FAX 810-231-4295 PHONE 810-231-1000



P.O. Box 157 10405 Merrill Road Hamburg, Michigan 48139

Hamburg Township Planning Commission Wednesday, November 17, 2021 7:00 P.M. AGENDA

- 1. Pledge to the Flag
- 2. Approval of the Agenda
- 3. Approval of Minutes

October 20, 2021 Planning Commission Meeting Minutes

- 4. Call to the Public
- 5. Old Business:
- 6. New Business:
  - a) FSPA21-005: Preliminary Site Plan review for a Mixed Planned Unit Development to allow a 51-unit single family housing development on the property at 4715-35-300-044 (48.79 Acres). This development proposes a unique mix of housing types that will be clustered on the site allowing 31.75 acres of the site to remain undeveloped. Twenty of the single-family housing units will be reserved for elderly housing and will meet the regulations in the Elderly Housing Cottage Opportunity Planned Unit Development regulations.
  - **b) ZTA21-002:** Public Hearing to Consider Zoning Text Amendment (21-003) to amend article 2, 7 and 8 of the Township Zoning Ordinance. The amendment will:
  - Add or revise of the definitions of Adult Businesses, Apartments, Farm Animal, Farm Product, Kennels, Live Work Units and Motels.
  - Create use tables from the existing permitted and special uses in Section 7.5.1 (A-Q) schedule of uses with minor edits to eliminate duplicate uses and to the uses allowed in each district as found appropriate.
  - Remove the obsolete zoning districts (CE, RC, and OH) from the Township Zoning Ordinance.
  - Remove the word Single Family from the description of the RAA, RA, and RB zoning districts.
  - Organize and clarify the regulations for specific uses, this change consolidates all of the regulations for the specific uses located in the new use tables into Section 7.6 Specific Use Regulations, subsections 7.6.1 through 7.6.36 and makes minor edits when necessary to these regulations.

- 7. Zoning Administrator's Report
- 8. Adjournment



P.O. Box 157 10405 Merrill Road Hamburg, Michigan 48139-0157

PHONE: 810-231-1000 FAX: 810-231-4295

To:	Planning Commissioners
From:	Scott Pacheco, AICP
Date:	November 17, 2021
Agenda Item:	
Re:	Zoning Text Amendment (ZTA) 21-003: Permit Use Table Discussion

### **PROJECT HISTORY:**

The Township Board directed staff at the February 2021 joint meeting to create a Permitted Use Table that would consolidate the uses allowed in each zoning district into a table format. This proposed revision would make the Township Zoning Regulations regarding the uses allowed in each zoning district more user friendly.

At the September 15, 2021 Planning Commission meeting the draft ZTA21-003 that proposes converting the use lists under the current zoning ordinance sections 7.5.1 Schedule of Use Regulations (A) through (Q) pages 9 to 49 of Article 7 DISTRICT REGULATIONS into a permitted use table was presented to the Planning Commission for their initial consideration. In addition to the change to add a Permitted Use Table the ZTA 21-003 also included the following revisions:

- The organization and clarification of the regulations for the specific uses in the table, this change consolidate all of the regulations for the specific uses located in the Permitted Use Table into Section 7.6 Specific Use Regulations, subsections 7.6.1 through 7.6.36 of the Draft ZTA and makes minor edits when necessary to clarify these regulations;
- The addition or revisions of the Adult Businesses, Kennels, Live Work Units and Motels definitions in Article 2 Definitions;
- The addition of Live-work units in the MD, NS, CS, VC and VR with the regulations under section 7.6.6.
- The addition of Campgrounds in the RAA district with the regulations under section 7.6.15;
- The addition of Kennels in the NS and CS district with the regulations under section 7.6.21;
- The addition of Adult Businesses to the GI district with the regulations under section 7.6.36:
- This ZTA also considers all of the uses allowed either as a permitted use or a special use in each of the current zoning districts, consolidates the use descriptions to eliminate any duplicate uses, adds uses that where not previously considered, and verifies the uses are appropriate for each of the zoning district they are allowed under.

Due to the complexity of the proposed changes to the zoning regulations the Planning Commission was giving a month between the September and October meetings to review the draft amendment. Prior to the October 20, 2021 Planning Commission meeting Commission's reviewed the Draft ZTA21-003 and submitted their comments electronically to Planning and Zoning Staff and the following revisions where made to draft ZTA21-003:

- The definitions of Farm Animals and Farm Products where newly added, the existing definition of Apartment was revised for clarification purposes, the word boat was added to the proposed new definition for Motel, and the definition of Single Family Attached Dwelling Units was removed from Article 2 Definitions.
- State Licensed Child Family Day Care Homes, State licensed Adult Family Care Homes, Group day care homes, and Small and Large Adult Foster Care where removed from the uses allowed under the Mobile Home Park (MHP) Zoning District and Family Child Care Homes were added to the allowed uses in the Village Residential (VR) zoning district in the Permitted Use Table.
- The uses allowed under the current zoning ordinance section 7.5.1 (N) Mixed Development district where included undermixed Development District on the Permitted Use Table;
- The County Estates Single Family Residential District (CE), Multi Family Residential District (RC) and Old Hamburg (OH) District where removed from the zoning ordinance as there are no longer any arears within the Township zoned for these districts.
- The word Townhome was replaced with Multi-Family Dwelling throughout the Zoning Ordinance.
- Clarify the residential uses that are allowed in the neighborhood service (NS) and community services (CS) zoning districts.
- The words Single Family where removed from the following zoning district; Single-Family Low Density Rural Residential District (RAA); Single-Family Medium Density Residential District (RA) and Single-Family High Density Residential District (RB) to reduce the confusion in describing these residential districts.

The Revised Draft ZTA21-003 with the above revisions was presented to the Planning Commission at the October 20, 2021 meeting. At that meeting the Planning Commission the following revisions to the revised draft ZTA2-003 where suggested:

- The proposed definition of Live-Work Units should be revised to more closely mimic the definition of Live/Work unit used by the state building code,
- Live/Work Units should be changed from a special use to a Permitted Use in the Mixed Development (MD) District in the Permitted Use Table to match the wording in section 7.6.6, Bed and Breakfasts should be added as a special use in the Village Residential(VR) District, and Service Studios should be added as a permitted use in the Neighborhood Service District.

The Township Attorney has also reviewed the Draft ZTA and did not have any significant changes to the proposed language. The one change that was made based on the Attorney review of the Draft ZTA was the removal of the following sentence from section 7.6.2 Accessory Dwelling Units Q the following sentence was removed "Private restrictions on the use of property shall remain enforceable and take precedence over these additional district regulations."

These changes have all been made to the Final Draft ZTA21-003 attached to this report as Exhibit A, and ZTA21-003 has been noticed to the public for review at tonight Planning Commission Public Hearing.

This proposed Final Draft ZTA21-003 is mainly designed to streamline and clarify the permitted uses and special uses allowed in the different zoning districts. The consolidation into a Table format, the removal of duplicate uses and the removal of obsolete zoning districts along with the reorganization and word clarification of the regulations associated with the allowed uses will help citizen better use and understand the zoning ordinance. Although most of the regulations themselves did not change significantly from the existing regulations some of the items such as the addition of Live/Work Units in the MD, NS, CS, VC and VR Zoning Districts, the addition of Kennels in the NS and CS districts, the addition of Service Studios in the NS district, the addition of the Campgrounds uses in the RAA district, and the clarification of the residential use types allowed in the NS and CS district under section 7.6.4 are all proposed to support the Goals and Objectives of the Land Use Section of the Master Plan. Including but not limited to the following:

Goal 2: Preserve the natural and historic character of Hamburg Township by accommodating a reasonable amount of development, but ensuring the development is in harmony with the natural features and the unique environmental requirements of the Township.

Objective A: Direct future development to areas most suited for that type of development. Goal 3: Promote a mix of development types to manage sustainable growth.

Objective A: Provide an avenue to allow for a diversity in housing types to support the changing demographics, such as young professionals, empty nesters and the increasing elderly population.

Objective B: Encourage development that supports the aging population of the community, including aging in place, access to core services, and the expansion of necessary medical services.

Objective C: Provide an avenue for attainable housing.

Objective D: Encourage development in the Village Center area as indicated in the Village Center Master Plan.

Goal 4: Create a more visible identity for Hamburg Township and promote a sense of place within Hamburg Township.

Objective A: Encourage the development of the Village Center as indicated in the Village Center Master Plan.

Objective B: Prioritize the economic development along the M-36 commercial corridor and in the Village Center area.

### **RECOMMENDATION:**

Staff suggests that the Planning Commission open the meeting to public comment, review the comments and consider the Final Draft ZTA21-003 in terms of your own judgment on particular factors related to the individual proposal, the most likely effect on the community's physical development, and conformance with the Township Master Plan, suggest any proposed changes to the Final Draft ZTA21-003 if needed and make a recommendation to the Township Board to approve the Final Draft of the ZTA 21-003.

### EXHIBITS

Exhibit A: Final Draft Zoning Text Amendment (ZTA21-003) without markups

# **ARTICLE 2.00**

# DEFINITIONS

For the purpose of this Ordinance, certain words and terms are herewith defined. Words not herein defined shall have the meaning customarily assigned to them.

- ADULT BUSINESS. Establishments which are distinguished or characterized by entertainment, devices, or services which are sexually explicit in nature.
- APARTMENT: A multi-family dwelling owned by an individual entity and leased to residents that do not own the dwelling.
- FARM ANIMAL: An animal used to produce a farm product or that is a farm product itself.
- FARM PRODUCT: those plants and animals useful to human beings produced by agriculture and includes, but is not limited to, forages and sod crops, grains and feed crops, field crops, dairy and dairy products, poultry and poultry products, cervidae, livestock, including breeding and grazing, equine, fish, and other aquacultural products, bees and bee products, berries, herbs, fruits, vegetables, flowers, seeds, grasses, nursery stock, trees and tree products, mushrooms, and other similar products, or any other product which incorporates the use of food, feed, fiber, or fur, as determined by the Michigan commission of agriculture.
- KENNEL: A kennel shall be construed as an establishment wherein or whereon three (3) or more animals, other than farm animals, are confined and kept for sale, boarding, breeding, training, or sporting purposes, for remuneration.
- LIVE/WORK UNITS: A dwelling unit or sleeping unit in which a portion of the space includes a non-residential use that is operated by the tenant. An internal connection between the dwelling unit and non-residential space may be included. Examples of live/work units include the following types:

A. The Fully Integrated Type: The dwelling unit and the non-residential space occupy the same area.

B. The Live-Above Type: The non-residential space is below the dwelling unit.

C. The Live-Behind Type: The non-residential space is in front of the dwelling unit.

D. The Live-In-Front Type: A single-family house where the workplace is typically behind the living quarters, The house is intended to be fully compatible with a dwelling unit, with freestanding work quarters suitable for restricted uses. The separation between the two functions may be complete, meaning there may be a door separating the spaces. However the commercial section cannot be leased independently from the house.

MOTEL: A building, boat, recreation vehicle, group of buildings, part of a building, dwelling or dwelling unit used for overnight accommodation of transient guest for compensation on a short term basis (i.e, stays generally shorter than thirty consecutive days). The term shall include any building, group of buildings, part of a building, dwelling or dwelling unit

designated as a lodging house, hotel, resort, short-term rental or by any other title intended for providing lodging for compensation on a transient basis, but shall not include Bed and Breakfasts or Campgrounds, as defined in this ordinance.

# ARTICLE 7.00

# DISTRICT REGULATIONS

### Section 7.1. Establishment of Districts

The Township is hereby divided into the following zoning districts as shown on the Zoning District Map:

RAA	-	Low Density Rural Residential District
RA	_	Medium Density Residential District
RB	-	High Density Residential District
WFR	- 1	Waterfront Residential District
NR	- 1	Natural River Residential District
MHP	- 1	Mobile Home Park Residential District
NS	- 1	Neighborhood Service District
CS	-	Community Service District
LI	-	Limited Industrial District
GI	-	General Industrial District
MD	-	Mixed Development District
VC	-	Village Center District
VR	-	Village Residential District
PPFR	<del></del>	Public and Private Recreational Facilities District

## Section 7.2. Zoning District Map

**7.2.1. Identified**. The zoning districts as provided in Section 7.1. are bounded and defined as shown on the map entitled "Zoning District Map of Hamburg Township." The Zoning district Map, along with all notations, references, and other explanatory information, shall accompany and be made part of this Ordinance.

**7.2.2.** Authority. Regardless of the existence of purported copies of the Zoning District Map which may be published, a true and current copy of the Zoning District Map available for public inspection shall be located in the office of the Township Clerk. The Clerk's copy shall be the final authority as to the current zoning status of any land, parcel, lot, district, use, building, or structure in the Township.

**7.2.3.** Interpretation of District Boundaries. Where uncertainty exists with respect to the boundaries of any of the districts indicated on the Zoning District Map, the following rules shall apply:

- A. A boundary indicated as approximately following the centerline of a highway, alley, or easement shall be construed as following such centerline.
- B. A boundary indicated approximately following a recorded lot line or the line bounding a parcel shall be construed as following such line.

- C. A boundary indicated as approximately following a municipal boundary line of a city, village, or township shall be construed as following such line.
- D. A boundary indicated as following a railroad line shall be construed as being located midway in the right-of-way.
- E. A boundary indicated as following a shoreline shall be construed as following such shoreline, and in the event of change in the shoreline shall be construed as following the shoreline existing at the time the interpretation is made.
- F. The boundary indicated as following the centerline of a stream or river, canal, lake or other body of water shall be construed as following such centerline.
- G. A boundary indicated as parallel to, or an extension of, features in paragraphs A-F preceding shall be so construed.
- H. A distance not specifically indicated on the Official Zoning Map shall be determined by the scale of the map.
- I. Where a physical or cultural feature existing on the ground is at variance with that shown on the Official Zoning Map or any other circumstances not covered by A-H preceding, the Board of Appeals shall interpret the location of the zoning district boundary.
- J. Where a district boundary line divides a lot which is in single ownership at the time of adoption of this Ordinance, the Board of Appeals may permit an extension of the regulations for either portion of the lot to the nearest lot line, but not to exceed fifty (50) feet beyond the district line into the remaining portion of the lot.

## Section 7.3. Application of District Regulations

The regulations herein established within each zoning district shall be the minimum regulations for promoting and protecting the public health, safety, and general welfare and shall be uniform for each class of land, buildings, structure, or uses throughout each district. Wherever the requirements of this Ordinance are at variance with the requirements of any other adopted rules or regulations, ordinances, deed restrictions, or covenants, the most restrictive or those imposing the higher standards shall govern. Except as hereinafter provided, district regulations shall be applied in the following manner:

**7.3.1.** No building shall hereafter be erected, altered, or moved, nor shall any building or premises hereafter be used for any purpose other than is permitted in the district in which said building or premises is located, except by appeal as herein described by this Ordinance. Uses for enterprises or purposes that are contrary to federal, state or local laws or ordinances are prohibited.

A. **Permitted Uses**. Uses shall be permitted by right only if specifically listed as principal permitted uses in the various zoning districts or are similar to such listed uses. All other uses are prohibited.

- B. Accessory Uses and Buildings. Accessory uses are permitted as listed in the various zoning districts or as similar to such listed uses, and only if such uses are clearly incidental to the permitted principal uses. Other accessory uses not listed are permitted if customarily incidental to any principal use. In addition to any provisions applied to a specific accessory use, the provision of Section 8.1 must also be met.
- C **Special Uses**. Special uses are permitted as listed or if similar to the listed special uses. In addition to any provisions applied to a specific special use, the provisions of Section 3.5 must also be met.

**7.3.2.** No building shall hereafter be erected or altered except by appeal as herein described by this Ordinance, to:

- A. Exceed the height limit specified for the district in which such building is located.
- B. Occupy a greater percentage of lot area than is specified for the district in which such building is located.
- C. Intrude upon the required front, rear, or side yards, as specified for the district in which such building is located.
- D. Accommodate or house a greater number of families than is specified for the district in which such building is located.
- E. Provide less living space per dwelling unit than is specified for the district in which such building is located.

**7.3.3.** No lot area shall be so reduced or diminished that yards and other open spaces shall be smaller than specified, nor shall the density of population be increased in any manner except in conformity with the area regulations, nor shall the area of any lot be reduced below the minimum requirements herein established for the district in which such lot is located.

**7.3.4.** No part of a yard or other open space required for any building for the purposes of compliance with the provisions of this Ordinance shall be included as a part of a yard or other open space similarly required for another building.

**7.3.5.** Every building erected, altered, or moved shall be located on a lot of record as defined herein, and except in the case of approved multiple dwelling, commercial, and industrial developments, there shall be no more than one (1) principal building and its permitted accessory structures located on each lot in any district.

## Section 7.4. Intent of Districts

The intent and purpose of each district are set forth as follows:

**7.4.1. RAA-Low Density Rural Residential District**. The purpose of this district is to provide open land areas for residential and agricultural properties of a rural character that are presently without public water and sewerage facilities and are likely to remain without such services for an extended period of time. It is also the purpose of this District to protect and stabilize the essential characteristics of these areas in order to promote and encourage suitable environments for low density family life, until such time as it may be in the public interest to promote urban development of a greater intensity requiring higher levels of public services and utilities. The requirements of this district are designed to permit the safe and healthful use of on-site water supply and waste disposal.

**7.4.2. RA-Medium Density Residential District**. The purpose of this district is to provide a stable and sound environment for single-family detached dwellings with suitable open space at a medium density. The requirements of this District are designed to protect the medium density residential character of development by restricting uses and activities which are not beneficial or appropriate in such an area, and by permitting construction and occupancy of single-family dwellings on fringes of higher density urban development and may be served by public sewerage systems and other appropriate urban facilities and services in the future. However, the requirements of this district are designed to permit the safe and healthful use of on-site water supply and waste disposal. There is no intent to promote by these regulations a district of lower quality and desirability than in the RAA-Residential District, although a higher density of population is permitted herein.

**7.4.3. RB-High Density Residential District**. The purpose of this district is to provide a stable and sound environment with suitable open space at a high density. The requirements of this district are designed to protect the single-family residential character of development by restricting those uses and activities, which are not beneficial or appropriate in such an area, and to promote high density development by permitting the construction and occupancy of single-family dwellings on relatively small-sized lots. These districts will generally be located adjacent to the highest concentrations of urban development and shall be served by public water and sewerage systems and other appropriate urban facilities and services. There is no intent to promote by these regulations a district of lower quality and desirability than other single-family residential districts, although a higher density of population is permitted herein.

**7.4.4.** WFR-Waterfront Residential District. The purpose of this district is to accommodate all types of single-family housing, including seasonal homes, and other permitted use on or near waterfront, woodland, or other resort or vacation areas. The requirements of this district are established to allow development to be located on, near, or in these areas only when streets, utilities and other necessary public services are provided at adequate urban standards.

# 7.4.5. NR-Natural River Residential District. Refer to Section 7.8.1

**7.4.6. MHP-Mobile Home Park Residential District**. The purpose of this district is to provide for the development of mobile home parks which are an asset to the community. The requirements of this district are established to allow the use of mobile homes located in a mobile home park regulated by the Mobile Home Commission Act, P.A. 419 of 1976, and this Ordinance. All uses permitted in MHP-Mobile Home Park Residential District shall comply with the Mobile Home Commission Act, P.A. 419 of 1976 and the current Mobile Home Code adopted by the Mobile Home Commission. In addition to

the rules and standards of the Mobile Home Code, supplemental conditions shall apply to all uses permitted in the district by this Ordinance.

7.4.7. NS-Neighborhood Service District. It is the purpose of this district to provide for convenient retail and personal service establishments which cater to the day-to-day needs of families residing within immediately accessible neighborhoods. The requirements of this district are designed to accommodate a major portion of existing neighborhood commercial development, but at the same time to limit future commercial development to centers which can be economically supported by adjacent neighborhoods, and which have a minimum impact upon the residential character of surrounding development. It is the basic intent of this district to encourage future commercial development within planned centers and community service districts rather than in scattered locations through the residential area, but also to provide for those necessary services which are most appropriately and conveniently located in close proximity to residential neighborhoods.

**7.4.8. CS-Community Service District**. The purpose of this district is to accommodate the wide range of retail, business, and personal service establishments which are intended to serve a number of neighborhoods, an entire community, or larger geographical areas of the Township. The provisions for this district are designed to encourage commercial development of various related types of centers which can be economically supported by the community and the surrounding area. These districts will be conveniently located in relation to the highest concentrations of urban development and on or near major thoroughfares to provide access to the outlying areas which they will serve. Planned community and regional shopping centers with adequate circulation and off-street parking facilities will be encouraged.

**7.4.9.** LI-Limited Industrial District. The purpose of this district is to provide for the location of light manufacturing, wholesale activities, warehouses, research and development centers, office facilities, and accessory activities. Uses permitted in this district generate minimal noise, glare, odor, dust fumes, heat radiation, vibration, air and water pollutants, or other harmful or obnoxious matter. Uses permitted in this district are characterized by minimal use, storage, collection or by-production of toxic or hazardous materials; minimal use and storage of on-site fuels; minimal use of water; minimal combustion activities, ovens or vats; and minimal use of large processing equipment and bulk products. Uses which involve the storage or handling of explosive or highly inflammable gases or liquids are not intended in this district. The district is designed to create a low density development with spacious yards to provide attractive settings as well as to help insure compatibility with nonindustrial neighboring lots

**7.4.10. GI-General Industrial District**. The purpose of this district is to provide for a broad range of manufacturing, wholesale activities, warehouses, research and development centers, office facilities, and accessory activities. While uses permitted in this district could create greater environmental disturbances than uses permitted in limited industrial districts, it is the intent of this district to protect neighboring properties and the Township as a whole. The district is designed to permit more intensive industrial uses on larger lots than in limited industrial while still insuring compatibility with non-industrial neighboring lots. Outdoor storage of materials and equipment is often a characteristic of these uses

**7.4.11. MD-Mixed Development District**. The purpose of this district is to provide for various types of commercial, office, industrial, research, warehousing, and housing uses that are compatible with one another. The lands included in this district are those suited for uses characterized by low land coverage, the absence of objectionable external effects, large setbacks, attractive building architecture, and large

landscaped park-like areas. The purpose of the district is to provide suitable sites for such uses, while making certain that such uses will be compatible with adjacent or surrounding districts. To these ends, development is limited to a low concentration, external effects are minimized, and permitted uses are limited to those which are adapted to an environment of this nature. The regulations are also designed to stabilize and protect the essential characteristics of the district by excluding uses which would have a detrimental effect upon the orderly development and functioning of the district.

**7.4.12.** VC Village Center District. The purpose of this district is to encourage development and redevelopment which is consistent with the traditional architecture, mixture of uses and compact layout of a traditional village. The requirements of this District are designed to permit a variety of retail, office, housing, and service uses which are subject to review by the Panning Commission. More specifically, the Village Center Zoning District is intended to achieve the following objectives:

- A. Implement recommendations of the Master Plan including the M-36 Corridor Plan the Hamburg Village Plan, and other sub area plans;
- B. Encourage development which is consistent with the density and design of existing Old Hamburg Village development;
- C. Provide a land use transition between the village area and the more rural areas of the township;
- D. Establish a complimentary and integrated mixture of employment, shopping, entertainment and civic uses which create a walkable village with less reliance on automobile travel;
- E. Create a distinct community center and focal point in the township;
- F. Help ensure a consistent architectural theme without restricting innovative design;
- G. Integrate public gathering places;
- H. Promote long term viability in the established village area;
- I. Reduce traffic conflict points along M-36 by using a system of internal streets and access;
- J. Permit narrower streets and on-street parking on internal streets not intended to function as through streets;
- K. Enable development and redevelopment to occur in a manner that will be compatible with the existing and new village environment; and,
- L. Promote a concentration of commercial uses and other higher intensity non-industrial uses rather than permitting extending a commercial strip along M-36 with all its inherent traffic congestion, compromise of public safety environmental threats and poor aesthetics.

7.4.13. VR Village Residential District. The purpose of this district is to encourage development and redevelopment which is consistent with the historic architecture, and compact layout of a traditional

neighborhood. The requirements of this District are designed to permit a variety of residential densities and housing types. More specifically, the Village Residential Zoning District is intended to achieve the following objectives:

- A. Implement recommendations of the Master Plan including the M-36 Corridor Plan the Hamburg Village Plan, and other sub area plans;
- B. Encourage development which is consistent with the density and design of existing Old Hamburg Village development;
- C. Provide a land use transition between the village area and the more rural areas of the township;
- D. Create a distinct community center and focal point in the township;
- E. Help ensure a consistent architectural theme without restricting innovative design;
- F. Integrate public gathering places;
- G. Promote long term viability in the established village area;
- H. Reduce traffic conflict points along M-36 by using a system of internal streets and access;
- I. Permit narrower streets and on-street parking on internal streets not intended to function as through streets; and,
- J. Enable development in a manner that will be compatible with the existing and new village environment.

### Section 7.5. Uses in Districts

Permitted, accessory, and special uses for each district are set forth in the Permitted Use Tables in Section 7.5.1, , of this Ordinance. Unless otherwise stated, minimum area, height, and bulk regulations for each permitted or special use are set forth in Section 7.7.1.

## 7.5.1. Permitted Use Table

A. Residential Use Table

Residnetial Uses	RAA	RA	WFR	NR	RB	MHP	PPRF	NS	CS	u	GI	MD	VC	VR	Use Standards
Single-family dwelling	Р	Р	P	Р	Р			S	S				P	P	7.6.1/7.6.4
Accessory Dwelling Units	Р	Р	Р	Р	Р								P	P	7.6.2
Farming	Р	Р													7.6.3
Roadside Farm Stand	Р	P													
Community Supported Agricultal	P	Р													
Raising of horses	P	Р	Р	S				-							7.6.3
Raising of Poultry	P	Р	Р	S											7.6.3
Two Family Dwellings	and the second	S			S			S	S				P	S	7.6.4
Multi-Family Dwellings								S	S			S	P	S	7.6.4
Apartments								S	S			S	S	S	7.6.4
Mobile Home Parks						Р									7.6.5
Live Work Unit	the second second							P	P			Ρ	P	S	7.6.6

# B. Public/Institutional/Recreational Use Table

Public/ Instritutional/Recreation Uses	RAA	RA	WFR	NR	RB	MHP	PPRF	NS	CS	LI	GI	MD	VC	VR	Use Standards
Government Buildings	S	S	S	S	S			P	P			P	P	S	
Schools	S	S	S	S	S				P				P	S	7.6.7
Public and private cemeteries	S										a guing				7.6.8
Radio or television stations or transmitters	S														7.6.9
Airfields and Helipads	S														7.6.10
Public or private golf courses	S	S	S	S						-	No. 10				7.6.11
Public or private recreation clubs	S	S	S	S											7.6.11
Religious Institutions	S	S	S	S				P	P				S	S	and the second second
Essential Services	Ρ	Р	Р	Р	Р	Р		P	P	P	Р	Р	P	P	7.6.12
Hospitals and Medical Centers	S										-				Carlos Contratos de
Nursing or Convalescent Homes	S												S		
Public and Private Parks and Open Space	S	S	S	S	Р										
Collection Bins								P	P	P	P		P	A HEATEN	7.6.13
Private Indoor and Outdoor Recreation Facilities									P	1.22	and and		P		7.6.14
Private and Public Campground and Lodges	S						S				15				7.6.15
Gun/Archery Ranges and Hunt Clubs							S				100				7.6.16
Off-road vehicle and go-cart courses							S	1200							7.6.16

C. Commercial Use Table

Commercial Uses	RAA	RA	WFR	NR	RD	MHP	PPRF	NS	CS	LI	GI	MD	VC	VR	Use Standards
Home Occupations	Р	Р	Р	Р	Р			100					P	P	7.6.17
Minor Agricultural Commercial and Tourism Use	Р									1	Star I.				7.6.18
Major Agricultural Commercial and Tourism Uses	S														7.6.18
State Licenced Child Family Day Care Home	Р	P	Р	Р	Р		1 C-			-				Р	
State licensed Adult Family Care Home	Р	Р	Р	P	P				1	Toruson .				P	
Group day care homes	S	S	S	S	S									S	7.6.19
Small and Large Adult Foster Care	S	S	S	S	S			S	S					S	7.6.20
Child Care or Day Care Centers								S	S				P		7.6.19
Kennels	S							S							7.6.21
Bed and Breakfast	S	S	S	S	S			S	S			S	S	S	7.6.22
Firewood Sales	Р	P						P	P						7.6.23
Outdoor Drive-in Theaters	S														7.6.24
Wholesale Stores									P	P	P				
Department Stores									Р	1					
Retail Stores				3 1.5000				Р	P		a star	Р	P		
Food and Beverage Stores								P	P	1.50		P	P		Participant and a second
Restaurants w/o drive thru								Р	Р	-		Р	P		
Service Businesses								Ρ	P			P	Р		
Business and Professional Offices								Р	P	P	P	P	P		
Banks and Financial Institutions w/o drive-thru		1						Р	Р	P	P	P	Р		
Small Repair Shop								P	P	P	P		P		a aller a fin the
Open Air busninesses								S	S						7.6.25
Dry Cleaner		-						S	P		2522		P		7.6.26
Laundry Mat								S	P				P		7.6.27
Drive-thru Estabishments								S	S	a the	10.20		S		7.6.28
Gasoline Service Station								S	S	P	P	T ALL ALL ALL ALL ALL ALL ALL ALL ALL AL	S	-	7.6.29
Marinas						a de la companya		S	P						7.6.30
Boat Sale and Service								S	P	P	P		Р		7.6.31
Motor Vehicle Sales		in market							S	P	P	S	S		7.6.32
Motor Vehicle and Trailer Rental									S	P	P	S	S		7.6.33
Service Studio (music, dance, matial arts, yoga ec	x)	in and a	N. Concerned					P	P	-	1		P		
Funeral Homes/Mortuaries									P	P	P		P		
Auto and Truck Washes									S			-	S		
Minor Automobile Repair			1 Carlos						S	P	P	-	S		7.6.34
Major Automobile Repair									S	P	P		S		7.6.34
Lumber Yard and Building Suplies	Section.								S	P	P		II Gined de		
Greenhouses/ Nursery/Garden or Feed Center								S		P		S	S		
Apartments								S	S			S	S	S	7.6.4
Motels					1				P		No. of Concession, Name		P		and the second second

## D. Industrial Use Table -

Industrial Uses	RAA	RA	WFR	NR	RB	MHP		NS	CS	u	GI	MD	VC	VR	Use Standards
Motor Frieght Depots and Terminals											S	- Caller	a same data		7.6.35
Warehouses and Distribution Centers	Caroline J.									P	Р	P			
Manufacturing/Processing/ Assembly of goods										Р	Р	S			
Printing/ Publishing and Related Activities	STRUCTURE ST									P	Р	S		Tell Report	
Research and Testing Facilities										Ρ	Р	S			
Landscaping/Building and Other Contractor's Esta	blishme	ents									Р		A AMERICA		
Constrcution and Farm Equiptment Sales											P				
Manufacturing of stone or tile											Р				
Concrete or concrete products manufacturing						a provincial	in set of the				S				and all all all and a second
Asphalt of Other Bituminous Plant						in landstate					S		and the		
Storage of Petroleum, chemical products, flamm	able liqu	ides or	gases								S				
Landfills, Incinerators, or Junk yards						R. Bardinary					S				
Quarries and Sand and Gravel Pits										- and	S				
Storage Facilities											P		n maluline		State States
Outdoor Storage associated with a allowed use						in the second			-	S	S				
Adult Buisnesses										CALL NO	S				7.6.36

0

### Section 7.6 Specific Use Regulations. The following are supplimental regulations for specific uses.

**7.6.1 Single-Family Dwellings:** Single-family dwelling (site built), mobile home, modular housing, or prefabricated housing located outside a mobile home park or mobile home subdivision.

- A. Hamburg Township does not have a minimum square footage requirement. The maximum dwelling size is only restricted by the lot setbacks and lot coverage regulations in Section 7.7.1. Each such dwelling unit shall comply with any state construction code requirements for minimum square footage.
- B. Each such dwelling unit shall be firmly attached to a permanent foundation constructed on the site in accordance with the Michigan State Construction Code Commission. All dwellings shall be securely anchored to the foundation in order to prevent displacement during windstorms.
- C. Dwelling units shall not be installed with attached wheels. Additionally, no dwelling shall have any exposed towing mechanism, undercarriage, or chassis.
- D. Each such dwelling unit shall be connected to a public sewer and water supply or to such private facilities approved by the local health department.
- E. All dwellings shall be aesthetically compatible in design and appearance with other residences in the vicinity. All homes shall have a roof overhang of not less than six inches on all sides. Steps shall also be required for exterior door areas or to porches connected to said to areas with doors where there is a difference in elevation. The compatibility of design and appearance shall be determined in the first instance by the Township Zoning Administrator. Any determination of compatibility shall be based upon the character, design, and appearance of one or more residential dwellings located outside of mobile home parks within two thousand (2,000) ft. of the subject dwelling where such area is developed with dwellings to the extent of not less than 20 percent of the lots situated within said area; or, where said area is not so developed, by the character, design, and appearance of one or more residential dwellings located outside of mobile home parks throughout the Township. The foregoing shall not be construed to prohibit innovative design concepts involving such matters as solar energy, view, unique land contour, or relief from the common or standard designed home.
- F. Additions to such dwelling unit shall be constructed with similar quality, materials and workmanship as the original structure.
- G. The foregoing standards shall not apply to a mobile home located in a licensed mobile home park except to the extent required by state or federal law or otherwise specifically required in this Ordinance and pertaining to such parks. Mobile homes which do not conform to the standards of this section shall not be used for dwelling purposes within the Township unless located within a mobile home park or a mobile home subdivision district for such uses, or unless used as a temporary residence as otherwise provided in this Ordinance.

## 7.6.2 Accessory Dwelling Units:

- A. The principal dwelling or the accessory dwelling unit must be declared the main residence of the owner of the property.
- B. The accessory dwelling unit shall be a maximum of forty (40) percent of the gross floor area of the principle structure, not to exceed 1,000 square feet.
- C. The number of off-street parking spaces for the accessory dwelling unit shall be not less than one (1) and shall not block the required parking for the main residence.

- D. The accessory dwelling unit shall have a maximum of two bedrooms.
- E. The occupancy of the accessory dwelling unit shall be no more than two (2) persons.
- F. Accessory dwelling units and the principal structure must be connected to sewer if available.
- G. Access to an attached accessory dwelling unit shall be limited to a common entrance foyer or exterior entrance to be located on the side or rear of the building;
- H. Detached accessory dwelling must be located closer to the principal residence on the subject site than the principal residence on an adjacent property.
- I. The principal residence and the accessory dwelling unit shall share the same vehicular access to the property.
- J. Detached Accessory Dwelling Units shall not be permitted on lots within the Waterfront Residential and Natural Rivers Districts that abuts a waterbody or have access to a waterbody.
- K. All zoning district bulk and setback requirements shall apply to the site.
- L. Accessory dwelling units are allowed on conforming lots of record in the following circumstances (See Table 1):
  - 1. In the Low Density Residential (RAA), Medium Density Residential (RA), Village Center (VC), and Village Residential (VR) zoning districts with review and approval by the Zoning Administrative under 7.6.2 (N).
  - 2. Attached units in the Waterfront Residential (WRF) and Natural Rivers (NR) districts with review and approval by the Zoning Administrative under 7.6.2 (N).
  - 3. Detached units in the Waterfront Residential (WRF) and Natural Rivers (NR) districts on lots greater than two (2) acres with review and approval by the Zoning Administrative under 7.6.2 (N).
  - 4. Detached units in the Waterfront Residential (WRF) and Natural Rivers (NR) districts on lots less than two (2) acres with review and approval by the Planning Commission under Section 7.6.2 (N).
- M. Accessory dwelling are allowed on a non-conforming lots of record in the following circumstances (See Table 1):
  - In the Low Density Residential (RAA), Medium Density Residential (RA), Village Center (VC), and Village Residential (VR) with Planning Commission review and approval under Section 7.6.2 (N).
  - 2. In Waterfront (WFR) and Natural River (NR) with the following requirements:
    - a. Attached accessory units with Planning Commission review and approval under Section 7.6.2 (N).
    - b. Detached units shall require Special use approval under Section 3.5.
    - c. Accessory dwelling units are subject Section 9.8, Common Use (Keyhole) Ordinance.
    - d. The accessory dwelling unit must meet the requirements under Section 7.6.2 (N).

#### Table 1:

ADU Reviewing Body ZA: Zoning Administrator PC: Planning Commission SUP: Special Use Permit

Zoning District	<b>Conforming Lots</b>	<b>Non-Conforming Lots</b>
Low Density Residential	ZA	PC
(RAA)		
Medium Density Residential	ZA	PC
(RA)		

Water Front Residential (WFR)	ZA/PC	PC/SUP**
Natural Rivers (NR)	ZA/PC*	PC/SUP**
Village Center (VC)	ZA	PC
Village Residential (VR)	ZA	PC

\*ZA approval for attached ADUs on conforming lots and detached ADUs on conforming lot greater than 2 acres

\*\* PC approval of attached ADUs on Non-conforming lots and SUP approval of Detached ADUs on non-conforming lots.

N. Accessory dwelling units shall be reviewed to ensure compliance to the following standards:

- 1. Architectural design, style and appearance of the principal residential building must be maintained; In considering this factor the existing facade, roof pitch, building materials, colors and windows of an attached or detached accessory dwelling unit shall be consistent with the principal structure;
- 2. The proposed development does not impair the existing views, block access to light and air, or infringe on the privacy of neighbors in a substantial fashion. In considering this factor, decision makers shall balance the importance of minimizing impacts on neighboring properties and the applicant's ability to develop the property.
- 3. The proposed development is compatible with existing land uses in the area, would not be detrimental to the safety or convenience of vehicular or pedestrian traffic.
- O. If public water and sewer are not available to the residence, the use of private water and septic systems for the accessory dwelling unit shall be subject to the approval of the County Health Department. The accessory dwelling unit shall comply with all applicable housing, building, fire and health code requirements.
- P. The Zoning Administrator may defer a decision on an ADU application to the Planning Commission for any reason. A decision by the zoning administrator on an ADU application is appeals to the Planning Commission.
- Q. Private restrictions include but are not limited to deed restrictions, condominium master deed restrictions, neighborhood association bylaws, and covenant deeds. The interpretation and enforcement of the private restriction is the sole responsibility of the private parties involved.

**Application Procedure** 

- A. The applicant shall submit the following information for review:
  - 1. A plat plan showing the location of the proposed accessory dwelling unit, lot identification (address and property number), size of lot, dimension of lot lines, existing improvements on the lot, location of structures on adjacent lots, abutting streets, driveways, and parking areas.
  - 2. Sufficient architectural drawings or clear photographs to show the exterior building alterations proposed.
  - 3. Interior floor plans showing the floor area of the proposed accessory dwelling unit and the primary dwelling.
  - 4. Any additional information deemed necessary by the township for review.
- B. Prior to granting approval, the approving body must determine that a proposed accessory dwelling unit meets the standards in Section 7.6.2 (N).

Duration and Revocation

- A. The approval of an accessory dwelling unit shall expire within one (1) year after the date of such approval, unless a Land Use Permit has been issued and construction has commenced.
- B. The permit and any other form of approval for an accessory dwelling unit issued shall be subject to revocation by the Township upon a finding by the Township or its lawfully

authorized designee, that there is in fact noncompliance with the conditions and requirements contained in Section 7.6.2.

### 7.6.3 Farming:

- A. General and specialized farming and agricultural activities:
  - 1. Minimum lot size shall be ten (10) acres.
  - 2. No building housing animals shall be located nearer than seventy-five (75) feet from any property line.
- B. Raising and keeping of horses and other domestic animals:
  - 1. Minimum lot size shall be two (2) acres.
  - 2. Two (2) horses or large domestic animals are permitted on parcels meeting the minimum lot size. For each additional horse or large domestic animal, two (2) additional acres shall be required.
  - 3. Animals must be kept within a fenced area which shall be located no nearer than one hundred (100) feet from any water body. This requirement shall not apply to a water body which is located entirely within the subject property and is not connected to any water body off the subject property.
  - 4. The setback standards per section 9.9, Natural Features Setback Requirements, shall apply to all districts.
  - 5. No building housing animals shall be located nearer than seventy-five (75) feet from any property line.
  - 6. Animals shall be maintained and accommodated in a manner so as not to pose a nuisance to adjoining property or a hazard to water quality and public health, safety, and welfare. Where necessary to protect water quality and public health, safety and welfare, the Zoning Administrator may require additional setbacks or buffer strips from property lines or adjacent water bodies.
- C. Raising and keeping of poultry:
  - 1. In the Waterfront Residential (WFR) or Natural River (NR) zoning districts the raising and keeping of poultry shall only be permitted on lots greater than 2.0 acres.
  - 2. Animals must be kept within a fenced area which shall be located no nearer than one hundred feet (100) from any water body. This requirement shall not apply to a water body which is located entirely within the subject property and is not connected to any water body off the subject property.
  - 3. On parcels two (2) acres or less, a maximum of eight (8) poultry animals are permitted.
  - 4. On parcels greater than two (2) acres, 16 poultry animals are permitted. For each additional one (1) acre over two acre, 16 additional poultry animals are permitted.
  - 5. Roosters shall only be permitted on parcels greater than two (2) acres.
  - 6. Poultry must be located within the required rear yard in an enclosed structure.
  - 7. The setback standards per Section 9.9, Natural Features Setback Requirements, shall apply to all districts.
  - 8. Animals shall be maintained and accommodated in a manner so as not to pose a nuisance to adjoining property or a hazard to water quality and public health, safety, and welfare. Where necessary to protect water quality and public health, safety and welfare, the Zoning Administrator may require additional setbacks or buffer strips from property lines or adjacent water bodies.
  - 9. Poultry must be kept and cared for under sanitary conditions; poultry shall not become

excessively noisy, odorous, dangerous, or in any way disruptive to the character of the area in which they are kept, or otherwise become a public nuisance.

- 10. On lots over ten (10) acres additional poultry may be permitted with approval of a Special Use Permit per section 3.5.
- 11. Private restrictions on the use of property shall remain enforceable and take precedence over these additional district regulations. Private restrictions include but are not limited to deed restrictions, condominium master deed restrictions, neighborhood association bylaws, and covenant deeds. The interpretation of private restrictions is the sole responsibility of the private parties involved.

**7.6.4. Single Family Dwellings/ Two Family Dwellings/ Multiple Family Dwellings/Apartments in the NS and CS Zoning Districts:** The following conditions shall apply to all buildings containing residential uses in the NS and CS Districts:

- A. Single Family Dwellings, Two Family Dwellings, and buildings consisting solely of Multiple Family Dwelling are prohibited.
- B. The gross square footage available for dwelling units within a building or structure shall not exceed the gross square footage available for business occupancy within the building.
- C. When a building is used for both business and residential occupancy, the uses shall be located as follows:
  - 1. Dwelling units may only occupy areas above the first story and shall not be located on the same story as a business, office or parking use.
  - 2. No business, office or parking use shall be located on the same story or above any story that contains a residential use.
- D. Each building that contains a business and a residential use shall provide and maintain an enclosed entrance to the interior for the exclusive use of the occupants of the residential portion of the building that is separate from the access commonly used for business activity.
- E. All accessory structures, such as garages or storage sheds, related to the dwelling units shall be so designated on the site plan and subject to approval by the Planning Commission.
- F. A parking area shall be reserved on the same lot or parcel as the principal building and designated for the exclusive use of the dwelling unit occupants, unless shared parking is approved by the Planning Commission as a part of the site plan review. Two (2) parking spaces shall be required for each dwelling unit.
- G. The conversion of an approved dwelling unit to a use permitted for the zoning district in Section 7.5.1 shall not require special use approval. The conversion of an approved dwelling unit to another use shall be considered an immediate and a complete abandonment of the residential use. No residential occupancy shall be allowed following such a conversion unless a special use approval is approved by the Township.

**7.6.5 Mobile Home Park:** All uses permitted in Mobile Home Park Residential (MHP) shall comply with the Mobile Home Commission Act, P.A. 419 of 1976 and the current Mobile Home Code in effect.

- A. Each mobile home site shall have front and rear yards of not less than ten (10) feet each.
- B. A minimum of twenty (20) feet shall be maintained between mobile homes.
- C. The mobile home park shall be developed with sites averaging 5500 sq ft per mobile home unit. This 5500 sq ft for any one site may be reduced by 20 percent provided that the individual site shall be equal to at least 4400 sq ft. For each square foot of land gained through the reduction of a site below 5500 sq ft, at least an equal amount of land shall be dedicated as

open space, but in no case shall the open and distance requirements be less than that required by the Mobile Home Code.

- D. A landscape buffer shall be required along those boundaries of the mobile home park which abut a district other than MHP. For mobile home parks of less than twenty-five (25) sites, a fifteen (15) foot unoccupied landscaped buffer strip shall be provided. For mobile home parks of twenty-five (25) sites or more, a twenty-five (25) foot unoccupied landscaped buffer strip shall be provided. The ten (10) foot setback between mobile home park boundaries and a mobile home required by the Mobile Home Code may be included as part of the landscape buffer strip. The selection, spacing, and size of plant material shall be such as to create, within a five-year period from the date of planting, a horizontal obscuring effect for the entire length of the entire buffer, and a vertical obscuring effect of no less than ten (10) feet.
- E. Each mobile home park shall have two paved accesses at least, one of which shall be to a major arterial street.
- F. Upon completion of construction of all buildings and site improvements represented on the approved mobile home park construction plans and specifications, the developer, owner, or operation of the park, in conjunction with an architect or engineer, shall submit final plans and specifications, prepared in accordance with Rule 913 of the Mobile Home Code, to the Zoning Administrator.
- **7.6.6** Live Work Units: Live Work Units are allowed in the MD, NS, CS and VC district with site plan review under Article 4 and in the VR district with a Special Use Permit approval under 3.5.
  - A. In the MD, NS, CS and VC district only Live-above and Live-behind units are allowed. A minimum of 50% of the square footage of the building shall be used for the commercial use. The commercial use shall be a use allowed in the zoning district the unit is located.
  - B. In the VR district only Live-In front units are allowed. A minimum of 50% of the square footage of the building shall be used for the residential use. The commercial use shall be a use allowed in the NS zoning district.

## 7.6.7 Schools including Public or Private Elementary, Junior, or Senior High Schools, and Institutions of Higher Education

- A. Schools and educational institutions shall be subject to the minimum requirements of the District in which they are located and the following additional standards.
- B. Minimum lot size shall be five (5) acres.
- C. No building shall be located nearer than one hundred (100) feet from any property line.
- D. Such use shall be located with frontage on a hard surface public street having a right-of-way of at least sixty-six (66) feet.

## 7.6.8 Public and private cemeteries

- A. Minimum lot size shall be twenty (20) acres.
- B. Building shall be setback at least one hundred (100) feet from the property line.

### 7.6.9 Radio or television stations or transmitters

A. Minimum lot size shall be five (5) acres.

### 7.6.10 Aircraft Landing Fields including Airfields and Hellipads

A. A specific duration of such use and further conditions as deemed necessary and appropriate by the Planning Commission to protect the public health, safety, convenience, and general welfare.

# 7.6.11 Public and Private Golf Courses, Recreation Clubs, and Standalone Parks (excluding hunt clubs)

A. No building associated with such uses shall be located nearer than fifty (50) feet from any property line adjacent to a residential zoning districts.

### 7.6.12 Essential Services

- A. Essential services shall be permitted as authorized and regulated by law and other ordinances of the Township. The construction of buildings associated with essential services shall be subject to the provisions of article 4, site plan review. Otherwise, the construction, maintenance, and alteration of essential services shall be exempt from the provisions of this ordinance.
- B. In the Natural Rivers (NR) District Essential Services except within existing rights-of-way, new electric transmission lines of 30 KV or higher shall not be located within the District or to cross the Huron River without the written permission of the State of Michigan.
- C. In the Natural Rivers (NR) District wherever feasible, all electrical and telephone transmission lines shall be placed underground.

### 7.6.13 Collection Bins

- A. Collection bins shall be fabricated of durable and waterproof materials.
- B. Collection bins are required to be placed on a paved or concrete surface.
- C. Collection bins must be level and stable.
- D. Collection bins shall be locked with a tamper resistant locking mechanism so contents cannot be accessed by anyone other than those responsible for retrieval of the contents. Collection bins shall be tightly covered at all times to prevent the harboring of rodents and the scattering of debris.
- E. Collection bins shall be maintained in good condition and appearance with no structural damage, holes, visible rust, or graffiti. The area surrounding the bin shall be maintained free from any overflow items, furniture, rubbish, debris, hazardous materials, and noxious odors.
- F. Collection bins shall be no larger than 84 inches high, 60 inches wide and 60 inches deep.
- G. No more than two collection bins shall be allowed per property.
- H. Collection bins shall not be permitted:
  - 1. On any unimproved lot or parcel that is not currently used or occupied or where the principal building or structure has been closed or unoccupied for more than thirty (30) days.
  - 2. Within a landscaped area.
  - 3. Within the required main building setbacks for the zoning district.
  - 4. Within a parking space required as a part of the approved site plan or required to meet the parking requirements for the principal building or structure.
  - 5. Within one thousand (1,000) feet of another collection bin on a separate property as measured along a straight line from one bin to the other.
  - 6. Within five hundred (500) feet from the property line of any lot used or zoned for

16

residential purposes or within fifty (50) feet of any entrance driveway.

- 7. Within a designated fire lane, or adjacent to a handicap parking space.
- Collection bins shall not cause a visual obstruction to vehicular or pedestrian traffic as determined by the township, or block access to required parking, emergency vehicle routes, building entrances or exits, easements, pedestrian walkways and dumpsters or trash enclosure areas.
- J. Collection bins located in the VC district shall only be located on properties with direct access to M-36.
- K. Collection bins shall prominently display the following information in at least one-half inch typeface and no larger than one inch typeface:
  - 1. Name, address, email, and 24-hour telephone number of the person responsible for servicing and maintaining the collection bin.
  - 2. The type of material that may be deposited.
  - 3. The frequency of pickup.
  - 4. A notice that no materials shall be left outside the collection bin.
  - 5. If the collection bin is owned and operated by a for-profit or a not for profit company.
- L. Collection bins may include a 6 square foot sign on two sides of the collection bin in addition to the information required in 7.6.13 (K). The sign must be flat, either painted directly on the bin or affixed flat to the bin and projecting no more than 2 inches from the side of the bin.

### 7.6.14 Private Indoor and Outdoor Recreation Facilities

Private outdoor recreational areas and indoor recreational buildings, are uses such as: recreational fields, rinks or courts, including football, baseball, batting cages, soccer, tennis, basketball, ice skating, swimming pools, animal racing, go cart courses, gun ranges and similar activities, and uses accessory to the above uses, such as refreshment stands, maintenance buildings, office for management functions, spectator seating, rest rooms, and service areas.

- A. The site size shall be adequate to accommodate the intended uses(s), parking, and extensive buffer areas without significant impact on nearby properties in terms of noise, traffic, lighting glare, views, odors, trespassing, and dust blowing debris, as determined by the Planning Commission. The applicant shall provide documentation the site size is adequate using national facility standards.
- B. All ingress and egress shall be along a County Road.
- C. No building shall be located within one hundred (100) feet of a property line.
- D. All buildings shall be setback one hundred (100) feet from the edge of any wetland or the shoreline of any lake, pond, river or stream.
- E. Off-road vehicle and go-cart courses, Fun and Archery Ranges and Hunt Clubs are only allowed in the PPRF district and are subject to the additional conditions:
  - 1. Any such site shall be located in a predominantly undeveloped area so as to minimize any adverse effects on the adjacent properties due to reasons of dust, odor and noise. Any such site shall have a minimum area of at least eighty (80) acres. All activity shall be setback a minimum of one hundred twenty five (125) feet from any lot line.
  - 2. The hours of operation shall also be set by the Planning Commission to minimize any adverse effects on adjacent properties.
  - 3. All ingress and egress shall be along a County Road

## 7.6.15 Public or private campgrounds and lodges,

Public and Private Campground and Lodges including campgrounds for travel trailers, tent campers, motor homes, tents, and cabins, subject to the following:

- A. Minimum lot size shall be twenty (20) acres.
- B. All ingress and egress shall be along a County Road.
- C. Development features including the principal and accessory buildings and structures shall be located and related to minimize adverse effects on adjacent properties. Minimum setbacks for any buildings, structures or use areas shall be two hundred (200) feet from any property line abutting a residential district.
- D. Each campsite shall be at least five hundred (500) square feet in size.
- E. If there is public sewer and water available to the site it shall be provided to the campground. If public sewer and water are not provided the Planning Commission shall consider the impacts as a part of the special use permit.

## 7.6.16 Off-road vehicle and go-cart courses, Gun and archery ranges, and hunt clubs:

- A. Any such site shall be located in a predominantly undeveloped area so as to minimize any adverse effects on the adjacent properties due to reasons of dust, odor and noise. Any such site shall have a minimum area of at least eighty (80) acres. All activity shall be setback a minimum of one hundred twenty five (125) feet from any lot line.
- B. The hours of operation shall also be set by the Planning Commission to minimize any adverse affects on adjacent properties.
- C. All ingress and egress shall be along a County Road.
- **7.6.17 Home Occupations** Home occupations are occupations allowed as an accessory use clearly incidental and secondary to the primary use of the dwelling unit for dwelling purposes, carried on by the immediate family members inhabiting the dwelling unit. Typical home occupations may include but are not limited to hairdressing, accounting, home gardening, real estate and insurance sales, appliance and motor repair, and professional offices.

General Requirements. The following requirements shall apply to all home occupations:

- A. The home occupation shall involve no more than the equivalent of one on site full time employee other than members of the immediate family residing on the premises.
- B. A home occupation shall not endanger or infringe upon the health, safety, welfare, or enjoyment of any other persons in the area, by reason of noise, vibration, glare, fumes, odor, unsanitary or unsightly conditions, electrical interference, fire hazard, traffic, or parking congestion.
- C. No structural alterations or additions which will alter the residential character of the structure in terms of the use or appearance shall be permitted to accommodate a home occupation.
- D. All home occupation activities shall be conducted indoors, except gardening which may be conducted outdoors.
- E. Only customary domestic or household equipment, or equipment judged by the Zoning Administrator not to be injurious or a nuisance to the surrounding neighborhood shall be permitted.
- F. There shall be no external evidence of such occupations except a small announcement sign as specified per Section 18.8. Plants used in a gardening home occupation may be grown outside only for the time period which is required for full growth.

- G. A family day care home as defined by this Ordinance shall be permitted as a home occupation with any Residential District provided all provisions of state are met.
- H. The home occupation shall utilize no more than twenty-five (25) percent of the total floor area on site.
- I. The home occupations shall not have more than two customers and/or delivery vehicles on-site at one time, excluding the vehicles of the occupants of the home. Shipments or deliveries by vehicles having more than two (2) axles are prohibited.
- J. The home occupation may offer for sale any article or service which is incidental to services performed or articles produced on the premises.
- K. If the Home Occupation includes customers an employee additional onsite parking shall be required, except in the VC district when on-street parking is provided.

### 7.6.18 Agricultural Commercial/ Tourism Business.

### Minor Agricultural Commercial/Tourism Business Type Allowed.

- A. Seasonal outdoor mazes of agricultural origin such as straw bales or corn.
- B. Direct marketing of agricultural products or agricultural related products at a Farm Market, onsite farm market.
- C. U-pick Operations, Pumpkin patches and Christmas tree lots.
- D. Stables with up to 6 horses.
- E. Greenhouses
- F. The processing, storage, and retail or wholesale marketing of agricultural products into a valueadded agricultural product in a farming operation if at least fifty percent (50%) of the stored, processed, or merchandised products are produced by the farm operator.
- G. Organized meeting space for weddings, parties, or events with attendance 40 or less.
- H. Uses 1 through 7 listed above may include any or all of the following ancillary agriculturally related uses and some non-agriculturally related uses so long as the general agricultural character of the farm is maintained.
  - 1. Value-added agricultural products or activities such as educational tours of processing facilities, etc.
  - 2. Bakeries selling baked goods containing some products grown on site
  - 3. Playgrounds or equipment typical of a school playground, such as slides, swings, etc. (not including motorized vehicles or rides).
  - 4. Petting farms, animal display, and pony rides.
  - 5. Wagon, sleigh, and hayrides.
  - 6. Nature trails.
  - 7. Open air or covered picnic area with restrooms.
  - 8. Educational classes, lectures, seminars.
  - 9. Historical agricultural exhibits.

- 10. Kitchen facilities, for the processing, cooking, and/or baking of goods containing at least 25% produce grown on site.
- 11. Gift shops for the sale of agricultural products and agriculturally related products. Gift shops for the sale of non-agriculturally related products such as antiques or crafts, are limited to twenty-five percent (25%) of gross sales.

### Major Agricultural Commercial/Tourism Business Type Allowed.

- A. All Minor Agricultural Commercial/Tourism Business Types Allowed.
- B. Cider mills or wineries.
- C. Stables with more than 6 horses.
- D. Restaurant operations related to the agricultural use of the site.
- E. Small scale entertainment venue or amphitheater.
- F. Family Oriented animated events (e.g., fun houses, haunted houses and hay rides, or similar uses)
- G. Organized meeting space for weddings, parties, or events with attendance greater than 40.
- H. Overnight Facilities

**Supplemental Regulations – All Agricultural Commercial/Tourism Business Types.** The following are required for all Major and Minor Agricultural Commercial/Tourism Business Type uses:

- A. Must be an accessory use to a residential use of the property.
- B. Buffer plantings may be required along the property line where there is an abutting residentially zoned property. Greenbelt transition strips are intended to screen views of the proposed operation from the adjacent home or property. Buffer plantings shall meet the standards of Section 9.4.6 Greenbelts and Buffer Zones.
- C. Must provide off-street parking to accommodate use as outlined in Article 10 Off Street Parking and Loading.
  - 1. Parking facilities may be located on a grass or gravel area for seasonal uses such as farm markets, u-pick operations, and agricultural mazes.
  - 2. All parking areas shall be defined by either gravel, cut lawn, sand, or other visible marking.
  - 3. All parking areas shall be located in such a manner to avoid traffic hazards associated with entering and exiting the public roadway.
  - 4. Paved or unpaved parking areas shall not be located in required setbacks or buffer areas.
  - 5. Paved or gravel parking areas must meet all storm water management design and landscape screening requirements as set forth in this Zoning Ordinance.
- D. Hours of operation shall be limited to between 8:00 am and 11 pm. No amplified music shall be allowed after 10 pm; setup and cleanup of the event and workers and attendees to the event shall not arrive or leave the site before or after the hours of operation.
- E. Signs must meet the regulations for the zoning district. (Article 18)
- F. All other local, state, and federal regulations apply.

**Supplemental Regulations – Minor Agricultural Commercial/Tourism Business Types.** The following are required for all Minor Agricultural Commercial/Tourism Business Type uses:

- A. Minimum lot area of ten (10) acres.
- B. All uses permitted by this section shall be accessed on any public road within the Township with the approval of the Livingston County Road Commission of MDOT for ingress and egress to the site.
- C. A fifty (50)-foot open buffer shall be provided on all sides between the nearest location of the activity to the nearest adjacent residential property. Agricultural Commercial/Tourism Business activities shall not be allowed within this buffer area. Where possible, crops shall remain within this buffer area to help maintain the agricultural character of the site.
- D. No structure used for the indoor commercial aspect of the approved uses shall have an indoor commercial space larger than 1000 square feet except stables.

**Supplemental Regulations – Major Agricultural Commercial/Tourism Business Types.** The following are required for all Major Agricultural Commercial/Tourism Business Type uses:

- A. Minimum lot area of 40 acres
- B. All uses permitted by this section shall be accessed on a public Arterial roadway within the Township with the condition that the increase in traffic shall not create a nuisance, to nearby residents by way of traffic or noise or increase the public cost in maintaining the roadway.
- C. A one hundred (100)-foot open buffer shall be provided on all sides between the nearest location of the activity to the nearest adjacent residential property. Agricultural Commercial/Tourism Business activities shall not be allowed within this buffer area. Where possible, crops shall remain within this buffer area to help maintain the agricultural character of the site.
- D. Agricultural Commercial/Tourism Business that hold weddings, outdoor and indoor concerts and other events with attendance greater than 40 people shall meet the following regulations:
  - 1. Maximum duration: No more than 20 events shall be allowed on a site per calendar year.
  - 2. Noise: Events shall be required to meet the regulations of the Hamburg Township Noise Ordinance.
  - 3. Number of Attendees: Events shall be limited to a maximum of 150 persons, or the maximum occupancy of the space where the event is held, whichever is less.
  - 4. Distance to neighboring structures: If an event is held outdoors all temporary structures and outdoor venues shall meet the open buffer setback listed above.
  - 5. Clean-Up. Adequate site and surrounding area clean-up shall be done within 48 hours following the event.
  - 6. Lighting. All exterior lighting shall be so installed that the surface of the source of light shall not be visible from the nearest residential district boundary and it shall be so arranged to reflect light away from any residential use. In no case shall any lighting become a nuisance as regulated in the Township Nuisance Ordinance. Lighting shall meet the applicable requirements under Section 9.11, Outdoor Lighting.
  - 7. Yearly Approval: In addition to the initial Special Land Use Permit, the owners of the establishment shall submit a land use permit application on a yearly basis which includes the

following information for the Zoning Administrator to review. Should the Zoning Administrator deem necessary, the yearly application may be sent to the Planning Commission for consideration.

- a. A list of the approximate dates that the venue will be used for events including the type of event,
- b. A plot plan that depicts the location of all event venues, bathroom facilities, parking, drop off areas, and any other information deemed by the Zoning Administrator to be necessary in the review of the project,
- c. The name and phone number of a contact person that will be at the events.
- d. A signed agreement with the property owner of any land to be used for off-site parking.
- e. Any of the requirements in a-d above may be altered, as necessary, to meet the requirements of the special use permit process. (Hamburg Zoning Ordinance, Section 3.5).

**Planning Commission Waiver** the Planning Commission shall have the ability to waive or modify any of the regulations in this section, provided that the following criteria are met. A waiver granted under this section shall apply for the lifespan of the business in question, but shall not be transferable to any other business or premises.

- A. The applicant provides all requested information and pays all applicable application and review fees, to be determined by the Township Board Fee Schedule.
- B. The proposed Commercial/Agricultural Tourism Business does not endanger the public health, safety, and welfare of the community.
- C. A Commercial/Agricultural Tourism Business that meets the required regulations of this Article would not meet the needs of the use on the subject site.
- D. The Commercial/Agricultural Tourism Business utilizes a well thought out layout, high quality materials and design.
- E. The Commercial/ Agricultural Tourism Business shall be in harmony and consistent with the architecture of the surrounding building and relate to the features of these building in terms of location, scale, size, color, lettering, materials, and texture.
- F. The Commercial/ Agricultural Tourism Business shall be consistent with the character of the surrounding area.
- G. The Commercial/Agricultural Tourism Business shall not be a nuisance to any residential uses.

### **Application requirements:**

- A. The following additional operation information must also be provided as applicable:
  - 1. Ownership of the property.
  - 2. Months (season) of operation.
  - 3. Hours of operation.
  - 4. Anticipated number of retail customers.
  - 5. Maintenance plan for disposal, etc.

- 6. Any proposed signs.
- 7. Any proposed lighting.
- 8. Maximum number of employees at any one (1) time.
- 9. Restroom facilities.
- 10. Verification that all outside agency permits have been granted, i.e. federal, state and local permits.
- 11. Plot Plan showing all areas of the property to be used, including all structures and parking areas on site must be clearly identified.

**Annual Review:** The Planning Commission has the authority to require that a special land use permit or a waiver granted for an agricultural commercial or tourism business to be reviewed annually by the Planning Commission at a regularly-scheduled meeting. The evaluation will review any violations of the special use permit or waiver, other zoning violations, whether the violations have been resolved or are recurring, and complaints by neighboring property owners. If violations of the special use permit or waiver continue the approvals may be revoked by the Planning Commission. To ensure that the special land use or activity authorized shall continue to be:

- A. Compatible with adjacent uses of land, the natural environment, the capacities of public services and facilities affected by the land use, and
- B. Consistent with the public health, safety, and welfare of the local unit of government.
- 7.6.19 Child Care Facilities except Family Day Care Homes: Group day care homes, child care centers, and day care centers shall be subject to the minimum requirements of the District in which they are located and State licensing requirements.
  - A. The number of children permitted for child care centers and day care centers shall not exceed one child per five hundred (500) square feet of usable lot area, unless a smaller area is determined to be adequate through the special use permit process. The number of children permitted for child care centers and group day care homes shall be subject to the provisions of State licensing requirements.
  - B. A fenced play area of one hundred (100) square feet per child shall be provided, unless a smaller area is determined to be adequate through the special use permit process. The size of the outdoors play area for child care centers and group day care homes shall be subject to the provisions of State licensing requirements.
  - C. If a special use permit is required the Planning Commission shall determine through the special use permit process (Section 3.5) if the size of the subject property and the size of the fenced play area are adequate for the proposed use on the property. In making this determination the Planning Commission may consider the characteristics of the proposed use, the subject property, the surrounding properties and any other factors that may have an impact of the proposed use. Some characteristics to consider may including but are not limited to: the number and age of the children to be cared for; the number of employees; the use of the subject site and surrounding properties; and the size, location, layout, of the site improvement both on the subject site and on the surrounding properties.

- D. The site shall be designed to minimize nuisance to adjoining property and protect the safety of children using the facility.
- 7.6.20 Adult Care Facilities except Adult Family Care Homes: Adult Foster Care Large and/or Small Group Home: Adult Foster Care Large and/or Small Group Home shall be subject to the minimum requirements of the District in which they are located and State licensing requirements.
  - A. The lot shall be at least 1,500 feet from any other state licensed residential facility.
  - B. Minimum lot size shall meet the requirement of the district, but in no case shall be less than one acre in size.
  - C. The required buffer zone "C", as described in Section 9.4.6 (E), shall be provided around the perimeter of the property.
  - D. The applicant shall demonstrate to the satisfaction of the Planning Commission that adequate off-street parking will be provided.

## 7.6.21 Kennels:

- A. Kennels in the RAA district
  - 1. A kennel must be an accessory use to a single-family home on the subject site.
  - 2. The parcel of land upon which such activity is conducted, shall be no less than ten (10) acres in area.
  - 3. All enclosures for breeding, rearing, shelter, or other uses in connection with harboring of pets, shall be hard surfaces and provided with proper drains for washing with water pressure.
  - 4. All breeding areas, runs, and shelter areas shall be set back from the road right-of-way and from the adjoining property lines a minimum of two hundred (200) feet.
  - 5. The entire facility including breeding areas, shelters, and runs shall be enclosed by a visual screen and sound reducing wall or fence not less than six (6) feet in height.
- B. Kennels in the NS Zoning District:
  - 1. Kennels shall be accessory to another business such as a pet supplies store, pet grooming studio or veterinary clinic.
  - 2. Kennels shall only be used for daily pet care and/or short term overnight stays no greater than 10 days. Kennels shall not be used for breeding.
  - 3. If any outdoor space is proposed to be used as a part of the Kennel use it shall be depicted as a part of the approval process. If there is an outdoor animal play area it shall be enclosed by a fence or wall not less than four (4) feet in height.

## 7.6.22 Bed and Breakfast Inn Development Standards

- A. Bed and Breakfast Inn establishments shall be located in residential buildings that have frontage on a roadway which is capable of safely accommodating the additional traffic, as determined by the Planning Commission. Bed and Breakfast Inn establishments with access from a private road shall have the approval of the association or representative of all lots that have rights of access or maintenance responsibility.
- B. Use
  - 1. Residential buildings proposed as bed and breakfast inn operations shall require a building inspection by the Zoning Administrator, Fire Chief and Building Inspector prior to any approval or uses as a bed and breakfast inn operation. Any code violation(s) shall be corrected prior to approval or uses as a bed and breakfast operation.

- 2. The dwelling unit which the bed and breakfast inn takes place shall be the principal residence of the owner and said owner shall be on the premises when the bed and breakfast inn operation is active.
- 3. Dining facilities for the purpose of serving meals shall not exceed a seating capacity of two and a half (2.5) times the number of sleeping rooms in the bed and breakfast establishment. No restaurant shall be permitted. Food service shall be limited to continental breakfast served to at no extra cost to the transient tenants.
- 4. The sale and/or display of merchandise, other than souvenirs of the inn, is prohibited.
- 5. Each operator shall keep a log of the names of all persons staying at the bed and breakfast in operation. The log shall show the name, arrival and departure dates of all guests. Such log shall be available for inspection by Township Officials at any time.
- 6. The maximum stay for any guests/occupants of bed and breakfast inn establishments shall be twenty-one (21) days.
- 7. Bed and breakfast inns may not offer boating amenities, such as docking facilities, boat rental or boating tours, to guests. This provision shall not preclude the resident owner from docking or utilizing a boat for their own personal use.
- 8. Bed and breakfast inns may offer wedding and indoor concert events if approved as a part of their Special Use Permit.
- C. Site Development
  - 1. A structure utilized for a bed and breakfast inn must be located at least 200 feet from any adjacent residence, measured between principal structures.
  - 2. A structure utilized for a bed and breakfast inn that is within 500 feet from the shoreline of any lake or river must be connected to a public sanitary sewer. A structure utilized for a bed and breakfast inn that is further than 500 feet from the shoreline of any lake or river must meet all of the following conditions:
    - a.A sanitary septic system must be provided which has been reviewed by the Livingston County Health Department and approved for the number of rooms proposed in the bed and breakfast inn.
    - b. The sanitary septic system must be located further than 500 feet from a body of water. Ponds which are completely contained within the subject parcel and not contiguous to any off-site body of water may be within 500 feet of the structure utilized for a bed and breakfast inn and/or the sanitary septic system.
  - 3. A structure or premise utilized for a bed and breakfast inn must have at least two (2) exits to the outdoors from such structure or premise, and rooms utilized for sleeping shall have a minimum size of one hundred (100) square feet for two (2) occupants with an additional thirty (30) square feet or each additional occupant, to a maximum of four (4) occupants per room. Each sleeping room used fort the bed and breakfast inn operation shall have a separate smoke detector alarm. Lavatories and bathing facilities shall be available to all persons using any bed and breakfast inn operation. In no case shall there be less than one (1) lavatory and bathing facility for each four (4) sleeping rooms.
  - 4. Bed and breakfast inn operations shall be limited to eight (8) guest sleeping rooms.
  - 5. Applicants shall submit a site plan, landscape plan and a floor plan of the residential dwelling unit illustrating that the proposed operation meeting the requirements of Article 4.00 of the Zoning Ordinance.
  - 6. Minimal outward modification of the structure may be made only if such changes are

compatible with the character of the area or neighborhood and the intent of the zoning district in which the bed and breakfast inn is located. Any modifications are subject to architectural review by the Planning Commission at the time of Special Use permit review.

- 7. Parking shall meet the requirements of Article 10.00 for boarding and lodging houses. The parking areas shall not be located with the required yard setbacks. Landscape buffer strip, designed in accordance with Section 9.3, shall be provided between the parking lot and all adjacent residentially zoned land.
- 8. Signs for a bed and breakfast establishment shall meet the requirements for article 18 for the district in which it is located.
- 9. Bed and breakfast inn operations that want to hold wedding and indoor concert events shall meet the following regulations:
  - a. Maximum duration: No more than 20 events shall be allowed on a site per calendar year.
  - b. Location: Events shall not be allowed on property in or adjacent to any developed residential areas except on bed and breakfast sites greater than 2 acres.
  - c. Noise: Events shall be required to meet the regulations of the Hamburg Township Noise Ordinance.
  - d. Hours of Operation: Events shall only take place between 8:00 am and 11 pm. No amplified music shall be allowed after 10 pm; setup and cleanup of the event and workers and attendees to the event shall not arrive or leave the site before or after the hours of operation.
  - e. Number of Attendees: Events shall be limited to a maximum of 150 persons, or the maximum occupancy of the space where the event is held, whichever is less.
  - f. Distance to neighboring structures: If an event is held outdoors all temporary structures and outdoor venues shall be at least 200 feet from an adjacent residential structure.
  - g. Parking: Parking may be provided, either on or off-site, and shall meet the requirements under Section 10.3.1 (7). If parking is provided off-site, a shuttle service must be provided.
  - h. Clean-Up. Adequate site and surrounding area clean-up shall be done within 48 hours following the event.
  - Lighting. All exterior lighting shall be so installed that the surface of the source of light shall not be visible from the nearest residential district boundary and it shall be so arranged to reflect light away from any residential use. In no case shall any lighting become a nuisance as regulated in the Township Nuisance Ordinance. Lighting shall meet the applicable requirements under Section 9.11 Outdoor Lighting.
  - j. Temporary Sign: One temporary sign may be allowed in addition to the signs allowed for bed and breakfast establishments in article 18 for the district in which they are located. The sign shall not exceed 8 square feet in size, shall only be placed on the private property where the event is being held, shall only be erected the day of the event and shall be removed within 24 hours following the event.
  - k. Yearly Approval: In addition to the initial Special Land Use Permit, the owners of the establishment shall submit a land use permit application on a yearly basis which includes the following information for the Zoning Administrator to review.

Should the Zoning Administrator deem necessary, the yearly application may be sent to the Planning Commission for consideration.

- i. A list of the approximate dates that the bed and breakfast will be used for events, including the type of event.
- ii. a plot plan that depicts the location of all event venues, bathroom facilities, parking, drop off areas, and any other information deemed by the Zoning Administrator to be necessary in the review of the project.
- iii. The name and phone number of a contact person that will be at the events.
- iv. A signed agreement with the property owner of any land to be used for off-site parking.
- 1. Any of the requirements in a-k above may be altered, as necessary, to meet the requirements of the special use permit process. (Section 3.5).

## 7.6.23 Firewood Sales

- A. A land use permit renewable on an annual basis shall be secured from the Township Zoning Administrator.
- B. In the RAA and RA Districts, storage of firewood shall be restricted to the side and rear yards.
- C. All sales shall be conducted in a manner so as not to create a traffic hazard or a nuisance to neighboring properties.
- D. Adequate parking and ingress and egress to the premises shall be provided.
- E. Signs shall conform to the provisions of the District in which firewood sales are located.

## 7.6.24 Outdoor or drive-in theaters:

- A. Picture screens shall not be permitted to face a public roadway, shall be so located as to be out of view of any major thoroughfare, and shall not exceed sixty-five (65) feet in total height.
- B. A minimum yard of one hundred (100) feet shall separate such use from any public street used for access.
- C. Entrance and exit routes shall be located no nearer than 500 feet to the point of intersection of the right-of-way lines to two or more intersecting streets.
- D. The Planning Commission shall require such means of ingress and egress as will minimize congestion and hazards on the public streets adjacent to such uses.

## 7.6.25 Open Air Businesses

A. Unless specified elsewhere in the ordinance any outdoor sales, storage or other activities associated with an allowed use in the NS or CS districts requires a special use permit.

## 7.6.26 Dry cleaning establishments

- A. Dike containment area for storage of hazardous materials.
- B. No connections to waste water discharge in work area and no floor drains.
- C. Dry to dry loop non-vent system equipment.
- D. Compliance with all State Health Department requirements.

## 7.6.27 Laundromats shall be connected to public sewer.

- **7.6.28 Drive-through establishments** for the provisions of goods or services of a permitted use in the zoning district it is located (e.g., drive-through restaurant or drive-through bank):
  - A. Ingress and egress points shall be located at least sixty (60) feet from the intersection of any two (2) streets (measured from the nearest right-of-way line or further if necessary based on the required traffic impact study).
  - B. Any corner or double-frontage site shall be limited to one (1) entrance/exit drive for each separate public road frontage. A site with only one public road frontage shall be permitted no more than two (2) entrance/exit drives. Coordinated access with adjoining sites is encouraged, and may be required.
  - C. Devices for the transmission of voices shall be so directed or muffled as to prevent sound from being audible beyond the boundaries of the site.

### 7.6.29 Gasoline service stations

- A. All activities, except those required to be performed at the service island, shall be conducted entirely within an enclosed building.
- B. Bumping, painting, major automobile repairs and outdoor storage of wrecked or dismantled vehicles are specifically prohibited.

### 7.6.30 Marinas

- A. Docking space shall be limited to the maximum number of boats allowed by the State of Michigan marina operating permit and the standards of the Township Common Use (Keyhole) regulations contained in Section 9.8.
- B. Access shall be provided only from the water and a major arterial road.
- C. All piers and wharves shall be setback a minimum of fifteen (15) feet from any side lot line, provided further that such piers and wharves shall be installed such that the boat moored is a minimum of six (6) feet from any side lot line as projected into the water.
- D. The number of public launches shall be limited to the number of parking spaces available for the storage of vehicles with boat trailers.
- E. Pump-out facilities shall be provided at the marina for disposal of refuse from boat holding tanks in a sanitary manner. Toilet facilities shall be provided meeting the requirements of the Livingston County Health Department.
- F. Refuse and garbage containers shall be provided and kept in clean and sanitary condition for the use of boat owners.
- G. Facilities shall be provided for the safe and sanitary disposal of oil and other engine fluids.
- H. Major repair or dismantling of boats shall be conducted within an enclosed building.
- I. All areas utilized for dry-docking/on-land storage of boats shall meet the requirements for boat dry-dock storage.
- J. Other related uses such as boat sales and service, food and beverage store, food and beverage service establishment or retail store may be located on the same site, provided such use is permitted in the zoning district and site meets the requirements for all applicable uses.

## 7.6.31 Boat sales and service

- A. Access shall be provided form a major arterial road.
- B. Repair or dismantling of boats shall be conducted within an enclosed building.
- C. All areas utilized for storage of boats shall be setback fifty (50) feet from any residential zoning district.

D. All outdoor boat or trailer storage areas shall be screened from view of any abutting residentially zoned or used lands and the public road right-of-way by a continuous opaque visual barrier consisting of a row of evergreen trees or a masonry wall not less than six (6) feet in height, or other screening approved by the Planning Commission. The Planning Commission may allow up to three (3) boats located outdoors to be visible from the public right-of-way. The Planning Commission may require additional screening and setbacks where outdoor multi-level boat racks are proposed.

## 7.6.32 Motor Vehicles Sales

- A. Site shall be located along M-36 and shall not exceed 40,000 square feet in size in the VC district.
- B. Sales of motor vehicles shall be in conjunction with an indoor showroom and sales office in the CS and VC zoning district.
- C. No storage or display of vehicles shall be permitted in any landscape greenbelt area.
- D. All outdoor motor vehicle storage areas in the CS and VC zoning districts shall be screened from view of any abutting residentially zoned or used lands and the public road right-of-way by a continuous opaque visual barrier consisting of a row of evergreen trees or a masonry wall not less than six (6) feet in height, or other screening approved by the Planning Commission. The Planning Commission may allow up to three (3) motor vehicles located outdoors to be visible from the public right-of-way.
- E. Sites shall be limited to one access drive unless the site provides frontage on more than one street. Access may be provided through rear access drives in addition to a preliminary entrance.
- F. Parking and display areas shall be hard surfaced and shall be graded and drained to dispose of storm water without negatively impacting neighboring property. The Township Planning Commission may recommend a gravel surface for part of the display or storage area for low intensity activities.
- G. Plans shall include the layout for parking of display vehicles, and customer parking. Parking spaces shall include bumper blocks for the preservation of all greenbelt areas.
- H. Loudspeakers and paging systems shall be prohibited.
- I. The sales showroom building may include an area for vehicle repair, provided that the repair activity is incidental so the primary sales of vehicles. All work shall be constructed within a completely enclosed building.
- J. All washing of vehicles shall take place on site within an area that captures all runoff for treatment on site within an approved storm water management system approved by Hamburg Township.
- **7.6.33** Automobile, truck and trailer rental: The following regulations are for Automobile, truck and trailer rental in the CS and VC district.
  - A. Minimum lot area shall be one (1) acre.
  - B. Minimum lot width shall be one hundred and fifty (150) feet.
  - C. All areas utilized for storage of vehicles and trailer shall be setback fifty (50) feet from any residential zoning district.
- D. All stored rental vehicles and trailers shall be no closer to the front of the parcel than the front line of the principal building on the parcel, provided that in no case shall rental vehicles and trailers be stored in the required front yard.
- E. All vehicle storage areas shall be screened from view of any abutting residential area by a row of evergreen trees or a masonry wall or not less than six (6) feet in height, or other screening approved by the Planning Commission except that the Planning Commission may allow up to three (3) vehicles or trailers to be visible from the public right-of-way.
- F. A plan shall be provided that indicates the number, type, location and traffic circulation pattern of vehicles or tailors to be stored on the site for Planning Commission approval.
- G. Ingress and egress shall meet the spacing requirements of Section 10.8.5. Such use shall be limited to a single access point on a public or private road
- H. All washing of vehicles shall take place on site within an area that captures all runoff for treatment on site within an approved storm water management system approved by Hamburg Township.
- **7.6.34 Major and Minor Automobile Repair**: The following regulations are for Automobile Repair in the CS and VC district.
  - A. Major automobile repair may only be permitted as an accessory use to minor automobile repair, provided all of the standards below are satisfied.
  - B. Setbacks. Side and rear yard setbacks for repair garages or other buildings shall be fifty (50) feet from and residentially zoned or used district.
  - C. Hours of Operation. All minor automobile repair services shall be conducted entirely within an enclosed building and between the hours of 7:00 a.m. and 9:00 p.m.
  - D. **Orientation of Open Bays.** Buildings shall be oriented so that open service bays do not face onto adjacent major thorough fares or arterial roads unless screened by an adjoining lot or building.
  - E. Outdoor Storage. There shall be no storage of vehicle components such as parts, trash, supplies or equipment outside of a building. Outdoor Storage associated with the Major Automobile Repair for the vehicles to be worked on is permitted but only for a period lasting no longer than seven (7) consecutive days. All vehicles awaiting repair must be completely screened by a 6-foot masonry wall with landscaping in front as described under screening. The amount of space dedicated to such outdoor storage areas cannot exceed the square footage of the principal building.
  - F. Curb Cuts. M-36 is the major roadway through Hamburg Township and also serves as a regional thoroughfare. Driveways and curb cuts along M-36 are permitted only as necessary to access the Village. Shared access drives are required unless site conditions prohibit such collaboration.
  - G. Screening. Where minor automobile repair establishments adjoin property located in any residentially zoned or used district, a solid, ornamental, masonry wall, six (6) feet in height, shall be erected and maintained along a shared lot line. In addition, all trash areas shall be enclosed on all sides by a required six (6)-foot masonry wall. Such walls shall be constructed of the same materials as that of the principal building, and be faced with either brick, decorative block, or pre-cast concrete formed into a decorative pattern and painted in the same color scheme as that of the principal building. All masonry walls shall be protected by a

fixed curb or barrier to prevent vehicles from contacting the wall. The masonry wall may be required by the Planning Commission where the minor repair establishment adjoins a nonresidential use, such as a professional office building, clinic or day nursery, or a landscaped area of any other nonresidential use.

- H. **Outdoor Display.** The outdoor display and sale of merchandise shall be prohibited, unless specifically approved by the Planning Commission as a condition of the special land use permit.
- I. **Commercial Vehicles**. Tow trucks or other commercial vehicles that are on the premises for reasons other than typical customer activity shall be parked in non-required parking spaces and should not be parked in such a manner to be used as an advertisement.
- J. Fire Safety. All uses shall comply with the flammable liquid regulations promulgated by the fire safety board by authority conferred by Section 3 of Public Act No. 207 of 1941 (MCL 29.3c).
- K. **Engineering.** The installation and use of an oil-water separator with monitoring capabilities in the facility's storm water management system shall be required, as well as the use of best management practices for pollution prevention for automobile service operations, in order to protect surface water and groundwater quality, along with approval by the Township Engineer.
- L. **Modifications.** Any of the requirements in a-j above may be altered, as necessary, should the applicant demonstrate to the satisfaction of the Planning Commission justification for deviation from these use standards.

# 7.6.35 Motor freight depots and terminals

- A. Goods and/or trucks are stored only on a temporary basis and are clearly in transit and have not yet reached their final destination.
- B. Such activities shall not include the storage of scrap or junk materials; wrecked or partially dismantled vehicles; petroleum or other than in mobile carriers or for use on the premises.
- C. No building, temporary storage yard, or loading berth shall be located within fifty (50) feet of any rear or side property line or within one hundred (100) feet of any street right-of-way line.
- D. All temporary storage yards shall be enclosed by a well-maintained solid fence or masonry wall not less than six (6) feet in height.

# 7.6.36 Adult Businesses

- A. Purpose. In the development and execution of this chapter, it is recognized that there are some uses which, because of their very nature, have serious operational characteristics, particularly when concentrated or when one (1) or more of them are located in near proximity to residential zones, thereby having a deleterious effect upon adjacent areas. Regulation of these uses through location is necessary to ensure that the adverse effects of such uses will not contribute to the blighting or downgrading of the surrounding neighborhood. The provisions of this chapter are intended to prevent a concentration of these uses within any one area and to prevent deterioration or blighting of nearby residential neighborhoods.
- B. Restrictions on Location. All such businesses shall be limited to the GI District. No person shall use, establish, build, operate, or allow to be operated an adult business in any building or on any lands:
  - 1. Within 1,000 feet of another adult business.

- 2. Within 500 feet from any residentially zoned lands, or single- or multi-family dwelling unit.
- 3. Within 500 feet from any church or other religious institution.
- 4. Within 500 feet of any public park or land zoned for such use.
- 5. Within 500 feet of a school.

The distance between an adult business and a church, school, public park, or a residential zoning district shall be measured in a straight line, without regard to intervening structures or objects, from the closest exterior wall of the adult business or building containing an adult business to the nearest property line of the protected use or residential or agricultural district.

- C. No person shall reside in or permit any person to reside in the premises of an adult business.
- D. Exceptions. The provisions of this section regarding massage parlors shall not apply to hospitals, sanitariums, nursing homes or medical clinics, or to the offices of a physician, surgeon, chiropractor, osteopath or physical therapist, or massage therapists duly licensed by the State.

#### Section 7.7.1: Schedule of Area, Height, and Bulk Regulations

Ι	District	Minimum Lot Area (Sq.Ft.) <sup>1,6</sup> *	Minimum Lot Width At Street (Feet) <sup>2*</sup>	Maximum Lot Coverage Buildings /Parking (%) <sup>7</sup> *	Minimu F <sup>3</sup> *	um Yard ( (Feet) <sup>4*</sup> S <sup>4</sup> *	Setback R	Maxir Building Stories	num Height Feet	Additional Regulations Section 7.7
A.	RAA-Low Density Rural Residential	87,120	200	20/20	30	20	35	2.5	35	Yes
В.	RA-Medium Density Residential	43,560	125	35/40	25	10	30	2.5	35	Yes
C.	RB-High Density Residential	10,000	70	35/40	25	8	30	2.5	35	No
D.	WFR-Waterfront Residential	43,560	125	35/40	25	105*	30	2.5	35	Yes
E.	NR-Natural River Residential	43,560	150	35/40	25	10	30	2.5	35	Yes
F.	MHP-Mobile Home Park Residential	See Section	7.6.5.					2.5	35	Yes

\* See Footnotes

District		Minimum Lot Area (Sq.Ft.) <sup>1,6*</sup>	Minimum Lot Width At Street (Feet) <sup>2*</sup>	Maximum Lot Coverage Buildings/ Parking (%) <sup>7</sup> *	Minimu F <sup>3</sup> *	um Yard (Feet) S <sup>4</sup> *	Setback	Maxir Building Stories	num Height Feet	Additional Regulations Section 7.8
G.	NS-Neighborhood Service	10,000	80	40/75	25	20 <sup>5*</sup>	25	2.5	35	Yes
Н.	CS-Community Service	43,560	150	40/75	30	205*	25	2.5	35	Yes
I.	LI-Limited Industrial	43,560	150	40/75	30	20	25	3	40	Yes
J.	GI-General Industrial	87,120	200	40/75	50	20	25	3	40	Yes
K.	MD-Mixed Development	43,560	150	40/65	40	20	25	3	40	Yes
L.	Village Residential	21,780 <sup>9*</sup> Residential with sanitary sewer: 14,000 <sup>8,9,10*</sup>	80	35/40 11*	20 12*	10	25	2.5	35	Yes
M.	Village Center	18,700 <sup>9*</sup> Residential with sanitary sewer: 10,600 <sup>8,9,10*</sup>	65	50/80 11*	see note 12*	10 13*	15	2.5	35	Yes
N.	PPRF – Public & Private Recreational Facilities District	1,742,400	660	20/20	100	50	100	2.5	35	Yes

\* See Footnotes

# Footnotes to 7.7.1 Schedule of Area, Height, and Bulk Regulations

- 1. Minimum lot areas are for all uses within District unless otherwise specified in Section 7.7.1, Schedule of Use Regulations. Minimum lot areas are exclusive of public street right-of-way or private road access easements.
- 2. Minimum lot widths are required along the street upon which lot principally fronts. On cul-desacs or where a curvilinear street pattern results in irregularly shaped lots with non-parallel side lot lines, the following minimum lot widths shall apply:

	Minimum Lot Width	Minimum Lot Width
District	at Right-of-Way	at Building Line
RAA	64 feet	106 feet
RA, WFR	64 feet	100 feet
RB	60 Feet	70 Feet
RC	100 Feet	150 Feet
NR	80 Feet	150 Feet

3. Minimum front yard setbacks are required as shown except where established buildings on adjacent lots vary from this minimum. In such case, a new building shall be constructed with a front yard of no less depth than the average front yards of buildings located on each side of the proposed building. In no case shall this provision be interpreted to allow a front yard of more than forty (40) feet or less than twenty (20) feet.

On corner lots, both street yards shall provide the minimum front yard setback. The size of corner lots shall be large enough to accommodate both front yard setbacks and a building of a similar size to those on non-corner lots.

4. In any District, a principal building, all attached structures, fences, and accessory structures shall not be permitted within fifty (50) feet of the ordinary high-water mark of any body of water unless otherwise stated.

In the Natural River Residential (NR) zoning district in addition to required front, side, and rear yard setbacks, all new buildings and structures shall be required to be setback a minimum of 125 feet from the ordinary high-water mark, or if the ordinary high-water mark cannot be determined, the setback shall be from the river's edge. The setback may be decreased ten (10) feet for every ten (10) foot rise in bank height to a minimum of seventy-five (75) feet from the ordinary high-water mark.

5. In the Water Front Residential (WFR) zoning district lots that have less than or equal to 60 feet lot widths shall be provided a reduced minimum side yard setback of 5 feet with an aggregate side yard setback of 15 feet.

In Neighborhood Service (NS) and Community Service (CS) Districts, a principal building may be constructed on or near the property line provided that the combination of the two side yards shall total twenty (20) feet and the building's side wall be a fire wall meeting building code. In

all cases, one side yard shall be provided which is sufficient to permit the access of emergency vehicles to the rear of the building.

- 6. Lots shall contain a sufficient buildable site exclusive of any wetlands meeting the minimum zoning setback regulations plus off-street parking, septic disposal fields, well location and accessory building provisions.
- 7. The maximum lot coverage values are for the following:
  a. Building Lot Coverage; the total footprint of buildings, divided by the site, excluding water bodies and wetlands.
  b. Total Impervious Surface; the total footprint of buildings, parking, paved and gravel storage

b. Total Impervious Surface; the total footprint of buildings, parking, paved and gravel storage yards, driveways, streets, roads, and sidewalks, divided by the size of the site, excluding water bodies and wetlands.

Single family or two-family residential lots may have up to an additional ten (10) percent lot coverage after approval of a grading and drainage plan, prepared by a registered engineer or a registered Landscape Architect and approved by the Township Engineer.

8. For multiple family dwellings with sanitary sewer, the following maximum densities shall be allowed:

	Maximum dwelling units per acre		
Housing type	Village Center	Village Residential	
Apartments	10	8	
Multiple Family Dwellings	8	6	
Duplexes	6	5	

- 9. The minimum lot area for residential (single and multiple family) may be reduced by up to twenty-five (25) percent, provided that at least half the total area by which residential lots are reduced below the minimum lot size be provided as common open space, meeting the requirements of Section 7.8.6
- 10. The minimum lot area for residential (single and multiple family) with sanitary sewer may be reduced to the sanitary sewer minimum lot size.
- 11. No building shall be greater than thirty thousand (30,000) square feet gross floor area except for a group of uses, each with individual pedestrian entrances.
- 12. Buildings shall be placed no more than twenty (20) feet from the front lot line. A lesser setback may be required by the Planning Commission where the established setbacks of adjacent buildings is less than twenty (20) feet. Where the average front yard setbacks for the adjacent buildings on either side of the proposed use is greater than twenty (20) feet the Planning

Commission may permit a front yard setback above twenty (20) feet but not to exceed the average front yard setbacks for the adjacent buildings. For a structure with a garage door facing a public street or private road, the accessory garage building, or the front wall of the attached garage, shall be setback a minimum of five (5) feet behind the front building line of the principal structure.

13. The side yard setback shall be a minimum ten (10) feet except a zero (0) foot setback may be permitted where the building abuts another building which is separated by an approved fire wall.

# Section 7.8 Additional District Regulations

# 7.8.1 NR-Natural Rivers District

- A. Authority. The Huron River is a designated Natural River (classification: County Scenic River). Authority for these provisions herein stated are granted by the provisions of Part 305 of the Environmental Protection Act beginning at 13A.30501
- B. **Purposes and Intent.** This ordinance is enacted to implement public objectives embodied in the Huron River Natural River Management Plan adopted by the Natural Resources Commission, and endorsed by Hamburg Township. These public objectives seek to preserve and enhance the values of the Huron River area as well as to promote the public health, safety and general welfare of this community and the state as a whole. These objectives are sought to be achieved through zoning of this unique scenic natural river area for the following stated purposes:
  - 1. To protect and enhance the values of the natural river in the interest of present and future generations;
  - 2. To protect the economic value of this scenic resource from unwise and disorderly development which may adversely pollute, destroy or otherwise impair its beneficial use and preservation;
  - 3. To prevent ecological and aesthetic damage which may result from overcrowding and overuse or unwise and disorderly development;
  - 4. To permit reasonable and compatible uses of land which complement the natural characteristics of the river and further the purposes of this Ordinance;
  - 5. To limit the intensity of use, density of population and type and amount of development in order to protect and enhance the natural river values, and thereby carefully guide the expenditure of funds for public improvements and services in an orderly fashion, in keeping with the character of the natural river area, the purposes for its designation, and the community as a whole;
  - 6. To conserve the river water, and prevent further degradation of its quality, purity, clarity and free-flowing condition;
  - 7. To provide for the conservation of soil, of riverbed and banks of adjoining uplands;

- 8. To protect the natural flood water storage capacity of the river flood plain and to prevent flood damages and associated public relief expenditures created by improper construction of structures in the flood plain;
- 9. To protect and enhance fish, wildlife and their habitat;
- 10. To protect boating and recreational values and uses of the river;
- 11. To protect historic values of the river and adjoining uplands;
- 12. To protect individuals from investing funds in structures proposed for location on lands unsuited for such development because of high ground water, erosion, or vulnerability to flood damage; and
- 13. To provide for administrative relief from the terms of this ordinance where warranted and in accord with the standards contained herein.

# C. Setbacks

- 1. **Setbacks and Lot Width**. Unplatted lots, new subdivisions, and condos in the NR District shall accommodate the building setbacks as set forth in this Ordinance, and shall have a minimum riverfront lot width of 150 feet. Septic systems are required to be set back a minimum of 125 feet from the ordinary high-water mark of the Huron River.
- 2. **Building Setbacks**. New buildings and appurtenances on the Huron River mainstream will be required to set back a minimum of 125 feet from the ordinary high-water mark. Further,
  - a. New buildings and appurtenances must be setback at least 100 feet from the top of a bluff.
  - b. No buildings shall be placed on land that is in a floodway or a wetland.

# D. Land Alteration

- 1. **Cutting and Filling**. Cutting or filling for building (including appurtenances) on the flood plain is prohibited. Cutting and filling for building on the upland shall meet all state, county and township regulations. Dredging and filling for the construction of fish or wildlife ponds within 500 feet of the river requires a permit under Public Act 346 of 1972, as amended. However, no lake shall be constructed within the Natural River District.
- 2. **Stormwater Runoff**. A stormwater runoff management system shall be intact for all stormwater runoff prior to the runoff reaching the ordinary high-water mark of the Huron

River or its tributaries to ensure the protection of the water courses from erosion and unnecessary degradation due to sedimentation.

- 3. **Earth Changing Activities**. All earth changes, including dredging, damming, cutting, filling and grading, within five hundred feet of the river's edge shall be done in accordance with the requirements of a permit issued by the local soil erosion and sedimentation control enforcement agency pursuant to Public Act 346 of 1972, as amended. In addition, commercial mining and an extraction of topsoil or subsurface sand, gravel, or minerals is not permitted within three hundred feet of the river's edge.
- 4. **Dredge and Fill Activities**. All dredge and fill activities and construction of permanent structure, including docks, lying below the ordinary high-water mark of the river are subject to the provisions of Public Act 346 of 1972, as amended.

# E. Building Design and Screening

- 1. Use of Natural Materials and Colors. Property owners are encouraged to use natural materials and natural unobtrusive colors in the construction of new or remodeling of existing buildings.
- 2. **Flood Plain Restrictions**. Township Ordinance Section 9.6.1 through Section 9.6.5 shall apply in the Natural River District with the exception that no structures (except accessory building/structures) shall be permitted in the floodplain of the Huron River in the Natural River District.
- 3. **Natural Vegetation Strip**. To minimize erosion, stabilize the riverbank, protect water quality, keep nutrients out of the water, maintain water temperature at natural levels, preserve fish and wildlife habitat, to screen man-made structures, and also to preserve aesthetic values of the natural river area, a natural vegetation strip shall be maintained on each parcel or lot between the river's edge and a line, each point of which is 100 feet on all privately owned land and on all publicly owned land horizontal from and perpendicular to the river's edge. This restricted, minimum cutting strip shall apply on each side of the mainstream. Within the natural vegetation strip, trees and shrubs may be selectively pruned or removed for harvest of merchantable timber, to achieve a filtered view of the river from the principal structure, and for reasonable private access to the river. Said pruning and removal activities:
  - a. Shall insure a live root system stays intact to provide for streambank stabilization and erosion control; and
  - b. Shall insure that any path to the river's edge is not greater than 10 feet in width, shall meander down to the river's edge in a matter which protects the soil and vegetation from erosion while also screening the principal structure and vehicles from a direct river view; and

- c. Shall require a detailed plan of the cutting and removing of vegetation be submitted to the environmental consultant for review if necessary. The environmental consultant\_shall make a recommendation to the Zoning Administrator who will then give final approval/disapproval within the vegetation strip; and
- d. All commercial lumbering in the Natural River District shall be required to file a one-thousand-dollar bond with the Township to be returned to said party following inspection of the property by the Zoning Administrator to insure repair of damaged trees and property.

Dead, diseased, unsafe or fallen trees and noxious plants and shrubs, including poison ivy, poison sumac, and poison oak, and other plants regarded as a common nuisance may be removed. Planting of perennial native species in the natural vegetation strip is encouraged, especially where exposed soil and steep slopes exist, and in reforestation efforts.

4. Use of Pesticides, Herbicides, and Fertilizers. Because of the potentially severe adverse effects on riverfront vegetation, fish, wildlife, and water quality from improper use of even small amounts of pesticides, herbicides, and fertilizers, their use on lands within the natural river area is prohibited except when utilized in accord with the advice and supervision of qualified specialist. No pesticides, herbicides, or fertilizers are allowed in the "vegetation strip" along the river.

# F. Docks and Launches

- 1. **Docks**. Docks may be constructed not to exceed six (6) feet in width nor more than twenty (20) feet in length paralleling the river with no more than four (4) feet of the dock extending beyond the low water mark. Docks must be constructed in accordance with the rules of Act 346, P.A. 172. Docks must be constructed of materials that are not detrimental to the river and must have natural/unobtrusive colors used for coverings. Docks cannot impede the waterway of normal water traffic.
- 2. **Launches**. No public launches are allowed in residential areas into the river or its tributaries.
- G. **Campgrounds and Picnic Areas.** On public land, no new structures associated with a campground or picnic area, except those necessary to protect the riverbank, will be permitted within three hundred (300) feet of the designated mainstream. Such structure shall be designed and constructed in such a manner as to further the purpose of this district.
- H. Archaeological Sites. The identification, preservation, and interpretation of archaeological sites along the designated portions of the district, both by public agencies and local societies, is strongly encouraged.

#### 7.8.2. NS-Neighborhood Service and CS-Community Service.

- A. All uses permitted in these districts including storage shall be conducted entirely within an enclosed structure unless otherwise specified herein.
- B. Where these districts abut a residential district, there shall be provided either a landscape buffer strip designed in accordance with the provisions of Section 9.3 or a fence between six (6) and eight (8) feet in height as determined and approved by the Planning Commission.

### 7.8.3 LI-Limited Industrial.

- A. Vehicular access to uses permitted in this district shall be provided from a paved street within or abutting such districts.
- B. Except as hereinafter provided, all uses permitted in this district shall be conducted in completely enclosed buildings.
  - 1. Outside storage of materials, products and equipment, including tank storage, shall be permitted, subject to special approval of the Planning Commission.
  - Outdoor storage yards shall be completely enclosed by a solid fence or wall between six
     (6) or eight (8) feet in height.
  - 3. Outdoor display of finished goods for sale shall be permitted only as specified with permitted retail uses.
  - 4. No outside use of cranes, tanker loading or unloading facilities or rail transportation shall be permitted.
- C. No structure shall be located less than one hundred (100) feet from any residential district.
- D. Where this district abuts a residential district, there shall be provided either a landscape buffer strip designed in accordance with the provisions of Section 9.3 or a fence between six (6) and eight (8) feet in height as determined and approved by the Planning Commission.
- E. Every lot in this district shall provide a landscaped buffer strip of at least fifteen (15) feet in depth, measured from the front lot line, within the prescribed front yard setback. The buffer strip shall be composed of trees and/or foliage, pursuant to the Township Engineering and Design Standards.
- F. All shipping and receiving activities shall be located at the rear or side of the building. No on-site truck storage overnight shall be permitted, except in the rear yard.
- G. All piping, vents, ventilators, exhaust, refrigeration and cooling mechanisms shall be enclosed or maximally screened from view and insulated.

- H. No crude petroleum products or processing and no processing of raw materials including but not limited to logs, animal byproducts, pulp, petroleum, coal, and ores shall be permitted.
- I. Any light industrial use which in the judgment of the Planning Commission may have off-site impacts requiring the imposition of additional restrictions to lessen the impacts of noise, odor, vibration, smoke, glare, dust, fumes, radiation, explosion, heat, toxic contamination, or other nuisances, shall be subject to special approval.
- J. The Planning Commission may waive or modify the fencing or landscape buffering requirement upon a determination that a solid fence or landscaping buffer will not be necessary or effective for screening. In making such a determination, the following shall be considered
  - 1. Need for security;
  - 2. Abutting district or existing use;
  - 3. Extent that existing natural vegetation provides the desired screening;
  - 4. Topographic conditions which would eliminate the benefits of required solid fencing or landscape buffer;
  - 5. Building heights and views in relation to existing topography and vegetation as well as views from adjacent uses;
  - 6. Similar conditions existing such that no good purpose would be served by providing the required landscaping buffer or solid fence.

# 7.8.4 GI-General Industrial.

- A. Vehicular access to uses permitted in this district shall be provided from a paved street within or abutting such districts.
- B. All uses permitted in this district shall be conducted in completely enclosed buildings, except that outdoor storage yards shall be completely enclosed by a solid fence or wall between six (6) and eight (8) feet in height.
- C. No structure shall be located less than one hundred (100) feet from any residential district.
- D. Where this district abuts a residential district, there shall be provided either a landscape buffer strip designed in accordance with the provisions of Section 9.3 or a fence between six (6) and eight (8) feet in height as determined and approved by the Planning Commission.
- E. Every lot in this district shall provide a landscaped buffer strip of at least fifteen (15) feet in depth, measured from the front lot line, within the prescribed front yard setback. The buffer strip shall be composed of trees and/or foliage.
- F. The Planning Commission may waive or modify the fencing or landscape buffering requirement upon a determination that a solid fence or landscaping buffer will not be necessary or effective for screening. In making such a determination, the following shall be considered.
  - 1. Need for security;

- 2. Abutting district or existing use;
- 3. Extent that existing natural vegetation provides the desire screening;
- 4. Topographic conditions which would eliminate the benefits of required solid fencing or landscape buffer;
- 5. Building heights and views in relation to existing topography and vegetation as well as views from adjacent uses;
- 6. Similar conditions existing such that no good purpose would be served by providing the required landscaping buffer or solid fence.

# 7.8.5 MD-Mixed Development District.

- A. Developments planned under the provisions of the MD District shall be homogeneous and uniform in nature and all reasonable attempts shall be included in such plans to protect the existing environmental quality of the site. Preservation of natural features such as slopes, stands of trees, animal sanctuaries and similar characteristics shall be considered when the site has such features present. Similarly, appropriate measures shall be suggested by the applicant to assure minimal negative impact upon adjacent land areas, residents, and property owners should the site plan be implemented.
- B. Outdoor storage or display shall be prohibited.
- C. The Planning Commission may permit the provision of landscaped area in lieu of and within the area which would otherwise provide for up to ten (10) percent of the total required parking spaces.
- D. Off-street parking areas shall not be permitted within the required front yard setback.
- E. Off-street loading areas shall not be visible from any public or private road.
- F. The Planning Commission may waive or modify the fencing or landscape buffering requirement upon a determination that a solid fence or landscaping buffer will not be necessary or effective for screening. In making such a determination, the following shall be considered.
  - 1. Need for security;
  - 2. Abutting district or existing use;
  - 3. Extent that existing natural vegetation provides the desire screening;
  - 4. Topographic conditions which would eliminate the benefits of required solid fencing or landscape buffer;
  - 5. Building heights and views in relation to existing topography and vegetation as well as views from adjacent uses;
  - 6. Similar conditions existing such that no good purpose would be served by providing the required landscaping buffer or solid fence.

# 7.8.6 VC and VR Village Center and Village Residential Districts.

**7.8.6.1. Design Standards.** The following design standards shall apply to all site plans reviewed under Article 4.00, Site Plan Review, special uses reviewed under Section 3.5, Special Use Permits, subdivision plats reviewed under the Subdivision Control Ordinance, and condominium projects reviewed under the Condominium Ordinance.

- A. **General**: The overall design and mixture of uses shall be consistent with the intent of this district. Compatibility of uses shall be determined by the following:
  - 1. The uses shall not create noise, dust, odors, fumes or other nuisances that will have an obnoxious effect on surrounding residences.
  - 2. Traffic volumes generated by the use shall not have a negative impact on surrounding residential character.
  - 3. Architecture shall meet the requirements of Section 4.5.7.
  - 4. Location and use of yards shall contribute to the continuation of open space areas within the immediate vicinity.
  - 5. Location and design of landscaping and pedestrian areas shall be compatible with and enhance the area pedestrian and open space network.
  - 6. Location, size and types of architectural projections such as porches or awnings shall be compatible with other structures along the same block.
  - 7. Location, scale and design of signs shall be consistent with the character of other signs, street elements structures and uses located along the same street.
  - 8. Residential development shall be designed to be compatible with surrounding land uses, while providing a mixture of housing types to meet the varied needs of Township residents.

# B. Sidewalks/Pedestrian Circulation

- 1. Site design shall demonstrate a special sensitivity to pedestrian circulation and safety.
- 2. Sidewalks at least five (5) feet wide and at least seven (7) feet wide where abutting parking shall be provided along public streets and private roads; bike paths shall be required in locations designated in the Hamburg Village Master Plan or to provide linkages with existing or planned bike paths.
- 3. All developments shall provide pedestrian linkages between public sidewalks and the building entrances.
- C. **Common Open Space**: For any development which includes ten (10) or more dwelling units, 1,500 square feet of common open space shall be provided per dwelling unit. Such open space

may be counted towards meeting open space requirements for minimum lot size reductions provided that it meets all of the following requirements:

- 1. Open space shall be set aside by the developer through an irrevocable conveyance that is found acceptable to the Planning Commission, such as:
  - recorded deed restrictions,
  - covenants that run perpetually with the land, or
  - a conservation easement established per the State of Michigan Conservation and Historic Preservation Act, Public Act 197 of 1980, as amended (M.C.L. 399.251).
- 2. The common open space shall be used for social, recreational and/or natural preservation. Common open space within the village shall be of a distinct geometric shape, generally rectilinear or square. The common open space shall include landscaping, sidewalks, pedestrian benches and pedestrian scale lamp posts. Open space at the edges of the village, as shown on the Hamburg Village Master Plan shall be left in a natural state, with the exception of trails or boardwalks.

# D. Parking/Loading Areas

- 1. The amount of parking for nonresidential uses required under Article 10 "Parking and Loading" may be reduced by the Planning commission by up to fifty percent (50%) upon a finding that patrons will be able to walk to the use from nearby residential areas, patrons are parked at other uses and visiting several uses, and/or on-street parking is available.
- 2. Off street parking lots shall be located behind the front line of the principal building. Where this is not feasible or practical, the Planning Commission may permit off street parking within the front yard. Parking lots must be setback from any front lot line a minimum of twenty (20) feet.
- 3. All off street parking spaces or loading areas must be screened from view of any public road or pedestrian path right-of-way, or private road or pedestrian path easement by an evergreen hedge row or masonry wall, which is consistent with building architecture and site design, at least three (3) feet in height.
- 4. Where parking or loading areas abut a residential use, a six (6) foot tall masonry wall, which is consistent with building architecture and site design, shall be constructed between the parking lot or loading area and the adjacent residential use. The Planning Commission may substitute the masonry wall with one or more rows of six (6) foot tall evergreens.
- 5. Loading/unloading from secondary streets may be permitted by the Planning Commission rather than the required on-site loading, upon demonstration by the applicant that through traffic flow and access to neighboring uses will not be disrupted.

# E. Architecture

- 1. Buildings shall possess architectural variety, but enhance the overall cohesive and historic village character.
- 2. Building architecture shall meet the standards of Section 4.5.7.
- 3. The first floor of front facades shall include at least thirty percent (30%) windows. The approximate size, shape, orientation and spacing shall match that of buildings on adjacent lots.
- 4. The mass and proportion of structures shall be similar to structures on adjacent lots and on the opposite site of the street. Larger buildings may be broken-up with varying building lines and roof lines to provide a series of smaller scale sections which are individually similar in mass and proportion to surrounding structures.
- 5. Buildings located on corner lots shall provide distinct and prominent architectural features or site elements which reflect the importance of the building's corner location and creates a positive visual landmark. An entry feature or site landmark shall be required at corners designated for such a feature in the Hamburg Village Master Plan. The architectural feature or site element shall be subject to Planning Commission approval.
- 6. On sites which contain commercial structures over fifty (50) years old, no exterior portion of any commercial building or structure (including walls, fences, light fixtures, steps, pavement, or other appurtenant features), or above ground utility structures shall be erected, altered, restored, moved or demolished without the review of the Planning Commission prior to the issuance of a land use permit. The purpose of the Planning Commission review is to advise on actions which may or may not be compatible with the desirable historic, architectural or cultural aspects of the District. The Planning Commission may consider Standards for Rehabilitation and Guidelines for Rehabilitation of Historic Buildings prepared by the U.S. Department of Interior for reviewing actions within the Old Hamburg Village. Such standards are made part of this Ordinance.

For proposed alterations to commercial structures for which site plan review is not required under Article 4.00, the review of the Planning Commission shall be advisory to the Zoning Administrator in the issuance of a land use permit. The provisions of this section shall not be construed to prevent the ordinary maintenance or repair of any exterior feature. Further, the provisions of this section shall not prevent the construction, alteration, restoration or demolition of any feature which the Building Inspector certifies is required because of a threat to public safety.

F. **Signs**: Signs shall be designed to be compatible with the principal building's architecture and materials.

- G. **Street and Access Design**: Streets shall meet the following, with the acknowledgment that for any public streets, any more stringent standards of the Livingston County Road Commission or the Michigan Department of Transportation shall apply.
  - 1. Access points to M-36 shall be spaced at least five hundred (500) feet apart
  - 2. Access points along streets or driveways intersecting with M-36 shall be setback at least sixty (60) feet from the M-36 right-of-way line.
  - 3. The Township may require shared access or connections between adjacent uses as a means to limit conflict points and preserve capacity along M-36.
  - 4. The maximum length of blocks shall be seven hundred (700) feet.
  - 5. Street connections to adjacent parcels shall be provided where the Master Plan identifies a future street connection or there is the possibility to create future street connections. Road stubs for future connections shall be improved to the parcel line.
- H. Landscaping: All landscaping shall meet the minimum requirements of Section 9.4, Landscape Standards. Because of the higher density of development permitted in the VC and VR districts, the following standards shall apply to frontage landscaping in place of the standards contained in Section 9.4:
  - 1. At least an eighty (80) foot wide landscaped greenbelt shall be provided along undeveloped areas of M-36, as designated on the Hamburg Village Master Plan, with at least two (2) rows of trees spaced no greater than twenty-five (25) feet on center. Trees shall be a mixture of evergreen and canopy trees meeting the minimum plant size requirements of Section 9.4. Provision of this landscaped greenbelt may be counted towards the common open space requirements of paragraph C above.
  - 2. Along all road frontages, other than M-36 section identified in paragraph 1 above, one canopy street tree shall be planted within 5 feet of the front lot line for each forty (40) linear feet of frontage.

# I. Lighting.

- 1. A consistent type of pedestrian scale ornamental lighting shall be provided along all sidewalks, within any off-street parking lots and along road frontages.
- 2. Parking lot lighting shall not be greater than twenty (20) feet in height.

# 7.8.6.2. Approval Standards.

The following criteria shall be used, in addition to the standards contained in Article 4.00, Site Plan Review or the Subdivision Control Ordinance, as a basis upon which site plans or subdivision plats shall be reviewed and approved by the Township:

- A. Compatibility with Adjacent Uses: The proposal shall be designed, constructed, and maintained to be compatible with permitted uses on surrounding land to the extent that is reasonably feasible, giving consideration to economic and site conditions. Consideration may be given to:
  - 1. The location and screening of vehicular circulation and parking areas in relation to surrounding development, to the maximum extent feasible.
  - 2. The location and screening of outdoor storage, outdoor activity and work areas, and mechanical equipment in relation to surrounding development.
  - 3. The bulk, placement, and materials of construction of the proposed use in relation to surrounding development shall be compatible as determined by the general requirements listed in Section 7.8.6.1.A.
  - 4. Proposed site amenities.
  - 5. The site grading and stormwater drainage plan.
- B. **Transportation and Access**: The proposed use shall be designed to minimize the impact of traffic generated by the use to the extent that is reasonably feasible, giving consideration to economic and site conditions. Consideration may be given to the following:
  - 1. Relationship between the proposed development and existing and proposed streets.
  - 2. Estimated traffic generated by the proposed use.
  - 3. Location and access to on-street parking.
  - 4. Location and access to off-street parking.
  - 5. Provisions for vehicular traffic.
  - 6. Continuation of the planned street network for the village.

The Planning Commission may require a traffic impact study for special uses.

- C. **Building Architecture**: In determining the appropriateness of buildings, design elements shall be evaluated in relation to existing and proposed surrounding buildings and uses. The design shall meet the standards of Section 7.8.6.1.E.
- D. **Emergency Access**: All buildings or groups of buildings shall be so arranged as to permit convenient and direct emergency vehicle access.

- E. **Health and Safety Concerns**: Any use shall comply with applicable Federal, state, county, and local health and pollution laws and regulations related to noise; dust, smoke and other air pollutants; vibration; glare and heat; fire and explosive hazards; gases; electromagnetic; radioactive materials; and toxic and hazardous materials. The Planning Commission may require an environmental impact study for special uses.
- F. **Screening**: Off-street parking, outside refuse, storage areas, and mechanical and electrical equipment which are within sight of adjacent residential districts or public roads shall be adequately screened.
- G. **Appearance**: Signs and other site features shall be designed and located on the site so that the proposed development is aesthetically pleasing and harmonious with nearby developments.

#### ARTICLE 8.00 SUPPLEMENTARY PROVISIONS

#### Section 8.1 Accessory Buildings and Structures

Accessory buildings and structures, except as otherwise provided for in this Ordinance, shall be subject to the following provisions:

- **8.1.1** Authorized accessory buildings may be erected as part of the principal building; may be connected to the principal building by a roofed porch, breezeway, or similar structure; or may be completely detached from the principal building.
- **8.1.2** All accessory buildings shall meet front and side yard requirements, except where such accessory buildings are detached and located completely to the rear of the principal building, in which case an accessory building may be located no nearer than five (5) feet to any side lot line.
- **8.1.3** On a lot that abuts a water bodies if an accessory building is located between the principal structure and the front property line (the property line that abuts the street) the accessory building may be located no nearer than fifteen (15) feet from the lot line which abuts the street and ten (10) feet from one side lot line and five (5) feet from the opposite side lot line.
- **8.1.4** If the existing structure on a lot that abuts a water body has non-conforming side yard setbacks and a side yard setback less than ten (10) feet is utilized for the accessory building, the smallest side yard setback on the accessory building shall be on the same side as the smallest side yard setback on the existing structure.
- **8.1.5** No accessory building shall be located nearer than five (5) feet to any rear lot line or occupy more than thirty (30) percent of any rear yard area.
- **8.1.6** An accessory building which is detached from the principal building shall not be located nearer than ten (10) feet to any separate building or structure on the lot. If an Accessory Structure is nearer than 10 feet from a separate building it is consider an attached structure.
- **8.1.7** On a corner lot in any Residential District, an attached or detached accessory building shall meet the side yard setback of the principal building for the zoning district in which the lot is located, but shall not be closer than 10 feet. In all cases, the garage entrance shall be located to allow adequate sight distance and off-street parking. When the rear lot line forms a part or all of a side lot line of an adjacent lot, a garage shall be no nearer than five (5) feet to the rear lot line.
- **8.1.8** In Residential Districts, private swimming pools are permitted as an accessory use, provided that:
  - A. The pool, including all connections and appurtenances, is located either:
    - 1. Entirely within a rear yard, maintains a minimum setback of five (5) feet from the rear and side property lines and pump and filter installations are located a minimum of ten (10) feet from the adjoining property lines; or
    - 2. Entirely within a side yard or partially within a side yard and rear yard and maintains a minimum setback from any property line equal to or greater than the required minimum rear yard setback as stated in Section 7.6.1., including footnotes, for the zoning district in which it is located;
  - B. A masonry wall or approved fence between four (4) and six (6) feet in height shall enclose the pool. All openings in the wall or fence shall be equipped with self-closing, self-latching gates or doors.
- **8.1.9** Detached accessory buildings located within Residential Districts that are located within the required setbacks for the main structure and which have a roof pitch less than 8:12 shall not

exceed 14 feet in height, as defined. Detached accessory buildings located within Residential Districts that are located within the required setbacks for the main structure and which have an 8:12 pitched roof or greater shall not exceed 17 feet in height, as defined. This provision shall not apply to parcels of land containing five acres or more.

- **8.1.10** No accessory building or structure shall be permitted prior to the construction of the main building or structure.
- **8.1.11** Accessory Buildings, Structures and Uses in Waterfront Districts. In the Waterfront Residential District (WFR) and the Natural River Residential District (NR), accessory garage structure(s) may be placed on a separate lot of record than the principal structure if the following provisions are met and a permit has been issued by the Zoning Administrator:
  - A. The lot upon which the principal building is located must be a waterfront or riparian lot.
  - B. The garage can only be constructed on a non-waterfront lot.
  - C. The accessory structure(s) can be used only for a garage or storage facility. Garages or storage facilities may not exceed a combined total of 800 square feet of ground floor area. One shed may be permitted in addition to the 800 square feet of accessory buildings.
  - D. There shall be common ownership between the principal building or residence and lot being used for the garage.
  - E. The lot upon which the principal building is located must not be more than 66 feet from the lot being used for the garage.
  - F. The accessory structure(s) shall maintain all required front, side, rear yard setbacks and lot coverage regulations associated with a principal structure as specified in Section 7.6.1. Height shall conform with Section 8.3.8.
  - G. A deed restriction shall be recorded that requires the lot upon which the principal building is located and the lot with the accessory building not to be sold separately unless all code requirements can be met. Meaning that a residential unit must be located on the lot with the accessory building on it. If no residential unit exists on the lot with the accessory building one shall be built within one year of the sale of the property. A performance guarantee under section 5.3 shall be provided by the new property owner of the lot with the accessory building to the Township.
- **8.1.12** On lots that abut a water body in any zoning district other than Natural Rivers District, accessory structures are permitted within fifty (50) feet of the ordinary high water mark of any body of water if they meet the following requirements:
  - A. They are less than 144 square feet in size.
  - B. They are no greater than ten (10) feet in height; and
  - C. Provided all other regulations in the zoning ordinance are met.
- **8.1.13** All structures located within the Natural River District shall also comply with the requirements of Section 7.5.1. (G), Natural River District.
- Section 8.2 Boat Docks: Also see section regulations regarding Boat Docks in 7.7.1. 8.18.9 and 9.8.7.
- **8.2.1** In Residential Districts on lots abutting a water body, docks are permitted on legal lots of record that have improved roadway access to the lot and have space for onsite parking regardless of it the lot is vacant or there is a primary residence on the lot.

#### Section 8.3 Temporary Buildings, Structures, and Shelters

**8.3.1** General Provisions. No temporary structure shall be used for dwelling purposes that does not comply with the requirements of this Ordinance or applicable building codes, except as provided in this section. All Temporary Buildings and Structures not discussed in this ordinance section

shall meet the zoning ordinance requirements for the type of building or structure and for the zoning district it is located in.

- **8.3.2 Permitted Temporary Buildings, Structures, and Shelters.** The following are permitted subject to meeting all of the following requirements of this section:
  - A. **Temporary Dwellings.** No temporary dwelling shall be erected or moved onto a lot and used for dwelling purposes except during construction of a permanent dwelling on the premises which has been issued a building permit. The reasonable date for removal of the temporary dwelling, established on the permit issued by the Zoning Administrator, shall not exceed one (1) year from the date of occupancy of the permanent structure. The temporary dwelling shall be connected to private water supply and sewage disposal systems approved by the County Health Department or to public water supply and sewage disposal systems. No temporary dwelling shall be erected in any lot which is a part of a platted subdivision.
  - B. Temporary Construction Structures. Temporary buildings and/or structures used for storage of equipment and construction offices may be used only during construction of a permanent structure which has been issued a building permit. The temporary building and/or structure shall be removed from the site prior to issuance of a certificate of occupancy.
  - C. **Temporary Shelters.** Temporary shelters shall only be allowed for storage. These structures are only permitted in the rear yard area on lots that do not abut a waterbody and are only allowed between the main structure and the road right-of-way on lots that do abut a waterbody in the CE, RAA, RA, WFR, and NR zoning districts. These structures shall be maintained at all times. These structures are also allowed when part of a Special Event, Temporary Use or Seasonal Sale permit.
  - D. **Permits.** A temporary building or structure shall require issuance of a land use permit from the Zoning Administrator under Section 3.3 of the Zoning Ordinance. The permit shall be renewed annually if needed. Any temporary building or structures shall be placed so as to conform to all yard requirements of the zoning district in which it is located.
- **8.3.3 Performance Guarantee.** The Township may require a deposit by the applicant with the Township Clerk in the form of a certified check, cash, or a surety bond in an amount sufficient to hold the Township free of all liabilities incident to the operation of a temporary building, to indemnify any adjoining land owner for any damages resulting from the operation of such activity and to ensure proper and complete clean-up and removal of all temporary buildings. The amount of such bond, cash, or check shall be estimated by the Zoning Administrator. The Township shall rebate to the applicant upon satisfactory removal of all temporary buildings. Such rebate shall be based upon the report and recommendation of the Zoning Administrator. The Zoning Administrator may refer the application to the Township Engineer for review of the proposed improvements and recommendations of performance guarantees.

#### Section 8.4. Special Events, Seasonal Sales and other Temporary Uses

8.4.1 Approval Requirements. The Township Zoning Administrator may grant a temporary land use permit renewable on an annual basis for a temporary use of land and structures for special events, seasonal sales (Fireworks Stands, Farmers Markets, Farm Stands in areas where they are not a permitted use, Christmas tree sales, and other sales or seasonal items) and other temporary uses under this section. The Zoning Administrator may request the advice of the Township Engineer and Planning Consultant when considering the proposed projects. The Zoning Administrator may determine that the proposed project requires review and approval by the Planning Commission. The following conditions apply to specific temporary uses:

- A. Carnival, Circus and Musical Concert or Other Transient Entertainment or Recreational Enterprise.
  - 1. Maximum duration: 10 days.
  - 2. Operator or sponsor: Non-profit entity
  - 3. Location: Shall not be located in or adjacent to any developed residential area except on church, school or park property.
- B. Sidewalk or Tent Sale or Other Similar Outdoor Sale
  - 1. Maximum duration: 7 days.
  - 2. Location: In commercial districts only.
  - 3. Sidewalk Coverage: Shall not cover more than 50 percent of the width of the sidewalk. ADA compliance must still be met
  - 4. Parking Lot Coverage: Sufficient number of parking spaces shall remain to meet the existing zoning requirements for that district.
- C. Sporting or Outdoor Recreational Event and any overnight camping associated with these events.
  - 1. Maximum duration: 10 days.
  - 2. Search light or other apparatus used for the projection of a high intensity light beam.
  - 3. Maximum duration: 3 Days
  - 4. Light must not be directed towards other properties.
- **8.4.2 Permit Requirements.** The Township Zoning Administrator shall make a determination that the location of any special event, seasonal sale or temporary uses will not adversely affect adjoining properties, nor adversely affect public health, safety, and the general welfare of the Township by using the following standards. The permit shall establish a reasonable date for removal of the temporary structure and/or use, and shall set forth other conditions of permission as deemed necessary by the Zoning Administrator.
  - A. Plot Plan. A plot plan shall be submitted with all the information required under Section 4.9.3 along with a detailed description of the use or event. The description should include but not be limited to: description of use or event, dates and hours or operation, number of employees, projected number of people that will attend the use or event, any amplified noise uses how the site will secured, the plan for proposed cleanup of the site, etc.
  - B. **Standards.** In order to protect the adjacent property owners and citizens of the Township, the Zoning Administrator shall review all special events, seasonal sales and temporary uses to insure they meet the following standards:
    - 1. Adequate off-street parking and ingress and egress shall be provided.
    - 2. All uses shall be conducted in a manner so as not to create a traffic hazard or a nuisance to neighboring properties.
    - 3. The applicant shall specify the exact duration of the temporary use.
    - 4. Electrical and utility connections shall be approved by the Building Official.
    - 5. Adequate site and surrounding area clean up shall be done during and following the use. All Improvements shall be removed from the site at the conclusion of the project.
    - 6. Adequate restroom facilities shall be provided. A general guide for this requirement is one toilet for each 50 persons estimated to attend.
    - 7. Closure of commercial or similar activity shall be from midnight to 9:00 a.m.
    - 8. Any signage shall conform to the provisions of the District in which the use is located.
    - 9. There will be no gambling or use of alcohol or controlled substances contrary to law.
    - 10. There will be no generation of bright lights, loud noises, or strong odors at a level or intensity sufficient to create a nuisance to adjacent properties.
- **8.4.3 Performance Guarantee.** The Township may require a deposit by the applicant with the Township Clerk in the form of a certified check, cash, or a surety bond in an amount sufficient

to hold the Township free of all liabilities incident to the operation of a temporary use, to indemnify any adjoining land owner for any damages resulting from the operation of such activity and to ensure proper and complete clean-up after temporary use and removal of all temporary buildings. The amount of such bond, cash, or check shall be estimated by the Zoning Administrator. The Township shall rebate to the applicant upon satisfactory removal of all temporary uses. Such rebate shall be based upon the report and recommendation of the Zoning Administrator. The Zoning Administrator may refer the application to the Township Engineer for review of the proposed improvements and recommendations of performance guarantees.

#### Section 8.5 Unsafe Buildings

Nothing within this Ordinance shall be construed to prevent compliance with an order by the appropriate authority to correct, improve, strengthen, or restore to a safe or healthy condition, any part of a building or premises declared unsafe or unhealthy.

#### Section 8.6 Structural Damage

Any structure or building which may be in whole or in part destroyed by fire, windstorm, or other such cause, if rebuilt, shall be rebuilt in accordance with this Ordinance and other pertinent codes and ordinances or shall be restored to a safe and healthy condition with all debris removed from the site within ninety (90) days from the occurrence of such damage.

#### Section 8.7 Building Grades

The finished surface of ground areas outside the walls of any building or structure hereafter erected, altered, or moved shall be so designed that surface water shall flow away from the building walls in such a direction and with such a method of collection that inconvenience or damage to adjacent properties will not result. When property is developed adjacent to existing properties previously developed, existing grades shall have priority.

#### **Section 8.8 Street Closures**

Whenever any street, alley, or other public way is vacated by official action, the zoning district adjoining each side of such public way shall automatically be extended to the center of such vacation, and all area included therein shall henceforth be subject to all appropriate regulations of that district within which such area is located.

#### Section 8.9 Fences, Walls and Screens

- **8.9.1** All fences, walls and other protective barriers (referred to in this section as "fences") of any nature, description located within any district of Hamburg Township shall meet all of the following regulations:
  - A. All structures shall be located entirely on or within the lot lines of the lot upon which they are located; and shall not be located within any public road right-of-way or private road easement. Fences on any corner lot must also comply with the setback requirements of Section 8.16, Intersection Visibility.
  - B. Fences shall consist of materials commonly used in conventional fence construction, such as wood or metal. Razor wire shall not be permitted. Fences, which carry electric current shall be permitted only in conjunction with the raising and keeping of horses or other domesticated animals permitted under Section 7.7.1. Barbed wire may be permitted in industrial districts, provided that the barbed wire is at least six (6) feet above ground.
  - C. If, because of the design or construction, one side of the fence has a more finished appearance than the other, the side of the fence with the more finished appearance shall face the exterior of the lot.
  - D. A fence shall not be erected where it would prevent or unreasonably obstruct the use of adjacent property or the safe use of an existing driveway or other means of access to adjacent property.
  - E. Fences shall be erected in a manner to allow emergency access to the rear yard of a lot by placing a gate and providing sufficient space between the building line of any structure and the fence on at least one-side of the yard.

- F. Fences shall be maintained in good condition. Rotten or broken components shall be replaced, repaired, or removed. As required, surfaces shall be painted, stained, or similarly treated.
- G. The height of a fence shall be measured from the point at which the fence posts, pilasters or footing intersects the ground on the lowest side of the fence to the top of the fence directly above. Where a fence is built on top of a wall, the combined fence/wall height is measured from the lowest grade to the top of the fence directly above. A fence may slightly exceed the height limits due to minor variations in the underlying terrain as determined by the Zoning Administrator.
- **8.9.2** In addition to the standards of Section 8.15.1 all fences, walls, or other screening structures, other than necessary retaining walls, located within a single-family residential district shall not exceed the following maximum heights described herein and graphically depicted in figures 1-9.
  - A. Any fence located within the front yard may not exceed a maximum height of four (4) feet. For the purposes of the fence regulations a corner lot shall be considered to have front yard along each of the roadways. All fences in the front yard shall be 50% open (examples: Split Rail, Picket, or wrought iron fences). In no case shall a fence greater than 4 feet be located in the minimum front setback for the zoning district.
  - B. Any fence located outside of a front yard may have a maximum height of six (6) feet.
  - C. The following are exceptions to Section 8.15.3 A and B:
    - 1. Where lots abut a water body:
      - a. No fence shall be permitted in the required lake or river setbacks in Section 7.6.1 (footnote 3) other than railings as permitted under Section 8.17.9
      - b. Any fence located between the ordinary high water mark of the water body and the principal building shall not exceed a maximum height of four (4) feet and shall be 50% open.
      - 2. No Fence shall be permitted in a wetland area but fences are permitted within the required wetland setbacks in Section 9.9.
      - 3. On all lots where the front yard of a subject lot abuts the side or rear yard of one or more adjoining lots, the height of the fence on the subject lot may be six (6) feet along that portion of the common property line. (See Figure 2).
      - 4. Wire fences used to contain livestock and farm animals are exempt from height requirements.
      - 5. Wire fences used around gardens or crops are exempt from height requirements if they are made to be 75% open materials such as soft meshing, and are over 5 feet from the closest property line.
- **8.9.3.** Figures 1-8 that graphically depict fence height and locations.

#### Fencing Heights, as indicated in figures below:

4 Ft. Maximum: ----- 6 Ft. Maximum: -----

Ø.

Figure 1 and Figure 2: Standard Lots



Figure 3, Figure 4, and Figure 5: Corner Lots









#### Figure 7 and Figure 8: Through Lots



#### Section 8.10. Intersection Visibility

On any corner lot in any District having front and side yards, no fence, wall, screen, hedge, sign, or other structure or planting shall obstruct the visibility of street vehicular traffic between the heights of three (3) feet and ten (10) feet in an area measuring thirty (30) feet from the point of intersection of the street right-of-way lines and the tangent connecting the thirty (30) foot extremities of the intersecting right-of-way lines.

#### Section 8.11. Access to a Street

Any lot of record created prior to the effective date of this Ordinance without any frontage on a public street or way shall not be occupied except where access to a public street or way is provided by a public or private easement or other right-of-way no less than twenty (20) feet in width and meeting the requirements of Section 10.8. Access to commercial, industrial, or recreational uses shall not be designed so as to pass through residential neighborhoods.

#### Section 8.12. Yard Encroachments

The following shall apply to all buildings and structures, whether temporary or permanent.

8.12.1. Decks, Terraces and patios may project into a required yard provided that such structures are:

- A. Unroofed and without walls or other continuous enclosure.
- B. That no such structure shall be permitted nearer than five (5) feet to any lot line.
- C. That such areas and structures may have open railings or fences not exceeding three (3) feet in height.
- D. That such structures may have non-continuous windbreaks, visual screens, or walls not exceeding eight (8) feet in height in a rear yard, or four (4) feet in height in a front or side yard, and not enclosing more than one-half the perimeter of said deck, terrace, patio, or similar structure.
- **8.12.2.** Elevated decks and balconies may project into a required yard a distance not to exceed six (6) feet, provided:
  - A. That such structure shall not be permitted within eight (8) feet of any lot line.

- B. That no building shall have more than one (1) such elevated deck or balcony in any one (1) yard.
- C. That such areas and structures may have open railings or fences not exceeding three (3) feet in height.
- D. That such structures may have non-continuous windbreaks, visual screens, or walls not exceeding eight (8) feet in height in a rear yard, or four (4) feet in height in a front or side yard, and not enclosing more than one-half the perimeter of the elevated deck or balcony.
- **8.12.3.** Unenclosed or enclosed porches and other enclosed appurtenances to a principal building shall be considered an integral part of the building to which they are attached and shall be subject to all yard requirements thereof.
- **8.12.4.** Chimneys, flues, belt courses, sills, pilasters, bay windows, awnings, approved signs, window air conditioners, cornices, eaves, gutters, and similar features may project into any required yard a maximum of twenty-four (24) inches
- **8.12.5.** Unenclosed and unroofed fire escapes, outside enclosed or unenclosed stairways, and excavated stairways may project into any required yard a maximum of five (5) feet.
- **8.12.6.** Accessory structures and buildings, including gazebos, decks, terraces, patios and similar features, which are not attached to a principal building, shall comply with the requirements of Section 8.3, Accessory Buildings and Structures.
- **8.12.7.** Access drives may be placed in the required front, side, or rear yards so as to provide access to rear yards or accessory or attached structures. Further, any walk, terrace or other pavement serving a like function, shall be permitted in any required yard, providing the pavement is no higher than nine (9) inches above grade.
- **8.12.8.** Stoops or steps must lead to an exterior entrance to a building and shall not encroach into any required yard more than five (5) feet.
- 8.12.9 Decks, Patios, and Terraces may abut a waterbody and the following conditions shall apply:
  - A. Said structures shall not exceed 12 inches in height above the average surrounding grade.
  - B. Yard coverage shall not exceed 30 percent for all structures on the lot including the principal building.
  - C. The horizontal distance of said structures shall not exceed 50 percent of the width of the lot line that abuts the waterbody.
  - D. Said structures shall be at least five (5) feet from a side lot line.
  - E. Said structures shall not extend over the water more than 24 inches. This provision shall not apply to seasonal docks.
  - F. Railings shall not exceed three (3) feet in height and shall not obstruct view by more than 30 percent.
- 8.12.10 Mechanical Equipment on residential properties such as ground mounted air conditioners, full house generators, and similar machines, may project into any required yard a maximum of four (4) feet provided:
  - A. The noise regulations of Section 9.5.A of the Zoning Ordinance and General Ordinance 94-A, Breach of Peace, shall be met;
  - B. The said mechanical equipment shall be located closer to the subject building than buildings on surrounding properties; and
  - C. The said mechanical equipment shall be sufficiently screened from offsite views by either a vegetated screen or visual screen, as deemed appropriate by the Zoning Administrator.

#### Section 8.13 Supplementary Height Regulations

**8.13.1** The following structural appurtenances shall be permitted to exceed the height limitations for authorized uses in any district.

- A. Those purely ornamental in purpose such as church spire, belfries, domes, cupolas, ornamental towers, flagpoles, and monuments.
- B. Those necessary to mechanical or structural functions such as chimneys, smoke stacks, water tanks, elevator and stairway penthouses, ventilators, bulkheads, aerials, and antennas, electronic devices, heating and cooling units, and fire towers.
- C. Those necessary to proper building design such as cornices and parapet walls, which shall not exceed the height limitations by more than five (5) feet and shall have no window openings.
- **8.13.2** The foregoing permitted exceptions may be authorized only when the following conditions are satisfied:
  - A. No portion of any building or structure permitted as an exception to a height limitation shall be used for human occupancy or commercial purposes.
  - B. Any structure permitted as an exception to a height limitation shall be erected no higher than such height as may be necessary to accomplish the purpose for which it is intended to serve.
  - C. Structures permitted as exceptions to height limitations shall not occupy more than twenty (20) percent of the gross roof area of any building upon which they may be located.

#### Section 8.14. Garage Sales, Rummage Sales, and Similar Activities

Garage sales, rummage sales, yard sales, moving sales, and similar activities shall be considered temporary accessory uses within any residential Zoning District subject to the following conditions:

- **8.14.1.** Any garage sale, rummage sale or similar activity shall be allowed without a land use permit for a period not to exceed four (4) days within a six (6) month period. Such activities in operation for a period of time in excess of four (4) days shall require a temporary land use permit from the Zoning Administrator. In no instance shall more than two (2) garage sales, rummage sales or similar activity be held in any one location within any twelve (12) month period.
- **8.14.2.** All such sales shall be conducted in a manner so as not to create a traffic hazard or a nuisance to neighboring properties.
- **8.14.3.** All such sales shall be conducted a minimum of twenty (20) feet from the front lot line of the premises of such sale.
- 8.14.4. Overnight outside storage of goods or merchandise offered at such sale is prohibited.
- **8.14.5.** No signs advertising a garage sale or similar activity shall be placed upon public property. Two signs advertising a garage sale are permitted to be placed upon private property with the consent of an owner of said property and shall be removed within twenty-four (24) hours of the conclusion of said garage sale or similar activity.

PHONE: 810-231-1000 FAX: 810-231-4295



# Memorandum

- To: Township Board of Trustees
- From: Scott Pacheco
- Date: October 20, 2021
- Re: Final Site Plan Review (FSPA21-005) for the Murie Glenn Mixed Planned Unit Development .

#### LOCATION:

The 48.79-acre subject site (Parcel ID 15-35-300-044) is located between the Mystic Ridge subdivision to the west and Merrill Road to the east. The site is accessed via Thompson Pond Road, an existing improved private roadway, and a proposed connection to an existing unimproved stub of Shadbush Trail.



**Location Map** 

#### **PROJECT DESCRIPTION:**

The proposed project will utilize the Mixed Planned Unit Development (MPUD) regulations (Section 14.5). The proposed project includes 51 single family homes and utilizes the Open Space (OSPUD) and the Elderly Cottage Housing Opportunity (ECHO) Planned Unit

Development regulations. Twenty (20) of the proposed units would be designated ECHO units, designated for persons 55 years and older, as allowed under the ECHO PUD (Section 14.2) and 31 of the proposed units would be market rate single family units as allowed under OSPUD (Section 14.1).

The density of the project is determined by the ECHO and OSPUD regulations and is shown on the parallel plan; page AS-01 of the submitted plans (Exhibit A). The parallel plan includes a 20-unit ECHO development on 300,000 square feet in the northwest corner portion of the site. The remainder of the site is designed per OSPUD regulations for lots sized at 51,000 square feet. Because the 51,000 square-foot lot size was used in the parallel plan to determine the total number of units the OSPUD would allow on public sewer and while preserving 60 percent of the land used for the OSPUD portion of the MPUD as open space 27 OSPUD units would be allowed. The Planning Commission reviewed the project and approve a density bonus of 15 percent (4 units) for Exemplary Projects (Section 14.1.5) based on the design and layout of the project and the mix of the housing types and designs within the project.

The project also proposes 1,218,643 square feet of open space for 51 units. Of the open space area approximately 88,000 square feet will be maintained for trails and park areas. The following chart provides a breakdown of the required open space base on the OSPUD and ECHOPUD requirements versus the proposed open space for the MPUD project:

Required Open	Space
OSPUD Lot Size	1,825,405
Required Open Space 60%*	1,095,243
ECHOPUD Lot Size	300,000
Required Open Space 15%	45,000
Total Open Space Required	1,140,243
Proposed Open Space MPUD	1,231,350

\* 60% open space and sewer hookup required to allow the parallel plan to use 51,000 square foot lot sizes in determining the density though the parallel plan.

The project will extend the utilities, and pedestrian trails from the Mystic Ridge development west of the site and the roadway will be extended to the end of Thompson Pond Road to the east for access to Merrill Road.

The following are the proposed variations to the underlying low density residential (RAA) zoning district. These variations where reviewed and approved as a part of the preliminary site plan review of the mixed planner unit development project and have not changed.

		Allowed in RAA	Approved as part of the MPUD
			✓=meets requirement
Echo Units: Setbacks:	Site Perimeter:	20' for buildings and 4' for streets, roads, and common access drives	~
	Front:	15' from street or road right of way, front porch may encroach 7 feet into setback	$\checkmark$

Side:	10' separation between roof overhangs on habitable buildings	✓
	6' separation between roof overhangs on accessory structures and accessory dwelling units	✓
	0' separation for attached dwelling units or attached garages.	✓
	5' setback for common access drives (excluding driveways and shared driveways)	✓
Area, Height, Bulk and Layout Requirements: Maximum Floor Area: Maximum Number of Stories: Minimum Building Width:	980 Square Feet 1 story 14 feet	✓ ✓ ✓
Market Rate Units: Setbacks: Front:	30 feet	20' from street of road right of way, front porches may encroach 7 feet into this setback.
Side:	20 feet	10 feet
Rear:	35 feet	35 feet, 15 feet when abutting a common open space area
Detached accessory structures: Front:	Completely to the rear of the main structure.	Completely behind the front elevation of the main structure.
Side:	5 feet	~
Rear:	5 feet	×
Site Requirements: Minimum Lot Width: Minimum Lot Area:	200 feet 87,120 square feet	80 feet 10,890 square feet

Fage 4		
Area, height, bulk and layout		
requirements:		
Maximum lot coverage:	20/20	35/40
Maximum Number of Stories:	2.5	$\checkmark$
Maximum Building Height:	35 feet	$\checkmark$
000	Sociality Statistics	

# **PROJECT HISTORY:**

On November 30, 2020 the applicant submitted the initial draft of the preliminary site plan for the Mixed Planned Unit Development;

Planning staff sent the submitted information and plans to the Hamburg Township Public Works, Fire, and Accessors, the Livingston County Public Health Department and Road Commission and the State of Michigan Department of Environment Great Lakes and Energy for comments. Staff also reviewed the originally submitted plans and met with the applicant to discuss the comments and discuss necessary requirements and changes to the submitted project plans.

On December 23, 2020 the applicant resubmitted the updated plan for preliminary site plan review for the Mixed Planned Unit Development.

On January 20, 2021 the Planning Commission held a public hearing for the project. At this meeting the Planning Commission recommended approval (with a 6-1 vote) of the preliminary MPUD site plan with a 15 percent density bonus and with 13 Conditions of Approval, to the Township Board because the project as conditioned is consistent with the requirements of the open space, elderly cottage housing opportunity, and mixed planned unit development regulations under Article 14 and should be able to meet site plan review standards under article 4 of the zoning ordinance.

On February 2, 2021 The Township Board reviewed and approved the preliminary MPUD site plan with the same conditions recommended from the Planning Commission.

On September 1, 2021 the applicant the application submitted the initial draft of the project plans for the final site plan review, with these project plans the traffic study, the Murie Glen Design Handbook (MGDH) and Murie Glen Architectural Plan Book (MGAPB)were also submitted. The document where reviewed by Planning and Zoning Staff and were sent to the Hamburg Township Fire, Assessor, and Public Works Departments, the Planning Commission Architectural Review Committee (ARC), the Livingston County Road Commission and the Michigan Department of Environment, Great Lakes and Energy.

Comments from the initial review where sent to the applicant and the applicant revised and resubmitted the project plans (Exhibit A), the traffic study (Exhibit B), the MGDH (Exhibit C) and MGAPB(Exhibit D) resubmitted on October 6, 2021. As a part of the resubmitted information that applicant has submitted an Environmental Impact Statement was submitted that summarizes the environmental impacts on the site. The EIS utilizes the wetland delimitation, the tree removal plans on pages ES2.0 to 2.9, and the U.S. Fish and Wildlife Services Information for Planning and Consultation report to make its findings (Exhibit E).

# ANALYSIS:

The following analysis will review how the project addresses the 13 condition of approval that where required as a part of the approvals of the preliminary site plan and the Site Plan review standards of article 4 section 4.5.7 Standards for Site Plan Review.

#### PRELIMINARY SITE PLAN CONDITIONS:

Condition 1: As a part of the final site plan review the project plan shall include the location of the road right-of-ways and how the property will be split under the proposed use. All information required by the Township Accessor will be required prior to issuance of a land use permit.

This condition will be required prior to the Township being able to split the subject site into the new parcels and prior to issuance of land use permits for the homes on the site.

The road rights-of-ways will be 46 feet wide and will include the 28-foot-wide roadways and 5foot-wide sidewalks. The trails will include a 10-foot-wide easement and the trails will be 5 foot wide (Plan pages AS1.0 to AS1.5). The maintenance of the roadways, sidewalks and trials will be required to be addressed as a part of the projects development agreement, master deed and bylaws.

#### Suggested Final Site Plan Condition 1:

Prior to the issuance of a land use permit for the homes of the subject site all information required by the Township Accessor will be required.

#### Suggestion Final Site Plan Condition 2:

Prior to issuance of a land use permit for the project a Development Agreement shall be reviewed and approved by Hamburg Township. As part of the Development Agreement the road, sidewalk, trail, and parks maintenance shall be addressed either within the document or as an attached separate document. The development agreement shall also include a cross access agreement that allows public use of the private roadways, sidewalks, trails and parks within this project.

# Condition 2: A more detailed landscape plan shall be included as part of the final site plan submittal. This plan shall address the required street trees and transition area landscaping (Section 9.4)

Page L1.1 of the project plans includes a detailed landscape plan. This plan include 120 street trees most of which are on the Recommended Plant Materials List in section 9.4.9 of the Zoning Ordinance. Only the Japanese Zelkova and the Gingko, I do not have concerns with either of these trees. Select existing trees will remain in the Park area and the common space areas. The street trees show on lot 1-8, 26-29, 31-34, 38, and 40-51 are show on the landscape plan between the homes on the lots, Staff would suggest as possible that these trees be shifted to either the area between the home and the roadway or nearer the area between the home and the roadway it possible.

It does appear that the existing trees in the 20 foot buffer area between lot 1-9 and 40-51 and the west property line will be removed and no trees are proposed in this buffer area. There are no landscaping buffer requirement between two residential projects in the Zoning Ordinance; however, staff is concerned that if there is no demarcations for this buffer area the adjacent property will plant these area with grass and not allow the natural vegetation to regrow in this 20 foot open space buffer.

#### Suggested Final Site Plan Condition 3:
The street trees shall be placed in the area between the home and the roadway when possible. The developer shall work with staff to create a solution to delineate the open space (Example small fence, landscaping, ect..) area between the homes on lot 1-9 and 40-51.

### Condition 3: A sign plan for the proposed project signs shall be included as a part of the final site plan submittal.

Page A2.1 of the project plans include the proposed subdivision sign. This sign is 19.98 square feet and is 7.5 feet in height. The sign regulations of article 18 for residential project allow signs up to 32 square foot in size and 6 feet in height.

#### **Suggested Final Site Plan Condition 4:**

The proposed sign shall be designed to meet the height requirements for monument signs in the zoning ordinance.

Condition 4: A development agreement including master deeds and bylaws will be submitted for this project. This agreement will be reviewed by the Township Attorney. This agreement shall address the items regarding the dedicated open space for the project under Section 14.1.4 (H) 6, 7 and 8.

Section 12.1.4 H 6, 7, and 8 of the zoning ordinance states:

- "6. The dedicated open space shall be set aside by the developer through an irrevocable conveyance that is found acceptable to the Planning Commission, such as:
  - a. Recorded deed restrictions,
  - b. Covenants that run perpetually with the land, or
  - c. A conservation easement established pursuant to subpart 11 of part 21 of the Natural Resources and Environmental Protection Act being MCL 324.2140, et seq. Such conveyance shall assure that the open space will be protected from all forms of development, except as shown on an approved site plan, and shall never be changed to another use. Such conveyance shall:
    - *i.* Indicate the proposed allowable use(s) of the dedicated open space. The Planning Commission may require the inclusion of open space restrictions that prohibit the following:
      - Dumping or storing of any material or refuse;
      - Activity that may cause risk of soil erosion or threaten any living plan material;
      - Cutting or removal of live plant material except for removal of dying or diseased vegetation;
      - Use of motorized off road vehicles;
      - Cutting, filling or removal of vegetation from wetland areas;
      - Use of pesticides, herbicides or fertilizers within or adjacent to wetlands.
    - *ii.* Require that the dedicated open space be maintained by parties who have an ownership interest in the open space.
    - iii. Provide standards for scheduled maintenance of the open space.
    - iv. Provide for maintenance to be undertaken by the Township of Hamburg in the event that the dedicated open space is inadequately maintained, or is determined by the Township to be a public nuisance, with the assessment of costs upon the property owners.
- 7. Continuing Obligation. The dedicated open space shall forever remain open space, subject only to uses approved by the Township on the approved site plan. Further subdivision of open space land or its use for other than recreation, conservation or agricultural purposes, except for easements for utilities and septic systems, shall be strictly prohibited. Open space may

include golf course area, provided that it forever remains outdoor recreation or natural undeveloped land. This dedication shall be written and recorded with the Development Agreement, and shall be in a format reviewed and approved by the Township Attorney.

8. Allowable Structures. Any structure(s) or building(s) accessory to a recreation, conservation or agriculture use may be erected within the dedicated open space, subject to the approved open space plan. These accessory structure(s) or building(s) shall not exceed, in the aggregate, one percent (1%) of the required open space area."

The development agreement including the master deed and bylaws will be required to be submitted prior to the issuance of a Land Use Permit for the construction of the homes of the project site.

#### Suggested Final Site Plan Condition 5:

Prior to issuance of a land use permit a development agreement including master deeds and bylaws will be submitted for this project. This agreement will be reviewed by the Township Attorney. This agreement shall address the items regarding the dedicated open space for the project under Section 14.1.4 (H) 6, 7 and 8.

## Condition 5: The applicant shall work with staff and an architectural committee made up of one or two PC members if deemed necessary, to prepare a more detailed guide book and finalize the home designs prior to final site plan approval.

Since the approvals of the preliminary site plan for the MPUD the applicant and the Planning Commission Architectural Review Committee (ARC) have been working on the Murie Glenn Design Handbook (MGDH) (Exhibit C) and Pre-approved Murie Glen Architectural Plan Book(MGAPB)(Exhibit D).

The MGDH is created to memorialize the design styles, materials, and layouts that would be allowed within the proposed MPUD development. Some examples of the regulations in this Design Handbook are; *the habitable, active spaces of the Unit (living room, dining room, kitchen) shall be oriented towards the public domain when possible, no two adjacent lots shall have the same approved design, 3.5" minimum trim shall be provided at all openings, The front facade of the building shall have a minimum of 35% designated as front porch space, Outdoor accent lights on the front of the building must be timed turn off by 10pm, and Garages must be setback from the front facade of a home by 5 ft. unless the building has a porch that protrudes 6 ft. from the front facade than the garage must be setback 2 ft. from the front facade. If the garage entry is not directed toward the street the garage may be flush with the front facade of the building.* 

The MGAPB includes 17 architectural plans that have been reviewed by the ARC and it was determined that they meet the requirements in the MGDH. These home plans will be able to be used on the subject site with the issuance of a land use permit by the Township Planning and Zoning Staff. The 17 architectural plan include 12 designs for the market rate homes and 5 designs for the ECHO homes.

If a new architectural design, that is not in the MGAPB, is submitted, the plan shall be reviewed by the Township Staff and the ARC members for compliance with the MGDH, the existing site context, and the following discretionary design standards:

The proposed home design shall allow for a variety of housing design styles in the development while still being compatible with the development as a whole. Compatibility shall

be reviewed based on compliance with the Muriel Glen Design Handbook, the quality of materials, the design and layout of the home on the site. Variety of housing design styles shall be based on the review of any existing home designs on the adjacent properties.

Township staff will work with the builder or property owner on these items prior to the issuance of any land use permit.

The Planning Commission Architectural Review Committee has recommended approval of both the MGADH and the pre-approved architectural plans in the MGAPB.

Condition 6: Prior to the final MPUD the applicant will submit documentation for review by the Township Attorney that provides legal access, for the use of the roadways and utilities, through the Mystic Ridge Development and Thompson Pond Drive. Documentation of the ability to utilize the common well and water treatment facility of the Mystic Ridge Development for this project will also be required prior to the final MPUD approvals.

The applicant has submitted the documents required to show legal roadway access and the Township Attorney has reviewed these documents. The proposed project has been designed to take its main access off of Merrill Road via Thompson Pond and will have secondary emergency access through the Mystic Ridge Subdivision. This emergency access include a gate at the boarder of the Mystic Ridge development. No access from the subject site will be provided to the Mystic Ridge development.

The applicant has also submitted the agreement between the applicant and the developer of the Mystic Ridge subdivision proving the rights to utilize the common well and water treatment facility of the Mystic Ridge development. The engineer has provided review comments on the project plans (Exhibit F). Prior to issuance of a land use permit the Township Engineer will have to provide final review and approval of the project plans including the sewer and water systems. (See Condition 12 below)

Condition 7: A road maintenance agreement shall be included within or as a separate document attached to the final development agreement. Also a cross access agreement that allows public use of the private roadways within the project will be required as a part of the final development agreement.

A road maintenance agreement shall be included within or as a separate document attached to the final development agreement. The road maintenance agreement shall provide information on the maintenance of the fire truck extension from the end of Shadbush in the Mystic Ridge development to the fire truck gate along the west property line. A cross access agreement that allows public use of the private roadways, trails and parks within this project will also be required as a part of the final development agreement.

#### Suggested Final Site Plan Condition 6:

Prior to issuance of a land use permit for the project a Development Agreement shall be reviewed and approved by Hamburg Township. As part of the Development Agreement the road, sidewalk, and trail maintenance shall be addressed either within the document or as an attached separate document. The development agreement shall also include a cross access agreement that allows public use of the private roadways, sidewalks, trails and parks within this project.

Condition 8: Prior to final site plan approval the property owner shall work with the schools and postal service to determine if a community bus stop or mail kiosk will be required. If they are required the applicant shall show them as a part of the final site plan. Also a cross access agreement that allows public use of the trails and sidewalks will be required as a part of the final development agreement.

The developer has working with the schools and both a temporary school bus pick up area and a permanent school bus pick up area are show on page AS1.8 of the project plans. The temporary school bus pick up is located by the intersection of Thompson Pond and Merrill road. The permanent pick up area will be located near in the roadway near the in main intersection within the project. This permeant bus pick up area located near the new gazebo, allowing kids to use the gazebo for shelter during inclement weather.

Township staff and the developer also met with the post office and it has been determined that individual mail boxes along the roadway are preferred by the USPS and will be used as part of this project.

#### Condition 9: The applicant shall work with Township Engineering the sidewalk widths. The developer may wish to consider the possibility of making the sidewalk out of a decomposed granite or another material that allows a more rural appearance and provides better drainage solutions, prior to the final site plan review.

The applicant has proposed 5 feet wide sidewalks that meet the Hamburg Township Engineering requirements. It has been determined that paved sidewalk are preferable due to the ECHO housing units within the project.

## Condition 10: Because the MPUD project include 20 ECHO units park benches shall be include along the trail systems to offer rest areas for the senior population of the project.

The proposed project proposes 6 park benches located along the sidewalks and trails, shown on plan page AS1.6. Staff would suggest one additional bench be included at the entrance to the trail between lots 39 and 40 that leads to the Mystic Ridge trail system.

#### **Suggested Final Site Plan Condition 7:**

In addition to the 6 benches shown on plan page AS1.6 one bench will also be located at the entrance to the trail between lots 39 and 40 that leads to the Mystic Ridge trails system.

## Condition 11: As a part of the final site plan approval, if it is not already, the applicant shall consider at least a four-foot wide shoulder on one side be included on the roadway that is extended over the wetlands to Thompson Pond Road to allow safer pedestrian traffic.

The applicant proposed a 4 foot wide shoulder on the roadway extension over the wetlands area to allow safer pedestrian use of this roadway. EGLE has request that the shoulder be reduce to the greatest extent possible over the wetland area. The developer is still in the process of working with EGLE on the portion of the roadway that extend over the wetland area.

#### Suggested Final Site Plan Condition 8:

If allowed by EGLE the developer will provide a 4-foot-wide shoulder on one side of the roadway that extends from the project to Thompson pond road to allow safer pedestrian traffic.

Hamburg Township Board of Trustees April 16, 2019 Page 10

Condition 12: Prior to review of the final MPUD site plan the applicant shall submit a final MPUD site plan which contains all information required by Section 4.4.2 of the Township Zoning Ordinance and any required approvals from all appropriate local, county, state and federal agencies including, but not limited to, Hamburg Township Fire, Assessor, and Public Works Departments, the Livingston County Road Commission, Drain Commissioner, and Health Department; and the Michigan Department of Environment, Great Lakes and Energy. Some agency approvals are not required until prior to the issuance of the land use permit.

On September 1, 2021 the application submitted the initial draft of the project plans for the final site plan review, with these project plans the traffic study (Exhibit B), the Murie Glen Design Handbook (MGDH)(Exhibit C) and Murie Glen Architectural Plan Book (MGAPB) (Exhibit D) where also submitted. The document where reviewed by Planning and Zoning Staff and were sent to the Hamburg Township Fire, Assessor, and Public Works Departments, the Planning Commission Architectural Review Committee, the Livingston County Road Commission and the Michigan Department of Environment, Great Lakes and Energy.

Comments from the initial review where sent to the applicant and the applicant revised the plans, traffic study, MGDH and MGAPB resubmitted on October 6, 2021. As a part of the resubmitted information that applicant has submitted an Environmental Impact Statement that summarizes the environmental impacts on the site. With the EIS a wetland delimitation and the U.S. Fish and Wildlife Services Information for Planning and Consultation report were also submitted. Also submitted as a part of this application was the revised traffic study. The Traffic Study was reviewed by the Livingston County Road Commission (LCRC) and the LCRC find the report to be acceptable. The revised plans have been sent to each of these department and the applicant is working on finalizing the review from each of these agencies.

Hamburg Township Planning and Zoning staff has received comments from the Township Engineer (Exhibit F), Fire Department (Exhibit G) and the Livingston County Road Commission (Exhibit H). The Hamburg Township Utilities Department and the Livingston County Public health department had no additional comments on the Final Site Plan for this project. The applicant is working with EGLE and has submitted their application for Sub-Divisions and Condominiums Plat Review and is working on the final approvals for the roadway crossing.

#### **Suggested Final Site Plan Condition 9:**

Prior to issuance of a land use permit the applicant shall receive all required approvals from all appropriate local, county, state and federal agencies including, but not limited to, Hamburg Township Fire, Assessor, and Public Works Departments, the Livingston County Road Commission, Drain Commissioner, and Health Department; and the Michigan Department of Environment, Great Lakes and Energy.

### Condition 13: A traffic Study shall be submitted for the project as a part of the final site plan review.

On September 1, 2021 the applicant submitted an initial traffic report. This report was forwarded to the Livingston County Road Commission (LCRC) for review. LCRC commented on the initial report and the traffic study was amended and resubmitted by the applicant on October 6, 2021(Exhibit B). The finding of this revised traffic study shows that the traffic created from this project will have minimal impact on the roadway systems. LCRC has reviewed the revised traffic study and "find it to be acceptable"(Exhibit H).

#### STANDARDS FOR SITE PLAN REVIEW (SECTION 4.5.7).

The Mixed Planned Unit Development project is designed to meet all the requirement of the Zoning Ordinance. Also see chart on pages 2-4 of this report for the zoning regulations that will be amendment for the MPUD project.

#### B. All required information has been provided.

Yes all information required has been submitted by the applicant for review by the township for this project.

### C. The movement of vehicular and pedestrian traffic within the site and in relation to access streets and sidewalks will be safe and convenient.

The township engineer and Fire Department has reviewed the interior roadway layout and did not have any significant concerns regarding the roadway configuration or layout. Therefore, it appears that the roadway design would provide safe traffic throughout the site. The Livingston County Road Commission also reviewed the project for connection to the public roadway and provided comments (Exhibit H).

The project proposes a roadway connection between the Mystic Ridge Development from Shadbush Road to Merrill Drive from Thompson Pond Drive. This connection will provide emergency access only from the Mystic Ridge Development to the Murie Glen Development.

The project also proposes a trail system and sidewalks throughout the project that will allow safe pedestrian traffic throughout the site. As stated in Suggested Final Site Plan Condition 6 on page 8 a cross access agreement will be required in the Development Agreement that will allow use of the roadways, trails and parks.

## D. The proposed development will be harmonious with existing and future uses in the immediate area and the community.

The development includes a minimum buffer area of 20 feet between the residential properties and the subject sites perimeter property lines. The closest neighboring structure is to the northeast of the site and will be over 150 feet from any buildings in the subject development. There are many existing trees that will be preserved on the perimeter boundary of the site between the homes within the proposed project and adjacent lots. Suggested final site plan condition 3 on page 5 would better protect the 20-foot buffer open space area along the west property line where the subject lots are the closest to the neighboring property.

The pedestrian trails will be linked to the trails in the Mystic Ridge subdivisions and roadway access will be provide to Thompson Pond Drive and Merrill Road to the east. Emergency access will also be provided from Shadbush Trail in the Mystic Ridge development to the subject development.

## E. The proposed development provides the necessary infrastructure improvements, such as roads, drainage, pedestrian facilities and utilities, to serve the site, and be adequately coordinated with the current and future use of adjacent properties.

The Township Engineer has been working with the developer on the engineering requirements for this project and has minimal comments remaining to be address (Exhibit F). Suggested

#### F. The applicable requirements of Township, County and State agencies are met regarding grading and surface drainage and for the design and construction of storm sewers, storm water holding facilities, water mains, and sanitary sewers.

See comments in item E above. The applicant is also working on the approvals required through EGLE and the EGLE approvals will also be required prior to issuance of a Land Use Permit under Suggested Site Plan condition 9 on page 10.

#### G. Natural resources will be preserved to the maximum extent possible in the site design by developing in a manner which will not detrimentally affect or destroy natural features such as lakes, ponds, streams, wetlands, steep slopes, and woodlands.

The project utilizes a clustered residential design which preserved 3.77 acres of submerged land and 29.1 to 28 acres of the subject site as open space. Much of the existing wetland area will be preserved, with the exception of the area needed to building the roadway connection to Thompson Pond Drive. The location of the improvements on the site is designed to utilize the portions of the site with less slopes.

## H. The proposed development shall respect the natural topography to the maximum extent possible by minimizing the amount of cutting, filling, and grading required.

A detailed grading plan has been submitted as a part of the project and the engineer has reviewed the grading plan. Although a lot of grading will be done as a part of this project the rolling hills of the area will be preserved along with the wetland areas to preserve the character of the area.

#### I. The proposed development will not cause soil erosion or sedimentation.

Prior to issuance of a building permit for this project the Livingston County Drain Commission will require approval of a soil erosion and sedimentation plan that meets the local and state requirements.

## J. Landscaping, including trees, shrubs and other vegetative material is provided to maintain, improve and/or restore the aesthetic quality of the site.

Many of the existing trees in the open space area will be preserved along with much of the vegetation in the wetland areas of the property. This vegetation will provide a screen of the development for off-site vantage points.

One hundred and twenty street trees are also proposed as a part of this project.

#### K. Conformance to the adopted Hamburg Township Engineering and Design Standards.

The Township engineer has been working with the developer on this project and has minimal comments remaining. Suggested Final Site Plan Condition 9 on page 10 required that prior to the Land Use Permit all required information is provided to the Township Engineer for final approvals.

#### **RECOMMENDATION:**

The Planning Commission should review the MPUD Final Site Plan and a make recommendation to approve the MPUD final site plan with the following conditions to the Township Board.

#### Suggested Conditions of Approval:

**Condition 1:** Prior to the issuance of a land use permit for the homes of the subject site all information required by the Township Accessor will be required.

**Condition 2:** Prior to issuance of a land use permit for the project a Development Agreement shall be reviewed and approved by Hamburg Township. As part of the Development Agreement the road, sidewalk, trail, and parks maintenance shall be addressed either within the document or as an attached separate document. The development agreement shall also include a cross access agreement that allows public use of the private roadways, sidewalks, trails and parks within this project.

**Condition 3:** The street trees shall be placed in the area between the home and the roadway when possible. The developer shall work with staff to create a solution to delineate the open space (Example small fence, landscaping, ect..) area between the homes on lot 1-9 and 40-51.

**Condition 4:** The proposed sign shall be designed to meet the height requirements for monument signs in the zoning ordinance.

**Condition 5:** Prior to issuance of a land use permit a development agreement including master deeds and bylaws will be submitted for this project. This agreement will be reviewed by the Township Attorney. This agreement shall address the items regarding the dedicated open space for the project under Section 14.1.4 (H) 6, 7 and 8.

**Condition 6:** Prior to issuance of a land use permit for the project a Development Agreement shall be reviewed and approved by Hamburg Township. As part of the Development Agreement the road, sidewalk, and trail maintenance shall be addressed either within the document or as an attached separate document. The development agreement shall also include a cross access agreement that allows public use of the private roadways, sidewalks, trails and parks within this project.

**Condition 7:** In addition to the 6 benches shown on plan page AS1.6 one bench will also be located at the entrance to the trail between lots 39 and 40 that leads to the Mystic Ridge trails system.

**Condition 8:** If allowed by EGLE the developer will provide a 4-foot-wide shoulder on at least one side of the roadway that extends from the project to Thompson Pond Road to allow for safe pedestrian traffic.

**Condition 9:** Prior to issuance of a land use permit the applicant shall receive all required approvals from all appropriate local, county, state and federal agencies including, but not limited to, Hamburg Township Fire, Assessor, and Public Works Departments, the Livingston County Road Commission, Drain Commissioner, and Health Department; and the Michigan Department of Environment, Great Lakes and Energy.

#### PROCESS FOR MIXED PLANNED UNIT DEVELOPMENTS:

- The Planning Commission shall review the submitted Final PUD site plan to ensure compliance with all standards and criteria of the Hamburg Township Zoning Ordinance, the Master Plan, Village Center Master Plan, and the Southeast Livingston County Greenways Plan where applicable. The Planning Commission then shall take action to recommend approval or denial of the Final PUD site plan to the Township Board based upon compliance with the above referenced standards.
- 2) Upon receipt of the report and recommendation of the Planning Commission, the Township Board shall review all findings. If the Township Board determines that approval would be appropriate, it shall work with the application and the Township Attorney to

prepare a Development Agreement setting forth the conditions upon which such approval is based. Such conditions shall include, where appropriate, identification of the phases and time table for development, and an estimate of the costs of implementing each phase.

- 3) After approval by resolution of the Township Board, the Development Agreement shall be executed by the Township and the applicant and recorded in the County records. Approval shall be granted only upon the Township Board determining that all qualification requirements, conditions of approval, and provisions of this and other Township Ordinances have been met, and that the proposed development will not adversely affect the public health, welfare and safety. Approval shall further be subjected to the condition that the contract will be properly recorded.
- 4) Approval of a PUD site plan shall be effective upon recording the contract and filing proof of recording with the Township Clerk.
- 5) Once an area has been included, within the boundaries of an approved PUD, no development may take place in the PUD except in accordance with the Township Board approved PUD site plan.
- 6) Prior to any development within the area involved, an approved PUD site plan may be terminated by the applicant or the applicant's successors or assigns, by filing with the Township and recording in the County records an affidavit so stating. The approval of the plan shall terminate upon such recording.
- 7) No approved plan shall be terminated after development commences except with the approval of the Township Board and of all parties having an equity interest in the land.

#### Attachments:

Exhibit A: Final Site Plan (24 by 36 PC only)

Exhibit B: Traffic Study

Exhibit C: Murie Glen Design Handbook

Exhibit D: Murie Glen Architectural Plan Book

Exhibit E: Environmental Impact Statement

Exhibit F: Hamburg Township Engineering Comments

Exhibit G: Hamburg Township Fire Department Comments

Exhibit H: Livingston County Road Commission Comments







#### LOCATION INFORMATION

The site (braind double of lamburg Township) control along a small channel strumms and laber. The site acts as a consector between two tributary south structing an arcsert glazasi laber. The area is a mix of tarm land and selectively logged forests that are slowly being covered into subotino communities. The neighterboadi is apport, for unif form Arr Arbut. 15 mm from Derker, 18 mm from Derker, and 20 mm from logform.

Copyright 2021 A2 Collaborative, LLC, © 2021 A2 Collaborative, LLC



Site Pesign A2 Collaborative, LLC 1510 Einenbower Place Ann Arbox MI 48108 CL 48 Properties Jeff Wilkerson 2070 E. Studium Bild 1006 Ann Arbor: ML48104 Civil Engineer Michwestern Consulting 3815 Phazi Drive Ann Arbor MI 48108

Landscape Architecture Midwestern Consulting 3815 Plaza Drive Ann Arbor, ML45106

Cover Sheet Site Information Mixed PUD Description Existing Legal Plan Existing Topography Plan Existing Landscope Plan Existing Area Plan Existing Tree Plan Existing Tree List

Parallel Plan Overall Site Plan Site Plan Northwest Site Plan Southeast Site Plan Southeast Site Plan Southeast Site Plan Northeast Den Space Plan Eric Protection Plan Bus Stop Plan Lot Composition Plan Standard Lot Details

Pavilion Design

CONTACTS

Owner / Applican

SHEETS

Entrance Sign Design

Entrance Sign Design Topograph Survey - Denail Topograph Survey - Vent-Topograph Survey - Vent-Topograph Survey - Vent-Topograph Survey - Seat Sol Ensein Control Detains Sol Ensein Control Path Sol Sol Ensein Path Sol Sol E Thomposite Pend DI Santary Plan & Perdie-West Magger Di Santary Plan & Prolife North Magger Di Santary Plan & Prolife North Olaus Chr and Shared Thire Santary Plan & Prolife Thomposite Pand Plan & Pandie Mani Plan & Prolife Magger Di Water Mani Plan & Prolife Skath Magger Di Water Mani Plan & Prolife Skath Magger Di Water Mani Plan & Prolife Skath Mager Di Water Mani Plan & Prolife Skath Storm Prolifes 2.6 Auth Basin Storm Prolifes 2.6 Auth Basin Storm Prolifes 3.6 Skath Basin Storm Profiles 4 Storm Profiles 5 Storm Profiles 6 Storm Profiles 7 Storm Profiles 8 Storm Profiles 8 Storm Profiles 9 Storm Profiles 10 Storm Profiles 10 Storm Pipe Area Plan North Basin Calcs & Outlet Control Detail South Basin Calcs & Outlet Control Detail Storm Pipe Calculations

Landscape Plan - Overall Landscape Plan - North and South Landscape Details

Earthwork Specifications Sanitary Sever Specifications Force Main Specifications Water Main Specifications

#### GENERAL SPECIFICATIONS NOTE

Системи, SPECIFICATIONS NOTE: 14. БАСИМИ ГОТИТОТ, АКО ИМОВИЛ КОВА НА КАКО БИЦЕ ПРИ ВИКОВ НА СОСТАНСКИ ИНТЕКЛИТИКА КОЛТИСТИКИ, КОНСКИТИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ СОПТОКТИКИ, КОНСКИТИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ СОПТОКТИКИ, КОНСКИТИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ СПИТИСТКИ, КОНСКИТИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ СПИТИСТКИ, КОНСКИТИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ СПИТИСТКИ И ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ СПИТИСТКИ И ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИКИ И ПОРОЖНИ И ПОРОЖНИКИ ПОРОЖНИКИ И ПОРОЖНИ И ПОРОЖНИ И ПОРОЖНИКИ И ПОРОЖНИ И ПОРОЖНИ И ПОРОЖНИ И ПОРОЖНИ И ПОРОЖНИКИ И ПОРОЖНИ И ПОРОК



MURIE

GLEN

# CODE VARIATION DATA (RAA to ECHO PUD)

Tax ID: 15-35-300-044

	Exsting	Proposed
Zornog	RAA - ECHO Village	ECHO PUE (ECHO PUE)
LandUse	Vacant	ECH0 Residential
Overal Site		
Perimeter Setbacks	20 ft setbacks for buildings 4 ft setback for street, road; and common access five improve- ments	20 ft, setbacks for buildings 4 ft, setback for street, road, av common access rive improve- ments
Site Requirements Number of Lots	4 Units Minimum 20 Units Mateman 11 Units Mateman	4 Units Minimum 20 Units Maximum 1 1 June 15 Crobert
	_	
Fort	15 ft: from street or road right of way, front porches may encroach 7 feet into this serback	15 ft from street or road right of way, front porches m encroaich 7 feet into this setback.
Side	10 it separation between root overhangs on a habitable buildings	10 ft separation between roo overhangs on a habitable buildings
	6.ft: separation between roof overhangs on accessory struc- ture and accessory dwellings	6.ft. separation between root overhangs on accessory stru- ture and accessory dwellings
	0.ft separation for attached Dweiling units or attached garages	0 ft separation for attached Dwelling units or attached garages
	5 ft setback from common access drives (excluding driveways and shared drive- ways)	<ol> <li>It setback from common access dates (excluding driveways and shared drive- ways)</li> </ol>

# CODE VARIATION DATA (RAA to Open Space PUD)

	Existing	Proposed
Zoning	RAA Sangle Family Low Density Residential	Open Space PUD (OSPUD
Land Use	Vacant	Single-family Desidential

Rear Setback	Side Setback	Front Setback	Detatched Accessory Structure Setbacks		Rear Setback	Size Setback	Main Building Setback	Site Requirements Number of Lots Gross Lot Density Min. Lot Width Min. Lot Area
5 ft	5 ft	Completely to the rear of the main structure			35 ft	70.11	70 P	1 Lot/2 Acres 1 Lot/2 Acres 200 87 120 SF
5 ft	511	Completely behind the front elevation of the main struc- ture.		15 ft. setback when abutting forever open space.	35 ft. setback	10 ft. setback	20 ft. from street or road right-of-way, front porches n encroach 7 feet into this setback	31 (Determined by parallel plan 80 10,890 SF

Pre Development)	·	MIDIE
otal Lot Size	2,125,405 SF (48.20 acres)	
otal Wetland Area	113 3 arrived	GLEN
letland Area A	reactor el el 1	Strawberry Lake Road > Sanctuary Roge >
letland Area B letland Area C	570,636 SF 2,614 SF 3,662 SF	Shadbush Trail Terminates at the Entrance to the Property
ubmerged Land	164,182 SI (3.77 acres)	© 2021 A2 Collideration, LLC The drawing is mount for the automoticity functury
Asting ROW	53,216 SF (1 22 acres)	Committee in warming was complexied, which are the committee in warming was complexied as a warming and any encoded and complexies as 1.0° of which are apprecised of a Calaboranes as the complexies of a Conference Information and a conference of an encoder of Conference Information conference of an encoder the determinant before a conference of an encoder the conference Information conference of an encoder the conference of an encoder the

# REQUIRED OPEN SPACE CALCULATIONS - MPUD

1,140,243 S	Total Recuired Open Space (ECH0 Open Space + OSPU0) Open Space) (45,000 SF + 1,095,243 SF)
45 000 S	ECHO Open Space (ECHO Lot Size * 0 15 (15%)) (300,000 SJ * 0 15)
300,000 S	ECHO Lot Size (Total Lot Size - OSPUD Lot Size) (2.125.405 SE - 1,825.405 SF)
1.095.743 S	CSPUD Open Space (OSPUD Lot Size * 0.60 (60%)) (1.875,405 SF * 0.60)
1.825,405 S	CSPUD Lot Size (Total Lot Size - ECHD Lot Size) (2,125.405 SF - 300,000 SF)

Requ

Bulk, and La

Maximum ECHO Floor Area Maximum Building Height Minimum Building Width any dimension Handicap Ramps

980 square feet 1 story 14 feet May encroach mo uny sectoads space Optional Optional Optional

NBD square feet 1 story 14 feet May encrobe into any settback space Optional Optional Optional

Area, Height, Balk, and Layout Bequiements (Baidings/Parangt'N)) Maannum Building Height

20/20

Front Preches

2 3 stones 35 feet NA 20/20

2.5 stury 35 finet May encroch 7 feet into required setback

Basement Shird Garage Covered Parking

201,8	Right of Way
164,1	Submerged Land
2.125.4	Total Lot Saze

Proposed Open Space % (Proposed Open Space / Total Lot Size) (1,231350 SF / 2125405 SF)

414,730	Open Space Wetland
	Private Lots - Submerged Landi
1,231,350	Tratellar Son DOW
527,983	Private Lots

414,730	en Space Wetland
1,231,350	cocsed Open Space Mail Lot Size - ROW - vate Lots - Submerged Landi
527,983	vale Lots
201,800	Jrit of Way

0 SF SF 13.55

NATURAL FEATURES SETBACK REQUIREMENTS (RAA - MPUD) 0

Natural Features CHWM of body of water

Ste Information

G1.1

10.05.2021 Page 02

57.9%

5,405 SF 4,182 SF 1,800 SF

13 SF 35 SF Project # Address です。

Copyright 2021 A2 Collaborative, LLC, @ 2021 A2 Collaborative, LLC

## CODE REVIEW Article 14 Section 1

'It is the intert of this Acide to offer an alternative to traditional study issues through the use of Paramed Van beedsprivant legi latern, as authorized by Versigian Zerierg Enabling Aci; Public Ac 110 of 2006, as amended) for the purpose of

At tole 14, Section 3 To be eighber for open space community consideration, the applicant must accent a proposal for resolution development that meets each of the following

y edge and internal lot lines

A Encouraging the use of Township land in accordance with to character and adaptability.

# A) CL48 Properties seeks to propose the Marie Glen Develop ment Plan and Murie Glen Development Design Guidebook to ensure the preservation of Hamburg Township's architecture character.

uning the per ls, and other li resources; r of open space, agre

B) Minimizing the impact on natural assets and ensuring the permanent preservation of open space Marie Gien will focus on the sustainability of its architecture and its construction.

oviding recreational facilities within a reasonable distance of (idents of the Space Community development)

(2) The development is contexed around 2 (two) maintained parks that are actually connected to the mulpholying unit-tagibility rules in the area. We price ourselves is the opportu-inty to create exeptences of discovery and worker as we focus on the social, physical, and economic health of our communi-tion.

8. Open Space. The proposed development shall provide at least one of the following open space benefits.

1. Significant Valuad Assets. The site contains significant namula across the endoded with the product site types where with product sectors are endoded with the product of the product sectors and the product sectors are endoded with the product sectors and the product sectors are endoded with the product sectors and the product sectors are endoded with the product sectors and the product sectors are endoded with the product sectors and the product sectors are endoded with the product sectors are endoded with the product sectors are endoded as a sector to the three sectors are product sectors and the product by the applicant test necessities are endoded as a constraint of sectors are based with the open subcriteriant product them as units expresses are uncleaded as a constraint of the product the

The Muric Gine proposal has a number of trees over 12 inclues dimension and trees orealing 20 inclues the workshop space accessing 15% using the same trees of the same trees of the plateau that wave out over Thompson Proct. Using the required plateau that wave out over Thompson Proct. Using the required Space and D.S. open capacies in EU-tob development and Open Space and D.S. open capacies in EU-tob development and Open Space and D.S. open capacies in EU-tob development and Space and D.S. open capacies in EU-tob development and the same treatment and the space of tableterial treatment of the same treatment and the same treatment of tableterial treatment of the same treatment is a space of tableterial treatment of tableter area.

2: Remains Facilities II the aim adda carl and facilities (chino quady 11th development) and an annual testing prevaluation of the development of the carlot or cardial or sound in the massarchic active sets south at involvement of the carlot prior cardial or sound in the massarchic active sets of the carlot prior table interest on the massarchic active sets of the carlot prior table interest of the cardio sets of the cardio

3 Contract of Natural Features - Effective lucks existing institual features, it can asso quality if the development will create again-care revolvant features. The construct of payoff are revocation relatives ability for constructing payoff and the payoff are revocation and interact stretter two payoff grant at a rate of hwee (2 a) what is required by this Ordinarian.

D Calvaive weightenhood. The proposed development shall be designed to seave a concense content with vergelocinocol trougging control upon space areas for passive or upper expension and readers treatments on the priors space awards that the expansity and able to all residents of the open space awards that the expansity able to all residents of the open space community.

Mixed PUD Description

 $\bigcirc$ 

The shurk (clip proposal will be a compact development that provides extensive auchicutural design to its brains the concentration relation and paramethic parameters and a program that the well have an extensive application path and open spaces concentra-ting each home to a larger walking trul in the Myraic Ridge OSPUD. The open space areas will be maintained for both OSPUD The open space areas will be maintained for both edenty and younger occupants.

100

and to conversion to control, during the ensuing beginned to entry howing proceeding segmentation of the discreption of the project unders in a student in the development approxem. The approach shall prove that the student of conversion of the approach shall be the term of apprecision. The approach shall be approxement and the term of approximation of conversion and of origination and approximation that the observation and approx-ment in the terms of a proposale in the events and on any portion of approximation and approximation and approximation of the protocol term of the protect of the protocol terms and address of the protocol development shall be facility, and any subconduct terms of all any approximation of the methods, and any subconduct terms of all any appropriate facility.

MURIE

The Marke Gan proposal will be under a single conversible con-trais of CL4B Programs until SCN of the units are occupied, and the ownership will be transferred to the Marke Glen HOA for the duration of the priori. The HOA will be binded to the condition of the planned unit development.

A. Survey scalable Benefits.
A. Survey scalable Benefits.
A. Once you can be an early of an early on a second scalable and a sub-standing scalable s

3.121 al Contemporter SLC The charged numerical way among a promoting theory of the trade of charged parts of the charged on the trade of charged parts of the theory of the trade of charged parts of the promoting the trade of charged parts of the promoting of the trade of charged parts of the promoting of the trade of the promoting of the promoting of the trade of the promoting of the promoting of the trade of the promoting of the promoting of the trade of the promoting of the promoting of the trade of the promoting of the p



I have the proposed type and denotype (see 6 defined addic servers, dealers, have a defined in reaction to be use or called servers, dealers, have a defined in reaction to be use or called servers, dealers, have a defined in reaction to be an orienteended in reaction the subject and or sum-area (addi-and or subscream) and that is a called and or the value of a definition of the definition of the subject and or sum-area (addi-ation). The definition of the subject and or sum-area (addi-ation) and the definition of the subject and or sum-area (addi-ation). The definition of the subject and or sum-area (addi-dian) and the proposed commander on the subject associated with a definition be quelicy of the sum-area (addi-ation) and subject (addi-cal addi-definition) as assist in index (the definition of a match addition) and addivectorial addition or an artist of the command properties allowed primer (addition). The impacts (of commander of the definition of a match addition) and addition of the definition of a match and addition of the subscription of a match addition of a an index (addition) and addition of a match addition of a an index (addition) and addition of a match addition of a an index (addition) addition of a match addition of a match addition in match addition of the addition of a match addition and addition of the addition of a match addition of a match addition matched as a subscription of a match addition of a addition (addition) addition of a match addition of a match addition matched addition of a match addition of a matched addition matched addition of a matched addition of a matched addition matched addition of a matched addition of a matched addition matched addition of a matched addition of a matched addition matched addition of a matched addition of a matched addition (addition) addition of a matched addition of a matched addition (addition) addition of a matched addition of a matched addition (addition) addition of a matched addition of a mat

The Marie Glen proposal will not require an unreasonable increase in the need for public services, facilities, roads, and utilities in relation to other user. The development proposal will improve the efficiency of the Mystic Ridge water pumping station by increasing local volume.

G. Township Master Pian. The proposed development shall be consistent with and further the implementation of the Township Master Pian.

According to the Township Marter Plan, Hamburg Township in in desperse need for "Elseny" and "Model & Housing", the Mare Glein development provides 20 detech Yousing units substan-tisting smaller than marker rars simple family housing today. These is homes will be built of the same quality structure as the single family homes.

The Murie Gien proposal qualifies for the natural features requirement, but the proposal also provides 2 neighborhood parks located at the center of the development.

The Murie Glen proposal will not have dense interior street tree plantings to maintain solar access to all homes.

Indect North

C. Cuarantee of Open Space. The applicant shall putantee to the substantial release the Person Commission that all com-space putrons of the screening statistic provided by the lat-space staget shall be applied to the screening statistic pro-sent and space to be applied to the screening statistic pro-sent of a space statistic provided instance of a statistic statistic pro-sent and a pro-sent part is proceeding and the statistic pro-provided to the Technic and the statistic pro-net provided to the Technic and the statistic pro-tein the upper space community plane.

The Murie Glen proposal will guarantee a total of 57.9% open space maintained as stated by the township.

The Marka blass proposal with a databate single formal combined with 20 (record) Linkly Cottage Usango Operating Structures bornes. The community will have a separation of 20 feet (here: p) from the overall property lines to the annexes building drops, and a separation of 120 feet (one-hordered and twenty) of forware open space from the narratest activity guidelinal store trave in the Martic Belge Open Space IVO. The Martine Gran Dropsed multitudes a drome natural Safetter tenvers the proper-

Copyright 2021 A2 Collaborative, LLC, & 2021 A2 Collal

The Markin Gales proposed will have a 20 ford; (hereing) buffer between buildings and the property edge and a cleane rolings herein. The development provides over 1,000 feet (not those cand) of one loadicational policies walking that, and creates the specific the selected community and the mainstance of policies operative tracks and community and the mainstance of policies community tracks. The mutile Gales Program will be write the community HOA). The mutile Gales Program will be set of the (Refr well maintains weltack from NBCO regulated wetland, and new releading areas.

wing innovation and greater flexibility in the design of intel developments.

D) Murie Glen will become a new standard of development in the region. We designed a mixture of housing types that facili-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of an economic and socially diverse communi-tate the creation of the community diverse communi-tate the creation of the community diverse communi

Itating the construction and maintenance of streets, , and public services ve economical and efficient manner

E) The Murie Glan development is using a stronger road section with 10 inches of stone base that will improve the longevity of the road.

uring crimoal billy of design and use between neighboring rites; and,

F) Murie Glen provides a 20 foot buffer of preserved open space between neighboring properties and has the same single fami-ly/ECH0 residential program.

raging a less sprawling form of development, thus by open space as

G) This proposed development permanently preserves nearly 60% open space while creating a similar density to historic neighborhoods of the 19th and 20th centuries.

excels to be and use predicts to previous a traditional rula oracle to the local use previous rules (contracting with open space land of mail respective notes, contracting with open space lands and rules (contracting with open space rules) are only the local previous of the Township, the rules of the total the planning concepts (spon which local planets exist ones) based local planets exist ones) based local planets exist ones based

Murie Gien seeka to preserve the character of rural develop-ments by densely occupying a small portion of the site, while allowing for imeo goes thered spaces throughout the commu-nity. The design seeks to build off the austifing zoning ordinance by creating age, income, and social devently within this 48 (forty eight) acre design.

egulations are intended to result in a specific development mally consistent with Ordinance standards, yet allow for modifications (form the standards to insure nate, fail, and consistent decision making

en space community district is established as an overlay applicable to all single family residential districts."

The Murie Glen proposal is located in the RAA Zone of Hamburg Township surrounded by existing single-family homes.

Aftice 14 Schöry? To the paperson of this Aircle, an 'open space community' is defined as a predeminative upget frame in easiential development in which identify that is a planeting with the cover in more propaging within a defined projectawis. The evidential publics are searched from splacers space that is perpending protected from development. Community using as space development and them and the splacers with a community protected from development. Community using as space for exception 14.5 cm and the allowers with a communities or 'they (Sti) acres or mean.

G1.2

development shall be unde

GLEN Strawberry Lake Hoad > Sevenuary Roope > Shudbush Trait hadbush Trait Termostes at the Enlance to the Property









A REAL PROVIDED IN THE REAL PROVIDED INTO THE REAL P

ES1.3



								-				-										
1 8	Red Oak	Quercus palustris		71	7	Red Oak	Quercus palustria	141	10*	Red Cedar	Juniperus virginiana	211	13'	Red Oak	Quercus palustris	281	10"	American Elm	Ulmus america	na	100000000000000000000000000000000000000	
2 8'	Black Cherry	Prunus serotina		72	13*	Black Walnut	lucians ninta	142	6.	Red Dak	Querrus polyestria	212	21*	Red Oak	Querrus nakotris	282	6"	White Ash	Eravious america	14		
10 10 1				100	1.0	Children Contractor			-		doctor paragona				distant bescarts	- Leve	10	Think Add	TTRACTOR BITTELTCH	-		
3 17	Silver Maple	Acer sacchannum		73	12	Black Cherry	Prunus serotina	143	1	Red Oak	Quercus palustris	213	1	Red Cedar	Juniperus virginiana	283	T	Red Cedar	Juniperus virginia	na		
4 7	Black Cherry	Prunus serotina	1000	74	7.	Red Cedar	Juniperus virginiana	144	6	Red Oak	Ouercus palustris	214	8.	Black Cherry	Prunus serotina	284	T	Red Cedar	Juniperus virginia	0.8	1000	
2 47	Ethnic Manha	A cost of a cost		74	-	DedCades	hand a second second second	1.10	-	Ded Codes	E la la constante la	216	-	Ded Cedar	Real of the second second second	0.0.0	101	20				
0 0	Silver Maple	Acer seccharinum		15		Red Leoar	Juniperus virginiaria	140	/	Red Ledar	Juniperus virginiana	210	0	Hed Cedar	Juniperus virginiaria	1283	A	Shagbark Hickory	Carya ova	(a)	6	
6 8	American Elm	Ulmus americana	Contraction of	76	13'	Red Qak	Quercus palustris	146	19'	Red Oak	Quercus palustris	216	7	Red Cedar	Juniperus virginiana	286	16	Red Oak	Quercus palust	ris		
7 8	Red Cedar	luninenis vincipiana		77	13*	Red Oak	Quarcus natustris	147	15	Silver Manle	Acer saccharinum	217	8.	Red Cak	Querrus natustris	297	0*	Black Charry	Deurope secoli	1.0		
	Here Cevar	Somperca vaganara		//	1.0	Neu Oak	Quercus parosens	147	1.5	anvei wapie	ACCENTATION	a. 17		Red Oak	duercas haicisais	201	12	Diatk Cherry	Produs serou		-	
8 6	Red Cedar	Juniperus virginiana	2	78	13"	Red Cedar	Juniperus virginiana	148	6	Red Cedar	Juniperus virginiana	218	8.	Red Oak	Quercus palustris	288	T	Shagbark Hickory	Carya ova	ta		
9 6	Red Cedar	Inninerus virginiaga	100 C 100 C 100	81	6	Silver Maole	Arer sancharinum	149	14'	Red Oak	Quercus palustris	210	6'	Red Oak	Quercus palustris	289	12	Black Cherry	Propus serote	60	Strawbe	erry Lake Road > Sanctuary Ridor
		sompres myrners				Sare mapre	Pice decementari	-	1.4		descer barrows	1000	-		during hundring		1.	ondex onenty	FIGHER SEIGH			Shadbush Trail
11 6	Red Oak	Quercus palustris	11 A 4	79	11.	Red Oak	Quercus palustris	150	11.	Red Oak	Quercus palustris	220	0.	Red Cak	Quercus palustris	290	8.	Black Cherry	Prunus seroti	18	Sharthund	h Trail Terminates at the Entrance
12 6	Red Cedar	Juniperus virginiana	And And American	80	12"	Silver Maple	Acer saccharinum	151	7	Red Cedar	Juniperus virginiana	221	8'	Black Cherry	Prunus serotina	291	6"	Shaphark Hickory	Cance over	ta		the Property
10 112	Citure Magle	Acres construction and		0.7	101	Charlende	Anna Anna Anna Anna	100	170	BadOat	O restrict and until a	222	41	Black Change	Develop streeting	000	1.00	Dist Charge	0	-		antroperty
10 13	saver maple	Acer seconarinum		02	10	anver maple	Acer saccharmum	192	1	Hed Oak	Quercus patusins	222	0	Black Cherry	Prunus serouna	292	/	Black Cherry	Prunus seroti	18		
13 8	Red Cedar	Juniperus virginiana		83	13*	Silver Maple	Acer saccharinum	153	T	Red Cedar	Juniperus virginiana	223	8*	Black Cherry	Prunus serotina	293	12	Slack Cherry	Prunus seroti	14		
14 10'	Red Oak	Ouescus paluatria		9.4	24	Chur Maola	Acer excelasing an	164	7*	White Oak	Guerran alba	224	102	Black Charter	Domus section	204	19.25	Chashack Michael	Cana and		and the second second	
	Hes Oak	donicos haisteris		0.4		girver mapre	ACC DAVENING IN	1.00	-	Winte Oak	doercos sina	2.2.4	10	BIBLK CHERTY	Pronos servina	2.74	13	anaguerk nickory	Carya ova	1.0	@ 2021 A3 Ci	offutversitive, LLC
15 111	Red Oak	Quercus palustris	1.0	85	11.	Red Cedar	Juniperus virginiana	155	0	Red Cedar	Juniperus virginiana	225	T	Silver Maple	Acer saccharinum	295	17	Sassafras	Sassafras albidu	m	This dealers	the mediation are sobrown by regulated
18 8"	Red Oak	Quercus palustris		86	6	Red Cedar	Suninerus vizminiana	156	7	Red Cedar	huninerus virolotana	226	Q*	Red Oak	Ouercus natustris	296	7	Shashark Hickory	Capita Oka	14	Coversion of the	serring and Zarang Board. No part of the
10 10	6.10.1	doctor building		100	-	1100 0000	ouroperes in price in	-	-			1.2.2	1.00	100 Car	discreas parastra		-	on age and rectory	Carja Ora		means of sho	and it a the state of retrieval system, and
10 0	Red Cedar	Juniperus virginiana		87	F	Silver Maple	Acer saccharinum	15/	8	Hed Cedar	Juniperus virginiana	221	15.	Black Cherry	Prunus serotina	297	r	Shagbark Hickory	Carya ova	ta	prior permissi	rion of A2 Collaborative LLC. Unless office
17 7	Silver Maple	Acer saccharinum	12.12.25.2	88	8'	Sassafras	Sassafras albidum	158	T	Red Cedar	Juniperus virginiana	228	6'	Red Maple	Acer rubrum	298	8	Shagbark Hickory	Carya ova	ta	agreed to ma	willing, this document is the sole property
10 10	Bed Cades	Number of the latent		80	1.05	Obrea Marala	A construction of the second	160	120	Cil. and Manufactor	A rest of the factor and	200	-	DedCala	burger and the second second	000	07		0	-	#2 Osilaborat	tive, LLC and is to be returned upon demo
19 0	KING CROBE	Jumperus virginiana		89	10	Silver Maple	ACer saccharidum	134	1	Silver Maple	Aber sacchannum	229	/	ried Cedar	Juniperus virginiana. Swi	239	0	Sassarras	Sassarras aloidu	m twin	The enformals	ion bereins confidential and may not be
20 10	Red Oak	Quercus palustris	-	90	7	Silver Maple	Acer saccharinum	160	9	Red Cedar	Juniperus virginiana	230	8,	Black Cherry	Prunus serotina	300	17	Black Cherry	Prunus seroti	14	Labor LLP	
22 13	Red Oak	Quercus palastric		91	10*	Black Cherry	Prunus serotina	161	6"	Red Certar	Juniperus virginiana	231	T	Red Cedar	Juniperus virginiana	301	111"	Shaphark Hickory	Carves over	ta	Contract Labor	C.Z. Martin C.
101 10	Ded Cold	Contrato partitione		00	-	et antig	A construction of	1 14-	100	Ded Col	La	222	1.12	Ded Ord	Change and starting	1 2007	1	and a contract of the	Caliya Ova	-	Address	
21 10	Keg Oak	Quercus palustris	1	92	/	Saver Maple	Acer saccharinum	102	10	Red Cedar	Juniperus virginiana	232	12	Red Oak	Quercus pasustris	302	13	Black Cherry	Prunus seroti	10		· ····································
23 9	Silver Maple	Acer saccharinum		93	9.	Shagbark Hickory	Carya ovata	163	6*	Red Cedar	Juniperus virginiana	233	7	Red Oak	Quercus palustris	303	6	Red Cedar	Juniperus viminiar	18		The State of the state
24 111	Red Coder	huninen ja vinciniaan		0.4	0.1	Chaobark Meters	Canva ovata	1 164	110*	Cilluer Mante	Acer saccharinum	224	0.	Red Ort	Quercus patretria	1 204	100	Bed C: 1	boleanus			Salat Salat
	neo cedar	Juniperus virginiana		20		Shagbark Hickory	Carya ovata	104	10	Silver maple	Acer saccharinum	234	1	Red Oak	direacoa banacua	304	0	Red Cedar	Juniperus virginiai	10		The state
25 7	Silver Maple	Acer saccharinum		95	6	Black Cherry	Prunus serotina	165	11.	Black Cherry	Prunus serotina	235	7	Silver Maple	Acer saccharinum	305	8"	Red Cedar	Juniperus virginiar	18		HAR BEACHER
26 6	Black Cherry	Propus secution		96	Q2	Short Manla	Acer saccharinem	164	14'	Red Oak	Querrus natustris	236	10*	Red Cedar	kuninerus virniniana	306	7	Red Codes	European on checked and			NALES DE
20 0	orack onenty	Pronos del Otine			-	onver mapre	Actor parcentaringen	100	1.4	Hey Own	Concos perusaria	2.00	10	HEO CEOUI	Juniperus virginaria	300	1	Red Cedar	Sumperus regime	14		CONTRACT OF
27 6	Red Oak	Quercus palustris	10.15	97	11.	Red Cedar	Juniperus virginiana	167	13.	White Oak	Quercus alba	237	3.	Black Cherry	Prunus serotina	307	11"	Red Cedar	Juniperus virginiai	10		Checkers Constants
28 11"	Red Oak	Quercus galustris	(	99	13'	Silver Maole	Acer saccharinum	168	7	White Oak	Quercus alba	238	11'	Silver Maple	Acer saccharinum	308	9"	Red Cedar	Juniperus virginiar	14		
A		designed beneficial		0.0	1.0	and the second	The statement	-	100	0.10.1		1000	1.00	Contra Integra		-	-	ried Gedan	Scaliperos regime	-	Project #	0
29 9	Server Maple	Acer saccharinum	twin.	99	¥.	Silver Maple	Acer saccharinum	169	10	Hed Cedar	Juniperus virginiana	239	10	Silver Maple	Acer sacchannum	309	0	Red Cedar	Juniperus virginiai	sa twin		
30 16	Red Oak	Quercus palustris	S 6 6 10 10 10 10	100	8,	Silver Maple	Acer saccharinum	170	8	Red Oak	Quercus palustris	240	8'	Black Walnut	Juglans nigra	310	6	Red Cedar	Juniperus virginiar	a twin		a contraction of the second
21 6'	Red Coder	hankeen in visolojana		101	11"	Char Masla	Arer excelation on	171	10"	Bad Cadar	haniment is vitaleise a	241	7'	Black Charnel	One section	211	0*	Bed Oak	Oceanies automati			
31 0	Hed Cedar	Juniperus virginiana		101		Silver Maple	Acer sacchennum	171	0	Red Cedar	Juniperus vaganama	241	1	Diack Cherry	Prunus serouna	311	19	Hed Oak	Quercus paruet	-		121
32 7	Red Cedar	Juniperus virginiana	1.10.10.00	102	7	Black Cherry	Prunus serotina	172	10'	Red Cedar	Juniperus virginiana	242	T	Black Cherry	Prunus serotina	312	9	American Elm	Ulmus american	10	/	
33 6"	Red Cedar	Junipenus virniniana		103	8*	Black Cherry	Prunus serotina	173	65	Red Cedar	Juniperus virginiana	243	14'	Black Walcut	hanlans niora	313	111'	Silver Manle	Acer sacchariou	m twin	/	0 1
30 V	ree cedar	Samperas myrinini		105		black cherry	Francis servina	-	0	red could	Sumperora virginiama	2.40		Disco Panac	Sugrammagra	313		Silver maple	Acer saccharing	tive twent	/	- 1
34 6	Red Cedar	Juniperus virginiana		104	r	Black Cherry	Prunus serotina	174	0.	Red Cedar	Juniperus virginiana	244	14'	Black Walnut	Juglans nigra	314	10.	Black Cherry	Prunus serotir	14		in the second
35 7	Red Cedar	Juniperus virginiana		105	8'	American Elm	Ulmus americana	175	8	Red Oak	Ouercus palustris	245	24*	Black Walnut	Juglans nigra	315	6*	Red Cedar	Juniperus virginiai	1.0	200000	
36 7	Red Coder	hunterer steele and		106	11	CherryManla	Accession	176	1505	Direct Channel	On must contail and	244	102	DedCada	hunde serve addedates	0.14	01	Ded Codes	here here an a strend of the	-	0.0802 08	
30 /	neo cegar	Jumperus virginiana		100	0	Silver Maple	Ader sacchannom	170	10	Black Grienry	Pronos serouna	240	10	ned Cedar	Jumperus virginiana	310	0	Red Cedar	Juniperus virginiai	10	1000	$\leq$
37 11'	Black Cherry	Prunus serotina		107	10*	Bigtooth Aspen	Populus grandidentata	177	10'	Black Cherry	Prunus serotina	247	3.	Black Cherry	Prunus serotina	317	18	American Elm	Ulmus americar	10	1	
38 7	Red Cedar	funinerus virsiniana		108	6'	Bistooth Aspen	Donulus preprintentata	178	10'	Black Cherry	Doubus serotion	248	6	Shanbark blickony	Carva overta	918	7	Ped Pader	hunimente viceinite			\ ~ /
00	Hee Geom	Somperus vaganans		100	0	bigtoodit Hapfeit	Populas granemana	110		Grack Grienty	Fromus servicina	1.40		Senagona K mekory	Carya oraca	316	1	Recicedar	Juniperus vagana	10		
39 9"	Red Oak	Quercus palustris	1000	109	10"	Red Oak	Quercus palustris	179	T	Red Cedar	Juniperus virginiana	249	8.	Black Cherry	Prunus serotina	319	7	Red Cedar	Juniperus virginiar	18		
40 9"	Red Cedar	Juninerus virniniana		110	10*	Red Oak	Querrus nalustria	180	10'	Red Oak	Quercus palustris	250	10*	Black Cherry	Prunus serotina	320	11"	Silver Manle	Arer saccharing	-		10
23 102	bud out				1.4			-	1.0		And the particular states	1000		61 1 61 F		- Caro		certer mapre	Hotel second into			0,
41 8	Red Cedar	Juniperus virginiana	A	111	r	Silver Maple	Acer sacchannum	181	10	Salver Maple	Acer saccharinum tripie	251	0	Black Cherry	Prunus serotina	321	8	Black Cherry	Prunus serota	na twin		
42 9*	Red Oak	Quercus palustris		112	8'	Silver Maple	Acer saccharinum	182	8	Red Cedar	Juniperus virginiana	252	8,	Black Cherry	Prunus serotina	322	7	Red Cedar	Juniperus virginiar	10		
49 01	Bad Cadas	hostennus uterfelanas		112	1.11	Charlende	Anneshade	103	0*	Ded Cedar	Eveloper a visibilition a	363	1.15	Black Chart	Down a compliant	200	100	Bud Out	0	-		0
45 7	Reg Cedar	Sumperus vegenaria		115	11	adver Maple	Acer sacchannum	103	2	Heo Couar	Joseperus virginiana	2.33	11	Diatok Cherry	Pronus serouna	323	0	Hed Uax	Quercus paruso	10		
44 6	Red Cedar	Juniperus virginiana	221.323	114	10"	Red Oak	Quercus palustris	184	8	Red Maple	Acer rubrum	254	T	American Elm	Ulmus americana	324	T	Red Cedar	Juniperus virginiar	10		the
45 10"	Red Cedar	Junipenus virginiaga		115	7*	Black Cherry	Prunus serotina	185	0,	Red Cedar	Juniperus virginiana	255	8'	Red Cak	Ouercus natustris	325	0.	Black Charry	Prunus serotic	10		/ _ \
16 10	Black Ch	Down and		114	47	Charles 1	Arrestablester	1 100	17	Ord Col	history a similar a	1384	1.52	Dad Oat	O menter and attrict	144	-	and one of the state	i terros seron	-	Contraction of the	
40 0	Black Cherry	Prunus serotina		110		Silver Maple	Acer saccharinum	186	1	Red Cedar	Juniperus virginiana	256	12	Red Oak	Quercus palustris	326	1	American Elm	Ulmus american	10	/	0 1
47 8	Black Cherry	Prunus serotina	twin	117	14"	Red Oak	Quercus palustris	187	14'	Red Oak	Quercus palustris	257	16	Red Oak	Quercus palustris	327	11'	Black Cherry	Prunus serotio	10	1	0 1
48 7	Red Cadar	husinanua virgini ana		119	7*	Black Channel	Printe exection	100	112	RadCall	Ouerous anhustria	258	6	American Elec	Ulmus americana	228	10	Ped Code	haning and a second		1.	A CONTRACTOR OF A CONTRACTOR O
	neu Gedar	Southerne Auguraus		110		mack unterly	Pronos serouna	108	12	Hard Dak	Conces pagains	200		American can	Unnus americana	328	4	Red Cedar	Juniperus virginiar	10	1000	the second se
49 8	Red Cedar	Juniperus virginiana		119	8.	Black Cherry	Prunus serotina	189	19.	Silver Maple	Acer saccharinum	259	8,	Black Walnut	Juglans nigra	329	8	Red Cedar	Juniperus virginiar	18	13.50 Mar 19	and a second second second
50 6	Red Cedar	Juniperus virciniana		120	6"	Shaobark Hickory	Carva ovata	190	8"	Red Cedar	Juniperus virginiana	260	11"	Silver Maple	Acer szccharinum	330	7	Black Cherry	Prunus seroto	10		
24 14.00	Ded a		and the second second	100	101	and a start of the		-	-	and a state		200	100	2-10-1		-	in a	orden orderty	r runus serou	-	1200 1000	0 /
51 12	Red Oak	Quercus palustris		121	18	Red Oak	Quercus palustris	191	15	Red Cedar	Juniperus virginiana	261	1	Red Cedar	Juniperus virginiana	331	15	Black Walnut	Juglans nig	na l		
52 10"	Red Oak	Quercus palustris		122	9*	Black Cherry	Prunus serotina	192	10*	Red Oak	Quercus pailustris	262	19*	Black Walnut	Juglans nigra	332	6	American Elm	Ulmus american	18		\ 7 /
69 0	Red Oak	Outstand out inter		122	111	Sihme Mente	Acer saccharinum	100	142	Black Chrom	Province services	26.9	17	Black Charry	Pourus semtion	222	0*	Black Wolcow	hug			
20 17	Neu Oak	quercus paluatris		123	11	ouver maple	Ader saccharmum	173	0	black unerry	Pronus serouna	203		black onerly	Fruisus servina	333	1	Black Walnut	Juglans nig			
54 9'	Black Cherry	Prunus serotina	twin	124	11*	Red Maple	Acer rubrum	194	19	Red Cedar	Juniperus virginiana	264	13.	Black Walnut	Juglans nigra	334	17	Red Cedar	Juniperus virginiar	18		
55 12	Silver Maple	Acer saccharinum		125	12*	Red Maple	Acer rubrum	195	6*	Red Cedar	Juninerus virginiana	265	14"	Black Walnut	.tuolans niora	235	7	American Firm	Liferus american	10	Revisions	
24 144	Duto tu	A second s		101	1.00	al al a		-	101	6.10.1		1000	101	24 - 1 - 1 1 - 1		-	tion .	Contract Card	on of shierca	-		and the second se
00 11	Red Cedar	Juniperus virginiana		120	10	Silver Maple	Acer saccharinum	330	A.	Hed Oak	Quercus palustris	200	a	shagoark Mickoly	Carya ovata	330	11	Shagbark Hickory	Carya ova	a		A CONTRACTOR OF
57 12	Silver Maple	Acer saccharinum		127	8'	Black Cherry	Prunus serotina	197	11'	Red Cedar	Juniperus virginiana	267	6'	Shagbark Hickory	Carya ovata	337	9"	Red Cedar	Juniperus virginiar	10		NAME OF WALLEY DO NOT A PARTY
64 10"	Red Oal	Querous out until		128	03	Black Chart	Develop sarotion	100	10	Red Cal	Oueroue anhustria	26.0	62	Black Charry	Drugue exercition	228	0.	American	1 Mercura A	-		and the second second
	neu Uak	Quercus palustris		120	-	Black unerry	Prunus serousa ( Twi	178	10	Heu Oak	Quercus pelusura	200	-	Diack Courty	Procus service	336		American Elm	Uthus americal	10		and the second se
59 9	Red Oak	Quercus palustris		129	28	Red Oak	Quercus palustris	199	14'	Red Oak	Quercus palustris	269	6	Shagbark Hickory	Carya ovata	339	13	Black Walnut	Juglans nig	ra	0.83.08.203.	and some the state of the second state
60 9"	Red Oak	Querrus palastria		130	6"	Red Cedar	Automatics virginiana	200	14	Red Oak	Quercus natustris	270	0,	Red Cak	Quarcus palustris	340	10'	Red Out	Or mercing and units	10		
	The Use	domone parastris	210 10 11	1.00	-	ried Caldar	Southerns undergene		1.4	new Jak	Concern Service	100	-	new well	diancas bunanas	340		med Oak	downers barnen	-		
61 19	Red Oak	Quercus palustris		131	10"	Red Cedar	Juniperus virginiana	201	0.	Black Cherry	Prunus serotina	271	8	American Elm	Ulmus americana.	341	6.	Red Oak	Querous palustr	16	ALC: NOT	
62 6	Red Oak	Quercus paluntris		132	16'	Red Oak	Quercus palustris	202	7	Black Cherry	Prunus serotina	272	19'	Black Walnut	Juglans nigra	342	15	Red Oak	Quercus paluete	18		COLORA DE LA COLORA DE LA CALENCIA D
10 10	Ded O	donene haddene		100	-	The Oak	and the particular		1	or other strating		10.00	100	0.10.1	and the second second	1 10.00		ind Oak	Guardon bailing	-		the second set of the second second second
03 0.	Red Cedar	Juniperus virginiana	125	133	1	Silver Maple	Acer saccharinum	203	14	Red Oak	Quercus palustris	273	1	Red Cedar	Juniperus virginiana	343	1	Black Cherry	Prunus serotin	ia l	100 million (1997)	a construction of the second
64 7	Red Cedar	Juniperus virginiana		134	3,	Silver Maple	Acer saccharinum	204	10*	Red Oak	Quercus palustris	274	6	Red Cedar	Juniperus virginiana	344	11'	Red Oak	Quercus palustr	is		
18 17	BedOak	Querra entretien		157	1.17	Ded Cadar	hundragen utentalana	1 200	12	Black Walcord	hudane place	1776	12	Ded Cedar	hunimonae uteniniana	1 240	1.0	Dial Charge	D	-		
00 /	Red Oak	Quercus paiustris		135	11	Red Cedar	Jumperus virginiana	205	1	brack walnut	Jugians nigra	2/5	1	Hed Cedar	Jumperus virginiana	345	1	Black Cherry	Prunus serotir	10		and the second s
56 8'	Red Oak	Quercus palustris		136	10*	Black Cherry	Prunus serotina	206	8	Black Cherry	Prunus serotina	276	7	Black Cherry	Prunus serotina	346	10"	Black Cherry	Prunus serotir	sa l	100 St. 11	
67 0"	Red Oak	Quercus palustris		137	10	Black Cherry	Projet section	207	150	Black Charry	Privous serotina	277	11	Chur Maria	Acar excelusionum	247	0.0	Red Oak	O service only and	-		
	- Cak	Analoga bagastis		100	-	unach unerry	FIGHT BEIGHT	-	-	under undity	FIGHTLE BEIGHT		-	uniter mappe		-	-	ned Uak	Quertus patust	-		The second of the second second
08 9	Red Cedar	Juniperus virginiana	MARK MARK	138	12	Silver Maple	Acer saccharinum	208	17	Red Oak	Quercus palustris	278	8,	Silver Maple	Acer saccharinum	348	14	Red Oak	Quercus palustr	15	Notes	
69 9'	Red Oak	Quercus palustris		139	6'	Red Maple	Acer rubrum	209	17	Red Cedar	Juniperus virginiana	279	7	Black Cherry	Prunus serotina	349	9"	Silver Maole	Acer saccharinu	m		
20 199	Bed Cult	0		140	-	Plant Ch	Down constant	- 01-	100	Budget	O annual and until a	280	102	Direct Cherry	Deman constant	1 200	19.00	Citer Interne		-		
10 12	Hey Oak	Quercus pelustris	1000000000	140	11	DIECK UNEITY	Prunus seroune:	0134	17	neo Jak	Quercus parustris	1200	14	Diack Crienty	Prunus serouna:	300	110	Silver Maple	Acer saccharinu			

Existing to Heman

Existing to be Removed

roject North

Tree List

Drawn by TS

ES2.1

Copyright 2021 A2 Collaborative, LLC, © 2021 A2 Collaborative, LLC

261 111	Red Cedar	history a strategie and		1100	Ded Codes	England and a standard and	100 Day	b.10-1-1			(III)								
252 14"	Red Cedar	Juniperus virginiana	42	1 10	Red Cedar	Juniperus virginiana	491 10	Red Cedar	Juniperus virginiana		561 15	Black Walnut	t Juglans nigra		631 9'	Red Cedar	Juniperus virginiana		AALIDIE
352 14	Hed Uak	Quercus palustris	42	2 11	Black Cherry	Prunus serotina twin	492 9	Red Cedar	Junipetus virginiana		562 10*	Black Walnut	t Juglans nigra		632 7	Red Cedar	Juniperus virginiana		MIPLE
353 /	Red Cedar	Juniperus virginiana	42	3 8	American Eim	Ulmus americana	493 11'	Black Cherry	Prunus serotina	twin	563 12*	Red Oak	Quercus palustris		633 10*	Black Cherry	Prunus serotina		MUNIL
354 10	American Elm	Ulmus anvericana	42	4 13	Black Walnut	Juglans nigra	494 11'	Black Cherry	Prunus serotina		564 12*	Black Cherry	y Prunus serotina	twin	634 10"	American Elm	Ulmus americana		
355 11"	Sweet Cherry	Prunus avuim	42	5 11'	Black Walnut	Juglans nigra	495 9'	Red Cedar	Juniperus virginiana		565 8"	Red Oak	k Quercus palustris		635 9"	Black Cherry	Prunus serotina		CLEN
356 10'	Black Cherry	Prunus serotina	42	6 13°	Black Walnut	Juglans nigra	496 11*	Red Cedar	Juniperus virginiana	1.718 25.74	566 9'	Red Oak	Cuercus palustris		636 13	Red Cedar	Junioerus virginiana		
357 14	Red Oak	Quercus palustris	42	7 9'	Red Cedar	Juniperus virginiana	497 7	Red Cedar	Juniperus virginiana		567 11*	Black Cherry	Prunus serotina	twin	637 11'	Black Cherry	Prunus serotina		ULLIN
358 9"	Red Cedar	Juniperus virginiana	42	8 12	Black Walnut	Jupians nigra	498 7	Sassafras	Sassafras albidum		568 9"	Red Ceda	Autopenus virniniana		638 10"	Red Cedar	luninerus virniniana		
359 6'	Black Cherry	Prunus serotina	42	9 9'	Red Oak	Querrus nalustris	459 8	Black Cherry	Prunus serotina	twin	560 6'	American Elec	Illenus americana	Parin	6.20 8*	Plack Charpy	Drane and the provide the		Strawberry Lake Road > Sanctuary Ridge >
360 9*	Black Cherry	Prunus serotina	43	0 10	Black Walnut	Judans pigra	500 10	Ped Cedar	himinen in vicciniana		570 0	White Oak	Ouerest alba	Linut	640 6	Diack cherry	Pronos serouna		Shadbush Trail.
361 8"	Shaohark Hickory	Carrie ovata	- 42	1 19.91	Bad Coday	funinens vissiniers	201 61	Bed Cedar	Striperus va ginana	1	070 9	Wiste Car	Quercus alba		040 8	Black Cherry	Pronus serouna		Shadbush Trail Terminates at the Entrance t
362 7	Black Cherry	On participal of the second se		2 200	Red Cedar	Jumperus virginiaisa	1001 0	Herd Cedar	Juniperus virginiana		571 12	White Oak	Quercus alba	DWIN	641 /	Black Cherry	Prunus serotina		the Property
1000 101	Amoriana Fire	Picrios servicia		2 10	DISCK Weinot	Jugians nigra	302 0	Sweet Cherry	Prunus avum		5/2 10	American Elm	n Ulmus americana		642 13	Red Cedar	Juniperus virginiana		
303 /	American Elm	Otmus americana	43	3 10	Black Walnut	Juglans nigra	503 9	Black Cherry	Prunus serotina		573 6	Black Cherry	y Prunus serotina	1	643 7	Red Cedar	Juniperus virginiana	12.101.21	
304 /	Red Cedar	Juniperus virginiana	43	4 13	Red Oak	Quercus palustris	504 7	Red Cedar	Juniperus virginiana		574 6"	American Elm	Ulmus americana	1.1.1.1.1.1	644 6"	Red Cedar	Juniperus virginiana		© 2021 A2 Collaborative, LLC
365 10	Black Walnut	Juglans nigra	43	5 20'	Red Oak	Quercus palustris	505 9"	Black Cherry	Prunus serotina		575 11*	American Elm	n Ulmus americana	6.1.1.1.1	645 8	Red Cedar	Juniperus virginiana		Townships in meant for the approval by humburg Townships Planning and Zohing Board, No out of his
355 7	Red Cedar	Juniperus virginiana	43	5 7	Black Cherry	Prunus serotina	506 9"	American Elm	Ulmus americana		576 9	Red Cedar	r Juniperus virginiana	2010/07/07	646 7	Red Cedar	Juniperus virginiana		maxing may be used to reproduced in any form by any
367 7	Red Cedar	Juniperus virginiana	43	7 10	Black Cherry	Prunus serotina	507 9*	Red Cedar	Juniperus virginiana	STREET.	577 8*	Red Cedar	r Juniperus virginiana	101110110	647 7	Red Cedar	Juniperus virginiana		prior permission of A2 Collaborative LLC: Unlaws otherwise
368 7"	Red Oak	Quercus palustris	43	8 8'	Black Cherry	Prunus serotina	508 7	Black Cherry	Prunus serotina		578 7	Red Cedar	r Juniperus virginiana	1.1.1.1	648 7	Black Cherry	Prunus serotina		egreed to in writing, this ducument is the sole (woperty of
369 7*	Red Oak	Quercus palustria	43	9 10"	Black Cherry	Prunus serotina twin	509 7	Red Oak	Quercus palustris		579 8"	Red Cedar	r Juniperus virginiana	111111111	649 10"	Black Cherry	Prunus serotina	triple	The information hereits is confidential and may not be up
370 8"	Black Cherry	Prunus serotina	44	0 6"	Black Walnut	Jugians nigra	510 7	Red Cedar	Juniperus virginiana	1. 1. 1. 1.	580 6"	American Elm	Ulmus americana	1.	650 8*	Red Cedar	Juniperus virginiana		NOV EXAMPLES WITHOUT The WIRStein permission of A2 Collabor
371 16'	Black Walnut	Juglans nigra	44	1 16'	Red Oak	Quercus palustris	511 11'	Red Cedar	Juniperus virginiana		581 1.3*	Ped Oak	Quercus palvetrie		651 10"	Black Cherry	Primus perotical	Twin	and the
372 8'	Black Cherry	Prunus serotina.	44	2 11"	Red Cedar	Juniperus virginiana	512 6	Black Cherry	Propus section	-	582 61	Bed Code	Automatica particularia		AS2 4"	Black Cherry	Dramas contra	.wat	Address mich warm warm
373 6	Red Oak	Querrus nalustris	1 100	3 18	Red Coder	huninen u visciniana	512 0'	Black Charge	Promis services		100 10	Place P	Sumperus reginana	-	002 003	check cherry	Prunus serotina		
374 11'	Red Oak	Overcus palustria		1 12	Red Oak	Ouercus palustics	514 9	Bed Cal	Franus seronna		203 /	Black Cherry	Prunus serotina		003 10	American Elm	Ulmus americana		A STATE AND
375 9	Black Change	Queres parates		12	Red Oak	Quercus partisons	514 0	Red Gedar	Juniperus virginiana		384 6	Salver Maple	Acer saccharinum	twin	054 9.	Red Cedar	Juniperus virginiana		Det Divisi
375 7	Diack coeffy	Prunus serocina	44	10	Black Cherry	Prunus serotina twin	515 13	Red Cedar	Juniperus virginiana		585 11"	Black Cherry	Prunus serotina		655 9'	Red Cedar	Juniperus virginiana		To the second second
3/6 10	Hed Oak	Quercus palustris	44	12'	Red Oak	Querous palustris	516 6	Black Cherry	Prunus serotina		586 11"	Black Cherry	Prunus serotina	1.	656 6'	Black Cherry	Prunus serotina		
377 6	Red Cedar	Juniperus virginiana	44.	7 7	Red Oak	Quercus palustris	517 10"	Black Cherry	Prunus serotina	112301	587 11*	Red Cedar	r Juniperus virginiana	6.1. C. 1.	657 9"	Red Cedar	Juniperus virginiana		(1) 杨云 大规范 法保证
378 7	Red Cedar	Juniperus virginiana	44	3 9,	Black Cherry	Prunus serotina triple	518 7	Black Cherry	Prunus serotina	twin	588 8*	Red Cedar	Juniperus virginiana	1	658 12"	Red Cedar	Juniperus virginiana		Project # 2002
379 7	Black Cherry	Prunus serotina	44	9 11'	Red Cedar	Juniperus virginiana	519 19"	Silver Maple	Acer saccharinum	1000	589 10"	Red Cedar	Juniperus virginiana	100000000	659 8"	Red Cedar	Juniperus virginiana		occu
380 11'	Black Walnut	Juglans nigra	454	7	Shagbark Hickory	Carya ovata	520 10'	Red Cedar	Juniperus virginiana		590 7	American Elm	Ulmus americana		660 7	Red Cedar	Juniperus virginiana		
381 6"	Black Walnut	Juglans nigra	45	7	Shagbark Hickory	Carya ovata	521 7	Black Cherry	Prupus serotina		591 8"	Red Cedar	Juoiperus virginiana		661 8"	Red Cedar	Juniperus virginiana		
382 9*	Red Oak	Quercus palustris	453	2 7	Black Cherry	Prunus serotina	522 14	Black Cherry	Prunus serotina		592 8	Black Cherry	Princip serotion	maile	662 6	Red Cadar	hundrague vicaining	Bacin	
383 7*	Red Cedar	Juniperus virginiana	45	3 11"	Shanbark Hickory	Carva ovata	523 7	Red Cedar	hanner is vitriniana		593 7	Plack Charry	Drunus serotina		662 10*	Red Cedar	Jumperus vergenaria	- week	$\left( \begin{array}{c} 0 \end{array} \right)$
384 8"	Black Cherry	Prunus serotion	45	119	Black Cherry	Provid serolina	524 0"	Black Cherry	Developeration		504 110	Black Cherry	Prends serotine		003 10	Red Cedar	Jumperus virginiaria		1 - 1
385 6'	Red Codar	hunimenus visniniana	454	10	Black Cherry	Pronus seroting	826 10	Back Cherry	Prunus serouna		394 10	Black Cherry	Prunus serotina		004 10	Red Cedar	Juniperus virginiana		and the second second second second second
226 10*	Black Malacet	balance of the		10	Brack Cherry	Picitus serouna	523 8	Hed Cedar	Juniperus virginiana		242 11	Med Cedar	Juniperus virginiana	17.12.38	005 10	Red Cedar	Juniperus virginiana		
007 10	Disck Walnut	Jugiana regra	430	10	Biack Cherry	Prunus serotana	526 13	Black Cherry	Prunus serotina.		596 10	Red Cedar	r Juniperus virginiana		665 T	Red Cedar	Juniperus virginiana.		$1 \leq 1$
367 12	Black Walnut	Jugians nigra	45	6.	American Elm	Ulmus americana	527 13"	Red Oak	Quercus palustris		597 6'	Black Cherry	Prunus serotina	twin	667 11'	Red Cedar	Juniperus virginiana	3 8 6 13	
388 9	American Elm	Ulmus americana	458	17	Red Oak	Quercus palustris	528 9"	Red Oak	Quercus palustris	14124	598 6'	Black Cherry	Prunus serotina		008 3.	Silver Maple	Acer saccharinum		
389 24	Black Walnut	Juglans nigra	455	11'	Black Cherry	Prunus serotina	529 18"	Red Oak	Quercus palustris		599 6	Black Cherry	Prunus serotina		669 14'	Red Cedar	Juniperus virginiana	1.1.1.1.1.1.1	
390 6	Swamp White Oak	Quercus bicolor	460	2 8'	American Elm	Ulmus americana	530 6'	Red Oak	Quercus palustris	1011	600 6"	Black Cherry	Prunus serotina		670 9"	Silver Maple	Acer saccharinum		S
391 6"	Black Walnut	Juglans nigra	461	9.	Black Cherry	Prunus serotina	531 8'	Black Cherry	Prunus serotina	twin	601 6'	Red Cedar	r Juniperus virginiana		671 6	Red Cedar	Juniperus virginiana	10.74 A. C. C. C.	
392 11'	Black Walnut	Juglans nigra	463	11'	Black Cherry	Prunus serotina	532 20°	Red Oak	Quercus palustris		602 9*	Red Cedar	Juniperus virginiana	10000	672 7'	Red Cedar	Juniperus virginiana		
393 10"	Black Walnut	Juglans nigra	463	111	Black Cherry	Prunus serotina	533 7	Black Cherry	Prunus serotina		603 113"	Red Cedar	Juniperus virginiana		673 9"	Red Cedar	Juniperus virginiana		0
394 6"	Black Walnut	Juglans nigra	464	16'	Black Cherry	Prunus serotina	534 11"	Black Cherry	Prunus serotinal	twin	604 13"	Silver Maple	Acer saccharinum		674 10*	Red Cedar	Juniperus virginiana		the
395 6'	Black Walnut	Juglans nigra	465	10'	Silver Maple	Acer saccharinum	\$35 10'	Red Oak	Ouercus palustris		605 11*	Black Cherry	Prancia serotina		675 7	Black Cherry	Provin service		
396 11"	Black Walnut	Juglans nigra	46.4	9'	Black Cherry	Prunus serotina	536 11'	Red Cedar	Junigenus virginiena	-	506 110"	Silver Marcia	Acersarchermen		676 8*	Black Cherry	Protect and services		
397 12	Black Walnut	Juglans nigra	45.7	6"	Red Manle	Acer rubrum	537 8'	American Firm	Limus americana		607 115	Silver Maple	Acer saccharter	Page 1	677 6	Bad Coder	Propostus vis		101
398 6'	Black Walnut	Jugians nigra	407	110	Black Chorne	Provident	539 12	Red Cat	Orientia americana		609 12	Salver Maple	Acer sacchannum	twin	677 6	Red Cedar	Juniperus virginiana		
300 7	American Film	Ularus americana	-	10	Black Chefry	Pronos seronna	230 12	Red Oak	Quercus parustris	1	608 10	Hed Cedar	Juniperus virginiana		0/8 /	Red Cedar	Juniperus virginiana		
400 6	American Cim	United americana	401	10	Black Cherry	Pronus serotina	533 6.	Red Oak	Quercus palustris		609 9.	Red Cedar	Juniperus virginiana		679 6.	Red Cedar	Juniperus virginiana	twin	
401 19	American £1m	Umus americana	470	0	Sweet Cherry	Pronus avuim	540 7	Black Cherry	Prunus serotina		\$10 P	Red Cedar	Juniperus virginiana		680 7	Red Cedar	Juniperus virginiana		0
407 /	Swamp White Oak	Quercus bicolor	471	10	Sweet Cherry	Prunus avuim	541 9'	Black Cherry	Prunus serotina	twin	611 8'	Red Cedar	Juniperus virginiana		681 11'	Red Cedar	Juniperus virginiana		
402 7	Red Oak	Quercus palustris	472	r	Black Cherry	Prunus serotina	542 14	Red Oak	Quercus palustris	100	612 8	Black Cherry	Prunus serotina		682 9*	Red Cedar	Juniperus virginiana		
403 8	Black Walnut	Juglans nigra	473	8	Red Cedar	Juniperus virginiana	543 16'	Red Oak	Quercus palustris	-	613 14	Silver Maple	Acer saccharinum	twin	683 8'	Red Cedar	Juniperus virginiana		
404 6'	Black Walnut	Juglans nigra	474	10'	Sweet Cherry	Prunus avuim	544 13'	Red Oak	Quercus palustris	1000	614 11*	Red Cedar	r Juniperus virginiana		684 9'	Red Cedar	Juniperus virginiana		
405 10"	Black Walnut	Juglans nigra	475	8	Black Cherry	Prunus serotina	545 7	Black Walnut	Juglans nigra	100.00	615 7	American Elm	Ulmus americana		685 19'	Red Cedar	Juniperus virginiana		Revisions
406 9'	Black Walnut	Juglans nigra	476	7	Red Cedar	Juniperus virginiana	546 7	Black Cherry	Prunus serotina		616 11"	Red Oak	Quercus palustris		686 11*	Black Cherry	Prunus serotina		and other particular to the second second
407 7*	Black Walnut	Juglans nigra	477	7	Black Cherry	Prunus serotina	547 15'	Black Walnut	Juplana pinna		617 2	Red Cadar	kinjoenia viminiana		6.87 6	Red Cedar	luninenan visionina		
408 6"	Black Walnut	Jugians nigra	476	6"	Black Cherry	Prunus serotina	548 7	Red Cedar	luninen a vinciniana	-	618 112	Red Cedar	huninenus virginiaria		699 30'	Red Cedar	Sumperus reginaria		
409 6"	American Film	Ulmus americana	420	11	Silver Manie	Acer saccharioum	549 112	Red Oak	Ouerous paluente		610 12	Ded Cedar	homperus virginiana		480 01	Red Cedar	Somperus veginiana		The second se
410 6'	Red Certar	Juniperus visoiniana	1 400	18	Black Charge	Draw service	660 11	Minite Call	Quercus parustris		630	Red Cedar	Juniperus virginiana		100 111	Ked Cedar	Juniperus virginiana		
411 14	Black Walnut	bulara olara	400	10	Black Cherry	Frumus serotina twin	530 11	White Oak	Quercus alba		620 6	Black Cherry	Prunus serotina		0.90 11.	Red Cedar	Juniperus virginiana		and the second se
410 4	mack wainut	Jugans nigra	481	1	Black Cherry	Prunus serotina twin	221 8.	Black Walnut	Juglans nigra		621 6'	Black Cherry	Prunus serotina		691 15"	Red Cedar	Juniperus virginiana		
412 0	Keo Cedar	Juniperus virginiana	482	10	Red Cedar	Juniperus virginiana	552 9"	White Oak	Quercus alba		622 8"	Black Cherry	Prunus serotina		692 7	Red Cedar	Juniperus virginiana		
413 6	American Elm	Ulmus americana	483	10	Black Cherry	Prunus serotina	553 11'	Black Walnut	Juglans nigra		623 9	Black Cherry	Prunus serotina		693 8.	Red Cedar	Juniperus virginiana		
414 16	Black Cherry	Prunus serotina	484	7	Black Cherry	Prunus serotina	554 9'	Black Walnut	Juglaris nigra		624 7	American Elm	Ulmus americana		694 11"	American Elm	Ulmus americana		
415 6'	Red Cedar	Juniperus virginiana	485	8	Black Cherry	Prunus serotina	555 7	American Elm	Ulmus americana		625 10"	Red Cedar	Juniperus virginiana	1911	695 9'	Black Cherry	Prunus serotina	144403141	
416 7	American Elm	Ulmus americana	486	6"	Black Cherry	Prunus serotina	556 9"	Black Walnut	Juglans nigra	100	626 7	Red Cedar	Juniperus virginiana		696 6"	Red Cedar	Juniperus virginiana		
417 8'	Silver Maple	Acer saccharinum	487	8'	Silver Maple	Acer saccharinum	557 6"	Black Walnut	Juglans niera	10.00	627 9"	Red Cedar	Juniperus viroiniana		697 6	Black Cherry	Prunus serotina		
418 9'	Red Cedar	Juniperus virginiana	486	10"	Shagbark Hickory	Carya ovata	558 7*	American Elm	Ulmus americana	-	628 111	Black Cherry	Prunus serotina		698 8'	Red Cedar	Juninerus virginiana		Notes
419 7*	Red Cedar	Juniperus virginiana	489	10	Black Cherry	Prunus serotina	559 8	American Elm	Ulmus americana		629 10"	Red Cedar	Junicerus virciniana		699 111	Red Cedar	huninens virginiana		
420 7*	American Elm	Ulmus americana	490	14"	Black Cherry	Prunus serotina	540 7	Black Walnut	hudana nigra	-	630 10*	Red Cedar	huninenus virginiana		200 63	Plank Chaun	Demos Virginiaria		
the second se		and a second second	1 1 2 20	1.4	under cherry	CINING SHIVING		BIACK WORDLE	Jugana higra	1000	200 10.	Hed Cedar	Juniperus virginiana		100 0	Black Cherry	Prunus serotina	1. Contraction (1. Contraction)	

Tree List

Drawn by: TS

ES2.2

10.06.202 Page 1

Existing to Remain Existing to be Removed

Copyright 2021 A2 Collaborative, LLC, © 2021 A2 Collaborative, LLC

701 7	Red Cedar	Juniperus virginiana		771	17	Black Cherry	Prunus serotina		841	11'	Red Cedar	Juniperus virginiana		911	113*	Silver Maple	Acer sarcharitum	_	Det T	4°		_	
702 7	Red Cedar	Juniperus virginiana		772	7.	Red Cedar	Juniperus virginiana		842	7"	Black Cherry	Prunus serotina	twin	912	5	Black Cherry	Primie serotion		002 0	Red Red	edar Juniperus virginiar	na	
703 7	Red Cedar	Juniperus virginiana		773	8.	Black Cherry	Prunus serotina		843	10'	Black Cherry	Prupus seroting	twin	913	6	Silver Manle	Acer succhasing		043	Ned Ned	edar Juniperus virginiar	na	
704 10'	Red Cedar	Juniperus virginiana		774	6	Black Cherry	Prunus serotina		844	01	Black Cherry	Protest setation		014	14	Black Chart	Acti succiamitan		903	Bibck	Prunus serotir	na nein	
705 8	Red Cedar	Juniperus virginiana		775	18'	Red Oak	Querrus natustria		845	111'	Black Cherry	Proper encoting	-	916	110	Disck Chierry	Prunus serotina		984	Z' Red	edar Juniperus virginiar	na	
706 7	Red Cedar	Junicerus virginiana		776	13'	Red Cedar	luginaria virniniana		846	11	Black Chemy	Pronos serotion	Red O	014	0.	Diatik Walnut	Jugitens nigra		985	0' Black (	Prunus serotir	na	
707 8	Black Cherry	Propus serotion	-	777	10.4	Pad Cadar	hanger of regeneration		047	1.01	Dieck Charry	Pronesserving	territ	910	17	Silver Maple	e Acer saccharinum		986 9	Silver I	laple Acer saccharinu	beup m	
709 5'	Red Coder	huning our windows	-	779	0	Red Cedar	Joinperus virginiaria		04/	12	Diack Gnerry	Prunus serotina	-	917	10	Red Oak	k Quercus palustris	012255	987 8	America	Elm Ulmus americar	18	
200 6	Disch Charge	Jumperus enginearia	-	110	0	Red Cedar	Juniperus virginiana		848	0	Black Cherry	Prunus serotina	1	918	14.	Red Oak	Quercus palustris		988 1	6' Black (	Prunus serotir	na	
709 6	Black Cherry	Prunus serotina	-	779	/	Red Gedar	Juniperus virginiana		849	11.	Black Cherry	Prunus serotina		919	8	Silver Maple	e Acer saccharinum	twin	989 1	4" Black (	Prunus serotir	na	
710 10	Black Cherry	Prunus serotina		780	8.	Red Cedar	Juniperus virginiana		850	10'	Black Cherry	Prunus serotina		920	11.	Silver Maple	e Acer saccharinum	1.1.1	990 1	2' Black (	Prunus serotie	na	AALIDIE
712 10	Black Cherry	Prunus serotina		781	10*	Black Cherry	Prunus serotina	twin	851	13'	Black Cherry	Prunus serotina		921	14"	Pignut Hickory	Carya glabra	10200	991 1	2" Black (	Prunus serotin	na	MIPLE
711 9	Black Cherry	Prunus serotina		782	3.	Black Cherry	Prunus serotina		852	13'	Black Cherry	Prunus serotina	1	922	21'	Pignut Hickory	Carya glabra		992 1	1" Red	edar Juniperus virginian	18	MORIL
713 11	Red Cedar	Juniperus virginiana		783	11'	Shagbark Hickory	Carya ovata		853	6'	Shagbark Hickory	Carya ovata		923	6	Shagbark Hickory	Carva ovata		993 0	Red	adar hininaria hininari		An other than the second se
714 11'	Black Cherry	Prunus serotina		784	12'	Black Cherry	Prunus serotina	1	854	7*	Black Cherry	Prunus serotina		924	10*	Red Oak	Guercus palustris		904 8	Black	Distance and the second		CIENI
715 11'	Red Cedar	Juniperus virginiana		785	7	Black Cherry	Prunus serotina		855	8'	Red Cedar	Juniperus virginiana		925	15	Shagbark Hickory	Carva ovata		995 1	0 <sup>4</sup> Black (	Prunds service	38	
716 11'	Red Cedar	Juniperus virginiana		785	10*	Red Cedar	Juniperus virginians		856	12"	Black Cherry	Prunus serotina		926	11*	Pipput Hickory	Capra clabra		006 7	Diack C	Prunus seroon	18	<b>ULLIN</b>
717 7	Red Cedar	Juniperus virginiana		787	10'	Black Cherry	Prunus serotina	(C. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	857	7*	Black Cherry	Pruoua serotina		927	7	Black Walnut	tuniana ninca		202 1	Diack	Prunus serotin	28	
718 8"	Black Cherry	Prunus serotina		788	15	Black Cherry	Prunus serotina		858	8'	Black Cherry	Prucus serotina	Iwio	928	6*	Sassafras	Sacadras albid as	-	29/ 1	S Red	edar Juniperus virginian	18	Statusham I also Band - Prove of the
719 8*	Red Cedar	Juniperus virginiana		789	7.	American Eim	Ulmus americana		859	8'	Shaobark Hickory	Carva ovata		929	T	Silver Mania	Acer encoheringen		338 1	Black C	erry Prunus serotin	ta twin	Sharbush Trail
720 10'	Red Cedar	Junicerus virginiana		790	8"	Red Codar	huminerus virciniana		260	0'	Black Charge	Prunus secotion		920	100	Correct Integrity	Acer saccharmorn		333 11	Red	idar Juniperus virginian	18	Shadbush Troil Terminates at the Entrance to
721 7	Red Cedar	Juniperus virginiana	-	791	10'	Black Cherry	Printe service	hear	861	11'	Black Cherry	Dourse serving		0.21	10	American Eim	Ulmus americana		1000 8	Silver M	aple Acer saccharinur	m	the Property
722 9*	Black Cherry	Prunus serotina		792	17	Red Oak	Operating polyastic	(eess	967	a* 1	Pad Cadar	Francis servicina		201	0	Hop-Hombeam	Ostrya virginia		1001 2	0" Black C	erry Prunus serotin	na	Address
723 10'	Black Cherry	Propus service		703	10'	Black Charge	Provide partition		963	0	Black Cheme	Jumperus virginiana	-	932	19	Pignut Hickory	Carya glabra		1002 8	Red (	idar Juniperus virginian	18	
724 23	· White Pine	Direct strates		704	7*	Black Charge	Promos perotina.		003	7	Black Cherry	Prunus serotina	-	933	15	Pignut Hickory	Carya glabra	1.1	1003 9	Black C	erry Prunus serotin	18	
724 23	Bad Cadas	Pinde structus	-	794	1	Brack Cherry	Prunus serotina		864	8	Black Cherry	Prunus serotina		934	19.	Red Dak	Quercus palustris	2.50	1004 1	1* Black C	erry Prunus serotin	18	12 I LAND
725 101	Direct Chose	Juniperus virginiaria	-	795	/	Shagbark Hickory	Carya ovata		805	1	Black Cherry	Prunus serotina		935	20*	Shagbark Hickory	Carya ovata		1005 1	D' Black C	erry Prunus serotin	ula l	<b>岩湾北东</b> 20
720 10	Black Cherry	Prunus serotina	twin	796	8	Black Cherry	Prunus serotina		866	7	Shagbark Hickory	Carya ovata	1.	936	16	Shagbark Hickory	Carya ovata	12.4	1006 1	1° Silver M	aple Acer saccharinum	n	10 1 0 3 0 C 6
727 13	Red Cedar	Juniperus virginiana		797	8.	Black Cherry	Prunus serotina		867	10"	Black Cherry	Prunus serotina		937	12*	Pignut Hickory	Carya glabra		1007 1	1" Black Č	erry Prunus serotio	a bein	
128 9	Black Cherry	Prunus serotina		798	8'	Black Cherry	Prunus serotina		868	8'	Shagbark Hickory	Carya ovata		938	6"	Shagbark Hickory	Carya ovata		1008 8	Black C	erry Prunus serotin	10	Deliver and the second s
729 7	American Elm	Uimus americana		799	r	Black Cherry	Prunus serotina.		869	7'	Black Cherry	Prunus serotina		939	14'	White Oak	Quercus alba	1.1.1	1009 1	7ª America	Fim Himus american		Project # 00001
730 9'	American Elm	Ulmus americana		800	8,	Black Cherry	Prunus serotina		870	7*	Black Cherry	Prunus serotina		940	18"	White Oak	Ouercus alba		1010 1	7° Black C	arry Dramas section	-	
731 10*	Red Cedar	Juniperus virginiana		801	7	Black Cherry	Prunus serotina	Sec. 1	871	11'	Black Cherry	Prunus serotina		941	6'	Red Oak	Quercus palustris		1011 8	Black C	Promos servins		
732 9'	Red Cedar	Juniperus virginiana		802	7.	Red Cedar	Juniperus virginiana		872	10*	American Elm	Ulmus americana		942	11'	Pignut Hickory	Carva elabra		1012 1	Piece Charachert	Pronds seroon.	a	/ Z \
733 11'	Red Cedar	Juniperus virginiana		803	T	Shagbark Hickory	Carya ovata	10000	873	8'	Black Cherry	Prunus serotina		943	8	Silver Maple	Acer saccharinum		1012 7	Shagbark Hit	Carya ovati	8	$\langle 0 \rangle$
734 6	Red Cedar	Juniperus virginiana		804	11	Black Cherry	Prunus serotina		874	13'	Black Cherry	Prucus secotioa		0.4.4	111	Rad Dak	Overse secondreidin		1013 /	Shagbark Hi	Carya ovati	a	$/ \simeq $
735 7	Red Cedar	Juniperus virginiana		805	10*	Black Cherry	Prunus serotina	twin	875	13'	Black Cherry	Process sectorios	-	945	T	Red Oak	Quercus palusurs		1014 8	Black C	erry Prunus serotini	a	the second s
736 9'	Black Cherry	Prunus serotina		806	9.	Black Cherry	Prove service	tunin	976	0*	Black Cherry	Provide services	-	046	1	Ned Oak	Quercus palustris		1015 1	Black C	erry Prunus serotina	a twin	1 1 1
737 12	Black Cherry	Prunus serotina		807	81	Black Cherry	Provid secolina	hadin	070	10'	Bad Cadas	Pronos serocita	-	940	1	Black Cherry	Prunus serotina		1016 14	Black C	erry Prunus serotini	8	
738 9*	Black Cherry	Propus servina	twin	802	2.	Black Charry	Promus perotina	(Main)	070	10	Cilium Mania	Juniperus virginiaria	-	94/	8	Ned Uak	Quercus palustris		1017 1	* Black C	erry Prunus serotini	a	
730 111	American Elen	Pronos servicia	IWID	000	1	Black Cherry	Pronus serotina		8/8	13	Silver Maple	Acer saccharinum	-	948	12	Red Oak	Quercus palustris	1000	1018 1	" Silver M	ple Acer saccharinun	n	
740 192	American Cim	United americana		809	/	Snagoark Pickory	Carya ovata	1.1.2.	879	10	Black Cherry	Prunus serotina		949	10.	Red Oak	Quercus palustris	15.13	1019 10	" Black Ci	erry Prunus serotina	a	
740 12	American Em	vimus americana		810	/	Black Cherry	Prunus serotina		880	8	Silver Maple	Acer saccharinum		950	12'	Silver Maple	Acer saccharinum	10.00	1020 10	" Black Cl	erry Prunus seroting	8	<sup>O</sup>
741 /	Ked Gedar	Juniperus virginiana		811	8	Shagbark Hickory	Carya ovata	6	881	11.	Black Cherry	Prunus serotina		951	10'	Red Oak	Quercus palustris		1022 12	Black Cl	erry Prunus serotina	a	7
742 14	American Eim	Urnus americana		812	8	Black Cherry	Prunus serotina	twin	882	ð.	Black Cherry	Prunus serotina		952	10*	Red Oak	Quercus palustris		1021 6	American	Em Uimus americana		
743 11'	Black Cherry	Prunus serotina	twin	813	10*	Red Cedar	Juniperus virginiana	Section 1	883	6'	Black Cherry	Prunus serotina	1.1.1.1	953	10'	Red Oak	Quercus palustris		1023 7	Black Cl	erry Prunus seroting	2	O
744 10'	Black Cherry	Prunus serotina		814	6.	Shagbark Hickory	Carya ovata		884	15'	Silver Maple	Acer saccharinum		954	11'	Silver Maple	Acer saccharinum	twin.	1024 11	* Black Cl	Prutius serotion		L)
745 12	Red Cedar	Juniperus virginiana		815	9.	Black Cherry	Prunus serotina	twin	885	8"	Silver Maple	Acer saccharinum		955	13*	Silver Maple	Acer saccharinum		1025 13	Silver M	nle Acer sacchatiour		
746 8"	Black Cherry	Prunus serotina		816	8,	Shagbark Hickory	Carya ovata		886	13'	Silver Maple	Acer saccharinum		956	13'	Silver Maple	Acer saccharinum		1026 9	Black Ci	Printing percenting	n famile	
747 15	Silver Maple	Acer saccharinum		817	7.	Black Cherry	Prunus serotina		887	8'	Black Cherry	Prunus serotina		957	8	Black Cherry	Prunus serptina	twin	1027 113	Black C	Promus services	Cowin.	101
748 8"	Red Cedar	Juniperus virginiana		818	6.	Black Cherry	Prunus serotina	1000	888	7'	Black Cherry	Prunus serotina		958	11'	Black Cherry	Prunus serotina		1028 7	Black Ci	Francis servicia	9	
749 9*	Black Cherry	Prunus serotina	triple	819	9.	Shagbark Hickory	Carya ovata		889	8'	Black Cherry	Prunus serotina		959	16'	Black Cherry	Primus service	-	1026 112	Black Cr	Promus serotina		
750 10"	Black Cherry	Prunus serotina.	twin	820	9.	Black Cherry	Prunus serotina		890	13"	Black Cherry	Prunus serotina		960	15'	Silver Manle	Anat sanchari		1020 12	Silver M	Acer saccharinum	n	E E
751 13'	Black Cherry	Prunus serotina		821	8'	Black Cherry	Prunus serotina	-	891	12'	Black Cherry	Prunus serotina		961	8'	Black Cherry	Point section		1031 13	Black Ci	Prunus serotina	9	0
752 9'	Red Cedar	Juniperus virginiana		822	11'	Black Cherry	Prunus serotina	-	892	18'	Rinck Walnut	husiana olora	-	962	19'	Plack Cherry	Promus serotana		1031 6	Silver M	pse Acer saccharinum	n	
753 9	Black Cherry	Prupus serotion		823	10*	Red Cedar	Junipenus virginiana		893	6'	Red Oak	Or accus palasta		063	0.	Black Cherry	Prunus serotina	-	1032 8	Black Ch	rry Prunus serotina	1	
754 11'	Red Certar	Juniperus virniniana		824	11'	Black Charm	Provis section	hair	89.4	7*	Silver Mania	Acer sace	-	04.4	111	Black Cherry	Prunus serotina	twin	1033 11	Silver M	ple Acer saccharinum	2	
755 9	Red Certar	Junicente virginiene		825	13	American Film	Illmus americana	Interio	205	0*	Silver Maple	Acer seconarinum		045	10	Black Cherry	Prunus serotina		1034 9	Silver M	ple Acer saccharinum	1	
756 112	Black Chem	Propus continue	Page 1	826	12*	Black Cha	Decision entericaria		073	01	onver maple	Non saccha/mum		100	10	Black Cherry	Prunus serotina	twin	1035 13	Black Ch	rry Prunus serotina		Revisions
767 111	Black Cherry	Prunus serotina	CANIN	820	13	Black Cherry	Prunus serotina		890	9	Silver Maple	Acer saccharinum		966	14	Black Cherry	Prunus serotina		1036 10	Silver M	ple Acer saccharinum	1	
760 111	Dieux unelly	Prunus serotina	-	827	0	Black Chefry	Pronus serotina		897	0	Red Oak	Quercus palustris		967	8	Black Cherry	Prunus serotina		1037 10	Black Ch	rry Prunus serotina	twin	and the second
740 14	American Elm	Umus americana		828	10	Black Cherry	Prunus serotina		898	A.	Shagbark Hickory	Carya ovata		968	12'	Black Cherry	Prunus serotina		1038 13	Black Ch	rry Prunus serotina		The second s
707 0	Black unerry	Prunus serotina		829	1	Red Cedar	Juniperus virginiana		899	15	Black Cherry	Prunus serotina		969	11.	Black Cherry	Prunus serotina.		1039 9"	Silver M	ple Acer saccharinum		
760 7	Red Cedar	Juniperus virginiana		830	11.	Black Cherry	Prunus serotina	twin	900	6'	Red Oak	Quercus palustris		970	12'	Black Cherry	Prunus serotina		1040 11	Black Ch	rry Prunus serotina		AND ANY CLOSED AND A DURING A
761 7	Silver Maple	Acer saccharinum		831	12	Red Cedar	Juniperus virginiana		901	16'	Shagbark Hickory	Carya ovata		971	9	Black Cherry	Prunus serotina		1041 8'	Silver M	ple Acer saccharing		The second s
762 14	Black Cherry	Prunus serotina		832	23	Black Cherry	Prunus serotina		902	18'	White Oak	Quercus alba		972	13'	Black Cherry	Prunus serotina		1042 6'	Bad	lak Quercus polyatria		
763 8'	Red Cedar	Juniperus virginiana		833	10'	Black Cherry	Prunus serotina		903	6'	Silver Maple	Acer saccharinum		973	11'	Red Cedar	Juniperus virginiana		1043 6	Black Ck	Promos Provins		The later of the l
764 10*	Red Cedar	Juniperus virginiana		834	7	American Elm	Ulmus americana		904	6'	Silver Maple	Acer saccharinum		974	9'	Red Cedar	Juniperus virginiana		1044 15	Shar Li	nia Acer sacch		
765 10'	Red Cedar	Juniperus virginiana		835	12'	Black Cherry	Prunus serotina	twin	905	6'	Silver Maple	Acer saccharinum		975	11'	American Elm	Ulmus americana		1045 10	Ded C	fact humanum		The second se
766 13	Black Cherry	Prunus serotina		836	12'	Red Oak	Quercus pelustris		906	6"	Silver Maple	Acer saccharinum		976	11*	Black Cherry	Prunus services	Incia	1046 111	Red Ci	Juniperus virginiana		the second se
767 11'	Red Cedar	Juniperus virginiana		837	9"	American Elm	Ulmus americana		907	17*	Shagbark Hickory	Carya ovata		977	14'	American Elm	Limus americana	100.01	047 11	Hed Ci	Juniperus virginiana		
768 11'	Red Cedar	Juniperus virginiana		838	15	Black Cherry	Prunus serotina		908	19'	Planut Hickory	Carya glabra		978	10*	Black Cherry	Prunus sere	-	047 0	Black Ch	Prunus serotina		The second se
769 11	Red Cedar	Juniperus virginiana	120072	839	10*	American Elm	Ulmus americana	1	909	14"	Pignut Hickney	Carve olahra	-	979	6	American Film	Limus serouna		040 0	Black Ch	rry Prunus serotina		TRAES
770 7	American Elm	Ulmus americana		840	14'	Black Cherry	Prunus serotina		910	8'	Silver Marsle	Acer sacchadown		980	14'	Black Cherry	Onus americana	-	049 6	Red Co	Juniperus virginiana		
			and the state	_			t tantas ser during			-	aures relative	Pacer and containing the		200		biock cherry	Prunus serotina	CMIN .	1050 10	Black Ch	rry Prunus serotina		

Existing to Remain Existing to be Removed

> Tree List ES2.3 Drawn by TS

Project Nort

1																						
1051 8	Red Cedar	Juniperus virginiana		1121	8	Red Cedar	Juniperus virginiana		1191 8	Black Cherry	Prunus serotina		1261	6'	Red Cedar	Juniperus virginiana	-	331 7	Red Cedar	Juniperus virginian	a twin	AALIDIE
1052 6	Black Cherry	Prunus serotina		1122	T	Black Cherry	Prunus serotina		1192 10	Red Cedar	Juniperus virginiana		1262	r	Red Cedar	Juniperus virginiana	1	332 10*	Black Cherry	Prunus serotin	a twin	
1053 8	Black Cherry	Prunus serotina		1123	9.	Silver Maple	Acer saccharinum		1193 11	Red Cedar	Juniperus virginiana		1263	8"	Red Cedar	Juniperus virginiana	1	333 12"	Black Cherry	Prunus serotina	3	MORIL
1054 10	Red Cedar	Juniperus virginiana		1124	8.	Silver Maple	Acer saccharinum		1194 7	Red Cedar	Juniperus virginiana		1264	7"	Red Cedar	Juniperus virginiana	1	334 8'	Black Cherry	Prunus serotina	a	
1055 8	Red Cedar	Juniperus virginiana		1125	8	Black Cherry	Prunus serotina	1.4.1.1.1	1195 10	Red Cedar	Juniperus virginiana		1265	r	Red Cedar	Juniperus virginiana	1	335 11'	Red Cedar	Juniperus virginiani	a	
1056 9	Silver Maple	Acer seccharinum		1126	<i>r</i>	Red Cedar	Juniperus virginiana	twin	1196 6	Red Cedar	Juniperus virginiana	1.000	1266	7	Black Cherry	Prunus serotina	1	336 8'	Black Cherry	Prunus serotini		
1057 11	Black Cherry	Prunus serotina		1127	9'	Black Cherry	Prunus serotina		1197 6	Red Cedar	Juniperus virginiana		1267	8,	Red Cedar	Juniperus virginiana	1	337 11'	Red Cedar	Juniperus virginiani	8	VELI
1058 11'	Red Cedar	Juniperus virginiana	1.2.1.1	1128	9.	Black Cherry	Prunus serotina	1.4.1.2.1	1198 7	Red Cedar	Juniperus virginiana		1268	10"	Red Cedar	Juniperus virginiana	1	338 9'	Black Cherry	Prunus serotina	a	Construction of the Grands Property Party
1059 7	Red Cedar	Juniperus virginiana	1.51	1129	8'	Black Cherry	Prunus serotina	twin	1199 10	Black Cherry	Prunus serotina	1571.67	1269	8,	Black Cherry	Prunus serotina		339 9.	Red Cedar	Juniperus virginiana	a	Shadbush Trail
1060 7"	Black Cherry	Prunus serotina		1130	18"	Black Cherry	Prunus serotina		1200 18	Red Cedar	Juniperus virginiana		1270	9,	Black Cherry	Prunus serotina	1	340 9'	Red Cedar	Juniperus virginiani	a	Shadbush Trail Terminates at the Entrance to
1063 7	American Elm	Ulmus americana		1131	3,	Silver Maple	Acer saccharinum		1201 6"	Red Cedar	Juniperus virginiana		1271	<b>9</b> ,	Red Cedar	Juniperus virginiana		341 7	Red Cedar	Juniperus virginiana	a	the Property.
1061 8'	Red Cedar	Juniperus virginiana.		1132	11'	Black Cheery	Prunus serotina	All failure	1202 6"	Red Cedar	Juniperus virginiana		1272	6'	Red Cedar	Juniperus virginiana	1	342 7	Red Cedar	Juniperus virginiani	8	
1062 11'	Red Cedar	Juniperus virginiana		1133	8	Black Cherry	Prunus serotina	10000	1203 12	Red Cedar	Juniperus virginiana		1273	8,	Red Cedar	Juniperus virginiana		343 6	Black Cherry	Prunus serotina	3	
1064 12"	Black Cherry	Prunus serotina	1.1.1	1134	8'	American Elm	Ulmus americana	1.00	1204 7	Red Cedar	Juniperus virginiana		1274	ð.	Red Cedar	Juniperus virginiana	1	344 6	Shagbark Hickory	Carya ovati	a	© 2021 A2 Collaborative, LLC
1065 8"	Black Cherry	Prunus serotina		1135	7	Black Cherry	Prunus serotina	twin	1205 6*	Black Cherry	Prunus serotina		1275	8.	Red Cedar	Juniperus virginiana	1	345 6'	Red Cedar	Juniperus virginiana	8	This drawing is means for the approval by Hamburg Township's Planning and Zooing Board, No mart of this
1066 8'	Black Cherry	Prunus serotina.		1136	11'	Black Cherry	Prunus serotina	twin	1206 7	Red Cedar	Juniperus virginiana		1276	T	Black Cherry	Prunus serotina	1	346 7	Red Cedar	Juniperus virginiani	8	chaving may be used to reproduced in any form by any
1067 10'	Black Cherry	Prunus serotina		1137	10'	Black Cherry	Prunus serotina	twin	1207 8	Red Cedar	Juniperus virginiana	C 1 1 1 1	1277	6"	Red Cedar	Juniperus virginiana		347 6	Red Cedar	Juniperus virginians	a	prior permission of A2 Collaborative, LLC. Unieve otherwise
1068 9'	Red Cedar	Juniperus virginiana		1138	10'	Black Cherry	Prunus serotina	1000	1208 8*	Red Cedar	Juniperus virginiana	1000	1278	10'	Red Cedar	Juniperus virginiana		348 6'	Silver Maple	Acer saccharinum	n	agreed to in writing, this document is the scie property of
1069 10*	Red Cedar	Juniperus virginiana	1.00	1139	8"	Black Cherry	Prunus serotina		1209 8"	Red Cedar	Juniperus virginiana	11-2-17	1279	9.	Red Cedar	Juniperus virginiana		349 8"	Black Cherry	Prunus serotina		The information between is confidential and may not be una
1070 8*	Red Cedar	Juniperus virginiana		1140	10'	Black Cherry	Prunus serotina	twin	1210 7	Black Cherry	Prunus serotina		1280	8*	Red Cedar	Juniperus virginiana	- 1	350 9*	Red Cedar	Juniperus virginiana		<ul> <li>not divulged without the written permission of AC Collaborative.LLC.</li> </ul>
1071 9*	Red Cedar	Juniperus virginiana		1141	11'	Black Cherry	Prunus serotina	triple	1211 6*	Red Cedar	Juniperus virginiana		1281	7	Red Cedar	Juniperus virginiana	- 1	351 7	Red Cedar	Juniperus virginiana		
1072 13'	Silver Maple	Acer saccharinum		1142	7	Red Cedar	Juniperus virginiana		1212 6*	Red Cedar	Juniperus virginiana		1282	9'	Red Cedar	Juniperus virginiana	- 1	352 8	Red Cedar	Juniperus virginiani		Address (FIRE G 2005-WIRE)
1073 11"	Black Cherry	Prunus serotina		1143	7'	Red Cedar	Juniperus virginiana	twin	1213 10	Black Walnut	Jugtans niera		1283	11'	American Fim	Ulmus americana		353 0	Black Cherry	Prunus serotio		
1074 8'	Silver Maple	Acer saccharinum		1144	7*	White Ash	Fraxinus americana		1214 6	Red Cedar	Juniperus virginiana		1284	7	Red Cedar	hipiperus virciniana		354 9"	Red Cedar	humenus vintisiana		A CANADA
1075 111	Silver Maple	Acer saccharinum		1145	9'	Red Cedar	Junicerus viroiniaca		1215 8	Red Cedar	Juninerus vitriiniana		1285	111	Red Cedar	horington virginiana	- 1	355 111"	Black Cherry	Propus sproting	-	になっていた。
1076 9*	Red Cedar	Juniperus virginiana		1146	8'	Red Cedar	Juninerus virniniana		1216 10	Red Cedar	Junicen a viminiana	-	1286	8*	Red Cedar	huningen is kiminiana	- 6	366 7	Black Cherry	Prove seroting	-	1 2 A 4 4 4 6
1077 2*	Red Cedar	Juninenia viminiana	-	1147	12'	Red Oak	Ouercus naluetria		1217 7	Red Cadar	Lunicerus virniciana		1207	10"	Red Cedar	balloon a viceiniaea	- 16	357 0	Red Cedar	Francis services	-	<b>同能</b> 深於果
1078 2*	RedCedar	Juninente virginiana		1148	10'	Red Cedar	hunicanus visciniacas		1218 6*	Ped Cedar	Laloopus viroloiana		1207	01	Plack Chemer	Do more exerctions	- 6	337 7	Church Marcha	Juniperus virginazia		
1079 9'	Red Cedar	Juninerus virolniana	-	1149	10	Red Cedar	Juninarus virginiana	-	1210 6	Ped Cedar	Juniperus virginiana		1200	10'	Bad Cedar	Francis serotina	- 16	350 9	Cilver Maple	Acer saccharinum		Project # 0000
1080 2*	Red Cedar	hininerus virainiana	-	1150	6	Red Cedar	huninger ut virginiana		1220 9*	Red Cadar	balloto a vitaliolaria		1200	2*	Plack Chame	Downer conting	- 1	340 03	Silver maple	Construction	-	
1081 6"	Black Cherry	Printe service		1151	7*	Black Cherry	Druger secolies	Church	1221 7	Ded Ceder	Somperus myritana		1290	02	Bed Caday	Fronds Serotaria	- 1	360 9	Black Charry	Sassanas alcideri	-	
1092 9	Black Cherry	Propue carotion	-	1152	0 <sup>1</sup>	Block Charry	Drivers serving	tuin	1220 6	Ded Cades	Juniperus virginiaria		1291	0	Red Cedar	Jumperus virginiana	- 6	361 6	Black Cherry	Pronos serotina		141
1092 0'	Short Maria	Area abasharica an		1152	0 4'	Black Cherry	Pronos servicina	Contra	1222 0	Red Cedar	Jumperos virginiaria		1292	0	Herd Cedar	Juniperus Virginiana	_	302 /	Black Cherry	Pronus seroura	a tripie	
1084 8	Black Charter	Provide Section	-	1155		Black Cherry	Pronos seroliss		1223 12	Red Cedar	Juniperus virginiana		1293	0	Silver Maple	Acer saccharinum	- 1	363 10	Hed Cedar	Juniperus virginiani	-	
1085 7	Sibor Manla	Arer renchariourn	-	1155	11'	Bad Cadas			1229 11	Pred Cedar	Juniperus vegenaria		1294	1.01	Black Cherry	Francis serotina	- 6	364 11	Red Cedar	Jumperos virginiaria	-	A PACK RECENTED AND A PACK RECENT
1086 111	Silver Maple	Acer saccharinum	-	1155	11	Red Cedar	Juniperus virginiana		1225 10	Red Cedar	Juniperus virginiana		1295	13	Red Ceda/	Juniperus virginiana	- 1	365 17	Red Oak	Quercus palustra		
1087 110	Direct Charge	Ader seccharhum		1150	1 10	Red Cedar	Juniperus virginiana		1226 10	Red Cedar	Juniperus virginiana		1296	10.	Red Cedar	Juniperus virginiana	- 1	365 12	Black Cherry	Prunus serotine	a twin	
1087 10	Black Cherry	Prunus serouna	-	1157	13	Red Cedar	Juniperus vegeniana		1227 8	Red Cedar	Juniperus virginiana		1297	/	Hed Cedar	Juniperus virginiana	_	367 8	Silver Maple	Acer saccharinum	1	
1000 110	Black Cherry	Pronus serouna		1156	9	Black Cherry	Prunos serotina		1228 0	Black Cherry	Prunus serotina		1298	8.	Black Cherry	Prunus serotina	_	368 7	Red Cedar	Juniperus virginiana		
1089 12	Black Cherry	Prunus serotina	DWIN	1159	A.	Red Cedar	Juniperus virginiana		1229 7	Silver Maple	Acer saccharinum	twin	1299	11.	Red Oak	Quercus palustris		369 11	Red Cedar	Juniperus virginiana	•	
1090 9	Ked Cedar	Juniperus virginiana	_	1160	11	Black Cherry	Prunus serotina	1.2.2.2	1230 6	Red Cedar	Juniperus virginiana	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	1300	5	American Elm	Ulmus americana		370 11'	Black Cherry	Prunus serotina	2	<u>u</u>
1091 11	Black Cherry	Prunus serotina	_	1161	8	Red Cedar	Juniperus virginiana		1231 8	Red Cedar	Juniperus virginiana		1301	9.	Red Ceda/	Juniperus virginiana	- 1	371 10'	Black Cherry	Prunus serotina	•	$\boldsymbol{\mathcal{L}}$
1092 8	Black Cherry	Prunus serotina t	triple	1162	13'	Red Cedar	Juniperus virginiana	10.00	1232 7	Red Cedar	Juniperus virginiana	1.5	1302	9'	Red Cedar	Juniperus virginiana	1	372 13'	Black Cherry	Prunus serotina	•	0
1093 8	Silver Maple	Acer saccharinum	twin	1163	5.	Red Cedar	Juniperus virginiana	-	1233 9	Red Cedar	Juniperus virginiana	in the	1303	13'	Red Cedar	Juniperus virginiana		373 11'	Red Cedar	Juniperus virginiana	•	
1094 12'	Black Cherry	Prunus serotina		1164	12'	Red Cedar	Juniperus virginiana		1234 6	Red Cedar	Juniperus virginiana	twin	1304	7	Red Cedar	Juniperus virginiana	1	374 7	Red Cedar	Juniperus virginiana	twin	
1095 7	American Elm	Ulmus americana		1165	10'	Black Cherry	Prunus serotina	1.1.2.1.3	1235 11	Red Cedar	Juniperus virginiana		1305	10*	American Elm	Ulmus americana	1	375 11"	Black Cherry	Prunus serotina	a twin	
1096 6	Silver Maple	Acer seccharinum	0.00	1166	9'	Red Cedar	Juniperus virginiana		1236 6"	Red Cedar	Juniperus virginiana		1306	6'	Black Cherry	Prunus serotina	twin 1	376 T	Black Cherry	Prunus serotine		
1097 11'	Black Cherry	Prunus serotina		1167	7	Red Cedar	Juniperus virginiana		1237 6	Red Cedar	Juniperus virginiana		1307	8,	Black Cherry	Prunus serotina	1	377 11'	Red Cedar	Juniperus virginiana	1	
1098 11'	Black Cherry	Prunos serotina.		1168	13'	Red Cedar	Juniperus virginiana	0.000.0	1238 7	Red Cedar	Juniperus virginiana		1308	10"	Red Cedar	Juniperus virginiana	1	378 11'	Black Cherry	Prunus serotina	2	LL.
1099 11'	Black Cherry	Prunus serotina		1169	6'	Red Cedar	Juniperus virginiana		1239 6	Red Cedar	Juniperus virginiana		1309	9,	Black Cherry	Prunus serotina	3	379 12"	Black Cherry	Prunus serotina		
1100 10'	Black Cherry	Prunus serotina		1170	8.	Red Cedar	Juniperus virginiana	1000	1240 9"	Red Cedar	Juniperus virginiana		1310	8,	Red Cedar	Juniperus virginiana	1	380 10"	Black Cherry	Prunus serotina	a twin	
1101 7	Shagbark Hickory	Carya ovata		1171	8,	Red Cedar	Juniperus virginiana		1241 11	Red Cedar	Juniperus virginiana		1311	13'	American Elm	Ulmus americana	1	381 7	Black Cherry	Prunus serotina	a triple	
1102 10'	Red Cedar	Juniperus virginiana		1172	7	Red Cedar	Juniperus virginiana		1242 6	Red Cedar	Juniperus virginiana		1312	8.	American Elm	Ulmus americana	1	382 6	Black Cherry	Prunus serotina	1	
1103 11'	Silver Maple	Acer saccharinum		1173	8'	Black Cherry	Prunus serotina		1243 8	Red Cedar	Juniperus virginiana	17.40102	1313	6'	Red Cedar	Juniperus virginiana	1	383 11*	Black Cherry	Prunus serotina		
1104 9'	Shagbark Hickory	Carya ovata		1174	8'	Black Cherry	Prunus serotina		1244 6*	Red Cedar	Juniperus virginiana		1314	8.	Red Cedar	Juniperus virginiana	1	384 10"	Black Cherry	Prunus serotina		
1105 9'	Shagbark Hickory	Cerya ovata		1175	9.	American Eim	Ulmus americana	11111	1245 7	Red Cedar	Juniperus virginiana		1315	9'	Red Cedar	Juniperus virginiana	1	385 10"	Silver Maple	Acer saccharinum	1	Revisions
1106 9*	Silver Maple	Acer saccharinum		1176	6'	Black Cherry	Prunus serotina	twin	1246 7	Red Cedar	Juniperus virginiana		1316	9'	Red Cedar	Juniperus virginiana	- 1	386 7	Black Cherry	Prunus serotina		
1107 10'	Silver Maple	Acer saccharinum		1177	12'	Red Cedar	Juniperus virginiana		1247 11	Sweet Cherry	Prunus avuim		1317	8.	Black Cherry	Prunus serotinal	-	387 11*	Black Cherry	Prunus serotina	a Devin	
1108 6'	Black Cherry	Prunus serotina		1178	11'	Red Cedar	Juniperus virginiana		1248 12	Red Cedar	Juniperus virginiana		1318	9.	Black Cherry	Prunus serotina		388 8'	Black Cherry	Prunus serotine		
1109 12"	Black Cherry	Prunus serotina		1179	11'	Red Cedar	Juniperus virginiana		1249 6	Red Cedar	Juniperus virginiana		1319	6*	Black Cherry	Pruous serotina	-	389 13*	Black Cherry	Prunus seroting		A REAL PROPERTY OF A REAL PROPER
1110 9"	Silver Manle	Acer saccharinum		1180	6'	Red Cedar	Juniperus virniniana		1250 #	Black Cherry	Prunus serotion		1320	6	Black Cherry	Prunus serotina	-	390 12"	Black Charry	Printing periodice		
1111 14'	Black Cherry	Prunus serotina		1181	6"	Red Certain	Junipenus virgininga	triple	1251	Red Cedar	Juniperus virginisna	-	1321	6	Black Cherror	Prunis senting	-	391 7	American Fire	Linnus american		
1113 11'	Shaobark Hickory	Carva ovats		1182	11'	Red Cedar	Junipents vircining	adva	1252 4	Red Cedar	Juniperus virginiana		1322	7	Black Cherry	Drugue service		302 116	American Elm	Ulimus americana		Contracting and the second
1112 6	Black Cherry	Printin associate		1192	a*	Red Cedar	butioenus virginiana		1263 2	Red Cedar	bumperus virginiana		1323	02	Black Cherry	Promus serotina	-	392 10	Primerican Elm	umus americana		the second second second second second
1114 8	American Fin	Protica serouria		1104	0*	Red Cedar	Jumperus vegenana		1253 1	Red Cedar	Juniperus virginiana		1323	2	Black Cherry	Prunus serotaha	-	373 /	Black Cherry	Prunus serotina	twin	
1115 111	Red Martin	Annual americana	tuin	1104	2	Reg Gedar	Juniperus virginiana		1254 0	Red Cedar	Juniperus virginiana		1324	0	Red Cedar	Juniperus virginiana	1	399 15	Black Cherry	Prunus serotina	-	the second s
1116 16	Red Maple	Acernuorum	WIN	1185		American Elm	Utmus americana		1255 7	Red Cedar	Juniperus virginiana		1325	14	Salver Maple	Acer saccharinum	1	395 7	American Elm	Uimus americana		
1110 10	Binet Abu	Ader seccharinum		0611		Red Cedar	Juniperus virginiana	1000	1250 7	Red Cedar	Juniperus virginiana		1326	7	Black Cherry	Prunus serotina	twin 1	390 12	Black Cherry	Prunus serotina		
1110 20	Black Cherry	Prunus serouna		1187	13	Red Cedar	Juniperus virginiana	1.152	1257 8	Red Cedar	Juniperus virginiana		1327	1	Black Cherry	Prunus serotina	twin	397 11	American Elm	Ulmus americana	1	Netter
1110 /	Black Cherry	Prunus serotina	_	1188	4	Red Cedar	Juniperus virginiana		1258 13	Black Cherry	Prunus serotina		1328	13	Red Cedar	Juniperus virginiana	1	398 6	Black Cherry	Prunus serotina		in the second
1119 8	Black Cherry	Prunus serotina	_	1189	0	Black Cherry	Prunus serotina		1259 7	Red Cedar	Juniperus virginiana		1329	10	Red Cedar	Juniperus virginiana	1	399 7	Red Cedar	Juniperus virginiana	2	
1120 10.	Black Cherry	Prunus serotina		1190	11	Red Cedar	Juniperus virginiana	1999	1260 7	American Elm	Ulmus americana		1330	12"	Red Cedar	Juniperus virginiana	1	400 8	Red Maple	Acer rubrum	1	

Existing to Remain Existing to be Removed

Project North

Tree List

1401 10*	Red Cedar	Juniperus virginiana	_	1471	18'	Black Cherry	Prious serotion		1541 17	Diaput Hickory	Cases alabra		11411	14	Charles Malan	Compared and a	1 17602 178	Black Street	0	
1402 8'	Black Cherry	Prunus service		1472	7	Black Cherry	Druges seroting	-	1542 0	Pignut Hickory	Carya giabra		1013	0	Shagbark Hickory	Carya ovata	1681 /	Black Cherry	Prunus serotina	ALIDIE
1403 8'	Red Cedar	Juniperus virginiana		1473	10'	Red Ceriar		_	1543 8	Shaphark Hickory	Carya ovata		1612	19	Shagbark Hickory	Carya ovata	1682 24	Silver Maple	Acer saccharinum	
1404 9*	Red Cedar	Juninenus viminiana		1474	10"	Red Cedar	hanimenus visoiniana	_	1544 8	Cilves Manle	Carya Ovaca	- Andre	1013	10.00	Singbark Puckory	Carya ovata	1063 8	Black Cherry	Prunus serobria	MORIE
1405 7	Red Cedar	humania vicciniana		1475	14'	Cilver Manie	Acer and home	-	1846 24	District Magne	Acer saccharinan	twin	1014	12	Shagbark Hickory	Carya ovata	1084 /	Black Cherry	Prunus serotina	
1406 17'	American Fim	Ulorus americana		1476	0.	Black Charry	Product services	_	1546 10	White Oak	Carya guibra		1015	N.	Shagbark Hickory	Carya ovata	1085 8	Black Cherry	Prunus serobna	
1407 12	American Elm	Lilmus americana		1477	122	Back Criefry	hands seronia	-	1540 18	Silver Meele	Quercus alba		1010	4	Shagbark Hickory	Carya ovata	1686 12	Black Cherry	Prunus serotina	
1408 7	Red Certer	lucioente vicciotana	_	1470	74	Black Charge	Scriperca vegrinera	_	1540 0	Siver Maple	Acer saccitarinam		101/	12	Snagbark Hickory	Carya ovata	108/ 0	Black Cherry	Prunus serotina	
1409 11'	Black Cherry	Prinus serotina	_	1479	117	American Cim	Illenue actorioana	_	1540 12*	Pignut Hickory	Carya giabra	-	1618	8	Pignut Hickory	Carya glabra	1088 11	Black Cherry	Prunus serotina	Strawberry Lake Road > Sanctuary Ridoe >
1410 111	Silver Manle	Acer a accharia un		1480	10	Bed Cedar	oimus americana	_	1660 112	Stiver Maple	Acer saccharinum		1619	20	Pignut Hickory	Carya glabra	1689 8	Black Cherry	Prunus serotina	Shadoush Trail
1411 9'	Black Cherry	Printing percentage	_	1491	0,	Pad Cadas	Sumperus vaginana	-	1661 10	Pignot Hickory	Carya gisora		1620	0	Pignut Hickory	Carya glabra	1040 4.	Black Cherry	Prunus serotina	Shatbush Trail Terminates at the Entrance to
1412 6'	Black Cherry	Prunus serotina		1482	111	Black Cherry	Drupter section	_	1662 10	Pignut Hickory	Carya glabra	-	1621	10	Red Oak	Quercus palustris	1691 6	Black Cherry	Prunus serotina	the Property
1413 9"	Black Cherry	Dructus serotion	Datio	1483	0.	Bad Cadas	Prontes services		1552 10	Pignut Pickory	Carya grasra	-	1022	2.3	Shagbark Mickory	Carya ovata	1692 12	Salver Maple	Acer sacchannum	
1414 7	Red Certar	huninenus vissiniana	Control I	140.5	72	Red Cedar	Sumperus vegimena	_	1353 10	Shagbork Hickory	Carya ovata		1023	12	Shagbark Hickory	Carya ovata	1693 0	Silver Maple	Acer saccharinum	
1415 6	Black Cherry	Papers regulate		1494	10°	Black Chome	Damperus veginiana	_	1004 9	Shagbark Hickory	Carya ovata		1024	8	Shagbark Hickory	Carya ovata	1694 9	Silver Maple	Acer saccharinum	© 2011 A2 Collaborative, LLC This drawing is means for the approval by Herviewa
1416 6'	Red Cedar	h dipense viscipiana	Parin .	1486	0,	Bad Cadas	Fights serotina	_	1555 10	Pignut Pickory	Carya giabra		1025	14	Black Cherry	Prunus serotina	1695 9	Silver Maple	Acer saccharinum	Township's Parming and Zoning Board. No part of this
1417 9'	Black Cherry	Printe serotina	(West	1487	· ·	Ped Cedar	Juniperus veginiana.	_	1550 19	Pignut Hickory	Carya giabra		1620	13	Sassafras	Sassafras albidum	1696 12	Red Oak	Quercus palustris	making may be used to report on any form by any minimum, or atomic in a Catalinate or retrieval system, or thead
1418 6'	Red Cedar	higipen a viccipiana		1460	2*	Black Champ	Devous constina-		1997 21	Charlend Mickery	Carya glabra		1027	0	Sassairas	Sassatras albidum	1097 8	Silver Maple	Acer sacchannum	prior permission of A2 Collaborative. LLC. Unless otheraeva- actived in the section. The designed is the size property of
1410 0.	Black Cherry	Promos especies	_	1490	74	Black Cherry	Pronos serona	_	1998 10	Shagbark Hickory	Carya ovata	1	1028	4	Sassafras	Sassafras albidum	1698 9	Black Cherry	Prunus serotina	A2 Oblaborative, LLC and is to be returned upon demand
1420 8'	Black Cherry	Prunus serotina	taria	1400	7*	Black Cherry	Prunus serotina	_	1009 13	White Uak	quercus alba	-	1629	14.	Silver Maple	Acer saccharinum	1699 13	Red Oak	Quercus palustris	The information harans is confidential and may not be used nor divulged without the neither permosion of A2 Collabo
1421 9	Black Cherry	Pronus serotina	Toward	1490	0.	Black Cherry	Prunus serotina	_	1960 15	Pignut Hickory	Carya glabra	twin.	1630	9.	Silver Maple	Acer saccharinum	1700 9*	Red Maple	Acer rubrum	cative LLC
1422 8'	Black Cherry	Provide services	-	1402	111	Red Cedar	Jumperus virginiana	_	1361 22	Red Oak	Quercus palustris		1631	1	Silver Maple	Acer saccharinum	1701 6.	Silver Maple	Acer saccharinum	Address
1422 7	Black Cherry	Prends services		1492	11	Red Cedar	Juniperus veginiana	_	1562 19	Red Oak	Quercus palustris		1632	1	Silver Maple	Acer saccharinum	1702 14	Red Oak	Quercus palustris	
1424 2	Red Cedar	Pronos serona	196615	1493	102	Red Cedar	Juniperus veginiana	_	1963 12	Pignut Hickory	Carya glabra		1633	8.	Silver Maple	Acer saccharinum	1703 12	Red Oak	Quercus palustris	
1425 8'	Red Coder	huninerus virginiana		1495	10	Red Cedar	Jumperus virginiana	-	1304 22	Red Dak	Quercus palustris		1634	11	Silver Maple	Acer saccharinum	1704 11	Red Oak	Quercus palustris	5-523
1425 0	Red Cedar	Juniperus virginiana		1495	0	Black Cherry	Prunus serotina		1565 7	Silver Maple	Acer saccharinum		1635	8.	Silver Maple	Acer saccharinum	1705 9*	Sassafras	Sassafras elbidum	The second second
1427 10	Red Cedar	Jonaperos vegenaria		1490	0	Black Cherry	Phunus serotina	_	1500 8	Silver Maple	Acer saccharinum		1636	r	Silver Maple	Acer saccharinum	1706 15	Bigtooth Aspen	Populus grandidentata	
1427 10	Neu Cedar	Juniperus vegeniana	_	1497	0	Black Cherry	Prunus serotina		1567 8	Silver Maple	Acer saccharinum		1637	0.	Silver Maple	Acer saccharinum	1707 13	Silver Maple	Acer saccharinum	ELCARD 7245
1420 0'	Black Cherry	Phonos serotina	_	1498	8	Black Cherry	Prunus serotina.		1568 9	Silver Maple	Acer saccharinum	_	1638	12"	Silver Maple	Acer saccharinum	1708 6'	Shagbark Hickory	Carya ovata	Project # 00001
1420 10	White Ash	Fraxinus americana		1499	101	Ked Cedar	Juntperus virginiana		1569 9	Silver Maple	Acer saccharinum		1639	6	Silver Maple	Acer saccharinum	1709 19*	Pignut Hickory	Carya glabra	
1431 0	Red Cades	Frakinus americana		1500	9	Black Cherry	Prunus serotina.		1570 8	Silver Maple	Acer saccharinum	and the second	1640	3.	Silver Maple	Acer saccharinum	1710 21'	Red Oak	Quercus palustris	
1431 7	Red Cedar	Juniperus virginiana	_	1501	10	Shagoark Hickory	Carya ovata		15/1 10	Silver Maple	Acer saccharinum		1641	8.	Silver Maple	Acer saccharinum	1711 6'	Silver Maple	Acer saccharinum	
1432 /	Black Cherry	Prunus serotina		1502	21	Pignut Hickory	Carya glabra		15/2 9	Black Cherry	Prunus serotina		1642	12	Silver Maple	Acer saccharinum	1712 14	Bigtooth Aspen	Populus grandidentata	
1433 10	Red Cedar Red Cedar	Juniperus virginiana	_	1503	11	Shagbark Hickory	Carya ovata	100	1573 9	Silver Maple	Acer saccharinum		1643	12'	Bigtooth Aspen	Populus grandidentata	1713 13	Bigtooth Aspen	Populus grandidentata	
1436 2	Plane Mercia	Juraperus virgenana		1504	23	Pignut Pickory	Carya glabra		15/4 8	Silver Maple	Acer saccharinum		1644	9	Black Cherry	Prunus serotina	1714 11	Silver Maple	Acer saccharinum	and a state of the
1435 /	Siver Maple	Acer secchannum		1505	11	Shegbark Hickory	Carya ovata		1575 9	Silver Maple	Acer saccharinum		1645	9	Black Cherry	Prunus serotina t	win 1715 6'	Silver Maple	Acer saccharinum	
1497 111	Red Cedar	Juniperos virginiana		1000	15	Snagbark Hickory	Carya ovata		15/6 /	Silver Maple	Acer saccharinum		1646	10.	Silver Maple	Acer saccharinum	1716 9*	Silver Maple	Acer saccharinum	
1437 11	Red Cedar	Juniperus virginsaria		1507	1	Pignut Hickory	Carya glabra		1577 8	Silver Maple	Acer saccharinum		1647	r	Black Cherry	Prunus serotina	1717 11	Sassafras	Sassafras albidum	
1430 4	Red Cedar	Juniperus virginiana	Dwin	1008	18	Pignut Hickory	Carya giabra		1578 10	Silver Maple	Acer saccharinum		1648	11'	Bigtooth Aspen	Populus grandidentata	1718 9'	Black Cherry	Prunus serotina	
1440 2	Red Cedar	Joniperus virginiana		1509	0	Pignut Hickory	Carya glabra	22403	1579 7	Sassafras	Sassafras albidum		1649	10"	Silver Maple	Acer saccharinum	1719 12*	Silver Maple	Acer saccharinum	
1441 7*	Black Cherry	Prends seroina		1510	110	Pignut Hickory	Carya glabra	-	1580 8	Silver Maple	Acer saccharinum	200	1650	9	Sassafras	Sassafras albidum	1720 14	Black Cherry	Prunus serotina	0
1442 8'	Brack Crienty	Pronus serotina		1511	19	Pignut Hickory	Carya glabra		1541 10	Silver Maple	Acer saccharinum		1651	13	Red Oak	Quercus palustris	1721 8	American Elm	Ulmus americana	Z
1442 0	Red Cedar	Juniperus virginiana	_	1512	6	Pignut Hickory	Carya glabra		1582 11	Silver Maple	Acer saccharinum	1	1652	13	Red Oak	Quercus palustris	1722 10*	Silver Maple	Acer saccharinum	0
1444 4	Black Church	Juniperus virginiana		1013	13	Pignut Hickory	Carya glabra	-	1583 12	Silver Maple	Acer saccharinum		1653	10"	Red Oak	Quercus palustris	1723 12	Silver Maple	Acer saccharinum	
1445 6	Ped Cedar		-	1616	10	Pignut Hickory	Carya glabra		1504 13	Sever Maple	Acer saccharinum	Twin:	1054	10	Red Oak	Quercus palustris	1724 7	Silver Maple	Acer saccharinum	
1446 0	Ped Coder	Somperos virginaria		1010	17	Pignor Pickory	Carya glebra		1585 9	Black Cherry	Prunus serotina		1055	10	Silver Maple	Acer saccharinum	1725 11	Black Cherry	Prunus serotina	
1447 8	Red Cedar	Screperce virginiana		1510	19	Pignut Hickory	Carya graora		1586 10	Silver Meple	Acer saccharinum	twin	1050	9	Silver Maple	Acer saccharinum	1726 7	Black Cherry	Prunus serotina	
1448 7	Red Cedar	konnerus virginiana		1517	10	Silver Marin	Carya ovata		1567 15	Silver Maple	Acer saccharinum		1657	13	Red Oak	Quercus palustris	1727 13	Silver Maple	Acer saccharinum	
1449 8'	Red Cedar	Juniperus virginiana		1016	0	Silver maple	Acersaccharinum		1088 10	Black Cherry	Prunus serotina		1058	11	Red Oak	Quercus palustris	1728 7	Silver Maple	Acer saccharinum	<u> </u>
1450 10'	Red Cedar	Juniperus veginiana	_	1019	17	Pignut Hickoly	Carya grabra		1589 10	Black Cherry	Prunus serotina	Iwin	1659	12	Red Oak	Quercus palustris	1729 15	Silver Maple	Acer saccharinum	-
1451 111	American Electron	Umus americana	_	1621	10	Dissuid Missis	Acer soccharmum		1090 9	Silver Maple	Acer saccharinum	twin	1000	0	Silver Maple	Acer saccharinum	1730 14	Silver Maple	Aper saccharinum	
1452 8'	Red Coder	University similaria		1521	1.00	Pignut Hickory	Carya glabra		1991 8	Black Cherry	Prunus serotina		1661	14	Black Cherry	Prunus serotina	1731 10	Silver Maple	Acer saccharinum	
1453 2	Black Chever	Drugues agr		1022	15	Pignut Hickory	Carya glabra		1345 8.	Black Cherry	Prunus serotina		1662	0.	Black Cherry	Prunus serotina	1732 11	Black Cherry	Prunus serotina	
1454 7	Red Coder	Pronus serotina		1624	1192	Pignut Hickory	Carya grabra		1093 7	Black Cherry	Prunus serotina		1663	Y .	Red Oak	Quercus palustris	1733 11'	Red Cedar	Juniperus Virginiana	
1455 10'	Red Cedar	Juniperus virginiana		1524	13	Pignut Hickory	Carya glabra		1594 14	Black Cherry	Prunus serotina	ASAUTS.	1664	13	Red Oak	Quercus palustris	1734 11'	Red Cedar	Juniperus virginiana	Redenne
1456 8	Red Cedar	Sureperus virginiana		1525	10	Dissuid Mickory	Carya ovata		1393 6	Snagbark Hickory	Carya ovata	-	1065	10.	Black Cherry	Prunus serotina	1735 10'	Black Cherry	Prunus serotina	HE MENTER
1457 12'	Sher Masia	Anne santhar		1020	19	Pignut Hickory	Carya glebra		1090 0	Silver Maple	Acer saccharinum		1666	15	Red Oak	Quercus palustris	1736 9'	Silver Maple	Acer saccharinum	
1459 0	Black Charm	Acer saccharhom		102/	10	Snagbark Mickoly	Carya ovata	-	1597 17	Silver Maple	Acer saccharinum	Contraction of	1667	13	Black Cherry	Prunus serotina	1737 9	Black Cherry	Prunus serotina	A CONTRACTOR OF A CONTRACTOR O
1459 9	Black Cherry	Pronus serotina	Disf.	1528	34	Saver Maple	Acersaccharinum		1248 9.	Silver Maple	Acer saccharinum		1668	8	Black Cherry	Prunus serotina	1738 8'	Black Cherry	Prunus serotina	
1460 8	White Art	Fronus serotina	twen	1029	1.00	Shagbark Hickory	Carya ovata		1099 9	Silver Maple	Acer saccharinum		1669	1	Black Cherry	Prunus serotina	1739 7	Black Cherry	Prunus serotina	
1461 2'	Mark Charm	Praxinus americana		1530	15	Silver Maple	Acer saccharinum		1600 6	Silver Maple	Acer saccharinum		1670	12'	Black Cherry	Prunus serotina	1740 8*	Black Cherry	Prunus serotina	Martin and Constant
1462 8	Bed Coder	Prunus serotina	twin	1531	11	Pignut Mickory	Carya grabra		1601 20	Pignut Hickory	Carya glabra		1671	1	Red Cedar	Juniperus virginiana	1741 9	Red Cedar	Juniperus virginiana	
1463 8	Red Cedar	Juniperus virginiana		1532	21	Pignut Mickoly	Carya glabra		1602 10	Black Cherry	Pru/sus serofina		1672	8.	Silver Maple	Acer saccharinum	1742 7	Black Cherry	Prunus serotina	
1464 0	Red Cedar	Juniperus virginiana	-	1533	11	Silver Maple	Acer saccharinum		1603 10	Pignut Hickory	Carya glabra	Sector Sector	1673	0.	Silver Maple	Acer saccharinum	1743 8	Red Cedar	Juniperus virginiana	
1446 111	Red Cedar	Juniperus virginiana		1534	12	Pignut Hickory	Carya glabra		1004 7	Sweet Cherry	Prunus avuim		1674	1	Black Cherry	Prunus serotina	1744 11'	Black Cherry	Prunus serotina	
1405 11	Red Cedar	Juniperus virginiana	_	1535	10	Pignut Hickory	Carya glabra		1605 23	Pignut Hickory	Carya glabra		1675	1	Red Cedar	Juniperus virginiana	1745 7	Red Cedar	Juniperus virginiana	
1467 11	Red Cecar	Juniperus virginiana		1536	0	anagbark Hickory	Carya ovata	-	1606 16	White Oak	Quercus alba		1676	8	Black Cherry	Prunus serotina	1746 15	Silver Maple	Acer saccharinum	and the second se
1469 119	Red Cedar	Juniperus virginiana		1537	0	Pignut Hickory	Carya glabra		1607 12	Shagbark Hickory	Carya ovata		1677	10'	Silver Maple	Acer saccharinum	1747 9*	Black Cherry	Prunus serotina	
1469 7	Red Coder	Juniperus virginiana		1038	10	Snagoark Mickoly	Carya ovata	_	1008 10	Pignut Hickory	Carya glabra	-	1678	10.	Black Cherry	Prunus serotina to	win 1748 8'	Black Cherry	Prunus serotina twi	n reces
1420 0*	Plack Closed	Jumperus wirginiana		1539	0	Pignut Hickory	Carya glabra		1609 14	Pignut Hickory	Carya glabra		1679	10.	Black Cherry	Prunus serotina	1749 12*	Silver Maple	Acer saccharinum	and the second second second second
14/0 10	Black Unerry	Prunus serotina	twin	11540	1/	Shagbark Hickory	Carya ovata	100 C	1010 16	Silver Maple	Acer saccharinum	Contraction of the	11680	17	Black Cherry	Prunus serotina	1750 9'	Black Cherry	Provins semtina	

Existing to Remain Existing to be Removed

Tree List

Copyright 2021 A2 Collaborative, LLC. @ 2021 A2 Collaborative, LLC

ark Hickory	r Shago	2100 15	Carya ovata	Shagbark Hickory	18.	2030	Carya glabra	Pignut Hickory	24"	1960	Acer saccharinum	Silver Maple	-	1890 6	Acter saccharinum	Silver Maple	820 7
œl	-	2099 9*	Cer saccharinum	Silver Maple	13.	2029	Quercus palustris	Red Oak	6.	1959	Juniperus virginiana	Red Cedar		1889 9	Acer saccharinum	Silver Maple	817 12
۰ اي	-	2098 9	Quercus palustris	Red Oak	14.	2028	Prunus serotina	Black Cherry	11.	1958	Prunus serotina	Black Cherry		1888 9	Acei saccharinum	Silver Maple	819 7
ē1-	P	2097 18	Carya glabra	Pignut Hickory	10"	2027	Quercus palustris	Red Oak	30°	1957	Prunus serotina	Black Cherry		1887 6	Quercus palustris	Red Oak	816 13"
014		2096 20	Carva glabra	Pignut Hickory	16.	2026	Acer saccharinum	Silver Maple	6	1956	Juniperus virginiana	Red Cedar	+	1886 8	Quercus palustris	Red Oak	818 14.
× • ·	Shaot	2095 11	Quercus alba	White Oak	15	2025	Quercus palustris	Red Oak	14"	1955	Juniperus virginiana	Red Cedar	~	1885 1	Quercus pakistris	Red Oak	815 12'
	Shach	2004 0"	Ouercus palustris	Red Oak	6.	2024	Acer saccharinum	Silver Maple	6-	1954	Juniperus virginiana	Red Cedar	-	1884 8	Carva ovata	Shagbark Hickory	814 8"
~~~~	Gianh	0 7402	r turns second	Silver Maple	12	2023	Ulmus americana	American Elm	-	1953	Juniderus virginiana	Red Cedar	~	1883	Carva ovata	Shagbark Hickory	813 7
- 11	1	0 16AT	Provide and second and	Black fiberry	13.	40100	Carva moto	Shanhark Hickory	0	1022	Dramas serotica	Black Cherry	+	1882 7	Printis avisim	Sweet Charry	812 13"
410		210 0402	Distance in section in section	Black Pharm		1000	Carrier cuesta	Shanhark Hickory	0. 0	1001	Driver second in the	Black Charry	+	1991	District nation	Red Oak	811 14
- 16	Shage	R 6.807	scer saccharinum	ardevi tavito	21.	0000	Drume control	Rine's Charry	2 10	1050	Prints senting	Riack Cherry	-	1980 1	Anne sanchatinum	Silver Marie	210 2
		2008 74	Larya glaora	America the Australia	22	1010		Distriction of the second	121	1040	Property in Considerate	Deal Contra	+	10.01		Black Chart	0/0 0°
		2087 19	vcer saccharinum	BIGENT TANIC	10	1117	Drawn anternation	Black Chart	0, 3	1040	and a second sec	Dard Coular	+	1977 7	Destroy manufactory	Black Charty	1902 S
12	Pier I	1 9907	ACRI SACCINACINUM	Oliver Martin		0100	Illouis americana	American Elm	0. 10	1047	Company and an and an	Bart Center	+	1977 0	Acar sarch wire to	Char Maria	807 0
12	11	6 Can7	Carya Giacra	Vioniti militi	4 0	2010	Contract of the second second	and the second	10-	1044	Contraction of the second second	Dard Cardian		1076 1	Consocial and the	Charlow History	ADA B'
15		2004 0	ACKI SACCING INTO T	Direct Linkow		2010	Acar sacobacient	Citor Mania	2	1046		Bard Cardiar	+	1976 7	Annual and a station of	Char Maria	904 0
13		2084 23	ACRE BACCHARDUNTI	outron marine	11	anta a	Drawn antenadina	River Chart	5. IA	1044		Silver Maria	+	1974 8		Bod Cadar b	204 2
1		10 2002	Cill ya Utota	Show Maria	17	101	Librus americana	American Sim	17-	1041	Prints septing	Black Charry	+	1873 7	Anna anotheonum	Show Manla	10'
81		1000 100	Consolation and and and and and and and and and an	Chanhark Hickory	170	2012	lumons vininismi	Red Codar	11-	1943	luminents virniniana	Red Cedar	+	1872 8	Ouercus palostris	RedOak	802 9
8		10 1002	Carva olabra	Pionut Hickory	18.	2011	Juniperus virginiana	Red Cedar	13	1941	Juniperus virginiana	Red Cedar	+	1871 9	Quercus palustris	Red Oak	801 14'
1	- Quero	10 000	Corva nuata	Shanbark Hinkow	20. 1	2010	Junicerus virolniana	Red Cedar	5.	1940	Junipenis viroliniana	Red Cedar	+	1870 9	Quercus palustris	Red Oak	800 15"
	Vaire	0 0102	Carrie of alaba	Planut Hickory	310	2009	Prunus avairm to	Sweet Cherry	7	1030	Prunus sectina tw	Black Cherry	+	1869 8	Carva ovata	Shadbark Hickory	100 6.
	Shaob	2078 6	Carva ovata	Shagbark Hickory	15'	2008	Acer saccharinum	Silver Maple	10"	1938	Prunus serotina	Black Cherry	-	1868 9	Prunus serotina	Black Cherry	798 11.
ž.	Shad	2077 10	Carya glabra	Pignut Hickory	15'	2007	Prunus serotina	Black Cherry	6.	1937	Acer saccharinum	Silver Maple	~	1867 1	Acer saccharinum	Silver Maple	197 9
\$	Shagb	2076 7	Carya ovata	Shagbark Hickory	8.	2006	Juniperus virginiana	Red Cedar	11.	1936	Prunus serotina	Black Cherry		1866 1	Sassafras albidum	Sassafras	795 9"
Sin a	V Shed	2075 13	Carya ovata	Shagbark Hickory	16.	2005	Juniperus virginiaria	Red Cedar	8	1935	Prunus serotina	Black Cherry		1865 6	Quercus palustris	Red Oak	795 14
Hack		2074 8	Carya glabra	Pignut Hickory	17	2004	Juniperus virginiana	Red Cedar	9	1934	Prunus serotina	Black Cherry		1864 9	Quercus palustris	Red Oak	194 11
L'IUL	Pie Pie	2073 20	Quercus palustris	Red Oak	1	2003	Prunus serotina	Black Cherry	6.	1933	Prunus serotina tw	Black Cherry		1863 8	Ostrya virginia	Hop Hornseam	1 561
R.K	Shagt	2072 15	Carya glabra	Pignut Hickory	25	2002	Prunus serotina	Black Cherry	71	1932	Prunus serotina	Black Cherry	+	1992	Acer saccharburn	Saver Maple	8 76/
THU	Pit	2071 21	Carya ovata	shagbark Hickory		1 Mai	BUDDARE STRITTA	Diack Cherry	0	10.61	Prunus seruina	Diack Cherry	ľ	1001	FTURIUS SECURIA	Diana Cranity	121 2
١.		1 0102	caya geora	Annual Annual	-	1000	autore and and	No. 1 Charles		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Transa service	Mart Change	1	1000	The second secon	Bind Phane	101 01
		1000	Canto al fra	Distant Linkson	0.	NUC		Bad Padar	100	1020	Druman samelina	River Pharm	-	1960	Anter sancharini im	Chur Mario	700 0*
	P	31 0400	Carva ovata	Shaobark Hickory	11.	1999	Acer saccharinum	Silver Maple	9.	1929	Acer saccharinum	Silver Maple		1859 1	Prunus serotina	Black Cherry	.8 68.
	Pie	206.8 26	Carva ovata	Shagbark Hickory	24"	1998	Juniperus virginiana	Red Cedar	12	1928	Umus americana	American Elm	1	1858 1	Acer saccharinum	Silver Maple	16.
	-	2067 18	Carva ovata	Shaobark Hickory	11.	1997	Juniperus virginiana	Red Cedar	6.	1927	Juniperus virginiana	Red Cedar	~	1857 1	Acer sacchannum	Silver Maple	787 8"
	Shack	2065 7	Carva clabra	Pignut Hickory	14	1996	Juniperus virginiana	Red Cedar	77	1926	Prunus serotina	Black Cherry	-	1856 8	Prunus serotina	Black Cherry	785 T
	Po	2065 7	Carya glabra	Pignut Hickory	10"	1995	Juniperus virginiana	Red Cedar	8.	1925	Prunus serotina	Black Cherry		1855 9	Ulmus americana	American Elm	785 13°
1		2064 8	Quercus palustris	Red Oak	17"	1994	Juniperus virginiana	Red Cedar	8	1924	Acer saccharinum	Silver Maple		1854 7	Acel saccharinum	Silver Maple	784 8"
Silve	and the second se	2063 8	Sassafras albidum	Sassafras	12"	1993	Prunus serotina	Black Cherry	7	1923	Juniperus virginiana	Red Cedar		1853 8	Acer saccharinum	Silver Maple	01 58
hark.	or Shage	2062 10	Quercus palustris	Red Oak	16	2661	Quercus alba	White Oak	0	1922	EvendSut shadking	Hed Cedar		1002	Prunus serotina	black Cherry	1 791
ark.	Shagt	2061 8	Carya ovata	Shagbark Hickory	0	INAL	Principal and an and an and an and an and an	Black Cherry	11	ALGI	anaperus virginaria	Ned Cedar	-	1681	Prunus serotina	Black Cherry	0 0
- NING		a nonz	Larya orata	or and the second secon		Des.	annual in an addition	nuc course	10		and the state of t	Del Cale	+	1000	Provide and and a second second	Black Channel	10 TO
XIE	Deuc	2007	The second second	Charles Listen	-	1000	Interior and the second second	Barl Parlar	TW	1001	Ludoena virolaiana	End Padar	+	1960	Drumus section	River Charry	10
	Chant	0300	Acor encryantering	Shoet Marsia	2	1989	Prunua serotina	Black Cherry	3.	1920	Carva evata	Shaobark Hickory	-	1849 1	Princip serotina	Black Cherry	79 9"
1		11 23/00	Acer sacchadinum	Sheet Mante	6.	1988	Carva ovata	Shaobark Hickory	7	1918	Prunus serotina	Black Cherry	+	1848 9	Prunus serotina	Black Cherry	78 10"
tiao I	2	2057 15	Acer saccharinum	Silver Maple	T	1987	Prunus serotina	Black Cherry	8	1917	Prunus serotina	Black Cherry	-	1847 8	Ulmus americana	American Elm	77 14"
5		2056 9	Carya ovata	Shagbark Hickory	7	1984	Juniperus virginiana	Red Cedar	7	1916	Ulmus americana	American Elm		1846 6	Prunus serotina	Black Cherry	76 8
	0.	2055 20	Acer saccharinum	Silver Maple	8.	1986	Juniperus virginiana	Red Cedar	10	1915	Ulmus americana	American Elm		1845 8	Acer saccharinum	Silver Maple	10 9
No.	8" Shag	2054 18	Carya ovata	Shagbark Hickory	8	1983	Prunus serotina	Black Cherry	10	1914	Prunus serotina	Black Cherry	-	1844 0	Acet saccharmum twin	Silver Maple	74 11
1	0.	2053 14	Carya ovata	Shagbark Hickory	a	58A1	evention snadure	Neo Cedar	10	LI VI	Prunus serorana	biack Unerry		1043	Cirnus americana	Armenican Euro	10 11
10		2052 15	Prunus serolina	Black Unerry	0	7961	evendon stradur	INVO Cecar	10	2161	Jumperus vagenana	ned Cedar	-	7401	ACRE SECONDERINGTY	alden aare	12 21
1Ē		8 1CD7	Printing Second	Disco Castry		1041	THEFT IS NOT THE TAXABLE IN THE	ardness same	10		Contract of the local division of the local	Transver Land	+	1000		france wards	
1		1 Dent	LINUS SECTION SECTION	Aufour same	-		annual to an and the second	THE PART	-		and an interest desires a	Contract Contract	ľ	1040	Provide and	Birat Chang	
15	Genc	1 6407	doecos persona	VEC DOM	100	1000	Anterior of the second state	Bad Daday			Dennis secolos to	March Pharma	1	1041 0	Bran in second run	Black Pharm	
1			Other and the state of the state	Bod Oak	240	1070	luninenis vininiana	Bert Certar	9	1010	Carva evata	Shanhark Hirkony	+	1920 4	Acer eachselmum	Sher Marie	60 0.
1		100 0100 P	Arear march sales on	Char Marcia	13.	1978	Acer sacchadoum	Silver Manle	0	1908	Carva ovata	Shaohark Hickory	1	1837 1	Printing serectiona	Black Cherry	68 8"
1	1	- 2000	Canadianta	Shanhark Hickory	140	1977	Ulmus americana	American Fim	17	100	Cana ovata	Shaobark Hickory		1836 1	Prisrus serotina	Black Cherry	67 7
1		2046 8	Cave ovata	Shaobark Hickory	7"	1976	Prunus serotina	Black Cherry	7.	1906	Carya ovata	Shaobark Hickory	~	1838 1	Ager saccharinum	Silver Maple	66 T
61	y- Shao	2045 17	Acer saecharinum	Silver Maple	17	1975	Acer sacobarinum	Silver Maple	Ŧ	1905	Juniperus virginiana	Red Cedar	-	1835 7	Acer saccharinum	Silver Maple	.8 59
1	9.	2044 19	Quercus palustris	Red Oak	14.	1974	Prunus serotina	Black Cherry	6.	1903	Prunus serotina	Black Cherry		1834 6	Prunus serotina	Black Cherry	64 11.
đ	2	2043 20	Carya clabra	Pignut Hickory	14"	1973	Juniperus virginiana	Red Cedar	9	1902	Prunus serotina	Black Cherry		1833 9	Acer saccharioum	Silver Maple	163 12"
51	8. bi	2042 18	Carya ovata	Shagbark Hickory	6.	1972	Prunus serotina	Black Cherry	10"	1904	Ulmus americana	American Elm		1032 0	raxinus americana	White Ash F	62 8
28	0" P.	2041 10	Querous alba	White Oak	13.	1971	Prunus serotina	Black Cherry	7	1001	Prunus serotina	Black Cherry		1831 9	Acer saccharinum	Silver Maple	61 16.
/SI	N N	2040 9	Quercus palustris	Red Oak	20"	1970	Juniperus virginiana	Red Cedar	7	1900	Quercus palustris	Red Oak	~	1830 1	Prunus serotina	Black Cherry	.60 09
188		2039 7	Carya glabra	Pignut Hickory	8.	1969	Prunus serotina	Black Cherry	6	1899	Quercus palustris	Red Oak	-	1829	uniperus virginiana	Red Cedar J	01 66
13	8. P.	2038 11	Carya glabra	Pignut Hickory		1968	Acer accharinum	Saver Maple		18.48	Acer sacchannum	Saver Maple		1828	Prunus serotina	Black Cherry	01 00
18	Deux	203/ 8	Acer saccharinum	arden pare	10	1061	BUDDING BUDDIN	Annua Viene		1097	or more and and and and	VIII I I I I I I I I I I I I I I I I I	ľ	100.0	Provide and Andrews	The Course of th	
18	Seuc	2030 0	Calification of the second	E-Ignor Filosofy		1041	Drumun annotice	Glack Charry		1007	Charles production	Ded Det		1000	and the second s	Dad Cadar	2 2
41	Chaol	1 2000	Para alabra	Dianut Linkow	141	1066	Are sancharinum	Silver Manle	0.	1996	Contras palastria	Red Oak	1	1927 1	Informa Virbiniana	Red Cadar A	CA T
1	-	2035 14	Carva ovata	Shagbark Hickory	22"	1965	Juniperus virginiana	Red Cedar	8	1895	Quercus palustris	Red Oak	~	1826 1	uniperus virginiana	Red Cedar J	-6 SS
1	P. Shan	2034 18	Carva clabra	Pignut Hickory	0.	1964	Acer saccharinum	Salver Maple	11-	1894	opulus grandidentata	Bigtooth Aspen P	-	1823 1	Acer saccharinum	Silver Maple	54 T
25	5.	2033 1	Quercus alba	White Oak	17.	1963	Prunus serotina	Black Cherry	7	1893	Acer saccharinum	Silver Maple		1822 9	Acer saccharinum	Silver Maple	11 23
4	2	2032 1	Carya glabra	Pignut Hickory	11-	1962	Acer saccharinum	Silver Maple	T	1892	Acer saccharisum	Silver Maple	-	1824 /	Acer saccharinum	Silver Maple	52 6
6	*	2031 1	Carya glabra	Propert History	2.6	196.	Prunus serotina	Black Cherry	2	-	ACET SACCHARMUM	ardene andere	+	1201	France Section	place using	101 0
1		Taxas In	Name and	Want & Links and	10.42	1 EVAL	Plan man manufirm	Black Phases		10041	Anny a nanhasins real	Citual Manini		10001	Provenue and designed	Black Pharry	121 121

Easturg to be fremoved

Project North

ES2.6

min by TS

Saw Thee List  $\bigcirc$ 

Project # (NOT FOR CONSTRUCTION) 100001

• NBM ACCentedwordsmatch. LLC Develop to Texas and the improve the texas and the end of the texas and the texas and the texas and the texas of the texas and texas and the texas and texas and texas of texas and texas and texas and texas and texas of texas and texas and texas and texas and texas of texas and texas 

MURIE GLEN Transfer Lander Stander Lander Stander Lander Stander Lander Stander Lander Stander Lander Stander Stander Lander Lan

syright 2021 A2 Collaborative, LLC. Ø 2021 A2 Collabori E

2170	2169 2	2168 1	2167 2	2166 1	2165 7	2164 7	2163 2	2167	1912	1012	10012	1012	2150	2100	1012	1 0012	7512	1012	10017	2149 1	2148	214/ 4	2140	2145	2144	2143	2142	2141	2140	2139	2138	2137 8	2136	2135	2134 8	1111	1012	2130	2129	2128	2127	2126	2125	2124 9	2212	2121	2120	2119	2118	2117	2116	5112	C112	2112	2111	2110	2109	2108	2107	2106	2105	2104	SUIG SALE	2010
e	2	7	4	0	1	1	0	1		-	2	-		1			1	1	1	ľ	1		10	1		3	5	0	2"	4	.6	1	-	6.	1	1		10	1	15	2	4.	3-		20		21	8.	4	-	0	-	1		10	16.	11.	4	11.	-	1	-	-	
Silver Maple	Pignut Hickory	Red Oak	Pignut Hickory	Shagbark Hickory	Black Cherry	Black Cherry	Pignut Hickory	Shanbark Hickory	Show Marla	adeve axes	PIGNUT HICKORY	Silver Maple	Ingout Hickory	Klowing Indial	Stragoark mickory	Proximit marginal	Biant Linkow	adem sanic	anderw Jawis	Silver Maple	Shagoark Hickory	Silver Maple	Pignut Hickory	Shagbark Hickory	Pignut Hiskory	Linden	Pignut Hickory	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Pinnut History	Silver Markey	Red Oak	Pignut Hickory	Pignut Hickory	Pignut Hickory	Red Oak	Shagbark Hickory	Shadbark Hickory	Sher Manle	Black Cherry	Silver Maple	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Red Oak	Shagbalk Hickory	Stagoak riskory	Shagbark Hickory	Red Oak	White Oak	Silver Maple	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Silver Maple	aiver mape	Township without a						
Acer sacc	Cary	Quercus p	Cary	Can	Prunus	Prunus	Carv	Con Con	Transfer Stransfer Stransf	NCR 1900	Cary	Acer sacc	Cary	Cary	Can	Cary	Shund	NCBI SIGCI	DOES BOW	Acer sacc	Can	Acer sacc	Cary	Can	Cary	Tila arr	Cary	Cary	Cary	Cary	Cary	Cary	Can	Car	Can		And tan	Quercus p	Carry	Cary	Cary	Quercus (	Can	Can	Anar carr	Prunus	Acer sacc	Can	Car	Can	Ones and	Low sarr	Can	Car	Quescus	Quen	Acer saco	Car	Car	Car	Acer saco	Domestic Street	Lan and	
harinum	e delo e	valustris	a glabra	ya orata	serotina	serotina	a diabra	and the second s	Sannatis	monec	a glabra	muninum	e delo e	a giaora	Elevo al	a giabra	Seronas	munum	University	harinum	ya ovata	munum	a glebra	ya ovata	e i qui fie	Micana	erdel0 e	a glabra	e glabra	e glabra	e glabra	a glabra	Valovata	ya ovata	va ovata	a niabra	e della	valustris	a glabra	a glabra	a glabra	palustris	are to all	va ovata	ya ovata	serotana	harinum	ya ovata	yaovata	va ovata	adustris	ya ovata	elevo av	ya ovata	palustris	cus alba	harinum	ya ovata	ys ovata	va ovata	harinum	There is a second secon	Annal	
																																				-																												
2240 6	239 8"	238 6.	2237 6.	236 26"	235 7	2234 16"	1233 10	a 1000	A 0877	6 6223	1228 T	1227 20.	220 13	1225 19	1224 38	1223 9	21 2771	1221 14	1220 11.	2219 16.	7218 13	2217 17	2216 12	2215 16.	2214 8"	2213 22"	2212 8"	2211 10"	2210 15"	2209 12	2208 17*	2207 9"	2206 25	2205 11.	2204 8"	-01 5005	CZ 1077	2200 10	2199 10.	2198 7"	2197 6.	2196 8"	2195 9.	2194 13	11 ZA17	2191 16	2190 17	2189 8"	2188 7	2187 7	2186 16	2184 8	2183 /	2182 6	2181 6	2180 7	2179 23	2178 11.	2177 10	2176 17	0175 16 <sup>-</sup>	0 0112	and and	2112 100
Н				+	+	+	t	t	t	ł	t	t	+	ł	ł	t	ł	ł	+													+	+	+	+	ł	+		-			+	+	+	t	+		+	+	+	+	+	t	┝	+				+	+	+	+	ł	
Tree-of-heaven	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Silver Maple	Silver Maple	Linden	Silver Maple	Char Manla	aldew Janic	Silver Maple	Shagbark Hickory	Red Oak	Pignut Hickory	Red Oak	Pignut Hickory	Shagbark Hickory	Hed Oak	Linden	Pignut Hickory	White Oak	Pignut Hickory	Shagbark Hickory	Shagbark Hickory	Red Oak	Silver Maple	Red Oak	Silver Maple	Shagbark Hickory	Shanhark History	Pagnut Hickory	Silver Maple	Silver Maple	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Shadbark Hickory	Shackark Hickory	Shagbark Hickory	Red Oak	Shagbark Hickory	Silver Maple	Shaobark Hickory	Silver Maple	Tree-of-heaven	Inevent to earl	Black Cherry	Shagbark Hickory	Shagbark Hickory	Pignut Hickory	Silver Maple	Shagbark Hickory	Silver Maple	Pad Dak	Sheet Unerry	L'AND LINE .	TANANG LINUNG							
×																																																				2												
lanthus alti	Carya	Carya	Carya	toer saccha	loer sacoha	Tda ame	cer sancha	ALL BOLLING	cer saccha	voer sacoha	Carya	Quercus pal	Carya	Quercus par	Carya	Carya	Quercus pa	Titla arner	Carya	Quercu	Carya	Carya	Carya	Quercus pai	toer saccha	toer saccha	icer saccha	toer saccha	icer saccha	Noer saccha	icer saccha	Voer saccha	Quercus pa	Voer saccha	Carya	Cana	Carya	hoer saccha	Acer saccha	Carya	Carya	Carya	Carya	Carva	Carya	Carya	Quercus pa	Carya	Acer saccha	Carva	Acer sacoha	sianthus are	lanthus art	Prunus se	Carya	Cerya	Carya	Acer saccha	Carya	Aper saocha	Origination Dia	PTURNTY .		CONTRA
ssima	ovata	ovata	ovata	munn	nnun	icana	Cinum I	COLUMN T	noum	mum	ovata	ustris	plabra	ustris	giabra	ovata	ustras	Icana	piotra	s alba	plabra	ovata	ovata	ustria	ninum	ninum	mourn	num	rinum	rinum	rinum	rinum	ustris	num	ovata	a la	glabra	rinum	rinum	ovata	ovata	ovata	ovata	ovata	ovata	ovata	ustris	ovata	ninum	ovata	dinum l	SSATTA	ssima	rotina	ovata	ovata	glabra	ninum	ovata	mum	and the	anum -		Ciabla -
	N	2	N	N	N		1													2		N		N	2		N	N	N	N	N					1					N	N						N	N						N			N	N					
310 16*	309 16.	308 10.	307 18"	306 7	305 17	304 12	101 10	301 10	11 005	299 15	298 7	297 6.	296 16	295 10	294 13	0 567	292 13	51 167	290 8.	289 12	288 16.	287 6	286 9"	285 10	284 7	283 15"	282 18"	281 10'	280 19	279 14	278 7	277 15	276 10	275 16	274 9	10.00	211 23	270 6	269 14	268 14	267 18	266 16	265 8.	264 18	202 9	261 13	260 22	259 18	258 13	757 7	11 956	254 8	253 10	252 16	251 16.	250 9"	249 15	248 7"	247 16	246 21	244 0	243 0		CAL IS
	+			+	+	t	t	t	t	-	ł	+	┝	-	ł	ł	t	ł	+		$\vdash$	-	$\left  \right $								+	+	+	+	+	t	ł	+			+	+	+	t	-	+		+	+	+	t	t	-	t				-	+	$\dagger$	t	ł	ł	
White O	White O	Shagbark Hicko	Black O	Shagbark Hicko	White O	Silver Mag	Shaohark Hickr	shagoark mixed	Shagbark Hicko	Shagbark Hicko	Shagbark Hicko	Hop-Homber	Pignut Hicke	Shagbark Hicko	RedO	Shagbark Hicko	Shagbark Hicko	Red O	Shagbark Hicko	Pignut Hicko	Black Che	Silver Map	Shagbark Hicko	Shagbark Hicko	Shagbark Hicko	Shagbark Hicko	Pignut Hicko	Silver Maj	Shagbark Hicko	Red O	Shagbark Hicko	Shagbark Hicke	Silver Ma	Silver Mad	Pignut Hicks	Direct Minist	Shagbark Hicko	Shagbark Hicko	Shagbark Hicko	Pignut Hicke	White O	Shagbark Hicko	Shaobark Hicks	Shaobark Hicko	Silver Ma	Red O	Pignut Hicke	Shagbark Hicke	Shagbark Hicko	Pionut Hicks	Pigenut Hicks	Pignut Hicki	Pignut Hicko	White O	White O	Black Che	White 0	Hop-Homber	Silver Ma	Pignut Hick	Shanhark Hicks	Shadoan most		Shaobark hexe
a.	ak	YIY	ak	ALK.		Ne I	1	- N	NY.	y	N.	ā	Ÿ	AX.	*	A.A.	VIV	ax.	VIV	YY	riy Vi	vie	YY	YIY	AK	YIY	A.A.	ale	A.A.	ak	ž	VI	Vie	Vie	No.		YN	VV	A.K.	YIC	ak.	YN	AN IN		Sie	ux.	AAC	YIX	ANA LAN	No.	and and	AAK	4VK	ink .	ak	riy .	lak	m	Die	ALC: NO	iny	Ake		AM.
			8		-	Ace									Que			0.4			3	Ace						Ace		Que			Ace	Ace											Ace	Qu										P			Ace					
Quercus a	Quercus a	Carya ov	ercus velut	Carya ov	Quercus a	saccharin	Carvaov	Calyaov	Carya ov	Carya ov	Carya ov	Datrya virgi	Carya gia	Carya ov	incus palus	Carya ov	Carya ov	sried show	Carya ov	Carya gla	unus serot	r saccharin	Carya ov	Carya ov	Carya ov	Carya ov	Carya gla	rsaccharin	Carya ov	trous palus	Carya ov	Carya ov	r saccharin	r saccharin	Carva gla	Carlan	Carya ov	Carya ov	Carya ov	Carya gla	Quercus a	Carya o	Canya or	Carvan	r sacchara	ercus palus	Carya gla	Carya ov	Carya or	Carva gia	Carva nia	Carya gu	Carya gia	Quercus a	Quercus a	runus sero	Quercu's (	Ostrya virg	r saccharin	Carva gla	Carry on	Carya o		Carya or
Iba	iba i	ata	ina i	ata	lba	um i	arta a		ata	ata	ata	nia	bra	ata	tris	878	013	tris	ata	bra	ina	um	ata	ata	ata	ata	Eng	-m	ete	tris	ata	ata	5	S I	bra		cie	ata	ata	bra	lba	ata	ata	ata	um	tris	bra	ata	ata	bra	then .	ibra	trd	iba	alba	tina	alba	inia	num -	dva	um	ata	ł	1212
23	23	23	23	23	23	23	22	1	23	23	23	23	23	23	23	12	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	21	3 2	20	23	23	23	23	2	21	22 22	3 23	23	23	23	21	31	23 23	3 2	10	1	23	23	13	23	21	23	3 5	2 15		1.2
-se 01	11 64	18 6"	17 11	76 16'	15 11	74 10	12 11	11 11	70 7	11 69	98 6.	57 7	ZL 99	11 50	04 19	63 97	62 6	01 20	11 09	21 65	58 10"	57 11"	56 11.	55 T	54 6"	53 7	52 6"	51 15	50 15"	49 10	48 12"	47 13	46 0. 10	45 15	44 11-	10 70	41 14	40 20'	39 13	38 10"	37 18	36 14	35 11-	12 13	32 11	31 10	30 14	29 9"	28 18	27 18	10 07	24 7	23 8	22 7	21 20"	20 6"	19 6"	18 11	17 21.	16 6	114 /	21 61		22 22
	1		5	1	t	t	1	t	t	T	T				t	T	t	t													1	t	t	t		t	t				1	1	t	t	t			1	t	t	t	t	t	H	T			+	+	t	t	t	t	
Black Che	Sweet Che	Black Che	hagbark Hick	Silver Ma	Sassaf	Pignut Hick	Dark Theorem	Main andres	Black Che	Pignut Hick	Pignut Hick	hagbark Hick	Pignut Hick	Pignut Hick	Pignut Hick	Pignut Hick	American (	Sugar Ma	Pignut Hick	Pignut Hick	hagbark Hick	Pignut Hick	hagbark Hick	Black Che	Silver Ma	American 8	shagbark Hick	hagbark Hick	Silver Ma	White (	Pignut Hick	Silver Ma	Hoo-Hombe	Planut Hick	Shaobark Hick	STRUCTURE STRUCT	Pignut Hick	Pignut Hick	Pignut Hick	Shagbark Hick	Pignut Hick	Pignut Hick	Pionut Hist	Print Print	Black	Silver Ma	White	Shagbark Hick	Shaobark Hick	ALL VINCE	Shanbark Hick	Shagbark Hick	Silver M.	Silver Ma	Pignut Hick	Red Ma	Shagbark Hici	Shagbark Hick	Shagbark Hici	Red Red	Shagbark High	Shagbark Hick	and the second se	Divinit hims
4m	The second	NA.	YX	ole 1	24	1	ALC: N	14	my l	1/10	ALC:	Asc	Auc	Auc	A10	A80	Im	pie	Kin	ANO	No	A30	A30	KIN	pie	Im	ory	400	ple	Jak	9V	0.0	and a	AND AND		Vin	(in	No	AND	410	40	201	And And	VIN	Jak	ple	Dak	No.	VIO	ANY I	201Y	VIV	pie	ple	Vior	pie	VIX	VIX	VIO	And And	Via	VID	1	ź
p				Ace	Sorbusas	1											Ult	×				96.000			Ace	U P			Ace			Act		1												No							NO	Ac					4					
TUNUS SAID	Prunus av	TUNUS SHID	Carys on	r saccharin	infras albie	Carva peru	Carya o	Carya ga	TUNUS Sero	Carya gli	Carya gu	Carya o	Carya gla	Canya gli	Carya gla	Carya gli	nus americ	cer saccha	Carya gli	Carya git	Carya o	Carya gli	Carya o	TUNUS Sero	r sacchari	nus americ	Carya o	Carya o	er sacchari	Quercus	Carva di	hr sacchari	Ostros vin	Canya	Carrya o	Carya o	Carya gi	Carya g	Carya gi	Carya o	Carya g	Carya d	Carva o	Cava 9	uercus vel	er sacchar	Quercus	Carya	Carva	Caryo o	Carya	Carya	er saochar	er sacchar	Carya g	Acer ru	Carya	Carya	Carya	C-arya	Carya	Carya	California di	-
dina	vim	6rib	vata	num	dum	adra	vata	erge	Aina	ende	abra	vata	abra	abra	abra	abra	eue:	mm	erde	abra	vata	abra	vata	stina	mum	cana	wata	vata	mun	aña	abra		a num	ahra	A A A A A A A A A A A A A A A A A A A	wata	labra	labra	labra	wata	labra	labra	labra	E.IOR	utina	mun	alba	wata	wata	APA D	stand	ovata	mum	inum	fabra	brum	ovata	ovata	ovata	Citra Citra	ovata	ovata	- Contract	
24	24	24	24	24	24	2 1	24	18	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	2	23	213	2 2	210		24	24	24	24	21	N	20	1	2	2	2	12 2	2 4	2 1	2 10	N	N	N	N	2	N	N	N	VN	2 1	N		
·8 03	19 16.	18 16.	47 9"	6 17	15 5.	10.	42 10	4	40 8	39 8'	38 13'	37 6	36 12"	21 52	34 12	33 13	11 25	31 18	30 8.	29 T	.11 82	27 8.	26 7	25 6	24 12"	23 8.	22 14	21 10"	20 9"	19 13.	18 7	17 12	10 10	16 10	10 0	12 14	111 10"	10 7	109 15"	·08 13"	07 10	06 T	-01 50	R ED	102 6	101 6	100 16"	99 12	00 100	11 000	21 568	194 21	493 9	192 12"	101 7	.9 064	189 7	188 10"	11 28	14 COC	384 7	383 16.	A1 700	107 100
5	0	0	1	t	t	t	t	t	T	-				-					-		-			1	-	1	1	1		+	+	+	t	$\dagger$	t	1	t			1	+	+	t	-	t	-	+	+	+	t	+	H	H	H		-	1	1	+	t	+	-	F	
hagbark Hick	hagbark Hick	hagbark Hick	Pignut Hick	Pignut Hick	Pinner Link	American	Pignut Hick	Silver Ma	Silver Ma	Silver Ma	Black Che	Silver Ma	Pignut Hick	Pignut Hick	Silver Ma	Pignut Hick	Pignut Hick	Pignut Hick	hagbark Hick	hagbark Hick	shagbark Hick	Black Chi	Silver Ma	Silver Ma	Shagbark Hick	Silver Ma	White	Silver Ma	shagbark Hick	Silver Mu	Sher M	Riark Ch	Black Ch	Diant Ph	ine of heat	Ingout High	Silver Mu	Shagbark Hid	Silver M.	Silver M	Silver Mi	Shapbark Hiol	Theorem Line	Shagbark Hici	Black Ch	Silver M.	Silver M	Black Ch	Short Un	Silver M	Silver M	Pignut Hid	Pignut Hid	Silver M	Shagbark Hio	Silver M	Silver M	Black Ch	Shanhark Hin	Silver M	Shagbark Hic	Shagbark Hio	our viedbeue	Provident Contractory of the local division of the local divisiono
A.M	ALC IN	87	3	100			Kio	ple	ple	ple	ALA	ple	, NO	YNO:Y	ald	Kino	Avon	iony	Nory .	Kuo:	ory	Aut	ple	ple	VION	ple	Dak	ple	lory	ple	nois .	- ALA	Veriy	ande	LIAME	Vory	able	kory .	aple	aple	acte /	Norv	LIBAR	Know	VERTY	aple	alde	Auto	Vian	alde	aple	kory	kory	aple	kory	aple	aple	ALLAN A	ander	alder	kory	kory	A server	Annual Contraction
		-	1	1				10	N	MO		No			Ac								No	N		K		K		-				2	All		N		N	R	R		N			A	×							×		-	F							
Caryao	Carva o	Carva o	Carva o	Carva ol	Course a Date	THUS WITHOUT	Carya gi	er sacchari	er sacchari	er sacchari-	Prunus sero	er sacchari	Carya gi	Carya gi	er sacchari	Carya gl	Carya g	Carya gi	Caryao	Caryao	Carya o	Prunus serv	er sacchari	er sacchari	Carya o	er sacchari	Quercus	er sacchari	Carya o	er sacchar	of sarchar	Druhus nav	Prunus ser	Der sacchar	anthus altis	Carla 0	ser sacchar.	Carya	er sacchan	er sacchar	of sacchar	Carva	anthus altis	Carya	Prunus ser	ner sacchar	ter sacchar	Prunus ser	HTURUS Set	CRY SOCCHA	oer sacchar	Caryas	Carya s	cer sacchar	Carya	ter sacchar	ter sacchar	Prunus ser	Carona -	cer seccha	Carya	Carya	Carya	
wata	vata	vata	abra	abra	cana	Cana	abra	mum	mm	mum	ptina	mum	abra	labra	mum	labra	erdel	labra	ivata	ivata	ivata	otina	mum	mun	Wata	mum	alba	mum	wata	mum	Num I	IT DATE	otina	mun	Sima	labra	tinum	ovata	Inun	inum	UTIUN DI	Ovata	15ima	etevo	rotina	TIMUTH	inum	otina	rouna	mun	mum	Jabra	labra	rinum	ovata	Inun	rinum	otina	TIMOT	mun	ovata	etevo	ovata	
1	1	1		1																											1																	1										1						ļ

Easting to le Remain

Seaw ) ( ) (

ES2.7

nby TS

Copyright 2021 A2 Collaborative, LLC. © 2021 A2 Collaborative, LLC.

MURIE GLEN MURIENA Marking Status Marking Status 4 SPI AT Conference of the LEC. The strength memory to available that you should be planning. The strength memory and the system of these threads or therein a conference approximation of the provide or the strength or a conference approximation of the provide or the strength or a strength or the provide or strength or a discussion of the the strength of the advectory that the strength of the the strength of the advectory that and the strength of the the strength of the strength or and the strength of the the strength of the strength or and the strength of the the strength of the strength or and the strength of the the strength of the strength or and the strength of the the strength of the strength of the strength or and the strength of strength of the strength or and the strength of the the strength of strength of the strength or and the strength of the strength of the strength of the strength or and the strength of the strength of the strength of the strength or and the strength of the strength of the strength of the strength or and the strength of the strength of the strength of the strength or and the strength of the strength Project North Project # 0 NOT FOR CONSTRUCTION 10000

1 444	1 6102	2518 1.	2517 1	2516 2	2515 2	2514 7	10 513	1011 11	2510 1.	2509 6	2508 1	2507 1	2506 8	2505 1.	2504 2	2503 1	2502 1	2501 1	8 0052	2400 1	2402 0	1 9647	2495 1	2494 1	2493 7	2492 1	2491 1	2490 8	2489 1.	2488 1.	2487 2	2486 1	2485 8	2484 7	2483 1	2482 8	7401 1	1 6147	2478 1	2477 8	2476 1	2475 9	2474 8	2473 2	2472 1	2470 0	1409 1	2468 1	2467 1	2466 7	2465 8	2464 6	2463 1	2461 7	2400	2459	2458	2457	2456 7	2455	2454	2002	Cares
ŀ	-	1	0	9.	9	1	9.	1	3		02	9		3.	7	1-	1	0	1	1	1	-	3	9	H	2	2		q	0.	3.	9	-	1	7	1		1	0		3	1	1	5	-	1	1	0	Q.	1		1	2	1		F	3	2	1	T		1	17
artest taxes	ardew Jauns	Black Cheny	Shagbark Hickory	Silver Maple	Silver Maple	Shagbark Hickory	Shagbark Hickory	Diversi Malan	Shagbark Hickory	Shagbark Hickory	Silver Maple	Shagbark Hickory	Pignut Hickory	Shagbark Hickory	Pignut Hickory	Pignut Hickory	White Oak	White Dak	Black Cherry	Black Chany	Charlens Linking	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Silver Maple	Silver Maple	Sweet Cherry	Saver Maple	Black Cherry	Pignut Hickory	Silver Maple	Shagbark Hickory	Silver Maple	Sover Maple	Silver Maple	Bidew Manual	BICEW JANIS	Saver Maple	Shagbark Hickory	Silver Maple	Shiegbark Hickory	Shagbark Hickory	Shagbark Hickory	White Oak	Shedberk Hickory	Propriet Hickory	Shagbark Hickory	Sweet Cherry	Silver Maple	Shagbark Hickory	Shadbark Hickory	White Oak	Shudowk Hickney	Silver Maple	Silver Maple	Pignut Hickory	Shapbark Hickory	Silver Maple	Pignut Hickory	Shanhard History	Han then have	White Oak
THUR BRITTER INTE	Acer saccharour	Prunus serotinu	Carya ovata	Acer saccharinum	Acer saocharmun	Carya ovata	Carya ovati	Number of the second	Carya ovati	Carya ovati	Acer saccharinum	Carya ovati	Carya glabri	Carya ovate	Carya glabri	Carya glabri	Quercus albo	Quercus albo	Prunus serotinu	Original association	Print and	Carya ovati	Carya ovati	Carya ovati	Carya ovati	Acer saccharinun	Acer saccharinun	Prunus avuin	Acer saccharinum	Prunus serotin	Carya glabo	Acer saccharinum	Carya ovat	Acer saccharinun	Acer secharinun	Acer succharinum	ACRE SACUTOR	multiples Jay	Acer saccharinun	Carya ovat	Acer saccharinun	Carya ovat	Carya ovat	Carya ovat	Quercus alb	Carya oval	Carya glabr	Carya ovat	Prunus avuir	Acer saccharinur	Carya oval	Carva ovat	Charlous allo	Acer sacenannu	Acer saccharmut	Acer saccharinur	Carya glabr	Carya oval	Acer saccharinur	Carya glabr	Caro and	Annual	Pumping all
				3	2					-	3				-	1	-	-					-	-		n	n	n	n	-	-	3	-	-	3			1	3		m twie		-				1		3	3	F				a	3	3	12	3	-		1	
(MC)	2589	2588	2587	2586	2585	2584	2583	1007	2580	2579	2578	2577	2576	2575	2574	2573	2572	2571	2570	000	1967	2566	2565	2564	2563	2562	2561	2560	2559	2558	2557	2556	2\$55	2554	2553	1007	0007	2549	2548	2647	2546	2545	2544	2543	2542	2540	2539	2538	2537	2536	2535	2534	2067	2541	2530	2529	2528	2527	2526	2525	1030	1 LOCA	66301
-	10	.01	19.	12"	10'	13	10	1	6	9	10"	9.	7	8	9.	10"	10-	10.	10		10	9	8	7	.6	-51	8.	10"	16"	9	8.	14	17	16	10"	R	11	0	0.	6"	9'	8	Y	14.	6	21	111	19"	12"	6.	14	19.	10	111	12	12"	12	16'	17	11.	21	0	141
Property monthly	Shagbark Hickory	Unden	Shagbark Hickory	Silver Maple	Shagbark Hickory	Pignut Hickory	Pipnut Hickory	American tim	Silver Maple	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Silver Maple	Silver Maple	Sever Maple	Shagbark Hickory	Silver Maple	Shadbark Hickory	Shaohark Hickory	BIDEN JANE	arderin Janis	Shagbark Hickory	Black Maple	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Shagbark Hickory	Pignut Hickory	Pignut Hickory	Silver Maple	Pignut Hickory	Pignut Hickory	Pignut Hickory	Pignut Hickory	Shanhark History	aidem refins	Saver Maple	Sassafras	Silver Maple	Shagbark Hickory	Black Cherry	Black Cherry	Shagbark Hickory	Black Cherry	Shagbark Hickory	Silver Maple	Pignut Hickory	Pignut Hickory	Shagbark Hickory	Shagbark Hickory	Shanbark Hickory	Dinum History	Shagbark Hickory	Pignut Hickory	Pignut Hickory	Saver Maple	Sliver Maple	White Oak	Silver Maple	Section Invest	Auguary Measury	Sharehout trickond
Carya giaora	Carya ovata	Tilia americana	Carya ovata	Acer saccharinum	Carya ovata	Canya giadra	Carva dabra	Umus americana	Acer saccharinum	Carya ovata	Carya ovata	Carya ovata	Acer saccherinum	Acer saccharinum	Acer saccharmum	Carva ovata	Acer saccharinum	Carva ovata	form mate	ACel seconarioum	Acer saccharinum	Carya ovata	Acer nigrum	Carya ovata	Carya ovata	Carya ovata	Carya ovata	Carya ovata	Carya glabra	Carya glabra	Acer saccharinum	Carva clabra	Carva clabra	Carva olabra	Carva dabra	Carva giaora	Acer saccharum	Acer saccharinum	Sorbusassafras albidum	Acter saccharinum	Carya ovata	Prunus serofina	Prunus serotina	Carya ovata	Prunus seconarioum	Carya ovata	Acer saccharinum	Carya glabra	Carya glabra	Carya ovata	Carva ovata	Carva ovata	Acet saccharoum	Carya ovala	Carya glabra	Carya glabra	Acer saccharinum	Acer sacchannum	Quercus alba	Acer saccharinum	Acer sacchannum	Carya ovata	Provide States
2660	2659	2658	2657	2656	2655	2654	Z692	2651	2650 9	2649 8	2648	2647 1	2646	2645 1	2644	2643	2642	2641	2602	2038	2637	2636	2635	2634	2633	2632	2631	2630	2629	2628	2627	2626	2625	2624	2622	1707	2620	2619	2618	2617	2616	2615	2614	2613	2612	2610	2609	2608	2607	2605	2605	PUNC COOT	2002	2601	2600	2599	2598	2597	2596	2595	2093	2662	Canal Canal
-		1	22	-	3	1				34	14.	-	2	-		-		+			3	-	<i>y</i>		~	~	~	Š	~	-		1		-	-			15	10"	15		~	S	1			11-	20.	14	1	13.		-		11.	<i><i>o</i>:</i>	6,	Y	7	14.	12	11	a bear
Red Oak	Swamp White Oak	Swamp White Oak	Black Walnut	American Elm	Black Walnut	Black Cherry	Black Walnut	American Elm	Swamp White Oak	Swamp White Oak	Black Walnut	American Elm	White Oak	Swamp White Oak	Swamp White Oak	Swamp White Oak	American Fim	Riack Walnut	Rise's Walnut	Swamp white Uak	White Oak	White Oak	American Elm	Black Walnut	Black Walnut	Black Walnut	American Elm	Black Walnut	Shagbark Hickory	Swamp White Oak	Swamp White Oak	Shaoberk Hickory	Pignut Hickory	Pinnet Hickory	Black Charry	mop-mombeam	Hop-Hombeam	Silver Maple	American Elm	Linden	Pignut Hickory	Silver Maple	White Oak	Shaobark Hickory	Shanhark Hinkney	Silver Maple	Shagbark Hickory	Pignut Hickory	Shagbark Hickory	Red Oak	Silver Maple	Black Charry	Black Cherry	Saver Maple	Silver Maple	Silver Maple	Silver Maple	Silver Maple	Black Cherry	Picnut Hickory	Shagbark Hickory	Pignut Hickory	And and a state of the state of
Quercus palusta	Quercus bicol	Quercus bicol	Juglans nig	Ulmus america	Duglans nig	Prunis service	pin sneigut.	Ulmus america	Quercus bicol	Quercus bicol	Juglans nig	Ulmus america	Quercus al	Quercus bicol	Quercus bicol	Ouercus bico	Ulmus america	history and	Citrus america	Quercus bico	Quercus al	Quercus al	Ulmus america	Jugians nig	Juglans nig	Jugians nig	Ulmus america	Juglans nig	Carya ova	Quercus bico	Ouercus bico	Carva ova	Carva clab	Carva dat	Drawin same	Ustrya virgi	Ostrya virgin	Acer saccharine	Ulmus america	Tilia america	Carya glat	Acer saccharint	Ouercus a	Carva ova	A CHE SACCEMENT	Acer saccharine	Carya ove	Carya glat	Carya ovi	Quercus palust	Acer saccharin	Prunus sarot	Prunus serot	Acer saccharine	Acer secchariny	Acer saccharine	Acer saccharine	Acer saccharine	Prunus serot	Acet saccharin Carva da	Carya ore	Carya gian	
	×	¥	-	5	1			-	×	¥		-	W.	×	y i	2 1				Q	i i	ä	á		3	2	2	-	8	8	8					-	6	n	10	16	9	3				m	ta	12	ta	-	3 8	10	4	m	3	m	a	3	14		10	3	
2731	2730	2729	2727	2726	2723	2212	2724	2721	2720	2719	2718	2717	n 2716	2715	2714	2712	2712	2112	2709	2708	2707	2706	2705	2704	2703	2702	2701	2700	2699	2698	2697	2096	2000	1010	7407	2091	2690	2689	2688	2687	2686	2685	2684	2683	1992	2680	2679	2678	2677	2676	2675	2673	26.72	2671	2670	2669	2668	2667	2666	2665	2003	2662	
10"	7	17"	15"	11.	10"	0. 4	12	10	9.	11.	8.	13"	12"	15'	13"	2	110	140	8	77	7	12"	13"	12"	11.	14	9.	Y	12"	9.	0.	10"	7		0	2	11.	14.	7"	11.	11.	9.	8	0.	11	7.	.41	8.	8.	10'	00	40	9	7	10'	8.	6.	6.	12"	0.0	17	7	
Red Cedar	Red Cedar	Red Cedar	Red Cedar	Red Cedar	Red Cedar	Red Cedar	Red Cedar	Red Cedar	Red Cedar	Red Cedar	Black Cherry	Black Willow	Black Willow	Black Walnut	Black Walnut	Black Cherry	Black Charry	David Cardian	Ked Cedar	Red Oak	Black Cherry	Black Cherry	Black Walnut	Red Cedar	Red Cedar	Black Cherry	Red Cedar	Black Walnut	Black Walnut	Red Cedar	Red Cedar	Red Certar	neu ceua	Dad Dadas	Aliaun xorio	Red Cedar	Black Cherry	Black Walnut	Red Cedar	Red Oak	Red Cedar	Red Cedar	Bart Carlas	American Film	Black Cherry	Silver Maple	Swamp White Oak	Red Cedar	Black Cherry	Red Cedar	Black Cherry	Red ceoar	Black Cherry	Swamp White Oak	Red Oak	Red Oak	Red Oak	Swamp White Oak	Swamp White Oak	Red Oak	Black Walnut	Swamp White Oak	
Juniperus virginian	Juniperus virginian	Juniperus virginian	Juniperus virginian	Juniperus virginian	usining smanner	URIUBIA Shadkun	Juniperus virginian	Juniperus virginian	Juniperus virginian	Juniperus virginian	Prunus serotin	Salu nig	Salix nigr	Jugians night	Judans nice	Prunus seruin	Denote and a second	Contraction of the second s	Juniperus virginian	Quercus palustri	Prunus serotin	Prunus serotin	Jugians nigi	Juniperus virginian	Juniperus virginian	Prunus serotin	Juniperus virginian	Jugians nigr	Juplans nior	Junipenia Virololan	Juninerus virninian	and a source of the source of	second an and and a second sec	turner and an and	nones snund	Juniperus virginian	Prunus serotia	Jugians nig	Juniperus virginiar	Quercus palustr	Juniperus virginian	Juniperus virginiar	lininaria coma	Limits summer	Prunus serote	Acer saccharinu	Quercus bicol	Juniperus virginiar	Prunus serotir	Junicents virginiar	ature sound	Juniperus wrginia	Prunus serotin	Quercus bicol	Quercus palustr	Quercus palustr	Quercus paluste	Quercus bicol	Quercus bicol	Prints service	Jugians nig	Quercus bicol	
		2	-		T	1	-	0	-	-		1	-			ľ	T	T	a two		-	*	-	-	1	-	-	-			1	1		1	-	-	6	ai .	6		-	-	ľ		1	n	×	-	-			1	-	24	õ	6		4		14	1	10	
2800	2799	2798	2797	2796	2705	TALE	2792	2791	2790	2789	2788	2787	2786	2785	2784	7917	10/2	1917	2119	2778	2777	2776	2775	2774	2773	2772	2771	2770	2769	2762	- 1960	2012	1012	2103	2012	2761	2760	2759	2758	2757	2756	- 2755	2754	7617	2751	2750	2749	2748	2747	2746	2744	2143	2742	2741	2740	2739	2738	2737	2736	2735	2734	2733	I
7	6.	7.	14	10	14.	1 =	6.	111	6.	8	8	10'	8	7.	2.0		2	2 10	17	117	7	12	6.	14"	11-	16.	6.	13'	8	R. 10	12.	120	13	13	11	9	10'	17	7.	8.	12	8.	0.0	2.0	7	6.	6.	12	12.	7	7.0	12	10"	7.	6.	0.	8.	8.	18.	18	7.	12.	ł
Black Cherry	Silver Maple	Red Cedar	Black Cherry	Black Cherry	Risck Cherry	Slack Cherry	Black Cherry	Box Elder	White Ash	White Ash	Black Cherry	Black Cherry	Box Elder	Black Walnut	Right Walnut	Black Charry	and too	BOR YOR	Box Eldes	Box Elder	Black Walnut	Box Elder	Black Walnut	Box Elder	Box Elder	Box Elder	Black Cherry	Box Elder	Box Fider	Boy Fider	Boy Elder	Box Elder	BOX EIGE	BOX DOE	Box Elde	Box Elder	white Mulberry	Sweet Cherry	Box Elder	Box Elder	Black Cherry	Riank Cherry	Diata Citerry	Diack Cherry	Black Chem	Red Ceda	Black Walnu	American Em	Red Cedar	Bed Ceda	Black Cherry	Black Cherr	Red Ceda	Black Cherry	Red Ceda	Red Ceda	White Mulbern	Red Ceda	Red Ceda	Black Walnu	Red Ceda	Red Ceda	
	Ĩ	-	1	T	T	T		-	-		-		T	Ĩ		T	T	ľ	ľ		-	1	-	-	1	Ĩ	T	Ĩ	T	ľ	T	T	T	T			×	×	-	-		1	T	T		4	-	-	1		1	T	4	Y	4	4	×	T	1	a	4	W	
Prunus serotina	Acer saccharinum	Juniperus virginiana	Prunus serotina	Prunus serotina	Drinus carrière	Prunus serotina	Prunus serotina	Acei negundo	Fraxinus americana	Fraxinus americana	Prunus serotina	Prunus serotina	Acer neoundo	Jugians night	PTUTUS Serotina	Acer negundo	Acer negundo	Acer negunoo	Acer negundo	Acer negundo	Jugians nigra	Acernegundo	Jugians nigra	Acernegundo	Acer negundo	Acer negundo	Prunus serotina	Acer negundo	Acer neoundo	Anna management	Acar pagando	Country in the second	combau and	Acer Degrado	Acer negundo	Acer negundo	Morus alba	Prunus avuim	Acer negundo	Acer negundo	Prunus serotina	Printing apprint	PTUNUS SPECING	Prunus seruina	Phunus serotina	Juniperus virginiana	Jugians nigra	Ulmus americana	Juniperus virginiana	presentation and present	Pruitus serotina	Prunus serotina	Juniperus virginiana	Prunus serotina	Juniperus virginiana	Juniperus virginiana	Morus alba	Juniperus virginiana	himperus virginiana	Jugians nigra	Juniperus virginiana	Juniperus virginiana	-
				twin		TWIN					quint	triple																					TWIN				triple				twin														twin								

• Mill ACC defaueres LU Pressure Verge en la registra part d'un favora de la construction de la construction d'accession de la construction parte version d'accession de la construction de la construction autorisment and a construction de la construction de

Project #

NOT FOR CONSTRUCTION

MURIE GLEN Tener La tat: Securites Beau ta teneros

Easting to Removed

 $\bigcirc$ 

ES2.8

nby TS

Copyright 2021 A2 Collaborative, LLC, © 2021 A2 Collaborative, LLC

2801	10"	Black Cherry	Prunus serotina		2871	7*	Box Elder	Ace
2802	11'	Red Cedar	Juniperus virginiana		2872	ð.	Box Elder	Ace
2803	9.	Red Cedar	Juniperus virginiana		2873	8,	White Mulberry	N.
2804	9.	Red Cedar	Juniperus virginiana		0.0000000			
2805	12"	American Elm	Ulmus americana					
2805	7	Black Cheny	Prunus serotina	triple				
2807	9.	Red Cedar	Juniperus virginiana					
2808	8.	Black Cherry	Prunus serotina	21.555				
2809	8.	Black Cherry	Prunus serotina	twin				
2810	6.	Black Cherry	Prunus serotina	twin				
2811	15'	Red Cedar	Juniperus virginiana					
2812	6.	Black Cherry	Prunus serotina					
2613	7	Black Cherry	Prunus serotina		6			
2814	7.	Black Cherry	Prunus serotina	triple				
2815	11'	Red Cedar	Juniperus virginiana					
2816	10"	Black Cherry	Prunus serotina					
2817	7*	Black Cherry	Prunus serotina					
2818	7*	Red Oak	Quercus palustria					
2819	8.	Black Cherry	Prunus serotina	quad				
2820	8,	Black Cherry	Prunus serotina					
2821	8.	Red Cedar	Juniperus virginiana	twin				
2822	7.	Red Cedar	Juniperus virginiana	-				
2823	6'	Red Cedar	Juniperus virginiana					
2824	8,	Red Cedar	Juniperus virginiana					
2825	10"	Red Cedar	Juniperus virginiana					
2826	6.	Black Cherry	Prunus serotina					
2827	10"	Red Cedar	Juniperus virginiana	1				
2828	9.	Black Cherry	Prunus serotina	1000				
2829	T	Red Cedar	Juniperus virginiana					
2830	8'	Red Cedar	Juniperus virginiana					
2831	7	Red Cedar	Juniperus virginiana					
2832	9.	Black Cherry	Prunus serotina					
2833	7.	Black Cherry	Prunus serotina					
2834	12	Red Oak	Quercus palustris					
2835	8"	American Elm	Ulmus americana					
2836	10*	American Elm	Ulmus americana					
2837	10"	Red Cedar	Juniperus virginiana					
2838	14'	Silver Maple	Acer saccharinum					
2839	8.	Silver Maple	Acer saccharinum					
2840	7*	Red Cedar	Juniperus virginiana					
2841	11'	Red Cedar	Juniperus virginiana					
2842	8.	Red Cedar	Juniperus virginiana					
2843	8'	Red Cedar	Juniperus virginiana					
2844	11'	Red Cedar	Juniperus virginiana					
2845	9.	Black Cherry	Prunus serotina	twin				
2846	9'	Red Cedar	Juniperus virginiana					
2847	9.	Red Cedar	Juniperus virginiana					
2848	12"	Red Cedar	Juniperus virginiana					
2849	10"	Black Cherry	Prunus serotina					
2850	6"	Red Cedar	Juniperus viroiniana					
2851	8'	Red Cedar	Juniperus virginiana					
2852	7*	Red Cedar	Juniperus virginiana					
2853	7.	Red Cedar	Juniperus virginiana					
2854	7*	Red Cedar	Juniperus virpiniana					
2855	7.	Red Cedar	Juniperus virginiaga					
2856	13	Silver Manie	Acer saccharinum					
2857	6.	Red Cedar	Juniperus virginiana	twin				
2858	8.	Red Cedar	Juniperus virginiana					
2859	6'	Red Cedar	Juniperus viminiana					
2860	6	Black Walnut	Juciane niera					
2861	7.	American Elm	Ulmus americana					
2862	8	Red Cedar	hubinerus virruniana					
2863	13'	Red Cedar	luniperus veginiana					
2864	10	Red Coder	Jumperus vegeniana					
RAS	197	Red Cedar	business of the second					
1944	7	Red Cedar	Juniperus virginiana					
2867	10	Red Codes	Inclusion and Annual Annua					
196.9	0.	Black Circuit	Juniperus virginiana					
0460	1161	Black Cherry	Prunus serocha	twin				
1009	0	Black Cherry	Prunus serotina					
10/0	1.	Ned Cedar	Juniperus virginiana					

Easting to Remain
Easting to Remain
Easting to Remain

MURIE GLEN Statute 1 Statu



Project #

Record

Seale Tree List ES2.9

Copyright 2021 A2 Collaborative, LLC, @ 2021 A2 Collaborative, LLC







#### NOTES

NUTES 1) The base in view was prepared in December 2018. All underground dathers and Stuctures have been shown to a responsibility or entry their earch tradition and to avoid durage their The occinicate shaft-leget any discrepance is the engineer private commencing wold 2) Wettlands areas flagged in Normite 2018.

Mixed Development Commun (OSPUD and ECHO Mixed Dev	ity elopment)
Total Lot Size	2,125,405 SF (48,79 acres)
SubmergedLand	164.182 SF (3.77 acres)
Right of Way	220.395 SF (5.06 acres)
Private Loss	522,185 SF (12.0 acres)
Proposed Open Space (Total Lot Sue ROW Private Lots: Submerged Land)	1,218.643 SF (27.98 acres)
Open Space Wetland	414,730 SF (9.52 acres)
Proposed Open Space '8. (Proposed Open Space / Total Lot Size) (1218.543 SF / 2,125.405 SF)	57 3%



Project North

۵ 40 L Site Plan - Northwest

AS1.2

10.06.202 Page 2

MURIE GLEN

#### LOT COMPOSITION

ECH0 Lots = 20 Lots 02 08, 29 31, and 41 50 X Typical Single Family Lots - 13 Lots 01, 09, 10, 19-25, 27, 33, and 51 '8' Single Family Comer Lots - 6 Lots 16, 26, 28, 32, 34, and 35 10" Single Family Culide sac Lots - 7 Lots 15-17, and 37-40

17 Single Family Large Lots - 5 Lots 11:14, and 36

#### LINE LEGEND

---- PROPERTY EDGE ---- RIGHT OF WAY EASEMENT WETLAND SETBACK ROAD CENTER LINE ...... UTILITY EASEMENT ---- SOIL TYPE BOUNDARY EXISTING ROAD EDGE



Copyright 2021 A2 Collaborative, LLC, @ 2021 A2 Collaborative, LLC



WEST SECTION NORTHEAST SECTION



pyright 2021 A2 Collaborative, LLC, © 2021 A2 Collabora-













#### MURIE Horizo J. D. Pethate is in vey was prepared in December 2016 All underground utilities and introduces have been sitewart to a reasonable designed a causary and the site of a causary and the site of a causary and the site of the centractor esponsibility to verify there exact floatation and to invold samage the to infra contractory action. Site of the designed is the site designed in the contractory action. GLEN ECHO Loss - 30 Loss 02:08, 29:31, and 41:50 A Typical Single Family Lots = 13 Lots 01, 09, 10, 19-25, 27, 33 and 51 B' Single Family Corner Lots = 6 Lots 18, 26, 28, 32, 34 and 35 C' Single Family Cul de sat Lots + 7 Lots 15 17 and 37 40 D' Single Family Large Lots = 5 Lots 11:14, and 36

NOTES


TYPICAL ECHO LOT

>104'

ECH0 lots an grouped together with 5/t ode settacks. Detatched garages may encroach into sebacks.

60'

40

BUILDABLE

7' porch may encroach 7h into the front setback

265

SINGLE FAMILY CUL DE SAC LOT (Type C)

BUILDABLE AREA

L - - -

R.O.W.

BUILDABLE AREA

Lt

>18 -1

---1

13

R.O.W

porch may encroach 78 into the front setback

\_\_\_\_



>80'

60'

BUILDABLE

AREA

porch may encreach 7th atto the front setback

R.O.W.

15" 15th rear setback if abutting forever open space

20'

>55'

13'

10'

- 1

ĩ

>110'





R.O.W.



NOTES







Single Family Corner Lots = 6 Lots 18, 36, 28, 32, 34, and 35



- - SETBACK

NOTES 1) The basis increasing wave registered in December 1018. All underground dubling and instructures than been stream to a maximalian along real carsing and at balance the incorrections unimage fields. The contractors and the final contractors to be response provide stream to information and and 10 Mitlands seem Ellarged in Allevations 2018 20 Mitlands seem Ellarged and 2018 20 Mitlands seem El LOT COMPOSITION ECHOLots - 30 Lots 02-08, 29-31, and 41-50 Typical Single Family Lots - 13 Lots 01, 09, 10, 19-25, 27, 13, and 51

MURIE GLEN

les at the Entrance t





AS2.

SINGLE FAMILY LARGE LOT (Type D)



R.O.W.

Copyright 2021 A2 Collaborative, LLC. @ 2021 A2 Collaborative, LLC





PAVILION DESIGN All reveals features to carefy with solar and disarragine took search care with the addition to be designability owner upon concernation in occamication —in the design publicity standards



A2.0



01 SIGN - AXONOMETRIC



PAVILION DESIGN

All exterior features to comply with submitted design guide-book. Specific cobic and style variation to be designated by owner upon construction in socialization with the design guidebook standards.

MURIE GLEN

the Property.

ONSTRUCTION

IOT FOR

Project &

Project Nort

Sign Design

Drawn by TS

A2.1

10.06.200 Page 1











\CI+II3LP++[\18223\Fine1 Site Fien\18223\CC2.dmg, 10/9/2021 12:43 PM, Jeese B. Belter, C1.2 TOPOGRAPHIC SUBMEY - HEST, MCLIC PDF.pm3



opyright © 2021 Midwestern into revisionality. Levine means and a more that more that more that more than a more t







<ul> <li>SOL EROSION AND SEDMENTATION CONSTRUCTION NOTE:</li> <li>All, SR, REDRIG CORRE, VERSUE 3941, CORRECTS 3941, CORRECT SPECTRONOSCI 2000000000000000000000000000000000000</li></ul>

w/Civ/134.Pvr/NE22V/set 3114 Pre/Ne228Z.adv, 18/4/2001 12:48 Pv, Ave 8, Belfer, C2.3 SOL DOBIOL COMPOLANCE & BOREALES, MOLIC PM yes Copyright © 2021 Midwestern Consulting LLC. All rights reserved. No port of this drawing may be used or reproduced in any form or by any means, or stored in a database or retrieval system, without prior permission of Midwestern Consulting LLC

























II\CIVII34\_Prej\18223\Finei Site Pien\182230P2.evg, 10/4/2021 12:48 PM, Jeseb B. Beller, Co.4 GRADING PLAN - EAST, MOLIC PDF.pv

























H:\CIvII34\_Prej\16223ViseI Site Pi Copyright © 2021 Midwestern

<section-header><section-header><section-header><section-header><text><text><section-header></section-header></text></text></section-header></section-header></section-header></section-header>	A THE REPORT OF
<page-header>         Image: manual state of the state of th</page-header>	
Rev ML BALL RE A BE-ROOT REFERENCE SUBJECT STATES S	

w/CivilsL/v-(/1825//ini lite Prev/8228/m.em. 104//2011 12:81 Pe. Jews 8. Borrer, OL3 Extension WLL 2011/12 3, WLLC PProduced in any form or by any means, or stored in a database or retrieval system, without prior permission of Midwestern Consulting LLC.




















































The underground ut The unveyor makes the area, either i utilities have ar located as occurate		
ilities shown have be -no guarantees that t -service or obandons s in the succi locali ily os possible from	SUE SUCE :	SEDURET DA DESCRIPTION DE DESCRIPTION DE DESCRIPTION DE DESCRIPTION DE DESCRIPTION DE DESCRIPTION DE DESCRIPTION DE DESCRIPTION DE DE DE DE DE DE DE DE DE DE DE DE DE
the located from field the underground utilit d. The surveyor furthe on indicated. Although the information availa	Common Network     Common N	SPL MAX reference transfer (class) reference transfer Control of the Network of the Netwo
survey information and estable complise all r does not warrant the the surveyor does cer ble.	MAG 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.0	PAS GOLART 1100 1100 1100 1100 1100 1100 1100 11
a at i thing i reards and built i thing is the thing of the state of the state of the state of the state of the built buyer at a	<ul> <li>Insurant of the Insurant of the Insur</li></ul>	<ul> <li>Internet mean mean mean mean mean mean mean mean</li></ul>
	SOUTH EASIN PLANTING DELATING THE OWNER WITH THE O	
		RTE TRUE TRUE TRUE TRUE TRUE TRUE TRUE T
JOB NO. 18 REMEMONS: 75P SLEMITIN, 1 PSP SLEMITIN, 2 PDR CLEMIT	B223 Det MANATI Det 19 07 10 B27 10	CLIENT CL 48 PROPERTIES 2370 E STADIAM BAD. ANN ARGER, M 48164 ATN: JOPF WILKERSON

NI/CivitSL/Proj/N8229/Inex Site Pro/1822073.eq. 10/28/3821 11:27 mJ, Genere K. Briere, L1.2 LubBKARC SChult, MLLC PDr.pc3 Copyright © 2021 Midwestern Consulting LLC. All rights reserved. No port of this drowing may be used or repro-ted to the second statement of the ed in any form or by any means, or stored in a database or retrieval system, without prior permission of Midwestern Consulting LLC.

		818	stillitus shown are in the start location indicated. Although the surveyor does certity that they a orated as accurately as possible from the information andicate.
<ul> <li>Nearly precision Barror as well as searce by the PSCIA/EPA</li> </ul>		2-54	The undergreand utilities shawn have been located from field survey intermation and existing record the unergy makes no parameters that the underground utilities shown comprise of its such utilities in the energy of the unergy of the survey of the unergy of utiles does not ear out that the unergroup.
<ul> <li>A result, Y and y of highly provide an analysis of the sciPC visibility data provides any provide the sciPC visibility of the sciPC visib</li></ul>			
The cost of the symmetry what has alwayds, appendix of a final and costs of the symmetry C. All we provery with a damper of the time tradements with the Stati and Costar Costati Add 1 statistication		Chalidate angelyta park provide unit for each and the provide to cardinal an inductability by parating with the transfer of the antimeter angelyta transmission and constrainting what the transmission. Any material works of the antimeter angelyta material works where when it was constrained to an angelyta to intervent at the contract transmission. The CONINACTON shall be required to be also provide the angelyta and the approximation of the contractor. Out shall be required to be an intervent at the contractor angelyta in the CONINACTON shall be required to be also reading them to use of captooled.	
11 Statute     1 To CARTING. TWO is the year to have a where the elementer to show on the free All distribution     A "the CARTING.TWO where years and the mount is put to enables.     Backing energy at anyong the careful distribution of the free careful to year CARTING.TWO show     How the second at anyong to a second by an encountering of the careful to year CARTING.TWO show     How the second at anyong to a second by an encountering of the careful to year CARTING.TWO show     How the second at anyong to a second by the careful to year CARTING.TWO show	In control the same to book is prime, or the party of these tight of any other, dependent on any mean or an other dimension or the party of the p	and a low-conversion of applicant where conversions and inductions of the transfer integration of conversion and products and the strength of the conversion of the products of the view of explosions which we explore the strength of the COUPTION that index has been of the view of explosions and the strength of the conversion of the couption of the strength of the strength of the strength of the strength of the strength of the couption of the strength of the strength of the strength of the strength of the couption of the strength of the strength of the strength of the strength of the coupling was access to produce and their products on strength of the strength of and coupling the strength of the strength of the strength of the strength of the coupling the strength of the strength of the strength of the strength of the coupling the strength of the strength of the strength of the strength of the coupling the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the strength of the stren	6 The child have of classify as realized tows. The two protect that is the function of the set o
C. S. Lawrence, and a strain the strain of the strain o	Advances to CARTERIZE View waves ensure conserved with the DEMERGIP loss to the management of the conserved of the second second second second second second second material for the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second	Bardon Colombia, T. S. Santana, S. Santana	C Company (see ) and its to analy performance and the second seco
Normality (1), 10, 10, 10, 10, 10, 10, 10, 10, 10, 10	And provide services in services we provide a service provide and a service of the service service of the se	A prior of the commutation was in which the commutation was also as the March 1 the contract of the bard of the commutation of	Res         1.0         1.0         1.0           Res         Res         Res         Res         Res           Res         Res         Res         Res         Res           Res         Res         Res         Res         Res
1.12 PRIMARING CONSTRUCTION STATEMENT AND ADDRESS AND ADDRESS AND ADDRESS A	C. "The barry, Lewing, Lewing, and Kalen and Handward and Mathematic Kalendaria, Control Control Online and Lewing Control Control of the	A is remarking accurate reviews and rado factors or their, one shall be exempted in such accuracy, in careful are provided and with the streament care public theorem where, takes latent at even is pre CONTURCION systems with the reviews provided the streaments are the streament by the streament are the or investigate means where where the stream of streament are streaments.	C. Shat means you are show hat hat has be somerows of the whild are be there for the approximation of the source of the source of the there is a source of the source of the source of the source of the there is a source of the source of the source of the source of the there is a source of the source of the source of the source of the there is a source of the source of the source of the source of the there is a source of the source of the source of the source of the there is a source of the source of the source of the source of the the source of the source of the source of the source of the the source of the source of the source of the source of the the source of the source of the source of the source of the the source of the source of the source of the source of the the source of the source of the source of the source of the the source of the source of the source of the source of the the source of the source of the source of the source of the the source of the source of the source of the source of the source of the the source of the source of the source of the source of the the source of the source of the source of the source of the source of the the source of the source of the source of the source of the source of the the source of the sou
Comparison for handla benefits and not ordering, pages of the second of a LRC Comparison of the second of a LRC Comparison of the second of	A ready to be strated of their services as worked as the barded area proved as the COERDACID's and the strategy of the stra	Laboratorithe eta Haugeriata A daname internetaria del se anadal artenati hapat de la la dana e prese ana mun transmissiona del paradale antenano mende la Udalezi. E dapatente de transmissiona de anada esperanena del de la del rete trans de la dapatente de antenano de antenano del de la del rete trans	A CAD reference to the control of th
We approximate and a rank, and worky creates is the stope about in the Plane or war other object and works and works and works and a stope and a stope of the	Another is a series as stands, y is (10)(10)(12), seeing on series as of six as consider contains by exercise as stands, y is (10)(10)(12)), seeing on series as of six as considered as a series of six aseries of six as	(a) a structured manual shall to shall no a normal plan of not introduce the stand and shall be communed to the structure of structures. In plant the structure of structures are structured in the structure of structures and structures of structures and structures and and structures for a structure of structures and all not find structures and structures are structures. Structures many and structures and all not find interplane and plant communities for these in a structures many.	Veryal Daware Valance varia Driveni Tokova Veryal D. 2.186 r.Can
di dicho: cance, can o la engla para a para di anno	C The COLTING-COLE and a parallel is in EXCRECT 4 for some rough columns and ensurement constrainty of its answer (spring) in the to state parallel is a start with spring. The collection is constrainty of the state parallel is a start of the start of the start of the start spring. The start is a constrainty of the start of the collection of the start COLTING start is a start of the start COLTING start is a start of the start of	9 Were, user, parriel date interpresent instance hyper CARTOR-TML as the constants with in these manufactures are another and an ordinated by the CARTOR-TML and and a transmission to CONTROLLOW of an ensurement approximation of the state of the constant. The CONTROLLOW and constants are provide a state of the state of the constant. The CONTROLLOW and constants are constant or constants and constants are state and and any running another to constant another of the provide of contrage.	<ul> <li>A Deel money spectra servery and parking of all reviews to the sequences or a new ANDV 401.</li> <li>B Deel arriving to an other and the review of the servery ender ones, for insparsions of the provisional of approximate for provisional of approximate for a provisional of approximate for provisional or approximate for provisional or approximate for provisional or approximate for provisional or approximate for a provisional or approximate for approximate for a provisional or approximate for a provisional or</li></ul>
3.11 Fig.1 and Area Section 1. The section of the section section 1. The section of the secti	The CONTENT CONTENT was derived wanted and experiments are contented in the answer. The internet Versitz on the occupied to be served in their data, and information (get instruct to constant. Investme and and the struct is in the occupied in the served presents to a to use steps and constant the outpress of other instructions have an analysis.	C. Other undergoing in prime, several or instruction socialization in a management of the descention of the instrument of the instrumen	2.00 BRANNO PPG
Fauery De Ma Glavon 1974 Pauery De Ma 200 Spore 3-23 D When enclosurement content is familia to the action in the collection. The typ 4 index 14th the content of the state of the state of the transmission to be an CORDACCON	3 of internation, there may be indexed as 3 of the solution of the programmer of the programmer of the programmer of the product of the the transferd (priorit material and the programmer of t	D. Weas inscription of the goals inspace or show its work is in does possibly of earliery socialities, the society field is basically field by the second rate of	1. Werken: "graviture instantial there's a surgical to security" methy, both the example of the information of a methy methylappendia methylappendia and other Costs 4 costs 40 Costs 4000 VIGOT 2022.
But at these means, means of a resonance or a tradition path to note a school who, in the of support, and then continuous, many and work at control works. The tradition theory is graph to all the control ways and the c	the CRUSULT and the weak-pairs to May when the U. Aller the provide the functionality, the meaning value tablewer the correct pro-and the encoding pro-well to provide speciality of the pro- tocols to prevent flaging or non-means and may pro-	provide use while provide for a determine the character of Marcia and a marketing model determine the character of the provide to market and the temp of the later and to allow the signal for the provide to market and the signal of a while provide statement of the same of the same of the same provide provides and the signal of the same provides and the same provides	The exception of an advances out on the first years made a strategy register in their strategy trategies and an advances of the strategy of the strategy of the strategy of the strategy of the strategy provide a strategy of the strategy
A financiarum in collective prepared tracing in charach will some utilized to our private tracing which has private and utilized investing to instamentation in its hatingan Department at Interholotation for genutar material comparation in little another.	L using their is polymerally is accurate the Thinghand Exception where we prove a second control of the polymeration and under a second of the interface of the polymeration and under a second of the interface of the interface of the second of the seco	A "subjects see to automate it was major implication and measured." In second 200 percent representation of the second and	2.00 BACOPAL BATTRAN A First some occupation (Second Carliff County Lands) and in a first some second second second
<ul> <li>For all other team load/Bay deal conset of placing excepted massed as before in fragmon 2014 of the Seeker in 154 of the Weik Med (cole: Completes of started web to some et the other 155 of the management of Barley team excepted 154 of the other in some of 2 style Land Ando BanConstantion Frag Instructiones;</li> </ul>	sustainty produced to VV service true ducks reaction to the state study. All Adults and study builts the for wells is in reactions provided to contrast produced and the service and an expected to the formation of products as relations. If sprange state analysis that adult are contrast as equivalent to the formation in a strue associations condets (of the service). This strength provided the structure is the VM Adult D as well associated to other the structure of the strength provided the structure is the VM Adult D as well associated by VM adult and the structure of the strength provided the structure is the VM Adult D and the structure is VM adult and the structure of the structure of the structure of the VM adult D and the structure of VM adult adult adult and the structure of the stru	C. Any excession will become an even of work by mar to finding the transit and transmarking appropriate study. Increase the second set in EVCANTER or Another System Conduction, the CONTINUE-CONTINUE of the EVENTS and part 15 allowands are a transmission of the Events and an EVENTS of the EVENTS and part 15 allowands.	tandonana (a marina a manana da manana a manana a marina a
3 Annual sectors are not a fixed an encoder of the sector of the grant of restands or special to 2 and 30, composition of hostill and the sectors in the orbits of the manname and derively and discretions at the optimization memory memory.	2. Comparison procession of a contrast plane larger from 20% stands to a PVC factor burnder contrast (10% 41 mic), and contrast provide contrast and procession of programs that a procession of programs contrasts in a PVC and contrast and procession of programs contrasts and procession of procession of programs contrasts and procession of programs contrasts and procession of procession o	constation, the weight of the damage and we had near our and the overlap the COMPLACTOR of demand by its COMPLACTOR all cases to the provided work after be borned by the COMPLACTOR as recorded the Contend case.	1.64 SOL BORBOOK A TWO NAME of Solution of a site are accumulate to Brand Scient/Selection with broaders result
Composition in Namer, N.C. In clinical of J. Arristic scale in Longitude Composition of Langitude Composition of Langi	1. Cancer quences no cancer gives non at - 1.24 routed to mask of a monote supported togit strengt propertiesting sparse with all interests and concretions que to be left. For cancer quence the set of \$2,5 to cancer quences there = 7, which all interests and the set of the set of the set of the propertiest quences and the set of the propertiest quences and the set of the set of the set of the set of the propertiest quences and the set of the set of the set of the set of the propertiest quences and the set of the set of the set of the set of the propertiest quences and the set of the set of the set of the set of the propertiest quences and the set of the set of the set of the set of the propertiest quences and the set of the set of the set of the propertiest quences and the set of the set of the set of the set of the propertiest quences and the set of the set of the set of the set of the propertiest quences and the set of the set of the set of the set of the propertiest quences are set of the set of the set of the set of the propertiest quences are set of the set of the set of the set of the propertiest quences are set of the set of the set of the set of the propertiest quences are set of the set of the set of the propertiest quences are set of the set of the set of the set of the propertiest quences are set of the set of the set of the set of the propertiest quences are set of the set of the set of the propertiest quences are set of the set of the set of the set of the propertiest quences are set of the set of the set of the set of the propertiest quences are set of the set of the set of the set of the propertiest quences are set of the set of the set of the set of the set of the propertiest quences are set of the set of the set of the set of the propertiest quences are set of the set of the propertiest quences are set of the set of th	7 In 2007 VIDUDE data lawa mana presenters to proved a travel with developed with being real and management of the second second and the second second and the second s	assume where any set of any of any set of
b) today contractor is predictived within a layer of the mark to a layer by the state of the layer by the state of the	C) Oper variebant of the availables of this strengt plan excession, the instruction which shade the closel's bottom tables and operating the strengt plan excession. The strengt plan excession of the strengt plan excession of the strengt plan excession of the strengt plan excession. A strengt plan excession of the strengt plan excession of the strengt plan excession. The strengt plan excession of the strengt plan excession of the strengt plan excession. The strengt plan excession of the strengt plan excession of the strengt plan excession. The strengt plan excession of the strengt plan excession of the strengt plan excession. The strengt plan excession of the strengt plan excession of the strengt plan excession. The strengt plan excession of the strengt plan excession of the strengt plan excession. The strengt plan excession of the strengt plan excession of the strengt plan excession of the strengt plan excession. The strengt plan excession of the strengt plan excession of the strengt plan excession of the strengt plan excession. The strengt plan excession of the strengt plan excession of the strengt plan excession. The strengt plan excession of the streng	L. The constraint will be begin type and going a first with another program concerned in the example, in their the messary presences while the large in the program of the gram in the second program of the gram in the second program of the	1.63 WORK WITHIN EARTHMENT A Gamp concernance was also used as some in Gamp concern, in Section 2. A gamp concern as well as some and an and an and an and an and an and a some in the Gamp concern, in adjustment of an analysis and an and an analysis of the Gamp concern and an adjustment of the Gamp concern and an adjustment of the adjustment of the Gamp concernment of the Gamp concern and adjustment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Gamp concernment of the Gamp concernment of the Gamp concernment of the adjustment of the Gamp concernment of the Ga
a servene example and increase we want water serverse. A black filling und i creat of parameters of the particular indicate Fran a bood 12 vectors above the create of The parameters were shall be an indicate on the parameters of the parameters and the parameters and the shall be 1 their grant decrement, grant reson and resonance, the baseful shall be granter related wheth shall	construct, in your way approach to exponent way our company output on the process of the structure of the structure of the company of a first structure output of the struc	prevaluate team are an entrolly space and all will be official which was all and and space are prevaluate team are an entrolly and and that which was all and and all and a	In the water sets have all the proceed view systems. In there was not involved and proceeding with the CONFIGURE of the ordering and exclusions and exclusions. The order of the control of the proceeding of the proce
Nyan Yi Li anawat 12 kutesi tawa tikawa wak handikay serai uto is natyawa. Engreske / it Couste da ha kutashi (tikaw tu Yi 13 manayana uto kutey a natyawata / ita nyana no mahan cates). Ny kutesia (tika pamba ita na pantar in atmat ai for: it naak to too it haan instang typi (tikay) (tikay) ana atjayan manayena na tahata).	c) cannot be used to be provided to be used as the strength of the strength bears of the strength of the st	C-baropy majori or woulders function waterial providence staff as well, boaters, etc., when owners it as uparties, total or interval: it and interval of and it. Bo boaters of the percendent that by remost and the functions written with spream manufacture.	1.0 were written waaring and and a strain waar of the lack strain of the strain of white of ways in the strain A were to strain strain was water and a were publication of the strain of white of ways and the strain water of water and water and the strain water and the strain of the strain of the formula at a strain water and water and the strain of the strain of the strain of the strain formula at a strain of the strain of the formula at a strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the strain of the stra
el previene, conjector heatry contra previent y na netyrochi katry lacendy. Traty dvitte prevence al monuto el un per tra per 30 nec al techn el al document recensor presento y tre Datentia. C la moterial doctopoment al lexifil utiles da rada catala el la grante acatela compania la	A substitute of the state of	II. A constraint, energy werea nonemaph to turner, how or part index modes indexes the methage or term descutions within the feed indexes of the feed of the part in the non-turner in section. Turnelling or terms uncere more while the complexes as included as incrementary wall will not be complexed as owner for inspect functions.	The shall end with measured of strafe and the first own of and strategies of internation means, measures, province of a means and and strated measured (oper long) and on which a strategies assume that the proof of instances of the graded for all own sufficient.
A for all areas, unless of evolution relation, transform shall be considered of transing expression constraints as a detector. Throughout 5.1.5.1.6.1888 interactions in 15-ber 1888 of the gravity. Consistion of the setter balance and the tables 4895 of the measurement waveless of the setter and the setter and the setter as a set on the setter and the tables 4895 of the measurement waveless of the setter and the setter and the setter as a set on the setter as a detection of	A The CONTRACTOR and crisis of reveausing services to particip the encreasing pion under characterization with the generation and appropriate correspond to approximate and a provide the contract of the CONTRACTOR of all pion and under the CONTRACTOR of	(a) Complexit, IEECAWARDAM A learned so that has performed by may builded with the context of the strange and provided to it such and supplement structures. And the perform sources with the strange and provided to it such and strange and structures.	10 DESCRIPTON * To DOPERTING and other all security and heights account is remained by and * To DOPERTING and other all security and heights account in the security of t
3 04 OL NERAL BACKFALMO	DVRI/DVF DVP DVRI/DVF DVP DVRI/DVF DVP DVRI/DVF DVP DVRI/DVF DVP DVP/VM E	10 DAECATON	Earthvork 50

M\_Prej(18223//inei Site Pier(18223751.deg. 10/6/2021 1:22 Pe. Jeseb B. Beller. St.1 SakiTART SCHER SPECIFICATIONS, HOLLC FOF.pe3



<ul> <li>Anota and a strain of a strai</li></ul>
<ul> <li>I show in a subset of a subse</li></ul>
<ul> <li>Houris, C. M. (1990)</li> <li>C. B. Strand, S. M. M. S. M</li></ul>
<ul> <li>1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (</li></ul>
<text><list-item><list-item><list-item><list-item><section-header><section-header><section-header><list-item><list-item><list-item><section-header></section-header></list-item></list-item></list-item></section-header></section-header></section-header></list-item></list-item></list-item></list-item></text>
NOB No.     18223     Date 4/1/21       INC. 0/1/21     INC. 0/1/21       INC. 0/1/21     INC. 0/1/21 <td< th=""></td<>

## Traffic Impact Study Murie Glen

Hamburg Township, Michigan RECEIVED

### AUG 2 5 2021

Hamburg Township Planning and Zoning Department

Prepared For:

CL 48 Properties 2370 E. Stadium Blvd, Suite 305 Ann Arbor, MI 48104

Prepared By:

Midwestern Consulting 3815 Plaza Drive Ann Arbor, Michigan 48108



5.1

5 5

# MIDWESTERN

CONSULTING

## **Table of Contents**

1.0 Executive Summary	2#	
2.0 Introduction	3#	
3.0 Area Description & Site Plan	3#	
3.1 Proposed Site Location and Surroundings	3#	
3.2 Existing and Proposed Zoning		
3.3 Site Plan		
3.4 Project Scope and Study Intersections	5#	
4.0 Data Collection & Existing Traffic Volumes	6#	
5.0 Background Growth	. 6#	
6.0 Trip Generation	. 7#	ł
7.0 Trip Distribution and Volume Figures	. 7#	
8.0 Capacity Analysis	12#	
8.1 Methodology and Analysis Tools	12#	
8.2 Capacity Analysis: Strawberry Lake Road & Merrill Road	13#	
8.3 Capacity Analysis: Sheldon Road / Thompson Pond Drive & Merrill Road	14#	
9.0 Crash Data	15#	
10.0 Summary	16#	

۰.

. .

## **Appendix Contents**

- Turning Movement Count Data
- HCM Summary Pages

This traffic impact study has been prepared by:

Michael R. Cool

Michael R. Cool, P.E. Midwestern Consulting Project Manager License No: 6201050420

## **1.0 Executive Summary**

٦.

ς τ

The proposed Murie Glen residential development is located on a site west of Merrill Road, north of the Livingston/Washtenaw county border in Hamburg Township Michigan. All Murie Glen traffic will access the site through the existing Thompson Pond Drive and head to and from the east towards the Merrill Road and Thompson Pond / Sheldon Road intersection. The site will also have an emergency access connection to the west through Shadbush Trail.

Merrill Road is currently gravel between Strawberry Lake Road and the Livingston/Washtenaw border.

The Murie Glen development is comprised of 31 single family homes and 20 ECHO senior housing units. The expected buildout year of the site is estimated to be 2026.

This study utilizes the Synchro/SimTraffic software to analyze the traffic impact of the Murie Glen development on the nearby intersections of Merrill Road with Strawberry Lake Road and with Sheldon Road/Thompson Pond Drive.

According to the capacity analysis findings, the proposed development is not expected to significantly impact the delays and Level of Service (LOS) at either study intersection. All LOS grades were found to be acceptable for existing, background, and forecast traffic scenarios.

No improvements were needed or recommended at either study intersection.

## **2.0 Introduction**

CL 48 Properties is proposing to build Murie Glen, a 51-unit residential development on a site located west of Merrill Road, just north of the Washtenaw/Livingston County border. The site will have access to/from Merrill Road through the existing Thompson Pond Drive, which ends at Merrill Road and is aligned across from Sheldon Road. The impact of this development's traffic on the two nearby intersections of Merrill Road with Strawberry Lake Road and with Thompson Pond Drive/Sheldon Road is the focus of this study.

The 51 residential units are split into two categories with 31 single family homes and 20 ECHO (elderly affordable housing) units.

## 3.0 Area Description & Site Plan

#### 3.1 Proposed Site Location and Surroundings

The Murie Glen site is located west of Merrill Road, just north of the Washtenaw/Livingston County border. The site will have access to/from Merrill Road through the existing Thompson Pond Drive, which ends at Merrill Road and is aligned across from Sheldon Road.

The site is surrounded by natural features and other residential properties as shown in the following aerial.



Figure 3.1.1 - Aerial of Murie Glen Development - Hamburg Township

#### 3.2 Existing and Proposed Zoning

The Murie Glen site was previously zoned as R-AA Single Family Low Density. The proposed and approved zoning for the Murie Glen project is Open Space PUD.

#### 3.3 Site Plan

The site plan for Murie Glen is shown below in Figure 3.3.1. As shown, the site will have a full access through Thompson Pond Drive to the Merrill Road and Sheldon Road/Thompson Pond Drive intersection. An emergency access only drive will provide an alternative access for emergency vehicles from the west through to Shadbush Trail.



Figure 3.3.1 - Site Plan - Murie Glen

#### 3.4 Project Scope and Study Intersections

This traffic impact study analyzes the two intersections of Merrill Road with Strawberry Lake Road, a four-way stop controlled intersection, and with Sheldon Road / Thompson Pond Drive, a two-way stop controlled intersection. Each approach to both intersections is a single lane.

Merrill Road, between Thompson Pond Drive and Strawberry Lake Road and the Washtenaw County Line is an unpaved Livingston County Local Road. Just south of Strawberry Lake Road and to the north, Merrill Road is a paved two-lane major collector.

Sheldon Road, near Merrill Road is an unpaved Livingston County Local Road.

Strawberry Lake Road is a paved two-lane major collector under the Jurisdiction of Livingston County.



Figure 3.4.1 - Merrill Road & Strawberry Lake Road



Figure 3.4.2 - Merrill Road & Sheldon Road
#### 4.0 Data Collection & Existing Traffic Volumes

The Livingston County Road Commission provided 2017 peak hour traffic count data at Strawberry Lake Road and Merrill Road. New turning movement counts were taken by video on June 6<sup>th</sup> 2021 at both Merrill Road intersections with Strawberry Lake Road and with Sheldon/Thompson Pond Drive. The traffic count videos were uploaded to <u>www.spacksolutions.com</u> to be counted between 6:00 AM and 7:00 PM. Copies of the existing 2017 and 2021 processed traffic count volumes are included in the appendix.

A comparison of the 2017 and 2021 traffic counts at Strawberry Lake Road indicated that the new PM peak hour traffic volumes were slightly higher in 2021, but the AM peak hour traffic volumes were significantly less than before, primarily due to a significant reduction in traffic from southbound Merrill Road. To present a conservative estimate of existing conditions, the "Existing" volumes at Strawberry Lake Road and Merrill are the 2017 AM volumes and the 2021 PM peak hour volumes. In conjunction, the southbound 2021 volumes were bumped up at the Sheldon Road / Thompson Pond Drive for the AM Peak Hour.

Existing traffic volumes are illustrated on Figures 7.1-7.4 later in the report.

# 5.0 Background Growth

۰.

Typically traffic volumes may grow over time due to development in the surrounding area. The existing traffic volumes are increased by a background growth rate to estimate the background traffic conditions that will be present when the proposed site has reached its build-out.

The proposed build out year of the Murie Glen development is estimated to be 2026. Therefore the existing 2021 traffic volumes were increased by a growth rate of 1% for a period of five years, which is a factor of 1.051. ("Existing" 2021) x (1.051) = (Background 2026)

The 1% background growth rate is based on the 2015 and 2030 24-hr traffic volumes on the south leg of the Merrill Road and Sheldon Road intersection from SEMCOG's traffic volume forecast map. (1320 to 1490 over 15 years =  $\sim 1\%$  per year growth)

Background traffic volumes are illustrated on Figures 7.1-7.4 later in the report.

# 6.0 Trip Generation

Trip generation for this traffic study is based upon the rates and equations contained in the Institute of Transportation Engineer's (ITE) **Trip Generation Manual**, 10<sup>th</sup> Edition. This study assumes that the Murie Glen project will generate traffic similar to the ITE land use categories of Single Family Homes (210) and Senior Housing – Detached (251). The independent variable used is the number of units.

	ITE	Size	24-HR	Morn	ing Peak	Hour	Aftern	oon Pea	k Hour
Land Use	Site Code	(Units)	Volume	Enter	Exit	Total	Enter	Exit	Total
Single Family Homes	210	31	354	7	20	27	21	12	33
Senior Housing (Detached)	251	20	136	4	8	12	9	5	14
			490	11	28	39	30	17	47

Table 6.1 Trip Generation - Proposed Development

#### 7.0 Trip Distribution and Volume Figures

Trip distribution for the proposed development is based upon the existing traffic patterns in the area. The inbound and outbound trip generation is summarized in Table 7.1 below.

Distribution	AM	AM	PM	PM
Inbound	IN %	IN	IN %	IN
From the West on SLR	15%	2	7%	2
From the East on SLR	10° o	1	7%	2
From the North on Merrill	40° o	4	16%	5
From the East on Sheldon	15%	2	30%	9
From the South on Merrill	20%	2	40°0	12
	100%	11	100%	30

Table 7.1 - Site Trip Distribution

Distribution	AM	AM	PM	PM
Outbound	Out %	Out	Out %	Out
To the West on SLR	10%	3	5%	1
To the East on SLR	15%	4	10%	2
To the North on Merrill	5%	1	35%	6
To the East on Sheldon	30%	8	10%	2
To the South on Merrill	40%	12	40° o	6
	100%	28	100%	17

Figures 7.1-7.4 show the existing, background, generated, and forecast traffic volumes for the morning and afternoon peak hours at the two study intersections.

Existing 2017 Counts	New 2021 Counts
8월 두 6월 RT 53 TH 45 날 푸 날 나 4 78 LT 날 푸 날 LT 4 78 LT 날 푸 날 82 TH 3 RT Merrill Road	North 양학양 RT 52 도표도 TH 39 도표도 1 도표도 87 TH 학자 9 O RT 학자 9 Merrill Road
"Existing" Conditions	Background 2026 Volumes
8 6 6 8 RT 53 TH 45 보 두 15 모 두 15 78 LT 4 82 TH 3 RT 3 RT Merrill Road	86 다 61 H 47 남포나니 나 4 82 나 나 4 86 다 6 년 ~ LT 4 86 다 6 년 ~ Strawberry Lake Road Merrill Road
Murie Glen Generated Traffic	Forecast 2026 Volumes
이 다 나 다 다 다 다 다 다 다 다 다 다 다 다 다 다 다 다 다	86 11 47 남 11 47 남 11 5 82 11 11 11 5 86 11 11 11 11 11 11 11 11 11 11 11 11 11
Job:     18223A       Data:     2021       Figure:     AM-1001       Scale:     NTS   Alternative:       AM Peak Hour Vol       Merrill / Strawberry	umes Lake Midwestern Consulting www.mk/wsteinconsulfing.com CM. Environmentol and Parametrization Enginesis, Condicape Architects Street Tangkontation Enginesis, Condicape Architects Street T

۰.

Figure 7.1 - AM Peak Hour Volumes - Strawberry Lake Road and Merrill Road



Figure 7.2 - PM Peak Hour Volumes - Strawberry Lake Road and Merrill Road



. .

Figure 7.3 - AM Peak Hour Volumes - Sheldon/Thompson Pond and Merrill Road



Figure 7.4 - PM Peak Hour Volumes - Sheldon/Thompson Pond and Merrill Road

# 8.0 Capacity Analysis

#### 8.1 Methodology and Analysis Tools

Capacity analysis for this traffic study utilizes the Synchro/SimTraffic (Version 11) program to create a traffic model of the existing, background growth (if needed), and forecast traffic scenarios. Synchro provides the **Highway Capacity Manual**'s (HCM) level of service for each study intersection, while the SimTraffic model provides an alternative and sometimes more realistic analysis of traffic conditions and impacts where queuing at intersections may impact other driveways, or delays for other turning movements at the same or other nearby intersections.

#### Synchro - HCM Level-of-service (LOS)

The Highway Capacity Manual assigns the following level-of-service grades to the ranges of control delay in seconds for unsignalized and signalized intersections. Generally LOS D is considered the limit of acceptable delay, although there are many situations where providing road improvements needed to improve a failing intersection LOS grade may be realistically unattainable for a sole developer or even undesirable to a community:

Ui	nsignali	zed Lev	el-of-ser	vice Gra	des	
Delay (sec.)	0-10	10-15	15-25	25-35	35-50	50+
LOS	А	В	С	D	E	F

Table 8.1 – Highway Capacity Manual	
Level of Service Delay Ranges and Grades	

S	Signaliz	ed Level	-of-servi	ice Grade	es	
Delay (sec.)	0-10	10-20	20-35	35-55	55-80	80+
LOS	А	В	С	D	E	F

The HCM Level of Service grades for each scenario and study intersection is the basis upon which improvements are recommended in this traffic impact study. Any turning movement with a HCM level of service E or F is highlighted and improvements are recommended to mitigate those poor level of service grades.

#### 8.2 Capacity Analysis: Strawberry Lake Road & Merrill Road

The traffic volumes and capacity analysis findings for the intersection of Strawberry Lake Road and Merrill Road is summarized in Table 8.2.1.

Scenario	Stra	Strawberry Lake			wberry	Lake	M	errill Ro	ad	M	errill Ro	bad	Int.
AM Peak Hour	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Total
	E	xisting.	Backg	round, (	Generate	ed, and	Forecas	t Traffi	c Volur	nes			
Existing Vol.	78	82	3	4	45	53	9	14	7	187	47	189	718
Background Vol.	82	86	3	4	47	56	9	15	7	197	49	199	754
Generated Vol.	0	0	2	1	0	0	3	1	4	0	4	0	15
Forecast Vol.	82	86	5	5	47	56	12	16	11	197	53	199	769
Existing,	Backgr	ound, a	nd Fore	cast Hig	ghway (	Capacity	Manua	al (HCN	(1) avera	ige dela	y (secor	nds)	
Existing Delay	10.6	10.6	10.6	9.6	9.6	9.6	8.8	8.8	8.8	14.0	14.0	14.0	12.1
Background Delay	11.0	11.0	11.0	9.9	9.9	9.9	9.0	9.0	9.0	15.5	15.5	15.5	13.1
Forecast Delay	11.1	11.1	11.1	10.0	10.0	10.0	9.1	9.1	9.1	16.0	16.0	16.0	13.4
	Traffi	ic Impa	et = Cha	ange in	Averag	e Delay	from B	ackgrou	und to F	orecast			
Traffic Impact	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.3
	Hi	ghway	Capacit	y Manu	al (HCl	M) Leve	el of Sei	vice Gi	ades (L	.OS)			
Existing LOS	В	В	В	A	A	A	A	A	A	В	В	В	В
Background LOS	В	В	В	A	Α	A	Α	A	A	C	C	С	В
Forecast LOS	B	В	В	A	A	Α	Α	A	A	C	С	С	В
Scenario	Stray	wberry	Lake	Strawberry Lake			M	errill Ro	ad	M	errill Ro	ad	Int.
PM Peak Hour	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Total
	E	xisting,	Backg	round, (	Generate	ed, and	Forecas	t Traffi	c Volun	nes			
Existing Vol.	187	53	5	6	90	203	2	40	6	98	28	125	843
Background Vol.	197	56	5	6	95	213	2	42	6	103	29	131	885
Generated Vol.	0	0	2	2	0	0	1	6	2	0	5	0	18
Forecast Vol.	197	56	7	8	95	213	3	48	8	103	34	131	903
Existing,	Backgr	ound, a	nd Fore	cast Hig	ghway (	Capacity	Manua	al (HCN	(1) avera	ge dela	y (secor	nds)	
Existing Delay	12.6	12.6	12.6	12.8	12.8	12.8	9.7	9.7	9.7	12.1	12.1	12.1	12.4
Background Delay	13.3	13.3	13.3	13.8	13.8	13.8	9.9	9.9	9.9	12.7	12.7	12.7	13.2
Forecast Delay	13.6	13.6	13.6	14.2	14.2	14.2	10.1	10.1	10.1	13.1	13.1	13.1	13.5
	Traffi	ic Impa	ct = Cha	ange in	Averag	e Delay	from B	ackgrou	and to F	orecast			
Traffic Impact	0.3	0.3	0.3	0.4	0.4	0.4	0.2	0.2	0.2	0.4	0.4	0.4	0.3
	Hi	ghway	Capacit	y Manu	al (HCI	M) Leve	el of Ser	vice G	ades (L	OS)			
Existing LOS	В	В	В	В	В	В	А	A	A	В	В	В	В
Background LOS	В	В	В	В	В	В	Α	A	A	В	В	В	В
Forecast LOS	В	В	В	В	В	В	В	В	В	В	В	В	В

Table 8.2.1 - Capacity Analysis - Strawberry Lake Road & Merrill Road

As the table shows, this intersection is projected to operate at an acceptable level of service for all turning movements during both the morning and afternoon peak hours. The traffic impact of the proposed Murie Glen development is insignificant. No improvements are needed at this intersection.

#### 8.3 Capacity Analysis: Sheldon Road / Thompson Pond Drive & Merrill Road

. .

The traffic volumes and capacity analysis findings for the intersection of Sheldon Road / Thompson Pond Drive and Merrill Road is summarized in Table 8.3.1.

Scenario	Tho	Thompson Pond			eldon R	oad	M	errill Ro	oad	M	Int.		
AM Peak Hour	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Total
	ł	Existing	Backg	round,	Generat	ed, and	Foreca	st Traffi	c Volur	nes			
Existing Vol.	0	2	1	5	1	5	0	11	7	10	46	0	88
Background Vol.	0	2	1	5	1	5	0	12	7	11	48	0	92
Generated Vol.	8	8	12	0	2	0	2	0	0	0	0	7	39
Forecast Vol.	8	10	13	5	3	5	2	12	7	11	48	7	131
Existing,	Backgr	ound, a	nd Fore	cast Hi	ghway (	Capacity	Manu	al (HCM	1) avera	ige dela	iy (secol	nds)	
Existing Delay	9.3	9.3	9.3	9.1	9.1	9.1	0.0	0.0	0.0	7.3	0.0	0.0	2.4
Background Delay	9.3	9.3	9.3	9.1	9.1	9.1	0.0	0.0	0.0	7.3	0.0	0.0	2.4
Forecast Delay	9.4	9.4	9.4	9.4	9.4	9.4	7.3	0.0	0.0	7.3	0.0	0.0	4.3
	Traff	ic Impa	ct = Cha	ange in	Averag	e Delay	from E	lackgrou	und to F	orecast	t .		
Traffic Impact	0.1	0.1	0.1	0.3	0.3	0.3	7.3	0.0	0.0	0.0	0.0	0.0	1.9
	Н	ighway	Capacit	y Manu	al (HC	M) Leve	el of Se	rvice Gr	ades (L	.OS)			
Existing LOS	A	A	A	A	A	A	Α	A	A	A	A	A	A
Background LOS	A	A	A	A	A	A	Α	A	A	A	A	A	A
Forecast LOS	Forecast LOS A A A						Α	A	A	A	A	A	A
		the second se	and the second se										
Scenario	Tho	mpson l	Pond	She	eldon R	oad	M	errill Ro	ad	M	errill Ro	ad	Int.
Scenario PM Peak Hour	Tho LT	mpson I TH	Pond RT	She LT	eldon R TH	oad RT	M LT	errill Ro TH	RT	M LT	errill Ro TH	ad RT	Int. Total
Scenario PM Peak Hour	Tho LT E	mpson l TH xisting.	Pond RT Backgi	Sho LT round, (	eldon R TH Generate	oad RT ed, and	M LT Forecas	errill Ro TH st Traffi	ad RT c Volun	M LT nes	errill Ro TH	ad RT	Int. Total
Scenario PM Peak Hour Existing Vol.	Tho LT E	mpson l TH Existing, 0	Pond RT Backgi 0	Sho LT round, ( 15	eldon R TH Generate 2	oad RT ed, and 11	M LT Forecas 0	errill Ro TH st Traffic 36	ad RT c Volun 1	M LT nes 8	errill Ro TH 20	RT 0	Int. Total 93
Scenario PM Peak Hour Existing Vol. Background Vol.	Tho LT E 0	mpson l TH Existing, 0 0	Pond RT Backgi 0 0	Sho LT round, C 15 16	eldon R TH Generate 2 2	oad RT ed, and 11 12	M LT Forecas 0 0	errill Ro TH st Traffic 36 38	RT c Volun l	M LT nes 8 8	errill Ro TH 20 21	RT 0 0	Int. Total 93 98
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol.	Tho LT E 0 9	mpson l TH Existing, 0 0 2	Pond RT Backgi 0 0 6	She LT round, 0 15 16 0	eldon Ra TH Generate 2 9	oad RT ed, and 11 12 0	M LT Forecas 0 0 12	errill Ro TH st Traffie 36 38 0	RT RT Volun 1 0	M LT nes 8 8 0	errill Ro TH 20 21 0	0 0 9	Int. Total 93 98 47
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol. Forecast Vol.	Tho LT 0 9 9	mpson l TH xisting, 0 0 2 2	Pond RT Backgi 0 0 6 6	Sho LT round, 0 15 16 0 16	eldon Ra TH Generate 2 2 9 11	oad RT ed, and 11 12 0 12	M LT Forecas 0 0 12 12	errill Ro TH st Traffic 36 38 0 38	ad RT c Volun 1 0 1	M LT nes 8 0 8	errill Ro TH 20 21 0 21	0 0 9 9	Int. Total 93 98 47 145
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol. Forecast Vol. Existing,	Tho LT 0 9 9 Backgr	mpson l TH Existing, 0 0 2 2 2 ound, ar	Pond RT Backgi 0 0 6 6 1d Fore	She LT round, ( 15 16 0 16 cast Hig	eldon R TH Generate 2 2 9 11 ghway C	oad RT ed, and 11 12 0 12 Capacity	M LT Forecas 0 0 12 12 12 7 Manua	errill Ro TH st Traffic 36 38 0 38 al (HCM	RT c Volun 1 0 1 1 0	M LT nes 8 8 0 8 ge dela	errill Ro TH 20 21 0 21 y (secor	0 0 9 9 nds)	Int. Total 93 98 47 145
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol. Forecast Vol. Existing, Existing Delay	Tho LT 0 9 9 Backgr 0.0	mpson l TH xisting, 0 2 2 ound, au 0.0	Pond RT Backgr 0 0 6 6 6 1 d Fore 0.0	Sho LT round, ( 15 16 0 16 cast Hig 9.1	eldon R TH Generato 2 9 11 ghway C 9.1	oad RT ed, and 11 12 0 12 Capacity 9.1	M LT Forecas 0 0 12 12 12 Manua 0.0	errill Ro TH st Traffie 36 38 0 38 al (HCN 0.0	ad RT c Volun 1 0 1 1) avera 0.0	M LT nes 8 0 8 ge dela 7.4	errill Ro TH 20 21 0 21 y (secon 0.0	ad RT 0 9 9 9 0.0	Int. Total 93 98 47 145 3.5
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol. Forecast Vol. Existing, Existing Delay Background Delay	Tho LT 0 9 9 Backgr 0.0 0.0	mpson 1 TH Existing, 0 0 2 2 ound, an 0.0 0.0	Pond RT Backgu 0 0 6 6 6 6 10 Fore 0.0 0.0	Sha LT round, ( 15 16 0 16 cast Hig 9,1 9,1	eldon R TH Generate 2 9 11 ghway C 9.1 9.1	oad           RT           ed, and           11           12           0           12           Capacity           9.1           9.1	M LT Forecas 0 0 12 12 12 Manua 0.0 0.0	errill Rc TH st Traffid 36 38 0 38 al (HCM 0.0 0.0	ad RT c Volun 1 0 1 1) avera 0.0 0.0	M LT nes 8 0 8 ge dela 7.4 7.4	errill Rc TH 20 21 0 21 y (secon 0.0 0.0	aad RT 0 0 9 9 9 ads) 0.0 0.0	Int. Total 93 98 47 145 3.5 3.5
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol. Forecast Vol. Existing, Existing Delay Background Delay Forecast Delay	Tho LT 0 9 9 Backgr 0.0 0.0 9.4	mpson I           TH           Existing,           0           2           2           ound, and           0.0           9.4	Pond RT Backgu 0 0 6 10 6 10 6 0.0 0.0 0.0 9.4	Shu LT round, C 15 16 0 16 cast Hig 9.1 9.1 9.1	eldon R TH Generate 2 9 11 ghway C 9.1 9.1 9.1 9.6	oad           RT           ed, and           11           12           0           12           Capacity           9.1           9.6	M LT Forecas 0 0 12 12 Manua 0.0 0.0 7.3	errill Rc TH st Traffie 36 38 0 38 al (HCN 0.0 0.0 0.0 0.0	ad RT c Volun 1 0 1 1 0 0 0 0 0.0 0.0 0.0	M LT nes 8 0 8 ge dela 7.4 7.4 7.4	errill Rc TH 20 21 0 21 y (secor 0.0 0.0 0.0	aad RT 0 9 9 9 0.0 0.0 0.0 0.0	Int. Total 93 98 47 145 3.5 3.5 5.0
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol. Forecast Vol. Existing, Existing Delay Background Delay Forecast Delay	Tho           LT           6           0           9           9           Backgr           0.0           0.0           9.4           Traff	mpson I TH Existing, 0 0 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pond RT Backgu 0 0 6 6 10 Fore 0.0 0.0 9.4 ct = Cha	Shu LT round, C 15 16 0 16 cast Hig 9.1 9.1 9.1 9.6 ange in	eldon R TH Generate 2 9 11 ghway ( 9,1 9,1 9,6 Average	oad           RT           ed, and           11           12           0           12           Capacity           9.1           9.6           e Delay	M LT Forecas 0 0 12 12 7 Manua 0.0 0.0 7.3 from B	errill Rc TH st Traffie 36 38 0 38 al (HCM 0.0 0.0 0.0 0.0 ackgrou	ad RT c Volun 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	M LT nes 8 8 0 8 ge dela 7.4 7.4 7.4 orecast	errill Rc TH 20 21 0 21 y (secor 0.0 0.0 0.0	aad RT 0 9 9 0.0 0.0 0.0 0.0	Int. Total 93 98 47 145 3.5 3.5 5.0
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol. Forecast Vol. Existing, Existing Delay Background Delay Forecast Delay Traffic Impact	Tho           LT           E           0           9           9           Backgr           0.0           0.0           9.4           Traff           9.4	mpson I           TH           xisting,           0           2           2           ound, and           0.0           0.0           9.4           9.4	Pond RT Backgy 0 0 6 6 6 10 Fore 0.0 0.0 9.4 et = Cha 9.4	Shu LT round, C 15 16 0 16 cast Hig 9.1 9.1 9.1 9.6 ange in 0.5	eldon R TH Generato 2 9 11 ghway C 9.1 9.1 9.1 9.6 Average 0.5	oad           RT           ed, and           11           12           0           12           Capacity           9.1           9.1           9.6           e Delay           0.5	M LT Forecas 0 12 12 Manua 0.0 0.0 7.3 from B 7.3	errill Rc TH st Traffi 36 38 0 38 al (HCM 0.0 0.0 0.0 0.0 cackgrou 0.0	pad           RT           c Volun           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0.0           0.0           0.0           0.0           0.0           0.0           0.0	M LT nes 8 8 0 8 ge dela 7.4 7.4 7.4 7.4 0 recast 0.0	errill Rc TH 20 21 0 21 y (secor 0.0 0.0 0.0	oad           RT           0           9           9           ods)           0.0           0.0           0.0           0.0	Int. Total 93 98 47 145 3.5 3.5 5.0 1.5
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol. Forecast Vol. Existing Delay Background Delay Forecast Delay Traffic Impact	Tho           LT           E           0           9           Backgr           0.0           0.0           9.4           Traff           9.4	mpson I TH Existing, 0 0 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pond RT Backgu 0 0 6 6 10 6 0.0 0.0 9.4 ct = Cha 9.4 Capacit	She           LT           round, 0           15           16           0           16           cast Hig           9.1           9.1           9.6           ange in           0.5           y Manu	eldon R TH Generate 2 2 9 11 ghway C 9.1 9.1 9.1 9.1 9.6 Average 0.5 al (HCN	oad RT ed, and 11 12 0 12 Capacity 9.1 9.1 9.6 e Delay 0.5 M) Levee	M LT Forecas 0 0 12 12 Manua 0.0 0.0 7.3 from B 7.3 el of Set	errill Rc TH st Traffid 36 38 0 38 al (HCM 0.0 0.0 0.0 0.0 sackgrou 0.0 rvice Gr	ad RT c Volun 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	M LT nes 8 0 8 ge dela 7.4 7.4 7.4 7.4 0.0 OS)	errill Rc TH 20 21 0 21 y (secor 0.0 0.0 0.0 0.0	oad           RT           0           0           9           9           ods)           0.0           0.0           0.0           0.0	Int. Total 93 98 47 145 3.5 5.0 1.5
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol. Forecast Vol. Existing Delay Background Delay Forecast Delay Traffic Impact Existing LOS	Tho           LT           E           0           9           9           Backgr           0.0           9.4           Traff           9.4           Hi           A	mpson I TH Existing, 0 0 2 2 0 und, au 0.0 0.0 9.4 ic Impac 9.4 ghway A	Pond RT Backgu 0 0 0 6 6 1 0 0 0 0 0 0 0 0 0 0 0 0 0	Shu LT round, C 15 16 0 16 cast Hig 9.1 9.1 9.1 9.1 9.6 ange in 0.5 y Manu A	eldon R TH Generate 2 9 11 ghway C 9.1 9.1 9.1 9.1 9.6 Average 0.5 al (HCN A	oad RT ed, and 11 12 0 12 Capacity 9.1 9.1 9.6 e Delay 0.5 M) Leve A	M LT Forecas 0 0 12 12 Manua 0.0 0.0 7.3 from B 7.3 cl of Set A	errill Rc TH st Traffi 36 38 0 38 al (HCN 0.0 0.0 0.0 0.0 0.0 cackgrou 0.0 vice Gr	ad           RT           c Volun           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           0.0           0.0           0.0           ades (L	M LT nes 8 0 8 ge dela 7.4 7.4 7.4 7.4 0.0 OS) A	errill Rc TH 20 21 0 21 y (secon 0.0 0.0 0.0 0.0 0.0	aad RT 0 0 9 9 9 0.0 0.0 0.0 0.0 0.0 0.0	Int. Total 93 98 47 145 3.5 3.5 5.0 1.5 A
Scenario PM Peak Hour Existing Vol. Background Vol. Generated Vol. Forecast Vol. Existing, Existing Delay Background Delay Forecast Delay Traffic Impact Existing LOS Background LOS	Tho           LT           E           0           9           9           Backgr           0.0           9.4           Traff           9.4           Hi           A	mpson I TH Existing, 0 0 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pond RT Backgu 0 0 6 6 10 Fore 0.0 0.0 9.4 ct = Cha 9.4 Capacit A A	Shu LT round, C 15 16 0 16 cast Hig 9.1 9.1 9.1 9.6 ange in 0.5 y Manu A A	eldon R TH Generate 2 9 11 9,1 9,1 9,1 9,1 9,6 Average 0.5 al (HCN A	oad RT ed, and 11 12 0 12 Capacity 9.1 9.1 9.6 e Delay 0.5 M) Leve A A	M LT Forecas 0 0 12 12 12 Manua 0.0 0.0 7.3 from B 7.3 el of Set A A	errill Rc TH st Traffi 36 38 0 38 al (HCM 0.0 0.0 0.0 0.0 0.0 ackgrou 0.0 rvice Gr A A	ad           RT           c Volun           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0           1           0.0           0.0           0.0           0.0           ades (L           A           A	M LT nes 8 0 8 ge dela 7.4 7.4 7.4 7.4 0 orecast 0.0 OS) A A	errill Rc TH 20 21 0 21 y (secor 0.0 0.0 0.0 0.0 0.0 A A	aad RT 0 0 9 9 9 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Int. Total 93 98 47 145 3.5 3.5 5.0 1.5 A A

Table 8.3.1 - Capacity Analysis - Sheldon Road / Thompson Pond Drive & Merrill Road

As the table shows, this intersection is projected to operate at an acceptable level of service for all turning movements during both the morning and afternoon peak hours. The traffic impact of the proposed Murie Glen development is insignificant. No improvements are needed at this intersection.

# 9.0 Crash Data

The SEMCOG website contained traffic crash data for the intersection of Strawberry Lake Road and Merrill Road. No data was available at the Sheldon Road/Thompson Pond intersection.

Figures 9.1 and 9.2 show that there was a total of 15 crashes from 2015 to 2019. In terms of severity 2 of the 15 crashes resulted in B level injuries, while the remaining crashes were rated as property damage only (PDO). Both injury crashes occurred when the intersection was configured as a two-way stop.



Figure 9.1 - SEMCOG Crash Data at Strawberry Lake Road & Merrill Road



Figure 9.2 - SEMCOG Severity Data at Strawberry Lake Road & Merrill Road

#### 10.0 Summary

The proposed Murie Glen residential development is located on a site west of Merrill Road, north of the Livingston/Washtenaw county border in Hamburg Township Michigan. All Murie Glen traffic will access the site through the existing Thompson Pond Drive and head to and from the east towards the Merrill Road and Thompson Pond / Sheldon Road intersection. The site will also have an emergency access connection to the west through Shadbush Trail.

Merrill Road is currently gravel between Strawberry Lake Road and the Livingston/Washtenaw border.

The Murie Glen development is comprised of 31 single family homes and 20 ECHO senior housing units. The expected buildout year of the site is estimated to be 2026.

This study utilizes the Synchro/SimTraffic software to analyze the traffic impact of the Murie Glen development on the nearby intersections of Merrill Road with Strawberry Lake Road and with Sheldon Road/Thompson Pond Drive.

According to the capacity analysis findings, the proposed development is not expected to significantly impact the delays and Level of Service (LOS) at either study intersection. All LOS grades were found to be acceptable for existing, background, and forecast traffic scenarios.

No improvements were needed or recommended at either study intersection.

Appendix

# Midwestern Consulting 3815 Plaza Drive Ann Arbor, MI, 48108

(734) 995-0200

Intersection E/W: Strawberry Lake Road N/S: Merrill Road Weather:

	Strawberry Lake Road Eastbound						Groups Printed- Cars & Peds - H.V. & Bikes - Bikes on Street ad Strawberry Lake Road Merrill Road Merrill Road Westbound Northbound Southbound										
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
*** BREAK ***																	•
06:00 AM	5	18	0	0	0	3	5	0	1	0	1	0	23	2	2	0	60
06:15 AM	4	19	0	0	0	3	2	0	0	3	0	0	32	2	5	õ	70
06:30 AM	11	12	0	0	0	4	5	0	0	5	1	õ	27	2	14	õ	81
06:45 AM	19	6	0	0	0	3	10	Ō	0	8	Ó.	õ	35	3	8	ő	92
Total	39	55	0	Ō	0	13	22	0	1	16	2	0	117	9	29	0	303
07:00 AM	18	20	0	0	2	6	7	0	1	8	4	0	40	5	14	0	125
07.15 AM	11	25	0	0	0	9	12	0	1	4	1	0	38	5	15	ő	121
07:30 AM	23	22	õ	õ	1	11	12	0	O	3	Ó	õ	44	3	15	0	134
07:45 AM	20	20	0	Ő	0	13	21	0	2	6	1	0	41	1	10	0	144
Total	72	87	0	0	3	30	52	0	4	21	6	0	163	14	63	0	524
i otal	12	07	U	U	5	55	52	0	-	21	0	0	105	14	05	0	524
08:00 AM	25	16	0	0	0	12	20	0	2	4	2	0	25	2	15	0	123
08:15 AM	12	15	2	0	2	5	15	0	0	5	2	0	25	2	18	0	103
08:30 AM	25	14	3	0	0	8	22	0	0	5	1	0	25	3	12	0	118
08:45 AM	29	21	0	0	0	7	8	0	1	2	0	0	29	2	19	0	118
Total	91	66	5	0	2	32	65	0	3	16	5	0	104	9	64	0	462
09:00 AM	21	11	0	0	1	4	11	0	0	3	0	0	24	0	19	0	94
09.15 AM	16	9	1	0	0	9	18	0	1	2	0	0	15	6	13	0	90
09:30 AM	22	18	1	0	0	15	10	0	1	3	2	0	15	2	20	0	109
09:45 AM	18	4	0	0	0	9	11	0	0	6	1	0	14	3	21	0	87
Total	77	42	2	0	1	37	50	0	2	14	3	0	68	11	73	0	380
10:00 AM	23	8	0	0	0	6	13	0	0	2	2	0	15	6	19	0	94
10.15 AM	23	10	0	0	0	8	11	0	0	6	1	0	21	7	19	õ	106
10:30 AM	14	16	1	õ	1	12	8	õ	2	6	2	0	14	5	14	Ő	95
10:45 AM	24	11	1	õ	0	13	12	õ	1	4	1	õ	20	1	28	ő	116
Total	84	45	2	Ō	1	39	44	0	3	18	6	Ō	70	19	80	0	411
11:00 AM	17	14	0	0	0	Q	7	0	0	5	2	0	8	6	18	0	86
11:15 AM	22	17	2	0	0	7	17	0	0	3	2	0	19	3	19	0	111
11:30 AM	35	3	2	0	1	10	21	õ	0	4	2	0	19	11	31	0	126
11.30 AM	35	11	1	0	-	10	16	0	1	11	2	0	10	2	22	0	130
Total	81	45	3	0	2	36	61	0	1	23	6	0	61	23	101	0	443
12:00 DM	27	14	1	0	2	17	14	0	2	2	0	0	10		21	0	125
12.00 PM	20	14	0	0	2	17	0	0	5	3	1	0	19	4	12	0	135
12:13 PM	25	14	1	0		5	15	0	0	4	1	0	23	0	14	0	107
12.30 PM	20	14		0	0	10	10	0	0	0	1	0	15	4 7	14	0	112
12.45 PM	112	45	0	0	2	10	22	0	2	10	2	0	CI PA	21	21	0	120
lotal	113	45	2	0	S	41	60	0	3	18	3	0	84	21	79	0	. 4/4
01:00 PM	20	19	1	0	1	8	23	0	2	5	0	0	16	5	26	0	126
01:15 PM	22	8	0	0	0	14	19	0	0	6	0	0	14	3	28	0	114
01:30 PM	24	14	1	0	0	8	22	0	0	4	1	0	19	11	20	0	124
01:45 PM	21	16	Ó	0	1	13	25	0	1	7	3	0	15	7	21	0	130
Total	87	57	2	0	2	43	89	0	3	22	4	0	64	26	95	0	494
02.00 PM	16	11	0	0	0	14	12	0	1	15	2	0	13	9	25	0	118
02:15 PM	20	20	3	0	1	11	24	0	1	5	1	0	20	4	27	0	137
02:30 PM	28	22	0	0	0	10	32	0	0	5	0	0	12	7	27	0	143
02:45 PM	19	14	1	õ	1	9	30	õ	0	5	1	õ	25	10	23	0	138
Total	83	67	4	0	2	44	98	0	2	30	4	0	70	30	102	0	536
03-00 PM	23	12	1	0	1	18	28	0	0	12	2	0	23	4	27	0	151
03:15 DM	20	0	1	0	3	16	44	0	õ	8	ĺ.	ő	12	5	30	0	160
03.15 -14	32	16	2	0	6	10	30	0	1	14	2	0	27	6	1.4	0	171
03:30 PM	20	10	3	0	0	10	23	0		14	4	U	21	0	14	0	171

3815 Plaza Drive Ann Arbor, MI, 48108 (734) 995-0200

Intersection E/W: Strawberry Lake Road N/S: Merrill Road Weather:

Groups Printed- Cars & Peds - H.V. & Bikes - Bikes on Street	
--------------------------------------------------------------	--

	Stra	Eastb	Lake Ro ound	ad	Stra	West	Lake Ro ound	bad		Merrill Road Merrill Road Northbound Southbound							
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
03:45 PM	33	17	4	0	1	13	45	0	1	6	0	0	26	6	25	0	177
Total	113	54	9	0	11	65	156	0	2	40	4	0	88	21	96	0	659
04:00 PM	40	16	1	0	0	22	43	0	1	13	2	0	26	7	32	0	203
04:15 PM	42	8	1	0	1	17	40	0	0	5	2	0	24	8	29	0	177
04:30 PM	34	12	0	0	3	20	47	0	2	17	1	0	21	7	33	0	197
04:45 PM	52	17	1	0	1	18	41	0	0	11	2	0	25	8	27	0	203
Total	168	53	3	0	5	77	171	0	3	46	7	0	96	30	121	0	780
05:00 PM	40	10	2	0	0	23	50	0	0	11	1	0	26	10	29	0	202
05:15 PM	51	12	2	0	1	22	48	0	2	7	1	0	21	7	36	0	210
05:30 PM	44	14	0	0	4	27	64	0	0	11	2	0	26	3	33	0	228
05:45 PM	43	19	0	0	1	20	34	0	1	7	1	0	14	6	21	0	167
Total	178	55	4	0	6	92	196	0	3	36	5	0	87	26	119	0	807
06:00 PM	43	17	1	0	1	21	32	0	1	10	2	0	24	6	31	0	189
06:15 PM	22	14	0	0	3	26	34	0	0	5	1	0	34	9	22	0	170
06:30 PM	25	12	0	0	1	16	37	0	0	11	1	0	14	7	19	0	143
06:45 PM	25	12	0	0	1	10	28	0	0	5	1	0	15	4	23	0	124
Total	115	55	1	0	6	73	131	0	1	31	5	0	87	26	95	0	626
*** BREAK ***																	
Grand Total	1301	726	37	0	46	631	1195	0	31	331	60	0	1159	265	1117	0	6899
Apprch %	63	35.2	1.8	0	2.5	33.7	63.8	0	7.3	78.4	14.2	0	45.6	10.4	44	0	
Total %	18.9	10.5	0.5	0	0.7	9.1	17.3	0	0.4	4.8	0.9	0	16.8	3.8	16.2	0	
Cars & Peds	1292	707	36	0	45	617	1186	0	29	322	60	0	1153	258	1101	0	6806
% Cars & Peds	99.3	97.4	97.3	0	97.8	97.8	99.2	0	93.5	97.3	100	0	99.5	97.4	98.6	0	98.7
H.V. & Bikes	9	17	1	0	1	14	9	0	2	9	0	0	6	7	16	0	91
% H.V. & Bikes	0.7	23	2.7	0	2.2	2.2	0.8	0	6.5	2.7	0	0	0.5	2.6	1.4	0	1.3
Bikes on Street	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Bikes on Street	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ann Arbor, Ml, 48108 (734) 995-0200

Intersection E/W: Strawberry Lake Road N/S: Merrill Road Weather:

	\$	Strawb E	erry La astbou	ke Roa	ad	5	Strawb W	erry La lestboi	ike Roa	ad		M	errill R orthbo	oad und			M	errill R	oad und		
Start Time	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Int Total
Peak Hour Ar	alysis	From	07:00 A	M to O	8:45 AM	- Peal	k 1 of 1	1										t			1
Peak Hour for	r Entire	Inters	ection	Begins	at 07:00	MA															
07:00 AM	18	20	0	0	38	2	6	7	0	15	1	8	4	0	13	40	5	14	0	59	125
07:15 AM	11	25	0	0	36	0	9	12	0	21	1	4	1	0	6	38	5	15	0	58	121
07:30 AM	23	22	0	0	45	1	11	12	0	24	0	3	0	0	3	44	3	15	0	62	134
07:45 AM	20	20	0	0	40	0	13	21	0	34	2	6	1	0	9	41	1	19	0	61	144
Total Volume	72	87	0	0	159	3	39	52	0	94	4	21	6	0	31	163	14	63	0	240	524
% App. Total	45.3	54.7	0	0		3.2	41.5	55.3	0		12.9	67.7	19.4	0		67.9	5.8	26.2	0		
PHF	.783	.870	.000	.000	.883	.375	.750	.619	.000	.691	.500	.656	.375	.000	.596	.926	700	829	.000	968	.910
Cars & Peds	72	87	0	0	159	2	39	52	0	93	4	21	6	0	31	162	14	62	0	238	521
% Cars & Peds	100	100	0	0	100	66.7	100	100	0	98.9	100	100	100	0	100	99.4	100	98.4	0	99.2	99.4
H.V. & Bikes	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	1	0	2	3
% HV & Bikes	0	0	0	0	0	33.3	0	0	0	1.1	0	0	0	0	0	0.6	0	1.6	0	0.8	0.6
Bikes on Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes on Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



3815 Plaza Drive Ann Arbor, MI, 48108

(734) 995-0200

Intersection E/W: Strawberry Lake Road N/S: Merrill Road Weather:

	5	Strawbe E	erry La astbou	ike Roa Ind	ad	S	Strawb N	erry La /estbou	ike Roa	ad		M	errill R orthbo	oad und			M	errill R outhbo	oad und		
Start Time	Left	Thru	Right	Peds	App fotai	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Int. Total
Peak Hour Ar	nalysis	From (	04:00 F	M to O	5:45 PM	- Peal	< 1 of 1														
Peak Hour fo	r Entire	Inters	ection	Begins	at 04:45	PM															
04:45 PM	52	17	1	0	70	1	18	41	0	60	0	11	2	0	13	25	8	27	0	60	203
05:00 PM	40	10	2	0	52	0	23	50	0	73	0	11	1	0	12	26	10	29	0	65	202
05:15 PM	51	12	2	0	65	1	22	48	0	71	2	7	1	0	10	21	7	36	0	64	210
05:30 PM	44	14	0	0	58	4	27	64	0	95	0	11	2	0	13	26	3	33	0	62	228
Total Volume	187	53	5	0	245	6	90	203	0	299	2	40	6	0	48	98	28	125	0	251	843
% App Total	76.3	21.6	2	0		2	30.1	67.9	0		4.2	83.3	12.5	0		39	11.2	49.8	0		
PHF	899	.779	.625	.000	.875	.375	.833	793	.000	.787	.250	.909	.750	.000	.923	.942	.700	.868	.000	.965	.924
Cars & Peds	187	52	5	0	244	6	90	203	0	299	2	40	6	0	48	98	28	125	0	251	842
% Cars & Peds	100	98.1	100	0	99.6	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	99.9
H.V. & Bikes	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% H V & Bikes	0	1.9	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Bikes on Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes on Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Ann Arbor, MI, 48108

(734) 995-0200

Intersection E/W: Sheldon / Thompson Pond N/S: Merrill Road Weather:

۰.

	Tho	mpson Eastb	Pond Dr ound	G	iroups F	Printed- ( Sheldor Westb	Cars & F n Road oound	Peds - H.	V. & Bik	es - Bik Merrill Northt	es on St Road bound	reet		Merrill South	Road		
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
*** BREAK ***																	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
06 15 AM	Ō	0	ō	Ō	ō	õ	õ	Ő	Ő	3	1	0	Ő	3	õ	ñ	7
06:30 AM	õ	Ő	õ	Ő	õ	õ	õ	õ	õ	2	, o	0	2	4	0	0	9
06:45 AM	0	0	0	0	0	0	4	0	0	2	0	0	2	7	0	0	0
Total	0	0	0	0	0	0	4	0	0	7	1	0	2	11	0	0	25
( ota)	U	0	0	0	0	0	-	0	0	,		0	2		0	0	25
07:00 AM	0	0	0	0	3	0	1	0	0	3	1	0	0	4	0	0	12
07:15 AM	0	1	0	0	0	0	2	0	0	2	2	0	2	4	0	0	13
07:30 AM	0	0	0	0	2	1	1	0	0	2	4	0	1	5	Ő	õ	16
07.45 AM	ō	1	1	Ő	0	Ó	1	0	õ	4	0	õ	ò	3	0	ő	10
Total	0	2	1	0	5	1	5	0	0	11	7	0	3	16	0	0	51
	•								-		•	U	0	10	0	0	51
08:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
08:15 AM	0	0	0	0	2	0	0	0	0	5	2	0	0	4	0	0	13
08:30 AM	0	0	0	0	2	0	0	0	1	4	0	0	1	5	0	0	13
08 45 AM	0	1	1	0	1	0	0	0	0	1	2	0	0	1	0	n.	7
Total	0	1	1	0	5	0	1	0	1	10	4	0	1	11	0	0	35
				-		-			ė.						0	0	00
09.00 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	3
09 15 AM	0	0	0	0	0	0	2	0	0	0	0	0	1	3	0	0	6
09:30 AM	0	0	0	0	2	0	1	0	0	3	0	0	1	4	0	0	11
09:45 AM	0	0	0	õ	1	õ	0	0	0	4	5	õ	2	1	ñ	0	13
Total	0	0	0	0	4	0	3	0	0	8	5	0	4	9	0	0	33
10:00 AM	0	0	1	0	0	0	1	0	0	2	1	0	2	2	1	0	10
10:15 AM	0	0	0	0	2	0	-	0	0	2	1	0	2	2		0	10
10.15 AM	0	0	0	0	2	0	2	0	0	2	2	0	2	3	0	0	15
10.30 AN	0	0	0	0	2	0	2	0	0	5	3	0	2	4	0	0	15
Total	0	0	1	0	5	0	4	0	0	16	6	0	6	10	1	0	40
TOTAL	U	U		U	5	0	-	U	0	10	0	0	0	10	•	0	49
11:00 AM	0	0	0	0	1	0	1	0	0	5	1	0	0	5	0	0	13
11.15 AM	0	0	0	0	1	0	0	0	0	3	1	0	2	3	0	0	10
11:30 AM	õ	0	0	0	1	0	0	0	0	6	0	0	2	5	0	ő	14
11:45 AM	2	ñ	ñ	ő	'n	1	2	ő	0	6	2	õ	2	2	0	õ	17
Total	2	0	0	0	3	1	3	0	0	20	4	0	6	15	0	0	54
Total	2	0	0	0	5		5	0	U	20	-	0	0	15	0	0	04
12:00 PM	0	0	0	0	3	0	0	0	0	3	0	0	0	3	0	0	9
12:15 PM	1	0	0	0	0	0	0	0	0	3	1	0	2	2	0	0	9
12:30 PM	0	0	0	0	1	0	2	0	0	1	2	0	2	2	0	0	10
12:45 PM	0	0	0	0	0	0	0	0	0	5	3	0	2	1	1	0	12
Total	1	0	0	0	4	0	2	0	0	12	6	0	6	8	1	0	40
										-			-				
01:00 PM	0	0	0	0	2	0	2	0	0	7	1	0	2	3	0	0	17
01:15 PM	0	0	0	0	3	0	1	0	0	2	0	0	1	1	0	0	8
01:30 PM	0	0	0	0	1	0	1	0	0	4	1	0	1	5	0	0	13
01:45 PM	1	0	0	0	1	0	0	0	0	6	1	0	0	7	1	0	17
Total	1	0	0	0	7	0	4	0	0	19	3	0	4	16	1	0	55
					•	•	-	0	0		•	0	~		0	0	
02:00 PM	0	0	0	0	3	0	3	0	0	11	0	0	2	4	0	0	23
02:15 PM	0	0	0	0	1	0	2	0	0	5	2	0	0	/	1	0	18
02:30 PM	0	0	0	0	1	0	1	0	0	4	0	0	0	6	0	0	12
02:45 PM	0	0	0	0	2	0	0	0	0	4	3	0	1	6	0	0	16
Total	0	0	0	0	7	0	6	0	0	24	5	0	3	23	1	0	69
03:00 PM	0	0	0	0	1	0	1	0	0	9	0	0	0	3	0	0	14
03:15 PM	0	0	0	0	1	1	1	0	0	6	0	0	2	5	0	0	16
03:30 PM	0	0	0	0	2	0	5	0	1	10	4	0	1	4	0	0	27

Ann Arbor, MI, 48108 (734) 995-0200

Intersection E/W: Sheldon / Thompson Pond N/S: Merrill Road Weather:

Froups Printed- Cars & Peds - H.V. & Bikes - Bikes on Stree	et
-------------------------------------------------------------	----

				C	Froups F	rinted- (	Cars & F	Peds - H.	V & Bik	es - Bike	es on St	reet					
	Tho	mpson Eastb	Pond Dr	ive		Sheldor Westb	n Road			Merrill North	Road			Merrill South	Road		
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
03:45 PM	0	0	0	0	2	1	2	0	0	3	1	0	1	6	0	0	16
⊤otal	0	0	0	0	6	2	9	0	1	28	5	0	4	18	0	0	73
04:00 PM	0	0	0	0	5	0	3	0	0	13	0	0	3	4	0	0	28
04:15 PM	0	0	0	0	4	2	4	0	0	8	1	0	2	3	0	0	24
04:30 PM	0	0	0	0	2	0	1	0	0	12	0	0	1	7	0	0	23
04:45 PM	0	0	0	0	4	0	3	0	0	3	0	0	2	6	0	0	18
⊤otal	0	0	0	0	15	2	11	0	0	36	1	0	8	20	0	0	93
05:00 PM	0	0	0	0	0	0	2	0	0	14	2	0	4	6	0	0	28
05:15 PM	0	0	1	0	2	0	0	0	1	5	0	0	2	5	0	0	16
05:30 PM	0	0	0	0	1	0	2	0	0	2	1	0	0	2	0	0	8
05:45 PM	0	0	0	0	2	0	0	0	0	6	2	0	2	3	0	0	, 15
⊤otal	0	0	1	0	5	0	4	0	1	27	5	0	8	16	0	0	67
06:00 PM	0	0	0	0	4	0	0	0	0	7	2	0	1	4	0	0	18
06:15 PM	0	0	1	0	1	1	0	0	0	6	1	0	2	9	0	0	21
06:30 PM	0	0	0	0	0	0	2	0	0	4	2	0	1	4	0	0	13
06:45 PM	0	0	0	0	2	1	1	0	0	1	2	0	2	1	0	0	10
Total	0	0	1	0	7	2	3	0	0	18	7	0	6	18	0	0	62
*** BREAK ***																	
Grand Total	4	3	5	0	73	8	59	0	3	236	59	0	61	191	4	0	706
Apprch %	33.3	25	41.7	0	52.1	5.7	42.1	0	1	79.2	19.8	0	23.8	74.6	1.6	0	
Total %	0.6	04	0.7	0	10.3	1.1	8.4	0	0.4	33.4	8.4	0	8.6	27.1	0.6	0	
Cars & Peds	4	3	5	0	70	8	54	0	3	229	58	0	58	184	4	0	680
% Cars & Peds	100	100	100	0	95.9	100	91.5	0	100	97	98.3	0	95.1	96.3	100	0	96.3
H.V. & Bikes	0	0	0	0	3	0	5	0	0	7	1	0	3	7	0	0	26
% H.V. & Bikes	0	0	0	0	4.1	0	8.5	0	0	3	1.7	0	49	3.7	0	0	3.7
Bikes on Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes on Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3815 Plaza Drive Ann Arbor, MI, 48108 (734) 995-0200

Intersection E/W: Sheldon / Thompson Pond N/S: Merrill Road Weather:

• •

		Thomp E	son Po astbou	ond Dri und	ve		Sh	eldon l Vestbo	Road			M	errill R orthbo	oad und			M	errill R	oad und		
Start Time	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	Aos Totai	Left	Thru	Right	Peds	Ann Total	int Total
Peak Hour A	nalvsis	From	07:00 A	AM to 0	8:45 AN	- Pea	k 1 of	1		app out			g.itt		App roter	Lon	THE	right	1 603	App total	int rotai
Peak Hour fo	r Entire	e Inters	ection	Begins	at 07:00	MAC															
07:00 AM	0	0	0	ο	0	3	0	1	0	4	0	3	1	0	4	0	4	0	0	4	12
07:15 AM	0	1	0	0	1	0	0	2	0	2	0	2	2	0	4	2	4	0	0	6	13
07:30 AM	0	0	0	0	0	2	1	1	0	4	0	2	4	0	6	1	5	0	0	6	16
07:45 AM	0	1	1	0	2	0	0	1	0	1	0	4	0	0	4	0	3	Ő	ő	ĩ	10
Total Volume	0	2	1	0	3	5	1	5	0	11	0	11	7	0	18	3	16	0	0	19	51
% App. Total	0	66.7	33.3	0		45.5	9.1	45.5	0		0	61 1	38.9	ō		15.8	84.2	õ	õ	10	51
PHF	.000	.500	250	.000	.375	.417	.250	.625	.000	.688	.000	688	438	.000	750	375	800	000	000	792	797
Cars & Peds	0	2	1	0	3	3	1	5	0	9	0	11	7	0	18	2	15	0	0	17	47
% Cars & Peds	0	100	100	0	100	60.0	100	100	0	81.8	0	100	100	ō	100	66 7	93.8	ő	0	89.5	92.2
H.V. & Bikes	0	0	0	0	0	2	0	0	0	2	0	0	0	õ	0	1	1	õ	ő	2	52.2
% HV & Bikes	0	0	0	0	0	40.0	0	0	0	18 2	0	õ	õ	Ő	õ	333	63	ő	0	10 5	7 8
Bikes on Street	0	0	0	0	0	0	Ō	õ	õ	0	õ	õ	õ	0	õ	0	0	0	0	0.5	1.0
% Bikes on Street	0	0	0	0	0	0	0	0	0	0	0	Ō	õ	õ	õ	õ	õ	õ	õ	ő	0



3815 Plaza Drive Ann Arbor, MI, 48108 (734) 995-0200

Intersection E/W: Sheldon / Thompson Pond N/S: Merrill Road Weather:

	٦	Thomp E	son Po	ond Dri	ve		She	eldon f /estboi	Road und			M	errill R orthbo	oad und			M	errill R	oad		
Start Time	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Int Total
Peak Hour A	nalysis	From (	04:00	PM to C	5:45 PM	- Peak	(1 of 1	-												11	
Peak Hour fo	r Entire	Inters	ection	Begins	at 04:00	PM															
04:00 PM	0	0	0	0	0	5	0	3	0	8	0	13	0	0	13	3	4	0	0	7	28
04:15 PM	0	0	0	0	0	4	2	4	0	10	0	8	1	0	9	2	3	0	0	5	24
04:30 PM	0	0	0	0	0	2	0	1	0	3	0	12	0	0	12	1	7	0	0	8	23
04:45 PM	0	0	0	0	0	4	0	3	0	7	0	3	0	0	3	2	6	0	0	8	18
Total Volume	0	0	0	0	0	15	2	11	0	28	0	36	1	0	37	8	20	0	0	28	93
% App. Total	0	0	0	0		53.6	7.1	39.3	0		0	97.3	2.7	0		28.6	71.4	0	0		
PHF	.000	.000	.000	.000	.000	.750	.250	.688	.000	.700	000	692	250	.000	.712	.667	.714	.000	.000	.875	.830
Cars & Peds	0	0	0	0	0	15	2	10	0	27	0	35	1	0	36	7	19	0	0	26	89
% Cars & Peds	0	0	0	0	0	100	100	90.9	0	96.4	0	97.2	100	0	97.3	87.5	95.0	0	0	92.9	95.7
H.V. & Bikes	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	1	1	0	0	2	4
% H V & Bikes	0	0	0	0	0	0	0	9.1	0	3.6	0	2.8	0	0	2.7	12.5	5.0	0	0	7.1	4.3
Bikes on Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes on Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



. .

File Name : Strawberry Lake Merrill AM 2017 0221 Site Code : 06785678 Start Date : 2/21/2017 Page No : 1

						Grou	ps Prin	ted- Cars	- Buses	s - Truc	ks						
	Merrill From North						erry La n East	ke		Me From	rrill South			Strawbe From	erry La West	ke	
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
06:30 AM	19	1	32	52	14	10	0	24	1	2	0	3	0	21	15	36	115
06:45 AM	20	6	49	75	15	5	0	20	0	4	1	5	2	20	16	38	138
Total	39	7	81	127	29	15	0	44	1	6	1	8	2	41	31	74	253
07:00 AM	50	13	48	111	13	11	0	24	2	5	2	9	1	17	23	41	185
07:15 AM	57	8	58	123	10	9	2	21	1	5	2	8	1	26	11	38	190
07:30 AM	55	13	43	111	14	14	1	29	3	0	4	7	1	16	25	42	189
07:45 AM	27	13	38	78	16	11	1	28	1	4	1	6	0	23	19	42	154
Total	189	47	187	423	53	45	4	102	7	14	9	30	3	82	78	163	718
08:00 AM	23	12	32	67	17	10	0	27	1	3	2	6	2	20	22	44	144
08:15 AM	36	10	27	73	12	10	0	22	1	5	0	6	0	10	22	32	133
08:30 AM	32	8	28	68	17	11	0	28	0	10	2	12	0	12	13	25	133
08:45 AM	16	5	31	52	12	3	0	15	3	5	1	9	0	8	16	24	100
Total	107	35	118	260	58	34	0	92	5	23	5	33	2	50	73	125	510
Grand Total	335	89	386	810	140	94	4	238	13	43	15	71	7	173	182	362	1481
Apprch %	41.4	11	47.7		58.8	39.5	1.7		18.3	60.6	21.1		1.9	47.8	50.3		
Total %	22.6	6	26.1	54.7	9.5	6.3	0.3	16.1	0.9	2.9	1	4.8	0.5	11.7	12.3	24.4	
Cars	334	88	378	800	135	92	4	231	13	41	15	69	6	170	181	357	1457
% Cars	99.7	98.9	97.9	98.8	96.4	97.9	100	97.1	100	95.3	100	97.2	85.7	98.3	99.5	98.6	98.4
Buses	0	0	5	5	4	0	0	4	0	2	0	2	1	2	0	3	14
% Buses	0	0	1.3	0.6	2.9	0	0	1.7	0	4.7	0	2.8	14.3	1.2	0	0.8	0.9
Trucks	1	1	3	5	1	2	0	3	0	0	0	0	0	1	1	2	10
% Trucks	0.3	1.1	0.8	0.6	0.7	2.1	0	1.3	0	0	0	0	0	0.6	0.5	0.6	0.7

		Me From	nrill North		\$	Strawbe From	erry La 1 East	ke		Me From	rrill South		1	Strawbe From	West	ke	
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Anal	ysis From	m 6:30:0	O AM to	8:45:00	AM - Pea	ak 1 of 1											
Peak Hour for E	ntire Inte	ersection	Begins	s at 7:00:0	MA 0												
7:00:00 AM	50	13	48	111	13	11	0	24	2	5	2	9	1	17	23	41	185
7:15:00 AM	57	8	58	123	10	9	2	21	1	5	2	8	1	26	11	38	190
7:30:00 AM	55	13	43	111	14	14	1	29	3	0	4	7	1	16	25	42	189
7:45:00 AM	27	13	38	78	16	11	1	28	1	4	1	6	0	23	19	42	154
Total Volume	189	47	187	423	53	45	4	102	7	14	9	30	3	82	78	163	718
% App. Total	44.7	11.1	44.2		52	44.1	3.9		23.3	46.7	30		1.8	50.3	47.9		
PHF	.829	.904	.806	.860	.828	.804	.500	.879	.583	.700	.563	.833	.750	.788	.780	.970	.945

# *Livingston County Road Commission* 3535 Grand Oaks Drive Howell, MI 48843

File Name : Strawberry Lake Merrill PM 2017 0221 Site Code : 67777777 Start Date : 2/21/2017 Page No : 1

 $_{1}$  .  $\mathbf{x}$ 

						Grou	ps Prin	ited- Cars	- Buse	s - Truc	ks						
		Me From	errill North			Strawbe Fron	erry La n East	ke		Me From	errill South			Strawb Fron	erry La n West	ke	
Start Time	Right	Thru	Left	App Total	Right	Thru	Left	App Total	Right	Thru	Left	App Total	Right	Thru	Left	App Total	Int. Total
04:00 PM	24	5	38	67	29	13	0	42	1	7	0	8	1	17	35	53	170
04:15 PM	24	5	19	48	24	12	3	39	1	11	0	12	0	13	56	69	168
04:30 PM	14	7	12	33	46	11	2	59	2	8	2	12	2	19	54	75	179
04:45 PM	28	8	18	54	33	27	1	61	3	11	0	14	1	18	65	84	213
Total	90	25	87	202	132	63	6	201	7	37	2	46	4	67	210	281	730
05:00 PM	37	8	26	71	43	21	2	66	1	10	1	12	1	6	48	55	204
05:15 PM	27	7	20	54	56	22	2	80	7	10	3	20	1	17	63	81	235
05:30 PM	39	10	21	70	50	18	4	72	2	11	0	13	1	18	73	92	247
05:45 PM	27	10	22	59	23	15	1	39	0	12	1	13	4	13	58	75	186
Total	130	35	89	254	172	76	9	257	10	43	5	58	7	54	242	303	872
Grand Total	220	60	176	456	304	139	15	458	17	80	7	104	11	121	452	584	1602
Apprch %	48.2	13.2	38.6		66.4	30.3	3.3		16.3	76.9	6.7		1.9	20.7	77.4		
Total %	13.7	3.7	11	28.5	19	8.7	0.9	28.6	1.1	5	0.4	6.5	0.7	7.6	28.2	36.5	
Cars	219	59	174	452	299	138	15	452	17	76	6	99	11	118	449	578	1581
% Cars	99.5	98.3	98.9	99.1	98.4	99.3	100	98.7	100	95	85.7	95.2	100	97.5	99.3	99	98.7
Buses	1	0	2	3	2	0	0	2	0	3	0	3	0	1	0	1	9
% Buses	0.5	0	1.1	0.7	0.7	0	0	0.4	0	3.8	0	2.9	0	0.8	0	0.2	0.6
Trucks	0	1	0	1	3	1	0	4	0	1	1	2	0	2	3	5	12
% Trucks	0	1.7	0	0.2	1	0.7	0	0.9	0	1.2	14.3	19	0	17	07	0.9	07

		Me From	rrill North		:	Strawbe From	erry La n East	ke		Me From	rrill South		1	Strawbe From	rry Lal West	(e	
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Anal	ysis From	n 4:00:0	0 PM to	5:45:00	PM - Pea	ak 1 of 1											
Peak Hour for E	ntire Inte	rsection	Begins	s at 4:45:0	0 PM												
4:45:00 PM	28	8	18	54	33	27	1	61	3	11	0	14	1	18	65	84	213
5:00:00 PM	37	8	26	71	43	21	2	66	1	10	1	12	1	6	48	55	204
5:15:00 PM	27	7	20	54	56	22	2	80	7	10	3	20	1	17	63	81	235
5:30:00 PM	39	10	21	70	50	18	4	72	2	11	0	13	1	18	73	92	247
Total Volume	131	33	85	249	182	88	9	279	13	42	4	59	4	59	249	312	899
% App. Total	52.6	13.3	34.1		65.2	31.5	3.2		22	71.2	6.8		1.3	18.9	79.8		
PHF	.840	.825	.817	.877	.813	.815	.563	.872	.464	.955	.333	.738	1.00	.819	.853	.848	.910

Intersection		
Intersection Delay, s/veh	12.1	

Intersection LOS

• •

12.1 В

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			4			4			4	
Traffic Vol, veh/h	78	82	3	4	45	53	9	14	7	187	47	189
Future Vol, veh/h	78	82	3	4	45	53	9	14	7	187	47	189
Peak Hour Factor	0.88	0.88	0.88	0.69	0.69	0.69	0.60	0.60	0.60	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	1	1	1
Mvmt Flow	89	93	3	6	65	77	15	23	12	197	49	199
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	AND THE REAL PROPERTY OF		WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	10.6			9.6			8.8			14		
HCMLOS	В			Α			Α			В		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	30%	48%	4%	44%	
Vol Thru, %	47%	50%	44%	11%	
Vol Right, %	23%	2%	52%	45%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	30	163	102	423	
LT Vol	9	78	4	187	
Through Vol	14	82	45	47	
RT Vol	7	3	53	189	
Lane Flow Rate	50	185	148	445	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.074	0.281	0.212	0.575	
Departure Headway (Hd)	5.36	5.467	5.169	4.647	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	670	661	698	766	
Service Time	3.379	3.474	3.177	2.743	
HCM Lane V/C Ratio	0.075	0.28	0.212	0.581	
HCM Control Delay	8.8	10.6	9.6	14	
HCM Lane LOS	Α	В	Α	В	
HCM 95th-tile Q	0.2	1.2	0.8	3.7	

Intersection													a state and a state of the second
Int Delay, s/veh	2.4												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4.			4			4		
Traffic Vol, veh/h	0	2	1	5	1	5	0	11	7	10	46	0	
Future Vol, veh/h	0	2	1	5	1	5	0	11	7	10	46	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	CARA A	-	None			None			None			None	
Storage Length	-	-	-	-	-	-		-			-		
Veh in Median Storage	e, # -	0		1997 ·	0			0			0	- S. S.	
Grade, %	-	0	-		0	-		0	-		0		
Peak Hour Factor	60	60	60	69	69	69	75	75	75	79	79	79	
Heavy Vehicles, %	0	0	0	18	18	18	0	0	0	4	4	4	
Mvmt Flow	0	3	2	7	1	7	0	15	9	13	58	0	
Maior/Minor	Minor2			Minor1			Maior1			Maior2			
Conflicting Flow All	108	108	58	107	104	20	58	0	0	24	D	0	
Stage 1	84	84	BRE COL	20	20			19.949	an a	100	100	eneire	
Stage 2	24	24	-	87	84	-		-			-	-	
Critical Hdwy	7.1	6.5	6.2	7.28	6.68	6.38	4.1			4.14		Sec. 19	
Critical Hdwy Stg 1	6.1	5.5	-	6.28	5.68	-		-		-	-	-	
Critical Hdwy Stg 2	6.1	5.5		6.28	5.68		•						
Follow-up Hdwy	3.5	4	3.3	3.662	4.162	3.462	2.2			2.236	-		
Pot Cap-1 Maneuver	876	786	1014	836	757	1013	1559			1578			
Stage 1	929	829	-	959	848	-	-		-	-	-		
Stage 2	999	879		883	795			885.	•				
Platoon blocked, %								-					
Mov Cap-1 Maneuver	863	779	1014	826	750	1013	1559			1578		11.	
Mov Cap-2 Maneuver	863	779	-	826	750	-	-	-		-		-	
Stage 1	929	822		959	848								
Stage 2	990	879	- 1040000	870	788	-		-	-	- 0.0225098	-	- 1000-000-000	
Approach	FR			WR			NB			SR			
HCM Control Dolay	0.2			0.1			0			12			
HCM LOS	5.5 A			Э.Т А			U			1.0			
Minor Lane/Major Myr	nt	NBL	NBT	NBR	EBLn1\	WBLn1	SBL	SBT	SBR				
Capacity (veh/h) HCM Lane V/C Ratio		1559		-	<b>844</b> 0.006	<b>893</b> 0.018	<b>1578</b> 0.008	-	•				

HCM Control Delay (s)	0		-	9.3	9.1	7.3	0	
HCM Lane LOS	А	-	-	A	A	А	Α	-
HCM 95th %tile Q(veh)	0			0	0.1	0		

· .

Intersection		
Intersection Delay, s/veh	12.4	
Intersection LOS	В	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			¢.			4.	
Traffic Vol, veh/h	187	53	5	6	90	203	2	40	6	98	28	125
Future Vol, veh/h	187	53	5	6	90	203	2	40	6	98	28	125
Peak Hour Factor	0.88	0.88	0.88	0.79	0.79	0.79	0.92	0.92	0.92	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	0	0	0
Mvmt Flow	213	60	6	8	114	257	2	43	7	103	29	132
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB	1127	
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	12.6			12.8			9.7			12.1		
HCM LOS	В			В			Α			В		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	4%	76%	2%	39%	
Vol Thru, %	83%	22%	30%	11%	
Vol Right, %	12%	2%	68%	50%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	48	245	299	251	
LT Vol	2	187	6	98	
Through Vol	40	53	90	28	n de la companya en la companya de la concentra la sector de la concentra de la contra de la concentra d
RT Vol	6	5	203	125	
Lane Flow Rate	52	278	378	264	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.087	0.425	0.509	0.399	
Departure Headway (Hd)	6.025	5.492	4.837	5.436	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	592	654	742	661	
Service Time	4.091	3.537	2.878	3.483	
HCM Lane V/C Ratio	0.088	0.425	0.509	0.399	
HCM Control Delay	9.7	12.6	12.8	12.1	news created to calculate the process of the second state of the second of the second state of the
HCM Lane LOS	Α	В	В	В	
HCM 95th-tile Q	0.3	2.1	2.9	1.9	алты жаналан жана калары да каларында каларында калары жана дер деректери. Улу 🧟 — С. С. К. С

Intersection	AS LONG			Conference	Constant and the				State State			Property and a second sec	
Int Delay, s/veh	3.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4			4			4		
Traffic Vol, veh/h	0	0	0	15	2	11	0	36	1	8	20	0	
Future Vol, veh/h	0	0	0	15	2	11	0	36	1	8	20	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized			None		1000	None	- 11	-	None			None	
Storage Length	-		-		-	-	-	-	-	-	-	-	
Veh in Median Storage	,# -	0	-		0		-	0		-	0	-	
Grade, %	-	0	-		0	-	-	0	-	-	0	-	
Peak Hour Factor	60	60	60	70	70	70	71	71	71	88	88	88	
Heavy Vehicles, %	0	0	0	4	4	4	3	3	3	7	7	7	
Mvmt Flow	0	0	0	21	3	16	0	51	1	9	23	0	
Maior/Minor	Minor2	14-24-5-8		Minor1			Maior1			Maior2			- Annah (
Conflicting Flow All	102	93	23	93	93	52	23	0	0	52	0	0	
Stage 1	41	41	1000	52	52	10.00		100	1000	-	1002	1995 - P	
Stage 2	61	52	-	41	41	-	-			-	-	-	
Critical Hdwy	7.1	6.5	6.2	7.14	6.54	6.24	4.13			4.17	-		
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.54		-		-	-	-		
Critical Hdwy Stg 2	6.1	5.5	-	6.14	5.54		S. 3		0.12			1000	
Follow-up Hdwy	3.5	4	3.3	3.536	4.036	3.336	2.227	-		2.263	-	-	
Pot Cap-1 Maneuver	884	801	1060	886	793	1010	1586	1	100-	1522	-	1.2.2	
Stage 1	979	865	-	956	848		-	-	-	-	-	-	
Stage 2	955	856		969	857		C ( .	•		-		-	
Platoon blocked, %									-		-	-	
Mov Cap-1 Maneuver	864	796	1060	882	788	1010	1586			1522		10.4	
Mov Cap-2 Maneuver	864	796	-	882	788	-	-	-	-	-	-	-	
Stage 1	979	860	1.1.1	956	848					10 C			
Stage 2	937	856	-	963	852	•	-	•	-	-	-	•	
Approach	FR			WR		1	NR			CB			
HCM Control Delay	0		3.9-1.4.4.5	0.1			110			24			
HCM LOS	A			9.1 A			U			2.1			
Minor Lane/Major Mym	t	NBL	NBT	NBR	EBLn1V	VBLn1	SBL	SBT	SBR				
Capacity (veh/h)		1586				920	1522		-				1000
HCM Lane V/C Ratio			-			0.043	0.006	-	-				
HCM Control Delay (s)		0	(1) (1) <b>-</b>		0	9.1	7.4	0					
HCM Lane LOS		A	-		A	A	A	A	-				
HCM 95th %tile Q(veh)		0	6 C 4		1.19	0.1	0	100					

Intersection			
Intersection Delay. s/veh	13.1		
Intersection LOS	В		1.55

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			4			\$			4	
Traffic Vol, veh/h	82	86	3	4	47	56	9	15	7	197	49	199
Future Vol, veh/h	82	86	3	4	47	56	9	15	7	197	49	199
Peak Hour Factor	0.88	0.88	0.88	0.69	0.69	0.69	0.60	0.60	0.60	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	1	1	1
Mvmt Flow	93	98	3	6	68	81	15	25	12	207	52	209
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB		The second	SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	11			9.9			9			15.5		
HCMLOS	В			Α			Α			C		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	29%	48%	4%	44%	
Vol Thru, %	48%	50%	44%	11%	
Vol Right, %	23%	2%	52%	45%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	31	171	107	445	
LT Vol	9	82	4	197	
Through Vol	15	86	47	49	
RT Vol	7	3	56	199	
Lane Flow Rate	52	194	155	468	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.079	0.3	0.227	0.626	
Departure Headway (Hd)	5.471	5.565	5.27	4.811	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	654	645	681	754	
Service Time	3.513	3.604	3.31	2.811	
HCM Lane V/C Ratio	0.08	0.301	0.228	0.621	
HCM Control Delay	9	11	9.9	15.5	
HCM Lane LOS	A	В	A	С	
HCM 95th-tile Q	0.3	1.3	0.9	4.5	

Intersection	malinas				國際目的		a franker						
Int Delay, s/veh	2.4												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4,			4			4			4		
Traffic Vol, veh/h	0	2	1	5	1	5	0	12	7	11	48	0	
Future Vol, veh/h	0	2	1	5	1	5	0	12	7	11	48	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	- 100		None			None		-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage	# -	0		-	0		-	0			0	•	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	60	60	60	69	69	69	75	75	75	79	79	79	
Heavy Vehicles, %	0	0	0	18	18	18	0	0	0	4	4	4	
Mvmt Flow	0	3	2	7	1	7	0	16	9	14	61	0	
Major/Minor	Ainor2			Minor1			Major1		A CARLON MARK	Major2			
Conflicting Flow All	114	114	61	113	110	21	61	0	0	25	0	0	
Stage 1	89	89	1999-	21	21		6 C -	•	•	1	1000		
Stage 2	25	25	-	92	89	-			-		-		
Critical Hdwy	7.1	6.5	6.2	7.28	6.68	6.38	4.1			4.14		6.94	
Critical Hdwy Stg 1	6.1	5.5	-	6.28	5.68	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.1	5.5		6.28	5.68								
Follow-up Hdwy	3.5	4	3.3	3.662	4.162	3.462	2.2	-	-	2.236	-	-	
Pot Cap-1 Maneuver	868	780	1010	828	751	1012	1555			1577			
Stage 1	923	825	-	958	847	-	-	-	-	-	-	-	
Stage 2	998	878		877	791		-	-		-	-		
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	855	773	1010	818	744	1012	1555	1		1577			
Mov Cap-2 Maneuver	855	773	-	818	744	-	-	-	-		-	-	
Stage 1	923	818		958	847		-			•			
Stage 2	989	878	-	864	784	•	•	55555			•		
Approach	EB			WB			NB			SB			
HCM Control Delay	93			91		1744	0			14			
HCM LOS	A			A									
Minor Lane/Maior Mym	t	NBL	NBT	NBR	EBLn1	NBLn1	SBL	SBT	SBR				
Capacity (yeh/h)		1555	-		839	887	1577					1000	
HCM Lane V/C Ratio			-	-	0.006	0.018	0.009		-				
HCM Control Delay (s)		0	1.000		93	91	73	0	0.800				
HCM Lane LOS		A			A	A	A	A					
HCM 95th %tile Q(veh)		0	-		0	0.1	0						

. .

Intersection		
Intersection Delay, s/veh	13.2	
Intersection LOS	В	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			\$			4			4	
Traffic Vol, veh/h	197	56	5	6	95	213	2	42	6	103	29	131
Future Vol, veh/h	197	56	5	6	95	213	2	42	6	103	29	131
Peak Hour Factor	0.88	0.88	0.88	0.79	0.79	0.79	0.92	0.92	0.92	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	0	0	0
Mvmt Flow	224	64	6	8	120	270	2	46	7	108	31	138
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	13.3			13.8			9.9			12.7		
HCMLOS	В			В			Α			В		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	4%	76%	2%	39%	
Vol Thru, %	84%	22%	30%	11%	でのないなどのです。 読む 読む オマル・ア・ソー
Vol Right, %	12%	2%	68%	50%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	50	258	314	263	
LT Vol	2	197	6	103	
Through Vol	42	56	95	29	
RT Vol	6	5	213	131	
Lane Flow Rate	54	293	397	277	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.093	0.456	0.545	0.427	
Departure Headway (Hd)	6.191	5.598	4.936	5.552	
Convergence, Y/N	Yes	Yes	Yes	Yes	na haar sa arawa <b>manakani dala arawa sa kata na ma</b> ala ta <b>kata para manakana ta ana mala</b> u mada kata kata kata kata da 1992 kata 1992 kata kata kata kata kata kata kata kat
Сар	575	642	727	645	
Service Time	4.269	3.651	2.983	3.606	
HCM Lane V/C Ratio	0.094	0.456	0.546	0.429	
HCM Control Delay	9.9	13.3	13.8	12.7	nennen damme och i henden verdar sämmen en under men eller staten dens under verstätte senare som eller värst d
HCM Lane LOS	A	В	В	В	
HCM 95th-tile Q	0.3	2.4	3.3	2.1	nene veren un randere regenezazione na esta esta maneta (1999) della fizza della contra della della della della

Background PM

. .

Intersection	A Contractor	mpanen ()	here and	Carle King	(1) (2) (2) (2)	Service Lin	and a grant	A Maria				Continues Has	and all
Int Delay, s/veh	3.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Alter and
Lane Configurations		4			4			4			4		
Traffic Vol, veh/h	0	0	0	16	2	12	0	38	1	8	21	0	
Future Vol. veh/h	0	0	0	16	2	12	0	38	1	8	21	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized			None	9986	100	None	2010		None	-		None	
Storage Length	-	-	-	-	-		-		-	-	-		
Veh in Median Storage,	# -	0	-		0		-	0	-	-	0	1992 - M	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	60	60	60	70	70	70	71	71	71	88	88	88	
Heavy Vehicles, %	0	0	0	4	4	4	3	3	3	7	7	7	
Mvmt Flow	0	0	0	23	3	17	0	54	1	9	24	0	
Major/Minor	linor?	1.40		Minor1		1. 2. 2. 1.	Major1			Major2	Tel a Maria		1253
Conflicting Flow All	107	97	24	97	97	55	24	0	0	55	D	0	
Stage 1	42	42	0000	55	55	-	1997			-	-		
Stage 2	65	55	-	42	42	-	- 100		-	-	-	- 1100 C	
Critical Hdwy	7.1	6.5	6.2	7.14	6.54	6.24	4.13	16.54		4.17			
Critical Hdwy Sto 1	6.1	5.5	-	6.14	5.54	-	-		- -	-	-	-	
Critical Hdwy Stg 2	6.1	5.5	1000-	6.14	5.54		0.064	94.54				CHARLE THE	
Follow-up Hdwy	3.5	4	3.3	3.536	4.036	3.336	2.227		-	2.263	-	•	
Pot Cap-1 Maneuver	877	797	1058	881	789	1006	1584			1519		1000	
Stage 1	978	864	-	952	845	-	-			-	-		
Stage 2	951	853		967	856			. P.					
Platoon blocked, %											-		
Mov Cap-1 Maneuver	856	792	1058	877	784	1006	1584			1519	10.2	8 · · · ·	
Mov Cap-2 Maneuver	856	792		877	784		-			-			
Stage 1	978	859		952	845	- 1 S	-					1527.	
Stage 2	932	853	-	961	851	-	-	-	-		-		
Approach	EB			WB			NB			SB			The first
HCM Control Delay, s	0			9.1			0			2			
HCM LOS	A			A									
Minor Lane/Major Mym	t	NBI	NBT	NBR	EBI n1	WBI n1	SBI	SBT	SBR				
Canacity (yeh/h)		1584	THE	THEIT		917	1519	-					
HCM Lane V/C Patio		1004		186		0.047	0.006	19 19 19 19 19 19 19 19 19 19 19 19 19 1					
HCM Control Delay (c)		0		think I	0	91	74	0					
HCM Lane LOS		Δ		(22) - 1 <sup>2</sup>	Δ	Δ	Δ	Δ	-				
HCM 95th %tile O(uph)		0	- 1436 - 14 - 2	- 1910-1921	2	01	n		19.23				
now sour whe a(ven)		U		111111	6 A 11 11 11 11 11 11	0.1	0	10000	1000				

۰.

Intersection		
Intersection Delay, s/veh	13.4	
Intersection LOS	В	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			\$	
Traffic Vol, veh/h	82	86	5	5	47	56	12	16	11	197	53	199
Future Vol, veh/h	82	86	5	5	47	56	12	16	11	197	53	199
Peak Hour Factor	0.88	0.88	0.88	0.69	0.69	0.69	0.60	0.60	0.60	0.95	0.95	0.95
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	1	1	1
Mvmt Flow	93	98	6	7	68	81	20	27	18	207	56	209
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		and the second
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	11.1			10			9.1			16		
HCMLOS	В			Α			Α			С		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	31%	47%	5%	44%	
Vol Thru, %	41%	50%	44%	12%	
Vol Right, %	28%	3%	52%	44%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	39	173	108	449	
LT Vol	12	82	5	197	
Through Vol	16	86	47	53	
RT Vol	11	5	56	199	
Lane Flow Rate	65	197	157	473	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.099	0.307	0.232	0.638	
Departure Headway (Hd)	5.476	5.617	5.338	4.857	
Convergence, Y/N	Yes	Yes	Yes	Yes	na an ann an Annaichtean ann an ann ann ann an ann an ann an Santaireann a' ann ann an 1979 ann 1986 annaichte Annaichteanna ann ann ann ann ann ann ann ann an
Сар	653	639	671	747	
Service Time	3.523	3.661	3.384	2.857	
HCM Lane V/C Ratio	0.1	0.308	0.234	0.633	
HCM Control Delay	9.1	11.1	10	16	anna a shinan a shinan a shinan ta shinan ta shinan a shinan ta shinan a shinan a shinan ta shinan shinan a shi
HCM Lane LOS	A	В	Α	С	
HCM 95th-tile Q	0.3	1.3	0.9	4.6	namen en andere en

. -

Intersection		C. Killen and											
Int Delay, s/veh	4.3												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4			4			4		
Traffic Vol, veh/h	8	10	13	5	3	5	2	12	7	11	48	7	
Future Vol, veh/h	8	10	13	5	3	5	2	12	7	11	48	7	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	- 35	None	97 L.S •		None	•		None	•	•	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage.	# -	0			0	•		0	. 20		0	-	
Grade, %	-	0		-	0	-	-	0	-	-	0	-	
Peak Hour Factor	60	60	60	69	69	69	75	75	75	79	79	79	
Heavy Vehicles, %	0	0	0	18	18	18	0	0	0	4	4	4	
Mvmt Flow	13	17	22	7	4	7	3	16	9	14	61	9	
Major/Minor N	linor2			Minor1			Major1			Major2	A.M. M		2004
Conflicting Flow All	126	125	66	140	125	21	70	0	0	25	0	0	
Stage 1	94	94	5.5%	27	27		NO STA		1975	3979		1998	
Stage 2	32	31		113	98	-	-	-		-	-	-	
Critical Hdwy	7.1	6.5	6.2	7.28	6.68	6.38	4.1	10.00		4.14			
Critical Hdwy Stg 1	6.1	5.5		6.28	5.68	-	-	-		-		-	
Critical Hdwy Stg 2	6.1	5.5		6.28	5.68		5.00						
Follow-up Hdwy	3.5	4	3.3	3.662	4.162	3.462	2.2	-		2.236	-	-	
Pot Cap-1 Maneuver	852	769	1003	795	737	1012	1544			1577		1.00	
Stage 1	918	821		951	842	-	-	-		-	-	-	
Stage 2	990	873		854	784				1.70%	10.2			
Platoon blocked %												-	
Mov Cap-1 Maneuver	835	761	1003	758	729	1012	1544		1.214	1577		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	
Moy Cap-2 Maneuver	835	761		758	729			-	-			-	
Stage 1	916	814	1. A. A.	949	840		1 A .			1.12		100.00	
Stage 2	976	871	- -	811	777	-		-	-	-	-		
Annroach	FB			WR			NB	Sheet P		SB			
HCM Control Dolay	0.4			0.4			0.7			12			
HCM LOS	9.4 A			3.4 A			0.7			1.2			
Minor Lane/Major Mym	t	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR		126523		1.5.5
Capacity (veh/h)	2.525	1544			869	831	1577						
HCM Lane V/C Ratio		0.002	-	-	0.059	0.023	0.009						
HCM Control Delay (s)		73	0		9.4	9.4	7.3	0	1000				
HCM Lane LOS		A	A	-	A	A	A	A					
HCM 95th %tile Q(veh)		0	0.00		0.2	0.1	0						
in our our our all our		•					-						

۰.

۰,

Intersection		
Intersection Delay, s/veh	13.5	
Intersection LOS	В	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			4			4			\$	
Traffic Vol, veh/h	197	56	7	8	95	213	3	48	8	103	34	131
Future Vol, veh/h	197	56	7	8	95	213	3	48	8	103	34	131
Peak Hour Factor	0.88	0.88	0.88	0.79	0.79	0.79	0.92	0.92	0.92	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	0	0	0
Mvmt Flow	224	64	8	10	120	270	3	52	9	108	36	138
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	13.6			14.2			10.1			13.1		
HCMLOS	В			В			В			В		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	5%	76%	3%	38%	
Vol Thru, %	81%	22%	30%	13%	
Vol Right, %	14%	3%	67%	49%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	59	260	316	268	
LT Vol	3	197	8	103	
Through Vol	48	56	95	34	
RT Vol	8	7	213	131	
Lane Flow Rate	64	295	400	282	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.111	0.465	0.556	0.44	
Departure Headway (Hd)	6.234	5.664	5.005	5.611	
Convergence, Y/N	Yes	Yes	Yes	Yes	na na na katala ananan besista ana basa mutanzana a si da katananan si sa mila na na mananana na mutana (manana Manana
Сар	571	632	716	638	
Service Time	4.321	3.724	3.062	3.672	and a second second second second and second s
HCM Lane V/C Ratio	0.112	0.467	0.559	0.442	
HCM Control Delay	10.1	13.6	14.2	13.1	
HCM Lane LOS	В	В	В	В	
HCM 95th-tile Q	0.4	2.5	3.5	2.2	ини и при на на на при на на на при на

# HCM 6th TWSC 1002: Merrill Road & Thompson Pond/Sheldon Road

Forecast PM \* \*

. 1

Intersection													
Int Delay, s/veh	5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4			4			4		
Traffic Vol, veh/h	9	2	6	16	11	12	12	38	1	8	21	9	
Future Vol, veh/h	9	2	6	16	11	12	12	38	1	8	21	9	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	115 N-	None			None	8 (D) -		None		-	None	
Storage Length	-	-	-	-		-	-		-	-	-	-	
Veh in Median Storage,	# -	0	100.		0	- 199	80 P	0		-	0	1000	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	60	60	60	70	70	70	71	71	71	88	88	88	
Heavy Vehicles, %	0	0	0	4	4	4	3	3	3	7	7	7	
Mvmt Flow	15	3	10	23	16	17	17	54	1	9	24	10	
Maior/Minor M	linor2			Minor1			Maior1			Maior2			
Conflicting Flow All	152	136	29	143	141	55	34	0	0	55	0	0	
Stage 1	47	47		89	89	-				-		1999	
Stage 2	105	89	-	54	52		-		-	-	-	-	
Critical Hdwy	7.1	6.5	6.2	7.14	6.54	6.24	4.13		1	4.17			
Critical Hdwy Stg 1	6.1	5.5	-	6.14	5.54	-	-			-		-	
Critical Hdwy Sto 2	6.1	5.5		6.14	5.54		2014					12274	
Follow-up Hdwy	3.5	4	3.3	3.536	4.036	3.336	2.227		-	2.263	-	-	
Pot Cap-1 Maneuver	820	759	1052	822	746	1006	1571		1	1519		100.000	
Stage 1	972	860		914	817	-	-		-	-	-	-	
Stage 2	906	825	10002	953	848			- C		0.000.000			
Platoon blocked %		020			0.0			-	-			-	
Mov Cap-1 Maneuver	782	746	1052	801	733	1006	1571	Section 2	1000	1519	100	100 mars	
Mov Cap-2 Maneuver	782	746		801	733		-			-		-	
Stage 1	961	855		904	808	-			1.44	-		1	
Stage 2	864	816	-	935	843	-	-	•	-	-	•	-	
Annroach	ED			W/D			NP			CD			
HOM Control Dalau	0.4			AND OC			4.7			10			
HCM Control Delay, s HCM LOS	9.4 A			9.0 A			1.7			1.0			
Minor Lane/Major Mymt		NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	No the	1571			855	831	1519	-	-			10.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	
HCM Lane V/C Ratio		0.011			0.033	0.067	0.006		-				
HCM Control Delay (s)		7.3	0		9.4	9.6	7.4	0					
HCM Lane LOS		A	A		A	A	A	A	-				
HCM 95th %tile Q(veh)		0		Generation	0.1	0.2	0	8.92%					



# 2021 Murie glen design handbook



# STATEMENT OF INTENT

Murie Glen is designed as a Mixed Planned Unit Development, based on new urbanist principles of walk-ability, economic diversity, and historic precedence.

This design handbook is meant to be a minimum standard for the Murie Glen development. This book is not meant to limit the possible quality or style of architecture but to ensure that Hamburg will gain a well-made, and beautiful community in any circumstance.

#### © 2021 A2 Collaborative, LLC

This drawing is meant for the approval by Hamburg Township's Planning and Zoning Board. No part of this drawing may be used or reproduced in any form by any means, or stored in a database or retrieval system, without prior permission of A2 Collaborative, LLC. Unless otherwise agreed to in writing, this document is the sole property of A2 Collaborative, LLC and is to be returned upon demand. The information herein is confidiential and may not be used nor divulged without the written permission of A2 Collaborative, LLC.
Each proposed Unit, including additions, shall be designed and reviewed for consistency and/or compatibility with the appropriate architecture, design and site standards in this document.

1. The plans in the Architectural Plan Book are pre-approved, and the Township Zoning Administrator or designated staff member shall approve a land use permit for any of these plans as long as the building meets the required setbacks on the sites.

2. If the plans in the Architectural Plan Book are altered such as changes to single architectural features (i.e- different posts, materials, windows, etc.), then the Township Zoning Administrator or designated staff member shall review the plans for compatibility of architectural design elements, and work with the builder to approve the Land Use Permit.

3. If a new architectural design is submitted, the plan shall be reviewed by the Township Zoning Administrator or designated staff member along with the Architectural Review Committee members for compliance with the Architectural Design and Site Guidelines Murie Glen Design Handbook, and existing site context, and the following discretionary design standards. The Township staff shall work with the builder or property owner prior to the issuance of any land use permit.

> a. The proposed home design shall allow for a variety of housing design styles in the development while still being compatible with the development as a whole. Compatibility shall be reviewed based on compliance

with the Muriel Glen Design Handbook, the quality of materials, the design and layout of the home on the site. Variety of housing design styles shall be based on the review of any existing home designs on the adjacent properties.

4. Once a home is built and there are any additions or alterations to the approved design, they shall be reviewed the Township Zoning Administrator or designated staff member for compliance with the Architectural Design and Site Guidelines Murie Glen Design Handbook and site context.

The applicant shall have the right to appeal to the Planning Commission for review and approval in the event of a disagreement with the Township Zoning Administrator.

The following shall be submitted with application for a building permit:

- 1. Site Plan
- 2. House Plans
- 3. Color Materials and Details

# OVERALL DESIGN & SITE PRINCIPLES

The following shall apply to all Units, unless specifically noted below:

### **General Principles**

I) Diversity.

Units shall contain a mixture of design elements that identify the design as a unique home. Houses, although similar in architectural style should be recognizably different in either color, massing, detail, or finish from other homes.

### II) Building Details.

The front facade of the Unit and the front yard shall be the most lavishly designed and decorated parts of the Unit. Designers shall reference architectural precedents of the intended style to design each facade.

### III) Building Orientation.

Corner homes shall be designed so both exposed facades enhance the street and are considered front facades. Building form, architectural treatment and porch shall respond to, and emphasize, the corner location.

### IV) Habitable Orientation.

The habitable, active spaces of the Unit (living room, dining room, kitchen) shall be oriented towards the public domain when possible, and receive adequate natural light to ensure quality living spaces.

### V) Utility and Rubbish Screening.

Utility equipment and rubbish containers shall be screened from public view by appropriate landscaping and/or fencing.

### VI) Variety

No two adjacent lots shall have the same approved design (see Murie Glen Architectural Plan Book) If an unapproved design is proposed for a lot review of the design shall be required under Review Standards item 3 on page 2. 1) Architecture / Exterior Materials Permitted materials shall meet or exceed the following minimum quality standards:

• Roof: Dimensional shingles, metal, slate, solar or combination.

• Exterior Facade: Premium vinyl (lap, shake or board-and-batten) and cement board (provided there are no visible joints in the underlying "board" material), masonry, and stucco.

CMU block may be used in the construction of a home, but must not be visibly apparent on the exterior of the building. Stucco may be allowed as more modern and contemporary designs should be explored in the community.

• Trim: 3.5" minimum trim shall be provided at all openings (door, window, garage, etc.). Trim style may be vary.

Trim shall be provided at all outside corners (3.5" minimum).

Homes shall be articulated through the use of properly proportioned and detailed cornices, appropriate to the design of the Unit, and shall project out horizontally from the vertical wall plane, a minimum of 12", to create depth and shadow on the facade, without terminating with deep, oversized overhangs or angled returns.

Roof pitch on primary elements of the home shall have no minimum. Porch and dormer roof pitches may vary.

### 2) Entries: Front Porches

The front facade of the building shall have a minimum of 35% designated as front porch space (measured as a percentage of overall building width). If the home is located on a lot with two primary facades, the facade that contains the 'front door' shall abide by the 35% rule stated above, and the second primary facade must have a front porch that is 15% of the overall building width.

Example: If a building front facade is 45 ft. wide, including any attached garage and excluding any detached garage visible past the silhouette of the home facade, the width of a front porch would be 35% of 45 ft.. This would mean the home requires a front porch that is 15' - 9" wide. If the building is located on a corner lot with two primary facades, one facade is 45 ft. and the second primary facade is 80 ft., we locate the facade that contains the front door (in this case the 45 ft. facade has the front door) and design a 35% size front porch on that side. The remaining facade of 80 ft. must have a porch that is 15% of the overall building width, which would equal 12 ft..

(This condition ensures properly sized front porches on all primary facades to create an active street scape.)

Porches shall be a minimum depth of 6'-0".

Porches shall be raised a minimum of 16" from the ground except on ECHO housing

# ARCHITECTURE DESIGN

#### units.

Porches must contain posts and columns, with the style to be appropriate to the Unit's architecture.

Craftsman and Traditional style column bases shall be a minimum diameter (or square) of 8".

Permitted porch material shall include or be a higher quality than: pressure-treated lumber, composite wood, and cedar. Concrete and brick porches may be used.

The building's front porch shall be covered with a roof structure.

Craftsman and Traditional style porches shall provide continuous screening under the porch to include one or a combination of:

brick, stone, frieze-board, lattice, board and batten, with bed molding.

### 3) Rear Porches

Permitted porch material shall include or be a higher quality than: pressure-treated lumber, composite wood, cedar and concrete.

Craftsman and Traditional style porches shall provide continuous screening under the porch to include one or a combination of:

brick, stone, frieze-board, lattice, board and batten, with bed molding.

### 4) Doors / Lighting

At each main entry, a minimum of one exterior, LED light fixture is required. Light fixtures must be wall, ceiling-mounted, or recessed. Visible fixtures shall be a design that compliments the Unit's architectural design with a maximum. All light fixtures shall completely contain the bulb as recommended by Dark Sky:

## https://www.darksky.org/our-work/lighting/lighting-for-citizens/lighting-basics/

Outdoor lighting shall be directed toward the ground or shielded to prevent light from being directly cast off the site.

Outdoor accent lights on the front of the building must be timed turn off by 10pm every night.

5) Windows

Total Glazing percentage = 10% minimum

### Single Story

Front Facade: Minimum 3 windows, or 2 windows and a half or full lite front door. Side Facades: Minimum 2 windows, or 1 window and 1 (4' x 4') skylight. Rear Facade: Minimum 2 windows, or 1 window and a half or full lite rear door.

### Two Story

Front Facade: Minimum 5 windows, or 3 windows and a half or full lite front door. Side Facades: Minimum 4 windows, or 2 windows and 1 (4' x 4') skylight. Rear Facade: Minimum 4 windows, or 3 windows and a half or full lite rear door.

Windows shall be wrapped with a minimum of 3.5" trim.

All windows shall be clear glass, except for frosted glass on windows within the inhabitable unit zone, including bathrooms, or the uninhabitable unit zone,

# ARCHITECTURE DESIGN

including the garage.

6) Parking / Garages / Pavement

Direct, non-irregular shaped pedestrian walkway is required from the sidewalk to the front entry of Elderly Cottage Housing Opportunity Units.

Indirect, irregular shaped and landscaped pedestrian walkways are allowed for single-family housing units.

Pavers or patterned concrete sidewalks are encouraged.

Maximum driveway widths of 20'-0" within the front yard (Units 1 - 51).

Maximum driveway apron width of 14' - 0".

Parking garages shall accommodate a maximum of two vehicles internally. Garage overhead doors may feature windows, but do not count toward the glazing requirement.

Garages must be setback from the front facade of a home by 5 ft. unless the building has a porch that protrudes 6 ft. from the front facade than the garage must be setback 2 ft. from the front facade. If the garage entry is not directed toward the street the garage may be flush with the front facade of the building.

7) Fencing / Landscaping

No fence or wall shall be permitted, except as detailed below, and/or which are required by local ordinance to enclose swimming pools. Craftsman and Traditional style front yard fencing shall be permitted, with a non-solid wood picket or decorative type with a maximum height of 3'-6". Fence posts and gateways shall have a maximum height of 4'-0".

A planting strip, minimum of 1'-6", containing ground cover other than grass or any inorganic material, shall be maintained between any fence and sidewalk. Service and utility equipment and rubbish containers may be enclosed with a solid fence, provided it does not exceed 4'0" in height.

Fences shall be maintained in good condition.

Plantings may not significantly obscure line of sight from the front porch to the street.

8) Accessory Dwelling Units Shall be located within defined setbacks.

Shall meet all Building Codes.

Shall meet Hamburg Township's code and regulation regarding ADUs.

Shall be designed to reduce the impact on privacy of neighbors.

The Design shall be approved by Hamburg Township staff.





08 Copyright 2021 A2 Collaborative, LLC, © 2021 A2 Collaborative, LLC



LOT COMPOSITION LOT CO All exterue humans to comply book Specific cuior and strike owner upon construction in c presidencie strausteris











DORMERS



















3.5" TRIM SURROUND (TYPICAL AT ALL WINDOWS)

<u>]</u>E



































































HAMBURG, MICHIGAN

DATE. PROJECT HO 00001 REVISION DATE




























































# **Murie Glen - Natural Features Impact Statement**

TO:Mr. Scott Pacheco, Hamburg Township PlanningFROM:Jeff Wilkerson, CL 48 Properties LLCRE:Murie Glen Natural Features Impact StatementDATE:October, 2021

Below is a Natural Features Impact Statement for the proposed mixed use Murie Glen PUD site plan prepared for the Hamburg Township Planning Commission.

### 1. Description and Analysis of Site.

Base Mapping and Topographical Survey of the proposed development parcel was completed by Midwest Engineering in 2018. The Wetland Delineation and Tree Survey was completed by King and MacGregor Environmental Inc. in January of 2019. Identified natural features, including MDEQ and unregulated wetlands, dominant tree types and density, soil features and slope identifications can be found on page ES1.2 of the site plan submission. A general summary is provided below.

The development parcel known as Murie Glen is approximately 48 acres. Delineation and survey reports identify five (5) significant natural features on site.

- a. MDEQ and Non-Regulated Wetlands: The wetland boundary is delineated on the Existing Conditions and Survey Plan. A copy of the wetland delineation has also been provided to the township under separate cover. Four wetlands were delineated on the site. Wetlands A, B, and C are MDEQ regulated and wetland D is not regulated by MDEQ. The 50-foot wetland buffer remains intact for the proposed development and is depicted on the Existing Conditions and Survey Plan (sheet C1.0).
- b. Woodlands: The approximate boundary of the woodland, as shown on the Natural Features Map is depicted on the Existing Conditions and Survey Plan (sheet ES1.2). Impact to the existing woodlands are limited to the engineering boundaries necessary for the installation of necessary infrastructure to service the 51 proposed single family units, and for the grading and balancing of those home sites. The majority of the site remains untouched and in its natural condition.
- c. Steep Slopes: Slopes greater than 12% have been depicted on the Existing Conditions and Survey Plan (sheet ES1.2). These slopes generally fall within the preserved wetland setback boundary limits and will remain largely undisturbed.
- d. Potential Endangered Habitat: for the Indiana Bat, *Myotis sodalis*, Northern long-eared bat, *septentrionalis*, and Eastern Massasauga, *Sistrurus catenatus* were identified in the Michigan Natural Features Inventory database query for areas near the site (IPAC MA documentation letter). Site disturbances will be limited in an effort to preserve the natural habitat of these species to the extent required per township ordinance and state and federal law.

e. NRCS Soils for the site are mapped on the Existing Conditions and Survey Plan and are identified as hydric soils (sheet C1.0). Soils within the engineering disturbance limit are largely a mix of sandy clay loam, with some differentiation and variance within the identified wetlands.

# 2. Description / Analysis of surrounding properties within 50 feet of Site

## (included are all existing, man made structures):

Please refer to the Existing Conditions and Survey Plan and the Natural Features Preservation and Mitigation Plan.

- a. Natural features removals: Tree removals are identified on the Existing Conditions and Survey Plan and noted in the attached Trees List (sheet ES2.0). The proposed site plan calls for the removal of approximately 20% of the identified trees on site to provide the necessary 66' right of way and the necessary building envelope for the construction of single family homes.
- b. Identify natural features to be retained: Shown on the Natural Features Preservation and Mitigation Plan (sheet ES2.0).
- c. Identify limits of soil disturbance Shown on the Natural Features Preservation and Mitigation Plan (sheet C2.0).
- d. Identify protective measures Shown on the Natural Features Preservation and Mitigation Plan and the Grading and Soil Erosion Control Plan in further detail. In order to minimize the impact to potential threatened and endangered species habitat that may exist on or near the site, the following notes have been added to the Existing Conditions Plan and the Natural Features Preservation and Mitigation Plan (sheets C9.0, C9.1, and C9.2):
  - i. Trees removals shall be performed between October 1<sup>st</sup> and March 31<sup>st</sup> to avoid impacts to potential habitat for Indiana bat and Northern long-eared bat.
  - ii. To avoid potential impacts on Eastern Massasauga Rattlesnake:
    - Use wildlife-safe materials for erosion control and site restoration. Soil disturbance areas shall be stabilized with straw mulch and no erosion control products containing plastic mesh netting or other similar material that could ensnare EMR shall be used.
    - To increase human safety and awareness of EMR, those implementing the project should first watch MDNR's "60-Second Snakes: The Eastern Massasauga Rattlesnake" video (<u>https://youtu.be/-PFnXe\_e02w</u>), review the EMR factsheet (<u>https://www.fws.gov/midwest/endangered/reptiles/eama\_/pdf/EMRfactsheetSep t2016.pdf</u>), or by calling 517-351-2555).
    - 3. Any EMR observations, or observation of any other listed threatened or endangered species, during project

implementation shall be reported to the USFWS within 24 hours.

## 3. Description of existing Natural Features

(i.e. topography, soils, slopes, geology, ground water, wetlands, watercourses, plants and animals, habitat, wildlife corridors, and other unique natural features that may exist on the Site).

- a. The limits of disturbance to trees, wetland, and wetland setback is minimized as much as possible while meeting requirements for private road paving, right-of-way, and stormwater management. A Class 'A' private road is required, with a 66' wide right-of- way, a paved width of 28 feet, and stormwater runoff conveyance (ditches or curb and gutter) based on future residential use of the property. Grading impacts are limited to 48.6% of the site.
  - i. The proposed curb and gutter road reduces impacts adjacent to the pavement that would be necessary for roadside swales to catch and convey stormwater runoff.
- b. Stormwater management for the increase in impervious surface is required and minimized adjacent to the private road to limit the impact to natural features. The proposed bioretention basins are located within areas of the woodland/upland complex that have minimal tree impact. The proposed grading of the road allows all runoff to sheet flow into the bioretention basins.
- c. Disturbance to the onsite MDEQ regulated wetland complex has been minimized to the maximum extent possible per EGLE based on alternative disturbance analysis. Per our proposal this of 8,522 square feet (0.196 acres) of wetland in this large wetland complex, (totaling 15.66 acres) is insignificant in relation to the overall ecological function and value of the wetland.

## 4. Written Description of Mitigation Program

- a. No wetland mitigation is proposed or required per EGLE guidelines. CL 48 Properties is working closely with EGLE to ensure that every effort is made to preserve the natural features and species habitat within the site. The disturbed areas adjacent to the private road will be restored via seeding and erosion control measures as appropriate. 8" DBH of mitigation trees will be installed on the property following construction of the private road. The proposed tree mitigation associated with the private road is shown on the Natural Features Preservation and Mitigation Plan. The replacement calculations are depicted on the Natural Features Preservation and Mitigation Plan (sheet C4.5).
- b. Planting plan: The proposed plantings are depicted on the Natural Features Preservation and Mitigation Plan (sheet C4.5).
- c. Planting list: The plant schedule is shown on the Landscape Plan (sheet L1.2).
- Schedule of Mitigation Measures: The Landscape Notes on the Landscape Plan identify the planting schedule for site restoration and mitigation plantings (sheet L1.2).

## 5. Recommendations Regarding Dominant Tree Species:

(any rare or unique specimen trees, and all tree species greater than 16 inches in diameter or greater.)

Dominant Tree Species existing to remain shall be protected during construction and limit grading, landscaping, and construction activities within 20 feet of the base of the tree. Excess soil should not be

added onto trees to be preserved in excess of 1.3 feet. Grading should not create any depression around trees to prevent long exposure to water (this can cause rot and lead to the death of the large tree species).

# 6. Recommendations Regarding any Disruption on Site:

(Natural Features, Stormwater Management, and Erosion Control).

The primary disruption of the site will be the increase in erosion from runoff, due to the loss of trees and vegetation. To properly prepare for future runoff events these steps should be taken:

- a. Prior to mass grading the detention basins should be constructed to catch excess runoff throughout the construction process.
- b. Proper erosion control fences should be placed after rough grading is complete, and the site should be reseeded as early as possible.
- c. Trees and other shrub vegetation should be planted along the newly created runoff culverts. This will reduce erosion without the creation of impervious surfaces.
- d. Erosion control fences should not be removed until construction is complete and vegetation has been returned to the affected areas of the site.

Sent Via Email

January 17, 2019

¥ King & MacGregor Environmental, Inc.

Mr. Rob Wagner **Midwestern Consulting** 3815 Plaza Drive Ann Arbor, MI 48108

Re: Wetland Determination - Thompson Pond, Hamburg Township

Dear Mr. Wagner:

Pursuant to your request, on November 19, 2018, a wetland determination was conducted on the above-referenced site. The intent of this report is to provide a description of the location and character of the wetland areas identified within the subject parcel(s) and an opinion as to the possible jurisdiction of the Michigan Department of Environmental Quality (MDEQ) over wetland areas identified on-site.

The methods used to conduct this wetland determination are consistent with our understanding of the procedures and general practices used by the MDEQ and the U.S. Army Corps of Engineers Wetlands Delineation Methodology, with the exception that the site visit was conducted outside of the typical growing season. Our determination included review of in-office information including the national *Web Soil Survey* (WSS; Figure 1), *National Wetlands Inventory* mapping (Figure 2) and aerial photography.

The subject parcel (4715-35-300-044) totals approximately 48.65 acres in size and is located in the southwest quarter of Section 35, Hamburg Township (T1N, R5E), Livingston County, Michigan. An unnamed tributary appears to drain into the property from the north-central edge of the parcel. The parcel's dominant land cover types include mixed deciduous forest, emergent/scrub-shrub wetland, and open water. Surrounding land use is dominated by low-density residential. The wetlands identified on-site are described below.

# Wetland A

Wetland A is an emergent/scrub-shrub wetland and open-water complex occupying the eastern third of the parcel. The vegetation identified in this area included species such as swamp white oak, tamarack, buttonbush, common elderberry, silky dogwood, glossy buckthorn, lake sedge, swamp aster, purple-stemmed aster, reed canary grass, narrow-leaved cattail, soft rush, and lance-leaved aster. The soils are described in the WSS as Carlisle muck, 0 to 2 percent slopes, a very poorly drained soil. The soils evaluated within Wetland A were consistent with this description. The boundaries of this wetland were identified using flags A1 through A84.

## Wetland B

Wetland B is an emergent/forested wetland area located on the eastern edge of the parcel's northern panhandle. The vegetation identified in this area included species such as American elm, swamp white oak, green ash, glossy buckthorn, false nettle, and lance-leaved aster. The soils are described in the WSS as Miami loam, 18 to 25 percent slopes, a well drained soil. The soils evaluated within Wetland B were not consistent with this description, as they appeared to be poorly drained and displayed hydric

2520 Woodmeadow SE Grand Rapids, MI 49546 Phone: 616/957-1231 Fax: 616/957-2198

43050 Ford Road, Suite 130 Canton, MI 48187 Phone: 734/354-0594 Fax: 734/354-0593

> 162 Kuivila Road Crystal Falls, MI 49920 Phone: 906/367-0171

email: kme@king-macgregor.com

### Mr. Rob Wagner

Wetland Determination – Thompson Pond, Hamburg Township

characteristics. The boundaries of this wetland were identified using flags B1 through B10.

## Wetland C

Wetland C is an emergent/scrub-shrub wetland area located in the northeastern corner of the parcel's northern panhandle. The vegetation identified in this area included species such as American elm, buttonbush, Michigan holly, lake sedge, reed canary grass, wood reed grass, sensitive fern, spinulose wood fern, and fowl manna grass. The soils are described in the WSS as Carlisle muck, 0 to 2 percent slopes, a very poorly drained soil. The soils evaluated within Wetland C were consistent with this description. The boundaries of this wetland were identified using flags C1 through C5.

## Wetland D

Wetland D is an emergent wetland area located near the western edge of the parcel. The vegetation identified in this area included species such as green ash, reed canary grass, fowl manna grass, blue vervain, white vervain, and wood reed grass. The soils are described in the WSS as Miami loam, 12 to 18 percent slopes, a well drained soil. The soils evaluated within Wetland D were not consistent with this description, as they appeared to be poorly drained and displayed hydric characteristics. The boundaries of this wetland were identified using flags D1 through D8.

Figure 3 depicts the approximate location of the wetland areas encountered on site. The attached wetland datasheets provide more specific wetland detail.

#### Upland Areas

The upland areas adjacent to the on-site wetlands included vegetation such as black walnut, red oak, white pine, black cherry, sugar maple, Morrow's honeysuckle, red cedar, prickly ash, staghorn sumac, northern dewberry, black raspberry, blackberry oriental bittersweet, tall goldenrod, Pennsylvania sedge, bottlebrush grass, common timothy, and orchard grass. There was no evidence of standing water or saturated soils in any of the upland areas.

#### MDEQ Jurisdiction/Regulatory Discussion

In order for the MDEQ to have regulatory authority over a wetland, the wetland must be within 500 feet of a lake, pond and/or stream, have a direct surface or ground water connection to a lake, pond and/or stream, or be greater than 5 acres in size. Wetlands A and C appear to be regulated by the MDEQ as they appear to be greater than 5 acres in size. Wetland B appears to be regulated as it is within 500 feet of an unnamed tributary at the north-central edge of the parcel. Wetland D may not be regulated by the MDEQ as it does not appear to meet any of the above-mentioned criteria.

A permit must be obtained from the MDEQ prior to conducting most filling, dredging and/or draining activities or maintaining a use of a regulated wetland.

Please be advised the information provided in this report is a professional opinion, and that this wetland determination was conducted outside of the typical growing season. The ultimate decision on wetland boundary locations and jurisdiction thereof rests with the MDEQ and, in some cases, the Federal government. Therefore, there may be adjustments to boundaries based upon review of 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 with time, depending

Mr. Rob Wagner

Wetland Determination - Thompson Pond, Hamburg Township

January 17, 2019 Page 3

on the weather, vegetation patterns, drainage, activities on adjacent parcels, or other events. Any of these factors can change the nature/extent of wetlands on the site. Wetland evaluations performed outside the growing season from late-October until late-April may not be consistent with the official MDEQ wetland identification program and therefore are subject to increased potential for change than those performed during the growing season. We recommend the MDEQ be requested to confirm our wetland boundaries and jurisdictional opinion. This report does not address any local ordinances that may apply to this site.

Thank you for the opportunity to provide this wetland determination. If you have any questions, please contact me at your convenience.

Sincerely,

King & MacGregor Environmental, Inc. Randall Phillips, PWS

Enclosures

P:\2018\18300\18339 Thompson Pond\Wetland Determination Report\Wet det report.docx



C:USERSICHANTEL.WRIGHTIDESKTOPITHOMPSON POND\_WETBOUND\_FIGS.DWG (01/15/19 12:26 PM) CHANTEL.WRIGHT



C:\USERS\CHANTEL.WRIGHT\DESKTOP\THOMPSON POND\_WETBOUND\_FIGS.DWG (01/15/19 12:34 PM) CHANTEL.WRIGHT



C:\USERS\CHANTEL.WRIGHT\DESKTOP\THOMPSON POND\_WETBOUND\_FIGS.DWG (01/15/19 1:14 PM) CHANTEL.WRIGHT

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Thompson Pond	City/County: Livingston County Sampling Date: 11/19/2018						
Applicant/Owner: Rob Wagner		State: MI	Sampling Point: A up				
Investigator(s): R.L. Phillips		Section, Township, Range: S35 T1	N R5E				
Landform (hillside, terrace, etc.): hillsi	de Local	relief (concave, convex, none): concave	Slope %: 8-10				
Subregion (LRR or MLRA): LRR L	Lat:	Long:	Datum:				
Soil Map Unit Name: Miami Joam 12 to	18 percent slopes	NWI classification	none				
Are climatic / hydrologic conditions on th	a site typical for this time of year?	Yos X No (If po	ovalain in Romarke )				
Are Vegetation Soil or I	audrology	hed? Are "Normal Circumstances" proc	explain in Kenlarks.)				
		bed? Are Normal Circumstances pres					
Are Vegetation, Soil, or I	hydrology naturally problema	atic? (If needed, explain any answers i	n Remarks.)				
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.							
Hydrophytic Vegetation Present?	Ves No X	Is the Sampled Area					
Hydric Soil Present?		within a Wetland? Yes	No X				
Wetland Hydrology Present?	Yes No X	If yes, optional Wetland Site ID:					
Remarks: (Explain alternative procedu	res here or in a separate report )						
Near Flag A41.	es here of in a separate report.)						
HYDROLOGY							
Wetland Hydrology Indicators:		Secondary Indicators	(minimum of two required)				
Primary Indicators (minimum of one is	equired; check all that apply)	Surface Soil Crack	<s (b6)<="" td=""></s>				
Surface Water (A1)	Water-Stained Leaves (	B9) Drainage Patterns	(B10)				
High Water Table (A2)	High Water Table (A2) Aquatic Fauna (B13)		Moss Trim Lines (B16)				
Saturation (A3) Marl Deposits (B15)		Dry-Season Water Table (C2)					
Water Marks (B1)Hydrogen Sulfide Oc		(C1) Crayfish Burrows (C8)					
Sediment Deposits (B2)Oxidized Rhize		ospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)					
Drift Deposits (B3)Presence of		Reduced Iron (C4) Stunted or Stressed Plants (D1)					
Algal Mat or Crust (B4)Recent Iron Reduc		n in Tilled Soils (C6) Geomorphic Position (D2)					
Iron Deposits (B5)	Thin Muck Surface (C7)	Shallow Aquitard (	D3) Relief (D4)				
Inundation visible on Aerial Imagery (B7) Other (Explain in Remarks) Microtopographic Relief (D4)							
Sparsely Vegetated Concave Surface (B8)							
Field Observations:							
Surface Water Present? Yes	_ No Depth (Inches):						
Voter Table Present? Yes	_ No Depth (inches)	Wotland Hydrology Procent?	Vac No Y				
(includes capillary fringe)		wetiand Hydrology Presents					
Describe Recorded Data (stream daug	e monitoring well aerial photos pro	evious inspections), if available:					
Boombo Hocordoù Bata (orioani gadg	,						
Remarks:							

**VEGETATION** – Use scientific names of plants.

Sampling Point: A up

	Absolute	Dominant	Indicator		
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Dominance Test worksheet:	
1. Prunus serotina	40	Yes	FACU	Number of Dominant Species	
2. Quercus rubra	25	Yes	FACU	That Are OBL, FACW, or FAC:(A)	
3. Acer saccharum	10	No	FACU	Total Number of Dominant	
4.				Species Across All Strata: 8 (B)	
5				Percent of Dominant Species	
6.				That Are OBL, FACW, or FAC: 12.5% (A/B)	
7				Prevalence Index worksheet:	
	75	=Total Cover		Total % Cover of: Multiply by:	
Sapling/Shrub Stratum (Plot size: 15' )				OBL species 0 x 1 = 0	
1. Frangula alnus	20	Yes	FAC	FACW species 10 x 2 = 20	
2. Elaeagnus umbellata	20	Yes	UPL	FAC species 30 x 3 = 90	
3. Lonicera morrowii	20	Yes	FACU	FACU species 185 x 4 = 740	
4. Cornus racemosa	10	No	FAC	UPL species 30 x 5 = 150	
5. Quercus rubra	5	No	FACU	Column Totals: 255 (A) 1000 (B)	
6.			-	Prevalence Index = $B/A = 3.92$	
7				Hydrophytic Vegetation Indicators:	
	75	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation	
Herb Stratum (Plot size: 5')		·		2 - Dominance Test is >50%	
	30	Yes	FACU	$3 - \text{Prevalence Index is } \leq 3.0^{1}$	
Bhoum protonoo	20	Vos	FACU	4 - Morphological Adaptations <sup>1</sup> (Provide supporting	
2. Prileum praterise	20		EACU	data in Remarks or on a separate sheet)	
Daciyiis giomerata	10	No		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
4. Rubus occidentalis	10	No	EACU		
5. Ebricera morrown	10	No	EACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must	
o. Phalans arundinacea		N		Definitions of Vegetation Strate:	
7. Elymus hystrix	5	NO	FACU	Demnitions of Vegetation Strata.	
8		-		Tree – Woody plants 3 in. (7.6 cm) or more in	
9				diameter at breast height (DBH), regardless of height.	
10				Sapling/shrub – Woody plants less than 3 in. DBH	
11				and greater than or equal to 3.26 it (1 m) tail.	
12		array and an array		Herb - All herbaceous (non-woody) plants, regardless	
	105	=Total Cover		of size, and woody plants less than 3.28 ft tall.	
Woody Vine Stratum (Plot size: 30')				Woody vines - All woody vines greater than 3.28 ft in	
1				height.	
2			<u> </u>	Hydrophytic	
3				Vegetation	
4				Present? Yes No X	
		=Total Cover			
Remarks: (Include photo numbers here or on a separate sheet.)					
Sampling Point	A up				
----------------	------				
----------------	------				

Profile Desc	cription: (Describe t	o the de	pth needed to doc	ument t	he indica	ator or co	onfirm the absence of i	indicators.)
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 4/4	100					Loamy/Clayey	
4-12	10YR 5/4	100					Loamy/Clavey	
	1011(3/4							
						<u> </u>		
	1 ·							
	8							
<sup>1</sup> Type: C=C	oncentration, D=Depl	etion, RI	M=Reduced Matrix, I	MS=Mas	ked San	d Grains.	Location: PL	=Pore Lining, M=Matrix.
Hydric Soil	Indicators:			o (	(00) (		Indicators for	r Problematic Hydric Solls":
Histosol	(A1)		Polyvalue Belo	ow Surfa	ice (S8) (	LRR R,		K (A10) (LRR K, L, MILRA 149B)
Histic E	pipedon (A2)		MLRA 149E	s) faco (S0		MIDA	149B) 5 cm Muc	sky Peat or Peat (S3) (I RR K L R)
Black H	ISTIC (A3)		High Chroma	Sande (		RKI)	Polyvalue	Below Surface (S8) (LRR K, L)
Hydroge Stratifie	d Lavers (A5)		Loamy Mucky	Mineral	(F1) (LR	R K. L)	Thin Dark	Surface (S9) (LRR K, L)
Denlete	d Below Dark Surface	(A11)	Loamy Gleved	Matrix	(F2)	, _/	Iron-Mano	ganese Masses (F12) (LRR K, L, R)
Thick D	ark Surface (A12)	,,,,,,,	Depleted Matr	ix (F3)	( /		Piedmont	Floodplain Soils (F19) (MLRA 149B)
Sandy M	Aucky Mineral (S1)		Redox Dark S	urface (I	F6)		Mesic Spo	odic (TA6) (MLRA 144A, 145, 149B)
Sandy (	Gleved Matrix (S4)		Depleted Dark	Surface	e (F7)		Red Pare	nt Material (F21)
Sandy F	Redox (S5)		Redox Depres	sions (F	8)		Very Shal	llow Dark Surface (F22)
Stripped	d Matrix (S6)		Marl (F10) (LF	RR K, L)			Other (Ex	plain in Remarks)
Dark Su	Inface (S7)		Service Rectory (Rec.2)					
<sup>3</sup> Indicators of	of hydrophytic vegetat	tion and	wetland hydrology m	nust be p	present, u	nless dis	turbed or problematic.	
Restrictive	Layer (if observed):							
Type:								
Depth (	inches):						Hydric Soil Presen	t? Yes <u>No X</u>
Remarks:								
This data fo	rm is revised from No	orthcentra	al and Northeast Re	gional S	upplemer	nt Versior	2.0 to include the NRC	CS Field Indicators of Hydric Soils,
Version 7.0	, 2015 Errata. (http://v	www.nrcs	s.usda.gov/Internet/H	-SE_DO	CUMEN	S/nrcs14	12p2_051293.docx)	
1								

Project/Site: Thompson Pond	City/County: Livingston County	Sampling Date: 11/19/2018
Applicant/Owner: Rob Wagner	State: MI	Sampling Point: A wet
Investigator(s): R.L. Phillips	Section, Township, Range: S35 T1N	R5E
Landform (hillside, terrace, etc.): depression	_ocal relief (concave, convex, none): concave	Slope %: 0-2
Subregion (LRR or MLRA): LRR L Lat:	Lona:	Datum:
Soil Man Libit Name: Carlisla muck. 0 to 2 percent slapes	NW/L classification:	PEM (PEM/PSS obs 1
Soli Map Onit Name. Canisie muck, o to 2 percent slopes		velain in Demarka
Are climatic / hydrologic conditions on the site typical for this time of ye	3ar? res <u>x</u> ivo (ii no, e	(D) X (D) X (D)
Are Vegetation, Soil, or Hydrologysignificantly	disturbed? Are "Normal Circumstances" prese	ent? Yes X No
Are Vegetation, Soil, or Hydrology naturally pro	blematic? (If needed, explain any answers in	Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations, transects, im	portant features, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area	
Hydric Soil Present? Yes X No	within a Wetland? Yes X	No
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:	
Remarks: (Explain alternative procedures here or in a separate repor Near Flag A41.	t.)	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (n	ninimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks	s (B6)
Surface Water (A1) X Water-Stained Lea	aves (B9) Drainage Patterns (	(B10)
X High Water Table (A2) Aquatic Fauna (B1	3) Moss Trim Lines (B	316)
Saturation (A3)Marl Deposits (B15	5)Dry-Season Water	Table (C2)
Water Marks (B1) Hydrogen Sulfide C	Odor (C1) Crayfish Burrows (C	(00)
Sediment Deposits (B2) Oxidized Rhizosph	ieres on Living Roots (C3) Saturation Visible o	on Aerial Imagery (C9)
Drift Deposits (B3)Presence of Reduc	ced Iron (C4) Stunted or Stressed	d Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduc	tion in Tilled Soils (C6) X Geomorphic Positio	on (D2)
Iron Deposits (B5)	(C7) Shallow Aquitard (L	J3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in F	Remarks) Microtopographic R	(ellet (D4)
Sparsely Vegetated Concave Surface (B8)		D5)
Field Observations:		
Surface Water Present? Yes No Depth (inc	ches):	
Water Table Present? Yes X No Depth (inc	ches): 6	N N
Saturation Present? Yes No Depth (inc	ches): 0 Wetland Hydrology Present?	Yes X No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring weil, aenai photo	os, previous inspections), ir available.	
Remarks:		

VEGETATION – Use scientific names of plants.

Sampling Point: A wet

Tree Stratum (Distaire: 20')	Absolute	Dominant	Indicator	Dominance Test worksheet
<u>Tree Stratum</u> (Plot Size: 30)		Species?	EACU	Dominance Test worksheet.
Ouerque bicolor		Ves	FACU	Number of Dominant Species
3	20	163	TAOW	
4.				Total Number of Dominant Species Across All Strata: <u>4</u> (B)
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)
7.	1.			Prevalence Index worksheet:
	50	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15')				OBL species 10 x 1 = 10
1. Frangula alnus	25	Yes	FAC	FACW species 125 x 2 = 250
2. Cephalanthus occidentalis	5	No	OBL	FAC species 25 x 3 = 75
3. Sambucus canadensis	5	No	FACW	FACU species 30 x 4 = 120
4.				UPL species 0 x 5 = 0
5.				Column Totals: 190 (A) 455 (B)
6.				Prevalence Index = $B/A = 2.39$
7.				Hydrophytic Vegetation Indicators:
	35	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5')				X 2 - Dominance Test is >50%
1. Phalaris arundinacea	95	Yes	FACW	X 3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. Typha angustifolia	5	No	OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3. Symphyotrichum lanceolatum	5	No	FACW	data in Remarks or on a separate sheet)
4.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5.				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6.				be present, unless disturbed or problematic.
7.				Definitions of Vegetation Strata:
8.	0			Tree – Woody plants 3 in (7.6 cm) or more in
9.				diameter at breast height (DBH), regardless of height.
10.				Sapling/shrub – Woody plants less than 3 in. DBH
11.				and greater than or equal to 3.28 ft (1 m) tall.
12.				Herb - All herbaceous (non-woody) plants, regardless
	105	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: 30')		-0		Woody vines - All woody vines greater than 3.28 ft in
1.				height.
2.				
3.				Hydrophytic Vegetation
4.				Present? Yes X No
		=Total Cover		
Remarks: (Include photo numbers here or on a sepa	rate sheet.)			1
	,			

Sampling Point A wet

Profile Desc	ription: (Describe t	to the de	pth needed to doc	ument ti	he indica	ator or co	onfirm the absence o	of indicators.)
Depth	Matrix		Redo	x Featur	es 1		-	
(inches)	Color (moist)		Color (moist)		Type'	Loc	lexture	Remarks
0-3	10YR 3/2	100					Loamy/Clayey	
3-12	10YR 4/2	85	7.5YR 3/4	15	С	М	Loamy/Clayey	Distinct redox concentrations
	2							
						·		
<sup>1</sup> Type: C=Cc	ncentration D=Depl	etion RM		AS=Mas	ked San	Grains	<sup>2</sup> Location: F	PL=Pore Lining, M=Matrix,
Hydric Soil I	ndicators:	ouon, rui	i i toddood inddix, i	no mao	nou ourn	a oranioi	Indicators f	or Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue Belo	w Surfa	ce (S8) (	LRR R,	2 cm Mu	uck (A10) (LRR K, L, MLRA 149B)
Histic Ep	ipedon (A2)		MLRA 149B	5)			Coast P	rairie Redox (A16) (LRR K, L, R)
Black His	stic (A3)		Thin Dark Surf	ace (S9)	) (LRR R	, MLRA	149B) 5 cm Mu	ucky Peat or Peat (S3) (LRR K, L, R)
Hydroge	n Sulfide (A4)		High Chroma S	Sands (S	611) ( <b>LRI</b>	R K, L)	Polyvalu	ue Below Surface (S8) (LRR K, L)
Stratified	Layers (A5)		Loamy Mucky	Mineral	(F1) ( <b>LR</b>	R K, L)	Thin Da	rk Surface (S9) (LRR K, L)
X Depleted	Below Dark Surface	e (A11)	Loamy Gleyed	Matrix (	F2)		Iron-Mai	nganese Masses (F12) (LRR K, L, R)
Thick Da	irk Surface (A12)		X Depleted Matri	ix (F3)			Piedmoi	nt Floodplain Soils (F19) (MLRA 149B)
Sandy M	lucky Mineral (S1)		Redox Dark Si	urface (F	-6)		Mesic S	podic (1A6) (MLRA 144A, 145, 149B)
Sandy G	edex (SE)		Depieted Dark	Surface	e (F7)		Red Par	rent Material (F21)
Stripped	Matrix (S6)		Mart (E10) (LB		0)		Very Sn	Explain in Remarks)
Dark Sur	face (S7)			ατ Ν, Ε <i>)</i>				-xpiairi ir Remarks)
<sup>3</sup> Indicators of	f hydrophytic vegetat	ion and w	vetland hydrology m	ust be pr	resent, u	nless dis	turbed or problematic.	
Restrictive I	ayer (if observed):		, , ,					
Type:								
Depth (ir	nches):						Hydric Soil Prese	nt? Yes X No
Remarks								
This data for	m is revised from No	rthcentra	I and Northeast Reg	ional Su	pplemen	t Versior	2.0 to include the NR	CS Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://w	ww.nrcs.	usda.gov/Internet/F	SE_DOO	CUMENT	S/nrcs14	2p2_051293.docx)	

Project/Site: Thompson Pond		City/County: Livingsto	n County	Sampling Date: 11/19/2018			
Applicant/Owner: Rob Wagner			State: MI	Sampling Point: B up			
Investigator(s); R.L. Phillips		Section, Towr	ship, Range: S35 T1N	N R5E			
Landform (hillside, terrace, etc.): hillside	Local r	elief (concave, convex,	none): concave	Slope %: 10-15			
Subregion (LRR or MLRA): LRR L	Lat.	Lona:		Datum:			
Coll Man Linit Name: Miami Jaam 12 to 19 n		2011g	NW/L classification:	Done			
	the indication of the second	V V					
Are climatic / hydrologic conditions on the site	e typical for this time of year?	res <u>×</u>	(II no, -	explain in Remarks.)			
Are Vegetation, Soil, or Hydro	logysignificantly disturb	ed? Are "Norma	I Circumstances" pres	ent? Yes X No			
Are Vegetation, Soil, or Hydro	logy naturally problema	tic? (If needed,	explain any answers in	n Remarks.)			
SUMMARY OF FINDINGS – Attach	site map showing sam	pling point location	ons, transects, in	nportant features, etc.			
Hydrophytic Vegetation Present?	Yes No X	Is the Sampled Are	a				
Hydric Soil Present?	Yes No X	within a Wetland?	Yes	No X			
Wetland Hydrology Present?	Yes No X	If yes, optional Wetla	and Site ID:				
Near Flag B5.							
HYDROLOGY							
Wetland Hydrology Indicators:			Secondary Indicators (	minimum of two required)			
Primary Indicators (minimum of one is require	ed; check all that apply)		Surface Soil Crack	(B6)			
Surface Water (A1)	Water-Stained Leaves (E		Drainage Patterns	(B10)			
High Water Table (A2)	Aquatic Fauna (B13)	-	Moss Trim Lines (B16)				
Saturation (A3)	Marl Deposits (B15)	Iarl Deposits (B15) Dry-Season Water Table (C2)					
Water Marks (B1)	Hydrogen Sulfide Odor (	-tydrogen Sulfide Odor (C1) Crayfish Burrows (C8)					
Sediment Deposits (B2)	Oxidized Rhizospheres of	IVING ROOTS (C3)	Saturation Visible	on Aeriai Imagery (C9)			
Drift Deposits (B3)	Presence of Reduced Inc		Coomorphic Positi	ion (D2)			
Algal Mat or Crust (B4)	This Muck Surface (C7)	ction in Tilled Soils (C6) Geomorphic Position (D2)					
Inundation Visible on Aerial Imagen( (B7	Other (Explain in Remark	Privick Sunace (C7)Shallow Aquitate (D3)					
Sparsely Vegetated Concave Surface (F		-	EAC-Neutral Test	(D5)			
Sparsely vegetated concave Sunace (L	,,,,			(20)			
Field Observations:	No. Death (inches)						
Surface Water Present? Yes	No Depth (inches):						
Saturation Present? Yes	No Depth (inches):	Wetland	Hydrology Present?	Yes No X			
(includes capillary fringe)	Deptir (menes).		nyarology ricocht.				
Describe Recorded Data (stream gauge, mo	nitoring well, aerial photos, pre	vious inspections), if a	vailable:				
Remarks:							

**VEGETATION** – Use scientific names of plants.

Sampling Point: B up

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 Sassafras albidum	85	Yes	FACU	
2 Ulmus americana	5	No	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
3. Juniperus virginiana	5	No	FACU	Tatal Number of Deminant
4				Species Across All Strata: 4 (B)
5				Percent of Dominant Species
6				That Are OBL, FACW, or FAC: 25.0% (A/B)
7				Prevalence Index worksheet:
	95	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15')				OBL species x 1 =
1. Rubus occidentalis	30	Yes	UPL	FACW species 10 x 2 = 20
2. Zanthoxylum americanum	20	Yes	FACU	FAC species 70 x 3 = 210
3				FACU species x 4 = 460
4				UPL species X 5 = 150
5				Column Totals: 225 (A) 840 (B)
6				Prevalence Index = B/A =3.73
7				Hydrophytic Vegetation Indicators:
	50	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5')				2 - Dominance Test is >50%
1. Geum canadense	60	Yes	FAC	3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. Persicaria virginiana	10	No	FAC	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3. Fraxinus pennsylvanica	5	No	FACW	data in Remarks or on a separate sheet)
4. Ligustrum vulgare	5	No	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5		·		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6				Definitions of Venetation Strate:
7				Definitions of Vegetation Strata:
8				Tree – Woody plants 3 in. (7.6 cm) or more in
9		- <u> </u>		diameter at breast height (DBH), regardless of height.
10				Sapling/shrub – Woody plants less than 3 in. DBH
11	3			and greater than or equal to 3.28 ft (1 m) tall.
12	17	-		Herb - All herbaceous (non-woody) plants, regardless
	80	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: 30')				Woody vines - All woody vines greater than 3.28 ft in
1				height.
2				Hydrophytic
3				Vegetation
4				Present? Yes No X
		=Total Cover		
Remarks: (Include photo numbers here or on a sepa	rate sheet.)			

Sampling Point B up

Profile Desc	ription: (Describe t	o the dep	oth needed to docu	ment t	he indica	ator or co	onfirm the absence of in	dicators.)
Depth	Matrix		Redo	k Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 2/2	100					Loamy/Clayey	
4-12	10YR 3/3	100					Loamy/Clayey	sandy loam
					<del> </del>			
							· · · · · · · · · · · · · · · · · · ·	
<sup>1</sup> Type: C=Ce	oncentration, D=Depl	etion, RM	=Reduced Matrix, N	/IS=Mas	ked San	d Grains.	<sup>2</sup> Location: PL=F	Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators for P	roblematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue Belo	w Surfa	ice (S8) (	LRR R,	2 cm Muck (	A10) (LRR K, L, MLRA 149B)
Histic Ep	pipedon (A2)		MLRA 149B	)			Coast Prairie	e Redox (A16) (LRR K, L, R)
Black Hi	stic (A3)		Thin Dark Surf	ace (S9	) (LRR R	, MLRA 1	149B)5 cm Mucky	Peat or Peat (S3) (LRR K, L, R)
Hydroge	n Sulfide (A4)		High Chroma S	Sands (S	S11) ( <b>LR</b>	R K, L)	Polyvalue B	elow Surface (S8) (LRR K, L)
Stratified	d Layers (A5)		Loamy Mucky	Mineral	(F1) ( <b>LR</b>	R K, L)	Thin Dark S	urface (S9) (LRR K, L)
Depleted	d Below Dark Surface	e (A11)	Loamy Gleyed	Matrix (	(F2)		Iron-Mangar	nese Masses (F12) (LRR K, L, R)
Thick Da	ark Surface (A12)		Depleted Matri	X (F3)	- ()		Pleamont Fi	(TA6) (MI DA 144A 145 149B)
Sandy M	lucky Mineral (S1)		Redox Dark Si	Inace (r	-0) (E7)		Nesic Spou	Material (E21)
Sandy G	Beyed Matrix (54)		Depieted Dark	sions (F	s (17) (8)		Very Shallov	w Dark Surface (E22)
Stripped	Matrix (S6)		Marl (F10) (I R		0)		Other (Expla	ain in Remarks)
Dark Su	rface (S7)		(110) (21	urti, <b>_</b> /				
<sup>3</sup> Indicators o	f hydrophytic vegetat	ion and w	etland hydrology m	ust be p	resent, u	nless dist	turbed or problematic.	
Restrictive	Layer (if observed):							
Type:								
Depth (i	nches):						Hydric Soil Present?	Yes No X
Remarks								
This data for	rm is revised from No	orthcentra	and Northeast Reg	ional Su	upplemer	nt Version	2.0 to include the NRCS	Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://v	ww.nrcs.	usda.gov/Internet/F	SE_DO	CUMENT	S/nrcs14	2p2_051293.docx)	

Project/Site: Thompson Pond		City/County: Livingston County	Sampling Date: 11/19/2018
Applicant/Owner: Rob Wagner		State: MI	Sampling Point: B wet
Investigator(s): R.L. Phillips		Section, Township, Range: S35 T1N	N R5E
Landform (hillside, terrace, etc.): depression	Local re	elief (concave, convex, none): concave	Slope %: 0-2
Subregion (LRR or MLRA): LRR L	Lat:	Long:	Datum:
Soil Map Unit Name: Miami Joam 18 to 25 per	rcent slopes	NWI classification:	none [PEM/FO obs.]
Are climatic / hydrologic conditions on the site t	vnical for this time of year?	Yes X No (If no	explain in Remarks )
Are Vegetation Soil or Hydrologic	av significantly disturb	and? Are "Normal Circumstances" pres	ent? Ves X No
SUMMARY OF FINDINGS – Attach s	ite map showing same	pling point locations, transects, in	portant features, etc.
	1 0 1		
Hydrophytic Vegetation Present?	res X No	Is the Sampled Area	No
Wetland Hydrology Present?	res X No	If yes_optional Wetland Site ID	NO
Demarka, (Evaluin alternativa procedures hor			
Near Flag B5.	e of in a separate report.)		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indicators (	minimum of two required)
Primary Indicators (minimum of one is required	d; check all that apply)	Surface Soil Crack	is (B6)
Surface Water (A1)	X Water-Stained Leaves (B	9) Drainage Patterns	(B10)
High Water Table (A2)	Aquatic Fauna (B13)	Moss Trim Lines (I	316)
Saturation (A3)	Marl Deposits (B15)	Dry-Season Water	Table (C2)
Water Marks (B1)	Hydrogen Sulfide Odor (C	C1) Crayfish Burrows (	C8)
Sediment Deposits (B2)	Oxidized Rhizospheres o	n Living Roots (C3) Saturation Visible	on Aerial Imagery (C9)
Drift Deposits (B3)	Presence of Reduced Iro	n (C4)Stunted or Stresse	ed Plants (D1)
Algal Mat or Crust (B4)	Recent Iron Reduction in	Tilled Soils (C6) X Geomorphic Positi	on (D2)
Iron Deposits (B5)	Thin Muck Surface (C7)	Shallow Aquitard (	D3) Daliaf (D4)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remark	X EAC Neutral Test	
Sparsely vegetated Concave Surface (Bo	)		(00)
Field Observations:	No. Death (incluse):		
Surface Water Present? Yes	No Depth (inches):		
Vater Table Present? Yes	No Depth (inches):	Wetland Hydrology Present?	Yes X No
(includes capillary fringe)	Deptir (inches).	Wettand Hydrology Present:	
Describe Recorded Data (stream gauge, mon	toring well, aerial photos, pre-	vious inspections), if available:	
Remarks:			

VEGETATION - Use scientific names of plants.

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Dominance Test worksheet:
1. Ulmus americana	15	Yes	FACW	Number of Dominant Species
2. Quercus bicolor	5	Yes	FACW	That Are OBL, FACW, or FAC:6 (A)
3				Total Number of Dominant Species Across All Strata: 6 (B)
5.				
6.		·		Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)
7				Prevalence Index worksheet:
	20	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15' )				OBL species 60 x 1 = 60
1. Frangula alnus	10	Yes	FAC	FACW species 30 x 2 = 60
2. Ulmus americana	5	Yes	FACW	FAC species x 3 =60
3. Fraxinus pennsylvanica	5	Yes	FACW	FACU species x 4 =
4				UPL species 0 x 5 = 0
5				Column Totals: 110 (A) 180 (B)
6.				Prevalence Index = B/A = 1.64
7.				Hydrophytic Vegetation Indicators:
	20	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5')				X 2 - Dominance Test is >50%
1. Boehmeria cylindrica	60	Yes	OBL	X_3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. Symphyotrichum lateriflorum	10	No	FAC	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3.				data in Remarks or on a separate sheet)
4.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
7				Definitions of Vegetation Strata:
8				Tree – Woody plants 3 in. (7.6 cm) or more in
9				diameter at breast height (DBH), regardless of height.
10				Sapling/shrub – Woody plants less than 3 in. DBH
11				and greater than or equal to 3.28 ft (1 m) tall.
12				Herb – All herbaceous (non-woody) plants, regardless
	70	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: 30')				Woody vines – All woody vines greater than 3.28 ft in
1.				height.
2				
3.				Hydrophytic Vegetation
4.				Present? Yes X No
		=Total Cover		
Remarks: (Include photo numbers here or on a sepa	rate sheet.)			
······	,			

Sampling Point B wet

Profile Desc	ription: (Describe	to the de	pth needed to doc	ument ti	he indica	ator or co	onfirm the absence o	of indicators.)
Depth	Matrix		Redo	x Featur	es1			-
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc	Texture	Remarks
0-2	10YR 2/2	100					Loamy/Clayey	
2-8	10YR 4/1	70	7.5YR 3/4	30	С	М	Loamy/Clayey	Prominent redox concentrations
					S <b></b> S			
'Type: C=Co	oncentration, D=Depl	letion, RN	1=Reduced Matrix, N	//S=Mas	ked Sand	d Grains.	<sup>2</sup> Location: F	PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:		Delivielus Dela		ac (CO) (		Indicators 1	tor Problematic Hydric Solls :
HISTOSOI	(A1) inadan (A2)		Polyvalue Beld	w Suna	ce (So) (	LKK K,	2 Chi Mi	Prairie Redox (A16) (LRR K L R)
Black His	stic (A3)		Thin Dark Surf	ace (S9)		MIRA	149B) 5 cm M	ucky Peat or Peat (S3) (LRR K. L. R)
Hydroge	n Sulfide (A4)		High Chroma S	Sands (S	(LRI	R K. L)	Polvvalu	ue Below Surface (S8) (LRR K, L)
Stratified	Lavers (A5)		Loamy Mucky	Mineral	(F1) ( <b>LR</b>	R K. L)	Thin Da	ark Surface (S9) (LRR K, L)
X Depleter	Below Dark Surface	e (A11)	Loamy Gleved	Matrix (	(1 ) ( <b>_</b> )(	, _/	Iron-Ma	inganese Masses (F12) (LRR K. L. R)
Thick Da	rk Surface (A12)		X Depleted Matri	x (F3)			Piedmo	nt Floodplain Soils (F19) (MLRA 149B)
Sandy M	lucky Mineral (S1)		Redox Dark Si	urface (F	6)		Mesic S	Spodic (TA6) (MLRA 144A, 145, 149B)
Sandy G	leyed Matrix (S4)		Depleted Dark	Surface	(F7)		Red Pa	rent Material (F21)
Sandy R	edox (S5)		Redox Depres	sions (F	8)		Very Sh	nallow Dark Surface (F22)
Stripped	Matrix (S6)		Marl (F10) (LR	R K, L)			Other (E	Explain in Remarks)
Dark Su	face (S7)							
<sup>3</sup> Indicators of	f hydrophytic vegetat	ion and v	vetland hydrology m	ust be pi	resent, u	nless dis	turbed or problematic.	
Restrictive I	_ayer (if observed):							
Type: -								
Depth (ir	nches):						Hydric Soil Prese	ent? Yes X No
Remarks:								
This data for	m is revised from No	orthcentra	I and Northeast Reg	jional Su	Ipplemer	t Versior	n 2.0 to include the NF	RCS Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://v	ww.nrcs	.usda.gov/Internet/F	SE_DO	CUMENT	S/nrcs14	12p2_051293.docx)	

Project/Site: Thompson Pond	City/Co	unty: Livingston County	Sampling Date: 11/19/2018
Applicant/Owner: Rob Wagner		State: MI	Sampling Point: C up
Investigator(s): R.L. Phillips		Section, Township, Range: S35 T1	N R5E
Landform (hillside, terrace, etc.); hillside	Local relief (co	ncave, convex, none): concave	Slope %: 10-15
Subregion (LRR or MLRA): LRR L Lat:		Long:	Datum:
Soil Man Unit Name: Miami Joam 18 to 25 percent slo	Des	NWI classification	
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" pre	sent? Yes X No
Are Vegetation, Soil, or Hydrology	_naturally problematic?	(If needed, explain any answers	in Remarks.)
SUMMARY OF FINDINGS – Attach site ma	p showing sampling	point locations, transects, i	mportant features, etc.
Hydrophytic Vegetation Present?     Yes       Hydric Soil Present?     Yes       Wetland Hydrology Present?     Yes	No         X         Is the           No         X         withi           No         X         If yes	e Sampled Area n a Wetland? Yes , optional Wetland Site ID:	No_X
Remarks: (Explain alternative procedures here or in a Near Flag C5.	separate report.)		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indicators	(minimum of two required)
Primary Indicators (minimum of one is required; check	all that apply)	Surface Soil Crac	ks (B6)
Surface Water (A1)Wat	er-Stained Leaves (B9)	Drainage Patterns	s (B10)
High Water Table (A2)	atic Fauna (B13)	Moss Trim Lines	(B16)
Saturation (A3)Mar	Deposits (B15)	Dry-Season Wate	er Table (C2)
Water Marks (B1)Hyd	rogen Sulfide Odor (C1)	Crayfish Burrows	(C8)
Sediment Deposits (B2) Oxic	lized Rhizospheres on Living	Roots (C3) Saturation Visible	on Aerial Imagery (C9)
Drift Deposits (B3)	sence of Reduced Iron (C4)	Stunted or Stress	ed Plants (D1)
Algal Mat or Crust (B4) Rec	ent Iron Reduction in Tilled S	Soils (C6) Geomorphic Posi	tion (D2)
Iron Deposits (B5)	Muck Surface (C7)	Shallow Aquitard	(D3)
Inundation Visible on Aerial Imagery (B7) Othe	er (Explain in Remarks)	Microtopographic	Relief (D4)
Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test	t (D5)
Field Observations:			
Surface Water Present? Yes No	Depth (inches):		
Water Table Present? Yes No	Depth (inches):	-	
Saturation Present? Yes No	Depth (inches):	Wetland Hydrology Present	? Yes No X
(includes capillary fringe)		-	
Describe Recorded Data (stream gauge, monitoring w	ell, aerial photos, previous in	spections), if available:	
Remarks:			

VEGETATION - Use scientific names of plants.

Sampling Point: C up

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator	Dominance Test worksheet:			
1 Juniperus virginiana	60	Yes	FACU				
2. Sassafras albidum	25	Yes	FACU	Number of Dominant Species           That Are OBL, FACW, or FAC:         2         (A)			
<ol> <li>Quercus rubra</li> <li>4.</li> </ol>	5	No	FACU	Total Number of Dominant Species Across All Strata: 7 (B)			
5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 28.6% (A/B)			
7				Prevalence Index worksheet:			
	90	=Total Cover		Total % Cover of: Multiply by:			
Sapling/Shrub Stratum (Plot size: 15' )				OBL species 0 x 1 = 0			
1. Rubus occidentalis	20	Yes	UPL	FACW species 40 x 2 = 80			
2. Rhus typhina	5	Yes	UPL	FAC species 30 x 3 = 90			
3.				FACU species 90 x 4 = 360			
4.				UPL species 45 x 5 = 225			
5.				Column Totals: 205 (A) 755 (B)			
6.				Prevalence Index = B/A = 3.68			
7.		6 D.		Hydrophytic Vegetation Indicators:			
	25	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation			
Herb Stratum (Plot size: 5')				2 - Dominance Test is >50%			
1. Fraxinus pennsylvanica	40	Yes	FACW	3 - Prevalence Index is ≤3.0 <sup>1</sup>			
2 Geum canadense	30	Yes	FAC	4 - Morphological Adaptations <sup>1</sup> (Provide supporti			
3 Rubus occidentalis	20	Yes	UPL	data in Remarks or on a separate sheet)			
4				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)			
5							
6				Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
7.				Definitions of Vegetation Strata:			
8.				Tree – Woody plants 3 in (7.6 cm) or more in			
9.				diameter at breast height (DBH), regardless of height.			
10				Sapling/shrub – Woody plants less than 3 in. DBH			
11		<u> </u>		and greater than or equal to 3.28 ft (1 m) tall.			
12			<u></u>	Herb - All herbaceous (non-woody) plants, regardless			
	90	=Total Cover		of size, and woody plants less than 3.28 ft tall.			
Woody Vine Stratum (Plot size: 30')				Woody vines – All woody vines greater than 3.28 ft in			
1		·		neight.			
2				Hydrophytic			
3	-			Vegetation			
4				Present? Yes No X			
		=Total Cover					
Remarks: (Include photo numbers here or on a sepa	rate sheet.)						

Sampling Point	C up

Profile Desc	ription: (Describe t	the dep	oth needed to doc	ument t	he indica	ator or co	onfirm the absence of indicat	ors.)
Depth	Matrix		Redo	x Featur	res			
(inches)	Color (moist)	%	Color (moist)	_%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 3/1	100					Loamy/Clayey	
4-12	10YR 3/3	100					Loamy/Clayey	sandy loam
		·						
		-						
								,
		etion RM	=Reduced Matrix	MS=Mas	ked San	Grains	<sup>2</sup> Location: PL=Pore L	ining M=Matrix
Hvdric Soil	Indicators:	euon, run	-Neudoed Matrix,	VIO-IVIGO	Neu curi	TOTUNE.	Indicators for Proble	ematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue Bel	ow Surfa	ace (S8) (I	LRR R,	2 cm Muck (A10)	(LRR K, L, MLRA 149B)
Histic Ep	pipedon (A2)		MLRA 149E	3)	9723 35 vo	29 29	Coast Prairie Red	dox (A16) (LRR K, L, R)
Black His	stic (A3)	8	Thin Dark Sur	face (S9	) (LRR R	, MLRA '	149B) 5 cm Mucky Pea	t or Peat (S3) (LRR K, L, R)
Hydroge	n Sulfide (A4)	7	High Chroma	Sands (S	511) ( <b>LRF</b>	₹ K, L)	Polyvalue Below	Surface (S8) (LRR K, L)
Stratified	Layers (A5)		Loamy Mucky	Mineral	(F1) ( <b>LRI</b>	R K, L)	Thin Dark Surfac	e (S9) ( <b>LRR K, L</b> )
Depleted	Below Dark Surface	: (A11)	Loamy Gleyed	1 Matrix (	(F2)		Iron-Manganese	Masses (F12) (LRR K, L, R)
Thick Da	irk Surface (A12)	8	Depleted Matr	ix (F3)	50)		Piedmont Floodp	lain Soils (F19) (MLRA 149B)
Sandy IV	lucky Mineral (S1)	2	Redox Dark S	urface (r	-6)		Mesic Spodic (14	A6) (MLRA 144A, 145, 149B)
Sandy B	leyed Matrix (34)	2	Depieted Dark	Counace	3(F7)		Ked Parent Mate	rial (FZT)
Stripped	Matrix (S6)	19	Marl (F10) (LF	R K. L)	0)		Other (Explain in	Remarks)
Dark Sur	rface (S7)	9		urrs, =/				T(elliano)
	GCCCUCCERTURE Accessor more							
<sup>3</sup> Indicators of	f hydrophytic vegetat	ion and w	etland hydrology m	iust be p	resent, ur	nless dist	turbed or problematic.	
Restrictive I	_ayer (if observed):							
Type:								
Depth (ir	iches):						Hydric Soil Present?	Yes No X
Remarks:								
This data for	m is revised from No	rthcentral	and Northeast Rec	gional Su	upplemen	t Version	2.0 to include the NRCS Field	Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://w	/ww.nrcs.u	usda.gov/Internet/F	SE_DO	CUMENT	S/nrcs14	2p2_051293.docx)	

Project/Site: Thompson Pon	d			City/County	: Livingst	on County		Sampling Date: 11/19/2018
Applicant/Owner: Rob W	agner					State:	MI	Sampling Point: C wet
Investigator(s): R.L. Phillips				Se	ction, Tov	wnship, Range: S	35 T1N	R5E
Landform (hillside, terrace, etc	c.): depressio	n	Local r	elief (conca	ve, conve	x, none): concave	Э	Slope %: 10-15
Subregion (LRR or MLRA):	LRR L	Lat:			Long:			Datum:
Soil Map Unit Name: Carlisle	e muck. 0 to 2 p	ercent slopes	5			NWI classific	cation:	PEM/FO [PEM/SS obs.]
Are climatic / hydrologic condi	itions on the site	typical for th	nis time of year?	Y	es X	No	(If no. e:	xplain in Remarks.)
Are Vegetation Soil	. or Hvdrc	loav s	significantly disturb	oed?	Are "Norm	al Circumstances	s" prese	nt? Yes X No
Are Vegetation Soil	, or Hydro		aturally problema	tic? (	If needed	explain any ans	wers in	Remarks )
SUMMARY OF FINDING	GS – Attach	site map	showing sam	pling poir	nt locat	ions, transec	ts, im	portant features, etc.
Hydrophytic Vegetation Pres	ent?	Yes X	No	Is the Sa	mpled Ar	ea		
Hydric Soil Present?		Yes X	No	within a V	Wetland	Yes	Х	No
Wetland Hydrology Present?	â	Yes X	No	If yes, opt	tional We	tland Site ID:		
Near Flag C5.								
HYDROLOGY								
Wetland Hydrology Indicate	ors:					Secondary Indic	ators (m	ninimum of two required)
Primary Indicators (minimum	of one is requir	ed; check all	that apply)			Surface Soil	Cracks	(B6)
Surface Water (A1)		X Water-	Stained Leaves (E	39)		Drainage Pa	atterns (	B10)
High Water Table (A2)		Aquatio	c Fauna (B13)			Moss Trim L	Ines (B	16) T LL (00)
Saturation (A3)		Marl D	eposits (B15)	<b></b>		Dry-Season	Water	Table (C2)
Water Marks (B1)		Hydrog	gen Sulfide Odor (	C1)		Crayfish Bur	rrows (C	(8)
Sediment Deposits (B2)		Oxidize	ed Rhizospheres o	on Living Roo	ots (C3)	Saturation V	lsible o	n Aerial Imagery (C9)
Drift Deposits (B3)		Preser	ice of Reduced Irc	on (C4)	(00)	Stunted or S	stressed	Plants (D1)
Algal Mat or Crust (B4)		Recent	t Iron Reduction in	Tilled Solls	(C6)	X Geomorphic	: Positio	n (D2)
Iron Deposits (B5)			luck Surface (C7)	1		Shallow Aqu	litard (D	3) =li=f (D4)
Inundation Visible on Ae	rial Imagery (B/	)Other (	Explain in Remark	KS)			aphic R	
Sparsely vegetated Con	cave Sunace (E	oo)					TTESL (L	55)
Field Observations:								
Surface Water Present?	Yes	No	Depth (inches):					
Water Table Present?	Yes		Depth (Inches):		Watlan		cont2	Vec V No
(includes capillary fringe)	res	110	Depth (inches).		wettan	a nyarology Fre	sent	
Describe Recorded Data (str	eam gauge mo	nitoring well.	aerial photos, pre	vious inspec	ctions), if	available:		
	ouiii gaago, iiio	into ing trong	dental priotos, pro		,,			
Remarks:								

### **VEGETATION** – Use scientific names of plants.

Sampling Point:	C wet	
-----------------	-------	--

	Absolute	Dominant	Indicator	Designed Technologies
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Dominance Test Worksheet:
1. Ulmus americana	5	Yes	FACW	Number of Dominant Species
2.				That Are OBL, FACW, or FAC:5 (A)
3				Total Number of Dominant
4				Species Across All Strata: 5 (B)
5				Percent of Dominant Species
6				That Are OBL, FACW, or FAC: 100.0% (A/B)
7				Prevalence Index worksheet:
	5	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15' )				OBL species x 1 =15
1. Cephalanthus occidentalis	30	Yes	OBL	FACW species 95 x 2 = 190
2. Ilex verticillata	25	Yes	FACW	FAC species5 x 3 =5
3	3			FACU species x 4 =0
4				UPL species 0 x 5 = 0
5				Column Totals: 215 (A) 320 (B)
6.				Prevalence Index = B/A = 1.49
7.				Hydrophytic Vegetation Indicators:
	55	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5')				X 2 - Dominance Test is >50%
1. Carex lacustris	80	Yes	OBL	X 3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. Phalaris arundinacea	40	Yes	FACW	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3 Cinna arundinacea	10	No	FACW	data in Remarks or on a separate sheet)
4 Onoclea sensibilis	10	No	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5 Dryonteris carthusiana	5	No	FACW	
6 Vorbona urticifolia	5	No	FAC	Indicators of hydric soil and wetland hydrology must
Churchena dirichona				Definitions of Verstation Strate:
7. Giycena striata	5	NO	OBL	Definitions of Vegetation Strata:
8			20 <del></del> 20	Tree – Woody plants 3 in. (7.6 cm) or more in
9			2. <del></del> 2	diameter at breast height (DBH), regardless of height.
10				Sapling/shrub – Woody plants less than 3 in. DBH
11				and greater than or equal to 3.28 ft (1 m) tall.
12				Herb – All herbaceous (non-woody) plants, regardless
	155	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: 30')				Woody vines - All woody vines greater than 3.28 ft in
1				height.
2	-			
3				Hydrophytic Vegetation
4.				Present? Yes X No
		=Total Cover		
Remarks: (Include photo numbers here or on a sepa	rate sheet.)	-		
	in The Sources			

Sampling Point C wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redo	x Featur	es			0
(inches)	Color (moist)	%	Color (moist)	_%	Type	Loc <sup>2</sup>	Texture	Remarks
0-16	10YR 2/2	100					Muck	
					cc			
					N - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 -			
					0			
	ncentration D=Denl	etion RM=	Reduced Matrix	AS=Mas	ked Sand	Grains	<sup>2</sup> Location: F	PL=Pore Lining M=Matrix
Hydric Soil I	ndicators:		Reduced Matrix, I	10-11103	Ked Gand	oranis.	Indicators	for Problematic Hydric Soils <sup>3</sup>
X Histosol	(A1)		Polwalue Belo	w Surfa	ce (S8) (I	RR R	2 cm M	uck (A10) (LRR K. L. MLRA 149B)
Histic En	ipedon (A2)	_	MLRA 149E				Coast P	Prairie Redox (A16) (LRR K. L. R)
Black His	stic (A3)		Thin Dark Sur	ace (S9)		MLRA 1	(49B) 5 cm M	ucky Peat or Peat (S3) (LRR K. L. R)
Hydroger	n Sulfide (A4)		High Chroma	Sands (S	S11) (LRF	RK I)	Polyvalı	ue Below Surface (S8) (I RR K I)
Stratified	Lavers (A5)		Loamy Mucky	Mineral	(F1) (LR	RKL)	Thin Da	urk Surface (S9) (I BB K. I.)
Depleted	Below Dark Surface	- (A11)	Loamy Gleved	Matrix (	(F2)	(, _)	Iron-Ma	nganese Masses (E12) (I RR K I R)
Thick Da	rk Surface (A12)		Depleted Matr	ix (E3)	)		Piedmo	nt Eloodplain Soils (E19) (MI RA 149B)
Sandy M	ucky Mineral (S1)		Redox Dark S	urface (F	6)		Mesic S	Spodic (TA6) (MI RA 144A 145 149B)
Sandy G	leved Matrix (S4)		Depleted Dark	Surface	(F7)		Red Pa	rent Material (E21)
Sandy R	edox (S5)		Redox Depres	sions (F	8)		Verv Sh	allow Dark Surface (F22)
Stripped	Matrix (S6)		Marl (F10) (LF	RK.L)			Other (E	Explain in Remarks)
Dark Sur	face (S7)			. ,				
	(,							
<sup>3</sup> Indicators of	hydrophytic vegetat	ion and we	tland hvdrologv m	ust be pi	resent. ur	nless dist	urbed or problematic.	
Restrictive L	aver (if observed):			p.				
Type:	<b>,</b> (							
Depth (in	chee):						Hudwig Cail Durage	
Depth (iii	cries).						Hydric Soll Prese	ent? Yes X No
Remarks:								
Version 7.0	n is revised from No	rthcentral a	ind Northeast Reg	ional Su		t Version	2.0 to include the NR	CS Field Indicators of Hydric Soils,
		www.mcs.us	sua.gov/internet/F	SE_DOU	JUNENT	5/nrcs14	2p2_051293.docx)	

Project/Site: Thompson Pond	City/County: Livingston County Sampling Date: 11/19/2018
Applicant/Owner: Rob Wagner	State: MI Sampling Point: D up
Investigator(s): R.L. Phillips	Section, Township, Range: S35 T1N R5E
Landform (hillside, terrace, etc.): hillside	Local relief (concave, convex, none): concave Slope %: 5-6
Subregion (LRR or MLRA): LRR L Lat:	Long: Datum:
Soil Man Linit Name: Miami Joam 12 to 18 percent slopes	NWI classification: none
Are elimetia / hydrologia conditions on the site typical for this time of	vegr2 Veg X No (If no explain in Remarks )
Are Venetation	v disturbed? Are "Normal Circumstances" procent? Yes X No
Are vegetation, Soit, or Hydrologysignificant	y disturbed? Are Normal Circumstances present? Tes <u>No</u> No
Are Vegetation, Soil, or Hydrology naturally p	roblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showin	g sampling point locations, transects, important features, etc.
Hydrophytic Vocatation Present? Voc No X	Is the Sampled Area
Hydric Soil Present? Yes No X	- within a Wetland? Yes No X
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate rem	vort.)
Near Flag D1.	
HIDROLOGI	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that appl	()
Surface Water (A1)Water-Stained L	eaves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (I	Moss Trim Lines (BT6)
Saturation (A3)Main Deposits (E	Dig-Season Water Table (02)
Water Marks (BT) Hydrogen Sund	beres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposite (P2)	fuced Iron (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)	uction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5)	ce (C7) Shallow Aquitard (D3)
In Internation Visible on Aerial Imageny (B7) Other (Explain in	Remarks) Microtopographic Belief (D4)
Inundation Visible on Aerial Imagery (B7) Other (Explain in	EAC-Neutral Test (D5)
Sparsely vegetated concave ounace (Bo)	
Field Observations:	inches):
Water Table Present? Yes No Depth (	inches):
Saturation Present? Yes No Depth (	inches): Wetland Hydrology Present? Yes No X
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial ph	otos, previous inspections), if available:
Remarks:	

**VEGETATION** – Use scientific names of plants.

Sampling Point:	D up

Tree Stratum (Plateize: 20')	Absolute	Dominant Species 2	Indicator	Dominance Test worksheet			
1 Prupus seratina		Yes	FACU	Dominance Test worksheet.			
Iuninerus virginiana	20	Yes	FACU	Number of Dominant Species That Are OBL_EACW_or_EAC: 1 (A)			
3			17100				
4.				Total Number of Dominant Species Across All Strata: 7 (B)			
5.				Breach of Decision to Consider			
6.				That Are OBL, FACW, or FAC: 14.3% (A/B)			
7.				Prevalence Index worksheet:			
	65	=Total Cover		Total % Cover of: Multiply by:			
Sapling/Shrub Stratum (Plot size: 15' )				OBL species 0 x 1 = 0			
1. Elaeagnus umbellata	30	Yes	UPL	FACW species 5 x 2 = 10			
2. Lonicera morrowii	25	Yes	FACU	FAC species 25 x 3 = 75			
3.				FACU species 115 x 4 = 460			
4.				UPL species 50 x 5 = 250			
5				Column Totals: 195 (A) 795 (B)			
6				Prevalence Index = B/A = 4.08			
7				Hydrophytic Vegetation Indicators:			
	55	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation			
Herb Stratum (Plot size: 5')				2 - Dominance Test is >50%			
1. Rubus flagellaris	25	Yes	FACU	3 - Prevalence Index is ≤3.0 <sup>1</sup>			
2. Geum canadense	25	Yes	FAC	4 - Morphological Adaptations <sup>1</sup> (Provide supportin			
3. Celastrus orbiculatus	10	No	UPL	data in Remarks or on a separate sheet)			
4. Onoclea sensibilis	5	No	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)			
5				<sup>1</sup> Indicators of hydric soil and wetland hydrology must			
6				be present, unless disturbed or problematic.			
7				Definitions of Vegetation Strata:			
8.				Tree – Woody plants 3 in. (7.6 cm) or more in			
9		<u></u>		diameter at breast height (DBH), regardless of height.			
10				Sapling/shrub – Woody plants less than 3 in. DBH			
11		<u></u>		and greater than or equal to 3.28 ft (1 m) tall.			
12				Herb – All herbaceous (non-woody) plants, regardless			
	65	=Total Cover		of size, and woody plants less than 3.28 ft tall.			
Woody Vine Stratum (Plot size: 30')				Woody vines – All woody vines greater than 3.28 ft in			
1. Celastrus orbiculatus	10	Yes	UPL	height.			
2				Hudrophytic			
3				Vegetation			
4		. <u> </u>		Present?         Yes         No _X			
	10	=Total Cover					
Remarks: (Include photo numbers here or on a sepa	rate sheet.)						

Sampling Point	D up

Profile Desc	ription: (Describe	to the de	pth needed to doc	ument t	he indica	ator or co	onfirm the absence of indic	cators.)
Depth	Matrix		Redo	x Featur	es		_	
(inches)	Color (moist)	%	Color (moist)		Type	Loc	Texture	Remarks
0-6	10YR 3/3	100					Loamy/Clayey	
6-12	10YR 4/3	100					Loamy/Clayey	
						. <u></u>		
<sup>1</sup> Type: C=Ce	oncentration, D=Dep	letion, RN	1=Reduced Matrix, N	MS=Mas	ked San	d Grains.	<sup>2</sup> Location: PL=Por	e Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators for Pro	blematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue Belo	ow Surfa	ice (S8) (	LRR R,	2 cm Muck (A1	10) (LRR K, L, MLRA 149B)
Histic Ep	pipedon (A2)		MLRA 149E	5) 5000 (80		MIDA	Coast Prairie F	Redox (A16) (LRR K, L, R)
Hydroge	stic (A3) In Sulfide (Δ4)		High Chroma	Sands (S	311) (LRR R	RKL)	Polyvalue Beld	w Surface (S8) (LRR K, L)
Stratified	d Layers (A5)		Loamy Mucky	Mineral	(F1) ( <b>LR</b>	R K, L)	Thin Dark Surf	ace (S9) (LRR K, L)
Depleted	d Below Dark Surface	e (A11)	Loamy Gleyed	Matrix (	(F2)		Iron-Manganes	se Masses (F12) (LRR K, L, R)
Thick Da	ark Surface (A12)		Depleted Matr	ix (F3)			Piedmont Floo	dplain Soils (F19) (MLRA 149B)
Sandy M	lucky Mineral (S1)		Redox Dark S	urface (F	-6)		Mesic Spodic	(TA6) ( <b>MLRA 144A, 145, 149B</b> )
Sandy G	Bleyed Matrix (S4)		Depleted Dark	Surface	∋ (F7)		Red Parent Ma	aterial (F21)
Sandy F	Redox (S5)		Redox Depres		8)		Very Shallow L	in Romarks)
Dark Su	matrix (So)		IVIAII (F IU) ( <b>LF</b>	(K K, L)				III Nelliaiks)
Daik Su								
<sup>3</sup> Indicators o	f hydrophytic vegetat	tion and v	vetland hydrology m	ust be p	resent, u	nless dis	turbed or problematic.	
Restrictive	Layer (if observed):							
Type:								
Depth (i	nches):						Hydric Soil Present?	Yes No _X
Remarks:			1 a Vera 10 km2			11.5 M 12		
This data for	m is revised from No	orthcentra	I and Northeast Reg	gional Su		t Version	2.0 to include the NRCS Fie	eld Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://v	www.nrcs	.usda.gov/internet/F	SE_DO	COMENT	S/nrcs 14	+2p2_051293.docx)	
1								

Project/Site: Thompson Pond	City/County: Livi	ingston County	Sampling Date: 11/19/2018				
Applicant/Owner: Rob Wagner	State: MI Sampling Point: D we						
Investigator(s): R.L. Phillips	Section, Township, Range: S35 T1N R5E						
Landform (hillside, terrace, etc.): depression	Local relief (concave, co	onvex, none): concave	Slope %: 0-2				
Subregion (LRR or MLRA): LRR L Lat:	Lc	ona:	Datum:				
Soil Map Lipit Name: Miami Joam 12 to 18 percent slope		NW/L classification:	none [PEM obs ]				
Are elimetic / hydrologic conditions on the site typical for t	his time of year? Yea	V No //f. no /	velain in Romarka )				
Are climatic / hydrologic conditions on the site typical for t	his time of year? res_						
Are vegetation, Soli, or Hydrology	significantly disturbed? Are in	Normal Circumstances prese					
Are Vegetation, Soil, or Hydrology	naturally problematic? (If nee	eded, explain any answers in	Remarks.)				
SUMMARY OF FINDINGS – Attach site map	showing sampling point lo	ocations, transects, in	portant features, etc.				
Hudrophytic Vegetation Brocont? Veg. V	No. Is the Sample	d Area					
Hydric Soil Present? Yes X	No within a Wetl	and? Yes X	No				
Wetland Hydrology Present? Yes X	No If yes, optional	Wetland Site ID:					
Remarks: (Explain alternative procedures here or in a se	eparate report.)						
Near Flag D1.	parato report.)						
HYDROLOGY							
Wetland Hydrology Indicators:		Secondary Indicators (r	minimum of two required)				
Primary Indicators (minimum of one is required; check a	that apply)	Surface Soil Crack	s (B6)				
Surface Water (A1)X Water	-Stained Leaves (B9)	Drainage Patterns	(B10)				
X High Water Table (A2)	ic Fauna (B13)	Moss Trim Lines (E	(C2)				
X Saturation (A3) Mari L	Deposits (B15)	(DIS) DIS-Season Water Fable (02)					
Water Marks (B1) Hydro	gen Suilide Odor (CT)	cospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)					
Sediment Deposits (B2)OXid2	ed Rillzospheres on Living Roots (C	Seduced Iron (C4) Stunted or Stressed Plants (D1)					
Algal Mat or Crust (B4)	at Iron Reduction in Tilled Soils (C6)	Reduction in Tilled Soils (C6) X Geomorphic Position (D2)					
Iron Deposits (B5)	Auck Surface (C7)	Shallow Aquitard (D3)					
Inundation Visible on Aerial Imagery (B7) Other	(Explain in Remarks)	Microtopographic Relief (D4)					
Sparsely Vegetated Concave Surface (B8)		X FAC-Neutral Test (	D5)				
Field Observations:							
Surface Water Present? Ves No	Depth (inches):						
Water Table Present? Yes X No	Depth (inches): 6						
Saturation Present? Yes X No	Depth (inches): 0 We	etland Hydrology Present?	Yes X No				
(includes capillary fringe)		······					
Describe Recorded Data (stream gauge, monitoring well	, aerial photos, previous inspections	s), if available:					
A 066 900 G 0.000							
Remarks:							

VEGETATION - Use scientific names of plants.

	Absolute	Dominant	Indicator	
Iree Stratum (Plot size: 30')	% Cover	Species?	Status	Dominance Test worksheet:
Fraxinus pennsylvanica     2.	5	Yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)
3		0 :		Total Number of Dominant Species Across All Strata: 3 (B)
5				Percent of Dominant Species That Are OBL_FACW_or FAC: 100.0% (A/P)
7				Prevalence Index worksheet:
······································	5	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15')				OBL species 5 x 1 = 5
1. Frangula alnus	10	Yes	FAC	FACW species 130 x 2 = 260
2.				FAC species 15 x 3 = 45
3.				FACU species 0 x 4 = 0
4.				UPL species 0 x 5 = 0
5				Column Totals: 150 (A) 310 (B)
6				Prevalence Index = B/A = 2.07
7.	-			Hydrophytic Vegetation Indicators:
	10	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5')				X 2 - Dominance Test is >50%
1. Phalaris arundinacea	95	Yes	FACW	X_3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. Cinna arundinacea	25	No	FACW	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3. Verbena hastata	5	No	FACW	data in Remarks or on a separate sheet)
4. Verbena urticifolia	5	No	FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. Symphyotrichum firmum	5	No	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7		· · · · · · · · · · · · · · · · · · ·		Definitions of Vegetation Strata:
8.			<u></u>	
9.				diameter at breast height (DBH), regardless of height.
10.		-		Sanling/shruh - Woody plants less than 2 in DBU
11				and greater than or equal to 3.28 ft (1 m) tall.
12	135	=Total Cover		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: 30')				Woody vines – All woody vines greater than 3.28 ft in height.
2.				
3.				Hydrophytic
4.	S <del></del>			Present? Yes X No
		=Total Cover		
Remarks: (Include photo numbers here or on a sepa	rate sheet.)	Ĩ		

Sampling Point	D wet

Profile Desc	cription: (Describe t	o the de	epth needed to docu	ument th	ne indica	ator or co	onfirm the absence o	of indicators.)		
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
0-6	10YR 4/1	95	10YR 4/6	5	<u> </u>		Loamy/Clayey	Prominent redox concentrations		
				<u> </u>						
<sup>1</sup> Type: C=Ce	oncentration, D=Depl	etion, RI	M=Reduced Matrix, N	IS=Mas	ked Sand	d Grains.	<sup>2</sup> Location: F	PL=Pore Lining, M=Matrix.		
Hydric Soil Histosol Histic Ep Black Hi Hydroge Stratified Depleted Thick Da Sandy M Sandy G Sandy R Stripped Dark Su	Indicators: (A1) bipedon (A2) stic (A3) in Sulfide (A4) d Layers (A5) d Below Dark Surface ark Surface (A12) Mucky Mineral (S1) Gleyed Matrix (S4) Redox (S5) I Matrix (S6) rface (S7) f hydrophytic vegetat	(A11)	Polyvalue Belo MLRA 149B Thin Dark Surf High Chroma S Loamy Mucky Loamy Gleyed X Depleted Matri Redox Dark Su Depleted Dark Redox Depress Marl (F10) (LR	w Surfac ) ace (S9) Sands (S Mineral Matrix ( x (F3) urface (F Surface sions (Fi <b>R K, L</b> )	ce (S8) ( ( <b>LRR R</b> (F1) ( <b>LR</b> (F1) ( <b>LR</b> (F1) ( <b>LR</b> (F2) (F7) (F7) 8)	LRR R, , MLRA <sup>A</sup> R K, L) R K, L)	Indicators f 2 cm Mu Coast P I49B)5 cm Mu Polyvalu Thin Da Trin Da Piedmo Nesic S Red Pai Very Sh Other (E	for Problematic Hydric Soils <sup>3</sup> : uck (A10) (LRR K, L, MLRA 149B) Prairie Redox (A16) (LRR K, L, R) ucky Peat or Peat (S3) (LRR K, L, R) ue Below Surface (S8) (LRR K, L) irk Surface (S9) (LRR K, L) inganese Masses (F12) (LRR K, L, R) inganese Masses (F12) (LRR K, L, R) int Floodplain Soils (F19) (MLRA 149B) Spodic (TA6) (MLRA 144A, 145, 149B) rent Material (F21) nallow Dark Surface (F22) Explain in Remarks)		
Restrictive Type: Depth (in	Layer (if observed):						Hydric Soil Prese	ent? Yes X No		
Remarks: This data for Version 7.0,	m is revised from No 2015 Errata. (http://w	rthcentra ww.nrcs	al and Northeast Reg .usda.gov/Internet/F	ional Su SE_DOC	pplemen	t Version S/nrcs14	2.0 to include the NR 2p2_051293.docx)	CS Field Indicators of Hydric Soils,		

## IPaC

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Livingston and Washtenaw counties, Michigan



## Local office

Michigan Ecological Services Field Office

**└** (517) 351-2555 **i** (517) 351-1443

2651 Coolidge Road Suite 101 East Lansing, MI 48823-6360 NOTFORCONSULTATION

http://www.fws.gov/midwest/EastLansing/

https://ecos.fws.gov/ipac/location/6A7BY2V54FBX5FKKLDUIEF47QY/resources#endangered-species

# **Endangered** species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

- 1. Draw the project location and click CONTINUE.
- 2. Click DEFINE PROJECT.
- 3. Log in (if directed to do so).
- 4. Provide a name and description for your project.
- 5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the <u>Ecological Services Program</u> of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact <u>NOAA Fisheries</u> for <u>species under their jurisdiction</u>.

- Species listed under the <u>Endangered Species Act</u> are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the <u>listing status page</u> for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
- 2. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Mammals

NAME	STATUS
Indiana Bat Myotis sodalis Wherever found There is <b>final</b> critical habitat for this species. The location of the critical habitat is not available. <u>http://ecos.fws.gov/ecp/species/5949</u>	Endangered
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. <u>http://ecos.fws.gov/ecp/species/9045</u>	Threatened
Reptiles	<10'
NAME	STATUS
<ul> <li>Eastern Massasauga (=rattlesnake) Sistrurus catenatus</li> <li>Wherever found</li> <li>This species only needs to be considered if the following condition applies: <ul> <li>For all Projects: Project is within EMR Range</li> </ul> </li> <li>No critical habitat has been designated for this species. <a href="http://ecos.fws.gov/ecp/species/2202">http://ecos.fws.gov/ecp/species/2202</a></li> </ul>	Threatened
	STATUS
Snuffbox Mussel Epioblasma triquetra Wherever found No critical habitat has been designated for this species. <u>http://ecos.fws.gov/ecp/species/4135</u>	Endangered
Incosto	
	STATUS
NAME	21A102
Mitchell's Satyr Butterfly Neonympha mitchellii mitchellii Wherever found	Endangered

No critical habitat has been designated for this species.

http://ecos.fws.gov/ecp/species/8062

### Monarch Butterfly Danaus plexippus

Wherever found

No critical habitat has been designated for this species. <u>http://ecos.fws.gov/ecp/species/9743</u>

Poweshiek Skipperling Oarisma poweshiek Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. <u>http://ecos.fws.gov/ecp/species/9161</u>

## **Flowering Plants**

NAME

Eastern Prairie Fringed Orchid Platanthera leucophaea Wherever found

No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/601 STATUS

Candidate

Endangered

Threatened

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

# Migratory birds

Certain birds are protected under the Migratory Bird Treaty  $Act^1$  and the Bald and Golden Eagle Protection  $Act^2$ .

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described <u>below</u>.

- 1. The Migratory Birds Treaty Act of 1918.
- 2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

 Birds of Conservation Concern <a href="http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php">http://www.fws.gov/birds/management/managed-species/</a> <a href="birds-of-conservation-concern.php">birds-of-conservation-concern.php</a>

- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/ conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area. JOTFORCO

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

http://ecos.fws.gov/ecp/species/1626

Breeds Dec 1 to Aug 31

Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>http://ecos.fws.gov/ecp/species/9399</u>	Breeds May 15 to Oct 10
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler Cardellina canadensis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cerulean Warbler Dendroica cerulea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>http://ecos.fws.gov/ecp/species/2974</u>	Breeds Apr 22 to Jul 20
Golden-winged Warbler Vermivora chrysoptera This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>http://ecos.fws.gov/ecp/species/8745</u>	Breeds May 1 to Jul 20
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>http://ecos.fws.gov/ecp/species/9679</u>	Breeds elsewhere
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

## Probability of Presence (III)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

- The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
- 2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
- 3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

## Breeding Season ( )

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

## Survey Effort (I)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

## No Data (-)

A week is marked as having no data if there were no survey events for that week.

## **Survey Timeframe**

#### IPaC: Explore Location resources

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

				∎ probab	ility of p	resence	bree	eding se	ason	survey e	effort -	no data
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bald Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)		<b>+</b> + <b>H H</b>	**	Ŧ₩₩Ŧ	+++	+++#	5	++# \\	1+++	+####	*+#*	
Black-billed Cuckoo BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.) Bobolink BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)	++++	++++	++++ 5F	++++		-+	<b>*</b> -++	++++	++++	++++	++++	++++

```
Canada Warbler
              ++++++++++++++++++++++
                                                                     BCC
Rangewide
(CON) (This is a
Bird of
Conservation
Concern (BCC)
throughout its
range in the
continental USA
and Alaska.)
Cerulean
             || || ||+++
                                                                   Warbler
BCC
Rangewide
(CON) (This is a
Bird of
Conservation
Concern (BCC)
throughout its
range in the
continental USA
and Alaska.)
Golden-winged
              ++++ ++++ ++++ +
                                                                                            +++ ++++
                                                                       ŦШ
                                                                          ++++
Warbler
BCC
Rangewide
(CON) (This is a
Bird of
Conservation
Concern (BCC)
throughout its
range in the
continental USA
and Alaska.)
Lesser
                      <u>+++++</u> ++++<u>+++</u> +<u>+++</u> +<u>+++</u> +<u>+++</u> +<u>+++</u> +<u>+++</u> +<u>+++</u> +<u>+++</u> +<u>++++</u>
Yellowlegs
BCC
Rangewide
(CON) (This is a
Bird of
Conservation
Concern (BCC)
throughout its
range in the
continental USA
and Alaska.)
```

Red-headed	
Woodpecker	
BCC	
Rangewide	
(CON) (This is a	
Bird of	
Conservation	
Concern (BCC)	
throughout its	
rongo in the	
range in the	
continental USA	
and Alaska.)	
Rusty Blackbird	
BCC - BCR	+++++ ++++ ==+++=+++=++++++++++++++++++
(This is a Bird of	
Conservation	
Concorn (BCC)	19
concern (BCC)	
Dird Dird	
Dilu	
	12
Regions (BCRS)	X X'
in the	
continental	
USA)	
Wood Thrush	CARL LAND AND AND THE SAME WERE AND
BCC	
Doogowido	
(OON) (This is a	
	CU
Bird of	
Conservation	
Concern (BCC)	
throughout its	
range in the	CU
continental USA	
and Alaska.)	
$\cap$	

# Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

<u>Nationwide Conservation Measures</u> describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. <u>Additional measures</u> or <u>permits</u> may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

#### What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS <u>Birds of Conservation Concern (BCC)</u> and other species that may warrant special attention in your project location.

#### 9/13/21, 9:42 AM

#### IPaC: Explore Location resources

The migratory bird list generated for your project is derived from data provided by the <u>Avian Knowledge Network</u> (<u>AKN</u>). The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u> and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (<u>Eagle Act</u> requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the <u>AKN Phenology Tool</u>.

# What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the <u>Avian Knowledge Network (AKN)</u>. This data is derived from a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen</u> <u>science datasets</u>.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

## How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: <u>The Cornell Lab of Ornithology All About Birds Bird Guide</u>, or (if you are unsuccessful in locating the bird of interest there), the <u>Cornell Lab of Ornithology Neotropical Birds</u> <u>guide</u>. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

- 1. "BCC Rangewide" birds are <u>Birds of Conservation Concern</u> (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
- 2. "BCC BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
- 3. "Non-BCC Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the <u>Eagle Act</u> requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

#### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the <u>Northeast Ocean Data Portal</u>. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the <u>NOAA</u> <u>NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf</u> project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the <u>Diving Bird Study</u> and the <u>nanotag studies</u> or contact <u>Caleb Spiegel</u> or <u>Pam</u> <u>Loring</u>.

#### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to <u>obtain a permit</u> to avoid violating the Eagle Act should such impacts occur.

#### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

# Facilities

## National Wildlife Refuge lands

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

## Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

# Wetlands in the National Wetlands Inventory

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of</u> Engineers District.

#### WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the <u>NWI map</u> to view wetlands at this location.

#### **Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

#### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

#### Data precautions
#### 9/13/21, 9:42 AM

#### IPaC: Explore Location resources

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

OTFORCONSULTATI



October 21, 2021

Mr. Chris Madigan Hamburg Charter Township 10405 Merrill Road P.O. Box 157 Hamburg, MI 48139

Re: Murie Glen Final Site Plan Review

Dear Mr. Madigan:

We have received plans for the Murie Glen project dated August 18, 2021, with subsequent updates on October 6 and October 11, 2021. The plans were prepared by Midwestern Consulting, Inc.

We offer the following comments for your consideration:

#### Roadway

- 1. Pavement section appears to be adequate for the proposed use.
- 2. The latest version of R-28-J, dated 5-8-2020, should be used on the plans.

### Stormwater/ Grading

- 3. In general, the storm water detention calculations are in general conformance with the Livingston County Drain Commission (LCDC) standards.
- 4. The outflows of the infiltration basins on Sheet C4.5 should be updated to match the calculations on Sheets C.9.2 and C.9.3.
- 5. The storm pipe between R79 and R78 should be located along the property line of lots 17 and 18 to facilitate easements.
- In general, slopes greater than 1:5 are required to be fenced around detention basins. While both basins are internally sloped at a 1:5, a 1:3 slope leads to the basins with vertical drops of 15 to 20'. Consideration of fencing or other means of demarking the steep slope, especially behind lots or along sidewalks.
- 7. The slope of pipe run from structure 32 to 31 is greater than LCDC standards. This should be installed as concrete in lieu of the proposed HDPE.

Hamburg, Michigan October 21, 2021

#### Sewer System

- 8. Sewer leads should be 6" diameter at 1% within the right of way.
- 9. Additional comments for Sanitary Sewer may be provided in the Part 41 review.

#### Water System

- 10. We understand water for the development is provided by the Mystic Ridge Water Authority. Provide agreement for service.
- 11. The water main specifications reference the Hamburg Township Utilities Department. This reference should be removed, and any testing / inspection requirements be coordinated with the Mystic Ridge Water Authority.

#### Permits

The following permits may be required for the project:

- Wetland Crossing
- Storm water discharge to wetland
- Part 41 for the sanitary sewer (via Hamburg Township)
- Act 399 for water system (via Mystic Ridge Water Authority).

In summary, we offer no objection to the approval of the site plan provided the above comments are addressed to the satisfaction of the Township.

If you have any questions or require additional information, please contact me at (734) 657.4925.

Sincerely,

Ted L. Erickson, P.E. Associate Principal





# HAMBURG TOWNSHIP FIRE DEPARTMENT

FIRE PREVENTION BUREAU

FIRE MARSHAL JORDAN ZERNICK 10100 Veterans Memorial Dr. Hamburg, MI 48139 PO BOX 157 810.222.1100 JZERNICK@HAMBURG.MI.US

To: Hamburg Twp. Zoning

From: Fire Marshal, Jordan Zernick

CC: Fire Chief, Nick Miller

Subject: Site Plan Review - Murie Glen Development

Date: September 23, 2021

I have completed the plan review of the initial site plan submittal for the Murie Glen Development in Hamburg Township. The review was based on the applicable Fire Code and Hamburg Township Ordinance Requirements.

The plans are approved as submitted with the following requirements, revisions and clarification:

- 1. The proposed 26 foot drive isle shall be posted on both sides as no parking for emergency access.
- 2. Cul-de-sac is required to be a minimum width of 96 feet per the International Fire Code.
- 3. A Knox pad lock shall be purchased and placed on the emergency gate access.
- 4. Fire Hydrant to be on Thompson Pond dr. 400 ft to the east of the intersection with Margaret Lane.
- 5. Road listed as Margaret Lane should be listed as a Court. Additionally it is being requested that "Margaret Lane" be labeled as a different road name as there is currently a Margaret Dr. already existing in Hamburg Township.
- 6. Hydrant detail to be submitted to the Hamburg Township Fire Department for review.
- 7. Hydrants to have approved reflective markers affixed to them.
- 8. Hydrants to be seasonally maintained in a 3 ft. circumference to ensure access by fire personnel.
- 9. Maintenance agreement to be established with Mystic Ridge for the purpose of seasonally maintaining both sides of the emergency access gate.

This approval is subject to field inspection. This approval shall be valid for one year. If construction has not begun within 12 months of the date on this letter the plans must be resubmitted for approval. This approval does not exempt the project from complying with all applicable codes. Additional submittals and approvals may be required

Fire Marshal Jordan Zernick

Hamburg Township Fire Department 10100 Veterans Memorial Dr PO BOX 157 Hamburg, MI 48139 Phone: 810-222-1100 Fax: 810-231-1974

## Lisa Perschke

Mike Goryl <mgoryl@livingstonroads.org></mgoryl@livingstonroads.org>
Monday, October 11, 2021 3:25 PM
Scott Pacheco
Kim Hiller; Garrett Olson; Chris Madigan
RE: Murie Glen Subdivision Final Site Plan Review

Hi Scott,

We've reviewed the report and find it to be acceptable to LCRC. We do not have any additional comments.

Regards,

## Mike Goryl Traffic and Safety Engineer Livingston County Road Commission 3535 Grand Oaks Drive Howell, MI 48843 517-546-4250 (Office) 517-518-3019 (Direct) 517-881-5012 (Cell)

From: Scott Pacheco <spacheco@hamburg.mi.us>
Sent: Monday, October 11, 2021 9:15 AM
To: Mike Goryl <mgoryl@livingstonroads.org>; Scott Pacheco <spacheco@hamburg.mi.us>
Cc: Kim Hiller <khiller@livingstonroads.org>; Garrett Olson <golson@livingstonroads.org>; Chris Madigan <cmadigan@hamburg.mi.us>
Subject: RE: Murie Glen Subdivision Final Site Plan Review

Mr. Goryl:

In response to your email below the applicants has submitted a revision to the traffic report that utilizes the LCRC traffic distributions from the email below. I have attached the revised traffic report. I also requested that the Sheldon Road and Hamburg Road interested be analyzed as a part of this project.

From a cursory review of the report the finding show that the impacts on Sheldon and Hamburg Roads are negligible. It appears the 51 unit project will have minimal impacts on the roadways.

Please let me know if you have any further concerns please let us know. This project will be going to the Planning Commission on October 20, 2021 for review and the staff report will be completed on October 13, 2021 if you would like to get comments to the PC.

The report will include the standard condition of approval that all required agencies approvals are completed prior to issuance of a Land Use Permit.

Thank you, Scott Pacheco, AICP Hamburg Township Planner

From: Mike Goryl <<u>mgoryl@livingstonroads.org</u>> Sent: Wednesday, September 8, 2021 10:25 AM To: Scott Pacheco <<u>spacheco@HAMBURG.MI.US</u>> Cc: Kim Hiller <<u>khiller@livingstonroads.org</u>>; Garrett Olson <<u>golson@livingstonroads.org</u>> Subject: RE: Murie Glen Subdivision Final Site Plan Review

Hi Scott,

Thank you for providing us a copy of the traffic study. After reviewing it, here's some thoughts from our end. We don't agree with their traffic distribution, as we believe most of the AM and PM peak trips (generally work related) will use Sheldon Road to get to/from US-23. Although the sample size is small, 3 of 4 existing Thompson Pond Drive trips in the AM peak use Sheldon, and both of the PM trips use Sheldon. We believe the majority of new trips will continue to use Sheldon Road, rather than the 30% outbound trips in the AM and 30% inbound trips in the PM that the report projects. Having stated this, it lessens the impact on the Merrill and Strawberry Lake intersection, but adds more trips on Sheldon Road and to the Sheldon and Hamburg intersection that was not analyzed.

In our opinion, the two biggest impacts from this proposed development will be the additional trips per day on the gravel portion of Sheldon Road and the additional left turns from WB Sheldon Road across EB traffic on the Hamburg/Sheldon curve. On the gravel road issue, Sheldon currently carries about 650 vehicles per day. The development will probably add another 250-350 per day. At the Sheldon and Hamburg curve it will probably add 20 new left turns in the PM peak as opposed to the 7 they forecast. But my guess is there are probably many more left turns currently, given the number of residences near that intersection. Neither the additional traffic on the gravel road nor the left turns at the curve are going to break the system, but they add to issues that eventually will need to be addressed.

As a side note, I have asked our maintenance foreman to schedule tree trimming in the inside of the Sheldon and Hamburg curve to improve visibility for left-turning motorists.

Regards,

### **Mike Goryl**

Traffic and Safety Engineer Livingston County Road Commission 3535 Grand Oaks Drive Howell, MI 48843 517-546-4250 (Office) 517-518-3019 (Direct) 517-881-5012 (Cell)

From: Kim Hiller Sent: Thursday, September 2, 2021 6:56 AM To: Mike Goryl ; Garrett Olson Subject: FW: Murie Glen Subdivision Final Site Plan Review Please see the email below. I've downloaded the site plan and attached it.

Kim Hiller, P.E. Utilities and Permits Engineer Livingston County Road Commission 3535 Grand Oaks Drive Howell, MI 48843 Ph. (517) 546-4250 khiller@livingstonroads.org

From: Scott Pacheco <<u>spacheco@HAMBURG.MI.US</u>> Sent: Wednesday, September 01, 2021 1:18 PM To: Kim Hiller <<u>khiller@livingstonroads.org</u>> Cc: <u>Ted.L.Erickson@imegcorp.com</u>; Chris Madigan <<u>cmadigan@HAMBURG.MI.US</u>> Subject: Murie Glen Subdivision Final Site Plan Review

Kim:

Please see the final site plan and the traffic report submitted by the developers of the Murie Glen Subdivisions. This proposed project will be a 51 unit development located off of Thompson Pond Roadway. Of the 51 unit 20 of them are restricted to 55 and older and 980 square feet.

The Traffic Report only provides analysis of the Merrill Road and Strawberry Lake Road intersection and the Merrill Road and Thompson Pond/ Sheldon Road intersection is this adequate for your review or will additional intersection data be needed?

Below is the drop box information with the Project Plans and attached to this email is a copy of the Traffic Study.

### https://www.dropbox.com/s/zt21u1c6aqd2s86/2021-08-18%20Murie%20Glen%20Combined%20Plan%20Set.pdf?dl=0

I have attached your original comments from the preliminary site plan review of the project. Please review the information and provide any comments you may have on the development.

Thank you, Scott Pacheco, AICP Hamburg Township Planning and Zoning