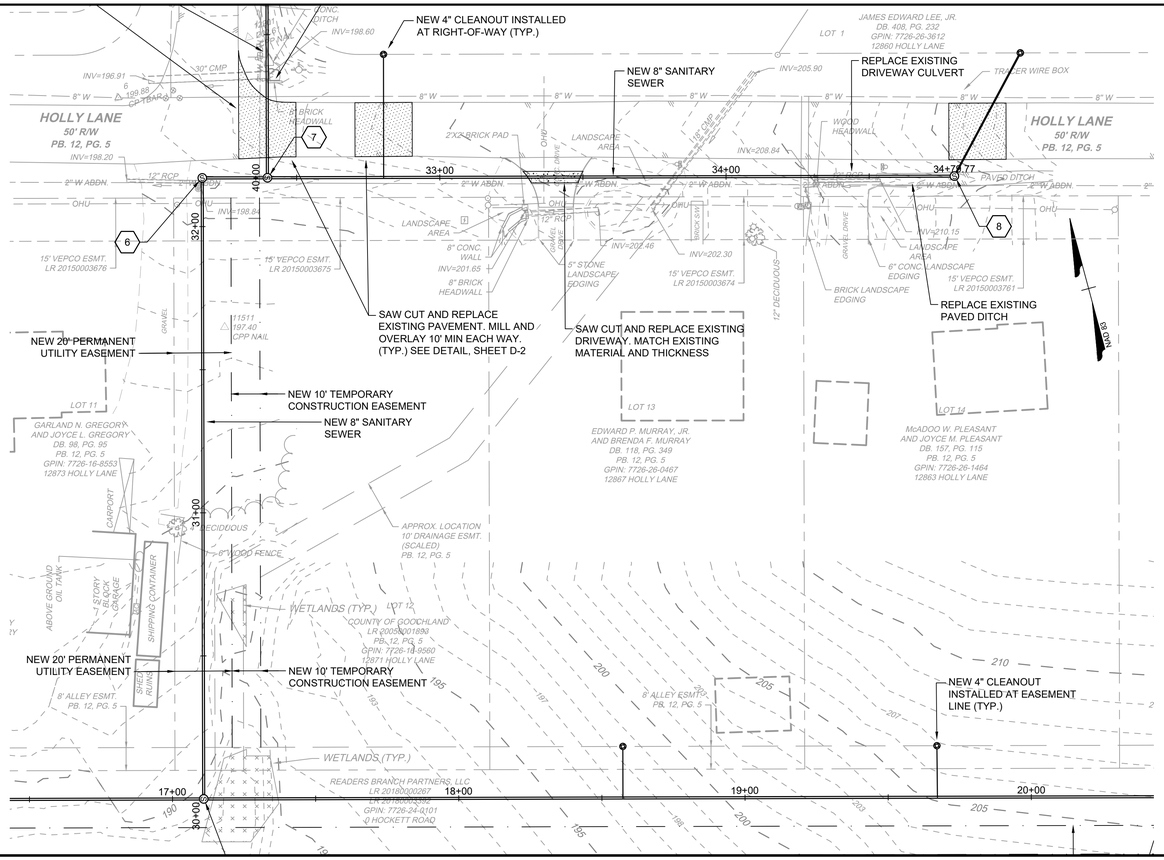

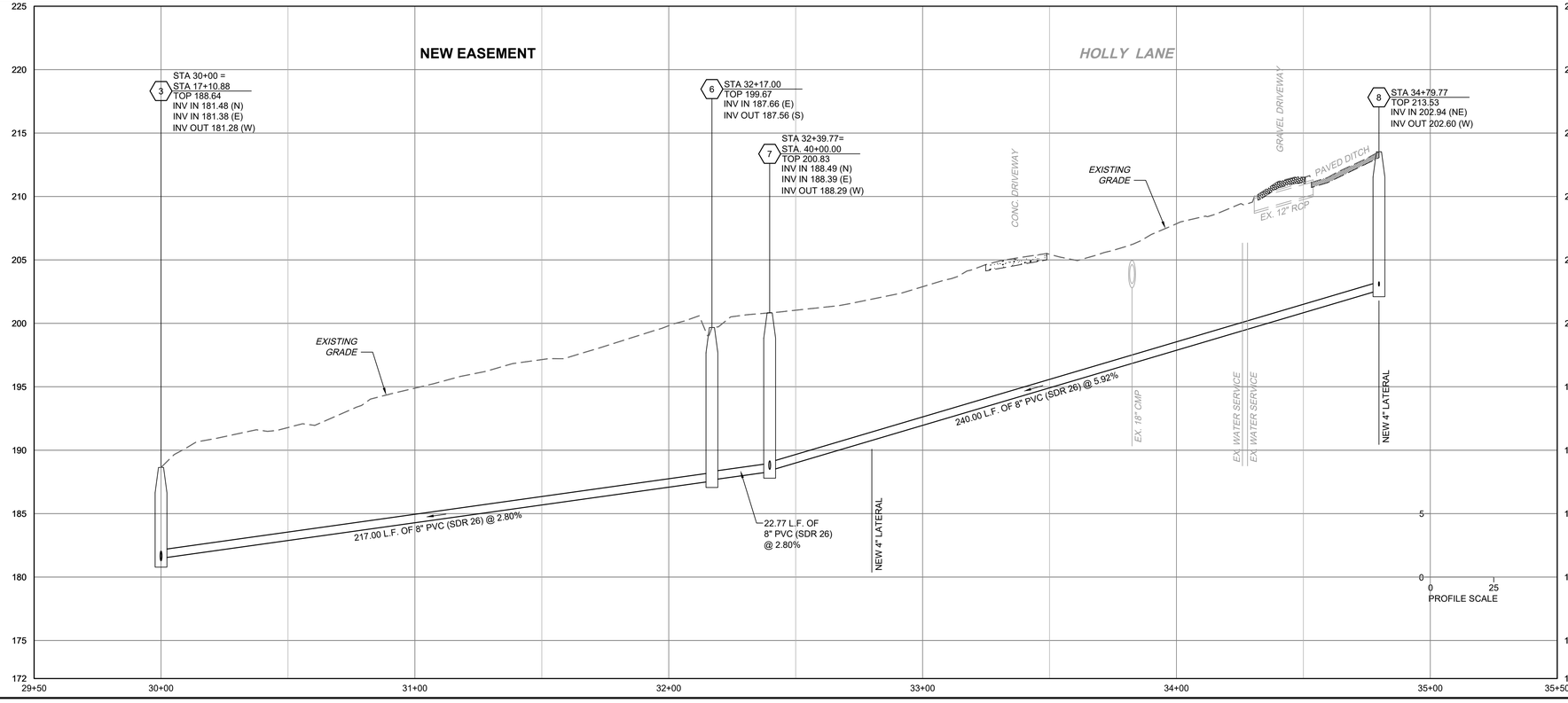

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REVISION	DESCRIPTION	DATE

DATE: 5-14-2019
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DESIGNED BY: J. CARTER
CHECKED BY: B. STRICKLAND
SCALE: H: 1"= 25' V: 1" = 5'

TIMMONS GROUP

HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

HICKORY HAVEN PLAN AND PROFILE

JOB NO. 42792

SHEET NO. U-3

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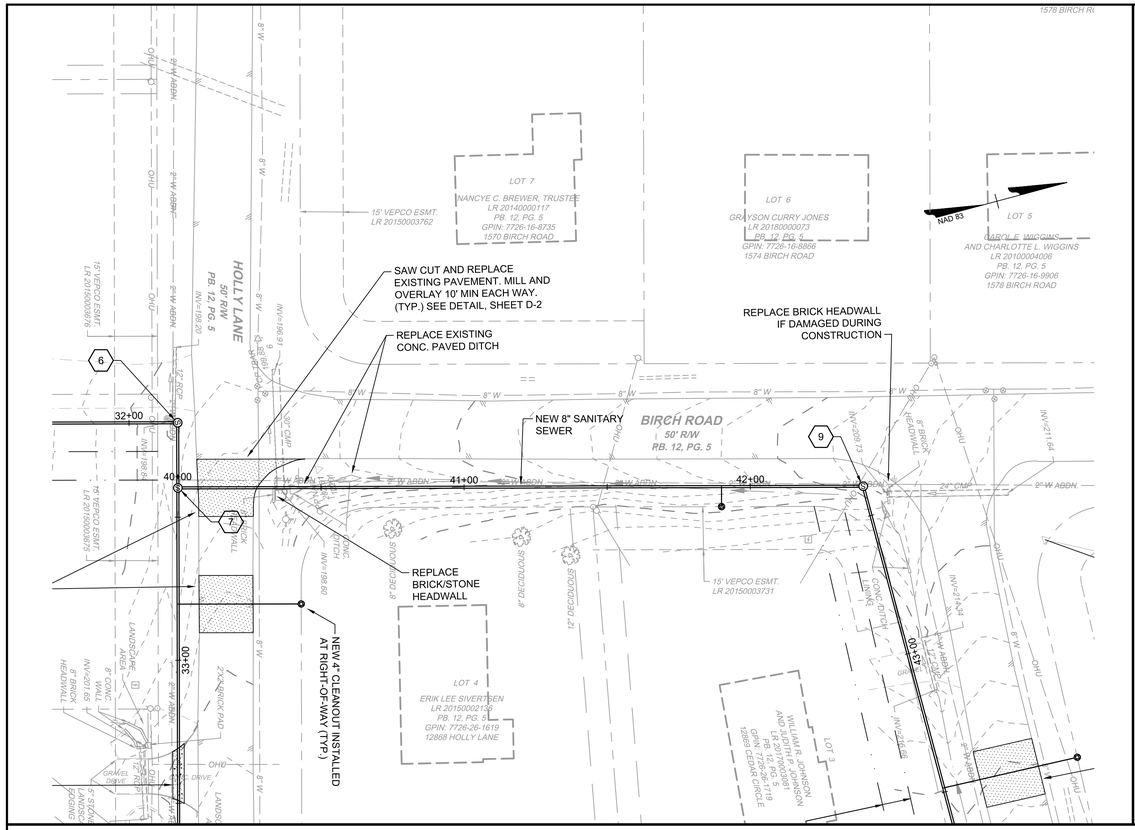

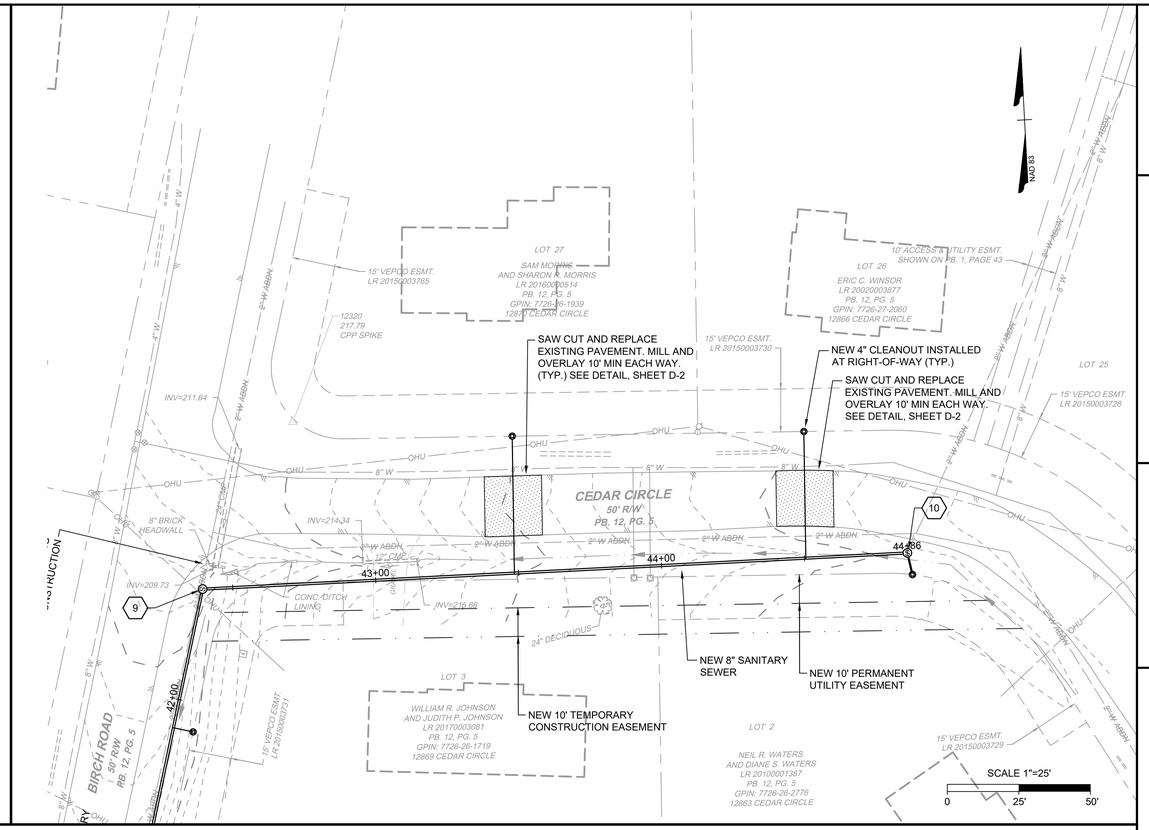

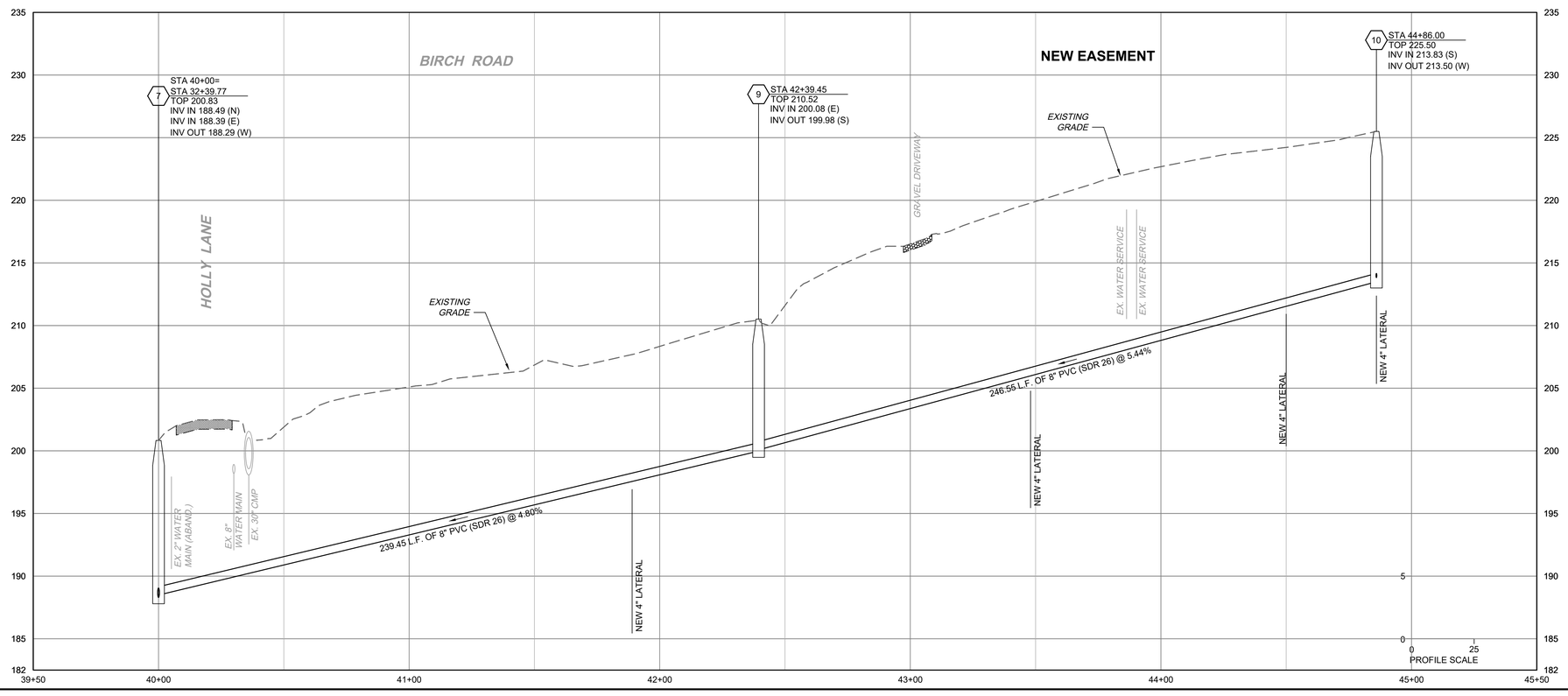

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HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

HICKORY HAVEN PLAN AND PROFILE

JOB NO.	42792
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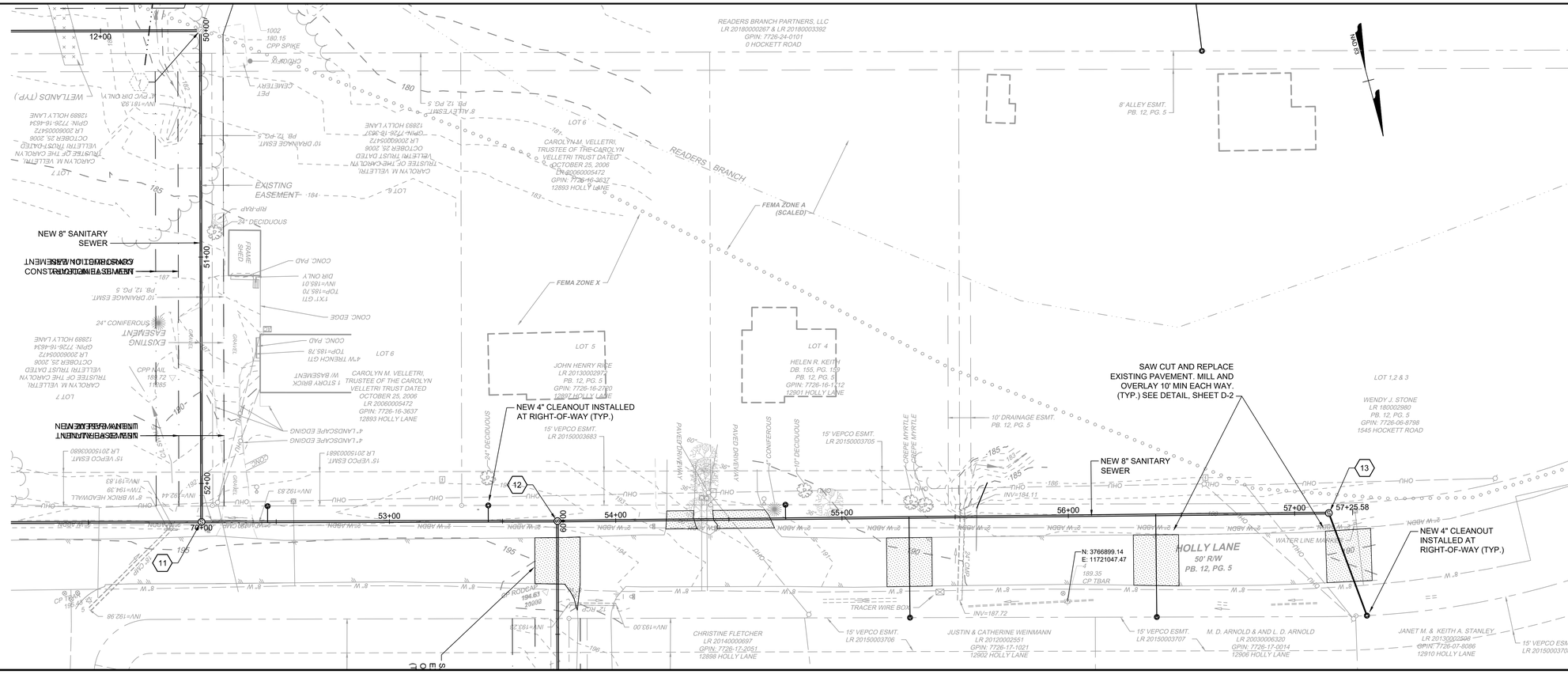

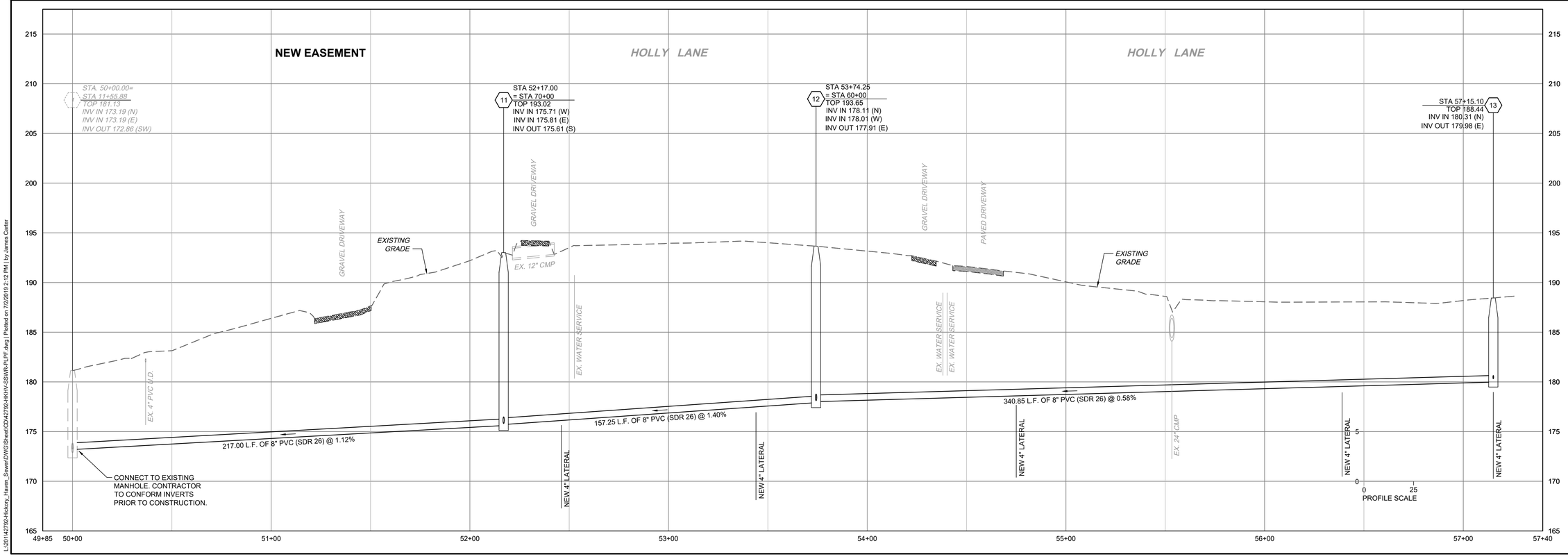

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HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

HICKORY HAVEN PLAN AND PROFILE

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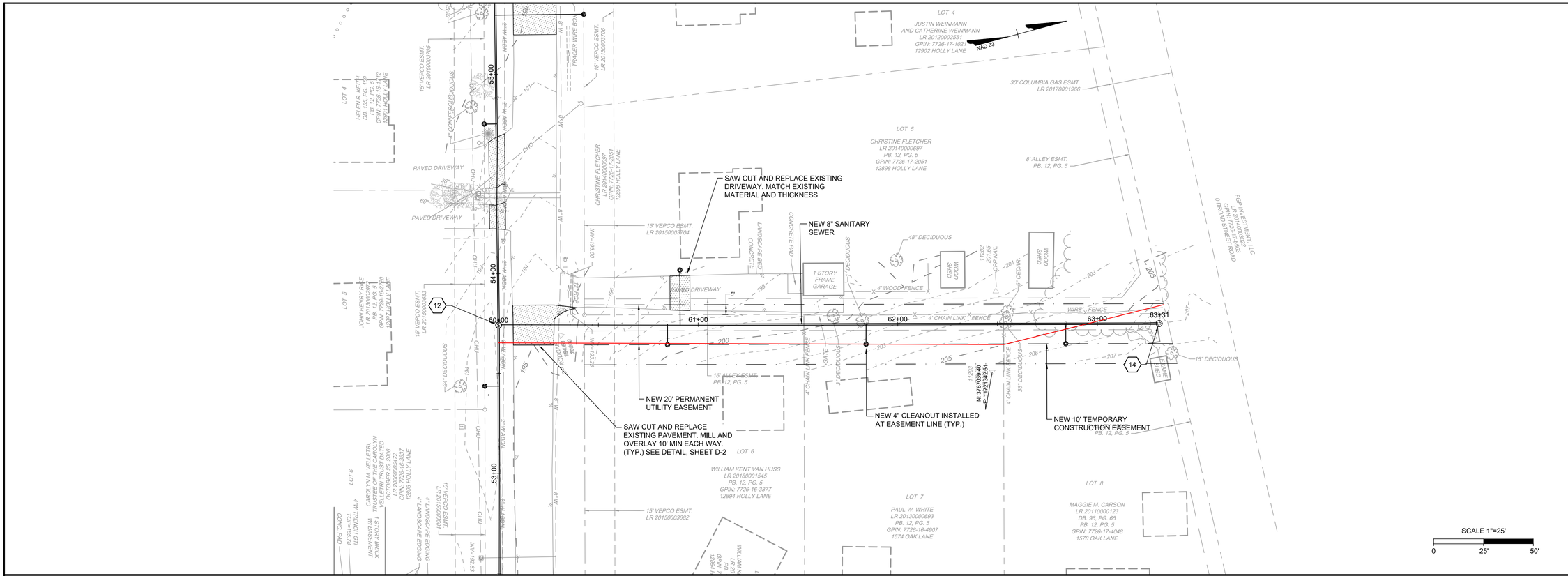

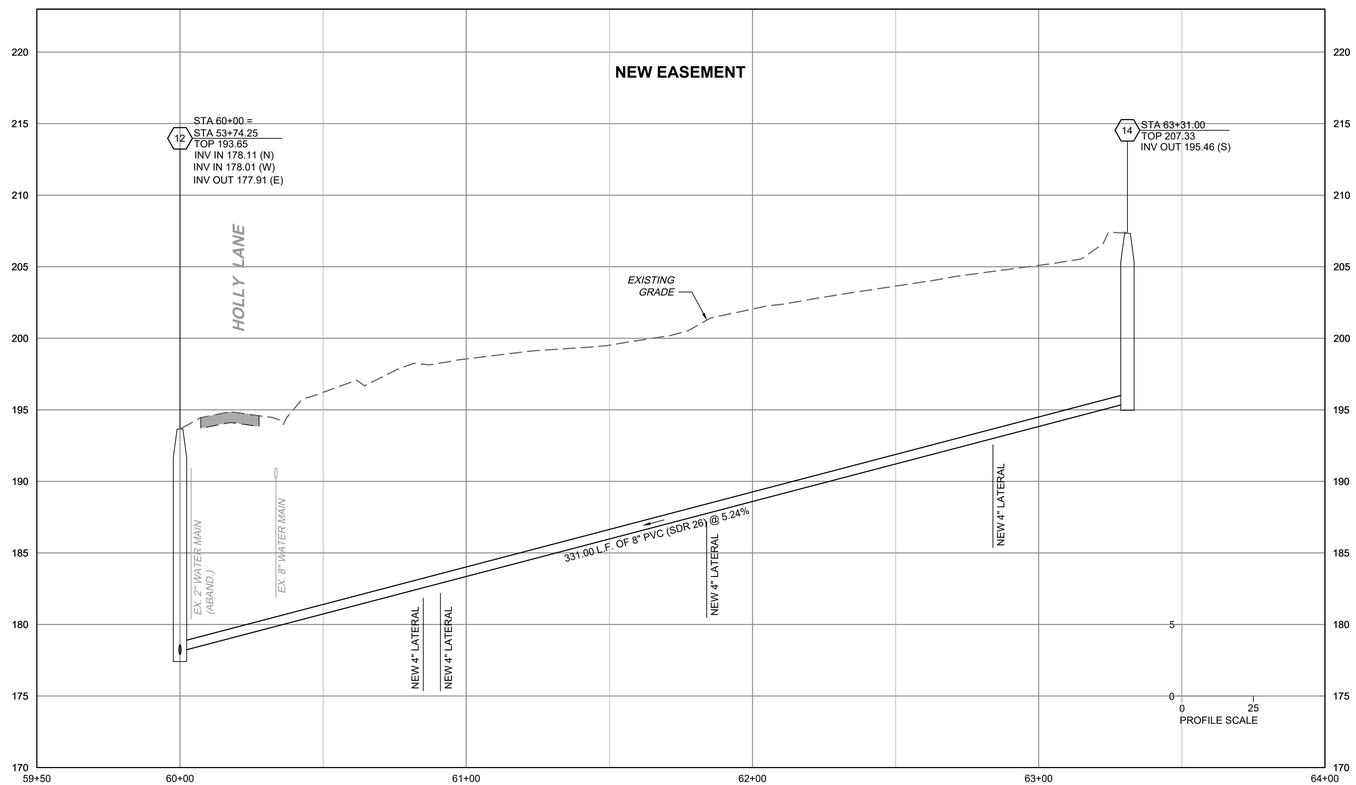

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HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

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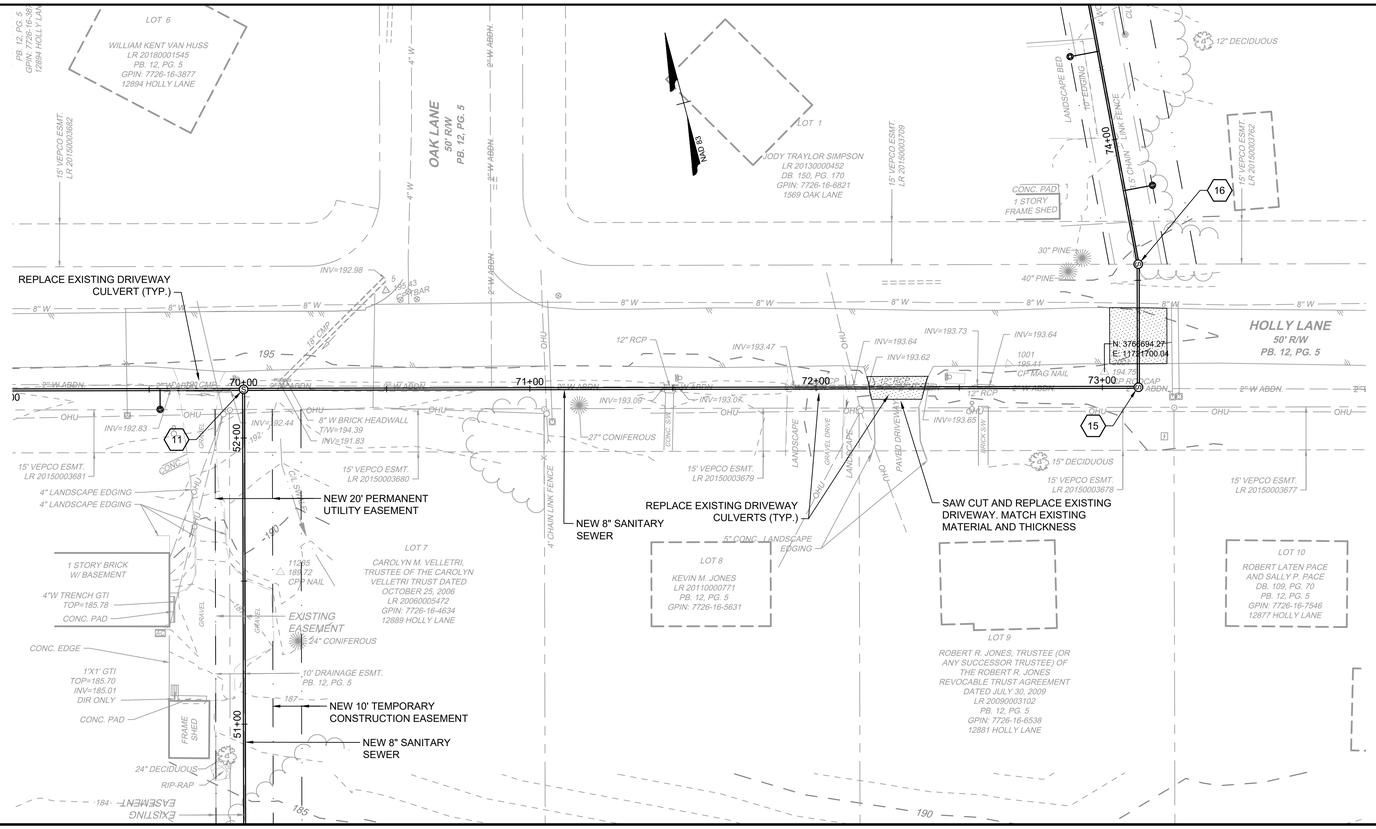

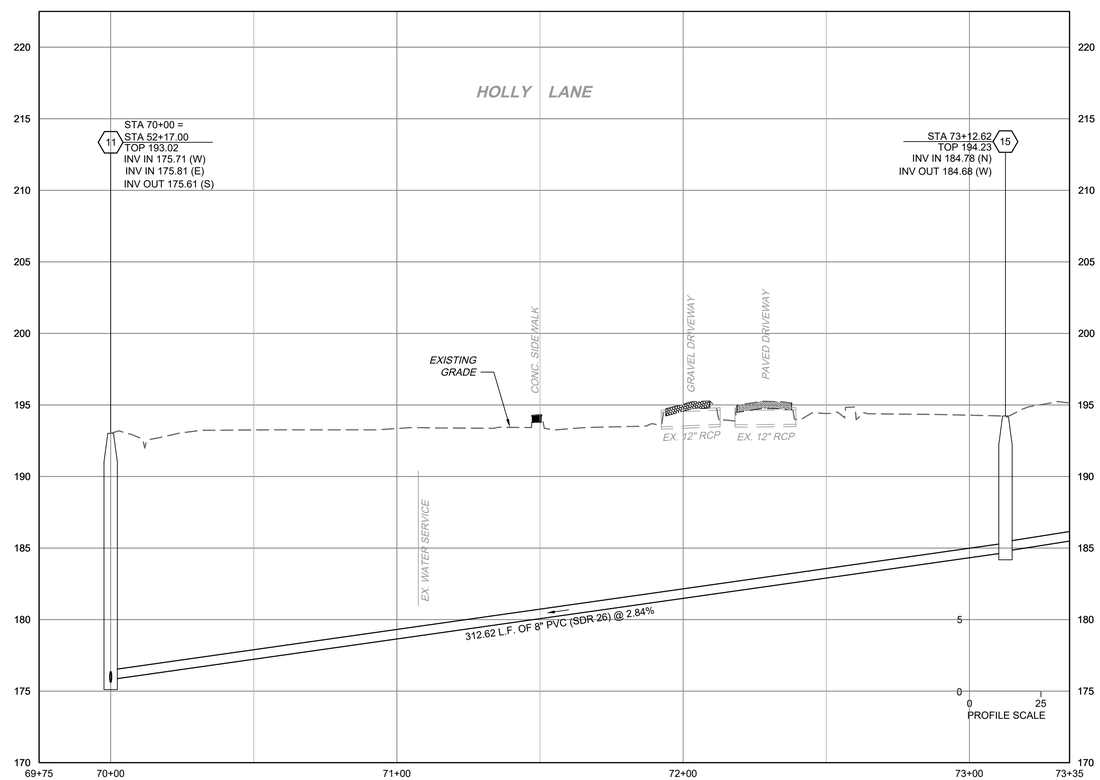

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HICKORY HAVEN PLAN AND PROFILE

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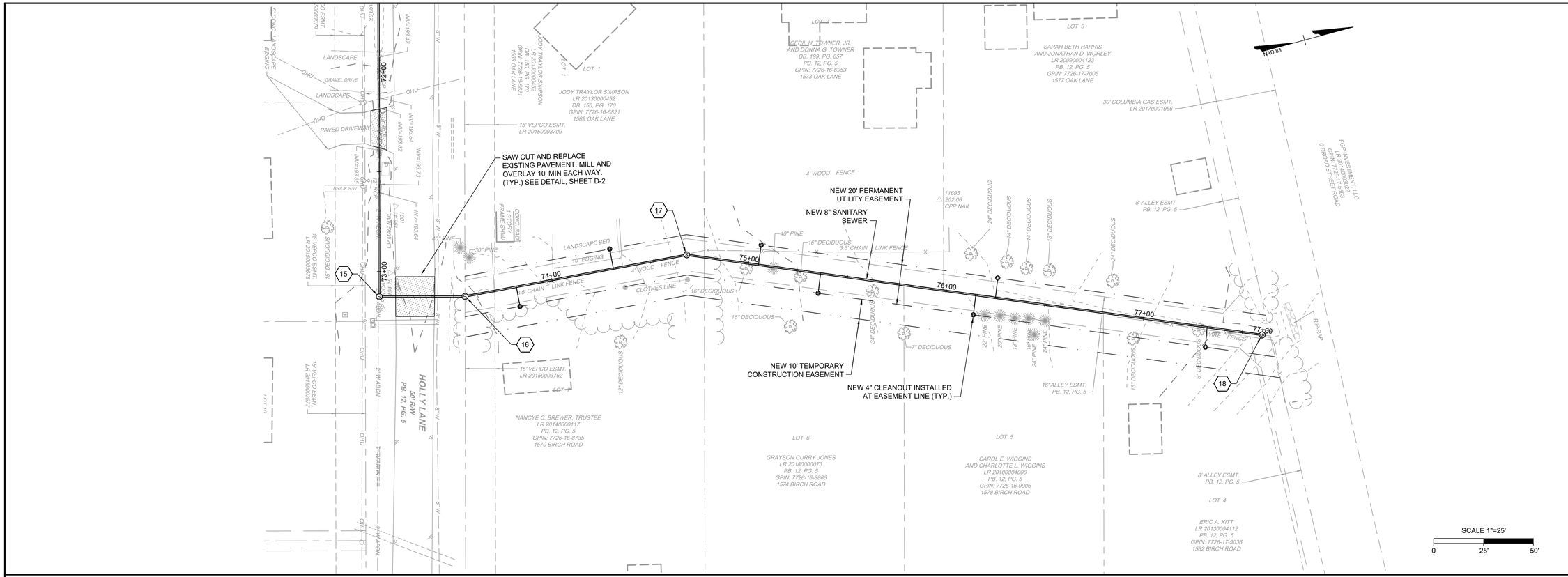

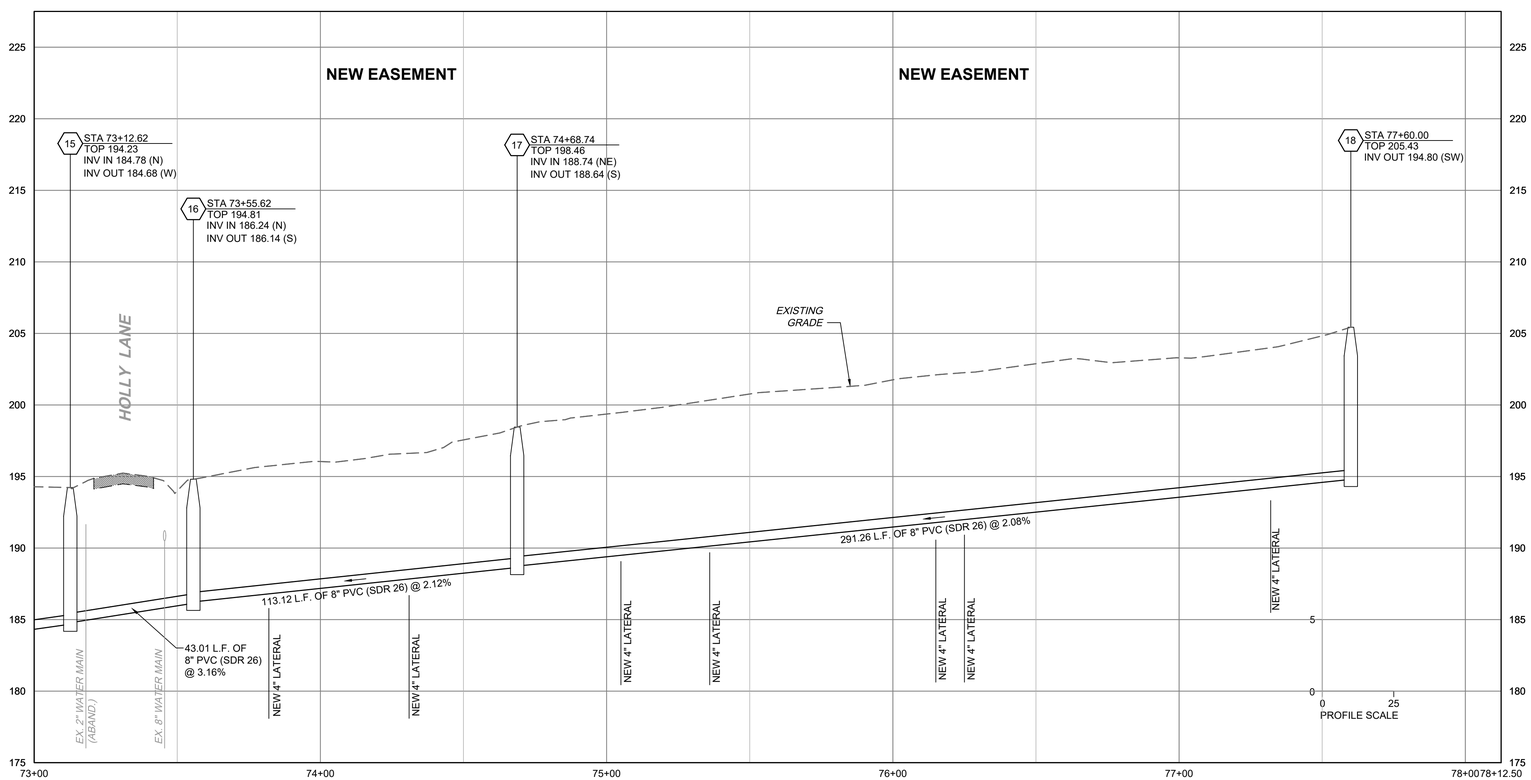

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HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

HICKORY HAVEN PLAN AND PROFILE

JOB NO.	42792
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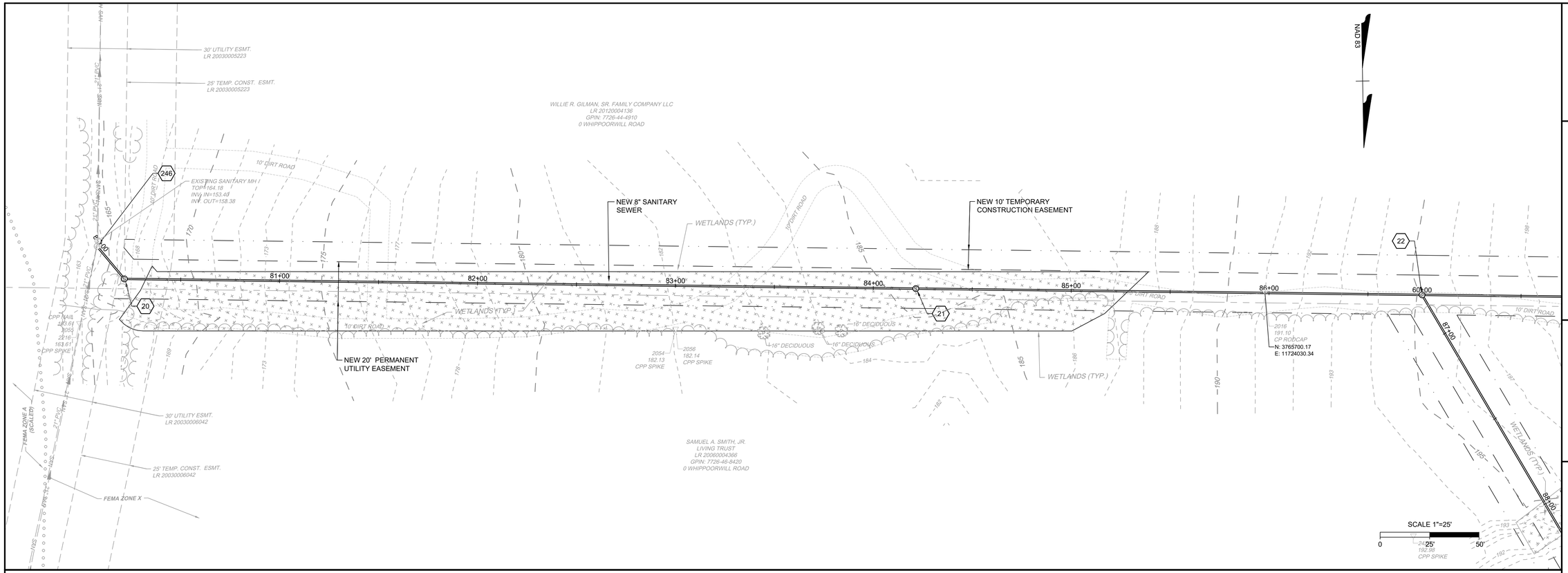

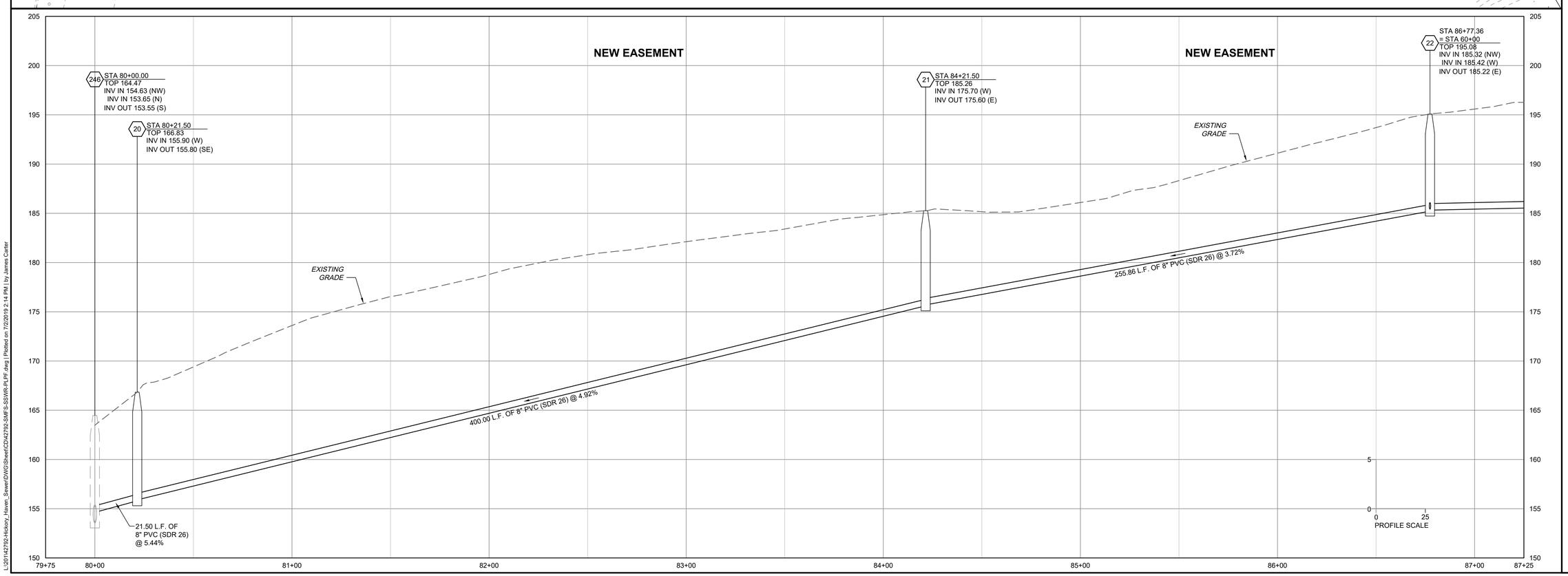

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DESIGNED BY: J. CARTER

CHECKED BY: B. STRICKLAND

SCALE: 1"= 25'

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HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

SAMARY FOREST PLAN AND PROFILE

JOB NO. 42792

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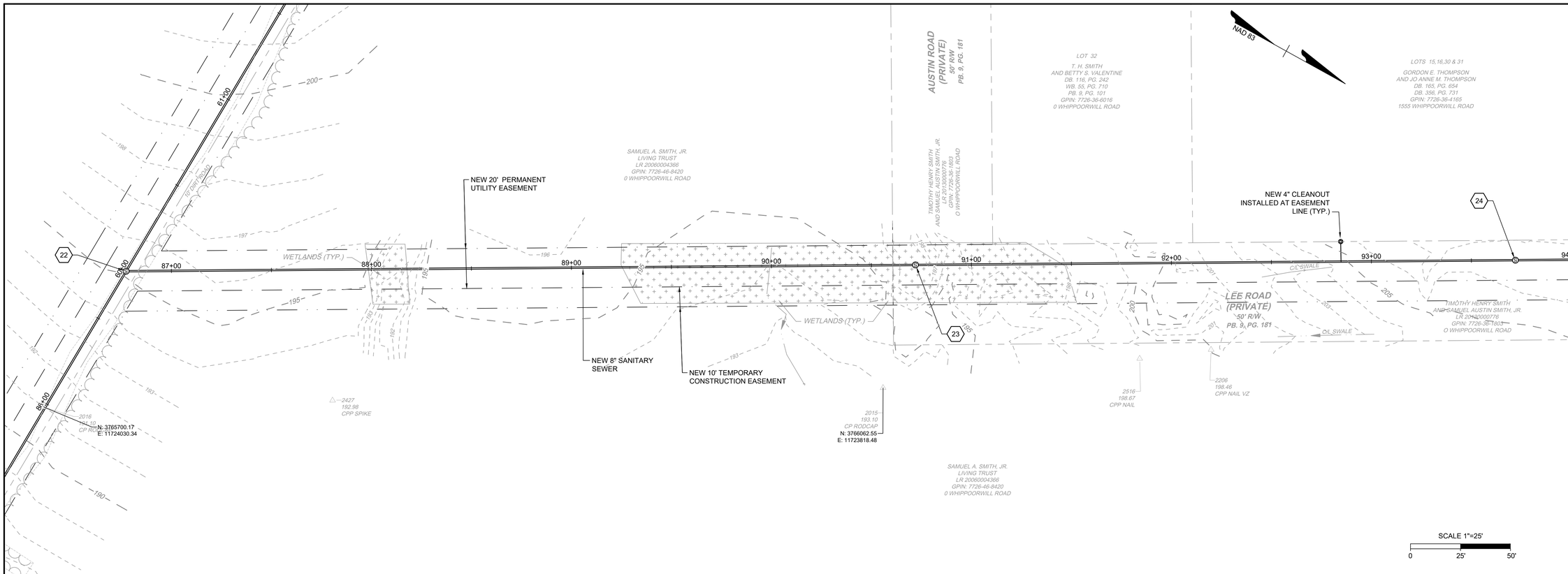

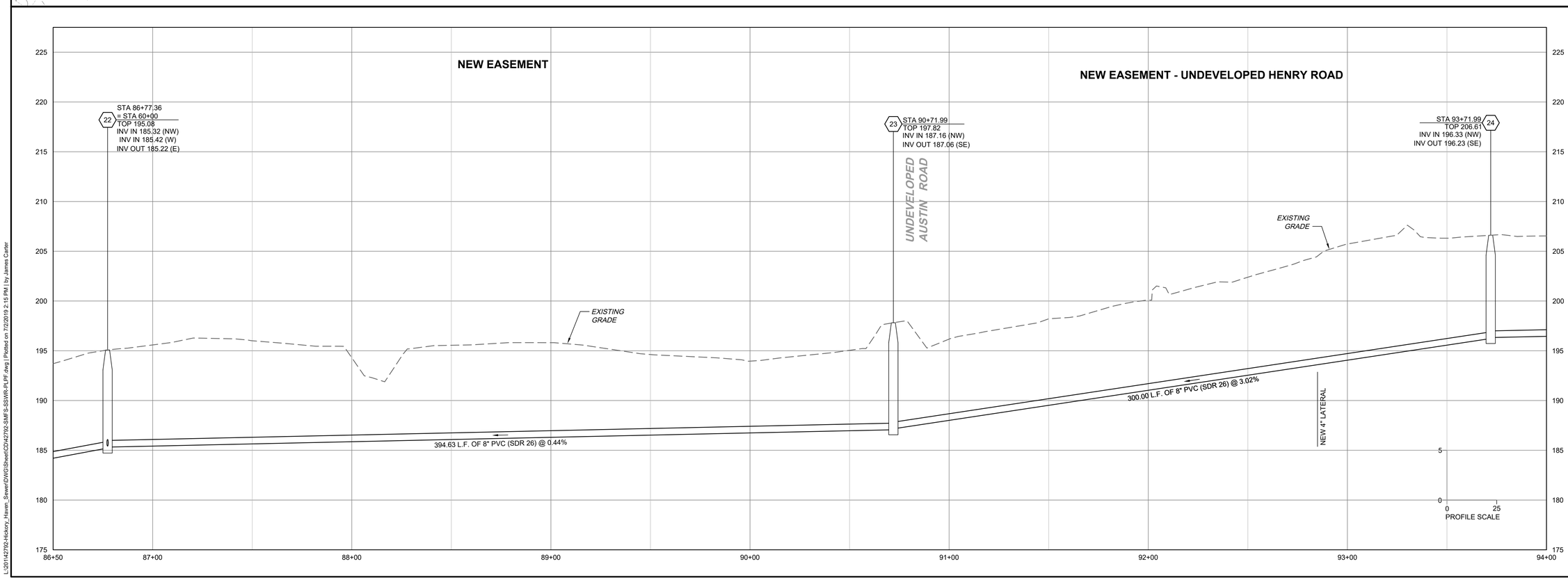

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SCALE	1"= 25'

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HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

SAMARY FOREST PLAN AND PROFILE

JOB NO.	42792
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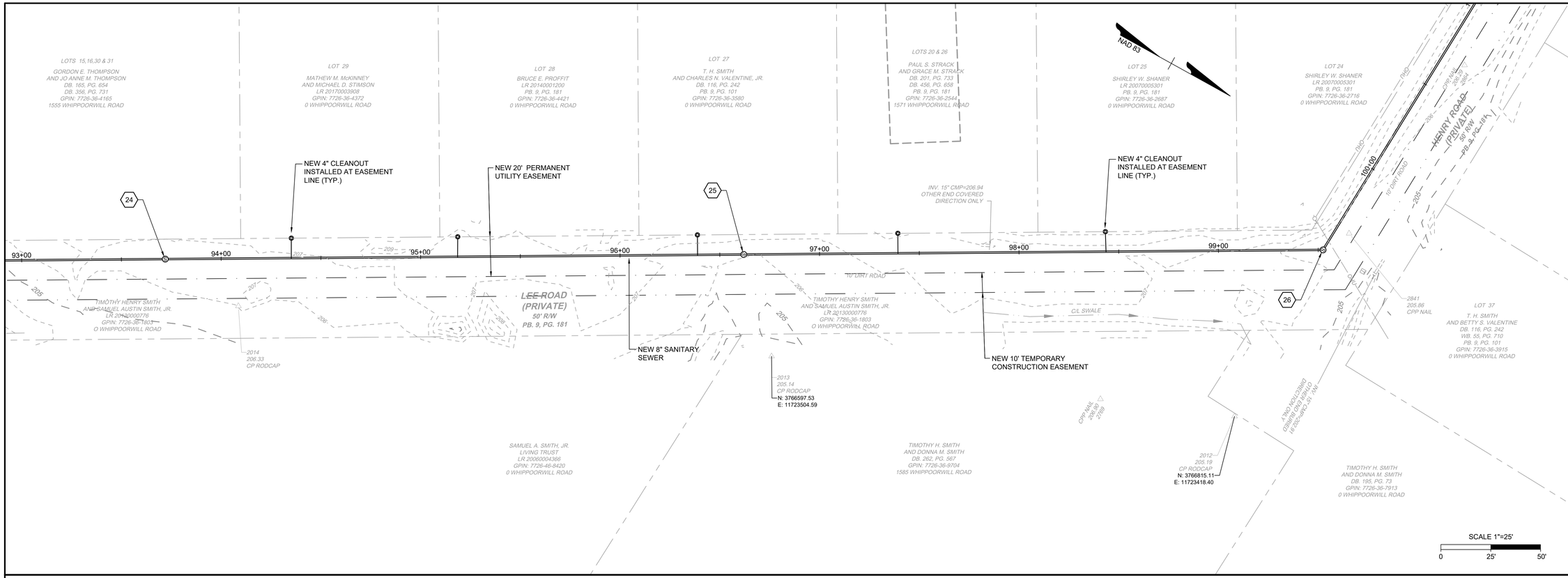

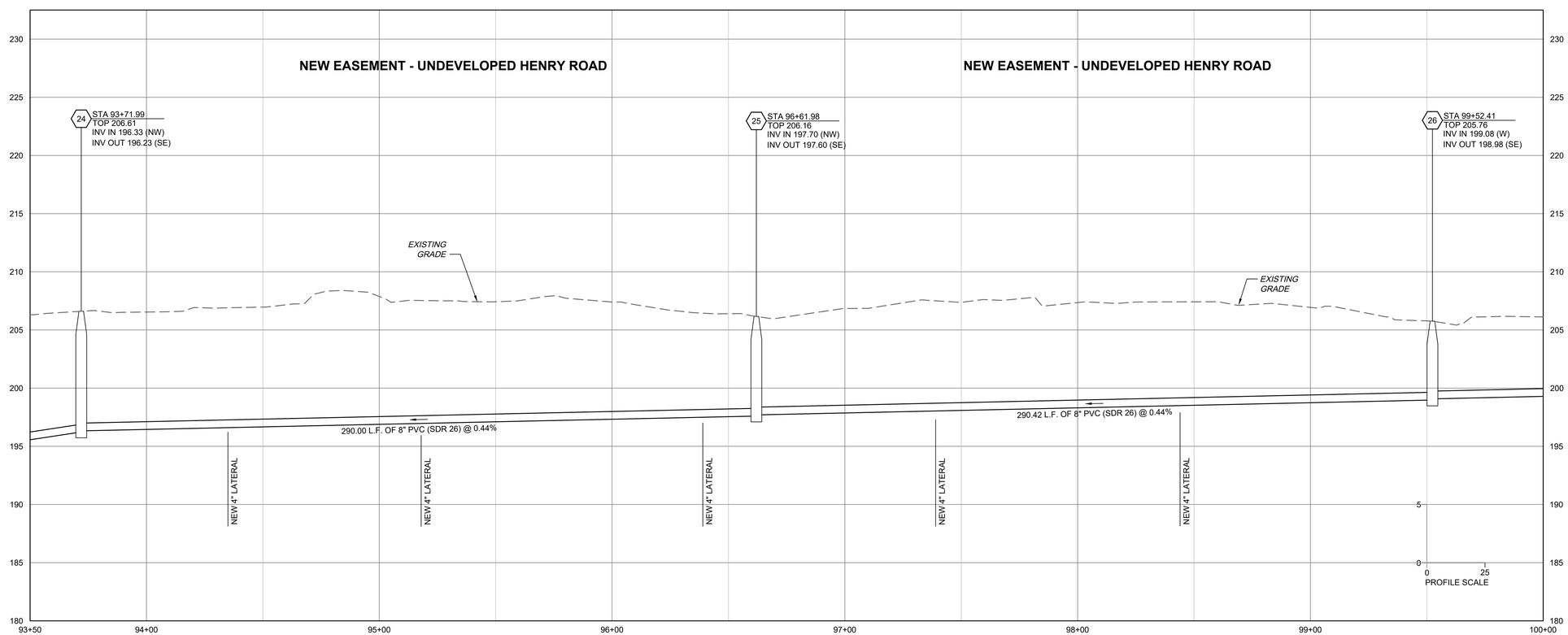

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5-14-2019

DRAWN BY
J. CARTER

DESIGNED BY
J. CARTER

CHECKED BY
B. STRICKLAND

SCALE
1"= 25'

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HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

SAMARY FOREST PLAN AND PROFILE

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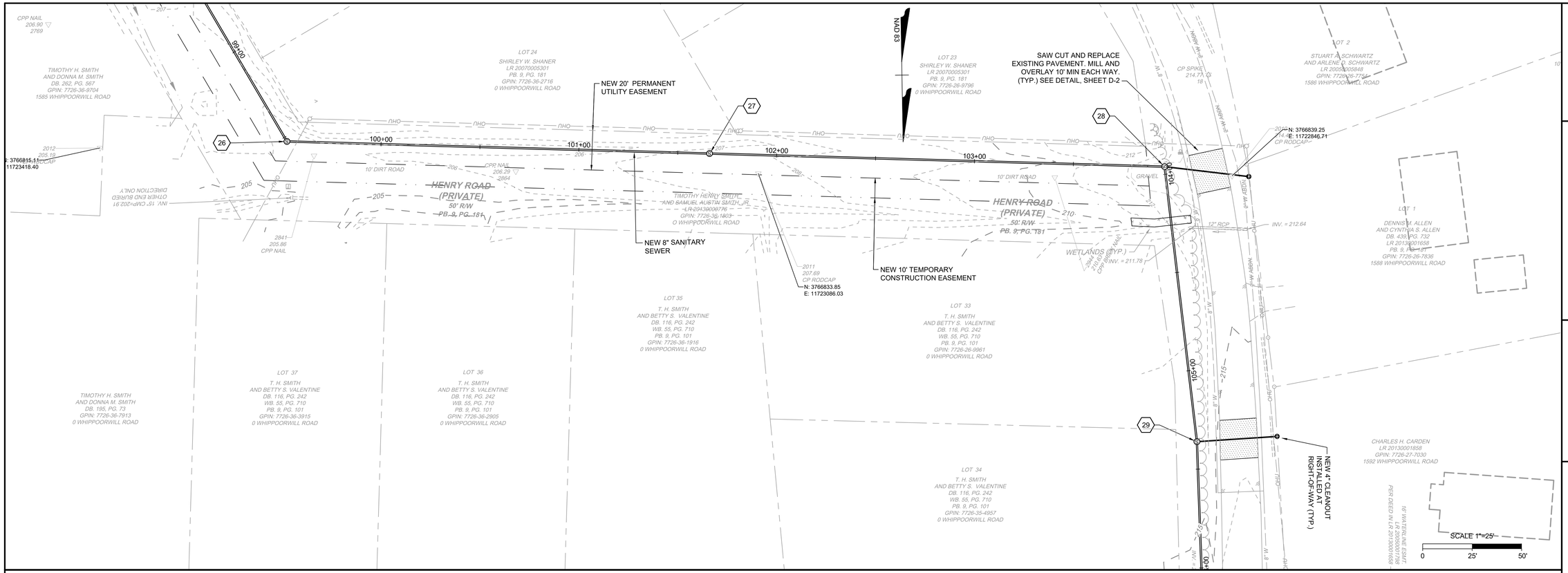

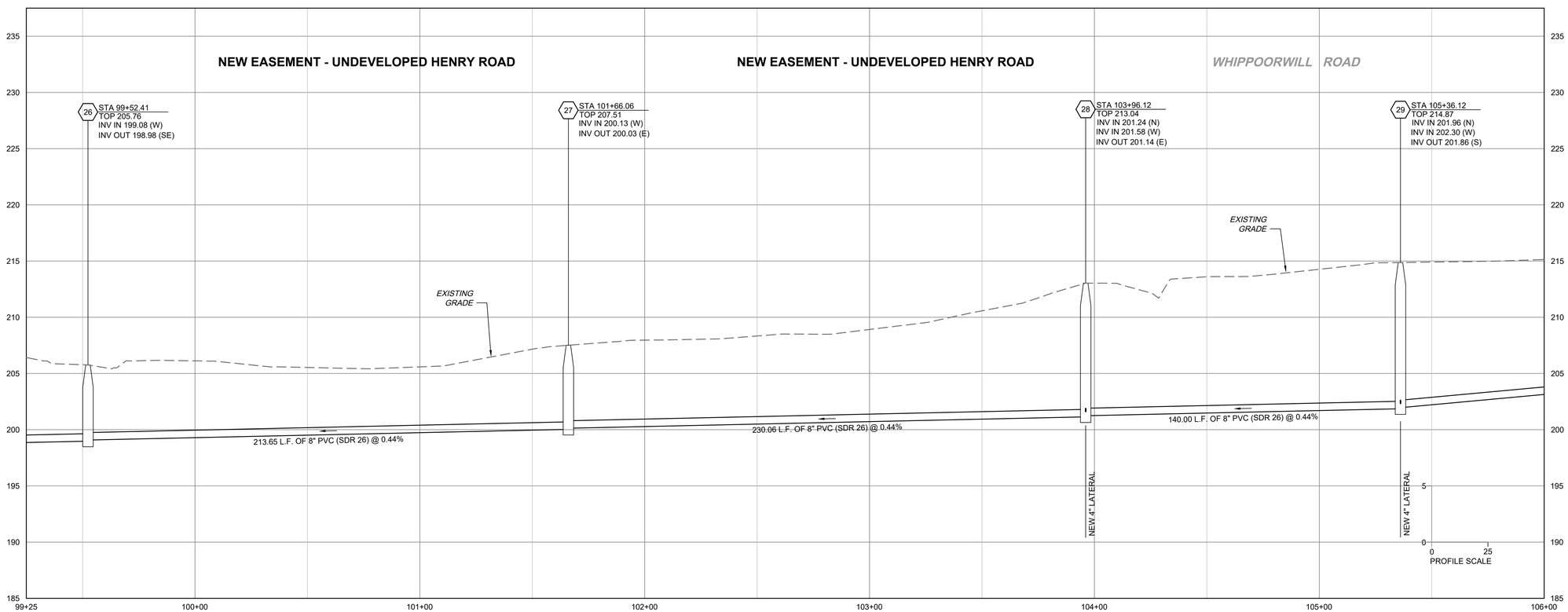

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HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

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SAMARY FOREST PLAN AND PROFILE

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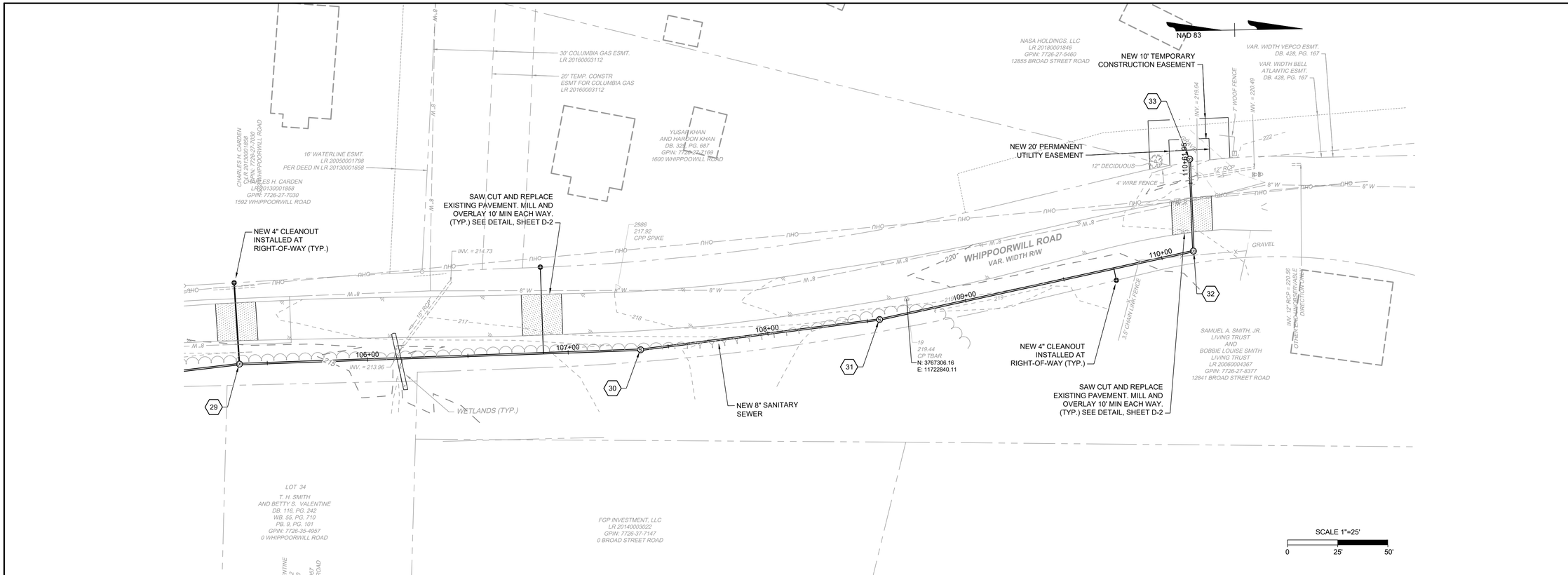

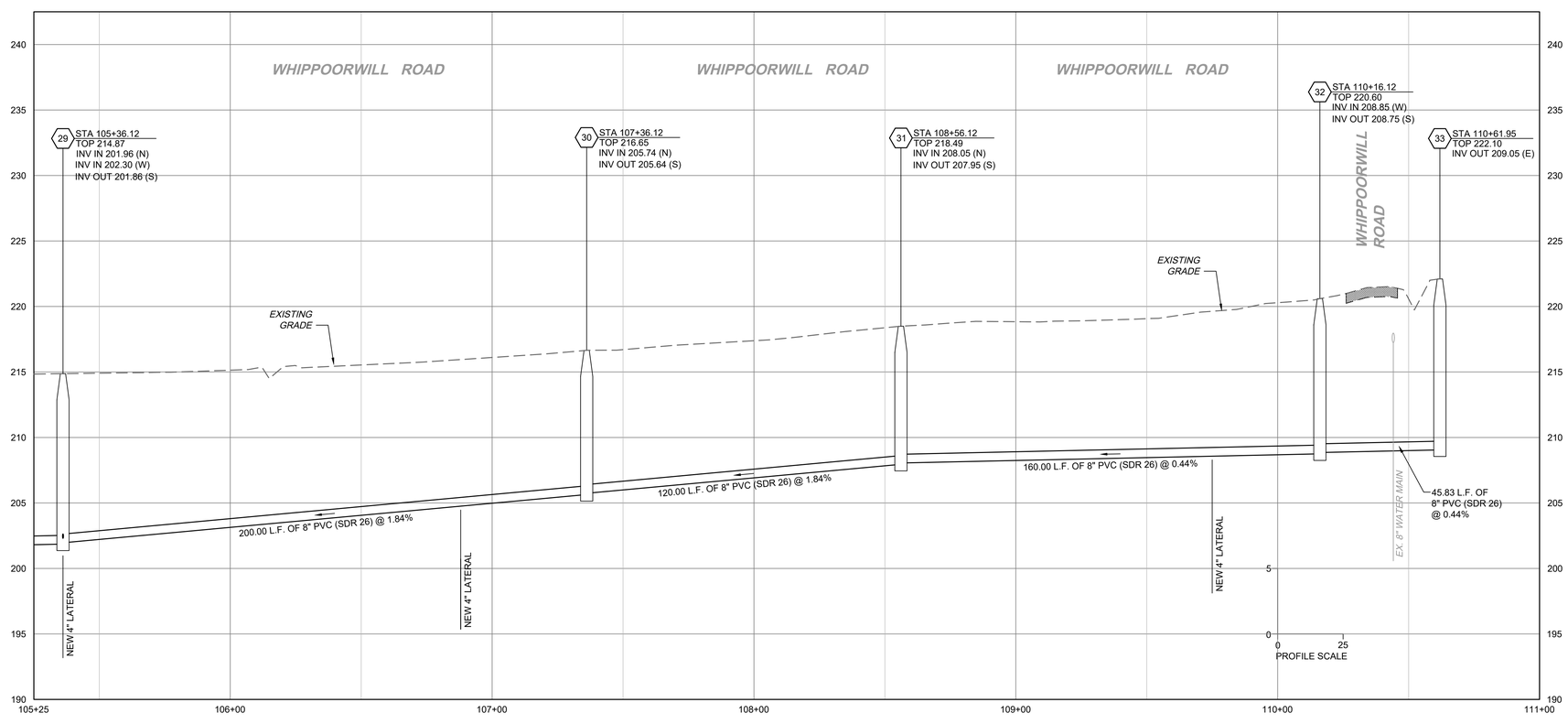

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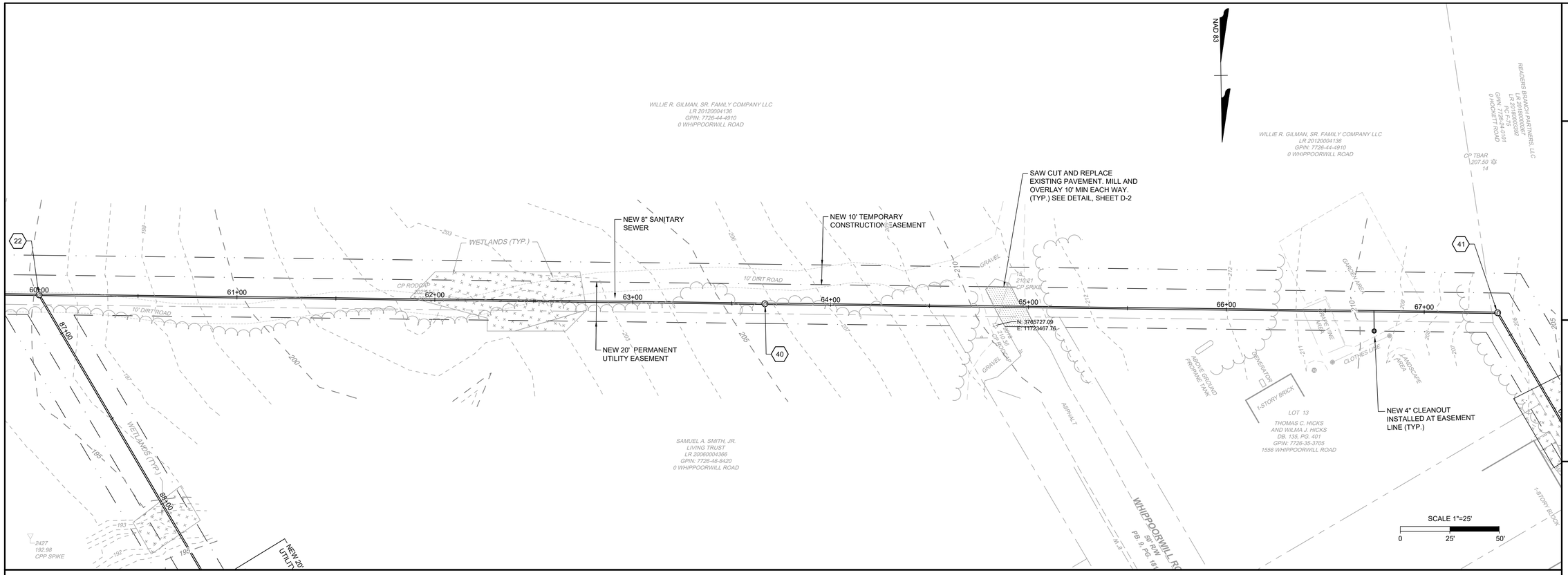

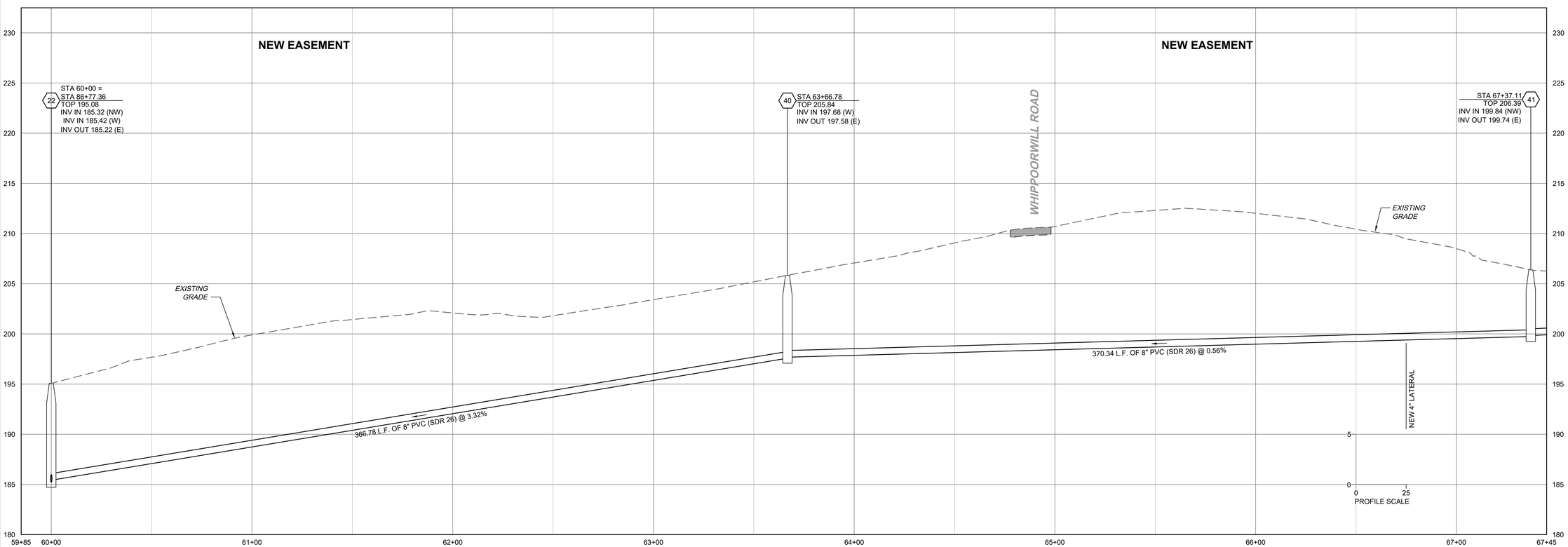

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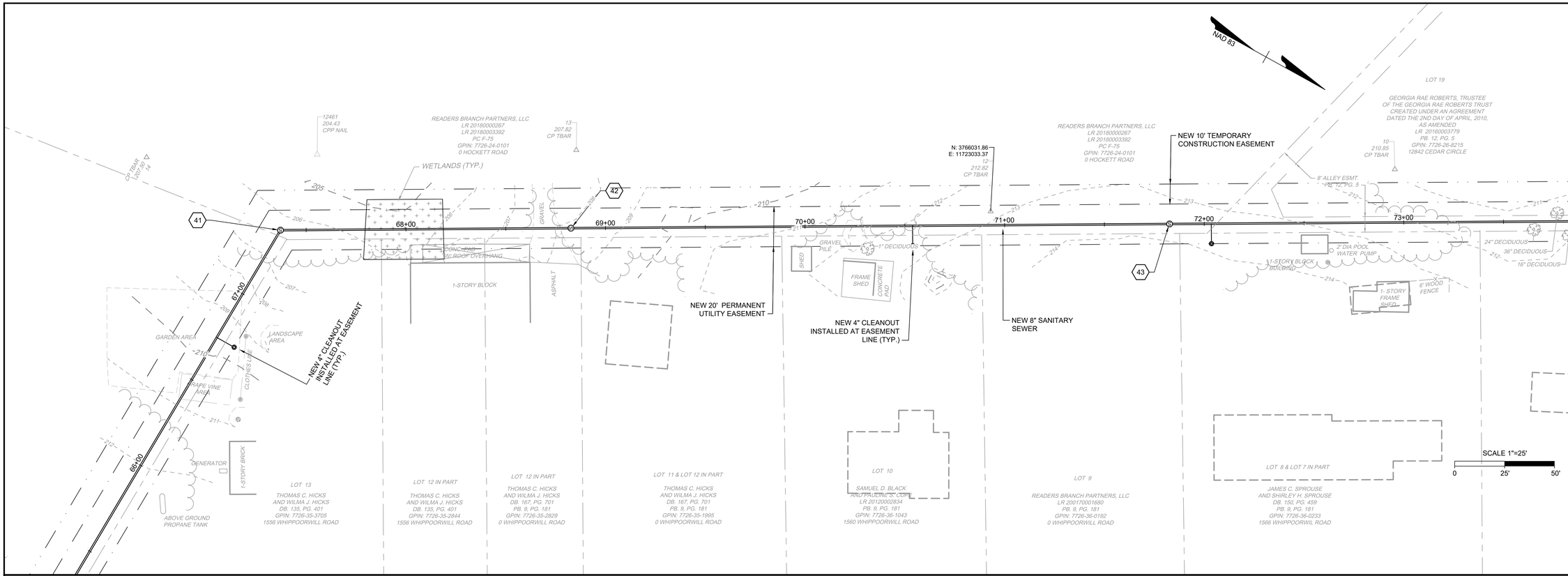

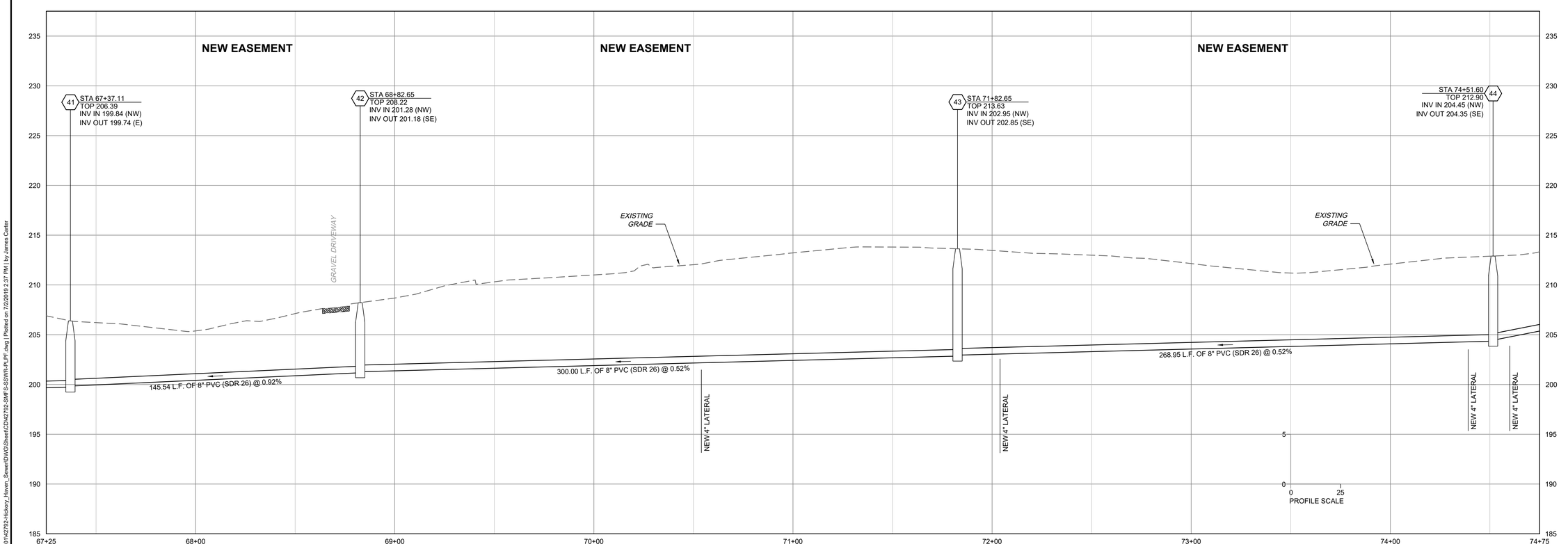

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REVISION DESCRIPTION	DATE
-	-

DATE
5-14-2019

DRAWN BY
J. CARTER

DESIGNED BY
J. CARTER

CHECKED BY
B. STRICKLAND

SCALE
H: 1"= 25'
V: 1" = 5'

TIMMONS GROUP

HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

SAMARY FOREST PLAN AND PROFILE

JOB NO.
42792

SHEET NO.
U-15

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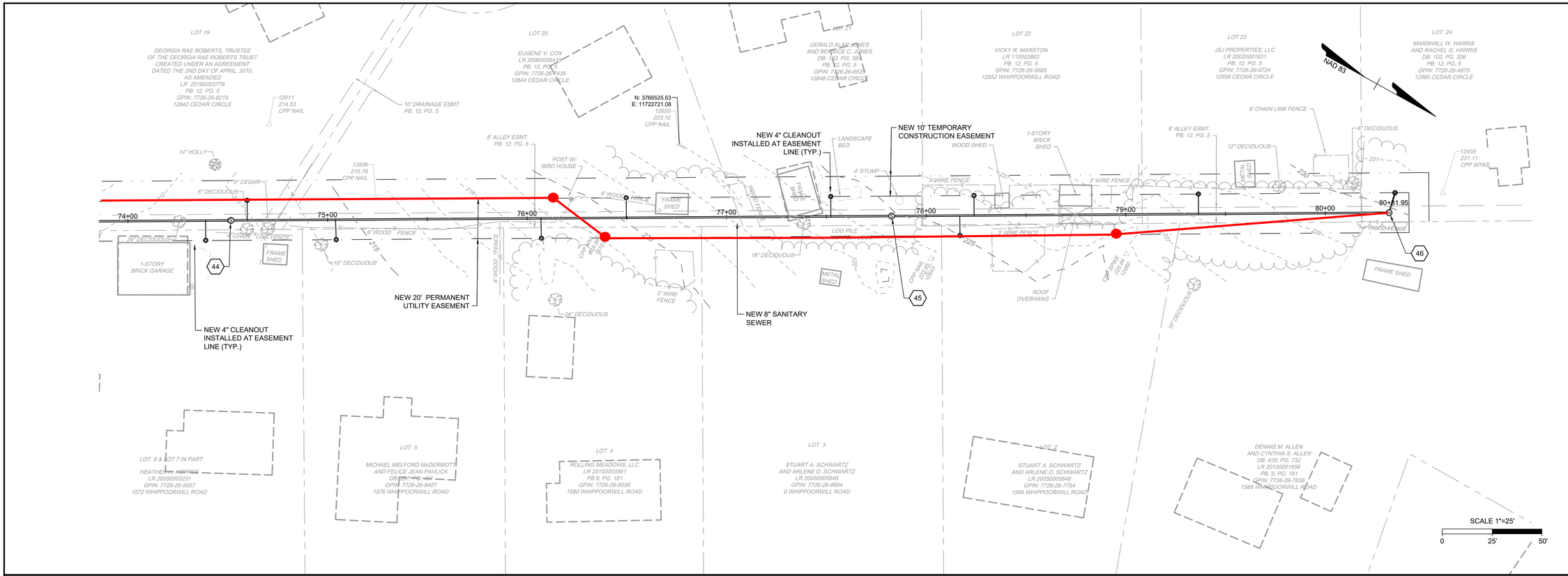

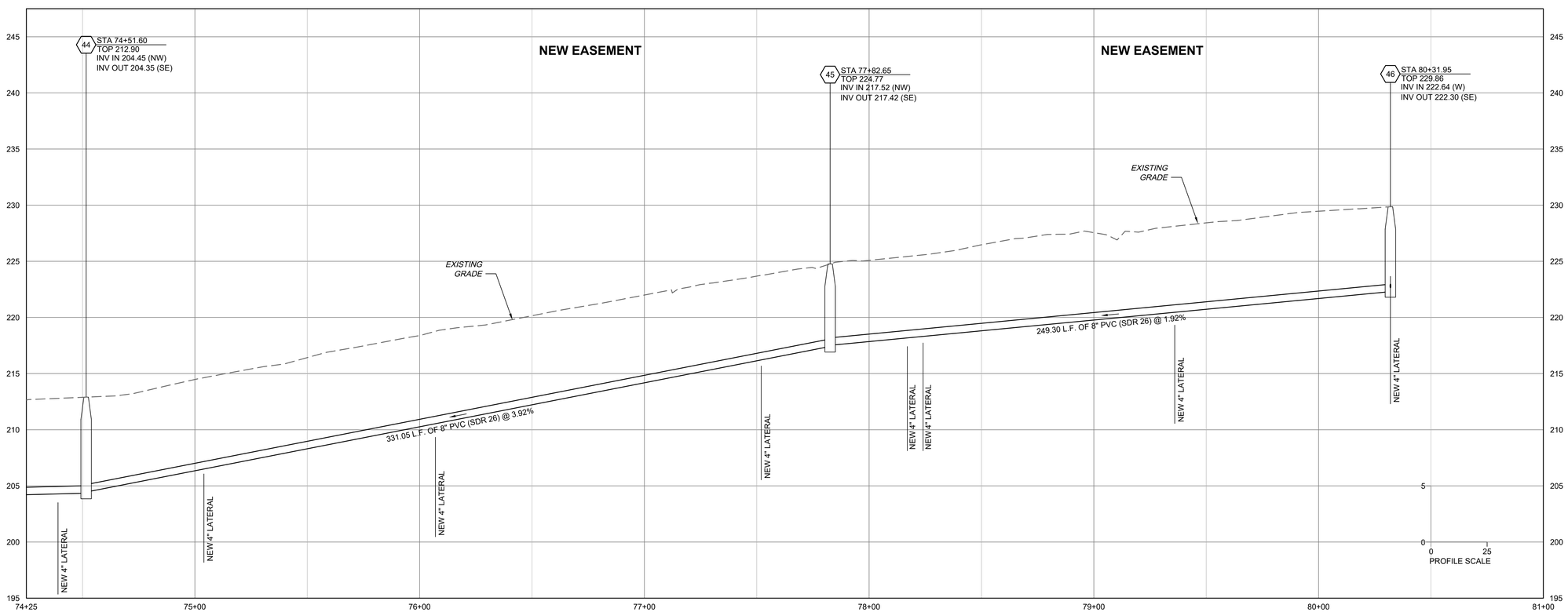

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DATE	5-14-2019
DRAWN BY	J. CARTER
DESIGNED BY	J. CARTER
CHECKED BY	B. STRICKLAND
SCALE	H: 1"= 25' V: 1" = 5'

HICKORY HAVEN & SAMARY FOREST SANITARY SEWER

DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA

SAMARY FOREST PLAN AND PROFILE

JOB NO. 42792

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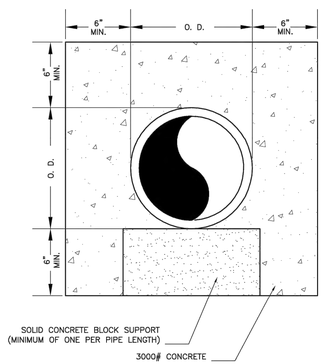
COUNTY OF GOOCHLAND
DEPARTMENT OF PUBLIC UTILITIES
WATER AND SEWER NOTES

1. All construction, materials and installation shall conform to the latest edition of Standards, Department of Public Utilities, Goochland County, Virginia.
2. Contractor shall be responsible for notifying the County Engineer and scheduling a pre-construction meeting at least 48 hours prior to starting any work on this project. All work shall be subject to inspection. The contractor shall obtain all necessary permits.
3. The contractor shall include in applicable bid price, the cost of locating and uncovering all sewer manholes and valve boxes after surface treatment of roads and to adjust them to the final road grades, if necessary. The contractor shall also be responsible for cleaning out sewer mains for final inspection, if necessary.
4. Contractor shall verify location and elevation of all underground utilities. The location of existing utilities across or along the line of the proposed work is not necessarily shown on the plans and where shown is only approximately correct. The contractor shall, on his own initiative and at no extra cost, locate all underground lines and structures as necessary. No claims for damages or extra compensation shall accrue to the contractor from the presence of such pipe obstructions or from any delay due to removal or rearrangement of the same. The contractor shall be responsible for any damage to underground structures.
5. Contractor shall call "Miss Utility" toll free at 1-800-552-7001 prior to construction.
6. Datum for all elevations shown is National Geodetic Survey.
7. Minimum cover over top of water pipe shall be 3.50 feet.
8. Service saddles must be used on all water connections to PVC mains.
9. Fire hydrants shall be installed in accordance with Standard Drawing D-200.
10. Engineer shall certify that unpaved streets are to subgrade prior to Contractor installing water system. Curb and gutter, if required, shall be installed prior to acceptance of water system by County.
11. No structures or planting of trees shall be permitted in utility easements.
12. Vandalproof covers shall be used on all manholes in easements. Watertight covers shall be used in flood plains. The manhole covers shall be in accordance with Standard Drawings D-111 and D-112.
13. Final Acceptance by County shall not be made until all work shown on approved utility plans is completed including paving, grading and all required adjustments.
14. A Wetlands Permit may be required from the U.S. Army Corps of Engineers for this project. For information concerning such requirement, contact the Corps at (804) 462-5382.
15. The Department will inspect all water and sanitary sewer mains, connections and appurtenances thereto, as shown on the approved utility plans, located within dedicated easements and/or Public Rights-of-Way. All other lines to be installed on site to serve roof drainage, water supply and sanitary sewers shall be approved by the Department of Building Inspections prior to installation and shall be inspected by Building Inspections before covering.
16. Concurrent inspections by Building Inspections and County Engineer will be performed for the following: Mainline backflow preventers; monitoring manholes; grease traps; exclusion meters; irrigation meters. County Engineer will inspect to ensure that the proper type facility, as shown on the approved utility plans, has been installed and tested in accordance with DPU Standards.

Form F-9
6/2012

GOOCHLAND COUNTY
DEPARTMENT OF PUBLIC UTILITIES

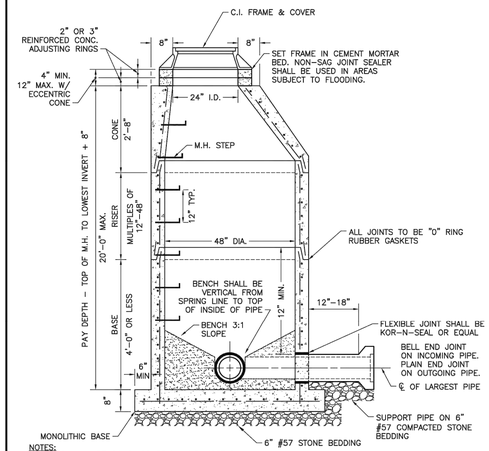


NOTES:

1. ALL CONCRETE ENCASEMENTS MUST BE FORMED AND INSPECTED BY DPU INSPECTOR PRIOR TO PLACING CONCRETE AND BACKFILLING.
2. AT STREAM CROSSINGS, ENCASEMENT SHALL EXTEND A MINIMUM OF TEN FEET (10') ON EITHER SIDE OF THE CROSSING.

DATE: OCT. 2014	PIPE ENCASEMENT DETAIL	DRWG. NO. CAS–4
REVISION: OCT. 2014		

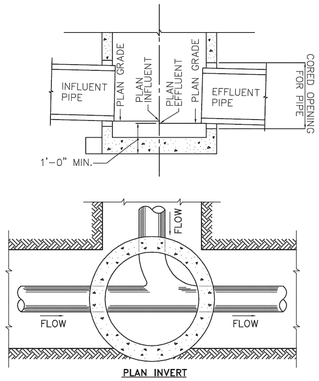
GOOCHLAND COUNTY
DEPARTMENT OF PUBLIC UTILITIES



NOTES:
1. BENCH MAY BE CONC. OR BRICK AND MORTAR.
2. WHERE STUBS OR KNOCKOUTS ARE PROVIDED FOR FUTURE CONNECTION BENCH SHALL BE FORMED.
3. DO NOT PLACE STEPS ON DOWNSTREAM SIDE OF MANHOLE.
4. SEE DRWG. NO. MAN–1 FOR MANHOLE SIZING TABLE.
5. 24" MAXIMUM PIPE SIZE.
6. MANHOLE CONSTRUCTION SHALL CONFORM TO ASTM SPEC. C–478.
7. INLET PIPE SHALL BE 0.10 MINIMUM ABOVE OUTLET PIPE UNLESS INDICATED GREATER ON DRAWING.

DATE: OCT. 2014	4' INSIDE DIAMETER STANDARD PRECAST CONCRETE MANHOLE	DRWG. NO. MAN–2
REVISION: OCT. 2014		

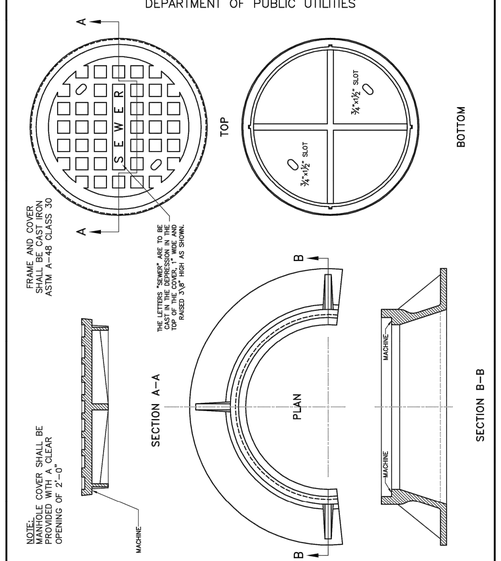
GOOCHLAND COUNTY
DEPARTMENT OF PUBLIC UTILITIES



NOTES:
1. THE EFFLUENT ELEVATION SHOWN AT A MANHOLE IS ESTABLISHED FROM THE INFLUENT ELEVATION OF THE MANHOLE IMMEDIATELY DOWNSTREAM BASED UPON PIPE SLOPE. ELEVATIONS SHOWN APPLY AT THE CENTERLINE OF MANHOLES AND ARE BASED ON THE HORIZONTAL DISTANCE, C.L. TO C.L. OF M.H., USING PERCENT OF GRADE INDICATED.
2. PIPE OPENINGS SHALL BE LOCATED TO BE CONCENTRIC WITH THE PIPE AT THE SPECIFIED INVERT
3. PIPE OPEN DIAMETER BE AS RECOMMENDED BY BOOT MANUFACTURER FOR THE PIPE OUTSIDE DIAMETER.
4. MINIMUM INVERT DROP SHALL BE 0.10 INCH UNLESS SPECIFIED OTHERWISE ON PLANS.

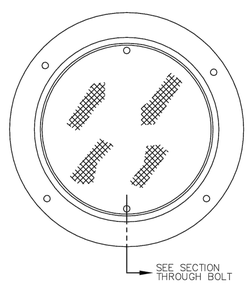
DATE: OCT. 2014	STANDARD INVERT DETAILS	DRWG. NO. MAN–9
REVISION: OCT. 2014		

GOOCHLAND COUNTY
DEPARTMENT OF PUBLIC UTILITIES

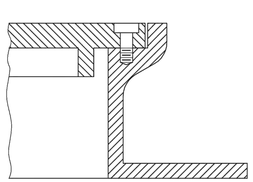


DATE: OCT. 2014	STANDARD MANHOLE FRAME & COVER	DRWG. NO. MAN–10
REVISION: OCT. 2014		

GOOCHLAND COUNTY
DEPARTMENT OF PUBLIC UTILITIES



COVER & FRAME

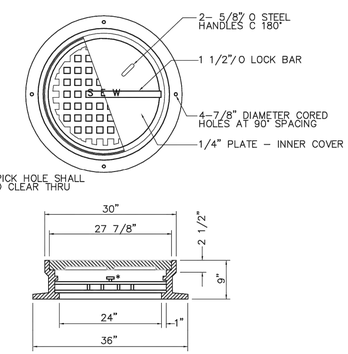


SECTION THROUGH BOLT

NOTES:
1. MANHOLE FRAME AND COVER SHALL BE SIMILAR TO CAPITOL FOUNDRY NO. MH1–S/VP, TYPE 1.
2. ALL HORIZONTAL BEARING AND VERTICAL DIAMETER SURFACES SHALL BE MACHINED.
3. 3. FRAME SHALL BE SET IN 1/4" BED OF NON–SAG COLMA JOINT SEALER AND BOLTED TO THE MANHOLE CONE SECTION WITH 4 – 3/4" ANCHOR BOLTS & NUTS HOT DIPPED GALVANIZED.
4. VANDALPROOF MANHOLE COVERS SHALL BE USED IN EASEMENTS NOT IN FLOOD PLAIN AND WHERE SHOWN ON THE PLANS.

DATE: OCT. 2014	STANDARD VANDALPROOF MANHOLE FRAME & COVER	DRWG. NO. MAN–11
REVISION: OCT. 2014		

GOOCHLAND COUNTY
DEPARTMENT OF PUBLIC UTILITIES



* BRONZE OR BRASS HEX. HEAD BOLT WITH 5/8" SHANK.

STEEL INNER LOCK HANDLES & LOCK BAR

1/4" X 1" CONTINOUS NEOPRENE GASKET BETWEEN INNER COVER & FRAME

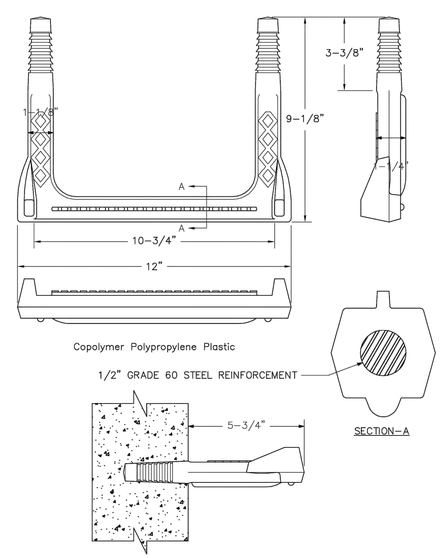
MIN. WEIGHTS:

FRAME	295 LBS.
COVER	230 LBS.
INNER COVER	46 LBS.
TOTAL	571 LBS.

NOTES:
1. FRAME SHALL BE SET IN 1/4" BED OF NON–SAG COLMA JOINT SEALER & BOLTED TO THE MANHOLE CONE SECTION WITH 4–3/4" ANCHOR BOLTS. THE ANCHOR BOLTS AND NUTS SHALL BE HOT DIPPED GALVANIZED.
2. SEATING SURFACES BETWEEN FRAME & COVER SHALL BE MACHINED.
3. WATERTIGHT MANHOLE COVERS SHALL BE USED IN EASEMENTS SUBJECT TO FLOODING & WHERE SHOWN ON THE PLANS.
4. FRAME & COVERS SHALL BE SIMILAR TO CAPITOL FOUNDRY NO. MH1–S/WT TYPE 1.
5. COVER SHALL HAVE LETTERING AS SHOWN ON DRAWING NO. MAN–10.

DATE: OCT. 2014	CAST IRON WATERTIGHT MANHOLE FRAME & COVER	DRWG. NO. MAN–12
REVISION: OCT. 2014		

GOOCHLAND COUNTY
DEPARTMENT OF PUBLIC UTILITIES



DATE: OCT. 2014	STANDARD MANHOLE STEP	DRWG. NO. MAN–13
REVISION: OCT. 2014		

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DATE

DATE: 5-14-2019
DRAWN BY: J. CARTER
DESIGNED BY: J. CARTER
CHECKED BY: B. STRICKLAND
SCALE: AS SHOWN

HICKORY HAVEN & SAMARY FOREST SANITARY SEWER
DISTRICT 4 - GOOCHLAND COUNTY - VIRGINIA
GENERAL NOTES AND DETAILS

JOB NO. 42792
SHEET NO. D-1

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GOOCHLAND COUNTY
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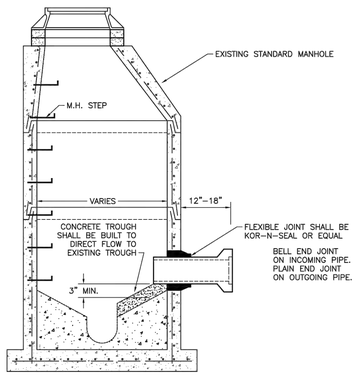

NOTES:

1. KOR-N-SEAL FLEXIBLE CONNECTOR, OR EQUAL, SHALL BE INSTALLED PER MANUFACTURER'S STANDARDS.
2. INVERT ELEVATION OF THE INFLUENT LINE SHALL BE NO MORE THAN 30 INCHES ABOVE THE MANHOLE INVERT.
3. EXISTING MANHOLE SHALL NOT BE CORED AT ANY EXISTING RISER JOINT.

DATE: NOV. 2015	NEW SEWER LINE CONNECTION TO EXISTING MANHOLE	DRWG. NO. MAN-17
REVISION: NOV. 2015		

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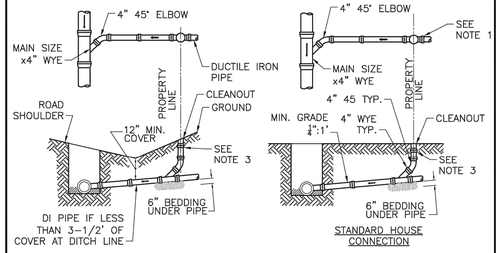
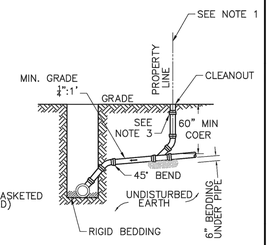


SITE INSPECTION PORT (S.I.P.) NOTES

1. CLEANOUT SHALL BE INSTALLED ON PROPERTY LINE ON ALL HOUSE CONNECTIONS.
2. MATERIAL SHALL BE SDR-26 PVC, SCHEDULE 40 PVC/ABS, OR D.I.
3. CAST IRON BODY ADAPTOR WITH A GASKETED BELL AND SOUTHERN CODE (RECESSED) TYPE BRASS PLUG.



DATE: OCT. 2014	HOUSE CONNECTION DETAILS	DRWG. NO. SEW-1
REVISION: OCT. 2014		

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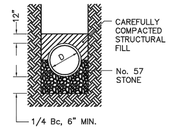
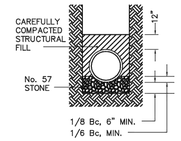


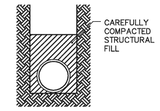
CLASS "B"
LOAD FACTOR = 1.9

Bc = O.D. OF PIPE
D = I.D. OF PIPE



CLASS "C"
LOAD FACTOR = 1.5

NOTE: IN ROCK TRENCH, EXCAVATE AT LEAST 6" BELOW THE BELL OF THE PIPE.

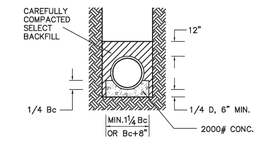


CLASS "C-1"
LOAD FACTOR = 1.5

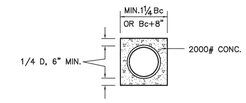
NOTE: CLASS "C-1" BEDDING TO BE USED ONLY FOR DUCTILE IRON PRESSURE LINES.

DATE: OCT. 2014	TRENCH BEDDING - 1	DRWG. NO. TR-1
REVISION: OCT. 2014		

GOOCHLAND COUNTY
DEPARTMENT OF PUBLIC UTILITIES



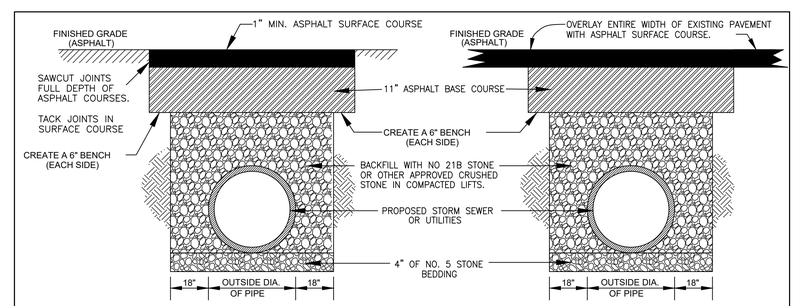
CLASS "A"
CONCRETE CRADLE
LOAD FACTOR = 2.8



CONCRETE ENCASEMENT
LOAD FACTOR = 4.5

Bc = O.D. OF PIPE
D = I.D. OF PIPE

DATE: OCT. 2014	TRENCH BEDDING - 2	DRWG. NO. TR-2
REVISION: OCT. 2014		



SKETCH SHOWING PAVEMENT PATCH FOR SINGLE ISOLATED CUTS

SKETCH SHOWING PAVEMENT OVERLAY FOR LONGITUDINAL OR MULITPLE CUTS

NOTES:

1. THIS DETAIL IS TO BE USED IN ALL LOCATIONS WHERE PROPOSED UTILITY PIPE CROSSES EXISTING PAVEMENT.
2. OVERLAYS IN SHOULDER SECTIONS MUST BE WEDGED DOWN TO EXISTING SHOULDERS AT A 1":1' GRADE WITH MATERIAL MATCHING EXISTING CONDITIONS.
3. IN CURB AND GUTTER SECTIONS, MILLING IS REQUIRED PRIOR TO PLACEMENT OF THE OVERLAY.
4. TEMPORARY OR PERMANENT ASPHALT MUST BE PLACED IN ROADWAY TRENCHES BY THE CLOSE OF EACH WORKDAY.
5. SEE "GOOCHLAND COUNTY GENERAL CONSTRUCTION STANDARDS, SECTION 7.1.2, A. FOR SPECIFIC REQUIREMENTS RELATED TO WORKING WITHIN PUBLIC STREETS, ROADS AND ALLEYS.

PAVEMENT REPLACEMENT FOR PIPE TRENCH

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