Planning Commission

Larry Fox, Chairperson
Michael Mitchell, Vice-Chairperson
Michelle LaRose, Commissioner
Joseph W. Colaianne, Trustee
Keith Voight, Secretary
Sue Grissim, Commissioner
Tom Murphy, Commissioner

Planning Commission Special Meeting Agenda
Hartland Town Hall
Thursday, August 20, 2020
7:00 PM

1. Call to Order
2. Pledge of Allegiance
3. Roll Call
4. Approval of the Agenda
5. Approval of Meeting Minutes
   a. Planning Commission Minutes of June 25, 2020
6. Call to Public
7. Public Hearing
   a. Site Plan #20-005 Hartland Senior Living Planned Development (PD) Preliminary Site Plan
8. Old and New Business
   a. Site Plan #20-008 Redwood Planned Development (PD) Concept Plan
9. Call to Public
10. Planner's Report
11. Committee Reports
12. Adjournment

HARTLAND TOWNSHIP PLANNING COMMISSION REGULAR MEETING DRAFT MINUTES

June 25, 2020 – 7:00 PM

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1. **Call to Order: Chair Fox called the meeting to order at 7:00 p.m.**

2. **Pledge of Allegiance:**

3. **Roll Call and Recognition of Visitors:**
   Present – Commissioners Fox, Colaianne, Grissim, Mitchell, Murphy
   Absent – Commissioners LaRose, Voight

4. **Approval of the Meeting Agenda:**
   A Motion to approve the June 25, 2020 Planning Commission Meeting Agenda was made by Commissioner Colaianne and seconded by Commissioner Murphy. Motion carried unanimously.

5. **Approval of Meeting Minutes:**
   a. Planning Commission Work Session Minutes of June 11, 2020
      A Motion to approve the Meeting Minutes of June 11, 2020 was made by Commissioner Grissim and seconded by Commissioner Colaianne. Motion carried unanimously.

6. **Call to the Public:**
   None

7. **Old and New Business:**
   a. Site Plan #20-006 (Hunters Ridge) a request to re-approve Site Plan #17-010, for the construction of Hunters Ridge, a multiple family condominium residential development, using the plans previously approved under SP #17-010 and according to the terms of the Amended Planned Development Agreement.
      Planner Martha Wyatt summarized the request and location stating the following:
      - Located north of Highland Road and west of Old US-23 in Section 21 of the Township
      - Reapproval required as Site Plan approval has expired.
      - The plan is the same.
      - Added condition that Site Plan Approval may be granted administratively if no more than two years pass between approved Land Use Permit applications for the building. The intent is to assure the project is moving forward but eliminate the need to return to the Planning Commission if the plan is the same.

      The Applicant, Mario Izzi, introduced himself and stated the following:
      - Project had a slow start due to various site issues, Master Deed finalization, permitting and securing qualified contractors to do the work during changing conditions.
      - Priced from $175,000 to $250,000 which he feels is competitive.
      - Anticipates the speed of construction will increase as the contractors become more

familiar with the various units. They have seven months to do twelve months of work here because of the weather.

- Would like to know if there are any concerns or complaints about the project and make himself available to address same.

Chair Fox reminded the Planning Commission of the recent change in Site Plan Approval process, two years with some administrative approval options. The change here is to allow the project to move forward at a consistent pace without having to return for re-approval every two years if the plan remains the same.

The Applicant stated he is willing to come back every couple of years if required but he is looking to keep the financial resources invested in the project and desires to be able to keep moving forward and not jeopardize the success of the project.

Commissioner Grissim reviewed the PD process this development was approved under.

Chair Fox stated they have the approval for this plan, the building materials, the roads are in, the project is moving forward. If they do what is approved and stay within the two-year window for permits, there is no need to come back before the Planning Commission.

Commissioner Grissim asked if the Zoning Ordinance changed, would the Planning Commission need to reassess the project.

Planner Wyatt stated if they are staying true to the approved PD plan there would not be an issue.

Commissioner Mitchell stated they would be grandfathered in.

Chair Fox replied as things are, but no one is proposing this, the Planning Commission could not reapprove the project. With this condition, they get the assurance that they can build their project as approved without having to worry about a future Planning Commission not reapproving it.

Commissioner Grissim stated they still must go through the permitting process so if a Building Code changes, they would have to meet the new standard. The Applicant concurred.

Chair Fox stated he is not going to review the June 18, 2020 staff letter as it was all just discussed.

Commissioner Grissim offered the following Motion:

Move to approve Site Plan Application #20-006, a request to re-approve Site Plan #17-010, for the construction of Hunters Ridge, a multiple family condominium residential development, using the plans previously approved under SP #17-010 and according to the terms of the Amended Planned Development Agreement. Approval is subject to the following conditions:

1. **The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated June 18, 2020.**
2. **The project may consist of several phases of construction however the project shall continue to progress in a timely manner. Site plan approval shall remain valid as long as there is not more than a two (2) year lapse in the submittal and approval of land use permit applications for the construction of condominium buildings within the Hunters Ridge development.**
3. **Applicant complies with any requirements of the Department of Public Works Director, Township Engineering Consultant, and Hartland Deerfield Fire Authority and all other government agencies as applicable.**
4. **Any conditions associated with the original approvals shall remain valid, unless specifically modified.**

Seconded by Commissioner Colaianne. Motion carried unanimously.

The Applicant asked if there are any outstanding items noted in the Planning Department's memorandum. Planner Wyatt stated there are none. It is pretty much standard wording.

8. Call to the Public:
None

9. Planner Report:
Planner Wyatt reported the following:

- The new screens in front of the Planning Commission are touch screens and will be operational soon.

10. Committee Reports:
None

11. Adjournment:
A Motion to adjourn was made by Commissioner Mitchell and seconded by Commissioner Colaianne. Motion carried unanimously. The meeting was adjourned at approximately 7:15 PM.

Hartland Township Planning Commission Meeting Agenda Memorandum

Submitted By: Troy Langer, Planning Director

Subject: Site Plan Application #20-005 Hartland Senior Living PD – Preliminary Site Plan

Date: August 13, 2020

Recommended Action

Move to forward Site Plan Application #20-005, the Preliminary Planned Development Site Plan for Hartland Senior Living, to the Township Board with a recommendation of approval, subject to the following:

1. Waiver request on the minimum lot size requirement for a planned development, being less than 20 acres, is approved.

2. Waiver request on the building height, being greater than 35 feet, is approved.

3. Waiver request to deviate from the maximum allowable and minimum façade material percentages, is approved

4. The site plan is subject to the current location of the access drive connecting to M-59. In the event the access drive needs to be relocated more than ten (10) feet in either direction, the applicant will need to submit a site plan to the Planning Commission for review to amend the approved site plan.

5. As part of the Final Plan Review, the applicant shall secure an ingress-egress easement agreement for the proposed access drive connection to the adjacent property to the west (Trillium Center/office building, at 12319 Highland Road), which would afford a secondary emergency access for the development.

6. The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated August 13, 2020, on the Construction Plan set, subject to an administrative review by Planning staff prior to the issuance of a land use permit.

7. Applicant complies with any requirements of the Township Engineering Consultant, Department of Public Works Director, Hartland Deerfield Fire Authority, and all other government agencies, as applicable.

8. (Any other conditions the Planning Commission deems necessary)

Discussion

Applicant: Kevin Brown, PIRHL Developers, LLC

Site Description

The subject property is located between Bullard Road and Fenton Road, north of Highland Road (M-59), in Section 23 of the Township. The Township's Heritage Park is east of the property. Trillium Center, a professional office building, is on the west of the site and addressed as 12319 Highland Road.

The site is comprised of three separate parcels, with a combined total of approximately 17.9 acres. The parcels are undeveloped. The largest parcel (Parcel ID #4708-23-300-025) is approximately 13.71 acres in size and zoned CA-Conservation Agricultural. The other two parcels are west and south of the large parcel and are zoned OS-Office Services. One parcel is approximately 2.00 acres (Parcel ID #4708-23-300-026). The other parcel (Parcel ID #4708-23-300-027) is approximately 2.22 acres in size. Each parcel has frontage along Highland Road. The combined frontage is approximately 617 lineal feet.

The Future Land Use Map designates each parcel as Office.

Currently the property has open field areas with trees along the east, west, and north boundaries. Wetland areas are noted on the plan in the northwest corner of the site. Site work is not proposed in the areas adjacent to the wetland. The applicant has provided a copy of the wetland delineation report from ASTI Environmental, who reviewed the three (3) wetland areas in March 2020. Per the applicant the Department of Environment, Great Lakes and Energy (EGLE) conducted a Level 3 Wetlands Identification Program (WIP) Review in June 2020. EGLE concurred with the findings of the applicant's consultant.

East of the subject property, on separate parcels, are a single-family home (12477 Highland Road) and Heritage Park (12439 Highland Road), both zoned CA. Trillium Center, a professional office building, is on the west and zoned OS-Office Services (12319 Highland Road). Single-family homes are also west of the subject site, addressed off Bullard Road, and are zoned CA. The property to the north, zoned CA, is owned by the Livingston Land Conservancy and is undeveloped.

Site History
Following is a summary of the history of the site.

REZ #282
REZ #282 was a request to rezone approximately 13.7 acres of land from SR-Suburban Residential to CA-Conservation Agricultural for parcel currently identified as Parcel ID #4708-23-300-025, and rezone approximately 4.4 acres from SR-Suburban Residential to OS-Office Services, for the parcels currently identified as Parcel ID #4708-23-300-026 (2 acres) and Parcel ID #4708-23-300-027 (2.2 acres). The Township Board approved REZ #282 on July 6, 2000.

Metes & Bounds Land Division #589
On November 8, 2000, the Township Board approved Metes & Bounds Land Division #589 to create three (3) parcels that comprise the project area for the current request SP #20-005.

REZ #322
The original request was to rezone approximately 13.7 acres of land (Parcel ID #4708-23-300-025) from CA-Conservation Agricultural to PDMR (Planned Development Medium Density Residential), which was withdrawn on August 5, 2005. The rezoning request was modified to request a zoning change from CA to MR-Multiple Density Residential for the same 13.7 acres of land. On November 10, 2005, the Planning Commission reviewed the request and a motion was approved to table the request indefinitely.

Site Plan Application #19-012 Hartland Senior Living PD – Concept Plan
The Concept Plan for Hartland Senior Living Planned Development was discussed under Site Plan Application #19-012. The Planning Commission reviewed the project on December 5, 2019 followed up by the Township Board's review at their meeting on December 10, 2019.

Planned Development Procedure

Section 3.1.18 of the Township's Zoning Ordinance provides standards and approval procedures for a Planned Development (PD). Approval of a Planned Development is a three-step process. A Concept Plan, Preliminary Plan, and Final Plan are all reviewed by the Planning Commission and the Township Board, with the Planning Commission making a recommendation and the Board having final approval at each step. The process usually requires a rezoning from the existing zoning district to the Planned Development (PD) zoning district. As part of the rezoning, a public hearing is held before the Planning Commission consistent with the Michigan Zoning Enabling Act; this public hearing is held at the same meeting during which the Planning Commission reviews and makes a recommendation on the Preliminary Plan. Approval of the Final Plan by the Township Board usually constitutes a rezoning of the subject property to PD.

For all intents and purposes, the Preliminary Plan step is essentially the same as a preliminary site plan review for a conventional project in the Township. All the information and details required for a preliminary site plan approval must be provided for the Preliminary PD review and approval. Final PD review will involve detailed plans for those phases for which construction is intended to begin immediately and the planned development agreement.

Overview of the Preliminary Plan and Proposed Use

The applicant has submitted a Preliminary Plan for a senior living facility consisting of a single, three (3) story, 146-unit building that accommodates seniors (age 62 and older). The gross floor area of the building was not provided.

The occupants are either able to live an independent lifestyle or may need assistance. The facility offers two (2) types of residential units with 71 one-bedroom apartments and 75 two-bedroom apartments. Of the 146 residential units, sixty-one (61) units will be affordable for those earning up to 60% of AMI (Area Median Income) and eighty-five (85) units will be unrestricted market rate apartments.

Public access to the site is via Highland Road (M-59) with a new entrance drive. Approvals and permits from the Michigan Department of Transportation (MDOT) will be required for the new access, as well as any proposed work within the road right-of-way, such as the proposed sidewalk. The applicant has submitted an application to MDOT for the proposed work and has noted the permit is under review at MDOT.

A proposed connecting drive is shown at the west property line, from the proposed parking lot of the PD site to the existing parking lot of the Trillium Center office building. The applicant has made outreach to the property owner to begin discussions on the drive connection.

The applicant has stated that this development will require municipal water and sewer. The Township is currently exploring extension of municipal water lines down M-59 that could provide water service to this property. The proposed development was not included in the original municipal sewer district; and therefore, the applicant would be required to purchase Residential Equivalent Units (REU)'s for this project. The Township's Director of Public Works has provided a letter with additional comments.

The proposed Hartland Senior Living facility is not specifically listed as a use permitted in any specific zoning classification in the Township Ordinance. The Site Plan Review Committee met with the applicant twice to discuss the project, and noted that the project does not appear to be permitted in the CA district, nor would rezoning the property to multiple- family be a viable option as the Future Land Use Map

designates the property as Office. As an alternative option, the applicant was encouraged to apply for a Planned Development (PD) for the project.

The proposed use is summarized in the applicant's Preliminary PD Submission Narrative. Per the applicant's description, the proposed project is a blend of independent and semi-independent housing for senior citizens, where the residents reside in individual apartment units, but will also have access to a congregate kitchen, dining room and living areas. Limited healthcare will be available to assist residents. The facility offers a variety of services that are outlined in the project summary provided by the applicant. Social, cultural and educational programs are scheduled by a full-time activity coordinator. The facility has a fitness center and fitness classes; theatre room; media center; central social hub; full-service hair salon and barber shop; and an on-site home-based health care provider and clinic. Add on services include meals (two meals a day), housekeeping and laundry services. Additional offerings are listed in the applicant's summary of the facility.

Based on the description of the proposed use, the senior living facility would not be considered similar to a typical multiple-family use, or an apartment complex. The proposed use has some unique attributes in how it is limited to persons 62 and older. In addition, although it is designed for independent living, some residents are likely to need some health assistance. The Planned Development process allows for unique projects such as this. The Planning Commission reviewed the Concept Plan under SP #19-012 and made the determination that the proposed use is different than a multi-family housing complex or a State licensed nursing care facility, and the use could be allowed through a Planned Development. The residential density would also be established as part of the Planned Development.

Eligibility Criteria (Section 3.1.18.B.)

To be eligible for PD approval, the applicant must demonstrate that the criteria in Section 3.1.18.B. will be met.

1. **Recognizable Benefits.** *The planned development shall result in a recognizable and substantial benefit to the ultimate uses of the project and to the community and shall result in a higher quality of development than could be achieved under conventional zoning.*

   The applicant outlines the community benefits that Hartland Senior Living will provide as listed below:

   - Preservation of natural features and woodland areas
   - Provision of a housing type, senior housing, that is in demand with Hartland Township
   - Efficient use of land and low demand for new Township infrastructure
   - Low impact on Township services
   - Harmonious with surrounding areas
   - A proposed access drive connection to the adjacent property to the west (Trillium Center/office building, 12319 Highland Road), which would afford a secondary emergency access for the development
   - Extension of the public water system to accommodate the proposed development, built to the Township standards
   - Installation of pathways and walking trails on the site, and along M-59

2. **Minimum Size.** *Planned Developments must be a minimum of 20 acres of contiguous land.*

The proposed project is approximately 17.9 acres in size**.** Historically, the Planning Commission has approved Planned Developments of less than 20 acres.

Given the location of this project being adjacent to a Township Park and amount of open space, staff has included in the recommendation to approve this waiver.

3. **Use of Public Services.** *The proposed type and density of use shall not result in an unreasonable increase in the use of public services, facilities and utilities, and shall not place an unreasonable burden upon the subject site, surrounding land, property owners and occupants, or the natural environment.*

   The proposed development will utilize vehicular access, via M-59, which is an existing public roadway capable of supporting the proposed development. In addition, the proposed development will connect to the municipal sanitary sewer system and is part of discussions to extend municipal water to serve this site. The Public Works Director has indicated this development should not burden the existing water and sewer system.

4. **Compatibility with Comprehensive Plan.** *The proposed development shall not have an adverse impact upon the Comprehensive Plan for the Township. Notwithstanding this requirement, the Township may approve a Planned Development proposal that includes uses which are not called for on the Future Land Use Map, provided that the Planning Commission and Township Board determine that such a deviation from the Future Land Use Map is justified in light of the current planning and development objectives of the Township.*

   The proposed development is somewhat new in concept and different from more traditional apartments and nursing care facilities. The zoning ordinance definitions provide a definition for congregate or interim care housing, but that type of use is not specifically listed in the zoning districts; however, it appears to be residential in nature and treated in a similar manner to nursing care facilities. As a result, this appears to be consistent with the zoning on the property. The future land use map depicts the property in an Office category; however, the proposed development appears to be justified in light of the current planning and development objectives of the Township.

5. **Unified Control.** *The proposed development shall be under single ownership or control such that there is a single person or entity having responsibility for completing the project, or assuring completion of the project, in conformity with the Ordinance.*

   The applicant will be the sole owner of all the subject property and will continue ownership of the development.

Planned Development Design Standards (Section 3.1.18.C.)

This section outlines the design standards for a planned development. Additional site standards will be discussed from applicable sections of the Zoning Ordinance.

1. **Permitted Uses.** *The predominant use on the site shall be consistent with the uses specified for the parcel on the Township's Comprehensive Plan for Future Land Uses.*

   The 2015 Future Land Use Map (FLUM) designates each of the three (3) parcels as Office. Currently two (2) of the parcels are zoned OS (Office Service); the largest parcel is zoned CA (Conservation Agricultural). On the FLUM office uses have been located in areas that contain existing office

development as well as in areas that have high visibility along M-59, between Clark Road and Bullard Road. The Office classification is intended to permit the construction of professional and medical complexes and other low intensity commercial uses that are ancillary to office uses.

Adequate landscaping and buffers are required, as well as high architectural appearance of the buildings, with a height limit of three stories.

The proposed senior living facility is considered a residential use and is not consistent with the FLUM designation of Office. The residential use however is a low intensity use. The building is situated approximately 235 feet from Highland Road (M-59) and approximately 156 feet from the front (south) property line. An approximate 100-foot wide greenbelt landscape area is provided along the frontage of the site, in front of the building. A conifer tree screen is also provided along the east and west property lines where adjacent to residential uses.

The building height is approximately 39'-4" for the majority of the roof (midpoint of roofline). One small section of the gable roof has a mid-point height of 41'-4". The applicant has provided a waiver request to exceed the maximum height of 35 feet, as discussed in a separate section of the memorandum.

2. **Residential Density.** *Residential density in a planned development shall be consistent with the density designation within the Township's Comprehensive Plan.*

   The subject property (all three parcels) is designated as Office on the adopted 2015 Future Land Use Map. Office does not permit residential uses thus density cannot be calculated.

   The proposed use as presented by the applicant, is a senior housing development for senior citizens aged 62 and older, that provides independent and semi-independent living housing. The three-story building includes 146 apartment units and a variety of amenities for the residents making Hartland Senior Living a unique residential development, and different from a multiple-family apartment complex. The density will be established as part of the Planned Development project.

3. **Design Details.** *The applicant shall prepare a detailed description of design details to be implemented in the proposed planned development, to be presented in a Pattern Book.*

   The design details are provided on the submitted site plans and architectural drawings for the Planned Development.

4. **Minimum Yard Requirements.** The minimum yard requirements are noted in the chart below per Section 3.1.18.C.vi.a.

Setbacks	Minimum PD Standard	Proposed setback	Complies Yes/No
Along M-59	50 ft.	156 ft.	Yes
Along perimeter, but not adjacent to a road (east & west property lines	40 ft.	143 ft. (east, building) 83 ft. (east, carport) 138 ft. (west, building) 76 ft. (west, carport)	Yes Yes Yes Yes
Between parking lot & property line &	40 ft.	135 ft.	Yes

adjacent to road (M-59)			
Between parking lot & property line but not adjacent to road	50 ft.	83 ft. (east) 53 ft. (west)	Yes Yes

5. Building Height. *No building in a planned development shall be greater than thirty-five (35) feet in height.*

The building height is approximately 39'-4" for the majority of the roof (midpoint of roofline). One small section of the gable roof has a mid-point height of 41'-4". The applicant has provided a waiver request to exceed the maximum height of 35 feet, stating that the added height is necessary in order to provide nine (9) foot ceilings for the living units on the second and third floors, and a 10-foot ceiling on the ground floor. Having this design makes the apartment units more marketable and the higher ceiling on the ground floor is necessary for the larger volume common areas/facilities. The Planning Commission shall review the waiver request and make a determination.

6. Parking and Loading. *Planned developments shall comply with the parking and loading requirements specified in Section 5.8.*

The parking standards outlined in Section 5.8 do not provide specific standards that would be applicable for the proposed senior housing facility. The applicant has provided a discussion on the parking needs for this facility which are based on similar senior living facilities. The parking formula as proposed by the applicant is approximately 1.09 parking spaces per unit. In his opinion, this should accommodate the needs of the residents, staff, and visitors. Based on this formula, for the 146 residential units, 159 parking spaces are provided on the plan.

The parking space dimensions are shown as ten (10) feet in width and twenty (20) feet in length The 159 parking spaces includes four (4) carport structures with ten (10) parking spaces in each structure; 119 surface parking spaces, eleven (11) of which are van accessible, barrier-free parking spaces. Six (6) barrier-free parking spaces are required for 159 spaces.

A dedicated loading area is provided on the east side of the building, with a masonry screen wall. The dimensions of the paved loading area are approximately 70 feet by 43 feet, or approximately 3,010 square feet. A separate dumpster is not shown on the plans.

7. Landscaping. Landscaping requirements are provided in Section 3.1.18.C.vi.e. These are considered minimum design standards, which the plan appears to comply with. A more detailed review of the landscaping is provided in this memorandum using the landscape standards outlined in Section 5.11 (Landscaping and Screening).

8. Open Space. *Open space shall be provided to complement and accentuate the high-quality design of the proposed planned development. At minimum the planned development shall provide open space consistent with the previous zoning designation for the site.*

The proposed open space is 76.80% of the site, or approximately 13.76 acres. In CA (Conservation Agricultural) the open space requirement is a minimum of 85%, for a single-family detached dwelling. For OS (Office Service), the open space requirement is a minimum of 25%. The proposed open space area on the PD plan exceeds the minimum amount required for OS, but is slightly less

than required for CA. For comparison purposes, a minimum 70% open space is required for a multiple-family building in MR (Multiple Family Residential).

9. **Natural Features.** *Consistent with the stated intentions for creation of these regulation, the preservation of the natural features of the Township are an important planning consideration. A PD proposal must consider the natural topography and geologic features, scenic vistas, trees and other vegetation and natural drainage patterns that exist on the site and propose a development pattern which preserves and avoids disruption of those natural features as much as possible.*

   A Phase 1 Environmental Site Assessment of the site was conducted and found no recognized environmental conditions on the site. A wetland delineation was conducted which located three (3) wetland areas on the site, located generally in the northwest corner of the site. No development is proposed in that area and the wetlands will not be disturbed.

   A Tree Inventory was conducted along the east side of the site. Trees greater than eight (8) inches in diameter were identified and tagged in the field. Those trees are shown on the plans. The applicant intends to preserve those trees in order to augment the required buffer along the east side of the PD site.

10. **Sidewalks and Pedestrian Access.** *The applicant must demonstrate the PD site and all uses within the site will be connected to any existing pedestrian and nonmotorized vehicle paths and trails within a public right-of-way or easement open to the public.*

    An eight (8) foot wide asphalt sidewalk will be extended for the width of the site along Highland Road (M-59). The existing concrete sidewalk along Highland Road will be removed and seeded after removal. Internally concrete sidewalks are provided around the building and parking areas, with a connection to the courtyard sidewalks and the sidewalk along Highland Road. An eight (8) foot wide concrete path is shown around the detention basin.

Requirements for Preliminary Review (Section 3.1.18.E.ii)
Following is a summary of items that have not been addressed in the previous review as part of the Design Standards section.

1. Sewer and Water

The Public Works Director has indicated the referenced parcels were never part of the municipal water district within Hartland Township. All parcels seeking municipal water connection outside of the service district are required to undergo a capacity study to be managed by the Hartland Township Public Works Department. The proposed parcels have been previously included in modeling exercises, and the Hartland Township Public Works Department approves the concept of connecting to the municipal water system as discussed with the applicant.

The referenced parcels associated with the concept plan were never part of the municipal sewer district within Hartland Township. All parcels seeking municipal sewer connection outside of the service district are required to undergo a capacity study to be managed by the Livingston County Drain Commission office. Public Works would advise the applicant to contact the Livingston County Drain Commission office to initiate that process.

The DPW has outlined the number of REU's that will be required for the proposed development, in a letter dated November 19, 2019.

2. Stormwater and Drainage Systems.
The applicant has stated stormwater will be collected from the building roof, parking lots, and sidewalks and piped to the on-site retention system. Treated stormwater will be released from the basin to the north via natural drainage patterns. The applicant has contacted the Livingston County Drain Commission and provided the site plan for preliminary review.

3. Traffic Generation
A trip generation study was completed by the applicant's consultant who determined Hartland Senior Living is projected to generate fewer than 750 daily trips and fewer than 50 peak hour directional trips. This places it below the MDOT and Township threshold for requiring a full traffic study. The conclusion of the study was that the PD project would have no significant impact or cause change in traffic volume on M-59.

4. Fiscal Impacts.
The applicant has provided a response to this topic in the Narrative Summary, stating Hartland Senior Living will be an asset to the Hartland Township community and will contribute to the fiscal health of the Township and the Hartland Consolidated School District.

SITE PLAN REVIEW – Applicable Site Standards
This section will provide a review of all applicable standards that were not discussed in the previous section of this memorandum.

Site Description

The subject property is located between Bullard Road and Fenton Road, north of Highland Road (M-59), in Section 23 of the Township. The Township's Heritage Park is east of the property. Trillium Center, a professional office building, is on the west of the site and addressed as 12319 Highland Road.

The site is comprised of three separate parcels, with a combined total of approximately 17.9 acres. The parcels are undeveloped.

Site Requirements

Access Management and Non-Residential Driveway Standards (Sec. 5.10)

- Required – per Sec. 5.10.8.A, the minimum access spacing between commercial driveways on a street with a posted speed limit of 55 MPH is 525 feet (posted speed on Highland Road is 55 mph) and is subject to approval by the Michigan Department of Transportation (MDOT).
- Proposed – the proposed driveway from Highland Road is approximately 912 feet from the adjacent property to the west (office building at 12319 Highland Road). The adjacent property to the east is single family residential property (12477 Highland Road).
- Meets Requirement? – **TBD**
- Comment – **Applicant must submit the plans to the Michigan Department of Transportation (MDOT) for applicable reviews, approvals, and permits. Staff does not anticipate any issues with approvals or permits from MDOT.**

Landscaping and Screening (Sec. 5.11)

A. Greenbelt Landscaping –
Along Public or Private road right-of-way (Sec. 5.11.2.C.)

- Required – within the first 30 feet of the property, 1 canopy tree for every 30 ft of lineal of

frontage; 3 small deciduous ornamental trees or large deciduous or evergreen shrubs for the initial 40 ft., and 1 additional ornamental tree or large shrub per 20 ft. thereafter. Street frontage = 575 feet. EQUATES TO: 21 canopy trees; 32 additional ornamental trees or large deciduous or evergreen shrubs REQUIRED

- Proposed – 27 canopy trees; 7 ornamental trees; and 35 large deciduous shrubs (42 total), located within 100-foot wide landscape area
- Meets Requirement? – Yes for the number of required plants; **TBD on plant location**
- Comment – the greenbelt trees and shrubs are to be located within the first 30 feet of the property (from the ROW) and approximately one-third of the plants comply with this location. The rest of the trees and shrubs are planted in a large lawn area that stretches across the frontage of the site. This landscaped area is approximately 100 feet in depth. Staff would recommend some trees and shrubs be shifted to the greenbelt area east of the internal access drive, where greenbelt landscaping is not provided. **Planning Commission determination required regarding compliance of the greenbelt landscaping requirement.**

B. Foundation Landscaping (Sec.5.11.2.D.)
- Required – must equal 60% of the front and sides of the proposed building where facing road or adjacent to a parking lot; must be 8-10 ft. in width, and consist of 1 ornamental or columnar tree, and 6 medium or 8 small shrubs for every 30 ft. Combined total building perimeter measurement (all sides of the building) = 2,494 lineal feet; 60% = 1,496 lineal feet. EQUATES TO: 50 ornamental trees/columnar trees PLUS 450 small or 300 medium shrubs REQUIRED
- Proposed – 10-foot wide landscape beds (or wider); 50 ornamental/columnar trees plus 1,217 shrubs (small and medium, total)
- Meets Requirement? – Yes
- Comment – (none)

C. Parking Lot Landscaping (Sec. 5.11.2.E.i.)
- Required – landscaped end caps for parking areas of 10 or more spaces; 1 canopy tree per 180 sq. ft. of interior area, with 50% of the interior area covered with small or medium shrubs and remaining area may include a combination of groundcover, perennials, annuals and mulch. EQUTES TO: 27 trees and shrubs/plants at ground level to provide 50% coverage plus additional plants for coverage REQUIRED.
- Proposed – 21 trees and lawn/shrubs provided to meet required coverage for parking endcaps/landscaped areas
- Meets Requirement? – **No**
- Comment – **Six (6) additional canopy trees required as noted on landscape plan provided by staff**

D. Perimeter Landscaping (Sec. 5.11.2.E.ii.a.) – For areas visible from a public road (from Highland Road – in this case an internal access lane runs parallel to Highland Road and is associated with the parking areas within the site; parking along the access lane is not proposed
- Required – landscape berm planted with a combination of evergreen and deciduous shrubs to effectively screen parking lot; or evergreen hedge row a min. 3 ft. in height; or a decorative screen wall
- Proposed – Greenbelt landscaping, with a combination of trees and shrubs which runs parallel with the access lane
- Meets Requirement? – to be considered by the Planning Commission

- Comment – Per Section 5.11.2.E.ii.a.(4), the Planning Commission may permit modifications to the screening requirement where a greater setback, natural landscaping or topography or unique site layout would allow for a lesser or modified screening requirement. In this case the access lane is approximately 100 feet from the street right-of-way/property line and the greenbelt landscaping provides an adequate level of screening such that additional screening of the access lane may not be necessary. **Planning Commission determination required regarding compliance of perimeter landscaping requirement (for areas visible for Highland Road).**

E. Perimeter Landscaping (Sec. 5.11.2.E.ii.b.) – For areas not visible from a public road (east and west sides of parking lot)
- Required –1 canopy or evergreen tree for every 30 ft., along with understory shrubs for screening purposes for perimeter areas not visible from a ROW. Landscape area east of parking lot = 660 ft. EQUATES TO: 22 canopy or evergreen trees and understory shrubs for screening REQUIRED. West side of parking lot = 480 ft.
  EQUATES TO: 16 canopy or evergreen trees and understory shrubs for screening, REQUIRED.
- Proposed –<u>east of parking lot:</u> 99 conifer trees and existing trees along east property line to be preserved. <u>West of parking lot</u>: 55 evergreen trees
- Meets Requirement? – Yes, for east of parking lot; additional screening required in areas on west side of parking lot-see landscape plan provided by staff
- Comment – **Planning Commission to determine if additional screening is required on the west side of the parking lot.**

F. Buffering or Screening (Sec. 5.11.2.G.i.) – Screening between Land Uses (east and west property lines where abutting single-family zoned properties)
- Required – evergreen trees planted in a staggered or clustered pattern with varying tree heights
- Proposed – evergreen tree screen with a staggered/double row of evergreen trees in most areas, with varying tree heights, on east and west sides of the site, and includes existing trees along east property line, to be preserved
- Meets Requirement? – Yes, with the addition of conifer trees in areas shown on landscape plan provided by staff
- Comment – **Planning Commission to determine if plan provided by staff provides the required screening, where abutting single-family zoned properties (with houses).**

G. Screening of Ground Mounted Equipment (Sec. 5.11.2.G.iii.) – Ground mounted equipment was not shown on the plans
- Required – screening on three sides for utility cabinets (if 30 inches or more in height)
- Proposed – equipment not shown on the plan
- Meets Requirement? – NA at this time
- Comment – **Planning Commission could add a condition that all ground mounted equipment, if proposed, shall be shown on the construction set of plans and shall be adequately screened per Section 5.11.**

H. Detention/Retention Area Landscaping (Sec. 5.11.2.H.)
- Required – detention/retention ponds must be integrated into the overall design of the property and landscaped to provide a natural setting; 1 canopy or evergreen tree and 10

medium, 6 large shrubs or ornamental trees must be planted for every 50 ft. of pond perimeter. Pond Perimeter = 947 lineal ft. EQUATES TO: 19 canopy or evergreen trees, and 190 medium shrubs, or 114 large shrubs or ornamental trees

- Proposed –26 canopy trees;196 shrubs (medium + large shrubs combined); 7 ornamental trees
- Meets Requirement? – Yes
- Comment – (none)

I. Other Comments on Landscape Plans

- Sheet 9 (Overall Preliminary Landscape Plan) labels several areas as "Lawn", which are generally around the formal areas of the site, in the greenbelt, around the building and in the courtyard. Staff assumes these are mowed turf areas which should be irrigated. Other areas on the site appear to be lawn areas but are not labeled. These areas, as noted on the landscape plan provided by staff, should be labeled and the seed mix should be provided on Sheet 14 or Sheet 15. Depending on the seed mix and type of lawn, irrigation may or may not be required.
- Sheet 14 (Landscape Details) should be revised to state the depth of shredded hardwood mulch (3"-4" for most landscape areas required).
- Sheet 14 should be revised to add language to the notes titled as "Subsurface Dripperline Irrigation". The note should say the following: "All planting beds and turf/lawn areas shall have irrigation installed".
- The revisions shall be provided on the Construction Set of plans.

Lighting (Sec. 5.13)

A. Intensity

- Required – max. 0.5 fc along property line adjacent to residential; or max.1.0 fc along property line adjacent to non-residential; average fc between 2.4 and 3.6 in main parking area and an average of 5.0 fc at main building entrance; may not exceed 10 fc on site
- Proposed – photometric plan indicates an average of 0.56 fc at property limits; average of 3.22 fc in main parking area; and average 4.96 fc at main building entrance
- Meets Requirement? – Yes
- Comment – (none)

B. Fixture Height

- Required – 25' or the height of the principal building, whichever is less, measured from the ground level to the centerline of the light source
- Proposed – 21' total height, for light poles (1' base and 20' pole) and 15' total height, for light poles (1' base and 14' pole)
- Meets Requirement? – Yes
- Comment – (none)

C. Fixture Type

- Required – details of all lighting fixtures needed including specifications for shielding, wattage and illumination
- Proposed – specifications for proposed LED light fixtures are shown on the photometric plan. Light fixtures are shielded and aimed downward
- Meets Requirement? – Yes
- Comment – (none)

Water Supply and Wastewater Disposal (Sec. 5.16)
The proposed development will be served by public water and sanitary sewer, as previously discussed.

Architecture / Building Materials (Sec. 5.24)
Architecture Comments:

The project includes the senior living facility/ building and four (4) carport structures, each with ten (10) parking spaces. Façade material calculations are provided below for the senior living building. The carport structures are discussed separately; however, façade materials calculations are not warranted for this type of structure.

Façade Materials Calculation – façade materials must comply with the specifications for Façade Materials Group #1. Separate façade materials charts are provided for the apartment building, outer facades and courtyard facades.

Staff would note that there appears to be inconsistencies for the data (facade material percentages) listed for building façade labeled as "A1" (south elevation for apartment building) in the chart on Sheet A-7 and Sheet A-12. Staff reached out to the applicant about this however the applicant did not confirm which chart has the correct information before the completion of this memorandum. This needs to be clarified on the Construction Set of plans. For purposes of this analysis, staff used the data found on Sheet A-12 for building façade "A1".

The applicant has submitted an architectural waiver request for consideration by the Planning Commission, in a letter dated July 23, 2020. Architectural standards are noted below with additional comments at the end of this section.

Materials Group #1: Proposed Façade Materials by Percentage by Elevation-Outward-facing Facades *(Numbers do not include percentages for interior courtyard facades)*

Group #1	Stone (50% Max.) Stone veneer prop.	Shake Siding	Cement Siding B1	Cement Siding B2	Glass (50% Max.)	Cement Panel	Door/VT AC No standards provided	Fiberglass Shingles (25% Max.)	Standing Seam Metal Roof (20% Max.)	TOTAL Cement Products (10% Max.)*
South (A1)	9.4%	10.1%	15.7%	20.7%	10.9%	7.4%	1.3%	24.5%	X	53.9%
South (A)	10.5%	12.6%	5.3%	12.2%	10.3%	6.1%	1.8%	39.1%	21%	36.2%
East (B)	7.0%	4.1%	15.6%	21.1%	10.4%	6.9%	1.1%	32.3%	1.5%	47.7%
West (C)	6.1%	6.1%	11.3%	21.0%	9.5%	5.6%	1.6%	37.0%	1.8%	44.0%
North (D)	26%	9.5%	18.3%	31.1%	10.3%	0.0%	1.8%	26.4%	X	58.9%

*Cementitious products include shake siding, cement siding (B1 and B2), and cement panel

Materials Group #1: Proposed Façade Materials by Percentage by Elevation-Interior Courtyard Facades

Group #1	Stone (50% Max.) Stone veneer prop.	Shake Siding	Cement Siding B1	Cement Siding B2	Glass (50% Max.)	Cement Panel	Door/ VTAC No standards provided	Fiberglass Shingles (25% Max.)	Standing Seam Metal Roof (20% Max.)	TOTAL All Cement Products (10% Max. for siding)*
East (C)	4.8	4.8%	20.1%	22.3%	8.6%	7.9%	0.2%	31.3%	X	55.1%
North (D)	26`%	10.8%	13.1%	32.1%	8.4%	X	1.6%	31.4%	X	56.0%
West (A)	6.1%	7.9%	16.8%	22.4%	10.4%	5.0%	1.7%	29.7%	X	52.1%
South (B)	9.5%	7.8%	21.8%	10.9%	12.4%	11.8%	2.0%	23.8%	X	52.3%

*Cementitious products include shake siding, cement siding (B1 and B2), and cement panel

- Colors: Product specifications are provided in the architectural plan set (Materials Board on Sheet A-13). Two (2) colors of cementitious horizontal siding are proposed, "Cool Charcoal" (siding B1) and "Natural Clay" (siding B2). The color of the cementitious panel is "Snow", and the shake siding is "Cool Charcoal". The asphalt shingles are "Weathered Wood".

  The porte cochere has a curved standing seam metal roof as do the dormers, the color appears to be similar in tone as the asphalt shingles, however a color picture is provided on Sheet A-13. The panelized stone veneer system (stone product in façade materials chart) has a variety of beige and brown tones. The product name is "Powder Ridge Drystack Clip".

- Materials: Percentages are listed for each elevation side as indicated by the table; architectural waiver request has been submitted by the applicant.
- Meets Requirement? – **TBD**
- Comment – The applicant has submitted an architectural waiver request, dated July 22, 2020, to deviate from the maximum allowable and minimum required façade material percentages, as follows: cement board siding exceeds 10% on all elevations; fiberglass shingles exceed maximum of 25% on most elevations; standing seam metal roof exceeds 20%; and brick is not utilized (30% minimum is required). The applicant's waiver request is to exceed the 10% maximum for cement board siding. Staff assumes that this is for each type of cement board siding (B1 and B2). Other cement board products are also used (shakes and panels) which are not specifically listed as a façade material in Section 5.24, thus minimum/maximum percentages are not provided. A sum total of all cement board products is provided for each elevation in the charts above.

  Per the applicant, the design goal is to maintain a consistency of architectural forms and treatment on all elevations and provide a residential look to the building. Stone is used instead of brick to be more compatible with the shingle style architecture.

Two (2) colors of cement board (horizontal) siding are used, as well as other cement board products to carry out the shingle style architecture and add visual interest, through the use of shakes and panels.

The Planning Commission to make a determination on granting the architectural waiver request to deviate from the minimum or maximum percentages of cement board siding; standing seam metal roof; and brick, as specified for Materials Group #1 for the apartment building.

Detached carport structures

Four (4) detached carport structures are proposed, each providing ten (10) parking spaces. Elevation drawings are provided on Sheet A-14. Each carport is approximately 18 feet by 100 feet in size and 7'-6" in height. The flat-roofed structure has a galvanized steel roof, and a wood screen runs along the back side, plus a short return wall on the ends, to prevent headlight trespass. A surface mounted light fixture is provided for each parking space.

Other Requirements-Zoning Ordinance Standards

Nothing additional at this time.

Hartland Township DPW Review

A review letter is provided from the Hartland Township DPW Director, dated November 19, 2019.

Hartland Township Engineer's Review (HRC)

The Township Engineer (HRC) has reviewed the Preliminary PD plans and recommends approval subject to items being addressed in the letter dated May 20, 2020.

Hartland Deerfield Fire Authority Review

The Hartland Deerfield Fire Authority has reviewed the plans and provided comments in the letter dated July 27, 2020. Approval is subject to the contingencies being addressed as outlined in the letter.

Attachments:

1. DPW Review letter, dated November 19, 2020 -*PDF version only*
2. Township Engineer (HRC) letter dated May 20, 2020-*PDF version only*
3. Hartland Deerfield Fire Authority letter, dated July 27, 2020-*PDF version only*
4. Preliminary PD Submission Narrative-*PDF version only*
5. Waiver Request Letter dated July 22, 2020-*PDF version only*
6. Tree Inventory Report dated June 9, 2020-*PDF version only*
7. Wetland Delineation dated April 4, 2020-*PDF version only*
8. Trip Generation Memo dated April 17, 2020-*PDF version only*
9. MDOT Driveway Application dated April 9, 2020
10. PIRHL Landscape plan with staff comments dated August 13, 2020
11. Civil Plans Preliminary PD received August 10, 2020
12. Architectural Plans Preliminary PD received August 10, 2020

CC:
HRC, Twp Engineer (via email)
R. West, Twp DPW Director (via email)
A. Carroll, Hartland FD Fire Chief (via email)

DEPARTMENT OF PUBLIC WORKS

Robert M. West, Public Works Director
2655 Clark Road
Hartland MI 48353
Phone: (810) 632-7498

TO:	Planning Department
DATE:	November 19, 2019
DEVELOPMENT NAME:	Hartland Senior
PIN#:	4708-23-300-(025, 026 & 027)
APPLICATION #:	SP# Unknown
REVIEW TYPE:	Conceptual Site Plan

The Department of Public Works (DPW) has reviewed the *Hartland Senior* development site plans in regards to municipal utilities.

Municipal Water

The referenced parcels associated with the conceptual development were never part of the municipal water district within Hartland Township. The proposed conceptual plan would require 49.64 water REU's for 146 units. All parcels seeking municipal water connection outside of the service district are required to undergo a capacity study to be managed by Hartland Township Public Works Department. The proposed parcels have been previously included in modeling exercises, and Hartland Township Public Works approves the concept of connecting to the municipal water system as discussed with the applicant.

Municipal Sewer

The referenced parcels associated with the conceptual development were never part of the municipal sewer district within Hartland Township. The proposed conceptual plan would require 49.64 sewer REU's for full build out. All parcels seeking municipal sewer connection outside of the service district are required to undergo a capacity study to be managed by the Livingston County Drain Commissioner's office. Public Works would advise the applicant to contact the Livingston County Drain Commission to initiate that process.

REUs

According to the Township's records, the referenced parcels not have any REUs (Resident Equivalency Units), and therefor will be required to purchase the required REU's prior to issuance of a building permit. The conceptual plan indicates 146-units, which based upon 2019 rates, will require 49.64 water REU's ($5,816.01 each) and 35.25 sewer REU's ($9,439.20 each) for a total of $757,268.62 for the entire development.

At this time, subsequent plans should include the following:

- Water main material, sizes and connection detail sheet with redundant looping
- Water service lead location, size and materials including fittings.
- Sanitary sewer material and sizes and connection detail sheet.
- Foundation lowest elevation level
- Genesee County IPP Permit
- Utility easements noted as public.

Please feel free to contact me with any further questions or comments regarding this matter, and thank you for your time.

Robert M. West; Public Works Director

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

July 9, 2020

Hartland Township
2655 Clark Road
Hartland, MI 48353

Attn: Mr. Troy Langer, Planning Director

Re: Site Plan Review
Hartland Senior Living

HRC Job No. 20200375.02

Dear Mr. Langer:

As requested, this office has reviewed the site plan for the above project as prepared by Mannik Smith Group (plans dated June 25, 2020). The following items will need to be addressed:

General

1. All permits are to be obtained prior to the start of construction. At this time, the permits for this development may include Livingston County Building & Utility Services, MDOT ROW, MDEGLE Water Main, and LCDC Soil Erosion.

2. Applicable standard detail sheets shall be attached to the plans.

3. Plans shall be signed and sealed by a professional engineer or architect licensed to practice in the State of Michigan.

Water Supply

1. The water supply improvements must be designed in accordance with the Hartland Township Engineering Design Standards.

2. The water service size and material shall be shown on the plans.

3. The fire hydrant coverage must be reviewed and approved by the Hartland Area Fire Department.

4. A water main stub is needed to the west property line for future looping.

Sanitary Sewer

1. The sanitary sewer improvements must be designed in accordance with the Hartland Township Engineering Design Standards and reviewed by the Livingston County Drain Commission.

2. The proposed sanitary sewer improvements will require approval from the Livingston County Drain Commission.

3. Livingston County Drain Commission standard detail sheets must be included with the plan set.

Storm Drainage

1. The proposed storm water collection and detention systems must be designed in accordance with the Hartland Township and Livingston County Engineering Design Standards.

Paving & Grading

1. The proposed paving and grading improvements must be designed in accordance with Hartland Township Engineering Design Standards.

2. Acceleration and deceleration lanes may be required as directed by MDOT.

Subject to these items being addressed in the construction plans, we have no objection to the approval of the preliminary site plan. One (1) complete set of the construction plans should be submitted to the Township Planning Department for review.

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.



Paul L. Koppana, P.E.

PLK/plk

pc: Hartland Twp; M. Wyatt, B. West
HRC; R. Alix, M. Darga, File

HARTLAND DEERFIELD FIRE AUTHORITY

FIRE MARSHALS OFFICE

Hartland Area Fire Dept.
3205 Hartland Road
Hartland, MI. 48353-1825

Voice: (810) 632-7676
Fax: (810) 632-2176
E-Mail: jwhitbeck@hartlandareafire.com

July 27, 2020

To: Hartland Township
Livingston County Building Dept.

Re: PIRHL
Hartland Senior Living
12371 Highland Road, Hartland Mi 48353

All,

We have reviewed the architectural plans for the Hartland Senior Living complex at 12371 Highland Road for the above project (plans dated June 18, 2020 and as received by Hartland Township on June 29, 2020). The items listed below are some of what the fire department would need to address moving forward.

1) Roadway should be 26' all the way around the complex due to height of building and the use of aerial operations for fire suppression.
2) Hydrant location not provided. Please provide.
3) Radius on the North East corner needs to be checked against our turning radius on our apppartus. See attachment in email for parameters.
4) Height of lamp posts overhanging into the roadway need to be at least 13' 6" for clearance of the apparatus to go underneath.

Items of discussion for future include:

1) FDC and Strobe locations along with Standpipes for stairwells
2) Elevator, Attic access and staircase locations
3) Rapid Entry Boxes
4) Labeling of stairwells for fire suppression efforts. ie: N, E and W
5) Naming of zones for alarms that will be understood. ie: N, S, E, W and Main

We have no further comments at this time. Please forward any revised drawings affecting the fire department for further review.

Sincerely,

Yours In Fire Safety,

Jenn Whitbeck
Fire Inspector

Harland Senior Living

PD Preliminary Review

Submission Narrative Items

Community Benefits

The Hartland Senior Living development team requests to use the Planned Development option in order to create a high-quality development that fills a need for senior housing in the Hartland Township community. Under the current zoning for the parcel, which is split between Conservation Agriculture and Office, offices could be developed on parcels 4708-23-300-026 and 4708-23-300-027, and up to six single family houses could be built on parcel 4708-23-300-025, a parcel that features areas of dense woods and wetlands.

Hartland Senior Living will preserve this wooded area and wetlands and will provide a choice of living environments by creating a marketable housing product that fills an unmet demand for senior living, allowing Hartland Township seniors to age in place in their community. A market demand analysis completed by Maxfield Research estimates demand for 2,115 senior independent living units in Hartland Township and eastern Livingston County by 2025. Hartland Senior Living will develop the site in an efficient manner, requiring no new public streets and shorter utility extensions than a single-family development. Hartland Senior Living will also place low or no impacts on schools, roads, and township resources compared to the offices and single-family housing otherwise allowable on the site and will contribute more in tax revenue than would the normally permissible uses.

Hartland Senior Living will also complement surrounding uses and provide a buffer from commercial development to homes and sensitive natural areas. A connection to the Trillium office development immediately to the west of the site is proposed, and the development team has made outreach to the owner of that parcel to begin discussions. This connection will provide secondary emergency access for the development. The development will also involve extending the eight-foot asphalt path along M-59 for the length of the development site, which will increase connectivity to Hartland Heritage Park.

In summary, Hartland Senior Living will provide the following community benefits:

- Preservation of natural features and woodland areas
- Provision of a housing type that is in demand within Hartland Township
- Efficient use of land and low demand for new Township infrastructure
- Low impact on Township services
- Harmonious with surrounding uses

Use Classification

The development team requests that Hartland Senior Living be classified under the definition of Congregate Care Housing as defined in Section 2.56 of the Hartland Township Zoning Ordinance. Hartland Senior Living will provide independent and semi-independent housing for senior citizens aged 62 and older and will include a congregate kitchen, dining room, and living areas. Residents will live in individual units. Limited healthcare will be available to assist residents with activities of daily living. Hartland Senior Living will also include a shuttle bus to provide transportation to nearby retail and healthcare. Hartland Senior Living meets the use requirements for Congregate Care Housing, as it is accessed from a paved arterial road, is set back more than 75 feet from all property lines, and features a

minimum of 1,500 square feet of open space per living unit. Hartland Senior Living also provides more parking than required by the Ordinance for Congregate Care Housing.

Design Details Summary

Hartland Senior Living includes many design features that enhance the appearance of the building to the public and also enhance the experience for building occupants. Overall, the design of the building borrows from the shingle style architecture found in the area. This is clearly apparent in the entry façade facing Highland Road. The long gable roof lines accented by the barrel vaulted porte cochere create a welcoming and obvious entry to the building. Stacked stone used in various building elements provide a warm, chalet feel to the building. Each well-appointed living unit includes a private patio or balcony for outdoor enjoyment.

While a bit difficult to perceive in this submission, the landscaping is designed to enhance the building entry experience. Landscaping will complement and enhance the various outdoor spaces and "rooms" created by the building. A landscaped patio accessible from the main dining room is accented by a pergola. A smaller landscaped courtyard is located between the commons area and the three-story residential building. A separate, large central courtyard is the focal point of this three-story building section. This area will be appropriately landscaped and include outdoor furnishings to encourage resident use. A sidewalk circumnavigates the perimeter of the building to encourage resident walking and outdoor exercise.

Common use areas occupy a large portion of the one-story, main entry building as well as portions of the three-story residential building. These include three separate dining rooms (Café, formal dining room, and private dining room), a physical therapy/fitness center, theater, multi-purpose room, activity room, card room, beauty salon, home health care office, as well as neighborhood "living rooms" located along the residential corridors.

Section 3.1.18.C.vi.c - Building Height

The proposal exceeds the building height limit of 35' limit. As proposed, the mid-point of the roof for the majority of the building is 39'-4". One small section of gable roof has a mid-point of 41'-4". The height limit of 35' creates a hardship in developing high quality apartments meeting current market expectations. The proposal provides marketable living units with 9' ceilings on the second and third floors. The ground floor has a ceiling height of 10'. This higher ceiling height is needed for the larger volume common use facilities on the ground floor.

A mitigating factor to consider is the location of the higher building masses. The proposal exceeds the building height limit in the living unit portion of the building. This area is set back approximately 300' from the Highland Road right of way. The common use facilities are located closer to Highland Road. This area of the building is one-story and is in compliance with the 35' height limit.

A formal height waiver request letter is also included with the submission package.

Section 3.1.18.E.ii.b – Design and Circulation

1. Locations and setback are depicted on the plans.
2. Layouts and facades are depicted on the plans.
3. Building footprint is depicted on the plans.
4. Circulation: All driveways within the project are intended to be private. The development team has applied to MDOT for a driveway connection permit. This permit application is currently under review by the MDOT district office.
5. Parking and Open Space: Hartland Senior Living proposes 159 parking spaces, including six ADA spaces and 40 carport spaces, which equates to 1.09 spaces per dwelling unit. A portion of residents will not own vehicles, and therefore a parking ratio of one parking space per dwelling unit is appropriate, plus additional parking for staff and visitors. The development will provide shuttle bus transportation to allow residents without vehicles to access retail and healthcare nearby. Based on experience at other similar communities in Southeast Michigan, the development team believes this is an appropriate number of parking spaces for a congregate care facility, providing ample parking for residents, staff, and visitors. Specifically, these comparable facilities are:
    - Lockwood of Fenton: 106 units, 91 parking spaces, 0.85 spaces per unit
    - Lockwood of Burton: 126 units, 120 parking spaces, 0.95 spaces per unit
    - Lockwood of Waterford: 126 units, 112 parking spaces, 0.89 spaces per unit
    - Lyon Township Senior Living: 130 units, 117 parking spaces, 0.9 spaces per unit

    Residents will have access to a landscaped central courtyard, which will serve as the primary recreation/outdoor space of the development. A patio off the dining room will also allow residents to be outdoors. A significant portion of the property, particularly the areas to the north of the building, will be undeveloped and remain as natural green space.
6. Landscaping and screening are depicted on the plans.

Section 3.1.18.E.ii.c – Residential/Non-Residential Units

A total of 146 residential units are proposed for the site. No non-residential units are proposed.

Section 3.1.18.E.ii.d – Environmental Analysis

A Phase I Environmental Site Assessment found no recognized environmental conditions on the project site; this report is available upon request. The report comments on the soil typology and hydrology in the area. A geotechnical investigation was also completed that studied the site soils for compressibility and permeability. This report also established water table elevation on the site of approximately 6 to 9 feet below ground surface (approximately 970 feet in elevation). This geotechnical report is available upon request.

Section 3.1.18.E.ii.e – Wetlands and Unusual Site Features

A wetland delineation was commissioned that found three wetland areas on the site, all in the northwest corner. This report is provided with the application. No development is planned in that area, and the wetlands will not be disturbed. A Level III Wetland Delineation was conducted by EGLE this summer that verified the consultant's conclusions; this report is available upon request.

Section 3.1.18.E.ii.f – Sewer and Water

Sewerage Service

Sanitary effluent from the project will be directed to an existing 12-inch sanitary sewer located on the north side of M59 (Highland Road), via a new pvc sanitary lateral. Waste water generated from the food preparation areas will be directed through an oil / water separator located on the east side of the site and into a proposed pvc sanitary lateral. Black and Gray water from residential units will be directed directly into the proposed sanitary lateral downstream from the oil / water separator.

Water Service

Water service will be provided via a new public waterline being constructed along M59 (Highland Road). Fire and domestic water service for the development will be directed to the site via a new combination water line which will circle the site to provide a fire loop. The water line will enter the building on the east side and separate into individual fire and domestic services. Various appurtenances, including tap, water meter, hydrants, fire department connection, etc. are expected to be coordinated with the local water authority and fire department.

Section 3.1.18.E.ii.g – Stormwater

Stormwater will be collected from the building roof, parking lots, and sidewalks and piped to the on-site retention basin. Treated stormwater will be released from the basin to the north via natural drainage patterns. The development team has contacted the Livingston County Drain Commission and provided the site plan for preliminary review. No comments have been received at this time.

Section 3.1.18.E.ii.h – Sidewalks

An eight-foot-wide asphalt path will be extended for the length of the site along M-59, and the existing narrow concrete sidewalk along M-59 will be removed. A concrete sidewalk will ring the building along the parking lots and connect into the courtyard.

Section 3.1.18.E.ii.i – Traffic Impacts

According to a trip generation study completed by Bergmann, Hartland Senior Living will have no adverse impact on traffic flow along M-59 (Highland Road). Hartland Senior Living is projected to generate fewer than 750 daily trips and fewer than 50 peak hour directional trips, which places it below the MDOT and Township threshold for requiring a full traffic study.

Section 3.1.18.E.ii.j – Fiscal Impacts

Hartland Senior Living will be an asset to the Hartland Township community and will contribute to the fiscal health of the Township and the Hartland Consolidated School District. It will not place an unreasonable burden on local services, the site, or surrounding properties. A letter provided by the Hartland Township Assessor in November of 2019 estimated Hartland Senior Living would pay ad valorem real estate taxes of $286,400. As the development will be home to seniors over age 62, it will place no burden on the school district, all while contributing its ad valorem share of property tax revenue. The on-site healthcare and 24/7 on-site management team will serve as a first line of defense to ensure that only true emergency calls are dispatched to Township emergency services. Hartland Senior Living will also be a large water and sewer customer, contributing to Township and County utility budgets.

Section 3.1.18.E.ii.k – General Schedule

General Schedule

Item	Date
PD Preliminary Review Approval	July, 2020
PD Final Approval	October, 2020
Building Permit Submission	March, 2021
Tree Clearing	March, 2021
Construction Start	June, 2021
Construction Completion / Occupancy	December, 2022

-Please note that no phasing is anticipated at this time.

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Cleveland, Ohio 44113
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May 22, 2020
Revised July 22, 2020

Troy Langer
Hartland Township Planning
2655 Clark Road
Hartland, Michigan 48353

Dear Mr. Langer:

In your May 8, 2020, email correspondence, you identified the need for the development team to request waivers from Hartland Township standards for building height and façade materials at Hartland Senior Living. This revised letter addresses the additional waiver requests noted in the email from Martha Wyatt on July 9, 2020. The team's requests appear below:

Height: The proposal exceeds the building height limit of 35' limit. As proposed, the mid-point of the roof for most of the building is 39'-4". One small section of gable roof has a mid- point of 41'-4". The height limit of 35' creates a hardship in developing high quality apartments meeting current market expectations. The proposal provides marketable living units with 9' ceilings on the second and third floors. The ground floor has a ceiling height of 10'. This higher ceiling height is needed for the larger volume common use facilities on the ground floor.

A mitigating factor to consider is the location of the higher building masses. The proposal exceeds the building height limit in the living unit portion of the building. This area is set back approximately 400' from the Highland Road right of way. The common use facilities are located closer to Highland Road. This area of the building is one-story and complies with the 35' height limit.

Façade Materials: The proposed design deviates from the maximum allowable and minimum required façade material percentages:

1. Cement board siding maximum of 10%: All elevations exceed 10% cement board siding.

   The south elevation is the predominant elevation visible from Highland Road. The one-story commons building is 5.3% siding. When combined with the partial view of the 3-story apartment building, percentages are 20.3% siding.

   The design goal is to maintain consistency of architectural forms and treatment on all elevations. More extensive use of siding is introduced on secondary and courtyard elevations. However, the secondary elevations and courtyard elevations maintain the same aesthetic as the primary elevations; gable elements are treated the same on primary and secondary elevations to create a more cohesive design.

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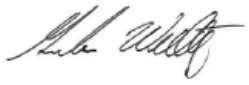
2. Other Cement board products, including shakes and panels are introduced to add texture and interest. The proposed architecture is a shingle style and a combination of horizontal and shake siding is prevalent in this style. We are introducing several colors and textures to break down the scale of the building and to provide interest. While they are not listed as a category in Section 5.24.14, it is consistent with the shingle style architecture.

3. Fiberglass shingles maximum of 25%:
   The intent is to utilize dimensional architectural fiberglass shingles for the gable and hipped roofs and standing seam metal on the Porte Cochere roof and dormers.

4. Brick minimum of 30%:
   The proposed design includes stone instead of brick. Stone is preferred because it is more compatible with the shingle style architecture. Stone is used consistently at the base of gable elements on all facades. The one-story commons building is 20% stone. When combined with the partial view of the 3-story apartment building, percentages are 11% stone. The percentage of stone utilized on secondary and courtyard elevations range from 2.6% - 10.5%.

We appreciate your review and are happy to provide any additional information necessary.

Regards,



Graham Welling
Senior Development Coordinator

Tree Inventory Report

Hartland Senior Living Center Site

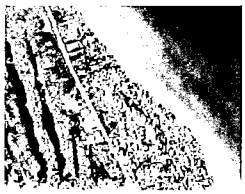
Highland Road (M-59) Parcels 47-08-23-300-025,
47-08-23-300-026, and 47-08-23-300-027
17.92 Acres of the Southwest ¼ of Section 23, T03N, R06E
Hartland Township, Livingston County, Michigan

project for:

Flint Surveying and Engineering, Inc.
5370 Miller Road, Suite 13
Swartz Creek, Michigan 48473

Huron Ecologic, LLC
4975 Maple Valley Road
Marlette, Michigan 48453

Huron Ecologic Project 2020-13-01
2020 June 09



H U R O N E C O L O G I C

Huron Ecologic, Limited Liability Company
4975 Maple Valley Road, Marlette, Michigan 48453
810-346-2584 ◈ mail@HuronEcologic.com ◈ www.HuronEcologic.com

2020 June 09

Kim R. Carlson, President
Flint Surveying and Engineering, Inc.
5370 Miller Road, Suite 13
Swartz Creek, Michigan 48473

Subject: Tree Inventory Report
Hartland Senior Living Center Site
Highland Road (M-59), Parcels 47-08-23-300-025,
47-08-23-300-026, and 47-08-23-300-027
17.92 Acres of the Southwest ¼ of Section 23, T03N, R06E
Hartland Township, Livingston County, Michigan
Huron Ecologic Project 2020-13-01

Mr. Carlson:

At your request, on 2020 June 08, Huron Ecologic, LLC (Huron Ecologic) conducted a full tree inventory along the east side of the proposed Hartland Senior Living Center site located on the north side of Highland Road (M-59), including Parcels 47-08-23-300-025, 47-08-23-300-026, and 47-08-23-300-027, totaling 17.92 acres of the Southwest ¼ of Section 23, T03N, R06E, in Hartland Township, Livingston County, Michigan. The purpose of the tree inventory was to identify any trees regulated by Hartland Township ordinances that would be impacted by the proposed development. Prior to conducting the inventory, Huron Ecologic reviewed Hartland Township ordinances pertaining to trees and also consulted with Martha Wyatt, planning and zoning administrator with Hartland Township. Based on this review and discussions, it was determined that Hartland Township regulates most trees 8 inches or greater in diameter but that detailed inventory, tagging, and survey would not be required for those portions of the subject site not impacted by the proposed development. Based on the original site plan provided by Flint Surveying and Engineering, most trees on the subject site would not be impacted. However, it was uncertain how far east tree clearing might extend for installation of a proposed water line, and whether the outlet of the proposed stormwater detention pond would impact any trees. In both cases, it did not appear there would be any impact. Hartland Township was also concerned that proposed landscaping provide adequate screening for the adjacent residence to the east at 12477 Highland Road.

Martha Wyatt of Hartland Township initially indicated that it appeared no trees needed to be tagged or surveyed. Therefore, Huron Ecologic did not tag any trees on the subject site during the original tree inventory on 2020 May 06, but instead, provided a list and sizes of the trees observed in the areas of concern. Based on subsequent review, Hartland Township determined that trees along the east side of the subject site would need to be tagged and surveyed. On 2020 June 09, Huron Ecologic re-inventoried and tagged all trees 8 inches or greater in diameter along the east side of the subject site within Areas 1 and 2 as shown on the attached Tree Inventory Map.

Thank you for the opportunity to provide this service. Please contact me should you have any questions or require further assistance.

William Collins

Huron Ecologic, LLC
William Collins, Manager

Area 1 - Adjacent to Residence at 12477 Highland Road, Trees Listed From South to North					
#	Common Name	Scientific Name	Diameter DBH Inches*	Condition	Comments
1	Box-elder	*Acer negundo*	15+13+10	good	start front yard
2	American Elm	*Ulmus americana*	16	fair	Poison Ivy vines
3	American Elm	*Ulmus americana*	18	good	
4	Black Cherry	*Prunus serotina*	8.5	good	
5	Black Oak	*Quercus velutina*	30+29+23 +17	good	
6	Black Cherry	*Prunus serotina*	11+10	poor	stunted, leaning
7	Bur Oak	*Quercus macrocarpa*	8	good	near TP 903
8	Bur Oak	*Quercus macrocarpa*	9	good	
9	Scots Pine	*Pinus sylvestris*	11	good	
10	Box-elder	*Acer negundo*	12	fair	dead branches
11	Black Oak	*Quercus velutina*	12	good	
12	Eastern White Pine	*Pinus strobus*	11	good	
13	Black Pine	*Pinus nigra*	11	fair	Virginia Creeper vines
14	Eastern White Pine	*Pinus strobus*	11	fair	3 trunks
15	Eastern White Pine	*Pinus strobus*	12	fair	thin growth
16	Bur Oak	*Quercus macrocarpa*	16.5	good	
17	Scots Pine	*Pinus sylvestris*	11.5	good	
18	Black Cherry	*Prunus serotina*	17	good	
19	Black Cherry	*Prunus serotina*	11.5	good	
20	Black Cherry	*Prunus serotina*	13	fair	leaning
21	Apple	*Malus pumila*	8+8	good	
22	Black Cherry	*Prunus serotina*	27+21	fair	21" trunk mostly dead
23	Black Cherry	*Prunus serotina*	19	good	
24	Black Pine	*Pinus nigra*	12	good	
25	Black Cherry	*Prunus serotina*	25+25+22	good	
26	Black Cherry	*Prunus serotina*	16	good	
27	Black Cherry	*Prunus serotina*	24+9	fair	leaning
28	Black Cherry	*Prunus serotina*	24	fair	broken limb
29	Serviceberry	*Amelanchier arborea*	9	good	
30	Black Cherry	*Prunus serotina*	9	fair	leaning
31	Box-elder	*Acer negundo*	12	good	
32	Box-elder	*Acer negundo*	9+8	good	
33	Black Cherry	*Prunus serotina*	25	poor	rotted trunk base
34	Black Cherry	*Prunus serotina*	27	poor	
35	Bur Oak	*Quercus macrocarpa*	10	good	
36	Black Cherry	*Prunus serotina*	19	fair	leaning
37	Black Cherry	*Prunus serotina*	19	fair	leaning
38	Black Oak	*Quercus velutina*	38	good	
39	Black Cherry	*Prunus serotina*	39+31	fair	31" trunk partly rotted
40	Bur Oak	*Quercus macrocarpa*	11.5	good	
41	Bur Oak	*Quercus macrocarpa*	14	good	

Area 1 - Adjacent to Residence at 12477 Highland Road, Trees Listed From South to North					
#	Common Name	Scientific Name	Diameter DBH Inches	Condition	Comments
42	Black Oak	*Quercus velutina*	12+7	good	
43	Black Cherry	*Prunus serotina*	13	good	start back yard
44	Bur Oak	*Quercus macrocarpa*	12.5		
45	Black Cherry	*Prunus serotina*	22	good	
46	Black Cherry	*Prunus serotina*	10	good	
47	Black Cherry	*Prunus serotina*	9	good	
48	Black Cherry	*Prunus serotina*	10	good	
49	Black Cherry	*Prunus serotina*	8	fair	leaning, multiple deformed trunk
50	American Elm	*Ulmus americana*	11	good	
51	Black Cherry	*Prunus serotina*	8	fair	leaning
52	Black Cherry	*Prunus serotina*	8	good	
53	Black Cherry	*Prunus serotina*	13	good	
54	Black Cherry	*Prunus serotina*	17	good	
55	Black Cherry	*Prunus serotina*	9	good	
56	Bur Oak	*Quercus macrocarpa*	12	good	
57	Black Cherry	*Prunus serotina*	24+23	fair	23" trunk broken
58	Black Cherry	*Prunus serotina*	20+13	good	

Area 2 - Adjacent to Hartland Township Park, Trees Listed From South to North, Trees North of Tree 82 are North of Proposed North Parking Area					
#	Common Name	Scientific Name	Diameter DBH Inches	Condition	Comments
59	Black Cherry	*Prunus serotina*	33+26+23	good	
60	American Elm	*Ulmus americana*	11	good	
61	White Oak	*Quercus alba*	33	good	
62	White Oak	*Quercus alba*	32	good	
63	Black Cherry	*Prunus serotina*	24+16+14	fair	16" trunk broken

Tree Inventory

Based on the request from Flint Surveying and Engineering and latest review by Hartland Township, Huron Ecologic made a detailed inventory and tagged all trees 8 inches or greater in diameter in the east of the subject site, adjacent to the residence at 12477 Highland Road and the southwest corner of the adjacent Hartland Township Park. This area is shown as Area 1 and Area 2 on the Tree Inventory Map on page 4 of this report. A total of 63 trees were inventoried and tagged. It appears that few, if any, of these trees would be impacted by the proposed development as shown on the latest site plan provided to Huron Ecologic by Flint Surveying and Engineering. Of the few trees present in the proposed development area, most are Eastern Red-cedar – *Juniperus virginiana* of less than 6 inches in diameter, appearing to be about 15 years old or younger based on size and historical aerial photography. For general information about other vegetation on the subject site, refer to the original 2020 May 07 Huron Ecologic report.

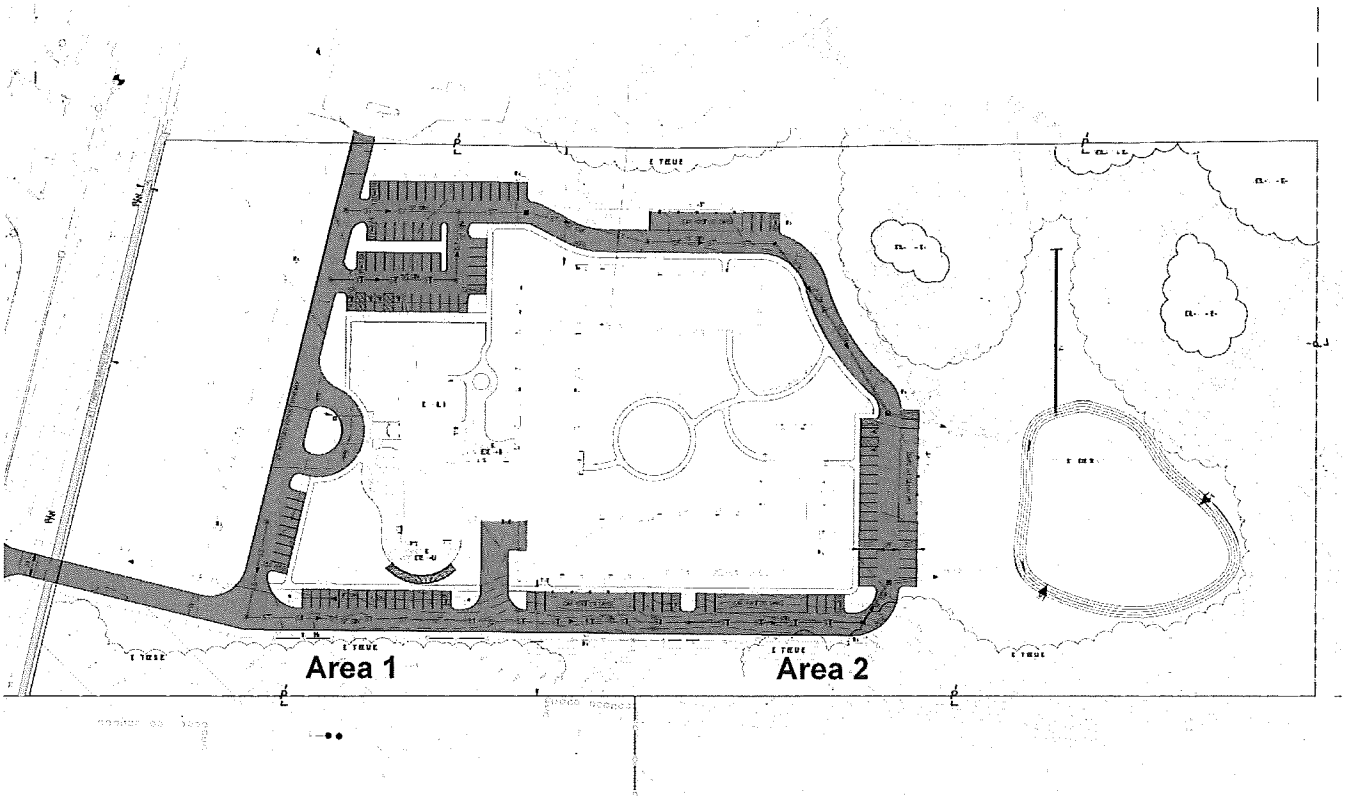
Tree diameters provided in this report are listed as inches at "diameter breast height", or DBH, which is normally 4.5 feet above the ground surface. For large trees with multiple fused trunks, the diameter may be larger at 4.5 feet than the lower base trunk. For this reason, in very few cases, the diameter listed is below 4.5 feet to better represent the tree. For trees with multiple non-fused trunks, diameters (X) are listed as X+X+ and so on. Trees with multiple trunks extending from the same root system may effectively be two different trees due to horizontal separation. In these cases, Huron Ecologic determines whether uprooting of one trunk would significantly affect the others. If not, they are listed as separate trees, and if so, they are listed as the same tree with multiple trunks.

The tree conditions provided in this report represent general visual evaluations ranging from good to fair to poor. The conditions account only for obvious exterior physical indicators. Interior conditions, such as hollow trunks, or diseases that may not present clear visual indicators are not accounted for. The designation of good, fair, or poor condition is somewhat subjective but determined with consistency. Trees determined to be in good condition appear to have no or few indications of physical or pathological problems. Trees in fair condition may exhibit minor issues such as broken limbs, small areas of missing bark, leaning, or limited stress due to disease, pests, or vines. Whatever the issue, such minor conditions do not appear likely to significantly impair continued tree growth. Trees determined to be in poor condition exhibit major damage such as broken or hollow and exposed trunks, major leaning or uprooting, or major stress due to disease, pests, or vines. A tree determined to be in poor condition appears unlikely to recover normal growth and/or likely to soon die. Determination of tree condition is always relative to the typical growth form and condition of particular tree species. For example, Box-elder and willows typically have multiple leaning trunks, some of which are often damaged or dead, but otherwise, unlikely to impair the tree as a whole.

Limitations

The information presented in this report is intended to assist the client in making a reasonable assessment of regulated trees and potential impacts on the subject site. The determinations of Huron Ecologic are limited to the specific project area at the subject location as indicated by the client and consultation with the local regulatory agency. As with all projects, the quantity of information obtained is a function of time and budgetary constraints as defined in the scope of work requested by the client. Therefore, the findings and conclusions of Huron Ecologic, LLC should in no way be considered as absolute certainties, but rather, as professional judgments regarding data collected during the course of this project. The determinations of Huron Ecologic are limited to specific conditions observed during the site inspection and applicable regulations at the time of this report. Tree species identification is often limited by season and natural variations. This report has been produced solely for the client indicated in this report. No other person, entity, or assigns shall make use of or rely upon this report or its conclusions without the express written consent of Huron Ecologic, LLC.

Tree Inventory Map



ASTI ENVIRONMENTAL

Investigation • Remediation
Compliance • Restoration

10448 Citation 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

April 2, 2020

Mr. Graham Welling
PIRHL Developers, LLC
800 West St. Clair Ave.
4th Floor
Cleveland, OH 44113

RE: Wetland Delineation and Jurisdictional Assessment with GPS Survey
Hartland Senior
12371 Highland Road
Hartland Township, Livingston County, Michigan
ASTI File No. 3-11269

Dear Mr. Welling:

On March 24, 2020, ASTI Environmental (ASTI) conducted a site investigation to delineate wetland boundaries on approximately 17.9 acres at 12371 Highland Road, east of Bullard Road, and west of Fenton Road in Hartland Township, Livingston County, Michigan (Property). Three wetlands were found on the Property (Figure 1 – *GPS-Surveyed Wetland Boundaries*). Wetland boundaries, as depicted on Figure 1, were located using a professional grade, hand-held Global Positioning System unit (GPS).

SUPPORTING DATA AND MAPPING

The United States Geological Survey (USGS) West Highland, Michigan 7.5' Quadrangle Map, the USDA Web Soil Survey (WSS), the National Wetland Inventory Map (NWI), Michigan Department of Environment, Great Lakes, and Energy (EGLE) Wetlands Map Viewer web site, and digital aerial photographs were all used to support the wetland delineation and subsequent regulatory status determination. The NWI, EGLE and USGS maps indicated the presence of wetland in the northwestern portion of the Property.

In addition, the WSS indicated the Property is comprised of the soils Boyer-Oshtemo loamy sands (2-6% slopes), Boyer-Oshtemo loamy sands (6-12% slopes), Carlisle muck (0-2% slopes), Fox sandy loam (0-2% slopes), Fox sandy loam (2-6% slopes), Fox sandy loam (6-12% slopes), Oakville fine sand, loamy (0-6% slopes). The soil complex of Carlisle muck is listed as hydric soil by the WSS.

FINDINGS

ASTI investigated the Property for the presence of any lakes, ponds, wetlands, and watercourses. This work is based on *MCL 324 Part 301 (Inland Lakes and Streams)* and *Part 303 (Wetland Protection)* and Executive Order 11990, Protection of Wetlands, 1977.

It should be noted that some municipalities have local wetland ordinances and natural features setbacks that may apply to this property. In addition, in some circumstances the US Army Corps of Engineers (ACOE) may also have jurisdiction of wetlands or watercourses on your Property. If either is the case for your site, this information will also be noted in the wetland descriptions below.

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: Northcentral and Northeast Region*, and related guidance/documents, as appropriate. Wetland vegetation, hydrology, and soils were used to locate the wetland boundaries. Three wetland areas were found on the Property and are discussed below.

Wetland A

Wetland A is a scrub/shrub wetland 0.08 acres in size located entirely on the Property (see Figure 1). Dominant vegetation found within Wetland A included silky dogwood (*Cornus amomum*), gray dogwood (*Cornus racemosa*), and stinging nettle (*Utica dioica*). Soils within Wetland A were mucky sand and are considered hydric because they met the hydric soil criteria for a sandy mucky mineral and a sandy redox. Indicators of wetland hydrology observed within Wetland A included surface water, high water table, saturation, and sparsely vegetated concave surface.

Dominant vegetation observed within the upland adjacent to Wetland A included wild black cherry (*Prunus serotina*), flowering dogwood (*Cornus florida*), Allegheny blackberry (*Rubus allegheniensis*), tartarian honeysuckle (*Lonicera tatarica*), white avens (*Geum canadense*), early winter cress (*Barbarea verna*), and eastern prickly gooseberry (*Ribes cynosbati*). Upland soils were loamy sand, and no evidence of wetland hydrology was observed.

Wetland A would typically not be regulated by EGLE, because it is less than five acres in size and located over 500-feet from an inland lakes, streams, or pond. However, since this project receives federal funding, EO11990 applies, which means that proposed impacts to all on-site wetlands must be accounted for, permitted, and mitigated.

Wetland B

Wetland B is a forested wetland 0.31 acres on the Property (see Figure 1); it continues off-site to north and west of the Property. Dominant vegetation found within Wetland B included silver maple (*Acer saccharinum*), gray birch (*Betula populifolia*), American hornbeam (*Carpinus caroliniana*), and skunk-cabbage (*Symplocarpus foetidus*). Soils within Wetland B were a muck and are considered hydric because they met the hydric soil criteria for a histosol. Indicators of wetland hydrology observed within Wetland B included surface water, high water table, and saturation.

Dominant vegetation observed within the upland adjacent to Wetland B included red oak (*Quercus rubra*), black oak (*Quercus velutina*), eastern hop-hornbeam (*Ostrya virginiana*), and American hornbeam (*Carpinus caroliniana*). Upland soils were loam sand and no evidence of wetland hydrology was observed.

It is ASTI's opinion that Wetland B is regulated by EGLE because it is contiguous with wetland systems located off-site to the west and the north. Wetland B is contiguous to the off-site wetlands via surface water connection to the north. This size is based on visual estimates in the field as well as estimated from aerial photography.

Wetland C

Wetland C is a scrub/shrub wetland 0.20 acres in size, located entirely on the Property (see Figure 1). Dominant vegetation found within Wetland C included gray birch (*Betula populifolia*), American hornbeam (*Carpinus caroliniana*), sensitive fern (*Onoclea sensibilis*), royal fern (*Osmunda spectabilis*), and green ash (*Fraxinus pennsylvanica*). Soils within Wetland C were mucky sand and are considered hydric because they met the hydric soil criteria for a sandy mucky mineral, a thick dark surface, a sandy redox, and a stripped matrix. Indicators of wetland hydrology observed within Wetland C included surface water, high water table, saturation, and sparsely vegetated concave surface.

Dominant vegetation observed within the upland adjacent to Wetland C included American beech (*Fagus grandifolia*), autumn olive (*Elaeagnus umbellata*), American hornbeam (*Carpinus caroliniana*), Indian strawberry (*Potentilla indica*), and eastern prickly gooseberry (*Ribes cynosbati*). Upland soils were loamy/clay and no evidence of wetland hydrology was observed.

Wetland C would typically not be regulated by EGLE, because it is less than five acres in size and located over 500-feet from an inland lakes, streams, or pond. However, since this project receives federal funding, EO11990 applies, which means that proposed impacts to all on-site wetlands must be accounted for, permitted, and mitigated.

Wetland Flagging

Wetland boundaries were marked in the field with day-glo pink flagging with black striped the following flagging numbers:

Wetland A:	A-1 through A-11	Wetland B:	B-1 through B-12
Wetland C:	C-1 through C-16		

SUMMARY

Based upon the data, criteria, and evidence noted above, it is ASTI's professional opinion that the Property includes three wetlands, Wetlands A, B, and C. Attached are Figure 1, which shows the surveyed locations of wetland flagging on the Property, and completed US Army Corps of Engineers (ACOE) Wetland Data Forms. Please note that the data sheet numbers match the data collection sampling points shown on Figure 1.

Thank you for the opportunity to assist you with this project. Please let us know if we can be of any further assistance in moving your project forward.

Sincerely yours,

ASTI ENVIRONMENTAL

Jeremiah Roth
Wetland Ecologist

Dianne C. Martin, PWS
Vice President
Professional Wetland Scientist #1313

Attachments: Figure 1 – *GPS-Surveyed Wetland Boundaries*
Completed ACOE Wetland Data Forms



12371 Highland Road

Hartland, MI

0 50 100 200 Feet

N

ASTI Environmental

Client: PIRHL Developers, LLC
Created by: RMH, March 27, 2020, ASTI Project 3-11269
Imagery: SEMCOG, Maxar

Figure 1 - GPS-Surveyed Wetland Boundaries

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartland Senior City/County: Hartland/ Livingston Sampling Date: 3/24/2020

Applicant/Owner: PIRHL Developers, LLC State: MI Sampling Point: U1

Investigator(s): Jeremiah Roth (ASTI Environmental Section, Township, Range: Section 23, To3N, R06E

Landform (hillside, terrace, etc.): Slope Local relief (concave, convex, none): conves Slope %: 2-6%

Subregion (LRR or MLRA): LRR L Lat: Long: Datum:

Soil Map Unit Name: Boyer-Oshtemo loamy sands, 6 to 12% 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N 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**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ 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:

VEGETATION – Use scientific names of plants. Sampling Point: U1

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	40	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	40	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Cornus florida*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	20	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Rubus allegheniensis*	10	Yes	FACU
2. *Lonicera tatarica*	5	Yes	FACU
3. *Geum canadense*	5	Yes	FAC
4. *Barbarea verna*	5	Yes	UPL
5. *Thelypteris noveboracensis*	2	No	FAC
6. *Ribes cynosbati*	5	Yes	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	32	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
1. *Vitis riparia*	10	Yes	FAC
2.			
3.			
4.			
	10	=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: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	17	x 3 =	51
FACU species	80	x 4 =	320
UPL species	5	x 5 =	25
Column Totals:	102 (A)		396 (B)

Prevalence Index = B/A = 3.88

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.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point U1

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
0-7	10YR 4/2	80					Loamy/Clayey	
	10YR 6/2	20						
7-12	10YR 5/3	100					Loamy/Clayey	
12-24	10YR 5/4	100					Loamy/Clayey	

[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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ 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 Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartland Senior City/County: Hartland/ Livingston Sampling Date: 03/24/2020

Applicant/Owner: PIRHL Developers, LLC State: MI Sampling Point: U2

Investigator(s): Jeremiah Roth (ASTI Environmental) Section, Township, Range: Section 23, T03N, R06E

Landform (hillside, terrace, etc.): slope Local relief (concave, convex, none): convex Slope %: 6-12

Subregion (LRR or MLRA): LRR L Lat: Long: Datum: NAD 83

Soil Map Unit Name: Carlisle muck, 0 to 2% slopes NWI classification: PFO1C

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N 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**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ 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:

VEGETATION – Use scientific names of plants. Sampling Point: U2

Tree Stratum (Plot size: 30Ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	20	Yes	FACU
2. *Quercus velutina*	20	Yes	UPL
3. *Ostrya virginiana*	10	No	FACU
4. *Carpinus caroliniana*	10	No	FAC
5.			
6.			
7.			
	60	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Carpinus caroliniana*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
1. *None*			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	30	x 4 =	120
UPL species	20	x 5 =	100
Column Totals:	70 (A)		280 (B)

Prevalence Index = B/A = 4.00

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.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point U2

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
0-10	10YR 2/2	100					Loamy/Clayey	
10-24	10YR 5/2	85					Loamy/Clayey	
	10YR 5/1	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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ 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 Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartland Senior City/County: Hartland/ Livingston Sampling Date: 03/24/2020

Applicant/Owner: PIRHL Developers, LLC State: MI Sampling Point: U3

Investigator(s): Jeremiah Roth (ASTI Environmental) Section, Township, Range: Section 23, T03N, R06E

Landform (hillside, terrace, etc.): plain Local relief (concave, convex, none): convex Slope %: 0-2

Subregion (LRR or MLRA): LRR L Lat: Long: Datum: NAD 83

Soil Map Unit Name: Carlisle muck, 0 to 2% slopes NWI classification: PFO1C

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N 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**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes X	No	Depth (inches): 20
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:

VEGETATION – Use scientific names of plants. Sampling Point: U3

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	30	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Carpinus caroliniana*	10	Yes	FAC
2. *Elaeagnus umbellata*	5	Yes	UPL
3.			
4.			
5.			
6.			
7.			
	15	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Fagus grandifolia*	10	Yes	FACU
2. *Potentilla indica*	5	Yes	FACU
3. *Ribes cynosbati*	10	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 16.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	55	x 4 =	220
UPL species	5	x 5 =	25
Column Totals:	70 (A)		275 (B)

Prevalence Index = B/A = 3.93

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.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point U3

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 2/2	100					Loamy/Clayey	
6-12	10YR 5/2	100					Loamy/Clayey	
12-24	10YR 2/1	80					Mucky Sand	
	10YR 5/1	20						

[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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ 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 Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartland Senior City/County: Hartland/Livingston Sampling Date: 3/24/2020

Applicant/Owner: PIRHL Developers, LLC State: MI Sampling Point: U4

Investigator(s): Jeremiah Roth (ASTI Environmental) Section, Township, Range: Section 23, T03N, R06E

Landform (hillside, terrace, etc.): slope Local relief (concave, convex, none): convex Slope %: 6-12

Subregion (LRR or MLRA): LRR L Lat: Long: Datum: NAD 83

Soil Map Unit Name: Boyer-Oshtemo loamy sands, 6 to 12% 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N 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**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ 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:

VEGETATION – Use scientific names of plants. Sampling Point: U4

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prunus serotina*	15	Yes	FACU
2. *Quercus velutina*	10	Yes	UPL
3. *Fagus grandifolia*	10	Yes	FACU
4. *Quercus rubra*	10	Yes	FACU
5.			
6.			
7.			
	45	=Total Cover	

Sapling/Shrub Stratum (Plot size: 15ft)			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	

Herb Stratum (Plot size: 5ft)			
1. *Fagus grandifolia*	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5	=Total Cover	

Woody Vine Stratum (Plot size: 30ft)			
1. *None*			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	10	x 5 =	50
Column Totals:	50 (A)		210 (B)

Prevalence Index = B/A = 4.20

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.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point U4

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
0-10	10YR 4/2	80					Loamy/Clayey	
	10YR 6/2	20						
10-16	10YR 5/3	80					Loamy/Clayey	
	10YR 6/2	20						
16-24	10YR 4/4	100					Loamy/Clayey	

[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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ 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 Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartland Senior City/County: Hartland/Livingston Sampling Date: 3/24/2020

Applicant/Owner: PIRHL Developers, LLC State: MI Sampling Point: U5

Investigator(s): Jeremiah Roth (ASTI Environmental) Section, Township, Range: Section 23, T03N, R06E

Landform (hillside, terrace, etc.): plain Local relief (concave, convex, none): convex Slope %: 6-12

Subregion (LRR or MLRA): LRR L Lat: Long: Datum: NAD 83

Soil Map Unit Name: Fox sandy loam, 0 to 2% 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N 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**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ 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:

VEGETATION – Use scientific names of plants. Sampling Point: U5

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Centaurea stoebe*	35	Yes	UPL
2. *Bromus inermis*	35	Yes	UPL
3. *Daucus carota*	10	No	UPL
4. *Verbascum thapsus*	5	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 =Total Cover		
Woody Vine Stratum (Plot size: 30ft)			
1. *None*			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	85	x 5 =	425
Column Totals:	85 (A)		425 (B)

Prevalence Index = B/A = 5.00

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.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point U5

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
0-10	10YR 4/2	80					Loamy/Clayey	
	10YR 6/2	20						
10-16	10YR 4/4	100					Loamy/Clayey	
16-24	10YR 4/4	80					Loamy/Clayey	
	10YR 3/3	20						

[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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ 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 Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartland Senior City/County: Hartland/Livingston Sampling Date: 3/24/2020

Applicant/Owner: PIRHL Developers, LLC State: MI Sampling Point: U6

Investigator(s): Jeremiah Roth (ASTI Environmental) Section, Township, Range: Section 23, T03N, R06E

Landform (hillside, terrace, etc.): slope Local relief (concave, convex, none): convex Slope %: 6-12

Subregion (LRR or MLRA): LRR L Lat: Long: Datum: NAD 83

Soil Map Unit Name: Fox sandy loam, 2 to 6% 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N 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**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ 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:

VEGETATION – Use scientific names of plants. Sampling Point: U6

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus macrocarpa*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Cornus racemosa*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	20	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Solidago canadensis*	20	Yes	FACU
2. *Symphyotrichum pilosum*	20	Yes	FACU
3. *Symphyotrichum lateriflorum*	10	No	FAC
4. *Bromus inermis*	15	Yes	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
1. *Vitis aestivalis*	10	Yes	FACU
2.			
3.			
4.			
	10	=Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 16.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	60	x 4 =	240
UPL species	15	x 5 =	75
Column Totals:	105 (A)		405 (B)

Prevalence Index = B/A = 3.86

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.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point U6

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
0-10	10YR 4/2	80					Loamy/Clayey	
	10YR 6/2	20						
10-16	10YR 4/4	100					Loamy/Clayey	
16-24	10YR 4/4	90					Loamy/Clayey	
	10YR 3/3	10						

[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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ 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 Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartland Senior City/County: Hartland/ Livingston Sampling Date: 3/24/2020

Applicant/Owner: PIRHL Developers, LLC State: MI Sampling Point: W1

Investigator(s): Jeremiah Roth (ASTI Environmental) Section, Township, Range: Section 23, T03N, R06E

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope %: 0-2

Subregion (LRR or MLRA): LRR L Lat: Long: Datum: NAD-83

Soil Map Unit Name: Boyer-Oshtemo loamy sands, 6 to 12% 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N 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**
Hydric Soil Present?	Yes X	No	**within a Wetland?** **Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: Wetland A

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches): 4
Water Table Present?	Yes X	No	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 4

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

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W1

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Cornus amomum*	10	Yes	FACW
2. *Cornus racemosa*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	20 =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Urtica dioica*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5 =Total Cover		
Woody Vine Stratum (Plot size: 30ft)			
1. *Vitis riparia*	10	Yes	FAC
2.			
3.			
4.			
	10 =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	35 (A)		95 (B)

Prevalence Index = B/A = 2.71

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.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point W1

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
0-24	10YR 3/1	95	10YR 6/6	5	C	M	Mucky Sand	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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ 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 Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartland Senior City/County: Hartland/ Livingston Sampling Date: 3/24/2020

Applicant/Owner: PIRHL Developers, LLC State: MI Sampling Point: W2

Investigator(s): Jeremiah Roth (ASTI Environmental) Section, Township, Range: Section 23, T03N, R06E

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope %: 0-2

Subregion (LRR or MLRA): LRR L Lat: Long: Datum: NAD-83

Soil Map Unit Name: Carlisle muck, 0 to 2% slopes NWI classification: PFO1C

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N 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**
Hydric Soil Present?	Yes X	No	**within a Wetland?** **Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: Wetland B

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches): 2
Water Table Present?	Yes X	No	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 1

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

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W2

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	20	Yes	FACW
2. *Betula populifolia*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	45	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Carpinus caroliniana*	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	15	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Symplocarpus foetidus*	25	Yes	OBL
2. *Urtica dioica*	5	No	FAC
3. *Carex lacustris*	2	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	32	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
1. *None*			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	27	x 1 =	27
FACW species	20	x 2 =	40
FAC species	45	x 3 =	135
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	92 (A)		202 (B)

Prevalence Index = B/A = 2.20

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.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point W2

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 2/1	85	2.5YR 3/1	15	C	M	Muck	Faint redox concentrations
8-24	10YR 3/1	95	5Y 3/2	5	C	M	Muck	Faint 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:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ 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 Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartland Senior City/County: Hartland/ Livingston Sampling Date: 3/24/2020

Applicant/Owner: PIRHL Developers, LLC State: MI Sampling Point: W3

Investigator(s): Jeremiah Roth (ASTI Environmental) Section, Township, Range: Section 23, T03N, R06E

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope %: 0-2

Subregion (LRR or MLRA): LRR L Lat: Long: Datum: NAD 83

Soil Map Unit Name: Carlisle muck, 0 to 2% 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N 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**
Hydric Soil Present?	Yes X	No	**within a Wetland?** **Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: Wetland C

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches): 2
Water Table Present?	Yes X	No	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 2

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

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W3

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula populifolia*	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	15	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Carpinus caroliniana*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Onoclea sensibilis*	20	Yes	FACW
2. *Osmunda spectabilis*	25	Yes	OBL
3. *Symplocarpus foetidus*	15	No	OBL
4. *Fraxinus pennsylvanica*	20	Yes	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
1. *None*			
2.			
3.			
4.			
		=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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	40	x 2 =	80
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		195 (B)

Prevalence Index = B/A = 1.86

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.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point W3

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 2/1	90	10YR 5/6	10	C	M	Mucky Sand	Prominent redox concentrations
8-12	10YR 2/1	80	10YR 5/6	20	C	M	Mucky Sand	Prominent redox concentrations
12-18	10YR 2/1	90	2.5YR 3/1	10	C	M	Sandy	Faint redox concentrations
18-24	10YR 5/1	90	10YR 5/6	10	C	M	Sandy	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)
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- X Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ? Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ? Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ 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 Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartland Senior City/County: Hartland/ Livingston Sampling Date: 3/24/2020

Applicant/Owner: PIRHL Developers, LLC State: MI Sampling Point: W4

Investigator(s): Jeremiah Roth (ASTI Environmental) Section, Township, Range: Section 23, T03N, R06E

Landform (hillside, terrace, etc.): slope Local relief (concave, convex, none): concave Slope %: 0-4

Subregion (LRR or MLRA): LRR L Lat: Long: Datum: NAD 83

Soil Map Unit Name: Boyer-Oshtemo loamy sands, 6 to 12% slopes NWI classification: PFO1C

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N 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**
Hydric Soil Present?	Yes X	No	**within a Wetland?** **Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: Wetland B

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes X	No	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 3

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

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W4

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10 =Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Symplocarpus foetidus*	15	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 =Total Cover		
Woody Vine Stratum (Plot size: 30ft)			
1. *None*			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	25 (A)		55 (B)

Prevalence Index = B/A = 2.20

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 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.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

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

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

SOIL

Sampling Point W4

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
0-12	10YR 2/1	80	2.5YR 3/1	10	C	M	Mucky Sand	Faint redox concentrations
	10YR 4/1	10						
12-24	10YR 2/1	90	2.5YR 3/1	10	C	M	Mucky Sand	Faint 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)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- X Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ 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: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

To: Mr. Graham Welling
PIRHL

Re: Hartland Senior Living – Hartland Twp, MI
Trip Generation Study

From: Steven J. Russo, PE
Transportation Engineer

Date: April 17, 2020

INTRODUCTION

This memorandum presents an evaluation of traffic generation for the proposed Hartland Senior Living development in Hartland Township, Livingston County, Michigan. The subject site is located on the north side of Highland Road (M-59) approximately ½ mile west of Pleasant Valley / Fenton Road and is currently vacant. The proposed project involves construction of a 146-unit senior living facility with access provided via a single driveway to M-59. Additionally, a cross access connection is proposed with the adjacent Trillium Professional Center to the west which will provide an additional access point to M-59.

TRIP GENERATION

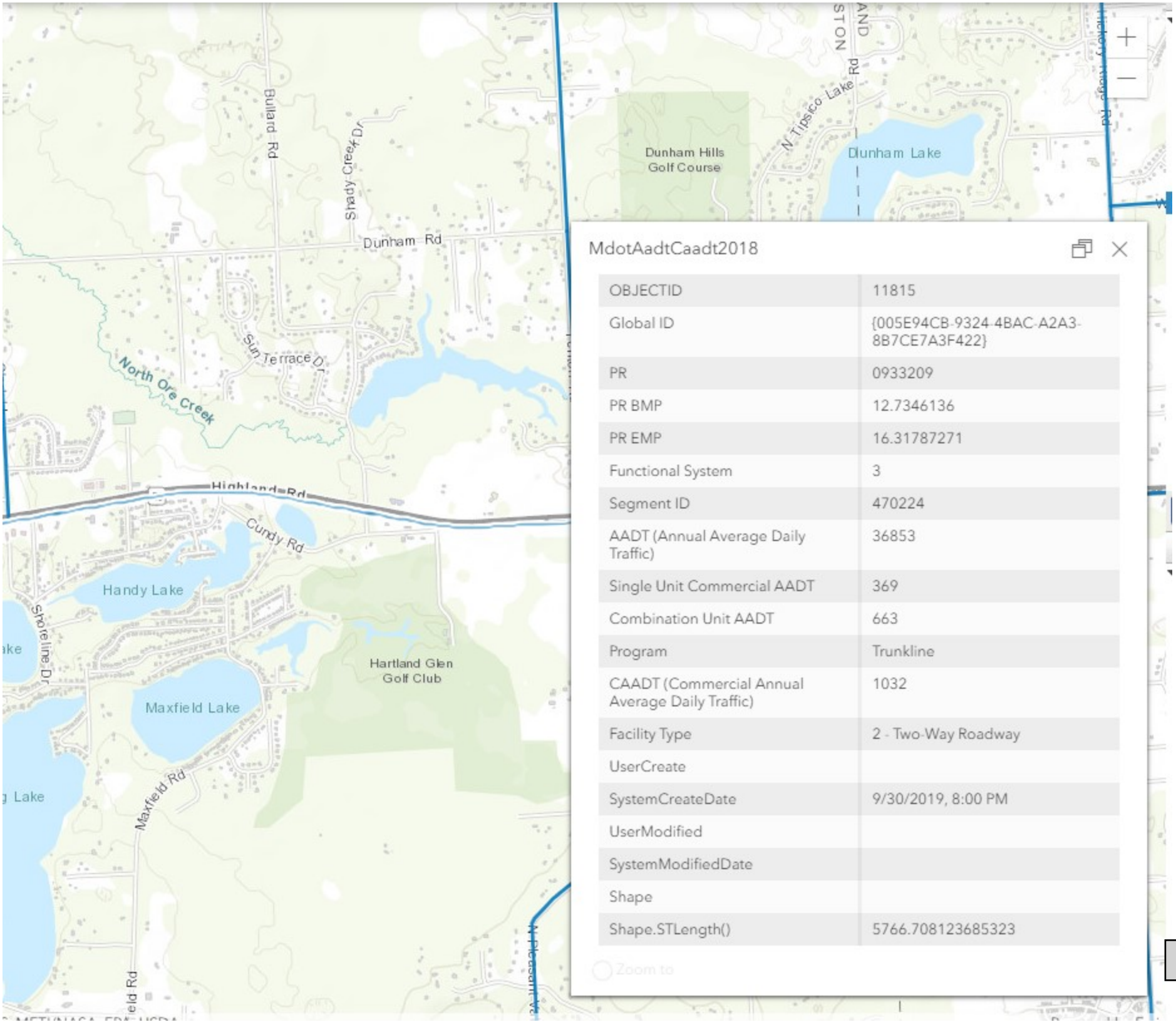
The number of peak hour vehicle trips generated by the proposed development were forecast based on the rates and equations published by the Institute of Transportation Engineers (ITE) in *Trip Generation, 10th Edition*. The ITE land use category that most closely matches the operation of the proposed facility is *Land Use #252 (Senior Adult Housing - Attached)* which consists of attached independent living developments, including retirement communities, age-restricted housing, and active adult communities. ITE publishes both average trip generation rates and equations for Land Use #252 and selection of the appropriate method was based on the guidelines outlined in the ITE *Trip Generation Manual*. The trip generation summary is summarized in **Table 1**.

Table 1: Site Trip Generation

Land Use	ITE Code	Amount	Units	Average Daily Traffic	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Senior Adult Housing	252	146	Dwelling Units	562	10	19	29	20	17	37

According to the MDOT *Geometric Design Guidance* and Section 6.5 of the Township Zoning Ordinance, the forecast number of site-generated vehicle trips does not meet the minimum thresholds (50 peak hour directional trips or 750 daily trips) to require traffic impact analysis or further study. Furthermore, this project would result in only a minor increase in traffic volume on M-59 which carries approximately 37,000 vehicles per day in the site vicinity. ***Therefore, the proposed project would have no significant traffic impact and the change in traffic volume on the adjacent road network would not be discernable.***

Please direct any questions regarding this memorandum to Bergmann.



MdotAadtCaadt2018

OBJECTID	11815
Global ID	{005E94CB-9324-4BAC-A2A3-8B7CE7A3F422}
PR	0933209
PR BMP	12.7346136
PR EMP	16.31787271
Functional System	3
Segment ID	470224
AADT (Annual Average Daily Traffic)	36853
Single Unit Commercial AADT	369
Combination Unit AADT	663
Program	Trunkline
CAADT (Commercial Annual Average Daily Traffic)	1032
Facility Type	2 - Two-Way Roadway
UserCreate	
SystemCreateDate	9/30/2019, 8:00 PM
UserModified	
SystemModifiedDate	
Shape	
Shape.STLength()	5766.708123685323

Zoom to

Application Reference Number:69796

Applicant Info

Applicant Name: Hartland Senior Living LDHA, LLC
Mailing Address: 800 West St. Clair Avenue, 4th Floor
City: Cleveland **State:** OH **Zip:** 44113
Primary Contact
Contact Name: Graham Welling
Phone No: 216-453-5943 **Cell Phone No:**
Email Address: gwelling@pirhl.com
Secondary Contact
Contact Name: Greg Schunck
Phone No: 216-378-1490 **Cell Phone No:**
Email Address: gschunck@manniksmithgroup.com

Contractor Info

Contractor Name: Hartland Senior Living LDHA, LLC
Mailing Address: 800 West St. Clair Avenue, 4th Floor
City: Cleveland **State:** OH **Zip:** 44113
Primary Contact
Contact Name: Graham Welling
Phone No: 216-453-5943 **Cell Phone No:**
Email Address: gwelling@pirhl.com
Secondary/Consultant Contact
Contact Name: Greg Schunck
Phone No: 216-378-1490 **Cell Phone No:**
Email Address: gschunck@manniksmithgroup.com

Site Info

State Route: M59 **Township Of:** Hartland **County:** Livingston County
Nearest Intersection: hartland glenn **Side of Road:** ☑ West
Distance to the nearest intersection: 0.0 Feet **Direction from worksite to the nearest intersection on the state route:** East

Work Info

Proposed Start Date: 10/30/2020 **Proposed Completion Date:** 05/02/2022
Purpose: Proposed asphalt driveway to access the north side of M-59 (Highland Road) to service a new 140+ bed senior living facility
Requisition #: **Work Order #:**
MDOT Job #: **Organizations Job #:**
Lane Closure Proposed: No

No

Work Located on Restricted Route:

Work performed outside of time restrictions: No

Date Submitted: 04/09/2020

Bond Info

Department Bond Number:

Insurance Info

Certificate of Insurance Number:

Attachments

Attachments Included.

Type of Work

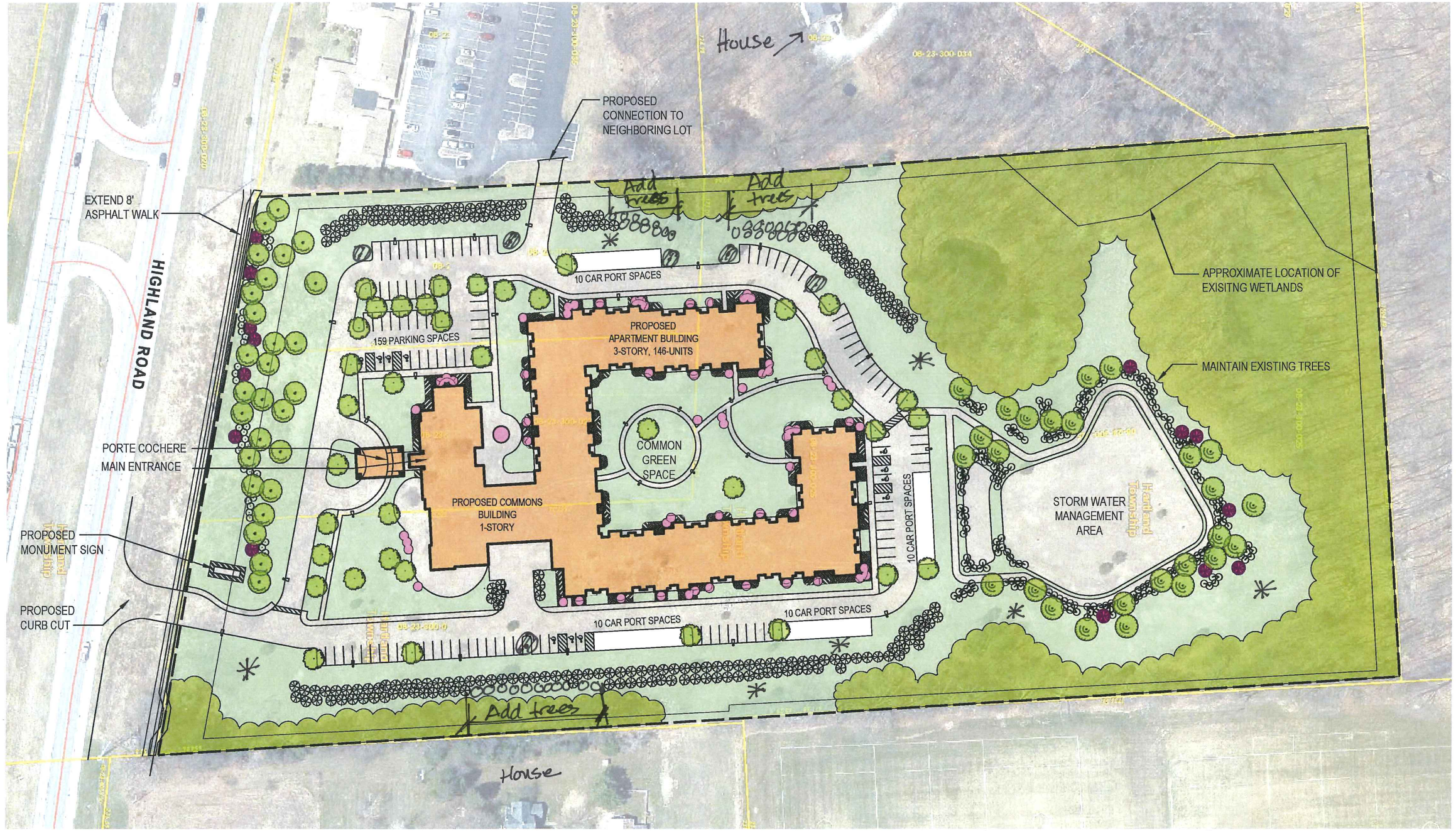
Driveways

Commercial Driveways - Parking spaces >50

Application Fee (Nonrefundable)

Additional fees may be applied.

$410.00



Add 6 canopy trees to parking lot area

Add evergreen trees to provide double row screening of site where abutting single-family residential and for screening of parking lot (west side)

* Label these areas as turf, lawn or other cover & provide seed mix information

07/23/2020

ARCHITECTURAL SITE PLAN

SCALE: 1" = 50'-0"

0 25' 50'

rdla: #19170 COPYRIGHT © 2020

RDL ARCHITECTS
16102 Chagrin Blvd. Suite 200
Shaker Heights, Ohio 44120
T: 216-752-4300 F: 216-752-4301
www.rdlarchitects.com

Hartland Senior Living
Hartland Township, MI

SP #20-005
Preliminary Plan
8/13/2020

PIRHL DEVELOPERS, LLC
800 WEST ST. CLAIR AVENUE, 4th FLOOR
CLEVELAND, OHIO 44113
T: 216.378.9690

A-1

HARTLAND SENIOR LIVING

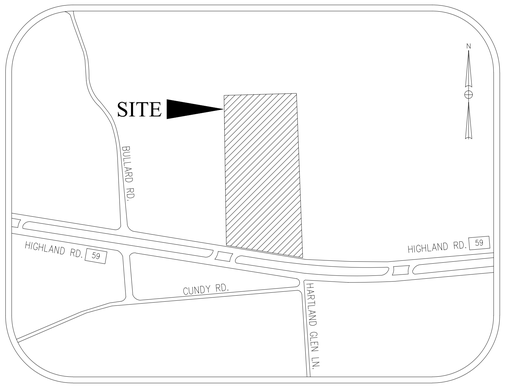
HARTLAND TOWNSHIP
COUNTY OF LIVINGSTON, STATE OF MICHIGAN

PREPARED FOR

PIRHL DEVELOPERS, LLC.
800 WEST SAINT CLAIR AVENUE,
FOURTH FLOOR
CLEVELAND, OHIO 44113

SITE DATA

CRITERIA	PROVIDED
LOT WIDTH	615.30 FT
TOTAL SITE AREA	17.92 ACRES (780,632 SQFT), 3 PARCELS
GREEN SPACE	13.17 ACRES (573,491.6 SQFT)
GREEN SPACE %	73.5%
WEST SIDE YARD SETBACK	137.5 FT.
EAST SIDE YARD SETBACK	142.9 FT.
FRONT YARD SETBACK	155.9 FT.
REAR YARD SETBACK	589.7 FT.
PARKING STALL GEOMETRY	10' X 20'
PARKING STALLS (REGULAR)	108 STALLS
PARKING STALLS (CARPORT)	40 STALLS
ADA PARKING STALLS	11 STALLS
TOTAL STALLS	159 STALLS
PARKING LOT SIDEWALK WIDTH	7 FT.
R/W ASPHALT PATH WIDTH	8 FT.
DRIVE AISLE WIDTH	24 FT.
DRIVEWAY SPACING	344 FT.



VICINITY MAP
NOT TO SCALE

INDEX OF PRELIMINARY CIVIL SHEETS

TITLE SHEET.....1
ALTA.....2–4
PRELIMINARY SITE PLAN.....5
OPEN SPACE PLAN.....6
PRELIMINARY GRADING PLAN.....7
PRELIMINARY UTILITY PLAN.....8
PRELIMINARY LANDSCAPE PLAN.....9–15
PRELIMINARY PHOTOMETRIC PLAN.....16–17

APPROVALS

SIGNATURES BELOW SIGNIFY CONCURRENCE WITH THE GENERAL PURPOSE AND LOCATION OF THE PROPOSED PROJECT. ALL TECHNICAL DETAILS REMAIN THE RESPONSIBILITY OF THE DESIGN ENGINEER PREPARING THE PLANS.

PLAN SET APPROVED BY:

HARTLAND TOWNSHIP — DATE

HARTLAND TOWNSHIP FIRE DEPARTMENT — DATE
FIRE CHIEF

HARTLAND TOWNSHIP UTILITIES COMMISSION, — DATE
DIRECTOR

UTILITY CONTACTS

SANITARY SEWERS
HARTLAND TOWNSHIP WASTEWATER DEPARTMENT
ATTN:
PHONE:

STORM SEWERS
HARTLAND TOWNSHIP STORM WATER DEPARTMENT
ATTN:
PHONE:

WATER SERVICE
HARTLAND TOWNSHIP WATER DEPARTMENT
ATTN:
PHONE:

GAS SERVICE

ELECTRIC COMPANY

CABLE

PROJECT CONTACTS

DEVELOPER
PIRHL DEVELOPERS, LLC.
800 WEST ST. CLAIR AVENUE, 4TH FLOOR
CLEVELAND, OH 44113
PHONE: 216-378-9690

ARCHITECT
RDL ARCHITECTS
16102 CHAGRIN BOULEVARD
SHAKER HEIGHTS, OH 44120
ATTN: EILEEN NACHT
PHONE: 216-752-4300

CIVIL ENGINEER
THE MANNIK & SMITH GROUP, INC.
20600 CHAGRIN BLVD., SUITE 500
SHAKER HEIGHTS, OH 44122
ATTN: KENDRA SANELLI
PHONE: 216-378-1490

NO.	DATE	BY	DESCRIPTION
	05/15/2020	G.L.S	PRELIMINARY SITE LAYOUT
02	06/10/2020	G.L.S	UPDATED PRELIMINARY SITE LAYOUT
03	06/25/2020	G.L.S	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	G.L.S	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

TECHNICAL SKILL. CREATIVE SPIRIT.
Mannik Smith GROUP
www.MannikSmithGroup.com
JOB NO. M2330001

RDL ARCHITECTS
16102 CHAGRIN BOULEVARD, SUITE 200
SHAKER HEIGHTS, OHIO 44120

HARTLAND SENIOR LIVING
HARTLAND TOWNSHIP,
LIVINGSTON COUNTY, MICHIGAN

TITLE SHEET

1 / 17

W:\Projects\Projects P-T\P2330001\CAD\BASE\1_Title Sheet.dwg - Last plotted 7/23/2020 10:12 AM

A.L.T.A./N.S.P.S. LAND TITLE SURVEY

HARTLAND PROPERTY

VACANT M-59 (HIGHLAND ROAD) PROPERTY

PART OF THE SOUTHWEST 1/4, SECTION 23, T3N-R6E,
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

SURVEYOR'S NOTES

SITE INFORMATION

PARCEL "A"
PROPERTY ADDRESS: HIGHLAND RD
PROPERTY TAX ID NUMBER: 08-23-300-025
CLASSIFICATION: 402 - RESIDENTIAL REAL

PARCEL "B"
PROPERTY ADDRESS: HIGHLAND RD
PROPERTY TAX ID NUMBER: 4708-23-300-026
CLASSIFICATION: 202 - COMMERCIAL

PARCEL "C"
PROPERTY ADDRESS: HIGHLAND RD
PROPERTY TAX ID NUMBER: 4708-23-300-027
CLASSIFICATION: 202- COMMERCIAL

LAND AREA

PARCEL "A" GROSS LAND AREA = 13.70 ACRES (596,948 S.F.), MORE OR LESS.
PARCEL "B" GROSS LAND AREA = 2.00 ACRES (87,211 S.F.), MORE OF LESS
PARCEL "C" GROSS LAND AREA = 2.22 ACRES (96,660 S.F.)., MORE OR LESS
THESE AREAS DO NOT INCLUDE LAND LOCATED IN THE M-59 (HIGHLAND ROAD) RIGHT-OF-WAY.

ZONING

PER THE HARTLAND TOWNSHIP ZONING MAP, DATED DECEMBER 12, 2012, FOUND ON THE HARTLAND TOWNSHIP WEBSITE, THE SUBJECT PROPERTY IS LOCATED IN TWO ZONING DISTRICTS AS FOLLOWS:

PARCEL "A": CA - CONSERVATION AGRICULTURAL
PARCEL "B": OS - OFFICE SERVICE
PARCEL "C": OS - OFFICE SERVICE

NO ZONING INFORMATION WAS PROVIDED BY THE OWNER.

FLOOD ZONE INFORMATION

THE PROPERTY DESCRIBED ON THIS SURVEY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AREA ("SFHA") AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).

BY GRAPHIC PLOTTING ONLY, THE SUBJECT PROPERTY IS LOCATED ON FLOOD INSURANCE RATE MAP NUMBER 26093C0239D WITH EFFECTIVE DATE OF SEPTEMBER 17, 2008. THE SUBJECT PROPERTY IS LOCATED IN FLOOD HAZARD ZONE X, AREAS TO BE DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

WETLANDS

NO WETLAND FLAGS WERE FOUND ON THE SUBJECT PROPERTY DURING THE FIELD SURVEY PERFORMED FOR THIS SURVEY.

NO WETLAND INFORMATION WAS PROVIDED BY THE CLIENT.

STREET INFORMATION

THE PROPERTY HAS DIRECT PHYSICAL ACCESS TO M-59 (HIGHLAND ROAD), A PUBLIC ROAD.

INTERSECTING PUBLIC STREETS

M-59 (HIGHLAND ROAD) INTERSECTS WITH US-23 HIGHWAY 2.00 MILES WEST AND WITH FENTON ROAD 0.55 MILES EAST OF THE SUBJECT PROPERTY.

DUMPS AND LANDFILLS

BY VISUAL OBSERVATION ONLY, THIS SITE DOES NOT APPEAR TO BE USED AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL AT THIS TIME.

CEMETERIES AND BURIAL GROUNDS

BY VISUAL OBSERVATION ONLY, THIS SITE DOES NOT APPEAR TO HAVE ANY CEMETERIES OR BURIAL GROUNDS AT THIS TIME.

EARTH WORK AND BUILDING CONSTRUCTION

BY VISUAL OBSERVATION ONLY, THIS SITE HAS NOT HAD ANY RECENT EARTH WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS AT THIS TIME.

STREET AND SIDEWALK CONSTRUCTION

BY VISUAL OBSERVATION ONLY, THIS SITE DOES NOT APPEAR TO HAVE ANY RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS AT THIS TIME.

UTILITIES

UTILITY INFORMATION SHOWN IS PLOTTED GRAPHICALLY BASED ON FIELD OBSERVATIONS AND FROM AVAILABLE UTILITY MAPS OBTAINED FROM HARTLAND TOWNSHIP AND LOCAL UTILITY COMPANIES.

NO UTILITY INFORMATION WAS PROVIDED BY THE CLIENT.

AS-BUILT PLANS AND RECORD DRAWINGS

NO AS-BUILT PLANS OR RECORD DRAWINGS WERE PROVIDED BY THE CLIENT.



LOCATION MAP

NO SCALE

SURVEYOR'S CERTIFICATION

To: PIRHL Acquisitions, LLC, an Ohio Limited Liability Company; Tippecanoe Properties, LLC a Michigan Limited Liability Company; and First American Title Insurance Company.

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 6(b), 7(a), 7(b)1, 7(c), 8, 9, 10(a), 11, 13, 14, 16, 17, 19 and 20 of Table A thereof. The fieldwork was completed on November 14, 2019.

KIM R. CARLSON
Professional Surveyor No. 35992

DATE:

TITLE DESCRIPTION

Legal description provided by: First American Title Insurance Company, Commitment File No. MIFA19-4499, Exhibit C, Commitment Date: October 03, 2019, 8:00 AM.

The land is described as follows: Township of Hartland, County of Livingston, State of Michigan

Commencing at the South 1/4 Corner of Section 23, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan; thence North 03 degrees 19 minutes 08 seconds West 282.39 feet (288.49 feet record) along the North and South 1/4 line (as previously established) of said Section 23 to the PLACE OF BEGINNING; thence the following two courses along the North line of M-59 Highway (200 foot wide 1/2 Right-of-Way); Westerly 168.26 feet along the arc of a 3619.71 foot radius curve to the right through a central angle of 02 degrees 39 minutes 48 seconds and having a long chord bearing North 80 degrees 35 minutes 37 seconds West 168.24 feet, and North 79 degrees 15 minutes 43 seconds West 87.76 feet; thence North 02 degrees 20 minutes 48 seconds West 552.34 feet; thence North 87 degrees 52 minutes 37 seconds West 351.07 feet; thence North 02 degrees 20 minutes 48 seconds West 40.64 feet along the line parallel with and 725.00 feet Easterly of Bullard Road to a point located 725.00 feet Northerly of the original centerline of said M-59 Highway; thence North 03 degrees 59 minutes 56 seconds West 703.10 feet (740 feet record); thence North 86 degrees 42 minutes 18 seconds East 597.00 feet along the North line of the South 5/8 of the East 1/2 of the Southwest 1/4 of said Section 23; thence South 03 degrees 19 minutes 08 seconds East 1387.36 feet (1392.58 feet record) along said North and South 1/4 line, to the Place of Beginning. Being a part of the Southwest 1/4 of Section 23; Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan.

AND

Legal description provided by: First American Title Insurance Company, Commitment File No. MIFA19-4509, Exhibit C, Commitment Date: October 03, 2019, 8:00 AM..

The land is described as follows: Township of Hartland, County of Livingston

PARCEL 1:
A part of the South 1/4 of Section 23, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan; Commencing at the South 1/4 corner of Section 23, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan; thence North 03 degrees 19 minutes 08 seconds West, 282.39 feet (288.49 feet record) along the North and South 1/4 line (as previously established) of said Section 23; thence the following two courses long the North line of M-59 Highway (200 feet wide 1/2 right-of-way): Westerly, 168.26 feet along the arc of a 3619.71 foot radius curve to the right through a central angle of 02 degrees 39 minutes 48 seconds, and having a long chord bearing North 80 degrees 35 minutes 37 seconds West, 168.24 feet and North 79 degrees 15 minutes 43 seconds West, 272.05 feet to the place of beginning; thence continuing along said North line of M-59 Highway North 79 degrees 15 minutes 43 seconds West, 175.04 feet; thence North 02 degrees 20 minutes 48 seconds West, 498.35 feet along the line parallel with and 725.00 feet Easterly of the centerline of Bullard Road; thence South 87 degrees 52 minutes 37 seconds East, 171.02 feet; thence South 02 degrees 20 minutes 48 seconds East, 524.65 feet to the place of beginning.

PARCEL 2:
A part of the Southwest 1/4 of Section 23, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan; Commencing at the South 1/4 corner of Section 23, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan; thence North 03 degrees 19 minutes 08 seconds West, 282.39 feet (288.49 feet record) along the North and South 1/4 line (as previously established) of said Section 23; thence the following two courses along the North line of M-59 Highway (200 foot wide 1/2 right-of-way); Westerly 168.26 feet along the arc of a 3619.71 foot radius curve to the right through a central angle of 02 degrees 39 minutes 48 seconds, and having a long chord bearing North 80 degrees 35 minutes 37 seconds West, 168.24 feet and North 79 degrees 15 minutes 43 seconds West, 87.76 feet to the place of beginning; thence continuing along said North line of M-59 Highway, North 79 degrees 15 minutes 43 seconds West, 184.29 feet; thence North 02 degrees 20 minutes 48 seconds West, 524.65 feet; thence South 87 degrees 52 minutes 37 seconds East, 180.05 feet; thence South 02 degrees 20 minutes 48 seconds East, 552.34 feet to the place of beginning.

COMMITMENT FILE NO. MIFA19-4499 SCHEDULE B, PART II EXCEPTIONS

This survey is based upon First American Title Insurance Company ALTA Commitment File No. MIFA19-4499, Commitment Date: October 03, 2019, 8:00 AM.

7A. 7. The effect of a Deed from Clayton H. Goers and Marilyn Goers, husband and wife to Dennis C. Goers and Donna M. Goers, Revocable Living Trust Dated October 10, 2013 or as Thereafter Amended recorded in Instrument No. 2015R-038048. **QUIT CLAIM DEED FOR SUBJECT PROPERTY.**

8A. 8. Highway Easement Release in favor of the State of Michigan and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 187, page 257. **THIS ITEM AFFECTS SUBJECT PROPERTY. IT IS SHOWN.**

9A. 9. Matters referenced by survey recorded in Liber 2898, page 856. **REFERENCED SURVEY SHOWS THE SUBJECT PROPERTY AS PARCEL "A".**

10A. 10. Easement in favor of International Transmission Company and the Covenants, Conditions and Restrictions contained in instrument recorded in Instrument No. 2008R-002699. **REFERENCED EASEMENT AFFECTS THE SUBJECT PROPERTY. IT IS SHOWN.**

11A. 11. Resolution No. 12-R019 to remove Intended M-59 Park Access Easement recorded in Instrument No. 2012R-041883. **RESOLUTION VACATING ACCESS EASEMENT AFFECTING THE SUBJECT PROPERTY. IT IS NOT SHOWN.**

COMMITMENT FILE NO. MIFA19-4509 SCHEDULE B, PART II EXCEPTIONS

This survey is based upon First American Title Insurance Company ALTA Commitment File No. MIFA19-4509, Commitment Date: October 03, 2019, 8:00 AM.

7B. 7. Interest of Dennis C. Goers and Donna M. Goers Revocable Living Trust dated October 10, 2003 or as thereafter amended, as evidenced by instrument recorded in Liber 4210, page 600. **QUIT CLAIM DEED FOR SUBJECT PROPERTY.**

8B. 8. Highway Easement Release in favor of the State of Michigan and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 187, page 257. **THIS ITEM AFFECTS SUBJECT PROPERTY. IT IS SHOWN.**

9B. 9. Matters referenced by survey recorded in Liber 2898, page 856. **REFERENCED SURVEY SHOWS THE SUBJECT PROPERTY AS PARCELS "B" AND "C" AND INGRESS / EGRESS EASEMENT. THE INGRESS/EGRESS EASEMENT IS SHOWN.**

811 Know what's below Call before you dig.

ALTA/NSPS LAND TITLE SURVEY

Revisions
REVISION

ALTA/NSPS LAND TITLE SURVEY

HARTLAND PROPERTY
M-59 (HIGHLAND ROAD)
SECTION 23, HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN

F·S·E Surveying & Engineering Since 1977
5370 MILLER ROAD, SUITE 13 • SWARTZ CREEK, MI 48473
PHONE: (810) 230-1333 FAX: (810) 230-7844

Date : 11-14-19
Drawn by: W.J.A.
Checked by: K.R.C.
Sheet No. 1 OF 3
Job No. 25990

WATERMAIN NOTE
PER THE HARTLAND TOWNSHIP DEPARTMENT OF PUBLIC WORKS DIRECTOR, NO WATERMAIN EXISTS IN THE VICINITY OF THE SUBJECT PROPERTY.

LEGEND

- FOUND IRON
- SET IRON
- FOUND MONUMENT
- SET MONUMENT
- STORM SEWER & MANHOLE
- SANITARY SEWER & MANHOLE
- WATERMAIN, HYDRANT, & GATE VALVE
- GAS MAIN & VALVE
- BURIED TELEPHONE & MANHOLE
- UNDER GROUND ELECTRIC & MANHOLE
- OVERHEAD ELECTRIC, POLE, & GUY WIRE
- CATCH BASIN (CURB & ROUND)
- 785 CONTOUR LINE
- FENCE
- GUARD RAIL
- WELL
- LIGHT POLE
- STEEL GUARD POST
- SIGN
- STREET SIGN
- MAILBOX
- CONC. CONCRETE
- ASPH. ASPHALT

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

ZONED: CA
(CONSERVATION AGRICULTURAL)

HARTLAND TOWNSHIP
08-23-400-035
12439 HIGHLAND ROAD

SHED
HOUSE
3"x6" WOOD POSTS
4' WOOD FENCE
4' WIRE FENCE
3"x6" WOOD POSTS

ZONED: CA
(CONSERVATION AGRICULTURAL)

BILL RAINS
08-23-400-019
12477 HIGHLAND ROAD

NORTH - SOUTH 1/4 LINE SECTION 23
S3°19'08"E 1387.98'
NORTH - SOUTH 1/4 LINE SECTION 23
N3°19'08"W 282.39'
SOUTH LINE SECTION 23

FND REROD
W/ 38119 CAP

P.O.B. PARCEL
08-23-300-025

FND REROD
PHONE BOX
EX. SAN MH
EX. 8" SAN
EX. CB
EX. STM MH
GAS MARKER
N80°35'37"W 168.24'
4" P-MP GAS
EX. 8" SAN
4" ASPHALT WALK
ASPHALT ROAD
ONE WAY
SOUTH 1/4 CORNER
SECTION 23, T3N-R6E
HARTLAND TWP.
LIVINGSTON CO., MI
60'
60'
8A 8B
10A
5'

P.O.B. PARCEL
08-23-300-027

FND REROD
W/ 38119 CAP
SET KRC
N79°15'43"W 87.76'
N79°15'43"W 184.29'
N2°20'48"W 552.34'
NORTH LINE M-59
(200' WIDE 1/2 R.O.W.)
200' 1/2 R.O.W.
EX. SAN MH
EX. 8" SAN
EX. CB
EX. STM MH
POST W/REFLECTOR (TYPICAL)
LEFT LANE MUST TURN LEFT
EX. E.G.
EX. E.A.
M-59 (HIGHLAND ROAD)
PUBLIC ROAD 200' WIDE 1/2 R.O.W
(ASPHALT SURFACE W/ C&G)
C/L M-59
(HIGHLAND ROAD)

PARCEL 08-23-300-025
13.70 AC. ±
ZONED: OFFICE SERVICE

PARCEL 08-23-300-027
2.22 AC. ±
ZONED: OFFICE SERVICE

9B
SET KRC
100'
25'
25'
N79°15'43"W 75.04'
P.O.B. PARCEL
08-23-300-026

PARCEL 08-23-300-026
2.00 AC. ±
ZONED: OFFICE SERVICE

EX. SAN MH
EX. CB
EX. 12" RCP CULV
EX. STM MH
CONC CURB & GUTTER
LEFT LANE MUST TURN LEFT
4" ASPHALT WALK
DO NOT ENTER WRONG WAY
POST W/REFLECTOR (TYPICAL)
STOP
WRONG WAY
60'
60'
8A 8B

ZONED: CA
(CONSERVATION AGRICULTURAL)

LIVINGSTON LAND CONSERVANCY
08-23-300-032
0 BULLARD ROAD

N86°42'18"E 597.00'

FND 3/4" PIPE
N87°52'37"W 351.07'
S87°52'37"E 180.05'
FND 3/4" PIPE
S2°20'48"E 524.65'
N87°52'37"W 371.02'
S87°52'37"E
FND 3/4" PIPE
W/ 38119 CAP
POND
FND 3/4" PIPE
N3°59'56"W 703.10'
N2°20'48"W 498.35'
FND 3/4" PIPE
N2°20'48"W
40.64'
FND 3/4" PIPE

CONC CURB & GUTTER
ISLAND
ASPHALT PARKING LOT
CONC SIDEWALK
1 STORY BRICK BLDG
4" ASPHALT WALK
EX. 8" SAN
ONE WAY
SOUTH BULLARD RD NORTH
EX. CB
EX. STM MH
POST W/REFLECTOR (TYPICAL)
DO NOT ENTER WRONG WAY
EX. EB

MARK & ANGELA HORVATH
08-23-300-034
2270 BULLARD ROAD

4' WOOD FENCE
CONCRETE
HOUSE

JANIS LOPEX & BRANDON BOLAND
08-23-300-029
2280 BULLARD ROAD

LMR INVESTMENT PROPERTIES LLC
08-23-300-035
12319 HIGHLAND ROAD

ZONED: OS
(OFFICE SERVICE)

ZONE: CA
(CONSERVATION AGRICULTURAL)

ZONED: CA
(CONSERVATION AGRICULTURAL)

811 Know what's below Call before you dig.

ALTA/NSPS SURVEY

Revisions
REVISION

ALTA SURVEY

HARTLAND SENIOR LIVING
M-59 (HIGHLAND ROAD)
SECTION 23, HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN

F·S·E Surveying & Engineering Since 1957
5370 MILLER ROAD, SUITE 13 • SWARTZ CREEK, MI 48473
PHONE: (810) 230-1333 FAX: (810) 230-7844

Date : 12-13-19
Drawn by: W.J.A.
Checked by: K.R.C.
Sheet No. 2 OF 3
Job No. 25990

LEGEND

- FOUND IRON
- SET IRON
- FOUND MONUMENT
- SET MONUMENT
- STORM SEWER & MANHOLE
- SANITARY SEWER & MANHOLE
- WATERMAIN, HYDRANT, & GATE VALVE
- GAS MAIN & VALVE
- T — BURIED TELEPHONE & MANHOLE
- U.G. — UNDER GROUND ELECTRIC & MANHOLE
- OW — OVERHEAD ELECTRIC, POLE, & GUY WIRE
- CATCH BASIN (CURB & ROUND)
- 785 — CONTOUR LINE
- FENCE
- GUARD RAIL
- W — WELL
- LIGHT POLE
- STEEL GUARD POST
- SIGN
- STREET SIGN
- MAILBOX
- CONC. — CONCRETE
- ASPH. — ASPHALT

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

PARCEL 08-23-300-025
13.70 AC. ±

PARCEL 08-23-300-027
2.22 AC. ±

PARCEL 08-23-300-026
2.00 AC. ±

SHED
HOUSE
4' WOOD FENCE
4' WIRE FENCE
TREES
POND
MARSH
FND REROD W/ 38119 CAP
FND 3/4" PIPE
FND 3/4" PIPE W/ 38119 CAP
FND REROD
SET KRC
PHONE BOX
GAS MARKER
BM 1
ELEV. = 979.99
BM 2
ELEV. = 977.50
EX. SAN MH E15
RIM = 977.27
I.E. 12" NW. = 964.42
I.E. 12" SE. = 964.42
EX. STM CB W/COVER C
RIM = 981.19
I.E. 12" S. = 975.79
EX. STM MH W/COVER B
RIM = 979.21
I.E. 12" N. = 975.11
I.E. 36" SE. = 969.76
I.E. 36" NW. = 969.86
EX. SAN, MH E14
RIM = 980.84
I.E. 12" NW. = 963.54
I.E.12" SE. = 963.64
EX. STM CB W/COVER C
RIM = 979.89
I.E. 12" S. = 974.34
EX. STM MH W/COVER B
RIM = 977.61
I.E. 12" N. = 973.71
I.E. 36" SE. = 969.16
I.E. 36" NW. = 969.31
EX. STM CB W/COVER C
RIM = 978.10
I.E. 12" S. = 972.75
EX. SAN, MH E13A
RIM = 976.91
I.E. 12" NW. = 960.42
I.E. 12" SE. = 960.42
I.E. 8" N. = 960.42 (?)
EX. SAN, MH E13
RIM = 976.68
I.E. 12" NW. = 960.08
I.E. 8" SE. =960.08
EX. STM CB W/COVER C
RIM = 976.52
I.E. 12" S. = 971.97
EX. STM MH W/COVER B
RIM = 978.72
I.E. 12" N. = 972.17
I.E. 36" SE. = 968.32
I.E. 36" NW. = 968.19
I.E. 12" SW. = 971.77
I.E. 12" SE. = 973.32
EX. 12" RCP CULV
I.E. 12" NW. = 974.40
EX. STM CB W/COVER C
RIM = 978.26
I.E. 12" NE. = 971.63
EX. STM CB W/COVER C
RIM = 976.73
I.E. 12" N. = 971.58
I.E. 12" SW. = 971.23
EX. STM CB W/COVER C
RIM = 978.74
I.E. 12" NW. = 971.99
EX. STM CB W/COVER C
RIM/ = 977.15
I.E. 12" NW. = 971.93
I.E. 12" SE. = 971.95
EX. STM MH W/COVER B
RIM = 976.88
I.E. 36" SE. = 967.18
I.E. 36" NW. = 966.28
I.E. 12" NE. = 970.85
I.E. 12" SE. = 971.76
EX. 12" SAN
EX. 8" SAN
EX. 12" STM
EX. 36" RCP STM
4" P.-MP GAS
OW
CONC CURB & GUTTER
ASPHALT ROAD
4" ASPHALT WALK
CONC SIDEWALK
ASPHALT PARKING LOT
CONCRETE
ISLAND
STORY BRICK BLDG
HOUSE
M-59 (HIGHLAND ROAD)
PUBLIC ROAD 200' WIDE 1/2 R.O.W
(ASPHALT SURFACE W/ CURB)

811
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Call before you dig.

TOPOGRAPHIC SURVEY

Revisions

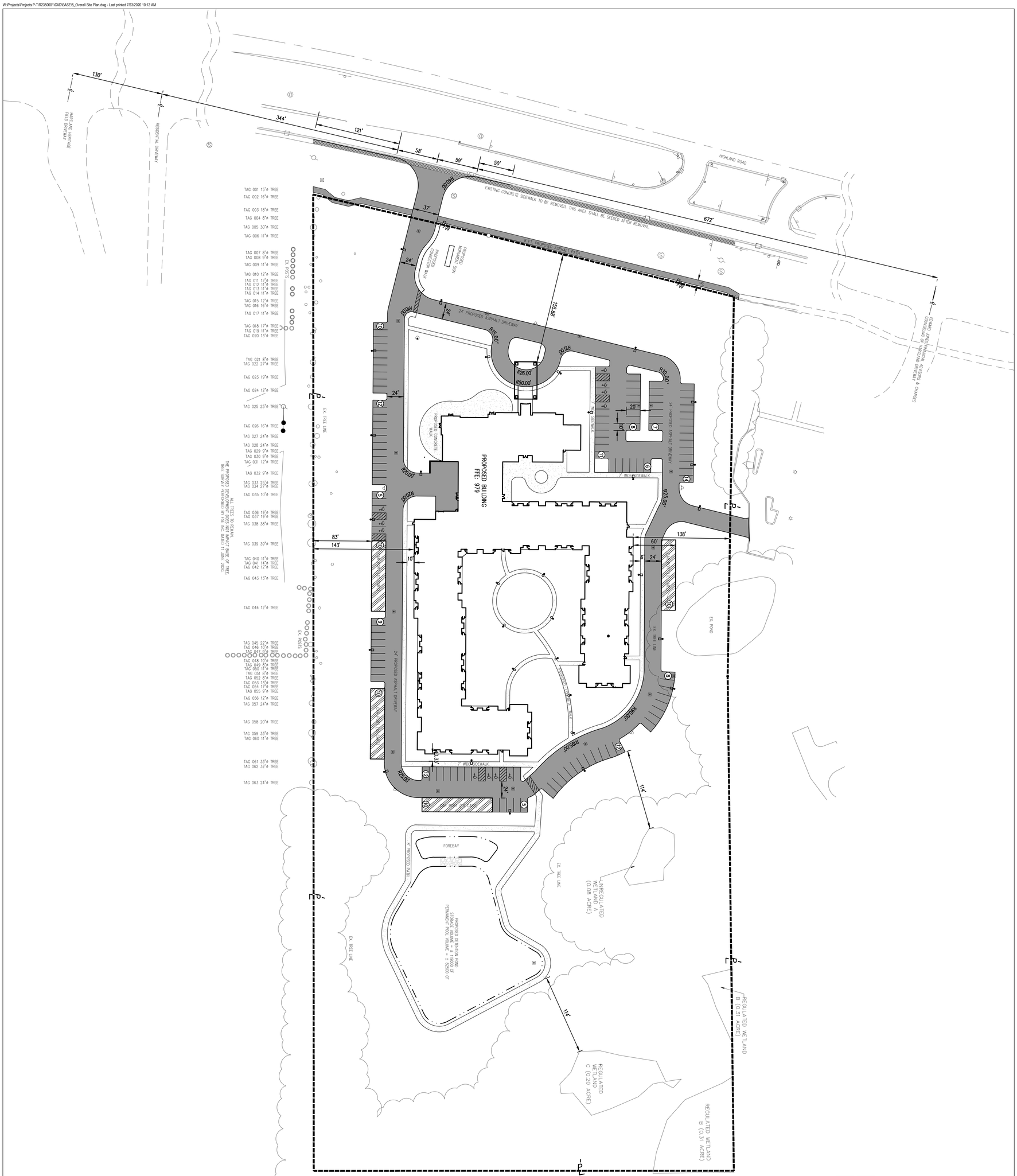
TOPOGRAPHIC SURVEY

HARTLAND SENIOR LIVING
M-59 (HIGHLAND ROAD)
SECTION 23, HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN

F·S·E Surveying & Engineering Since 1957
5370 MILLER ROAD, SUITE 13 • SWARTZ CREEK, MI 48473
PHONE: (810) 230-1333 FAX: (810) 230-7844

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Drawn by: W.J.A.
Checked by: K.R.C.
Sheet No. 3 OF 3
Job No. 25990

W:\Projects\Projects P-T\P2350001\CAD\BASE\S_Overall Site Plan.dwg - Last printed 7/23/2020 10:12 AM



PROPOSED SITE LAYOUT LEGEND

- HEAVY DUTY ASPHALT PAVEMENT PER DETAIL
- CONCRETE SIDEWALK PER DETAIL
- POLE MOUNTED SITE LIGHT
- HAND-CAP PARKING SYMBOL
- SITE LAYOUT CODED NOTE
- EXISTING TREE (VARIABLE SIZES)
- PROPOSED PARKING SPACES

50 25 0 1"=50' 50 100

GENERAL NOTES

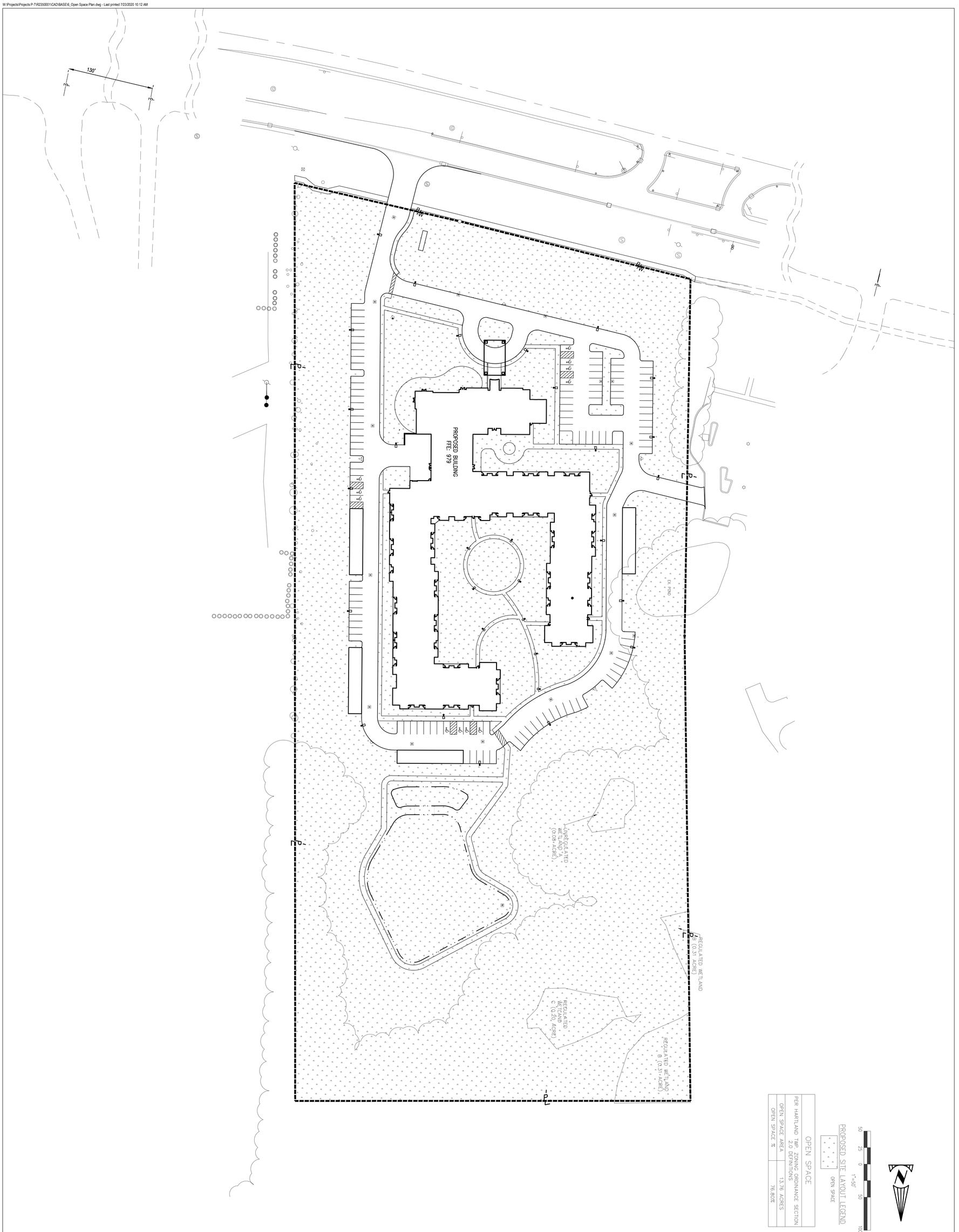
1. HARTLAND SENIOR LIVING PROPOSES 159 PARKING SPACES TO ACCOMMODATE 90 GARAGE SPACES, 69 CARPORT SPACES, WHICH EQUATES TO 1.09 SPACES PER DWELLING UNIT. A PORTION OF RESIDENTS WILL NOT HAVE VEHICLES, AND THEREFORE A PARKING RATIO OF ONE PARKING SPACE PER DWELLING UNIT IS APPROPRIATE. PLUS ADDITIONAL PARKING FOR STAFF AND VISITORS.

5 / 17	PRELIMINARY SITE PLAN	HARTLAND SENIOR LIVING HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN	RDL ARCHITECTS 16102 CHAGRIN BOULEVARD, SUITE 200 SHAKER HEIGHTS, OHIO 44120

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JOB NO. R2350001

NO.	DATE	BY	DESCRIPTION
01	05/14/2020	GLS	PRELIMINARY SITE LAYOUT
02	06/10/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT
03	06/25/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	GLS	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

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6 / 17	OPEN SPACE PLAN	HARTLAND SENIOR LIVING HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN	RDL ARCHITECTS 16102 CHAGRIN BOULEVARD, SUITE 200 SHAKER HEIGHTS, OHIO 44120

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JOB NO. R2350001

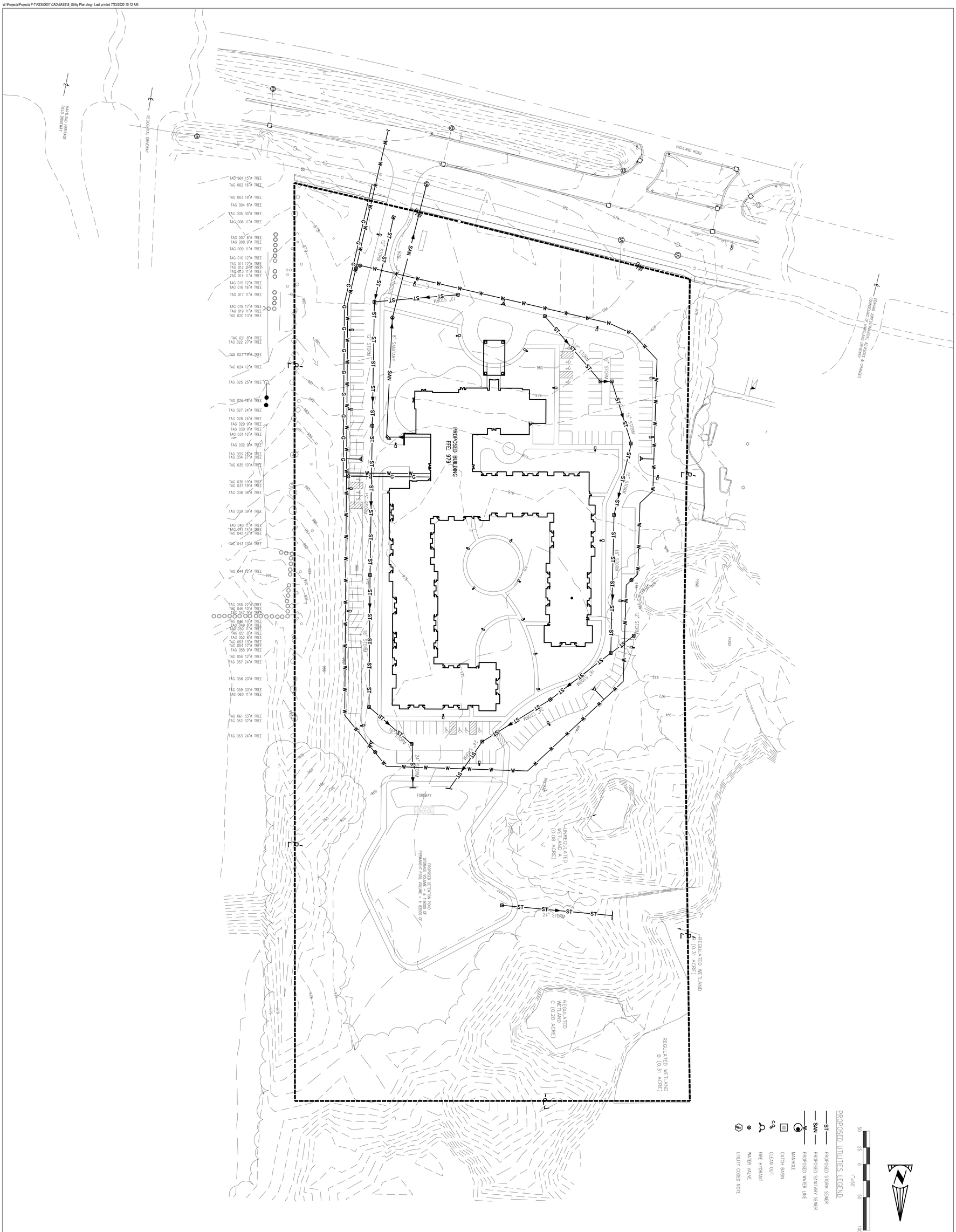
NO.	DATE	BY	DESCRIPTION
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03	06/25/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	GLS	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS



PRELIMINARY GRADING PLAN	HARTLAND SENIOR LIVING HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN	RDL ARCHITECTS 16102 CHAGRIN BOULEVARD, SUITE 200 SHAKER HEIGHTS, OHIO 44120	Mannik Smith GROUP TECHNICAL SKILL. CREATIVE SPIRIT. www.MannikSmithGroup.com JOB NO. R2350001

NO.	DATE	BY	DESCRIPTION
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03	06/25/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	GLS	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

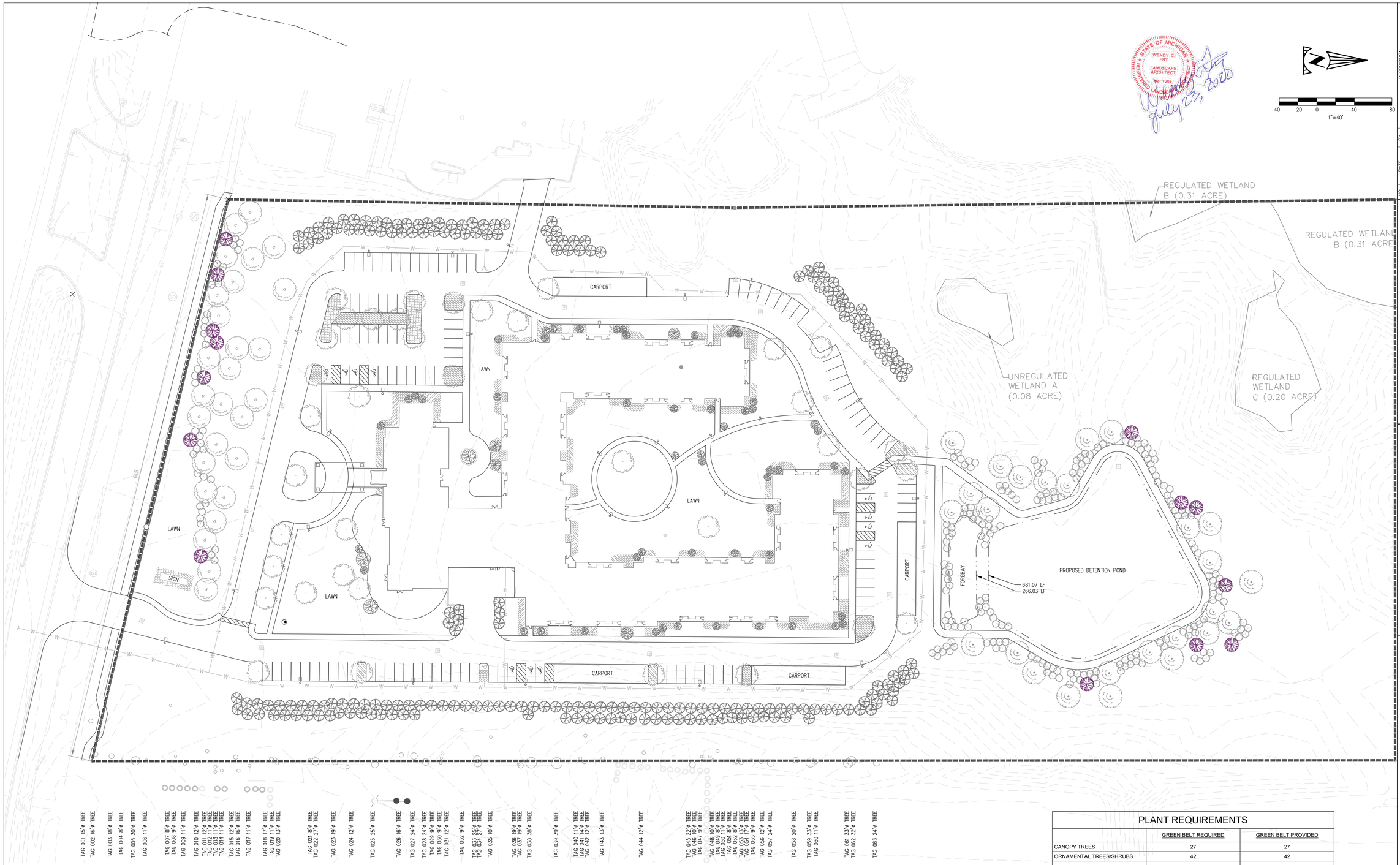
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8 / 17	PRELIMINARY UTILITY PLAN	HARTLAND SENIOR LIVING HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN	RDL ARCHITECTS 16102 CHAGRIN BOULEVARD, SUITE 200 SHAKER HEIGHTS, OHIO 44120	Mannik Smith GROUP TECHNICAL SKILL. CREATIVE SPIRIT. www.MannikSmithGroup.com JOB NO. R2350001

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03	06/25/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	GLS	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

84



STATE OF MICHIGAN
REGISTERED LANDSCAPE ARCHITECT
WENDY C. FRY
LANDSCAPE ARCHITECT
NO. 1068
LICENSED LANDSCAPE ARCHITECT
July 23, 2020

NO.	DATE	BY	DESCRIPTION
01	05/07/2020	G.L.S.	PRELIMINARY SITE LAYOUT
02	06/10/2020	G.L.S.	UPDATED PRELIMINARY SITE LAYOUT
03	06/25/2020	G.L.S.	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	G.L.S.	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

TAG 001 15" TREE
TAG 002 16" TREE
TAG 003 18" TREE
TAG 004 8" TREE
TAG 005 30" TREE
TAG 006 11" TREE
TAG 007 8" TREE
TAG 008 9" TREE
TAG 009 11" TREE
TAG 010 12" TREE
TAG 011 12" TREE
TAG 012 11" TREE
TAG 013 11" TREE
TAG 014 11" TREE
TAG 015 12" TREE
TAG 016 16" TREE
TAG 017 11" TREE
TAG 018 17" TREE
TAG 019 11" TREE
TAG 020 13" TREE
TAG 021 8" TREE
TAG 022 27" TREE
TAG 023 19" TREE
TAG 024 12" TREE
TAG 025 25" TREE
TAG 026 16" TREE
TAG 027 24" TREE
TAG 028 24" TREE
TAG 029 9" TREE
TAG 030 9" TREE
TAG 031 12" TREE
TAG 032 9" TREE
TAG 033 25" TREE
TAG 034 25" TREE
TAG 035 10" TREE
TAG 036 19" TREE
TAG 037 19" TREE
TAG 038 38" TREE
TAG 039 39" TREE
TAG 040 11" TREE
TAG 041 14" TREE
TAG 042 12" TREE
TAG 043 13" TREE
TAG 044 12" TREE
TAG 045 12" TREE
TAG 046 12" TREE
TAG 047 9" TREE
TAG 048 10" TREE
TAG 049 8" TREE
TAG 050 11" TREE
TAG 051 8" TREE
TAG 052 8" TREE
TAG 053 13" TREE
TAG 054 10" TREE
TAG 055 9" TREE
TAG 056 12" TREE
TAG 057 24" TREE
TAG 058 20" TREE
TAG 059 33" TREE
TAG 060 11" TREE
TAG 061 33" TREE
TAG 062 32" TREE
TAG 063 24" TREE

LEGEND

- ORNAMENTAL TREES
- CANOPY TREES
- EVERGREEN TREES
- SHRUBS
- PERENNIALS
- EXISTING TREE (VARIABLE SIZES)
- PHYSOCARPUS OPULIFOLIUS 'NANUS'
- VIBURNUM CARLIESII
- ILEX GLABRA 'SHAMROCK'
- RHUS AROMATICA 'GRO LOW'
- MICROBIOTA DECUSSATA
- VIBURNUM OPULUS 'COMPACTUM'

PLANT CALCULATIONS

GREEN BELT: 615 LF
CANOPY TREE: 1 TREE / 30'
SHRUBS: 3 SHRUBS IN FIRST 40' AND 1 SHRUB / 20'

FOUNDATION: 2494 LF
ORNAMENTAL TREE: 60% OF BUILDING FACADE @ 1 TREE / 30'
SHRUBS: 60% OF BUILDING FACADE @ 6 SHRUBS / 30'

POND: 947.1 LF
CANOPY TREE: 1 TREE / 50'
SHRUBS: 10 SHRUBS / 50'

PARKING:
CANOPY TREE: 1 TREE / 180 SF
SHRUBS: 50% OF AREA

PLANT REQUIREMENTS

	GREEN BELT REQUIRED	GREEN BELT PROVIDED
CANOPY TREES	27	27
ORNAMENTAL TREES/SHRUBS	42	42
	FOUNDATION REQUIRED	FOUNDATION PROVIDED
ORNAMENTAL TREES	63	63
SHRUBS	500	1030
	PARKING LOT REQUIRED	PARKING LOT PROVIDED
CANOPY TREES	38	38
SHRUBS	156	156
	DETENTION REQUIRED	DETENTION PROVIDED
CANOPY TREES	24	24
SHRUBS	191	191
	SIGN REQUIRED	SIGN PROVIDED
SHRUBS	33	33
	SCREEN REQUIRED	SCREEN PROVIDED
EVERGREENS	213	213

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JOB NO. R2330001

RDL ARCHITECTS
16102 CHAGRIN BOULEVARD, SUITE 200
SHAKER HEIGHTS, OHIO 44120

HARTLAND SENIOR LIVING
HARTLAND TOWNSHIP,
LIVINGSTON COUNTY, MICHIGAN

OVERALL
PRELIMINARY
LANDSCAPE PLAN

9 / 17

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NO.	DATE	BY	DESCRIPTION
01	09/14/2020	GHS	PRELIMINARY SITE LAYOUT
02	06/10/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT
03	06/25/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	GLS	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

TECHNICAL SKILL.
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JOB NO. R2550001

RDL ARCHITECTS
16102 CHAGRIN BOULEVARD, SUITE 200
SHAKER HEIGHTS, OHIO 44120

HARTLAND SENIOR LIVING
HARTLAND TOWNSHIP,
LIVINGSTON COUNTY, MICHIGAN

PRELIMINARY
LANDSCAPE PLAN

17
10

1" = 30'

30 15 0 30 60

STATE OF MICHIGAN
REGISTERED
LANDSCAPE ARCHITECT
PATRICK C. SOBCZAK
No. 1304
LANDSCAPE ARCHITECT
PRINT DATE

MATCHLINE SEE PAGE 11

LAWN

W:\Projects\Projects P-T\R2550001\CAD\BASE\11_12_Landscape Plan_07202020.dwg - Last printed 7/23/2020 5:32 PM

PRELIMINARY
LANDSCAPE PLAN

17
11

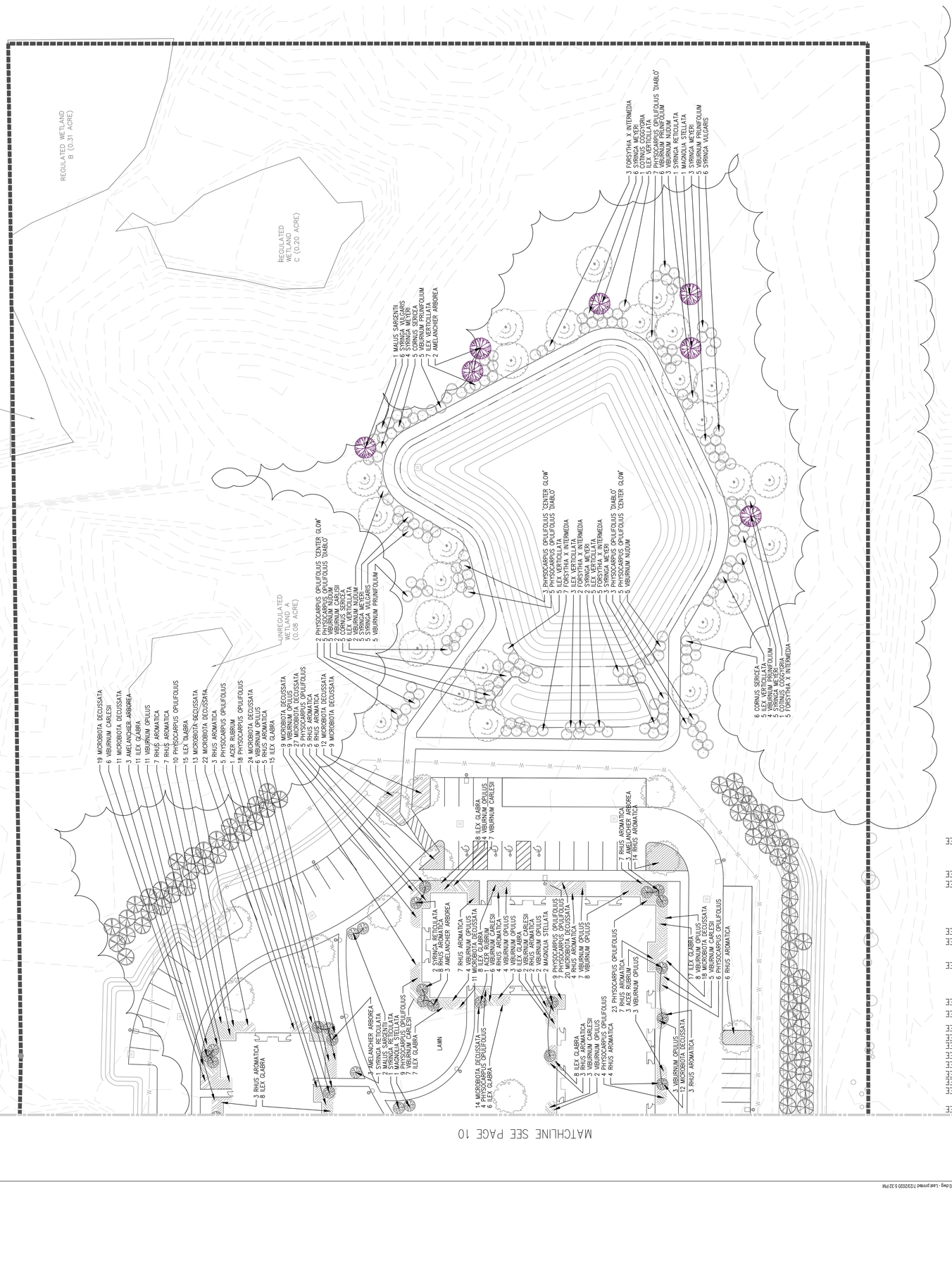
HARTLAND SENIOR LIVING
HARTLAND TOWNSHIP,
LIVINGSTON COUNTY, MICHIGAN

RDL ARCHITECTS
16102 CHAGRIN BOULEVARD, SUITE 200
SHAKER HEIGHTS, OHIO 44120

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MATCHLINE SEE PAGE 10

PRELIMINARY
LANDSCAPE PLAN

HARTLAND SENIOR LIVING
HARTLAND TOWNSHIP,
LIVINGSTON COUNTY, MICHIGAN

RDL ARCHITECTS
16102 CHAGRIN BOULEVARD, SUITE 200
SHAKER HEIGHTS, OHIO 44120

Mannik Smith GROUP
TECHNICAL SKILL. CREATIVE SPIRIT.
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JOB NO. R2550001

NO.	DATE	BY	DESCRIPTION
01	06/10/2020	GMS	PRELIMINARY SITE LAYOUT
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04	07/23/2020	GLS	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

STATE OF MICHIGAN
WILLIAM P. CHAPPELL
PRINCIPAL
LANDSCAPE ARCHITECT
No. 1904
REGISTERED
LANDSCAPE ARCHITECT

N
1"=30'
30 15 0 30 60

MATCHLINE SEE PAGE 11

1 NYSSA SYLVATICA
LAWN
1 GLEDITSIA TRIACANTHOS F INERMIS
7 PICEA GLAUCA 8'
7 PICEA ABIES 10'
6 PICEA OMORIKA 10'
6 PICEA OMORIKA 8'
TAG 045 22'ø TREE
TAG 046 10'ø TREE
TAG 044 12'ø TREE
TAG 043 13'ø TREE
TAG 042 12'ø TREE
TAG 041 14'ø TREE
TAG 040 11'ø TREE
TAG 039 39'ø TREE
TAG 038 38'ø TREE
TAG 037 19'ø TREE
TAG 036 19'ø TREE
TAG 035 10'ø TREE
TAG 034 27'ø TREE
TAG 033 25'ø TREE
TAG 032 9'ø TREE
TAG 031 12'ø TREE
TAG 030 9'ø TREE
TAG 029 9'ø TREE
TAG 028 24'ø TREE
TAG 027 24'ø TREE
TAG 026 16'ø TREE
TAG 025 25'ø TREE
TAG 024 12'ø TREE
TAG 023 19'ø TREE
TAG 022 27'ø TREE
TAG 021 8'ø TREE
TAG 020 13'ø TREE
TAG 019 11'ø TREE
TAG 018 17'ø TREE
TAG 017 11'ø TREE
TAG 016 16'ø TREE
TAG 015 12'ø TREE
TAG 014 11'ø TREE
TAG 013 11'ø TREE
TAG 012 11'ø TREE
TAG 011 12'ø TREE
TAG 010 12'ø TREE
TAG 009 11'ø TREE
TAG 008 9'ø TREE
TAG 007 8'ø TREE
TAG 006 11'ø TREE
TAG 005 30'ø TREE
TAG 004 8'ø TREE
TAG 003 18'ø TREE
TAG 002 16'ø TREE
TAG 001 15'ø TREE
5 PICEA OMORIKA 8'
7 PICEA ABIES 10'
5 PICEA GLAUCA 10'
7 PICEA ABIES 8'
6 PICEA GLAUCA 10'
5 PICEA OMORIKA 8'
3 GLADITSIA TRIACANTHOS F INERMIS
1 GYMNOCLADUS DIOICUS
2 GYMNOCLADUS DIOICUS
2 GYMNOCLADUS DIOICUS
2 GYMNOCLADUS DIOICUS
6 GLADITSIA TRIACANTHOS F INERMIS
1 GYMNOCLADUS DIOICUS
1 ACER RUBRUM
2 QUERCUS RUBRA
3 LIRIODENDRON TULIPIFERA
1 ACER SACCHARUM
1 NYSSA SYLVATICA
4 LIRIODENDRON TULIPIFERA
2 GYMNOCLADUS DIOICUS
3 ACER RUBRUM
3 QUERCUS RUBRA
1 ACER SACCHARUM
3 NYSSA SYLVATICA
2 GYMNOCLADUS DIOICUS
5 PICEA OMORIKA 8'
3 PICEA OMORIKA 8'
5 PICEA ABIES 8'
3 PICEA ABIES 8'
3 PICEA GLAUCA 8'
6 PICEA GLAUCA 10'
1 ACER RUBRUM
2 LIRIODENDRON TULIPIFERA
2 GYMNOCLADUS DIOICUS
6 PICEA OMORIKA 10'
5 PICEA OMORIKA 8'
4 PICEA ABIES 10'
4 PICEA ABIES 8'
7 PICEA ABIES 8'
5 PICEA OMORIKA 8'
4 PICEA GLAUCA 10'
3 PICEA ABIES 10'
5 PICEA ABIES 8'

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MATCHLINE SEE PAGE 10

TAG 047 9"ø TREE
TAG 048 10"ø TREE
TAG 049 8"ø TREE
TAG 050 11"ø TREE
TAG 051 8"ø TREE
TAG 052 8"ø TREE
TAG 053 13"ø TREE
TAG 054 17"ø TREE
TAG 055 9"ø TREE
TAG 056 12"ø TREE
TAG 057 24"ø TREE
TAG 058 20"ø TREE
TAG 059 33"ø TREE
TAG 060 11"ø TREE
TAG 061 33"ø TREE
TAG 062 32"ø TREE
TAG 063 24"ø TREE

1 NYSSA SYLVATICA
LAWN
2 GYMNOCLADUS DIOICUS
1 GLADITSIA TRIACANTHOS F. INERMIS
6 PICEA ABIES 10'
7 PICEA OMORIKA 10'
4 PICEA OMORIKA 8'
3 PICEA GLAUCA 10'
7 PICEA GLAUCA 10'
5 PICEA GLAUCA 10'
6 PICEA ABIES 8'
6 PICEA OMORIKA 10'
5 PICEA OMORIKA 8'
4 PICEA GLAUCA 8'
4 GLEDITSIA TRIACANTHOS F. INERMIS
2 GYMNOCLADUS DIOICUS
1 ACER SACCHARUM
2 GLEDITSIA TRIACANTHOS F. INERMIS
2 ACER RUBRUM
2 LIRIODENDRON TULIPFERA
1 ACER SACCHARUM
1 NYSSA SYLVATICA
3 QUERCUS RUBRA
UNREGULATED WETLAND E (0.06 ACRE)
3 NYSSA SYLVATICA
2 ACER SACCHARUM
2 PICEA ABIES 8'
5 PICEA GLAUCA 10'
2 LIRIODENDRON TULIPFERA
2 GLEDITSIA TRIACANTHOS F. INERMIS
2 ACER SACCHARUM
2 QUERCUS RUBRA
2 ACER RUBRUM
1 LIRIODENDRON TULIPFERA
REGULATED WETLAND B (0.31 ACRE)
REGULATED WETLAND C (0.20 ACRE)
REGULATED WETLAND D (0.31 ACRE)

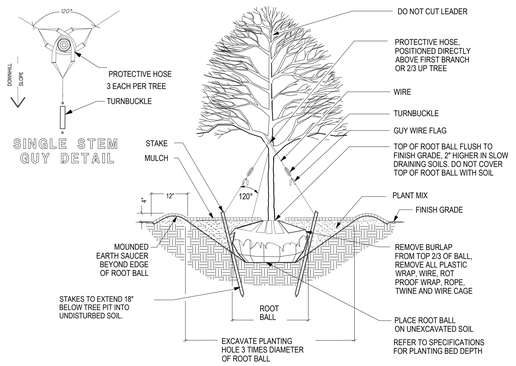
30 15 0 30 60
1"=30'

13 / 17	PRELIMINARY LANDSCAPE PLAN	HARTLAND SENIOR LIVING HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN	RDL ARCHITECTS 16102 CHAGRIN BOULEVARD, SUITE 200 SHAKER HEIGHTS, OHIO 44120

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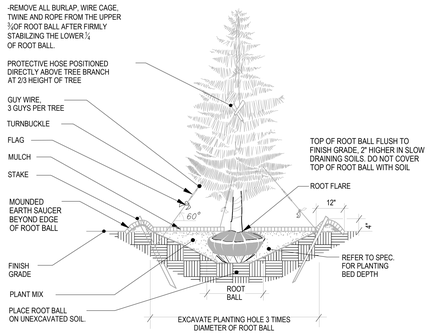
NO.	DATE	BY	DESCRIPTION
01	06/04/2020	GLS	PRELIMINARY REVIEW LAYOUT
02	06/10/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT
03	06/25/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	GLS	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

NOTES:
-STAKES TO EXTEND 18" INTO UNDISTURBED SOIL.
-SET STAKES VERTICAL AND AT EQUAL HEIGHT.
-TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE TO PREVIOUS GRADE.
-REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.



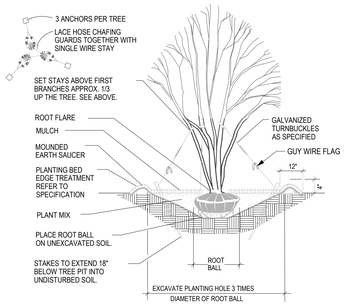
DECIDUOUS TREE WITH GUYS
(3" CALIPER AND GREATER)
NO SCALE

NOTES:
-SET ALL PLANTS AT PROPER DEPTH. ROOT FLARE SHALL BE AT FINISHED SOIL ELEVATION.
-REMOVE ALL BURLAP, WIRE CAGE, TWINE AND ROPE FROM THE UPPER ⅓OF ROOT BALL AFTER FIRMLY STABILIZING THE LOWER ⅔ OF ROOT BALL.



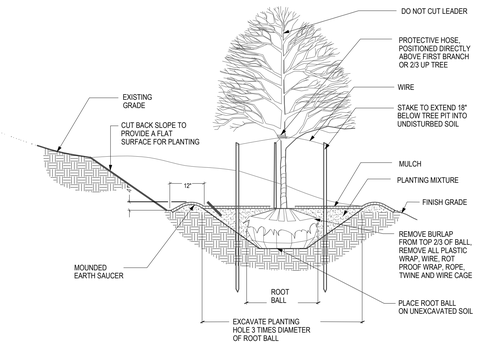
EVERGREEN TREE WITH GUYS
(TREES GREATER THAN 8' HT.)
NO SCALE

NOTES:
GUY 3 LARGEST STEMS. DO NOT CUT LEADER(S)
SET STAKES VERTICAL AND AT EQUAL HEIGHT
SET ALL PLANTS AT PROPER DEPTH. ROOT FLARE SHALL BE AT FINISHED SOIL ELEVATION.
REMOVE ALL BURLAP, WIRE CAGE, TWINE AND ROPE FROM UPPER 3/4 OF ROOT BALL AFTER FIRMLY STABILIZING LOWER 1/4 OF ROOT BALL IN PLANTING MIXTURE.

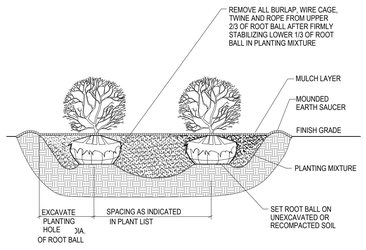


MULTISTEM TREE WITH GUYS
(TREES GREATER THAN 8' HT.)
NO SCALE

NOTES:
-STAKES TO EXTEND 18" INTO UNDISTURBED SOIL.
-SET STAKES VERTICAL AND AT EQUAL HEIGHT.
-TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE TO PREVIOUS GRADE..



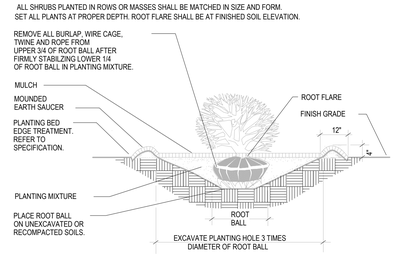
TREE PLANTING ON SLOPE
NO SCALE



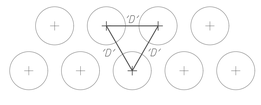
NOTE:
ALL SHRUBS PLANTED IN ROWS OR MASSES SHALL BE MATCHED IN SIZE AND FORM
SHRUBS SHALL BEAR SAME RELATION TO FINISH GRADE AS THEY BORE TO PREVIOUS GRADE.

MASS SHRUB PLANTING
B & B or CONTAINER
NO SCALE

ALL SHRUBS PLANTED IN ROWS OR MASSES SHALL BE MATCHED IN SIZE AND FORM.
SET ALL PLANTS AT PROPER DEPTH. ROOT FLARE SHALL BE AT FINISHED SOIL ELEVATION.

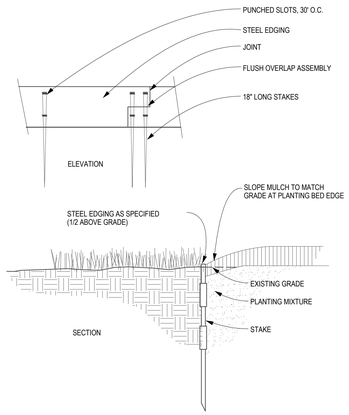


SHRUB PLANTING - B & B
NO SCALE



D = DIMENSION OF PLANT SPACING (SHRUB, GROUNDCOVER OR PERENNIAL) AS INDICATED IN PLANT LIST

TYPICAL PLANT SPACING
NO SCALE



METAL EDGING
NO SCALE

GENERAL LANDSCAPE NOTES

THE WORK CONSISTS OF PROVIDING ALL NECESSARY MATERIALS, LABOR, EQUIPMENT, TOOLS AND SUPERVISION REQUIRED TO COMPLETE THE WORK AS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND COORDINATING WITH ALL PERTINENT UTILITY COMPANIES 3 WORKING DAYS IN ADVANCE OF ANY DIGGING TO FAMILIARIZE THEMSELVES WITH ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE TO ANY UTILITIES.

THE CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH THE CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT AND FIELD ENGINEER. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE NOTIFICATION.

DISCREPANCIES BETWEEN DIMENSIONED LAYOUT AND ACTUAL FIELD CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.

ALL UNPAVED PORTIONS OF THE SITE SHALL BE PLANTED WITH GRASS, GROUNDCOVER, SHRUBS OR OTHER LIVE PLANT MATERIAL.

ALL LAWN AREAS SHALL HAVE 4" MINIMUM OF TOPSOIL.

ALL PLANTING BEDS SHALL HAVE 12" MINIMUM OF PLANT MIX AND SHREDDED HARDWOOD BARK MULCH AS SPECIFIED ON THIS SHEET.

ALL TOPSOIL SHALL BE SCREENED, FERTILE, SANDY LOAM. PH RANGE SHALL BE 6.5%-7%. ORGANIC CONTENT SHALL RANGE BETWEEN 4%-6%. AMEND SOIL AS NECESSARY TO ACHIEVE SOIL PARAMETERS.

PLANT MATERIAL

THE CONTRACTOR SHALL PROVIDE A ONE YEAR WARRANTY ON ALL PLANTS AND VEGETATION PROPOSED ON THE PLANTING PLAN. ANY TREES, SHRUBS, GROUND COVER OR OTHER VEGETATION PLANTED AS PART OF THIS PROJECT THAT DO NOT SURVIVE ONE YEAR FROM PLANTING SHALL BE REPLACED AT THE THE EXPENSE OF THE CONTRACTOR. THE LANDSCAPE ARCHITECT SHALL BE THE SOLE JUDGE OF REQUIRED REPLACEMENTS.

REFER TO THE DRAWING AND PLANTING DETAILS FOR PLANTING REQUIREMENTS, MATERIALS AND EXECUTION. IF THERE IS A DISCREPANCY BETWEEN THE DRAWINGS AND THE PLANT LIST, THE DRAWINGS SHALL GOVERN.

PLANT SHRUBS IN A DORMANT CONDITION, BEFORE NEW GROWTH APPEARS. PLANTING AT TIMES OTHER THAN THOSE INDICATED MUST OBTAIN PRIOR APPROVAL FROM THE LANDSCAPE ARCHITECT.

PLANTS SHALL BE OBTAINED FROM REGISTERED PLANT NURSERIES, AND NOT OBTAINED FROM THE WILD.

ALL PLANTS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT UPON DELIVERY TO THE SITE. PLANTS DELIVERED TO THE SITE THAT DO NOT MEET THE ABOVE CRITERIA MAY BE REJECTED AND ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

THE OWNER RESERVES THE RIGHT TO SELECT AND/OR APPROVE PLANT SELECTIONS AT THE NURSERY WHERE GROWN, PRIOR TO ACCEPTANCE OF MATERIALS.

THE LANDSCAPE ARCHITECT SHALL APPROVE ALL BED LAYOUTS, PRIOR TO INSTALLATION BY THE CONTRACTOR

BACKFILL MIX FOR ALL PLANTINGS, USE BACKFILL MIX CONSITING OF THE FOLLOWING:
1. ONE PART EXCAVATED SOIL.
2. ONE PART EPA RATED CLASS IV COMPOST.
3. A SLOW RELEASE COMMERCIAL FERTILIZER (0-20-20 OR EQUAL) ADDED AT A RATE OF 5 POUNDS PER CUBIC YARD TO THE BACKFILL MIX.
4. IF SOIL AREAS ARE OF HIGH PH (GREATER THAN 6.5) APPLY 1.25 POUNDS OF ELEMENTAL SULFUR PER CUBIC YARD OF BACKFILL MIX. NOTE: CONTRACTOR SHALL SUPPLY A DETAILED SOIL ANALYSIS PRIOR TO ALL PLANT BED PREPARTATION. ANALYSIS SHALL INDICATE SOIL PH, TEXTURE, MAJOR NUTRIENTS, SALTS, ETC. SOIL ANALYSIS SHALL BE FROM A REPUTABLE, INDEPENDENT LAB. SOIL AMENDMENTS SHALL BE INCORPORATED INTO BACKFILL/PLANT MIX AS RECOMMENEDED BY THE INDEPENTDENT LAB.

SMOOTH AND SHAPE THE BACKFILL MIX TO FORM A SHALLOW BASIN SLIGHTLY LARGER THAN THE PLANTING HOLE. MULCH ALL PLANTING AREAS WITH A LAYER OF FINELY SHREDDED HARDWOOD BARK OF UNIFORM TEXTURE AND SIZE. USE SHREDDED HARDWOOD BARK AGED MIN. OF ONE YEAR. RAKE AND SMOOTH THE ENTIRE AREA OF THE PLANTING BEDS. MULCH TO A DEPTH OF 3 INCHES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, DELIVERING, APPLYING, MEASURING AND SCHEDULING A SUFFICIENT AMOUNT OF WATER NECESSARY TO KEEP EACH PLANT IN A HEALTHY GROWING CONDITION THROUGHOUT THE PERIOD OF ESTABLISHMENT. THE CONTRACTOR SHALL APPLY 1" OF WATER PER WEEK TO ALL NEW PLANTS.

RESTORATION OF DISTURBED AREAS FOR NEW LAWN. ALL DISTURBED AREAS NOT COVERED BY BUILDING, PAVEMENT OR LANDSCAPE PLANTING BEDS SHALL BE PREPARED FOR GRASS AND SEEDED. LOOSEN RUTS AND WORK THE SOIL AREAS TO A MINIMUM OF 6" DEEP PRIOR TO FINE GRADING AND SEEDING WORK.

STRAW MULCH SHALL BE APPLIED 3" IN DEPTH. ALL MULCHING MUST HAVE A TIE DOWN.

LAWN SEED SHALL BE FRESH, CLEAN, DRY NEW-CROP SEED COMPOSED OF VARIETIES, MIXED IN PROPORTIONS, AND TESTED FOR MINIMUM PERCENTAGES OF PURITY AND GERMINATION AS FOLLOWS BY WEIGHT.

NOTES CONTINUED

VARIETY	PROPORTION BY WEIGHT	PURITY	GERMINATION
BARON KENTUCKY BLUEGRASS	25	90	80
VANTAGE KENTUCKY BLUEGRASS	25	90	80
PARK KENTUCKY BLUEGRASS	25	90	80
PENNFINE PERENNIAL RYEGRASS	25	90	80
CREEPING RED FESCUE	25	90	80

SUBSURFACE DRIPPERLINE IRRIGATION

ALL PLANTING BEDS SHALL HAVE IRRIGATION INSTALLED.

DRIPPERLINE TO BE MANUFACTURED BY HUNTER PLD-06-12, NETAFIM TECHLINE CV, RAINBIRD XSF DRIPLINE XSF-06-12, OR TORO DL2000, RGP-2-12.

SUBSURFACE IRRIGATION TUBING SHALL BE SELF-FLUSHING, PRESSURE COMPENSATING DRIPPERLINE WITH INTERNAL CHECK VALVE AT EACH EMITTER. DRIPPERLINE SHALL CONSIST OF NOMINAL SIZED ONE-HALF INCH LOW DENSITY, LINEAR POLYETHYLENE TUBING WITH INTERNAL PRESSURE COMPENSATING, CONTINUOUSLY SELF-FLUSHING, INTEGRAL DRIP EMITTERS. THE EMITTERS SHALL HAVE THE ABILITY TO INDEPENDENTLY REGULATE DISCHARGE RATES, WITH AN OUTPUT PRESSURE OF 7 TO 70 PSI AND SHALL CONTINUOUSLY CLEAN THEMSELVES WHILE IN OPERATION.

DRIPPERLINE FED FROM A RECLAIMED WATERSOURCE SHALL BE LAVENDER IN COLOR.

DRIPPERLINE SHALL HAVE EMITTERS SPACED 12" O.C. AND EACH EMITTER SHALL HAVE .5 - .6 GPH EMITTER OUTPUT.

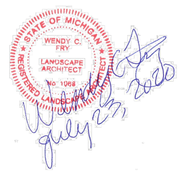
HEADER PIPE FOR ALL DRIPPERLINE SHALL BE POLYETHYLENE PIPE, 1" SIZE.

ALL FITTINGS SHALL BE MANUFACTURED FOR USE WITH THE SUBSURFACE IRRIGATION TUBING BY THE SUBSURFACE DRIPPERLINE MANUFACTURER.

ALL ASSOCIATED SYSTEM EQUIPMENT INCLUDING AIR RELIEF VALVES, FLUSH VALVES, PRESSURE REGULATING VALVES AND FILTERS SHALL BE MANUFACTURED FOR USE WITH THE SUBSURFACE IRRIGATION TUBING BY THE SUBSURFACE DRIPPERLINE MANUFACTURER.

ALL ASSOCIATED SYSTEM EQUIPMENT INCLUDING AIR RELIEF VALVES, FLUSH VALVES, PRESSURE REGULATING VALVES AND FILTERS SHALL BE MANUFACTURED FOR USE WITH THE SUBSURFACE IRRIGATION TUBING BY THE SUBSURFACE DRIPPERLINE MANUFACTURER.

SUBMIT SHOP DRAWING OF ALL IRRIGATION COMPONENTS, PROPOSED LAYOUT AND WATER SOURCE, TO THE LANDSCAPE ARCHITECT, FOR REVIEW, PRIOR TO THE START OF CONSTRUCTION.



NO.	DATE	BY	DESCRIPTION
01	05/15/2020	GLS	PRELIMINARY SITE LAYOUT
02	06/10/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT
03	06/25/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	GLS	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

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HARTLAND TOWNSHIP,
LIVINGSTON COUNTY, MICHIGAN

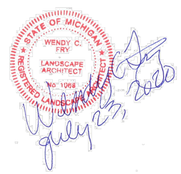
LANDSCAPE DETAILS

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OVERALL PLANT LIST

	FOUNDATION	PARKING	GREENBELT	DETENTION	SCREENING	SIGN	SCIENTIFIC NAME	COMMON NAME	SIZE (HEIGHT OR CALIPER)	ROOT	SPACING	REMARKS
	DECIDUOUS TREES											
	0	2	4	4	0	0	*Acer rubrum*	Red Maple	3"	B&B	As Per Plan	Specimen quality.
	0	0	3	6	0	0	*Acer saccharum*	Sugar Maple	3"	B&B	As Per Plan	Specimen quality.
	0	20	0	2	0	0	*Gleditsia triacanthos f inermis*	Thornless Honeylocust	3"	B&B	As Per Plan	Specimen quality.
	0	11	4	0	0	0	*Gymnocladus dioica*	Kentucy Coffeetree	3"	B&B	As Per Plan	Matched in form. All male cultivars of a single source
	0	1	7	2	0	0	*Liriodendron tulipifera*	Tulip Tree	3"	B&B	As Per Plan	Specimen quality.
	0	4	4	5	0	0	*Nyssa sylvatica*	Black Gum	3"	B&B	As Per Plan	Specimen quality.
	0	0	5	6	0	0	*Quercus rubra*	Red Oak	3"	B&B	As Per Plan	Specimen quality.
Total	0	38	27	25	0	0						
	ORNAMENTAL TREES											
	13	0	0	0	0	0	*Acer rubrum 'Red Rocket'*	Red Rocket Maple	2"	B&B	As Per Plan	Specimen quality.
	24	0	0	2	0	0	*Amelanchier arborea*	Downey Serviceberry	12' ht.	B&B	As Per Plan	Multi-stem
	2	0	3	2	0	0	*Cotinus coggygria 'Royal Purple'*	Royal Purple Smoketree	12' ht.	B&B	As Per Plan	Specimen quality.
	7	0	2	1	0	0	*Magnolia stellata*	Star Magnolia	2"	B&B	As Per Plan	Specimen quality.
	6	0	0	1	0	0	*Malus sargentii*	Sargent Crab Apple	2"	B&B	As Per Plan	Specimen quality.
	9	0	2	1	0	0	*Syringa reticulata 'Ivory Silk'*	Ivory Silk Tree Lilac	2"	B&B	As Per Plan	Specimen quality.
Total	61	0	7	7	0	0						
	EVERGREEN TREES											
	0	0	0	0	42	0	*Picea abies*	Norway Spruce	8' ht.	B&B	12' O.C.	Specimen quality.
	0	0	0	0	27	0	*Picea abies*	Norway Spruce	10' ht.	B&B	12' O.C.	Specimen quality.
	0	0	0	0	29	0	*Picea glauca*	White Spruce	8' ht.	B&B	12' O.C.	Specimen quality.
	0	0	0	0	36	0	*Picea glauca*	White Spruce	10' ht.	B&B	12' O.C.	Specimen quality.
	0	0	0	0	37	0	*Picea omorika*	Serbian Spruce	8' ht.	B&B	12' O.C.	Specimen quality.
	0	0	0	0	31	0	*Picea omorika*	Serbian Spruce	10' ht.	B&B	12' O.C.	Specimen quality.
Total	0	0	0	0	202	0						
	SHRUBS											
	0	0	7	16	0	0	*Cornus sericea*	Twig Dogwood	30" ht	B&B/Cont	As Per Plan	
	0	0	4	22	0	0	*Forsythia x intermedia 'Kolgold'*	Kolgold Forsythia	30" ht	B&B	As Per Plan	
	231	0	0	0	0	0	*Ilex glabra 'Shamrock'*	Inkberry	18" ht.	B&B	30" O.C.	
	0	0	0	36	0	0	*Ilex verticillata*	Winterberry	30" ht	B&B	As Per Plan	6 JIM DANDY& 30 CACAPON
	0	45	0	0	0	20	*Juniperus horizontalis 'Bar Harbor'*	Bar Harbor Juniper	3 gal.	Cont	4' O.C.	
	129	35	0	0	0	0	*Microbiota decussata*	Siberian Cypress	3 gal.	Cont	4' O.C.	
	0	0	6	10	0	0	*Physocarpus opulifolius 'Center Glow'*	Center Glow Ninebark	30"	B&B	As Per Plan	
	0	0	10	20	0	0	*Physocarpus opulifolius 'Diabolo'*	Diabolo Ninebark	30"	B&B	As Per Plan	
	184	0	0	0	0	0	*Physocarpus opulifolius 'Nanus'*	Dwarf Ninebark	3 gal.	Cont	24" O.C.	FOR FOUNDATION PLANTING
	173	76	0	0	0	0	*Rhus aromatica 'Gro-Low'*	Gro-Low Sumac	3 gal.	Cont	4' O.C.	
	0	0	7	28	0	0	*Syringa meyeri 'Paliban'*	Dwarf Korean Lilac	30" ht	B&B	As Per Plan	
	0	0	1	17	0	0	*Syringa vulgaris 'Sensation'*	Sensation Lilac	30" ht	B&B	As Per Plan	
	103	0	0	2	0	0	*Viburnum carlessi*	Korean Spice Viburnum	18" ht.	B&B/Cont	42" O.C.	
	0	0	0	15	0	0	*Viburnum nudum 'Winterthur'*	Winterthur Smooth Viburnum	30" ht	B&B	As Per Plan	
	210	0	0	0	0	13	*Viburnum opulus 'Compactum'*	Compact European Cranberrybush	18" ht.	B&B	42" O.C.	
	0	0	0	25	0	0	*Viburnum prunifolium*	Blackhaw Viburnum	30" ht.	B&B	As Per Plan	
Total	1030	156	35	191	0	33						



NO.	DATE (DD/MM/YY)	BY (INITIALS)	DESCRIPTION
01	05/15/2020	GLS	PRELIMINARY SITE LAYOUT
02	06/10/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT
03	06/25/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	GLS	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

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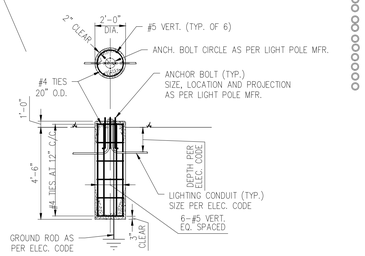
RDL ARCHITECTS
16102 CHAGRIN BOULEVARD, SUITE 200
SHAKER HEIGHTS, OHIO 44120

HARTLAND SENIOR LIVING
HARTLAND TOWNSHIP,
LIVINGSTON COUNTY, MICHIGAN

PLANT SCHEDULE

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NOTES:
1. CONCRETE FOR LIGHT POLE FOUNDATION SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH f'_c = 4000 PSI.
2. REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH f_y = 60 KSI.
3. ALL EXPOSED EDGES OF CONCRETE LIGHT POLE FOUNDATION SHALL BE CHAMFERED 1".
4. MINIMUM SOIL BEARING CAPACITY SHALL BE 2000 PSF.
5. MAXIMUM POLE HEIGHT SHALL BE 22 FEET.

CONCRETE LIGHT POLE FOUNDATION DETAIL
NOT TO SCALE

STATISTICS

DESCRIPTION	AVG
PROPERTY LIMITS	0.56 fc
PAVEMENT LIMITS	2.22 fc
ENTRY/EXIT DRIVES	4.51 fc
MAIN BUILDING ENTRANCE	4.96 fc
MAIN PARKING AREA LIMITS	3.22 fc
COURTYARD WALK LIMITS	0.75 fc

NOTE:
1. LIGHTING INTENSITY IS MEASURED AT 5 FEET ABOVE GROUND LEVEL ON A VERTICAL PLANE.

LUMINAIRE SCHEDULE

SYMBOL	LABEL	QUANTITY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	LUMENS PER LAMP	WATTAGE
	A	19	LITHONIA LIGHTING	DSX1 LED P5 50K T3M MVOLT HS	DSX1 LED P5 50K T3M MVOLT WITH HOUSESIDE SHIELD	ABSOLUTE	138.0
	B	4	LITHONIA LIGHTING	DSX1 LED P9 50K T3M MVOLT HS	DSX1 LED P9 50K T3M MVOLT WITH HOUSESIDE SHIELD	ABSOLUTE	241.0
	C	8	LITHONIA LIGHTING	RAD1 LED P1 50K SYM HS	RADEAN ARM MOUNTI WITH P1 5000K SYMMETRIC DISTRIBUTION WITH HOUSESIDE SHIELD	ABSOLUTE	25.4
■	D	3	ALW USA	CORE 300LX-C3LU-D-N-1-W-20-83-40-60-20-83-40-60	CORE LX TALL-SHELL CORE SERIES SCONCE	2000	15.2
■	E	7	RAB LIGHTING, INC.	SLIM26N	CAST FINNED METAL HOUSING, 1 CIRCUIT BOARD WITH 1 LED, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH, CLEAR FLAT GLASS LENS	ABSOLUTE	29.5
◕	F	6	LITHONIA LIGHTING	REAL6C D6MW ESL 1500L 35K .95SC	6" REALITY LED RECESSED DOWNLIGHT, 1500 LUMENS .95 SPACING 3500K CCT	1521	18.8
●	G	8	LITHONIA LIGHTING	VCPG LED P1 40K T5M MVOLT	VCPG LED WITH P1-PERFORMANCE PACKAGE, 4000K, T5M OPTIC TYPE	ABSOLUTE	26.6

POLE FIXTURE SCHEDULE

	QUANTITY	CATALOG NUMBER	HEIGHT (FT)	POLE SHAFT SIZE (IN X FT)	WALL THICKNESS (IN)	DRILL MOUNTING	BOLT SIZE (IN X IN X IN)	FINISH
LITHONIA LIGHTING ROUND STRAIGHT ALUMINUM POLE	22	RSA 20 5C DM19AS DBLXD	20' POLE ON A 1' CONCRETE BASE	5 X 20	0.125	DM19AS	¾ X 18 X 3	DBLXD BLACK
LITHONIA LIGHTING ROUND STRAIGHT ALUMINUM POLE	8	RSA 14 4C DM19AS DBLXD	14' POLE ON A 1' CONCRETE BASE	4 X 14	0.125	DM19AS	¾ X 18 X 3	DBLXD BLACK

NO.	DATE	BY	DESCRIPTION
01	05/01/2020	GLS	PRELIMINARY SITE LAYOUT
02	06/10/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT
03	06/25/2020	GLS	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/23/2020	GLS	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

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HARTLAND TOWNSHIP,
LIVINGSTON COUNTY, MICHIGAN

PHOTOMETRIC PLAN

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W:\Projects\Projects P-T\P2330001\CAD\&&E\10-15 Photometric Plan.dwg - Last plotted: 7/23/2020 11:29 AM

LUMINAIRES A AND B



D-Series Size 1
LED Area Luminaire

d*series

Catalog Number

Notes

Type

Fill the Tab key or mouse over the page to see all interactive elements.

Specifications

EPA: 1.01 ft² (0.09 m²)

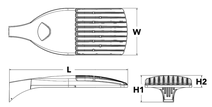
Length: 33" (83.8 cm)

Width: 13" (33.0 cm)

Height H1: 7-1/2" (19.0 cm)

Height H2: 3-1/2"

Weight (max): 27 lbs (12.2 kg)



Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature	Distribution		Voltage	Mounting
DSX1 LED	**Forward optics** P1 P4 P7 P2 P5 P8 P3 P6 P9 **Rotated optics** P10[1] P12[1] P11[1] P13[1]	30K 3000 K 40K 4000 K 50K 5000 K	T1S Type I short (Automotive) T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short[1] T5S Type V short[1] T5M Type V medium[1] T5W Type V wide[1] BLC Backlight control[1] LCCO Left corner cutoff[1] RCCO Right corner cutoff[1]		MVOLT[2,3] 120[3] 208[3] 240[3] 277[3] 347[3] 480[3]	**Shipped included** SPA Square pole mounting RPA Round pole mounting WBA Wall bracket[3] SPUMBA Square pole universal mounting adaptor[4] RPUMBA Round pole universal mounting adaptor[4] **Shipped separately** KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[3]

Control options		Other options		Finish (required)	
Shipped installed NLTAIR2 nLight AIR generation 2 enabled[5] PIRHN Network, high/low motion/ambient sensor[6] PER NEMA twist-lock receptacle only (controls ordered separate)[10] PERS Five-pin receptacle only (controls ordered separate)[10,11] PER7 Seven-pin receptacle only (controls ordered separate)[10,11] DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)[12] DS Dual switching[13,14,15]	PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc[16,17] PIRH High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc[16,17] PIR1FC3V High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[16,17,18] PIR1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[16,17,18] FAO Field adjustable output[19]	**Shipped installed** HS House-side shield[18] SF Single fuse (120, 277, 347V)[3] DF Double fuse (208, 240, 480V)[3] L90 Left rotated optics[1] R90 Right rotated optics[1] **Shipped separately** BS Bird spikes[18] EGS External glare shield	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white	

LUMINAIRE C



Radean Arm Mount
LED Area Luminaire

Catalog Number

Notes

Type

Fill the Tab key or mouse over the page to see all interactive elements.

Specifications

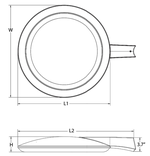
EPA: 0.75 ft² (0.05 m²)

Length:
L1 24" (61 cm)
L2 30" (60.96 cm)

Width: 24" (61 cm)

Height: 4" (10.2 cm)

Weight (max): 29lbs (13.15Kg)



Introduction

The RADEAN arm mount luminaire is the perfect choice for pedestrian applications where daytime aesthetics and visual comfort are needed. Adding architectural flair to any space, the RADEAN's low-profile shape and smooth curves blend in while adding a touch of elegance.

Perfect for campuses, parks, pedestrian malls, courtyards and pathways, the RADEAN arm mount is the Architect's choice to provide beautiful aesthetics both day and night.

Ordering Information

EXAMPLE: RAD1 LED P3 30K SYM MVOLT RPA PE DNAXD

RAD1 LED

Series	Performance package	Color temperature	Distribution	Voltage	Mounting
RAD1 LED	P1 1,000 Lumens P2 5,000 Lumens P3 7,000 Lumens P4 11,000 Lumens P5 16,000 Lumens	27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	SYM Symmetric type V ASY Asymmetric type IV PATH Pathway type III	MVOLT[1] 277[1] 120[1] 347[1] 208[1] 480[1] 240[1]	SPA Square pole mounting (includes adapter) RPA Round pole mounting WBA Wall bracket

Control options	Other options	Finish (required)
Shipped installed NLTAIR2 nLight AIR 2.0 enabled[2] PIR Bi-level motion sensor (100% to 30%).[3,4,5,6] PE Button photocell[5,6,7] FAO Field adjustable output[8,9,10]	**Shipped separately** HS Houseside shield[4]	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

LUMINAIRE D

ALW

CORE 300 LX
UP + DOWN SCONCE

PROJECT

Job

Type

Part #

Notes

SPECIFICATIONS

Source Two Xicato XTM LED modules - up to 3000 lumens each
CCT 2700K, 3000K, 3500K or 4000K
Color Consistency 1x2 SDCM (MacAdam) along BBL, CCT +/- 40K to 70K, Duv +/- .001
CRI (Ra) 83 or 98
Driver / Location Included / Remote mount or deep canopy options
Dimming 0-10V or phase dimming to 10% standard; DALI, DMX and 1% dimming available
Input Voltage 100 to 277VAC, phase dimmable versions are 120VAC only
Power Up to 47 watts max, depending on LED module / driver
Reflector 20˚, 40˚ or 60˚ - field replaceable without tools
Material CNC machined aluminum with stainless steel hardware
Finish Powder coat - TGIC polyester for exterior and interior use
Weight 5 lb. [2.3 kg]
Location Listed for Wet & Damp locations
Approvals ETL Listed to UL 1598, 2108, 8750 and CSA C22.2# 9 & #250.0
L80 Life > 50,000 hours at 80% lumen maintenance based on IESNA LM-80-08
Warranty Lifetime Limited Warranty - see warranty for details
IES Files LM-79-08 IES files available
Modifications Any modification or customization is possible - consult factory



LED · INDOOR OUTDOOR · WET LOCATION · DIMMABLE · POWERED BY XICATO · TITLE 24 · ETL Intertek

ORDERING LOGIC

**CORE 300 LX LIGHT SCONCE SHALL BE DOWN DIRECTION ONLY.

	Driver Location	Dimming	# of Circuits	Mounting Location	Up Direction Output	Up Direction CRI *	Up Direction C.C.T.	Up Direction Reflector	Down Direction Output	Down Direction CRI *	Down Direction C.C.T.	Down Direction Reflector	Shell Color	Options
C3LU -	D	N	1	W	-			-	20	83	40	60	-	-
	R=Remote D=Deep Canopy	N=None P=Phase V=0-10V Z=Other	1 2	D=Damp W=Wet	07=700lm 10=960lm 13=1300lm 20=2000lm 30=3000lm	83=83 98=98*	27=2700K 30=3000K 35=3500K 40=4000K	20=20° 40=40° 60=60°	07=700lm 10=960lm 13=1300lm 20=2000lm 30=3000lm	83=83 98=98*	27=2700K 30=3000K 35=3500K 40=4000K	20=20° 40=40° 60=60°	XX (see chart on page 4) ZZ=Custom	

* 98 CRI not available in 3000 lm

Example Part Number: **C3LU-RN1D-13832720-20832740-S3**
CORE **3**00 **LU** Up + Down Sconce - **R**emote Driver, **N**o Dimming **1** Circuit, **D**amp Location - UP= **13**00 lm, **83** CRI, **27**00K, **20°** Reflector - DOWN= **20**00 lm, **83** CRI, **27**00K, **40°** Reflector= **S3** Red Shell

A 1035 22nd Avenue, Unit 1 · Oakland, CA 94606 P 510.489.2530 E TalkToUs@alwusa.com W alwusa.com

rev 191209

LITHONIA LIGHTING

FEATURES & SPECIFICATIONS

INTENDED USE — These specifications are for USA standards only. Check with factory for Canadian specifications. Round Straight Aluminum is a general purpose light pole for up to 30-foot mounting heights. This pole provides a lighter and naturally corrosion-resistant option for mounting area light fixtures and floodlights.

CONSTRUCTION — Pole Shaft: The pole shaft is of uniform wall thickness and is one-piece extruded 6063 aluminum alloy with T6 temper. The shaft is uniform in cross-section down length of pole with no taper. Available shaft diameters are 4", 4.5" 5", and 6".

Pole Top: Options include tenon top, drilled for side mount fixture, tenon with drilling (includes extra handhole) and open top. Side drilled and open top poles include a removable aluminum top cap secured with three stainless-steel screws. The top cap resists intrusion of moisture or environmental contaminants.

Handhole: A non-reinforced handhole with grounding provision is provided near the base. Standard positioning varies with shaft width as follows: 4", 4.5", and 5" shaft, handhole at 12"; 6" shaft, handhole at 18" on side A. Positioning the handhole lower than standard may not be possible and requires engineering review; consult Inch Support-Outdoor for further information. All handholes for a pole specified with openings wfor 4" through 6" shaft width has nominal dimension of 2" x 4" with surface mount overlap design.

Bolt Caps/Base Cover: Pole base plate utilizes cast aluminum bolt caps to cover anchor bolt and nut assembly. Spun aluminum covers available as an option.

Anchor Base/Bolts: Anchor base is cast from 356 alloy aluminum and is heat treated to a T6 temper after welding. Anchor bolts are manufactured to ASTM F1554 Standards Grade 55, (55 KSI minimum yield strength and tensile strength of 75-95 KSI). Upper portion of anchor bolt is galvanized per ASTM A-153; bolts have an "L" bend on bottom end and are galvanized a minimum of 12" on the threaded end. Each hot-dipped galvanized anchor bolt is furnished with two hex nuts and two flat washers.

HARDWARE - All structural and non-structural fasteners are stainless-steel.

FINISH – Extra durable painted finish is coated with polyester powder that meets SA and SB classifications of ASTM D3359. Standard powder-coat finishes include Dark Bronze, White, Black, Medium Bronze and Natural Aluminum colors. Classic finishes include Sandstone, Charcoal Gray, Tennis Green, Bright Red and Steel Blue colors. Other finishes include Brushed Aluminum, and Anodized Dark Bronze, Anodized Natural Aluminum and Anodized Black. Architectural Colors and Special Finishes are available by quote and include, but are not limited to RAL Colors, Custom Colors and Extended Warranty Finishes. Factory-applied primer paint finish is available for customer field-paint applications.

WARRANTY — 1-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

NOTE: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.

Catalog Number

Notes

Type

Anchor Base Poles

RSA

ROUND STRAIGHT ALUMINUM



OUTDOOR POLE-RSA

NO	DATE	BY	DESCRIPTION
01	05/14/2020	G.S.	PRELIMINARY SITE LAYOUT
02	06/10/2020	G.S.	UPDATED PRELIMINARY SITE LAYOUT
03	06/26/2020	G.S.	UPDATED PRELIMINARY SITE LAYOUT WITH TREE SURVEY
04	07/22/2020	G.S.	SITE LAYOUT REVISED PER 07/09/2020 COMMENTS

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HARTLAND SENIOR LIVING
HARTLAND TOWNSHIP,
LIVINGSTON COUNTY, MICHIGAN

PHOTOMETRIC PLAN

17 / 17

LUMINAIRE E

SLIM26N

RAB



12, 18 and 26 Watt SLIM wallpacks are ultra efficient and deliver impressive light distribution with a compact low-profile design that's super easy to install as a downlight or uplight.

Color: Bronze Weight: 4.5 lbs

Project: **Type:**

Prepared By: **Date:**

Driver Info		LED Info	
Type:	Constant Current	Watts:	26W
120V:	0.27A	Color Temp:	4000K
208V:	0.15A	Color Accuracy:	72 CRI
240V:	0.15A	L70 Lifespan:	100000
277V:	0.13A	Lumens:	3523
Input Watts:	30W	Efficacy:	118 LPW
Efficiency:	87%		

Technical Specifications

Listings

UL Listing:
Suitable for wet locations. Suitable for mounting within 1.2m (4ft) of the ground.

DLC Listed:
This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities.
DLC Product Code: P96TPDJK

ADA Compliant:
SLIM™ is ADA Compliant

Dark Sky Approved:
The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire

IESNA LM-79 & LM-80 Testing:
RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

Construction

IP Rating:
Ingress Protection rating of IP66 for dust and water

Cold Weather Starting:
Minimum starting temperature is -40°C (-40°F)

Maximum Ambient Temperature:
Suitable for use in 40°C (104°F) ambient temperatures

Housing:
Precision die-cast aluminum housing

Mounting:
Heavy-duty mounting bracket with hinged housing for easy installation

Recommended Mounting Height:
Up to 22 ft

Lens:
Tempered glass lens

Reflector:
Specular thermoplastic

Gaskets:
High-temperature silicone

Finish:
Formulated for high-durability and long lasting color

Green Technology:
Mercury and UV-free. RoHS compliant components. Polyester powder coat finish formulated without the use of VOCs or toxic heavy metals.

LED Characteristics

LED:
Multi-chip. long-life LED

Lifespan:
100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

Color Consistency:
3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color

Color Stability:
LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period

Color Uniformity:
RAB's range of CCT (Correlated Color Temperature) follows the guidelines for the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017.

Electrical

Driver:
Constant Current, Class 2, 100-277V, 50/60 Hz., 6KV surge protection, 120V: 0.28A, 208V: 0.16A, 240V: 0.14A, 277V: 0.12A

Other

Patents:
The design of the SLIM™ is protected by patents in U.S. Pat D681,864, and pending patents in Canada, China, Taiwan and Mexico.

HID Replacement Range:
Replaces 175W Metal Halide

Buy American Act Compliance:
RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Optical

BUG Rating:
B1 U0 G0

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LUMINAIRE F

LITHONIA LIGHTING

FEATURES & SPECIFICATIONS

INTENDED USE — For use with common 6" installed housings for retrofit applications:
New Construction use with housings L7X, LCG, or L7XLED T24 (dedicated LED connector).
Remodel or install from below applications use with L7XR or L7XRLED T24 (dedicated LED connector).
LED module for use in retrofit / remodel or new construction applications where energy savings, long-life, and functional delivered light levels are required. The Reality LED module provides 80% energy savings over the 65W BR30 and replicates the beam pattern and useful light levels of these fixtures. It will maintain at least 70% light output for 50,000 hours in a typical IC environment. The Reality LED module is the most economical means to create a well lit environment with exceptional energy efficiency and near zero maintenance.
CONSTRUCTION — Rugged, one-piece, die-cast heat sink design for optimal thermal management.
Wet location rated lens is tightly fitted to the housing to reduce the ingress of dust.
Hardwire kit ships standard to enable a permanent conversion to a LED source and Title 24 compliant.
Twin torsion springs ensure easy installation.
OPTICS — Elliptical upper reflector and a patented polycarbonate micro prism lens provides a 38 degree or 67 degree full width half max (FWHM) beam angle based on distribution chosen. Lower splay recesses optical system into the ceiling to prevent glare and provide a traditional look.
ELECTRICAL — LEDs on a metal core circuit board, ensure cool-running operation for long life.
On-board circuitry to ensure protection against wiring errors.
High-efficiency driver mounted on the module. Primary power disconnect provided for simple connection to a standard Edison (E26) base socket.
Full range dimming is standard, dimming down to 25%. Optimal dimming performance is achieved when connected to an electronic low-voltage (ELV) dimmer; See page 2 for recommended dimmers.
Input wattage for 600L is 8 W, 80 lumens per watt. Input wattage for 1000L is 11W, 89 lumens per watt.
Actual wattage may differ by +/-5% when operating at 120V +/-10%.
INSTALLATION — Suitable for installation in standard-height rough-in sections. Fits into most popular 6" housings.
LISTINGS — CSA certified to US and Canadian safety standards. Wet location listed.
WARRANTY — Five-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.
Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

Catalog Number

Notes

Type

6" LED Module

REALITY™

IC/Non-IC Retrofit



Specifications

Aperture: 4-3/8 (11.1)
Ceiling opening: As rough-in
Overlap trim: 7-1/2 (19.1)
Height: 6-5/8 (17.0) max.
Weight (module only): 2.8 lbs.
Weight (module and carton): 3.96 lbs.
All dimensions are inches (centimeters) unless otherwise noted.



ORDERING INFORMATION For shortest lead times, configure products using **bolded options.** **Example:** REAL6 D6MW ESL 1000L 35K .60SC

Series/Finish			ESL Type	Lumen output[1]	Color temperature	Distribution	Voltage
Series	Finish		ESL	600L 8W, 600 lumens	27K 2700K	.60SC .60 spacing criteria	(blank) 120V
REAL6 D6 6" energy star retrofit module	**MW** Matte white **A** Clear diffuse AZ Clear specular BN Brushed nickel BLZ Black specular BZA Antique bronze ORB Oil-rubbed bronze WT Wheat diffuse			1000L 11W, 1000 lumens	**30K 3000K** 35K 3500K 40K 4000K	.90SC .90 spacing criteria	

Options					
PFMW Matte white plastic flange ring	**LCG** New construction rough-in[2]		**L7XRLED T24** Remodel rough-in (LED connector)		
PFBL Black plastic flange ring	**L7XLED T24** New construction rough-in (LED connector)		LCGLED T24 New construction rough-in (LED connector)		
L7X New construction rough-in[2]	**L7XLED T24 50T 277V** Non-IC 277V stepdown transformer (277V to 120V) (LED connector)		ISH Insect shield		
L7XR Remodel rough-in[2]					

Accessories: *Order as separate catalog number.*	
TSA6	Makes non-bracket housings compatible with the LED module ships as units, J6 or J25
FLZLED	Makes L7XF housings compatible with the LED module
REAL HW Kit	Enables a permanent conversion to an LED source and Title 24 compliant (ships standard)
CTR6	6" goof ring, white


TSA6 Torsion spring adapter


REAL HW Kit Real HW Hardwire Kit


FLZLED Fluorescent Adapter Kit

Notes
1 Total system delivered lumens.
2 Must be ordered on separate line.

LUMINAIRE G



VCPG LED
Parking Garage

Catalog Number

Notes

Type

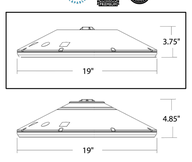
Fill the Tab key or mouse over the page to see all interactive elements.

Specifications

Diameter: 19"

Height: 3.75" (4.85" with Up-Light)

Weight (max, with no options): 18 lbs



Introduction

The all new VCPG LED (Visually Comfortable Parking Garage) luminaire is designed to bring glare control, optical performance and energy savings into one package. The recessed lens design of VCPG LED minimizes high angle glare, while its precision molded acrylic lens eliminates LED pixilation and delivers the required minimums, verticals and uniformity. The dedicated up-light module option reduces the contrast between the luminaire and the ceiling creating a more visually comfortable environment.

The VCPG LED delivers up to 87% in energy savings when replacing 175W metal halide luminaires. With over 100,000 hour life expectancy (12+ years of 24/7 continuous operation), the VCPG LED luminaire provides significant maintenance savings over traditional luminaires.

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: VCPG LED V4 P4 40K 70CRI T5M MVOLT SRM DNAXD

VCPG LED	V4	P1	40K	T5M	MVOLT	SRM
Series	LED Light Engines	Package	Color temperature	Distribution	Voltage	Mounting
VCPG LED	V4[1] 4 Light Engines V8[1] 8 Light Engines	P1[1] P2[1] P3[1] P4[1] P5[1] P6[1] P7[1]	30K 3000 K 35K 3500 K 40K 4000 K 50K 5000 K	70CRI 80CRI	T5M[2] Type V, medium T5R[2] Type V, rectangular T5W Type V, wide T5E Type V entry LANE[2] Drive lane	MVOLT For ordering with fuse 347 480 120 208 240 277 347 480	**Shipped included** PM Pendant mount standard (24-inch length supply leads) SRM Surface mount (24-inch length supply leads) ARM Arm mount (use RSFWBA accessory to mount to a wall) **Shipped separately** YK Yoke/trunnion mount[3]

Options		Finish (required)
Shipped installed UPL1 Up-Light: 500 lumens UPL2 Up-Light: 700 lumens EBWC Emergency battery backup, Certified in CA Title 20 MAEDBS (0W, -20°C min)[4,5,6] E10WH Emergency battery backup, Certified in CA Title 20 MAEDBS (10W, 2°C min)[4,5,6] HA High ambient (50°C, only P1-P4) SF Single fuse (120V, 277V, 347V) DF Double fuse (208V, 240V, 480V) SPD10KV 10KV Surge Pack L0536 36in (3ft) lead length L0572 72in (6ft) lead length L05108 108in (9ft) lead length DMG External 0-10V leads (no controls)[7] **Shipped Separately** WG Wire Guard BDS Bird Shroud HS House Side Shield	**Standalone Sensors/Controls[8]** PIR Motion/ambient sensor for 8-15' mounting heights PIRH Motion/ambient sensor for 15-30' mounting heights PIR1FC3V Motion/ambient sensor for 8-15' mounting heights, pre programmed to 3fc and 35% light output PIRH1FC3V Motion/ambient sensor for 15-30' mounting heights, pre programmed to 3fc and 35% light output PIR1FC3V924 ULI924 Listed motion/ambient sensor for emergency circuit for 8-15' mounting heights, pre programmed to 3fc and 35% light output[9] PIRH1FC3V924 ULI924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre programmed to 3fc and 35% light output[9] **Networked Sensors/Controls[8]** NLTAIR2 PIR nLIGHT AIR Wireless enabled motion/ambient sensor for 8-15' mounting heights NLTAIR2 PIRH nLIGHT AIR Wireless enabled motion/ambient sensor for 15'-30' mounting heights NLTAIR2 PIR924 nLIGHT AIR Wireless enabled, UL 924 Listed motion/ambient sensor for emergency circuits for 8-15' mounting heights[9] NLTAIR2 PIRH924 nLIGHT AIR Wireless enabled, UL 924 Listed motion/ambient sensor for emergency circuits for 15-30' mounting heights[9] XAD Xpoint™ Wireless enabled[10] XAD924 Xpoint™ Wireless enabled, UL 924 Listed for emergency circuit[9,10] XAD PIR Xpoint™ Wireless enabled motion/ambient sensor for 8-15' mounting heights XAD PIRH Xpoint™ Wireless enabled motion/ambient sensor for 15-30' mounting heights XAD924 PIR Xpoint™ Wireless enabled, UL 924 Listed motion/ambient sensor for emergency circuits for 8-15' mounting heights[9] XAD924 PIRH Xpoint™ Wireless enabled, UL 924 Listed motion/ambient sensor for emergency circuits for 15-30' mounting heights[9]	DWHXD White DNAXD Natural aluminum DDBXD Dark bronze DBLXD Black

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HARTLAND SENIOR LIVING

MSHDA PROJECT # 3915
DATE: 2020-07-23

12371 HIGHLAND ROAD,
HARTLAND TOWNSHIP, MI 48353



DRAWING INDEX

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A-12	BUILDING ELEVATIONS
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LOCATION PLAN

N
PLAN



07/23/2020

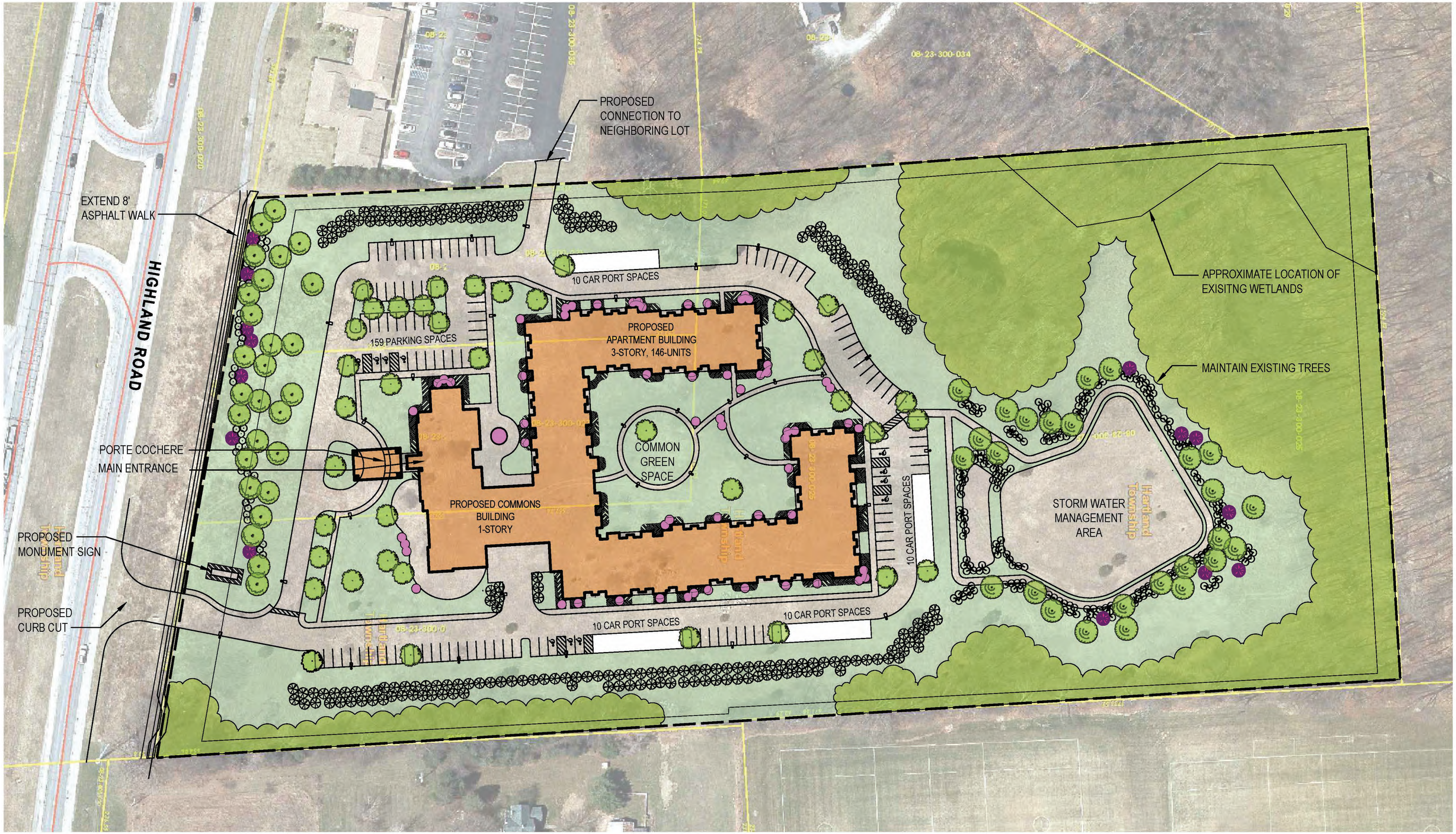
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A-0



ARCHITECTURAL SITE PLAN

SCALE: 1" = 50'-0"

0 25' 50'

07/23/2020

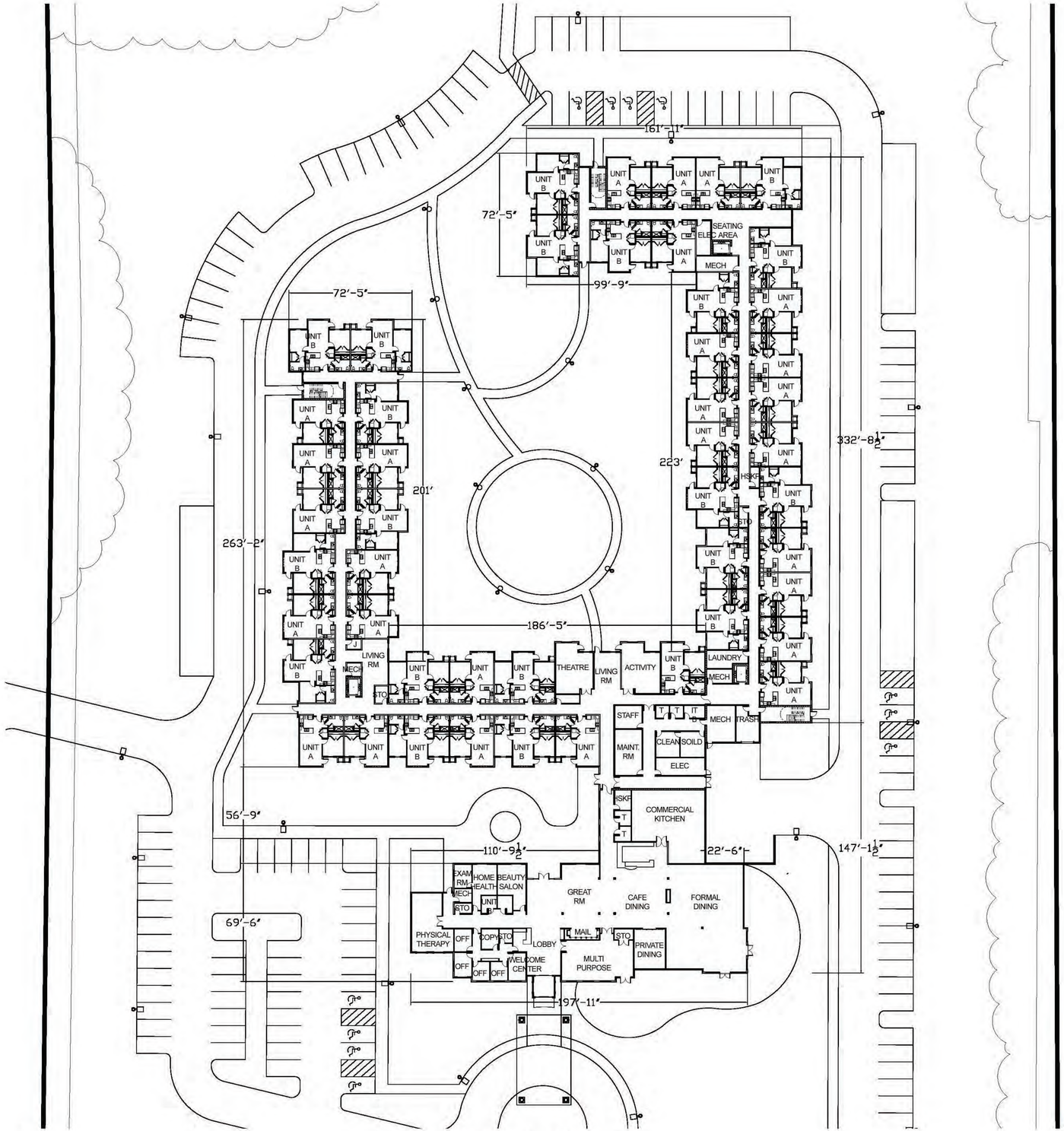
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A-1



FIRST FLOOR PLAN

SCALE: 1/32" = 1'-0"
0 5' 10' 20'

07/22/2020

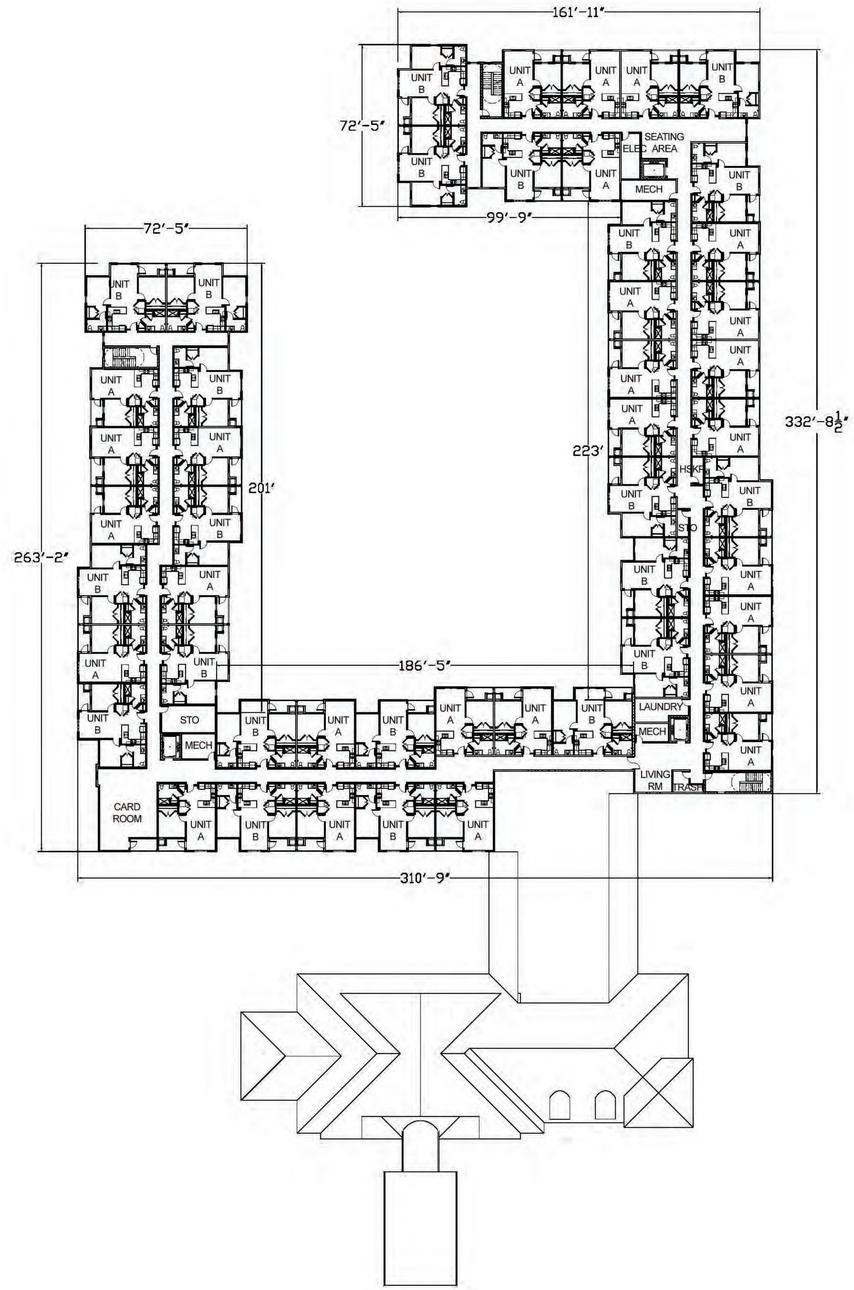
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A-2



SECOND FLOOR PLAN

SCALE: 1/32" = 1'-0"
0 5' 10' 20'

06/10/2020

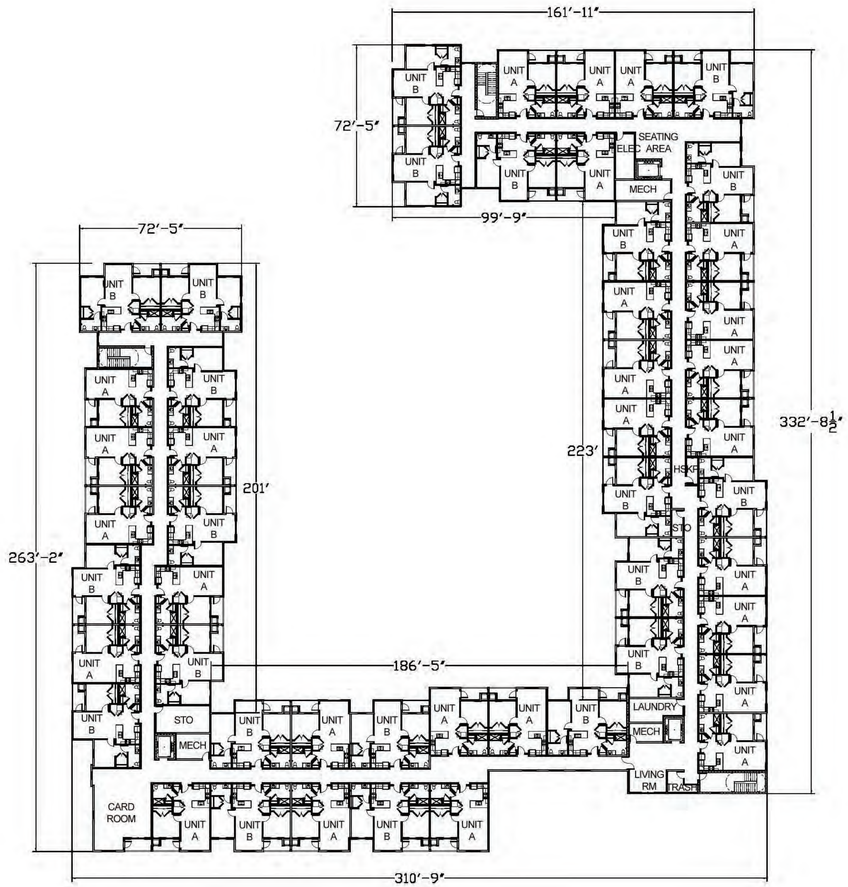
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A-3



THIRD FLOOR PLAN

SCALE: 1/32" = 1'-0"
0 5' 10' 20'

06/10/2020

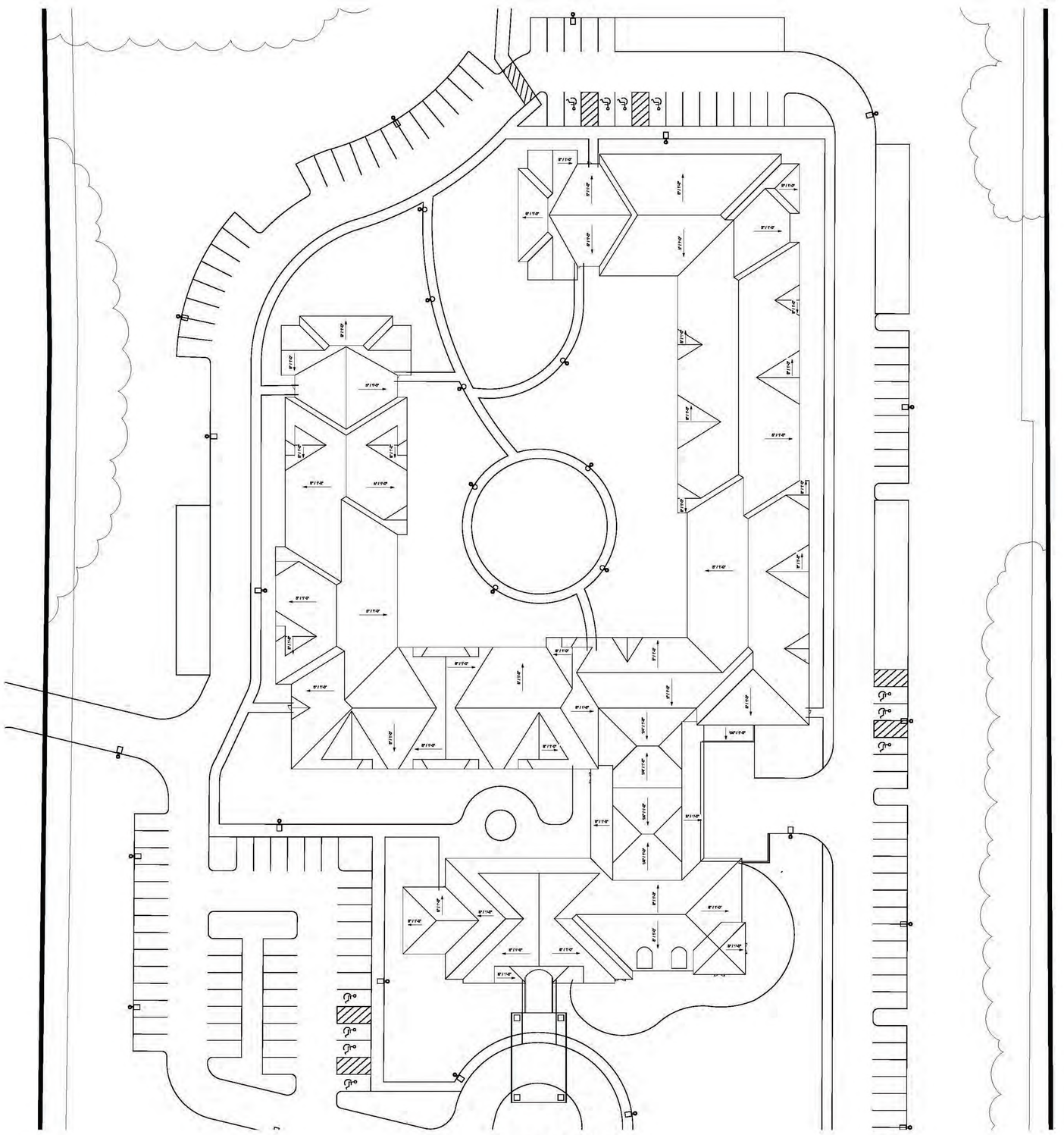
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ROOF PLAN

SCALE: 1/32" = 1'-0"
0 5' 10' 20'

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A-5

SUMMARY -BUILDING TOTAL						
ID	TYPE	NET SF	GROSS SF*	BALCONY/PATIO SF*	% OF UNITS	# OF UNITS
UNIT A - ANSI	ONE BEDROOM (ANSI TYPE B)	686 s/f	746 s/f	55 s/f	52%	75
UNIT A - H.C.	ONE BEDROOM (H.C.)	686 s/f	746 s/f	55 s/f	5%	7
UNIT B - ANSI	TWO BEDROOM (ANSI TYPE B)	915 s/f	969 s/f	55 s/f	41%	60
UNIT B - H.C.	TWO BEDROOM (H.C.)	915 s/f	969 s/f	55 s/f	2%	4

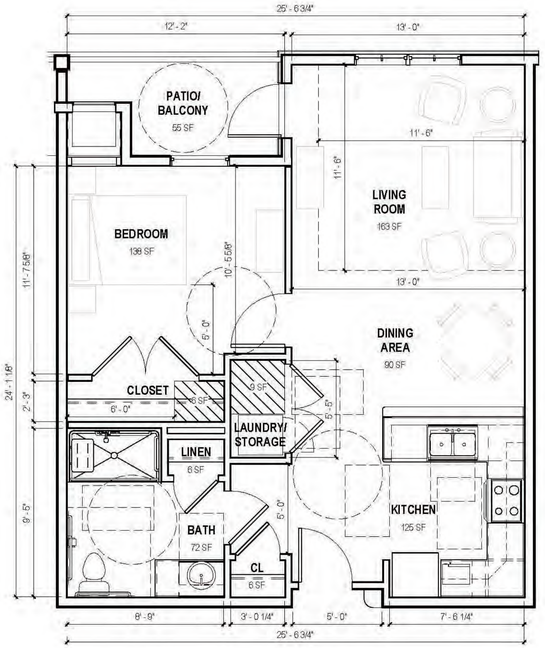
* SQUARE FOOTAGES ARE APPROXIMATE AND MAY VARY DEPENDING ON LOCATION WITHIN OVERALL FLOOR PLANS

TOTAL: 146 UNITS

H.V.

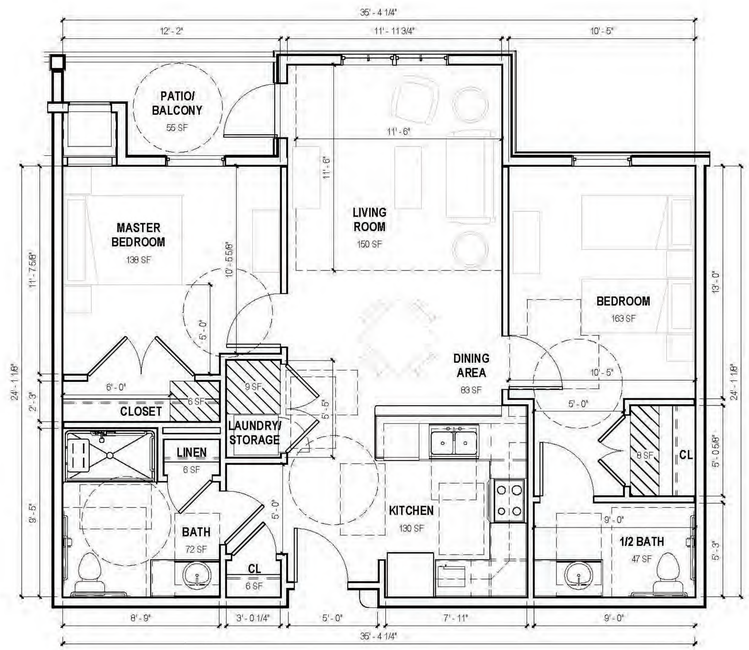
HANDICAP ACCESSIBLE UNITS (5%)
REQUIRED: 8
ALL OTHERS TO BE "ANSI" TYPE "B" UNITS

HEARING AND VISUALLY IMPAIRED UNITS (2%)
REQUIRED: 3



UNIT A
SCALE: 1/4" = 1' - 0"

UNIT A GENERAL STORAGE CALCULATION	
MINIMUM REQUIREMENT:	15 SF
LAUNDRY CLOSET:	9 SF
BEDROOM CLOSET:	6 SF
TOTAL:	15 SF



UNIT B
SCALE: 1/4" = 1' - 0"

UNIT B GENERAL STORAGE CALCULATION	
MINIMUM REQUIREMENT:	18 SF
LAUNDRY CLOSET:	9 SF
BEDROOM CLOSET:	8 SF
MASTER BEDROOM CLOSET:	6 SF
TOTAL:	23 SF

UNIT PLANS

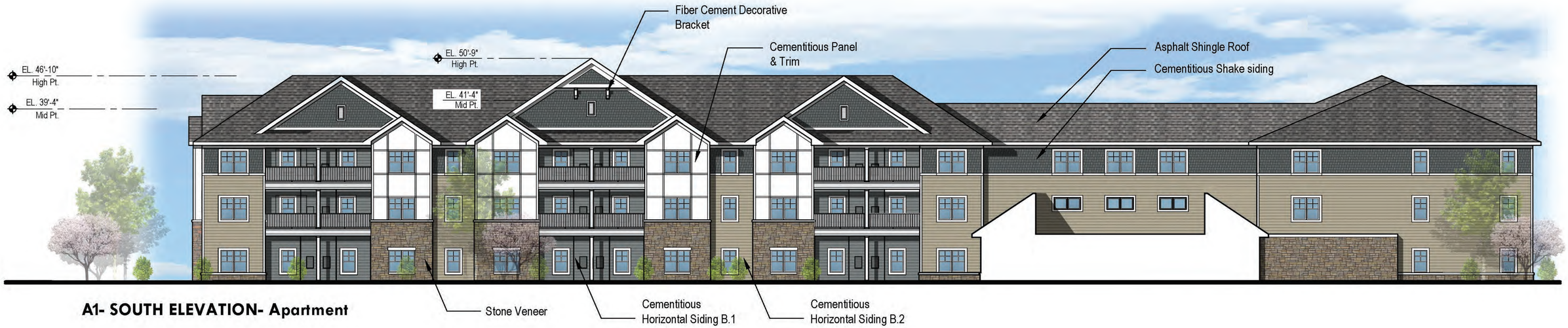
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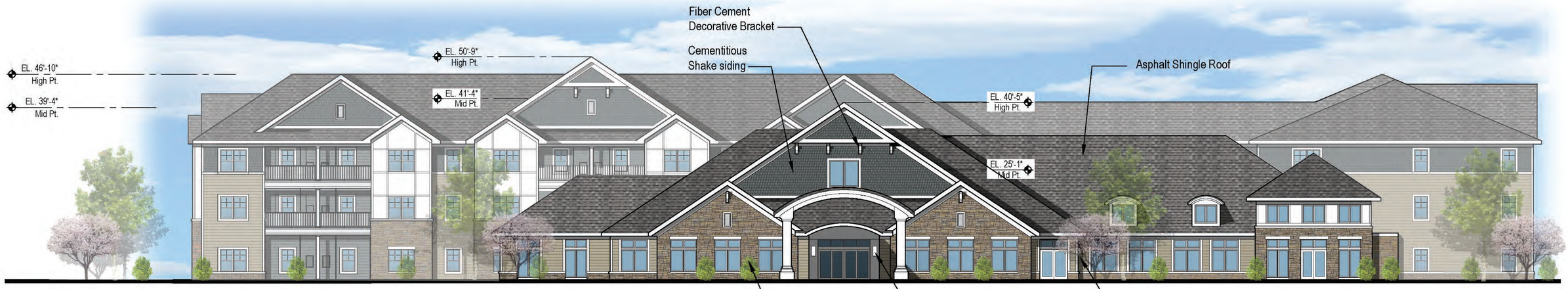
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A1- SOUTH ELEVATION- Apartment

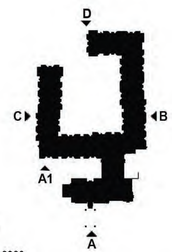


A - SOUTH ELEVATION- Commons Main Entry

SOUTH ELEVATION (COMMONS ONLY)									
MATERIAL:	STONE VENEER	SHAKE SIDING	CEMENT SIDING B.1	CEMENT SIDING B.2	GLASS	CEMENT PANEL.	DOOR/VTAC	FIBERGLASS SHINGLES	STANDING METAL SEAM ROOF
SOUTH	19.7%	10.0%	0.0%	5.3%	15.1%	2.4%	3.3%	39.4%	4.8%

SOUTH ELEVATION COMPOSITE VIEW (WITH APARTMENT BUILDING IN BACKGROUND)									
MATERIAL:	STONE VENEER	SHAKE SIDING	CEMENT SIDING B.1	CEMENT SIDING B.2	GLASS	CEMENT PANEL.	DOOR/VTAC	FIBERGLASS SHINGLES	STANDING METAL SEAM ROOF
SOUTH (A)	10.5%	12.6%	5.3%	12.2%	10.3%	6.1%	1.8%	39.1%	2.1%

NOTE: REFER TO A12 FOR OTHER COMPOSITE FACADE MATERIAL PERCENTAGES



BUILDING ELEVATIONS

SCALE: 3/32" = 1'-0"
0 5' 10' 20'

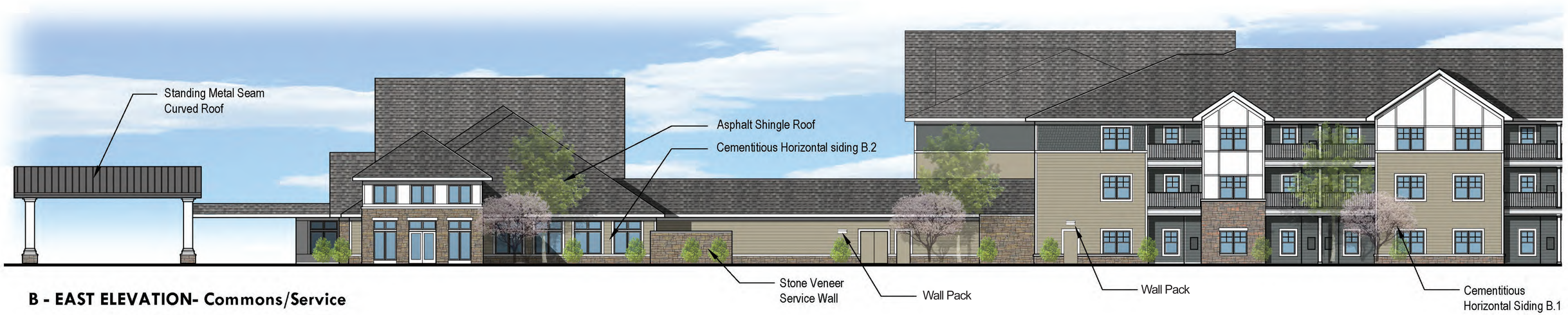
08/06/2020

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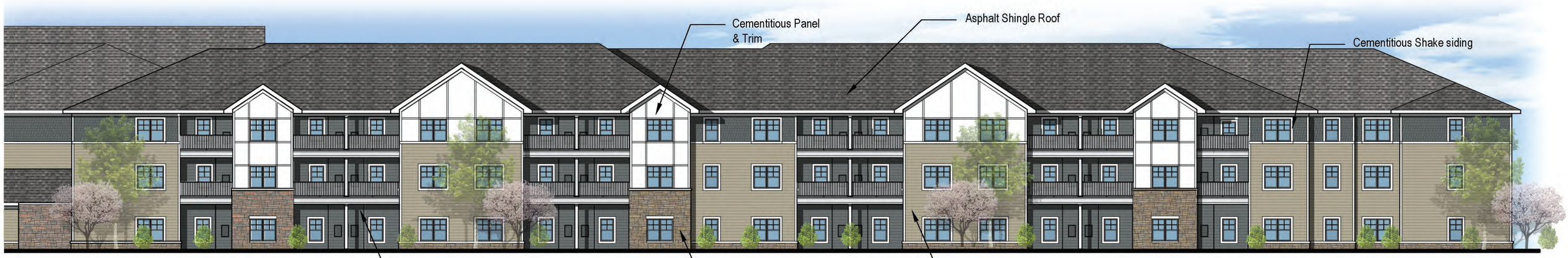
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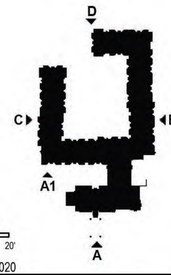
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B - EAST ELEVATION- Commons/Service



B - EAST ELEVATION- Apartment



SCALE: 3/32" = 1'-0"
0 5' 10' 20'

BUILDING ELEVATIONS

06/10/2020

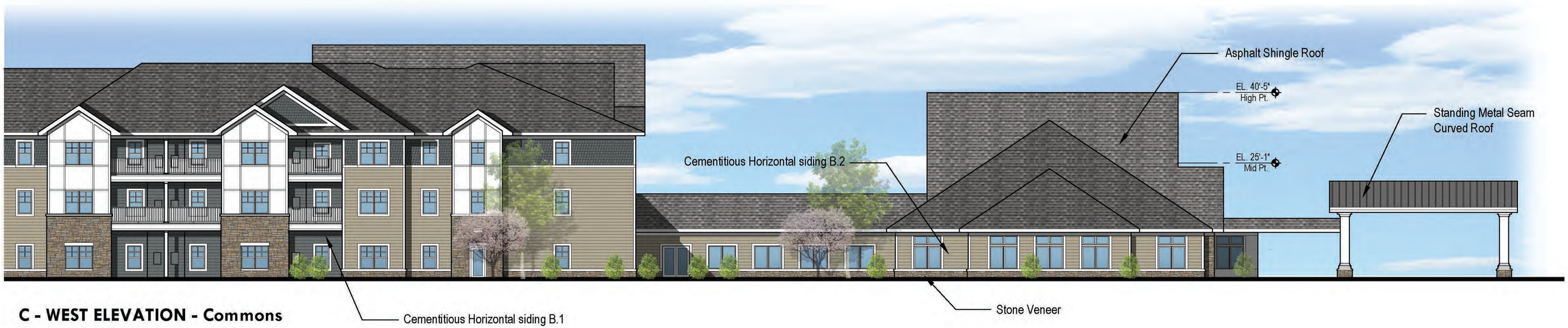
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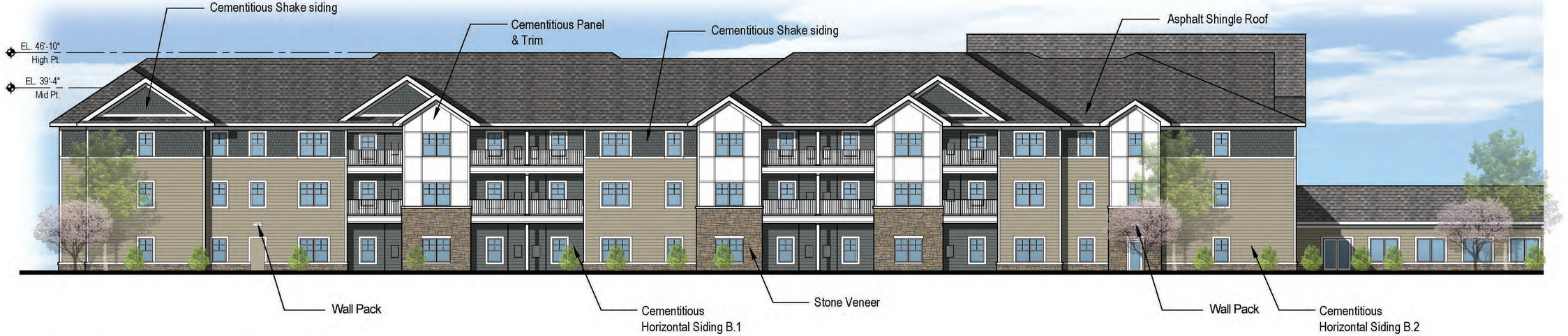
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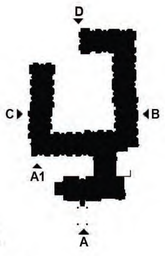
A-8



C - WEST ELEVATION - Commons



C - WEST ELEVATION- Apartment



SCALE: 3/32" = 1'-0"
0 5' 10' 20'

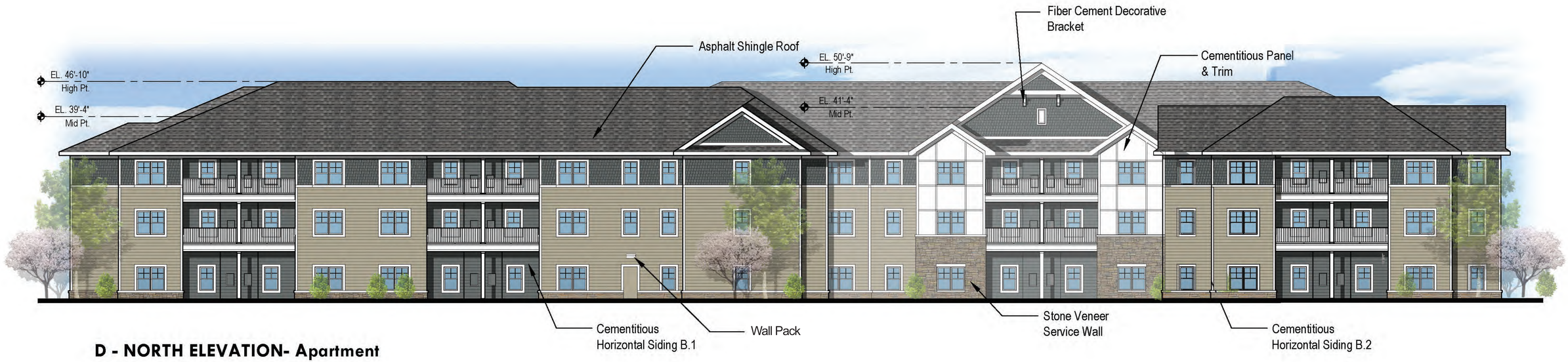
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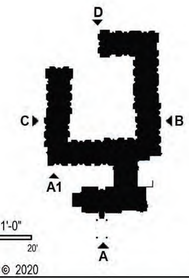
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D - NORTH ELEVATION- Apartment

BUILDING ELEVATIONS



SCALE: 3/32" = 1'-0"
0 5' 10' 20'

06/10/2020

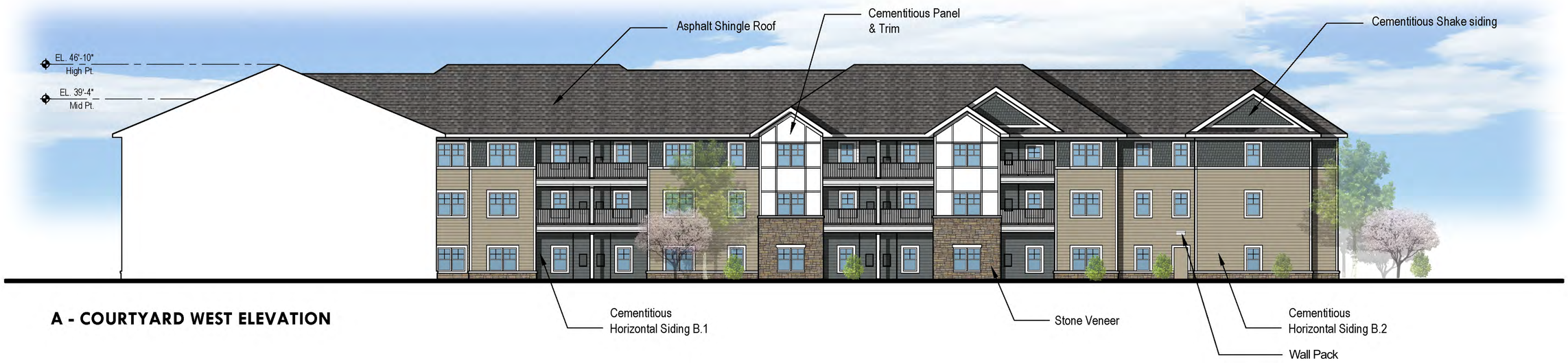
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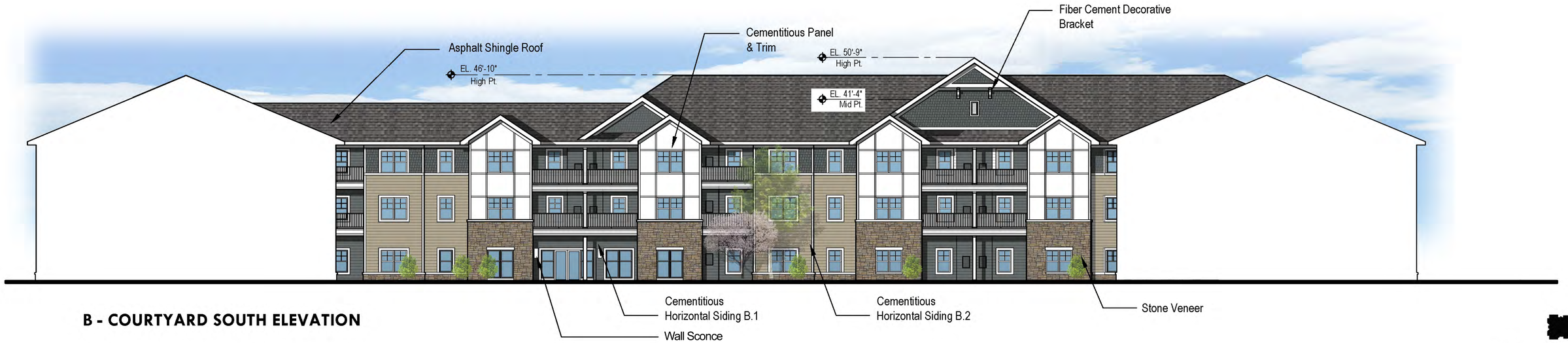
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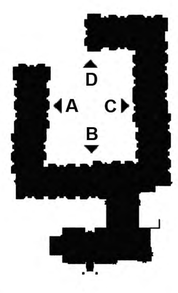
A-10



A - COURTYARD WEST ELEVATION



B - COURTYARD SOUTH ELEVATION



BUILDING ELEVATIONS

SCALE: 3/32" = 1'-0"
0 5' 10' 20'

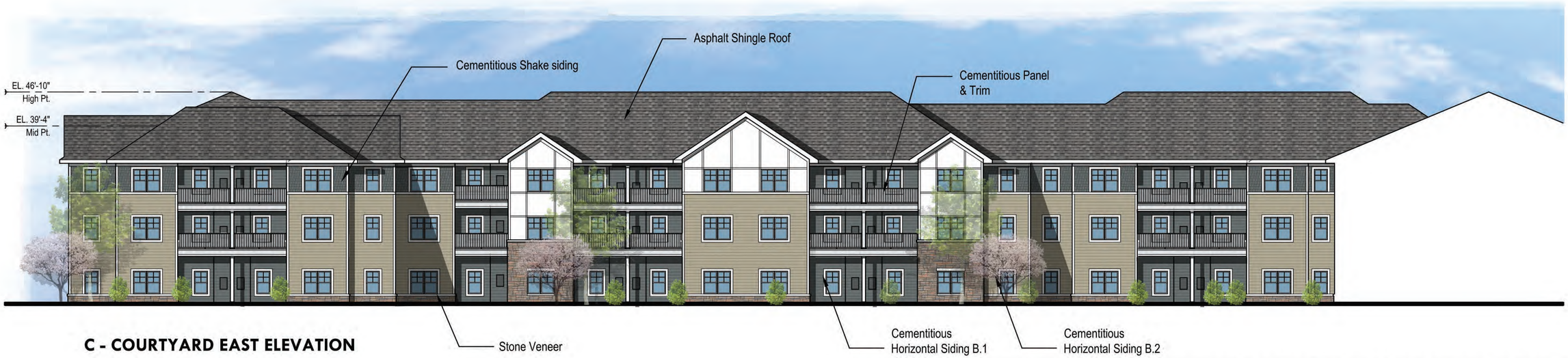
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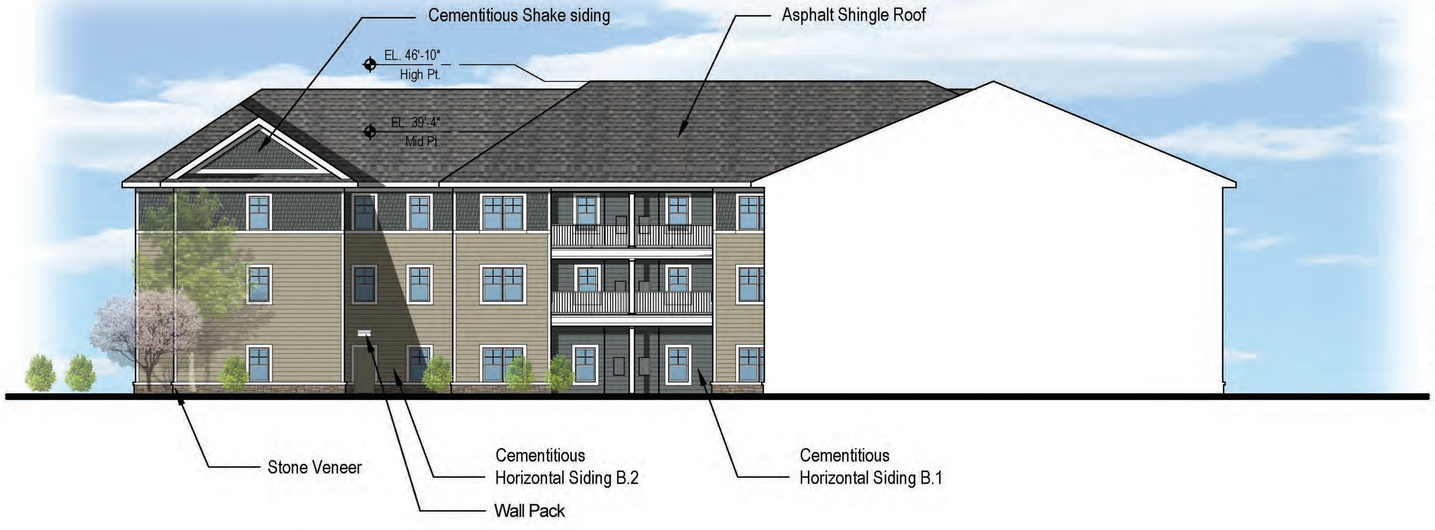
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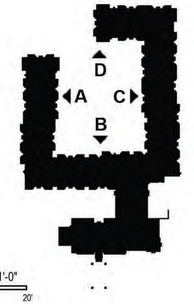
C - COURTYARD EAST ELEVATION



D - COURTYARD NORTH ELEVATION

MATERIALS GROUP #1: PROPOSED % FAÇADE MATERIALS BY ELEVATION									
PRIMARY BUILDING ONLY (NUMBERS DO NOT INCLUDE INTERIOR COURTYARD)									
MATERIAL:	STONE VENEER	SHAKE SIDING	CEMENT SIDING B.1	CEMENT SIDING B.2	GLASS	CEMENT PANEL	DOOR/VTAC	FIBERGLASS SHINGLES	STANDING METAL SEAM ROOF
SOUTH (A1)	9.4%	10.1%	15.7%	20.7%	10.9%	7.4%	1.3%	24.5%	x
SOUTH (A)	10.5%	12.6%	5.3%	12.2%	10.3%	6.1%	1.8%	39.1%	2.1%
EAST (B)	7.0%	4.1%	15.6%	21.1%	10.4%	6.9%	1.1%	32.3%	1.5%
WEST (C)	6.1%	6.1%	11.3%	21.0%	9.5%	5.6%	1.6%	37.0%	1.8%
NORTH (D)	2.6%	9.5%	18.3%	31.1%	10.3%	0.0%	1.8%	26.4%	x

MATERIALS GROUP #1: PROPOSED % FAÇADE MATERIALS BY ELEVATION									
INTERIOR COURTYARD									
MATERIAL:	STONE VENEER	SHAKE SIDING	CEMENT SIDING B.1	CEMENT SIDING B.2	GLASS	CEMENT PANEL	DOOR/VTAC	FIBERGLASS SHINGLES	STANDING METAL SEAM ROOF
EAST (C)	4.8%	4.8%	20.1%	22.3%	8.6%	7.9%	0.2%	31.3%	x
NORTH (D)	2.6%	10.8%	13.1%	32.1%	8.4%	x	1.6%	31.4%	x
WEST (A)	6.1%	7.9%	16.8%	22.4%	10.4%	5.0%	1.7%	29.7%	x
SOUTH (B)	9.5%	7.8%	21.8%	10.9%	12.4%	11.8%	2.0%	23.8%	x



SCALE: 3/32" = 1'-0"
0 5' 10' 20'

BUILDING ELEVATIONS

06/10/2020

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RDL ARCHITECTS
16102 Chagrin Blvd. Suite 200
Shaker Heights, Ohio 44120
T: 216-752-4300 F: 216-752-4301
www.rdlarchitects.com

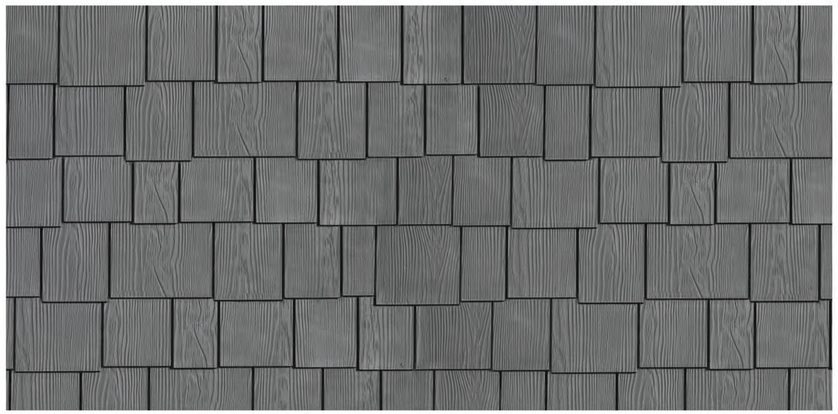
Hartland Senior Living
Hartland Township, MI

PIRHL DEVELOPERS, LLC
800 WEST ST. CLAIR AVENUE, 4th FLOOR
CLEVELAND, OHIO 44113
T: 216.378.9690



FIBERGLASS SHINGLE ROOFING
GAF TIMBERLINE ARCHITECTURAL ROOF SHINGLES

COLOR: WEATHERED WOOD



SIDING A: CEMENTITIOUS SHAKE SIDING
ALLURA MULTISHAKE SIDING: 7" STAGGERED EDGE

COLOR: COOL CHARCOAL

CEMENTITIOUS BOARD SIDING
ALLURA FIBER CEMENT SMOOTH VERTICAL PANEL

COLOR: SNOW



PANELIZED STONE VENEER SYSTEM
QUALITY STONE VENEER

STYLE / COLOR: POWDER RIDGE DRYSTACK CLIP



SIDING B.1: CEMENTITIOUS HORIZONTAL SIDING
ALLURA FIBER CEMENT SIDING: 5" LAP SIDING

SIDING B.2: CEMENTITIOUS HORIZONTAL SIDING
ALLURA FIBER CEMENT SIDING: 5" LAP SIDING

COLOR 1: COOL CHARCOAL
COLOR 2: NATURAL CLAY



BALCONY RAILINGS & DECKING
CERTAINTEED EVERNEW RAILING AND DECKING SYSTEM

COLOR: WHITE

MATERIAL BOARD

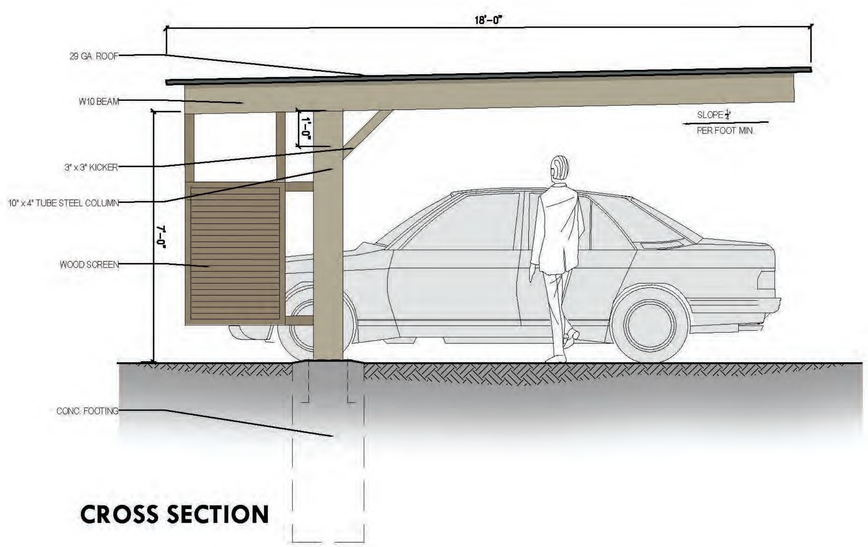
05/07/2020

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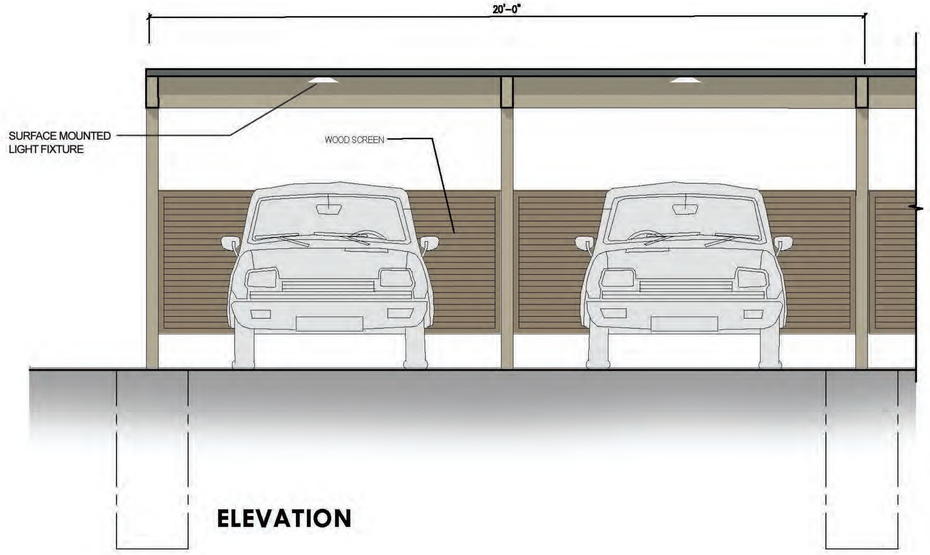
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CROSS SECTION



ELEVATION

CARPORT SPECIFICATIONS

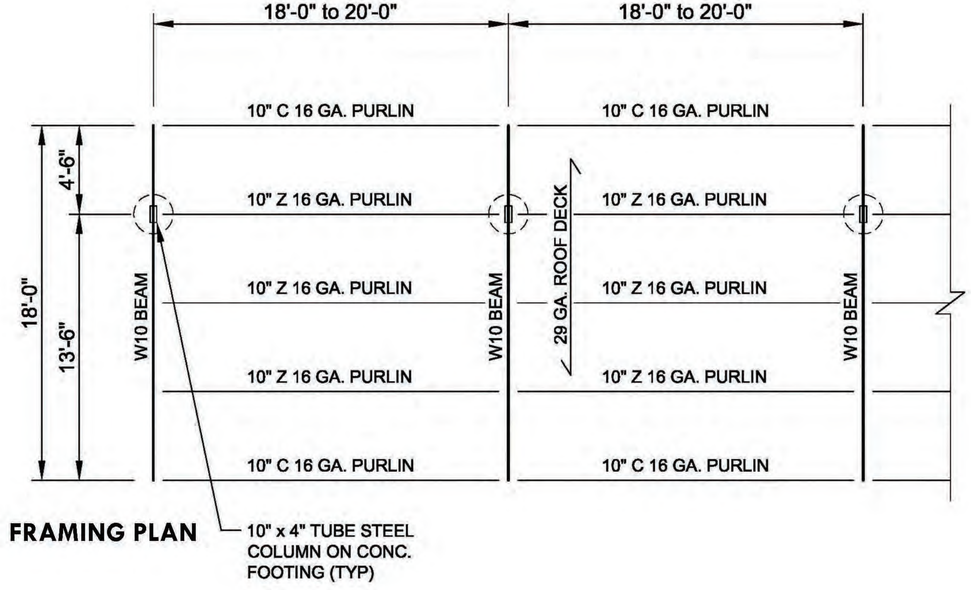
DESIGN CRITERIA:
SNOW LOAD: 30 PSF
WIND LOAD: 115 MPH

COLUMNS: ASTM A-500 GRADE B TUBULAR STEEL (46 KSI). PRIMED WITH RUST PROHIBITIVE FINISH.

BEAMS: 10" DEEP A-992 GRADE 50 STEEL. PRIMED WITH RUST PROHIBITIVE FINISH.

PURLINS: 16 GA. COLD ROLL GALVANIZED STEEL.

ROOF: ROLLFORMED 29 GAUGE PROFILED STEEL PANELS WITH SILICONIZED POLYESTER FACTORY APPLIED FINISH IN A VARIETY OF COLORS WITH WHITE UNDERSIDE. ATTACHED TO PURLINS AND BEAMS WITH ZINC PLATED CARBON STEEL SCREWS WITH METAL AND NEOPRENE WASHERS.



FRAMING PLAN

CARPORT DETAILS

07/22/2020

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Hartland Township Planning Commission Meeting Agenda Memorandum

Submitted By: Troy Langer, Planning Director

Subject: Site Plan #20-008 Redwood Planned Development (PD) Concept Plan

Date: August 13, 2020

Recommended Action
No formal action shall be taken by the Planning Commission or the Township Board as part of a Planned Development Concept Plan review. The Planning Department should provide comments to the applicant about the proposed Redwood PD Concept Plan and whether it is indicative of a plan that can and will meet the intent, design standards, and eligibility criteria of the Planned Development process.

Discussion

Applicant: Redwood Living

Site Description
The proposed planned development (PD) is shown in the northeast portion of Hartland Glen Golf Club. The golf course property, addressed as 12400 Highland Road, is approximately 383.15 acres in size, and is west of Pleasant Valley Road, south of Cundy Road, and west of Hartland Glen Lane (Parcel ID #4708-26-100-019).

The golf course parcel has split zoning. In 2017, approximately 73 acres were rezoned from CA-Conservation Agricultural to HDR-High Density Residential, under RZ #361. The property associated with the rezoning request included approximately 71 acres of the golf course property (the northern nine (9) holes of the golf course) and two (2) single-family residences on Cundy Road, equating to an additional two (2) acres of land, or 73 acres. The properties on Cundy Road are addressed as 12396 and 12398 Cundy Road. The remaining portion of Hartland Golf Club property is zoned CA. The current (2012) Township Zoning Map does not reflect the zoning changes that were approved under RZ #361.

The proposed PD project occupies approximately 24.29 acres of the golf course property, in the northeast part of the golf course. The concept plan shows proposed parcel lines that delineate the project area. Zoning designations are not provided on the concept plan thus staff cannot determine the zoning category or categories of the project area. A land division request and application will be reviewed separately. The two residential properties along Cundy Road noted above are not part of the proposed Redwood Planned Development.

The subject area and the Hartland Glen Golf Course are designated as Medium Suburban Density Residential on the adopted 2015 Future Land Use Map.

Currently the proposed project area functions as a golf course. Existing wetland areas are shown on the submitted plan.

East of the proposed project area is vacant land, currently zoned CA, and is part of the proposed Newberry Place Planned Development Parcel ID #4708-26-200-002). Newberry Place is in the process of finalizing plans to be submitted for Preliminary Plan Review. Single-family residential properties located

north of the project area are zoned CA. The project area is surrounded by Hartland Glen Golf course on the south and west. The submitted plan does not show the zoning categories for these areas.

The applicant has been involved in discussions with the Township and other property owners about the extension of a water main down M-59 that could serve this site. The Public Works Director has indicated that municipal sanitary sewer currently is located near this subject property and the development would be required to connect. Those details will be worked out later.

Public access to the proposed development is via Cundy Road and Hartland Glen Lane. The concept plan shows a line next to this road and states "Hartland Glen Public R.O.W.". Staff is unsure if Hartland Glen Lane is considered a private road or an internal access drive that provides access to the golf club for Hartland Glen Golf Club. Scaled plans were not provided thus the road width could not be determined for any road. Additional information on its status will be required at a later date. The proposed PD plan shows two (2) access points to Hartland Glen Lane from internal roads in the PD.

Site History

Hartland Glen Golf Course has been in operation on the property for over 30 years. As noted previously, approximately 71 acres of Hartland Glen Golf Club property was rezoned from CA to HDR in 2017 under RZ #361.

During the rezoning request, the applicant had also submitted a concept plan. This plan was never formally reviewed during the rezoning, as it was not part of the rezoning request. However, at that time, the property owner indicated that the entire property, which consists of 386 acres, has been allocated 602 Residential Equivalent Units (REU) sanitary sewer taps. The Planning Department has not been able to verify that number of REU's with the Public Works Department; however, it is believed the number would at a minimum be fairly close, since there has been litigation on this topic and this property.

Planned Development Procedure

Section 3.1.18 of the Township's Zoning Ordinance provides standards and approval procedures for a PD Planned Development. Approval of a Planned Development is a three-step process. A Concept Plan, Preliminary Plan, and Final Plan are all reviewed by the Planning Commission and the Township Board, with the Planning Commission making a recommendation and the Board having final approval at each step. The process usually requires a rezoning from the existing zoning district to the Planned Development (PD) zoning district. As part of the rezoning, a public hearing is held before the Planning Commission consistent with the Michigan Zoning Enabling Act; this public hearing is held at the same meeting during which the Planning Commission reviews and makes a recommendation on the Preliminary Plan. Approval of the Final Plan by the Township Board usually constitutes a rezoning of the subject property to PD.

Proposed Concept Plan

A. General

The applicant has submitted a Concept Plan for a residential planned development that consists of single-story apartment homes. There are three (3) types of apartment buildings: 3-unit, 4-unit, and 5-unit. In total there are 33 apartment buildings and 152 units. Six (6) different models are offered. Architectural plans have been submitted by the applicant. Each apartment unit has an attached garage.

A leasing office/maintenance building is shown in the northeast portion of the site, at the east end of a 6-unit apartment building. Elevation drawings and floor plans for this building were not provided.

As noted, the project area is approximately 24.29 acres in area, in the northeast portion of the Hartland Glen Golf Club property. The estimated proposed density is 6.26 dwelling units per acre. More discussion on density is provided in the next section of this report.

Public access to the development is via Cundy Road on the north and Hartland Glen Lane on the east. There is one (1) access point from Cundy Road and two (2) access points onto Hartland Glen Lane. Internally the residential units are served by several private roads.

The Concept Plan shows the footprint of each of the 33 apartment buildings. The plan states the rear yard setback is 25 feet, however scaled plans were not provided thus staff could not verify the distance between the buildings or the setbacks along the perimeter of the project area. Guest parking spaces are scattered throughout the development.

Existing wetlands are shown on the plan. Conceptual stormwater management plans were not provided. Internal sidewalks are not shown.

Section 3.1.18.E has specific requirements for information to be included within a planned development Concept Plan submittal. Given the size of the subject property (24.29 acres) and the scale of the proposed development (152 units), the Planning Department feels the information provided in the submittal is sufficient to consider complete.

B. Proposed Density

Section 3.1.18.C. of the Zoning Ordinance states the residential density in a planned development shall be consistent with the density designation within the Township's Comprehensive Plan. The subject property is designated Medium Suburban Density Residential on the adopted 2015 Future Land Use Map.

This designation envisions a maximum density of 0.5 to 1.0 acres per dwelling unit; or one (1) to two (2) dwelling units per acre.

Using the project area of 24.29 acres for density calculations and allowing a maximum density of two (2) dwelling units per acre, a maximum of 48.6 dwelling units could be permitted. The Concept Plan proposes a density of 6.26 dwelling units per acre (152 units ÷ 24.29 acres), which is not consistent with the allowed density for the Medium Suburban Density Residential category.

Per Section 3.1.18.C.iv., the Planning Commission may agree to recommend up to a forty (40%) percent increase in dwellings on a site in recognition of outstanding attributes as listed in this section. The Township Board in it is sole discretion shall have the ability to approve such density increase up to forty percent (40%) subsequent to an affirmative recommendation from the Planning Commission.

In this case if the planned development land area could accommodate 48.6 dwellings (24.29 acres x 2 units per acre), in accordance with the Comprehensive Plan, the planned development plan could include up to 68 dwellings (48.6 + 19.4 additional dwellings), if a maximum bonus was awarded by the Planning Commission and Township Board.

The 2015 Future Land Use Map designations for properties adjacent to the subject site (24.29-acre site) are as follows:
North: Medium Suburban Density Residential and Office (north side of Cundy Road)
South: Medium Suburban Density Residential
East: Medium Suburban Density Residential and Special Planning Area
West: Medium Suburban Density Residential

C. Public Road Access
As noted previously, public access to the development is via Cundy Road Clark Road, which is a public road. Two (2) access points are shown from Hartland Glen Lane; however, staff could not determine the road width or status of this road (public vs. private road). Internally the units are served by several private roads, however the road width is not stated on the plan.

Staff has concerns with the limited access into the development via Cundy Road should the development continue with a future expansion phase west and/or south of Phase 1. Additionally, the internal circulation pattern is tight. Future connections to existing roads located near the west property line of the Hartland Glen Golf Club property seem unlikely.

D. Traffic Generation
The applicant has not submitted a traffic impact analysis as part of the Concept Plan submittal; this is one of the requirements for Preliminary Site Plan submittal.

E. Internal Vehicular/Pedestrian Circulation
The proposed development is accessed from Cundy Road and Hartland Glen Lane. Six (6) private roads provide internal circulation. The private roads in the proposed development will be required to meet the standards of Section 5.23 of the Zoning Ordinance for a road serving twenty-five (25) or more units or parcels, which requires the private road to be constructed consistent with public road requirements of the Livingston County Road Commission.

Sidewalks are provided from each unit to a private road however internal sidewalks throughout the development are not shown.

F. Utilities
The applicant will need to work with the Livingston County Drain Commissioner's office on public water and sanitary sewer. They will also need to work with the Hartland Township Public Works Department to acquire the necessary Residential Equivalent Units (REU)'s for this development.

G. Design Details
A Pattern Book with specific design details was not submitted with the Concept Plan, although elevation drawings and floor plans were submitted, showing various apartment home options. For a project such as this, additional design details should be provided as part of the Preliminary Site Plan application, such as detailed plans for all apartment building models, building material options (products, colors, percentage of materials), streetlights (if proposed), entry feature, common space amenities, etc.

Minimum design details are outlined in Section 3.1.18.C. and include minimum yard requirements and distance between buildings.

H. Open Space
Section 3.1.18.C requires a Planned Development to include open space; at a minimum that open space should meet the requirements of the site's previous zoning district. Historically in other residential planned developments, such as Walnut Ridge Estates and Fiddler Grove, the following formula was applied: a minimum of 25% (of total area of site) should be provided as open space, and of that 25%, 10% must be usable open space. An Open Space plan was not provided but will be required as part of the Preliminary Site Plan submittal.

I. Landscaping

A landscape plan was not submitted. The Preliminary Site Plan will be reviewed for compliance with the landscaping/screening requirements of a planned development and applicable sections of the Landscaping Ordinance (Section 5.11). Requirements may include screening/buffering along the rear side of each building (33 buildings). A 15-foot wide off-site landscape easement is shown on the plan, which is intended to be used to provide screening of the apartment buildings along the north property line of the development. The property owner of Hartland Glen Golf Course also owns the two (2) properties north of the subject development and has indicated to staff he would provide the 15-foot wide landscape easement within those two (2) properties, for screening. Those properties are addressed as 12396 and 12398 Cundy Road.

J. Exterior Lighting

No exterior lighting plan was provided as part of the Concept Plan. The Preliminary Site Plan and/or pattern book should include the design and location of streetlights if proposed.

Recognizable Benefits

One of the eligibility criteria for a planned development is that it "shall result in a recognizable and substantial benefit to the ultimate users of the project and to the community, and shall result in a higher quality of development than could be achieved under conventional zoning". It is not clear based on the Concept Plan whether the proposed development satisfies these criteria. It will be ultimately up to the applicant, Planning Commission, and Township Board to come to an agreement on the extent to which a recognizable benefit shall be provided for the proposed development.

Other

The Preliminary Site Plan will include significantly more detail with respect to design and engineering, landscaping, lighting, traffic impacts, wetland determinations, common space features, etc. It would be in the Applicant's best interest to provide a summary of design details (entryway feature, landscaping, amenities, common area features, etc.) as part of the Preliminary Site Plan.

Hartland Township DPW Review

No comments at this time.

Hartland Township Engineer's Review (HRC)

No comments at this time.

Hartland Deerfield Fire Authority Review

Comments on the project are provided in the review letter dated August 7, 2020. Approval of the layout plan is subject to the contingencies being addressed as outlined in the review letter.

Attachments:

1. Hartland Deerfield Fire Authority review letter dated August 7, 2020-*PDF version provided*
2. Redwood PD Concept Plan 07.16.2020-*PDF version provided*
3. Breezewood Color Rendering-*PDF version provided*
4. Building Elevation Redwood DeWitt-*PDF version provided*
5. Capewood, Meadowood, and Forestwood Color Rendering-*PDF version provided*
6. Haydenwood Color Rendering-*PDF version provided*
7. Haydenwood with Floor Plan-*PDF version provided*
8. Willowwood Color Rendering-*PDF version provided*

CC:
HRC, Twp Engineer (via email)
R. West, Twp DPW Director (via email)
A. Carroll, Hartland FD Fire Chief (via email)

T:\PLANNING DEPARTMENT\PLANNING COMMISSION\2020 Planning Commission Activity\Site Plan Applications\SP #20-008 Redwood Hartland Glen Development\Staff Reports\Redwood PD Concept Plan 08.13.2020.docx

HARTLAND DEERFIELD FIRE AUTHORITY

FIRE MARSHALS OFFICE

Hartland Area Fire Dept.
3205 Hartland Road
Hartland, MI. 48353-1825

Voice: (810) 632-7676
Fax: (810) 632-2176
E-Mail: jwhitbeck@hartlandareafire.com

August 7, 2020

Troy Langer
Zoning/Planning Dept.
Hartland Township
2655 Hartland Road
Hartland, MI 48353

RE: Redwood
Conceptual Plan Review (Option 4)
Received by email on July 9, 2020

Dear Troy:

1. The Hartland Deerfield Fire Authority has reviewed the above mentioned site plan. The plans were received for review on July 9, 2020 and the drawings are not dated. Access points and layout have been changed. The two access points off of Hartland Glen Lane and the one off of Cundy are sufficient for this current layout of Phase 1.

The following items needed:

2. Construction type
3. Use group/occupancy type – R2 or R3
4. 26' face to face curb drives
5. Turning radius must be followed for fire department access.
6. Hydrant spacing extended to 1,000 feet if suppressed the homes.
7. Will you be capturing the construction and insurance life safety property conservation of suppression?

The Fire Marshal's Office approves the layout submittal of site plan undated with the above contingencies. Any revised drawings affecting the Fire Department must be submitted for review.

Yours In Fire Safety,

Jenn Whitbeck
Fire Inspector

SITE DATA:

PARCEL: 08-26-100-019

ZONING:
- SITE - CA, CONSERVATION AGRICULTURAL
- NORTH - CA, CONSERVATION AGRICULTURAL
- EAST - CA, CONSERVATION AGRICULTURAL
- WEST - CA, CONSERVATION AGRICULTURAL
- SOUTH - CA, CONSERVATION AGRICULTURAL

UNIT BREAKDOWN:

PROPOSED PARCEL
46 - FORESTWOOD UNITS (30%)
27 - MEADWOOD UNITS (18%)
7 - CAPEWOOD UNITS (5%)
22 - WILLOWOOD UNITS (14%)
23 - BREEZEWOOD UNITS (15%)
27 - HAYDENWOOD UNITS (18%)
152 TOTAL UNITS
24.29 ACRES = 6.26 UNITS PER ACRE

BUILDING SETBACK:
FRONT - 50' (60' FROM CUNDY ROAD)
SIDE - 15'
REAR - 25'

STORMWATER MANAGEMENT: STORMWATER DETENTION TO BE HANDLED OFF SITE PER LIVINGSTON COUNTY STANDARDS. OFFSITE EASEMENTS AND AGREEMENTS ARE TO BE EXECUTED BETWEEN REDWOOD AND HARTLAND GLEN DEVELOPMENT LLC.

- FORESTWOOD
- MEADOWOOD
- CAPEWOOD
- WILLOWOOD
- BREEZEWOOD
- HAYDENWOOD

CUNDY RD
PUBLIC R.O.W.

PROPOSED 15' OFFSITE LANDSCAPING EASEMENT

LEASING OFFICE / MAINTENANCE BUILDING

HARTLAND GLEN LN
PUBLIC R.O.W.

EXISTING WETLAND AREA

25.0' REAR YARD SETBACK

EXISTING WETLAND AREA

Redwood
APARTMENT NEIGHBORHOODS

HARTLAND TOWNSHIP, MICHIGAN

PROPOSED SITE PLAN

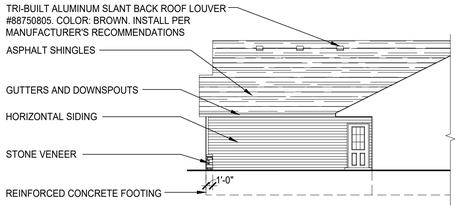
7/16/2020

N

0 80 160 240 FT
1" = 80' SCALE BAR

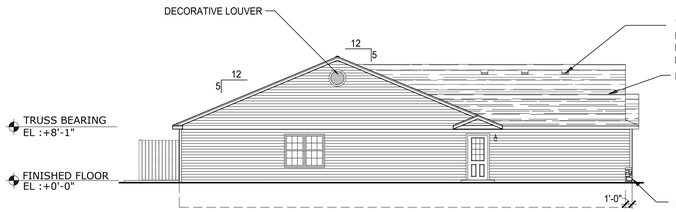
BERGMANN
ARCHITECTS ENGINEERS PLANNERS


Breezewood
1,343 sqft
Redwood
APARTMENT NEIGHBORHOODS



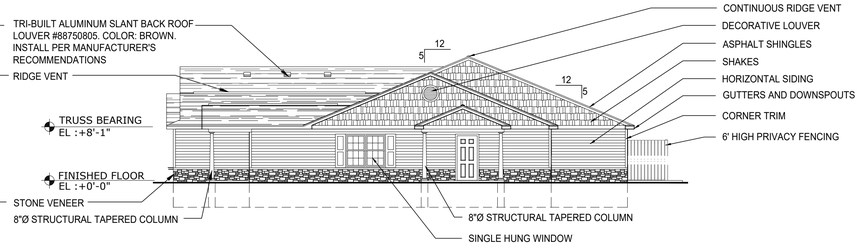
6 A4.1 PARTIAL SIDE ELEVATION

SCALE : 3/32" = 1'-0"



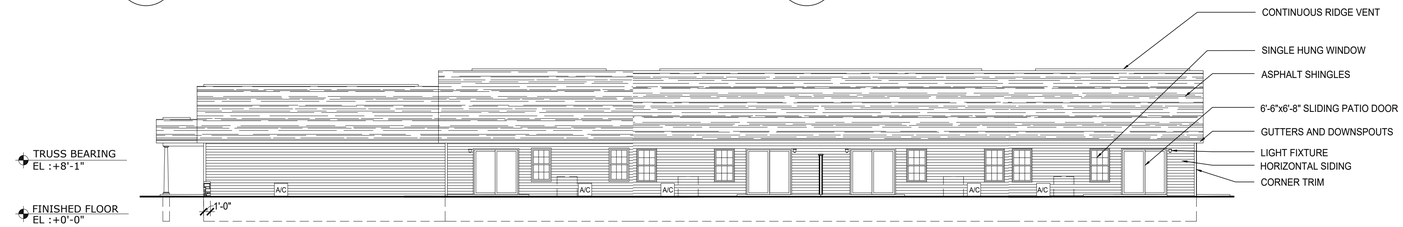
5 A4.1 STANDARD SIDE ELEVATION

SCALE : 3/32" = 1'-0" BLDG: A



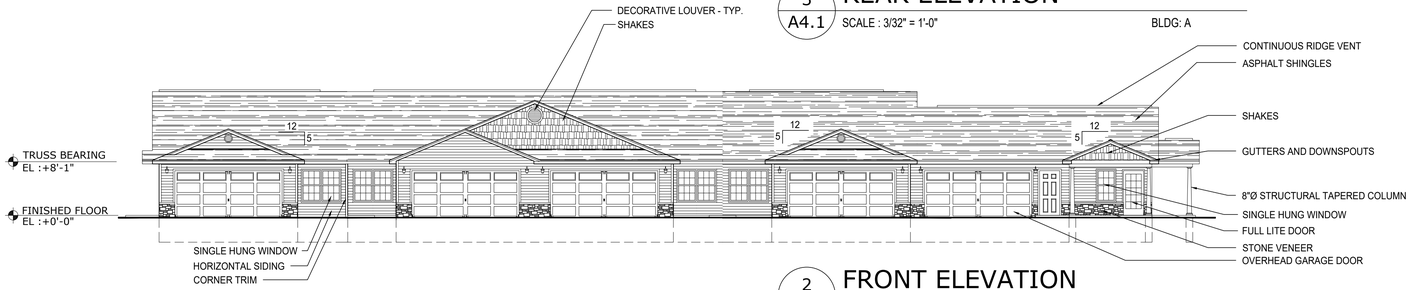
4 A4.1 HIGH PROFILE SIDE ELEVATION

SCALE : 3/32" = 1'-0" BLDG: A



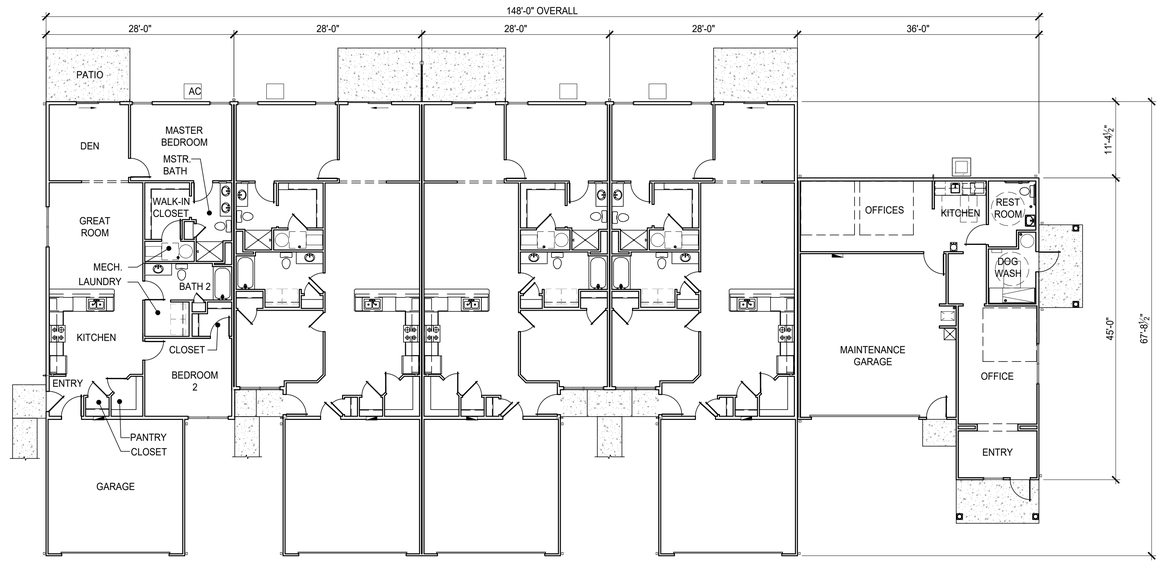
3 A4.1 REAR ELEVATION

SCALE : 3/32" = 1'-0" BLDG: A



2 A4.1 FRONT ELEVATION

SCALE : 3/32" = 1'-0" BLDG: A



1 A4.1 OVERALL FLOOR PLAN

SCALE : 3/32" = 1'-0" BLDG: A

EXTERIOR FINISH MATERIAL SELECTIONS

ITEM:	MATERIAL / STYLE:	COLOR:
DECORATIVE LOUVER	VINYL	WHITE
ASPHALT SHINGLES	DIMENSIONAL 30 YEAR LAMINATED	WEATHERED WOOD
GUTTERS AND DOWNSPOUTS	PREFINISHED ALUMINUM	WHITE
HORIZONTAL SIDING	VINYL	VARIES
SHAKES	VINYL	VARIES
CORNER TRIM	VINYL	WHITE
STONE VENEER	PRESTIGE	OHIO WHITE VEIN
OVERHEAD GARAGE DOOR	RAISED PANEL PAN STEEL	WHITE
SINGLE HUNG	VINYL	STANDARD WHITE WITH COLONIAL PATTERN FLAT GRIDS
6'-6" X 6'-8" SLIDING PATIO DOOR	VINYL	WHITE

NOTE:
ADDRESS FOR EACH UNIT TO BE PLACED IN SUCH A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD.

PRELIMINARY

NOTE!!!
THIS DRAWING IS NOT FOR CONSTRUCTION

REVISIONS

MPG
MANN • PARSONS • GRAY
ARCHITECTS
3660 Embassy Parkway
Fairlawn, OH 44333
phone 330.666.5770
fax 330 666.8812
mpg-architects.com

BUILDING PLAN AND ELEVATIONS

PROJECT #: 12819

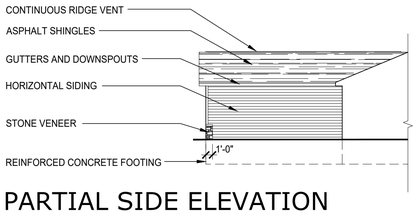
DATE: SEPTEMBER 3, 2019

REDWOOD DEWITT CLARK ROAD

CLARK ROAD
DEWITT TWP, MI

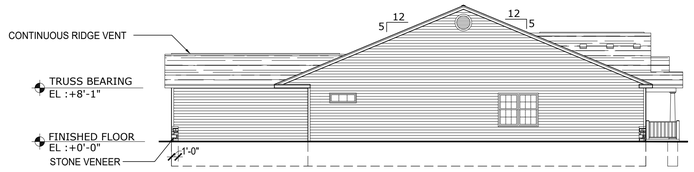
Redwood

A4.1



6 A4.2 PARTIAL SIDE ELEVATION

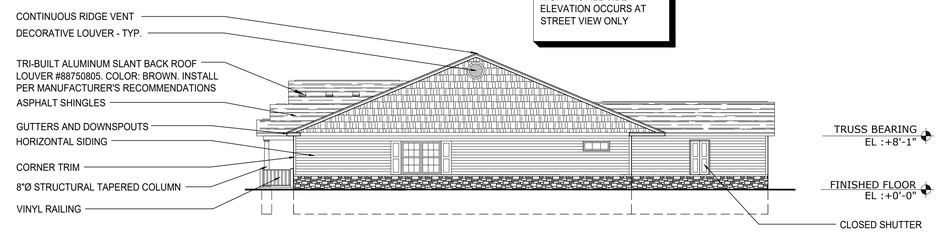
SCALE : 3/32" = 1'-0"



5 A4.2 STANDARD SIDE ELEVATION

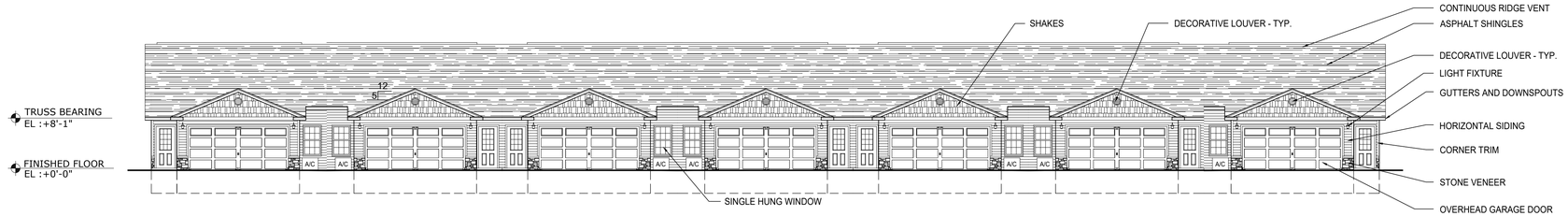
SCALE : 3/32" = 1'-0" BLDG: B

NOTE:
HIGH PROFILE SIDE ELEVATION OCCURS AT STREET VIEW ONLY



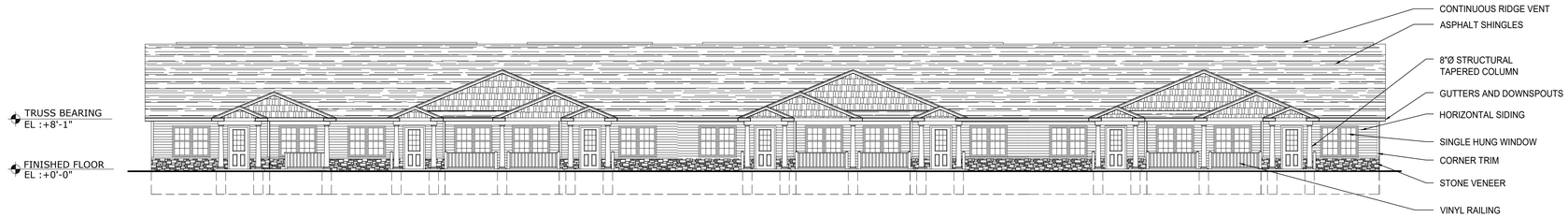
4 A4.2 HIGH PROFILE SIDE ELEVATION

SCALE : 3/32" = 1'-0" BLDG: B



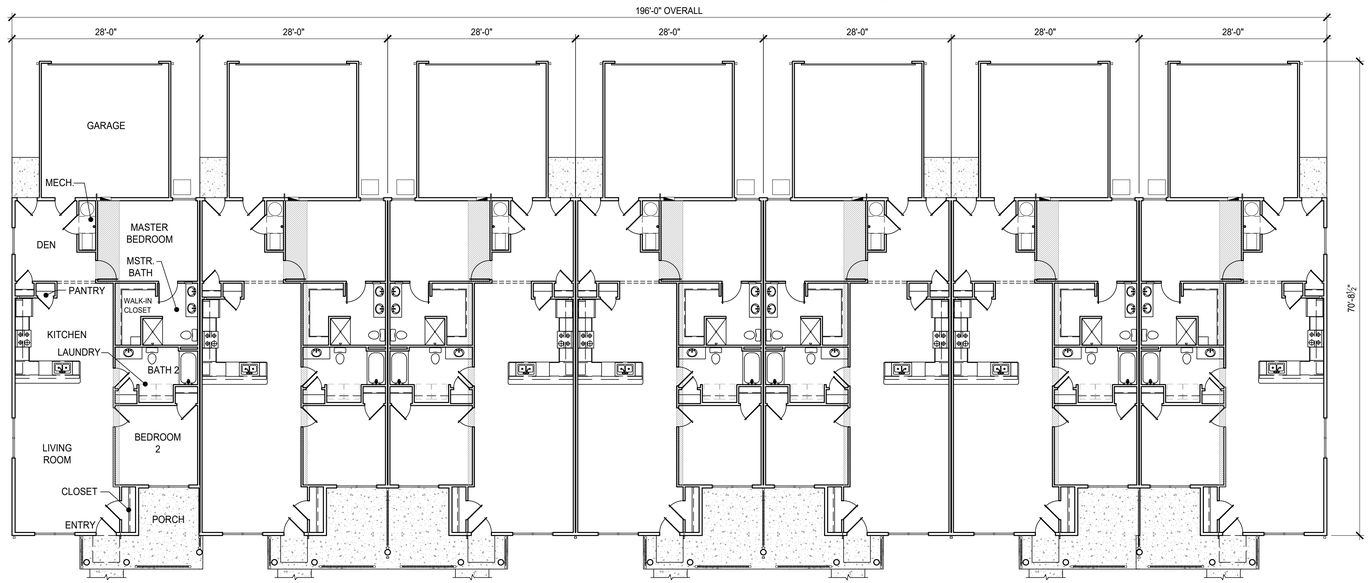
3 A4.2 REAR ELEVATION

SCALE : 3/32" = 1'-0" BLDG: B



2 A4.2 FRONT ELEVATION

SCALE : 3/32" = 1'-0" BLDG: B



1 A4.2 OVERALL FLOOR PLAN

SCALE : 3/32" = 1'-0" BLDG: B

EXTERIOR FINISH MATERIAL SELECTIONS

ITEM:	MATERIAL / STYLE:	COLOR:
DECORATIVE LOUVER	VINYL	WHITE
ASPHALT SHINGLES	DIMENSIONAL 30 YEAR LAMINATED	WEATHERED WOOD
GUTTERS AND DOWNSPOUTS	PREFINISHED ALUMINUM	WHITE
HORIZONTAL SIDING	VINYL	VARIES
SHAKES	VINYL	VARIES
CORNER TRIM	VINYL	WHITE
STONE VENEER	PRESTIGE	OHIO WHITE VEIN
OVERHEAD GARAGE DOOR	RAISED PANEL PAN STEEL	WHITE
SINGLE HUNG	VINYL	STANDARD WHITE WITH COLONIAL PATTERN FLAT GRIDS

NOTE:
ADDRESS FOR EACH UNIT TO BE PLACED IN SUCH A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD.

PRELIMINARY

NOTE!!!
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REVISIONS

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BUILDING PLAN AND ELEVATIONS

PROJECT #: 12819

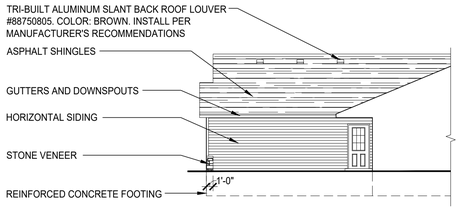
DATE: SEPTEMBER 3, 2019

REDWOOD DEWITT CLARK ROAD

CLARK ROAD
DEWITT TWP, MI

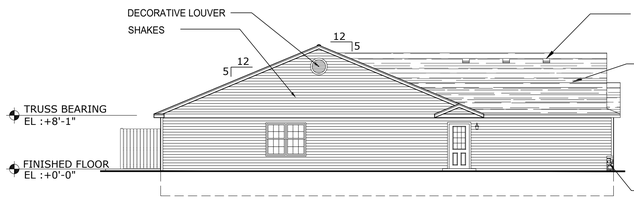
Redwood

A4.2



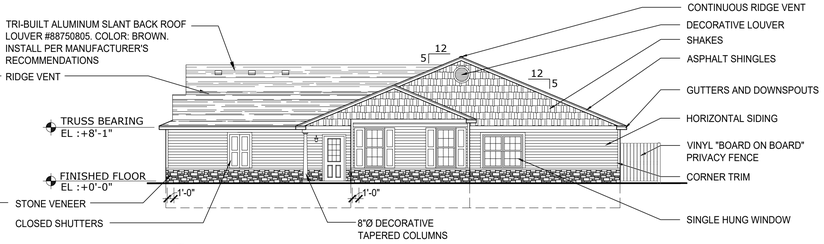
6 A4.3 PARTIAL SIDE ELEVATION

SCALE : 3/32" = 1'-0"



5 A4.3 STANDARD SIDE ELEVATION

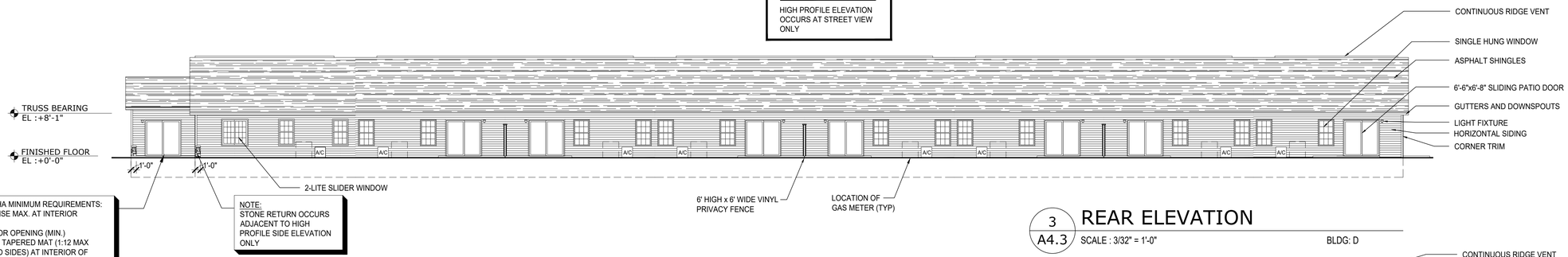
SCALE : 3/32" = 1'-0" BLDG: D



4 A4.3 HIGH PROFILE SIDE ELEVATION

SCALE : 3/32" = 1'-0" BLDG: D

NOTE:
HIGH PROFILE ELEVATION OCCURS AT STREET VIEW ONLY

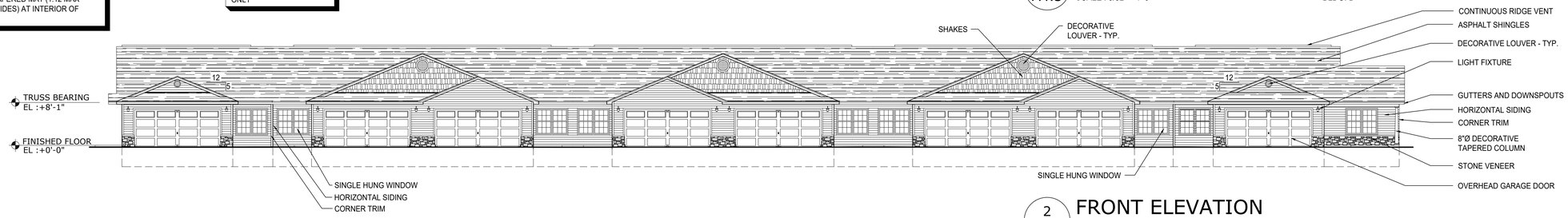


PATIO DOOR TO MEET FHA MINIMUM REQUIREMENTS:
- 1/4" HIGH VERTICAL RISE MAX. AT INTERIOR THRESHOLD
- 32" CLEAR WIDTH DOOR OPENING (MIN.)
- 1-1/2" HIGH x 43" WIDE TAPERED MAT (1:12 MAX SLOPE WITH TAPERED SIDES) AT INTERIOR OF PATIO DOOR.

NOTE:
STONE RETURN OCCURS ADJACENT TO HIGH PROFILE SIDE ELEVATION ONLY

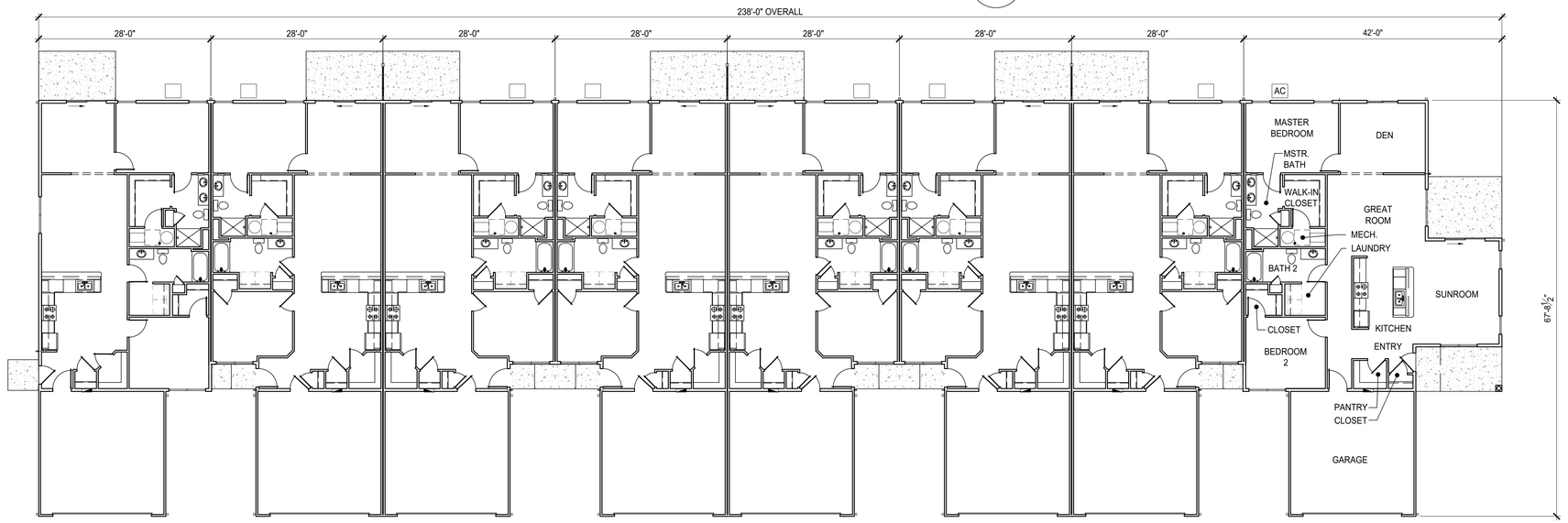
3 A4.3 REAR ELEVATION

SCALE : 3/32" = 1'-0" BLDG: D



2 A4.3 FRONT ELEVATION

SCALE : 3/32" = 1'-0" BLDG: D



1 A4.3 OVERALL FLOOR PLAN

SCALE : 3/32" = 1'-0" BLDG: D

EXTERIOR FINISH MATERIAL SELECTIONS

ITEM:	MATERIAL / STYLE:	COLOR:
DECORATIVE LOUVER	VINYL	WHITE
ASPHALT SHINGLES	DIMENSIONAL 30 YEAR LAMINATED	WEATHERED WOOD
GUTTERS AND DOWNSPOUTS	PREFINISHED ALUMINUM	WHITE
HORIZONTAL SIDING	VINYL	VARIES
SHAKES	VINYL	VARIES
CORNER TRIM	VINYL	WHITE
STONE VENEER	PRESTIGE	OHIO WHITE VEIN
OVERHEAD GARAGE DOOR	RAISED PANEL PAN STEEL	WHITE
SINGLE HUNG	VINYL	STANDARD WHITE WITH COLONIAL PATTERN FLAT GRIDS
6'-6" X 6'-8" SLIDING PATIO DOOR	VINYL	WHITE

NOTE:
ADDRESS FOR EACH UNIT TO BE PLACED IN SUCH A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD.

PRELIMINARY

NOTE!!!
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REVISIONS

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BUILDING PLAN AND ELEVATIONS

PROJECT #: 12819

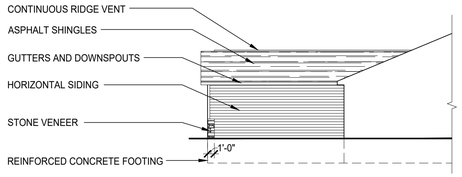
DATE: SEPTEMBER 3, 2019

REDWOOD DEWITT CLARK ROAD

CLARK ROAD
DEWITT TWP, MI

Redwood

A4.3



6 A4.4 PARTIAL SIDE ELEVATION

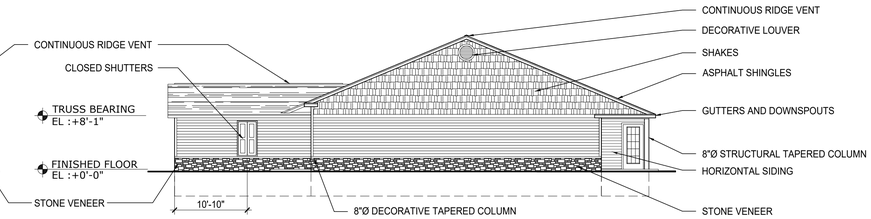
SCALE : 3/32" = 1'-0"

NOTE:
HIGH PROFILE SIDE ELEVATION OCCURS AT STREET VIEW ONLY



5 A4.4 STANDARD SIDE ELEVATION

SCALE : 3/32" = 1'-0" BLDG. G



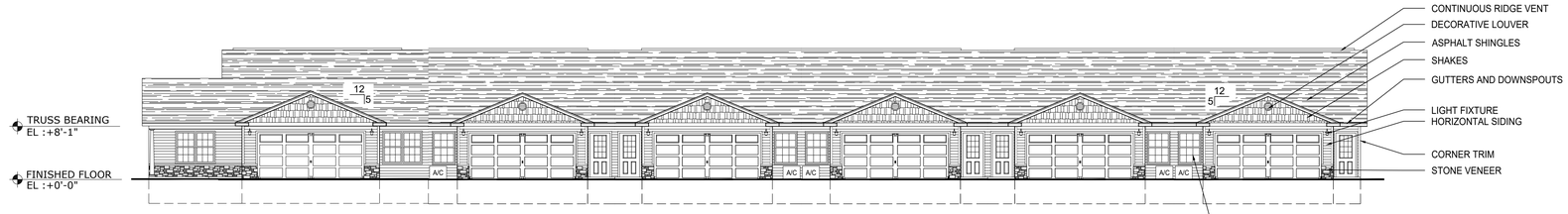
4 A4.4 HIGH PROFILE SIDE ELEVATION

SCALE : 3/32" = 1'-0" BLDG. G



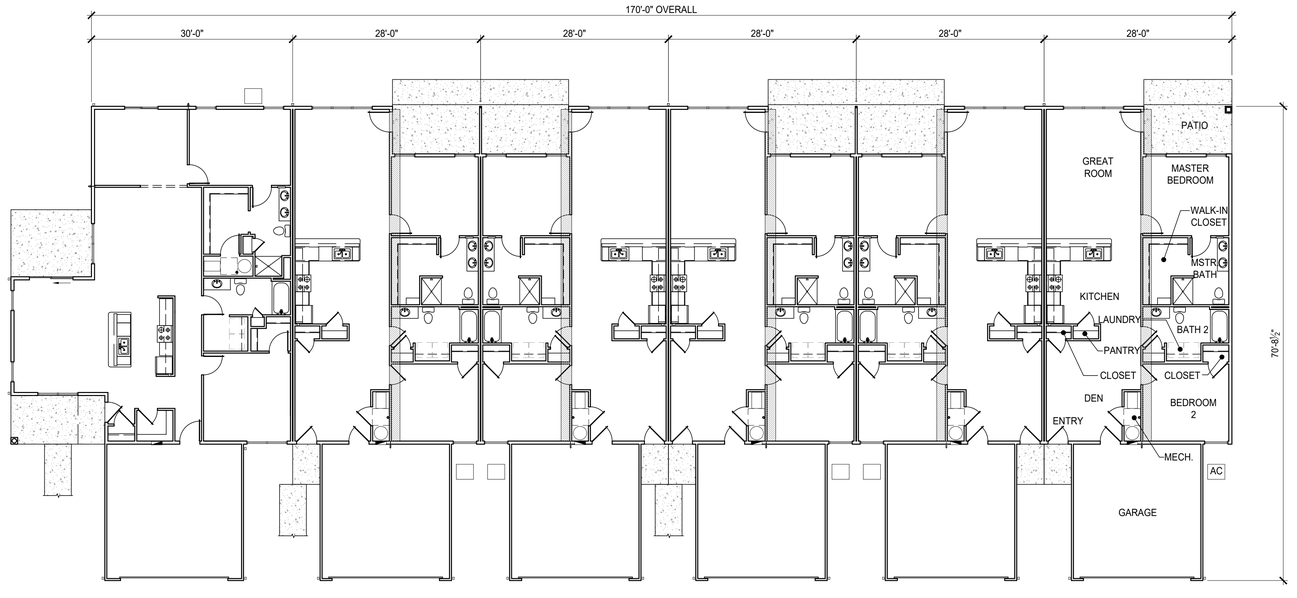
3 A4.4 REAR ELEVATION

SCALE : 3/32" = 1'-0" BLDG. G



2 A4.4 FRONT ELEVATION

SCALE : 3/32" = 1'-0" BLDG. G



1 A4.4 OVERALL FLOOR PLAN

SCALE : 3/32" = 1'-0" BLDG. G

EXTERIOR FINISH MATERIAL SELECTIONS

ITEM:	MATERIAL / STYLE:	COLOR:
DECORATIVE LOUVER	VINYL	WHITE
ASPHALT SHINGLES	DIMENSIONAL 30 YEAR LAMINATED	WEATHERED WOOD
GUTTERS AND DOWNSPOUTS	PREFINISHED ALUMINUM	WHITE
HORIZONTAL SIDING	VINYL	VARIES
SHAKES	VINYL	VARIES
CORNER TRIM	VINYL	WHITE
STONE VENEER	PRESTIGE	OHIO WHITE VEIN
OVERHEAD GARAGE DOOR	RAISED PANEL PAN STEEL	WHITE
SINGLE HUNG	VINYL	STANDARD WHITE WITH COLONIAL PATTERN FLAT GRIDS
6'-6" X 6'-8" SLIDING PATIO DOOR	VINYL	WHITE

NOTE:
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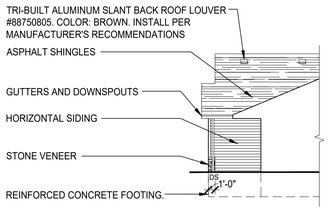
DATE: SEPTEMBER 3, 2019

REDWOOD DEWITT CLARK ROAD

CLARK ROAD
DEWITT TWP, MI

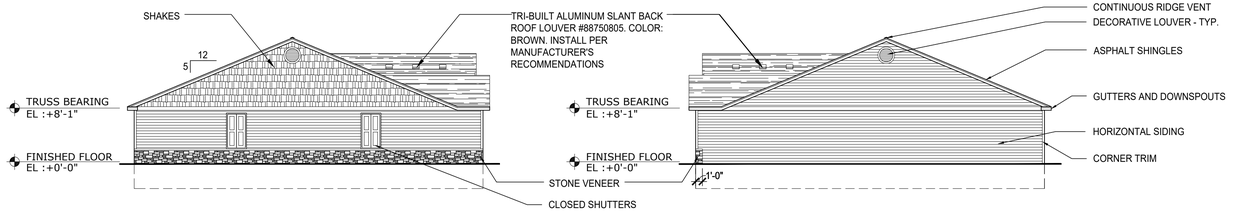
Redwood

A4.4



6 A4.5 PARTIAL SIDE ELEVATION

SCALE : 3/32" = 1'-0"

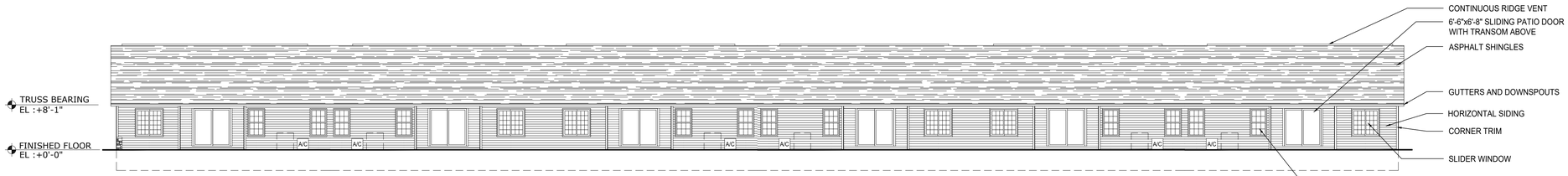


5 A4.5 HIGH PROFILE SIDE ELEVATION

SCALE : 3/32" = 1'-0" BLDGS. L

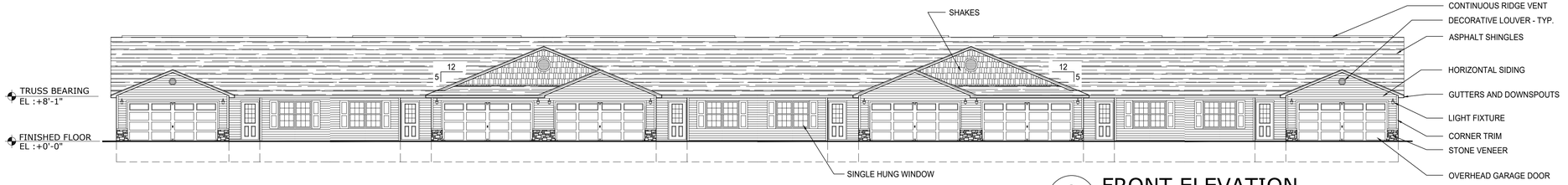
4 A4.5 STANDARD SIDE ELEVATION

SCALE : 3/32" = 1'-0" BLDGS. L



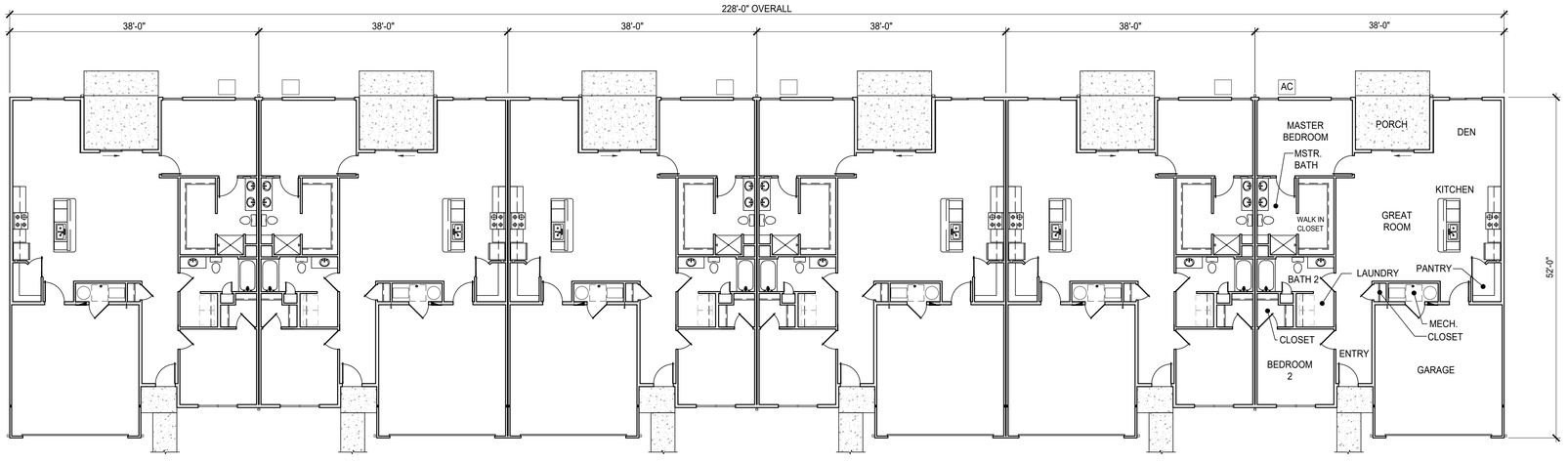
3 A4.5 REAR ELEVATION

SCALE : 3/32" = 1'-0" BLDGS. L



2 A4.5 FRONT ELEVATION

SCALE : 3/32" = 1'-0" BLDGS. L



1 A4.5 OVERALL FLOOR PLAN

SCALE : 3/32" = 1'-0" BLDGS. L

EXTERIOR FINISH MATERIAL SELECTIONS

ITEM:	MATERIAL / STYLE:	COLOR:
DECORATIVE LOUVER	VINYL	WHITE
ASPHALT SHINGLES	DIMENSIONAL 30 YEAR LAMINATED	WEATHERED WOOD
GUTTERS AND DOWNSPOUTS	PREFINISHED ALUMINUM	WHITE
HORIZONTAL SIDING	VINYL	VARIES
SHAKES	VINYL	VARIES
CORNER TRIM	VINYL	WHITE
STONE VENEER	PRESTIGE	OHIO WHITE VEIN
OVERHEAD GARAGE DOOR	RAISED PANEL PAN STEEL	WHITE
SINGLE HUNG	VINYL	STANDARD WHITE WITH COLONIAL PATTERN FLAT GRIDS

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BUILDING PLAN AND ELEVATIONS

PROJECT #: 12819

DATE: SEPTEMBER 3, 2019

REDWOOD DEWITT CLARK ROAD

CLARK ROAD
DEWITT TWP, MI

Redwood

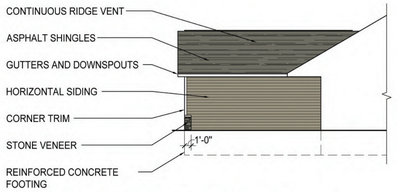
A4.5


Meadowood
1,327 sqft
Redwood
APARTMENT NEIGHBORHOODS
Forestwood
1,294 sqft
Redwood
APARTMENT NEIGHBORHOODS
Capewood
1,620 sqft
Redwood
APARTMENT NEIGHBORHOODS

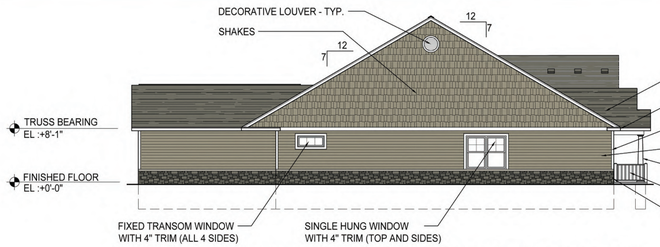


Redwood

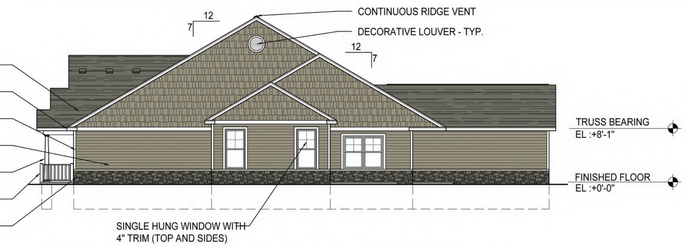
REDWOOD - HAYDENWOOD



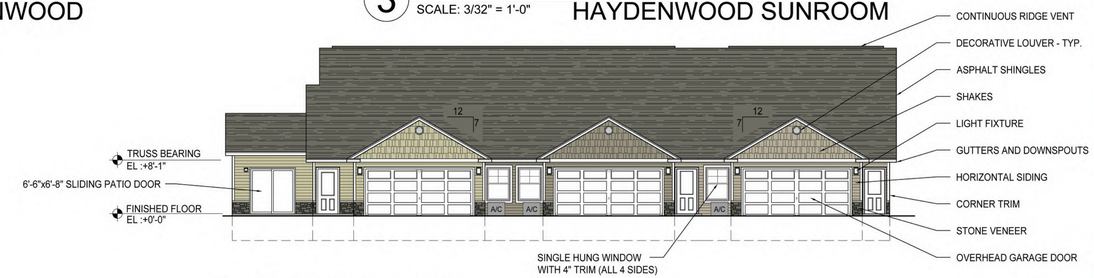
5 PARTIAL SIDE ELEVATION
SCALE: 1" = 1'-0" HAYDENWOOD



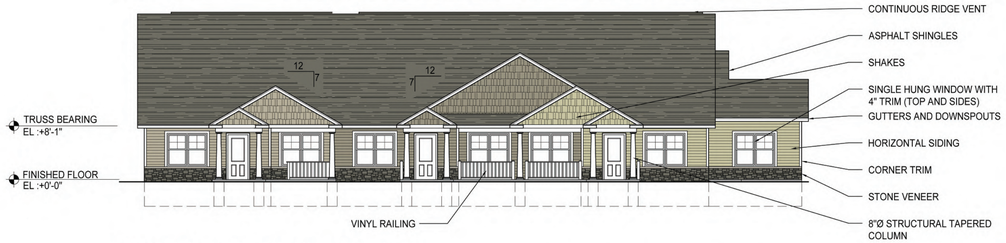
4 HIGH PROFILE SIDE ELEVATION
SCALE: 3/32" = 1'-0" HAYDENWOOD



3 HIGH PROFILE SIDE ELEVATION
SCALE: 3/32" = 1'-0" HAYDENWOOD SUNROOM



2 REAR ELEVATION
SCALE: 1" = 1'-0" HAYDENWOOD, HAYDENWOOD SUNROOM

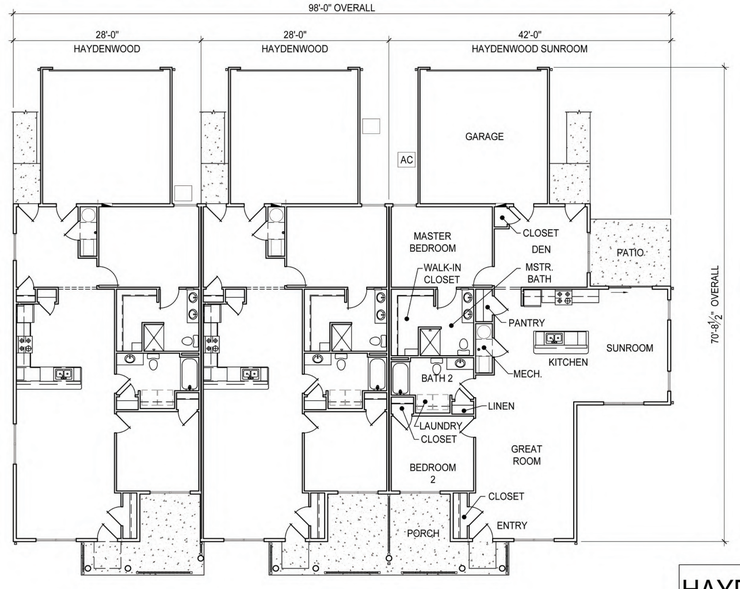


1 FRONT ELEVATION
SCALE: 1" = 1'-0" HAYDENWOOD, HAYDENWOOD SUNROOM

EXTERIOR FINISH MATERIAL SELECTIONS

ITEM:	MATERIAL / STYLE:	COLOR:
DECORATIVE LOUVER	VINYL	WHITE
ASPHALT SHINGLES	DIMENSIONAL 30 YEAR LAMINATED	WEATHERED WOOD
GUTTERS AND DOWNSPOUTS	PREFINISHED ALUMINUM	WHITE
HORIZONTAL SIDING	VINYL	VARIES
SHAKES	VINYL	VARIES
CORNER TRIM	VINYL	WHITE
STONE VENEER	PRESTIGE	OHIO WHITE VEIN
OVERHEAD GARAGE DOOR	RAISED PANEL PAN STEEL	WHITE
SINGLE HUNG	VINYL	STANDARD WHITE WITH COLONIAL PATTERN FLAT GRIDS
6'-6" X 6'-8" SLIDING PATIO DOOR	VINYL	WHITE

NOTE:
ADDRESS FOR EACH UNIT TO BE PLACED IN SUCH A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD.



HAYDENWOOD

OVERALL FLOOR PLAN
SCALE : 3/32" = 1'-0" BUILDING 'A'

PRELIMINARY

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BUILDING FLOOR PLAN AND ELEVATIONS

PROJECT #: 34919

DATE: JUNE 1, 2020

REDWOOD PORTAGE LOVERS LANE

LOVERS LANE, PORTAGE MI

Redwood APARTMENT NEIGHBORHOODS

A1.2


Willowood
1,381 sqft
Redwood
APARTMENT NEIGHBORHOODS