



AGENDA
CHARTER TOWNSHIP OF MERIDIAN
TOWNSHIP BOARD – REGULAR MEETING
September 15, 2020 6:00 pm

1. CALL MEETING TO ORDER
 2. PLEDGE OF ALLEGIANCE/INTRODUCTIONS
 3. ROLL CALL
 4. PRESENTATION
 - A. John Veenstra Memorial-LINC
 - B. 2021 Township Recommended Budget Presentation
 5. CITIZENS ADDRESS AGENDA ITEMS AND NON-AGENDA ITEMS*
 6. TOWNSHIP MANAGER REPORT
 7. BOARD MEMBER REPORTS OF ACTIVITIES AND ANNOUNCEMENTS
 8. APPROVAL OF AGENDA
 9. CONSENT AGENDA
 - A. Communications
 - B. Minutes-September 1, 2020 Virtual Regular Meeting
 - C. Bills
 - D. Approval to Opt-in to Ingham County Absent Voter Counting Board
 10. QUESTIONS FOR THE ATTORNEY
 11. HEARINGS (CANARY)
 - A. Pine Village Brownfield Plan
 - B. Planned Unit Development #20014 (Okemos Land Investment LLC) Silverleaf
 - C. 2021 Recommended Budget
 12. ACTION ITEMS (PINK)
 - A. Coal Tar Sealant Ordinance-**Final Adoption**
 - B. Special Use Permit #20021 (Andev Group) Construct a Building Greater than 25,000 Square Feet
 - C. Tentative Preliminary Plat #19012 (Giguere Homes) Sanctuary III extension
 - D. Contract Amendment-Township Manager Employment Agreement
 13. BOARD DISCUSSION ITEMS (ORCHID)
 - A. Pine Village Brownfield Plan
 - B. Planned Unit Development #20014 (Okemos Land Investment LLC) Silverleaf
 - C. 2021 Recommended Budget
 - D. Enhanced Deer Management Plan
 14. COMMENTS FROM THE PUBLIC
 15. OTHER MATTERS AND BOARD MEMBER COMMENTS
 16. ADJOURNMENT
-

All comments limited to 3 minutes, unless prior approval for additional time for good cause is obtained from the Supervisor.
Appointment of Supervisor Pro Tem and/ or Temporary Clerk if necessary.

Individuals with disabilities requiring auxiliary aids or services should contact the Meridian Township Board by contacting:
Township Manager Frank L. Walsh, 5151 Marsh Road, Okemos, MI 48864 or 517.853.4258 - Ten Day Notice is Required.
Meeting Location: 5151 Marsh Road, Okemos, MI 48864 Township Hall

**CLERK'S OFFICE
BOARD COMMUNICATIONS
September 15, 2020**

**BOARD INFORMATION
(BI)**

Dalzell
313 N. Cedar St. Lansing, MI 48912
Apt 106
Lansing, MI 48912



MERIDIAN TOWNSHIP
RE: Hartwick Park
5151 ...

August, 2020

To all that have had a hand in
designing, constructing, and
maintaining Hartwick Park,

On August 25, 2020, I had about
an hour in between R. appts and
figured, rather than sit in my car for
that time, I would check out a
local park and, if lucky, find
a bench to sit on and enjoy a
cup of my beer. I felt like
my ~~guardians~~ angels were with me
when I found Hartwick Park and was
able to sneak away into a marsh-
y warm breeze on an overcast day,
ducks and frogs and waterfowl, the
resounding orchestra of leaves blowing
in the wind & bugs in the trees, it was
very beautiful - thank you
- Ewa Dalzell

From: Meridian Township, MI [<mailto:meridian-mi@enotify.visioninternet.com>]
Sent: Thursday, September 10, 2020 9:43 AM
To: Deborah Budzynski
Subject: Granger CollectionEmail contact from Meridian Township, MI

Message submitted from the <Meridian Township, MI> website.

Site Visitor Name: Ronald E. Hall
Site Visitor Email: hallr@msu.edu

On 8/31/20 I mailed a check to Granger for \$63. On 9/9/20 I get a non-payment for \$63 and a \$10 late fee. This started recently. I have complained to Granger to no avail. I suspect this to be a creative way to increase fees. Granger is a monopoly. I sit at the end of each month and write 15 checks for bills. I do not have time to single out Granger due the 27th. I pay several thousand dollars a year in property taxes for no services. Please consider another trash collection contractor or require Granger accordingly. Sincerely, Ronald E. Hall

From: Goodson, Alfred <goodson@msu.edu>

Sent: Thursday, August 27, 2020 4:08 PM

To: Board <Board@meridian.mi.us>

Subject: Deer population, Small Acres Lane

Dear township board: After nearly twenty years in residence at 2487 Small Acres Lane, the aging rock star formerly known as the Cummins mansion (!), I'm reduced to begging your help with a rampant pack of deer in the woods out this way. They are all around us now, eating everything we plant, breeding like mice. Mrs. Barron, now deceased, once told me they are just big mice anyway. She lived here on the lane for fifty years, and I ran into her son just an hour ago driving from their old homestead by the tracks. The deer were here first, and it does seem a pity to ask that you once again permit hunters to thin them out. But it's a zoo in the woods now, and they have no natural predators. Please help us out. I pay my property tax early, never missed one, and have enjoyed the opportunity to raise a daughter the old fashioned way, out in the open air, which she loved.

With thanks in advance for your consideration, A. C. Goodson

Dear Township Board members,

I am writing to draw to your attention the rapidly worsening deer problem in the Township. The deer population is not just growing, it is exploding. This, despite the good work put in by Jane Greenway, her staff, and the Township hunters, to control the population. Unfortunately, due to CWD and the statewide ban on baiting, hunters in the Township have been unable to take as many deer as in the past. As a result, we are being overrun with deer. In the Cedar Bend Heights neighborhood, we live with deer constantly in our backyards, on our lawns and roads, and in our gardens. Locally, the three does that overwintered have now turned into a small herd of 10 (two does had twins, one had triplets, all are thriving). By "locally" I mean within 700 feet of our house.

The deer stop traffic regularly, have no fear of humans, and deposit their waste all over everything. They browse the forest and land preserves to the point that forest regeneration will not occur. This is terrible because many areas of preserve were dominated by ash, which are now all dead. These forests may not revegetate properly because of deer overbrowsing. The deer also bring the very serious potential for spread of Lyme disease and other tick borne illnesses. I know of Lyme disease firsthand; it is awful.

Deer have become more than just a safety and health hazard; they have become a major menace and are impacting the quality of life (and NOT for the better) every single day. The problem has been accentuated by the fact that our deer have become more suburban-smart, feasting on the nutritious goodies that we grow and as a result, reproducing like rabbits. They know how to cross roads "safely" and they teach this to their young.

Enough is enough; something MUST be done. More must be done.

I am asking you to work with Jane to introduce extraordinary measures to reduce the deer population – not to last year's level, but to a population that is at least HALF of last year's, or lower.

I offer some constructive suggestions as to how to do this; Jane can evaluate the pros and cons of each. But in my opinion, Jane and her staff should be charged with dramatically reducing the herd size, well beyond current efforts. The goal should be a sustained deer population that is far below present levels.

Let me be clear; the overpopulation issue is not Jane's fault. The inability of hunters to bait has clearly also impacted the reduction in culling numbers. Overpopulation has also been driven because of CWD and the changes of the Township's hunting program. In the past, hunters had to take deer and donate to the food pantry before taking deer for themselves. Having that option off the table lowers the overall kill total. Is there a way to work with food pantries to bring back this aspect of the program? COVID is causing dramatic spikes in food insecurity, and access to free meat would most likely be very welcome.

Some ideas:

1. Increase the number of hunters well beyond recent levels. Take the numbers as high as safety protocols will allow. Extend hunting seasons even longer. Find ways to incentivize the hunters we have to take more deer. Perhaps we can work with local food banks to get them to take CWD-safe deer carcasses, so hunters can (or have to) take more deer.
2. A more extreme measure might include offering a small bounty for any doe taken by a hunter, beyond their first two.
3. Allow Township police officers to do night-time hunting to improve the culling in hotspots. Perhaps

the township could take these extra deer and process them and donate them to a food bank, Angel house, etc.

4. Hiring of a small crew of professional snipers should not be taken off the table.

5. Investigate deer sterilization measures.

Public awareness and education would probably be necessary in order to successfully implement these changes. Nonetheless, I believe the negative environmental impacts to the forests, combined with the positive impact to food insecure families, would be accepted by many in our community, and could be used to help justify and expanded culling in the Township.

Thank you for listening to my thoughts on this matter. It is personal with me; deer are wiping out my garden, just as they have wiped out the horticultural plantings of so many residents these last few years.

Randall Schaetzl
2294 Hamilton Rd
Okemos

From: Kate McPherson <kmcpherson44@gmail.com>

Sent: Monday, August 31, 2020 2:10 PM

To: Courtney Wisinski <wisinski@meridian.mi.us>; Kathy Ann Sundland <sundland@meridian.mi.us>; Ronald Styka <styka@meridian.mi.us>; Dan Opsommer <opsommer@meridian.mi.us>; Patricia Herring Jackson <pjackson@meridian.mi.us>; Brett Dreyfus <dreyfus@meridian.mi.us>; Phil Deschaine <deschaine@meridian.mi.us>

Subject: Andev Senior Living Center (special use permit #20021).

Dear Members of the Board:

I live in Meridian Township for many reasons. There are excellent schools, safe and charming neighborhoods, community activities, farmers markets, development of Downtown Okemos, etc. Most importantly, we chose to live in Meridian Township due to the Township's Master Green Space Plan. It is rare to live in an area with so many amenities, while able to enjoy nature at its' finest. Commitment to land preservation is admirable in a world where the easy and profitable answer is to tear down trees and pour concrete.

I am writing to you in regards to the proposed Andev senior living center (special use permit #20021).

First and foremost, I would like to thank you for taking the time to walk the potential build site. You showed genuine interest and concern in the property and your constituents. It was very encouraging to have Board members sit with residents to understand our concerns and visualize the potential consequences that the proposed build will cause.

I would like to compliment you on your forward thinking unique ideas on how to preserve green space while working with Andev. Purchasing the adjacent lot and donating it to the Township would protect the green space and offer natural areas for Township residents to walk and explore; including those that would move into Andev's senior center. Your suggestion of a footbridge over the red cedar would provide a way for residents on the north side of the river to walk trails in this green space. Residents on the south side of the river would be able to stroll to local businesses and restaurants. The attached pictures are of a beautiful foot bridge in Big Rapids, MI. Something like this would be a wonderful addition to Meridian Township. It would be a win for the community and the developer. The link below will direct you to information about the Big Rapids foot bridge.

[https://chambermaster.blob.core.windows.net/userfiles/UserFiles/chambers/9032/CMS/Updated Brochures/New Brochures/Trails-Brochure-\(1\).pdf](https://chambermaster.blob.core.windows.net/userfiles/UserFiles/chambers/9032/CMS/Updated%20Brochures/New%20Brochures/Trails-Brochure-(1).pdf)

I live in Indian Lakes Estates. As you know we are all very concerned. I am not opposed to the development if it is done responsibly. The massive footprint that is being proposed will cause a lot of problems for the green space and our homes. Over the years our neighborhood has had more and more problems with water. Water has flooded our homes, killed trees, and ruined the natural beauty that Meridian Township has committed to protect. If Andev builds as proposed, water management will be even worse. More trees will die and more wild life will leave. Andev's attorney, Mr. Samuels exclaimed that it's just "a bunch of squirrels running around". This is an insult to the Township and proves how little they care about the green space. This land is home to unique wildlife and lush large trees. It would be a shame to see even

more of it die. The links below will take you to drone footage of the flooding we experienced this spring. I encourage you to watch both. I know that people flying drones and taking videos is sometimes a sensitive subject, I ask for you to respect the people's properties who may be incidentally shown in these videos. The intent is clearly to show the water levels.

1. <https://youtu.be/ybETD9flWAI>
2. https://youtu.be/3GI-rhUp_6I

Another issue that comes with a center like this is noise pollution. A center this size requires regular deliveries from large noisy trucks and several trash dumpsters that slam when waste management empties them.

Again, I am not opposed to Andev Group developing on the property. I am opposed to the size of the building and the amount of impervious surfaces that comes with it.

If you haven't already, I encourage you to walk the property and see for yourself what will disappear. I also encourage you to push your creative ideas that will further unite and connect our community.

Please feel free to contact me directly with any questions or requests you may have.

Thank you. Have a wonderful day!

Katie McPherson
4715 Mohican Lane, Okemos, MI 48864









PROPOSED BOARD MINUTES

PROPOSED MOTION:

- (1) Move to approve and ratify the minutes of the Virtual Regular Meeting of September 1, 2020 as submitted.**

ALTERNATE MOTION:

- (1) Move to approve and ratify the minutes of the July 21, 2020 Virtual Regular Meeting with the following amendment(s):
[insert amendments]**

CHARTER TOWNSHIP OF MERIDIAN
TOWNSHIP BOARD VIRTUAL REGULAR MEETING **-DRAFT-**
5151 Marsh Road, Okemos MI 48864-1198
517-349-1232, Virtual Meeting via Zoom
TUESDAY, SEPTEMBER 1, 2020 **6:00 pm.**

PRESENT: Supervisor Styka, Clerk Dreyfus, Treasurer Deschaine, Trustees Jackson, Opsommer, Wisinski

ABSENT: Trustee Sundland

STAFF: Township Manager Walsh, Director of Public Works Perry, Fire Chief Hamel, Police Chief Plaga, Community Planning Director Kieselbach, Information Technology Director Gebes, Principal Planner Menser, Parks and Recreation Director Maisner, Finance Director Mattison, Human Resources Director Tithof, Communications Manager Yates

1. CALL MEETING TO ORDER

Supervisor Styka called the meeting to order at 6:00 pm.

2. PLEDGE OF ALLEGIANCE/INTRODUCTIONS

Supervisor Styka led the Pledge of Allegiance.

3. ROLL CALL

The Clerk called the roll of the Board.

4. PRESENTATIONS

Citizen Zachary Sieloff detailed how he wanted to build a bike pump and tire repair station for his Eagle Scout project.

Manager Walsh introduced Amber Clark, candidate selected for new Neighborhood & Economic Development Director.

5. CITIZENS ADDRESS AGENDA ITEMS AND NON-AGENDA ITEMS

Supervisor Styka opened public remarks at 6:11 pm.

Joe Pavona, 4726 Arapaho; President of the Indian Lakes Estates Home Owners Association. Seeks less dense housing with more green space and improved water management.

Kevin Roragen, Loomis Law Firm; representing Indian Lakes Estates Home Owners Association, Major improvements in the natural features and land preservation areas but would like to work further with application and developer on the site.

Sean Looman, 4805 Arapaho Trail; Treasurer of Indian Lakes Estate Home Owners Association, reported on the increasing severity of flooding in their neighborhood.

David Skole, 4845 Mohican Lane; stated his property abuts the Hannah Farm development. Neighboring parcel has natural features, unique plants and animal species; this portion of

Township lacks green space and is under-served in respect to land preservation. He does not agree with proposed layout and suggested referring back to Planning Department.

Dr. Amy Simon; 4763 Mohican Lane; values greenspace and wildlife, hard to put a value on green space to ensure it for the future.

Toby White, 4830 Mohican Lane, primarily concerned with hydrology issues.

Jane Cissell, 4777 Mohican; developer changes insufficient, building heights, developer should "hide" dumpster and generator and work better with residents, landscaping and protection needed between site and her property.

Jack Baldwin and Juanita Baldwin; 4716 Arapaho; more green space between site and neighbors' property, pay attention to water runoff, which is killing trees.

Jill Garnett, 4805 Mohican Lane; concerns with high-density student housing, impervious surface, flooding, and no green space. Need to reduce building footprint.

Bobbie Berringer, 4543 Comanche Drive; spoke on area's natural density and plant life. Planners and developers need to look at project holistically.

Carol Chapman, 4525 Mohican Lane; lack of convenient stores for seniors and student housing. Water management issues revealed by trees falling and dying, water in her basement for two years and would like it addressed, need retention ponds.

Michael Samuels, 414 Westoro, Arlington Heights, IL; representing developer, commented on limits on cut through traffic, prime site for senior housing, Planning Commission approved proposal, maximum impervious surface is 75%, they are proposing 52%.

Linda Stober, 4835 Mohican Lane; Indian Lakes subdivision is big asset to the Township, objective is neighborhood protection, their property borders two Eyde developments which are very noisy, fireworks, other issues, do not strip the pine forest for more student housing, project like this costs homeowners money, peace and privacy.

Joe Zimmerman, 4715 Mohican Lane; has taken drone pictures of the water issues and shared it. Current restrictions are not enough, need to do more.

Mark Clouse, Eyde Family LLC, property owner; they located this senior housing developer, parcel rezoned in 2008 and senior housing discussed. Stated development meets all requirements, including retention ponds. Driveway and parking moved, less parking than allowed, project is needed for community.

Katie McPherson, 4715 Mohican Lane; water management and wildlife issues are unique in this area and very important to adjacent neighborhood. Ingham County Drain Commissioner contacted, concerned about lack of responsiveness.

Athena McLean, 4738 Arapaho Trail; other senior housing project 75% empty due to age restrictions, questions if that will happen with the proposed development. Cannot get excited about this project due to multiple concerns.

Cindy Carson, 4714 Arapaho Trail; trees have fallen on her deck and house. Residents are entrusting the Township for their well-being, area is special and needs protection, and neighborhood is an asset to the community.

Supervisor Styka closed public remarks at 7:00 pm.

6. TOWNSHIP MANAGER REPORT

Manager Walsh congratulated Denise Green on 40 years with the township and Chief Plaga for 25 years. He congratulated Tavis Millerov on his appointment to the Fire Safety Board for the State of Michigan.

7. BOARD MEMBER REPORTS AND ANNOUNCEMENTS

Treasurer Deschaine:

- Noted summer taxes are due by September 14th and can pay via dropbox, outdoor kiosk, in the Municipal Building, or online
- Attended the Lansing Chamber/EL Business roundtable
- Attended Transportation Commission meeting
- Attended ribbon cutting for pool supply company
- Attended Election Commission meeting, approved new precinct locations for Nov election

Trustee Jackson:

- Attended the Election Commission meeting as public observer
- Attended the Tri-County Planning Commission meeting

Clerk Dreyfus:

- Chaired Election Commission meeting and approved re-location of two precincts for the Nov election, including moving the Absent Voter Counting Board (AVCB) to the Town Hall Room
- Discussions on possibility of Ingham County Clerk's Office assisting with the AVCB for upcoming election, decision to be made soon

Supervisor Styka:

- Attended the Lansing Chamber/EL Business roundtable
- Attended joint Transportation Commission / Corridor Improvement Authority meeting. Joint letter sent to State of Michigan regarding Grand River Ave improvements.

Trustee Opsommer requested to move Action Item #12D Special Use Permit #20021 (Andev Group) Construct a Building Greater than 25,000 square feet to Discussion Item #13B.

8. APPROVAL OF AGENDA

Trustee Opsommer moved to approve the Agenda. Seconded by Clerk Dreyfus.

ROLL CALL VOTE: YEAS: Clerk Dreyfus, Treasurer Deschaine, Trustees Jackson, Opsommer, Wisinski, Supervisor Styka

NAYS: None

Motion carried: 6-0

9. CONSENT AGENDA

Supervisor Styka reviewed the consent agenda.

Clerk Dreyfus moved to adopt the Consent Agenda as presented. Seconded by Treasurer Deschaine.

ROLL CALL VOTE: YEAS: Treasurer Deschaine, Trustees Jackson, Opsommer, Wisinski,
Supervisor Styka, Clerk Dreyfus

NAYS: None

Motion carried: 6-0

A. Communications

Clerk Dreyfus moved that the communications be received and placed on file and any communications not already assigned for disposition be referred to the Township Manager or Supervisor for follow-up. Seconded by Treasurer Deschaine.

ROLL CALL VOTE: YEAS: Treasurer Deschaine, Trustees Jackson, Opsommer, Wisinski,
Supervisor Styka, Clerk Dreyfus

NAYS: None

Motion carried: 6-0

B. Approval of Minutes – August 18, 2020 Regular Meeting

Clerk Dreyfus moved to approve and ratify the minutes of the Virtual Regular Meeting of August 18, 2020 as submitted. Seconded by Treasurer Deschaine.

ROLL CALL VOTE: YEAS: Treasurer Deschaine, Trustees Jackson, Opsommer, Wisinski,
Supervisor Styka, Clerk Dreyfus

NAYS: None

Motion carried: 6-0

C. Bills

Clerk Dreyfus moved to approve that the Township Board approve the Manager's Bills as follows, seconded by Treasurer Deschaine.

Common Cash	\$	1,189,581.81
Public Works	\$	637,879.78
Trust & Agency	\$	1,824,560.42

	Total Checks	\$ 3,852,022.02
Credit Card Transactions 7/30/2020-8/12/2020		\$ 7,267.20
	Total Purchases	<u>\$ 3,859,289.22</u>
ACH Payments		<u>\$ 932,005.96</u>

ROLL CALL VOTE: YEAS: Treasurer Deschaine, Trustees Jackson, Opsommer, Wisinski,
Supervisor Styka, Clerk Dreyfus

NAYS: None

Motion carried: 6-0

D. Treasurer's Report – Treasurer Phil Deschaine

ROLL CALL VOTE: YEAS: Treasurer Deschaine, Trustees Jackson, Opsommer, Wisinski,
Supervisor Styka, Clerk Dreyfus

NAYS: None

Motion carried: 6-0

E. Disposal of Surplus Equipment

Clerk Dreyfus moved to approve the disposal of vehicle #103 (2009 Ford Focus), vehicle #100 (Ford Fusion), and 227 Cisco 7912, 7940, and 7960 model IP telephone handsets by public auction, internet auction, direct sale to another municipality or by sealed bid. Seconded by Treasurer Deschaine.

ROLL CALL VOTE: YEAS: Treasurer Deschaine, Trustees Jackson, Opsommer, Wisinski,
Supervisor Styka, Clerk Dreyfus

NAYS: None

Motion carried: 6-0

10. QUESTIONS FOR THE ATTORNEY – NONE

11. HEARINGS - NONE

12. ACTION ITEMS

A. Rezoning #20030 (Planning Commission) 5937 Potter Street – Final Adoption

Trustee Opsommer moved to adopt the resolution approving Rezoning #20030 to rezone 0.10 acre located at 5937 Potter Street from C-1 (Commercial) to RN (Mixed Residential) for final adoption. Seconded by Trustee Jackson.

ROLL CALL VOTE: YEAS: Trustees Jackson, Opsommer, Wisinski, Supervisor Styka, Clerk Dreyfus, Treasurer Deschaine

NAYS: NONE

Motion carried 6-0

B. Rezoning #20040 (Michigan Baptist Convention) 4606 Hagadorn Road - Final

Treasurer Deschaine moved to adopt the resolution approving Rezoning #20040 to rezone 4.999 acres located at 4606 Hagadorn Road from RR (Rural Residential) to PO (Professional Office) for final adoption. Seconded by Trustee Wisinski.

ROLL CALL VOTE: YEAS: Trustees Opsommer, Wisinski, Supervisor Styka, Clerk Dreyfus, Treasurer Deschaine, Trustee Jackson

NAYS: NONE

Motion carried: 6-0

C. Pavement Sealant Ordinance - Introduction

Trustee Jackson moved to approve resolution 2020-08 for the Introduction of the amendment to Chapter 38 of the Code of Ordinances to add Article VII, Pavement Sealant and to amend the Township Fee Schedule to include an Annual Registration Fee of \$25. Seconded by Trustee Wisinski.

Board discussion:

Ban on coal tar as a pavement seal which is used in driveways, streets and parking lots, PAHs are dangerous components of coal tar, other communities ban them, current technology limits, Township did not use cold tar seal for last road project, permits for commercial applicators.

ROLL CALL VOTE: YEAS: Trustee Wisinski, Supervisor Styka, Clerk Dreyfus, Treasurer Deschaine, Trustees Jackson, Opsommer

NAYS: None

Motion carried: 6-0

D. Special Use Permit #20021 (Andev Group, LLC)

Trustee Opsommer moved to move Action Item #12D to Discussion Item #13B. Seconded by Clerk Dreyfus.

VOICE VOTE: Motion carried 6-0.

13. BOARD DISCUSSION ITEMS

A. Contract Amendment – Township Manager Employment Agreement

Request by Township Manager Walsh to amend current Employment Agreement by increasing the number of permitted Managerial Recruitment Searches from six (6) to ten (10). Completed six projects this year during the evenings and weekends, asking to do four (4) more during the year.

Board Discussion:

Availability of Township Manager during evenings and weekends, no problem reaching him when necessary, recruitment of Township Managers considered community benefit, questions about limits on number of recruitments/searches.

All Township employees have restrictions on outside employment, all employees need supervisor permission to work outside full-time position, most CEOs cannot work two jobs regardless of positive job performance, concern about amount of time needed to conduct 10 searches per year, impact on health of Township Manager, enjoyment of process and similar to a hobby, Manager's commitment to Township, confidence in ability to separate Township business and recruitment business, ten (10) is reasonable and workable.

Board consensus to place this item on the next Board meeting agenda.

B. Special Use Permit #20021 (Andev Group, LLC) Construct a Building Greater than 25,000 square feet

Board Discussion:

Parking requirements/concerns – reducing number of parking spots, moving some parking away from adjacent neighborhood, greenspace impacts. Applicant view that they met community conditions, reduced building height, no sight line issues, walkable roads, exceeded required buffer to the east.

Natural Features Assessment update, trees need protection, water/stormwater concerns, working with Ingham County Drain Commissioner Office, keep natural areas intact, citizens fight for sustainable community, adjacent MUPUD project consumed greenspace, long-standing hydrology concerns exacerbated by MUPUD, developer belief runoff issues have been addressed. Bridge over Red Cedar River.

Cut-through traffic prohibited, project may improve hydrology, Covid concerns about housing seniors in a dense facility, developer response regarding outdoor entrances for families.

Property to the north of proposed development, could be donated by Eyde to Land Preservation, make deal with Eyde (Transfer of Development Rights) that ties into approval of this project, creating stronger buffers to the east, planning a walkable community, request for Township to meet with both sides to facilitate agreement.

Consensus to bring this item back as an Action Item at the next Board meeting.

14. COMMENTS FROM THE PUBLIC

Supervisor Styka Opened Public Remarks at 9:31 pm.

David Skole, 4845 Mohican Lane; Homeowners Association participated in mediation, importance of stating facts correctly, number of trees is over 600 on site plan but actually 3,000 trees on site, most trees will be cut down, concern about northern 16 acres in the future, concern about flood responsibility, natural barriers. Need to look at statements on who is not responsible for flooding, and need for trees as natural barriers.

Katie McPhearson, 4715 Mohican Lane; encouraged by Andev Group to address the water problems and impervious surface issues.

Jane Cissell, 4777 Mohican; like to see a northern property placement for the garbage dumpster.

Joe Pavona, 4726 Arapaho Trail; supports a complete study of the hydrology of the area. Good project for the space, is designed with key components, glad to continue to work with developer.

Supervisor Styka Closed Public Remarks at 9:41pm.

15. OTHER MATTERS AND BOARD MEMBER COMMENTS

Trustee Wisinski reported Trustee Jackson, Manager Walsh, and Human Resources Director Tithof have met and discussed equality, diversity and inclusion plans moving forward on this issue.

Trustee Jackson encouraged listeners still have time to fill out their 2020 Census Form and submit them.

16. CLOSED SESSION - NONE

17. ADJOURNMENT

Trustee Opsommer moved to adjourn. Seconded by Trustee Jackson.

VOICE VOTE: Motion carried 6-0.

Supervisor Styka adjourned the meeting at 9:43 pm.

RONALD J. STYKA,
TOWNSHIP SUPERVISOR

BRETT DREYFUS,
TOWNSHIP CLERK



To: Board Members
From: Miriam Mattison, Finance Director
Date: September 15, 2020
Re: Board Bills

**Charter Township of Meridian
Board Meeting
9/15/2020**

**MOVED THAT THE TOWNSHIP BOARD APPROVE THE MANAGER'S
BILLS AS FOLLOWS:**

COMMON CASH	\$	4,529,323.50
PUBLIC WORKS	\$	549,279.65
TRUST & AGENCY	\$	13,785.93
TOTAL CHECKS:	\$	5,092,389.08
 CREDIT CARD TRANSACTIONS 8/27/2020-9/10/2020		
TOTAL PURCHASES:	\$	<u>7,761.20</u>
ACH PAYMENTS	\$	<u>775,009.75</u>

09/11/2020 08:36 AM
 User: FAULKNER
 DB: Meridian

INVOICE APPROVAL BY INVOICE REPORT FOR CHARTER TOWNSHIP OF MERIDIAN
 EXP CHECK RUN DATES 09/15/2020 - 09/15/2020
 BOTH JOURNALIZED AND UNJOURNALIZED OPEN AND PAID
 BANK CODE: GF

Vendor Name	Description	Amount	Check #
1. 56-A DISTRICT COURT	CASH BOND - CABRERA J.	200.00	103406
2. AMERICAN RENTALS	04/21/20 THRU 05/21/20 PORTA POTTY SERVICE FOR TRANSFER S	60.00	
	05/21/20 THRU 06/21/20 - PORTA POTTY SERVICE FOR TRANSFER	60.00	
	06/21/20 THRU 07/21/20 - PORTA POTTY SERVICE FOR TRANSFER	60.00	
	07/21/20 THRU 08/21/20 - PORTA POTTY SERVICE FOR TRANSFER	60.00	
	TOTAL	240.00	
3. AT & T	SEPT 1 2020 TO SEPT 26 2020 FOR 517-349-1200	32.19	
4. AT & T	AUG 2 TO SEPT 1, 2020 TELEPHONE SERVICE	164.84	
	AUG 2 TO SEPT 1, 2020 TELEPHONE SERVICE	301.75	
	AUG 2 TO SEPT 1, 2020 TELEPHONE SERVICE	362.87	
	AUG 2 TO SEPT 1, 2020 TELEPHONE SERVICE	362.87	
	AUG 2 TO SEPT 1, 2020 TELEPHONE SERVICES	296.55	
	AUG 2 TO SEPT 1, 2020 TELEPHONE SERVICE	542.73	
	AUG 2 TO SEPT 1, 2020 TELEPHONE SERVICE	582.73	
	TOTAL	2,614.34	
5. AUTOMATED BUSINESS EQUIPMENT	EZ SEAL FOR CLERKS OFFICE	168.51	
6. BARYAMES CLEANERS	HAMEL (MTFD) UNIFORM CLEANING	27.90	
7. BOARD OF WATER & LIGHT	AUGUST 2020 STREETLIGHT SERVICE	595.99	103405
8. BRD PRINTING, INC	BANNERS FOR BUILDING & UTILITY	99.00	
9. BURKE MECHANICAL	REFUND FOR OVERPAYMENT INV 00073431	15.00	
10. CINTAS CORPORATION #725	MECHANICS UNIFORMS - AUGUST 2020	193.40	
11. COMCAST	SERVICE FROM SEPT 1, 2020 TO SEPT 30, 2020	336.47	
12. DBI	ITEM 27410 - PENS - ACCT 280044	2.02	
	ITEM #12113 - FOLDERS - ACCT 28044	13.98	
	TOTAL	16.00	
13. DERRICK BOBB	REIMB SOS PLATE FEES	65.00	

Vendor Name	Description	Amount	Check #
14. FAHEY SCHULTZ BURZYCH RHODES PLC	LEGAL FEES THROUGH AUGUST 31, 2020	318.00	
	LEGAL FEES THROUGH AUGUST 31, 2020	1,476.00	
	LEGAL FEES THROUGH AUGUST 31, 2020	110.00	
	LEGAL FEES THROUGH AUGUST 31, 2020	22.00	
	LEGAL FEES THROUGH AUGUST 31, 2020	2,304.50	
	LEGAL FEES THROUGH AUGUST 31, 2020	176.00	
	LEGAL FEES THROUGH AUG 31, 2020	654.50	
	LEGAL FEES THROUGH AUG 31, 2020	180.00	
	LEGAL FEES THROUGH AUG 31, 2020	4,176.00	
	LEGAL FEES THROUGH AUG 31, 2020	4,361.50	
	LEGAL FEES THROUGH AUG 31, 2020	734.00	
	LEGAL FEES THROUGH AUG 31, 2020	335.00	
	LEGAL FEES THROUGH AUG 31, 2020	66.00	
	LEGAL FEES THROUGH AUG 31, 2020	660.00	
	LEGAL FEES THROUGH AUG 31, 2020	451.50	
	LEGAL FEES THROUGH AUG 31, 2020	69.00	
	LEGAL FEES THROUGH AUG 31, 2020	841.00	
	LEGAL FEES THROUGH AUG 31, 2020	103.50	
	LEGAL FEES THROUGH AUG 31, 2020	116.00	
	LEGAL FEES THROUGH AUG 31, 2020	414.00	
	LEGAL FEES	220.00	
	LEGAL FEES THROUGH AUG 31, 2020	66.00	
	COMMUNICATION LEGAL FEES THROUGH AUG 31 2020	41.21	
	COMMUNITY PLANNING & DEVELOPMENT LEGAL FEES THROUGH AUGUS	2,484.75	
	CONTRACT REVIEWS LEGAL FEES THROUGH AUG 31 2020	286.83	
	MANAGER LEGAL FEES THROUGH AUG 31 2020	1,338.37	
	PUBLIC WORKS LEGAL FEES THROUGH AUG 31 2020	10.30	
	HUMAN RESOURCES/LABOR LEGAL FEES AUG 31 2020	311.65	
	TOWNSHIP BOARD LEGAL FEES THROUGH AUG 31 2020	776.89	
	TOTAL	23,104.50	
15. FIRST COMMUNICATIONS	AUGUST 2020 TELEPHONE SERVICES	985.10	
16. FIRSTDUE FIRE SUPPLY	HYDROSTATIC TESTING SCBA TANK FIRE STATION	35.00	
17. FISHBECK, THOMPSON, CARR & HUBER	MUNI BLDG ENGINEERING SERVICES THRU 9/4/20	1,368.50	
	HVAC SYSTEM COMMISSIONING SERVICES THRU 09/04/20	3,054.00	
	FISHBECK, THOMPSON, CARR, & HUBER - MUNICIPAL BUILDING HV	276,327.66	
	FISHBECK, THOMPSON, CARR & HUBER - MUNICIPAL BUILDING HVA	250,490.88	
	TOTAL	531,241.04	
18. FORESIGHT GROUP	AUGUST 2020 WATER BILL MAILING	226.18	
	WINDOW ENVELOPES - MERIDIAN TWP	762.34	
	TOTAL	988.52	
19. GALLAGHER BENEFIT SERVICES, INC	AUGUST 2020 CONSULTING FEES	2,779.26	
	SEPT 2020 MONTHLY CONSULTING FEE	2,779.26	
	TOTAL	5,558.52	
20. GORDON CONSTRUCTION SERVICES	DOG GATE POWER/GROUND BOX INSTALL	2,950.00	
	GORDON CONSTRUCTION SERVICES - GATEWAY BRIDGE AND RESTROO	127,544.00	
	TOTAL	130,494.00	
21. H.C. BERGER COMPANY	AUGUST 2020 CHARGES ACCOUNT #ABD-MT02	150.00	
22. HAWORTH INC	CHAIRS ORDER#164422-0	6,125.30	
23. HUNTINGTON NATIONAL BANK	MERIDIAN TWP TAX BONDS SERIES 2019	3,327,500.00	
24. JEFFORY BROUGHTON	6 ANTENNAS/BATTERIES RADIO MAINTENANCE/EQUIPMENT	1,948.00	
25. JOHN DEERE FINANCIAL	FLEET FUEL AUGUST 2020	5,860.00	
26. JON MAYES	REIMB FOR PLANT PURCHASES	140.00	

Vendor Name	Description	Amount	Check #
27. KEBS INC	CONTRUCTION INSPECTION/OVERSIGHT MARKETPLACE	550.00	
28. LANSING SANITARY SUPPLY INC	EXAM GLOVES	239.42	
	VEHICLE WASH BRUSHES AND HANDLES	316.74	
	TOTAL	556.16	
29. LANSING UNIFORM COMPANY	UNIFORMS FIRE DEPT	403.70	
	FIRE UNIFORMS ORDER #BP180075	170.75	
	TOTAL	574.45	
30. LAW ENFORCEMENT SYSTEMS INC	CASE MANAGEMENT FILES	190.00	
31. LLOYD LAW	LEGAL SERVICES FEES	20,271.00	
32. LOGICALIS	AUG 2020 CONSULTING IT SERVICES	10,004.00	
33. LOPEZ CONCRETE CONSTRUCTION	AUGUST 2020 CONCRETE REPAIR CONTRACT FOR LOCAL ROAD, WATE	27,810.00	
34. LUKE LANDSCAPE COMPANY	1624 RIVER TERRACE/211 LAKE LANSING/5931 HIGHGATE - MOWIN	180.00	
	6004 GIBSON AVE MOWING SERVICES	55.00	
	2703 GRAND RIVER AVE MOWING SERVICES	105.00	
	6227 W LAKE DR - MOWING SERVICES	50.00	
	TOTAL	390.00	
35. MACALLISTER RENTAL	FRONT END WHEEL LOADER RENTAL (CONT)	1,311.00	
	FRONT END WHEEL LOADER RENTAL CONT 3711088	4,000.00	
	TOTAL	5,311.00	
36. MCKESSON MEDICAL-SURGICAL GOC	SOL		
	RESPIRATOR MASKS	137.31	
	STAT PAD MEDICAL SUPPLIES	220.89	
	STAT PADZ ELECTRODES	263.01	
	STAT PADZ ELECTRODE (REMAINING BALANCE NOT ON PO)	111.96	
	STAT PADZ ELECTRODES	41.62	
	TOTAL	774.79	
37. MEDICAL MANAGEMENT SYSTEMS OF	AMBULANCE BILLING SERVICE AUG 2020	5,375.95	
38. MEI TOTAL ELEVATOR SERVICES	SEPT TO NOV 2020 ELEVATOR SERVICE	184.00	
	SEPT TO NOV 2020 QUARTERLY ELEVATOR SERVICE	262.00	
	TOTAL	446.00	
39. MERIDIAN TOWNSHIP	TRANSFER FOR FLEX CHECKING FOR 9/11/2020 PAYROLL	550.69	
40. MERIDIAN TOWNSHIP RETAINAGE	MICHIGAN PAVING RETAINAGE - 2020 LOCAL ROAD PROGRAM- MILL	15,597.15	
	GORDON CONSTRUCTION SERVICES - GATEWAY BRIDGE AND RESTRO	14,172.00	
	FISHBECK, THOMPSON, CARR & HUBER - MUNICIPAL BUILDING HVA	30,703.06	
	FISHBECK, THOMPSON, CARR & HUBER - MUNICIPAL BUILDING HVA	27,832.32	
	TOTAL	88,304.53	
41. MICHIGAN PAVING	2020 LOCAL ROAD PROGRAM- MILLING AND RESURFACING PROJECT	296,345.77	
42. MIDWEST POWER EQUIPMENT	FILLER CAP	7.44	
43. MOST DEPENDABLE FOUNTAINS	DRINKING FOUNTAINS FOR LARGE DOG PARK AND HARRIS NATURE C	520.00	
44. NUTRON OSM	LARGE DOG PARK SIGN AND MARKETPLACE ON THE GREEN SIGN	1,453.00	
45. OVERHEAD DOOR OF LANSING	SERVICE CENTER - OVERHEAD DOOR REPAIR	180.00	
46. P.J.'S TOWING	TOWING SERVICES	200.00	
47. PEOPLEFACTS LLC	ACCOUNT #35367	43.21	

Vendor Name	Description	Amount	Check #
48. PRINTING SYSTEMS INC	BALLOT RETURN ENVELOPES PRINTING	1,770.98	
	BALLOT ENVELOPS PRINTING	2,012.25	
	ENVELOPE PRINTING FOR ACCOUNT 2365	4,096.15	
	TOTAL	7,879.38	
49. PROGRESSIVE AE	SERVICES THRU AUG 28, 2020 - LAKE LANSING SAD WATERSHED M	1,670.38	
50. ROWERDINK AUTOMOTIVE PARTS	FLEET REPAIR PARTS AUGUST 2020	13.40	
	FLEET REPAIR PARTS AUGUST 2020	259.07	
	FLEET REPAIR PARTS BATTERY AUGUST 2020	101.24	
	FLEET REPAIR PARTS BATTERY AUGUST 2020	363.30	
	UNIT 8 FLEET REPAIR PARTS AUGUST 2020	431.60	
	UNIT 8 FLEET REPAIR PARTS AUGUST 2020	10.60	
	UNIT 8 FLEET REPAIR PARTS AUGUST 2020	374.96	
	UNIT 8 FLEET REPAIR PARTS AUGUST 2020	78.82	
	UNIT 8 FLEET REPAIR PARTS AUGUST 2020	63.56	
	BATTERY CORE RETURN FLEET REPAIR PARTS AUGUST 2020	(90.00)	
	UNIT 8 SENSORS FLEET REPAIR PARTS AUGUST 2020	351.36	
	UNIT 126 FLEET REPAIR PARTS AUGUST 2020	341.19	
	TOTAL	2,299.10	
51. SAFETY SYSTEMS INC	CUST #06423 ANNUAL ALARM SERVICING AGREEMENT JUNE 2020-MA	440.00	
	CUST #06423 ANNUAL ALARM SERVICING AGREEMENT JUNE 2020-MA	509.00	
	CUST #06423 ANNUAL ALARM SERVICING AGREEMENT JUNE 2020-MA	440.00	
	CUST #06423 ANNUAL ALARM SERVICING AGREEMENT JUNE 2020-MA	585.00	
	CUST #06423 ANNUAL ALARM SERVICING AGREEMENT JUNE 2020-MA	633.00	
	CUST #06423 ANNUAL ALARM SERVICING AGREEMENT JUNE 2020-MA	858.00	
	TOTAL	3,465.00	
52. SIGNATURE FORD INC.	UNIT 116 SCREW	72.90	
	UNIT 116 OIL COOLER	93.66	
	TOTAL	166.56	
53. SME	ENGINEERING SERVICES HARRIS NATURE CENTER PAVILION/RESTRO	1,234.85	
54. SPARROW OCCUPATIONAL	PHYSICALS FOR STAFF MERIDIAN TOWNSHIP	434.50	
55. ST MARTHA CONFERENCE OF	REIMB FOR UTILITY PAYMENT FOR RYAN J.	550.00	
56. SWAGIT PRODUCTIONS, LLC	AUGUST 2020 VIDEO STREAMING SERVICES HOMTV	3,462.00	
57. T MOBILE	MONTHLY SERVICE 7/21/2020 TO 08/20/2020	59.30	
58. TDS	TELEPHONE SERVICES - AUG 1 TO AUG 28 2020	1,629.31	
59. TELEFLEX LLC	NEEDLES 7 STABILIZERS EZ IO SUPPLIES/EQUIP.	612.50	
60. TOKIO MARINE HCC	CLAIM #196489 - KAUFMANN	914.53	
61. TRI-COUNTY EM CONTROL AUTHORITY	FIELD NOTES/DRUG BOX FORMS	23.20	
62. TRUGREEN	AUG 2020 - TOWNSHIP BUILDINGS FIELD WEED AND FEED	425.45	
	AUG 2020 TOWNSHIP BUILDING LAWN SERVICES	224.55	
	TOTAL	650.00	
63. VARIPRO BENEFIT ADMINISTRATORS	FLEX ADMINISTRATION 08/20	179.00	
64. VERIZON WIRELESS	ACCT #686304174-00001 - AUG 2020	3,865.95	
65. WASTE MANAGEMENT	ANIMAL CARCASS REMOVAL DUMPSTER (DEAD DEER REMOVAL PROGRA	126.57	
66. WEST SHORE FIRE INC	HAZ-MAT & CONFINED SPACE FUNCTIONAL TESTS	300.00	
	REPAIR OF MTFD AIRPAK 200674-02	137.25	
	SERVICE/CLEAN/TEST AIR TEST SAMPLE KITS	629.85	
	TOTAL	1,067.10	

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INVOICE APPROVAL BY INVOICE REPORT FOR CHARTER TOWNSHIP OF MERIDIAN
EXP CHECK RUN DATES 09/15/2020 - 09/15/2020
BOTH JOURNALIZED AND UNJOURNALIZED OPEN AND PAID
BANK CODE: GF

Vendor Name	Description	Amount	Check #
67. ZOLL MEDICAL CORP	4FT REUSABLE PATIENT CABLE	442.50	
TOTAL - ALL VENDORS		4,529,323.50	
BANK TOTALS:			
Bank GF COMMON CASH		4,529,323.50	

Vendor Name	Description	Amount	Check #
1. ATA TITLE	OVERPAYMENT REIMB WATER 5496 EARLIGLOW LN	47.44	
2. CAMILLE ASH	OVERPAYMENT REIMB SEWER 1974 VALLEYBROOK DR	12.52	
3. CARL SCHLEGEL INC	SAND TICKET #1036230	823.20	
4. CATHEY INDUSTRIAL SUPPLIES, CO	LIQUID GAUGE LOWER MOUNT WATER DEPT	55.65	
5. CITY OF EAST LANSING	SEPT 2020 SEWER BILLING	254,513.75	
	ELMWSA OPERATING AND INTERCONNECT COSTS	274,846.64	
	TOTAL	529,360.39	
6. CUMMINS INC	AUG 11 2020 GENERATOR REPAIR CHAMPION WOODS LIFT STATION	670.09	
	GENERATOR REPAIR MAIN LIFT STATION - AUG 2020	2,063.52	
	TOTAL	2,733.61	
7. FERGUSON WATERWORKS #3386	PARTS FOR CUSTOMER INSTALLATION 2020	436.60	
8. GALLAGHER BENEFIT SERVICES, INC	AUGUST 2020 HEALTH & WELFARE FEES	470.74	
	SEPT 2020 MONTHLY CONSULTING FEE	470.74	
	TOTAL	941.48	
9. GIGUERE HOMES INC.	REIMB OF PERFORMANCE GUARANTEE FOR 5127 CHAGGAL	2,000.00	
	REIMB FOR PERFORMANCE GUARANTEE FOR 2340-2342 FIELDSTONE	993.25	
	TOTAL	2,993.25	
10. GRAINGER	PARTS FOR SUBMERSIBLE LIFT STATION TRANSDUCER FOR COUNTY	564.00	
11. GREG TEACHOUT	OVERPAYMENT REIMB - 4852 HILLCREST AVE	163.54	
12. HYDROCORP	CROSS CONNECTION CONTROL PROGRAM SERVICES- AUG 2020	2,430.00	
13. IDC CORPORATION	LIFT STATION CONTROLS MAINTENANCE JUNE/JULY/AUG 2020	2,495.50	
	LIFT STATION REPAIRS JUNE/JULY/AUG 2020	133.50	
	LIFT STATION CONTROLS MAINTENANCE AUGUST 2020	500.50	
	LIFT STATION CONTROLS MAINTENANCE AUGUST 2020	513.50	
	TOTAL	3,643.00	
14. JENNIFER BREWER	OVERPAYMENT ON FINAL WATER & SEWER BILL	128.29	
15. MICHIGAN SUPPLY CO	COPPER PIPE FOR METER PIT & IRRIGATION SPLITS	105.60	
16. ROWERDINK AUTOMOTIVE PARTS	BATTERY REPAIR PARTS AUGUST 2020	165.29	
17. RUSSELL BUILDERS INC	REIMB OF PERFORMANCE GUARANTEE	2,000.00	
18. TITLE RESOURCE AGENCY	OVERPAYMENT REIMB SEWER/WATER 1459 CHEBOYGAN RD	54.02	
	OVERPAYMENT REIMB WATER 4244 INDIAN GLEN DR	168.10	
	TOTAL	222.12	
19. VENKATARAMANA VOORADI	REIMB FOR PERFORMANCE GUARANTEE	2,000.00	
20. VERIZON WIRELESS	ACCT #686304174-00001 JULY 24 TO AUG 23 2020	453.67	
TOTAL - ALL VENDORS		549,279.65	
BANK TOTALS:			
Bank PWRZ PUBLIC WORKS		549,279.65	

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DB: Meridian

INVOICE APPROVAL BY INVOICE REPORT FOR CHARTER TOWNSHIP OF MERIDIAN
EXP CHECK RUN DATES 09/15/2020 - 09/15/2020
BOTH JOURNALIZED AND UNJOURNALIZED OPEN AND PAID
BANK CODE: TA

Vendor Name	Description	Amount	Check #
1. BIANCA'S ADULT FOST CARE	DOCKET 154-20-0148 - STATE TAX COMMISSION ORDER	194.18	12979
2. MIMG LXVI MI6 MASTER LLC	33-02-02-91-519-741 - STATE TAX COMMISSION ORDER	7,690.99	12980
3. STATE OF MICHIGAN	REF #MI3392600 - SOR REG FEES AUG 2020	60.00	
4. TEG CENTRAL LLC	33-02-02-90-530-270 - STATE TAX COMMISSION ORDER	2,045.46	12981
5. TEG CLUB MERIDIAN LLC	DOCKET #154-20-0095 - STATE TAX COMMISSION ORDER	2,027.31	12982
6. ZUMIEZ INC	DOCKET #154-20-0099 - STATE TAX COMMISSION ORDER	1,767.99	12983
TOTAL - ALL VENDORS		13,785.93	
BANK TOTALS:			
Bank TA TRUST & AGENCY		13,785.93	

Credit Card Report 8/27/2020-9/10/2020

Posting Date	Merchant Name	Amount	Name
2020/08/27	THE HOME DEPOT #2723	\$5.98	WILLIAM RICHARDSON
2020/08/27	AMZN MKTP US*MM4GD0BZ0	\$166.89	ANDREA SMILEY
2020/08/27	SP * BROOKLYNEQUIPMENT	\$54.30	YOUNES ISHRAIDI
2020/08/27	MICHIGAN WATER ENVIORNMEN	\$77.00	ROBERT MACKENZIE
2020/08/27	GRAINGER	\$8.59	ROBERT MACKENZIE
2020/08/27	OFFICEMAX/OFFICEDEPT#3379	\$19.99	DEREK PERRY
2020/08/28	THE HOME DEPOT #2723	\$39.50	LAWRENCE BOBB
2020/08/28	THE HOME DEPOT #2723	\$35.88	TYLER KENNEL
2020/08/28	ASAP PRINTING	\$79.90	KRISTEN COLE
2020/08/28	COMPLETE BATTERY SOURCE	\$68.34	WILLIAM PRIESE
2020/08/31	MENARDS LANSING WEST MI	\$228.48	LAWRENCE BOBB
2020/08/31	THE HOME DEPOT 2723	\$87.85	LAWRENCE BOBB
2020/08/31	CATHEY COMPANY	\$170.88	ROBERT STACY
2020/08/31	THE HOME DEPOT #2723	\$56.13	TODD FRANK
2020/08/31	AMZN MKTP US*MU6JD63R1	\$201.88	STEPHEN GEBES
2020/08/31	AMZN MKTP US*MM9FK02E0	\$197.94	STEPHEN GEBES
2020/08/31	JOHNSON SIGN CO.	\$67.50	PETER MENSER
2020/08/31	OFFICEMAX/OFFICEDEPT#3379	\$9.99	WILLIAM PRIESE
2020/08/31	THE HOME DEPOT #2723	\$31.06	CATHERINE ADAMS
2020/09/01	MERIDIAN AREA BUSINESS AS	\$150.00	KRISTI SCHAEING
2020/09/01	IN *JOHNSON, ROBERTS, & A	\$15.00	KRISTI SCHAEING
2020/09/01	AMAZON.COM*MU1066P11 AMZN	\$31.65	MICHELLE PRINZ
2020/09/02	THE HOME DEPOT #2723	\$21.73	LAWRENCE BOBB
2020/09/02	SKID STEER SOLUTIONS, INC	\$121.90	JIM HANSEN
2020/09/02	WAL-MART #2866	\$9.92	CHAD HOUCK
2020/09/02	OFFICEMAX/OFFICEDEPT#3379	\$12.99	JANE GREENWAY
2020/09/02	THE HOME DEPOT #2723	\$17.57	JANE GREENWAY
2020/09/02	DNR PLAINWELL RSS	\$2,000.00	LUANN MAISNER
2020/09/02	MSU PAYMENTS	\$395.00	PETER MENSER
2020/09/02	AMAZON.COM*MU57K3ML1 AMZN	\$65.90	MICHELLE PRINZ
2020/09/02	SOLDANS FEEDS & PET S	\$10.14	CATHERINE ADAMS
2020/09/03	MIDWEST POWER EQUIPMENT	\$7.44	MARK VROMAN
2020/09/03	MIDWEST POWER EQUIPMENT	\$72.99	KEITH HEWITT
2020/09/03	MIDWEST POWER EQUIPMENT	\$84.98	KEITH HEWITT
2020/09/03	USA BLUE BOOK	\$228.15	MATT FOREMAN
2020/09/04	THE HOME DEPOT #2723	\$62.81	LAWRENCE BOBB
2020/09/04	THE HOME DEPOT #2723	\$32.94	KYLE FOGG
2020/09/04	COMCAST	\$314.46	ANDREA SMILEY
2020/09/04	AMZN MKTP US*MU6ZL20I2	\$32.99	STEPHEN GEBES
2020/09/04	AMZN MKTP US*MU69W5Q61 AM	\$44.22	MICHELLE PRINZ
2020/09/04	AMZN MKTP US*MU36I1E42	\$17.97	MICHELLE PRINZ
2020/09/04	ACCO BRANDS DIRECT	\$29.59	MICHELLE PRINZ
2020/09/04	PAYPAL *ANCA	\$130.00	CATHERINE ADAMS
2020/09/04	NATIONAL ASSOC FOR INTER	\$75.00	CATHERINE ADAMS
2020/09/07	AMZN MKTP US*MU3PE6012	\$11.44	MICHELLE PRINZ
2020/09/07	MICHIGAN TOWNSHIPS ASS	\$45.00	MICHELLE PRINZ
2020/09/07	FEDEX 940512369645	\$3.70	WILLIAM PRIESE
2020/09/07	FEDEX 396478390514	\$14.27	WILLIAM PRIESE
2020/09/07	PAYPAL *MIKE DUPUY	\$244.83	CATHERINE ADAMS
2020/09/07	PAYPAL *HARMONBROOK	\$142.45	CATHERINE ADAMS
2020/09/07	MEIJER # 025	\$11.61	CATHERINE ADAMS
2020/09/08	THE HOME DEPOT #2723	\$39.50	TAVIS MILLEROV

2020/09/08	AMAZON.COM*MU11U8EE0 AMZN	\$16.97	MICHELLE PRINZ
2020/09/08	AMAZON.COM*MU43655R2	\$22.06	MICHELLE PRINZ
2020/09/09	SKID STEER SOLUTIONS, INC	\$20.85	JIM HANSEN
2020/09/09	AMAZON.COM*MU27S7IT1 AMZN	\$97.20	ROBERT MACKENZIE
2020/09/09	BUILDASIGN.COM	(\$9.47)	LUANN MAISNER
2020/09/09	BUILDASIGN.COM	(\$9.59)	LUANN MAISNER
2020/09/09	JIMMY JOHNS - 90055 - MOT	\$98.00	MICHELLE PRINZ
2020/09/09	SOLDANS FEEDS & PET S	\$10.74	CATHERINE ADAMS
2020/09/10	THE HOME DEPOT #2723	\$17.41	LAWRENCE BOBB
2020/09/10	TRACTOR SUPPLY #1149	\$28.98	ROBERT STACY
2020/09/10	MICHIGAN CAT LANSING	\$47.60	TODD FRANK
2020/09/10	THE HOME DEPOT #2723	\$39.83	TODD FRANK
2020/09/10	CUSTOMINK LLC	\$1,141.09	JANE GREENWAY
2020/09/10	AMAZON.COM*MU7CO8X90 AMZN	\$43.12	ROBERT MACKENZIE
2020/09/10	OFFICEMAX/OFFICEDEPT#3379	\$34.99	WILLIAM PRIESE
2020/09/10	CULLIGAN WATER CONDITION	\$55.20	CATHERINE ADAMS

Total	\$7,761.20
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ACH Transactions

Date	Payee	Amount	Purpose
8/28/2020	ICMA	\$ 59,700.19	Payroll Deductions 08/28/2020
8/28/2020	Nationwide	\$ 4,288.01	Payroll Deductions 08/28/2020
8/28/2020	IRS	\$ 100,138.14	Payroll Taxex 08/28/2020
8/28/2020	Various Financial Institutions	\$ 260,013.38	Direct Deposit 08/28/2020
8/28/2020	State of MI	\$ 28,163.55	MI Bus Tax
9/2/2020	Blue Care Network	\$ 12,095.63	Employee Health Insurance
9/2/2020	Blue Care Network	\$ 59,386.33	Employee Health Insurance
9/4/2020	Invoice Cloud	\$ 1,408.65	Utility Transaction Fee
9/4/2020	MERS Purchase	\$ 17,633.06	Employee Retirement
9/4/2020	MERS Purchase	\$ 232,182.81	Employee Retirement
Total ACH Payments		<u><u>\$ 775,009.75</u></u>	



9. D

To: Township Board
From: Brett Dreyfus, Township Clerk
Date: September 10, 2020
Re: Opt-in to Ingham County Absent Voter Counting Board

Due to changes in State of Michigan Election statutes, MCL 168.764d, qualified Townships can now combine Absent Voter Counting Boards (AVCBs). Ingham County has offered Meridian Township an opportunity to establish a combined AVCB. After careful consideration of the advantages and disadvantages of this approach, and a number of discussions on this issue, I have decided to recommend that we move forward on this proposal for the November 3, 2020 General Election.

The following motion is prepared for Board consideration:

MOVE TO APPROVE AND EXECUTE AN AGREEMENT WITH THE INGHAM COUNTY CLERK'S OFFICE TO ESTABLISH A COMBINED ABSENT VOTER COUNTING BOARD TO COUNT THE ABSENT VOTER BALLOTS RECEIVED BY THE MERIDIAN TOWNSHIP CLERK'S OFFICE FOR THE NOVEMBER 3, 2020 GENERAL ELECTION.



11.A/13.A

To: Township Board
From: Peter Menser, Principal Planner
Date: September 10, 2020
Re: Pine Village Brownfield Plan

Hudson Senior Living, LLC has submitted a brownfield plan for the property at 1673 Haslett Road, located at the southwest corner of Marsh Road and Haslett Road in the Haslett Village Square shopping center. The site is currently developed with a 23,415 square foot multi-tenant commercial building, which is slated for demolition. Construction of a new 147,721 square foot building consisting of a 133 senior apartments and 9,114 square feet of leasable commercial space was approved by the Township Board (MUPUD #19034) at its meeting on June 2, 2020. The 9.6 acre subject site is zoned C-2 (Commercial).

The proposed brownfield plan is for \$2,702,417 over 15 years. The Meridian Township Brownfield Redevelopment Authority (BRA) would capture \$135,121 for administrative costs and \$135,121 for the local brownfield revolving fund (LBRF). Two percent interest and 15 percent contingency is proposed in the brownfield plan. Brett Stuntz from SME, the Township's brownfield consultant for this project, has submitted a report summarizing the brownfield plan (attached) and will be in attendance at the meeting to provide an overview of the request and answer any questions.

The Meridian Township Brownfield Redevelopment Authority (MTBRA) discussed the brownfield plan at its meeting on August 20, 2020 and voted to recommend approval of the plan to the Township Board. The brownfield plan originally proposed five percent interest but the MTBRA recommended approval of the plan at two percent.

Decision Criteria

In considering the brownfield plan, the Brownfield Redevelopment Financing Act (Public Act 381 of 1996) requires that the "governing body shall determine whether the plan constitutes a public purpose," however it does not provide a definition of the term "public purpose." The Natural Resources and Environmental Protection Act (specifically Part 196 of Public Act 451 of 1994), which is used by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) staff in evaluating brownfield grant and loan applications, provides some guidance that includes whether or not a project provides significant and measureable environmental, community, and economic benefits. Economic benefits are comprised of private investment, increases in taxable value, and job creation.

If the Township Board determines that the plan does not constitute a public purpose it can deny the brownfield plan. If a public purpose is identified, the Board can approve the plan, reject the plan, or approve it with modifications, based on the following considerations:

**Pine Village Brownfield Plan
Township Board (September 15, 2020)
Page 2**

- Whether the plan meets the requirements of Section 13 of the Act, which references items required for inclusion in the plan itself, including information on financing, descriptions of eligible activities, and details on how the tax increment revenues generated by the project will be used.
- Whether the proposed method of financing the costs of eligible activities is feasible and the MTBRA, on behalf of the developer, has the ability to arrange the financing.
- Whether the costs of eligible activities proposed are reasonable and necessary to carry out the purposes of this act.
- Whether the amount of captured taxable value estimated to result from adoption of the plan is reasonable.

The bullet points above are technical in nature and have been vetted and confirmed by the Township's brownfield consultant and are detailed in the attached review letter. The consideration of the plan constituting a public purpose must be determined by the Township Board.

Township Board Options

The Township Board has the option to approve, approve with modifications, or deny the proposed brownfield plan. A resolution will be provided at a future meeting.

Attachments

1. Review memo prepared by SME dated August 17, 2020.
2. Pine Village Brownfield Plan prepared by Triterra dated August 17, 2020 (Revision Date August 28, 2020).
3. Triterra brownfield plan presentation slides.

G:\Community Planning & Development\Planning\BROWNFIELDS\2020\Pine Village\1673 Haslett Road brownfield plan.tb1.docx



SME

MEMORANDUM

DATE: August 17, 2020

TO: Peter Menser
Principal Planner
Meridian Township
5151 Marsh Road, Okemos, MI 48864

FROM: Bret Stuntz
Senior Consultant

SUBJECT: Pine Village of Meridian Redevelopment Project
1673 Haslett Road
Haslett, MI
SME Project No.: 084733.00

SME reviewed the Brownfield Plan prepared for the Pine Village of Meridian Redevelopment Project (the "Plan") to address the following:

- Compliance with Michigan's brownfield statute
- Eligibility of activities included in the plan
- A financial review of the tax increment revenue projections

Compliance with Michigan's Brownfield Statute

Michigan's Brownfield Redevelopment Financing Act, Public Act 381 of 1996, as amended, (the "Act") specifies required elements for brownfield plans. These elements are listed in Section 13(2)(a)-(m) of the Act. We reviewed the current draft of the Plan and are of the opinion that it complies with the Act's requirements.

Eligibility of Activities

We reviewed the eligible activities and other reimbursable costs included in the Plan. Since Meridian Township is a "non-core" community, eligible activities are limited to:

- Department Specific Activities (i.e., environmental activities including assessment and response activities or corrective actions);
- Relocation of public buildings for economic development purposes;
- Costs of environmental insurance;
- Costs incurred to prepare a brownfield plan and Act 381 Work Plan;
- Costs for brownfield plan implementation;
- Demolition of structures;
- Lead, mold, or asbestos surveys and abatement;
- And repayment of principal or interest on obligations issued by a brownfield authority.

Pursuant to the Act, an authority may also reimburse interest on eligible activity repayment, as well as reimburse brownfield redevelopment authority (BRA) administrative and operating costs, and make deposits into a BRA's Local Brownfield Redevelopment Fund (LBRF).

The Plan includes costs for Department Specific Activities (assessment, due care planning/compliance, vapor mitigation, contaminated soil management, and associated costs), asbestos and lead activities, demolition, brownfield plan preparation and implementation, and interest. Based on the provided site plan and documents included for current conditions, it is our opinion that the eligible activity costs are reasonable and appropriate estimates.

Review of TIF Projections

We conducted a review of the Plan's financial assumptions and projections, including taxable values, tax increment revenue projections, and reimbursement projections. It is our opinion that the estimates and projections included are reasonable and in accordance with generally accepted brownfield practice in Michigan.

Prepared By:

Reviewed By:

Bret B. Stuntz
Senior Consultant

Daniel R. Cassidy
Principal Consultant/Vice President

**MERIDIAN TOWNSHIP
BROWNFIELD REDEVELOPMENT AUTHORITY**

BROWNFIELD PLAN

**Pine Village of Meridian
1673 Haslett Road
Haslett, Michigan 48840**

Meridian Township Brownfield Redevelopment Authority
1515 Marsh Road
Okemos, Michigan 48864
Contact: Peter Menser, Principal Planner
menser@meridian.mi.us
Phone: 517-853-4576

Prepared By:
Triterra
1305 S. Washington Avenue, Suite 102
Lansing, Michigan 48910
Contact: Dave Van Haaren
dave.vanhaaren@triterra.us
Phone: 517-853-2152

August 17, 2020
Revised August 28, 2020

Approved by the Meridian Township BRA on August 20, 2020
Approved by the Meridian Charter Township Board of Trustees on _____, 2020

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- Table 3: Tax Increment Revenue Reimbursement Allocation Table

ATTACHMENTS

- Attachment A: ALTA/NSPS Land Title Survey and Legal Description

1.0 PROJECT SUMMARY

Project Name:	Pine Village of Meridian
Developer:	Hudson Senior Living, LLC (the “Developer”) 280 W. Maple Road, Suite 230 Birmingham, Michigan 48009 Michael Parks
Property Location:	1655-1673 Haslett Road and 1659 Raby Road Haslett, Michigan 48840
Parcel Information:	33-02-02-10-401-003, 33-02-02-10-402-001, 33-02-02-10-401-005 (partial)
Type of Eligible Property:	“Facility” and “adjacent and contiguous”
Project Description:	<p>A redevelopment of the subject property located on the south side of Haslett Road in Meridian Charter Township. The project includes the demolition of an approximately 23,415-square foot, single-story multi-tenant commercial building located at 1673 Haslett Road and the adjacent shopping center building located at 1655 Haslett Road. The developer will construct a four-story, 147,721 square foot, mixed-use building consisting of a senior apartment building with a total of 132 residential units and 9,114 square feet of leasable commercial space. A new parking lot and site improvements will be constructed on the east, south, and west sides of the building.</p> <p>Brownfield eligible activities include pre-approved activities, department specific activities, asbestos survey and abatement activities, demolition, and preparation and implementation of a Brownfield Plan.</p>
Total Capital Investment:	Total capital investment is estimated at \$12,000,000 of which \$2,432,175 is currently proposed for Brownfield Reimbursement to the Developer.
Estimated Job Creation/Retention:	The redevelopment is anticipated to generate 55 new full-time equivalent (FTE) jobs.

Duration of Plan: The duration of this Brownfield Plan is 15 years and includes capture of Tax Increment Revenue (TIR) for: 1) reimbursement to the Developer for eligible activities, 2) BRA administration of the Plan and 3) deposits into the BRA’s Local Brownfield Revolving Fund (LBRF).

Total Captured Tax Increment Revenue: \$2,702,417

Distribution of New Taxes Paid	
Developer Reimbursement	\$2,432,175
Sub-Total Developer Reimbursement	\$2,432,175
State Brownfield Revolving Fund	\$0
BRA Plan Administrative Fees	\$135,121
Local Brownfield Revolving Fund (LBRF)	\$135,121
Sub-Total Administrative Fees, LBRF Deposits	\$270,242
Grand Total	\$2,702,417

2.0 INTRODUCTION AND PURPOSE

The Meridian Township Brownfield Redevelopment Authority (the “Authority” or “BRA”), duly established by resolution of the Meridian Charter Township Board of Trustees (the “Township”), pursuant to the Brownfield Redevelopment Financing Act, Michigan Public Act 381 of 1996, MCLA 125.2651 et. seq., as amended (“Act 381”), is authorized to exercise its powers within Meridian Charter Township, Michigan.

The proposed redevelopment will only be economically viable with the support and approval of the brownfield redevelopment incentives described herein.

3.0 ELIGIBLE PROPERTY INFORMATION

This Plan is presented to support the Developer in the redevelopment of the subject property situated on the south side of Haslett Road in Haslett, an unincorporated community in Meridian Charter Township, Ingham County, Michigan (the “Property”). The location of the Property is depicted on Figure 1.

The Property is fully defined in the following table and in Attachment A.

Eligible Property		
Address	Tax ID	Basis of Eligibility
1673 Haslett Road	33-02-02-10-401-003	“Facility”
1655 Haslett Road	33-02-02-10-401-005 (partial)	“Adjacent and Contiguous”
1659 Raby Road	33-02-02-10-402-001	“Adjacent and Contiguous”

The parcels listed above that comprise of the eligible property as of July 2020 and will be split and combined as outlined in Attachment A. Attachment A illustrates the intended future division for the eligible property.

The Property is zoned C-2, Commercial District and is located within the Meridian Charter Township.

The Property is surrounded by undeveloped land and active commercial property. Property layout and boundaries are depicted on Figure 2. The legal description of the Property is included in Attachment A.

The Property is considered an “eligible property” as defined by Act 381, Section 2 because: (a) the Property was previously utilized as a commercial property; (b) one parcel of the Property is a “facility” as the term is defined by Part 201 of Michigan’s Natural Resources and Environmental Protection Act (“NREPA”), P.A. 451 of 1994, as amended; and (c) two parcels are adjacent and contiguous to the “facility” parcel and development of the adjacent and continuous parcels is estimated to increase the captured taxable value of the “facility” parcel. Figure 3 depicts environmental impact on the Property.

4.0 PROPOSED REDEVELOPMENT

The Project includes the demolition of two commercial buildings and the construction of a new approximately 147,721 square foot, four-story mixed-use commercial and residential building.

The new building will include 9,114 square feet of business retail units on the first floor and a total of 132 residential units, a leasing office, lobby, residential community kitchen and dining. A new parking lot will be constructed along the east, south, and west sides of the building. The development will include 295 parking spaces.

The total anticipated investment into the redevelopment project is estimated at \$12,000,000. The development will result in the redevelopment of one contaminated parcel and removal of a blighted, functionally obsolete building on the adjacent and contiguous parcel to the east. This development will dramatically improve the appearance of the Property. The Project will significantly increase density to the area and provide additional support to existing retail establishments in the township, as well as create jobs.

The improvements to the Property will be permanent and significantly increase the taxable value of the Property. These improvements will also assist in increasing the property values of the neighborhood.

The Project would not be possible without financial support through Brownfield tax increment financing (TIF) and other local incentives outlined in Section 6.12.

The redevelopment is anticipated to generate 55 new full-time equivalent jobs.

5.0 BROWNFIELD CONDITIONS

The existing building on the 1673 Haslett Road parcel was constructed in 1985 and has since been used for various commercial purposes, including offices, retail, and restaurants. According to historical documents, a dry cleaner operated on the Property from at least 1990 to 2001. At least one underground storage tank (UST) once used for the storage of dry-cleaning product (i.e. chlorinated cleaning solvent) was reported to have existed on the parcel. The UST may have been removed from the ground or abandoned onsite. Subsurface investigations conducted on the Property in 1996 and 2020 identified various volatile organic compounds (VOCs), including tetrachloroethene, in soil above the Michigan Department of Environment, Great Lakes, Energy (EGLE) Part 201 Residential Generic Cleanup Criteria (GCC). The parcel therefore meets the definition of a “facility”, as defined by Section 20101(s) of PA 451, Part 201, as amended. In addition, soil gas samples collected from the parcel in June 2020 revealed various VOCs above method detection limits, including tetrachloroethene above the Media-Specific Recommended Indoor Air Screening Levels (RIASLs), which indicates a vapor encroachment condition on the Property. Refer to Figure 3 to review environmental impact at the 1673 Haslett Road parcel.

The existing building on the 1655 Haslett Road parcel portion was constructed in 1980 and has since been used for commercial purposes. The 1659 Raby Road parcel portion is undeveloped.

6.0 BROWNFIELD PLAN

6.1 Description of Costs to Be Paid with Tax Increment Revenues and Summary of Eligible Activities

The Developer will be reimbursed with the new local taxes levied by the Project for the costs of eligible activities necessary to support redevelopment of the Property. The activities that are intended to be carried out at the Property are considered “eligible activities” as defined by Sec 2 of Act 381.

Brownfield eligible activities proposed by the Developer include EGLE pre-approved activities, EGLE department specific activities; asbestos assessment and abatement activities; demolition; and preparation and implementation of the Brownfield Plan.

The costs of eligible activities included in, and authorized by, this Plan will be reimbursed with incremental local tax revenues generated by the Property and captured by the BRA, subject to any limitations and conditions described in this Plan and the terms of a Reimbursement Agreement between the Developer and the Authority (the “Reimbursement Agreement”). This Plan is a “Local-only” Plan and does not include or propose capture of state tax revenues for reimbursement to the Developer or BRA

The total cost of activities eligible for Developer reimbursement from tax increment revenues is projected to be \$2,432,175. The eligible activities are summarized below:

Summary of Eligible Activities	
EGLE Eligible Activities	Cost
Pre-Approved Activities	\$18,510
Department Specific Activities	\$1,119,763
Total Environmental Eligible Activities	\$1,138,273
MSF Eligible Activities	Cost
Asbestos and Lead Activities	\$117,850
Demolition	\$566,500
Total Non-Environmental Eligible Activities	\$684,350
Contingency (15%) *	\$270,549
Brownfield Plan Preparation	\$15,000
Brownfield Plan Implementation	\$15,000
Interest (2%, simple) **	\$309,003
Total Eligible Cost for Reimbursement	\$2,432,175

- * Contingency calculation excludes costs for pre-approved activities, asbestos survey, Brownfield Plan preparation and implementation.
- ** Interest is calculated annually at 2% simple interest on Developer eligible activities, except cost for Brownfield Plan preparation.

A detailed breakdown in eligible activities is provided in Table 1, Brownfield Eligible Activities.

The costs listed above are estimated and may increase or decrease depending on the nature and extent of unknown conditions encountered on the Property. The actual cost of those eligible activities encompassed by this Plan that will qualify for reimbursement from tax increment revenues captured by the BRA shall be governed by the terms of a Reimbursement Agreement. No costs of eligible activities will be qualified for reimbursement except to the extent permitted in accordance with the terms and conditions of the Reimbursement Agreement and Section 2 of Act 381 of 1996, as amended (MCL 125.2652). The Reimbursement Agreement and this Plan will dictate the total cost of eligible activities subject to payment. As long as the total cost limit described in this Plan is not exceeded, line item costs of eligible activities may be adjusted within Environmental eligible activities and Non-Environmental eligible activities after the date this Plan is approved by the Meridian Charter Township Board of Trustees.

6.2 Estimate of Captured Taxable Value, Tax Increment Revenues and Impact of Tax Increment Financing on Taxing Jurisdictions

The costs of eligible activities included in, and authorized by, this Plan will be reimbursed with incremental local tax revenues generated by the Property and captured by the BRA.

The base taxable value for this Plan is \$914,054, which is based on the following.

Eligible Property – Base Taxable Value		
Address	Tax ID	2020 Taxable Value
1673 Haslett Road	33-02-02-10-401-003	\$269,111
1655 Haslett Road	33-02-02-10-401-005 (partial)	\$571,705 (85% of the parent parcel)
1659 Raby Road	33-02-02-10-402-001	\$73,238
TOTAL		\$914,054

The projected new taxable value is phased over 2 years with an estimated taxable value of \$6,000,000 in 2022. The actual taxable value will be determined by the Township Assessor

after the development is completed. It is estimated that the BRA will capture tax increment revenues from 2021 through 2035 for BRA administrative fees and for deposits into the BRA’s Local Brownfield Revolving Fund (LBRF).

The following table presents a summary of the new tax revenues generated by the taxing jurisdictions whose millage is subject to capture by the BRA under this Plan. These are estimations based on the residential and commercial components of the proposed redevelopment.

Projected Impact to Taxing Jurisdictions			
Taxing Unit	New Taxes to Taxing Units*	New Taxes for BRA Administration, LBRF Deposits and Developer Reimbursement	Total New Taxes
School Operating	\$1,314,863		\$1,314,863
State Education Tax (SET)	\$438,288		\$438,288
Haslett Bldg/Site		\$145,701	\$145,701
Meridian Operating		\$304,391	\$304,391
Rec/Srs/Hum Serv		\$10,862	\$10,862
Meridian Bikepath		\$24,223	\$24,223
Meridian Fire		\$46,407	\$46,407
Meridian Parks		\$48,299	\$48,299
Meridian Police		\$44,048	\$44,048
Land Preserve		\$23,909	\$23,909
Police and Fire		\$108,140	\$108,140
CATA/Regular		\$219,655	\$219,655
CADL-Library		\$113,955	\$113,955
Ingham County		\$827,955	\$827,955
Ingham Intermediate		\$455,702	\$455,702
Airport Authority		\$51,061	\$51,061
Lansing Community College		\$278,108	\$278,108
Haslett Debt	\$608,490		\$608,490
Road Improvement Debt	\$141,925		\$141,925
Firestation Debt	\$14,610		\$14,610
Total	\$2,518,175 (48%)	\$2,702,417 (52%)	\$5,220,592

Impact to specific taxing jurisdictions is further presented in Table 2, Tax Increment Revenue Capture Estimates, and a schedule of tax increment revenue is presented in Table 3, Tax Increment Revenue Allocation Table.

The captured incremental taxable value and associated tax increment revenue will be based on the actual increased taxable value from all real and personal taxable improvements on the Property as determined by the Township Assessor and the actual millage rates levied by the various taxing jurisdictions during each year of the plan. The actual tax increment captured will be based on taxable value set through the property assessment process by the local unit of government and the millage rates set each year by the taxing jurisdictions.

6.3 Method of Financing Plan Costs and Description of Advances by the Municipality

The Developer is ultimately responsible for financing the costs of its specific eligible activities included in this Plan. The BRA will not advance any funds to finance the Developer eligible activities described in this Plan. All Plan financing commitments and activities and cost reimbursements authorized under this Plan shall be governed by the Reimbursement Agreement. The inclusion of eligible activities and estimates of costs to be reimbursed in this Plan is intended to authorize the BRA to fund such reimbursements. The amount and source of any tax increment revenues that will be used for purposes authorized by this Plan, and the terms and conditions for such use and upon any reimbursement of the expenses permitted by the Plan, will be provided solely under the Reimbursement Agreement contemplated by this Plan.

Reimbursements under the Reimbursement Agreement shall not exceed the cost of eligible activities and reimbursement limits described in this Plan.

The BRA will capture 5% of the new local taxes per year for the duration of the Plan to cover its cost to administer the Plan. The LBRA will also deposit 5% of the new local taxes captured per year for the duration of the Plan for deposit into its LBRF. Total deposits into the LBRF will not exceed the sum total equivalent of 5 years of local tax increment revenue.

6.4. Maximum Amount of Note or Bonded Indebtedness

Eligible activities are to be financed by the Developer. The BRA will not incur any note or bonded indebtedness to finance Brownfield eligible activities outlined in this Plan.

6.5 Duration of Brownfield Plan

The duration of this Plan is projected to be 15 years after the first year of tax capture, which is anticipated as 2021.

The Property will become a part of this Plan on the date this Plan is approved by the governing body. In no event shall the duration of the Plan exceed 35 years following the date of the resolution approving the Plan, nor shall the duration of the tax capture exceed the lesser of the period authorized under subsections (4) and (5) of Section 13 of Act 381 or 30 years, except as authorized by those subsections or other provisions of Act 381. Further, in no event shall the beginning date of the capture of tax increment revenues be later than five years after the date of the resolution approving the Plan.

6.6 Legal Description, Property Map, Property Characteristics and Personal Property

An ALTA/NSPS Land Title Survey and legal description of the Property is provided in Attachment A. The general Property location and boundaries described in Section 3.0 and depicted on Figures 2 and 3 comprise eligible property as of July 2020. These parcels will be split and combined as outlined in Attachment A. Attachment A illustrates the intended future division for the eligible property.

The subject Property includes all tangible personal property that now or in the future comes to be owned or installed on the Property by the Developer or occupants.

6.7 Estimates of Residents and Displacement of Families

No occupied residences are involved in the redevelopment, no persons reside at the Property, and no families or individuals will be displaced as a result of this development.

6.8 Plan for Relocation of Displaced Persons

No persons will be displaced as a result of this development. Therefore, a Plan for relocation of displaced persons is not applicable and is not needed for this Plan.

6.9 Provisions for Relocation Costs

No persons will be displaced as result of this development, and no relocation costs will be incurred. Therefore, provision for relocation costs is not applicable and is not needed for this Plan.

6.10 Strategy for Compliance with Michigan's Relocation Assistance Law

No persons will be displaced as result of this development. Therefore, no relocation assistance strategy is needed for this Plan.

6.11 Description of the Proposed Use of Local Brownfield Revolving Fund

The BRA has established a LBRF. LBRF monies will not be used to finance or reimburse eligible activities incurred by the Developer as described in this Plan.

The LBRA will capture 5% of new local taxes generated from the Property per year for the duration of the Plan for deposit into the BRA's LBRF. Total deposits into the LBRF will not exceed the sum total equivalent of 5 years of local tax increment revenue.

6.12 Other Material that the Authority or Governing Body Considers Pertinent

The Authority and the Township, as the governing body, in accordance with the Act, may amend this Plan in the future in order to fund additional eligible activities associated with the Project or subject property described herein.

DRAFT

FIGURES

Figure 1: Property Location Map

Figure 2: Eligible Property Boundary Map

Figure 3: Demolition Boundary

Figure 4: 2020 Soil Boring Locations & Analytical Results

Figure 5: Soil Gas Sample Locations & Analytical Results

DRAFT

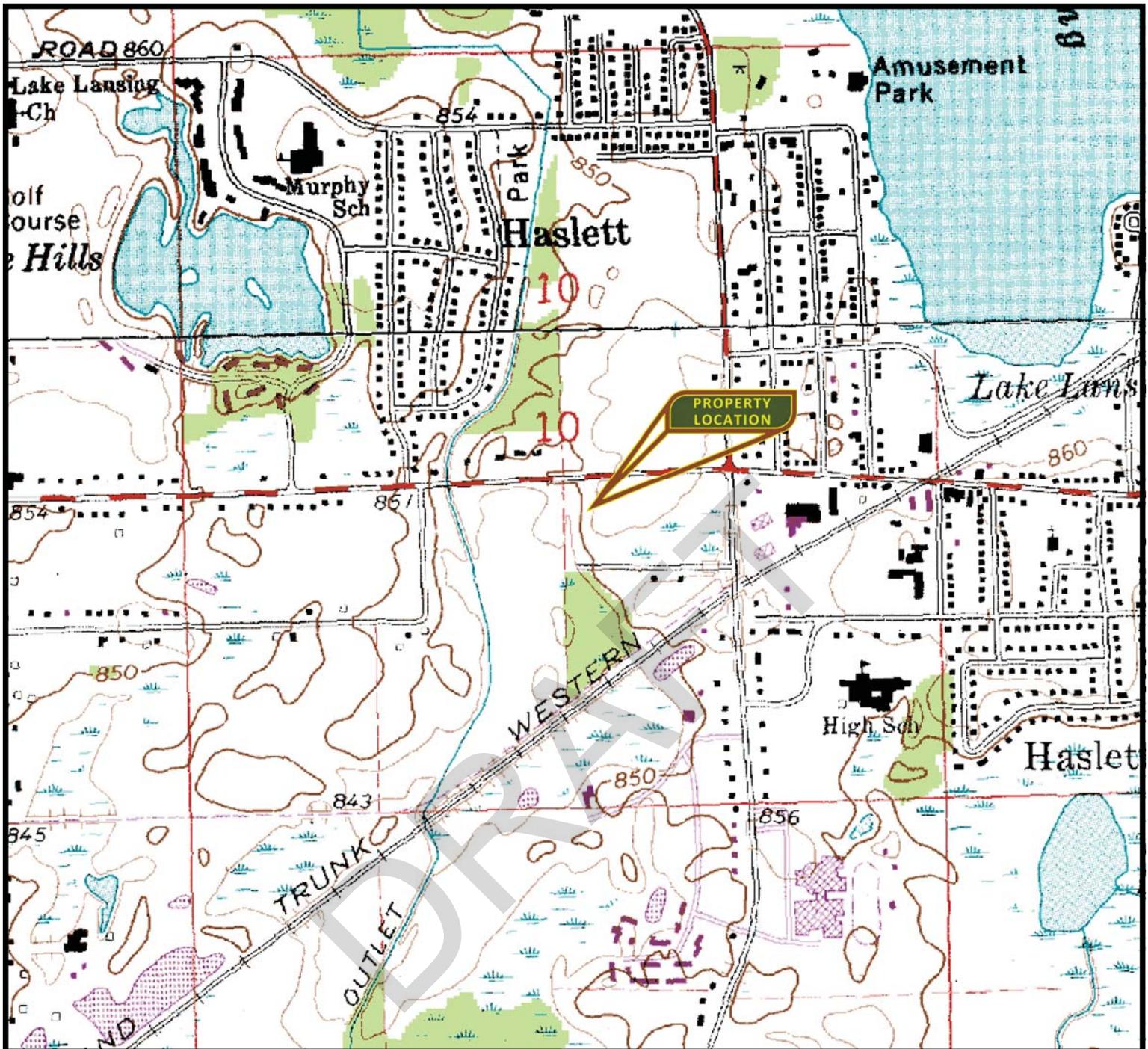


FIGURE 1
PROPERTY LOCATION DIAGRAM

TRI TERRA

1673 Haslett Road
Haslett, Michigan 48840

Ingham County
T4N, R1W, Section 10

Project Number: 19-2321

Adapted From MI Geographic Data Library DRG



1:12000





Aerial Image 7/7/2018



TRITERRA

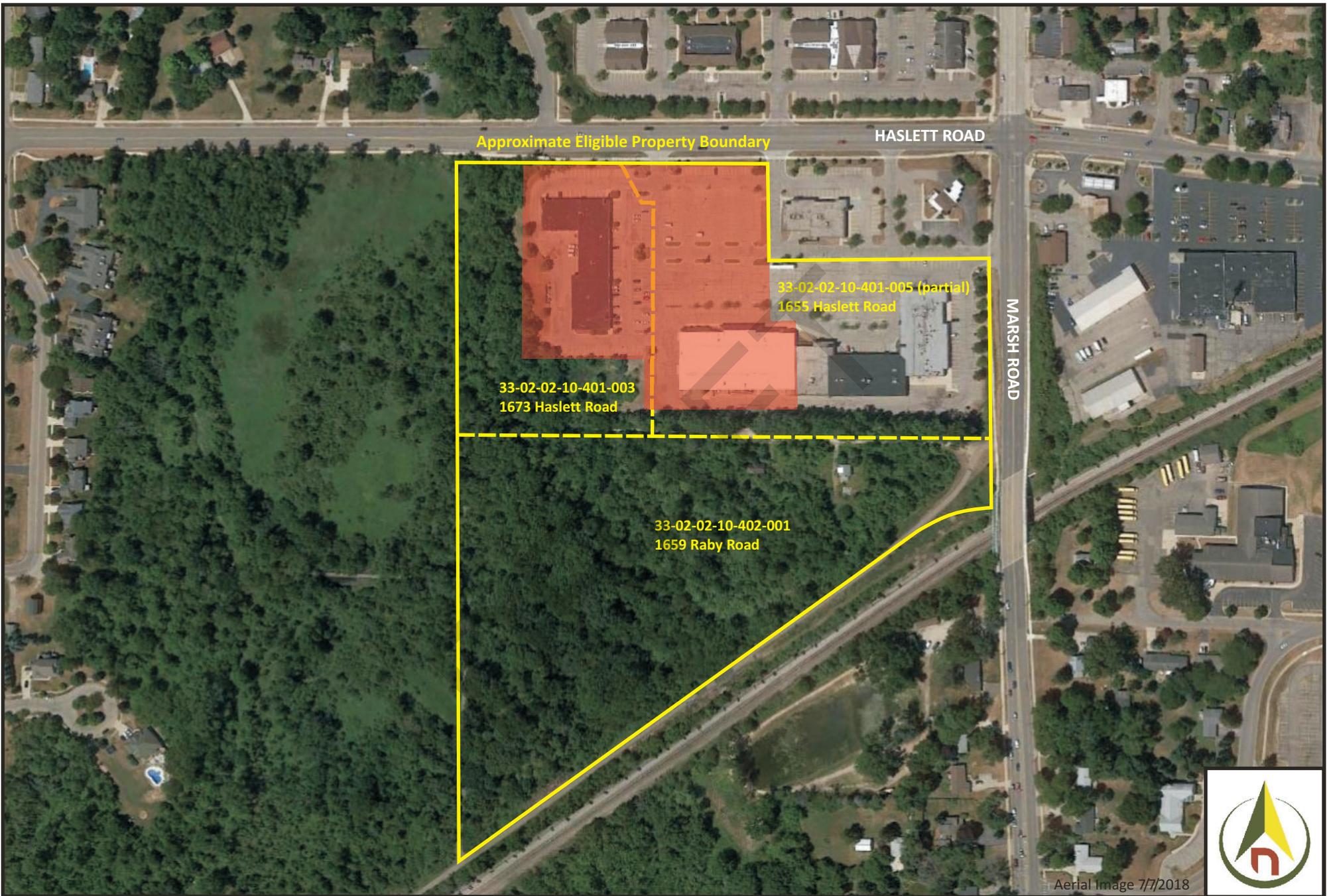
FIGURE 2

ELIGIBLE PROPERTY BOUNDARY

PROJECT NUMBER: 19-2321

**1673 HASLETT ROAD
HASLETT, MICHIGAN 48840**

DIAGRAM CREATED BY: RD DATE: 7/27/2020



TRI TERRA

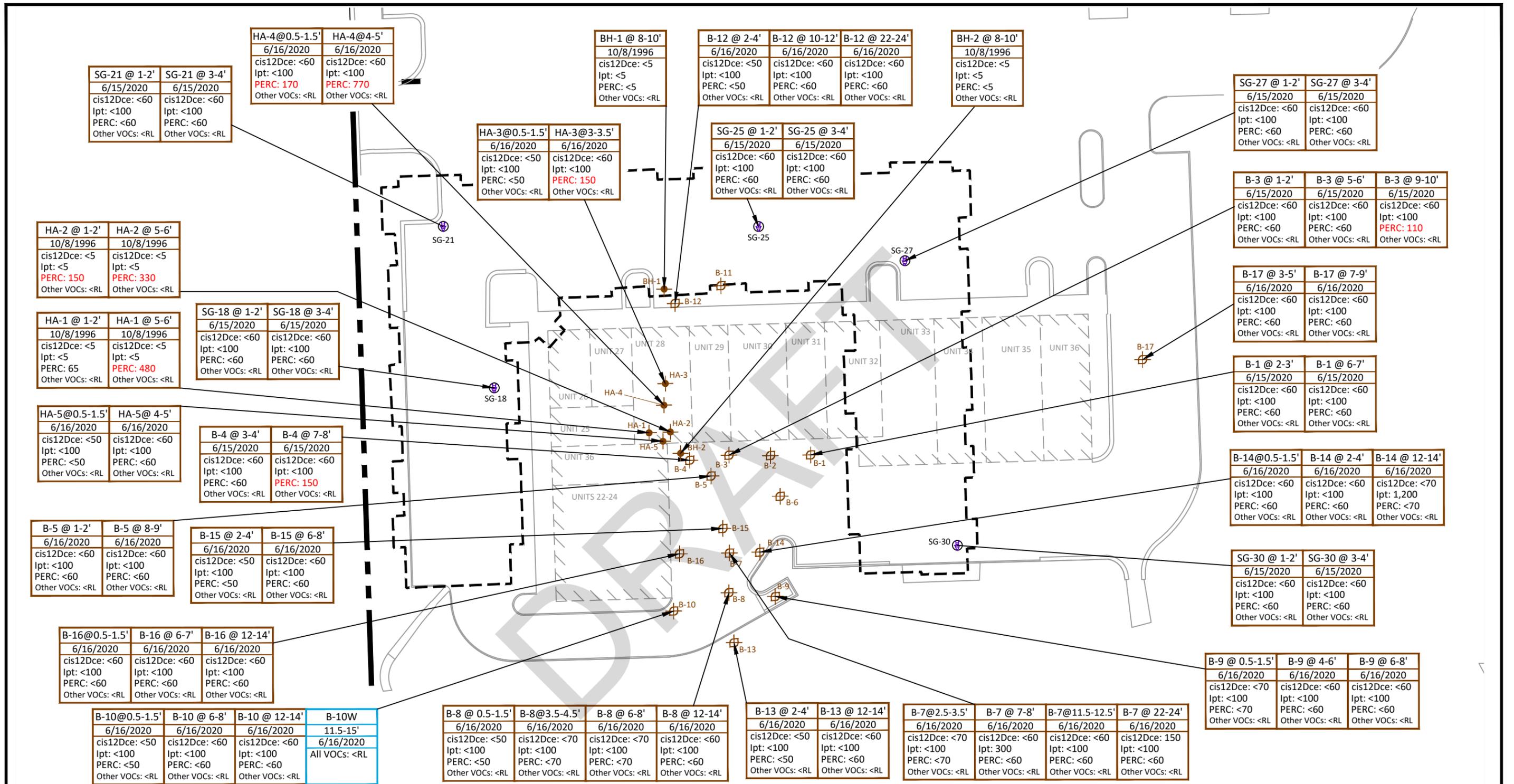
FIGURE 3

DEMOLITION BOUNDARY

PROJECT NUMBER: 19-2321

**1673 HASLETT ROAD
HASLETT, MICHIGAN 48840**

DIAGRAM CREATED BY: RD DATE: 7/27/2020



CONSTITUENTS LEGEND

VOLATILES (VOCs)
 cis12Dce: cis-1,2-Dichloroethylene
 lpt: Isopropyltoluene
 PERC: Tetrachloroethylene

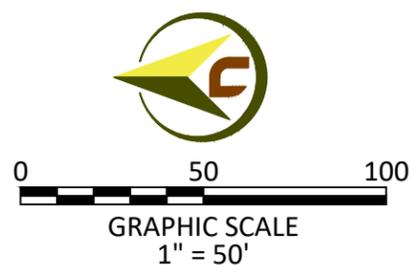
<RL: Result was below the laboratory reporting limits.

NOTES

1. Soil concentrations are in µg per kg (ppb).
2. GW concentrations are in µg per L (ppb).
3. All exceedances are highlighted in red.

SYMBOLS LEGEND

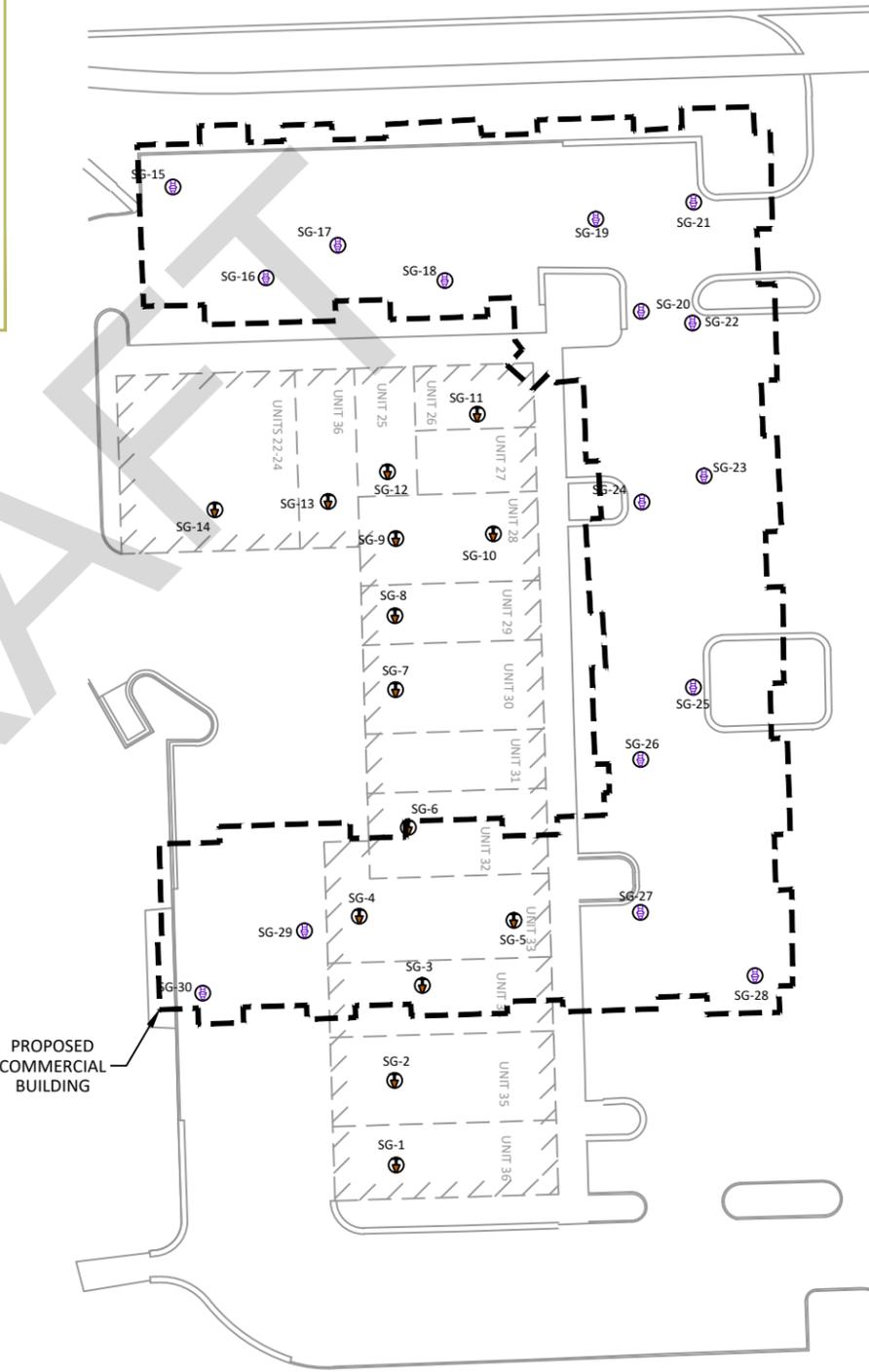
- SB-4 SOIL BORING LOCATION
- HA-4 SOIL SAMPLE LOCATION



 1305 South Washington, Suite 102, Lansing, MI 48910 Phone: 517-702-0470 Fax: 517-702-0477 www.triterra.us		SOIL SAMPLE LOCATIONS WITH ANALYTICAL RESULTS 1673 HASLETT ROAD & 1659 RABY ROAD HASLETT, MICHIGAN 48840	
DATE: 7/18/2020 DATE: 7/28/2020		DRAWN BY: JWJ REVISED BY: JWJ	
Diagram is for illustrative purposes only. Exact locations of items shown on figure may vary slightly.		PROJECT NUMBER: 20-2340-05	FIGURE 3

SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	SG-8	SG-9 + DUP.	SG-10	SG-11	SG-12	SG-13	SG-14
6/15/2020	6/15/2020	6/16/2020	6/15/2020	6/15/2020	6/15/2020	6/15/2020	6/15/2020	6/16/2020	6/16/2020	6/15/2020	6/15/2020	6/15/2020	6/15/2020
DMK: 62 B: <6.4 CS2: <19 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: <6.9 DCDFMA: 5,375 13Dcb: <12 EtOH: 75 E: <8.7 Hep: 16 Hex: 182 Hxn: <25 IPA: <59 MEK: <35 MIBK: <25 N: 16 PP: <100 124TMB: <45 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: <5.9 T: 19 TCE: <11 TCFMA: <11 VC: <5.1 X: <30 Others: <RL	DMK: 170 B: <16 CS2: <6.4 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: 6.9 DCDFMA: 2,530 13Dcb: <12 EtOH: 87 E: 13 Hep: 16 Hex: 18 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: 26 PP: <88 124TMB: <9.8 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: <5.9 T: 45 TCE: 16 TCFMA: 17 VC: <5.1 X: 22 Others: <RL	DMK: 290 B: <16 CS2: <16 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: 17 DCDFMA: 1,330 13Dcb: <12 EtOH: 140 E: 13 Hep: 25 Hex: 35 2Hxn: <20 IPA: <49 MEK: 59 MIBK: <20 N: 26 PP: <86 124TMB: 9.8 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: <5.9 T: 53 TCE: <11 TCFMA: <11 VC: <5.1 X: 35 Others: <RL	DMK: <640 B: <96 CS2: <220 CE: <5.3 CL: <150 CMA: <62 Cyhex: <100 DCDFMA: 9,000 13Dcb: <180 EtOH: <640 E: <130 Hep: <120 Hex: <110 2Hxn: <290 IPA: <660 MEK: <380 MIBK: <290 N: <160 PP: <1,200 124TMB: <150 135TMB: <150 224TMP: <140 PERC: <200 THF: <88 T: <110 TCE: <160 TCFMA: <170 VC: <5.1 X: <350 Others: <RL	DMK: <48 B: <6.4 CS2: <16 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: <6.9 DCDFMA: 1,700 13Dcb: <12 EtOH: <47 E: <8.7 Hep: <8.2 Hex: <7.0 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: <10 PP: <86 124TMB: <9.8 135TMB: <9.8 224TMP: <9.3 PERC: 20 THF: <5.9 T: <7.5 TCE: <11 TCFMA: <11 VC: <5.1 X: <26 Others: <RL	DMK: 170 B: 16 CS2: <16 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: 17 DCDFMA: 1,890 13Dcb: <12 EtOH: 280 E: 17 Hep: 29 Hex: 46 2Hxn: <20 IPA: <74 MEK: <29 MIBK: <20 N: 21 PP: <89 124TMB: 15 135TMB: <9.8 224TMP: <9.3 PERC: 27 THF: <5.9 T: 45 TCE: <11 TCFMA: 11 VC: <5.1 X: 35 Others: <RL	DMK: 120 B: 16 CS2: <16 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: 6.9 DCDFMA: 2,200 13Dcb: 18 EtOH: <730 E: 13 Hep: 12 Hex: <110 2Hxn: <330 IPA: <760 MEK: <440 MIBK: <330 N: <160 PP: <1,300 124TMB: <150 135TMB: <150 224TMP: <140 PERC: 11,900 THF: <88 T: <110 TCE: <160 TCFMA: <170 VC: <5.1 X: <390 Others: <RL	DMK: <740 B: <96 CS2: <250 CE: <5.3 CL: <150 CMA: <62 Cyhex: <100 DCDFMA: 1,600 13Dcb: <180 EtOH: <680 E: <130 Hep: <120 Hex: <110 2Hxn: <290 IPA: <710 MEK: <410 MIBK: <290 N: <160 PP: <1,200 124TMB: <150 135TMB: <150 224TMP: <140 PERC: 71,900 THF: <88 T: 190 TCE: <160 TCFMA: <170 VC: <5.1 X: <390 Others: <RL	DMK: <620 B: <96 CS2: <220 CE: <5.3 CL: <150 CMA: <62 Cyhex: <100 DCDFMA: 4,100 13Dcb: <180 EtOH: <620 E: <130 Hep: <120 Hex: <1102 Hxn: <290 IPA: <640 MEK: <380 MIBK: <290 N: <160 PP: <1,100 124TMB: <150 135TMB: <150 224TMP: <140 PERC: 14,200 THF: <88 T: <110 TCE: <160 TCFMA: <170 VC: <5.1 X: <350 Others: <RL	DMK: 120 B: 35 CS2: <16 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: 10 DCDFMA: 2,650 13Dcb: <12 EtOH: <47 E: <8.7 Hep: 25 Hex: 35 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: 21 PP: <86 124TMB: <9.8 135TMB: <9.8 224TMP: <9.3 PERC: 88 THF: <5.9 T: 23 TCE: <11 TCFMA: 17 VC: <5.1 X: <26 Others: <RL	DMK: 310 B: 96 CS2: <16 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: 52 DCDFMA: 623 13Dcb: <12 EtOH: <47 E: 78 Hep: 160 Hex: 270 2Hxn: <20 IPA: <49 MEK: 29 MIBK: <20 N: 52 PP: <243 124TMB: 49 135TMB: 15 224TMP: <9.3 PERC: 480 THF: <5.9 T: 190 TCE: <11 TCFMA: 34 VC: <5.1 X: 110 Others: <RL	DMK: 740 B: 96 CS2: <16 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: 24 DCDFMA: 811 13Dcb: <12 EtOH: <89 E: 17 Hep: 100 Hex: 220 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: 16 PP: <179 124TMB: 15 135TMB: <9.8 224TMP: <9.3 PERC: 180 THF: <5.9 T: 60 TCE: <11 TCFMA: 28 VC: <5.1 X: 35 Others: <RL	DMK: 48 B: <6.4 CS2: <16 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: <6.9 DCDFMA: 2,790 13Dcb: <12 EtOH: <47 E: <8.7 Hep: <8.2 Hex: <7.0 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: <10 PP: <86 124TMB: <9.8 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: <5.9 T: <7.5 TCE: <11 TCFMA: <11 VC: <5.1 X: <26 Others: <RL	

SG-15	SG-16	SG-17	SG-18	SG-19	SG-20	SG-21
6/16/2020	6/22/2020	6/16/2020	6/16/2020	6/22/2020	6/16/2020	6/22/2020
DMK: 590 B: 86 CS2: 427 CE: <5.3 CL: <9.8 CMA: 47 Cyhex: 86 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: 13 Hep: 140 Hex: 340 2Hxn: <20 IPA: <49 MEK: 120 MIBK: <20 N: <10 PP: <1,040 124TMB: 15 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: <5.9 T: 57 TCE: <11 TCFMA: <11 VC: <5.1 X: 35 Others: <RL	DMK: 400 B: 67 CS2: 110 CE: <5.3 CL: 15 CMA: <4.1 Cyhex: 14 DCDFMA: <9.9 13Dcb: <12 EtOH: 49 E: 65 Hep: 29 Hex: 53 2Hxn: <20 IPA: <49 MEK: 120 MIBK: <20 N: <10 PP: 120 124TMB: 39 135TMB: 15 224TMP: 19 PERC: <14 THF: <5.9 T: 110 TCE: <11 TCFMA: <11 VC: <5.1 X: 130 Others: <RL	DMK: 550 B: 67 CS2: 638 CE: <5.3 CL: <9.8 CMA: 43 Cyhex: 34 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: <8.7 Hep: 57 Hex: 160 2Hxn: <20 IPA: <49 MEK: 59 MIBK: <20 N: <10 PP: <639 124TMB: 15 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: 8.8 T: 23 TCE: <11 TCFMA: <11 VC: 20 X: 43 Others: <RL	DMK: 450 B: 26 CS2: 78 CE: <5.3 CL: <9.8 CMA: 14 Cyhex: 34 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: <8.7 Hep: 41 Hex: 120 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: <10 PP: <604 124TMB: 9.8 135TMB: <9.8 224TMP: <19 PERC: <14 THF: <5.9 T: 26 TCE: <11 TCFMA: <11 VC: <5.1 X: 17 Others: <RL	DMK: 550 B: 29 CS2: 25 CE: <5.3 CL: <9.8 CMA: 21 Cyhex: 28 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: <8.7 Hep: 37 Hex: 170 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: <10 PP: <595 124TMB: 9.8 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: <5.9 T: 26 TCE: <11 TCFMA: <11 VC: 10 X: 26 Others: <RL	DMK: 290 B: 19 CS2: 100 CE: <5.3 CL: 9.8 CMA: <4.1 Cyhex: <6.9 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: 17 Hep: 25 Hex: 21 2Hxn: 53 IPA: <49 MEK: 29 MIBK: 33 N: <10 PP: <86 124TMB: 20 135TMB: <9.8 224TMP: 14 PERC: <14 THF: <5.9 T: 72 TCE: <11 TCFMA: <11 VC: <5.1 X: 82 Others: <RL	DMK: 480 B: 19 CS2: <16 CE: <5.3 CL: 9.8 CMA: <4.1 Cyhex: <6.9 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: 17 Hep: 25 Hex: 21 2Hxn: 53 IPA: <49 MEK: 29 MIBK: 33 N: <10 PP: <86 124TMB: 20 135TMB: <9.8 224TMP: 14 PERC: <14 THF: <5.9 T: 72 TCE: <11 TCFMA: <11 VC: <5.1 X: 82 Others: <RL



CONSTITUENTS LEGEND

- VOLATILES (VOCs)**
 DMK: Acetone
 B: Benzene
 CS2: Carbon disulfide
 CE: Chloroethane
 CL: Chloroform
 CMA: Chloromethane
 Cyhex: Cyclohexane
 DCDFMA: Dichlorodifluoromethane
 13Dcb: 1,3-Dichlorobenzene
 EtOH: Ethanol
 E: Ethylbenzene
 Hep: Heptane
 Hex: Hexane
 2Hxn: 2-Hexanone
 IPA: Isopropyl Alcohol
 MEK: 2-Butanone (MEK)
 MIBK: 4-Methyl-2-pentanone (MIBK)
 N: Napthalene
 PP: Propylene
 124TMB: 1,2,4-Trimethylbenzene
 135TMB: 1,3,5-Trimethylbenzene
 224TMP: 2,2,4-Trimethylpentane
 PERC: Tetrachloroethene
 THF: Tetrahydrofuran
 T: Toluene
 TCE: Trichloroethene
 TCFMA: Trichlorofluoromethane
 VC: Vinyl chloride
 X: Xylenes, Total

<RL: Result was less than the laboratory reporting limits.

NOTES

- Soil concentrations are in µg per kg (ppb).
- Groundwater concentrations are in µg per L (ppb).
- All exceedances are highlighted in red.

SYMBOLS LEGEND

- SUB-SLAB VAPOR PIN LOCATION
- VAPOR SCREEN LOCATION

SG-22 + DUP.	SG-23	SG-24	SG-25	SG-26	SG-27	SG-28	SG-29	SG-30
6/16/2020	6/16/2020	6/16/2020	6/22/2020	6/16/2020	6/22/2020	6/16/2020	6/16/2020	6/16/2020
DMK: 120 B: 51 CS2: 19 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: <6.9 DCDFMA: <9.9 13Dcb: 18 EtOH: <47 E: 35 Hep: <12 Hex: 11 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: <10 PP: <86 124TMB: <9.8 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: <5.9 T: 1,120 TCE: <11 TCFMA: <11 VC: <5.1 X: 150 Others: <RL	DMK: 480 B: 19 CS2: 69 CE: 5.3 CL: <9.8 CMA: 23 Cyhex: 52 DCDFMA: <9.9 13Dcb: 18 EtOH: <47 E: <8.7 Hep: 74 Hex: 210 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: <10 PP: <1,220 124TMB: 15 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: <5.9 T: 23 TCE: <11 TCFMA: <11 VC: <5.1 X: 30 Others: <RL	DMK: 430 B: 22 CS2: 84 CE: <5.3 CL: <9.8 CMA: 17 Cyhex: 21 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: <8.7 Hep: 33 Hex: 100 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: <10 PP: <828 124TMB: 15 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: <5.9 T: 19 TCE: <11 TCFMA: <11 VC: <5.1 X: 17 Others: <RL	DMK: 380 B: 9.6 CS2: <16 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: <6.9 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: <8.7 Hep: 16 Hex: 21 2Hxn: 20 IPA: <49 MEK: 29 MIBK: <20 N: <10 PP: <86 124TMB: 15 135TMB: <9.8 224TMP: 9.3 PERC: <14 THF: <5.9 T: 26 TCE: <11 TCFMA: <11 VC: <5.1 X: 48 Others: <RL	DMK: 190 B: 22 CS2: 34 CE: <5.3 CL: <9.8 CMA: 29 Cyhex: 62 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: <8.7 Hep: 70 Hex: 240 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: <10 PP: <1,136 124TMB: <9.8 135TMB: <9.8 224TMP: <23 PERC: <14 THF: 5.9 T: 19 TCE: <11 TCFMA: <11 VC: <5.1 X: 26 Others: <RL	DMK: 570 B: 61 CS2: <16 CE: <5.3 CL: 15 CMA: <4.1 Cyhex: <6.9 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: 8.7 Hep: 20 Hex: 28 2Hxn: 29 IPA: <49 MEK: <29 MIBK: 25 N: <10 PP: <86 124TMB: 20 135TMB: <9.8 224TMP: 14 PERC: <14 THF: <5.9 T: 30 TCE: <11 TCFMA: <11 VC: <5.1 X: 61 Others: <RL	DMK: 380 B: 29 CS2: 140 CE: <5.3 CL: <9.8 CMA: 23 Cyhex: 52 DCDFMA: <9.9 13Dcb: 18 EtOH: <47 E: <8.7 Hep: 53 Hex: 220 2Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: <10 PP: <897 124TMB: <9.8 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: 8.8 T: 23 TCE: <11 TCFMA: <11 VC: <5.1 X: <26 Others: <RL	DMK: 640 B: 61 CS2: 140 CE: <5.3 CL: <9.8 CMA: 27 Cyhex: 59 DCDFMA: 59 13Dcb: <12 EtOH: 120 E: 26 Hep: 130 Hex: 340 2Hxn: <20 IPA: <49 MEK: 120 MIBK: <20 N: <10 PP: <1,170 124TMB: 15 135TMB: <9.8 224TMP: <19 PERC: <14 THF: 8.8 T: 94 TCE: <11 TCFMA: <11 VC: <5.1 X: 22 Others: <RL	DMK: 120 B: <6.4 CS2: <16 CE: <5.3 CL: <9.8 CMA: <4.1 Cyhex: <6.9 DCDFMA: <9.9 13Dcb: <12 EtOH: <47 E: <8.7 Hep: <8.2 Hex: <7.02 Hxn: <20 IPA: <49 MEK: <29 MIBK: <20 N: <10 PP: <86 124TMB: <9.8 135TMB: <9.8 224TMP: <9.3 PERC: <14 THF: <5.9 T: <7.5 TCE: <11 TCFMA: <11 VC: <5.1 X: <26 Others: <RL

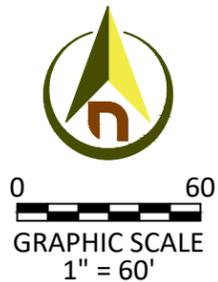


Diagram is for illustrative purposes only. Exact locations of items shown on figure may vary slightly.

DATE: 7/21/2020
 DATE: 7/22/2020

DRAWN BY: JWL
 REVISION BY: JWL

PROJECT NUMBER: 19-2321
 FIGURE: 5

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TRITERRA

SOIL GAS SAMPLE LOCATIONS & ANALYTICAL

1673 HASLETT ROAD
 HASLETT, MICHIGAN 48840

TABLES

Table 1: Brownfield Eligible Activities

Table 2: Tax Increment Revenue Capture Estimates

Table 3: Tax Increment Revenue Reimbursement Allocation Table

DRAFT

**Table 1
Brownfield Eligible Activities
1673 Haslett Road
Haslett, MI**

ELIGIBLE ACTIVITIES	NO. OF UNITS	UNIT TYPE	UNIT RATE	ESTIMATED TOTAL COST	REIMBURSEMENT ALLOCATION		
					DEQ ACTIVITIES	MSF ACTIVITIES	LOCAL-ONLY ACTIVITIES
EGLE ELIGIBLE ACTIVITIES							
Pre-Approved Activities							
Phase I Environmental Site Assessments	2	LS	\$ 1,950	\$ 3,900			\$ 3,900
Phase II Site Investigations (10% of EPA Grant)	1	LS	\$ 4,000	\$ 4,000			\$ 4,000
Baseline Environmental Assessments (10% of EPA Grant)	1	LS	\$ 360	\$ 360			\$ 360
Due Care Investigation	1	LS	\$ 10,000	\$ 10,000			\$ 10,000
Due Care Planning to meet Compliance with Section 2017a (10% of EPA Grant)	1	LS	\$ 250	\$ 250			\$ 250
Department Specific Activities							
Documentation of Due Care Compliance (DDCC)	1	LS	\$ 5,000	\$ 5,000			\$ 5,000
Gas Vapor Mitigation System - Design	37,350	SF	\$ 0.50	\$ 18,675			\$ 18,675
Gas Vapor Mitigation System - Installation	37,350	SF	\$ 5	\$ 168,075			\$ 168,075
Gas Vapor Mitigation System - Oversight & Testing	37,350	SF	\$ 0.75	\$ 28,013			\$ 28,013
Engineering Controls - Stormwater Management Controls	1	LS	\$ 10,000	\$ 10,000			\$ 10,000
Engineering Controls - Gaskets on Waterlines	1	LS	\$ 8,000	\$ 8,000			\$ 8,000
Soil Management - Transportation and Disposal (Non-Hazardous)	4,500	CY	\$ 45	\$ 202,500			\$ 202,500
Soil Management - Transportation and Disposal (Hazardous)	1,500	TN	\$ 425	\$ 637,500			\$ 637,500
Environmental Project Management and Oversight	1	LS	\$ 25,200	\$ 25,200			\$ 25,200
Due Care - Soft Costs including Bidding, Contractor Procurement, Oversight	1	LS	\$ 16,800	\$ 16,800			\$ 16,800
EGLE ELIGIBLE ACTIVITIES SUB-TOTAL				\$ 1,138,273	\$ -	\$ -	\$ 1,138,273
MSF ELIGIBLE ACTIVITIES							
Asbestos and Lead Activities							
Asbestos - Survey/Assessment (10% of EPA Grant)	1	LS	\$ 450	\$ 450			\$ 450
Asbestos - Abatement	1	LS	\$ 114,000	\$ 114,000			\$ 114,000
Asbestos Abatement - Soft Costs	1	LS	\$ 3,400	\$ 3,400			\$ 3,400
Subtotal Asbestos and Lead Activities				\$ 117,850		\$ -	\$ 117,850
Demolition							
Demolition - Building & Site	1	LS	\$ 550,000	\$ 550,000			\$ 550,000
Demolition - Soft Costs	1	LS	\$ 16,500	\$ 16,500			\$ 16,500
Subtotal Demolition Activities				\$ 566,500	\$ -	\$ -	\$ 566,500
MSF ELIGIBLE ACTIVITIES SUB-TOTAL				\$ 684,350	\$ -	\$ -	\$ 684,350
MSF AND EGLE ELIGIBLE ACTIVITIES SUB-TOTAL				\$ 1,822,623	\$ -	\$ -	\$ 1,822,623
Contingency (15%)				\$ 270,549	\$ -	\$ -	\$ 270,549
Brownfield Plan Preparation	1	LS	\$ 15,000	\$ 15,000			\$ 15,000
Brownfield Plan Implementation	1	LS	\$ 15,000	\$ 15,000			\$ 15,000
Interest (2%, simple)				\$ 309,003			\$ 309,003
TOTAL ELIGIBLE COST FOR REIMBURSEMENT				\$ 2,432,175	\$ -	\$ -	\$ 2,432,175
State Brownfield Revolving Fund				\$ -			
BRA Administrative Fees				\$ 135,121			
Local Brownfield Revolving Fund (LBRF)				\$ 135,121			
GRAND TOTAL				\$ 2,702,417			
					0.00%	0.00%	100.00%

NOTES:

These costs and revenue projections should be considered approximate estimates based on expected conditions and available information.

It cannot be guaranteed that the costs and revenue projections will not vary from these estimates.

Costs for Phase I ESAs, Phase II ESAs, Asbestos Surveys, Brownfield Plan are excluded from contingency calculation.

Table 2
Tax Increment Revenue Capture Estimates
1673 Haslett Road
Haslett, MI

Estimated Taxable Value (TV) Increase Rate: 1% per year		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Plan Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Base Taxable Value (TV)	\$	914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054	\$ 914,054
Estimated New TV	\$	2,000,000	\$ 6,000,000	\$ 6,060,000	\$ 6,120,600	\$ 6,181,806	\$ 6,243,624	\$ 6,306,060	\$ 6,369,121	\$ 6,432,812	\$ 6,497,140	\$ 6,562,112	\$ 6,627,733	\$ 6,694,010	\$ 6,760,950	\$ 6,828,560
Incremental Difference (New TV - Base TV)	\$	1,085,946	\$ 5,085,946	\$ 5,145,946	\$ 5,206,546	\$ 5,267,752	\$ 5,329,570	\$ 5,392,006	\$ 5,455,067	\$ 5,518,758	\$ 5,583,086	\$ 5,648,058	\$ 5,713,679	\$ 5,779,956	\$ 5,846,896	\$ 988,750

School Capture (Not-Captured)	Millage Rate	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
School Operating	18.0000	\$ 19,547	\$ 91,547	\$ 92,627	\$ 93,718	\$ 94,820	\$ 95,932	\$ 97,056	\$ 98,191	\$ 99,338	\$ 100,496	\$ 101,665	\$ 102,846	\$ 104,039	\$ 105,244	\$ 17,798
State Education Tax (SET)	6.0000	\$ 6,516	\$ 30,516	\$ 30,876	\$ 31,239	\$ 31,607	\$ 31,977	\$ 32,352	\$ 32,730	\$ 33,113	\$ 33,499	\$ 33,888	\$ 34,282	\$ 34,680	\$ 35,081	\$ 5,933
School Total:	24.0000	\$ 26,063	\$ 122,063	\$ 123,503	\$ 124,957	\$ 126,426	\$ 127,910	\$ 129,408	\$ 130,922	\$ 132,450	\$ 133,994	\$ 135,553	\$ 137,128	\$ 138,719	\$ 140,326	\$ 23,730

Total New Taxes	Pass-Through	Captured
\$ 1,314,863	\$ 1,314,863	\$ -
\$ 438,288	\$ 438,288	\$ -
\$ 1,753,151	\$ 1,753,151	\$ -

Local Capture	Millage Rate	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Haslett Bldg/Site	1.9946	\$ 2,166	\$ 10,144	\$ 10,264	\$ 10,385	\$ 10,507	\$ 10,630	\$ 10,755	\$ 10,881	\$ 11,008	\$ 11,136	\$ 11,266	\$ 11,397	\$ 11,529	\$ 11,662	\$ 1,972
Meridian Operating	4.1670	\$ 4,525	\$ 21,193	\$ 21,443	\$ 21,696	\$ 21,951	\$ 22,208	\$ 22,468	\$ 22,731	\$ 22,997	\$ 23,265	\$ 23,535	\$ 23,809	\$ 24,085	\$ 24,364	\$ 4,120
Rec/Srs/Hum Serv	0.1487	\$ 161	\$ 756	\$ 765	\$ 774	\$ 783	\$ 793	\$ 802	\$ 811	\$ 821	\$ 830	\$ 840	\$ 850	\$ 859	\$ 869	\$ 147
Meridian Bikepath	0.3316	\$ 360	\$ 1,686	\$ 1,706	\$ 1,726	\$ 1,747	\$ 1,767	\$ 1,788	\$ 1,809	\$ 1,830	\$ 1,851	\$ 1,873	\$ 1,895	\$ 1,917	\$ 1,939	\$ 328
Meridian Fire	0.6353	\$ 690	\$ 3,231	\$ 3,269	\$ 3,308	\$ 3,347	\$ 3,386	\$ 3,426	\$ 3,466	\$ 3,506	\$ 3,547	\$ 3,588	\$ 3,630	\$ 3,672	\$ 3,715	\$ 628
Meridian Parks	0.6612	\$ 718	\$ 3,363	\$ 3,402	\$ 3,443	\$ 3,483	\$ 3,524	\$ 3,565	\$ 3,607	\$ 3,649	\$ 3,692	\$ 3,734	\$ 3,778	\$ 3,822	\$ 3,866	\$ 654
Meridian Police	0.6030	\$ 655	\$ 3,067	\$ 3,103	\$ 3,140	\$ 3,176	\$ 3,214	\$ 3,251	\$ 3,289	\$ 3,328	\$ 3,367	\$ 3,406	\$ 3,445	\$ 3,485	\$ 3,526	\$ 596
Land Preserve	0.3273	\$ 355	\$ 1,665	\$ 1,684	\$ 1,704	\$ 1,724	\$ 1,744	\$ 1,765	\$ 1,785	\$ 1,806	\$ 1,827	\$ 1,849	\$ 1,870	\$ 1,892	\$ 1,914	\$ 324
Police and Fire	1.4804	\$ 1,608	\$ 7,529	\$ 7,618	\$ 7,708	\$ 7,798	\$ 7,890	\$ 7,982	\$ 8,076	\$ 8,170	\$ 8,265	\$ 8,361	\$ 8,459	\$ 8,557	\$ 8,656	\$ 1,464
CATA/Regular	3.0070	\$ 3,265	\$ 15,293	\$ 15,474	\$ 15,656	\$ 15,840	\$ 16,026	\$ 16,214	\$ 16,403	\$ 16,595	\$ 16,788	\$ 16,984	\$ 17,181	\$ 17,380	\$ 17,582	\$ 2,973
CADL-Library	1.5600	\$ 1,694	\$ 7,934	\$ 8,028	\$ 8,122	\$ 8,218	\$ 8,314	\$ 8,412	\$ 8,510	\$ 8,609	\$ 8,710	\$ 8,811	\$ 8,913	\$ 9,017	\$ 9,121	\$ 1,542
Ingham County	11.3344	\$ 12,309	\$ 57,646	\$ 58,326	\$ 59,013	\$ 59,707	\$ 60,407	\$ 61,115	\$ 61,830	\$ 62,552	\$ 63,281	\$ 64,017	\$ 64,761	\$ 65,512	\$ 66,271	\$ 11,207
Ingham Intermediate	6.2384	\$ 6,775	\$ 31,728	\$ 32,102	\$ 32,481	\$ 32,862	\$ 33,248	\$ 33,637	\$ 34,031	\$ 34,428	\$ 34,830	\$ 35,235	\$ 35,644	\$ 36,058	\$ 36,475	\$ 6,168
Airport Authority	0.6990	\$ 759	\$ 3,555	\$ 3,597	\$ 3,639	\$ 3,682	\$ 3,725	\$ 3,769	\$ 3,813	\$ 3,858	\$ 3,903	\$ 3,948	\$ 3,994	\$ 4,040	\$ 4,087	\$ 691
Lansing Community College	3.8072	\$ 4,134	\$ 19,363	\$ 19,592	\$ 19,822	\$ 20,055	\$ 20,291	\$ 20,528	\$ 20,769	\$ 21,011	\$ 21,256	\$ 21,503	\$ 21,753	\$ 22,005	\$ 22,260	\$ 3,764
Local Total:	36.9951	\$ 40,175	\$ 188,155	\$ 190,375	\$ 192,617	\$ 194,881	\$ 197,168	\$ 199,478	\$ 201,811	\$ 204,167	\$ 206,547	\$ 208,950	\$ 211,378	\$ 213,830	\$ 216,307	\$ 36,579
Total Capturable Taxes:	60.9951	\$ 66,237	\$ 310,218	\$ 313,877	\$ 317,574	\$ 321,307	\$ 325,078	\$ 328,886	\$ 332,732	\$ 336,617	\$ 340,541	\$ 344,504	\$ 348,506	\$ 352,549	\$ 356,632	\$ 60,309

\$ 145,701	\$ -	\$ 145,701
\$ 304,391	\$ -	\$ 304,391
\$ 10,862	\$ -	\$ 10,862
\$ 24,223	\$ -	\$ 24,223
\$ 46,407	\$ -	\$ 46,407
\$ 48,299	\$ -	\$ 48,299
\$ 44,048	\$ -	\$ 44,048
\$ 23,909	\$ -	\$ 23,909
\$ 108,140	\$ -	\$ 108,140
\$ 219,655	\$ -	\$ 219,655
\$ 113,955	\$ -	\$ 113,955
\$ 827,955	\$ -	\$ 827,955
\$ 455,702	\$ -	\$ 455,702
\$ 51,061	\$ -	\$ 51,061
\$ 278,108	\$ -	\$ 278,108
\$ 2,702,417	\$ -	\$ 2,702,417
\$ 4,455,568	\$ 1,753,151	\$ 2,702,417

Non-Capturable Millages	Millage Rate	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Haslett Debt	8.3300	\$ 9,046	\$ 42,366	\$ 42,866	\$ 43,371	\$ 43,880	\$ 44,395	\$ 44,915	\$ 45,441	\$ 45,971	\$ 46,507	\$ 47,048	\$ 47,595	\$ 48,147	\$ 48,705	\$ 8,236
Road Improvement Debt	1.9429	\$ 2,110	\$ 9,881	\$ 9,998	\$ 10,116	\$ 10,235	\$ 10,355	\$ 10,476	\$ 10,599	\$ 10,722	\$ 10,847	\$ 10,974	\$ 11,101	\$ 11,230	\$ 11,360	\$ 1,921
Firestation Debt	0.2000	\$ 217	\$ 1,017	\$ 1,029	\$ 1,041	\$ 1,054	\$ 1,066	\$ 1,078	\$ 1,091	\$ 1,104	\$ 1,117	\$ 1,130	\$ 1,143	\$ 1,156	\$ 1,169	\$ 198
Total Non-Capturable Taxes:	10.4729	\$ 11,373	\$ 53,265	\$ 53,893	\$ 54,528	\$ 55,169	\$ 55,816	\$ 56,470	\$ 57,130	\$ 57,797	\$ 58,471	\$ 59,152	\$ 59,839	\$ 60,533	\$ 61,234	\$ 10,355

\$ 608,490	\$ 608,490	\$ -
\$ 141,925	\$ 141,925	\$ -
\$ 14,610	\$ 14,610	\$ -
\$ 765,024	\$ 765,024	\$ -

Notes:

\$ 5,220,592	\$ 2,518,175	\$ 2,702,417
--------------	--------------	--------------

Table 3
Tax Increment Revenue Reimbursement Allocation Table
1673 Haslett Road
Haslett, MI

Developer/City Projected Reimbursement	Proportionality	School & Local Taxes	Local-Only Taxes	Total
State	0.0%	\$ -	\$ -	\$ -
Local	100.0%	\$ -	\$ 2,432,175	\$ 2,432,175
TOTAL		\$ -	\$ 2,432,175	\$ 2,432,175
EGL	0.0%	\$ -		
MSF	0.0%	\$ -		

Estimated Total Years of Plan:	15
--------------------------------	-----------

Administrative Fees & Loan Funds*	
State Brownfield Revolving Fund	\$ -
BRA Administrative Fees	\$ 135,121
Local Brownfield Revolving Fund	\$ 135,121

* During the life of the Plan

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	TOTALS	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Available Tax Increment Revenue (TIR)																	
Total State Tax Capture Available	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capture for State Brownfield Revolving Fund (3 mills of SET) (25-Yrs)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
State TIR Available for Reimbursement to Developer	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Local Tax Capture Available	\$ 40,175	\$ 188,155	\$ 190,375	\$ 192,617	\$ 194,881	\$ 197,168	\$ 199,478	\$ 201,811	\$ 204,167	\$ 206,547	\$ 208,950	\$ 211,378	\$ 213,830	\$ 216,307	\$ 36,579		
Capture for BRA Administrative Fees (5%)	\$ 2,009	\$ 9,408	\$ 9,519	\$ 9,631	\$ 9,744	\$ 9,858	\$ 9,974	\$ 10,091	\$ 10,208	\$ 10,327	\$ 10,448	\$ 10,569	\$ 10,692	\$ 10,815	\$ 1,829	\$ 135,121	
Capture for Local Brownfield Revolving Fund (LBRF) (5% of available Local TIR)	\$ 2,009	\$ 9,408	\$ 9,519	\$ 9,631	\$ 9,744	\$ 9,858	\$ 9,974	\$ 10,091	\$ 10,208	\$ 10,327	\$ 10,448	\$ 10,569	\$ 10,692	\$ 10,815	\$ 1,829	\$ 135,121	
Local TIR Available for Reimbursement to Developer	\$ 36,157	\$ 169,340	\$ 171,337	\$ 173,355	\$ 175,393	\$ 177,451	\$ 179,530	\$ 181,630	\$ 183,750	\$ 185,892	\$ 188,055	\$ 190,240	\$ 192,447	\$ 194,676	\$ 32,921		
Total State & Local TIR Available for Reimbursement to Developer	\$ 36,157	\$ 169,340	\$ 171,337	\$ 173,355	\$ 175,393	\$ 177,451	\$ 179,530	\$ 181,630	\$ 183,750	\$ 185,892	\$ 188,055	\$ 190,240	\$ 192,447	\$ 194,676	\$ 32,921		
DEVELOPER	Beginning Balance																
	\$ 2,432,175	\$ 2,396,018	\$ 2,226,678	\$ 2,055,341	\$ 1,881,986	\$ 1,706,593	\$ 1,529,142	\$ 1,349,612	\$ 1,167,982	\$ 984,232	\$ 798,340	\$ 610,284	\$ 420,044	\$ 227,597	\$ 32,921	(0)	
MSF Eligible Activities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
State Tax Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Local Tax Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EGL Eligible Activities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
State Tax Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Local Tax Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
LOCAL-ONLY Activities	\$ 2,432,175	\$ 2,396,018	\$ 2,226,678	\$ 2,055,341	\$ 1,881,986	\$ 1,706,593	\$ 1,529,142	\$ 1,349,612	\$ 1,167,982	\$ 984,232	\$ 798,340	\$ 610,284	\$ 420,044	\$ 227,597	\$ 32,921	(0)	
Local-Only Tax Reimbursement	\$ -	\$ 36,157	\$ 169,340	\$ 171,337	\$ 173,355	\$ 175,393	\$ 177,451	\$ 179,530	\$ 181,630	\$ 183,750	\$ 185,892	\$ 188,055	\$ 190,240	\$ 192,447	\$ 194,676	\$ 32,921	\$ 2,432,175
TOTAL ANNUAL DEVELOPER REIMBURSEMENT	\$ 36,157	\$ 169,340	\$ 171,337	\$ 173,355	\$ 175,393	\$ 177,451	\$ 179,530	\$ 181,630	\$ 183,750	\$ 185,892	\$ 188,055	\$ 190,240	\$ 192,447	\$ 194,676	\$ 32,921		
LOCAL BROWNFIELD REVOLVING FUND (LBRF)																	
State	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Local	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
																\$ 2,702,417	

ATTACHMENT A

**Certified Boundary Survey and Legal Descriptions
(Existing and Future Parcel Configuration)**

DRAFT

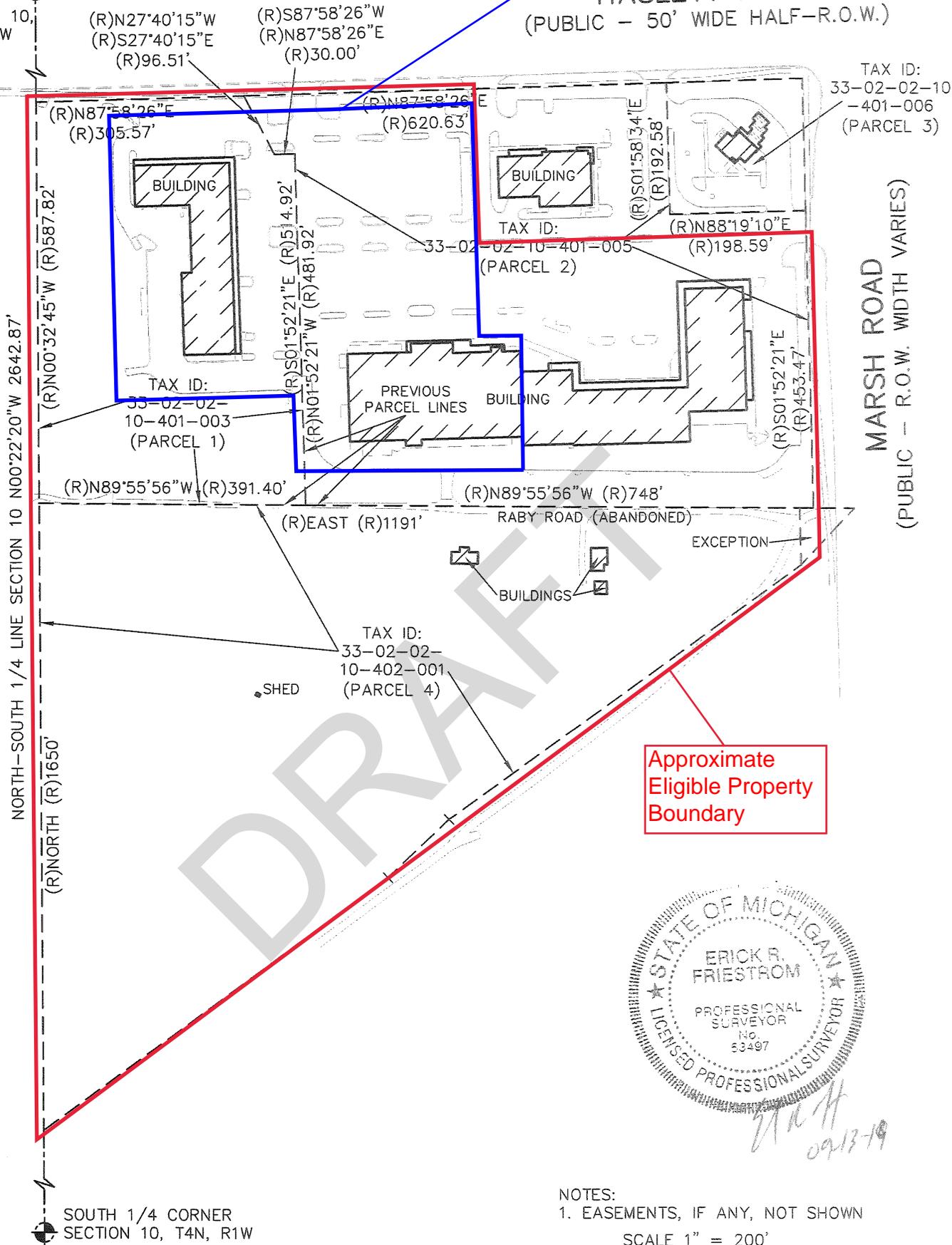
CERTIFIED BOUNDARY SURVEY EXISTING PARCEL CONFIGURATION

FOR: CYPRESS PARTNERS, LLC
HASLETT VILLAGE SQUARE, LLC

Approximate
Demolition
Boundary

CENTER OF SECTION 10, SECTION 10, T4N, R1W

HASLETT ROAD
(PUBLIC - 50' WIDE HALF-R.O.W.)



Approximate
Eligible Property
Boundary



ERH
09/13/19

NOTES:
1. EASEMENTS, IF ANY, NOT SHOWN
SCALE 1" = 200'



LEGEND

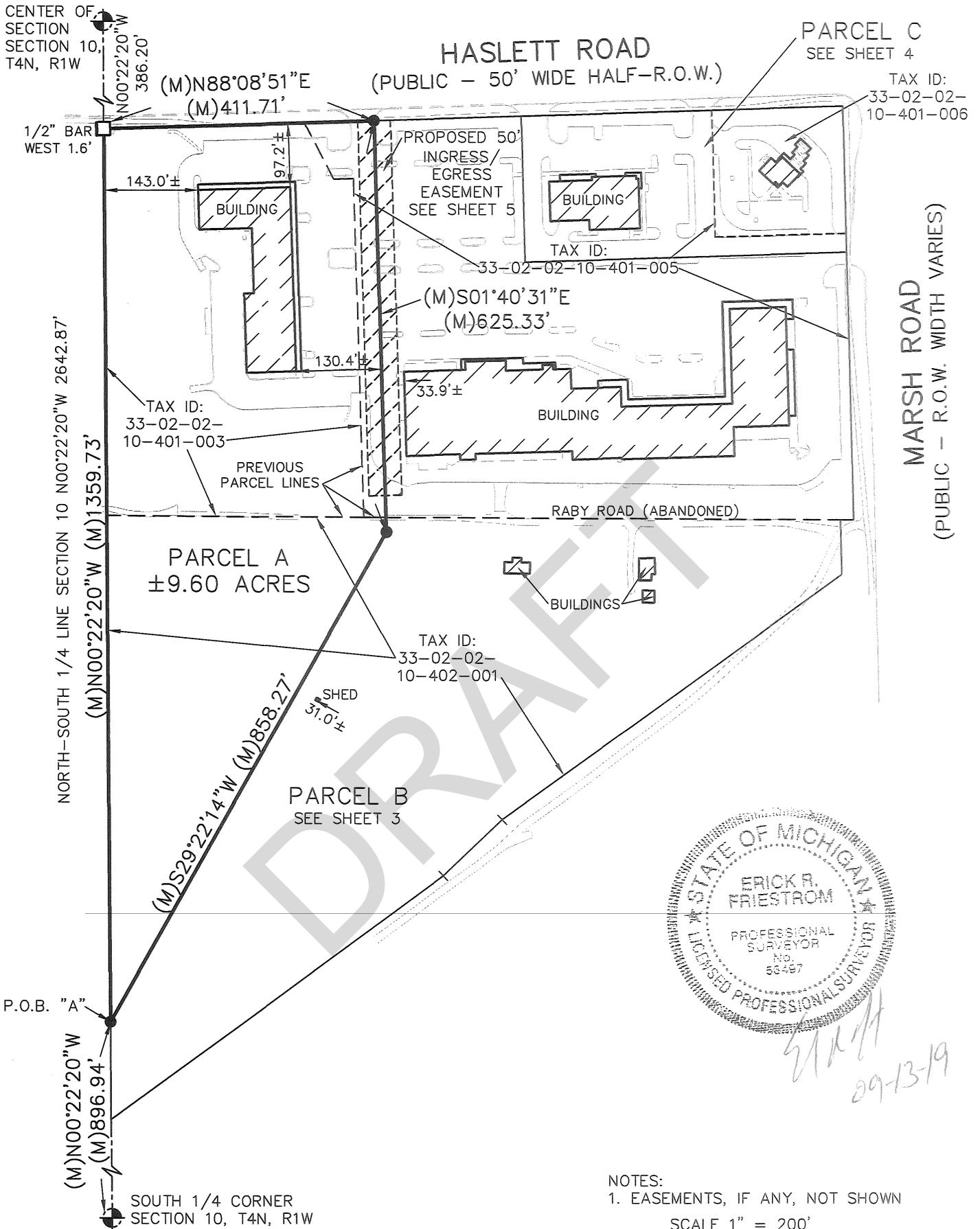
- (M) = Measured Distance
- (R) = Record Distance
- = Set 1/2" Bar with Cap
- = Found Bar & Cap #53497 Unless Noted
- = Survey Boundary Line
- = Distance Not to Scale
- x—x— = Fence
- ← 0.0'± = Denotes Distance to the Survey Line

All Dimensions are in Feet and Decimals Thereof.

	KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
	2116 HASLETT ROAD, HASLETT, MI 48840 PH. 517-339-1014 FAX. 517-339-8047 13432 PRESTON DRIVE, MARSHALL, MI 49068 PH. 269-781-9800 FAX. 269-781-9805
DRAWN BY SSF	SECTION 10, T4N, R1W
FIELD WORK BY NAW	JOB NUMBER:
SHEET 1 OF 8	95688.BND

CERTIFIED BOUNDARY SURVEY PARCEL A DETAIL

FOR: CYPRESS PARTNERS, LLC
HASLETT VILLAGE SQUARE, LLC



ERIK R. FRIESTROM
09-13-19

NOTES:
1. EASEMENTS, IF ANY, NOT SHOWN
SCALE 1" = 200'



LEGEND

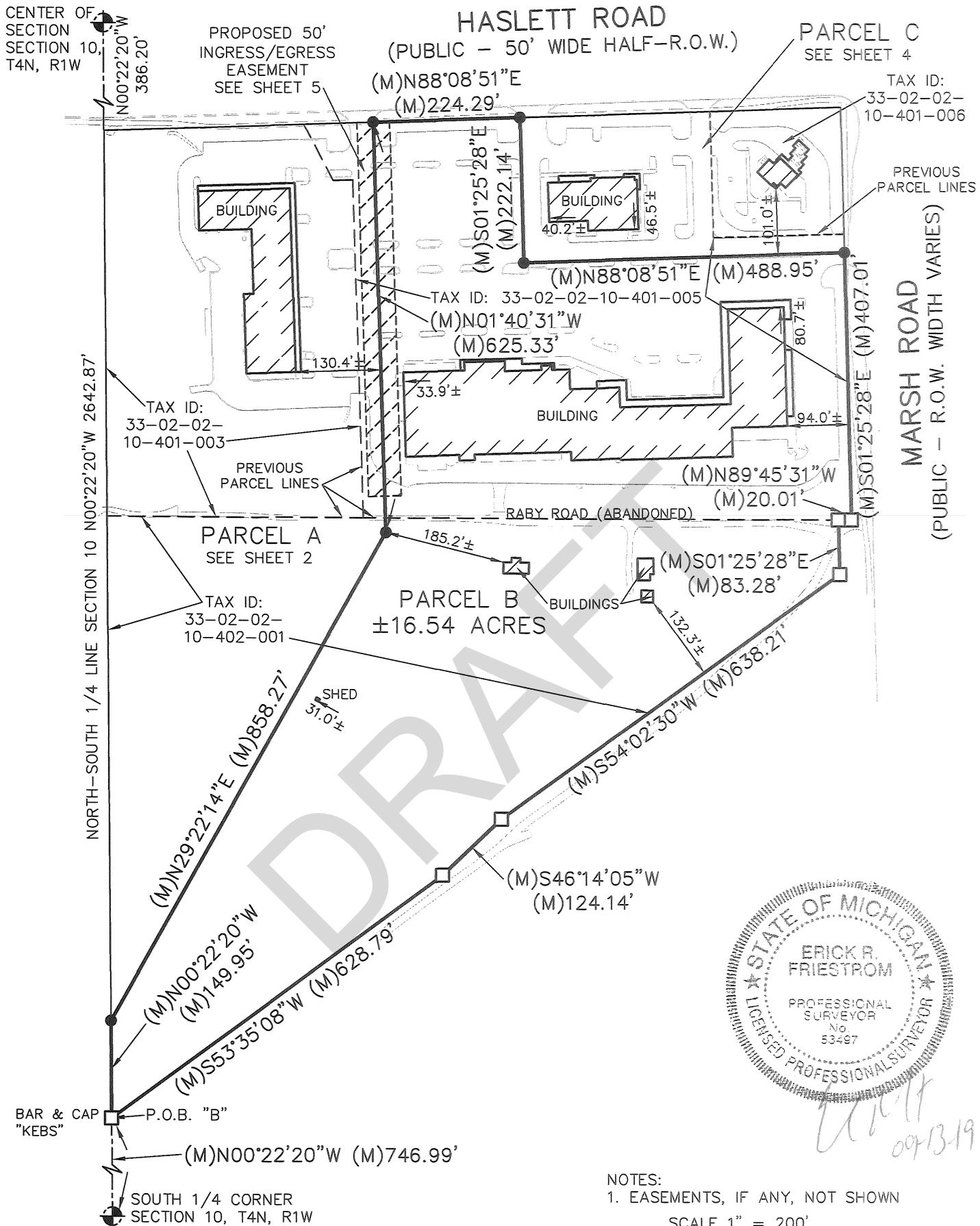
- (M) = Measured Distance
- (R) = Record Distance
- = Set 1/2" Bar with Cap
- = Found Bar & Cap #53497 Unless Noted
- = Survey Boundary Line
- - - = Distance Not to Scale
- × × = Fence
- ← 0.0'± = Denotes Distance to the Survey Line

All Dimensions are in Feet and Decimals Thereof.

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DRAWN BY SSF	SECTION 10, T4N, R1W
FIELD WORK BY NAW	JOB NUMBER:
SHEET 2 OF 8	95688.BND

CERTIFIED BOUNDARY SURVEY PARCEL B DETAIL

FOR: CYPRESS PARTNERS, LLC
HASLETT VILLAGE SQUARE, LLC



Handwritten signature and date: 09/13/19

NOTES:
1. EASEMENTS, IF ANY, NOT SHOWN
SCALE 1" = 200'



LEGEND

- (M) = Measured Distance
- (R) = Record Distance
- = Set 1/2" Bar with Cap
- = Found Bar & Cap #53497 Unless Noted
- = Survey Boundary Line
- = Distance Not to Scale
- x—x— = Fence
- ←0.0'± = Denotes Distance to the Survey Line

All Dimensions are in Feet and Decimals Thereof.

	KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS	
	2116 HASLETT ROAD, HASLETT, MI 48840 PH. 517-339-1014 FAX. 517-339-8047 13432 PRESTON DRIVE, MARSHALL, MI 49068 PH. 269-781-9800 FAX. 269-781-9805	
DRAWN BY SSF	SECTION 10, T4N, R1W	
FIELD WORK BY NAW	JOB NUMBER:	
SHEET 3 OF 8	95688.BND	

CERTIFIED BOUNDARY SURVEY PARCEL C DETAIL

FOR: CYPRESS PARTNERS, LLC
HASLETT VILLAGE SQUARE, LLC

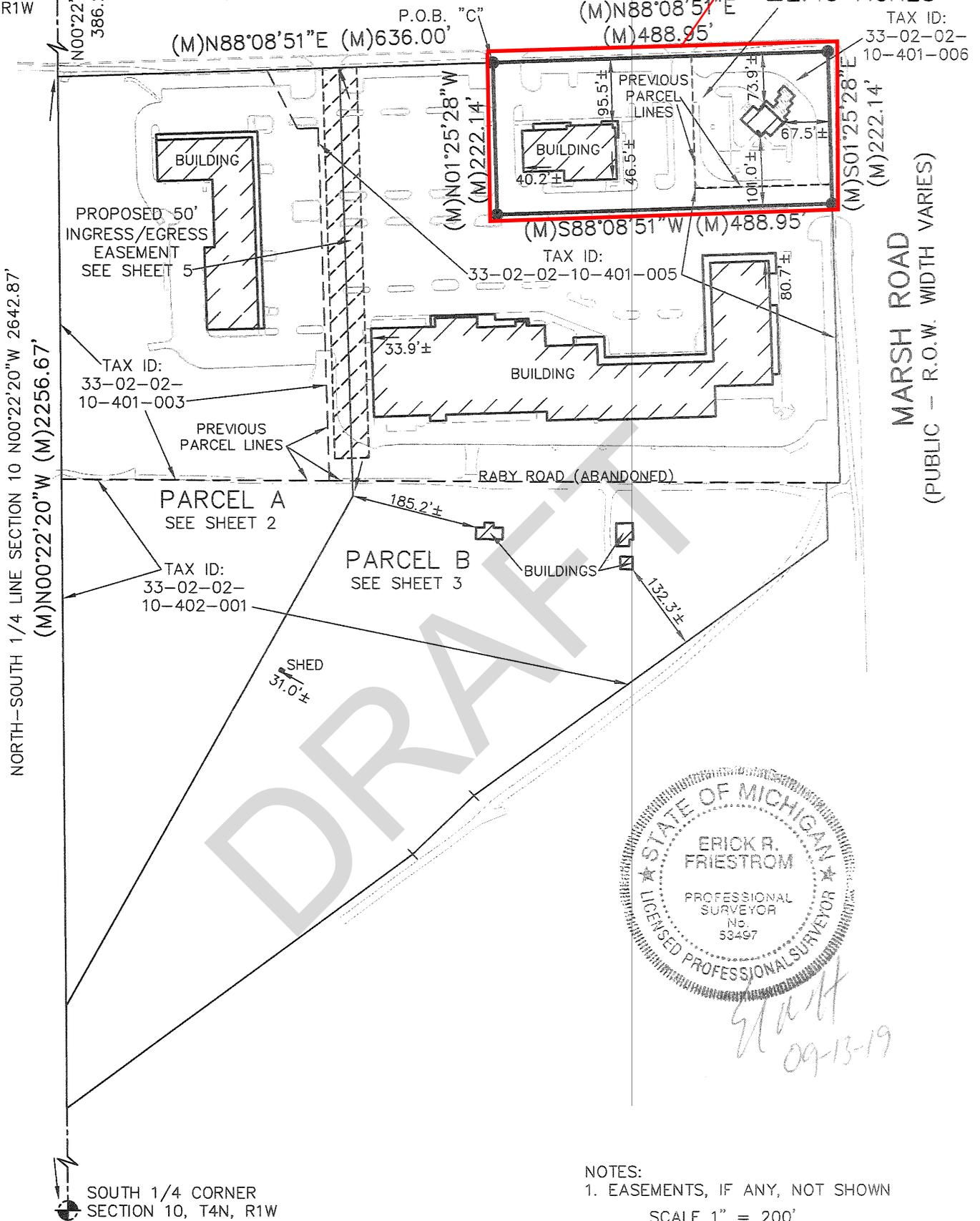
Parcel C boundary is not included within the Brownfield Plan

CENTER OF SECTION
SECTION 10,
T4N, R1W
N00°22'20"W
386.20'

HASLETT ROAD
(PUBLIC - 50' WIDE HALF-R.O.W.)

PARCEL C
±2.49 ACRES

TAX ID:
33-02-02-
10-401-006



NORTH-SOUTH 1/4 LINE SECTION 10 N00°22'20"W 2642.87'
(M)N00°22'20"W (M)2256.67'

SOUTH 1/4 CORNER
SECTION 10, T4N, R1W



Handwritten signature and date: 09-13-19

NOTES:
1. EASEMENTS, IF ANY, NOT SHOWN
SCALE 1" = 200'



LEGEND

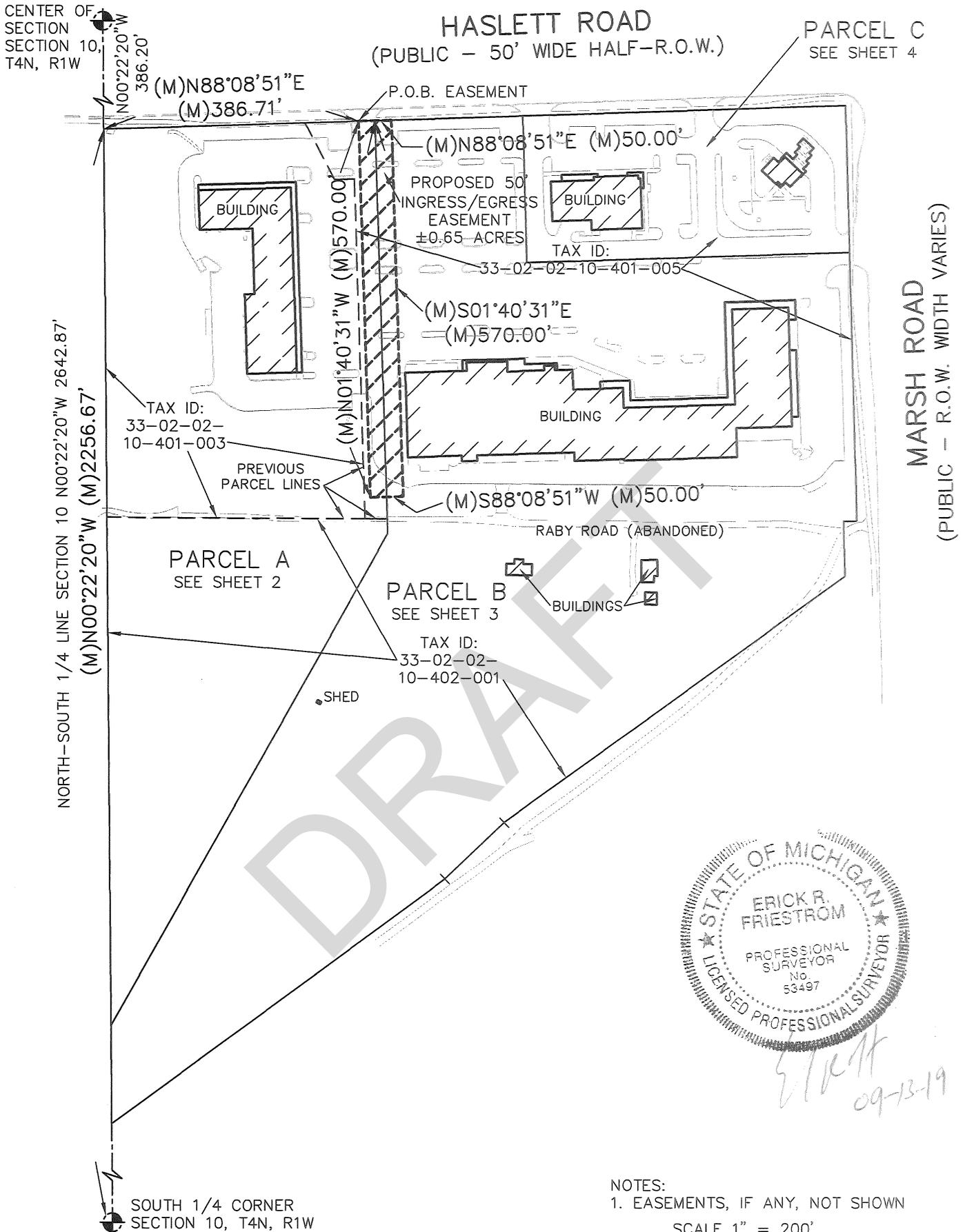
- (M) = Measured Distance
- (R) = Record Distance
- = Set 1/2" Bar with Cap
- = Found Bar & Cap #53497 Unless Noted
- = Survey Boundary Line
- = Distance Not to Scale
- × × = Fence
- ← 0.0'± = Denotes Distance to the Survey Line

All Dimensions are in Feet and Decimals Thereof.

	KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS		
	2116 HASLETT ROAD, HASLETT, MI 48840 PH. 517-339-1014 FAX. 517-339-8047 13432 PRESTON DRIVE, MARSHALL, MI 49068 PH. 269-781-9800 FAX. 269-781-9805		
DRAWN BY	SSF	SECTION	10, T4N, R1W
FIELD WORK BY	NAW	JOB NUMBER:	
SHEET	4 OF 8	95688.BND	

CERTIFIED BOUNDARY SURVEY INGRESS/EGRESS EASEMENT DETAIL

FOR: CYPRESS PARTNERS, LLC
HASLETT VILLAGE SQUARE, LLC



DRAFT



E.R.F.
09-13-19

NOTES:
1. EASEMENTS, IF ANY, NOT SHOWN
SCALE 1" = 200'



LEGEND

- (M) = Measured Distance
- (R) = Record Distance
- = Set 1/2" Bar with Cap
- = Found Bar & Cap #53497 Unless Noted
- = Survey Boundary Line
- = Distance Not to Scale
- * * = Fence
- ← 0.0'± = Denotes Distance to the Survey Line

All Dimensions are in Feet and Decimals Thereof.

	KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS	
	2116 HASLETT ROAD, HASLETT, MI 48840 PH. 517-339-1014 FAX. 517-339-8047 13432 PRESTON DRIVE, MARSHALL, MI 49068 PH. 269-781-9800 FAX. 269-781-9805	
DRAWN BY SSF	SECTION 10, T4N, R1W	
FIELD WORK BY NAW	JOB NUMBER:	
SHEET 5 OF 8	95688.BND	

CERTIFIED BOUNDARY SURVEY

CERTIFICATE OF SURVEY:

I hereby certify only to the parties named hereon that we have surveyed and divided into two parcels, at the direction of said parties, three parcels of land previously described as:

(As provided by Transnation Title Agency, underwritten by Fidelity National Title Insurance Company, Commitment No. 183976LANS, dated June 13, 2016)

PARCEL 1 (33-02-02-10-401-003): included in the Brownfield Plan
 A parcel of land in the Southeast 1/4 of Section 10, Town 4 North, Range 1 West, Meridian Township, Ingham County, Michigan, described as: Commencing at the center of Section 10, Town 4 North, Range 1 West; thence South 00°32'45" East 386.20 feet along the North-South 1/4 line of said Section 10 to the point of beginning, said point being on the Southerly right of way line of Haslett Road; thence North 87°58'26" East 305.57 feet along said right of way line of Haslett Road; thence South 27°40'15" East 96.51 feet; thence North 87°58'26" East 30.00 feet parallel with said right of way line of Haslett Road; thence South 01°52'21" East 514.92 feet to a point on the centerline of Raby Road; thence North 89°55'56" West 391.40 feet along said centerline of Raby Road to the North-South 1/4 line of said Section 10; thence North 00°32'45" West 587.82 feet along said North-South 1/4 line to the point of beginning.

PARCEL 2 (33-02-02-10-401-005): A portion of the parcel is included in the Brownfield Plan
 Commencing at the center of Section 10, South 00°32'45" East 386.2 feet along the North-South 1/4 line of Section 10; thence North 87°58'26" East 305.57 feet along the Southerly right of way line of Haslett Road to point of beginning; thence North 87°58'26" East 620.63 feet along said right of way; thence South 01°58'34" East 192.58 feet; thence North 88°19'10" East 198.59 feet to the Westerly right of way line of Marsh Road; thence South 01°52'21" East 453.47 feet along said right of way line to a point on the centerline of Raby Road; thence North 89°55'56" West 748 feet on said right of way line; thence North 01°52'21" West 481.92 feet; thence South 87°58'26" West 30 feet; thence North 27°40'15" West 96.51 feet to beginning, in Section 10, Town 4 North, Range 1 West, Meridian Township, Ingham County, Michigan. ALSO that part of abandoned Raby Road right of way recorded in Liber 2594, Page 568.

PARCEL 3 (33-02-02-10-401-006): not included in the Brownfield Plan
 Commencing at the center of Section 10, Town 4 North, Range 1 West, Meridian Township, Ingham County, Michigan, South 00°32'45" East 386.2 feet along the North-South 1/4 line of said Section 10 to the South right of way line of Haslett Road, being 50 feet South of the centerline of said road, North 87°58'26" East 1125.14 feet on said South right of way line of Haslett Road to its intersection with the West right of way of Marsh Road, being 60 feet West of the centerline of said Road, said intersection of right of way's being point of beginning; thence South 01°52'21" East 193.78 feet on the West right of way line of Marsh Road; thence South 88°19'10" West 198.59 feet along the back of a curb of a Private Drive; thence North 01°58'34" West 192.58 feet along the back of the curb of the Private Drain to said South right of way line of Haslett Road; thence North 87°28'26" East 198.94 feet along said South right of way line to the point of beginning.

PARCEL 4 (33-02-02-10-402-001): included in the Brownfield Plan
 A parcel of land in the Southeast 1/4 of Section 10, Town 4 North, Range 1 West, Meridian Township, Ingham County, Michigan, described as: Beginning at a point on the North and South 1/4 line of said Section 1650 feet North of the South 1/4 post thereof; thence East 1191 feet to the center of the Okemos-Haslett Road; thence South in the center of said Road to the Northerly line of the Old M.U.R. right of way; thence Southwesterly along the Northerly line of said right of way to its intersection with the North and South 1/4 line; thence North to the place of beginning. EXCEPT: The East 80 feet thereof. ALSO EXCEPT: Easement for tower line granted to Consumers Power Company.

(Continued on Page 7)



	KEBS, INC.	KYES ENGINEERING BRYAN LAND SURVEYS
	2116 HASLETT ROAD, HASLETT, MI 48840 PH. 517-339-1014 FAX. 517-339-8047 13432 PRESTON DRIVE, MARSHALL, MI 49068 PH. 269-781-9800 FAX. 269-781-9805	
DRAWN BY	SSF	SECTION 10, T4N, R1W
FIELD WORK BY	NAW	JOB NUMBER:
SHEET	6 OF 8	95688.BND

CERTIFIED BOUNDARY SURVEY

(Continued from Page 6)

and that we have found or set, as noted hereon, permanent markers to all corners and angle points of the boundaries of said parcels and that the more particular legal descriptions of said parcels are as follows:

PARCEL A: FUTURE PARCEL CONFIGURATION - "Eligible Property" in the Brownfield Plan

A parcel of land in the Southeast 1/4 of Section 10, T4N, R1W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the South 1/4 corner of said Section 10; thence N00°22'20"W along the North-South 1/4 line of said Section 10 a distance of 896.94 feet to the point of beginning of this description; thence continuing N00°22'20"W along said North-South 1/4 line 1359.73 feet to the South right-of-way line of Haslett Road, said South line being South of and 50.00 feet measured perpendicularly to the centerline of Haslett road; thence N88°08'51"E along said South line 411.71 feet; thence S01°40'31"E 625.33 feet; thence S29°22'14"W 858.27 feet to the point of beginning; said parcel containing 9.60 acres more or less; said parcel subject to all easements and restrictions if any.

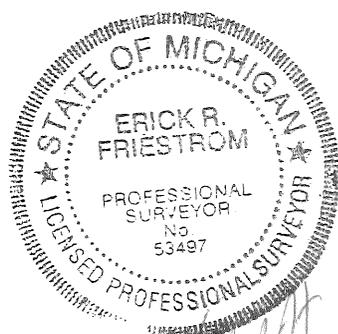
PARCEL B: FUTURE PARCEL CONFIGURATION - "Eligible Property" in the Brownfield Plan

A parcel of land in the Southeast 1/4 of Section 10, T4N, R1W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the South 1/4 corner of said Section 10; thence N00°22'20"W along the North-South 1/4 line of said Section 10 a distance of 746.99 feet to the point of beginning of this description; thence continuing N00°22'20"W along said North-South 1/4 line 149.95 feet; thence N29°22'14"E 858.27 feet; thence N01°40'31"W 625.33 feet to the South right-of-way line of Haslett Road, said South line being South of and 50.00 feet measured perpendicularly to the centerline of Haslett road; thence N88°08'51"E along said South line 224.29 feet; thence S01°25'28"E parallel with the West right-of-way line of Marsh Road 222.14 feet; thence N88°08'51"E parallel with said South line 488.95 feet to the West right-of-way line of Marsh Road, said West line being West of and 60.00 feet measured perpendicularly to the centerline of Marsh Road; thence along said West line S01°25'28"E 407.01 feet to the centerline of former Raby Road and a jog in the West right-of-way line of said Marsh Road; thence N89°45'31"W along said centerline and jog in right-of-way 20.01 feet to a point being West of and 80.00 feet measured perpendicularly to the centerline of Marsh Road; thence S01°25'28"E along said West line 83.28 feet to the Northerly line of a Consumers Energy tower line easement; thence along said Northerly line the following three courses: S54°02'30"W 638.21 feet, S46°14'05"W 124.14 feet; S53°35'08"W 628.79 feet to the point of beginning; said parcel containing 16.54 acres more or less; said parcel subject to all easements and restrictions if any.

Parcel C: NOT part of the "Eligible Property" in the Brownfield Plan

A parcel of land in the Southeast 1/4 of Section 10, T4N, R1W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the South 1/4 corner of said Section 10; thence N00°22'20"W along the North-South 1/4 line of said Section 10 a distance of 2256.67 feet to the South right-of-way line of Haslett Road, said South line being South of and 50.00 feet measured perpendicularly to the centerline of Haslett road; thence N88°08'51"E along said South line 636.00 feet to the point of beginning; thence N88°08'51"E continuing along said South line 488.95 feet to the West right-of-way line of Marsh Road, said West line being West of and 60.00 feet measured perpendicularly to the centerline of Marsh Road; thence S01°25'28"E along said West line 222.14 feet; thence S88°08'51"W parallel with said South line 488.95 feet; thence N01°25'28"W parallel with said West line 222.14 feet to the point of beginning; said parcel containing 2.49 acres more or less; said parcel subject to all easements and restrictions if any.

(Continued on Page 8)



	KEBS, INC.	KYES ENGINEERING BRYAN LAND SURVEYS
	2116 HASLETT ROAD, HASLETT, MI 48840 PH. 517-339-1014 FAX. 517-339-8047 13432 PRESTON DRIVE, MARSHALL, MI 49068 PH. 269-781-9800 FAX. 269-781-9805	
DRAWN BY	SSF	SECTION 10, T4N, R1W
FIELD WORK BY	NAW	JOB NUMBER:
SHEET	7 OF 8	95688.BND

CERTIFIED BOUNDARY SURVEY

(Continued from Page 7)

PROPOSED INGRESS/EGRESS EASEMENT: included within the Eligible Property in the Brownfield Plan

A area of land in the Southeast 1/4 of Section 10, T4N, R1W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the South 1/4 corner of said Section 10; thence N00°22'20"W along the North-South 1/4 line of said Section 10 a distance of 2256.67 feet to the South right-of-way line of Haslett Road, said South line being South of and 50.00 feet measured perpendicularly to the centerline of Haslett road; thence N88°08'51"E along said South line 386.71 feet to the point of beginning; thence N88°08'51"E continuing along said South line 50.00 feet; thence S01°40'31"E 570.00 feet; thence S88°08'51"W 50.00 feet; thence N01°40'31"W 570.00 feet to the point of beginning; said area containing 0.65 acre more or less; said area subject to all other easements and restrictions if any.

WITNESSES TO SECTION CORNERS:

South 1/4 corner, Section 10, T4N, R1W, Liber 7, Page 49

Found bar & cap #16053

Found bar & cap #16053, N80°W, 36.42'

Northeast corner, building foundation, S88°W, 6.11'

Found nail & cap #53497, East side 12" pine, North, 26.84'

Found nail & cap #53497, East side 13" pine, S20°E, 26.34'

Center of section, Section 10, T4N, R1W, Liber 7, Page 47

Found bar & cap

Found nail & tag, North side 16" cherry, S45°E, 65.21'

Found nail & tag, South side 10" oak, West, 41.42'

Found nail & tag, East side 8" oak, N30°W, 5.23'

Found nail & tag, East side 8" cherry, N05°W, 29.69'

I certify that the requirements for 1970 PA 132, MCL 54.213 have been met. The relative positional precision of the corners identified for this survey and shown on the map are within the limits accepted by the professional practice of surveying.

All bearings are Michigan State Plane South Zone grid bearings obtained from GPS observations using corrections obtained from the Lansing C.O.R.S.




Erick R. Friestrom

09-13-19
Date:

Professional Surveyor No. 53497



KESB, INC.

**KYES ENGINEERING
BRYAN LAND SURVEYS**

2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047

13432 PRESTON DRIVE, MARSHALL, MI 49068
PH. 269-781-9800 FAX. 269-781-9805

DRAWN BY **SSF**

SECTION **10, T4N, R1W**

FIELD WORK BY **NAW**

JOB NUMBER:

SHEET **8** OF **8**

95688.BND



Brownfield Plan

Pine Village of Meridian

**1673 Haslett Road
Haslett, MI**

TRI  **TERRA**

**Brownfield Development
Environmental Consulting
Natural Resources**

Eligible Property



- **Project Name:**
 - Pine Village of Meridian

- **Applicant:**
 - Hudson Senior Living, LLC

- **Subject Property:**
 - 1673 Haslett Road
 - 1655 Haslett Road
 - 1659 Raby Road

- **Eligibility Status:**
 - “Facility” and “Adjacent and Contiguous”

Project Summary

- Mixed-use development including a complete demolition of 23,415 square foot multi-tenant building and adjacent shopping center.
- New construction: 4-story 147,721 square foot building
- 132-unit senior apartment building leasing office, lobby, community kitchen
- 9,114 square feet of leasable space restaurant/café, other retail
- \$12,000,000 total investment
- 55 new, full-time equivalent (FTE) jobs



Site Plan

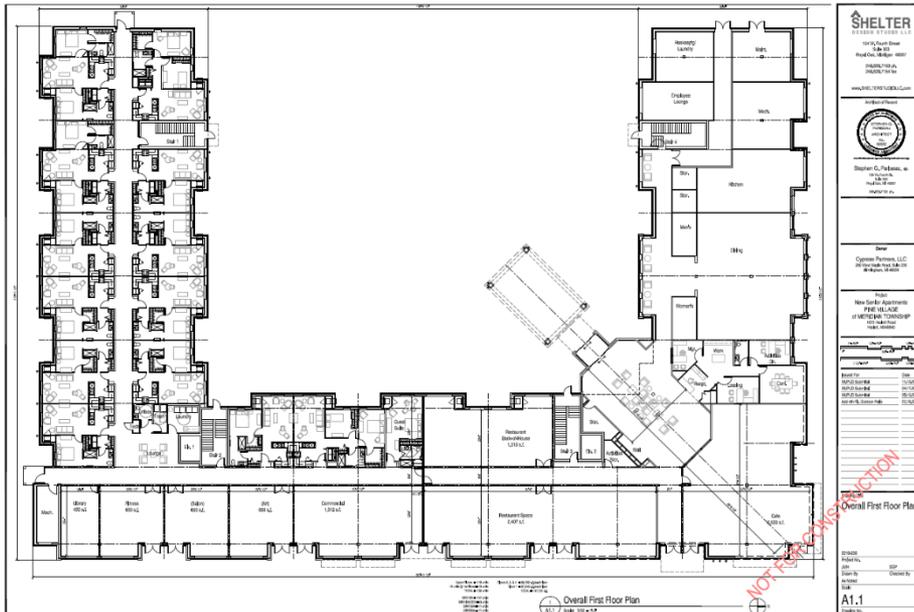


Statistics:

- Land (Acres Approx.): 9.6
- Building Count: One
- Total Res. Units: 132
- Total Office/Retail SF: 9,114
- Parking Spaces: 295

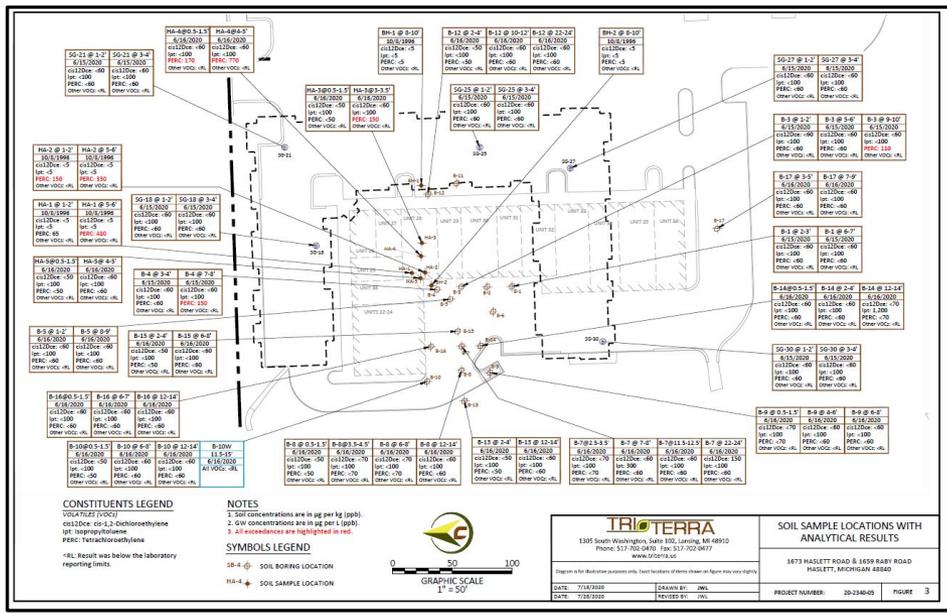
Amenities:

- Public Art Installation
- CATA Bus Stop Upgrade
- Interurban Bike Pathway Extension
- Stainless steel appliances
- Quartz countertops
- Energy star appliances
- Secured, keyless entry
- Indoor Bike Storage





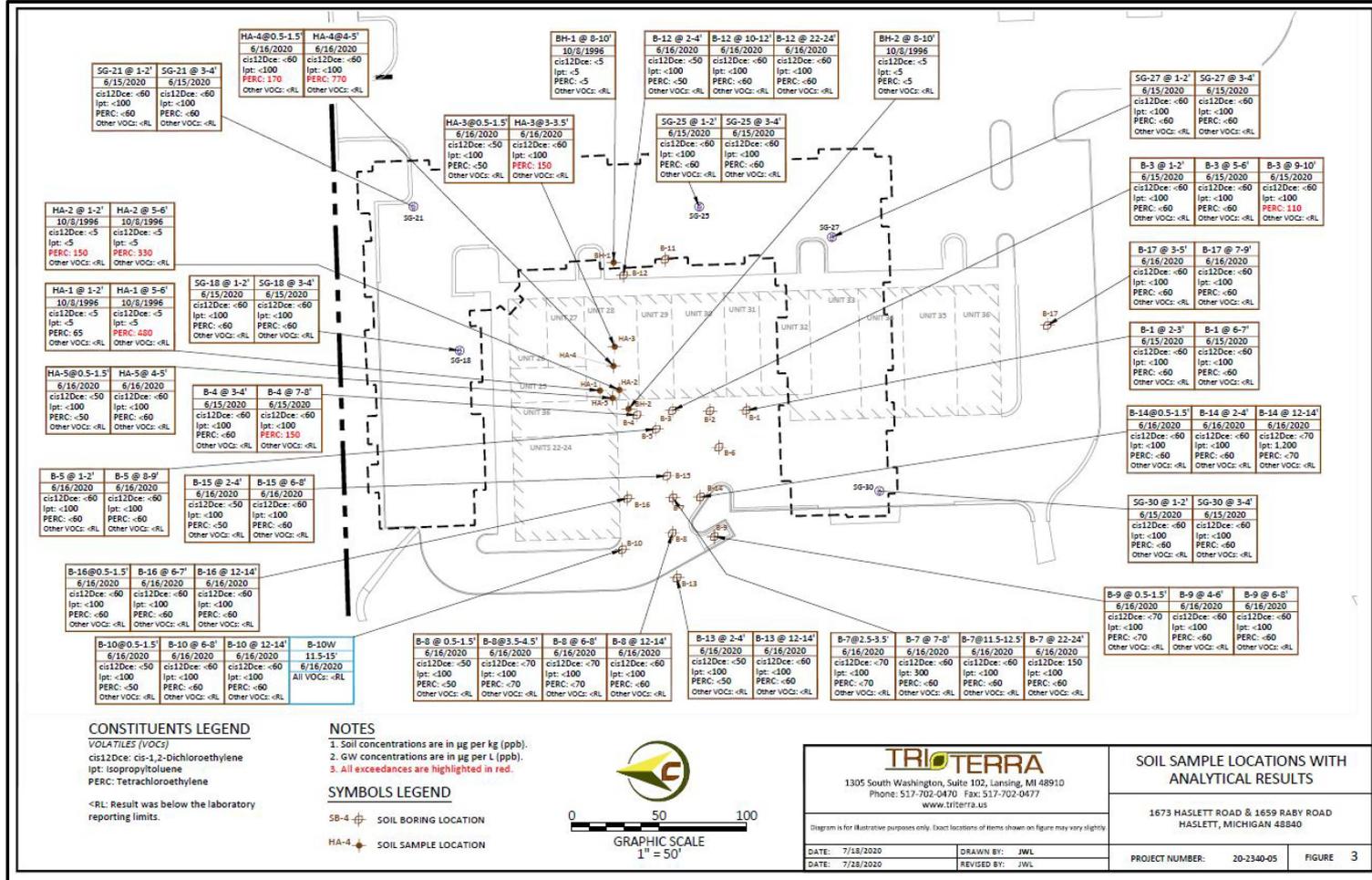
Brownfield Conditions



- Facility – contamination above the residential cleanup criteria:
 - Historical records indicate dry cleaner operation from 1990–2001
 - Phase II environmental site assessment identified chlorinated solvent (i.e. PERC) contamination in soil and soil gas.
- Asbestos Containing Building Materials:
 - Triterra performed a pre-demolition survey and found building materials containing asbestos within the existing structure.



Brownfield Conditions





Total New Taxes

Total New Taxes Generated – 15 Years (2022–2035)	\$5,220,592
Captured for BRA Administration, LBRF Deposits, Developer Reimbursement	\$2,702,417 (52%)
Not Captured and “Passed-Through” to Taxing Jurisdictions	\$2,518,175 (48%)

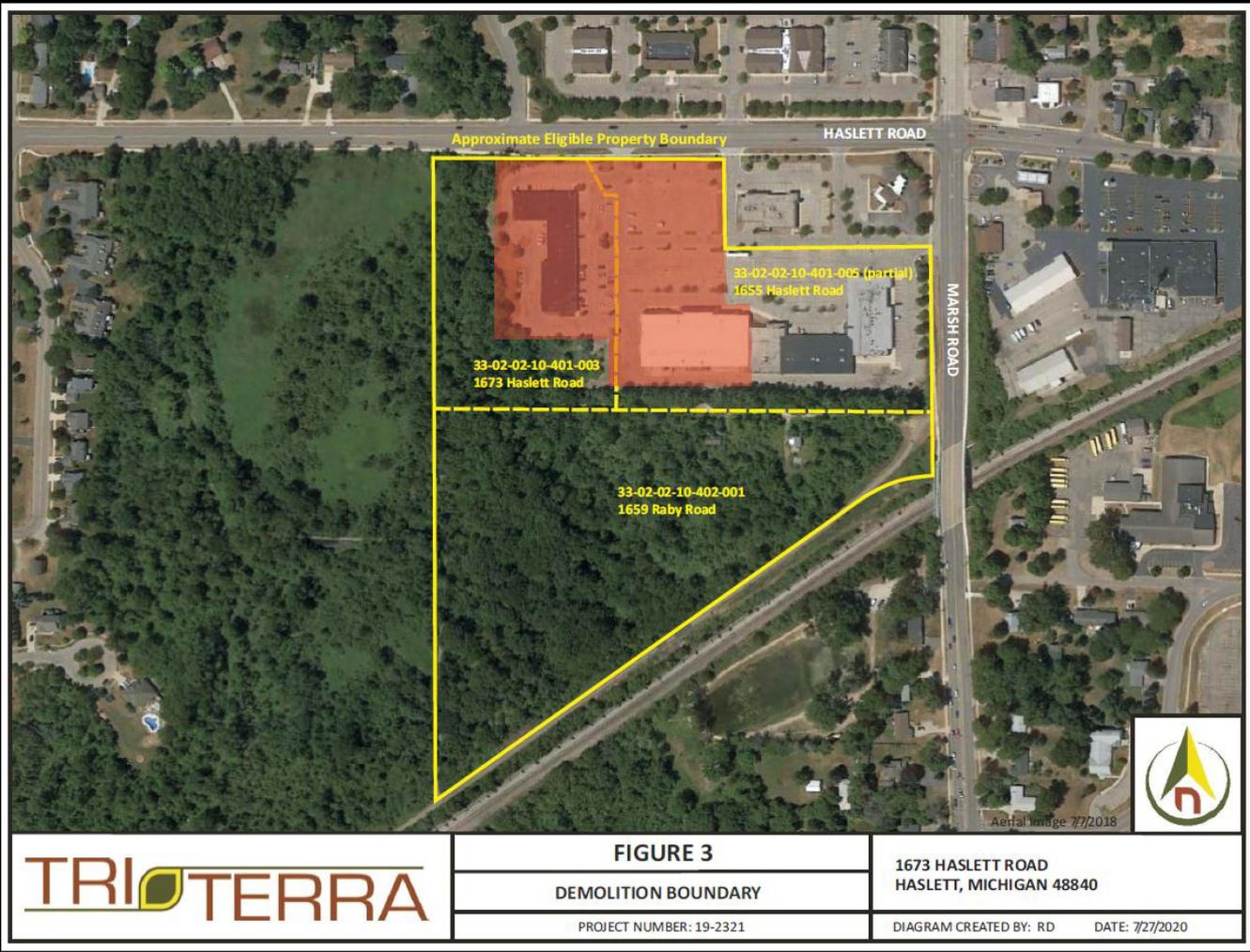
New Taxes Captured – Reimbursement Allocation	\$2,702,417
Portion Captured to Reimburse Developer	\$2,432,175
Portion Captured for State Brownfield Redevelopment Fund (SBRF)	\$0
Portion Captured for BRA Plan Administration	\$135,121
Portion Captured for BRA Local Brownfield Revolving Fund (LBRF)	\$135,121

➤ New Taxes – Captured for Eligible Activities

Eligible Activities	
Environmental Assessment	\$18,510
Asbestos Survey and Abatement	\$117,850
Demolition Activities	\$566,500
Soil Mgmt. - Transportation & Disposal (Hazardous)	\$637,500
Soil Mgmt. - Transportation & Disposal (Non-Hazardous)	\$202,500
Soil Gas - Vapor Mitigation System	\$214,763
Engineering Controls	\$18,000
Soft Costs	\$47,000
	Subtotal Eligible Activities Cost
	\$1,822,623
Contingency	\$270,549
Brownfield Plan and Act 381 Work Plan Preparation & Implementation	\$30,000
Interest (2%, simple)	\$309,003
	Total TIR for Developer Reimbursement
	\$2,432,175
BRA Plan Administration	\$135,121
BRA Local Brownfield Revolving Fund (LBRF)	\$135,121
	Total TIR for Reimbursement and LBRF/BRA Capture
	\$2,702,417



Eligible Activities





Proposed Brownfield Plan

Brownfield Plan – 15 Year Plan

- \$12.mm investment in long underutilized building
- Project include asbestos abatement, environmental cleanup activities and engineering controls to protect building occupants
- Improved entrances, sidewalks and parking will create a more inviting, clean appearance
- Redevelopment of contaminated parcel and removal of a vacant, functionally obsolete building on the adjacent and contiguous parcel to the east.
- Dramatically improve the appearance of the property.
- Significantly increase density to the area and provide additional support to existing retail establishments in the township, as well as create jobs.
- \$2.5mm in new taxes generated from the project to “pass-through” to taxing jurisdictions



11.B/13.B

To: Township Board

From: Mark Kieselbach, Director of Community Planning & Development
Peter Menser, Principal Planner

Date: September 10, 2020

Re: Planned Unit Development #20014 (Okemos Land Investment LLC) Silverleaf

Okemos Land Investment LLC (Mayberry Homes) has submitted a planned unit development (PUD) proposal for a project identified as Silverleaf. The overall PUD proposal includes the construction of 150 detached single family homes on approximately 94 acres located on the north side of Bennett Road, west of Hulett Road. The project is located in the RAA (Single Family-Low Density) zoning district. The property was rezoned to RAA from RR (Rural Residential) and RAAA (Single Family-Low Density) by the Township Board at its meeting on January 7, 2020, subject to seven conditions voluntarily offered by the property owner, which are as follows:

1. 93 acres of RAA zoning is to be a PUD. Three acres are to be zoned PO.
2. Maximum of 150 single family detached homes.
3. No vehicular connection to Champion Woods or Woods of Heron Creek for perpetuity. An emergency only access will connect Silverleaf to Sophiea Parkway in Champion Woods. This will be a 20' asphalt pathway with bollards to prevent normal vehicular traffic.
4. A 75' minimum distance between homes in Champion Woods and homes in Silverleaf.
5. The northern approximately 20 acres to be dedicated as open space to Meridian Township.
6. A 3-acre site will be zoned P.O. The office space will not exceed 20,000 sq. ft. No apartments will be built in the P.O. zoned site. This will be on Bennett Road at the southeast corner of the property abutting the Schultz Veterinary Clinic.
7. The storm drainage will be designed to avoid impact on Champion Woods and Woods of Heron Creek. Mayberry Homes will cooperate with the resolution of the existing drainage issues with Champion Woods and Woods of Heron Creek.

The Planning Commission held the public hearing on the rezoning request at its August 10, 2020 meeting and voted 8-1 to recommend approval at its August 24, 2020 meeting, citing the following reasons for its decision:

- The proposed planned unit development is consistent with the seven conditions established in Rezoning #19060.
- The proposed planned unit development provides adequate buffering between the development and adjacent residential land uses to the north and east.
- The proposed planned unit development meets the minimum PUD performance objective to preserve at least 50% of the project area, excluding wetlands and floodplains, as open space.

**Planned Unit Development #20014 (Okemos Land Investment LLC)
Township Board (September 15, 2020)
Page 2**

- The proposed planned unit development will be harmonious and similar in character with the existing residential developments to the north and east of the subject site.
- The requested waivers for lot size, lot frontage, and building setbacks are necessary to facilitate preservation of open space.
- The proposed planned unit development will be adequately served by public water and sanitary sewer.
- The approximate 1.60 dwelling units per acre (du/a) density of the proposed development is consistent with the R2-Residential 0.5-3.5 Future Land Use Map designation from the 2017 Master Plan.
- The proposed planned unit development meets the minimum PUD performance objectives as stated in Section 86-439(b) of the Code of Ordinances
- The proposed development is consistent with Objective E of Goal 2 of the 2017 Master Plan to preserve open space and natural areas by utilizing the planned unit development ordinance for the project.
- The proposed planned unit development is consistent with Objectives A and B of Goal 1 of the 2017 Master Plan to preserve and strengthen residential neighborhoods by ensuring new residential developments meet high standards of visual attractiveness, health and safety, and environmental sensitivity.

Staff memorandums outlining the PUD and minutes from the Planning Commission meetings at which the project was discussed are attached for the Board's review.

Township Board Options

The Planning Commission may recommend approval, approval with conditions, or denial of the proposed PUD. A resolution will be provided at a future meeting.

Attachments

1. Staff memorandums dated August 4, 2020 and August 19, 2020 with attachments.
2. Planning Commission minutes dated August 10, 2020 (public hearing) and August 24, 2020 (recommendation).
3. Resolution recommending approval from the August 24, 2020 Planning Commission meeting.
4. Communications received by the Planning Commission regarding PUD #20014.

G:\Community Planning & Development\Planning\PLANNED UNIT DEVELOPMENTS (PUD)\2020\PUD 20014 (Bennett Holding LLC)\PUD 20014 (Bennett Holding LLC)\PUD 20014.tb1.docx



To: Planning Commission

From: Peter Menser, Principal Planner

Date: August 4, 2020

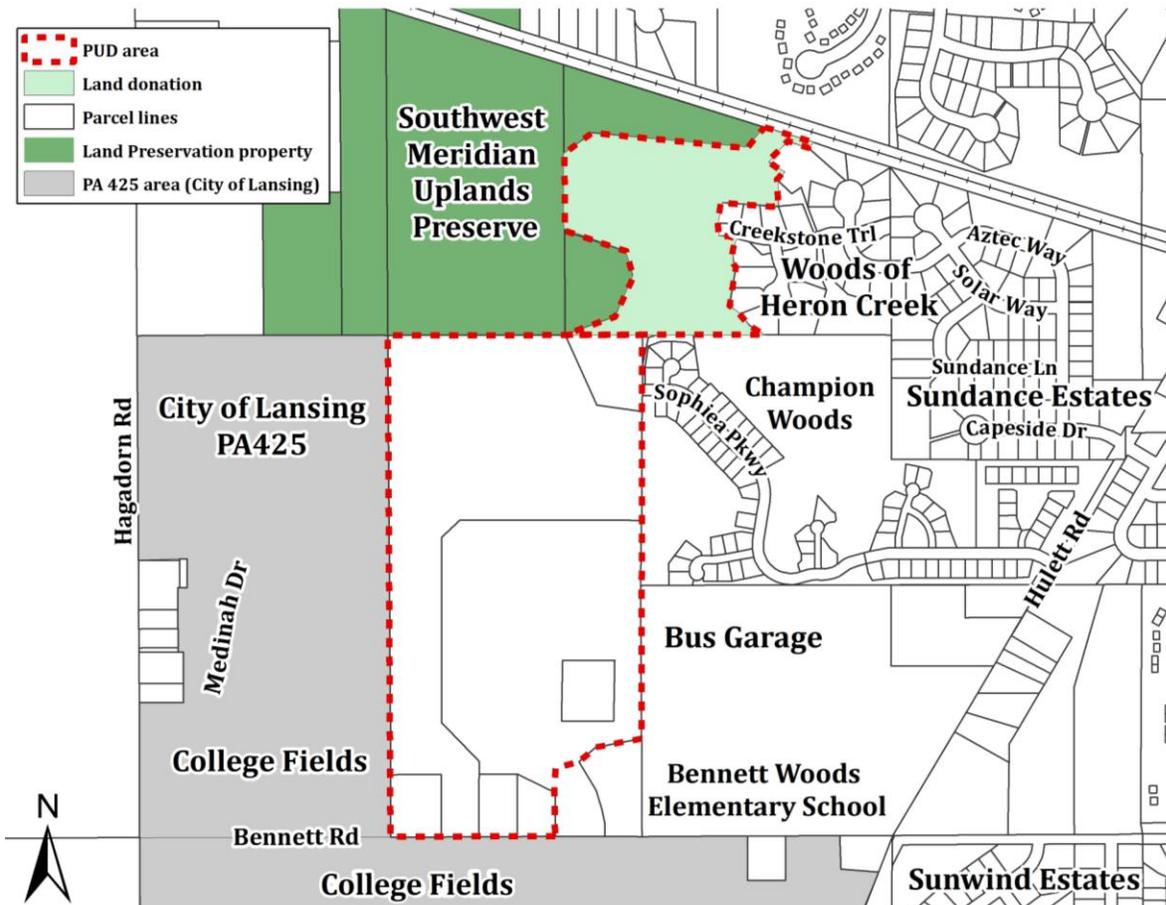
Re: Planned Unit Development #20014 (Okemos Land Investment LLC), develop Pine Village PUD consisting of 150 single family residential lots on approximately 94 acres located on the north side of Bennett Road, west of Hulett Road.

Okemos Land Investment LLC has submitted a planned unit development (PUD) proposal for a project identified as Silverleaf. The overall PUD proposal includes the construction of 150 detached single family homes on approximately 94 acres located on the north side of Bennett Road, west of Hulett Road. The majority of the development is proposed as site condominiums, whereby a person owns their individual lot and shares ownership of common space with the rest of the owners in the development. Responsibility for maintenance of the property varies, but typically an owner is responsible for maintaining their own lot, much like a traditional subdivision. The cul-de-sac proposed along Bennett Road is depicted as a conventional condominium, which is where a person owns just the home itself and the surrounding area is common space.

The property is zoned RAA (Single Family-Medium Density), subject to the seven conditions voluntarily offered by the property owner during the rezoning of the property in early 2020. The area proposed for a PUD is comprised of five parcels and portions of two other parcels, all of which would be required to be combined prior to development. The parcels proposed for the PUD are identified in the table below:

Property/Parcel I.D.	Acreage	Street Frontage
2862 Bennett Road Parcel I.D. #33-02-02-29-300-008	1.8 acres	264 feet
2824 Bennett Road Parcel I.D. #33-02-02-29-300-020	1.52 acres	201 feet
2806 Bennett Road Parcel I.D. #33-02-02-29-300-021 (portion)	1.28 acres	200 feet
2800 Bennett Road Parcel I.D. #33-02-02-29-300-026	2.02 acres	0 feet
Parcel I.D. #33-02-02-29-300-025 (portion)	30.2 acres	263 feet
Parcel I.D. #33-02-02-29-300-023	37.6 acres	198 feet
Parcel I.D. #33-02-02-29-251-009	22.3 acres	65 feet Creekstone Ln. 60 feet Sophiea Pkwy.

The PUD area is depicted in the map below:



The intent of the PUD ordinance is to permit greater flexibility and more creative design of residential developments than is possible under conventional zoning regulations. The PUD ordinance allows a developer to propose a residential project with diverse housing types and different lot dimensions and yard setbacks as those prescribed in the underlying zoning district. Lot size, yards, frontage requirements, setbacks, building height, and type and size of dwelling unit restrictions are generally waived in a PUD. In exchange for the flexible standards, a minimum of 50% of the project area, excluding wetlands and floodplains, must be preserved as open space.

2019 Rezoning

At its January 7, 2020 meeting the Township Board approved the rezoning (REZ #19060) of approximately 96.74 acres from RR (Rural Residential), RAA (Single Family-Low Density), and RAAA (Single Family-Low Density) to RAA and PO (Professional and Office). The approval resulted in 93 acres being rezoned to RAA and three acres rezoned to PO. The rezoning was approved with seven conditions voluntarily offered by the property owner, which are as follows:

Planned Unit Development #20014 (Okemos Land Investment LLC)
Planning Commission (August 10, 2020)
Page 3

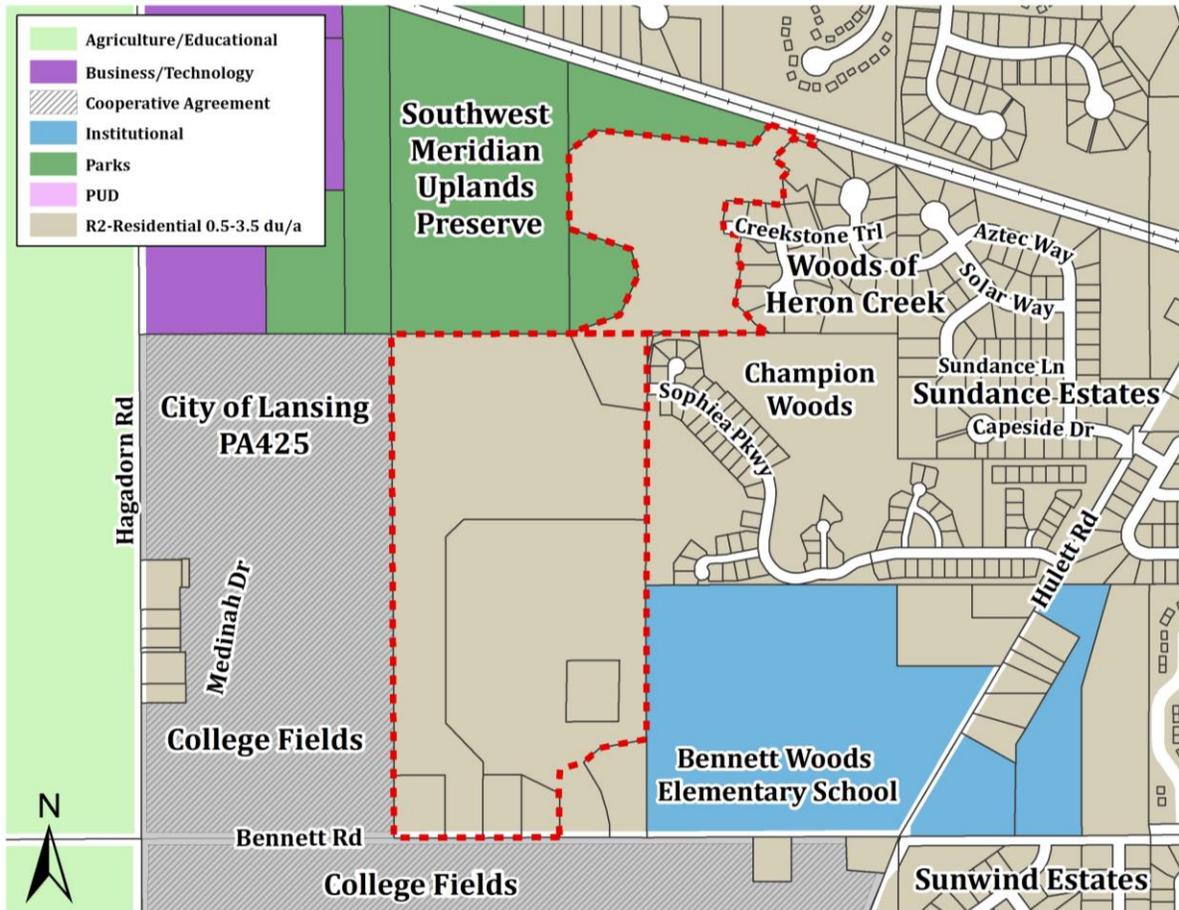
1. 93 acres of RAA zoning is to be a PUD. Three acres are to be zoned PO.
2. Maximum of 150 single family detached homes.
3. No vehicular connection to Champion Woods or Woods of Heron Creek for perpetuity. An emergency only access will connect Silverleaf to Sophiea Parkway in Champion Woods. This will be a 20' asphalt pathway with bollards to prevent normal vehicular traffic.
4. A 75' minimum distance between homes in Champion Woods and homes in Silverleaf.
5. The northern approximately 20 acres to be dedicated as open space to Meridian Township.
6. A 3-acre site will be zoned P.O. The office space will not exceed 20,000 sq. ft. No apartments will be built in the P.O. zoned site. This will be on Bennett Road at the southeast corner of the property abutting the Schultz Veterinary Clinic.
7. The storm drainage will be designed to avoid impact on Champion Woods and Woods of Heron Creek. Mayberry Homes will cooperate with the resolution of the existing drainage issues with Champion Woods and Woods of Heron Creek.

The rezoning conditions run with the land and apply to the current owners and any future owners of the properties. Township Board approval is needed to amend or remove the rezoning conditions. The PUD as proposed would apply to the approximately 94 acres rezoned to RAA and not to the property rezoned to PO. Development of the three acres of PO would take place separately from the PUD proposal.

Master Plan

The property is designated on the Future Land Use Map from the 2017 Master Plan as R-2 Residential, 0.5-3.5 dwelling units per acre (du/a). With 150 lots on 94 acres, the density of the proposed development at 1.60 du/a falls within the R-2 Master Plan designation.

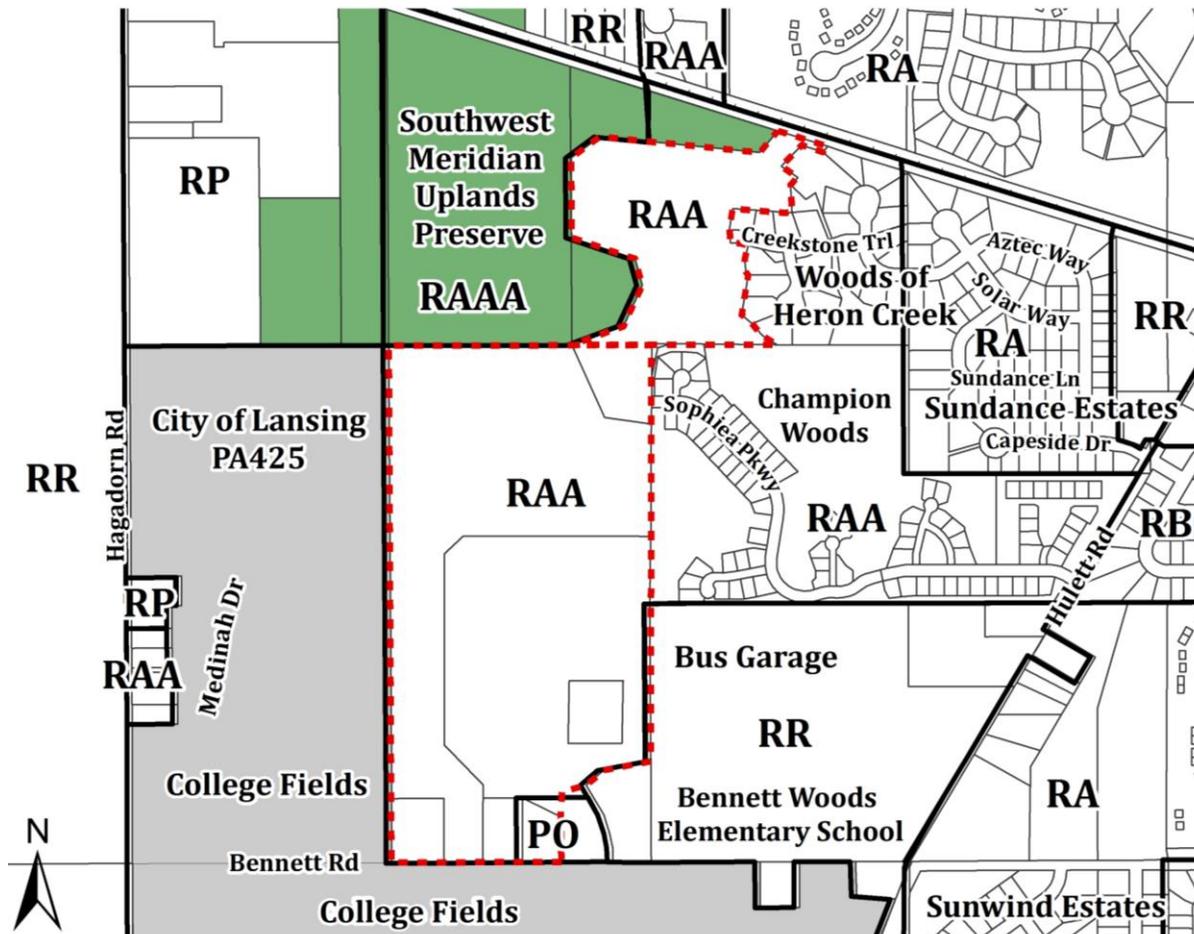
FUTURE LAND USE MAP



Zoning

The property proposed for development is located in the RAA (Single Family-Low Density) zoning district. A PUD is allowed in any residential zoning district on any sized property. All uses in all residential zoning districts are allowed in a PUD, which means any type and mix of housing (detached or attached single family dwellings or multiple family dwellings) are permitted. Detached single family homes are proposed.

ZONING MAP



Physical Features

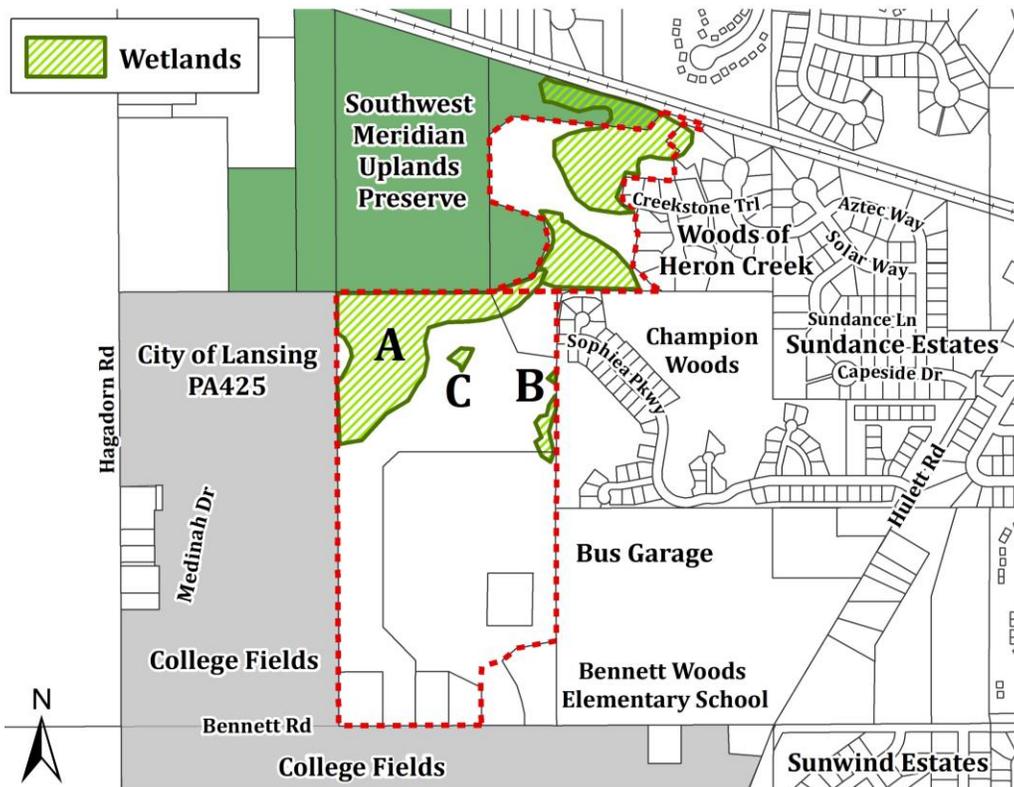
The site is mostly undeveloped. Three of the parcels fronting on Bennett Road are developed with single family homes and related accessory buildings. A natural features inventory and impact assessment prepared by Marx Wetlands, LLC was submitted as required, which includes a review of existing vegetation, soils, topography, wildlife, and a tree inventory.

Wetlands

Wetlands on the southern portion of the property were delineated by the Township’s wetland consultant in 2017. The wetlands on the northern portion of the property were delineated by Marx Wetlands, LLC in April of 2020 and verified by the Township’s consultant shortly thereafter. The delineation of the southern area identified three wetlands, designated by letters A, B, and C. Of the three wetlands delineated, only Wetland A is regulated by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and Meridian Township based on its size (9.06 acres) and the distance from a regulated water body (river, stream/drain, or inland lake). Wetland B (0.83 acre) is not regulated by EGLE but could be regulated by Meridian Township if it was proposed for filling and determined by the Township Board to be essential to the preservation of the natural resources of the Township. Wetland C (0.16 acre) is not regulated by the Township or EGLE as it is below the 0.25 acre standard established for regulation in the Wetland Protection ordinance.

Regulated wetlands equal to or greater than two acres in size require a 40 foot setback from the delineated boundary and wetlands greater than one quarter acre but smaller than two acres require a 20 foot setback. The applicant is proposed to fill Wetland C, which is unregulated, to facilitate development of the property. No impacts to Wetlands A, B, or any wetlands on the northern 20 acres of the site are proposed.

WETLAND MAP



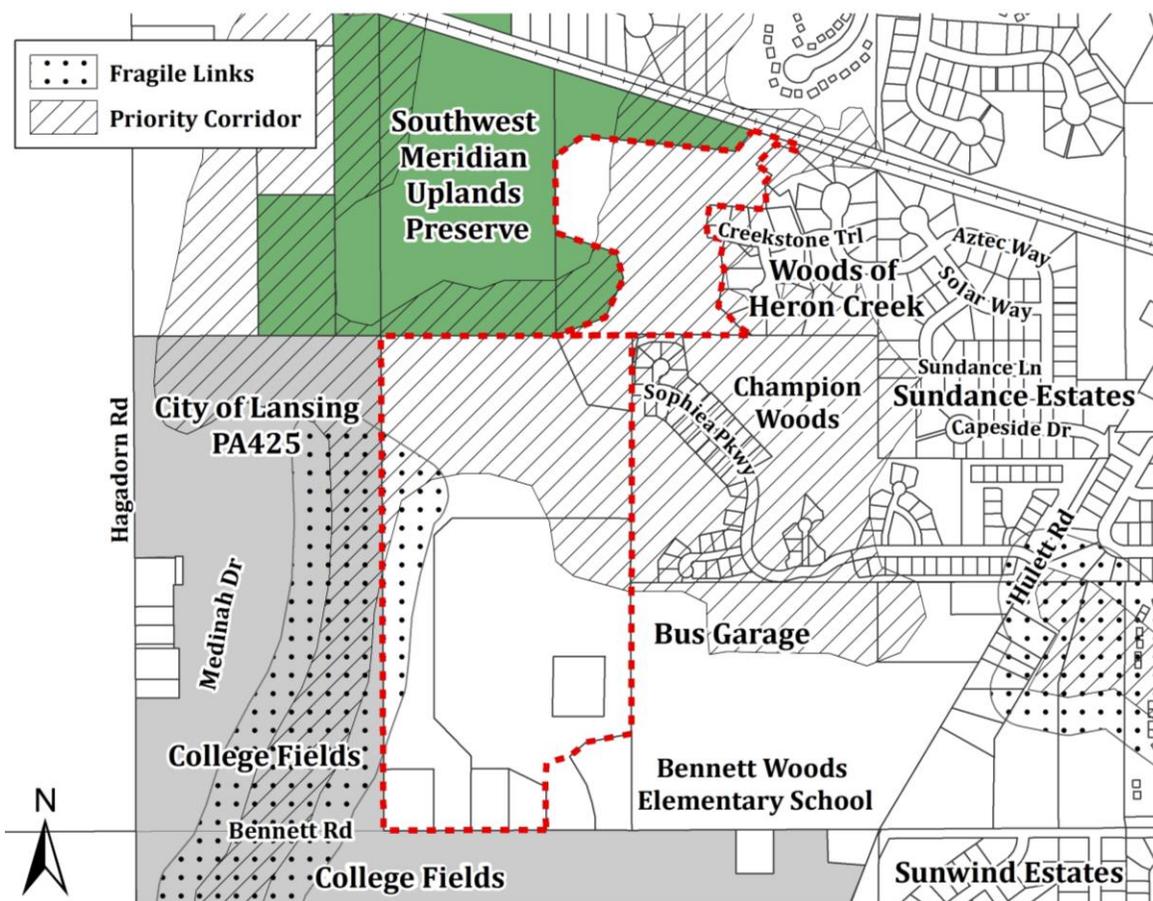
Floodplain

The Flood Insurance Rate Map (FIRM) for Meridian Township indicates there are areas of both floodway and floodway fringe on portions of the property. The Herron Creek Drain and associated floodway runs south to north on the western edge of the subject site. The site plan submitted by the applicant depicts the location of the floodplain in the context of the proposed development. No work is being proposed in floodplain areas.

Greenspace Plan

The Township Greenspace Plan shows a Priority Conservation Corridor (PCC) and Fragile Link on portions of the property. A PCC is a network of ecologically significant open spaces. A Fragile Link describes an area where the PCC is exceptionally narrow or fragmented. The Greenspace Plan is a guide used by staff to identify areas of potential environmental features but was not adopted as a Township ordinance.

GREENSPACE MAP



Streets and Traffic

The subject site is located on the north side of Bennett Road. Bennett Road is a two-lane road designated as a Collector Street on the Street Setbacks and Service Drives Map in the zoning ordinance. The most recent (2017) traffic count information from the Ingham County Road Department (ICRD) for Bennett Road between Hulett Road and Hagadorn Road showed a total of 6,010 vehicles in a 24 hour period.

The 2017 Master Plan shows a proposed seven foot wide pathway along the north side of Bennett Road. The applicant will be required to construct the portion of the pathway located along the Bennett Road property frontage if the PUD is approved.

A detailed traffic study prepared by Fleis and Vandenbrink was submitted examining traffic generation, access management, safety, and sight distance for the proposed development. The study examines traffic generation under existing conditions (no development), background traffic (future traffic without the development), and future traffic (future traffic with the development). Findings of the study for future traffic show increased delays in the AM and PM peak hours at the intersection of Hagadorn Road and Bennett Road for some turning movements. To mitigate those issues the study recommends installation of a westbound right-turn overlap signal and signal timing optimization. With these improvements, traffic future conditions are projected to operate at an acceptable level of service (LOS D or better). The study also suggests that a left-turn treatment (installation of passing lane or center turn lane) is warranted on Bennett Road at the westernmost site entrance.

Utilities

Municipal water and sanitary sewer is available in the vicinity of the subject site and would have to be extended to serve the proposed development. The location and capacity of utilities for any proposed development will be reviewed in detail by the Department of Public Works and Engineering during the Site Plan Review process.

Staff Analysis

The applicant has requested to develop the Silverleaf PUD, a single family residential neighborhood with 150 lots. In a PUD request the Planning Commission makes a recommendation on the project and the Township Board makes the final decision.

When reviewing the project the Planning Commission should consider whether or not the project meets the purpose and minimum PUD performance objectives found in Sections 86-439(a) and (b) of the Code of Ordinances, the appropriateness of the requested waivers, and the general restrictions and standards for a PUD as outlined in Section 86-439(c) of the Code of Ordinances. The following is a summary of the project's consistency with the provisions of the PUD ordinance.

Density: To determine the maximum number of residential dwelling units in a PUD the applicant is first required to submit a yield plan that shows the number of lots that could be developed on the property as if it were a typical platted subdivision. The yield plan is reviewed using the standards established in the subdivision regulations. If the yield plan is deemed to be acceptable, the number of units depicted in the plan can be used as a baseline for the number of units in the PUD. The submitted yield plan shows 122 lots.

For properties with wetlands or floodplain, as is the case with the Silverleaf proposal, a formula is applied whereby the number of lots depicted in the yield plan is multiplied by the percent of the site covered by wetlands and floodplain (expressed as a decimal) plus one. There are 26.87 acres of wetland/floodplain in the PUD project area, which is 93.90 total acres in size. Applying this formula, the number of lots allowed in Silverleaf is 156.

The PUD ordinance also allows the maximum density to be increased by up to 25% with the provision of unique and extraordinary amenities such as preservation of woodlots, provisions of lakes, provision of recreational facilities, provision of affordable housing, or other amenities deemed acceptable. The density bonus would have given the developer 39 additional lots in the project, for a total of 195. Since the 2019 rezoning limited the number of units to no more than 150, the applicant is not seeking the density bonus for this project.

Open space: In a PUD a minimum of 50% of the project area, excluding wetlands and floodplains, must be preserved as “common open space,” which is defined as “a parcel or parcels of land or an area of water or a combination of land and water designed and intended for the use or enjoyment of the residents of the PUD or of the general public.” The ordinance prohibits proposed streets, rights-of-way, and open parking areas or commercial areas from counting towards the 50% open space requirement. It further notes that features such as recreational trails, picnic areas, children's play areas, greenways, or linear parks may be included in a common open space. All common open space is required by ordinance to be protected in perpetuity by establishment of a restrictive covenant or other such mechanism.

With a total of 67.03 acres of developable area, the proposed PUD is required to preserve at least 50 percent of the site, or 33.5 acres, as open space. The submitted PUD plan provides 35.05 acres of open space. Approximately 20 acres of the open space, which includes the entirety of the northern portion of the project area, is slated to be donated to Meridian Township.

Phasing: The submitted site plan shows that five phases are proposed for the development of the PUD. Phasing is proposed as follows:

- Phase 1: 29 units (lots 1-29)
- Phase 2: 42 units (lots 30-71)
- Phase 3: 21 units (Lots 72-92)
- Phase 4: 30 units (Lots 93-122)
- Phase 5: 28 units (Lots 123-150)

Streets/Circulation Facilities: The PUD ordinance encourages public streets but does allow private streets when they are designed to allow sufficient access for emergency vehicles (police, fire, ambulance) to the dwelling units they will serve. The streets in the proposed PUD are private with a 60 foot right-of-way, with the only exception being a cul-de-sac near Bennett Road showing a 42 foot right-of-way. If private streets are proposed and approved, easements of sufficient width acceptable to the Ingham County Road Department (ICRD) are required to be granted to the Township in order to accommodate possible future dedication. The private streets in the proposed development must be designed to meet ICRD standards. Final approval of the streets in the PUD is subject to approval by the ICRD and Meridian Township Engineering Department.

Street Access: The Fire Code contains a provision limiting the number of lots on a single access to 30. The development as proposed includes two access streets, both on Bennett Road. Additionally, breakaway bollards will be installed at the end of Morning Vista Lane so that emergency vehicles and residents, in an emergency situation, can temporarily enter or exit the site via Sophiea Parkway.

Sidewalks: The Township requires sidewalks for internal circulation with a minimum of five feet in width. The submitted site plan shows five foot wide sidewalks along both sides of each street in the PUD.

Waivers

The PUD ordinance generally waives the standard requirements for lot size, yards, frontage requirements, setbacks, building height, and type and size of dwelling unit, provided the purpose and intent of the ordinance are incorporated into the overall development plan. The PUD ordinance is intended to provide flexibility for the Planning Commission and Township Board to set appropriate standards during the review process. Based on the submitted site plan the applicant is requesting the following waivers for the Silverleaf PUD.

Lot size: The underlying RAA zoning district requires parcels have a minimum lot area of 13,500 square feet. The submitted PUD has lots ranging from 3,500 square feet (Units 82-90) to 12,489 square feet (Unit 56) in size.

Lot frontage: The underlying RAA zoning district requires parcels have a minimum of 90 feet of lot frontage (90 feet for corner lots). The submitted PUD has lots ranging from 37.3 feet of lot width (Unit 128) to 121.9 feet (Unit 62).

Setbacks: The yard setbacks for the underlying RAA zoning district and the proposed PUD are summarized in the table below.

	RAA zoning	Proposed setback
Front yard setback	25 feet from street right-of-way (based on street classification)	10 feet from street right-of-way
Side yard setback	10 feet	5 feet
Rear yard setback	30 or 40 feet depending on lot depth	10 feet, 5 feet for deck/patio

The Planning Commission may consider the proposed setbacks and determine whether they are appropriate or whether additional setbacks should be established. Planning staff preference is for one building envelope with no exceptions for decks or patios to further encroach into the rear yard. The additional five foot rear yard encroachment for a deck/patio should be removed to avoid homeowners constructing a home up to the rear building envelope and then not having room leftover for a yard and to avoid future owners having to amend the PUD to add decks that encroach into the common area/open space.

If the project is approved by the Township Board, the applicant will be required to submit for Site Plan Review before any work on the site can begin. Site Plan Review is a detailed staff-level analysis of the project which includes reviews of storm water, utilities, landscaping, grading, and other issues to ensure compliance with all applicable ordinances as well as confirmation of approvals from local agencies such as the Ingham County Drain Commissioner’s Office and Road Department. The applicant must begin construction of the PUD within two years of a final site plan approval. The Planning Commission may grant one, one-year extension of the PUD if requested prior to its expiration.

Planning Commission Options

The Planning Commission may recommend approval, approval with conditions, or denial of the proposed PUD. A resolution will be provided at a future meeting.

Attachments

1. Application and attachments.
2. Site plan prepared by Kebs, Inc. dated May 11, 2020 (Revision Date July 30, 2020) and received by the Township on July 30, 2020.
3. Yield plan prepared by Kebs, Inc. dated April 1, 2020 (Revision Date July 30, 2020) and received by the Township on July 30, 2020.
4. Traffic study prepared by Fleis & Vanderbrink dated March 5, 2020 and received by the Township on May 28, 2020.
5. Natural Features Inventory and Impact Assessment prepared by Marx Wetlands, LLC dated April 27, 2020.
6. Wetland delineation report for southern portion of property prepared by Township wetland consultant Fisbeck dated December 19, 2017.

Planned Unit Development #20014 (Okemos Land Investment LLC)
Planning Commission (August 10, 2020)
Page 12

7. Wetland delineation report for northern portion of property prepared by Marx Wetlands, LLC dated April 23, 2020.
8. Wetland verification report for northern portion of property prepared by Township wetland consultant Fishbeck dated May 27, 2020.
9. Conceptual review letter from Ingham County Drain Commissioner's Office dated June 26, 2020.
10. Review letter from Meridian Township Chief Engineer Younes Ishraidi dated June 10, 2020.
11. Letter from Meridian Township Director of Parks and Recreation LuAnn Maisner dated May 20, 2020.
12. Letter from Okemos Public Schools Superintendent John J. Hood dated May 13, 2020.

G:\Community Planning & Development\Planning\PLANNED UNIT DEVELOPMENTS (PUD)\2020\PUD 20014 (Bennett Holding LLC)\PUD 20014 (Bennett Holding LLC)\PUD 20014.pc1.docx

**CHARTER TOWNSHIP OF MERIDIAN
PLANNING DIVISION
5151 MARSH ROAD, OKEMOS, MI 48864
PHONE: (517) 853-4560
FAX: (517) 853-4095**

Planned Unit Development Permit Application

- A. Owner/Applicant Okemos Land Investment LLC
Address of applicant 1650 Kendale Blvd, Ste 200, East Lansing, MI 48823
Telephone: Work 517-371-5000 Home Cell 248-303-0455
Fax _____ Email dstraub@mayberryhomes.com
- B. Applicant's Representative, Architect, Engineer or Planner responsible for request:
Name / Contact Person David Straub
Address 1650 Kendale Blvd, Ste 200, East Lansing, MI 48823
Telephone: Work 517-371-5000 Home Cell 248-303-0455
Fax _____ Email dstraub@mayberryhomes.com
- C. Site address/location North side of Bennett Rd, between Hulett Rd and Hagadorn
Legal description (Attach additional sheets if necessary) Attached
Parcel number 33-02-02-29-251-009 Site acreage 93.90
33-02-02-29-300(008, 020, 021, 023, 025, 026)
- D. Date of preapplication conference with Director of Community Planning and Development _____
Total acres of property 93.90
Acres in floodplain 12.03 Percent of total 12.8%
Acres in wetland not in floodplain 14.75 Percent of total 15.7%
Total dwelling units 150
Total units/acre 1.60
Dwelling unit mix
Number single family detached 150 for Rent **Condo**
Number duplex _____ for Rent Condo
Number townhouse _____ for Rent Condo
Number garden apt. style _____ for Rent Condo
Number other _____ for Rent Condo
Will commercial be included? (circle one) yes **no** acres _____
Will all or part of property be platted? (circle one) yes **no**
Percent open space provide exclusive of wetland/floodplain 52.2%

I (we) hereby grant permission for member of the Charter Township of Meridian Planning Commission, Township staff members and the Township's representatives or experts the right to enter onto the above described property (or as described in the attached information) in my (our) absence for the purpose of gathering information including but not limited to the taking and the use of photographs. (Note to Applicant(s): This is optional and will not affect any decision on your application.)

David Straub
Signature of Applicant(s)

May 4, 2020
Date

Signature of Applicant(s)

Date

PUD Permit Application

Page 2

- E. Required Data: (check if attached)
- Site location map X
 - Site plan X
 - Site analysis X
 - Schematic storm sewer layout X
 - Preliminary phasing plan X
 - Reproducible contour map X
 - Traffic study/analysis (if required) X
 - Natural features analysis (if required) X

David Straub
Signature of Applicant

May 4, 2020
Date

David Straub
Print Name

Fee: \$2,400.00

Received by/Date: _____



May 4, 2020

Community Planning and Development
Meridian Township
5151 Marsh Road
Okemos, MI 48864

RE: Silverleaf Condominium P.U.D.

This document is intended to provide a written site analysis, indicating the principal factors which influenced the design decisions regarding the plan. Mayberry Homes is confident that the proposed Silverleaf PUD meets the Meridian Township Zoning Ordinance. The following key elements were thoughtfully considered in our proposed PUD:

1. The Yield Plan suggests that Copper Creek could include up to 154 homes. The proposed PUD represents 150 homes
2. All homes will be Energy Star Certified
3. Landscaping, signage, lighting, and building materials are all intended to be of a high design quality and aesthetically pleasing
4. 95% of the homes back up to open space. The PUD exceeds the 50% open space requirement
5. Maintenance of existing wetlands and maximizing open space strives to preserve existing nature corridors. A Natural Features Inventory and Impact Assessment is included in our submittal package
6. All wetlands, parks and open space will be protected by the condominium documents
7. Soils conditions encountered ranged from topsoil and sand within 1' of the ground surface to clay at depths required for development. The soils are very suitable for development
8. Historically, part of the property was used for sand mining operations. A thoughtful study of the rolling topography will be applied to the community design
9. The property is located between a golf course to the west and school facilities to the east. Residential developments are located to the south and northeast
10. A traffic study is included in our submittal package and indicates no material impact to the pedestrian or vehicular circulation systems
11. The northern approximately 20 acres will be dedicated as open space to Meridian Township

Sincerely,

David Straub, Mayberry Homes, LLC

SILVERLEAF CONDOMINIUM

SAMPLE BUILDING ELEVATIONS

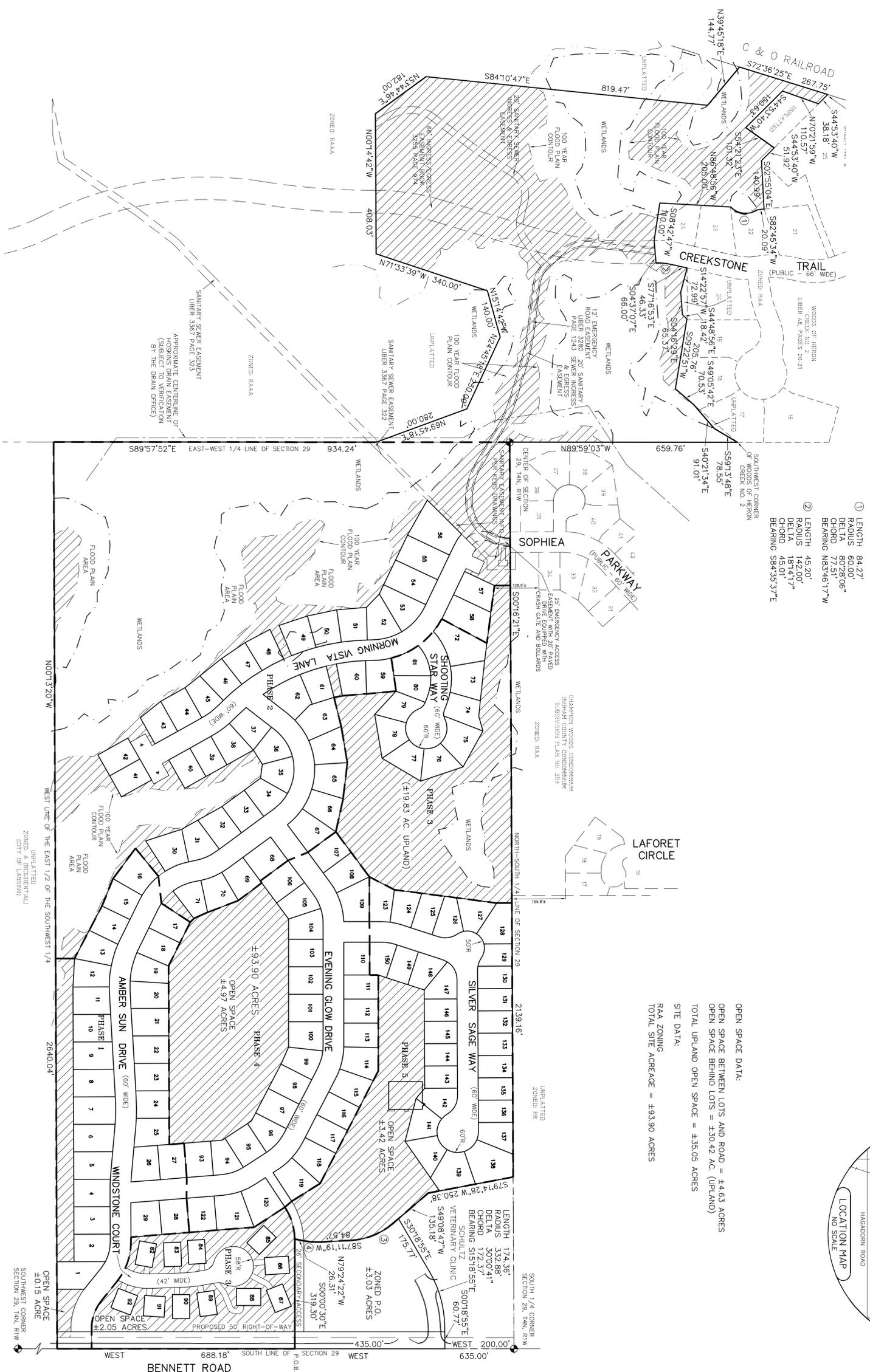


OWNER/DEVELOPER:
 MAYBERRY HOKES
 1650 KENDALE BOULEVARD
 EAST LANSING, MI 48823
 PH: (517) 371-5000
 CONTACT: BOB SCHROEDER

ENGINEER/SURVEYOR:
 KEBS, INC.
 2116 HASLETT RD.
 HASLETT, MI 48840
 PH: (517) 339-1014
 FAX: (517) 339-8047

OPEN SPACE PLAN SILVERLEAF CONDOMINIUM

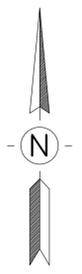
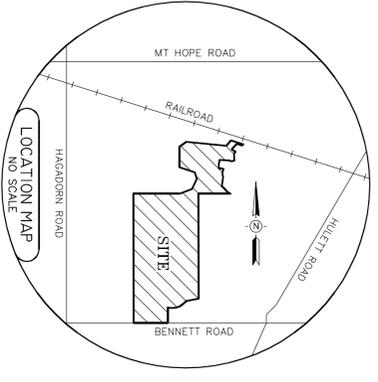
A SUBDIVISION OF PART OF THE NORTHEAST 1/4,
 NORTHWEST 1/4 & SOUTHWEST 1/4 OF SECTION 29,
 T4N, R1W, MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN



- ① LENGTH 84.27'
 RADIUS 60.00"
 DELTA 89.2806"
 CHORD 77.51'
 BEARING N83.4917°W
- ② LENGTH 45.20'
 RADIUS 142.00"
 DELTA 181.417"
 CHORD 45.01'
 BEARING S84.3537°E

OPEN SPACE DATA:
 OPEN SPACE BETWEEN LOTS AND ROAD = ±4.63 ACRES
 OPEN SPACE BEHIND LOTS = ±30.42 AC. (UPLAND)
 TOTAL UPLAND OPEN SPACE = ±35.05 ACRES

SITE DATA:
 PAA ZONING
 TOTAL SITE AREA = ±93.90 ACRES



= UPLAND OPEN SPACE AREA

- ③ LENGTH 136.11'
 RADIUS 205.00"
 DELTA 133.63"
 CHORD 133.63"
 BEARING S68.1003°W
- ④ LENGTH 50.30'
 RADIUS 215.00"
 DELTA 132.419"
 CHORD 50.19'
 BEARING N86.0632°W

DATE
 PROFESSIONAL SURVEYOR NO. 54434
 DANE B. PASCOE

REVISIONS	COMMENTS
05/11/20	ORIGINAL
07/30/20	UPROFIT DENSITY CALCULATIONS

KEBS, INC. ENGINEERING AND LAND SURVEYING
 2116 HASLETT ROAD, HASLETT, MI 48840
 PH: 517-339-1014 WWW.KEBS.COM

Meridian Office - Ph: 269-781-8800

DRAWN BY: KOB
 FIELD WORK BY: ---
 SHEET 2 OF 2

SECTION 29, T4N, R1W
 JOB NUMBER: 87297/SUB

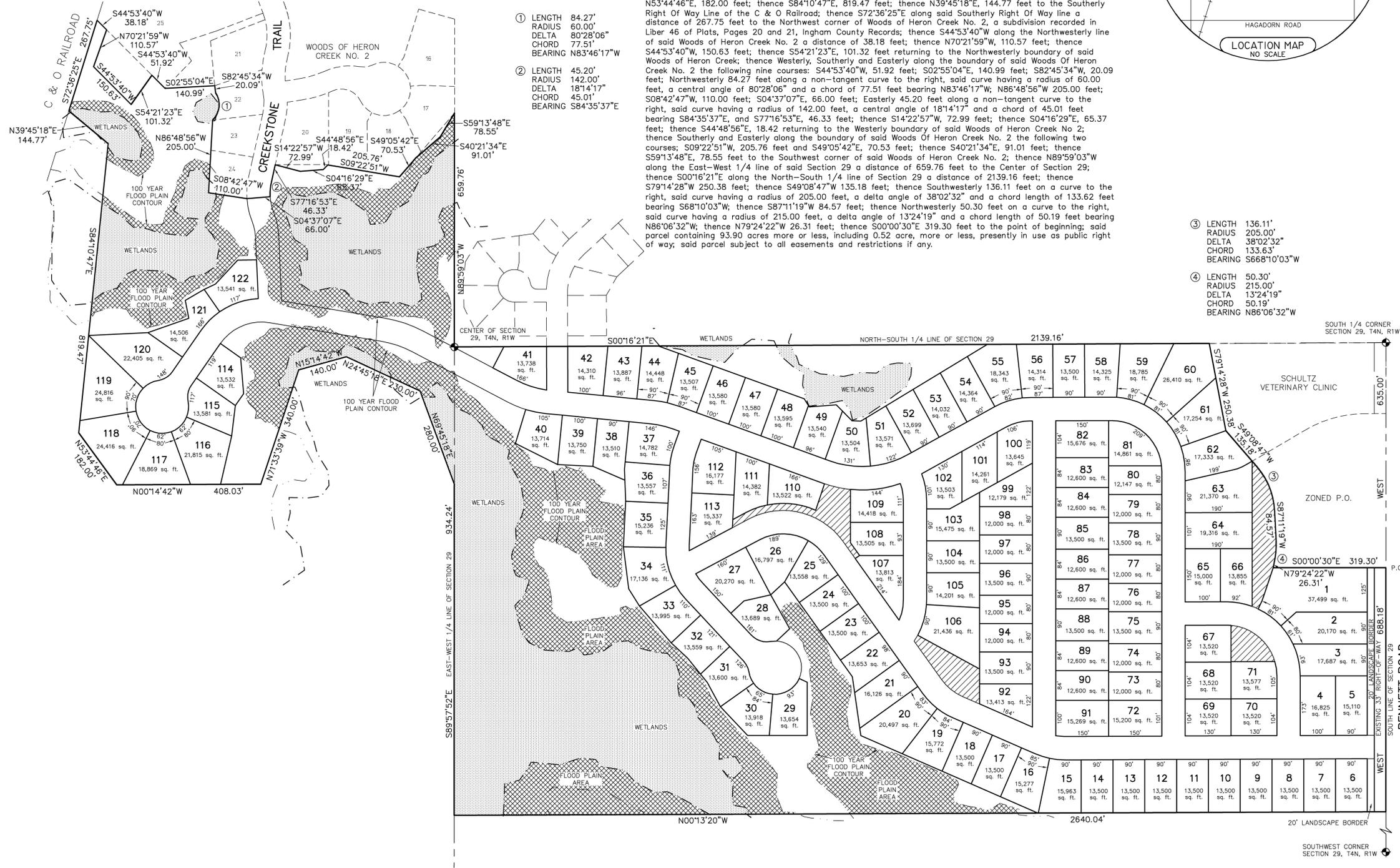
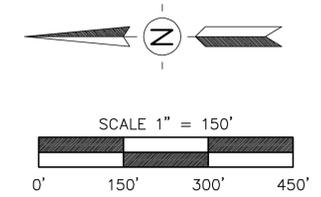
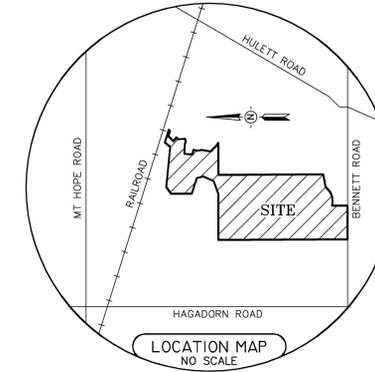
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FOR: MAYBERRY HOMES

P.U.D. AREA = ±93.90 ACRES
 WETLAND/FLOODPLAIN AREA = ±26.78 ACRES
 93.90 AC. - 26.78 AC. = ±67.12 ACRES * 0.5 = ±33.56 ACRES OF OPEN SPACE REQUIRED
 ±26.78 AC./±93.90 AC. = 0.2852
 NUMBER OF LOTS PER YIELD PLAN = 122 LOTS
 1.2852 * 122 = 156.8 UNITS
 1.25 * 156.8 = 196.0 UNITS ALLOWED (MAX. 25% BONUS)

YIELD PLAN "STURK PROPERTY"

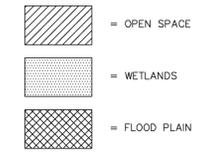
LEGAL DESCRIPTION: A parcel of land in the Southwest 1/4, Northwest 1/4 and the Northeast 1/4 of Section 29, T4N, R1W, Meridian Township, Ingham County, Michigan, the boundary of said parcel described as: Commencing at the South 1/4 corner of said Section 29; thence West along the South line of said Section 29 a distance of 635.00 feet to the point of beginning of this description; thence West continuing along said South line 688.18 feet to the West line of the East 1/2 of said Section 29; thence N00°13'20"W along said West line 2640.04 feet to the East-West 1/4 line of said Section 29; thence S89°57'52"E along said East-West 1/4 line 934.24 feet; thence N69°45'18"E, 280.00 feet; thence N24°45'18"E, 230.00 feet; thence N15°14'42"W, 140.00 feet; thence N71°33'39"W, 340.00 feet; thence N00°14'42"W, 408.03 feet; thence N53°44'46"E, 182.00 feet; thence S84°10'47"E, 819.47 feet; thence N39°45'18"E, 144.77 feet to the Southerly Right Of Way Line of the C & O Railroad; thence S72°36'25"E along said Southerly Right Of Way line a distance of 267.75 feet to the Northwest corner of Woods of Heron Creek No. 2, a subdivision recorded in Liber 46 of Plats, Pages 20 and 21, Ingham County Records; thence S44°53'40"W along the Northwesterly line of said Woods of Heron Creek No. 2 a distance of 38.18 feet; thence N70°21'59"W, 110.57 feet; thence S44°53'40"W, 150.63 feet; thence S54°21'23"E, 101.32 feet returning to the Northwesterly boundary of said Woods of Heron Creek; thence Westerly, Southerly and Easterly along the boundary of said Woods of Heron Creek No. 2 the following nine courses: S44°53'40"W, 51.92 feet; S02°55'04"E, 140.99 feet; S82°45'34"W, 20.09 feet; Northwesterly 84.27 feet along a non-tangent curve to the right, said curve having a radius of 60.00 feet, a central angle of 80°28'06" and a chord of 77.51 feet bearing N83°46'17"W; N86°48'56"W, 205.00 feet; S08°42'47"W, 110.00 feet; S04°37'07"E, 66.00 feet; Easterly 45.20 feet along a non-tangent curve to the right, said curve having a radius of 142.00 feet, a central angle of 18°14'17" and a chord of 45.01 feet bearing S84°35'37"E, and S77°16'53"E, 46.33 feet; thence S14°22'57"W, 72.99 feet; thence S04°16'29"E, 65.37 feet; thence S44°48'56"E, 18.42 feet returning to the Westerly boundary of said Woods of Heron Creek No. 2; thence Southerly and Easterly along the boundary of said Woods of Heron Creek No. 2 the following two courses: S09°22'51"W, 205.76 feet and S49°05'42"E, 70.53 feet; thence S40°21'34"E, 91.01 feet; thence S59°13'48"E, 78.55 feet to the Southwest corner of said Woods of Heron Creek No. 2; thence N89°59'03"W along the East-West 1/4 line of said Section 29 a distance of 659.76 feet to the Center of Section 29; thence S00°16'21"E along the North-South 1/4 line of Section 29 a distance of 2139.16 feet; thence S79°14'28"W 250.38 feet; thence S49°08'47"W 135.18 feet; thence Southwesterly 136.11 feet on a curve to the right, said curve having a radius of 205.00 feet, a delta angle of 38°02'32" and a chord length of 133.62 feet bearing S68°10'03"W, thence S87°11'19"W 84.57 feet; thence Northwesterly 50.30 feet on a curve to the right, said curve having a radius of 215.00 feet, a delta angle of 13°24'19" and a chord length of 50.19 feet bearing N86°06'32"W; thence N79°24'22"W 26.31 feet; thence S00°00'30"E 319.30 feet to the point of beginning; said parcel containing 93.90 acres more or less, including 0.52 acre, more or less, presently in use as public right of way; said parcel subject to all easements and restrictions if any.



- ① LENGTH 84.27'
RADIUS 60.00'
DELTA 80°28'06"
CHORD 77.51'
BEARING N83°46'17"W
- ② LENGTH 45.20'
RADIUS 142.00'
DELTA 18°14'17"
CHORD 45.01'
BEARING S84°35'37"E

- ③ LENGTH 136.11'
RADIUS 205.00'
DELTA 38°02'32"
CHORD 133.63'
BEARING S68°10'03"W
- ④ LENGTH 50.30'
RADIUS 215.00'
DELTA 13°24'19"
CHORD 50.19'
BEARING N86°06'32"W

RAA ZONING
 13,500 SQ. FT. MINIMUM LOT AREA (PLATTED)
 90.00 FT. MINIMUM LOT WIDTH
 100.00 FT. MINIMUM CORNER LOT WIDTH
 25% OF LOTS
 12,000 SQ. FT. MINIMUM LOT AREA (PLATTED)
 80.00 FT. MINIMUM LOT WIDTH
 SETBACKS
 25' FRONT
 30' REAR FOR LOTS UP TO 150' DEEP
 40' REAR FOR LOTS OVER 150' DEEP
 TOTAL NUMBER OF LOTS = 123
 ALL PROPOSED ROADS ARE 66' WIDE
 NUMBER OF PROPOSED LOTS MEETING THE 80'
 MINIMUM FRONTAGE AND/OR 12,000 S.F.
 REQUIREMENT = 20/122 = 16.39%



REVISIONS	COMMENTS	DATE
04/01/20	ORIGINAL	
07/30/20	ADD ROAD CONNECTIONS	

KEBS, INC. ENGINEERING AND LAND SURVEYING
 2116 HASLETT ROAD, HASLETT, MI 48840
 PH. 517-339-1014 FAX 517-339-8047
 WWW.KEBS.COM

Marshall Office - Ph. 269-781-9800

DRAWN BY	KDB	SECTION	29, T4N, R1W
FIELD WORK BY	---	JOB NUMBER:	
SHEET	1 OF 1		87297.SUB

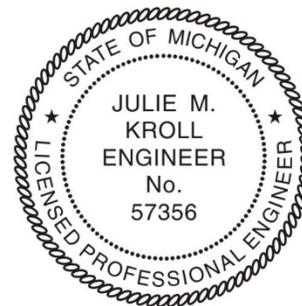
DANE B. PASCOE DATE
 PROFESSIONAL SURVEYOR NO. 54434

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SILVERLEAF DEVELOPMENT TRAFFIC IMPACT STUDY

MERIDIAN TOWNSHIP, MICHIGAN

MARCH 5, 2020



PREPARED FOR:



1650 KENDALE BLVD. SUITE 200
EAST LANSING, MICHIGAN 48823

PREPARED BY:



27725 STANSBURY BLVD., SUITE 195
FARMINGTON HILLS, MI 48834

Notice and Disclaimer

This document is provided by Fleis & VandenBrink Engineering, Inc. for informational purposes only. No changes or revisions may be made to the information presented in the document without the express consent of Fleis & VandenBrink Engineering, Inc. The information contained in this document is as accurate and complete as reasonably possible. Should you find any errors or inconsistencies, we would be grateful if you could bring them to our attention.

The opinions, findings, and conclusions expressed herein are those of Fleis & VandenBrink Engineering, Inc. and do not necessarily reflect the official views or policy of the Meridian Township, or the Michigan Department of Transportation (MDOT), which makes no warranty, either implied or expressed, for the information contained in this document; neither does it assume legal liability or responsibility for the accuracy, completeness or usefulness of this information. Any products, manufacturers or trademarks referenced in this document are used solely for reference purposes.

Agency Review	Date	Comments



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REFERENCES

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO). (2018). *A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS*. WASHINGTON DC.

FEDERAL HIGHWAY ADMINISTRATION, MICHIGAN DEPARTMENT OF TRANSPORTATION, MICHIGAN STATE POLICE. (2011). *MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES*.

INSTITUTE OF TRANSPORTATION ENGINEERS. (2017). *TRIP GENERATION MANUAL, 10TH EDITION*. WASHINGTON DC.

NATIONAL RESEARCH COUNCIL (U.S.) TRANSPORTATION RESEARCH BOARD. (2016). *HIGHWAY CAPACITY MANUAL, 6TH EDITION (HCM6)*. WASHINGTON, D.C.: TRANSPORTATION RESEARCH BOARD.

PAPACOSTAS, & PREVEDOUROS. (2001). *TRANSPORTATION ENGINEERING AND PLANNING*.

STOVER, V. G., & KOEPKE, F. J. (2006). *TRANSPORTATION AND LAND DEVELOPMENT (VOL. 2ND EDITION)*. WASHINGTON DC: INSTITUTE OF TRANSPORTATION ENGINEERS (ITE).

EXECUTIVE SUMMARY

This report presents the results of a Traffic Impact Study (TIS) for the proposed residential development in Meridian Township, Michigan. The project site is located adjacent to the north side of Bennett Road between Hagadorn Road and Hulett Road as shown on **Figure E1**. The proposed development includes the construction of 150 single-family residential homes. The development includes two proposed access driveways on Bennett Road.

FIGURE E1: SITE LOCATION



This TIS has been completed at the request of Meridian Township to identify the impacts (if any) of the proposed development on the proposed site access point and the permitting of the site access. The scope of the study was developed based on Fleis & VandenBrink's (F&V) knowledge of the study area, understanding of the development program, accepted traffic engineering practice, methodologies published by the Institute of Transportation Engineers (ITE) and the requirements of Meridian Township. Additionally, F&V obtained input regarding the scope of work from Meridian Township Planning Department. In accordance with Township Ordinance, a Traffic Impact Study (TIS) is required for site plan approval.

EXISTING OPERATIONS (2020)

- The existing conditions analysis included the evaluation of the existing 2020 operations at the study intersections.
- The study intersections currently operate well, at LOS D or better. There are brief periods of vehicle queuing during the AM peak hour of the adjacent street due to traffic impacts from Okemos High School. These are experienced during the 15-30 minute prior to the start of school.

BACKGROUND OPERATIONS (2027 WITHOUT DEVELOPMENT)

- The background conditions analysis included the evaluation of the background 2027 operations at the study intersections. This analysis included increased traffic volumes calculated with a background growth rate and the trips generated by the proposed office development adjacent to the site on Bennett Road.
- The study intersections are expected to continue operating well, at LOS D or better with the addition of background growth. There continue to be brief periods of vehicle queuing during the AM peak hour of the adjacent street due to the adjacent operations of Okemos High School.

FUTURE OPERATIONS (2027 WITH DEVELOPMENT)

The results of the future conditions analysis show increased delays for the following intersection approaches and movements with the addition of the site generated traffic volumes.

Bennett Road & Hagadorn Road

- The northbound shared through/right-turn approach is expected to operate at LOS F during the AM peak hour. A review of network simulations shows extensive (500-ft) queue lengths during the AM peak hour. The poor LOS and queue lengths are attributed to the high volume of northbound vehicles and school traffic generated by both Bennett Woods Elementary and Okemos High School.
- The westbound right-turn lane is expected to operate at LOS E during the AM peak hour. A review of network simulations shows queue lengths of approximately 200-ft; however, the queues are not present throughout the duration of the entire AM peak hour.
- The eastbound single lane approach (left-through-right) is expected to operate at LOS E during the PM peak hour.

In order to improve traffic operations to a LOS D or better for all approaches and movements at the study intersections under future conditions **with the proposed development**, mitigation measures were investigated.

• **Westbound Right-turn Overlap Signal**

An overlap can be considered where a dedicated right turn lane is provided, and the right-turn operations can be signalized with a right turn arrow. The right-turn arrow operates concurrently with the southbound left-turn phase, but also allows movement when adjacent through movement is green.

• **Signal timing optimization**

The signal currently operates with a 90 sec and 70 sec cycle length during the AM and PM peak hours, respectively. The optimized cycle length at this intersection with the right-turn overlap phase is 110 sec and 90 sec during the AM and PM peak hours, respectively.

The results of the analyses with the recommended improvements is summarized in **Table E1** and show that recommended improvements will mitigate the impact of the proposed site generated traffic.

Table E1: Future Intersection Operations with Improvements

Intersection	Control	Approach	Future Conditions (2027)				Future Conditions (2027) with Improvements			
			AM Peak		PM Peak		AM Peak		PM Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Hagadorn Road & Bennett Road	EB	29.0	C	58.8	E	45.1	D	34.5	C
		WBTL	33.2	C	27.2	C	52.7	D	27.8	C
		WBR	59.7	E	29.8	C	50.0	D	17.6	B
		NBL	10.0	B	13.7	B	8.7	A	15.3	B
		NBTR	58.1	F	28.3	C	30.3	C	29.4	C
		SBL	20.8	C	21.5	C	19.8	B	21.2	C
		SBTR	14.1	B	16.8	B	12.3	B	17.9	B
		Overall	44.2	D	28.5	C	34.7	C	24.3	C

ACCESS MANAGEMENT

Site Driveway Turn Lane Analysis

- No right-turn lane or treatment is warranted at either Site Drive.
- A left-turn treatment (passing lane or center turn lane) is warranted at the proposed W. Site Drive.

Intersection Sight Distance Analysis

- There will be adequate intersection sight distance at the proposed site drive intersections on Bennett Road.

SAFETY STUDY

A crash analysis was conducted in the vicinity of the proposed site driveway locations. F&V reviewed crash data from the Michigan Traffic Crash Facts (MTCF) historical crash database for the most recent three years (January 1, 2016 to December 31, 2018) of available data for the proposed driveway location. The results of the analysis indicate that **one crash** occurred on Bennett Road that was related to the roadway segment operations.

- Bennett Road at Private Drive, Rear End Left-Turn, No Injuries

ADJACENT SCHOOL OPERATIONS

The peak hours for the proposed development were compared to the peak hour operations of Okemos High School and Bennett Woods Elementary School and are summarized in **Table E2**. This comparison shows the AM peak hour of the adjacent street corresponds to the peak hour of Okemos High School. The peak operations of Bennett Woods Elementary School occur after the peak hour for the proposed development. During the PM peak hour, the peak operations of the proposed development occur after both schools have dismissed for the day.

Table E2: School and Site Generated Peak Hours

	AM Peak Hour	PM Peak Hour
Bennett Road & Site Generated Traffic	7:15-8:15 AM	4:45-5:45 PM
Okemos High School	7:45 AM Start	2:45 PM Dismissal
	7:15-8:15 AM	2:15-3:15 PM
Bennett Woods Elementary	8:45 AM Start	3:45 PM Dismissal
	8:15-9:15 AM	3:15-4:15 PM

RECOMMENDATIONS

The recommendations of this TIS are as follows:

1. Bennett Road & Hagadorn Road

- Westbound Right-turn Overlap Signal
- Signal timing optimization

2. Bennett Road & W. Site Driveway

- Provide a Left-turn treatment (passing lane or center turn lane) on Bennett Road.

1 INTRODUCTION

This report presents the results of a Traffic Impact Study (TIS) for the proposed residential development in Meridian Township, Michigan. The project site is located adjacent to the north side of Bennett Road between Hagadorn Road and Hulett Road as shown on **Figure 1**. The proposed development includes the construction of 150 single-family residential homes. The development includes two proposed access driveways on Bennett Road. In accordance with Township Ordinance, a Traffic Impact Study (TIS) is required as part of the site plan approval process. This TIS is consistent with Township requirements and the most current edition of the handbook titled *Evaluating Traffic Impact Studies: A Recommended Practice for Michigan Communities*.

This TIS has been completed at the request of Meridian Township to identify the impacts (if any) of the proposed development on the proposed site access point and the permitting of the site access with the Ingham County Department of Roads (ICDR). The scope of the study was developed based on Fleis & VandenBrink's (F&V) knowledge of the study area, understanding of the development program, accepted traffic engineering practice, methodologies published by the Institute of Transportation Engineers (ITE) and the requirements of Meridian Township. Additionally, F&V obtained input regarding the scope of work from Meridian Township Planning Department.

The purpose of this study is to identify the traffic related impacts, if any, of the proposed development project on the adjacent road network. Specific tasks undertaken for this study include the following:

1. Study Area

- a. Conduct a site visit and collect a field inventory of the existing geometries, lane use, and traffic control at the study intersections.
- b. Provide a description of the study area including: surrounding land uses, intersection and roadway geometries, speed limits, functional classifications and traffic volume data (where available). In addition, a study area site map showing the site location and the study intersections will also be provided.

2. Proposed Land Use

- a. Obtain and review the proposed site plan which includes the proposed land uses, densities, and desired site access locations.
- b. A description of the current and proposed land use, including characteristics such as the number of units, will be accompanied with a complete project site plan (with buildings identified as to proposed use). A schedule for construction of the development and proposed development stages will also be provided.

3. Existing Conditions (2020)

Provide an analysis of the traffic-related impacts of the proposed development at the following study intersections:

- Hagadorn Road & Bennett Road
 - Hulett Road & Bennett Road
 - The proposed site driveways
- a. Obtain weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak period turning movement counts at the study interste drivections from Mayberry Homes that was previously performed.
 - b. Identify the Existing AM and PM peak hour traffic volumes at the study intersections based on the existing traffic volume data.
 - c. Calculate the Existing vehicle delays, LOS, and vehicle queues at the study intersections during the AM and PM. The analysis will be performed at each of the study intersections. Intersection analysis shall include LOS determination for all approaches and movements. The LOS will be based on the procedures outlined in the HCM 6th Edition, the latest edition of Transportation Research Board's Highway Capacity Manual. Operational analysis performed at the roundabout intersection will be performed using Rodel.
 - d. Identify improvements (if any) for the study road network that would be required to accommodate the existing traffic volumes.

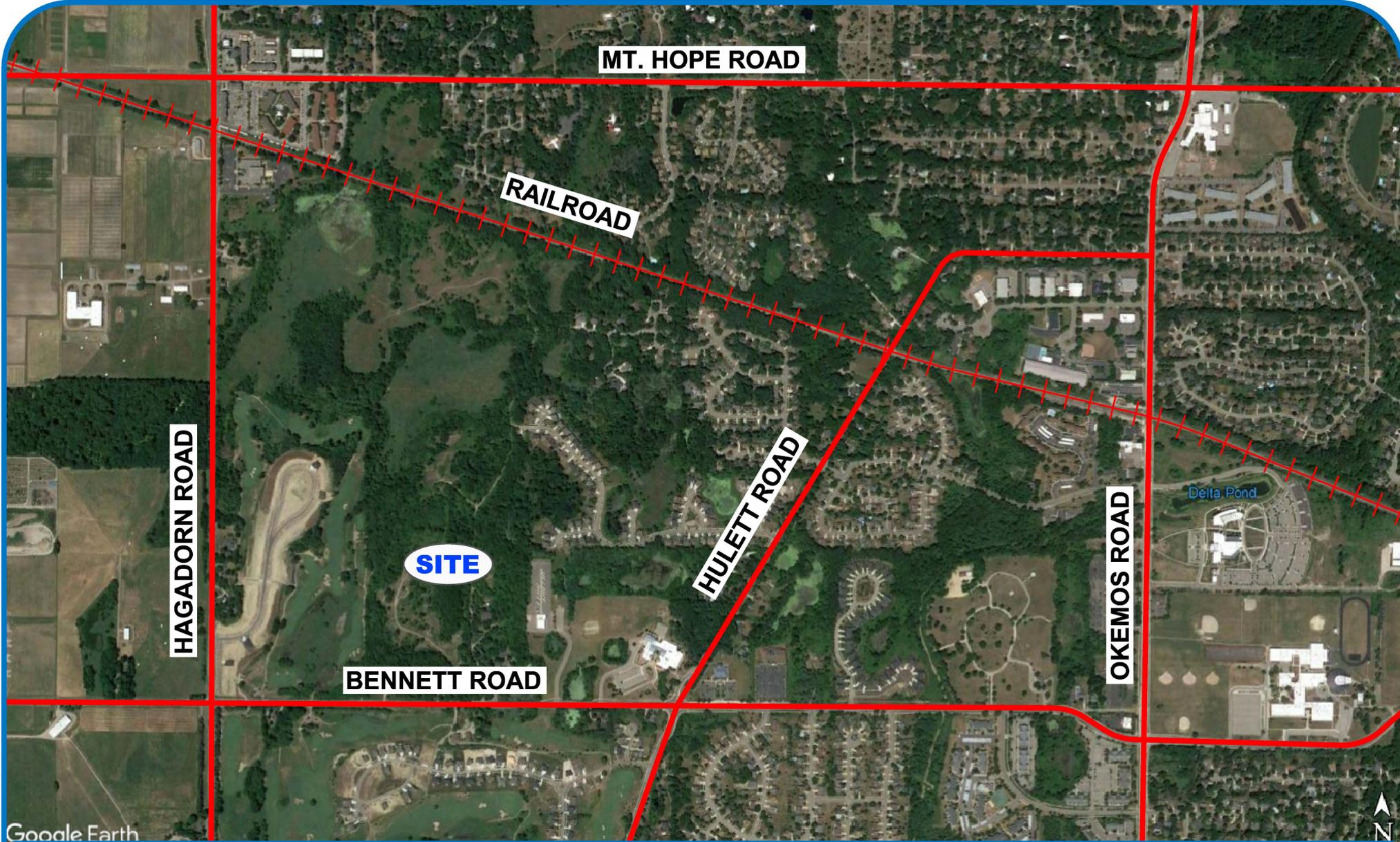


FIGURE 1
SITE LOCATION MAP
SILVERLEAF DEVELOPMENT - MERIDIAN TOWNSHIP, MI

LEGEND

 SITE LOCATION



NORTH
SCALE: NOT TO SCALE

4. Future Background Growth

- a. Calculate the future background traffic volumes based on an appropriate traffic growth determined from local or statewide data to the project build-out year and/or any applicable background developments in the vicinity of this project as identified by the Meridian Township.

5. Background Conditions (2027 No Build)

- a. Calculate the **Background (*without the proposed development*)** vehicle delays, LOS, and vehicle queues at the study intersections during the AM and PM peak periods. Intersection analysis shall include LOS determination for all approaches and movements. The LOS will be based on the procedures outlined in the HCM 6th Edition, the latest edition of Transportation Research Board's Highway Capacity Manual. Operational analysis performed at the roundabout intersection will be performed using Rodel.
- b. Any state, local, or private transportation improvement projects in the project study area that will be underway in the build-out year and traffic that is generated by other proposed developments in the study area will be included as background conditions.
- c. Identify improvements (if any) for the study road network that would be required to accommodate the background traffic volumes.

6. Trip Generation

- a. Forecast the number of AM and PM peak hour trips that would be generated by the proposed development based on data published by the Institute of Transportation Engineers (ITE) in *Trip Generation, 10th Edition* and/or local development data as approved for use in the study by Meridian Township.
- b. A table will be provided in the report outlining the categories and quantities of land uses, with the corresponding trip generation rates or equations, and the resulting number of trips.

7. Trip Distribution and Traffic Assignment

- a. Assign the trips that would be generated by the proposed development to the adjacent road network based on existing traffic patterns. The distribution of the estimated trip generation to the adjacent street network and nearby intersections shall be included in the report and the basis will be explained. The distribution percentages with the corresponding volumes will be provided in a graphical format.
- b. Combine the site-generated traffic assignments with the background traffic forecasts to establish the Future AM and PM peak hour traffic volumes.

8. Future Conditions (2027 Buildout)

- a. Calculate the **Future (with the proposed development)** vehicle delays, LOS, and vehicle queues at the study intersections. Intersection analysis shall include LOS determination for all approaches and movements. The LOS will be based on the procedures outlined in the HCM 6th Edition, the latest edition of Transportation Research Board's Highway Capacity Manual. Operational analysis performed at the roundabout intersection will be performed using Rodel.
- b. Identify improvements (if any) for the study road network that would be required to accommodate the site-generated traffic volumes.

9. Access Management

- a. Evaluate the Meridian Township and Ingham County Road Department (ICRD) auxiliary lane warrants at the proposed site driveway intersections to determine the need for left- and right-turn lanes on Bennett Road.
- b. Perform a vertical sight distance analysis at the proposed site driveway intersections on Bennett Road.

10. Safety Study

- a. Perform a crash analysis on Bennett Road at the proposed site driveway location. Crash data analysis will include the most recent three (3) years of available data.

The scope of this study was developed based on Fleis & VandenBrink's (F&V) knowledge of the study area, understanding of the development program, accepted traffic engineering practice and information published by the Institute of Transportation Engineers (ITE). In addition, Meridian Township provided input regarding the scope of work for this study. The study analyses were completed using Synchro/SimTraffic (Version 10) and Rodel (Roundabout Analysis Software). Sources of data for this study included Traffic Engineering Associates

(TEA) and information provided by Meridian Township, MDOT and ITE. All background information is provided in **Appendix A**.

2 BACKGROUND DATA

2.1 EXISTING ROAD NETWORK

Vehicle transportation for the proposed development is provided via Bennett Road, located adjacent to the south side of the project site location. Additional roadways included in the analysis include Hulett Road and Hagadorn Road, located to the east and west of the site respectively. The lane use and traffic control at the study intersections are shown on **Figure 2** and the study roadways are further described below. For the purpose of this study, all minor streets and driveways are assumed to have an operating speed of 25 miles per hour (mph).

Bennett Road runs in the east and west directions with a posted speed limit of 45 mph adjacent to the site. Bennett Road is under the jurisdiction of ICDR and is classified a *Major Collector*. The study segment has an AADT of approximately 5,450 vehicles per day (TRICO 2018). Bennett Road has a typical two-lane cross section in the vicinity of the site location, with one lane in each direction. The intersection with Hagadorn Road is signalized and there is a single lane roundabout at the intersection with Hulett Road.

Hagadorn Road runs in the north and south directions with a posted speed limit of 50 mph. Hagadorn Road is under the jurisdiction of ICDR and the study section of the roadway is classified a *Minor Arterial*. The study segment has an AADT of approximately 11,000 vehicles per day (TRICO 2018). The study section of Hagadorn Road has a typical two-lane cross section with one lane in each direction. The roadway widens at the signalized intersection with Bennett Road to provide exclusive left-turn lanes.

Hulett Road runs in the north and south directions east of the site and is under the jurisdiction of ICDR north of Bennett Road the roadway is classified as a *Local Road* and has a posted speed limit of 35 mph. South of Bennett Road the roadway is classified a *Major Collector* and has a speed limit of 45 mph with AADT of approximately 3,300 vehicles per day (TRICO 2018).

2.2 EXISTING TRAFFIC VOLUMES

The existing weekday turning movement count data used in this study were performed by Traffic Engineering Associated (TEA) and C&A Associates in September 2018. Historical traffic volume data was reviewed in order to determine a background growth rate to calculate the existing 2020 traffic volumes; however, traffic volume data in this area was not sufficient to calculate an effective background growth rate. Therefore, regional planning information was reviewed to determine a background growth rate for this study.

The Tri-County Regional Planning Long Range Transportation Plan was reviewed and the data for Meridian Township was evaluated to determine the projected regional growth projected for the next 10 years. The results of this analysis are summarized in **Table 1** and show that an average growth of 0.14% is anticipated for Meridian Township. MDOT recommends a minimum 0.5% annual background growth rate to be used in traffic engineering studies. Therefore, a 0.5% background growth rate was used to calculate the existing 2020 traffic volumes for use in this study..

Table 1: TRICO Regional Growth Rates (2020-2030)

Tri-County Regional Planning LRTP Projections (2010-2045)	Year 2020	Year 2030	Annual Growth Rate
Population	39,799	40,203	0.10%
Households	18,133	18,622	0.27%
Retail Employment	6,249	6,200	-0.08%
Non-Retail Employment	20,048	20,577	0.26%
Average Annual Growth Rate			0.14%

Peak Hour Factors (PHFs) were also calculated for each study intersection approach. The traffic generated by Okemos High School and Bennett Woods Elementary School has an impact on the PHFs. Therefore, select turning movements that are impacted by the schools used the movement PHF during the AM peak hour to consider the impact of the school peak hour traffic volumes at the study intersection.

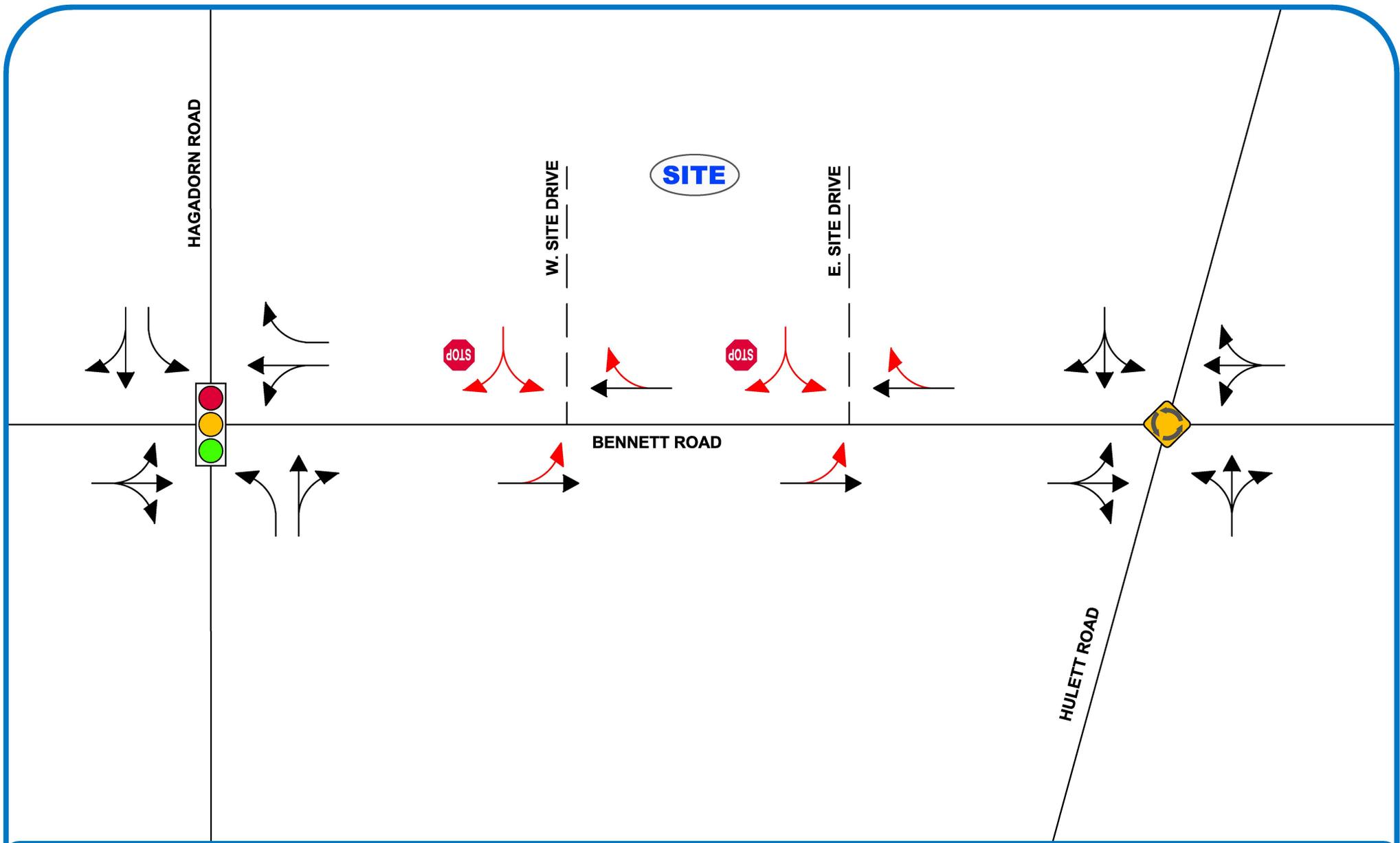


FIGURE 2
LANE USE AND TRAFFIC CONTROL
 SILVERLEAF DEVELOPMENT - MERIDIAN TOWNSHIP, MI

LEGEND

-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION
-  ROUNDABOUT INTERSECTION
-  ROADS
-  PROPOSED ROADS
-  LANE USE
-  PROPOSED LANE USE
-  NORTH
- SCALE: NOT TO SCALE

The peak hour volumes for each intersection were utilized for this study and the volumes were balanced upward through the study network, and through volumes were carried along the main study roadways. At locations where access is provided between study intersections, “dummy” intersections were used to account for sink and source volumes, and through volumes were carried along the main study roadways. The AM and PM peak hours of existing network traffic were identified to generally occur between 7:15 AM to 8:15 AM and 4:45 PM to 5:45 PM, respectively, for a typical weekday. The traffic volume data are included in **Appendix A** and the existing peak hour volumes are summarized on **Figure 3**.

2.3 ADJACENT SCHOOL OPERATIONS

The adjacent operations of Okemos High School and Bennett Woods Elementary School were reviewed to determine the impact the schools generated traffic volumes have on the adjacent roadway network and the impact on the proposed development operations.

The peak hour for the proposed residential development occurs during the peak hour for the adjacent street. The data collection performed for this analysis calculated the peak hours to occur between 7:15 AM to 8:15 AM and 4:45 PM to 5:45 PM. Outside of these hours, the site generated traffic volumes are less, therefore in order to evaluate the impact of the site generated traffic on the adjacent roadway network the peak hours of the site are evaluated. These peak hours were compared to the peak hour operations of Okemos High School and Bennett Woods Elementary School and are summarized in **Table 2**. This comparison shows the AM peak hour of the adjacent street corresponds to the peak hour of Okemos High School. The peak operations of Bennett Woods Elementary School occur after the peak hour for the proposed development. During the PM peak hour, the peak operations of the proposed development occur after both schools have dismissed for the day.

Table 2: School and Site Generated Peak Hours

	AM Peak Hour	PM Peak Hour
Bennett Road & Site Generated Traffic	7:15-8:15 AM	4:45-5:45 PM
Okemos High School	7:45 AM Start	2:45 PM Dismissal
	7:15-8:15 AM	2:15-3:15 PM
Bennett Woods Elementary	8:45 AM Start	3:45 PM Dismissal
	8:15-9:15 AM	3:15-4:15 PM

The Township has raised concerns about the pick-up/drop-off (PUDO) operations of Bennett Woods Elementary School and the impact on Bennett Road. The school has a published traffic operations plan, however if this plan does not sufficiently address their current operations it is recommended that a complete safety and operations review is performed and recommendations are implemented for this site to ensure that the school operates safely and efficiently.

3 ANALYSIS

3.1 EXISTING CONDITIONS

The existing AM and PM peak hour vehicle delays and Levels of Service (LOS) were calculated at the Bennett Road & Hagadorn Road intersection using Synchro traffic analysis software. The Bennett Road & Hulett Road roundabout intersection was evaluated using Rodel (Roundabout Analysis Software). The results of the analysis of existing conditions were based on the existing lane use and traffic control shown on **Figure 2**, the existing traffic volumes shown on **Figure 3**, and the methodologies presented in the Highway Capacity Manual 6th Edition (HCM6).

Descriptions of LOS “A” through “F” as defined in the HCM, are provided in **Appendix B** for unsignalized intersections. Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. The results of the analysis of existing conditions are presented in **Appendix B** and are summarized in **Table 3**. Microsimulations were also conducted at the study intersections using SimTraffic to further evaluate the network performance.

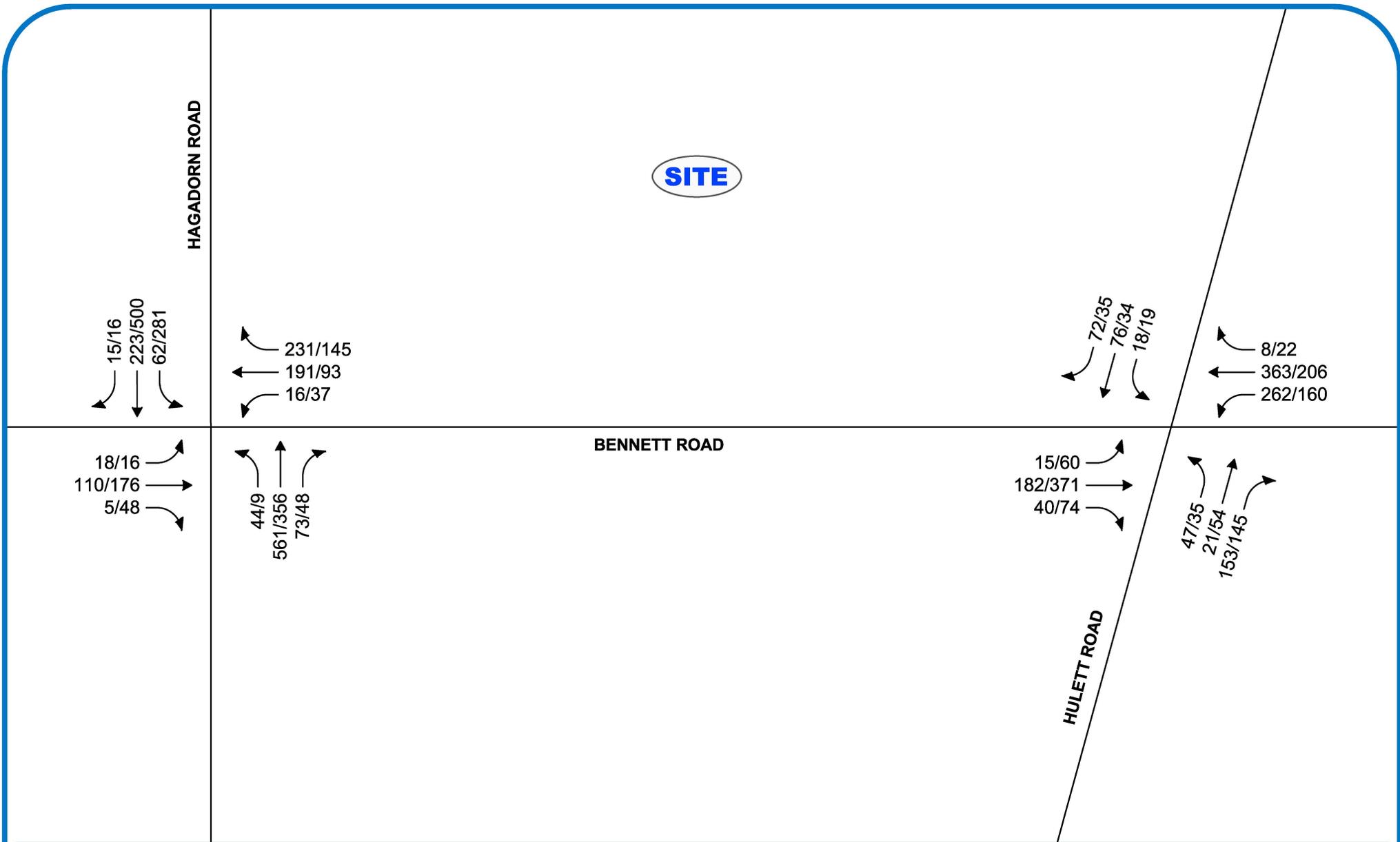


FIGURE 3
EXISTING TRAFFIC VOLUMES
 SILVERLEAF DEVELOPMENT - MERIDIAN TOWNSHIP, MI

LEGEND

- ROADS
- - - PROPOSED ROADS
- TRAFFIC VOLUMES (AM/PM)



Table 3: Existing Intersection Operations

Intersection	Control	Approach	Existing Conditions (2020)				
			AM Peak		PM Peak		
			Delay (s/veh)	LOS	Delay (s/veh)	LOS	
1	Hagadorn Road & Bennett Road	Signalized	EB	29.4	C	32.9	C
			WBTL	31.9	C	23.8	C
			WBR	48.2	D	25.6	C
			NBL	8.8	A	12.9	B
			NBTR	35.6	D	23.3	C
			SBL	17.4	B	14.2	B
			SBTR	12.8	B	16.4	B
	Overall		32.2	C	21.5	C	
2	Hulett Road & Bennett Road	Roundabout	EB	4.7	A	6.1	A
			WB	6.7	A	4.8	A
			NB	4.0	A	4.7	A
			SB	5.3	A	3.8	A
			Overall	5.7	A	5.2	A

The results of the existing conditions analysis show that all approaches and movements at the study intersections are currently operating acceptably at a LOS D or better. The results of the SimTraffic analysis show brief periods of vehicle queueing on the northbound Hagadorn Road approach and the westbound Hulett Road approach at Bennett Road. The queues were brief, occurring during the peak 15 minutes prior to the start of school at Okemos High School.

3.2 BACKGROUND CONDITIONS

In order to determine the applicable traffic growth rate for the existing traffic volumes to the project buildout year of 2027 the background growth rate of 0.5% per year was applied to the existing 2020 traffic volumes collected to forecast the background 2027 traffic volumes conditions **without the proposed development**.

In addition to background traffic growth, Meridian Township identified the following proposed development within the project influence area that was considered as background conditions. The trip generation associated with the proposed development is summarized in **Table 4**.

Table 4: Office Building (Bennett Road) Site Trip Generation

Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
					In	Out	Total	In	Out	Total
General Office Building	710	20,000	SF	223	39	6	45	4	21	25

The number of AM and PM peak hour vehicle trips that would be generated by the background development was forecast and assigned to the study roadway network based on the existing traffic patterns. After applying the background growth rate to the existing traffic volumes shown on **Figure 3**, the site-generated traffic volumes from the background developments were added in order to determine the total background traffic volumes **without the proposed development**, as shown on **Figure 4**.

Future peak hour vehicle delays and LOS **without the proposed development** were calculated based on the future lane use and traffic control shown on **Figure 2**, the background traffic volumes shown on **Figure 4**, and the methodologies presented in the HCM. The results of the analysis of background conditions are presented in **Appendix C** and are summarized in **Table 5**.

The results of the background conditions analysis indicate that all study intersection approaches and movements will continue to operate in a manner similar to existing conditions.

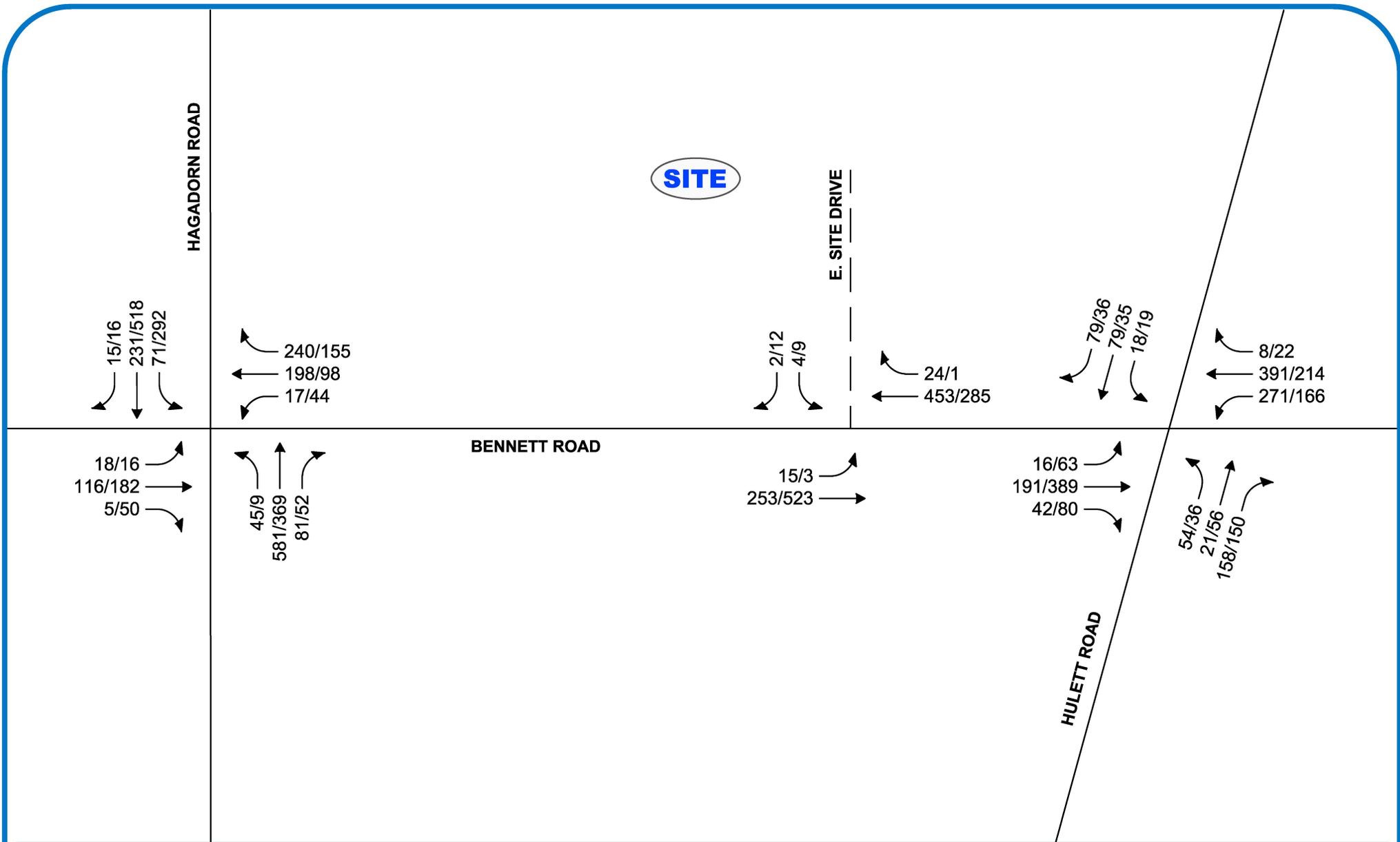


FIGURE 4 BACKGROUND TRAFFIC VOLUMES

SILVERLEAF DEVELOPMENT - MERIDIAN TOWNSHIP, MI

LEGEND

- ROADS
- - - PROPOSED ROADS
- TRAFFIC VOLUMES (AM/PM)



Table 5: Background Intersection Operations

Intersection	Control	Approach	Existing Conditions (2020)				Background Conditions (2027) <i>without development</i>				
			AM Peak		PM Peak		AM Peak		PM Peak		
			Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	
1	Hagadorn Road & Bennett Road	Signalized	EB	29.4	C	32.9	C	29.5	C	34.2	C
			WBTL	31.9	C	23.8	C	32.4	C	24.3	C
			WBR	48.2	D	25.6	C	50.7	D	26.5	C
			NBL	8.8	A	12.9	B	9.2	A	13.4	B
			NBTR	35.6	D	23.3	C	47.3	D	25.3	A
			SBL	17.4	B	14.2	B	19.8	B	16.3	C
			SBTR	12.8	B	16.4	B	13.2	B	17.2	B
	Overall		32.2	C	21.5	C	37.8	D	22.8	C	
2	Hulett Road & Bennett Road	Roundabout	EB	4.7	A	6.1	A	4.9	A	6.4	A
			WB	6.7	A	4.8	A	7.3	A	4.9	A
			NB	4.0	A	4.7	A	4.0	A	4.9	A
			SB	5.3	A	3.8	A	5.6	A	3.9	A
			Overall	5.7	A	5.2	A	6.0	A	5.4	A

3.3 SITE TRIP GENERATION

The number of Weekday AM and PM peak hour and daily vehicle trips that would be generated by the proposed development was forecast based on data published by ITE in the *Trip Generation Manual, 10th Edition*. The site trip generation forecast is summarized in **Table 6**.

Table 6: Site Trip Generation

Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
					In	Out	Total	In	Out	Total
Single-Family Detached	210	150	DU	1,510	28	83	111	95	55	150

3.4 SITE TRAFFIC ASSIGNMENT

The vehicular trips that would be generated by the proposed development were assigned to the study roads based on the proposed site access plan, the existing peak hour traffic patterns in the adjacent roadway network, and the methodologies published by ITE. The adjacent street traffic volumes were used to develop the trip distribution. To determine the trips distribution for residential developments using the adjacent street traffic, it is assumed that the trips in the AM are home-to-work based trips, and in the PM are work-to-home based trips. Therefore, the global residential trip distribution is based on trips leaving the residential development in the AM, and exiting the study network, then entering the study network and returning to the development in the PM. The ITE trip distribution methodology assumes that new trips will return to their direction of origin. The site trip distributions used in the analysis are summarized in **Table 7**.

Table 7: Site Trip Distribution

To / From	Via	AM	PM
North	Hagadorn Road	39%	37%
	Hulett Road	2%	4%
South	Hagadorn Road	12%	19%
	Hulett Road	18%	11%
East	Bennett Road	17%	18%
West	Bennett Road	12%	11%
Total		100%	100%

The vehicular traffic volumes shown in **Table 5** were distributed to the roadway network according to the distribution shown in **Table 6**. In addition, 25% of the egress vehicles from the site were assumed as diverted link trips and were assumed to drop-off students at Bennett Woods Elementary School prior to continuing onto their destination.

The projected site generated trips are shown on **Figure 5** and were added to the background traffic volumes shown on **Figure 2** to calculate the future peak hour traffic volumes with the proposed development shown on **Figure 6**.

3.5 FUTURE CONDITIONS

The future peak hour vehicle delays and LOS *with the proposed development* were calculated based on the existing lane use and traffic control shown on **Figure 2**, the proposed site access plan, the future traffic volumes shown on **Figure 5**, and the methodologies presented in the HCM6. The results of the future conditions analysis are presented in **Appendix C** and are summarized in **Table 8**.

Table 8: Future Intersection Operations

Intersection	Control	Approach	Background Conditions (2027) <i>without development</i>				Future Conditions (2027) <i>with development</i>			
			AM Peak		PM Peak		AM Peak		PM Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
Hagadorn Road & Bennett Road	Signalized	EB	29.5	C	34.2	C	29.0	C	58.8	E
		WBTL	32.4	C	24.3	C	33.2	C	27.2	C
		WBR	50.7	D	26.5	C	59.7	E	29.8	C
		NBL	9.2	A	13.4	B	10.0	B	13.7	B
		NBTR	47.3	D	25.3	A	58.1	F	28.3	C
		SBL	19.8	B	16.3	C	20.8	C	21.5	C
		SBTR	13.2	B	17.2	B	14.1	B	16.8	B
	Overall	37.8	D	22.8	C	44.2	D	28.5	C	
Hulett Road & Bennett Road	Roundabout	EB	4.9	A	6.4	A	5.2	A	6.6	A
		WB	7.3	A	4.9	A	7.7	A	5.0	A
		NB	4.0	A	4.9	A	4.2	A	5.0	A
		SB	5.6	A	3.9	A	5.8	A	4.0	A
		Overall	6.0	A	5.4	A	6.3	A	5.6	A
W. Site Driveway & Bennett Road	STOP (Minor Street)	EBL					8.8	A	8.2	A
		SB					18.5	C	15.1	C
E. Site Driveway & Bennett Road	STOP (Minor Street)	EBL					8.9	A	8.1	A
		SB					17.7	C	14.9	B

The results of the future conditions analysis show increased delays for the following intersection approaches and movements with the addition of the site generated traffic volumes.

Bennett Road & Hagadorn Road

- The northbound shared through/right-turn approach is expected to operate at LOS F during the AM peak hour. A review of network simulations shows extensive (500-ft) queue lengths during the AM peak hour. The poor LOS and queue lengths are attributed to the high volume of northbound vehicles and school traffic generated by both Bennett Woods Elementary and Okemos High School.
- The westbound right-turn lane is expected to operate at LOS E during the AM peak hour. A review of network simulations shows queue lengths of approximately 200-ft, however the queues are not present throughout the entire AM peak hour.
- The eastbound single lane shared left-through-right approach is expected to operate at LOS E during the PM peak hour.

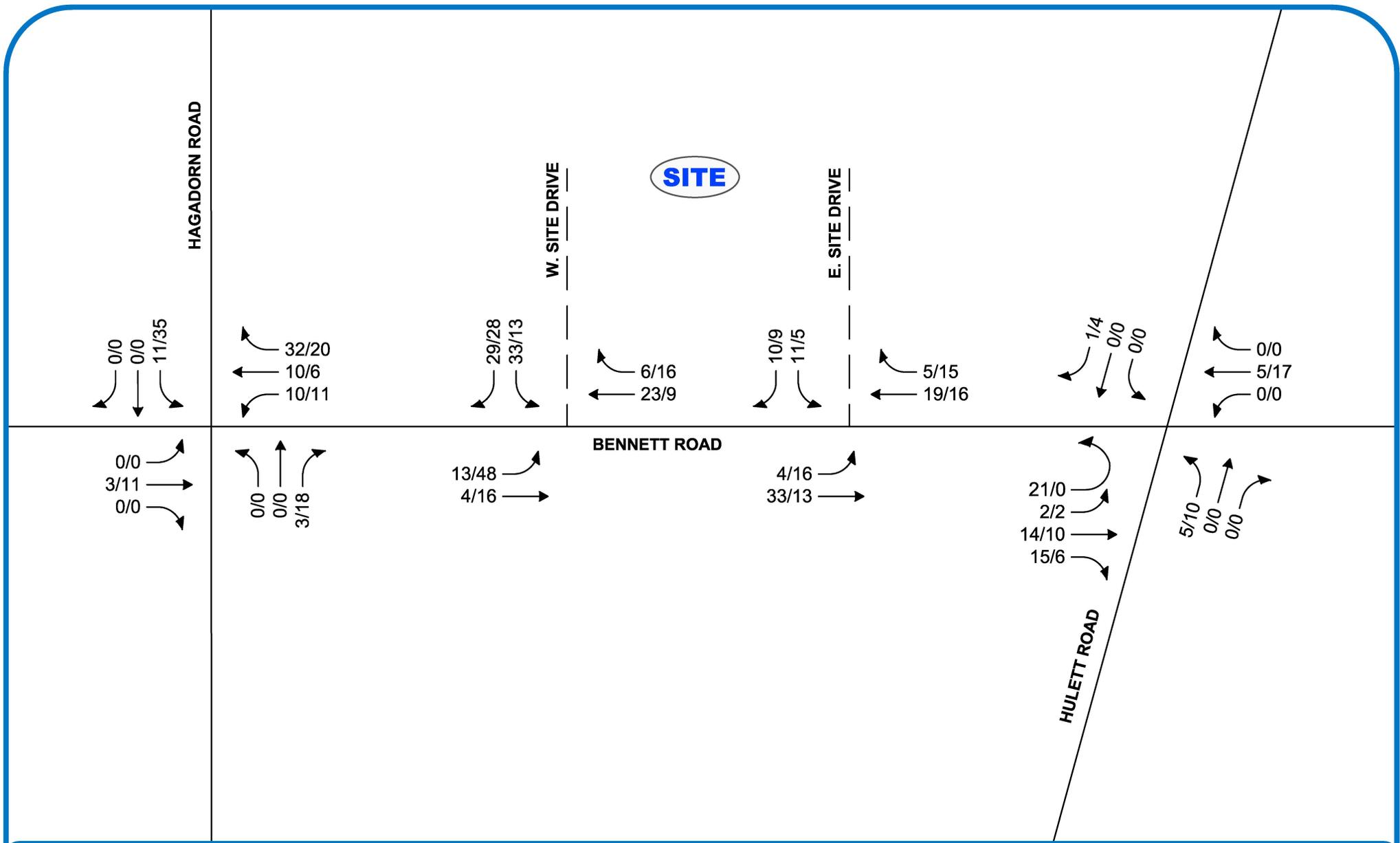


FIGURE 5
SITE-GENERATED TRAFFIC VOLUMES
 SILVERLEAF DEVELOPMENT - MERIDIAN TOWNSHIP, MI

LEGEND

- ROADS
- - - PROPOSED ROADS
- TRAFFIC VOLUMES (AM/PM)



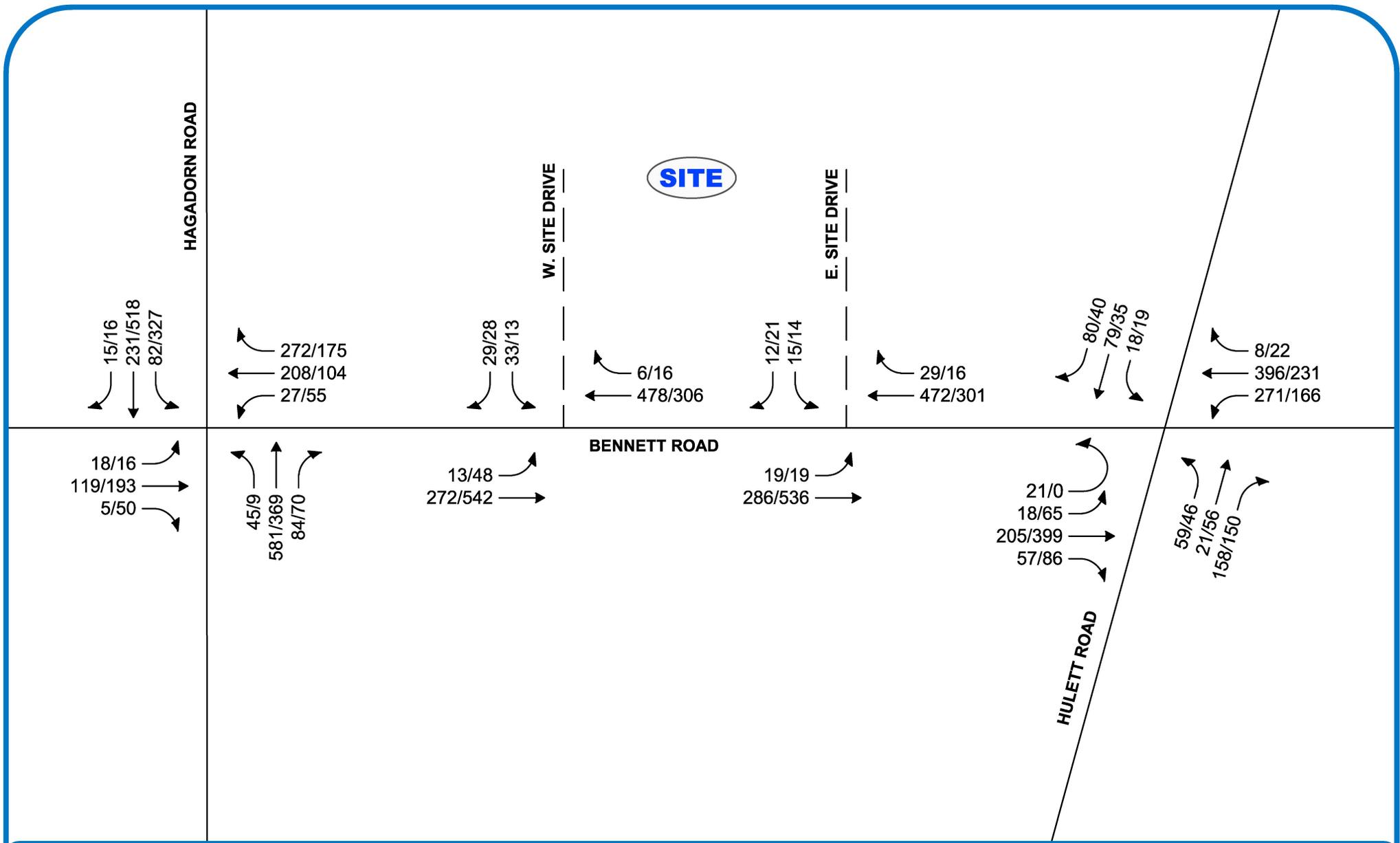


FIGURE 6
FUTURE TRAFFIC VOLUMES
 SILVERLEAF DEVELOPMENT - MERIDIAN TOWNSHIP, MI

LEGEND

- ROADS
- PROPOSED ROADS
- TRAFFIC VOLUMES (AM/PM)



3.6 FUTURE IMPROVEMENTS

In order to improve traffic operations to a LOS D or better for all approaches and movements at the study intersections under future conditions **with the proposed development**, mitigation measures were investigated.

Bennett Road & Hagadorn Road

- Westbound Right-turn Overlap Signal

An overlap can be considered where a dedicated right turn lane is provided, and the right-turn operations can be signalized with a right turn arrow. The right-turn arrow operates concurrently with the southbound left-turn phase, but also allows movement when adjacent through movement is green.

- Signal timing optimization

The signal currently operates with a 90 sec and 70 sec cycle length during the AM and PM peak hours, respectively. The optimized cycle length at this intersection with the right-turn overlap phase is 110 sec and 90 sec during the AM and PM peak hours, respectively.

The results of the analyses with the recommended improvements is summarized in **Table 9** and show that recommended improvements will mitigate the impact of the proposed site generated traffic.

Table 9: Future Intersection Operations with Improvements

Intersection	Control	Approach	Future Conditions (2027)				Future Conditions (2027) with Improvements				
			AM Peak		PM Peak		AM Peak		PM Peak		
			Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	
1	Hagadorn Road & Bennett Road	Signalized	EB	29.0	C	58.8	E	45.1	D	34.5	C
			WBTL	33.2	C	27.2	C	52.7	D	27.8	C
			WBR	59.7	E	29.8	C	50.0	D	17.6	B
			NBL	10.0	B	13.7	B	8.7	A	15.3	B
			NBTR	58.1	F	28.3	C	30.3	C	29.4	C
			SBL	20.8	C	21.5	C	19.8	B	21.2	C
			SBTR	14.1	B	16.8	B	12.3	B	17.9	B
			Overall	44.2	D	28.5	C	34.7	C	24.3	C

3.7 ACCESS MANAGEMENT

3.7.1 Site Driveway Turn Lane Analysis

The Ingham County Road Department “Rules, Standards, and Procedures for Driveways, Banners, and Parades Upon or Over Ingham County Road Commission Right of Way” includes warranting criteria for determining the need for left- and right-turn lanes at the proposed site driveway. The results of the analysis are provided in **Appendix D** and indicate the following:

Site Driveway Intersections	Left-Turn Warranted	Right-Turn Warranted
W. Site Drive	Yes	No
E. Site Drive	No	No

- No right-turn lane or treatment is warranted at either Site Drive.
- A left-turn treatment (passing lane or center turn lane) is warranted at the proposed W. Site Drive.

3.7.2 Intersection Sight Distance Analysis

The vertical sight distance was reviewed at the proposed site drive intersections. According to *Section 9.5 – Intersection Sight Distance* of the AASHTO design manual *A Policy on Geometric Design of Highways and Streets, 7th Edition (2018)*, an intersection sight distance of 555 feet is required for a left turn from a complete

stop and a sight distance of 480 feet is required for a right turn from a stopped position at the study intersection based on the existing 45 mph speed limit (50 mph design speed).

The AASHTO manual states that the “vertex (decision point) of the departure sight triangle on the minor road should be 14.5 ft from the edge of the major-road traveled way”. This gives an accurate depiction of driver behavior when making a turn from a minor roadway. The results of the sight distance analysis show that there is adequate sight distance at the proposed intersection location. A vertical sight distance analysis was performed to determine if the grade changes on Bennett Road would create sight distance limitations at the proposed site driveway locations. The intersection sight distance measurements are shown on **Figure 7** and summarized below.

W. Site Drive: The results of the analysis show that there are no concerns with the horizontal sight distance. This section of Bennett Road is straight with no horizontal curves. The vertical sight distance analysis shows that to the west of the site driveway there is a 2-ft dip in the roadway, however with driver’s eye height at 3.5-ft there is no sight loss. To the east of the sight there is a gradual vertical curve, however there is adequate sight distance prior to the crest of the vertical curve. Therefore, this driveway provides adequate intersection sight distance.

E. Site Drive: The results of the analysis show that there are no concerns with the horizontal sight distance. This section of Bennett Road is straight with no horizontal curves. The vertical sight distance analysis shows that to the proposed driveway is located at the crest of the vertical curve and there is adequate sight distance both east and west of the driveway. Therefore, this driveway provides adequate intersection sight distance.

3.8 SAFETY STUDY

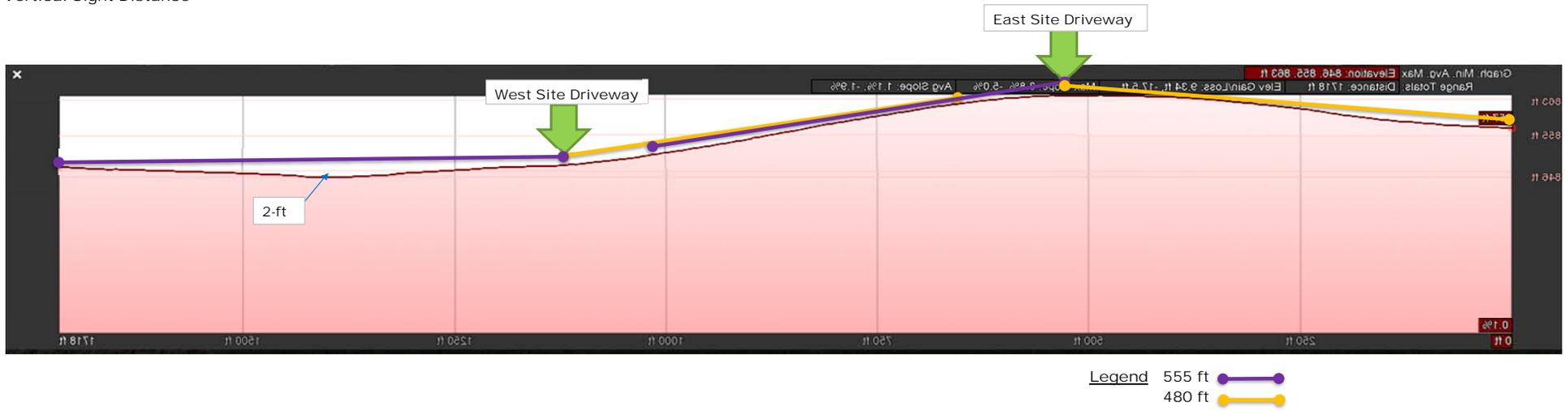
A crash analysis was conducted in the vicinity of the proposed site driveway locations. F&V reviewed crash data from the Michigan Traffic Crash Facts (MTCF) historical crash database for the most recent three years (January 1, 2016 to December 31, 2018) of available data for the proposed driveway location. The results of the analysis indicate that **one crash** occurred on Bennett Road that was related to the roadway segment operations.

- Bennett Road at Private Drive, Rear End Left-Turn, No Injuries

It is expected with the additional left-turning vehicles associated with the proposed development an increase in rear end crashes may be experienced on this segment of Bennett Road. Therefore, in concurrence with the Left-turn warrant criteria, a left-turn passing lane or center left-turn lane is recommended at the proposed W. Site Driveway to reduce the crash potential associated with left-turning vehicles in a single-lane.

Figure 7: Intersection Sight Distance

Intersection Sight Distance
Vertical Sight Distance



Horizontal Sight Distance



4 CONCLUSIONS

The conclusions of this Traffic Impact Study are as follows:

4.1 EXISTING OPERATIONS (2020)

- The existing conditions analysis included the evaluation of the existing 2020 operations at the study intersections.
- The study intersections currently operate well, at LOS D or better. There are brief periods of vehicle queuing during the AM peak hour of the adjacent street due to traffic impacts from Okemos High School. These are experienced during the 15-30 minute prior to the start of school.

4.2 BACKGROUND OPERATIONS (2027 WITHOUT DEVELOPMENT)

- The background conditions analysis included the evaluation of the background 2027 operations at the study intersections. This analysis included increased traffic volumes calculated with a background growth rate and the trips generated by the proposed office development adjacent to the site on Bennett Road.
- The study intersections are expected to continue operating well, at LOS D or better with the addition of background growth. There continue to be brief periods of vehicle queuing during the AM peak hour of the adjacent street due to the adjacent operations of Okemos High School.

4.3 FUTURE OPERATIONS (2027 WITH DEVELOPMENT)

The results of the future conditions analysis show increased delays for the following intersection approaches and movements with the addition of the site generated traffic volumes.

- The northbound shared through/right-turn approach is expected to operate at LOS F during the AM peak hour. A review of network simulations shows extensive (500-ft) queue lengths during the AM peak hour. The poor LOS and queue lengths are attributed to the high volume of northbound vehicles and school traffic generated by both Bennett Woods Elementary and Okemos High School.
- The westbound right-turn lane is expected to operate at LOS E during the AM peak hour. A review of network simulations shows queue lengths of approximately 200-ft; however, the queues are not present throughout the duration of the entire AM peak hour.
- The eastbound single lane approach (left-through-right) is expected to operate at LOS E during the PM peak hour.

In order to improve traffic operations to a LOS D or better for all approaches and movements at the study intersections under future conditions **with the proposed development**, mitigation measures were investigated.

- **Westbound Right-turn Overlap Signal**

An overlap can be considered where a dedicated right turn lane is provided, and the right-turn operations can be signalized with a right turn arrow. The right-turn arrow operates concurrently with the southbound left-turn phase, but also allows movement when adjacent through movement is green.

- **Signal timing optimization**

The signal currently operates with a 90 sec and 70 sec cycle length during the AM and PM peak hours, respectively. The optimized cycle length at this intersection with the right-turn overlap phase is 110 sec and 90 sec during the AM and PM peak hours, respectively.

4.4 ACCESS MANAGEMENT

Site Driveway Turn Lane Analysis

The Ingham County Road Department "Rules, Standards, and Procedures for Driveways, Banners, and Parades Upon or Over Ingham County Road Commission Right of Way" includes warranting criteria for determining the need for left- and right-turn lanes at the proposed site driveway. The results of the analysis are provided in **Appendix D** and indicate the following:

- No right-turn lane or treatment is warranted at either Site Drive.

- A left-turn treatment (passing lane or center turn lane) is warranted at the proposed W. Site drive.

Intersection Sight Distance Analysis

The intersection sight distance was reviewed at the proposed Site Drive intersection on Bennett Road according to *Section 9.5 – Intersection Sight Distance* of the AASHTO design manual *A Policy on Geometric Design of Highways and Streets, 7th Edition (2018)*. The results of the analysis indicate the following:

- There will be adequate intersection sight distance at the proposed site drive intersections on Bennett Road.

4.5 SAFETY STUDY

A crash analysis was conducted in the vicinity of the proposed site driveway locations. F&V reviewed crash data from the Michigan Traffic Crash Facts (MTCF) historical crash database for the most recent three years (January 1, 2016 to December 31, 2018) of available data for the proposed driveway location. The results of the analysis indicate that **one crash** occurred on Bennett Road that was related to the roadway segment operations.

- Bennett Road at Private Drive, Rear End Left-Turn, No Injuries

4.6 ADJACENT SCHOOL OPERATIONS

The AM peak hour operations of Okemos High School occur during the peak hour for the proposed development. The AM peak hour operations of Bennett Woods Elementary School occur after the peak hour for the proposed development. During the PM peak hour, the peak operations of the proposed development occur after both schools have dismissed for the day.

5 RECOMMENDATIONS

The recommendations of this Traffic Impact Study are as follows:

1. Bennett Road & Hagadorn Road

- Westbound Right-turn Overlap Signal
- Signal timing optimization

2. Bennett Road & W. Site Driveway

- Provide a left-turn treatment (passing lane or center turn lane) on Bennett Road.

Appendix A

BACKGROUND INFORMATION

Traffic Engineering Associates, Inc.

PO Box 100
Saranac, MI 48881
517-627-6028

Location: Bennett Rd. & Hagadorn Rd.
County/City: Meridian Twp., Ingham Cty
Weather: Sunny
Counted By: DES

File Name : Bennett & Hagadorn - AM
Site Code : 09111801
Start Date : 9/11/2018
Page No : 1

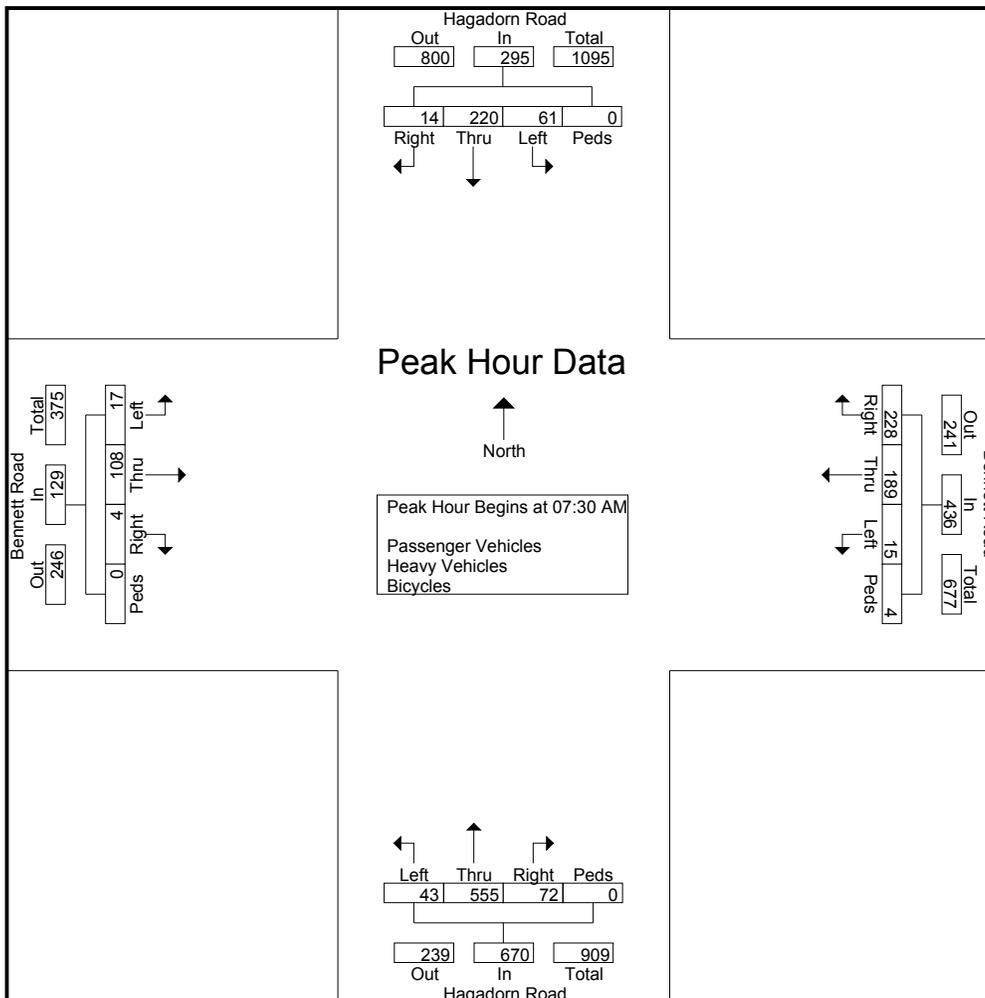
Groups Printed- Passenger Vehicles - Heavy Vehicles - Bicycles

Start Time	Hagadorn Road From North					Bennett Road From East					Hagadorn Road From South					Bennett Road From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	8	32	1	0	41	1	27	24	0	52	4	40	4	1	49	2	10	0	0	12	154
07:15 AM	15	37	8	0	60	5	24	37	0	66	7	94	14	0	115	2	18	0	0	20	261
07:30 AM	12	64	2	0	78	9	66	63	0	138	12	162	41	0	215	3	34	1	0	38	469
07:45 AM	17	52	5	0	74	3	61	55	2	121	13	163	14	0	190	7	28	0	0	35	420
Total	52	185	16	0	253	18	178	179	2	377	36	459	73	1	569	14	90	1	0	105	1304
08:00 AM	15	61	1	0	77	0	27	52	0	79	11	134	9	0	154	4	22	2	0	28	338
08:15 AM	17	43	6	0	66	3	35	58	2	98	7	96	8	0	111	3	24	1	0	28	303
08:30 AM	4	7	0	0	11	9	38	89	0	136	3	63	4	0	70	5	32	2	0	39	256
08:45 AM	5	6	0	0	11	5	32	93	1	131	1	4	0	0	5	3	16	5	0	24	171
Total	41	117	7	0	165	17	132	292	3	444	22	297	21	0	340	15	94	10	0	119	1068
Grand Total	93	302	23	0	418	35	310	471	5	821	58	756	94	1	909	29	184	11	0	224	2372
Apprch %	22.2	72.2	5.5	0		4.3	37.8	57.4	0.6		6.4	83.2	10.3	0.1		12.9	82.1	4.9	0		
Total %	3.9	12.7	1	0	17.6	1.5	13.1	19.9	0.2	34.6	2.4	31.9	4	0	38.3	1.2	7.8	0.5	0	9.4	
Passenger Vehicles	93	302	21	0	416	35	306	471	5	817	57	749	75	1	882	29	183	11	0	223	2338
% Passenger Vehicles	100	100	91.3	0	99.5	100	98.7	100	100	99.5	98.3	99.1	79.8	100	97	100	99.5	100	0	99.6	98.6
Heavy Vehicles	0	0	2	0	2	0	1	0	0	1	0	7	19	0	26	0	1	0	0	1	30
% Heavy Vehicles	0	0	8.7	0	0.5	0	0.3	0	0	0.1	0	0.9	20.2	0	2.9	0	0.5	0	0	0.4	1.3
Bicycles	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	4
% Bicycles	0	0	0	0	0	0	1	0	0	0.4	1.7	0	0	0	0.1	0	0	0	0	0	0.2

Start Time	Hagadorn Road From North					Bennett Road From East					Hagadorn Road From South					Bennett Road From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	12	64	2	0	78	9	66	63	0	138	12	162	41	0	215	3	34	1	0	38	469
07:45 AM	17	52	5	0	74	3	61	55	2	121	13	163	14	0	190	7	28	0	0	35	420
08:00 AM	15	61	1	0	77	0	27	52	0	79	11	134	9	0	154	4	22	2	0	28	338
08:15 AM	17	43	6	0	66	3	35	58	2	98	7	96	8	0	111	3	24	1	0	28	303
Total Volume	61	220	14	0	295	15	189	228	4	436	43	555	72	0	670	17	108	4	0	129	1530
% App. Total	20.7	74.6	4.7	0		3.4	43.3	52.3	0.9		6.4	82.8	10.7	0		13.2	83.7	3.1	0		
PHF	.897	.859	.583	.000	.946	.417	.716	.905	.500	.790	.827	.851	.439	.000	.779	.607	.794	.500	.000	.849	.816

Location: Bennett Rd. & Hagadorn Rd.
 County/City: Meridian Twp., Ingham Cty
 Weather: Sunny
 Counted By: DES

File Name : Bennett & Hagadorn - AM
 Site Code : 09111801
 Start Date : 9/11/2018
 Page No : 2



Traffic Engineering Associates, Inc.

PO Box 100
Saranac, MI 48881
517-627-6028

Location: Bennett Rd. & Hagadorn Rd.
County/City: Meridian Twp., Ingham Cty.
Weather: Sunny
Counted By: DES

File Name : Bennett & Hagadorn - PM
Site Code : 09121801
Start Date : 9/12/2018
Page No : 1

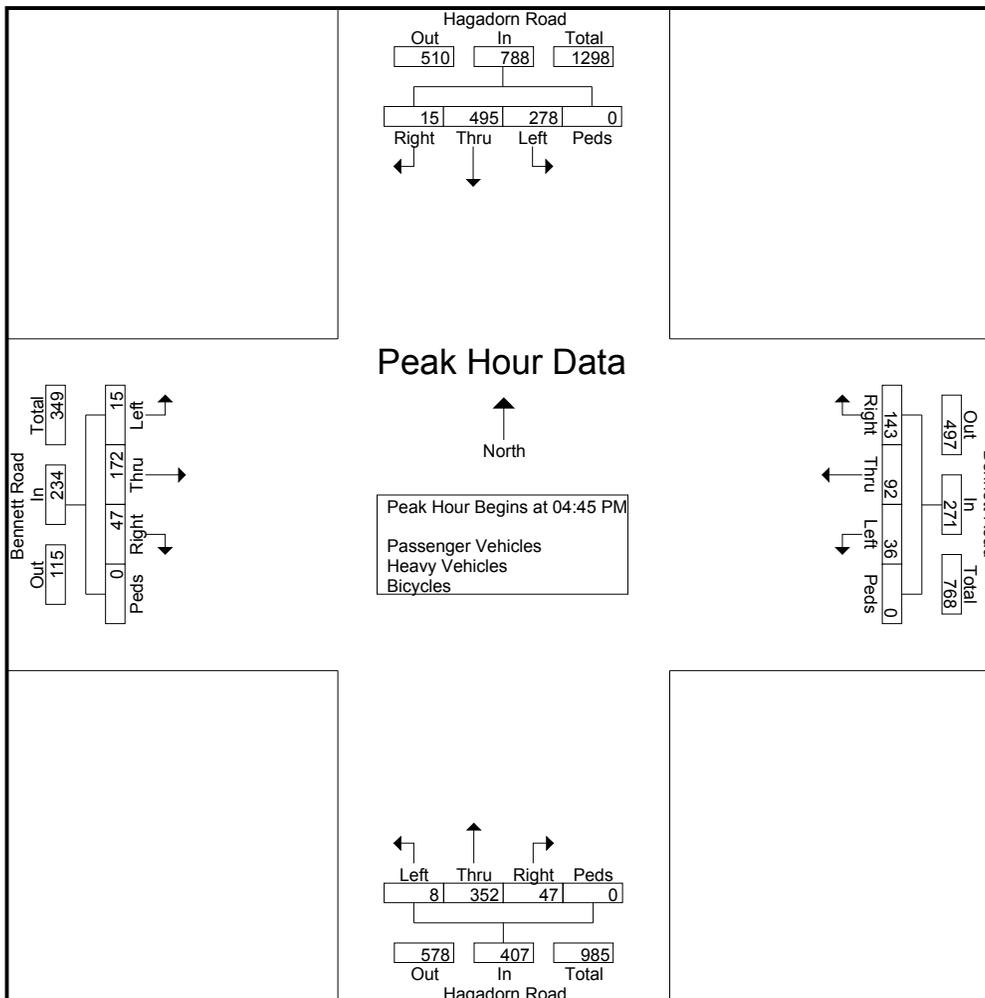
Groups Printed- Passenger Vehicles - Heavy Vehicles - Bicycles

Start Time	Hagadorn Road From North					Bennett Road From East					Hagadorn Road From South					Bennett Road From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
04:00 PM	26	76	11	0	113	10	25	27	0	62	2	74	2	0	78	2	19	10	0	31	284
04:15 PM	38	105	3	0	146	8	27	28	0	63	3	91	8	0	102	4	27	2	0	33	344
04:30 PM	46	101	4	0	151	7	25	29	0	61	1	76	10	0	87	4	32	9	0	45	344
04:45 PM	60	103	4	0	167	10	15	27	0	52	2	66	18	0	86	3	32	5	0	40	345
Total	170	385	22	0	577	35	92	111	0	238	8	307	38	0	353	13	110	26	0	149	1317
05:00 PM	60	129	6	0	195	7	28	42	0	77	2	86	9	0	97	5	49	15	0	69	438
05:15 PM	82	146	4	0	232	8	33	41	0	82	2	112	6	0	120	4	62	10	0	76	510
05:30 PM	76	117	1	0	194	11	16	33	0	60	2	88	14	0	104	3	29	17	0	49	407
05:45 PM	62	81	2	0	145	6	11	21	0	38	1	72	5	0	78	1	31	5	0	37	298
Total	280	473	13	0	766	32	88	137	0	257	7	358	34	0	399	13	171	47	0	231	1653
Grand Total	450	858	35	0	1343	67	180	248	0	495	15	665	72	0	752	26	281	73	0	380	2970
Apprch %	33.5	63.9	2.6	0		13.5	36.4	50.1	0		2	88.4	9.6	0		6.8	73.9	19.2	0		
Total %	15.2	28.9	1.2	0	45.2	2.3	6.1	8.4	0	16.7	0.5	22.4	2.4	0	25.3	0.9	9.5	2.5	0	12.8	
Passenger Vehicles	449	857	35	0	1341	67	178	248	0	493	15	662	71	0	748	26	278	72	0	376	2958
% Passenger Vehicles	99.8	99.9	100	0	99.9	100	98.9	100	0	99.6	100	99.5	98.6	0	99.5	100	98.9	98.6	0	98.9	99.6
Heavy Vehicles	0	0	0	0	0	0	1	0	0	1	0	3	1	0	4	0	0	1	0	1	6
% Heavy Vehicles	0	0	0	0	0	0	0.6	0	0	0.2	0	0.5	1.4	0	0.5	0	0	1.4	0	0.3	0.2
Bicycles	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	6
% Bicycles	0.2	0.1	0	0	0.1	0	0.6	0	0	0.2	0	0	0	0	0	0	1.1	0	0	0.8	0.2

Start Time	Hagadorn Road From North					Bennett Road From East					Hagadorn Road From South					Bennett Road From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	60	103	4	0	167	10	15	27	0	52	2	66	18	0	86	3	32	5	0	40	345
05:00 PM	60	129	6	0	195	7	28	42	0	77	2	86	9	0	97	5	49	15	0	69	438
05:15 PM	82	146	4	0	232	8	33	41	0	82	2	112	6	0	120	4	62	10	0	76	510
05:30 PM	76	117	1	0	194	11	16	33	0	60	2	88	14	0	104	3	29	17	0	49	407
Total Volume	278	495	15	0	788	36	92	143	0	271	8	352	47	0	407	15	172	47	0	234	1700
% App. Total	35.3	62.8	1.9	0		13.3	33.9	52.8	0		2	86.5	11.5	0		6.4	73.5	20.1	0		
PHF	.848	.848	.625	.000	.849	.818	.697	.851	.000	.826	1.00	.786	.653	.000	.848	.750	.694	.691	.000	.770	.833

Location: Bennett Rd. & Hagadorn Rd.
County/City: Meridian Twp., Ingham Cty.
Weather: Sunny
Counted By: DES

File Name : Bennett & Hagadorn - PM
Site Code : 09121801
Start Date : 9/12/2018
Page No : 2



C & A Engineers

10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 1

Groups Printed- Cars - Buses

Start Time	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	1	9	14	0	24	22	20	0	0	42	6	3	7	0	16	2	26	7	0	35	117
07:15	8	33	17	0	58	112	51	0	0	163	8	0	28	0	36	0	30	15	0	45	302
07:30	2	23	23	0	48	81	116	2	0	199	16	6	44	0	66	3	70	4	0	77	390
07:45	4	11	20	0	35	38	116	1	0	155	13	11	49	0	73	9	42	9	0	60	323
Total	15	76	74	0	165	253	303	3	0	559	43	20	128	0	191	14	168	35	0	217	1132
08:00	3	8	11	0	22	28	76	4	0	108	9	3	30	0	42	2	38	11	0	51	223
08:15	13	5	24	0	42	13	67	5	0	85	21	5	45	0	71	7	33	6	0	46	244
08:30	7	8	47	0	62	21	121	4	8	154	50	10	25	6	91	14	45	8	3	70	377
08:45	1	8	24	0	33	19	88	2	7	116	21	3	23	6	53	13	54	16	3	86	288
Total	24	29	106	0	159	81	352	15	15	463	101	21	123	12	257	36	170	41	6	253	1132
09:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
15:45	9	3	7	20	39	29	40	4	38	111	13	11	38	2	64	21	81	22	41	165	379
Total	9	3	7	20	39	29	40	4	38	111	13	11	38	2	64	21	81	22	41	165	379
16:00	7	11	1	0	19	45	39	4	5	93	8	12	42	0	62	5	24	21	2	52	226
16:15	4	13	10	0	27	42	55	0	1	98	13	9	30	0	52	8	59	16	0	83	260
16:30	4	7	8	2	21	30	37	5	2	74	6	9	35	2	52	2	64	8	0	74	221
16:45	5	11	5	0	21	52	48	7	0	107	10	9	56	0	75	15	66	15	1	97	300
Total	20	42	24	2	88	169	179	16	8	372	37	39	163	2	241	30	213	60	3	306	1007
17:00	6	7	11	2	26	32	55	2	1	90	12	10	29	1	52	11	83	19	0	113	281
17:15	5	8	12	0	25	37	50	3	0	90	6	19	24	1	50	18	107	15	1	141	306
17:30	2	7	6	0	15	37	41	9	0	87	6	15	34	0	55	15	109	24	0	148	305
17:45	3	7	6	0	16	25	29	4	0	58	8	20	33	0	61	16	83	23	0	122	257
Total	16	29	35	2	82	131	175	18	1	325	32	64	120	2	218	60	382	81	1	524	1149

C & A Engineers

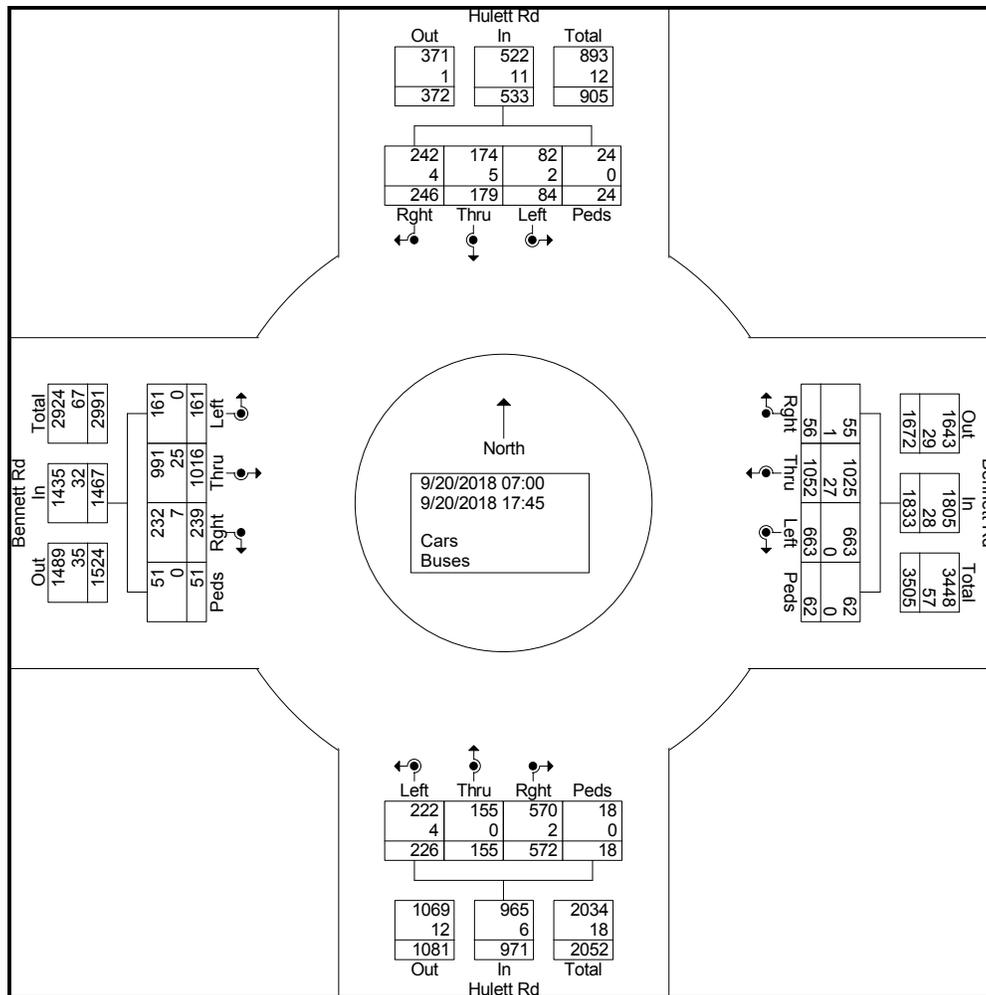
10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 2

Groups Printed- Class 1 - Class 2

	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Grand Total	84	179	246	24	533	663	1052	56	62	1833	226	155	572	18	971	161	1016	239	51	1467	4804
Apprch %	15.8	33.6	46.2	4.5		36.2	57.4	3.1	3.4		23.3	16	58.9	1.9		11	69.3	16.3	3.5		
Total %	1.7	3.7	5.1	0.5	11.1	13.8	21.9	1.2	1.3	38.2	4.7	3.2	11.9	0.4	20.2	3.4	21.1	5	1.1	30.5	
Cars	82	174	242	24	522	663	1025	55	62	1805	222	155	570	18	965	161	991	232	51	1435	4727
% Cars	97.6	97.2	98.4	100	97.9	100	97.4	98.2	100	98.5	98.2	100	99.7	100	99.4	100	97.5	97.1	100	97.8	98.4
Buses	2	5	4	0	11	0	27	1	0	28	4	0	2	0	6	0	25	7	0	32	77
% Buses	2.4	2.8	1.6	0	2.1	0	2.6	1.8	0	1.5	1.8	0	0.3	0	0.6	0	2.5	2.9	0	2.2	1.6

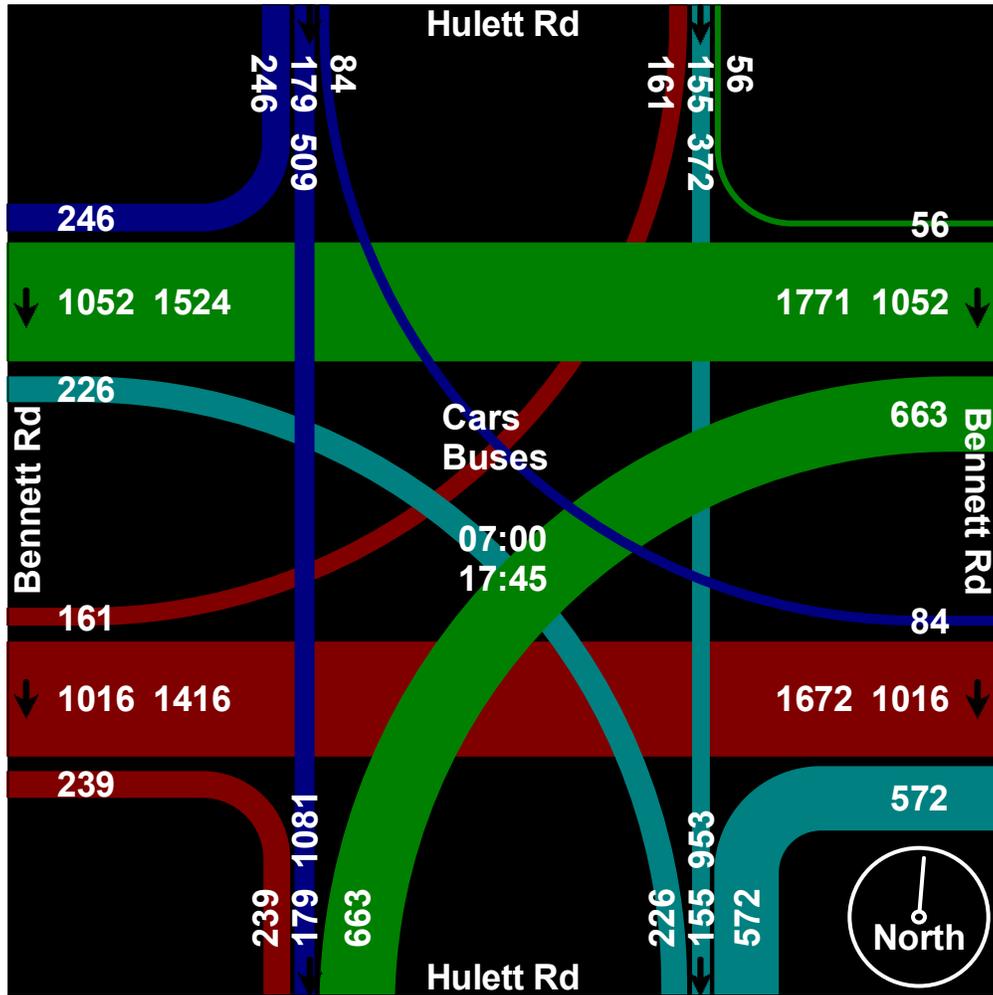


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517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
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File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
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10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 4

Start Time	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 07:00 - Peak 1 of 1																					

C & A Engineers

10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 5

Groups Printed- Cars

Start Time	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	
07:00	1	9	14	0	24	22	20	0	0	42	6	3	7	0	16	2	19	7	0	28	110
07:15	8	31	16	0	55	112	49	0	0	161	8	0	28	0	36	0	22	14	0	36	288
07:30	2	23	23	0	48	81	113	2	0	196	16	6	44	0	66	3	68	3	0	74	384
07:45	4	11	20	0	35	38	114	1	0	153	13	11	49	0	73	9	42	9	0	60	321
Total	15	74	73	0	162	253	296	3	0	552	43	20	128	0	191	14	151	33	0	198	1103
08:00	3	8	10	0	21	28	76	4	0	108	9	3	30	0	42	2	38	11	0	51	222
08:15	13	5	24	0	42	13	67	5	0	85	21	5	45	0	71	7	31	5	0	43	241
08:30	7	5	47	0	59	21	121	3	8	153	50	10	25	6	91	14	43	8	3	68	371
08:45	1	8	24	0	33	19	87	2	7	115	19	3	23	6	51	13	54	16	3	86	285
Total	24	26	105	0	155	81	351	14	15	461	99	21	123	12	255	36	166	40	6	248	1119
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
15:45	8	3	7	20	38	29	36	4	38	107	12	11	37	2	62	21	77	19	41	158	365
Total	8	3	7	20	38	29	36	4	38	107	12	11	37	2	62	21	77	19	41	158	365
16:00	7	11	1	0	19	45	37	4	5	91	7	12	41	0	60	5	24	20	2	51	221
16:15	3	13	9	0	25	42	51	0	1	94	13	9	30	0	52	8	59	16	0	83	254
16:30	4	7	7	2	20	30	33	5	2	70	6	9	35	2	52	2	64	8	0	74	216
16:45	5	11	5	0	21	52	46	7	0	105	10	9	56	0	75	15	66	15	1	97	298
Total	19	42	22	2	85	169	167	16	8	360	36	39	162	2	239	30	213	59	3	305	989
17:00	6	7	11	2	26	32	55	2	1	90	12	10	29	1	52	11	83	19	0	113	281
17:15	5	8	12	0	25	37	50	3	0	90	6	19	24	1	50	18	107	15	1	141	306
17:30	2	7	6	0	15	37	41	9	0	87	6	15	34	0	55	15	109	24	0	148	305
17:45	3	7	6	0	16	25	29	4	0	58	8	20	33	0	61	16	83	23	0	122	257
Total	16	29	35	2	82	131	175	18	1	325	32	64	120	2	218	60	382	81	1	524	1149

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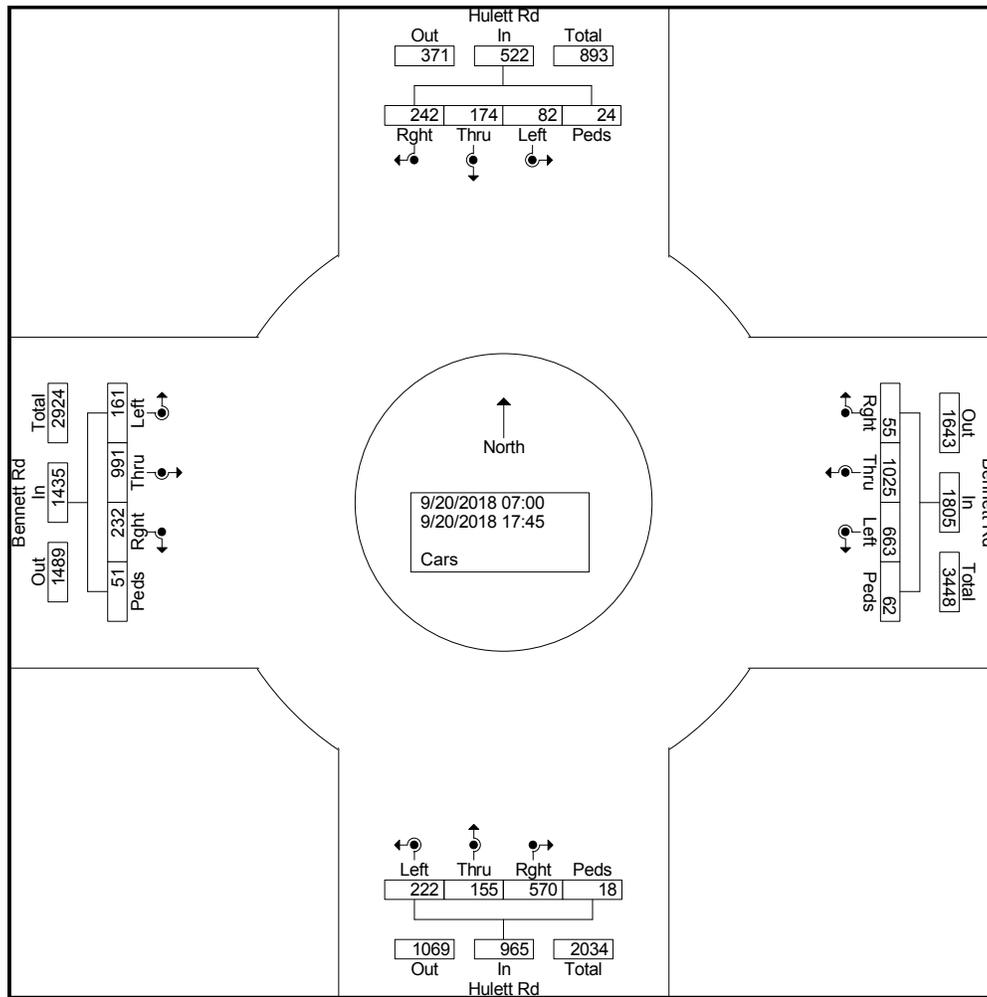
10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 6

Groups Printed- Cars

	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Grand Total	82	174	242	24	522	663	1025	55	62	1805	222	155	570	18	965	161	991	232	51	1435	4727
Apprch %	15.7	33.3	46.4	4.6		36.7	56.8	3	3.4		23	16.1	59.1	1.9		11.2	69.1	16.2	3.6		
Total %	1.7	3.7	5.1	0.5	11	14	21.7	1.2	1.3	38.2	4.7	3.3	12.1	0.4	20.4	3.4	21	4.9	1.1	30.4	

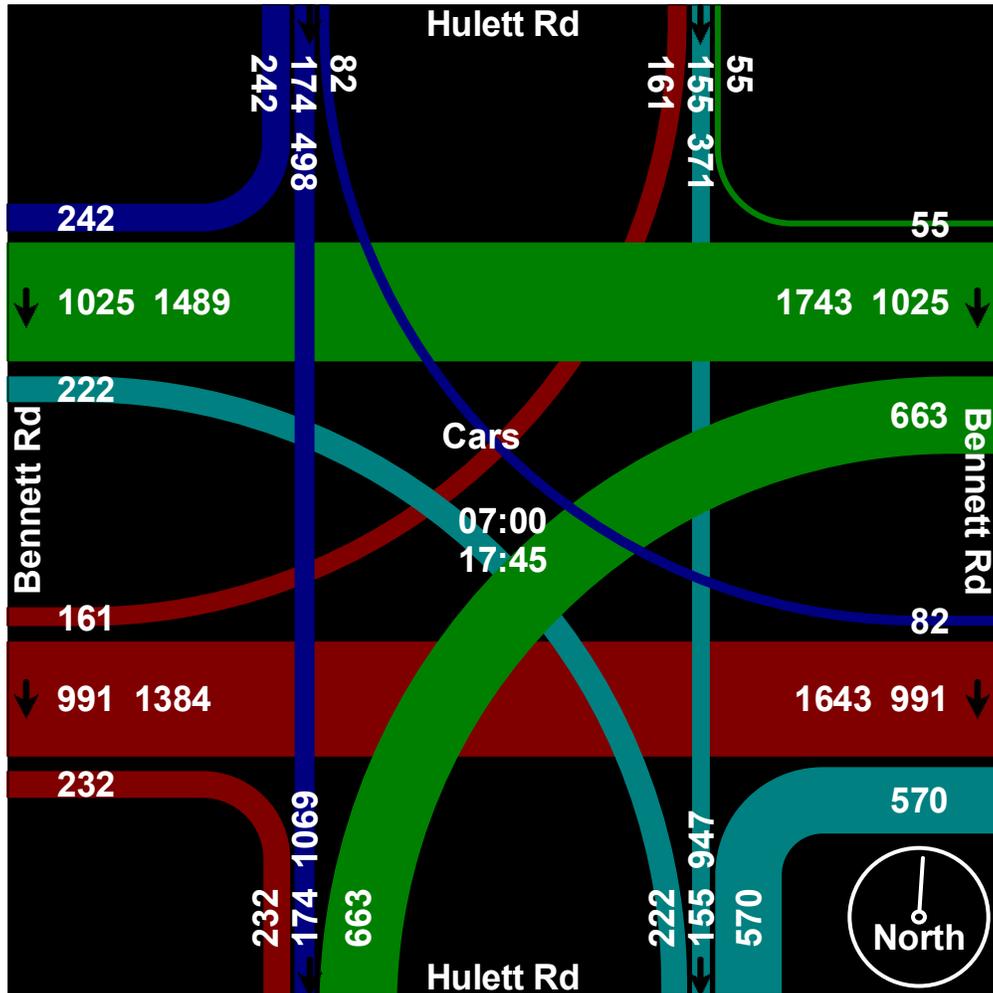


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517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
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10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 8

Start Time	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 07:00 - Peak 1 of 1																					

C & A Engineers

10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 9

Groups Printed- Buses

Start Time	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	7
07:15	0	2	1	0	3	0	2	0	0	2	0	0	0	0	0	0	8	1	0	9	14
07:30	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	1	0	3	6
07:45	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	2	1	0	3	0	7	0	0	7	0	0	0	0	0	0	17	2	0	19	29
08:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	3
08:30	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	6
08:45	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	3
Total	0	3	1	0	4	0	1	1	0	2	2	0	0	0	2	0	4	1	0	5	13
09:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
15:45	1	0	0	0	1	0	4	0	0	4	1	0	1	0	2	0	4	3	0	7	14
Total	1	0	0	0	1	0	4	0	0	4	1	0	1	0	2	0	4	3	0	7	14
16:00	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	0	0	1	0	1	5
16:15	1	0	1	0	2	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	6
16:30	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	5
16:45	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	1	0	2	0	3	0	12	0	0	12	1	0	1	0	2	0	0	1	0	1	18

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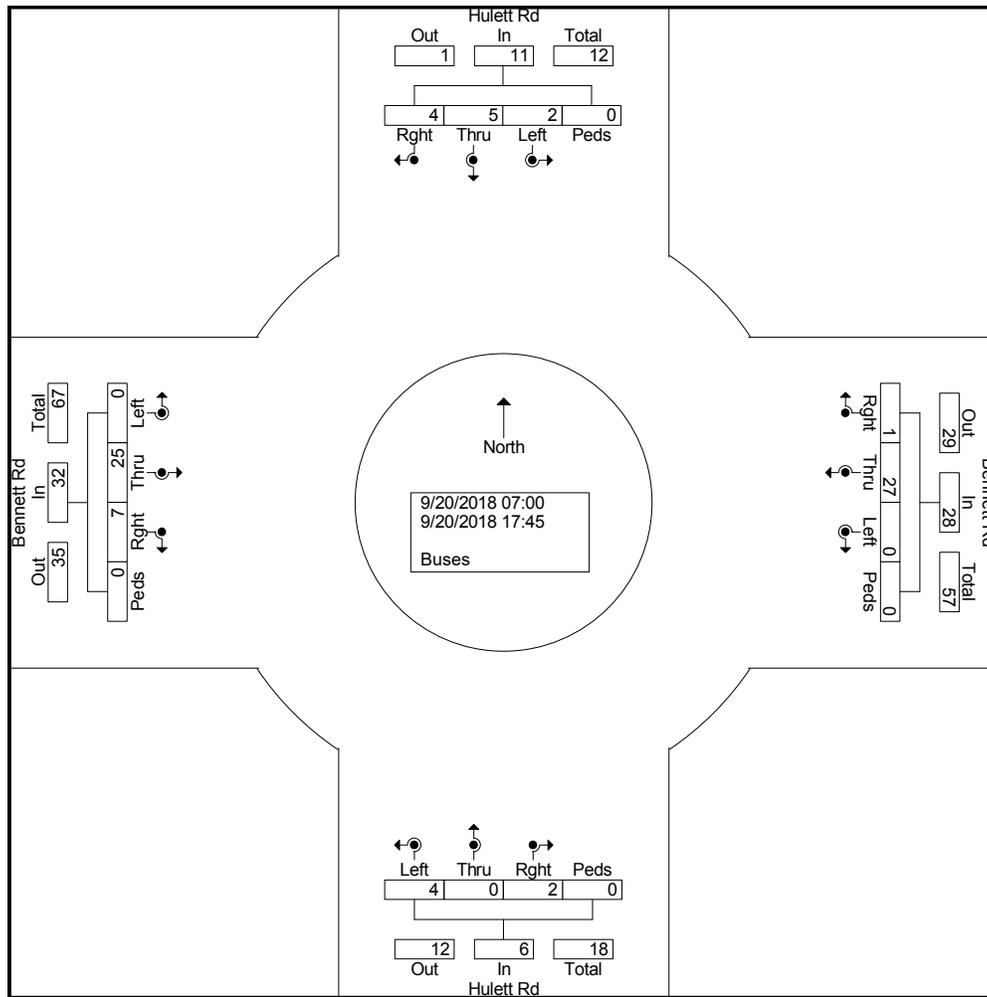
10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 10

Groups Printed- Buses

	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Grand Total	2	5	4	0	11	0	27	1	0	28	4	0	2	0	6	0	25	7	0	32	77
Apprch %	18.2	45.5	36.4	0		0	96.4	3.6	0		66.7	0	33.3	0		0	78.1	21.9	0		
Total %	2.6	6.5	5.2	0	14.3	0	35.1	1.3	0	36.4	5.2	0	2.6	0	7.8	0	32.5	9.1	0	41.6	

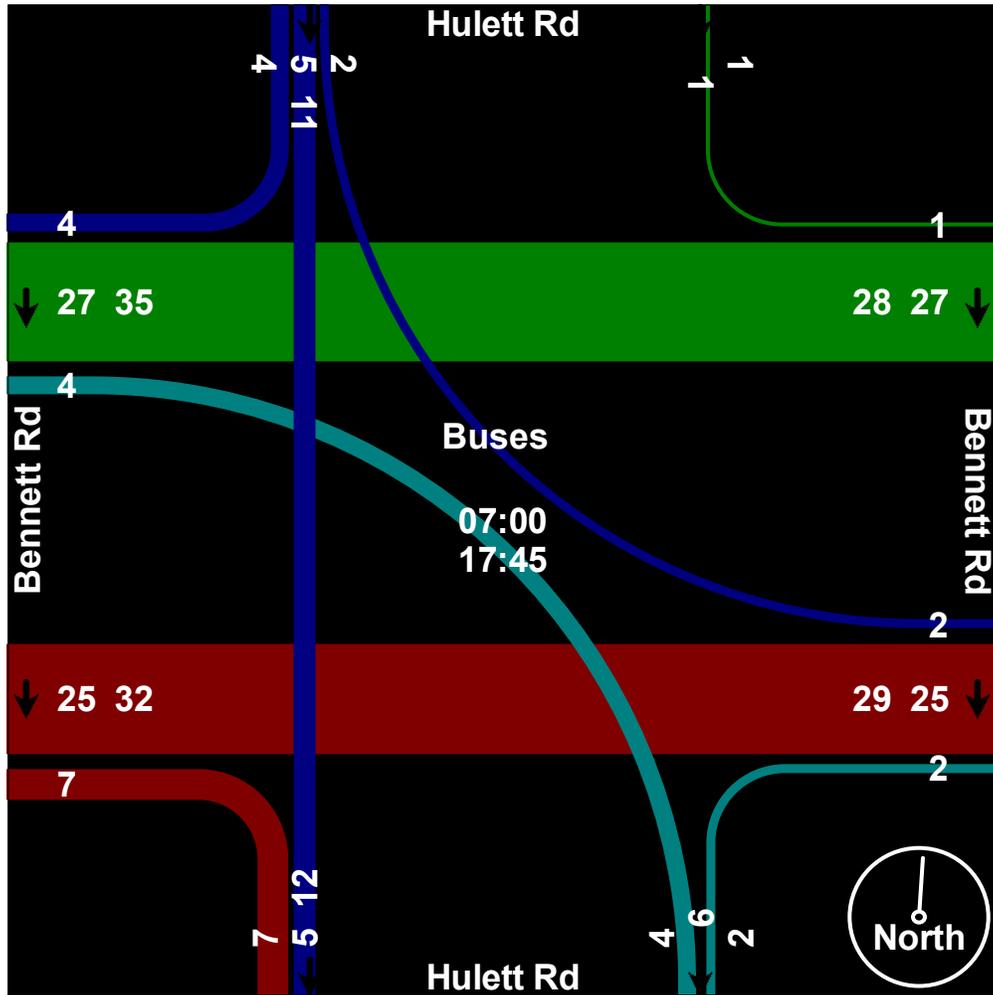


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10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 11



C & A Engineers

10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 12

Start Time	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 07:00 - Peak 1 of 1																					

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10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 13

Groups Printed- Trucks

Start Time	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
08:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
17:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1

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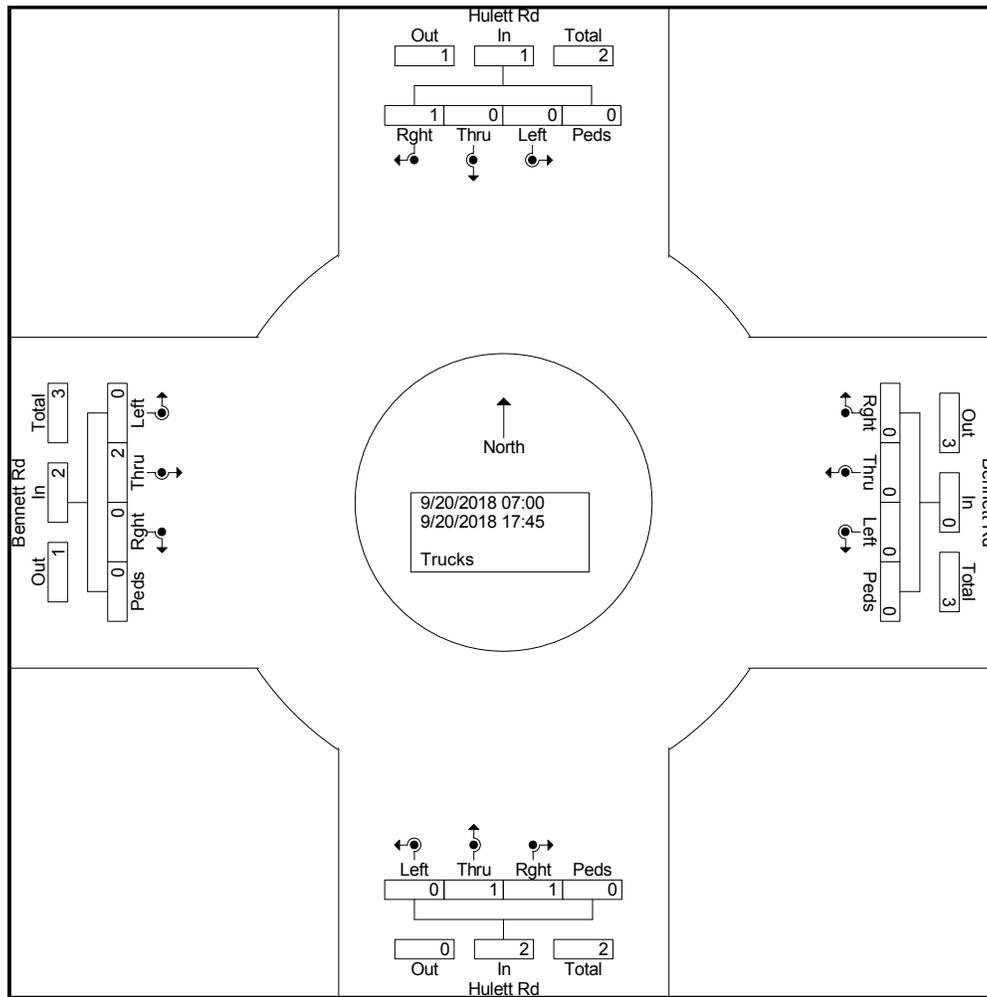
10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 14

Groups Printed- Trucks

	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Grand Total	0	0	1	0	1	0	0	0	0	0	0	1	1	0	2	0	2	0	0	2	5
Apprch %	0	0	100	0		0	0	0	0		0	50	50	0		0	100	0	0		
Total %	0	0	20	0	20	0	0	0	0	0	0	20	20	0	40	0	40	0	0	40	

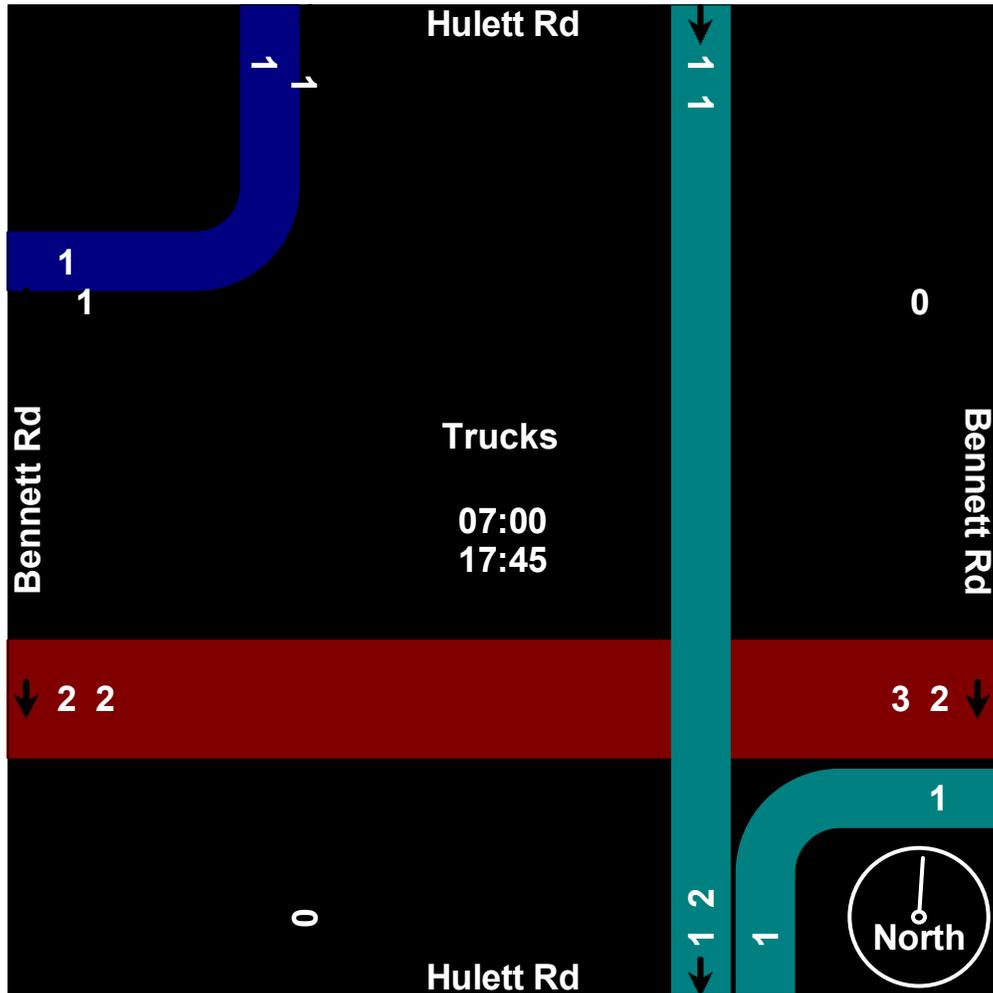


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10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

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MERIDIAN TWP, INGHAM COUNTY, MI
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File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 15



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10722 Corkery Ln
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517-898-8152

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MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 16

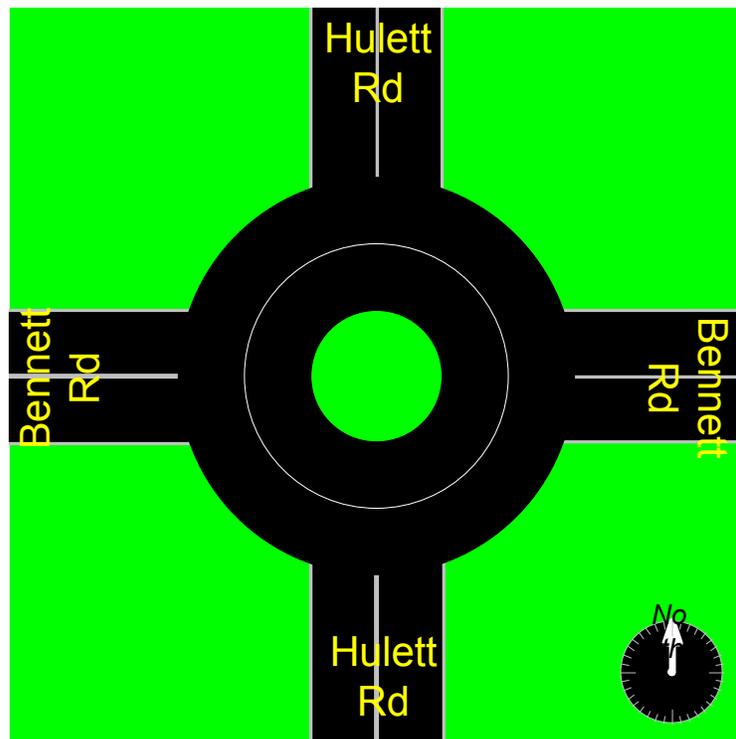
Start Time	Hulett Rd From North					Bennett Rd From East					Hulett Rd From South					Bennett Rd From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 07:00 - Peak 1 of 1																					

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10722 Corkery Ln
Grand Ledge, Michigan, 48837
517-898-8152

LOCATION: BENNETT/HULETT ROUNDABOUT
MERIDIAN TWP, INGHAM COUNTY, MI
WEATHER: Rain-AM/Sunny-PM
ANALYST: NG

File Name : Bennett and Hulett TMC
Site Code : 00000000
Start Date : 9/20/2018
Page No : 17



TRAFFIC SIGNAL TIMING PERMIT

APPROACH	PHASE	1	2	3	4	5	6	7	8		TIMING INSTALLED			
MINIMUM GREEN PASSAGE											REMARKS			
MAXIMUM NO. 1														
MAXIMUM NO. 2														
YELLOW CHANGE														
RED CLEARANCE														
WALK														
PEDESTRIAN CLEARANCE														
EXTENDED PED. CLEARANCE														
REST IN WALK														
INITIALIZATION														
NON-ACT RESPONSE														
VEHICLE RECALL														
PEDESTRIAN RECALL														
NON-LOCK MEMORY														
DUAL ENTRY														
	CYCLE									O1	O2	O3	PREPARED BY:	DATE:
DIAL	SPLIT												FLASH HOURS:	
DIAL	SPLIT												<input type="text"/> to <input type="text"/>	DAILY <input type="checkbox"/> NONE <input type="checkbox"/>
DIAL	SPLIT												<input type="text"/>	
DIAL	SPLIT												NIGHT FLASH:	
DIAL	SPLIT												FY =	FR =
DIAL	SPLIT												CONFLICT FLASH:	
	MODE												FY =	FR =
PHASE											CONTROLLER TYPE:		PRE-EMPT <input type="checkbox"/>	
1											<input type="checkbox"/> EPAC	COUNTDOWN PEDS <input type="checkbox"/>		
2											<input type="checkbox"/> Other:			
3											LOCATION:			
4											CITY/TWP:			
5											COUNTY :			
6											MILE POINT	CONTROL SECTION-SPOT #		
7											Job # (If Applicable):			
8														

OVERLAPS								
Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN	
=								
=								
=								
=								

PREEMPTION INFORMATION FORM

Preemption Description:																	Preempt System Data											
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16										
SEL Ped Cl		Vehicle	Track																<input type="checkbox"/> Locking <input type="checkbox"/> Non-Locking	Ring	1	2	3	4				
SEL Yellow			Dwell																	MIN								
SEL Red Cl			Cycle																		GRN/WLK (s)							
TRACK Green		Ped	Exit																Delay (s) Extend (s) Duration (s) Max Call (s)	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6		
TRACK Ped Cl			Track																	Status								
TRACK Yellow			Dwell																		REMARKS :							
TRACK Red CL		Cycle																										
DWELL Green		Overlap Vehicle	Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Lockout (s)								
RET Ped Cl			Track																									Link PE #
RET Yellow			Dwell																									
RET Red Cl		Cycle																										
Preemption Description:																												
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16										
SEL Ped Cl		Vehicle	Track																<input type="checkbox"/> Locking <input type="checkbox"/> Non-Locking									
SEL Yellow			Dwell																									
SEL Red Cl			Cycle																									
TRACK Green		Ped	Exit																Delay (s) Extend (s) Duration (s) Max Call (s)									
TRACK Ped Cl			Track																									
TRACK Yellow			Dwell																									
TRACK Red CL		Cycle																										
DWELL Green		Overlap Vehicle	Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Lockout (s)								
RET Ped Cl			Track																		Link PE #							
RET Yellow			Dwell																									
RET Red Cl		Cycle																										
Preemption Description:																												
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16										
SEL Ped Cl		Vehicle	Track																<input type="checkbox"/> Locking <input type="checkbox"/> Non-Locking									
SEL Yellow			Dwell																									
SEL Red Cl			Cycle																									
TRACK Green		Ped	Exit																Delay (s) Extend (s) Duration (s) Max Call (s)									
TRACK Ped Cl			Track																									
TRACK Yellow			Dwell																									
TRACK Red CL		Cycle																										
DWELL Green		Overlap Vehicle	Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Lockout (s)								
RET Ped Cl			Track																		Link PE #							
RET Yellow			Dwell																									
RET Red Cl		Cycle																										
Preemption Description:																												
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16										
SEL Ped Cl		Vehicle	Track																<input type="checkbox"/> Locking <input type="checkbox"/> Non-Locking									
SEL Yellow			Dwell																									
SEL Red Cl			Cycle																									
TRACK Green		Ped	Exit																Delay (s) Extend (s) Duration (s) Max Call (s)									
TRACK Ped Cl			Track																									
TRACK Yellow			Dwell																									
TRACK Red CL		Cycle																										
DWELL Green		Overlap Vehicle	Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Lockout (s)								
RET Ped Cl			Track																		Link PE #							
RET Yellow			Dwell																									
RET Red Cl		Cycle																										

PREPARED BY: _____ DATE: _____

LOCATION: _____

CONTROL SECTION-SPOT # _____

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Table 17-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. . . .

Exhibit 17-2. Level of Service Criteria for TWSC Intersections

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 16 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. . . .

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 2010. Transportation Research Board, National Research Council

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle for a 15-min analysis period. The criteria are given in Exhibit 16-2. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

LOS A describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

Exhibit 16-2. Level-of-Service Criteria for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤ 10.0
B	> 10.0 and ≤ 20.0
C	> 20.0 and ≤ 35.0
D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0
F	> 80.0

LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual, 2010. Transportation Research Board, National Research Council

Appendix B

EXISTING TRAFFIC CONDITIONS

HCM 6th Signalized Intersection Summary
1: Hagadorn & Bennett

Existing Conditions 2020
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	110	5	16	191	231	44	561	73	62	223	15
Future Volume (veh/h)	18	110	5	16	191	231	44	561	73	62	223	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	129	6	20	242	292	53	660	166	65	235	16
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.83	0.85	0.44	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	289	12	61	377	337	670	717	180	249	871	59
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.06	0.50	0.50	0.06	0.50	0.50
Sat Flow, veh/h	86	1359	58	71	1773	1585	1781	1442	363	1781	1731	118
Grp Volume(v), veh/h	156	0	0	262	0	292	53	0	826	65	0	251
Grp Sat Flow(s),veh/h/ln	1503	0	0	1844	0	1585	1781	0	1805	1781	0	1849
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	15.0	1.1	0.0	35.8	1.4	0.0	6.6
Cycle Q Clear(g_c), s	11.1	0.0	0.0	10.8	0.0	15.0	1.1	0.0	35.8	1.4	0.0	6.6
Prop In Lane	0.13		0.04	0.08		1.00	1.00		0.20	1.00		0.06
Lane Grp Cap(c), veh/h	368	0	0	438	0	337	670	0	898	249	0	931
V/C Ratio(X)	0.42	0.00	0.00	0.60	0.00	0.87	0.08	0.00	0.92	0.26	0.00	0.27
Avail Cap(c_a), veh/h	426	0	0	503	0	394	734	0	898	303	0	931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.6	0.0	0.0	30.4	0.0	32.1	8.8	0.0	19.7	16.8	0.0	12.1
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.5	0.0	16.1	0.0	0.0	16.0	0.5	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	4.7	0.0	6.8	0.4	0.0	16.2	0.5	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	0.0	0.0	31.9	0.0	48.2	8.8	0.0	35.6	17.4	0.0	12.8
LnGrp LOS	C	A	A	C	A	D	A	A	D	B	A	B
Approach Vol, veh/h		156			554			879			316	
Approach Delay, s/veh		29.4			40.5			34.0			13.7	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	48.3		24.4	11.3	48.8		24.4				
Change Period (Y+Rc), s	* 6.3	* 6.3		* 6.4	* 6.3	* 6.3		* 6.4				
Max Green Setting (Gmax), s	* 8	* 42		* 21	* 8	* 42		* 21				
Max Q Clear Time (g_c+I1), s	3.4	37.8		13.1	3.1	8.6		17.0				
Green Ext Time (p_c), s	0.0	2.0		0.4	0.0	1.3		1.0				

Intersection Summary

HCM 6th Ctrl Delay	32.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
1: Hagadorn & Bennett

Existing Conditions 2020
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	176	48	37	93	145	9	356	48	281	500	16
Future Volume (veh/h)	16	176	48	37	93	145	9	356	48	281	500	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	229	62	45	112	175	11	419	56	331	588	19
Peak Hour Factor	0.77	0.77	0.77	0.83	0.83	0.83	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	273	71	129	266	320	345	605	81	498	890	29
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.37	0.37	0.14	0.49	0.49
Sat Flow, veh/h	61	1352	350	294	1318	1585	1781	1616	216	1781	1802	58
Grp Volume(v), veh/h	312	0	0	157	0	175	11	0	475	331	0	607
Grp Sat Flow(s),veh/h/ln	1764	0	0	1612	0	1585	1781	0	1831	1781	0	1860
Q Serve(g_s), s	5.0	0.0	0.0	0.0	0.0	6.6	0.3	0.0	14.6	7.0	0.0	16.4
Cycle Q Clear(g_c), s	11.4	0.0	0.0	5.1	0.0	6.6	0.3	0.0	14.6	7.0	0.0	16.4
Prop In Lane	0.07		0.20	0.29		1.00	1.00		0.12	1.00		0.03
Lane Grp Cap(c), veh/h	414	0	0	395	0	320	345	0	686	498	0	918
V/C Ratio(X)	0.75	0.00	0.00	0.40	0.00	0.55	0.03	0.00	0.69	0.67	0.00	0.66
Avail Cap(c_a), veh/h	427	0	0	407	0	333	630	0	686	571	0	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	0.0	23.2	0.0	23.9	12.9	0.0	17.6	11.8	0.0	12.7
Incr Delay (d2), s/veh	7.2	0.0	0.0	0.6	0.0	1.7	0.0	0.0	5.7	2.4	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	0.0	2.0	0.0	2.4	0.1	0.0	6.1	2.2	0.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.9	0.0	0.0	23.8	0.0	25.6	12.9	0.0	23.3	14.2	0.0	16.4
LnGrp LOS	C	A	A	C	A	C	B	A	C	B	A	B
Approach Vol, veh/h		312			332			486			938	
Approach Delay, s/veh		32.9			24.8			23.1			15.6	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.5	31.3		19.9	7.6	39.3		19.9				
Change Period (Y+Rc), s	* 6.3	* 6.3		* 6.4	* 6.3	* 6.3		* 6.4				
Max Green Setting (Gmax), s	* 12	* 25		* 14	* 12	* 25		* 14				
Max Q Clear Time (g_c+I1), s	9.0	16.6		13.4	2.3	18.4		8.6				
Green Ext Time (p_c), s	0.3	1.7		0.1	0.0	1.9		0.7				

Intersection Summary

HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Hagadorn & Bennett

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	166	232	191	199	530	68	138
Average Queue (ft)	73	112	76	32	204	26	44
95th Queue (ft)	135	195	137	112	431	55	98
Link Distance (ft)	200	3260			599		894
Upstream Blk Time (%)	0				1		
Queuing Penalty (veh)	0				0		
Storage Bay Dist (ft)			160	100		100	
Storage Blk Time (%)		3	0		20		1
Queuing Penalty (veh)		7	1		9		0

Intersection: 2: Hulett Rd & Bennett

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	87	335	68	100
Average Queue (ft)	36	99	22	36
95th Queue (ft)	77	299	55	77
Link Distance (ft)	534	300	106	108
Upstream Blk Time (%)		14	0	1
Queuing Penalty (veh)		0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 17

Intersection: 1: Hagadorn & Bennett

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	214	269	226	58	254	161	199
Average Queue (ft)	122	82	55	6	133	75	82
95th Queue (ft)	211	178	126	37	223	129	158
Link Distance (ft)	200	3266			599		894
Upstream Blk Time (%)	3						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)			160	100		100	
Storage Blk Time (%)		5			15	3	3
Queuing Penalty (veh)		8			1	14	9

Intersection: 2: Hulett Rd & Bennett

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	133	99	85	60
Average Queue (ft)	52	32	37	18
95th Queue (ft)	106	75	73	48
Link Distance (ft)	515	300	106	108
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 101: Bennett & Dummy Node

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 32

Appendix C

BACKGROUND TRAFFIC CONDITIONS

HCM 6th Signalized Intersection Summary
1: Hagadorn & Bennett

Background Conditions 2027
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	116	5	17	198	240	45	581	81	71	231	15
Future Volume (veh/h)	18	116	5	17	198	240	45	581	81	71	231	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	136	6	22	251	304	54	684	184	75	243	16
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.83	0.85	0.44	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	297	12	63	386	346	659	697	188	217	868	57
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.06	0.49	0.49	0.07	0.50	0.50
Sat Flow, veh/h	81	1358	55	78	1764	1585	1781	1420	382	1781	1736	114
Grp Volume(v), veh/h	163	0	0	273	0	304	54	0	868	75	0	259
Grp Sat Flow(s),veh/h/ln	1493	0	0	1842	0	1585	1781	0	1802	1781	0	1850
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	15.9	1.2	0.0	40.4	1.7	0.0	7.0
Cycle Q Clear(g_c), s	11.7	0.0	0.0	11.4	0.0	15.9	1.2	0.0	40.4	1.7	0.0	7.0
Prop In Lane	0.13		0.04	0.08		1.00	1.00		0.21	1.00		0.06
Lane Grp Cap(c), veh/h	374	0	0	448	0	346	659	0	885	217	0	925
V/C Ratio(X)	0.44	0.00	0.00	0.61	0.00	0.88	0.08	0.00	0.98	0.35	0.00	0.28
Avail Cap(c_a), veh/h	417	0	0	497	0	389	720	0	885	262	0	925
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	0.0	30.6	0.0	32.3	9.1	0.0	21.4	18.9	0.0	12.4
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.8	0.0	18.4	0.1	0.0	26.0	0.9	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	5.0	0.0	7.4	0.4	0.0	20.3	0.6	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	0.0	0.0	32.4	0.0	50.7	9.2	0.0	47.3	19.8	0.0	13.2
LnGrp LOS	C	A	A	C	A	D	A	A	D	B	A	B
Approach Vol, veh/h		163			577			922				334
Approach Delay, s/veh		29.5			42.0			45.1				14.7
Approach LOS		C			D			D				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.1	48.3		25.1	11.4	49.1		25.1				
Change Period (Y+Rc), s	* 6.3	* 6.3		* 6.4	* 6.3	* 6.3		* 6.4				
Max Green Setting (Gmax), s	* 8	* 42		* 21	* 8	* 42		* 21				
Max Q Clear Time (g_c+I1), s	3.7	42.4		13.7	3.2	9.0		17.9				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	1.3		0.8				

Intersection Summary

HCM 6th Ctrl Delay	37.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
1: Hagadorn & Bennett

Background Conditions 2027
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	182	50	44	98	155	9	369	52	292	518	16
Future Volume (veh/h)	16	182	50	44	98	155	9	369	52	292	518	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	236	65	53	118	187	11	434	61	344	609	19
Peak Hour Factor	0.77	0.77	0.77	0.83	0.83	0.83	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	278	73	135	250	327	329	593	83	484	890	28
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.02	0.37	0.37	0.14	0.49	0.49
Sat Flow, veh/h	59	1348	356	316	1213	1585	1781	1604	225	1781	1804	56
Grp Volume(v), veh/h	322	0	0	171	0	187	11	0	495	344	0	628
Grp Sat Flow(s),veh/h/ln	1763	0	0	1529	0	1585	1781	0	1830	1781	0	1860
Q Serve(g_s), s	5.3	0.0	0.0	0.0	0.0	7.2	0.3	0.0	15.8	7.4	0.0	17.5
Cycle Q Clear(g_c), s	11.9	0.0	0.0	6.1	0.0	7.2	0.3	0.0	15.8	7.4	0.0	17.5
Prop In Lane	0.07		0.20	0.31		1.00	1.00		0.12	1.00		0.03
Lane Grp Cap(c), veh/h	420	0	0	385	0	327	329	0	676	484	0	918
V/C Ratio(X)	0.77	0.00	0.00	0.44	0.00	0.57	0.03	0.00	0.73	0.71	0.00	0.68
Avail Cap(c_a), veh/h	422	0	0	386	0	328	610	0	676	545	0	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.0	0.0	0.0	23.5	0.0	24.1	13.3	0.0	18.4	12.5	0.0	13.1
Incr Delay (d2), s/veh	8.2	0.0	0.0	0.8	0.0	2.4	0.0	0.0	6.9	3.7	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	0.0	2.2	0.0	2.6	0.1	0.0	6.7	2.5	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	0.0	0.0	24.3	0.0	26.5	13.4	0.0	25.3	16.3	0.0	17.2
LnGrp LOS	C	A	A	C	A	C	B	A	C	B	A	B
Approach Vol, veh/h		322			358			506			972	
Approach Delay, s/veh		34.2			25.5			25.0			16.9	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	31.3		20.4	7.6	39.7		20.4				
Change Period (Y+Rc), s	* 6.3	* 6.3		* 6.4	* 6.3	* 6.3		* 6.4				
Max Green Setting (Gmax), s	* 12	* 25		* 14	* 12	* 25		* 14				
Max Q Clear Time (g_c+I1), s	9.4	17.8		13.9	2.3	19.5		9.2				
Green Ext Time (p_c), s	0.3	1.6		0.0	0.0	1.8		0.7				

Intersection Summary

HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Hagadorn & Bennett

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	190	267	216	145	598	71	120
Average Queue (ft)	81	112	90	31	237	30	47
95th Queue (ft)	152	201	166	103	524	61	100
Link Distance (ft)	200	3260			599		894
Upstream Blk Time (%)	1				4		
Queuing Penalty (veh)	0				0		
Storage Bay Dist (ft)			160	100		100	
Storage Blk Time (%)		4	0		23	0	1
Queuing Penalty (veh)		10	1		11	0	0

Intersection: 2: Hulett Rd & Bennett

Movement	EB	WB	NB	SB	B7
Directions Served	LTR	LTR	LTR	LTR	T
Maximum Queue (ft)	116	343	101	118	4
Average Queue (ft)	36	145	27	43	0
95th Queue (ft)	83	371	68	89	3
Link Distance (ft)	534	300	106	108	190
Upstream Blk Time (%)		28	0	1	
Queuing Penalty (veh)		0	0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 22

Intersection: 1: Hagadorn & Bennett

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	220	274	229	31	323	197	258
Average Queue (ft)	123	83	54	5	145	86	98
95th Queue (ft)	208	185	119	23	255	154	187
Link Distance (ft)	200	3266			599		894
Upstream Blk Time (%)	6						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)			160	100		100	
Storage Blk Time (%)		4			20	4	4
Queuing Penalty (veh)		7			2	24	13

Intersection: 2: Hulett Rd & Bennett

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	153	120	87	53
Average Queue (ft)	61	28	40	15
95th Queue (ft)	122	69	73	44
Link Distance (ft)	515	300	106	108
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 47

Appendix D

FUTURE TRAFFIC CONDITIONS

HCM 6th Signalized Intersection Summary
1: Hagadorn & Bennett

Future Conditions 2027
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	119	5	27	208	272	45	581	84	82	231	15
Future Volume (veh/h)	18	119	5	27	208	272	45	581	84	82	231	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	140	6	34	263	344	54	684	191	86	243	16
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.83	0.85	0.44	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	317	12	76	395	374	641	672	188	206	849	56
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.06	0.48	0.48	0.07	0.49	0.49
Sat Flow, veh/h	74	1342	53	128	1674	1585	1781	1407	393	1781	1736	114
Grp Volume(v), veh/h	167	0	0	297	0	344	54	0	875	86	0	259
Grp Sat Flow(s),veh/h/ln	1469	0	0	1802	0	1585	1781	0	1800	1781	0	1850
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	18.6	1.3	0.0	42.0	2.0	0.0	7.3
Cycle Q Clear(g_c), s	13.5	0.0	0.0	13.1	0.0	18.6	1.3	0.0	42.0	2.0	0.0	7.3
Prop In Lane	0.13		0.04	0.11		1.00	1.00		0.22	1.00		0.06
Lane Grp Cap(c), veh/h	393	0	0	471	0	374	641	0	860	206	0	905
V/C Ratio(X)	0.43	0.00	0.00	0.63	0.00	0.92	0.08	0.00	1.02	0.42	0.00	0.29
Avail Cap(c_a), veh/h	397	0	0	476	0	379	699	0	860	244	0	905
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.2	0.0	0.0	30.5	0.0	32.8	10.0	0.0	22.9	19.5	0.0	13.3
Incr Delay (d2), s/veh	0.7	0.0	0.0	2.6	0.0	27.0	0.1	0.0	35.1	1.3	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	5.7	0.0	9.4	0.4	0.0	23.2	0.8	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	0.0	33.2	0.0	59.7	10.0	0.0	58.1	20.8	0.0	14.1
LnGrp LOS	C	A	A	C	A	E	B	A	F	C	A	B
Approach Vol, veh/h		167			641			929			345	
Approach Delay, s/veh		29.0			47.4			55.3			15.8	
Approach LOS		C			D			E			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.4	48.3		27.1	11.4	49.3		27.1				
Change Period (Y+Rc), s	* 6.3	* 6.3		* 6.4	* 6.3	* 6.3		* 6.4				
Max Green Setting (Gmax), s	* 8	* 42		* 21	* 8	* 42		* 21				
Max Q Clear Time (g_c+I1), s	4.0	44.0		15.5	3.3	9.3		20.6				
Green Ext Time (p_c), s	0.1	0.0		0.3	0.0	1.3		0.1				

Intersection Summary

HCM 6th Ctrl Delay	44.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	13	272	478	6	33	29
Future Vol, veh/h	13	272	478	6	33	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	78	78	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	358	613	8	36	32

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	621	0	0	1009	617
Stage 1	-	-	-	617	-
Stage 2	-	-	-	392	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	960	-	-	266	490
Stage 1	-	-	-	538	-
Stage 2	-	-	-	683	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	960	-	-	260	490
Mov Cap-2 Maneuver	-	-	-	260	-
Stage 1	-	-	-	526	-
Stage 2	-	-	-	683	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	960	-	-	-	333
HCM Lane V/C Ratio	0.018	-	-	-	0.202
HCM Control Delay (s)	8.8	0	-	-	18.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	19	286	472	29	15	12
Future Vol, veh/h	19	286	472	29	15	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	78	78	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	376	605	37	16	13

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	642	0	-	0	1050
Stage 1	-	-	-	-	624
Stage 2	-	-	-	-	426
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	943	-	-	-	252
Stage 1	-	-	-	-	534
Stage 2	-	-	-	-	659
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	943	-	-	-	243
Mov Cap-2 Maneuver	-	-	-	-	243
Stage 1	-	-	-	-	516
Stage 2	-	-	-	-	659

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	943	-	-	-	312
HCM Lane V/C Ratio	0.027	-	-	-	0.094
HCM Control Delay (s)	8.9	0	-	-	17.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

HCM 6th Signalized Intersection Summary

Future Conditions 2027

1: Hagadorn & Bennett

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	193	50	55	104	175	9	369	70	327	518	16
Future Volume (veh/h)	16	193	50	55	104	175	9	369	70	327	518	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	251	65	66	125	211	11	434	82	385	609	19
Peak Hour Factor	0.77	0.77	0.77	0.83	0.83	0.83	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	238	59	134	199	323	335	556	105	482	903	28
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.36	0.36	0.16	0.50	0.50
Sat Flow, veh/h	40	1169	289	310	980	1585	1781	1529	289	1781	1804	56
Grp Volume(v), veh/h	337	0	0	191	0	211	11	0	516	385	0	628
Grp Sat Flow(s),veh/h/ln	1498	0	0	1289	0	1585	1781	0	1818	1781	0	1860
Q Serve(g_s), s	5.2	0.0	0.0	0.0	0.0	8.4	0.3	0.0	17.3	8.5	0.0	17.5
Cycle Q Clear(g_c), s	14.0	0.0	0.0	8.8	0.0	8.4	0.3	0.0	17.3	8.5	0.0	17.5
Prop In Lane	0.06		0.19	0.35		1.00	1.00		0.16	1.00		0.03
Lane Grp Cap(c), veh/h	361	0	0	333	0	323	335	0	661	482	0	931
V/C Ratio(X)	0.93	0.00	0.00	0.57	0.00	0.65	0.03	0.00	0.78	0.80	0.00	0.67
Avail Cap(c_a), veh/h	361	0	0	333	0	323	612	0	661	514	0	931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.8	0.0	0.0	24.8	0.0	25.1	13.6	0.0	19.4	13.2	0.0	12.9
Incr Delay (d2), s/veh	31.0	0.0	0.0	2.4	0.0	4.7	0.0	0.0	8.9	8.2	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	0.0	2.8	0.0	0.4	0.1	0.0	7.6	3.5	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	0.0	0.0	27.2	0.0	29.8	13.7	0.0	28.3	21.5	0.0	16.8
LnGrp LOS	E	A	A	C	A	C	B	A	C	C	A	B
Approach Vol, veh/h		337			402			527			1013	
Approach Delay, s/veh		58.8			28.6			28.0			18.6	
Approach LOS		E			C			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.0	31.3		20.4	7.6	40.7		20.4				
Change Period (Y+Rc), s	* 6.3	* 6.3		* 6.4	* 6.3	* 6.3		* 6.4				
Max Green Setting (Gmax), s	* 12	* 25		* 14	* 12	* 25		* 14				
Max Q Clear Time (g_c+I1), s	10.5	19.3		16.0	2.3	19.5		10.8				
Green Ext Time (p_c), s	0.2	1.4		0.0	0.0	1.8		0.6				

Intersection Summary

HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	48	542	306	16	13	28
Future Vol, veh/h	48	542	306	16	13	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	87	87	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	645	352	18	14	30

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	370	0	0 1120 361
Stage 1	-	-	- - 361 -
Stage 2	-	-	- - 759 -
Critical Hdwy	4.12	-	- - 6.42 6.22
Critical Hdwy Stg 1	-	-	- - 5.42 -
Critical Hdwy Stg 2	-	-	- - 5.42 -
Follow-up Hdwy	2.218	-	- - 3.518 3.318
Pot Cap-1 Maneuver	1189	-	- - 228 684
Stage 1	-	-	- - 705 -
Stage 2	-	-	- - 462 -
Platoon blocked, %		-	- - -
Mov Cap-1 Maneuver	1189	-	- - 211 684
Mov Cap-2 Maneuver	-	-	- - 211 -
Stage 1	-	-	- - 652 -
Stage 2	-	-	- - 462 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1189	-	-	-	400
HCM Lane V/C Ratio	0.048	-	-	-	0.111
HCM Control Delay (s)	8.2	0	-	-	15.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	19	536	301	16	14	21
Future Vol, veh/h	19	536	301	16	14	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	87	87	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	638	346	18	15	23

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	364	0	-	0	1039 355
Stage 1	-	-	-	-	355 -
Stage 2	-	-	-	-	684 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1195	-	-	-	255 689
Stage 1	-	-	-	-	710 -
Stage 2	-	-	-	-	501 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1195	-	-	-	247 689
Mov Cap-2 Maneuver	-	-	-	-	247 -
Stage 1	-	-	-	-	689 -
Stage 2	-	-	-	-	501 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1195	-	-	-	402
HCM Lane V/C Ratio	0.019	-	-	-	0.095
HCM Control Delay (s)	8.1	0	-	-	14.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection: 1: Hagadorn & Bennett

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	169	260	215	199	614	80	114
Average Queue (ft)	80	124	99	37	238	32	43
95th Queue (ft)	144	211	179	129	474	62	92
Link Distance (ft)	200	1267			599		894
Upstream Blk Time (%)	0				1		
Queuing Penalty (veh)	0				0		
Storage Bay Dist (ft)			160	100		100	
Storage Blk Time (%)		5	1		25	0	1
Queuing Penalty (veh)		15	3		12	0	0

Intersection: 2: Hulett Rd & Bennett

Movement	EB	WB	NB	SB	B7
Directions Served	ULTR	LTR	LTR	LTR	T
Maximum Queue (ft)	117	345	77	125	10
Average Queue (ft)	42	144	27	44	1
95th Queue (ft)	87	356	63	93	10
Link Distance (ft)	528	300	106	108	190
Upstream Blk Time (%)		25	0	1	
Queuing Penalty (veh)		0	0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Bennett & W. Site Drive

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	51	72
Average Queue (ft)	5	31
95th Queue (ft)	28	61
Link Distance (ft)	1267	777
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Bennett & E. Site Drive

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	70	52
Average Queue (ft)	7	22
95th Queue (ft)	37	47
Link Distance (ft)	414	594
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 31

Intersection: 1: Hagadorn & Bennett

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	227	332	174	65	319	195	338
Average Queue (ft)	129	108	65	8	153	98	115
95th Queue (ft)	229	306	148	40	261	170	251
Link Distance (ft)	200	1267			599		894
Upstream Blk Time (%)	17						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)			160	100		100	
Storage Blk Time (%)		8	0		21	8	5
Queuing Penalty (veh)		15	0		2	45	19

Intersection: 2: Hulett Rd & Bennett

Movement	EB	WB	NB	B9	SB
Directions Served	LTR	LTR	LTR	T	LTR
Maximum Queue (ft)	154	110	129	9	70
Average Queue (ft)	60	37	46	0	23
95th Queue (ft)	118	86	93	6	57
Link Distance (ft)	2055	300	106	218	108
Upstream Blk Time (%)			1		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Bennett & W. Site Drive

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	62	52
Average Queue (ft)	13	23
95th Queue (ft)	48	50
Link Distance (ft)	1267	541
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Bennett & E. Site Drive

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	47	40
Average Queue (ft)	5	21
95th Queue (ft)	24	45
Link Distance (ft)	403	448
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 81

HCM 6th Signalized Intersection Summary
1: Hagadorn & Bennett

Future Conditions 2027 With Improvements

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	119	5	27	208	272	45	581	84	82	231	15
Future Volume (veh/h)	18	119	5	27	208	272	45	581	84	82	231	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	140	6	34	263	344	54	684	191	86	243	16
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.83	0.85	0.44	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	198	8	62	312	418	717	789	220	265	987	65
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.05	0.56	0.56	0.06	0.57	0.57
Sat Flow, veh/h	28	968	37	121	1528	1585	1781	1407	393	1781	1736	114
Grp Volume(v), veh/h	167	0	0	297	0	344	54	0	875	86	0	259
Grp Sat Flow(s),veh/h/ln	1033	0	0	1648	0	1585	1781	0	1800	1781	0	1850
Q Serve(g_s), s	1.1	0.0	0.0	0.0	0.0	22.2	1.3	0.0	45.1	2.1	0.0	7.6
Cycle Q Clear(g_c), s	20.2	0.0	0.0	19.1	0.0	22.2	1.3	0.0	45.1	2.1	0.0	7.6
Prop In Lane	0.13		0.04	0.11		1.00	1.00		0.22	1.00		0.06
Lane Grp Cap(c), veh/h	248	0	0	374	0	418	717	0	1010	265	0	1052
V/C Ratio(X)	0.67	0.00	0.00	0.79	0.00	0.82	0.08	0.00	0.87	0.32	0.00	0.25
Avail Cap(c_a), veh/h	248	0	0	374	0	418	740	0	1010	455	0	1052
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.2	0.0	0.0	41.5	0.0	37.6	8.6	0.0	20.4	19.1	0.0	11.7
Incr Delay (d2), s/veh	6.9	0.0	0.0	11.2	0.0	12.4	0.0	0.0	9.9	0.7	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	0.0	8.6	0.0	9.6	0.4	0.0	18.9	0.9	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.1	0.0	0.0	52.7	0.0	50.0	8.7	0.0	30.3	19.8	0.0	12.3
LnGrp LOS	D	A	A	D	A	D	A	A	C	B	A	B
Approach Vol, veh/h		167			641			929			345	
Approach Delay, s/veh		45.1			51.3			29.0			14.2	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.8	67.3		28.6	11.9	68.1		28.6				
Change Period (Y+Rc), s	* 6.3	* 6.3		* 6.4	* 6.3	* 6.3		* 6.4				
Max Green Setting (Gmax), s	* 18	* 51		* 22	* 7	* 62		* 22				
Max Q Clear Time (g_c+I1), s	4.1	47.1		22.2	3.3	9.6		24.2				
Green Ext Time (p_c), s	0.1	1.9		0.0	0.0	1.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	34.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
1: Hagadorn & Bennett

Future Conditions 2027 With Improvements

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	193	50	55	104	175	9	369	70	327	518	16
Future Volume (veh/h)	16	193	50	55	104	175	9	369	70	327	518	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	251	65	66	125	211	11	434	82	385	609	19
Peak Hour Factor	0.77	0.77	0.77	0.83	0.83	0.83	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	301	75	136	229	612	333	572	108	480	922	29
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.02	0.37	0.37	0.16	0.51	0.51
Sat Flow, veh/h	51	1304	324	324	992	1585	1781	1529	289	1781	1804	56
Grp Volume(v), veh/h	337	0	0	191	0	211	11	0	516	385	0	628
Grp Sat Flow(s),veh/h/ln	1679	0	0	1315	0	1585	1781	0	1818	1781	0	1860
Q Serve(g_s), s	5.7	0.0	0.0	0.0	0.0	7.5	0.3	0.0	19.7	9.7	0.0	19.8
Cycle Q Clear(g_c), s	15.4	0.0	0.0	9.7	0.0	7.5	0.3	0.0	19.7	9.7	0.0	19.8
Prop In Lane	0.06		0.19	0.35		1.00	1.00		0.16	1.00		0.03
Lane Grp Cap(c), veh/h	436	0	0	364	0	612	333	0	680	480	0	950
V/C Ratio(X)	0.77	0.00	0.00	0.52	0.00	0.34	0.03	0.00	0.76	0.80	0.00	0.66
Avail Cap(c_a), veh/h	550	0	0	463	0	718	457	0	680	600	0	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	0.0	26.6	0.0	17.2	15.2	0.0	21.7	14.9	0.0	14.3
Incr Delay (d2), s/veh	5.3	0.0	0.0	1.2	0.0	0.3	0.0	0.0	7.7	6.3	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.0	3.0	0.0	2.5	0.1	0.0	8.7	3.8	0.0	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	0.0	0.0	27.8	0.0	17.6	15.3	0.0	29.4	21.2	0.0	17.9
LnGrp LOS	C	A	A	C	A	B	B	A	C	C	A	B
Approach Vol, veh/h		337			402			527			1013	
Approach Delay, s/veh		34.5			22.4			29.2			19.2	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.7	36.0		24.7	7.8	46.8		24.7				
Change Period (Y+Rc), s	* 6.3	* 6.3		* 6.4	* 6.3	* 6.3		* 6.4				
Max Green Setting (Gmax), s	* 18	* 30		* 24	* 7	* 40		* 24				
Max Q Clear Time (g_c+I1), s	11.7	21.7		17.4	2.3	21.8		11.7				
Green Ext Time (p_c), s	0.6	1.8		0.9	0.0	3.5		1.4				

Intersection Summary

HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: Hagadorn & Bennett

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	209	385	260	171	537	101	148
Average Queue (ft)	103	163	111	33	239	34	51
95th Queue (ft)	179	297	212	116	452	71	114
Link Distance (ft)	200	1267			599		894
Upstream Blk Time (%)	2				1		
Queuing Penalty (veh)	0				0		
Storage Bay Dist (ft)			160	100		100	
Storage Blk Time (%)		15	1		25	0	1
Queuing Penalty (veh)		40	2		12	1	1

Intersection: 1: Hagadorn & Bennett

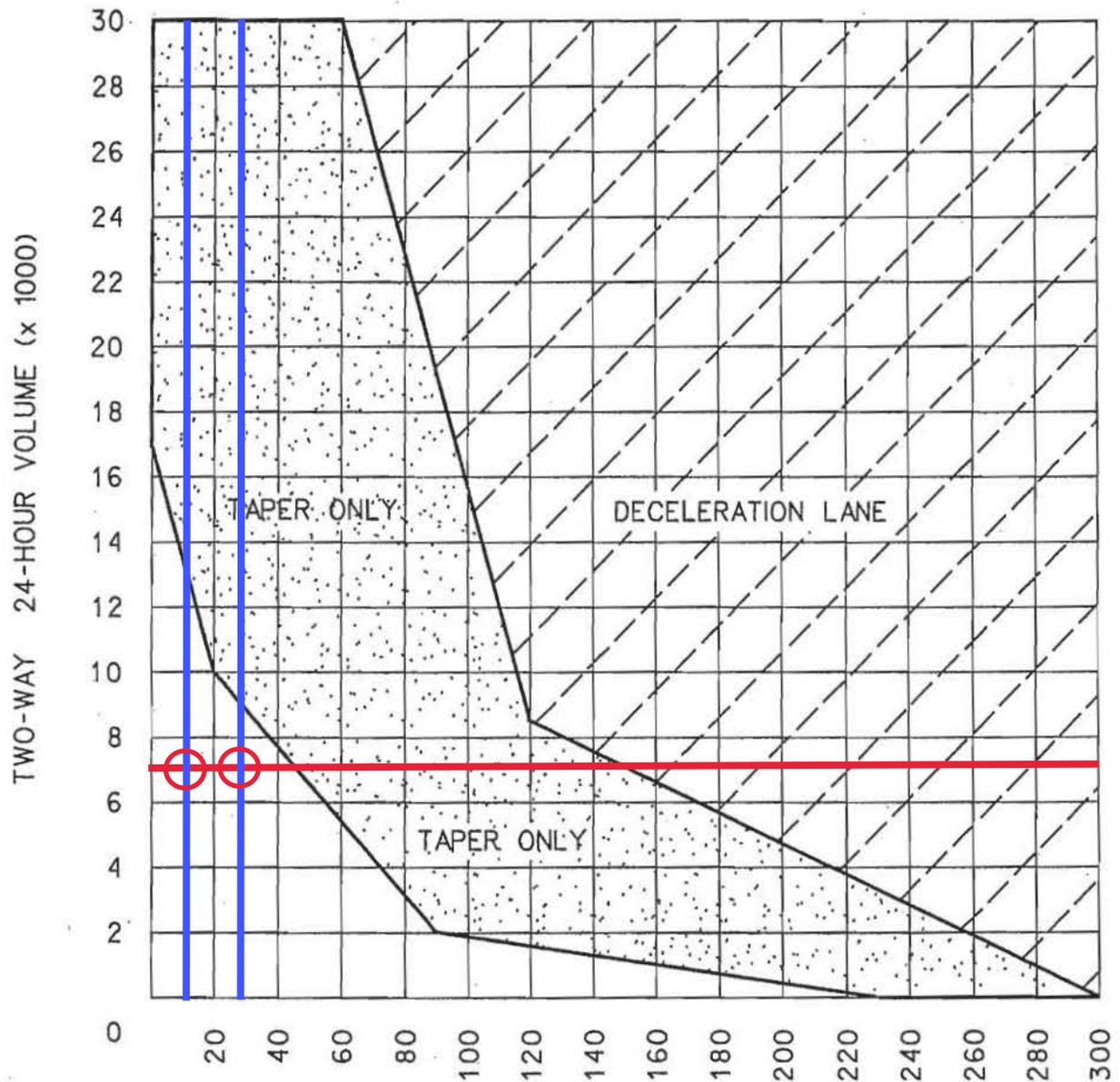
Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	220	303	172	98	362	199	410
Average Queue (ft)	127	100	59	9	174	110	137
95th Queue (ft)	213	247	141	51	305	195	311
Link Distance (ft)	200	1267			599		894
Upstream Blk Time (%)	6						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)			160	100		100	
Storage Blk Time (%)		6			26	10	9
Queuing Penalty (veh)		11			2	60	31

Appendix E

WARRANT SUMMARIES

E. Site Drive & Bennett Road

Warrants for Right Turn
Deceleration Lane or Taper



24-Hour Volumes
Bennett Road
5,450 vpd (2018)
5,920 vpd (2027)
1,510 vpd (Site Gen)
7,430 vpd Total (2027)

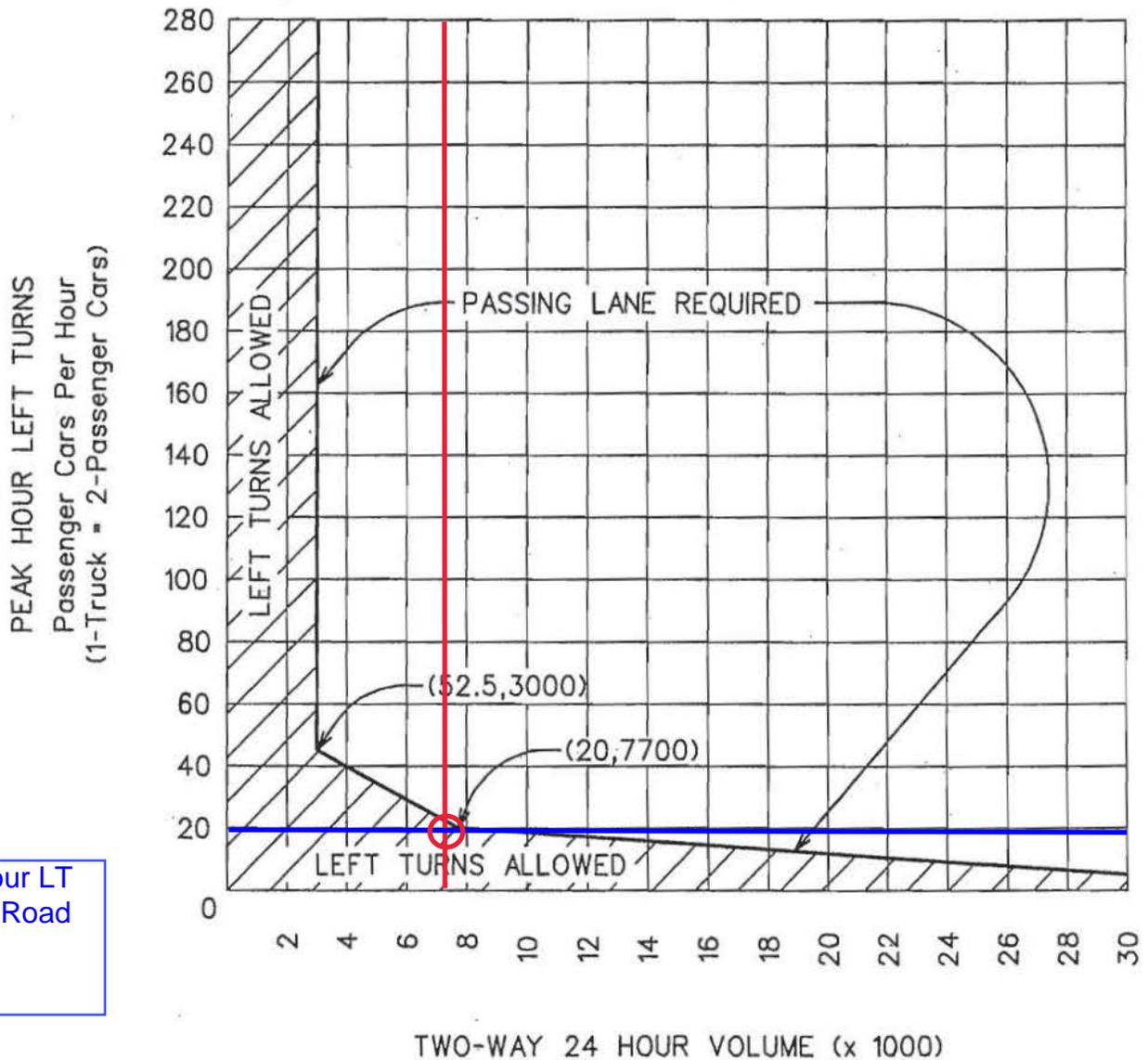
PEAK HOUR RIGHT TURNS

Peak Hour RT
Bennett Road
29 (AM)
16 (PM)

RADIUS ONLY REQUIRED

E. Site Drive & Bennett Road

Warrants for Left Turn
Passing Lane

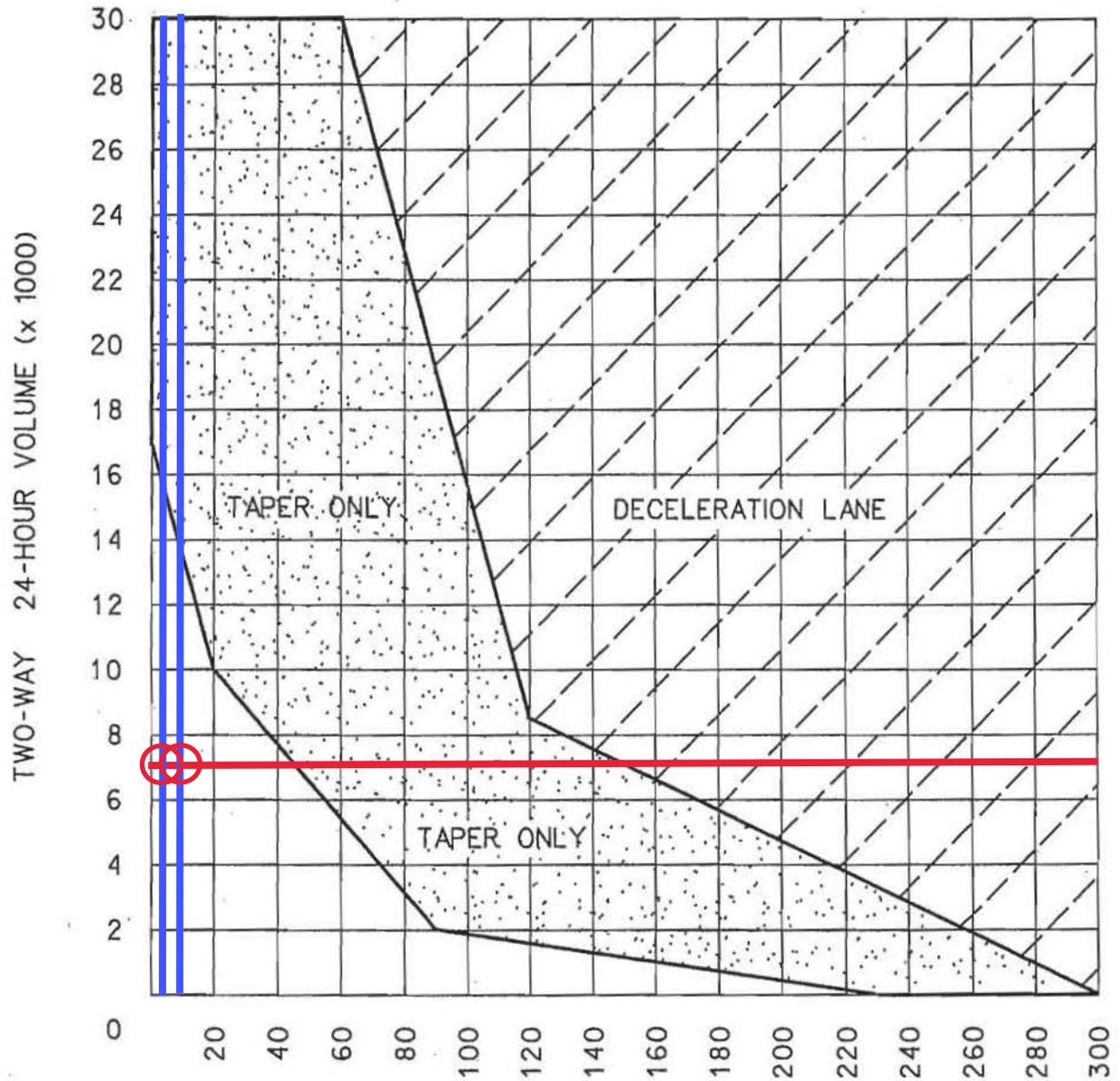


Peak Hour LT
Bennett Road
19 (AM)
19 (PM)

NO LEFT-TURN TREATMENT REQUIRED

24-Hour Volumes
Bennett Road
5,450 vpd (2018)
5,920 vpd (2027)
1,510 vpd (Site Gen)
7,430 vpd Total (2027)

Warrants for Right Turn
Deceleration Lane or Taper



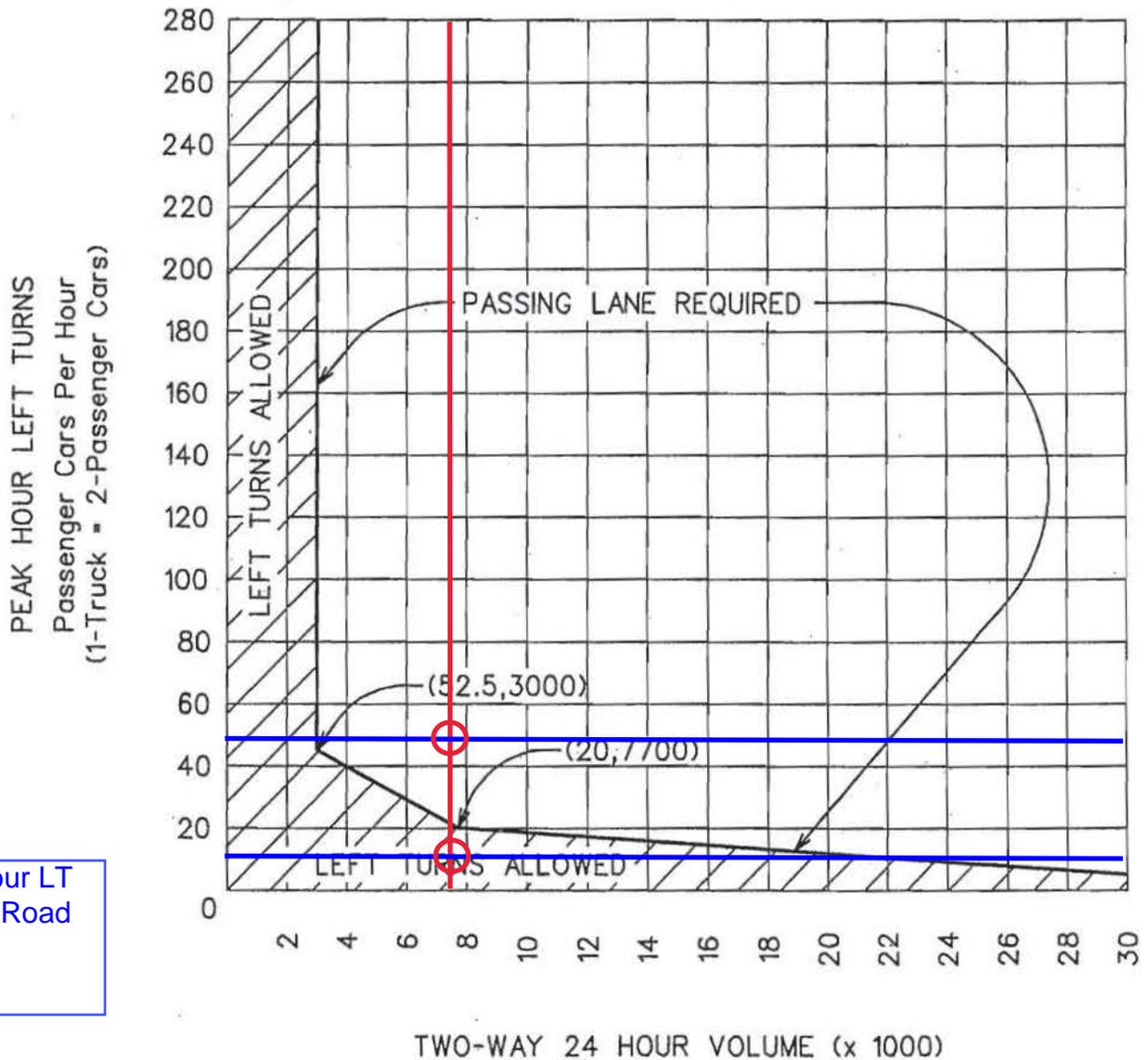
24-Hour Volumes
Bennett Road
5,450 vpd (2018)
5,920 vpd (2027)
1,510 vpd (Site Gen)
7,430 vpd Total (2027)

PEAK HOUR RIGHT TURNS

Peak Hour RT
Bennett Road
6 (AM)
16 (PM)

RADIUS ONLY REQUIRED

Warrants for Left Turn
Passing Lane



Peak Hour LT
Bennett Road
13 (AM)
48 (PM)

LEFT-TURN TREATMENT REQUIRED

24-Hour Volumes
Bennett Road
5,450 vpd (2018)
5,920 vpd (2027)
1,510 vpd (Site Gen)
7,430 vpd Total (2027)

NATURAL FEATURES INVENTORY AND IMPACT ASSESSMENT

for the

**Silverleaf Condominiums PUD
Section 29, Meridian Township, Michigan**

Prepared for:

**Mr. David Straub
Mayberry Homes
1650 Kendale Blvd., Suite 200
East Lansing, Michigan 48823**



MARX
WETLANDS
LLC

Prepared by:

Marx Wetlands, LLC

4/27/2020

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- Figure 2: Aerial Imagery Map
- Figure 3: Pre-settlement Vegetation/MNFI ca. 1800 map
- Figure 4: Ingham County Drain Map- Meridian Township NE
- Figure 5: Township Natural Features Map
- Figure 6: National Wetland Inventory Map
- Figure 7: Flood Insurance Rate Map
- Figure 8: County Soils Survey- Hydric Soils Survey Map
- II. Vegetation Lists
- III. Tree Inventory Data and Table (Provided by Benchmark Engineering and Craig Sturk)
- IV. Wetland Delineation Report (Marx Wetlands LLC; Dated April 23, 2020) & Wetland Report–WDV 17-06 (Fishbeck; Dated December 19, 2017)

1.0 INTRODUCTION

Marx Wetlands, LLC (MW) was contracted by Mayberry Homes (Applicant/Developer) to perform a natural features inventory and impact assessment for the project Site, which is comprised of seven (7) parcels (29-300-008, 29-300-023, 29-300-020, 29-300-021, 29-300-025, 29-300-026, and 29-251-009) totaling approximately 93.90 acres located north of Bennett Road and approximately 0.25 miles east of South Hagadorn Road within section 29 of Meridian Township (T4N, R1W), Ingham County, Michigan (hereafter referred to as “Site”).

The Developer (Mayberry Homes) is proposing a new planned unit development (Silverleaf Condominiums PUD), which will include the construction of approximately 150 proposed residential units and associated roadways, including one main access drive to Bennett Road, and secondary access roads to Bennett Road. The development will also include associated stormwater detention system, utilities, and open green space pursuant to Meridian Township’s building requirements.

As part of a Special Use Permit Application, the Charter Township of Meridian Department of Community Planning and Development requires a “Natural Features Assessment,” which is to include “a written description of the anticipated impacts on the natural features at each phase and at project completion that contains the following:

- a. An inventory of natural features proposed to be retained, removed, or modified. Natural features shall include, but are not limited to, wetlands, significant stands of trees or individual trees greater than 12 inches dbh, floodways, floodplains, water bodies, identified groundwater vulnerable areas, slopes greater than 20 percent, ravines, and vegetative cover types with potential to sustain significant or endangered wildlife.
- b. Description of the impacts on natural features.
- c. Description of any proposed efforts to mitigate any negative impacts.

After obtaining site location information, Marx Wetlands LLC (MW) conducted desktop information reviews, an on-site assessment and information analysis to help address the Township’s natural features assessment requirements. MW also conducted a wetland determination and delineation for an approximately 22-acre parcel (33-02-02-29-251-009) on April 14, 2020. The remaining six parcels of the Site were delineated by Fishbeck in November of 2017. Please note that MW’s wetland delineation has not yet been verified by Meridian Township’s wetland consultant before the completion of this natural features inventory and impact assessment. In addition, a tree survey was conducted by others (data provided by Benchmark Engineering/Craig Sturk). The wetland delineations and tree survey results are included in this report as well.

2.0 SITE LOCATION & CONDITIONS AND PROJECT DESCRIPTION

The Site is located directly north of Bennett Road and approximately 0.25 east of South Hagadorn Road and approximately 0.5 west of Hulett Road within Section 29 of Meridian Township (T4N,

R1W) of Ingham County, Michigan. The Developer (Mayberry Homes) is proposing a planned unit development (Silverleaf Condominiums PUD) consisting of approximately 150 single-family residential units, associated access roadways, utility, and stormwater infrastructure. The project will be entirely contained within Meridian Township.

The majority of the project footprint will be situated within upland disturbed fields or upland scrub-shrub/forest in Meridian Township. Based on MW's review, the project footprint (i.e., lot lines, roads, etc.) does not appear to impact the existing wetlands or 40-foot wetland buffers. The green open spaces (totaling approximately 35 acres) will largely occupy upland land directly adjacent to areas of wetland and/or 100-year floodplain in attempts to minimize impacts to on-site features. It appears that project activities such as grading, clearing associated with the proposed development and the construction of one (1) stormwater basin will occur in upland. Prior to site clearing and grading, soil erosion and sediment control measures will be installed and will be inspected and maintained during the construction project. All soil erosion and sedimentation control measures will be removed upon completion of construction and stabilization. **This impact assessment assumes that grading will not extend outside the proposed lot lines.** Please refer to *Figures 1.1 Site Location Map & 1.2 Preliminary Site Plan (3 Sheets; Dated 4-22-2020)* in **Appendix I**.

On April 14, 2020, MW conducted a wetland determination and delineation for the 22-acre parcel (#29-251-009) and identified five (5) wetlands (Wetlands A, B, C, D, and E) and one (1) county drain, Hoskins Drain (H6200) within parcel limits. Four (4) wetlands (Wetlands A, B, C, and E) are likely regulated by Michigan's Department of Environment, Great Lakes, and Energy (EGLE) and Meridian Township. Wetland D is not anticipated to be regulated by EGLE or Meridian Township.

Fishbeck conducted a wetland delineation for the remaining southern parcels (approximately 76.5 acres) of the Site on November 28, 2017 and identified three wetland areas (Wetlands A, B, and C) and Herron Creek. However, only one wetland is anticipated to be regulated by EGLE and Meridian Township (Wetland A-adjointing Herron Creek). Wetland B may be considered regulated by Meridian Township. Refer to Fishbeck's *Wetland Delineation Report WDV 17-06* provided in **Appendix IV**.

A natural features assessment for the whole Site (approximately 93.90 acres) was also conducted by MW on April 14, 2020.

Based on review of aerial photographs, available on-line resources, and on-site visit, the Site largely contains undeveloped land, consisting of areas of upland, disturbed fields, upland scrub-shrub/forest and wetland. In addition, debris, concrete, asphalt piles and old equipment was identified within the overall Site. Existing single-family and vacant residences were identified along Bennett Road. Mowed paths and a two-track were also identified throughout the Site. One (1) house was observed within the southeast quadrant of the Site, north of Bennett Road.

The Site is bound by undeveloped property and a railroad to the north; residential properties connecting to Sophiea Parkway and Creekstone Trail, the Okemos Public Schools bus garage and

Schultz Veterinary Clinic to the east; Bennett Road, and the College Fields Golf Club to the south and west. The general topography of the Site is generally flat with some moderate slopes associated with previous land disturbances, which appear manmade, presumably associated with mining activities. Topography also generally drops in elevation to the on-site wetlands. Refer to the *Figure 2: Aerial Imagery Map* in **Appendix I**. The yellow polygon depicts the approximate overall Project Site within Meridian Township, Ingham County, Michigan.

3.0 METHODS

MW conducted a desktop review for the Site using publicly available information and imagery, including the United States Geological Service (USGS) topographic map, aerial photographs, National Wetland Inventory (NWI) map, county soil survey map, county drain maps, Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), and Meridian Township's Natural Features Map, which primarily includes wetlands and floodplains.

On April 14, 2020, MW conducted a wetland determination and delineation for the approximately 22-acre parcel and a natural features assessment for the overall 93.90-acre Site. The on-site visit consisted of a site reconnaissance to evaluate the current and prior land use, conduct habitat type determination, habitat quality evaluation, wetland determination and delineation, wildlife observations, and floodplain or other special concern observations. The wetland determination and delineation was performed in accordance with the Michigan Department of Environmental Quality Wetland Identification Manual (2001), the Northcentral-Northeast Manual to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. The findings from the desktop review, site visit and wetland delineation, and Fishbeck's wetland delineation, and limited tree survey conducted by others were combined to help interpret the Site's natural features and evaluate potential project impacts upon those natural features.

4.0 RESULTS, FINDINGS, AND DISCUSSION

4.1 Existing Structures, Materials, and Adjacent Land use

The overall Site largely contains undeveloped land, consisting of areas of upland, disturbed fields, upland scrub-shrub/forest, and wetland. The Site's upland areas appeared highly disturbed and contained several piles of fill, debris (i.e., wood, asphalt, concrete, etc.), and old machinery. The piles of fill material were vegetated, which suggests fill activities likely occurred in the past. According to Google Earth aerial photographs dating back to 1999 show extensive ground disturbance and placement of fill material throughout the west-central portions of the Site. U.S. topographic maps reveal the Site may have contained previous gravel pits corresponding to these disturbed areas. In addition, existing single-family and vacant residences were identified along Bennett Road. Mowed paths and a two-track were also identified throughout the Site. One (1) house was observed within the southeast quadrant of the Site, north of Bennett Road.

The Site is bound by undeveloped property and a railroad to the north; residential properties connecting to Sophiea Parkway and Creekstone Trail, the Okemos Public Schools bus garage and Schultz Veterinary Clinic to the east; Bennett Road, and the College Fields Golf Club to the south

and west. The general topography of the Site is generally flat with some moderate slopes associated with previous land disturbances that appear constructed, presumably associated with mining activities. Topography also generally drops in elevation to the on-site wetlands. Refer to *Figure 2: Aerial Imagery Map* in **Appendix I**.



Photograph 1. View of gravel paths and upland disturbed fields identified throughout the Site.



Photograph 2. View of vegetated stockpiles identified in the disturbed areas of the Site.



Photograph 3. View of debris piles identified in the southwestern portions of the Site.



Photograph 4. View of upland forested/scrub-shrub areas identified throughout the Site.

4.2 Topography

The Site varies in elevation from approximately 846 to 860 feet above sea level (asl) and can be characterized as relatively moderate sloping and local microtopographic relief was identified near the wetland areas and on-site drain (Hoskins Drain-H6200). Refer to *Figure 1: Site Location Map* in **Appendix I**.

4.3 Vegetation

A vegetation assessment was conducted during the on-site visit to describe the dominant cover or community types observed throughout the Site. Based on review of aerial photographs,

available on-line resources, and on-site visits, the Site largely contains undeveloped land, consisting of areas of upland disturbed fields, upland scrub-shrub/forest, and wetland.

MW found three (3) distinct community types present on the Site: 1) upland disturbed old fields; 2) upland scrub-shrub/forest; and 3) wetlands. The descriptions of the three (3) main cover types identified within the Site are described below:

Cover Type Descriptions

1) Upland Disturbed Old Field

Upland herbaceous species found in the areas of upland, disturbed old field include bluegrasses (*Poa compressa* and *P. pratensis*), spotted knapweed (*Centaurea stoebe*), orchard grass (*Dactylis glomerata*), smooth brome (*Bromus inermis*), timothy (*Phleum pratense*), common teasel (*Dipsacus fullonum*), and goldenrods (*Solidago altissima* and *S. canadensis*). Scattered trees and shrubs included cottonwood (*Populus deltoides*), red-cedar (*Juniperus virginiana*), black raspberry (*Rubus occidentalis*), autumn-olive (*Elaeagnus umbellata*), and common blackberry (*Rubus allegheniensis*). Refer to *Table 1* in **Appendix II** for a complete list of identified plant species within this land cover type.

2) Upland Scrub-shrub/Forest

The upland forested and scrub-shrub areas were observed throughout the Site. These areas generally contain oaks (*Quercus alba*, *Q. bicolor*, *Q. macrocarpa*, *Q. rubra*, and *Q. velutina*), black walnut (*Juglans nigra*), black cherry (*Prunus serotina*), cottonwood, box-elder (*Acer negundo*), sugar maple (*Acer saccharum*), scattered with red maple (*Acer rubrum*), basswood (*Tilia americana*), beech (*Fagus grandifolia*), American elm (*Ulmus americana*), and white ash (*Fraxinus americana*.) trees. Upland herbaceous understory species include strawberry (*Fragaria virginiana*), wild geranium (*Geranium maculatum*), may-apple (*Podophyllum peltatum*), Dame's rocket (*Hesperis matronalis*), Pennsylvania sedge (*Carex pennsylvanica*), white avens (*Geum canadense*), garlic mustard (*Alliaria petiolata*), and yellow trout-lily (*Erythronium americanum*). Upland shrub and vine species include common blackberry, black raspberry, hop-hornbeam (*Ostrya virginiana*), musclewood (*Carpinus caroliniana*), gray dogwood (*Cornus racemosa*), prickly-ash (*Zanthoxylum americanum*), Eurasian honeysuckles (*Lonicera spp.*), common buckthorn (*Rhamnus cathartica*), autumn-olive, and Virginia creeper (*Parthenocissus quinquefolia*). Refer to *Table 2* in **Appendix II**, for a complete list of identified plant species within the upland scrub-shrub/forest land cover type.

3) Wetlands- (Includes Fishbeck and MW identified wetlands)

Majority of the on-site wetlands are emergent and forested wetlands; however, Wetland E (also identified as *Wetland A-Fishbeck 2017 delineation*) is largely emergent. Wetland D identified in MW's delineation is vernal pool type (forested) wetland.

MW's Delineation (22-Acre Parcel):

Wetlands A, B, and C are emergent and forested wetlands, containing emergent wetland interiors and forested wetland perimeters. Wetland A was identified in the southeast quadrant

of the Site, extending off-site in a southeast direction. Wetland A is also hydrologically connected to Wetland E. Wetland A drains southwest through Watercourse 1 (trib to Herron Creek/Hoskins Drain H6200) via an existing culvert (at the existing two-track drive) and discharges west into Wetland E. Wetland B is entirely contained within the north-central portion of the Site. Wetland C is largely on-site; however, appears to drain off-site at the base of the railroad embankment.

Herbaceous vegetation generally observed within Wetlands A, B, and C include sedges (*Carex intumescens*; FACW, *C. lacustris*, *C. stricta*, and *C. vulpinoidea*; OBL), reed canary grass (*Phalaris arundinacea*; FACW), sensitive fern (*Onoclea sensibilis*; FACW), cattails (*Typha angustifolia* & *T. latifolia*; OBL), and false nettle (*Boehmeria cylindrica*; OBL). Other less common herbaceous vegetation included skunk-cabbage (*Symplocarpus foetidus*; OBL), white avens (FAC), and stinging nettle (*Urtica dioica*; FAC). Common shrubs observed include common buckthorn (FAC), gray dogwood (FAC), silky dogwood (*C. amomum*; FACW), green ash (*Fraxinus pennsylvanica*; FACW), and common elderberry (*Sambucus canadensis*; FACW). Common vines include riverbank grape (*Vitis riparia*; FAC) and poison-ivy (*Toxicodendron radicans*; FAC). Tree species include cottonwood (FAC), silver maple (*Acer saccharinum*; FACW), American elm (FACW), box-elder (FAC), and swamp white oak (*Quercus bicolor*; FACW).

Wetland D is a vernal pool type forested wetland with standing water and sparse vegetation. This wetland is entirely contained within the northeast corner of the Site. It is unclear if this was man-made feature or not. Herbaceous vegetation observed include reed canary grass (FAC) and sedge (*Carex intumescens*; FACW). Dominant trees observed include common buckthorn (FAC) and American elm (FACW). Although Wetland D appears to contain largely open water with sparse vegetation, wetland-rated trees line the perimeter and was flagged due to the presence of hydric soil and hydrological indicators.

Wetland E is a largely emergent wetland that extends off-site to the west and south and is part of a larger wetland system adjoining Herron Creek. Herbaceous vegetation generally observed include sedges (*C. lacustris*, *C. stricta*, and *C. vulpinoidea*; OBL), reed canary grass (FACW), cattails (OBL), late goldenrod (*Solidago gigantea*; FACW), and stinging nettle (FAC). Common shrubs observed include gray dogwood (FAC), silky dogwood (FACW), red raspberry (*Rubus strigosus*; FAC), and common elderberry (FACW). Common vines include riverbank grape (FAC) and poison-ivy (FAC). Tree species include box-elder (FAC), American elm (FACW), and common buckthorn (FAC). Dense thickets of gray dogwood (FAC) and prickly-ash (FACU) were not flagged within the wetland's limits, unless obvious hydrological and soil indicators were strongly detected. Refer to *Wetland Delineation Report (Marx Wetlands LLC; Dated April 23, 2020)* provided in **Appendix IV**.

Fishbeck's Wetland Delineation (76.5-Acre):

Wetland A is a large extensive emergent wetland dominated with reed canary grass and corresponds with Wetland E (identified by MW). This wetland also corresponds to Township Wetland 29-1 and is contiguous with Herron Creek.

Wetland B is an emergent/forested/scrub-shrub wetland identified along the eastern property boundary, directly south of Sophiea Parkway. The western portion of this wetland is dominated

with box-elder trees and glossy buckthorn (*Frangula alnus*) trees and shrubs. Wetland sampling point SP-E was evaluated approximately 400 feet north-northeast of SP-B in forested wetland dominated by eastern cottonwood and glossy buckthorn trees. Sophiea Parkway, Laforet Circle, and associated residential properties are located on the north and east sides of Wetland B.

Wetland C was located in a depression within the disturbed areas (potentially previous mining/gravel pit area) of the overall portion of the site. The western half of this wetland contained standing water and cattails; the eastern half contained forested wetland dominated by eastern cottonwood trees. Refer to *Fishbeck's Wetland Report– WDV 17-06 (Fishbeck; Dated December 19, 2017)* provided in **Appendix IV**.

Vegetation Assessment

Several species associated with disturbed lands in the Great Lakes region were observed throughout these parcels. These include non-native species, invasive species, native species that are tolerant of human land uses, and native pioneer species that normally colonize land after activities are abandoned. Examples of these species present on the Site include smooth brome (non-native grass), (non-native forb), Eurasian honeysuckles (invasive shrub), common & English plantain (non-native forb), common buckthorn (invasive tree), multiflora rose (invasive shrub), autumn-olive (invasive shrub), tall goldenrod (native forb, but weedy), and cottonwood/trembling aspen (pioneer/early successional species).

The Vegetation ca. 1800 map produced by the Michigan Natural Features Inventory (MNFI) shows the Site appears to be part of an extensive sugar-maple forest spanning for many miles southward from the Red Cedar River. Refer to *Figure 3: Pre-settlement Vegetation/MNFI ca. 1800 map* in **Appendix I**. In addition, hardwood swamps were once scattered throughout this area as well, particularly corresponding with the large wetland complex associated with Herron Creek (Wetland A- delineated by Fishbeck/Wetland E- delineated by MW). Prior to extensive land clearing these shady forests were common on the flatter till plains of mid-Michigan. They often contained a wide variety of tree species, such as sugar maple, red maple, red oak, white oak, American beech, white ash, basswood, tulip tree, walnut, and hop-hornbeam. These forests were commonly cleared for agricultural purposes. It is likely the southern portion of the Site was cleared many decades ago for this purpose or used as gravel pits; notice the lighter color indicating open land in the 1983 USGS Topographic map (refer to Figure 1 in **Appendix I**). As twentieth century commercial and residential development began to fill in lands between East Lansing and Okemos, the southern portions of the Site was likely left idle due to the presence of adjacent wetland areas and the infeasibility of continuing agriculture on such a small scale. As a result, the Site contains both native and non-native plants that are able to recolonize.

Refer to the 1983 USGS Topographic map that depict light (gray) color indicating some areas of open/developed land in the property particularly near the disturbed upland fields and associated with historic filling activities (refer to Figure 1 in **Appendix I**). The areas of upland disturbed fields have a relatively low native mean Coefficient of Conservatism of 1.69 (adventive species were assumed as 0) is an overall indicator that this Site has been subjected to past disturbances.

The forested/scrub-shrub areas of the Site would normally have been cleared for agriculture; however, it is likely that these areas were retained due to the nearby wetlands. The upland scrub-shrub/forest areas are largely dominated by native hardwood forest trees, including early successional trees with a relatively weedy shrubs and groundcover plants. This land cover assemblage includes both native and non-native species. Examples of the species present on the Site include cottonwood, naturally established trees (i.e., black cherry, oaks, maples, elms, hickories), non-native smooth brome, and scattered common buckthorn (invasive). The tree species are likely the remaining native species, which are possibly descendent and/or residual from the original sugar maple-beech forest that likely occurred within this location. There is evidence that as vegetation recolonization progressed, the Site became relatively brushy in areas, particularly along forest edges and along the network of paths and two-track road where autumn-olive, Scotch pine, multiflora rose, Eurasian honeysuckles, and common buckthorn were more often observed. Therefore, due to the possible previous disturbances of habitat fragmentation, partial prior tree clearing, surrounding residential development of this general region of Meridian Township, etc., the areas of forest/scrub-shrub appear to contain a mix of non-native and native species within the understory; however, contains several native hardwood trees. The scrub-shrub/forest habitat's relatively low native mean Coefficient of Conservatism of 3.3 is an overall indicator that this site was modified in the past; however, does retain native forest remnant species and has the highest rating compared with the upland disturbed old fields and wetland habitat within the Site. Refer to the *Vegetation Lists* in **Appendix II**.

The wetland areas were identified in low-lying lands or small depressions within the Site and contain both native and non-native species. Examples of the species present on the Site include naturally established cottonwood, swamp white oak, white willow (non-native tree), common buckthorn (invasive), and reed canary grass (weedy native). The dominant plant species identified within the on-site wetlands was reed canary grass (aggressive, weedy native). This is likely because these wetlands may have not been subject to recent site disturbance or significant modifications, other than periodic flooding, siltation associated with the Herron Creek, adjacent land-use changes and installation of the two-tracks. The overall wetland habitat still has a relatively low native mean Coefficient of Conservatism of 2.5. Therefore, this overall rating indicates that this Site was likely modified in the past; however, the wetlands appear to contain several native species.



Photograph 5. View of upland disturbed old fields.



Photograph 6. Another typical view of the upland disturbed old fields littered with debris piles.



Photograph 7. Upland forest/scrub-shrub.



Photograph 8. Typical emergent/forested wetland (MW delineated Wetland A). No direct wetland impacts anticipated.



Photograph 9. Example of emergent wetland system, (Fishbeck delineated Wetland A/MW delineated Wetland A).



Photograph 10. Example of existing residences along Bennett Road.

Although the Developer intends to preserve as many trees as possible particularly within the higher quality habitats (i.e., wetland and forest habitats), the proposed development of the Site will require clearing some existing vegetation. The Site contains upland scrub-shrub/forest, consisting of non-native shrubs and native trees and nearby wetlands with both native and non-native species. The upland disturbed fields and portions of the upland scrub-shrub/forest will be converted into the proposed residential lots for the planned unit development.

No formal mitigation for vegetation removal has been planned. Traditional landscape grass, shrub, and tree plantings are expected for this development; however, no formal landscaping plans are designed at this time. It is likely that much of the existing vegetation, particularly some of the large or remnant trees may be incorporated into the traditional landscaping to meet open/green space requirements.

4.4 Tree Inventory

Separate from MW's natural features assessment and wetland delineation conducted in April of 2020, a tree survey of the entire Site was conducted by others (i.e., provided by Benchmark Engineering and Craig Sturk). The tree data was provided to MW to accompany this inventory and impact assessment of natural features. The survey included trees considered "significant" or deserving special protection because of their size, relative rarity, or historical importance. During the tree survey, trees with a diameter at breast height (DBH) (the standard measure for tree size) of 12 inches or greater were located on the Site. Dead trees appear to have been excluded from this inventory. The trees were identified to species and their size recorded in a table (**Appendix III**).

The tree survey recorded roughly 1,095 protected trees (i.e., 12.0 inches DBH or larger) within or along site boundaries. The average tree size recorded for the on-site protected trees was approximately 18.0 inches DBH, with a maximum tree size documented at 54.0 inches DBH. Majority of the surveyed trees were hardwood species (approximately 87%) and primarily native species, including black cherry, cottonwood, oaks (*Quercus alba*, *Q. macrocarpa*, and *Q. rubra*), box-elder, maples (*Acer rubrum*, *A. saccharinum*, and *A. saccharum*), white ash (*Fraxinus americana*), American elm, hackberry (*Celtis occidentalis*), basswood, black walnut, American beech, ironwood, and musclewood. Some planted, non-native, and/or escaped species recorded include honey-locust (*Gleditsia triacanthos*), Norway maple (*Acer platanoides*), black locust (*Robinia pseudoacacia*), and apple species (*Malus spp.*). Approximately 13% of the surveyed trees were softwood species include red pine (*Pinus resinosa*), white pine (*Pinus strobus*), Scotch pine (*Pinus sylvestris*), Norway spruce (*Picea abies*), and white-cedar (*Thuja occidentalis*). Refer to the *Table 1. Tree Summary Table* (next page).

Table 1. Tree Summary Table.

<u>Common Name</u>	<u>Scientific Name</u>	<u>TOTALS</u>
Black Cherry	<i>Prunus serotina</i>	202
Box-elder	<i>Acer negundo</i>	194
Cottonwood	<i>Populus deltoides</i>	175
White Pine	<i>Pinus strobus</i>	113
Red Oak	<i>Quercus rubra</i>	77
Black Walnut	<i>Juglans nigra</i>	75
Sugar Maple	<i>Acer saccharum</i>	38
Fagus grandifolia	<i>American Beech</i>	36
Norway Maple	<i>Acer platanooides</i>	28
White Oak	<i>Quercus alba</i>	24
Norway Spruce	<i>Picea abies</i>	23
American Elm	<i>Ulmus americana</i>	20
Red Maple	<i>Acer rubrum</i>	18
Basswood	<i>Tilia americana</i>	13
Hackberry	<i>Celtis occidentalis</i>	11
White Ash	<i>Fraxinus americana</i>	11
Willow	<i>Salix species</i>	6
Silver Maple	<i>Acer saccharinum</i>	5
Scotch Pine	<i>Pinus sylvestris</i>	5
Bur Oak	<i>Quercus macrocarpa</i>	4
Apple	<i>Malus pumila</i>	3
Black Locust	<i>Robinia pseudoacacia</i>	2
Honey-Locust	<i>Gleditsia triacanthos</i>	2
Red Pine	<i>Pinus resinosa</i>	2
White-Cedar	<i>Thuja occidentalis</i>	2
Ironwood	<i>Ostrya virginiana</i>	1
Hornbeam/Musclewood	<i>Carpinus caroliniana</i>	1
Tree-of-Heaven	<i>Ailanthus altissima</i>	1
White Mulberry	<i>Morus alba</i>	1
Hickory	<i>Carya species</i>	1
		1094

Impact Assessment

The areas associated with the proposed lots and roadways indicate that approximately 465 protected (i.e., 12 inches DBH or larger) trees (approximately 400 hardwood trees and 65 softwood trees) will be removed. The tree clearing areas appear to contain non-protected (less than 12 inches DBH in size) trees, protected native hardwood tree species (i.e., oaks, black walnut, cottonwood, black cherry, white ash, maples, etc.), and non-native or weedy species, such as Norway maple, Norway spruce, Scotch pine, black locust, and box-elder. **Please note that this is a rough estimate and would be subject to change depending on grading extents.**

Tree clearing activities are primarily restricted to the southern (six parcels), which appear to contain more weedy or non-native tree species and contain a brushy shrub layer dominated by common buckthorn, Eurasian honeysuckles, and prickly-ash. The northeastern parcel (29-251-009) contains a relatively higher quality forest with remnant species of sugar maple-beech forests, which is not anticipated to be cleared or developed by the proposed PUD Site Plan. Refer to Sheet 3 of the *Preliminary Site Plan (Silverleaf Condominiums PUD)* provided in **Appendix III**.

In addition, the majority of the on-site protected trees will be retained post-construction and the higher quality areas (i.e., wetlands and forest habitats) does not appear to be directly impacted by proposed project activities. **Although some native species are proposed for removal, it is not anticipated that tree clearing activities will significantly impact the overall existing or available forest habitat within the Site or local region.**

4.5 Wetlands

Marx Wetlands LLC conducted a wetland determination and delineation for the approximately 22-acre parcel (29-251-009) on April 14, 2020. MW identified five (5) wetlands (Wetlands A, B, C, D, and E) and one (1) watercourse was identified, which appears to correspond with the Hoskins Drain (Ingham County Drain H6200-**Figure 4** in **Appendix I**). In addition, Fishbeck conducted a wetland delineation for the remaining parcels (approximately 76.5 acres) of the Site on November 28, 2017 and identified three wetland areas (Wetlands A, B, and C) and Herron Creek. Refer to the enclosed Wetland Delineation Reports (Marx Wetlands 2020 & Fishbeck 2017) (**Appendix IV**).

Meridian Township Natural Features Map (Figure 5 in **Appendix I**) depicts one (1) township mapped large wetland system that spans the entire Site in a roughly southwest-northeast orientation, which generally corresponds to the delineated wetlands as indicated by the Township's map. In addition, the National Wetland Inventory Map-NWI (Figure 6 in **Appendix I**) also indicates the Site contains wetland areas comprised of forested (PFO1C) and emergent (PEM1Ad) wetland types, which generally correspond to the delineated wetland areas and wetlands shown on the *Meridian Township's Natural Features Map*.

Regulations

State Regulations

Part 301, Inland Lakes and Streams, states that a feature is considered a regulated watercourse by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), if it possesses a defined bed, bank, and evidence of continued flow or a continued occurrence of water. Two (2) watercourses (Herron Creek and Hoskins Drain) were identified within the Site or along site boundaries and also appear to be designated Ingham County drains (Ingham County Drain). **These watercourses are anticipated to be regulated by EGLE under Part 301.**

Part 303, Wetlands Protection, of the NREPA states that if a wetland is five acres in size or larger and/or connected to or located within 500 feet of a river, stream, lake, or pond, it is considered regulated by the EGLE.

Fishbeck’s wetland delineation (WDV 17-06; Dated December 19, 2017) determined one (1) regulated wetland (Wetland A, large emergent system associated with Herron Creek). Wetlands B and C were determined as not likely EGLE regulated because they are less than 5 acres in size and do not appear to be contiguous (i.e., within 500 feet or connected to a regulating feature).

Marx Wetlands, LLC has the professional opinion that two (2) on-site wetlands (Wetlands A and E) are likely regulated by the EGLE. Wetlands A & E extend off-site and are contiguous to a regulating watercourse. Wetlands B, C, and D are less than five acres in size and are further than 500 feet of any obvious regulating features (i.e., pond, stream, drain, lake, etc.). However, Wetlands B and C may be considered regulated if a historic connection is determined to off-site wetlands (north) separated by the existing railroad. In addition, Wetland C appears to continue off-site within a ditch feature at the base of the railroad and may have a connection to the Herron Creek. *See below for the synopsis of MW’s findings for parcel 29-251-009 in a table format:*

Feature Name	Type*	Size (on-site acreage)	Regulated by the State of Michigan?	Meridian Township (Twp.) Regulated?
Wetland A	PEM/PFO	2.78 AC	Yes, connected to Watercourse 1	Likely
Wetland B	PEM/PFO	1.39 AC	Possibly, if a historic connection to a large (>5 ac wetland) north of the railroad is determined.	Likely, >0.25 acres in size
Wetland C	PEM/PFO	0.38 AC	Possibly if it drains to Herron Creek within the south railroad ditch.	Likely, >0.25 acres in size
Wetland D	PFO/Open Water	0.06 AC	Not Likely	Not Likely, unless determined essential for Twp.’s preservation
Wetland E	PEM	1.02 AC	Yes, >5 acres and contiguous to Watercourse 1	Likely

*PEM- Emergent; PSS- Scrub-shrub; PFO-Forested; Open water

Local Regulations

In addition, Meridian Township’s *Chapter 22 Environment, Article IV Wetland Protection*, states that protected wetlands include all wetlands subject to the regulation by the EGLE as well as any wetlands two acres* or more, in size, including the area of any contiguous inland lake, pond, river, or stream. Any wetlands less than two acres in size and not connected to a body of water may still be regulated, if it is determined that the protection of the area is important for the preservation of the state’s natural resources. In addition, any wetlands, equal to or greater than one-quarter acre and equal to or less than two acres in size, which are not contiguous to any inland lake, stream, river or pond and are determined to be essential to the preservation of the natural resources of the Township (Meridian Township- Code 1974, § 105-3; Ord. No. 2002-02, 3-19-2002; Ord. No. 2003-11, 7-6-2003; Ord. No. 2011-04, 3-15-2011).

According to Fishbeck’s wetland delineation (WDV 17-06; Dated December 19, 2017), Wetland A also falls under the jurisdiction of Meridian Township. Wetlands B and C were considered not regulated by EGLE’s Part 303; however, Wetland B could also be considered possibly regulated by Meridian Township if the preservation of the wetland is deemed essential for the Township’s natural resources.

MW has the professional opinion that four (4) wetlands A, B, C, and E on parcel 29-251-009 are likely regulated by Meridian Township. Wetland D is less than 0.25 acres in size and not contiguous to any regulating features; therefore, is not anticipated to be considered regulated by Meridian Township. However, please note that the wetland delineation conducted by MW has not been reviewed as part of a wetland verification conducted by Meridian Township's consultant.

Impact Assessment

The current site plan appears to avoid the regulated wetland and wetland buffers and minimizes native vegetation clearing to the maximum extent practicable. Therefore, it is the professional opinion of Marx Wetlands LLC that the current site plan appears to be a viable option for the development of the Site.

A permit or approval is likely required by the EGLE and/or Meridian Township for any proposed work (e.g., filling, dredging, construction, and draining and/or other development) that takes place within the boundaries of a regulated wetland. Most construction activities that take place outside of these boundaries do not require a wetland permit from the EGLE or Meridian Township. **Please note that the EGLE and Township have the final authority on the extent of regulated wetlands, lakes, and streams in the State of Michigan and Meridian Township, respectively.**

4.6 Special Flood Hazard Area

Flood Hazard Areas are those which are most likely to be inundated during flood events. Flood Hazard Areas are regulated by local, state, and federal regulations designed to reduce the damage to structures during floods. The regulations apply to areas within 100-year floodplains, which are defined by a one percent (1%) annual probability of flood occurrence. These areas are mapped by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps, or FIRMs. These maps were developed using flow modeling and the existing USGS topographic maps. The modeling produces an elevation associated with 100-year flood events, and areas below these elevations are designated as the 100-year floodplains.

FEMA FIRMs for Ingham County were reviewed to determine if portions of the Site are mapped as floodplains, floodways, or other flood prone areas. These maps record the following data: 100-year (1% chance of annual flooding) and 500-year (0.2% annual chance of flooding) floodplains, the height of the base flood elevation, and the risk to premium areas developed across a floodplain. A review of FEMA FIRM Panel No. 26065C0154D, (eff. 8/16/2011) revealed that the Site contains a 100-year floodplain mapped as Zone AE (with available Base Flood Elevation- BFE at approximately 847 feet above sea level) associated with the Herron Creek (off-site) and associated wetlands within the Site. The remaining areas within the Site are mapped as Zone X: an area that is determined to be outside the 100-year floodplain. Refer to *Figure 7: Flood Insurance Rate Map* in **Appendix I**.

FIRM maps can incorrectly show areas of 100-year floodplain. In such cases, a site's topography can be surveyed using modern techniques. When such studies show that the mapped floodplain

is above the determined flood elevation or that the FIRM is otherwise inaccurate, this information can be sent to the National Flood Insurance Program to obtain a Letter of Map Amendment (LOMA) which officially changes the area included within the floodplain.

Part 31, Water Resources Protection, of the NREPA regulates activities within the 100-year floodplain and floodway of a river, stream, or drain, and within the floodplain of any watercourse with an upstream drainage area of two square miles or larger. Most construction activities that take place above the designated 100-year floodplain elevation may not require EGLE permitting and/or approvals. The Herron Creek is anticipated to have an EGLE regulated 100-year floodplain that has an upstream drainage area larger than two square miles in size. **A floodplain elevation request or pre-application meeting through the EGLE can assist with the project development process and/or floodplain permitting, if applicable.**

Floodways

A *floodway* is the portion of the floodplain that is required to carry and discharge flood waters during a flood event. They have more rapidly moving water during flood events. They include river channels, upper banks, and adjacent areas that effectively become part of the water transit process during a flood. The FIRM for Meridian Township shows that there is a floodway area associated with Herron Creek identified in the northwest corner of the parcel 29-300-023. No activities at the Site are anticipated to have any impact upon these floodway areas, nor will these floodway areas have any impact on development at the Site. **Therefore, it is the professional opinion of Marx Wetlands that the development will not directly impact any EGLE regulated 100-year floodways. However, a floodplain elevation or pre-application meeting request could help determine permit approvals or requirements, if applicable.**

4.7 Water Bodies

Streams, rivers, lakes, and many ponds are afforded legal protection under a combination of Township, county, state, and federal regulations pertaining to wetlands, flood prone areas, and water bodies. Any filling or alteration of these areas would typically require one or more permits from state agencies, county agencies, federal agencies, or Meridian Township.

A ditch feature was identified along the southern boundary of MW's delineated Wetland A, draining into Wetland E via an existing culvert, which appears to correspond Hoskins Drain (H6200 Ingham County Drain). A defined channel was identified within segments of the Site; however, loses stream morphology within portions of MW's delineated Wetlands A and E. It appears that this drain drains west, presumably into Herron Creek (off-site).

Herron Creek was identified in the northwest corner of parcel 29-300-023. Wetland E delineated by Marx Wetlands/Wetland A delineated by Fishbeck adjoins the Herron Creek. Refer to Photographs 11 and 12 (below) for the water features identified during the wetland delineation and natural features site visit in April of 2020.



Photograph 11. Herron Creek Drain at Bennett Road crossing (off-site).



Photograph 12. Hoskins Drain (H6200) identified within the Site

County Drain Information

According to the Ingham County Drain Map- Meridian Township SW (Figure 4 in **Appendix I**), the Site appears to contain the Hoskins Drain (H6200- Open) within the limits of on-site wetlands (Wetland E– delineated by MW and Wetland A– delineated by Fishbeck), presumably draining west into Herron Creek. Herron Creek Drain is also a designated Ingham County Drain (H2100). In addition, according to the Ingham County’s Meridian Township- SW map, another county drain, branch of Hoskins Drain is shown along the eastern boundary of the Site, which appears to lie within the limits of Wetland B- delineated by Fishbeck in 2017 (Refer to Figure 4 in **Appendix I**). Although a channel may not have been identified by Fishbeck, it is possible that a county drain easement still exists. Typically, county drains have an easement for construction and maintenance purposes and where development or structures are prohibited. **Therefore, be sure to contact the Ingham County Drain Commissioners office to see if the proposed site development requires any approvals or permits through Ingham County.**

Impact Assessment

Based on the available information acquired from Ingham County, it appears that the project is not anticipated to directly impact any existing drains. If the construction of the proposed roads to service the development will involve the installation of any culverts within the drains and/or enter the designated drain easements, approvals or permits through Ingham County and/or EGLE may be required. **Marx Wetlands LLC recommends that the Developer should formally consult Ingham County Drain Commissioner to determine if site development requires any easement approvals or permits.**

4.8 Soils

According to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey, the soils contained within Meridian Township, Ingham County) have been mapped largely with several soil types. Houghton muck, 0 to 1 percent slopes (Hn; 100% hydric rating), Adrian muck (Ad; 100% hydric rating), Colwood-Brookston loams (Co; 80% hydric rating), and Sebewa loam, 0 to 2 percent slopes (Sb; 95% hydric rating) generally correspond to

the delineated wetland areas and contain high percentages of hydric soil indicators. These soils are classified as hydric or contain hydric inclusions. Hydric soils are conducive to the growth and regeneration of hydrophytic vegetation by their ability to hold water for extended periods of time (USDA-NRCS 2010). The remaining soils (i.e., AnA-8%, CvraaB-5%, MaB-2%, MaC-0%, MeD2-0%, OsB-1%, OsC-1%, OtC-0%, OwB-0%, OwC-0%, RdB-0%, RdD-0%, SpB-0%, SpC-0%, ThA-10%, and UeB-0%) have low hydric ratings (10% or less) and are not classified as hydric. Refer to *Figure 8: County Soils Survey with Hydric Soils Ratings Map* in **Appendix I**.

Site balancing, filling, and subsurface excavation activities will take place within the limits of disturbance which are contained primarily within the areas of the more well-drained soil types, previously developed, and/or upland areas. The most suitable soils (with hydric ratings less than 10%) will largely be utilized on the Site for the proposed PUD development and roadways. Limited grading may occur in the county mapped Colwood-Brookston loams, but is situated within the upland and outside of the wetlands and 40-foot buffer.

Soil erosion and sedimentation control (SESC) measures will be installed and maintained by the Developer throughout the construction period, as required by the State of Michigan, Meridian Township, the Ingham County Drain Commissioner and will be removed once the entire Site has been stabilized. These measures will significantly reduce the possibility of soil erosion and the water transport of these soil materials, which could cause the degradation of areas receiving the Site's stormwater runoff.

4.9 Identified Areas of Groundwater Vulnerability

Areas of groundwater vulnerability are those areas where the hydrologic and geologic surface and subsurface setting makes the groundwater more vulnerable to contamination than in other areas. The wetland areas can be considered groundwater vulnerable or sensitive areas; however, anticipated construction activities on the Site will be outside the bounds of the regulated wetlands and wetland buffers. Based on the preliminary site plan (Figure 1.2 in **Appendix I**) provided to MW, the proposed development does not appear to directly impact any wetlands or other aquatic features; however, it is important to note that the site plan appears to be preliminary and is not intended to be used as a final construction plan.

It is MW's professional opinion that the proposed development should be designed minimize impacts to the natural features to the maximum extent practicable and follow standard SESC measures in accordance with local and state regulations in order to protect water quality of nearby wetland areas. **The current site plan (preliminary) appears to avoid direct impacts to the regulated wetland areas in Meridian Township and associated 40-foot wetland buffers.**

4.10 Slopes Greater than 20 Percent

Slopes of greater than 20% are highly susceptible to soil erosion which can lead to sedimentation in other on and off-site areas such as ponds, streams and lakes. The Site does not appear to contain significant slopes steeper than 20%. Moderate sloping (<10% slope) and local microtopographic relief was observed within the Site, particularly gradually sloping near areas of wetland. In addition, several of the on-site hills do not appear to reflect the Site's natural

topography and may suggest historic site grading and stockpiling (possibly associated with historic gravel pit or mining activities).

The development project is anticipated to follow structure and grading setbacks and requirements provided in Meridian Township ordinances. During construction, any slopes (if applicable) created by the project that are over 20% will be intentionally designed and stabilized with appropriate landscaping materials. Soil erosion and sedimentation control (SESC) measures will be placed and maintained in the areas necessary to control any erosion that may occur during construction.

The project is anticipated to meet state and local water quality standards and utilize the best available technologies that are necessary when considering the receiving waters and associated aquatic resources. Any excavated material and structures will be placed in upland (non-wetland). The project is not anticipated to significantly impact on-site features or impact any sensitive areas identified for groundwater vulnerability because the current site plan appears to avoid direct impacts to the likely regulated wetlands and buffers.

4.11 Wildlife

Evidence of wildlife presence has been observed throughout the Site in the form of both direct and indirect observations, including sightings, tracks, and droppings, although the amount of animal usage is naturally limited by the size of the Site and the surrounding commercial/rural context. Evidence of common wildlife were observed within the Site, including white-tailed deer (*Odocoileus virginiana*), gray squirrels (*Sciurus carolinensis*), turkey (*Meleagris gallopavo*), and raccoon (*Procyon lotor*). Squirrel evidence was mainly near the forested areas. Deer usage appeared most concentrated within the Site's interior and along the western boundary. Fresh deer and raccoon droppings were also observed. Several bird species, including red-tailed hawk (*Buteo jamaicensis*), Canada goose (*Branta canadensis*), sandhill crane (*Grus canadensis*), red-bellied woodpecker (*Melanerpes carolinus*), black-capped chickadees (*Poecile atricapillus*), mallard (*Anas platyrhynchos*), cardinal (*Cardinalis cardinalis*), red-winged blackbird (*Agelaius phoeniceus*), robin (*Turdus migratorius*), and blue jay (*Cyanocitta cristata*) were seen and heard during the on-site assessment.

It is likely that the Site or adjacent undeveloped areas may contain foraging habitat or resting grounds for numerous other wildlife, such as Monarch butterflies (*Danaus plexippus*), honeybees (*Apis mellifera*), mourning doves (*Zenaida macroura*), and eastern cottontail (*Sylvilagus floridanus*). Overall, the Site appears to contain species that can be considered urban or suburban wildlife, which are common across the Midwest. Typically, urban wildlife are mainly generalists species that have wide tolerance in diet and behavioral flexibility. They are very unlike threatened and endangered species, which are almost all specialized or restricted to unique habitats and intolerant of human disturbances.

The proposed site plan (Figure 1.2 in **Appendix I**) has been designed to minimize impacts to natural features, specifically regulated wetlands and their buffers. In addition, approximately 35 acres of upland open space has been incorporated into the site plan, which would likely provide

some habitat for wildlife post-construction. Majority of the on-site development is restricted to the upland disturbed old fields and/or forested/scrub-shrub areas of the Site. It appears that the proposed development has avoided on-site regulated wetlands and buffers to the maximum extent practicable. Therefore, any declines in certain very abundant wildlife species are not anticipated by the proposed site development. Wildlife will be temporarily displaced by the proposed development; however, the undeveloped portions of the Site (specifically the higher quality habitats- wetlands, drains, forest, etc.) will remain relatively intact post-construction. It is anticipated that some of these common urban and suburban wildlife species will continue to use the Site after the completion of the development.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The proposed Site was reviewed for remnant and existing natural resources and features. The approximately 93.90-acre Site spans seven (7) parcels (29-300-008, 29-300-023, 29-300-020, 29-300-021, 29-300-025, 29-300-026, and 29-251-009) and is located north of Bennett Road and approximately 0.25 miles east of South Hagadorn Road within section 29 of Meridian Township, Ingham County, Michigan. The Site is bound by undeveloped property and a railroad to the north; residential properties connecting to Sophiea Parkway and Creekstone Trail, the Okemos Public Schools bus garage and Schultz Veterinary Clinic to the east; Bennett Road, and the College Fields Golf Club to the south and west.

The Site largely contains undeveloped land, consisting of areas of upland, disturbed fields, upland scrub-shrub/forest and wetland. In addition, debris, concrete, asphalt piles and old machinery were also identified, particularly within the west-central portions of the Site. Existing single-family and vacant residences were identified along Bennett Road. Mowed paths and a two-track were also observed throughout the Site. One (1) house was observed within the southeast quadrant of the Site, north of Bennett Road. MW identified four (4) likely regulated wetlands (Wetlands A, B, C, and E) and one (1) county drain (Hoskins Drain; H6200) within parcel 29-251-009 on April 14, 2020. Fishbeck identified one (1) EGLE regulated wetland (Wetland A) and Herron Creek within the southern six parcels in November 2017. Also, Fishbeck anticipates that Wetland B is also likely regulated by Meridian Township as well. **All wetlands (regulated by both EGLE and Meridian Township) and the 40-foot buffers appear to be outside of the proposed project footprint.**

Most of the on-site soils are upland sandy loams or loamy sands that formed under what was once a sugar maple-beech forest, which appear to be largely original to the Site, particularly in the northeastern portions of the Site. Vegetated stockpiles identified in the west-central portions may contain both fill and natural material. The delineated wetland areas contain mainly mucky soils and sandy loams with some hydric inclusions.

It is likely that this Site was once a small portion of that expansive sugar-maple forest which covered many acres but was cleared for agriculture or development. The northeastern parcel appears to contain a few indicator species (e.g., sugar maple, beech, musclewood, basswood, red oak, and ironwood) that could be considered a remnant area of the larger forest system (pre-

settlement). Within the last few decades this Site has been surrounded by roads and growing commercial and residential development. Wildlife that appear to utilize the Site are common in urban and suburban landscapes. It is anticipated that their populations will not be significantly affected by the development of this Site. Vegetation on the Site includes common native trees with a brushy and weedy understory of invasive shrubs, and relatively common native and non-native groundcover species. The loss of vegetation due to development on the Site will occur, though the species lost are very unlikely to include any that are locally rare (i.e. rare county-wide) or state threatened and endangered. There are several trees on the Site which are in good condition, which includes largely native hardwood species, some softwood species, and a few planted/non-native species. The natural heritage on this Site appears to be the native vegetation and wetland habitats.

The proposed development is positioned to utilize the upland areas within the overall Site to the maximum extent practicable, while avoiding sensitive and regulated areas (i.e., wetlands/40-foot buffer, 100-year floodplains, and drains). The areas within the upland disturbed fields and scrub-shrub/forest are proposed for overall project footprint. Tree clearing and landscaping activities are anticipated largely within the proposed single-family residential lots and associated roadways.

The Developer's selection of the site plan included an analysis of alternative on-site layouts, while taking into consideration existing site conditions, specific project and site requirements, building requirements and setbacks, visibility and accessibility, safety, parking, traffic flow into and out of the Site, and existing natural features. The existing natural features (i.e., forest habitat, wetlands, drains, floodplains, etc.) have also limited site design options. The current design provides a convenient access to the proposed development while preserving the natural features, including woodlands and wetlands to the maximum extent practicable. The proposed site plan appears to preserve the natural resource values of the Site because of the avoidance of regulated wetlands and wetland buffers, and by incorporating some of the larger or native trees into the overall landscape design; and thereby, preserving them on the post-development landscape.

Final Notes:

- The delineated wetland areas and the 40-foot buffer in Meridian Township appear to be avoided by project activities and preserved to the maximum extent practicable. However, the conceptual site plan does not indicate if treated stormwater will remain on the property or discharge into the existing wetlands; therefore, engineered plans including the stormwater management, calculations, and design of the proposed stormwater basin should be reviewed to determine if regulated features will be impacted by project activities. **Therefore, if the treated stormwater runoff is proposed to directly discharge into the regulated wetlands, minor permits through Meridian Township and/or EGLE will likely be required.**
- **The Site contains a 100-year floodplain and floodway associated with the Herron Creek; however, the proposed site plan does not appear to impact below the designated 100-year floodplain elevation as depicted by FEMA Firm Maps. However, Marx Wetlands**

LLC recommends that a floodplain elevation request and/or pre-application meeting request through EGLE be considered to help determine permit requirements, if applicable.

- Although the site plan does not appear to directly impact any on-site drains, Marx Wetlands LLC recommends that the Developer formally consult the Drain Commissioners office of Ingham County to determine if site development requires any approvals or permits.

Therefore, through consideration of these factors and requirements, it appears that the preferred (preliminary) site plan is a viable option for the development of the proposed Site because it appears to avoid the regulated wetlands and buffers and minimizes native vegetation clearing to the maximum extent practicable. **However, the final notes listed above should be addressed and determined prior to the commencement of project activities.**

Thank you for the opportunity to provide this inventory and impact assessment of on-site natural features in regard to the proposed project. If you have any questions, please contact me at your convenience.

Sincerely,

Marx Wetlands, LLC



Bryana J. Guevara, CSWO (MI)
Environmental Scientist
ISA Certified Arborist #MI-4202A
Professional Wetland Scientist #2949

APPENDIX I

Figure 1.1: Site Location Map

Figure 1.2 Preliminary Site Plan (With Wetland Buffer Exhibit)

Figure 2: Aerial Imagery Map

Figure 3: Pre-settlement Vegetation/MNFI ca. 1800 map

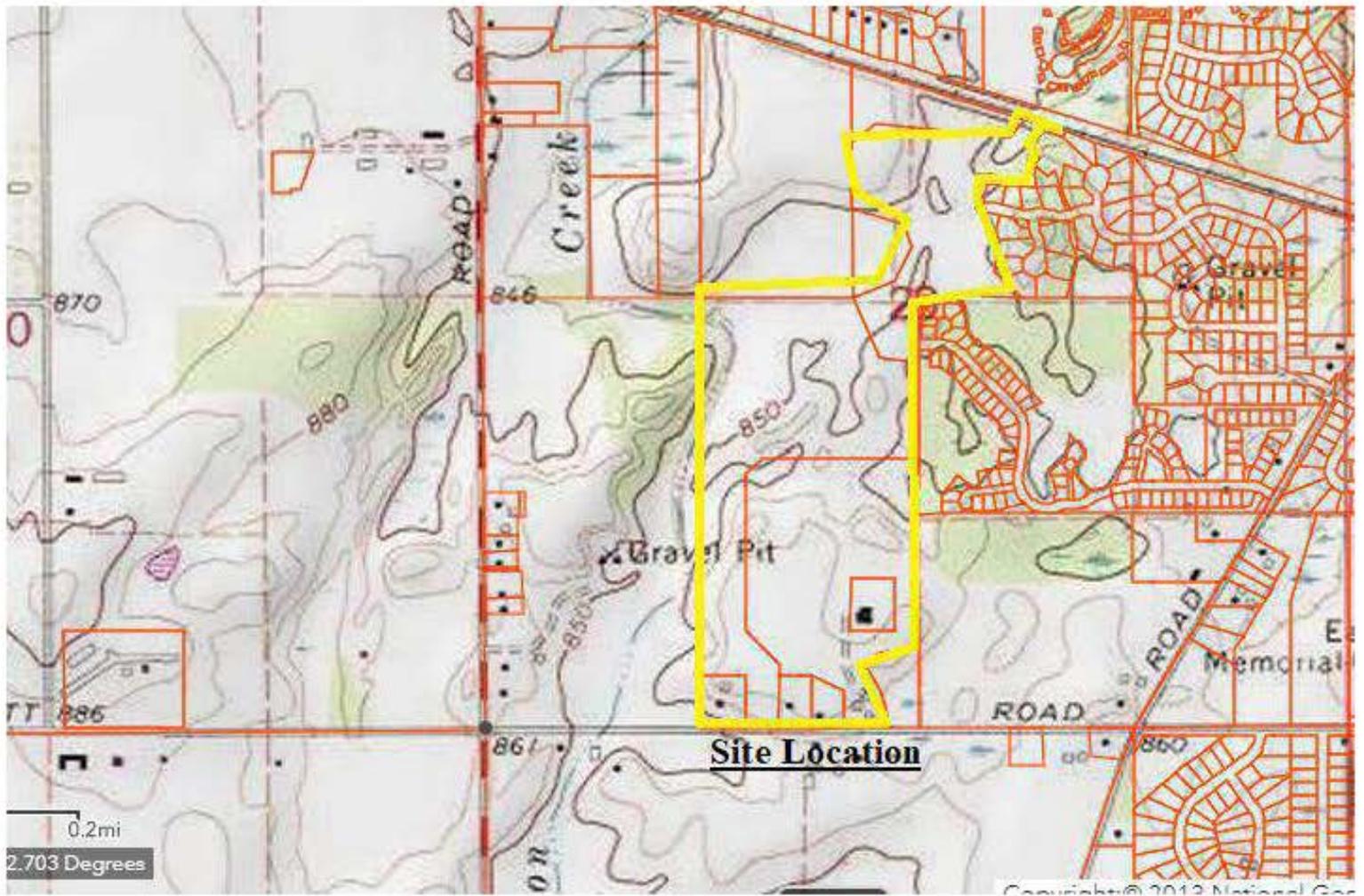
Figure 4: Ingham County Drain Map

Figure 5: Township Natural Features Map

Figure 6: National Wetland Inventory Map

Figure 7: Flood Insurance Rate Map

Figures 8: County Soils Survey-Hydric Soils Map

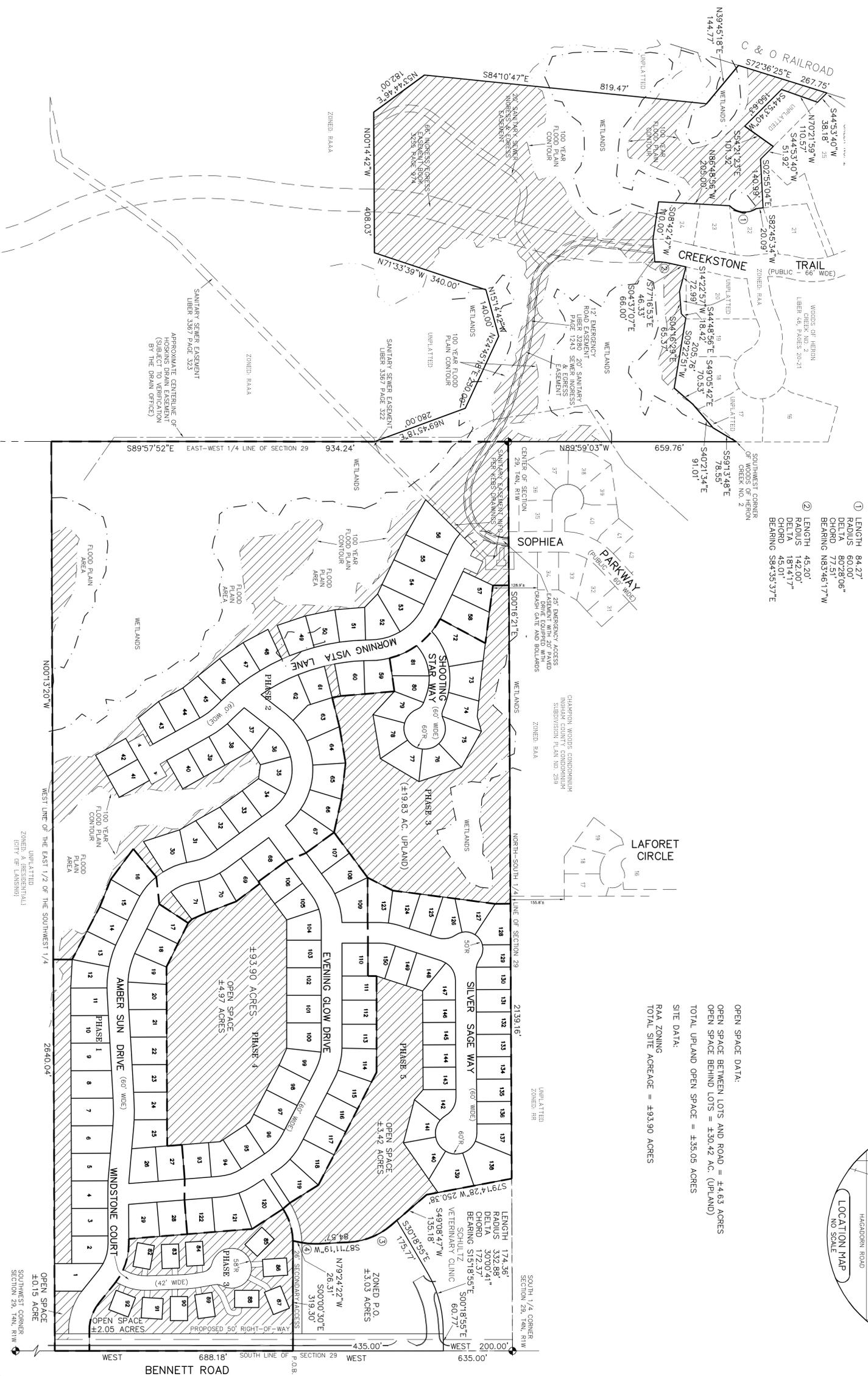


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 PH: (517) 371-5000
 CONTACT: BOB SCHROEDER

ENGINEER/SURVEYOR:
 KEBS, INC.
 2116 HASLETT RD.
 HASLETT, MI 48840
 PH: (517) 339-1014
 FAX: (517) 339-8047

OPEN SPACE PLAN SILVERLEAF CONDOMINIUM

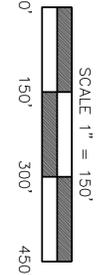
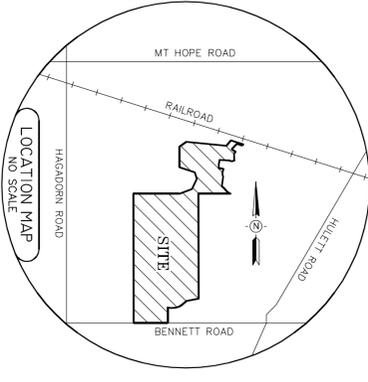
A SUBDIVISION OF PART OF THE NORTHEAST 1/4,
 NORTHWEST 1/4 & SOUTHWEST 1/4 OF SECTION 29,
 T4N, R1W, MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN



- ① LENGTH 84.27'
 RADIUS 60.00"
 DELTA 89°28'06"
 CHORD 77.51'
 BEARING N83°49'17"W
- ② LENGTH 45.20'
 RADIUS 142.00"
 DELTA 181°4'17"
 CHORD 45.01'
 BEARING S84°35'37"E

OPEN SPACE DATA:
 OPEN SPACE BETWEEN LOTS AND ROAD = ±4.63 ACRES
 OPEN SPACE BEHIND LOTS = ±30.42 AC. (UPLAND)
 TOTAL UPLAND OPEN SPACE = ±35.05 ACRES

SITE DATA:
 PAA ZONING
 TOTAL SITE AREA = ±93.90 ACRES



= UPLAND OPEN SPACE AREA

- ③ LENGTH 136.11'
 RADIUS 205.00"
 DELTA 133°02'32"
 CHORD 133.63'
 BEARING S68°10'03"W
- ④ LENGTH 50.30'
 RADIUS 215.00"
 DELTA 132°4'19"
 CHORD 50.19'
 BEARING N86°06'32"W

DATE
 PROFESSIONAL SURVEYOR NO. 54434
 DANE B. PASCOE

REVISIONS	COMMENTS
04/21/20	ORIGINAL

	KEBS, INC. ENGINEERING AND LAND SURVEYING
2116 HASLETT ROAD, HASLETT, MI 48840	
PH: 517-339-1014 WWW.KEBS.COM	
Meridian Office - Ph: 269-781-8800	
DRAWN BY KOB	SECTION 29, T4N, R1W
FIELD WORK BY	JOB NUMBER: 87297/SUB
SHEET 2 OF 3	

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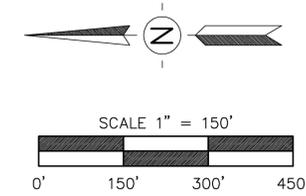
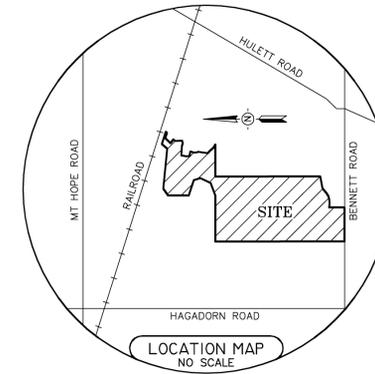
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TREE SURVEY PLAN

SILVERLEAF CONDOMINIUM

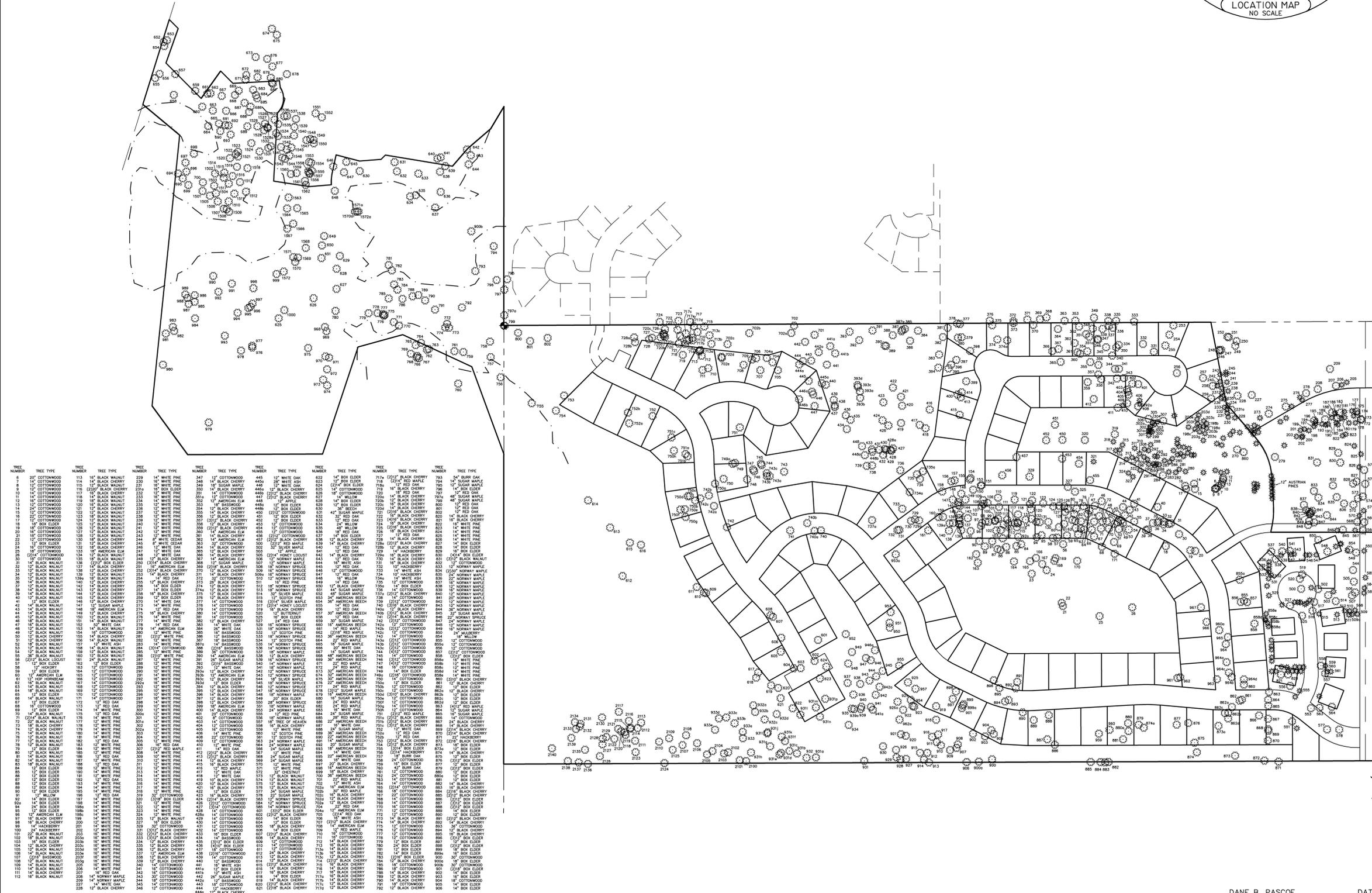
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NORTHWEST 1/4 & SOUTHWEST 1/4 OF SECTION 29,
T4N, R1W, MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN



LEGEND

- = BOUNDARY LINE
- - - = PROPOSED LOT LINE
- = DISTANCE NOT TO SCALE
- = DECIDUOUS TREE
- ⊛ = CONIFEROUS TREE
- 255 = IDENTIFYING TREE NUMBER

NOTE: TREES SHOWN THAT DO NOT HAVE AN IDENTIFYING NUMBER ARE LESS THAN 12" DIAMETER



TREE NUMBER	TREE TYPE	TREE NUMBER	TREE TYPE
807	12' BOX ELDER	893	(312) COTTONWOOD
808	12' BOX ELDER	894	(312) COTTONWOOD
809	12' BOX ELDER	895	(312) COTTONWOOD
810	12' BOX ELDER	896	(312) COTTONWOOD
811	12' BOX ELDER	897	(312) COTTONWOOD
812	12' BOX ELDER	898	(312) COTTONWOOD
813	12' BOX ELDER	899	(312) COTTONWOOD
814	12' BOX ELDER	900	(312) COTTONWOOD
815	12' BOX ELDER	901	(312) COTTONWOOD
816	12' BOX ELDER	902	(312) COTTONWOOD
817	12' BOX ELDER	903	(312) COTTONWOOD
818	12' BOX ELDER	904	(312) COTTONWOOD
819	12' BOX ELDER	905	(312) COTTONWOOD
820	12' BOX ELDER	906	(312) COTTONWOOD
821	12' BOX ELDER	907	(312) COTTONWOOD
822	12' BOX ELDER	908	(312) COTTONWOOD
823	12' BOX ELDER	909	(312) COTTONWOOD
824	12' BOX ELDER	910	(312) COTTONWOOD
825	12' BOX ELDER	911	(312) COTTONWOOD
826	12' BOX ELDER	912	(312) COTTONWOOD
827	12' BOX ELDER	913	(312) COTTONWOOD
828	12' BOX ELDER	914	(312) COTTONWOOD
829	12' BOX ELDER	915	(312) COTTONWOOD
830	12' BOX ELDER	916	(312) COTTONWOOD
831	12' BOX ELDER	917	(312) COTTONWOOD
832	12' BOX ELDER	918	(312) COTTONWOOD
833	12' BOX ELDER	919	(312) COTTONWOOD
834	12' BOX ELDER	920	(312) COTTONWOOD
835	12' BOX ELDER	921	(312) COTTONWOOD
836	12' BOX ELDER	922	(312) COTTONWOOD
837	12' BOX ELDER	923	(312) COTTONWOOD
838	12' BOX ELDER	924	(312) COTTONWOOD
839	12' BOX ELDER	925	(312) COTTONWOOD
840	12' BOX ELDER	926	(312) COTTONWOOD
841	12' BOX ELDER	927	(312) COTTONWOOD
842	12' BOX ELDER	928	(312) COTTONWOOD
843	12' BOX ELDER	929	(312) COTTONWOOD
844	12' BOX ELDER	930	(312) COTTONWOOD
845	12' BOX ELDER	931	(312) COTTONWOOD
846	12' BOX ELDER	932	(312) COTTONWOOD
847	12' BOX ELDER	933	(312) COTTONWOOD
848	12' BOX ELDER	934	(312) COTTONWOOD
849	12' BOX ELDER	935	(312) COTTONWOOD
850	12' BOX ELDER	936	(312) COTTONWOOD
851	12' BOX ELDER	937	(312) COTTONWOOD
852	12' BOX ELDER	938	(312) COTTONWOOD
853	12' BOX ELDER	939	(312) COTTONWOOD
854	12' BOX ELDER	940	(312) COTTONWOOD
855	12' BOX ELDER	941	(312) COTTONWOOD
856	12' BOX ELDER	942	(312) COTTONWOOD
857	12' BOX ELDER	943	(312) COTTONWOOD
858	12' BOX ELDER	944	(312) COTTONWOOD
859	12' BOX ELDER	945	(312) COTTONWOOD
860	12' BOX ELDER	946	(312) COTTONWOOD
861	12' BOX ELDER	947	(312) COTTONWOOD
862	12' BOX ELDER	948	(312) COTTONWOOD
863	12' BOX ELDER	949	(312) COTTONWOOD
864	12' BOX ELDER	950	(312) COTTONWOOD
865	12' BOX ELDER	951	(312) COTTONWOOD
866	12' BOX ELDER	952	(312) COTTONWOOD
867	12' BOX ELDER	953	(312) COTTONWOOD
868	12' BOX ELDER	954	(312) COTTONWOOD
869	12' BOX ELDER	955	(312) COTTONWOOD
870	12' BOX ELDER	956	(312) COTTONWOOD
871	12' BOX ELDER	957	(312) COTTONWOOD
872	12' BOX ELDER	958	(312) COTTONWOOD
873	12' BOX ELDER	959	(312) COTTONWOOD
874	12' BOX ELDER	960	(312) COTTONWOOD
875	12' BOX ELDER	961	(312) COTTONWOOD
876	12' BOX ELDER	962	(312) COTTONWOOD
877	12' BOX ELDER	963	(312) COTTONWOOD
878	12' BOX ELDER	964	(312) COTTONWOOD
879	12' BOX ELDER	965	(312) COTTONWOOD
880	12' BOX ELDER	966	(312) COTTONWOOD
881	12' BOX ELDER	967	(312) COTTONWOOD
882	12' BOX ELDER	968	(312) COTTONWOOD
883	12' BOX ELDER	969	(312) COTTONWOOD
884	12' BOX ELDER	970	(312) COTTONWOOD
885	12' BOX ELDER	971	(312) COTTONWOOD
886	12' BOX ELDER	972	(312) COTTONWOOD
887	12' BOX ELDER	973	(312) COTTONWOOD
888	12' BOX ELDER	974	(312) COTTONWOOD
889	12' BOX ELDER	975	(312) COTTONWOOD
890	12' BOX ELDER	976	(312) COTTONWOOD
891	12' BOX ELDER	977	(312) COTTONWOOD
892	12' BOX ELDER	978	(312) COTTONWOOD
893	12' BOX ELDER	979	(312) COTTONWOOD
894	12' BOX ELDER	980	(312) COTTONWOOD
895	12' BOX ELDER	981	(312) COTTONWOOD
896	12' BOX ELDER	982	(312) COTTONWOOD
897	12' BOX ELDER	983	(312) COTTONWOOD
898	12' BOX ELDER	984	(312) COTTONWOOD
899	12' BOX ELDER	985	(312) COTTONWOOD
900	12' BOX ELDER	986	(312) COTTONWOOD
901	12' BOX ELDER	987	(312) COTTONWOOD
902	12' BOX ELDER	988	(312) COTTONWOOD
903	12' BOX ELDER	989	(312) COTTONWOOD
904	12' BOX ELDER	990	(312) COTTONWOOD
905	12' BOX ELDER	991	(312) COTTONWOOD
906	12' BOX ELDER	992	(312) COTTONWOOD
907	12' BOX ELDER	993	(312) COTTONWOOD
908	12' BOX ELDER	994	(312) COTTONWOOD
909	12' BOX ELDER	995	(312) COTTONWOOD
910	12' BOX ELDER	996	(312) COTTONWOOD
911	12' BOX ELDER	997	(312) COTTONWOOD
912	12' BOX ELDER	998	(312) COTTONWOOD
913	12' BOX ELDER	999	(312) COTTONWOOD
914	12' BOX ELDER	1000	(312) COTTONWOOD

DANE B. PASCOE
PROFESSIONAL SURVEYOR NO. 54434

DATE
NO. 54434

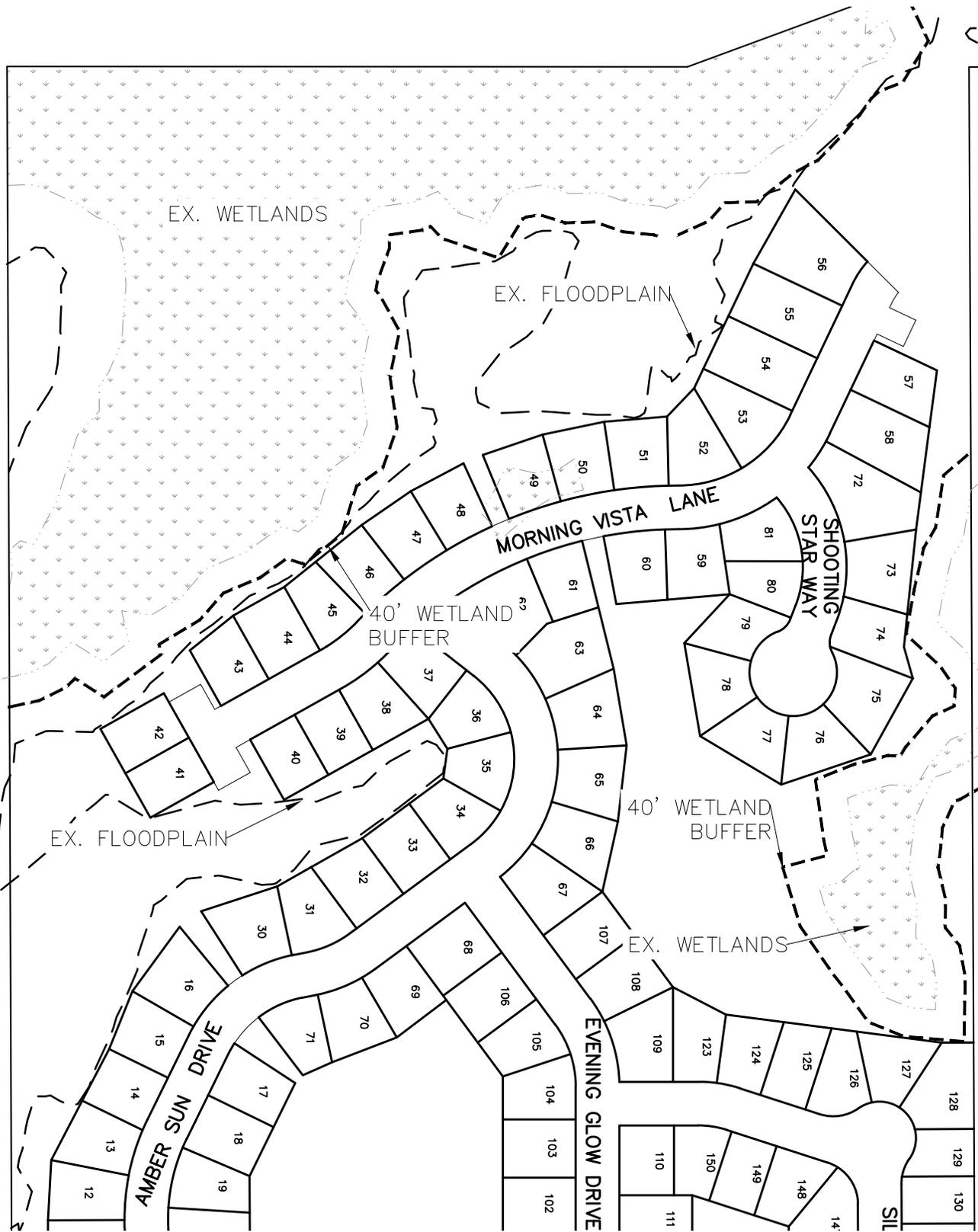
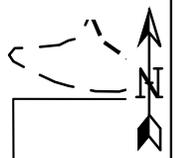
REVISIONS	COMMENTS
04/21/20	ORIGINAL

KEBS, INC. ENGINEERING AND LAND SURVEYING
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX 517-339-8047
WWW.KEBS.COM

Marshall Office - Ph. 269-781-9800

DRAWN BY KDB SECTION 29, T4N, R1W
FIELD WORK BY --- JOB NUMBER:
SHEET 3 OF 3 87297.SUB

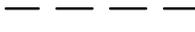
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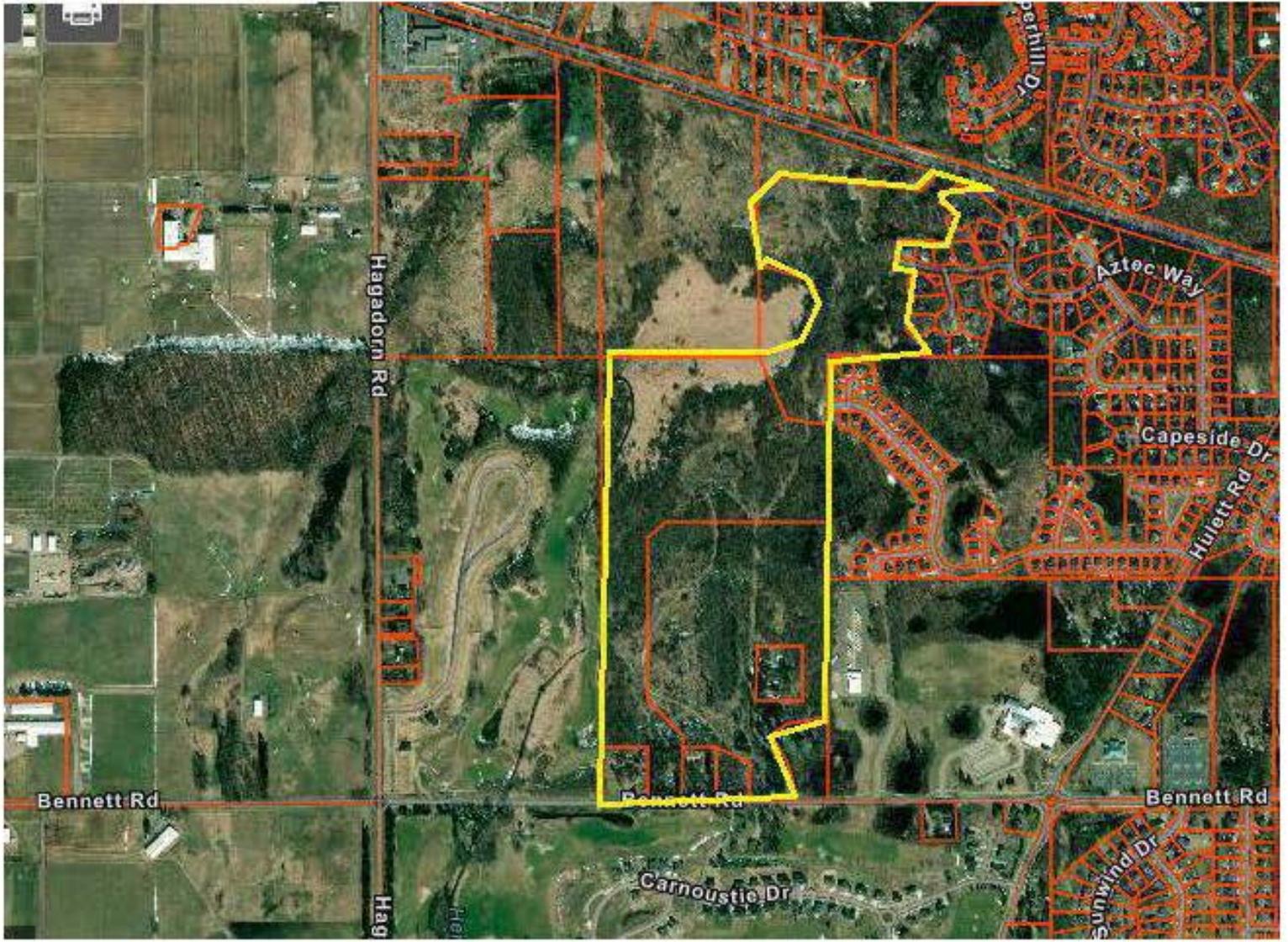
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LEGEND

-  EXISTING WETLAND
-  EXISTING 40' WETLAND BUFFER
-  APPROX. ASSESSMENT AREA

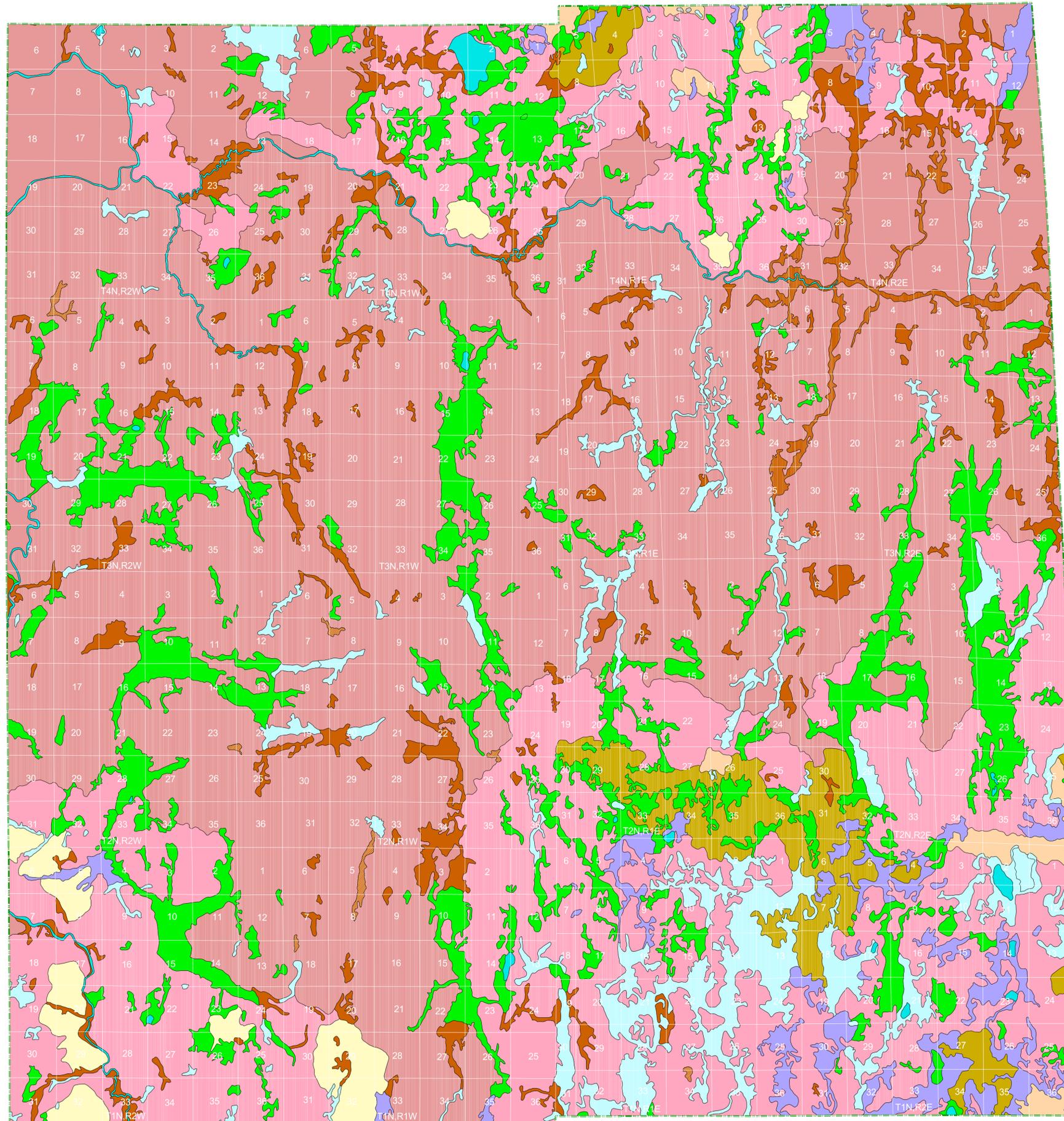
DATE: APR. 23, 2020		REVISIONS:		CLIENT: MAYBERRY HOMES		SECTION: 29		 MARX WETLANDS, LLC. 3309 PLATT ROAD ANN ARBOR, MICHIGAN 48108 (734) 478-8277
DB: BS	CB: BG			SILVERLEAF CONDOMINIUM		TOWN 04 NORTH, RANGE 01 WEST		
SHEET NO.				WETLAND BUFFER EXHIBIT		MERIDIAN TOWNSHIP		
01						INGHAM COUNTY, MICHIGAN		



Vegetation circa 1800 of Ingham County, Michigan

An Interpretation of the General Land Office Surveys

By P. J. Comer and D. A. Albert
Michigan Natural Features Inventory
1997



Legend

- ASPEN-BIRCH FOREST
 - BEECH-SUGAR MAPLE FOREST
 - BEECH-SUGAR MAPLE-HEMLOCK FOREST
 - BLACK ASH SWAMP
 - BLACK OAK BARREN
 - CEDAR SWAMP
 - GRASSLAND
 - HEMLOCK-WHITE PINE FOREST
 - HEMLOCK-YELLOW BIRCH FOREST
 - JACK PINE-RED PINE FOREST
 - LAKE/RIVER
 - MIXED CONIFER SWAMP
 - MIXED HARDWOOD SWAMP
 - MIXED OAK FOREST
 - MIXED OAK SAVANNA
 - MIXED PINE-OAK FOREST
 - MUSKEG/BOG
 - OAK-HICKORY FOREST
 - OAK-PINE BARREN
 - PINE BARREN
 - SAND DUNE
 - SHRUB SWAMP/EMERGENT MARSH
 - SPRUCE-FIR-CEDAR FOREST
 - WET PRAIRIE
 - WHITE PINE-MIXED HARDWOOD FOREST
 - WHITE PINE-RED PINE FOREST
 - WHITE PINE-WHITE OAK FOREST
- = LAND COVER TYPE PRESENT ON THIS MAP



Scale 1:80,000



Map Projection: Lambert Conformal Conic

SOURCE: Comer, P.J., D.A. Albert, H.A. Wells, B.L. Hart, J.B. Raab, D.L. Price, D.M. Kashian, R.A. Comer, D.W. Schuen (Map Interpretation), M.B. Austin, T.R. Leibfried, K.M. Koroch, L. Prange-Gregory, J.G. Spitzley, C.J. Delain, L.J. Springer, (Digital Map Production). 1995. Michigan's Presettlement Vegetation, as Interpreted from the General Land Office Surveys 1816-1856. Michigan Natural Features Inventory, Lansing, MI. Digital Map.



MERIDIAN TOWNSHIP SW, T.4N. - R.1W. , INGHAM COUNTY, MICHIGAN



PATRICK E. LINDEMANN
INGHAM COUNTY DRAIN COMMISSIONER

PRELIMINARY

MERIDIAN TOWNSHIP SW DRAIN MAP
T.4N. - R.1W.
INGHAM COUNTY, MICHIGAN



LEGEND

- MUNICIPAL BOUNDARIES
- SECTIONS
- COUNTY
- DRAINAGE DISTRICT BOUNDARIES
- OPEN DRAIN
- CLOSED DRAIN
- ROADS
- RAILROADS
- NATURAL WATERCOURSE

RED = FORMERLY KNOWN AS

DISCLAIMER:

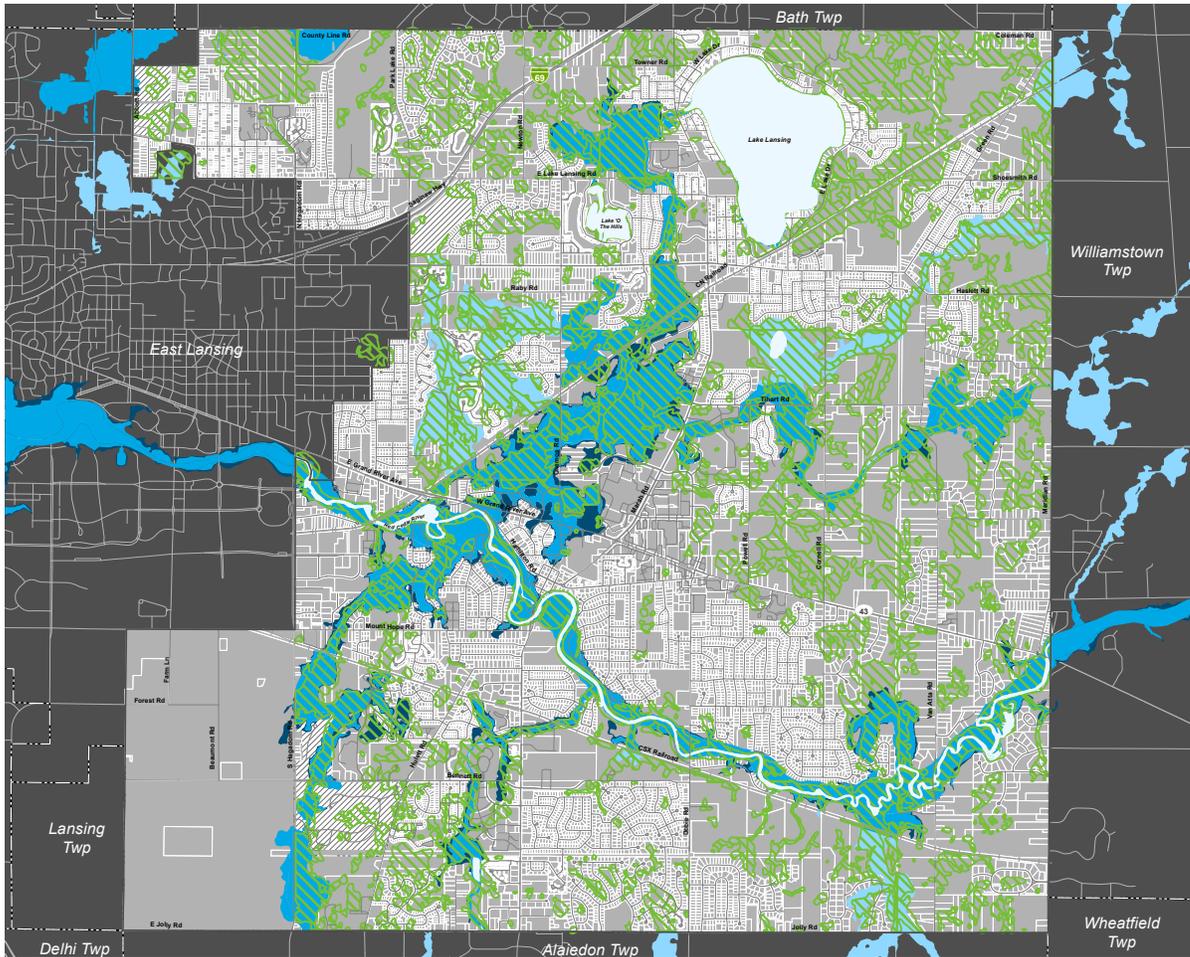
This map is a generalized representation of established drain routes and courses and/or drainage district boundaries. It is provided by the Ingham County Drain Commissioner for reference and display purposes only and does not confirm, create, refute, remove, expand, alter or otherwise affect any rights or obligations recognized or imposed by federal, state or local law, ordinance, regulation or rule.

0 0.13 0.25 0.5 Miles

1 INCH = 500 FEET

DRAIN INDEX

DRAIN NO	DRAIN NAME	DRAIN NO	DRAIN NAME	DRAIN NO	DRAIN NAME
A0900	ARMORE DRAIN	G2101	GRETENBURGER RELIEF DRAIN	N1300	NORTHWIND DRAIN
A2100	ADDISON DRAIN	H0300	HANNAH FARM DRAIN	O0200	OKEMOS PRESERVE DRAIN
B2804	BUTTON SPRING LAKES BRANCH DRAIN	H2100	HERRON CREEK DRAIN	O0400	OKEMOS DRAIN
B3600	BRIARWOOD DRAIN	H6200	HOSKINS DRAIN	O0900	OKEMOS TILE DRAIN
B4013	BANTA CONSOLIDATED DRAIN	I0200	INDIAN HILLS DRAIN	P1500	PROCTOR DRAIN
B5100	BIEBESHIEMER DRAIN	I0600	INDIAN LAKES DRAIN	R0100	RABY DRAIN
B5200	BENNETT DRAIN	I0602	INDIAN LAKES NO. 2 DRAIN	R1500	RIVERWOOD DRAIN AND BRANCHES DRAIN
C1000	CHIPPEWA HILLS DRAIN	I0603	INDIAN LAKES MAUMEE BRANCH DRAIN	S0200	SANCTUARY DRAIN
C8100	CIBA GEIGY DRAIN	K0400	KENT DRAIN	S2600	SPROSS DRAIN
D0202	DANIELS EXTENSION DRAIN	K1100	KINAWA VIEW DRAIN	S4520	SMITH CONSOLIDATED DRAIN
E0300	EBERLY DRAIN	M1700	MEADOWS DRAIN	S6000	SHAKER HEIGHTS DRAIN
E1600	EAST GATE DRAIN	M1800	MUD LAKE OUTLET DRAIN	T1800	SANDERS-TACOMA HILLS DRAIN
F0900	FOREST HILLS DRAIN	M2900	MELIERS DRAIN	T2100	TWYCKINGHAM DRAIN
G2100	GRETENBURGER DRAIN	N1200	NILSON DRAIN	U0200	UNRUH DRAIN



MAP 11

Natural Features

Meridian Charter Township
Ingham County, Michigan

January 17, 2017

Wetlands

 Wetlands

Flood Hazard Areas

 No Base Flood Elevations Determined

 Base Flood Elevations Determined

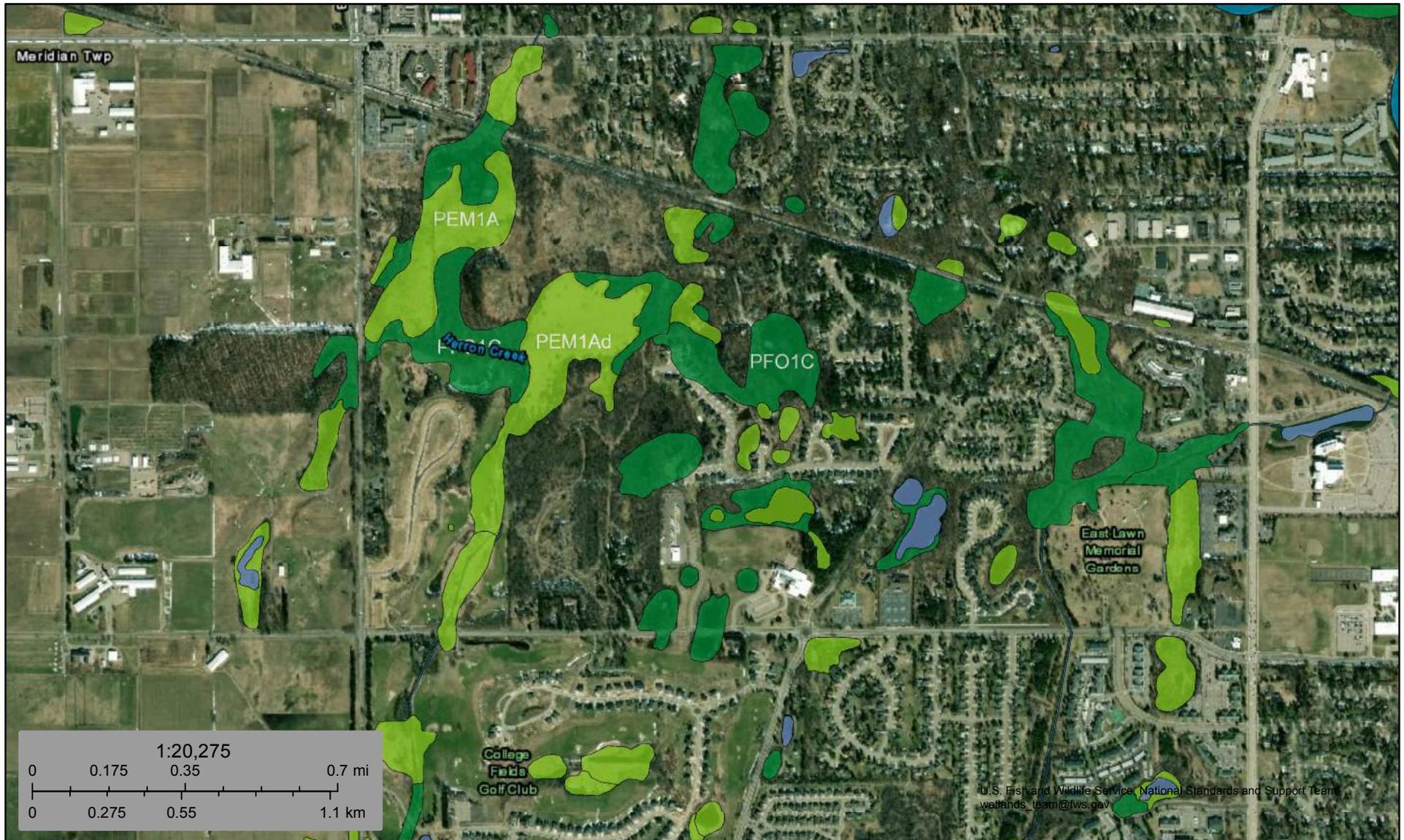
 500-year Flood Plain

 Cooperative Agreement

0 2,000 4,000 FEET

MCKenna
ASSOCIATES

Map Feature Source: Meridian Charter Township, 2016



April 10, 2020

Wetlands

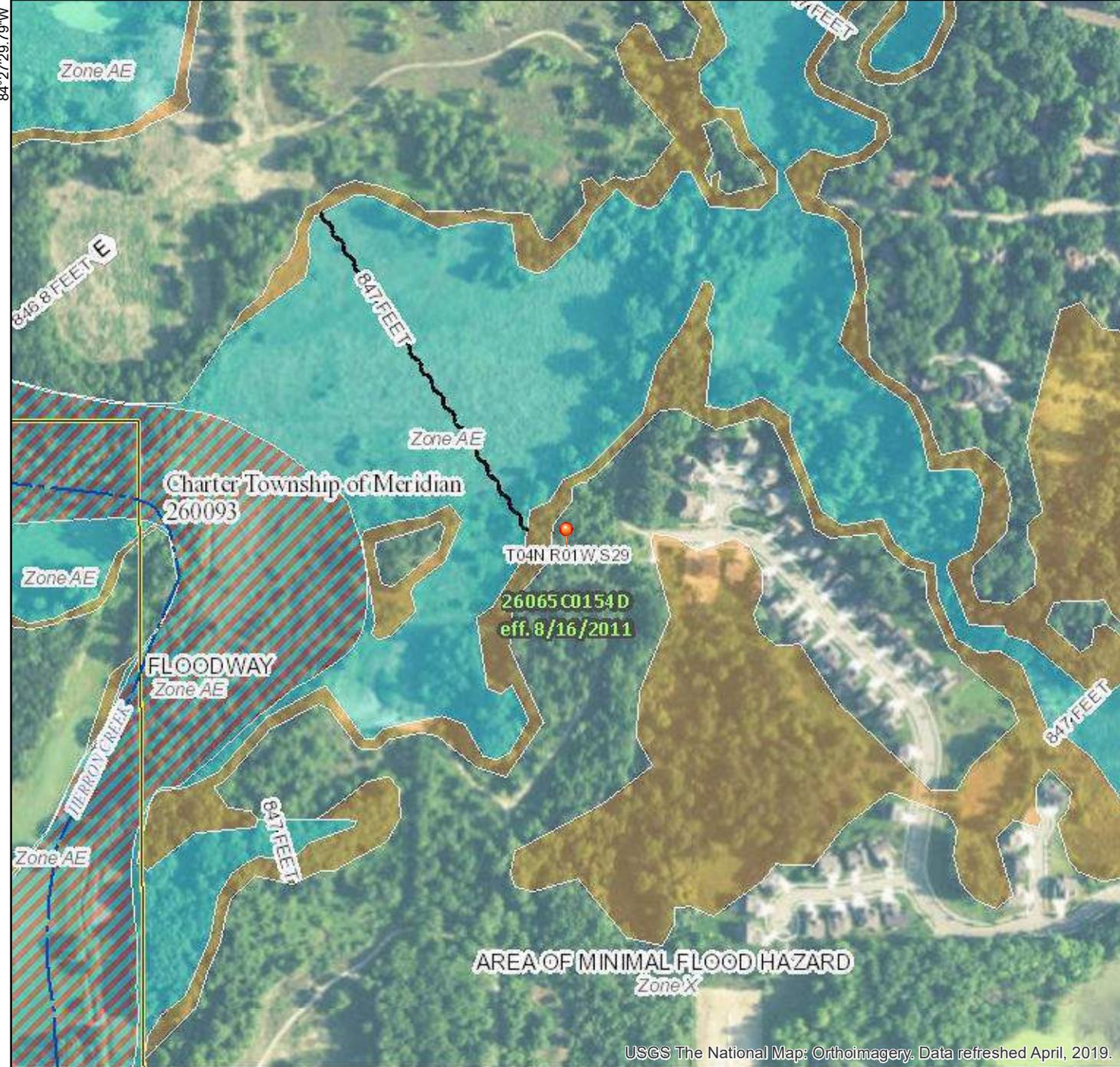
- | | | |
|--|---|--|
|  Estuarine and Marine Deepwater |  Freshwater Emergent Wetland |  Lake |
|  Estuarine and Marine Wetland |  Freshwater Forested/Shrub Wetland |  Other |
| |  Freshwater Pond |  Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Flood Hazard Layer FIRMette



42°42'26.92"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- | | | |
|------------------------------------|--|---|
| SPECIAL FLOOD HAZARD AREAS | | Without Base Flood Elevation (BFE)
Zone A, V, A99 |
| | | With BFE or Depth Zone AE, AO, AH, VE, AR |
| | | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X |
| | | Future Conditions 1% Annual Chance Flood Hazard Zone X |
| | | Area with Reduced Flood Risk due to Levee. See Notes. Zone X |
| | | Area with Flood Risk due to Levee Zone D |
| OTHER AREAS | | Area of Minimal Flood Hazard Zone X |
| | | Effective LOMRs |
| | | Area of Undetermined Flood Hazard Zone D |
| GENERAL STRUCTURES | | Channel, Culvert, or Storm Sewer |
| | | Levee, Dike, or Floodwall |
| OTHER FEATURES | | Cross Sections with 1% Annual Chance Water Surface Elevation |
| | | Coastal Transect |
| | | Base Flood Elevation Line (BFE) |
| | | Limit of Study |
| | | Jurisdiction Boundary |
| | | Coastal Transect Baseline |
| | | Profile Baseline |
| | | Hydrographic Feature |
| MAP PANELS | | Digital Data Available |
| | | No Digital Data Available |
| | | Unmapped |



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

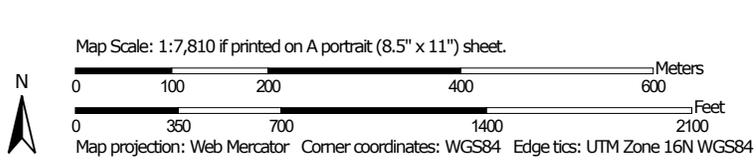
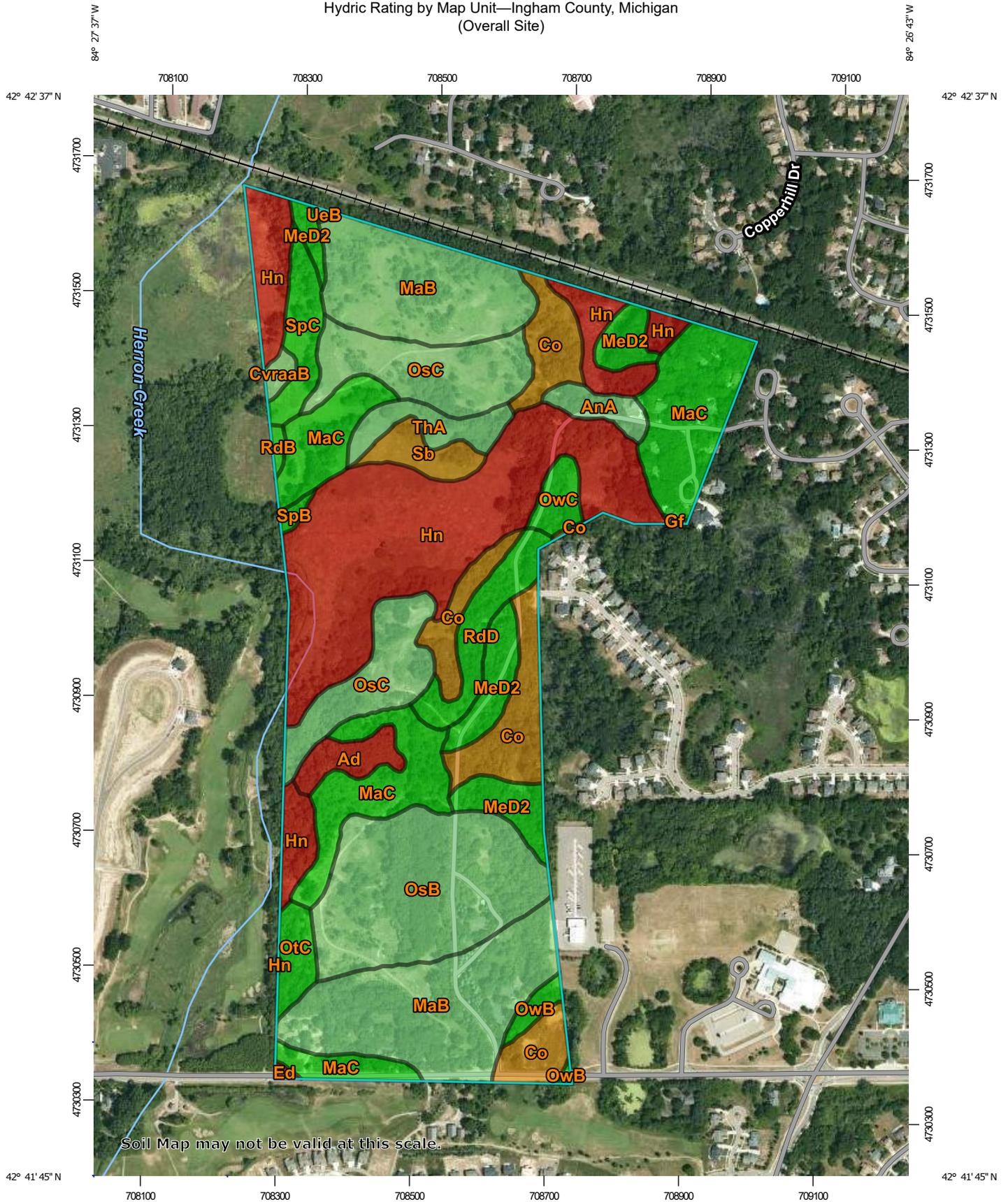
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/15/2020 at 1:50:37 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Hydric Rating by Map Unit—Ingham County, Michigan
(Overall Site)



Hydric Rating by Map Unit—Ingham County, Michigan
(Overall Site)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

Soil Rating Lines

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

Soil Rating Points

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ingham County, Michigan
Survey Area Data: Version 17, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 4, 2018—Jul 18, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ad	Adrian muck, 0 to 1 percent slopes	100	2.1	1.4%
AnA	Aubbeenaubbee-Capac sandy loams, 0 to 3 percent slopes	8	1.7	1.1%
Co	Colwood-Brookston loams	80	11.9	8.1%
CvraaB	Conover loam, 0 to 4 percent slopes	5	0.6	0.4%
Ed	Edwards muck, 0 to 1 percent slopes	100	0.1	0.1%
Gf	Gilford sandy loam, 0 to 2 percent slopes, gravelly subsoil	95	0.1	0.0%
Hn	Houghton muck, 0 to 1 percent slopes	100	32.9	22.3%
MaB	Marlette fine sandy loam, 2 to 6 percent slopes	2	25.2	17.1%
MaC	Filer fine sandy loam, Saginaw Lobe, 6 to 12 percent slopes	0	19.7	13.4%
MeD2	Marlette loam, 12 to 18 percent slopes, eroded	0	7.0	4.8%
OsB	Oshtemo sandy loam, 0 to 6 percent slopes	1	16.2	11.0%
OsC	Oshtemo sandy loam, 6 to 12 percent slopes	1	12.9	8.8%
OtC	Oshtemo-Spinks loamy sands, 6 to 12 percent slopes	0	1.9	1.3%
OwB	Owosso-Marlette sandy loams, 2 to 6 percent slopes	0	0.9	0.6%
OwC	Owosso-Marlette sandy loams, 6 to 12 percent slopes	0	1.6	1.1%
RdB	Riddles-Hillsdale sandy loams, 2 to 6 percent slopes	0	0.3	0.2%
RdD	Riddles-Hillsdale sandy loams, 12 to 18 percent slopes	0	3.9	2.6%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Sb	Sebewa loam, 0 to 2 percent slopes	95	2.2	1.5%
SpB	Spinks loamy sand, 0 to 6 percent slopes	0	0.4	0.2%
SpC	Spinks loamy sand, 6 to 12 percent slopes	0	3.1	2.1%
ThA	Thetford loamy sand, 0 to 3 percent slopes	10	2.7	1.8%
UeB	Urban land-Boyer-Spinks complex, 0 to 10 percent slopes	4	0.1	0.1%
Totals for Area of Interest			147.4	100.0%

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

APPENDIX II- VEGETATION LISTS

Table 1. Species list including scientific and common name, wetness indicator code (WET), wetness co-efficient (W), conservation co-efficient (C), nativity, habit, and occurrence of species identified at the Silverleaf Condominiums (Meridian Twp.) project site - Disturbed Upland Old Field

<i>Scientific Name</i>	Common Name	WET	W	C	Native	Habit	Occurrence
<i>Achillea millefolium</i>	Yarrow	FACU	3	1	Yes	Forb	Infrequent
<i>Agrostis gigantea</i>	REDTOP	FACW	-3	*	No	Forb	Occasional
<i>Asclepias syriaca</i>	Common Milkweed	UPL	5	1	Yes	Forb	Infrequent
<i>Bromus inermis</i>	SMOOTH BROME	UPL	5	*	No	Grass	Common
<i>Catalpa speciosa</i>	NORTHERN CATALPA	FACU	3	*	No	Tree	Infrequent
<i>Centaurea stoebe</i>	SPOTTED KNAPWEED	UPL	5	*	No	Forb	Common
<i>Cichorium intybus</i>	CHICORY	FACU	3	*	No	Forb	Occasional
<i>Cirsium arvense</i>	FIELD THISTLE	FACU	3	*	No	Forb	Infrequent
<i>Crataegus spp.</i>	Hawthorn species	FACU	3	Varies	Yes	Tree	Infrequent
<i>Dactylis glomerata</i>	ORCHARD GRASS	FACU	3	*	No	Grass	Common
<i>Daucus carota</i>	QUEEN ANNE'S LACE	UPL	5	*	No	Forb	Common
<i>Dipsacus fullonum</i>	TEASEL	FACU	3	*	No	Forb	Common
<i>Elaeagnus umbellata</i>	AUTUMN-OLIVE	UPL	5	*	No	Shrub	Occasional
<i>Juniperus virginiana</i>	Red-cedar	FACU	3	3	Yes	Tree	Occasional
<i>Phragmites australis subsp. australis</i>	COMMON REED	FACW	-3	*	No	Grass	Infrequent
<i>Pinus sylvestris</i>	SCOTCH PINE	UPL	5	*	No	Tree	Occasional
<i>Plantago lanceolata</i>	ENGLISH PLANTAIN	FACU	3	*	No	Forb	Common
<i>Plantago major</i>	COMMON PLANTAIN	FACU	3	*	No	Forb	Occasional
<i>Phleum pratense</i>	TIMOTHY	FACU	3	*	No	Grass	Occasional
<i>Poa compressa</i>	CANADA BLUEGRASS	FACU	3	*	No	Grass	Common
<i>Poa pratensis</i>	KENTUCKY BLUEGRASS	FACU	3	*	No	Grass	Common
<i>Populus deltoides</i>	Cottonwood	FAC	0	1	Yes	Tree	Occasional
<i>Prunus serotina</i>	Black Cherry	FACU	3	2	Yes	Tree	Infrequent
<i>Rubus allegheniensis</i>	Blackberry	FACU	3	1	Yes	Shrub	Occasional
<i>Rubus occidentalis</i>	Black Raspberry	UPL	5	1	Yes	Shrub	Occasional
<i>Rosa multiflora</i>	MULTIFLORA ROSE	FACU	3	*	No	Shrub	Occasional
<i>Salix eriocephala</i>	Willow	FACW	-3	2	Yes	Shrub	Infrequent
<i>Salix exigua</i>	Sandbar Willow	FACW	-3	1	Yes	Shrub	Infrequent
<i>Schizachyrium scoparium</i>	Little Bluestem	FACU	3	5	Yes	Grass	Infrequent
<i>Solidago altissima</i>	Tall Goldenrod	FACU	3	1	Yes	Forb	Common
<i>Solidago canadensis</i>	Canada Goldenrod	FACU	3	1	Yes	Forb	Occasional
<i>Toxicodendron radicans</i>	Poison-Ivy	FAC	0	2	Yes	Vine	Infrequent
<i>Verbascum blattaria</i>	MOTH MULLEIN	FACU	3	*	No	Forb	Infrequent
<i>Verbascum thapsis</i>	COMMON MULLEIN	UPL	5	*	N	Forb	Occasional
Count = 34	Average Wetness Co-efficient =		2.59				
	Average Conservation Co-efficient =			1.69			

Table 2. Species list including scientific and common name, wetness indicator code (WET), wetness co-efficient (W), conservation co-efficient (C), nativity, habit, and occurrence of species identified at the Silverleaf Condominiums (Meridian Twp.) project site - Upland Forest/Scrub-shrub

Scientific Name	Common Name	WET	W	C	Native	Habit	Occurrence
<i>Acer negundo</i>	Box-elder	FAC	0	0	Yes	Tree	Common
<i>Acer platanoides</i>	NORWAY MAPLE	UPL	5	*	No	Tree	Infrequent
<i>Acer rubrum</i>	Red Maple	FAC	0	1	Yes	Tree	Infrequent
<i>Acer saccharinum</i>	Silver Maple	FACW	-3	2	Yes	Tree	Infrequent
<i>Acer saccharum</i>	Sugar Maple	FACU	3	5	Yes	Tree	Occasional
<i>Alliaria petiolata</i>	GARLIC MUSTARD	FACU	3	*	No	Forb	Occasional
<i>Apocynum cannabinum</i>	Indian-hemp	FAC	0	3	Yes	Forb	Occasional
<i>Carex pensylvanica</i>	Penn Sedge	UPL	5	4	Yes	Sedge	Common
<i>Carpinus caroliniana</i>	Musclewood	FAC	0	6	Yes	Tree	Infrequent
<i>Cornus foemina</i>	Gray Dogwood	FAC	0	1	Yes	Shrub	Occasional
<i>Crataegus punctata</i>	Hawthorn	FACU	3	1	Yes	Tree	Infrequent
<i>Elaeagnus umbellata</i>	AUTUMN-OLIVE	FACU	3	*	No	Shrub	Infrequent
<i>Erythronium americanum</i>	Yellow Trout Lily	UPL	5	5	Yes	Forb	Occasional
<i>Fagus grandifolia</i>	American Beech	FACU	3	6	Yes	Tree	Occasional
<i>Fragaria virginiana</i>	Wild Strawberry	FACU	3	2	Yes	Forb	Common
<i>Fraxinus americana</i>	White Ash	FACU	3	5	Yes	Tree	Occasional
<i>Fraxinus pennsylvanica</i>	Green Ash	FACW	-3	2	Yes	Tree	Infrequent
<i>Geranium maculatum</i>	Wild Geranium	FACU	3	4	Yes	Forb	Infrequent
<i>Geum canadense</i>	White Avens	FAC	0	1	Yes	Forb	Occasional
<i>Hesperis matronalis</i>	DAME'S ROCKET	FACU	3	*	No	Forb	Common
<i>Juglans nigra</i>	Black Walnut	FACU	3	5	Yes	Tree	Occasional
<i>Lonicera maackii</i>	AMUR HONEYSUCKLE	UPL	5	*	No	Shrub	Common
<i>Lonicera morrowii</i>	MORROW HONEYSUCKLE	FACU	3	*	No	Shrub	Common
<i>Lonicera tatarica</i>	TARTARIAN HONEYSUCKLE	FACU	3	*	No	Shrub	Common
<i>Morus alba</i>	WHITE MULBERRY	FACU	3	*	No	Tree	Infrequent
<i>Ostrya virginiana</i>	Hophornbeam	FACU	3	5	Yes	Tree	Occasional
<i>Parthenocissus quinquefolia</i>	Virginia creeper	FACU	3	5	Yes	Vine	Common
<i>Picea abies</i>	NORWAY SPRUCE	UPL	5	*	No	Tree	Occasional
<i>Picea glauca</i>	White Spruce	FACU	3	3	Yes	Tree	Occasional
<i>Pinus resinosa</i>	Red Pine	FACU	3	6	Yes	Tree	Occasional
<i>Pinus strobus</i>	White Pine	FACU	3	3	Yes	Tree	Occasional
<i>Pinus sylvestris</i>	SCOTCH PINE	FACU	3	*	No	Tree	Occasional
<i>Podophyllum peltatum</i>	May-apple	FACU	3	3	Yes	Forb	Common
<i>Populus deltoides</i>	Cottonwood	FAC	0	1	Yes	Tree	Occasional
<i>Populus grandidentata</i>	Bigtooth Aspen	FACU	3	4	Yes	Tree	Infrequent
<i>Populus tremuloides</i>	Trembling Aspen	FAC	0	1	Yes	Tree	Occasional
<i>Prunus serotina</i>	Black Cherry	FACU	3	2	Yes	Tree	Common
<i>Quercus alba</i>	White Oak	FACU	3	5	Yes	Tree	Occasional
<i>Quercus macrocarpa</i>	Bur Oak	FACU	3	5	Yes	Tree	Infrequent
<i>Quercus rubra</i>	Red Oak	FACU	3	5	Yes	Tree	Occasional
<i>Quercus velutina</i>	Black Oak	UPL	5	6	Yes	Tree	Infrequent
<i>Rhamnus cathartica</i>	COMMON BUCKTHORN	FAC	0	*	No	Shrub	Common
<i>Rhus typhina</i>	Staghorn sumac	FACU	3	2	Yes	Shrub	Infrequent
<i>Robinia pseudoacacia</i>	BLACK LOCUST	FACU	3	*	No	Shrub	Occasional
<i>Rosa multiflora</i>	MULTIFLORA ROSE	FACU	3	*	No	Shrub	Occasional
<i>Rubus allegheniensis</i>	Blackberry	FACU	3	1	Yes	Shrub	Common
<i>Rubus occidentalis</i>	Black Raspberry	UPL	5	1	Yes	Shrub	Occasional
<i>Thuja occidentalis</i>	White-cedar	FACW	-3	4	Yes	Tree	Infrequent
<i>Tilia americana</i>	American Basswood	FACU	-3	5	Yes	Tree	Occasional
<i>Toxicodendron radicans</i>	Poison-Ivy	FAC	0	2	Yes	Vine	Common
<i>Ulmus pumila</i>	SIBERIAN ELM	FACU	3	*	No	Tree	Infrequent
<i>Verbena urticifolia</i>	White Vervain	FAC	0	4	Yes	Forb	Infrequent
<i>Vitis riparia</i>	Riverbank Grape	FAC	0	3	Yes	Vine	Occasional
<i>Zanthoxylum americanum</i>	Prickly-ash	FACU	3	3	Yes	Shrub	Common
Count = 54	Average Wetness Co-efficient =		2.15				
	Average Conservation Co-efficient =			3.3			

Table 3. Species list including scientific and common name, wetness indicator code (WET), wetness co-efficient (W), conservation co-efficient (C), nativity, habit, and occurrence of species identified at the Silverleaf Condominiums (Meridian Twp.) project site -Wetlands

<i>Scientific Name</i>	Common Name	WET	W	C	Native	Habit	Occurrence
<i>Acer negundo</i>	Box-elder	FAC	0	0	Yes	Tree	Common
<i>Acer saccharinum</i>	Silver Maple	FACW	-3	2	Yes	Tree	Occasional
<i>Acer rubrum</i>	Red Maple	FAC	0	1	Yes	Tree	Infrequent
<i>Agrostis gigantea</i>	Redtop	FACW	-3	*	No	Grass	Occasional
<i>Boehmeria cylindrica</i>	False Nettle	OBL	-5	5	Yes	Forb	Occasional
<i>Carex intumescens</i>	Sedge	FACW	-3	3	Yes	Sedge	Infrequent
<i>Carex lacustris</i>	Lake Sedge	OBL	-5	6	Yes	Sedge	Occasional
<i>Carex stricta</i>	Strict Sedge	OBL	-5	4	Yes	Sedge	Infrequent
<i>Carex vulpinoidea</i>	Fox Sedge	OBL	-5	1	Yes	Sedge	Occasional
<i>Cornus amomum</i>	Silky Dogwood	FACW	-3	2	Yes	Shrub	Common
<i>Cornus foemina/racemosa</i>	Gray Dogwood	FAC	0	1	Yes	Shrub	Common
<i>Fraxinus nigra</i>	Black Ash	FACW	-3	6	Yes	Tree	Occasional
<i>Fraxinus pennsylvanica</i>	Green Ash	FACW	-3	2	Yes	Tree	Common
<i>Geum canadense</i>	White Avens	FAC	0	1	Yes	Forb	Occasional
<i>Glyceria striata</i>	Fowl Manna Grass	OBL	-5	4	Yes	Grass	Infrequent
<i>Juncus dudleyi</i>	Dudley's Rush	FACW	-3	5	Yes	Forb	Infrequent
<i>Juncus tenuis</i>	Path Rush	FAC	0	1	Yes	Forb	Infrequent
<i>Lonicera tatarica</i>	Tartarian honeysuckle	FACU	3	*	No	Shrub	Infrequent
<i>Onoclea sensibilis</i>	Sensitive Fern	FACW	-3	2	Yes	Fern	Occasional
<i>Phalaris arundinacea</i>	Reed canary grass	FACW	-3	0	Yes	Grass	Common
<i>Phragmites australis var. australis</i>	Common Reed	FACW	-3	*	No	Grass	Infrequent
<i>Populus deltoides</i>	Cottonwood	FAC	0	1	Yes	Tree	Common
<i>Populus tremuloides</i>	Trembling Aspen	FAC	0	1	Yes	Tree	Infrequent
<i>Quercus bicolor</i>	Swamp White Oak	FACW	-3	8	Yes	Tree	Occasional
<i>Rhamnus cathartica</i>	Common Buckthorn	FAC	0	*	No	Shrub	Common
<i>Rosa multiflora</i>	Multiflora Rose	FACU	3	*	No	Shrub	Infrequent
<i>Rubus strigosus</i>	Red Raspberry	FAC	0	2	Yes	Shrub	Common
<i>Salix alba</i>	WHITE WILLOW	FACW	-3	*	No	Tree	Infrequent
<i>Sambucus canadensis</i>	Elderberry	FACW	-3	3	Yes	Shrub	Occasional
<i>Solidago gigantea</i>	Late Goldenrod	FACW	-3	3	Yes	Forb	Occasional
<i>Symphotrichum lateriflorum</i>	Calico American-aster	FAC	0	2	Yes	Forb	Infrequent
<i>Toxicodendron radicans</i>	Poison-Ivy	FAC	0	2	Yes	Vine	Common
<i>Typha angustifolia</i>	Narrowleaf Cattail	OBL	-5	*	No	Forb	Occasional
<i>Typha latifolia</i>	Broadleaf Cattail	OBL	-5	1	Yes	Forb	Occasional
<i>Ulmus americana</i>	American Elm	FACW	-3	1	Yes	Tree	Common
<i>Urtica dioica</i>	Stinging nettle	FAC	0	1	Yes	Forb	Occasional
<i>Verbena urticifolia</i>	White Vervain	FAC	0	4	Yes	Forb	Occasional
<i>Vitis riparia</i>	Riverbank Grape	FAC	0	3	Yes	Vine	Common
<i>Zanthoxylum americanum</i>	Prickly-ash	FACU	3	3	Yes	Shrub	Common
Count = 40	Average Wetness Co-efficient =		-1.8				
	Average Conservation Co-efficient =			2.5			

APPENDIX III

Tree Survey Results Table (Prepared by others)

Tree Inventory Results- Silverleaf Condominiums PUD (Meridian Township, Ingham Co, MI

TREE NUMBER	DBH (in) & TREE TYPE	Scientific Name	Common Name	Scientific Name	TOTALS
6	20" COTTONWOOD	<i>Populus deltoides</i>	Black Cherry	<i>Prunus serotina</i>	202
7	14" COTTONWOOD	<i>Populus deltoides</i>	Box-elder	<i>Acer negundo</i>	194
8	12" COTTONWOOD	<i>Populus deltoides</i>	Cottonwood	<i>Populus deltoides</i>	175
9	12" COTTONWOOD	<i>Populus deltoides</i>	White Pine	<i>Pinus strobus</i>	113
10	14" COTTONWOOD	<i>Populus deltoides</i>	Red Oak	<i>Quercus rubra</i>	77
11	14" COTTONWOOD	<i>Populus deltoides</i>	Black Walnut	<i>Juglans nigra</i>	75
12	16" COTTONWOOD	<i>Populus deltoides</i>	Sugar Maple	<i>Acer saccharum</i>	38
13	12" COTTONWOOD	<i>Populus deltoides</i>	Fagus grandifolia	<i>American Beech</i>	36
14	24" COTTONWOOD	<i>Populus deltoides</i>	Norway Maple	<i>Acer platanoides</i>	28
15	12" COTTONWOOD	<i>Populus deltoides</i>	White Oak	<i>Quercus alba</i>	24
16	22" COTTONWOOD	<i>Populus deltoides</i>	Norway Spruce	<i>Picea abies</i>	23
17	12" COTTONWOOD	<i>Populus deltoides</i>	American Elm	<i>Ulmus americana</i>	20
18	18" BOX ELDER	<i>Acer negundo</i>	Red Maple	<i>Acer rubrum</i>	18
19	18" COTTONWOOD	<i>Populus deltoides</i>	Basswood	<i>Tilia americana</i>	13
20	16" COTTONWOOD	<i>Populus deltoides</i>	Hackberry	<i>Celtis occidentalis</i>	11
21	18" COTTONWOOD	<i>Populus deltoides</i>	White Ash	<i>Fraxinus americana</i>	11
22	12" COTTONWOOD	<i>Populus deltoides</i>	Willow	<i>Salix species</i>	6
23	12" BOX ELDER	<i>Acer negundo</i>	Silver Maple	<i>Acer saccharinum</i>	5
24	16" COTTONWOOD	<i>Populus deltoides</i>	Scotch Pine	<i>Pinus sylvestris</i>	5
25	18" COTTONWOOD	<i>Populus deltoides</i>	Bur Oak	<i>Quercus macrocarpa</i>	4
26	(2)14" COTTONWOOD	<i>Populus deltoides</i>	Apple	<i>Malus pumila</i>	3
30	18" COTTONWOOD	<i>Populus deltoides</i>	Black Locust	<i>Robinia pseudoacacia</i>	2
31	14" BLACK WALNUT	<i>Juglans nigra</i>	Honey-Locust	<i>Gleditsia triacanthos</i>	2
32	12" BLACK WALNUT	<i>Juglans nigra</i>	Red Pine	<i>Pinus resinosa</i>	2
33	12" BLACK WALNUT	<i>Juglans nigra</i>	White-Cedar	<i>Thuja occidentalis</i>	2
34	12" BLACK WALNUT	<i>Juglans nigra</i>	Ironwood	<i>Ostrya virginiana</i>	1
35	12" BLACK WALNUT	<i>Juglans nigra</i>	Hornbeam/Musclewood	<i>Carpinus caroliniana</i>	1
36	14" BLACK WALNUT	<i>Juglans nigra</i>	Tree-of-Heaven	<i>Ailanthus altissima</i>	1
37	12" BLACK WALNUT	<i>Juglans nigra</i>	White Mulberry	<i>Morus alba</i>	1
38	14" BLACK WALNUT	<i>Juglans nigra</i>	Hickory	<i>Carya species</i>	1
39	14" BLACK WALNUT	<i>Juglans nigra</i>	Horse-chestnut	<i>Aesculus hippocastanum</i>	1
40	12" BLACK WALNUT	<i>Juglans nigra</i>			
41	12" BOX ELDER	<i>Acer negundo</i>			
42	14" BLACK WALNUT	<i>Juglans nigra</i>			
43	14" BLACK WALNUT	<i>Juglans nigra</i>			
44	14" BLACK WALNUT	<i>Juglans nigra</i>			
45	12" BLACK WALNUT	<i>Juglans nigra</i>			
46	18" BLACK WALNUT	<i>Juglans nigra</i>			
47	16" BLACK WALNUT	<i>Juglans nigra</i>			
48	12" BLACK WALNUT	<i>Juglans nigra</i>			
49	12" BLACK WALNUT	<i>Juglans nigra</i>			
50	12" BLACK CHERRY	<i>Prunus serotina</i>			
51	12" BLACK CHERRY	<i>Prunus serotina</i>			
52	18" BLACK WALNUT	<i>Juglans nigra</i>			
53	12" BLACK WALNUT	<i>Juglans nigra</i>			
54	12" BLACK WALNUT	<i>Juglans nigra</i>			
55	36" BLACK WALNUT	<i>Juglans nigra</i>			
56	(2)12" BLACK LOCUST	<i>Robinia pseudoacacia</i>			
57	12" BOX ELDER	<i>Acer negundo</i>			
58	12" HICKORY	<i>Carya species</i>			
59	12" BOX ELDER	<i>Acer negundo</i>			
60	12" AMERICAN ELM	<i>Ulmus americana</i>			
61	12" HOP HORNBEAM	<i>Carpinus caroliniana</i>			
62	16" BLACK WALNUT	<i>Juglans nigra</i>			
63	14" BLACK WALNUT	<i>Juglans nigra</i>			
					1095

64		18" BLACK WALNUT	<i>Juglans nigra</i>
65		12" BOX ELDER	<i>Acer negundo</i>
66		14" BLACK WALNUT	<i>Juglans nigra</i>
67		12" BOX ELDER	<i>Acer negundo</i>
68		16" COTTONWOOD	<i>Populus deltoides</i>
69		12" BOX ELDER	<i>Acer negundo</i>
70		14" BLACK WALNUT	<i>Juglans nigra</i>
71		(2)14" BLACK WALNUT	<i>Juglans nigra</i>
72		22" BLACK WALNUT	<i>Juglans nigra</i>
73		18" BLACK CHERRY	<i>Prunus serotina</i>
74		12" BLACK CHERRY	<i>Prunus serotina</i>
75		14" BLACK WALNUT	<i>Juglans nigra</i>
76		12" BLACK WALNUT	<i>Juglans nigra</i>
77		12" BLACK WALNUT	<i>Juglans nigra</i>
78		12" BLACK WALNUT	<i>Juglans nigra</i>
79		12" BOX ELDER	<i>Acer negundo</i>
80		12" BLACK WALNUT	<i>Juglans nigra</i>
81		14" BLACK WALNUT	<i>Juglans nigra</i>
82		14" BLACK WALNUT	<i>Juglans nigra</i>
83		18" BLACK WALNUT	<i>Juglans nigra</i>
84		12" BOX ELDER	<i>Acer negundo</i>
85		12" BOX ELDER	<i>Acer negundo</i>
86		12" BOX ELDER	<i>Acer negundo</i>
87		12" BOX ELDER	<i>Acer negundo</i>
88		12" BOX ELDER	<i>Acer negundo</i>
89		12" BOX ELDER	<i>Acer negundo</i>
90		12" BOX ELDER	<i>Acer negundo</i>
91		12" WILLOW	<i>Salix species</i>
92		14" BOX ELDER	<i>Acer negundo</i>
92a		14" BOX ELDER	<i>Acer negundo</i>
94		24" BOX ELDER	<i>Acer negundo</i>
95		12" BOX ELDER	<i>Acer negundo</i>
96		12" AMERICAN ELM	<i>Ulmus americana</i>
97		16" BLACK CHERRY	<i>Prunus serotina</i>
98		16" BLACK CHERRY	<i>Prunus serotina</i>
99		14" HACKBERRY	<i>Celtis occidentalis</i>
100		24" HACKBERRY	<i>Celtis occidentalis</i>
101		22" BLACK WALNUT	<i>Juglans nigra</i>
102		18" BLACK WALNUT	<i>Juglans nigra</i>
103		16" BOX ELDER	<i>Acer negundo</i>
104		12" BLACK CHERRY	<i>Prunus serotina</i>
105		12" BLACK WALNUT	<i>Juglans nigra</i>
106		14" BLACK WALNUT	<i>Juglans nigra</i>
107		(2)16" BASSWOOD	<i>Tilia americana</i>
108		12" BLACK WALNUT	<i>Juglans nigra</i>
109		14" BLACK WALNUT	<i>Juglans nigra</i>
110		14" BLACK WALNUT	<i>Juglans nigra</i>
111		14" BLACK CHERRY	<i>Prunus serotina</i>
112		16" BLACK WALNUT	<i>Juglans nigra</i>
113		16" BLACK WALNUT	<i>Juglans nigra</i>
114		14" BLACK CHERRY	<i>Prunus serotina</i>
115		12" BLACK WALNUT	<i>Juglans nigra</i>
116		(2)20" BLACK CHERRY	<i>Prunus serotina</i>
117		16" BLACK CHERRY	<i>Prunus serotina</i>
118		14" BLACK WALNUT	<i>Juglans nigra</i>
119		18" BLACK WALNUT	<i>Juglans nigra</i>
120		16" BLACK WALNUT	<i>Juglans nigra</i>

121		12" BLACK CHERRY	<i>Prunus serotina</i>
122		12" BLACK WALNUT	<i>Juglans nigra</i>
123		18" BLACK WALNUT	<i>Juglans nigra</i>
124		12" BLACK WALNUT	<i>Juglans nigra</i>
125		12" BLACK WALNUT	<i>Juglans nigra</i>
126		12" BLACK WALNUT	<i>Juglans nigra</i>
127		12" BLACK WALNUT	<i>Juglans nigra</i>
128		12" BLACK WALNUT	<i>Juglans nigra</i>
130		18" BLACK CHERRY	<i>Prunus serotina</i>
131		12" BLACK CHERRY	<i>Prunus serotina</i>
132		18" BLACK CHERRY	<i>Prunus serotina</i>
133		18" AMERICAN ELM	<i>Ulmus americana</i>
134		12" BLACK WALNUT	<i>Juglans nigra</i>
135		18" BLACK WALNUT	<i>Juglans nigra</i>
136		(2)12" BOX ELDER	<i>Acer negundo</i>
137		14" BLACK CHERRY	<i>Prunus serotina</i>
138		12" BLACK CHERRY	<i>Prunus serotina</i>
139		12" BLACK WALNUT	<i>Juglans nigra</i>
139a		18" BLACK WALNUT	<i>Juglans nigra</i>
140		12" BLACK CHERRY	<i>Prunus serotina</i>
142		14" BLACK CHERRY	<i>Prunus serotina</i>
143		12" BLACK CHERRY	<i>Prunus serotina</i>
144		12" BLACK CHERRY	<i>Prunus serotina</i>
145		12" BLACK CHERRY	<i>Prunus serotina</i>
146		12" BLACK CHERRY	<i>Prunus serotina</i>
147		12" SUGAR MAPLE	<i>Acer saccharum</i>
148		18" AMERICAN ELM	<i>Ulmus americana</i>
149		12" BLACK CHERRY	<i>Prunus serotina</i>
150		12" BLACK WALNUT	<i>Juglans nigra</i>
151		14" BLACK WALNUT	<i>Juglans nigra</i>
152		52" WHITE OAK	<i>Quercus alba</i>
153		14" BLACK WALNUT	<i>Juglans nigra</i>
154		16" COTTONWOOD	<i>Populus deltoides</i>
155		14" BLACK CHERRY	<i>Prunus serotina</i>
156		14" BLACK WALNUT	<i>Juglans nigra</i>
157		12" WHITE ASH	<i>Fraxinus americana</i>
158		14" BLACK WALNUT	<i>Juglans nigra</i>
159		12" BLACK WALNUT	<i>Juglans nigra</i>
160		12" BLACK WALNUT	<i>Juglans nigra</i>
161		24" BLACK WALNUT	<i>Juglans nigra</i>
162		12" BOX ELDER	<i>Acer negundo</i>
163		12" COTTONWOOD	<i>Populus deltoides</i>
164		12" COTTONWOOD	<i>Populus deltoides</i>
165		12" COTTONWOOD	<i>Populus deltoides</i>
166		12" COTTONWOOD	<i>Populus deltoides</i>
167		14" COTTONWOOD	<i>Populus deltoides</i>
168		12" COTTONWOOD	<i>Populus deltoides</i>
169		12" COTTONWOOD	<i>Populus deltoides</i>
170		12" COTTONWOOD	<i>Populus deltoides</i>
171		14" COTTONWOOD	<i>Populus deltoides</i>
172		12" RED OAK	<i>Quercus rubra</i>
173		12" RED OAK	<i>Quercus rubra</i>
174		14" WHITE PINE	<i>Pinus strobus</i>
175		12" RED OAK	<i>Quercus rubra</i>
176		14" WHITE PINE	<i>Pinus strobus</i>
177		12" WHITE PINE	<i>Pinus strobus</i>
178		12" WHITE PINE	<i>Pinus strobus</i>

179		14" WHITE PINE	<i>Pinus strobus</i>
180		14" WHITE PINE	<i>Pinus strobus</i>
181		14" WHITE PINE	<i>Pinus strobus</i>
182		12" RED OAK	<i>Quercus rubra</i>
183		12" WHITE PINE	<i>Pinus strobus</i>
184		12" WHITE PINE	<i>Pinus strobus</i>
185		12" WHITE PINE	<i>Pinus strobus</i>
186		12" RED OAK	<i>Quercus rubra</i>
187		12" WHITE PINE	<i>Pinus strobus</i>
188		12" RED OAK	<i>Quercus rubra</i>
189		12" WHITE PINE	<i>Pinus strobus</i>
190		14" WHITE PINE	<i>Pinus strobus</i>
191		12" WHITE PINE	<i>Pinus strobus</i>
192		12" RED OAK	<i>Quercus rubra</i>
193		14" WHITE PINE	<i>Pinus strobus</i>
194		14" WHITE PINE	<i>Pinus strobus</i>
195		14" WHITE PINE	<i>Pinus strobus</i>
196		12" RED OAK	<i>Quercus rubra</i>
197		14" WHITE PINE	<i>Pinus strobus</i>
198		14" WHITE PINE	<i>Pinus strobus</i>
198a		14" WHITE PINE	<i>Pinus strobus</i>
198b		14" WHITE PINE	<i>Pinus strobus</i>
198c		14" WHITE PINE	<i>Pinus strobus</i>
199		14" WHITE PINE	<i>Pinus strobus</i>
200		12" WHITE PINE	<i>Pinus strobus</i>
201		14" WHITE PINE	<i>Pinus strobus</i>
202		12" WHITE PINE	<i>Pinus strobus</i>
203		16" WHITE PINE	<i>Pinus strobus</i>
203a		16" WHITE PINE	<i>Pinus strobus</i>
203b		16" WHITE PINE	<i>Pinus strobus</i>
203c		16" WHITE PINE	<i>Pinus strobus</i>
203d		16" WHITE PINE	<i>Pinus strobus</i>
203e		16" WHITE PINE	<i>Pinus strobus</i>
203f		16" WHITE PINE	<i>Pinus strobus</i>
203g		16" WHITE PINE	<i>Pinus strobus</i>
205		16" WHITE PINE	<i>Pinus strobus</i>
206		14" WHITE PINE	<i>Pinus strobus</i>
207		16" RED OAK	<i>Quercus rubra</i>
208		14" NORWAY MAPLE	<i>Acer platanoides</i>
209		14" NORWAY MAPLE	<i>Acer platanoides</i>
227		14" WHITE OAK	<i>Quercus alba</i>
228		12" BLACK CHERRY	<i>Prunus serotina</i>
229		14" WHITE PINE	<i>Pinus strobus</i>
230		16" WHITE PINE	<i>Pinus strobus</i>
231		16" WHITE PINE	<i>Pinus strobus</i>
231a		16" BOX ELDER	<i>Acer negundo</i>
232		12" WHITE PINE	<i>Pinus strobus</i>
233		16" WHITE PINE	<i>Pinus strobus</i>
234		14" WHITE PINE	<i>Pinus strobus</i>
235		12" WHITE PINE	<i>Pinus strobus</i>
236		12" WHITE PINE	<i>Pinus strobus</i>
237		12" WHITE PINE	<i>Pinus strobus</i>
238		12" WHITE PINE	<i>Pinus strobus</i>
239		12" WHITE PINE	<i>Pinus strobus</i>
240		12" WHITE PINE	<i>Pinus strobus</i>
241		12" WHITE PINE	<i>Pinus strobus</i>
242		12" WHITE PINE	<i>Pinus strobus</i>

243		12" WHITE PINE	<i>Pinus strobus</i>
244		8" WHITE CEDAR	<i>Thuja occidentalis</i>
245		8" WHITE CEDAR	<i>Thuja occidentalis</i>
246		12" WHITE OAK	<i>Quercus alba</i>
247		12" WHITE OAK	<i>Quercus alba</i>
248		12" WHITE OAK	<i>Quercus alba</i>
249		12" BLACK CHERRY	<i>Prunus serotina</i>
250		(3)14" BLACK CHERRY	<i>Prunus serotina</i>
251		16" AMERICAN ELM	<i>Ulmus americana</i>
252		(3)14" BLACK CHERRY	<i>Prunus serotina</i>
253		14" BLACK CHERRY	<i>Prunus serotina</i>
254		14" RED OAK	<i>Quercus rubra</i>
255		12" BLACK CHERRY	<i>Prunus serotina</i>
256		14" BOX ELDER	<i>Acer negundo</i>
257		14" BOX ELDER	<i>Acer negundo</i>
258		16" BLACK CHERRY	<i>Prunus serotina</i>
259		12" BOX ELDER	<i>Acer negundo</i>
270		14" WHITE OAK	<i>Quercus alba</i>
273		14" WHITE PINE	<i>Pinus strobus</i>
274		12" RED OAK	<i>Quercus rubra</i>
275		16" BLACK CHERRY	<i>Prunus serotina</i>
276		14" WHITE PINE	<i>Pinus strobus</i>
277		14" WHITE PINE	<i>Pinus strobus</i>
278		14" RED OAK	<i>Quercus rubra</i>
279		14" AMERICAN ELM	<i>Ulmus americana</i>
280		12" WHITE PINE	<i>Pinus strobus</i>
281		(2)12" WHITE PINE	<i>Pinus strobus</i>
282		12" WHITE PINE	<i>Pinus strobus</i>
283		14" WHITE PINE	<i>Pinus strobus</i>
284		(3)14" COTTONWOOD	<i>Populus deltoides</i>
285		12" WHITE PINE	<i>Pinus strobus</i>
286		(2)10" WHITE PINE	<i>Pinus strobus</i>
287		12" WHITE PINE	<i>Pinus strobus</i>
288		12" WHITE PINE	<i>Pinus strobus</i>
289		12" WHITE PINE	<i>Pinus strobus</i>
290		10" WHITE PINE	<i>Pinus strobus</i>
291		14" WHITE PINE	<i>Pinus strobus</i>
292		16" WHITE PINE	<i>Pinus strobus</i>
292a		16" WHITE PINE	<i>Pinus strobus</i>
293		12" WHITE PINE	<i>Pinus strobus</i>
295		10" WHITE PINE	<i>Pinus strobus</i>
296		10" WHITE PINE	<i>Pinus strobus</i>
297		18" WHITE PINE	<i>Pinus strobus</i>
298		14" WHITE PINE	<i>Pinus strobus</i>
299		10" WHITE PINE	<i>Pinus strobus</i>
300		12" WHITE PINE	<i>Pinus strobus</i>
300a		12" WHITE PINE	<i>Pinus strobus</i>
301		12" WHITE PINE	<i>Pinus strobus</i>
301a		14" WHITE PINE	<i>Pinus strobus</i>
302		12" WHITE PINE	<i>Pinus strobus</i>
302a		12" WHITE PINE	<i>Pinus strobus</i>
303		12" WHITE PINE	<i>Pinus strobus</i>
304		12" WHITE PINE	<i>Pinus strobus</i>
305		12" WHITE PINE	<i>Pinus strobus</i>
306		16" RED OAK	<i>Quercus rubra</i>
307		(2)12" RED MAPLE	<i>Acer rubrum</i>
308		14" WHITE PINE	<i>Pinus strobus</i>

309		10" WHITE PINE	<i>Pinus strobus</i>
310		12" WHITE PINE	<i>Pinus strobus</i>
311		12" WHITE PINE	<i>Pinus strobus</i>
312		12" WHITE PINE	<i>Pinus strobus</i>
313		14" WHITE PINE	<i>Pinus strobus</i>
314		14" WHITE PINE	<i>Pinus strobus</i>
315		12" WHITE PINE	<i>Pinus strobus</i>
316		14" WHITE PINE	<i>Pinus strobus</i>
317		16" WHITE PINE	<i>Pinus strobus</i>
318		12" WHITE PINE	<i>Pinus strobus</i>
319		32" COTTONWOOD	<i>Populus deltoides</i>
320		(3)18" BOX ELDER	<i>Acer negundo</i>
321		12" WHITE PINE	<i>Pinus strobus</i>
322		12" WHITE PINE	<i>Pinus strobus</i>
323		14" WHITE PINE	<i>Pinus strobus</i>
324		12" WHITE PINE	<i>Pinus strobus</i>
325		12" BLACK WALNUT	<i>Juglans nigra</i>
327		16" BOX ELDER	<i>Acer negundo</i>
329		32" COTTONWOOD	<i>Populus deltoides</i>
331		(3)12" BLACK CHERRY	<i>Prunus serotina</i>
332		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
333		(3)12" BLACK CHERRY	<i>Prunus serotina</i>
334		12" BLACK CHERRY	<i>Prunus serotina</i>
335		12" BLACK CHERRY	<i>Prunus serotina</i>
336		12" BLACK CHERRY	<i>Prunus serotina</i>
337		12" AMERICAN ELM	<i>Ulmus americana</i>
338		12" BLACK CHERRY	<i>Prunus serotina</i>
339		12" BLACK CHERRY	<i>Prunus serotina</i>
340		14" COTTONWOOD	<i>Populus deltoides</i>
341		16" COTTONWOOD	<i>Populus deltoides</i>
342		16" COTTONWOOD	<i>Populus deltoides</i>
343		30" COTTONWOOD	<i>Populus deltoides</i>
344		18" COTTONWOOD	<i>Populus deltoides</i>
345		14" COTTONWOOD	<i>Populus deltoides</i>
346		12" COTTONWOOD	<i>Populus deltoides</i>
347		12" COTTONWOOD	<i>Populus deltoides</i>
348		14" BLACK CHERRY	<i>Prunus serotina</i>
349		18" SUGAR MAPLE	<i>Acer saccharum</i>
350		14" BLACK CHERRY	<i>Prunus serotina</i>
351		14" COTTONWOOD	<i>Populus deltoides</i>
351a		12" COTTONWOOD	<i>Populus deltoides</i>
352		12" AMERICAN ELM	<i>Ulmus americana</i>
353		18" BASSWOOD	<i>Tilia americana</i>
354		12" BLACK CHERRY	<i>Prunus serotina</i>
355		14" BLACK CHERRY	<i>Prunus serotina</i>
356		12" BLACK CHERRY	<i>Prunus serotina</i>
357		(3)12" BLACK CHERRY	<i>Prunus serotina</i>
358		12" BLACK CHERRY	<i>Prunus serotina</i>
359		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
360		14" AMERICAN ELM	<i>Ulmus americana</i>
361		14" BLACK CHERRY	<i>Prunus serotina</i>
362		14" AMERICAN ELM	<i>Ulmus americana</i>
363		32" COTTONWOOD	<i>Populus deltoides</i>
364		14" BLACK CHERRY	<i>Prunus serotina</i>
365		12" BLACK CHERRY	<i>Prunus serotina</i>
366		14" BLACK CHERRY	<i>Prunus serotina</i>
367		14" AMERICAN ELM	<i>Ulmus americana</i>

368		12" SUGAR MAPLE	<i>Acer saccharum</i>
369		(2)18" BLACK CHERRY	<i>Prunus serotina</i>
370		12" BLACK CHERRY	<i>Prunus serotina</i>
371		14" BLACK CHERRY	<i>Prunus serotina</i>
372		32" COTTONWOOD	<i>Populus deltoides</i>
373		26" BLACK CHERRY	<i>Prunus serotina</i>
374		12" BLACK CHERRY	<i>Prunus serotina</i>
374a		12" BLACK CHERRY	<i>Prunus serotina</i>
375		12" BLACK CHERRY	<i>Prunus serotina</i>
376		12" BLACK CHERRY	<i>Prunus serotina</i>
377		14" COTTONWOOD	<i>Populus deltoides</i>
378		14" COTTONWOOD	<i>Populus deltoides</i>
379		14" COTTONWOOD	<i>Populus deltoides</i>
380		14" COTTONWOOD	<i>Populus deltoides</i>
381		14" COTTONWOOD	<i>Populus deltoides</i>
382		12" BLACK CHERRY	<i>Prunus serotina</i>
383		14" WHITE OAK	<i>Quercus alba</i>
384		26" WHITE OAK	<i>Quercus alba</i>
385		16" BASSWOOD	<i>Tilia americana</i>
386		12" BASSWOOD	<i>Tilia americana</i>
387		18" BASSWOOD	<i>Tilia americana</i>
387a		14" BASSWOOD	<i>Tilia americana</i>
388		(2)16" BASSWOOD	<i>Tilia americana</i>
389		36" COTTONWOOD	<i>Populus deltoides</i>
390		14" AMERICAN ELM	<i>Ulmus americana</i>
391		26" SUGAR MAPLE	<i>Acer saccharum</i>
392		(2)16" BASSWOOD	<i>Tilia americana</i>
393		12" WHITE OAK	<i>Quercus alba</i>
393a		12" BLACK CHERRY	<i>Prunus serotina</i>
393b		12" AMERICAN ELM	<i>Ulmus americana</i>
393c		12" BLACK CHERRY	<i>Prunus serotina</i>
393d		12" BOX ELDER	<i>Acer negundo</i>
394		12" BLACK CHERRY	<i>Prunus serotina</i>
395		12" BLACK CHERRY	<i>Prunus serotina</i>
396		14" BLACK CHERRY	<i>Prunus serotina</i>
397		12" BLACK CHERRY	<i>Prunus serotina</i>
398		12" BLACK CHERRY	<i>Prunus serotina</i>
399		18" AMERICAN ELM	<i>Ulmus americana</i>
400		14" BLACK CHERRY	<i>Prunus serotina</i>
401		20" COTTONWOOD	<i>Populus deltoides</i>
402		8" COTTONWOOD	<i>Populus deltoides</i>
403		14" COTTONWOOD	<i>Populus deltoides</i>
404		12" COTTONWOOD	<i>Populus deltoides</i>
405		16" COTTONWOOD	<i>Populus deltoides</i>
406		14" WHITE PINE	<i>Pinus strobus</i>
408		22" COTTONWOOD	<i>Populus deltoides</i>
409		12" COTTONWOOD	<i>Populus deltoides</i>
410		12" WHITE PINE	<i>Pinus strobus</i>
411		14" RED OAK	<i>Quercus rubra</i>
412		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
413		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
414		12" BLACK CHERRY	<i>Prunus serotina</i>
415		16" BLACK CHERRY	<i>Prunus serotina</i>
416		12" RED MAPLE	<i>Acer rubrum</i>
417		12" WHITE OAK	<i>Quercus alba</i>
418		12" WHITE OAK	<i>Quercus alba</i>
419		10" BLACK CHERRY	<i>Prunus serotina</i>

420		10" BLACK CHERRY	<i>Prunus serotina</i>
421		16" BLACK CHERRY	<i>Prunus serotina</i>
422		12" BOX ELDER	<i>Acer negundo</i>
423		16" BLACK CHERRY	<i>Prunus serotina</i>
424		(2)14" BLACK CHERRY	<i>Prunus serotina</i>
426		(2)12" COTTONWOOD	<i>Populus deltoides</i>
427		(3)14" COTTONWOOD	<i>Populus deltoides</i>
428		14" COTTONWOOD	<i>Populus deltoides</i>
428a		14" COTTONWOOD	<i>Populus deltoides</i>
429		14" COTTONWOOD	<i>Populus deltoides</i>
430		14" COTTONWOOD	<i>Populus deltoides</i>
431		12" COTTONWOOD	<i>Populus deltoides</i>
432		14" COTTONWOOD	<i>Populus deltoides</i>
433		16" BOX ELDER	<i>Acer negundo</i>
434		14" BASSWOOD	<i>Tilia americana</i>
435		(3)12" BOX ELDER	<i>Acer negundo</i>
436		(4)10" BOX ELDER	<i>Acer negundo</i>
437		18" COTTONWOOD	<i>Populus deltoides</i>
438		(2)16" COTTONWOOD	<i>Populus deltoides</i>
439		14" COTTONWOOD	<i>Populus deltoides</i>
440		12" BASSWOOD	<i>Tilia americana</i>
441		16" WHITE ASH	<i>Fraxinus americana</i>
441a		12" BOX ELDER	<i>Acer negundo</i>
441b		12" WHITE ASH	<i>Fraxinus americana</i>
442		26" SUGAR MAPLE	<i>Acer saccharum</i>
442a		12" BASSWOOD	<i>Tilia americana</i>
443		18" COTTONWOOD	<i>Populus deltoides</i>
444		12" HACKBERRY	<i>Celtis occidentalis</i>
444a		12" BLACK CHERRY	<i>Prunus serotina</i>
445		12" WHITE OAK	<i>Quercus alba</i>
445a		28" WHITE ASH	<i>Fraxinus americana</i>
446		12" WHITE OAK	<i>Quercus alba</i>
446a		12" BLACK CHERRY	<i>Prunus serotina</i>
446b		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
447		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
448		12" APPLE	<i>Malus pumila</i>
448a		12" BOX ELDER	<i>Acer negundo</i>
448b		12" BOX ELDER	<i>Acer negundo</i>
450		(2)12" COTTONWOOD	<i>Populus deltoides</i>
451		12" BOX ELDER	<i>Acer negundo</i>
452		12" BOX ELDER	<i>Acer negundo</i>
453		12" COTTONWOOD	<i>Populus deltoides</i>
454		12" COTTONWOOD	<i>Populus deltoides</i>
455		12" COTTONWOOD	<i>Populus deltoides</i>
456		(2)12" COTTONWOOD	<i>Populus deltoides</i>
457		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
500		(2)12" RED MAPLE	<i>Acer rubrum</i>
502		32" SILVER MAPLE	<i>Acer saccharinum</i>
503		12" APPLE	<i>Malus pumila</i>
505		(2)14" HONEY LOCUST	<i>Gleditsia triacanthos</i>
506		12" NORWAY MAPLE	<i>Acer platanoides</i>
507		12" NORWAY MAPLE	<i>Acer platanoides</i>
508		18" NORWAY SPRUCE	<i>Picea abies</i>
509		16" NORWAY SPRUCE	<i>Picea abies</i>
509a		16" NORWAY SPRUCE	<i>Picea abies</i>
510		12" NORWAY SPRUCE	<i>Picea abies</i>
511		16" RED PINE	<i>Pinus resinosa</i>

512		18" NORWAY SPRUCE	<i>Picea abies</i>
513		18" NORWAY SPRUCE	<i>Picea abies</i>
514		32" SILVER MAPLE	<i>Acer saccharinum</i>
515		12" SCOTCH PINE	<i>Pinus sylvestris</i>
516		(3)14" SILVER MAPLE	<i>Acer saccharinum</i>
517		(2)14" HONEY LOCUST	<i>Gleditsia triacanthos</i>
519		16" BLACK CHERRY	<i>Prunus serotina</i>
520		12" BUTTERNUT	<i>Juglans cinerea</i>
525		16" BOX ELDER	<i>Acer negundo</i>
527		24" RED OAK	<i>Quercus rubra</i>
529		16" NORWAY SPRUCE	<i>Picea abies</i>
531		18" NORWAY SPRUCE	<i>Picea abies</i>
532		12" SCOTCH PINE	<i>Pinus sylvestris</i>
533		18" NORWAY SPRUCE	<i>Picea abies</i>
534		12" SCOTCH PINE	<i>Pinus sylvestris</i>
535		14" NORWAY SPRUCE	<i>Picea abies</i>
536		14" NORWAY SPRUCE	<i>Picea abies</i>
537		18" NORWAY MAPLE	<i>Picea abies</i>
538		12" BLACK CHERRY	<i>Prunus serotina</i>
539		16" NORWAY SPRUCE	<i>Picea abies</i>
540		14" NORWAY MAPLE	<i>Acer platanoides</i>
541		18" NORWAY MAPLE	<i>Acer platanoides</i>
542		12" NORWAY SPRUCE	<i>Picea abies</i>
543		12" NORWAY SPRUCE	<i>Picea abies</i>
544		18" SILVER MAPLE	<i>Acer saccharinum</i>
545		18" NORWAY SPRUCE	<i>Picea abies</i>
546		12" NORWAY SPRUCE	<i>Picea abies</i>
547		18" NORWAY SPRUCE	<i>Picea abies</i>
548		18" NORWAY MAPLE	<i>Acer platanoides</i>
549		20" BOX ELDER	<i>Acer negundo</i>
550		28" NORWAY SPRUCE	<i>Picea abies</i>
551		18" NORWAY MAPLE	<i>Acer platanoides</i>
553		24" NORWAY MAPLE	<i>Acer platanoides</i>
555		12" RED PINE	<i>Pinus resinosa</i>
556		18" NORWAY MAPLE	<i>Acer platanoides</i>
557		18" TREE-OF-HEAVEN	<i>Ailanthus altissima</i>
558		16" BLACK CHERRY	<i>Prunus serotina</i>
559		12" WHITE PINE	<i>Pinus strobus</i>
560		12" SCOTCH PINE	<i>Pinus sylvestris</i>
561		12" SCOTCH PINE	<i>Pinus sylvestris</i>
563		24" NORWAY MAPLE	<i>Acer platanoides</i>
564		24" NORWAY MAPLE	<i>Acer platanoides</i>
566		24" SUGAR MAPLE	<i>Acer saccharum</i>
567		12" WHITE PINE	<i>Pinus strobus</i>
568		24" SUGAR MAPLE	<i>Acer saccharum</i>
569		24" SUGAR MAPLE	<i>Acer saccharum</i>
570		12" WHITE PINE	<i>Pinus strobus</i>
571		12" WHITE PINE	<i>Pinus strobus</i>
572		32" HORSE-CHESTNUT	<i>Aesculus hippocastanum</i>
573		12" BLACK WALNUT	<i>Juglans nigra</i>
574		12" BLACK WALNUT	<i>Juglans nigra</i>
575		12" BLACK WALNUT	<i>Juglans nigra</i>
576		12" BLACK WALNUT	<i>Juglans nigra</i>
577		34" SUGAR MAPLE	<i>Acer saccharum</i>
578		22" SUGAR MAPLE	<i>Acer saccharum</i>
583		12" NORWAY SPRUCE	<i>Picea abies</i>
584		12" NORWAY SPRUCE	<i>Picea abies</i>

585		14" NORWAY SPRUCE	<i>Picea abies</i>
601		(3)12" BOX ELDER	<i>Acer negundo</i>
602		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
603		14" BOX ELDER	<i>Acer negundo</i>
604		12" BOX ELDER	<i>Acer negundo</i>
605		18" BLACK CHERRY	<i>Prunus serotina</i>
606		14" BOX ELDER	<i>Acer negundo</i>
607		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
608		14" BLACK CHERRY	<i>Prunus serotina</i>
609		12" COTTONWOOD	<i>Populus deltoides</i>
610		14" COTTONWOOD	<i>Populus deltoides</i>
611		12" COTTONWOOD	<i>Populus deltoides</i>
612		24" BLACK CHERRY	<i>Prunus serotina</i>
613		12" BLACK CHERRY	<i>Prunus serotina</i>
614		12" BLACK CHERRY	<i>Prunus serotina</i>
615		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
616		14" BLACK CHERRY	<i>Prunus serotina</i>
617		16" BLACK CHERRY	<i>Prunus serotina</i>
618		14" BOX ELDER	<i>Acer negundo</i>
619		14" BLACK CHERRY	<i>Prunus serotina</i>
620		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
621		(2)18" BLACK CHERRY	<i>Prunus serotina</i>
622		14" BOX ELDER	<i>Acer negundo</i>
623		12" BOX ELDER	<i>Acer negundo</i>
624		(2)14" BOX ELDER	<i>Acer negundo</i>
625		14" COTTONWOOD	<i>Populus deltoides</i>
626		18" COTTONWOOD	<i>Populus deltoides</i>
627		14" WILLOW	<i>Salix species</i>
628		14" BOX ELDER	<i>Acer negundo</i>
629		12" BOX ELDER	<i>Acer negundo</i>
630		36" BEECH	<i>Fagus grandifolia</i>
631		42" SUGAR MAPLE	<i>Acer saccharum</i>
632		32" RED OAK	<i>Quercus rubra</i>
633		12" RED OAK	<i>Quercus rubra</i>
634		24" WILLOW	<i>Salix species</i>
635		48" WILLOW	<i>Salix species</i>
636		18" RED OAK	<i>Quercus rubra</i>
637		14" BOX ELDER	<i>Acer negundo</i>
638		12" BLACK CHERRY	<i>Prunus serotina</i>
639		14" BLACK CHERRY	<i>Prunus serotina</i>
640		12" RED OAK	<i>Quercus rubra</i>
641		12" RED OAK	<i>Quercus rubra</i>
642		14" BLACK CHERRY	<i>Prunus serotina</i>
643		12" RED OAK	<i>Quercus rubra</i>
644		16" WHITE ASH	<i>Fraxinus americana</i>
645		12" RED OAK	<i>Quercus rubra</i>
646		12" COTTONWOOD	<i>Populus deltoides</i>
647		12" RED OAK	<i>Quercus rubra</i>
648		16" WILLOW	<i>Salix species</i>
649		14" RED OAK	<i>Quercus rubra</i>
650		12" BLACK CHERRY	<i>Prunus serotina</i>
651		44" SUGAR MAPLE	<i>Acer saccharum</i>
652		48" SUGAR MAPLE	<i>Acer saccharum</i>
653		34" AMERICAN BEECH	<i>Fagus grandifolia</i>
654		36" AMERICAN BEECH	<i>Fagus grandifolia</i>
655		14" RED OAK	<i>Quercus rubra</i>
656		12" RED OAK	<i>Quercus rubra</i>

657		30" AMERICAN BEECH	<i>Fagus grandifolia</i>
658		12" RED OAK	<i>Quercus rubra</i>
659		30" SUGAR MAPLE	<i>Acer saccharum</i>
660		16" AMERICAN BEECH	<i>Fagus grandifolia</i>
661		14" RED MAPLE	<i>Acer rubrum</i>
662		(2)18" RED MAPLE	<i>Acer rubrum</i>
663		36" AMERICAN BEECH	<i>Fagus grandifolia</i>
664		22" RED MAPLE	<i>Acer rubrum</i>
665		18" SUGAR MAPLE	<i>Acer saccharum</i>
666		20" WHITE OAK	<i>Quercus alba</i>
667		14" SUGAR MAPLE	<i>Acer saccharum</i>
668		48" AMERICAN BEECH	<i>Fagus grandifolia</i>
669		36" AMERICAN BEECH	<i>Fagus grandifolia</i>
671		22" RED MAPLE	<i>Acer rubrum</i>
672		24" RED MAPLE	<i>Acer rubrum</i>
673		32" AMERICAN BEECH	<i>Fagus grandifolia</i>
674		32" AMERICAN BEECH	<i>Fagus grandifolia</i>
675		30" AMERICAN BEECH	<i>Fagus grandifolia</i>
676		22" AMERICAN BEECH	<i>Fagus grandifolia</i>
677		24" RED MAPLE	<i>Acer rubrum</i>
678		(3)12" SUGAR MAPLE	<i>Acer saccharum</i>
679		16" AMERICAN BEECH	<i>Fagus grandifolia</i>
680		16" SUGAR MAPLE	<i>Acer saccharum</i>
681		24" RED MAPLE	<i>Acer rubrum</i>
682		24" RED MAPLE	<i>Acer rubrum</i>
683		16" WHITE OAK	<i>Quercus alba</i>
684		24" SUGAR MAPLE	<i>Acer saccharum</i>
685		28" RED MAPLE	<i>Acer rubrum</i>
686		22" AMERICAN BEECH	<i>Fagus grandifolia</i>
687		16" WHITE OAK	<i>Quercus alba</i>
688		24" SUGAR MAPLE	<i>Acer saccharum</i>
689		36" AMERICAN BEECH	<i>Fagus grandifolia</i>
690		22" AMERICAN BEECH	<i>Fagus grandifolia</i>
691		14" AMERICAN BEECH	<i>Fagus grandifolia</i>
692		20" SUGAR MAPLE	<i>Acer saccharum</i>
693		18" AMERICAN BEECH	<i>Fagus grandifolia</i>
694		14" WHITE OAK	<i>Quercus alba</i>
695		22" AMERICAN BEECH	<i>Fagus grandifolia</i>
696		18" WHITE OAK	<i>Quercus alba</i>
697		20" BLACK CHERRY	<i>Prunus serotina</i>
698		16" AMERICAN BEECH	<i>Fagus grandifolia</i>
699		18" BLACK CHERRY	<i>Prunus serotina</i>
700		36" AMERICAN BEECH	<i>Fagus grandifolia</i>
701		22" RED MAPLE	<i>Acer rubrum</i>
702		12" WHITE ASH	<i>Fraxinus americana</i>
702a		16" AMERICAN ELM	<i>Ulmus americana</i>
702b		30" RED MAPLE	<i>Acer rubrum</i>
702c		16" BLACK CHERRY	<i>Prunus serotina</i>
702d		12" BLACK CHERRY	<i>Prunus serotina</i>
702e		12" BLACK CHERRY	<i>Prunus serotina</i>
704		22" RED OAK	<i>Quercus rubra</i>
704a		12" AMERICAN ELM	<i>Ulmus americana</i>
705		(2)14" RED OAK	<i>Quercus rubra</i>
706		16" WHITE ASH	<i>Fraxinus americana</i>
707		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
708		14" AMERICAN ELM	<i>Ulmus americana</i>
709		12" RED MAPLE	<i>Acer rubrum</i>

710		16" COTTONWOOD	<i>Populus deltoides</i>
711		16" COTTONWOOD	<i>Populus deltoides</i>
712		14" BLACK CHERRY	<i>Prunus serotina</i>
713		16" BLACK CHERRY	<i>Prunus serotina</i>
713a		14" BLACK CHERRY	<i>Prunus serotina</i>
713b		16" BLACK CHERRY	<i>Prunus serotina</i>
713c		12" BLACK CHERRY	<i>Prunus serotina</i>
714		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
715		16" BLACK CHERRY	<i>Prunus serotina</i>
716		14" BLACK CHERRY	<i>Prunus serotina</i>
717		16" BLACK CHERRY	<i>Prunus serotina</i>
717a		16" BLACK CHERRY	<i>Prunus serotina</i>
717b		14" BLACK CHERRY	<i>Prunus serotina</i>
717c		12" BLACK CHERRY	<i>Prunus serotina</i>
717d		12" BLACK CHERRY	<i>Prunus serotina</i>
717e		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
718		(2)14" RED MAPLE	<i>Acer rubrum</i>
718a		12" RED OAK	<i>Quercus rubra</i>
719		16" BLACK CHERRY	<i>Prunus serotina</i>
720		18" RED OAK	<i>Quercus rubra</i>
720a		14" BLACK CHERRY	<i>Prunus serotina</i>
720b		12" BLACK CHERRY	<i>Prunus serotina</i>
720c		16" BLACK CHERRY	<i>Prunus serotina</i>
720d		14" BLACK CHERRY	<i>Prunus serotina</i>
721		(2)16" BLACK CHERRY	<i>Prunus serotina</i>
722		16" BLACK CHERRY	<i>Prunus serotina</i>
723		(4)16" BLACK CHERRY	<i>Prunus serotina</i>
724		16" BLACK CHERRY	<i>Prunus serotina</i>
725		(2)16" BLACK CHERRY	<i>Prunus serotina</i>
726		18" BLACK CHERRY	<i>Prunus serotina</i>
727		12" RED OAK	<i>Quercus rubra</i>
728		14" BLACK CHERRY	<i>Quercus rubra</i>
728a		(2)12" BLACK CHERRY	<i>Quercus rubra</i>
728b		12" BLACK CHERRY	<i>Quercus rubra</i>
729		14" HACKBERRY	<i>Celtis occidentalis</i>
729a		16" BLACK CHERRY	<i>Quercus rubra</i>
730		14" BLACK CHERRY	<i>Quercus rubra</i>
731		16" BLACK CHERRY	<i>Quercus rubra</i>
732		10" HACKBERRY	<i>Celtis occidentalis</i>
733		14" WHITE ASH	<i>Fraxinus americana</i>
734		10" HACKBERRY	<i>Celtis occidentalis</i>
734a		14" WHITE ASH	<i>Fraxinus americana</i>
735		12" COTTONWOOD	<i>Populus deltoides</i>
735a		14" BOX ELDER	<i>Acer negundo</i>
736		14" COTTONWOOD	<i>Populus deltoides</i>
737a		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
738		14" COTTONWOOD	<i>Populus deltoides</i>
739		(2)12" COTTONWOOD	<i>Populus deltoides</i>
740		(3)16" BLACK CHERRY	<i>Prunus serotina</i>
740a		12" BLACK CHERRY	<i>Prunus serotina</i>
740b		(3)12" BLACK CHERRY	<i>Prunus serotina</i>
741		(2)14" BLACK CHERRY	<i>Prunus serotina</i>
742		(2)12" COTTONWOOD	<i>Populus deltoides</i>
742a		12" COTTONWOOD	<i>Populus deltoides</i>
742b		(2)12" COTTONWOOD	<i>Populus deltoides</i>
742c		12" COTTONWOOD	<i>Populus deltoides</i>
743		14" COTTONWOOD	<i>Populus deltoides</i>

743a		(2)12" COTTONWOOD	<i>Populus deltoides</i>
743b		(2)12" COTTONWOOD	<i>Populus deltoides</i>
743c		(2)12" COTTONWOOD	<i>Populus deltoides</i>
744		(4)12" COTTONWOOD	<i>Populus deltoides</i>
745		14" COTTONWOOD	<i>Populus deltoides</i>
746		(3)12" COTTONWOOD	<i>Populus deltoides</i>
747		(4)12" COTTONWOOD	<i>Populus deltoides</i>
748		16" COTTONWOOD	<i>Populus deltoides</i>
749		14" BOX ELDER	<i>Acer negundo</i>
749a		(2)18" COTTONWOOD	<i>Populus deltoides</i>
750		14" COTTONWOOD	<i>Populus deltoides</i>
750a		12" BOX ELDER	<i>Acer negundo</i>
750b		12" COTTONWOOD	<i>Populus deltoides</i>
750c		12" COTTONWOOD	<i>Populus deltoides</i>
750d		(3)10" BLACK CHERRY	<i>Prunus serotina</i>
750e		12" COTTONWOOD	<i>Populus deltoides</i>
750f		12" COTTONWOOD	<i>Populus deltoides</i>
750g		14" COTTONWOOD	<i>Populus deltoides</i>
750h		12" COTTONWOOD	<i>Populus deltoides</i>
751		(2)12" RED MAPLE	<i>Acer rubrum</i>
751a		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
751b		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
751c		(3)12" BLACK CHERRY	<i>Prunus serotina</i>
752		12" WHITE OAK	<i>Quercus alba</i>
752a		12" RED OAK	<i>Quercus rubra</i>
752b		12" RED OAK	<i>Quercus rubra</i>
753		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
754		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
755		(3)14" BOX ELDER	<i>Acer negundo</i>
756		(2)14" HACKBERRY	<i>Celtis occidentalis</i>
757		18" BURR OAK	<i>Quercus macrocarpa</i>
758		24" COTTONWOOD	<i>Populus deltoides</i>
759		16" BOX ELDER	<i>Acer negundo</i>
760		42" BURR OAK	<i>Quercus macrocarpa</i>
761		12" COTTONWOOD	<i>Populus deltoides</i>
762		24" COTTONWOOD	<i>Populus deltoides</i>
763		14" COTTONWOOD	<i>Populus deltoides</i>
764		14" COTTONWOOD	<i>Populus deltoides</i>
765		(2)14" COTTONWOOD	<i>Populus deltoides</i>
766		18" COTTONWOOD	<i>Populus deltoides</i>
767		22" COTTONWOOD	<i>Populus deltoides</i>
768		14" COTTONWOOD	<i>Populus deltoides</i>
769		14" COTTONWOOD	<i>Populus deltoides</i>
770		16" COTTONWOOD	<i>Populus deltoides</i>
771		12" COTTONWOOD	<i>Populus deltoides</i>
772		12" COTTONWOOD	<i>Populus deltoides</i>
773		14" BLACK CHERRY	<i>Prunus serotina</i>
774		14" BLACK CHERRY	<i>Prunus serotina</i>
775		12" COTTONWOOD	<i>Populus deltoides</i>
776		12" COTTONWOOD	<i>Populus deltoides</i>
777		12" COTTONWOOD	<i>Populus deltoides</i>
778		12" COTTONWOOD	<i>Populus deltoides</i>
779		12" BOX ELDER	<i>Acer negundo</i>
780		24" BOX ELDER	<i>Acer negundo</i>
781		12" BOX ELDER	<i>Acer negundo</i>
782		14" BOX ELDER	<i>Acer negundo</i>
783		(2)16" BOX ELDER	<i>Acer negundo</i>

784		12" BLACK CHERRY	<i>Prunus serotina</i>
785		18" COTTONWOOD	<i>Populus deltoides</i>
786		18" COTTONWOOD	<i>Populus deltoides</i>
788		14" BLACK CHERRY	<i>Prunus serotina</i>
789		12" BLACK CHERRY	<i>Prunus serotina</i>
790		14" BLACK CHERRY	<i>Prunus serotina</i>
791		18" COTTONWOOD	<i>Populus deltoides</i>
792		12" BLACK CHERRY	<i>Prunus serotina</i>
793		54" BURR OAK	<i>Quercus macrocarpa</i>
794		14" SUGAR MAPLE	<i>Acer saccharum</i>
795		12" SUGAR MAPLE	<i>Acer saccharum</i>
796		14" BOX ELDER	<i>Acer negundo</i>
797		12" RED OAK	<i>Quercus rubra</i>
797a		48" SUGAR MAPLE	<i>Acer saccharum</i>
799		48" SUGAR MAPLE	<i>Acer saccharum</i>
800		12" RED OAK	<i>Quercus rubra</i>
801		12" RED OAK	<i>Quercus rubra</i>
802		12" RED OAK	<i>Quercus rubra</i>
820		14" BLACK CHERRY	<i>Prunus serotina</i>
821		16" BLACK CHERRY	<i>Prunus serotina</i>
822		16" WHITE PINE	<i>Pinus strobus</i>
823		14" WHITE PINE	<i>Pinus strobus</i>
824		14" WHITE PINE	<i>Pinus strobus</i>
825		14" WHITE PINE	<i>Pinus strobus</i>
826		14" WHITE PINE	<i>Pinus strobus</i>
827		14" BOX ELDER	<i>Acer negundo</i>
828		14" BOX ELDER	<i>Acer negundo</i>
829		16" BOX ELDER	<i>Acer negundo</i>
830		(4)14" BOX ELDER	<i>Acer negundo</i>
831		(3)12" BLACK WALNUT	<i>Juglans nigra</i>
832		12" COTTONWOOD	<i>Populus deltoides</i>
833		12" NORWAY MAPLE	<i>Acer platanoides</i>
834		(2)30" NORWAY MAPLE	<i>Acer platanoides</i>
835		24" NORWAY MAPLE	<i>Acer platanoides</i>
836		22" NORWAY MAPLE	<i>Acer platanoides</i>
837		16" NORWAY MAPLE	<i>Acer platanoides</i>
838		12" NORWAY MAPLE	<i>Acer platanoides</i>
839		16" NORWAY MAPLE	<i>Acer platanoides</i>
840		12" NORWAY MAPLE	<i>Acer platanoides</i>
841		20" NORWAY MAPLE	<i>Acer platanoides</i>
842		12" NORWAY MAPLE	<i>Acer platanoides</i>
843		12" NORWAY MAPLE	<i>Acer platanoides</i>
844		36" NORWAY MAPLE	<i>Acer platanoides</i>
845		32" SUGAR MAPLE	<i>Acer saccharum</i>
846		22" NORWAY SPRUCE	<i>Picea abies</i>
847		24" NORWAY MAPLE	<i>Acer platanoides</i>
848		12" NORWAY MAPLE	<i>Acer platanoides</i>
849		16" NORWAY MAPLE	<i>Acer platanoides</i>
850		24" WHITE MULBERRY	<i>Morus alba</i>
854		18" WILLOW	<i>Salix species</i>
855		12" COTTONWOOD	<i>Populus deltoides</i>
855a		12" COTTONWOOD	<i>Populus deltoides</i>
856		12" COTTONWOOD	<i>Populus deltoides</i>
857		(2)12" COTTONWOOD	<i>Populus deltoides</i>
858		(2)12" BOX ELDER	<i>Acer negundo</i>
858a		16" WHITE PINE	<i>Pinus strobus</i>
858b		12" WHITE PINE	<i>Pinus strobus</i>

858c		12" WHITE PINE	<i>Pinus strobus</i>
858d		14" WHITE PINE	<i>Pinus strobus</i>
858e		14" WHITE PINE	<i>Pinus strobus</i>
860		(3)10" BLACK CHERRY	<i>Prunus serotina</i>
861		12" BLACK CHERRY	<i>Prunus serotina</i>
862		12" BOX ELDER	<i>Acer negundo</i>
862a		12" BLACK CHERRY	<i>Prunus serotina</i>
862b		12" BOX ELDER	<i>Acer negundo</i>
862c		12" BOX ELDER	<i>Acer negundo</i>
862d		12" BOX ELDER	<i>Acer negundo</i>
863		(4)12" RED MAPLE	<i>Acer rubrum</i>
864		12" SUGAR MAPLE	<i>Acer saccharum</i>
865		16" SUGAR MAPLE	<i>Acer saccharum</i>
866		14" COTTONWOOD	<i>Populus deltoides</i>
867		24" BLACK CHERRY	<i>Prunus serotina</i>
868		14" BLACK CHERRY	<i>Prunus serotina</i>
869		(2)14" BLACK CHERRY	<i>Prunus serotina</i>
870		(2)14" BLACK CHERRY	<i>Prunus serotina</i>
871		22" HACKBERRY	<i>Celtis occidentalis</i>
872		(2)16" BLACK CHERRY	<i>Prunus serotina</i>
873		18" BOX ELDER	<i>Acer negundo</i>
873a		12" BOX ELDER	<i>Acer negundo</i>
874		14" BLACK CHERRY	<i>Prunus serotina</i>
875		12" BOX ELDER	<i>Acer negundo</i>
876		(3)12" BOX ELDER	<i>Acer negundo</i>
877		12" BOX ELDER	<i>Acer negundo</i>
879		(2)12" BOX ELDER	<i>Acer negundo</i>
880		12" BOX ELDER	<i>Acer negundo</i>
880a		12" BOX ELDER	<i>Acer negundo</i>
881		12" BOX ELDER	<i>Acer negundo</i>
882		14" BLACK CHERRY	<i>Prunus serotina</i>
883		16" BLACK CHERRY	<i>Prunus serotina</i>
884		(2)16" BLACK CHERRY	<i>Prunus serotina</i>
885		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
886		(2)12" BOX ELDER	<i>Acer negundo</i>
887		(3)12" BOX ELDER	<i>Acer negundo</i>
888		(2)12" BOX ELDER	<i>Acer negundo</i>
889		14" BOX ELDER	<i>Acer negundo</i>
890		12" BOX ELDER	<i>Acer negundo</i>
891		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
892		14" BLACK CHERRY	<i>Prunus serotina</i>
893		36" COTTONWOOD	<i>Populus deltoides</i>
894		12" BLACK CHERRY	<i>Prunus serotina</i>
895		16" BLACK CHERRY	<i>Prunus serotina</i>
896		(3)12" BOX ELDER	<i>Acer negundo</i>
897		12" BOX ELDER	<i>Acer negundo</i>
898		(2)12" BOX ELDER	<i>Acer negundo</i>
899		18" BOX ELDER	<i>Acer negundo</i>
899a		16" BOX ELDER	<i>Acer negundo</i>
900		30" COTTONWOOD	<i>Populus deltoides</i>
900a		18" BOX ELDER	<i>Acer negundo</i>
900b		30" COTTONWOOD	<i>Populus deltoides</i>
901		(2)18" BOX ELDER	<i>Acer negundo</i>
902		14" BOX ELDER	<i>Acer negundo</i>
903		16" BOX ELDER	<i>Acer negundo</i>
904		18" COTTONWOOD	<i>Populus deltoides</i>
905		14" BOX ELDER	<i>Acer negundo</i>

906		14" BOX ELDER	<i>Acer negundo</i>
907		12" BOX ELDER	<i>Acer negundo</i>
908		14" BOX ELDER	<i>Acer negundo</i>
909		16" BOX ELDER	<i>Acer negundo</i>
910		14" BOX ELDER	<i>Acer negundo</i>
911		16" BOX ELDER	<i>Acer negundo</i>
912		14" BOX ELDER	<i>Acer negundo</i>
913		22" BOX ELDER	<i>Acer negundo</i>
914		14" BOX ELDER	<i>Acer negundo</i>
915		14" BOX ELDER	<i>Acer negundo</i>
916		12" BOX ELDER	<i>Acer negundo</i>
917		16" BOX ELDER	<i>Acer negundo</i>
918		14" BOX ELDER	<i>Acer negundo</i>
919		14" BLACK CHERRY	<i>Prunus serotina</i>
920		16" BOX ELDER	<i>Acer negundo</i>
921		16" BOX ELDER	<i>Acer negundo</i>
922		14" BLACK CHERRY	<i>Prunus serotina</i>
923		(2)18" BOX ELDER	<i>Acer negundo</i>
924		14" BOX ELDER	<i>Acer negundo</i>
925		(4)14" BOX ELDER	<i>Acer negundo</i>
926		22" BOX ELDER	<i>Acer negundo</i>
926a		(3)12" BOX ELDER	<i>Acer negundo</i>
927		(2)12" BOX ELDER	<i>Acer negundo</i>
928		16" BOX ELDER	<i>Acer negundo</i>
929		(2)14" BOX ELDER	<i>Acer negundo</i>
930		12" BOX ELDER	<i>Acer negundo</i>
931		42" SUGAR MAPLE	<i>Acer saccharum</i>
931a		(2)12" BOX ELDER	<i>Acer negundo</i>
931b		12" AMERICAN ELM	<i>Ulmus americana</i>
931c		14" BOX ELDER	<i>Acer negundo</i>
931d		16" BOX ELDER	<i>Acer negundo</i>
931e		14" BOX ELDER	<i>Acer negundo</i>
931f		14" BOX ELDER	<i>Acer negundo</i>
931g		16" BOX ELDER	<i>Acer negundo</i>
931h		(2)22" BOX ELDER	<i>Acer negundo</i>
931i		12" BOX ELDER	<i>Acer negundo</i>
931j		12" BOX ELDER	<i>Acer negundo</i>
931k		12" BOX ELDER	<i>Acer negundo</i>
931l		14" BOX ELDER	<i>Acer negundo</i>
931m		12" BOX ELDER	<i>Acer negundo</i>
931n		12" BLACK CHERRY	<i>Prunus serotina</i>
931p		16" BOX ELDER	<i>Acer negundo</i>
932		12" BOX ELDER	<i>Acer negundo</i>
932a		16" BOX ELDER	<i>Acer negundo</i>
932b		16" BOX ELDER	<i>Acer negundo</i>
932c		12" WHITE ASH	<i>Acer negundo</i>
932d		16" BOX ELDER	<i>Acer negundo</i>
933		12" BOX ELDER	<i>Acer negundo</i>
933a		(3)16" SILVER MAPLE	<i>Acer saccharinum</i>
933b		12" BOX ELDER	<i>Acer negundo</i>
933c		16" BOX ELDER	<i>Acer negundo</i>
933d		16" BOX ELDER	<i>Acer negundo</i>
933e		16" BOX ELDER	<i>Acer negundo</i>
934		16" BOX ELDER	<i>Acer negundo</i>
935		(2)12" BLACK CHERRY	<i>Prunus serotina</i>
936		(2)14" BOX ELDER	<i>Acer negundo</i>
937		18" BOX ELDER	<i>Acer negundo</i>

938		18" BOX ELDER	<i>Acer negundo</i>
939		18" BOX ELDER	<i>Acer negundo</i>
939a		(2)14" BLACK CHERRY	<i>Prunus serotina</i>
940		(2)14" BOX ELDER	<i>Acer negundo</i>
941		18" BLACK CHERRY	<i>Prunus serotina</i>
941a		18" BOX ELDER	<i>Acer negundo</i>
942		(3)12" BOX ELDER	<i>Acer negundo</i>
942a		12" BLACK CHERRY	<i>Prunus serotina</i>
943		(3)14" BOX ELDER	<i>Acer negundo</i>
944		(2)18" BOX ELDER	<i>Acer negundo</i>
945		(4)14" BOX ELDER	<i>Acer negundo</i>
946		12" BOX ELDER	<i>Acer negundo</i>
946a		12" BOX ELDER	<i>Acer negundo</i>
947		(3)12" BOX ELDER	<i>Acer negundo</i>
948		(3)16" BOX ELDER	<i>Acer negundo</i>
949		14" BOX ELDER	<i>Acer negundo</i>
950		16" COTTONWOOD	<i>Populus deltoides</i>
951		12" COTTONWOOD	<i>Populus deltoides</i>
952		12" BOX ELDER	<i>Acer negundo</i>
953		(2)14" BOX ELDER	<i>Acer negundo</i>
953a		14" COTTONWOOD	<i>Populus deltoides</i>
954		(2)18" BOX ELDER	<i>Acer negundo</i>
955		(2)12" BOX ELDER	<i>Acer negundo</i>
957		12" BOX ELDER	<i>Acer negundo</i>
959		14" COTTONWOOD	<i>Populus deltoides</i>
960		12" BLACK CHERRY	<i>Prunus serotina</i>
961		12" COTTONWOOD	<i>Populus deltoides</i>
962		12" COTTONWOOD	<i>Populus deltoides</i>
962a		(2)12" BOX ELDER	<i>Acer negundo</i>
963		12" COTTONWOOD	<i>Populus deltoides</i>
964		12" COTTONWOOD	<i>Populus deltoides</i>
964a		12" COTTONWOOD	<i>Populus deltoides</i>
964b		12" COTTONWOOD	<i>Populus deltoides</i>
964c		12" COTTONWOOD	<i>Populus deltoides</i>
964d		(2)12" BOX ELDER	<i>Acer negundo</i>
965		14" COTTONWOOD	<i>Populus deltoides</i>
966		(2)14" COTTONWOOD	<i>Populus deltoides</i>
966a		14" COTTONWOOD	<i>Populus deltoides</i>
967		(4)10" COTTONWOOD	<i>Populus deltoides</i>
968		12" WHITE ASH	<i>Fraxinus americana</i>
969		12" BOX ELDER	<i>Acer negundo</i>
970		18" BLACK CHERRY	<i>Prunus serotina</i>
971		(2)16" HACKBERRY	<i>Celtis occidentalis</i>
972		(2)12" COTTONWOOD	<i>Populus deltoides</i>
973		14" COTTONWOOD	<i>Populus deltoides</i>
974		(4)14" COTTONWOOD	<i>Populus deltoides</i>
975		16" BLACK CHERRY	<i>Prunus serotina</i>
976		18" COTTONWOOD	<i>Populus deltoides</i>
977		14" COTTONWOOD	<i>Populus deltoides</i>
978		14" COTTONWOOD	<i>Populus deltoides</i>
979		18" COTTONWOOD	<i>Populus deltoides</i>
980		12" COTTONWOOD	<i>Populus deltoides</i>
981		18" BLACK CHERRY	<i>Prunus serotina</i>
982		(3)12" COTTONWOOD	<i>Populus deltoides</i>
983		(2)12" COTTONWOOD	<i>Populus deltoides</i>
984		(2)12" BLACK LOCUST	<i>Robinia pseudoacacia</i>
985		12" WHITE ASH	<i>Fraxinus americana</i>

986		12" BLACK CHERRY	<i>Prunus serotina</i>
987		(2)12" COTTONWOOD	<i>Populus deltoides</i>
988		12" BLACK CHERRY	<i>Prunus serotina</i>
989		12" BLACK CHERRY	<i>Prunus serotina</i>
990		12" BLACK CHERRY	<i>Prunus serotina</i>
991		(2)16" COTTONWOOD	<i>Populus deltoides</i>
992		(2)14" COTTONWOOD	<i>Populus deltoides</i>
993		(3)12" COTTONWOOD	<i>Populus deltoides</i>
994		12" COTTONWOOD	<i>Populus deltoides</i>
995		(2)12" COTTONWOOD	<i>Populus deltoides</i>
996		(2)12" COTTONWOOD	<i>Populus deltoides</i>
997		(2)12" COTTONWOOD	<i>Populus deltoides</i>
998		12" BOX ELDER	<i>Acer negundo</i>
999		12" BLACK CHERRY	<i>Prunus serotina</i>
1000		14" BOX ELDER	<i>Acer negundo</i>
1501		12" RED OAK	<i>Quercus rubra</i>
1502		12" AMERICAN ELM	<i>Ulmus americana</i>
1503		12" RED OAK	<i>Quercus rubra</i>
1504		12" RED OAK	<i>Quercus rubra</i>
1505		12" RED OAK	<i>Quercus rubra</i>
1506		12" RED OAK	<i>Quercus rubra</i>
1507		12" RED OAK	<i>Quercus rubra</i>
1508		12" RED OAK	<i>Quercus rubra</i>
1509		12" BLACK CHERRY	<i>Prunus serotina</i>
1510		30" BASSWOOD	<i>Tilia americana</i>
1511		14" RED OAK	<i>Quercus rubra</i>
1512		24" BASSWOOD	<i>Tilia americana</i>
1513		24" SUGAR MAPLE	<i>Acer saccharum</i>
1514		12" RED OAK	<i>Quercus rubra</i>
1515		14" RED OAK	<i>Quercus rubra</i>
1516		14" RED OAK	<i>Quercus rubra</i>
1517		12" RED OAK	<i>Quercus rubra</i>
1518		48" BURR OAK	<i>Quercus macrocarpa</i>
1519		12" IRONWOOD	<i>Ostrya virginiana</i>
1520		22" AMERICAN BEECH	<i>Fagus grandifolia</i>
1521		24" AMERICAN BEECH	<i>Fagus grandifolia</i>
1522		26" AMERICAN BEECH	<i>Fagus grandifolia</i>
1523		32" AMERICAN BEECH	<i>Fagus grandifolia</i>
1524		12" RED OAK	<i>Quercus rubra</i>
1526		12" WHITE OAK	<i>Quercus alba</i>
1527		22" AMERICAN BEECH	<i>Fagus grandifolia</i>
1528		22" WHITE OAK	<i>Quercus alba</i>
1528a		14" AMERICAN BEECH	<i>Fagus grandifolia</i>
1528b		18" WHITE OAK	<i>Quercus alba</i>
1529		16" AMERICAN BEECH	<i>Fagus grandifolia</i>
1530		14" RED OAK	<i>Quercus rubra</i>
1531		12" RED OAK	<i>Quercus rubra</i>
1532		12" RED OAK	<i>Quercus rubra</i>
1533		18" SUGAR MAPLE	<i>Acer saccharum</i>
1534		28" AMERICAN BEECH	<i>Fagus grandifolia</i>
1535		32" AMERICAN BEECH	<i>Fagus grandifolia</i>
1536		14" AMERICAN BEECH	<i>Fagus grandifolia</i>
1537		24" SUGAR MAPLE	<i>Acer saccharum</i>
1538		24" RED OAK	<i>Quercus rubra</i>
1539		12" RED OAK	<i>Quercus rubra</i>
1540		12" RED OAK	<i>Quercus rubra</i>
1541		12" RED OAK	<i>Quercus rubra</i>

1543		12" PIN CHERRY	<i>Prunus serotina</i>
1544		20" AMERICAN BEECH	<i>Fagus grandifolia</i>
1545		24" AMERICAN BEECH	<i>Fagus grandifolia</i>
1546		24" SUGAR MAPLE	<i>Acer saccharum</i>
1547		12" RED OAK	<i>Quercus rubra</i>
1548		16" RED OAK	<i>Quercus rubra</i>
1549		16" RED OAK	<i>Quercus rubra</i>
1550		12" RED OAK	<i>Quercus rubra</i>
1551		36" AMERICAN BEECH	<i>Fagus grandifolia</i>
1552		20" AMERICAN BEECH	<i>Fagus grandifolia</i>
1553		14" RED OAK	<i>Quercus rubra</i>
1554		14" RED OAK	<i>Quercus rubra</i>
1555		(2)12" COTTONWOOD	<i>Populus deltoides</i>
1556		14" RED OAK	<i>Quercus rubra</i>
1557		(2)12" COTTONWOOD	<i>Populus deltoides</i>
1558		12" RED OAK	<i>Quercus rubra</i>
1559		12" RED OAK	<i>Quercus rubra</i>
1560		12" RED OAK	<i>Quercus rubra</i>
1561		14" RED OAK	<i>Quercus rubra</i>
1562		14" RED OAK	<i>Quercus rubra</i>
1563		12" SUGAR MAPLE	<i>Acer saccharum</i>
1564		14" NORWAY MAPLE	<i>Acer platanoides</i>
1565		14" SUGAR MAPLE	<i>Acer saccharum</i>
1566		14" BLACK CHERRY	<i>Prunus serotina</i>
1567		14" COTTONWOOD	<i>Populus deltoides</i>
1568		28" AMERICAN BEECH	<i>Fagus grandifolia</i>
1569		12" RED OAK	<i>Quercus rubra</i>
1570		16" BOX ELDER	<i>Acer negundo</i>
1570a		16" BOX ELDER	<i>Acer negundo</i>
1571		(2)12" BOX ELDER	<i>Acer negundo</i>
1571a		(2)12" BOX ELDER	<i>Acer negundo</i>
1572		12" BLACK CHERRY	<i>Prunus serotina</i>
1572a		12" BLACK CHERRY	<i>Prunus serotina</i>
2100		12" BOX ELDER	<i>Acer negundo</i>
2101		16" BOX ELDER	<i>Acer negundo</i>
2102		12" BOX ELDER	<i>Acer negundo</i>
2103		14" BOX ELDER	<i>Acer negundo</i>
2104		16" BOX ELDER	<i>Acer negundo</i>
2105		14" BLACK CHERRY	<i>Prunus serotina</i>
2106		14" BOX ELDER	<i>Acer negundo</i>
2107		12" BOX ELDER	<i>Acer negundo</i>
2108		14" BOX ELDER	<i>Acer negundo</i>
2109		20" BLACK CHERRY	<i>Prunus serotina</i>
2110		12" WHITE OAK	<i>Quercus alba</i>
2111		18" BLACK CHERRY	<i>Prunus serotina</i>
2112		12" BOX ELDER	<i>Acer negundo</i>
2113		14" BOX ELDER	<i>Acer negundo</i>
2114		12" BOX ELDER	<i>Acer negundo</i>
2115		12" BOX ELDER	<i>Acer negundo</i>
2116		16" BOX ELDER	<i>Acer negundo</i>
2117		12" HACKBERRY	<i>Celtis occidentalis</i>
2118		12" BLACK CHERRY	<i>Prunus serotina</i>
2119		14" BOX ELDER	<i>Acer negundo</i>
2120		12" HACKBERRY	<i>Celtis occidentalis</i>
2121		14" BLACK CHERRY	<i>Prunus serotina</i>
2122		36" SUGAR MAPLE	<i>Acer saccharum</i>
2123		12" BLACK CHERRY	<i>Prunus serotina</i>

2124		16" BLACK CHERRY	<i>Prunus serotina</i>
2125		14" AMERICAN ELM	<i>Ulmus americana</i>
2126		14" SUGAR MAPLE	<i>Acer saccharum</i>
2127		12" BOX ELDER	<i>Acer negundo</i>
2130		16" BLACK CHERRY	<i>Prunus serotina</i>
2131		14" BOX ELDER	<i>Acer negundo</i>
2132		14" APPLE	<i>Malus pumila</i>
2133		12" BOX ELDER	<i>Acer negundo</i>
2134		12" BOX ELDER	<i>Acer negundo</i>
2135		12" BLACK CHERRY	<i>Prunus serotina</i>
2136		32" SUGAR MAPLE	<i>Acer saccharum</i>
2137		12" BOX ELDER	<i>Acer negundo</i>
2138		14" BOX ELDER	<i>Acer negundo</i>
2139		18" WHITE OAK	<i>Quercus alba</i>
2140		14" BOX ELDER	<i>Acer negundo</i>



December 19, 2017
Project No. G171994

Mr. Mark Kieselbach
Charter Township of Meridian
5151 Marsh Road
Okemos, MI 48864-1198

Re: Wetland Investigation – WDV 17-06
Sturk Property
Bennett Road, Okemos, Ingham County, Michigan

Dear Mr. Kieselbach:

On November 20 and 28, 2017, Fishbeck, Thompson, Carr & Huber, Inc. (FTCH) staff conducted a field investigation to determine whether wetlands are present on the approximately 76.5-acre Sturk Property (the Site). The Site is located directly north of Bennett Road and 0.25 mile east of South Hagadorn Road (see Figure 1). The results of the investigation are included in this report.

The area of investigation is located in the southwest $\frac{1}{4}$ of Section 29, Town 4 North, Range 1 West, and consists of multiple parcels. The Site contains historically disturbed undeveloped property. Its southern end contains three residential parcels fronting Bennett Road. An additional residence is located in the southeast quadrant of the Site. The Site is bound by undeveloped property to the north; residential property, the Okemos Public Schools bus garage and Schultz Veterinary Clinic to the east; Bennett Road, and the College Fields Golf Club to the south and west. Herron Creek flows north-northeast through the golf course and onto the northwest edge of the Site, as indicated in Figure 1.

The investigation was conducted in a manner consistent with the 1987 *Corps of Engineers Wetlands Delineation Manual* and 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2). The wetlands identification and delineation procedures outlined in these manuals require evaluation of site vegetation, soils, and hydrologic characteristics. Hydrophytic vegetation decisions are based on the wetland indicator status of species that are dominant in the plant community. Species with indicator statuses of obligate wetland (OBL), facultative wetland (FACW), and facultative (FAC) are considered wetland species, while species with indicator statuses of facultative upland (FACU) and upland (UPL) are considered upland species. FAC species are also commonly present in upland plant communities.

Literature Review

The Charter Township of Meridian (Township) wetland map for Section 29 indicates two wetlands on the Site:

- Wetland 29-1, a 131.30-acre emergent and scrub shrub wetland associated with Herron Creek. The wetland wraps around the north and northeast ends of the Site
- Wetland 29-2, a 0.46-acre emergent wetland in the Site's southeast quadrant.

According to the U.S. Department of Agriculture Natural Resources Conservation Service *Web Soil Survey*, the area mapped as Wetland 29-1 contains Houghton muck (100% hydric rating) and Colwood-Brookston loams (80% hydric rating). The remainder of the Site contains several different soil series ranked as not hydric or 1 to 32% hydric (Appendix 1).

The National Wetlands Inventory map indicates forested and emergent wetlands are present in generally the same areas as those with mapped hydric soil (Appendix 2).



Site Investigation

The area of investigation and wetland sampling locations are noted in Figure 1. Photographs of wetland sampling points and associated plant communities are included in Appendix 3. The investigation was conducted after a killing frost which resulted in significant die-back of herbaceous vegetation. The Site sloped down to the north and to the east, to wetland areas. Overall, the Site's upland areas appeared highly disturbed, with many piles of fill soil and a network of dirt two-track trails and gravel access roads. Many of the fill piles were well-vegetated with large woody plants, indicating fill operations occurred historically. Google Earth aerial photographs dating back to 1999 confirmed extensive ground disturbance, fill placement, and ditches. Additionally, piles of wood and metal were observed onsite.

The northern portion of the Site contained an extensive emergent wetland dominated with reed canarygrass (*Phalaris arundinacea*, FACW). This wetland is designated as Wetland A on the Wetland Sketch Plan in Appendix 4. It corresponds to Township Wetland 29-1 and is contiguous with Herron Creek. Shrub thickets adjacent to the emergent wetland were dominated by northern prickly-ash (*Zanthoxylum americanum*, FACU), an upland species. The wetland boundary was generally located at the interface of the shrub thicket and the reed canarygrass-dominated plant community. Wetland A encompassed 9.06 acres on the Site.

No indication of Township Wetland 29-2 was observed during the site investigation. The area mapped on the Township wetland map was semi-developed and located just north of a house. It contained upland vegetation, including invasive honeysuckle shrubs (*Lonicera* sp.).

Wetland B was observed near the eastern property boundary, approximately midway between the north and south property boundaries. It consisted of an emergent/forested/scrub-shrub wetland complex. Sampling Point SP-B was located at the western edge of this wetland complex in forest dominated with box-elder trees (*Acer negundo*, FAC) and glossy buckthorn trees and shrubs (*Frangula alnus*, FAC). The adjacent emergent wetland contained shallow standing water.

Wetland sampling point SP-E was evaluated approximately 400 feet north-northeast of SP-B in forested wetland dominated by eastern cottonwood (*Populus deltoides*, FAC) and glossy buckthorn trees. Emergent wetland with shallow standing water was present further to the east. Wetland delineation determined that this wetland extended offsite to the east and connected to Wetland B to the south. Therefore, wetland associated with SP-E is part of Wetland B. The approximate total size of this wetland on the Site is 0.83 acre. The Township wetland map indicates that Wetland B is part of Township Wetland 29-1. This connection to Wetland 29-1 was not observed during the wetland delineation. Sophiea Parkway, Laforet Circle, and associated residential property are located on the north and east sides of Wetland B and contain upland which separate the two wetland systems.

Wetland C was located in a depression at the north end of the disturbed portion of the site. The western half of this wetland contained standing water and cattail marsh; the eastern half contained forested wetland dominated by eastern cottonwood trees. Wetland sampling point SP-C was located on the eastern edge of the emergent wetland. Wetland C is 0.16 acre in size.

Area D was located in a bowl-shaped depression east of the Site's main access road within a highly disturbed area, as noted on Figure 1. Area D contains a small area of shallow standing water. The adjacent plant community was not well developed and primarily consisted of herbaceous species which had died back due to frost. A U.S. Army Corps of Engineers Wetland Determination Data Form was not completed in this area because the area of standing water and associated low topography was much less than 0.25 acre in size, and therefore would not be regulated as wetland, if a wetland status was confirmed.

A U.S. Army Corps of Engineers Wetland Determination Data Form was completed to describe site vegetation, soil, and hydrology at each sampling location (Points SP-A, SP-B, SP-C, and SP-E) (Appendix 5). FTCH flagged the wetland boundaries with pink ribbon labelled A1 through A66, B1 through B22, C1 through C15, and E1 through



E10. The points were surveyed by Kebs, Inc. Wetland boundaries and associated wetland acreages are noted on the Wetland Sketch Plan in Appendix 4. Wetlands A and B/E extend onto adjacent parcels and are larger than is indicated.

Conclusions

According to Michigan's Natural Resources and Environmental Protection Act, Act 451, Section 30301(d), wetlands "contiguous to the Great Lakes or Lake St. Clair, an inland lake or pond, or a river or stream" or "more than 5 acres in size" are regulated by the State of Michigan. In addition, the Township regulates wetlands greater than two acres in size which are not contiguous to a water body and wetlands between 0.25 acre and two acres in size that are determined to be essential to the preservation of the natural resources of the Township.

Table 1 summarizes information pertaining to the delineated wetlands.

Table 1 – Summary of Wetlands

Wetland Investigation

Meridian Township/Sturk Property

Wetland	Wetland Type	Size (on Subject Property) (acres)	Corresponding Meridian Wetland	Regulated by the State of Michigan?	Regulated by Meridian?
A	Emergent	9.06	29-1	Yes	Yes
B	Emergent/Forested/Scrub-Shrub	0.83	29-1	No	Possibly
C	Forested/Emergent	0.16		No	No

Wetland A is contiguous to Herron Creek is therefore regulated by both the State of Michigan and the Township. Wetland C is not regulated by the State of Michigan or the Township, due to its small size and not being contiguous to a body of water.

Wetland B is not regulated by the State of Michigan due to its size and not being contiguous with a body of water. Because this wetland is greater than 0.25 acre in size, a determination of essentiality is needed to determine whether it is regulated by the Township's wetland ordinance. A permit would be required from the Township for the following activities within wetlands regulated by the Township:

- Placing fill or permitting the placement of fill in the wetland.
- Dredging, removing, or permitting the removal of soil or minerals from the wetland.
- Constructing, operating, or maintaining any use or development in the wetland.
- Draining surface water from the wetland.
- Discharging water into the wetland.

In addition, the Township requires that all structures and grading activities during site development shall be set back 40 feet from the delineated wetland boundary and a natural vegetation strip shall be maintained within 20 feet of the wetland boundary.

Mr. Mark Kieselbach
Page 4
December 19, 2017



If you have any questions regarding this letter, the wetland permitting process, or any other wetland-related issues, please contact me at 616-464-3738 or ehtripp@ftch.com.

Sincerely,

FISHBECK, THOMPSON, CARR & HUBER, INC.

A handwritten signature in black ink that reads "Elise Hansen Tripp". The signature is written in a cursive style.

Elise Hansen Tripp, PWS

pmb

Attachments

By email

cc/att: Mr. Peter Menser – Township of Meridian

Figures



SITE PLAN
 NORTH 0 150 300 FEET

LEGEND

- Wetland Sampling Point
- ▭ Area of Investigation

DATA SOURCES:
 GOOGLE EARTH PRO
 4/9/2015 IMAGE

fish&h
 engineers
 scientists
 architects
 constructors

fishbeck, thompson,
 carr & huber, inc.

Hard copy is
 intended to be
 11"x17" when
 plotted. Scale(s)
 indicated and
 graphic quality may
 not be accurate for
 any other size.

Charter Township of Meridian
 Sturk Property, Ingham County, Michigan

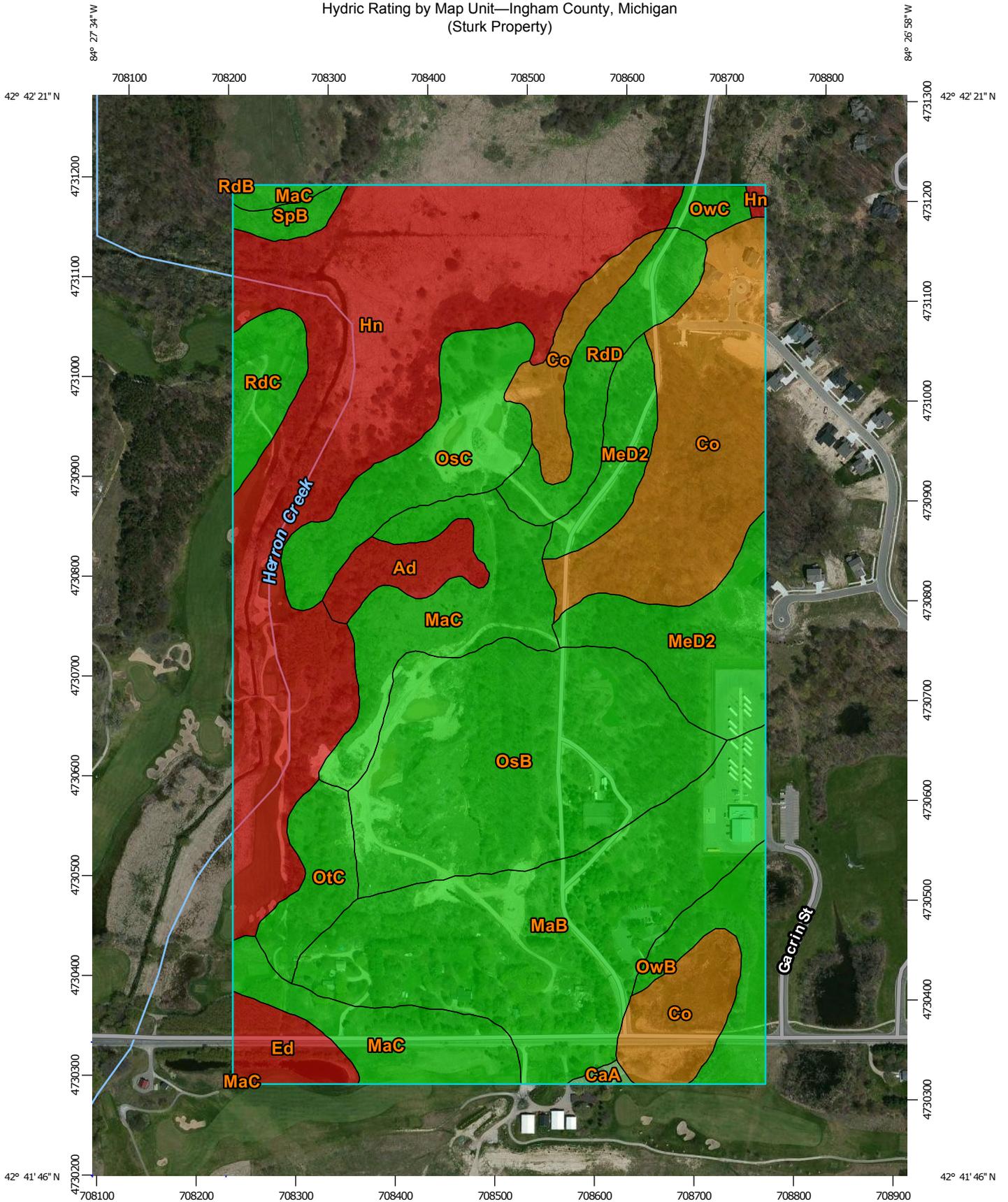
Wetland Investigation

PROJECT NO.
 171994

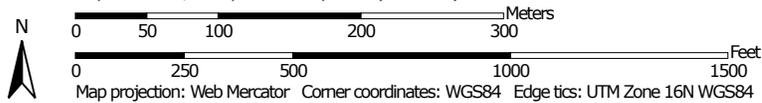
FIGURE NO.
1

Appendix 1

Hydric Rating by Map Unit—Ingham County, Michigan
(Sturk Property)



Map Scale: 1:5,270 if printed on A portrait (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Hydric (100%)
-  Predominantly Hydric (66 to 99%)
-  Partially hydric (33 to 65%)
-  Predominantly nonhydric (1 to 32%)
-  Nonhydric (0%)
-  Not rated or not available

Soil Rating Lines

-  Hydric (100%)
-  Predominantly Hydric (66 to 99%)
-  Partially hydric (33 to 65%)
-  Predominantly nonhydric (1 to 32%)
-  Nonhydric (0%)
-  Not rated or not available

Soil Rating Points

-  Hydric (100%)

-  Predominantly Hydric (66 to 99%)
-  Partially hydric (33 to 65%)
-  Predominantly nonhydric (1 to 32%)
-  Nonhydric (0%)
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ingham County, Michigan
Survey Area Data: Version 10, Dec 14, 2009

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 27, 2010—May 5, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — Ingham County, Michigan (MI065)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ad	Adrian muck	100	2.0	1.7%
CaA	Capac loam, 0 to 3 percent slopes	5	0.2	0.2%
Co	Colwood-Brookston loams	80	16.2	13.5%
Ed	Edwards muck	100	2.0	1.6%
Hn	Houghton muck	100	27.2	22.8%
MaB	Marlette fine sandy loam, 2 to 6 percent slopes	0	16.8	14.1%
MaC	Marlette fine sandy loam, 6 to 12 percent slopes	0	11.1	9.3%
MeD2	Marlette loam, 12 to 18 percent slopes, eroded	0	7.8	6.5%
OsB	Oshtemo sandy loam, 0 to 6 percent slopes	0	16.3	13.7%
OsC	Oshtemo sandy loam, 6 to 12 percent slopes	0	6.1	5.1%
OtC	Oshtemo-Spinks loamy sands, 6 to 12 percent slopes	0	2.7	2.2%
OwB	Owosso-Marlette sandy loams, 2 to 6 percent slopes	0	3.2	2.6%
OwC	Owosso-Marlette sandy loams, 6 to 12 percent slopes	0	0.8	0.7%
RdB	Riddles-Hillsdale sandy loams, 2 to 6 percent slopes	0	0.0	0.0%
RdC	Riddles-Hillsdale sandy loams, 6 to 12 percent slopes	0	2.3	1.9%
RdD	Riddles-Hillsdale sandy loams, 12 to 18 percent slopes	0	4.1	3.4%
SpB	Spinks loamy sand, 0 to 6 percent slopes	0	0.8	0.7%
Totals for Area of Interest			119.5	100.0%

Description

This rating indicates the proportion of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is designated as "hydric," "predominantly hydric," "partially hydric," "predominantly nonhydric," or "nonhydric" depending on the rating of its respective components and the percentage of each component within the map unit.

"Hydric" means that all components listed for a given map unit are rated as being hydric. "Predominantly hydric" means components that comprise 66 to 99 percent of the map unit are rated as hydric. "Partially hydric" means components that comprise 33 to 66 percent of the map unit are rated as hydric. "Predominantly nonhydric" means components that comprise up to 33 percent of the map unit are rated as hydric. "Nonhydric" means that none of the components are rated as hydric. The assumption here is that all components of the map unit are rated as hydric or nonhydric in the underlying database. A "Not rated or not available" map unit rating is displayed when none of the components within a map unit have been rated.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as being hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

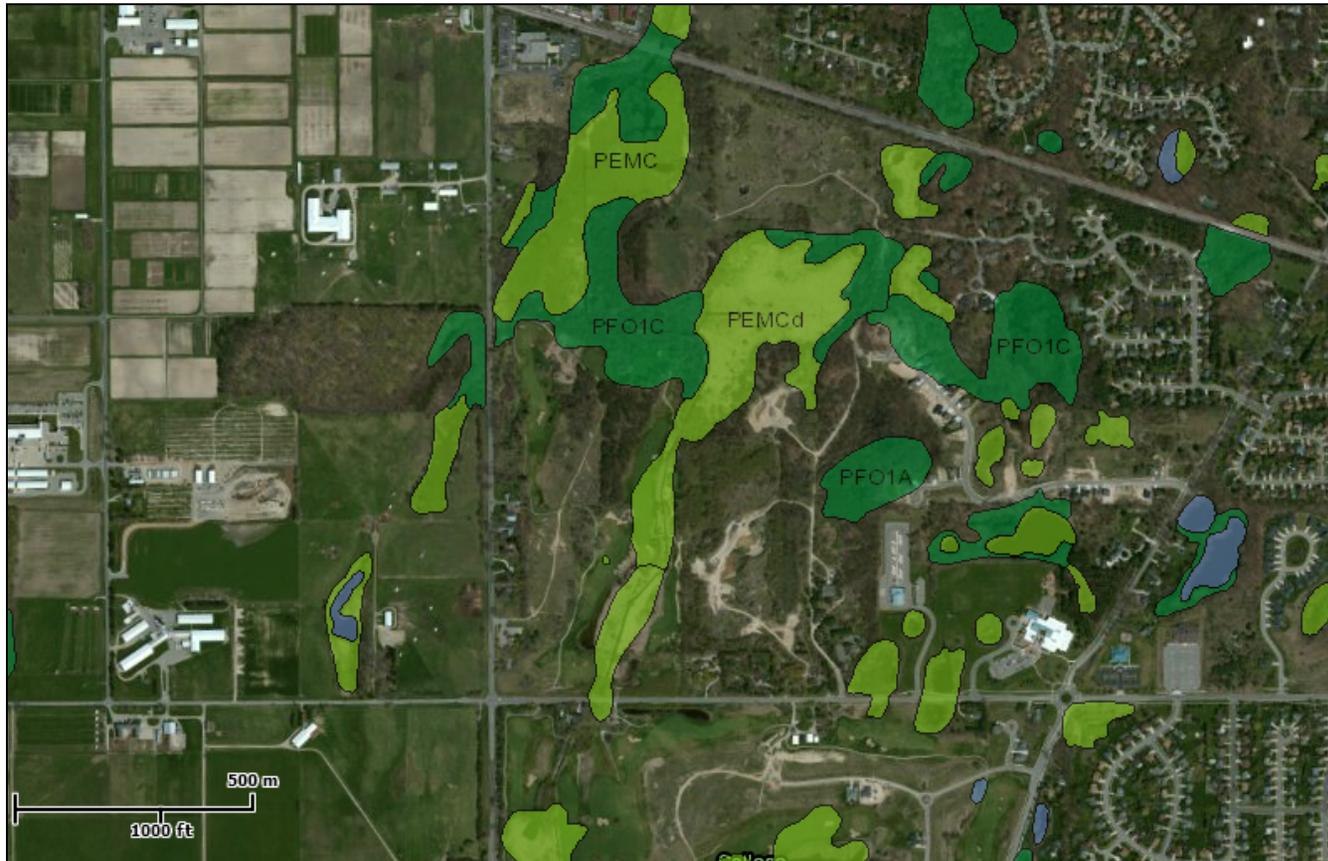
Appendix 2



U.S. Fish and Wildlife Service National Wetlands Inventory

Sturk Property

Oct 23, 2013



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

Appendix 3

Site Photographs

Sturk Property
Bennett Road, Okemos, MI



Wetland Adjacent to SP-A



Sampling Point SP-A



Wetland A, West of Herron Creek



Herron Creek at Northwest End of the Site



Wetland Adjacent to SP-B



Sampling Point SP-B



Sampling Point SP-C



West End of Wetland C



East End of Wetland C



Area D



Wetland Adjacent to SP-E



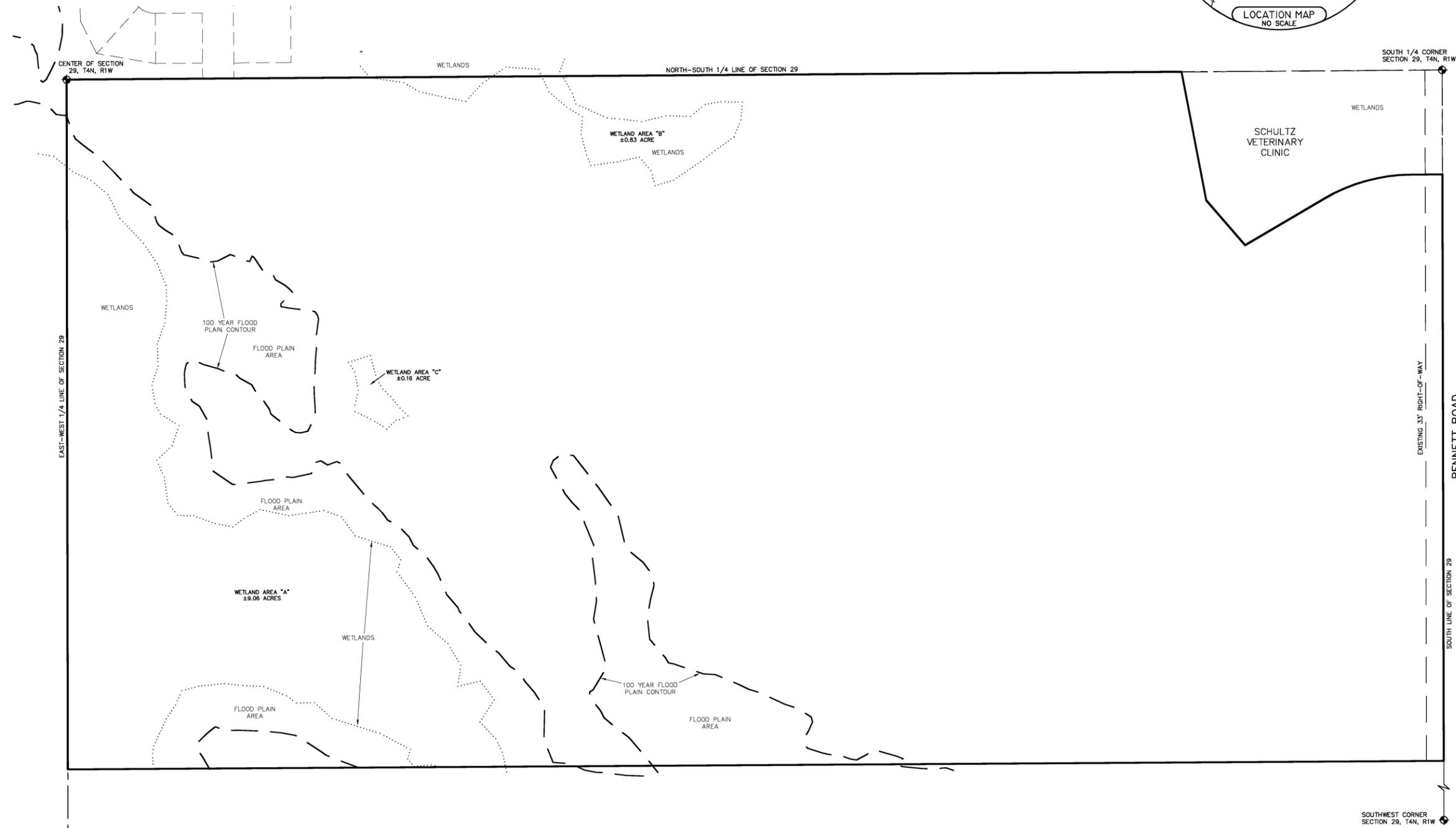
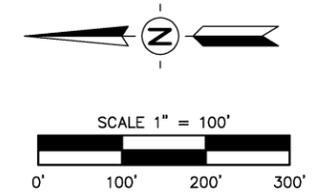
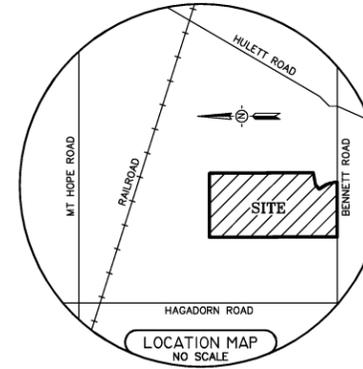
Sampling Point SP-E

Appendix 4

FOR: MAYBERRY HOMES

WETLAND SKETCH PLAN

"STURK PROPERTY"



REVISIONS	COMMENTS	KEBS, INC. ENGINEERING AND LAND SURVEYING 2116 HASLETT ROAD, HASLETT, MI 48840 PH. 517-339-1014 FAX 517-339-8047 WWW.KEBS.COM	
12/5/17	ORIGINAL		
		Marshall Office - Ph. 269-781-9800	
		DRAWN BY KDB	SECTION 29, T4N, R1W
		FIELD WORK BY CM/SW	JOB NUMBER:
		SHEET 1 OF 1	87297.SUB-WETLANDS

Appendix 5

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Meridian Twp/WDV 17-06 **City/County:** Meridian Township/Ingham **Sampling Date:** 28-Nov-17

Applicant/Owner: Bennett Road Holdings LLC **State:** Michigan **Sampling Point:** SP-A

Investigator(s): Elise Tripp **Section, Township, Range:** S. 29 T. 4N R. 1W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR or MLRA): LRR L **Lat.:** 42.704133125 **Long.:** 84.453911592 **Datum:** WGS84

Soil Map Unit Name: Houghton muck **NWI classification:** PEM1Ad

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation , **Soil** , **or Hydrology** **significantly disturbed?** **Are "Normal Circumstances" present?** Yes No

Are Vegetation , **Soil** , **or Hydrology** **naturally problematic?** (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: (Explain alternative procedures here or in a separate report.) 	

Hydrology

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of 2 required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input checked="" type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): <u>0</u> Water Table Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): <u>16</u> Saturation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): <u>14</u> (includes capillary fringe) Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 	
Remarks: 	

VEGETATION - Use scientific names of plants

Sampling Point: SP-A

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <i>Frangula alnus</i>	5	<input checked="" type="checkbox"/>	FAC	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
5 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>110</u> (A) <u>230</u> (B) Prevalence Index = B/A = <u>2.091</u>
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1. <i>Cornus racemosa</i>	5	<input checked="" type="checkbox"/>	FAC	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
5 = Total Cover				
Herb Stratum (Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Phalaris arundinacea</i>	95	<input checked="" type="checkbox"/>	FACW	
2. <i>Solidago gigantea</i>	5	<input type="checkbox"/>	FACW	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
8. _____	0	<input type="checkbox"/>	_____	
9. _____	0	<input type="checkbox"/>	_____	
10. _____	0	<input type="checkbox"/>	_____	
11. _____	0	<input type="checkbox"/>	_____	
12. _____	0	<input type="checkbox"/>	_____	
100 = Total Cover				
Woody Vine Stratum (Plot size: <u>30</u>)				Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
0 = Total Cover				
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Meridian Twp/WDV 17-06 **City/County:** Meridian Township/Ingham **Sampling Date:** 20-Nov-17

Applicant/Owner: Bennett Road Holdings LLC **State:** Michigan **Sampling Point:** SP-B

Investigator(s): Elise Tripp **Section, Township, Range:** S. 29 T. 4N R. 1W

Landform (hillslope, terrace, etc.): Kettle **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR or MLRA): LRR L **Lat.:** 42.701471867 **Long.:** 84.452827936 **Datum:** WGS84

Soil Map Unit Name: Colwood-Brookston loams **NWI classification:** PFO1A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation , **Soil** , **or Hydrology** **significantly disturbed?** **Are "Normal Circumstances" present?** Yes No

Are Vegetation , **Soil** , **or Hydrology** **naturally problematic?** (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: (Explain alternative procedures here or in a separate report.) 	

Hydrology

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of 2 required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input checked="" type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-neutral Test (D5)
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Field Observations:

Surface Water Present? Yes No Depth (inches): 0

Water Table Present? Yes No Depth (inches): 13

Saturation Present? Yes No Depth (inches): 11

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Standing water is nearby.

VEGETATION - Use scientific names of plants

Sampling Point: SP-B

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u><i>Acer negundo</i></u>	65	<input checked="" type="checkbox"/>	FAC	
2. <u><i>Acer saccharinum</i></u>	15	<input type="checkbox"/>	FACW	
3. <u><i>Frangula alnus</i></u>	20	<input checked="" type="checkbox"/>	FAC	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
100 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>15</u> x 2 = <u>30</u> FAC species <u>110</u> x 3 = <u>330</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>125</u> (A) <u>360</u> (B) Prevalence Index = B/A = <u>2.880</u>
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1. <u><i>Frangula alnus</i></u>	25	<input checked="" type="checkbox"/>	FAC	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
25 = Total Cover				
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0¹ <input type="checkbox"/> Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
8. _____	0	<input type="checkbox"/>	_____	
9. _____	0	<input type="checkbox"/>	_____	
10. _____	0	<input type="checkbox"/>	_____	
11. _____	0	<input type="checkbox"/>	_____	
12. _____	0	<input type="checkbox"/>	_____	
0 = Total Cover				
Woody Vine Stratum (Plot size: <u>30</u>)				Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
0 = Total Cover				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Meridian Twp/WDV 17-06 **City/County:** Meridian Township/Ingham **Sampling Date:** 28-Nov-17

Applicant/Owner: Bennett Road Holdings LLC **State:** Michigan **Sampling Point:** SP-C

Investigator(s): Elise Tripp **Section, Township, Range:** S. 29 T. 4N R. 1W

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR or MLRA): LRR L **Lat.:** 42.702967174 **Long.:** 84.454475001 **Datum:** WGS84

Soil Map Unit Name: Oshtemo sandy loam, 6-12% slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation , **Soil** , **or Hydrology** **significantly disturbed?** **Are "Normal Circumstances" present?** Yes No

Are Vegetation , **Soil** , **or Hydrology** **naturally problematic?** (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: (Explain alternative procedures here or in a separate report.) Area has been historically disturbed.	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of 2 required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): 2

Water Table Present? Yes No Depth (inches): 1

Saturation Present? Yes No Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: SP-C

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u><i>Populus deltoides</i></u>	15	<input checked="" type="checkbox"/>	FAC	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
15 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>85</u> x 1 = <u>85</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>120</u> (A) <u>170</u> (B) Prevalence Index = B/A = <u>1.417</u>
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1. <u><i>Salix interior</i></u>	10	<input checked="" type="checkbox"/>	FACW	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
10 = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0¹ <input type="checkbox"/> Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: <u>5</u>)				
1. <u><i>Juncus effusus</i></u>	70	<input checked="" type="checkbox"/>	OBL	
2. <u><i>Carex vulpinoidea</i></u>	10	<input type="checkbox"/>	OBL	
3. <u><i>Typha angustifolia</i></u>	5	<input type="checkbox"/>	OBL	
4. <u><i>Phalaris arundinacea</i></u>	5	<input type="checkbox"/>	FACW	
5. <u><i>Cornus alba</i></u>	5	<input type="checkbox"/>	FACW	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
8. _____	0	<input type="checkbox"/>	_____	
9. _____	0	<input type="checkbox"/>	_____	
10. _____	0	<input type="checkbox"/>	_____	
11. _____	0	<input type="checkbox"/>	_____	
12. _____	0	<input type="checkbox"/>	_____	
95 = Total Cover				Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>30</u>)				
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
0 = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: (Include photo numbers here or on a separate sheet.) 				

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Meridian Twp/WDV 17-06 **City/County:** Meridian Township/Ingham **Sampling Date:** 28-Nov-17

Applicant/Owner: Bennett Road Holdings LLC **State:** Michigan **Sampling Point:** SP-E

Investigator(s): Elise Tripp **Section, Township, Range:** S. 29 T. 4N R. 1W

Landform (hillslope, terrace, etc.): Kettle **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR or MLRA): LRR L **Lat.:** 42.702496875 **Long.:** 84.452309715 **Datum:** WGS84

Soil Map Unit Name: Colwood-Brookston loams **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation , **Soil** , **or Hydrology** **significantly disturbed?** **Are "Normal Circumstances" present?** Yes No

Are Vegetation , **Soil** , **or Hydrology** **naturally problematic?** (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: (Explain alternative procedures here or in a separate report.) 	

Hydrology

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of 2 required)</u>	
<u>Primary Indicators (minimum of one required; check all that apply)</u>			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	
Field Observations:		Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Surface Water Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 8		
Water Table Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 8		
Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 6		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Standing water nearby			

VEGETATION - Use scientific names of plants

Sampling Point: SP-E

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u>Frangula alnus</u>	75	<input checked="" type="checkbox"/>	FAC	
2. <u>Populus deltoides</u>	25	<input checked="" type="checkbox"/>	FAC	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
100 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.000</u>
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
6. _____	0	<input type="checkbox"/>	_____	
7. _____	0	<input type="checkbox"/>	_____	
8. _____	0	<input type="checkbox"/>	_____	
9. _____	0	<input type="checkbox"/>	_____	
10. _____	0	<input type="checkbox"/>	_____	
11. _____	0	<input type="checkbox"/>	_____	
12. _____	0	<input type="checkbox"/>	_____	
0 = Total Cover				
Woody Vine Stratum (Plot size: <u>30</u>)				Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
0 = Total Cover				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks: (Include photo numbers here or on a separate sheet.) 				

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.



MARX
WETLANDS
LLC

April 23, 2020

Mr. David Straub
Mayberry Homes
248-303-0455
dstraub@mayberryhomes.com

Re: **Wetland Delineation Report: Creekstone Trail and Shadow Ridge
Parcel #33-02-02-29-251-009 – Sturk Property
Section 29, Meridian Township, Ingham County, Michigan**

Dear Mr. Straub:

Pursuant to your request, Marx Wetlands LLC (MW) conducted a wetland delineation and determination for the above-referenced (“Site”), an approximately 22.32-acre vacant property (parcel 29-251-009) located directly northwest of the intersection of Creekstone Trail and Shadow Ridge. The Site is also approximately 0.50 miles west of Hulett Road and approximately 0.50 north of Bennett Road situated within section 29 of Meridian Township (T4N, R1W), Ingham County, Michigan.

The intent of this wetland delineation and determination is to provide a report of the character of any wetland areas within the Site and a professional opinion as to the possible jurisdiction of the Michigan Department of Energy, Great Lakes, and Environment (EGLE) and/or local governances over wetland areas identified on-site. The wetland determination was performed in accordance with the Michigan Department of Environmental Quality Wetland Identification Manual (2001), the Northcentral-Northeast and Midwest Interim Regional Supplements to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. The delineation of any wetland depends on three basic parameters. These parameters are: 1) the presence of hydrophytic vegetation (plants adapted to living in saturated soils), 2) hydric soils (distinctive soil types that develop under saturated conditions), and 3) wetland hydrology (the presence of water at or near the surface for a specific period of time). The above parameters are virtually always inter-related and present in wetland systems.

The wetland determination and delineation consisted of desktop review of available background documentation and mapping followed by an on-site visit conducted on April 14, 2020. A review of the findings is provided below.

Site Characteristics

Based on review of aerial photographs, available on-line resources, and on-site visits, the Site contains largely undeveloped land, consisting of upland, disturbed old field, upland scrub-shrub/forest and wetland. A two-track drive and mowed paths transect the site’s interior. An existing drainage feature (i.e., Hoskins Drain) was also identified in the southern portion of the Site.

3309 Platt Road
Ann Arbor, Michigan
Mobile: 734-478-8277
e-mail:
bg.marxwetlands@gmail.com

Parcel 33-02-02-29-251-009 (Creekstone Trail & Shadow Ridge)
Meridian Township, Ingham County, MI
Page 2 of 8

The upland disturbed old fields were identified particularly in the northwest quadrant of the Site. These areas generally contain bluegrasses (*Poa compressa* and *P. pratensis*), spotted knapweed (*Centaurea stoebe*), orchard grass (*Dactylis glomerata*), smooth brome (*Bromus inermis*), timothy (*Phleum pratense*), common teasel (*Dipsacus fullonum*), and goldenrods (*Solidago altissima* and *S. canadensis*). Scattered trees and shrubs included cottonwood (*Populus deltoides*), red-cedar (*Juniperus virginiana*), black raspberry (*Rubus occidentalis*), autumn-olive (*Elaeagnus umbellata*), and common blackberry (*Rubus allegheniensis*).

The upland forested and scrub-shrub areas were observed throughout the Site. These areas generally contain oaks (*Quercus alba*, *Q. bicolor*, *Q. macrocarpa*, *Q. rubra*, and *Q. velutina*), black walnut (*Juglans nigra*), black cherry (*Prunus serotina*), cottonwood, box-elder (*Acer negundo*), sugar maple (*Acer saccharum*), scattered with red maple (*Acer rubrum*), basswood (*Tilia americana*), beech (*Fagus grandifolia*), American elm (*Ulmus americana*), and white ash (*Fraxinus americana*.) trees. Upland herbaceous understory species include strawberry (*Fragaria virginiana*), wild geranium (*Geranium maculatum*), may-apple (*Podophyllum peltatum*), Dame's rocket (*Hesperis matronalis*), Pennsylvania sedge (*Carex pennsylvanica*), white avens (*Geum canadense*), and yellow trout-lily (*Erythronium americanum*). Upland shrub and vine species include common blackberry, black raspberry, hophornbeam (*Ostrya virginiana*), musclewood (*Carpinus caroliniana*), gray dogwood (*Cornus racemosa*), prickly-ash (*Zanthoxylum americanum*), Eurasian honeysuckles (*Lonicera spp.*), common buckthorn (*Rhamnus cathartica*), autumn-olive, and Virginia creeper (*Parthenocissus quinquefolia*). Refer to the *Site Photographs Log (Enclosure 1)*.

Wetland Determination & Delineation

Five (5) wetlands (Wetlands A, B, C, D, and E) were identified within or along the Site. One (1) watercourse (Branch No. 2 of Herron Creek/Hoskins Drain; H6200) was identified within the Site as well. Refer to the *Wetland Location Map* for the locations of the on-site wetland and *USACE Wetland Determination Data Forms (Enclosure 2)*. See Table 1, Natural Features Table (next page), for feature name, type, onsite acreage, regulatory statuses for State of Michigan and Meridian Township.

Table 1. Natural Features Table

Feature Name	Type*	Size (on-site acreage)	Regulated by the State of Michigan?	Meridian Township (Twp.) Regulated?
Wetland A	PEM/PFO	2.78 AC	Yes, connected to Watercourse 1	Likely
Wetland B	PEM/PFO	1.39 AC	Possibly, if a historic connection to a large (>5 ac wetland) north of the railroad is determined.	Likely, >0.25 acres in size
Wetland C	PEM/PFO	0.38 AC	Possibly if it drains to Herron Creek within the south railroad ditch.	Likely, >0.25 acres in size
Wetland D	PFO/Open Water	0.06 AC	Not Likely	Not Likely, unless determined essential for Twp.'s preservation
Wetland E	PEM	1.02 AC	Yes, >5 acres and contiguous to Watercourse 1	Likely
Watercourse 1/Hoskins Dr (H6200)	Perennial	-	Yes, presence of defined bed and banks.	-

*PEM- Emergent; PSS- Scrub-shrub; PFO-Forested; Open water

Vegetation

Wetlands A, B, and C are emergent and forested wetlands, containing emergent wetland interiors and forested wetland perimeters. Wetland A was identified in the southeast quadrant of the Site, extending off-site in a southeast direction. Wetland A is also hydrologically connected to Wetland E. Wetland A drains southwest through Watercourse 1 (trib to Herron Creek/Hoskins Drain H6200) via an existing culvert (at the existing two-track drive) and discharges west into Wetland E. Wetland B is entirely contained within the north-central portion of the Site. Wetland C is largely on-site; however, appears to drain off-site at the base of the railroad embankment.

Herbaceous vegetation generally observed within Wetlands A, B, and C include sedges (*Carex intumescens*; FACW, *C. lacustris*, *C. stricta*, and *C. vulpinoidea*; OBL), reed canary grass (*Phalaris arundinacea*; FACW), sensitive fern (*Onoclea sensibilis*; FACW), cattails (*Typha angustifolia* & *T. latifolia*; OBL), and false nettle (*Boehmeria cylindrica*; OBL). Other less common herbaceous vegetation included skunk-cabbage (*Symplocarpus foetidus*; OBL), white avens (FAC), and stinging nettle (*Urtica dioica*; FAC). Common shrubs observed include common buckthorn (FAC), gray dogwood (FAC), silky dogwood (*C. amomum*; FACW), green ash (*Fraxinus pennsylvanica*; FACW), and common elderberry (*Sambucus canadensis*; FACW). Common vines include riverbank grape (*Vitis riparia*; FAC) and poison-ivy (*Toxicodendron radicans*; FAC). Tree species include cottonwood (FAC), silver maple (*Acer saccharinum*; FACW), American elm (FACW), box-elder (FAC), and swamp white oak (*Quercus bicolor*; FACW).

Wetland D is a vernal pool type forested wetland with standing water and sparse vegetation. This wetland is entirely contained within the northeast corner of the Site. It is unclear if this was man-made feature or not. Herbaceous vegetation observed include reed canary grass (FAC) and sedge (*Carex intumescens*; FACW).

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Dominant trees observed include common buckthorn (FAC) and American elm (FACW). Although Wetland D appears to contain largely open water with sparse vegetation, wetland-rated trees line the perimeter and was flagged due to the presence of hydric soil and hydrological indicators.

Wetland E is a largely emergent wetland that extends off-site to the west and south and is part of a larger wetland system adjoining Herron Creek. A minor scrub-shrub component along the wetland's eastern boundary was included at select locations. Herbaceous vegetation generally observed include sedges (*C. lacustris*, *C. stricta*, and *C. vulpinoidea*; OBL), reed canary grass (FACW), cattails (OBL), late goldenrod (*Solidago gigantea*; FACW), and stinging nettle (FAC). Common shrubs observed include gray dogwood (FAC), silky dogwood (FACW), red raspberry (*Rubus strigosus*; FAC), and common elderberry (FACW). Common vines include riverbank grape (FAC) and poison-ivy (FAC). Tree species include box-elder (FAC), American elm (FACW), and common buckthorn (FAC). Dense thickets of gray dogwood (FAC) and prickly-ash (*Zanthoxylum americanum*; FACU) were not flagged within the wetland's limits, unless obvious hydrological and soil indicators were strongly detected.

The majority of species within these wetlands range in wetland indicator status from obligate (OBL) to facultative (FAC), indicating species that typically occur in wetlands.

Hydrology

Typical hydrology indicators observed include standing water, saturation, hummocks, water-stained leaves, water marks, geomorphic position, and FAC Neutral Test. These wetlands appear to receive hydrology from precipitation, runoff from adjacent developed areas, and roadways, and/or overflow adjacent wetlands, resulting in seasonally saturated to seasonally inundated water regimes.

Soils

Hydric soil indicators were observed in soil sample pits within each of the wetlands. MW also collected adjacent upland sampling plots and data. Please refer to the USACE Wetland Determination Data Forms (**Enclosure 2**). The delineated wetland areas generally correspond to areas containing hydric (wetland) soils mapped by USGS's county soil survey maps.

Watercourse & Floodplain

One (1) watercourse was observed within the Site and/or along the site perimeters. Watercourse 1/Hoskins Drain(H-6200) is a branch of Herron Creek. This watercourse was identified at the southwest end of Wetland A, draining southwest/west via an existing culvert across the existing two-track drive, and into Wetland E. This watercourse was identified as a designated county drain (H-6200) on the *Meridian Township (SW) Drain Map* (**Enclosure 3**) and appears to drain west into Herron Creek (off-site) within the large wetland system. This feature appears to have a perennial water regime with flowing water or evidence of the

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continuance of water and defined bed and banks. This watercourse contains a substrate with silt, sand, fine-grained gravel, and plant material debris.

Review of the Federal Emergency Management Agency (FEMA) FIRM Panel No. 26065C0154D, (eff. 8/16/2011) revealed that the Site contains a 100-year floodplain mapped as Zone AE (with available Base Flood Elevation- BFE at approximately 847 feet above sea level) associated with the Herron Creek (off-site) and associated wetlands within the Site (**Enclosure 4**). The remaining areas within the Site are mapped as Zone X: an area that is determined to be outside the 100-year floodplain.

Regulations & Recommendations

Watercourse, Drain, and Floodplain Regulations

Part 301, Inland Lakes and Streams, states that a feature is considered a regulated watercourse by the EGLE if it possesses a defined bed, bank, and evidence of continued flow or a continued occurrence of water. One (1) watercourse was identified within the Site and is likely EGLE regulated under Part 301 of the NREPA.

In addition, the on-site drain appears to be a designated Ingham County drain (Hoskins Drain; H6200). Typically, county drains have an easement for construction and maintenance purposes and where development or structures are prohibited. **Therefore, be sure to contact the Ingham County Drain Commissioners office to see if the proposed site development requires any approvals or permits through Ingham County.** Refer to **Enclosure 3- Ingham County – Meridian Township (SW) Drain Map**.

Part 31, Water Resources Protection, of the NREPA regulates activities within the 100-year floodplain and floodway of a river, stream, or drain, and within the floodplain of any watercourse with an upstream drainage area of two square miles or larger. A Part 31 permit is required for construction within a regulated floodplain or floodway. MW's preliminary review of FEMA FIRM Panel No. 26065C0154D, (eff. 8/16/2011) revealed that the Site contains a 100-year floodplain mapped as Zone AE (with available Base Flood Elevation- BFE at approximately 847 feet above sea level) associated with the Herron Creek (off-site) and associated wetlands within the Site. The remaining areas within the Site are mapped as Zone X: an area that is determined to be outside the 100-year floodplain. Therefore, the Herron Creek is anticipated to have an EGLE regulated 100-year floodplain that has an upstream drainage area larger than two square miles in size. **A floodplain elevation request or pre-application meeting through the EGLE can assist with the project development process and/or floodplain permitting, if applicable. Refer to the Firm Map (Enclosure 4).**

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State and Local Wetland Regulations

Part 303, Wetlands Protection, of the NREPA states that if a wetland is five acres in size or larger and/or connected to or located within 500 feet of a river, stream, lake, or pond, it is considered regulated by the EGLE.

Marx Wetlands, LLC has the professional opinion that two (2) on-site wetlands (Wetlands A and E) are likely regulated by the EGLE. Wetlands A & E extend off-site and are contiguous to a regulating watercourse. Wetlands B, C, and D are less than five acres in size and are further than 500 feet of any obvious regulating features (i.e., pond, stream, drain, lake, etc.). However, Wetlands B and C may be considered regulated if a historic connection is determined to off-site wetlands (north) separated by the existing railroad. In addition, Wetland C appears to continue off-site within a ditch feature at the base of the railroad and may have a connection to the Herron Creek.

Therefore, Wetlands A and E appear to meet the requirements of Part 303, Wetlands Protection, of the NREPA, and therefore likely fall under the jurisdiction of the EGLE. Wetlands B and C may be considered regulated; however, Wetland D appears to be a non-regulated wetland under Part 303 of the NREPA. **Marx Wetlands LLC recommends confirmation of these regulatory statuses by the EGLE if impacts to on-site wetlands are anticipated by project activities. EGLE has pre-application services to determine if a permit is needed for on-site development and/or a Wetland Identification Program (WIP) to determine whether there are regulated wetlands on a given property.**

A permit is required by the EGLE for any proposed work that takes place within the boundaries of a regulated wetland. Most construction activities that take place outside of these boundaries do not require a wetland permit from the EGLE. **The EGLE has the final authority on the extent, size, shape, and regulatory status of wetlands, lakes, and streams in the State of Michigan.**

Local Regulations

In addition, Meridian Township (Township) has its own wetland protection ordinance. The township's Wetland Protection ordinance (Chapter 22, Article IV) states that wetlands are protected if they are:

- contiguous to any inland lake stream, river, or pond.
- Partially or entirely within 500 feet of the ordinary high-water mark of any inland lake, stream, river or pond.
- Two or more areas of wetland separated only by barriers, such as dikes, roads, berms or other similar features, if any of those wetlands are contiguous to an inland lake, stream, river or pond.

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- larger than two acres, even if not contiguous to an inland lake, stream, river or pond.
- not contiguous to any inland lake, stream, river or pond, if the state department of environmental quality determines the protection of the wetland is essential to the preservation of the natural resources of the state from pollution, impairment or destruction.
- wetlands, equal to or greater than one-quarter acre and equal to or less than two acres in size, which are not contiguous to any inland lake, stream, river or pond and are determined to be essential to the preservation of the natural resources of the Township as provided in township code § 22-156. Code § 22-156 provides that a wetland is essential to the preservation of the township's natural resources if it fulfills any of ten criteria.

It is the professional opinion of Marx Wetlands LLC that Wetlands A, B, C, and E are likely regulated by Meridian Township. Wetlands B and C are larger than 0.25 acres in size; therefore, would be considered regulated by Meridian Township's Code § 22-156.

Wetland D is less than 0.25 acres in size and does not appear to be within 500 feet of any regulating water body. Wetland D is not anticipated to be regulated by Meridian Township. **Meridian Township's wetland consultant will make the final decision regarding the regulatory statuses, shape, and extent of the on-site wetlands during a wetland verification visit.**

It is important to note that a wetland verification application is required following a wetland delineation conducted within Meridian Township, Ingham County, Michigan. The Meridian Township's wetland consultant will make the final decisions during an on-site wetland verification visit. Applications should include the following information:

- A completed application form.
- The required administrative fee and escrow amount addressed to Meridian Charter Township.
- Written permission from the property owner, if the property owner is not the applicant.
- For verifications only: written confirmation that the wetland flags are located on the site and remain observable.
- For verifications only: three (3) copies of an existing wetland delineation report and accompanying maps and materials prepared by a wetland or environmental consultant.
- Copies of any correspondence received from the Michigan Department of Environment, Great Lakes, and Energy (EGLE).
- Copies of any permits issued by the Ingham County Drain Commissioner's office for the subject site.

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The Meridian Township Wetland Verification & Escrow form can be found here:
<http://www.meridian.mi.us/Home/ShowDocument?id=12235>.

Please note that the Meridian Township Board has a policy of no net loss of wetlands and impacts to wetlands may require wetland mitigation. A mitigation plan, if required, shall be approved as part of the wetland use permit decision.

A permit or approval is likely required by the Meridian Township for any proposed work (e.g., filling, dredging, construction, and draining and/or other development) that takes place within the boundaries of a regulated wetland. Most construction activities that take place outside of these boundaries do not require a wetland permit from the EGLE or Meridian Township. Please note that the EGLE and Township have the final authority on the extent of regulated wetlands, lakes, and streams in the State of Michigan and Meridian Township, respectively.

Please be advised that the information provided in this report is a professional opinion. The ultimate decision on wetland boundary locations and jurisdiction thereof rests with the EGLE and/or local government, and, in some cases, the federal government. Therefore, there may be adjustments to boundaries based upon review by a regulatory agency. An agency determination can vary depending on various factors including, but not limited to, experience of the agency representative making the determination and the season of the year. In addition, the physical characteristics of the site can change over time, depending on the weather, vegetation patterns, drainage, activities on adjacent parcels, or other events. Any of these factors can change the nature and/or extent of wetlands on the site.

Thank you for the opportunity to provide this wetland delineation and determination. If you have any questions, please contact me at your convenience.

Sincerely,



Marx Wetlands LLC
Bryana J. Guevara, PWS 2949
ISA Certified Arborist #MI-4240A

Enclosures:

1. Site Photographs Log
2. Wetland Location Map & Wetland Determination Data Forms
3. Meridian Township Southwest Drain Map
4. FIRM Map and other publicly available background information

ENCLOSURE I

Site Photographs



1) View of typical two-track drive and mowed paths identified within the Site.



2) A north-facing view of typical upland forest/scrub-shrub.



3) A northwest-facing view of the existing railroad, which lines the northern boundary of the Site.



4) View of typical upland disturbed old field identified particularly along the existing two-track and in the northwest quadrant of the Site.

Site Photographs



5) A north-facing view of Wetland A, extending southeast off-site.



6) View of sampling plot for Wetland A.



7) A south-facing view of Watercourse 1, which drains southeast/east from Wetland A.



8) View of the existing pipes found where the drain goes underneath the existing two-track drive.

Site Photographs



9) View of Wetland B, which extends slightly off-site.



10) View of sampling plot for Wetland B.



11) An east-facing view of Wetland C.



12) View of where Wetland C extends off-site along the base of the existing railroad grade.

Site Photographs



13) A south-facing view of Wetland D, a small vernal pool.



14) A northwest facing view of Wetland E, which extends off-site into a larger wetland system adjoining Herron Creek.

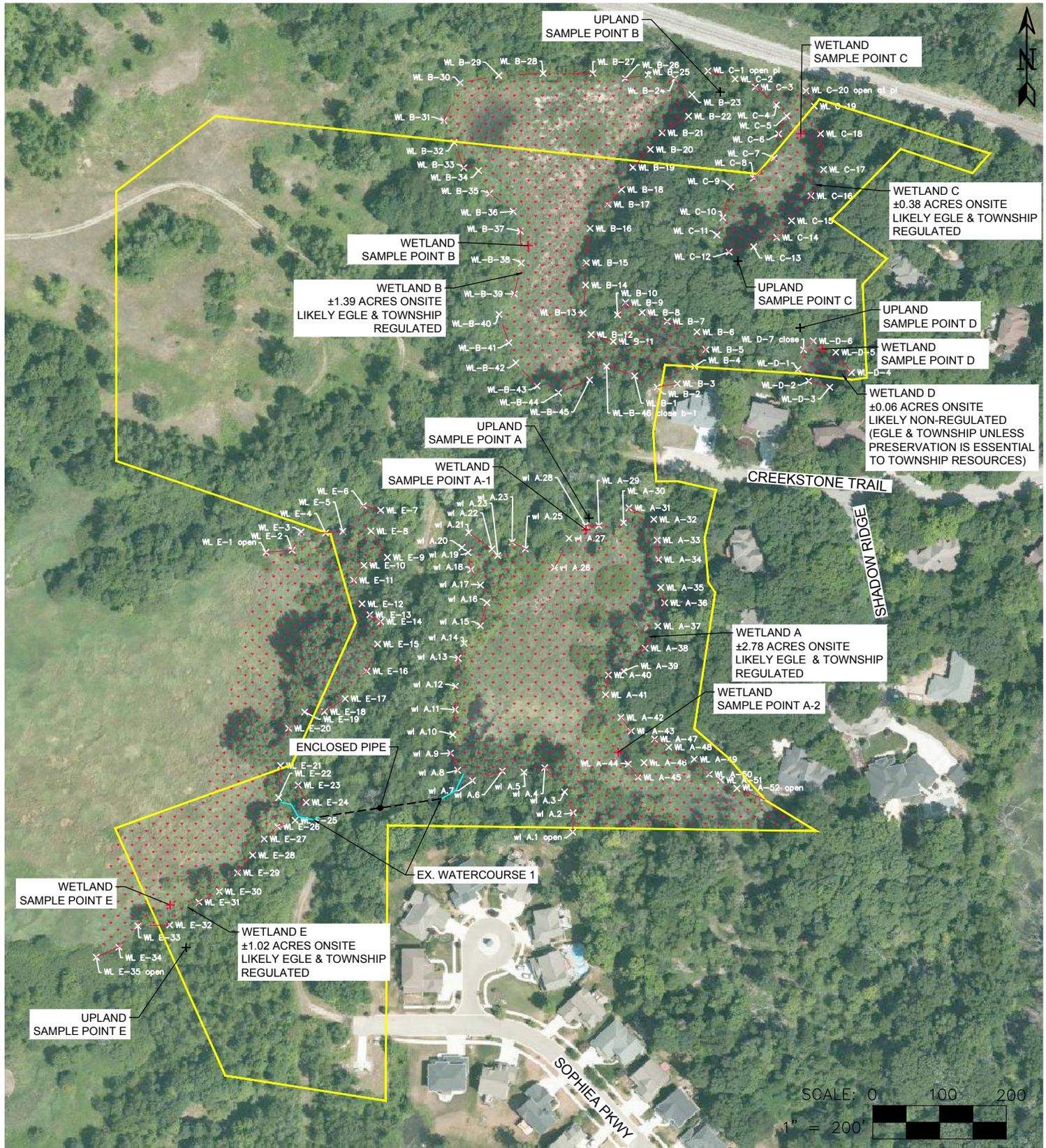


15) A view of Wetland E's forested component that appeared to have a small excavated area.



16) View of the existing pipe that connects Wetlands A and E via watercourse 1/Hoskins Drain, conveying water westward into Herron Creek.

ENCLOSURE II



LEGEND

-  APPROX. ASSESSMENT AREA
-  EXISTING WETLAND
-  EXISTING WATERCOURSE
-  UPLAND SAMPLE POINT
-  WETLAND SAMPLE POINT

NOTE: THIS MAP ILLUSTRATES AN APPROXIMATE DEPICTION OF THE WETLANDS LOCATED ON THE SUBJECT PROPERTY AS DELINEATED BY MARX WETLANDS, LLC. ON APRIL 14, 2020. PLEASE NOTE THAT THE EGLE HAS THE FINAL AUTHORITY ON THE EXTENT OF REGULATED WETLANDS, LAKES, AND STREAMS IN THE STATE OF MICHIGAN.

DATE: APR. 17, 2020	REVISIONS:
DB: BS CB: BG	
SHEET NO.	
01	

CLIENT: MAYBERRY HOMES	SECTION: 29
PARCEL 29-251-009	TOWN 04 NORTH, RANGE 01 WEST
WETLAND LOCATION MAP	MERIDIAN TOWNSHIP
	INGHAM COUNTY, MICHIGAN



MARX WETLANDS, LLC.

3309 PLATT ROAD
ANN ARBOR, MICHIGAN 48108
(734) 478-8277

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Parcel #33-02-02-29-251-009 – Sturk Property City/County: Meridian Twp./Ingham Co. Sampling Date: 4/14/2020
 Applicant/Owner: Mayberry Homes State: MI Sampling Point: A-1
 Investigator(s): B.Guevara & G.Marx; Marx Wetlands LLC Section, Township, Range: Section 29; T4N, R1W
 Landform (hillside, terrace, etc.): lowland/depression Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR or MLRA): LRR L Lat: 42.7058341362, Long: -84.45100194 Datum: WSG84
 Soil Map Unit Name: Houghton muck NWI classification: PEM/PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>x</u> No <u> </u> Hydric Soil Present? Yes <u>x</u> No <u> </u> Wetland Hydrology Present? Yes <u>x</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>x</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland A</u>
Remarks: (Explain alternative procedures here or in a separate report.) Wetland A is an emergent and forested wetlands, containing an emergent wetland interiors and forested wetland perimeter. Wetland A was identified in the southeast quadrant of the Site, extending off-site in a southeast direction. Wetland A is also hydrologically connected to Wetland E. Wetland A drains southwest through Watercourse 1 (trib to Herron Creek/Hoskins Drain H6200) via an existing culvert (at the existing two-track drive) and discharges west into Wetland E.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u>XX</u> No <u> </u> Depth (inches): <u>10</u> Water Table Present? Yes <u>XX</u> No <u> </u> Depth (inches): <u>0</u> Saturation Present? Yes <u>XX</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: This wetland appears to receive hydrology from precipitation, groundwater, runoff from adjacent developed areas, and roadways, and overflow adjacent wetlands, resulting in seasonally saturated to seasonally inundated water regime.	

VEGETATION – Use scientific names of plants.

Sampling Point: A-1

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30-ft radius</u>)				<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: <u> 9 </u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u> 10 </u> (B)</p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: <u> 90.0% </u> (A/B)</p> <p>Prevalence Index worksheet:</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: center;">Total % Cover of:</td> <td style="width:50%; text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u> 40 </u></td> <td>x 1 = <u> 40 </u></td> </tr> <tr> <td>FACW species <u> 190 </u></td> <td>x 2 = <u> 380 </u></td> </tr> <tr> <td>FAC species <u> 50 </u></td> <td>x 3 = <u> 150 </u></td> </tr> <tr> <td>FACU species <u> 0 </u></td> <td>x 4 = <u> 0 </u></td> </tr> <tr> <td>UPL species <u> 0 </u></td> <td>x 5 = <u> 0 </u></td> </tr> <tr> <td>Column Totals: <u> 280 </u></td> <td>(A) <u> 570 </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u> 2.04 </u></td> </tr> </table> <p>Hydrophytic Vegetation Indicators:</p> <p><u> </u> Rapid Test for Hydrophytic Vegetation</p> <p><input checked="" type="checkbox"/> Dominance Test is >50%</p> <p><input checked="" type="checkbox"/> Prevalence Index is ≤3.0¹</p> <p><u> </u> Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</p> <p><u> </u> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p><small>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</small></p> <p>Definitions of Vegetation Strata:</p> <p>Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</p> <p>Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p>Woody vines – All woody vines greater than 3.28 ft in height.</p> <p>Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u></p>	Total % Cover of:	Multiply by:	OBL species <u> 40 </u>	x 1 = <u> 40 </u>	FACW species <u> 190 </u>	x 2 = <u> 380 </u>	FAC species <u> 50 </u>	x 3 = <u> 150 </u>	FACU species <u> 0 </u>	x 4 = <u> 0 </u>	UPL species <u> 0 </u>	x 5 = <u> 0 </u>	Column Totals: <u> 280 </u>	(A) <u> 570 </u> (B)	Prevalence Index = B/A = <u> 2.04 </u>	
Total % Cover of:	Multiply by:																			
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FAC species <u> 50 </u>	x 3 = <u> 150 </u>																			
FACU species <u> 0 </u>	x 4 = <u> 0 </u>																			
UPL species <u> 0 </u>	x 5 = <u> 0 </u>																			
Column Totals: <u> 280 </u>	(A) <u> 570 </u> (B)																			
Prevalence Index = B/A = <u> 2.04 </u>																				
1. <u><i>Acer saccharinum</i></u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u><i>Quercus bicolor</i></u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
3. <u><i>Ulmus americana</i></u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
4. <u><i>Populus deltoides</i></u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>																	
5. <u><i>Acer negundo</i></u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
6. _____																				
7. _____																				
	<u>65</u>	=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15-ft radius</u>)																				
1. <u><i>Fraxinus pennsylvanica</i></u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u><i>Cornus sericea</i></u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
3. <u><i>Cornus racemosa</i></u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
4. <u><i>Sambucus canadensis</i></u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
5. <u><i>Cornus amomum</i></u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>																	
6. <u><i>Rhamnus cathartica</i></u>	<u>20</u>	<u>Yes</u>																		
7. _____																				
	<u>90</u>	=Total Cover																		
Herb Stratum (Plot size: <u>5-ft radius</u>)																				
1. <u><i>Phalaris arundinacea</i></u>	<u>35</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u><i>Carex stricta</i></u>	<u>10</u>	<u>No</u>	<u>OBL</u>																	
3. <u><i>Typha angustifolia</i></u>	<u>10</u>	<u>No</u>	<u>OBL</u>																	
4. <u><i>Onoclea sensibilis</i></u>	<u>10</u>	<u>No</u>	<u>FACW</u>																	
5. <u><i>Carex lacustris</i></u>	<u>15</u>	<u>Yes</u>	<u>OBL</u>																	
6. <u><i>Carex intumescens</i></u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
7. <u><i>Carex vulpinoidea</i></u>	<u>5</u>	<u>No</u>	<u>OBL</u>																	
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>90</u>	=Total Cover																		
Woody Vine Stratum (Plot size: <u>30-ft radius</u>)																				
1. <u><i>Toxicodendron radicans</i></u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>																	
2. <u><i>Vitis riparia</i></u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																	
3. _____																				
4. _____																				
	<u>55</u>	=Total Cover																		

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Parcel #33-02-02-29-251-009 – Sturk Property City/County: Meridian Twp./Ingham Co. Sampling Date: 4/14/2020
 Applicant/Owner: Mayberry Homes State: MI Sampling Point: B-1
 Investigator(s): B.Guevara & G.Marx; Marx Wetlands LLC Section, Township, Range: Section 29; T4N, R1W
 Landform (hillside, terrace, etc.): lowland/depression Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR or MLRA): LRR L Lat: 42.7070039445, Long: -84.4513266 Datum: WSG84
 Soil Map Unit Name: Houghton muck, 0 to 1 percent slopes NWI classification: PEM1A/PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>x</u> No <u> </u> Hydric Soil Present? Yes <u>x</u> No <u> </u> Wetland Hydrology Present? Yes <u>x</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>x</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland B</u>
Remarks: (Explain alternative procedures here or in a separate report.) Wetland B is an emergent and forested wetland, containing an emergent wetland interior and forested wetland perimeter. Wetland B is entirely contained within the north-central portion of the Site.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <u>XX</u> No <u> </u> Depth (inches): <u>8</u> Water Table Present? Yes <u>XX</u> No <u> </u> Depth (inches): <u>0</u> Saturation Present? Yes <u>XX</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 This wetland appears to receive hydrology from precipitation, groundwater, runoff from adjacent developed areas, and roadways, and overflow adjacent wetlands, resulting in seasonally saturated to seasonally inundated water regime.

VEGETATION – Use scientific names of plants.

Sampling Point: B-1

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30-ft radius</u>)				<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: <u> 11 </u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u> 11 </u> (B)</p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: <u> 100.0% </u> (A/B)</p> <p>Prevalence Index worksheet:</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: center;">Total % Cover of:</td> <td style="width:50%; text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u> 85 </u></td> <td>x 1 = <u> 85 </u></td> </tr> <tr> <td>FACW species <u> 110 </u></td> <td>x 2 = <u> 220 </u></td> </tr> <tr> <td>FAC species <u> 35 </u></td> <td>x 3 = <u> 105 </u></td> </tr> <tr> <td>FACU species <u> 0 </u></td> <td>x 4 = <u> 0 </u></td> </tr> <tr> <td>UPL species <u> 0 </u></td> <td>x 5 = <u> 0 </u></td> </tr> <tr> <td>Column Totals: <u> 230 </u></td> <td>(A) <u> 410 </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u> 1.78 </u></td> </tr> </table> <p>Hydrophytic Vegetation Indicators:</p> <p><u> </u> Rapid Test for Hydrophytic Vegetation</p> <p><input checked="" type="checkbox"/> Dominance Test is >50%</p> <p><input checked="" type="checkbox"/> Prevalence Index is ≤3.0¹</p> <p><u> </u> Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</p> <p><u> </u> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p> <p>Definitions of Vegetation Strata:</p> <p>Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</p> <p>Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p>Woody vines – All woody vines greater than 3.28 ft in height.</p> <p>Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u></p>	Total % Cover of:	Multiply by:	OBL species <u> 85 </u>	x 1 = <u> 85 </u>	FACW species <u> 110 </u>	x 2 = <u> 220 </u>	FAC species <u> 35 </u>	x 3 = <u> 105 </u>	FACU species <u> 0 </u>	x 4 = <u> 0 </u>	UPL species <u> 0 </u>	x 5 = <u> 0 </u>	Column Totals: <u> 230 </u>	(A) <u> 410 </u> (B)	Prevalence Index = B/A = <u> 1.78 </u>	
Total % Cover of:	Multiply by:																			
OBL species <u> 85 </u>	x 1 = <u> 85 </u>																			
FACW species <u> 110 </u>	x 2 = <u> 220 </u>																			
FAC species <u> 35 </u>	x 3 = <u> 105 </u>																			
FACU species <u> 0 </u>	x 4 = <u> 0 </u>																			
UPL species <u> 0 </u>	x 5 = <u> 0 </u>																			
Column Totals: <u> 230 </u>	(A) <u> 410 </u> (B)																			
Prevalence Index = B/A = <u> 1.78 </u>																				
1. <u><i>Acer saccharinum</i></u>	<u> 5 </u>	<u> Yes </u>	<u> FACW </u>																	
2. <u><i>Quercus bicolor</i></u>	<u> 5 </u>	<u> Yes </u>	<u> FACW </u>																	
3. <u><i>Ulmus americana</i></u>	<u> 5 </u>	<u> Yes </u>	<u> FACW </u>																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
<u> 15 </u>	=Total Cover																			
Sapling/Shrub Stratum (Plot size: <u>15-ft radius</u>)																				
1. <u><i>Cornus racemosa</i></u>	<u> 15 </u>	<u> Yes </u>	<u> FACW </u>																	
2. <u><i>Sambucus canadensis</i></u>	<u> 10 </u>	<u> Yes </u>	<u> FACW </u>																	
3. <u><i>Rhamnus cathartica</i></u>	<u> 10 </u>	<u> Yes </u>	<u> FAC </u>																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
<u> 35 </u>	=Total Cover																			
Herb Stratum (Plot size: <u>5-ft radius</u>)																				
1. <u><i>Phalaris arundinacea</i></u>	<u> 30 </u>	<u> Yes </u>	<u> FACW </u>																	
2. <u><i>Typha latifolia</i></u>	<u> 30 </u>	<u> Yes </u>	<u> OBL </u>																	
3. <u><i>Typha angustifolia</i></u>	<u> 30 </u>	<u> Yes </u>	<u> OBL </u>																	
4. <u><i>Boehmeria cylindrica</i></u>	<u> 10 </u>	<u> No </u>	<u> OBL </u>																	
5. <u><i>Carex lacustris</i></u>	<u> 10 </u>	<u> No </u>	<u> OBL </u>																	
6. <u><i>Carex stricta</i></u>	<u> 5 </u>	<u> No </u>	<u> OBL </u>																	
7. <u><i>Solidago gigantea</i></u>	<u> 10 </u>	<u> No </u>	<u> FACW </u>																	
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
<u> 125 </u>	=Total Cover																			
Woody Vine Stratum (Plot size: <u>30-ft radius</u>)																				
1. <u><i>Toxicodendron radicans</i></u>	<u> 25 </u>	<u> Yes </u>	<u> FAC </u>																	
2. <u><i>Vitis riparia</i></u>	<u> 30 </u>	<u> Yes </u>	<u> FACW </u>																	
3. _____																				
4. _____																				
<u> 55 </u>	=Total Cover																			
Remarks: (Include photo numbers here or on a separate sheet.)																				

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Parcel #33-02-02-29-251-009 – Sturk Property City/County: Meridian Twp./Ingham Co. Sampling Date: 4/14/2020
 Applicant/Owner: Mayberry Homes State: MI Sampling Point: C-1
 Investigator(s): B.Guevara & G.Marx; Marx Wetlands LLC Section, Township, Range: Section 29; T4N, R1W
 Landform (hillside, terrace, etc.): lowland/depression Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR or MLRA): LRR L Lat: 42.70755261 Long: -84.44986264 Datum: WSG84
 Soil Map Unit Name: Houghton muck, 0 to 1 percent slopes NWI classification: PEM1A/PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>x</u> No <u> </u> Hydric Soil Present? Yes <u>x</u> No <u> </u> Wetland Hydrology Present? Yes <u>x</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>x</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland C</u>
Remarks: (Explain alternative procedures here or in a separate report.) Wetland C is an emergent and forested wetlands, containing an emergent wetland interior and forested wetland perimeter. Wetland C is largely on-site; however, appears to drain off-site at the base of the railroad embankment.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u>XX</u> No <u> </u> Depth (inches): <u>15</u> Water Table Present? Yes <u>XX</u> No <u> </u> Depth (inches): <u>2</u> Saturation Present? Yes <u>XX</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: This wetland appears to receive hydrology from precipitation, groundwater, runoff from adjacent developed areas, and roadways, and overflow adjacent wetlands, resulting in seasonally saturated to seasonally inundated water regime.	

VEGETATION – Use scientific names of plants.

Sampling Point: C-1

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30-ft radius</u>)																				
1. <u><i>Acer saccharinum</i></u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>9</u> (A) Total Number of Dominant Species Across All Strata: <u>9</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. <u><i>Quercus bicolor</i></u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
3. <u><i>Ulmus americana</i></u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>30</u>	=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15-ft radius</u>)																				
1. <u><i>Cornus racemosa</i></u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>55</u></td> <td>x 1 = <u>55</u></td> </tr> <tr> <td>FACW species <u>140</u></td> <td>x 2 = <u>280</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>255</u> (A)</td> <td><u>515</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.02</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>55</u>	x 1 = <u>55</u>	FACW species <u>140</u>	x 2 = <u>280</u>	FAC species <u>60</u>	x 3 = <u>180</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>255</u> (A)	<u>515</u> (B)	Prevalence Index = B/A = <u>2.02</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>55</u>	x 1 = <u>55</u>																			
FACW species <u>140</u>	x 2 = <u>280</u>																			
FAC species <u>60</u>	x 3 = <u>180</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>255</u> (A)	<u>515</u> (B)																			
Prevalence Index = B/A = <u>2.02</u>																				
2. <u><i>Sambucus canadensis</i></u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u><i>Rhamnus cathartica</i></u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>50</u>	=Total Cover																		
Herb Stratum (Plot size: <u>5-ft radius</u>)																				
1. <u><i>Phalaris arundinacea</i></u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Carex lacustris</i></u>	<u>25</u>	<u>Yes</u>	<u>OBL</u>																	
3. <u><i>Onoclea sensibilis</i></u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
4. <u><i>Boehmeria cylindrica</i></u>	<u>15</u>	<u>No</u>	<u>OBL</u>																	
5. <u><i>Urtica dioica</i></u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
6. <u><i>Carex stricta</i></u>	<u>10</u>	<u>No</u>	<u>OBL</u>																	
7. <u><i>Solidago gigantea</i></u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
8. <u><i>Symplocarpus foetidus</i></u>	<u>5</u>	<u>No</u>	<u>OBL</u>																	
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>120</u>	=Total Cover																		
Woody Vine Stratum (Plot size: <u>30-ft radius</u>)																				
1. <u><i>Toxicodendron radicans</i></u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.																
2. <u><i>Vitis riparia</i></u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>																	
3. _____																				
4. _____																				
	<u>55</u>	=Total Cover																		
Hydrophytic Vegetation Present?				Yes <u>X</u> No _____																

Remarks: (Include photo numbers here or on a separate sheet.)

VEGETATION – Use scientific names of plants.

Sampling Point: D-1

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: <u> 30-ft radius </u>)			
1. <u> <i>Ulmus americana</i> </u>	<u> 10 </u>	<u> Yes </u>	<u> FACW </u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u> 10 </u>	<u> =Total Cover</u>	
Sapling/Shrub Stratum (Plot size: <u> 15-ft radius </u>)			
1. <u> <i>Rhamnus cathartica</i> </u>	<u> 10 </u>	<u> Yes </u>	<u> FACW </u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u> 10 </u>	<u> =Total Cover</u>	
Herb Stratum (Plot size: <u> 5-ft radius </u>)			
1. <u> <i>Phalaris arundinacea</i> </u>	<u> 15 </u>	<u> Yes </u>	<u> FACW </u>
2. <u> <i>Carex intumescens</i> </u>	<u> 15 </u>	<u> Yes </u>	<u> FACW </u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u> 30 </u>	<u> =Total Cover</u>	
Woody Vine Stratum (Plot size: <u> 30-ft radius </u>)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	_____	<u> =Total Cover</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u> 0 </u>	x 1 = <u> 0 </u>
FACW species <u> 50 </u>	x 2 = <u> 100 </u>
FAC species <u> 0 </u>	x 3 = <u> 0 </u>
FACU species <u> 0 </u>	x 4 = <u> 0 </u>
UPL species <u> 0 </u>	x 5 = <u> 0 </u>
Column Totals: <u> 50 </u> (A)	<u> 100 </u> (B)
Prevalence Index = B/A = <u> 2.00 </u>	

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalence Index is ≤3.0¹

Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (Include photo numbers here or on a separate sheet.)

VEGETATION – Use scientific names of plants.

Sampling Point: E-1

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30-ft radius</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		=Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15-ft radius</u>)				
1.	<u>Rhamnus cathartica</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>
2.	<u>Sambucus canadensis</u>	<u>10</u>	<u>No</u>	<u>FACW</u>
3.	<u>Cornus amomum</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
4.	<u>Cornus racemosa</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
5.	<u>Zanthoxylum americanum</u>	<u>10</u>	<u>No</u>	<u>FACU</u>
6.				
7.				
		=Total Cover		
		<u>75</u>		
Herb Stratum (Plot size: <u>5-ft radius</u>)				
1.	<u>Phalaris arundinacea</u>	<u>55</u>	<u>Yes</u>	<u>FACW</u>
2.	<u>Carex lacustris</u>	<u>25</u>	<u>Yes</u>	<u>OBL</u>
3.	<u>Solidago gigantea</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		=Total Cover		
		<u>100</u>		
Woody Vine Stratum (Plot size: <u>30-ft radius</u>)				
1.				
2.				
3.				
4.				
		=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>25</u>	x 1 = <u>25</u>
FACW species <u>125</u>	x 2 = <u>250</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>175</u> (A)	<u>360</u> (B)
Prevalence Index = B/A = <u>2.06</u>	

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalence Index is ≤3.0¹

Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Parcel #33-02-02-29-251-009 – Sturk Property City/County: Meridian Township/Ingham Co. Sampling Date: 4/14/2020
 Applicant/Owner: Mayberry Homes State: MI Sampling Point: UPL-A
 Investigator(s): B.Guevara; Marx Wetlands LLC Section, Township, Range: Section 29; T4N, R1W
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): none Slope (%): 0-5
 Subregion (LRR or MLRA): LRR L Lat: 42.7058822648, Long: -84.45098541 Datum: WSG84
 Soil Map Unit Name: Houghton muck/Aubbeenaubbee-Capac sandy loams, 0 to 3 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: UPL-A

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: <u>30-ft radius</u>)			
1. <u>Acer saccharum</u>	10	Yes	FACU
2. <u>Prunus serotina</u>	10	Yes	FACU
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	20	=Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15-ft radius</u>)			
1. <u>Lonicera tatarica</u>	15	Yes	FAC
2. <u>Crataegus</u>	15	Yes	FACU
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	30	=Total Cover	
Herb Stratum (Plot size: <u>5-ft radius</u>)			
1. <u>Carex pennsylvanica</u>	25	Yes	FACU
2. <u>Geum canadense</u>	10	No	FACU
3. <u>Erythronium americanum</u>	10	No	FACU
4. <u>Podophyllum peltatum</u>	15	Yes	FACU
5. <u>Fragaria virginiana</u>	10	No	FACU
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	70	=Total Cover	
Woody Vine Stratum (Plot size: <u>30-ft radius</u>)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	_____	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 16.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>105</u>	x 4 = <u>420</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120</u> (A)	<u>465</u> (B)
Prevalence Index = B/A = <u>3.88</u>	

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalence Index is ≤3.0¹

Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No x

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Parcel #33-02-02-29-251-009 – Sturk Property City/County: Meridian Township/Ingham Co. Sampling Date: 4/14/2020
 Applicant/Owner: Mayberry Homes State: MI Sampling Point: UPL-B
 Investigator(s): B.Guevara; Marx Wetlands LLC Section, Township, Range: Section 29; T4N, R1W
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): none Slope (%): 0-5
 Subregion (LRR or MLRA): LRR L Lat: 42.70763731 Long: -84.45025636 Datum: WSG84
 Soil Map Unit Name: Marlette loam, 12 to 18 percent slopes, eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: (Explain alternative procedures here or in a separate report.)			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION – Use scientific names of plants.

Sampling Point: UPL-B

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30-ft radius</u>)				<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u>9</u> (B)</p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>11.1%</u> (A/B)</p> <p>Prevalence Index worksheet:</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: center;">Total % Cover of:</td> <td style="width:50%; text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>20</u></td> <td>x 3 = <u>60</u></td> </tr> <tr> <td>FACU species <u>145</u></td> <td>x 4 = <u>580</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>165</u> (A)</td> <td><u>640</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.88</u></td> </tr> </table> <p>Hydrophytic Vegetation Indicators:</p> <p><input type="checkbox"/> Rapid Test for Hydrophytic Vegetation</p> <p><input type="checkbox"/> Dominance Test is >50%</p> <p><input type="checkbox"/> Prevalence Index is ≤3.0¹</p> <p><input type="checkbox"/> Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</p> <p><input type="checkbox"/> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p><small>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</small></p> <p>Definitions of Vegetation Strata:</p> <p>Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</p> <p>Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p>Woody vines – All woody vines greater than 3.28 ft in height.</p> <p>Hydrophytic Vegetation Present? Yes <u> </u> No <u> x </u></p>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>20</u>	x 3 = <u>60</u>	FACU species <u>145</u>	x 4 = <u>580</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>165</u> (A)	<u>640</u> (B)	Prevalence Index = B/A = <u>3.88</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>20</u>	x 3 = <u>60</u>																			
FACU species <u>145</u>	x 4 = <u>580</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>165</u> (A)	<u>640</u> (B)																			
Prevalence Index = B/A = <u>3.88</u>																				
1. <u>Acer saccharum</u>	20	Yes	FACU																	
2. <u>Prunus serotina</u>	15	Yes	FACU																	
3. <u>Rhamnus cathartica</u>	5	No	FAC																	
4. <u>Tilia americana</u>	10	Yes	FACU																	
5. <u>Quercus alba</u>	10	Yes	FACU																	
6. <u>Quercus rubra</u>	10	Yes	FACU																	
7. _____																				
	70	=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15-ft radius</u>)																				
1. <u>Lonicera tatarica</u>	15	Yes	FAC																	
2. <u>Crataegus</u>	15	Yes	FACU																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	30	=Total Cover																		
Herb Stratum (Plot size: <u>5-ft radius</u>)																				
1. <u>Carex pennsylvanica</u>	10	No	FACU																	
2. <u>Alliaria petiolata</u>	10	No	FACU																	
3. <u>Erythronium americanum</u>	10	No	FACU																	
4. <u>Podophyllum peltatum</u>	25	Yes	FACU																	
5. <u>Fragaria virginiana</u>	10	No	FACU																	
6. <u>Hesperis matronalis</u>	20	Yes																		
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	85	=Total Cover																		
Woody Vine Stratum (Plot size: <u>30-ft radius</u>)																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				
			=Total Cover																	

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Parcel #33-02-02-29-251-009 – Sturk Property City/County: Meridian Township/Ingham Co. Sampling Date: 4/14/2020
 Applicant/Owner: Mayberry Homes State: MI Sampling Point: UPL-C
 Investigator(s): B.Guevara; Marx Wetlands LLC Section, Township, Range: Section 29; T4N, R1W
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): none Slope (%): 0-5
 Subregion (LRR or MLRA): LRR L Lat: 42.7069412295, Long: -84.45015685 Datum: WSG84
 Soil Map Unit Name: Marlette loam, 12 to 18 percent slopes, eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Parcel #33-02-02-29-251-009 – Sturk Property City/County: Meridian Township/Ingham Co. Sampling Date: 4/14/2020
 Applicant/Owner: Mayberry Homes State: MI Sampling Point: UPL-D
 Investigator(s): B.Guevara; Marx Wetlands LLC Section, Township, Range: Section 29; T4N, R1W
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): none Slope (%): 0-5
 Subregion (LRR or MLRA): LRR L Lat: 42.7066666752, Long: -84.44980977 Datum: WSG84
 Soil Map Unit Name: Filer fine sandy loam, Saginaw Lobe, 6 to 12 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: UPL-D

	Absolute % Cover	Dominant Species?	Indicator Status																		
Tree Stratum (Plot size: <u>30-ft radius</u>)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.0%</u> (A/B)																	
1. <u>Fagus grandifolia</u>	30	Yes	FACU																		
2. <u>Acer saccharum</u>	15	Yes	FACU																		
3. <u>Prunus serotina</u>	10	No	FACU																		
4. _____																					
5. _____																					
6. _____																					
7. _____																					
	55	=Total Cover																			
Sapling/Shrub Stratum (Plot size: <u>15-ft radius</u>)																					
1. <u>Ostrya virginiana</u>	30	Yes	FAC																		
2. <u>Carpinus caroliniana</u>	30	Yes	FACU																		
3. _____																					
4. _____																					
5. _____																					
6. _____																					
7. _____																					
	60	=Total Cover																			
Herb Stratum (Plot size: <u>5-ft radius</u>)																					
1. <u>Carex pennsylvanica</u>	15	Yes	FACU																		
2. <u>Erythronium americanum</u>	15	Yes	UPL																		
3. <u>Geum canadense</u>	15	Yes	FAC																		
4. <u>Podophyllum peltatum</u>	20	Yes	FACU																		
5. <u>Fragaria virginiana</u>	10	No	FACU																		
6. _____																					
7. _____																					
8. _____																					
9. _____																					
10. _____																					
11. _____																					
12. _____																					
	75	=Total Cover																			
Woody Vine Stratum (Plot size: <u>30-ft radius</u>)																					
1. _____																					
2. _____																					
3. _____																					
4. _____																					
			=Total Cover																		
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align:left;">Prevalence Index worksheet:</th> </tr> <tr> <th style="text-align:center;">Total % Cover of:</th> <th style="text-align:center;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>45</u></td> <td>x 3 = <u>135</u></td> </tr> <tr> <td>FACU species <u>130</u></td> <td>x 4 = <u>520</u></td> </tr> <tr> <td>UPL species <u>15</u></td> <td>x 5 = <u>75</u></td> </tr> <tr> <td>Column Totals: <u>190</u> (A)</td> <td><u>730</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.84</u></td> </tr> </tbody> </table>				Prevalence Index worksheet:		Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>45</u>	x 3 = <u>135</u>	FACU species <u>130</u>	x 4 = <u>520</u>	UPL species <u>15</u>	x 5 = <u>75</u>	Column Totals: <u>190</u> (A)	<u>730</u> (B)	Prevalence Index = B/A = <u>3.84</u>	
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Prevalence Index = B/A = <u>3.84</u>																					
Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																					
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.																					
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align:left;">Hydrophytic Vegetation Present?</th> </tr> </thead> <tbody> <tr> <td style="text-align:center;">Yes</td> <td style="text-align:center;">No</td> </tr> <tr> <td style="text-align:center;"><u> </u></td> <td style="text-align:center;"><u> x </u></td> </tr> </tbody> </table>				Hydrophytic Vegetation Present?		Yes	No	<u> </u>	<u> x </u>												
Hydrophytic Vegetation Present?																					
Yes	No																				
<u> </u>	<u> x </u>																				
Remarks: (Include photo numbers here or on a separate sheet.)																					

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Parcel #33-02-02-29-251-009 – Sturk Property City/County: Meridian Township/Ingham Co. Sampling Date: 4/14/2020
 Applicant/Owner: Mayberry Homes State: MI Sampling Point: UPL-E
 Investigator(s): B.Guevara; G. Marx; Marx Wetlands LLC Section, Township, Range: Section 29; T4N, R1W
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): none Slope (%): 0-5
 Subregion (LRR or MLRA): LRR L Lat: 42.7039279884, Long: -84.45348434 Datum: WSG84
 Soil Map Unit Name: Riddles-Hillsdale sandy loams, 12 to 18 percent slopes/Colwood-Brookston NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

ENCLOSURE III

ENCLOSURE IV

National Flood Hazard Layer FIRMette



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/15/2020 at 1:46:29 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

42°42'36.14"N



USGS The National Map: Orthoimagery. Data refreshed April, 2019.

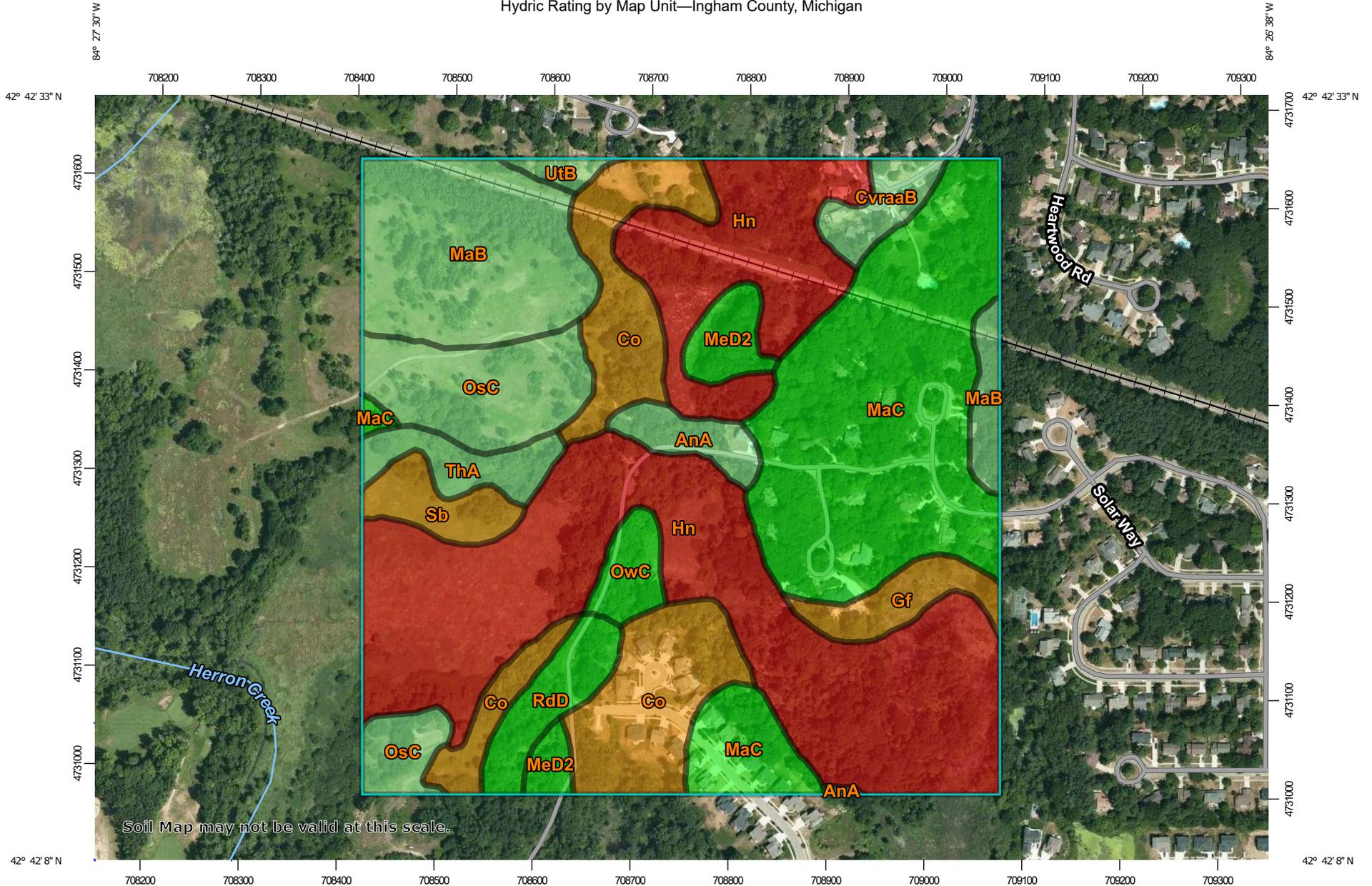


42°42'9.70"N

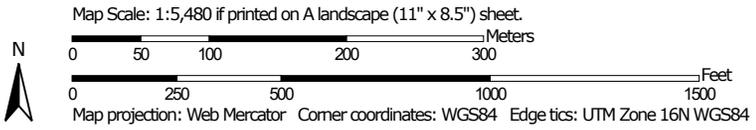
84°26'47.71"W



Hydric Rating by Map Unit—Ingham County, Michigan



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

Soil Rating Lines

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

Soil Rating Points

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ingham County, Michigan
 Survey Area Data: Version 17, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 4, 2018—Jul 18, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AnA	Aubbeenaubbee-Capac sandy loams, 0 to 3 percent slopes	8	1.7	1.7%
Co	Colwood-Brookston loams	80	12.5	12.0%
CvraaB	Conover loam, 0 to 4 percent slopes	5	1.8	1.7%
Gf	Gilford sandy loam, 0 to 2 percent slopes, gravelly subsoil	95	2.2	2.1%
Hn	Houghton muck, 0 to 1 percent slopes	100	34.5	33.0%
MaB	Marlette fine sandy loam, 2 to 6 percent slopes	2	11.1	10.7%
MaC	Filer fine sandy loam, Saginaw Lobe, 6 to 12 percent slopes	0	22.2	21.3%
MeD2	Marlette loam, 12 to 18 percent slopes, eroded	0	2.3	2.2%
OsC	Oshtemo sandy loam, 6 to 12 percent slopes	1	7.0	6.7%
OwC	Owosso-Marlette sandy loams, 6 to 12 percent slopes	0	1.6	1.5%
RdD	Riddles-Hillsdale sandy loams, 12 to 18 percent slopes	0	2.6	2.5%
Sb	Sebewa loam, 0 to 2 percent slopes	95	2.1	2.0%
ThA	Thetford loamy sand, 0 to 3 percent slopes	10	2.2	2.1%
UtB	Urban land-Marlette complex, 2 to 12 percent slopes	5	0.6	0.5%
Totals for Area of Interest			104.4	100.0%

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

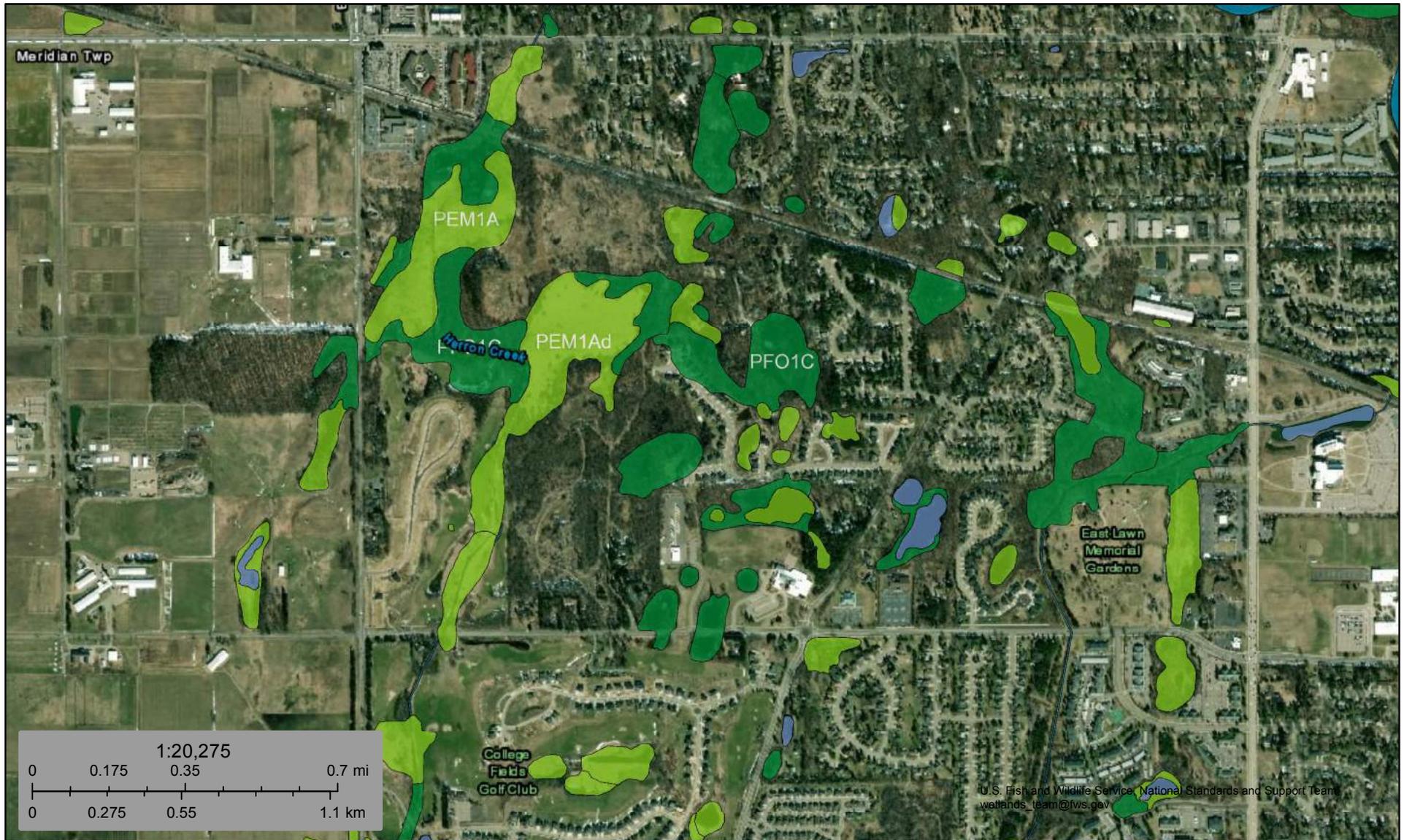
Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower



April 10, 2020

Wetlands

- | | | | | | |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland |  | Lake |
|  | Estuarine and Marine Wetland |  | Freshwater Forested/Shrub Wetland |  | Other |
| | |  | Freshwater Pond |  | Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

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May 27, 2020
Project No. 200699

Peter Menser
Charter Township of Meridian
5151 Marsh Road
Okemos, MI 48864 1198

Wetland Boundary Verification – WDV 20-02
22.32-acre site northwest of the Creekstone Trail/Shadow Ridge Intersection
Meridian Township, Ingham County, Michigan

Dear Peter:

On May 13, 2020, Fishbeck staff conducted a field investigation and verified wetland boundaries on an approximately 22.32-acre site located northwest of the intersection of Creekstone Trail and Shadow Ridge, and approximately 0.5 mile north of Bennett Road and 0.5 mile west of Hulett Road (the Site). The Site encompasses parcel number 33-02-02-29-251-009 located in Section 29 of Meridian Township (Town 4 North, Range 1 West). The Township wetland map identifies Wetland 29-1 on and west of the Site, a 131.30-acre emergent and scrub shrub wetland associated with Herron Creek.

Site wetlands were recently delineated by Marx Wetlands (Marx), as described in its April 23, 2020, report entitled *Wetland Delineation Report: Creekstone Trail and Shadow Ridge, Parcel #33-02-02-29-251-009 – Sturk Property, Section 29, Meridian Township, Ingham County, Michigan* (Report).

Site Investigation

Fishbeck staff met Bryana Guevara of Marx at the Site on May 13th to inspect the wetland boundaries. Site conditions were consistent as described in the Report. Marx delineated five wetlands: Wetland A through E. Fishbeck made minor adjustments to wetland boundaries, as described below. Marx then surveyed all moved and new wetland flags.

- Wetland A: located in the Site's southeast quadrant. This wetland extends offsite to the southeast and is part of Township Wetland 29-1. The Meridian Township wetland map does not note an upland ridge that exists between Wetlands A and E, as delineated by Marx. The following adjustments were made to the delineated wetland boundary:
 - Wetland Flag A-21 was moved and Flags A-21a, A-21b and A-21c were added to expand the wetland area. Flag A-21c connects to Flag A-22.
 - Wetland Flags A-23 and A-29 were deleted. The wetland boundary extended from Flag A-22 to Flag A-24 and Flag A-28 to Flag A-30.
 - The following flags were moved: A-26, A-27, A-28, A-32, and A-43.
 - The rest of the wetland flags in Wetland A were accurately placed.
- Wetland B: located at the north end of the Site. This wetland is part of Township Wetland 29-10. The southeast end of the wetland extends offsite onto residential property.
 - Wetland B's entire boundary was delineated by Marx. Unfortunately, Wetland Flags B-1 through B-13 had been removed, probably by adjacent property owners. The adjoining wetland flags (Flags B-45 and B-14)

were accurately placed. Fishbeck walked the unflagged wetland boundary with Marx, with Marx indicating where flags had been placed. This boundary was consistent with Marx’s Wetland Location Map. Fishbeck concurs with the wetland boundary as depicted in Marx’s report between Flags B-45 and B-14, based upon our field observations.

- Wetland Flag B-17 was moved.
- Wetland Flag B-34 was deleted. The wetland boundary extended from Flag B-33 to Flag B-35.
- All other wetland flags observed in Wetland B were accurately placed.
- Wetland C: located directly east of Wetland B. This wetland extends north toward a railroad embankment and curves west along the toe of the embankment. The Township wetland map notes this area as Wetland 29-10 and does not indicate the ridge between Wetlands B and C. Wetland Flags C-1 through C-20 were accurately placed.
- Wetland D: located at the east end of the Site in a depression. This wetland is noted as Wetland 29-9 on the Township wetland map. Wetland Flags D-1 through D-7 were accurately placed.
- Wetland E: located in the southwest quadrant of the Site. This wetland extends offsite to the west and is part of Township Wetland 29-1.
 - Wetland Flag E-11 was deleted. The wetland boundary extended from Flag E-10 to Flag E-12.
 - The remaining wetland flags (Flags E-1 through E-35) were accurately placed.

Regulatory Review

According to Michigan’s Natural Resources and Environmental Protection Act (NREPA), Act 451, Section 30301(d), wetlands "contiguous to the Great Lakes or Lake St. Clair, an inland lake or pond, or a river or stream" or "more than 5 acres in size" are regulated by the State of Michigan. In addition, the Township regulates wetlands greater than two acres in size which are not contiguous to a water body and wetlands between 0.25 acre and two acres in size that are determined to be essential to the preservation of the natural resources of the Township.

Table 1 summarizes information pertaining to the delineated wetlands.

Table 1 – Summary of Wetlands
 Wetland Verification WDV 20-02

Wetland	Wetland Type	Size (on Subject Property) (acres)	Corresponding Meridian Wetland	Regulated by the State of Michigan?	Regulated by Meridian?
A	Emergent/forested	2.78	29-1	Yes	Yes
B	Emergent/forested	1.39	29-10	Possibly	Likely
C	Emergent/forested	0.38	29-10	Possibly	Likely
D	Forested	0.06	29-9	No	No
E	Emergent/scrub-shrub	1.02	29-1	Yes	Yes

Wetland E is part of Township Wetland 29-1, which is greater than five acres in size and is contiguous to Herron Creek. This wetland is regulated by both the State of Michigan and the Township. Likewise, Wetland A is contiguous to the Hoskins Drain, a tributary to Herron Creek, and is regulated by both the State of Michigan and the Township.

Wetlands B and C are greater than 0.25 acre in size but less than 2.0 acres in size. Therefore, a Determination of Essentiality is required by the Township to verify the regulatory status of these wetlands under the Township’s wetland ordinance. A large wetland is present north of the railroad embankment on the north edge of Wetlands B and C. If Wetlands B and C were historically part of this wetland complex, they may also be regulated by the State of Michigan under NREPA.

Wetland D is not regulated by the Township because it is less than 0.25 acre in size and is not contiguous to a regulating body of water.

The noted adjustments to Wetlands A, B and E's boundary need to be made to Marx's Wetland Location Map. The adjustments will result in a minor increase in wetland size and are not expected to change the regulatory status of these wetlands. However, the updated wetland boundaries will impact the location of the Township's corresponding wetland buffer, if site development is proposed in these areas.

A Wetland Use Permit (WUP) is required from the Township for any of the following activities within wetlands regulated by the Township:

- Placing fill or permitting the placement of fill in regulated wetland.
- Dredging, removing, or permitting the removal of soil or minerals from regulated wetland.
- Constructing, operating, or maintaining any use or development in regulated wetland.
- Draining surface water from regulated wetland.

In addition, the Township requires that all structures and grading activities during site development shall be set back 40 feet from the delineated wetland boundary and a natural vegetation strip shall be maintained within 20 feet of the wetland boundary.

Fishbeck recommends the Wetland Location Map be updated as described in this letter and the location of Township mandated buffers be determined in areas where site development is proposed.

If you have any questions regarding this letter or any other wetland-related issues, please contact me at 616.464.3738 or ehtripp@fishbeck.com.

Sincerely,



Elise Hansen Tripp, PWS

Senior Wetland Scientist

By email

copy: Mark Kieselbach – Charter Township of Meridian

Patrick E. Lindemann

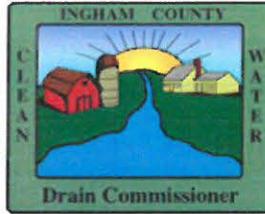
Ingham County Drain Commissioner

PO Box 220
707 Buhl Avenue
Mason, MI 48854-0220

Phone: (517) 676-8395

Fax: (517) 676-8364

<http://dr.ingham.org>



Carla Florence Clos
Deputy Drain Commissioner

Paul C. Pratt
Deputy Drain Commissioner

Angie Cosman
Chief of Engineering and Inspection

Sheldon Lewis
Administrative Assistant

June 26, 2020

To: Meridian Charter Township Planning Commission

From: Angie Cosman, Drain Engineer

RE: Silverleaf Condo P.U.D
Meridian Charter Township – NW¼ of Section 29
Herron Creek Drain and Hoskins Drain

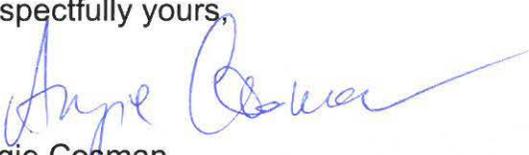
On May 20, 2020, the Drain Commissioner's Office received a request from Mr. Dane Pascoe of KEBS, Inc. of Haslett, Michigan for a conceptual review of a proposed development of 150 condominium units across multiple parcels located north of Bennett Road and East of Hagadorn Road in Meridian Charter Township. The project is proposed by Bob Schroeder of Mayberry Homes. The request was accompanied by one set of plans by KEBS. This conceptual review is offered as a courtesy to Meridian Charter Township only. It should not be construed by the project owner or others as formal submission to the Ingham County Drain Commissioner for site plan or drainage review. A detailed review will be conducted when the plans are submitted for an official Site Plan and Drainage Review. Our conceptual review comments include the following:

- Drainage Plans must meet the Rules of the Ingham County Drain Commissioner, as amended, for low impact development (LID), including storage and treatment requirements for:
 - First 1.0 inch of rainfall from the entire site
 - 2-year, 24-hour storm
 - 100-year, 24-hour storm
- The site is in a Phase II area and the stormwater discharge must be held to adequate pretreatment standards to protect the receiving waters of the Drain.
- The property is in two drainage districts and ultimate drainage configuration from the site may require revisions to the Hoskins Drain Drainage District.
- The storm drainage system on the site will remain private; therefore, a Maintenance Agreement with the Drainage District will be required.

- Approval from the Drain Commissioner's Office requires that the plans be submitted and the appropriate fees be paid for Site Plan and Drainage Review.

If you have any questions, please do not hesitate to contact me. It is an honor and a privilege to serve you and the other businesses, citizens and municipalities of Ingham County.

Respectfully yours,



Angie Cosman
Ingham County Drain Engineer

cc: Dane Pascoe, KEBS, Inc.

CHARTER TOWNSHIP OF MERIDIAN

Ronald J. Styka
Brett Dreyfus
Phil Deschaine
Frank L. Walsh

Supervisor
Clerk
Treasurer
Manager



Courtney Wisinski
Patricia Herring Jackson
Dan Opsommer
Kathy Ann Sundland

Trustee
Trustee
Trustee
Trustee

June 10, 2020

Mr. Dane Bascoe, PS
KEBS, Inc.
2116 Haslett Road
Haslett, MI 4840

RE: Silverleaf Condominiums PUD

Dear Mr. Pascoe:

The following comments are based on the latest plans received for the subject development, dated 5/11/2020:

Water System

To ensure reliable fire protection and resiliency of the system during emergencies the proposed water main shall be fully looped with connections to Bennett Road, Sopiaea Parkway, and Creekstone Trail. Complete plans including plan/ profile views will be required for review and approval of the proposed water system. The plans shall be provided in accordance with Meridian Township standards & specifications.

A permit from EGLE will be required before any installation can begin.

Sanitary Sewer

Complete plans including plan/ profile views will be required for review and approval of the proposed sanitary system. The plans shall be provided in accordance with Meridian Township standards & specifications.

A permit from EGLE will be required before any installation can begin.

Site Layout/ Connectivity:

The site layout, and phasing scheme should be reconsidered to improve connectivity, emergency vehicle access, and road maintenance. At minimum, all dead ends must have large permanent signs with very clear language to ensure unobstructed access at Sopiaea/ Morning Vista Lane junction, and at Creekstone/emergency road. sewer access junction.

Floodplain:

Impacts on existing floodplain shall be detailed to ensure appropriate mitigation measures, and to preclude potential flooding to proposed units and adjacent existing properties. To that end, the plans shall have all the floodplain elevations (based on NAVD 88) clearly shown on the plan, and not just show the limit of the floodplain contours.

Mr. Dane Pascoe, PS
June 10, 2020
Page 2

The above was only a cursory review of the limited plans provided. A complete and detailed review will be forthcoming from this office upon submittal of full plans as required for this type of project. If you have any questions or concerns, please feel free to contact me at our office (517) 853-4460.

Sincerely,



Younes Ishraidi, PE

Chief Engineer

ishraidi@meridian.mi.us

A Prime Community W 517.853.4460 | F 517.853.4095

5151 Marsh Road | Okemos, MI 48864

meridian.mi.us



Meridian Township
5151 Marsh Road
Okemos, MI 48864

P 517.853.4000
F 517.853.4096

Township Board:

Ronald J. Styka
Township Supervisor

Brett Dreyfus
Township Clerk

Phil Deschaine
Township Treasurer

**Patricia Herring
Jackson**
Township Trustee

Dan Opsommer
Township Trustee

Kathy Ann Sundland
Township Trustee

Courtney Wisinski
Township Trustee

Frank L. Walsh
Township Manager

May 20, 2020

Mr. Dane Pascoe
KEBS, Inc.
2116 Haslett Road
Haslett, MI 48840

Dear Mr. Pascoe:

RE: Silverleaf Condominium Planned Unit Development

This letter is in response to your request for comments dated May 11, 2020.

1. It appears that there is a sufficient and ample buffer between the proposed housing development and the land preserve.
2. Our primary concern is relative to the existing access easement between the Woods of Herron Creek and Champion Woods. This access easement provides the only public access to the land preserve and it is imperative that this remains open, accessible, and obvious for visitors and maintenance of the land preserve.

Thank you for the opportunity to provide comments on the proposed Silverleaf Condominium Planned Unit Development, which lies adjacent to a Meridian Township Land Preserve known as the South West Meridian Uplands.

Sincerely,

LuAnn Maisner, CPRP
Director of Parks and Recreation



KEBS, INC

Engineering • Surveying

May 11, 2020

LuAnn Maisner
Parks and Recreation Director
Meridian Township Park Commission
5151 Marsh Road
Okemos, MI 48864

RE: Silverleaf Condominium Planned Unit Development (P.U.D.) Plan

Ms. Maisner:

Enclosed you will a copy of the P.U.D. Plan of Silverleaf Condominium, being part of the Northeast 1/4, Northwest 1/4 and Southwest 1/4 of Section 29, Meridian Township, Ingham County, Michigan for your review.

Per Meridian Township regulations we are required to get a written response from your office stating that you have received a copy of the plan along with your comments and/or concerns of the layout of the P.U.D. If you have no comments or concerns regarding the layout a simple letter stating that fact will suffice.

Please either email a signed .pdf on your letterhead to Dane Pascoe (dpascoe@kebs.com) or Keith Baker (kbaker@kebs.com) or you can send a hard copy of the letter directly to our office.

If you have any questions or need further information, please feel free to contact us.

Sincerely,

Dane B. Pascoe, PS
KEBS, Inc.
2116 Haslett Road
Haslett, MI 48840
517-339-1014

Office of the Superintendent

John J. Hood, Okemos Public Schools

4406 North Okemos Road, Okemos, Michigan 48864
Phone: 517-706-5009 · Fax: 517-349-6235
John.hood@okemosk12.net

Peter Menser
Principal Planner
Department of Community Planning and Development
Meridian Township
5151 Marsh Rd
Okemos MI 48864

May 13, 2020

Dear Mr. Menser:

David Straub from Mayberry Homes recently emailed requesting that the Okemos schools weigh in on the Silverleaf PUD under consideration by Meridian Township. It is my understanding that Meridian Township will now regularly request input from local school districts in regards to all Planned Unit Developments and the impact of such on our school systems.

In May 2019, Okemos voters approved a bond that included an addition of four classrooms to Bennett Woods Elementary to meet immediate elementary capacity needs. During that process, the Board charged administration with oversight of student enrollment and impacts on building capacities, including investigation of options for the district should numbers continue to grow over time. Administration continues to monitor enrollments as the Bennett Woods expansion is expected to come on line during the 20-21 school year.

Last August, the Okemos Board of Education had the opportunity to discuss and respond to a zoning and development inquiry from a concerned community member, the response of which was also shared with Supervisor Styka and the Township Board by President Dean Bolton.

That letter clarified the board's role as one "to establish policies that improve public education," and furthermore described zoning and development as, "not within the scope of the powers and responsibilities of the board."

"Together...educating with excellence, inspiring each learner for life."

Office of the Superintendent

John J. Hood, Okemos Public Schools

4406 North Okemos Road, Okemos, Michigan 48864
Phone: 517-706-5009 · Fax: 517-349-6235
John.hood@okemosk12.net

As superintendent, I do not speak for our Board of Education, however, I can articulate that our school board has made it clear in the very recent past that they are committed to actions to accommodate enrollment growth in general, no matter the source, and would not state a position on any specific development proposal or development in general.

If you should have any questions regarding this, or would like correspondence directly from our Board of Education, please let me know. Our district remains committed to equity and inclusion, and welcomes any and all students who enroll in our district.

Regards,

John J. Hood
Superintendent



To: Planning Commission

From: Peter Menser, Principal Planner

Date: August 19, 2020

Re: Planned Unit Development #20014 (Okemos Land Investment LLC), develop Silverleaf PUD consisting of 150 single family residential lots on approximately 94 acres located on the north side of Bennett Road, west of Hulett Road.

The Planning Commission held the public hearing for PUD #20014 at its meeting on August 10, 2020. Overall, the Commission voiced general support for the project but shared concerns related to lot size and setbacks in the proposed development. To address these concerns staff has gathered information on setbacks in similar developments to help guide further discussion on the proposal.

While every project is different, there are three projects in the Township that are similar to the Silverleaf PUD proposal, all developed by Mayberry Homes. There are other PUDs in the Township, but many of them are older and feature attached units or are significantly smaller in size in terms of both land area and number of units. The following table compares lot frontage and setbacks in the Okemos Preserve (2005), Champion Woods (2005), and Copper Creek (2018) developments.

	Front yard	Side yard	Rear Yard	Lot frontage
RAA zoning	25 feet	10 feet	30-40 feet	90 feet
Okemos Preserve	10 feet	5 feet	10-15 feet	55-70 feet
Champion Woods	20 feet	7.5 feet	0-5 feet	65-70 feet (varies)
Copper Creek	5 feet	5 feet	10 feet 5 feet for decks	57-117 feet (varies)
Silverleaf	10 feet	5 feet	10 feet 5 feet for decks	37-121 feet (varies)

The PUD ordinance is intended to allow for flexibility with regards to setbacks and lot area. The smaller lot sizes and setbacks are offset by larger areas of open space, less vegetation removed, less paving for roads, fewer trees cut down, and an overall smaller development footprint. A PUD does not have to fit within a specific development pattern or be comparable to other projects in the community. The lot sizes and setbacks are market driven; the developer has a vested interest in designing lots that will sell. While Planning staff is comfortable with the setbacks and lot frontage as proposed, staff preference would be to avoid having lot-specific setbacks as proposed in the attached letter from the developer, which may be difficult to track administratively in the future.

Bennett Road pathway

At the public hearing a resident asked about the status of the pathway along Bennett Road. As part of the Silverleaf project the developer will be responsible for constructing the required seven foot wide pathway along the project frontage on the north side of Bennett Road, which is approximately 688 linear feet. That leaves a gap in the pathway of approximately 635 feet to get to Bennett Woods Elementary. 435 feet of the pathway gap is on property owned by the applicant, which is zoned PO (Professional and Office) and may be developed in the near future. The remaining 200 feet is on property owned by the Schultz Vet Clinic. The pathway gap will eventually will be constructed as those properties are developed or improved. In the meantime, during the Site Plan Review process Township staff will explore options for ensuring that children living in the new development will have a safe walking and biking route to the nearby school.

Planning Commission Options

The Planning Commission may recommend approval, approval with conditions, or denial of the proposed PUD. A resolution to recommend approval of the project to the Township Board is provided.

- **Move to adopt the resolution approving Planned Unit Development #20014 to develop 150 detached single family residential lots on approximately 94 acres located on the north side of Bennett Road, west of Hulett Road.**

Attachments

1. Letter from David Straub at Mayberry Homes dated August 19, 2020.
2. Resolution to recommend approval.

G:\Community Planning & Development\Planning\PLANNED UNIT DEVELOPMENTS (PUD)\2020\PUD 20014 (Bennett Holding LLC)\PUD 20014 (Bennett Holding LLC)\PUD 20014.pc2.docx



August 19, 2020

Community Planning and Development
Meridian Township
5151 Marsh Road
Okemos, MI 48864

RE: Silverleaf Condominium PUD

As most of you know, Mayberry Homes has been building homes in and around Meridian Township since 2002. Our owner, Bob Schroeder, has been building homes in the greater Lansing area for over 50 years. Our communities are thoughtfully designed and executed, starting with the land planning process and culminating with state-of-the-art home designs. Mayberry Homes is proud to introduce Silverleaf.

During the August 10, 2020 Planning Commission Public Hearing, questions were raised regarding building setbacks. Our proposed 5' side yard setback and the 10' rear yard setback, that allows for a 5' encroachment for decks or patios, were the areas of greatest concern. The Commissioners asked for examples in the Township that have similar conditions. We are aware of at least three (3) communities within the Township where alternative setbacks were allowed. Okemos Preserve has 5' side yard setbacks (photos attached); Copper Creek was approved with the same setbacks that we're requesting for Silverleaf; Champion Woods has zero rear yard setbacks with a minimum 5' rear yard setback on certain lots. We would also like to highlight Avondale Square in East Lansing. This community included 40' wide lots with 5' side yards (photos attached). We are proud to share that Avondale Square was awarded a national award for community design.

With respect to the rear yard setback, we're ok to restrict the 5' rear yard encroachment to only include those lots that back to open space. Thus, no 5' encroachment on back to back, or back to side lots. These restrictions would be placed on lots 15-17, 22, 23, 31, 51, 55, 64, 75, 76 and 85. As previously stated, well over 90% of the homes will back to open space.

We respectfully request that the 5' side yard setback be approved as originally presented. We don't anticipate that all homes will require the maximum footprint on the lot. Some will and some will not.

Our requested setbacks will allow for a more interesting streetscape. Varying separation between homes provide more interest from the street view. The minimum 20' setback to the garage face not only ensures that a car will fit on the driveway without impeding the community sidewalk but will encourage the house and porch to be pulled forward of the garage face. Our goal is to maximize our buyer's investment through a thoughtful approach in the up-front planning process.

Please remember that the spirit of the PUD ordinance is to permit greater flexibility and encourage more creative design of residential developments than is possible under conventional zoning regulations. We are confident that the Silverleaf Condominium PUD will complement the Township's vision and deliver a spectacular community that we can all be proud of.

Sincerely,

David Straub
Mayberry Homes




AVONDALE
Square



OKEMOS
PRESERVE 



RESOLUTION TO RECOMMEND APPROVAL

**Planned Unit Development #20014
(Okemos Land Investment LLC)**

At a regular meeting of the Planning Commission of the Charter Township of Meridian, Ingham County, Michigan, held virtually via the Zoom web conferencing application, in said Township on the 24th day of August, 2020, at 7:00 p.m., Local Time.

PRESENT: _____

ABSENT: _____

The following resolution was offered by _____ and supported by _____.

WHEREAS, Okemos Land Investment LLC has submitted a request to establish a planned unit development (PUD) identified as Silverleaf; and

WHEREAS, the proposed planned unit development includes the construction of 150 detached single family residential lots on approximately 94 acres located on the north side of Bennett Road, west of Hulett Road; and

WHEREAS, the subject site is appropriately zoned RAA (Single Family-Low Density), which allows for a planned unit development; and

WHEREAS, the Planning Commission held a public hearing at its regular meeting on August 10, 2020, and has reviewed staff material forwarded under cover memorandums dated August 4, 2020 and August 19, 2020; and

WHEREAS, the proposed planned unit development is consistent with the seven conditions established in Rezoning #19060; and

WHEREAS, the proposed planned unit development provides adequate buffering between the development and adjacent residential land uses to the north and east; and

WHEREAS, the proposed planned unit development meets the minimum PUD performance objective to preserve at least 50% of the project area, excluding wetlands and floodplains, as open space; and

WHEREAS, the proposed planned unit development will be harmonious and similar in character with the existing residential developments to the north and east of the subject site; and

WHEREAS, the requested waivers for lot size, lot frontage, and building setbacks are necessary to facilitate preservation of open space; and

WHEREAS, the proposed planned unit development will be adequately served by public water and sanitary sewer; and

WHEREAS, the approximate 1.60 dwelling units per acre (du/a) density of the proposed development is consistent with the R2-Residential 0.5-3.5 Future Land Use Map designation from the 2017 Master Plan; and

**Resolution to Recommend Approval
PUD #20014 (Okemos Land Investment LLC)
Page 2**

WHEREAS, the proposed planned unit development meets the minimum PUD performance objectives as stated in Section 86-439(b) of the Code of Ordinances; and

WHEREAS, the proposed development is consistent with Objective E of Goal 2 of the 2017 Master Plan to preserve open space and natural areas by utilizing the planned unit development ordinance for the project; and

WHEREAS, the proposed planned unit development is consistent with Objectives A and B of Goal 1 of the 2017 Master Plan to preserve and strengthen residential neighborhoods by ensuring new residential developments meet high standards of visual attractiveness, health and safety, and environmental sensitivity.

NOW THEREFORE, BE IT RESOLVED THE PLANNING COMMISSION OF THE CHARTER TOWNSHIP OF MERIDIAN hereby recommends approval of Planned Unit Development #20014, subject to the following conditions.

1. Approval is in accordance with the submitted site plan prepared by Kebs, Inc., dated May 11, 2020 (revision date July 30, 2020) and received by the Township on July 30, 2020.
2. The waivers requested for lot size, lot frontage, and building setbacks are recommended for approval as depicted on the submitted site plan prepared by Kebs, Inc., dated May 11, 2020 (revision date July 30, 2020) and received by the Township on July 30, 2020.
3. The project shall remain consistent with the seven conditions established in Rezoning #19060.
4. The approximately 20 acres identified for donation to Meridian Township as PUD open space shall be conveyed to the Township prior to issuance of any permits for the project.
5. The applicant shall obtain all necessary permits, licenses, and approvals from the Ingham County Road Department, Ingham County Drain Commissioner, Michigan Department of Environment, Great Lakes, and Energy (EGLE), and the Township, as applicable. Copies of all permits and approval letters shall be submitted to the Department of Community Planning and Development.
6. The utility, grading, and storm drainage plans for the site are subject to the approval of the Director of Public Works and Engineering and Ingham County Drain Commissioner and shall be completed in accordance with the Township Engineering Design and Construction Standards.
7. No grading or land clearing shall take place on the site until the site plan has been approved by the Director of Community Planning and Development and grading and soil erosion and sedimentation control (SESC) permits have been issued for the project.
8. The proposed roads in the development shall be built to Ingham County Road Department construction standards and shall be subject to the approval of the Director of Public Works and Engineering.
9. Construction traffic for development of the property shall only access the site from Bennett Road.

**Resolution to Recommend Approval
PUD #20014 (Okemos Land Investment LLC)
Page 3**

10. Any wetland boundaries or setbacks located on or adjacent to residential lots shall be clearly identified by posted signage notifying the property owner of restrictions related to grading, mowing, placement of structures, landscaping, and dumping in the wetlands. The size, number, location, and language of the signs shall be subject to the approval of the Director of Community Planning and Development.
11. The applicant shall construct the required seven foot wide pathway along the north side of the Bennett Road frontage of the properties included in the development. The pathway shall be designed and constructed in accordance with Township Engineering and Construction standards. The design and location of the pathway shall be subject to the approval of the Director of Public Works and Engineering.
12. Street trees shall be provided along all internal roads in the development. The species, size, and location of the street trees shall be subject to the approval of the Director of Community Planning and Development.
13. The open space shall be reserved or dedicated by lease or conveyance of title, including beneficial ownership, to a corporation, association, or other legal entity or by reservation by means of a restrictive convenient.

ADOPTED: YEAS: _____

NAYS: _____

STATE OF MICHIGAN)

) ss

COUNTY OF INGHAM)

I, the undersigned, the duly qualified and acting Chair of the Planning Commission of the Charter Township of Meridian, Ingham County, Michigan, DO HEREBY CERTIFY that the foregoing is a true and a complete copy of a resolution adopted at a regular meeting of the Planning Commission on the 24th day of August, 2020.

Scott Hendrickson
Planning Commission Chair

RESOLUTION TO RECOMMEND APPROVAL

**Planned Unit Development #20014
(Okemos Land Investment LLC)**

At a regular meeting of the Planning Commission of the Charter Township of Meridian, Ingham County, Michigan, held virtually via the Zoom web conferencing application, in said Township on the 24th day of August, 2020, at 7:00 p.m., Local Time.

PRESENT: Commissioners Premoe, McConnell, Cordill, Blumer, Trezise, Clark, Richards, Hendrickson, Shrewsbury

ABSENT: None

The following resolution was offered by Commissioner Premoe and supported by Commissioner McConnell.

WHEREAS, Okemos Land Investment LLC has submitted a request to establish a planned unit development (PUD) identified as Silverleaf; and

WHEREAS, the proposed planned unit development includes the construction of 150 detached single family residential lots on approximately 94 acres located on the north side of Bennett Road, west of Hulett Road; and

WHEREAS, the subject site is appropriately zoned RAA (Single Family-Low Density), which allows for a planned unit development; and

WHEREAS, the Planning Commission held a public hearing at its regular meeting on August 10, 2020, and has reviewed staff material forwarded under cover memorandums dated August 4, 2020 and August 19, 2020; and

WHEREAS, the proposed planned unit development is consistent with the seven conditions established in Rezoning #19060; and

WHEREAS, the proposed planned unit development provides adequate buffering between the development and adjacent residential land uses to the north and east; and

WHEREAS, the proposed planned unit development meets the minimum PUD performance objective to preserve at least 50% of the project area, excluding wetlands and floodplains, as open space; and

WHEREAS, the proposed planned unit development will be harmonious and similar in character with the existing residential developments to the north and east of the subject site; and

WHEREAS, the requested waivers for lot size, lot frontage, and building setbacks are necessary to facilitate preservation of open space; and

WHEREAS, the proposed planned unit development will be adequately served by public water and sanitary sewer; and

WHEREAS, the approximate 1.60 dwelling units per acre (du/a) density of the proposed development is consistent with the R2-Residential 0.5-3.5 Future Land Use Map designation from the 2017 Master Plan; and

**Resolution to Recommend Approval
PUD #20014 (Okemos Land Investment LLC)
Page 2**

WHEREAS, the proposed planned unit development meets the minimum PUD performance objectives as stated in Section 86-439(b) of the Code of Ordinances; and

WHEREAS, the proposed development is consistent with Objective E of Goal 2 of the 2017 Master Plan to preserve open space and natural areas by utilizing the planned unit development ordinance for the project; and

WHEREAS, the proposed planned unit development is consistent with Objectives A and B of Goal 1 of the 2017 Master Plan to preserve and strengthen residential neighborhoods by ensuring new residential developments meet high standards of visual attractiveness, health and safety, and environmental sensitivity.

NOW THEREFORE, BE IT RESOLVED THE PLANNING COMMISSION OF THE CHARTER TOWNSHIP OF MERIDIAN hereby recommends approval of Planned Unit Development #20014, subject to the following conditions.

1. Approval is in accordance with the submitted site plan prepared by Kebs, Inc., dated May 11, 2020 (revision date July 30, 2020) and received by the Township on July 30, 2020.
2. The waivers requested for lot size, lot frontage, and building setbacks are recommended for approval as depicted on the submitted site plan prepared by Kebs, Inc., dated May 11, 2020 (revision date July 30, 2020) and received by the Township on July 30, 2020.
3. The project shall remain consistent with the seven conditions established in Rezoning #19060.
4. The approximately 20 acres identified for donation to Meridian Township as PUD open space shall be conveyed to the Township prior to issuance of any permits for the project.
5. The applicant shall obtain all necessary permits, licenses, and approvals from the Ingham County Road Department, Ingham County Drain Commissioner, Michigan Department of Environment, Great Lakes, and Energy (EGLE), and the Township, as applicable. Copies of all permits and approval letters shall be submitted to the Department of Community Planning and Development.
6. The utility, grading, and storm drainage plans for the site are subject to the approval of the Director of Public Works and Engineering and Ingham County Drain Commissioner and shall be completed in accordance with the Township Engineering Design and Construction Standards.
7. No grading or land clearing shall take place on the site until the site plan has been approved by the Director of Community Planning and Development and grading and soil erosion and sedimentation control (SESC) permits have been issued for the project.
8. The proposed roads in the development shall be built to Ingham County Road Department construction standards and shall be subject to the approval of the Director of Public Works and Engineering.
9. Construction traffic for development of the property shall only access the site from Bennett Road.

Peter Menser

From: STANLEY A. HUNLEY <STANLEY.HUNLEY@cmsenergy.com>
Sent: Tuesday, July 28, 2020 11:58 AM
To: Planning Commision (DG)
Subject: Comments Regarding Planned Unit Development (PUD) #20014

Hello, we are Stan and Janet Hunley and we reside at The Vistas in College Fields (2790 Carnoustie Drive in Okemos), just south of the proposed development. We received a notice in the mail yesterday regarding the PUD and, while we are not for or against the PUD, we would like to request that if the development goes forward it would be desirable to maintain the line of trees along the north side of Bennett Road to help preserve the natural beauty of the area. This natural setting was here when we moved in and it would be a shame to lose such a lovely view and have it replaced with views of other homes. We believe that future homeowners of the PUD would appreciate a natural screen that shields them from seeing the traffic on Bennett Road as well. We certainly respect the rights of property owners to do what they want with their property but this would be a courteous thing to do for our neighborhood and would help to maintain the natural beauty of the area.

Thank you for your consideration,

Stan and Janet Hunley
2790 Carnoustie Drive
Okemos, MI 48864
hunley2005@comcast.net

Peter Menser

From: Yingxin Zhou <zhou0824@gmail.com>
Sent: Friday, September 11, 2020 7:19 AM
To: Board; Planning Commission (DG); Frank Walsh
Subject: Public hearing on emergency pathway that connects Sophiea Parkway to Creekstone Trail

Dear Meridian Township Board, Planning Commission and Township Manager Mr. Frank Walsh,

Hope all is well.

I'm writing to request a public hearing to be held on the emergency road issue before the Board reviews the Silverleaf PUD application from Mayberry Homes.

For rezoning #19060 (Okemos Land Development LLC) and the Silverleaf PUD application, Mayberry Homes offered to dedicate the northern 20 acres of the property to Meridian Township. Since the proposal calls for Silverleaf to connect to Champion Woods, there is truly no need for the Champion Woods neighborhood to maintain and own the existing emergency pathway connecting Sophiea Parkway to Creekstone Trail. There is a public value for the Township to assume ownership of the path and connect the neighborhoods and public streets to existing land preserve and new 20 acre open space.

We appreciate Frank presenting the proposal of assuming the ownership of the path by the Township to the Board in the Sep 17, 2019 board meeting. Additionally Frank emphasized that the rezoning/PUD and taking over the ownership of the path is ONE package in several board and planning commission meetings. In a letter sent to local residents on Dec 9, 2019, the day before the Board approved rezoning #19060, Frank stated, "The PUD must meet all aspects of the voluntary conditions. The pathway, as committed, will be part of the final approval should the Board move forward. Both reviews are subject to a public hearing." Please refer to the letter attached below.

Therefore, I respectfully request a public hearing to be held on the ownership of the emergency pathway so that the Board could review it with the Silverleaf PUD application together.

Thank you very much for your consideration. It will be appreciated if the Board could discuss this matter in the coming board meetings.

Regards,

Yingxin Zhou

Bennett Road Outlook

Inbox x



Frank Walsh <walsh@meridian.mi.us>

Mon, Dec 9, 2019, 9:16 AM



to Frank ▾

Good morning,

Tomorrow evening, the Township Board will likely take final action on the Bennett Road rezoning. If approved, you can expect the following estimated timeline.

Typically, following a rezoning, the developer requires 1-3 months to design in detail the Planned Unit Development (PUD). Therefore, we expect Mayberry Homes to submit their PUD in February. The PUD must go to the Planning Commission and Township Board for review. The PUD must meet all aspects of the voluntary conditions. The pathway, as committed, will be part of the final approval should the Board move forward. Both reviews are subject to a public hearing.



11. C & 13. C

To: Township Board

From: Frank L. Walsh, Township Manager

Date: September 11, 2020

Re: 2021 Recommended Budget Public Hearing and Discussion

On Monday, August 31, 2020, the Draft 2021 Budget was delivered to the Township Board members.

The overarching goals of the 2021 Budget mirror the 2020 Action Plan adopted by the Board in January 2020. The 2021 Budget focuses on fulfilling our promises that we made to our residents in 2017 and 2019. We are focused on fixing our roads, eliminating our legacy costs, and abating two decades of blight in downtown Okemos and the Haslett Village Square.

It would be helpful if you bring your copy of the Draft 2021 Budget to the Board meeting.

Finance Director Miriam Mattison and I look forward to presenting the budget to you on Tuesday, September 15th. In the meantime, please do not hesitate to contact me if should you have any questions.

Attachment:

1. 2021 Township Budget Draft



2021

Budget

"A good hockey player plays where the puck is. A great hockey player plays where the puck is going to be."
-Wayne Gretzky



Meridian Township
5151 Marsh Road
Okemos, MI 48864
517.853.4000



meridian.mi.us

RECOMMENDED
BUDGET
FOR THE
FISCAL YEAR ENDING DECEMBER 31, 2021

Presented

To

Meridian Township Board

Ronald J. Styka, Supervisor
Brett Dreyfus, Clerk
Phil Deschaine, Treasurer
Courtney Wisinski, Trustee
Patricia Herring Jackson, Trustee
Dan Opsommer, Trustee
Kathy Ann Sundland, Trustee

By

Frank L. Walsh
Township Manager

Miriam Mattison
Finance Director

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Meridian Township
5151 Marsh Road
Okemos, MI 48864

P 517.853.4000
F 517.853.4096

Township Board:

Ronald J. Styka
Township Supervisor

Brett Dreyfus
Township Clerk

Phil Deschaine
Township Treasurer

Courtney Wisinski
Township Trustee

**Patricia Herring
Jackson**
Township Trustee

Dan Opsommer
Township Trustee

Kathy Ann Sundland
Township Trustee

Frank L. Walsh
Township Manager

08/31/2020

Dear Supervisor Styka and Board Members:

Finance Director Miriam Mattison and I are pleased to present you with a recommended \$52,609,000 2021 Meridian Township Operating Budget. We plan to present you with a complete overview of the budget at your September 15th Board meeting. Please do not hesitate to contact me should you have any questions leading up to the presentation. Completing the annual budget, and monitoring expenses throughout the year are the most critical tasks assigned to my administration.

INTRODUCTION

It is imperative that the annual Budget reflect the goals and objectives set forth by the governing body in December 2019. The 2021 Budget should mirror the vision of the elected officials. The Board's 2020 Action Plan ignites the call to bring redevelopment to the Village of Okemos and Downtown Haslett, expand our solar footprint, improve our entry signs, expand our diversity efforts, complete the Marketplace on the Green, ensure we are accountable with the overhaul of our local roads, implement a strategic plan for Census 2020 Count and continue to make progress on the MSU to Lake Lansing trail. Our team has taken great effort to match our budget recommendations with the Board's vision. Given the COVID-19 pandemic, we also approached spending through a very conservative set of eyes.

CHALLENGES AND OBSTACLES

The 2021 budget is hindered by three different revenue and expense adjustments. In 2021, we expect our major challenges to be:

- the significant potential decline in revenue as a result of COVID-19 (?)
- a reduction in state revenue sharing (\$300,000)
- a significant increase in our drain assessments (\$250,000)
- a significant increase in our annual MERS payment. In 2020, our total pension payment was approximately \$4,100,000. In 2021, we expect our payment to increase to \$4,750,000. (\$650,000)

GENERAL FUND

The General Fund is the mechanism to pay for core essential services such as police, fire, tax collection, assessing, elections, cemeteries and parks and recreation. In 2013, the Township Board adopted an informal policy to maintain an end-of-year general fund balance of \$5,250,000. Over the past seven years, we have exceeded this goal. In Michigan, the average municipal rainy day fund is approximately 15%-18% of the annual general fund expenses. If the 2021 General Fund Budget is approved on September 22, our rainy day fund will be 33% of our annual expenses. Again, we are taking a very conservative approach with the hazy clouds and fog on the horizon. Without the generous support of our taxpayers, we could not be in such a strong financial position.

When reviewing the budget, we need to remain cognizant of our significant \$28,000,000 pension liability.

The 2020 General Fund revenue is \$22,689,545. We expect our 2021 expenses to be \$23,372,420. Hence, we project expenses to bypass revenues by \$682,875. It is important to note, we are not proposing a budget with a structural deficit. If you eliminate the one-time expense of the Meridian Redevelopment Fund (\$700,000), the General Fund is balanced. We also have a one-time expense of (\$245,000) for expanding solar, adding new drinking fountains, LED lights and door replacements.

Although our 2021 Draft General Fund Budget is not balanced, we are not in a structural deficit position. In fact, we are healthy.

MERS PENSION DEBT

The 2021 Draft Budget maintains our promise to voters in terms of earmarking an additional Municipal Employees' Retirement System (MERS) annual payment of \$1,500,000. In fact, our recommendation is to supplement our Annual Required Contribution (ARC) to MERS with a contribution of \$4,758,744. According to MERS, our ARC, based on 7.35% rate of return, is \$2,805,636. Our 2021 recommended contribution is \$1,953,108 beyond the required payment. This information is available to you on Page 2 of the 2019 Meridian Township Annual Actuarial Valuation Report. Unfortunately, even with our additional payments, our MERS funding position dipped from 63% in 2018, to 62% in 2019.

Our current unfunded MERS pension liability is as follows:

Fire Department \$15,334,400 (accounting for surplus fund)
Police Department \$10,048,556 (accounting for surplus fund)
Department of Public Works \$1,353,317
Administrative Professionals \$1,051,160

It is important to note that the pension modifications instituted over the past four years has yielded a positive result. Both the fire department and administrative professionals newly formed pension plans are more than 100% funded. The key to our future is to commit funding to MERS based on a 5.35% smoothed rate of return. I would not heed the advice of future leadership if they suggest incorporating the MERS 7.35% rate of return and allocate the additional \$453,108 on projects.

LOCAL ROADS

This year was our first year of the 10-year local road program that was approved by the voters in the summer of 2019. The goal of the program is to raise the average current surface condition rating of the local road system to a "good" condition by the end of the decade long program.

In May of 2020, prior to our paving work beginning, the local road network had a Pavement Surface Evaluation and Rating (PASER) of 4.48. This equates to an overall condition average of low fair-poor. Upon the completion of our paving and preservation work this October, we expect our PASER rating to increase to a 5.13. With 9 years of the program remaining, we are confident that we will reach our overall goal of a PASER of 8 (good condition).

Currently, the 10.24 miles of resurfacing and reconstruction is about 75% complete and the 16.7 miles of preservation crack sealing work will commence this fall. With over 140 miles of local roads in the community, we are off to a solid start. The selection of the road projects for 2021 is underway and will be complete in the next 30 days.

Funding for the local road budget is provided by three main sources: the 2019 road bond proceeds (\$3,500,000), a transfer from the general fund (\$280,000) and a contribution from Ingham County (\$172,500). The budget recommends that \$3.5 million once again be focused exclusively on road rehabilitation and resurfacing and that the general fund contribution and County match be used for

engineering, inspection and preservation work. We expect that the \$3.95 million budget will allow us to improve and preserve 20-25 miles of local roads in 2021.



MOTOR POOL

The Motor Pool Fund is an internal service fund used to account for the purchases and maintenance of the Township fleet. It is a critical fund, as many of the Police, Fire and DPW services we provide our residents require the use of specialized vehicles and equipment. The Motor Pool is funded by “rents” from the various Township Departments based on future replacement costs, repairs and fuel usage.

In the 2021 recommended budget, we provide our fourth and final payment of \$250,000 towards the Fire Department ladder truck. This will fulfill our promise to the taxpayers of setting aside \$1,000,000 towards the ladder truck from the 2017 voter approved police and fire millage.

In addition to the allocation for the new ladder truck, we are recommending the purchase of the following vehicles and equipment in the 2021 Motor Pool Budget:

Police	Three Patrol vehicles and accessories	\$129,000
DPW- Sewer	Vactor Sewer Maintenance Truck	\$450,000
Parks	Large Width Mower	\$70,000
Parks & Pathways	Tool Cat	\$60,000
Fire:	Ladder Truck	\$1,000,000
Total New Purchases		\$1,709,000

At the end of 2021, we anticipate that we will have a fund balance of \$725,022 in the Motor Pool Fund for emergency and future capital outlay and operations. Our goal is to maintain a \$500,000 fund balance.



CHANGING PROPERTY VALUES

According to Township Assessor Dave Lee, Meridian Township expects to see a 2.92% increase in 2020 taxable values. The Township's 2020 tax base stands at \$1,872,353,236. The number of tax appeals facing the Township has dropped dramatically over the past several years. At this time, we have 14 open appeals. In 2013-14, we had 47 open appeals.

Millage Renewals

Below is the proposed Millage and Taxable Value Summary for 2020. This recommended budget is promulgated to include the fire protection, police protection and land preservation millages which will be on the November ballot.

MILLAGE & TAXABLE VALUE SUMMARY

<u>PURPOSE</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
Charter Operating	4.1875	4.1741	4.1670	4.1670	4.1578
Local Roads(2012)	0.2492	0.2484	0.2479	0.0000	0.0000
EMS/Fire(2004)	0.6385	0.6364	0.6353	0.6353	0.6339
Police(2004)	0.6061	0.6041	0.6030	0.6030	0.6016
Community Services(2012)	0.1495	0.1490	0.1487	0.1487	0.1483
Pedestrian/Bicycle Pathways (2016)	0.2765	0.3322	0.3316	0.3316	0.3308
CATA Redi-Ride (2009)	0.1994	0.1987	0.1983	0.0000	0.1978
Land Preservation (2010)	0.3290	0.3279	0.3273	0.3273	0.1000
Parks (2004)	0.3160	0.0000	0.0000	0.0000	0.0000
Police and Fire (2017)	0.0000	1.4830	1.4804	1.4804	1.4771
Parks (2014)	<u>0.6646</u>	<u>0.6624</u>	<u>0.6612</u>	<u>0.6612</u>	<u>0.6597</u>
SUB-TOTAL OPERATING	7.6163	8.8162	8.8007	8.3545	8.3070
Fire Station Building Debt(2012)	0.2000	0.2000	0.2000	0.2000	0.2000
Street Improvement Debt (2019)	0.0000	0.0000	0.0000	1.9429	1.9429
TOTAL ALL MILLAGES	7.8163	9.0162	9.0007	10.4974	10.4499
Taxable Value (000)	\$1,640,026	\$1,688,081	\$1,760,492	\$1,819,244	\$1,872,353
	1.95%	2.93%	4.29%	3.34%	2.92%

ECONOMIC DEVELOPMENT

The year has been challenging for development due to COVID-19. While some projects were delayed, other projects have been postponed until 2021, and still other projects have continued to move ahead. Key to the economic development effort has been the reuse of existing buildings and the redevelopment of existing sites. Buildings that were vacant for a number of years are being remodeled for new uses, such as Anna's House in the former Pizza Hut and Klingman's Furniture in the former Toys R Us. Redevelopment of existing sites include Red Cedar Manor, Pine Village and Buddy's Pizzeria. Both Red Cedar Manor and Pine Village will remove outdated buildings and construct new buildings offering residential and commercial space. Pine Village will be the first new development in the designated Haslett PICA area. A new restaurant, Buddy's Pizzeria will replace the former Burger King.

The progress on the Village of Okemos has slowed in part due to COVID-19 and securing the financing to move forward. To facilitate the development, the developer is proposing to reduce the available commercial space and increase the number of residential units. Except for the existing office building on Ardmore Street, the remaining buildings in the two blocks north and south of Hamilton Road and west of Okemos Road will be demolished before the end of the year.

Meridian Mall continues to evolve from traditional retail to an entertainment venue. The addition of High Caliber Karting and Launch have been successful and brought additional people to the mall site. High Caliber Karting is planning to expand into the vacant Old Navy suite. The opening of the Marketplace on the Green will also benefit the mall.



The Township Board, teaming with the Economic Development Corporation (EDC), was able to assist small business by providing a COVID-19 Small Business Relief Program. The program resulted in 37 Township businesses receiving \$4,000 grants. The funds for the program were derived from the 2015 sale of a Township owned commercial building.

The number of new single family houses being built has declined over the last 3-4 years. In part, the decline has been due to the lack of lots available to build on. With Silverstone near completion, the construction of Copper Creek under way and the possible construction of Silverleaf starting in the spring of 2021 should provide the type of housing people are seeking. The increase in housing will provide the Township with a strong population base and benefit the school districts and the commercial businesses.

FIRE DEPARTMENT



The fire department's 2021 recommended budget includes personal protective equipment, structural firefighting gear, SCBA cylinders, hose, confined space equipment, extrication equipment and a 12-lead EKG monitor.

A multi-year project for Township-wide coverage with outdoor warning sirens is ongoing. The tenth outdoor warning siren is proposed this year in the area of Lake Lansing and Park Lake Roads.

As promised with the passage of the 2017 fire-police millage, the fire department fleet will be strengthened by a new ladder truck ordered in 2020 which will be received fall of 2021.



Recruitment efforts will continue in 2021 and will include new hiring models. One of these will be sponsoring candidates to attend the fire academy. Another option is to sponsor EMTs through a paramedic course and State licensure.

INFORMATION TECHNOLOGY

Changes in the 2021 technology budget focus on three objectives: First, we will revitalize infrastructure by replacing several of our systems that are more than seven years old and have reached the end of their useful life; second, improving customer service by increasing IT staffing levels, making them one step closer to what they were in 2013; and finally, improving access to IT services with renewed efforts building relationships with third party partners that will provide the resources needed to maintain consistent technology services across the entire organization without reliance on potentially single points of failure. From a hardware perspective, the proposed improvements will focus on two aging systems: 1) our Storage Area Network assets, and 2) continuing replacement of mobile infrastructure to create new standards for mobile connections, devices, and their use to boost productivity. From a services perspective, the team's most outward facing activity will revolve around enhancement of a soon to be selected third party help desk offering. This service will assist with the triage of technical issues on 24 hours/day x 7 days/week x 365 days/year basis. Additionally, in response to the dramatic increase in leveraging of virtual services utilized during the COVID event, there will be some investment into, and reconfiguration of our connections to the outside world to better serve the organization's constantly evolving needs. Finally, routine services such as end-user support, resource protection, maintenance and backup services will of course continue to remain central to daily activities of the IT staff.

PUBLIC WORKS

The Department of Public Works provides many critical services to the public that they rely on every day. In addition to providing public water and sewer to our residents, the Department also manages the Engineering, Environmental Services, Geographic Information Systems (GIS), Local Streets, Motor Pool, Cemetery and Buildings and Grounds functions of the Township.

To fund all those operations, they utilize the general fund and several dedicated budgets including the Water and Sewer Enterprise Funds (Public Works). These separate and unique budgets provide for specific accounting for the revenues and expenditures of the distinct utilities.

In the Water Fund, the primary revenue source is the sale of water to our roughly 13,000 customer accounts. Expenses for the fund include: Administration, which includes a contribution to the General Fund, Engineering, Water Supply or the purchase of drinking water from the East Lansing Meridian Water and Sewer Authority (ELMWSA) and the Lansing Board of Water and Light (LBWL), Water Maintenance and Capital Outlay. Water improvement projects recommended for 2021 include the replacement of several large 16-inch valves in the distribution system (\$280,000) and improvements and maintenance to the north elevated storage tank (\$190,000) for a total capital budget of \$470,000 for the Water Fund.

The Sewer Fund is very similar, in that the primary revenue source is the charge of service to collect, transport and treat the sanitary waste generated by our customers each day. Expenses for the fund include: Administration, which also includes a contribution to the General Fund, Engineering, Sewage Treatment or the cost to purchase treatment services from the City of East Lansing Water Reclamation and Reuse Facility (ELWRRF), Sewer Maintenance and Capital Outlay. Proposed capital improvements include the lining and repair to various sewer mains in the Lake Lansing/northeast area at \$500,000, and the purchase and installation of an on-site fixed generator for the White Hills Lakes/BL69 lift-station at \$55,000 for a total capital budget of \$555,000.

Utility rates for 2021 are being recommended for an increase to properly fund the operations and necessary capital improvements of the Water and Sewer Utilities. As noted previously, this includes the purchase of safe potable drinking water and the safe and environmentally correct treatment of wastewater, the recommended capital outlay for both funds, necessary ongoing and future improvements at the City of East Lansing WRRF, and future critical improvement at the ELMWSA water treatment plant. With the ongoing threat of chemical pollutants in the environment that can harm our drinking water, and

increasing regulatory requirements, it is critical we plan for and properly fund improvements to both of our treatment facilities for the health and safety of our residents.

To fund all these necessary functions, the water commodity charge is recommended to increase from \$4.77 to \$4.96 per 1,000 gallons and the sewer commodity charge is recommended to increase from \$5.84 to \$6.31 per 1,000 gallons. Unlike most communities in the State of Michigan, we do not charge a ready-to-serve fee on top of the usage rate. The \$5.00 billing charge is recommended to remain the same as the 2020 rate of \$5.00 per utility bill. The average homeowner, with a usage of 12,500 gallons per quarter, will realize an increase from \$137.63 to \$145.88. This equates to an increase of \$2.75 per month for the average user of both public water and sewer in the Township. Even with the proposed increase, based on our recent survey of surrounding communities, we will continue to have comparatively low utility rates and proudly be able to sufficiently maintain and provide the necessary recommended improvements to our system.

CAPITAL IMPROVEMENTS

The 2021 Budget recommends \$275,000 for capital construction projects. This is down significantly from the previous capital outlay budget, which saw us replace the Municipal Building HVAC system at a cost of \$2.2 million.

This year's capital outlay budget will focus on the installation of our third solar panel project (\$100,000), improving interior office lighting (\$75,000), replacing failing exterior doors (\$40,000), replacing the roof of the Nokomis Center (\$30,000) and upgrading our building drinking fountains with bottle fillers (\$30,000). All of the recommended upgrades will assist us in reaching several of the goals in the Township Sustainability Plan.



POLICE DEPARTMENT

The year 2020 began with the Police Department becoming the first Mid-Michigan police agency accredited through the Michigan Association of Chiefs of Police. We continue to work diligently at meeting all standards set for accreditation as we prepare for our reassessment in 2022. The Department also welcomed one new officer (Officer Jordan Kuhn) and celebrated two retirements (Officer Paul Rambo and Officer David Metts). The Department is also sponsoring Sierra Alvarado to the Mid-Michigan Police Academy that began August 19, 2020.

The 2021 budget includes funding to sponsor one candidate to the Mid-Michigan Police Academy. This will assist in meeting our goal of full staffing of 41 officers while increasing the diversity of the employees working in the police department. The Department currently has 37 sworn officers.



Traffic concerns continue to rank as one of the top complaints received by the Police Department. This year's budget includes funding for two speed signs. These signs not only warn motorists they are exceeding the speed limit, but allow the Department to conduct speed studies to identify the scope of the traffic concern and how best to address the issue. The Department currently has two speed signs but they are unable to meet the current demand for speed studies and neighborhood requests.



The Police Department continues to provide police services to Williamstown Township. The contract extends to the end of 2022. The contract includes annual increases to cover the increasing costs of personnel and equipment. The cost of the services provided to Williamstown Township is covered by the contract with no financial burden on Meridian Township.

PARKS AND RECREATION

The importance of our community's investment in parks, recreation and land preservation became even more meaningful as we endured the challenges of COVID-19 this year. Parks and natural areas provided a safe physical and emotional respite during the Stay Home, Stay Safe Order and continue to provide an outlet for safely connecting with friends in the out-of-doors. Our parks received more visits than ever before and kept our maintenance team busier than ever!

Even though many of our special events and sports programs were canceled this year, we look forward to re-engaging our active residents with safe and responsible programming in 2021. The Harris Nature Center and Meridian Senior Center remained connected with the community through the Stay Home order via social media, and re-opened with gradual re-engagement for in-person programs in mid-summer. Land stewardship activities with staff and community volunteers kept many folks engaged throughout the summer as well. The Farmers' Market was the highlight activity in 2020 and operated outdoors beginning in May in the parking lot adjacent to Marketplace on the Green. Other popular amenities included the small dog park and pickleball courts. Currently, our volunteer hunters are eager to

participate in our 2020 Deer Management Program this fall. The Land Preservation Millage has supported acquisition, management and stewardship of nearly 1,000 acres of ecologically valuable land since 2000. A Land Preservation Millage renewal request will go before voters in November at a reduced rate of one/tenth mill from one/third mill for ten years to maintain the program.

The year 2020 was a banner year for park construction projects including a new restroom and footbridge in the Historical Village; 12' wide paved trail through Central Park including a boardwalk and fishing dock; large dog park in Central Park South; new restroom building and pavilion at Harris Nature Center; as well as Marketplace on the Green!



As we look forward to 2021, our focus will include activating Marketplace on the Green, recreation programming, maintenance and management of parks and preserves, land stewardship and outdoor activities and events for youth, seniors and adults. Creativity and flexibility are strong traits of parks and recreation professionals. Throughout these challenging times, we will continue to find new and safe ways to provide access to healthy foods, physical activity, social connectivity, and engagement with nature.

COMMUNICATIONS AND HOMTV



With the recent reorganization of the Communications Department, the Department now consists of three full-time team members. The Department continues to provide the core communication services for the Township including emergency/crisis communications, website and social media management, marketing, HOMTV programming and live production of municipal meetings. In the first few months of 2020, additional staffing changes occurred with the replacement of the Multimedia Production and Operations Specialist and the elimination of the freelance Graphic Designer.

A 2020 Communications Department goal is to audit the Township website pages and develop a redesign strategy. The 2021 budget includes funding of ADA compliance and support, as well as, a design refresh of the Township website. Additional monies have been allocated to continue Township branding efforts.

The Communications Department strives to maintain a cycle of upgrading and replacing HOMTV Field, Editing and Control Room Equipment. The 2021 budget also recommends equipment replacement purchases based on the new 5-Year Equipment Replacement Plan. Those purchases include a small camera system, editing computer, wireless microphones and the reconfiguration of the HOMTV Server Room.

SUMMARY

Before I summarize the 2021 Budget, I want to thank Finance Director Mattison, Deputy Manager Perry and the entire TEAM for their contributions in creating the DRAFT 2021 Budget. By adopting annual goals and objectives, the Township Board allows for a seamless and well-thought-out budget process. It's our responsibility to align the annual spending plan with the Board's vision.

To recap the Board's goals the focus must be on:

- Improving Local Roads
- Sustainability & Environment
- Expanding Solar
- Expanding our Emergency Siren Coverage Area
- Replacing our Aged Ladder Truck
- Increasing Diversity, Equity and Inclusion
- Redevelop the Village of Okemos and Downtown Haslett
- Complete the Marketplace on the Green
- Replace our outdated and aged Township Welcome Signs
- Maintain our Facilities/Capital Improvement Planning

It's also important to note that the 2021 Draft Budget maintains every promise made to voters over the past four years. In 2017, we promised a budget consisting of:

- 41 sworn Police Officers
- 32 Paramedic/Firefighters
- Setting aside \$1,000,000 from 2017-2021 for the purchase of a Ladder Truck
- An additional annual \$1,500,000 contribution to MERS for police and fire pension

In 2019 we promised to:

- Allocate \$3,500,000 annually to Local Roads
- Maintain our annual \$250,000 General Fund contribution to Local Roads
- Improve an annual minimum of 14.6 miles of Local Roads

In every case, we have met or exceeded our promise. Simply put, we've kept our word.

The highlights of the 2021 Budget include appropriations to:

- Increased Contribution to Local Road Preservation (\$280,000)
- Fire Department Ladder Truck (\$250,000)
- Solar Panel Project (\$100,000)
- Interior Office Lighting (\$75,000)
- Replacing Failing Exterior Doors (\$40,000)
- Replacing the Nokomis Center Roof (\$30,000)
- Upgrading our Building Drinking Fountains with Bottle Fillers (\$30,000)
- Flags Over Meridian (\$400)

- Vactor Sewer Maintenance Truck (\$450,000)
- Large Width Mower (\$70,000)
- Tool Cat (\$60,000)
- 3 Police Patrol Cars and Accessories (\$129,000)
- Emergency Warning Siren (10th) (\$30,000)
- Meals on Wheels (\$4,000)
- Meridian Community Band (\$1,700)
- Funding for Diversity, Equity, and Inclusion (\$30,000)
- Increasing the Meridian Redevelopment Fund to \$700,000 (\$130,000)

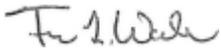
The proposed 2021 General Fund spending plan is \$23,372,420. Our General Fund revenue is estimated at \$22,689,545. Therefore, our predicted loss for 2021 is \$682,875. However, our anticipated General Fund balance on December 31, 2021 is \$7,732,436. Hence, a 33% rainy day fund. Compared to communities across the state, we remain in a strong financial position. It is important to note, there is no structural debt in the Budget. We have scheduled a one-time expenditure of \$700,000. If we removed this expense, we would have a positive 2021 General Fund cash flow.

We do need to be mindful that Meridian Township does carry \$30,000,000-\$35,000,000 in legacy debt.

Thank you for the opportunity to serve the Township Board and the residents of Meridian Township. I look forward to a prosperous 2021.

We look forward to your questions, feedback and insight on Tuesday, September 15, 2020.

Sincerely,



Frank L. Walsh
Township Manager

2021 Budget Resolution

At a meeting of the Township Board of the Charter Township of Meridian, Ingham County, Michigan, held at 5151 Marsh Road, Okemos, Michigan 48864-1198, on the 22nd day of September 2020, at 6:00 pm local time.

PRESENT: _____

ABSENT: _____

The following budget resolution was offered by _____ and supported by _____.

WHEREAS, the Township Clerk and Board received the proposed 2021 Township Budgets on August 31, 2020, submitted in conformance with 1947 PA 359 Sections 42.24 and 42.25; and

WHEREAS, the Township Board conducted a public hearing and deliberated over the 2021 Township Budgets on September 15, 2020; and

WHEREAS, this resolution serves as the general appropriations act for the Township;

WHEREAS, this resolution authorizes the Summary of Fees for 2021 as presented in the budget document for all Township Department and Funds, including utility com

NOW THEREFORE, BE IT RESOLVED THAT THE TOWNSHIP BOARD OF THE CHARTER TOWNSHIP OF MERIDIAN, INGHAM COUNTY, MICHIGAN hereby adopts the 2021 Budget shown below and on the attached Summaries of Special Revenue Funds, Debt Service Funds, Capital Projects Funds, Public Works Funds, Internal Service Fund and DDA. These budgets are supported by the budget document, and subject to all Township policies regarding the expenditure of funds and technical or typographical corrections to the narrative.

2021 REVENUE SUMMARY

	GENERAL FUND	SPECIAL REVENUE FUNDS*	DEBT SERVICE FUNDS*	CAPITAL PROJECTS FUNDS*	PUBLIC WORKS FUNDS	INTERNAL SERVICE FUND	DDA
REVENUES							
Taxes	\$13,924,700	\$2,538,050	\$3,991,100	\$0	\$0	\$0	\$6,500
Licenses & Permits	761,250	0	0	0	0	0	0
Intergovernmental	3,525,800	2,892,800	0	0	0	0	0
Charges For Services	4,240,500	87,000	0	0	13,781,850	1,151,320	0
Interest	103,735	141,830	16,000	19,500	10,000	5,000	0
Special Assessments	0	0	0	140,000	0	0	0
Other	133,560	70,200	0	0	37,300	5,000	0
SUBTOTAL	22,689,545	5,729,880	4,007,100	159,500	13,829,150	1,161,320	6,500
OTHER FINANCING SOURCES							
Operating Transfers In	0	280,000	0	0	0	250,000	0
TOTAL REVENUES	\$22,689,545	\$6,009,880	\$4,007,100	\$159,500	\$13,829,150	\$1,411,320	\$6,500

2021 EXPENDITURE SUMMARY

	GENERAL FUND	SPECIAL REVENUE FUNDS*	DEBT SERVICE FUNDS*	CAPITAL PROJECTS FUNDS*	PUBLIC WORKS FUNDS	INTERNAL SERVICE FUND	DDA
EXPENDITURES							
Legislative	\$85,550	\$0	\$0	\$0		\$0	\$0
General Government	6,338,050	0	0	0		0	3,000
Public Safety	14,114,388	17,000	0	0		714,065	0
Public Works	0	661,525	0	0	11,094,455	0	0
Health & Welfare	65,565	160,200	0	0		0	0
Community Economic & Development	700,000	0	0	0	0	0	0
Recreation & Culture	1,091,867	1,426,510	0	0		0	0
Capital Outlay	447,000	7,255,000	0	65,000	1,025,000	1,719,000	0
Debt Service	0	0	3,842,090	0	1,250,000	0	3,735
SUBTOTAL	22,842,420	9,520,235	3,842,090	65,000	13,369,455	2,433,065	6,735
OTHER FINANCING USES							
Operating Transfers Out	530,000	0	0	0	0	0	0
TOTAL EXPENDITURES	\$23,372,420	\$9,520,235	\$3,842,090	\$65,000	\$13,369,455	\$2,433,065	\$6,735

* See attached Summary of Special Revenue Funds, Debt Service Funds, and Capital Projects Funds

BE IT FURTHER RESOLVED that the following millage is ordered to be levied on December 1, 2020, for the purpose of funding the 2021 Township budget with the monies raised to be paid into the appropriate funds:

<u>PURPOSE</u>	<u>2021</u>
CHARTER OPERATING	4.1578
VOTED OPERATING	
CATA Redi-Ride Service (2019)	0.1978
Community Services (2012)	0.1483
Fire (2020)	0.6339
Land Preservation (2010)	0.1000
Parks & Recreation (2014)	0.6597
Pedestrian/Bicycle Pathways (2004)	0.3308
Police (2020)	0.6016
Police & Fire Protection (2017)	<u>1.4771</u>
TOTAL VOTED OPERATING	<u>4.1492</u>
SUB-TOTAL ALL OPERATING	<u>8.3070</u>
VOTED DEBT SERVICE	
Fire Station Building Debt (2012)	0.2000
Local Roads (2019)	1.9429
TOTAL ALL MILLAGES	<u>10.4499</u>

ADOPTED: YEAS: _____
 NAYS: _____

STATE OF MICHIGAN)
) ss
 COUNTY OF INGHAM)

I, the undersigned, the duly qualified and acting Clerk for the Charter Township of Meridian, Ingham County, Michigan, do hereby certify that the foregoing is a true and complete copy of a resolution adopted at a special meeting of the Township Board held on the 22nd day of September, 2020.

 Brett Dreyfus
 Township Clerk

2021 BUDGET

SUMMARY OF SPECIAL REVENUE FUNDS

	SPECIAL REVENUE FUNDS	Local Roads Fund	Pedestrian/Bicycle Pathway	CATA Redi-Ride Millage	Land Preservation Millage	Land Preservation Reserve	Park Millage	Senior Center Millage	Park Restricted/Designated	Fire Restricted/Designated	Library Fund Restricted	Police Restricted/Designated	Cable Television	Community Needs	Law Enforcement Grants
REVENUES															
Taxes	\$2,538,050	\$0	\$601,150	\$368,000	\$186,100	\$0	\$1,228,250	\$154,550	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Licenses & Permits	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intergovernmental	2,892,800	172,500	2,713,300	0	0	0	0	0	0	0	0	7,000	0	0	0
Charges For Services	87,000	0	0	0	0	0	45,000	0	42,000	0	0	0	0	0	0
Interest	141,830	60,000	8,000	100	20,000	40,000	10,000	2,000	1,000	30	50	300	100	50	200
Special Assessments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	70,200	0	0	0	0	0	0	0	50,000	0	0	10,000	0	10,200	0
SUBTOTAL	5,729,880	232,500	3,322,450	368,100	206,100	40,000	1,283,250	156,550	93,000	30	50	17,300	100	10,250	200
OTHER FINANCING SOURCES															
Operating Transfers In	280,000	280,000	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL REVENUES	\$6,009,880	\$512,500	\$3,322,450	\$368,100	\$206,100	\$40,000	\$1,283,250	\$156,550	\$93,000	\$30	\$50	\$17,300	\$100	\$10,250	\$200
EXPENDITURES															
Public Safety	17,000	0	0	0	0	0	0	0	0	0	0	17,000	0	0	0
Public Works	661,525	450,000	211,525	0	0	0	0	0	0	0	0	0	0	0	0
Health & Welfare	160,200	0	0	0	0	0	0	150,000	0	0	0	0	0	10,200	0
Recreation & Culture	1,426,510	0	0	368,000	201,595	0	764,315	0	92,600	0	0	0	0	0	0
Capital Outlay	7,255,000	3,500,000	3,615,000	0	0	0	135,000	5,000	0	0	0	0	0	0	0
Debt Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	9,520,235	3,950,000	3,826,525	368,000	201,595	0	899,315	155,000	92,600	0	0	17,000	0	10,200	0
OTHER FINANCING USES															
Operating Transfers Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EXPENDITURES	\$9,520,235	\$3,950,000	\$3,826,525	\$368,000	\$201,595	\$0	\$899,315	\$155,000	\$92,600	\$0	\$0	\$17,000	\$0	\$10,200	\$0
	\$ (3,510,355)	\$ (3,437,500)	\$ (504,075)	\$ 100	\$ 4,505	\$ 40,000	\$ 383,935	\$ 1,550	\$ 400	\$ 30	\$ 50	\$ 300	\$ 100	\$ 50	\$ 200

SUMMARY OF DEBT SERVICE FUNDS

	DEBT SERVICE FUNDS	Fire Station Debt Service	Road Construction Debt
REVENUES			
Taxes	\$3,991,100	\$372,100	\$3,619,000
Interest	\$16,000	\$1,000	\$15,000
EXPENDITURES			
Debt Service	\$3,842,090	\$274,590	\$3,567,500

SUMMARY OF CAPITAL PROJECTS FUNDS

	CAPITAL PROJECTS FUNDS	TIRF
REVENUES		
Interest	\$19,500	\$19,500
Special Assessments	140,000	140,000
TOTAL REVENUES	\$159,500	\$159,500
EXPENDITURES		
Capital Outlay	\$65,000	\$65,000

Budget Process Policy
Charter Township of Meridian

Legal Requirements

**State of Michigan
Charter Township Act
Act 359 of 1947**

Section 42.24. On or before 150 days prior to the commencement of the fiscal year, each township officer shall submit to the supervisor, or to the township superintendent if such officer has been appointed, an itemized estimate of the anticipated expenditures of the township for the next fiscal year for the township activities under his or her charge. The supervisor, or township superintendent, as the case may be, shall prepare a complete itemized budget proposal for the next fiscal year and shall submit it to the township board not later than 120 days prior to the commencement of the fiscal year.

Section 42.25. The budget proposal shall present a complete financial plan for the ensuing fiscal year, which shall commence on January 1 of each year and end on the following December 31, or in the alternative shall commence on April 1 of each year and end on the following March 31. In no event shall any fiscal year of a township be extended beyond 12 months. It shall include at least all of the following information:

- (a) Detailed estimates of all proposed expenditures for each function and office of the township, showing the expenditures for corresponding items for the current and last preceding fiscal years, with reasons for increases and decreases recommended, as compared with appropriations for the current year.
- (b) Statements of the bonded and other indebtedness of the township, showing the debt redemption and interest requirements, the debt authorized and unissued, and the condition of sinking funds, if any.
- (c) Detailed estimates of all anticipated income of the township from sources other than taxes and borrowing, with a comparative statement of the amounts received by the township from each of the same or similar sources for the last preceding and current fiscal years.
- (d) A statement of the estimated balance or deficit, as the case may be, from the end of the current fiscal year.
- (e) An estimate of the amount of money to be raised by taxation and from delinquent taxes and the amount to be raised from bond issues which, together with income from other sources, will be necessary to meet the proposed expenditures.
- (f) Such other supporting schedules as the township board considers necessary.

Section 42.26. A public hearing on the budget shall be held before its final adoption, at such time and place as the township board shall direct, and notice of such public hearing shall be published at least 1 week in advance by the township clerk. A copy of the proposed budget shall be on file and available to the public for inspection during office hours at the office of the township clerk for a period of not less than 1 week prior to such public hearing.

Section 42.27.

- (1) Except as otherwise provided by this subsection, prior to the commencement of the fiscal year, the township board shall, by resolution, adopt the budget for the next fiscal

year, make an appropriation of the money needed for township purposes, and provide for a levy of taxes upon real and personal property. If a township operates on a calendar year budget cycle, a public hearing on the proposed budget shall be held not later than December 15 and adopted not later than December 31, in the year proceeding the calendar year covered by the budget.

- (2) The levy allowed under subsection (1) shall not exceed 1/10 of 1% of the assessed valuation of all real and personal property subject to taxation within the limits of a village located within the township and 1/2 of 1% of the assessed valuation of all real and personal property subject to taxation in the balance of the township. The electors of a charter township may increase the tax levy limitation not to exceed a total of 1% of the assessed valuation of all real and personal property in the township for a period not to exceed 20 years at 1 time.
- (3) If a township has 1 or more villages that maintain either or both a fire department or a police department, the expense of a township fire department or police department shall be appropriated separately from the other expenses of the township and a tax levy for these expenses shall not spread upon the township assessment roll against the property, either real or personal, located in these villages.
- (4) The adoption of the resolution under this section is the final authority for the township supervisor to spread any approved levies upon the tax roll for the current year and to include the amount of each levy in his or her warrant to the township treasurer. The township treasurer shall collect and return the warrant as provided under the general property tax act, 1893 PA 206, MCL 211.1 to 211.157.
- (5) Within 60 days after the incorporation of a township as a charter township under this act, the township board shall, by resolution, adopt an interim budget until the commencement of the next fiscal year and make an appropriation from the funds and asset of the township available for these purposes.

Section 42.28. No money shall be drawn from the treasury of the township nor shall any obligation for the expenditure of money be incurred, except pursuant to the budget appropriation, or pursuant to any supplemental appropriation which may be made from surplus received. The township board may transfer any unencumbered appropriation balance, or any portion thereof, from 1 fund or agency to another. The balance in any appropriation, which has not been encumbered, at the end of the fiscal year shall revert to the general fund and be reappropriated during the next fiscal year.

2021 Budget Timeline
Meridian Township

July 17	ALL Budgets Due to Finance Director
July 27-Aug 7	Management Review of Requests and Individual Discussions
August 11	Directors Discussion
September 1	Board Meeting-Notice for Budget Public Hearing
September 1	Recommended Budget Distributed to Board
September 15	Board Meeting – Budget Deliberations and Public Hearing
September 22	Board Meeting – Special Board Meeting-Final Adoption of Budget
Quarterly	Review and Approve Budget Amendments

MERIDIAN TOWNSHIP SUMMARY OF FEES - 2021

<u>Department</u>	<u>Fee Description</u>	2020 Rate	Proposed 2021 Rate
Administration	Initial Liquor License Application Fee	\$250	\$250
	Telecommunications Rights-of-Way Permit Application Fee	\$500	\$500
	Copies - for all Departments unless otherwise noted	\$1.00 1st page & \$0.25 each add'l page, per document	\$1.00 1st page & \$0.25 each add'l page, per document
	Outdoor Assembly License	\$300.00	\$300.00
Communications/HOMTV	Video Copies		
	Flat rate per order	\$15	\$15
	Per hour running time on order, or any increment thereof	\$10	\$10
	HOM-TV supplied DVD to copy	\$6	\$6
	Shipping and Handling Charge	\$6	\$6
	Audio Copies		
	Flat rate per copy	\$10	\$10
	Per hour running time on order, or any increment thereof	\$10	\$10
	HOM-TV supplied DVD to copy	\$4	\$4
	Shipping and Handling Charge	\$6	\$6
Clerk's Office	Annual Subscriptions	Separately Board approved	Separately Board approved
	FOIA Requests	Cost	Cost
	Code of Ordinance Books/Recodified	\$70 + \$7.50 shipping	\$70 + \$7.50 shipping
	Code of Ordinance CD's	Priced when available	Priced when available
	Zoning Ordinance Book/Recodified	\$40 + \$7.50 shipping	\$40 + \$7.50 shipping
	Precinct Maps - large	bw=\$10; color=\$15	bw=\$10; color=\$15
	Voter Registration Information	Cost	Cost
	Publications for Resale (at cost)		
	Plat Books	\$35	\$35
	Michigan Vehicle Code-1996	\$12	\$12
Community Development	Rental Housing Fee Schedule		
Building Division	Initial Registration Fee	\$800	\$800
	Annual Renewal Fee	\$100	\$100
	Inspection Fees (Rental)		
	One and Two Family - Inspected annually	\$120	\$120
	Building or complex of three or more units	\$120 + \$3 per bedroom	\$120 + \$3 per bedroom
	Missed Appointment Fee	\$60	\$60
	Safety Complaint Inspection Fee	\$60	\$60
	Re-inspection Fee		
	One and Two Family - Inspected annually	\$60	\$60
	Building or complex of three or more units	\$60 + \$3 per bedroom	\$60 + \$3 per bedroom
	Vacant or Abandoned Building		
	Initial Registration	\$175	\$175
	Annual Renewal	\$100	\$100
	Inspection or Re-Inspection	\$75	\$75
	Building Permits		
	New Construction, additions, structural alterations, remodeling and swimming pools		
	Expenditures up to and including \$5,000	\$75	\$75
	Each \$1,000 or fraction thereof above \$5,000	\$10	\$10
	Reinspection Fee	\$75	\$75
	Construction Valuation - One and Two Family Dwellings*		
	Living areas	\$122.46/sq. ft.	\$122.46/sq. ft.

MERIDIAN TOWNSHIP SUMMARY OF FEES - 2021

<u>Department</u>	<u>Fee Description</u>	2020 Rate	Proposed 2021 Rate
	Basement area - unfinished	\$22.45/sq. ft.	\$22.45/sq. ft.
	Basement area - finished	\$50.53/sq. ft.	\$50.53/sq. ft.
	Garage area	\$48.73/sq. ft.	\$48.30/sq. ft.
	Free Standing Signs & Wall Signs:		
	Wall signs up to 100 sq. feet	\$125	\$125
	- each sq. foot or fraction thereof over 100 sq. ft.	\$1	\$1
	Free standing signs up to 25 sq. ft.	\$125	\$125
	- each sq. foot or fraction thereof over 25 sq. ft.	\$1	\$1
	Temporary Grand Opening Signs	\$75	\$75
	Swimming Pools		
	Single family home pools	Based on valuation of improvement	Based on valuation of improvement
	All other pools	Based on valuation of improvement	Based on valuation of improvement
	Moving Buildings		
	Buildings up to 500 sq. ft.	\$100	\$100
	Buildings over 500 sq. ft.	\$200	\$200
	Parking Lots New or Expanded	\$75	\$75
	Demolition of Buildings		
	Dwellings, garages, sheds, swimming pools	\$100	\$100
	Warehouses, factories, stores & office buildings	\$150	\$150
	Residing of Buildings	\$75	
	Single family homes and garages		\$75
	All other structures		\$100
	Reroofing of Buildings		
	Single family homes and garages	\$75	\$75
	All other structures	\$100	\$100
	Work started before permit is issued	Double permit fee	Double permit fee
	Extra Inspection/Reinspection	\$75	\$75
	Temporary or Seasonal Sales	\$75	\$75
	Tent Inspection	\$75	\$75
	New Business Inspection	\$75	\$75
	Mechanical/Electrical/Plumbing (MEP)	\$50 base fee + per fixture fees + inspection fees	\$50 base fee + per fixture fees + inspection fees
	MEP Registration Fee	\$15	
	Tall Grass Violation	\$75 (residential) \$125 (non-residential)+ cost of mowing	\$75 (residential) \$125 (non-residential)+ cost of mowing
	Building Board of Appeals	\$75	\$75
Community Development Planning Division	Rezoning		
	3 acres or less	\$700	\$700
	More than 3 acres	\$700 + \$40/acre	\$700 + \$40/acre
	Zoning Text Amendment		
	Request by property owner	\$500	\$500
	Special Use Permit		
	3 acres or less	\$500	\$500
	More than 3 acres	\$500 + \$40/acre	\$500 + \$40/acre
	Minor, Major Amendments and Extensions	1/2 original fee	1/2 original fee

MERIDIAN TOWNSHIP SUMMARY OF FEES - 2021

<u>Department</u>	<u>Fee Description</u>	2020 Rate	Proposed 2021 Rate
	Site Plan Review		
	Multiple family housing		
	Initial application	\$900 + \$10/dwelling unit	\$900 + \$10/dwelling unit
	Modification to site plan prior to approval (hearing required)	\$900 + \$10/dwelling unit	\$900 + \$10/dwelling unit
	Modification to approved site plan (hearing required)	\$900 + \$10/dwelling unit	\$900 + \$10/dwelling unit
	Modification to approved (no hearing required)	\$500 + \$5/dwelling unit	\$500 + \$5/dwelling unit
	PUD, MUPUD, CPUD		
	Initial application	\$900 + \$10/dwelling unit	\$900 + \$10/dwelling unit
	Modification to approved site plan	\$500 + \$5/dwelling unit	\$500 + \$5/dwelling unit
	Office, Commercial, Industrial, Institutional, etc.		
	Initial application	\$500 + \$20/acre	\$500 + \$20/acre
	Modification to site plan prior to approval (hearing required)	\$500 + \$20/acre	\$500 + \$20/acre
	Modification to approved site plan (hearing required)	\$500 + \$20/acre	\$500 + \$20/acre
	Modification to approved (no hearing required)	\$300 + \$10/acre	\$300 + \$10/acre
	Review of new use in existing structure	\$300 + \$10/acre	\$300 + \$10/acre
	Preliminary Review (credited toward final review)		
	Site Plan	\$100	\$100
	Planned Residential Development	\$100	\$100
	PUD, MUPUD	\$100	\$100
	Medical Marihuana		
	Initial Application	\$5,000	\$5,000
	Annual/Renewal Application	\$5,000	\$5,000
	Brownfield		
	Application Fee	Total Project \$0-\$5 million=\$3,000	Total Project \$0-\$5 million=\$3,000
		\$5 million-\$10 million=\$4,000	\$5 million-\$10 million=\$4,000
		\$10 million and over=\$5,000	\$10 million and over=\$5,000
	Planned Unit Development (PUD) Mixed Use PUD Commercial PUD		
	Initial application	\$500 + \$5/dwelling unit	\$500 + \$5/dwelling unit
	Major amendment to approved PUD, MUPUD and CPUD	\$500 + \$5/dwelling unit	\$500 + \$5/dwelling unit
	Minor amendment to approved PUD, MUPUD and CPUD	\$250 + \$2.50/dwelling unit	\$250 + \$2.50/dwelling unit
	Land Division Review		
	Prepreliminary Plat	\$100	\$100
	Tentative Preliminary Plat	\$600 + \$10 per lot	\$600 + \$10 per lot
	Final Preliminary Plat	\$300 + \$5 per lot	\$300 + \$5 per lot
	Final Plat	\$500 + \$5 per lot	\$500 + \$5 per lot
	Plat Extension	\$200	\$200
	Land Division	\$200 + \$50 per new lot or parcel	\$200 + \$50 per new lot or parcel
	All Other Commission Review	\$300	\$300
	Zoning - Letter of Compliance	\$100	\$100
	Land Clearing Permit	\$100	\$100
	Variances		
	Single family	\$250	\$250
	Multiple family	\$350	\$350
	Office, commercial, industrial	\$450	\$450
	Sign variances	\$300	\$300

MERIDIAN TOWNSHIP SUMMARY OF FEES - 2021

Department	Fee Description	2020 Rate	Proposed 2021 Rate
	Appeal of Township Officials decision	\$200	\$200
	Ordinance interpretation	\$450	\$450
	Applicants request to postpone or table	1/2 of application fee	1/2 of application fee
	Mobile Food Vending		
	30 Consecutive Days- Minimum	\$60	\$60
	120 Consecutive Days-Maximum	\$240	\$240
	Wetland Fees		
	Application Fee-Verification	\$250	\$250
	Application Fee-Delineation	\$250	\$250
	Application Fee-Wetland Use Permit	\$500	\$500
	Amendments to a Wetland use Permit	\$500	\$500
	Annual Review of Mitigation Area	\$250	\$250
	Acreage Fee-Verification	\$1,500-\$3,500 + \$500 per 20 acres over 100	\$1,500-\$3,500 + \$500 per 20 acres over 100
	Acreage Fee-Delineation	\$2,250-\$4,500 + \$500 per 20 acres over 100	\$2,250-\$4,500 + \$500 per 20 acres over 100
	Acreage Fee-Wetland Use Permit	\$3,250-\$7,000 + \$1,000 per 20 acres over 100	\$3,250-\$7,000 + \$1,000 per 20 acres over 100
Engineering	Engineering Review - Review of Plans		
	Water main, sanitary sewer, paving, grading, sidewalk & pathway construction	1.5% of construction cost minus \$250 deposit	1.5% of construction cost minus \$250 deposit
	After second review in unapprovable condition	reviewer(s) hourly wage x 2.5	reviewer(s) hourly wage x 2.5
	Additional fee for unaddressed items in third review	reviewer(s) hourly wage x 2.5	reviewer(s) hourly wage x 2.5
	Performance Guarantees	Varies by project, subject to Ord. 86-283	Varies by project, subject to Ord. 86-283
	Public Inspection		
	Water main, sanitary sewer, paving, grading, sidewalk & pathway construction	Actual cost (internal costs computed @ 2.5 x wages) Includes new service line permit fee	Actual cost (internal costs computed @ 2.5 x wages) Includes new service line permit fee
	Recording of Easements	Actual cost (County Clerk Fees)	Actual cost (County Clerk Fees)
	Administrative Charge		
	Construction commencement prior to site plan approval	engineering review fee	engineering review fee
	Blueprints		
	Small Township maps	\$5	\$5
	Large Township maps	\$10	\$10
	Small Section maps (1"=400')	\$5	\$5
	Large Section maps (1"=200')	\$10	\$10
	As-Builts	\$1.50	\$1.50
	Aerial photography	\$15	\$15
	Aerial superimposed property lines	\$20	\$20
	Permits		
	Sidewalk repair/construction permit	\$45 (Repairs < 50 SF-no charge)	\$45 (Repairs < 50 SF-no charge)
	Water service line repair permit	\$65	\$65
	Sewer service line repair permit	\$45	\$45
	Soil Erosion and Sedimentation SESC Permit		
	Residential		
	Six Month Permit	\$180	\$180
	Twelve Month Permit	\$240	\$240
	Permit Renewal	\$90	\$90
	Minor Disturbance Permit	\$40	\$40

MERIDIAN TOWNSHIP SUMMARY OF FEES - 2021

Department	Fee Description	2020 Rate	Proposed 2021 Rate
	Transfer	\$25	\$25
	Commercial-Industrial		
	First Acre	\$420	\$420
	Additional Acre	\$42	\$42
	Minor Disturbance Permit	\$250	\$250
	Transfer	\$90	\$90
	Inspection Fees Based on Acres	\$500-\$2,500	\$500-\$2,500
	Violation of Notice	\$250	\$250
	Cease and Desist Follow-Up Inspection	\$250	\$250
Fire/EMS	Copies		
	Reports	\$25.06 Initial; \$1.25 per page for 1st 20 pages; \$0.63 per page from 21 to 50 pages; \$0.25 per page from 51 and over pages	\$25.06 Initial; \$1.25 per page for 1st 20 pages; \$0.63 per page from 21 to 50 pages; \$0.25 per page from 51 and over pages
	Pictures	Processing cost + \$5	Processing cost + \$5
	Disc of Pictures	\$25	\$25
	Ambulance Fees		
	ALS Emergency	\$800	\$800
	ALS II Emergency (monitoring/drugs, etc)	\$800	\$800
	ALS Non-Emergency	\$800	\$800
	BLS Emergency	\$800	\$800
	BLS Non-Emergency	\$800	\$800
	Mileage (per loaded mile)	\$13.00	\$13.00
	Down Wires and Gas Leak Standby	\$200	\$200
	Fire Lane Parking Violation	\$25	\$25
	False Fire Alarm (2 per calendar year no charge)	\$0	\$0
	3rd False Alarm	\$25	\$25
	4th or More False Alarm	\$100	\$100
	Emergency Response Cost Recovery		
	Engine	\$250	\$250
	Ladder	\$250	\$250
	Ambulance	\$125	\$125
	Command Vehicle	\$125	\$125
	Plan Review/Final Inspection:		
		\$100	\$100
	Expenditures \$100,000 plus	\$200	\$200
	Additional Fees		
	w/fire alarm system	\$100	\$100
	w/hood suppression system	\$100	\$100
	w/fire suppression system	\$200	\$200
	Homeowners Insurance Claims for Fire Suppression	Amount allowed by Insurance Co.	Amount allowed by Insurance Co.
	Hazmat and Homeland Security Responses	Reimbursement of cost (personel and equipment)	Reimbursement of cost (personel and equipment)
Parks & Recreation	Usage Fees		
	Pavilions	\$60/4 hrs.res; \$120/4 hrs.non-res	\$80/4 hrs.res; \$160/4 hrs.non-res
	Field Usage	\$15/hr non-res; \$75/day non-res	\$15/hr res; \$30/hr non-res

MERIDIAN TOWNSHIP SUMMARY OF FEES - 2021

Department	Fee Description	2020 Rate	Proposed 2021 Rate
	Field Preparation	\$40 res; \$60 non-res	\$40 res; \$60 non-res
	Harris Nature Center Room/Building	\$80/hr; \$40/hr. Non-Profit	\$100/hr; \$50/hr. Non-Profit
	Marketplace on the Green East Wing	N/A	TBD
	Marketplace on the Green West Wing	N/A	TBD
	Marketplace on the Green Event Fee	N/A	TBD
	Cemetery Rates		
	Burial space - 1 adult	\$900 resident; \$1200 non-res	\$900 resident; \$1200 non-res
	Burial space - 1 infant	\$400 resident; \$600 non-res	\$400 resident; \$600 non-res
	Services		
	Grave opening (adult)-Mon-Fri., 8:00 am-3:30 pm	Flat Fee= \$750	Flat Fee= \$750
	Grave opening (adult)-Mon-Fri., after 3:30 pm	Flat Fee = \$900	Flat Fee = \$900
	Saturdays and holidays	Flat Fee = \$1,000	Flat Fee = \$1,000
	Grave opening (infant)-Mon-Fri., 8:00 am-3:30 pm	Flat Fee = \$400	Flat Fee = \$400
	Grave opening (infant)-Mon-Fri., after 3:30 pm	Flat Fee = \$550	Flat Fee = \$550
	Saturdays and holidays	Flat Fee= \$650	Flat Fee= \$650
	Grave opening (cremations)-Mon-Fri., 8:00 am-3:30 pm	Flat Fee = \$300	Flat Fee = \$300
	Grave opening (cremations)-Mon-Fri., after 3:30 pm	Flat Fee= \$450	Flat Fee= \$450
	Saturdays and holidays	Flat Fee = \$550	Flat Fee = \$550
	Body removal (adult); re-interment	\$1500 + \$300 if Dec - Mar	\$1500 + \$300 if Dec - Mar
	Body removal (infant); re-interment	\$1500 + \$300 if Dec - Mar	\$1500 + \$300 if Dec - Mar
Police	Reports		
	Crash Reports	Charged per the FOIA Act	Charged per the FOIA Act
	Criminal and investigative reports - up to five pages each additional page	Charged per the FOIA Act	Charged per the FOIA Act
	Precious metal/gem license	\$50	\$50
	Vendor Fees	\$500 deposit, \$20/wk, \$60/mo	\$500 deposit, \$20/wk, \$60/mo
	Diversion Program Participation	\$400	\$400
	Fingerprinting	\$5 per card	\$5 per card
	Fingerprint VIP	\$30	\$30
	Finger Prints-Court Ordered	\$16	\$16
	Snapshot of "Logged" incident	Charged per the FOIA Act	Charged per the FOIA Act
	Private Property Accident Reports (PPPD Accidents)	\$0	\$0
	Copy of Vehicle Code	\$0	\$0
	Background Checks	\$5	\$5
	Court Order-Preliminary Breath Test (PBT)	\$5	\$5
	Notary fee-pistol purchase permits	\$5	\$5
	False Alarm Fees	\$25 for 2nd & 3rd occurrence, \$100 for subsequent occurrences	\$25 for 2nd & 3rd occurrence, \$100 for subsequent occurrences
	False Alarm Late Fees	\$25 (30, 60 & 90 day intervals)	\$25 (30, 60 & 90 day intervals)
	Impound Lot Storage Fees	\$10.00 per day	\$10.00 per day
	Body Worn Camera/Fleet Video	Charged per the FOIA Act	Charged per the FOIA Act
Public Works	Utility Rates		
	Billing Charge (sewer only customers are charged 1/2 of this fee)	\$5.00	\$5.00
	Water	\$4.77 per 1000 gallons	\$4.96 per 1000 gallons
	Sewer	\$5.84 per 1000 gallons	\$6.31 per 1000 gallons
	Sewer only (Sewer rate x 12,000 gal usage estimate.)	\$70.08 per quarter	\$75.69 per quarter
	Sewer only, with metered well water	\$5.84 per 1000 gallons	\$6.31 per 1000 gallons

MERIDIAN TOWNSHIP SUMMARY OF FEES - 2021

Department	Fee Description	2020 Rate	Proposed 2021 Rate
	Penalty on past due utility bills	5% of current billing cycle charges	5% of current billing cycle charges
	Capital Charge-Water	Varies (based on location & extension agreements)	Varies (based on location & extension agreements)
	Capital Charge - Sewer	Varies (based on location & extension agreements)	Varies (based on location & extension agreements)
	Connection Charge - Water	\$1,870.00 minimum (based on meter size)	\$1,945.00 minimum (based on meter size)
	Connection Charge - Sewer	\$2,810.00 minimum (based on meter size)	\$3,035.00 minimum (based on meter size)
	Temporary Water Service Charge	\$2,000	\$2,000
	Temporary Sewer Service Charge	\$3,000	\$3,000
	Swimming Pool Fill	\$45 per hour plus water usage	\$45 per hour plus water usage
	Service Center Bulk Water Fill	\$15 per load (under 2,500 gallons)	\$15 per load (under 2,500 gallons)
	Construction (hydrant) Meter	\$75 plus water usage, \$1,300 Deposit	\$75 plus water usage, \$1,300 Deposit
	Regular Meter Charge (5/8 x 3/4 to 2" compound) Non-Pit	\$411-1,957 (based on size, type & location)	\$428-\$2,035 (based on size, type & location)
	Curb Stop	\$1,406-\$2,758 (based on service size and width of right-of-way)	\$1,462-\$2,868 (based on service size and width of right-of-way)
	Water Turn-on Charge	\$30 (\$20 surcharge for after hrs turn-on)	\$30 (\$20 surcharge for after hrs turn-on)
	Missed Appointment charge	\$35	\$35
	Water meter testing at customer request	\$60 (waived if meter found defective)	\$60 (waived if meter found defective)
	Repairs	Time and Material	Time and Material
	Utility Construction Permit	\$55 if structure required	\$55 if structure required
	Sidewalk Obstruction Violation	\$25 + cost of abatement	\$25 + cost of abatement
Treasurer's Office	Tax Collection Admin Fee	1% of tax bill	1% of tax bill
	Failure to notify assessing office of property transfer required under MCL 211.27a(10)	Penalty levied under MCL 211.27b(1)(c) or (d) waived	Penalty levied under MCL 211.27b(1)(c) or (d) waived
	Interest charge/penalty for late tax payments	1% per month	1% per month
	Duplicate tax bill fee	\$5.00	\$5.00
	Non-Sufficient funds fee	\$20.00	\$20.00
	Enhanced Access to Public Records:		
	Summer Tax Roll	\$150.00	\$150.00
	Winter Tax Roll	\$150.00	\$150.00
	Annual Assessment Roll	\$300.00	\$300.00

NOTE: Valuation of all construction shall be based on "Building Valuation Data" published in Building Safety Journal by the International Conference of Building Officials, automatically adjusted on an annual basis when the revised list is published and reviewed by the Township Board.

Bold items indicate a change in 2021.

GENERAL FUND
FINANCIAL SUMMARY
2021

Summary of 2021 Operating Activity:

Estimated Revenues & Financing Sources:

Taxes	\$13,924,700	61.37%
Licenses & Permits	761,250	3.36%
Intergovernmental	3,525,800	15.54%
Charges For Services	4,240,500	18.69%
Interest	103,735	0.46%
Other Revenues	<u>133,560</u>	0.59%

Total Estimated Revenues & Financing Sources	<u>\$22,689,545</u>
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Estimated Expenditures & Financing Uses:

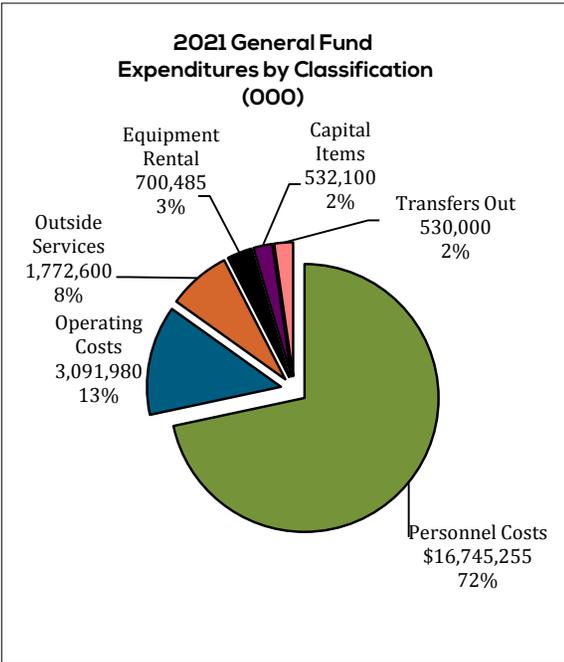
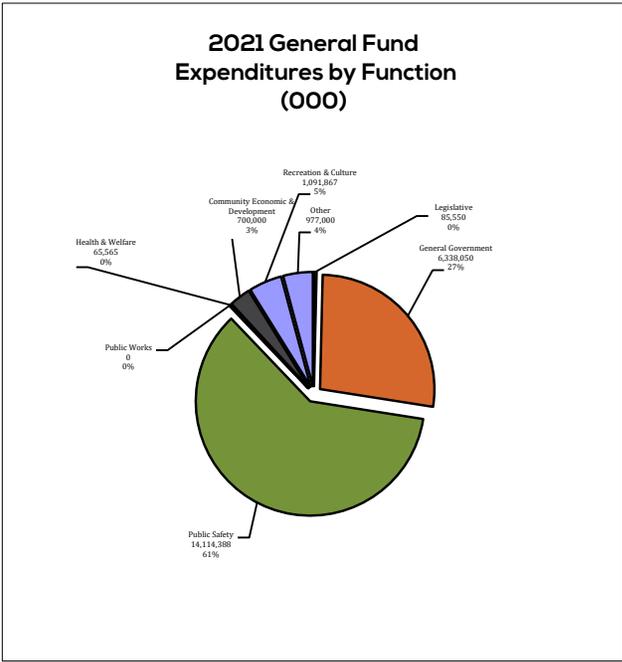
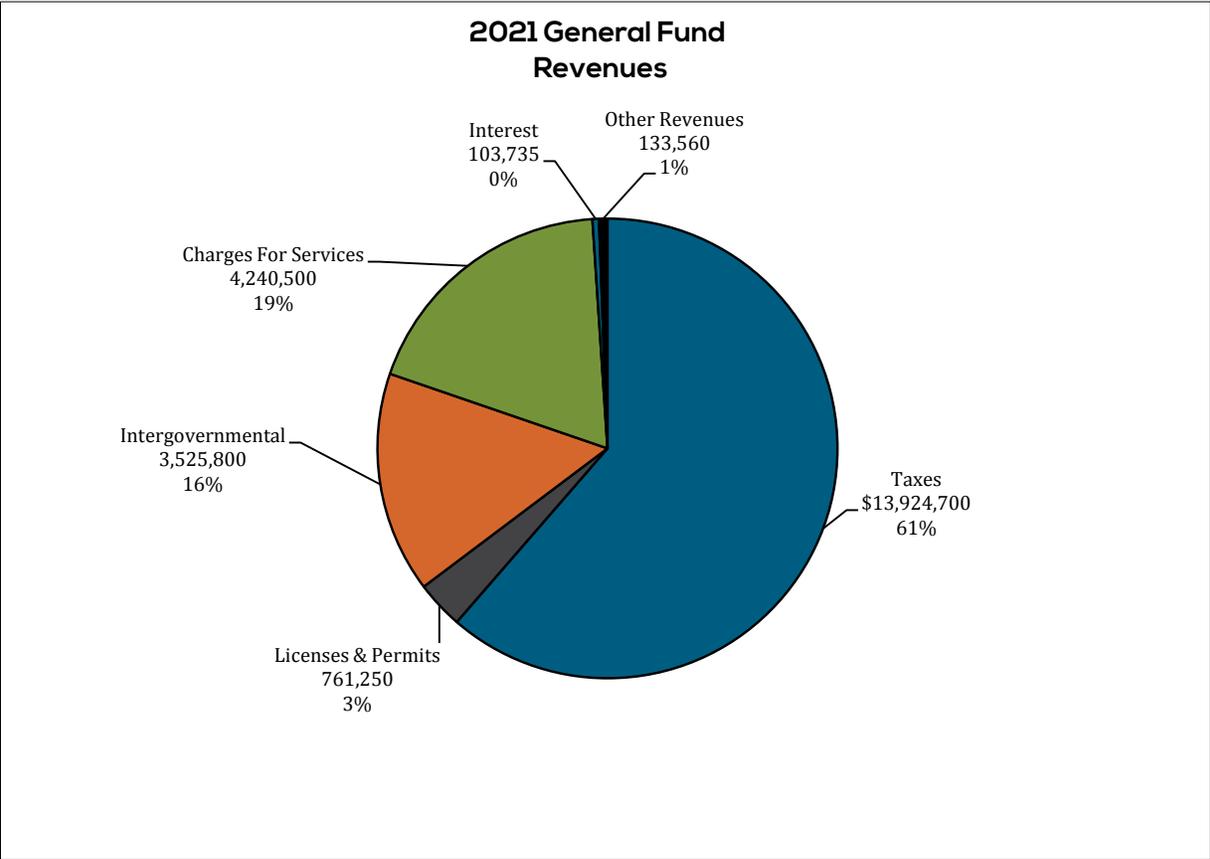
Legislative	85,550	0.37%
General Government	6,338,050	27.12%
Public Safety	14,114,388	60.39%
Public Works	0	0.00%
Health & Welfare	65,565	0.28%
Community Economic & Development	700,000	2.99%
Recreation & Culture	1,091,867	4.67%
Other	<u>977,000</u>	4.18%

Total Estimated Expenditures & Financing Uses	<u>23,372,420</u>
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Anticipated Surplus (Deficit) for 2020	<u><u>(\$682,875)</u></u>
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Statement of Fund Balance

Fund Balance as of December 31, 2019 (per audited financial statements)	\$10,494,419
Anticipated Surplus (Deficit) for 2020	(2,079,107)
Estimated Available Fund Balance as of December 31, 2020	<u>8,415,312</u>
Anticipated Surplus (Deficit) for 2021	(682,875)
Estimated Available Fund Balance as of December 31, 2021	<u><u>\$7,732,437</u></u>
Fund Balance/Average Monthly Expenditures	<u><u>4.42</u></u>



**GENERAL FUND
DETAILED REVENUE SUMMARY BY SOURCE**

ACTIVITY	2019 Actual	2020 Original Budget	2020 Projected Total	2021 BUDGET	% of Total	% Chg v. 2020 Budget
TAXES						
Current Tax Collections	\$7,301,301	\$7,539,000	\$7,550,000	\$7,743,000	34.13%	2.71%
Payment in Lieu of Taxes	5,968	5,960	6,900	7,000	0.03%	17.45%
Police Millage 1998	1,056,304	1,090,900	1,092,000	1,120,000	4.94%	2.67%
Fire Millage 1998	1,112,889	1,149,400	1,151,000	1,180,000	5.20%	2.66%
Police/Fire Millage 2018	2,587,090	2,678,400	2,677,500	2,750,000	12.12%	2.67%
Trailer Park Collections	257	200	200	200	0.00%	0.00%
Community Services Millage 2002	114,512	118,300	118,500	121,500	0.54%	2.70%
Delinquent Tax Collection	12,509	17,000	13,900	13,000	0.06%	-23.53%
Tax Administration Fee	981,274	900,000	980,000	990,000	4.36%	10.00%
TOTAL TAXES	<u>13,172,104</u>	<u>13,499,160</u>	<u>13,590,000</u>	<u>13,924,700</u>	61.38%	3.15%
LICENSES & PERMITS						
Building Permits	589,606	500,000	500,000	500,000	2.19%	0.00%
Other Permits	361,209	298,250	260,840	261,250	1.15%	-12.41%
TOTAL LICENSES & PERMITS	<u>950,815</u>	<u>798,250</u>	<u>760,840</u>	<u>761,250</u>	3.35%	-4.64%
INTERGOVERNMENTAL						
Federal Revenue	1,246	0	0	0	0.00%	n/a
State Revenue Sharing	3,620,718	3,480,000	3,300,000	3,000,000	13.22%	-13.79%
Liquor Tax Refund	30,612	30,000	30,000	25,000	0.11%	-16.67%
METRO Act Fees	24,489	20,000	23,650	20,000	0.09%	0.00%
Local Revenue Sharing Agreements	315,338	315,000	410,400	415,000	1.83%	31.75%
Other	64,698	80,700	111,175	65,800	0.29%	-18.46%
TOTAL INTERGOVERNMENTAL	<u>4,057,101</u>	<u>3,925,700</u>	<u>3,875,225</u>	<u>3,525,800</u>	15.55%	-10.19%
CHARGES FOR SERVICES						
Administration - Public Works Services	1,050,000	1,050,000	1,050,000	1,050,000	4.63%	0.00%
Administration - Cable T.V.	120,000	740,000	732,000	625,000	2.75%	-15.54%
Administration - Pedestrian Bikepath		40,000	40,000	40,000	0.18%	0.00%
Cemetery Revenue	33,850	36,000	41,000	35,000	0.15%	-2.78%
Planning Department	53,812	30,000	30,000	30,000	0.13%	0.00%
Street Lights	351,412	360,000	373,700	373,500	1.65%	3.75%
Ambulance Fees	1,544,487	1,350,000	1,350,000	1,350,000	5.95%	0.00%
Police Services-Williamstown Twp.	243,835	235,000	245,500	240,000	1.06%	2.13%
Reimbursement - Fire & Police	26,941	6,000	34,700	4,000	0.02%	-33.33%
Reimbursement - Crossing Guard	11,304	11,000	9,950	5,000	0.02%	-54.55%
Reimbursement - Elections	0	0	0	0	0.00%	n/a
Reimbursement - School Security	9,517	5,000	2,000	2,000	0.01%	-60.00%
Recreation Program Rev	196,880	191,400	24,305	139,000	0.61%	-27.38%
Franchise Fees - BWL	174,079	160,000	170,000	172,000	0.76%	7.50%
Code Inspection & Registration Fees	220,926	174,000	150,000	175,000	0.77%	0.57%
TOTAL CHARGES FOR SERVICES	<u>4,037,043</u>	<u>4,388,400</u>	<u>4,253,155</u>	<u>4,240,500</u>	18.68%	-3.37%
INTEREST						
Interest Income - General Fund	389,426	104,485	153,735	103,735	0.46%	-0.72%
TOTAL INTEREST	<u>389,426</u>	<u>104,485</u>	<u>153,735</u>	<u>103,735</u>	0.46%	-0.72%
OTHER REVENUES						
Reimbursement	32,906	41,500	60,395	31,500	0.14%	-24.10%
Donations	13,767	1,500	500	1,500	0.01%	0.00%
Rentals	6,922	6,960	6,960	6,960	0.03%	0.00%
Miscellaneous	25,926	19,400	9,625	6,100	0.03%	-68.56%
Court Restitution	14,682	15,000	12,000	15,000	0.07%	0.00%
Vehicle & Surplus Property Sales	3,168	0	950	0	0.00%	n/a
Fines & Tickets	103,336	104,000	61,700	72,500	0.32%	-30.29%
Gain on sale of fixed assets	0	0	0	0	0.00%	n/a
TOTAL OTHER REVENUE	<u>200,707</u>	<u>188,360</u>	<u>152,130</u>	<u>133,560</u>	0.59%	-29.09%
TOTAL REVENUES	<u><u>22,807,196</u></u>	<u><u>22,904,355</u></u>	<u><u>22,785,085</u></u>	<u><u>22,689,545</u></u>	100.00%	-0.94%

REVENUE NARRATIVE

Current Tax Collections: Based on the projected adjusted taxable value of approximately \$1,809,000,000.

Police Millage 2004: This millage funds existing police officer positions. The millage was approved in 2004 for a sixteen-year period.

Fire Millage 2004: This millage funds existing firefighter/paramedic positions. The millage was approved in 2004 for a sixteen-year period.

Police & Fire Protection Millage 2017: This is a millage to fund existing Police and Firefighter/paramedic positions along with unfunded pension debt for both departments. The millage was approved in 2017 for a ten-year period.

Community Services Millage 2012: This is a millage to fund Senior Citizen, Recreation, and Human Services programs throughout the Township. The 10 year 0.10 millage was passed on the November 2002 ballot. This millage was renewed and an additional .05 mil for seniors was passed in 2012 through 2021.

Tax Administration Fee: The Township collects a 1% administration fee on all taxes collected.

Charges for Services: Revenues from services provided by the Township are based on the fee schedule included with the recommended budget.

Building Permits: Based on the value of construction.

Other Permits: Includes permits for electrical, mechanical, and plumbing. Fees are shared with City of East Lansing, who is performing the inspections.

State Revenue Sharing: Revenue received from the State of Michigan based on sales and income tax collections and disbursed by population.

Administration: Payments made from the Public Works Fund and Pathway Fund to the General Fund for administrative services, building maintenance, etc.

Planning Department: Fees received for the review, processing, and filing of special use permits, rezonings, variances, platting, etc.

Streetlights: Received from property owners to pay for the installation, annual maintenance, and electric costs for their streetlights. Monthly payments for the streetlights are paid from the Administrative Services Activity in the General Fund.

Ambulance Fees: Fees charged per transport for ambulance services. Revenue based on a flat charges plus mileage per run and a fee for non-medical calls in excess of one per month per patient.

Franchise Fees-BWL: The Township receives a 5% franchise fee from the Lansing Board of Water & Light for electric revenues received from Meridian Township customers.

Code Inspection/Registration Fees: Fees received from annual rental registrations of all rental properties and rental inspections performed every three years for apartment complexes and annually for single family and duplex apartments.

Interest: Revenue received from monies invested and loaned to other funds.

Fines & Tickets: Parking tickets, fines, uniform traffic code violations, and false alarm fees.

**GENERAL FUND
DEPARTMENT EXPENDITURE SUMMARY**

Expenditures by Function

FUNCTION	2019 Actual	2020 Original Budget	2020 Projected Total	2021 BUDGET	% of Total	% Chg v. 20 Budget
LEGISLATIVE						
Township Board	\$74,983	\$84,200	\$77,605	\$85,550	0.37%	1.60%
TOTAL LEGISLATIVE	74,983	84,200	77,605	85,550	0.37%	1.60%
GENERAL GOVERNMENT						
Administrative Services	2,174,650	2,056,600	2,149,285	1,793,700	7.67%	-12.78%
Clerk - Elections	80,031	213,300	237,025	82,025	0.35%	-61.54%
Accounting & Budgeting	452,396	570,595	525,350	519,770	2.22%	-8.91%
Assessing	342,276	363,745	349,555	383,320	1.64%	5.38%
Clerk - Administration	276,541	302,410	274,510	299,330	1.28%	-1.02%
Township Manager/Personnel	579,448	644,955	652,520	712,180	3.05%	10.42%
Information Technology	587,542	607,550	687,577	628,680	2.69%	3.48%
Treasurer	253,036	259,255	263,665	277,420	1.19%	7.01%
Watershed Management	416,195	494,270	447,410	694,500	2.97%	40.51%
Building Maintenance	368,665	578,040	418,680	492,030	2.11%	-14.88%
Grounds Maintenance	185,051	269,620	237,795	224,220	0.96%	-16.84%
Cemetery	63,931	50,800	53,940	73,045	0.31%	43.79%
Recycling Center	98,758	97,640	93,620	101,280	0.43%	3.73%
Associations/Authorities	54,047	56,100	56,145	56,550	0.24%	0.80%
TOTAL GENERAL GOVERNMENT	5,932,567	6,564,880	6,447,077	6,338,050	27.12%	-3.46%
PUBLIC SAFETY						
Police	5,817,962	6,417,420	6,111,665	6,368,475	27.25%	-0.76%
EMS/Fire	5,706,740	6,054,325	6,253,880	6,628,990	28.36%	9.49%
Community Planning & Dev - Building	509,570	584,030	559,463	561,118	2.40%	-3.92%
Community Planning & Dev - Planning	560,243	649,820	526,450	555,805	2.38%	-14.47%
TOTAL PUBLIC SAFETY	12,594,515	13,705,595	13,451,458	14,114,388	60.39%	2.98%
PUBLIC WORKS						
Streets & Highways	2,339	121,165	120,175	0	0.00%	-100.00%
TOTAL CHARGES FOR SERVICES	2,339	121,165	120,175	0	0.00%	-100.00%
HEALTH & WELFARE						
Human Services	59,179	60,575	64,625	65,565	0.28%	8.24%
TOTAL HEALTH & WELFARE	59,179	60,575	64,625	65,565	0.28%	8.24%
COMMUNITY AND ECONOMIC DEVELOPMENT						
Meridian Revevelopment	0	0	130,000	700,000	2.99%	n/a
TOTAL COMMUNITY AND ECON. DEV.	0	0	130,000	700,000		
RECREATION & CULTURAL						
Park Commission	2,716	5,380	4,880	5,845	0.03%	8.64%
Park & Recreation Administration	119,879	133,045	113,830	150,120	0.64%	12.83%
Recreation	254,924	292,250	250,380	206,680	0.88%	-29.28%
Parks Maintenance	240,173	299,285	310,942	351,947	1.51%	17.60%
Park Development	0	0	450,000	0	0.00%	n/a
Communications	66	314,510	346,020	355,575	1.52%	13.06%
Community Activities	26,953	25,700	21,700	21,700	0.09%	-15.56%
TOTAL RECREATION & CULTURAL	644,710	1,070,170	1,397,752	1,091,867	4.67%	2.03%
OTHER						
Capital Outlay	355,794	2,610,000	2,625,500	447,000	1.91%	-82.87%
Operating Transfers Out	610,000	500,000	550,000	530,000	2.27%	6.00%
TOTAL OTHER	965,794	3,110,000	3,175,500	977,000	4.18%	-68.59%
TOTAL EXPENDITURES	\$20,274,087	\$24,716,585	\$24,864,192	\$23,372,420	100.00%	-5.44%

Expenditures by Account Classification

ACCOUNT CLASSIFICATION	2019 Actual	2020 Original Budget	2020 Projected Total	2021 BUDGET	% of Total	% Chg v. 20 Budget
Personnel Costs	\$15,085,759	\$16,706,420	\$16,362,385	\$16,745,255	71.65%	0.23%
Operating Costs	2,500,374	2,826,120	2,696,037	3,091,980	13.23%	9.41%
Outside Services	1,050,300	1,200,675	1,313,000	1,772,600	7.58%	47.63%
Equipment Rental	698,245	787,120	787,120	700,485	3.00%	-11.01%
Capital Items	329,408	2,696,250	3,155,650	532,100	2.28%	-80.27%
Transfers Out	610,000	500,000	550,000	530,000	2.27%	6.00%
TOTAL EXPENDITURES	\$20,274,086	\$24,716,585	\$24,864,192	\$23,372,420	100.00%	-5.44%

EXPENDITURE NARRATIVE

Expenditure Classifications

Expenditures have been classified into one of six classifications as follows:

Personnel Costs: Includes all compensation costs for employees including full-time, part-time, permanent, and temporary. Compensation includes wages, benefits, and payroll taxes. (GL #'s 701.000–725.000)

Operating Costs: Includes all expenditures associated with operating the department including supplies, conferences/dues, travel, equipment maintenance, etc.

Outside Services: Costs for services provided to or on behalf of the Township. Includes consulting services, legal fees, contractual services, etc. (GL #'s 820.000–829.000)

Equipment Rental: Primarily amount paid to Motor Pool for use of Township vehicles and equipment to cover costs including depreciation, gas, maintenance, and overhead for each department. Also includes cost of renting large equipment from outside sources for temporary use by Township. (GL #'s 942.000–950.000)

Capital Items: Includes construction/improvements, office furniture and equipment, machinery and equipment, land, buildings, park development, etc. Such items require specific approval for purchase. Items of \$5,000 or more will be capitalized and depreciated as part of year-end closing process. (GL Acct #'s 972.000-981.000)

Transfers out: Represents inter-fund transfers.

Personnel Costs

The following assumptions were made in developing the 2021 Personnel Costs:

- Salary changes include a 2% Cost of Living increase and step increases included in labor contracts.
- Health insurance costs are estimated to increase by 15%. This increase is due to the rising cost of Health Care nationwide.
- Normal defined benefit pension costs were estimated to increase 7.87%.

Capital Expenditures

Expenditures of \$5,000 or more are consolidated and moved to the Capital Outlay Department rather than included in each separate department. Items less than \$5,000 continue to be reflected in each department. These items will not be capitalized under GASB 34 requirements.

GENERAL FUND

DEPARTMENT:
Township Board

FUNCTION:
Legislative

Activity Description:

The Township Board consists of seven members who serve as the legislative and policy-making body of Township government. Two of its members, the Clerk and Treasurer, are also full-time Officers, whose duties are set forth by statute. The Supervisor is the chief elected official of the Board and chairs its meetings.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$67,182	\$69,700	\$ 69,605	\$71,050
Operating Costs	7,426	12,500	\$ 7,500	\$12,500
Outside Services	375	2,000	\$ 500	\$2,000
Capital Items	\$ -	\$ -	\$ -	\$0
TOTAL	<u>\$74,983</u>	<u>\$84,200</u>	<u>\$77,605</u>	<u>\$85,550</u>

Personnel Costs: Compensation for all Board members is determined by the Elected Official Compensation Commission.

Operating Costs: Includes Communications \$2,000, Conferences \$7,000, Operating Supplies of \$1,000, Mileage of \$500, and Employee Recognition \$2,000.

Outside Services: Education programs, training, media relations services, and Board initiatives.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Supervisor	1.0	1.0	1.0
Trustees	4.0	4.0	4.0
	5.0	5.0	5.0
Clerk - See Clerk Activity			
Treasurer - See Treasurer Activity			

GENERAL FUND

DEPARTMENT:
Administrative Services

FUNCTION:
General Government

Activity Description:

This activity represents general administrative expenses that have not been allocated by department or activity, including insurance, utilities, legal expenses, retiree health care, advertising, general equipment maintenance, and office supplies.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$674,438	\$661,500	\$679,565	\$371,600
Operating Costs	1,087,954	1,080,100	1,158,720	1,094,100
Outside Services	412,258	315,000	311,000	328,000
Capital Items	0	0	0	0
	<u>\$2,174,650</u>	<u>\$2,056,600</u>	<u>\$2,149,285</u>	<u>\$1,793,700</u>

Personnel Costs: Represents the Township's 50% share of police/fire retiree health care coverage and the actuarially-determined contribution necessary to fund the current and unfunded liability for these post retirement benefits; and reimbursements to the State for unemployment compensation paid to employees who terminate employment with the Township and are not employed elsewhere. 2021 includes a \$128,000 contribution to the Meridian Township Employees Pension Plan.

Operating Costs: Include cost of insurance, postage, ambulance billing, printers/copiers, operating supplies, computer network lease and utilities.

Outside Services: Include all legal fees and advertising for the Township.

Capital Items: None for 2021

PERSONNEL SUMMARY
(Not Applicable)

GENERAL FUND

DEPARTMENT:
Clerk-Elections

FUNCTION:
General Government

Activity Description:

The Elections Division of the Office of the Township Clerk is responsible for all voter registration and election activities. The Department performs voter registration activities through the State Qualified Voter File, as well as on-site and off-site voter registration initiatives. The Department administers federal, state, county, and local elections. Election consolidation legislation has eliminated elections held exclusively for schools, and while Meridian Township continues to administer elections for the Okemos, Haslett, and part of the East Lansing School Districts, federal, state, county, or local election issues may also appear on those ballots.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$55,190	\$137,750	\$200,850	\$54,525
Operating Costs	11,827	70,450	34,175	25,500
Outside Services	10,624	4,600	2,000	2,000
Capital Items	2,390	500	0	0
	<u>\$80,031</u>	<u>\$213,300</u>	<u>\$237,025</u>	<u>\$82,025</u>

Personnel Costs: Includes the cost for workers at the anticipated elections.

Operating Costs: Includes election supplies and postage.

Outside Services: Includes cost for election facilities and moving/hauling of election equipment

Capital Items: Office equipment

PERSONNEL SUMMARY
(See summary for Clerk's Office)

GENERAL FUND

DEPARTMENT:
Accounting/Budgeting

FUNCTION:
General Government

Activity Description:

The Department of Accounting & Budgeting is responsible for the accounting functions of the Township. This department performs accounts payable, pension, and purchasing functions; utility billing functions; financial reporting functions; budget development, execution, and monitoring; as well as oversight of external audit and review of internal procedures and controls.

BUDGET SUMMARY				
<u>Account Classification</u>	2019 <u>Actual</u>	2020 Original <u>Budget</u>	2020 Projected <u>Total</u>	2021 <u>Budget</u>
Personnel Costs	\$367,454	\$496,245	\$458,230	\$445,970
Operating Costs	40,361	36,600	34,120	38,300
Outside Services	44,581	37,000	33,000	35,500
Capital Items	<u>0</u>	<u>750</u>	<u>0</u>	<u>0</u>
	<u>\$452,396</u>	<u>\$570,595</u>	<u>\$525,350</u>	<u>\$519,770</u>

Personnel Costs: Reduction of Purchasing Manger from 2020, move accountant to full time positon, and change one bookkeeper to part time.

Operating Costs: Includes operating costs for utility billing. These costs are recovered in the administrative fee charged to the Public Works Funds.

Outside Services: Represents the General Fund cost of the annual financial audit.

Capital Items: None for 2021

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Director of Finance	1.0	1.0	1.0
Purchasing Coordinator	0.0	1.0	0.0
Accountant	0.0	0.375	1.0
Bookkeeper	<u>3.25</u>	<u>3.25</u>	<u>2.375</u>
	4.25	5.625	4.375

GENERAL FUND

DEPARTMENT:
Assessing

FUNCTION:
General Government

Activity Description:

The Assessing Department is responsible for determining the value of all taxable real and personal property in the Township. This department assists the Board of Review in its deliberations, and it defends the Township in cases before the Michigan Tax Tribunal, the Michigan Court of Appeals, and the Michigan Supreme Court.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$245,037	\$258,295	\$248,725	\$270,670
Operating Costs	4,191	7,750	5,630	6,650
Outside Services	92,688	97,700	95,200	106,000
Capital Items	360	0	0	0
	<u>\$342,276</u>	<u>\$363,745</u>	<u>\$349,555</u>	<u>\$383,320</u>

Personnel Costs: No change in staffing levels in 2021.

Operating Costs: Includes costs for supplies, conferences, and training.

Outside Services: Costs associated with sharing a Level 4 Assessor with the City of East Lansing, outside appraisals, and expert witnesses.

Capital Items: None for 2021

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Appraiser II	2.0	2.0	2.0
Assessing Clerk	1.0	1.0	1.0
	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>
Intern	2.0	2.0	2.0

GENERAL FUND

DEPARTMENT:
Clerk-Administration

FUNCTION:
General Government

Activity Description:

An elected full-time Township Clerk heads the administrative division of the Township Clerk's Office, with responsibilities largely set by state statute. These responsibilities include: Custodian of certain Township records, Township Board and Zoning Board of Appeals minute preparation; annual codification of ordinances; legal notices; oversight of Township cemeteries; and a multitude of other administrative and clerical responsibilities. The Township Clerk's Office also maintains the Township mailroom operations.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$271,456	\$292,910	\$258,985	\$281,030
Operating Costs	3,657	6,000	3,025	5,800
Outside Services	1,428	3,000	12,000	12,000
Capital Items	0	500	500	500
	<u>\$276,541</u>	<u>\$302,410</u>	<u>\$274,510</u>	<u>\$299,330</u>

Personnel Costs: No change in staffing levels in 2021.

Operating Costs: Includes costs for supplies, conferences, and training.

Outside Services: Includes record shredding and cost to amend and maintain codified ordinance books.

Capital Items: Miscellaneous office equipment.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Township Clerk	1.0	1.0	1.0
Assistant to the Clerk	1.0	1.0	1.0
Administrative Assistant II	1.0	1.0	1.0
Records Technician II	1.0	1.0	1.0
	<u>4.0</u>	<u>4.0</u>	<u>4.0</u>
Temporary Election Help	4.0	4.0	4.0

GENERAL FUND

DEPARTMENT:
Administration/Human Resources

FUNCTION:
General Government

Activity Description:

The Human Resources Director is responsible for the following: employee recruitment and hiring, payroll, employee relations, legal compliance, benefits administration, labor relations, and collective bargaining. In addition, the Human Resources Director coordinates risk management property and liability insurance, managing loss prevention programs, workers' compensation insurance claims, and coordinating employee wellness programs.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$507,221	\$540,305	\$567,520	\$570,430
Operating Costs	38,495	70,150	60,500	90,000
Outside Services	28,778	30,000	20,000	30,000
Equipment Rental (Motor Pool)	4,255	4,500	4,500	21,750
Capital Items	699	0	0	0
	<u>\$579,448</u>	<u>\$644,955</u>	<u>\$652,520</u>	<u>\$712,180</u>

Personnel Costs: Addition of a PT Human Resources Assistant for 2021.

Operating Costs: Includes hiring costs, all employee physicals including, annual physicals, pre-employment physicals, and DOT physicals, employee wellness program, and professional conferences and training.

Outside Services: Includes CARES (Employee Assistance Program), actuarial, and legal expenses.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Township Manager	1.0	1.0	1.0
Human Resources Director	1.0	1.0	1.0
Human Resources Specialist	1.0	1.0	1.0
Human Resources Assistant	0.0	0.0	0.5
Accountant	0.125	0.125	0.0
Executive Assistant	1.0	1.0	1.0
	<u>4.125</u>	<u>4.125</u>	<u>4.5</u>

GENERAL FUND

DEPARTMENT:
Information Technology

FUNCTION:
General Government

Activity Description:

Provides support services for all technology infrastructures employed by the Township. The operation also supplies end-user departments and users with proven technology that enhances their ability to function and perform their duties to further promote the enhancements of Board Goals and Objectives. Primary attention is given to operations and overall reliability to the end users.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$293,832	\$293,950	\$277,830	\$316,630
Operating Costs	239,937	221,600	249,747	265,050
Outside Services	53,549	92,000	160,000	47,000
Capital Items	224	0	0	0
	<u>\$587,542</u>	<u>\$607,550</u>	<u>\$687,577</u>	<u>\$628,680</u>

Personnel Costs: No change in staffing levels for 2021

Operating Costs: Includes computer supplies for all users, hardware and software licenses, hardware maintenance, and employee computer training.

Outside Services: Includes GIS services and wiring (\$3,000), electronic recycling services (\$2,000), and Help Desk (\$42,000).

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Director of Information Technology	1.0	1.0	1.0
Assistant Director of IT	0.0	1.0	1.0
GIS Specialist	0.4	0.4	0.4
Systems Administrator II	1.0	0.0	0.0
Systems Administrator I	1.0	0.0	0.0
	<u>3.4</u>	<u>2.4</u>	<u>2.4</u>
Intern, part-time	1.0	0.0	0.0

GENERAL FUND

DEPARTMENT:
Treasurer

FUNCTION:
General Government

Activity Description:

The elected full-time Treasurer is required by State Statute to receive and take charge of all monies collected by the Township. This office pays and accounts for all monies according to state law and Township Board requirements.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$230,517	\$236,780	\$245,665	\$254,820
Operating Costs	21,885	21,700	18,000	22,100
Outside Services	0	275	0	0
Capital Items	634	500	0	500
	<u>\$253,036</u>	<u>\$259,255</u>	<u>\$263,665</u>	<u>\$277,420</u>

Personnel Costs: No change in staffing levels for 2021.

Operating Costs: Include the cost of printing and postage for tax bills and also professional conferences.

Outside Services: Include legal fees.

Capital Items: Small equipment as needed.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Treasurer	1.0	1.0	1.0
Assistant to the Treasurer	1.0	1.0	1.0
Bookkeeper	0.75	0.75	0.75
	<u>2.75</u>	<u>2.75</u>	<u>2.75</u>

GENERAL FUND

DEPARTMENT:
Watershed Management

FUNCTION:
General Government

Activity Description:

This activity was established in 2007 to account for the increasing costs of stormwater project assessments from the County Drain Commissioner and regional planning and implementation of federally mandated clean water regulations.

BUDGET SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Operating Costs		\$396,894	\$454,270	\$407,410	\$654,500
Outside Services		<u>19,301</u>	<u>40,000</u>	<u>40,000</u>	<u>40,000</u>
		<u>\$416,195</u>	<u>\$494,270</u>	<u>\$447,410</u>	<u>\$694,500</u>

Operating Costs: Includes charges from Ingham County Drain Commissioner for Drains at Large (\$103,000) and Special Project Drains (\$501,500).

Outside Services: Regional Committee and State of Michigan fees for Phase II Stormwater activities.

PERSONNEL SUMMARY
(Not Applicable)

GENERAL FUND

DEPARTMENT:
Public Works and Engineering -
Building Maintenance

FUNCTION:Gen Government

Activity Description:

The office of Building Maintenance oversees the operation and maintenance of all municipal buildings. Maintenance personnel provide repair services and preventive maintenance. The Township owns and maintains over 39 separate buildings/structures.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$93,046	\$105,615	\$97,730	\$102,520
Operating Costs	84,230	141,725	134,250	114,550
Outside Services	178,120	316,000	172,000	255,000
Equipment Rental	13,270	14,250	14,250	14,960
Capital Items	0	450	450	5,000
	<u>\$368,665</u>	<u>\$578,040</u>	<u>\$418,680</u>	<u>\$492,030</u>

Personnel Costs: The Facilities Superintendent is no longer being allocated to this department.

Operating Costs: Includes materials and supplies for maintaining the buildings.

Outside Services: Includes the maintenance for the HVAC system, emergency generator maintenance, tree service, electrician services, and maintenance & custodial service. Also includes \$18,000 for Haslett Library building maintenance in accordance with the lease.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: Replacement Equipment and tools

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Facilities Superintendent	0.15	0.15	0.00
Lead Worker	1.0	1.0	1.0
	<u>1.15</u>	<u>1.15</u>	<u>1.00</u>

GENERAL FUND

DEPARTMENT:
Parks and Recreation -
Grounds Maintenance

FUNCTION:
General Government

Activity Description:

This activity is responsible for the maintenance of all public grounds (excluding parks) and parking lots including mowing, trimming, and snow removal. Work is directed by the Facilities Superintendent, reporting to the Director of Parks and Recreation.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$106,876	\$128,520	\$103,595	\$104,380
Operating Costs	\$14,243	40,100	33,200	33,200
Outside Services	\$9,841	25,000	25,000	25,000
Equipment Rental	\$52,795	68,500	68,500	60,140
Capital Items	\$1,296	7,500	7,500	1,500
	<u>\$185,051</u>	<u>\$269,620</u>	<u>\$237,795</u>	<u>\$224,220</u>

Personnel Costs: No change in staffing levels in 2021.

Operating Costs: Includes materials and supplies for maintaining grounds.

Outside Services: Includes contract for tree maintenance, mosquito control, and sweeping.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: Replacement equipment and a salt/ice melt

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Facilities Superintendent	0.15	0.15	0.00
Lead Worker	1.0	1.0	1.0
	1.15	1.15	1.00
Seasonal Workers	2.0	2.0	2.0

GENERAL FUND

DEPARTMENT:
Parks and Recreation -
Cemetery

FUNCTION:
General Government

Activity Description:

This activity maintains Glendale and Riverside Cemeteries, including lawn mowing, trimming, snow removal, lot sales, and interments. The record keeping is done in conjunction with the Clerk's Office. This activity is under the supervision of the Facilities Superintendent, reporting to the Director of Parks and Recreation.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$31,697	\$32,300	\$36,540	\$43,785
Operating Costs	2,691	4,900	5,000	5,000
Outside Services	605	1,200	0	0
Equipment Rental	10,360	12,400	12,400	24,260
Capital Items	18,578	0	0	0
	<u>\$63,931</u>	<u>\$50,800</u>	<u>\$53,940</u>	<u>\$73,045</u>

Personnel Costs: Includes a portion of the Facilities Superintendent's cost to oversee operations. Cost of maintenance of the grounds is included in grounds maintenance activity.

Operating Costs: Materials and supplies for maintaining the cemeteries.

Outside Services: Includes cost of tree maintenance when needed.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: None planned for 2021

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Facilities Superintendent	0.15	0.15	0.25
Seasonal Workers	2.0	2.0	2.0

GENERAL FUND

DEPARTMENT:
Public Works and Eng -
Recycling Center

FUNCTION:
 General Government

Activity Description:

This activity maintains the Township's Solid Waste Transfer Station and Recycling Center. This activity is under the supervision of the Assistant Township Manager/Director of Public Works. The transfer station activities were contracted in 2012.

BUDGET SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original</u> <u>Budget</u>	<u>2020</u> <u>Projected</u> <u>Total</u>	<u>2021</u> <u>Budget</u>
Personnel Costs	\$50,782		\$56,590	\$52,570	\$55,180
Operating Costs	23,976		17,050	17,050	22,100
Outside Services	24,000		24,000	24,000	24,000
Capital Items	0		0	0	0
	<u>\$98,758</u>		<u>\$97,640</u>	<u>\$93,620</u>	<u>\$101,280</u>

Personnel Costs: No change in staffing levels in 2021.

Operating Costs: Materials and supplies for maintaining the Recycling Center.

Outside Services: Contract with outside management company.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Recycling Coordinator	<u>0.8</u>	<u>0.8</u>	<u>0.8</u>
	0.8	0.8	0.8

GENERAL FUND

DEPARTMENT:
Associations and Authorities

FUNCTION:
General Government

Activity Description:

This activity allocates payments and membership dues made by the Township to maintain an active role within the Mid-Michigan region.

BUDGET SUMMARY

<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Convention/Visitors Bureau		\$3,675	\$3,700	\$3,650	\$3,700
Tri-County Reg. Plng. Comm.		20,185	22,000	22,000	22,000
Michigan Townships Assoc.		6,819	6,900	6,940	7,100
LEAP Inc.		15,000	15,000	15,000	15,000
Michigan Municipal League		8,368	8,500	8,555	8,750
		<u>\$54,047</u>	<u>\$56,100</u>	<u>\$56,145</u>	<u>\$56,550</u>

PERSONNEL SUMMARY

(Not Applicable)

GENERAL FUND

DEPARTMENT:
Police

FUNCTION:
Public Safety

Activity Description:

The Meridian Township Police Department is committed to establishing and maintaining partnerships in the community; and with understanding, cooperation and equality, strive to enhance the quality of life and protect the rights of the community. This activity is partially funded by a special millage. Began providing road patrol service (80 hours per week) to Williamstown Township in 2011.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$5,372,144	\$5,903,350	\$5,632,655	\$5,954,050
Operating Costs	115,193	157,350	129,140	167,200
Outside Services	22,375	21,900	19,400	21,600
Equipment Rental	292,460	301,470	301,470	208,625
Capital Items	15,790	33,350	29,000	17,000
	<u>\$5,817,962</u>	<u>\$6,417,420</u>	<u>\$6,111,665</u>	<u>\$6,368,475</u>

Personnel Costs: Includes wages and benefits for 41 sworn officers, 4 civilians, and 15 part-time cadets and crossing guards.

Operating Costs: Includes supplies, uniforms, equipment, and training for the department.

Outside Services: Includes services such as 911 legacy costs, towing charges for abandoned vehicles, and printing services.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: Replacement police equipment, traffic study equipment (12,000).

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Chief of Police	1.0	1.0	1.0
Assistant Chief of Police	0.0	1.0	1.0
Captain	0.0	0.0	0.0
Lieutenant	2.0	1.0	1.0
Sergeant	7.0	7.0	7.0
Officer	31.0	31.0	31.0
Property Records Technician	0.0	0.0	0.0
Records Supervisor	1.0	1.0	1.0
Administrative Assistant II	1.0	1.0	1.0
Records Technician II	2.5	2.5	2
	<u>45.5</u>	<u>45.5</u>	<u>45</u>
Cadets/Crossing Guards, PT	9.0/6.0	9.0/6.0	9.0/6.0

GENERAL FUND

DEPARTMENT:
EMS/Fire

FUNCTION:
Public Safety

Activity Description:

The purpose of the Meridian Township EMS/Fire Department is mitigation of all emergencies, both man-made and natural. This includes fire prevention, fire suppression, emergency medical care, special rescue, and public education to residents, businesses, and visitors in the community. This activity is partially funded by a special millage.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$5,232,843	\$5,507,040	\$5,706,920	\$6,049,410
Operating Costs	173,649	205,685	201,460	221,260
Outside Services	26,419	26,100	30,000	30,000
Equipment Rental	242,905	280,000	280,000	282,820
Capital Items	30,924	35,500	35,500	45,500
	<u>\$5,706,740</u>	<u>\$6,054,325</u>	<u>\$6,253,880</u>	<u>\$6,628,990</u>

Personnel Costs: Includes wages and benefits for 36 full-time positions and up to 10 part-time positions.

Operating Costs: Includes supplies and special equipment for the fire stations, administration office, ambulance supplies, training, conferences, physicals, equipment maintenance, etc.

Outside Services: Various maintenance contracts.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: Alert Siren (\$35,000) and equipment (\$10,000) .

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
EMS/Fire Chief	1.0	1.0	1.0
Inspector-Fire	1.0	1.0	1.0
Training/EMS Chief	1.0	1.0	1.0
Battalion Chief	2.0	2.0	2.0
Captain	3.0	3.0	3.0
Lieutenant	7.0	7.0	7.0
Paramedic/Firefighter	20.0	20.0	20.0
Administrative Assistant II	1.0	1.0	1.0
	<u>36.0</u>	<u>36.0</u>	<u>36.0</u>
Part-time Firefighters	10.0	10.0	10.0

GENERAL FUND

DEPARTMENT:
Community Planning and Development -
Building Division

FUNCTION:
Public Safety

Activity Description:

The Building Division is responsible for reviewing building plans, issuing permits, conducting building inspections, code enforcement activities, and administering the rental housing program.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$476,088	\$539,825	\$515,963	\$532,363
Operating Costs	3,812	4,605	3,900	5,600
Outside Services	6,000	0	0	0
Equipment Rental	23,670	39,600	39,600	23,155
Capital Items	0	0	0	0
	<u>\$509,570</u>	<u>\$584,030</u>	<u>\$559,463</u>	<u>\$561,118</u>

Personnel Costs: No change in staffing levels in 2021.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Director	0.25	0.25	0.25
Chief Building Inspector	1.0	1.0	1.0
Senior Building Inspector	1.0	0.0	0.0
Building Inspector	1.0	2.0	2.0
Rental Housing Inspector (2@.625)	1.25	1.25	1.25
Code Enforcement Officer	1.0	1.0	1.0
Administrative Assistant I	1.0	1.0	1.0
	<u>6.5</u>	<u>6.5</u>	<u>6.5</u>
Intern, part-time	0.5	0.5	0.5

GENERAL FUND

DEPARTMENT:
Community Planning and Development -
Planning Division

FUNCTION:
Public Safety

Activity Description:

The Planning Division provides staff support to the Planning Commission, Zoning Board of Appeals, and Environmental Commission which administers the Township Land development regulations and develops planning solutions to improve the quality of life in the community and economic development activities including the Okemos DDA.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$535,137	\$611,670	\$499,700	\$519,320
Operating Costs	8,606	10,250	8,850	11,850
Outside Services	10,765	20,000	10,000	20,000
Equipment Rental	5,735	7,900	7,900	4,635
Capital Items	0	0	0	0
TOTAL	<u>\$560,243</u>	<u>\$649,820</u>	<u>\$526,450</u>	<u>\$555,805</u>

Personnel Costs: Includes payment for Planning Commission and ZBA meetings. Reduction of Assistant Planner position in 2021.

Outside Services: Cost of consultants for wetland, floodplain, forestry, and traffic issues.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Director	0.75	0.75	0.75
Meridian Redevelopment Dir.	1.0	1.0	1.0
Principal Planner	0.0	1.0	1.0
Senior Planner	1.0	0.0	0.0
Assistant Planner	2.0	2.0	1.0
Administrative Assistant II	1.0	1.0	1.0
	<u>5.75</u>	<u>5.75</u>	<u>4.75</u>
Intern, part-time	0.5	0.5	0.5

GENERAL FUND

DEPARTMENT:
Public Works and Engineering -
Streets and Highways

FUNCTION:
Public Works

Activity Description:

This activity is used to account for activity related to streets that are being paid for with General Fund monies under the supervision of the Assistant Township Manager/Director of Public Works. Revenue and Expenditures for local road maintenance and the Township matching funds for County roads is recorded in the Local Roads Fund.

BUDGET SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs		\$0	\$99,465	\$175	\$0
Operating Costs		\$0	\$6,700	\$0	\$0
Outside Services		\$2,339	\$15,000	\$120,000	\$0
Capital Items		\$0	\$0	\$0	\$0
TOTAL		<u>\$2,339</u>	<u>\$121,165</u>	<u>\$120,175</u>	<u>\$0</u>

Personnel Costs: No project Engineer position for 2021.

Outside Services: PASER study and construction testing.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Project Engineer	0.0	1.0	0.0

GENERAL FUND

DEPARTMENT:
Administration -
Human Services

FUNCTION:
Health and Welfare

Activity Description:

The Human Services Program functions to ensure that the human infrastructure within the community remains strong and vital. To that end, the program strives to develop, coordinate, and promote local resources so that each Township resident may live within an acceptable standard. Beginning in 2003, this activity is funded through a portion of a special millage. The millage was renewed in 2012 for 10 years through 2021 at .15 mills.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$59,179	\$60,575	\$64,625	\$65,565
Operating Costs	0	0	0	0
Outside Services	0	0	0	0
Capital Items	0	0	0	0
	<u>\$59,179</u>	<u>\$60,575</u>	<u>\$64,625</u>	<u>\$65,565</u>

Personnel Costs: Includes per meeting compensation for the Community Resources Commission members and one full-time staff person who works a reduced schedule.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Human Services Specialist	0.8	0.8	0.8

Activity Description:

The EDC will manage this account with all recommendations being approved by the Township Board. Further details will be determined by the Staff and Township Board.

BUDGET SUMMARY

<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$0	\$0	\$0	\$0
Operating Costs	0	0	0	0
Outside Services	0	0	130,000	700,000
Capital Items	0	0	0	0
	<u>\$0</u>	<u>\$0</u>	<u>\$130,000</u>	<u>\$700,000</u>

Outside Services: Cost associated with redevelopment of core areas.

PERSONNEL SUMMARY

(Not Applicable)

GENERAL FUND

DEPARTMENT:
Parks and Recreation -
Park Commission

FUNCTION:
Recreation and Culture

Activity Description:

The Township Park Commission is an elected body of five members created under MSA 5.2445(11) to acquire and manage parks and recreation facilities on behalf of the Township.

BUDGET SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original</u> <u>Budget</u>	<u>2020</u> <u>Projected</u> <u>Total</u>	<u>2021</u> <u>Budget</u>
Personnel Costs		\$1,411	\$3,780	\$3,280	\$3,645
Operating Costs		1,305	1,600	1,600	2,200
		<u>\$2,716</u>	<u>\$5,380</u>	<u>\$4,880</u>	<u>\$5,845</u>

Personnel Costs: Includes per meeting compensation for Park Commission members.

Operating Costs: Includes professional conferences for Commission members.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Park Commissioner	5.0	5.0	5.0

GENERAL FUND

DEPARTMENT:
Parks and Recreation -
Administration

FUNCTION:
Recreation and Culture

Activity Description:

The Department of Parks and Recreation is responsible for the overall operation of Meridian Township's 904 acres of parkland, community recreation programs, special events and festivals, the Harris Nature Center, Snell Towar Recreation Center, the Farmers' Market, the Artisan's Market, the Meridian Senior Center, Parks and Grounds Maintenance, Cemeteries, and nearly 800 acres of Land Preservation properties. This department also serves as the liaison to Friends of Historic Meridian and Nokomis Native American Cultural Center. Beginning in 2015, the General Fund supports administration and maintenance of parks in existence prior to 1984. The Park Millage will support administration and maintenance of all parks acquired from 1984 to present, and development costs for all parks.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$111,208	\$122,645	\$108,230	\$120,120
Operating Costs	8,671	10,400	5,600	30,000
Outside Services	0	0	0	0
Equipment Rental	0	0	0	0
Capital Items	0	0	0	0
	<u>\$119,879</u>	<u>\$133,045</u>	<u>\$113,830</u>	<u>\$150,120</u>

Personnel Costs: Includes 50% of Parks & Recreation Director and 50% of Administrative Assistant II time, communications support, 1 intern, and seasonal help.

Operating Costs: For community promotion and brochures.

Outside Services: None planned for 2021.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Director of Parks and Recreation	0.5	0.5	0.5
Administrative Assistant II	0.5	0.5	0.5
	1.0	1.0	1.0
Intern/Seasonal	2.0	2.0	2.0

GENERAL FUND

DEPARTMENT:
Parks and Recreation-
Recreation

FUNCTION:
Recreation and Culture

Activity Description:

The Recreation Division focuses on developing positive relationships with individuals, families, service groups, volunteers, and local businesses through the provision of parks and recreation services. The recreation division is funded with participant fees and a portion of a special millage which was renewed in 2012 for 10 years through 2021 at .15 mills. The Recreation Division also contractually administers youth sports programs for the City of Williamston.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$164,190	\$181,950	\$117,625	\$102,330
Operating Costs	90,734	110,300	32,755	104,350
Capital Items	0	0	0	0
	<u>\$254,924</u>	<u>\$292,250</u>	<u>\$150,380</u>	<u>\$206,680</u>

Personnel Costs: Includes one full-time Recreation Specialists and temporary/seasonal help.

Operating Costs: Materials and supplies required for the recreation programs.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Park/Rec Specialist	2.0	2.0	1.0
Park Ranger-Summer	0.5	0.5	0.5
Interns	2.5	1.5	1.5
	3.0	2.0	2.0

* Tentative - Staffing dependent on grant/donations revenue received.

GENERAL FUND

DEPARTMENT:
Parks and Recreation -
Park Maintenance

FUNCTION:
Recreation and Culture

Activity Description:

This activity is responsible for the maintenance of approximately 406 acres of General Fund (pre-millage) parklands. This activity is under the direct supervision of the Facilities Superintendent, reporting to the Director of Parks and Recreation.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$138,830	\$154,535	\$193,567	\$226,432
Operating Costs	39,640	42,250	42,875	43,875
Outside Services	6,049	38,000	10,000	19,000
Equipment Rental	52,795	58,500	58,500	60,140
Capital Items	2,859	6,000	6,000	2,500
	<u>\$240,173</u>	<u>\$299,285</u>	<u>\$310,942</u>	<u>\$351,947</u>

Personnel Costs: Includes .20 Facilities Superintendent's time, 2.5 Utility Workers, and 2 Seasonal Workers.

Operating Costs: Includes small hand and power tools, sand, gravel, dirt, fertilizer, and seed.

Outside Services: Fertilizing and weed control for playing fields and tree removal service.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: Replace equipment and tool cat attachments

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Utility Worker	1.5	1.5	2.5
Facilities Superintendent	0.15	0.15	0.20
	1.65	1.65	2.70
Part-time Seasonal Worker	2.0	1.0	2.0

Activity Description:

The Park Development account is for capital projects related to our parks that are being paid for with our General Fund monies. This activity is under the direct supervision of the Facilities Superintendent, reporting to the Director of Parks and Recreation.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Capital Items	0	0	450,000	0
	<u>\$0</u>	<u>\$0</u>	<u>\$450,000</u>	<u>\$0</u>

Capital Items: None budgeted for 2021.

PERSONNEL SUMMARY
(Not Applicable)

GENERAL FUND

DEPARTMENT:
Administration -
Community Activities

FUNCTION:
Recreation and Culture

Activity Description:

Funds activities in Meridian Township that provide a benefit to the community-at-large.

BUDGET SUMMARY						
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021</u>	<u>Budget</u>
Community Promotion		11,152	10,000	6,000		6,000
Meals on Wheels		4,000	4,000	4,000		4,000
Community Band		1,700	1,700	1,700		1,700
Lake Lansing Watershed Mgt		10,101	10,000	10,000		10,000
		<u>\$26,953</u>	<u>\$25,700</u>	<u>\$21,700</u>		<u>\$21,700</u>

Community Promotion: Flags over Meridian (\$1,000) and Community Gardens (\$5,000).

Meals on Wheels: Costs to operate the program to provide services to Township residents.

Community Band: Contribution to the Community Band.

Lake Lansing Watershed Management: Represents the Township's portion of the cost to monitor and maintain the quality of Lake Lansing for recreational purposes.

PERSONNEL SUMMARY	
(Not Applicable)	

Narrative: The Communications Department provides timely and accurate information, promotes community events and programs to the residents, neighboring communities and visitors to Meridian Township. The department is responsible for managing media relations, the Township’s website, social media, internal communication services, graphic design, Township publications and official Township meetings.

EXPENDITURE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$0	\$211,125	\$222,235	\$229,430
Operating Costs	0	10,285	23,685	38,045
Outside Services	66	91,900	98,900	75,500
Capital Items	0	1,200	1,200	12,600
	<u>\$66</u>	<u>\$314,510</u>	<u>\$346,020</u>	<u>\$355,575</u>

Personnel Costs: No change in staffing levels in 2021.

Capital Items: Replacement Equipment

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
HOMTV Executive Producer	1.0	1.0	1.0
Studio TV Production Manager	1.0	1.0	1.0
Video Programmer/Studio Producer	1.0	1.0	1.0
	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>
Interns and Freelancers	40	0	10

GENERAL FUND

DEPARTMENT:
Capital Outlay

FUNCTION:
Other

Activity Description:

This activity identifies major building projects and capital items financed by the General Fund.

BUDGET SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Outside Services		\$100,139			
Capital Items		\$255,656	\$2,610,000	\$2,625,500	\$447,000
		<u>\$355,794</u>	<u>\$2,610,000</u>	<u>\$2,625,500</u>	<u>\$447,000</u>

Outside Services: Municipal building HVAC design services

Capital Items: Includes all General Fund capital acquisitions of \$5,000 or greater.

2020 BUDGET

Information Services	Computer workstations	5,500
	Hardware	60,000
	Network upgrades	86,500
	Server upgrades	8,000
	Mobile Data Units	<u>15,000</u>
	Total Information Services	\$175,000
Professional Services	Municipal building HVAC design services	<u>2,200,000</u>
	Total Professional Services	\$2,200,000
Construction/Improvements	Replace Front Ramp South Fire Station	75,000
	Remodel Municipal Building Break Areas	20,000
	Replace Municipal Building Windows	30,000
	Solar and Green Project	<u>110,000</u>
	Total Construction/Improvements	235,000
	2020 TOTAL CAPITAL OUTLAY BUDGETED	<u><u>\$2,610,000</u></u>

2021 BUDGET

Information Services	Network upgrades	107,000
	Server upgrades	35,000
	Mobile Data Units	<u>30,000</u>
	Total Information Services	\$172,000
Construction/Improvements	Building LED light conversions	75,000
	Drinking fountain upgrades - All buildings	30,000
	Replace Municipal building exterior doors	40,000
	Nokomis learning center roof replacement	30,000
	Solar Prjobject	<u>100,000</u>
	Total Construction/Improvements	\$275,000
	2021 TOTAL CAPITAL OUTLAY BUDGETED	<u><u>\$447,000</u></u>

PERSONNEL SUMMARY

(Not Applicable)

GENERAL FUND

DEPARTMENT:
Operating Transfers Out

FUNCTION:
Other

Activity Description:

These are transfers from the General Fund to other funds for debt payments and purchases.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Transfer Out	\$0	\$0	\$50,000	\$0
Transfer Out to MP - Police/Fire	210000	250000	250000	250000
Transfer Out/Local Roads	400,000	250,000	250,000	280,000
	<u>\$610,000</u>	<u>\$500,000</u>	<u>\$550,000</u>	<u>\$530,000</u>

Transfers Out: None planned for 2021.

Transfer Out to MP - Police/Fire: The 2021 projections include \$250,000 to the Motor Pool for future purchases of vehicles and equipment for the Police and Fire departments.

Transfer Out/Local Roads: The 2021 projections include \$280,000 to the local roads.

PERSONNEL SUMMARY

(Not Applicable)

SUMMARY OF SPECIAL REVENUE FUNDS

REVENUE SUMMARY				
FUND	2019 Actual	2020 Original Budget	2020 Projected Total	2021 Budget
Local Roads	\$11,985,812	\$12,027,500	\$476,371	\$512,500
CATA Redi-Ride Millage	351,390	100	2,010	368,100
Senior Center Millage	152,090	153,550	153,050	156,550
Pedestrian/Bicycle Pathways	1,444,087	2,959,200	1,290,445	3,322,450
Land Preservation Millage	642,210	612,200	618,175	206,100
Land Preservation Reserve	98,282	35,000	50,000	40,000
Park Millage	1,634,533	1,260,250	1,831,400	1,283,250
Park Restricted/Designated	109,995	98,100	29,860	93,000
Nancy Moore Park Beautification	209	0	0	0
Fire Restricted/Designated	144	50	80	30
Library Restricted	228	50	60	50
Police Restricted/Designated	43,553	25,500	44,607	17,300
Law Enforcement Grant Funds	2,168	500	400	200
Cable Television	768,711	0	900	100
Community Needs	24,883	7,750	83,150	10,250
TOTAL ADOPTED REVENUES	\$17,258,295	\$17,179,750	\$4,580,508	\$6,009,880

FUND BALANCE USAGE:

Local Roads Fund	\$0	\$0	\$4,748,629	\$3,117,500
CATA Redi-Ride Millage	0	9,900	7,990	0
Senior Center Millage	0	0	0	0
Pedestrian/Bicycle Pathways	0	0	925	504,075
Land Preservation Millage	0	0	0	0
Land Preservation Reserve	0	0	0	0
Park Millage	0	13,775	1,508,800	0
Park Restricted/Designated	0	0	18,105	0
Nancy Moore Park Beautification	0	0	0	0
Fire Restricted/Designated	0	0	0	0
Library Restricted	0	0	0	0
Police Restricted/Designated	0	9,500	4,450	0
Law enforcement Grant Funds	0	0	0	0
Cable Television	74,649	131,310	68,205	0
Community Needs Fund	0	750	0	0
	74,649	165,235	6,357,104	3,621,575

EXPENDITURE SUMMARY				
FUND	2019 Actual	2020 Original Budget	2020 Projected Total	2021 Budget
Local Roads	\$1,040,824	\$3,500,000	\$5,225,000	\$3,950,000
CATA Redi-Ride Millage	350,000	10,000	10,000	368,000
Senior Center Millage	192,135	148,500	145,325	155,000
Pedestrian/Bicycle Pathways	1,431,397	2,917,420	1,291,370	3,826,525
Land Preservation Millage	141,184	192,005	190,995	201,595
Land Preservation Reserve	78	0	0	0
Park Millage:				
Parks & Recreation Administration	156,154	178,915	155,525	180,961
Harris Nature Center	207,368	203,340	143,515	168,955
Parks Maintenance	307,439	391,770	341,160	414,400
Park Development	466,287	500,000	2,700,000	135,000
Total Park Millage	1,137,248	1,274,025	3,340,200	899,316
Park Restricted/Designated	241,789	95,575	47,965	92,600
Nancy Moore Park Beautification	13,150	0	0	0
Fire Restricted/Designated	4,801	0	0	0
Library Restricted	0	0	0	0
Police Restricted/Designated	27,565	35,000	49,057	17,000
Police Grant Funds	0	0	0	0
Cable Television	769,200	131,310	75,475	0
Community Needs	19,791	8,500	21,150	10,200
TOTAL EXPENDITURES	\$5,369,162	\$8,312,335	\$10,396,537	\$9,520,236

LOCAL ROADS FUND

Narrative: This fund manages the preservation and maintenance of the Township's local road system and is funded by a special millage passed in August 2019 for 10 years. This millage allows the Township to issue 3 separate bonds to upgrade the roads. The Deputy Township Manager/Director of Public Works oversees this fund.

REVENUE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Property Taxes	\$434,455	\$0	\$2,495	\$0
Interest	51,357	5,000	51,376	60,000
Bond Proceeds	11,100,000	11,600,000	0	0
Other Intergovernmental revenue	0	172,500	172,500	172,500
Operating Transfer In	400,000	250,000	250,000	280,000
	<u>\$11,985,812</u>	<u>\$12,027,500</u>	<u>\$476,371</u>	<u>\$512,500</u>

STATEMENT OF UNASSIGNED FUND BALANCE	
Fund Balance as of December 31, 2019 (per audit)	\$11,825,875
Anticipated Operating Surplus (Deficit) for 2020	<u>-4,748,629</u>
Estimated Available Fund Balance as of December 31, 2020	7,077,246
Anticipated Operating Surplus (Deficit) for 2021	<u>-3,437,500</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$3,639,746</u>

EXPENDITURE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Professional Services	163,306	0	304,700	450,000
Capital Items	877,518	3,500,000	4,920,300	3,500,000
	<u>\$1,040,824</u>	<u>\$3,500,000</u>	<u>\$5,225,000</u>	<u>\$3,950,000</u>

Capital Items: Local road construction/improvements and sidewalk ramps required by American Disabilities Act.

PERSONNEL SUMMARY	
(Not Applicable)	

PEDESTRIAN/BICYCLE PATHWAY MILLAGE FUND

Narrative: This fund manages the design, construction and maintenance of the Township's millage-supported pedestrian/bicycle pathway system. This millage was renewed and increased to .3333 effective 2017 through 2028. The Deputy Township Manager/Director of Public Works and Director of Parks and Recreation oversees this fund.

REVENUE SUMMARY

<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Tax Collections	\$580,642	\$599,200	\$601,445	\$601,150
Reimbursements/Other	838,755	2,350,000	681,000	2,713,300
Interest	24,690	10,000	8,000	8,000
Operating Transfer In	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
	<u><u>\$1,444,087</u></u>	<u><u>\$2,959,200</u></u>	<u><u>\$1,290,445</u></u>	<u><u>\$3,322,450</u></u>

STATEMENT OF RESTRICTED FUND BALANCE

	<u>Nonspendable</u>	<u>Restricted</u>
Fund Balance as of December 31, 2019 (per audit)	\$0	\$1,101,777
Anticipated Operating Surplus (Deficit) for 2020	<u> </u>	<u>(925)</u>
Estimated Available Fund Balance as of December 31, 2020	0	1,100,852
Anticipated Operating Surplus (Deficit) for 2021	<u> </u>	<u>(504,075)</u>
Estimated Available Fund Balance as of December 31, 2021	<u><u>\$0</u></u>	<u><u>\$596,777</u></u>

PEDESTRIAN/BICYCLE PATHWAY MILLAGE FUND

EXPENDITURE SUMMARY

<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$21,921	\$35,920	\$53,720	\$65,075
Operating Costs	44,463	46,500	42,650	42,775
Outside Services	49,745	40,000	40,000	40,000
Equipment Rental	93,790	95,000	95,000	63,675
Capital Items	<u>1,221,478</u>	<u>2,700,000</u>	<u>1,060,000</u>	<u>3,615,000</u>
	<u>\$1,431,397</u>	<u>\$2,917,420</u>	<u>\$1,291,370</u>	<u>\$3,826,525</u>

Personnel Costs: No seasonal workers for 2021.

Operating Costs: Includes administrative cost paid to General Fund for engineering work (\$40,000).

Outside Services: Mowing, tree trimming and snow removal as needed (\$40,000)

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: Pathway construction/improvements. MSU to Lake Lansing Phase 1 and 2B, Pathway repairs, Shaw street extension, and RRFB project in 3 locations.

PERSONNEL SUMMARY

<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Sr. Park Naturalist			0.15
Utility Worker	0.50	0.50	1.00
Seasonal Utility Aide	1.00	0.00	0.00

CATA REDI-RIDE MILLAGE FUND

Narrative: In 1999, voters approved a 0.2 millage for increased public transportation including a redi-ride service. The levy was renewed in November 2009 for 10 years and renewed again in 2019 for 10 years. All funds collected are transferred to the Capital Area Transportation Authority.

REVENUE SUMMARY

<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Millage Collections	\$347,494	\$0	\$1,910	\$368,000
Interest	<u>\$3,897</u>	<u>\$100</u>	<u>\$100</u>	<u>\$100</u>
	<u>\$351,390</u>	<u>\$100</u>	<u>\$2,010</u>	<u>\$368,100</u>

STATEMENT OF RESTRICTED FUND BALANCE

Fund Balance as of December 31, 2019 (per audit)	\$17,381
Anticipated Operating Surplus (Deficit) for 2020	<u>(7,990)</u>
Estimated Available Fund Balance as of December 31, 2020	9,391
Anticipated Operating Surplus (Deficit) for 2021	<u>100</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$9,491</u>

EXPENDITURE SUMMARY

<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Redi-Ride Services	<u>\$350,000</u>	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$368,000</u>
	<u>\$350,000</u>	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$368,000</u>

PERSONNEL SUMMARY

(Not Applicable)

SENIOR CENTER MILLAGE FUND

Narrative: This activity is operated in partnership with Okemos Public Schools and provides activities for older adults throughout the community. The Center is located at Chippewa Middle School with operations funded through a portion of the Community Services Millage. The staff are employed by Okemos Schools, but report to the Director of Parks and Recreation.

REVENUE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>20120 Projected Total</u>	<u>2021 Budget</u>
Taxes	\$145,806	\$150,550	\$150,550	\$154,550
Interest	6,284	3,000	2,500	2,000
	<u>\$152,090</u>	<u>\$153,550</u>	<u>\$153,050</u>	<u>\$156,550</u>

STATEMENT OF RESTRICTED FUND BALANCE	
Fund Balance as of December 31, 2019 (per audit)	\$241,271
Anticipated Operating Surplus (Deficit) for 2020	<u>7,725</u>
Estimated Available Fund Balance as of December 31, 2020	248,996
Anticipated Operating Surplus (Deficit) for 2021	<u>1,550</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$250,546</u>

EXPENDITURE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>20120 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$2,261	\$1,000	\$325	\$0
Operating Costs	106	0	0	0
Outside Services	159,143	117,500	140,000	150,000
Capital Items	<u>30,626</u>	<u>30,000</u>	<u>5,000</u>	<u>5,000</u>
	<u>\$192,135</u>	<u>\$148,500</u>	<u>\$145,325</u>	<u>\$155,000</u>

Personnel Costs: Township staff assistance as needed.

Outside Services: Contractual staffing costs.

Capital Items: Tables, chairs, and lighting improvements.

PERSONNEL SUMMARY	
(Not Applicable)	

LAND PRESERVATION MILLAGE FUND

Narrative: In November 2000, voters approved a ten-year, 0.75 millage for the purpose of purchasing land and land easements for conservation purposes. 25% of the millage collected is reserved and invested, with interest earned used for the purpose of maintaining the properties. Recommendations for purchase are brought forward by the Land Preservation Advisory Board. A reduced renewal (.33 mills) was approved in November 2010 for maintenance, stewardship, and acquisition. In November of 2020 the voters will be voting on a millage reduction of .10 mills. The activity is managed by the Parks and Recreation Department.

REVENUE SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Land Preservation Millage Collections		\$575,253	\$592,200	\$595,175	\$186,100
State Grant Revenue		0	\$0	\$0	\$0
Investment Income (Loss)		66,957	20,000	23,000	20,000
		<u>\$642,210</u>	<u>\$612,200</u>	<u>\$618,175</u>	<u>\$206,100</u>

STATEMENT OF RESTRICTED FUND BALANCE	
Fund Balance as of December 31, 2019 (per audit)	\$3,333,364
Anticipated Operating Surplus (Deficit) for 2020	<u>427,180</u>
Estimated Available Fund Balance as of December 31, 2020	3,760,544
Anticipated Operating Surplus (Deficit) for 2021	<u>4,505</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$3,765,049</u>

EXPENDITURE SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs		83,486	90,705	89,695	95,295
Operating Costs		1,218	6,300	6,300	11,300
Outside Services		15,146	45,000	45,000	45,000
Equipment Rental		0	0	0	0
Land Acquisitions, Operations & Maintenance		41,334	50,000	50,000	50,000
		<u>\$141,184</u>	<u>\$192,005</u>	<u>\$190,995</u>	<u>\$201,595</u>

Personnel Costs: No Change in staffing levels in 2021.

Operating Costs: Includes signs, maintenance supplies, grounds maintenance.

Outside Services: Legal fees relating to land acquisition, stewardship plan and controlled burns.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Sr. Parks & Land Management Coordinator	0.5	0.5	0.5
Park and Land Management Coordinator	0.0	0.0	0.05
Park Naturalist	0.8	0.8	0.8

LAND PRESERVATION RESERVE FUND

Narrative: In November 2000, voters approved a ten-year 0.75 millage for the purpose of purchasing land and land easements for conservation purposes. 25% of the millage collected has been set aside in an endowment fund and invested for future management activities of the properties.

REVENUE SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Grant Revenue		\$0	\$0	\$0	\$0
Investment Income (Loss)		98,282	35,000	50,000	40,000
Other Revenue		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
		<u>\$98,282</u>	<u>\$35,000</u>	<u>\$50,000</u>	<u>\$40,000</u>

STATEMENT OF FUND BALANCE		
	<u>Nonspendable</u>	<u>Restricted</u>
Fund Balance as of December 31, 2018 (per audit)		\$3,163,839
Anticipated Operating Surplus (Deficit) for 2019	<u>0</u>	<u>50,000</u>
Estimated Available Fund Balance as of December 31, 2019	0	3,213,839
Anticipated Operating Surplus (Deficit) for 2020	<u>0</u>	<u>40,000</u>
Estimated Available Fund Balance as of December 31, 2020	<u>\$0</u>	<u>\$3,253,839</u>

EXPENDITURE SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Operating Costs		78	0	0	0
		<u>\$78</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>

PERSONNEL SUMMARY	
(Not Applicable)	

PARK MILLAGE FUND

Narrative: This activity is funded by a .667 mill levy that was authorized for twelve years beginning in 2015. The Director of Parks and Recreation oversees this fund with guidance from the Park Commission.

REVENUE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Park Millage	\$1,159,144	\$1,196,250	\$1,198,350	\$1,228,250
Harris Center	45,794	42,000	5,500	30,000
Investment Income	35,551	10,000	12,000	10,000
Rentals and other	17,175	12,000	8,000	15,000
Grant Revenue	301,870	0	607,550	0
Operating Transfer In	75,000	0	0	0
	<u>\$1,634,533</u>	<u>\$1,260,250</u>	<u>\$1,831,400</u>	<u>\$1,283,250</u>

STATEMENT OF FUND BALANCE		
	<u>Nonspendable</u>	<u>Restricted</u>
Fund Balance as of December 31, 2019 (per audit)	\$0	\$1,520,672
Anticipated Operating Surplus (Deficit) for 2020	<u>0</u>	<u>(1,508,800)</u>
Estimated Available Fund Balance as of December 31, 2020	0	11,872
Anticipated Operating Surplus (Deficit) for 2021	<u>0</u>	<u>383,934</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$0</u>	<u>\$395,806</u>

PARK MILLAGE FUND

DEPARTMENT:
Parks and Recreation -
Administration

FUNCTION:
Recreation and Culture

Activity Description:

This division oversees expenditures of the Park Millage budget for park maintenance, development and acquisition, Harris Nature Center operations, and selected programs of the Park Commission.

EXPENDITURE SUMMARY				
<u>Account Classification</u>	2019 Actual	2020 Original Budget	2020 Projected Total	2021 Budget
Personnel Costs	\$154,938	\$173,765	\$152,375	\$176,611
Operating Costs	1,131	5,150	3,150	4,350
Outside Services	85	0	0	0
Equipment Rental	0	0	0	0
Capital Items	0	0	0	0
	<u>\$156,154</u>	<u>\$178,915</u>	<u>\$155,525</u>	<u>\$180,961</u>

Personnel Costs: No Change in staffing levels in 2020.

Outside Services: Consulting fees.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: None planned for 2020.

PERSONNEL SUMMARY			
<u>Position/Title</u>	2019	2020	2021
Director of Parks & Recreation	0.5	0.5	0.5
Sr. Park & Land Mgt. Coordinator	0.5	0.5	0.5
Park Naturalist	0.2	0.2	0.2
Administrative Assistant II	0.5	0.5	0.5
	<u>1.7</u>	<u>1.7</u>	<u>1.7</u>
Intern/Seasonal	0.0	0.0	0.0

PARK MILLAGE FUND

DEPARTMENT:
Parks and Recreation -
Harris Nature Center

FUNCTION:
Recreation and Culture

Activity Description:

This activity offers environmental activities, outdoor recreation opportunities and special events focusing on protecting, promoting and interpreting our environment. The Nature Center is open to the public 40 hours per week plus special outreach programs, events, and building rentals. The Director of Parks & Recreation oversees this activity.

EXPENDITURE SUMMARY				
<u>Account Classification</u>	2019 <u>Actual</u>	2020 Original <u>Budget</u>	2020 Projected <u>Total</u>	<u>2021 Budget</u>
Personnel Costs	\$178,741	\$169,940	\$113,615	\$136,955
Operating Costs	24,155	26,400	22,900	23,000
Outside Services	3,444	7,000	7,000	9,000
Capital Items	1,027	0	0	0
	<u>\$207,368</u>	<u>\$203,340</u>	<u>\$143,515</u>	<u>\$168,955</u>

Personnel Costs: Vacancy in Sr. Park Naturalist from retirement, replaced with Park Naturalist.

Operating Costs: Materials and supplies for the Nature Center.

Outside Services: Maintenance contracts.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Sr. Park Naturalist	1.0	0.0	0.0
Park Naturalist	1.0	2.0	2.0
	2.0	2.0	2.0
Interns - part time	6.0	6.0	6.0

PARK MILLAGE FUND

DEPARTMENT:
Parks and Recreation -
Park Maintenance

FUNCTION:
Recreation and Culture

Activity Description:

This activity is responsible for maintenance of approximately 500 acres of Park Millage park land. This division is under the supervision of the Facilities Superintendent, reporting directly to the Director of Parks & Recreation.

EXPENDITURE SUMMARY				
<u>Account Classification</u>	2018 <u>Actual</u>	2019 Original <u>Budget</u>	2019 Projected <u>Total</u>	<u>2020 Budget</u>
Personnel Costs	\$214,494	\$239,770	\$210,010	\$242,775
Operating Costs	24,217	50,500	49,650	51,950
Outside Services	15,255	37,000	17,000	42,000
Equipment Rental	52,795	58,500	58,500	75,175
Capital Items	<u>678</u>	<u>6,000</u>	<u>6,000</u>	<u>2,500</u>
	<u>\$307,439</u>	<u>\$391,770</u>	<u>\$341,160</u>	<u>\$414,400</u>

Personnel Costs: No change in staffing for 2020

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: Equipment purchases and drain assessment.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2020</u>
Facilities Superintendent	0.15	0.15	0.15
Utility Worker	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>
	3.15	3.15	3.15
Seasonal Worker	0.0	0.0	0.0

PARK MILLAGE FUND

DEPARTMENT:
Parks and Recreation -
Park Development

FUNCTION:
Recreation and Culture

Activity Description:

This activity funds renovation and development of all Township parks.

EXPENDITURE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Capital Items	<u>466,287</u>	<u>500,000</u>	<u>2,700,000</u>	<u>135,000</u>
	<u><u>\$466,287</u></u>	<u><u>\$500,000</u></u>	<u><u>\$2,700,000</u></u>	<u><u>\$135,000</u></u>

Capital Items: Marketplace on the Green, Large dog park, shade structure for pickle ball, parking lot expansion for North Meridian and Central Park South, tables, grills, benches, bike racks, kiosks

PERSONNEL SUMMARY
(See Park Millage Parks Administration activity)

PARK RESTRICTED/DESIGNATED FUND

Narrative: These funds are designed for special purposes for Meridian Township park activities. The Director of Parks & Recreation oversees these funds.

REVENUE SUMMARY					
Account Classification	2019	Actual	2020 Original Budget	2020 Projected Total	2021 Budget
Grant Revenue		\$0	\$0		
Interest		\$6,336	\$3,000	\$1,000	\$1,000
Market Revenue		34,447	40,000	27,000	42,000
Donations/Park Revenue		69,213	55,100	1,860	50,000
		<u>\$109,995</u>	<u>\$98,100</u>	<u>\$29,860</u>	<u>\$93,000</u>

Market Revenues: Farmers' Market administered by the Department of Parks & Recreation with the daily operations overseen by the Market Manager. Revenues are generated through stall rental fees from vendors.

STATEMENT OF RESTRICTED FUND BALANCE	
Fund Balance as of December 31, 2019 (per audit)	\$124,453
Anticipated Operating Surplus (Deficit) for 2020	<u>(18,105)</u>
Estimated Available Fund Balance as of December 31, 2020	106,348
Anticipated Operating Surplus (Deficit) for 2021	<u>400</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$106,748</u>

EXPENDITURE SUMMARY					
Account Classification	2019	Actual	2020 Original Budget	2020 Projected Total	2021 Budget
Recreation Grant Expense		\$0	\$0		
Market Expense		106,431	41,275	37,965	39,100
Recreation Expense		0	3,300	10,000	3,500
Celebrate Downtown Expense		48,937	51,000	0	50,000
Park Development		11,421			
Transfer Out		75,000	0	0	0
		<u>\$241,789</u>	<u>\$95,575</u>	<u>\$47,965</u>	<u>\$92,600</u>

Market Expense: Market Manager stipend, advertising expenses and relocation expense.

Recreation Expense: Recreation programs.

Park Development: Park and Field Improvements.

PERSONNEL SUMMARY			
Position/Title	2019	2020	2021
Recreation Staff-Summer*	2.0	2.0	2.0

* Tentative - Staffing dependent on grant/donations revenue received.

NANCY MOORE - PARK BEAUTIFICATION FUND

Narrative: The Nancy Moore - Park Beautification Fund was created in honor of Nancy Moore, a long-time Park Commissioner, after her death in 1993. Funds in this account are reserved for use on projects that beautify Meridian Township parks. The Director of Parks & Recreation oversees this fund.

REVENUE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Donations/Other	\$0	\$0		
Interest	209	0		
	<u>\$209</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>

STATEMENT OF RESTRICTED FUND BALANCE	
Fund Balance as of December 31, 2020 (per audit)	\$0
Anticipated Operating Surplus (Deficit) for 2020	<u>0</u>
Estimated Available Fund Balance as of December 31, 2020	0
Anticipated Operating Surplus (Deficit) for 2021	<u>0</u>
Estimated Available Fund Balance as of December 31, 2021	<u><u>\$0</u></u>

EXPENDITURE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Park Beautification	<u>\$13,150</u>	<u>\$0</u>		
	<u>\$13,150</u>	<u>\$0</u>		

Park Beautification: Plantings and garden restorations in parks.

PERSONNEL SUMMARY	
(Not Applicable)	

FIRE RESTRICTED/DESIGNATED FUND

Narrative: The Fire Chief oversees this fund. It is used to account for restricted gifts and grants. No budgeted activity for 2020.

REVENUE SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Grant Revenue		\$0	\$0	\$0	\$0
Interest		119	50	30	30
Donations		25	0	50	0
Operating Transfers In		0	0	0	0
		<u>\$144</u>	<u>\$50</u>	<u>\$80</u>	<u>\$30</u>

Donations: Funds donated by individuals and other organizations for specified purposes.

STATEMENT OF RESTRICTED FUND BALANCE	
Fund Balance as of December 31, 2019 (per audit)	\$5,010
Anticipated Operating Surplus (Deficit) for 2020	<u>80</u>
Estimated Available Fund Balance as of December 31, 2020	5,090
Anticipated Operating Surplus (Deficit) for 2021	<u>30</u>
Estimated Available Fund Balance as of December 31, 2021	<u><u>\$5,120</u></u>

EXPENDITURE SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Miscellaneous		\$592	\$0	\$0	\$0
Capital Items		<u>\$4,209</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
		<u>\$4,801</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>

Capital Items: None planned for 2020.

PERSONNEL SUMMARY	
(Not Applicable)	

LIBRARY RESTRICTED FUND

Narrative: This fund is used to account for donations for improvements to the local libraries. No budgeted activity for 2020.

REVENUE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Interest	228	50	60	50
	<u>\$228</u>	<u>\$50</u>	<u>\$60</u>	<u>\$50</u>

STATEMENT OF RESTRICTED FUND BALANCE	
Fund Balance as of December 31, 2019 (per audit)	\$13,472
Anticipated Operating Surplus (Deficit) for 2019	<u>60</u>
Estimated Available Fund Balance as of December 31, 2019	13,532
Anticipated Operating Surplus (Deficit) for 2020	<u>50</u>
Estimated Available Fund Balance as of December 31, 2020	<u>\$13,582</u>

EXPENDITURE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Capital Items	0	0	0	0
	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>

Capital Items: None planned for 2020.

PERSONNEL SUMMARY	
(Not Applicable)	

POLICE RESTRICTED/DESIGNATED FUND

Narrative: The Police Chief oversees this fund. It is used to account for restricted gifts and grants.

REVENUE SUMMARY				
<u>Account Classification</u>	2018 Actual	2019 Original Budget	2019 Projected Total	2020 Budget
Grant Revenue	\$1,636	\$8,000	\$25,757	\$5,000
Interest	1,444	500	500	300
Forfeiture Revenue	23,899	5,000	10,000	5,000
Donations	10,167	5,000	1,350	0
Training Fund PA 302	<u>6,407</u>	<u>7,000</u>	<u>7,000</u>	<u>7,000</u>
	<u>\$43,553</u>	<u>\$25,500</u>	<u>\$44,607</u>	<u>\$17,300</u>

Grant Revenue: Grant revenue to cover 50% of the cost of bullet proof vests.

Forfeiture Revenue: Money from the confiscation or sale of forfeited property and cash.

Donations: Funds donated by individuals or organizations for specified purposes.

Training Fund PA 302: Funds from the State of Michigan based on the State funding formula.

STATEMENT OF RESTRICTED FUND BALANCE	
Fund Balance as of December 31, 2019 (per audit)	\$89,473
Anticipated Operating Surplus (Deficit) for 2020	<u>(4,450)</u>
Estimated Available Fund Balance as of December 31, 2020	85,023
Anticipated Operating Surplus (Deficit) for 2021	<u>300</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$85,323</u>

EXPENDITURE SUMMARY				
<u>Account Classification</u>	2018 Actual	2019 Original Budget	2019 Projected Total	2020 Budget
Operating Supplies - Forfeiture	\$0	\$0		
Operating Supplies - Victims Rights	0	0		
Operating costs	6,320	8,000	25,757	10,000
Training Fund PA 302	6,705	7,000	7,000	7,000
Children's Christmas Party	14,540	5,000	1,300	0
Capital Items	<u>0</u>	<u>15,000</u>	<u>15,000</u>	<u>0</u>
	<u>\$27,565</u>	<u>\$35,000</u>	<u>\$49,057</u>	<u>\$17,000</u>

Operating Supplies - Forfeiture: Supplies to enhance law enforcement services.

Operating Costs: Includes the 50% of the cost of replacement bullet proof vests.

Training Fund PA 302: Restricted funds for law enforcement training.

Children's Christmas Party: Money is raised through donations to pay for the annual party.

Capital Items: Canine

PERSONNEL SUMMARY	
(Not Applicable)	

LAW ENFORCEMENT GRANTS FUND

Narrative: This fund accounts for federal and state grants received for law enforcement programs. The Police Chief oversees this fund. The Office of Highway Safety Planning funds programs that reimburse salaries and benefits associated with the Michigan Safe Community Grant.

REVENUE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Interest	\$1,329	\$500	\$400	\$200
Grants	839	0		
	<u>\$2,168</u>	<u>\$500</u>	<u>\$400</u>	<u>\$200</u>

STATEMENT OF RESTRICTED FUND BALANCE	
Fund Balance as of December 31, 2019 (per audit)	\$76,045
Anticipated Operating Surplus (Deficit) for 2020	<u>400</u>
Estimated Available Fund Balance as of December 31, 2020	76,445
Anticipated Operating Surplus (Deficit) for 2021	<u>200</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$76,645</u>

EXPENDITURE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Grant expenditures	\$0	\$0	\$0	\$0
Capital Items	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>

PERSONNEL SUMMARY	
(Not Applicable)	

CABLE TV FUND

Narrative: The highest priority of the Communications Department is to provide residents with an increased access to transparency in governance with relevant information and in a timely fashion. A diverse means of methods through the utilization of current and best communication practices is used to provide information to residents and neighboring municipalities. An advisory board, the Cable Communications Commission, approves operating policies and makes recommendations concerning fiscal matters to the Township Board. Operating funds are primarily generated from franchise fees and peg fees derived from cable service providers according to Public Act 480.

REVENUE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Franchise Fees-Cable TV	\$628,331	\$0		
PEG Fees	131,475	0		
Miscellaneous Revenue	3,964	0		
Donations/Agency Fees	485	0		
Interest	2,856	0	900	100
Grant Revenue	1,600	0		
Operating Transfers In	0	0		
	<u>\$768,711</u>	<u>\$0</u>	<u>\$900</u>	<u>\$100</u>

Franchise Fees - Cable TV: Moved to General Fund

PEG Fees: Moved to General Fund

STATEMENT OF FUND BALANCE		
	<u>Nonspendable</u>	<u>Restricted</u>
Fund Balance as of December 31, 2019 (per audit)	\$6,370	\$290,098
Anticipated Operating Surplus (Deficit) for 2020	<u>(6,370)</u>	<u>(68,205)</u>
Estimated Available Fund Balance as of December 31, 2020	0	221,893
Anticipated Operating Surplus (Deficit) for 2021	<u>0</u>	<u>100</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$0</u>	<u>\$221,993</u>

CABLE TV FUND

EXPENDITURE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$492,666	\$81,310	\$75,475	\$0
Operating Costs	187,089	0	0	0
Outside Services	62,882	50,000	0	0
Equipment Rental	0	0	0	0
Capital Items	26,563	0	0	0
	<u>\$769,200</u>	<u>\$131,310</u>	<u>\$75,475</u>	<u>\$0</u>

PERSONNEL SUMMARY

(Not Applicable)

COMMUNITY NEEDS FUND

Narrative: The Community Resources Commission functions to promote a better community for all residents through its focus on existing or potential human concerns. Funds are donated for distribution to needy Township residents through the Community Resources Commission, who oversees the fund with the Human Services Specialist.

REVENUE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Donations	\$22,817	\$7,500	\$82,000	\$10,000
Redi-Ride	\$1,829	\$200	\$1,000	\$200
Interest	237	50	150	50
	<u>\$24,883</u>	<u>\$7,750</u>	<u>\$83,150</u>	<u>\$10,250</u>

STATEMENT OF RESTRICTED FUND BALANCE	
Fund Balance as of December 31, 2019 (per audit)	\$23,888
Anticipated Operating Surplus (Deficit) for 2020	<u>62,000</u>
Estimated Available Fund Balance as of December 31, 2020	85,888
Anticipated Operating Surplus (Deficit) for 2021	<u>50</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$85,938</u>

EXPENDITURE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Emergency Fund	\$17,361	\$7,500	\$20,000	\$10,000
Redi-Ride	\$1,800	\$1,000	\$1,000	\$200
Operating Supplies	0	0	0	0
Special Events	631	0	150	0
	<u>\$19,791</u>	<u>\$8,500</u>	<u>\$21,150</u>	<u>\$10,200</u>

PERSONNEL SUMMARY	
(Not Applicable)	

FIRE STATION DEBT RETIREMENT FUND

Narrative: In November 2012, voters approved the issuance of \$3,500,000 in general obligation unlimited tax bonds for the purpose of erecting, furnishing, and equipping a new central fire station on a site located at the southeast corner of Okemos Road and Central Park Drive. The bonds are payable in a period not to exceed fifteen (15) years from the date of issue. The estimated average millage rate to retire the bonds is 0.2 mill (\$0.20 per \$1,000 of taxable value). The bonds have been issued, and the Township has received the proceeds from the bonds. Millage collections began in 2014.

REVENUE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Millage Collections	\$350,733	\$361,600	\$363,105	\$372,100
Interest	<u>5,327</u>	<u>2,000</u>	<u>2,000</u>	<u>1,000</u>
	<u>\$356,060</u>	<u>\$363,600</u>	<u>\$9,000</u>	<u>\$373,100</u>

STATEMENT OF ASSIGNED FUND BALANCE	
Fund Balance (Deficit) as of December 31, 2019 (per audit)	\$290,780
Anticipated Operating Surplus (Deficit) for 2020	<u>(264,405)</u>
Estimated Available Fund Balance as of December 31, 2020	26,375
Anticipated Operating Surplus (Deficit) for 2021	<u>98,510</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$124,885</u>

EXPENDITURE SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Debt Service - Principal	\$220,000	\$225,000	\$225,000	\$230,000
Debt Service - Interest	<u>51,468</u>	<u>48,405</u>	<u>48,405</u>	<u>44,590</u>
	<u>\$271,468</u>	<u>\$273,405</u>	<u>\$273,405</u>	<u>\$274,590</u>

PERSONNEL SUMMARY	
(Not Applicable)	

TOWNSHIP IMPROVEMENT REVOLVING FUND

Narrative: This fund is used to account for public improvement projects paid in advance and reimbursed through special assessments.

REVENUE SUMMARY				
<u>Account Classification</u>	2019 Actual	2020 Original Budget	2020 Projected Total	2021 Budget
Interest	\$18,269	\$10,000	\$9,000	\$9,000
Interest - Special Assessments	12,790	10,000	10,700	10,500
Special Assessments	144,416	150,000	140,000	140,000
Miscellaneous	<u>0</u>	<u>0</u>	<u>1,500</u>	<u>0</u>
	<u>\$175,475</u>	<u>\$170,000</u>	<u>\$161,200</u>	<u>\$159,500</u>

STATEMENT OF ASSIGNED FUND BALANCE	
Fund Balance as of December 31, 2019 (per audit)	\$1,003,304
Anticipated Operating Surplus (Deficit) for 2020	<u>56,200</u>
Estimated Available Fund Balance as of December 31, 2020	1,059,504
Anticipated Operating Surplus (Deficit) for 2021	<u>94,500</u>
Estimated Available Fund Balance as of December 31, 2021	<u>\$1,154,004</u>

EXPENDITURE SUMMARY				
<u>Account Classification</u>	2019 Actual	2020 Original Budget	2020 Projected Total	2021 Budget
Construction/Improvements	<u>\$127,756</u>	<u>\$120,000</u>	<u>\$105,000</u>	<u>\$65,000</u>
	<u>\$127,756</u>	<u>\$120,000</u>	<u>\$105,000</u>	<u>\$65,000</u>

Construction/Improvements: Lake Lansing Watershed and sidewalk repair

PERSONNEL SUMMARY	
(Not Applicable)	

Road Construction Debt

Narrative: In August 2019, voters approved the issuance of \$35,000,000 in general obligation unlimited tax bonds for the purpose of repairing the local roads. The bonds will be issued in 3 separate issuances over the next 10 years. The estimated average millage rate to retire the bonds is 0.19429 mill (\$0.19429 per \$1,000 of taxable value).

REVENUE SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Millage Collections		\$0	\$3,514,000	\$3,518,000	\$3,619,000
Interest		1,953	30,000	16,000	15,000
		<u>\$1,953</u>	<u>\$3,544,000</u>	<u>\$9,000</u>	<u>\$3,634,000</u>

STATEMENT OF ASSIGNED FUND BALANCE	
Fund Balance (Deficit) as of December 31, 2019 (per audit)	\$882,435
Anticipated Operating Surplus (Deficit) for 2020	<u>(3,522,000)</u>
Estimated Available Fund Balance as of December 31, 2020	(2,639,565)
Anticipated Operating Surplus (Deficit) for 2021	<u>66,500</u>
Estimated Available Fund Balance as of December 31, 2021	<u><u>-\$2,573,065</u></u>

EXPENDITURE SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Debt Service - Principal		\$0	\$3,305,000	\$3,050,000	\$3,165,000
Debt Service - Interest		0	235,175	481,000	402,500
		<u>\$0</u>	<u>\$3,540,175</u>	<u>\$3,531,000</u>	<u>\$3,567,500</u>

PERSONNEL SUMMARY	
(Not Applicable)	

PUBLIC WORKS AND ENGINEERING FUNDS COMBINED STATEMENT

REVENUE SUMMARY				
<u>ACTIVITY</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
REVENUES				
CHARGES FOR SERVICES				
Water Fund	\$6,130,996	\$6,268,000	\$6,278,000	\$6,395,000
Sewer Fund	<u>5,893,261</u>	<u>6,174,050</u>	<u>6,192,550</u>	<u>7,374,850</u>
Total Charges for Services	12,024,257	12,442,050	12,470,550	13,769,850
OTHER REVENUES				
Water Fund	474,460	65,200	60,300	50,300
Sewer Fund	<u>11,504</u>	<u>5,500</u>	<u>9,200</u>	<u>9,000</u>
Total Other Revenues	485,964	70,700	69,500	59,300
OTHER FINANCING SOURCES				
Water Fund	154,081	0	0	0
Sewer Fund	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Other Financing Sources	<u>154,081</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL REVENUES	<u>\$12,664,302</u>	<u>\$12,512,750</u>	<u>\$12,540,050</u>	<u>\$13,829,150</u>

EXPENSE SUMMARY				
<u>ACTIVITY</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Water Fund	\$5,910,553	\$6,337,260	\$6,244,285	\$6,432,025
Sewer Fund	<u>4,364,045</u>	<u>6,136,800</u>	<u>6,199,580</u>	<u>6,937,430</u>
TOTAL EXPENSES	<u>\$10,274,598</u>	<u>\$12,474,060</u>	<u>\$12,443,865</u>	<u>\$13,369,455</u>

WATER FUND Summary

REVENUE SUMMARY				
<u>ACTIVITY</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
CHARGES FOR SERVICES				
Water Sales	\$5,676,985	\$5,850,000	\$5,850,000	\$5,952,000
Billing Charges	139,382	138,000	138,000	138,000
Water Penalties	33,713	30,000	10,000	30,000
Customer Installation	91,022	70,000	70,000	70,000
Water Benefits	4,769	20,000	20,000	20,000
Connection Fees	134,449	120,000	120,000	120,000
Engineering & Inspection Fees	50,676	40,000	70,000	65,000
Total Charges for Services	<u>6,130,996</u>	<u>6,268,000</u>	<u>6,278,000</u>	<u>6,395,000</u>
OTHER REVENUES				
Rental Income	27,181	27,000	28,100	28,100
Interest	46,173	25,000	15,000	5,000
Miscellaneous	401,107	13,200	17,200	17,200
Total Other Revenues	<u>474,460</u>	<u>65,200</u>	<u>60,300</u>	<u>50,300</u>
OTHER FINANCING SOURCES				
Transfers In	0	0	0	0
Capital Contributions	154,081	0	0	0
Total Other Financing Sources	<u>154,081</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL REVENUES	<u><u>\$6,759,537</u></u>	<u><u>\$6,333,200</u></u>	<u><u>\$6,338,300</u></u>	<u><u>\$6,445,300</u></u>

Water Sales: Water sales revenue is based on 2020 rates of \$4.96/1000 gal, compared to \$4.77 in 2020. The estimate is conservative in relation to new customers and weather factors.

Billing Charges: Represents 50% of the cost of reading meters and processing utility bills. The 2020 charge of \$5.00 per bill stays the same as 2020.

EXPENSE SUMMARY				
<u>ACTIVITY</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Administration	\$1,426,605	\$708,960	\$712,790	\$722,180
Engineering	245,705	265,580	264,225	285,020
Water Supply	3,186,269	3,252,400	3,281,500	3,400,000
Water Distribution Maintenance	1,168,453	1,445,320	1,470,770	1,554,825
Pension	(110,550)	0	0	0
Capital Outlay	-5,930	665,000	515,000	470,000
TOTAL EXPENSES	<u><u>\$5,910,553</u></u>	<u><u>\$6,337,260</u></u>	<u><u>\$6,244,285</u></u>	<u><u>\$6,432,025</u></u>

WATER FUND

DEPARTMENT:
Public Works and Engineering -
Administration

FUNCTION:
Public Works

Activity Description:

Personnel are responsible for coordinating all activities of the Department of Public Works & Engineering to ensure that goals and objectives of the Township Board are carried out. Administrative expenses are split between the Water Fund and the Sewer Fund.

BUDGET SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs		\$108,259	\$114,660	\$115,690	\$119,080
Operating Costs		40,745	57,300	57,100	62,100
Outside Services		14,607	12,000	15,000	16,000
Equipment Rental		0	0		
Administrative		525,000	525,000	525,000	525,000
Depreciation		737,994	0		
Capital Items		0	0		
TOTAL		<u><u>\$1,426,605</u></u>	<u><u>\$708,960</u></u>	<u><u>\$712,790</u></u>	<u><u>\$722,180</u></u>

Personnel Costs: No change in staffing

Outside Services: Share of audit costs.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Administrative: Amount paid to General Fund for Administrative expenses.

Depreciation: Year-end adjustment performed at audit time to record non-cash items. All capital assets are depreciated over their useful lives rather than expensed at time of purchase.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Asst. Twp. Mgr. & Dir of P.W.	0.5	0.5	0.5
Administrative Assistant II	0.5	0.5	0.5
Total	1.0	1.0	1.0

WATER FUND

DEPARTMENT:
**Public Works and Engineering -
 Engineering**

FUNCTION:
Public Works

Activity Description:

The office of Engineering is responsible for coordinating all engineering activities regarding sewer, water, sidewalk, pathway, street lights, and road paving systems. Department personnel review all public and private developments for conformance to current standards and practices. Costs for this activity are split equally between the Water and Sewer Funds.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs	\$230,680	\$246,430	\$245,575	\$265,585
Operating Costs	1,430	3,900	3,900	4,100
Outside Services	30	500	0	0
Equipment Rental	13,565	14,750	14,750	15,335
Capital Items	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
	<u>\$245,705</u>	<u>\$265,580</u>	<u>\$264,225</u>	<u>\$285,020</u>

Personnel Costs: No staffing changes fro 2021

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Chief Engineer	0.5	0.5	0.5
Sr. Project Engineer	0.5	0.5	0.5
DPW Records Manager	0.5	0.5	0.5
GIS Specialist	0.3	0.3	0.3
Engineering Tech	1.0	1.0	1.0
Administrative Assistant I	<u>0.5</u>	<u>0.0</u>	<u>0.0</u>
	3.3	2.8	2.8
Engineering Aide	0.0	0.0	0.0
Intern	0.50	0.50	0.50

WATER FUND

DEPARTMENT:
Public Works and Engineering -
Water Supply

CLASSIFICATION:
Public Works

Activity Description:

Meridian Township purchases treated water from the Board of Water and Light as well as the East Lansing-Meridian Water and Sewer Authority (which operates the treatment plant and well fields as a separate corporation). The Deputy Township Manager/Director of Public Works is a member of the Authority Board.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Operating Costs	\$0	\$2,400	\$0	\$0
Outside Services	<u>3,186,269</u>	<u>3,250,000</u>	<u>3,281,500</u>	<u>3,400,000</u>
	<u><u>\$3,186,269</u></u>	<u><u>\$3,252,400</u></u>	<u><u>\$3,281,500</u></u>	<u><u>\$3,400,000</u></u>

Outside Services: Cost of water from East Lansing Water Sewer Authority and Lansing Board of Water & Light.

PERSONNEL SUMMARY
(Not Applicable)

WATER FUND

DEPARTMENT:
Public Works and Engineering -
Water Maintenance

CLASSIFICATION:
Public Works

Activity Description:

The Water Distribution Maintenance activity oversees the maintenance of the Township's water system which includes two 0.5 million gallon water towers, a booster station, over 165 miles of water mains, 1,900 fire hydrants, and 13,700 meters and services. Maintenance personnel are responsible for emergency repairs to the water system and coordinate with other public safety offices during times of need. This activity is under the supervision of the Deputy Township Manager/Director of Public Works.

BUDGET SUMMARY					
Account Classification	2019	Actual	2020 Original Budget	2020 Projected Total	2021 Budget
Personnel Costs		\$633,620	\$639,720	\$665,070	\$793,855
Operating Costs		148,411	174,700	174,800	173,350
Outside Services		149,321	125,000	125,000	100,000
Equipment Rental		179,065	178,900	178,900	162,620
Customer Install-Water Meters		48,876	300,000	300,000	300,000
Capital Items		9,161	27,000	27,000	25,000
		<u>\$1,168,453</u>	<u>\$1,445,320</u>	<u>\$1,470,770</u>	<u>\$1,554,825</u>

Personnel Costs: Includes a 2% wage increase and no staffing changes in 2021.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance and depreciation for the vehicle(s) assigned to this activity.

Capital Items: Safety equipment and tools

PERSONNEL SUMMARY			
Position/Title	2019	2020	2021
Facilities Manager			0.25
Lead Worker	1.0	1.0	1.0
Utility Worker	7.0	7.0	8.0
	<u>8.0</u>	<u>8.0</u>	<u>9.25</u>
Seasonal Staff	0.0	1.0	2.0

WATER FUND

DEPARTMENT:
Public Works and Engineering -
Capital Outlay

FUNCTION:
Public Works

Activity Description:

These are major projects and special equipment used for the Water Fund.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Capital Items	<u>-5,930</u>	<u>665,000</u>	<u>515,000</u>	<u>470,000</u>
	<u><u>-\$5,930</u></u>	<u><u>\$665,000</u></u>	<u><u>\$515,000</u></u>	<u><u>\$470,000</u></u>

Capital Items: Replace 16" watermain valves (\$280,000) and North Water Tower improvements (\$190,000).

PERSONNEL SUMMARY
(Not Applicable)

SEWER FUND Summary

REVENUE SUMMARY					
ACTIVITY	2019	Actual	2020 Original Budget	2020 Projected Total	2021 Budget
CHARGES FOR SERVICES					
Sewer Charges		\$5,432,168	\$5,800,000	\$5,800,000	\$7,040,000
Lift Station Fees		6,938	6,900	6,900	6,850
Billing Charges		139,453	130,000	135,000	138,000
Penalties		36,399	35,000	12,000	20,000
Sewer Benefits		11,148	10,000	10,000	10,000
Sewer Licenses/Inspections		3,400	5,150	5,150	5,000
Connection Fees		194,119	150,000	150,000	100,000
Charges for Services		<u>69,636</u>	<u>37,000</u>	<u>73,500</u>	<u>55,000</u>
Total Charges for Services		<u>5,893,261</u>	<u>6,174,050</u>	<u>6,192,550</u>	<u>7,374,850</u>
OTHER REVENUES					
Grant Revenue		0	0	0	0
Interest		9,552	5,000	8,000	5,000
Reimbursements		0	0	0	0
Miscellaneous		<u>1,952</u>	<u>500</u>	<u>1,200</u>	<u>4,000</u>
Total Other Revenues		<u>11,504</u>	<u>5,500</u>	<u>9,200</u>	<u>9,000</u>
OTHER FINANCING SOURCES					
Transfers In		0	0	0	0
Capital Contributions		0	0	0	0
Total Other Financing Sources		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL REVENUES		<u>\$5,904,765</u>	<u>\$6,179,550</u>	<u>\$6,201,750</u>	<u>\$7,383,850</u>

Sewer Charges: Sewer charges revenue is based on 2021 rates of \$6.31 per 1000 gallons of metered water, increased from \$5.84 per 1000 gallons in 2020. The estimate is conservative in relation to new customers and weather factors.

Billing Charges: Represents 50% of the cost of reading meters and processing utility bills. The 2021 charge of \$5.00 per bill stays the same as 2020.

EXPENSE SUMMARY					
ACTIVITY	2019	Actual	2020 Original Budget	2020 Projected Total	2021 Budget
Administration		\$994,438	\$663,910	\$673,785	\$682,860
Engineering		249,920	304,025	292,725	313,775
Sewage Treatment		1,555,960	3,500,000	3,500,000	3,200,000
Sewer System Maintenance		1,319,153	915,365	863,070	935,795
Capital Outlay		0	500,000	500,000	555,000
Pension		-72,896	0	0	0
Fixed Obligations		<u>317,471</u>	<u>253,500</u>	<u>370,000</u>	<u>1,250,000</u>
TOTAL EXPENSES		<u>\$4,364,045</u>	<u>\$6,136,800</u>	<u>\$6,199,580</u>	<u>\$6,937,430</u>

SEWER FUND

DEPARTMENT:
Public Works and Engineering -
Administration

FUNCTION:
Public Works

Activity Description:

Personnel are responsible for coordinating all activities of the Department of Public Works & Engineering to ensure that goals and objectives of the Township Board are carried out. Administrative expenses are split between the Water Fund and the Sewer Fund.

BUDGET SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Personnel Costs		\$109,404	\$115,160	\$115,785	\$118,860
Operating Costs		13,606	11,750	16,000	16,000
Outside Services		14,607	12,000	17,000	23,000
Equipment Rental		0	0	0	0
Administrative		525,000	525,000	525,000	525,000
Depreciation		331,821	0	0	0
Capital Items		0	0	0	0
TOTAL		\$994,438	\$663,910	\$673,785	\$682,860

Personnel Costs: No change in staffing

Outside Services: Share of audit costs.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Administrative: Amount paid to General Fund for administrative expenses.

Depreciation: Year-end adjustment performed at audit time to record non-cash items. All capital assets are depreciated over their useful lives, rather than expensed at time of purchase.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Asst. Twp. Mgr. & Dir of P.W.	0.5	0.5	0.5
Administrative Assistant II	0.5	0.5	0.5
	1.0	1.0	1.0

SEWER FUND

DEPARTMENT
Public Works Engineering -
Engineering

FUNCTION:
Public Works

Activity Description:

The office of Engineering is responsible for coordinating all engineering activities regarding sewer, water, sidewalk, pathway, street lights, and road paving systems. Department personnel review all public and private development for conformance to current standards and practices. Costs for this activity are split equally between the Water and Sewer Funds.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019</u>	<u>2020</u>	<u>2020</u>	<u>2021</u>
	Actual	Original Budget	Projected Total	Budget
Personnel Costs	\$243,957	\$250,275	\$243,975	\$259,440
Operating Costs	647	4,000	4,000	4,000
Outside Services	-8,248	35,000	30,000	35,000
Equipment Rental	13,565	14,750	14,750	15,335
Capital Items	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
	<u>\$249,920</u>	<u>\$304,025</u>	<u>\$292,725</u>	<u>\$313,775</u>

Personnel Costs: No staffing changes for 2021

Outside Services: Engineering consulting, as needed.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: None planned for 2021.

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Chief Engineer	0.5	0.5	0.5
Sr. Project Engineer	0.5	0.5	0.5
DPW Records Manager	0.5	0.5	0.5
GIS Specialist	0.3	0.3	0.6
Engineering Tech	1.0	1.0	1.0
Administrative Assistant I	<u>0.5</u>	<u>0.0</u>	<u>0.0</u>
	3.3	2.8	3.1
Intern	0.50	0.50	0.50

SEWER FUND

DEPARTMENT:
Public Works and Engineering -
Sewage Treatment

CLASSIFICATION:
 Public Works

Activity Description:

Meridian Township purchases sewage treatment services from the City of East Lansing, owner and operator of the treatment plant, paid on a monthly basis.

BUDGET SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original</u>	<u>2020</u>	<u>2021</u>
			<u>Budget</u>	<u>Projected</u>	<u>Budget</u>
				<u>Total</u>	
Contractual Services	\$1,555,960		\$3,500,000	\$3,500,000	\$3,200,000
	<u>\$1,555,960</u>		<u>\$3,500,000</u>	<u>\$3,500,000</u>	<u>\$3,200,000</u>

Contractual Services: Estimated expenses by the East Lansing Waste Water Treatment Plant.

PERSONNEL SUMMARY	
(Not Applicable)	

SEWER FUND

DEPARTMENT:
Public Works and Engineering -
Sewer Maintenance

CLASSIFICATION:
Public Works

Activity Description:

The Sewer System Maintenance activity operates and maintains the Township's sewer system which includes: 28 lift stations, over 150 miles of sanitary sewer, manhole and Township-owned storm sewers/catch basins and detention basins. Maintenance personnel are responsible for emergency repairs to the sewer system and coordinate with other public safety offices during times of need.

BUDGET SUMMARY				
<u>Account Classification</u>	2019 Actual	2020 Original Budget	2020 Projected Total	2021 Budget
Personnel Costs	\$320,107	\$377,950	\$333,155	\$373,800
Operating Costs	155,196	340,115	332,615	347,300
Outside Services	61,745	70,000	70,000	70,000
Equipment Rental	102,165	101,300	101,300	118,695
Depreciation	675,694	0	0	0
Capital Items	4,245	26,000	26,000	26,000
	<u>\$1,319,153</u>	<u>\$915,365</u>	<u>\$863,070</u>	<u>\$935,795</u>

Personnel Costs: No change in staffing levels in 2021.

Operating Costs: Includes Utilities, operating supplies and costs for lift station repairs.

Outside Services: Root cleaning project, concrete/asphalt repairs, annual lift station cleaning, and generator maintenance.

Equipment Rental: Amount paid to the Motor Pool to cover the cost of fuel, maintenance, and depreciation for the vehicle(s) assigned to this activity.

Capital Items: Safety equipment and tools.

PERSONNEL SUMMARY			
<u>Position/Title</u>	2019	2019	2020
Lead Worker	1.0	1.0	1.0
Utility Worker	4.0	4.0	4.0
	5.0	5.0	5.0
Seasonal Staff	0.0	0.0	0.0

SEWER FUND

DEPARTMENT:
Public Works and Engineering -
Capital Outlay

CLASSIFICATION:
Public Works

Activity Description:

These are major projects and special equipment used for the Sewer Fund.

BUDGET SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original</u>	<u>2020</u>	<u>2021</u>
			<u>Budget</u>	<u>Projected</u>	<u>Budget</u>
				<u>Total</u>	
Contractual Services		\$0	\$0	\$0	\$0
Contractual Services-Fed Grant		0	0	0	0
Sanitary Sewer Construction		0	0	0	0
Capital Items		0	500,000	500,000	555,000
		<u>\$0</u>	<u>\$500,000</u>	<u>\$500,000</u>	<u>\$555,000</u>

Contractual Services: None planned for 2021.

Sanitary Sewer Construction: None planned for 2021.

Capital Items: County Park North sewer rehabilitaion (\$500,000) and Whitehills Lake onsite backup generator (\$55,000).

PERSONNEL SUMMARY	
(Not Applicable)	

SEWER FUND

DEPARTMENT:
Public Works and Engineering -
Fixed Obligations

CLASSIFICATION:
Public Works

Activity Description:

This section lists those debt obligations that are included in water and sewage usage rates. The cash flow for payments is budgeted; however, the payment is actually a reduction of the debt rather than an expense and is reflected as such during the audit process.

BUDGET SUMMARY				
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Wastewater Optimization	<u>\$317,471</u>	<u>\$253,500</u>	<u>\$370,000</u>	<u>\$1,250,000</u>
	<u><u>\$317,471</u></u>	<u><u>\$253,500</u></u>	<u><u>\$370,000</u></u>	<u><u>\$1,250,000</u></u>

Wastewater optimization: Township share of improvements to the East Lansing Plant.

PERSONNEL SUMMARY
(Not Applicable)

MOTOR POOL

Narrative: The Motor Pool is responsible for all routine maintenance, emergency repairs, and purchase of new and replacement vehicles and major pieces of equipment in the Township's fleet. The Motor Pool vehicle and equipment fleet contains over 130 vehicles and major pieces of equipment with a cost over \$5.0 million. Maintenance personnel also oversee the record keeping and specifications of all vehicles and equipment. The Motor Pool Fund is managed directly by the Facilities Superintendent in the Department of Public Works and Engineering.

REVENUE SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>
Interest		\$18,042	\$5,000	\$5,600	\$5,000
Rentals		1,363,190	1,500,320	1,500,320	1,401,320
Reimbursements		0	5,000	4,500	5,000
Gain (Loss) on Vehicle Sales		22,699	5,000	0	0
Transfer In		0	0	0	0
		<u>\$1,403,932</u>	<u>\$1,515,320</u>	<u>\$1,510,420</u>	<u>\$1,411,320</u>

Rentals: Represents the charges to other Departments for use of Township vehicles and equipment. The charge is based on depreciation, gas usage, and maintenance of specific vehicles used by each department.

Reimbursements: None for 2021

Vehicle Sales: Sales from vehicles being rotated out and sold.

STATEMENT OF RETAINED EARNINGS		
	Invested in Capital Assets	Unrestricted
Fund Equity as of December 31, 2018 (per audit)	\$1,919,868	\$1,083,086
Anticipated Operating Surplus (Deficit) for 2019		<u>399,340</u>
Estimated Available Fund Equity as of December 31, 2019	1,919,868	1,482,426
Anticipated Operating Surplus (Deficit) for 2020		<u>(1,021,745)</u>
Estimated Available Fund Equity as of December 31, 2020	<u>\$1,919,868</u>	<u>\$460,681</u>

MOTOR POOL

EXPENDITURE SUMMARY					
<u>Account Classification</u>	<u>2019</u>	<u>Actual</u>	<u>2020 Original</u> <u>Budget</u>	<u>2020</u> <u>Projected</u> <u>Total</u>	<u>2021</u> <u>Budget</u>
Personnel Costs		\$195,673	\$196,310	\$196,625	\$207,665
Operating Costs		331,960	396,450	381,955	396,400
Outside Services		108,831	110,000	100,000	110,000
Depreciation		403,312	0		
Capital Items		5,053	437,500	432,500	1,719,000
TOTAL		<u>\$1,044,828</u>	<u>\$1,140,260</u>	<u>\$1,111,080</u>	<u>\$2,433,065</u>

Personnel Costs: No change in staffing levels in 2021.

Operating Costs: Includes repair parts, tools, gasoline, vehicle insurance, and equipment maintenance.

Outside Services: Includes outside vendors for firetruck and other vehicle repairs, towing, and vehicle alignment services.

Depreciation: Year-end adjustment performed during the audit to record non-cash items. All capital assets are depreciated over their useful lives rather than expensed at time of purchase.

Capital Items: Represents the cash outlay requirements for new capital items. These items are budgeted as expenditures, then capitalized at year-end. Includes the following vehicles: 3 Police Interceptors (\$129,000), Vactor sewer truck (\$450,000), Large with mower (\$70,000), Toolcat (\$60,000), Ladder Fire truck (\$1,000,000).

PERSONNEL SUMMARY			
<u>Position/Title</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Facilities Superintendent	0.25	0.25	0.25
Lead Mechanic	1.0	1.0	1.0
Mechanic	1.0	1.0	1.0
	<u>2.25</u>	<u>2.25</u>	<u>2.25</u>

DOWNTOWN DEVELOPMENT AUTHORITY

Narrative: The Meridian Township Downtown Development Authority (DDA) has a separate legal identity but operates in conformity with many of the Township's policies and procedures. The DDA is reported in the Township's financial statements as a discreetly presented component unit. The DDA was organized pursuant to Township Ordinance No. 2005-12 and Act 197 of the Public Acts of 1975, as amended. This DDA's mission is as follows: to beautify and revitalize downtown Okemos as a very desirable place to shop, live and do business. It is a commitment to promoting an improved quality of life by creating a friendly, walkable community embracing natural aesthetics of the river and parks. A Board of Directors, appointed by the Township Board, governs the DDA.

REVENUE SUMMARY					
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Adopted Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>	
Property Taxes	\$32,334	\$30,200	\$6,500	\$6,500	
Intergovernmental Revenue	\$12,764	\$12,000	\$0	\$0	
Grant Revenue	0	0			
Investment Income	6	0			
DDA Special Event	0	0			
Miscellaneous	0	0			
	<u>\$45,103</u>	<u>\$42,200</u>	<u>\$6,500</u>	<u>\$6,500</u>	

Property Tax: The DDA's tax increment revenue is generated when the current taxable valuation of all real and personal properties within the Development Area exceeds the initial value of the 2005 base year.

Intergovernmental Revenue: Refund from the State of Michigan to offset the loss in tax revenue from the personal property tax exemption.

Grant Revenue: No anticipated request in 2021.

DDA Special Event: None planned for 2021.

STATEMENT OF FUND BALANCE	
Fund Balance Deficit as of December 31, 2019 (per audit)	(\$90,640)
Anticipated Operating Surplus (Deficit) for 2020	<u>(235)</u>
Estimated Available Fund Balance as of December 31, 2020	(90,875)
Anticipated Operating Surplus (Deficit) for 2021	<u>(235)</u>
Estimated Available Fund Balance as of December 31, 2021	<u><u>(\$91,110)</u></u>

EXPENDITURE SUMMARY					
<u>Account Classification</u>	<u>2019 Actual</u>	<u>2020 Adopted Budget</u>	<u>2020 Projected Total</u>	<u>2021 Budget</u>	
Operating Costs	2,905	3,000	3,000	3,000	
Outside Services	740	1,000	0	0	
Special Events	0	0	0	0	
Debt Service	4,298	4,485	3,735	3,735	
	<u>\$7,943</u>	<u>\$8,485</u>	<u>\$6,735</u>	<u>\$6,735</u>	

Operating Costs: Includes expenses such as streetlight electricity and water for flowers.

Outside Services: Includes continued streetscape projects, such as hanging flower baskets, weeding, snow removal, and other related activities.

Special Events: None planned for 2021.

Debt Service: Principal and interest payments on the loan from the General Fund for the LED Streetlight improvement project.

Glossary of Terms

Accrual	The accrual basis of accounting is used for the proprietary fund types and non-expendable trust funds. Under the accrual method, revenues are recognized in the accounting period in which they are earned while expenses are recognized when the related liability is incurred.
Appropriation	A legal authorization granted by the Township Board to make expenditures and to incur obligations for specific purposes. An appropriation is usually limited in dollar amount and as to the time frame in which it may be expended.
Approved Budget	The approved budget represents the original appropriation for the fiscal year plus any supplemental appropriations, inter-unit budget adjustments or reappropriation of prior year encumbrances as authorized by the Township Board.
Budget	A plan for the accomplishment of programs related to objectives and goals within a definite time period. It includes an estimate of resources required, and an estimate of resources available to finance such a plan.
Carry-over Funds	Carry-over funds are the result of the unspent appropriations in the prior year, new growth, the expansion of the tax base beyond what was projected and increased revenues over estimated amounts. They are brought forward from the preceding fiscal year to become part of the "beginning fund balance".
Debt Service Fund	A fund established to account for the accumulation of resources for, and the payment of general long-term debt, principal and interest.
Department	Is a separate functional and accounting entity within a certain fund type.
Encumbrance	Commitments related to unperformed (executory) contracts for goods or services.
Expenditures	Decreases in assets or net financial resources. Expenditures include current operating expenses that require the current or future use of net current assets, debt service or capital outlays.
Fiscal Year	The 12-month period to which the annual operating budget applies (January 1 to December 31).
Fund	A fiscal and accounting entity with a self-balancing set of accounts which is segregated for the purpose of carrying or specific activities or attaining certain objectives in accordance with special regulations, restrictions or limitations.
Mills	Refers to amount per \$1,000 of SEV in real estate taxes. For example 70 mills applied to an SEV of \$100,000 would yield \$7,000.
Revenue	Revenue is an increase in financial resources.
SEV	State Equalized Value equal to 50 percent of the assessed value.
Taxable Value	The SEV reduced to the limitations required by the Headley Amendment to property tax laws and to which millage rate is applied to yield real property tax revenue.
TIRF	Township Improvement Revolving Fund. This is a state authorized fund used to finance public improvements such as utility projects, township construction programs, public safety purchases and other capital outlays. The Township Board may order transfers from this fund to the General Fund or Capital Projects Fund for those purposes.

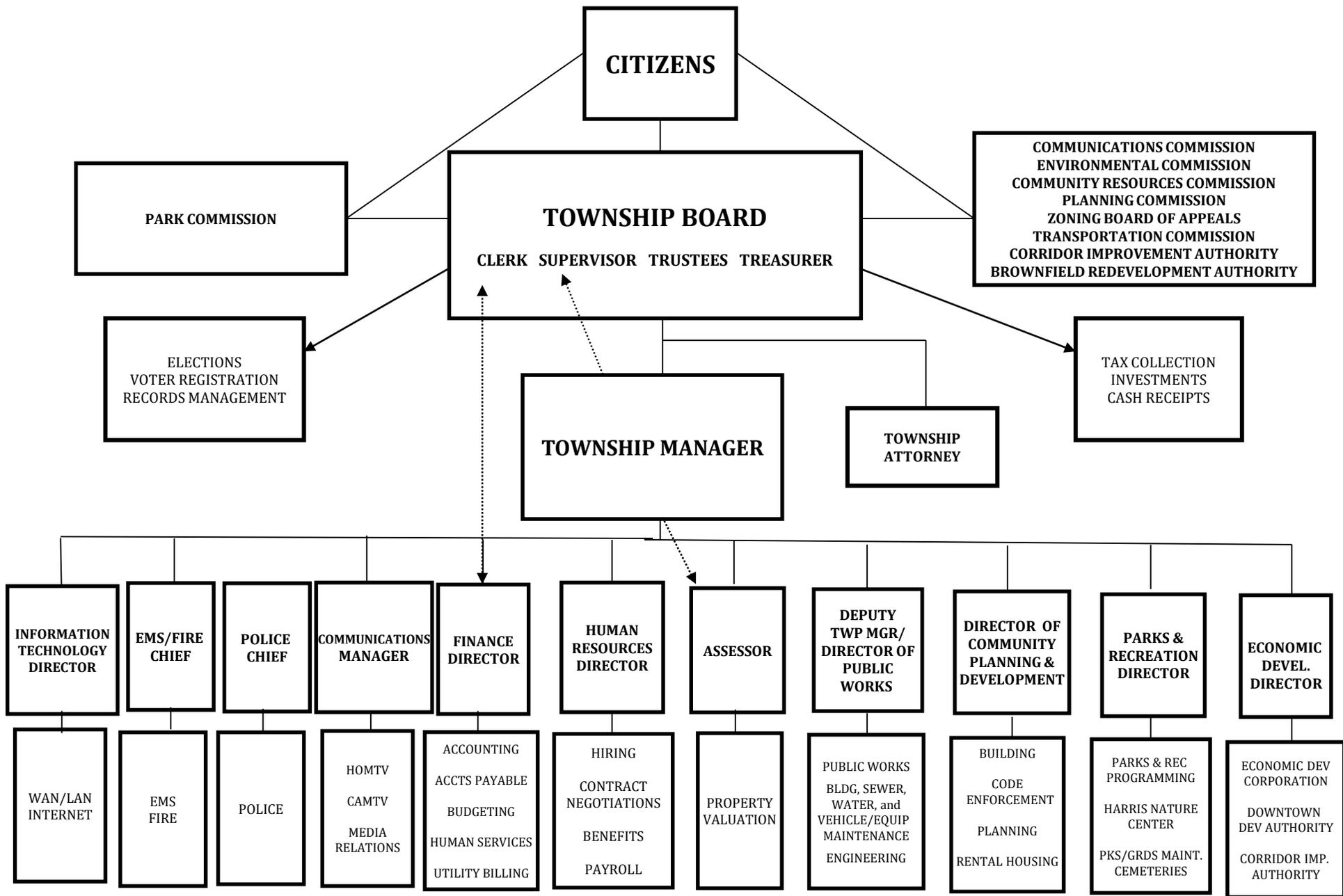
CHARTER TOWNSHIP OF MERIDIAN

AREA and LOCATION

The Charter Township of Meridian encompasses approximately 32 square miles and is located in the south-central area of lower Michigan. Meridian Township is largely residential, part of the Lansing Metropolitan Area, east of the State Capital, and immediately adjacent to East Lansing - home of Michigan State University. The Township was originally organized in 1842 and became a charter township on December 14, 1959.

FORM of GOVERNMENT

The Charter Township of Meridian was established pursuant to Act 359, Public Acts of Michigan, 1947, as amended. The Township is governed by a Township Board that is composed of a part-time Supervisor, full-time Clerk and Treasurer, and four Trustees serving four-year terms. The chief administrative officer is the Township Manager who is appointed by the Township Board and serves at its pleasure. The Board is vested with all legislative powers, except those otherwise provided by law.



Dotted Lines – Denotes Relationship defined by State Statute

INVESTMENT GOALS

Purpose

It is the policy of Meridian Township to invest its funds in a manner which will ensure the preservation of principal and provide the highest investment return with the maximum security while meeting the daily cash flow needs of the township and complying with all state statutes governing the investment of public funds.

Objectives

The primary objectives of the Township's investment activities in priority order shall be:

Safety – Safety of principal is the foremost objective of the investment program. Investments shall be undertaken in a manner that seeks to ensure the preservation of capital in the overall portfolio.

Diversification – The investments will be diversified by security type and institution in order to reduce overall portfolio risk while obtaining market average rates of return.

Liquidity – The investment portfolio shall remain sufficiently liquid to meet all operating requirements that may be reasonably anticipated.

Return of Investment – The investment portfolio shall be designed with the objective of obtaining a reasonable rate of return throughout the budgetary and economic cycles, while taking into account the investment risk constraints and the cash flow characteristics of the portfolio.

STAFFING PLAN

	2020	2021	
	<u>BUDGET</u>	<u>BUDGET</u>	<u>Chg</u>
GENERAL FUND			
<u>TOWNSHIP BOARD</u>			
Supervisor	1	1	
Trustee	4	4	
TOTAL	<u>5</u>	<u>5</u>	
 <u>ACCOUNTING AND BUDGETING</u>			
Director of Finance	1	1	
Accountant	0.375	1	0.625
Bookkeeper	3.25	2.75	(0.50)
Purchasing Coordinator	1	0	(1.00)
TOTAL	<u>5.625</u>	<u>4.75</u>	
 <u>ASSESSING</u>			
Appraiser II	2	2	
Assessing Clerk	1	1	
TOTAL	<u>3</u>	<u>3</u>	
Intern (part time)	*	2	2
 <u>CLERK'S OFFICE</u>			
Clerk	1	1	
Assistant to the Clerk	1	1	
Administrative Assistant II	1	1	
Records Technician II	1	1	
TOTAL	<u>4</u>	<u>4</u>	
Temporary Election Help	*	4	4
 <u>ADMINISTRATION/HUMAN RESOURCES</u>			
Township Manager	1	1	
Executive Assistant	1	0.5	(0.50)
Administrative Assistant	0	0.5	0.50
Human Resources Director	1	1	
Human Resources Administrator	1	1	
Human Resources Assistant	0	0.5	0.50
Accountant	0.125	0	(0.125)
TOTAL	<u>4.125</u>	<u>4.5</u>	
 <u>INFORMATION TECHNOLOGY</u>			
Director of Information Technology	1	1	
Assistant Director of Information Technology	1	1	
GIS Specialist	0.4	0.4	
TOTAL	<u>2.4</u>	<u>2.4</u>	
 <u>TREASURER'S OFFICE</u>			
Treasurer	1	1	
Assistant to the Treasurer	1	1	
Bookkeeper	0.75	0.75	
TOTAL	<u>2.75</u>	<u>2.75</u>	

		2020	2021	
		<u>BUDGET</u>	<u>BUDGET</u>	<u>Chg</u>
<u>BUILDING MAINTENANCE</u>				
DPW Superintendent		0.15	0	(0.15)
Lead Worker		1	1	
	TOTAL	<u>1.15</u>	<u>1.00</u>	
<u>GROUNDS MAINTENANCE</u>				
DPW Superintendent		0.15	0.00	(0.15)
Utility Worker		1.0	1.0	
	TOTAL	<u>1.15</u>	<u>1.00</u>	
Seasonal workers	*	2.0	2.0	
<u>CEMETERY</u>				
DPW Superintendent		0.15	0.25	0.10
Seasonal workers	*	2	2	
<u>RECYCLING CENTER</u>				
Environmental Programs Coordinator		0.8	0.8	
<u>POLICE DEPARTMENT</u>				
Chief of Police		1	1	
Assistant Chief of Police		1	1	
Lieutenant		1	1	
Sergeant		7	7	
Officer		31	31	
Records Supervisor		1	1	
Administrative Assistant II		1	1	
Records Technician II		2.5	2	(0.50)
	TOTAL	<u>45.5</u>	<u>45</u>	
Cadets (part-time)	*	9	9	
Crossing Guards (part time)	*	6	6	
<u>EMS/FIRE DEPARTMENT</u>				
EMS/Fire Chief		1	1	
Inspector - Fire		1	1	
Training/EMS Chief		1	1	
Battalion Chief		2	2	
Captain		3	3	
Lieutenant		7	7	
Paramedic/Firefighter		20	20	
Administrative Assistant II		1	1	
	TOTAL	<u>36</u>	<u>36</u>	
Part-Time Firefighters	*	10	5	(5.00)
<u>COMMUNITY PLANNING & DEVELOPMENT</u>				
Community Planning & Development Director		1	1	
Dir. of Neighborhoods & Economic Development		1	1	
Chief Building Inspector		1	1	
Building Inspector		2	2	
Rental Housing Inspector (2 @ .625)		1.25	1.25	
Sr. Code Enforcement Officer		1	1	

		2020 BUDGET	2021 BUDGET	Chg
Principal Planner		1	1	
Assistant Planner		2	1	(1.00)
Administrative Assistant II		1	1	
Administrative Assistant I		1	1	
	TOTAL	12.25	11.25	
Intern (part time)	*	2	2	
<u>CABLE TV</u>				
Communications Manager		1	1	
Marketing & Public Relations Specialist		1	1	
Multimedia Specialist		1	1	
	TOTAL	3	3	
Freelance Journalists	*	0	0.25	0.25
Unpaid Interns	*	5	5	
<u>HUMAN SERVICES</u>				
Human Services Specialist		0.8	0.8	
<u>PARKS & RECREATION ADMINISTRATION</u>				
Director of Parks & Recreation		0.50	0.50	
Administrative Assistant II		0.50	0.50	
	TOTAL	1	1	
Intern/Seasonal	*	2	2	
<u>RECREATION</u>				
Parks/Recreation Specialist		2	1	(1.00)
Seasonal Workers (part time)	*	2	2	
<u>PARKS MAINTENANCE</u>				
Superintendent - Parks & Land Preservation		0.15	0.20	
Lead Worker		0.00	0.50	
Utility Worker		1.5	2	0.50
	TOTAL	1.65	2.70	
Seasonal Workers (part time)	*	1	1	(1.00)
TOTAL - GENERAL FUND - Regular		133.35	130.20	
TOTAL - GENERAL FUND - Temporary		* 47.0	42.25	

SPECIAL REVENUE FUNDS

PEDESTRIAN/BICYCLE PATHWAY MILLAGE

Parks & Land Superintendent		0.50	0.15	
Lead Worker		0	0.5	(1.00)
	TOTAL	0.50	0.65	

PARK MILLAGE

Director of Parks & Recreation		0.50	0.50	
Administrative Assistant II		0.50	0.50	
Superintendent - Parks & Land Preservation		0.15	0.60	
Park Naturalist		2.2	2.2	
Sr. Park & Land Mgt Coordinator		0.50	0.50	
Utility Worker		3	3	
	TOTAL	6.85	7.30	

		2020	2021	Chg
		BUDGET	BUDGET	
HNC Interns-Part Time	*	6	6	
LAND PRESERVATION MILLAGE FUND				
Parks & Land Superintendent		0.00	0.05	
Sr. Park and Land Mgt Coordinator		0.50	0.50	
Park Naturalist		0.80	0.80	
TOTAL		1.30	1.35	
TOTAL SPECIAL REVENUE FUND - Regular		8.65	9.30	
TOTAL SPECIAL REVENUE FUND - Temporary		* 6.0	6.0	

PUBLIC WORKS - ADMINISTRATION

Deputy Twp. Manager/Director of Public Works		1	1	
Administrative Assistant II		1	1	
TOTAL		2	2	

ENGINEERING

Chief Engineer		1	1	
Sr. Project Engineer		1	1	
DPW Records Manager		1	1	
GIS Specialist		0.6	0.6	
Engineering Technician		2	2	
TOTAL		5.6	5.6	
Interns	*	1	1	

WATER DISTRIBUTION MAINTENANCE

DPW Superintendent		0	0.25	
Lead Worker		1	1	
Utility Worker		7	7	
TOTAL		8	8.25	

SEWER SYSTEM MAINTENANCE

DPW Superintendent		0	0.25	0.25
Lead Worker		1	1	
Utility Worker		4	3	(1.00)
TOTAL		5	4.25	

TOTAL PUBLIC WORKS FUND - Regular		20.60	20.10	
TOTAL PUBLIC WORKS FUND - Temporary	*	1	1	

MOTOR POOL

DPW Superintendent		0.25	0.25	
Lead Mechanic		1	1	
Mechanic		1	1	
		2.25	2.25	

TOTAL INTERNAL SERVICES FUND - Regular		2.25	2.25	
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GRAND TOTAL - ALL FUNDS - Regular		164.85	161.85	
GRAND TOTAL - ALL FUNDS - Temporary		54.00	49.25	

**CAPITAL OUTLAY/IMPROVEMENT SUMMARY
2021
BUDGET**

DEPARTMENT	ACCOUNT NUMBER	ACCOUNT DESCRIPTION	ITEM DESCRIPTION	BUDGET AMOUNT
GENERAL FUND:				
Clerk	980.000	Office Equipment & Furniture	Replacement equipment	500
Treasurer	980.000	Office Equipment & Furniture	Replacement equipment	500
Building Maintenance	979.000	Machinery & Equipment	Replacement equipment	5,000
Grounds Maintenance	979.000	Machinery & Equipment	Replacement equipment and Salt spreader	1,500
Police	979.000	Machinery & Equipment	Replacement police equipment (\$1,000), Taser videos (\$4,000), Traffic Study Equipment 2 (\$12,000).	17,000
Fire	979.000	Machinery & Equipment	Alert siren (\$35,000), Replacement equipment (\$10,000)	45,000
	980.000	Office Equipment & Furniture	Replacement equipment	500
Park Maintenance	979.000	Machinery & Equipment	Replacement equipment and tool cat attachments	2,500
Communications	980.010	Video Production Equipment	P2 Small Camera system (\$6,000), MAC Editing computer replacement (\$5,000), and Wireless Microphone (\$1,600)	12,600
Capital Outlay	974.000	Construction/Improvements	Building LED Lights conversions (\$75,000), Drinking fountain upgrades (\$30,000), Municipal building exterior doors (\$40,000), Nokomis learning center roof (\$30,000), and Solar project (\$100,000).	275,000
	980.040	Network Upgrades	San device replacements (\$70,000), Network switch replacement (\$25,000) and replacement equipment (\$12,000)	107,000
	980.050	Server Upgrades	Upgrade server	35,000
	980.070	Mobile Data Units	Police body cameras and filed based computers	30,000
				447,000
TOTAL-GENERAL FUND				\$532,100
SPECIAL REVENUE FUNDS:				
Local Roads Fund	974.000	Construction/Improvements	Local Street Maintenance	\$3,500,000
Pathway Millage	974.000	Construction/Improvements	Pathway construction	\$3,615,000
Senior Center Millage	980.000	Office Equipment & Furniture	Tables, Chairs, and Lighting Improvements	\$30,000
Park Millage - Park Dev				
Park Maintenance	979.000	Machinery & Equipment	Replacement equipment	2,500
Park Development	974.000	Construction/Improvements	Market Place on the Green artificial ice (\$75,000) and Kiosks (\$60,000)	135,000
				\$137,500
TOTAL-SPECIAL REVENUE FUNDS				\$7,282,500

**CAPITAL OUTLAY/IMPROVEMENT SUMMARY
2021
BUDGET**

DEPARTMENT	ACCOUNT NUMBER	ACCOUNT DESCRIPTION	ITEM DESCRIPTION	BUDGET AMOUNT
CONSTRUCTION FUND:				
TIRF	972.020	Lake Lansing Watershed	Lake Lansing management	15,000
	974.000	Construction/Improvements	Sidewalk maintenance	50,000
				<u>65,000</u>
TOTAL-CONSTRUCTION FUND				\$65,000
PUBLIC WORKS FUNDS:				
System Maintenance	979.000	Machinery & Equipment	Replacement equipment vector equipment and Jack hammer for backh	25,000
Capital Outlay	974.000	Construction-Sewer	Country Park North	500,000
	974.000	Construction-Sewer	Whitehills Lake/BL 69 backup generator	55,000
	974.000	Construction-Water	Replace 16" watermain Valves	280,000
	974.000	Construction-Water	North water Tower improvements	190,000
				1,025,000
TOTAL-PUBLIC WORKS FUNDS				\$1,050,000
Motor Pool				
	981.000	Vehicles	3 Police Interceptors (\$129,000), Vector sewer Truck (\$450,000), Large width mower (\$70,000), Toolcat (\$60,000), and Ladder Fire truck (\$1,000,000).	1,719,000
Total Motor Pool				\$1,719,000
TOTAL - ALL FUNDS				\$10,648,600

2021 Motor Pool

Department	ID	Year	Model	Description	Purchase Cost	
Administration	49	2010	Escape	1st Floor Pool Auto	\$	17,367.00
Administration	677	2020	Escape	Pool Auto	\$	24,040.00
Administration	676	2020	Escape	Pool Auto	\$	24,040.00
Administration	101	2012	Focus	Pool Auto	\$	13,180.00
Administration	658	2019	Escape	Assessing auto	\$	21,899.00
Building Maintenance	71	2013	F250	Pickup Truck	\$	24,661.00
Building Maintenance	612	2017	Transit	Facility maintenance van	\$	25,782.00
Building Maintenance	649	2003	3000	Street Sweeper	\$	19,000.00
Cemetery	96	2012	Lazer	Zero Turn Mower	\$	7,478.00
Cemetery	98	2002	Lazer	Zero Turn Mower	\$	11,255.00
Cemetery	95	2002	Truckster	Utility Vehicle	\$	12,700.00
Cemetery	99	2002	Lazer	Zero Turn Mower	\$	11,255.00
Cemetery	94	1995	210-S	Backhoe	\$	45,000.00
Cemetery	97	2012	Lazer	Zero Turn Mower	\$	7,478.00
Community Planning & Development	118	2014	Utility	Building Inspector	\$	26,935.00
Community Planning & Development	117	2014	Utility	Building Inspector	\$	26,935.00
Community Planning & Development	660	2019	Escape	Building Inspector	\$	21,899.00
Community Planning & Development	611	2013	Interceptor	Rental Inspection-Code Enforcement	\$	24,678.00
Community Planning & Development	102	2012	Focus	2nd Floor Pool Auto	\$	13,180.00
Community Planning & Development	124	2016	Escape	Code Enforcement	\$	26,661.00
Engineering	45	2013	Explorer	Field Inspection	\$	26,893.00
Engineering	48	2008	Canyon	Field Inspection	\$	16,197.00
Engineering	50	2013	Explorer	Field Inspection	\$	26,893.00
Engineering	46	2013	Interceptor	Field Inspection	\$	25,203.00
Engineering	121	2015	Interceptor	Field Inspection (Black)	\$	36,000.00
Fire Department	150	2016	Metro Star	Engine 91	\$	425,000.00
Fire Department	138	1999	Contender	Engine 93	\$	165,000.00
Fire Department	140	2008	Metro Star	Engine 92	\$	373,700.00
Fire Department	149	2003	Fire Safety	Fire Safety Trailer	\$	-
Fire Department	142	2011	King Cobra		\$	2,642.50
Fire Department	145	2003	F250	Squad 91 Truck	\$	23,296.00
Fire Department	139		Single	Rescue Boat Trailer	\$	-
Fire Department	122	2015	Interceptor	Chief Auto	\$	36,000.00
Fire Department	135	2017	G4500	Ambulance Medic 91	\$	177,390.00
Fire Department	137	1999	Dash	Ladder Truck 93	\$	500,000.00
Fire Department	144	2009	C4500, Kodiak	M931/Rescue Vehicle	\$	146,000.00
Fire Department	133	2013	G4500	911 Ambulance was Medic 92	\$	164,155.00
Fire Department	132	2013	Expedition	Command Car	\$	31,750.00
Fire Department	134	2015	G4500	Ambulance Medic 93	\$	179,555.00
Fire Department	141	2010	Escape	Training/EMS Admin Vehicle	\$	17,606.00
Fire Department	663	2018	Brawn	Ambulance Medic 92	\$	179,540.00

2021 Motor Pool

Parks Maintenance	105	2010	Escape	Park/Land Pres Supervisor	\$	17,606.00
Parks Maintenance	65	2000	F350	Flat Bed Truck with Water Tank	\$	32,700.00
Parks Maintenance	87	2007	Ram	1 ton dually pickup truck	\$	30,413.30
Parks Maintenance	88	1992		1070 Tractor	\$	20,000.00
Parks Maintenance	60	2006	Express		\$	10,000.00
Parks Maintenance	82	1993	2 Axle		\$	3,000.00
Parks Maintenance	86	2003	455D	Mower	\$	33,319.00
Parks Maintenance	63	1999	F350	Flat Bed Dump Truck	\$	27,448.00
Parks Maintenance	79	2007	455D	Batwing mower	\$	44,850.00
Parks Maintenance	62	2017		Trailer Prow 7X16 TE2	\$	5,000.00
Parks Maintenance	90	2008		997	\$	14,219.00
Parks Maintenance	84	2002	1 Axle		\$	1,200.00
Parks Maintenance	73	2013	Tornado		\$	6,000.00
Parks Maintenance	664	2019		4100 Batwing Mower	\$	62,000.00
Parks Maintenance	92	2013	XVV 825I	Gator	\$	12,644.68
Parks Maintenance	635	2017	Dump Trailer	Tri-axle dump	\$	9,500.00
Parks Maintenance	91	2013	XVV 825I	Gator	\$	12,644.68
Parks Maintenance	76		F250	Land Preservation Pickup Truck	\$	26,000.00
Parks Maintenance	659	2018		3500 Dump Truck	\$	41,117.00
Parks Maintenance	15	1992	EW	Special Events Trailer	\$	3,000.00
Parks Maintenance	93	1994		970 Tractor	\$	20,000.00
Parks Maintenance	77	2007	2 axle		\$	8,000.00
Parks Maintenance	74	2006	Brushcat	Rotary Brush Cutter	\$	4,823.00
Parks Maintenance	83	2001	455D	Tractor	\$	31,500.00
Parks Maintenance	89	1989	Beaver 4-26165	Chipper	\$	10,000.00
Parks Maintenance	72	2016	1600 Turbo Series 2	Batwing Mower	\$	48,000.00
Parks Maintenance	67	2005	IS5000	Ferris Mower	\$	13,624.00
Parks Maintenance	66	2012	F250	4 Door	\$	25,592.00
Parks Maintenance	78	2007		3280 front mount mower	\$	17,500.00
Parks Maintenance	85	2004	2 axle		\$	8,000.00
Parks Maintenance	70	2013	4100D	Batwing Mower	\$	52,000.00
Parks Maintenance	2	2013	Interceptor	Park Ranger	\$	24,418.00
Parks Maintenance	61	2005	Ram	3500	\$	28,628.78
Parks Maintenance	610	2018	Mean Green	Electric Mower	\$	18,000.00
Parks Maintenance	609	2018	Mean Green	Electric Mower	\$	18,000.00
Parks Maintenance	81		Deck Over	Red Trailer	\$	2,500.00
Parks Maintenance	64	2008	F250	Standard Cab	\$	25,261.00
Parks Maintenance	75	2006	68 Angle Broom	Angel Power Broom	\$	4,597.00
Parks Maintenance	80	2009		997 Zero Turn Mower	\$	16,800.00
Parks Maintenance	68	2008	Tornado		\$	4,275.00

Pathway Maintenance	56	2006		5600 Tool Cat	\$	40,300.00
Pathway Maintenance	59	1991	MT5	Trackless	\$	33,000.00
Pathway Maintenance	52	2008	Canyon	Pickup Truck with plow	\$	19,857.00
Pathway Maintenance	58	1997	MT5	Trackless	\$	36,905.00
Pathway Maintenance	55	2016		5600 Tool Cat	\$	59,139.00
Pathway Maintenance	57	2002		345 Groundsmaster Tractor with Blow	\$	20,000.00
Pathway Maintenance	53	2012	MD Companies M-B	Multi-purpose utility plow	\$	103,600.00
Pathway Maintenance	54	2012	MD Companies MB60	Snow blower for MB Utility #53	\$	9,500.00

2021 Motor Pool

Police Department	106	2009	FLHTPI	Motorcycle Patrol M9	\$	13,300.00
Police Department	107	2009	FLHTPI	Motorcycle Patrol M10	\$	13,300.00
Police Department	108			Enclosed trailer	\$	2,000.00
Police Department	110	2008	Fusion	Investigation auto	\$	15,354.00
Police Department	111	2009	Fusion	Investigation auto	\$	14,311.00
Police Department	116	2012	Explorer	Chief Admin Auto	\$	32,000.00
Police Department	119	2015	Utility	Parking Enforcement	\$	36,000.00
Police Department	120	2015	Utility	Patrol 108 (K9)	\$	36,000.00
Police Department	125	2016	Utility	Patrol 113	\$	26,661.00
Police Department	126	2017	Utility	Patrol 114	\$	36,000.00
Police Department	127	2017	Utility	Patrol 115	\$	36,000.00
Police Department	128	2017	Utility	Patrol 116	\$	36,000.00
Police Department	129	2018	Utility	Patrol 118	\$	27,885.00
Police Department	130	2018	Utility	Patrol 118	\$	27,885.00
Police Department	131	2016	Fast-870 RE9013	Speed Radar Trailer	\$	5,000.00
Police Department	653	2018	Utility	Patrol 119	\$	36,000.00
Police Department	661	2019	Escape	DB Black Escape	\$	21,899.00
Police Department	666	2019	Ranger	DB Gray	\$	28,882.00
Police Department	667	2020	Utility	Patrol 120	\$	33,154.00
Police Department	668	2020	Utility	Patrol 123 (Black)	\$	33,154.00
Police Department	670	2020	Utility	Patrol 121	\$	33,154.00
Police Department	671	2020	Utility	Patrol 122	\$	33,154.00
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Sewer Maintenance	28	2013	F250	Pickup Truck (Extended cab)	\$	23,811.00
Sewer Maintenance	42	2003	1 Axle	Confined Space Trailer	\$	2,729.00
Sewer Maintenance	30	2013	7500 SBA 6X	Vactor Truck (complete unit)	\$	390,000.00
Sewer Maintenance	38	2011	F350	Pickup Truck (Crew cab)	\$	27,085.00
Sewer Maintenance	31	2016	E450	Sewer Camera Truck	\$	202,606.37
Sewer Maintenance	37	1990		Green Portable Generator	\$	10,000.00
Sewer Maintenance	41	1999	Trailer Spectrum	Gray Portable Generator	\$	10,000.00
Sewer Maintenance	674	2020	F250	Pickup Truck (Crew cab)	\$	30,583.00
Sewer Maintenance	39	2011	F450	Service Truck	\$	55,176.00
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Vehicle Maintenance	151	2013	F150		\$	17,509.00
Vehicle Maintenance	152	2008			\$	13,720.00
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Water Maintenance	20	1994	Arrow Board	Arrow M: Traffic Arrow Board	\$	-
Water Maintenance	675	2020	F250	Pickup Truck (Extended Cab)	\$	30,583.00
Water Maintenance	14	2005	Beaver	Tandem Dually Trailer	\$	13,952.00
Water Maintenance	21	2007	FG30N-LP	Fork Lift	\$	24,878.70
Water Maintenance	7	2018	Utility	Stake and Locate Vehicle	\$	28,000.00
Water Maintenance	672	2003	2 Axle	Air Trailer	\$	8,000.00
Water Maintenance	13	2012	F250	Pickup Truck	\$	25,614.00
Water Maintenance	652	2018		185 Portable Air Compressor	\$	19,590.00
Water Maintenance	5	2017	F250	Pickup Truck (Standard cab)	\$	26,000.00
Water Maintenance	8	2012	F350	Service Truck	\$	25,203.00
Water Maintenance	4	2017	Neuson	Light Tower	\$	9,000.00
Water Maintenance	23	2011	F350	Pickup Truck (4 door)	\$	31,218.00
Water Maintenance	9	2008	Acterra	Dump Truck (10 yard)	\$	100,000.00

2021 Motor Pool

Water Maintenance	19	1996	Arrow Board Arrow M: Traffic Arrow Board	\$	5,000.00
Water Maintenance	10	2001	FL80 Vactor Vactor Truck	\$	129,613.00
Water Maintenance	18	2007	580K super M Backhoe (Yard)	\$	65,000.00
Water Maintenance	6	2017	Backhoe Backhoe	\$	96,000.00
Water Maintenance	11	2002	DPU Compactor	\$	7,000.00
Water Maintenance	24	2002	F750 Dump Truck (5 yard)	\$	50,877.00
Water Maintenance	104	2008	F150 CBO Pickup Truck	\$	12,247.00

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 000.000					
101-000.000-402.000	CURRENT PROPERTY TAXES	7,301,301	7,539,000	7,550,000	7,743,000
101-000.000-402.100	Payment in Lieu of Taxes	5,968	5,960	6,900	7,000
101-000.000-404.030	POLICE MILLAGE 98/04	1,056,304	1,090,900	1,092,000	1,120,000
101-000.000-405.050	FIRE MILLAGE - 98/04	1,112,889	1,149,400	1,151,000	1,180,000
101-000.000-405.080	POLICE/FIRE MILLAGE - 18	2,587,090	2,678,400	2,677,500	2,750,000
101-000.000-406.000	TRAILER PARK COLLECTIONS	257	200	200	200
101-000.000-409.000	Community Services Millage	114,512	118,300	118,500	121,500
101-000.000-412.000	DELINQUENT PROPERTY TAXES	(2,765)	5,000	5,000	5,000
101-000.000-428.000	STREET LIGHTS	351,412	360,000	373,700	373,500
101-000.000-445.000	TAX PENALTIES	15,274	12,000	8,900	8,000
101-000.000-447.000	TAX ADMINISTRATION FEE	981,274	900,000	980,000	990,000
101-000.000-451.000	BUILDING PERMITS	589,606	500,000	500,000	500,000
101-000.000-451.100	MECHANICAL PERMITS	82,408	95,000	80,000	80,000
101-000.000-451.200	ELECTRICAL PERMITS	86,174	75,000	75,000	75,000
101-000.000-451.300	PLUMBING PERMITS	49,833	60,000	50,000	60,000
101-000.000-451.400	MEP REGISTRATION FEES	1,395	2,500	100	1,000
101-000.000-452.000	WETLAND PERMITS			500	
101-000.000-453.000	Other Permits	35,799	35,000	25,000	25,000
101-000.000-453.500	MOBILE FOOD VENDOR PERMITS	600	750	240	250
101-000.000-455.000	MEDICAL MARIHUANA FEES	105,000	30,000	30,000	20,000
101-000.000-506.100	GRANT REVENUE - FEDERAL	1,246			
101-000.000-574.000	STATE REVENUE SHARING	3,599,341	3,480,000	3,300,000	3,000,000
101-000.000-574.100	CVT SUPPLEMENTAL - UNFUNDED LIAB	21,377			
101-000.000-575.000	LIQUOR TAX REFUND	30,612	30,000	30,000	25,000
101-000.000-576.000	OTHER INTRGOVTL REVENUE	63,894	80,000	110,000	65,000
101-000.000-576.200	METRO Act Fees	24,489	20,000	23,650	20,000
101-000.000-576.500	Local Revenue Sharing Agreements	315,338	315,000	410,400	415,000
101-000.000-604.000	FRANCHISE FEES - CABLE TV	120,000	600,000	600,000	500,000
101-000.000-604.500	CABLE PEG FEES		140,000	132,000	125,000
101-000.000-605.000	FIRE INSPECTION CHARGES	11,100	5,000	10,000	10,000
101-000.000-607.000	SOR FEES	560	500	500	500
101-000.000-609.000	ANNUAL RENTAL INSPECTION FEES	95,745	75,000	50,000	75,000
101-000.000-609.010	RENTAL HOUSG REINSPECTION FEES	10,611	7,000	5,000	5,000
101-000.000-609.015	RENTAL REGISTRATION	20,800	20,000	20,000	20,000
101-000.000-609.016	Rental Registration Renewal	76,900	60,000	60,000	60,000
101-000.000-609.017	VACANT/ABANDONED REGISTRATION	2,400	2,000	2,000	2,000
101-000.000-610.000	VENDOR FEES	1,525	500	500	500
101-000.000-612.000	BROWNFIELD APPLICATION FEE	3,370	5,000	3,000	3,000
101-000.000-624.000	PLANNING DEPARTMENT	53,812	30,000	30,000	30,000
101-000.000-625.000	PUBLIC WORKS SERVICES	1,050,000	1,050,000	1,050,000	1,050,000
101-000.000-625.500	PEDESTRIAN BIKEPATH ADMINITRATIVE		40,000	40,000	40,000
101-000.000-627.000	CEMETERY REVENUE	21,400	20,000	25,000	20,000
101-000.000-628.000	COPIES	994	400	600	500
101-000.000-628.010	POLICE DESK REVENUE	2,996	3,000	400	100
101-000.000-628.020	FOIA REQUESTS - COPIES	4,128	2,000	3,100	2,000
101-000.000-628.500	ELECTRONIC COPIES	2,100	1,500	1,500	1,000
101-000.000-629.000	FRANCHISE FEES - BWL	174,079	160,000	170,000	172,000
101-000.000-638.500	RECREATION PROGRAM REV	10,885	15,000	2,000	10,000
101-000.000-638.501	Sporties for Shorties	16,437	13,000	2,000	10,000
101-000.000-638.502	Sand Volleyball	3,125	4,000		3,500
101-000.000-638.503	Adult Softball	11,699	12,000		10,000
101-000.000-638.505	Special Events				3,000
101-000.000-638.506	ADULT SPORTS	2,640	4,000		2,000
101-000.000-638.510	RECREATION - BASEBALL	29,481	31,500	4,500	4,500
101-000.000-638.601	Oaks Soccer	46,540	45,000	2,750	40,000
101-000.000-638.602	Oaks Football	8,097	8,000	2,850	8,000
101-000.000-638.603	Oaks Misc	460		400	
101-000.000-638.700	Contract Programs	8,860	8,000	2,000	8,000

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
101-000.000-638.801	HYRA Basketball	16,988	15,000	3,110	10,000
101-000.000-638.802	HYRA T-BALL	2,388	2,500	1,395	2,000
101-000.000-638.803	HYRA Flag Football	7,358	4,500		4,500
101-000.000-638.804	HYRA Soccer	17,440	10,000	1,200	10,000
101-000.000-638.805	HYRA Misc	680			
101-000.000-638.900	OBSC Revenue	120		600	
101-000.000-638.950	WILLIAMSTON REC REVENUE	13,682	18,900	1,500	13,500
101-000.000-643.000	CEMETERY LOT SALES	12,450	16,000	16,000	15,000
101-000.000-647.010	SURPLUS PROPERTY	3,168		950	
101-000.000-650.000	RECYCLING REVENUE	10,963	10,000	800	
101-000.000-650.500	SPONSOR REVENUE	1,750	1,500	500	1,500
101-000.000-656.000	PARKING TICKETS	5,533	7,500	2,200	5,000
101-000.000-657.000	ORDINANCE FINES	5,880	3,000	3,000	3,000
101-000.000-657.010	FINES-UTC ENFORCEMENT	69,536	65,000	45,000	50,000
101-000.000-657.020	FINES-RETAIL FRAUD ORDINANCE	14,100	20,000	8,000	10,000
101-000.000-657.030	POLICE SERVICES-WILLIAMSTOWN TWP	243,835	235,000	245,500	240,000
101-000.000-658.000	FALSE ALARM FEES	7,727	8,000	3,000	4,000
101-000.000-660.000	COURT RESTITUTION	14,682	15,000	12,000	15,000
101-000.000-660.500	TCPS REVENUE SHARING	804	700	1,175	800
101-000.000-665.000	INTEREST	358,287	100,000	150,000	100,000
101-000.000-665.060	INTEREST - LOAN REPAYMENTS	4,485	4,485	3,735	3,735
101-000.000-665.100	Gain/Loss on Investment	9,369			
101-000.000-665.200	Unrealized invest gain/loss	17,285			
101-000.000-666.020	DIVIDEND - PROPERTY AND LIABILITY INS.	1,651	1,500	14,395	1,500
101-000.000-667.200	Rent-School Street	6,922	6,960	6,960	6,960
101-000.000-671.000	MISCELLANEOUS	3,220	2,000	2,725	2,000
101-000.000-675.150	DONATIONS	11,876			
101-000.000-675.180	DONATIONS - PARK LAKE ROUNDABOUT	141			
101-000.000-676.000	REIMBURSEMENTS	31,255	40,000	40,000	30,000
101-000.000-676.020	REIMBURSEMENTS-POLICE	11,110	5,000	3,000	3,000
101-000.000-676.030	REIMBURSEMENTS-FIRE	15,831	1,000	31,700	1,000
101-000.000-676.040	REIMBURSEMENTS-INSURANCE			6,000	
101-000.000-677.000	AMBULANCE FEE COLLECTIONS	1,544,487	1,350,000	1,350,000	1,350,000
101-000.000-678.000	REIMBURSEMENTS-CROSSING GUARDS	11,304	11,000	9,950	5,000
101-000.000-680.000	REIMBURSEMENTS-SCHOOL SECURITY	9,517	5,000	2,000	2,000
NET OF REVENUES/APPROPRIATIONS - 000.000 -		22,807,196	22,904,355	22,785,085	22,689,545

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 100.101 - TOWNSHIP BOARD					
101-100.101-701.000	SALARIES	62,533	64,600	64,555	65,850
101-100.101-714.000	FICA	4,548	4,950	4,950	5,050
101-100.101-718.000	WORKERS COMPENSATION	101	150	100	150
101-100.101-728.000	OPERATING SUPPLIES	2,214	1,000	1,000	1,000
101-100.101-821.000	PROFESSIONAL SERVICES	375	2,000	500	2,000
101-100.101-822.010	EMPLOYEE RECOGNITION		2,000	1,000	2,000
101-100.101-825.000	PROFESSIONAL CONFERENCES/DUES	4,682	7,000	3,500	7,000
101-100.101-851.000	COMMUNICATIONS	404	2,000	2,000	2,000
101-100.101-870.000	MILEAGE	126	500		500
NET OF REVENUES/APPROPRIATIONS - 100.101 - TOWNSHIP BOARD		(74,983)	(84,200)	(77,605)	(85,550)
Dept 170.173 - ADMINISTRATIVE SERVICES					
101-170.173-708.000	PCOR FEDERAL FEE			815	850
101-170.173-714.000	FICA	1,675	1,500	1,650	1,750
101-170.173-715.000	HEALTH INSURANCE	12,762	10,000	13,750	15,000
101-170.173-715.100	RETIREE HEALTH INS - OPEB	447,774	450,000	450,000	207,000
101-170.173-717.000	PENSION	202,162	200,000	212,350	146,000
101-170.173-724.000	UNEMPLOYMENT COMPENSATION	10,065		1,000	1,000
101-170.173-728.000	OPERATING SUPPLIES	16,687	20,000	20,000	20,000
101-170.173-728.400	OPERATING SUPPLIES-COVID-19			75,000	
101-170.173-730.000	POSTAGE	41,838	38,000	38,000	35,000
101-170.173-806.000	CLAIM REIMBURSEMENT			7,900	
101-170.173-808.000	LEGAL FEES	207,708	150,000	165,000	175,000
101-170.173-808.100	LEGAL FEES - UTC	78,063	85,000	85,000	85,000
101-170.173-808.200	LEGAL FEES - LABOR RELATIONS	96,520	50,000	50,000	50,000
101-170.173-810.000	ADVERTISING	14,462	10,000	5,000	10,000
101-170.173-812.000	INSURANCE	108,714	115,000	115,000	120,000
101-170.173-820.000	CONTRACTUAL SERVICES	15,505	20,000	5,000	8,000
101-170.173-821.000	PROFESSIONAL SERVICES			1,000	
101-170.173-826.000	COMPUTER SERVICES/SUPPLIES			300	
101-170.173-826.010	COMPUTER NETWORK LEASE	10		20	
101-170.173-836.000	AMBULANCE BILLING	81,393	85,000	82,000	85,000
101-170.173-920.000	UTILITIES-ELECTRIC/GAS/WATER	248,924	225,000	225,000	230,000
101-170.173-921.000	UTILITIES-TELEPHONE & DATA SERVICES	152,987	160,000	160,000	160,000
101-170.173-921.500	UTILITIES-CELL PHONE REIMB	22,393	22,000	23,400	24,000
101-170.173-922.000	UTILITIES-STREET LIGHTS	383,378	375,000	380,000	385,000
101-170.173-936.000	EQUIPMENT MAINTENANCE	30,676	40,000	32,000	35,000
101-170.173-955.000	MISCELLANEOUS	904			
101-170.173-965.000	Property Taxes	50	100	100	100
NET OF REVENUES/APPROPRIATIONS - 170.173 - ADMINISTRATIVE SERVIC		(2,174,650)	(2,056,600)	(2,149,285)	(1,793,700)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 170.191 - ELECTIONS					
101-170.191-701.080	SALARIES - TEMPORARY	15,565	36,000	36,000	20,000
101-170.191-701.120	SALARIES-MAY ELECTION	12,690			
101-170.191-701.130	SALARIES-AUGUST PRIMARY	21,053	28,500	28,500	
101-170.191-701.140	SALARIES-NOVEMBER ELECTION		28,500	50,000	25,000
101-170.191-701.150	SALARIES-PRESIDENTIAL PRIMARY		28,500	50,000	
101-170.191-706.000	OVERTIME	4,092	5,000	25,000	5,000
101-170.191-714.000	FICA	1,560	10,250	10,250	3,825
101-170.191-717.000	PENSION	224	1,000	1,000	600
101-170.191-717.500	VantageCare	7		100	100
101-170.191-728.000	OPERATING SUPPLIES	1,745	4,000	4,000	4,000
101-170.191-728.001	SUPPLIES - MAY ELECTION	211			
101-170.191-728.002	Supplies-Aug Election	4,811	5,000	5,000	
101-170.191-728.003	Supplies-Nov Election	355	5,000	5,000	5,000
101-170.191-728.004	Supplies-Pres Elec		5,000	5,000	
101-170.191-730.001	Postage- May Election	1,460			
101-170.191-730.002	Postage-Aug Election	801	9,700	3,900	
101-170.191-730.003	Postage-Nov Elec	805	9,700		10,000
101-170.191-730.004	Postage Pres Elec		9,700	9,700	
101-170.191-733.000	ELEC COSTS-COUNTY	8,206	15,000		
101-170.191-820.000	CONTRACTUAL SERVICES	2,418	4,600	2,000	2,000
101-170.191-825.000	PROFESSIONAL CONFERENCES/DUES	25	1,000	1,075	1,000
101-170.191-826.000	COMPUTER SERVICES/SUPPLIES	907	5,000		5,000
101-170.191-870.000	MILEAGE	126	600		
101-170.191-936.000	EQUIPMENT MAINTENANCE	580	750	500	500
101-170.191-980.000	OFFICE EQUIPMENT & FURNITURE	2,390	500		
NET OF REVENUES/APPROPRIATIONS - 170.191 - ELECTIONS		(80,031)	(213,300)	(237,025)	(82,025)
Dept 170.201 - ACCOUNTING					
101-170.201-701.000	SALARIES	262,924	336,400	335,000	305,000
101-170.201-702.000	SICK LEAVE INCENTIVE PAY	237	850		
101-170.201-706.000	OVERTIME	1			
101-170.201-709.000	ICMA CONTRIBUTION	250	500	500	500
101-170.201-710.000	LONGEVITY	1,280	1,280	1,280	1,360
101-170.201-714.000	FICA	19,834	25,950	25,950	23,500
101-170.201-715.000	HEALTH INSURANCE	47,034	84,450	50,100	61,100
101-170.201-716.000	LIFE/DISABILITY INSURANCE	1,080	1,865	1,300	1,550
101-170.201-717.000	PENSION	29,980	37,200	37,200	46,500
101-170.201-717.500	VantageCare	4,167	6,250	6,250	5,150
101-170.201-718.000	WORKERS COMPENSATION	667	1,500	650	1,310
101-170.201-728.000	OPERATING SUPPLIES	14,001	12,000	12,000	12,000
101-170.201-730.000	POSTAGE	23,252	21,000	21,000	21,000
101-170.201-807.000	AUDIT	30,630	32,000	28,000	30,000
101-170.201-821.000	PROFESSIONAL SERVICES	13,951	5,000	5,000	5,500
101-170.201-825.000	PROFESSIONAL CONFERENCES/DUES	2,870	3,500	1,000	5,000
101-170.201-870.000	MILEAGE	60	100		100
101-170.201-936.000	EQUIPMENT MAINTENANCE	179		120	200
101-170.201-980.000	OFFICE EQUIPMENT & FURNITURE		750		
NET OF REVENUES/APPROPRIATIONS - 170.201 - ACCOUNTING		(452,397)	(570,595)	(525,350)	(519,770)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 170.209 - ASSESSING					
101-170.209-701.000	SALARIES	158,015	162,700	162,700	167,750
101-170.209-701.080	SALARIES - TEMPORARY	5,445	6,600		6,600
101-170.209-704.000	BOARD OF REVIEW	2,428	3,245	3,245	3,245
101-170.209-706.000	OVERTIME	52			
101-170.209-709.000	ICMA CONTRIBUTION	500	500	500	500
101-170.209-710.000	LONGEVITY	640	640	640	640
101-170.209-714.000	FICA	11,977	13,290	13,290	13,700
101-170.209-715.000	HEALTH INSURANCE	43,315	49,450	45,000	51,000
101-170.209-716.000	LIFE/DISABILITY INSURANCE	722	960	960	985
101-170.209-717.000	PENSION	18,216	16,500	18,500	21,800
101-170.209-717.500	VantageCare	2,985	3,190	3,190	3,300
101-170.209-718.000	WORKERS COMPENSATION	741	1,220	700	1,150
101-170.209-728.000	OPERATING SUPPLIES	2,915	5,000	4,000	4,000
101-170.209-808.000	LEGAL FEES	25			
101-170.209-819.000	TRAINING	659	1,850	1,050	1,850
101-170.209-820.000	CONTRACTUAL SERVICES	74,813	75,200	75,200	77,500
101-170.209-821.000	PROFESSIONAL SERVICES	17,850	22,500	20,000	28,500
101-170.209-825.000	PROFESSIONAL CONFERENCES/DUES	530	600	580	600
101-170.209-870.000	MILEAGE	87	300		200
101-170.209-980.000	OFFICE EQUIPMENT & FURNITURE	360			
NET OF REVENUES/APPROPRIATIONS - 170.209 - ASSESSING		(342,275)	(363,745)	(349,555)	(383,320)
Dept 170.215 - CLERK					
101-170.215-701.000	SALARIES	201,920	211,700	190,000	211,300
101-170.215-706.000	OVERTIME	167	1,000	1,000	1,000
101-170.215-709.000	ICMA CONTRIBUTION	500	500	500	500
101-170.215-714.000	FICA	15,279	16,350	16,000	16,240
101-170.215-715.000	HEALTH INSURANCE	28,849	37,650	22,000	21,200
101-170.215-715.010	FLEXIBLE BENEFIT			4,125	4,500
101-170.215-716.000	LIFE/DISABILITY INSURANCE	926	1,210	1,210	1,250
101-170.215-717.000	PENSION	19,445	19,500	19,500	20,000
101-170.215-717.500	VantageCare	3,634	4,100	4,100	4,120
101-170.215-718.000	WORKERS COMPENSATION	533	900	550	920
101-170.215-725.000	TEMPORARY HELP	204			
101-170.215-728.000	OPERATING SUPPLIES	489	1,000	1,000	1,000
101-170.215-750.000	PUBLICATIONS	445	500	500	500
101-170.215-820.000	CONTRACTUAL SERVICES	1,428	3,000	12,000	12,000
101-170.215-825.000	PROFESSIONAL CONFERENCES/DUES	1,945	3,000	425	3,000
101-170.215-826.000	COMPUTER SERVICES/SUPPLIES	570	1,000	1,000	1,000
101-170.215-870.000	MILEAGE	208	500	100	300
101-170.215-980.000	OFFICE EQUIPMENT & FURNITURE		500	500	500
NET OF REVENUES/APPROPRIATIONS - 170.215 - CLERK		(276,542)	(302,410)	(274,510)	(299,330)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 170.226 - ADMIN & HUMAN RESOURCES					
101-170.226-701.000	SALARIES	365,694	382,000	411,000	409,000
101-170.226-701.080	SALARIES - TEMPORARY			3,000	
101-170.226-702.000	SICK LEAVE INCENTIVE PAY	1,218	8,665		
101-170.226-706.000	OVERTIME	842	500	740	
101-170.226-709.000	ICMA CONTRIBUTION	2,700	2,700	2,700	2,800
101-170.226-710.000	LONGEVITY	1,280	1,280	1,280	1,280
101-170.226-714.000	FICA	28,920	28,400	34,000	31,300
101-170.226-715.000	HEALTH INSURANCE	36,019	44,600	40,000	60,000
101-170.226-715.010	FLEXIBLE BENEFIT	9,000	9,000	9,000	4,500
101-170.226-716.000	LIFE/DISABILITY INSURANCE	3,280	3,110	2,700	3,100
101-170.226-717.000	PENSION	41,364	41,700	45,000	40,400
101-170.226-717.500	VantageCare	6,351	7,000	7,500	6,750
101-170.226-718.000	WORKERS COMPENSATION	894	1,650	900	1,600
101-170.226-723.000	AUTO ALLOWANCE	9,657	9,700	9,700	9,700
101-170.226-728.000	OPERATING SUPPLIES	650	1,000	1,000	1,000
101-170.226-809.000	ACTUARIAL SERVICES	24,978	25,000	15,000	25,000
101-170.226-814.000	MEETING EXPENSE	1,924	2,000	500	2,000
101-170.226-819.000	TRAINING				30,000
101-170.226-820.000	CONTRACTUAL SERVICES	3,800	5,000	5,000	5,000
101-170.226-822.010	EMPLOYEE RECOGNITION	(117)	2,500	2,500	5,000
101-170.226-822.020	INTERVIEW/HIRING EXPENSES	2,379	4,000	4,000	4,000
101-170.226-825.000	PROFESSIONAL CONFERENCES/DUES	7,768	12,000	4,000	7,000
101-170.226-835.000	PHYSICALS	23,948	26,000	26,000	26,000
101-170.226-835.010	EMPLOYEE WELLNESS PROGRAM	1,723	22,500	22,500	15,000
101-170.226-870.000	MILEAGE	222	150		
101-170.226-942.000	EQUIPMENT RENTAL	4,255	4,500	4,500	21,750
101-170.226-980.000	OFFICE EQUIPMENT & FURNITURE	699			
NET OF REVENUES/APPROPRIATIONS - 170.226 - ADMIN & HUMAN RESO		(579,448)	(644,955)	(652,520)	(712,180)
Dept 170.230 - INFORMATION TECHNOLOGY					
101-170.230-701.000	SALARIES	204,559	209,200	200,000	229,000
101-170.230-702.000	SICK LEAVE INCENTIVE PAY	1,940	1,950		
101-170.230-706.000	OVERTIME	643			
101-170.230-709.000	ICMA CONTRIBUTION	850	600	600	600
101-170.230-710.000	LONGEVITY	1,280	1,280	1,280	1,280
101-170.230-714.000	FICA	15,903	16,300	16,300	17,650
101-170.230-715.000	HEALTH INSURANCE	41,898	36,000	30,000	37,000
101-170.230-715.010	FLEXIBLE BENEFIT	1,800	1,800	1,800	1,800
101-170.230-716.000	LIFE/DISABILITY INSURANCE	996	1,230	1,200	1,350
101-170.230-717.000	PENSION	19,807	20,550	22,000	22,450
101-170.230-717.500	VantageCare	3,556	4,100	4,100	4,500
101-170.230-718.000	WORKERS COMPENSATION	600	940	550	1,000
101-170.230-728.000	OPERATING SUPPLIES	1,543	100	597	800
101-170.230-819.000	TRAINING	4,847	7,500	5,000	7,500
101-170.230-820.000	CONTRACTUAL SERVICES	892	70,000	138,000	47,000
101-170.230-821.000	PROFESSIONAL SERVICES	52,657	22,000	22,000	
101-170.230-825.000	PROFESSIONAL CONFERENCES/DUES		1,000		2,500
101-170.230-826.000	COMPUTER SERVICES/SUPPLIES	10,238	13,000	15,000	15,500
101-170.230-826.010	Existing Software License Agreements	177,793	192,000	210,000	215,000
101-170.230-826.020	Existing Hardware Licenses	8,397	8,000	11,650	16,250
101-170.230-826.030	DATA SERVICES	37,041		7,500	7,500
101-170.230-978.000	SOFTWARE	78			
101-170.230-980.000	OFFICE EQUIPMENT & FURNITURE	224			
NET OF REVENUES/APPROPRIATIONS - 170.230 - INFORMATION TECHNOI		(587,542)	(607,550)	(687,577)	(628,680)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 170.253 - TREASURER					
101-170.253-701.000	SALARIES	156,837	159,900	159,900	164,500
101-170.253-701.080	SALARIES - TEMPORARY			3,275	
101-170.253-702.000	SICK LEAVE INCENTIVE PAY	1,063	1,000	215	
101-170.253-706.000	OVERTIME	2,070	1,500	1,500	1,500
101-170.253-709.000	ICMA CONTRIBUTION	500	500	500	500
101-170.253-710.000	LONGEVITY	1,280	1,280	1,280	1,520
101-170.253-714.000	FICA	12,169	12,600	12,600	12,750
101-170.253-715.000	HEALTH INSURANCE	32,745	39,000	39,000	43,750
101-170.253-716.000	LIFE/DISABILITY INSURANCE	772	950	900	1,000
101-170.253-717.000	PENSION	19,885	16,300	23,000	25,500
101-170.253-717.500	VantageCare	2,845	3,175	3,175	3,250
101-170.253-718.000	WORKERS COMPENSATION	351	575	320	550
101-170.253-728.000	OPERATING SUPPLIES	210	100	200	200
101-170.253-730.000	POSTAGE	10,562	11,000	11,000	11,000
101-170.253-808.000	LEGAL FEES		275		
101-170.253-825.000	PROFESSIONAL CONFERENCES/DUES	4,716	3,500		3,500
101-170.253-870.000	MILEAGE	42	500	100	500
101-170.253-900.000	PRINTING/PUBLISHING	5,583	6,200	6,400	6,500
101-170.253-955.000	MISCELLANEOUS	772	400	300	400
101-170.253-980.000	OFFICE EQUIPMENT & FURNITURE	634	500		500
NET OF REVENUES/APPROPRIATIONS - 170.253 - TREASURER		(253,036)	(259,255)	(263,665)	(277,420)
Dept 170.260 - WATERSHED MANAGEMENT					
101-170.260-820.000	CONTRACTUAL SERVICES	19,301	40,000	40,000	40,000
101-170.260-842.000	DRAINS AT LARGE	29,777	80,000	103,000	103,000
101-170.260-842.500	CHAPTER 20 DRAINS	23,222	70,000		50,000
101-170.260-843.500	SPECIAL PROJECT DRAINS - PRINCIPAL	271,034	240,410	240,410	380,500
101-170.260-843.501	SPECIAL PROJECT DRAINS - INTEREST	72,861	63,860	64,000	121,000
NET OF REVENUES/APPROPRIATIONS - 170.260 - WATERSHED MANAGEM		(416,195)	(494,270)	(447,410)	(694,500)
Dept 170.268 - BUILDING MAINTENANCE					
101-170.268-701.000	SALARIES	62,480	65,200	55,000	56,000
101-170.268-702.000	SICK LEAVE INCENTIVE PAY		220		
101-170.268-706.000	OVERTIME	1,328	1,500	5,000	5,000
101-170.268-709.000	ICMA CONTRIBUTION	288	290	250	250
101-170.268-710.000	LONGEVITY	913		320	320
101-170.268-714.000	FICA	5,285	5,300	4,710	4,750
101-170.268-715.000	HEALTH INSURANCE	10,266	21,400	16,500	17,000
101-170.268-715.010	FLEXIBLE BENEFIT	1,875		4,500	4,500
101-170.268-716.000	LIFE/DISABILITY INSURANCE	293	385	350	325
101-170.268-717.000	PENSION	8,214	8,500	8,500	10,600
101-170.268-717.500	VantageCare	658	220	1,200	1,100
101-170.268-718.000	WORKERS COMPENSATION	1,445	2,600	1,400	2,675
101-170.268-727.000	LICENSES	1,936	6,200	1,200	1,200
101-170.268-728.000	OPERATING SUPPLIES	8,081	12,000	12,000	21,000
101-170.268-760.000	UNIFORMS		275		
101-170.268-761.000	CLOTHING ALLOWANCE	804	750	750	750
101-170.268-819.000	TRAINING	750	1,500	200	1,500
101-170.268-820.000	CONTRACTUAL SERVICES	167,718	304,000	160,000	243,000
101-170.268-825.000	PROFESSIONAL CONFERENCES/DUES		1,000		
101-170.268-827.000	RADIO MAINTENANCE	87		100	100
101-170.268-828.000	SOLID WASTE CONTAINER SERVICES	10,402	12,000	12,000	12,000
101-170.268-930.000	BUILDING REPAIRS	36,483	75,000	75,000	45,000
101-170.268-937.000	BUILDING MAINTENANCE	36,089	45,000	45,000	45,000
101-170.268-942.000	EQUIPMENT RENTAL	13,270	14,250	14,250	14,960
101-170.268-979.000	MACHINERY AND EQUIPMENT		450	450	5,000
NET OF REVENUES/APPROPRIATIONS - 170.268 - BUILDING MAINTENANC		(368,665)	(578,040)	(418,680)	(492,030)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 170.269 - Grounds Maintenance					
101-170.269-701.000	SALARIES	64,954	65,150	47,500	48,500
101-170.269-701.080	SALARIES - TEMPORARY	3,063	12,000	12,000	12,000
101-170.269-702.000	SICK LEAVE INCENTIVE PAY		215		
101-170.269-706.000	OVERTIME	3,687	7,000	7,000	7,000
101-170.269-709.000	ICMA CONTRIBUTION	288	620	250	250
101-170.269-710.000	LONGEVITY	521	1,475	1,280	1,280
101-170.269-714.000	FICA	5,779	6,710	5,000	5,350
101-170.269-715.000	HEALTH INSURANCE	17,445	22,700	20,000	16,000
101-170.269-716.000	LIFE/DISABILITY INSURANCE	293	385	340	300
101-170.269-717.000	PENSION	8,329	8,625	8,000	10,700
101-170.269-717.500	VantageCare	1,177	1,300	925	950
101-170.269-718.000	WORKERS COMPENSATION	1,338	2,340	1,300	2,050
101-170.269-727.000	LICENSES	2,674	6,700	1,200	1,200
101-170.269-728.000	OPERATING SUPPLIES	9,192	11,000	11,000	11,000
101-170.269-760.000	UNIFORMS		400		
101-170.269-761.000	CLOTHING ALLOWANCE	1,393	750	750	750
101-170.269-819.000	TRAINING	500	1,500	1,500	1,500
101-170.269-820.000	CONTRACTUAL SERVICES	9,841	25,000	25,000	25,000
101-170.269-825.000	PROFESSIONAL CONFERENCES/DUES		1,000		
101-170.269-827.000	RADIO MAINTENANCE	5	100	100	100
101-170.269-934.000	GROUNDS MAINTENANCE	480	18,000	18,000	18,000
101-170.269-936.000	EQUIPMENT MAINTENANCE		650	650	650
101-170.269-942.000	EQUIPMENT RENTAL	52,795	68,500	68,500	60,140
101-170.269-979.000	MACHINERY AND EQUIPMENT	1,296	7,500	7,500	1,500
NET OF REVENUES/APPROPRIATIONS - 170.269 - Grounds Maintenance		(185,050)	(269,620)	(237,795)	(224,220)
Dept 170.276 - CEMETERY					
101-170.276-701.000	SALARIES	14,739	11,250	18,700	19,200
101-170.276-701.080	SALARIES - TEMPORARY	10,321	13,200	8,000	12,000
101-170.276-706.000	OVERTIME	368	800	2,000	2,000
101-170.276-709.000	ICMA CONTRIBUTION	38	40	65	65
101-170.276-710.000	LONGEVITY	361	200	240	240
101-170.276-714.000	FICA	1,953	2,000	2,000	2,600
101-170.276-715.000	HEALTH INSURANCE	1,746	2,300	2,300	4,000
101-170.276-716.000	LIFE/DISABILITY INSURANCE	50	70	60	115
101-170.276-717.000	PENSION	1,627	1,700	2,500	2,600
101-170.276-717.500	VantageCare	217	240	375	415
101-170.276-718.000	WORKERS COMPENSATION	278	500	300	550
101-170.276-728.000	OPERATING SUPPLIES	1,659	3,000	3,000	3,000
101-170.276-760.000	UNIFORMS		100	100	100
101-170.276-820.000	CONTRACTUAL SERVICES	605	1,200		
101-170.276-880.000	COMMUNITY PROMOTION		1,000	1,000	1,000
101-170.276-920.000	UTILITIES-ELECTRIC/GAS/WATER	552	300	400	400
101-170.276-930.000	BUILDING REPAIRS	479	500	500	500
101-170.276-942.000	EQUIPMENT RENTAL	10,360	12,400	12,400	24,260
101-170.276-974.000	CONSTRUCTION/IMPROVEMENTS	11,749			
101-170.276-979.000	MACHINERY AND EQUIPMENT	6,829			
NET OF REVENUES/APPROPRIATIONS - 170.276 - CEMETERY		(63,931)	(50,800)	(53,940)	(73,045)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 170.277 - RECYCLING CENTER					
101-170.277-701.000	SALARIES	32,918	33,500	33,500	35,350
101-170.277-706.000	OVERTIME	163	150		150
101-170.277-710.000	LONGEVITY	320	640	640	640
101-170.277-714.000	FICA	2,530	2,610	2,610	2,760
101-170.277-715.000	HEALTH INSURANCE	10,622	15,250	11,500	11,600
101-170.277-716.000	LIFE/DISABILITY INSURANCE	154	200	200	210
101-170.277-717.000	PENSION	3,308	3,300	3,300	3,500
101-170.277-717.500	VantageCare	599	660	660	700
101-170.277-718.000	WORKERS COMPENSATION	167	280	160	270
101-170.277-728.000	OPERATING SUPPLIES	13	50	50	100
101-170.277-820.000	CONTRACTUAL SERVICES	24,000	24,000	24,000	24,000
101-170.277-880.000	COMMUNITY PROMOTION	1,742	2,000	2,000	2,000
101-170.277-888.500	RECYCLING-SPECIAL PROJECTS	22,220	15,000	15,000	10,000
101-170.277-934.000	GROUNDS MAINTENANCE				10,000
NET OF REVENUES/APPROPRIATIONS - 170.277 - RECYCLING CENTER		(98,756)	(97,640)	(93,620)	(101,280)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 300.301 - POLICE					
101-300.301-701.000	SALARIES	2,339,088	2,615,000	2,400,000	2,422,000
101-300.301-701.040	SALARIES-RECORD DIVISION	185,691	193,800	160,000	170,000
101-300.301-701.050	SALARIES-CROSSING GUARDS	28,305	29,000	10,200	29,000
101-300.301-701.170	SALARIES-CADETS	83,087	95,000	84,000	90,000
101-300.301-702.000	SICK LEAVE INCENTIVE PAY	20,408	17,250	16,000	12,300
101-300.301-702.010	HOLIDAY PAYOUT	74,532	83,100	83,100	85,000
101-300.301-706.000	OVERTIME	77,553	92,000	70,000	80,000
101-300.301-706.010	OVERTIME-COURT HEARINGS	9,883	10,000	8,000	10,000
101-300.301-706.030	OVERTIME-RECORDS DIVISION		1,000		1,000
101-300.301-706.040	OVERTIME-SCHOOL SECURITY	15,906	17,000	4,000	12,000
101-300.301-706.050	OVERTIME-CANINE UNIT	3,773	4,200	2,000	4,200
101-300.301-706.060	OVERTIME-TRAINING	16,099	17,000	12,000	17,000
101-300.301-706.070	OVERTIME-HOLIDAY	31,270	36,000	36,000	36,000
101-300.301-706.300	OVERTIME-GRANT			105	
101-300.301-709.000	ICMA CONTRIBUTION			250	250
101-300.301-710.000	LONGEVITY	27,303	26,600	26,600	26,300
101-300.301-714.000	FICA	229,032	238,000	225,000	240,000
101-300.301-715.000	HEALTH INSURANCE	390,289	450,000	380,000	500,000
101-300.301-715.010	FLEXIBLE BENEFIT	81,375	94,500	60,400	58,500
101-300.301-716.000	LIFE/DISABILITY INSURANCE	12,348	15,500	15,500	15,300
101-300.301-717.000	PENSION	1,687,214	1,778,000	1,978,000	2,042,500
101-300.301-717.500	VantageCare	3,082	3,500	3,500	14,500
101-300.301-718.000	WORKERS COMPENSATION	48,206	78,900	50,000	76,200
101-300.301-720.000	PHYSICAL FITNESS AWARDS	7,700	8,000	8,000	12,000
101-300.301-727.000	LICENSES	16,000		16,000	20,000
101-300.301-728.000	OPERATING SUPPLIES	13,480	18,000	12,000	12,000
101-300.301-728.020	OPERATING SUPPLIES-BREATHALYZE	261	500		500
101-300.301-728.040	OPERATING SUPPLIES-CANINE UNIT	754	1,250	1,250	1,500
101-300.301-728.050	OPERATING SUPPLIES-CRIME PREV.	2,990	3,000	3,000	3,000
101-300.301-728.070	OPERATING SUPPLIES-DARE PROG.	3,000	3,000	3,000	3,000
101-300.301-728.140	OPERATING SUPPLIES-WATCH SIGNS	489			
101-300.301-728.300	Operating Costs - Spec Resp Team	1,561	2,500	2,500	2,500
101-300.301-739.000	AMMUNITION	15,442	16,000	16,000	16,000
101-300.301-750.000	PUBLICATIONS	86	500	500	500
101-300.301-760.000	UNIFORMS	16,766	28,000	28,000	25,000
101-300.301-761.000	CLOTHING ALLOWANCE	3,247	3,500	3,500	3,500
101-300.301-762.000	UNIFORM CLEANING	8,676	12,500	9,000	12,500
101-300.301-764.000	SHOES AND BOOTS	3,338	4,500	4,500	4,500
101-300.301-811.000	ACCREDITATION STUDY	2,700			1,200
101-300.301-820.000	CONTRACTUAL SERVICES	4,677			
101-300.301-820.035	TOWING SERVICES	1,950	1,500	2,000	2,500
101-300.301-820.040	911 OPERATION	9,000	15,000	15,000	15,000
101-300.301-820.060	PRINTING CONTRACT	3,958	5,000	2,000	2,500
101-300.301-820.065	Record Shredding and Storage	90	400	400	400
101-300.301-825.000	PROFESSIONAL CONFERENCES/DUES	3,066	5,500	3,500	5,500
101-300.301-826.000	COMPUTER SERVICES/SUPPLIES		10,500	4,740	9,100
101-300.301-827.000	RADIO MAINTENANCE	9,358	15,000	1,500	15,000
101-300.301-831.000	TRAINING	13,497	28,000	16,000	28,000
101-300.301-851.000	COMMUNICATIONS	349	500	500	500
101-300.301-870.000	MILEAGE	451	1,200	250	1,200
101-300.301-936.000	EQUIPMENT MAINTENANCE	2,213	3,000	3,000	3,000
101-300.301-942.000	EQUIPMENT RENTAL	292,460	301,470	301,470	208,625
101-300.301-956.060	BICYCLE PATROL FUND*	169	400	400	400
101-300.301-979.000	MACHINERY AND EQUIPMENT	15,790	33,350	29,000	17,000
NET OF REVENUES/APPROPRIATIONS - 300.301 - POLICE		(5,817,962)	(6,417,420)	(6,111,665)	(6,368,475)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 300.336 - FIRE DEPARTMENT					
101-300.336-701.000	SALARIES	2,223,327	2,340,000	2,340,000	2,404,100
101-300.336-701.060	SALARIES-PART TIME FIREFIGHTRS	2,516	50,000	12,000	25,000
101-300.336-701.070	SALARIES-ACTING PAY	20,347	21,000	30,000	25,000
101-300.336-702.000	SICK LEAVE INCENTIVE PAY	14,238	15,690	15,690	18,000
101-300.336-702.010	HOLIDAY PAYOUT	85,906	97,900	97,900	100,000
101-300.336-706.000	OVERTIME	102,530	85,000	85,000	85,000
101-300.336-706.060	OVERTIME-TRAINING	12,659	20,000	10,000	15,000
101-300.336-706.070	OVERTIME-HOLIDAY			10,000	12,000
101-300.336-709.000	ICMA CONTRIBUTION	250	250	250	250
101-300.336-710.000	LONGEVITY	27,020	28,800	28,800	26,560
101-300.336-714.000	FICA	193,626	211,200	211,200	215,000
101-300.336-715.000	HEALTH INSURANCE	381,620	515,250	500,000	485,000
101-300.336-715.010	FLEXIBLE BENEFIT	46,125	45,000	45,000	45,000
101-300.336-716.000	LIFE/DISABILITY INSURANCE	10,534	14,250	14,250	14,500
101-300.336-717.000	PENSION	2,005,906	1,916,400	2,200,000	2,429,900
101-300.336-717.500	VantageCare	2,555	2,900	2,900	11,800
101-300.336-718.000	WORKERS COMPENSATION	62,241	100,000	65,000	100,000
101-300.336-720.000	PHYSICAL FITNESS AWARDS	15,500	17,000	16,000	17,500
101-300.336-721.000	FOOD ALLOWANCE	18,700	19,200	19,200	19,800
101-300.336-723.000	AUTO ALLOWANCE	7,243	7,200	3,730	
101-300.336-726.000	SPECIAL EQUIPMENT	13,138	30,000	30,000	34,200
101-300.336-728.000	OPERATING SUPPLIES	11,955	12,500	12,500	12,500
101-300.336-728.090	OPERATING SUPPLIES-AMBULANCE	82,271	80,000	80,000	80,000
101-300.336-732.000	HAZMAT	4,425	8,000	8,000	9,000
101-300.336-750.000	PUBLICATIONS	1,530	1,200	1,200	1,200
101-300.336-760.000	UNIFORMS	9,429	11,000	11,000	13,000
101-300.336-762.000	UNIFORM CLEANING	3,658	3,000	3,000	3,000
101-300.336-764.000	SHOES AND BOOTS	6,451	6,125	6,400	6,500
101-300.336-820.000	CONTRACTUAL SERVICES	26,419	26,100	30,000	30,000
101-300.336-823.000	EMERGENCY MEDICAL TRAINING	4,782	5,000	5,000	7,000
101-300.336-825.000	PROFESSIONAL CONFERENCES/DUES	2,317	2,500	2,500	2,500
101-300.336-827.000	RADIO MAINTENANCE	9,697	13,860	13,860	13,860
101-300.336-831.000	TRAINING	12,705	18,000	14,000	18,000
101-300.336-851.000	COMMUNICATIONS		500		
101-300.336-880.000	COMMUNITY PROMOTION	4,806	4,000	4,000	5,000
101-300.336-936.000	EQUIPMENT MAINTENANCE	6,485	10,000	10,000	15,500
101-300.336-942.000	EQUIPMENT RENTAL	242,905	280,000	280,000	282,820
101-300.336-979.000	MACHINERY AND EQUIPMENT	30,924	35,000	35,000	45,000
101-300.336-980.000	OFFICE EQUIPMENT & FURNITURE		500	500	500
NET OF REVENUES/APPROPRIATIONS - 300.336 - FIRE DEPARTMENT		(5,706,740)	(6,054,325)	(6,253,880)	(6,628,990)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 300.371 - DEV. - BUILDING DIVISION					
101-300.371-701.000	SALARIES	363,231	401,000	390,500	400,000
101-300.371-701.080	SALARIES - TEMPORARY	4,177	6,000	6,000	6,000
101-300.371-702.000	SICK LEAVE INCENTIVE PAY	1,577	1,400	300	
101-300.371-706.000	OVERTIME			500	
101-300.371-709.000	ICMA CONTRIBUTION	563	815	1,063	1,063
101-300.371-710.000	LONGEVITY	3,520	4,160	3,850	3,850
101-300.371-714.000	FICA	29,023	30,500	30,500	31,450
101-300.371-715.000	HEALTH INSURANCE	31,940	38,800	35,000	41,000
101-300.371-715.010	FLEXIBLE BENEFIT	9,000	9,000	9,000	9,000
101-300.371-716.000	LIFE/DISABILITY INSURANCE	1,374	2,275	1,800	1,900
101-300.371-717.000	PENSION	24,643	35,200	29,000	29,000
101-300.371-717.500	VantageCare	5,237	7,575	6,750	6,300
101-300.371-718.000	WORKERS COMPENSATION	1,803	3,100	1,700	2,800
101-300.371-728.000	OPERATING SUPPLIES	1,272	1,000	1,000	1,000
101-300.371-750.000	PUBLICATIONS	111	500	750	1,000
101-300.371-820.000	CONTRACTUAL SERVICES	6,000			
101-300.371-825.000	PROFESSIONAL CONFERENCES/DUES	1,859	3,000	2,000	3,000
101-300.371-827.000	RADIO MAINTENANCE	557	5	50	500
101-300.371-870.000	MILEAGE	14	100	100	100
101-300.371-942.000	EQUIPMENT RENTAL	23,670	39,600	39,600	23,155
NET OF REVENUES/APPROPRIATIONS - 300.371 - DEV. - BUILDING DIVISIO		(509,571)	(584,030)	(559,463)	(561,118)
Dept 300.400 - DEV. - PLANNING/ADMIN.					
101-300.400-701.000	SALARIES	382,868	435,000	350,000	354,000
101-300.400-701.080	SALARIES - TEMPORARY	3,083	6,000	735	6,000
101-300.400-701.090	SALARIES-APPOINTED OFFICIALS	7,590	10,000	8,000	10,000
101-300.400-702.000	SICK LEAVE INCENTIVE PAY	2,044			
101-300.400-706.000	OVERTIME	6,538	6,000	3,300	6,000
101-300.400-709.000	ICMA CONTRIBUTION	938	1,450	1,190	2,400
101-300.400-710.000	LONGEVITY	1,600	1,920	1,600	1,920
101-300.400-714.000	FICA	31,374	32,350	30,500	29,100
101-300.400-715.000	HEALTH INSURANCE	50,203	57,400	52,000	68,500
101-300.400-715.010	FLEXIBLE BENEFIT	9,000	9,000	1,875	
101-300.400-716.000	LIFE/DISABILITY INSURANCE	1,775	2,350	2,100	2,100
101-300.400-717.000	PENSION	29,225	39,000	39,000	29,500
101-300.400-717.500	VantageCare	6,901	7,800	7,400	7,000
101-300.400-718.000	WORKERS COMPENSATION	1,998	3,400	2,000	2,800
101-300.400-728.000	OPERATING SUPPLIES	1,075	1,250	1,250	1,250
101-300.400-750.000	PUBLICATIONS	332	1,000	1,000	1,000
101-300.400-820.000	CONTRACTUAL SERVICES	846			
101-300.400-821.000	PROFESSIONAL SERVICES	9,919	20,000	10,000	20,000
101-300.400-825.000	PROFESSIONAL CONFERENCES/DUES	5,008	6,000	4,000	6,000
101-300.400-827.000	RADIO MAINTENANCE	454		1,600	1,600
101-300.400-870.000	MILEAGE	1,737	2,000	1,000	2,000
101-300.400-942.000	EQUIPMENT RENTAL	5,735	7,900	7,900	4,635
NET OF REVENUES/APPROPRIATIONS - 300.400 - DEV. - PLANNING/ADMII		(560,243)	(649,820)	(526,450)	(555,805)
Dept 440.446 - STREET & HIGHWAYS					
101-440.446-701.000	SALARIES		75,600		
101-440.446-714.000	FICA		6,050		
101-440.446-715.000	HEALTH INSURANCE		8,500	175	
101-440.446-716.000	LIFE/DISABILITY INSURANCE		115		
101-440.446-717.000	PENSION		7,700		
101-440.446-717.500	VantageCare		1,500		
101-440.446-728.000	OPERATING SUPPLIES		5,000		
101-440.446-819.000	TRAINING		1,200		
101-440.446-821.000	PROFESSIONAL SERVICES	2,339	15,000	120,000	
101-440.446-825.000	PROFESSIONAL CONFERENCES/DUES		500		
NET OF REVENUES/APPROPRIATIONS - 440.446 - STREET & HIGHWAYS		(2,339)	(121,165)	(120,175)	

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 600.749 - HUMAN SERVICES					
101-600.749-701.000	SALARIES	41,281	42,050	42,050	42,800
101-600.749-701.090	SALARIES-APPOINTED OFFICIALS	840	1,200	1,200	1,200
101-600.749-710.000	LONGEVITY	320	320	320	320
101-600.749-714.000	FICA	3,355	3,330	3,330	3,275
101-600.749-715.000	HEALTH INSURANCE	3,588	3,600	7,800	8,000
101-600.749-715.010	FLEXIBLE BENEFIT	4,500	4,500	4,500	4,500
101-600.749-716.000	LIFE/DISABILITY INSURANCE	189	250	250	245
101-600.749-717.000	PENSION	4,128	4,150	4,150	4,100
101-600.749-717.500	VantageCare	751	825	825	810
101-600.749-718.000	WORKERS COMPENSATION	227	350	200	315
NET OF REVENUES/APPROPRIATIONS - 600.749 - HUMAN SERVICES		(59,179)	(60,575)	(64,625)	(65,565)
Dept 728.500 - MERIDIAN REDEVELOPMENT					
101-728.500-821.000	PROFESSIONAL SERVICES			130,000	700,000
NET OF REVENUES/APPROPRIATIONS - 728.500 - MERIDIAN REDEVELOPMENT				(130,000)	(700,000)
Dept 750.752 - PARK COMMISSION					
101-750.752-701.090	SALARIES-APPOINTED OFFICIALS	1,305	3,500	3,000	3,375
101-750.752-714.000	FICA	100	270	270	260
101-750.752-718.000	WORKERS COMPENSATION	6	10	10	10
101-750.752-728.000	OPERATING SUPPLIES	238			600
101-750.752-825.000	PROFESSIONAL CONFERENCES/DUES	1,066	1,600	1,600	1,600
NET OF REVENUES/APPROPRIATIONS - 750.752 - PARK COMMISSION		(2,715)	(5,380)	(4,880)	(5,845)
Dept 750.753 - PARKS AND RECREATION ADMIN.					
101-750.753-701.000	SALARIES	72,325	75,000	72,000	76,500
101-750.753-701.080	SALARIES - TEMPORARY	7,853	10,440	3,000	10,980
101-750.753-702.000	SICK LEAVE INCENTIVE PAY		1,445		
101-750.753-706.000	OVERTIME	168	1,200	200	300
101-750.753-709.000	ICMA CONTRIBUTION	125	125	125	125
101-750.753-710.000	LONGEVITY	1,280	1,280	1,280	1,280
101-750.753-714.000	FICA	6,281	7,100	7,100	6,900
101-750.753-715.000	HEALTH INSURANCE	10,142	10,700	8,900	8,500
101-750.753-715.010	FLEXIBLE BENEFIT	2,250	2,250	2,250	2,250
101-750.753-716.000	LIFE/DISABILITY INSURANCE	347	450	450	450
101-750.753-717.000	PENSION	8,638	10,250	10,520	10,500
101-750.753-717.500	VantageCare	1,317	1,475	1,475	1,500
101-750.753-718.000	WORKERS COMPENSATION	481	930	930	835
101-750.753-728.000	OPERATING SUPPLIES	1,308	3,500	2,000	3,500
101-750.753-825.000	PROFESSIONAL CONFERENCES/DUES	2,780	1,500	600	600
101-750.753-870.000	MILEAGE	34			
101-750.753-880.000	COMMUNITY PROMOTION	4,414	5,400	3,000	25,900
101-750.753-882.500	Recreation Program Expenses	136			
NET OF REVENUES/APPROPRIATIONS - 750.753 - PARKS AND RECREATION		(119,879)	(133,045)	(113,830)	(150,120)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 750.754 - Recreation					
101-750.754-701.000	SALARIES	103,217	112,300	82,500	57,800
101-750.754-701.080	SALARIES - TEMPORARY	11,945	19,800	6,000	14,400
101-750.754-702.000	SICK LEAVE INCENTIVE PAY	618	550	120	
101-750.754-706.000	OVERTIME	9,357	5,000	1,000	5,000
101-750.754-709.000	ICMA CONTRIBUTION	500	500	500	250
101-750.754-710.000	LONGEVITY	1,280	1,600	1,280	1,280
101-750.754-714.000	FICA	9,657	10,650	6,650	6,050
101-750.754-715.000	HEALTH INSURANCE	8,730	9,200	7,900	7,600
101-750.754-715.010	FLEXIBLE BENEFIT	3,375	4,500		
101-750.754-716.000	LIFE/DISABILITY INSURANCE	494	675	575	350
101-750.754-717.000	PENSION	10,915	10,950	7,500	6,200
101-750.754-717.500	VantageCare	1,894	2,250	1,500	1,150
101-750.754-718.000	WORKERS COMPENSATION	2,207	3,975	2,100	2,250
101-750.754-825.000	PROFESSIONAL CONFERENCES/DUES	1,810	2,900	800	800
101-750.754-870.000	MILEAGE	380	500	110	50
101-750.754-882.500	Recreation Program Expenses	10,586	12,000	12,000	12,000
101-750.754-882.501	Sporties for Shorties	589	1,400	400	1,000
101-750.754-882.507	ADULT SPORTS	3,290	6,000	1,000	3,000
101-750.754-882.601	Oaks Soccer	11,161	15,000	2,060	13,000
101-750.754-882.602	Oaks Football	2,688	1,700	705	2,500
101-750.754-882.801	HYRA Basketball	8,156	9,500	7,765	8,000
101-750.754-882.802	HYRA Baseball/Softball	483	1,100		1,100
101-750.754-882.803	HYRA Flag Football	1,409	1,300	705	1,500
101-750.754-882.804	HYRA Soccer	2,454	2,400	1,645	2,400
101-750.754-882.805	HYRA - Misc.	9,415	11,000		11,000
101-750.754-882.910	YOUTH BASEBALL/SOFTBALL	17,170	21,000	470	21,000
101-750.754-882.950	WILLIAMSTON REC EXPENDITURES	7,063	10,000	95	7,000
101-750.754-955.000	MISCELLANEOUS	14,080	14,500	5,000	20,000
NET OF REVENUES/APPROPRIATIONS - 750.754 - Recreation		(254,923)	(292,250)	(150,380)	(206,680)
Dept 750.758 - Park Maintenance					
101-750.758-701.000	SALARIES	72,716	77,600	117,700	126,000
101-750.758-701.080	SALARIES - TEMPORARY	11,638	13,200	13,200	14,400
101-750.758-702.000	SICK LEAVE INCENTIVE PAY		220		
101-750.758-706.000	OVERTIME	4,788	4,000	4,000	4,000
101-750.758-709.000	ICMA CONTRIBUTION	412	420	675	675
101-750.758-710.000	LONGEVITY	841	835	832	832
101-750.758-714.000	FICA	7,942	7,500	11,500	11,300
101-750.758-715.000	HEALTH INSURANCE	19,574	26,400	26,400	39,000
101-750.758-715.010	FLEXIBLE BENEFIT	150		900	900
101-750.758-716.000	LIFE/DISABILITY INSURANCE	324	460	460	725
101-750.758-717.000	PENSION	5,302	6,500	6,500	15,000
101-750.758-717.500	VantageCare	1,366	1,550	1,550	2,400
101-750.758-718.000	WORKERS COMPENSATION	1,435	2,650	2,650	4,000
101-750.758-723.000	AUTO ALLOWANCE	10,886	13,200	7,200	7,200
101-750.758-727.000	LICENSES	3,102	2,175	2,400	2,400
101-750.758-728.000	OPERATING SUPPLIES	25,416	26,000	26,000	27,000
101-750.758-760.000	UNIFORMS	379	650	650	650
101-750.758-761.000	CLOTHING ALLOWANCE	1,455	975	1,875	1,875
101-750.758-820.000	CONTRACTUAL SERVICES	6,049	38,000	10,000	19,000
101-750.758-825.000	PROFESSIONAL CONFERENCES/DUES	1,225	1,000	500	500
101-750.758-827.000	RADIO MAINTENANCE	698	700	700	700
101-750.758-934.000	GROUNDS MAINTENANCE	8,510	10,000	10,000	10,000
101-750.758-936.000	EQUIPMENT MAINTENANCE	310	750	750	750
101-750.758-942.000	EQUIPMENT RENTAL	52,795	58,500	58,500	60,140
101-750.758-979.000	MACHINERY AND EQUIPMENT	2,859	6,000	6,000	2,500
NET OF REVENUES/APPROPRIATIONS - 750.758 - Park Maintenance		(240,172)	(299,285)	(310,942)	(351,947)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 750.759 - Park Development					
101-750.759-974.000	CONSTRUCTION/IMPROVEMENTS			450,000	
NET OF REVENUES/APPROPRIATIONS - 750.759 - Park Development				(450,000)	
Dept 750.775 - COMMUNITY ACTIVITIES					
101-750.775-880.000	COMMUNITY PROMOTION	11,152	10,000	6,000	6,000
101-750.775-880.050	FUNDRAISER	101			
101-750.775-883.000	MEALS ON WHEELS	4,000	4,000	4,000	4,000
101-750.775-886.000	COMMUNITY BAND	1,700	1,700	1,700	1,700
101-750.775-889.000	LAKE LANSING CLEAN UP	10,000	10,000	10,000	10,000
NET OF REVENUES/APPROPRIATIONS - 750.775 - COMMUNITY ACTIVITIES				(26,953)	(21,700)
Dept 750.806 - CABLE TV					
101-750.806-701.000	SALARIES		156,800	158,000	165,600
101-750.806-701.080	SALARIES - TEMPORARY			10,000	3,000
101-750.806-706.000	OVERTIME		2,000	2,000	2,000
101-750.806-709.000	ICMA CONTRIBUTION		250	750	750
101-750.806-710.000	LONGEVITY		960	960	960
101-750.806-714.000	FICA		12,240	13,800	13,200
101-750.806-715.000	HEALTH INSURANCE		4,600	7,000	11,500
101-750.806-715.010	FLEXIBLE BENEFIT		13,500	9,000	9,000
101-750.806-716.000	LIFE/DISABILITY INSURANCE		940	940	1,000
101-750.806-717.000	PENSION		15,900	15,900	18,300
101-750.806-717.500	VantageCare		3,150	3,100	3,300
101-750.806-718.000	WORKERS COMPENSATION		785	785	820
101-750.806-728.000	OPERATING SUPPLIES		500	500	500
101-750.806-750.000	PUBLICATIONS		4,000	10,400	20,900
101-750.806-820.000	CONTRACTUAL SERVICES	66	91,900	98,900	75,500
101-750.806-825.000	PROFESSIONAL CONFERENCES/DUES		685	7,685	10,445
101-750.806-870.000	MILEAGE		100	100	100
101-750.806-880.000	COMMUNITY PROMOTION		1,000	1,000	2,100
101-750.806-890.000	Special Events		3,000	3,000	3,000
101-750.806-936.000	EQUIPMENT MAINTENANCE		500	500	500
101-750.806-955.000	MISCELLANEOUS		500	500	500
101-750.806-980.010	VIDEO PRODUCTION EQUIPMENT		1,200	1,200	12,600
NET OF REVENUES/APPROPRIATIONS - 750.806 - CABLE TV				(66)	(314,510)
Dept 850.882 - ASSOCIATIONS AND AUTHORITIES					
101-850.882-825.010	CONVENTION/VISITORS BUREAU	3,675	3,700	3,650	3,700
101-850.882-825.020	TRI-COUNTY REGIONAL PLANNING	20,185	22,000	22,000	22,000
101-850.882-825.060	MICHIGAN TOWNSHIPS ASSOCIATION	6,819	6,900	6,940	7,100
101-850.882-825.080	MICHIGAN MUNICIPAL LEAGUE	8,368	8,500	8,555	8,750
101-850.882-825.095	LEAP INC	15,000	15,000	15,000	15,000
NET OF REVENUES/APPROPRIATIONS - 850.882 - ASSOCIATIONS AND AUT				(54,047)	(56,100)
Dept 900.901 - CAPITAL OUTLAY					
101-900.901-821.000	PROFESSIONAL SERVICES	100,139		12,000	
101-900.901-974.000	CONSTRUCTION/IMPROVEMENTS	138,326	2,435,000	2,435,000	275,000
101-900.901-980.015	New Computer Workstations	4,348	5,500	5,000	
101-900.901-980.020	HARDWARE	28,442	60,000	60,000	
101-900.901-980.040	Network Upgrades	29,163	86,500	85,500	107,000
101-900.901-980.050	Server Upgrades	1,433	8,000	8,000	35,000
101-900.901-980.070	Mobile Data Units	44,709	15,000	20,000	30,000
101-900.901-980.080	PHONE SYSTEMS	9,235			
NET OF REVENUES/APPROPRIATIONS - 900.901 - CAPITAL OUTLAY				(355,795)	(2,610,000)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 965.966 - OPERATING TRANSFERS OUT					
101-965.966-999.000	TRANSFERS OUT			50,000	
101-965.966-999.008	TRANSFER-OUT TO LOCAL ROADS FUND	400,000	250,000	250,000	280,000
101-965.966-999.009	TRANSFER OUT TO MP FOR POLICE & FIRE	210,000	250,000	250,000	250,000
NET OF REVENUES/APPROPRIATIONS - 965.966 - OPERATING TRANSFERS		(610,000)	(500,000)	(550,000)	(530,000)
ESTIMATED REVENUES - FUND 101					
		22,807,196	22,904,355	22,785,085	22,689,545
APPROPRIATIONS - FUND 101					
		20,274,085	24,716,585	24,864,192	23,372,420
NET OF REVENUES/APPROPRIATIONS - FUND 101					
		2,533,111	(1,812,230)	(2,079,107)	(682,875)
BEGINNING FUND BALANCE					
		7,961,300	10,494,411	10,494,418	8,415,311
ENDING FUND BALANCE					
		10,494,411	8,682,181	8,415,311	7,732,436

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 203 - LOCAL ROADS					
Dept 000.000					
203-000.000-402.000	CURRENT PROPERTY TAXES	434,268		2,480	
203-000.000-412.000	DELINQUENT PROPERTY TAXES	187		15	
203-000.000-576.000	OTHER INTRGOVTL REVENUE		172,500	172,500	172,500
203-000.000-665.000	INTEREST	51,013	5,000	70,000	60,000
203-000.000-665.100	Gain/Loss on Investment	26,364		(18,624)	
203-000.000-665.200	Unrealized invest gain/loss	(26,020)			
203-000.000-696.000	OTHR FINANCING SRCE-BOND PROCEEDS	11,100,000	11,600,000		
203-000.000-699.000	OPERATING TRANSFER IN	400,000	250,000	250,000	280,000
203-000.000-821.000	PROFESSIONAL SERVICES	163,306		304,700	450,000
203-000.000-974.000	CONSTRUCTION/IMPROVEMENTS	877,518	3,500,000	4,920,300	3,500,000
NET OF REVENUES/APPROPRIATIONS - 000.000 -		10,944,988	8,527,500	(4,748,629)	(3,437,500)

ESTIMATED REVENUES - FUND 203		11,985,812	12,027,500	476,371	512,500
APPROPRIATIONS - FUND 203		1,040,824	3,500,000	5,225,000	3,950,000
NET OF REVENUES/APPROPRIATIONS - FUND 203		10,944,988	8,527,500	(4,748,629)	(3,437,500)
BEGINNING FUND BALANCE		880,887	11,825,875	11,825,876	7,077,247
ENDING FUND BALANCE		11,825,875	20,353,375	7,077,247	3,639,747

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 204 - PEDESTRIAN BIKEPATH MILLAGE					
Dept 000.000					
204-000.000-403.000	BIKE PATH COLLECTIONS	580,393	599,000	601,295	601,000
204-000.000-412.000	DELINQUENT PROPERTY TAXES	249	200	150	150
204-000.000-576.000	OTHER INTRGOVTL REVENUE	837,245	2,350,000	645,000	2,713,300
204-000.000-611.000	PYMENT IN LIEU OF CONSTRUCTION			36,000	
204-000.000-665.000	INTEREST	24,690	10,000	8,000	8,000
204-000.000-676.000	REIMBURSEMENTS	1,510			
NET OF REVENUES/APPROPRIATIONS - 000.000 -		1,444,087	2,959,200	1,290,445	3,322,450
Dept 440.450 - PEDESTRIAN BIKEPATH					
204-440.450-701.000	SALARIES	14,484	24,230	37,500	25,000
204-440.450-701.080	SALARIES - TEMPORARY				12,000
204-440.450-706.000	OVERTIME	243	500	1,500	1,500
204-440.450-709.000	ICMA CONTRIBUTION	125	125	165	165
204-440.450-710.000	LONGEVITY	640	640	785	785
204-440.450-714.000	FICA	1,166	1,925	3,000	4,900
204-440.450-715.000	HEALTH INSURANCE	2,717	3,700	3,500	10,500
204-440.450-715.010	FLEXIBLE BENEFIT	112		675	675
204-440.450-716.000	LIFE/DISABILITY INSURANCE	116	145	145	300
204-440.450-717.000	PENSION	1,603	3,450	5,300	6,400
204-440.450-717.500	VantageCare	290	465	750	950
204-440.450-718.000	WORKERS COMPENSATION	426	740	400	1,900
204-440.450-727.000	LICENSES	3,616	5,000	1,150	1,275
204-440.450-728.000	OPERATING SUPPLIES	847	1,500	1,500	1,500
204-440.450-820.000	CONTRACTUAL SERVICES	49,745	40,000	40,000	40,000
204-440.450-950.000	Vehicle Charges	93,790	95,000	95,000	63,675
204-440.450-957.000	ADMINISTRATIVE	40,000	40,000	40,000	40,000
204-440.450-974.000	CONSTRUCTION/IMPROVEMENTS	1,221,478	2,700,000	1,060,000	3,615,000
NET OF REVENUES/APPROPRIATIONS - 440.450 - PEDESTRIAN BIKEPATH		(1,431,398)	(2,917,420)	(1,291,370)	(3,826,525)
ESTIMATED REVENUES - FUND 204		1,444,087	2,959,200	1,290,445	3,322,450
APPROPRIATIONS - FUND 204		1,431,398	2,917,420	1,291,370	3,826,525
NET OF REVENUES/APPROPRIATIONS - FUND 204		12,689	41,780	(925)	(504,075)
BEGINNING FUND BALANCE		1,089,087	1,101,776	1,101,777	1,100,852
ENDING FUND BALANCE		1,101,776	1,143,556	1,100,852	596,777

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 205 - CATA Millage					
Dept 000.000					
205-000.000-407.000	CATA MILLAGE	347,344		1,900	368,000
205-000.000-412.000	DELINQUENT PROPERTY TAXES	150		10	
205-000.000-665.000	INTEREST	3,897	100	100	100
205-000.000-813.000	CATA Services	350,000	10,000	10,000	368,000
NET OF REVENUES/APPROPRIATIONS - 000.000 -		1,391	(9,900)	(7,990)	100
ESTIMATED REVENUES - FUND 205		351,391	100	2,010	368,100
APPROPRIATIONS - FUND 205		350,000	10,000	10,000	368,000
NET OF REVENUES/APPROPRIATIONS - FUND 205		1,391	(9,900)	(7,990)	100
BEGINNING FUND BALANCE		15,991	17,382	17,381	9,391
ENDING FUND BALANCE		17,382	7,482	9,391	9,491

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 207 - SENIOR CENTER MILLAGE					
Dept 000.000					
207-000.000-409.000	Community Services Millage	145,743	150,500	150,500	154,500
207-000.000-412.000	DELINQUENT PROPERTY TAXES	63	50	50	50
207-000.000-665.000	INTEREST	6,284	3,000	2,500	2,000
207-000.000-701.000	SALARIES	2,100	1,000	300	
207-000.000-714.000	FICA	161		25	
207-000.000-728.000	OPERATING SUPPLIES	106			
207-000.000-820.000	CONTRACTUAL SERVICES	159,143	117,500	140,000	150,000
207-000.000-980.000	OFFICE EQUIPMENT & FURNITURE	30,626	30,000	5,000	5,000
NET OF REVENUES/APPROPRIATIONS - 000.000 -		(40,046)	5,050	7,725	1,550
ESTIMATED REVENUES - FUND 207		152,090	153,550	153,050	156,550
APPROPRIATIONS - FUND 207		192,136	148,500	145,325	155,000
NET OF REVENUES/APPROPRIATIONS - FUND 207		(40,046)	5,050	7,725	1,550
BEGINNING FUND BALANCE		281,316	241,270	241,271	248,996
ENDING FUND BALANCE		241,270	246,320	248,996	250,546

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 208 - PARK MILLAGE					
Dept 000.000					
208-000.000-405.030	PARK MILLAGE	1,158,639	1,196,000	1,198,000	1,228,000
208-000.000-412.000	DELINQUENT PROPERTY TAXES	506	250	350	250
208-000.000-566.020	CTL PK N PHASE 2 GRANT REVENUE			422,550	
208-000.000-566.030	HARRIS CENTER GRANT REVENUE			100,000	
208-000.000-566.060	N MERIDIAN RD PARK GRANT REV	50,000			
208-000.000-566.090	Recreation Program Grant	251,870			
208-000.000-576.000	OTHER INTRGOVTL REVENUE	2,500			
208-000.000-665.000	INTEREST	35,551	10,000	12,000	10,000
208-000.000-667.000	RENTALS	11,175	10,000	4,000	12,000
208-000.000-667.020	HARRIS CENTER	45,794	42,000	5,500	30,000
208-000.000-667.060	DOG PARKS	3,500	2,000	4,000	3,000
208-000.000-670.400	TRANSFER IN FROM OTHER FUNDS	75,000			
208-000.000-675.150	DONATIONS			85,000	
NET OF REVENUES/APPROPRIATIONS - 000.000 -		1,634,535	1,260,250	1,831,400	1,283,250
Dept 750.753 - PARKS AND RECREATION ADMIN.					
208-750.753-701.000	SALARIES	109,647	114,100	106,000	116,000
208-750.753-701.080	SALARIES - TEMPORARY	2,328	12,840		9,840
208-750.753-706.000	OVERTIME	696	400	100	400
208-750.753-709.000	ICMA CONTRIBUTION	300	300	300	300
208-750.753-710.000	LONGEVITY	1,600	1,600	1,600	1,760
208-750.753-714.000	FICA	8,797	9,950	9,950	9,780
208-750.753-715.000	HEALTH INSURANCE	10,993	13,100	13,900	15,200
208-750.753-715.010	FLEXIBLE BENEFIT	4,500	4,500	4,500	4,500
208-750.753-716.000	LIFE/DISABILITY INSURANCE	536	675	575	680
208-750.753-717.000	PENSION	12,334	11,700	11,700	13,600
208-750.753-717.500	VantageCare	1,984	2,250	2,250	2,300
208-750.753-718.000	WORKERS COMPENSATION	1,224	2,350	1,500	2,250
208-750.753-728.000	OPERATING SUPPLIES	30	1,200	500	1,200
208-750.753-821.000	PROFESSIONAL SERVICES	85			
208-750.753-825.000	PROFESSIONAL CONFERENCES/DUES	793	2,050	1,000	850
208-750.753-870.000	MILEAGE	307	400	150	300
208-750.753-880.000	COMMUNITY PROMOTION		1,500	1,500	2,000
NET OF REVENUES/APPROPRIATIONS - 750.753 - PARKS AND RECREATION		(156,154)	(178,915)	(155,525)	(180,960)
Dept 750.756 - Harris Nature Center					
208-750.756-701.000	SALARIES	108,959	99,000	68,000	71,000
208-750.756-701.080	SALARIES - TEMPORARY	26,288	23,000	5,000	23,000
208-750.756-702.000	SICK LEAVE INCENTIVE PAY	191			
208-750.756-706.000	OVERTIME	3,171	1,000	300	1,000
208-750.756-709.000	ICMA CONTRIBUTION	500	500	350	350
208-750.756-710.000	LONGEVITY	1,830		385	385
208-750.756-714.000	FICA	10,224	9,500	9,500	7,300
208-750.756-715.000	HEALTH INSURANCE	9,093	16,600	16,600	21,500
208-750.756-715.010	FLEXIBLE BENEFIT	4,050	4,500	1,800	1,800
208-750.756-716.000	LIFE/DISABILITY INSURANCE	468	580	580	420
208-750.756-717.000	PENSION	10,140	9,700	7,600	7,200
208-750.756-717.500	VantageCare	1,769	1,950	1,500	1,400
208-750.756-718.000	WORKERS COMPENSATION	2,060	3,610	2,000	1,600
208-750.756-728.000	OPERATING SUPPLIES	12,568	13,000	13,000	13,000
208-750.756-820.000	CONTRACTUAL SERVICES	3,444	7,000	7,000	9,000
208-750.756-825.000	PROFESSIONAL CONFERENCES/DUES	1,076	1,000	1,000	1,000
208-750.756-870.000	MILEAGE	1,262	1,500	400	500
208-750.756-920.000	UTILITIES-ELECTRIC/GAS/WATER	5,783	8,000	8,000	8,000
208-750.756-934.000	GROUND MAINTENANCE	518	500	500	500
208-750.756-955.000	MISCELLANEOUS	2,949	2,400		
208-750.756-980.000	OFFICE EQUIPMENT & FURNITURE	1,027			
NET OF REVENUES/APPROPRIATIONS - 750.756 - Harris Nature Center		(207,370)	(203,340)	(143,515)	(168,955)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 750.758 - Park Maintenance					
208-750.758-701.000	SALARIES	135,929	141,500	135,000	139,000
208-750.758-701.080	SALARIES - TEMPORARY	4,634	6,160		7,200
208-750.758-702.000	SICK LEAVE INCENTIVE PAY		215		
208-750.758-706.000	OVERTIME	5,483	6,000	1,000	6,000
208-750.758-709.000	ICMA CONTRIBUTION	787	790	800	800
208-750.758-710.000	LONGEVITY	1,161	1,475	200	200
208-750.758-714.000	FICA	11,732	11,950	11,980	12,100
208-750.758-715.000	HEALTH INSURANCE	37,942	52,850	49,000	63,000
208-750.758-715.010	FLEXIBLE BENEFIT	150		900	900
208-750.758-716.000	LIFE/DISABILITY INSURANCE	621	855	855	850
208-750.758-717.000	PENSION	11,368	11,100	5,500	6,000
208-750.758-717.500	VantageCare	2,521	2,775	2,775	2,725
208-750.758-718.000	WORKERS COMPENSATION	2,166	4,100	2,000	4,000
208-750.758-727.000	LICENSES	5,176	2,000	2,000	4,750
208-750.758-728.000	OPERATING SUPPLIES	11,094	30,000	30,000	30,000
208-750.758-760.000	UNIFORMS		1,500		
208-750.758-761.000	CLOTHING ALLOWANCE	2,911	1,000	1,000	1,000
208-750.758-819.000	TRAINING	39	1,000	750	1,000
208-750.758-820.000	CONTRACTUAL SERVICES	15,255	35,000	15,000	40,000
208-750.758-820.020	SEWER CLEANING-SANITARY		2,000	2,000	2,000
208-750.758-825.000	PROFESSIONAL CONFERENCES/DUES		1,200		
208-750.758-827.000	RADIO MAINTENANCE	65		100	100
208-750.758-920.000	UTILITIES-ELECTRIC/GAS/WATER	4,933	200	200	500
208-750.758-934.000	GROUPS MAINTENANCE		10,000	10,000	10,000
208-750.758-936.000	EQUIPMENT MAINTENANCE		600	600	600
208-750.758-950.000	Vehicle Charges	52,795	58,500	58,500	75,175
208-750.758-956.095	DOG PARK EXPENSE		3,000	5,000	4,000
208-750.758-974.000	CONSTRUCTION/IMPROVEMENTS	279			
208-750.758-979.000	MACHINERY AND EQUIPMENT	399	6,000	6,000	2,500
NET OF REVENUES/APPROPRIATIONS - 750.758 - Park Maintenance		(307,440)	(391,770)	(341,160)	(414,400)
Dept 750.759 - Park Development					
208-750.759-974.000	CONSTRUCTION/IMPROVEMENTS	466,287	500,000	2,700,000	135,000
NET OF REVENUES/APPROPRIATIONS - 750.759 - Park Development		(466,287)	(500,000)	(2,700,000)	(135,000)
ESTIMATED REVENUES - FUND 208		1,634,535	1,260,250	1,831,400	1,283,250
APPROPRIATIONS - FUND 208		1,137,251	1,274,025	3,340,200	899,315
NET OF REVENUES/APPROPRIATIONS - FUND 208		497,284	(13,775)	(1,508,800)	383,935
BEGINNING FUND BALANCE		1,023,387	1,520,671	1,520,672	11,872
ENDING FUND BALANCE		1,520,671	1,506,896	11,872	395,807

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 209 - Land Preservation Millage					
Dept 000.000					
209-000.000-408.000	Land Preservation Millage	575,005	592,000	595,000	186,000
209-000.000-412.000	DELINQUENT PROPERTY TAXES	247	200	175	100
209-000.000-665.000	INTEREST	64,850	20,000	23,000	20,000
209-000.000-665.200	Unrealized invest gain/loss	2,108			
209-000.000-701.000	SALARIES	61,577	65,500	65,500	68,000
209-000.000-706.000	OVERTIME	2,190	1,000	500	500
209-000.000-709.000	ICMA CONTRIBUTION	325	325	340	340
209-000.000-710.000	LONGEVITY	320	320	370	530
209-000.000-714.000	FICA	4,887	5,150	5,300	5,300
209-000.000-715.000	HEALTH INSURANCE	4,141	6,755	6,600	9,200
209-000.000-715.010	FLEXIBLE BENEFIT	2,287	2,250	2,475	2,475
209-000.000-716.000	LIFE/DISABILITY INSURANCE	293	400	350	400
209-000.000-717.000	PENSION	6,076	7,150	6,650	6,700
209-000.000-717.500	VantageCare	1,059	1,310	1,310	1,350
209-000.000-718.000	WORKERS COMPENSATION	330	545	300	500
209-000.000-728.000	OPERATING SUPPLIES	110	5,000	5,000	10,000
209-000.000-808.000	LEGAL FEES	15,146	5,000	5,000	5,000
209-000.000-821.000	PROFESSIONAL SERVICES		40,000	40,000	40,000
209-000.000-825.000	PROFESSIONAL CONFERENCES/DUES	836	1,000	1,000	1,000
209-000.000-870.000	MILEAGE	273	300	300	300
209-000.000-934.000	GROUNDS MAINTENANCE	36,505	50,000	50,000	50,000
209-000.000-971.000	LAND ACQUISTION	4,829			
NET OF REVENUES/APPROPRIATIONS - 000.000 -		501,026	420,195	427,180	4,505
ESTIMATED REVENUES - FUND 209		642,210	612,200	618,175	206,100
APPROPRIATIONS - FUND 209		141,184	192,005	190,995	201,595
NET OF REVENUES/APPROPRIATIONS - FUND 209		501,026	420,195	427,180	4,505
BEGINNING FUND BALANCE		2,832,338	3,333,364	3,333,364	3,760,544
ENDING FUND BALANCE		3,333,364	3,753,559	3,760,544	3,765,049

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 210 - Land Preservation Reserve Fund					
Dept 000.000					
210-000.000-665.000	INTEREST	74,635	35,000	50,000	40,000
210-000.000-665.100	Gain/Loss on Investment	7,646			
210-000.000-665.200	Unrealized invest gain/loss	16,001			
210-000.000-934.000	GROUNDS MAINTENANCE	78			
NET OF REVENUES/APPROPRIATIONS - 000.000 -		98,204	35,000	50,000	40,000
ESTIMATED REVENUES - FUND 210		98,282	35,000	50,000	40,000
APPROPRIATIONS - FUND 210		78			
NET OF REVENUES/APPROPRIATIONS - FUND 210		98,204	35,000	50,000	40,000
BEGINNING FUND BALANCE		3,065,635	3,163,839	3,163,839	3,213,839
ENDING FUND BALANCE		3,163,839	3,198,839	3,213,839	3,253,839

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 211 - PARK RESTRICTED/DESIGNATED					
Dept 000.000					
211-000.000-650.500	SPONSOR REVENUE	54,334	51,000		50,000
211-000.000-665.000	INTEREST	6,336	3,000	1,000	1,000
211-000.000-667.030	FARM MARKET	15,887	18,000	13,000	18,000
211-000.000-667.035	MARKET VENDOR REV	18,560	22,000	14,000	24,000
211-000.000-667.045	Towar Center	(121)			
211-000.000-675.100	DONATIONS-HNC	3,555	2,000	1,725	
211-000.000-675.150	DONATIONS	11,200	2,000		
211-000.000-675.170	DONATIONS-SCHOLARSHIPS	244	100	135	
211-000.000-701.010	SALARY - FARM MARKET	13,506	15,000	12,000	13,000
211-000.000-714.000	FICA	1,033	1,150	900	1,000
211-000.000-718.000	WORKERS COMPENSATION	69	125	65	100
211-000.000-882.100	RECREATION SCHOLARSHIPS		300		500
211-000.000-886.600	HNC EXPENDITURES		3,000	10,000	3,000
211-000.000-892.000	CELEBRATE DOWNTOWN - SPONSORED EXPI	48,937	51,000		50,000
211-000.000-956.080	FARM MARKET	91,823	25,000	25,000	25,000
211-000.000-975.000	PARK DEVELOPMENT	11,421			
211-000.000-999.000	TRANSFERS OUT	75,000			
NET OF REVENUES/APPROPRIATIONS - 000.000 -		(131,794)	2,525	(18,105)	400
ESTIMATED REVENUES - FUND 211		109,995	98,100	29,860	93,000
APPROPRIATIONS - FUND 211		241,789	95,575	47,965	92,600
NET OF REVENUES/APPROPRIATIONS - FUND 211		(131,794)	2,525	(18,105)	400
BEGINNING FUND BALANCE		256,246	124,452	124,453	106,348
ENDING FUND BALANCE		124,452	126,977	106,348	106,748

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 213 - NANCY MOORE - PARK BEAUTIFICATION FUND					
Dept 000.000					
213-000.000-665.000	INTEREST	209			
213-000.000-975.050	PARK BEAUTIFICATION	13,150			
NET OF REVENUES/APPROPRIATIONS - 000.000 -			(12,941)		
ESTIMATED REVENUES - FUND 213		209			
APPROPRIATIONS - FUND 213		13,150			
NET OF REVENUES/APPROPRIATIONS - FUND 213			(12,941)		
BEGINNING FUND BALANCE		12,941			
ENDING FUND BALANCE					

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 214 - FIRE RESTRICTED/DESIGNATED					
Dept 000.000					
214-000.000-665.000	INTEREST	119	50	30	30
214-000.000-675.035	DONATIONS RESTRIC. FF COMMUNITY OUTR	25		50	
214-000.000-956.015	FIREFIGHTERS COMMUNITY OUTREACH EXPE	592			
214-000.000-979.500	EQUIPMENT - GRANT FUNDED	4,209			
NET OF REVENUES/APPROPRIATIONS - 000.000 -		(4,657)	50	80	30
ESTIMATED REVENUES - FUND 214		144	50	80	30
APPROPRIATIONS - FUND 214		4,801			
NET OF REVENUES/APPROPRIATIONS - FUND 214		(4,657)	50	80	30
BEGINNING FUND BALANCE		9,667	5,010	5,010	5,090
ENDING FUND BALANCE		5,010	5,060	5,090	5,120

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 215 - LIBRARY FUND - RESTRICTED					
Dept 000.000					
215-000.000-665.000	INTEREST	228	50	60	50
NET OF REVENUES/APPROPRIATIONS - 000.000 -		228	50	60	50
ESTIMATED REVENUES - FUND 215		228	50	60	50
APPROPRIATIONS - FUND 215					
NET OF REVENUES/APPROPRIATIONS - FUND 215		228	50	60	50
BEGINNING FUND BALANCE		13,244	13,472	13,472	13,532
ENDING FUND BALANCE		13,472	13,522	13,532	13,582

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 218 - POLICE RESTRICTED/DESIGNATED					
Dept 000.000					
218-000.000-506.000	GRANT REVENUE - LOCAL	1,636		20,757	
218-000.000-506.100	GRANT REVENUE - FEDERAL		8,000	5,000	5,000
218-000.000-659.000	FORFEITURE REVENUE-75%	16,399	5,000	7,500	5,000
218-000.000-659.050	FORFEITURE-25% VICTIMS RIGHTS			2,500	
218-000.000-659.100	FORFEITURE REV-NARCOTICS	7,500			
218-000.000-665.000	INTEREST	1,444	500	500	300
218-000.000-675.040	DONATIONS - POLICE DESIGNATED	70		50	
218-000.000-675.045	DONATIONS RESTRICTED KIDS XMAS PARTY	10,097	5,000	1,300	
218-000.000-675.050	POLICE TRAINING PA 302	6,407	7,000	7,000	7,000
218-000.000-728.081	OPERATING SUPPLIES-FORFEITURE NARCOTICS				5,000
218-000.000-760.000	UNIFORMS	6,320	8,000	5,000	5,000
218-000.000-880.030	KIDS XMAS PARTY	14,540	5,000	1,300	
218-000.000-956.040	POLICE TRAINING FUND PA 302	6,705	7,000	7,000	7,000
218-000.000-956.090	POLICE DESIGNATED FUND			20,757	
218-000.000-979.081	MACHINERY AND EQUIPMENT NARCOTICS		15,000	15,000	
NET OF REVENUES/APPROPRIATIONS - 000.000 -		15,988	(9,500)	(4,450)	300
ESTIMATED REVENUES - FUND 218		43,553	25,500	44,607	17,300
APPROPRIATIONS - FUND 218		27,565	35,000	49,057	17,000
NET OF REVENUES/APPROPRIATIONS - FUND 218		15,988	(9,500)	(4,450)	300
BEGINNING FUND BALANCE		73,485	89,473	89,473	85,023
ENDING FUND BALANCE		89,473	79,973	85,023	85,323

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 230 - CABLE TV					
Dept 000.000					
230-000.000-604.000	FRANCHISE FEES - CABLE TV	628,331			
230-000.000-604.500	CABLE PEG FEES	131,475			
230-000.000-646.000	CABLE MISCELLANEOUS REVENUE	3,964			
230-000.000-650.500	SPONSOR REVENUE	1,600			
230-000.000-665.000	INTEREST	2,856		900	100
230-000.000-675.150	DONATIONS	485			
NET OF REVENUES/APPROPRIATIONS - 000.000 -		768,711		900	100
Dept 750.806 - CABLE TV					
230-750.806-701.000	SALARIES	326,080	50,500	48,650	
230-750.806-701.080	SALARIES - TEMPORARY	38,091		150	
230-750.806-702.000	SICK LEAVE INCENTIVE PAY	1,940			
230-750.806-706.000	OVERTIME	2,145			
230-750.806-709.000	ICMA CONTRIBUTION	750	250		
230-750.806-710.000	LONGEVITY	2,880			
230-750.806-714.000	FICA	28,596	4,050	3,740	
230-750.806-715.000	HEALTH INSURANCE	36,567	20,400	16,000	
230-750.806-715.010	FLEXIBLE BENEFIT	15,000			
230-750.806-716.000	LIFE/DISABILITY INSURANCE	1,254		1,200	
230-750.806-717.000	PENSION	32,690	5,100	4,865	
230-750.806-717.500	VantageCare	5,445	1,010	25	
230-750.806-718.000	WORKERS COMPENSATION	1,228		845	
230-750.806-728.000	OPERATING SUPPLIES	340			
230-750.806-750.000	PUBLICATIONS	33,579			
230-750.806-808.000	LEGAL FEES	15,500			
230-750.806-820.000	CONTRACTUAL SERVICES	62,882	50,000		
230-750.806-825.000	PROFESSIONAL CONFERENCES/DUES	9,884			
230-750.806-870.000	MILEAGE	85			
230-750.806-880.000	COMMUNITY PROMOTION	3,132			
230-750.806-890.000	Special Events	3,358			
230-750.806-955.000	MISCELLANEOUS	1,212			
230-750.806-957.000	ADMINISTRATIVE	120,000			
230-750.806-980.000	OFFICE EQUIPMENT & FURNITURE	1,195			
230-750.806-980.010	VIDEO PRODUCTION EQUIPMENT	25,368			
NET OF REVENUES/APPROPRIATIONS - 750.806 - CABLE TV		(769,201)	(131,310)	(75,475)	
ESTIMATED REVENUES - FUND 230		768,711		900	100
APPROPRIATIONS - FUND 230		769,201	131,310	75,475	
NET OF REVENUES/APPROPRIATIONS - FUND 230		(490)	(131,310)	(74,575)	100
BEGINNING FUND BALANCE		296,958	296,468	296,469	221,894
ENDING FUND BALANCE		296,468	165,158	221,894	221,994

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 246 - TIRF					
Dept 000.000					
246-000.000-576.100	State Grant Revenue			1,500	
246-000.000-665.000	INTEREST	18,269	10,000	9,000	9,000
246-000.000-665.040	INTEREST - SPECIAL ASSESSMENTS	12,790	10,000	10,700	10,500
246-000.000-672.000	SPECIAL ASSESSMENTS	144,416	150,000	140,000	140,000
246-000.000-972.020	LAKE LANSING WATERSHED	92,654	95,000	15,000	15,000
246-000.000-974.000	CONSTRUCTION/IMPROVEMENTS	35,102	25,000	90,000	50,000
NET OF REVENUES/APPROPRIATIONS - 000.000 -		47,719	50,000	56,200	94,500
ESTIMATED REVENUES - FUND 246		175,475	170,000	161,200	159,500
APPROPRIATIONS - FUND 246		127,756	120,000	105,000	65,000
NET OF REVENUES/APPROPRIATIONS - FUND 246		47,719	50,000	56,200	94,500
BEGINNING FUND BALANCE		955,586	1,003,305	1,003,305	1,059,505
ENDING FUND BALANCE		1,003,305	1,053,305	1,059,505	1,154,005

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 250 - COMMUNITY NEEDS FUND					
Dept 000.000					
250-000.000-665.000	INTEREST	237	50	150	50
250-000.000-675.060	DONATIONS - HRC EMER SERVICES	20,956	7,500	20,000	10,000
250-000.000-675.065	DONATIONS - REDI-RIDE	1,829	200	1,000	200
250-000.000-675.076	DONATIONS-HOLIDAY BASKETS	1,861			
250-000.000-699.000	OPERATING TRANSFER IN			62,000	
250-000.000-956.070	EMERGENCY FUND	17,361	7,500	20,000	10,000
250-000.000-956.073	HOLIDAY BASKETS	631		150	
250-000.000-956.075	REDI-RIDE	1,800	1,000	1,000	200
NET OF REVENUES/APPROPRIATIONS - 000.000 -		5,091	(750)	62,000	50

ESTIMATED REVENUES - FUND 250		24,883	7,750	83,150	10,250
APPROPRIATIONS - FUND 250		19,792	8,500	21,150	10,200
NET OF REVENUES/APPROPRIATIONS - FUND 250		5,091	(750)	62,000	50
BEGINNING FUND BALANCE		18,796	23,887	23,888	85,888
ENDING FUND BALANCE		23,887	23,137	85,888	85,938

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 275 - REVOLVING ENERGY FUND					
Dept 000.000					
275-000.000-665.000	INTEREST	949	200	250	
275-000.000-685.000	ENERGY SAVINGS PAYMENTS		50		
NET OF REVENUES/APPROPRIATIONS - 000.000 -		949	250	250	
ESTIMATED REVENUES - FUND 275		949	250	250	
APPROPRIATIONS - FUND 275					
NET OF REVENUES/APPROPRIATIONS - FUND 275		949	250	250	
BEGINNING FUND BALANCE		55,157	56,106	56,106	56,356
ENDING FUND BALANCE		56,106	56,356	56,356	56,356

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 277 - LAW ENFORCEMENT GRANTS					
Dept 000.000					
277-000.000-506.000	GRANT REVENUE - LOCAL	839			
277-000.000-665.000	INTEREST	1,329	500	400	200
NET OF REVENUES/APPROPRIATIONS - 000.000 -		2,168	500	400	200
ESTIMATED REVENUES - FUND 277		2,168	500	400	200
APPROPRIATIONS - FUND 277					
NET OF REVENUES/APPROPRIATIONS - FUND 277		2,168	500	400	200
BEGINNING FUND BALANCE		73,877	76,045	76,045	76,445
ENDING FUND BALANCE		76,045	76,545	76,445	76,645

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 310 - ROADS DEBT RETIREMENT FUND					
Dept 000.000					
310-000.000-405.090	ROAD DEBT MILLAGE COLLECTION		3,514,000	3,517,000	3,618,000
310-000.000-412.000	DELINQUENT PROPERTY TAXES			1,000	1,000
310-000.000-665.000	INTEREST	1,953	30,000	16,000	15,000
310-000.000-696.000	OTHR FINANCING SRCE-BOND PROCEEDS	880,482			
310-000.000-993.000	PRINCIPAL EXPENSE		3,305,000	3,050,000	3,165,000
310-000.000-995.000	DEBT SERVICE-INTEREST		235,175	481,000	402,500
NET OF REVENUES/APPROPRIATIONS - 000.000 -		882,435	3,825	3,000	66,500
ESTIMATED REVENUES - FUND 310		882,435	3,544,000	3,534,000	3,634,000
APPROPRIATIONS - FUND 310			3,540,175	3,531,000	3,567,500
NET OF REVENUES/APPROPRIATIONS - FUND 310		882,435	3,825	3,000	66,500
BEGINNING FUND BALANCE			882,435	882,435	885,435
ENDING FUND BALANCE		882,435	886,260	885,435	951,935

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 370 - FIRE STATION DEBT SERVICE					
Dept 000.000					
370-000.000-405.070	FIRE STATION MILLAGE COLLECTION	350,582	361,500	363,000	372,000
370-000.000-412.000	DELINQUENT PROPERTY TAXES	151	100	105	100
370-000.000-665.000	INTEREST	5,327	2,000	2,000	1,000
370-000.000-993.000	PRINCIPAL EXPENSE	220,000	225,000	225,000	230,000
370-000.000-995.000	DEBT SERVICE-INTEREST	51,468	48,405	48,405	44,590
NET OF REVENUES/APPROPRIATIONS - 000.000 -		84,592	90,195	91,700	98,510
ESTIMATED REVENUES - FUND 370		356,060	363,600	365,105	373,100
APPROPRIATIONS - FUND 370		271,468	273,405	273,405	274,590
NET OF REVENUES/APPROPRIATIONS - FUND 370		84,592	90,195	91,700	98,510
BEGINNING FUND BALANCE		206,187	290,779	290,780	382,480
ENDING FUND BALANCE		290,779	380,974	382,480	480,990

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 454 - FIRE STATION CONSTRUCTION FUND					
Dept 000.000					
454-000.000-821.000	PROFESSIONAL SERVICES		16		
NET OF REVENUES/APPROPRIATIONS - 000.000 -			(16)		
ESTIMATED REVENUES - FUND 454					
APPROPRIATIONS - FUND 454					
NET OF REVENUES/APPROPRIATIONS - FUND 454			16		
BEGINNING FUND BALANCE			16		
ENDING FUND BALANCE					

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 590 - SEWER FUND					
Dept 000.000					
590-000.000-625.000	PUBLIC WORKS SERVICES	20,000	20,000	20,000	20,000
590-000.000-630.110	BILLING CHARGES-SEWER	139,453	130,000	135,000	138,000
590-000.000-631.000	SEWER CHARGES	5,432,168	5,800,000	5,800,000	7,040,000
590-000.000-631.010	LIFT STATION FEES	6,938	6,900	6,900	6,850
590-000.000-632.000	WATER AND SEWER PENALTIES	36,399	35,000	12,000	20,000
590-000.000-634.010	SEWER BENEFITS	11,148	10,000	10,000	10,000
590-000.000-635.000	SEWER INSPECTIONS	3,200	5,000	5,000	5,000
590-000.000-636.000	SEWER LICENSES	200	150	150	
590-000.000-640.000	CONNECTION FEES	194,119	150,000	150,000	100,000
590-000.000-641.000	ENGINEERING FEES	7,292	2,000	8,500	5,000
590-000.000-641.010	Inspection Charges	42,345	15,000	45,000	30,000
590-000.000-665.000	INTEREST	9,552	5,000	8,000	5,000
590-000.000-671.000	MISCELLANEOUS	2,402	500	1,200	4,000
590-000.000-693.000	GAIN ON SALE OF FIXED ASSETS	(450)			
590-000.000-717.600	PENSION EXPENSE - GASB 68	(72,896)			
NET OF REVENUES/APPROPRIATIONS - 000.000 -		5,977,662	6,179,550	6,201,750	7,383,850
Dept 440.441 - WATER/SEWER ADMINISTRATION					
590-440.441-701.000	SALARIES	73,275	79,000	77,650	78,800
590-440.441-709.000	ICMA CONTRIBUTION	250	250	250	250
590-440.441-710.000	LONGEVITY	640	800	800	800
590-440.441-714.000	FICA	5,831	6,150	6,150	6,300
590-440.441-715.000	HEALTH INSURANCE	13,564	13,900	13,900	14,300
590-440.441-716.000	LIFE/DISABILITY INSURANCE	347	460	460	470
590-440.441-717.000	PENSION	9,375	8,300	9,800	11,000
590-440.441-717.500	VantageCare	1,325	1,525	1,525	1,600
590-440.441-718.000	WORKERS COMPENSATION	533	575	450	540
590-440.441-723.000	AUTO ALLOWANCE	4,264	4,200	4,800	4,800
590-440.441-728.000	OPERATING SUPPLIES	4			
590-440.441-807.000	AUDIT	6,500	7,000	7,000	8,000
590-440.441-819.000	TRAINING		750		
590-440.441-820.000	CONTRACTUAL SERVICES	8,107	5,000	10,000	15,000
590-440.441-825.000	PROFESSIONAL CONFERENCES/DUES	714	1,000	1,000	1,000
590-440.441-955.000	MISCELLANEOUS	12,888	10,000	15,000	15,000
590-440.441-957.000	ADMINISTRATIVE	525,000	525,000	525,000	525,000
590-440.441-968.000	DEPRECIATION	331,821			
NET OF REVENUES/APPROPRIATIONS - 440.441 - WATER/SEWER ADMINI:		(994,438)	(663,910)	(673,785)	(682,860)
Dept 440.447 - ENGINEERING					
590-440.447-701.000	SALARIES	180,833	180,000	175,000	185,000
590-440.447-702.000	SICK LEAVE INCENTIVE PAY		720		
590-440.447-706.000	OVERTIME	910	1,250	1,250	1,250
590-440.447-709.000	ICMA CONTRIBUTION	325	325	325	450
590-440.447-710.000	LONGEVITY	1,554	1,760	1,600	1,600
590-440.447-714.000	FICA	14,126	13,600	13,600	14,500
590-440.447-715.000	HEALTH INSURANCE	20,919	27,250	27,250	31,000
590-440.447-715.010	FLEXIBLE BENEFIT	4,350	3,600	3,600	3,600
590-440.447-716.000	LIFE/DISABILITY INSURANCE	598	710	700	700
590-440.447-717.000	PENSION	16,431	16,500	16,500	16,500
590-440.447-717.500	VantageCare	3,033	3,250	3,250	3,500
590-440.447-718.000	WORKERS COMPENSATION	877	1,310	900	1,340
590-440.447-727.000	LICENSES		2,000	2,000	2,000
590-440.447-728.000	OPERATING SUPPLIES	54	500	500	500
590-440.447-819.000	TRAINING	561	1,000	1,000	1,000
590-440.447-821.000	PROFESSIONAL SERVICES	(8,248)	35,000	30,000	35,000
590-440.447-825.000	PROFESSIONAL CONFERENCES/DUES	32	500	500	500
590-440.447-950.000	Vehicle Charges	13,565	14,750	14,750	15,335
NET OF REVENUES/APPROPRIATIONS - 440.447 - ENGINEERING		(249,920)	(304,025)	(292,725)	(313,775)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 440.527 - SEWAGE TREATMENT					
590-440.527-820.000	CONTRACTUAL SERVICES	1,555,960	3,500,000	3,500,000	3,200,000
NET OF REVENUES/APPROPRIATIONS - 440.527 - SEWAGE TREATMENT		(1,555,960)	(3,500,000)	(3,500,000)	(3,200,000)
Dept 440.538 - SEWER MAINTENANCE					
590-440.538-701.000	SALARIES	194,575	227,650	197,100	205,750
590-440.538-701.080	SALARIES - TEMPORARY	6,336	5,500		5,000
590-440.538-706.000	OVERTIME	10,698	10,000	10,000	10,000
590-440.538-709.000	ICMA CONTRIBUTION	1,250	1,250	1,065	1,065
590-440.538-710.000	LONGEVITY	160	1,280	1,280	1,600
590-440.538-714.000	FICA	17,272	19,650	17,500	17,550
590-440.538-715.000	HEALTH INSURANCE	54,581	73,400	68,000	88,000
590-440.538-715.010	FLEXIBLE BENEFIT	1,875			
590-440.538-716.000	LIFE/DISABILITY INSURANCE	996	1,350	1,160	1,185
590-440.538-717.000	PENSION	25,821	28,700	30,000	35,650
590-440.538-717.500	VantageCare	3,702	4,350	4,350	4,000
590-440.538-718.000	WORKERS COMPENSATION	2,842	4,820	2,700	4,000
590-440.538-727.000	LICENSES	8,052	35,000	35,000	35,000
590-440.538-728.000	OPERATING SUPPLIES	8,630	10,000	2,500	8,000
590-440.538-760.000	UNIFORMS		1,500	1,500	1,500
590-440.538-761.000	CLOTHING ALLOWANCE	4,053	3,815	3,815	3,000
590-440.538-806.000	CLAIM REIMBURSEMENT	400	2,000	2,000	2,000
590-440.538-819.000	TRAINING	3,220	6,000	16,000	16,000
590-440.538-820.000	CONTRACTUAL SERVICES	61,745	68,000	68,000	68,000
590-440.538-820.020	SEWER CLEANING-SANITARY	174	1,000	1,000	1,000
590-440.538-820.030	SEWER CLEANING-STORM		1,000	1,000	1,000
590-440.538-825.000	PROFESSIONAL CONFERENCES/DUES	261	1,200	1,200	1,200
590-440.538-827.000	RADIO MAINTENANCE	1,443	7,400	7,400	7,400
590-440.538-920.000	UTILITIES-ELECTRIC/GAS/WATER	80,067	85,000	85,000	95,000
590-440.538-921.000	UTILITIES-TELEPHONE & DATA SERVICES	392	1,200	1,200	1,200
590-440.538-931.000	LIFT STATION REPAIRS	40,959	130,000	130,000	120,000
590-440.538-932.000	SEWER LINE REPAIRS	5,899	50,000	40,000	50,000
590-440.538-936.000	EQUIPMENT MAINTENANCE	1,646	7,000	7,000	7,000
590-440.538-950.000	Vehicle Charges	102,165	101,300	101,300	118,695
590-440.538-968.000	DEPRECIATION	675,694			
590-440.538-979.000	MACHINERY AND EQUIPMENT	4,245	26,000	26,000	26,000
NET OF REVENUES/APPROPRIATIONS - 440.538 - SEWER MAINTENANCE		(1,319,153)	(915,365)	(863,070)	(935,795)
Dept 900.901 - CAPITAL OUTLAY					
590-900.901-974.000	CONSTRUCTION/IMPROVEMENTS		500,000	500,000	555,000
NET OF REVENUES/APPROPRIATIONS - 900.901 - CAPITAL OUTLAY			(500,000)	(500,000)	(555,000)
Dept 905.906 - DEBT SERVICE					
590-905.906-992.070	Wastewater Optimization			185,000	850,000
590-905.906-995.000	DEBT SERVICE-INTEREST	317,471	253,500	185,000	400,000
NET OF REVENUES/APPROPRIATIONS - 905.906 - DEBT SERVICE		(317,471)	(253,500)	(370,000)	(1,250,000)
ESTIMATED REVENUES - FUND 590		5,904,766	6,179,550	6,201,750	7,383,850
APPROPRIATIONS - FUND 590		4,364,046	6,136,800	6,199,580	6,937,430
NET OF REVENUES/APPROPRIATIONS - FUND 590		1,540,720	42,750	2,170	446,420
BEGINNING FUND BALANCE		23,810,001	25,350,721	25,350,721	25,352,891
ENDING FUND BALANCE		25,350,721	25,393,471	25,352,891	25,799,311

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 591 - WATER FUND					
Dept 000.000					
591-000.000-600.000	Capital Contributions	154,081			
591-000.000-625.000	PUBLIC WORKS SERVICES	20,000		20,000	20,000
591-000.000-630.000	WATER SALES	5,676,985	5,850,000	5,850,000	5,952,000
591-000.000-630.100	BILLING CHARGES	139,382	138,000	138,000	138,000
591-000.000-632.000	WATER AND SEWER PENALTIES	33,713	30,000	10,000	30,000
591-000.000-633.000	CUSTOMER INSTALLATION	91,022	70,000	70,000	70,000
591-000.000-634.000	WATER BENEFITS	4,769	20,000	20,000	20,000
591-000.000-635.100	Water Inspection	2,780	5,000	5,000	5,000
591-000.000-640.000	CONNECTION FEES	134,449	120,000	120,000	120,000
591-000.000-641.000	ENGINEERING FEES	7,252	3,000	10,000	10,000
591-000.000-641.010	Inspection Charges	40,644	20,000	35,000	30,000
591-000.000-665.000	INTEREST	46,173	25,000	15,000	5,000
591-000.000-667.100	RENTAL INCOME-ANTENNAS	27,181	27,000	28,100	28,100
591-000.000-671.000	MISCELLANEOUS	19,228	10,000	5,000	5,000
591-000.000-671.001	MISC-POOL FILL	167	200	200	200
591-000.000-671.002	Misc-Construction meters	14,003	15,000	12,000	12,000
591-000.000-692.000	GAIN FROM JOINT VENTURE	347,708			
591-000.000-717.600	PENSION EXPENSE - GASB 68	(110,550)			
NET OF REVENUES/APPROPRIATIONS - 000.000 -		6,870,087	6,333,200	6,338,300	6,445,300
Dept 440.441 - WATER/SEWER ADMINISTRATION					
591-440.441-701.000	SALARIES	74,786	78,500	78,000	79,000
591-440.441-709.000	ICMA CONTRIBUTION	250	250	250	250
591-440.441-710.000	LONGEVITY	640	800	800	800
591-440.441-714.000	FICA	5,953	6,150	6,150	6,300
591-440.441-715.000	HEALTH INSURANCE	10,952	13,900	12,500	14,000
591-440.441-716.000	LIFE/DISABILITY INSURANCE	347	460	420	470
591-440.441-717.000	PENSION	8,735	8,300	10,300	11,100
591-440.441-717.500	VantageCare	1,357	1,525	1,700	1,560
591-440.441-718.000	WORKERS COMPENSATION	975	575	770	800
591-440.441-723.000	AUTO ALLOWANCE	4,264	4,200	4,800	4,800
591-440.441-728.000	OPERATING SUPPLIES	65	100	100	100
591-440.441-807.000	AUDIT	6,500	7,000	7,000	8,000
591-440.441-819.000	TRAINING	172	200		
591-440.441-820.000	CONTRACTUAL SERVICES	8,107	5,000	8,000	8,000
591-440.441-825.000	PROFESSIONAL CONFERENCES/DUES	27,087	37,000	37,000	37,000
591-440.441-955.000	MISCELLANEOUS	13,421	20,000	20,000	25,000
591-440.441-957.000	ADMINISTRATIVE	525,000	525,000	525,000	525,000
591-440.441-968.000	DEPRECIATION	737,994			
NET OF REVENUES/APPROPRIATIONS - 440.441 - WATER/SEWER ADMINI		(1,426,605)	(708,960)	(712,790)	(722,180)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 440.447 - ENGINEERING					
591-440.447-701.000	SALARIES	167,109	175,000	174,000	189,000
591-440.447-702.000	SICK LEAVE INCENTIVE PAY	1,644	750	1,500	1,385
591-440.447-706.000	OVERTIME	671	1,250	1,250	1,250
591-440.447-709.000	ICMA CONTRIBUTION	325	325	1,000	1,000
591-440.447-710.000	LONGEVITY	1,554	1,760	1,760	1,600
591-440.447-714.000	FICA	13,202	13,575	13,575	14,500
591-440.447-715.000	HEALTH INSURANCE	20,919	27,300	27,300	30,700
591-440.447-715.010	FLEXIBLE BENEFIT	4,350	3,600	3,600	3,600
591-440.447-716.000	LIFE/DISABILITY INSURANCE	556	710	640	700
591-440.447-717.000	PENSION	16,471	17,600	16,800	17,000
591-440.447-717.500	VantageCare	3,033	3,250	3,250	3,500
591-440.447-718.000	WORKERS COMPENSATION	848	1,310	900	1,350
591-440.447-727.000	LICENSES		1,800	1,800	2,000
591-440.447-728.000	OPERATING SUPPLIES	297	1,000	1,000	1,000
591-440.447-819.000	TRAINING	530	500	500	500
591-440.447-821.000	PROFESSIONAL SERVICES	30	500		
591-440.447-825.000	PROFESSIONAL CONFERENCES/DUES	603	600	600	600
591-440.447-950.000	Vehicle Charges	13,565	14,750	14,750	15,335
NET OF REVENUES/APPROPRIATIONS - 440.447 - ENGINEERING		(245,707)	(265,580)	(264,225)	(285,020)
Dept 440.528 - WATER SUPPLY					
591-440.528-812.000	INSURANCE		2,400		
591-440.528-820.000	CONTRACTUAL SERVICES	3,186,269	3,250,000	3,281,500	3,400,000
NET OF REVENUES/APPROPRIATIONS - 440.528 - WATER SUPPLY		(3,186,269)	(3,252,400)	(3,281,500)	(3,400,000)
Dept 440.537 - WATER MAINTENANCE					
591-440.537-701.000	SALARIES	381,470	373,200	404,350	460,200
591-440.537-701.080	SALARIES - TEMPORARY	5,420	5,000		5,000
591-440.537-706.000	OVERTIME	29,382	24,000	24,000	24,000
591-440.537-709.000	ICMA CONTRIBUTION	2,000	2,000	2,100	2,315
591-440.537-710.000	LONGEVITY	5,722	4,800	4,800	5,680
591-440.537-714.000	FICA	32,749	32,650	32,650	38,750
591-440.537-715.000	HEALTH INSURANCE	108,849	118,900	110,000	140,500
591-440.537-715.010	FLEXIBLE BENEFIT	750	4,500		
591-440.537-716.000	LIFE/DISABILITY INSURANCE	1,659	2,200	2,200	2,650
591-440.537-717.000	PENSION	50,249	49,500	62,000	88,000
591-440.537-717.500	VantageCare	7,069	7,320	7,320	8,800
591-440.537-718.000	WORKERS COMPENSATION	8,300	15,650	15,650	17,960
591-440.537-727.000	LICENSES	12,846	50,000	50,000	50,000
591-440.537-728.000	OPERATING SUPPLIES	78,833	95,000	95,000	95,000
591-440.537-760.000	UNIFORMS		2,400	2,400	
591-440.537-761.000	CLOTHING ALLOWANCE	6,428	6,000	6,000	6,750
591-440.537-806.000	CLAIM REIMBURSEMENT	23,346		100	100
591-440.537-819.000	TRAINING	5,528	4,800	4,800	5,000
591-440.537-820.000	CONTRACTUAL SERVICES	149,321	125,000	125,000	100,000
591-440.537-825.000	PROFESSIONAL CONFERENCES/DUES	735	2,500	2,500	2,500
591-440.537-827.000	RADIO MAINTENANCE	4,300	4,000	4,000	4,000
591-440.537-920.000	UTILITIES-ELECTRIC/GAS/WATER	14,637	7,000	7,000	7,000
591-440.537-921.000	UTILITIES-TELEPHONE & DATA SERVICES	392	1,000	1,000	1,000
591-440.537-936.000	EQUIPMENT MAINTENANCE	1,366	2,000	2,000	2,000
591-440.537-950.000	Vehicle Charges	179,065	178,900	178,900	162,620
591-440.537-972.000	CUSTOMER INSTALLATION - WATER	48,876	300,000	300,000	300,000
591-440.537-979.000	MACHINERY AND EQUIPMENT	9,161	27,000	27,000	25,000
NET OF REVENUES/APPROPRIATIONS - 440.537 - WATER MAINTENANCE		(1,168,453)	(1,445,320)	(1,470,770)	(1,554,825)

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Dept 900.901 - CAPITAL OUTLAY					
591-900.901-974.000	CONSTRUCTION/IMPROVEMENTS	(5,930)	515,000	515,000	470,000
NET OF REVENUES/APPROPRIATIONS - 900.901 - CAPITAL OUTLAY		5,930	(515,000)	(515,000)	(470,000)
Dept 905.906 - DEBT SERVICE					
591-905.906-992.110	WATER PLANT RENOVATION		150,000		
NET OF REVENUES/APPROPRIATIONS - 905.906 - DEBT SERVICE			(150,000)		
ESTIMATED REVENUES - FUND 591		6,759,537	6,333,200	6,338,300	6,445,300
APPROPRIATIONS - FUND 591		5,910,554	6,337,260	6,244,285	6,432,025
NET OF REVENUES/APPROPRIATIONS - FUND 591		848,983	(4,060)	94,015	13,275
BEGINNING FUND BALANCE		28,691,594	29,540,577	29,540,578	29,634,593
ENDING FUND BALANCE		29,540,577	29,536,517	29,634,593	29,647,868

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 661 - MOTOR POOL					
Dept 000.000					
661-000.000-665.000	INTEREST	18,042	5,000	5,600	5,000
661-000.000-667.000	RENTALS	1,153,190	1,250,320	1,250,320	1,151,320
661-000.000-667.500	RENTALS - PUBLIC SAFETY VEHICLES	210,000	250,000	250,000	250,000
661-000.000-673.000	VEHICLE SALES		5,000	4,500	5,000
661-000.000-693.000	GAIN/LOSS ON SALE OF FIXED ASSETS	22,699			
661-000.000-701.000	SALARIES	135,525	130,800	132,500	135,500
661-000.000-702.000	SICK LEAVE INCENTIVE PAY	402	1,150		
661-000.000-706.000	OVERTIME	2,942	3,000	2,500	3,000
661-000.000-709.000	ICMA CONTRIBUTION	563	570	565	565
661-000.000-710.000	LONGEVITY	815	640	640	880
661-000.000-714.000	FICA	10,999	10,770	10,770	11,050
661-000.000-715.000	HEALTH INSURANCE	18,507	20,850	20,850	21,500
661-000.000-715.010	FLEXIBLE BENEFIT	4,500	4,500	4,500	4,500
661-000.000-716.000	LIFE/DISABILITY INSURANCE	602	780	700	800
661-000.000-717.000	PENSION	16,089	16,400	18,500	23,100
661-000.000-717.500	VantageCare	2,411	2,600	2,600	2,650
661-000.000-717.600	PENSION EXPENSE - GASB 68	(1,374,663)			
661-000.000-718.000	WORKERS COMPENSATION	2,318	4,250	2,500	4,120
661-000.000-727.000	LICENSES	2,612	21,400	21,400	21,400
661-000.000-728.101	Vehicle Repair parts	81,620	85,000	75,000	85,000
661-000.000-728.102	Vehicle Accessories	7,506	10,250	9,000	10,000
661-000.000-728.103	Veh Supplies-outside services	79,462	85,000	75,000	85,000
661-000.000-728.104	Tires/Tire Services	20,194	25,000	25,000	25,000
661-000.000-728.105	Batteries/Electrical	1,908	4,500	4,000	4,000
661-000.000-728.106	Tools	701	2,000	2,000	2,000
661-000.000-728.107	Fasteners	1,680	1,500	850	1,200
661-000.000-728.108	Solvents	1,448	1,400	1,200	1,200
661-000.000-728.110	OPERATING SUPPLIES-CUSTODIAL		250	100	100
661-000.000-760.000	UNIFORMS	2,108	2,400	2,400	2,400
661-000.000-761.000	CLOTHING ALLOWANCE	1,607	1,500	1,500	1,500
661-000.000-812.000	INSURANCE	75,000	75,000	75,905	76,000
661-000.000-819.000	TRAINING		2,000	2,000	5,000
661-000.000-820.000	CONTRACTUAL SERVICES	9,174	25,000	25,000	25,000
661-000.000-825.000	PROFESSIONAL CONFERENCES/DUES		750		
661-000.000-826.000	COMPUTER SERVICES/SUPPLIES	1,318	5,000	3,000	3,000
661-000.000-827.000	RADIO MAINTENANCE	33		100	100
661-000.000-865.000	GASOLINE	145,904	150,000	150,000	150,000
661-000.000-936.000	EQUIPMENT MAINTENANCE	8,516	8,500	8,500	8,500
661-000.000-968.000	DEPRECIATION	403,312			
661-000.000-979.000	MACHINERY AND EQUIPMENT	5,053	15,000	10,000	10,000
661-000.000-981.000	VEHICLES		422,500	422,500	1,709,000
NET OF REVENUES/APPROPRIATIONS - 000.000 -		1,733,765	370,060	399,340	(1,021,745)
ESTIMATED REVENUES - FUND 661		1,403,931	1,510,320	1,510,420	1,411,320
APPROPRIATIONS - FUND 661		(329,834)	1,140,260	1,111,080	2,433,065
NET OF REVENUES/APPROPRIATIONS - FUND 661		1,733,765	370,060	399,340	(1,021,745)
BEGINNING FUND BALANCE		1,269,187	3,002,952	3,002,954	3,402,294
ENDING FUND BALANCE		3,002,952	3,373,012	3,402,294	2,380,549

GL NUMBER	DESCRIPTION	2019 ACTIVITY	2020 ADOPTED BUDGET	2020 PROJECTED ACTIVITY	2021 RECOMMENDED BUDGET
Fund 900 - DOWNTOWN DEVELOPMENT AUTHORITY					
Dept 000.000					
900-000.000-402.000	CURRENT PROPERTY TAXES	32,334	30,200	6,500	6,500
900-000.000-576.000	OTHER INTRGOVTL REVENUE	12,764	12,000		
900-000.000-665.000	INTEREST	6			
900-000.000-728.000	OPERATING SUPPLIES	2,905	3,000	3,000	3,000
900-000.000-820.000	CONTRACTUAL SERVICES	740	1,000		
900-000.000-995.000	DEBT SERVICE-INTEREST	4,298	4,485	3,735	3,735
NET OF REVENUES/APPROPRIATIONS - 000.000 -		37,161	33,715	(235)	(235)
ESTIMATED REVENUES - FUND 900		45,104	42,200	6,500	6,500
APPROPRIATIONS - FUND 900		7,943	8,485	6,735	6,735
NET OF REVENUES/APPROPRIATIONS - FUND 900		37,161	33,715	(235)	(235)
BEGINNING FUND BALANCE		(127,800)	(90,639)	(90,640)	(90,875)
ENDING FUND BALANCE		(90,639)	(56,924)	(90,875)	(91,110)



12. A.

To: Township Board Members

**From: Derek N. Perry, Deputy Township Manager
Director of Public Works & Engineering**

LeRoy Harvey, Environmental Programs Coordinator

Date: September 10, 2020

Re: Pavement Sealant Ordinance- FINAL ADOPTION

The Meridian Environmental Commission has prepared a Pavement Sealant Ordinance for your review and approval. You may recall that this was one of the items discussed at the Township Board meeting held on June 16, 2020.

The ordinance presented for your approval is based upon similar documents from over a dozen other communities who have passed similar bans on coal tar and other sealants containing high levels of polycyclic aromatic hydrocarbons (PAHs).

The Community Development Department, in conjunction with our Township Attorney, have reviewed and organized the proposed ordinance so it is integrated into the Township Code of Ordinances within Chapter 38. This chapter pertains to licenses, permits and miscellaneous regulations.

In addition to the ordinance, we have developed an application form (attached) that will be used by commercial applicators to register with the Township. We are recommending that the registration fee be set at \$25.00, which is the current fee for our existing sewer contractor registration program.

Upon approval of the ordinance, we will work with our Communication Department to notify area contractors and the public of the new ordinance, its purpose and the program requirements.

Proposed motion:

“Move to approve the attached resolution for the final adoption of the amendment to Chapter 38 of the Code of Ordinances to add Article VIII, Pavement Sealant and to amend the Township Fee Schedule to include an Annual Registration Fee of \$25.”

RESOLUTION TO APPROVE

**Amendment to Chapter 38
Pavement Sealant
(Township Board)
FINAL ADOPTION**

RESOLUTION

At a regular meeting of the Township Board of the Charter Township of Meridian, Ingham County, Michigan, held at the Meridian Municipal Building, in said Township on the 15th^t day of September 2020.

PRESENT: _____

ABSENT: _____

The following resolution was offered by _____ and supported by _____.

WHEREAS, the Environmental Commission has recommended an amendment to the Code of Ordinances to regulate the use and application of coal tar sealant products and to require the registration of commercial and institutional applicators of coal tar sealant products within the Township; and

WHEREAS, it has been demonstrated a relationship between the use of coal tar-based sealers and certain health and environmental concerns including cancer risk to humans, acute and long term toxicity to wildlife and impaired water quality in streams; and

WHEREAS, the proposed amendment will help protect the health, safety and welfare of the citizens by preventing the use and sale of pavement sealant products containing > 0.1% Polycyclic Aromatic Hydrocarbons (PAHs) by weight including coal tar-based sealer within the Township; and

WHEREAS, the Township Board amends the Township Fee Schedule to include an Annual Registration Fee of \$25.00; and

WHEREAS, the Township Board deems it to be in the best interest of the citizens to regulate the use and application of coal tar sealant products and the registration of applicants.

WHEREAS, the Township Board introduced the proposed amendment for publication and subsequent adoption at its meeting on September 1, 2020.

ORDINANCE NO. 2020-08

**ORDINANCE AMENDING THE CODE OF THE CHARTER TOWNSHIP OF
MERIDIAN, INGHAM COUNTY, MICHIGAN BY ADDING ARTICLE VIII TO
CHAPTER 38 LICENSES, PERMITS, AND MISCELLANEOUS REGULATIONS**

THE CHARTER TOWNSHIP OF MERIDIAN ORDAINS:

Section 1. Amendment to the Code of Ordinances by adding Article VIII to Chapter 38.
The code of the Charter Township of Meridian, Ingham County, Michigan, is hereby amended to add Article VIII to Chapter 38 entitled Pavement Sealant to read as follows:

Article VIII – Pavement Sealant

Section 38-401 Title

This article shall be known as the “Pavement Sealant Ordinance” of the Charter Township of Meridian.

Section 38-402 Definitions

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section:

- (a) *Applicator*. Any person who applies pavement sealant product in the Township. An applicator includes but is not limited to homeowners, occupants of a rental property, property managers, and commercial applicators, or anyone who permits application of pavement sealant product to be applied upon property that is under that person’s ownership or control.
- (b) *Asphalt-Based Sealant*. A surface applied, petroleum-based pavement sealing product that typically contains less than 0.1% PAHs, by weight.
- (c) *Coal Tar*. A byproduct of the coking, liquefaction or gasification of coal.
- (d) *Coal Tar Sealant*. A surface applied pavement sealing product containing coal tar, coal tar pitch, coal tar pitch volatiles, RT-12, Refined Tar or any variation of those substances, including those assigned the Chemical Abstracts Service (CAS) numbers 65996-92-1, 65996-93-2, 65996-89-6, or 8007-45-2 or related substances containing more than 0.1% PAHs, by weight.

- (e) *Commercial Applicator*. Any applicator or other person who applies pavement sealant product in the Township in exchange for money, goods, services, or other valuable consideration.
- (f) *Commercial Seller*. Any person who sells or displays for sale any pavement sealant product in the Township.
- (g) *High PAH Content Sealant*. A surface-applied pavement sealing product containing steam cracked petroleum residues, steam-cracked asphalt, pyrolysis fuel oil, heavy fuel oil, ethylene tar, or any variation of those substances assigned the chemical abstracts service number 64742-90-1, 69013-21-4 or related substances containing more than 0.1% PAHs, by weight.
- (h) *Pavement Sealant*. Any surface-applied sealing product used to maintain pavement surfaces. This includes but is not limited to asphalt-based sealant products and coal tar sealant products.
- (i) *Person*. A natural person, agent, association, incorporated or unincorporated organization, company, partnership, corporation, limited liability company, any joint venture for a common purpose, or any other legal or commercial entity.
- (j) *Polycyclic Aromatic Hydrocarbons*. A group of organic chemicals formed during the incomplete burning of coal, oil, gas, or other organic substances. Present in coal tar and known to be harmful to humans, fish, and other aquatic life, commonly referred to in this article as “PAHs”.

Section 38-403 Authority

The Director of Public Works and Engineering or their designee, shall be responsible for the supervision and enforcement of this article and is authorized to issue appearance tickets or civil infractions to enforce this article.

Section 38-404 Findings

- (a) The Township Board of the Charter Township of Meridian finds that lakes, rivers, streams and other bodies of water are natural assets which enhance the environmental, recreational, cultural and economic resources and contribute to the general health and welfare of the community.

- (b) The Township Board of the Charter Township of Meridian finds that the use of sealers on driveways and parking lots is a common practice. Scientific studies on the use of driveway sealers have demonstrated a relationship between the use of coal tar based sealants and certain health and environmental concerns, including increased cancer risk to humans, acute and long-term toxicity to wildlife, and impaired water quality in streams.

Section 38-405 Purpose

- (a) The purpose of this ordinance is to prohibit the use and sale of pavement sealant products containing >0.1% Polycyclic Aromatic Hydrocarbons (PAHs) by weight, including coal tar-based sealant in the Charter Township of Meridian in order to protect, restore, and preserve the quality of its waters and protect the health of its residents.
- (b) It is the further purpose and intent of this Article to regulate the sale, use, and application of coal tar sealant products, to require the registration of commercial and institutional applicators of pavement sealant products within the Township, and to require the distribution of informational literature to consumers about the use and effect of coal tar sealant products.

Section 38-406 Coal Tar sealants prohibited; other prohibited activity

- (a) Coal tar, coal tar sealant product, or other high PAH content pavement sealant product shall not be used or applied by any person on any asphalt pavement, other pavement, or any other real property within the Township.
- (b) A person shall not sell coal tar sealant or other high PAH content sealant product that is formulated or marketed for application on any pavement or other surface.
- (c) A person shall not contract for, authorize, or allow coal tar sealant or other high PAH content sealant product to be applied on any pavement or other surface that is under their ownership or control.
- (d) A commercial applicator, residential or commercial developer, or other person shall not direct any employee, independent contractor, volunteer, or any other person to apply any coal tar sealant, or other high PAH content sealant product to any driveway, parking lot.

Section 38-407 Annual Registration and Reporting Requirements and Procedures for Commercial Applicators

- (a) Commercial applicators shall register annually with the Township Department of Public Works prior to applying pavement sealant within the Township in any calendar year.
- (b) Commercial applicators shall submit a complete registration application to the Director of Public Works and Engineering on a form furnished by the Township, along with the registration fee according to the schedule established by resolution of the Township Board. The fee shall be calculated to include the cost of registration application review and periodic field inspection.
- (c) The following information shall be included in a complete application for registration:
 - i. The legal name of the commercial applicator, any other names used, the business address, telephone number, email, and contact person for the applicant.
 - ii. The product name, type of use, and PAH content (including CAS numbers) of any pavement sealant the commercial applicator may sell or use.
 - iii. A statement signed by an owner or duly authorized representative of a commercial applicator indicating that the applicator will comply with the requirements of this article.
 - iv. All other information requested on the application or by the Director of Public Works and Engineering.
- (d) The Director of Public Works and Engineering may approve a registration if the application is complete, the applicator has complied with the previous year's reporting requirement, and the use of pavement sealant complies with this article.
- (e) Registration under this article shall be valid until expiration. Registration shall begin on January 1 and shall expire on December 31 of each calendar year.
- (f) The application for registration shall be approved or denied within 21 days by the Director of Public Works and Engineering.
- (g) A registered applicator shall notify the Director of Public Works and Engineering in writing of any change in the information in the application for registration within 7 days of any such change.

Section 38-408 Asphalt-Based Sealant Products

The provisions of this article shall only apply to coal tar, coal tar sealant products, or other high PAH content sealant products in the Township and shall not affect the use of asphalt-based sealant products which contain less than 0.1% PAHs, by weight.

Section 38-409 Penalty

A person who violates any provision of this article shall be responsible for a municipal civil infraction which upon a finding of responsibility thereof shall be punishable by a fine not exceeding \$500.00, in addition to any court fines or costs. Each day during which a violation continues shall be deemed a separate violation. The imposition of any civil fine shall not exempt a violator from compliance with the provisions of this article. The foregoing civil fines shall not prohibit the township from seeking injunctive relief against a violator or such other appropriate relief as may be provided by law.

Section 2. Validity and Severability. The provisions of this Ordinance are severable and the invalidity of any phrase, clause or part of this Ordinance shall not affect the validity or effectiveness of the remainder of the Ordinance.

Section 3. Repealer Clause. All ordinances or parts of ordinances in conflict therewith are hereby repealed only to the extent necessary to give this Ordinance full force and effect.

Section 4. Savings Clause. This Ordinance does not affect rights and duties matured, penalties that were incurred, and proceedings that were begun, before its effective date.

Section 5. Effective Date. This Ordinance shall become effective immediately upon its publication.

Ronald J. Styka, Township Supervisor

Brett Dreyfus, Township Clerk



PAVEMENT SEALANT COMMERCIAL APPLICATOR REGISTRATION APPLICATION

Company or Organization Name: _____

Address: _____

Phone: _____ E-Mail: _____

Applicant Name: _____

Address: _____

Phone: _____ E-Mail: _____

Type of sealant being provided by your company (include PAH content and CAS numbers):

By signing below, I hereby affirm that I will not, nor will any person acting under my license, apply products that contain coal tar, coal tar derivatives, or coal tar mixtures ("Coal Tar Products"), nor will I apply any sealant mixture with a PAH content of greater than .1% by weight to any public or private property within Meridian Township (The use of Coal Tar Products is strictly prohibited in the Charter Township of Meridian per Ordinance #2020-_____ and doing so can result in a civil infraction)

Applicant's Signature

Date

Staff Review: Date Received: _____ Receipt # _____

Annual Fee: \$25.00 (through December 31 of the current year.)

Approved Denied Reviewed by: _____

Expiration Date: December 31, _____

Reasons for Denial (if applicable): _____

Received identification? _____ (Y/N)

Credit to account #590-000.000-636.000
Original to Department of Public Works Administration

Initials _____ Date _____ Receipt _____ \$ _____



12.B

To: Township Board

From: Mark Kieselbach, Director of Community Planning and Development
Peter Menser, Principal Planner

Date: September 10, 2020

Re: Special Use Permit #20021 (Andev Group, LLC)

The Township Board last discussed Special Use Permit #20021 at its meeting on September 1, 2020. Since the last meeting the applicant has submitted a revised site plan showing the removal of 35 parking spaces; 11 from the eastern portion of the site nearest the Indian Lakes Estates neighborhood and 24 from the area adjacent to the extended Hannah Boulevard on the west side of the property. The total number of parking spaces provided is now 189, which matches the total number of spaces required for the project. The applicant has indicated the removed parking spaces may be added back to the plan upon application for Site Plan Review approval for Phase 2 of the project, which would be a 156,438 square foot addition consisting of 121 independent living units.

The removal of the parking spaces reduces the overall impervious surface area on the site by 6,463 square feet, taking it from 51.68 percent of the total site (10.73 acres) to 50.31 percent. For all nonresidential uses in residential districts the maximum percentage of impervious surface permitted on a site is 75 percent. Impervious surfaces includes all land covered with paving, buildings, and other nonporous surfaces.

Township Board Options

The Township Board may approve or deny the proposed special use permit. If the Board amends the proposal, the request may be referred back to the Planning Commission for a recommendation. A resolution to approve the SUP with conditions is provided.

- **Move to adopt the resolution approving Special Use Permit #20021 to construct a building greater than 25,000 square feet in size on an undeveloped parcel identified as Parcel I.D. #20-401-005 located at the east end of Hannah Boulevard.**

Attachments

1. Resolution to approve.
2. Revised site plan prepared by Kebs, Inc. dated March 25, 2020 (revision date September 10, 2020).

G:\Community Planning & Development\Planning\SPECIAL USE PERMITS (SUP)\2020\SUP 20021 (Andev_blg. 25k)\SUP 20021.tb3.docx

RESOLUTION TO APPROVE

**Special Use Permit #20021
(Andev Group, LLC)**

RESOLUTION

At a regular meeting of the Township Board of the Charter Township of Meridian, Ingham County, Michigan, held virtually using the Zoom web conferencing application, in said Township on the 15th day of September, 2020, at 6:00 p.m., Local Time.

PRESENT: _____

ABSENT: _____

The following resolution was offered by _____ and supported by _____.

WHEREAS, Andev Group, LLC has submitted a request to construct building greater than 25,000 square feet in size on 10.73 acres of a 58 acre undeveloped parcel identified as Parcel I.D. #20-401-005 located at the east end of Hannah Boulevard; and

WHEREAS, the proposed project includes the construction of a 267,543 square foot senior living community building with 230 dwelling units and construction of a 1720 square foot garage; and

WHEREAS, a total of 268,263 square feet of building area is proposed in the project; and

WHEREAS, a special use permit is required for constructing a building or group of buildings totaling more than 25,000 square feet in gross floor area; and

WHEREAS, the Planning Commission held a public hearing at its regular meeting on June 8, 2020 and voted to recommend approval at its meeting on June 22, 2020; and

WHEREAS, the Township Board discussed the proposal its regular meetings on August 6, 2020, September 1, 2020, and September 15, 2020 and has reviewed staff material forwarded under a cover memorandums dated July 29, 2020, August 27, 2020, and September 10, 2020; and

WHEREAS, the subject site is appropriately zoned RAA (Single Family-Low Density), which permits the construction of buildings greater than 25,000 square feet in size by special use permit; and

WHEREAS, the proposed project is consistent with the general standards for granting a special use permit found in Section 86-126 of the Code of Ordinances; and

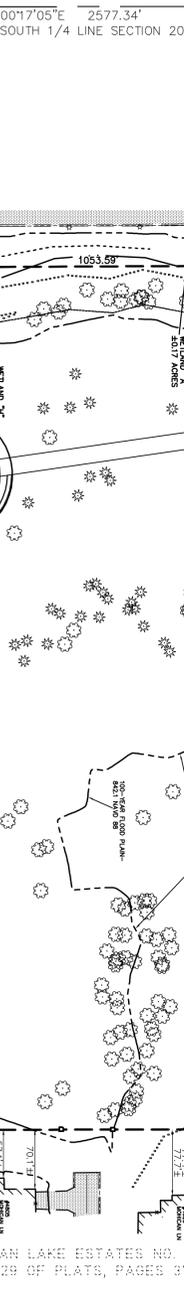
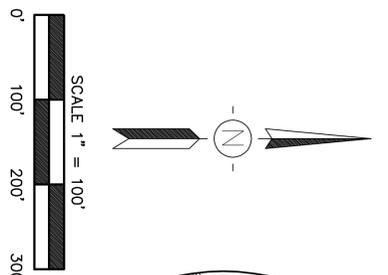
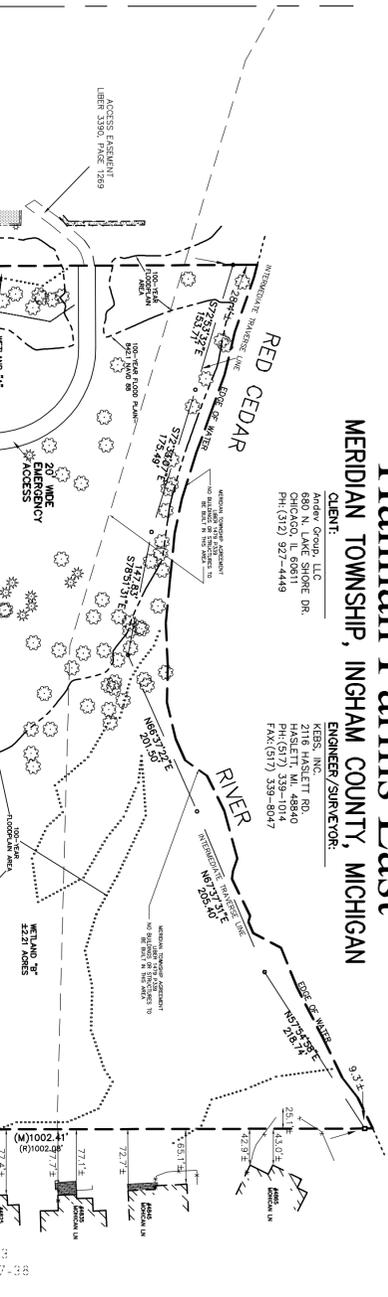
WHEREAS, public utilities, roads, and other infrastructure systems are or will be adequate to support the proposed development; and

WHEREAS, municipal water and sanitary sewer is available to extend to serve the subject site.

SUP PLAN FOR:
Hannah Farms East
 MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

CLIENT:
 KRES GROUP, LLC
 6000 W. MADISON AVE.
 CHICAGO, IL 60611
 PH: (312) 927-4449

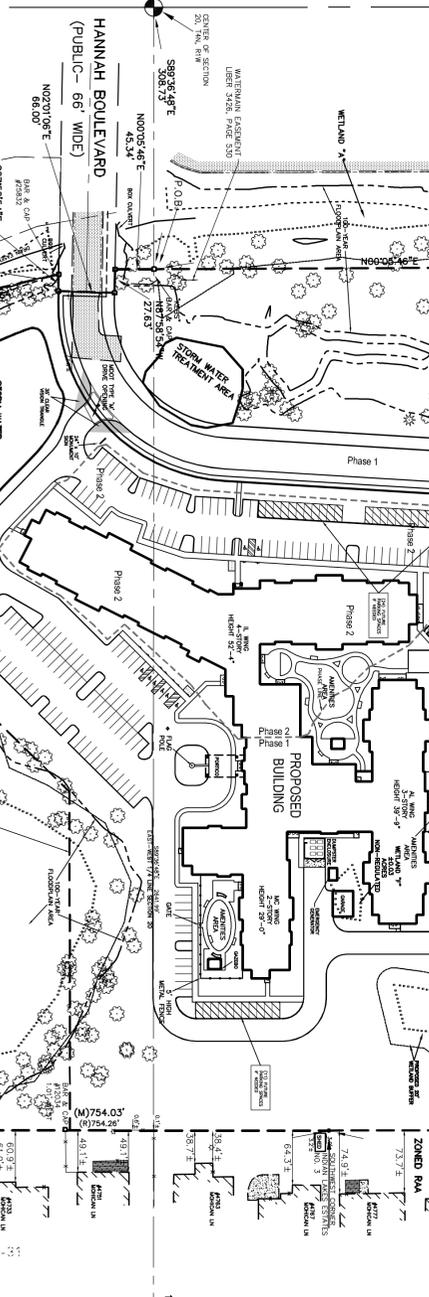
ENGINEER/SURVEYOR:
 KRES, INC. ATTORNEY AT LAW
 216 HASLETT ROAD
 HASLETT, MI 48840
 PH: (517) 339-1014
 FAX: (517) 339-8041



N00°17'05"E 2577.34'
 NORTH-SOUTH 1/4 LINE SECTION 20

SITE DATA:
 EXISTING ZONING RAA
 SPECIAL USE PERMITS REQUIRED:
 NON-RESIDENTIAL DISTRICT
 TOTAL SITE AREA = 10.73 ACRES
 ALLOWABLE DENSITY = 25 UNITS/ACRE
 10.73 ACRES X 25 = 268 UNITS
 250 UNITS PROPOSED
 PROPOSED USE:
 INDEPENDENT LIVING (IL)
 ASSISTED LIVING (AL)
 MARSH CARE (MC)
 PROPOSED BUILDING COVERAGE 88,200/391,636 = 22.52%
 PROPOSED BUILDING SURFACE 267,543 SF GARAGE 720 SF
 TOTAL = 268,263 SF
 MAXIMUM IMPERVIOUS SURFACE = 75%
 PROPOSED IMPERVIOUS SURFACE 235,241 SF / 467,621 SF = 50.31%
 NET LOT AREA = 391,636 SF
 PROPOSED BUILDING COVERAGE 88,200/391,636 = 22.52%

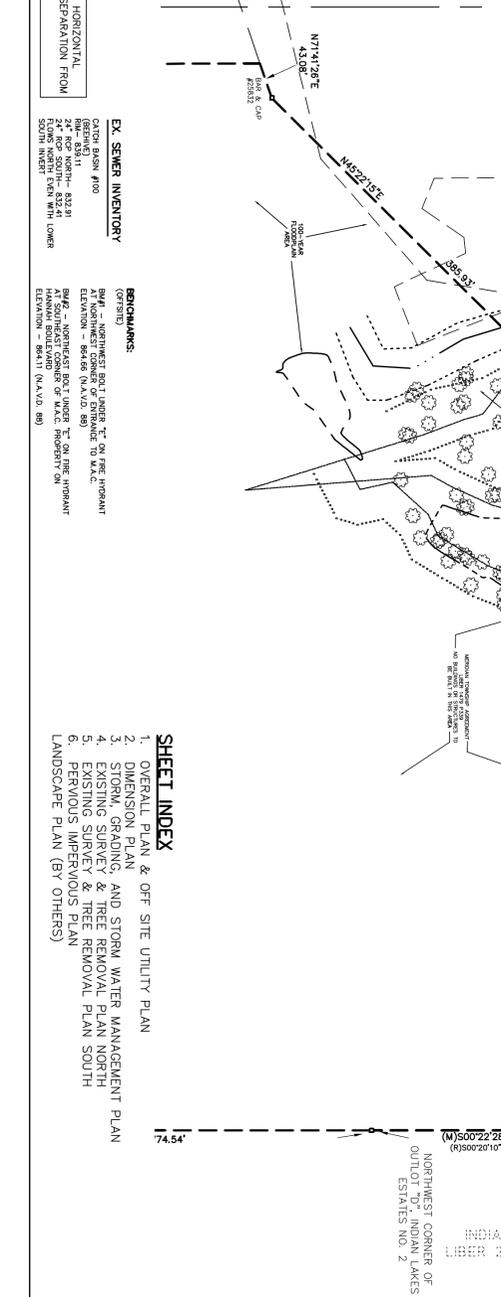
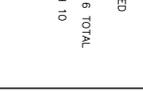
LEGAL DESCRIPTION:
 A force & effect of and in the Northwest 1/4 and the Southeast 1/4 of Section 20, T4N, R17W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the West 1/4 corner of said Section 20; thence S89°38'48"E along said East-West 1/4 line of said Section 20 a distance of 2651.27 feet to the Center of said Section 20; thence continuing S89°38'48"E along said East-West 1/4 line 308.73 feet; thence S00°00'00"W 453.34 feet to the North line of Hannah Boulevard; thence S89°38'48"E along said Hannah Boulevard 171.98 feet along a curve to the left, said curve having a radius of 2050.00 feet, a delta angle of 67°20'50" and a chord of 287.91 feet bearing N47°59'59"E; thence N02°52'41"E 321.52 feet; thence S89°37'29"E 745.58 feet to the West line of Indian Lakes Estates No. 30-31; Ingham County Records, a distance of 304.03 feet; thence N89°43'39"W 399.61 feet; thence S44°02'28"W 215.00 feet; thence N89°38'32"W 415.00 feet; thence S00°37'28"E said parcel containing 0.727 acres more or less, said parcel being the parcel shown on the plat of said Section 20, T4N, R17W, Meridian Township, Ingham County, Michigan, as recorded in the Public Records of said County, Michigan, as follows:



REQUIRED SETBACKS:
 FRONT - 25' FROM EDGE OF RIGHT-OF-WAY
 SIDE AND REAR - 25' FROM NON-RESIDENTIAL DISTRICT
 50' MIN FROM RESIDENTIAL DISTRICT IF BUILDING LESS THAN 35' IN
 IF BUILDING OVER 35' IN HEIGHT THEN INCREASE SETBACK 1' FOR
 EACH 1' OVER 35' HIGH
PROPOSED BUILDING SETBACKS:
 AL WING - 57' HIGH
 AL WING SETBACK = 50' + (52.4' - 35')1.5 = 76'
 AL WING - 39' HIGH
 SETBACK = 50' + (39' - 35')1.5 = 56'
 MC WING - 29' HIGH
 SETBACK = 50'



EX. LEGEND:
 SET 1/2" BAR WITH CAP
 FOUND MONUMENT UNLESS NOTED
 SANITARY MANHOLE
 DRAINAGE MANHOLE
 TELEPHONE MANHOLE
 CATCH BASIN
 SANITARY CLEANOUT
 VALVE
 UTILITY POLE
 LIGHT POLE
 GUY WIRE
 UTILITY PRECAST
 TRANSFORMER
 ELECTRIC METER
 GAS METER
 WATER METER
 SOIL BORING
 SIGN
 CONIFEROUS TREE
 BUSH
 DISTANCE NOT TO SCALE
 FENCE
 ASPHALT
 CONCRETE
 GRAVEL
 EXISTING SPOT ELEVATION
 EXISTING CONTOUR ELEVATION
 GAS LINE
 UNDERGROUND TELEPHONE
 UNDERGROUND TELEVISION
 UNDERGROUND ELECTRIC
 OVERHEAD WIRES
 WETLAND BOUNDARY
 EDGE OF WOODS
 DECIDUOUS TREE
 CONIFEROUS TREE
 BUSH
 EXISTING CONTOUR ELEVATION
 EXISTING TELEPHONE
 EXISTING TELEVISION
 EXISTING ELECTRIC
 EXISTING OVERHEAD WIRES
 EXISTING WETLAND BOUNDARY
 EXISTING EDGE OF WOODS
 EXISTING DECIDUOUS TREE
 EXISTING CONIFEROUS TREE
 EXISTING BUSH
 PROPOSED WATER MAIN
 PROPOSED SANITARY SEWER
 PROPOSED STORM SEWER
 PROPOSED UTILITY EASEMENT
 CENTER LINE OF ROAD
 ROAD RIGHT OF WAY
 PROPERTY LINE
 FIRE HYDRANT
 WATER VALVE
 THURST VALVE
 PROPOSED TOP OF CURB ELEV.



STORM WATER MANAGEMENT PLAN:
 1. OVERALL PLAN & OFF-SITE UTILITY PLAN
 2. DETENTION LAGOON AND STORM WATER MANAGEMENT PLAN
 3. EXISTING SURVEY AND TREE REMOVAL PLAN NORTH
 4. EXISTING SURVEY & TREE REMOVAL PLAN SOUTH
 5. PERVIOUS IMPERVIOUS PLAN
 6. LANDSCAPE PLAN (BY OTHERS)

NOTES:
 - LOCATE UTILITIES PRIOR TO INSTALLATION (COORDINATE W/ ENGINEER)
 - ENGINEER UTILITY LOCATIONS & ELEVATIONS MUST BE DELIVERED TO THE CITY ENGINEER UPON COMPLETION OF THE PROJECT

REVISIONS:
 2-11-20 SUP
 03-02-20 SUP
 03-13-20 WETLAND
 06-24-20 SUP
 08-10-20 TWP BOARD

DESIGNER: KRES, INC.
DATE: 3-25-19
SCALE: 1" = 100'
APPROVED BY: Andrew Group, LLC

KEYS, INC. ENGINEERING
 216 HASLETT ROAD, HASLETT, MI 48840
 PH: 517-339-1014 FAX: 517-339-8047

JEFFREY W. KYLES
 LICENSED PROFESSIONAL ENGINEER
 46796

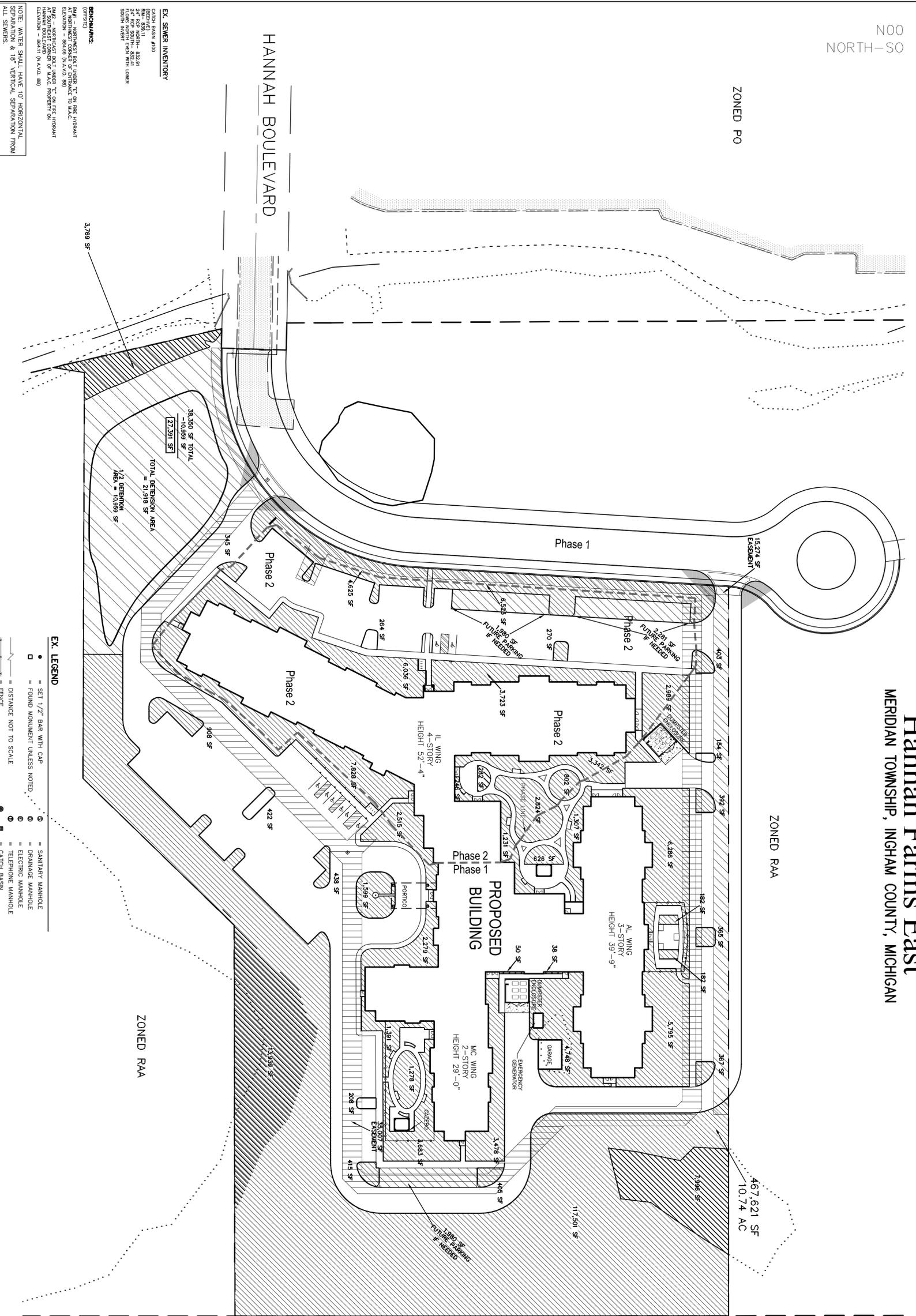
Andrew Group, LLC
 96034

SUP PLAN FOR:
Hannah Farms East
MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

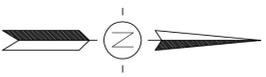
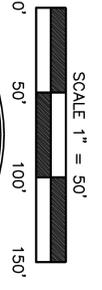
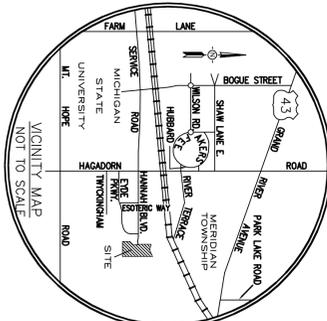
ZONED PO

ZONED RAA

467,621 SF
10.74 AC

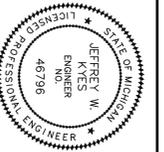


2 WKS
BEFORE YOU DIG
CALL 800-467-7111
(TOLL-FREE)



MAXIMUM IMPERVIOUS SURFACE = 75%
 PROPOSED IMPERVIOUS SURFACE 235,241 SF / 467,621 SF = 50.31%

REVISIONS NO. 2
 PAGES 00-01



REVISIONS	DATE	BY	APPROVED BY
2-11-20 SUP	08-24-20 SUP	JMK	JMK
1-10-20 SUP	03-02-20 SUP	JMK	JMK
08-24-20 SUP	08-24-20 SUP	JMK	JMK
03-02-20 SUP	03-02-20 SUP	JMK	JMK
08-24-20 SUP	08-24-20 SUP	JMK	JMK
03-02-20 SUP	03-02-20 SUP	JMK	JMK
08-24-20 SUP	08-24-20 SUP	JMK	JMK
03-02-20 SUP	03-02-20 SUP	JMK	JMK
08-24-20 SUP	08-24-20 SUP	JMK	JMK
03-02-20 SUP	03-02-20 SUP	JMK	JMK

KEBS, INC.
 KYES ENGINEERING
 BRYAN LAND SURVEYS
 216 HASLETT ROAD, HASLETT, MI 48840
 PH. 517-339-1014 FAX. 517-339-8047
 Meridian Office
 Ph. 269-781-9800

Hannah Farms East

SCALE: 1" = 50'
 DATE: 3-25-19
 AUTHORIZED BY: Andev Group, LLC



12.C

To: Township Board

From: Mark Kieselbach, Director of Community Planning and Development
Peter Menser, Principal Planner

Date: September 10, 2020

Re: Tentative Preliminary Plat #19012 (Giguere Homes) Sanctuary III extension

Giguere Homes has submitted a letter dated September 2, 2020 requesting a one year extension of the tentative preliminary plat approval for Sanctuary III, a seven lot subdivision located on the north side of Robins Way, east of Hulett Road. The tentative preliminary plat was approved by the Township Board on October 5, 2019 for a period of one year.

The Township's Land Division ordinance requires the proprietor of the plat to request an extension in writing prior to the expiration date. The current tentative preliminary plat approval would have expired on October 15, 2020 if the applicant had not applied for an extension. If approved the new expiration date will be October 15, 2021. Planning staff is currently working with the proprietor on the submittal of an application for final preliminary plat approval.

Township Board Options

The Township Board has the option to approve, approve with modifications, or deny the extension request. If the extension is denied, the applicant must resubmit the tentative preliminary plat. A resolution to approve the plat extension is provided.

- **Move to adopt the resolution extending tentative preliminary plat approval for Sanctuary III to October 15, 2021.**

Attachments

1. Resolution to approve.
2. Letter from Jim Giguere requesting plat extension dated September 2, 2020.
3. Sanctuary III Tentative Preliminary Plat approval letter dated October 17, 2019.
4. Approved Tentative Preliminary Plat.

G:\Community Planning & Development\Planning\PLATS (PLAT)\2019\Plat #19012 (Giguere) Sanctuary 3\Tentative Preliminary Plat\2020 Extension\TPP 19102 2020 extension.tb1.docx

**RESOLUTION TO APPROVE
(EXTENSION)**

**Tentative Preliminary Plat #19012
Giguere Homes
Sanctuary 3**

RESOLUTION

At a regular meeting of the Township Board of the Charter Township of Meridian, Ingham County, Michigan, held virtually using the Zoom web conferencing application, on the 15th day of September, 2020, at 6:00 p.m., Local Time.

PRESENT: _____

ABSENT: _____

The following resolution was offered by _____ and supported by _____.

WHEREAS, Giguere Homes in a letter dated September 2, 2020 requested an extension of the Tentative Preliminary Plat approval for Sanctuary 3 (TPP #19012), a single family subdivision of seven lots located north of Robins Way, east of Hulett Road; and

WHEREAS, the Township Board has reviewed the material forwarded by staff under a cover memorandum dated September 10, 2020; and

WHEREAS, the tentative preliminary plat remains consistent with the design approved by the Township Board on October 15, 2019; and

WHEREAS, the Township’s Land Division Ordinance and the State Land Division Act allow for the extension of a tentative preliminary plat.

NOW THEREFORE, BE IT RESOLVED THE TOWNSHIP BOARD OF THE CHARTER TOWNSHIP OF MERIDIAN hereby grants the extension of Tentative Preliminary Plat #19012, Sanctuary 3, for a period of one year, from October 15, 2020 to October 15, 2021, with the following condition:

1. All previous conditions placed on the tentative preliminary plat approval shall remain in effect.

ADOPTED: YEAS: _____

NAYS: _____

STATE OF MICHIGAN)

) ss

COUNTY OF INGHAM)

Resolution to Approve (Extension)
Tentative Preliminary Plat #19012 (Giguere Homes)
Sanctuary 3
Page 2

I, the undersigned, the duly qualified and acting Clerk of the Charter Township of Meridian, Ingham County, Michigan, DO HEREBY CERTIFY that the foregoing is a true and a complete copy of a resolution adopted at a regular meeting of the Township Board on the 15th day of September, 2020.

Brett Dreyfus
Township Clerk



September 2, 2020

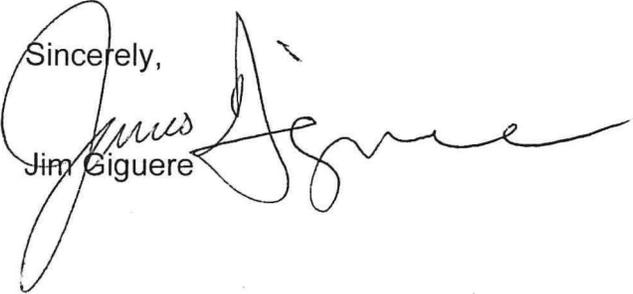
Meridian Township
5151 Marsh Rd.
Okemos, MI 48864

RE: Sanctuary III subdivision
Tentative Preliminary Plat #19012 (Giguere Homes)
Written Application for Extension of Tentative Approval of the Preliminary Plat

With this letter I am requesting that the Township Board extend the Tentative Approval of the Preliminary Plat that was granted on October 15, 2019.

Thank you for your consideration.

Sincerely,


Jim Giguere

CHARTER TOWNSHIP OF MERIDIAN

Ronald J. Styka
Brett Dreyfus
Phil Deschaine
Frank L. Walsh

Supervisor
Clerk
Treasurer
Manager



Courtney Wisinski
Patricia Herring Jackson
Dan Opsommer
Kathy Ann Sundland

Trustee
Trustee
Trustee
Trustee

October 17, 2019

Giguere Homes
Jim Giguere
6200 Pine Hollow Drive, Ste. 100
East Lansing, MI 48823

**RE: Tentative Preliminary Plat #19012
Sanctuary 3**

Dear Mr. Giguere,

At its regular meeting on October 15, 2019 the Township Board voted to approve the tentative preliminary plat for Sanctuary 3, a seven lot subdivision located on the north side of Robins Way, east of Hulett Road. Approval of the tentative preliminary plat was granted subject to the following conditions:

1. Approval is based on the revised Tentative Preliminary Plat prepared by Enger Surveying and Engineering dated October 9, 2019 and received by the Township on October 9, 2019.
2. Approval is subject to the 11 conditions established in Rezoning #18160.
3. Approval is subject to the conditions offered by the applicant which include the addition of two 10-foot wide tree buffer areas to the plat on Lots 3 and 5 and a portion of Lot 4 and the planting of seven, minimum 16 foot tall Spruce trees within the 10 foot tree buffer area on Lot 4 as depicted on the site plan prepared by Enger Surveying & Engineering dated October 9, 2019.
4. The applicant shall obtain all necessary permits and approvals from the Ingham County Drain Commissioner, Ingham County Road Department, Michigan Department of Environment, Great Lakes, and Energy (EGLE), Ingham County Health Department, and the Township. Copies of all permits and approval letters shall be submitted to the Department of Community Planning and Development.
5. Final utility plans shall be subject to the approval of the Director of Public Works and Engineering and shall be completed in accordance with Township Engineering Design and Construction Standards.
6. Storm sewer leads shall be provided to each lot in the subdivision. The final location of the leads shall be subject to the approval of the Director of Public Works and Engineering. All residences constructed in the subdivision shall be connected to the leads.
7. No grading, tree removal, or subdivision improvements shall occur on the site until Final Preliminary Plat approval is granted by the Township Board, a pre-construction meeting has been held, and the Engineering Department has issued authorization to proceed.
8. An overall grading plan for the subdivision shall be required with detailed construction plans prior to issuance of any building permits.

TPP #19012 (Giguere Homes)

Sanctuary 3

Page 2

9. Prior to any construction or grading on the site the applicant shall install silt fencing at the upland edge of water feature setbacks. The silt fencing shall be removed after construction once the area is stabilized and vegetation has been established.
10. The property owner shall establish and record easements for the five foot and 10 foot tree buffer areas identified on the tentative preliminary plat.
11. Trees identified for protection during construction and the means of protection shall be identified prior to approval of the final preliminary plat.
12. Natural Preservation Area Park Number 1 and Number 2 shall be identified as private parks.
13. The property owner shall submit evidence that the 20 foot deed restricted preservation area on the north side of the tentative preliminary plat has been added and recorded to the deeds for Lots 3, 4, and 5 prior to the sale of lots.
14. Five foot wide concrete sidewalks shall be constructed around the proposed Junco Drive cul-de-sac. The final location of the sidewalk shall be subject to the approval of the Director of Public Works and Engineering. The design and construction of the sidewalk shall be in accordance with Township Engineering Design and Construction Standards.
15. The natural vegetation strip associated with wetlands and open county drain shall be clearly identified with permanent markers. The size, number, location, and the language on the markers shall be subject to the approval of the Director of Community Planning and Development.
16. Interior street trees shall be required along the proposed Junco Drive cul-de-sac within the subdivision. Species and location of the trees shall be subject to the approval of the Director of Community Planning and Development and the Ingham County Road Department.
17. Any wellhead(s) located on the site shall be properly closed and abandoned per the requirements of the Ingham County Health Department and the Township, prior to the issuance of any permit for construction activity, including grading permits.
18. If a development entry sign is planned for the subdivision, a detailed drawing to scale shall be provided to the Department of Community Planning and Development for review and approval prior to final plat submittal showing the location and dimensions of the sign, as well as depicting the easement location for the sign.
19. The proposed Junco Drive cul-de-sac shall be constructed to Ingham County Road Department standards.

TPP #19012 (Giguere Homes)

Sanctuary 3

Page 3

Tentative preliminary plat approval is valid for a period of one (1) year. Consequently, the tentative preliminary plat for Sanctuary 3 is valid until October 15, 2020. The tentative preliminary plat may be extended if a request for an extension is submitted to the Township prior to the expiration of the one (1) year period and approved by the Township Board.

If you have any questions regarding this matter please contact me at (517) 853-4506 or kieselbach@meridian.mi.us.

Sincerely,



Mark Kieselbach

Director of Community Planning and Development

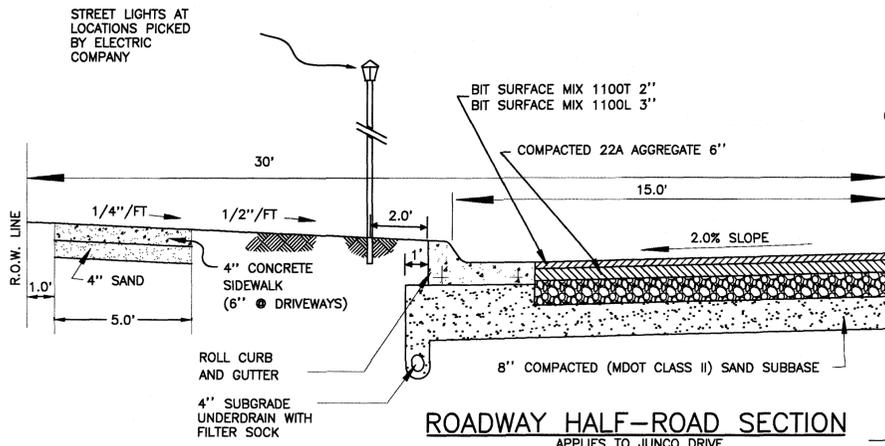
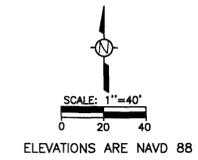
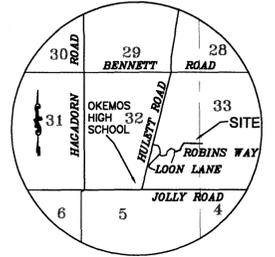
cc: David Lee, Assessing
Derrick Quinney, Ingham County Register of Deeds
Patrick Lindemann, Ingham County Drain Commissioner
William Conklin, Ingham County Road Department
Derek Perry, Director of Public Works and Engineering
John Heckaman, Chief Building Inspector

G:\Community Planning & Development\Planning\REZONINGS (REZ)\2019\REZ 19050 (Fedewa Builders)\REZ 19050 approval letter.docx

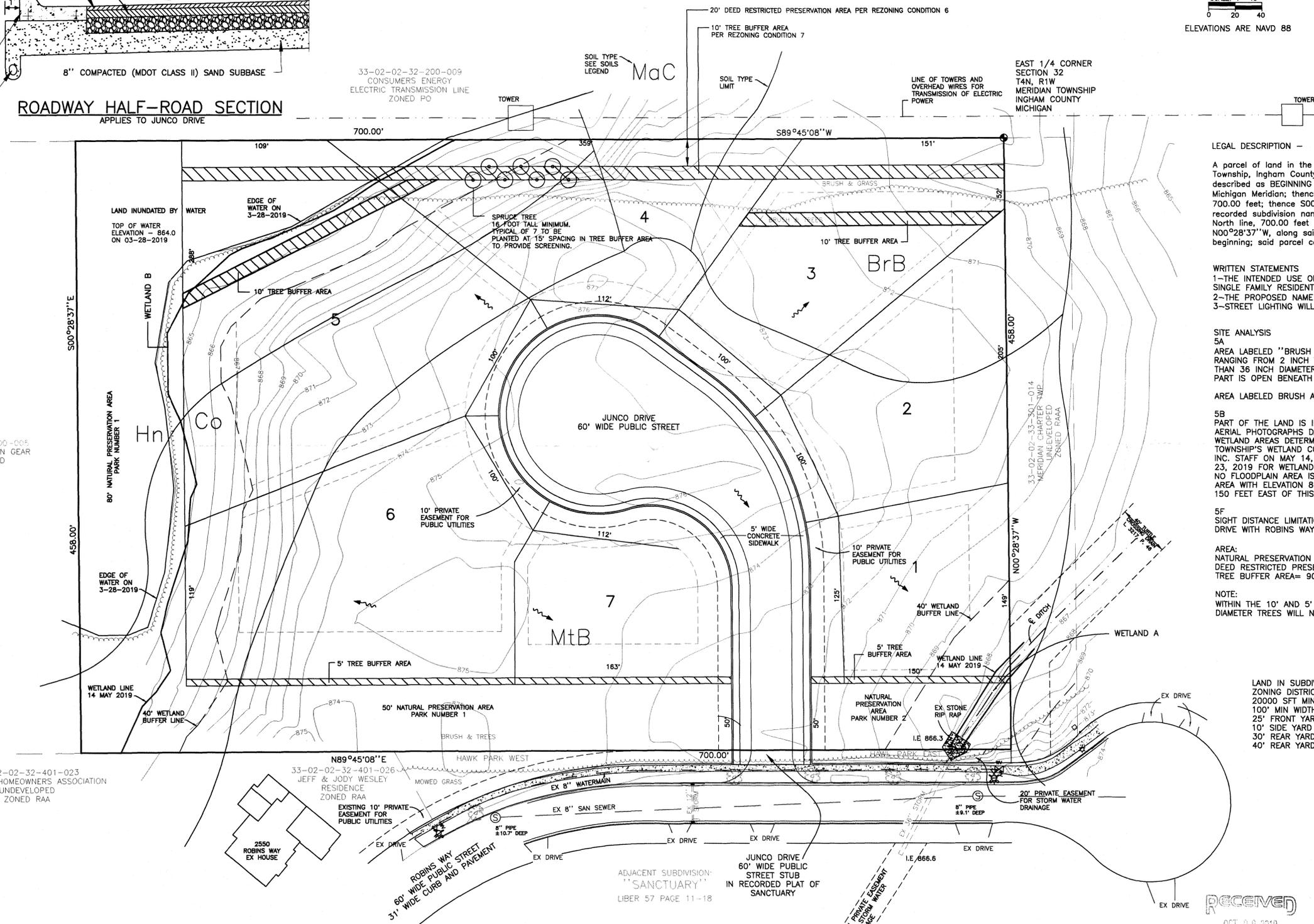
PRELIMINARY PLAT OF SANCTUARY III

A SUBDIVISION OF A PART OF THE SOUTHEAST 1/4 OF SECTION 32, T4N, R1W,
MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

VICINITY MAP



ROADWAY HALF-ROAD SECTION
APPLIES TO JUNCO DRIVE



LEGAL DESCRIPTION -

A parcel of land in the Southeast 1/4 of Section 32, T4N, R1W, Meridian Township, Ingham County, Michigan; the boundary of said parcel being described as BEGINNING at the East 1/4 Corner of Section 32, T4N, R1W, Michigan Meridian; thence S89°45'08\"/>

WRITTEN STATEMENTS

- 1-THE INTENDED USE OF THE PLAT IS FOR THE CONSTRUCTION OF (7) SINGLE FAMILY RESIDENTIAL HOMES.
- 2-THE PROPOSED NAME FOR THE PLAT IS "SANCTUARY III"
- 3-STREET LIGHTING WILL BE INCLUDED IN THE PLAT.

SITE ANALYSIS

5A
AREA LABELED "BRUSH AND TREES" IS HARDWOOD TREES DIAMETER RANGING FROM 2 INCH TO 36 INCH, WITH PERHAPS SOME WITH GREATER THAN 36 INCH DIAMETER. SOME SCATTERED BRUSH BELOW, BUT FOR MOST PART IS OPEN BENEATH THE CANOPY.

AREA LABELED BRUSH AND GRASS IS TALL GRASS AND LOW BRUSH.

5B
PART OF THE LAND IS INUNDATED BY WATER. THIS POND IS VISIBLE ON AERIAL PHOTOGRAPHS DATING BACK TO 1999. WETLAND AREAS DETERMINED BY MARX WETLAND AND VERIFIED BY THE TOWNSHIP'S WETLAND CONSULTANT, FISHBECK, THOMPSON, CARR & HUBER, INC. STAFF ON MAY 14, 2019 AND DESCRIBED IN THEIR LETTER DATED MAY 23, 2019 FOR WETLAND BOUNDARY VERIFICATION WDV 19-05. NO FLOODPLAIN AREA IS MAPPED BY FEMA ON THIS PROPERTY. FLOODPLAIN AREA WITH ELEVATION 866 NAVD 88 IS SHOWN ON THE FEMA MAP ABOUT 150 FEET EAST OF THIS PROPERTY.

5F
SIGHT DISTANCE LIMITATION DOES NOT EXIST AT THE INTERSECTION OF JUNCO DRIVE WITH ROBINS WAY.SITE

AREA:
NATURAL PRESERVATION AREA= 64610 SFT
DEED RESTRICTED PRESERVATION AREA= 12382 SFT
TREE BUFFER AREA= 9000 SFT

NOTE:
WITHIN THE 10' AND 5' TREE BUFFER AREAS 12\"/>

LAND IN SUBDIVISION IS IN ZONING DISTRICT RAAA:
20000 SFT MIN
100' MIN WIDTH
25' FRONT YARD
10' SIDE YARD
30' REAR YARD IF LOT UP 150' DEEP
40' REAR YARD FOR LOT OVER 150' DEEP

SOILS LEGEND
SOILS INFORMATION IS FROM THE "SOIL SURVEY OF INGHAM COUNTY MICHIGAN"

- BrB - BOYER SANDY LOAM
0 TO 6 PERCENT SLOPE
- Co - COLWOOD-BROOKSTONE LOAMS
- Hn - HOUGHTON MUCK
- MaC - MARLETTE FINE SANDY LOAM
6 TO 12 PERCENT SLOPE
- MtB - M METAEA LOAMY SAND
2 TO 6 PERCENT SLOPE

LOT	AREA (SQUARE FEET)	WIDTH	DEPTH
1	20200	125.27'	149.60'
2	25800	100.79'	182.93'
3	29100	100.00'	230.11'
4	30200	112.39'	131.20'
5	52700	100.00'	284.34'
6	41800	100.00'	285.23'
7	20100	110.58'	128.67'

DATE	REVISIONS
10-09-19	1 ADD 2 TREE BUFFER AREAS AND SPRUCE TREES FOR SCREENING

NOTE:
HAWK PARK EAST & WEST ARE OWNED BY SANCTUARY HOMEOWNERS ASSOCIATION AND ARE UNDEVELOPED. PARKS ARE ZONED RAA.

ENGINEER AND SURVEYOR: RON ENGER PS PE

PROPERTY OWNER: NORMAN AND CARMEN GEAR
3760 HULETT ROAD
OKEMOS MICHIGAN 48864

REVISION 1 DATE: OCT 9, 2019
PLAN DATE: JULY 12, 2019

ENG SURVEYING & ENGINEERING
805 N. CEDAR PO BOX 87
MASON, MICHIGAN 48854-0087
517-676-6565
FAX 517-676-6675

SANCTUARY III PRELIMINARY PLAT
DEVELOPER: GIGUERE HOMES
6200 PINE HOLLOW DR STE 100
EAST LANSING MI 48823

HORZ SCALE: 1" = 40'
SHEET 1 OF 1



To: Township Board
From: Frank L. Walsh, Township Manager
Date: September 11, 2020
Re: Contract Amendment-Township Manager Employment Agreement

As you are aware, for the past 23 years I have assisted Michigan cities, townships, villages and counties with their managerial recruitments. This has been, and continues to be, a passionate opportunity for me to strengthen local government in Michigan. I've truly enjoyed the opportunity to cultivate and maintain relationships with elected officials across the state of Michigan.

This year, I have assisted six communities from the Upper Peninsula to the Ann Arbor area. I've been contacted recently to potentially serve at least two other communities prior to December 31, 2020. My current employment agreement limits my personal activities to six recruitments per year. I want to make it clear that my work is produced on my own time and is handled through my home office and personal equipment. Instead of spending 12 hours a week teaching, golfing or boating, I find great pleasure in assisting communities.

I'm formally requesting that the Township Board allow me to complete up to 10 managerial searches per year. I've attached page two of my current agreement that specifies under Section 3 (B) the number of managerial searches I'm allowed to annually complete. My request is to change the six to 10.

I appreciate your consideration. Please know regardless of your decision, I'm still available evenings, weekends and holidays to serve you and our 43,000 residents.

The following motion is proposed for Board consideration:

MOVE TO AMEND SECTION 3 (B), OF THE CURRENT TOWNSHIP MANAGER EMPLOYMENT AGREEMENT, FROM SIX TO TEN MANAGERIAL SEARCHES ANNUALLY.

Attachment:

1. Township Manager Employment Agreement –Section 3 (B)

information as they deem relevant. The Employer may extend this Agreement for a successor year with any modifications to which the parties mutually agree.

Failure to renew or extend this Agreement or any successor Agreement at the end of its term shall obligate the Employer to pay to the Township Manager a Severance Settlement as specified and defined in Section 7 of this Agreement, but shall give the Township Manager no other right or claim. Failure to renew or extend this or any successor Agreement shall not be considered a breach hereof or a termination with or without cause, nor give rise to any cause of action which may be arbitrated under the terms of this Agreement or adjudicated in any court of law, tribunal or administrative agency.

1. Extent of Services.

A. Best Efforts. Except as provided in Section 3.8., the Township Manager shall devote his entire time, attention, and energies to the Employer's business and shall not, during the term of this Agreement, be engaged in any other employment or business activity, whether or not pursued for gain, profit, or pecuniary advantage, without the express prior written consent of the Township Board. The Township Manager also shall not engage in any activity which conflicts or interferes with the performance of his duties as specified in this Agreement and as directed by the Employer or any of its agents as described in Section 1 above.

B. Other Activities. The Township Manager may, with prior written consent of the Township Board, teach, write or engage in similar or related activities which do not interfere with, but rather enhance, the Township Manager's performance of the duties and functions required under this Agreement. The Township Board acknowledges that Township Manager is authorized to conduct up to ~~six-ten~~ managerial searches per calendar year. The Township Manager shall notify the Township Supervisor of each search process.



To: Board Members

**From: Jane Greenway and Emma Campbell
Parks and Recreation Department**

Date: September 11, 2020

Re: Enhanced Deer Management Plan

The purpose of this memo is to update the Board on the status of the deer management program and to propose ideas for expanded efforts. This popular program is currently in its tenth year and although it has received many accolades and has been deemed successful, there are still many over-population issues throughout the township and our residents continue to express their concerns. The discovery of chronic wasting disease in 2015 affected our harvest numbers due to the fact that hunters are no longer able to bait the deer. In response, we have met with Michigan Department of Natural Resources officials and our Police Department to explore additional ideas for an increased harvest.

Deer Management Program Statistics

(Collision based on data provided on the MSP "Traffic Crash Reporting System – Crash Statistics Report Selection Criteria")

	Total Hunters	Properties Hunted	Deer Harvested	Reported Deer/Car Collisions
2011	25	7	43	152
2012	50	18	90	153
2013	60	20	127	180
2014	73	21	150	137
2015	30	19	63	144
2016	73	31	73	164
2017	66	30	80	129
2018	74	38	57	129
2019	84	38	88	153
2020	90	40		

Memo to Township Board
September 11, 2020
Re: Enhanced Deer Management Plan
Page 2

Future Plans & Options for an Increased Deer Harvest:

1. **GOAL:** We propose to harvest a total of 300 deer through the use of volunteer hunters and our police force.
2. **EXTEND THE SEASON:** Request an extended hunting season through the DNR for the special winter cull. Chief Plaga has recommending using Meridian Township police officers equipped with specialized firearms within the neighborhoods to reduce the herd. This would be done in January and February, 2021. (Cost of equipment is approximately \$5,000)
3. **GREATER VOLUNTEER ASSISTANCE:** Purchase or rent a large cooler/trailer for hunters to store their deer until they are taken to the processor (Cost is approximately \$10,000)
4. **UTILIZE TOWNSHIP STAFF:** Utilize Township Department of Public Works staff to collect deer from the hunters, store them in the cooler, and transport them to a Michigan Sportsmen against Hunger (MSAH) processor (the MSAH covers the cost of processing and the venison would be distributed from the Okemos and Haslett Community Church Food Banks).
5. **EDUCATION:** Continue to educate the public about deer resistant landscaping.
6. **FEEDING BAN:** Develop an ordinance that prohibits feeding wildlife, including songbirds.
7. **ENCOURAGE HUNTING ON PRIVATE PROPERTY:** Mail letters to large land owners (5 acres or greater) encouraging them to hunt their property or to allow the township to place a hunter on their property.

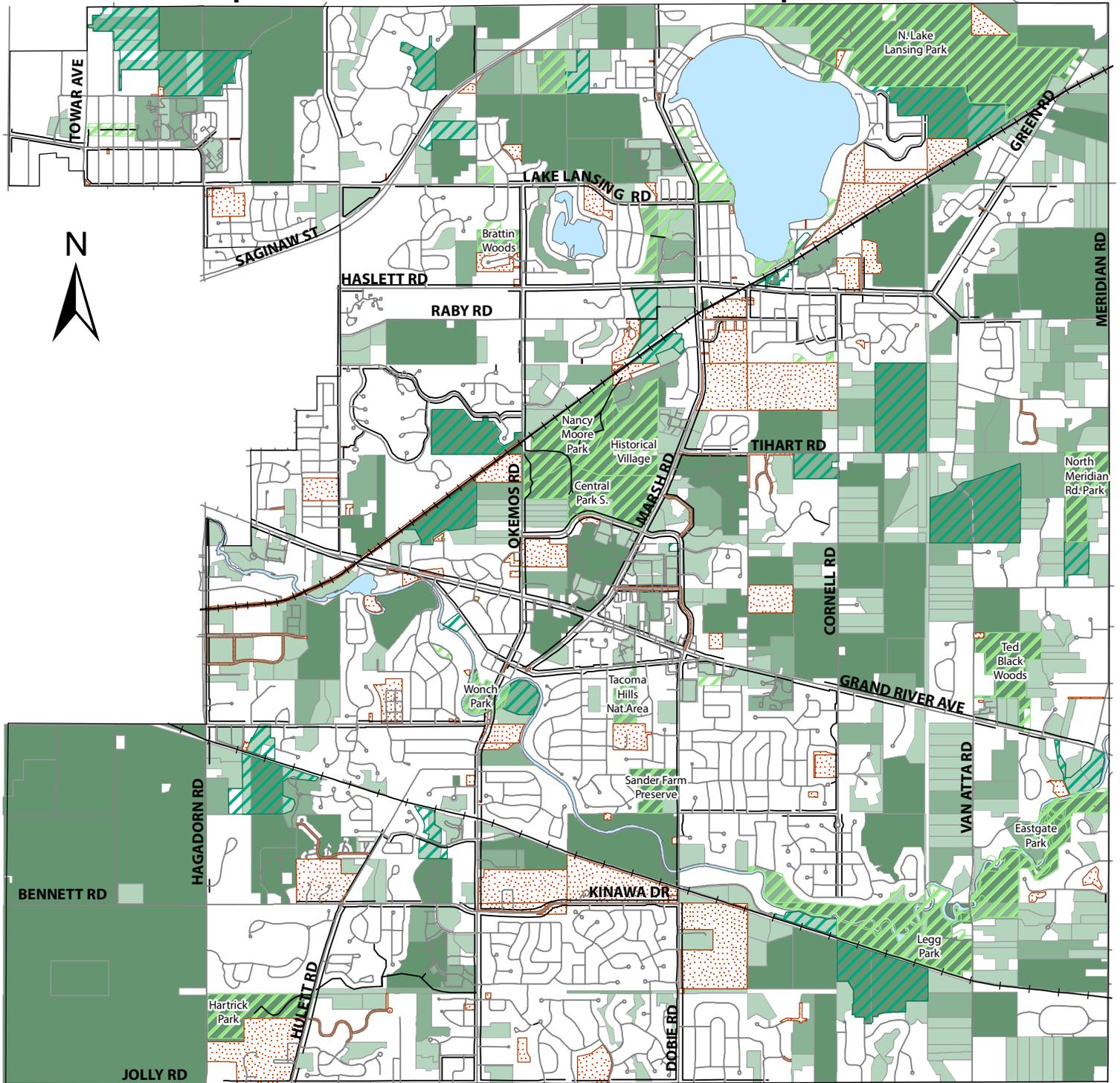
In conclusion:

Additional Resources Needed:

Permits	\$4,000
Refrigerated Cooler	\$6,000
Equipment for Police	\$5,000
Additional Staff Cost	\$10,000
TOTAL	\$25,000

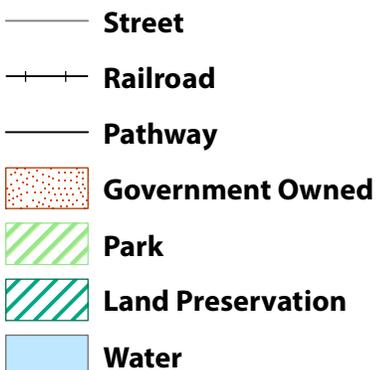
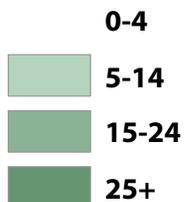
Volunteer Archery Hunt	October 1, 2020 – January 1, 2021
Police Firearm Season	January 2, 2021 – March 1, 2021

Deer Management Analysis Properties in Meridian Township > 5 Acres



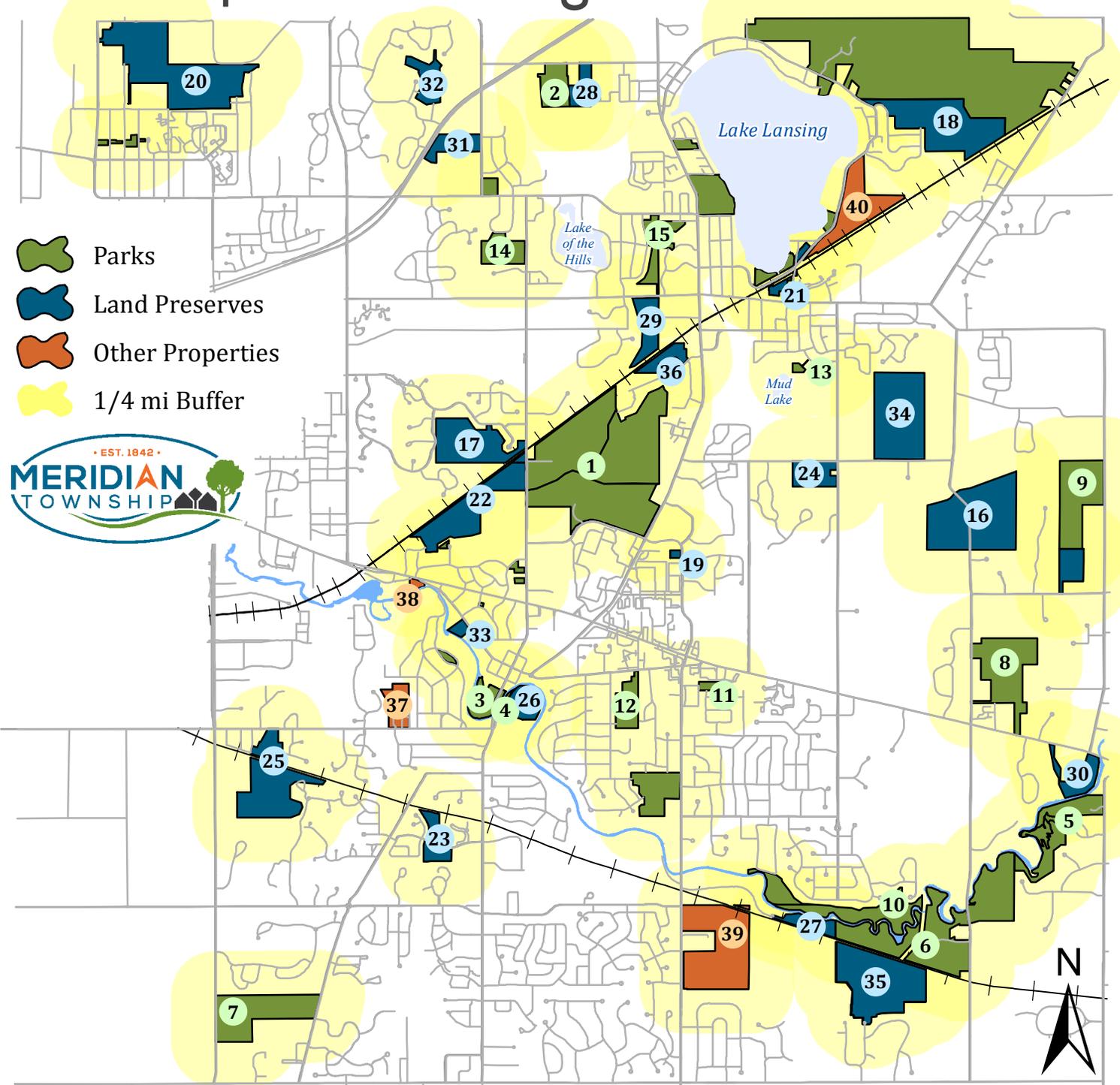
Parcels > 5 Acres

Acreage



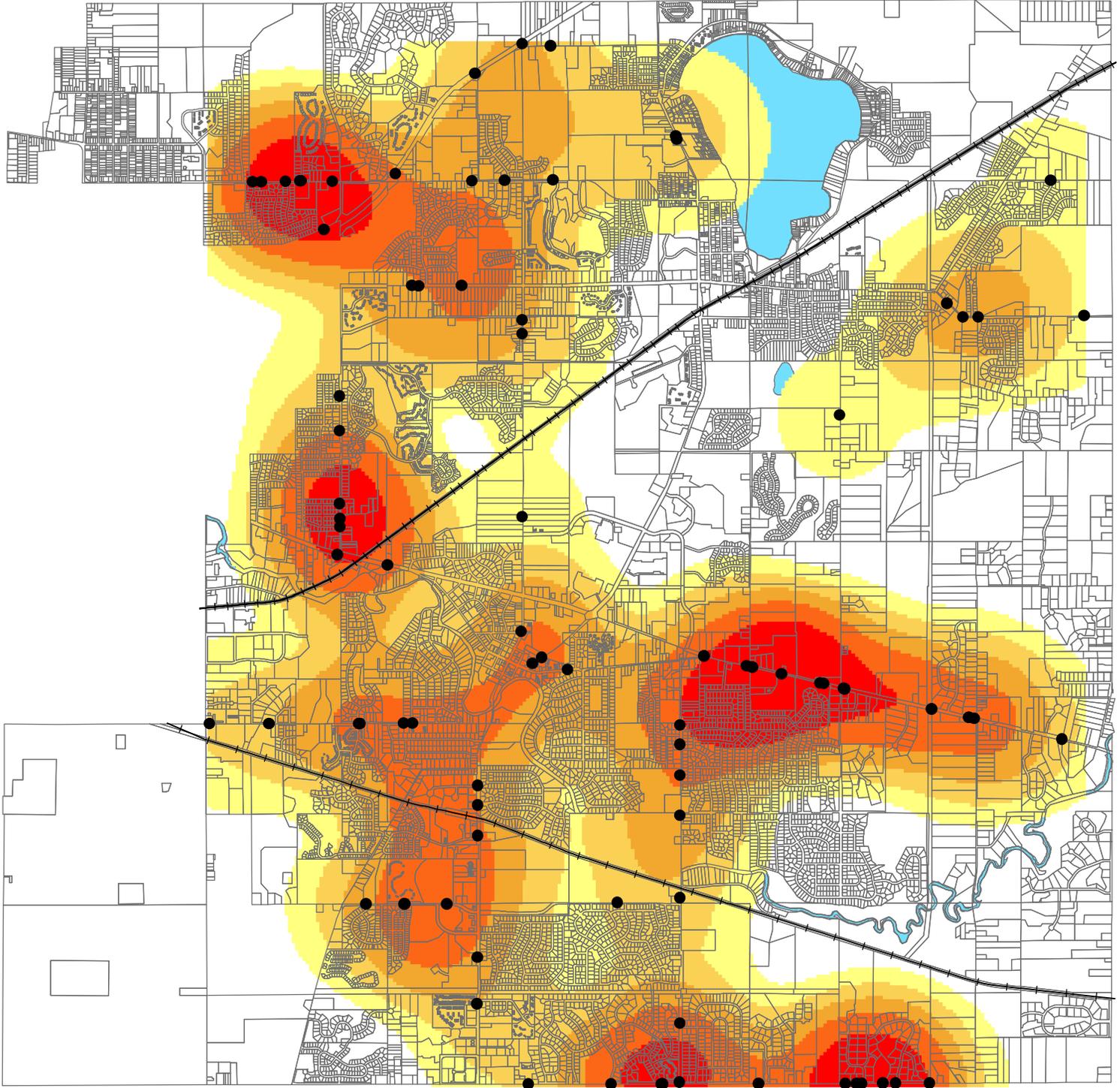
Meridian Township Deer Management Areas 2020

- 1 Central Park
 - 2 Towner Road Park
 - 3 Wonch Park
 - 4 Ferguson Park
 - 5 Eastgate Park
 - 6 Legg Park
 - 7 Hartrick Park
 - 8 Ted Black Woods
 - 9 North Meridian Rd. Park
 - 10 Red Cedar Natural Area
 - 11 Forest Hills Natural Area
 - 12 Tacoma Hills Natural Area
 - 13 Orlando Outlot B
 - 14 Brattin Woods
 - 15 Hillbrook Park
-
- 16 Davis/Foster Preserve
 - 17 Hubbel Preserve
 - 18 Lake Lansing North Preserve
 - 19 Newman Equities Preserve
 - 20 Towar Woods Preserve
 - 21 Lake Lansing South Preserve
 - 22 Central Meridian Uplands
 - 23 Sower Woods Preserve
 - 24 Tihart/Cornell Wetland
 - 25 Southwest Meridian Uplands
 - 26 Sumbal Preserve
 - 27 Red Cedar Glen Preserve
 - 28 Towner Wetland Preserve
 - 29 Meridian Central Wetland
 - 30 Red Cedar River East Preserve
 - 31 Forest Grove Preserve
 - 32 North Ridge Preserve
 - 33 Mandenberg Woods
 - 34 Tihart Preserve
 - 35 Ponderosa Preserve
 - 36 Nemoke Preserve
-
- 37 Glendale Cemetery
 - 38 Riverside Cemetery
 - 39 Ingham County Farm
 - 40 Transfer Station





Meridian Township Deer-Vehicle Collisions (2018)



Legend

● Deer-Vehicle Collisions

Crash Density

