TOWN OF LANSING

TOMPKINS COUNTY, NEW YORK

November 6, 2023

ENGINEER'S REPORT

Proposed Town of Lansing Drainage District #11: East Shore Circle Subdivision



PREPARED BY: T. G. Miller, P.C. Engineers and Surveyors Ithaca, New York

ENGINEER'S REPORT

PROPOSED TOWN OF LANSING DRAINAGE DISTRICT #11: EAST SHORE CIRCLE SUBDIVISION

TABLE OF CONTENTS

SECTIONS

Section 1	-	Introduction
Section 2	-	Service Area
Section 3	-	Overview of Maintenance Responsibilities
Section 4	-	Overview of Maintenance Activities
Section 5	-	First Year Maintenance Cost Estimates
Section 6	-	Method of Financing
NDIX		

APPENDIX Appen

Appendix A - Boundary Description

MAPS

Map 1	-	Vicinity Map
Map 2	-	Drainage District Boundary and Stormwater Management Practice
		Location

SECTION 1 - INTRODUCTION

The East Shore Circle Major Subdivision is a nine-parcel realty subdivision located north of East Shore Circle and west of East Shore Drive. The Major Subdivision obtained final approval from the Town of Lansing Planning Board on April 24, 2023. In addition, East Shore Circle Minor Subdivision is a four-parcel reality subdivision located south of East Shore Circle and west of East Shore Drive. The Minor Subdivision obtained final approval from the Town of Lansing Planning Board on January 22, 2018. Land disturbance activities within the subdivisions are subject to the design and permitting requirements of New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit No. GP-0-20-001 and GP-0-15-002, respectively. In accordance with these General Permits, the Stormwater Pollution Prevention Plans (SWPPP) prepared by the Owner/Operator for each subdivision incorporate permanent post-construction stormwater treatment and peak flow attenuation practices. In addition, permanent swales have been designed to convey stormwater runoff to and away from permanent practices.

The General Permits require on-going maintenance of these practices and dictate the Owner/Operator ensure one of the following prior to terminating permit coverage:

- a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,
- *b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),*
- *c. for post-construction stormwater management practices that are privately owned, the owner or operator has a deed covenant in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.*
- d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, the owner or operator has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

In this instance, there are permanent water quality treatment practices (bioretention basins, detention ponds and dry ponds) together with grassed diversion swales that will be or have been installed on residential lots or lands that will be dedicated to the Town. Long-term operation and maintenance of these practices and swales will be the responsibility of the Town as prescribed in a maintenance agreement carried in the deed or general covenants and restrictions filed and common to the Subdivision. As described herein, Drainage District No. 11 here after referred to as the "District", will provide the methodology for financing long-term stormwater practice maintenance. It is the intent that any prior Stormwater Operation, Reporting and Maintenance Agreements (SOMRAs) recorded for the four-parcel minor subdivision will be superseded by a new Stormwater Declarations, Covenants, Conditions and Restrictions Agreement drafted concurrently with the formation of the District. The maintenance agreements and covenants will be reviewed and approved by the Town's Counsel to assure that adequate rights of access and maintenance are provided. These privately owned and District owned practices will require annual inspection by the drainage district. To offset the expenses related to the inspection and maintenance of these stormwater management facilities, the Town is proposing to form the District to include all lands within the Minor and Major Subdivisions, which are further described in Appendix A, Boundary Description.

SECTION 2 - SERVICE AREA

As depicted on Map 1, the subdivisions are located north and south of East Shore Circle and west of East Shore Drive. The total land area of the two subdivisions to be included in the District is approximately 21.48 acres, inclusive of road right-of way. Based on the approved final subdivision plats, the lands have been divided into eight residential building lots, two storm water lots, and a remnant parcel of vacant land on the south side of E. Shore Circle. The parcels to be included in the District are identified on Map 2 and itemized in Table 1.

Table 1. Tax Map Parcels in Drainage District #11				
Lot #	Tax Map Parcel #	Owner	Acres	
1		JOHN YOUNG, et al	1.03	
2		JOHN YOUNG, et al	1.04	
3		JOHN YOUNG, et al	1.24	
4		JOHN YOUNG, et al	1.32	
5		JOHN YOUNG, et al	2.07	
7		JOHN YOUNG, et al	9.85	
8		JOHN YOUNG, et al	0.39	
9		JOHN YOUNG, et al	0.58	
-	37.1-7-12.8	PIKULIK, GRIGORY & NATALYA	1.05	
-	37.1-7-12.9	PIKULIK, GRIGORY & NATALYA	1.05	
-	37.1-7-12.10	GLENNA MCMINN	1.16	
	20.78			

SECTION 3 – OVERVIEW OF MAINTENANCE RESPONSIBILITIES

Under this proposal, the District will assume the responsibility for maintaining the dry pond, detention ponds, bioretention basins and grassed diversion swale once constructed by the Owner/Operator on lots as identified in Map 2 and detailed in final plans and SWPPP as approved by the Stormwater Management Officer for the Major Subdivision and final approved Minor Subdivision plan and SWPPP dated December 27, 2017. The Owner/Operator will be responsible for all temporary sediment and erosion control practices in compliance with the requirements of the General Permits for land disturbance activities. The roles and responsibilities of the District and the Owner/Operator are further outlined below.

3.1 The Owner/Operator

Prior to beginning construction on any lot or parcel, the Owner/Operator will be responsible for obtaining coverage under the General Permit by submitting a Notice of Intent (NOI). Under the General Permit, the individuals who obtain coverage are responsible for complying with the permit until a Notice of Termination (NOT) is filed with the NYSDEC. A NOT cannot be filed until the site is completely stabilized and all soil disturbance activity is ceased. Until that time, the Owner/Operator will be liable for the following elements of the permit:

- 1) Fees for continuing permit coverage.
- 2) Construction inspections for ongoing construction activity.
- 3) Ensuring final site stabilization.
- 4) Responsibility and liability for water quality violations caused by construction activity within the Subdivision.
- 5) Filing of a NOT to terminate permit coverage.

3.2 Town of Lansing on behalf of Drainage District #11

The Town will be responsible on behalf of the District for undertaking annual inspections and implementing emergency repairs to the dry pond, detention ponds, bioretention practices and grassed diversion swales as deemed necessary. In addition, the Town will be responsible for administration of the Drainage District, including tracking expenses, assessing fees, and collecting fees attributable to any emergency repair activities for the permanent stormwater practices.

The required permanent practices, or Facilities, are to be installed by Owner/Operator on each building lot or parcel prior to or as houses are constructed, thereafter, to be maintained by the District. The District will complete annual inspection, reporting, maintenance and improvement obligations. To assure compliance with such local law and NYSDEC Stormwater regulations, the following minimum provisions shall cover each building lot or parcel within the District:

1) All landowners and lot owners shall be responsible to construct and install, and once so constructed and installed, the District to operate, maintain, and repair the stormwater management facilities as described in or as shown upon the Final Subdivision Plat, the Stormwater Drainage District Map, or the Stormwater Pollution Prevention Plan (hereinafter severally and together, the "Stormwater Plan"), including but not limited to drainage ditches, swales, infiltrators, drop inlets, pipes, culverts, soil absorption devices, raingardens, bioretention basins, and all appurtenances thereto (hereinafter severally and together, the "Facilities"), to ensure that the Facilities continue to function as designed and for their intended purposes.

2) All Owners shall grant access to the Town of Lansing for the purposes of observing, maintaining, and inspecting the Facilities at any time, and from time-to-time, as may be deemed appropriate, necessary, or desirable by the Town.

3) If any deficiencies in Facilities are discovered or suspected to have been caused by the Owner/Operator, the Town will notify the Owner in writing and mandate a reasonable number of days to effect needed analyses or repairs or maintenance pursuant to a fair plan on notice to the Owner. If the Owner shall fail to complete any analyses or repairs or maintenance to the reasonable satisfaction of the Town within the required period set forth in any notice the Town may effect the same and charge to the Owner the cost thereof. Emergencies do not require prior notice. The Town may collect such costs in any manner as allowed by law and determinations and demands for reimbursement shall be subject to review under Article 78 of the New York Civil Practice Law and Rules.

4) No Owner may authorize, undertake, or permit the alteration of, abandonment of, modification of, demolition of, discontinuation of, or interference with any Facilities, except in strict accordance with the written approval of the Town.

5) All covenants or maintenance easements or agreements implementing these basic requirements shall be written in a form as is acceptable to and approved by the Town, and all rights of entry and rights of way to and for the Facilities shall be written as appurtenant easements and rights-of-way duly limited to that which is reasonably necessary for stormwater needs and practices under law. All covenants and maintenance easements and agreement shall be enforceable in law or equity.

6) Other landowners within the Drainage District shall also have rights of enforcement relative to stormwater Facilities maintenance to prevent flooding, nuisance, loss of property or property value, and hazards.

SECTION 4 - OVERVIEW OF MAINTENANCE ACTIVITIES

The Owner/Operator will be responsible for constructing the permanent practices on their land in accordance with the Final Subdivision SWPPP applicable to each subdivision and as shown on Map 2. With respect to Lots 1-5, the dry pond (Lot 9), bioretention basin (Lot 8) and swales on Lots 1, 3, 4 and 5 shall be constructed prior to issuing buildings permits in order to capture runoff from the impervious areas of the individual lots they serve. For parcels 37.1-7-12.8, 37.1-7-12.9 and 37.1-7-12.10 the Owner/Operator shall construct individual lot detention pond, bioretention basin and swale in order to capture runoff from the impervious areas of the lot they serve. Maintenance activities for these practices may include annual inspections, routine maintenance, and emergency repairs. This section outlines some of the routine activities needed to maintain both the long-term pollutant removal and structural integrity of stormwater practices. These activities are encompassed within six general categories as described below. In addition, Table 3 outlines some of the detailed activities within these categories, together with an estimated frequency.

Inspections

An annual inspection is needed to monitor the permanent practices. In the long term, these inspections reduce expenses by allowing the Owner and District to address small problems as they occur, with relatively low-cost solutions.

Sediment and Debris Removal

Sediment, trash and other debris accumulate within bioretention practices at a fairly constant rate. As sediment accumulates in stormwater practices, the capacity to treat and attenuate stormwater is reduced. In addition, the sediment can clog outflow pipes and reduce the capacity of the overflow channels. Some typical maintenance activities include removing sediment and debris, and unclogging outlet pipes.

Vegetation Management

Vegetation can enhance pollutant removal in some stormwater management practices but needs to be managed. Mowing is necessary to maintain a safe basin embankment.

Animals and Nuisances

Some typical nuisance issues for stormwater basins are mosquitoes and animal burrows. Mosquitoes can sometimes breed in pond forebays, particularly if dense vegetation develops. Some non-toxic methods are available to discourage mosquito breeding. Animal burrows damage basin embankments and need to be filled immediately.

Erosion

Over time, soil erosion can occur at some critical points in stormwater management practices, particularly when bare soil exists. When erosion occurs, the area needs to be stabilized to prevent further damage.

Structural Repairs

Although the stormwater detention ponds, dry ponds and bioretention basins that services the lots in this Subdivision have relatively few moving parts and structural elements, some long-term repairs may be needed. These will include replacing or repairing cracked pipes, eroded banks, and basin cleanout structures.

Inspections of Private Practices

These will be as needed and conducted in conjunction with annual review and any complaints or direct observations made during construction and site alterations.

TABLE 3. STORMWATER MAINTENANCE ACTIVITIES FOR DRAINAGE DISTRICT #11					
Maintenance Item	Frequency (years) ^{1,2}	Practices Where Performed			
Inspections					
Inspection	1	Detention Pond, Dry Pond, Bioretention basin and swales			
Sediment and Debris Removal		·			
Unclog outlet pipes	1	Detention Pond, Dry Pond, Bioretention basin and swales			
Debris/Trash Removal	1	Detention Pond, Dry Pond, Bioretention basin and swales			
Remove sediment from forebay and swales	5	Forebay Swales			
Dredge Detention Pond and Dry Pond	15	Detention Pond and Dry Pond			
Vegetation Management					
Mowing	1	Detention Pond, Dry Pond, Bioretention basin and swales			
Tree removal from embankment	10	Detention Pond, Dry Pond, Bioretention basin Embankments (should be limited by mowing)			
Replace vegetation (Dead or decaying vegetation in filter)	As needed	Bioretention basin			
Animals/ Nuisances	4				
Remove animal burrows from basin embankment.	5	Detention Pond, Dry Pond and Bioretention basin			
Erosion		·			
Repair areas of erosion	2-5	Detention Pond, Dry Pond, Bioretention basin and swales			
Structural repairs					
Repair low spots on the embankment	5	Detention Pond, Dry Pond and Bioretention basin			
Repair or replace trash racks	15	Detention Pond and Dry Pond			
Repair cracks in concrete	10	Dry Pond			
Replace riser structure (concrete)	50	Dry Pond			
Till bioretention surface to restore permeability (Filter drains slowly and surface is compacted)	3 (or as needed)	Bioretention basin			

TABLE 3. STORMWATER MAINTENANCE ACTIVITIES FOR DRAINAGE DISTRICT #11				
Maintenance Item	Frequency (years) ^{1,2}	Practices Where Performed		
Replace entire bioretention media (Filter does not drain, and other measures to restore are unsuccessful)	10 (or as needed)	Bioretention basin		
1: Maintenance Frequencies derived from th	,	tate Stormwater Manage		

created by the New York State Department of Environmental Conservation.

2: Frequency may vary, and the need for maintenance will be determined by annual inspections.

SECTION 5 – ESTIMATE OF FIRST-YEAR MAINTENANCE COST

This section estimates the initial first year maintenance cost, with the goal of establishing an initial assessment rate for landowners of properties within the District. Over time, these costs will vary, based on the occurrence of relatively high cost items at the time services are performed. The cost estimate includes assumptions regarding the items that will occur within the first year, the extent of these items, and the unit cost. The first-year maintenance plan, along with cost estimates, is presented in Table 4.

The first-year maintenance items are derived from the maintenance frequencies presented in Table 3, with the following assumptions:

- 1) All residential lots are simultaneously developed for residential use.
- 2) Items listed as annual or more frequent occur within the first year, at the frequency named.
- 3) Some erosion occurs within the diversion swales or swales leading to the basins, and will need to be repaired.
- 4) As a contingency, it is assumed that two five-year frequency items occur in the first year, including repairing low spots on the embankment and removing animal burrows.
- 5) Mowing is needed on basin embankments and swales, representing a total of approximately 2.0 acres.

TABLE 4. COST OF FIRST-YEAR MAINTENANCE				
Maintenance Item	Description	Unit Cost	Extent	Cost
Inspection, Reporting and coordinating corrective actions	Inspect using forms derived from Appendix G of the "New York Stormwater Management Design Manual"	\$150/hour	10 hours	\$1,500
Unclog outlet pipes	Remove accumulated debris from the outlet pipes, possibly by jet cleaning.	\$150/basin	1 time for 8 basins	\$1,200
Mowing and Debris/Trash Removal	Mow the swales and embankments. Remove trash and debris.	\$800/acre	2 acres	\$1,600
Repair areas of erosion and settling within swales and basins	Replace topsoil, compact and reseed area.	\$5/sf	400 sf	\$2,000
TOTAL ESTIMATED COST (ROUNDED) =				\$6,300

SECTION 6 – METHOD OF FINANCING

Estimate of First-Year Maintenance Charges

The cost of annual inspection and reporting completed by the Town will be assessed to the owners of taxable land within the District. The total acreage of all parcels based on the approved final plat, excluding stormwater Lots 8 and 9 and excluding road right-of-way is 19.81 acres. Thus, the maintenance charge to each of the parcels within the district is calculated as outlined in the formula below. A tiered rate will be used for parcels considered Vacant Land and Developed Land defined as follows:

<u>"Vacant Land"</u> means a lot or parcel of land that is not improved or significantly disturbed, and which has not been earmarked by planning board or other approvals for development or significant disturbance.

<u>"Developed Land"</u> means a lot or parcel of land was or is improved, or which is earmarked for significant disturbance or development, whether with a residence, an accessory structure, or otherwise, including by planning board or other approvals.

Developed Land will be charged full rate. Parcels that are considered Vacant Land will be charged 10% of the full rate until the property becomes classified as Developed Land.

Maintenance Charge (cost per acre):

Full Rate (Developed Land)=

Maintenance Cost/(Developed Land Acreage + (10%*Vacant Land Acreage))

Full Rate (Developed Land)	= \$6,300/(9.96 + (10%*9.85))
	= \$575.61 per acre

10% of Full Rate (Vacant Land) = \$575.61*10% = \$57.56 per acre

Using the cost of \$6,300 derived from Table 4, and the lot areas from the Final Subdivision plats, the estimated first-year maintenance fees are presented in Table 5.

	Table 5. Estimated First-Year Stormwater Maintenance Fees					
Lot #	Tax Map Parcel #	Owner(s) Names(s)	Developed Land Acreage	Vacant Land Acreage	Estimated Fee (Rounded)	
1		JOHN YOUNG, et al	1.03		\$593	
2		JOHN YOUNG, et al	1.04		\$599	
3		JOHN YOUNG, et al	1.24		\$714	
4		JOHN YOUNG, et al	1.32		\$760	
5		JOHN YOUNG, et al	2.07		\$1,192	
7		JOHN YOUNG, et al		9.85	\$567	
-	37.1-7-12.8	PIKULIK, GRIGORY & NATALYA	1.05		\$604	
-	37.1-7-12.9	PIKULIK, GRIGORY & NATALYA	1.05		\$604	
-	37.1-7-12.10	GLENNA MCMINN	1.16		\$668	
		Total	9.96	9.85	\$6,300	

Method of Assessment

The charges to finance the costs of this district will be included in the annual Town/County tax bill. Although estimated first year charges are included in this report, the calculated charge will be a reimbursement for actual maintenance activities of each preceding year. The Town will track all maintenance activities and the resulting costs in labor and equipment, and annually adjust the amount to be raised from each landowner.

APPENDIX A

BOUNDARY DESCRIPTION

TOWN OF LANSING DRAINAGE DISTRICT No. 11

ALL THAT TRACT OR PARCEL OF LAND situate in the, Town of Lansing, County of Tompkins, State of New York, being bounded and described as follows:

BEGINNING at a point in the present centerline of East Shore Circle, said point being further located approximately 587.3' East of the present centerline intersection with Teeter Road;

RUNNING THENCE North 70° 57' 51" East along the present centerline of East Shore Circle for a distance of 75.00' to a point;

RUNNING THENCE South 18° 58' 58" East, passing through an iron pin found at a distance of 28.85' and continuing for a total distance of 248.59' to an iron pin found;

RUNNING THENCE North 71° 11' 06" East for a distance of 329.32' to an iron pin found;

RUNNING THENCE South 18° 02' 05" East for a distance of 5.92' to a point;

RUNNING THENCE North 70° 49' 21" East for a distance of 341.21' to an iron pin found;

RUNNING THENCE North 71° 01' 16" East for a distance of 147.52' to an iron pin found;

RUNNING THENCE North 16° 32' 00" West for a distance of 33.11' to an iron pin found;

RUNNING THENCE South 25° 15' 46" East for a distance of 147.00' to an iron pin found;

RUNNING THENCE South 24° 53' 54" West for a distance of 189.64' to a point;

RUNNING THENCE South 56° 56' 25" West, along the North line of East Shore Drive for a distance of 305.99' to a point;

RUNNING THENCE South 63° 15' 24" West, along the North line of East Shore Drive for a distance of 467.00' to a highway monument found;

RUNNING THENCE North 87° 15' 43" East for a distance of 619.53' to an iron pipe found;

RUNNING THENCE North 14° 52' 42" East for a distance of 143.28' to an iron pin found;

RUNNING THENCE North 19° 11' 22" West for a distance of 39.16' to an iron pin found;

RUNNING THENCE North 19° 11' 22" West for a distance of 310.35' to a point;

RUNNING THENCE North 71° 06' 53" East along the present centerline of East Shore Circle for a distance of 160.00' to a point;

RUNNING THENCE North 71° 06' 53" East along the present centerline of East Shore Circle for a distance of 139.59' to a point;

RUNNING THENCE North 03° 02' 22" West for a distance of 390.04' to a point;

RUNNING THENCE North 03° 02' 22" West for a distance of 277.95' to a point;

RUNNING THENCE North 03° 02' 22" West for a distance of 239.60' to an iron pin found;

RUNNING THENCE South 82° 49' 40" East for a distance of 136.15' to a point;

RUNNING THENCE South 82° 49' 40" East for a distance of 133.50' to a point;

RUNNING THENCE South 07° 10' 20" West for a distance of 45.00' to a point;

RUNNING THENCE along a curve to the right for an arc distance of 124.14' to a point, said course having a chord tie of South 10° 36' 36" East for a distance of 122.16';

RUNNING THENCE along a curve to the right for an arc distance of 53.00' to a point, said course having a chord tie of South 35° 59' 01" East for a distance of 52.85';

RUNNING THENCE South 43° 33' 41" East for a distance of 105.80' to a point;

RUNNING THENCE South 43° 33' 41" East for a distance of 234.55' to a point;

RUNNING THENCE South 43° 33' 41" East for a distance of 122.10' to a point;

RUNNING THENCE South 19° 02' 09" East for a distance of 73.92' to a point;

RUNNING THENCE South 70° 57' 51" West for a distance of 51.13' to a point;

RUNNING THENCE South 19° 02' 09" East for a distance of 46.97' to a point;

RUNNING THENCE South 70° 57' 51" West along the present centerline of East Shore Circle for a distance of 162.48' to a point;

RUNNING THENCE South 70° 57' 51" West along the present centerline of East Shore Circle for a distance of 174.85' to a point;

RUNNING THENCE South 70° 57' 51" West along the present centerline of East Shore Circle for a distance of 76.00' to the point and place of beginning;

Said parcel having an area of 21.48 acres to the centerline of roads.

SUBJECT TO covenants, restrictions, easements and encumbrances of record.

For a more particular description thereof, reference is hereby made to a survey map entitled, being "Subdivision Plat, Showing Portion of Lands of John F. Young, Susan M. Barnett, James R. Young and Julie Young, Located North of East Shore Circle, Town of Lansing, Tompkins County, New York" dated 10/23/2023, prepared by T.G. Miller, P.C., Engineers and Surveyors, Ithaca, New York, filed concurrently herewith and incorporated herein by reference.

Also, reference is hereby made to a survey map entitled, being "Survey Map Showing Southerly Portion of Lands of No. 106 East Shore Circle, Town of Lansing, Tompkins County, New York" dated 12/14/2022, prepared by T.G. Miller, P.C., Engineers and Surveyors, Ithaca, New York, filed concurrently herewith and incorporated herein by reference.

Also, references is hereby made to a survey map entitled, being "Town of Lansing Proposed Drainage District No. 11 East Shore Circle Subdivision, Town of Lansing, Tompkins County, New York" dated 8/7/2023, prepared by T.G. Miller, P.C., Engineers and Surveyors, Ithaca, New York, filed concurrently herewith and incorporated herein by reference.



