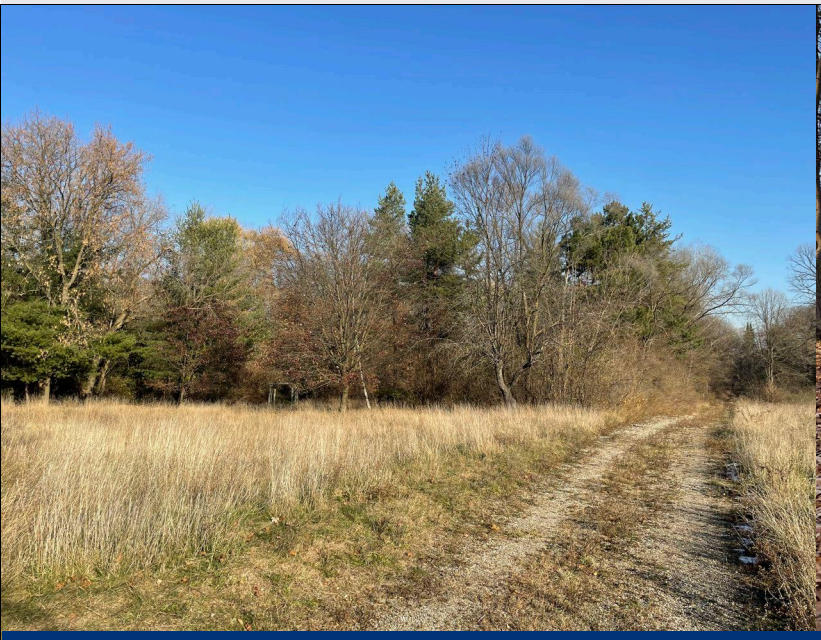
Enliven Developers

Oak Creek Condominiums



TETRA TECH

Environmental Impact Analysis

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PRESENTED TO

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TETRA TECH

TABLE OF CONTENTS

LIST OF FIGURES

APPENDICES

Appendix A: Tree Preservation Plan and Landscape Planting Plan (Nagy Devlin Land Design)

Appendix B: Photographic Log

Appendix C: Wetland and Watercourse Boundary Determination Letter (ASTI Environmental)

Appendix D: Oak Creek Condominiums Site Plan (Gateway Engineering and Surveying, Inc.)

Appendix E: United States Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) Resource List

Appendix F: Alternative Site Plans

PROJECT INFORMATION

Name: Oak Creek Condominiums

Description of Proposed Project: The proposed project consists of two properties: Parcel 15-34-101-055 (3271 South Livernois Road) and Parcel 15-34-101-053 (3249 South Livernois Road) (hereafter collectively referred to as "Site"). The Site encompasses approximately 8.5 acres of land located directly east of South Livernois Road, approximately 0.2-mile south of West Auburn Road in Section 34 of Township 3 North, Range 11 East. A Site Location Map is included as **Figure 1**. The proposed project is condominiums consisting of 21 single family residential homes; utilities (water main, sanitary sewer, and storm sewer); an access drive (Cordoba Drive) that will connect to Livernois Road and an existing drive (Raffler Drive) located to the east of the Site; a stormwater detention pond; and a common area/park.

Proposed Use: Single Family Residential

PART 1. ANALYSIS REPORT: Past And Present Status Of The Land

A. What are the characteristics of the land, waters, plant and animal life present?

1. Comment on the suitability of the soils for the intended use.

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey indicates that the Soil Survey Geographic Database (SSURGO) soils within the Site consist of Marlette sandy loam, 1-6% slopes (10B); Fox sandy loam, till plain, 2-6% slopes (18B); and Shebeon-Urban land complex, 0-4% slopes (ShbuaB) (USDA NRCS 2023). The soils are depicted on **Figure 2**. The Marlette sandy loam soil type occupies about 32% of the property near Livernois Road. The Shebeon-Urban land complex soil type occurs in the central portion of the property, occupying approximately 47% of the Site, and the Fox sandy loam soil type occurs near the rear of the property, occupying approximately 21% of the Site. The Shebeon-Urban land complex is categorized as a non-hydric soil, while Marlette sandy loam and Fox sandy loam have a low hydric rating (<5%) and are considered predominantly non-hydric.

According to the Web Soil Survey, the majority of the Site consists of soils that are rated low for risk of corrosion of concrete. Fox sandy loam, located near the western boundary of the Site is rated moderate for risk of corrosion of concrete. All three soil types on the Site are rated high for risk of corrosion of uncoated steel. Therefore, corrosion of concrete is unlikely to be a concern and risk of corrosion of uncoated steel can be mitigated by certain construction means and methods. The proposed single-family homes on the Site will have basements. Marlette sandy loam and Shebeon-Urban land complex are rated not limited, indicating that the soils are very favorable for dwellings with basements, and Fox sandy loam is rated somewhat limited, indicating that the soils are moderately favorable for dwellings with basements (USDA NRCS 2023). Therefore, the soil types on the Site are suitable for the proposed single-family homes with basements. The soils on the Site are rated somewhat limited (moderately favorable) for establishing and maintaining turf for lawns and ornamental trees and shrubs for residential or commercial landscaping; constructing paved local roads and streets; and conducting shallow

excavations for utility lines (USDA NRCS 2023). Therefore, the soils on the Site are suitable for the proposed paved roadway, utility installations, and landscaping.

The on-site soils are anticipated to be suitable for the intended use and the proposed project is not expected to negatively affect the on-site soils long-term. There may be limited, short-term negative effects to soils during construction lasting approximately two years; however, soils will be protected with soil erosion and sedimentation control measures during construction and will be stabilized post-construction.

2. **Describe the vegetation giving specific locations of specimens 6" diameter or greater, or areas of unusual interest on parcels of 5 acres or more**.

The current land use on the Site is classified as developed, open space by the National Land Cover Database (NLCD) and the historic landcover (circa 1800) is classified by the Michigan Natural Features Inventory (MNFI) as mixed oak savanna with beech-sugar maple forest along the southern boundary (EGLE 2023). Based on Tetra Tech's site visit conducted in November 2022, the Site is composed of a mix of forested areas and herbaceous areas with scattered shrubs and trees; the vegetation on the Site is common for these land cover types and for the region. There were no areas of unusual interested observed on the Site. The forested areas primarily occur within the eastern half of the Site with scattered trees and hedgerows in the western half of the Site. The trees in the western half of the Site primarily occur along the existing two-track drive or north of the drive. The Tree Preservation Plan and Landscape Planting Plan are included as **Appendix A**. A tree survey was completed on the Site in the summer of 2022. The existing specimens 6" diameter or greater are included on Sheet TPP-1 of **Appendix A** and are listed in the tree inventory table on Sheet TPP-2. A photographic log of existing on-site features is included as **Appendix B**.

Tree species observed in uplands on the Site include white oak (*Quercus alba*), tulip tree (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), black locust (*Robinia pseudoacacia*), black cherry (*Prunus serotina*), black walnut (*Juglans nigra*), hickory (*Carya spp.*), Siberian elm (*Ulmus pumila*), white pine (*Pinus strobus*), red pine (*Pinus resinosa*), scotch pine (*Pinus sylvestris*), blue spruce (*Picea pungens*), and Norway spruce (*Picea abies*). Minor areas of forested wetlands occur in the center of the Site near the intermittent stream. Wetland tree species observed include pin oak (*Quercus palustris*), box elder (*Acer negundo*), cottonwood (*Populus deltoides*), black willow (*Salix nigra*), and green ash (*Fraxinus pennsylvanica*). The remainder of the Site consists of herbaceous vegetation with scattered trees and shrubs. Emergent (i.e., herbaceous) wetland is located in the center of the Site near the stream and herbaceous upland vegetation dominates the western half of the Site. An area of mowed grass is also located along Livernois Road. The herbaceous upland vegetation primarily consists of orchard grass (*Dactylis glomerata*), chicory *(Cichorium intybus*), wild carrot (*Daucus carota*), goldenrods (*Solidago spp.*), grasses (*Poa spp.*; *Festuca spp.*), wild strawberry (Fragaria virginiana), self-heal (*Prunella vulgaris*), asters (*Symphyotrichum spp.*), and thistles (*Cirsium spp.*). Shrubs scattered in the herbaceous areas include common buckthorn (*Rhamnus cathartica*), honeysuckles (*Lonicera spp.*), autumn olive (*Elaeagnus umbellate*), and rosebushes (*Rosa spp.*), many of which are invasive species.

The proposed project is expected to negatively effect on-site vegetation short-term during construction (approximately 2 years) and have a positive effect long-term (for the life of the condominiums). Forty percent of the regulated trees (6" diameter or greater) will be preserved

and the proposed project involves a robust tree preservation plan and landscape planting plan that will minimize negative effects to on-site vegetation. Approximately one acre of land will be preserved onsite, consisting of the regulated trees and associated emergent and scrub-shrub vegetative cover; these areas will not be disturbed during construction and are anticipated to be preserved long-term. Orange plastic snow fencing will be installed around the areas to be preserved. In addition, a landscape planting plan will be implemented post-construction that consists of 121 trees, 70 shrubs, and 100 perennials to compensate for vegetation that will be removed from the Site, providing an aesthetically pleasing area (**Appendix A**).

3. **Describe the groundwater supply and proposed use.**

   The source of the public water supply for the City of Rochester Hills is Lake Huron, a surface water source (EGLE 2021). The proposed development will be connected to the City public water supply. The proposed development is not anticipated to use groundwater; therefore, short-term and long-term effects to groundwater are not applicable.

4. **Give the location and extent of wetlands and floodplains.**

   A wetland and watercourse boundary determination was completed by ASTI Environmental on August 16, 2022 in accordance with the City of Rochester Hills Wetland and Watercourse Protection Ordinance. One watercourse (intermittent stream) and one wetland regulated by the City of Rochester Hills and the Michigan Department of Environment, Great Lakes, and Energy (EGLE) were observed on the Site. The boundaries of the wetland and watercourse were surveyed by Gateway Engineering and Surveying, Inc. The wetlands are depicted on **Figure 3** and ASTI's Wetland and Watercourse Boundary Determination Letter is included as **Appendix C**. Wetland A is an emergent and forested wetland approximately 0.3 acres in size located in the central portion of the Site. Forested and emergent portions of the wetland are located both north and south of the onsite two-track drive. An unnamed intermittent stream that traverses the wetland was also observed in the central portion of the Site. Review of the FEMA National Flood Hazard indicates that the Site occurs in Zone X, which is an area of minimal flood hazard that occurs outside of both the 500-year floodplain and 100-year floodplain. In addition, Tetra Tech's desktop review indicates that the upstream drainage area of the watercourse is less than two square miles and therefore likely does not have associated floodplain that would be regulated by EGLE.

   Short-term and long-term effects to floodplain are not applicable; the Site occurs in an area of minimal flood hazard. The proposed project will not impact the vast majority of wetlands during construction because the wetlands will be protected with soil erosion and sedimentation control (SESC) measures and temporary impacts totaling approximately 355 square feet (0.008-acre) will be restored to grade and seeded with a wetland seed mix native to Michigan. Long-term negative effects to wetlands are not anticipated. Although minimal permanent impacts to wetland are proposed for grading associated with one residential lot and fill for the access drive culvert crossing improvement totaling approximately 2,364 square feet (0.05 acres), the majority of the onsite wetland will be preserved (approximately 0.25 acres) and the wetland will continue to provide valuable functions such as wildlife habitat and water storage.

5. **Identify watersheds and drainage patterns.**

   The Site occurs in the Gibson Drain-Plum Brook subwatershed. The United States Geological Survey (USGS) 12-digit Hydrologic Unit Code (HUC) for this watershed is 040900030201 (USGS 2023). The unnamed watercourse begins just north of the Site, flows southeast through the Site,

and continues east, eventually flowing into the Gibson Drain. Gibson Drain flows south and east, eventually flowing into Plum Brook. The topography on the Site is somewhat undulating with drainage toward the unnamed watercourse in the center and southeast portions of the Site. The topographic relief on the Site ranges from approximately 819 feet above sea level (ASL) at Livernois Road to approximately 794 feet ASL at the southeast corner of the Site. Site topography is depicted on **Figure 1** and the topographic survey (Sheet C1.1) of the Oak Creek Condominiums Site Plan (**Appendix D**).

The majority of the wetland and stream on the Site will be preserved. A 94 foot long, 36-inch culvert is proposed in the onsite watercourse for the access drive and associated sidewalks. The culvert will span the bankfull width of the stream and will be buried 6 inches to increase hydraulic capacity and allow for wildlife passage. Based on the site visit, the existing dual 12-inch culvert is perched and at least half full of sediment and debris. The proposed 36-inch culvert is anticipated to minimize flooding issues and improve drainage on the Site. The proposed project will mitigate short-term negative effects to drainage during grading and construction activities by installing SESC measures. Long-term, the improvements to the culvert will provide lasting positive effects to the area drainage and the stream, allowing for increased benthic macroinvertebrates, wildlife passage and increased flood storage. The site will be stabilized with seed mix post construction and a landscape planting plan will be implemented. In addition, the proposed onsite detention basin is designed to accommodate the anticipated increase in runoff input from the proposed project. The stormwater calculations are shown on Sheet 4.1 of **Appendix D**.

B. Is there any historical or cultural value to the land?

A review of the 1800s General Land Office (GLO) Plat for Township 3 North, Range 11 East reveals that no historic features are illustrated within the Project Area. GLO plat maps are derived from original surveyor notes from a survey of the State of Michigan that was conducted in the early to mid-1800s (DTMB 2023). In addition, Rochester Michigan topographic quadrangles dated 1908 and 1936 do not depict any historic structures or other features within or directly adjacent to the Project Area. The 1936 quadrangle depicts a stream feature within the Project Area that corresponds with the stream identified onsite. The 1945 topographic quadrangle depicts the same stream feature, an unimproved road that corresponds to the two-track drive currently located on the site, and two structures which correspond with the locations of the two homes that are currently located on the Site; therefore, it appears that the homes on the Site were built sometime between 1936 and 1945. The 1952 topographic quadrangle depicts the same two structures on the Site and additional structures adjacent to the Site (USGS 2021). Aerial photographs from Google Earth Pro reveal that the Site has been equal parts wooded and mowed/herbaceous land cover since 1999. The stream is also visible in aerial imagery. The structures on the Site, consisting of two homes and associated outbuildings, are visible on aerial imagery dated 1999-2022. Residences and forested areas are also observed on aerial imagery adjacent to the Site (Google Earth Pro 2022). No significant changes were observed on the Site in the aerial imagery between 1999 and 2022.

The Protected Areas Database of the United States (PAD-US) is an inventory of U.S. protected areas that are dedicated to the preservation of biological diversity and to other natural, recreation and cultural uses, including lands and waters that provide public access to nature. Protected areas are managed for these purposes through legal or other effective means. PAD-US does not identify any cultural uses within or in the vicinity of the Site (USGS 2022). Review of Google Earth Pro revealed that a historical landmark, America's largest Bebb Oak Tree is located approximately 900 feet to the

north of the Site and approximately 20 feet west of South Livernois Road. Based on review of the GLO Plat, historical topographic quadrangles, and aerial imagery, short-term and long-term negative effects to historical or cultural resources are not anticipated.

C. Are there any man-made structures on the parcels?

There are four structures on the Site. Each of the two parcels contains a house and associated outbuilding. One house has a garage, and the other house has a shed. There is also a swimming pool associated with one of the homes. Refer to Sheet C1.1 of **Appendix D**. The structures on the Site will be demolished for the development of the Site; therefore, short-term effects to these structures are anticipated during construction; however, long-term effects are not anticipated because 21 single-family homes will be developed, providing housing for 19 more families.

D. Are there important scenic features?

The Site does not occur along any national scenic byways or state scenic byways (MDOT 2023). Scenic byways exhibit one or more of six core intrinsic qualities: scenic, historic, recreational, cultural, archaeological, or natural. In addition, there are no protected areas adjacent to the site. The nearest protected area is a state owned conservation easement located approximately 0.25-mile northeast of the Site on the northeast side of M-59 (USGS 2022). The Site is adjacent to numerous residences, a school and associated sports fields to the west, and small undeveloped forested areas. A mosque is located behind the forested area to the north. A 13.92-acre green space owned by the City of Rochester Hills (Ruby Green Space) is located approximately 0.25-mile southwest but not directly adjacent to the Site, west of Livernois Road and contains high quality, old growth tree canopy, wetlands, and wildlife habitat. Short-term and long-term negative impacts to scenic features are not anticipated by the development of the project; important scenic features are not adjacent or visible from the Site.

E. What access to the property is available at this time?

Currently, a two-track driveway associated with Parcel 15-34-101-055 (3271 S Livernois Road) bisects the Site from east to west. The driveway provides access to a home located at the rear of the property. An additional paved horseshoe driveway is associated with Parcel 15-34-101-053 (3249 S Livernois Road), providing access to a home at the front of the property. Additionally, a new drive (Raffler Drive) associated with the Pine Wood Condominiums, which are currently under development, is located just east of Parcel 15-34-101-053. The drive that is proposed for this development (Cordoba Drive) is a paved roadway that will connect to both Livernois Road and Raffler Drive, providing public access through the Site. Short-term and long-term negative impacts to property access are not anticipated by the development of the project.

F. What utilities are available?

An existing 24-inch water main and an existing 12-inch water main parallel the east side of Livernois Road. An existing 8-inch sanitary sewer also intersects the site from north to south near Livernois Road. In addition, an existing 8-inch sanitary sewer and 12-inch water main occur just east of the Site adjacent to Raffler Drive in association with the Pine Wood Condominiums that are currently under development. The existing sanitary sewer and water main will connect to a proposed sanitary sewer and water main on the Site. Short-term and long-term negative impacts to utilities are not anticipated by the development of the project.

PART 2. THE PLAN

A. Residential

1. Type of units – Single Family Residential
2. Number of units by type – 21
3. Marketing format, i.e., rental, sale or condominium – Sale
4. Projected price range - $700,000 – 900,000 each

PART 3. IMPACT FACTORS

A. What are the natural and urban characteristics of the plan?

1. **Total number of acres of undisturbed land.**
   Approximately 1.15-acre (50,062 square feet) of land will be undisturbed, which consists of areas of regulated trees and associated herbaceous and shrubby landcover, including 0.4-acre of public open space for the common area/park. The majority of the undisturbed land is associated with the stream and wetland in the center of the Site.

2. **Number of acres of wetland or water existing.**
   Approximately 0.3-acre of wetland and approximately 612 linear feet of intermittent stream (approximately 0.06-acre) exist on the Site. The project proposes minimal permanent impacts to wetland, consisting of approximately 417 square feet (0.01 acres) of wetland for fill for the proposed improvement of the access drive culvert. The project also proposes minimal impact to the stream for the proposed improvement of the access drive culvert. The existing culvert is approximately 15 linear feet, and the replacement culvert will be 85 linear feet to accommodate the paved roadway and associated sidewalks. The majority of the onsite wetland and stream will be preserved.

3. **Number of acres of water to be added.**
   Approximately 0.52-acre (22,784 square feet) of water will be added, consisting of a detention basin with a 3-foot permanent pool.

4. **Number of acres of private open space.**
   Approximately 0.7-acre (30,684 square feet) of private open space is proposed to preserve the regulated trees on the Site and the majority of the wetland and stream located in the center of the Site.

5. **Number of acres of public open space.**
   Approximately 0.4-acre (19,378 square feet) of public open space is proposed for a common area/park east of the stream and south of the access drive. The regulated trees (6 inches in diameter or greater) will be preserved in this area.

6. **Extent of off-site drainage**
   The extent of off-site drainage is less than two square miles according to a preliminary desktop review (USGS 2023).

7. **List of any community facilities included in the plan.**
   A common area/park is proposed east of the stream and south of the access drive, which will be accessible to the community.

8. **How will utilities be provided?**
   A proposed sanitary sewer and water main will connect to the existing utilities along Livernois Road and the existing utilities on Raffler Drive that are associated with the Pine Wood Condominiums.

B. Current Planning Status.

The site plans were approved by the City on March 11, 2025 and the planning commission meeting is scheduled for April 15, 2025.

C. Projected timetable for the proposed project.

The proposed project is anticipated to start in the summer of 2025 and will take approximately 2 years to complete.

D. Describe or map the plan's special adaptation to the geography.

The wetlands on the site will be preserved to the maximum extent practicable. A total of approximately 0.3-acre of wetland occurs on the Site and approximately 0.01-acre of wetland will be permanently impacted for the proposed development. The proposed layout was revised several times to minimize impacts to the wetlands. The intermittent stream will also be preserved, with the proposed improvement of the existing culvert crossing for the access drive and associated sidewalks. There is an existing culvert crossing in this location, consisting of two parallel 12-inch culverts under the two-track driveway associated with Parcel 15-34-101-055 (3271 S Livernois Road), which allows access to the house at the rear of the property. The existing culverts are approximately 15 linear feet; the proposed culvert will be 36" and approximately 85 linear feet. The new culvert will span the bankfull width of the stream to increase hydraulic capacity and allow for wildlife passage.

A tree survey of all trees six inches or greater in diameter at breast height (i.e., regulated trees) was completed for the Site. Forty-two percent of the regulated trees on the Site will be preserved and undamaged, totaling approximately 1.15-acre (50,062 square feet) of land. Refer to **Appendix A** for the tree preservation plan and landscape plan. Trees will primarily be preserved in the common area/park and wetland areas in the center of the Site, with smaller areas of trees preserved near the northern and southern boundaries of the Site.

E. Relation to surrounding development or areas.

The proposed drive for the Oak Creek Condominiums (Cordoba Drive) will connect to South Livernois Road and Raffler Drive, which is associated with the Pine Wood Condominiums to the east that are currently under development. South Livernois Road is adjacent to the western boundary of the Site and Auburn Road is approximately 0.2-mile to the north. Both thoroughfares provide direct access to nearby shopping centers, health care facilities, and recreational areas. Residential developments are

located east and south of the Site, a school and associated sporting fields are located to the west, and a small, forested area and mosque are located north of the Site. Aerial imagery review and the site visit reveal that the surrounding landscape consists primarily of residential and commercial development, with scattered undeveloped areas. State highway M-59 is located 0.25-mile northeast of the Site. Based on the City of Rochester Hills Future Land Use Plan (City of Rochester Hills 2018), the Site is located within an area that is designated for residential use; therefore, the proposed project is compatible with surrounding land use and negative effects are not anticipated.

F. Does the project have a regional impact? Of what extent and nature?

The proposed project will have a positive regional impact. The City of Rochester Hills Future Land Use Plan (City of Rochester Hills 2018) indicates that moderate growth in households and jobs is forecasted for southeast Michigan from 2015 to 2045; overall regional population growth is anticipated to be approximately 0.26% per year. Population growth in the City of Rochester Hills has remained relatively steady compared to that of surrounding communities, with a 2.3% increase from 2010-2015. Population growth in the City is expected to remain steady through the next two decades. Therefore, the proposed project will have a positive regional impact because it will support economic viability by provide housing in a growing community. The Future Land Use Plan (City of Rochester Hills 2018) indicates a demand for future housing assuming positive economic conditions continue.

G. Describe anticipated adverse effects during construction and what measures will be taken to minimize the impact.

Adverse impacts during construction will include temporary, short term impacts including noise and fumes from construction equipment, increased traffic in and out of the Site, temporary staging of construction materials and debris, soil erosion, and potential dust. However, measures to minimize temporary adverse effects are proposed. Noise from construction will be limited to daytime hours and therefore night light and noise are not anticipated. Noise and potential air quality impacts will be minimized by limiting idling of vehicles to the extent possible. Construction will involve grading, excavation and fill for the construction of single-family homes, associated utilities, a stormwater detention pond, and an access drive. SESC measures (i.e., silt fence, manhole coverings, temporary and permanent seeding, etc.) will be utilized to reduce soil runoff and protect the onsite wetlands and stream. An erosion control blanket will be pegged in place on the seeded slopes of the detention pond. Dust mitigation will include street sweeping after each rain event and at least once weekly. In dry conditions, bare soils will be wetted to prevent dust.

H. List any possible pollutants.

Aerial photographs from Google Earth Pro reveal that the Site has consisted of wooded areas and herbaceous or mowed land cover since 1999. Numerous aerial images between 1999 and 2025 show the same two residences and associated outbuildings on the Site. There is no evidence of non-residential development or illegal dumping (Google Earth Pro 2022). In addition, topographic quadrangles reveal that the homes on the Site were built sometime between 1936 and 1945 (USGS 2021). According to aerial imagery and topographic maps, the Site appears to have been largely undeveloped and the only apparent use has been residential. Therefore, pollutants are not expected to occur on the Site.

I. What adverse or beneficial changes must inevitably result from the proposed development?

1. Physical
   a. Air quality

      In order to minimize potential short term air quality impacts, idling of equipment will be limited to the extent possible. Dust mitigation will include street sweeping after each rain event and at least once weekly. In dry conditions, bare soils will be wetted to prevent dust. Adverse, long-term changes to air quality are not anticipated from the proposed development.

   b. Water effects (pollution, sedimentation, absorption, flow, flooding)

      The upgrade to the existing culvert in the stream onsite will allow for better flow, increased hydraulic capacity, reduced flooding, and improved aquatic habitat. The stormwater detention basin, with a 3-foot-deep permanent pool, inlet pipe and a stormwater treatment unit for reducing total dissolved solids, is proposed to minimize adverse effects to surface water and groundwater on the Site such as pollution, sedimentation, absorption, flow, and flooding once it is developed. The stormwater will pass through the stormwater treatment device to remove sediment and debris prior to entering the detention basin. A detail for the stormwater treatment device and the stormwater detention design and calculations are included on Sheet C4.1 of **Appendix D**. The detention basin is designed to detain a 25-year storm event and will discharge at 0.2 cubic feet per second per acre. An outlet pipe is proposed to outlet into the intermittent stream offsite to the south and will be stabilized with riprap to prevent soil erosion.

      During construction, SESC measures including silt fence will be installed to protect the wetland and stream. A stabilized construction entrance will also be installed at the existing drive on Livernois Road to minimize track out, streets will be scraped daily, and swept weekly at a minimum. All stockpiled soils, vegetation, and construction materials will be placed outside of wetlands and streams and maintained in such a way to prevent erosion from the Site. Adverse changes to water are not anticipated during construction or post construction. Long-term beneficial improvements to water quality and quantity include reduced flooding, improved flow, and decreased sedimentation and pollution with the addition of a stormwater management system and improvement of the existing culvert in the stream onsite.

   c. Wildlife habitat (where applicable)

      The Site contains habitat for common wildlife species, including birds, mammals, and potentially amphibians or reptiles. Potential roosting habitat for bats may also occur in trees on the Site that have peeling bark and/or crevices. However, the Site is surrounded by development and roads, and new condominiums are currently being developed directly adjacent to the northwest boundary of the Site and will connect to the proposed condominiums on the Site via Cordoba Drive. In addition, M-59 is located 0.25-mile northeast of the Site. Therefore, the habitat on the Site is currently disjoined from other nearby, larger undeveloped areas by roads and homes. Existing habitat for wildlife will be preserved along the stream and in the wetland areas, while upland areas will be cleared

and developed for the proposed homes. Adverse changes to wildlife habitat my occur, specifically in the upland areas. However, the Site is situated in a moderately developed region and a habitat corridor (i.e., stream/wetland) will be preserved; therefore, minimal adverse changes to wildlife habitat are anticipated. Development plans include preserving forty percent of the regulated trees. Furthermore, the habitat onsite is likely utilized by common species rather than rare or imperiled species. A preliminary U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) list is attached, which includes federally listed species with the potential to occur on the Site (**Appendix E**): federally endangered Indiana bat (*Myotis sodalis*), federally threatened eastern massasauga rattlesnake (*Sistrurus catenatus*), proposed endangered salamander mussel (*Simpsonaias ambigua*), and proposed threatened monarch butterfly (*Danaus plexippus*) (USFWS 2023). Proposed and candidate species are not afforded legal protection. Tetra Tech's site visit did not identify potential habitat for the eastern massasauga rattlesnake. Marginal potentially suitable summer roosting habitat for the Indiana bat is present on the Site; however, the Site is located in a moderately developed area that is disconnected from other larger forest stands by roads and residences. State or federally listed threatened and endangered (T&E) species are not anticipated to inhabit the Site; however, trees will likely be cleared prior to April 15 or after September 30 to avoid potential impacts to roosting federally protected bat species.

d. Vegetative cover

   There are currently an estimated 4.5 acres of forested land onsite and 42% of the regulated trees on the Site, totaling 97 trees, will be preserved and undamaged. Four-foot-high orange plastic snow fencing with metal "T" poles spaced five feet apart will be installed around the areas of regulated trees to be preserved, totaling approximately 1.15-acres. The preserved areas are primarily in the center of the Site in association with the stream/wetland complex and the proposed park, with other small areas along the northern and southern boundaries of the Site. The snow fencing will be installed at or beyond the dripline. No construction equipment, building materials, solvents, chemicals, grade changes, fill, construction activities or vegetation removal will take place in the protected areas.

   Short-term and long-term impacts to vegetation on the site will be mitigated with SESC measures. Plans for restoration of vegetative cover include planting native and ornamental trees post construction, totaling 460 trees, which will improve the current vegetative cover. Trees will be replaced according to the rules and requirements in Article III – Tree Conservation of the Code of Ordinances of the City of Rochester Hills and in accordance with the City tree removal permit for the Site. The replacement trees will be staked, fertilized, and mulched. Additionally, the lower slopes of the detention pond will be seeded with a native wetland seed mix and the upper slopes will be seeded with a short grass prairie seed mix. The majority of the wetland/stream complex on the Site and 42% of the regulated trees will be preserved. The landscaping plan largely proposes species native to Michigan to mitigate for vegetative cover that is being removed from the Site. Refer to **Appendix A** for the tree preservation plan and landscape planting plan.

e. Night light

No lighting is proposed for the condominiums or during construction. Construction will take place during daytime hours. Therefore, no short-term or long-term adverse changes are anticipated from the proposed development with regard to night light.

2. Social

   a. Visual

      Adverse visual changes are not anticipated to result from the proposed development. The area surrounding the Site is dominated by residential development and the proposed development would not deviate from the visual character of the current surroundings. The City of Rochester Hills Future Land Use Plan 2018-2038 categorizes the site and surrounding area as residential development with scattered, small private and public recreation/open space areas designated nearby.

   b. Traffic (type/amount of traffic generated by project)
      The type of traffic generated by the project will include trucks and heavy equipment during construction and minimal residential traffic once the condominiums are developed. A permanent passing lane is also proposed along Livernois Road, which will minimize congestion during ingress and egress of residents from the condominiums. Very minimal change is anticipated compared to current traffic on Livernois Road. Long-term adverse impacts to traffic are not anticipated. Minimal, short-term adverse impacts to traffic during construction will be minimized by limiting construct to daytime hours and installing temporary traffic signage.

   c. Modes of transportation (automotive, bicycle, pedestrian, public)
      Cordoba Drive is a proposed public right-of-way. Sidewalk is also proposed on either side of Cordoba Drive; therefore, the public will have to access the Site via multiple modes of transportation. The Site will be accessible to pedestrians, bicycles, and automobiles.

   d. Accessibility of residents to recreation, schools, libraries, shopping, employment, and health facilities.
      There are five schools within 0.75-mile of the Site. There is also a 13.92-acre green space owned by the City of Rochester Hills (Ruby Green Space) approximately 0.25-mile southwest of the Site. There are at least 10 additional parks within 3 miles of the Site. Approximately 1.25 miles to the northeast, there are numerous shopping plazas (located in Downtown Rochester Hills) that provide employment, shopping, dining, and healthcare opportunities. There are additional plazas to the northwest approximately 1.25 miles, including recreational facilities, dining, shopping, and employment opportunities. The closest library is less than 5 miles from the Site to the northeast.

3. Economic

   a. Influence on surrounding land values.
      The influence of the proposed development on surrounding land values is projected to be positive. The Master Land Use Plan (City of Rochester Hills 2018) indicates that housing values have increased 42% since 2013 according to the City's assessed values. The City

continually has higher housing values than the county as a whole and has seen significant recovery since the Great Recession.

b. Growth inducement potential
Projections specify marginal population growth and tax revenue to the City. Work is expected to be carried out by the local labor force, directly increasing economic growth for members of the community.

c. Off-site costs of public improvements
Developers of this project will incur all off-site costs of public improvements.

d. Proposed tax revenues (assessed valuation)
Assessed Value = $400,000 per unit, with 21 units. $400,000 * 21 = $8,400,000.

e. Availability or provisions for utilities
All utilities are available at the roadside (Livernois Road) and will be extended to all 21 units.

J. In relation to land immediately surrounding the proposed development, what has been done to avoid disrupting existing uses & intended future uses as shown on the Master Land Use Plan?

Based on the City of Rochester Hills Future Land Use Plan (2018-2038), the Site is located within an area that is designated for residential use and thus the proposed development is consistent with the anticipated future land use for the area. The majority of the land in the vicinity of the Site is also designated for residential use, with scattered areas of private recreation/open space, public recreation/open space, residential office flex, and commercial residential flex. Currently, the Site is shown as partially occurring within an area identified as woodland/tree canopy on the Woodlands and Tree Canopy Map included in the Rochester Hills 2018 Master Plan. There is also a small wetland shown on the Site on the Wetlands Map included in the Master Plan. Based on a site visit and recent aerial imagery there is an estimated 4.5 acres of forested land within the Site. A wetland that is approximately 0.3-acre in size and an intermittent stream are also located on the Site. Approximately one acre of forested land will be undisturbed in the center of the Site in association with the stream/wetland complex and the proposed open space/park. The stream and approximately 0.29-acre of the wetland will be preserved, and a culvert upgrade is proposed to increase water quality and quantity. Forty-two percent of the regulated trees on the Site will be preserved. Both the City of Rochester Hills and the developer value open spaces, wetlands, and woodlands and the proposed development has avoided impacts to wetlands and trees to the maximum extent practicable.

K. What specific steps are planned to revitalize the disturbed or replace the removed vegetative cover?

Plans for restoration of vegetative cover throughout the Site include planting native and ornamental trees post construction, totaling 460 trees, which will improve the current vegetative cover. Refer to **Appendix A** for the Landscape Planting Plan. The majority of the proposed plantings are species native to Michigan to mitigate for vegetative cover that is being removed from the Site. Trees and shrubs will be planted around the detention pond, along Cordoba Drive, and along the southern boundary of the site to provide a natural buffer between the proposed development and the existing

homes to the south. The lower slopes of the detention pond will be seeded with a native wetland seed mix and the upper slopes will be seeded with a short grass prairie seed mix. Plantings are proposed around the detention pond to replicate a natural environment; deciduous shade trees are proposed around the south and west sides of the pond to provide shade.

L. What beautification steps are built into the development?

Numerous trees and shrubs will be planted throughout the Site as described above, with a specific planting plan for the entry to the Site on Livernois Road to provide beautification of the proposed development. Evenly spaced trees will be planted along both sides of Cordoba Drive, and lawn areas between Cordoba Drive and the proposed sidewalks will be seeded with Grade A Kentucky Blue Grass blend over topsoil. Refer to the Landscape Planting Plan in **Appendix A**.

M. What alternative plans are offered?

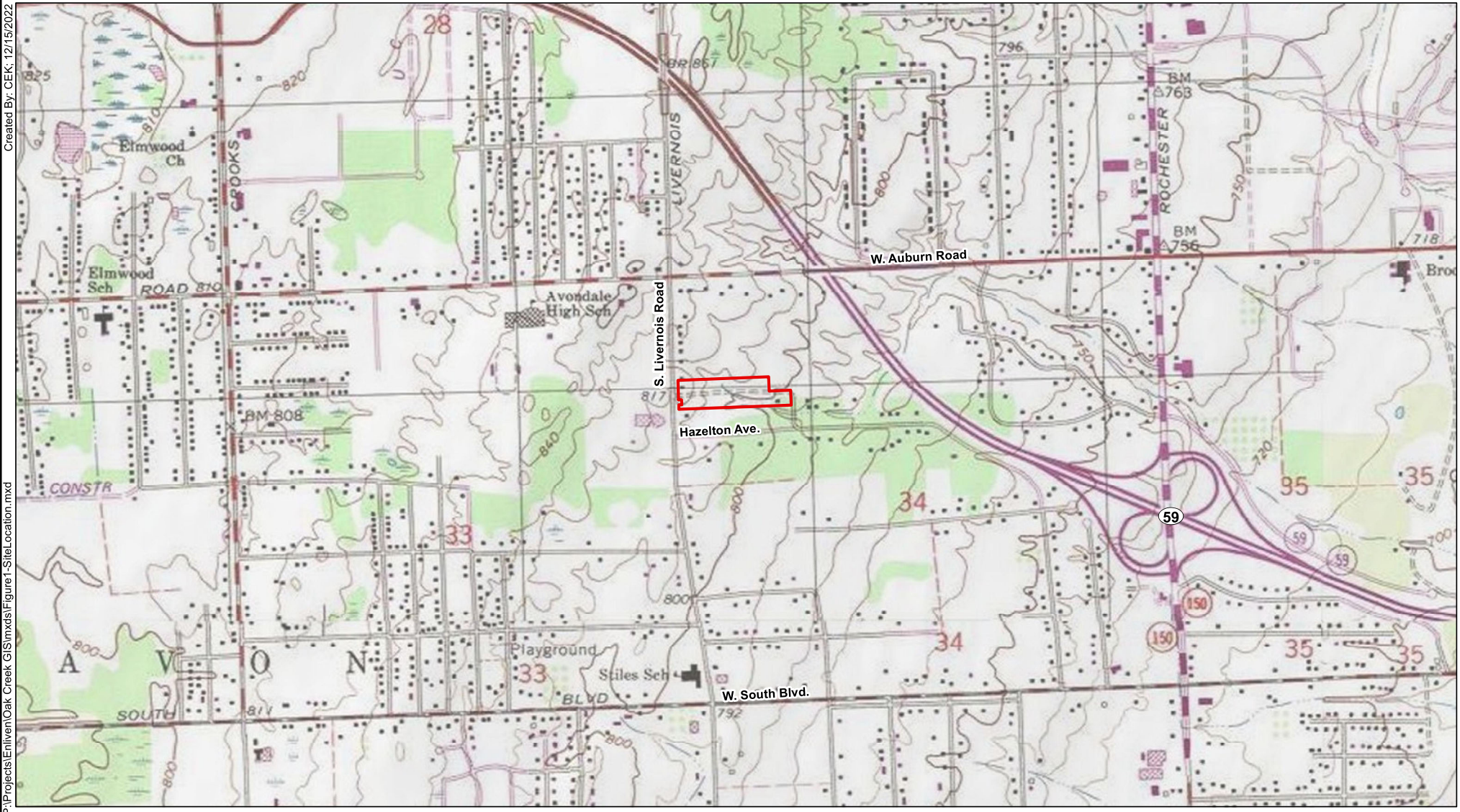
The initial alternative (Alternative 1) proposed two detention ponds and a portion of the stream bisected one of the lots (Lot 18). This alternative was not practicable because the development of Lot 18 would have involved filling in a portion of the stream and associated wetland. Filling in a stream and rerouting it is not a feasible alternative from a structural, permitting, or environmental standpoint. In addition, the proposed common area/park was much smaller and the proposed culvert at the drive was smaller. Alternative 2 included a lot (Lot 5) proposed in the northwestern portion of the wetland; development of Lot 5 would have involved wetland impact for grading (approximately 2,302 square feet). Both Alternative 1 and Alternative 2 site plans are included in **Appendix F**. The site plan was revised, and the currently proposed site plan (**Appendix D**) includes one detention basin and a larger common area/park. The currently proposed site plan does not include any lots in wetland or stream. Lot 18 is no longer impacting the wetland and stream and lot 5 is no longer impacting the wetland. Minimal wetland impact associated with the placement of the proposed culvert improvement for the access drive is similar for all three site plans. Alternative 1 included a 24-inch culvert, while Alternative 2 and the currently proposed site plan include a 36-inch culvert, which will span the bankfull width of the stream and will be buried 6 inches to increase hydraulic capacity and allow for wildlife passage.

PART 4. THE SUMMARY

Based on the foregoing Analysis Report, state the net environmental impact on the City of Rochester Hills if the proposed plan is implemented. The summary is intended to briefly set forth a basis for the City of Rochester Hills Planning Commission and the City Council to determine the acceptability of proposed development. It is suggested that the summary be brief and to the point. Make the comments relative to the initial impression and the lasting effect upon the entire community in relation to at least these points of concern: 1. Ecological effects 2. Residential, commercial or industrial needs 3. Treatment of special features of natural, scenic or historic interest 4. Economic effect 5. Compatibility with neighborhood, City and regional development, and the City's Master Land Use Plan

The proposed development meets a housing need in the growing community of Rochester Hills, provides an increased tax base, is compatible with the goals of the City’s Master Plan, and minimizes ecological effects to the maximum extent practicable. If the proposed plan is implemented, the lasting effect upon the entire community is expected to be positive.

FIGURES



Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed ; Roads layer from the United States Census Bureau.

Project Area

0 0.25 0.5 Miles

N

OAKLAND COUNTY, MICHIGAN

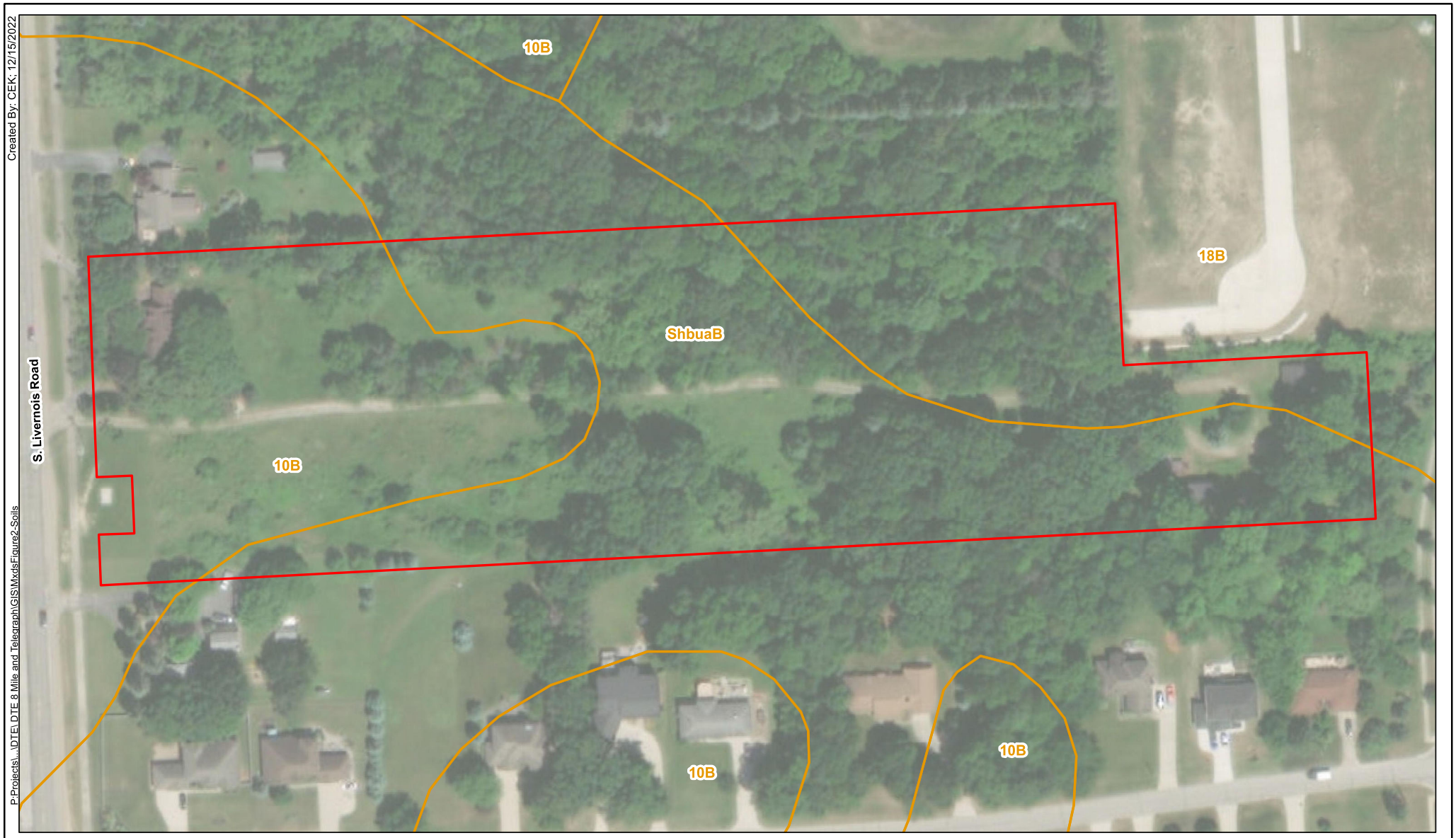
OAK CREEK CONDOMINIUMS
3249 AND 3271 S. LIVERNOIS ROAD
ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

SITE LOCATION

FIGURE 1

Created By: CEK; 12/15/2022

P:\Projects\Enliven\Oak Creek GIS\mxds\Figure1-SiteLocation.mxd



Created By: CEK; 12/15/2022

P:\Projects\...\DTE\ DTE 8 Mile and Telegraph\GIS\Mxds\Figure2-Soils

Project Area

Soils

0 75 150 300 Feet

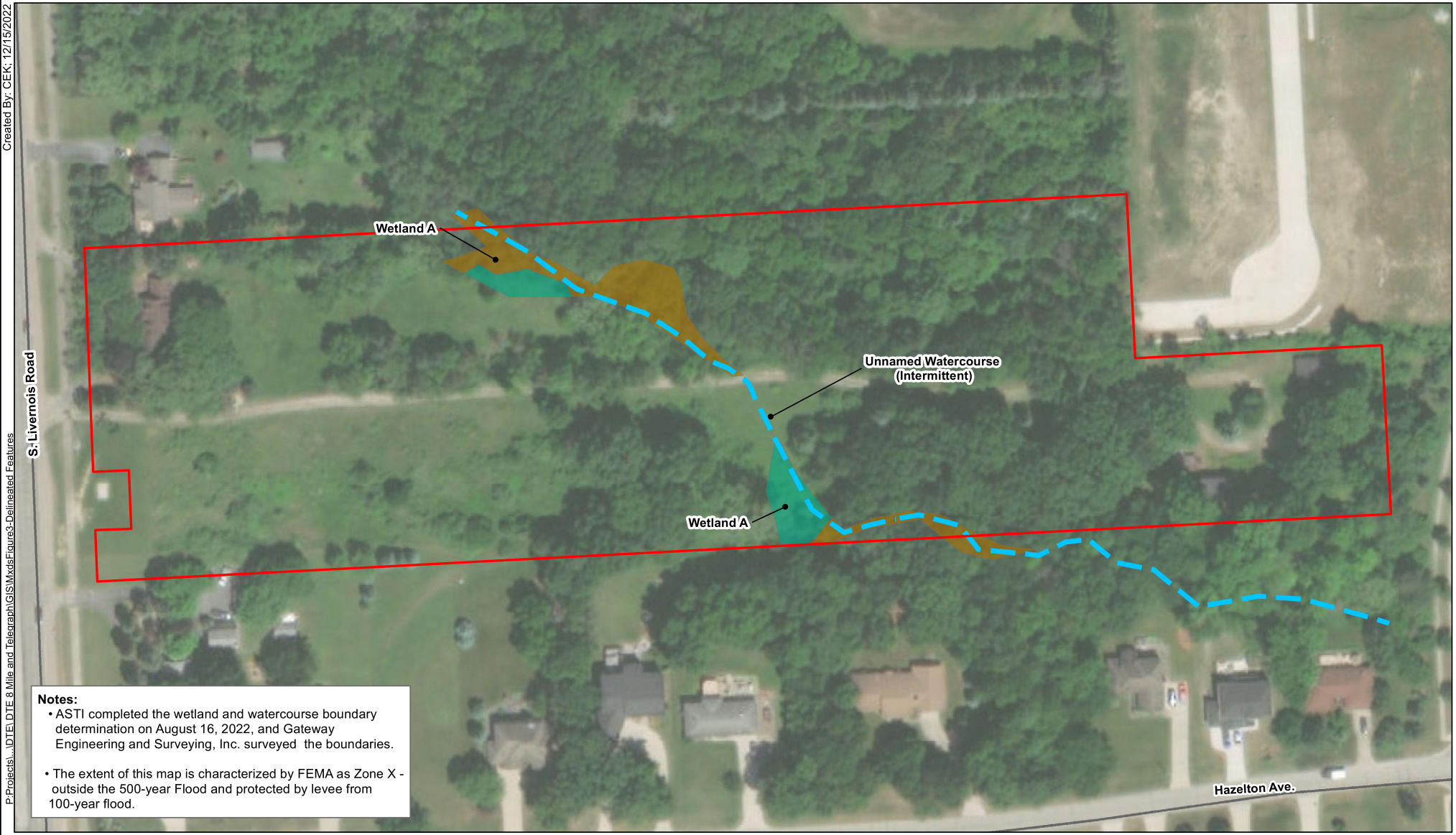
N

OAK CREEK CONDOMINIUMS
3249 AND 3271 S. LIVERNOIS ROAD
ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

SSURGO SOIL FEATURES

FIGURE

2



Created By: CEK; 12/15/2022

P:\Projects\...\DTE\ DTE 8 Mile and Telegraph\GIS\MxdsFigure3-Delineated Features

Notes:

- ASTI completed the wetland and watercourse boundary determination on August 16, 2022, and Gateway Engineering and Surveying, Inc. surveyed the boundaries.
- The extent of this map is characterized by FEMA as Zone X - outside the 500-year Flood and protected by levee from 100-year flood.

Basemap source: ESRI, Roads source: State of Michigan

Project Area
Watercourse
Emergent Wetland
Forested Wetland

0 75 150 300 Feet

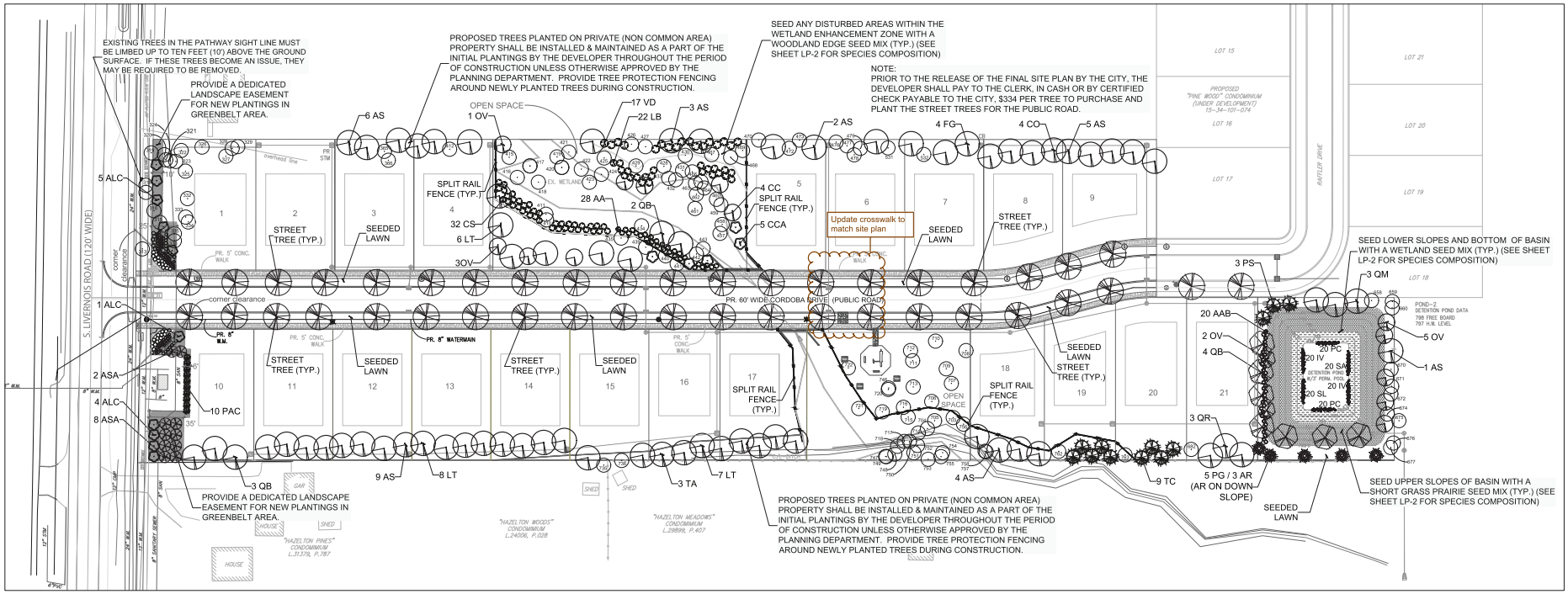
N

OAK CREEK CONDOMINIUMS
3249 AND 3271 S. LIVERNOIS ROAD
ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

DELINEATED FEATURES

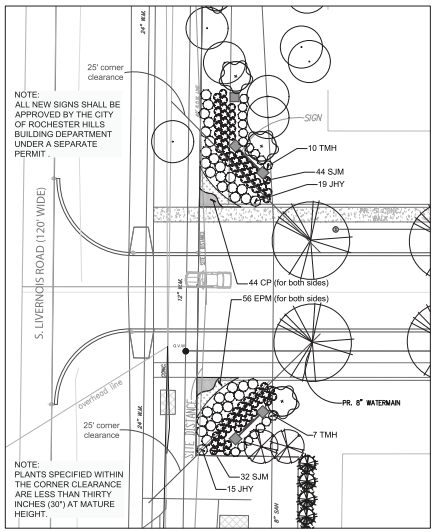
FIGURE
3

APPENDIX A: TREE PRESERVATION PLAN AND LANDSCAPE PLANTING PLAN (NAGY DEVLIN LAND DESIGN)



LANDSCAPE PLANTING PLAN

scale: 1" = 50'



ENTRY PLANTING DETAIL

scale: 1" = 50'

PLANT LIST

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE
RIGH-OF-WAY LANDSCAPING (S. Livernois Road)				
ALC	10	***Amelanchier laevis* 'Cumulus'**	**Cumulus Serviceberry**	**2" cal. B&B**
ASA	10	***Acer saccharum* 'Apollo'**	**Apollo Sugar Maple**	**3" cal. B&B**
DETENTION POND PLANTING				
AAB	20	***Aronia arbutifolia* 'Brilliantissima'**	**Brilliantissima Red Chokeberry**	**30" ht., 5 gal. pot**
AR	3	***Acer rubrum* 'Autumn Flame'**	**Autumn Flame Red Maple**	**3" cal. B&B**
OV	2	***Ostrya virginiana***	**American Hophornbeam**	**3" cal. B&B**
PA	5	***Picea glauca* 'Densata'**	**Black Hills White Spruce**	**8' ht. B&B**
QB	4	***Quercus bicolor***	**Swamp White Oak**	**3" cal. B&B**
Emergent Plantings				
IV	40	***Iris virginica***	**Blue Flag Iris**	**Bare Root**
PC	40	***Pontederia cordata***	**Pickeral Weed**	**Bare Root**
SA	20	***Scirpus acutus***	**Hard-Stemmed Bulrush**	**Bare Root**
SL	20	***Sagittaria latifolia***	**Broad-Leaf Arrowhead**	**Bare Root**
REPLACEMENT TREES				
AS	24	***Acer saccharum***	**Sugar Maple**	**3" cal. B&B**
CC	4	***Carpinus caroliniana***	**American Hornbeam**	**3" cal. B&B**
CO	4	***Celtis occidentalis***	**Northern Hackberry**	**3" cal. B&B**
FG	4	***Fagus grandifolia***	**American Beech**	**3" cal. B&B**
LT	21	***Liriodendron tulipifera***	**Tuliptree**	**3" cal. B&B**
OV	9	***Ostrya virginiana***	**American Hophornbeam**	**3" cal. B&B**
PAC	10	***Picea abies* 'Cupressina'**	**Cupressina Norway Spruce**	**8' ht. B&B**
PS	3	***Pinus strobus* 'Fastigiata'**	**Fastigiate Eastern White Pine**	**8' ht. B&B**
TAR	3	***Tilia americana* 'Redmond'**	**Redmond American Basswood**	**3" cal. B&B**
TC	9	***Tsuga canadensis***	**Eastern Hemlock**	**8' ht. B&B**
QB	5	***Quercus bicolor***	**Swamp White Oak**	**3" cal. B&B**
QM	3	***Quercus macrocarpa***	**Bur Oak**	**3" cal. B&B**
QR	3	***Quercus rubra***	**Northern Red Oak**	**3" cal. B&B**
WETLAND ENHANCEMENT PLANTING				
AA	28	***Aronia arbutifolia***	**Red Chokeberry**	**30" ht., 5 gal. pot**
CCA	5	***Cercis canadensis***	**Eastern Redbud**	**2-1/2" cal. B&B**
CS	38	***Cornus sericea***	**Red Twig Dogwood**	**30" ht., 5 gal. pot**
LB	22	***Lindera benzoin***	**Spicebush**	**24" ht., 3 gal. pot**
VD	17	***Viburnum dentatum***	**Arrowwood Viburnum**	**30" ht., 5 gal. pot**
ENTRY LANDSCAPING				
JHY	34	***Juniperus horizontalis* 'Youngstown'**	**Youngstown Spreading Juniper**	**24" ht., 3 gal. pot**
SJM	76	***Spiraea japonica* 'Magic Carpet'**	**Magic Carpet Spirea**	**24" ht., 3 gal. pot**
TMH	17	***Taxus x media* 'Hicksii'**	**Hicks Upright Yew**	**36" ht. B&B**
CP	44	***Carex pensylvanica***	**Pennsylvania Sedge**	**1 gal. pot, 18" o.c.**
EPM	56	***Echinacea purpurea* 'Pixie Meadowbrite'**	**Pixie Meadowbrite Purple Coneflower**	**1 gal. pot, 24" o.c.**

Note: Larger size for replacement trees to count for 1.5 credits towards replacement requirement.

LANDSCAPE CALCULATIONS:

RIGHT-OF-WAY LANDSCAPING ALONG S. LIVERNOIS ROAD (325 l.f.)
* One (1) deciduous shade tree for each thirty-five lineal feet (35 l.f.) = 9.28 trees or 10 trees.
* One (1) ornamental tree for each sixty lineal feet (35 l.f.) = 9.28 trees or 10 trees.

STREET TREE PLANTING
* One (1) deciduous shade tree for each thirty-five lineal feet (35 l.f.).

STORMWATER MANAGEMENT POND LANDSCAPING (451.53 l.f.)

Type A Buffer
* One and a half (1.5) deciduous shade trees for each one hundred lineal feet (100 l.f.) = 4.52 times 1.5 = 6.77 trees or 7 trees.
* One (1) evergreen tree for each one hundred lineal feet (100 l.f.) = 4.51 trees or 5 trees.
* Four (4) shrubs for each one hundred lineal feet (100 l.f.) = 4.51 times 4 = 18.06 shrubs or 19 shrubs.
* Basins shall be planted with a mixture of groundcover and wetland-based plantings native to Michigan.
* Plantings shall be clustered around the basin to achieve a variety of plant materials and to replicate a natural environment. Deciduous shade trees should be clustered around the south and west sides of the basin to provide shade and minimize solar heating of the water.

REPLACEMENT TREE PLANTING
* Four hundred sixty (460) deciduous trees required.
* Eighty (80) deciduous trees provided at 1.5 credits per tree equals one hundred twenty (120) replacement trees.
* Twenty two (22) evergreen trees provided at 1.0 credit per tree equals twenty two (22) replacement trees.
* Total replacement trees planted on site equals one hundred forty-two (142).
* The remaining replacement requirement to be fulfilled by a contribution to the City tree fund totalling $106,212 (318 trees times $334 per tree).

LEGEND

- PROPOSED GREENBELT TREE
- PROPOSED STREET TREE
- PROPOSED STORMWATER FACILITY TREE
- PROPOSED REPLACEMENT TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED DECIDUOUS SHRUB
- PROPOSED EVERGREEN SHRUB
- PROPOSED PERENNIALS
- PROPOSED WETLAND SEED MIX
- PROPOSED CUSTOM SHORT GRASS SEED MIX
- *EXISTING TREES TO BE PRESERVED*

NOTES:
* See Sheet LP - 2: LANDSCAPE NOTES & DETAILS for landscape development notes, landscape planting details, detention pond notes, composition for seed mixes, landscape construction details, and detail for proper prunung techniques.
* See Sheet TPP - 1: TREE PRESERVATION PLAN for proposed action to be taken for existing trees, snow fencing for tree protection detail, and overall tree preservation plan.
* See Sheet TPP - 2: TREE INVENTORY LIST for tag number, size, common name, botanical name, condition, proposed action, and chart for tree replacement calculations.

50' 0' 50' 100' 150' north
scale: 1" = 50'

Know what's below. Call before you dig. 811

date: April 18, 2022
revised:
06-13-2022 For Client review.
06-20-2022 Revise for site plan changes.
06-30-2022 Preliminary Site Plan submittal.
02-23-2023
03-07-2023 Revise for site plan changes.
12-20-2023 Revise acc. to City review.
12-28-2023 Revise street name.
01-18-2024 Revise entry sign layout.
05-02-2024 Revise acc. to City review.
05-15-2024 Revise for site plan changes.
07-31-2024 Remove Lot 5.
12-12-2024 Revise for City comments dated 11-25-2024.
12-20-2024 Add wetland enhancement plantings.
02-10-2025 Adjust plant list & relocate split rail fence location.

LANDSCAPE PLAN FOR:
Enliven Developers, L.L.C.
1322 Harvard Drive
Rochester Hills, Michigan
48307-3162
(586) 612 6937

PROJECT LOCATION:
Oak Creek Subdivision
W. Side of Livernois Road
S. of Auburn Road
Rochester Hills, Michigan

LANDSCAPE PLAN BY:
Nagy Devlin Land Design
31736 West Chicago Ave.
Livonia, Michigan 48150
(734) 634 9208

STATE OF MICHIGAN J. BRIAN DEVLIN NO.1260 REGISTERED LANDSCAPE ARCHITECT
AUTOCAD SIGNATURE ORIGINAL IN BLUE

JSC2022-0003
PSC2023-0001
Revision #4
Received 2/25/2025
City of Rochester Hills Planning & Economic Development

LP - 1: LANDSCAPE PLANTING PLAN

* Base data provided by Gateway Engineering & Surveying.

LANDSCAPE PLANTING NOTES:

PLANTING

1. Installation of all plant material shall be in accordance with the latest edition of the *American Association of Nurserymen Standards for Nursery Stock* and with the specifications set forth by the City of Rochester Hills, Michigan.
2. The plant materials shall conform to the type stated on the plant list. Sizes shall be the minimum stated on the plant list or larger. All measurements shall be in accordance with the latest edition of the *American Association of Nurserymen Standards for Nursery Stock.*
3. The plant material shall be nursery grown and inspected by the Owner's representative before planting. The Owner's representative reserves the right to reject any plant material at any time.
4. Plants designated "B&B" shall be balled and burlapped with firm balls of earth.
5. Dig shrub pits one foot (1') larger than the shrub rootball, tree pits three (3) times the width of the tree rootball and backfill with one (1) part topsoil and one (1) part soil from excavated pit. Plant trees and shrubs at the same grade level at which they were planted at the nursery. If wet, clay soils are evident, plant trees and shrubs slightly higher.
6. The Contractor is responsible for planting the materials at the correct grades and spacing. The plants shall be oriented to give the best appearance.
7. When the plant has been properly set, the pit shall be backfilled with the topsoil mixture, gradually filling, patting, and settling with water.
8. Trees in lawn areas to have a four foot (4') circle of mulch, four inches (4') deep, and three inches (3") away from the trunk. Shrub beds are to be mulched with shredded bark mulch to a minimum depth of three inches (3"). Perennial beds are to be mulched with shredded bark mulch to a minimum depth of three inches (3"). Only natural color, finely shredded hardwood bark mulch will be accepted.
9. Remove all twine, wire, and burlap from the top one third (1/3) of tree and shrub root balls and from tree trunks. Remove all non-biodegradable material such as plastic or nylon completely from branches and stems. All tree wrap, stakes, and guys are to be removed after one (1) winter season.
10. All plant materials shall be pruned and injuries repaired. The amount of pruning shall be limited to the removal of dead or injured limbs and to compensate for the loss of roots from transplanting. Cuts should be flush, leaving no stubs. DO NOT apply tree paint to freshly cut wounds. Shrubs along the site perimeter shall be allowed to grow together in a natural form.
11. Organic, friable topsoil shall be evenly distributed and fine graded over all areas to receive lawns at uniform depth of four inches (4") after settlement.
12. All lawn areas shall be seeded with the Grade A Kentucky Blue Grass blend as specified over the topsoil.
13. All plantings shall be completed no later than November 30 in the fall season. The date of intended installation for landscape plant materials is approximately Spring, 2017. Plantings shall thereafter be reasonably maintained, including permanence and health of plant materials to provide a screen to abutting properties and including the absence of weeds and refuse.
14. Backfill directly behind all curbs and along sidewalks and compact to the top of curbs or walk to support vehicle and pedestrian weight without settling.

MATERIAL

1. Required landscape material shall satisfy the criteria of the *American Association of Nurserymen Standards for Nursery Stock* and be:
   a.) Northern nursery grown; b.) State Department of Agriculture inspected; c.) No. 1 grade material with a straight, unscarred trunk, and well-developed uniform crown (park grade trees will not be accepted); d.) Staked, wrapped, watered, and mulched according to the details provided; and e.) Guaranteed for one (1) year.
2. Topsoil shall be friable, fertile soil of clay loam character containing at least five percent (5%) but not more than twenty percent (20%) by weight of organic matter with a pH range between 6.0 and 7.0. The topsoil shall be free from clay lumps, coarse sand, plant roots, sticks, and other foreign materials.
3. The seed mixture shall consist of the following types and proportions: Kentucky Blue Grass blend "Baron/Sheri/Adelphi" @ sixty percent (60%), Chewing Fescue @ twenty-five percent (25%), Creeping Red Fescue @ ten percent (10%), and Perennial Rye Grass @ five percent (5%). Weed content shall not exceed one percent (1%). The mix shall be applied at a rate of 200 pounds per acre.

MATERIAL, cont'd

4. Sod shall be two (2) year old "Baron/Sheri/Adelphi" Kentucky Blue Grass blend grown in a sod nursery on loam soil.
5. Proposed perennials shall be full, well-rooted plants.
6. Callery Pear (*Pyrus calleryana*) and Norway Maple (*Acer platanoides*) shall not be substituted for any tree species in the plant list. Contact the Landscape Architect for acceptable plant substitutions.

GENERAL

1. Do not plant deciduous or evergreen trees directly over utility lines or under overhead wires. Maintain a six foot (6') distance from the centerline of utilities and twenty feet (20') from the centerline of overhead wires for planting holes. Call MISS DIG forty-eight (48) hours prior to landscape construction for field location of utility lines.
2. The Contractor agrees to guarantee all plant material for a period of one (1) year. At that time, the Owner's representative reserves the right for a final inspection. Plant material with twenty-five percent (25%) die back, as determined by the Owner's representative shall be replaced. This guarantee includes the furnishing of new plants, labor, and materials. These new plants shall also be guaranteed for a period of one (1) year.
3. The work shall consist of providing all necessary materials, labor, equipment, tools, and supervision required for the completion as indicated on the drawings.
4. All landscape areas shall be irrigated by an automatic underground irrigation system. Lawns and shrub/landscape areas shall be watered by separate zones to minimize overwatering.
5. All written dimensions override scale dimensions on the plans.
6. All substitutions or deviations from the landscape plan must be approved by the City of Rochester Hills prior to installation.
7. All bidders must inspect the site and report any discrepancies to the Owner's representative.
8. All specifications are subject to change due to existing conditions.
9. The Owner's representative reserves the right to approve all plant material.

MAINTENANCE

1. The Owner of the landscaping shall perpetually maintain such landscaping in good condition so as to present a healthy, neat, and orderly appearance, free from refuse and debris.
2. All unhealthy, damaged, diseased, and/or dead material shall be removed immediately and replaced within six (6) months after it dies or in the next growing season. The planting season for deciduous plants shall be between March 1 and June 1 and from October 1 until the prepared soil becomes frozen. The planting season for evergreen plants shall be between March 1 and June 1. Plant material installed to replace dead or diseased material shall be as close as practical to the size of the material it is intended to replace. The Cit may notify property owners of the need to replace dead, damaged, or diseased material.
3. The Owner shall conduct a seasonal landscape maintenance program including regular lawn cutting (at least once per week during the growing season), watering, and snow removal during winter. Pruning shall be minimal at the time of installation, only to remove dead or diseased branches. Subsequent pruning will assure proper maturation of plants to achieve their approved purpose.
4. The Contractor is responsible for watering and maintenance of all seed areas until a minimum of ninety percent (90%) coverage, as determined by the Owner's representative.
5. Any debris such as lawn clippings, fallen leaves, fallen limbs, and litter shall be removed from the site on a weekly basis at the appropriate season.
6. All planting beds shall be maintained by removing weeds, fertilizing, and replenishing mulch as needed.
7. The approved landscape plan will be considered a permanent record and integral part of the Site Plan Approval. Unless otherwise approved in accordance with the aforementioned procedures, any revisions to or removal of plant materials, or non-compliance with the maintenance requirements in Section 138-12.109 of the City Ordinance will place the parcel in non-conformity with the approved landscape plan and be a violation of the ordinance.

DETENTION POND LANDSCAPE NOTES:

PLANTING:

1. Follow the Supplier's recommended procedures for bed preparation, installation, and soil erosion control measures of the proposed seeded areas. After the plants germinate and begin to grow follow the maintenance guidelines included on this sheet.
2. Rototill four inches (4") of compost or topsoil into the top six inches (6") of the surface of the basin.
3. Provide a cover crop of annual rye at a rate of ten pounds (10#) per acre and seed oats at a rate of thirty pounds (30#) per acre over the entire area to be seeded.

MAINTENANCE OF THE DETENTION AREA

1. ESTABLISHMENT: During the first growing season, the native seed areas should be mowed two (2) to four (4) times to a height of four inches to six inches (4"-6") when the plants reach a height of ten inches to twelve inches (10"-12"). Hand pulling may be needed to control unwanted weed populations. If a mower cannot be set high enough, a string trimmer can be used. During the second growing season, the native seed areas should be mowed a few times to a height of about eight inches (8"), when the plants reach a height of ten inches to eighteen inches (10"-18"). Hand pulling may be needed to control unwanted weed populations. By the second growing season it should be apparent if some areas need reseeding. Long term management includes mowing and hand pulling of weeds. The native planting may be mowed to a short height and the clippings removed in the early Spring before birds begin nesting.
2. WATERING: Watering should be performed as needed. During the establishment period after the initial planting, watering is very important and should be conducted every two to three (2-3) days. The initial planting should be checked regularly for appropriate moisture availability. Two (2) methods for determining adequate moisture levels include the following: a.) if the plants wilt during the day when the temperature is at its highest, but revive during the night, then watering is not necessary, and b.) by testing the soil moisture at a depth of four inches (4") by inserting a small rod into the soil. If the rod is wet, then the soil is moist at a depth of four inches (4") and watering is not necessary.
3. EROSION CONTROL: Provide an erosion control blanket on the side slopes of the seeded areas detention area. The erosion control blanket shall be pegged in place.
4. EDGING: The edge of the detention area should be maintained to avoid grass growing into the detention area. The edge can be maintained with a V-notch cut edge. The channel should be maintained at four inches (4") or greater and renewed every six to eight (6-8) weeks.
5. CUTTING BACK: Tall wildflowers should be cut back by one-third. Early flowering plants can be cut back in late June or early July and late flowering plants in late October.
6. THINNING: After the detention area has become established and thriving, it may be necessary to thin perennials by dividing individual plants in Spring or Fall.
7. REPLACEMENT: Any plants that die or become diseased should be replaced. Plant health should be checked regularly with replanted material occurring in the Spring or Fall.
8. REMOVAL OF LITTER AND DEBRIS: Litter, trash, and debris should be removed on a regular basis to insure that inlets remain free flowing and to keep the area in a neat and attractive appearance.
9. INORGANIC APPLICATIONS: In general, detention areas do not need fertilization as nutrients from surrounding areas is usually at an elevated level. If soil fertility appears to be an issue, the soil should be tested and appropriate actions taken based on the results. Insecticides, herbicides, fungicides, and rodenticides should not be used in the detention area. If a plant is diseased or infested with insects, it should simply be removed and replaced.

SEED MIX COMPOSITIONS

WETLAND SEED MIX
MICHIGAN WILDFLOWER FARM
A composition of wildflowers, sedges, and grasses.
Application rate: 3 oz. per 1000sq. ft. or 7 lbs. per acre

BOTANICAL NAME	COMMON NAME
Wildflowers	
Asclepias incarnata	Swamp Milkweed
Aster novae-anglae	New England Aster
Aster puniceus	Swamp Aster
Aster umbellatus	Flat-Top Aster
Eupatorium maculatum	Joe-Pye Weed
Eupatorium perfoliatum	Boneset
Euthamia graminifolia	Grassleaved Goldenrod
Liatris spicata	Marsh Blazing Star
Pedicularis lanceolata	Swamp Betony
Rudbeckia subtomentosa	Sweet Black-Eyed Susan
Silphium serfoliatum	Cupplant
Silphium terebinthinaceum	Prairie Dock
Solidago patula	Swamp Goldenrod
Solidago riddellii	Ridell's Goldenrod
Verbena hastata	Blue Vervain
Vernonia missurica	Ironweed
Veronicastrum virginicum	Culver's Root
Sedges/Grasses	
Andropogon gerardii	Big Bluestem
Carex crinita	Fringed Sedge
Carex stricta	Tussock Sedge
Scirpus cyperinus	Wool Grass
Scirpus atrovirens	Bulrush

WETLAND SEED MIX

CUSTOM SHORT GRASS SEED MIX
MICHIGAN WILDFLOWER FARM
Fifty percent (50%) Forbs/Fifty percent (50%) Grass.
Application rate: 5 oz. per 1000 sq. ft. or 10 lbs. per acre

BOTANICAL NAME	COMMON NAME
Wildflowers	
Achillea millefolium	Yarrow
Aquilegia canadensis	Wild Columbine
Asclepias tuberosa	Butterflyweed
Aster laevis	Smooth Aster
Coreopsis lanceolata	Sand Tickseed
Echinacea purpurea	Purple Coneflower
Kuhnia eupatoroides	False Boneset
Monarda fistulosa	Bergamot
Penstemon digitalis	Fokglove Beardstongue
Rudbeckia hirta	Black-Eyed Susan
Solidago speciosa	Showy Goldenrod
Sedges/Grasses	
Schzachyrium scoparius	Little Bluestem
Bouteloua curtipendula	Side Oats Grama
Koeleria pyramidata	June Grass*
Sporobolus heterolepsis	Prairie Dropseed*

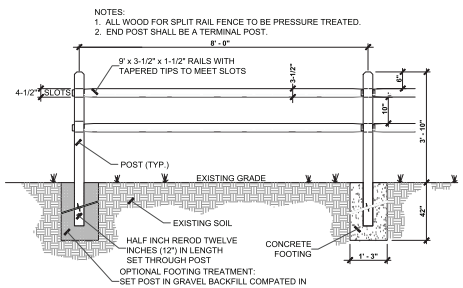
* Supplier to add these species to the mix.

CUSTOM SHORT GRASS SEED MIX

WOODLAND EDGE MIX
Thirty-five percent (35%) Forbs Sixty-five percent (65%) Grass
Seeding Rate: 5 oz. per 1000 sq.ft. or 10 lbs. per acre

BOTANICAL NAME	COMMON NAME
Forbs	
Achillea millefolium	Yarrow
Allium cernuum	Nodding Wild Onion
Aquilegia canadensis	Wild Columbine
Asclepias syriaca	Common Milkweed
Asclepias tuberosa	Butterflyweed
Desmodium canadense	Showy Tick-Trefoil
Eupatorium rugosum	Snakeroot
Monarda fistulosa	Wild Bergamot
Penstemon digitalis	Foxglove Beardtongue
Penstemon hirsutus	Hairy Beardtongue
Rudbeckia hirta	Black-Eyrd Susan
Rudbeckia triloba	Three-Lobed Coneflower
Solidago rigida	Stiff Goldenrod
Symphyotrichum novae-angliae	New England Aster
Symphyotrichum oolentangiensis	Prairie Heart-Leaved Aster
Thalictrum dioicum	Early Meadow Rue
Thalictrum dasycarpum	Purple Meadow Rue
Grasses	
Elymus canadensis	Canada Wild Rye
Elymus hystrix	Bottlebrush Grass
Koeleria cristata	June Grass
Schizachyrium scoparius	Little Bluestem

MICHIGAN WILDFLOWER FARM
11770 Cutler Road
Portland, Michigan 48875-9452
Phone: (517) 647 6010 Fax: (517) 647 6072

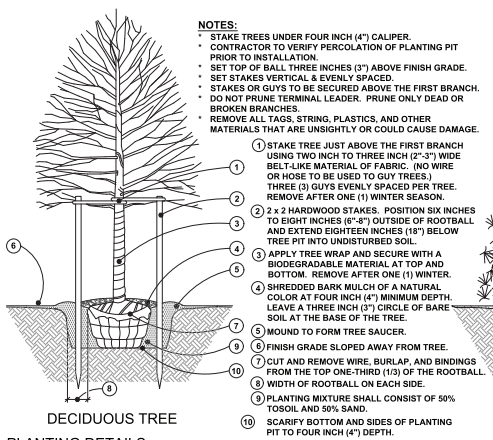


SPLIT RAIL FENCE DETAIL not to scale

CITY OF ROCHESTER HILLS NOTES:

* All landscape areas must be irrigated. An irrigation plan must be submitted prior to Staff approval of the final site plan. Watering will occur only between the hours of 12 a.m. and 5 a.m.
* Prior to the release of the performance bond, the City of Rochester Hills must inspect all landscape plantings.
* Prior approval is required to plant any tree or shrub on the public right-of-way. All trees and shrubs must be planted at least 10' from the edge of the public road. (Trees must be planted at least 15' away from curb or road edge where the speed limit is more than 35mph). Shade trees and shrubs must be planted at least 5' from the edge of the public walkway. Evergreen and ornamental trees must be planted at least 10' from the edge of the public walkway. No tree or shrub may be planted with the triangular area formed at the intersection of any street right-of-way lines at a distance along each line of 25' from their point of intersection. No trees or shrubs may be planted in the triangular area formed at the intersection of any driveway with a public walkway at a distance along each line of 15' from their midpoint of intersection. All trees and shrubs must be planted at least 10' from any fire hydrant. Shade and evergreen trees must be at least 15' away from the nearest overhead wire. Trees must be planted a minimum of 5' from an underground utility, unless the City's Landscape Architect requires a greater distance.
* Prior to the release of the performance bond, the City of Rochester Hills Forestry Division needs to inspect all trees, existing or planted, to identify any that pose a hazard to the safe use of the public right-of-way. Forestry may require the developer to remove, and possibly replace, any such trees.
* These requirements are incorporated into this plan.

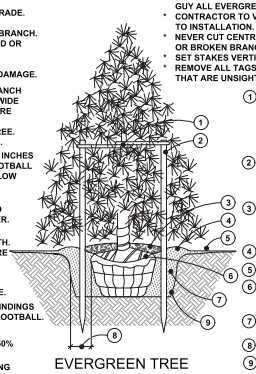
NOTES:
* See Sheet LP - 1: LANDSCAPE PLANTING PLAN for overall landscape plan, plant list, and calculations for landscape requirements.
* See Sheet TPP - 1: TREE PRESERVATION PLAN for proposed action to be taken for existing trees, snow fencing for tree protection detail, and overall tree preservation plan.
* See Sheet TPP - 2: TREE INVENTORY LIST for tag number, size, common name, botanical name, condition, proposed action, and chart for tree replacement calculations.



NOTES:
* STAKE TREES UNDER FOUR INCH (4") CALIPER.
* CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
* SET TOP OF BALL THREE INCHES (3") ABOVE FINISH GRADE.
* SET STAKES VERTICAL & EVENLY SPACED.
* STAKES OR GUYS TO BE SECURED ABOVE THE FIRST BRANCH.
* DO NOT PRUNE TERMINAL LEADER. PRUNE ONLY DEAD OR BROKEN BRANCHES.
* REMOVE ALL TAGS, STRING, PLASTICS, AND OTHER MATERIALS THAT ARE UNSIGHTLY OR COULD CAUSE DAMAGE.

1. STAKE TREE JUST ABOVE THE FIRST BRANCH USING TWO INCH TO THREE INCH (2"-3") WIDE BELT-LIKE MATERIAL OF FABRIC. (NO WIRE OR HOSE TO BE USED TO GUY TREES.) THREE (3) GUYS EVENLY SPACED PER TREE. REMOVE AFTER ONE (1) WINTER SEASON.
2. 2 x 2 HARDWOOD STAKES. POSITION SIX INCHES TO EIGHT INCHES (6"-8") OUTSIDE OF ROOTBALL AND EXTEND EIGHTEEN INCHES (18") BELOW TREE PIT INTO UNDISTURBED SOIL.
3. APPLY TREE WRAP AND SECURE WITH A BIODEGRADABLE MATERIAL AT TOP AND BOTTOM. REMOVE AFTER ONE (1) WINTER.
4. SHREDDED BARK MULCH OF A NATURAL COLOR AT FOUR INCH (4") MINIMUM DEPTH. LEAVE A THREE INCH (3") CIRCLE OF BARE SOIL AT THE BASE OF THE TREE.
5. MOUND TO FORM TREE SAUCER.
6. FINISH GRADE SLOPED AWAY FROM TREE.
7. CUT AND REMOVE WIRE, BURLAP, AND BINDINGS FROM THE TOP ONE-THIRD (1/3) OF THE ROOTBALL.
8. WIDTH OF ROOTBALL ON EACH SIDE.
9. PLANTING MIXTURE SHALL CONSIST OF 50% TOSOIL AND 50% SAND.
10. SCARIFY BOTTOM AND SIDES OF PLANTING PIT TO FOUR INCH (4") DEPTH.

DECIDUOUS TREE

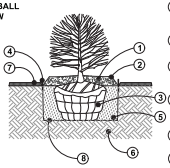


* STAKE ALL EVERGREEN TREES UNDER TWELVE FEET (12') HIGH. GUY ALL EVERGREEN TREES TWELVE FEET (12') HIGH AND OVER.
* CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
* NEVER CUT CENTRAL LEADER. PRUNE ONLY TO REMOVE DEAD OR BROKEN BRANCHES.
* SET STAKES VERTICAL AND EVENLY SPACED.
* REMOVE ALL TAGS, STRING, PLASTICS, AND OTHER MATERIALS THAT ARE UNSIGHTLY OR COULD CAUSE GIRDLING.

1. STAKE TREE AS INDICATED USING TWO INCH TO THREE INCH (2"-3") WIDE BELT-LIKE MATERIAL OF FABRIC. (NO WIRE OR HOSE TO BE USED TO GUY TREES.) THREE (3) GUYS EVENLY SPACED PER TREE. REMOVE AFTER ONE (1) WINTER SEASON.
2. 2 x 2 HARDWOOD STAKES. POSITION SIX INCHES TO EIGHT INCHES (6"-8") OUTSIDE OF ROOTBALL AND EXTEND EIGHTEEN INCHES (18") BELOW TREE PIT INTO UNDISTURBED SOIL.
3. SHREDDED BARK MULCH OF A NATURAL COLOR AT FOUR INCH (4") MINIMUM DEPTH. LEAVE A THREE INCH (3") CIRCLE OF BARE SOIL AT THE BASE OF THE TREE.
4. MOUND TO FORM TREE SAUCER.
5. FINISH GRADE SLOPED AWAY FROM TREE.
6. CUT AND REMOVE WIRE, BURLAP, AND BINDINGS FROM THE TOP ONE-THIRD (1/3) OF THE ROOTBALL.
7. PLANTING MIXTURE SHALL CONSIST OF 50% TOSOIL AND 50% SAND.
8. WIDTH OF ROOTBALL ON EACH SIDE.
9. SCARIFY BOTTOM AND SIDES OF PLANTING PIT TO FOUR INCH (4") DEPTH.

EVERGREEN TREE

NOTE:
* CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
* THE PLANTING MIXTURE SHALL CONSIST OF 20% TOPSOIL, 60% SAND, AND 20% COMPOST.

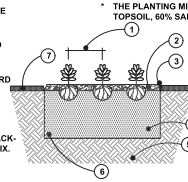


1. SHREDDED BARK MULCH AT THREE INCH (3") MINIMUM DEPTH. MULCH SHALL BE NATURAL IN COLOR.
2. FORM A SAUCER WITH MULCH AND SOIL AROUND SHRUB BED.
3. CUT AND REMOVE BURLAP AND BINDINGS FROM THE TOP ONE-THIRD (1/3) OF THE ROOTBALL.
4. 3/16" x 4" ALUMINUM EDGING (OR APPROVED EQUIVALENT) OR SPADED EDGE.
5. EXCAVATE PLANTING BED AND BACK-FILL WITH PREPARED PLANTING MIX.
6. UNDISTURBED SUBGRADE.
7. LAWN.
8. SCARIFY SUBGRADE.

SHRUB

GENERAL NOTES FOR ALL PLANTINGS:
* DO NOT CUT CENTRAL LEADER. PRUNE ONLY TO REMOVE DEAD OR BROKEN BRANCHES.
* REMOVE ALL TAGS, STRINGS, PLASTICS, AND ANY OTHER NON-BIODEGRADEABLE MATERIALS (EXCEPT LABEL FOR PLANT NAME) FROM PLANT STEMS OR CROWN WHICH ARE UNSIGHTLY OR COULD CAUSE GIRDLING.
* PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS IT BORE TO THE PREVIOUS GRADE IN THE NURSERY. SET THE BASE OF THE PLANT SLIGHTLY HIGHER THAN EXISTING GRADE IF PLANTING IN CLAY SOILS.
* CENTER THE ROOTBALL IN THE PLANTING HOLE. LEAVE THE BOTTOM OF THE HOLE FIRM. USE WATER TO SETTLE THE PLANTING MIX AND REMOVE ANY AIR POCKETS AND FIRMLY SET THE TREE OR SHRUB. GENTLY TAMP IF NEEDED.

NOTE:
* CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
* PERENNIALS TO BE PLANTED UP TO THE EDGE OF THE SAUCER AROUND A TREE OR SHRUB BED.
* THE PLANTING MIXTUE SHALL CONSIST OF 20% TOPSOIL, 60% SAND, AND 20% COMPOST.



1. SEE PLANT LIST FOR SPACING DISTANCE.
2. SHREDDED HARDWOOD BARK OF A NATURAL COLOR MULCH AT TWO INCH (2") MINIMUM DEPTH.
3. 3/16" x 4" ALUMINUM EDGING (OR APPROVED EQUIVALENT) OR SPADED EDGE.
4. EXCAVATE PLANTING BED AND BACKFILL WITH PREPARED PLANTING MIX AT A TEN INCH (10") DEPTH.
5. UNDISTURBED SUBGRADE.
6. PLANTING MIX TO CONSIST OF EQUAL PARTS OF SAND, LEAF COMPOST, AND NATIVE SOIL.
7. LAWN.

PERENNIAL / GROUNDCOVER

PLANTING DETAILS not to scale

date: April 18, 2022
revised:

06-13-2022	For Client review.
06-20-2022	Revise for site plan changes.
06-30-2022	Preliminary Site Plan submittal.
02-23-2023	
03-07-2023	Revise for site plan changes.
12-20-2023	Revise acc. to City review.
12-28-2023	Revise entry sign layout.
05-02-2024	
05-15-2024	
07-31-2024	Remove Lot 5.
12-12-2024	
12-20-2024	Add wetland enhancement pl
02-10-2025	

811 Know what's below. Call before you dig.

JSC2022-0003
PSC2023-0001
Revision #4

Received
2/25/2025
City of Rochester Hills
Planning & Economic Development

LANDSCAPE PLAN FOR:
Enliven Developers, L.L.C.
1322 Harvard Drive
Rochester Hills, Michigan
48307-3162
(586) 612 6937

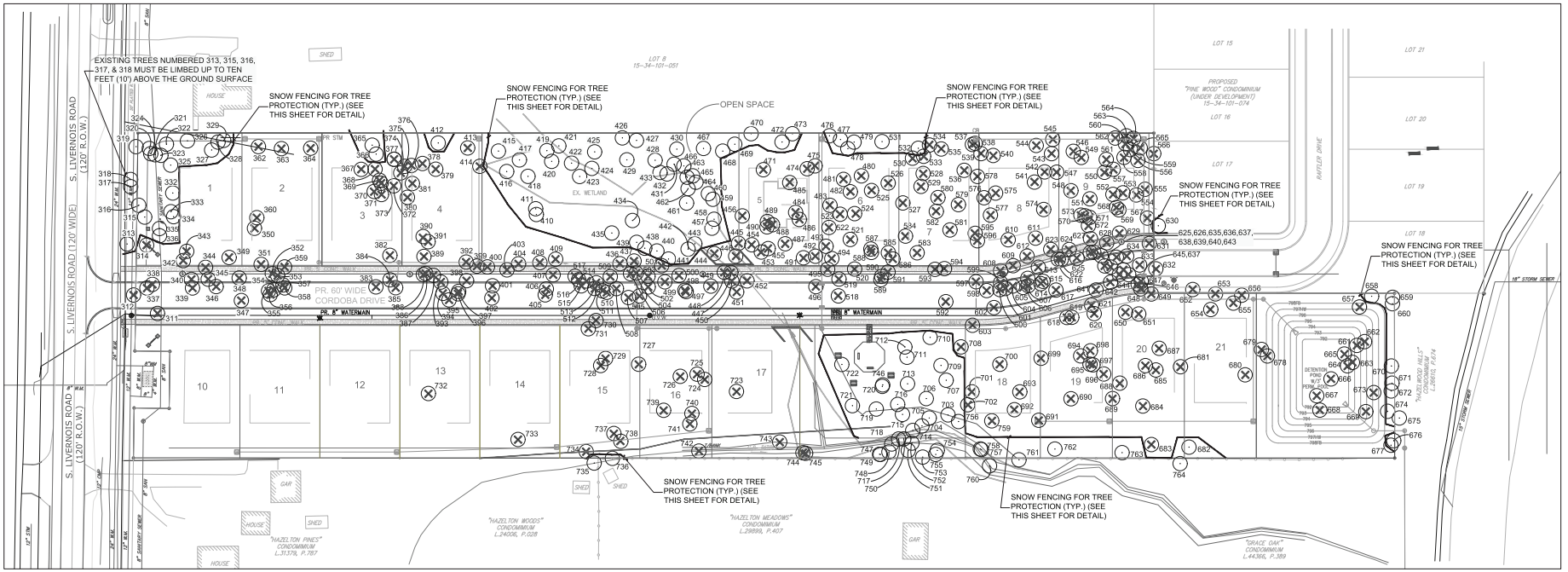
PROJECT LOCATION:
Oak Creek Subdivision
W. Side of Livernois Road
S. of Auburn Road
Rochester Hills, Michigan

LANDSCAPE PLAN BY:
Nagy Devlin Land Design
31736 West Chicago Ave.
Livonia, Michigan 48150
(734) 634 9208

STATE OF MICHIGAN J. BRIAN DEVLIN NO.1260 REGISTERED LANDSCAPE ARCHITECT

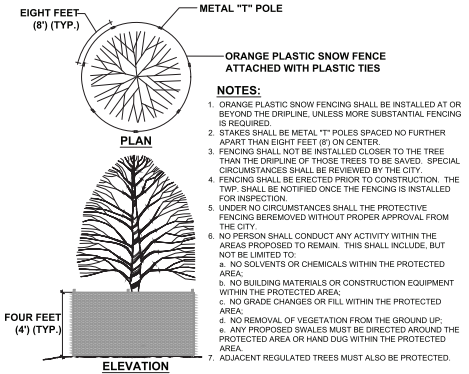
PROFESSIONAL SIGNATURE ORIGINAL IN BLUE

LP - 2: LANDSCAPE NOTES & DETAILS



TREE PRESERVATION PLAN scale: 1" = 50'

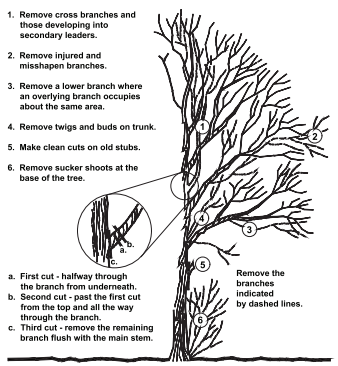
50' 0' 50' 100' 150' north
scale: 1" = 50'



NOTES:

1. ORANGE PLASTIC SNOW FENCING SHALL BE INSTALLED AT OR BEYOND THE DRIPLINE, UNLESS MORE SUBSTANTIAL FENCING IS REQUIRED.
2. STAKES SHALL BE METAL "T" POLES SPACED NO FURTHER APART THAN EIGHT FEET (8') ON CENTER.
3. FENCING SHALL NOT BE INSTALLED CLOSER TO THE TREE THAN THE DRIPLINE OF THOSE TREES TO BE SAVED. SPECIAL CIRCUMSTANCES SHALL BE REVIEWED BY THE CITY.
4. FENCING SHALL BE ERECTED PRIOR TO CONSTRUCTION. THE TWP. SHALL BE NOTIFIED ONCE THE FENCING IS INSTALLED FOR INSPECTION.
5. UNDER NO CIRCUMSTANCES SHALL THE PROTECTIVE FENCING BEREMOVED WITHOUT PROPER APPROVAL FROM THE CITY.
6. NO PERSON SHALL CONDUCT ANY ACTIVITY WITHIN THE AREAS PROPOSED TO REMAIN. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO:
   a. NO SOLVENTS OR CHEMICALS WITHIN THE PROTECTED AREA;
   b. NO BUILDING MATERIALS OR CONSTRUCTION EQUIPMENT WITHIN THE PROTECTED AREA;
   c. NO GRADE CHANGES OR FILL WITHIN THE PROTECTED AREA;
   d. NO REMOVAL OF VEGETATION FROM THE GROUND UP;
   e. ANY PROPOSED SWALES MUST BE DIRECTED AROUND THE PROTECTED AREA OR HAND DUG WITHIN THE PROTECTED AREA.
7. ADJACENT REGULATED TREES MUST ALSO BE PROTECTED.

TREE PROTECTION DETAIL not to scale



1. **Remove cross branches and those developing into secondary leaders.**
2. **Remove injured and misshapen branches.**
3. **Remove a lower branch where an overlying branch occupies about the same area.**
4. **Remove twigs and buds on trunk.**
5. **Make clean cuts on old stubs.**
6. **Remove sucker shoots at the base of the tree.**

a. **First cut - halfway through the branch from underneath.**
b. **Second cut - past the first cut from the top and all the way through the branch.**
c. **Third cut - remove the remaining branch flush with the main stem.**

TREE PRUNING DETAIL not to scale

TREE REPLACEMENT CALCULATIONS

GRAND TOTAL

Save:	Trees to be saved:	69
SpSave:	Speciman trees to be saved:	28
SpRemove:	Speciman trees to be removed	38 @ 1,076"
Remove:	Regulated trees to be removed	99
R(N.R.):	Non-Regulated tree	159
(Condition rating at Poor, Very Poor, or Dead)		
Save (Poor):	Poor trees to be saved (N.R.):	22
R(B.E.):	Regulated tree in Building Envelope	19
SpR(B.E.):	Speciman tree in Building Envelope	15 @ 398"

Total Number of Regulated Existing Trees:
Number of surveyed trees minus non-regulated trees and Save (Poor): 265

Preservation Requirement:
Regulated trees minus trees in building envelope: 231

Forty percent (40%) of regulated required trees to be preserved: 92

Total number of regulated trees to be saved: 97 (42%)

Replacements required (Development Area):
Ninety nine (99) regulated trees removed requiring one to one replacement 99
Speciman trees: Fifty percent (50%) of the total d.b.h. removed equals 1,076" times 0.5 equals 538"
Replacement with 2" replacement trees 269
Number of replacement trees 368
Credit for Speciman Trees Preserved 27
Total number of replacement trees 341

Replacements required (Building Envelope):
Nineteen (19) regulated trees removed requiring one to one replacement 19
Speciman trees: Fifty percent (50%) of the total d.b.h. removed equals 398" times 0.5 equals 199"
Replacement with 2" replacement trees 100
Total number of replacement trees (Building Env.) 119

Total Replacement Trees Required 460

TREE SUMMARY (from Sheet TPP-2)

COLUMN 1: Total: 113	Save: 27	SpSave: 8	SpR: 4 @ 124"	Remove: 35	R(N.R.): 30
COLUMN 2: Total: 125	Save: 22	SpSave: 8	SpR: 8 @ 216"	Remove: 21	R(N.R.): 50
COLUMN 3: Total: 121	Save: 2	SpSave: 1	SpR: 15 @ 364"	Remove: 33	R(N.R.): 64
COLUMN 4: Total: 87	Save: 18	SpSave: 11	SpR: 11 @ 372"	Remove: 7	R(N.R.): 15
TOTALS 446	Save: 69	SpSave: 28	SpR: 38 1,076"	Remove: 96	R(N.R.):159

COLUMN 1: R(B.E.): 6	SpR(B.E.): 2 @ 50"	Save (Poor): 2	
COLUMN 2: R(B.E.): 6	SpR(B.E.): 2 @ 52"	Save (Poor): 7	
COLUMN 3: R(B.E.): 2	SpR(B.E.): 1 @ 24"	Save (Poor): 3	
COLUMN 4: R(B.E.): 5	SpR(B.E.): 10 @ 272"	Save (Poor):10	
TOTALS R(B.E.): 19	SpR(B.E.): 15 398"	22	

NOTES FOR EXISTING TREES:

1. No land balancing or tree removal shall occur on site until final site plan approval has been granted and the location of the tree protection fences have been inspected and approved by the City of Rochester Hills.
2. No damaging attachments such as wires (other than cabling straps for trees), signs, or permits may be fastened to any tree protected by the ordinance.
3. For trees to be saved, a four foot (4') high snow fence with metal T-posts every five feet (5') shall be erected in the locations indicated on the plan prior to land clearing and construction and maintained throughout site development. No cutting, filling, or trespassing shall occur inside the fenced area without approval of the City of Rochester Hills. The snow fencing shall remain in its approved location until such time as it is authorized to be removed by the City or issuance of a final certificate of occuppancy.
4. Ash trees proposed for removal shall be disposed of properly according to the requirements of the State of Michigan Department of Agriculture.
5. Existing trees within fifteen feet (15') of buildings and roads are to be pruned by a professional tree contractor according to the detail on this sheet.

NOTES:

* See Sheet LP - 1: LANDSCAPE PLANTING PLAN for overall landscape plan, plant list, entry planting detail, and calculations for landscape requirements.
* See Sheet LP - 2: LANDSCAPE NOTES & DETAILS for landscape development notes, landscape planting details, detention pond notes, composition for seed mixes, landscape construction details, and detail for proper prunung techniques.
* See Sheet TPP - 2: TREE INVENTORY LIST for tag number, size, common name, botanical name, condition, proposed action, and chart for tree replacement calculations.

date: April 19, 2022
revised:
05-23-2022 Preliminary.
06-13-2022 For Client review.
06-20-2022 Revise for site plan changes.
06-30-2022 Preliminary Site Plan submittal.
02-23-2023 Revise for site plan changes.
03-07-2023 Revise for site plan changes.
12-20-2023 Revise acc. to City review.
12-28-2023 Revise street name.
01-18-2024
05-02-2024 Revise acc. to City review.
05-15-2024 Revise for site plan changes.
07-31-2024 Remove Lot 5.
12-12-2024 Revise for City comments dated 11-25-2024.
12-20-2024
02-10-2025

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JSC2022-0003 PSC2023-0001 Revision #4
Received 2/25/2025
City of Rochester Hills Planning & Economic Development

LANDSCAPE PLAN FOR:
Enliven Developers, L.L.C.
1322 Harvard Drive
Rochester Hills, Michigan
48307-3162
(586) 612 6937

PROJECT LOCATION:
Oak Creek Subdivision
W. Side of Livernois Road
S. of Auburn Road
Rochester Hills, Michigan

LANDSCAPE PLAN BY:
Nagy Devlin Land Design
31736 West Chicago Ave.
Livonia, Michigan 48150
(734) 634 9208

STATE OF MICHIGAN J. BRIAN DEVLIN NO.1260 REGISTERED LANDSCAPE ARCHITECT

NOTARIZED SIGNATURE ORIGINAL IN BLUE

TPP - 1: TREE PRESERVATION PLAN

* Base data provided by Gateway Engineering & Surveying.

TREE INVENTORY LIST

TAG NUMBER	DIAMETER (INCHES)	COMMON NAME	SCIENTIFIC NAME	CONDITION	PROPOSED
311	10	Elm	ULMUS PUMILA	P Topped	Remove (N.R.)
312	14	Spruce	PICEA	F	Remove
313	16	LOCUST	ROBINIA PSEUDOACACIA	F/P Pruned	Save
314	8	Spruce	PICEA	F/P Pruned	Remove
315	18	LOCUST	ROBINIA PSEUDOACACIA	F/P Pruned	Save
316	12	LOCUST	ROBINIA PSEUDOACACIA	F/P Pruned	Save
317	8	Spruce	PICEA	F/P Pruned	Save
318	14	LOCUST	ROBINIA PSEUDOACACIA	F/P Pruned	Save
319	20	LOCUST	ROBINIA PSEUDOACACIA	F/P Pruned	Save
320	8	Pine	PINUS	F	Save
321	10	Pine	PINUS	F	Save
322	12	Pine	PINUS	F	Save
323	10	Pine	PINUS	F	Save
324	26	LOCUST	ROBINIA PSEUDOACACIA	F	SpSave
325	16	Spruce	PICEA	F	Save
326	14	Pine	PINUS	F	Save
327	12	Pine	PINUS	F	Save
328	10	Pine	PINUS	F	Save
329	12	Spruce	PICEA	F	Save
332	16	LOCUST	ROBINIA PSEUDOACACIA	G	Save
333	6	Spruce	PICEA	G	Save
334	14	LOCUST	ROBINIA PSEUDOACACIA	G	Save
335	6	Spruce	PICEA	G	Save
336	22	Maple	ACER	G	SpSave
337	10	Spruce	PICEA	G	Remove
338	12	Spruce	PICEA	G	Remove
339	16	Pine	PINUS	VP Topped	Remove (N.R.)
340	16	Spruce	PICEA	F	Remove
341	14	Pine	PINUS	P DL,TB	Remove
342	16	Pine	PINUS	P DL,TB	Remove
343	16	Spruce	PICEA	F	Remove
344	36	Elm	ULMUS PUMILA	F	SpRemove 36"
345	16	Maple	ACER	F	Remove
346	8	Pine	PINUS	P Topped	Remove
347	6	MULBERRY	MORUS	VP Topped	Remove
348	40	Elm	ULMUS PUMILA	F	SpRemove 40"
349	14	Maple	ACER	F	Remove
350	14	Maple	ACER	F	Remove
351	22	Maple	ACER	G	SpRemove 22"
352	16	Pine	PINUS	F	Remove
353	6	Spruce	PICEA	VP Topped	Remove (N.R.)
354	16	Pine	PINUS	VP Mny DL,OS	Remove (N.R.)
355	8	Pine	PINUS	VP Topped	Remove (N.R.)
356	14	Pine	PINUS	VP Topped	Remove (N.R.)
357	6	Pine	PINUS	VP Topped	Remove (N.R.)
358	14	Pine	PINUS	F	Remove
359	6	BASSWOOD	TILIA	D	Remove (N.R.)
360	30	LOCUST	ROBINIA PSEUDOACACIA	G	SpRemove (B.E.) 30"
361	12	Cedar	CEDRUS	G	Remove
362	14	Cedar	CEDRUS	G	Remove
363	26	Maple	ACER	G	SpRemove 26"
364	28	Elm	ULMUS PUMILA	VP Maj BD,DL	Remove (N.R.)
365	18	Pine	PINUS	G	SpSave
366	10	Pine	PINUS	G	Save
367	20	Pine	PINUS	G	SpRemove (B.E.) 20"
368	6	Pine	PINUS	P DL,NC	Remove (N.R.)
369	10	Pine	PINUS	G	Remove (B.E.)
370	6	Pine	PINUS	F	Remove (B.E.)
371	8	Pine	PINUS	G	Remove (B.E.)
372	24	Box elder	ACER NEGUNDO	P BD,DL	Remove (N.R.)
373	6	Pine	PINUS	F	Remove (B.E.)
374	18	Box elder	ACER NEGUNDO	VP Sev L,DL	Remove (N.R.)
375	10	Box elder	ACER NEGUNDO	P L,NC	Remove (N.R.)
376	12	Box elder	ACER NEGUNDO	VP DL,L,NC	Remove (N.R.)
377	12	Box elder	ACER NEGUNDO	VP Topped	Remove (N.R.)
378	6	Pine	PINUS	F	Remove
379	14	Box elder	ACER NEGUNDO	P BR,DL	Remove (N.R.)
380	8	CALLERY PEAR	PYRUS	F	Remove
381	12	Pine	PINUS	G	Remove (B.E.)
382	10	CALLERY PEAR	PYRUS	F	Remove
383	16	Apple	MALUS PUMILA	D	Remove (N.R.)
384	8	Ash	FRAXINUS	P AB,DL	Remove (N.R.)
385	14	Elm	ULMUS PUMILA	P Many DL	Remove (N.R.)
386	14	Elm	ULMUS PUMILA	P Many DL	Remove (N.R.)
387	18	Pine	PINUS	F/P DL	Remove
388	10	Pine	PINUS	P OS, TB	Remove (N.R.)
389	8	Pine	PINUS	F/P Some BD	Remove
390	12	Pine	PINUS	F	Remove
391	10	Pine	PINUS	F	Remove
392	10	Pine	PINUS	F	Remove
393	6	HAWTHORN	CRATAEGUS	F/P Some DL	Remove
394	8	Elm	ULMUS PUMILA	P DL,NC	Remove (N.R.)
395	8	Pine	PINUS	P OS,V Gr	Remove (N.R.)
396	6	Pine	PINUS	P Topped,OS	Remove (N.R.)
397	16	Pine	PINUS	F	Remove
398	28	Elm	ULMUS PUMILA	VP Tot VC Pi	Remove (N.R.)
399	10	Pine	PINUS	F	Remove
400	6	Maple	ACER	F	Remove
401	16	Pine	PINUS	F	Remove
402	8	CHERRY	PRUNUS SEROTINA	VP BD,BR,SS	Remove (N.R.)
403	8	Pine	PINUS	F	Remove
404	6	Pine	PINUS	F	Remove
405	12	Black walnut	JUGLANS NIGRA	F/P OS	Remove
406	6	Maple	ACER	F	Remove
407	14	Pine	PINUS	P Many DL	Remove (N.R.)
408	12	Pine	PINUS	P Many DL	Remove (N.R.)
409	6	Pine	PINUS	P LV,M,NC	Remove (N.R.)
410	6	Oak	QUERCUS	F	Save
411	6	Oak	QUERCUS	F	Save
412	6	Spruce	PICEA	F	Save
413	30	WILLOW	SALIX NIGRA	P DL,SI L,OS	Remove (N.R.)
414	16	Oak	QUERCUS	F	Remove
415	8	Oak	QUERCUS	G	Save
416	20	Oak	QUERCUS	F	Save
417	10	Oak	QUERCUS	G	Save
418	14	Oak	QUERCUS	G	Save
419	30	COTTONWOOD	POPULUS DELTOIDES	F	SpSave
420	32	COTTONWOOD	POPULUS DELTOIDES	F	SpSave
421	30	COTTONWOOD	POPULUS DELTOIDES	F	SpSave
422	6	HICKORY	CARYA	F	Save
423	22	Box elder	ACER NEGUNDO	P BD,DL,L	Save (Poor) (N.R.)
424	32	Oak	QUERCUS	F	SpSave
425	16	HICKORY	CARYA	P DL,M	Save (Poor) (N.R.)

Total No. of Trees: 113
Save: 28 SpSave: 7 SpRemove: 4 @ 124" d.b.h.
Remove: 35 Remove (N.R.): 30
Remove (B.E.): 6 SpRemove (B.E.): 2 @ 50"
Save (Poor): 2

TAG NUMBER	DIAMETER (INCHES)	COMMON NAME	SCIENTIFIC NAME	CONDITION	PROPOSED
426	14	Elm	ULMUS PUMILA	F/P L	Save
427	20	Elm	ULMUS PUMILA	P DL,OS	Save (Poor) (N.R.)
428	26	Oak	QUERCUS	VP BR,DL,V Pi	SpSave
429	32	WILLOW	SALIX NIGRA	P Maj DL	Save (Poor) (N.R.)
430	8	Maple	ACER	F	Save
431	26	COTTONWOOD	POPULUS DELTOIDES	F	SpSave
432	6	HICKORY	CARYA	F	Save
433	6	HICKORY	CARYA	F/P Tpd NLdr	Save
434	42	WILLOW	SALIX NIGRA	F/P Some DL	SpSave
435	6	Maple	ACER	P Maj BD	Save (Poor)
436	12	Pine	PINUS	F	Remove
437	14	Pine	PINUS	P Mny DL, OS	Remove (N.R.)
438	16	Pine	PINUS	F	Save
439	8	Pine	PINUS	VP Many DL	Save (Poor)
440	30	Maple	ACER	F	SpSave
441	10	Elm	ULMUS PUMILA	F/P DL	Save
442	6	Maple	ACER	F/P M	Save
443	10	Box elder	ACER NEGUNDO	P DL,L,V Pi	Save (Poor) (N.R.)
444	14	Box elder	ACER NEGUNDO	P DL,L	Remove (N.R.)
445	28	COTTONWOOD	POPULUS DELTOIDES	F	SpRemove 28"
446	14	Pine	PINUS	VP VC Pi	Remove (N.R.)
447	6	HICKORY	CARYA	G	Remove
448	6	Elm	ULMUS PUMILA	F/P BD	Remove
449	10	HICKORY	CARYA	F	Remove
450	8	HICKORY	CARYA	G	Remove
451	16	Elm	ULMUS PUMILA	VP DL,VC Gr	Remove (N.R.)
452	10	Elm	ULMUS PUMILA	F	Remove
453	6	SYCAMORE	PLATANUS OCCIDENTALIS	F	Remove
454	6	Oak	QUERCUS	F/P OS	Remove
455	14	Black walnut	JUGLANS NIGRA	G	Remove
456	42	Oak	QUERCUS	F	SpRemove 42"
457	8	HICKORY	CARYA	F	Save
458	16	Maple	ACER	F	Save
459	20	Apple	MALUS PUMILA	VP Many DL	Save (Poor) (N.R.)
460	16	Maple	ACER	F	Save
461	20	Maple	ACER	F	SpSave
462	10	Oak	QUERCUS	F	Save
463	10	Maple	ACER	F	Save
464	18	Maple	ACER	G	SpSave
465	12	MULBERRY	MORUS	P DL,SS	Save (Poor) (N.R.)
466	10	Maple	ACER	F	Save
467	38	Oak	QUERCUS	F	SpSave
468	14	Black walnut	JUGLANS NIGRA	F	Save
469	8	HICKORY	CARYA	F	Save
470	16	Black walnut	JUGLANS NIGRA	F	Save
471	22	Maple	ACER	P Mny DL,BD	Remove (N.R.)
472	10	Black walnut	JUGLANS NIGRA	F/P DL	Save
473	14	Black walnut	JUGLANS NIGRA	F	Save
474	14	Black walnut	JUGLANS NIGRA	F	Remove (B.E.)
475	14	Black walnut	JUGLANS NIGRA	F	Remove
476	18	Spruce	PICEA	F	SpSave
477	14	CHERRY	PRUNUS SEROTINA	F/P DL	Save
478	24	Spruce	PICEA	F	SpSave
479	16	Spruce	PICEA	F	Save
480	14	CHERRY	PRUNUS SEROTINA	P DL,V Gr	Remove (N.R.)
481	10	Black walnut	JUGLANS NIGRA	F	Remove (B.E.)
482	12	CHERRY	PRUNUS SEROTINA	P DL,V Orbit	Remove (N.R.)
483	12	Maple	ACER	P Tot VC Orbit	Remove (N.R.)
484	14	Black walnut	JUGLANS NIGRA	F/P V Orbit	Remove (B.E.)
485	12	Black walnut	JUGLANS NIGRA	F	Remove (B.E.)
486	16	TULIP	LIRIODENDRON	P BD,DL,VOrbit	Remove (N.R.)
487	26	COTTONWOOD	POPULUS DELTOIDES	F	SpRemove 26"
488	12	Oak	QUERCUS	P DL,NC	Remove (N.R.)
489	10	Black walnut	JUGLANS NIGRA	VP NC,OS,VC	Remove (N.R.)
490	16	COTTONWOOD	POPULUS DELTOIDES	F/P NC	Remove (B.E.)
491	12	Black walnut	JUGLANS NIGRA	P NC,VC GrOb	Remove (N.R.)
492	16	COTTONWOOD	POPULUS DELTOIDES	F	Remove
493	12	LOCUST	ROBINIA PSEUDOACACIA	D	Remove (N.R.)
494	14	LOCUST	ROBINIA PSEUDOACACIA	P DL,NC	Remove (N.R.)
495	30	COTTONWOOD	POPULUS DELTOIDES	F	SpRemove 30"
496	12	Box elder	ACER NEGUNDO	VP Mj BD,DL,M	Remove (N.R.)
497	8	Pine	PINUS	P Maj DL,OS	Remove (N.R.)
498	14	Pine	PINUS	F	Remove
499	22	COTTONWOOD	POPULUS DELTOIDES	F	Remove
500	6	HICKORY	CARYA	F	Remove
501	10	HICKORY	CARYA	G	Remove
502	6	Oak	QUERCUS	P DL,NC	Remove (N.R.)
503	12	Oak	QUERCUS	F/P DL	Remove
504	8	TULIP	LIRIODENDRON	P Tpd NLdr	Remove (N.R.)
505	24	COTTONWOOD	POPULUS DELTOIDES	F	SpRemove 24"
506	8	Pine	PINUS	D	Remove (N.R.)
507	28	COTTONWOOD	POPULUS DELTOIDES	F	SpRemove 28"
508	6	Poplar	POPULAS	VP Many DL	Remove (N.R.)
509	6	Box elder	ACER NEGUNDO	VP BD,DL,SS	Remove (N.R.)
510	8	Pine	PINUS	F	Remove
511	10	Poplar	POPULAS	P BD,DL	Remove (N.R.)
512	18	TULIP	LIRIODENDRON	F	SpRemove 18"
513	6	Box elder	ACER NEGUNDO	VP DL,M,VCGr	Remove (N.R.)
514	12	Pine	PINUS	P Many DL	Remove (N.R.)
515	14	Pine	PINUS	P Many DL	Remove (N.R.)
516	14	MULBERRY	MORUS	D DL,M,SS	Remove (N.R.)
517	12	Pine	PINUS	P Many DL	Remove (N.R.)
518	10	LOCUST	ROBINIA PSEUDOACACIA	P DL,M,VCGr	Remove (N.R.)
519	20	Black walnut	JUGLANS NIGRA	F	SpRemove 20"
520	14	Black walnut	JUGLANS NIGRA	F	Remove
521	20	Black walnut	JUGLANS NIGRA	F/P V Gr	Remove
522	12	LOCUST	ROBINIA PSEUDOACACIA	VP DL,L,VCOb	Remove (N.R.)
523	18	Pine	PINUS	VP Tot VCOrb	Remove (N.R.)
524	12	Pine	PINUS	VP VC OrbGr	Remove (B.E.)
525	20	Pine	PINUS	F	SpRemove (B.E.) 20"
526	10	Pine	PINUS	VP Tot VC Orb	Remove (N.R.)
527	28	Pine	PINUS	D	Remove (N.R.)
528	14	Pine	PINUS	D	Remove (N.R.)
529	10	Ash	FRAXINUS	D	Remove (N.R.)
530	20	Spruce	PICEA	P Many DL	Remove (N.R.)
531	24	Black walnut	JUGLANS NIGRA	F	Save
532	12	Black walnut	JUGLANS NIGRA	F	Save
533	14	Pine	PINUS	VP Tot VC Gr	Remove (N.R.)
534	8	CHERRY	PRUNUS SEROTINA	VP DL,NC,VGr	Remove (N.R.)
535	28	Black walnut	JUGLANS NIGRA	VP Mj SS,BD,DL	Remove (N.R.)
536	30	CHERRY	PRUNUS SEROTINA	VP Mj BD,TVC	Remove (N.R.)
537	8	Box elder	ACER NEGUNDO	P DL,M	Remove (N.R.)
538	22	CHERRY	PRUNUS SEROTINA	VP Mj BD,DL	Remove (N.R.)
539	12	Pine	PINUS	VP DL,V Orb	Remove (N.R.)
540	12	Box elder	ACER NEGUNDO	P Tot VC Orb	Remove (N.R.)
541	10	Ash	FRAXINUS	D	Remove (N.R.)
542	32	Pine	PINUS	F	SpRemove (B.E.) 32"
543	24	Pine	PINUS	P Many DL	Remove (N.R.)
544	20	Elm	ULMUS PUMILA	F	Remove
545	8	Box elder	ACER NEGUNDO	P DL,L,M	Remove (N.R.)
546	12	Pine	PINUS	P Many DL	Remove (N.R.)
547	16	CHERRY	PRUNUS SEROTINA	F	Remove
548	8	Ash	FRAXINUS	D	Remove (N.R.)
549	14	Ash	FRAXINUS	F	Remove (N.R.)
550	10	Ash	FRAXINUS	D	Remove (N.R.)

Total No. of Trees: 125
Save: 22 SpSave: 8 SpRemove: 8 @ 216" d.b.h.
Remove: 21 Remove (N.R.): 50
Remove (B.E.): 6 SpRemove (B.E.): 2 @ 52" d.b.h.
Save (Poor): 7

TAG NUMBER	DIAMETER (INCHES)	COMMON NAME	SCIENTIFIC NAME	CONDITION	PROPOSED
551	22	Pine	PINUS	D	Remove (N.R.)
552	16	Pine	PINUS	VP Many DL	Remove (N.R.)
553	16	Black walnut	JUGLANS NIGRA	G	Remove (B.E.)
554	12	WILLOW	SALIX NIGRA	P DL,M,NC	Remove (N.R.)
555	26	Pine	PINUS	D	Remove (N.R.)
556	24	Pine	PINUS	P DL,M,V Gr Orb	SpRemove 24"
557	8	Ash	FRAXINUS	D	Remove (N.R.)
558	10	Pine	PINUS	P Many DL	Remove (N.R.)
559	8	WILLOW	SALIX NIGRA	P DL,NC	Remove (N.R.)
560	12	Pine	PINUS	P Many DL	Remove (N.R.)
561	24	Pine	PINUS	P Many DL	Remove (N.R.)
562	10	CHERRY	PRUNUS SEROTINA	P DL,NC	Remove (N.R.)
563	10	Ash	FRAXINUS	D	Remove (N.R.)
564	8	Oak	QUERCUS	P DL,NC	Remove (N.R.)
565	18	Pine	PINUS	P Many DL	Remove (N.R.)
566	8	Oak	QUERCUS	P DL,V Gr	Remove (N.R.)
567	18	Pine	PINUS	P Many DL	SpRemove 18"
568	12	Black walnut	JUGLANS NIGRA	F	Remove (B.E.)
569	16	Pine	PINUS	VP Many DL,V Gr	Remove (N.R.)
570	8	Ash	FRAXINUS	P BD,DL	Remove (N.R.)
571	12	Ash	FRAXINUS	P BD,DL	Remove (N.R.)
572	10	Black walnut	JUGLANS NIGRA	F	Remove
573	20	Pine	PINUS	P Many DL	Remove (N.R.)
574	10	Pine	PINUS	P Tot VC Orb,M	Remove (N.R.)
575	6	Box elder	ACER NEGUNDO	D	Remove (N.R.)
576	16	MULBERRY	MORUS	P Tot VC Orb,SS	Remove (N.R.)
577	10	Box elder	ACER NEGUNDO	P Tot VC Orb,L	Remove (N.R.)
578	10	Box elder	ACER NEGUNDO	VP Maj DL,VC Gr	Remove (N.R.)
579	12	CHERRY	PRUNUS SEROTINA	VP Tot VC Orb	Remove (N.R.)
580	8	CHERRY	PRUNUS SEROTINA	VP Tot VC Orb	Remove (N.R.)
581	24	Maple	ACER	P BD,VC Orb	Remove (N.R.)
582	12	Maple	ACER	VP Tot VC Orb	Remove (N.R.)
583	14	Pine	PINUS	P BD,VC Orb	Remove (N.R.)
584	10	Box elder	ACER NEGUNDO	VP Sev L,DL,VCOb	Remove (N.R.)
585	20	CHERRY	PRUNUS SEROTINA	VP Mj BD,Mj DL,VC	Remove (N.R.)
586	26	Oak	QUERCUS	F	SpRemove 26"
587	14	Pine	PINUS	VP Many DL,VCOb	Remove (N.R.)
588	10	CHERRY	PRUNUS SEROTINA	D	Remove (N.R.)
589	20	MULBERRY	MORUS	P BD,DL	Remove (N.R.)
590	14	Pine	PINUS	D	Remove (N.R.)
591	18	Black walnut	JUGLANS NIGRA	F	Remove
592	24	Apple	MALUS PUMILA	P Many DL,BD	Remove (N.R.)
593	12	Oak	QUERCUS	F	Remove
594	14	Elm	ULMUS PUMILA	VP Mj BD,Mj DL	Remove (N.R.)
595	6	Box elder	ACER NEGUNDO	VP Sev M,V Orb	Remove (N.R.)
596	12	Black walnut	JUGLANS NIGRA	VP Mj BD,DL,VOrb	Remove (N.R.)
597	16	Pine	PINUS	VP Tot VC Gr,M	Remove (N.R.)
598	20	Oak	QUERCUS	F/P Some V Gr	SpRemove 20"
599	14	Oak	QUERCUS	F	Remove
600	10	Oak	QUERCUS	F	Remove
601	16	Oak	QUERCUS	F/P DL	Remove
602	20	CRABAPPLE	MALUS	F	Remove
603	8	Pear	PYRUS	VP Maj BD,DL	Remove (N.R.)
604	10	BASSWOOD	TILIA	F	Remove
605	14	HICKORY multi stem	CARYA	F	Remove
606	8	Oak	QUERCUS	F	Remove
607	6	Oak	QUERCUS	F	Remove
608	6	Oak	QUERCUS	P DL,NC	Remove (N.R.)
609	6	Black walnut	JUGLANS NIGRA	F	Remove
610	16	Pine	PINUS	D	Remove (N.R.)
611	10	Ash	FRAXINUS	D	Remove (N.R.)
612	12	Oak	QUERCUS	F	Remove
613	14	Black walnut	JUGLANS NIGRA	F	Remove
614	20	Black walnut	JUGLANS NIGRA	F	SpRemove 20"
615	6	Oak	QUERCUS	VP DL,NC,V Orb	Remove (N.R.)
616	14	COTTONWOOD	POPULUS DELTOIDES	P DL,NC	Remove (N.R.)
617	24	Oak	QUERCUS	F	SpRemove 24"
618	8	Oak	QUERCUS	F	Remove
619	10	Oak	QUERCUS	F	Remove
620	28	Spruce	PICEA	G	SpRemove 28"
621	12	Spruce	PICEA	VP Many DL	Remove (N.R.)
622	6	Ash	FRAXINUS	VP Mj BD, DL,VOrb	Remove (N.R.)
623	14	Pine	PINUS	D	Remove (N.R.)
624	16	Pine	PINUS	VP Mny DL,V Gr	Remove (N.R.)
625	18	Oak	QUERCUS	F	SpRemove 18"
626	14	Oak	QUERCUS	F	Remove
627	26	Pine	PINUS	VP Many DL	Remove (N.R.)
628	10	Ash	FRAXINUS	P BD,NC	Remove (N.R.)
629	6	Ash	FRAXINUS	P BD,V Gr	Remove (N.R.)
630	14	WILLOW	SALIX NIGRA	VP Maj BD,DL	Off Site
631	22	Pine	PINUS	P Many DL	Remove (N.R.)
632	20	MULBERRY	MORUS	D	Off Site
633	14	Black walnut	JUGLANS NIGRA	P DL,OS	Remove
634	16	Oak	QUERCUS	F/P OS	Remove
635	26	BASSWOOD	TILIA	P Sev M,DL	Remove (N.R.)
636	6	Black walnut	JUGLANS NIGRA	P DL,M,NC	Remove
637	12	Oak	QUERCUS	P DL,OS	Remove
638	44	Poplar	POPULAS	P Many DL,BD	Remove (N.R.)
639	12	Black walnut	JUGLANS NIGRA	F	Remove
640	6	Oak	QUERCUS	P DL,NC	Remove (N.R.)
641	12	Oak	QUERCUS	F	Remove
642	8	Oak	QUERCUS	F	Remove
643	10	HICKORY	CARYA	F	Remove
644	6	HICKORY	CARYA	F	Remove
645	12	Oak	QUERCUS	F	Remove
646	14	Black walnut	JUGLANS NIGRA	F	Remove
647	10	HICKORY	CARYA	P DL,OS	Remove (N.R.)
648	16	HICKORY	CARYA	F	Remove (N.R.)
649	6	HICKORY	CARYA	F	Remove (N.R.)
650	14	Oak	QUERCUS	F	Remove
651	16	Apple	MALUS PUMILA	D	Remove (N.R.)
652	8	Pine	PINUS	F	Off Site
653	8	Ash	FRAXINUS	D	Remove (N.R.)
654	14	Apple	MALUS PUMILA	P Maj BD,DL	Remove (N.R.)
655	6	Apple	MALUS PUMILA	P BD,DL	Remove (N.R.)
656	22	Box elder	ACER NEGUNDO	P BD,DL	Remove (N.R.)
657	14	Apple	MALUS PUMILA	P BD,DL	Remove (N.R.)
658	16	HICKORY	CARYA	F	Save
659	12	Maple	ACER	G	Save
660	6	Box elder	ACER NEGUNDO	P Fence thru stem	Save (Poor) (N.R.)
661	28	HICKORY	CARYA	F	SpRemove 28"
662	12	Oak	QUERCUS	F	Remove
663	26	HICKORY	CARYA	F	SpRemove 26"
664	26	Oak	QUERCUS	F	SpRemove 26"
665	24	Oak	QUERCUS	F	SpRemove 24"
666	20	HICKORY	CARYA	F	SpRemove 20"
667	38	Oak	QUERCUS	F	SpRemove 38"
668	24	HICKORY	CARYA	F	SpRemove 24"
669	14	HICKORY	CARYA	F	Remove
670	14	Maple	ACER	F	Remove
671	16	Oak	QUERCUS	F	Save
672	8	Elm	ULMUS PUMILA	D	Save (Poor) (N.R.)
673	26	Oak	QUERCUS	F	SpRemove 26"
674	10	Box elder	ACER NEGUNDO	P DL,M	Save (Poor) (N.R.)
675	18	Oak	QUERCUS	F	Off Site

Total No. of Trees: 121 (Four (4) surveyed trees off site not included in total)
Save: 2 SpSave: 1 SpRemove: 15 @ 364" d.b.h.
Remove: 33 Remove (N.R.): 64
Remove (B.E.): 2 SpRemove (B.E.): 1 @ 24" d.b.h.
Save (Poor): 3

TAG NUMBER	DIAMETER (INCHES)	COMMON NAME	SCIENTIFIC NAME	CONDITION	PROPOSED
676	30	COTTONWOOD	POPULUS DELTOIDES	F	SpSave
677	36	COTTONWOOD	POPULUS DELTOIDES	F	SpSave
678	8	LOCUST	ROBINIA PSEUDOACACIA	F	Remove
679	6	Birch	BETULA	F	Remove
680	14	Spruce	PICEA	G	Remove (B.E.)
681	36	Oak	QUERCUS	F	SpRemove 36"
682	32	HICKORY	CARYA	F	SpSave
683	16	Birch	BETULA	P BD,DL	Remove (N.R.)
684	6	Pine	PINUS	P DL,SG	Remove (N.R.)
685	30	Oak	QUERCUS	F	SpRemove 30"
686	6	Pine	PINUS	P DL,ID	Remove (N.R.)
687	30	Oak	QUERCUS	F	SpRemove (B.E.) 30"
688	44	Oak	QUERCUS	F	SpRemove 44"
689	36	Oak	QUERCUS	P DL,OS	Remove (N.R.)
690	46	Oak	QUERCUS	P BD,DL	Remove (N.R.)
691	50	Oak	QUERCUS	F	SpRemove 50"
692	14	HOP HORNBEAM	OSTRYA VIRGINIANA	F	SpRemove (B.E.) 14"
693	16	HOP HORNBEAM	OSTRYA VIRGINIANA	F	SpRemove (B.E.) 16"
694	10	HOP HORNBEAM	OSTRYA VIRGINIANA	F	SpRemove (B.E.) 10"
695	10	HICKORY	CARYA	F	Remove (B.E.)
696	30	Oak	QUERCUS	F	SpRemove 30"
697	42	Oak	QUERCUS	F	SpRemove (B.E.) 42"
698	12	Spruce	PICEA	G	Remove (B.E.)
699	12	Spruce	PICEA	P Many DL	Remove (N.R.)
700	46	Oak	QUERCUS	F	SpRemove (B.E.) 46"
701	38	Oak	QUERCUS	F	SpRemove 38"
702	28	Oak	QUERCUS	VP Tpd,BD,DL	Remove (N.R.)
703	16	BASSWOOD	TILIA	F	Save
704	10	BASSWOOD	TILIA	P DL,NC	Save (Poor) (N.R.)
705	6	HOP HORNBEAM	OSTRYA VIRGINIANA	F	Save
706	8	HOP HORNBEAM	OSTRYA VIRGINIANA	F	SpSave
707	50	Oak	QUERCUS	F	SpSave
708	12	Spruce	PICEA	VP Many DL	Remove (N.R.)
709	8	Elm	ULMUS PUMILA	F	Save
710	8	Birch	BETULA	P DL,NC	Save (Poor) (N.R.)
711	6	Oak	QUERCUS	P NC,OS	Save (Poor) (N.R.)
712	18	Spruce	PICEA	P Many DL	SpSave (Poor) (N.R.)
713	44	Oak	QUERCUS	F	SpSave
714	14	Black walnut	JUGLANS NIGRA	F	Save
715	12	BASSWOOD	TILIA	P BD,M	Save (Poor) (N.R.)
716	8	CHERRY	PRUNUS SEROTINA	F/P NC	Save
717	12	BASSWOOD	TILIA	F	Save
718	34	Maple	ACER	F	SpSave
719	10	Box elder	ACER NEGUNDO	P DL,M,V Gr	Save (Poor) (N.R.)
720	20	BASSWOOD	TILIA	F	Save
721	18	CHERRY	PRUNUS SEROTINA	P Maj BR,M	Save (Poor) (N.R.)
722	22	Spruce	PICEA	P Many DL	Save (Poor) (N.R.)
722a	20	Spruce	PICEA	F	Remove
723	18	HICKORY	CARYA	D	Remove (N.R.)
724	22	HICKORY	CARYA	F	SpRemove (B.E.) 22"
725	24	HICKORY	CARYA	F	SpRemove (B.E.) 24"
726	18	HICKORY	CARYA	F	SpRemove 18"
727	60	Oak	QUERCUS	F	SpRemove 60"
728	12	Black walnut	JUGLANS NIGRA	F	Remove (B.E.)
729	10	Elm	ULMUS PUMILA	F	Remove
730	14	Oak	QUERCUS	F	Remove
731	10	Oak	QUERCUS	F	Remove (B.E.)
732	6	GREEN ASH	FRAXINUS PENNSYLVANICA	F/P V Gr	Remove (N.R.)
733	10	MULBERRY	MORUS	F/P V Gr	Remove
734	12	CHERRY	PRUNUS SEROTINA	F	Save
735	14	Oak	QUERCUS	F	Off Site
736	14	Black walnut	JUGLANS NIGRA	P BD,DL,NC	Remove (N.R.)
737	16	HICKORY	CARYA	F	Remove
738	34	Oak	QUERCUS	F	SpRemove (B.E.) 34"
739	34	HICKORY	CARYA	F	SpRemove (B.E.) 34"
740	22	Oak	QUERCUS	F	SpRemove 22"
741	30	Oak	QUERCUS	F	SpRemove 30"
742	22	Elm	ULMUS PUMILA	P DL,OS,VC Gr	Remove (N.R.)
743	50	WILLOW	SALIX NIGRA	P BD,Maj DL(2),DL	Remove (N.R.)
744	10	Ash	FRAXINUS	P DL,BD	Remove (N.R.)
745	8	Ash	FRAXINUS	P DL,BD	Remove (N.R.)
746	13	BLACK CHERRY	PRUNUS SEROTINA	VP Sev M, DL	Save (Poor) (N.R.)
747	16	Oak	QUERCUS	F/P V Orbit	Save
748	22	Oak	QUERCUS	F	SpSave
749	8	Oak	QUERCUS	F	Save
750	16	Oak	QUERCUS	F	Save
751	12	CHERRY	PRUNUS SEROTINA	F	Save
752	6	HICKORY	CARYA	F	Save
753	10	Oak	QUERCUS	F	Save
754	6	Oak	QUERCUS	F	Save
755	8	HOP HORNBEAM	OSTRYA VIRGINIANA	F	SpSave
756	6	HOP HORNBEAM	OSTRYA VIRGINIANA	F	Save
757	10	HOP HORNBEAM	OSTRYA VIRGINIANA	F	SpSave
758	26	HICKORY	CARYA	P Maj DL,OS	Save (Poor) (N.R.)
759	14	HOP HORNBEAM	OSTRYA VIRGINIANA	F	SpRemove 14"
760	14	Elm	ULMUS PUMILA	F	Off Site
761	12	Oak	QUERCUS	F	Save
762	18	HICKORY	CARYA	F	SpSave
763	8	CHERRY	PRUNUS SEROTINA	F	Save
764	16	BASSWOOD	TILIA	F/P DL	Off Site

Total No. of Trees: 87 (Three (3) surveyed trees off site not included in total)
Save: 18 SpSave: 11 SpRemove: 11 @ 372" d.b.h.
Remove: 7 Remove (N.R.): 15
Remove (B.E.): 5 SpRemove (B.E.): 10 @ 272" d.b.h.
Save (Poor): 10

LIST OF ABBREVIATIONS

AB - Ash borer; BD - Bark damage; BR - Base rot; DL - Dead limbs; ID - Insect damage; L - Leaning; Maj & Mj - Major; Mny - Many; M - Misshapened; NC - Narrow crown; NLdr - New central leader; OS - One-sided growth; Sev - Severe; SG - Sparse growth; SI - Slight; SS - Stem split; TB - Tip blight; Tot - Totally; Tpd - Topped; VC - Vine covered, V - Vines, Gr - Grape, Orb & Ob - Oriental Bittersweet, Pi - Poison Ivy.

NOTES:
* See Sheet LP - 1: LANDSCAPE PLANTING PLAN for overall landscape plan, plant list, and calculations for landscape requirements.
* See Sheet LP - 2: LANDSCAPE NOTES & DETAILS for landscape development notes, landscape planting details, detention pond notes, composition for seed mixes, landscape construction details, and detail for proper prunung techniques.
* See Sheet TPP - 1: TREE PRESERVATION PLAN for proposed action to be taken for existing trees, snow fencing for tree protection detail, and overall tree preservation plan.

DEFINITION OF RATINGS:

- GOOD: The tree appears to be in a healthy and satisfactory condition with an overall sound stem structure and with a full and balanced crown; the growth habit appears normal; there is no indication of pests or diseases present; and the life expectancy is judged to be greater than twenty-five (25) years. The rating based on the health / condition chart ranges from 30 to 24.
- FAIR: The tree appears to be in a healthy and satisfactory condition with a minimum of structural problems and with minor crown imbalance or thin crown; the growth habit appears normal; there is no indication of pests or diseases present; and the life expectancy is judged to be greater than twenty (20) years. The rating based on the health / condition chart ranges from 23 to 16.
- POOR: The tree appears to be in an unhealthy condition with structural problems and with major crown imbalance, dead or dying limbs, or growth only in the top quarter of the tree; the growth habit is misshapen and askew; there is evidence of pests or diseases present; and the life expectancy is judged to be less than two (2) years. The rating based on the health / condition chart ranges from 15 to 7.
- VERY POOR (V. Poor): The tree appears to be in an unhealthy condition with major structural problems and with major crown imbalance or several dead limbs and/or peeling bark; the growth habit is severely misshapen and askew; there is evidence of pests or diseases present; and the life expectancy is judged to be less than two (2) years. The rating based on the health / condition chart ranges from 6 to 1.
- DEAD: The tree has no live branches, is topped, or has fallen. The rating based on the health / condition chart is 0.

TREE HEALTH / CONDITION FACTORS & RATINGS

Values	Best 5	4	3	2	1	0 Worst
1 Trunk	Sound & solid		Sections of bark missing		Extensive decay & hollow	
2 Growth Rate	> 6 inch twig elongation		2 inch - 6 inch twig elongation		< 2 inch twig elongation	
3 Structure	Sound		One major or several minor limbs dead		Two or more major limbs dead	
4 Insects & Diseases	No pests present		One pest present		Two or more pests present	
5 Crown Development	Full & balanced		Full but unbalanced		Unbalanced and lacking a full crown	
6 Life Expectancy	> 30 years		15 years to 20 years		< 2 years	

* Tree assessment by Nagy Devlin Land Design, L.L.C.

TREE SUMMARY

COLUMN 1: Total: 113	Save: 27	SpSave: 8	SpR: 4 @ 124"	Remove: 35 R(N.R.): 30
COLUMN 2: Total: 125	Save: 22	SpSave: 8	SpR: 8 @ 216"	Remove: 21 R(N.R.): 50
COLUMN 3: Total: 121	Save: 2	SpSave: 1	SpR: 15 @ 364"	Remove: 33 R(N.R.): 64
COLUMN 4: Total: 87	Save: 18	SpSave: 11	SpR: 11 @ 372"	Remove: 7 R(N.R.): 15
TOTALS 446	Save: 69	SpSave: 28	SpR: 38 1,076"	Remove: 96 R(N.R.):159

COLUMN 1: R(B.E.): 6	SpR(B.E.): 2 @ 50"	Save (Poor): 2
COLUMN 2: R(B.E.): 6	SpR(B.E.): 2 @ 52"	Save (Poor): 7
COLUMN 3: R(B.E.): 2	SpR(B.E.): 1 @ 24"	Save (Poor): 3
COLUMN 4: R(B.E.): 5	SpR(B.E.): 10 @ 272"	Save (Poor): 10
TOTALS R(B.E.): 19	SpR(B.E.): 15 398"	22

GRAND TOTAL

Save:	Trees to be saved:	69
SpSave:	Speciman trees to be saved:	28
SpRemove:	Speciman trees to be removed	38 @ 1,076"
Remove:	Regulated trees to be removed	99
R(N.R.):	Non-Regulated tree	159
(Condition rating at Poor, Very Poor, or Dead)		
Save (Poor):	Poor trees to be saved (N.R.):	22
R(B.E.):	Regulated tree in Building Envelope	19
SpR(B.E.):	Speciman tree in Building Envelope	15 @ 398"

Total Number of Regulated Existing Trees:
Number of surveyed trees minus non-regulated trees and Save (Poor): 265

Preservation Requirement:
Regulated trees minus trees in building envelope: 231

Forty percent (40%) of regulated trees required to be preserved: 92

Total number of regulated trees to be saved: 97 (42%)

Replacements required (Development Area):
Ninety nine (99) regulated trees removed requiring one to one replacement: 99
Speciman trees: Fifty percent (50%) of the total d.b.h. removed equals 1,076" times 0.5 equals 538" Replacement with 2" replacement trees: 269
===
Number of replacement trees: 368

Credit for Speciman Trees Preserved: 27
===
Total number of replacement trees: 341

Replacements required (Building Envelope):
Nineteen (19) regulated trees removed requiring one to one replacement: 19
Speciman trees: Fifty percent (50%) of the total d.b.h. removed equals 398" times 0.5 equals 199" Replacement with 2" replacement trees: 100
===
Total number of replacement trees (Building Env.): 119
===
Total Replacement Trees Required: 460

date: April 19, 2022
revised:
05-23-2022 Revise for assessment by NDLD.
06-13-2022 For Client review.
06-20-2022 Revise for site plan changes.
06-30-2022 Preliminary Site Plan submittal.
02-23-2023 Revise for site plan changes.
03-07-2023 Revise for site plan changes.
12-20-2023 Revise acc. to City review.
12-28-2023
01-18-2024
05-02-2024 Revise acc. to City review.
05-15-2024
07-31-2024 Remove Lot 5.
12-12-2024
12-20-2024
02-10-2025

Know what's **below.** **Call** before you dig.

JSC2022-0003
PSC2023-0001
Revision #4

Received 2/25/2025
City of Rochester Hills Planning & Economic Development

LANDSCAPE PLAN FOR:
Enliven Developers, L.L.C.
1322 Harvard Drive
Rochester Hills, Michigan 48307-3162
(586) 612 6937

LANDSCAPE PLAN BY:
Nagy Devlin Land Design
31736 West Chicago Ave.
Livonia, Michigan 48150
(734) 634 9208

PROJECT LOCATION:
Oak Creek Subdivision
W. Side of Livernois Road
S. of Auburn Road
Rochester Hills, Michigan

STATE OF MICHIGAN J. BRIAN DEVLIN NO.1260 REGISTERED LANDSCAPE ARCHITECT

AUTOCAD SIGNATURE ORIGINAL IN BLUE

TPP - 2: TREE INVENTORY LIST

* Tree survey provided by Gateway Engineering & Surveying.

APPENDIX B: PHOTOGRAPHIC LOG

Site Photographs
Oak Creek Subdivision
Rochester Hills, MI

1 – Emergent wetland, facing north

2 – Existing two-track drive and upland herbaceous landcover, facing west

Photos taken 11/23/2022

Site Photographs
Oak Creek Subdivision
Rochester Hills, MI

3 – Upland forest, facing northeast

4 –Intermittent stream near southern property boundary, facing east

Photos taken 11/23/2022

Site Photographs
Oak Creek Subdivision
Rochester Hills, MI

5 – Existing two-track drive and tree line, facing east

6 – Existing two-track drive and upland herbaceous landcover, facing east

Photos taken 11/23/2022

Site Photographs
Oak Creek Subdivision
Rochester Hills, MI

7 – Mowed area near Livernois Road, facing southwest

8 – Upland herbaceous landcover and adjacent wetland, facing east

Photos taken 11/23/2022

Site Photographs
Oak Creek Subdivision
Rochester Hills, MI

9 – Upland herbaceous landcover with scattered shrubs, facing east

10 – Forested wetland, facing east

Photos taken 11/23/2022

Site Photographs
Oak Creek Subdivision
Rochester Hills, MI

11 – Intermittent stream near northern property boundary, facing north

12 – Dual culverts under existing drive, facing southwest

Photos taken 11/23/2022

Site Photographs
Oak Creek Subdivision
Rochester Hills, MI

14 – Dual culverts under existing drive, facing north

15 – Intermittent stream south of existing drive, facing south

Photos taken 11/23/2022

APPENDIX C: WETLAND AND WATERCOURSE BOUNDARY DETERMINATION LETTER (ASTI ENVIRONMENTAL)

ASTI ENVIRONMENTAL

Assessment • Remediation • Compliance
Restoration • Incentives

10448Citation Drive, Suite 100
Brighton, MI 48116

Mailing Address:
P.O. Box 2160
Brighton, MI 48116-2160

800 395-ASTI
Fax: 810.225.3800

www.asti-env.com

Sent Via Email Only

August 19, 2022

Ms. Sara Roediger, Director
Department of Planning and
Economic Development
City of Rochester Hills
1000 Rochester Hills Drive
Rochester Hills, MI 48309

Subject: **Wetland and Watercourse Boundary Determination**
3249 and 3271 Livernois
Sidwell Nos. 15-34-101-053 and -055
ASTI File No. 11482-37

Applicant: **Mohammed Bahauddin**

Dear Ms. Roediger:

The Applicant requested that a Wetland and Watercourse Boundary Determination be completed for the above-referenced parcels located at 3249 and 3271 Livernois Road (Property).

ASTI Environmental (ASTI) completed a Wetland and Watercourse Boundary Determination in accordance with the City of Rochester Hills Wetland and Watercourse Protection Ordinance for the Property on August 16, 2022. One watercourse and one wetland regulated by the City of Rochester Hills and likely the Michigan Department of Environment, Great Lakes, and Energy (EGLE) were observed on the Property (see Figure 1 – *Approximate Wetland Boundaries*). ASTI offers the following comments for your consideration.

COMMENTS

1. Wetland and Watercourse Determinations (§ 126-531). This Section lists specific requirements for completion of a Wetland and Watercourse Boundary Determination. This Determination has been completed in the context of those requirements.

2. Data Used (§ 126-532). This Section lists sources available for use in investigating or determining location, boundaries, and features of watercourses and wetlands.

The United States Geological Survey (USGS) Rochester, Michigan 7.5' Quadrangle Maps, the USDA Web Soil Survey (WSS), the National Wetland Inventory Map (NWI), the EGLE Wetlands Map Viewer web site, and digital aerial photographs were all used to support the wetland determination and subsequent regulatory status of determination. No data indicated the presence of wetland on the property. The USGS map indicated the presence of an intermittent watercourse in the central portion of the Property.

The WSS indicates the Property is comprised of the soil complexes of Marlette sandy loam (1-6% slopes), Fox sandy loam (till plain, 2-6% slopes), and Shebeon-Urban land complex (0-4% slopes). According to the WSS, none of these soil complexes are hydric soils.

3. Additional Investigation (§ 126-533). This Section stipulates that the City may request information or documentation as necessary to facilitate determination of watercourse or wetland boundaries in relation to proposed activity.

No additional information is required by ASTI at this time.

4. Criteria and Evidence (§ 126-534). This Section lists criteria that shall govern the determination of wetland and watercourse boundaries. A discussion of these criteria, as they apply to the Property, can be found below:

ASTI investigated the Property for the presence of lakes, ponds, wetlands, and watercourses. This work is based on MCL 324 Part 301, Inland Lakes and Streams, Part 303, Wetlands Protection, and the City of Rochester Hills Wetland and Watercourse Protection Ordinance.

The delineation protocol used by ASTI for this delineation is based on the US Army Corps of Engineers' *Wetland Delineation Manual,* 1987, the *Regional Supplement to the Corps of Engineer Wetland Delineation Manual: Midwest Region*, and related guidance/documents, as appropriate. Wetland vegetation, hydrology, and soils were used to locate wetland boundaries.

One watercourse and one wetland were found on the Property as discussed below.

Unnamed Watercourse
An unnamed watercourse was observed in the central portion of the Property (Figure 1). This unnamed watercourse was not flowing on the day of the site inspection but did exhibit defined bed and banks and evidence of flow (sediment deposits and flow lines) and, thus, meets the definition of a stream (intermittent) under Part 301.

Wetland A
Wetland A is an emergent and forested wetland approximately 0.3 acres in size located in the central portion of the Property (Figure 1). Vegetation within the emergent portion of Wetland A was dominated by red top (*Agrostis gigantea*), jewelweed (*Impatiens capensis*), path rush (*Juncus tenuis*), and fox sedge (*Carex vulpinoidea*); vegetation in the forested portion was dominated by green ash (*Fraxinus pennsylvanica*), glossy buckthorn (*Frangula alnus*), box elder (*Acer negundo*), and cottonwood (*Populus*

deltoides). Soils within Wetland A were comprised of sandy and silty loams and are considered hydric because the hydric soil criteria of depleted matrix and a depleted below dark surface matrix were both met. Indicators of wetland hydrology observed within Wetland A included sparsely vegetated concave surfaces and oxidized rhizospheres on living roots. The unnamed watercourse observed on-site ran through the central portion of Wetland A.

Dominant vegetation observed within the upland adjacent to Wetland A included honeysuckle (*Lonicera tatarica*), glossy buckthorn, smooth brome (*Bromus tectorum*), multiflora rose (*Rosa multifora*), and shagbark hickory (*Carya ovata*). Upland soils were comprised of loamy sands that did not meet hydric soil criteria. No indicators of wetland hydrology were observed.

It is ASTI's professional opinion that Wetland A is regulated by the City under the City's Wetland and Watercourse Protection Ordinance and likely regulated by the EGLE under Part 303 because it is directly connected to the unnamed watercourse on-site.

On-site Flagging

The boundary of Wetland A and the unnamed watercourse were marked in the field with day-glow orange flagging and pink pin flags stamped "WETLAND DELINEATION" and numbered as follows:

Wetland A and Unnamed Watercourse = A-1 through A-48

A professional survey should be conducted to determine the exact location of the wetland flagging and exact acreage of the on-site wetland.

Wetland A/Unnamed Watercourse Quality Assessment

Wetland A is an emergent and forested wetland. The emergent portion of Wetland A was dominated by the non-native species of red top and the common native herbaceous species of jewelweed, path rush, and fox sedge, generally in equal amounts. Scattered shrubs of the invasive species of glossy buckthorn and the native species of gray dogwood (*Cornus racemosa*) were also observed. Scattered trees of the common native species of silver maple (*Acer saccharinum*) and box elder were observed within the emergent portion. The forested portion of Wetland A exhibited a tree layer dominated by the common native tree species of cottonwood, green ash, and box elder that exhibited a tree canopy coverage of approximately 80-100%. The invasive species of glossy buckthorn dominated the shrub layer. Herbaceous vegetation coverage was generally dominated by the common native species of poison ivy (*Toxicodendron radicans*). Overall, vegetation within Wetland A was generally evenly distributed between non-native species and native species. Primary wetland hydrology indicators, such as sparsely vegetated concave surfaces and oxidized rhizospheres on living roots, were observed throughout Wetland A. These hydrological indicators show Wetland A likely detains small amounts of seasonal localized surface water runoff. Soils within Wetland A were comprised of silty/sandy loams and appeared to be in a natural state.

The unnamed watercourse associated with Wetland A was not flowing on the day of the site inspection. However, previous inspections by ASTI on the Property and adjacent properties have shown this watercourse does exhibit seasonal and intermittent flow.

This watercourse appears to be a surface water drainage discharge component and did not appear to be in direct contact with groundwater; no ground water inputs were observed on the Property on the day of the site inspection. Wetland A is a portion of a larger riparian wetland system associated with the unnamed watercourse that flows from the adjacent property to the west and extends to the east to the Gibson Drain, appearing to be in contact with other wetlands and watercourses along its route that are a part of the City's natural drainage system. Extensive riparian wetlands, such as Wetland A and the unnamed watercourse, can provide permanent, seasonal, and migratory habitat for many bird species and small mammals. However, the complex associated with Wetland A and the unnamed watercourse appears to be adjacent to residential developments throughout its off-site extent. Consequently, this wetland complex likely supports only small wildlife and birds common to suburban backyards. The unnamed watercourse could potentially provide habitat for species of small fish as well as small reptiles and amphibians. Based on these factors, it is ASTI's opinion that Wetland A and the unnamed watercourse are of medium ecological quality but are part of important the natural drainage system of the City, and thus, should be considered a valuable natural resource to the City.

SUMMARY

Based upon the data, information, criteria, and evidence noted above, ASTI finds that the Property contains one watercourse (unnamed watercourse) and one wetland (Wetland A) regulated by the City under the City's Natural Resource Ordinance, Article IV, Wetland and Watercourse Protection and likely by EGLE under Part 301, Inland Lakes and Streams and Part 303, Wetlands Protection, respectively. Any impacts to the on-site wetlands or watercourse will require a Wetland Use Permit from the City and permit from EGLE. However, please note that EGLE has the final authority on the extent of regulated wetlands, lakes, and streams in the State of Michigan.

Respectfully submitted,

ASTI ENVIRONMENTAL

Kyle Hottinger
Wetland Ecologist
Professional Wetland Scientist #2927

Dianne C. Martin
Vice President
Professional Wetland Scientist #1313

Attachments: Figure 1 – Approximate Wetland Boundaries
Completed ACOE Data Sheets

Sidwell Nos. 15-34-101-053 & -055 3249 & 3271 Livernois Road, City of Rochester Hills, Oakland Co., MI

0 37.5 75 150 Feet

Client: City of Rochester Hills
Created by: RMH, August 17, 2022, ASTI Project 11482-37
Imagery: Oakland County 2020

Figure 1 - Approximate Wetland Boundaries

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 3249 &3271 Livernois | City/County: Rochester Hills-Oakland Co. | Sampling Date: 8-16-22

Applicant/Owner: Mohammed Bahauddin | State: MI | Sampling Point: UP1

Investigator(s): ASTI-KAH | Section, Township, Range: Sec 34 T3N R11E

Landform (hillside, terrace, etc.): slight slope | Local relief (concave, convex, none): slope

Slope (%): 3-4 | Lat: ---------- | Long: ---------- | Datum: ----------

Soil Map Unit Name: Shebeon-Urban-land complex (0-4% slopes) | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Upland adjacent to Wetland A.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Carya ovata*	60	Yes	FACU
2. *Juglans nigra*	10	No	FACU
3. *Quercus alba*	15	No	FACU
4. *Tilia americana*	10	No	FACU
5. *Fraxinus pennsylvanica*	5	No	FACW
	100	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lonicera tatarica*	15	Yes	FACU
2. *Frangula alnus*	15	Yes	FACW
3. *Carya ovata*	20	Yes	FACU
4. *Fraxinus pennsylvanica*	5	No	FACW
5.			
	55	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Arisaema triphyllum*	10	No	FACW
2. *Carex blanda*	5	No	FAC
3. *Toxicodendron radicans*	5	No	FAC
4. *Persicaria virginiana*	10	No	FAC
5. *Parthenocissus inserta*	40	Yes	FACU
6.			
7.			
8.			
9.			
10.			
	70	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.	0		
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	20	x 3 =	60
FACU species	170	x 4 =	680
UPL species	0	x 5 =	0
Column Totals:	225 (A)		810 (B)
Prevalence Index = B/A =			3.60

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: UP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					Loamy/Clayey	sandy/clayey loam, dry and loose
8-18	10YR 7/4	95					Loamy/Clayey	sandy/clayey loam, dry and loose
	10YR 3/2	5						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 3249 &3271 Livernois | City/County: Rochester Hills-Oakland Co. | Sampling Date: 8-16-22

Applicant/Owner: Mohammed Bahauddin | State: MI | Sampling Point: UP2

Investigator(s): ASTI-KAH | Section, Township, Range: Sec 34 T3N R11E

Landform (hillside, terrace, etc.): slight slope | Local relief (concave, convex, none): slope

Slope (%): 2-3 | Lat: ---------- | Long: ---------- | Datum: ----------

Soil Map Unit Name: Shebeon-Urban-land complex (0-4% slopes) | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Upland adjacent to Wetland A in the south-central portion of the site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix fragilis*	15	No	FAC
2. *Juglans nigra*	20	Yes	FACU
3. *Carya ovata*	15	No	FACU
4. *Acer negundo*	30	Yes	FAC
5.			
	80	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Juglans nigra*	20	Yes	FACU
2. *Frangula alnus*	30	Yes	FACW
3. *Acer negundo*	10	No	FAC
4. *Rosa multiflora*	10	No	FACU
5.			
	70	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Symphyotrichum lateriflorum*	10	No	FACW
2. *Parthenocissus inserta*	50	Yes	FACU
3. *Impatiens capensis*	5	No	FACW
4. *Rubus idaeus*	10	No	FACU
5. *Persicaria virginiana*	10	No	FAC
6. *Cirsium arvense*	15	Yes	FACU
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *Celastrus orbiculatus*	40	Yes	UPL
2.			
	40	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 28.6% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	65	x 3 =	195
FACU species	140	x 4 =	560
UPL species	40	x 5 =	200
Column Totals:	290 (A)		1045 (B)

Prevalence Index = B/A = 3.60

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: UP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100					Loamy/Clayey	sandy/clayey loam, dry and loose
9-18	10YR 7/4	85					Loamy/Clayey	sandy/clayey loam, dry and loose
	10YR 3/2	15						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___

Water Table Present? Yes ___ No x Depth (inches): ___

Saturation Present? Yes ___ No x Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 3249 &3271 Livernois | City/County: Rochester Hills-Oakland Co. | Sampling Date: 8-16-22

Applicant/Owner: Mohammed Bahauddin | State: MI | Sampling Point: WT1

Investigator(s): ASTI-KAH | Section, Township, Range: Sec 34 T3N R11E

Landform (hillside, terrace, etc.): slight depression | Local relief (concave, convex, none): concave

Slope (%): 1-2 | Lat: ---------- | Long: ---------- | Datum: ----------

Soil Map Unit Name: Shebeon-Urban-land complex (0-4% slopes) | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Wetland A - forested portion.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	30	Yes	FACW
2. *Acer saccharinum*	25	Yes	FACW
3. *Carya ovata*	10	No	FACU
4. *Populus deltoides*	10	No	FAC
5.			
	75	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Fraxinus pennsylvanica*	25	Yes	FACW
2. *Frangula alnus*	10	No	FACW
3. *Cornus racemosa*	20	Yes	FAC
4.			
5.			
	55	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Toxicodendron radicans*	20	Yes	FAC
2. *Parthenocissus inserta*	10	Yes	FACU
3. *Laportea canadensis*	5	No	FACW
4. *Geum canadense*	5	No	FAC
5. *Carex vulpinoidea*	5	No	FACW
6.			
7.			
8.			
9.			
10.			
	45	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.	0		
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	55	x 3 =	165
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	175 (A)		445 (B)
Prevalence Index = B/A =			2.54

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WT1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	100					Loamy/Clayey	sandy/clayey loam, dry and loose
4-18	10YR 4/1	70	10YR 6/1	20	C	M	Loamy/Clayey	sandy/clayey loam, dry and loose
			10YR 6/8	10	C	PL/M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

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HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- x Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- x Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___

Water Table Present? Yes ___ No x Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No x Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 3249 &3271 Livernois | City/County: Rochester Hills-Oakland Co. | Sampling Date: 8-16-22

Applicant/Owner: Mohammed Bahauddin | State: MI | Sampling Point: WT2

Investigator(s): ASTI-KAH | Section, Township, Range: Sec 34 T3N R11E

Landform (hillside, terrace, etc.): plain | Local relief (concave, convex, none): flat

Slope (%): 1-3 | Lat: ---------- | Long: ---------- | Datum: ----------

Soil Map Unit Name: Shebeon-Urban-land complex (0-4% slopes) | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes x	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Wetland A - emergent portion in the south-central portion of the site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	5	Yes	FACW
2. *Juglans nigra*	10	Yes	FACU
3. *Acer negundo*	5	Yes	FAC
4.			
5.			
	20	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Acer negundo*	5	Yes	FAC
2. *Frangula alnus*	5	Yes	FACW
3. *Cornus racemosa*	5	Yes	FAC
4.			
5.			
	15	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Impatiens capensis*	80	Yes	FACW
2. *Cirsium arvense*	5	No	FACU
3. *Parthenocissus inserta*	5	No	FACU
4. *Ranunculus recurvatus*	5	No	FACW
5. *Verbena urticifolia*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.	0		
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	95	x 2 =	190
FAC species	20	x 3 =	60
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	135 (A)		330 (B)

Prevalence Index = B/A = 2.44

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WT2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					Loamy/Clayey	sandy/clayey loam, dry and loose
6-18	10YR 4/2	70	10YR 3/1	20	C	M	Loamy/Clayey	sandy/clayey loam, dry and loose
			10YR 4/6	5	C	PL/M		Prominent redox concentrations
			10YR 6/4	10	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- x Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___

Water Table Present? Yes ___ No x Depth (inches): ___

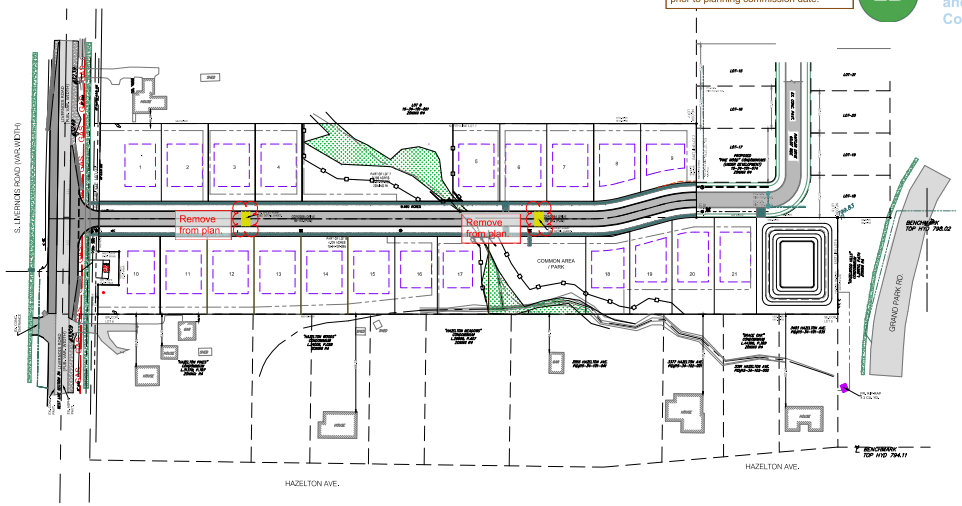
Saturation Present? (includes capillary fringe) Yes ___ No x Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX D: OAK CREEK CONDOMINIUMS SITE PLAN (GATEWAY ENGINEERING AND SURVEYING, INC.)



LOCATION M

Planning Commission and City Council Consideration

SP LIP NFSM WP TRP

ROCHESTER HILLS MICHIGAN

JSC2022-0003
PSC2023-0001
Revision #4
Received 2/25/2025

City of Rochester Hills Planning & Economic Development

Site Plan Review

Reviewed for compliance with City Ordinance, Building and Fire Codes
Conditions and mark-ups noted throughout plan set must be addressed prior to final approval

Department	Reviewer	Approved
Assessing	Assessing	Yes
Building	Mark Kaminian 248-841-2446 ArtiniaM@RochesterHills.org	Yes
Engineering Utilities	Jason Boughton 248-841-2490 BoughtonJ@RochesterHills.org	Yes
Engineering Legal	Seth Bucholz 248-841-2491 bucholzs@rochesterhills.org	YES Date:03/11/2025
Fire	Lt. Walter Murphy 248-841-2712 MurphyW@RochesterHills.org	Yes
Natural Resources	Matt Einheuser 248-841-2551 EinheuserM@RochesterHills.org	Yes
Planning	Chris McLeod 248-841-2572 mcleodc@RochesterHills.org	Yes
Traffic	Keith Depp 248-841-2503 DeppK@RochesterHills.org	Yes

BENCHMARK: (NAVD 88 DATUM)

B.M.#1
TOP OF HYDRANT LOCATED NEAR THE SW CORNER OF THE PROPERTY AND EAST SIDE OF LIVERNOIS ROAD.
ELEVATION=818.42

B.M.#2
TOP OF HYDRANT LOCATED AT THE NW CORNER OF THE INTERSECTION OF HAZELTON AVE. AND GRAND PARK ROAD.
ELEVATION = 794.11

B.M.#3
TOP OF THE HYDRANT LOCATED AT EAST SIDE OF THE GRAND PARK ROAD AND EAST SIDE OF EASTERLY PROPERTY LINE.
ELEVATION=798.02

with condition to install median island.

ASTI - Wetland / Natural Features Review Recommends Conditional Approval

Next Steps: Tentatively scheduled for the April 15th, 2025 Planning Commission meeting.

ADM

GES
GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
www.gatewayengineer.com

INDEX OF DRAWINGS:

SHT	NAME	REVISION 1	2	3
	COVER SHEET			
C1.1	TOPOGRAPHIC SURVEY			
C2.1	PRELIMINARY SITE PLAN			
C3.1	PRELIMINARY GRADING PLAN			
C4.1	PRELIMINARY UTILITY PLAN			
C5.1	FIRE PROTECTION PLAN			
C6.1	DETAILS			
C6.2	DETAILS			
TPP-1	TREE PRESERVATION PLAN (BY OTHER)			
TPP-2	TREE INVENTORY LIST (BY OTHER)			
LP-1	LANDSCAPE PLANTING PLAN (BY OTHER)			
LP-2	LANDSCAPE NOTES & DETAILS (BY OTHER)			
FIGURE 1	WETLAND, WATERCOURSE, & NATURAL FEATURE SETBACK IMPACT (BY OTHER)			
A1.1	FLOOR PLAN - OPTION 1			
A1.2	FLOOR PLAN - OPTION 2			
A2.1	ELEVATIONS - OPTION 1			
A2.2	ELEVATIONS - OPTION 2			
A3.1	RENDERINGS			

OAK CREEK SITE CONDOMINIUM

PROJECT DATA:

LEGAL DESCRIPTION:

DESCRIPTION PART OF LOTS 6 AND 7 (15-34-101-055 AND 15-34-101-053 COMBINED)

PART OF LOTS 6 AND 7 OF " SUPERVISOR'S PLAT #5" BEING PART OF THE NORTH 1/2 OF SECTION 34, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS ON PAGE 55, OAKLAND COUNTY RECORDS, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOW: COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 34; THENCE SOUTH 00 DEGREES 48 MINUTES 00 SECONDS WEST 1485.15 FEET ALONG THE WEST LINE OF SECTION 34; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS EAST 50.00 FEET TO THE SOUTHWEST CORNER OF LOT 6; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS EAST 10.00 FEET ALONG THE SOUTH LINE OF LOT 6 TO THE POINT OF THE BEGINNING; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 50.00 FEET; THENCE SOUTH 89 DEGREES 12 MINUTES 00 SECONDS EAST 35.00 FEET; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 57.00 FEET; THENCE NORTH 89 DEGREES 12 MINUTES 00 SECONDS WEST 35.00 FEET; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 218.03 FEET TO THE NORTH LINE OF LOT 7; THENCE SOUTH 89 DEGREES 59 MINUTES 09 SECONDS EAST 1016.01 FEET ALONG THE NORTH LINE OF LOT 7 TO THE NORTHEAST CORNER OF LOT 7; THENCE SOUTH 00 DEGREES 00 MINUTES 23 SECONDS EAST 159.84 FEET ALONG THE EAST LINE OF LOT 7 TO THE SOUTHEAST CORNER OF LOT 7; THENCE SOUTH 89 DEGREES 59 MINUTES 29 SECONDS EAST 240.63 FEET ALONG THE NORTH LINE OF LOT 6 TO THE NORTHEAST CORNER OF LOT 6; THENCE SOUTH 00 DEGREES 03 MINUTES 53 SECONDS EAST 164.80 FEET ALONG THE EAST LINE OF LOT 6 TO THE SOUTHEAST CORNER OF LOT 6; THENCE NORTH 89 DEGREES 59 MINUTES 46 SECONDS WEST 1261.39 FEET ALONG THE SOUTH LINE OF LOT 6 TO THE POINT OF THE BEGINNING. CONTAINING OF 8.460 ACRES OF LAND.

SUBJECT TO ANY EASEMENTS AND / OR RIGHTS OF WAY RECORDED OR OTHERWISE.

PROJECT DATA

LOCAL AGENCY: ROCHESTER HILLS, MI
DEPT. OF PLANNING & ECONOMIC DEVELOPMENT
1000 ROCHESTER HILLS DR.
ROCHESTER HILLS, MI 48309

EXISTING ZONING: R-4 ONE FAMILY RESIDENTIAL
NET DENSITY (DWELLING UNITS PER ACRE) = 3.4
PROPOSED UNITS ALLOWED UNDER SECTION 138-5.200 = 28.76 UNITS.

PROPOSED LAND USE: R-4 ONE FAMILY RESIDENTIAL

GROSS AREA OF SITE : 8.46 ACRES (368528.67 S.F.)

TOTAL NUMBER OF LOTS PROPOSED: 22 LOTS

PROPOSED DENSITY = 22 / 8.46 = 2.60

WATER SUPPLY: MUNICIPAL
SANITARY: MUNICIPAL
STORM: ENCLOSED STORM SEWER
DETENTION : ONSITE DETENTION SYSTEM.

* SIGN IS NOT PART OF THIS APPROVAL.

NOTE:
1. IF ANY DISCREPANCY BETWEEN THESE PLANS AND CITY OF ROCHESTER HILLS STANDARDS OCCURS, CITY OF ROCHESTER HILLS STANDARDS SHALL GOVERN. .
2. IF ANY DISCREPANCY BETWEEN DESIGNS OR CODES RELATED WITH THESE DESIGNED PLANS OCCURS THE STRICTEST SHALL APPLY.
3. ON-SITE HYDRANT LOCATIONS SHALL BE APPROVED BY THE FIRE MARSHAL PRIOR TO ENGINEERING APPROVAL. ON-SITE HYDRANTS MAY BE REQUIRED.
4. "NO PARKING-FIRE LANE" SIGNS SHALL BE INSTALLED AND MAINTAINED AS DESIGNATED BY THE FIRE MARSHAL.
5. AN EMERGENCY ACCESS LANE, AS REQUIRED IN ORDINANCE, SHALL BE PROVIDED PRIOR TO THE START OF CONSTRUCTION UNLESS THE PERMANENT HARD SURFACE IS INSTALLED PRIOR TO CONSTRUCTION.
6. PRIOR TO CONSTRUCTION, ALL LOCATION AND DEPTHS OF EXISTING OVERHEAD AND UNDER-GROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD.
7. DURING CONSTRUCTION, CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR OVERHEAD AND\OR BURIED UTILITIES, CALL MISS DIG.

GENERAL NOTES

1. ALL WORK TO COMPLY W/ ALL NATIONAL, STATE & LOCAL CODES, ORDINANCES, LAWS & REGULATIONS THAT ARE APPLICABLE.
2. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS & CALL FOR REQUIRED INSPECTIONS.
3. THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATIONS, ELEVATIONS, & DETAILS OF EXISTING CONDITIONS THAT EFFECT THE WORK AND SHALL INFORM THE ARCHITECT / ENGINEER OF ANY DISCREPANCIES IN DIMENSIONS, SIZES, LOCATIONS & CONDITIONS BEFORE PROCEEDING WITH THE WORK.
4. THE CONTRACTOR SHALL PROVIDE ALL SHORING, BRACING, UNDERPINNING AND ALL OTHER MEANS REQUIRED TO PROTECT AND MAINTAIN THE SAFETY, INTEGRITY AND STABILITY OF ALL NEW CONSTRUCTION.
5. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS OF THE BUILDING INCLUDING UTILITIES, SERVICES, ETC., AND SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGES HE CAUSES TO BOTH EXISTING AND NEW CONSTRUCTION AND PROPERTY AND FOR ANY UNAUTHORIZED DISRUPTION TO THE OWNER'S NORMAL USE OF UTILITIES, SERVICES AND THE SURROUNDING FACILITIES.
6. FIELD VERIFY ALL EXISTING DIMENSIONS, HEIGHTS, AND CONDITIONS PRIOR TO DESIGN, INSTALLATION, OR MANUFACTURING OF ANY SYSTEM.
7. IF ANY DISCREPANCY BETWEEN DESIGNS OR CODES RELATED WITH THESE DESIGNED PLANS OCCURS THE STRICTEST SHALL APPLY.
8. ALL WORK SHALL BE SUBJECT TO FIELD INSPECTIONS.
9. IMPROVEMENTS ARE LIMITED TO THOSE INDICATED ON THE APPROVED PLANS.
10. ALL INTERIOR FINISHES SHALL COMPLY WITH CHAPTER 8.
11. FLOOR SURFACES IN THE MEANS OF EGRESS ARE REQUIRED TO BE SLIP RESISTANT IN ACCORDANCE WITH SECTION 1003.4.
12. THE IMPROVEMENTS ARE LIMITED TO THOSE INDICATED ON THE APPROVED PLANS. ANY REVISIONS WILL REQUIRE REVIEW AND APPROVAL BY THE CITY OF ROCHESTER HILLS..
13. NO REVIEW OF EXTERIOR SIGNAGE WAS CONDUCTED AS PART OF THIS REVIEW. A SEPARATE BUILDING PERMIT SUBMITTAL AND REVIEW IS REQUIRED FOR EXTERIOR SIGNAGE.
14. A COPY OF THE APPROVED PLANS AND PLAN REVIEW RECORD ONSITE FOR INSPECTIONS SHALL BE PROVIDED. THE PLANS AND REVIEW RECORD SHALL BE PLACED AT THE ACTUAL CONSTRUCTION AND SHALL BE READILY ACCESSIBLE TO THE INSPECTOR.

PROJECT TEAM:

GES - GATEWAY ENGINEERING AND SURVEYING, INC.
8155 ANNSBURY DR. SUITE 109
SHELBY TWP., MI 48316
OFFICE: (586) 786-5533
FAX: (586) 786-5575
CONTACT: JOSEPH VAGLICA, PhD, PE
EMAIL: joe@gatewayengineer.com
CC: mitesh@gatewayengineer.com
NOTE: THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE WILL BE PLAN PREPARER:
JOSEPH VAGLICA, PhD, PE / LICENSE NO. 50340

CLIENT:

ENLIVEN DEVELOPERS
1322 HARVARD DRIVE
ROCHESTER HILLS, MI-48307
PH: (586) 612 6937
EMIAL: mohammed@enlivenbuild.com
jamal.khan@enlivenbuild.com

GES PROJECT # 20-0102
CITY OF ROCHESTER HILLS #JSC2022-0003 , PSC2023-0001

SEAL:

ENGINEER'S CERTIFICATION:

"I HEREBY CERTIFY THAT I HAVE READ THE TOWNSHIP'S LAND DEVELOPMENT ORDINANCE (AND IT'S RELATED ENGINEERING AND CONSTRUCTION STANDARDS) AND I HAVE PREPARED THESE PLANS IN COMPLETE CONFORMITY WITH THE REQUIREMENTS OF SAID ORDINANCE."

JOSEPH VAGLICA
PROFESSIONAL CIVIL ENGINEER NO. 50340

STATE OF MICHIGAN JOSEPH VAGLICA License No. 6201050340 PROFESSIONAL ENGINEER

The applicant **will** need to submit a Land Improvement Permit (LIP) application with engineer's estimate, fee and construction plans to proceed with the construction plan review process.

CITY FILE #22-044, SECTION #34

OAK CREEK SUBDIVISION, GES PROJ. # 20-0102 - PRELIMINARY SITE PLAN - 01/28/2025

OAK CREEK SITE CONDOMINIUM

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E.,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

DESCRIPTION PART OF LOTS 6 AND 7 (15-34-101-055 AND 15-34-101-053 COMBINED)

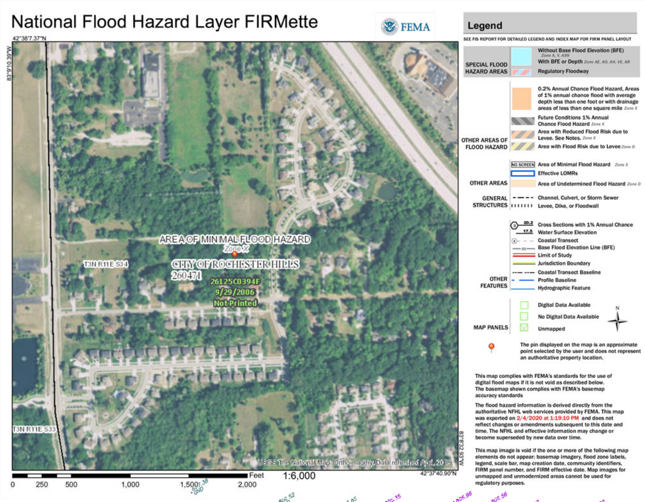
PART OF LOTS 6 AND 7 OF " SUPERVISOR'S PLAT #5" BEING PART OF THE NORTH 1/2 OF SECTION 34, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS ON PAGE 55, OAKLAND COUNTY RECORDS, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOW: COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 34; THENCE SOUTH 00 DEGREES 48 MINUTES 00 SECONDS WEST 1485.15 FEET ALONG THE WEST LINE OF SECTION 34; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS EAST 50.00 FEET TO THE SOUTHWEST CORNER OF LOT 6; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS EAST 10.00 FEET ALONG THE SOUTH LINE OF LOT 6 TO THE POINT OF THE BEGINNING; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 50.00 FEET; THENCE SOUTH 89 DEGREES 12 MINUTES 00 SECONDS EAST 35.00 FEET; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 57.00 FEET; THENCE NORTH 89 DEGREES 12 MINUTES 00 SECONDS WEST 35.00 FEET; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 218.03 FEET TO THE NORTH LINE OF LOT 7; THENCE SOUTH 89 DEGREES 59 MINUTES 09 SECONDS EAST 1016.01 FEET ALONG THE NORTH LINE OF LOT 7 TO THE NORTHEAST CORNER OF LOT 7; THENCE SOUTH 00 DEGREES 00 MINUTES 23 SECONDS EAST 159.84 FEET ALONG THE EAST LINE OF LOT 7 TO THE SOUTHEAST CORNER OF LOT 7; THENCE SOUTH 89 DEGREES 59 MINUTES 29 SECONDS EAST 240.63 FEET ALONG THE NORTH LINE OF LOT 6 TO THE NORTHEAST CORNER OF LOT 6; THENCE SOUTH 00 DEGREES 03 MINUTES 53 SECONDS EAST 164.80 FEET ALONG THE EAST LINE OF LOT 6 TO THE SOUTHEAST CORNER OF LOT 6; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS WEST 1261.39 FEET ALONG THE SOUTH LINE OF LOT 6 TO THE POINT OF THE BEGINNING. CONTAINING OF 8.460 ACRES OF LAND.

SUBJECT TO ANY EASEMENTS AND / OR RIGHTS OF WAY RECORDED OR OTHERWISE.

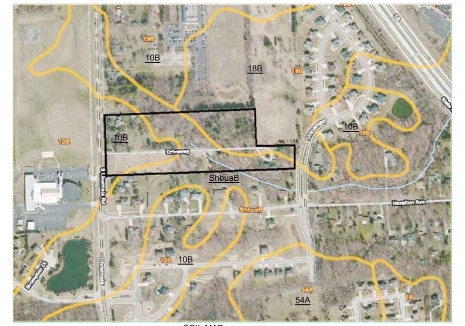
FLOODPLAIN NOTE:
SUBJECT PROPERTY LIES WITHIN THE FLOOD ZONE X ,
AREA OF MINIMAL FLOOD HAZARD.
FIRM MAP NUMBER: 26125C0394F
EFFECTIVE DATE: SEPTEMBER 29, 2006

NOTE:
TOPOGRAPHIC SURVEY AND BOUNDARY SURVEY WAS PERFORMED BY FAZAL KHAN & ASSOCIATES, INC. (FKA PROJECT # 19-010, DT: 08/06/2019). THE INFORMATION WAS PROVIDED TO G.E.S. BY CLIENT.

NOTE:
A SEPARATE BUILDING PERMIT WILL BE REQUIRED FOR THE DEMOLITION OF THE EX. HOUSES AND EX. DETACHED STRUCTURES.



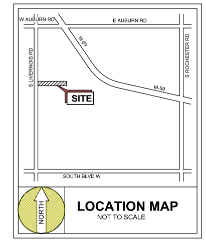
National Flood Hazard Layer FIRMette
FEMA
AREA OF MINIMAL FLOOD HAZARD
CITY OF ROCHESTER HILLS
260471
26125C0394F
9/29/2006
Not Printed
T3N R11E S34
T3N R11E S33
1:6,000
Feet
0 250 500 1,000 1,500 2,000
Legend
SPECIAL FLOOD HAZARD AREAS
Without Base Flood Elevation (BFE)
With BFE or Depth
Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD
0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile
Future Conditions 1% Annual Chance Flood Hazard
Area with Reduced Flood Risk due to Levee. See Notes.
Area with Flood Risk due to Levee
OTHER AREAS
Area of Minimal Flood Hazard
Effective LOMRs
Area of Undetermined Flood Hazard
GENERAL STRUCTURES
Channel, Culvert, or Storm Sewer
Levee, Dike, or Floodwall
OTHER FEATURES
Cross Sections with 1% Annual Chance Water Surface Elevation
Coastal Transect
Base Flood Elevation Line (BFE)
Limit of Study
Jurisdiction Boundary
Coastal Transect Baseline
Profile Baseline
Hydrographic Feature
MAP PANELS
Digital Data Available
No Digital Data Available
Unmapped
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/4/2020 at 1:19:10 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



SOIL MAP

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10B	Marlette sandy loam, 1 to 6 percent slopes	51.6	33.2%
18B	Fox sandy loam, till plain, 2 to 6 percent slopes	30.2	19.4%
19	Sebewa loam, disintegration moraine, 0 to 2 percent slopes	3.4	2.2%
54A	Matherton sandy loam, 0 to 3 percent slopes	10.4	6.7%
ShbuaB	Shebeon-Urban land complex, 0 to 4 percent slopes	59.9	38.5%
Totals for Area of Interest		155.4	100.0%



LOCATION MAP
NOT TO SCALE

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

BENCHMARK: (NAVD 88 DATUM)

B.M.#1
TOP OF HYDRANT LOCATED NEAR THE SW CORNER OF THE PROPERTY AND EAST SIDE OF LIVERNOIS ROAD.
ELEVATION=818.42

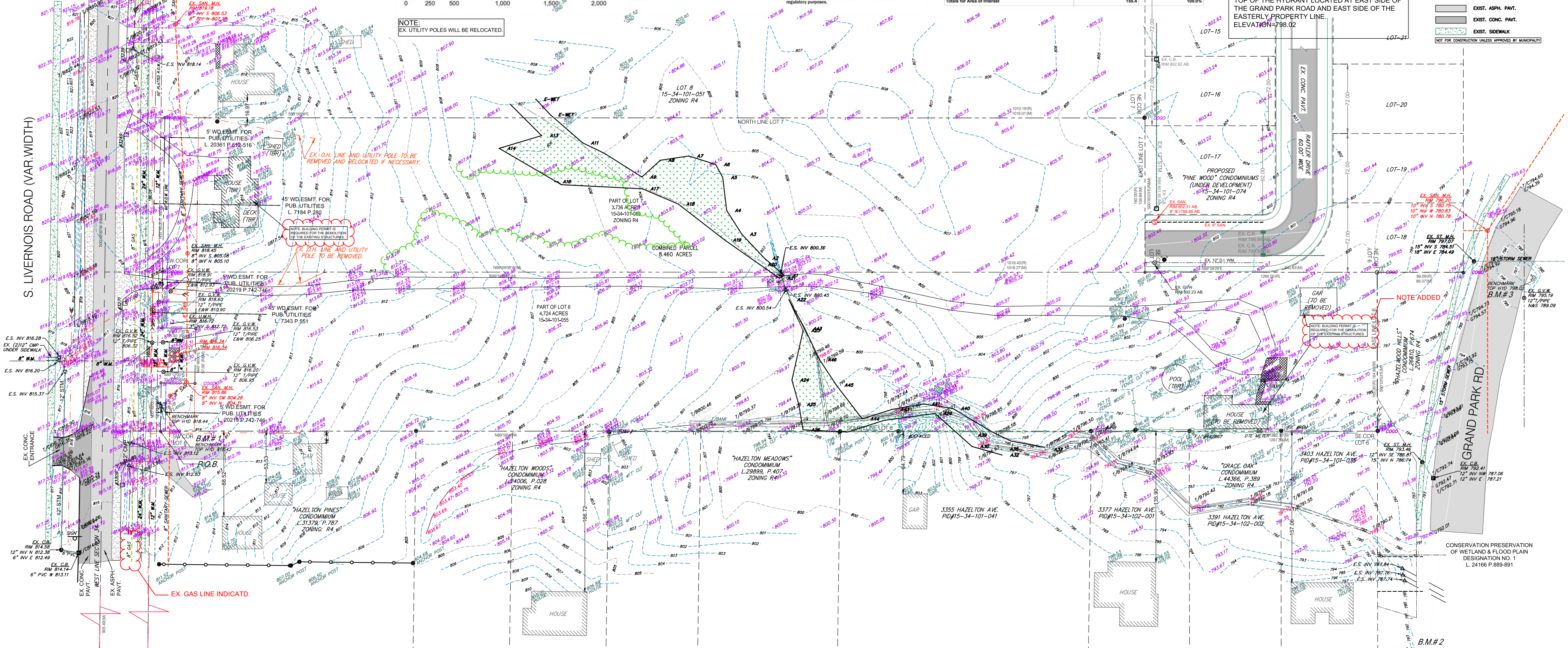
B.M.#2
TOP OF HYDRANT LOCATED AT THE NW CORNER OF THE INTERSECTION OF HAZELTON AVE. AND GRAND PARK ROAD.
ELEVATION = 794.11

B.M.#3
TOP OF THE HYDRANT LOCATED AT EAST SIDE OF THE GRAND PARK ROAD AND EAST SIDE OF THE EASTERLY PROPERTY LINE.
ELEVATION=798.02

LEGEND
- EXIST. STORM SEWER
- EXIST. OVERHEAD UTILITY
- EXIST.FENCE LINE
- EXIST. WATERMAIN
- EXIST. SANITARY LINE.
- EXIST. GAS LINE
- EXIST. HYDRANT
- EXIST. UTILITY POLE
- EXIST. LIGHT POLE
- EXIST. GATE WELL
- EXIST. ROAD CATCH BASIN
- EXIST. STORM CATCH BASIN (BEEHIVE)
- EXIST. STORM MAN HOLE
- EXIST. SANITARY MANHOLE
- EXIST. ROAD SIGN BOARD
- EXIST. ASPH. PAVT.
- EXIST. CONC. PAVT.
- EXIST. SIDEWALK

NOT FOR CONSTRUCTION UNLESS APPROVED BY MUNICIPALITY

NOTE:
EX. UTILITY POLES WILL BE RELOCATED.



S. LIVERNOIS ROAD (VAR.WIDTH)
GRAND PARK RD
RAFFLER DRIVE 60.00' WIDE
EX. CONC. PAVT.
LOT 8 15-34-101-051 ZONING R4
PART OF LOT 7 3.736 ACRES 15-34-101-053 ZONING R4
PART OF LOT 6 4.724 ACRES 15-34-101-055
COMBINED PARCEL 8.460 ACRES
PROPOSED "PINE WOOD" CONDOMINIUMS (UNDER DEVELOPMENT) 15-34-101-074 ZONING R4
"HAZELTON WOODS" CONDOMINIUM L.24006, P.028 ZONING R4
"HAZELTON PINES" CONDOMINIUM L.31379, P.787 ZONING R4
"HAZELTON MEADOWS" CONDOMINIUM L.29899, P.407 ZONING R4
"GRACE OAK" CONDOMINIUM L.44366, P.389 ZONING R4
"HAZELWOOD HILLS" CONDOMINIUM L.26610, P.674 ZONING R4
3355 HAZELTON AVE. PID#15-34-101-041
3377 HAZELTON AVE. PID#15-34-102-001
3391 HAZELTON AVE. PID#15-34-102-002
3403 HAZELTON AVE. PID#15-34-101-035
EX. O.H. LINE AND UTILITY POLE TO BE REMOVED AND RELOCATED IF NECESSARY.
EX. O.H. LINE AND UTILITY POLE TO BE REMOVED.
EX. GAS LINE INDICATD.
NOTE ADDED
NORTH LINE LOT 7
EAST LINE LOT 7
CONSERVATION PRESERVATION OF WETLAND & FLOOD PLAIN DESIGNATION NO. 1 L. 24166 P.889-891
WEST 1/4 COR. SEC. 34 T3N, R11E, (G-12) REMON IN MON BOX L. 15907 P. 729
B.M.# 1
B.M.# 2
B.M.# 3
P.O.B.
LOT-15
LOT-16
LOT-17
LOT-18
LOT-19
LOT-20
LOT-21

TOPOGRAPHIC SURVEY

SCALE: 1" = 50.00'

JSC2022-0003
PSC2023-0001
Revision #4

Received 2/25/2025
City of Rochester Hills Planning & Economic Development

ROCHESTER HILLS MICHIGAN

GES GATEWAY
8155 ANSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
www.gatewayengineer.com

PROJECT INFORMATION:

OAK CREEK SITE CONDOMINIUMS

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E., CITY OF ROCHESTER HILLS, OAKLAND CO., MICHIGAN

P.I.D # 15-34-101-055 & # 15-34-101-053

CLIENT INFORMATION:
ENLIVEN DEVELOPERS
1322 HARVARD DRIVE
ROCHESTER HILLS, MI-48307
PH: (586) 612 6937
Info@EnlivenBuild.com

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ☐ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PRLM SITE PLAN	01/15/2020
2.	REVISION	03/17/2020
3.	REVISION	06/24/2021
4.	PSP- REV.	06/14/2022
5.	REVISION	06/22/2022
6.	REVISION	10/12/2022
7.	EGLE	01/20/2023
8.	REV. TREE	02/27/2023
9.	PSP - SUB.	03/08/2023
10.	PSP - REV.	12/04/2023
11.	PSP - REV.	08/01/2024
12.	PSP - REV.	12/18/2024
13.	PSP - REV.	01/28/2025

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:
TOPOGRAPHIC SURVEY

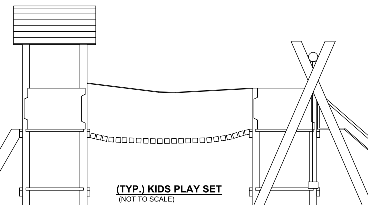
NO. C1.1

GES PROJECT # 20-0102

CITY FILE #22-044, SECTION #34

OAK CREEK SITE CONDOMINIUM

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E.,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN



NOTE: NOTICE OF WETLAND/FLOODPLAIN DESIGNATION WILL BE PROVIDED AFTER THE FINAL SITE PLAN BY THE CITY COUNCIL BUT BEFORE A FINAL SITE PLAN IS STAMPED "APPROVED" IN A RECORDED FORM SATISFACTORY TO CITY OF ROCHESTER HILLS, FOR EVERY BUILDING ENVELOPE, BUILDING SITE AND COMMON ELEMENT WHICH INCLUDES ANY AREA DESIGNATED AS WETLAND OR FLOODPLAIN.

NOTE: LIVERNOIS IS UNDER THE JURISDICTION OF THE RCOC AND A PERMIT WILL BE REQUIRED FOR WORK WITHIN THEIR ROW.

NOTE: PLEASE REFER TO LP-2 LANDSCAPE NOTES AND DETAILS FOR THE SPLIT RAIL FENCE DETAIL.

LOT SUMMERY CALCULATION: 07-22-2024

LOT NUMBER	LOT AREA (S.F.)	LOT FRONTAGE AT SETBACK LINE (FT.)
1	13890.04	105.48
2	10591.46	80.00
3	10591.46	80.00
4	10591.46	80.00
5	10594.19	80.00
6	10594.55	80.00
7	10594.10	80.00
8	10116.87	81.96
9	10065.82	96.73
10	12000.55	104.99
11	10605.53	80.00
12	10604.03	80.00
13	10602.53	80.00
14	10601.02	80.00
15	10599.52	80.00
16	9604.62	72.50
17	11590.14	87.50
18	10107.44	75.60
19	10842.93	74.60
20	11803.77	72.43
21	11866.31	72.00
TOTAL	228458.35	1723.79
AVERAGE	10878.97	82.09

* NO STREET LIGHTS WILL BE PROVIDED ALONG RAFFLER DR.

* NO ACCESS DIRECTLY TO LIVERNOIS RD. FROM UNITS #1 AND #11.

* WARRANTY DEED SHALL BE PROVIDED FOR PUBLIC ROAD DEDICATION DURING CONSTRUCTION PLAN REVIEW.

SETBACKS:
EXISTING ZONING: R-4 - ONE FAMILY RESIDENTIAL
PROPOSED ZONING: R-4 - ONE FAMILY RESIDENTIAL.

PER SEC. 138-5.100 SCHEDULE OF REGULATIONS:
TABLE 5. SCHEDULE OF REGULATIONS
FOR R-4 ZONING.

	REQUIRED	PROPOSED
MIN. LOT AREA	9600 S.F.	11,440.20 S.F. AVG. (9604.62 S.F. MIN.)
MIN. LOT WIDTH	80'	80' (86.32' AVG. - 72' MIN.)
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10' / 20' TOTAL	10' / 20' TOTAL
REAR YARD SETBACK	35'	35'
MAX. LOT COVERAGE (BLD.)	30%	30%

A. THE PROPOSED MIN. LOT WIDTH AND MIN. LOT AREA IS BASED ON THE SECTION 138-5.200 LOT SIZE VARIATION
B. REDUCED MIN. LOT WIDTH AND AREA IN THE R-4 DISTRICT.

PROJECT DATA

LOCAL AGENCY: ROCHESTER HILLS, MI
DEPT. OF PLANNING & ECONOMIC DEVELOPMENT
1000 ROCHESTER HILLS DR.
ROCHESTER HILLS, MI 48309

EXISTING ZONING: R-4 ONE FAMILY RESIDENTIAL
NET DENSITY (DWELLING UNITS PER ACRE) = 3.4
PROPOSED UNITS ALLOWED = 28.76 UNITS.

PROPOSED LAND USE: R-4 ONE FAMILY RESIDENTIAL

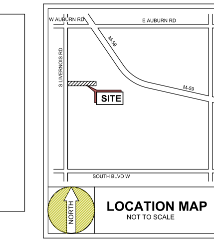
GROSS AREA OF SITE : 8.46 ACRES (368528.67 S.F.)

TOTAL NUMBER OF LOTS PROPOSED: 21 LOTS

PROPOSED DENSITY : = 21 / 8.46 = 2.48

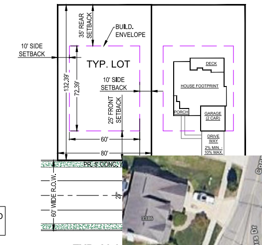
WATER SUPPLY: MUNICIPAL
SANITARY: MUNICIPAL
STORM: ENCLOSED STORM SEWER
DETENTION : ONSITE DETENTION SYSTEM.

* SIGN IS NOT PART OF THIS APPROVAL.



LOCATION MAP
NOT TO SCALE

GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft.

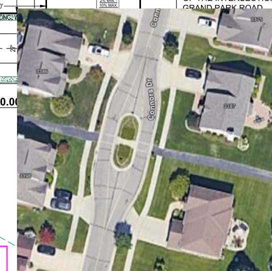


BENCHMARK: (NAVD 88 DATUM)

B.M.#1
TOP OF HYDRANT LOCATED NEAR THE SW CORNER OF THE PROPERTY AND EAST SIDE OF LIVERNOIS ROAD.
ELEVATION=818.42

B.M.#2
TOP OF HYDRANT LOCATED AT THE NW CORNER OF THE INTERSECTION OF HAZELTON AVE. AND GRAND PARK ROAD.

...LOCATED AT EAST SIDE OF ... AND EAST SIDE OF THE ...INE.

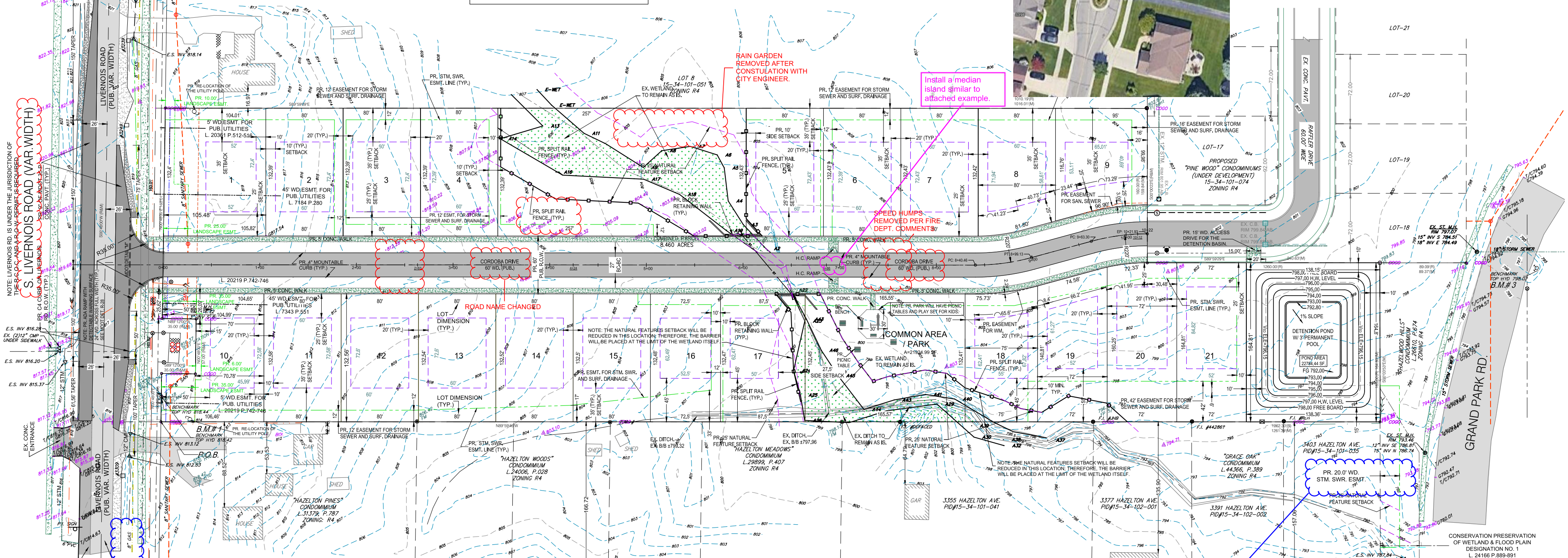


LEGAL DESCRIPTION:

DESCRIPTION PART OF LOTS 6 AND 7 (15-34-101-055 AND 15-34-101-053 COMBINED)

PART OF LOTS 6 AND 7 OF " SUPERVISOR'S PLAT #5" BEING PART OF THE NORTH 1/2 OF SECTION 34, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS ON PAGE 55, OAKLAND COUNTY RECORDS, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOW: COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 34; THENCE SOUTH 00 DEGREES 48 MINUTES 00 SECONDS WEST 1485.15 FEET ALONG THE WEST LINE OF SECTION 34; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS EAST 50.00 FEET TO THE SOUTHWEST CORNER OF LOT 6; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS EAST 10.00 FEET ALONG THE SOUTH LINE OF LOT 6 TO THE POINT OF THE BEGINNING; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 50.00 FEET; THENCE SOUTH 89 DEGREES 12 MINUTES 00 SECONDS EAST 35.00 FEET; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 57.00 FEET; THENCE NORTH 89 DEGREES 12 MINUTES 00 SECONDS WEST 35.00 FEET; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 218.03 FEET TO THE NORTH LINE OF LOT 7; THENCE SOUTH 89 DEGREES 59 MINUTES 09 SECONDS EAST 1016.01 FEET ALONG THE NORTH LINE OF LOT 7 TO THE NORTHEAST CORNER OF LOT 7; THENCE SOUTH 00 DEGREES 00 MINUTES 23 SECONDS EAST 159.84 FEET ALONG THE EAST LINE OF LOT 7 TO THE SOUTHEAST CORNER OF LOT 7; THENCE SOUTH 89 DEGREES 59 MINUTES 29 SECONDS EAST 240.63 FEET ALONG THE NORTH LINE OF LOT 6 TO THE NORTHEAST CORNER OF LOT 6; THENCE SOUTH 00 DEGREES 03 MINUTES 53 SECONDS EAST 164.80 FEET ALONG THE EAST LINE OF LOT 6 TO THE SOUTHEAST CORNER OF LOT 6; THENCE NORTH 89 DEGREES 59 MINUTES 46 SECONDS WEST 1261.39 FEET ALONG THE SOUTH LINE OF LOT 6 TO THE POINT OF THE BEGINNING. CONTAINING OF 8.460 ACRES OF LAND.

SUBJECT TO ANY EASEMENTS AND / OR RIGHTS OF WAY RECORDED OR OTHERWISE.



PRELIMINARY SITE PLAN

SCALE: 1" = 50.00'

Relabel, 8" Sunoco Gas Line

The offsite storm sewer easement will need to be obtained prior to final site condo approval

JSC2022-0003
PSC2023-0001
Revision #4

Received 2/25/2025
City of Rochester Hills Planning & Economic Development

GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
www.gatewayengineer.com

PROJECT INFORMATION:

OAK CREEK SITE CONDOMINIUMS

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E., CITY OF ROCHESTER HILLS, OAKLAND CO., MICHIGAN

P.I.D # 15-34-101-055 & # 15-34-101-053

CLIENT INFORMATION:
ENLIVEN DEVELOPERS
1322 HARVARD DRIVE
ROCHESTER HILLS, MI-48307
PH: (586) 612 6937
Info@EnlivenBuild.com

ISSUANCE:
☐ SCHEMATIC
☐ BIDDING
☐ MUNI SUBMITTAL
☐ CONSTRUCTION
☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PRLM SITE PLAN	01/15/2020
2.	REVISION	03/17/2020
3.	REVISION	06/24/2021
4.	PSP- REV.	06/14/2022
5.	REVISION	06/22/2022
6.	REVISION	10/12/2022
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8.	REV. TREE	02/27/2023
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10.	PSP - REV.	12/04/2023
11.	PSP - REV.	08/01/2024
12.	PSP - REV.	12/18/2024
13.	PSP - REV.	01/28/2025

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:
PRELIMINARY SITE PLAN

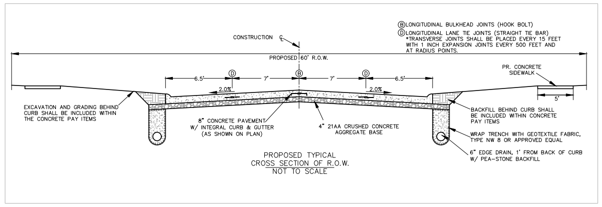
NO. C2.1

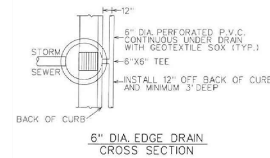
GES PROJECT # 20-0102

CITY FILE #22-044, SECTION #34

OAK CREEK SITE CONDOMINIUM

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E.,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN


PROPOSED TYPICAL CROSS SECTION OF R.O.W.
NOT TO SCALE


6" DIA. EDGE DRAIN CROSS SECTION

BENCHMARK: (NAVD 88 DATUM)

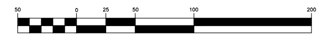
B.M.#1
TOP OF HYDRANT LOCATED NEAR THE SW CORNER OF THE PROPERTY AND EAST SIDE OF LIVERNOIS ROAD.
ELEVATION=818.42

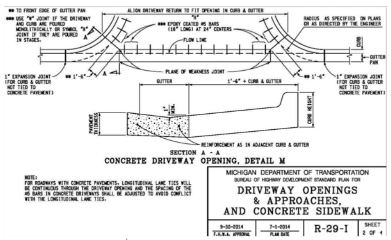
B.M.#2
TOP OF HYDRANT LOCATED AT THE NW CORNER OF THE INTERSECTION OF HAZELTON AVE. AND GRAND PARK ROAD.
ELEVATION = 794.11

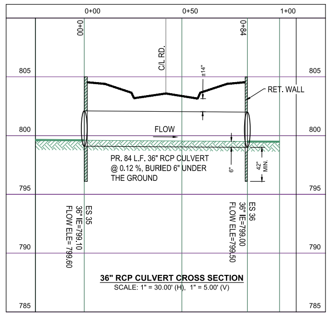
B.M.#3
TOP OF THE HYDRANT LOCATED AT EAST SIDE OF THE GRAND PARK ROAD AND EAST SIDE OF THE EASTERLY PROPERTY LINE.
ELEVATION=798.02

LOCATION MAP
NOT TO SCALE

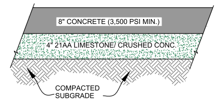
GRAPHIC SCALE


(IN FEET)
1 inch = 50 ft.

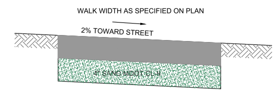




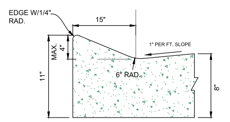
36" RCP CULVERT CROSS SECTION
SCALE: 1" = 30.00' (H), 1" = 5.00' (V)

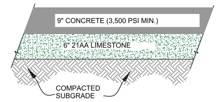


TYPICAL 8" CONCRETE PAVT. SECTION
NOT TO SCALE



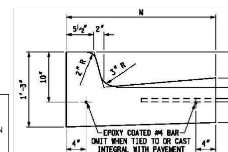
4" CONCRETE SIDEWALK
NOT TO SCALE


INTEGRAL 4" MOUNTABLE CURB & GUTTER (8" CONC. ROAD)
N.T.S.



TYP. 9" CONC. APPROACH PAVT. SECTION &
TYP. 9" CONC. SIDEWALK @ APPROACH.
NOT TO SCALE

LEGEND:
- T/C -- TOP OF CURB ELEVATION
- GU -- GUTTER ELEVATION
- T/P -- TOP OF PAVEMENT ELEVATION
- F.G. -- FINISHED GRADE
- H.P. -- HIGH POINT
- C.B. -- CATCH BASIN
- M.H. -- MANHOLE
- T/RT -- TOP OF RETAINING WALL
- B/RT -- BOTTOM OF RETAINING WALL
- -- SPLIT RAIL FENCE
- -- EXISTING WETLAND
- -- NATURAL BUFFER AREA IMPACT
- -- PERM. WETLAND AREA IMPACT
- -- TEMP. WETLAND AREA IMPACT



DETAIL	DIMENSION M	DIMENSION N	LANE TIES	CONCRETE CYD / LFT
C1	1'-6"	7/8"	AS SHOWN	0.0506
C2	1'-6"	7/8"	OMITTED	0.0506
C3	2'-0"	1 3/8"	AS SHOWN	0.0632
C4	2'-0"	1 3/8"	OMITTED	0.0632
C5	2'-6"	1 7/8"	AS SHOWN	0.0757
C6	2'-6"	1 7/8"	OMITTED	0.0757

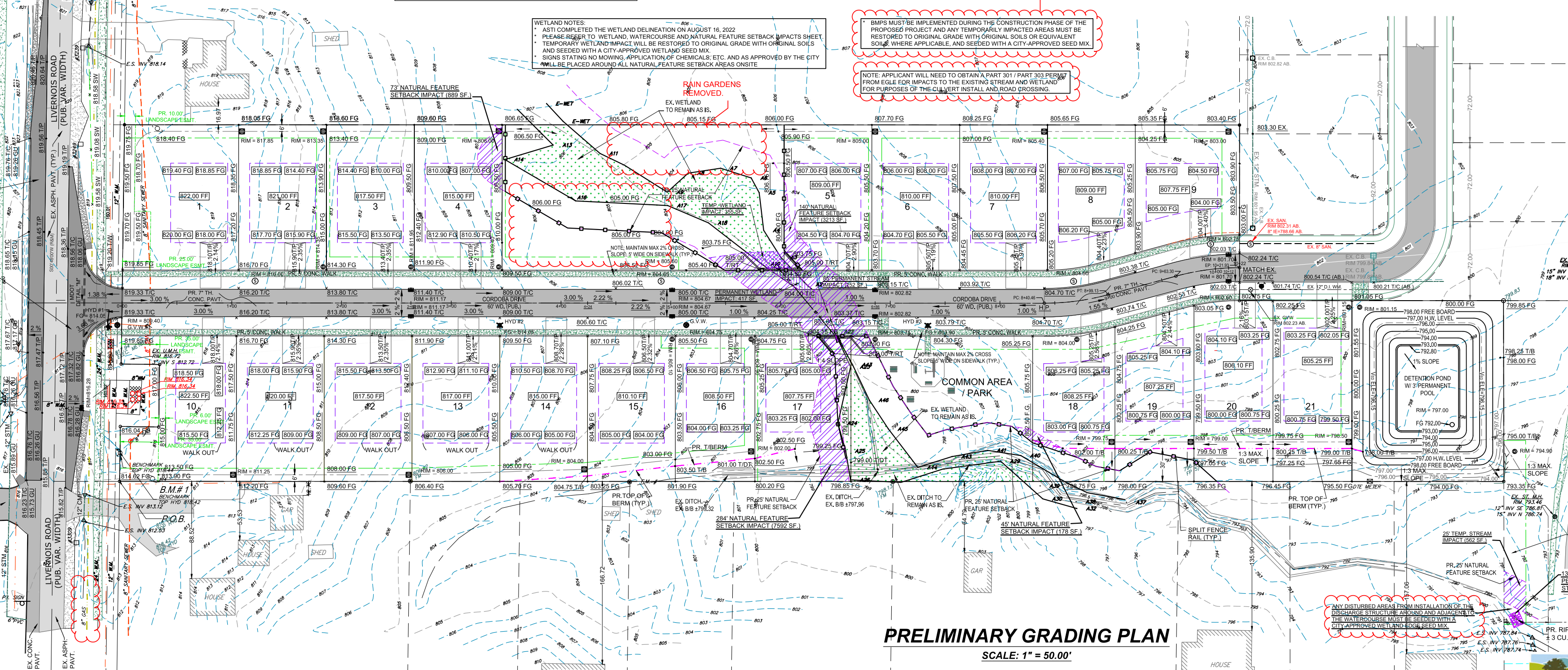
MDOT C-TYPE "C4" CURB & GUTTER DETAIL

NOTE: REMOVAL OF TOPSOIL FROM AREAS TO BE SUBDIVIDED SHALL BE PROHIBITED IN THOSE AREAS TO BE OCCUPIED BY BUILDINGS, ROADS, OR PARKING AREAS. A PLAN FOR STORAGE OR STOCKPILING OF TOPSOIL WILL BE SUBMITTED WITH THE FINAL SITE CONDOMINIUM PLAN TO MEET THE REQUIREMENTS OF THE ZONING ORDINANCE.

WETLAND NOTES:
- ASTI COMPLETED THE WETLAND DELINEATION ON AUGUST 16, 2022
- PLEASE REFER TO WETLAND, WATERCOURSE AND NATURAL FEATURE SETBACK IMPACTS SHEET.
- TEMPORARY WETLAND IMPACT WILL BE RESTORED TO ORIGINAL GRADE WITH ORIGINAL SOILS AND SEEDED WITH A CITY-APPROVED WETLAND SEED MIX.
- SIGNS STATING NO MOWING, APPLICATION OF CHEMICALS, ETC. AND AS APPROVED BY THE CITY WILL BE PLACED AROUND ALL NATURAL FEATURE SETBACK AREAS ONSITE

NOTES ADDED
- BMPS MUST BE IMPLEMENTED DURING THE CONSTRUCTION PHASE OF THE PROPOSED PROJECT AND ANY TEMPORARILY IMPACTED AREAS MUST BE RESTORED TO ORIGINAL GRADE WITH ORIGINAL SOILS OR EQUIVALENT SOILS, WHERE APPLICABLE, AND SEEDED WITH A CITY-APPROVED SEED MIX.

NOTE: APPLICANT WILL NEED TO OBTAIN A PART 301 / PART 303 PERMIT FROM EGLE FOR IMPACTS TO THE EXISTING STREAM AND WETLAND FOR PURPOSES OF THE CULVERT INSTALL AND ROAD CROSSING.



PRELIMINARY GRADING PLAN

SCALE: 1" = 50.00'

JSC2022-0003
PSC2023-0001
Revision #4

Received 2/25/2025 City of Rochester Hills Planning & Economic Development

GES GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
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PROJECT INFORMATION:
OAK CREEK SITE CONDOMINIUMS
PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E., CITY OF ROCHESTER HILLS, OAKLAND CO., MICHIGAN
P.I.D # 15-34-101-055 & # 15-34-101-053

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ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
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- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
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3.	REVISION	06/24/2021
4.	PSP- REV.	06/14/2022
5.	REVISION	06/22/2022
6.	REVISION	10/12/2022
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11.	PSP - REV.	08/01/2024
12.	PSP - REV.	12/18/2024
13.	PSP - REV.	01/28/2025

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:
PRELIMINARY GRADING PLAN

NO. C3.1

GES PROJECT # 20-0102

CITY FILE #22-044, SECTION #34

OAK CREEK SITE CONDOMINIUM

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E.,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

LAND USE SUMMARY

CHARACTERISTIC	EXISTING CONDITION	PROPOSED CONDITION
TOTAL DEVELOPMENT AREA (ac)	8.46	8.46
IMPERVIOUS AREA (ac)	0.20	2.77
TOTAL PERVIOUS AREA (ac)	8.26	5.38
PERVIOUS AREA BREAKDOWN BY COVER TYPE:		
MEADOW/FOLLOW/NATURAL AREAS (NON-CULTIVATED)	8.26	5.38
PREDOMINANT NRCS SOIL TYPE (A, B, C, OR D)	TYPE B	TYPE B
IMPROVED AREAS (TURF GRASS, LANDSCAPE, ROW CROPS)		
PREDOMINANT NRCS SOIL TYPE (A, B, C, OR D)	TYPE B	TYPE B
WOODED AREAS		
PREDOMINANT NRCS SOIL TYPE (A, B, C, OR D)	TYPE B	TYPE B
PROPOSED POND AREA (ac)		0.31
REQUIRED CPVC VOLUME (CU. FT.)		19162.92
PROVIDED CPVC VOLUME (CU. FT.)		18726.75
REQUIRED ED VOLUME (CU. FT.)		29577.57
PROVIDED ED VOLUME (CU. FT.)		38505.52

INFILTRATION BMP CALCULATION:

AVG. INFILTRATION AREA - BIOSWALE/RAIN GARDEN -1
At = (6416+4244) / 2 = 5,330.00 SF.

SURFACE STORAGE VOLUME:
Vss = At X H = 5,330.00 CU. FT.

SUBSURFACE STORAGE VOLUME:
Vsoil = h X SA X e
VOID RATIO = 0.30 (MAX)
Vsoil = 2 X 5330 X 0.3 = 3,198.00 CU. FT.

INFILTRATION STORAGE
Vt = Ksat X Sf X 6 X At / 12.00
Ksat = 1.6 IN/HR.
Vt = 1 X 1.6 X 6 X 5330 / 12.00 = 2,665.00 CU. FT.

BIORETENTION TOTAL STORAGE VOLUME
Vtbr = Vss + Vsubsurface + Vt = 11,193.00 CU. FT.

AVG. INFILTRATION AREA - BIOSWALE/RAIN GARDEN -2
At = (6416+4244) / 2 = 3,587.50 SF.

SURFACE STORAGE VOLUME:
Vss = At X H = 3,587.50 CU. FT.

SUBSURFACE STORAGE VOLUME:
Vsoil = h X SA X e
VOID RATIO = 0.30 (MAX)
Vsoil = 2 X 3587.50 X 0.3 = 2,152.50 CU. FT.

INFILTRATION STORAGE
Vt = Ksat X Sf X 6 X At / 12.00
Ksat = 1.6 IN/HR.
Vt = 1 X 1.6 X 6 X 2587.50 / 12.00 = 1,793.75 CU. FT.

BIORETENTION TOTAL STORAGE VOLUME
Vtbr = Vss + Vsubsurface + Vt = 7,533.75 CU. FT.

C-Factor Calculation for Storm Sewer Design

Project Name: OAK CREEK SITE CONDOMINIUMS
Project No.: 20-0102
Name: GES - M.G.
Date: 7/17/2024

Number of Units:	21.00 units
Total Site Acreage:	8.46 acres
Impervious Area (PAVT.) C-Factor	0.95
Impervious Area (BLDG.) C-Factor	0.95
Pervious Area C-Factor	0.20
POND	1.00

IMPERVIOUS AREA

Roadway Pavement area			27,592.18 sq.ft.
Sidewalks			10,224.00 sq.ft.
Unit Roof Area	@	2,700 sq.ft. x 21 =	56,700.00 sq.ft.
Driveway - impervious pavement	@	1,250 sq.ft. x 21	26,250.00 sq.ft.
POND			13,475.48 sq.ft.
Total Impervious Area (PAVT.):			**64,066.18 sq.ft.**
Total Impervious Area (BLDG.):			**56,700.00 sq.ft.**
Total Pervious Area:			**234,275.94 sq.ft.**

(IMPERVIOUS AREA X C) + (PERVIOUS AREA X C) + (POND AREA X C) / TOTAL AREA = 175,058.54 / 368,517.60

Calculated C-Factor = 0.48

OUTLET CALCULATIONS:

EXTENDED DETENTION RELEASE RATE: $Q_{ED} = V_{ED} / 172800$ — 0.16 CFS.
ELEVATION AT V_{ED} DETENTION VOLUME = 797 - (36964.15 - 28007.34) / (36964.15 - 24837.53) — 796.26
TOTAL HEAD ON THE ORIFICE: h_{ED} = (796.26 - 792.00) X 2/3 — 2.84 FT
NUMBER OF 1" DEWATERING HOLES: H_{ED} = (V_{ED}) / ((4666) X (h_{ED})^0.5) — 3.56 NOS.
PROVIDE 1" HOLE TO STAND PIPE AT ELEVATION 792.00 — 4.00 NOS.
ORIFICE DIA USED: 1.00 IN
$Q_P = C_O \times A_O \times SQRT(2 \times g \times h)$ — 0.18 CFS.
ACTUAL DEWATERING TIME: V_{ED} / Q_P — 42.48 HRS.

100 YR. ALLOWABLE OUTLET RATE = THE VARIABLE RELEASE RATE (QVRR) = CFS / AC. — Q_{VRR} = 0.67 CFS./AC.
$Q_{100P} = Q_{VRR} \times A$ = 5.63 CFS.
ORIFICE CALCULATIONS: $Q = C_O \times A_O \times SQRT(2 \times g \times h)$ — 5.63 CFS.
C_O = ORIFICE COEFFICIENT — 0.62

* FLOW THROUGH (4) HOLES AT ELEVATION=792.00
h = (797-792.00) = 5.00 FT.
$Q_P = C_O \times A_O \times SQRT(2 \times g \times h)$
DIA OF ORIFICE USED = 1.00 IN.
USED 1" DIA ORIFICE — 4.00 NOS.
$Q_{P(792.00)} = C_O \times A_O \times SQRT(2 \times g \times h)$ — 0.24 CFS.

* FLOW THROUGH HOLES AT ELEVATION=796.26
WATER LEVEL BETWEEN V_{ED} AND V_{100D}: h = (797-796.26) = 0.74 FT.
$Q_{VRR} - Q_{P(792.00)}$ = 5.39 CFS.
$A_O = (Q_{VRR} - Q_{P(653.00)}) / C_O \times SQRT(2 \times g \times h)$ = 1.26 SQ. FT.
DIA OF ORIFICE = SQRT (A_O X 4 / π) = 1.27 FT = 15.18 IN.

EXTENDED DETENTION ORIFICE DESIGN:
$Q_P = C_O \times A_O \times SQRT(2 \times g \times h)$
DIA OF ORIFICE USED = 4.00 IN.
USE 4" DIA ORIFICE — 8.00 NOS.
$Q_P = C_O \times A_O \times SQRT(2 \times g \times h)$ — 2.99 CFS.
PROVIDE (8) 4" DIA HOLE TO STAND PIPE AT ELEVATION = 796.26

DESIGNED POND FULL VOLUME = 29577.57 CU. FT.
ACTUAL DEWATERING TIME = POND FULL VOLUME / ($Q_{P(@792.00)}$ + $Q_{P(@796.26)}$) = 2.54 HRS.

DETENTION CALCULATION 100 YEAR STORM PER OCWRC (07/25/2024)

TIME OF CONCENTRATION: ASSUME INITIAL	Tc =		20.00 MINUTES
NET AREA OF SITE IN ACRES	A =		8.46 ACRES
RUNOFF COEFF	C =		0.48
CALCULATION TIME OF CONCENTRATION: Tt (PIPE FLOW)	Tt =	L / (3600 X v)	0.14 Hrs.
	Tt=		8.41 min.
v = PIPE VELOCITY = +/-			2.50 FT/SEC
L = LENGTH OF STORM PIPE = +/-			1,262.00 L.F.
Tt (SHEET FLOW)		v = K x S^0.5	
		v = 0.48 x 1^0.50 =	0.48 FT/SEC
	Tt =	L / (3600 X v)	0.12 Hrs.
	Tt =		7.40 min.
L = LENGTH OF SHEET FLOW = +/-			213.00 L.F.
TIME OF CONCENTRATION: Tc =		Tt (PIPE FLOW) + Tt (SHEET FLOW) =	15.81 min.
TIME OF CONCENTRATION FROM STORM SEWER CALCULATION:	Tc =		27.21 min.
100 YEAR PEAK INTENSITY: I100	I100 =	83.3 / (Tc + 9.17)^0.81 =	4.53 IN/HR.
CHANNEL PROTECTION VOLUME: VCPVC	VCPVC =	4719 X C X A =	19,162.92 CU. FT.
CHANNEL PROTECTION RATE CONTROL: VED (EXTENDED DETENTION)	VED =	6897 X C X A =	28,007.34 CU. FT.
100-YR. PEAK INFLOW: Q100IN	Q100IN =	C X I100 X A =	18.41 CFS.
DETERMINE THE PEAK ALLOWABLE 100-YR. DISCHARGE: Q100P		Q100P = QVRR X A	
VARIABLE RELEASE RATE: QVRR	QVRR =	1.1055 - 0.206 X ln(A) =	0.67 CFS / AC.
	Q100P =	QVRR X A =	5.63 CFS.
STORAGE CURVE FACTOR: R	R =	0.206 - 0.15 X ln (Q100P / Q100IN) =	0.38
100 YR. RUNOFF: V100R	V100R =	18985 X C X A =	77,094.29 CU. FT.
100-YR. STORAGE VOLUME: V100D	V100D =	V100R X R =	29,577.57 CU. FT.

DETENTION BASIN VOLUME:

792.80	3128.32	4627.25			
			0.60	2312.05	2312.05
793.00	4627.25	6401.08			
			1.00	5490.23	7802.28
794.00	6401.08	8468.50			
			1.00	7410.72	15213.00
795.00	8468.50	10828.85			
			1.00	9624.53	24837.53
796.00	10828.85	13472.48			
			1.00	12126.63	36964.15
797.00	13472.48				

TOTAL VOLUME STORED ON SITE DETENTION (CU. FT.) 36964.15

SANITARY SEWER BASIS OF DESIGN

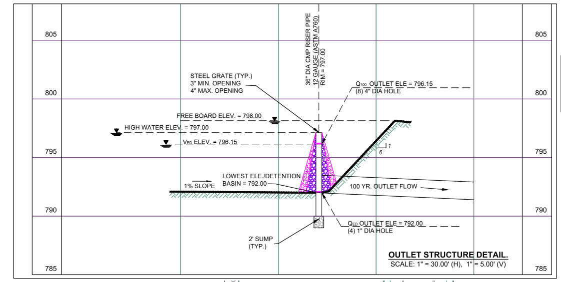
Name of Project:	AUBURN & LIVERNOIS CONDOMINIUMS	
Location of Project:	Section 34	CITY OF ROCHESTER HILLS, MI
Design service area in units		19 units
Population density per unit		2.44 people/unit
Design Population:		46.4 people
Design per Capita contribution is:		100.00 gal/person/day
Average Flow:		4636 GPD
Peak Factor: PEAK FACTOR = 18 + SQRT(POPULATION / 1000) / 4 + SQRT (POPULATION / 1000)		4.321223737
Peak Flow:		20,033.19 gal/person/day
Average Flow converted to cfs is:		**0.007 cfs**
Peak Flow converted to cfs is:		**0.0310 cfs**
Average Flow converted to MGD is:		**0.0046 MGD**
Peak Flow converted to MGD is:		**0.0200 MGD**

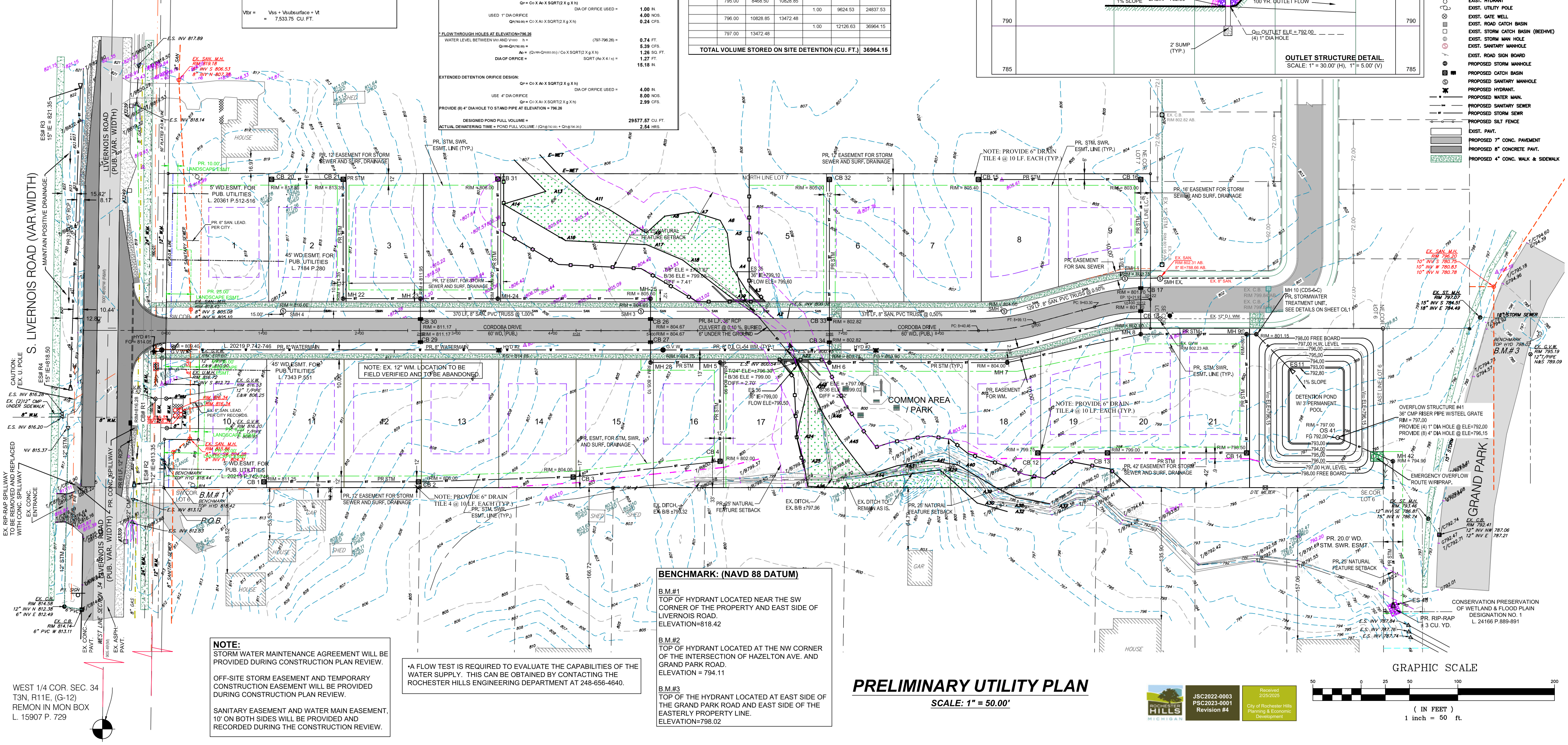
Available Capacity

PIPE DIA. in	SLOPE %	PIPE VEL. FULL ft/sec	PIPE CAP. cfs
8	0.500	2.45	0.86

WATER MAIN BASIS OF DESIGN

Name of Project:	AUBURN & LIVERNOIS CONDOMINIUMS
Location of Project:	CITY OF ROCHESTER HILLS, MI
Number of Single Family Units, or Equivalent Units:	21 units
Density per Unit:	2.44 people/unit
Population to be Served:	51.24 people
Design Flowrate is:	150.00 gal/person/day
Average Flow:	7,686.00 GPD
Peak Flow:	646.8812 GPD
Average Flow converted to cfs is:	**0.012 cfs**
Peak Flow converted to cfs is:	**0.05129 cfs**
Average Flow converted to MGD is:	**0.0077 MGD**
Peak Flow converted to MGD is:	**0.0331 MGD**





NOTE:
STORM WATER MAINTENANCE AGREEMENT WILL BE PROVIDED DURING CONSTRUCTION PLAN REVIEW.

OFF-SITE STORM EASEMENT AND TEMPORARY CONSTRUCTION EASEMENT WILL BE PROVIDED DURING CONSTRUCTION PLAN REVIEW.

SANITARY EASEMENT AND WATER MAIN EASEMENT, 10' ON BOTH SIDES WILL BE PROVIDED AND RECORDED DURING THE CONSTRUCTION REVIEW.

•A FLOW TEST IS REQUIRED TO EVALUATE THE CAPABILITIES OF THE WATER SUPPLY. THIS CAN BE OBTAINED BY CONTACTING THE ROCHESTER HILLS ENGINEERING DEPARTMENT AT 248-656-4640.

BENCHMARK: (NAVD 88 DATUM)

B.M.#1
TOP OF HYDRANT LOCATED NEAR THE SW CORNER OF THE PROPERTY AND EAST SIDE OF LIVERNOIS ROAD.
ELEVATION=818.42

B.M.#2
TOP OF HYDRANT LOCATED AT THE NW CORNER OF THE INTERSECTION OF HAZELTON AVE. AND GRAND PARK ROAD.
ELEVATION = 794.11

B.M.#3
TOP OF THE HYDRANT LOCATED AT EAST SIDE OF THE GRAND PARK ROAD AND EAST SIDE OF THE EASTERLY PROPERTY LINE.
ELEVATION=798.02

WEST 1/4 COR. SEC. 34
T3N, R11E, (G-12)
REMON IN MON BOX
L. 15907 P. 729

PRELIMINARY UTILITY PLAN

SCALE: 1" = 50.00'

JSC2022-0003
PSC2023-0001
Revision #4

Received 2/25/2025
City of Rochester Hills Planning & Economic Development

GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft.

LEGEND:
C.B. -- CATCH BASIN
M.H. -- MANHOLE
O.S. -- OVERFLOW STRUCTURE
E.S. -- END SECTION

GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
www.gatewayengineer.com

PROJECT INFORMATION:
OAK CREEK SITE CONDOMINIUMS
PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E., CITY OF ROCHESTER HILLS, OAKLAND CO., MICHIGAN
P.I.D # 15-34-101-055 & # 15-34-101-053

CLIENT INFORMATION:
ENLIVEN DEVELOPERS
1322 HARVARD DRIVE
ROCHESTER HILLS, MI-48307
PH: (586) 612 6937
Info@EnlivenBuild.com

ISSUANCE:
☐ SCHEMATIC
☐ BIDDING
☐ MUNI SUBMITTAL
☐ CONSTRUCTION
☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
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2.	REVISION	03/17/2020
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4.	PSP- REV.	06/14/2022
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11.	PSP - REV.	08/01/2024
12.	PSP - REV.	12/18/2024
13.	PSP - REV.	01/28/2025

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:
PRELIMINARY UTILITY PLAN

NO. C4.1

GES PROJECT # 20-0102

CITY FILE #22-044, SECTION #34

OAK CREEK SITE CONDOMINIUM

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E.,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

BENCHMARK: (NAVD 88 DATUM)

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ELEVATION=818.42

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ELEVATION = 794.11

B.M.#3
TOP OF THE HYDRANT LOCATED AT EAST SIDE OF THE GRAND PARK ROAD AND EAST SIDE OF THE EASTERLY PROPERTY LINE.
ELEVATION=798.02

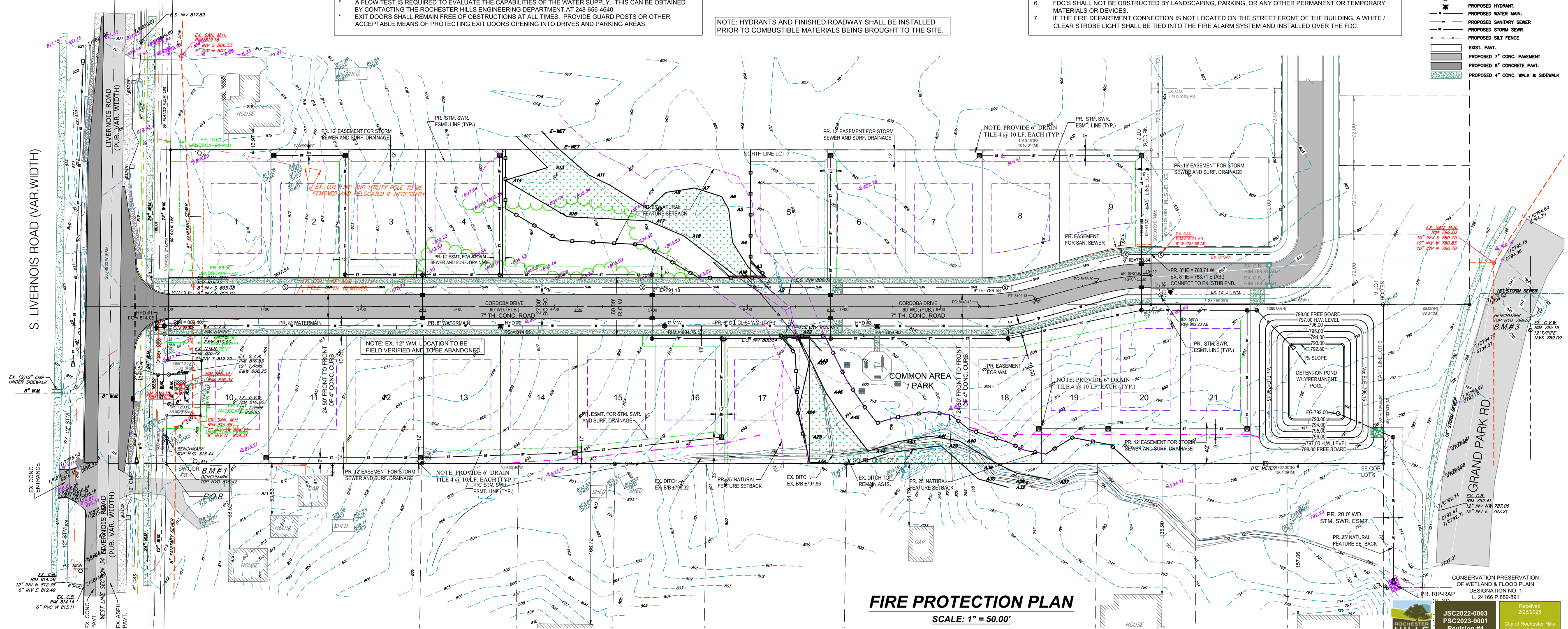
NOTES:

- SINGLE FAMILY RESIDENTIAL,2 CAR GARAGE FRONT ENTRANCE WITH 18' CONC. DRIVE.
- BRICK FACADE, 1 ½ AND 2 STORY FLOOR PLANS.
- WITH SQUARE FOOTAGE RANGING FROM 2500 TO 3800 S.F.
- CONSTRUCTION TYPE IS V-B.
- 24.5' WIDE 7" CONC. ROAD FROM FRONT TO FRONT OF 4" MOUNTABLE CONC. CURB.
- FIRE APPARATUS ACCESS ROADWAYS SHOULD BE DESIGNED TO SUPPORT THE LOAD OF THE FIRE APPARATUS (75,000 POUNDS) AND BE SURFACED TO PROVIDE ALL WEATHER DRIVING CAPABILITIES.
- FIRE APPARATUS ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED WIDTH OF 20 FEET ACROSS (26 FEET ACROSS WHERE FIRE HYDRANTS ARE PRESENT) AND AN UNOBSTRUCTED HEIGHT OF 13 FEET 6 INCHES.
- A FLOW TEST IS REQUIRED TO EVALUATE THE CAPABILITIES OF THE WATER SUPPLY. THIS CAN BE OBTAINED BY CONTACTING THE ROCHESTER HILLS ENGINEERING DEPARTMENT AT 248-656-4640.
- EXIT DOORS SHALL REMAIN FREE OF OBSTRUCTIONS AT ALL TIMES. PROVIDE GUARD POSTS OR OTHER ACCEPTABLE MEANS OF PROTECTING EXIT DOORS OPENING INTO DRIVES AND PARKING AREAS.

NOTE: HYDRANTS AND FINISHED ROADWAY SHALL BE INSTALLED PRIOR TO COMBUSTIBLE MATERIALS BEING BROUGHT TO THE SITE.

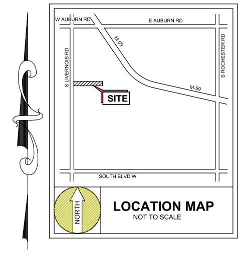
FIRE DEPARTMENT NOTES:

1. A KNOX KEY SYSTEM SHALL BE INSTALLED IN A LOCATION APPROVED BY THE FIRE CODE OFFICIAL. ORDERING INFORMATION IS AVAILABLE THROUGH THE KNOX COMPANY AT WWW.KNOXBOX.COM (IFC 2006 SEC.1028.2)
2. FIRE LANES SHALL BE DESIGNATED BY THE FIRE CODE OFFICIAL, AND SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE, WITH FIRE LANE SIGNS SPACED NOT MORE THAN 100 FEET APART. FIRE LANE SIGNS SHALL READ "NO STOPPING, STANDING, PARKING, FIRE LANE" AND SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (FIRE PREVENTION ORDINANCE CHAPTER 58, SEC 503)
3. CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14.
4. OPEN BURNING IS NOT PERMITTED, INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING. OPEN BURNING FOR WARMING OF SAND AND / OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES FIRE PREVENTION ORDINANCE CHAPTER 58, SEC 307.6.2 & MORTAR PERMIT CAN BE APPLIED FOR ONLINE AT WWW.ROCHESTERHILLS.ORG/FIRE IN THE "FOR YOUR BUSINESS" SECTION.
5. PROVIDE A "NO PARKING FIRE DEPARTMENT CONNECTION" SIGN OVER THE FIRE DEPARTMENT CONNECTION.
6. FDC'S SHALL NOT BE OBSTRUCTED BY LANDSCAPING, PARKING, OR ANY OTHER PERMANENT OR TEMPORARY MATERIALS OR DEVICES.
7. IF THE FIRE DEPARTMENT CONNECTION IS NOT LOCATED ON THE STREET FRONT OF THE BUILDING, A WHITE / CLEAR STROBE LIGHT SHALL BE TIED INTO THE FIRE ALARM SYSTEM AND INSTALLED OVER THE FDC.



FIRE PROTECTION PLAN

SCALE: 1" = 50.00'



GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

LEGEND:
C.B. -- CATCH BASIN
M.H. -- MANHOLE
O.S. -- OVERFLOW STRUCTURE
E.S. -- END SECTION

LEGEND

EXIST. STORM SEWER
EXIST. SANITARY LINE.
EXIST. WATERMAIN
EXIST. OVERHEAD UTILITY
EXIST. GAS LINE
EXIST. HYDRANT
EXIST. UTILITY POLE
EXIST. GATE WELL
EXIST. ROAD CATCH BASIN
EXIST. STORM CATCH BASIN (BEEHIVE)
EXIST. STORM MAN HOLE
EXIST. SANITARY MANHOLE
EXIST. ROAD SIGN BOARD
PROPOSED STORM MANHOLE
PROPOSED CATCH BASIN
PROPOSED SANITARY MANHOLE
PROPOSED HYDRANT.
PROPOSED WATER MAIN.
PROPOSED SANITARY SEWER
PROPOSED STORM SEWR
PROPOSED SILT FENCE
EXIST. PAVT.
PROPOSED 7" CONC. PAVEMENT
PROPOSED 8" CONCRETE PAVT.
PROPOSED 4" CONC. WALK & SIDEWALK

GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
www.gatewayengineer.com

PROJECT INFORMATION:

OAK CREEK SITE CONDOMINIUMS

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E., CITY OF ROCHESTER HILLS, OAKLAND CO., MICHIGAN

P.I.D # 15-34-101-055 &
15-34-101-053

CLIENT INFORMATION:

ENLIVEN DEVELOPERS
1322 HARVARD DRIVE
ROCHESTER HILLS, MI-48307
PH: (586) 612 6937
Info@EnlivenBuild.com

ISSUANCE:
☐ SCHEMATIC
☐ BIDDING
☐ MUNI SUBMITTAL
☐ CONSTRUCTION
☐ OTHER

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NO.	DESC.	DATE
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8.	REV. TREE	02/27/2023
9.	PSP - SUB.	03/08/2023
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11.	PSP - REV.	08/01/2024
12.	PSP - REV.	12/18/2024
13.	PSP - REV.	01/28/2025

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:
FIRE PROTECTION PLAN

NO. C5.1

GES PROJECT # 20-0102

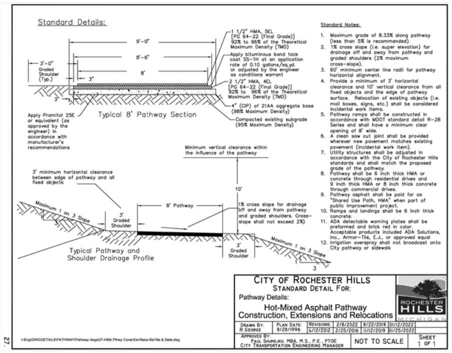
CITY FILE #22-044, SECTION #34

JSC2022-0003
PSC2023-0001
Revision #4

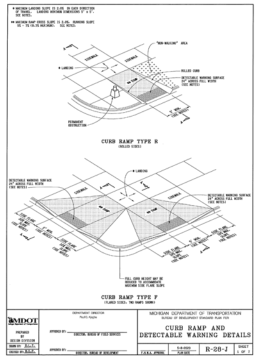
Received 2/25/2025
City of Rochester Hills Planning & Economic Development

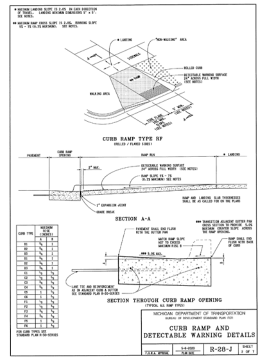
OAK CREEK SITE CONDOMINIUM

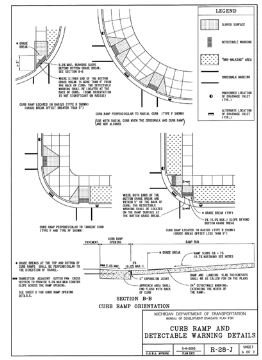
PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E., CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

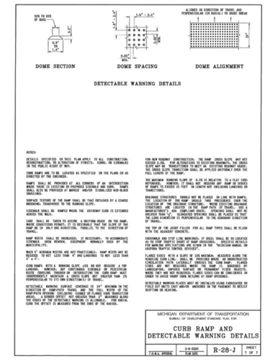


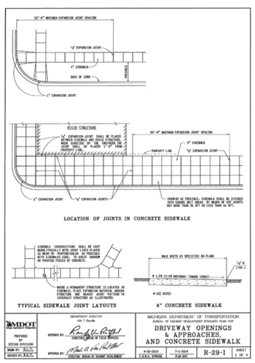
Standard Details:
Typical 8' Pathway Section
Typical Pathway and Shoulder Drainage Profile
Standard Notes:
CITY OF ROCHESTER HILLS
STANDARD DETAIL FOR:
Pathway Details:
Hot-Mixed Asphalt Pathway Construction, Extensions and Relocations
NOT TO SCALE
SHEET 1 OF 1

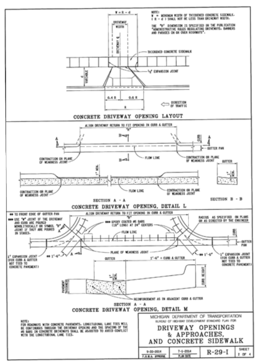


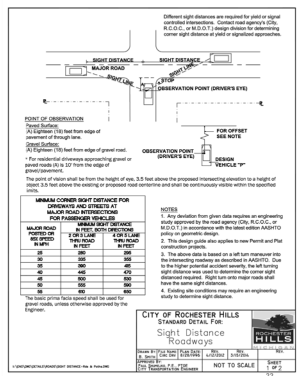




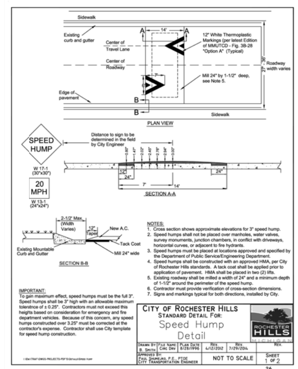


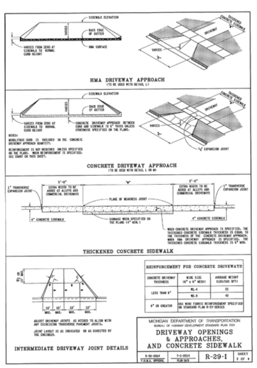


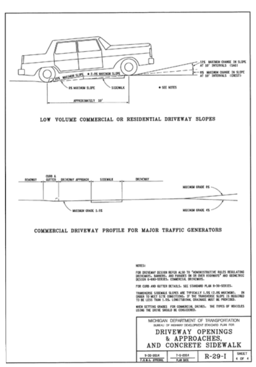


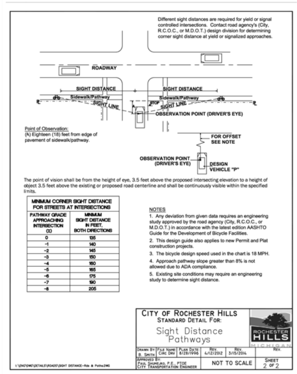


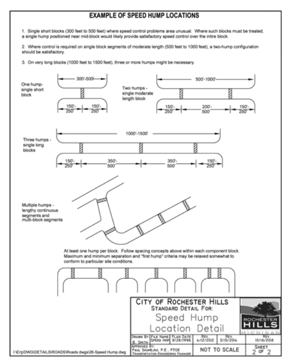
Different sight distances are required for yield or signal controlled intersections. Contact road agency's (City, R.C.O.C., or M.D.O.T.) design division for determining corner sight distance at yield or signalized approaches.
SIGHT DISTANCE
MAJOR ROAD
OBSERVATION POINT (DRIVER'S EYE)
DESIGN VEHICLE "P"
CITY OF ROCHESTER HILLS
STANDARD DETAIL FOR:
Sight Distance
Roadways
NOT TO SCALE
SHEET 1 OF 2

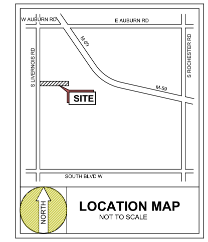












LOCATION MAP
NOT TO SCALE

JSC2022-0003
PSC2023-0001
Revision #4

Received 2/25/2025
City of Rochester Hills Planning & Economic Development

ROCHESTER HILLS MICHIGAN

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PROJECT INFORMATION:

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P.I.D # 15-34-101-055 & # 15-34-101-053

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- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

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12.	PSP - REV.	12/18/2024

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:
DETAILS

NO. C6.1

GES PROJECT # 20-0102

CITY FILE #22-044, SECTION #34

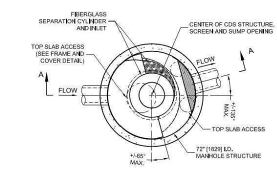
OAK CREEK SITE CONDOMINIUM

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E.,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

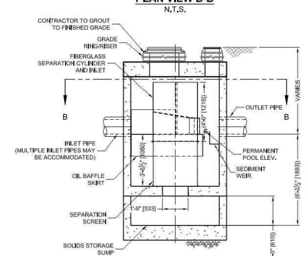
NOTE: STANDARD DETAILS SHEETS PROVIDED BY MANUFACTURER.
THE SITE SPECIFIC DETAILS WILL BE PROVIDED AT THE TIME OF THE ENGINEERING REVIEW.

CDS-6-C (CDS3030) DESIGN NOTES

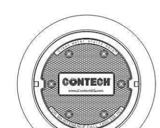
CDS-6-C (CDS3030) RATED TREATMENT CAPACITY IS 2.1 CFS [44.7 L/s]. IF THE SITE CONDITIONS EXCEED MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

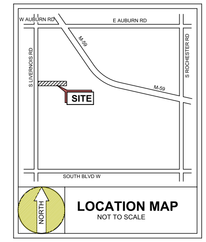
GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET HS20 (AASHTO M 306) AND BE CAST WITH THE CONTECH LOGO.
6. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS-6-C (CDS3030)
INLINE CDS
STANDARD DETAIL

ROCHESTER HILLS MICHIGAN
JSC2022-0003
PSC2023-0001
Revision #4
Received 2/25/2025
City of Rochester Hills Planning & Economic Development



LOCATION MAP
NOT TO SCALE

GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
www.gatewayengineer.com

PROJECT INFORMATION:

OAK CREEK SITE CONDOMINIUMS

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E., CITY OF ROCHESTER HILLS, OAKLAND CO., MICHIGAN

P.I.D # 15-34-101-055 &
15-34-101-053

CLIENT INFORMATION:
ENLIVEN DEVELOPERS
1322 HARVARD DRIVE
ROCHESTER HILLS, MI-48307
PH: (586) 612 6937
Info@EnlivenBuild.com

ISSUANCE:
☐ SCHEMATIC
☐ BIDDING
☐ MUNI SUBMITTAL
☐ CONSTRUCTION
☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PRLM SITE PLAN	01/15/2020
2.	REVISION	03/17/2020
3.	REVISION	06/24/2021
4.	PSP- REV.	06/14/2022
5.	REVISION	06/22/2022
6.	REVISION	10/12/2022
7.	EGLE	01/20/2023
8.	REV. TREE	02/27/2023
9.	PSP - SUB.	03/08/2023
10.	PSP - REV.	12/04/2023
11.	PSP - REV.	08/01/2024
12.	PSP - REV.	12/18/2024

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:
DETAILS

NO. C6.2

GES PROJECT # 20-0102

CITY FILE #22-044, SECTION #34

APPENDIX E: UNITED STATES FISH AND WILDLIFE (USFWS) INFORMATION FOR PLANNING AND CONSULTATION (IPAC) RESOURCE LIST

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

Oakland County, Michigan

Local office

Michigan Ecological Services Field Office

(517) 351-2555
(517) 351-1443

2651 Coolidge Road Suite 101

East Lansing, MI 48823-6360

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[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

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

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, 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 **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered

Reptiles

NAME	STATUS
Eastern Massasauga (=rattlesnake) Sistrurus catenatus Wherever found This species only needs to be considered if the following condition applies: • For all Projects: Project is within EMR Range No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2202	Threatened

Clams

NAME	STATUS
Salamander Mussel Simpsonaias ambigua Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6208	Proposed Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed 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.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
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.	Breeds Dec 1 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 "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

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:

1. 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.

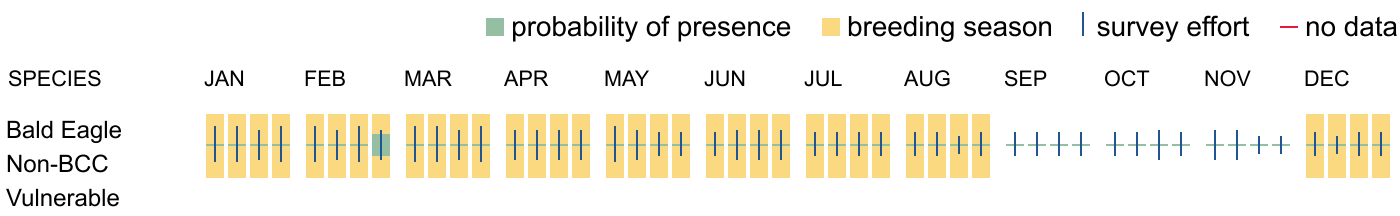
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
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
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.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets 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 an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). 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 line or no data line (red horizontal) 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 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 and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), 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.

Interpreting the Probability of Presence Graphs

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 taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

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.

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.

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.

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 ()
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.

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

Survey Timeframe
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.

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

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:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
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.	Breeds Dec 1 to Aug 31
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
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Golden-winged Warbler Vermivora chrysoptera This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
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 "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

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:

1. 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 (■)

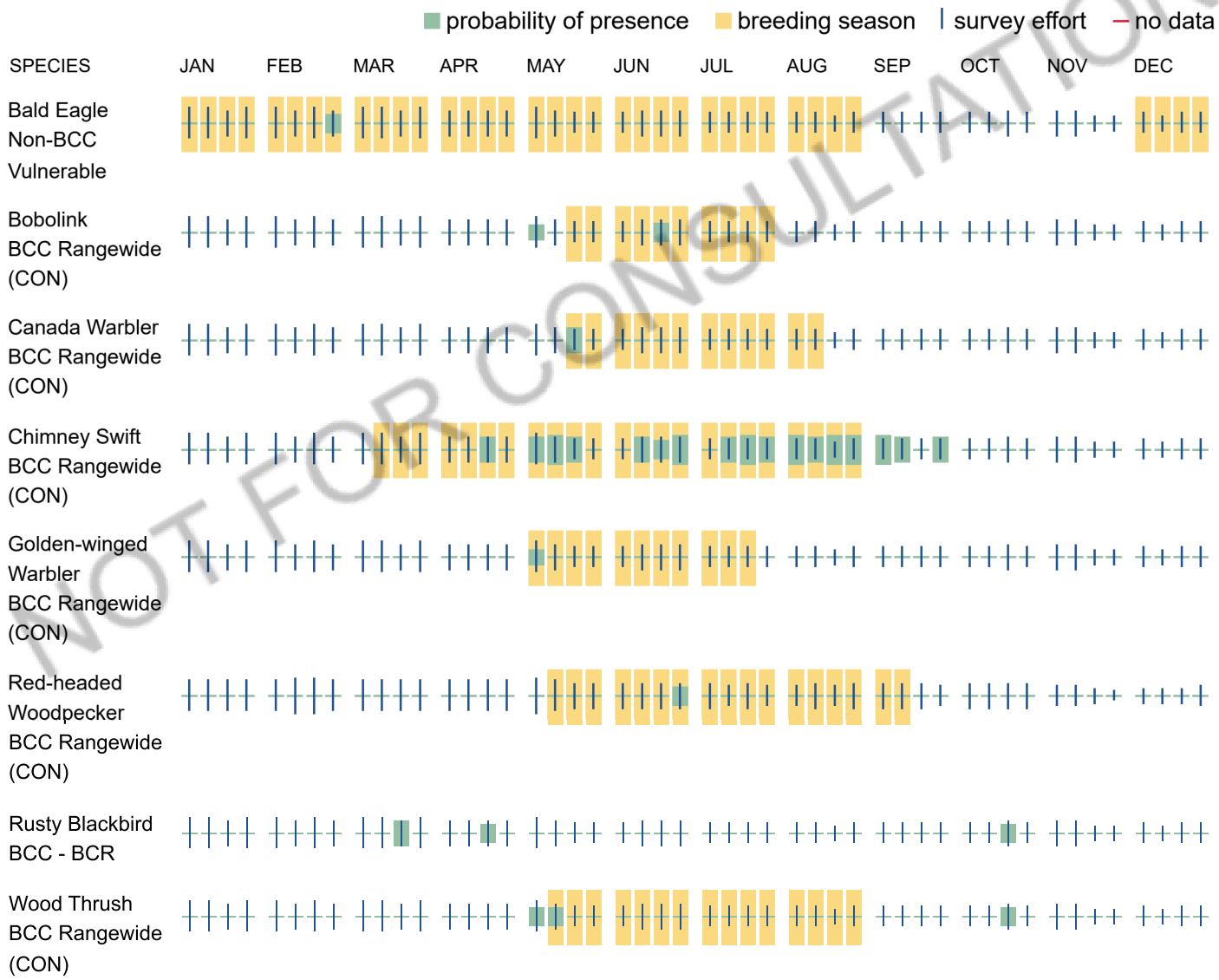
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
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
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.



Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits 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 list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as "Vulnerable". See the FAQ "What are the levels of concern for migratory birds?" for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act 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, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

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 Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

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 to 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, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in

your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), 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 Birds of Conservation Concern (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 Bald and Golden Eagle Protection Act 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 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 BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

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 Northeast Ocean Data Portal. 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 NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

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 look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). 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 does not represent all birds present in your project area. 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 and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
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 taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

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.

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.

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.

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 ()
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.

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

Survey Timeframe
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.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge 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 (NWI)

Impacts to NWI wetlands 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.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE
R2UBFx

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

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

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.

APPENDIX F: ALTERNATIVE SITE PLANS

OAK CREEK SUBDIVISION

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E.,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

LOT NUMBER	LOT AREA S.F.	LOT FRONTAG E FT.
1	13890.04	105.82
2	10591.46	80.00
3	10591.46	80.00
4	10591.46	80.00
5	13243.62	100.00
6	10595.48	80.00
7	10595.48	80.00
8	10117.17	81.80
9	10065.82	96.90
10	12001.48	104.65
11	10605.53	80.00
12	10604.03	80.00
13	10602.53	80.00
14	10601.02	80.00
15	10599.52	80.00
16	10598.02	80.00
17	10596.51	80.00
18	11993.57	90.55
19	10109.45	75.73
20	10838.09	74.58
21	11803.91	72.33
22	11866.33	72.00
TOTAL	243101.97	1834.36
AVERAGE	10569.65	83.38

LOT SUMMERY CALCULATION:

SETBACKS:
EXISTING ZONING: R-4 - ONE FAMILY RESIDENTIAL
PROPOSED ZONING: R-4 - ONE FAMILY RESIDENTIAL.

PER SEC. 138-5.100 SCHEDULE OF REGULATIONS:
TABLE 5. SCHEDULE OF REGULATIONS
FOR R-4 ZONING.

	REQUIRED	PROPOSED
MIN. LOT AREA	9600 S.F.	11,001.46 S.F. AVG. (9931.52 S.F. MIN.)
MIN. LOT WIDTH	80'	80' (83.02' AVG. - 72' MIN.)
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10' / 20' TOTAL	10' / 20' TOTAL
REAR YARD SETBACK	35'	35'
MAX. LOT COVERAGE (BLD.)	30%	30%

A. THE PROPOSED MIN. LOT WIDTH AND MIN. LOT AREA IS BASED ON THE SECTION 138-5.200 LOT SIZE VARIATION
B. REDUCED MIN. LOT WIDTH AND AREA IN THE R-4 DISTRICT.

PROJECT DATA

LOCAL AGENCY: ROCHESTER HILLS, MI
DEPT. OF PLANNING & ECONOMIC DEVELOPMENT
1000 ROCHESTER HILLS DR.
ROCHESTER HILLS, MI 48309

EXISTING ZONING: R-4 ONE FAMILY RESIDENTIAL
NET DENSITY (DWELLING UNITS PER ACRE) = 3.4
PROPOSED UNITS ALLOWED = 28.76 UNITS.

PROPOSED LAND USE: R-4 ONE FAMILY RESIDENTIAL

GROSS AREA OF SITE : 8.46 ACRES (368528.67 S.F.)

TOTAL NUMBER OF LOTS PROPOSED: 22 LOTS

PROPOSED DENSITY : = 22 / 8.46 = 2.60

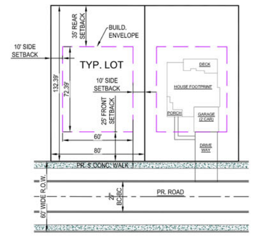
WATER SUPPLY: MUNICIPAL
SANITARY: MUNICIPAL
STORM: ENCLOSED STORM SEWER
DETENTION : ONSITE DETENTION SYSTEM.

* SIGN IS NOT PART OF THIS APPROVAL.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.



TYP. 80.00' WIDE LOT LAYOUT

BENCHMARK: (NAVD 88 DATUM)

B.M.#1
TOP OF HYDRANT LOCATED NEAR THE SW CORNER OF THE PROPERTY AND EAST SIDE OF LIVERNOIS ROAD.
ELEVATION=818.42

B.M.#2
TOP OF HYDRANT LOCATED AT THE NW CORNER OF THE INTERSECTION OF HAZELTON AVE. AND GRAND PARK ROAD.
ELEVATION = 794.11

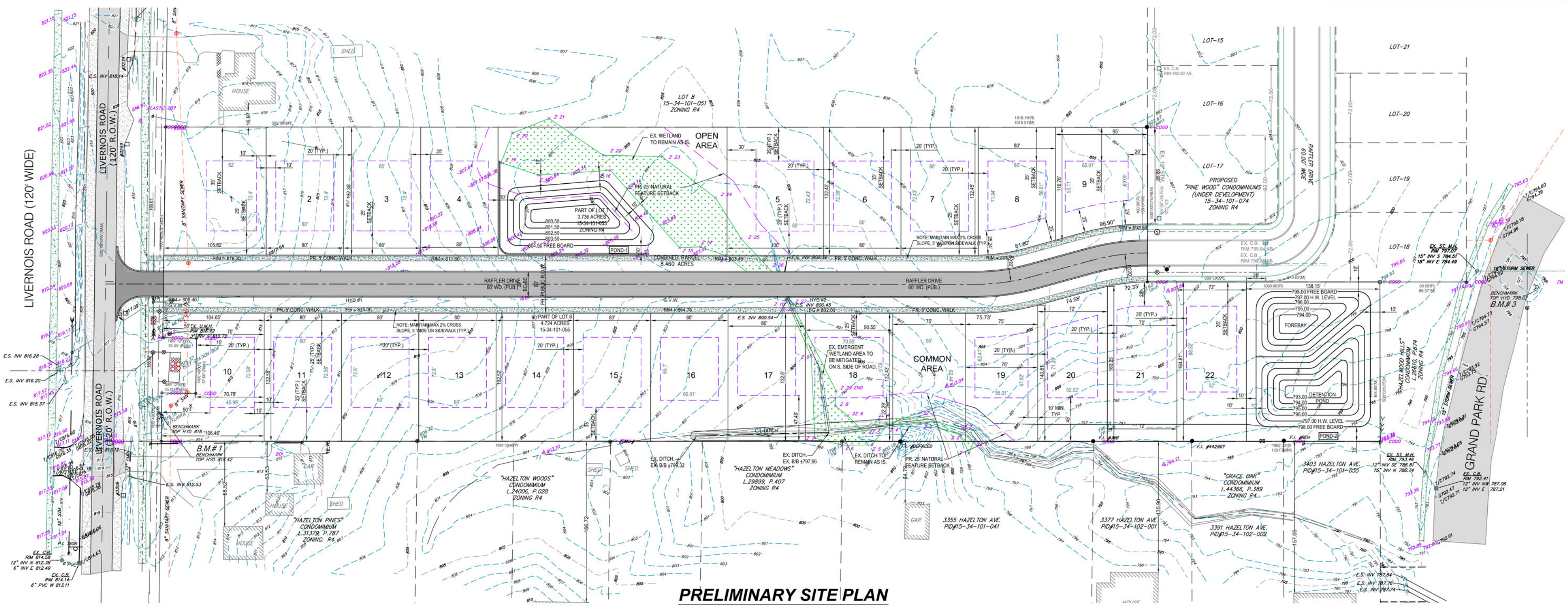
B.M.#3
TOP OF THE HYDRANT LOCATED AT EAST SIDE OF THE GRAND PARK ROAD AND EAST SIDE OF THE EASTERLY PROPERTY LINE.
ELEVATION=798.02

LEGAL DESCRIPTION:

DESCRIPTION PART OF LOTS 6 AND 7 (15-34-101-055 AND 15-34-101-053 COMBINED)

PART OF LOTS 6 AND 7 OF " SUPERVISOR'S PLAT #5" BEING PART OF THE NORTH 1/2 OF SECTION 34, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS ON PAGE 55, OAKLAND COUNTY RECORDS, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOW: COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 34; THENCE SOUTH 00 DEGREES 48 MINUTES 00 SECONDS WEST 1485.15 FEET ALONG THE WEST LINE OF SECTION 34; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS EAST 50.00 FEET TO THE SOUTHWEST CORNER OF LOT 6; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS EAST 10.00 FEET ALONG THE SOUTH LINE OF LOT 6 TO THE POINT OF THE BEGINNING; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 50.00 FEET; THENCE SOUTH 89 DEGREES 12 MINUTES 00 SECONDS EAST 35.00 FEET; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 57.00 FEET; THENCE NORTH 89 DEGREES 12 MINUTES 00 SECONDS WEST 35.00 FEET; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 218.03 FEET TO THE NORTH LINE OF LOT 7; THENCE SOUTH 89 DEGREES 59 MINUTES 09 SECONDS EAST 1016.01 FEET ALONG THE NORTH LINE OF LOT 7 TO THE NORTHEAST CORNER OF LOT 7; THENCE SOUTH 00 DEGREES 00 MINUTES 23 SECONDS EAST 159.84 FEET ALONG THE EAST LINE OF LOT 7 TO THE SOUTHEAST CORNER OF LOT 7; THENCE SOUTH 89 DEGREES 59 MINUTES 29 SECONDS EAST 240.63 FEET ALONG THE NORTH LINE OF LOT 6 TO THE NORTHEAST CORNER OF LOT 6; THENCE SOUTH 00 DEGREES 03 MINUTES 53 SECONDS EAST 164.80 FEET ALONG THE EAST LINE OF LOT 6 TO THE SOUTHEAST CORNER OF LOT 6; THENCE NORTH 89 DEGREES 59 MINUTES 46 SECONDS WEST 1261.39 FEET ALONG THE SOUTH LINE OF LOT 6 TO THE POINT OF THE BEGINNING. CONTAINING OF 8.460 ACRES OF LAND.

SUBJECT TO ANY EASEMENTS AND / OR RIGHTS OF WAY RECORDED OR OTHERWISE.



PRELIMINARY SITE PLAN

SCALE: 1" = 50.00'

GES GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
www.gatewayengineer.com

PROJECT INFORMATION:

OAK CREEK SUBDIVISION

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E., CITY OF ROCHESTER HILLS, OAKLAND CO., MICHIGAN

P.I.D # 15-34-101-055 &
15-34-101-053

CLIENT INFORMATION:

ENLIVEN DEVELOPERS
1322 HARVARD DRIVE
ROCHESTER HILLS, MI-48307
PH: (586) 612 6937
mohammed.bahauddin@gravitonusa.com

ISSUANCE:
☐ SCHEMATIC
☐ BIDDING
☐ MUNI SUBMITTAL
☐ CONSTRUCTION
☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PRLM SITE PLAN	01/15/2020
2.	REVISION	03/17/2020
3.	REVISION	06/24/2021
4.	PSP- REV.	06/14/2022
5.	REVISION	06/22/2022

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:
PRELIMINARY SITE PLAN

NO. C2.1

GES PROJECT # 20-0102

OAK CREEK SITE CONDOMINIUM

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E.,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

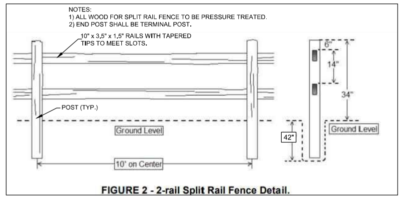
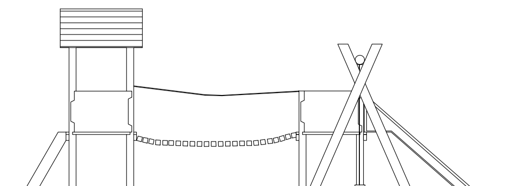


FIGURE 2 - 2-rail Split Rail Fence Detail.



(TYP.) KIDS PLAY SET
(NOT TO SCALE)

NOTE: NOTICE OF WETLAND/FLOODPLAIN DESIGNATION WILL BE PROVIDED AFTER THE FINAL SITE PLAN BY THE CITY COUNCIL BUT BEFORE A FINAL SITE PLAN IS STAMPED "APPROVED" IN A RECORDED FORM SATISFACTORY TO CITY OF ROCHESTER HILLS. FOR EVERY BUILDING ENVELOPE, BUILDING SITE AND COMMON ELEMENT WHICH INCLUDES ANY AREA DESIGNATED AS WETLAND OR FLOODPLAIN.

NOTE: LIVERNOIS IS UNDER THE JURISDICTION OF THE RCOC AND A PERMIT WILL BE REQUIRED FOR WORK WITHIN THEIR ROW.

LOT SUMMERY CALCULATION: 03-08-2023

LOT NUMBER	LOT AREA (S.F.)	LOT FRONTAGE AT SETBACK LINE (FT.)
1	13890.04	105.48
2	10591.46	80.00
3	10591.46	80.00
4	10591.46	80.00
5	22242.07	168.00
6	22378.69	169.00
7	10594.73	80.00
8	10594.10	80.00
9	10116.87	81.96
10	10065.82	96.73
11	12000.55	104.99
12	10605.53	80.00
13	10604.03	80.00
14	10602.53	80.00
15	10601.02	80.00
16	10599.52	80.00
17	9538.89	72.00
18	11657.12	88.00
19	10107.44	75.60
20	10842.93	74.60
21	11803.77	72.43
22	11866.31	72.00
TOTAL	262486.34	1960.79
AVERAGE	11412.45	90.04

* NO STREET LIGHTS WILL BE PROVIDED ALONG RAFFLER DR.

* NO ACCESS DIRECTLY TO LIVERNOIS RD. FROM UNITS #1 AND #11.

* WARRANTY DEED SHALL BE PROVIDED FOR PUBLIC ROAD DEDICATION DURING CONSTRUCTION PLAN REVIEW.

SETBACKS:

EXISTING ZONING: R-4 - ONE FAMILY RESIDENTIAL
PROPOSED ZONING: R-4 - ONE FAMILY RESIDENTIAL.

PER SEC. 138-5.100 SCHEDULE OF REGULATIONS:
TABLE 5. SCHEDULE OF REGULATIONS
FOR R-4 ZONING.

	REQUIRED	PROPOSED
MIN. LOT AREA	9600 S.F.	11,412.45 S.F. AVG. (9538.89 S.F. MIN.)
MIN. LOT WIDTH	80'	80' (90.04' AVG. - 72' MIN.)
FRONT YARD SETBACK	25'	25'
SIDE YARD SETBACK	10' / 20' TOTAL	10' / 20' TOTAL
REAR YARD SETBACK	35'	35'
MAX. LOT COVERAGE (BLD.)	30%	30%

A. THE PROPOSED MIN. LOT WIDTH AND MIN. LOT AREA IS BASED ON THE SECTION 138-5.200 LOT SIZE VARIATION
B. REDUCED MIN. LOT WIDTH AND AREA IN THE R-4 DISTRICT.

PROJECT DATA

LOCAL AGENCY: ROCHESTER HILLS, MI
DEPT. OF PLANNING & ECONOMIC DEVELOPMENT
1000 ROCHESTER HILLS DR.
ROCHESTER HILLS, MI 48309

EXISTING ZONING: R-4 ONE FAMILY RESIDENTIAL
NET DENSITY (DWELLING UNITS PER ACRE) = 3.4
PROPOSED UNITS ALLOWED = 28.76 UNITS.

PROPOSED LAND USE: R-4 ONE FAMILY RESIDENTIAL

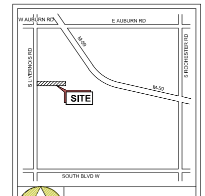
GROSS AREA OF SITE : 8.46 ACRES (368528.67 S.F.)

TOTAL NUMBER OF LOTS PROPOSED: 22 LOTS

PROPOSED DENSITY : = 22 / 8.46 = 2.60

WATER SUPPLY: MUNICIPAL
SANITARY: MUNICIPAL
STORM: ENCLOSED STORM SEWER
DETENTION : ONSITE DETENTION SYSTEM.

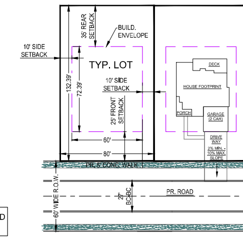
* SIGN IS NOT PART OF THIS APPROVAL.



LOCATION MAP
NOT TO SCALE

scale is incorrect.
43.18 ft

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.



TYP. 80.00' WIDE LOT LAYOUT

BENCHMARK: (NAVD 88 DATUM)

B.M.#1
TOP OF HYDRANT LOCATED NEAR THE SW CORNER OF THE PROPERTY AND EAST SIDE OF LIVERNOIS ROAD.
ELEVATION=818.42

B.M.#2
TOP OF HYDRANT LOCATED AT THE NW CORNER OF THE INTERSECTION OF HAZELTON AVE. AND GRAND PARK ROAD.
ELEVATION = 794.11

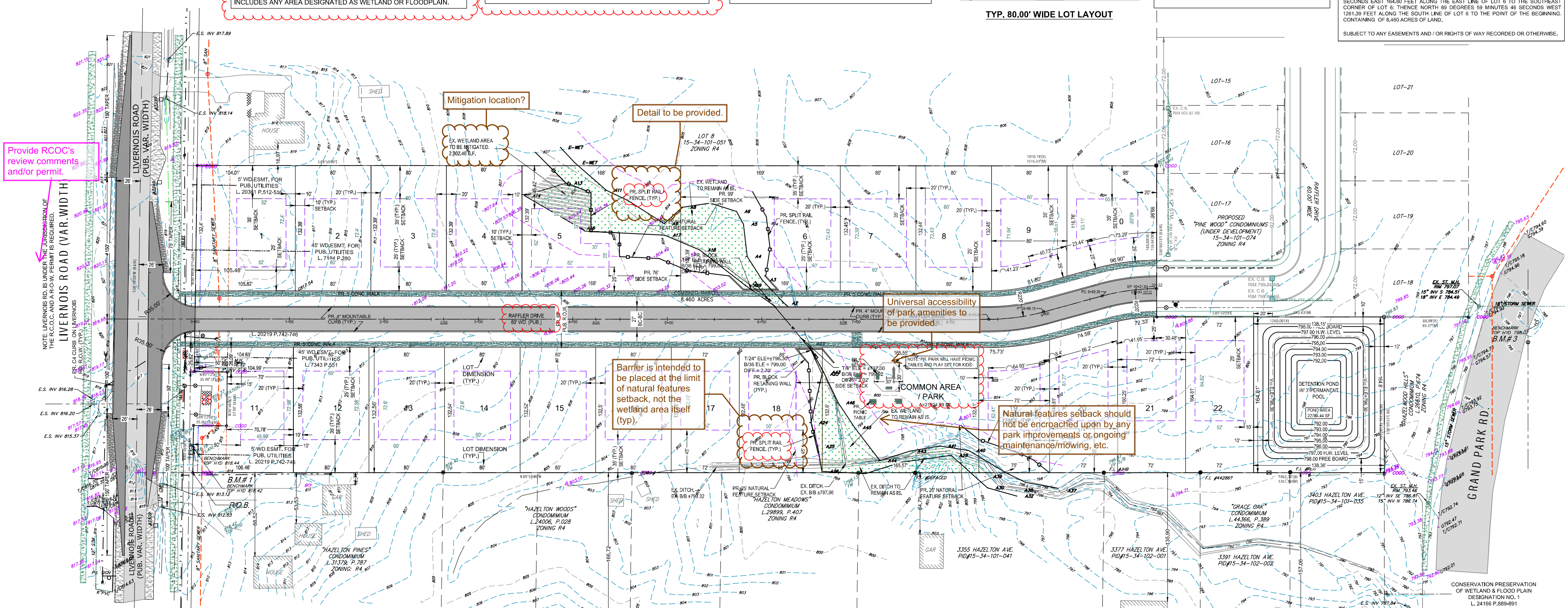
B.M.#3
TOP OF THE HYDRANT LOCATED AT EAST SIDE OF THE GRAND PARK ROAD AND EAST SIDE OF THE EASTERLY PROPERTY LINE.
ELEVATION=798.02

LEGAL DESCRIPTION:

DESCRIPTION PART OF LOTS 6 AND 7 (15-34-101-055 AND 15-34-101-053 COMBINED)

PART OF LOTS 6 AND 7 OF " SUPERVISOR'S PLAT #5" BEING PART OF THE NORTH 1/2 OF SECTION 34, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS ON PAGE 55, OAKLAND COUNTY RECORDS, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOW: COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 34; THENCE SOUTH 00 DEGREES 48 MINUTES 00 SECONDS WEST 1485.15 FEET ALONG THE WEST LINE OF SECTION 34; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS EAST 50.00 FEET TO THE SOUTHWEST CORNER OF LOT 6; THENCE SOUTH 89 DEGREES 59 MINUTES 46 SECONDS EAST 10.00 FEET ALONG THE SOUTH LINE OF LOT 6 TO THE POINT OF THE BEGINNING; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 50.00 FEET; THENCE SOUTH 89 DEGREES 12 MINUTES 00 SECONDS EAST 35.00 FEET; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 57.00 FEET; THENCE NORTH 89 DEGREES 12 MINUTES 00 SECONDS WEST 35.00 FEET; THENCE NORTH 00 DEGREES 48 MINUTES 00 SECONDS EAST 218.03 FEET TO THE NORTH LINE OF LOT 7; THENCE SOUTH 89 DEGREES 59 MINUTES 09 SECONDS EAST 1016.01 FEET ALONG THE NORTH LINE OF LOT 7 TO THE NORTHEAST CORNER OF LOT 7; THENCE SOUTH 00 DEGREES 00 MINUTES 23 SECONDS EAST 159.84 FEET ALONG THE EAST LINE OF LOT 7 TO THE SOUTHEAST CORNER OF LOT 7; THENCE SOUTH 89 DEGREES 59 MINUTES 29 SECONDS EAST 240.63 FEET ALONG THE NORTH LINE OF LOT 6 TO THE NORTHEAST CORNER OF LOT 6; THENCE SOUTH 00 DEGREES 03 MINUTES 53 SECONDS EAST 164.80 FEET ALONG THE EAST LINE OF LOT 6 TO THE SOUTHEAST CORNER OF LOT 6; THENCE NORTH 89 DEGREES 59 MINUTES 46 SECONDS WEST 1261.39 FEET ALONG THE SOUTH LINE OF LOT 6 TO THE POINT OF THE BEGINNING. CONTAINING OF 8.460 ACRES OF LAND.

SUBJECT TO ANY EASEMENTS AND / OR RIGHTS OF WAY RECORDED OR OTHERWISE.



PRELIMINARY SITE PLAN

SCALE: 1" = 50.00'

GES GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
www.gatewayengineer.com

PROJECT INFORMATION:

OAK CREEK SITE CONDOMINIUMS

PART OF THE NORTH 1/2 OF SECTION 34, T. 3 N., R. 11 E., CITY OF ROCHESTER HILLS, OAKLAND CO., MICHIGAN

P.I.D # 15-34-101-055 & # 15-34-101-053

CLIENT INFORMATION:

ENLIVEN DEVELOPERS
1322 HARVARD DRIVE
ROCHESTER HILLS, MI-48307
PH: (586) 612 6937
Info@EnlivenBuild.com

ISSUANCE:
☐ SCHEMATIC
☐ BIDDING
☐ MUNI SUBMITTAL
☐ CONSTRUCTION
☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PRLM SITE PLAN	01/15/2020
2.	REVISION	03/17/2020
3.	REVISION	06/24/2021
4.	PSP- REV.	06/14/2022
5.	REVISION	06/22/2022
6.	REVISION	10/12/2022
7.	EGLE	01/20/2023
8.	REV. TREE	02/27/2023
9.	PSP - SUB.	03/08/2023
10.	PSP - REV.	12/04/2023

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:
PRELIMINARY SITE PLAN

NO. C2.1

GES PROJECT # 20-0102