

ELMER BOROUGH: GREEN INFRASTRUCTURE SITES



SITES WITHIN THE MUDDY RUN SUBWATERSHED

1. Elmer Pediatrics
2. Elmer United Methodist Church
3. Foot Care Center
4. Inspira Medical Center - Elmer
5. Physical Therapy Services

ELMER PEDIATRICS



Subwatershed: Muddy Run

Site Area: 38,505 sq. ft.

Address: 465 Front Street
Elmer, NJ 08318

Block and Lot: Block 12, Lot 2.01



Parking spaces in the parking lot can be converted to porous pavement to capture and infiltrate stormwater runoff from the parking lot and rooftop. A rain garden can be installed in the turfgrass area east of the parking lot to capture, treat, and infiltrate stormwater runoff from the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
39	15,070	0.7	7.6	69.2	0.012	0.41

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.055	9	3,990	0.15	530	\$2,650
Pervious pavement	0.146	24	10,580	0.40	1,000	\$25,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Elmer Pediatrics

-  bioretention system
-  pervious pavement
-  drainage area
-  property line
-  2015 Aerial: NJOIT, OGIS



ELMER UNITED METHODIST CHURCH



Subwatershed: Muddy Run
Site Area: 46,870 sq. ft.
Address: 21 South Main Street
Elmer, NJ 08318
Block and Lot: Block 17, Lots 18 - 21



A section of parking spaces can be converted to porous pavement to capture and infiltrate runoff from the parking lot. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
68	32,045	1.5	16.2	147.1	0.025	0.88

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Pervious pavement	0.147	25	10,700	0.40	1,010	\$25,250

GREEN INFRASTRUCTURE RECOMMENDATIONS



Elmer United Methodist Church

-  pervious pavement
-  drainage area
-  property line
-  2015 Aerial: NJOIT, OGIS



FOOT CARE CENTER



Subwatershed: Muddy Run
Site Area: 42,940 sq. ft.
Address: 500 Front Street
Elmer, NJ 08318
Block and Lot: Block 13, Lot 3

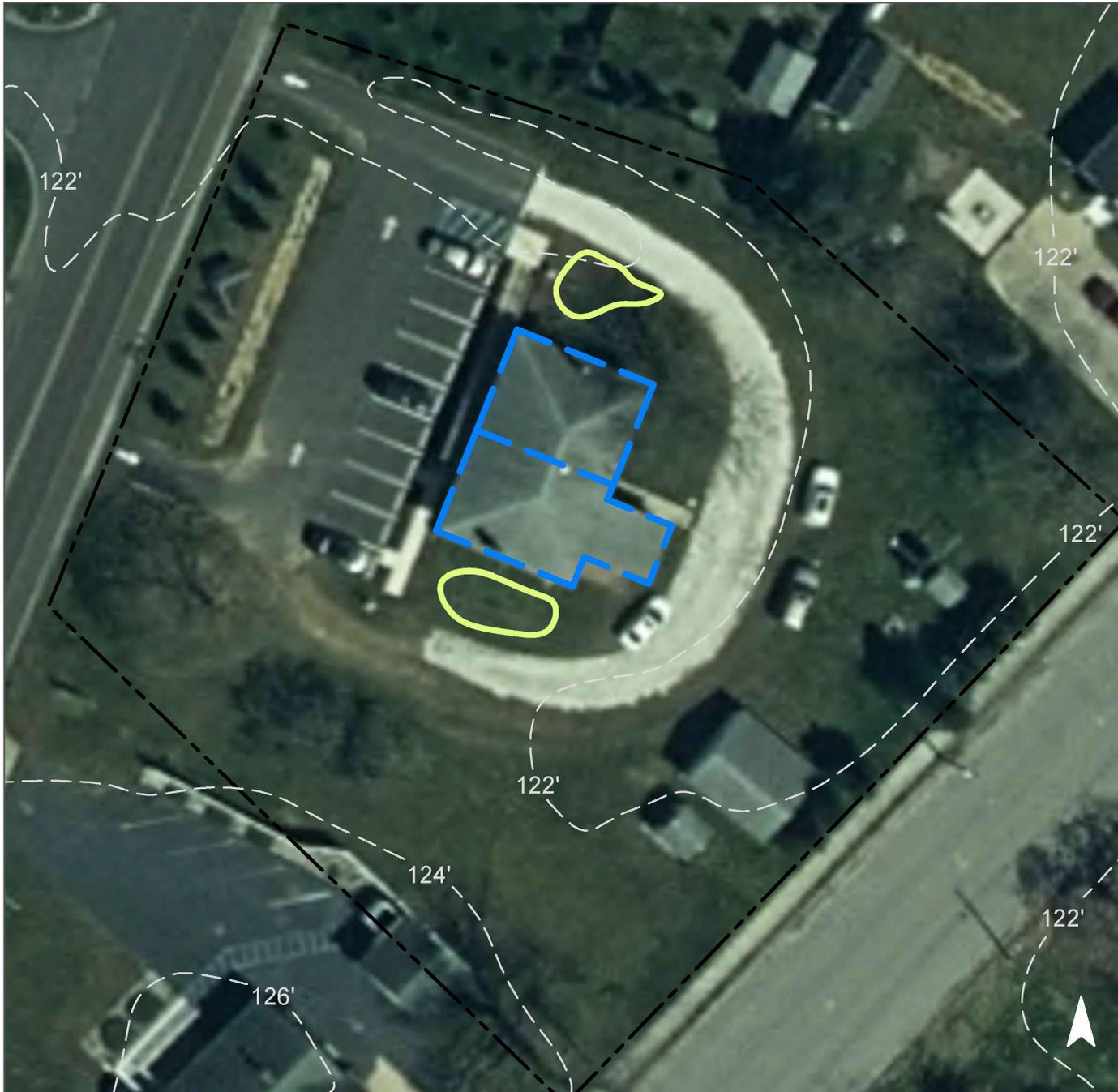


Two rain gardens can be installed to the north and south of the building to capture, treat, and infiltrate the stormwater runoff from the rooftop of the building. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
42	17,835	0.9	9.0	81.9	0.014	0.49

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.063	11	4,570	0.17	605	\$3,025

GREEN INFRASTRUCTURE RECOMMENDATIONS



Foot Care Center

-  bioretention system
-  drainage area
-  property line
-  2015 Aerial: NJOIT, OGIS



INSPIRA MEDICAL CENTER - ELMER



Subwatershed: Muddy Run

Site Area: 1,982,870 sq. ft.

Address: 501 Front Street
Elmer, NJ 08318

Block and Lot: Block 12,
Lots 2.11, 11 – 14, 17



Rain gardens can be installed in the turfgrass area adjacent to the northernmost part of the parking lot and west of the southernmost building to capture, treat, and infiltrate stormwater runoff from the parking lot. Parking spaces in the northern and southern lot can be converted to porous pavement to capture and infiltrate stormwater runoff. A preliminary soil assessment suggests that more soil testing would be required before determining the soil's suitability for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
21	420,195	20.3	212.2	1,929.3	0.327	11.52

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention systems	0.335	56	24,310	0.91	3,210	\$16,050
Pervious pavement	0.422	71	30,680	1.15	3,000	\$75,000

GREEN INFRASTRUCTURE RECOMMENDATIONS



Inspira Medical Center - Elmer

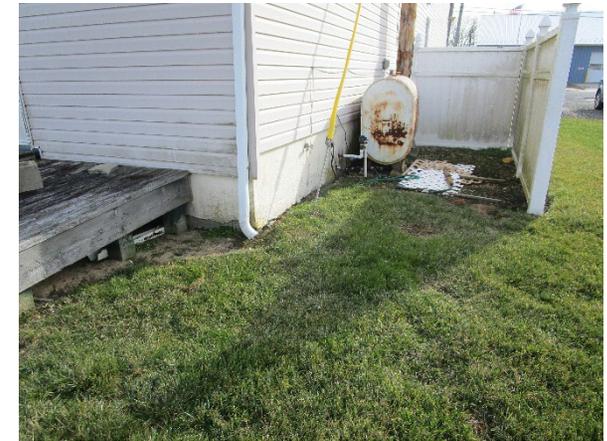
-  bioretention system
-  pervious pavement
-  drainage area
-  property line
-  2015 Aerial: NJOIT, OGIS



PHYSICAL THERAPY SERVICES



Subwatershed: Muddy Run
Site Area: 23,135 sq. ft.
Address: 45 Broad Street
Elmer, NJ 08318
Block and Lot: Block 18, Lot 9

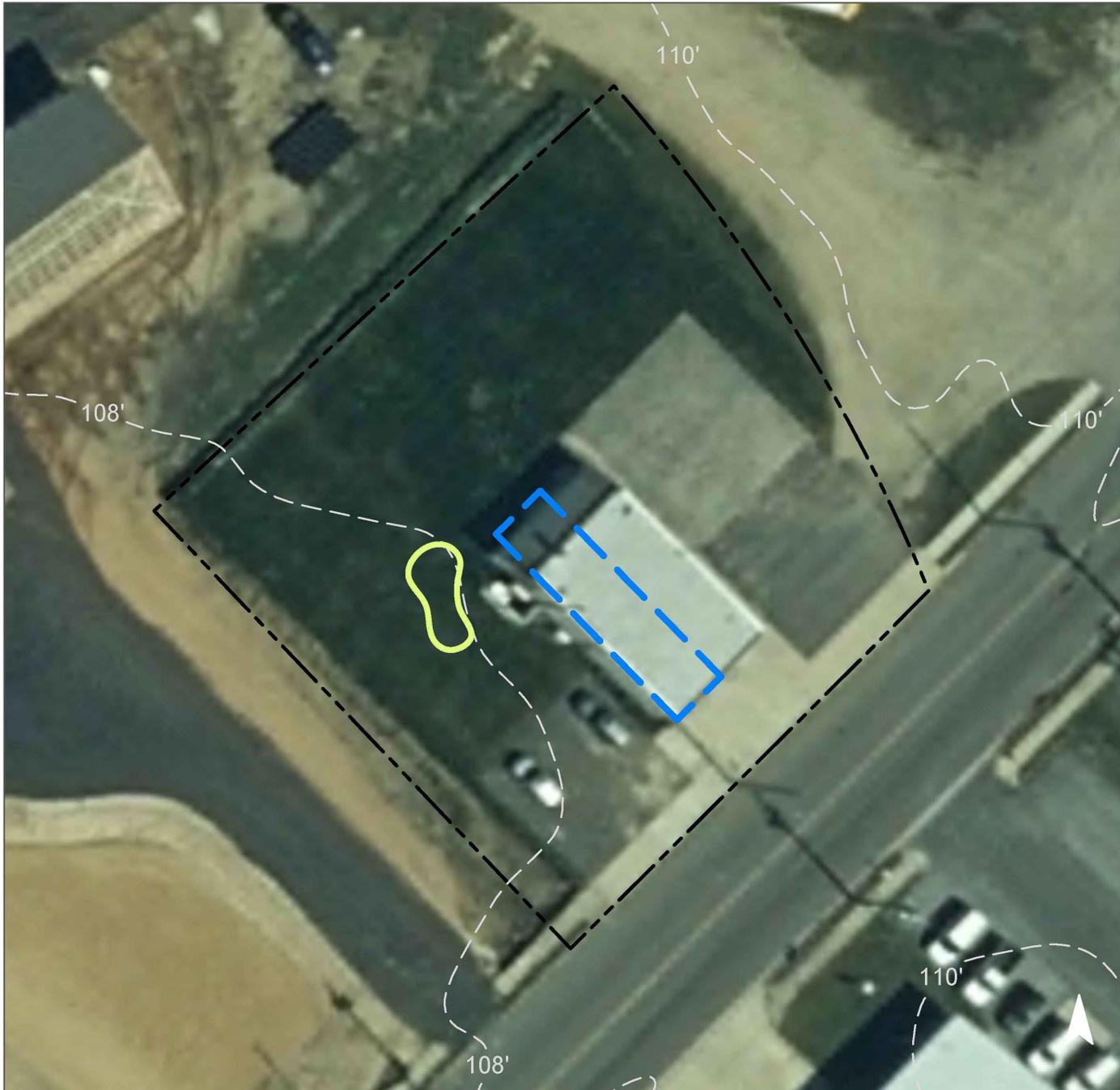


A rain garden can be installed west of the building to capture, treat, and infiltrate stormwater runoff from the roof, which drains via a nearby disconnected downspout. A preliminary soil assessment suggests that the soils have suitable drainage characteristics for green infrastructure.

Impervious Cover		Existing Loads from Impervious Cover (lbs/yr)			Runoff Volume from Impervious Cover (Mgal)	
%	sq. ft.	TP	TN	TSS	For the 1.25" Water Quality Storm	For an Annual Rainfall of 44"
65	14,930	0.7	7.5	68.5	0.012	0.41

Recommended Green Infrastructure Practices	Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Maximum Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cu. ft./second)	Estimated Size (sq. ft.)	Estimated Cost
Bioretention system	0.028	5	2,030	0.08	270	\$1,350

GREEN INFRASTRUCTURE RECOMMENDATIONS



Physical Therapy Services

-  bioretention system
-  drainage area
-  property line
-  2015 Aerial: NJOIT, OGIS



Summary of Existing Conditions

Subwatershed/Site Name/Total Site Info/GI Practice	Area (ac)	Area (SF)	Block	Lot	I.C. %	I.C. Area (ac)	I.C. Area (SF)	Existing Annual Loads (Commercial)			Runoff Volumes from I.C.		Runoff Volumes from I.C.	
								TP (lb/yr)	TN (lb/yr)	TSS (lb/yr)	Water Quality Storm (1.25" over 2-hours) (cu.ft.)	Annual (cu.ft.)	Water Quality Storm (1.25" over 2-hours) (Mgal)	Annual (Mgal)
Muddy Run Sites	49	2,134,320				11.22	488,610	23.6	246.8	2243.4	50,897	1,791,570	0.381	13.40
1 Elmer Pediatrics Total Site Info	1	38,505	12	2.01	39.1378	0.35	15,070	0.7	7.6	69.2	1,570	55,257	0.012	0.41
2 Elmer United Methodist Church Total Site Info	1	46,870	17	18 - 21	68.37	0.74	32,045	1.5	16.2	147.1	3,338	117,498	0.025	0.88
3 Foot Care Center Total Site Info	1	42,940	13	3	41.5347	0.41	17,835	0.9	9.0	81.9	1,858	65,395	0.014	0.49
4 Inspira Medical Center - Elmer Total Site Info	46	1,982,870	12	11, 11 - 14,	20.6131	9.38	408,730	19.7	206.4	1876.6	42,576	1,498,677	0.318	11.21
5 Physical Therapy Services Total Site Info	1	23,135	18	9	64.5343	0.34	14,930	0.7	7.5	68.5	1,555	54,743	0.012	0.41

Summary of Proposed Green Infrastructure Practices

Subwatershed/Site Name/Total Site Info/GI Practice	Potential Management Area		Recharge Potential (Mgal/yr)	TSS Removal Potential (lbs/yr)	Max Volume Reduction Potential (gal/storm)	Peak Discharge Reduction Potential (cfs)	Size of BMP	Unit Cost (\$/unit)	Unit	Total Cost (\$)	I.C. Treated %
	Area (SF)	Area (ac)									
Muddy Run Sites	45,885	1.05	1.196	200	86,860	3.26				\$148,325	9%
1 Elmer Pediatrics											
Bioretention system	2,110	0.05	0.055	9	3,990	0.15	530	\$5	SF	\$2,650	14%
Pervious pavement	5,590	0.13	0.146	24	10,580	0.40	1,000	\$25	SF	\$25,000	37%
Total Site Info	7,700	0.18	0.201	34	14,570	0.55				\$27,650	51%
2 Elmer United Methodist Church											
Pervious pavement	5,655	0.13	0.147	25	10,700	0.40	1,010	\$25	SF	\$25,250	18%
Total Site Info	5,655	0.13	0.147	25	10,700	0.40				\$25,250	18%
3 Foot Care Center											
Bioretention systems	2,415	0.06	0.063	11	4,570	0.17	605	\$5	SF	\$3,025	14%
Total Site Info	2,415	0.06	0.063	11	4,570	0.17				\$3,025	14%
4 Inspira Medical Center - Elmer											
Bioretention systems	12,840	0.29	0.335	56	24,310	0.91	3,210	\$5	SF	\$16,050	3%
Pervious pavement	16,205	0.37	0.422	71	30,680	1.15	3,000	\$25	SF	\$75,000	4%
Total Site Info	29,045	0.67	0.757	127	54,990	2.06				\$91,050	7%
5 Physical Therapy Services											
Bioretention system	1,070	0.02	0.028	5	2,030	0.08	270	\$5	SF	\$1,350	7%
Total Site Info	1,070	0.02	0.028	5	2,030	0.08				\$1,350	7%